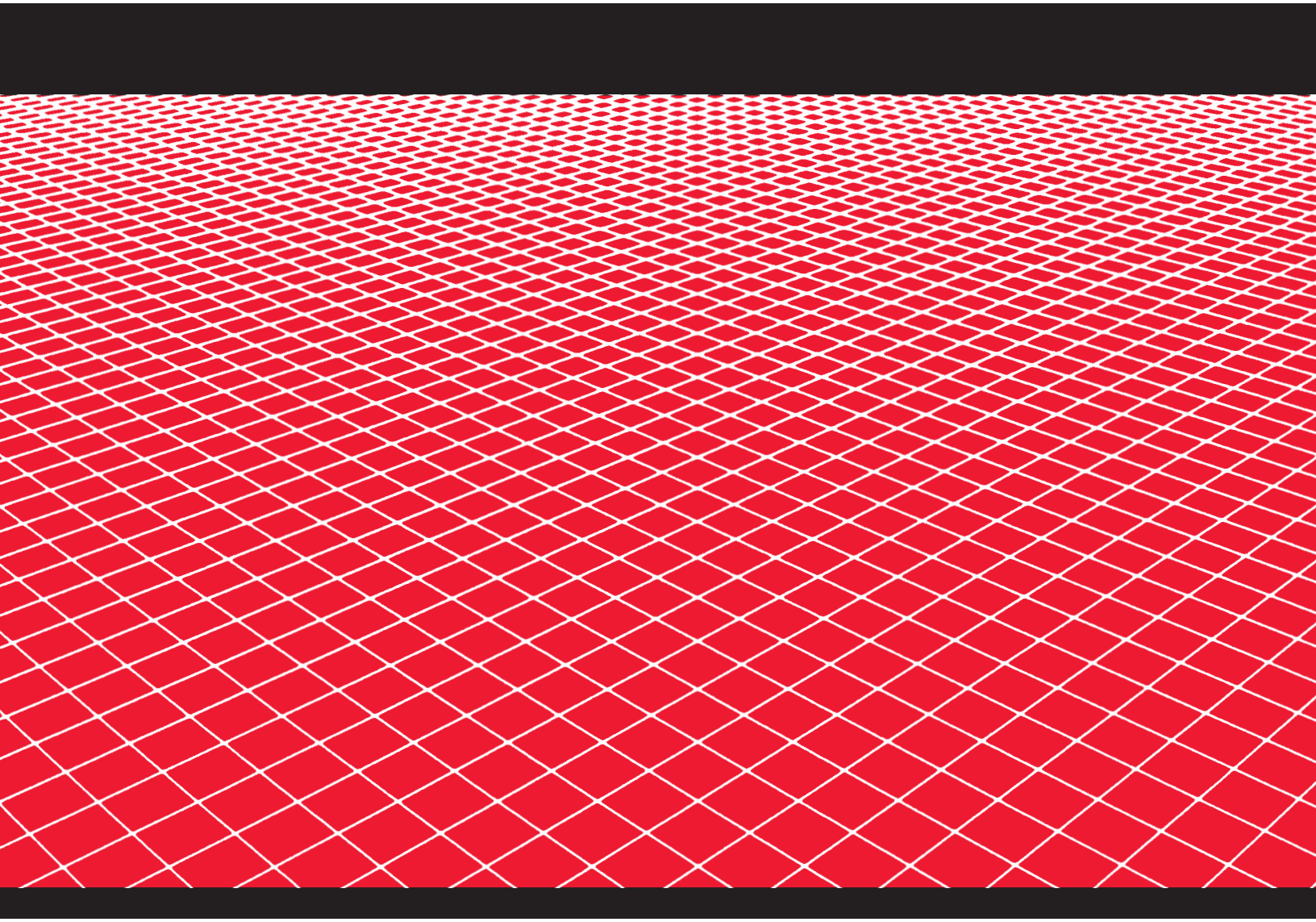
HONDA

SHOP MANUAL

CBR1000RR/RA/S1/S2



CBR1000RR/RA/S1/S2H

A Few Words About Safety

Service Information

The service and repair information contained in this manual is intended for use by qualified, professional technicians.

Attempting service or repairs without the proper training, tools, and equipment could cause injury to you or others. It could also damage the vehicle or create an unsafe condition.

This manual describes the proper methods and procedures for performing service, maintenance and repairs. Some procedures require the use of specially designed tools and dedicated equipment. Any person who intends to use a replacement part, service procedure or a tool that is not recommended by Honda, must determine the risks to their personal safety and the safe operation of the vehicle.

If you need to replace a part, use genuine Honda parts with the correct part number or an equivalent part. We strongly recommend that you do not use replacement parts of inferior quality.

For Your Customer's Safety

Proper service and maintenance are essential to the customer's safety and the reliability of the vehicle. Any error or oversight while servicing a vehicle can result in faulty operation, damage to the vehicle, or injury to others.

⚠WARNING

Improper service or repairs can create an unsafe condition that can cause your customer to be seriously hurt or killed.

Follow the procedures and precautions in this manual and other service materials carefully.

For Your Safety

Because this manual is intended for the professional service technician, we do not provide warnings about many basic shop safety practices (e.g., Hot parts–wear gloves). If you have not received shop safety training or do not feel confident about your knowledge of safe servicing practice, we recommended that you do not attempt to perform the procedures described in this manual.

Some of the most important general service safety precautions are given below. However, we cannot warn you of every conceivable hazard that can arise in performing service and repair procedures. Only you can decide whether or not you should perform a given task.

⚠WARNING

Failure to properly follow instructions and precautions can cause you to be seriously hurt or killed.

Follow the procedures and precautions in this manual carefully.

Important Safety Precautions

Make sure you have a clear understanding of all basic shop safety practices and that you are wearing appropriate clothing and using safety equipment. When performing any service task, be especially careful of the following:

- Read all of the instructions before you begin, and make sure you have the tools, the replacement or repair parts, and the skills required to perform the tasks safely and completely.
- Protect your eyes by using proper safety glasses, goggles or face shields any time you hammer, drill, grind, pry or work around pressurized air or liquids, and springs or other stored-energy components. If there is any doubt, put on eye protection.
- Use other protective wear when necessary, for example gloves or safety shoes. Handling hot or sharp parts can cause severe burns or cuts. Before you grab something that looks like it can hurt you, stop and put on gloves.
- Protect yourself and others whenever you have the vehicle up in the air. Any time you lift the vehicle, either with a hoist or a jack, make sure that it is always securely supported. Use jack stands.

Make sure the engine is off before you begin any servicing procedures, unless the instruction tells you to do otherwise. This will help eliminate several potential hazards:

- Carbon monoxide poisoning from engine exhaust. Be sure there is adequate ventilation whenever you run the engine
- Burns from hot parts or coolant. Let the engine and exhaust system cool before working in those areas.
- Injury from moving parts. If the instruction tells you to run the engine, be sure your hands, fingers and clothing are out of the way.

Gasoline vapors and hydrogen gases from batteries are explosive. To reduce the possibility of a fire or explosion, be careful when working around gasoline or batteries.

- Use only a nonflammable solvent, not gasoline, to clean parts.
- Never drain or store gasoline in an open container.
- Keep all cigarettes, sparks and flames away from the battery and all fuel-related parts.

How To Use This Manual

This manual describes the service procedures for the CBR1000RR/RA/S1/S2.

Sections 1 and 4 apply to the whole vehicle. Section 3 illustrates procedures for removal/installation of components that may be required to perform service described in the following sections.
Section 5 through 22 describe parts of the motorcycle, grouped according to location.

Follow the Maintenance Schedule recommendations to ensure that the vehicle 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.

Refer to the troubleshooting in each section according to the malfunction or symptom. In case of an engine trouble, refer to PGM-FI section troubleshooting first.

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 vehicle.
You must use your own good judgement.
You will find important safety information in a variety of forms including:

- Safety Labels – on the vehicle
- 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 vehicle 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 vehicle, 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. • Multi-purpose M-2 manufactured by Mitsubishi Oil, Japan
	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. • Rocol Paste manufactured by Sumico Lubricant, Japan
	Use silicone grease.
	Apply a locking agent. Use a medium strength locking agent unless otherwise specified.
	Apply sealant.
	Use DOT 4 brake fluid. Use the recommended brake fluid unless otherwise specified.
	Use fork or suspension fluid.

CONTENTS

MEMO

1. GENERAL INFORMATION

SERVICE RULES

1. Use Honda genuine or Honda-recommended parts and lubricants or their equivalents. Parts that don't meet Honda's design specifications may cause damage to the motorcycle.
2. Use the special tools designed for this product to avoid damage and incorrect assembly.
3. Use only metric tools when servicing the motorcycle. Metric bolts, nuts and screws are not interchangeable with English fasteners.
4. Install new gaskets, O-rings, cotter pins, and lock plates when reassembling.
5. When tightening bolts or nuts, begin with the larger diameter or inner bolt first. Then tighten to the specified torque diagonally in incremental steps unless a particular sequence is specified.
6. Clean parts in cleaning solvent upon disassembly. Lubricate any sliding surfaces before reassembly.
7. After reassembly, check all parts for proper installation and operation.
8. Route all electrical wires as shown in the Cable and Harness Routing (page 1-23).
9. Do not bend or twist control cables. Damaged control cables will not operates smoothly and may stick or bind.

ABBREVIATION

Throughout this manual, the following abbreviations are used to identify the respective parts or systems.

Abbrev. term	Full term
ABS	Anti-lock Brake System
APS	Accelerator Position Sensor
CKP sensor	Crankshaft Position sensor
CMP sensor	Camshaft Position sensor
DLC	Data Link Connector
DTC	Diagnostic Trouble Code
ECM	Engine Control Module
ECT sensor	Engine Coolant Temperature sensor
EEPROM	Electrically Erasable Programmable Read Only Memory
ECV	Exhaust Control Valve
ECV POT	Exhaust Control Valve Potentiometer
EGCA	Exhaust Gas Control Actuator
EOP switch	Engine Oil Pressure switch
EVAP	Evaporative Emission
HESD	Honda Electronic Steering Damper
HISS	Honda Ignition Security System
IAT sensor	Intake Air Temperature sensor
IMU	Inertia Measurement Unit
MAP sensor	Manifold Absolute Pressure sensor
MCS	Motorcycle Communication System
MIL	Malfunction Indicator Lamp
PAIR	Pulsed Secondary Air Injection
PGM-FI	Programmed Fuel Injection
SCS short connector	Service Check Signal short connector
SCU	Suspension Control Unit
TBW	Throttle By Wire
TP sensor	Throttle Position sensor
VS sensor	Vehicle Speed sensor

DESTINATION CODES

Throughout this manual, the following codes are used to identify individual types for each region.

DESTINATION CODE	REGION
IIBR	Brazil
CH, IICH	China
ED, IIED	European direct sales (Includes France, Turkey, South Africa and Ukraine)
FO, IIFO	Taiwan
GS, IIGS	Gulf countries
II-IN	Indonesia
KO, IIKO	Korea
RU, IIRU	Russia
TH, IITH	Thailand
U, IIU	Australia, New Zealand

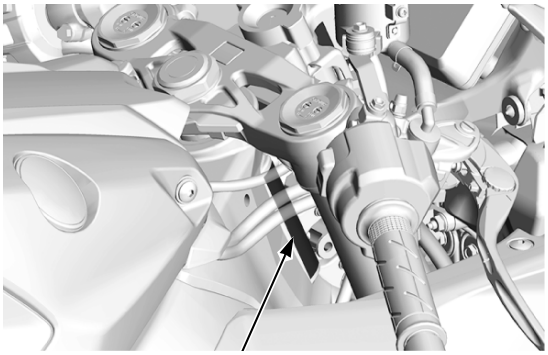
MODEL IDENTIFICATION

CBR1000RR/RA

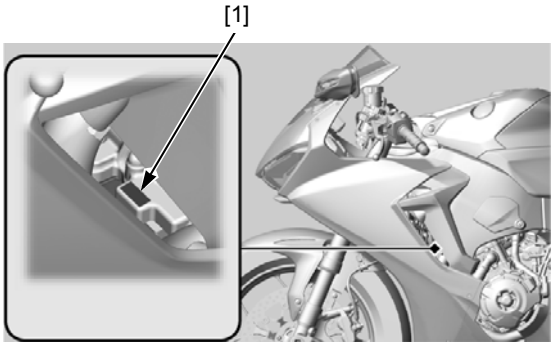
CBR1000S1/S2

SERIAL NUMBERS/LABELS

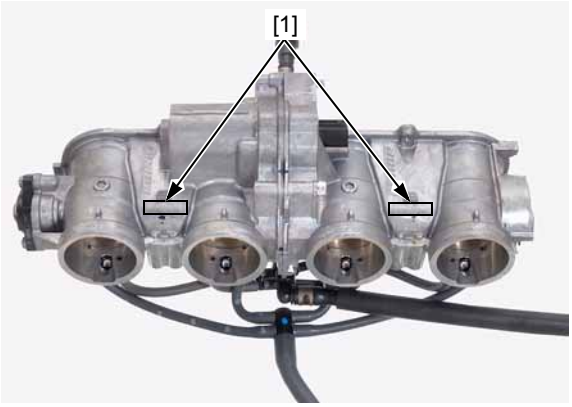
The Vehicle Identification Number (VIN) [1] is stamped on the right side of the steering head as shown.



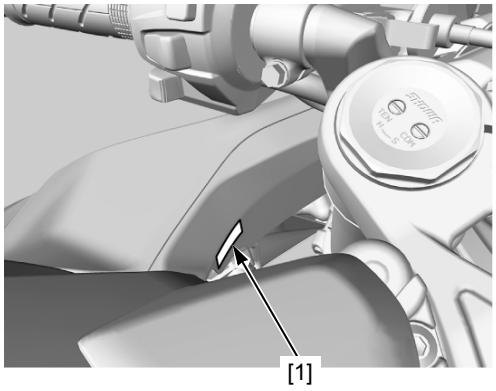
The engine serial number [1] is stamped on the front side of the lower crankcase.



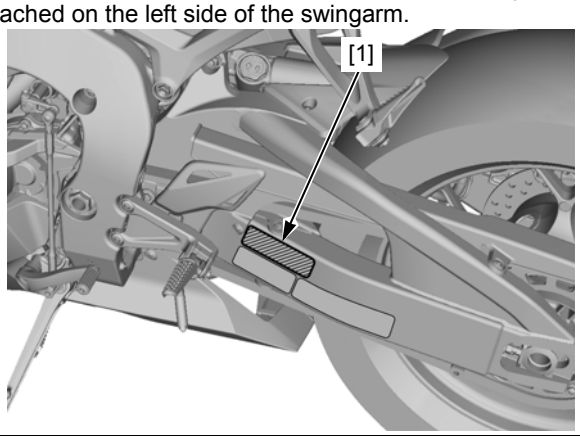
The throttle body identification numbers [1] are stamped on the front lower surfaces of the throttle body.



The color label [1] (CH/ED/KO/RU/U only) is attached on the left air duct cover. When ordering color-coded parts, always specify the designated color code.



The emission control information label [1] (BR/KO types) is attached on the left side of the swingarm.



TYPES

Model	Destination code	ABS	Quick shifter	Electric suspension	Lithium-ion battery	EVAP
CBR1000RR	GS/IIGS	–	–	–	–	–
CBR1000RA	IIBR	○	–	–	–	○
	CH/IICH	○	–	–	–	○
	ED/IIED	○	–	–	–	○
	FO/IIFO	○	–	–	–	○
	GS/IIGS	○	–	–	–	–
	II-IN	○	–	–	–	–
	KO/IIKO	○	–	–	–	○
	RU/IIRU	○	–	–	–	–
	TH/IITH	○	–	–	–	○
	U/IIU	○	–	–	–	–
CBR1000S1	IIBR	○	○	○	○	○
	IICH	○	○	○	○	○
	IIED	○	○	○	○	○
	IIFO	○	○	○	○	○
	IIGS	○	○	○	○	–
	II-IN	○	○	○	○	–
	IIKO	○	○	○	○	○
	IIRU	○	○	○	○	–
	IITH	○	○	○	○	○
	IIU	○	○	○	○	–
CBR1000S2	IIED	○	○	○	○	○
	IIU	○	○	○	○	–

SPECIFICATIONS

GENERAL SPECIFICATIONS

ITEM			SPECIFICATIONS
DIMENSIONS	Overall length		2,065 mm (81.3 in)
	Overall width		720 mm (28.3 in)
	Overall height		1,125 mm (44.3 in)
	Wheelbase		Except CH/FO: 1,405 mm (55.3 in)
			CH/FO: 1,415 mm (55.7 in)
	Seat height	CBR1000RR/RA	832 mm (32.8 in)
		CBR1000S1/S2	834 mm (32.8 in)
	Footpeg height	CBR1000RR/RA	394 mm (15.5 in)
		CBR1000S1/S2	396 mm (15.6 in)
	Ground clearance	CBR1000RR/RA	130 mm (5.1 in)
		CBR1000S1/S2	Except BR/FO: 130 mm (5.1 in)
			BR/FO: 129 mm (5.1 in)
	Curb weight	CBR1000RR	193 kg (425 lbs)
		CBR1000RA	Except CH/FO/KO/TH: 196 kg (432 lbs)
			FO/TH: 197 kg (434 lbs)
			KO: 200 kg (441 lbs)
			CH: 198 kg (437 lbs)
		CBR1000S1	Except CH/FO/TH: 195 kg (430 lbs)
			FO/TH: 196 kg (432 lbs)
			CH: 197 kg (434 lbs)
		CBR1000S2	
	Maximum weight capacity	CBR1000RR/RA	Except KO: 180 kg (397 lbs)
			KO:
		CBR1000S1/S2	Except KO: 110 kg (243 lbs)
			KO:
FRAME	Frame type		Diamond
	Front suspension		Telescopic fork
	Front axle travel		110 mm (4.3 in)
	Rear suspension		Swingarm
	Rear axle travel	CBR1000RR/RA	Except FO/CH: 137 mm (5.4 in)
			FO/CH: 139 mm (5.5 in)
		CBR1000S1/S2	Except FO/CH: 133 mm (5.2 in)
			FO/CH: 135 mm (5.3 in)
	Front tire size		120/70ZR17 M/C (58W)
	Rear tire size		190/50ZR17 M/C (73W)
	Front tire brand	CBR1000RR/RA	S21F E (BRIDGESTONE), D214F Y (DUNLOP)
		CBR1000S1/S2	RS10F N (BRIDGESTONE), DIABLO SUPERCORSA SP (PIRELLI)
	Rear tire brand	CBR1000RR/RA	S21R E (BRIDGESTONE), D214 Y (DUNLOP)
		CBR1000S1/S2	RS10R N (BRIDGESTONE), DIABLO SUPERCORSA SP (PIRELLI)
	Front brake		Hydraulic double disc
	Rear brake		Hydraulic single disc
	Caster angle		23.21°
	Trail length		97 mm (3.8 in)
	Fuel tank capacity		16.2 liters (4.28 US gal, 3.56 Imp gal)
	Fuel tank reserve capacity		4.0 liters (1.06 US gal, 0.88 Imp gal)

ITEM				SPECIFICATIONS
ENGINE	Cylinder arrangement			4 cylinders in-line, inclined 27.6° from vertical
	Bore and stroke			76.0 x 55.1 mm (2.99 x 2.17 in)
	Displacement			1,000 cm^3 (61.0 cu-in)
	Compression ratio			13.0 : 1
	Valve train			Chain driven, DOHC
	Intake valve	opens	at 1 mm (0.04 in) lift	17° BTDC
		closes	at 1 mm (0.04 in) lift	50° ABDC
	Exhaust valve	opens	at 1 mm (0.04 in) lift	43.5° BBDC
		closes	at 1 mm (0.04 in) lift	11.5° ATDC
	Lubrication system			Forced pressure and wet sump
	Oil pump type			Trochoid
	Cooling system			Liquid cooled
	Air filtration			ED/U: Paper element
				Except ED/U: Viscous paper element
	Engine dry weight		CBR1000RR/RA/S1	61.9 kg (136.4 lbs)
			CBR1000S2	
	Emission control system			Crankcase emission control system Secondary air supply system Three-way catalytic converter Except GS/IN/RU/U: Evaporative emission control system
	Firing order			1 - 2 - 4 - 3
	Cylinder number			Left 1 - 2 - 3 - 4
FUEL DELIVERY SYSTEM	Type			PGM-FI
	Throttle bore			48 mm (1.9 in)
DRIVE TRAIN	Clutch system			Multi-plate, wet
	Clutch operation system			Cable operating
	Transmission			Constant mesh, 6-speeds
	Primary reduction			1.717 (79/46)
	Final reduction			2.688 (43/16)
	Gear ratio		1st	2.285 (32/14)
			2nd	1.777 (32/18)
			3rd	1.500 (33/22)
			4th	1.333 (32/24)
			5th	1.214 (34/28)
			6th	1.137 (33/29)
	Gearshift pattern			Left foot operated return system, 1 - N - 2 - 3 - 4 - 5 - 6
ELECTRICAL	Ignition system			Full transistorized ignition
	Starting system			Electric starter motor
	Charging system			Triple phase output alternator
	Regulator/rectifier			FET shorted/triple phase, full wave rectification
	Lighting system			Battery

PGM-FI SPECIFICATIONS

ITEM		SPECIFICATIONS
IAT sensor resistance (at 40°C/104°F)		1 – 2 kΩ
Fuel injector resistance (at 20°C /68°F)	Primary injector	11 – 13 Ω
	Secondary injector	11 – 13 Ω
PAIR control solenoid valve resistance (at 20°C/68°F)		23 – 27 Ω
EVAP purge control solenoid valve resistance (at 20°C/ 68°F)		30 – 34 Ω
CMP sensor peak voltage		4.8 V minimum

IGNITION SYSTEM SPECIFICATIONS

ITEM			SPECIFICATIONS
Spark plug (Iridium)	Except CBR1000S2	NGK	IMR9E-9HES
		DENSO	VUH27ES
	CBR1000S2 only	NGK	SILMAR10C9S
Spark plug gap			0.80 – 0.90 mm (0.031 – 0.035 in)
CKP sensor peak voltage			0.7 V minimum
Ignition timing ("F" mark)			3.3° BTDC at idle

FUEL SYSTEM SPECIFICATIONS

ITEM	SPECIFICATIONS
Throttle body identification number	GNK2A
Idle speed	1,200 ± 100 min^{-1} (rpm)
Fuel pressure at idle	392 kPa (4.0 kgf/cm^2, 56.9 psi)
Fuel pump flow (at 12 V)	414 cm^3 (14.0 US oz, 14.6 Imp oz) minimum/10 seconds
CO concentration	0.1 % maximum
HC concentration	10 ppm maximum

COOLING SYSTEM SPECIFICATIONS

ITEM		SPECIFICATIONS
Coolant capacity	Replacement	2.27 liters (2.40 US qt, 2.00 Imp qt)
	After disassembly	2.78 liters (2.94 US qt, 2.45 Imp qt)
Radiator cap relief pressure		108 – 137 kPa (1.1 – 1.4 kgf/cm^2, 16 – 20 psi)
Thermostat	Begin to open	80 – 84°C (176 – 183°F)
	Fully open	95°C (203°F)
	Valve lift	8 mm (0.3 in) minimum
Recommended antifreeze	Except IN, TH	High quality ethylene glycol antifreeze containing silicate-free corrosion inhibitors
	IN, TH	Honda PRE-MIX Coolant
Standard coolant concentration	Except IN, TH	1:1 mixture with distilled water

LUBRICATION SYSTEM SPECIFICATIONS

Unit: mm (in)

ITEM		STANDARD	SERVICE LIMIT
Engine oil capacity	After draining	2.5 liters (2.6 US qt, 2.2 Imp qt)	–
	After oil filter change	2.7 liters (2.9 US qt, 2.4 Imp qt)	–
	After disassembly	3.4 liters (3.6 US qt, 3.0 Imp qt)	–
Recommended engine oil		Honda "4-stroke motorcycle oil" or an equivalent motor oil. API service classification: SG or higher JASO T903 standard: MA Viscosity: SAE 10W-30	–
Oil pressure at EOP switch		90 kPa (0.92 kgf/cm^2, 13 psi) at 1200 min^{-1} (rpm)/(80°C/176°F)	–

CYLINDER HEAD/VALVES SPECIFICATIONS

Unit: mm (in)

ITEM				STANDARD	SERVICE LIMIT
Cylinder compression				1,299 kPa (13.25 kgf/cm^2, 188 psi) at 300 min^{-1} (rpm)	–
Valve clearance			IN	0.16 ± 0.03 (0.006 ± 0.001)	–
			EX	0.30 ± 0.03 (0.012 ± 0.001)	–
Camshaft	Cam lobe height	Except CBR1000 S2	IN	37.74 – 37.98 (1.486 – 1.495)	37.71 (1.485)
			EX	36.98 – 37.22 (1.456 – 1.465)	36.95 (1.455)
		CBR1000 S2 only	IN	37.34 – 37.58 (1.470 – 1.480)	37.31 (1.469)
			EX	36.58 – 36.82 (1.440 – 1.450)	36.55 (1.439)
	Oil clearance			0.020 – 0.062 (0.0008 – 0.0024)	0.10 (0.004)
Valve lifter	Valve lifter O.D.		IN/EX	25.978 – 25.993 (1.0228 – 1.0233)	25.968 (1.022)
	Valve lifter bore I.D.		IN/EX	26.010 – 26.026 (1.0240 – 1.0246)	26.036 (1.025)
Valve, valve guide	Valve stem O.D.		IN	4.475 – 4.490 (0.1762 – 0.1768)	4.465 (0.1758)
			EX	3.965 – 3.980 (0.1561 – 0.1567)	3.955 (0.1557)
	Valve guide I.D.		IN	4.500 – 4.512 (0.1772 – 0.1776)	4.542 (0.1788)
			EX	4.000 – 4.012 (0.1575 – 0.1580)	4.042 (0.1591)
	Valve guide projection above cylinder head		IN	14.4 – 14.7 (0.57 – 0.58)	–
			EX	15.7 – 16.0 (0.62 – 0.63)	–
	Valve seat width		IN/EX	0.90 – 1.10 (0.035 – 0.043)	1.5 (0.06)
Valve spring free length	Except CBR1000S2	IN	Inner	34.19 (1.346)	33.51 (1.319)
			Outer	38.22 (1.505)	37.46 (1.475)
		EX	Inner	34.87 (1.373)	34.17 (1.345)
			Outer	40.55 (1.596)	39.74 (1.565)
	CBR1000S2 only	IN	Inner	36.76 (1.447)	36.02 (1.418)
			Outer	39.70 (1.563)	38.90 (1.531)
		EX		39.39 (1.551)	38.60 (1.520)
Cylinder head warpage				–	0.10 (0.004)

CLUTCH/STARTER CLUTCH/GEARSHIFT LINKAGE SPECIFICATIONS

Unit: mm (in)

ITEM			STANDARD	SERVICE LIMIT
Clutch lever freeplay			10 – 20 (0.4 – 0.8)	–
Clutch	Spring free height		58.9 (2.32)	57.9 (2.28)
	Disc thickness		3.22 – 3.38 (0.127 – 0.133)	3.0 (0.12)
	Plate warpage		–	0.30 (0.012)
Clutch outer guide	A (Two O.D. code mark)	I.D.	27.993 – 28.003 (1.1021 – 1.1025)	–
		O.D.	35.007 – 35.012 (1.3782 – 1.3784)	–
	B (Three O.D. code mark)	I.D.	27.993 – 28.003 (1.1021 – 1.1025)	–
		O.D.	35.001 – 35.007 (1.3780 – 1.3782)	–
	C (Four O.D. code mark)	I.D.	27.993 – 28.003 (1.1021 – 1.1025)	–
		O.D.	34.996 – 35.001 (1.3778 – 1.3780)	–
Primary driven gear I.D.		Blue	41.011 – 41.016 (1.6146 – 1.6148)	–
		Yellow	41.005 – 41.011 (1.6144 – 1.6146)	–
		Green	41.000 – 41.005 (1.6142 – 1.6144)	–
Oil pump drive sprocket guide		I.D.	28.000 – 28.021 (1.1024 – 1.1032)	–
		O.D.	34.975 – 34.991 (1.3770 – 1.3776)	–
Oil pump drive sprocket I.D.			35.025 – 35.145 (1.3789 – 1.3837)	–
Mainshaft O.D. at clutch outer guide			27.980 – 27.990 (1.1016 – 1.1020)	–
Mainshaft O.D. at oil pump drive sprocket guide			27.980 – 27.990 (1.1016 – 1.1020)	–
Starter driven gear boss O.D.			45.657 – 45.673 (1.7975 – 1.7981)	–

CRANKCASE/TRANSMISSION/BALANCER SPECIFICATIONS

Unit: mm (in)

ITEM			STANDARD	SERVICE LIMIT
Shift fork, fork shaft	Fork I.D.		14.000 – 14.018 (0.5512 – 0.5519)	–
	Fork shaft O.D.		13.957 – 13.975 (0.5495 – 0.5502)	–
	Claw thickness		5.93 – 6.00 (0.233 – 0.236)	5.83 (0.230)
Transmission	Gear I.D.	M5, M6	31.000 – 31.025 (1.2205 – 1.2215)	–
		C2, C3, C4	33.000 – 33.025 (1.2992 – 1.3002)	–
	Gear bushing O.D.	M5	30.955 – 30.980 (1.2187 – 1.2197)	–
		M6	30.950 – 30.975 (1.2185 – 1.2195)	–
		C2	32.955 – 32.980 (1.2974 – 1.2984)	–
		C3, C4	32.950 – 32.975 (1.2972 – 1.2982)	–
	Gear bushing I.D.	M5	27.985 – 28.006 (1.1018 – 1.1026)	–
		C2	29.985 – 30.006 (1.1530 – 1.1813)	–
	Mainshaft O.D.	at M5	27.967 – 27.980 (1.1011 – 1.1016)	–
	Countershaft O.D.	at C2	29.967 – 29.980 (1.1798 – 1.1803)	–

CRANKSHAFT/PISTON/CYLINDER SPECIFICATIONS

Unit: mm (in)

ITEM				STANDARD	SERVICE LIMIT
Connecting rod	Side clearance			0.15 – 0.30 (0.006 – 0.012)	0.35 (0.014)
Crankshaft	Main journal oil clearance			0.019 – 0.037 (0.0007 – 0.0015)	0.05 (0.002)
	Runout			–	0.05 (0.002)
Crankpin bearing oil clearance				0.030 – 0.052 (0.0012 – 0.0020)	0.072 (0.003)
Cylinder	I.D.			76.000 – 76.015 (2.9921 – 2.9927)	76.100 (2.9961)
	Warpage			–	0.10 (0.004)
Piston, piston pin	Piston O.D.			75.966 – 75.987 (2.9908 – 2.9916) at 5 mm (0.2 in) from bottom	75.885 (2.9876)
	Piston pin bore I.D.			17.002 – 17.008 (0.6694 – 0.6696)	17.020 (0.6701)
	Piston pin O.D.			16.994 – 17.000 (0.6691 – 0.6693)	16.980 (0.6685)
Piston rings	Piston ring end gap		Top	0.22 – 0.32 (0.009 – 0.126)	0.42 (0.017)
			Second	0.45 – 0.55 (0.018 – 0.022)	0.65 (0.026)
			Oil (side rail)	0.15 – 0.40 (0.006 – 0.016)	0.60 (0.024)
	Piston ring-to-ring groove clearance	Except CBR1000S2	Top	0.015 – 0.050 (0.0006 – 0.0020)	–
			Second	0.015 – 0.050 (0.0006 – 0.0020)	–
		CBR1000S2 only	Top	0.030 – 0.065 (0.0012 – 0.0026)	–
			Second	0.015 – 0.050 (0.0006 – 0.0020)	–
Connecting rod small end I.D.				17.030 – 17.042 (0.6705 – 0.6709)	17.052 (0.6713)

FRONT WHEEL/SUSPENSION/STEERING SPECIFICATIONS

CBR1000RR/RA

Unit: mm (in)

ITEM			STANDARD	SERVICE LIMIT
HESD linear solenoid resistance (at 20°C/68°F)			10 – 15 Ω	–
Cold tire pressure	Driver only		250 kPa (2.50 kgf/cm^2, 36 psi)	–
	Driver and passenger		250 kPa (2.50 kgf/cm^2, 36 psi)	–
Axle runout			–	0.1 (0.004)
Wheel rim runout		Radial	–	0.3 (0.012)
		Axial	–	0.3 (0.012)
Wheel balance weight			60 g (2.1 oz) max.	–
Fork	Spring free length		230.7 (9.08)	226.1 (8.90)
	Recommended fork fluid		Honda Ultra Cushion Oil SS-47 (10W) or equivalent	–
	Fluid level		84 (3.3)	–
	Fluid capacity		515 ± 2.5 cm^3 (17.4 ± 0.08 US oz, 18.1 ± 0.09 Imp oz)	–
	Pre-load adjuster initial setting		7-1/2 turns clockwise from softest position	–
	Rebound damping adjuster initial setting		4 turns out from hardest position	–
	Compression damping adjuster initial setting		5 turns out from hardest position	–

CBR1000S1/S2

Unit: mm (in)

ITEM			STANDARD	SERVICE LIMIT
HESD linear solenoid resistance (at 20°C/68°F)			10 – 15 Ω	–
Cold tire pressure			250 kPa (2.50 kgf/cm^2, 36 psi)	–
Axle runout			–	0.1 (0.004)
Wheel rim runout		Radial	–	0.3 (0.012)
		Axial	–	0.3 (0.012)
Wheel balance weight			60 g (2.1 oz) max.	–
Fork	Pre-load adjuster initial setting		4 turns clockwise from softest position	–

REAR WHEEL/SUSPENSION SPECIFICATIONS

CBR1000RR/RA

Unit: mm (in)

ITEM			STANDARD	SERVICE LIMIT
Cold tire pressure	Driver only		290 kPa (2.90 kgf/cm^2, 42 psi)	–
	Driver and passenger		290 kPa (2.90 kgf/cm^2, 42 psi)	–
Axle runout			–	0.1 (0.004)
Wheel rim runout	Radial		–	0.3 (0.012)
	Axial		–	0.3 (0.012)
Wheel balance weight			60 g (2.1 oz) max.	–
Drive chain sack			25 – 35 (1.0 – 1.4)	–
Drive chain size/link		RK	RK525ROZ7/116L	–
Shock absorber	Spring pre-load adjuster standard position		4 position from softest position	–
	Rebound damping adjuster initial setting		2-1/2 turns out from hardest position	–
	Compression damping adjuster initial setting		3 turns out from hardest position	–

CBR1000S1/S2

Unit: mm (in)

ITEM			STANDARD	SERVICE LIMIT
Cold tire pressure			290 kPa (2.90 kgf/cm^2, 42 psi)	–
Axle runout			–	0.1 (0.004)
Wheel rim runout	Radial		–	0.3 (0.012)
	Axial		–	0.3 (0.012)
Wheel balance weight			60 g (2.1 oz) max.	–
Drive chain	Size/link	RK	RK525ROZ7/116L	–
	Slack		25 – 35 (1.0 – 1.4)	–
Shock absorber	Spring pre-load adjuster standard position		8 turns from hardest position	–

HYDRAULIC BRAKE SPECIFICATIONS

Unit: mm (in)

ITEM			STANDARD	SERVICE LIMIT
Front	Specified brake fluid		DOT 4	–
	Brake disc thickness		4.4 – 4.6 (0.17 – 0.18)	3.5 (0.14)
	Brake disc warpage		–	0.15 (0.006)
	Master cylinder I.D.		17.460 – 17.503 (0.6874 – 0.6891)	–
	Master piston O.D.		17.321 – 17.367 (0.6819 – 0.6837)	–
	Caliper cylinder I.D. (CBR1000RR/RA)	A	32.080 – 32.130 (1.2630 – 1.2650)	–
		B	30.280 – 30.330 (1.1921 – 1.1941)	–
	Caliper piston O.D. (CBR1000S1/S2)	A	31.967 – 32.000 (1.2585 – 1.2598	–
		B	30.167 – 30.200 (1.1877 – 1.1890)	–
Rear	Specified brake fluid		DOT 4	–
	Brake disc thickness		4.8 – 5.2 (0.19 – 0.20)	4.0 (0.16)
	Brake disc warpage		–	0.25 (0.01)
	Master cylinder I.D.		14.000 – 14.043 (0.5512 – 0.5529)	–
	Master piston O.D.		13.957 – 13.984 (0.5495 – 0.5506)	–
	Caliper cylinder I.D.		30.230 – 30.280 (1.1902 – 1.1921)	–
	Caliper piston O.D.		30.082 – 30.115 (1.1843 – 1.1856)	–

BATTERY/CHARGING SYSTEM SPECIFICATIONS

CBR1000RR/RA

ITEM			SPECIFICATIONS
Battery	Type		YTZ7S
	Capacity		12 V – 6 Ah (10HR)
	Voltage (at 20°C/68°F)	Fully charged	13.0 – 13.2 V
		Needs charging	Below 12.4 V
	Charging current	Normal	0.6 A/5 – 10 h
		Quick	3 A/1 h
Current leakage			0.1 mA max.
Alternator capacity			0.42 kW/5,000 min^{-1} (rpm)
Alternator charging coil resistance (at 20°C/68°F)			0.1 – 1.0 Ω

BATTERY/CHARGING SYSTEM SPECIFICATIONS (CBR1000S1/S2)

ITEM			SPECIFICATIONS
Battery	Type		HY93
	Capacity		12 V – 4.5 Ah (20HR)
	Voltage (at 20°C/68°F)	Fully charged	13.5 – 14.0 V
		Needs charging	Below 10.8 V
Current leakage			0.1 mA max.
Alternator capacity			0.42 kW/5,000 min^{-1} (rpm)
Alternator charging coil resistance (at 20°C/68°F)			0.1 – 1.0 Ω

LIGHTS/METERS/SWITCHES SPECIFICATIONS

ITEM			SPECIFICATIONS
Bulbs	Headlight	Hi	LED
		Lo	LED
	Position light		LED
	Brake/taillight		LED
	License light		LED
	Turn signal light	Except CH	LED
		CH	12 V – 21 W x 4
	Instrument light		LED
	Turn signal indicator		LED
	High beam indicator		LED
	Neutral indicator		LED
	MIL		LED
	HISS indicator		LED
	Low fuel indicator		LED
	ABS indicator (CBR1000RA/S1/S2)		LED
	HESD indicator		LED
	Low oil pressure indicator		LED
	High coolant temperature indicator		LED
	Torque control indicator		LED
	Torque control off indicator		LED
Fuse	Main fuse		30 A
	FI fuse		15 A
	Sub-fuse (CBR1000RA/S1/S2)		10 A x 8, 20 A x 2, 30 A x 2
	Sub-fuse (CBR1000RR)		10 A x 7, 20 A x 2
ECT sensor resistance		50°C (122°F)	6.8 – 7.4 kΩ
		80°C (176°F)	2.1 – 2.7 kΩ

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 (Include SH flange bolt) and nut	10 (1.0, 7)	6 mm screw	9.0 (0.9, 6.6)
		6 mm flange bolt (Include NSHF) and nut	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

FRAME/BODY PANELS/EXHAUST SYSTEM

ITEM	Q'TY	THREAD DIA. (mm)	TORQUE N·m (kgf·m, lbf·ft)	REMARKS
Rear upper cowl special bolt	4	5	1.0 (0.1, 0.7)	
Pillion step holder bolt (CBR1000RR/RA)	4	8	27 (2.8, 20)	
License light cover screw	3	4	0.8 (1, 0.6)	
Seat rail mounting bolt	2	10	44 (4.5, 32)	
Seat rail mounting nut	2	10	54 (5.5, 40)	
Middle cowl special bolt	10	5	1.0 (0.1, 0.7)	
Intake air duct socket screw	2	5	5.2 (0.5, 3.8)	
Windscreen special bolt	4	5	1.0 (0.1, 0.7)	
Front cowl stay mounting bolt	2	8	32 (3.3, 24)	
Under cowl special bolt	2	5	1.0 (0.1, 0.7)	
Under cowl socket screw	2	6	10 (1.0, 7)	
Right rear under cover special bolt (CH/FO/TH only)	1	5	1.0 (0.1, 0.7)	
Canister cover special bolt (KO only)	2	5	1.0 (0.1, 0.7)	
Front fender mounting screw	4	6	12 (1.2, 9)	
Front brake hose 3-way joint bolt	1	6	10 (1.0, 7)	
Front brake hose clamp cap nut	1	6	10 (1.0, 7)	
Sidestand pivot bolt	1	10	10 (1.0, 7)	
Sidestand pivot nut	1	10	37 (3.8, 27)	
Muffler band bolt	1	8	17 (1.7, 13)	
Muffler cover screw	1	6	10 (1.0, 7)	
Exhaust pipe joint nut	8	7	12 (1.2, 9)	
Exhaust pipe stud bolt	8	8	–	See page 2-27

MAINTENANCE

ITEM	Q'TY	THREAD DIA. (mm)	TORQUE N·m (kgf·m, lbf·ft)	REMARKS
Fuel tank mounting bolt	4	6	10 (1.0, 7)	
Air cleaner housing tapping screw	8	4	0.8 (0.1, 0.6)	
Air cleaner element tapping screw	2	4	0.8 (0.1, 0.6)	
Spark plug	4	10	16 (1.6, 12)	
Timing hole cap	1	14	6.0 (0.6, 4.4)	Apply grease to the threads.
Crankshaft hole cap	1	30	8.0 (0.8, 5.9)	Apply grease to the threads.
Oil drain bolt	1	12	30 (3.1, 22)	
Oil filter boss (crankcase side)	1	20	–	Apply locking agent to the threads. See page 3-13
Oil filter cartridge	1	20	26 (2.7, 19)	Apply engine oil to the threads and O-ring.
Rear axle nut	1	24	135 (13.8, 100)	Self-lock nut
Drive sprocket bolt	1	10	54 (5.5, 40)	
Driven sprocket nut	6	10	64 (6.5, 47)	Self-lock nut
Rear master cylinder push rod lock nut	1	8	18 (1.8, 13)	

PGM-FI SYSTEM

ITEM	Q'TY	THREAD DIA. (mm)	TORQUE N·m (kgf·m, lbf·ft)	REMARKS
Bank angle sensor mounting nut	2	5	5.2 (0.5, 3.8)	
ECT sensor	1	12	23 (2.3, 17)	
O_2 sensor	1	12	24.5 (2.5, 18)	
IAT sensor mounting screw	2	5	1.1 (0.1, 0.8)	
APS mounting screw	4	4	2.0 (0.2, 1.5)	
Shift drum angle sensor bolt	2	6	12 (1.2, 9)	
ECM setting plate screw	2	4	0.8 (0.1, 0.6)	
Right handlebar switch screw	2	5	2.5 (0.3, 1.8)	
Shift spindle switch	1	10	12 (1.2, 9)	
Shift spindle switch terminal nut	1	4	1.7 (0.2, 1.3)	
Neutral switch terminal nut	1	4	1.7 (0.2, 1.3)	

IGNITION SYSTEM

ITEM	Q'TY	THREAD DIA. (mm)	TORQUE N·m (kgf·m, lbf·ft)	REMARKS
Timing hole cap	1	14	6.0 (0.6, 4.4)	Apply grease to the threads.

ELECTRIC STARTER

ITEM	Q'TY	THREAD DIA. (mm)	TORQUE N·m (kgf·m, lbf·ft)	REMARKS
Starter motor terminal nut	1	6	10 (1.0, 7)	
Starter motor setting bolt	2	5	4.0 (0.4, 3.0)	Apply locking agent to the threads.
Negative brush mounting screw	1	5	3.7 (0.4, 2.7)	

FUEL SYSTEM

ITEM	Q'TY	THREAD DIA. (mm)	TORQUE N·m (kgf·m, lbf·ft)	REMARKS
Fuel pump mounting nut	6	6	12 (1.2, 9)	See page 7-10
Fuel tank mounting bolt	4	6	10 (1.0, 7)	
Fuel fill cap socket bolt	6	4	1.8 (0.2, 1.3)	
PAIR check valve cover bolt	4	6	12 (1.2, 9)	Apply locking agent to the threads.
Primary fuel rail mounting bolt	4	5	5.1 (0.5, 3.8)	
EVAP canister mounting bolt (Except KO)	2	6	10 (1.0, 7)	
EVAP canister mounting bolt (KO only)	2	6	8.0 (0.8, 5.9)	
ECM setting plate screw	2	4	0.8 (0.1, 0.6)	
Air cleaner housing tapping screw	8	4	0.8 (0.1, 0.6)	
Air cleaner element tapping screw	2	4	0.8 (0.1, 0.6)	
Air fannel screw	6	5	4.2 (0.4, 3.1)	
Shock absorber mounting nut	2	10	44 (4.5, 32)	Self-lock nut

COOLING SYSTEM

ITEM	Q'TY	THREAD DIA. (mm)	TORQUE N·m (kgf·m, lbf·ft)	REMARKS
Water pump assembly bolt	4	6	12 (1.2, 9)	CT bolt
Water pump drain bolt	1	6	12 (1.2, 9)	CT bolt
Thermostat cover bolt	2	6	12 (1.2, 9)	CT bolt

LUBRICATION SYSTEM

ITEM	Q'TY	THREAD DIA. (mm)	TORQUE N·m (kgf·m, lbf·ft)	REMARKS
Oil pump assembly bolt	4	6	12 (1.2, 9)	CT bolt
Oil pump driven sprocket bolt	1	6	15 (1.5, 11)	Apply locking agent to the threads.
Oil cooler bolt	1	20	59 (6.0, 44)	
Oil pipe mounting bolt	2	6	12 (1.2, 9)	Apply locking agent to the threads.

CYLINDER HEAD/VALVES

ITEM	Q'TY	THREAD DIA. (mm)	TORQUE N·m (kgf·m, lbf·ft)	REMARKS
Cylinder head nut	10	9	–	See page 10-24
Camshaft holder bolt	20	6	12 (1.2, 9)	Apply oil to the threads and seating surface.
Cylinder head cover bolt	4	6	10 (1.0, 7)	
Cam sprocket bolt	4	7	20 (2.0, 15)	Apply locking agent to the threads.
CMP sensor rotor bolt	2	6	12 (1.2, 9)	Apply locking agent to the threads.
Cam chain tensioner A pivot bolt	1	6	10 (1.0, 7)	Apply locking agent to the threads.
Cam chain tensioner B pivot bolt	1	24	74 (7.5, 55)	
Cam chain guide A bolt	1	6	12 (1.2, 9)	Apply locking agent to the threads.
Insulator mounting bolt	6	6	12 (1.2, 9)	
Breather plate mounting bolt	3	6	12 (1.2, 9)	Apply locking agent to the threads.
Cylinder stud bolt	10	9	20 (2.0, 15)	

CLUTCH/STARTER CLUTCH/GEARSHIFT LINKAGE

ITEM	Q'TY	THREAD DIA. (mm)	TORQUE N·m (kgf·m, lbf·ft)	REMARKS
Clutch center lock nut	1	25	186 (19.0, 137)	Apply oil to the threads and seating surface. Stake the nut.
Shift drum center bolt	1	8	23 (2.3, 17)	ALOC bolt; replace with a new one.
Shift drum stopper arm pivot bolt	1	6	12 (1.2, 9)	Apply locking agent to the threads.
Gearshift spindle stopper pin	1	8	23 (2.3, 17)	
Starter clutch mounting bolt	1	10	115 (11.7, 85)	Apply oil to the threads and seating surface.
Oil pump drive chain guide mounting bolt	1	6	12 (1.2, 9)	Apply locking agent to the threads.
Spindle setting plate bolt	1	6	12 (1.2, 9)	Apply locking agent to the threads.
Timing hole cap	1	14	6.0 (0.6, 4.4)	Apply grease to the threads.
Crankshaft hole cap	1	30	8.0 (0.8, 5.9)	

ALTERNATOR

ITEM	Q'TY	THREAD DIA. (mm)	TORQUE N·m (kgf·m, lbf·ft)	REMARKS
Stator mounting bolt	4	6	14 (1.4, 10)	Apply locking agent to the threads.
Flywheel bolt	1	10	123 (12.5, 91)	Apply oil to the threads and seating surface.

CRANKCASE/TRANSMISSION/BALANCER

ITEM		Q'TY	THREAD DIA. (mm)	TORQUE N·m (kgf·m, lbf·ft)	REMARKS
Mainshaft bearing set plate bolt		3	6	14 (1.4, 10)	Apply locking agent to the threads.
Shift drum bearing set bolt		2	6	12 (1.2, 9)	Apply locking agent to the threads.
Crankcase	(7 mm bolt)	13	7	18 (1.8, 13)	
	(8 mm bolt)	3	8	24 (2.4, 18)	
	(10 mm bolt)	1	10	39 (4.0, 29)	
Main journal bolt		10	9	20 (2.0, 15) + 150°	Replace with a new one.

CRANKSHAFT/PISTON/CYLINDER

ITEM		Q'TY	THREAD DIA. (mm)	TORQUE N·m (kgf·m, lbf·ft)	REMARKS
Crankpin bearing cap bolt	(new)	8	8	27.5 (2.8, 20) + 90°	See page 14-7
	(retightening)	8	8	21.6 (2.2, 16) + 90°	See page 14-11
Oil jet pipe mounting bolt		2	6	12 (1.2, 9)	Apply locking agent to the threads.

ENGINE REMOVAL/INSTALLATION

ITEM	Q'TY	THREAD DIA. (mm)	TORQUE N·m (kgf·m, lbf·ft)	REMARKS
Drive sprocket bolt	1	10	54 (5.5, 40)	
Front engine hanger bolt	2	12	64 (6.5, 47)	
Upper engine hanger adjusting bolt	1	20	10 (1.0, 7)	
Upper engine hanger lock nut	1	20	54 (5.5, 40)	
Upper engine hanger nut	1	12	64 (6.5, 47)	
Lower engine hanger nut	1	12	84 (8.6, 62)	
Starter motor terminal nut	1	6	10 (1.0, 7)	

FRONT WHEEL/SUSPENSION/STEERING

ITEM	Q'TY	THREAD DIA. (mm)	TORQUE N·m (kgf·m, lbf·ft)	REMARKS
Steering stem nut	1	33	137 (14.0, 101)	
Top bridge pinch bolt	2	8	22 (2.2, 16)	
Handlebar pinch bolt	2	8	22 (2.2, 16)	
HESD second arm nut	1	6	12 (1.2, 9)	Self-lock nut
Left handlebar switch screw	2	5	2.5 (0.3, 1.8)	
Handlebar weight mounting screw	2	6	10 (1.0, 7)	ALOC screw; replace with a new one.
Right handlebar switch screw	2	5	2.5 (0.3, 1.8)	
Front master cylinder holder bolt	2	6	12 (1.2, 9)	
Front pulser ring torx bolt	5	5	7.0 (0.7, 5.2)	ALOC bolt; replace with new ones.
Front brake disc bolt	10	6	20 (2.0, 15)	ALOC bolt; replace with new ones.
Tire valve nut	1	8V1	6.5 (0.7, 4.8)	
Front axle bolt	1	18	79 (8.1, 58)	
Front axle holder bolt	4	8	22 (2.2, 16)	
Front brake caliper mounting bolt (CBR1000RR/RA)	4	10	45 (4.6, 33)	ALOC bolt; replace with new ones.
Front brake caliper mounting bolt (CBR1000S1/S2)	4	10	40 (4.1, 30)	ALOC bolt; replace with new ones.
Fork piston rod nut	2	12	27.5 (2.8, 20)	
Fork rod guide case	2	40.5	90 (9.2, 66)	
Fork cap	2	46.5	35 (3.6, 26)	
Bottom bridge pinch bolt	4	8	27 (2.8, 20)	
HESD torque arm nut	1	6	12.5 (1.3, 9.2)	Self-lock nut
HESD mounting bolt	4	6	10 (1.0, 7)	ALOC bolt; replace with new ones.
Steering stem adjusting nut	1	35	37 (3.8, 27)	See page 16-34
Steering stem adjusting lock nut	1	35	–	See page 16-34
Front brake hose clamp bolt	1	6	9.0 (0.9, 6.6)	

REAR WHEEL/SUSPENSION

ITEM	Q'TY	THREAD DIA. (mm)	TORQUE N·m (kgf·m, lbf·ft)	REMARKS
Rear brake disc bolt	4	8	42 (4.3, 31)	ALOC bolt; replace with new ones.
Rear pulser ring bolt	4	5	7.0 (0.7, 5.2)	ALOC bolt; replace with new ones.
Driven sprocket nut	6	10	64 (6.5, 47)	Self-lock nut
Tire valve nut	1	8V1	6.5 (0.7, 4.8)	
Shock absorber mounting nut	2	10	44 (4.5, 32)	Self-lock nut
Shock arm-to-swingarm nut	1	10	44 (4.5, 32)	Self-lock nut
Shock link nut	2	10	44 (4.5, 32)	Self-lock nut
Drive chain slider bolt	3	6	9.0 (0.9, 6.6)	ALOC bolt; replace with new ones.
Drive chain case bolt	2	6	12 (1.2, 9)	
Swingarm pivot nut	1	22	124 (12.6, 91)	Self-lock nut
Rear brake hose clamp screw	2	5	4.2 (0.4, 3.1)	ALOC screw; replace with new ones.

HYDRAULIC BRAKE (ABS type)

ITEM	Q'TY	THREAD DIA. (mm)	TORQUE N·m (kgf·m, lbf·ft)	REMARKS
Front master cylinder bleed valve	1	8	6.0 (0.6, 4.4)	
Front brake caliper bleed valve (CBR1000RR/RA)	2	8	8.0 (0.8, 5.9)	
Front brake caliper bleed valve (CBR1000S1/S2)	2	8	13 (1.3, 10)	
Rear brake caliper bleed valve	1	8	6.0 (0.6, 4.4)	
Reservoir cap stopper plate screw	2	4	1.2 (0.1, 0.9)	
Front brake caliper mounting bolt (CBR1000RR/RA)	4	10	45 (4.6, 33)	ALOC bolt; replace with new ones.
Front brake caliper mounting bolt (CBR1000S1/S2)	4	10	40 (4.1, 30)	ALOC bolt; replace with new ones.
Rear brake caliper pad pin	1	10	18 (1.8, 13)	
Front master cylinder holder bolt	2	6	12 (1.2, 9)	
Brake hose oil bolt	5	10	34 (3.5, 25)	
Front brake lever pivot bolt	1	6	1.0 (0.1, 0.7)	Apply silicone grease to the sliding surface.
Front brake lever pivot nut	1	6	6.0 (0.6, 4.4)	
Front brake light switch screw	1	4	1.2 (0.1, 0.9)	
Front brake reservoir stay bolt	1	6	12 (1.2, 9)	
Front brake reservoir mounting nut	1	6	6.0 (0.6, 4.4)	Self-lock nut
Rear master cylinder push rod lock nut	1	8	18 (1.8, 13)	
Rear brake pipe stay bolt (Except CBR1000RR)	1	5	5.2 (0.5, 3.8)	
Rear master cylinder mounting nut	2	6	10 (1.0, 7)	
Main step bracket mounting bolt	4	8	37 (3.8, 27)	
Rear brake reservoir mounting bolt	1	6	10 (1.0, 7)	
Rear brake caliper pin	1	12	27 (2.8, 20)	

ANTI-LOCK BRAKE SYSTEM (ABS) (Except CBR1000RR)

ITEM	Q'TY	THREAD DIA. (mm)	TORQUE N·m (kgf·m, lbf·ft)	REMARKS
Brake pipe joint nut	8	10	14 (1.4, 10)	Apply brake fluid to the threads.

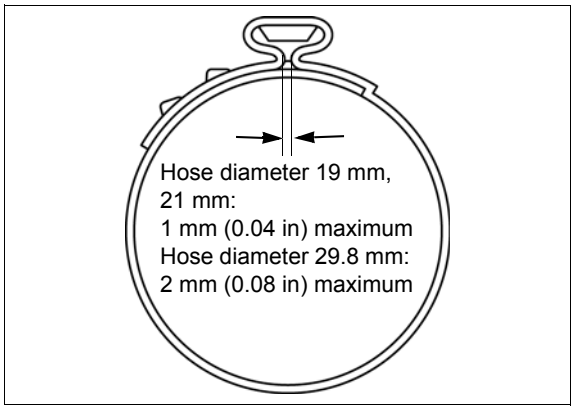
LIGHTS/METERS/SWITCHES

ITEM	Q'TY	THREAD DIA. (mm)	TORQUE N·m (kgf·m, lbf·ft)	REMARKS
Rearview mirror cover tapping screw (CH only)	2	5	1.0 (0.1, 0.7)	
Combination meter mounting screw	3	5	1.0 (0.1, 0.7)	
EOP switch	1	PT 1/8	12 (1.2, 9)	Apply sealant to the threads.
EOP switch wire terminal bolt	1	4	2.0 (0.2, 1.5)	
Ignition switch mounting bolt	2	8	26 (2.7, 19)	Replace with a new one.
Clutch switch mounting screw	1	3	0.6 (0.1, 0.4)	ALOC screw; replace with a new one.
Neutral switch	1	10	12 (1.2, 9)	
Sidestand switch mounting bolt	1	6	10 (1.0, 7)	ALOC bolt; replace with a new one.

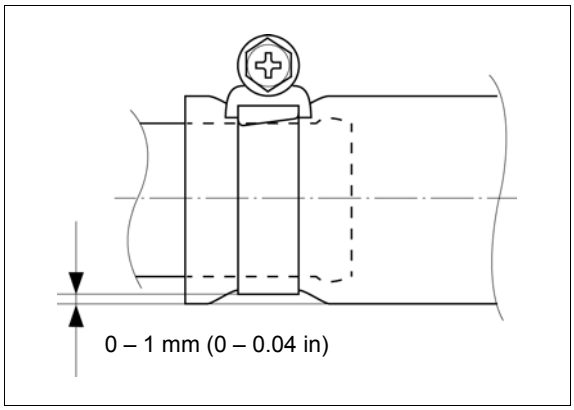
OTHERS

ITEM	Q'TY	THREAD DIA. (mm)	TORQUE N·m (kgf·m, lbf·ft)	REMARKS
Sidestand spring hook bolt	1	8	21.5 (2.2, 16)	
Sidestand bracket bolt	2	10	54 (5.5, 40)	
Main step cap bolt	2	6	11 (1.1, 8)	
Reflector nut (Except BR/IN/KO/TH)	2	6	1.8 (0.2, 1.3)	

Water hose band:



Water hose clamp:



LUBRICATION & SEAL POINTS

ENGINE

MATERIAL	LOCATION	REMARKS
Liquid sealant (Three Bond 1207B or equivalent)	Crankcase mating surface	See page 13-5
	Oil pan mating surface	See page 9-6
	Right crankcase cover mating surface	See page 11-5
	Alternator cover mating surface	See page 12-4
	Cylinder head semi-circular cut-out	See page 10-5
	EOP switch threads	
Molybdenum disulfide oil (a mixture of 1/2 engine oil and 1/2 molybdenum disulfide grease)	Main journal bearing sliding surface	
	Piston pin sliding surface	
	Crankpin bearing sliding surface	
	Connecting rod small end inner surface	
	Crankshaft thrust surface	
	Camshaft lobes, journals and thrust surface	
	Valve stem sliding surface	
	Valve lifter sliding surface	
	Oil pump drive sprocket guide sliding surface	
	Clutch outer gear, spring and sliding surface	
	Clutch outer guide sliding surface	
	M3/4, C5, C6 shifter gear (shift fork grooves)	
	Starter reduction gear shaft sliding surface	
	Water pump shaft and thrust washer sliding surface	
Engine oil	Cylinder head mounting nut/washer/stud bolt threads and seating surface	
	Piston and piston ring sliding surface	
	Clutch disc surface	
	Crankpin bearing cap bolt	
	Starter one-way clutch sliding surface	
	Starter clutch mounting bolt threads	
	Oil strainer seal ring	
	Flywheel bolt threads	
	Clutch center lock nut threads	
	Cam holder bolt threads	
	Each gear teeth and rotating surface	
	Each bearing	
	Each O-ring/seal ring	
	Other rotating area and sliding surface	
Multi-purpose grease	Each oil seal lips	
	Balancer rubber damper	
	Timing hole cap threads	
	Crankshaft hole cap threads	
Locking agent	CMP sensor rotor bolt threads	Coating width: 4.5 ± 1 mm
	Oil pump driven sprocket bolt threads	Coating width: 6.5 ± 1 mm
	Shift drum bearing set bolt threads	Coating width: 6.5 ± 1 mm
	Mainshaft bearing set plate bolt threads	Coating width: 6.5 ± 1 mm
	Cam sprocket bolt threads	Coating width: 6.5 ± 1 mm
	Cam chain tensioner A pivot bolt threads	Coating width: 6.5 ± 1 mm
	Cam chain guide A bolt threads	Coating width: 6.5 ± 1 mm
	Shift drum stopper arm pivot bolt threads	Coating width: 6.5 ± 1 mm
	Oil pump drive chain guide mounting bolt threads	Coating width: 6.5 ± 1 mm
	Shift spindle setting plate bolt threads	Coating width: 6.5 ± 1 mm
	Oil jet pipe mounting bolt threads	Coating width: 6.5 ± 1 mm
	Oil filter boss threads (crankcase side)	Coating width: 6.5 ± 1 mm
	Oil pipe mounting bolt threads	Coating width: 6.5 ± 1 mm
	Breather plate bolt threads	Coating width: 6.5 ± 1 mm
	Shift drum center bolt	Coating width: 6.5 ± 1 mm
	Stator bolt	Coating width: 6.5 ± 1 mm

FRAME

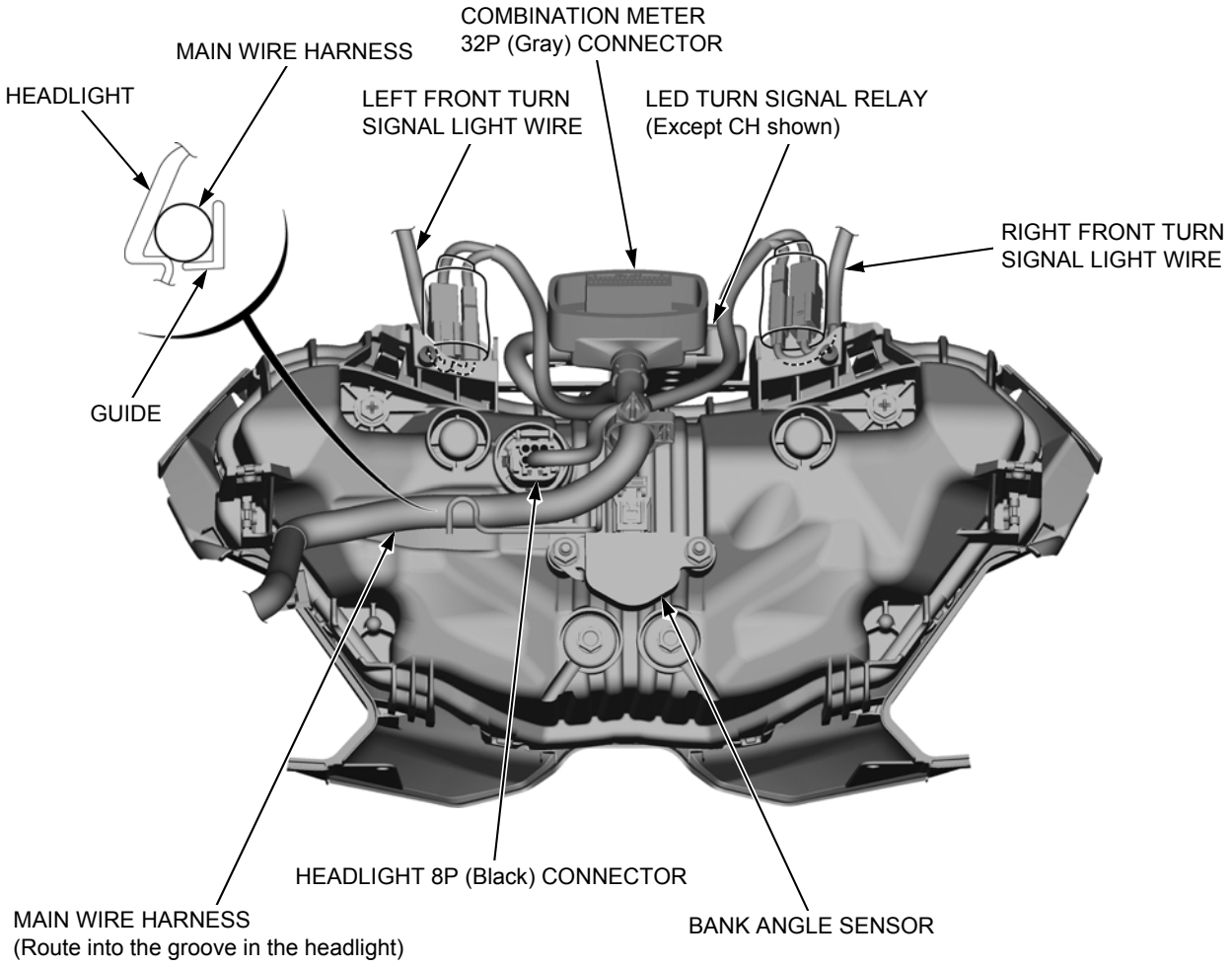
MATERIAL	LOCATION	REMARKS
Multi-purpose grease	Main step sliding surface	
	Pillion step sliding surface (CBR1000RR/RA)	
	Pillion seat catch hook sliding area (CBR1000S1/S2)	
	Single seat cowl catch hook sliding area (CBR1000RR/RA)	
	Front wheel dust seal lips	
	Rear wheel dust seal lips	
	Clutch lever pivot bolt sliding surface	
	Rear brake pedal pivot sliding surface	
	Gearshift pedal link tie-rod ball joints	
	Gearshift pedal pivot sliding surface	
	Axle surface	
	Swingarm pivot bolt surface	
	Rear wheel O-ring	
	Second arm boot fitting area	
	Throttle grip and APS contacting surface	See page 4-77
Urea based multi-purpose grease with extreme pressure (example: EXCELITE EP2 manufactured by KYODO YUSHI, Japan) or equivalent	Steering head bearing sliding surface	3 – 5 g
	Steering head dust seal lips	
	Steering stem adjusting nut threads	0.1 – 0.3 g
Molybdenum disulfide grease	Sidestand pivot sliding surface	
	Swingarm pivot bearings	
	Swingarm pivot dust seal lips	
	Shock link needle bearings	
	Shock link dust seal lips	
	Shock absorber needle bearing (CBR1000RR/RA)	
	Shock absorber spherical bearing (CBR1000RR/RA)	
	Shock absorber dust seal lips (CBR1000RR/RA)	
Cable lubricant	Clutch cable inside	
	EGCA cable inside	
Honda bond A or equivalent adhesive	Handlebar grip rubber inner surface	
Silicone grease	Front brake push rod-to-master piston contact surface	
	Front brake push rod tip	
	Front brake lever pivot bolt sliding surface	
	Rear brake master piston-to-push rod contacting area	
	Rear brake caliper slide pin sliding surface	
	Rear brake caliper pad pin O-ring	
	Brake caliper dust seal	
DOT 4 brake fluid	Brake master piston and cups	
	Brake caliper piston and piston seals	
Fork fluid	Fork O-ring (CBR1000RR/RA)	
	Fork dust seal and oil seal lips (CBR1000RR/RA)	
Locking agent	Rear brake caliper slide pin threads	
Drive chain lubricant designed specifically for O-ring chains or SAE #80 - 90 gear oil	Drive chain while surface	

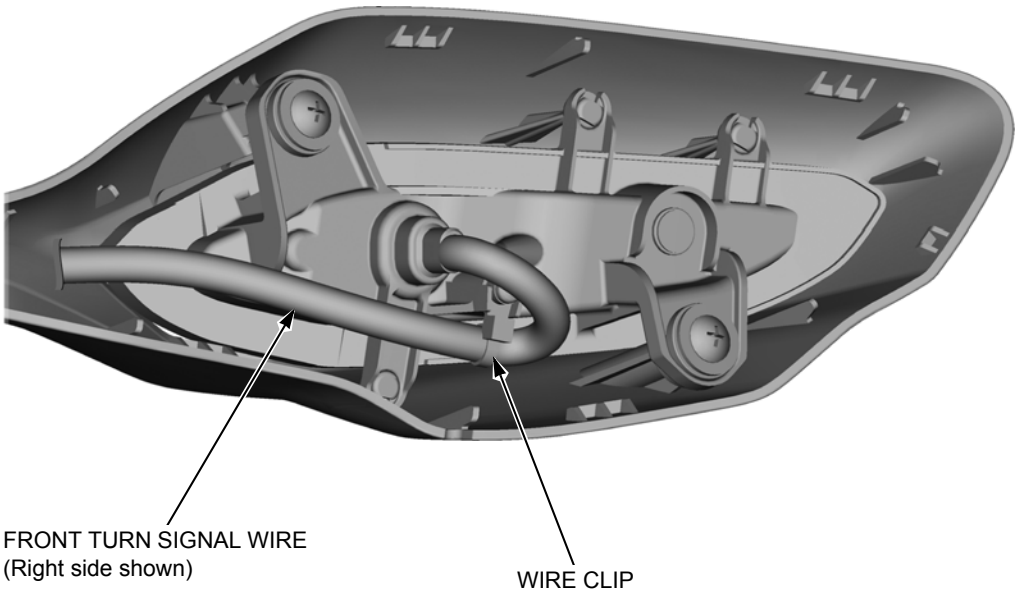
SPECIAL TOOL LIST

TITLE	TOOL No	TOOL NAME
MAINTENANCE	070MG-0010100	Tensioner stopper
	07HAA-PJ70101	Oil filter wrench
	07HMH-MR10103	Drive chain tool set
PGM-FI SYSTEM	070PZ-ZY30100	SCS short connector
	07ZAJ-RDJA110	Test probe
IGNITION SYSTEM	07HGJ-0020100	Peak voltage adaptor
	07ZAJ-RDJA110	Test probe
FUEL SYSTEM	07406-0040004	Fuel pressure gauge
	07ZAJ-S5A0111	Pressure gauge manifold
	07ZAJ-S5A0120	Hose attachment, 9 mm/9 mm
	07ZAJ-S7C0100	Hose attachment, 8 mm/9 mm
	07ZAJ-S7C0200	Attachment joint, 8 mm/9 mm
LUBRICATION SYSTEM	07506-3000001	Oil pressure gauge set
	07406-0030000	Oil pressure gauge attachment
CYLINDER HEAD/VALVES	07RMJ-MY50100	Compression gauge attachment
	070MG-0010100	Tensioner stopper
	07HMG-MR70002	Tappet hole protector
	07757-0010000	Valve spring compressor
	07959-KM30101	Valve spring compressor attachment
	07HMD-ML00101	Valve guide driver
	07JMD-KY20100	Valve guide driver
	07743-0020000	Valve guide driver
	07HMH-ML00101	Valve guide reamer
	07MMH-MV90100	Valve guide reamer
	07781-0010600	Cutter holder, 4.5 mm
	07781-0010500	Cutter holder, 4.0 mm
	07780-0010800	Seat cutter, 33 mm (45° IN)
	07780-0010100	Seat cutter, 24.5 mm (45° EX)
	07780-0012900	Flat cutter, 33 mm (32° IN)
	07780-0012000	Flat cutter, 25 mm (32° EX)
	07780-0014700	Interior cutter, 34 mm (60° IN)
	07780-0014500	Interior cutter, 26 mm (60° EX)
CLUTCH/GEARSHIFT LINKAGE	07724-0050002	Clutch center holder
	07916-9690000	Lock nut wrench 30 x 40 mm
	07725-0040001	Flywheel holder
ALTERNATOR	07725-0040001	Flywheel holder
	07733-0020001	Rotor puller
CRANKCASE/TRANSMISSION/BALANCER	07936-3710600	Bearing remover set, 20 mm
	07741-0010201	Remover weight
	07936-3710100	Remover handle
	07949-3710001	Driver
	07746-0010300	Attachment, 42 x 47 mm
	07746-0040500	Pilot, 20 mm
ENGINE REMOVAL/INSTALLATION	07VMA-MBB0101	Lock nut wrench, 20 mm
FRONT WHEEL/SUSPENSION/STEERING	07ZAJ-RDJA110	Test probe
	07746-0050800	Bearing remover head, 25 mm
	07GGD-0010100	Bearing remover shaft
	07749-0010000	Driver
	07746-0010300	Attachment, 42 x 47 mm
	07746-0040600	Pilot, 25 mm
	070MA-MGP0100	Fork cap wrench
	070MB-MGP0100	Rod guide case wrench
	07YMD-MCF0100	Fork seal driver
	07HMA-MR70100	Steering stem socket
	07NMF-MT70110	Bearing remover
	07NMF-MT70120	Driver attachment
	07946-KM90301	Driver shaft assembly
	07946-KM90600	Assembly base
	07947-KA20200	Attachment, 35.2 mm I.D.

TITLE	TOOL No	TOOL NAME
REAR WHEEL/SUSPENSION	07749-0010000	Driver
	07746-0010500	Attachment, 62 x 68 mm
	07746-0041100	Pilot, 28 mm
	07746-0050900	Bearing remover head, 28 mm
	07GGD-0010100	Bearing remover shaft
	07746-0010400	Attachment, 52 x 55 mm
	07746-0041100	Pilot, 28 mm
	07949-3710001	Driver
	07746-0010800	Attachment, 22 x 24 mm
	07746-0040400	Pilot, 17 mm
	07746-0030300	Attachment, 30 mm I.D.
	07GMD-KT80100	Bearing driver
	07746-0030200	Attachment, 25 mm I.D.
	07946-1870100	Attachment, 28 x 30 mm
	07746-0040600	Pilot, 25 mm
	07746-0010900	Attachment, 40 x 42 mm
HYDRAULIC BRAKE	07914-SA50001	Snap ring pliers
ANTI-LOCK BRAKE SYSTEM (ABS)	07ZAJ-RDJA110	Test probe
LIGHT/METERS/SWITCHES	07ZAJ-RDJA110	Test probe
IMMOBILIZER SYSTEM (HISS)	07XMZ-MBW0101	Inspection adaptor
	070MZ-MEC0101	Test harness adaptor
	07ZAJ-RDJA110	Test probe

CABLE & HARNESS ROUTING





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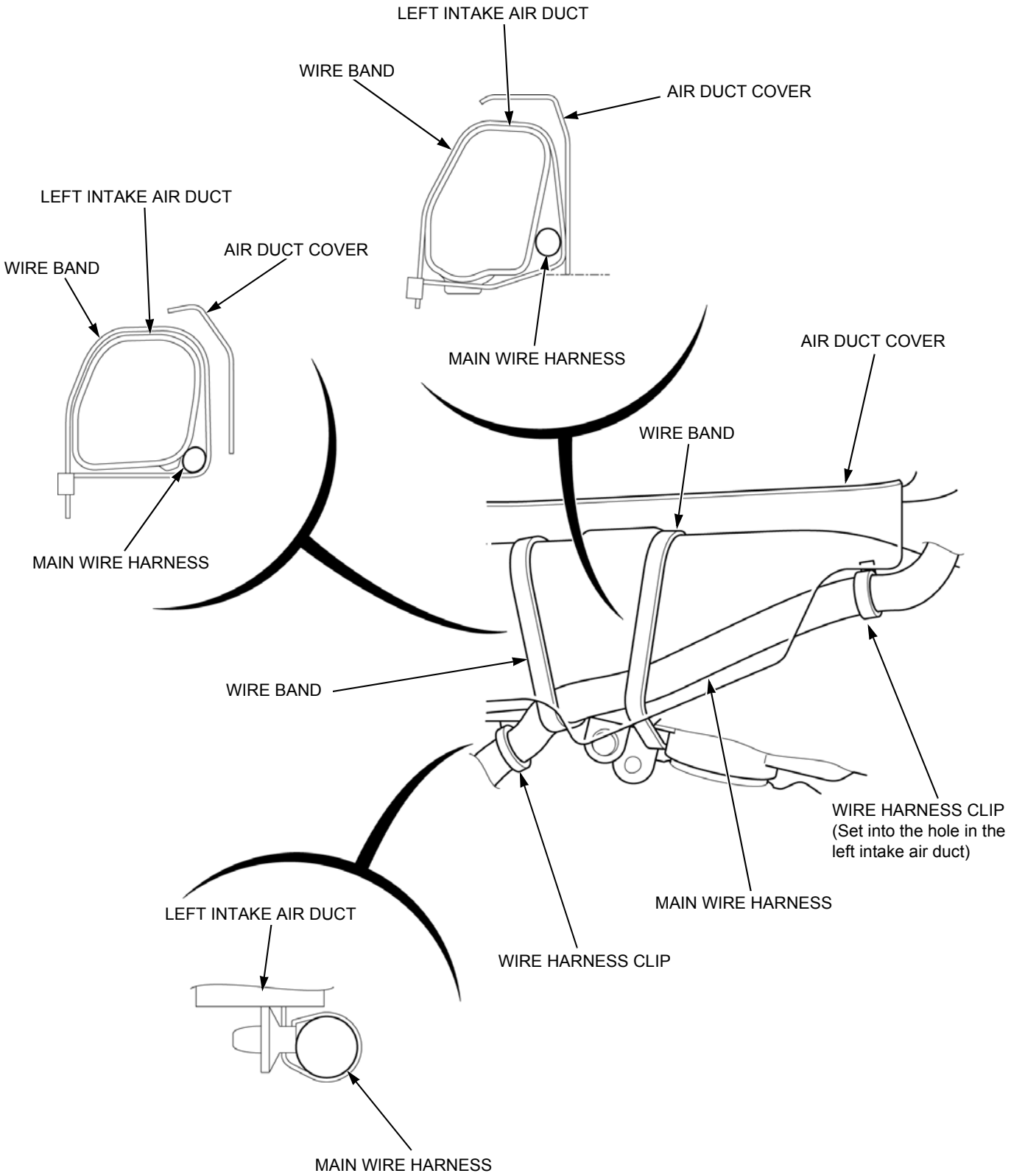
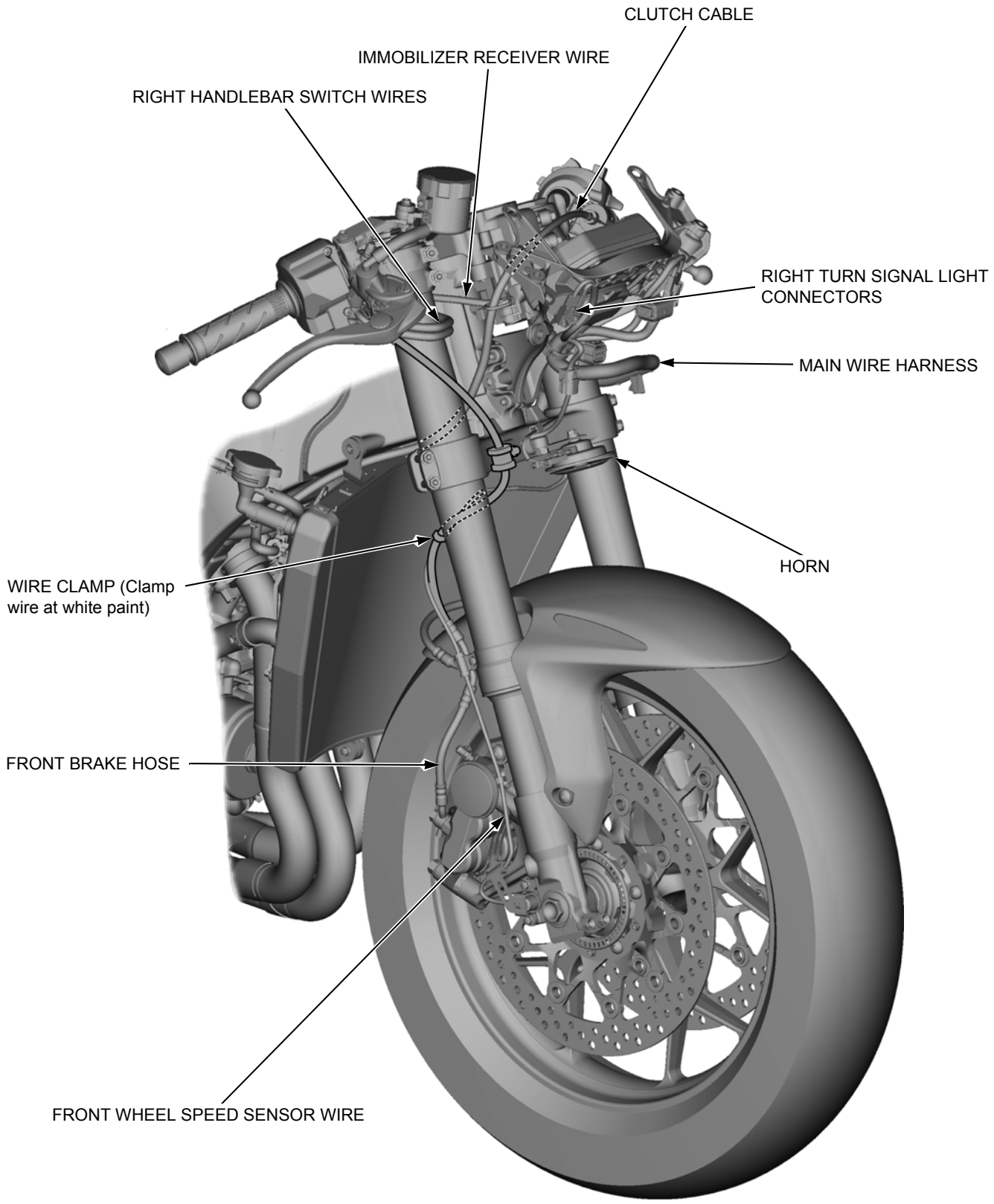
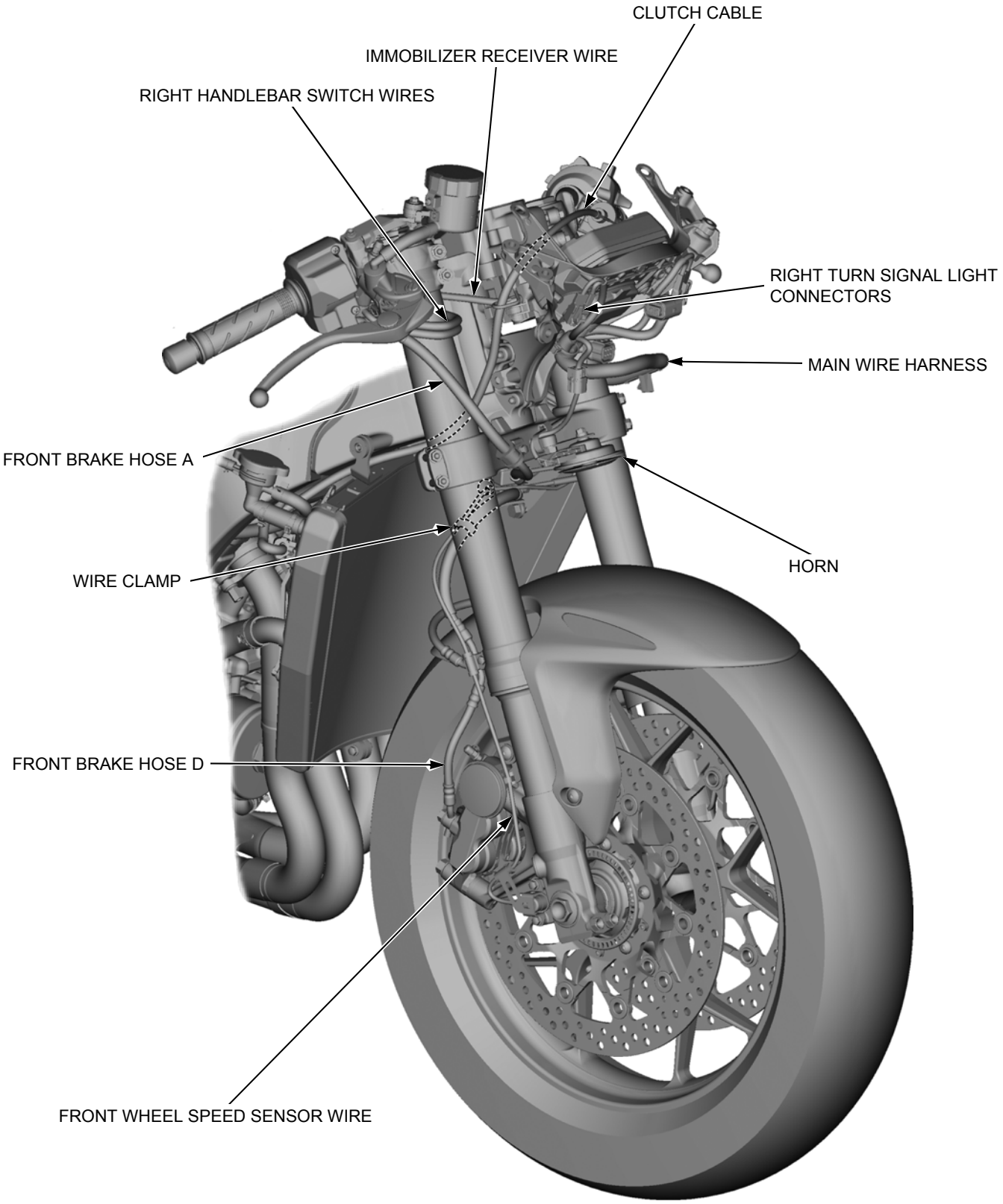


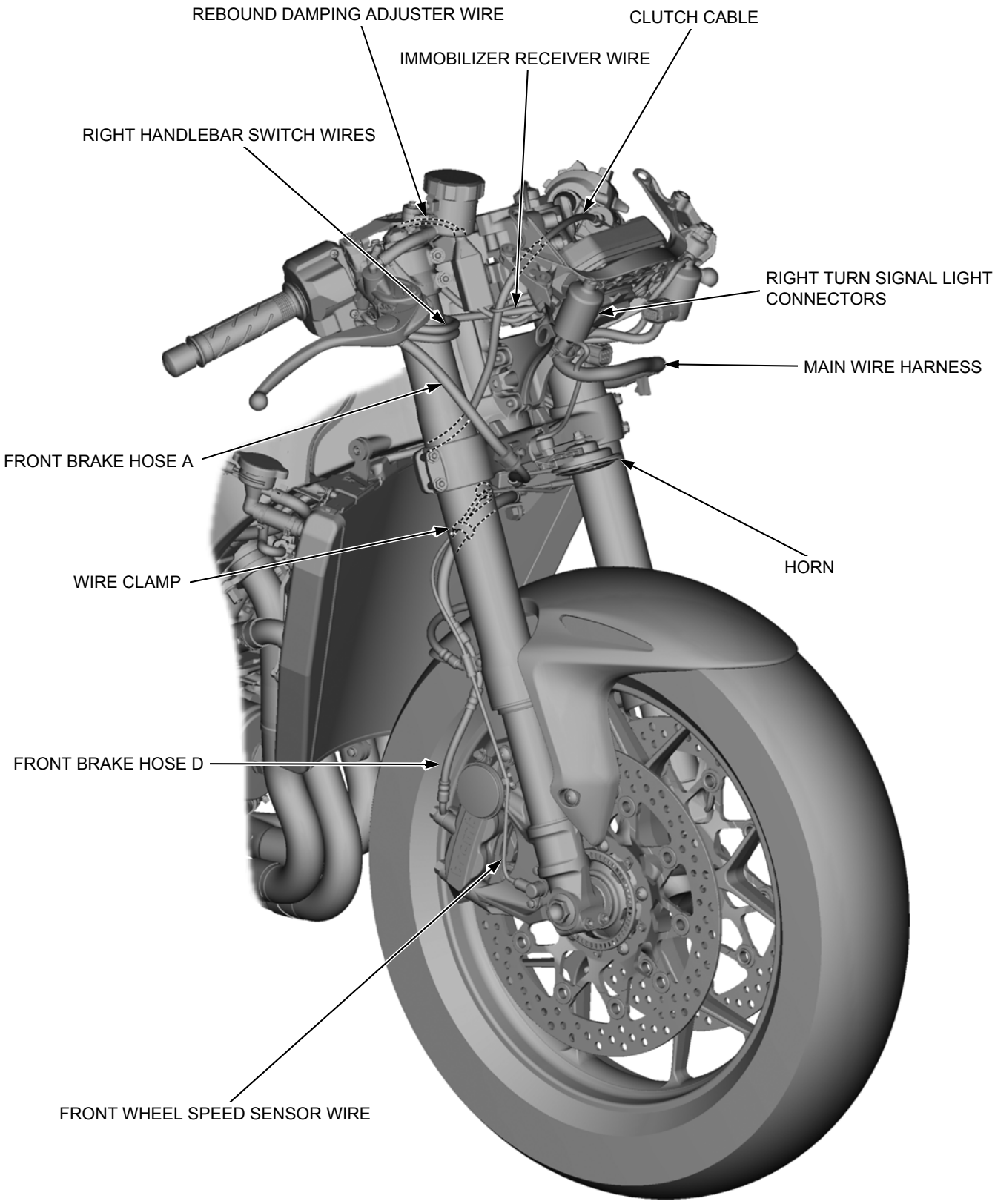
CBR1000RR:


CLUTCH CABLE
IMMOBILIZER RECEIVER WIRE
RIGHT HANDLEBAR SWITCH WIRES
RIGHT TURN SIGNAL LIGHT CONNECTORS
MAIN WIRE HARNESS
HORN
WIRE CLAMP (Clamp wire at white paint)
FRONT BRAKE HOSE
FRONT WHEEL SPEED SENSOR WIRE

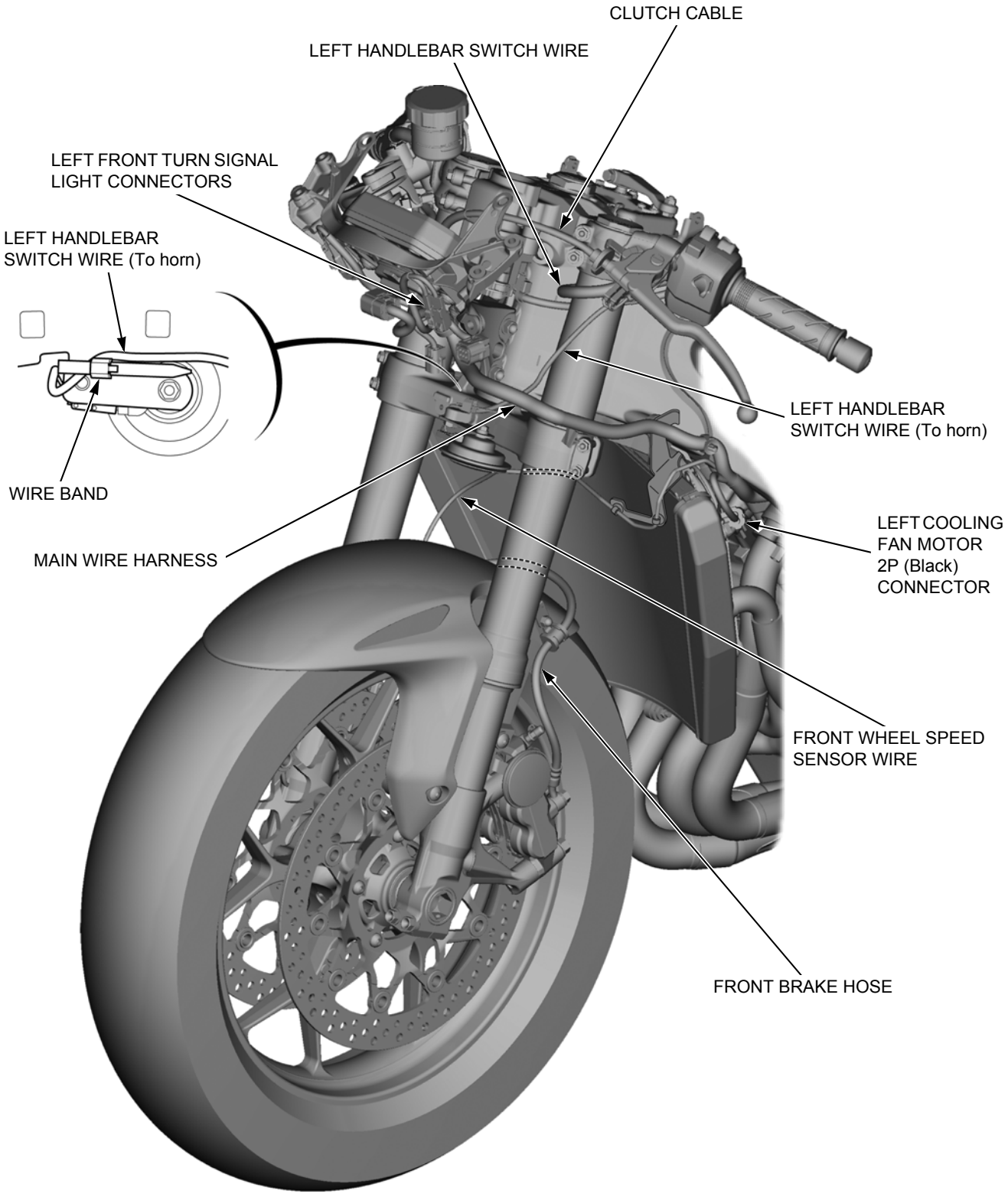
CBR1000RA:


CLUTCH CABLE
IMMOBILIZER RECEIVER WIRE
RIGHT HANDLEBAR SWITCH WIRES
RIGHT TURN SIGNAL LIGHT CONNECTORS
MAIN WIRE HARNESS
FRONT BRAKE HOSE A
HORN
WIRE CLAMP
FRONT BRAKE HOSE D
FRONT WHEEL SPEED SENSOR WIRE

CBR1000S1/S2:

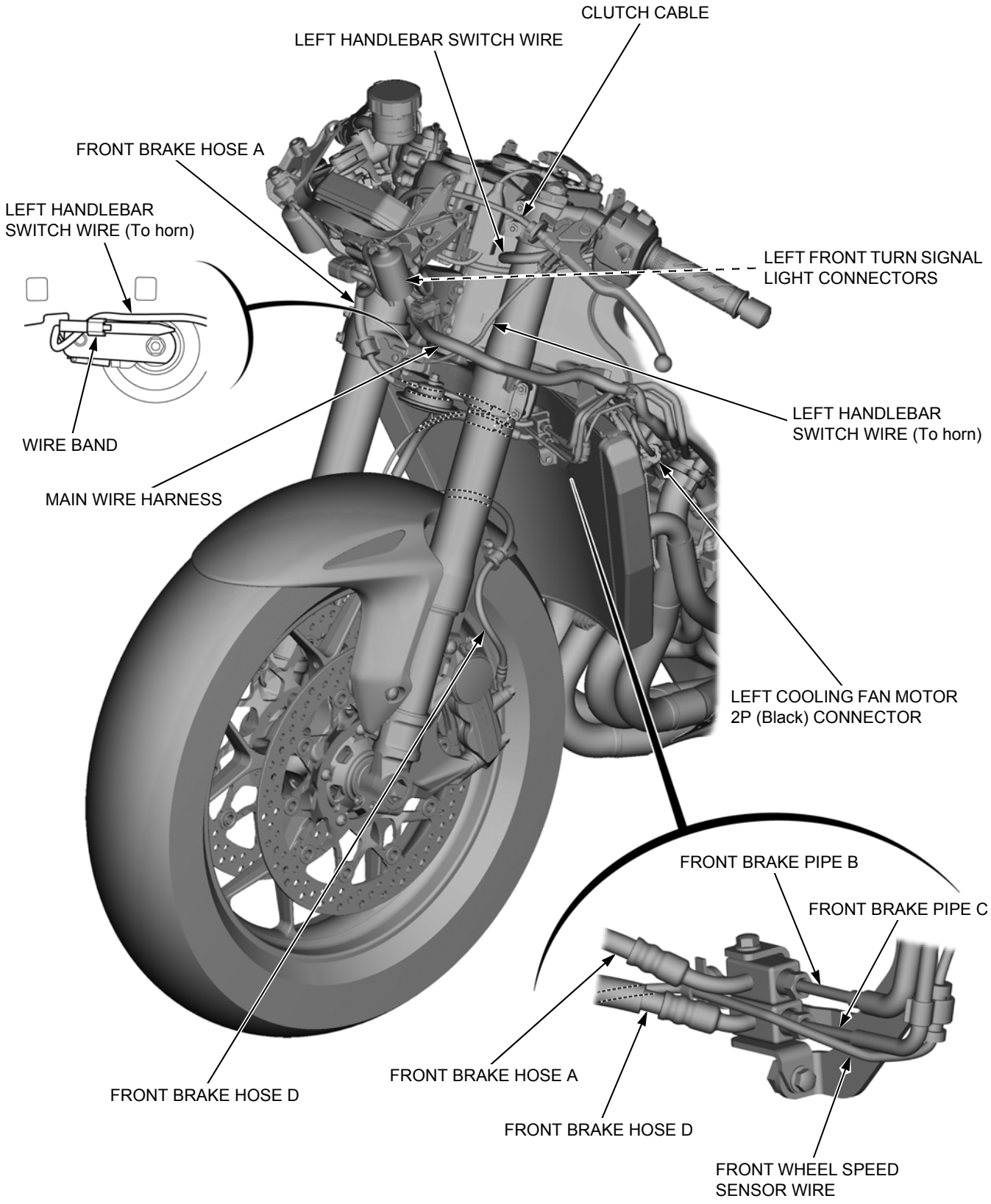


CBR1000RR:

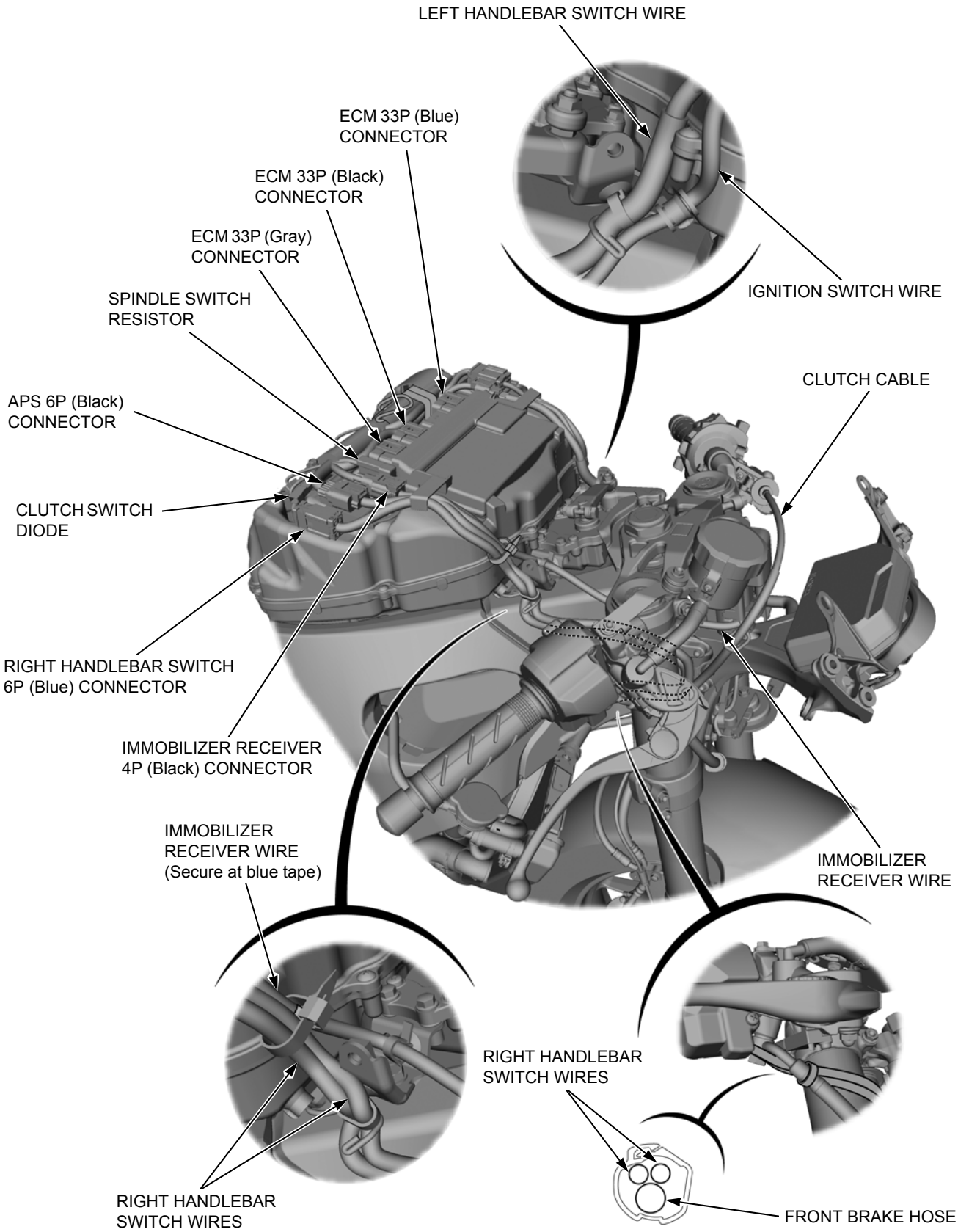

CLUTCH CABLE
LEFT HANDLEBAR SWITCH WIRE
LEFT FRONT TURN SIGNAL LIGHT CONNECTORS
LEFT HANDLEBAR SWITCH WIRE (To horn)
WIRE BAND
MAIN WIRE HARNESS
LEFT HANDLEBAR SWITCH WIRE (To horn)
LEFT COOLING FAN MOTOR 2P (Black) CONNECTOR
FRONT WHEEL SPEED SENSOR WIRE
FRONT BRAKE HOSE

CBR1000RA/S1/S2:

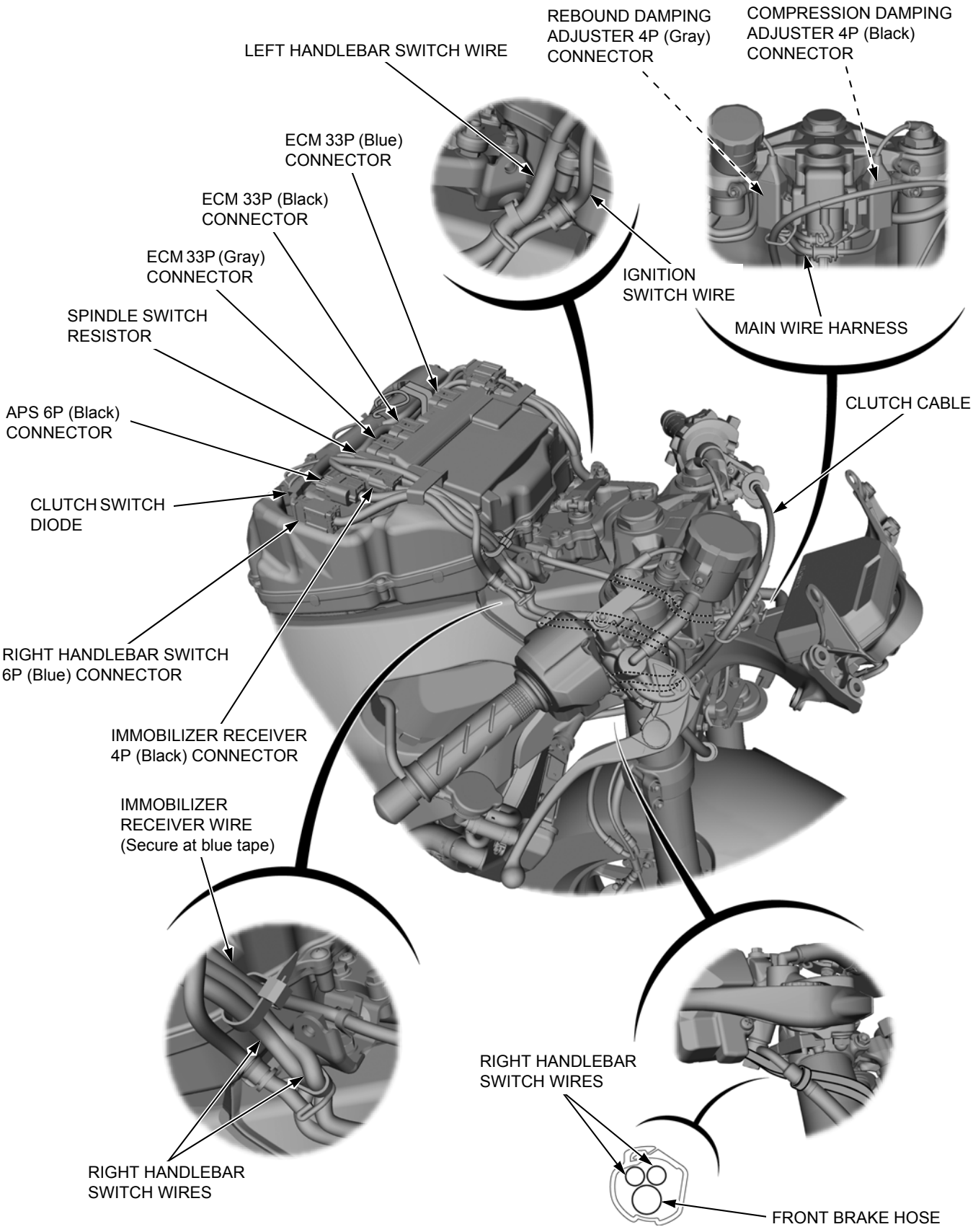
CBR1000RA shown:



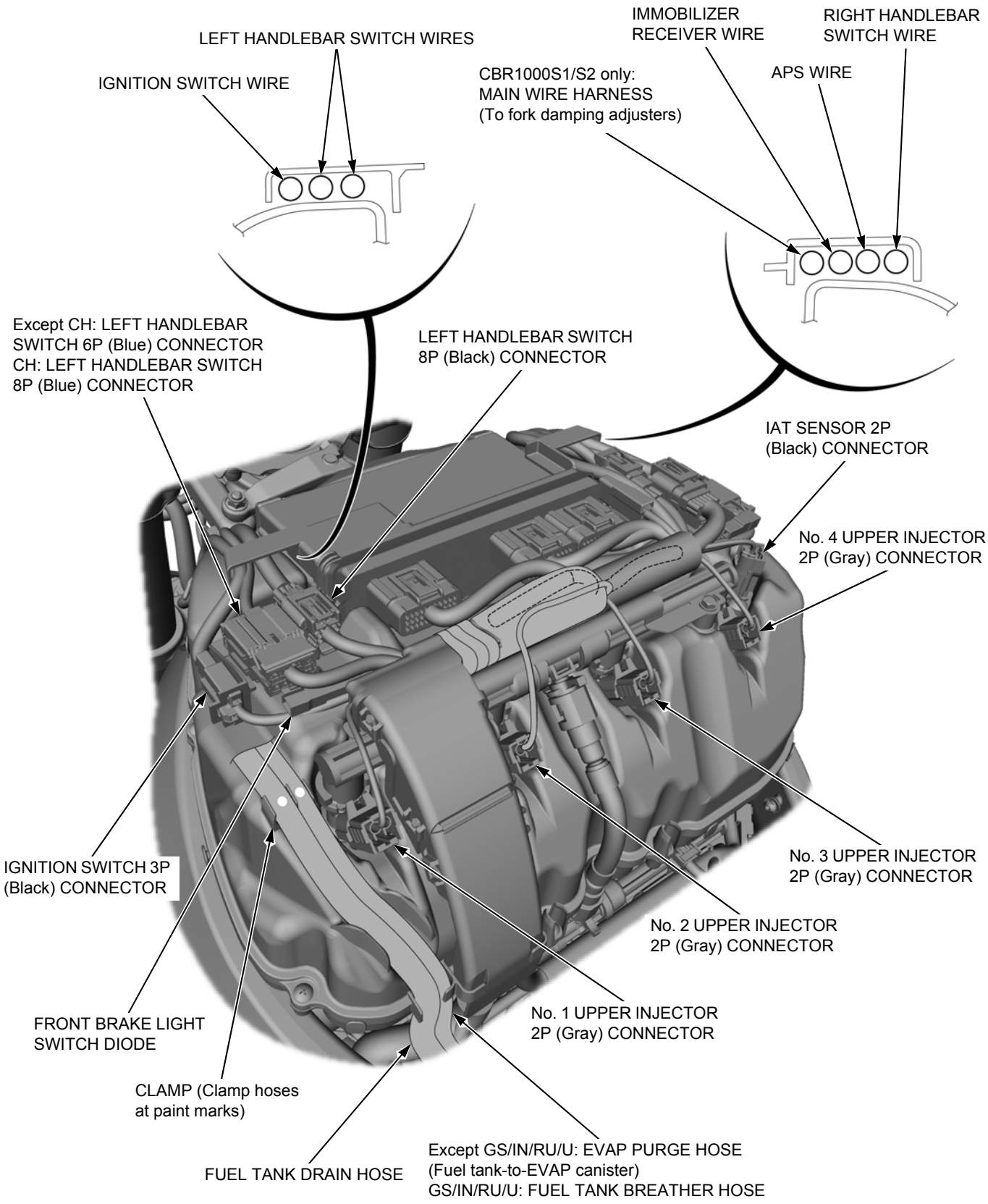
CBR1000RR/RA:



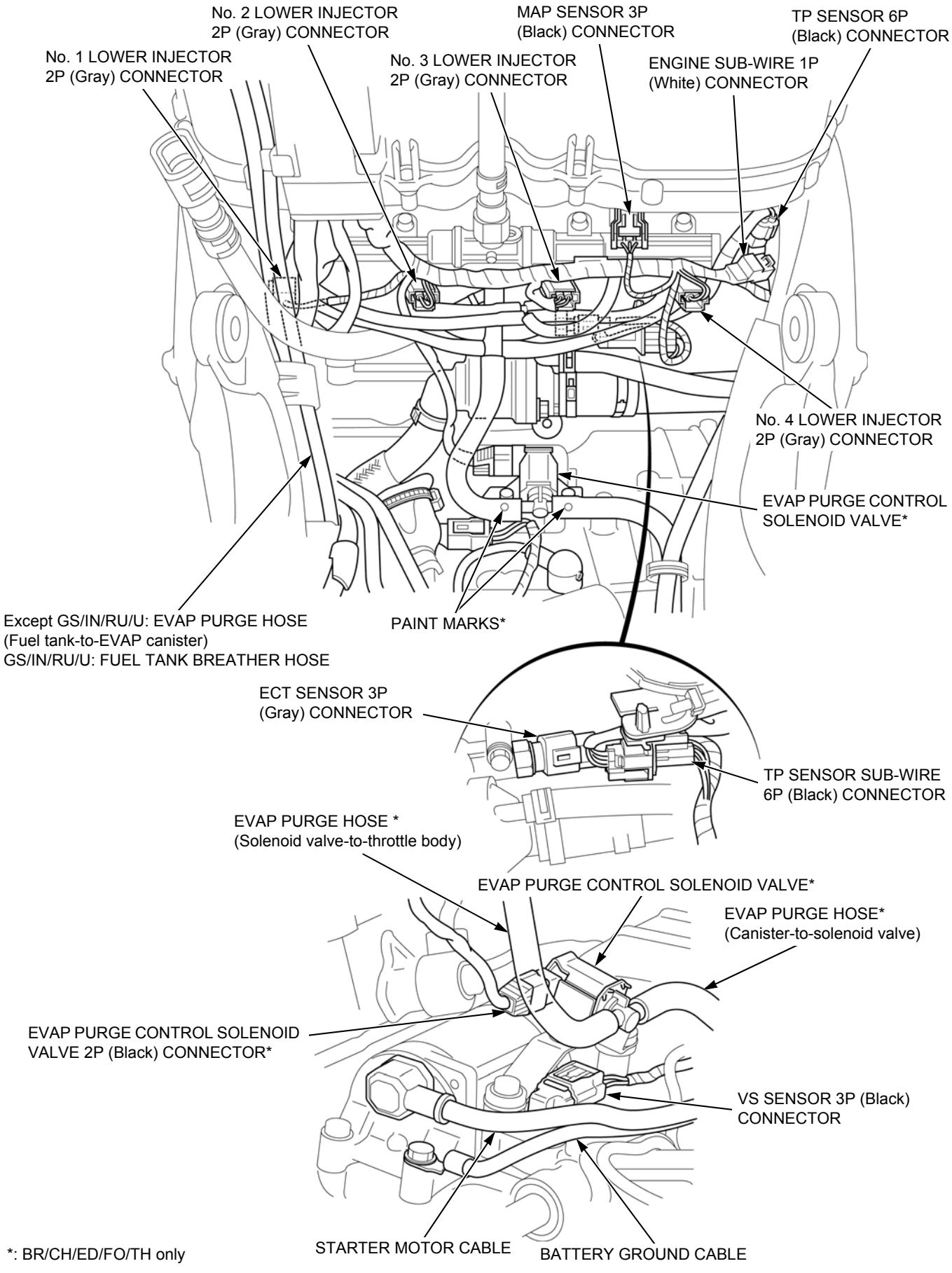
CBR1000S1/S2:



CBR1000S1/S2 shown:

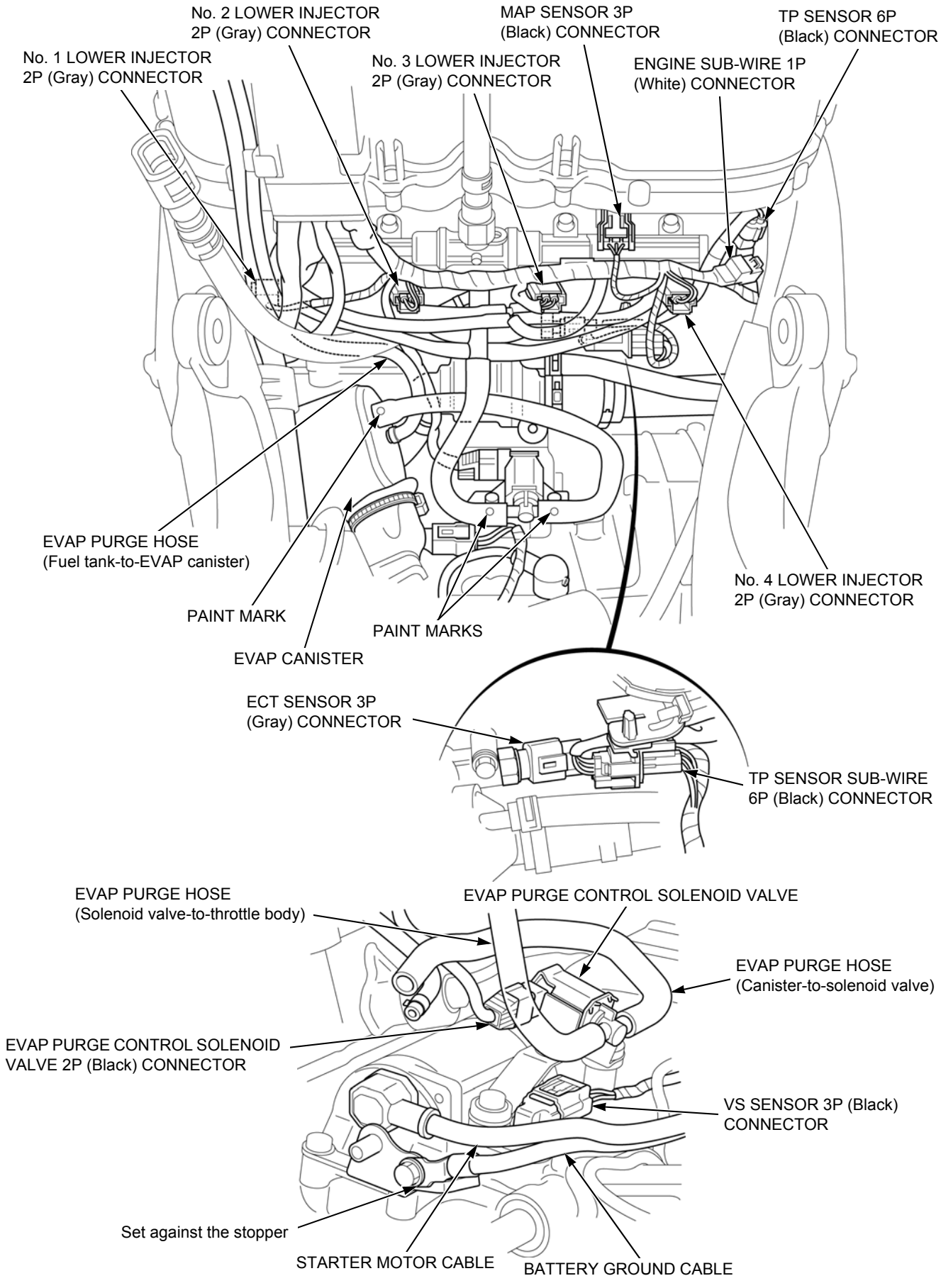


Except KO:

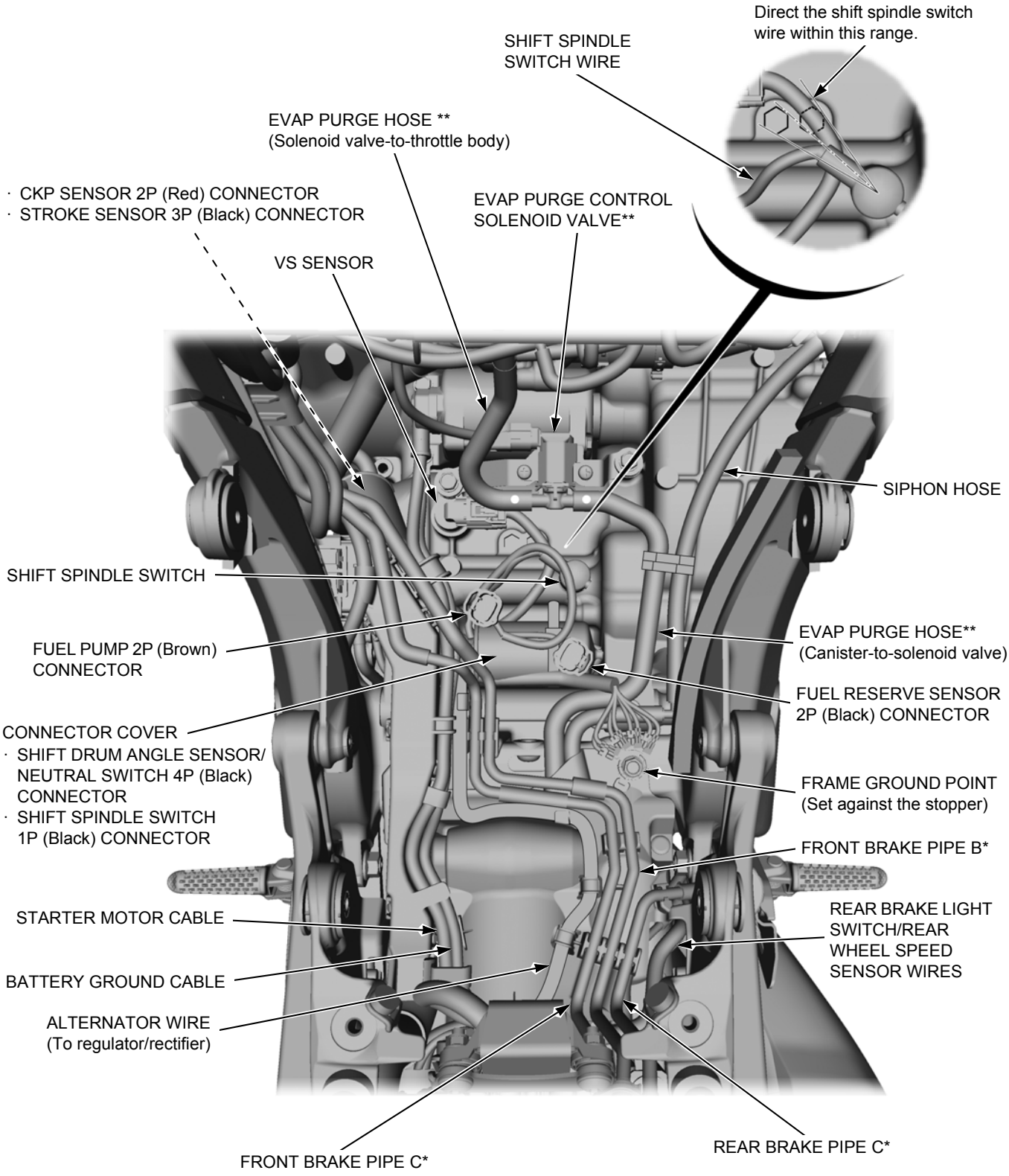


*: BR/CH/ED/FO/TH only

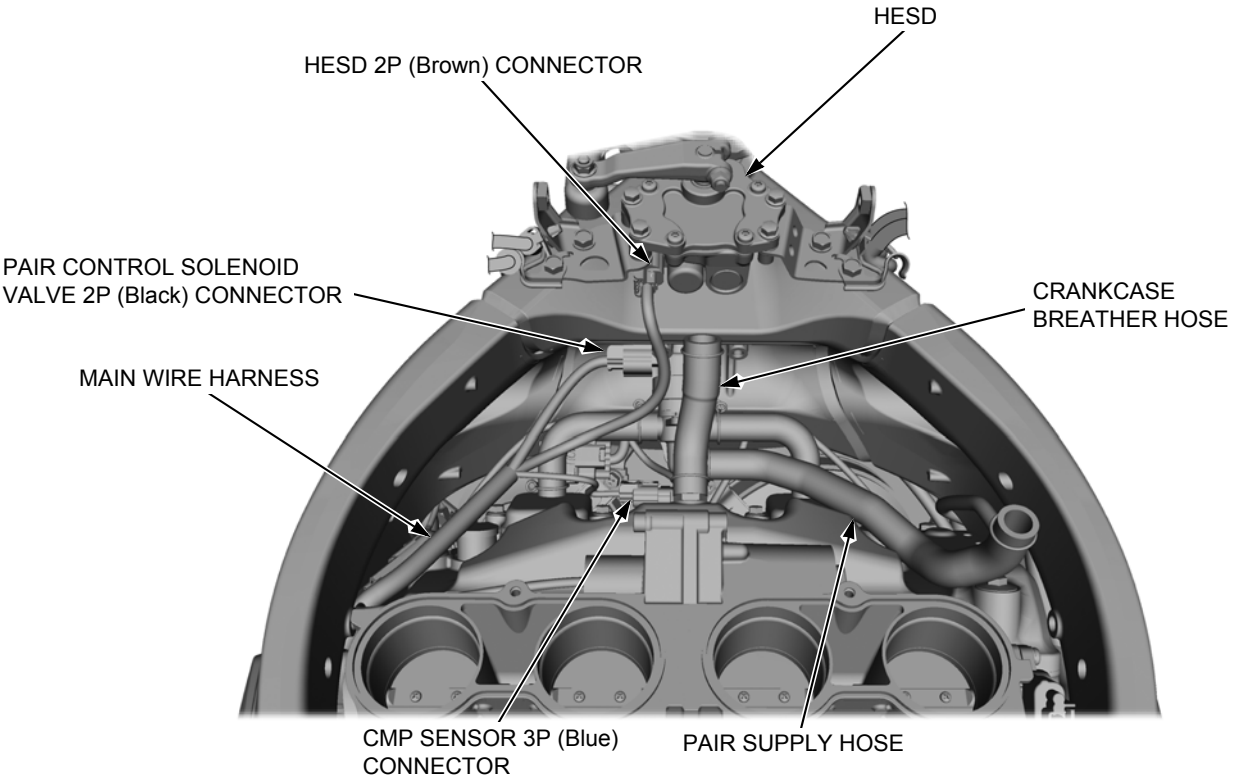
KO:

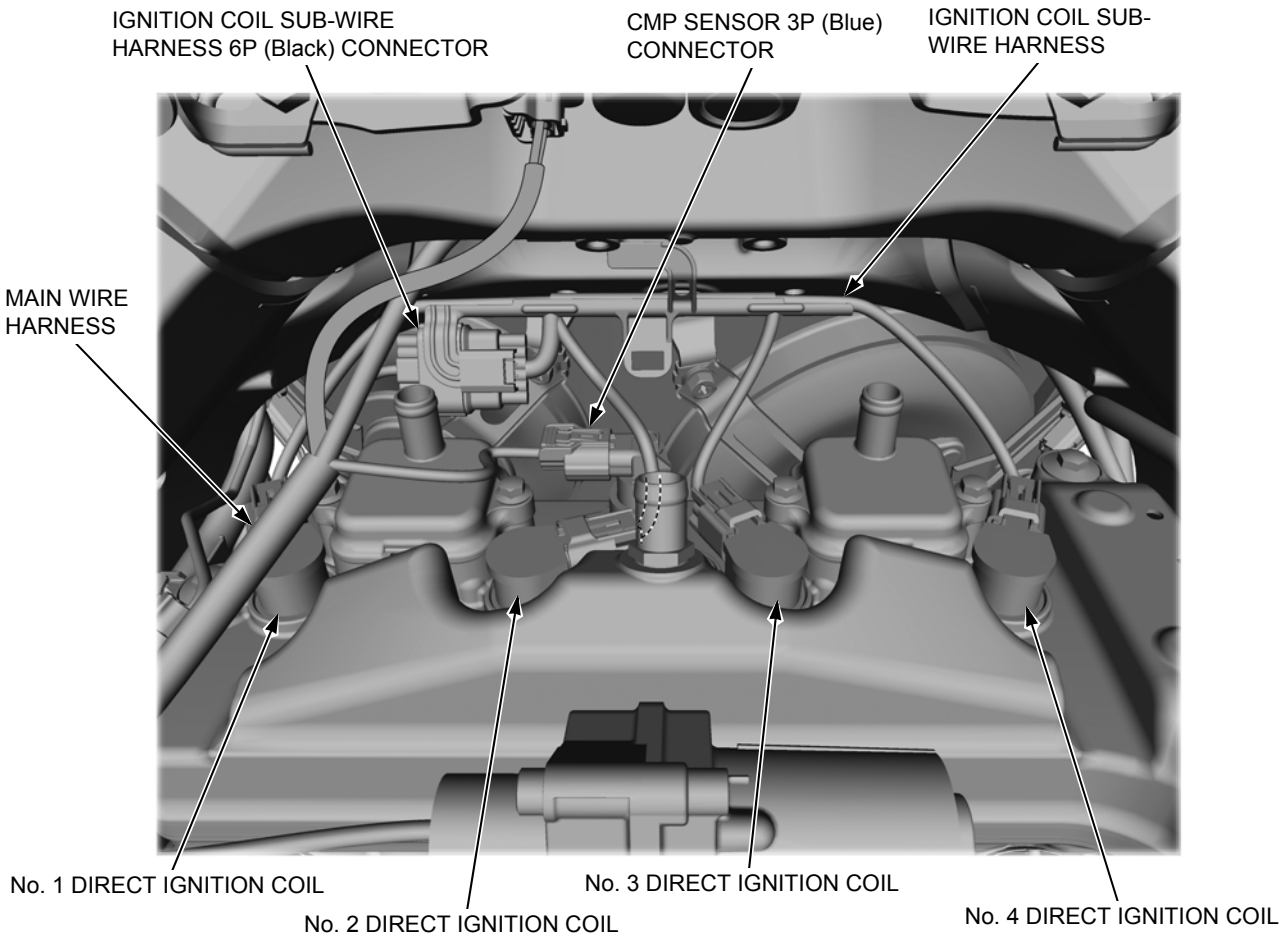

No. 2 LOWER INJECTOR
2P (Gray) CONNECTOR
MAP SENSOR 3P
(Black) CONNECTOR
TP SENSOR 6P
(Black) CONNECTOR
No. 1 LOWER INJECTOR
2P (Gray) CONNECTOR
No. 3 LOWER INJECTOR
2P (Gray) CONNECTOR
ENGINE SUB-WIRE 1P
(White) CONNECTOR
EVAP PURGE HOSE
(Fuel tank-to-EVAP canister)
No. 4 LOWER INJECTOR
2P (Gray) CONNECTOR
PAINT MARK
PAINT MARKS
EVAP CANISTER
ECT SENSOR 3P
(Gray) CONNECTOR
TP SENSOR SUB-WIRE
6P (Black) CONNECTOR
EVAP PURGE HOSE
(Solenoid valve-to-throttle body)
EVAP PURGE CONTROL SOLENOID VALVE
EVAP PURGE HOSE
(Canister-to-solenoid valve)
EVAP PURGE CONTROL SOLENOID
VALVE 2P (Black) CONNECTOR
VS SENSOR 3P (Black)
CONNECTOR
Set against the stopper
STARTER MOTOR CABLE
BATTERY GROUND CABLE

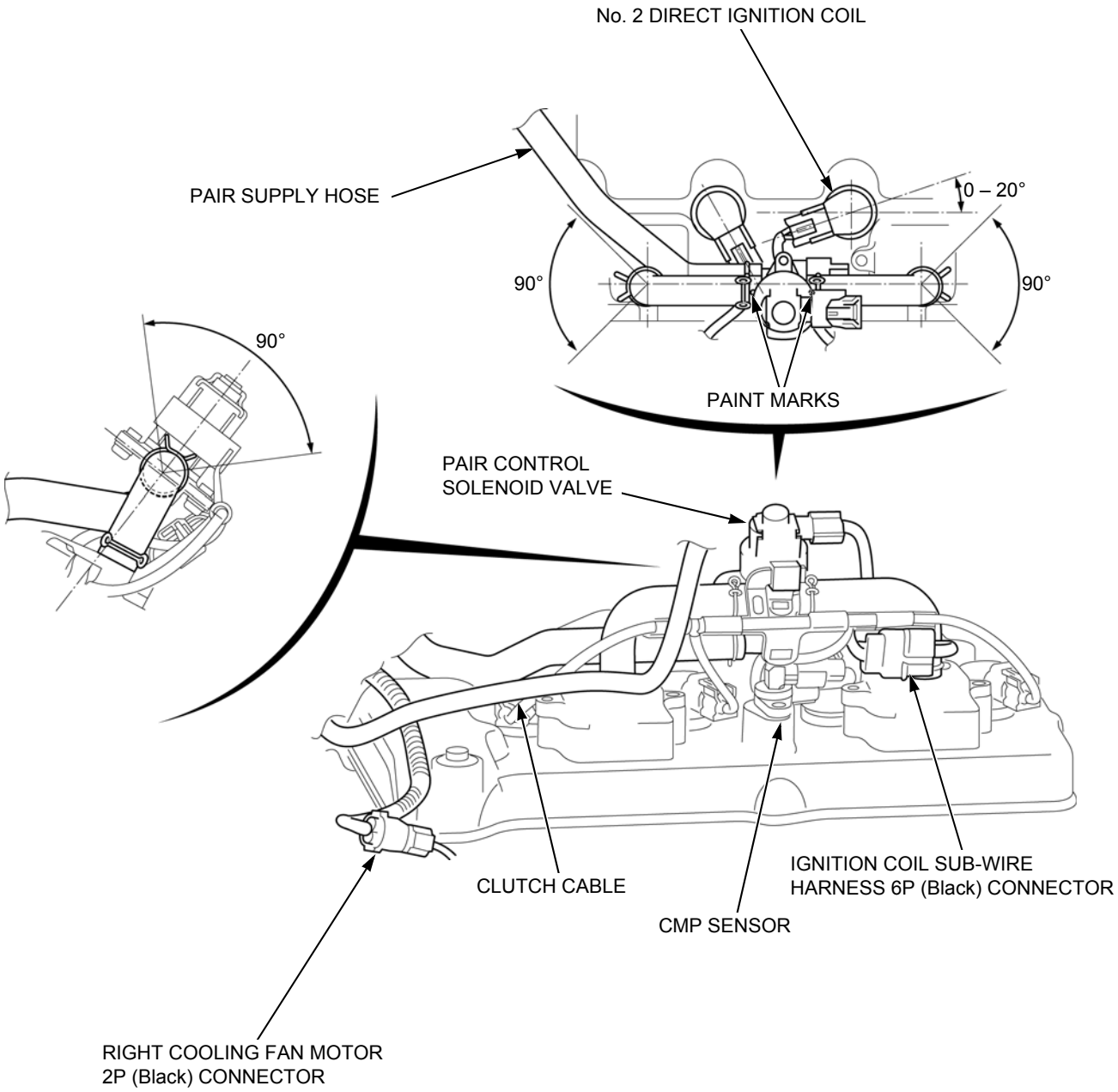
Except KO shown:



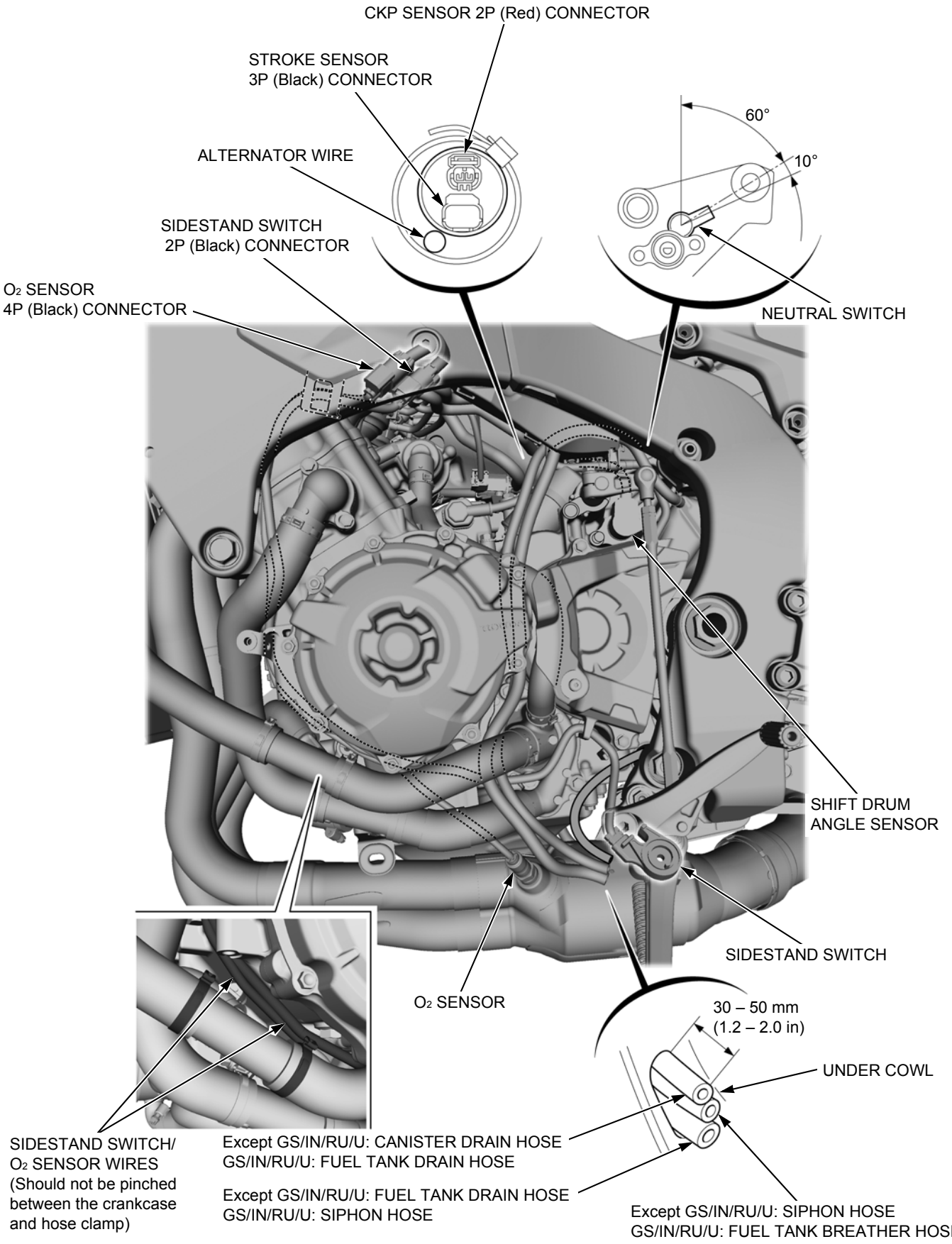
*: Except CBR1000RR
**: BR/CH/ED/FO/TH only


HESD
HESD 2P (Brown) CONNECTOR
PAIR CONTROL SOLENOID VALVE 2P (Black) CONNECTOR
CRANKCASE BREATHER HOSE
MAIN WIRE HARNESS
CMP SENSOR 3P (Blue) CONNECTOR
PAIR SUPPLY HOSE


IGNITION COIL SUB-WIRE HARNESS 6P (Black) CONNECTOR
CMP SENSOR 3P (Blue) CONNECTOR
IGNITION COIL SUB-WIRE HARNESS
MAIN WIRE HARNESS
No. 1 DIRECT IGNITION COIL
No. 2 DIRECT IGNITION COIL
No. 3 DIRECT IGNITION COIL
No. 4 DIRECT IGNITION COIL

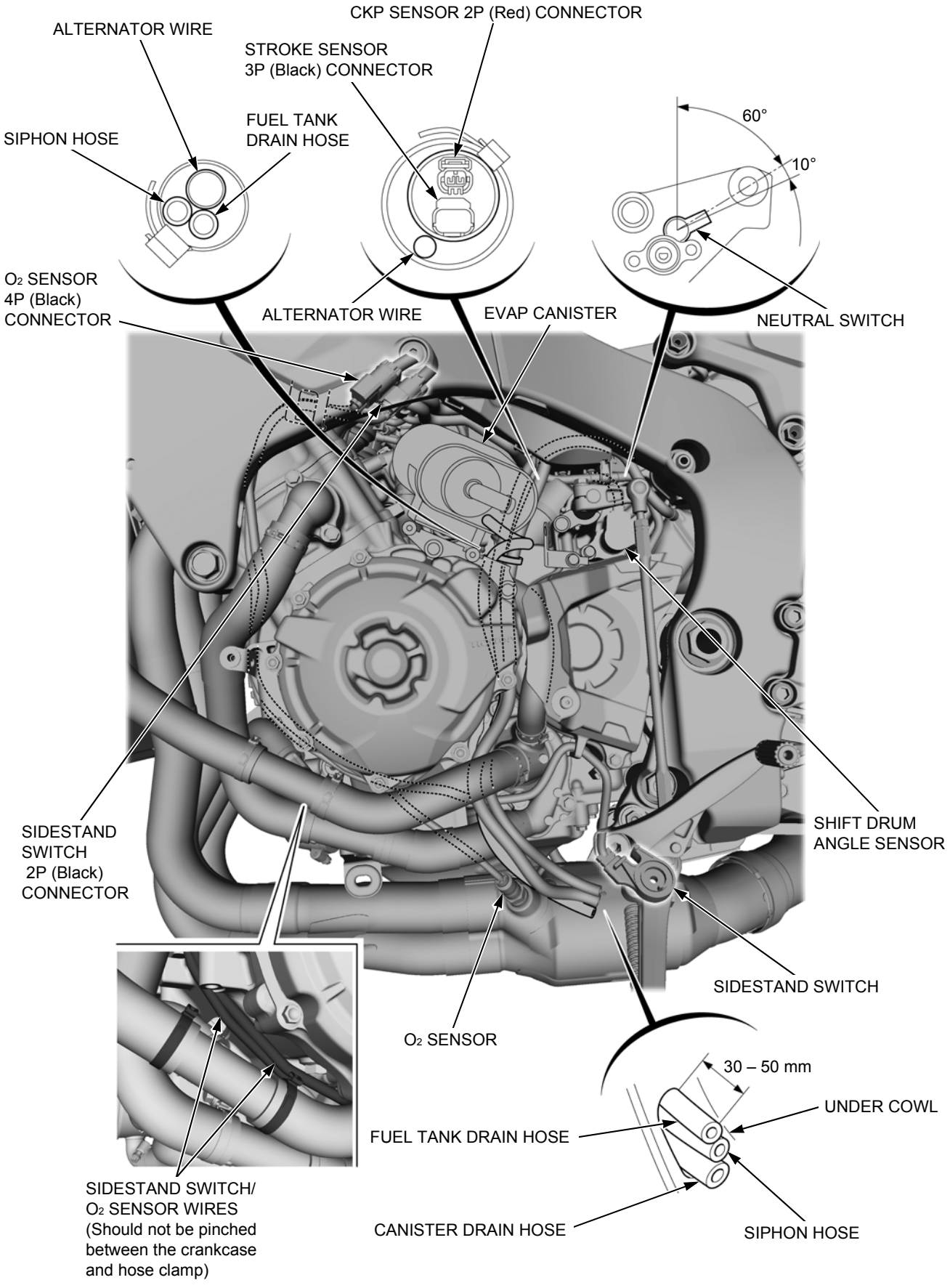

No. 2 DIRECT IGNITION COIL
PAIR SUPPLY HOSE
0 – 20°
90°
90°
90°
PAINT MARKS
PAIR CONTROL
SOLENOID VALVE
CLUTCH CABLE
CMP SENSOR
IGNITION COIL SUB-WIRE
HARNESS 6P (Black) CONNECTOR
RIGHT COOLING FAN MOTOR
2P (Black) CONNECTOR

CBR1000RR/RA (Except KO):

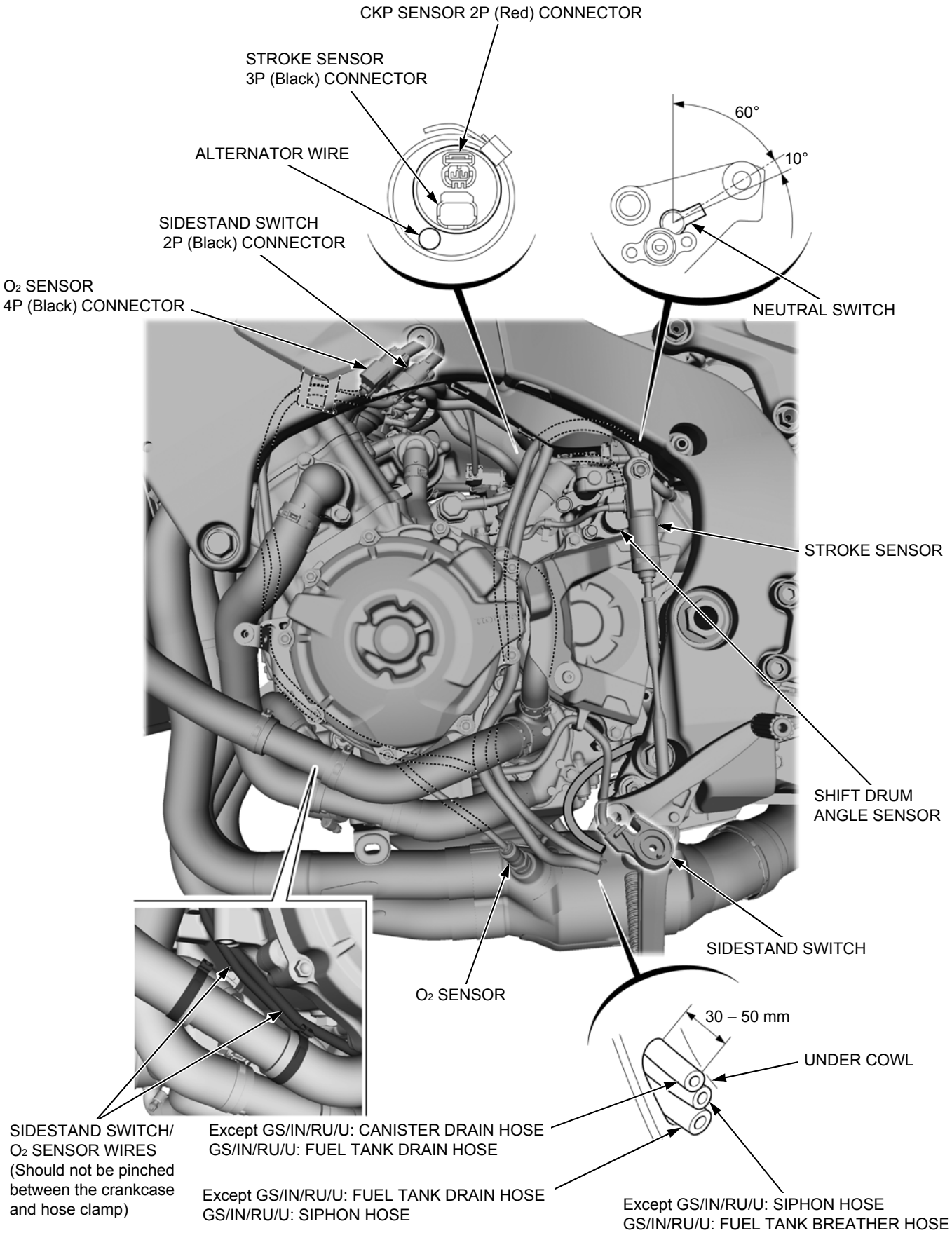


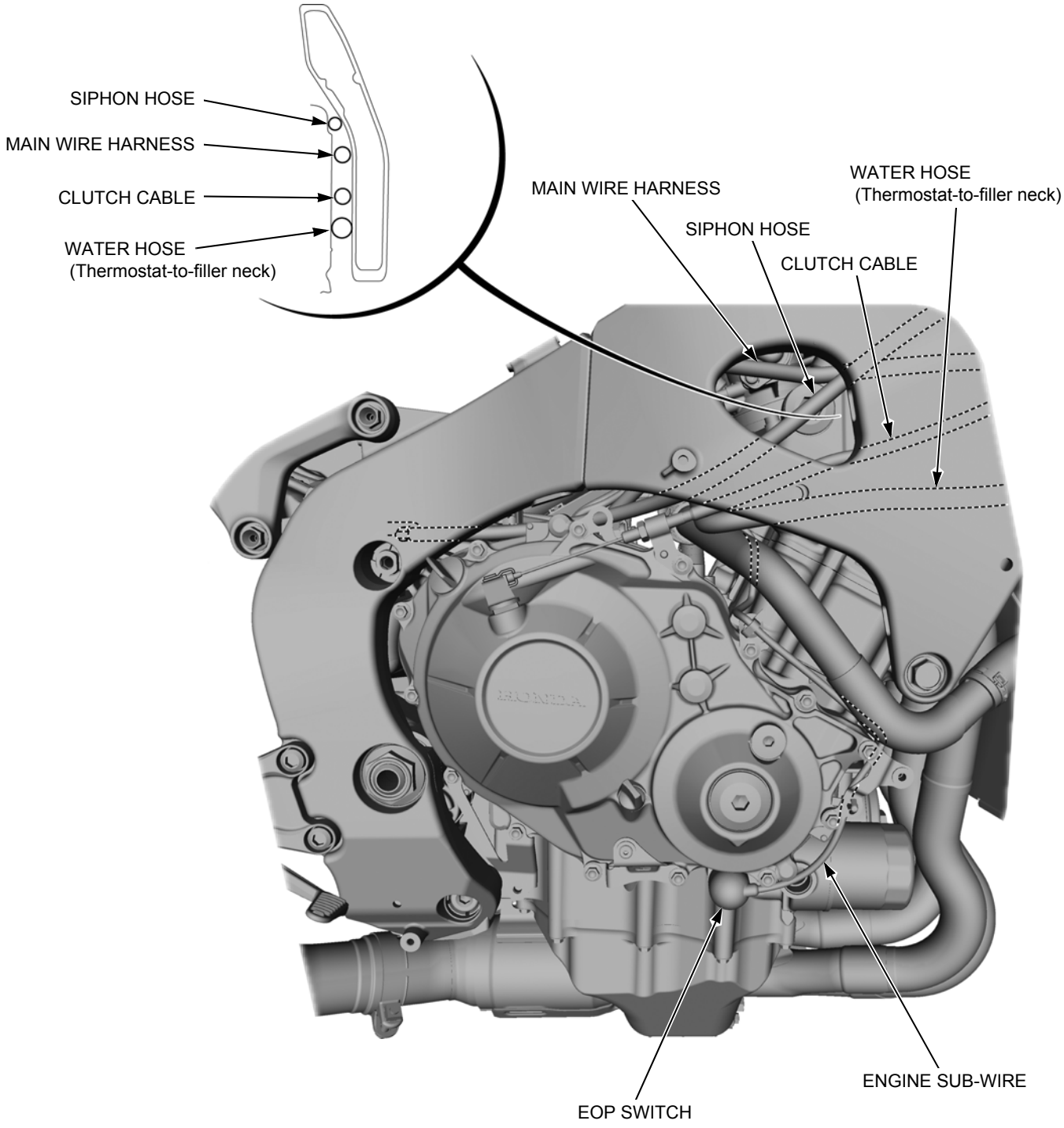
KO:

CBR1000RR/RA shown:

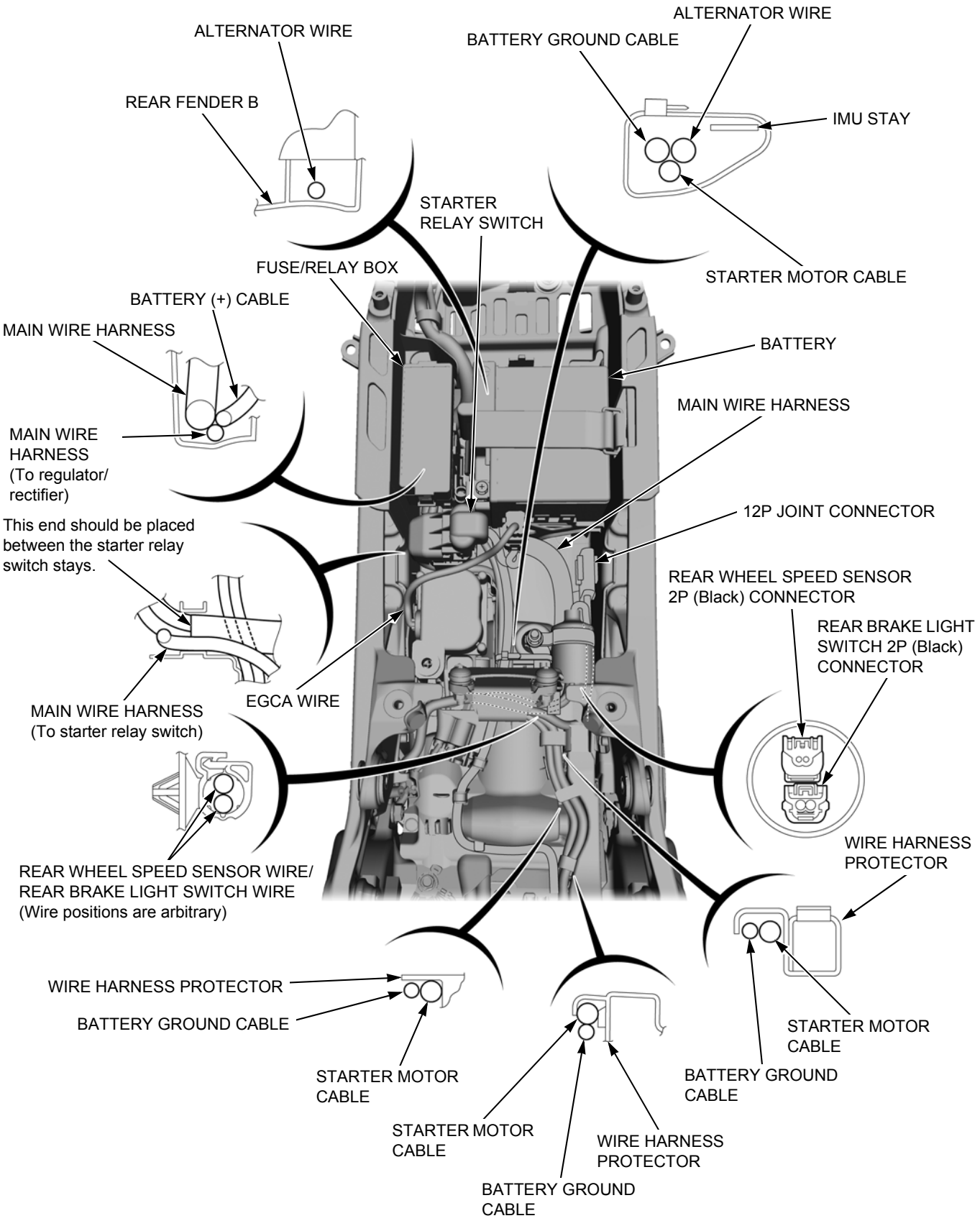


CBR1000S1/S2 (Except KO):



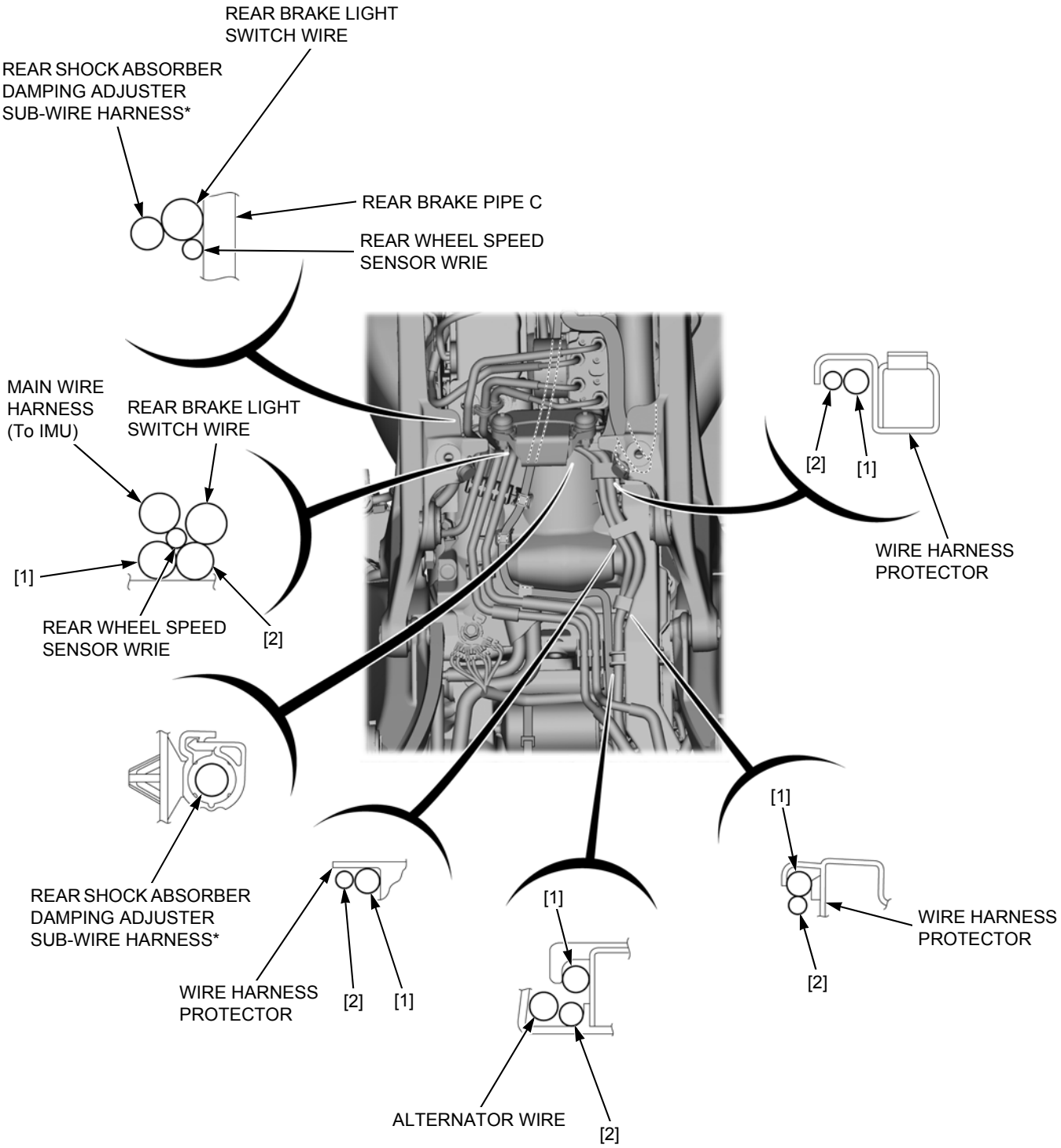

SIPHON HOSE
MAIN WIRE HARNESS
CLUTCH CABLE
WATER HOSE
(Thermostat-to-filler neck)
MAIN WIRE HARNESS
WATER HOSE
(Thermostat-to-filler neck)
SIPHON HOSE
CLUTCH CABLE
ENGINE SUB-WIRE
EOP SWITCH

CBR1000RR:


ALTERNATOR WIRE
ALTERNATOR WIRE
BATTERY GROUND CABLE
REAR FENDER B
IMU STAY
STARTER
RELAY SWITCH
STARTER MOTOR CABLE
FUSE/RELAY BOX
BATTERY (+) CABLE
MAIN WIRE HARNESS
BATTERY
MAIN WIRE HARNESS
MAIN WIRE
HARNESS
(To regulator/
rectifier)
12P JOINT CONNECTOR
This end should be placed
between the starter relay
switch stays.
REAR WHEEL SPEED SENSOR
2P (Black) CONNECTOR
REAR BRAKE LIGHT
SWITCH 2P (Black)
CONNECTOR
MAIN WIRE HARNESS
(To starter relay switch)
EGCA WIRE
WIRE HARNESS
PROTECTOR
REAR WHEEL SPEED SENSOR WIRE/
REAR BRAKE LIGHT SWITCH WIRE
(Wire positions are arbitrary)
WIRE HARNESS PROTECTOR
BATTERY GROUND CABLE
STARTER MOTOR
CABLE
STARTER MOTOR
CABLE
BATTERY GROUND
CABLE
STARTER MOTOR
CABLE
WIRE HARNESS
PROTECTOR
BATTERY GROUND
CABLE

CBR1000RA/S1/S2:

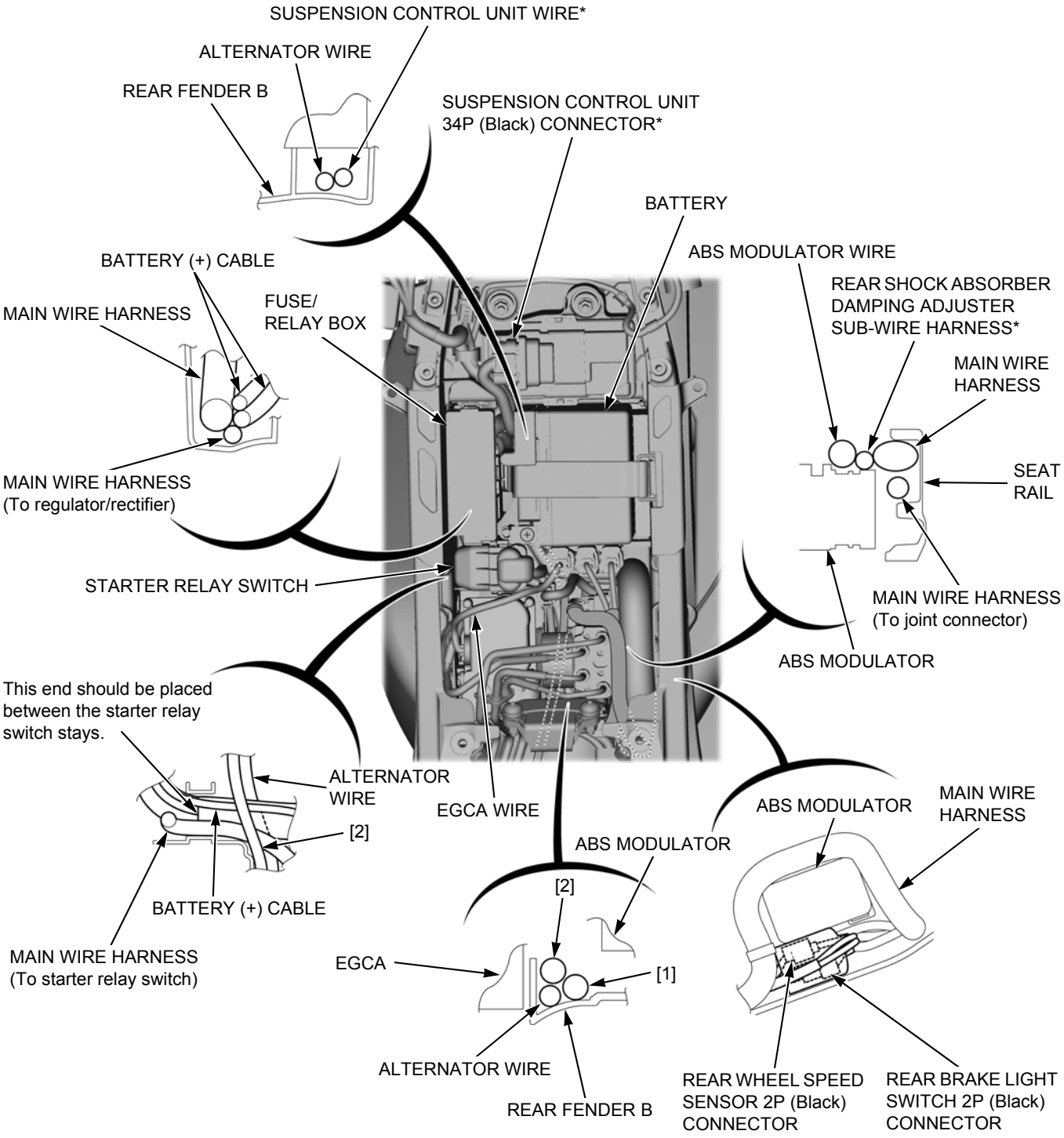
CBR1000S1/S2 shown:



[1]: STARTER MOTOR CABLE
[2]: BATTERY GROUND CABLE
*: CBR1000S1/S2 only

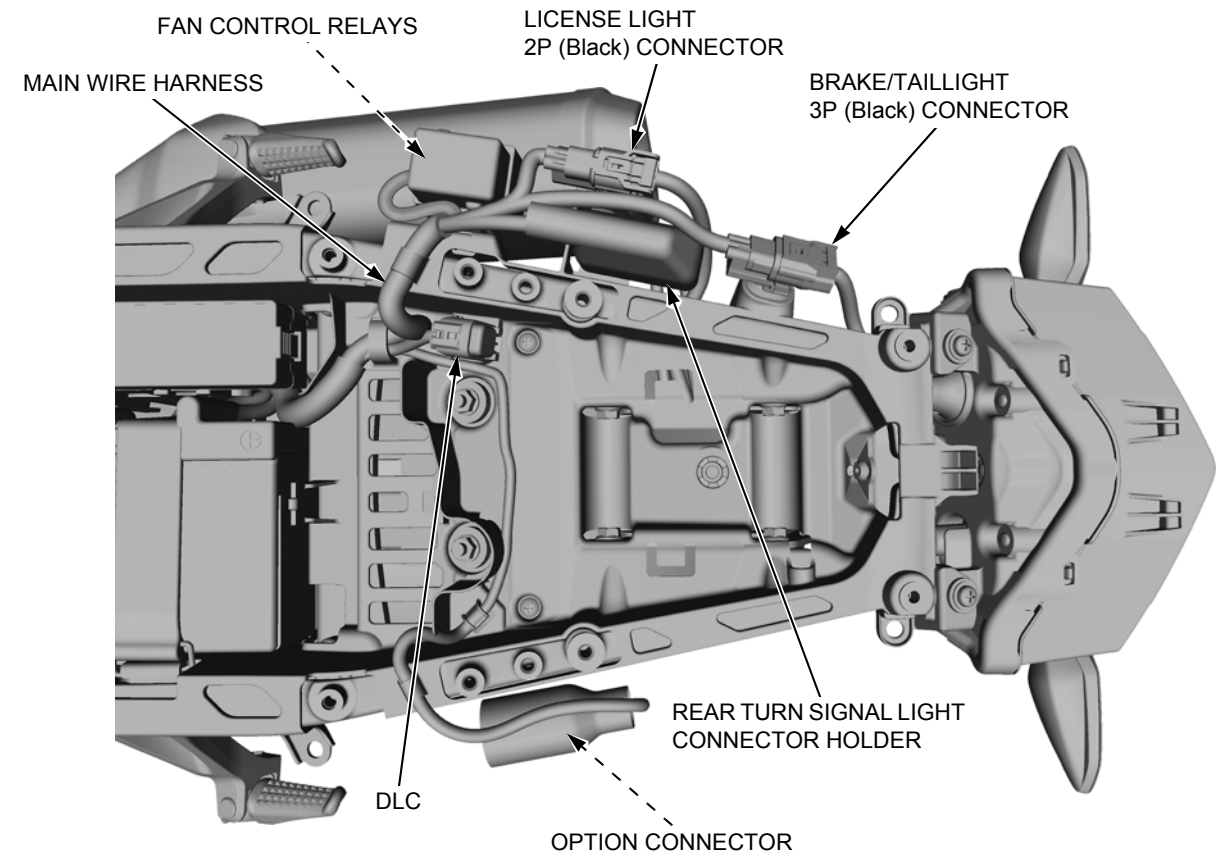
CBR1000RA/S1/S2:

CBR1000S1/S2 shown:

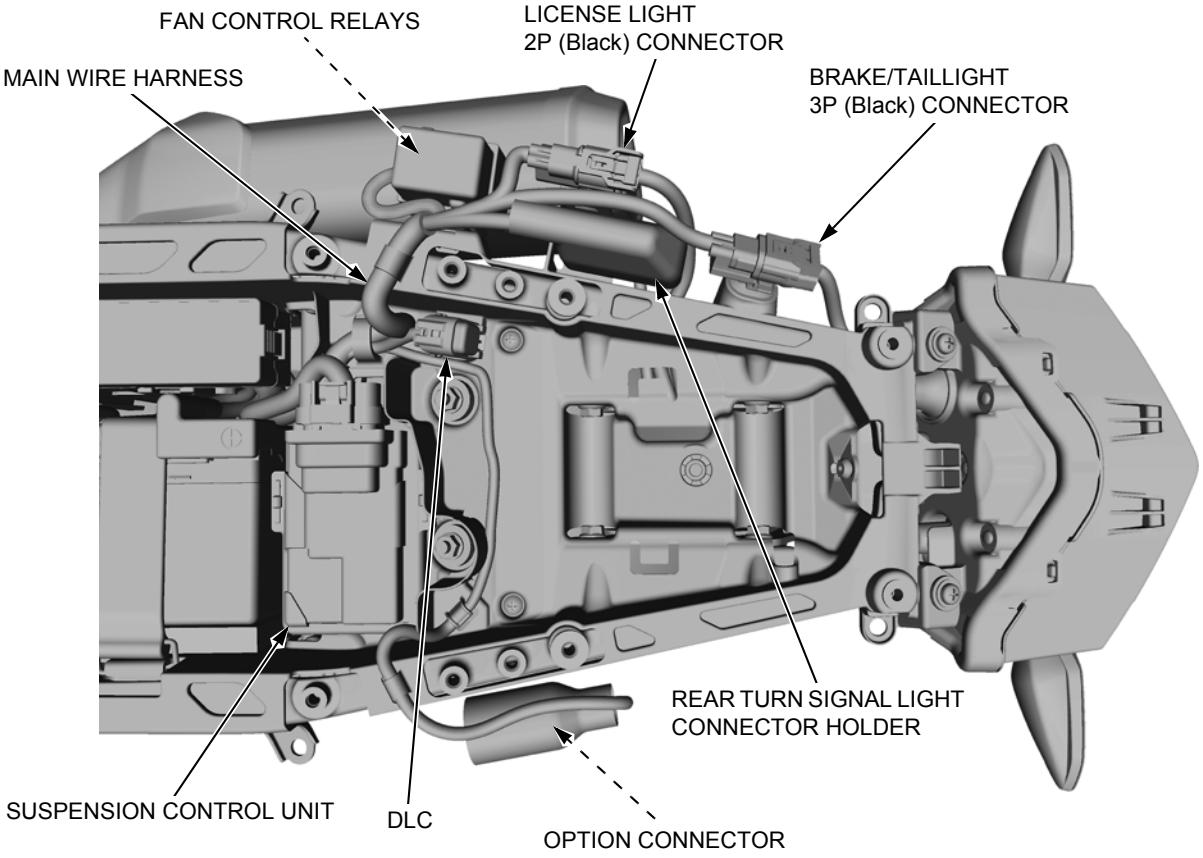


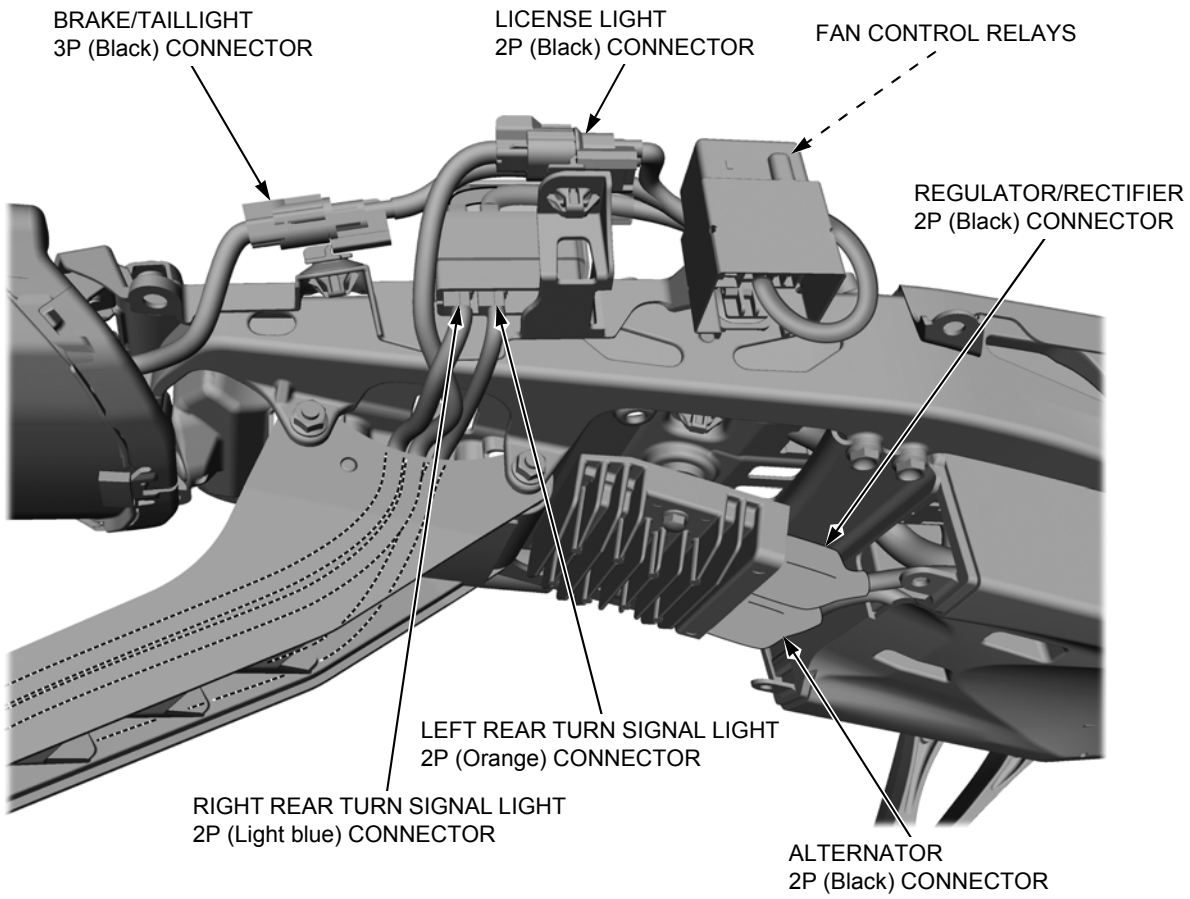
[1]: STARTER MOTOR CABLE
[2]: BATTERY GROUND CABLE
*: CBR1000S1/S2 only

CBR1000RR/RA:

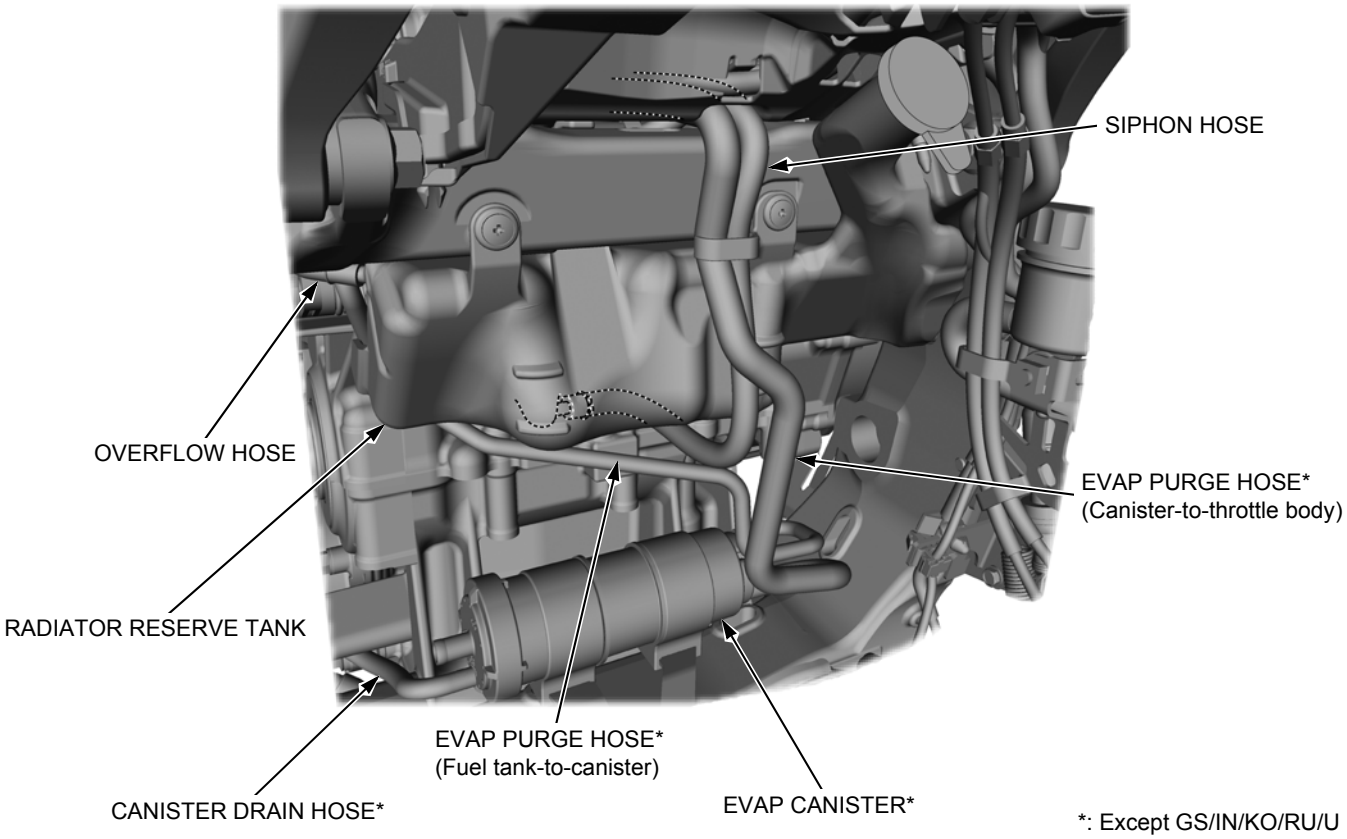


CBR1000S1/S2:

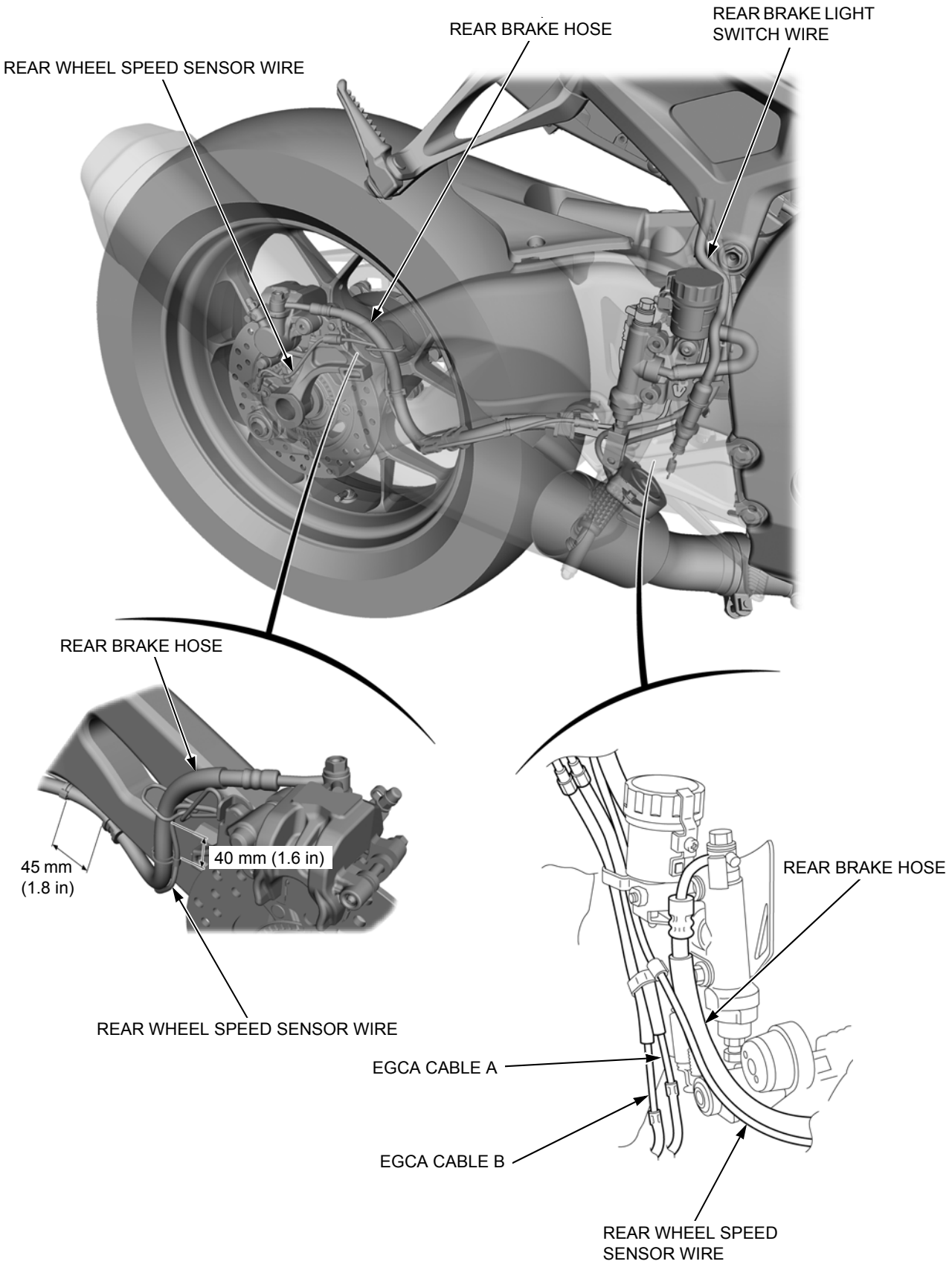




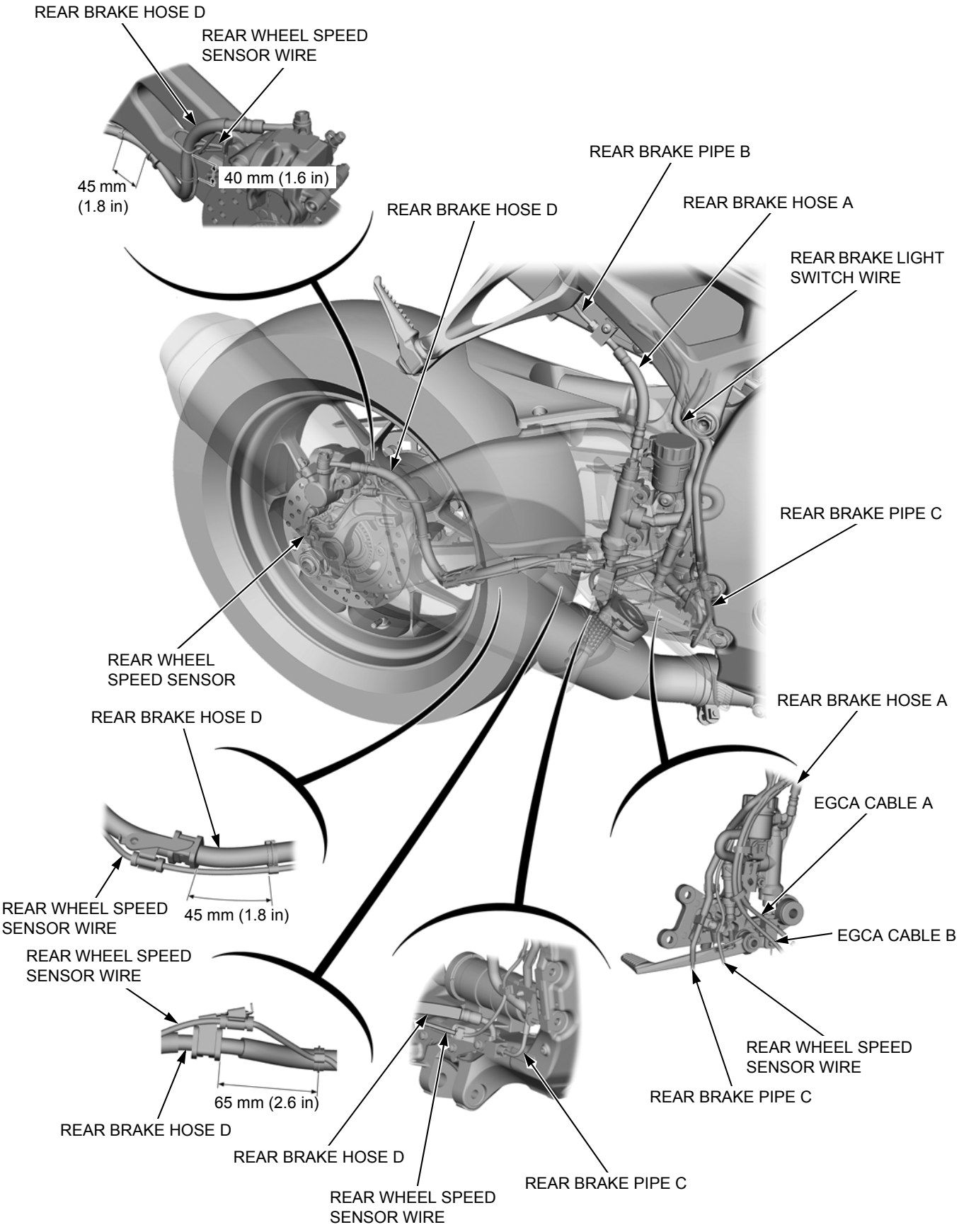
CBR1000RA (Except GS/IN/KO/RU/U) shown:



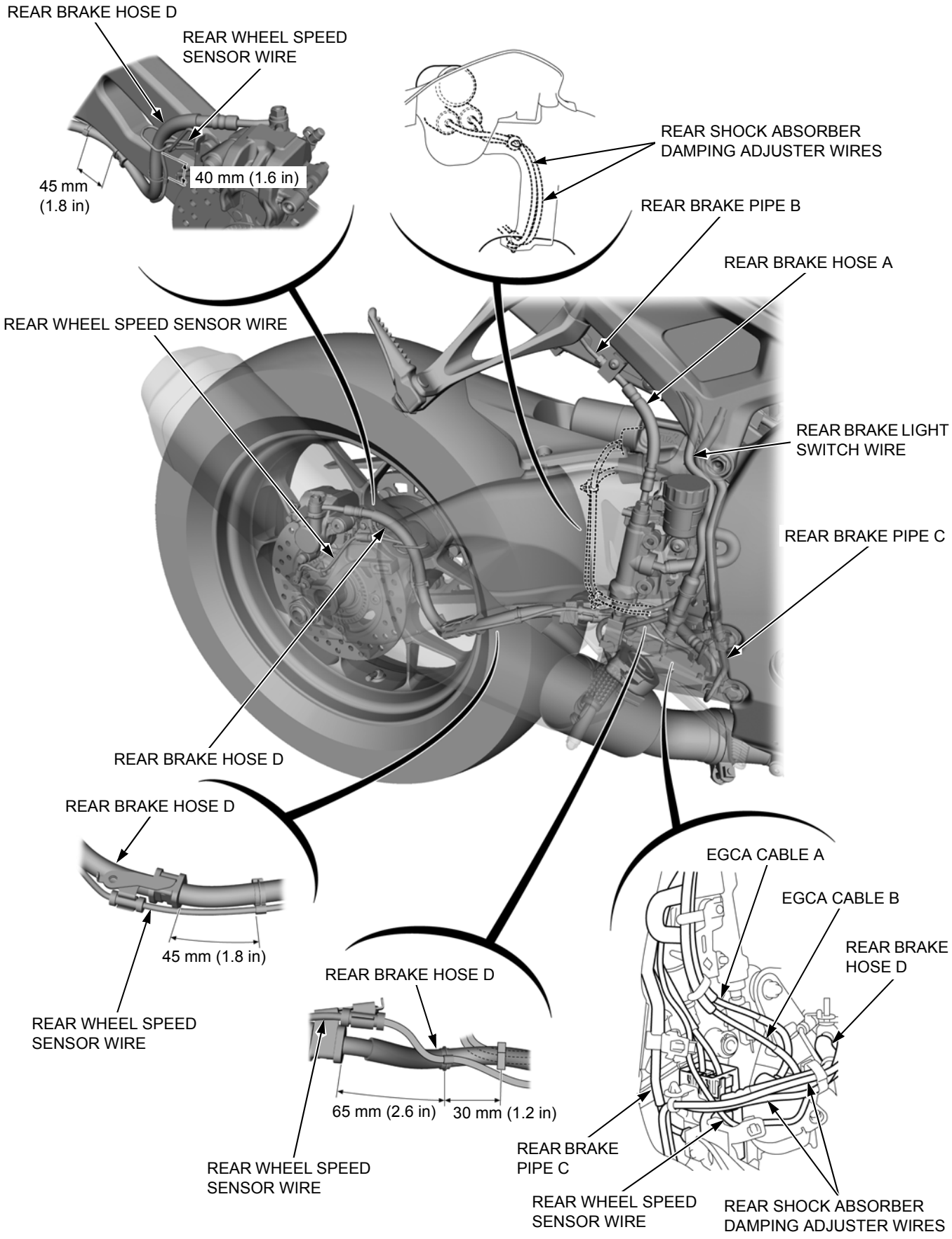
*: Except GS/IN/KO/RU/U


REAR BRAKE HOSE
REAR BRAKE LIGHT SWITCH WIRE
REAR WHEEL SPEED SENSOR WIRE
REAR BRAKE HOSE
45 mm (1.8 in)
40 mm (1.6 in)
REAR WHEEL SPEED SENSOR WIRE
REAR BRAKE HOSE
EGCA CABLE A
EGCA CABLE B
REAR WHEEL SPEED SENSOR WIRE

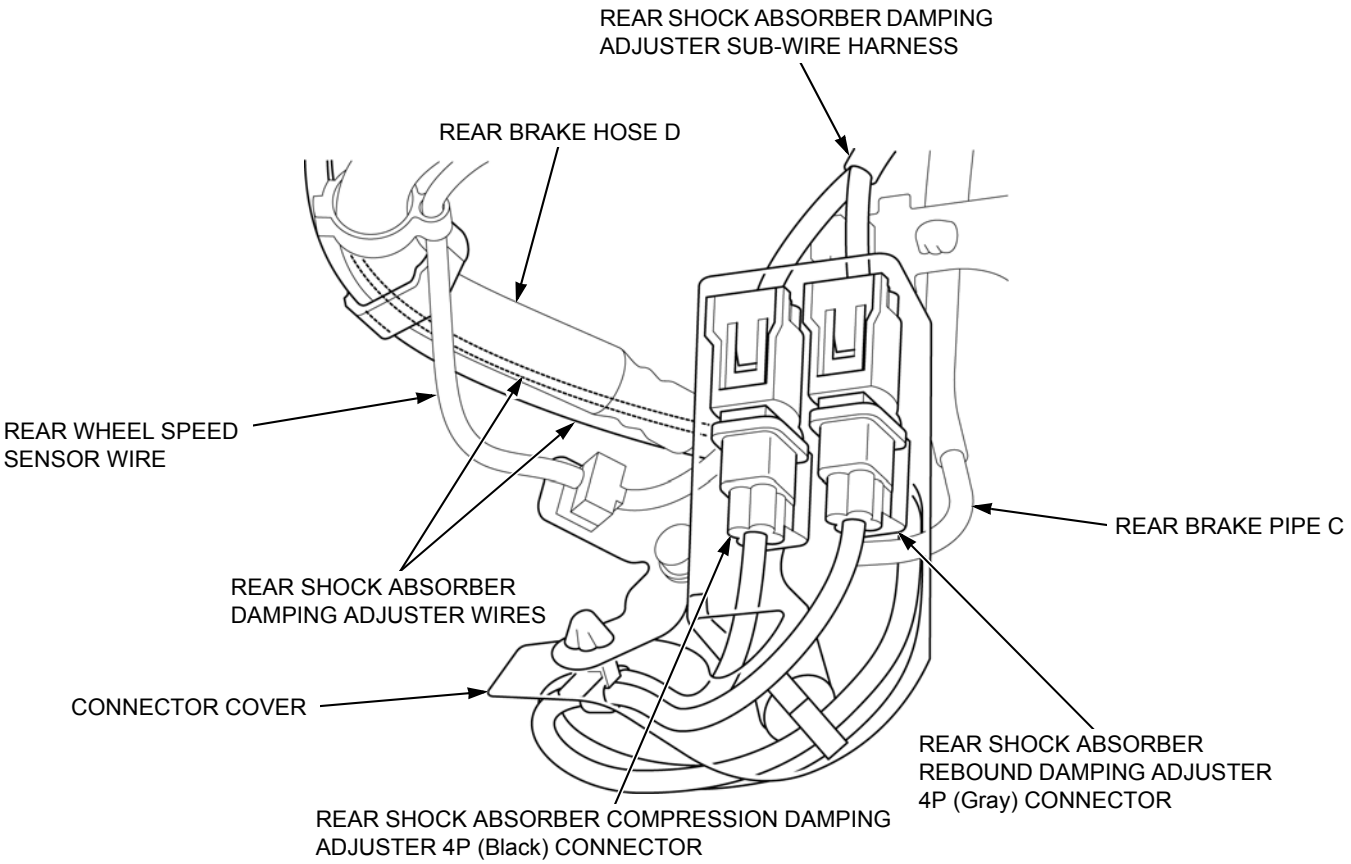
CBR1000RA:

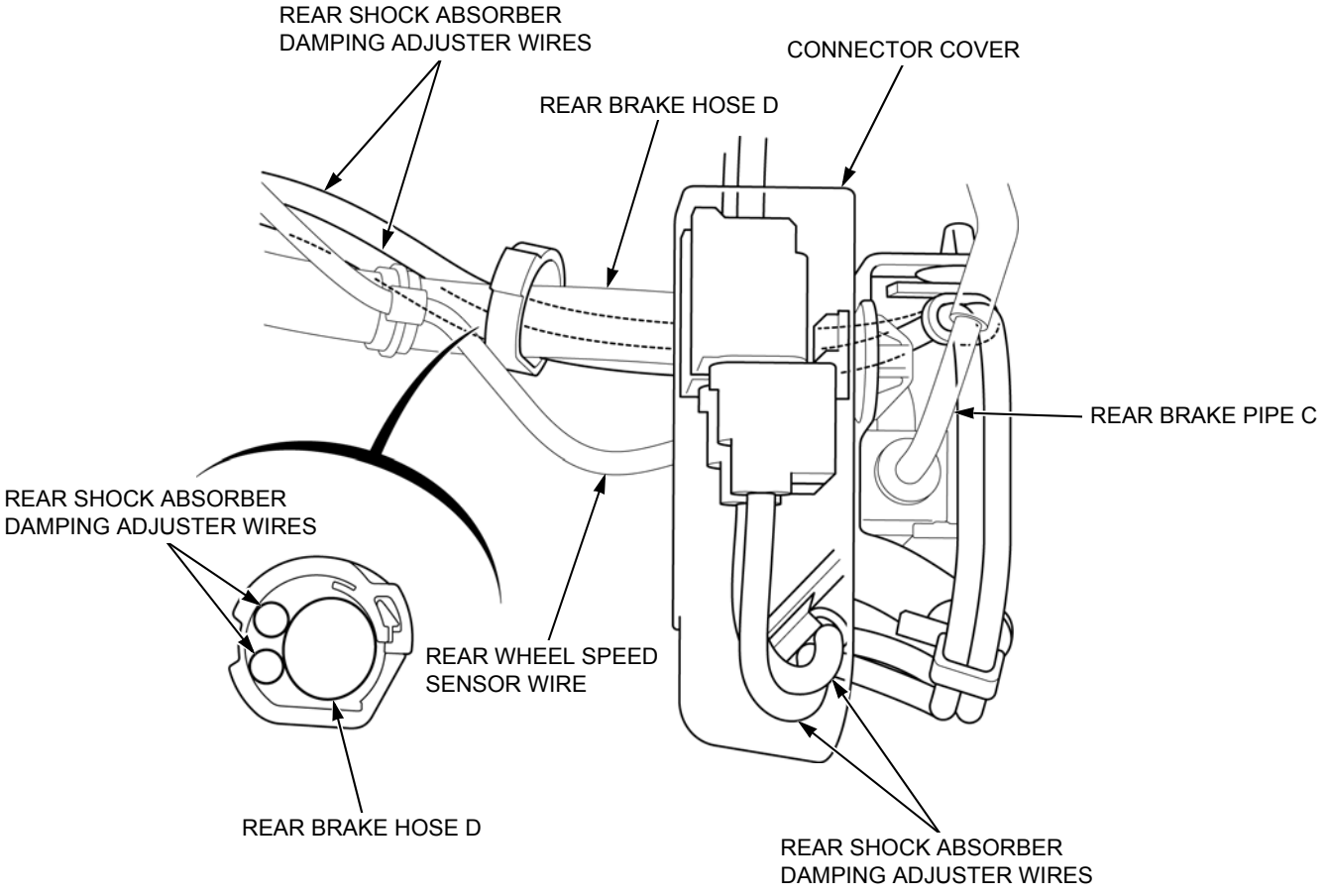

REAR BRAKE HOSE D
REAR WHEEL SPEED SENSOR WIRE
40 mm (1.6 in)
45 mm (1.8 in)
REAR BRAKE PIPE B
REAR BRAKE HOSE D
REAR BRAKE HOSE A
REAR BRAKE LIGHT SWITCH WIRE
REAR BRAKE PIPE C
REAR WHEEL SPEED SENSOR
REAR BRAKE HOSE D
REAR BRAKE HOSE A
EGCA CABLE A
REAR WHEEL SPEED SENSOR WIRE
45 mm (1.8 in)
EGCA CABLE B
REAR WHEEL SPEED SENSOR WIRE
REAR WHEEL SPEED SENSOR WIRE
65 mm (2.6 in)
REAR BRAKE PIPE C
REAR BRAKE HOSE D
REAR BRAKE HOSE D
REAR BRAKE PIPE C
REAR WHEEL SPEED SENSOR WIRE

CBR1000S1/S2:

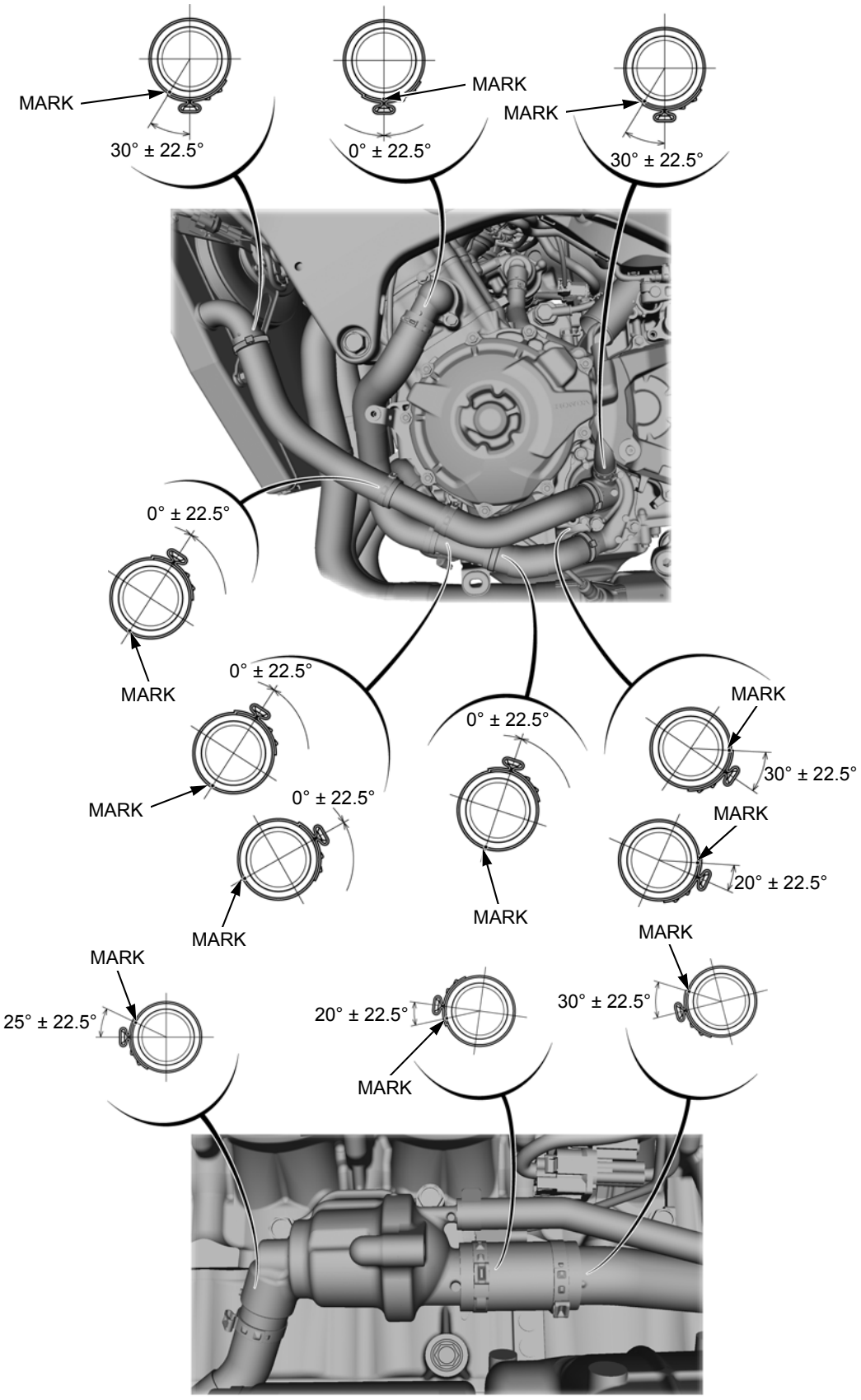


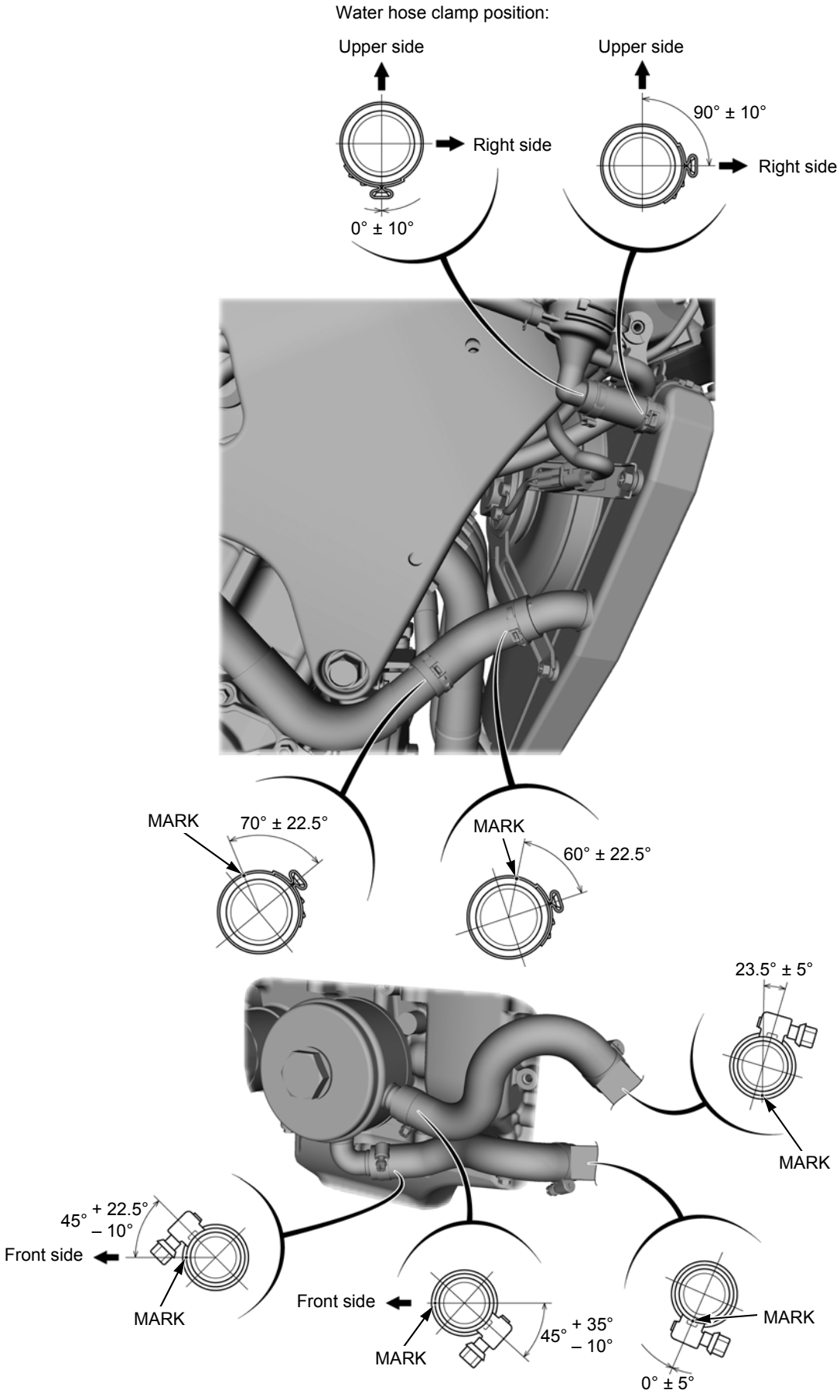
CBR1000S1/S2:





Water hose clamp position:




Water hose clamp position:
Upper side
Right side
0° ± 10°
Upper side
90° ± 10°
Right side
MARK
70° ± 22.5°
MARK
60° ± 22.5°
23.5° ± 5°
MARK
45° + 22.5° – 10°
Front side
MARK
Front side
MARK
45° + 35° – 10°
MARK
0° ± 5°

EMISSION CONTROL SYSTEMS

SOURCE OF EMISSIONS

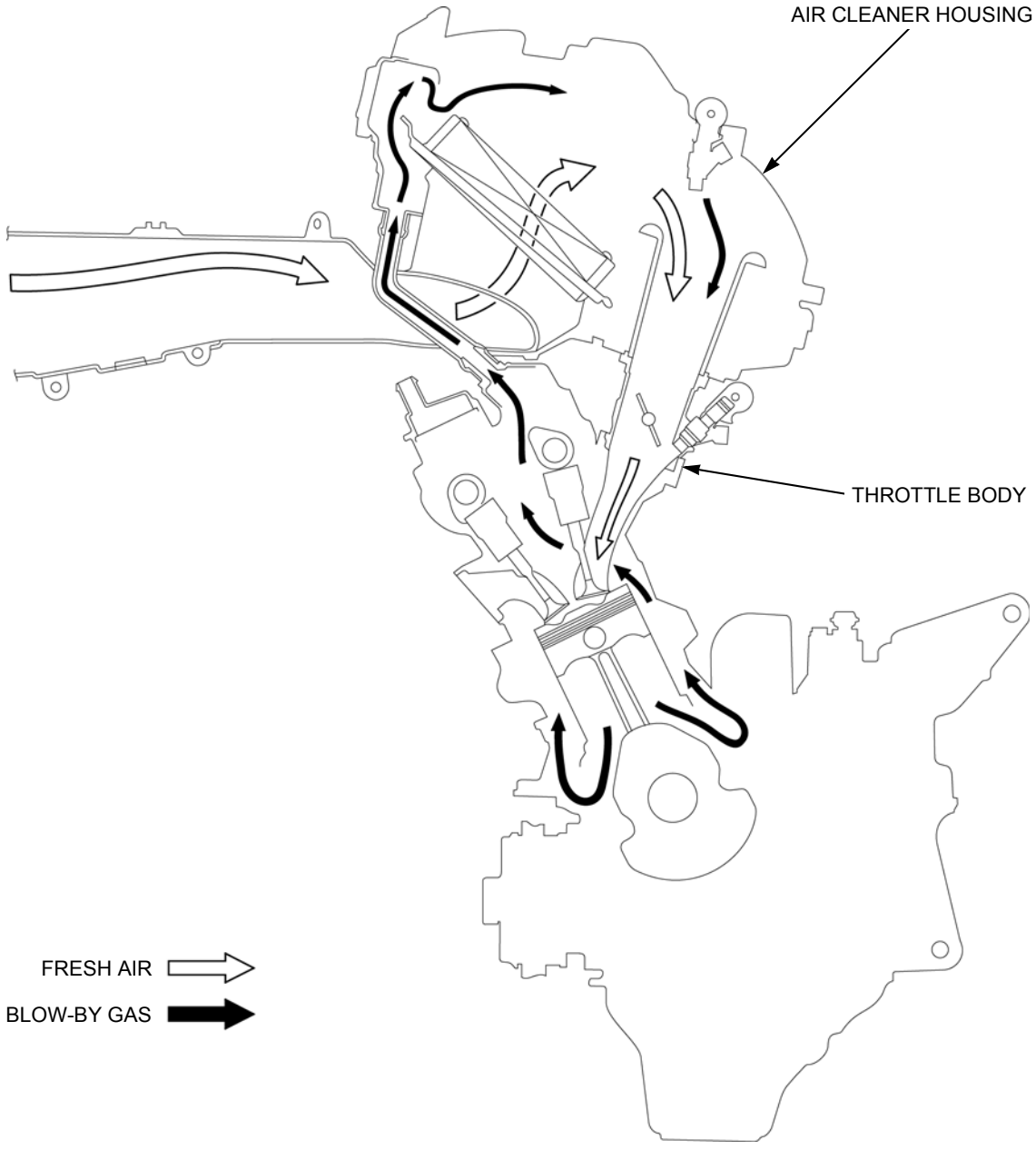
The combustion process produces carbon monoxide (CO), oxides of nitrogen (NO_X) and hydrocarbons (HC). Control of carbon monoxide, oxides of nitrogen and hydrocarbons is very important because, under certain conditions, they react to form photochemical smog when subject to sunlight. Carbon monoxide does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

Honda Motor Co., Ltd. utilizes various system (page 1-54) to reduce carbon monoxide, oxides of nitrogen and hydrocarbons.

CRANKCASE EMISSION CONTROL SYSTEM

The engine is equipped with a closed crankcase system to prevent discharging crankcase emissions into the atmosphere.

Blow-by gas is returned to the combustion chamber through the air cleaner housing and throttle body.



EXHAUST EMISSION CONTROL SYSTEM (SECONDARY AIR SUPPLY SYSTEM)

The exhaust emission control system is composed of a pulse secondary air supply system, a three-way catalytic converter and PGM-FI system.

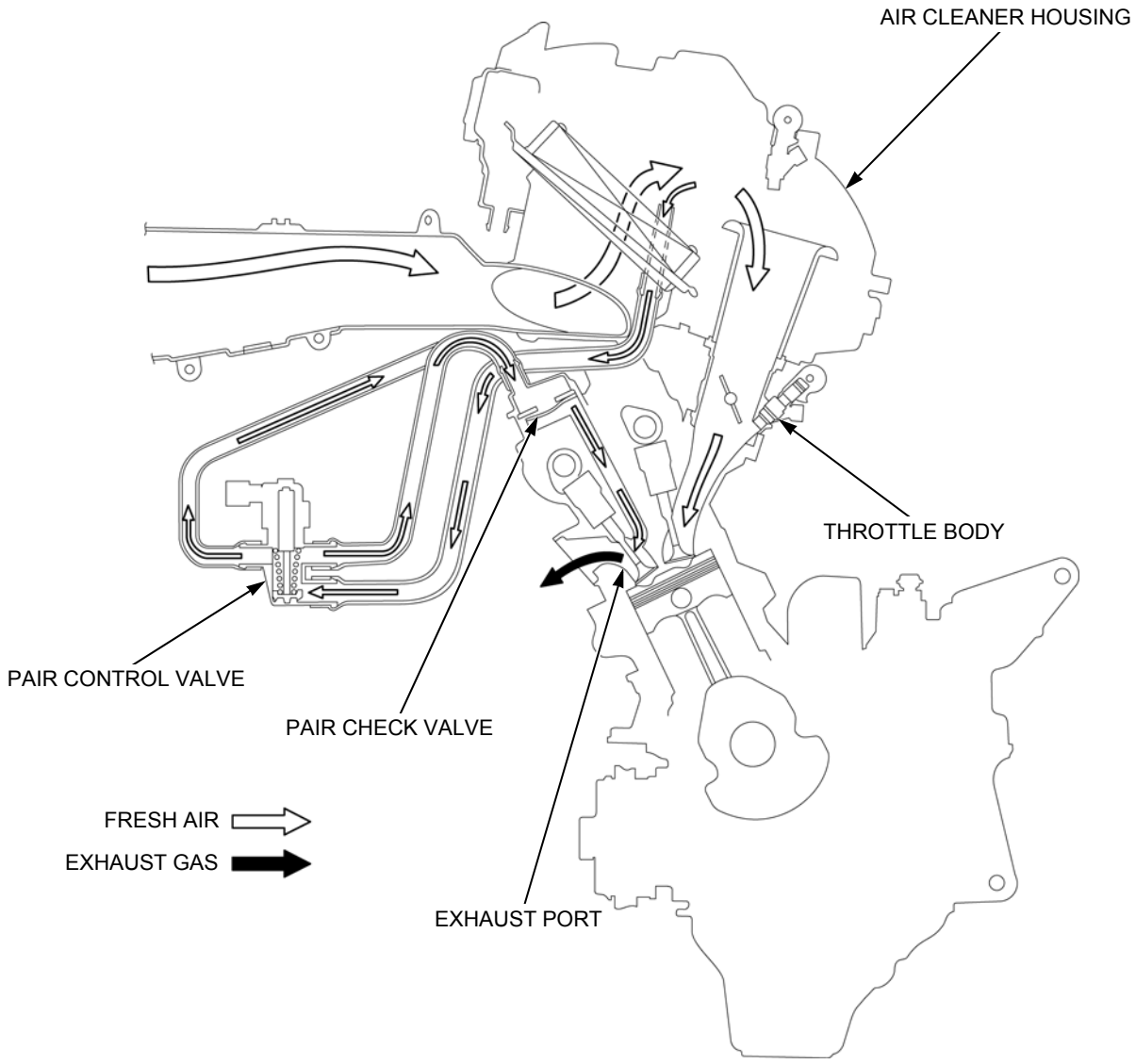
SECONDARY AIR SUPPLY SYSTEM

The pulse secondary air supply system introduces filtered air into the exhaust gases in the exhaust port. Fresh air is drawn into the exhaust port by the function of the PAIR control valve.

This charge of fresh air promotes burning of the unburned exhaust gases and changes a considerable amount of hydrocarbons and carbon monoxide into relatively harmless carbon dioxide and water vapor.

The reed valve prevents reverse air flow through the system. The PAIR control valve is operated by the solenoid valve. The solenoid valve is controlled by the ECM, and the fresh air passage is opened/closed according to running conditions (ECT/IAT/TP/ MAP sensor and engine revolution).

No adjustments to the secondary air supply system should be made, although periodic inspection of the components is recommended.



THREE-WAY CATALYTIC CONVERTER

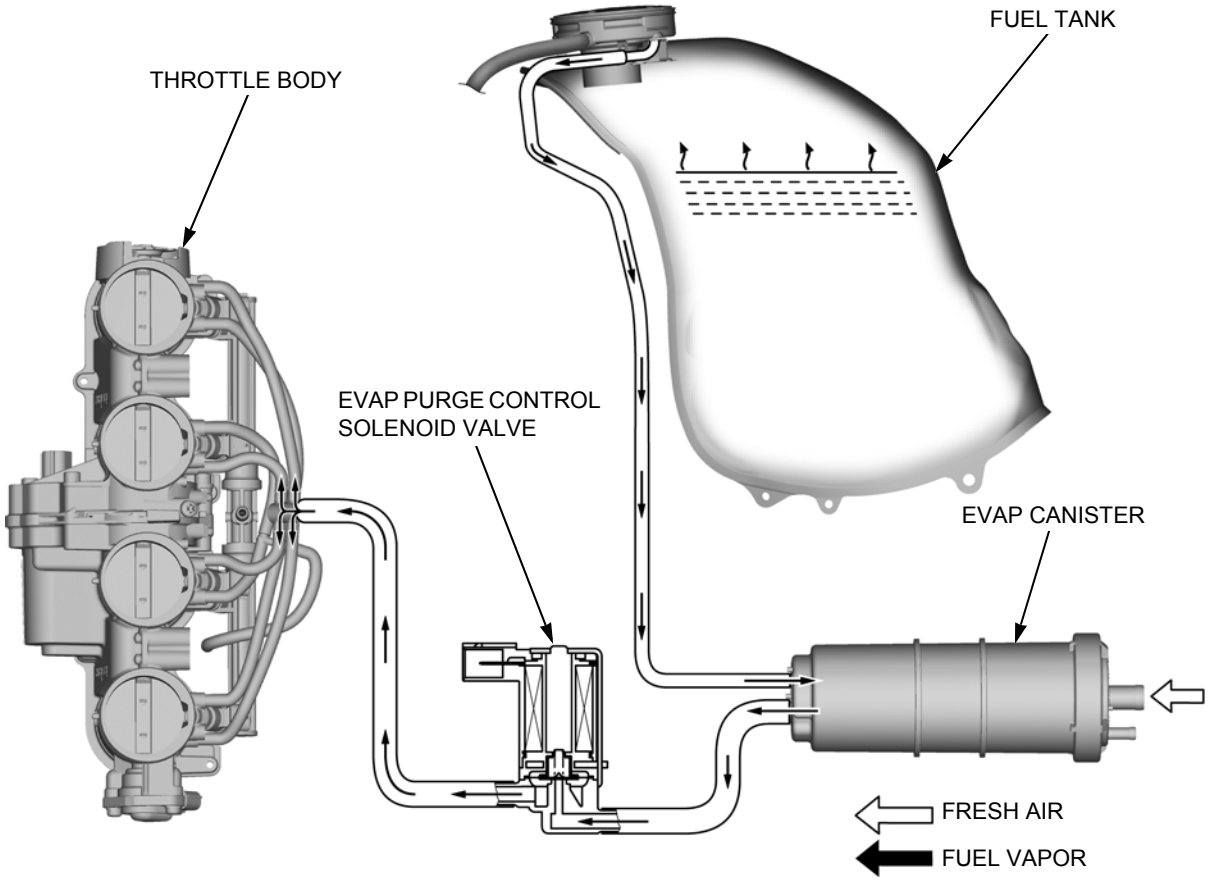
This motorcycle is equipped with a three-way catalytic converter.

The three-way catalytic converter is in the exhaust system. Through chemical reactions, it converts HC, CO and NO_X in the engine's exhaust to carbon dioxide (CO_2), nitrogen (N_2), and water vapor.

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

EVAPORATIVE EMISSION CONTROL SYSTEM (Except GS/IN/RU/U)

Fuel vapor from the fuel tank is routed into the EVAP canister where it is absorbed and stored while the engine is stopped. When the engine is running and the EVAP purge control solenoid valve is open, fuel vapor in the EVAP canister is drawn into the engine.



NOISE EMISSION CONTROL SYSTEM

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

AMONG THOSE ACTS PRESUMED TO CONSTITUTE TAMPERING ARE THE ACTS LISTED BELOW:

1. Removal of, or puncturing of the muffler, baffles, header pipes or any other component which conducts exhaust gases.
2. Removal of, or puncturing of any part of the intake system.
3. Lack of proper maintenance.
4. Replacing any moving parts of the vehicle, or parts of the exhaust or intake system, with parts other than those specified by the manufacturer.

TECHNICAL FEATURES

Grip APS

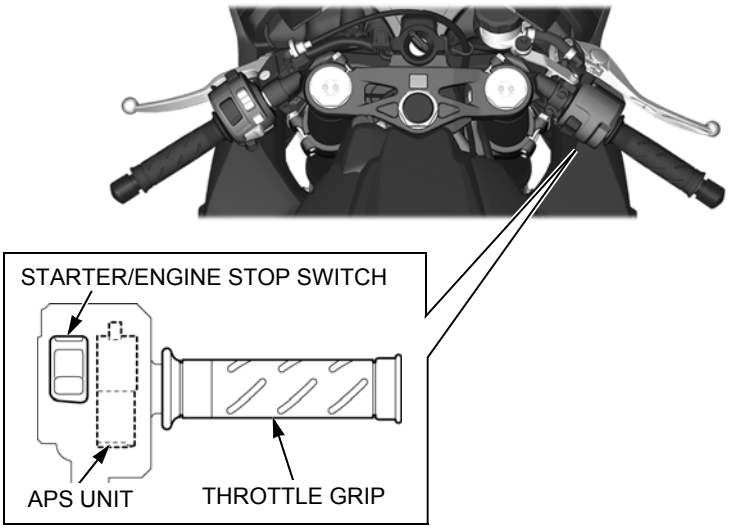
Grip APS overview of construction

With the TBW (Throttle By Wire) that requires no cables employed for the purpose of weight reduction, the layout around the handlebars of this model is made simpler and more innovative.

When the throttle is opened right after the ignition is turned on that is before the engine starts, the throttle valves are driven by the motor to open and close. Some motor noise can be heard, but it is not a sign that something is wrong with the vehicle.

The throttle grip assembly is composed of a throttle grip, right handle switch, and an APS.

The APS unit has a gearless structure that consists of a hall IC, sensor case, return spring, sensor rotor, and magnets as its main components.

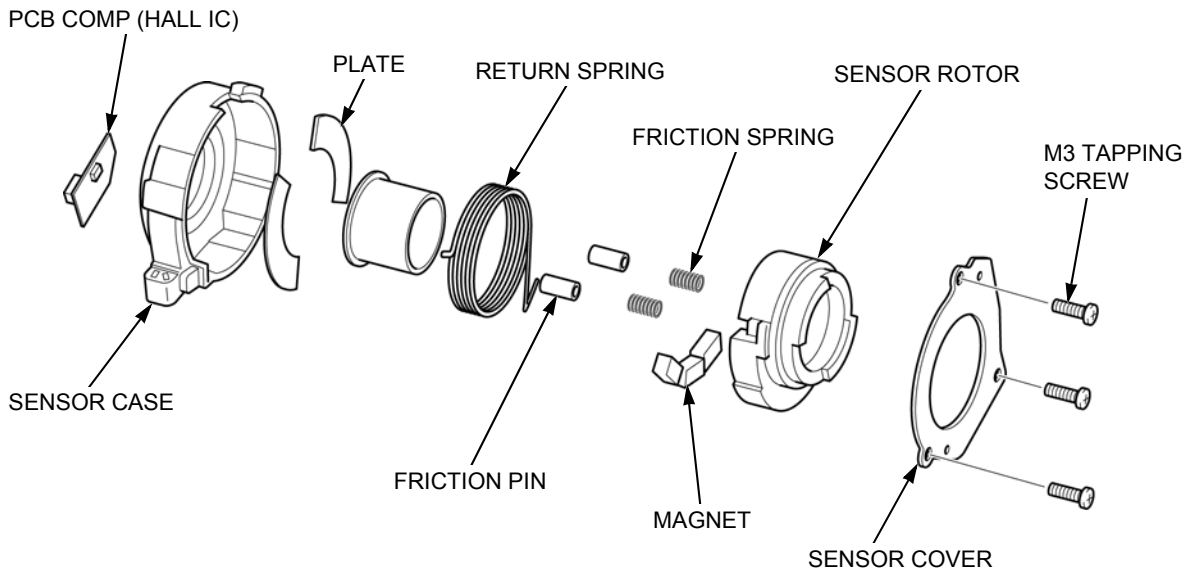


Also, by setting the return spring, friction spring, and friction pin to the optimal conditions, the same operational feelings as that offered by existing models are realized.

You need to keep any items susceptible to magnetic fields or magnetic items away from the APS unit.

Do not disassemble the APS.

APS UNIT components

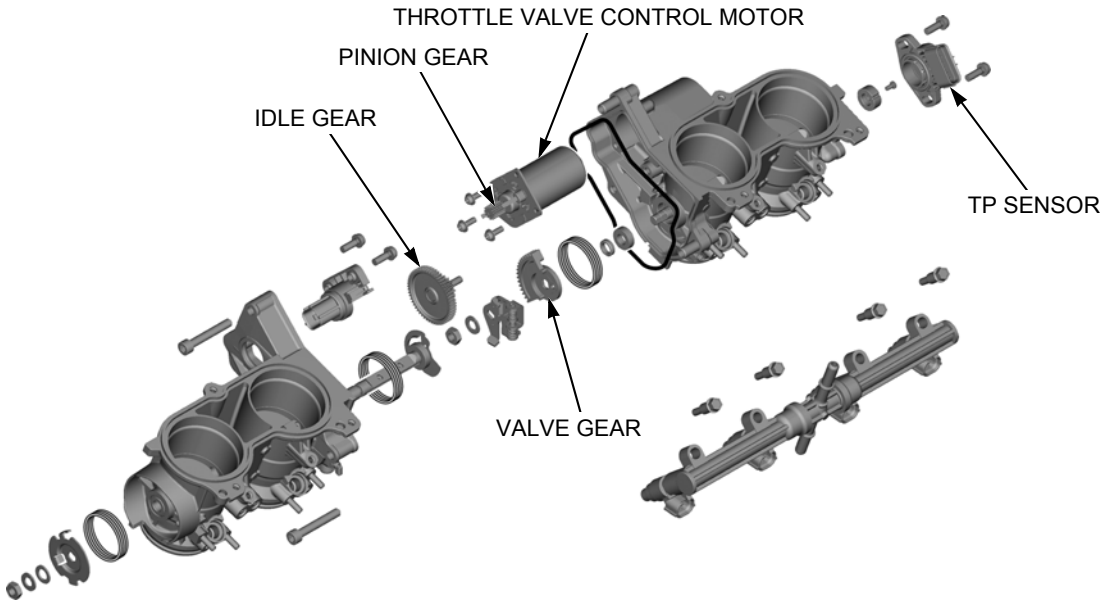


Throttle body overview of construction

As for the throttle body assembly, when the throttle body receives a signal from the ECM, the motor for driving the throttle valves is activated. Output from the motor is transferred to the valve gear via the pinion gear and idle gear, and then drives the coaxially arranged throttle valve shaft to open the throttle valves.

A signal of proper throttle opening angle is transmitted to the TP sensor.

Do not disassemble the throttle body assembly.



A throttle body related trouble code may be read out even for temporary adhesion of carbon to the throttle valves.

Therefore, when getting the code, check for carbon buildup on the throttle valves; the throttle body may need to be removed and cleaned depending on the condition.

One Ear Hose Clamp

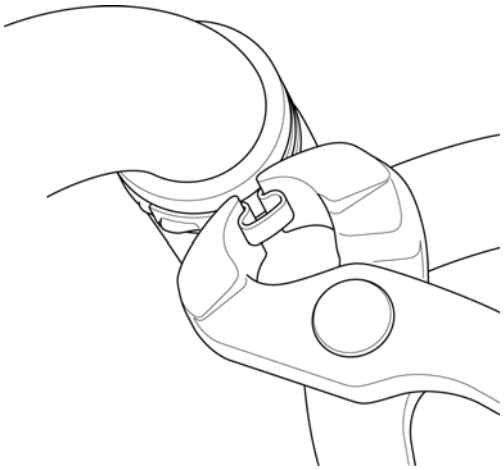
Overview

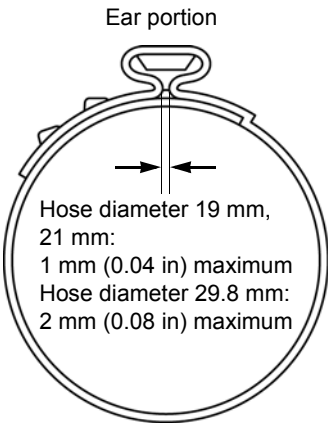
One-ear water hose clamps used on this vehicle save weight by 50% each comparing to conventional screw (worm gear) type clamps.

Ear hose clamps are not reusable because you need to cut off the ear to remove them.

To apply this type of clamp, use a special pincer (OETIKER 1098 or equivalent) and keep the clearance at the base of the ear within the specified limit.

How to apply



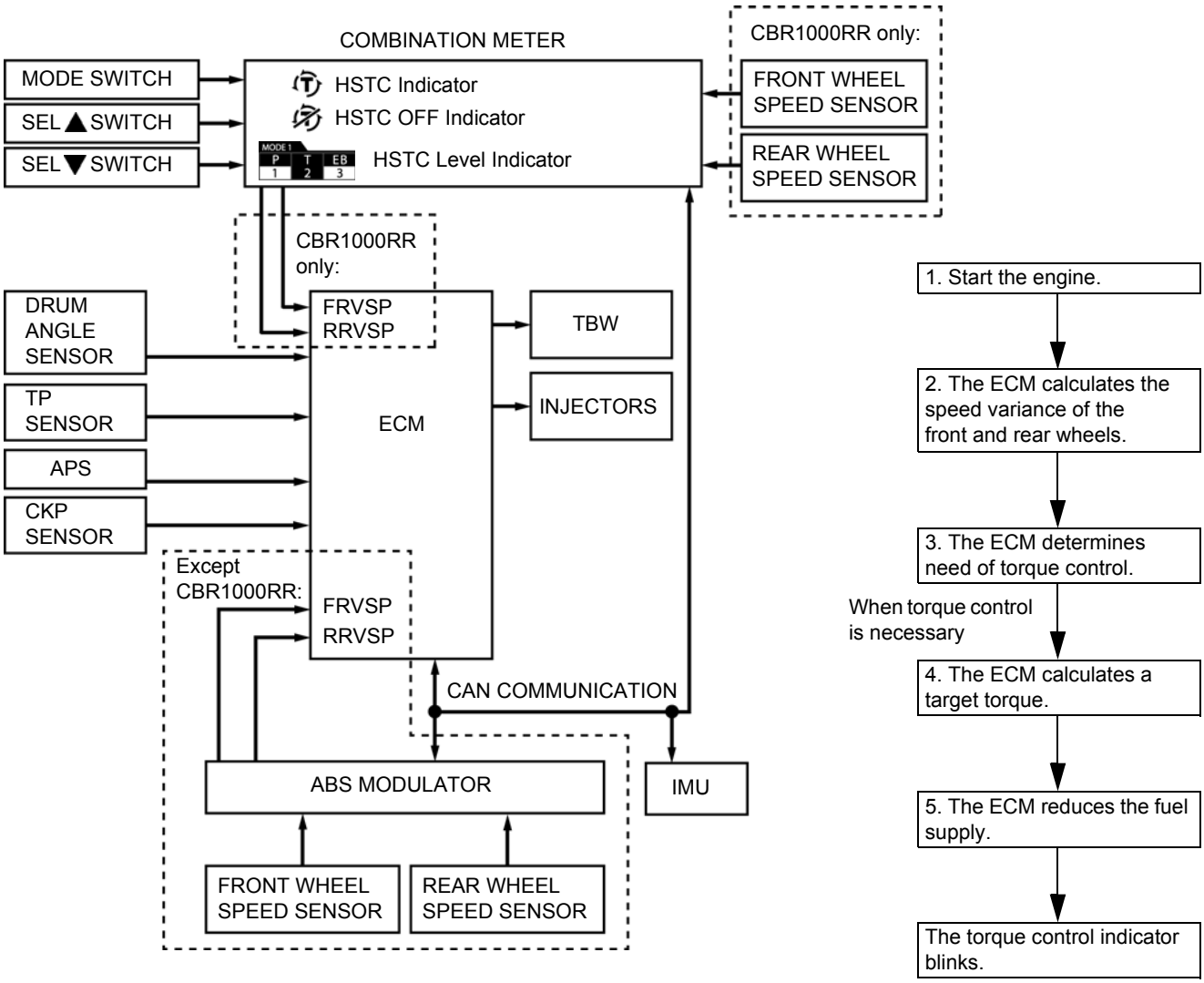


Honda Selectable Torque Control System

The torque control system limits the engine torque by reducing the fuel supply to control the rotational speed of the rear wheel when opening the throttle rapidly or riding in rain.
This system allows the rider to select ten different levels of torque control.

How the torque control works

The ECM detects the speed variance between the front and rear wheels while the motorcycle is running. When the difference of the rotational speed exceeds the specified limit, the ECM controls the TBW and fuel injection from the injectors so that the engine torque is target value according to the speed difference. Thus, the system reduces the wheel speed difference.



Indicators

When the torque control is active, the torque control indicator blinks.
When the torque control system fails, the system is stops and the torque control indicator comes on.

The following figures show the indication status before the pre-start self-diagnosis is completed with the ignition switch turned ON. The torque control indicator stays on at this time.
The pre-start self-diagnosis is completed when the motorcycle speed reaches 5 km/h (3 mph) (the torque control indicator goes off when the system is normal).
Note that the control level cannot be changed when the torque control is active.

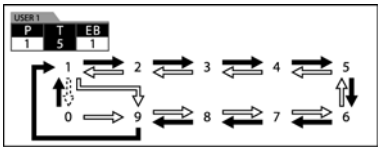
HSTC OFF INDICATOR

· Comes on when the Torque Control is turned off (Level 0).

HSTC INDICATOR

· Comes on when the ignition switch is turned to the ON position. Goes off when motorcycle speed reaches approximately 5 km/h (3 mph).

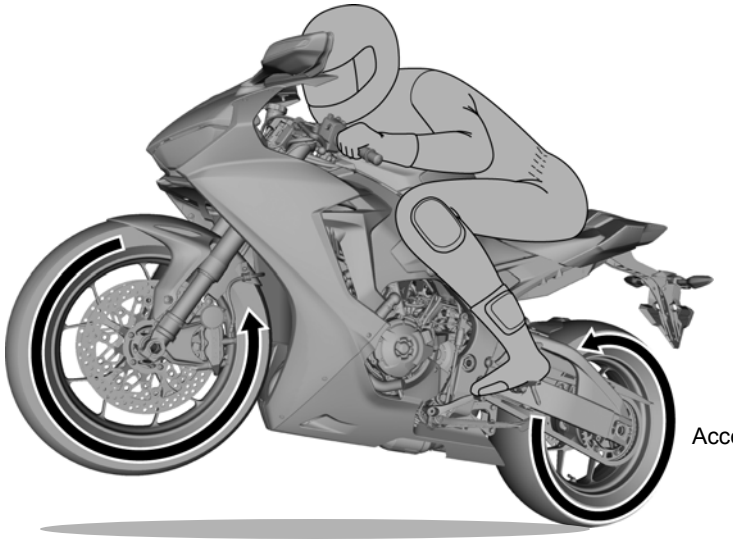
HSTC LEVEL INDICATOR



Press the SEL ▲ (up) button
Press the SEL ▼ (down) button
Press and hold the SEL ▼ (down) button

Motorcycle behavior control

If the ECM detects acceleration in the rear drive wheel at the same time as deceleration in the front driven wheel, it reduces the TBW throttle position unit the front wheel acceleration returns, which controls torque and reduces the occurrence of wheels.



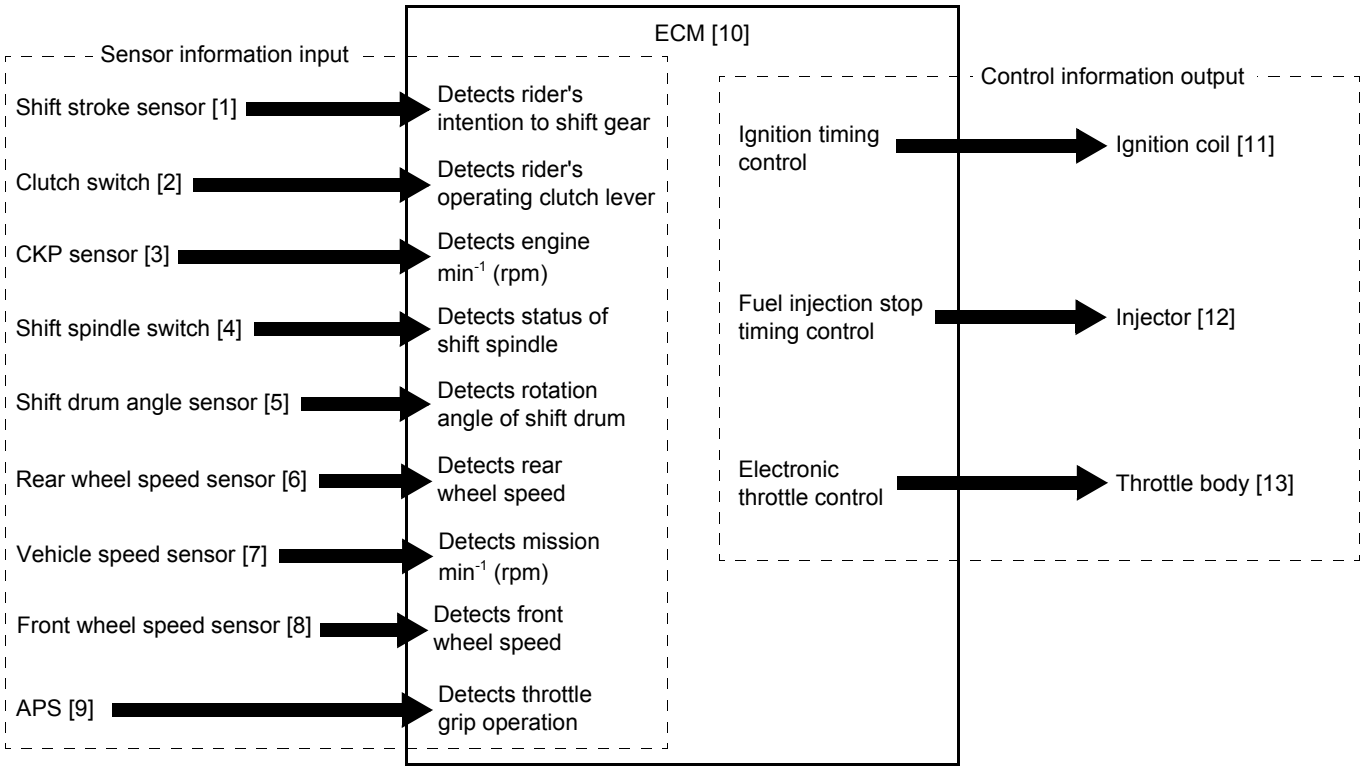
Quick Shifter System

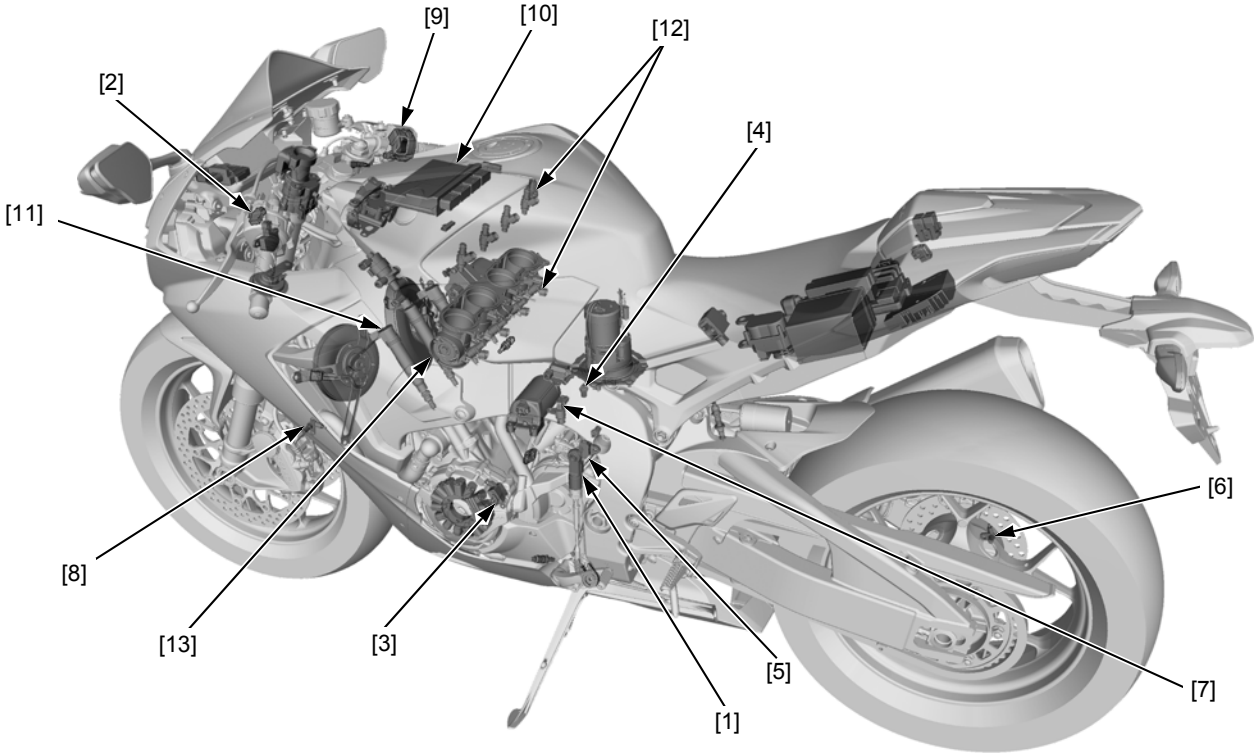
Overview

Quick shifter is a system that enables clutchless upshifts under acceleration and blipping on downshifts under acceleration/ deceleration by systematically utilizing input of sensor information and output of control information.

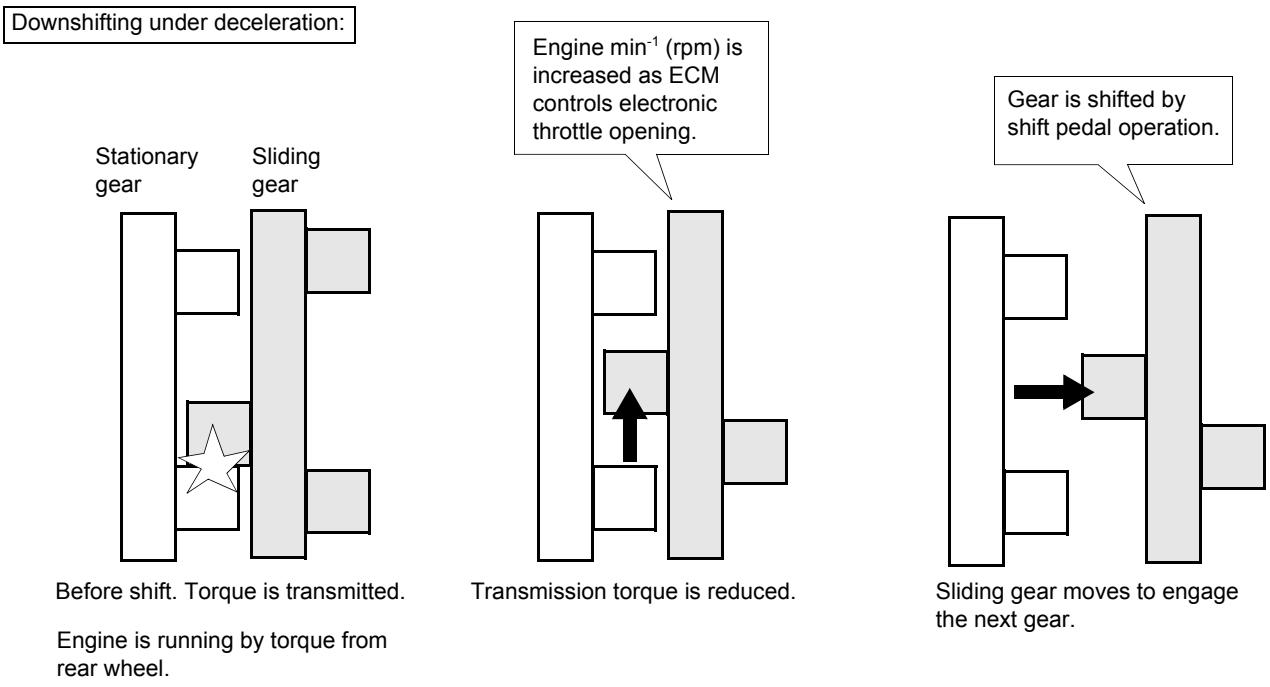
It allows the rider to upshift and downshift only using the shift pedal. There is no need to touch either the clutch lever or throttle grip. In the traditional way of gear shifting, the rider disengages the clutch to reduce transmission torque. With this system, to cut down transmission torque to enable a gear shifting, electrical throttle opening, ignition timing, and fuel injection stop timing are controlled by the system in response to; a shift operation by the rider, acceleration/deceleration of the engine, and position of the gear.

System configuration





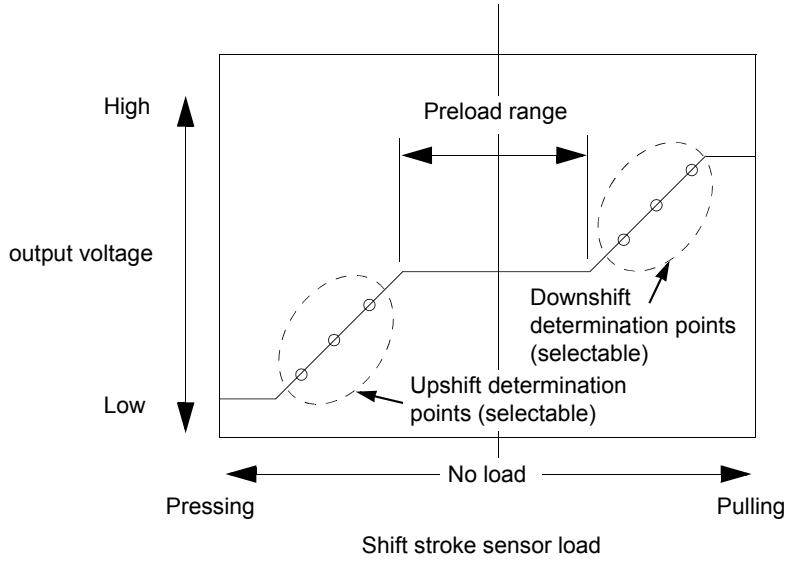
Mechanisms of disengagement of dog (gear) due to reduction in transmission torque and gear change



Shift stroke sensor

Upon receiving a shift pedal operation load, the shaft inside the shift stroke sensor moves linearly, contracting its inner spring. The sensor then detects the amount of the motion (stroke) of the shaft by transducing it into output voltage with the Hall effect sensor.

Touching the shift pedal only lightly does not move the shaft due to the preload reaction force preset on the inner spring. However, when a shift pedal operation load high enough to determine that the rider is intending to shift gear is received, the output voltage changes proportionally.
Taking advantage of these characteristics, the operation load to determine that the rider has executed a pedal shift operation can be adjusted to rider's preference by changing the value preset in the ECM using the meter panel.

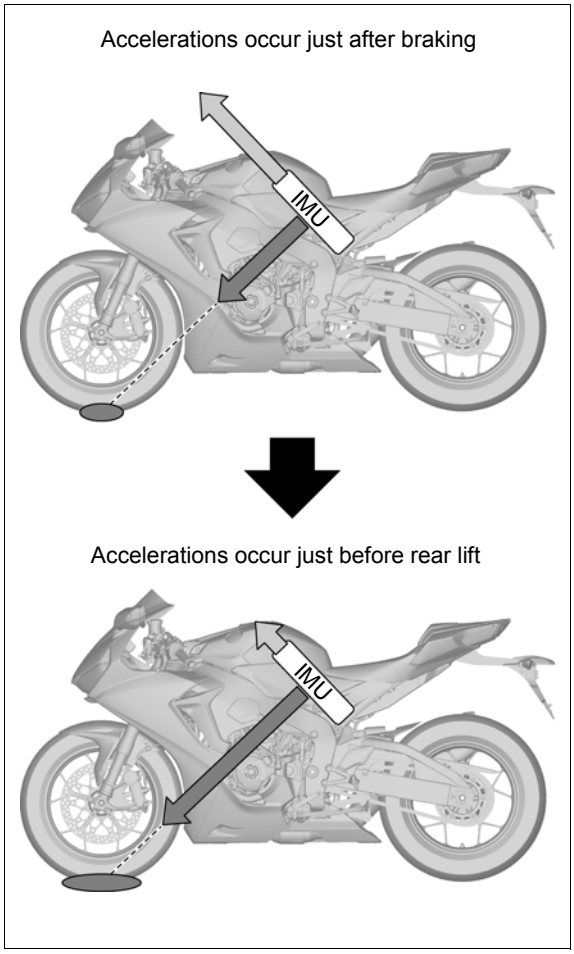


ABS WITH IMU (Inertia Measurement Unit)

The ABS of CBR1000RA/S1/S2 consists of the ABS modulator, IMU, and front and rear wheel speed sensors. The IMU constantly measures the vehicle inertia force and sends the data to the ABS modulator. The ABS modulator detects and calculates the vehicle attitude (include bank angle) based on the signals from the IMU.

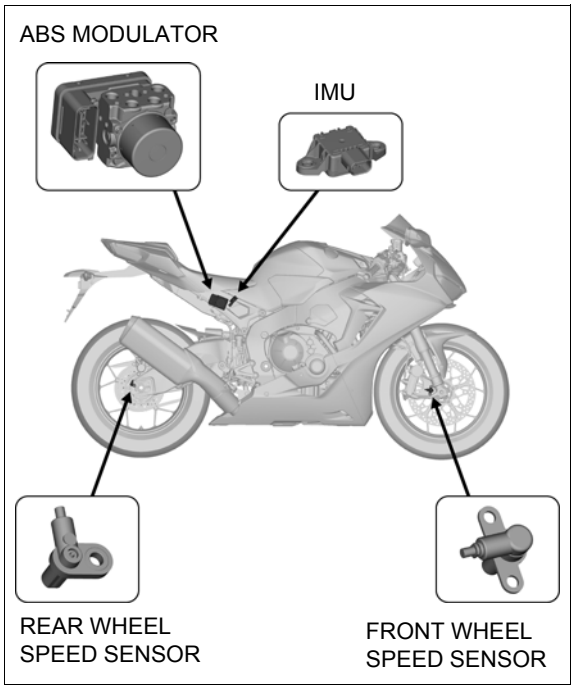
REAR LIFT MITIGATION

This system mitigates the rear wheel lift during braking using the acceleration information from the IMU and the vehicle speed information from the front and rear wheel speed sensors.
The ABS modulator estimates a rear wheel lift based on the acceleration in the two axes and the vehicle speed, and then controls the brake force just before an excessive rear wheel lift occurs. In this way, the rear wheel lift is mitigated while the highly efficient braking is maintained.



BRAKE CONTROL SUITED FOR ESTIMATED BANK ANGLE

The ABS modulator calculates and estimates the vehicle's bank angle from the five-axis information (acceleration sensor: 3 axes, angular velocity sensor: 2 axes) from the IMU and the vehicle speed information from the front and rear wheel speed sensors, and then the modulator controls the brake force depending on the bank angle.
Such a brake force control is enabled by varying the threshold, where the ABS intervenes in the slip ratio of the front and rear wheels and the deceleration of the vehicle by reducing the brake pressure.



ÖHLINS Smart EC

ÖHLINS Smart EC system has been adopted for CBR1000S1/S2 in joint cooperation between the HONDA and ÖHLINS. It provides the pre-programmed damping characteristics optimized for every situation, for more enjoyable ride.

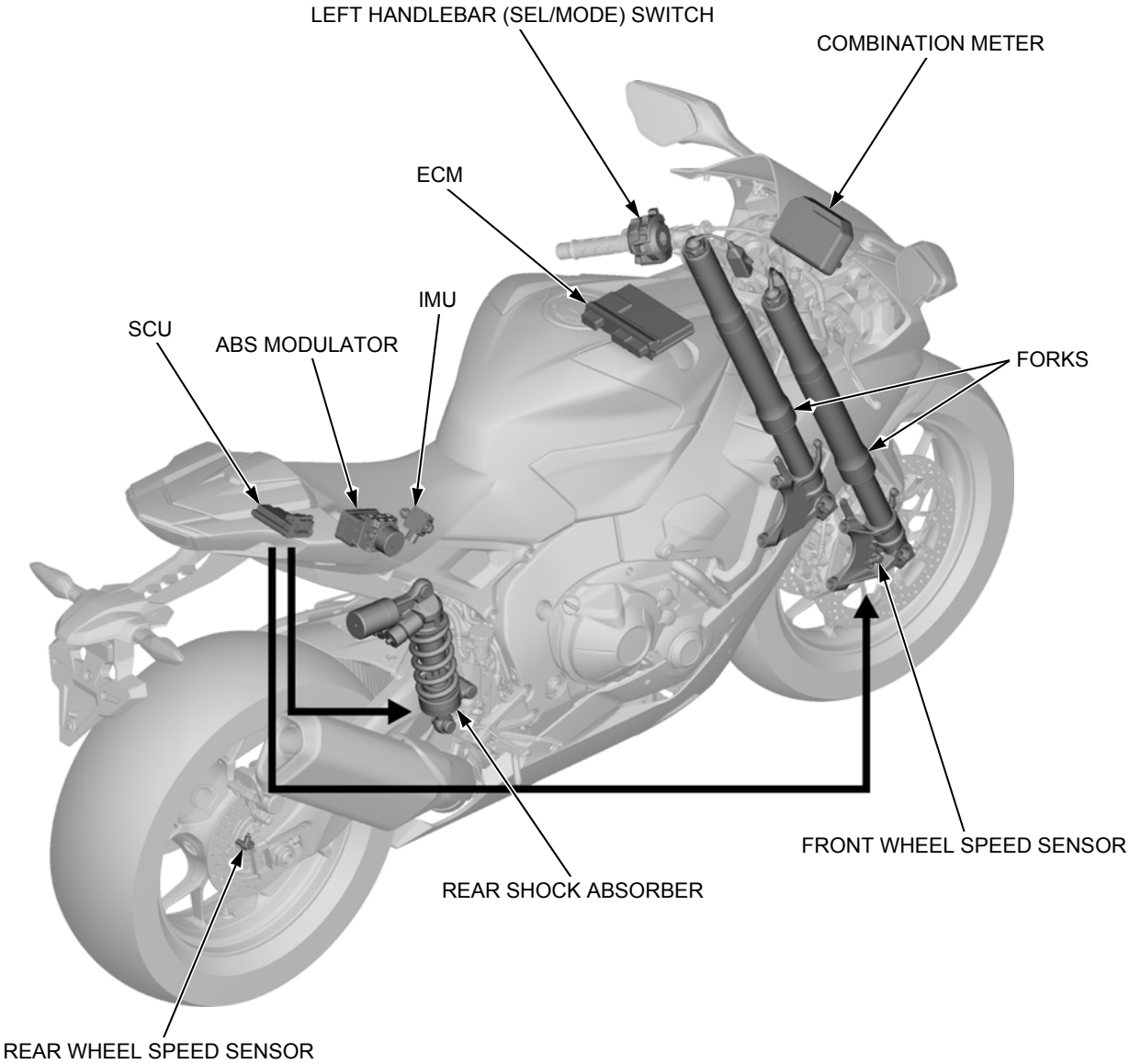
The front and rear suspensions constantly determine the riding conditions as the SCU receives signals from the different control units. As a result, the optimum rebound and compression damping forces for the road and track are provided.

The rider can select the automatic mode which automatically adjusts the damping according to the riding situation and the manual mode which allow the damping level to set manually.

The automatic mode provides 3 modes with different riding feel and characteristics for various situations.

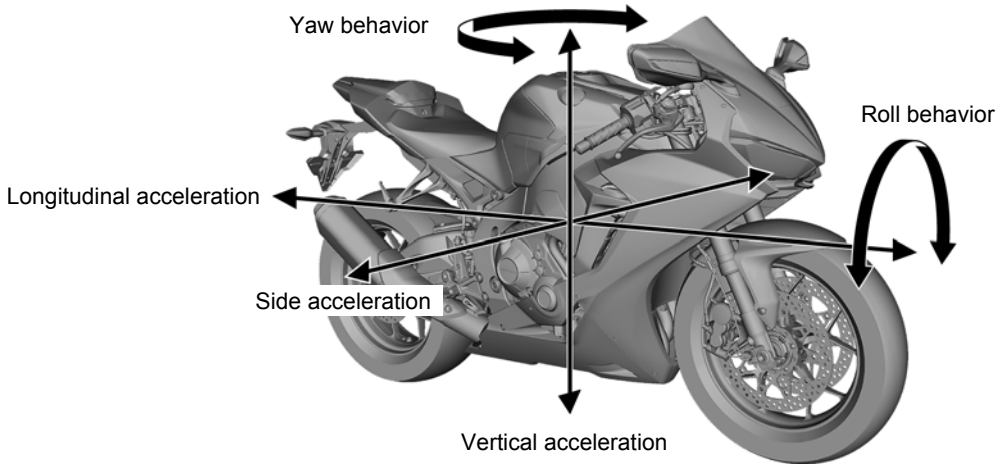
- A1 (for track): The damping characteristics are optimized targeting sports riding at the tracks.
- A2 (for winding road): The damping characteristics are suited to winding roads, providing a refined balance between the active riding and comfort.
- A3 (for street): The damping characteristics provide an even more comfortable ride and smoothly absorbing the gaps in the road.

SCHEMATIC DIAGRAM OF Smart EC SYSTEM:

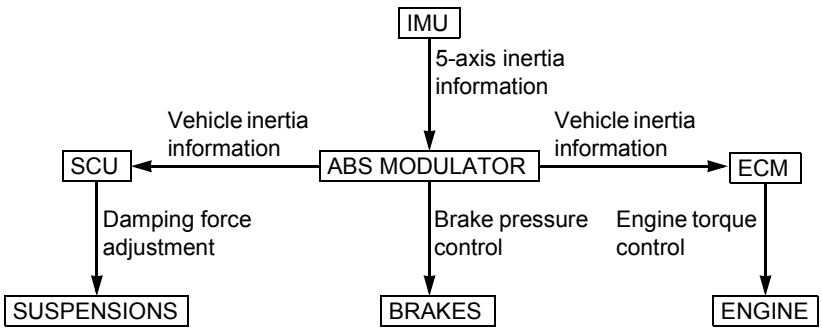


BANK ANGLE ESTIMATION SYSTEM

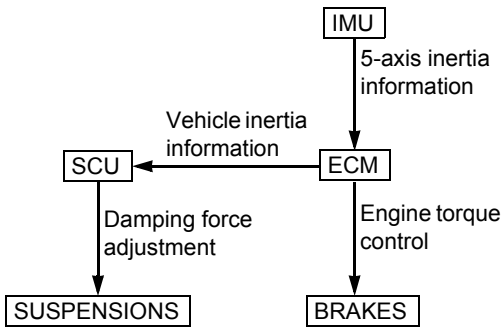
The IMU measure the vehicle behavior using the 5-axis inertia information (3-axis acceleration sensor and 2-axis gyro sensor) and sends this information to the ABS modulator.
The ABS modulator converts this information to the longitudinal, side and vertical accelerations, and the roll and yaw behaviors, and then estimates the bank angle of the vehicle.
The vehicle inertia information of the ABS modulator is sent to the ECM and SCU. Based on this information, the ECM controls engine torque, the ABS modulator controls brake pressure, and the SCU adjusts suspension damping forces.
On CBR1000RR, the inertial information from the IMU is converted and estimated by the ECM.



Except CBR1000RR:



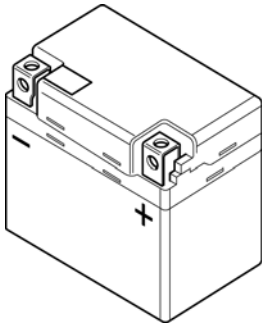
CBR1000RR:



LITHIUM ION BATTERY

CBR1000S1/S2 uses a lithium ion (Li-Ion) battery which is lighter than the lead-acid battery. The Li-Ion battery has much longer life in comparison with a lead-acid battery. The charge acceptance and toughness against long term neglect have been improved while securing the engine starting performance in a low-temperature environment that is equivalent to that for a lead-acid battery. Also, use of iron lithium phosphate (LiFePO4) for the positive electrode ensures a sense of security in case the battery is in a precarious condition, such as short circuit, overcharge, or overdischarg, etc.

Lithium ion (Li-Ion) battery



OBD (On-Board Diagnostic) SYSTEM (European Market)

This motorcycle complies with the emission limits of Euro 4 and OBD stage 1 regulation.

Existing PGM-FI system already equips the self-diagnostic system that detects the PGM-FI system malfunction, and that malfunction data can be read by MCS (Motorcycle Communication System) as the DTCs or freeze data.

Based on existing PGM-FI diagnostic system, for OBD stage 1, following items are equipped with this motorcycle.

– Additional self-diagnostic function for the fuel emission control
– MIL indication pattern for malfunction
– GST (General Scan Tool) connection to the motorcycle

PGM-FI SELF-DIAGNOSTIC SYSTEM

In addition to existing self-diagnostic system, following function and DTC (Diagnostic Trouble Code) are prepared.

– EVAP Canister Purge valve circuit
– Ignition Primary circuit
– PAIR valve circuit

MIL INDICATION

In the existing PGM-FI system, if the PGM-FI system detects the malfunction at the present, the MIL blinks the number of trouble code with idle engine speed or sidestand switch ON.

But in this PGM-FI system for OBD, when the system detects the malfunction, it turns the MIL ON without blinking unless otherwise the SCS circuit short (reading DTC with DLC connector).

MIL indication

	PGM-FI for OBD			Existing PGM-FI		
	At Idle	**Riding**	**SCS short**	**At Idle**	**Riding**	**SCS short**
Current trouble	ON	ON	Blinking	Blinking	ON	Blinking
Past trouble	*ON	*ON	*Blinking	OFF	OFF	Blinking

* This system turn off the MIL if the system does not detect the same trouble again in three driving cycle (three times repeat of ignition-ON, riding and ignition-OFF).

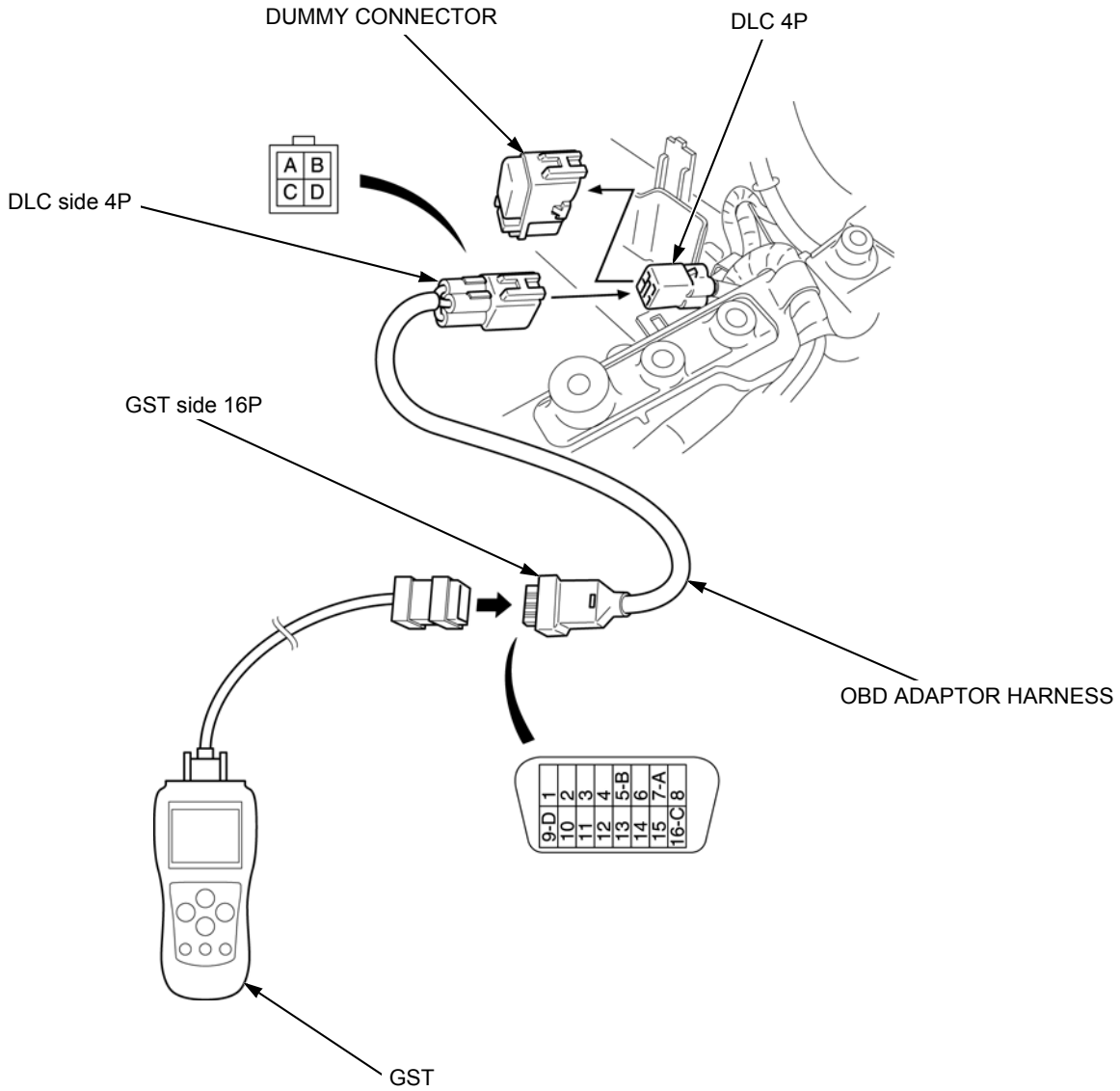
GST (General Scan Tool) CONNECTION

The PGM-FI system of this motorcycle supports the connection of the GST that is commercially available as the diagnostic tool for the motorcycle. As same as MCS (Motorcycle Communication System; Honda genuine diagnostic tool), the GST can be used for DTC, freeze data and ECM data reading.

The DTCs read by GST are standardized by ISO standard, those are different code system from existing Honda code system read by MCS. Refer to DTC INDEX (page 4-10) for each DTC and troubleshooting detail.

16P connector on GST is also standardized by ISO standard. To connect the GST to the motorcycle, connect the OBD adaptor harness so to change 4P DLC (Data Link Connector) to 16P connector.

For using the GST, refer to the instruction manual attached each GST.



OBD adaptor harness circuit connection (General allocation in ISO 15031-3)

	DLC side 4P	GST side 16P
K-line (Serial line)	A	7
Signal ground	B	5
Permanent positive battery	C	16
Discretionary (SCS line)	D	9

2. FRAME/BODY PANELS/EXHAUST SYSTEM

SERVICE INFORMATION

GENERAL

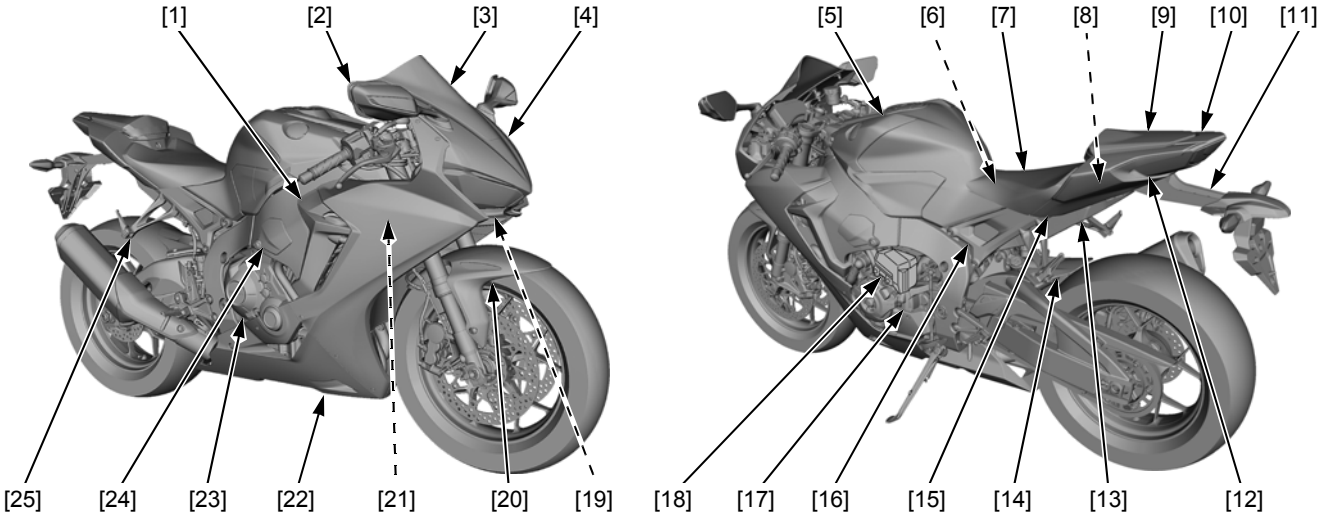
- This section covers removal and installation of the body panels, exhaust system and seat rail.
- Always replace the exhaust pipe gaskets with new ones after removing the exhaust pipe from the engine.
- When installing the exhaust system, loosely install all of the exhaust pipe fasteners. Always tighten the exhaust clamps first, then tighten the mounting fasteners.
- 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

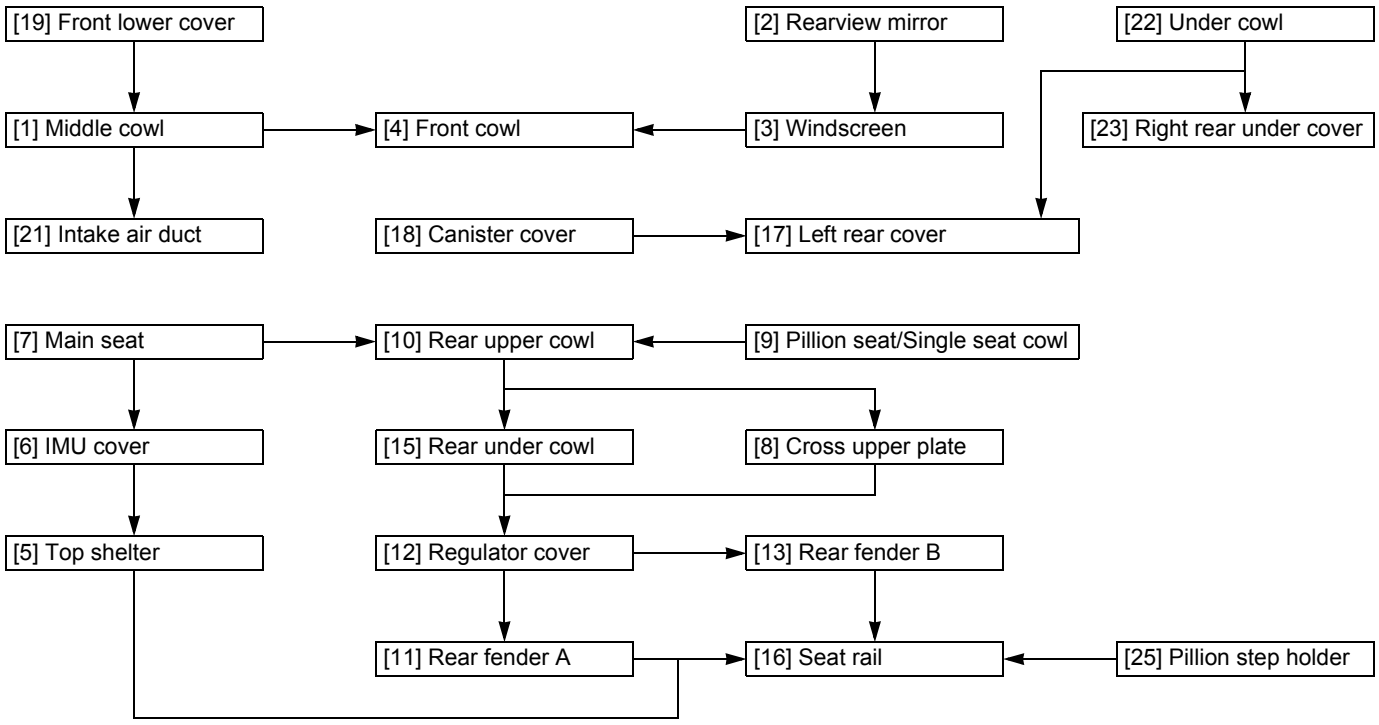


[1] Middle cowl (page 2-13)
[2] Rearview mirror (page 2-16)
[3] Windscreen (page 2-17)
[4] Front cowl (page 2-18)
[5] Top shelter (page 2-6)
[6] IMU cover (page 2-5)
[7] Main seat (page 2-4)
[8] Cross upper plate (page 2-7)
[9] Pillion seat*1 (page 2-4)/Single seat cowl*2 (page 2-5)
[10] Rear upper cowl (page 2-7)
[11] Rear fender A (page 2-9)
[12] Regulator cover (page 2-9)
[13] Rear fender B (page 2-11)
[14] Rear fender C (page 2-12)
[15] Rear under cowl (page 2-8)
[16] Seat rail (page 2-12)
[17] Left rear cover (page 2-21)
[18] Canister cover*3 (page 2-21)
[19] Front lower cover (page 2-13)
[20] Front fender (page 2-23)
[21] Intake air duct (page 2-14)
[22] Under cowl (page 2-20)
[23] Right rear under cover*4 (page 2-21)
[24] Frame side cover (page 2-22)
[25] Pillion step holder*1 (page 2-12)

*1: CBR1000RR/RA only, *2: CBR1000S1/S2 only, *3: KO only, *4: CH/FO/TH only

BODY PANEL REMOVAL CHART

This chart shows the removal order of the frame covers by following the arrow.



MAIN SEAT

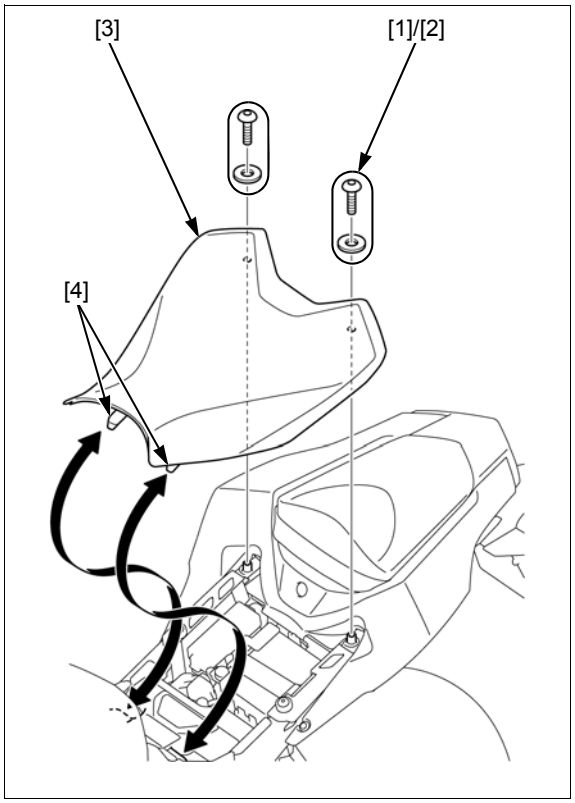
REMOVAL/INSTALLATION

Remove the socket screws [1] and washers [2].

Remove the main seat [3] by sliding it rearward.

Install the main seat by inserting the prongs [4] under the frame.

Install the washers and screws, and tighten screws securely.



PILLION SEAT/SEAT BELT (CBR1000RR/RA only)

REMOVAL/INSTALLATION

Unlock the pillion seat [1] using the ignition key [2].

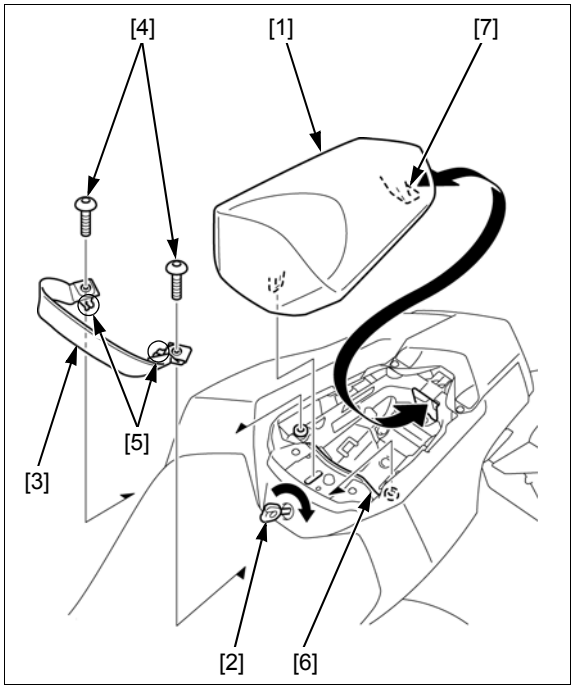
Move the seat belt [3] forward and remove the pillion seat by pulling it forward.

Remove the socket screws [4] and seat belt.

Install the seat belt by aligning the mounting plate grooves [5] with the cross upper plate rib [6].

Install the socket screws and tighten them securely.

Install the pillion seat by inserting the prong [7] under the rear frame, and push the front of the seat down to lock it.

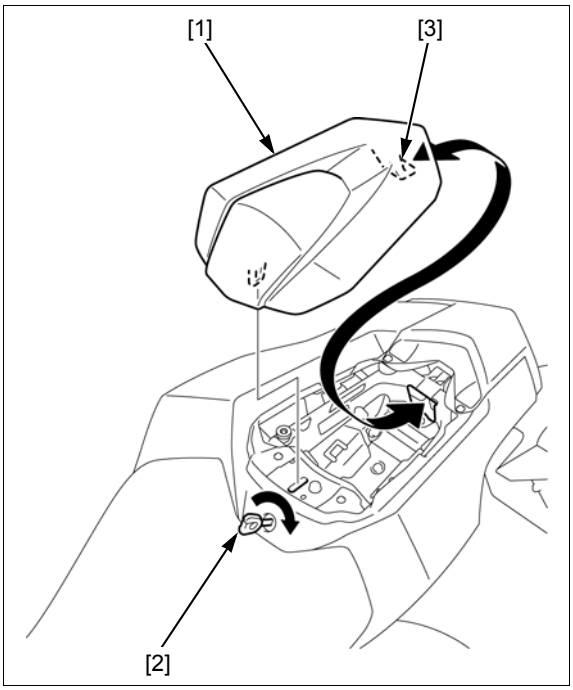


SINGLE SEAT COWL (CBR1000S1/S2)

REMOVAL/INSTALLATION

Unlock the single seat cowl [1] using the ignition key [2] and remove it by pulling it forward

Install the single seat cowl by inserting the prong [3] under the rear frame, and push the front of the cowl down to lock it.



IMU COVER

REMOVAL/INSTALLATION

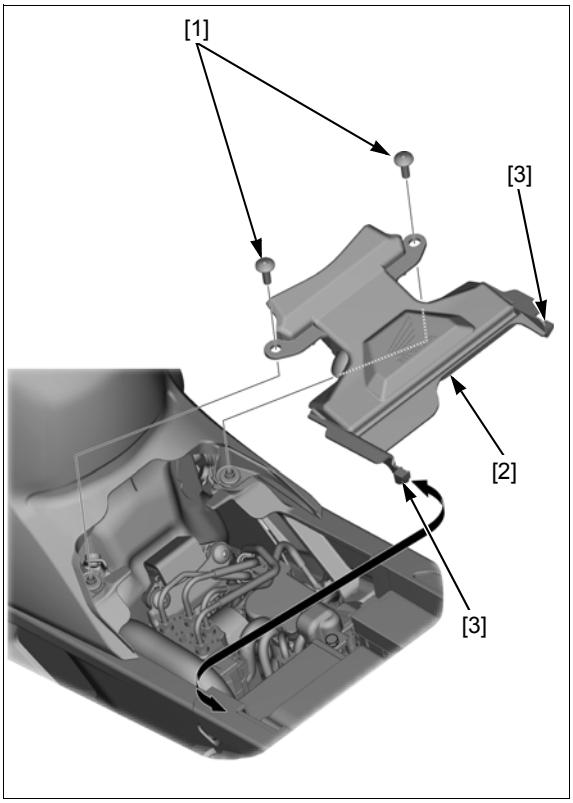
Remove the following:

– Main seat (page 2-4)
– Socket screws [1]
– IMU cover [2]

Installation is in the reverse order of removal.

NOTE:

• Insert the tabs [3] under rear fender B.



TOP SHELTER

REMOVAL/INSTALLATION

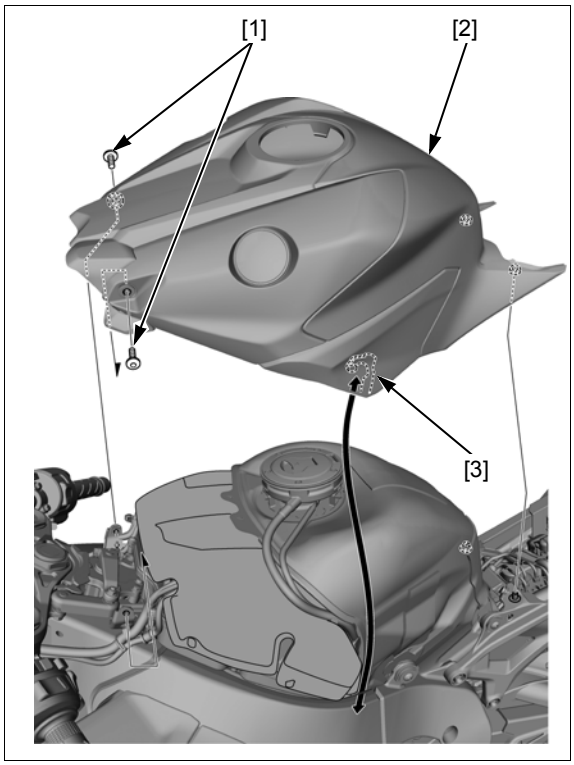
Remove the following:

– IMU cover (page 2-5)
– Socket screws [1]
– Top shelter [2]

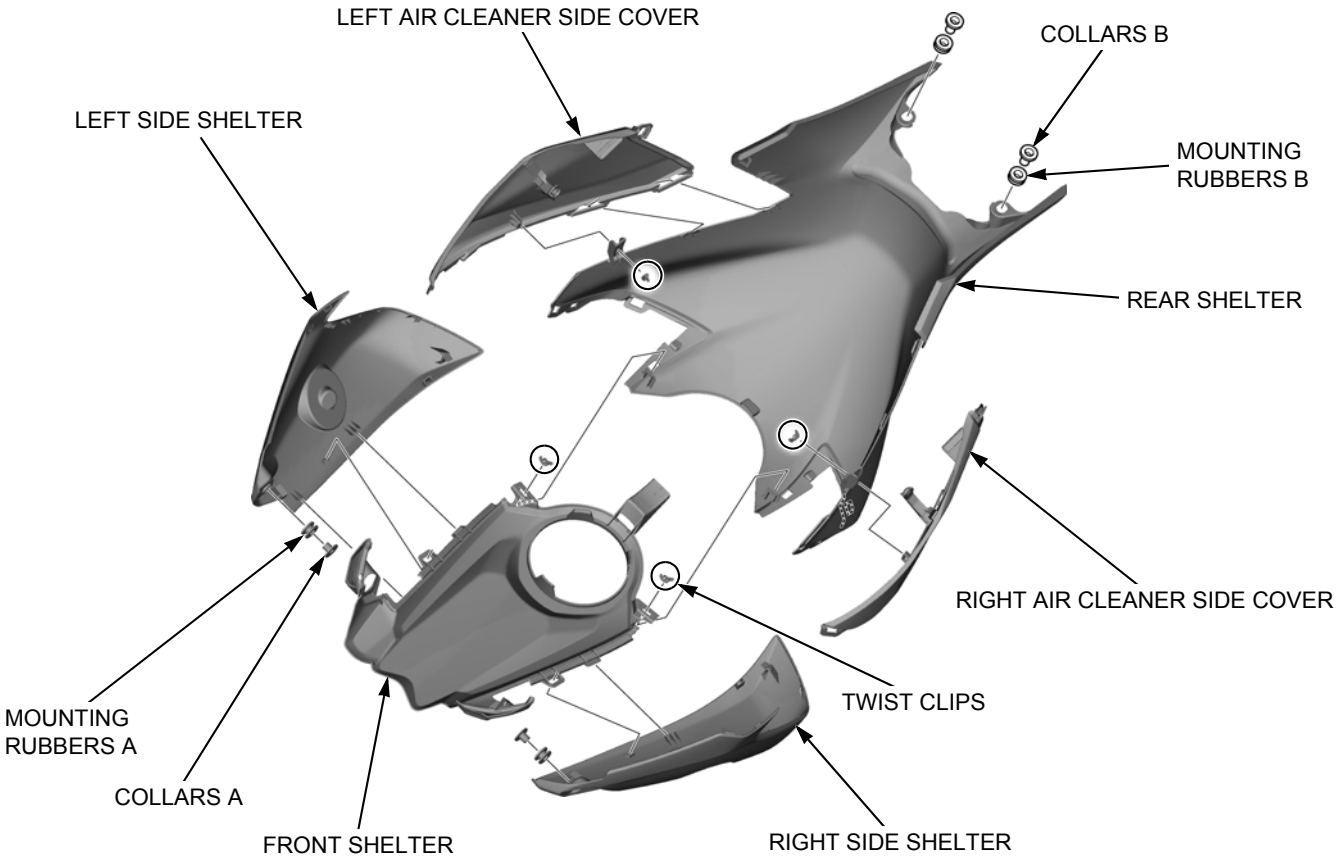
Installation is in the reverse order of removal.

NOTE:

• Hook the retainers [3] onto the frame properly.



DISASSEMBLY/ASSEMBLY



REAR UPPER COWL

REMOVAL/INSTALLATION

Remove the following:

– Main seat (page 2-4)
– CBR1000RR/RA: Pillion seat/seat belt (page 2-4)
– CBR1000S1/S2: Single seat cowl (page 2-5)
– Two trim clips [1]
– Four special screws [2]

Release the tabs of the upper cowl [3] from the rear under cowl.

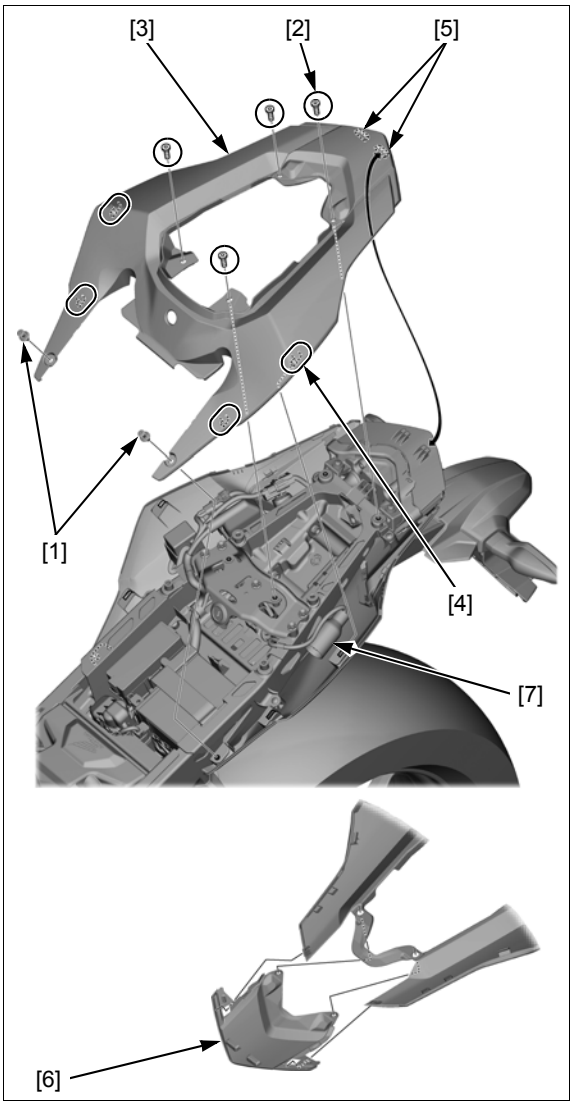
Slide the rear upper cowl rearward to release the four hooks [4] from the rear under cowl and two hooks [5] from the brake/taillight and remove it.

Remove the rear center cowl [6] from the rear upper cowl if necessary.

Be careful not to pinch the connector boot [7] and wire.

Installation is in the reverse order of removal.

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



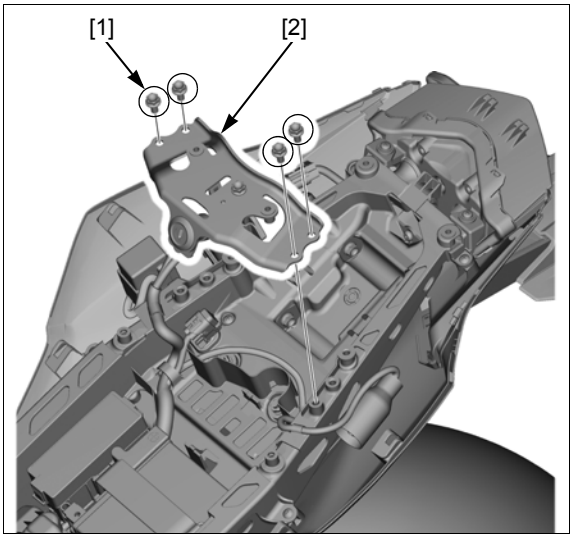
CROSS UPPER PLATE

REMOVAL/INSTALLATION

Remove the following:

– Rear upper cowl (page 2-7)
– Four bolt [1]
– Cross upper plate [2]

Installation is in the reverse order of removal.



SEAT LOCK REMOVAL/ INSTALLATION

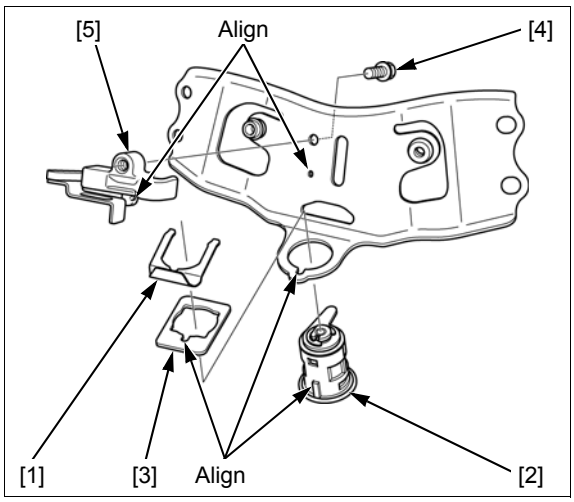
Remove the following from the cross upper plate:

– Setting spring [1]
– Seat lock cylinder [2]
– Seat lock washer [3]
– Bolt [4]
– Seat catch hook [5]

Installation is in the reverse order of removal.

NOTE:

- Align the seat catch hook pin with the cross upper plate hole.
- Align the lock cylinder lug with the grooves in the cross upper plate and seat lock washer.



REAR UNDER COWL

REMOVAL/INSTALLATION

Remove the following:

– Rear upper cowl (page 2-7)
– Two tapping screws [1]

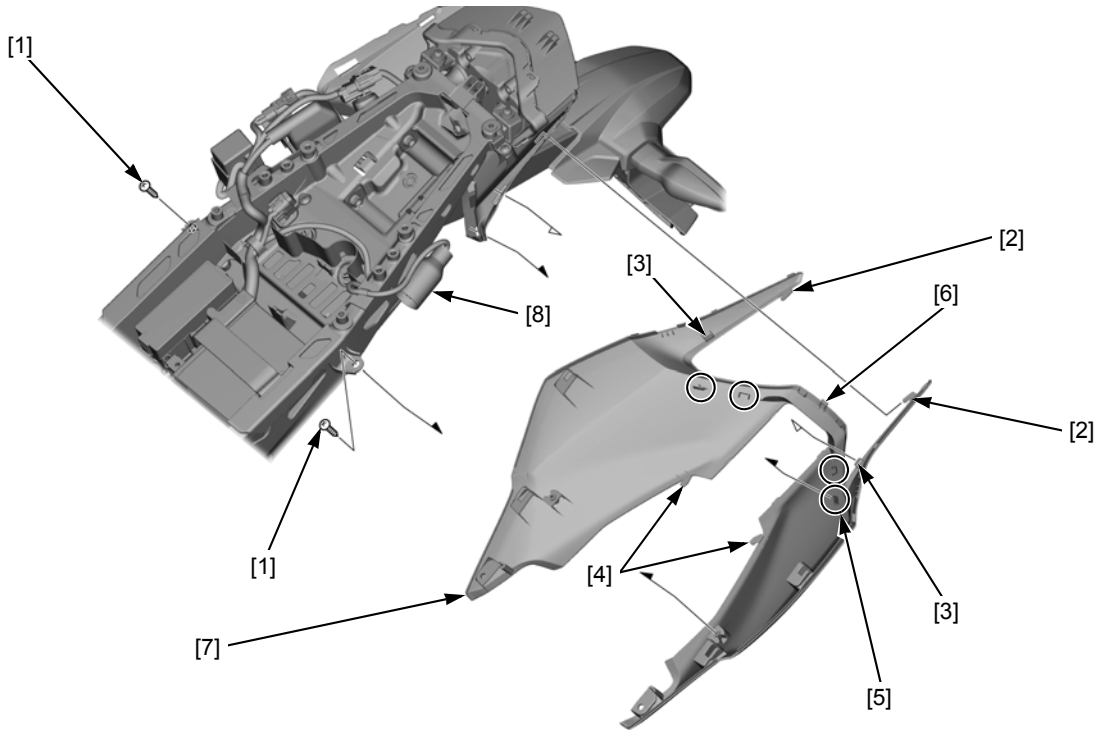
Release the two hooks [2] and tabs [3] from the regulator cover.

Carefully release the two tabs [4] and four tabs [5] from the regulator cover.

Release the hook [6] from the regulator cover and remove the rear under cowl [7].

Be careful not to pinch the connector boot [8] and wire.

Installation is in the reverse order of removal.



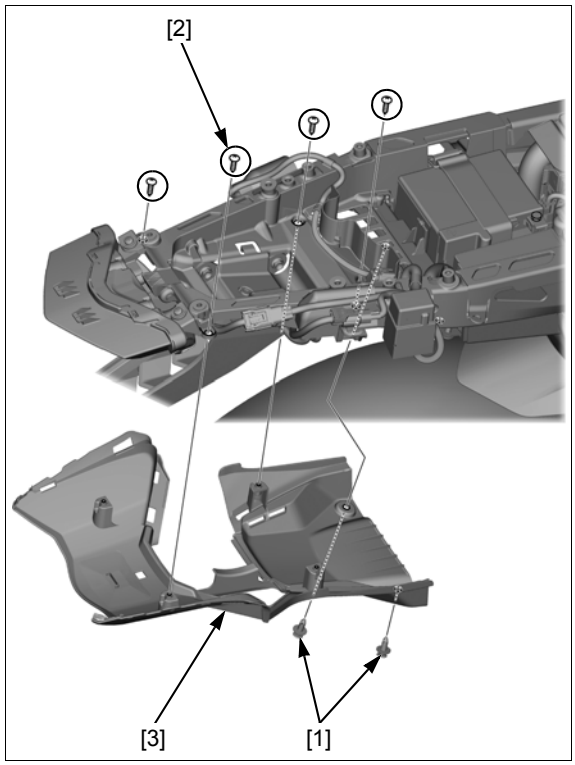
REGULATOR COVER

REMOVAL/INSTALLATION

Remove the following:

– Rear under cowl (page 2-8)
– Cross upper plate (page 2-7)
– Two trim clips [1]
– Four tapping screws [2]
– Regulator cover [3]

Installation is in the reverse order of removal.



REAR FENDER A

REMOVAL/INSTALLATION

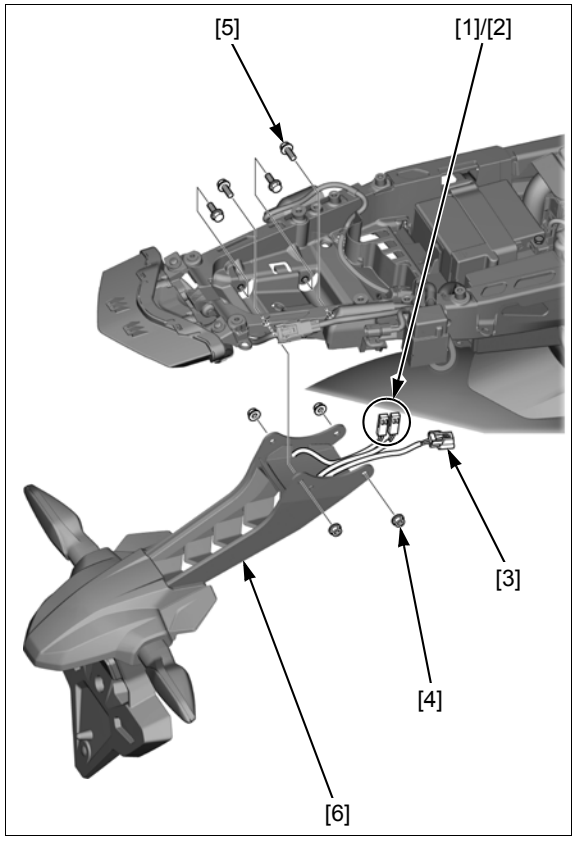
Remove the regulator cover (page 2-7).

Disconnect the following:

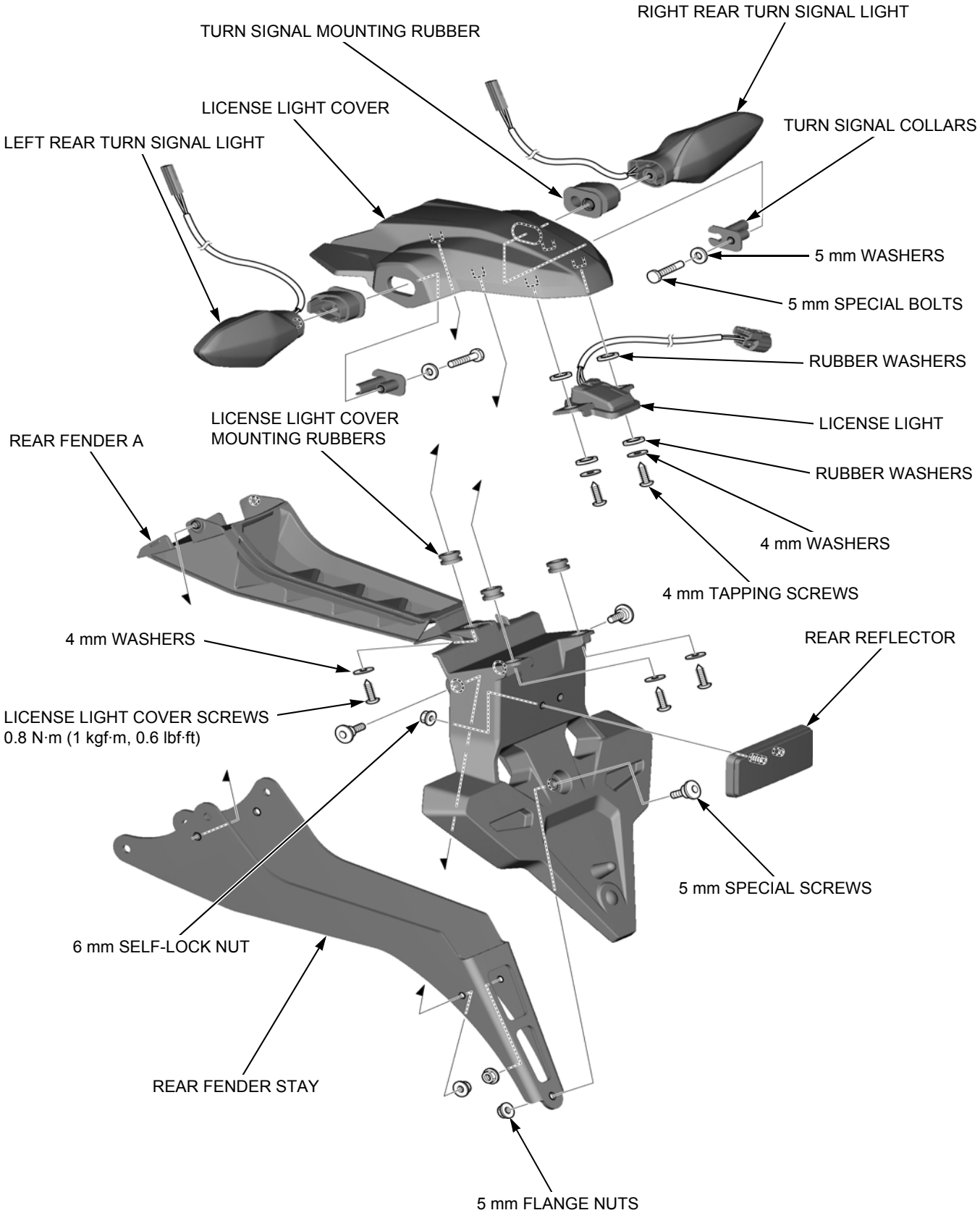
– Right rear turn signal light 2P (Light blue) connector [1]
– Left rear turn signal light 2P (Orange) connector [2]
– License light 2P (Black) connector [3]

Remove the four nuts [4], bolts [5] and rear fender A [6].

Installation is in the reverse order of removal.



DISASSEMBLY/ASSEMBLY

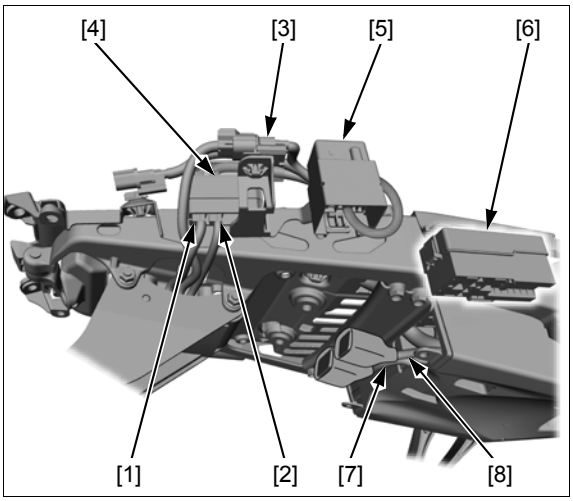


REAR FENDER B

REMOVAL/INSTALLATION

Remove the following:

- Regulator cover (page 2-7)
- DLC from the stay (page 4-7)
- Fuel tank (page 7-8)
- Battery (page 20-6)
- Regulator/rectifier (page 20-8)
- CBR1000RA/S1/S2: ABS modulator/IMU (page 19-24)
- CBR1000RR: IMU (page 4-75)
- Starter relay switch (page 6-7)
- EGCA (page 4-85)
- Brake/taillight (page 21-9)



Disconnect the following:

- Right rear turn signal light 2P (Light blue) connector [1]
- Left rear turn signal light 2P (Orange) connector [2]
- License light 2P (Black) connector [3]

Remove the following from rear fender B:

- Turn signal light connector holder [4]
- Fan control relay assembly [5]
- Fuse/relay box [6]
- Alternator wire [7]
- Main wire harness [8]
- Starter motor cable
- Battery ground cable

Remove the special screw [1] and EGCA/cover [2] from rear fender B [3].

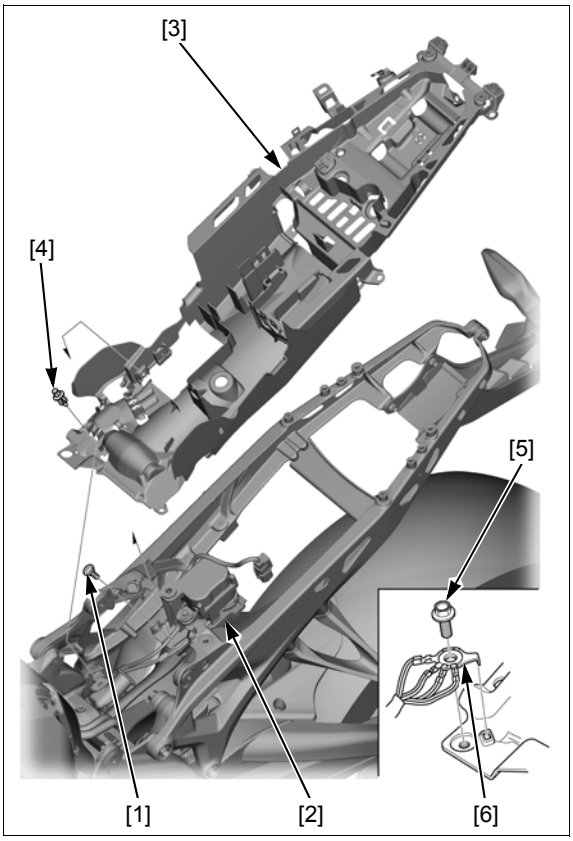
Remove the trim clip [4] attaching the radiator reserve tank.

Remove the bolt [5] and ground terminals [6].

Remove rear fender B from the seat rail.

Route the wires, cables and brake pipes properly (page 1-23).

Installation is in the reverse order of removal.

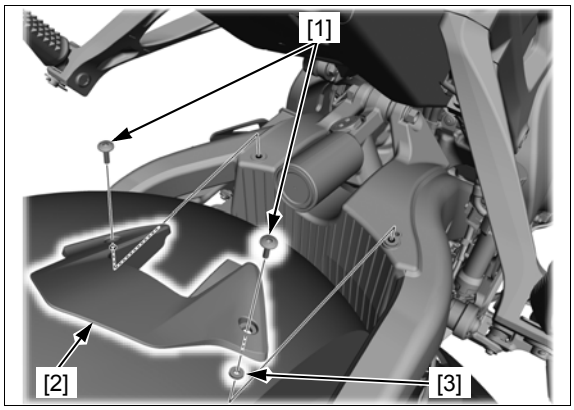


REAR FENDER C

REMOVAL/INSTALLATION

Remove the two socket screws [1], rear fender C [2] and washer [3] from the swingarm.

Installation is in the reverse order of removal.



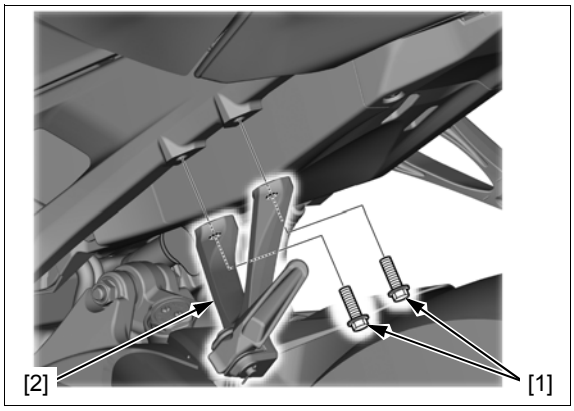
PILLION STEP HOLDER (CBR1000RR/ RA only)

REMOVAL/INSTALLATION

Remove the two flange bolts [1] and the pillion step holder [2] from the seat rail.

Installation is in the reverse order of removal.

TORQUE:
Pillion step holder bolt:
27 N·m (2.8 kgf·m, 20 lbf·ft)



SEAT RAIL

REMOVAL/INSTALLATION

Remove the following:

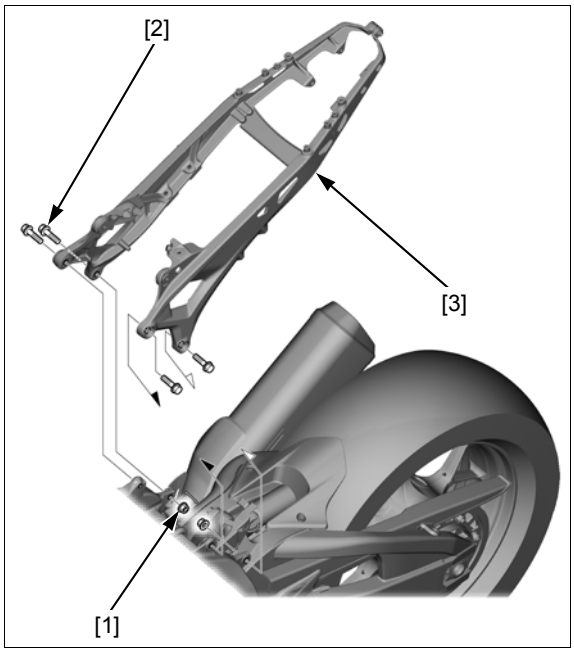
– Rear fender A (page 2-9)
– Rear fender B (page 2-11)
– Pillion step holder (page 2-12)
– Two mounting nuts [1]
– Four mounting bolts [2]
– Seat rail [3]

NOTE:

• Do not disassemble the seat rail.

Installation is in the reverse order of removal.

TORQUE:
Seat rail mounting bolt:
44 N·m (4.5 kgf·m, 32 lbf·ft)
Seat rail mounting nut:
54 N·m (5.5 kgf·m, 40 lbf·ft)



FRONT LOWER COVER

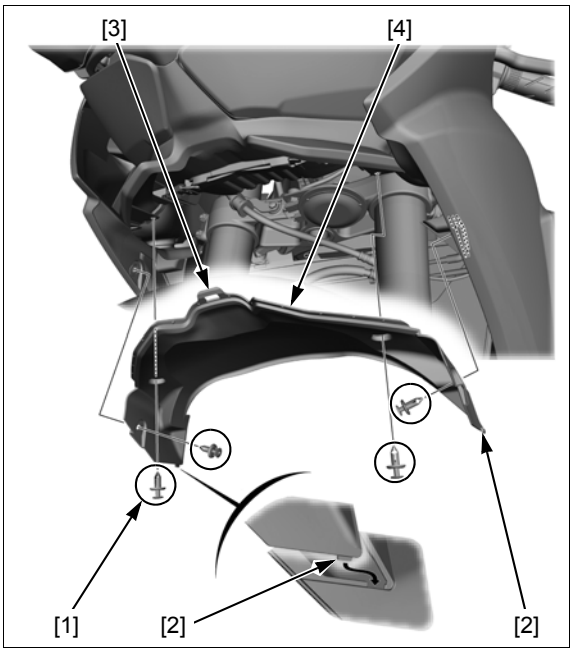
REMOVAL/INSTALLATION

Remove the four trim clips [1].

Release the two tabs [2] from the inner middle cowls.

Release the hook [3] from the front cowl, and remove the front lower cover [4].

Installation is in the reverse order of removal.



MIDDLE COWL

REMOVAL/INSTALLATION

Remove the front lower cover (page 2-13).

Remove the trim clip [1] from the inside of the inner middle cowl.

Remove the five special bolts [2] and socket screw [3].

Release the boss [4] from the grommet.

Release the tabs [5] from the under cowl.

Slide the middle cowl [6] forward to release the hooks [7] from the air duct boss [8] and cover grooves [9], and remove it.

Installation is in the reverse order of removal.

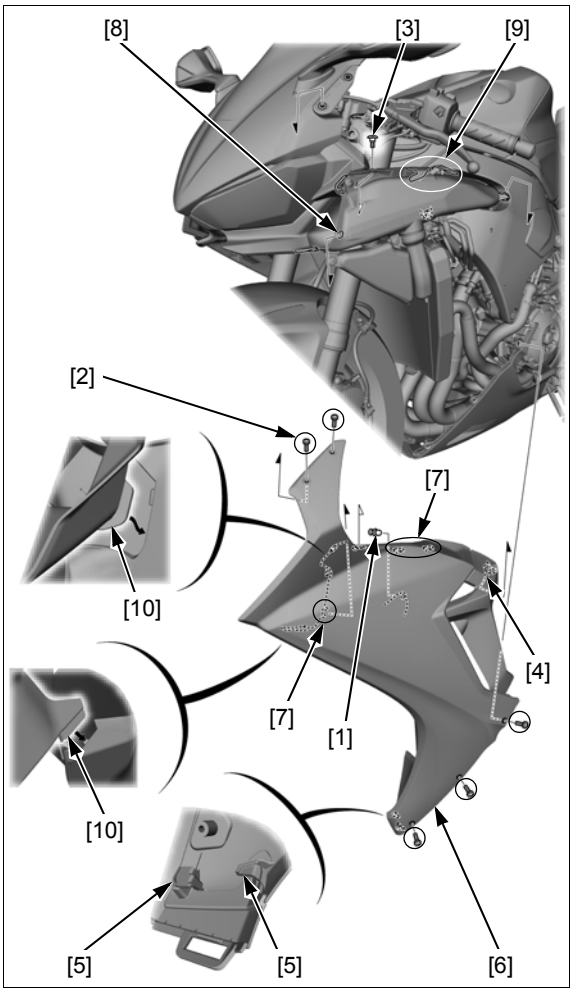
NOTE:

- Align the middle cowl grooves with the front cowl tabs [10] properly as shown.

TORQUE:

Special bolt:

1.0 N·m (0.1 kgf·m, 0.7 lbf·ft)

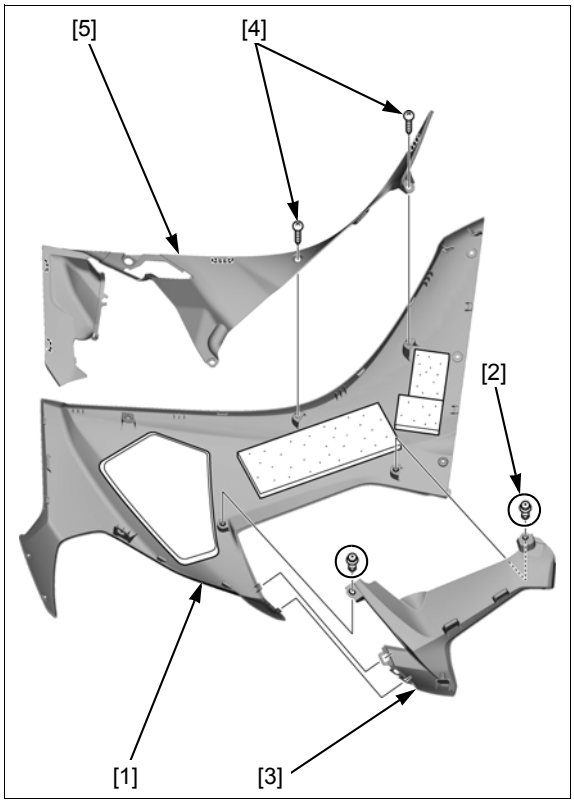


DISASSEMBLY/ASSEMBLY

Remove the following from the middle cowl [1]:

– Two trim clips [2]
– Shroud [3]
– Two tapping screws [4]
– Inner middle cowl [5]

Assembly is in the reverse order of disassembly.



INTAKE AIR DUCT

REMOVAL/INSTALLATION

Remove the middle cowl (page 2-13).

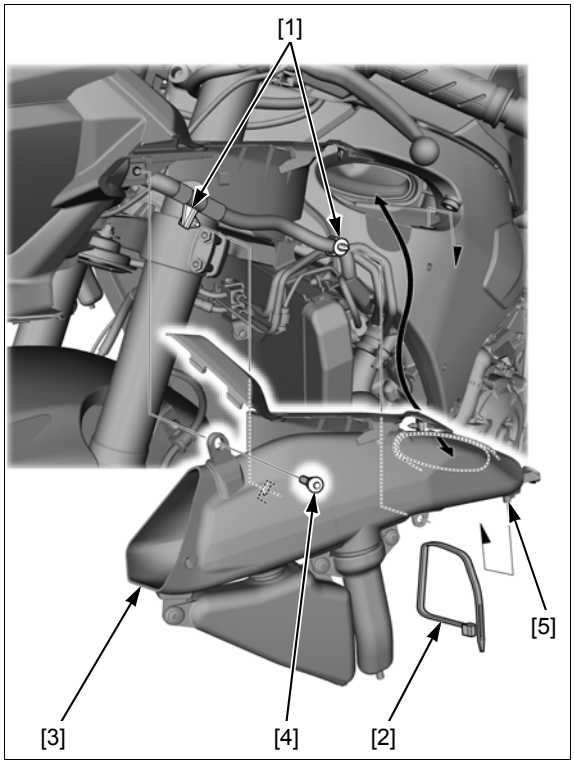
Left side only: Remove the harness clips [1] and wire band [2] from the intake air duct [3].

Remove the socket screw [4] and release the air duct cover tabs from the front cowl.

Release the boss [5] from the frame and remove the intake air duct.

Installation is in the reverse order of removal.

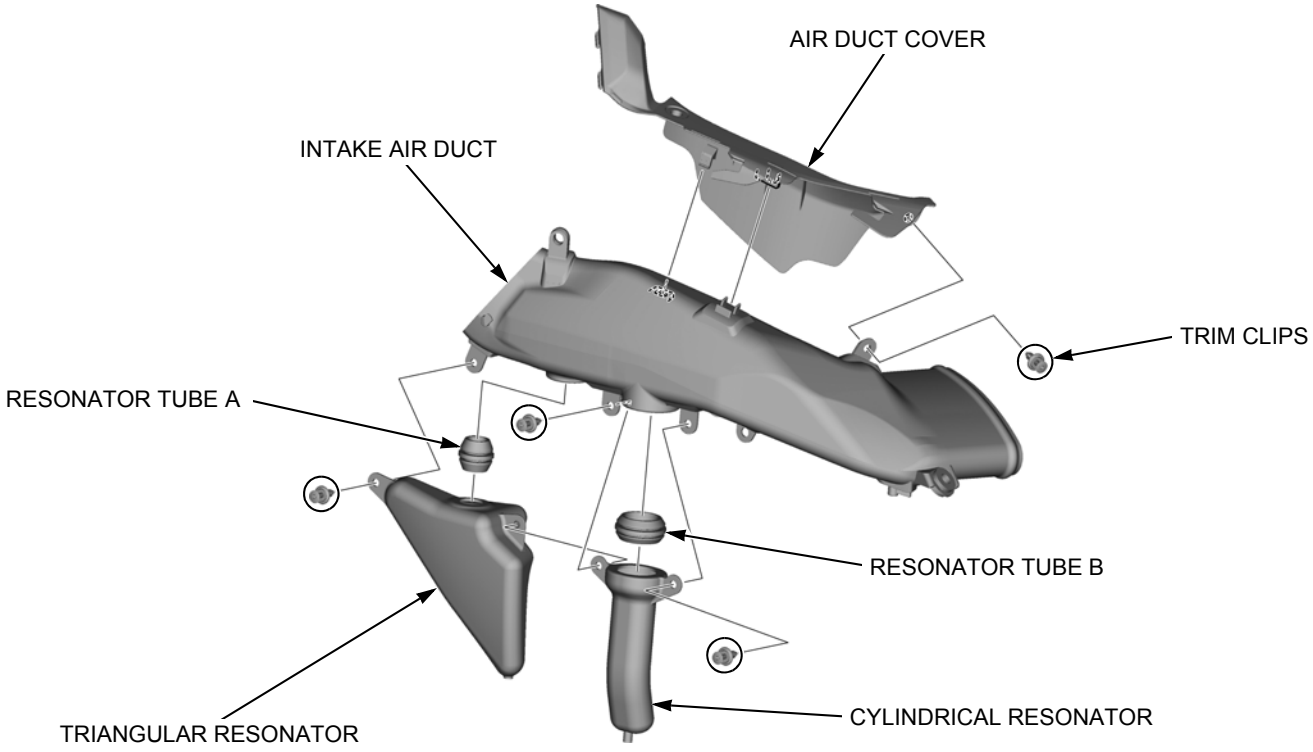
TORQUE:
Socket screw:
5.2 N·m (0.5 kgf·m, 3.8 lbf·ft)



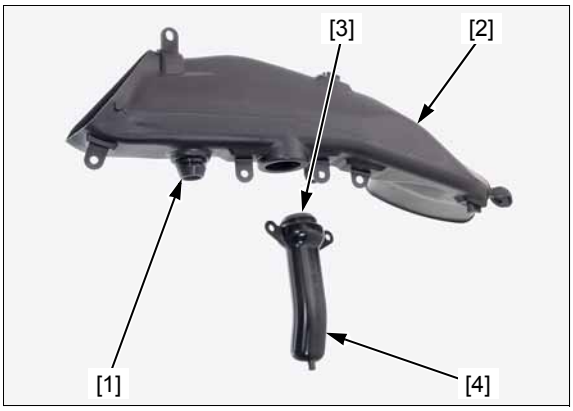
DISASSEMBLY/ASSEMBLY

NOTE:

- The intake air duct and triangular resonator have identification mark.
  – Left side: LH
  – Right side: RH



Install resonator tube A [1] into the air duct [2] and resonator tube B [3] into the cylindrical resonator [4].

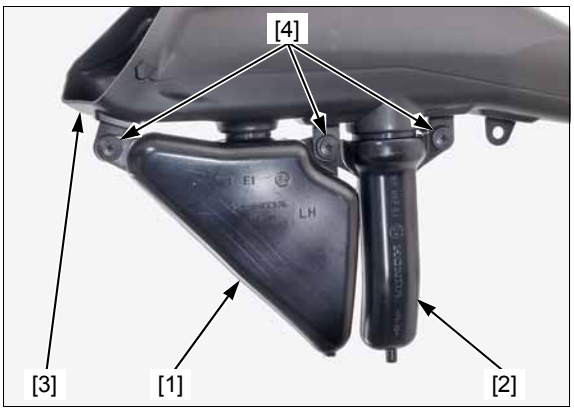


Install the triangular resonator [1] and cylindrical resonator [2] onto the air duct [3] noting the trim clip tab position.

– Front: Triangular resonator and air duct from the outside
– Center: Air duct, cylindrical resonator, and triangular resonator from the outside
– Rear: Cylindrical resonator and air duct from the outside

Make sure that the resonator tubes are fitted properly by pulling the resonators.

Install the trim clips [4].



REARVIEW MIRROR

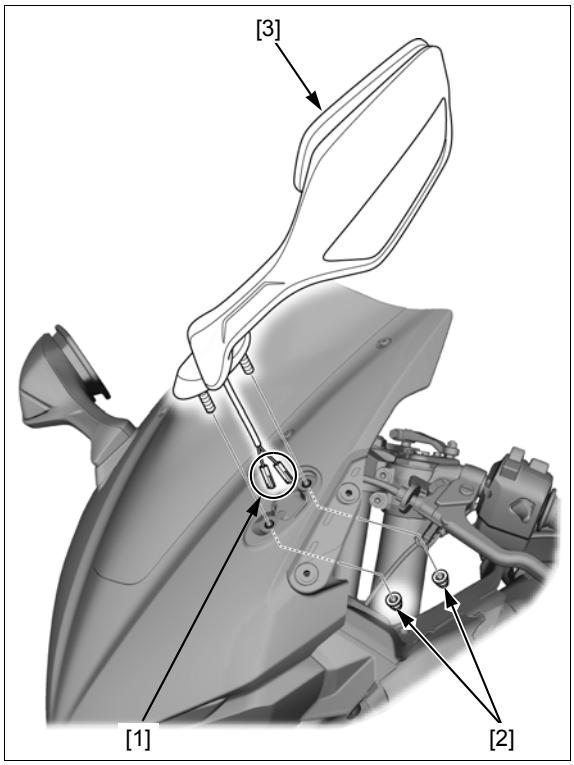
REMOVAL/INSTALLATION

Pull the connector boot out of the stay and disconnect the turn signal light 1P and 2P connectors [1].

Remove the cap nuts [2] and pull the wires out of the stay carefully to remove the rearview mirror [3].

Route the wires properly (page 1-23).

Installation is in the reverse order of removal.



DISASSEMBLY/ASSEMBLY

Except CH: Remove the mirror cover [1] from the mirror [2] as follows:

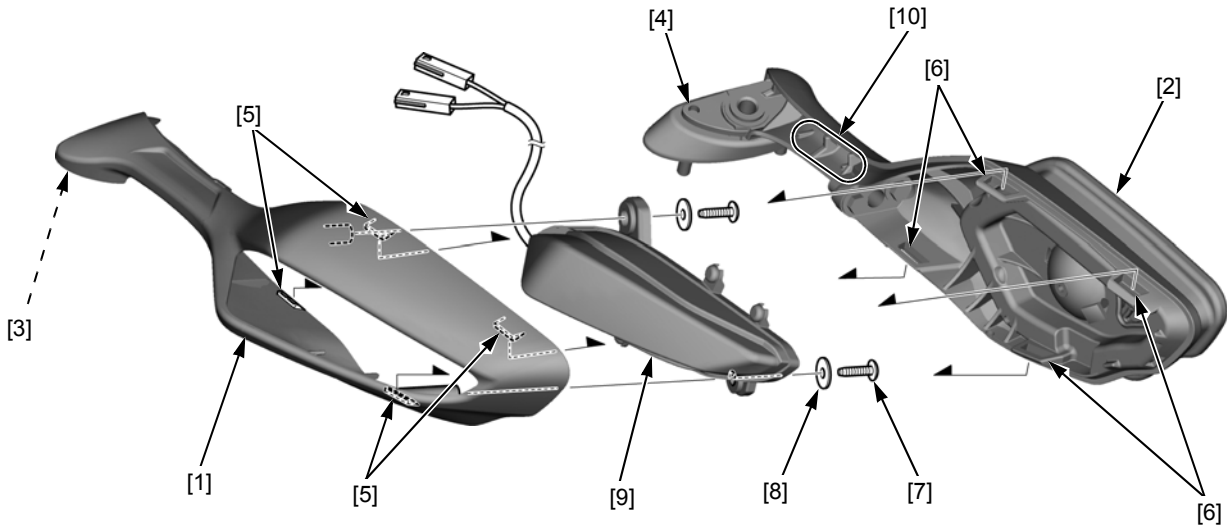
– Release the cover boss [3] from the mirror hole [4].
– Release the four cover tabs [5] from the mirror slots [6] being careful not to damage the cover and mirror.

For CH model mirror cover removal (page 21-8).

Remove the two tapping screws [7], washers [8] and front turn signal light [9].

Route the wire in the groove [10] and do not pinch it.

Assembly is in the reverse order of disassembly.



WINDSCREEN

REMOVAL/INSTALLATION

Remove the left and right rearview mirrors (page 2-16).

Remove the two 5 x 14 mm special bolts [1], 5 x 16 mm special bolts [2], four plastic washers [3] and rubber washers [4].

Be careful not to scratch the windscreen surface.

Slightly press the windscreen [5] inward to release the two grommets [6] from the bosses [7] and remove windscreen.

Remove the four special nuts [8] and two grommets from the windscreen.

Installation is in the reverse order of removal.

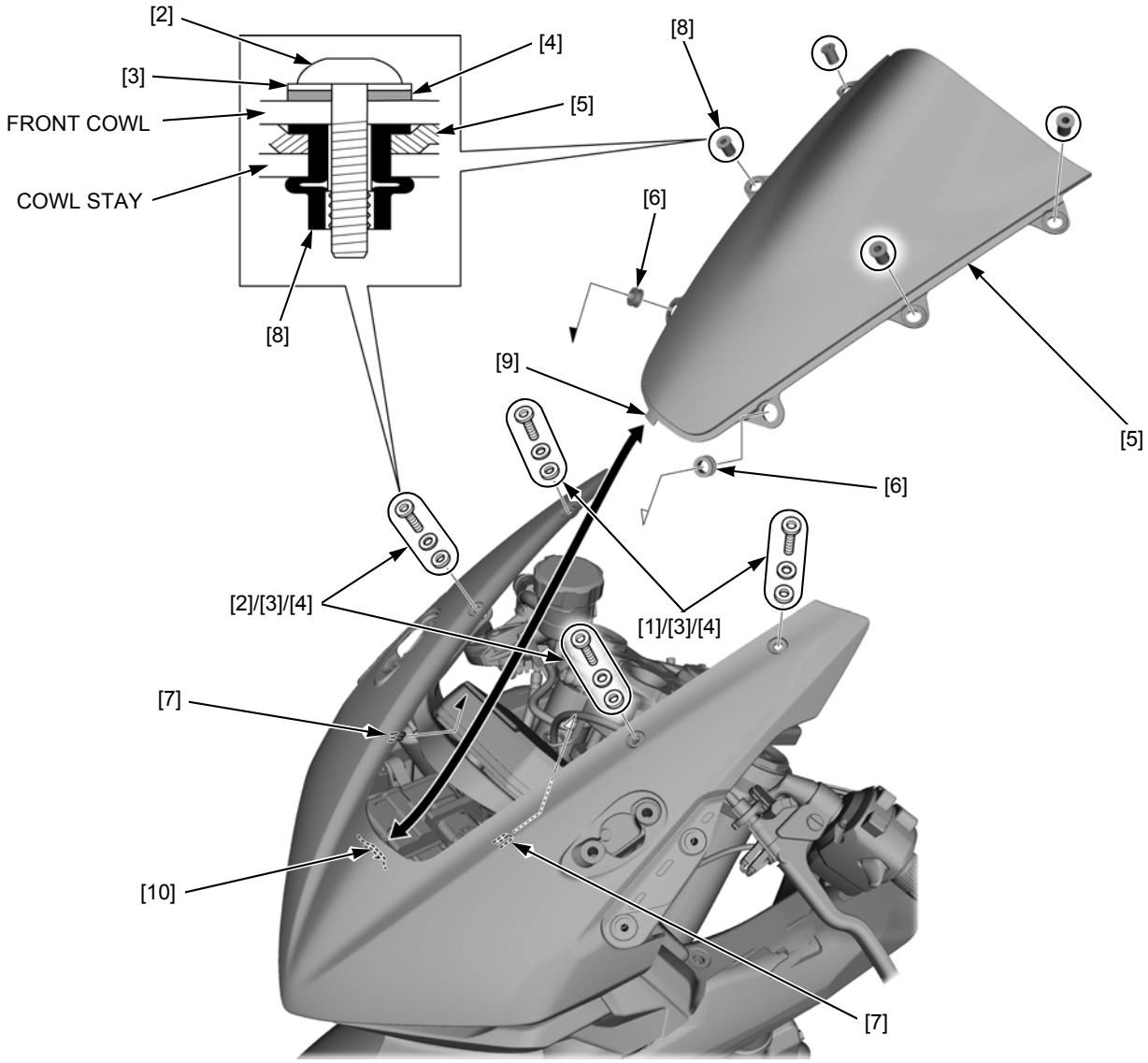
NOTE:

- Align the windscreen tab [9] with the slot [10] in the front cowl.

TORQUE:

Special bolt:

1.0 N·m (0.1 kgf·m, 0.7 lbf·ft)



FRONT COWL

REMOVAL/INSTALLATION

Remove the following:

– Middle cowls (page 2-13)
– Windscreen (page 2-17)

Release the air duct cover tabs from the front cowl.

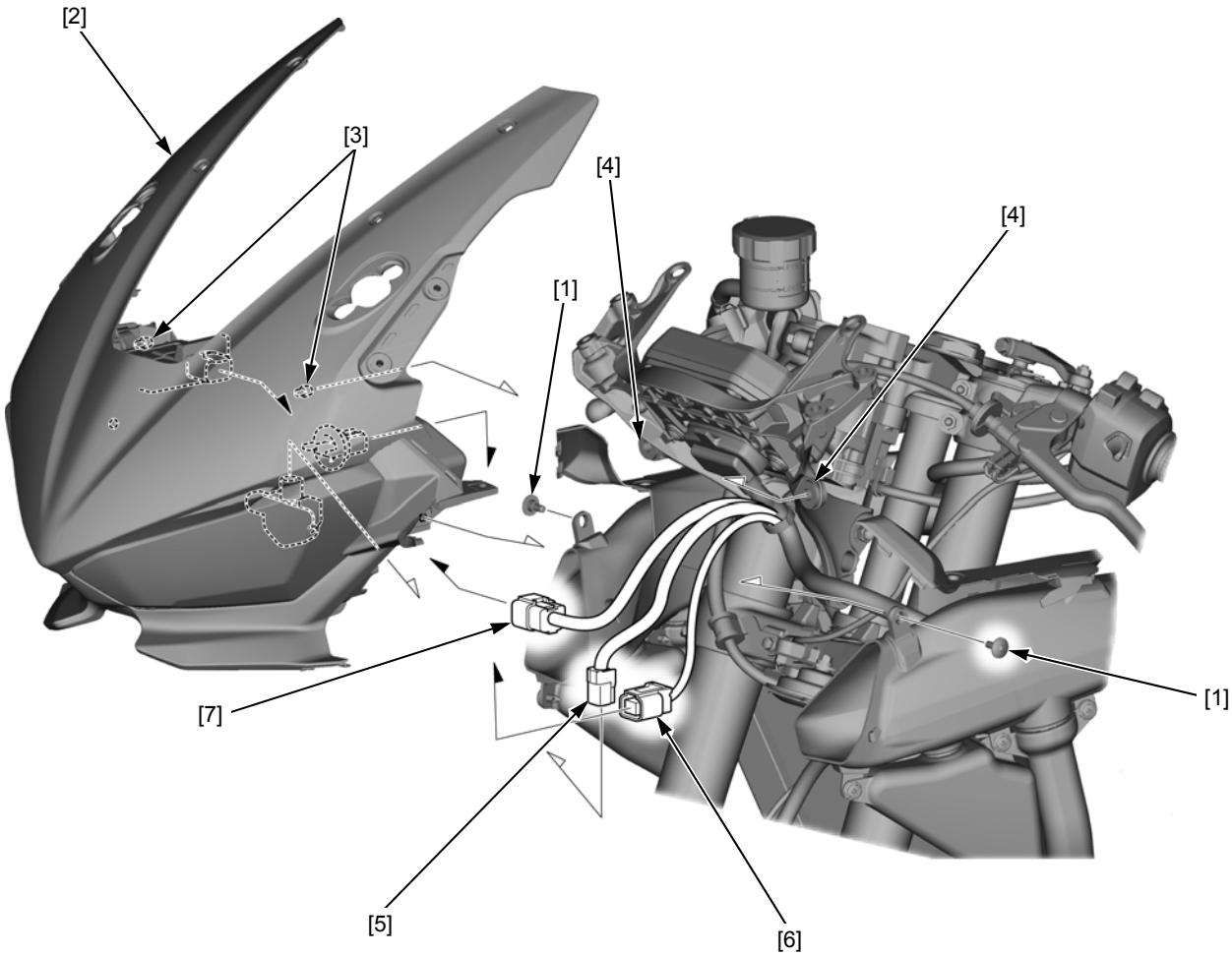
Remove the two socket screws [1] and front cowl assembly [2] by releasing the two bosses [3] from the grommets [4].

Disconnect the bank angle sensor 2P (Black) connector [5], headlight 8P (Black) connector [6] and LED turn signal relay 12P (Black) connector [7].

Route the wires properly (page 1-23).

Installation is in the reverse order of removal.

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



DISASSEMBLY/ASSEMBLY

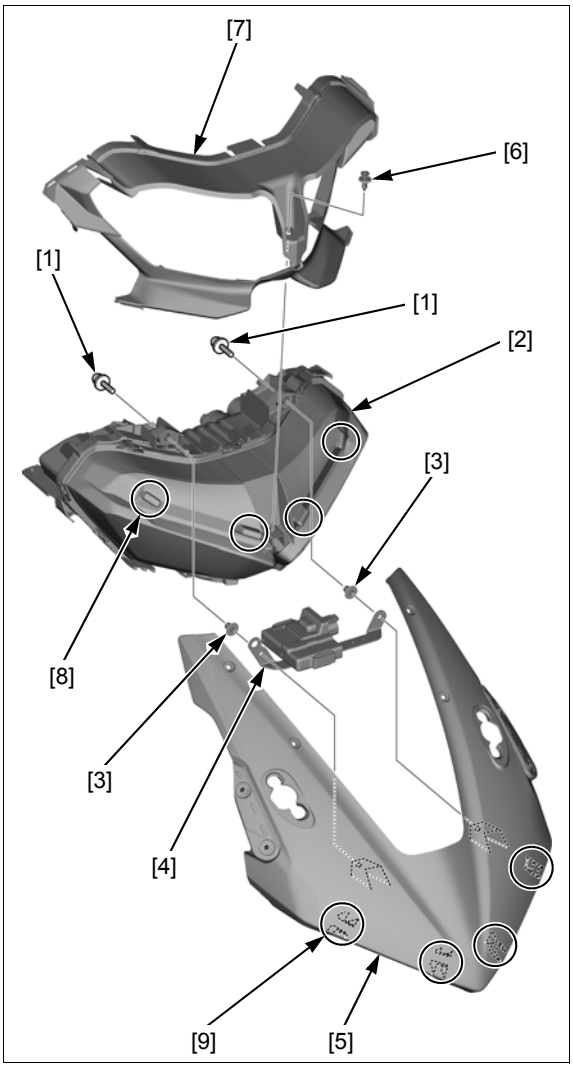
Remove the following:

– Screws/washers [1]
– Headlight [2]
– Collars [3]
– Except CH: LED turn signal relay stay [4] with the LED turn signal relay
– CH: Turn signal relay stay [4] with the turn signal relay and headlight relay
– Front upper cowl [5]
– Trim clip [6]
– Front lower cowl [7] from the headlight

Assembly is in the reverse order of disassembly.

NOTE:

• Align the four lugs [8] of the headlight with the locating ridges [9] on the front upper cowl



FRONT COWL STAY

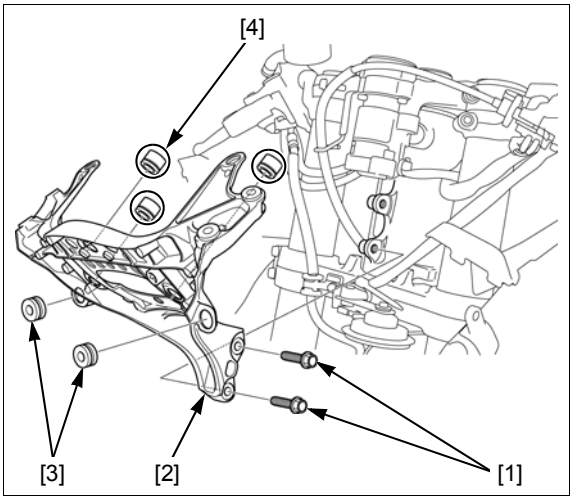
REMOVAL/INSTALLATION

Remove the following:

– Combination meter (page 21-10)
– Mounting bolts [1]
– Front cowl stay [2]
– Front cowl mounting rubbers [3] if necessary
– Meter mounting rubbers [4] if necessary

Installation is in the reverse order of removal.

TORQUE:
Front cowl stay mounting bolt:
32 N·m (3.3 kgf·m, 24 lbf·ft)



UNDER COWL

REMOVAL/INSTALLATION

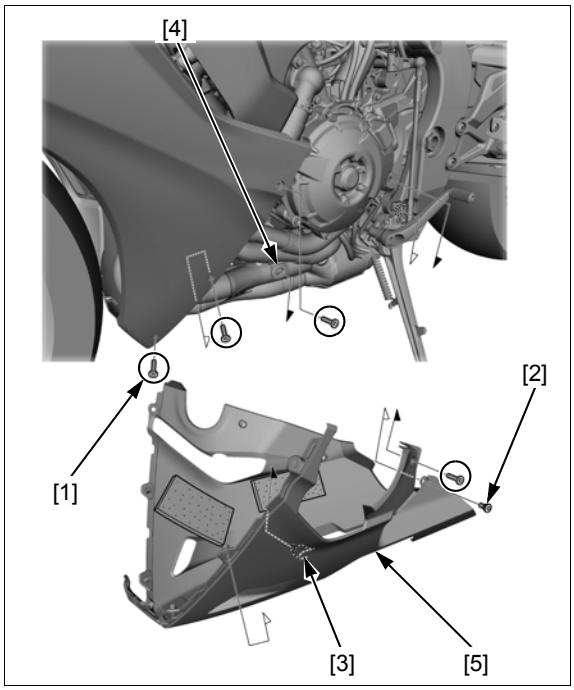
Remove the eight special bolts [1] and two socket screws [2].

Release the right tabs from the right middle cowl.

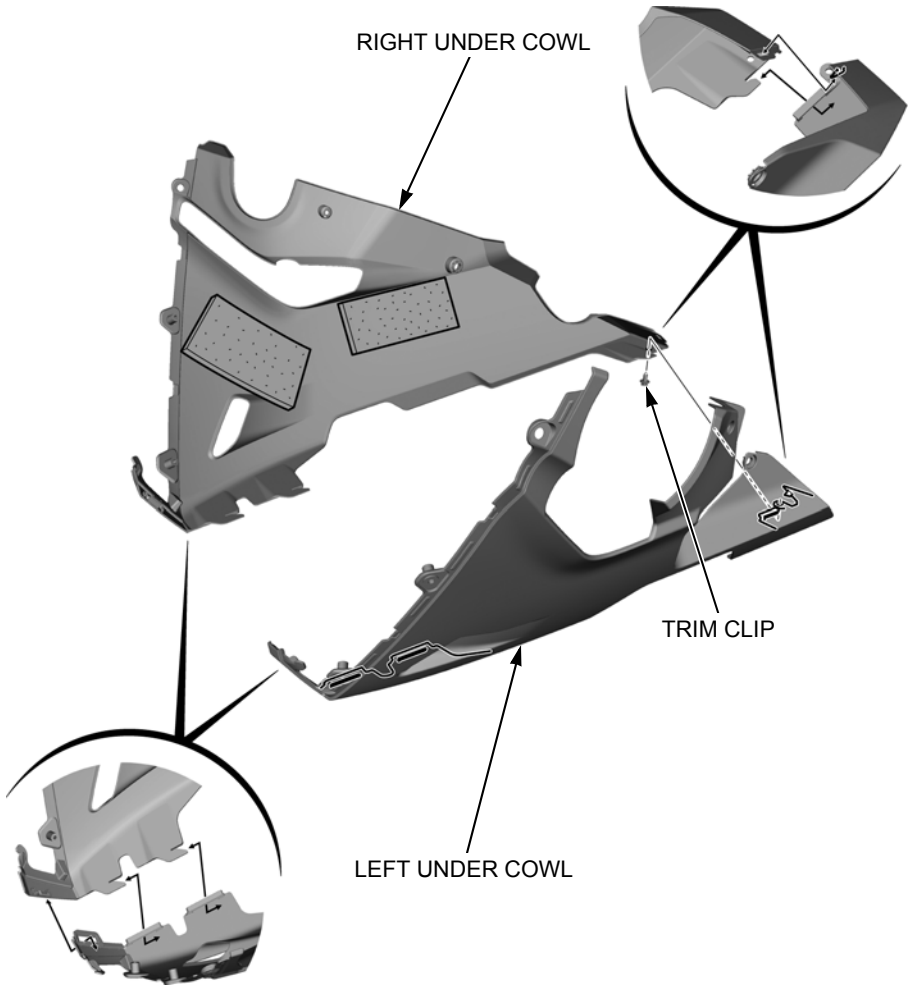
Release the left tabs from the left middle cowl and boss [3] from the grommet [4], and remove the under cowl [5].

Installation is in the reverse order of removal.

TORQUE:
Special bolt:
1.0 N·m (0.1 kgf·m, 0.7 lbf·ft)
Socket screw:
10 N·m (1.0 kgf·m, 7 lbf·ft)



DISASSEMBLY/ASSEMBLY



RIGHT REAR UNDER COVER (CH/FO/ TH only)

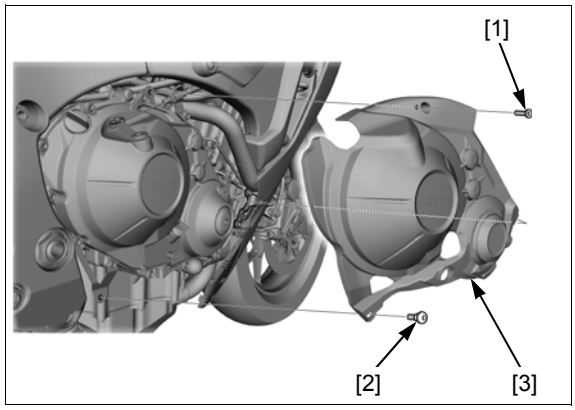
REMOVAL/INSTALLATION

Remove the following:

– Under cowl (page 2-20)
– Special bolt [1]
– Socket screw [2]
– Right rear under cover [3]

Installation is in the reverse order of removal.

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



CANISTER COVER (KO only)

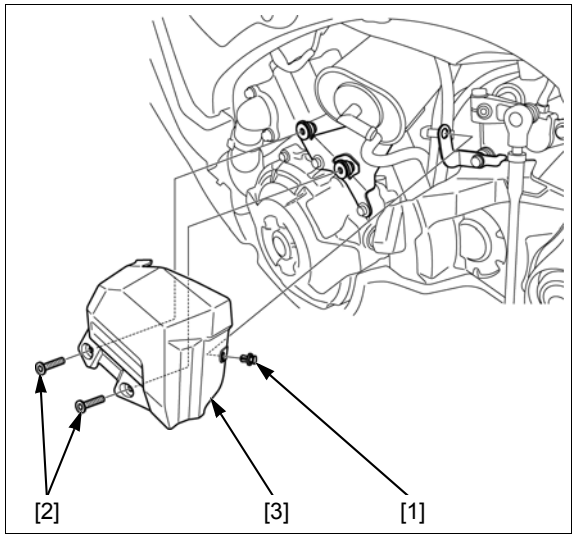
REMOVAL/INSTALLATION

Remove the following:

– Trim clip [1]
– Special bolts [2]
– Canister cover [3]

Installation is in the reverse order of removal.

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



LEFT REAR COVER

REMOVAL/INSTALLATION

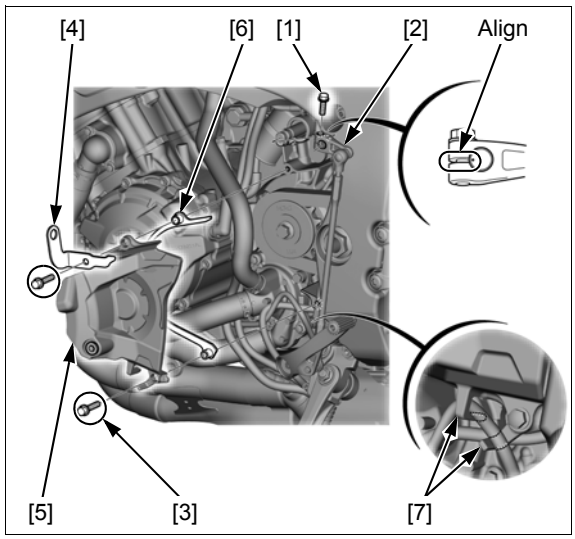
Remove the following:

– Under cowl (page 2-20)
– KO only: Canister cover (page 2-21)
– Pinch bolt [1]
– Gearshift arm [2]
– Bolts [3]
– KO only: Canister cover stay [4]
– Left rear cover [5]
– Guide plate [6]

Installation is in the reverse order of removal.

NOTE:

- Route the sidestand switch wire into the wire guides [7] of the cover.
- Align the shift arm slit with the punch mark on the gearshift spindle.



FRAME SIDE COVER

REMOVAL/INSTALLATION

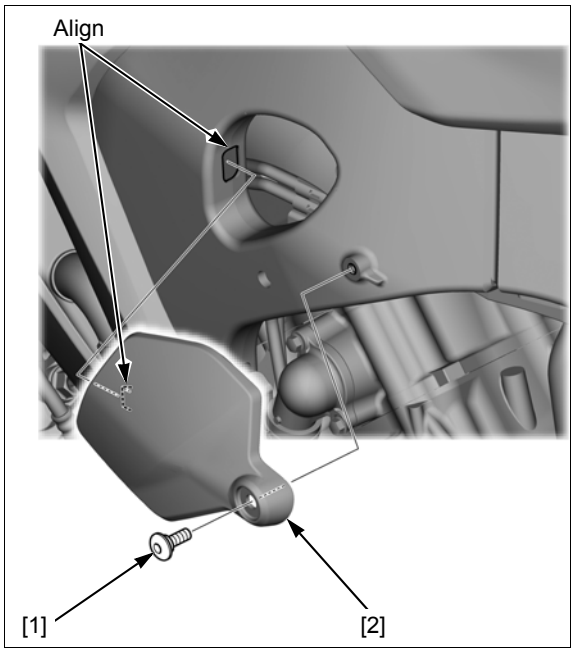
Remove the following:

– Socket screw [1]
– Frame side cover [2]

Installation is in the reverse order of removal.

NOTE:

• Align the cover tab with the frame slot.



SIDESTAND

REMOVAL/INSTALLATION

Support the motorcycle securely using a hoist or equivalent.

Remove the following:

– Gearshift arm from the gearshift spindle (page 2-21)
– Sidestand switch from the sidestand pivot (It is not necessary to disconnect the connector.) (page 21-20)
– Return springs [1]

Hold the pivot bolt [2] and remove the pivot nut [3].

Remove the pivot bolt and sidestand [4].

Apply molybdenum disulfide grease to the sidestand pivot.

Install the sidestand and pivot bolt, and tighten the bolt to the specified torque.

TORQUE: 10 N·m (1.0 kgf·m, 7 lbf·ft)

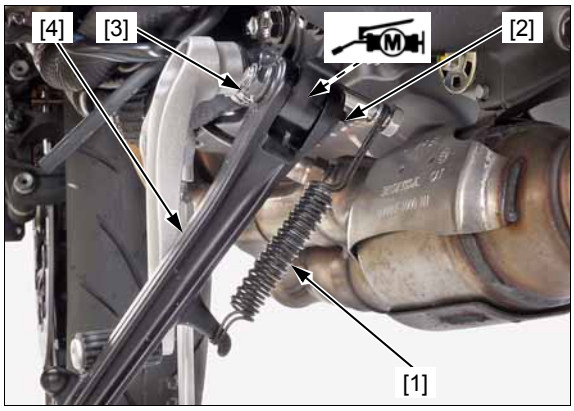
Hold the pivot bolt, install the pivot nut, and tighten it to the specified torque.

TORQUE: 37 N·m (3.8 kgf·m, 27 lbf·ft)

Install the return spring as shown.

Install the sidestand switch (page 21-20).

Install the gearshift arm onto the gearshift spindle (page 2-21).



FRONT FENDER

REMOVAL/INSTALLATION

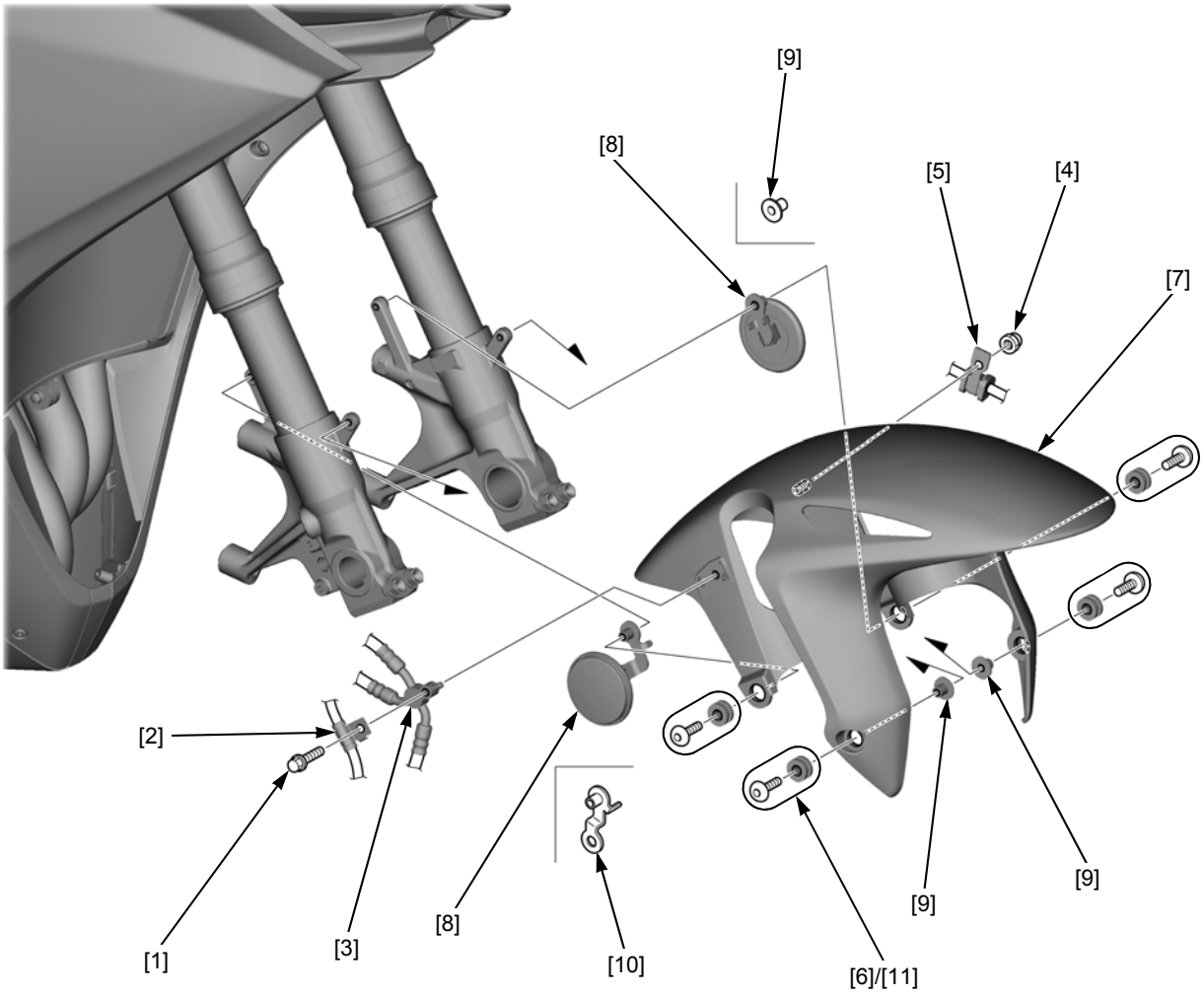
Remove the following:

– Front wheel (page 16-15)
– Bolt [1], wire clamp [2] and brake hose 3-way joint [3]
– Cap nut [4] and brake hose clamp [5]
– Four mounting screws [6]
– Front fender [7]
– Except BR/IN/KO/TH: Two reflectors [8] and two mounting collars [9]
– BR/IN/KO/TH: Cord clamp stay [10] and three mounting collars
– Four mounting rubbers [11]

Installation is in the reverse order of removal.

TORQUE:
Front fender mounting screw:
12 N·m (1.2 kgf·m, 9 lbf·ft)
Brake hose 3-way joint bolt:
10 N·m (1.0 kgf·m, 7 lbf·ft)
Brake hose clamp cap nut:
10 N·m (1.0 kgf·m, 7 lbf·ft)

Install the front wheel (page 16-19).



MUFFLER

REMOVAL/INSTALLATION

Remove the following:

– Under cowl (page 2-20)
– Nuts [1]
– Bolts [2]
– Valve guide cover [3]

Loosen the lock nuts [4] and remove the cable joints [5] from the valve guide body of the muffler.

Disconnect EGCA cable B [6] from the valve cable guide [7].

Turn the valve cable guide counterclockwise and disconnect EGCA cable A [8].

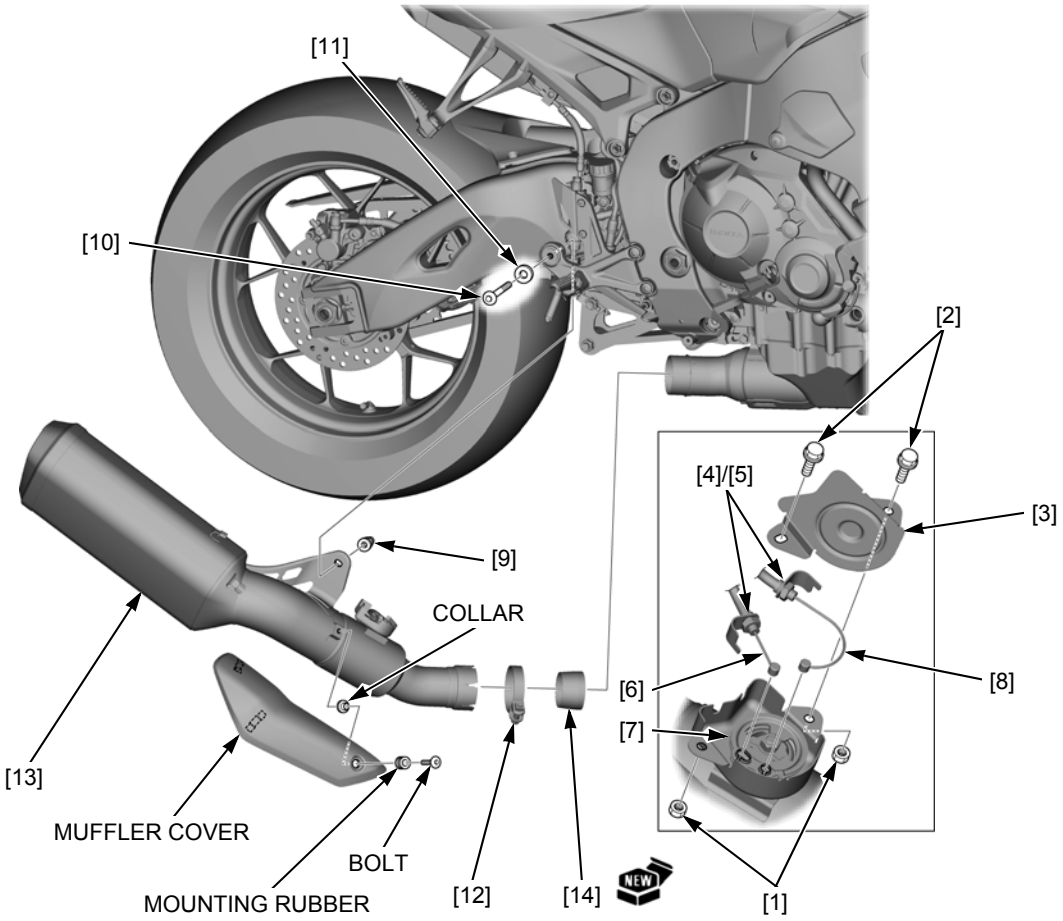
Remove the muffler mounting nut [9], bolt [10] and washer [11].

Loosen the muffler band bolt [12] then remove the muffler [13] and gasket [14].

Installation is in the reverse order of removal.

NOTE:
• Replace the gasket with a new one.

TORQUE:
Muffler band bolt:
17 N·m (1.7 kgf·m, 13 lbf·ft)
Muffler cover screw:
10 N·m (1.0 kgf·m, 7 lbf·ft)



DISASSEMBLY/ASSEMBLY

Straighten the lock washer [1] tabs.

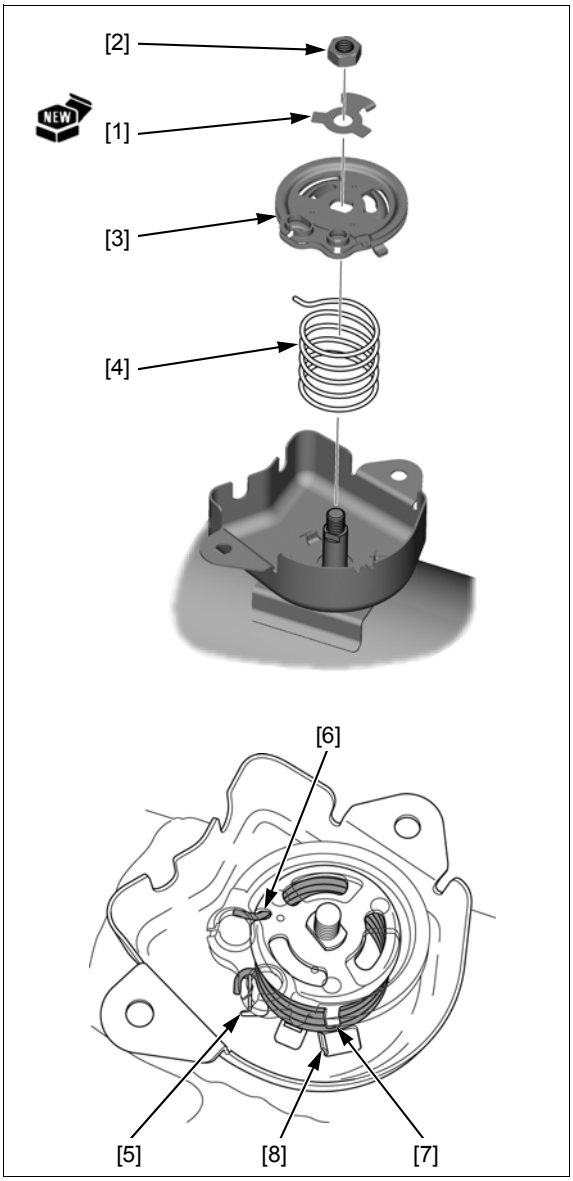
Remove the following:

– Nut [2]
– Lock washer
– Valve cable guide [3]
– Return spring [4]

Assembly is in the reverse order of disassembly.

NOTE:

- Hook the return spring ends to the muffler tab [5] and valve cable guide groove [6] as shown.
- Align the flats in the valve cable guide hole with the flats of the valve shaft properly.
- Note the positions of the valve cable guide tab [7] and muffler stopper tab [8].
- Replace the lock washer with a new one.



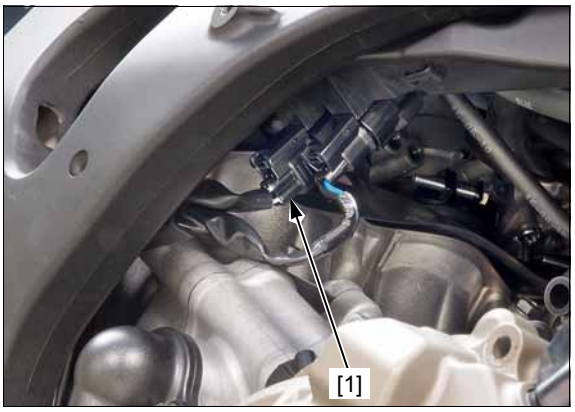
EXHAUST PIPE

REMOVAL/INSTALLATION

Remove the following:

– Muffler (page 2-24)
– Radiator (page 8-7)

Remove the O_2 sensor 4P (Black) connector [1] from the stay and disconnect it.



Loosen the exhaust pipe mounting bolt [1].

Remove the following:

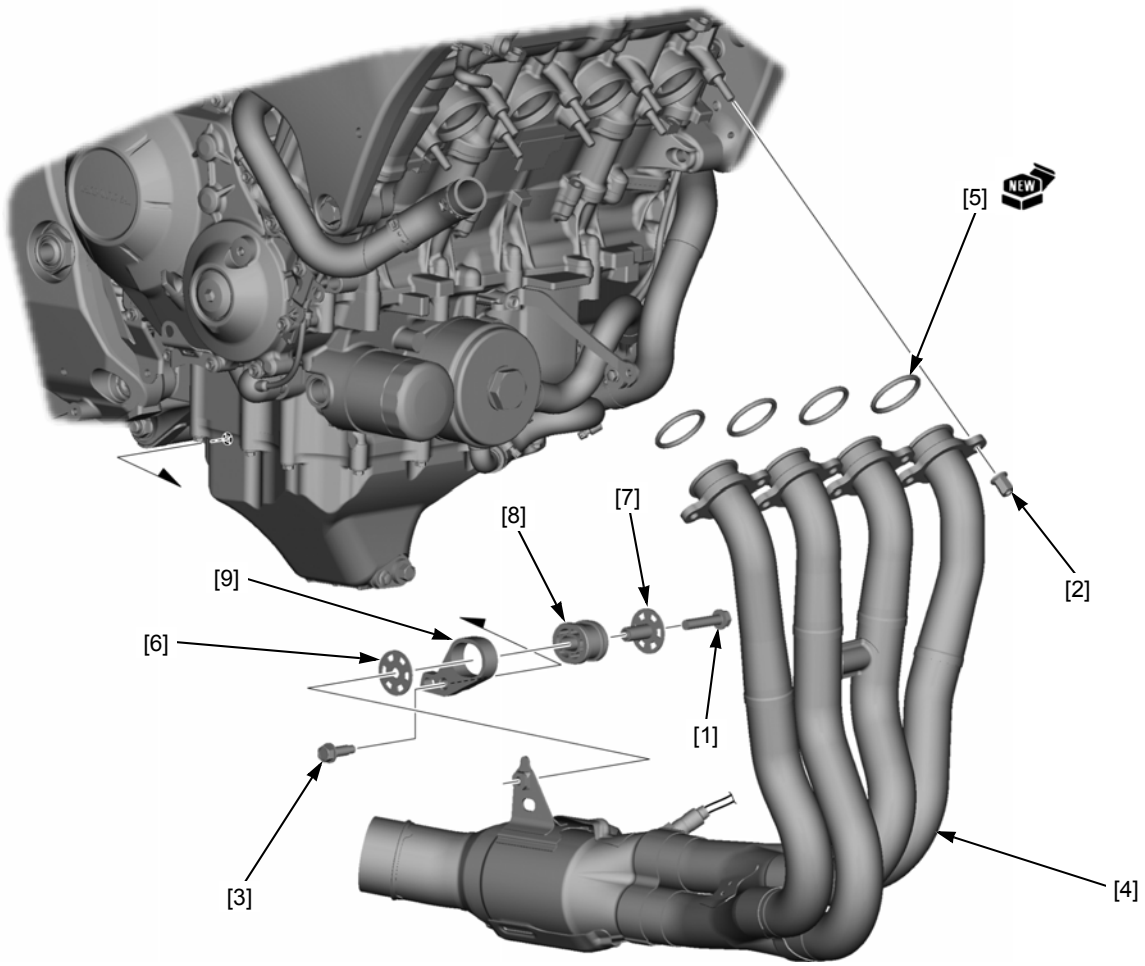
– Eight joint nuts [2]
– Stay bolt [3]
– Exhaust pipe assembly [4]
– Four gasket [5]
– Mounting bolt
– Washer [6]
– Mounting collar [7]
– Mounting rubber [8]
– Exhaust pipe stay [9]

Installation is in the reverse order of removal.

NOTE:

- Always replace the exhaust pipe joint gaskets with new ones.
- Loosely install all of the exhaust pipe fasteners, and tighten the joint nuts to the specified torque first, then tighten the other mounting fasteners.
- O_2 sensor removal/installation (page 4-84).

TORQUE:
Exhaust pipe joint nut:
12 N·m (1.2 kgf·m, 9 lbf·ft)



STUD BOLT REPLACEMENT

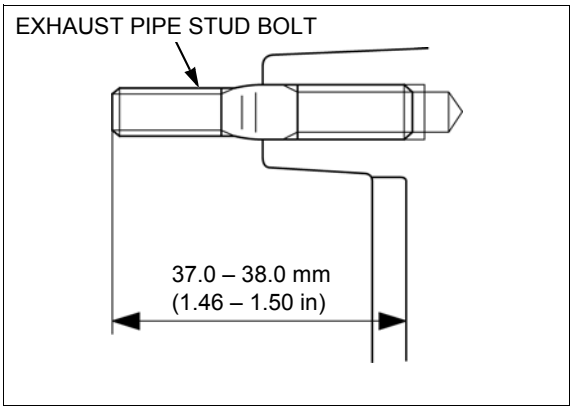
Remove the exhaust pipe (page 2-25).

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

Install a new stud bolt [1] into the cylinder head.

After installing the stud bolt, check that the length from the bolt head to the exhaust port is within specification.

SPECIFIED LENGTH: 37.0 – 38.0 mm (1.46 – 1.50 in)



MEMO

SERVICE INFORMATION

GENERAL

- Place the motorcycle on level ground before starting any work.

MAINTENANCE SCHEDULE

ED/KO/RU/U:

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.

The following items require some mechanical knowledge. Certain items (particularly those marked * and **) may require more technical information and tools. Consult a dealer.

	ITEMS	NOTE	FREQUENCY (NOTE 1)						ANNUAL CHECK	REGULAR REPLACE	REFER TO PAGE
			x 1,000 km	1	12	24	36	48			
			x 1,000 mi	0.6	8	16	24	32			
*	FUEL LINE				I	I	I	I	I		3-4
*	THROTTLE OPERATION				I	I	I	I	I		3-5
*	AIR CLEANER (KO/RU)	NOTE 2				R		R			3-5
*	AIR CLEANER (ED/U)	NOTE 2				I		I			3-5
*	SPARK PLUG					I		R			3-6
*	VALVE CLEARANCE					I		I			3-8
	ENGINE OIL			R	R	R	R	R	R		3-12
	ENGINE OIL FILTER			R		R		R			3-12
*	ENGINE IDLE SPEED				I	I	I	I	I		3-14
	RADIATOR COOLANT	NOTE 3			I	I	I	I	I	3 years	3-14
*	COOLING SYSTEM				I	I	I	I	I		3-15
*	SECONDARY AIR SUPPLY SYSTEM					I		I			3-15
*	EVAPORATIVE EMISSION CONTROL SYSTEM (ED/KO)					I		I			3-15
**	EGCA CABLE					I		I			3-16
	DRIVE CHAIN			EVERY 1,000 km (600 mi): I, L							3-17
	DRIVE CHAIN SLIDER				I	I	I	I			3-20
	BRAKE FLUID	NOTE 3			I	I	I	I	I	2 years	3-20
	BRAKE PADS WEAR				I	I	I	I	I		3-21
	BRAKE SYSTEM				I	I	I	I	I		3-21
	BRAKE LIGHT SWITCH				I	I	I	I	I		3-22
	HEADLIGHT AIM				I	I	I	I	I		3-23
	CLUTCH SYSTEM				I	I	I	I	I		3-23
	SIDESTAND				I	I	I	I	I		3-24
*	SUSPENSION				I	I	I	I	I		3-24
**	FRONT FORK OIL (CBR1000S1/S2 only)			EVERY 30,000 km (20,000 mi): R						3 years	3-28
*	NUTS, BOLTS, FASTENERS				I	I	I	I	I		3-28
**	WHEELS/TIRES				I	I	I	I	I		3-28
**	STEERING HEAD BEARINGS				I	I	I	I	I		3-28

* 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.

Honda recommends that a dealer should road test your motorcycle after each periodic maintenance is carried out.

NOTES:

1. At higher odometer reading, repeat at the frequency interval established here.
2. Service more frequently when riding in unusually wet or dusty areas.
3. Replacement requires mechanical skill.

BR/CH/FO/GS/IN/TH:

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.

The following items require some mechanical knowledge. Certain items (particularly those marked * and **) may require more technical information and tools. Consult a dealer.

	ITEMS	NOTE	FREQUENCY (NOTE 1)								ANNUAL CHECK	REGULAR REPLACE	REFER TO PAGE
			x 1,000 km	1	6	12	18	24	30	36			
			x 1,000 mi	0.6	4	8	12	16	20	24			
*	FUEL LINE					I		I		I	I		3-4
*	THROTTLE OPERATION					I		I		I	I		3-5
*	AIR CLEANER	NOTE2					R			R			3-5
*	SPARK PLUG			EVERY 24,000 km (16,000 mi): I, EVERY 48,000 km (32,000 mi): R									3-6
*	VALVE CLEARANCE							I					3-8
	ENGINE OIL			R		R		R		R	R		3-12
	ENGINE OIL FILTER			R				R					3-12
*	ENGINE IDLE SPEED					I		I		I	I		3-14
	RADIATOR COOLANT	NOTE3				I		I		I	I	3 years	3-14
*	COOLING SYSTEM					I		I		I	I		3-15
*	SECONDARY AIR SUPPLY SYSTEM							I					3-15
*	EVAPORATIVE EMISSION CONTROL SYSTEM (BR/CH/TH/FO)							I					3-15
**	EGCA CABLE							I					3-16
	DRIVE CHAIN			EVERY 1,000 km (600 mi): I, L									3-17
	DRIVE CHAIN SLIDER					I		I		I			3-20
	BRAKE FLUID	NOTE3			I	I	I	I	I	I	I	2 years	3-20
	BRAKE PADS WEAR				I	I	I	I	I	I	I		3-21
	BRAKE SYSTEM					I		I		I	I		3-21
	BRAKE LIGHT SWITCH					I		I		I	I		3-22
	HEADLIGHT AIM					I		I		I	I		3-23
	CLUTCH SYSTEM				I	I	I	I	I	I	I		3-23
	SIDESTAND					I		I		I	I		3-24
*	SUSPENSION					I		I		I	I		3-24
**	FRONT FORK OIL (CBR1000S1 only)			EVERY 30,000 km (20,000 mi): R								3 years	3-28
*	NUTS, BOLTS, FASTENERS					I		I		I	I		3-28
**	WHEELS/TIRES					I		I		I	I		3-28
**	STEERING HEAD BEARINGS					I		I		I	I		3-28

* Should be serviced by a dealer, unless the owner has proper tools and service data and is mechanically qualified.
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Honda recommends that a dealer should road test the motorcycle after each periodic maintenance is carried out.

NOTES:

1. At higher odometer reading, repeat at the frequency interval established here.
2. Service more frequently when riding in unusually wet or dusty areas.
3. Replacement requires mechanical skill.

FUEL LINE

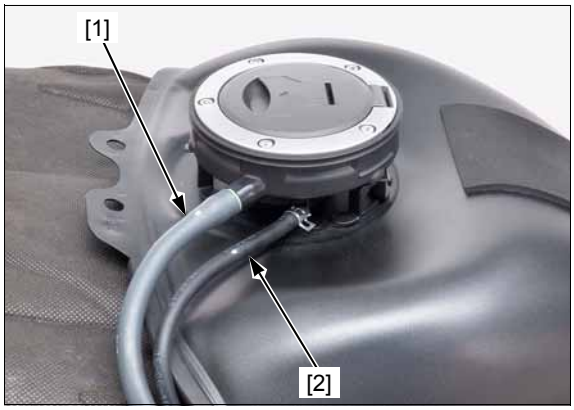
FUEL TANK LIFTING/LOWERING

Remove the top shelter (page 2-6).

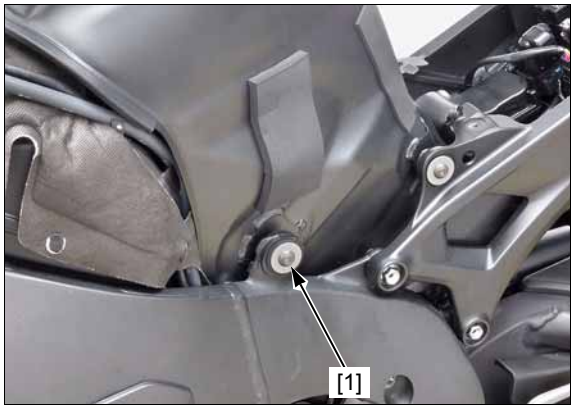
Disconnect the fuel tank drain hose [1] from the fuel tank tray

BR/CH/ED/FO/KO/TH: Disconnect the fuel tank-to-canister hose [2] from the breather joint.

GS/IN/RU/U: Disconnect the fuel tank breather hose [2] from the breather joint.



Remove the fuel tank mounting bolts/washers [1].

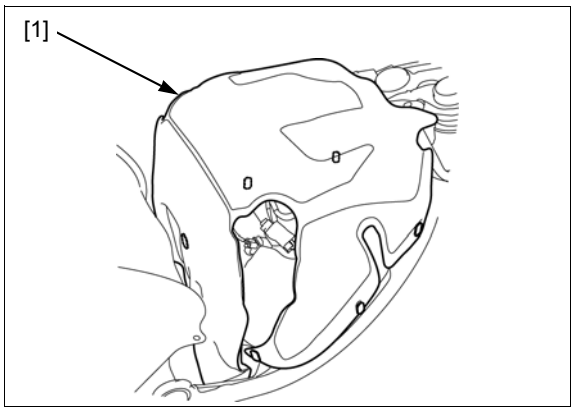


Lift the fuel tank front end and support the fuel tank by inserting a suitable support [1] under the tank as shown.

Remove the air cleaner cover [1].

Lower the fuel tank in the reverse order of lifting.

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



INSPECTION

Lift and support the fuel tank (page 3-4)

Check the fuel lines [1] for deterioration, damage or leakage. Replace the fuel lines if necessary.

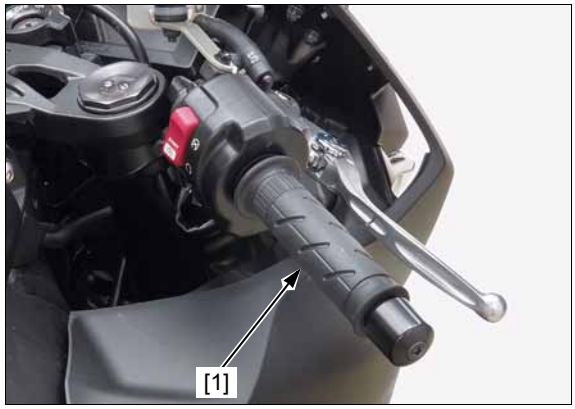
Also check the fuel line fittings for leakage.

Lower the fuel tank (page 3-4)

THROTTLE OPERATION

Check for smooth operation of the throttle grip [1] and that it returns automatically to the fully closed position from any open position.

Replace the APS if the throttle operation is not smooth (page 4-76).



AIR CLEANER

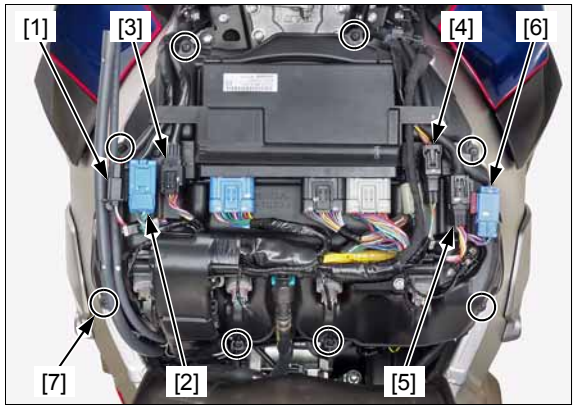
Lift and support the fuel tank (page 3-4).

Disconnect the following:

- Ignition switch 3P (Black) connector [1]
- Except CH: Left handlebar switch 6P (Blue) connector [2]
- CH: Left handlebar switch 8P (Blue) connector [2]
- Left handlebar switch 8P (Black) connector [3]
- Immobilizer receiver 4P (Black) connector [4]
- APS 6P (Black) connector [5]
- Right handlebar switch 6P (Blue) connector [6]

Release the wires from the clamps.

Remove the eight tapping screws [7].



Slide the air cleaner upper housing [1] rearward.

Loosen the two tapping screws [2] and remove the air cleaner element [3]

ED/U: Clean the air cleaner element using compressed air from the throttle body side any time it is excessively dirty.

Except ED/U: Replace the air cleaner element in accordance with the maintenance schedule or any time it is excessively dirty or damage.

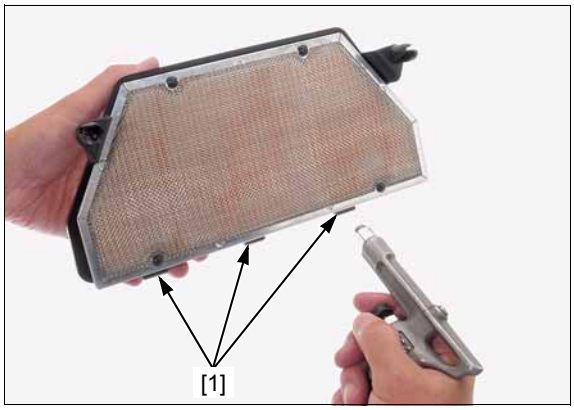
NOTE:

- The viscous paper element (Except ED/U) cannot be cleaned because the element contains a dust adhesive.

Installation is in the reverse order of removal.

NOTE:

- Fit the three tabs [1] with the air cleaner lower housing tabs properly.



TORQUE:
Tapping screw:
0.8 N·m (0.1 kgf·m, 0.6 lbf·ft)

SPARK PLUG

REMOVAL/INSTALLATION

Remove the air cleaner housing (page 7-10).

Pull up the front of the heat guard rubber [1] to access the direct ignition coils.

Disconnect the 2P (White) connectors [1] from the direct ignition coils [2].

Remove the direct ignition coils from the spark plugs.

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

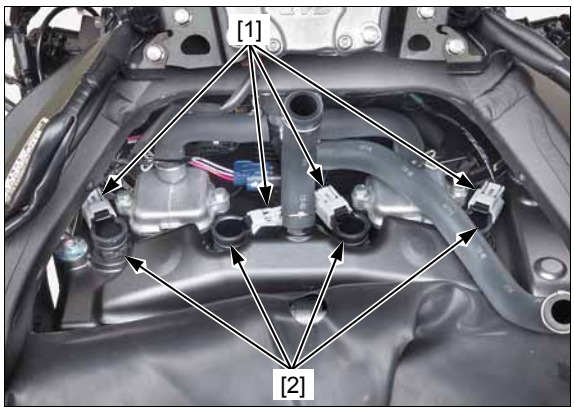
Remove the spark plugs using the commercially available spark plug wrench and extension bar.

Inspect or replace the spark plugs as described in the maintenance schedule (page 3-2).

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

TORQUE: 16 N·m (1.6 kgf·m, 12 lbf·ft)

Install the air cleaner housing (page 7-10).

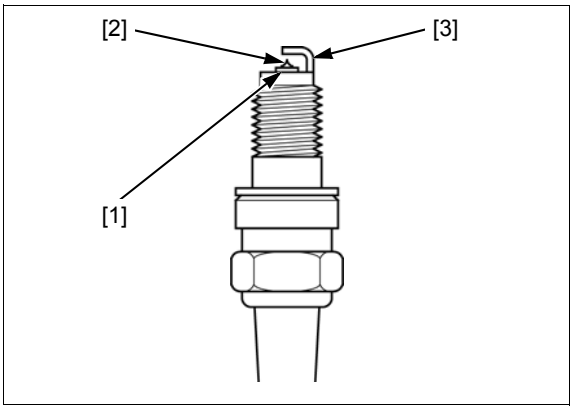


INSPECTION

This motorcycle's spark plug is equipped with an iridium center electrode. Do not clean the electrodes.

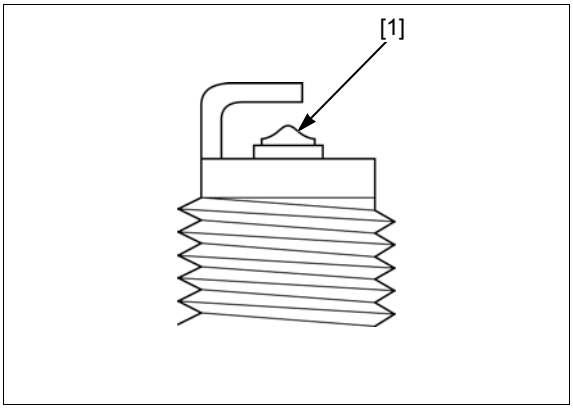
Check the insulator [1] for cracks or damage, and the electrodes [2]/[3] for wear, fouling or discoloration. Replace the spark plug with the specified one if necessary.

SPECIFIED SPARK PLUG:
NGK: IMR9E-9HES
DENSO: VUH27ES



Always use specified spark plugs on this motorcycle.

Replace the plug with the specified one if the center electrode [1] is rounded as shown.



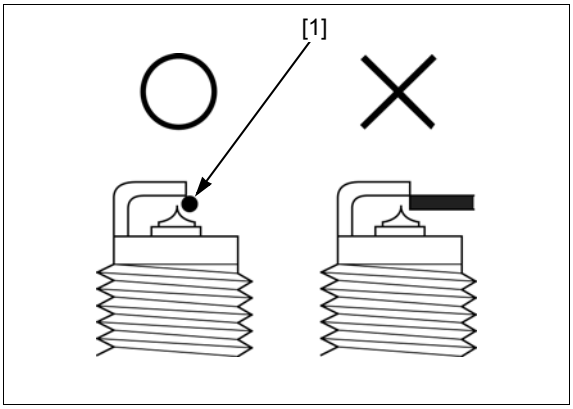
To prevent damaging the iridium center electrode, use a wire type feeler gauge to check the spark plug gap.

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

Make sure that the Φ 1.0 mm (0.04 in) plug gauge does not insert between the gap.

Do not adjust the spark plug gap.

If the gauge can be inserted into the gap, replace the plug with the specified one.



VALVE CLEARANCE

NOTE:

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

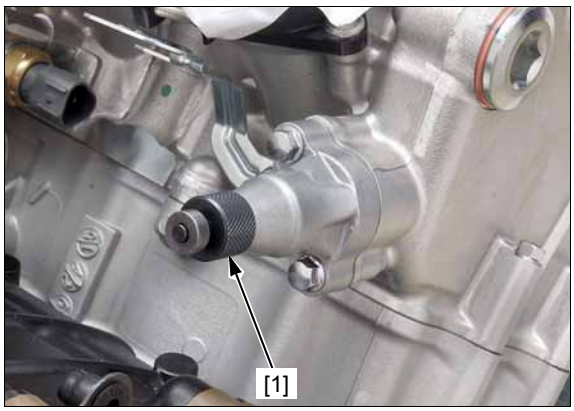
INSPECTION

Remove the cylinder head cover (page 10-4).

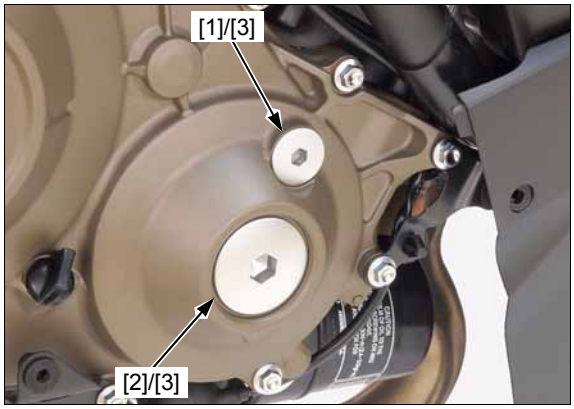
Remove the bolt [1] and sealing washer [2] from the cam chain tensioner lifter.

Turn the tensioner lifter shaft fully in (clockwise) and secure it using the special tool.

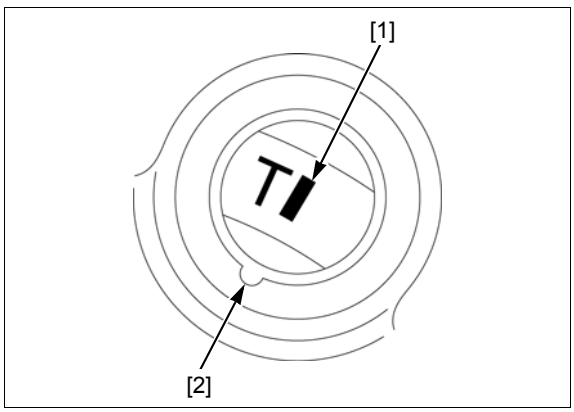
TOOL:
Tensioner stopper [1] 070MG-0010100



Remove the timing hole cap [1], crankshaft hole cap [2] and O-rings [3].



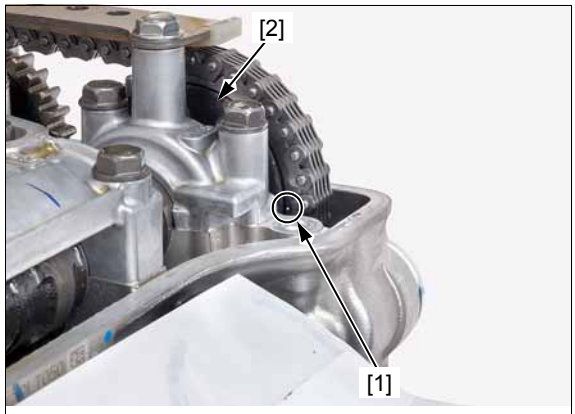
Turn the crankshaft clockwise, align the "T" mark [1] with the index mark [2] on the right crankcase cover.

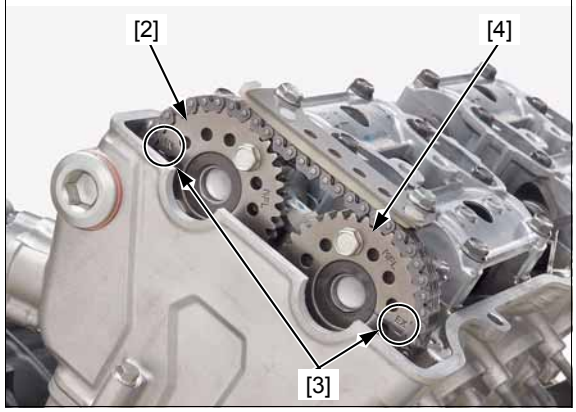


Make sure the following:

- The inside punch mark [1] of the intake cam sprocket [2] must be flush with the cylinder head upper surface.
- The outside timing marks ("IN" and "EX") [3] of the intake cam sprocket and exhaust cam sprocket [4] must be flush with the cylinder head upper surface and facing outward as shown.

If the timing marks on the cam sprockets are facing inward, turn the crankshaft clockwise one full turn (360°) and realign the timing marks with the cylinder head surface so they are facing outward.





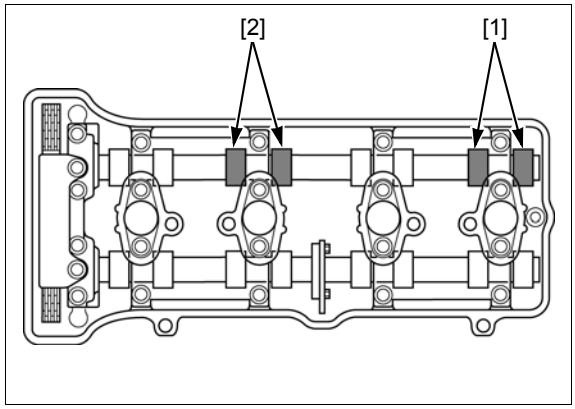
Insert the feeler gauge between the valve lifter and cam lobe.

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

Check the valve clearance for the No.1 cylinder intake valves [1] and No.3 cylinder intake valves [2] using a feeler gauge.

VALVE CLEARANCE:
IN: 0.16 ± 0.03 mm (0.006 ± 0.001 in)

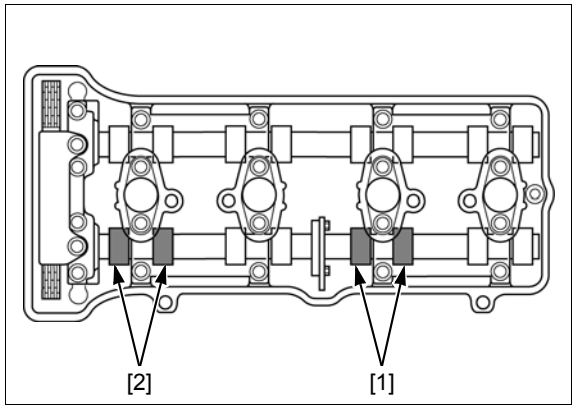
Turn the crankshaft clockwise 1/2 turn (180°).



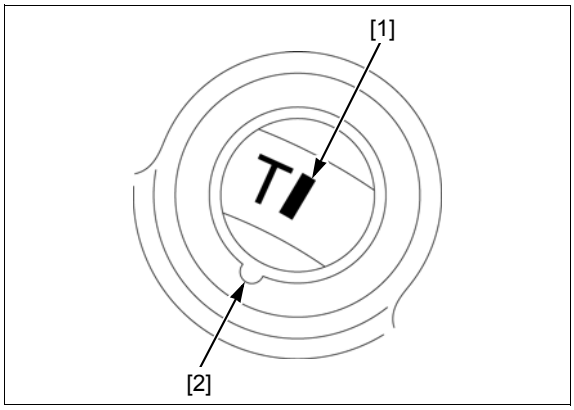
Record the clearance for each valve for reference in shim selection if adjustment is required.

Check the valve clearance for the No.2 cylinder exhaust valves [1] and No.4 cylinder exhaust valves [2] using a feeler gauge.

VALVE CLEARANCE:
EX: 0.30 ± 0.03 mm (0.012 ± 0.001 in)



Turn the crankshaft clockwise 1/2 turn (180°), align the "T" mark [1] with the index mark [2] on the right crankcase cover.

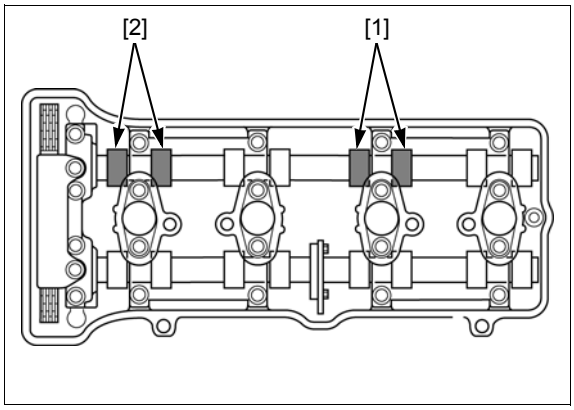


Record the clearance for each valve for reference in shim selection if adjustment is required.

Check the valve clearance for the No.2 cylinder intake valves [1] and No.4 cylinder intake valves [2] using feeler gauge.

VALVE CLEARANCE:
IN: 0.16 ± 0.03 mm (0.006 ± 0.001 in)

Turn the crankshaft clockwise 1/2 turn (180°).

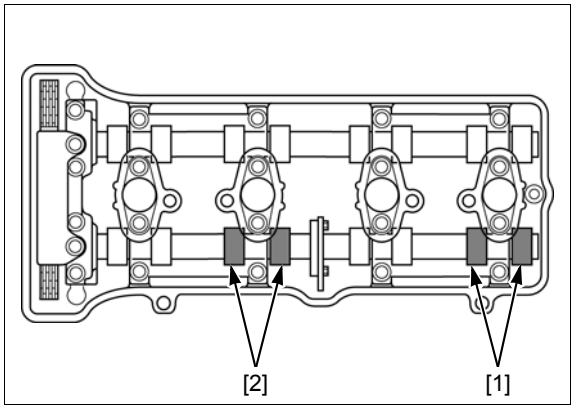


Record the clearance for each valve for reference in shim selection if adjustment is required.

Check the valve clearance for the No.1 cylinder exhaust valves [1] and No.3 cylinder exhaust valves [2] using a feeler gauge.

VALVE CLEARANCE:
EX: 0.30 ± 0.03 mm (0.012 ± 0.001 in)

Adjust the valve clearance if necessary (page 3-10).

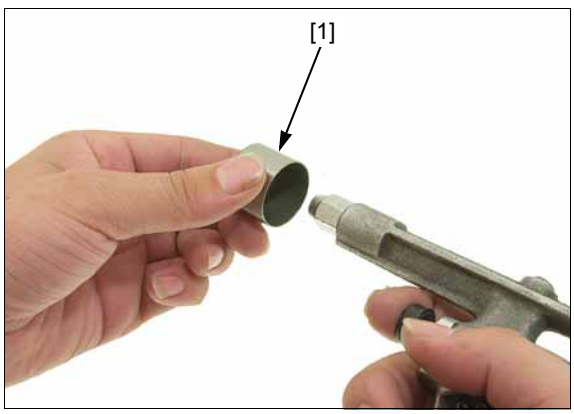


ADJUSTMENT

NOTE:
Use genuine Honda parts for the shims replacement. In case of the wrong shims usage, its material may damage to the intake valve titanium surface.

Remove the valve lifters and shims (page 10-6).

Clean the shim contact area in the valve lifter [1] with compressed air.



Measure the thickness of the shim [1] and record it.

Sixty-five different thickness shims are available from the thinnest 1.200 mm thickness shim to the thickest 2.800 mm thickness shim in increments of 0.025 mm.

Calculate the new shim thickness using the equation below.
A = (B – C) + D
A: New shim thickness
B: Recorded valve clearance
C: Specified valve clearance
D: Old shim thickness

- Make sure of the correct shim thickness by measuring the shim by micrometer.
- Reface the valve seat if carbon deposit result in a calculated dimension of over 2.800 mm.

Install the newly selected shim on the valve spring retainer.

Install the valve lifter and camshafts (page 10-10).

Rotate the crankshaft clockwise several times and recheck the valve clearance (page 3-8).

Remove the special tool from the cam chain tensioner lifter.

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

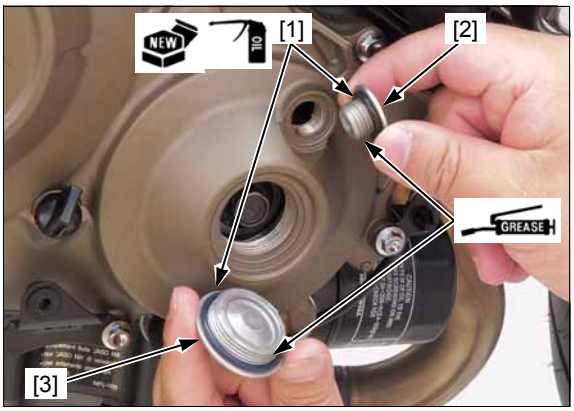
Coat new O-rings [1] with engine oil and install them onto the timing hole cap [2] and crankshaft hole cap [3].

Apply grease to the hole cap threads and install them.

Tighten hole caps to the specified torque.

TORQUE:
Timing hole cap: 6 N·m (0.6 kgf·m, 4.4 lbf·ft)
Crankshaft hole cap: 8 N·m (0.8 kgf·m, 5.9 lbf·ft)

Install the cylinder head cover (page 10-4).



ENGINE OIL

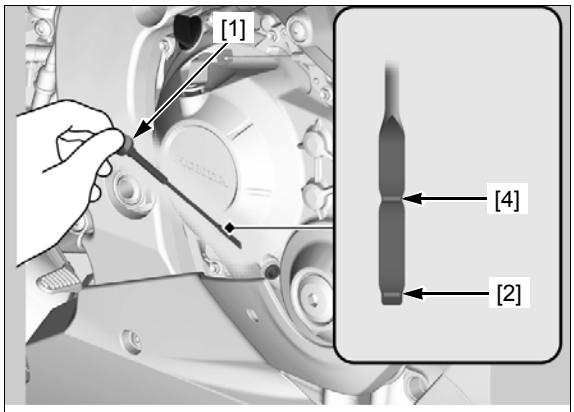
OIL LEVEL INSPECTION

Start the engine and let it idle for 3 – 5 minutes.
Stop the engine and wait 2 – 3 minutes.
Hold the motorcycle in an upright position.

Remove the dipstick [1] and wipe it with a clean cloth.

Insert the dipstick without screwing it in, remove it and check the oil level.

If the oil level is below or near the lower level line [2] on the dipstick, remove the oil filler cap [3] and add the recommended engine oil to the upper level line [4] through the oil filler hole.



RECOMMENDED ENGINE OIL:

Honda "4-stroke motorcycle oil" or an equivalent motor oil
API service classification: SG or higher
JASO T903 standard: MA
Viscosity: SAE 10W-30

Check that the O-rings on the oil filler cap and dipstick are in good condition, and replace them if necessary.

Reinstall the oil filler cap and dipstick.

OIL CHANGE

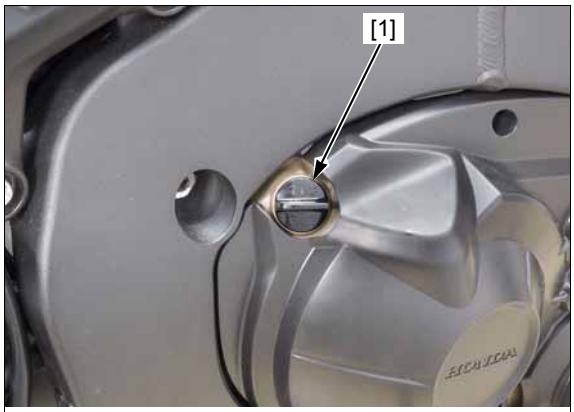
Warm up the engine.

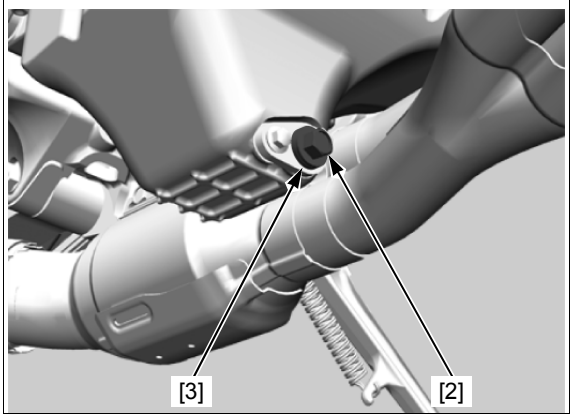
Stop the engine and remove the oil filler cap [1].

Place an oil pan under the engine to catch the engine oil.

Remove the engine oil drain bolt [2] and sealing washer [3], and drain the engine oil completely.

Install the drain bolt with a new sealing washer and tighten it to the specified torque.





TORQUE: 30 N·m (3.1 kgf·m, 22 lbf·ft)

Fill the crankcase with recommended engine oil (page 3-12).

ENGINE OIL CAPACITY:

2.5 liters (2.6 US qt, 2.2 Imp qt) after draining
2.7 liters (2.9 US qt, 2.4 Imp qt) after oil filter change
3.4 liters (3.6 US qt, 3.0 Imp qt) after disassembly

Check that the O-ring on the oil filler cap is in good condition, and replace it if necessary.

Install the oil filler cap.

Check the oil level (page 3-12).

Check that there are no oil leaks.

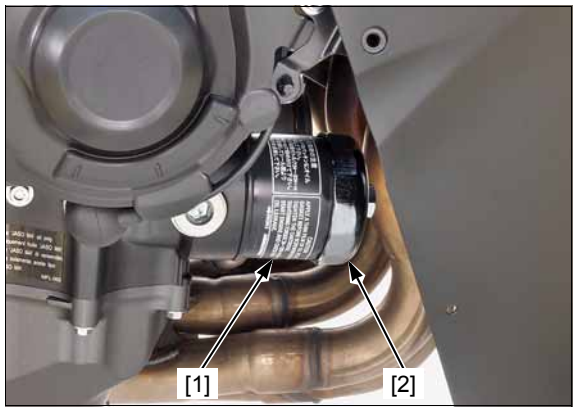
ENGINE OIL FILTER

Remove the under cowl (page 2-20).

Drain the engine oil (page 3-12).

Remove the oil filter cartridge [1] using the special tool.

TOOL:
Oil filter wrench [2] 07HAA-PJ70101

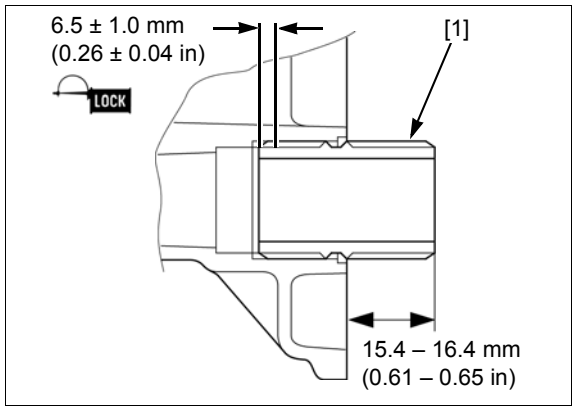


Check that the oil filter boss [1] protrusion from the crankcase is specified length as shown.

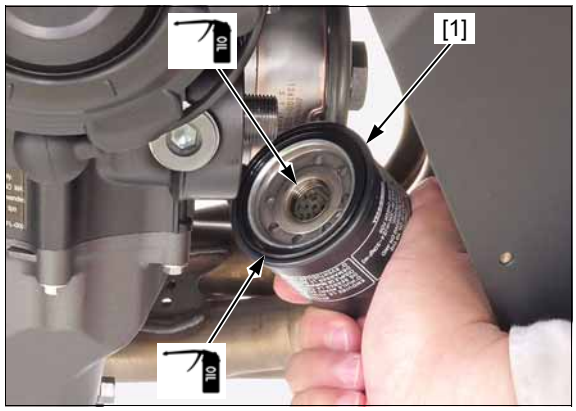
SPECIFIED LENGTH: 15.4 – 16.4 mm (0.61 – 0.65 in)

NOTE:

- If the oil filter boss is removed, apply locking agent to the oil filter boss threads as shown and install it.



Apply oil to the threads and O-ring of a new oil filter cartridge [1].



Install the oil filter cartridge [1] and tighten it to the specified torque using the special tool.

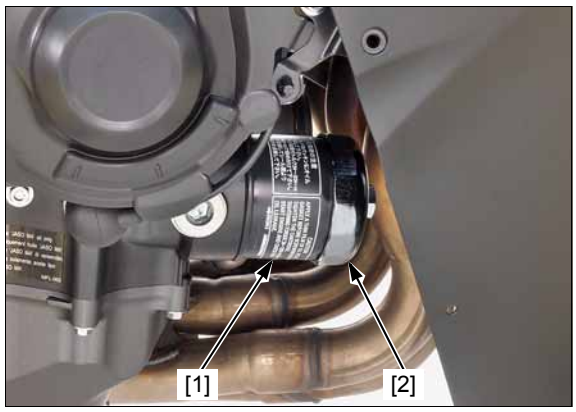
TOOL:
Oil filter wrench [2] 07HAA-PJ70101

TORQUE: 26 N·m (2.7 kgf·m, 19 lbf·ft)

Fill the engine with the recommended engine oil (page 3-12).

Check that there are no oil leaks.

Install the under cowl (page 2-20).



ENGINE IDLE SPEED

IDLE SPEED INSPECTION

NOTE:

- Inspect the idle speed after all other engine maintenance items have been performed and are within specifications.
- Before checking the idle speed, inspect the following items.
  – No DTC and no MIL indicated
  – Spark plug condition (page 3-6)
  – Air cleaner condition (page 3-5)
- The engine must be warm for accurate idle speed inspection.
- This system eliminates the need for manual idle speed adjustment compared to previous designs.

Start the engine and warm it up to coolant temperature 80°C (176°F).

Let the engine idle and check the idle speed.

ENGINE IDLE SPEED: 1,200 ± 100 min^{-1} (rpm)

If the idle speed is out of the specification, check the following:

- Throttle operation (page 3-5)
- Intake air leak
- Engine top-end problem (page 10-2)

RADIATOR COOLANT

Check the coolant level of the reserve tank [1] with the engine running at normal operating temperature.

The level should be between the "UPPER" level line [2] and "LOWER" level line [3].

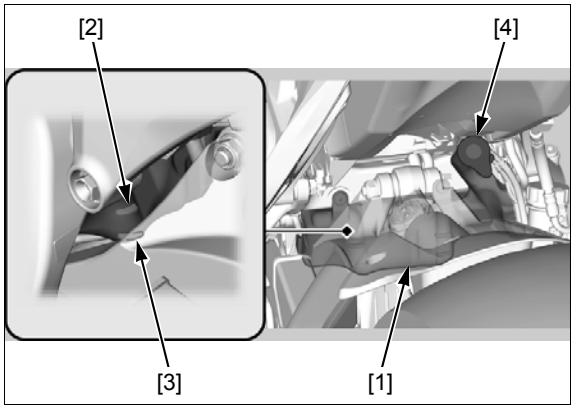
If necessary, add recommended coolant.

RECOMMENDED ANTIFREEZE:
Except IN/TH:
High quality ethylene glycol antifreeze containing silicate-free corrosion inhibitors
IN/TH:
Honda PRE-MIX Coolant

RECOMMENDED MIXTURE (Except IN/TH):
1:1 mixture with distilled water

Remove the reserve tank filler cap [4] and fill to the "UPPER" level line.

Reinstall the filler cap.



COOLING SYSTEM

Remove the middle cowls (page 2-13).

Check the radiator air passages for clogging or damage.

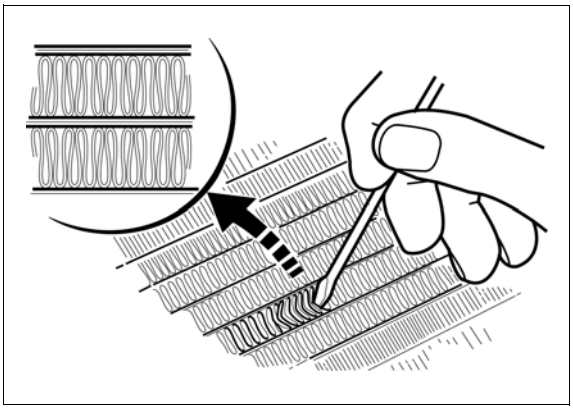
Straighten bent fins with a small, blade screwdriver and remove insects, mud or other obstructions with compressed air or low water pressure.

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

Inspect the water hoses for cracks or deterioration, and replace them if necessary.

Check the tightness of all hose clamps and fasteners.

Install the middle cowls (page 2-13).



SECONDARY AIR SUPPLY SYSTEM

Pull up the front of heat guard rubber (page 3-6).

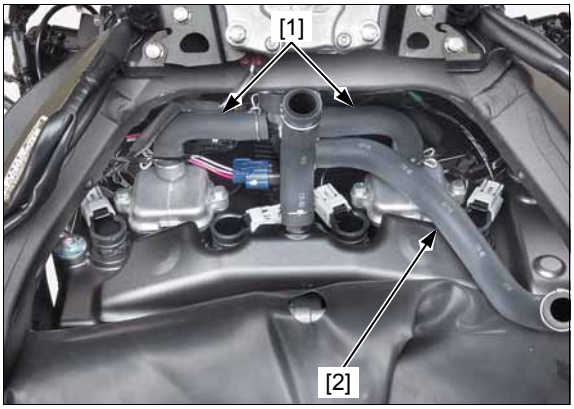
Check the following for deterioration, damage or loose connections.

– PAIR hoses [1] between the PAIR control solenoid valve and PAIR check valve cover
– Air suction hose [2] between the air cleaner housing and PAIR control solenoid valve

Also, check that the hoses are not cracked.

If the hoses show any signs of heat damage, inspect the PAIR check valves for damage (page 7-19).

For secondary air supply system inspection (page 7-17).



EVAPORATIVE EMISSION CONTROL SYSTEM (BR/CH/ED/FO/KO/TH only)

Remove the fuel tank (page 7-8).

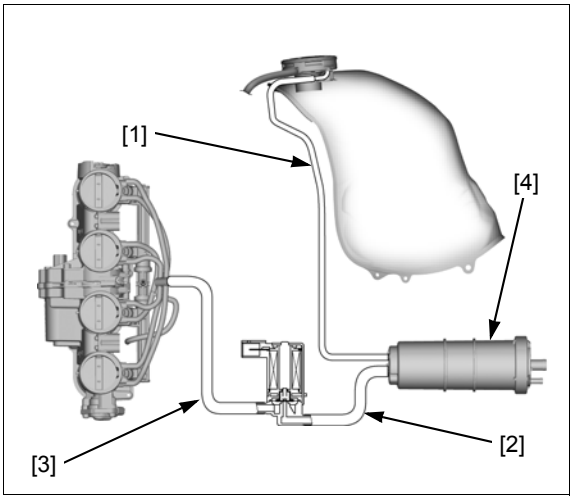
Check the following for deterioration, damage or loose connections.

– Fuel tank-to-EVAP canister hose [1]
– EVAP canister-to-EVAP purge control solenoid valve hose [2]
– EVAP purge control solenoid valve-to-throttle body hoses [3]

Also, check that the hoses are not kinked, pinched or cracked.

Check the EVAP canister [4] for cracks or other damage.

For EVAP canister removal/installation (page 7-22)
For EVAP purge control solenoid valve inspection (page 7-21)

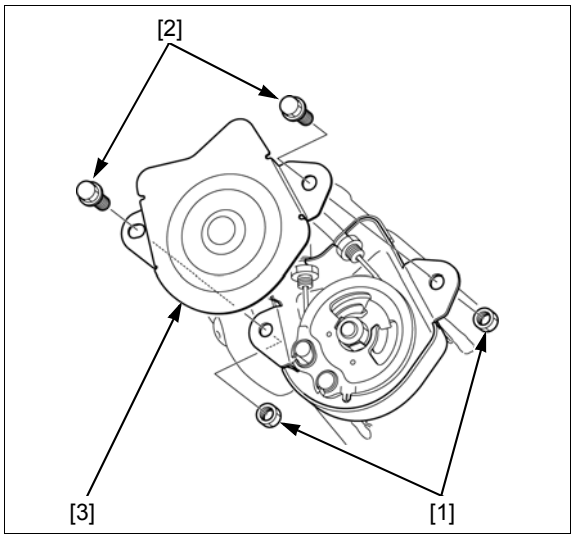


EGCA CABLE

OPERATING INSPECTION

Remove the following:

– Under cowl (page 2-20)
– Nuts [1]
– Bolts [2]
– Valve guide cover [3]



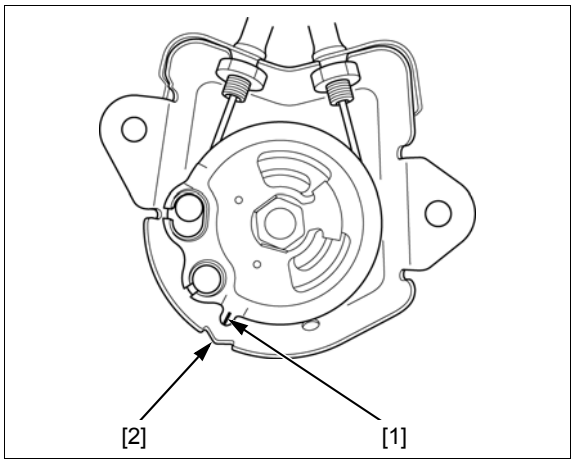
Short the DLC terminals using the special tool (page 4-8).

Turn the ignition switch ON and engine stop switch "".

The EGCA operates and the index line [1] on the valve cable guide tab should be aligned with the index projection [2] of the valve guide body.

If the index line is not aligned with the index projection, adjust the EGCA cable.

Install the removed parts in the reverse order of removal.

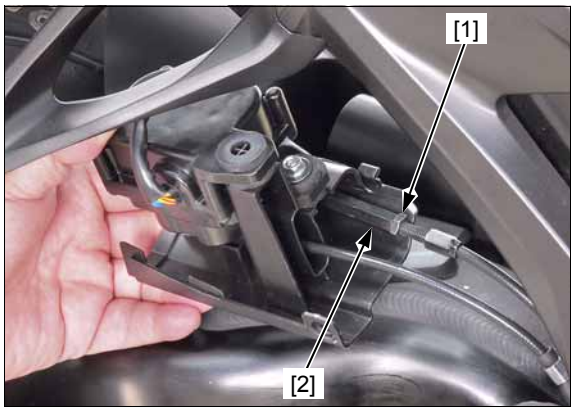


CABLE ADJUSTMENT

Remove the EGCA/cover from rear fender B (page 4-85).

Loosen the lock nut [1] and turn the adjusting bolt [2] to align the index line with the index projection.

Install the EGCA/cover (page 4-85).



DRIVE CHAIN

⚠WARNING

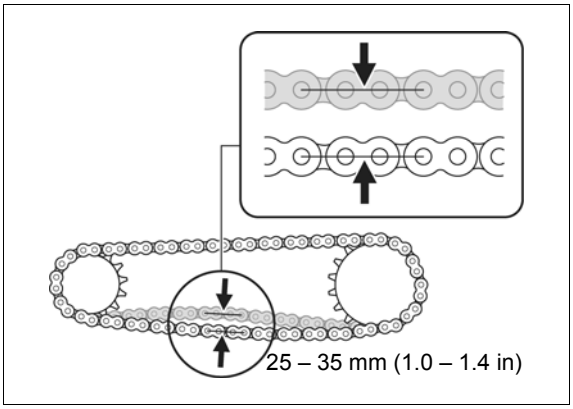
Amputation hazard. Never inspect or adjust the drive chain while the engine is running.

DRIVE CHAIN SLACK INSPECTION

Turn the ignition switch OFF, place the motorcycle on its sidestand and shift the transmission into neutral.

Check the slack in the drive chain lower run midway between the sprockets.

DRIVE CHAIN SLACK: 25 – 35 mm (1.0 – 1.4 in)



NOTICE

Excessive chain slack, 50 mm (2.0 in) or more, may damage the frame.

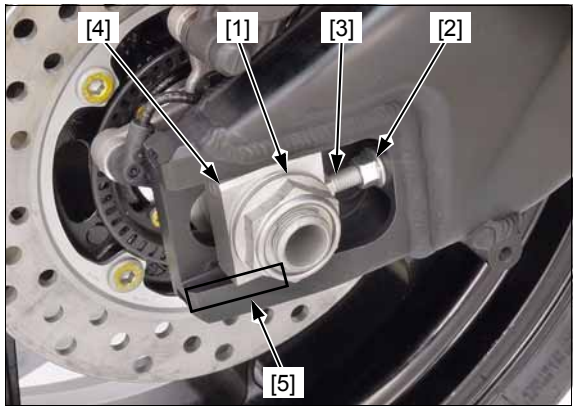
Lubricate the drive chain with #80 – 90 gear oil or chain lubricant designed specifically for use with O-ring chains. Wipe off the excess oil or chain lubricant.

ADJUSTMENT

Loosen the rear axle nut [1].

Loosen the lock nuts [2] and turn the adjusting bolts [3] an equal number of turn until the correct drive chain slack is obtained.

Make sure that the rear end of the adjusting plate [4] is aligned with the same number of the index lines [5] from the rear end of the swingarm on both sides.



Tighten the rear axle nut to the specified torque.

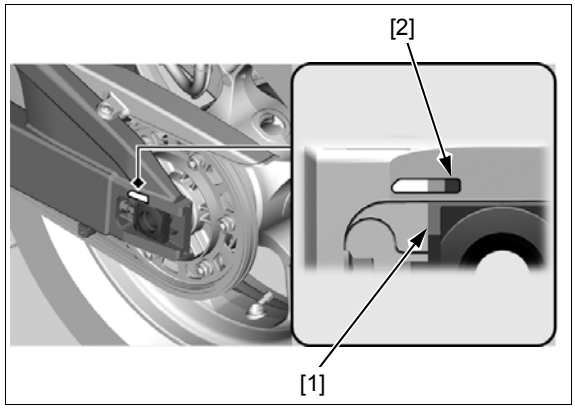
TORQUE: 135 N·m (13.8 kgf·m, 100 lbf·ft)

Hold the adjusting bolts and tighten the lock nuts.

Recheck the drive chain slack and free wheel rotation.

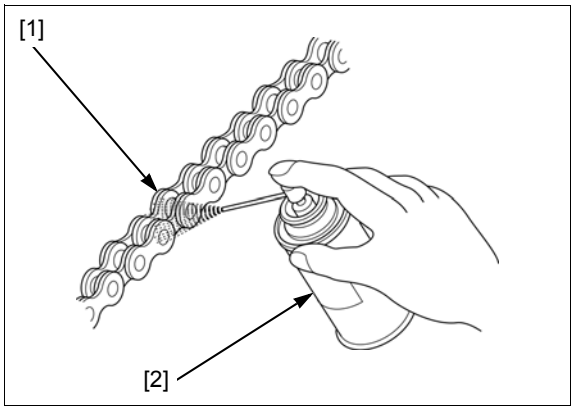
Check the drive chain wear indicator label attached on the left side of the swingarm.

If the front end [1] of the left adjusting plate reaches red zone [2] of the indicator label, replace the drive chain with a new one (page 3-19).



CLEANING AND 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:

Dive chain lubricant designed specifically for O-ring chains or SAE #80-90 gear oil

NOTICE

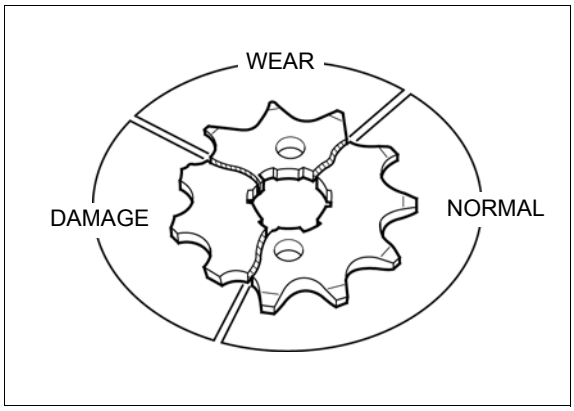
Do not use a chain lubricant NOT designed specifically for use with O-ring chains to lubricate the drive chain.

Wipe off the excess oil or drive chain lubricant.

SPROCKET INSPECTION

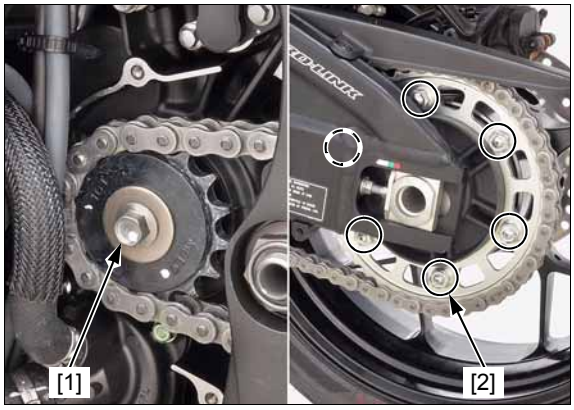
Remove the left rear cover (page 2-21).

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



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

Check the drive sprocket bolt [1] and driven sprocket nuts [2] on the drive and driven sprockets.
If any are loose, torque them.



TORQUE:

Drive sprocket bolt: 54 N·m (5.5 kgf·m, 40 lbf·ft)
Driven sprocket nut: 64 N·m (6.5 kgf·m, 47 lbf·ft)

Install the left rear cover (page 2-21).

REPLACEMENT

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

Fully slacken the drive chain (page 3-17).

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

Remove the drive chain using the special tool.

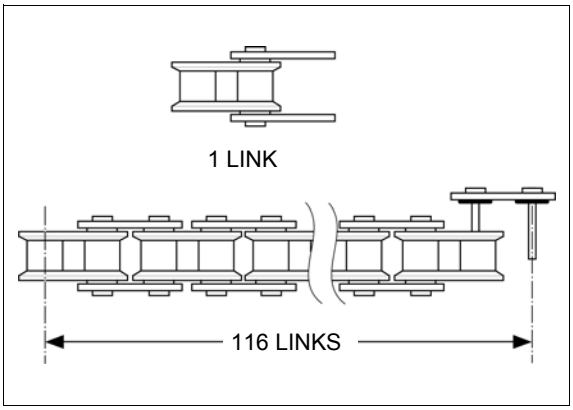
TOOL:
Drive chain tool set 07HMH-MR10103

Include the master link when you count the drive chain links.

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

STANDARD LINKS: 116 LINKS

REPLACEMENT CHAIN
DID: DID50VA11-120ZB
RK: RK50HFOZ6-120LJFZ



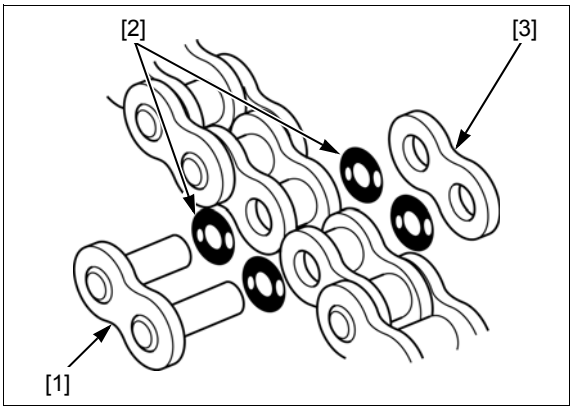
Never reuse the old drive chain, master link, master link plate and O-rings.

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

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

Assemble the master link, O-rings and plate.

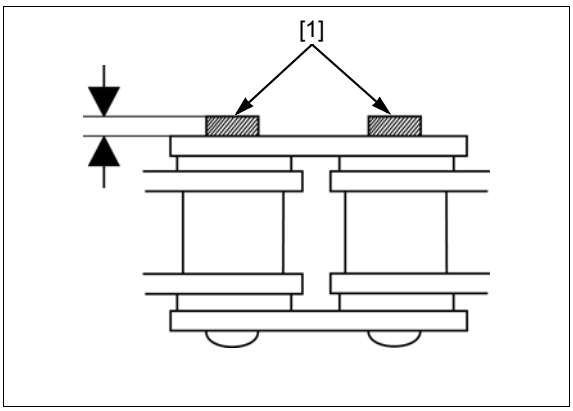
TOOL:
Drive chain tool set 07HMH-MR10103



Make sure that the master link pins [1] are installed properly.
Measure the master link pin length projected from the plate.

STANDARD LENGTH: 1.2 – 1.4 mm (0.05 – 0.06 in)

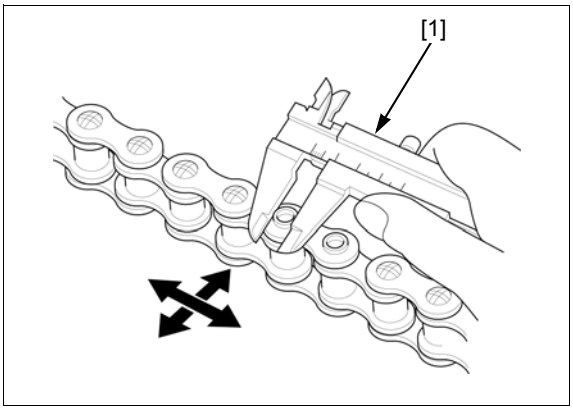
Stake the master link pins.



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

DIAMETER OF THE STAKED AREA:
5.50 – 5.80 mm (0.217– 0.228 in)

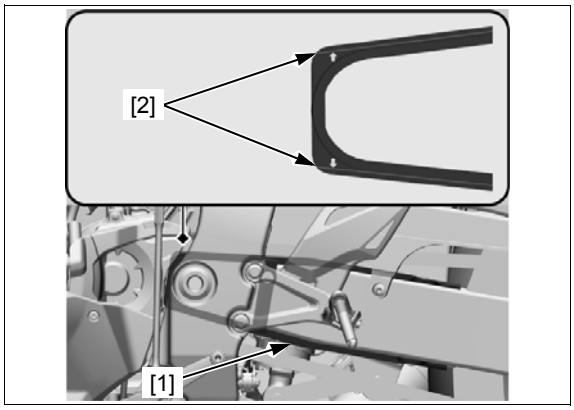
After staking, check the staked area of the master link for cracks.
If there is any cracking, replace the master link, O-rings and plate.



DRIVE CHAIN SLIDER

Inspect the drive chain slider [1] for excessive wear or damage.

If it is worn to the wear indicators [2], replace the drive chain slider (page 17-17).



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 reserve tank.
- A low fluid level may be due to wear of the brake pads. If the brake pads are worn, the caliper piston is pushed out, and this accounts for a low fluid level.

FRONT BRAKE

Turn the handlebar so that the reservoir is level and check the front brake fluid level.

If the level is near the LOWER level line [1], check the brake pad for wear (page 3-21).

If the brake pads are not worn and the fluid level is low, check entire system for leaks (page 3-21).

REAR BRAKE

Place the motorcycle on a level surface, support it an upright position and check the rear brake fluid level.

If the level is near the LOWER level line [1], check the brake pad wear (page 3-21).

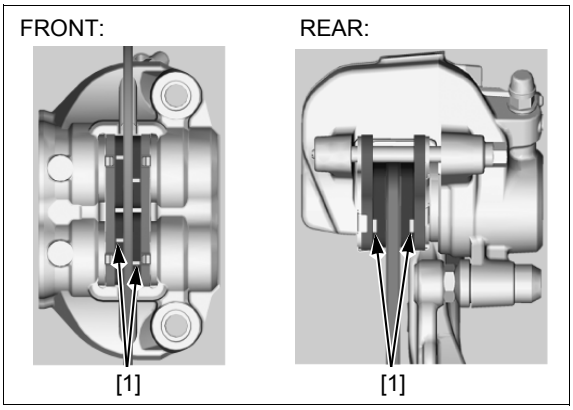
If the brake pads are not worn and the fluid level is low, check entire system for leaks (page 3-21).

BRAKE PADS WEAR

Check the brake pads for wear.

Replace the brake pads if either pad is worn to the bottom of wear limit groove [1].

For brake pad replacement (page 18-8).



BRAKE 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 (page 18-6).

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

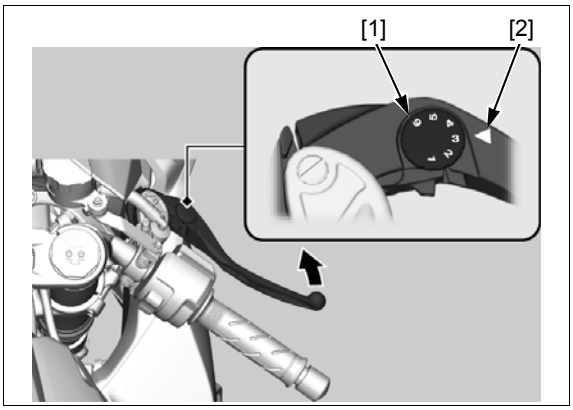
Tighten any loose fittings.

Replace hoses and fittings as required.

BRAKE LEVER ADJUSTMENT

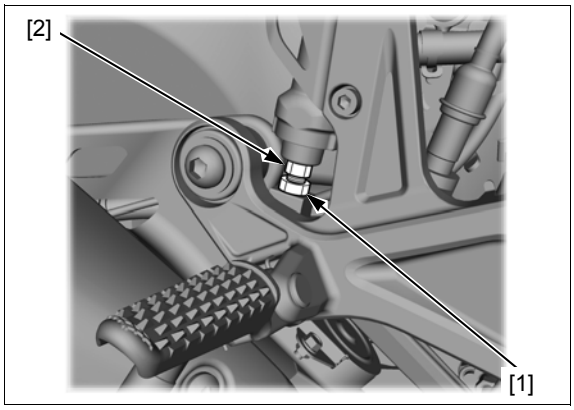
The distance between the brake lever and the grip can be adjusted by turning the adjuster [1].

Align the "△" mark [2] on the brake lever with the index number on the adjuster.



BRAKE PEDAL HEIGHT ADJUSTMENT

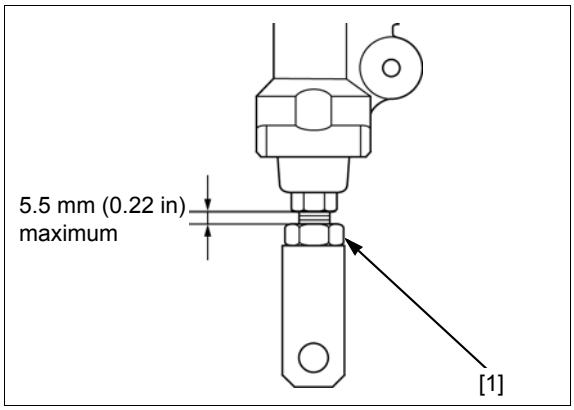
Loosen the lock nut [1] and turn the push rod [2] until the correct pedal height is obtained.



When adjusting the push rod length, do not extend it more than 5.5 mm (0.22 in).

After adjustment, tighten the lock nut [1] to the specified torque.

TORQUE: 18 N·m (1.8 kgf·m, 13 lbf·ft)



BRAKE LIGHT SWITCH

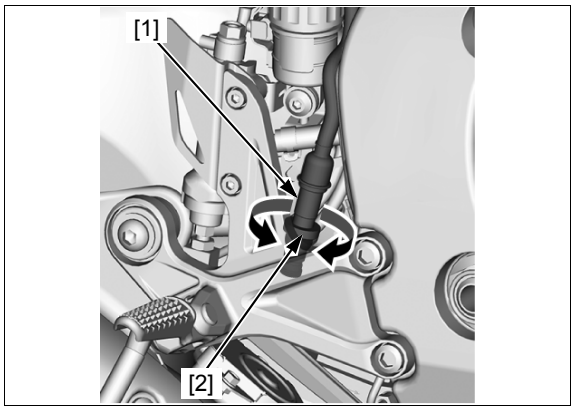
NOTE:

- The front brake light switch does not require adjustment.

Adjust the brake light switch so that the brake light comes on just prior to the brake actually being engaged.

If the light fails to come on, adjust the switch so that the light comes on at the proper time.

Hold the switch body [1] and turn the adjuster [2]. Do not turn the switch body.



HEADLIGHT AIM

NOTE:

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

Place the motorcycle on a level surface.

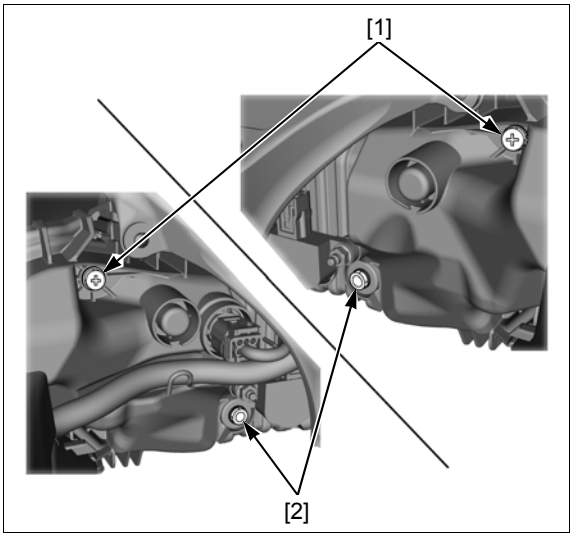
Adjust the headlight aim vertically by turning the vertical beam adjusting screw [1].

A clockwise rotation moves the beam up and counterclockwise rotation moves the beam down.

Adjust the headlight aim horizontally by turning the horizontal beam adjusting screw [2].

Left headlight: A clockwise rotation moves the beam toward the right and counterclockwise rotation moves the beam toward the left side of the rider.

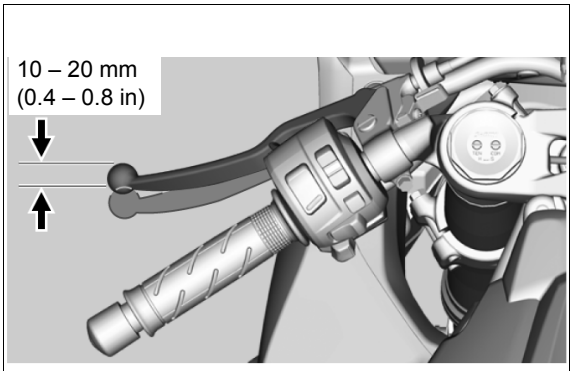
Right headlight: A clockwise rotation moves the beam toward the left and counterclockwise rotation moves the beam toward the right side of the rider.



CLUTCH SYSTEM

Measure the clutch lever freeplay at the end of the clutch lever.

FREEPLAY: 10 – 20 mm (0.4 – 0.8 in)



Minor adjustment is made with the upper adjuster [1] at the clutch lever.

Turn the adjuster to adjust the freeplay.

The adjuster may be damaged if it is positioned too far out, leaving minimal thread engagement.

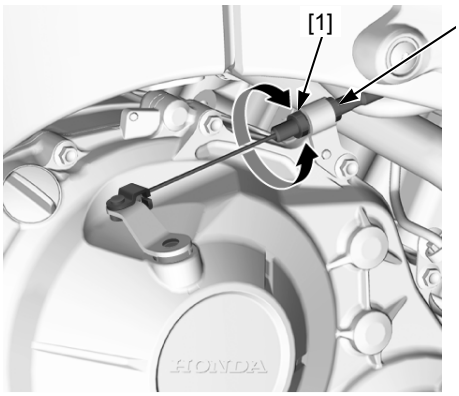
If the adjuster is threaded out near its limit and the correct freeplay cannot be obtained, turn the adjuster all the way in and back out one turn and make a major adjustment.

Major adjustment is performed at the clutch lifter lever.

Loosen the lock nut [1] and turn the adjusting nut [2] to adjust the freeplay.

Tighten the lock nut securely while holding the adjusting nut.

If proper freeplay cannot be obtained, or the clutch slips during test ride, disassemble and inspect the clutch (page 11-6).



SIDESTAND

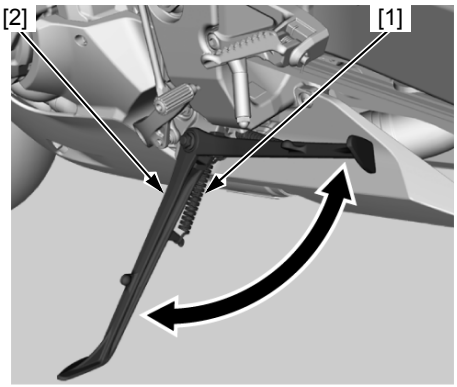
Check the sidestand return springs [1] for damage or loss of tension.

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

Check the sidestand ignition cut-off system:

– Sit astride the motorcycle and raise the sidestand.
– Start the engine with the transmission in neutral, then, with the clutch lever fully squeezed, shift the transmission into gear.
– Move the sidestand full down.
– The engine should stop as the sidestand is lowered.

If there is a problem with the system, check the sidestand switch (page 21-20).



SUSPENSION

FRONT SUSPENSION INSPECTION

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

Loose, worn or damaged suspension parts impair the motorcycle's stability and control.

Replace damaged components which cannot be repaired.

Tighten all nuts and bolts.

For fork service (page 16-20).

FRONT SUSPENSION ADJUSTMENT (CBR1000RR/RA)

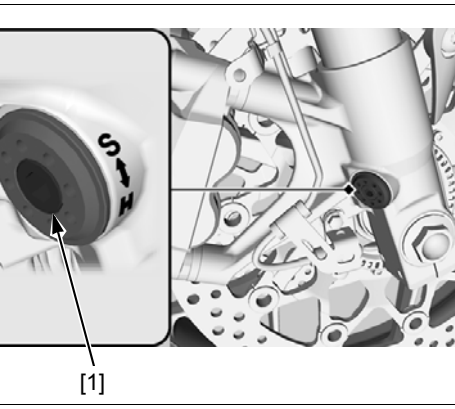
SPRING PRE-LOAD ADJUSTER

To adjust both sides equally, set the right and left pre-load adjusters to the same position

Spring pre-load can be adjusted by turning the spring pre-load adjuster [1].

TURN CLOCKWISE:
Increase the spring pre-load
TURN COUNTERCLOCKWISE:
Decrease the spring pre-load

PRE-LOAD ADJUSTER ADJUSTABLE RANGE:
15 turns
PRE-LOAD ADJUSTER STANDARD POSITION:
7-1/2 turns clockwise from softest position



COMPRESSION AND REBOUND DAMPING ADJUSTERS

NOTICE

Do not turn the adjusters more than the given positions or the adjusters may be damaged.

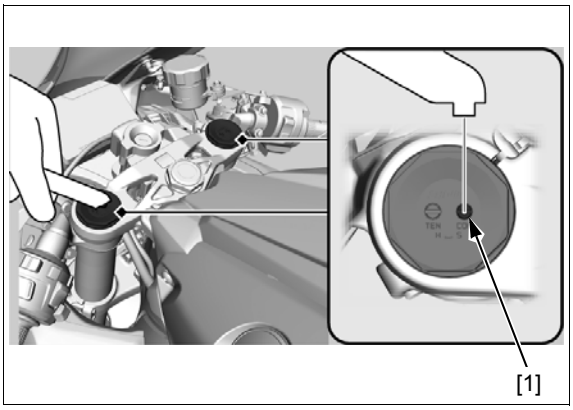
To adjust both sides equally, set the right and left damping adjusters to the same position

The compression and rebound damping can be adjusted by turning the adjusters.

DIRECTION H: Increase the damping force (harder)
DIRECTION S: Decrease the damping force (softer)

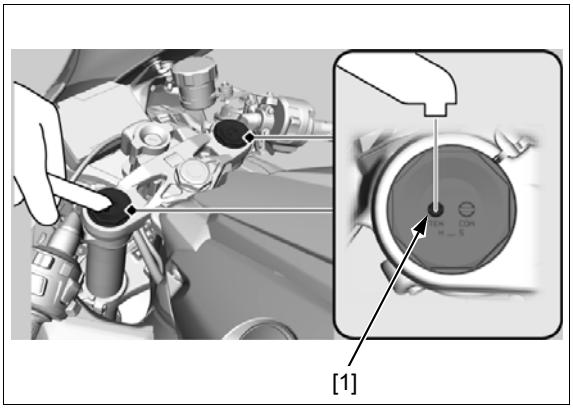
Turn the compression damping adjuster [1] clockwise until it stops (hardest position), then turn it counterclockwise.

COMPRESSION ADJUSTER ADJUSTABLE RANGE:
7 turns
COMPRESSION ADJUSTER STANDARD POSITION:
5 turns out from hardest position



Turn the rebound damping adjuster [1] clockwise until it stops (hardest position), then turn it counterclockwise.

REBOUND ADJUSTER ADJUSTABLE RANGE:
5-1/2 turns
REBOUND ADJUSTER STANDARD POSITION:
4 turns out from hardest position



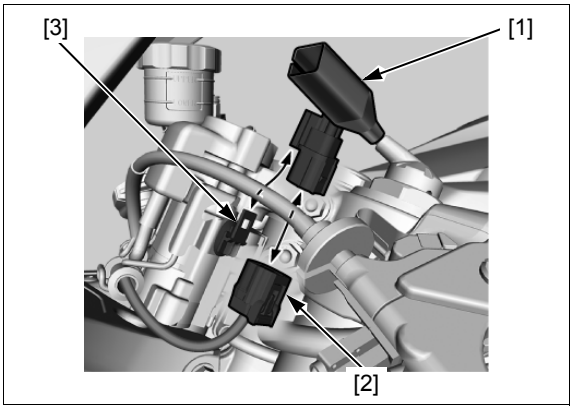
FRONT SUSPENSION ADJUSTMENT (CBR1000S1/S2)

SPRING PRE-LOAD ADJUSTER

Spring pre-load can be adjusted with the spring pre-load adjuster.

Slide the connector cover [1] off the damping adjuster 4P connector [2].

Remove the 4P connector from the stay [3] and disconnect it.

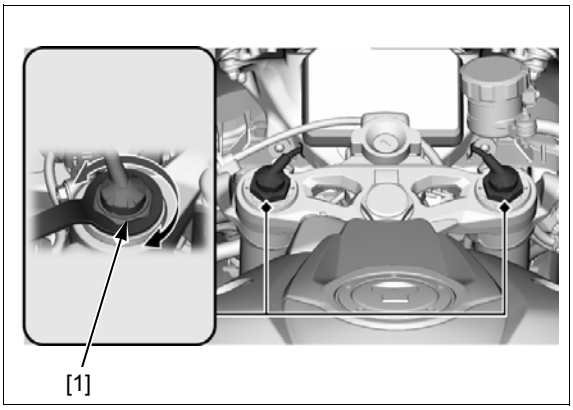


To adjust both sides equally, set the right and left pre-load adjusters to the same position

Adjust the spring pre-load by turning the adjuster [1]

TURN CLOCKWISE:
Increase the spring pre-load
TURN COUNTERCLOCKWISE:
Decrease the spring pre-load

PRE-LOAD ADJUSTER STANDARD POSITION:
4 turns clockwise from softest position



Connect the 4P connector and install it onto the stay.

Install the connector cover properly.

COMPRESSION AND REBOUND DAMPING ADJUSTERS

The compression and rebound damping forces can be adjusted using the FUNCTION menu in the SETTING mode of the combination meter.

For meter setting mode (page 21-11).

REAR SUSPENSION INSPECTION

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

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

Loose, worn or damaged suspension parts impair the motorcycle's stability and control.

Replace damaged components which cannot be repaired.

Tighten all nuts and bolts.

For shock absorber service (page 17-11).

Support the motorcycle securely and raise the rear wheel off the ground.
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 any are looseness is noted.

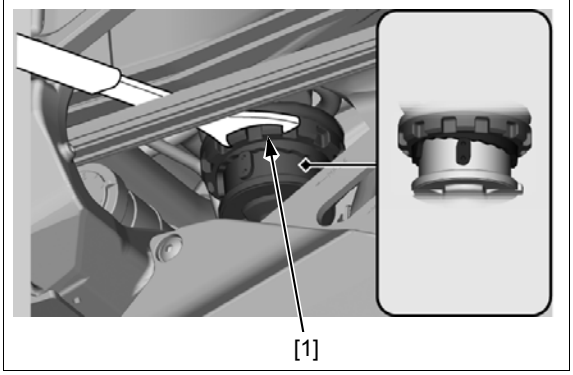
For swingarm service (page 17-16).

REAR SUSPENSION ADJUSTMENT (CBR1000RR/RA)

SPRING PRE-LOAD ADJUSTER

Spring pre-load can be adjusted by turning the spring pre-load adjuster [1].

PRE-LOAD ADJUSTER ADJUSTABLE RANGE:
9 positions
PRE-LOAD ADJUSTER STANDARD POSITION:
4 position from softest position



COMPRESSION AND REBOUND DAMPING ADJUSTERS

NOTICE

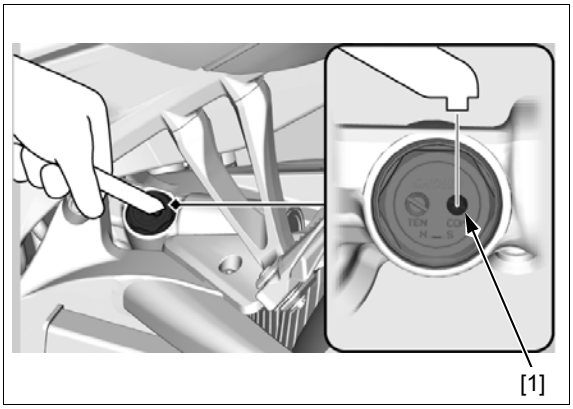
Do not turn the adjusters more than the given positions or the adjusters may be damaged.

The compression and rebound damping can be adjusted by turning the adjusters.

DIRECTION H: Increase the damping force
DIRECTION S: Decrease the damping force

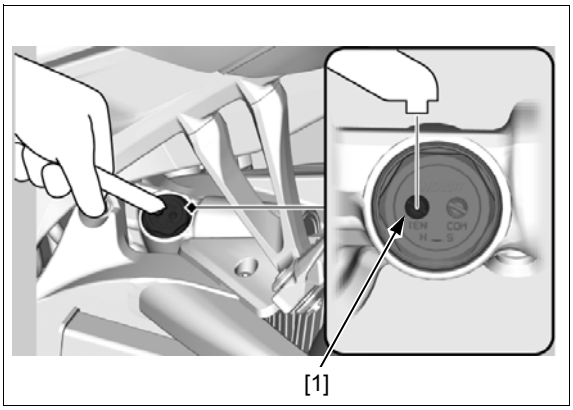
Turn the compression damping adjuster [1] clockwise until it stops (hardest position), then turn it counterclockwise.

COMPRESSION ADJUSTER ADJUSTABLE RANGE:
4-1/2 turns
COMPRESSION ADJUSTER STANDARD POSITION:
3 turns from hardest position



Turn the rebound damping adjuster [1] clockwise until it stops (hardest position), then turn it counterclockwise.

REBOUND ADJUSTER ADJUSTABLE RANGE:
4 turns
REBOUND ADJUSTER STANDARD POSITION:
2-1/2 turns from hardest position



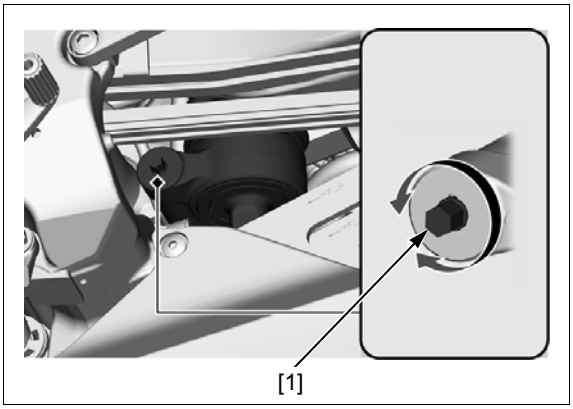
REAR SUSPENSION ADJUSTMENT (CBR1000S1/S2)

SPRING PRE-LOAD ADJUSTER

Spring pre-load can be adjusted by turning the spring pre-load adjuster [1].

TURN CLOCKWISE:
Increase the spring pre-load
TURN COUNTERCLOCKWISE:
Decrease the spring pre-load

PRE-LOAD ADJUSTER STANDARD POSITION:
8 turns from hardest position



COMPRESSION AND REBOUND DAMPING ADJUSTERS

The compression and rebound damping forces can be adjusted using the FUNCTION menu in the SETTING mode of the combination meter.

For meter setting mode (page 21-11).

FRONT FORK OIL (CBR1000S1/S2 only)

For front fork oil replacement, contact ÖHLINS (service) in each region.

NOTE:

- Do not disassemble the front fork.

NUTS, BOLTS, FASTENERS

Check that all chassis nuts and bolts are tightened to their correct torque values (page 1-13).
Check that all safety clips, hose clamps and cable stays are in place and properly secured.

WHEELS/TIRES

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

Hold the fork leg and move the front wheel sideways with force to see if the wheel bearings are worn.

Front wheel service (page 16-15).

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

Hold the swingarm and move the rear wheel sideways with force to see if the wheel bearings are worn.

Rear wheel service (page 17-5).

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

– Front tire pressure: page 1-10
– Rear tire pressure: page 1-10

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

STEERING HEAD BEARINGS

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

Check that the handlebar moves freely from side to side. Make sure the clutch cable do not interfere with the handlebar rotation.

If the handlebar moves unevenly, binds, or has vertical movement, inspect the steering head bearings (page 16-30).

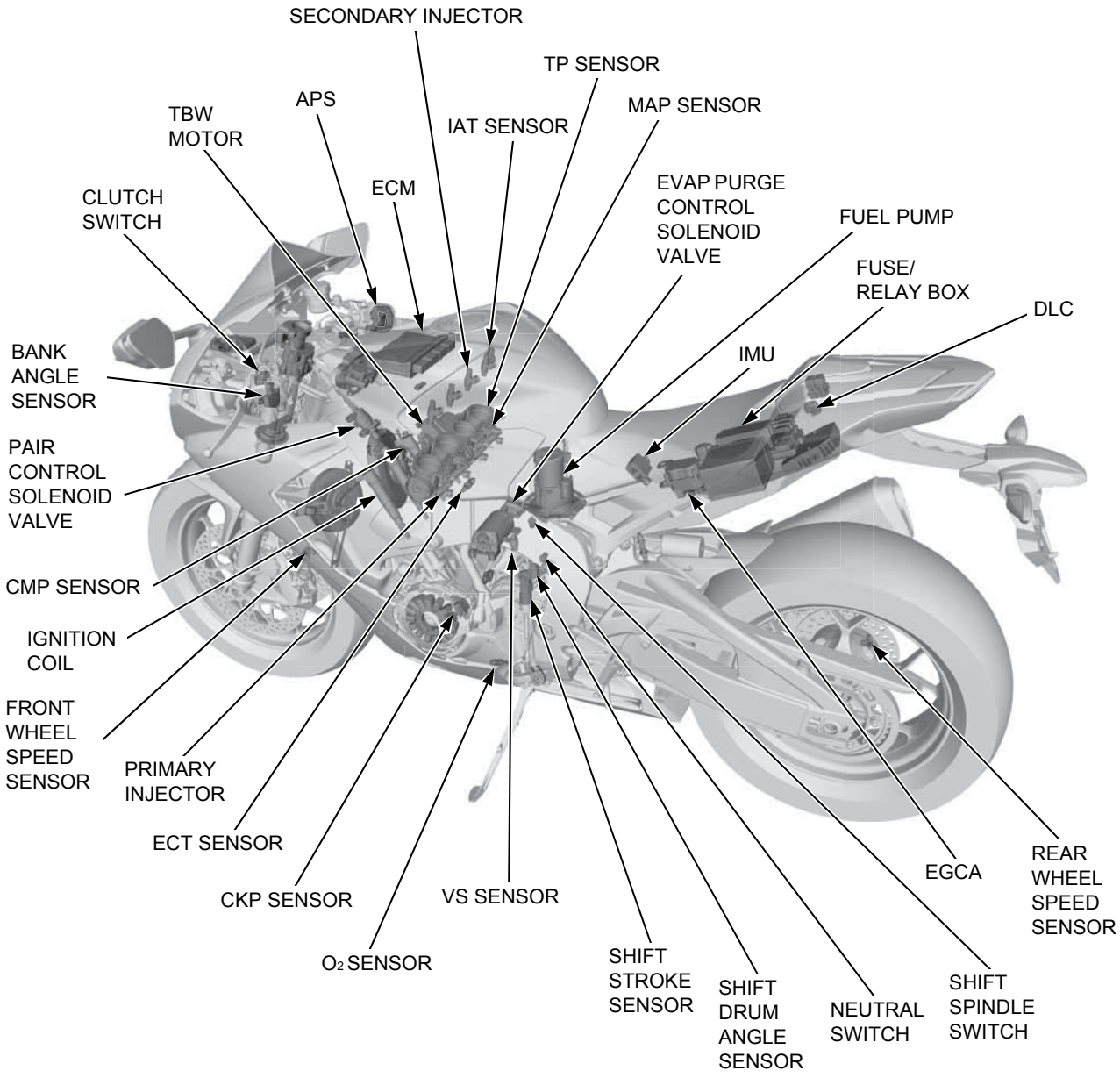
SERVICE INFORMATION

GENERAL

- Use an electric heating element to heat the water for the ECT sensor inspection, keep flammable materials away from the electric heating element. Wear protective clothing, insulated gloves, and eye protection.
- A faulty PGM-FI system is often related to poorly connected or corroded connectors. Check those connections before proceeding.
- The PGM-FI system is equipped with the Self-Diagnostic System (page 4-6). If the MIL comes on, follow the Self-Diagnostic Procedures to remedy the problem.
- When checking the PGM-FI, always follow the steps in the troubleshooting flow chart.
- If the ECM is replaced, perform the following procedure:
  – Quickshifter initialization (page 4-80)
  – IMU inspection (page 4-79)
  – Key registration procedure (page 22-3)
- The PGM-FI system is provided with fail-safe function to secure a minimum running capability even when there is any trouble in the system. When any abnormality is detected by the self-diagnosis function, running capability is secured by making use of the numerical values of a situation preset in the simulated program map.
  It must be remembered, however, that when any abnormality is detected in an injector, the fail-safe function stops the engine to protect it from damage.
- For PGM-FI system location (page 4-3).
- Use a digital tester for PGM-FI system inspection.
- The following color codes are used throughout this section.

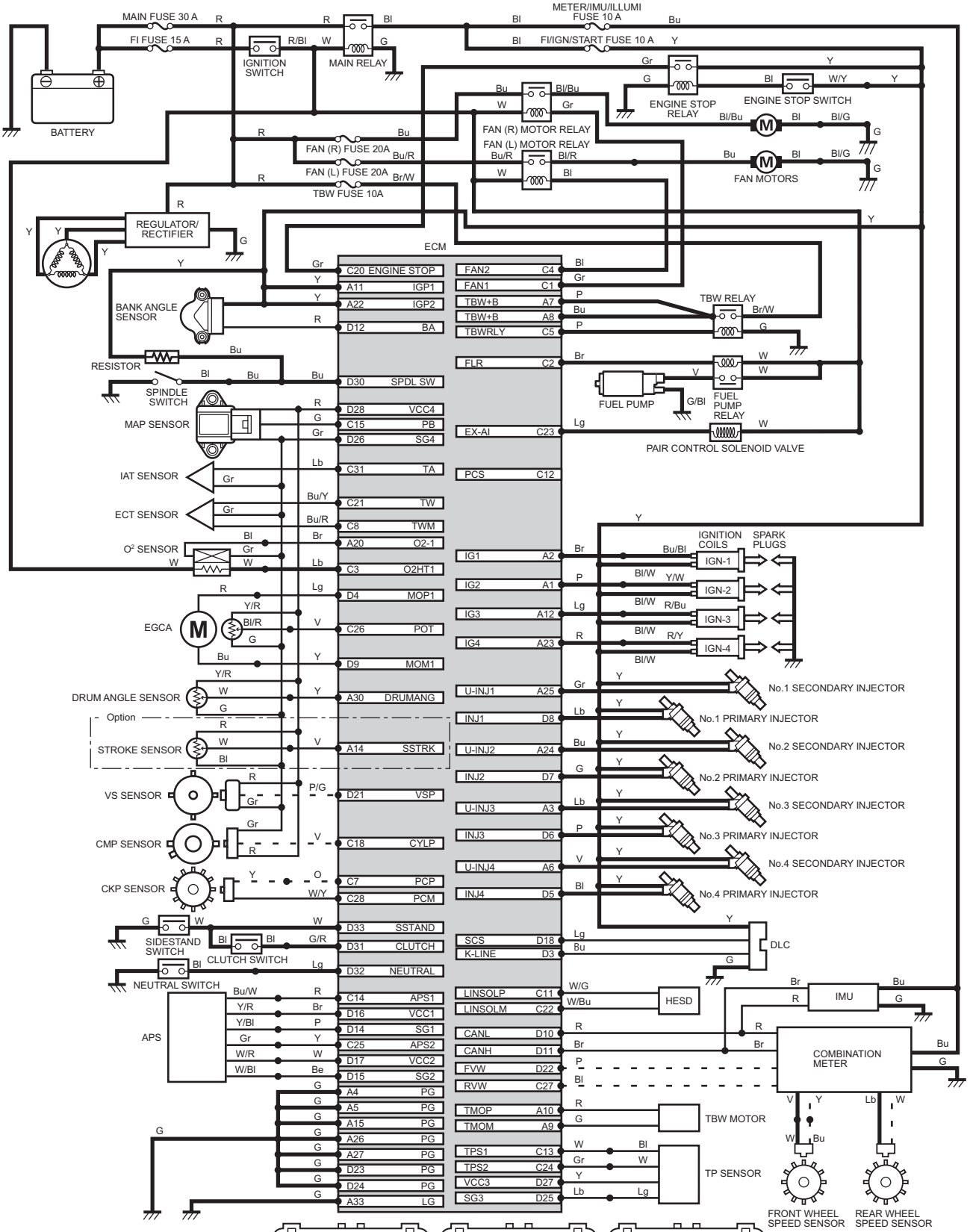
Bl = Black	Bu = Blue	Gr = Gray	O = Orange	R = Red	W = White
Br = Brown	G = Green	Lg = Light green	P = Pink	V = Violet	Y = Yellow
Lb = Light blue	Be = Beige				

PGM-FI SYSTEM LOCATION

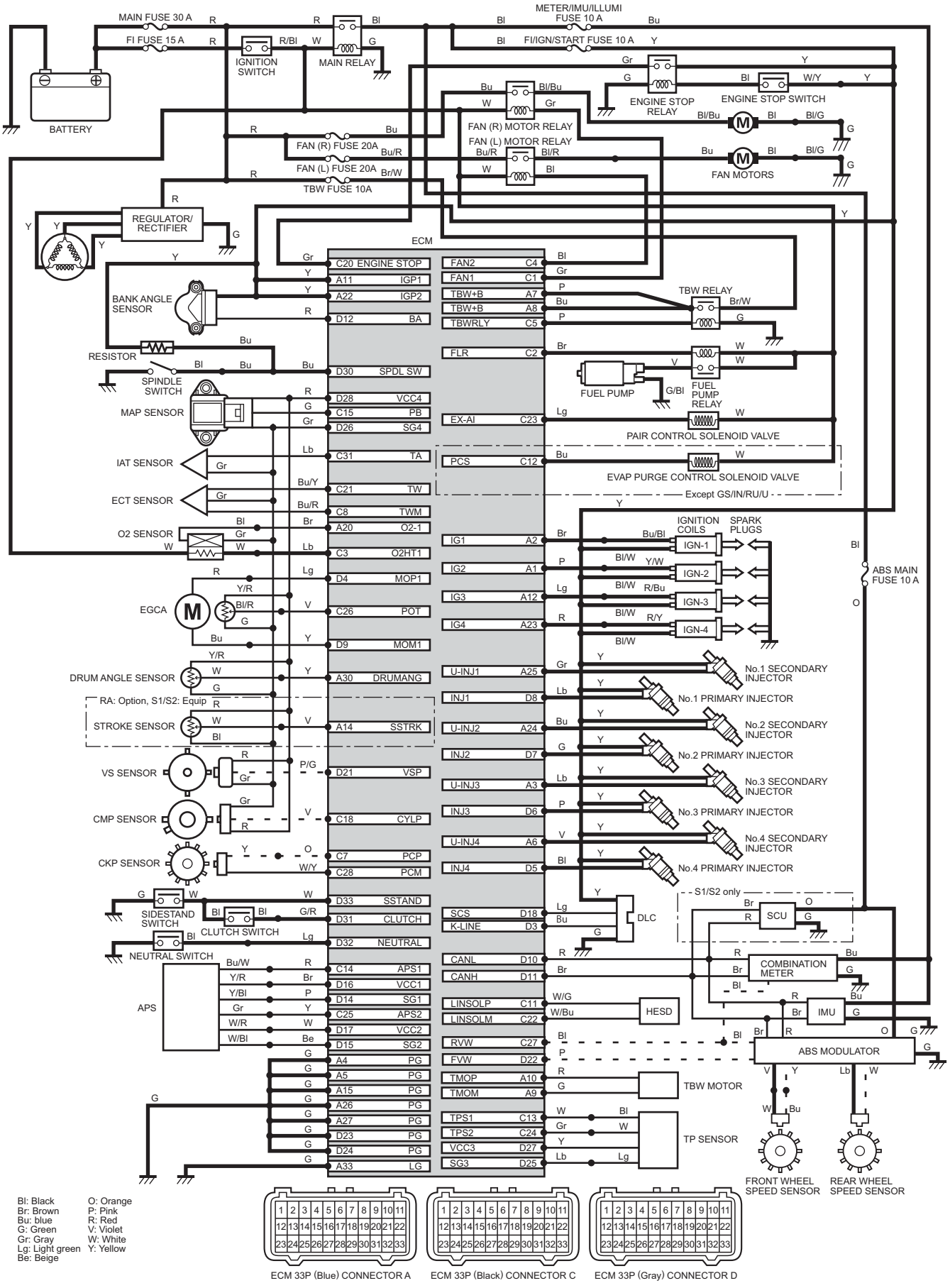


PGM-FI SYSTEM DIAGRAM

CBR1000RR:



Except CBR1000RR:



PGM-FI TROUBLESHOOTING INFORMATION

GENERAL TROUBLESHOOTING

Intermittent Failure

The term "intermittent failure" means a system may have had a failure, but it checks OK now. If the MIL does not come on, check for poor contact or loose pins at all connectors related to the circuit that of the troubleshooting. If the MIL was on, but then went out, the original problem may be intermittent.

Opens and Shorts

"Opens" and "Shorts" are common electrical terms. An open is a break in a wire or at a connection. A short is an accidental connection of a wire to ground or to another wire. In simple electronics, this usually means something will not work at all. With ECMs this can something mean something work, but not the way it's supposed to.

If the MIL has come on

Refer to DTC READOUT (page 4-7).

If the MIL did not stay on

If the MIL did not stay on, but there is a driveability problem, do the SYMPTOM TROUBLESHOOTING (page 4-9).

SYSTEM DESCRIPTION

SELF-DIAGNOSIS SYSTEM

The PGM-FI system is equipped with the self-diagnostic system. When any abnormality occurs in the system, the ECM turns on the MIL and stores a DTC in its erasable memory.

FAIL-SAFE FUNCTION

The PGM-FI system is provided with a fail-safe function to secure a minimum running capability even when there is trouble in the system. When any abnormality is detected by the self-diagnosis function, running capability is maintained by pre-programed value in the simulated program map. When any abnormality is detected in the fuel injector, the fail-safe function stops the engine to protect it from damage.

MIL Check

When the ignition switch is turned ON and engine stop switch "○" the MIL will stay on for a few seconds, then go off. If the MIL does not come on, troubleshoot the MIL circuit (page 4-73).

DTC (Honda code)

- The DTC (Honda code) is composed of a main code and a sub code and it is displayed as a hyphenated number when retrieved from the ECM with the MCS.
  The digits in front of the hyphen are the main code, they indicate the component of function failure.
  The digits behind the hyphen are the sub code, they detail the specific symptom of the component or function failure.
  For example, in the case of the ECT sensor:
  – DTC 07 – 1 = (ECT sensor voltage) – (lower than the specified value)
  – DTC 07 – 2 = (ECT sensor voltage) – (higher than the specified value)
- The sensors diagnosis will be made according to the voltage output of the affected sensor.
  If a failure occurs, the ECM determines the Function Failure, compares the sensor voltage output to the standard value, and then outputs the corresponding DTC to the MCS.

MIL Blink Pattern

- If the MCS is not available, DTC can be read from the ECM memory by the MIL blink pattern.
- The number of MIL blinks is the equivalent the main code of the DTC (the sub code cannot be displayed by the MIL).
- The MIL will blink the current DTC by shorting SCS circuit (reading DTC with DLC connector).
- The MIL has two types of blinks, a long blink and short blink. The long blinking lasts for 1.3 seconds, the short blinking lasts for 0.3 seconds. One long blink is the equivalent of ten short blinks. For example, when two long blinks are followed by five short blinks, the MIL is 25 (two long blinks = 20 blinks, plus five short blinks).
- When the ECM stores more than one DTC, the MIL will indicate them by blinking in the order from the lowest number to highest number.

CURRENT DTC/FREEZE DTC

The DTC is indicated in two ways according to the failure status.

- In case the ECM detects the problem at present, the MIL will come on.
- In case the ECM does not detect any problem at present but has a problem stored in its memory, the MIL will not come on. If it is necessary to retrieve the past problem, readout the freeze data by following the DTC readout procedure (page 4-7).

GST (General Scan Tool) INFORMATION

- The GST can readout the DTC, freeze data, current data and other ECM condition.

How to connect the GST

Turn the ignition switch OFF.

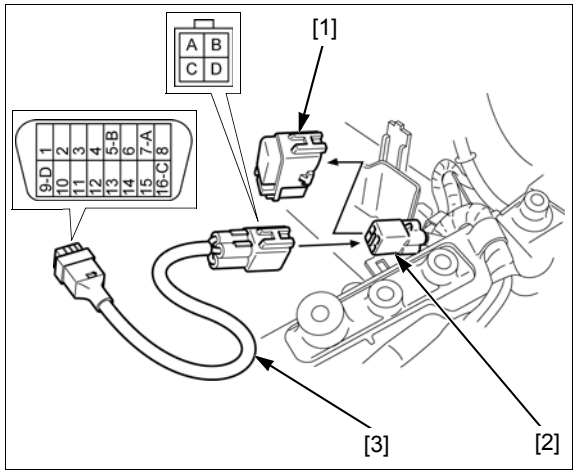
CBR1000RR/RA: Remove the pillion seat (page 2-4).

CBR1000S1/S2: Remove the single seat cowl (page 2-5).

Remove the dummy connector [1] from the DLC [2].
Connect the special tool to the DLC.

TOOL:
OBD adaptor harness [3] 070MZ-K530100

Connect the GST to the 16P connector of the OBD adaptor harness.
Turn the ignition switch ON and engine stop switch "".
Check the DTC and freeze data.



OBD adaptor harness circuit connection (General allocation in ISO 15031-3)

	DLC side 4P	GST side 16P
K-line (Serial line)	**A**	**7**
Signal ground	**B**	**5**
Permanent positive battery	**C**	**16**
Discretionary (SCS line)	**D**	**9**

MCS INFORMATION

- The MCS can readout the DTC, freeze data, current data, and other ECM condition.

How to connect the MCS

Turn the ignition switch OFF.

Remove the dummy connector from the DLC (page 4-7).

Connect the MCS to the DLC.

Turn the ignition switch ON and engine stop switch "" check the DTC and freeze data.

NOTE:

- Freeze data indicates the engine conditions when the first malfunction was detected.

DTC READOUT

Start the engine and check the MIL.

If the MIL stays on, connect the GST or MCS to the DLC.

– Connecting GST: page 4-7
– Connecting MCS: page 4-7

Read the DTC, freeze data and follow the DTC index (page 4-10).

To read the DTC with the MIL blinking, refer to the following procedure.

Reading DTC with the MIL

Turn the ignition switch OFF.

CBR1000RR/RA: Remove the pillion seat (page 2-4).

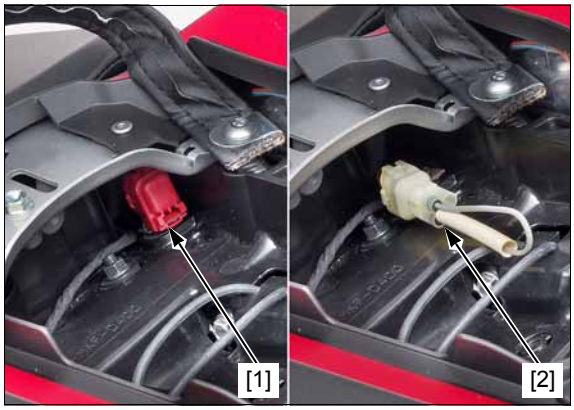
CBR1000S1/S2: Remove the single seat cowl (page 2-5).

Remove the dummy connector [1] from the DLC.

Short the DLC terminals using a special tool.

CONNECTION: Blue – Green

TOOL:
SCS short connector [2] **070PZ-ZY30100**



Turn the ignition switch ON and engine stop switch "", read, note the MIL blinks and refer to the DTC index (page 4-10).

NOTE:

- The main code of Honda code (the number in front of hyphen) can be indicated as MIL blinking.
- The MIL has two types of blinks, a long blink and short blink. The long blinking lasts for 1.3 seconds, the short blinking lasts for 0.5 seconds. One long blink is the equivalent of ten short blinks. For example, when two long blinks are followed by five short blinks, the MIL is 25 (two long blinks = 20 blinks, plus five short blinks).

ERASING DTC

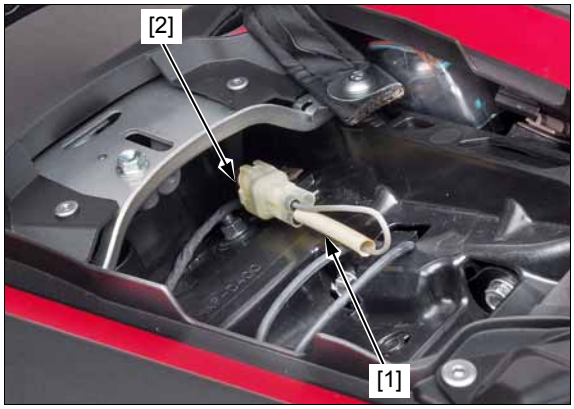
Erase the DTC with the GST or MCS while the engine is stopped.

To erase the DTC without GST or MCS, refer to the following procedure.

How to clear the DTC with SCS short connector

1. Connect the SCS short connector to the DLC (page 4-8).
2. Turn the ignition switch ON and engine stop switch "".
3. Disconnect the SCS short connector [1] from the DLC [2].

   Connect the SCS short connector to the DLC again while the MIL stays ON about 5 seconds (reset receiving pattern).
4. The stored DTC is erased if the MIL goes off and starts blinking (successful pattern).



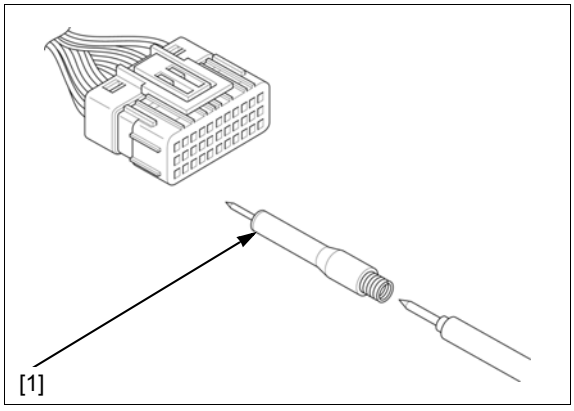
- The DLC must be jumped while the MIL lights. If not, the MIL will not start blinking. In that case, turn the ignition switch OFF and try again from step 3.
- Note that the self-diagnostic memory cannot be erased if the ignition switch is turned OFF before the MIL starts blinking.

CIRCUIT INSPECTION

INSPECTION AT ECM CONNECTOR

- Always clean around and keep any foreign material away from the ECM 33P connector(s) before disconnecting it.
- A faulty PGM-FI system is often related to poorly connected or corroded terminals. Check those connections before proceeding.
- In testing at ECM 33P connector(s) (wire harness side) terminal, always use the test probe [1]. Insert the test probe into the connector terminal, then attach the digital multimeter probe to the test probe.

TOOL:
Test probe **07ZAJ-RDJA110**



PGM-FI SYMPTOM TROUBLESHOOTING

When the motorcycle has one of these symptoms, check the DTC or MIL blinking, refer to the DTC index (page 4-10) and begin the appropriate troubleshooting procedure. If there are no DTC/MIL blinking stored in the ECM memory, do the diagnostic procedure for the symptom, in sequence listed below, until you find the cause.

Symptom	Diagnosis procedure	Also check for
Engine cranks but won't start (No DTC and MIL blinking)	1. Crank the starter for more than 10 seconds and check the DTC and execute the troubleshooting according to the DTC. 2. Inspect the fuel supply system (page 7-4).	• No fuel to injector – Clogged fuel strainer screen – Pinched or clogged fuel hose – Pinched or clogged fuel tank breather hose – Faulty fuel pump – Faulty fuel pump circuits • Intake air leak • Contaminated/deteriorated fuel • Faulty injector • Faulty ignition system • Faulty CKP sensor • Faulty CMP sensor
Engine cranks but won't start (No fuel pump operation sound when the turning the ignition ON)	1. ECM power/ground circuits malfunction (page 4-74) 2. Inspect the fuel supply system (page 7-4).	• Open circuit in the power input and/or ground wire of the ECM • Faulty bank angle sensor or related circuit • Faulty engine stop relay or related circuit • Faulty engine stop switch or related circuit
Engine stalls, hard to start, rough idling	1. Check the idle speed. 2. Inspect the fuel supply system (page 7-4). 3. Inspect the battery charging system (page 20-6).	• Restricted fuel hose • Contaminated/deteriorated fuel • Intake air leak • Restricted fuel tank breather hose • Faulty ignition system • Faulty battery charging system
Afterburn when engine braking is used	Check the PAIR system (page 7-17).	• Faulty PAIR system – Faulty PAIR control solenoid valve – Faulty PAIR check valve – Clogged hose of the PAIR system • Faulty ignition system
Backfiring or misfiring during acceleration	Check the ignition system.	• Faulty ignition system
Poor performance (driveability) and poor fuel economy	1. Inspect the fuel supply system (page 7-4). 2. Inspect the air cleaner element (page 3-5).	• Pinched or clogged fuel hose • Faulty pressure regulator • Faulty injector • Faulty ignition system • Clogged air cleaner element • Faulty MAP sensor • Pinched or clogged MAP sensor hose
Idle speed is below specifications or fast idle too low (No DTC and MIL blinking)	1. Check the idle speed.	• Faulty fuel supply system • Faulty ignition system
Idle speed is above specifications or fast idle too high (No DTC and MIL blinking)	1. Check the idle speed. 2. Check the throttle operation and freeplay	• Faulty ignition system • Intake air leak • Engine top end problem • Air cleaner condition
MIL stays ON but no DTCs set, or MIL never comes ON at all	Troubleshoot the MIL circuit (page 4-73).	• Faulty MIL circuit
MIL stays ON at all (No DTC set)	Inspect the DLC circuit.	• Short circuit in the DLC related wire

DTC INDEX

- If the MCS is not used, perform all of the inspection on the corresponding main code (digits in front of hyphen) of the Honda code.
- The main code of Honda code (the number in front of hyphen) can be indicated as MIL blinking.

DTC (Honda code)	Function Failure	Symptom/Fail-safe function	Refer to (page)
P0107 (1-1)	MAP sensor circuit low voltage • MAP sensor or its circuit malfunction	• Engine operates normally	4-14
P0108 (1-2)	MAP sensor circuit high voltage • Loose or poor contact of the sensor unit connector • MAP sensor or its circuit malfunction	• Engine operates normally	4-15
P1002 (2-1)	MAP sensor performance problem • Loose or poor connection of the MAP sensor vacuum hose • MAP sensor malfunction	• Engine operates normally	4-16
P0117 (7-1)	ECT sensor circuit low voltage (less than 0.078 V) • ECT sensor or its circuit malfunction	• Hard start at a low temperature	4-17
P0118 (7-2)	ECT sensor circuit high voltage (more than 4.922 V) • Loose or poor contact of the ECT sensor connector • ECT sensor or its circuit malfunction	• Hard start at a low temperature	4-17
P0112 (9-1)	IAT sensor circuit low voltage (less than 0.078 V) • IAT sensor or its circuit malfunction	• Engine operates normally	4-18
P0113 (9-2)	IAT sensor circuit high voltage (more than 4.922 V) • Loose or poor contact of the IAT sensor connector • IAT sensor or its circuit malfunction	• Engine operates normally	4-19
P0500 (11-1)	VS sensor no signal • Loose or poor contact of the VS sensor connector • VS sensor or its circuit malfunction	• Engine operates normally • Quickshifter does not operate	4-19
P0201 (12-1)	No.1 primary injector circuit malfunction • Loose or poor contact of the injector connector • Injector or its circuit malfunction	• Engine does not start • Injector, fuel pump and ignition coil shut down	4-21
P0202 (13-1)	No.2 primary injector circuit malfunction • Loose or poor contact of the injector connector • Injector or its circuit malfunction	• Engine does not start • Injector, fuel pump and ignition coil shut down	
P0203 (14-1)	No.3 primary injector circuit malfunction • Loose or poor contact of the injector connector • Injector or its circuit malfunction	• Engine does not start • Injector, fuel pump and ignition coil shut down	
P0204 (15-1)	No.4 primary injector circuit malfunction • Loose or poor contact of the injector connector • Injector or its circuit malfunction	• Engine does not start • Injector, fuel pump and ignition coil shut down	
P21CF (16-1)	No.1 secondary injector circuit malfunction • Loose or poor contact of the injector connector • Injector or its circuit malfunction	• Engine does not start • Injector, fuel pump and ignition coil shut down	
P21D0 (17-1)	No.2 secondary injector circuit malfunction • Loose or poor contact of the injector connector • Injector or its circuit malfunction	• Engine does not start • Injector, fuel pump and ignition coil shut down	
P0340 (18-1)	CMP sensor no signal • Loose or poor contact of the CMP sensor connector • CMP sensor or its circuit malfunction	• Engine does not start • Injectors, fuel pump and ignition shut down	4-23
P0335 (19-1)	CKP sensor no signal • Loose or poor contact of the CKP sensor connector • CKP sensor or its circuit malfunction	• Engine does not start • Injectors, fuel pump and ignition shut down	4-24
P0131 (21-1)	O_2 sensor circuit low voltage (less than 0.059 V) • O_2 sensor or its circuit malfunction	• Engine operates normally	4-25
P0132 (21-2)	O_2 sensor circuit high voltage (more than 3.008 V) • Loose or poor contact of the O_2 sensor connector • O_2 sensor or its circuit malfunction	• Engine operates normally	4-26

DTC (Honda code)	Function Failure	Symptom/Fail-safe function	Refer to (page)
P0135 (23-1)	O_2 sensor heater circuit malfunction • Loose or poor contact of the O_2 sensor heater connector • O_2 sensor heater or its circuit malfunction	• Engine operates normally	4-27
P062F*1 (33-2)	ECM EEPROM error	• Rough idling	4-28
P0477 (34-1)	ECV POT low voltage malfunction (less than 0.137 V) • Loose or poor contact of the EGCA connector • ECV or its circuit malfunction	• Engine operates normally	4-28
P0478 (34-2)	ECV POT high voltage malfunction (more than 4.883 V) • ECV or its circuit malfunction	• Engine operates normally	4-30
P0475 (35-1)	EGCA malfunction • Loose or poor contact of the EGCA connector • ECV or its circuit malfunction • EGCA lock	• Engine operates normally	4-31
P1702 (41-1)	Shift drum angle sensor circuit low voltage (less than 0.078) • Loose or poor contact of the gear position sensor connector • Shift drum angle sensor or its circuit malfunction • ECM malfunction	• Engine operates normally • Quickshifter does not operate • HSTC does not operate	4-31
P1703 (41-2)	Shift drum angle sensor circuit high voltage (more than 4.922) • Shift drum angle sensor malfunction • ECM malfunction	• Engine operates normally • Quickshifter does not operate • HSTC does not operate	4-33
P21D1 (48-1)	No.3 secondary injector circuit malfunction • Loose or poor contact of the injector connector • Injector or its circuit malfunction	• Engine does not start • Injector, fuel pump and ignition coil shut down	4-21
P21D2 (49-1)	No.4 secondary injector circuit malfunction • Loose or poor contact of the injector connector • Injector or its circuit malfunction	• Engine does not start • Injector, fuel pump and ignition coil shut down	
C1000 (51-1)	HESD linear solenoid malfunction • Loose or poor contact of the HESD solenoid connector • HESD solenoid or its circuit	• Engine operates normally • HESD does not function	16-6
P1000 (54-1)	Bank angle sensor circuit low voltage (less than 0.020 V) • Bank angle sensor or its circuit malfunction	• Engine operates normally • Engine stop function does not operate	4-34
P1001 (54-2)	Bank angle sensor circuit high voltage (more than 4.976 V) • Loose or poor contact of the bank angle sensor connector • Bank angle sensor or its circuit malfunction	• Engine operates normally • Engine stop function does not operate	4-35
P2158 (66-1)	Rear wheel speed sensor no signal • Loose or poor contact of the rear wheel speed sensor connector • Rear wheel speed sensor or its circuit malfunction	• Engine operates normally • Quickshifter does not operate • HSTC does not operate	4-36
P1500 (67-1)	Front wheel speed sensor no signal • Loose or poor contact of the front wheel speed sensor connector • Front wheel speed sensor or its circuit malfunction	• Engine operates normally • Quickshifter does not operate • HSTC does not operate	4-39
P0122 (71-1)	TP sensor 1 low voltage • TP sensor 1 or its circuit malfunction	• Vehicle speed limit: approximately 120 km/h (75 mph) • Quickshifter does not operate • HSTC does not operate	4-43
P0123 (71-2)	TP sensor 1 high voltage • Loose or poor contact of the TP sensor 1 connector • TP sensor 1 or its circuit malfunction	• Vehicle speed limit: approximately 120 km/h (75 mph) • Quickshifter does not operate • HSTC does not operate	4-44

DTC (Honda code)	Function Failure	Symptom/Fail-safe function	Refer to (page)
P0222 (72-1)	TP sensor 2 low voltage • TP sensor 2 or its circuit malfunction	• Vehicle speed limit: approximately 120 km/h (75 mph) • Quickshifter does not operate • HSTC does not operate	4-45
P0223 (72-2)	TP sensor 2 high voltage • Loose or poor contact of the TP sensor 2 connector • TP sensor 2 or its circuit malfunction	• Vehicle speed limit: approximately 120 km/h (75 mph) • Quickshifter does not operate • HSTC does not operate	4-46
P2135 (73-1)	TP sensors 1 and 2 voltage correlation malfunction • TP sensor or its circuit malfunction	• Engine operates at idle speed • Quickshifter does not operate • HSTC does not operate	4-47
P2135 (73-2)	TP sensors 1 and 2 short circuit • TP sensor or its circuit malfunction	• Engine operates at idle speed • Quickshifter does not operate • HSTC does not operate	
P2122 (74-1)	APS 1 (TCP) low voltage • Loose or poor contact of the APS connector • APS 1 or its circuit malfunction	• Engine operates at idle speed • Quickshifter does not operate • HSTC does not operate	4-48
P2123 (74-2)	APS 1 (TCP) high voltage • APS 1 or its circuit malfunction	• Engine operates at idle speed • Quickshifter does not operate • HSTC does not operate	4-49
P2127 (75-1)	APS 2 (TCP) low voltage • Loose or poor contact of the APS connector • APS 2 or its circuit malfunction	• Engine operates at idle speed • Quickshifter does not operate • HSTC does not operate	4-50
P2128 (75-2)	APS 2 (TCP) high voltage • APS 2 or its circuit malfunction	• Engine operates at idle speed • Quickshifter does not operate • HSTC does not operate	4-51
P2138 (76-1)	APS 1 – 2 (TCP) voltage correlation malfunction • APS or its circuit malfunction	• Engine operates at idle speed • Quickshifter does not operate • HSTC does not operate	4-52
P1684 (77-1)	TBW return spring malfunction	• Vehicle speed limit: approximately 120 km/h (75 mph) • Quickshifter does not operate • HSTC does not operate	4-53
P2118 (78-1)	TBW motor malfunction • TBW motor circuit malfunction	• Engine operates at idle speed • Quickshifter does not operate • HSTC does not operate	4-54
P2101 (79-1)	TBW system control correlation malfunction • TBW system or its circuit malfunction	• Engine operates at idle speed • Quickshifter does not operate • HSTC does not operate	4-55
P0606 (84-1)	CPU in the ECM malfunction • Faulty ECM	• Engine operates at idle speed	4-55
P1658 (85-1)	TBW relay failure (ON side) • TBW relay or its circuit malfunction	• Vehicle speed limit: approximately 120 km/h (75 mph) • Quickshifter does not operate • HSTC does not operate	4-55
P1659 (85-2)	TBW relay failure (OFF side) • TBW relay or its circuit malfunction	• Engine operates at idle speed • Quickshifter does not operate • HSTC does not operate	
P0443*2 (88-1)	EVAP purge control solenoid valve malfunction • Loose or poor contact of the EVAP purge control solenoid valve connector • EVAP purge control solenoid valve or its circuit malfunction	• Engine operates normally	4-57
P0412 (89-1)	PAIR control solenoid valve malfunction • Loose or poor contact of the PAIR control solenoid valve connector • PAIR control solenoid valve or its circuit malfunction	• Engine operates normally	4-58

DTC (Honda code)	Function Failure	Symptom/Fail-safe function	Refer to (page)
P0351 (91-1)	No.1 ignition coil circuit malfunction • Loose or poor contact of the ignition coil connector • Ignition coil or its circuit malfunction	• No.1 Injector and ignition coil shut down • Quickshifter does not operate	4-59
P0352 (92-1)	No.2 ignition coil circuit malfunction • Loose or poor contact of the ignition coil connector • Ignition coil or its circuit malfunction	• No.2 Injector and ignition coil shut down • Quickshifter does not operate	
P0353 (93-1)	No.3 ignition coil circuit malfunction • Loose or poor contact of the ignition coil connector • Ignition coil or its circuit malfunction	• No.3 Injector and ignition coil shut down • Quickshifter does not operate	
P0354 (94-1)	No.4 ignition coil circuit malfunction • Loose or poor contact of the ignition coil connector • Ignition coil or its circuit malfunction	• No.4 Injector and ignition coil shut down • Quickshifter does not operate	
C0520*3 (99-1)	IMU circuit malfunction • Loose or poor contact of the IMU connector • IMU or its circuit malfunction	• Engine operates normally • HSTC does not operate	4-61
U0001 (103-1)	CAN communication malfunction • ECM failure • Combination meter failure • IMU failure • CAN communication circuit malfunction	• Engine operates normally • Quickshifter does not operate • HSTC does not operate	4-62
U0155 (103-2)	CAN communication malfunction • ECM failure • Combination meter failure • CAN communication circuit malfunction	• Engine operates normally • Quickshifter does not operate • HSTC does not operate	4-64
U0125 (103-3)	CAN communication malfunction • ECM failure • IMU failure • CAN communication circuit malfunction	• Engine operates normally • Quickshifter does not operate • HSTC does not operate	4-65
U0121 (103-4)	CAN communication malfunction • ECM failure • ABS modulator failure • CAN communication circuit malfunction	• Engine operates normally • Quickshifter does not operate • HSTC does not operate • P/T/EB level change does not operate	4-65
P170D (107-1)	Shift stroke sensor circuit low voltage (less than 0.073 V) • Loose or poor contact of the Shift stroke sensor connector • Shift stroke sensor or its circuit malfunction	• Engine operates normally • Quickshifter does not operate	4-68
P170E (107-2)	Shift stroke sensor circuit high voltage (more than 4.976 V) • Shift stroke sensor or its circuit malfunction	• Engine operates normally • Quickshifter does not operate	4-69
P1708 (108-1)	Shift spindle switch circuit low voltage • Shift spindle switch or its circuit malfunction	• Engine operates normally • Quickshifter does not operate	4-70
P1709 (108-2)	Shift spindle switch circuit high voltage • Loose or poor contact of the Shift spindle switch connector • Shift spindle switch or its circuit malfunction	• Engine operates normally • Quickshifter does not operate	4-71
P0704 (113-1)	Clutch switch circuit low voltage • Clutch switch or its circuit malfunction	• Engine operates normally • Quickshifter does not operate	4-72

- *1 : The MIL does not come on (DTC can be readout/erased only by GST or MCS)
- *2 : Except GS/IN/RU/U
- *3 : CBR1000RR only

DTC TROUBLESHOOTING

NOTE:

- Before starting the inspection, check for loose or poor contact on the sensor connector and ECM connectors, then recheck the DTC.

DTC P0107 (MAP SENSOR LOW VOLTAGE)

1. MAP Sensor System Inspection

Check the MAP sensor with the GST or MCS.

Is about 0 V indicated?

YES – GO TO STEP 2.

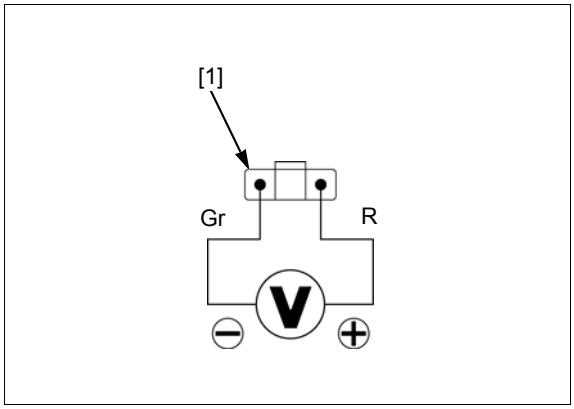
NO – Intermittent failure

2. MAP Sensor Input Voltage Inspection

Turn the ignition switch OFF.
Disconnect the MAP sensor 3P (Black) connector (page 7-10).

Turn the ignition switch ON and engine stop switch "".
Measure the voltage between the wire harness side 3P (Black) connector [1] terminals.

Connection: Red (+) – Gray (–)



Is the voltage within 4.75 – 5.25 V?

YES – GO TO STEP 4.

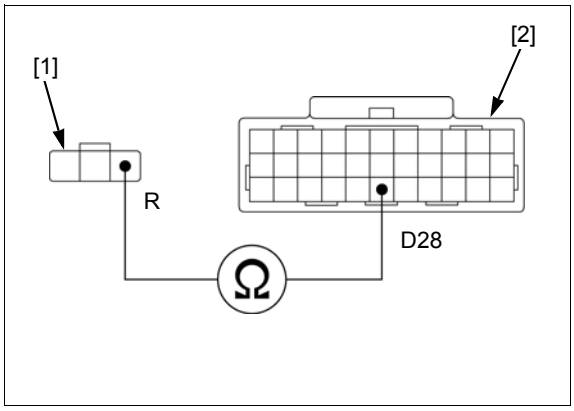
NO – GO TO STEP 3.

3. MAP Sensor Input Line Inspection

Turn the ignition switch OFF.
Disconnect the ECM 33P (Gray) connector (page 4-73).

Check for continuity between the wire harness side 3P (Black) [1] and 33P (Gray) [2] connectors terminals.

TOOL:
Test probe **07ZAJ-RDJA110**



Connection: D28 – Red

Is there continuity?

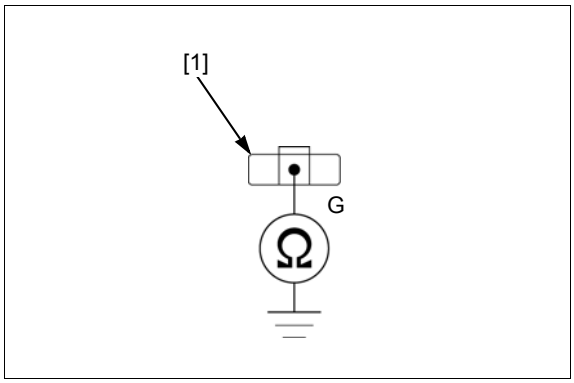
YES – Replace the ECM with a known good one, and recheck (page 4-74).

NO – Open circuit in Red wire

4. MAP Sensor Output Line Short Circuit Inspection

Turn the ignition switch OFF.
Disconnect the ECM 33P (Black) connector (page 4-73).
Check for continuity between the wire harness side 3P (Black) connector [1] terminal and ground.

Connection: Green – Ground



Is there continuity?

YES – Short circuit in the Green wire

NO – GO TO STEP 5.

5. MAP Sensor Inspection

Replace the MAP sensor with a known good one (page 4-82).
Connect the ECM 33P connectors.
Erase the DTC (page 4-8).
Check the MAP sensor with the GST or MCS.

Is DTC P0107 indicated?

YES – Replace the ECM with a known good one, and recheck (page 4-74).

NO – Faulty original MAP sensor

DTC P0108 (MAP SENSOR HIGH VOLTAGE)

1. MAP Sensor System Inspection 1

Check the MAP sensor with the GST or MCS.

Is about 5 V indicated?

YES – GO TO STEP 2.

NO – Intermittent failure

2. MAP Sensor System Inspection 2

Turn the ignition switch OFF.

Disconnect the MAP sensor 3P (Black) connector (page 7-10).
Connect the wire harness side 3P (Black) connector [1] terminals with a jumper wire [2].

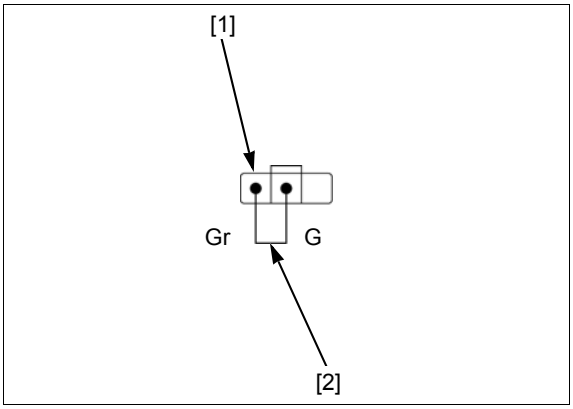
Connection: Green – Gray

Check the MAP sensor with the GST or MCS.

Is about 0 V indicated?

YES – Faulty MAP sensor

NO – GO TO STEP 3.



3. MAP Sensor Input Voltage Inspection

Turn the ignition switch OFF.
Remove the jumper wire from the MAP sensor 3P (Black) connector.

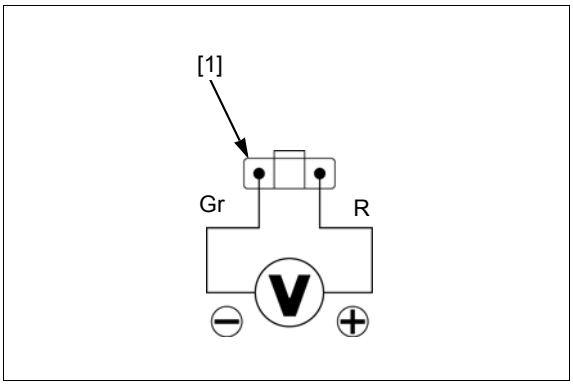
Turn the ignition switch ON and engine stop switch "○".
Measure the voltage between the wire harness side 3P (Black) connector [1] terminals.

Connection: Red (+) – Gray (–)

Is the voltage within 4.75 – 5.25 V?

YES – GO TO STEP 4.

NO – Open circuit in Gray wire



4. MAP Sensor Output Line Open Circuit Inspection

Turn the ignition switch OFF.
Disconnect the ECM 33P (Black) connector (page 4-73).
Check for continuity between the wire harness side 3P (Black) [1] and 33P (Black) [2] connectors terminals.

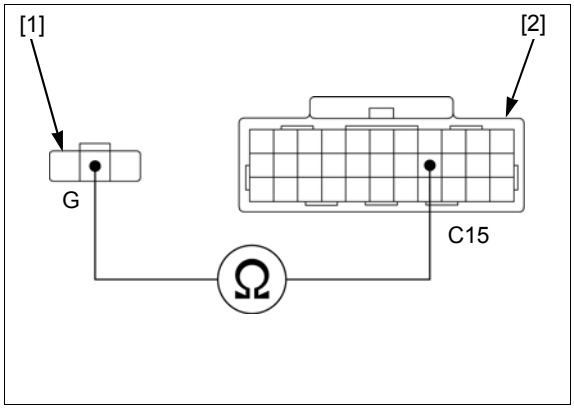
TOOL:
Test probe **07ZAJ-RDJA110**

Connection: C15 – Green

Is there continuity?

YES – Replace the ECM with a known good one, and recheck (page 4-73).

NO – Open circuit in Green wire



DTC P1002 (MAP SENSOR)

1. MAP Sensor System Inspection

Check the MAP sensor with the GST or MCS at idle speed.

Is the reading changed?

YES – Intermittent failure

NO – GO TO STEP 2.

2. Manifold Absolute Pressure Test

Turn the ignition switch OFF.

Check for connection of the MAP sensor vacuum hose (page 7-10).

Is the vacuum hose connection correct?

YES – GO TO STEP 3.

NO – Install the vacuum hose correctly.

3. MAP Sensor System Inspection

Replace the MAP sensor with a known good one (page 4-82).

Check the MAP sensor with the GST or MCS at idle speed.

Is the reading changed?

YES – Faulty original MAP sensor

NO – Replace the ECM with a known good one, and recheck (page 4-73).

DTC P0117 (ECT SENSOR LOW VOLTAGE)

1. ECT Sensor System Inspection

Check the ECT sensor with the GST or MCS.

Is about 0 V indicated?

YES – GO TO STEP 2.

NO – Intermittent failure

2. ECT Sensor Inspection

Turn the ignition switch OFF.
Disconnect the ECT sensor 3P (Gray) connector (page 4-82).

Check the ECT sensor with the GST or MCS.

Is about 0 V indicated?

YES – GO TO STEP 3.

NO – Faulty ECT sensor

3. ECT Sensor Output Line Short Circuit Inspection

Turn the ignition switch OFF.
Disconnect the ECM 33P (Gray) connector (page 4-73).

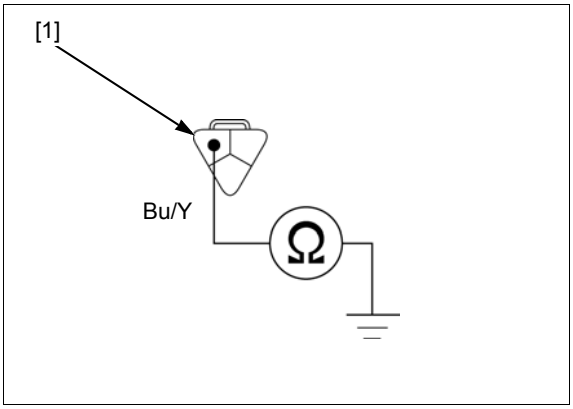
Check for continuity between the wire harness side 3P (Gray) connector [1] terminal and ground.

Connection: Blue/yellow – Ground

Is there continuity?

YES – Short circuit in Blue/yellow wire

NO – Replace the ECM with a known good one, and recheck (page 4-73).



DTC P0118 (ECT SENSOR HIGH VOLTAGE)

1. ECT Sensor System Inspection

Check the ECT sensor with the GST or MCS.

Is about 5 V indicated?

YES – GO TO STEP 2.

NO – Intermittent failure

2. ECT Sensor Inspection

Turn the ignition switch OFF.

Disconnect the ECT sensor 3P (Gray) connector (page 4-82).
Connect the wire harness side 3P (Gray) connector [1] terminals with a jumper wire [2].

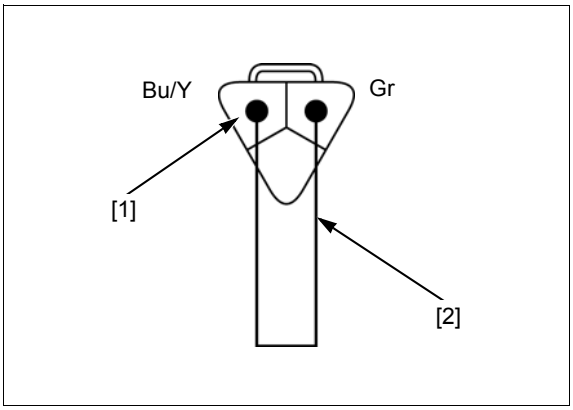
Connection: Blue/yellow – Gray

Check the ECT sensor with the GST or MCS.

Is about 0 V indicated?

YES – Replace the ECT sensor (page 4-82).

NO – GO TO STEP 3.



3. ECT Sensor Line Open Circuit Inspection

Turn the ignition switch OFF.
Remove the jumper wire.

Disconnect the ECM 33P (Black) connector [1] and ECM 33P (Gray) connector [2] (page 4-73).
Check for continuity between the wire harness side 3P (Gray) [3] and ECM connectors terminals.

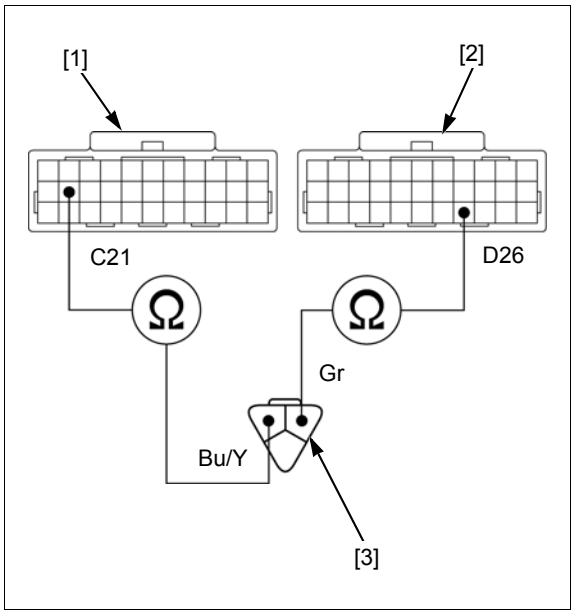
TOOL:
Test probe **07ZAJ-RDJA110**

Connection: C21 – Blue/yellow
D26 – Gray

Is there continuity?

YES – Replace the ECM with a known good one, and recheck (page 4-73).

NO – • Open circuit in Blue/yellow wire
• Open circuit in Gray wire



DTC P0112 (IAT SENSOR LOW VOLTAGE)

1. IAT Sensor System Inspection

Check the IAT sensor with the GST or MCS.

Is about 0 V indicated?

YES – GO TO STEP 2.

NO – Intermittent failure

2. IAT Sensor Inspection

Turn the ignition switch OFF.
Disconnect the IAT sensor 2P (Black) connector (page 4-82).

Check the IAT sensor with the GST or MCS.

Is about 0 V indicated?

YES – GO TO STEP 3.

NO – Faulty IAT sensor

3. IAT Sensor Output Line Short Circuit Inspection

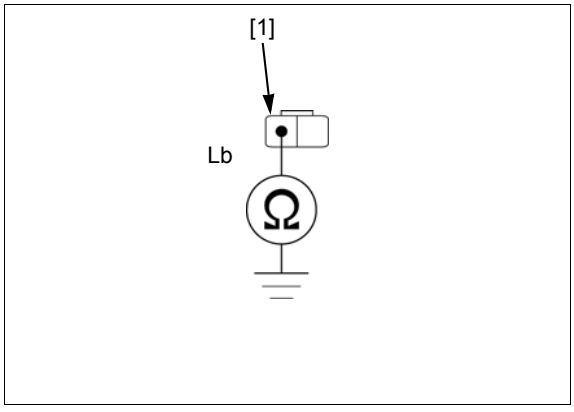
Turn the ignition switch OFF.
Disconnect the ECM 33P (Gray) connector (page 4-73).
Check for continuity between the wire harness side 2P (Black) connector [1] terminal and ground.

Connection: Light blue – Ground

Is there continuity?

YES – Short circuit in Light blue wire

NO – Replace the ECM with a known good one, and recheck (page 4-73).



DTC P0113 (IAT SENSOR HIGH VOLTAGE)

1. IAT Sensor System Inspection

Check the IAT sensor with the GST or MCS.

Is about 5 V indicated?

YES – GO TO STEP 2.

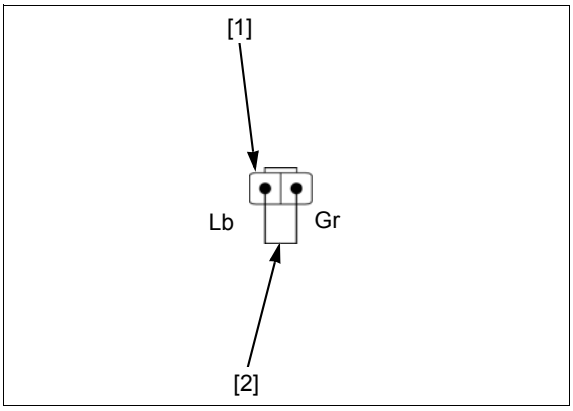
NO – Intermittent failure

2. IAT Sensor Inspection

Turn the ignition switch OFF.

Disconnect the IAT sensor 2P (Black) connector (page 4-82).
Connect the wire harness side 2P (Black) connector [1] terminals with a jumper wire [2].

Connection: Light blue – Gray



Check the IAT sensor with the GST or MCS.

Is about 0 V indicated?

YES – Faulty IAT sensor

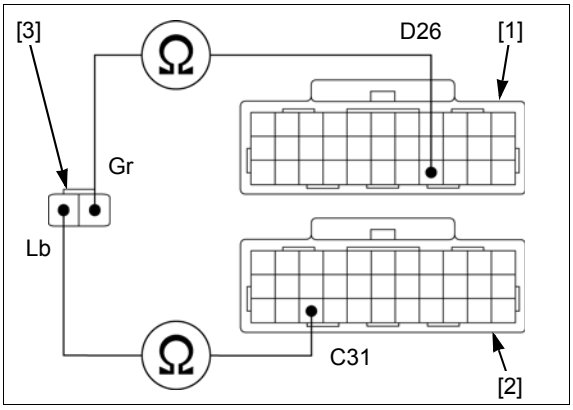
NO – GO TO STEP 3.

3. IAT Sensor Line Inspection

Turn the ignition switch OFF.
Disconnect the ECM 33P (Gray) connector [1] and ECM 33P (Black) connector [2] (page 4-73).
Check for continuity between the wire harness side 2P (Black) [3] and 33P (Gray) connectors terminals.

TOOL:
Test probe **07ZAJ-RDJA110**

Connection: D26 – Gray
C31 – Light blue



Is there continuity?

YES – Replace the ECM with a known good one, and recheck (page 4-73).

NO – • Open circuit in Gray wire
• Open circuit in Light blue wire

DTC P0500 (VS SENSOR)

1. VS Sensor System Inspection

Erase the DTC (page 4-8).

Test ride the motorcycle above 17.6 km/h (11 mph).
Stop the engine.

Check the VS sensor with the GST or MCS.

Is DTC P0500 indicated?

YES – GO TO STEP 2.

NO – Intermittent failure

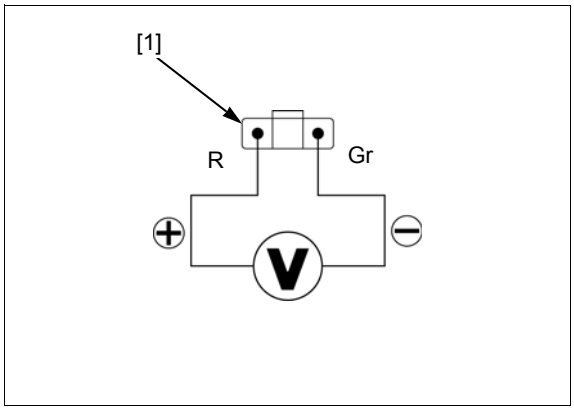
2. VS Sensor Input Voltage Inspection

Turn the ignition switch OFF.

Disconnect the VS sensor 3P (Black) connector (page 4-77).

Turn the ignition switch ON and engine stop switch "".
Measure the voltage between the wire harness side 3P (Black) connector [1] terminals.

Connection: Red (+) – Gray (–)



Is the voltage within 4.75 – 5.25 V?

YES – GO TO STEP 3.

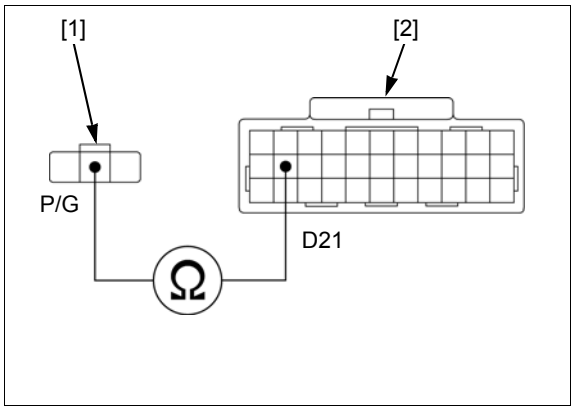
NO – • Open circuit in Red wire
• Open circuit in Gray wire

3. VS Sensor Signal Line Open Circuit Inspection

Turn the ignition switch OFF.
Disconnect the ECM 33P (Gray) connector (page 4-73).

Check for continuity between the wire harness side 3P (Black) [1] and 33P (Gray) [2] connectors terminals.

TOOL:
Test probe **07ZAJ-RDJA110**



Connection: D21 – Pink/green

Is there continuity?

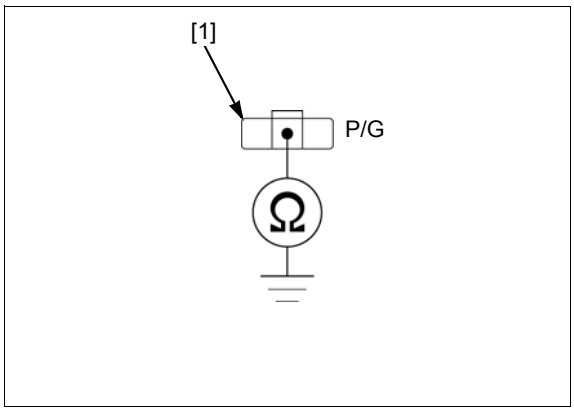
YES – GO TO STEP 4.

NO – Open circuit in Pink/green wire

4. VS Sensor Signal Line Short Circuit Inspection

Check for continuity between the wire harness side 3P (Black) connector [1] terminal and ground.

Connection: Pink/green – Ground



Is there continuity?

YES – Short circuit in Pink/green wire

NO – GO TO STEP 5.

5. VS Sensor Inspection

Replace the VS sensor with a known good one (page 4-77).
Connect the ECM and VS sensor connectors.
Erase the DTC (page 4-8).
Test-ride the motorcycle above 17.6 km/h (11 mph).
Stop the engine.
Check the VS sensor with the GST or MCS.

Is DTC P0500 indicated?

YES – Replace the ECM with a known good one, and recheck (page 4-73).

NO – Faulty original VS sensor

DTC P0201/P0202/P0203/P0204/P21CF/ P21D0/P21D1/P21D2 (PRIMARY/SECONDARY INJECTOR)

DTC	INJECTOR	POWER INPUT LINE	SIGNAL LINE	SIGNAL AT ECM
P0201	No.1 Primary	Yellow	Light blue	D8
P0202	No.2 Primary	Yellow	Green	D7
P0203	No.3 Primary	Yellow	Pink	D6
P0204	No.4 Primary	Yellow	Black	D5
P21CF	No.1 Secondary	Yellow	Gray	A25
P21D0	No.2 Secondary	Yellow	Blue	A24
P21D1	No.3 Secondary	Yellow	Light blue	A3
P21D2	No.4 Secondary	Yellow	Violet	A6

1. Injector System Inspection

Erase the DTC (page 4-8).
Check the fuel injector with the GST or MCS.

Is DTC indicates?

YES – GO TO STEP 2.

NO – Intermittent failure

2. Injector Input Voltage Inspection

Turn the ignition switch OFF.

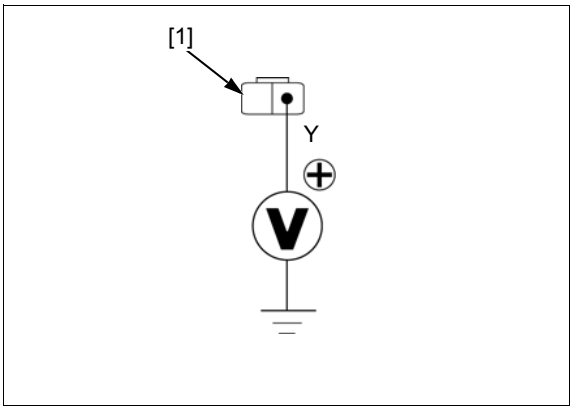
Disconnect the injector 2P (Gray) connector.

– Primary injector: page 7-15
– Secondary injector: page 7-16

Turn the ignition switch ON and engine stop switch "".

Measure the voltage between the wire harness side 2P (Gray) connector [1] terminals and ground.

Connection: Yellow (+) – Ground (–)



Is there battery voltage?

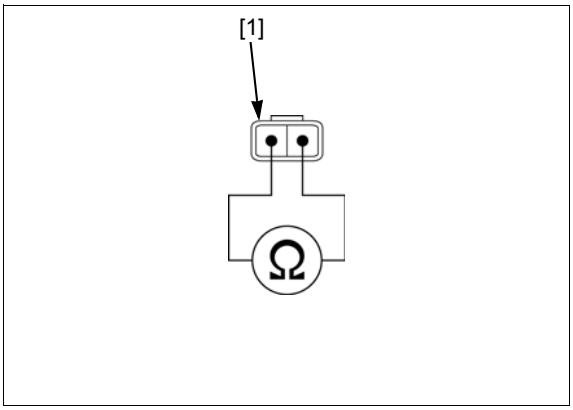
YES – GO TO STEP 3.

NO – Open circuit in Yellow wire

3. Injector Resistance Inspection

Turn the ignition switch OFF.

Measure the resistance of the injector side 2P (Gray) connector [1] terminals.



Is the resistance within 11 – 13 Ω (20°C/68°F)?

YES – GO TO STEP 4.

NO – Faulty injector

4. Injector Signal Line Open Circuit Inspection

Disconnect the ECM 33P (Gray) and ECM 33P (Blue) connectors (page 4-73).
Check for continuity between the wire harness side 2P (Gray) [1], 33P (Gray) [2] and 33P (Blue) [3] connectors terminals.

TOOL:
Test probe **07ZAJ-RDJA110**

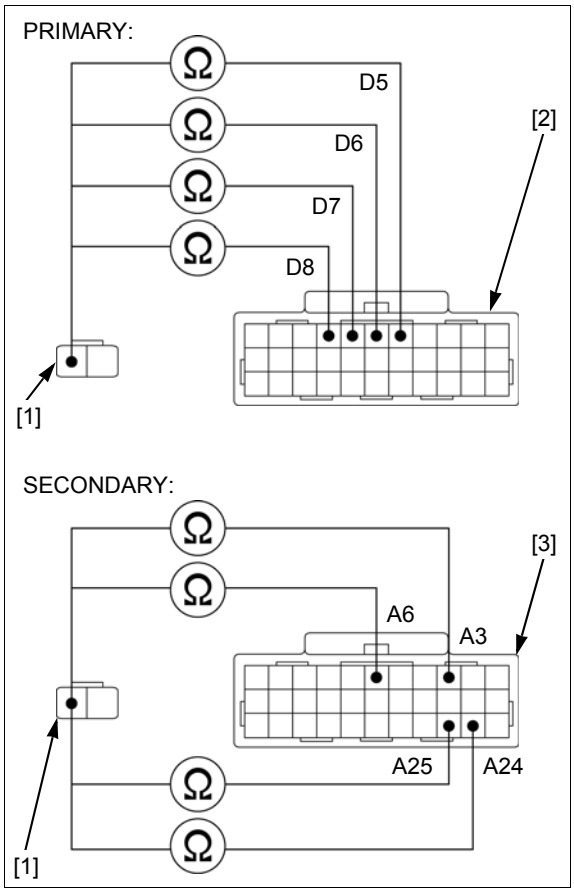
PRIMARY
Connection: **No.1: D8 – Signal line**
No.2: D7 – Signal line
No.3: D6 – Signal line
No.4: D5 – Signal line

SECONDARY
Connection: **No.1: A25 – Signal line**
No.2: A24 – Signal line
No.3: A3 – Signal line
No.4: A6 – Signal line

Is there continuity?

YES – GO TO STEP 5.

NO – Open circuit in signal line wire



5. Injector Signal Line Short Circuit Inspection

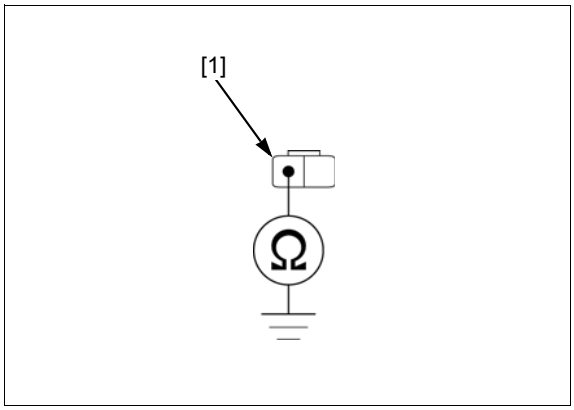
Check for continuity between the each wire harness side 2P (Gray) connector [1] terminal and ground.

Connection: Signal line – Ground

Is there continuity?

YES – • Short circuit in signal line wire
• Faulty injector

NO – Replace the ECM with a known good one, and recheck (page 4-73).



DTC P0340 (CMP SENSOR)

1. CMP Sensor System Inspection 1

Erase the DTC (page 4-8).
Check the CMP sensor with the GST or MCS.
Crank the engine for ten seconds or more.

Is DTC P0340 indicated?

YES – GO TO STEP 2.

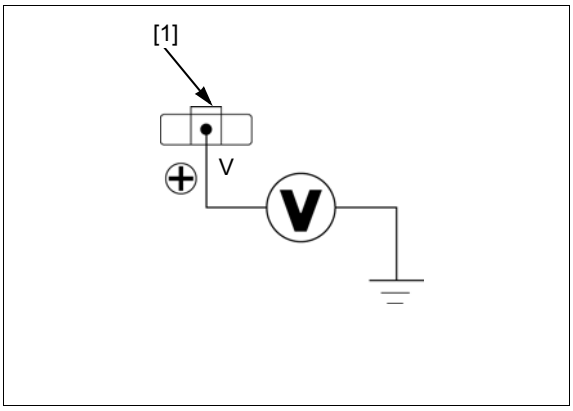
NO – Intermittent failure

2. CMP Sensor System Inspection 2

Turn the ignition switch OFF.
Disconnect the CMP sensor 3P (Blue) connector (page 4-83).

Turn the ignition switch ON and engine stop switch "".
Measure the voltage between the wire harness side 3P (Blue) connector [1] terminal and ground.

Connection: Violet (+) – Ground (–)



Is the voltage within 4.75 – 5.25 V?

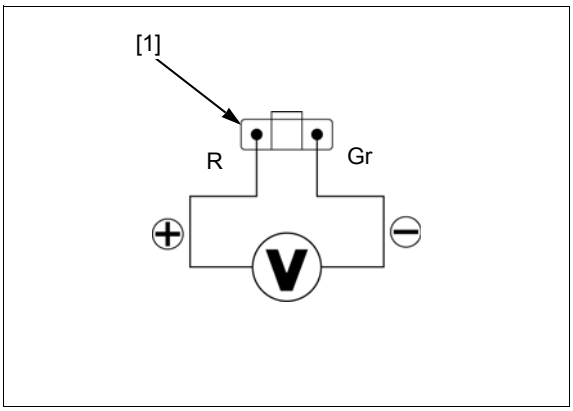
YES – GO TO STEP 3.

NO – GO TO STEP 4.

3. CMP Sensor Input Voltage Inspection

Measure the voltage at the wire harness side 3P (Blue) connector [1] terminals.

Connection: Red (+) – Gray (–)



Is the voltage within 4.75 – 5.25 V?

YES – Faulty CMP sensor

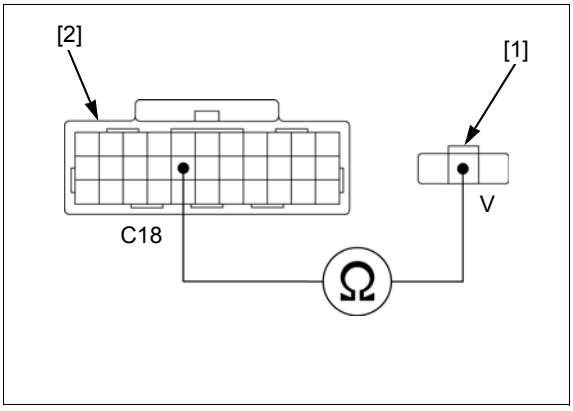
NO – • Open circuit in Red wire
• Open circuit in Gray wire

4. CMP Sensor signal line open Circuit Inspection

Turn the ignition switch OFF.
Disconnect the ECM 33P (Black) connector.

Check for continuity between the wire harness side 3P (Blue) [1] and 33P (Black) [2] connectors terminals.

TOOL:
Test probe **07ZAJ-RDJA110**



Connection: C18 – Violet

Is there continuity?

YES – Replace the ECM with a known good one, and recheck (page 4-73).

NO – Open circuit in Violet wire

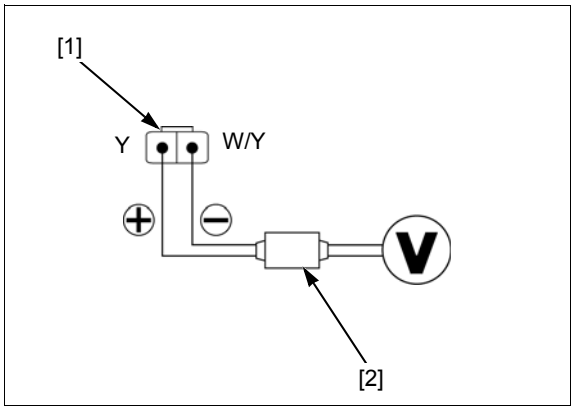
DTC P0335 (CKP SENSOR)

1. CKP Sensor Peak Voltage Inspection

Turn the ignition switch OFF.
Disconnect the CKP sensor 2P (Red) connector.

Turn the ignition switch ON.
Crank the engine and measure the CKP sensor peak voltage between the sensor side 2P (Red) connector [1] terminals.

Connection: Yellow (+) – White/yellow (–)
(Sensor side terminals)



TOOL:
Imrie diagnostic tester (model 625) or
Peak voltage adaptor [2] 07HGJ-0020100
with commercially available digital multimeter
(impedance 10 MΩ/DCV minimum)

Is the voltage more than 0.7 V (20°C/68°F)?

YES – GO TO STEP 2.

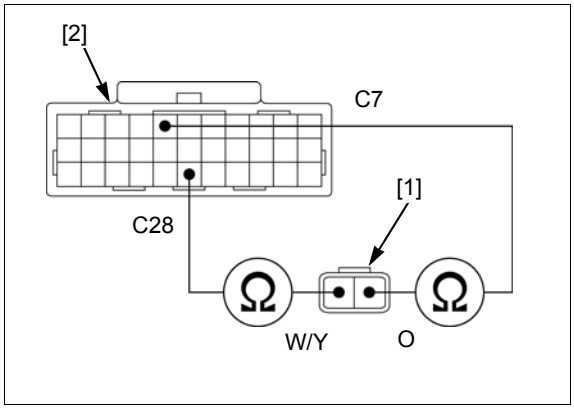
NO – Faulty CKP sensor

2. CKP sensor Circuit Inspection

Turn the ignition switch OFF.
Disconnect the ECM 33P (Black) connector (page 4-73).

Check for continuity between the wire harness side 2P (Red) [1] and 33P (Black) [2] connectors terminals.

TOOL:
Test probe 07ZAJ-RDJA110



Connection: C7 – Orange
C28 – White/yellow

Is there continuity?

YES –
- Short circuit in Orange wire
- If the Orange wire is good condition, replace the ECM with a known good one, and recheck (page 4-73).

NO –
- Open circuit in Orange wire
- Open circuit in White/yellow wire

DTC P0131 (O_2 SENSOR LOW VOLTAGE)

1. Recheck DTC

Erase the DTC (page 4-8).
Warm the engine until the coolant temperature is 80°C (176°F).
Stop the engine.
Check the O_2 sensor with the GST or MCS.

Is the DTC P0131 indicated?

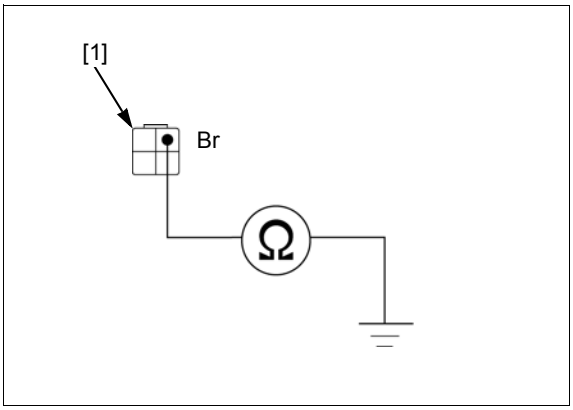
YES – GO TO STEP 2.

NO – Intermittent failure

2. O_2 Sensor Output Line Short Circuit Inspection

Disconnect the ECM 33P (Blue) connector (page 4-73).
Disconnect the O_2 sensor 4P (Black) connector (page 4-84).
Check for continuity between the wire harness side 4P (Black) connector [1] terminal and ground.

Connection: Brown – Ground



Is there continuity?

YES – Short circuit in the Brown wire

NO – GO TO STEP 3.

3. O_2 Sensor Inspection

Replace the O_2 sensor with a known good one (page 4-84).
Connect the ECM 33P (Blue) connector.
Erase the DTC (page 4-8).
Warm the engine until the coolant temperature is 80°C (176°F).
Stop the engine.
Check the O_2 sensor with the GST or MCS.

Is the DTC P0131 indicated?

YES – Replace the ECM with a known good one, and recheck (page 4-73).

NO – Faulty original O_2 sensor

DTC P0132 (O_2 SENSOR HIGH VOLTAGE)

1. Recheck DTC

Erase the DTC (page 4-8).
Warm the engine until the coolant temperature is 80°C (176°F).
Stop the engine.
Check the O_2 sensor with the GST or MCS.

Is the DTC P0132 indicated?

YES – GO TO STEP 2.

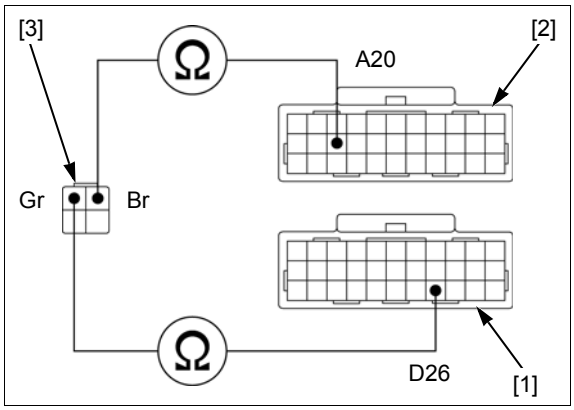
NO – Intermittent failure

2. O_2 Sensor Line Open Circuit Inspection

Turn the ignition switch OFF.
Disconnect the O_2 sensor 4P (Black) connector (page 4-84).
Disconnect the ECM 33P (Gray) connector [1] and ECM 33P (Blue) connector [2] (page 4-73).
Check for continuity between the wire harness side 4P (Black) [3] and ECM connectors terminals.

TOOL:
Test probe **07ZAJ-RDJA110**

Connection: A20 – Brown
D26 – Gray



Is there continuity?

YES – GO TO STEP 3.

NO – • Open circuit in Brown wire
• Open circuit in Gray wire

3. O_2 Sensor Inspection

Replace the O_2 sensor with a known good one (page 4-84).
Connect the 33P connectors.
Erase the DTC (page 4-8).
Warm the engine until the coolant temperature is 80°C (176°F).
Stop the engine.
Check the O_2 sensor with the GST or MCS.

Is the DTC P0132 indicated?

YES – Replace the ECM with a known good one, and recheck (page 4-73).

NO – Faulty original O_2 sensor

DTC P0135 (O_2 SENSOR HEATER)

1. O_2 Sensor System Inspection

Erase the DTC (page 4-8).

Start the engine and check the O_2 sensor heater with the GST or MCS.

Is DTC P0135 indicated?

YES – GO TO STEP 2.

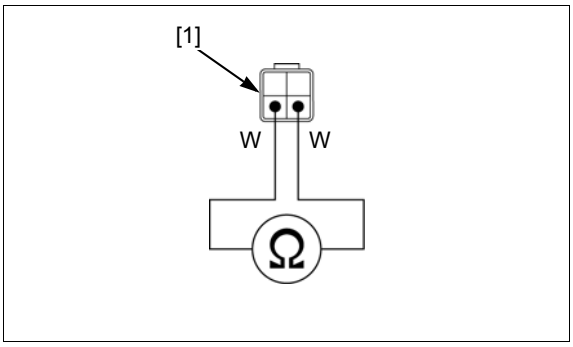
NO – Intermittent failure

2. O_2 Sensor Heater Resistance Inspection

Turn the ignition switch OFF.

Disconnect the O_2 sensor 4P (Black) connector (page 4-84).
Measure the resistance between the sensor side O_2 sensor connector [1] terminals.

Connection: White – White
(Sensor side terminals)



Is the resistance within 10 – 40 Ω (20°C/68°F)?

YES – GO TO STEP 3.

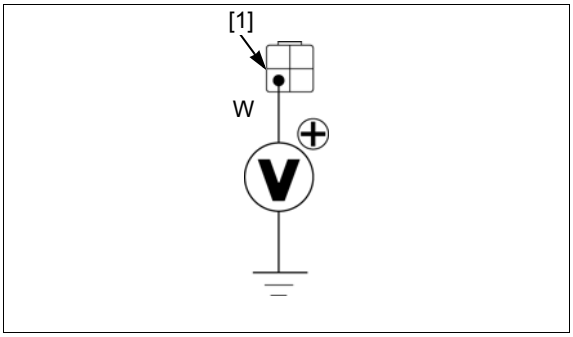
NO – Faulty O_2 sensor

3. O_2 Sensor Heater Input Voltage Inspection

Turn the ignition switch ON and engine stop switch "".

Measure the voltage between the wire harness side 4P (Black) connector [1] terminal and ground.

Connection: White (+) – Ground (–)



Is there battery voltage?

YES – GO TO STEP 4.

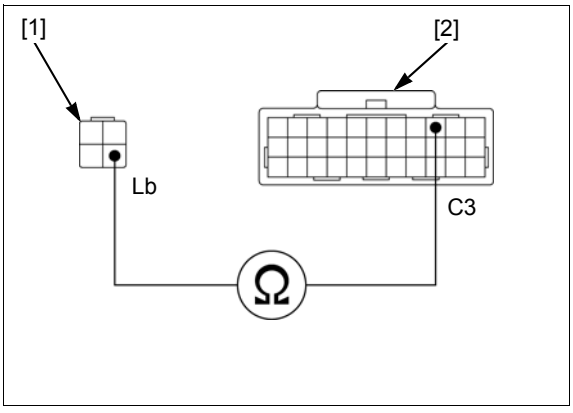
NO – Open circuit in White wire

4. O_2 Sensor Heater Open Circuit Inspection

Turn the ignition switch OFF.
Disconnect the ECM 33P (Black) connector (page 4-73).
Check for continuity between the wire harness side 33P (Black) [2] and 4P (Black) [1] connector terminals.

TOOL:
Test probe **07ZAJ-RDJA110**

Connection: C3 – Light blue



Is there continuity?

YES – GO TO STEP 5.

NO – Open circuit in Light blue wire

5. O_2 Sensor Heater Short Circuit Inspection

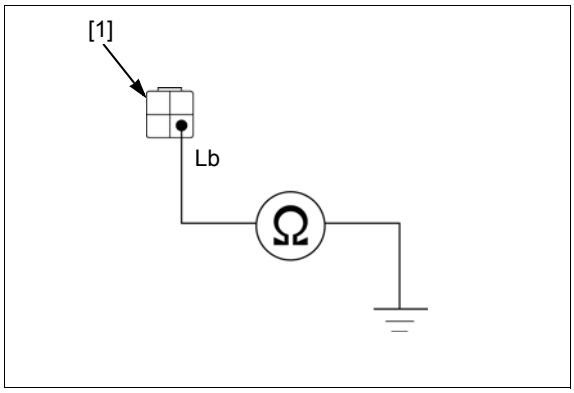
Check for continuity between the wire harness side 4P (Black) connector [1] terminal and ground.

Connection: Light blue – Ground

Is there continuity?

YES – Short circuit in the Light blue wire

NO – Replace the ECM with a known good one, and recheck (page 4-73).



DTC P062F (EEPROM)

1. Recheck DTC

Erase the DTC (page 4-8).
Recheck the EEPROM with the GST or MCS.

Is DTC P062F indicated?

YES – Replace the ECM with a known good one, and recheck (page 4-73).

NO – Intermittent failure

DTC P0477 (ECV POT LOW VOLTAGE)

1. ECV POT System Inspection

Check the ECV POT with the GST or MCS provided ECV closed.

Is the indicated voltage within 0.5 – 4.5 V?

YES – Intermittent failure

NO – GO TO STEP 2.

2. ECV POT Input Voltage Inspection

Turn the ignition switch OFF.
Disconnect the EGCA 6P (Black) connector (page 4-85).

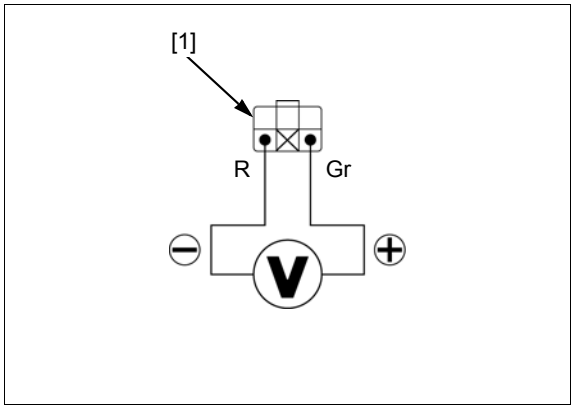
Turn the ignition switch ON and engine stop switch "".
Measure the voltage between the wire harness side 6P (Black) connector [1] terminals.

Connection: Red (+) – Gray (–)

Is the voltage within 4.75 – 5.25 V?

YES – GO TO STEP 4.

NO – GO TO STEP 3.



3. ECV POT Circuit Inspection

Turn the ignition switch OFF.

Disconnect the ECM 33P (Gray) connector (page 4-73).
Check for continuity between the wire harness side 6P (Black) [1] and 33P (Gray) [2] connectors terminals.

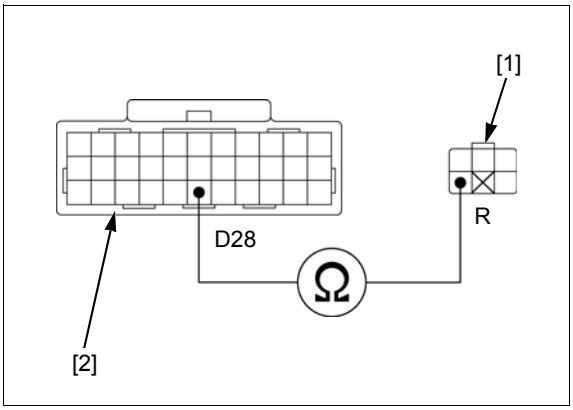
TOOL:
Test probe **07ZAJ-RDJA110**

Connection: D28 – Red

Is there continuity?

YES – Replace the ECM with a known good one, and recheck (page 4-73).

NO – Open circuit in Red wire



4. ECV POT Output Line Open Circuit Inspection

Turn the ignition switch OFF.

Disconnect the ECM 33P (Black) connector.
Check for continuity between the wire harness side 6P (Black) [1] and 33P (Black) [2] connectors terminals.

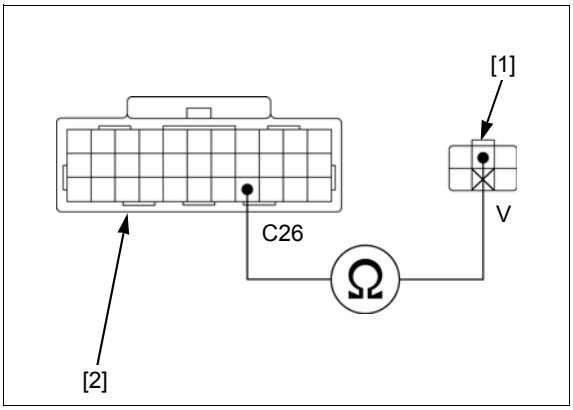
TOOL:
Test probe **07ZAJ-RDJA110**

Connection: C26 – Violet

Is there continuity?

YES – GO TO STEP 5.

NO – Open circuit in Violet wire



5. ECV POT Output Line Short Circuit Inspection

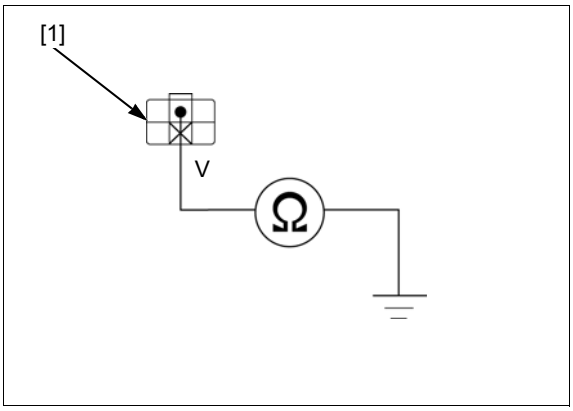
Check for continuity between the wire harness side 6P (Black) connector [1] terminal and ground.

Connection: Violet – Ground

Is there continuity?

YES – Short circuit in Violet wire

NO – GO TO STEP 6.



6. ECV POT Inspection

Replace the EGCA with a known good one (page 4-85).
Erase the DTC (page 4-8).

Check the ECV POT with the GST or MCS.

Is DTC P0477 indicated?

YES – Replace the ECM with a known good one, and recheck (page 4-73).

NO – Faulty original EGCA

DTC P0478
(ECV POT HIGH VOLTAGE)

1. ECV POT System Inspection

Check the ECV POT with the GST or MCS.

Is about 5 V indicated?

YES – GO TO STEP 2.

NO – • Intermittent failure

2. ECV POT Resistance Inspection

Turn the ignition switch OFF.

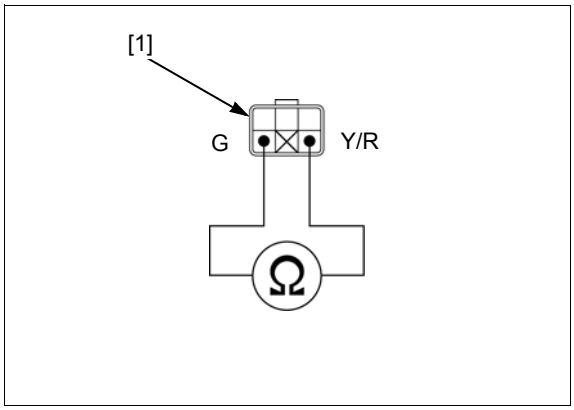
Disconnect the EGCA 6P (Black) connector (page 4-85).
Measure the resistance between the ECV POT side 6P (Black) connector [1] terminals.

Connection: Yellow/red – Green (EGCA side terminals)

Is the resistance within 3.5 – 6.5 kΩ (20°C/68°F)?

YES – GO TO STEP 3.

NO – Faulty EGCA



3. ECV POT Input Voltage Inspection

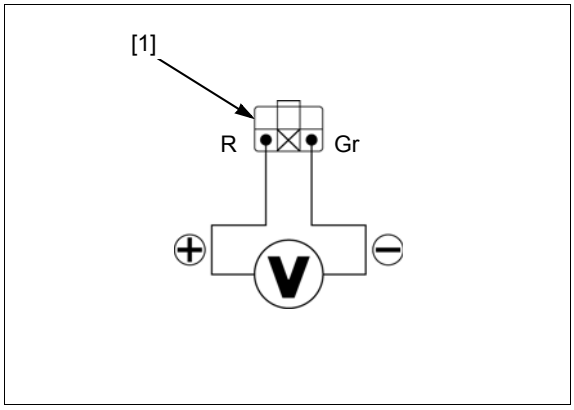
Turn the ignition switch ON and engine stop switch "".
Measure the voltage between the wire harness side 6P (Black) connector [1] terminals.

Connection: Red (+) – Gray (–)

Is the voltage within 4.75 – 5.25 V?

YES – Replace the ECM with a known good one, and recheck (page 4-73).

NO – Open circuit in Gray wire



DTC P0475 (EGCA LOCK)

1. EGCA Operating Inspection

Disconnect the EGCA cable from the EGCA pulley (page 4-85).
Turn the ignition switch ON.
Check the EGCA pulley rotation when shorting the DLC with the SCS connector (page 4-8).

Does the EGCA pulley operate correctly?

YES – • Check the EGCA cable binding, sticking or lock.
• Check the ECV at muffler side.

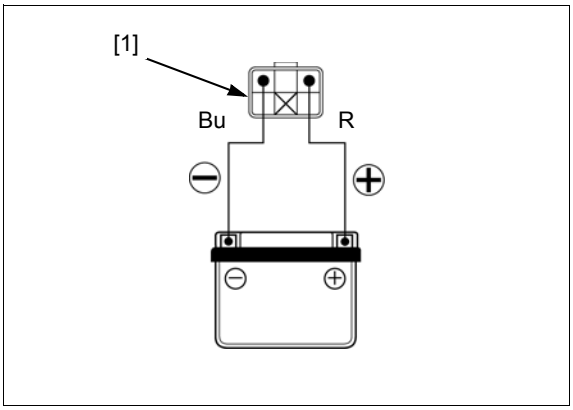
NO – GO TO STEP 2.

2. EGCA Inspection

Turn the ignition switch OFF.
Remove the EGCA (page 4-85).

Connect a 12 V battery to the EGCA side 6P (Black) connector [1] terminals and check the servomotor function.

Connection: Red(+) – Blue (–)
(EGCA side terminals)



Does the EGCA operate normally?

YES – GO TO STEP 3.

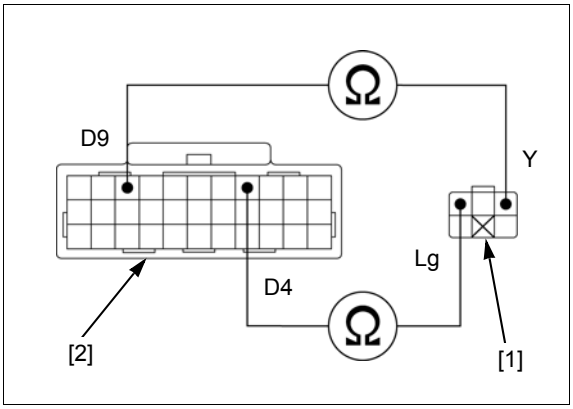
NO – Faulty EGCA

3. ECM Output Line Inspection

Disconnect the ECM 33P (Gray) connector.
Check for continuity between the wire harness side 6P (Black) [1] and 33P (Gray) [2] connectors terminals.

TOOL:
Test probe **07ZAJ-RDJA110**

Connection: D4 – Light green
D9 – Yellow



Is there continuity?

YES – Replace the ECM with a known good one, and recheck (page 4-73).

NO – • Open circuit in Light green wire
• Open circuit in Yellow wire

DTC P1702 (SHIFT DRUM ANGLE SENSOR LOW VOLTAGE)

1. Shift Drum Angle Sensor System Inspection

Check the shift drum angle sensor with the GST or MCS.

Is the indicated voltage within 0.5 – 4.5 V?

YES – Intermittent failure

NO – GO TO STEP 2.

2. Shift Drum Angle Sensor Input Voltage Inspection

Turn the ignition switch OFF.
Disconnect the shift drum angle sensor/neutral switch 4P (Black) connector (page 4-78).

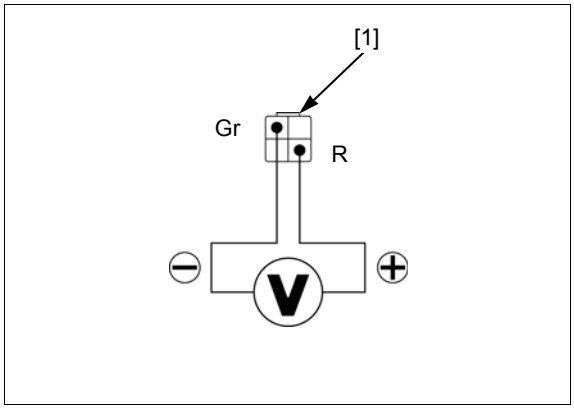
Turn the ignition switch ON and engine stop switch "".
Measure the voltage between the wire harness side 4P (Black) connector [1] terminals.

Connection: Red (+) – Gray (–)

Is the voltage within 4.75 – 5.25 V?

YES – GO TO STEP 4.

NO – GO TO STEP 3.



3. Shift Drum Angle Sensor Circuit Inspection

Turn the ignition switch OFF.

Disconnect the ECM 33P (Gray) connector (page 4-73).
Check for continuity between the wire harness side 4P (Black) [1] and 33P (Gray) [2] connectors terminals.

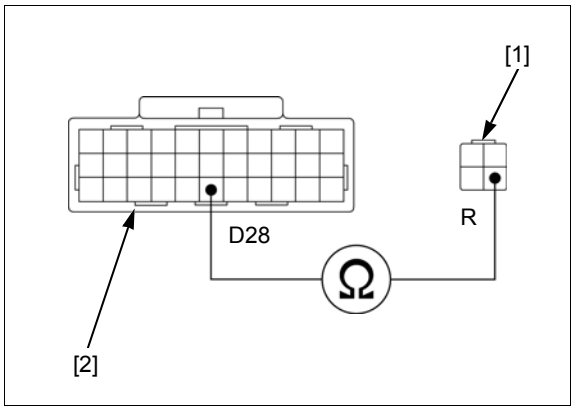
TOOL:
Test probe **07ZAJ-RDJA110**

Connection: D28 – Red

Is there continuity?

YES – Replace the ECM with a known good one, and recheck (page 4-73).

NO – Open circuit in Red wire



4. Shift Drum Angle Sensor Output Line Open Circuit Inspection

Turn the ignition switch OFF.

Disconnect the ECM 33P (Blue) connector.
Check for continuity between the wire harness side 4P (Black) [1] and 33P (Blue) [2] connectors terminals.

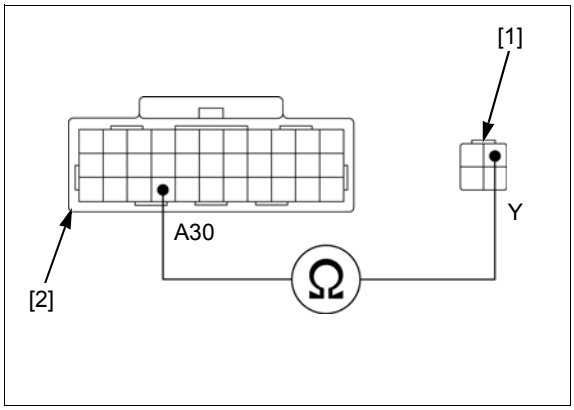
TOOL:
Test probe **07ZAJ-RDJA110**

Connection: A30 – Yellow

Is there continuity?

YES – GO TO STEP 5.

NO – Open circuit in Yellow wire



5. Shift Drum Angle Sensor Output Line Short Circuit Inspection

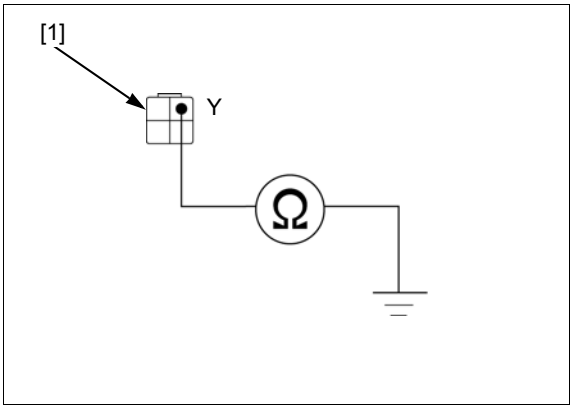
Check for continuity between the wire harness side 4P (Black) connector [1] terminal and ground.

Connection: Yellow – Ground

Is there continuity?

YES – Short circuit in Yellow wire

NO – GO TO STEP 6.



6. Shift Drum Angle Sensor Inspection

Replace the shift drum angle sensor with a known good one (page 4-78).
Erase the DTC (page 4-8).

Check the shift drum angle sensor with the GST or MCS.

Is DTC P1702 indicated?

YES – Replace the ECM with a known good one, and recheck (page 4-73).

NO – Faulty original shift drum angle sensor

DTC P1703 (SHIFT DRUM ANGLE SENSOR HIGH VOLTAGE)

1. Shift Drum Angle Sensor System Inspection

Check the shift drum angle sensor with the GST or MCS.

Is about 5 V indicated?

YES – GO TO STEP 2.

NO – Intermittent failure

2. Shift Drum Angle Sensor Input Voltage Inspection

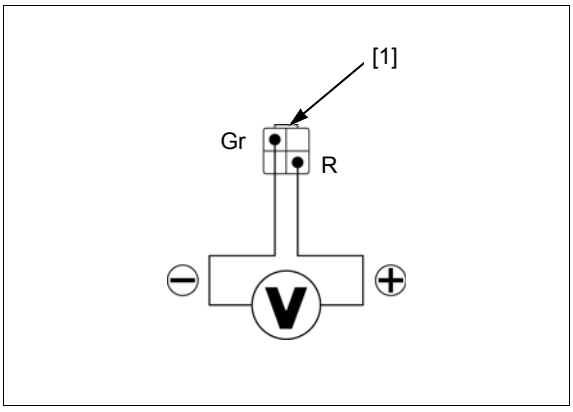
Turn the ignition switch ON and engine stop switch "".
Measure the voltage between the wire harness side 4P (Black) connector [1] terminals.

Connection: Red (+) – Gray (–)

Is the voltage within 4.75 – 5.25 V?

YES – GO TO STEP 3.

NO – Open circuit in Gray wire



3. Shift Drum Angle Sensor Inspection

Replace the shift drum angle sensor with a known good one (page 4-78).
Erase the DTC (page 4-8).

Check the shift drum angle sensor with the GST or MCS.

Is DTC P1703 indicated?

YES – Replace the ECM with a known good one, and recheck (page 4-73).

NO – Faulty original shift drum angle sensor

DTC P1000 (BANK ANGLE SENSOR LOW VOLTAGE)

1. Bank Angle Sensor System Inspection

Erase the DTC (page 4-8).
Check the bank angle sensor with the GST or MCS.

Is about 0 V indicated?

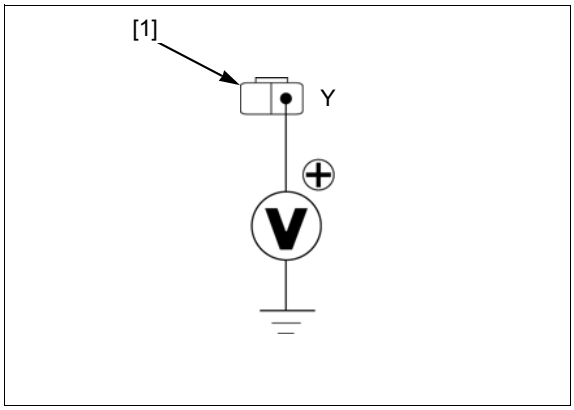
YES – GO TO STEP 2.

NO – Intermittent failure

2. Bank Angle Sensor Input Voltage Inspection

Turn the ignition switch OFF.
Disconnect the bank angle sensor 2P (Black) connector (page 4-83).
Turn the ignition switch ON.
Measure the voltage between the wire harness side 2P (Black) connector [1] terminal and ground.

Connection: Yellow (+) – Ground (–)



Is there battery voltage?

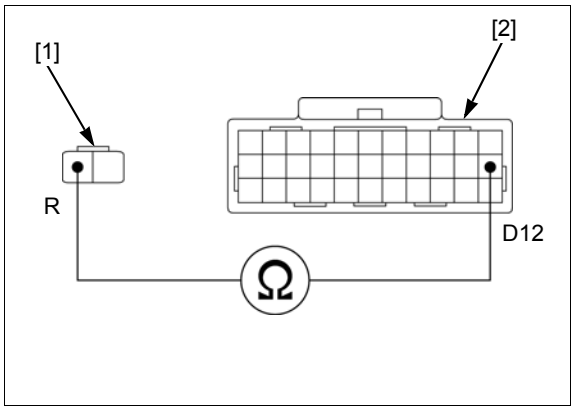
YES – GO TO STEP 3.

NO – Open circuit in the Yellow wire

3. Bank Angle Sensor Signal Line Open Circuit Inspection

Turn the ignition switch OFF.
Disconnect the ECM 33P (Gray) connector (page 4-73).
Check for continuity between the wire harness side 2P (Black) [1] and 33P (Gray) [2] connectors terminals.

TOOL:
Test probe **07ZAJ-RDJA110**



Connection: D12 – Red

Is there continuity?

YES – GO TO STEP 4.

NO – Open circuit in the Red wire

4. **Bank Angle Sensor Signal Line Short Circuit Inspection**

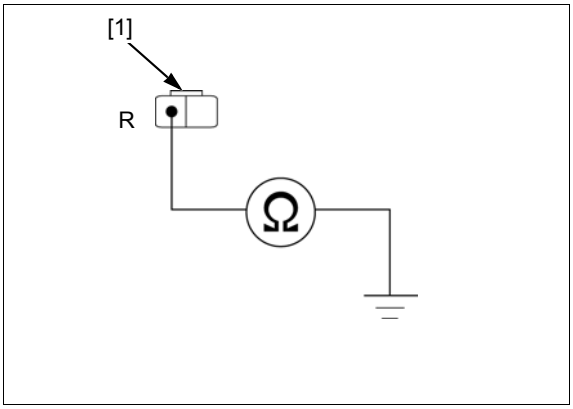
   Check for continuity between the wire harness side 2P (Black) connector [1] terminal and ground.

   Connection: Red – Ground

   Is there continuity?

   YES – Short circuit in the Red wire

   NO – GO TO STEP 5.



5. **Bank Angle Sensor Inspection**

   Replace the bank angle sensor with a known good one (page 4-83).
   Connect the ECM 33P (Gray) connector.
   Erase the DTC (page 4-8).
   Check the DTC with the GST or MCS.

   Is DTC P1000 indicated?

   YES – Replace the ECM with a known good one, and recheck (page 4-73).

   NO – Faulty original bank angle sensor

DTC P1001 (BANK ANGLE SENSOR HIGH VOLTAGE)

1. **Bank Angle Sensor System Inspection**

   Erase the DTC (page 4-8).
   Check the bank angle sensor with the GST or MCS.

   Is about 5 V indicated?

   YES – GO TO STEP 2.

   NO – Intermittent failure

2. **Bank Angle Sensor Inspection**

   Replace the bank angle sensor with a known good one (page 4-83).
   Erase the DTC (page 4-8).
   Check the bank angle sensor with the GST or MCS.

   Is about 5 V indicated?

   YES – Replace the ECM with a known good one, and recheck (page 4-73).

   NO – Faulty original bank angle sensor

DTC P2158 (REAR WHEEL SPEED SENSOR)

Except CBR1000RR:

1. DTC Recheck

Erase the DTC (page 4-8).
Test-ride the motorcycle above 17.6 km/h (11 mph).
Stop the engine.
Check the DTC with the GST or MCS.

Is DTC P2158 indicated?

YES – GO TO STEP 2.

NO – Intermittent failure

2. ABS DTC Check

Check the ABS DTC (page 19-5).

Does the ABS modulator have any DTC?

YES – Follow the ABS DTC index (page 19-7).

NO – GO TO STEP 3.

3. Rear Wheel Speed Sensor Signal Output Line Open Circuit Inspection

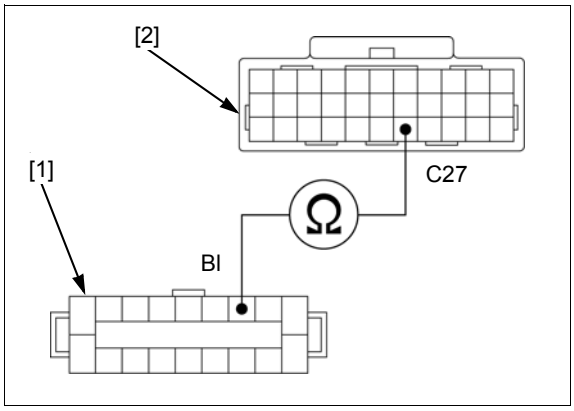
Turn the ignition switch OFF.

Disconnect the following:
– ABS modulator 18P (Black) connector (page 19-24)
– ECM 33P (Black) connector (page 4-73)

Check for continuity between the wire harness side 18P (Black) [1] and 33P (Black) [2] connectors terminals.

TOOL:
Test probe **07ZAJ-RDJA110**

Connection: Black – C27



Is there continuity?

YES – GO TO STEP 4.

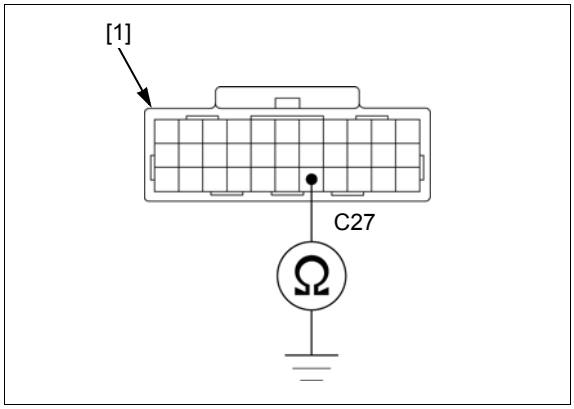
NO – Open circuit in the Black wire

4. Rear Wheel Speed Sensor Signal Output Line Short Circuit Inspection

Check for continuity between the wire harness side 33P (Black) connector [1] terminal and ground.

TOOL:
Test probe **07ZAJ-RDJA110**

Connection: C27 – Ground



Is there continuity?

YES – Short circuit in the Black wire

NO – GO TO STEP 5.

5. ECM Inspection

Replace the ECM with a known good one (page 4-73).
Connect the ABS modulator 18P (Black) connector.
Erase the DTC (page 4-8).
Test-ride the motorcycle above 17.6 km/h (11 mph).
Stop the engine.
Check the DTC with the GST or MCS.

Is DTC P2158 indicated?

YES – Replace the ABS modulator with a known good one (page 19-24) and recheck.

NO – Faulty original ECM

CBR1000RR only:

1. DTC Recheck

Erase the DTC (page 4-8).
Test-ride the motorcycle above 17.6 km/h (11 mph).
Stop the engine.
Check the DTC with the GST or MCS.

Is DTC P2158 indicated?

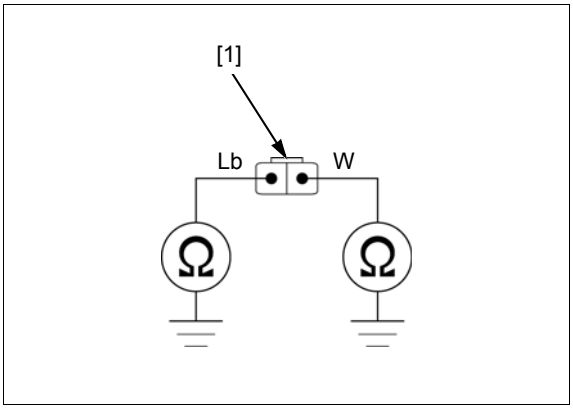
YES – GO TO STEP 2.

NO – Intermittent failure

2. Rear Wheel Speed Sensor Line Short Circuit Inspection (at sensor side)

Turn the ignition switch OFF.
Disconnect the rear wheel speed sensor 2P (Black) connector (page 19-22).
Check for continuity between each terminal of the sensor side 2P (Black) connector [1] and ground.

CONNECTION: White – Ground
Light blue – Ground



Is there continuity?

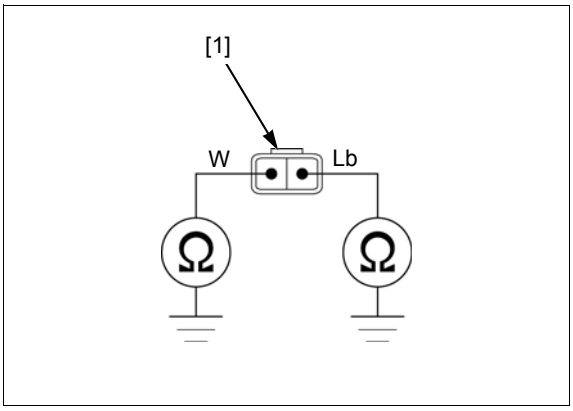
YES – Faulty rear wheel speed sensor

NO – GO TO STEP 3.

3. Rear Wheel Speed Sensor Line Short Circuit Inspection

Disconnect the combination meter 32P (Gray) connector (page 21-10).
Check for continuity between each terminal of the wire harness side 2P (Black) connector [1] and ground.

CONNECTION: White – Ground
Light blue – Ground



Is there continuity?

YES – • Short circuit in the White wire
• Short circuit in the Light blue wire

NO – GO TO STEP 4.

4. Rear Wheel Speed Sensor Line Open Circuit Inspection

Short the wire harness side 32P (Gray) connector [1] terminals with a jumper wire [2].

TOOL:
Test probe 07ZAJ-RDJA110

CONNECTION: Light blue – White

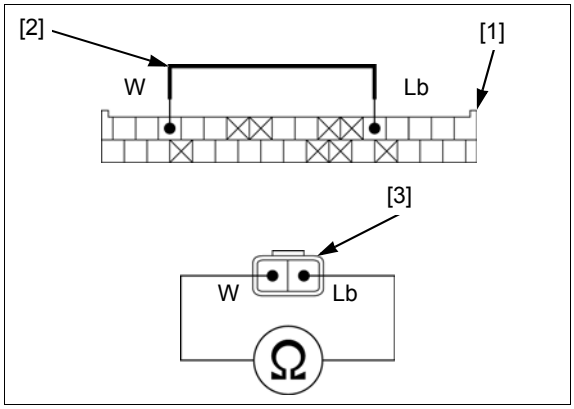
Check for continuity at the wire harness side 2P (Black) connector [3].

CONNECTION: Light blue – White

Is there continuity?

YES – GO TO STEP 5.

NO – Open circuit in the Light blue or White wire



5. Rear Wheel Speed Sensor Signal Output Line Open Circuit Inspection

Turn the ignition switch OFF.
Disconnect the ECM 33P (Black) connector (page 4-73).
Check for continuity between the wire harness side 32P (Gray) [1] and 33P (Black) [2] connectors terminals.

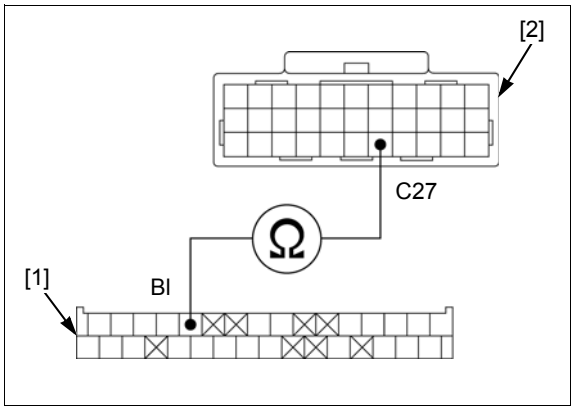
TOOL:
Test probe 07ZAJ-RDJA110

Connection: Black – C27

Is there continuity?

YES – GO TO STEP 6.

NO – Open circuit in the Black wire



6. Rear Wheel Speed Sensor Signal Output Line Short Circuit Inspection

Check for continuity between the wire harness side 33P (Black) connector [1] terminal and ground.

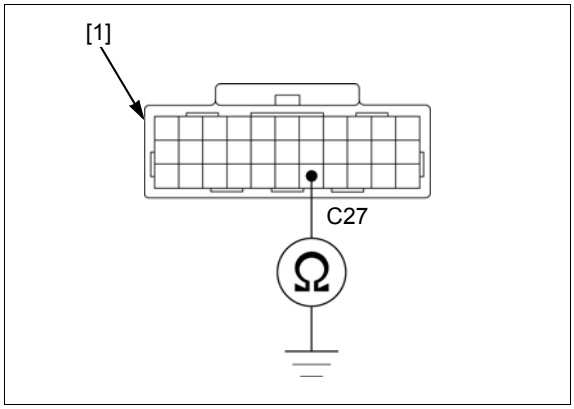
TOOL:
Test probe 07ZAJ-RDJA110

Connection: C27 – Ground

Is there continuity?

YES – Short circuit in the Black wire

NO – GO TO STEP 7.



7. Failure Reproduction with a New Speed Sensor

Replace the rear wheel speed sensor with a new one (page 19-22).
Connect the 33P (Black), 32P (Gray) and 2P (Black) connectors.
Erase the DTC (page 4-8).
Test-ride the motorcycle above 17.6 km/h (11 mph).
Check the DTC with the GST or MCS.

Is the DTC P2158 indicated?

YES – GO TO STEP 8.

NO – Faulty original rear wheel speed sensor

8. ECM Inspection

Replace the ECM with a known good one (page 4-73).
Erase the DTC (page 4-8).
Test-ride the motorcycle above 17.6 km/h (11 mph).
Stop the engine.
Check the DTC with the GST or MCS.

Is DTC P2158 indicated?

YES – Replace the combination meter with a known good one (page 21-9) and recheck.

NO – Faulty original ECM

DTC P1500 (FRONT WHEEL SPEED SENSOR)

Except CBR1000RR:

1. DTC Recheck

Erase the DTC (page 4-8).
Test-ride the motorcycle above 17.6 km/h (11 mph).
Stop the engine.
Check the DTC with the GST or MCS.

Is DTC P1500 indicated?

YES – GO TO STEP 2.

NO – Intermittent failure

2. ABS DTC Check

Check the ABS DTC (page 19-5).

Does the ABS modulator have any DTC?

YES – Follow the ABS DTC index (page 19-7).

NO – GO TO STEP 3.

3. Front Wheel Speed Sensor Signal Output Line Open Circuit Inspection

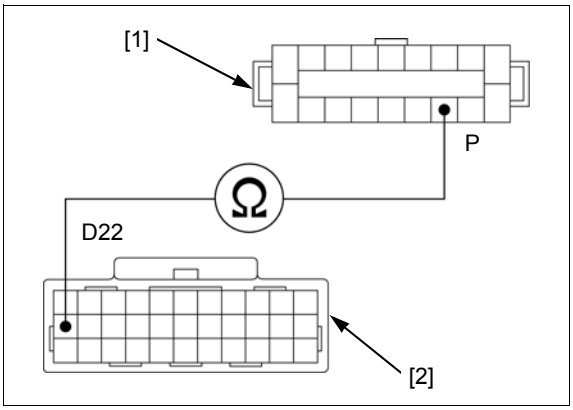
Turn the ignition switch OFF.

Disconnect the following:
– ABS modulator 18P (Black) connector (page 19-24)
– ECM 33P (Gray) connector (page 4-73)

Check for continuity between the wire harness side 18P (Black) [1] and 33P (Gray) [2] connector terminals.

TOOL:
Test probe **07ZAJ-RDJA110**

Connection: Pink – D22



Is there continuity?

YES – GO TO STEP 4.

NO – Open circuit in the Pink wire

4. Front Wheel Speed Sensor Signal Output Line Short Circuit Inspection

Check for continuity between the wire harness side 33P (Gray) connector [1] terminal and ground.

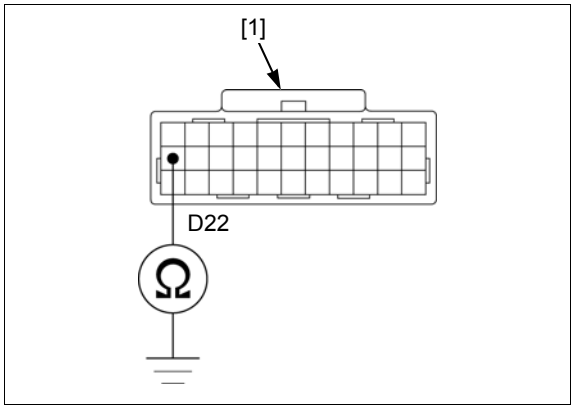
TOOL:
Test probe 07ZAJ-RDJA110

Connection: D22 – Ground

Is there continuity?

YES – Short circuit in the Pink wire

NO – GO TO STEP 5.



5. ECM Inspection

Replace the ECM with a known good one (page 4-73).
Connect the ABS modulator 18P (Black) connector.
Erase the DTC (page 4-8).
Test-ride the motorcycle above 17.6 km/h (11 mph).
Stop the engine.
Check the DTC with the GST or MCS.

Is DTC P1500 indicated?

YES – Replace the ABS modulator with a known good one (page 19-24) and recheck.

NO – Faulty original ECM

CBR1000RR only:

1. DTC Recheck

Erase the DTC (page 4-8).
Test-ride the motorcycle above 17.6 km/h (11 mph).
Stop the engine.
Check the DTC with the GST or MCS.

Is DTC P1500 indicated?

YES – GO TO STEP 2.

NO – Intermittent failure

2. Front Wheel Speed Sensor Line Short Circuit Inspection (at sensor side)

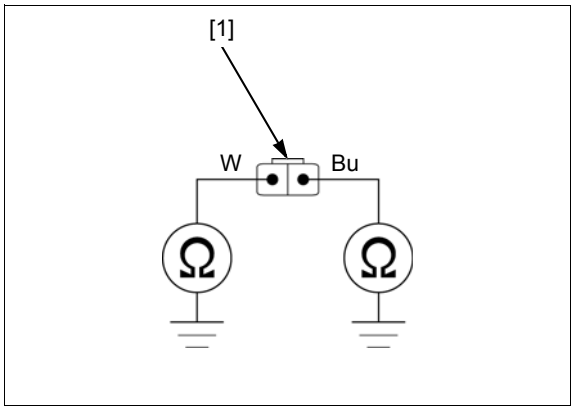
Turn the ignition switch OFF.
Disconnect the front wheel speed sensor 2P (Orange) connector (page 19-21).
Check for continuity between each terminal of the sensor side 2P (Orange) connector [1] and ground.

CONNECTION: White – Ground
Blue – Ground

Is there continuity?

YES – Faulty front wheel speed sensor

NO – GO TO STEP 3.



3. Front Wheel Speed Sensor Line Short Circuit Inspection

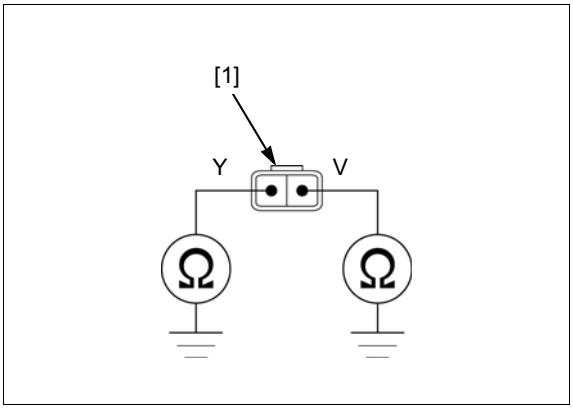
Disconnect the combination meter 32P (Gray) connector (page 21-9).
Check for continuity between each terminal of the wire harness side 2P (Orange) connector [1] and ground.

CONNECTION: Violet – Ground
Yellow – Ground

Is there continuity?

YES – • Short circuit in the Violet wire
• Short circuit in the Yellow wire

NO – GO TO STEP 4.



4. Front Wheel Speed Sensor Line Open Circuit Inspection

Short the wire harness side 32P (Gray) connector [1] terminals with a jumper wire [2].

TOOL:
Test probe 07ZAJ-RDJA110

CONNECTION: Violet – Yellow

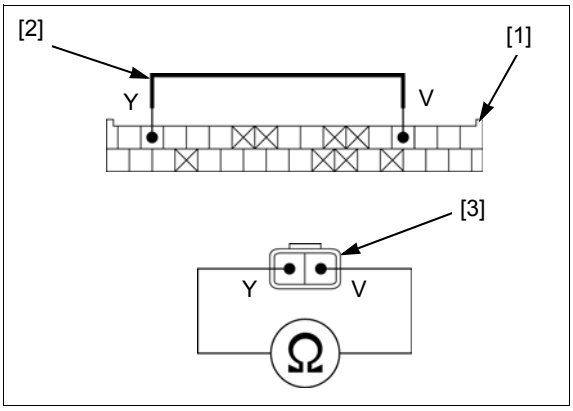
Check for continuity at the wire harness side 2P (Orange) connector [3].

CONNECTION: Violet – Yellow

Is there continuity?

YES – GO TO STEP 5.

NO – Open circuit in the Violet or Yellow wire



5. Front Wheel Speed Sensor Signal Output Line Open Circuit Inspection

Turn the ignition switch OFF.
Disconnect the ECM 33P (Gray) connector (page 4-73).
Check for continuity between the wire harness side 32P (Gray) [1] and 33P (Gray) [2] connector terminals.

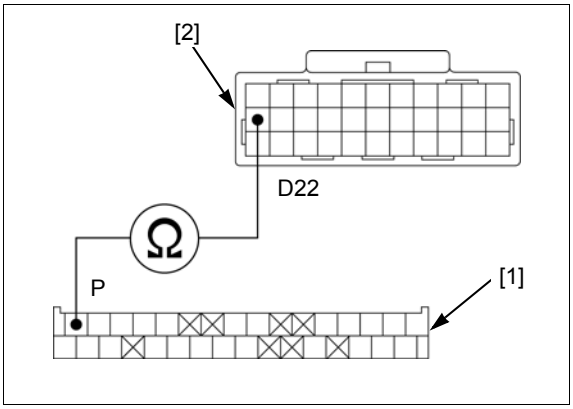
TOOL:
Test probe 07ZAJ-RDJA110

Connection: Pink – D22

Is there continuity?

YES – GO TO STEP 6.

NO – Open circuit in the Pink wire



6. Front Wheel Speed Sensor Signal Output Line Short Circuit Inspection

Check for continuity between the wire harness side 33P (Gray) connector [1] terminal and ground.

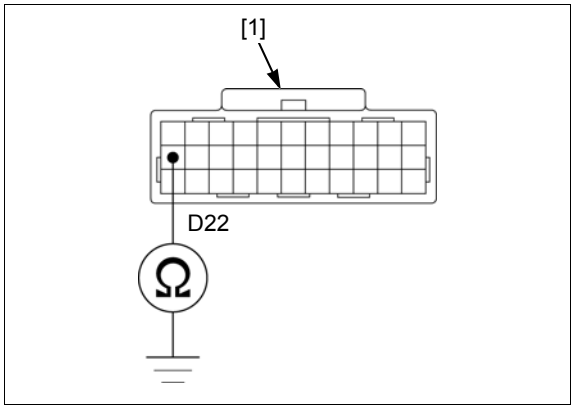
TOOL:
Test probe **07ZAJ-RDJA110**

Connection: D22 – Ground

Is there continuity?

YES – Short circuit in the Pink wire

NO – GO TO STEP 7.



7. Failure Reproduction with a New Speed Sensor

Replace the front wheel speed sensor with a new one (page 19-21).
Connect the 33P (Gray), 32P (Gray) and 2P (Orange) connectors.
Erase the DTC (page 4-8).
Test-ride the motorcycle above 17.6 km/h (11 mph).
Check the DTC with the GST or MCS.

Is the DTC P1500 indicated?

YES – GO TO STEP 8.

NO – Faulty original front wheel speed sensor

8. ECM Inspection

Replace the ECM with a known good one (page 4-73).
Erase the DTC (page 4-8).
Test-ride the motorcycle above 17.6 km/h (11 mph).
Stop the engine.
Check the DTC with the GST or MCS.

Is DTC P1500 indicated?

YES – Replace the combination meter with a known good one (page 21-9) and recheck.

NO – Faulty original ECM

DTC P0122
(TP SENSOR 1 LOW VOLTAGE)

1. TP Sensor 1 System Inspection

Erase the DTC (page 4-8).
Check the TP sensor with the GST or MCS.

Is about 0 V indicated?

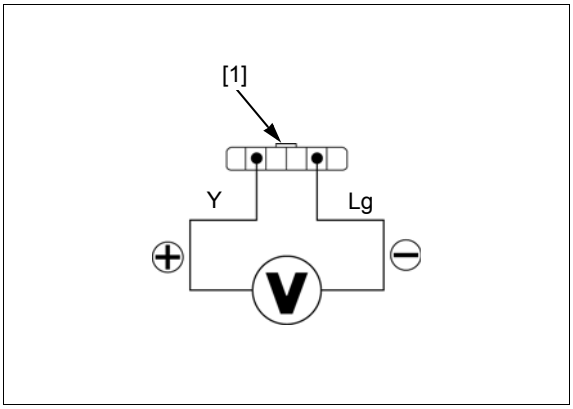
YES – GO TO STEP 2.

NO – Intermittent failure

2. TP Sensor 1 Input Voltage Inspection

Turn the ignition switch OFF.
Disconnect the TP sensor 6P connector (page 7-13).
Turn the ignition switch ON with the engine stop switch "".
Measure the voltage between the wire harness side 6P connector [1] terminals.

Connection: Yellow (+) – Light green (–)



Is about 5 V indicated?

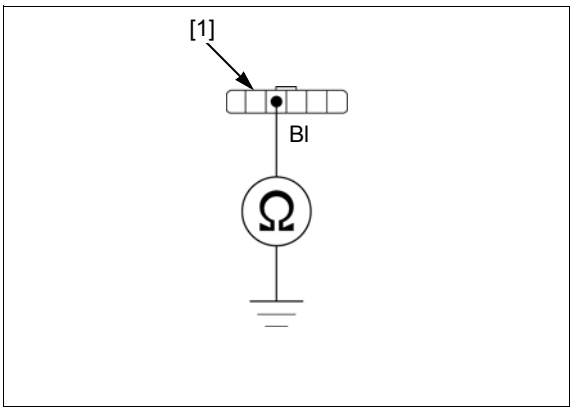
YES – GO TO STEP 3.

NO – • Open or short circuit in the Yellow wire
• If the wire is OK, replace the ECM with a known good one, and recheck.

3. TP Sensor 1 Output Line Short Circuit Inspection

Disconnect the ECM 33P (Black) connector (page 4-73).
Check for continuity between the wire harness side 6P connector [1] terminal and ground.

Connection: Black – Ground



Is there continuity?

YES – Short circuit in the White or Black wire

NO – GO TO STEP 4.

4. TP Sensor 1 Inspection

NOTE:

- If the TP sensor 1 is faulty, replace the throttle body/TBW unit assembly.

Replace the throttle body (page 7-13).
Connect the ECM and TBW connectors.
Erase the DTC (page 4-8).
Check the TP sensor 1 with the GST or MCS.

Is DTC P0122 indicated?

YES – Replace the ECM with a known good one.

NO – Faulty original TBW unit (TP Sensor)

DTC P0123
(TP SENSOR 1 HIGH VOLTAGE)

1. TP Sensor 1 System Inspection

Erase the DTC (page 4-8).
Check the TP sensor with the GST or MCS.

Is about 5 V indicated?

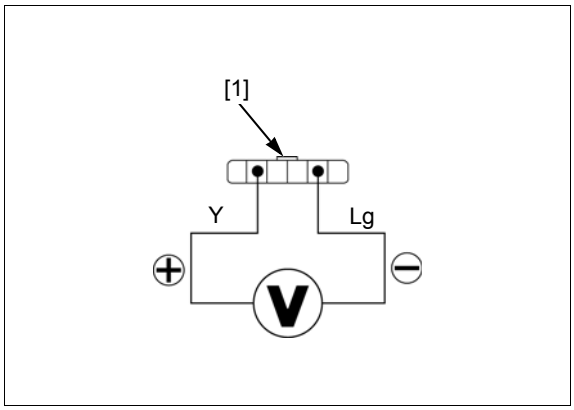
YES – GO TO STEP 2.

NO – Intermittent failure

2. TP Sensor 1 Input Voltage Inspection

Turn the ignition switch OFF.
Disconnect the TP sensor 6P connector (page 7-13).
Turn the ignition switch ON with the engine stop switch "".
Measure the voltage between the wire harness side 6P connector [1] terminals.

Connection: Yellow (+) – Light green (–)



Is about 5 V indicated?

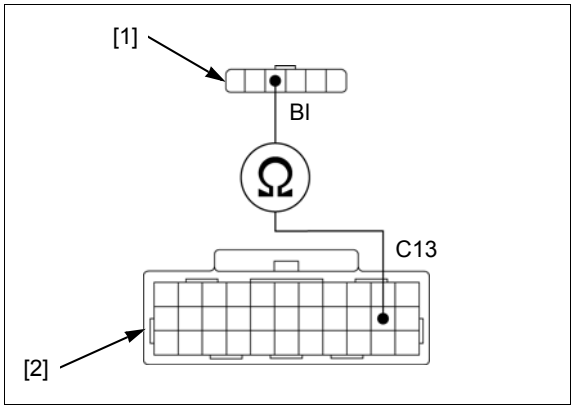
YES – GO TO STEP 3.

NO – • Open circuit in the Light green or Light blue wire
• If the wire is OK, replace the ECM with a known good one, and recheck.

3. TP Sensor 1 Output Line Open Circuit Inspection

Disconnect the ECM 33P (Black) connector [1] (page 4-73).
Check for continuity between the wire harness side 6P [1] and 33P (Black) [2] connectors terminals.

TOOL:
Test probe **07ZAJ-RDJA110**



Connection: C13 – Black

Is there continuity?

YES – GO TO STEP 4.

NO – Open circuit in the White or Black wire

4. TP Sensor 1 Inspection

NOTE:
• If the TP sensor 1 is faulty, replace the throttle body/TBW unit assembly.

Replace the throttle body (page 7-13).
Connect the ECM and TBW connectors.
Erase the DTC (page 4-8).
Check the TP sensor 1 with the GST or MCS.

Is DTC P0123 indicated?

YES – Replace the ECM with a known good one.

NO – Faulty original TBW unit (TP Sensor)

DTC P0222
(TP SENSOR 2 LOW VOLTAGE)

1. TP Sensor 2 System Inspection

Erase the DTC (page 4-8).
Check the TP sensor with the GST or MCS.

Is about 0 V indicated?

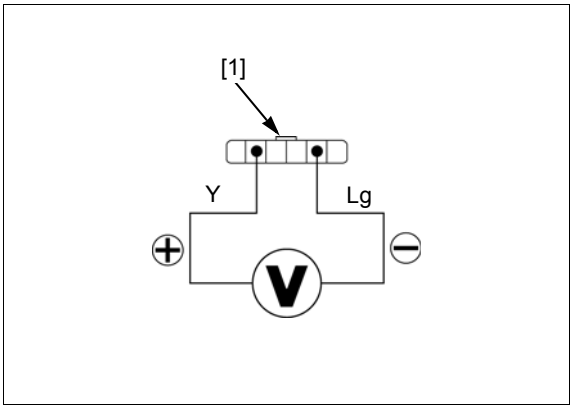
YES – GO TO STEP 2.

NO – Intermittent failure

2. TP Sensor 2 Input Voltage Inspection

Turn the ignition switch OFF.
Disconnect the TP sensor 6P connector [1] (page 7-13).
Turn the ignition switch ON with the engine stop switch "".
Measure the voltage between the wire harness side 6P connector [1] terminals.

Connection: Yellow (+) – Light green (–)



Is about 5 V indicated?

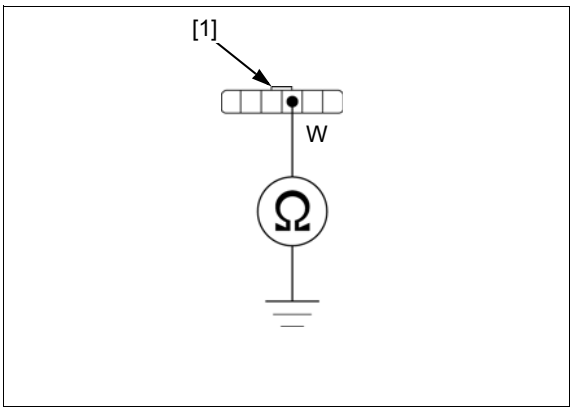
YES – GO TO STEP 3.

NO – • Open or short circuit in the Yellow wire
• If the wire is OK, replace the ECM with a known good one, and recheck.

3. TP Sensor 2 Output Line Short Circuit Inspection

Disconnect the ECM 33P (Black) connector (page 4-73).
Check for continuity between the 6P connector [1] terminal and ground.

Connection: White – Ground



Is there continuity?

YES – Short circuit in the White wire

NO – GO TO STEP 4.

4. TP Sensor 2 Inspection

• If the TP sensor 2 is faulty, replace the throttle body/TBW unit assembly.

Replace the throttle body (page 7-13).
Connect the ECM and TBW connector.
Erase the DTC (page 4-8).
Check the TP sensor 2 with the GST or MCS.

Is DTC P0222 indicated?

YES – Replace the ECM with a known good one.

NO – Faulty original TBW unit (TP Sensor)

DTC P0223 (TP SENSOR 2 HIGH VOLTAGE)

1. TP Sensor 2 System Inspection

Erase the DTC (page 4-8).
Check the TP sensor with the GST or MCS.

Is about 5 V indicated?

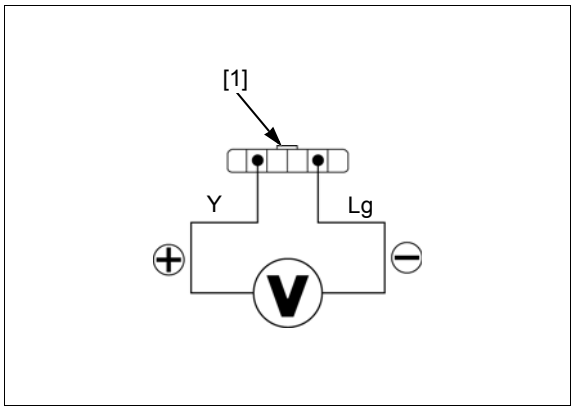
YES – GO TO STEP 2.

NO – Intermittent failure

2. TP Sensor 2 Input Voltage Inspection

Turn the ignition switch OFF.
Disconnect the TP sensor 6P connector (page 7-13).
Turn the ignition switch ON with the engine stop switch "".
Measure the voltage between the wire harness side 6P connector [1] terminals.

Connection: Yellow (+) – Light green (–)



Is about 5 V indicated?

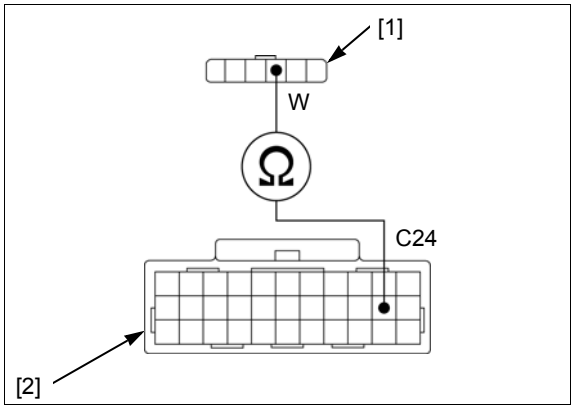
YES – GO TO STEP 3.

NO – • Open circuit in the Light green or Light blue wire
• If the wire is OK, replace the ECM with a known good one, and recheck.

3. TP Sensor 2 Output Line Open Circuit Inspection

Disconnect the ECM 33P (Black) connector (page 4-73).
Check for continuity between the wire harness side 6P [1] and 33P (Black) [2] connectors terminals.

TOOL:
Test probe **07ZAJ-RDJA110**



Connection: C24 – White

Is there continuity?

YES – GO TO STEP 4.

NO – Open circuit in the White or Gray wire

4. TP Sensor 2 Inspection

NOTE:

- If the TP sensor 2 is faulty, replace the throttle body/TBW unit assembly.

Replace the throttle body (page 7-13).
Connect the ECM and TBW connectors.
Erase the DTC (page 4-8).
Check the TP sensor 2 with the GST or MCS.

Is DTC P0223 indicated?

YES – Replace the ECM with a known good one.

NO – Faulty original TBW unit (TP Sensor)

DTC P2135 (TP SENSOR 1 and 2 VOLTAGE CORRELATION FAILURE) DTC P2135 (TP SENSOR 1 and 2 SHORT CIRCUIT)

1. TP Sensor System Inspection

Erase the DTC (page 4-8).
Check the TP sensor with the GST or MCS.

Is the DTC P2135 or P2135 indicated?

YES – GO TO STEP 2.

NO – Intermittent failure

2. Throttle Valve Operation Inspection

Turn the ignition switch OFF.
Remove the air cleaner housing (page 7-10).
Turn the ignition switch ON with the engine stop switch "".
Visually check the throttle valve operation.

Is the valve operation normally?

YES – Clean the throttle bores and valves carefully. (Do not apply commercially available carburetor cleaners to the inside of the throttle bore, which is coated with molybdenum.)

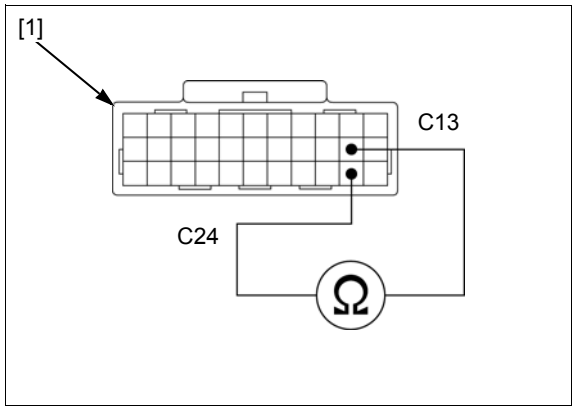
NO – GO TO STEP 3.

3. TP Sensor Line Short Circuit Inspection

Disconnect the ECM 33P (Black) connector [1] (page 4-73).
Disconnect the TP sensor 6P connector (page 7-13).
Check for continuity between the wire harness side 33P (Black) connector terminals.

TOOL:
Test probe **07ZAJ-RDJA110**

Connection: C13 – C24



Is there continuity?

YES – Short circuit in the White, Gray, or Black wires

NO – GO TO STEP 4.

4. TP Sensor Inspection

NOTE:

- If the TP sensor is faulty, replace the throttle body/TBW unit assembly.

Replace the throttle body (page 7-13).
Connect the ECM and TBW connectors.
Erase the DTC (page 4-8).
Check the TP sensor with the GST or MCS.

Is DTC P 2135 or P2135 indicated?

YES – Replace the ECM with a known good one.

NO – Faulty original TBW unit (TP Sensor)

DTC P2122 (APS 1 LOW VOLTAGE)

1. APS 1 System Inspection

Erase the DTC (page 4-8).
Check the APS 1 sensor with the GST or MCS.

Is about 0 V indicated?

YES – GO TO STEP 2.

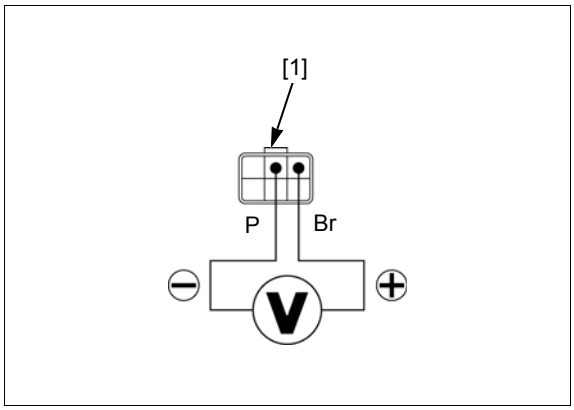
NO – Intermittent failure

2. APS 1 Input Voltage Inspection

Turn the ignition switch OFF.
Disconnect the APS 6P (Black) connector (page 7-10).
Turn the ignition switch ON with the engine stop switch "".
Measure the voltage between the wire harness side 6P (Black) connector [1] terminals.

TOOL:
Test probe **07ZAJ-RDJA110**

Connection: Brown (+) – Pink (–)



Is about 5 V indicated?

YES – GO TO STEP 3.

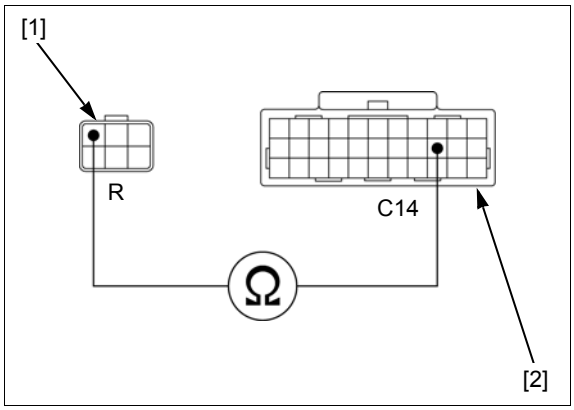
NO – • Open or short circuit in the Brown wire
• If the wire is OK, replace the ECM with a known good one and recheck.

3. APS 1 Output Line Open Circuit Inspection

Turn the ignition switch OFF.
Disconnect the ECM 33P (Black) connector (page 4-73).
Check for continuity between the wire harness side 6P (Black) [1] and 33P (Black) [2] connectors terminals.

TOOL:
Test probe **07ZAJ-RDJA110**

Connection: C14 – Red



Is there continuity?

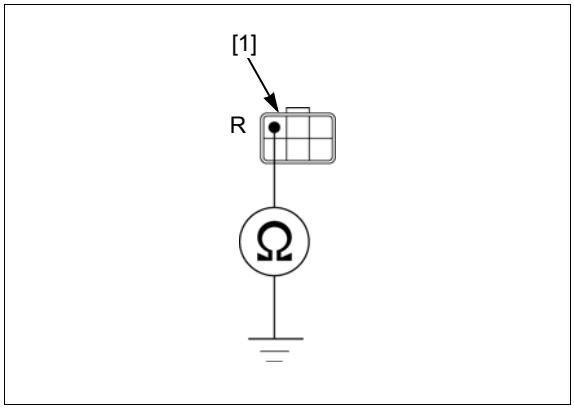
YES – Open circuit in the Red wire

NO – GO TO STEP 4.

4. APS 1 Output Line Short Circuit Inspection

Check for continuity between the wire harness side 6P (Black) connector [1] terminal and ground.

Connection: Red – Ground



Is there continuity?

YES – Short circuit in the Red wire

NO – GO TO STEP 5.

5. APS 1 Inspection

NOTE:

- If the APS 1 is faulty, replace the grip APS.

Replace the grip APS (page 4-75).
Connect the ECM and APS connectors.
Erase the DTC (page 4-8).
Check the APS 1 with the GST or MCS.

Is DTC P2122 indicated?

YES – Replace the ECM with a known good one, and recheck.

NO – Faulty original grip APS

DTC P2123 (APS 1 HIGH VOLTAGE)

1. APS 1 System Inspection

Erase the DTC (page 4-8).
Check the APS 1 with the GST or MCS.

Is about 5 V indicated?

YES – GO TO STEP 2.

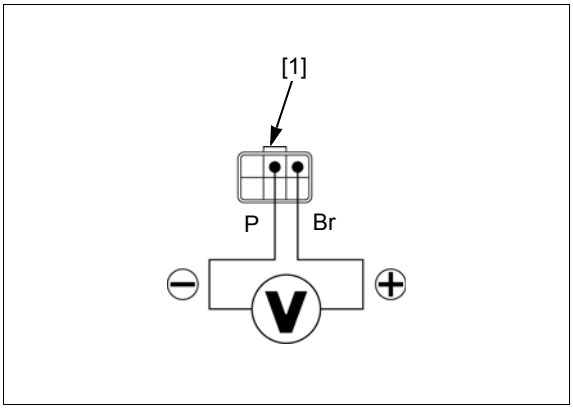
NO – Intermittent failure

2. APS 1 Input Voltage Inspection

Turn the ignition switch OFF.
Disconnect the APS 6P (Black) connector (page 7-10).
Turn the ignition switch ON with the engine stop switch "".
Measure the voltage between the wire harness side 6P (Black) connector [1] terminals.

TOOL:
Test probe **07ZAJ-RDJA110**

Connection: Brown (+) – Pink (–)



Is about 5 V indicated?

YES – GO TO STEP 3.

NO – • Open circuit in the Pink wire
• If the wire is OK, replace the ECM with a known good one and recheck.

3. APS 1 Inspection

NOTE:

- If the APS 1 is faulty, replace the grip APS.

Replace the grip APS (page 4-75).
Connect the APS connector.
Erase the DTC (page 4-8).
Check the APS 1 with the GST or MCS.

Is DTC P2123 indicated?

YES – Replace the ECM with a known good one, and recheck.

NO – Faulty original grip APS

DTC P2127 (APS 2 LOW VOLTAGE)

1. APS 2 System Inspection

Erase the DTC (page 4-8).
Check the APS 2 with the GST or MCS.

Is about 0 V indicated?

YES – GO TO STEP 2.

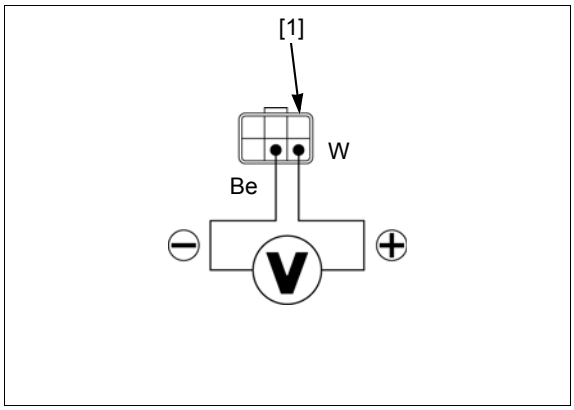
NO – Intermittent failure

2. APS 2 Input Voltage Inspection

Turn the ignition switch OFF.
Disconnect the APS 6P (Black) connector (page 7-10).
Turn the ignition switch ON with the engine stop switch "".
Measure the voltage between the wire harness side 6P (Black) connector [1] terminals.

TOOL:
Test probe **07ZAJ-RDJA110**

Connection: White (+) – Beige (–)



Is about 5 V indicated?

YES – GO TO STEP 3.

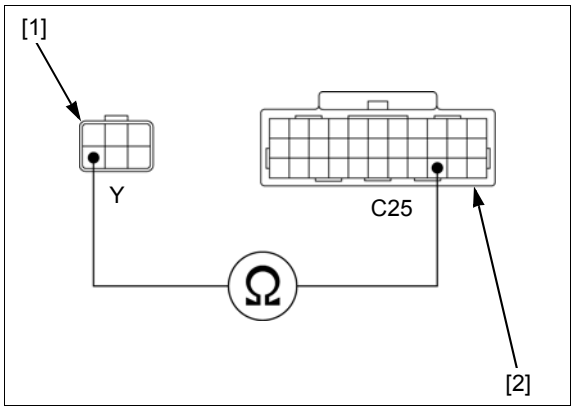
NO – • Open or short circuit in the White wire
• If the wire is OK, replace the ECM with a known good one and recheck.

3. APS 2 Output Line Open Circuit Inspection

Turn the ignition switch OFF.
Disconnect the ECM 33P (Black) connector (page 4-73).
Check for continuity between the wire harness side 6P (Black) [1] and 33P (Black) [2] connectors terminals.

TOOL:
Test probe **07ZAJ-RDJA110**

Connection: Yellow – C25



Is there continuity?

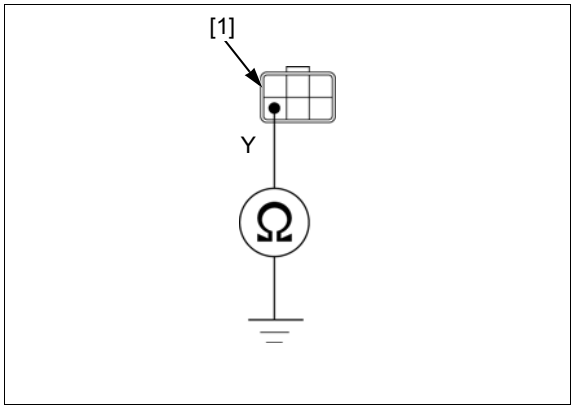
YES – GO TO STEP 4.

NO – Open circuit in the Yellow wire

4. APS 2 Output Line Short Circuit Inspection

Check for continuity between the wire harness side 6P (Black) [1] connector terminal and ground.

Connection: Yellow – Ground



Is there continuity?

YES – Short circuit in the Yellow wire

NO – GO TO STEP 5.

5. APS 2 Inspection

NOTE:

- If the APS 2 is faulty, replace the grip APS.

Replace the grip APS (page 4-75).
Connect the ECM and APS connectors.
Erase the DTC (page 4-8).
Check the APS 2 with the GST or MCS.

Is DTC P2127 indicated?

YES – Replace the ECM with a known good one, and recheck.

NO – Faulty original grip APS

DTC P2128 (APS 2 HIGH VOLTAGE)

1. APS 2 System Inspection

Erase the DTC (page 4-8).
Check the TP sensor with the GST or MCS.

Is about 5 V indicated?

YES – GO TO STEP 2.

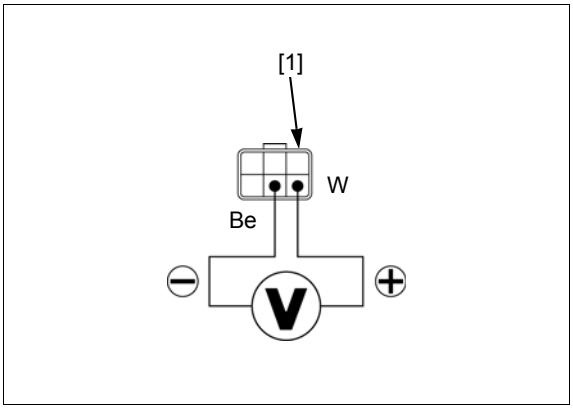
NO – Intermittent failure

2. APS 2 Input Voltage Inspection

Turn the ignition switch OFF.
Disconnect the APS 6P (Black) connector (page 7-10).
Turn the ignition switch ON with the engine stop switch "".
Measure the voltage between the wire harness side 6P (Black) connector [1] terminals.

TOOL:
Test probe **07ZAJ-RDJA110**

Connection: White (+) – Beige (–)



Is about 5 V indicated?

YES – GO TO STEP 3.

NO – • Open circuit in the Beige wire
• If the wire is OK, replace the ECM with a known good one and recheck.

3. APS 2 Inspection

NOTE:

- If the APS 2 is faulty, replace the grip APS.

Replace the grip APS (page 4-75).
Connect the APS connector.
Erase the DTC (page 4-8).
Check the APS 2 with the GST or MCS.

Is DTC P2128 indicated?

YES – Replace the ECM with a known good one, and recheck.

NO – Faulty original grip APS

DTC P2138 (APS 1 and 2 VOLTAGE CORRELATION FAILURE)

1. APS System Inspection

Erase the DTC (page 4-8).
Open the throttle and check the APS with the GST or MCS.

Is the DTC P2138 indicated?

YES – GO TO STEP 2.

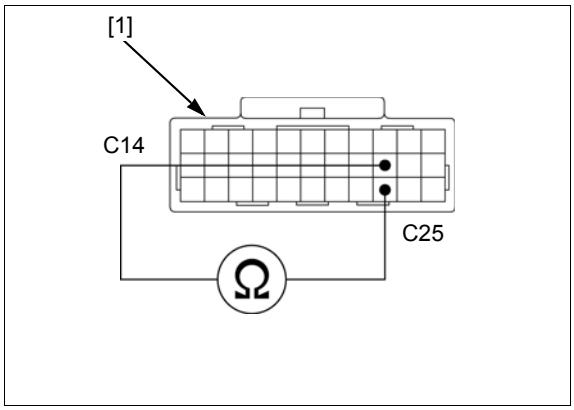
NO – Intermittent failure

2. APS Line Short Circuit Inspection

Disconnect the ECM 33P (Black) connector [1] (page 4-73).
Check for continuity between the wire harness side 33P (Black) connector terminals.

TOOL:
Test probe **07ZAJ-RDJA110**

Connection: C14 – C25



Is there continuity?

YES – Short circuit of the Red wire to Yellow wire

NO – GO TO STEP 3.

3. APS Inspection

NOTE:

- If the APS is faulty, replace the grip APS.

Replace the grip APS (page 4-75).
Connect the ECM 33P connectors.
Erase the DTC (page 4-8).
Check the APS with the GST or MCS.

Is DTC P2138 indicated?

YES – Replace the ECM with a known good one, and recheck.

NO – Faulty original grip APS (APS)

DTC P1684
(TBW RETURN SPRING FAILURE)

1. Throttle Valve and Return Spring Inspection

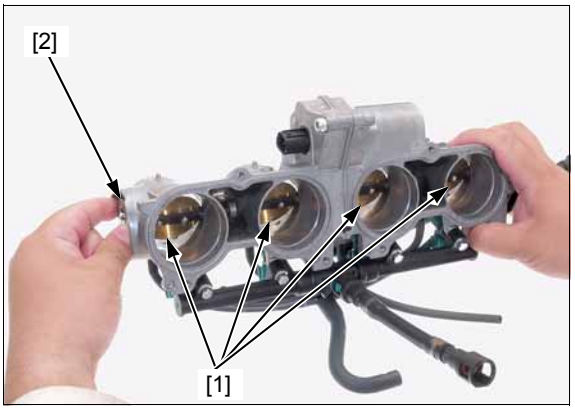
- Be careful not to damage the throttle valves.
- The return spring cannot be replaced. If the return spring is faulty, replace the throttle body/ TBW unit assembly.

Remove the throttle body (page 7-13).
Open the throttle valve [1] by turning the throttle drum [2] with your finger.

Does the throttle valve open and return smoothly?

YES – GO TO STEP 2.

NO – Faulty throttle body (throttle valve and/or return spring)



2. Throttle Body Inspection

Check the throttle bores [1] and valves visually for fixed carbon.

Is there contamination?

YES – Clean the throttle bores and valves carefully. (Do not apply commercially available carburetor cleaners to the inside of the throttle bore, which is coated with molybdenum.)

NO – GO TO STEP 3.

3. TBW System Inspection

Erase the DTC (page 4-8).
Turn the engine and let it idle, and then stop the engine and wait 10 seconds.
Check the TBW unit with the GST or MCS.

Is the DTC P1684 indicated?

YES –
- Replace the throttle body (page 7-13).
- If the ECM still detects a problem, replace the ECM with known good one, and recheck.

NO – Intermittent failure

DTC P2118 (TBW MOTOR FAILURE)

1. TBW Motor System Inspection

Erase the DTC (page 4-8).
Check the TBW motor with the GST or MCS.

Is the DTC P2118 indicated?

YES – GO TO STEP 2.

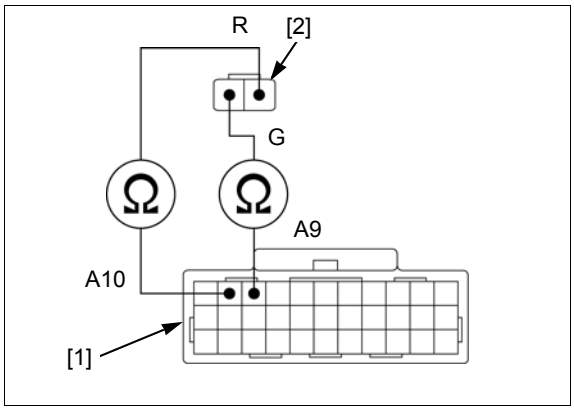
NO – Intermittent failure

2. TBW Motor Line Open Circuit Inspection

Disconnect the ECM 33P (Blue) connector (page 4-73).
Disconnect the TBW 2P (Black) connector (page 7-13).
Check for continuity between the wire harness side 33P (Blue) [1] and 2P (Black) [2] connectors terminals.

TOOL:
Test probe **07ZAJ-RDJA110**

Connection: Red – A10
Green – A9



Is there continuity?

YES – GO TO STEP 3.

NO –
- Open circuit in the Red wire
- Open circuit in the Green wire

3. TBW Motor Inspection

NOTE:
- The TBW motor cannot be replaced. If the TBW motor is faulty, replace the throttle body/TBW unit assembly.

Replace the throttle body (page 7-13).
Connect the ECM and TBW connectors.
Erase the DTC (page 4-8).
Check the TBW motor with the GST or MCS.

Is the DTC P2118 indicated?

YES – Replace the ECM with a known good one.

NO – Faulty original TBW unit (TBW motor)

DTC P2101 (TBW SYSTEM CONTROL CORRELATION FAILURE)

1. TBW Control System Inspection

NOTE:

- The TBW motor cannot be replaced. If the TBW unit is faulty, replace the throttle body/TBW unit assembly.

Erase the DTC (page 4-8).
Check the TBW control system with the GST or MCS.

Is the DTC P2101 indicated?

YES – GO TO STEP 2.

NO – Intermittent failure

2. TBW Control System Inspection With It Replaced

Replace the throttle body (page 7-13).
Erase the DTC (page 4-8).
Check the TBW control system with the GST or MCS.

Is the DTC P2101 indicated?

YES – Replace the ECM with a known good one.

NO – Faulty original TBW unit (TBW control system)

DTC P0606 (CPU IN THE ECM MALFUNCTION)

1. DTC Recheck

Erase the DTC (page 4-8).

Check the DTC with the GST or MCS.

Is DTC P0606 indicated?

YES – Replace the ECM with a known good one (page 4-73) and recheck.

NO – Intermittent failure

DTC P1658 (TBW RELAY FAILURE - ON SIDE)
DTC P1659 (TBW RELAY FAILURE - OFF SIDE)

1. TBW Relay System Inspection

Inspect the TBW relay (page 21-21).
Erase the DTC (page 4-8).
Check the TBW relay with the GST or MCS.

Is the DTC P1658 or P1659 indicated?

YES – GO TO STEP 2.

NO – Intermittent failure

2. TBW Relay Input Voltage Inspection

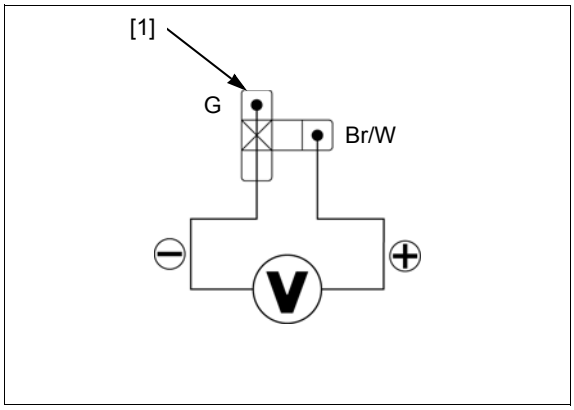
Turn the ignition switch OFF.
Remove the TBW relay (page 21-21).
Measure the voltage at the TBW relay [1] terminal and ground.

Connection: Brown/white (+) – Green (–)

Is about 12 V indicated?

YES – GO TO STEP 3.

NO – • Open circuit in Brown/white wire
• Open circuit in Green wire



3. TBW Relay Line Open Circuit Inspection

Disconnect the ECM 33P (Black) connector [1] and ECM 33P (Blue) connector [2] (page 4-73).
Check for continuity between the wire harness side ECM connectors and TBW relay [3] terminals.

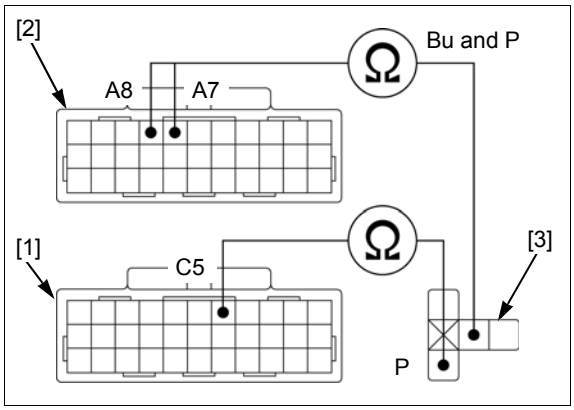
TOOL:
Test probe 07ZAJ-RDJA110

Connection: A7 – Pink
A8 – Blue
C5 – Pink

Is there continuity?

YES – GO TO STEP 4.

NO – • Open circuit in the Pink wire
• Open circuit in the Blue wire
• Open circuit in the Pink wire



4. TBW Relay Line Short Circuit Inspection

Check for continuity between the wire harness side 33P (Black) connector [1], 33P (Blue) connector [2] terminals and ground.

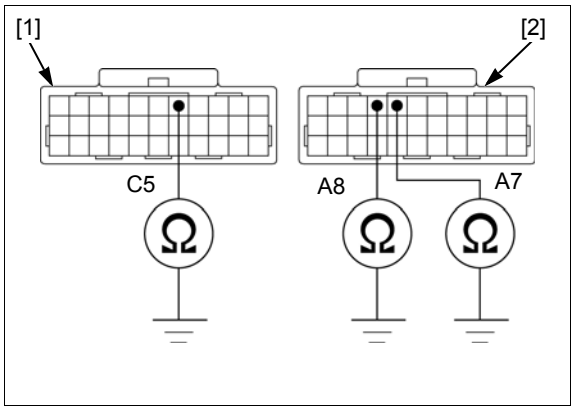
TOOL:
Test probe 07ZAJ-RDJA110

Connection: A7 – Ground
A8 – Ground
C5 – Ground

Is there continuity?

YES – • Short circuit in the Pink wire
• Short circuit in the Blue wire
• Short circuit in the Pink wire

NO – Replace the ECM with a known good one.



DTC P0443 (EVAP PURGE CONTROL SOLENOID VALVE)

1. EVAP Purge Control Solenoid Valve System Inspection

Erase the DTC (page 4-8).

Check the EVAP purge control solenoid valve with the GST or MCS.

Is the DTC P0443 indicated?

YES – GO TO STEP 2.

NO – Intermittent failure

2. EVAP Purge Control Solenoid Valve Input Voltage Inspection

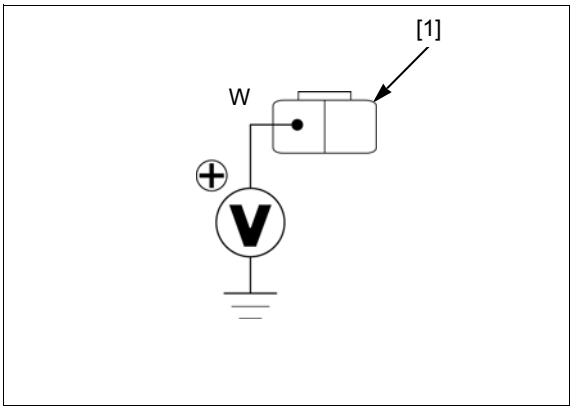
Turn the ignition switch OFF.

Disconnect the EVAP purge control solenoid valve 2P (Black) connector (page 7-21).

Turn the ignition switch ON and engine stop switch "○".

Measure the voltage between the wire harness side 2P (Black) connector [1] terminal and ground.

Connection: White (+) – Ground (–)



Does the battery voltage exist?

YES – GO TO STEP 3.

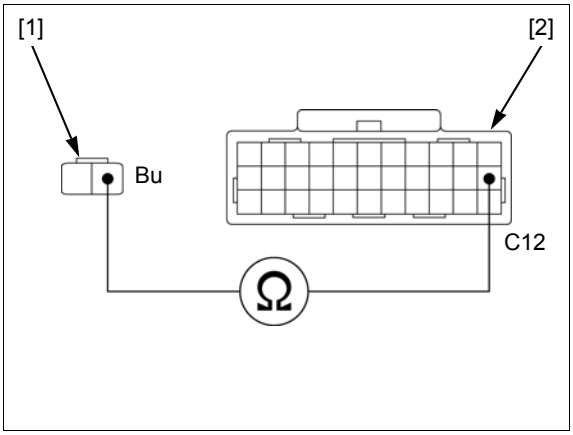
NO – Open circuit in White wire

3. EVAP Purge Control Solenoid Valve Signal Line Open Circuit Inspection

Turn the ignition switch OFF.
Disconnect the ECM 33P (Black) connector (page 4-73).
Check the continuity between the wire harness side 2P (Black) [1] and 33P (Black) [2] connectors terminals.

TOOL:
Test probe **07ZAJ-RDJA110**

Connection: Blue – C12



Is there continuity?

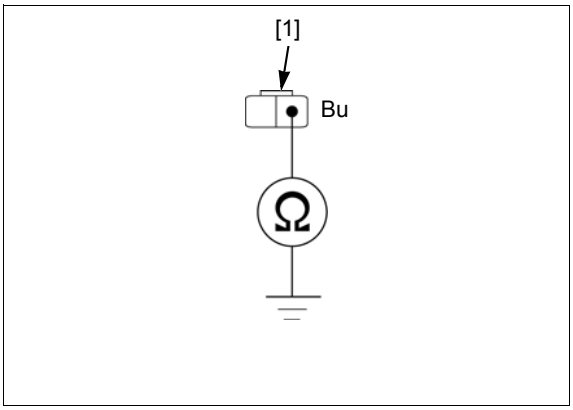
YES – GO TO STEP 4.

NO – Open circuit in Blue wire

4. EVAP Purge Control Solenoid Valve Signal Line Short Circuit Inspection

Check for continuity between the wire harness side 2P (Black) connector [1] and ground.

Connection: Blue – Ground



Is there continuity?

YES – Short circuit in Blue wire

NO – GO TO STEP 5.

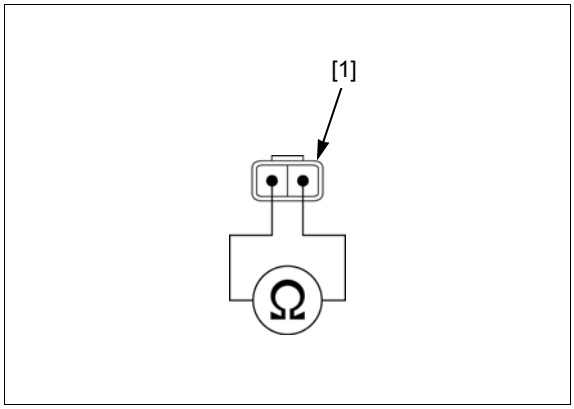
5. EVAP Purge Control Solenoid Valve Resistance Inspection

Measure the resistance between the solenoid valve side 2P (Black) connector [1] terminals.

Is the resistance within 30 – 34 Ω (20°C/68°F)?

YES – Replace the ECM with a known good one (page 4-73) and recheck.

NO – Faulty EVAP purge control solenoid valve



DTC P0412 (PAIR CONTROL SOLENOID VALVE)

1. PAIR Control Solenoid Valve System Inspection

Erase the DTC (page 4-8).

Check the PAIR control solenoid valve with the GST or MCS.

Is the DTC P0412 indicated?

YES – GO TO STEP 2.

NO – Intermittent failure

2. PAIR Control Solenoid Valve Input Voltage Inspection

Turn the ignition switch OFF.

Disconnect the PAIR control solenoid valve 2P (Black) connector (page 7-18).

Turn the ignition switch ON and engine stop switch "".

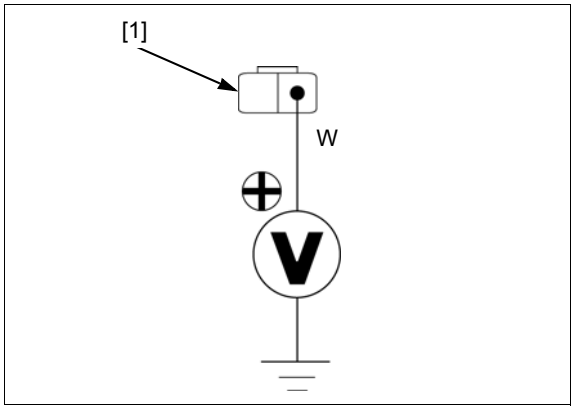
Measure the voltage between the wire harness side 2P (Black) connector [1] and ground.

CONNECTION: White (+) – Ground (–)

Does the battery voltage exist?

YES – GO TO STEP 3.

NO – Open circuit in White wire



3. PAIR Control Solenoid Valve Signal Line Open Circuit Inspection

Disconnect the ECM 33P (Black) connector [1] (page 4-73).
Check the continuity between the wire harness side 2P (Black) [2] and 33P (Black) connectors terminals.

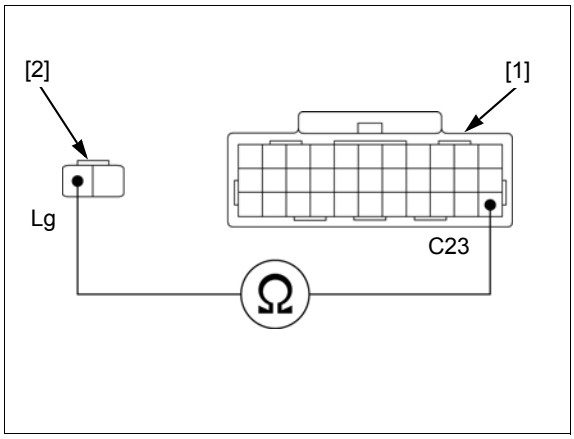
CONNECTION: Light green – C23

TOOL:
Test probe **07ZAJ-RDJA110**

Is there continuity?

YES – GO TO STEP 4.

NO – Open circuit in Light green wire



4. PAIR Control Solenoid Valve Signal Line Short Circuit Inspection

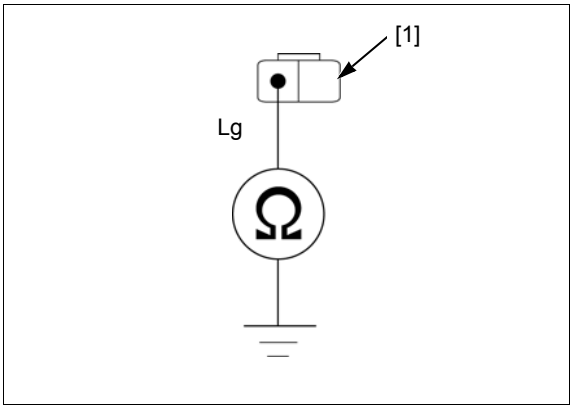
Check for continuity between the wire harness side 2P (Black) connector [1] and ground.

CONNECTION: Light green – Ground

Is there continuity?

YES – Short circuit in Light green wire

NO – GO TO STEP 5.



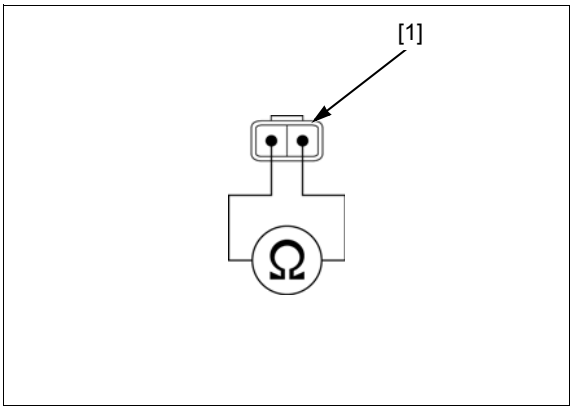
5. PAIR Control Solenoid Valve Resistance Inspection

Turn the ignition switch OFF.
Measure the resistance between the solenoid valve side 2P (Black) connector [1] terminals.

Is the resistance within 20 – 24 Ω (20°C/68°F)?

YES – Replace the ECM with a known good one, and recheck.

NO – Faulty PAIR control solenoid valve



DTC P0351/P0352/P0353/P0354 (No.1/2/3/4 IGNITION COIL CIRCUIT)

1. Ignition Coil Primary Circuit System Inspection

Erase the DTC (page 4-8).

Check the ignition coil primary circuit with the GST or MCS.

Is the DTC P0351, P0352, P0353 or P0354 indicated?

YES – GO TO STEP 2.

NO – Intermittent failure

2. Ignition Coil Primary Circuit Input Voltage Inspection

Turn the ignition switch OFF.

Disconnect the ignition coil 2P connector [1] (page 3-6).

Turn the ignition switch ON and engine stop switch "○".

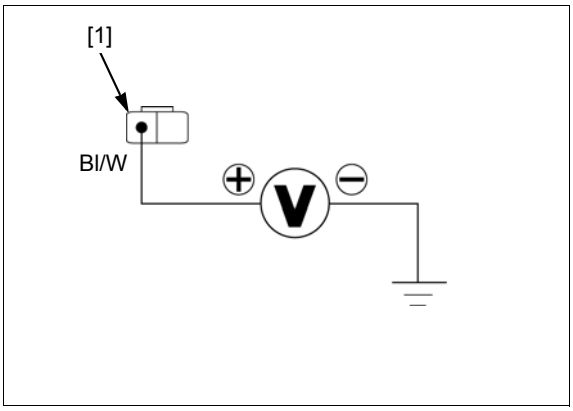
Measure the voltage between the wire harness side 2P connector [1] and ground.

Connection: Black/white (+) – Ground (–)
Standard: Battery voltage

Does the battery voltage exist?

YES – GO TO STEP 3.

NO – Open circuit in Black/white wire



3. Ignition Coil Primary Circuit Ground Line Open Circuit Inspection

Turn the ignition switch OFF.
Disconnect the ECM 33P (Blue) connector (page 4-73).
Check the continuity between the wire harness side 2P (Black) [1] and 33P (Blue) [2] connectors terminals.

Connection:

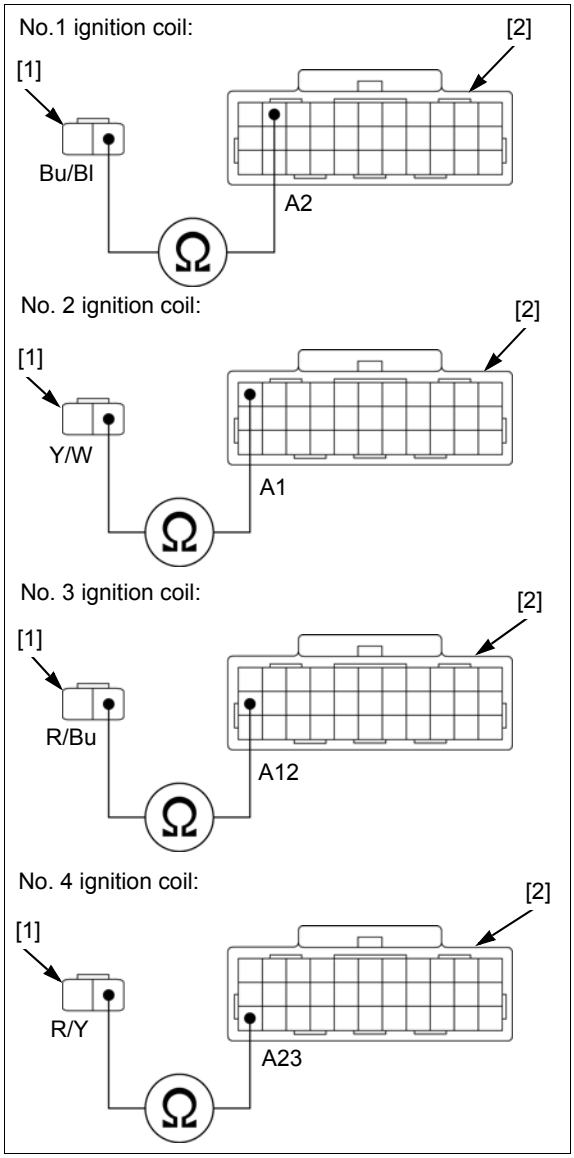
No.1 ignition coil:	**Blue/black – A2**
No.2 ignition coil:	**Yellow/white – A1**
No.3 ignition coil:	**Red/blue – A12**
No.4 ignition coil:	**Red/yellow – A23**

TOOL:
Test probe **07ZAJ-RDJA110**

Is there continuity?

YES – GO TO STEP 4.

NO – Open circuit in Blue/black, Yellow/white, Red/blue or Red/yellow wire



4. Ignition Coil Primary Circuit Ground Line Short Circuit Inspection

Check for continuity between the ignition coil wire 2P (Black) connector [1] terminal and ground.

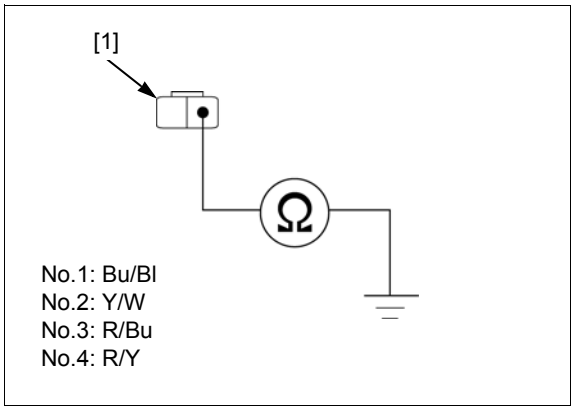
Connection:

No.1 ignition coil:	**Blue/black – Ground**
No.2 ignition coil:	**Yellow/white – Ground**
No.3 ignition coil:	**Red/blue – Ground**
No.4 ignition coil:	**Red/yellow – Ground**

Is there continuity?

YES – Short circuit in Blue/black, Yellow/white, Red/blue or Red/yellow wire

NO – GO TO STEP 5.



5. Ignition Coil Inspection

Replace the ignition coil with a known good one (page 3-6).
Erase the DTC (page 4-8).
Check the ignition coil with the GST or MCS.

Is DTC P0351, P0352, P0353 or P0354 indicated?

YES – Replace the ECM with a known good one (page 4-73) and recheck.

NO – Faulty original ignition coil

DTC C0520 (IMU)

1. IMU System Inspection

Erase the DTC (page 4-8).
Check the IMU with the GST or MCS.

Is DTC C0520 indicated?

YES – GO TO STEP 2.

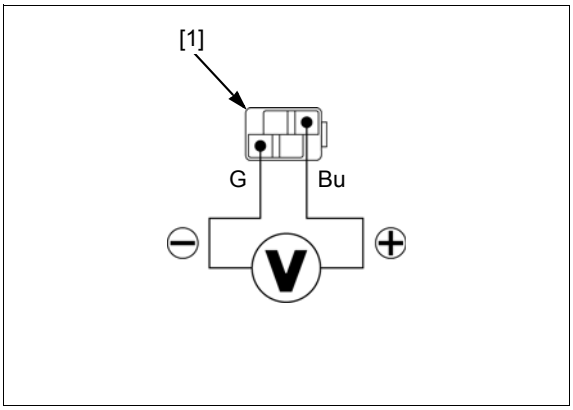
NO – Intermittent failure

2. IMU Input Voltage Inspection

Turn the ignition switch OFF.
Disconnect the IMU 4P (Black) connector.

Turn the ignition switch ON and engine stop switch "".
Measure the voltage between the 4P (Black) connector [1] terminals.

Connection: Blue (+) – Green (–)



Does the battery voltage exist?

YES – GO TO STEP 3.

NO – • Open circuit in Blue wire
• Open circuit in Green wire

3. IMU Inspection

Replace the IMU with a known good one.
Erase the DTC (page 4-8).

Check the IMU with the GST or MCS.

Is DTC C0520 indicated?

YES – Replace the ECM with a known good one, and recheck (page 4-73).

NO – Faulty original IMU

DTC U0001 (CAN)

1. CAN System Inspection

Erase the DTC (page 4-8).
Check the CAN with the GST or MCS.

Is DTC U0001 indicated?

YES – GO TO STEP 2.

NO – Intermittent failure

2. CAN Line Open Circuit Inspection

Turn the ignition switch OFF.
Disconnect the following:

- IMU 4P (Black) connector [1] (page 4-75)
- ECM 33P (Gray) connector [2] (page 4-73)
- Combination meter 32P (Gray) connector [3] (page 21-9)
- Except CBR1000RR: ABS modulator 18P (Black) connector [4] (page 19-24)
- CBR1000S1/S2: SCU 34P connector (page 21-24)

Check the continuity between the wire harness side 4P (Black), 33P (Gray) and 32P (Gray) and connectors terminals.

Connection:

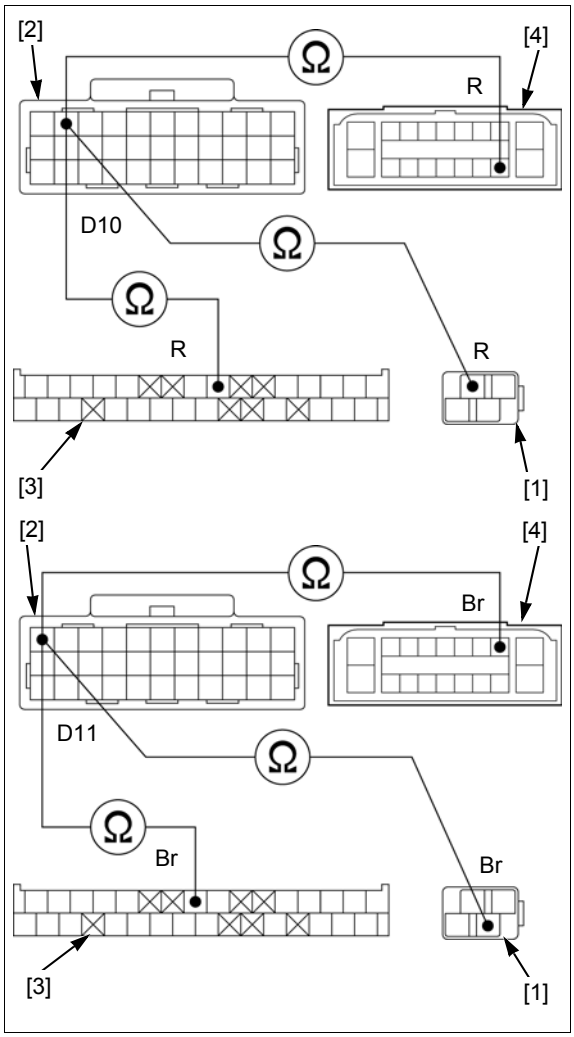
IMU to ECM:	**Red – D10**
	Brown – D11
Meter to ECM:	**Red – D10**
	Brown – D11
ABS to ECM:	**Red – D10**
	Brown – D11

TOOL:
Test probe **07ZAJ-RDJA110**

Is there continuity?

YES – GO TO STEP 3.

NO – • Open circuit in the Red wire
• Open circuit in the Brown wire



3. CAN Line Short Circuit Inspection

Check for continuity between the wire harness side 33P (Gray) connector [1] terminals and ground.

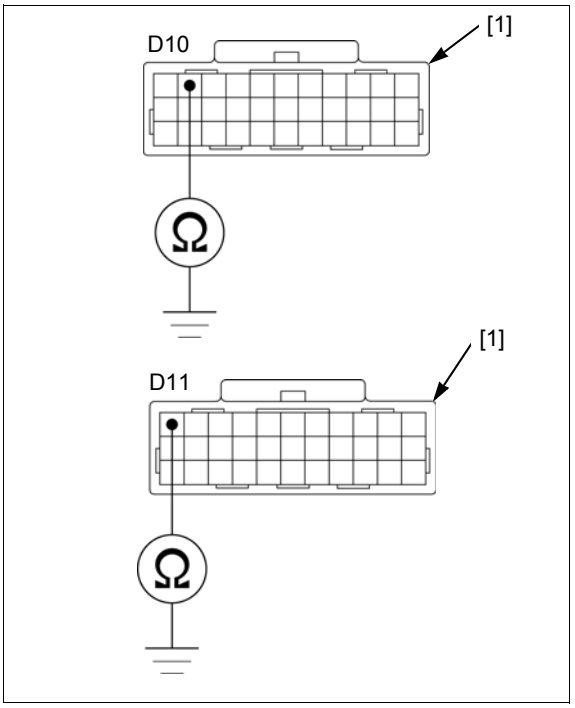
Connection: D10 – Ground
D11 – Ground

TOOL:
Test probe **07ZAJ-RDJA110**

Is there continuity?

YES – • Short circuit in the Red wire
• Short circuit in the Brown wire

NO – GO TO STEP 4.



4. IMU Inspection

Replace the IMU with a known good one.
Connect the following:

– IMU 4P (Black) connector (page 4-75)
– ECM 33P (Gray) connector (page 4-73)
– Combination meter 32P (Gray) connector (page 21-9)
– Except CBR1000RR: ABS modulator 18P (Black) connector (page 19-24)
– CBR1000S1/S2: SCU 34P connector (page 21-24)

Erase the DTC (page 4-8).

Check the CAN with the GST or MCS.

Is DTC U0001 indicated?

YES – GO TO STEP 5.

NO – Faulty original IMU

5. ECM Inspection

Replace the ECM with a known good one.
Erase the DTC (page 4-8).

Check the CAN with the GST or MCS.

Is DTC U0001 indicated?

YES – GO TO STEP 6.

NO – Faulty original ECM

6. ABS modulator Inspection

Replace the ABS modulator with a known good one.
Erase the DTC (page 4-8).

Check the CAN with the GST or MCS.

Is DTC U0001 indicated?

YES – Replace the combination meter with a known good one, and recheck.

NO – Faulty original ECM

DTC U0155 (CAN_METER)

1. CAN System Inspection

Erase the DTC (page 4-8).
Check the CAN with the GST or MCS.

Is DTC U0155 indicated?

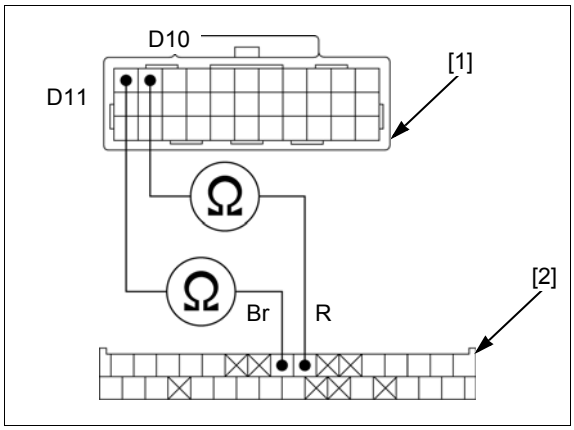
YES – GO TO STEP 2.

NO – Intermittent failure

2. CAN Line Open Circuit Inspection

Turn the ignition switch OFF.
Disconnect the following:

- IMU 4P (Black) connector (page 4-75)
- ECM 33P (Gray) connector [1] (page 4-73)
- Combination meter 32P (Gray) connector [2] (page 21-9)
- Except CBR1000RR: ABS modulator 18P (Black) connector (page 19-24)
- CBR1000S1/S2: SCU 34P connector (page 21-24)



Check the continuity between the wire harness side 32P (Gray) and 33P (Gray) connectors terminals.

Connection: Red – D10
Brown – D11

TOOL:
Test probe **07ZAJ-RDJA110**

Is there continuity?

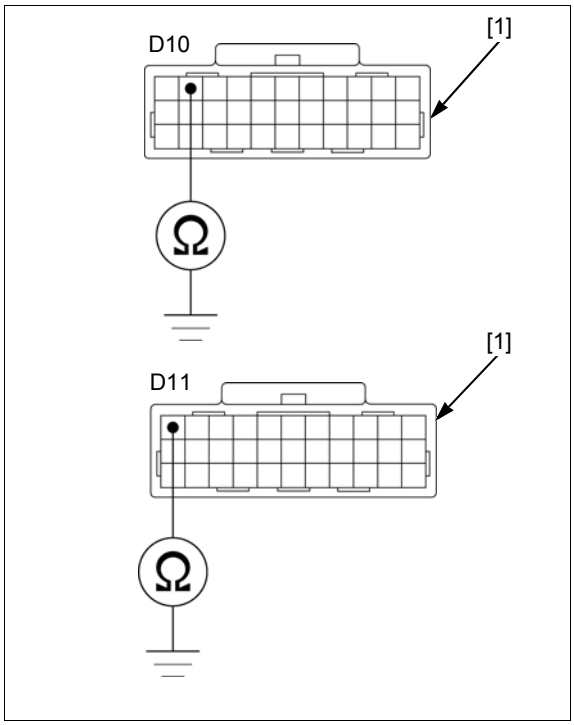
YES – GO TO STEP 3.

NO – • Open circuit in the Red wire
• Open circuit in the Brown wire

3. CAN Line Short Circuit Inspection

Check for continuity between the wire harness side 33P (Gray) connector [1] terminals and ground.

Connection: D10 – Ground
D11 – Ground



TOOL:
Test probe **07ZAJ-RDJA110**

Is there continuity?

YES – • Short circuit in the Red wire
• Short circuit in the Brown wire

NO – GO TO STEP 4.

4. Combination meter Inspection

Replace the combination meter with a known good one.
Connect the following:

– IMU 4P (Black) connector (page 4-75)
– ECM 33P (Gray) connector (page 4-73)
– Combination meter 32P (Gray) connector (page 21-9)
– Except CBR1000RR: ABS modulator 18P (Black) connector (page 19-24)
– CBR1000S1/S2: SCU 34P connector (page 21-24)

Erase the DTC (page 4-8).

Check the CAN with the GST or MCS.

Is DTC U0155 indicated?

YES – Replace the ECM with a known good one, and recheck (page 4-73).

NO – Faulty original combination meter

DTC U0125 (CAN_IMU)

1. CAN System Inspection

Erase the DTC (page 4-8).
Check the CAN with the GST or MCS.

Is DTC U0125 indicated?

YES – GO TO STEP 2.

NO – Intermittent failure

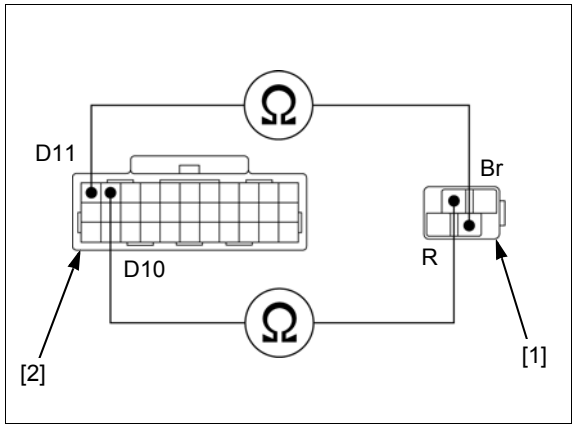
2. CAN Line Open Circuit Inspection

Turn the ignition switch OFF.
Disconnect the following:

– IMU 4P (Black) connector [1] (page 4-75)
– ECM 33P (Gray) connector [2] (page 4-73)
– Combination meter 32P (Gray) connector (page 21-9)
– Except CBR1000RR: ABS modulator 18P (Black) connector (page 19-24)
– CBR1000S1/S2: SCU 34P connector (page 21-24)

Check the continuity between the wire harness side 4P (Black) and 33P (Gray) connectors terminals.

Connection: Red – D10
Brown – D11



TOOL:
Test probe **07ZAJ-RDJA110**

Is there continuity?

YES – GO TO STEP 3.

NO – • Open circuit in the Red wire
• Open circuit in the Brown wire

3. CAN Line Short Circuit Inspection

Check for continuity between the wire harness side 33P (Gray) connector [1] terminals and ground.

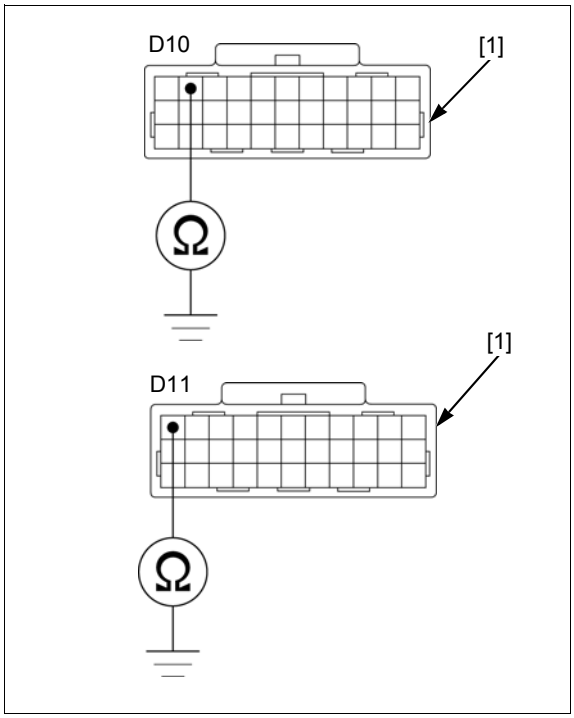
Connection: D10 – Ground
D11 – Ground

TOOL:
Test probe **07ZAJ-RDJA110**

Is there continuity?

YES – • Short circuit in the Red wire
• Short circuit in the Brown wire

NO – GO TO STEP 4.



4. IMU Inspection

Replace the IMU with a known good one.
Connect the following:

– IMU 4P (Black) connector (page 4-75)
– ECM 33P (Gray) connector (page 4-73)
– Combination meter 32P (Gray) connector (page 21-9)
– Except CBR1000RR: ABS modulator 18P (Black) connector (page 19-24)
– CBR1000S1/S2: SCU 34P connector (page 21-24)

Erase the DTC (page 4-8).

Check the CAN with the GST or MCS.

Is DTC U0125 indicated?

YES – Replace the ECM with a known good one, and recheck (page 4-73).

NO – Faulty original IMU

DTC U0121 (CAN_ABS)

1. CAN System Inspection

Erase the DTC (page 4-8).
Check the CAN with the GST or MCS.

Is DTC U0121 indicated?

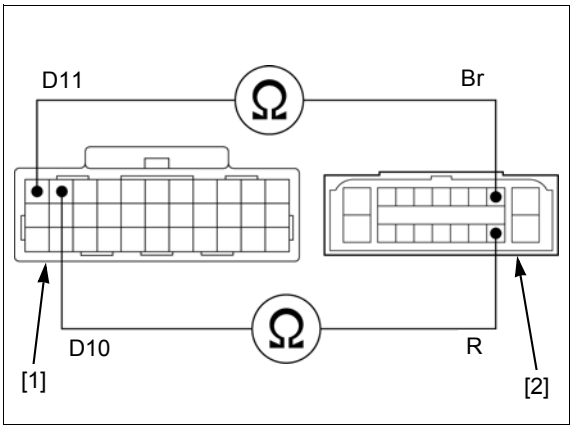
YES – GO TO STEP 2.

NO – Intermittent failure

2. CAN Line Open Circuit Inspection

Turn the ignition switch OFF.
Disconnect the following:

– IMU 4P (Black) connector (page 4-75)
– ECM 33P (Gray) connector [1] (page 4-73)
– Combination meter 32P (Gray) connector (page 21-9)
– Except CBR1000RR: ABS modulator 18P (Black) connector [2] (page 19-24)
– CBR1000S1/S2: SCU 34P connector (page 21-24)



Check the continuity between the wire harness side 18P (Black) and 33P (Gray) connectors terminals.

Connection: Red – D10
Brown – D11

TOOL:
Test probe **07ZAJ-RDJA110**

Is there continuity?

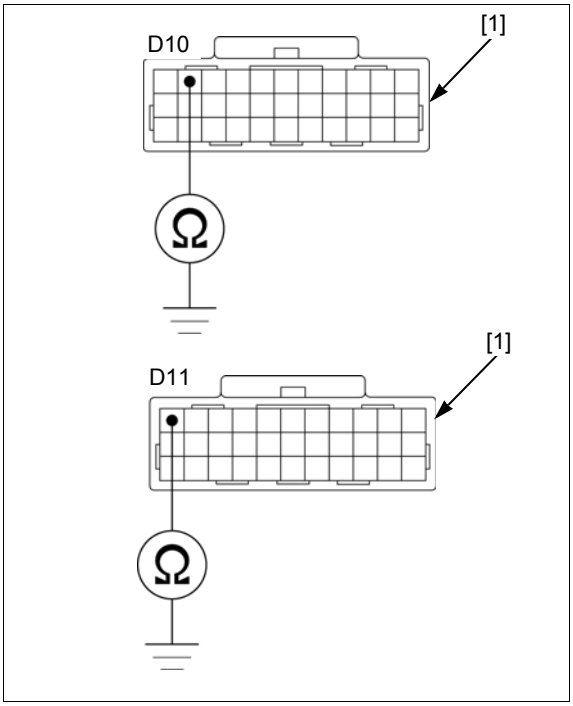
YES – GO TO STEP 3.

NO – • Open circuit in the Red wire
• Open circuit in the Brown wire

3. CAN Line Short Circuit Inspection

Check for continuity between the wire harness side 33P (Gray) connector [1] terminals and ground.

Connection: D10 – Ground
D11 – Ground



TOOL:
Test probe **07ZAJ-RDJA110**

Is there continuity?

YES – • Short circuit in the Red wire
• Short circuit in the Brown wire

NO – GO TO STEP 4.

4. ABS modulator Inspection

Replace the ABS modulator with a known good one.
Connect the following:

– IMU 4P (Black) connector (page 4-75)
– ECM 33P (Gray) connector (page 4-73)
– Combination meter 32P (Gray) connector (page 21-9)
– Except CBR1000RR: ABS modulator 18P (Black) connector (page 19-24)
– CBR1000S1/S2: SCU 34P connector (page 21-24)

Erase the DTC (page 4-8).

Check the CAN with the GST or MCS.

Is DTC U0121 indicated?

YES – Replace the ECM with a known good one, and recheck (page 4-73).

NO – Faulty original ABS modulator

DTC P170D (SHIFT STROKE SENSOR LOW VOLTAGE)

1. Shift Stroke Sensor System Inspection

Check the shift stroke sensor with the GST or MCS.

Is the indicated voltage within 0.5 – 4.5 V?

YES – Intermittent failure

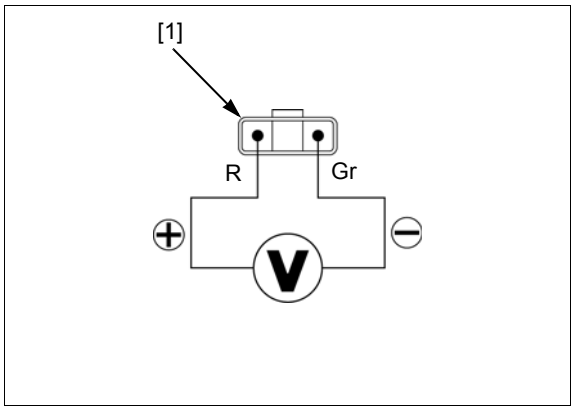
NO – GO TO STEP 2.

2. Shift Stroke Sensor Input Voltage Inspection

Turn the ignition switch OFF.
Disconnect the shift stroke sensor 3P (Black) connector.

Turn the ignition switch ON and engine stop switch "".
Measure the voltage between the wire harness side 3P (Black) connector terminals.

Connection: Red (+) – Gray (–)



Is the voltage within 4.75 – 5.25 V?

YES – GO TO STEP 4.

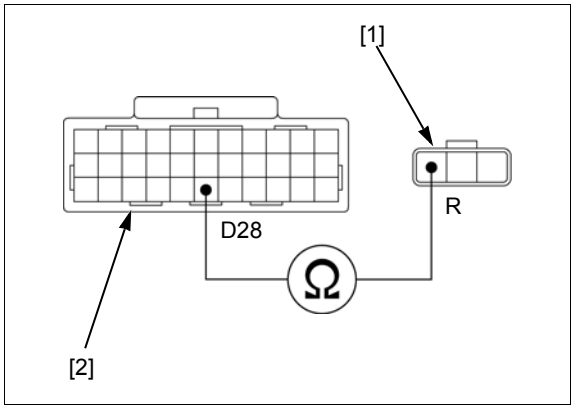
NO – GO TO STEP 3.

3. Shift Stroke Sensor Circuit Inspection

Turn the ignition switch OFF.

Disconnect the ECM 33P (Gray) connector.
Check for continuity between the wire harness side 3P (Black) [1] and ECM 33P (Gray) [2] connectors terminals.

TOOL:
Test probe **07ZAJ-RDJA110**



Connection: D28 – Red

Is there continuity?

YES – Replace the ECM with a known good one, and recheck (page 4-73).

NO – Open circuit in Red wire

4. Shift Stroke Sensor Output Line Open Circuit Inspection

Turn the ignition switch OFF.

Disconnect the ECM 33P (Blue) connector.
Check for continuity between the wire harness side 3P (Black) [1] and 33P (Blue) [2] connectors terminals.

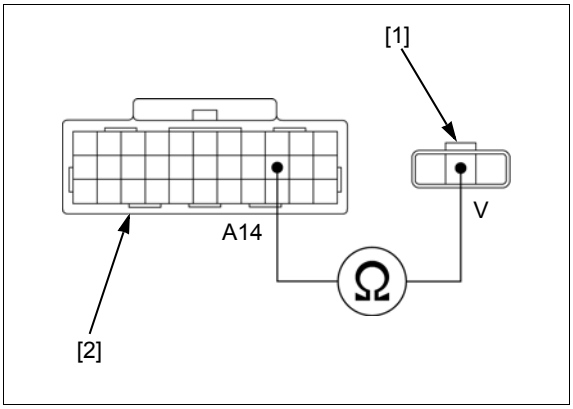
TOOL:
Test probe **07ZAJ-RDJA110**

Connection: A14 – Violet

Is there continuity?

YES – GO TO STEP 5.

NO – Open circuit in Violet wire



5. Shift Stroke Sensor Output Line Short Circuit Inspection

Connect the ECM 33P connectors.

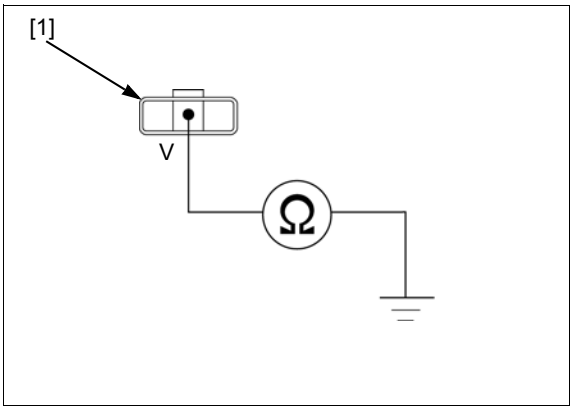
Check for continuity between the wire harness side 3P (Black) connector [1] and ground.

Connection: Violet – Ground

Is there continuity?

YES – Short circuit in Violet wire

NO – GO TO STEP 6.



6. Shift Stroke Sensor Inspection

Replace the shift stroke sensor with a known good one.
Clear the DTC (page 4-8).

Check the shift stroke sensor with the GST or MCS.

Is DTC P170D indicated?

YES – Replace the ECM with a known good one, and recheck (page 4-73).

NO – Faulty original shift stroke sensor

DTC P170E (SHIFT STROKE SENSOR HIGH VOLTAGE)

1. Shift Stroke Sensor System Inspection

Check the shift stroke sensor with the GST or MCS.

Is about 5 V indicated?

YES – GO TO STEP 2.

NO – Intermittent failure

2. Shift Stroke Sensor Input Voltage Inspection

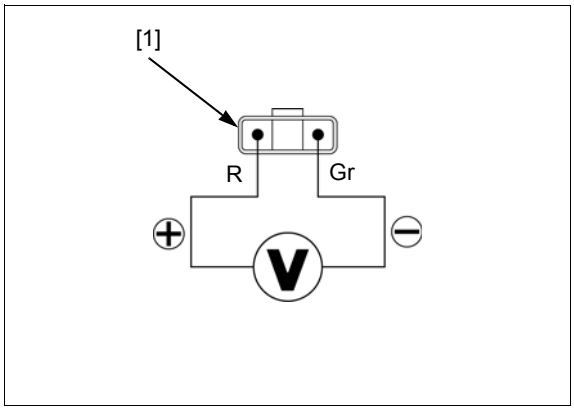
Turn the ignition switch ON and engine stop switch "".
Measure the voltage between the wire harness side 3P (Black) connector terminals.

Connection: Red (+) – Gray (–)

Is the voltage within 4.75 – 5.25 V?

YES – GO TO STEP 3.

NO – Open circuit in Gray wire



3. Shift Stroke Sensor Inspection

Replace the shift stroke sensor with a known good one.
Clear the DTC (page 4-8).

Check the shift stroke sensor with the GST or MCS.

Is DTC P170E indicated?

YES – Replace the ECM with a known good one, and recheck (page 4-73).

NO – Faulty original shift stroke sensor

DTC P1708 (SHIFT SPINDLE SWITCH LOW VOLTAGE)

1. Shift Spindle Switch System Inspection

Erase the DTC (page 4-8).
Test-ride the motorcycle and shift up more than three times.
Check the shift spindle switch with the GST or MCS.

Is DTC P1708 indicated?

YES – GO TO STEP 2.

NO – Intermittent failure

2. Shift Spindle Switch Input Line Short Circuit Inspection

Turn the ignition switch OFF.
Disconnect the shift spindle switch 1P (Black) connector.

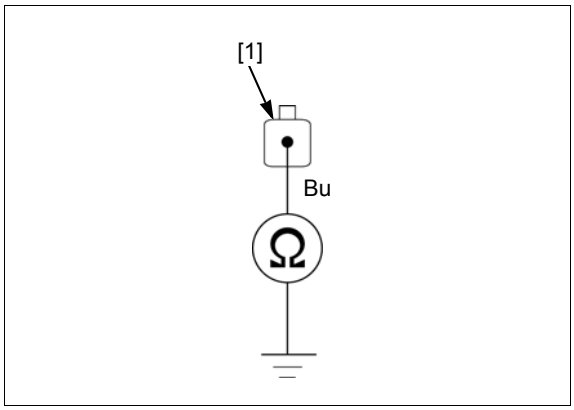
Check for continuity between the wire harness side 1P (Black) connector and ground.

Connection: Blue – Ground

Is there continuity?

YES – Short circuit in Blue wire

NO – GO TO STEP 3.



3. Shift Spindle Switch Inspection

Replace the shift spindle switch with a known good one.
Erase the DTC (page 4-8).
Test-ride the motorcycle and shift up more than three times.
Check the shift spindle switch with the GST or MCS.

Is DTC P1708 indicated?

YES – Replace the ECM with a known good one, and recheck (page 4-73).

NO – Faulty original shift spindle switch

DTC P1709 (SHIFT SPINDLE SWITCH HIGH VOLTAGE)

1. Shift Spindle Switch System Inspection

Erase the DTC (page 4-8).
Test-ride the motorcycle and shift down without clutch operation and hold the shift pedal in the down position for one second, more than three times.
Check the shift spindle switch with the GST or MCS.

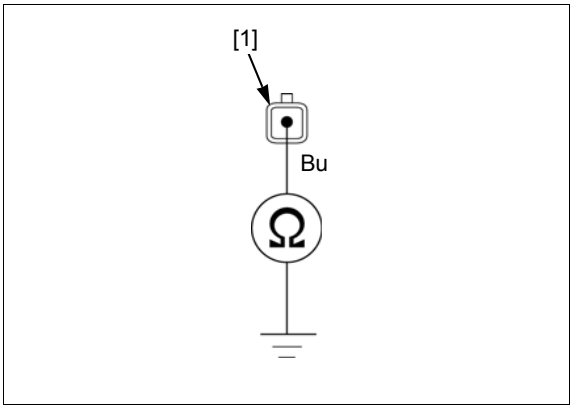
Is DTC P1709 indicated?

YES – GO TO STEP 3.

NO – Intermittent failure

2. Shift Spindle Switch Inspection 1

Turn the ignition switch OFF.
Disconnect the shift spindle switch 1P (Black) connector.
Check the continuity between the shift spindle switch side 1P (Black) connector [1] and ground, with shift down and hold the shift pedal in down position.



Is there continuity?

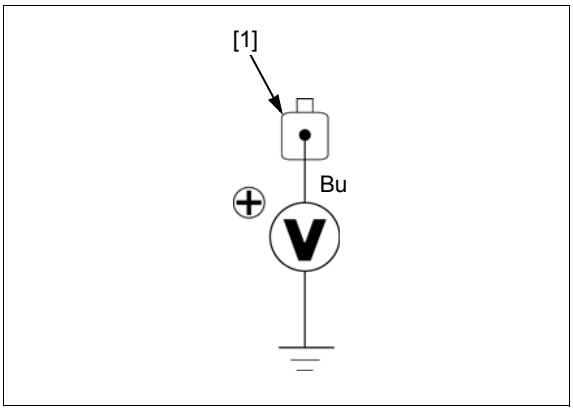
YES – GO TO STEP 3.

NO – Faulty shift spindle switch.

3. Shift Spindle Switch Input Voltage Inspection

Turn the ignition switch OFF.
Disconnect the shift spindle switch 1P (Black) connector.

Turn the ignition switch ON and engine stop switch "○".
Measure the voltage between the wire harness side 1P (Black) connector [1] and ground.



Connection: Blue (+) – Ground (–)

Is the voltage within 4.75 – 5.25 V?

YES – GO TO STEP 4.

NO – Open circuit in Blue wire

4. Shift Spindle Switch Inspection 2

Replace the shift spindle switch with a known good one.
Erase the DTC (page 4-8).
Test-ride the motorcycle and shift down without clutch operation and hold the shift pedal in the down position for one second, more than three times.
Check the shift spindle switch with the GST or MCS.

Is DTC P1709 indicated?

YES – Replace the ECM with a known good one, and recheck (page 4-73).

NO – Faulty original shift spindle switch.

DTC P0704 (CLUTCH SWITCH)

1. Clutch Switch System Inspection

Erase the DTC (page 4-8).
Test -ride the motorcycle above 2300 min^{-1} (rpm) with gradually acceleration more than two seconds and more than three times.
Check the clutch switch with the GST or MCS.

Is DTC P0704 indicated?

YES – GO TO STEP 2.

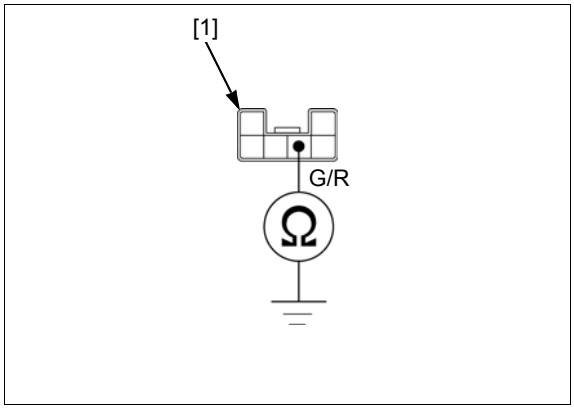
NO – Intermittent failure

2. Clutch Switch Input Line Short Circuit Inspection

Turn the ignition switch OFF.
Disconnect the clutch switch 6P (Blue) connector.

Check for continuity between the wire harness side 6P (Blue) connector and ground.

Connection: Green/red – Ground



Is there continuity?

YES – Short circuit in Green/red wire

NO – GO TO STEP 3.

3. Clutch Switch Inspection

Replace the clutch switch with a known good one.
Erase the DTC (page 4-8).
Test -ride the motorcycle above 2300 min^{-1} (rpm) with gradually acceleration more than two seconds and more than three times.

Check the clutch switch with the GST or MCS.

Is DTC P0704 indicated?

YES – Replace the ECM with a known good one, and recheck; for Key Registration Procedures (page 4-73).

NO – Faulty original clutch switch

MIL CIRCUIT TROUBLESHOOTING

When The Engine Starts But The MIL Does Not Come On

Check that the MIL comes on a few seconds and goes OFF when the ignition switch is turned ON with the engine stop switch "".

If the MIL and digital display do not function at all, refer to combination meter power/ground line inspection (page 21-9).

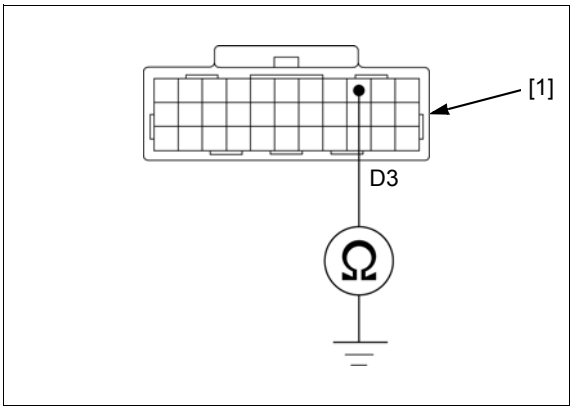
When The Engine Starts But The MIL Does Not Go Off Within A Few Seconds

Turn the ignition switch OFF.
Disconnect the ECM 33P (Gray) connector (page 4-73).
Check for continuity between the wire harness side ECM/PCM 33P (Gray) connector [1] and ground.

TOOL:
Test probe **07ZAJ-RDJA110**

CONNECTION: D3 – Ground

If there is continuity, check for short circuit in the Blue wire between the DLC and ECM.
If there is no continuity, replace the ECM with a known good one (page 4-73), and recheck.



ECM

REMOVAL/INSTALLATION

Lift and support the fuel tank (page 7-8).

Remove the screws [1].

Disconnect the ECM 33P (Blue) [2], ECM 33P (Black) [3] and 33P (Gray) [4] connectors.

Remove the ECM [5].

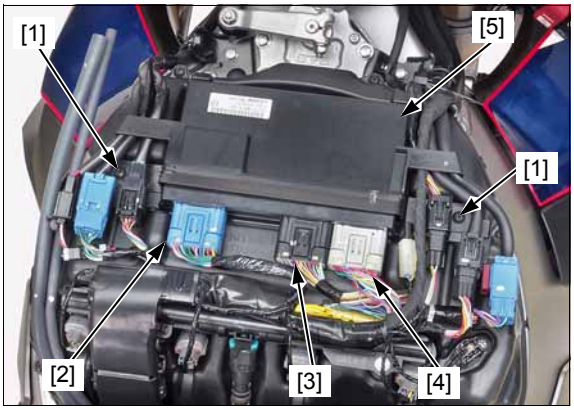
Installation is in the reverse order of removal.

TORQUE:
ECM setting plate screw:
0.8 N·m (0.1 kgf·m, 0.6 lbf·ft)

Register the key (page 22-3).

Initialize the quickshifter (page 4-80).

Inspect the IMU (page 4-75).



POWER/GROUND LINE INSPECTION

Disconnect the ECM 33P (Blue) connector (page 4-73).

POWER INPUT LINE

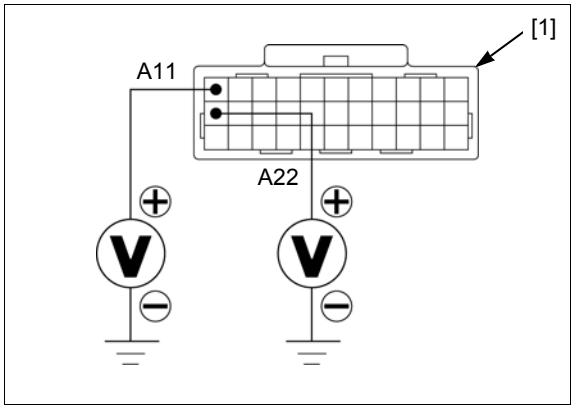
Measure the voltage between the wire harness side ECM 33P (Blue) connector [1] and ground.

TOOL:
Test probe 07ZAJ-RDJA110

CONNECTION: A11 (+) – Ground (–)
A22 (+) – Ground (–)

There should be battery voltage with the ignition switch turned ON and engine stop switch "".

If there is no voltage, check the following:
– Open circuit in the Yellow and Black wire between the ECM and main relay



GROUND LINE

Disconnect the ECM 33P (Blue) and 33P (Gray) connectors (page 4-73).

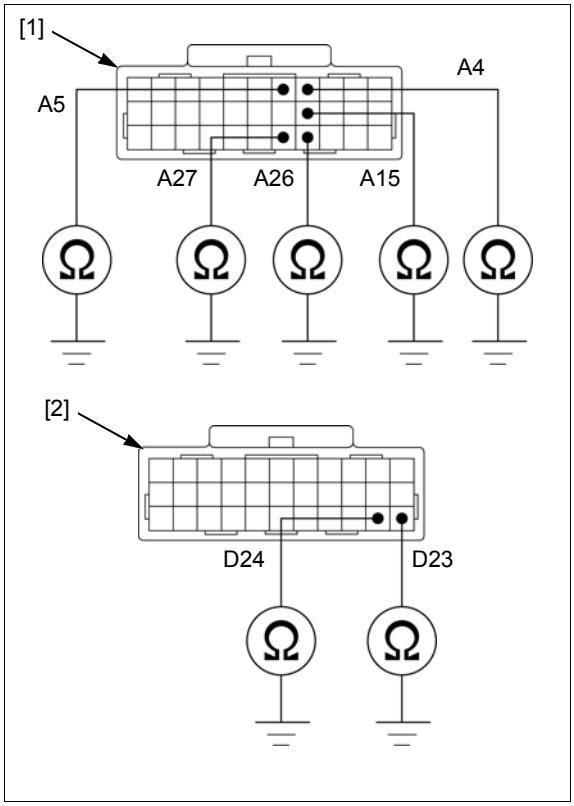
Check for continuity between the wire harness side ECM 33P (Blue) [1] and 33P (Gray) [2] connectors and ground.

TOOL:
Test probe 07ZAJ-RDJA110

CONNECTION: A4 – Ground
A5 – Ground
A15 – Ground
A26 – Ground
A27 – Ground
D23 – Ground
D24 – Ground

There should be continuity at all times.

If there is no continuity, check for open circuit in the Green/blue or Green wire.



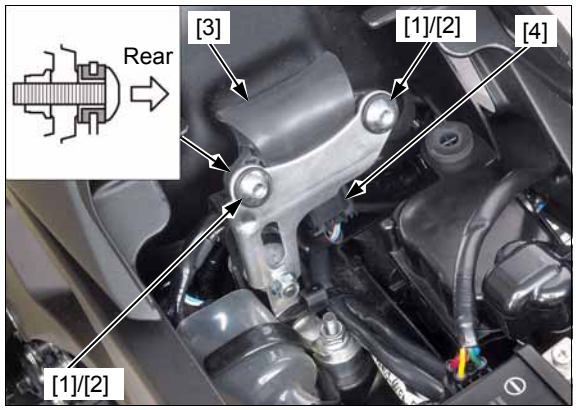
IMU

REMOVAL/INSTALLATION

Remove the IMU cover (page 2-5).

Remove the socket bolts [1]/nuts [2] and IMU [3].

Disconnect the IMU 4P (Black) connector [4].



NOTICE

- *Do not drop the IMU.*
- *Never use the dropped IMU.*
- *Do not use an impact wrench while removing or installing the IMU.*
- *Do not have an impact on the IMU while removing or installing it.*

Installation is in the reverse order of removal.

Inspect the IMU (page 4-75).

INSPECTION

Keep the motorcycle in upright position on the level ground.

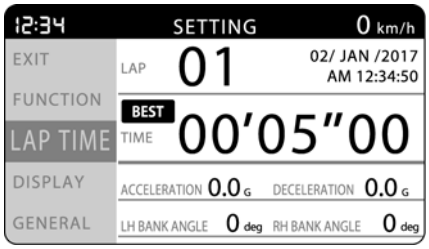
Do not start the engine.

Record the lap time more than one second.

Check the following in the "LAP DATA":

– Left maximum bank angle is less than 5 degree
– Right maximum bank angle is less than 5 degree
– Maximum acceleration is less than 0.1 G
– Maximum deceleration is less than 0.1 G

If the inspection results are out of specification, replace the IMU sensor stay and mounting rubber then recheck.



APS

INSPECTION

NOTE:

- Before starting the inspection, check for loose or poor contact on the APS connector and ECM connector, then recheck the DTC.

1. APS 1 and 2 Input Voltage Inspection

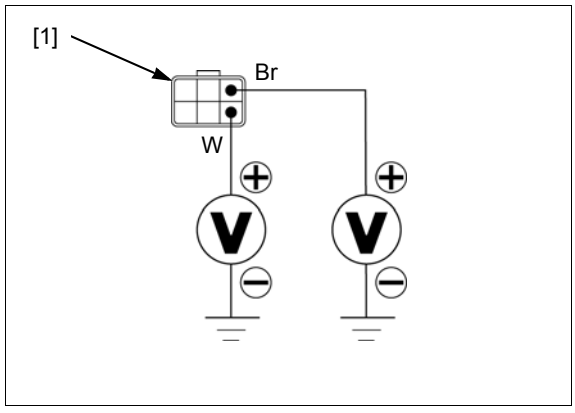
Turn the ignition switch OFF.
Disconnect the APS 6P (Black) connector [1] (page 3-5).
Turn the ignition switch ON with the engine stop switch "".
Measure the voltage at the harness side.

Connection: W (+) [VCC 2] – Ground
Br (+) [VCC 1] – Ground

Is the voltage about 5 V?

YES – GO TO STEP 2.

NO – Open or short circuit in the White or Brown wire. If the wires are OK, replace the ECM with a known good one and recheck.



2. APS 1 and 2 System Inspection

Erase the DTC (page 4-8).
Check the APS 1 and 2 with the MCS.
Note the APS 1 and 2 output voltage.

Calculate the 5 V / input voltage x output voltage.
Standard (at throttle opened):
APS 1: 4.433 – 4.567 V
APS 2: 2.183 – 2.317 V
Standard (at throttle closed):
APS 1: 0.433 – 0.567 V
APS 2: 0.183 – 0.317 V

Is the voltage within standard?

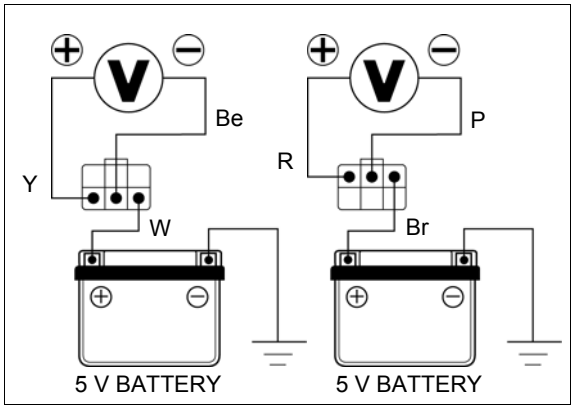
YES – Intermittent failure

NO – GO TO STEP 3.

3. APS System Inspection

Connect a 5 V battery to the APS connector terminals at the APS side as shown.
Connection: at the W (+), Br (+)

Measure the voltage at the harness side.
Connection: Y (+) – Be (–)
R (+) – P (–)



Calculate the 5 V / input voltage x output voltage.
Standard (at throttle opened):
APS 1: 4.433 – 4.567 V
APS 2: 2.183 – 2.317 V
Standard (at throttle closed):
APS 1: 0.433 – 0.567 V
APS 2: 0.183 – 0.317 V

Is the voltage within standard?

YES – Replace the ECM with a known good one, and recheck.

NO – Replace the grip APS with a known good one, and recheck.

REMOVAL/INSTALLATION

Remove the following:

– Top shelter (page 2-6).
– Handlebar weight (page 16-7).
– Master cylinder (page 16-7).

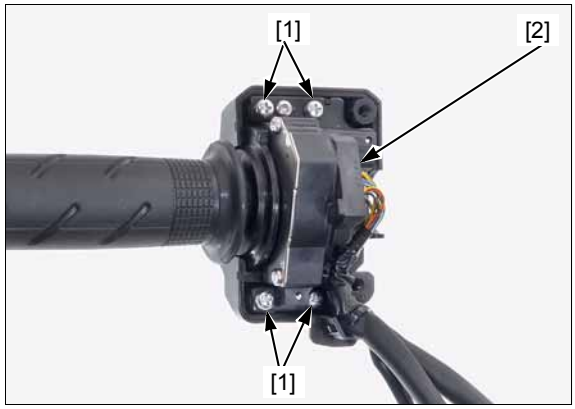
Disconnect the right handlebar switch 6P (Black) [1] and 6P (Blue) [2] connectors.

Remove the wire band [3].

Remove the screws [1] and throttle housing cover [2].

Loosen the screw [3] and remove the throttle housing [4].

Remove the screws [1] and APS [2].

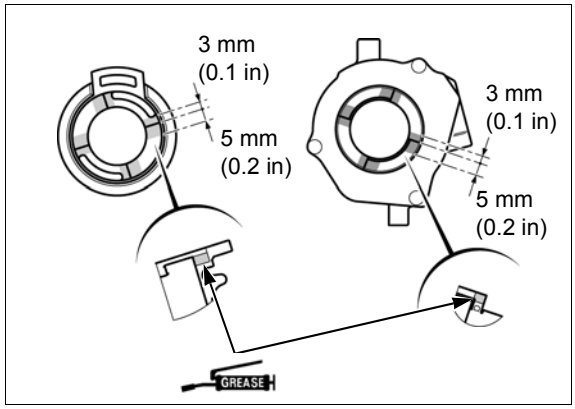


Route the wire properly (page 1-23).

Installation is in the reverse order of removal.

NOTE:

- Do not disassemble the APS.
- Apply grease to the throttle grip and APS contacting surfaces in the dimensions shown.



TORQUE:
APS mounting screw:
2.0 N·m (0.2 kgf·m, 1.5 lbf·ft)
Right handlebar switch screw:
2.5 N·m (0.3 kgf·m, 1.8 lbf·ft)

VS SENSOR

REMOVAL/INSTALLATION

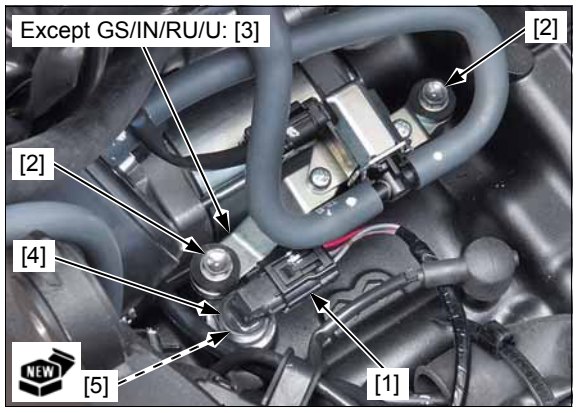
Remove the fuel tank (page 7-8).

Disconnect the VS sensor 3P (Black) connector [1].

Except GS/IN/RU/U: Remove the bolts [2], PCSV stay [3], VS sensor [4] and O-ring [5].

GS/IN/RU/U: Remove the bolt [2], VS sensor [4] and O-ring [5].

Installation is in the reverse order of removal.



SHIFT DRUM ANGLE SENSOR

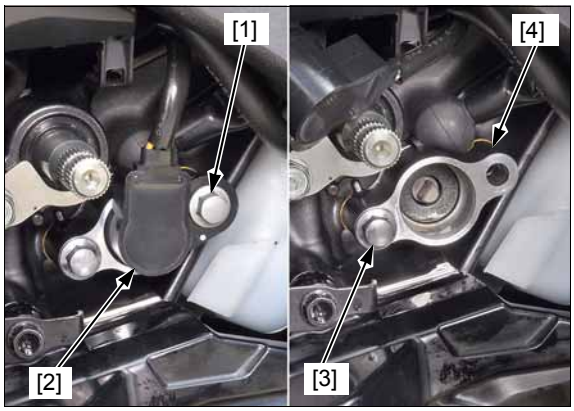
REMOVAL/INSTALLATION

Remove the fuel tank (page 7-8).

Disconnect the shift drum angle sensor/neutral switch 4P (Black) connector [1].

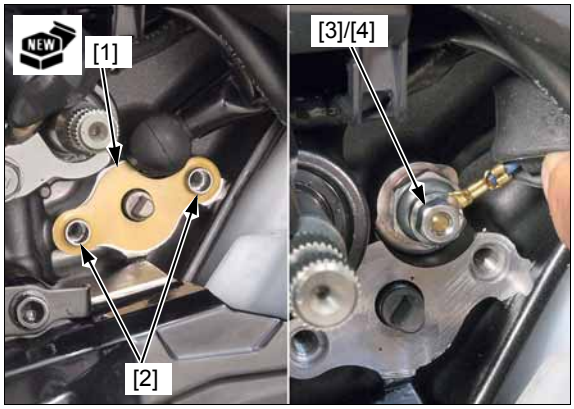
Remove the bolt [1] and shift drum angle sensor [2].

Remove the bolt [3] and shift dram angle sensor base [4].



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

Remove the nut [3] and neutral switch terminal [4].



Route the wire properly (page 1-23).

Installation is in the reverse order of removal.

NOTE:

- Align the cut out of the shift drum and shift dram angle sensor.

TORQUE:

Shift drum angle sensor bolt:
12 N·m (1.2 kgf·m, 9 lbf·ft)

Neutral switch terminal nut:
1.7 N·m (0.2 kgf·m, 1.3 lbf·ft)

Initialize the quickshifter (page 4-80).

SHIFT STROKE SENSOR

INSPECTION

NOTE:

- If the gear position indicator blinks between gear position and "–" in alternate shifts, perform the below troubleshooting.
- Before the troubleshooting check the following:
  – Tire air pressure
  – Tire size
  – Pulser ring for deformation or damage
  – Wheel speed sensor for loose mounting
  – VS sensor for loose mounting
  – Correct drive and driven sprockets number of teeth
- Test-ride the motorcycle with gradually acceleration.

1. Shift Stroke Sensor System Inspection 1

Wait for more than 1.0 second with neutral gear position.
Shift up the gear more than four times continually then shift down the gear more than four times continually.
Initialize the quickshifter (page 4-80).

Is the gear position indicator blinks between gear position and "–" in alternate shifts?

YES – GO TO STEP 2.

NO – Intermittent failure

2. Shift Stroke Sensor System Inspection 2

Check the shift stroke sensor with the GST or MCS.

Is about 2.1 – 2.9 V indicated?

YES – Intermittent failure

NO – Replace the shift stroke sensor and recheck and test-ride.

- Recheck the following:
  – Tire air pressure
  – Tire size
  – Pulser ring for deformation or damage
  – Wheel speed sensor for loose mounting
  – VS sensor for loose mounting
  – Correct drive and driven sprockets number of teeth
- Test-ride the motorcycle with gradually acceleration.

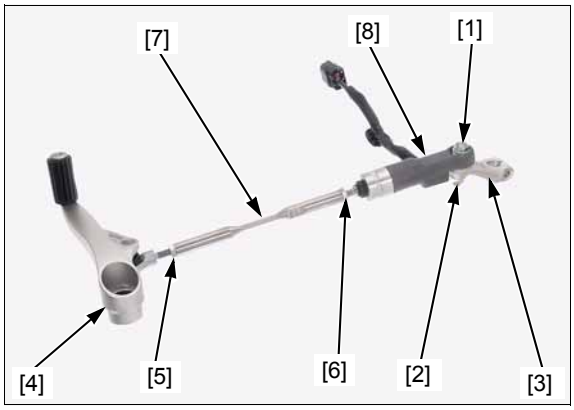
After recheck and test-ride, if the gear position indicator blinks between gear position and "–" in alternate shifts, replace the ECM.

REMOVAL/INSTALLATION

Remove the sift pedal assembly (page 11-23).

Remove the following:

– Bolt [1]
– Nut [2]
– Arm [3]
– Shift pedal [4]
– Lock nut [5]
– Lock nut (left-hand thread) [6]
– Rod [7]
– Shift stroke sensor [8]



Installation is in the reverse order of removal.

NOTE:

• Do not disassemble the shift stroke sensor.

Adjust the sift pedal assembly (page 11-23).

Initialize the quickshifter (page 4-80).

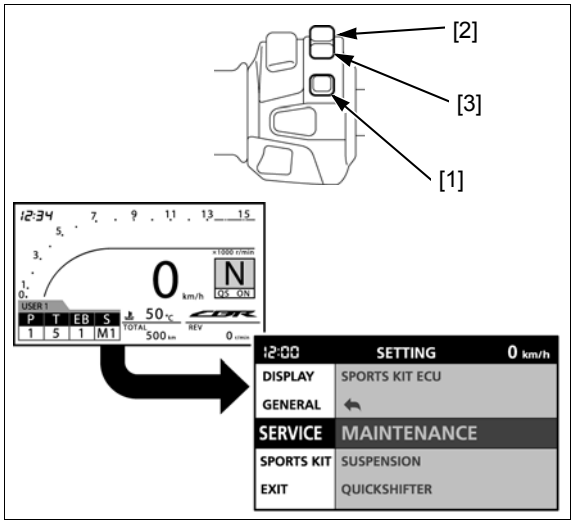
QUICKSHIFTER INITIALIZATION

Connect the SCS short connector to the DLC (page 4-8).

Do not start the engine.

Turn the ignition switch ON and engine stop switch "".

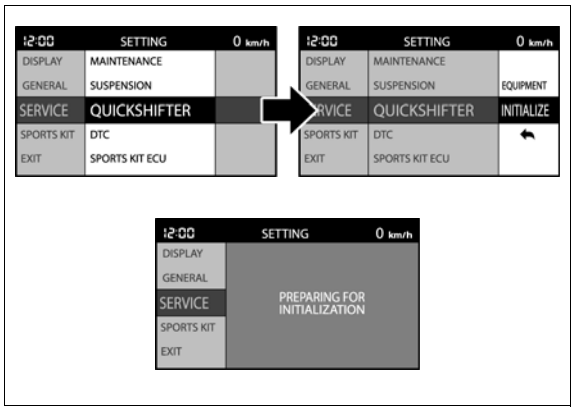
Push and hold the MODE [1] and SEL-UP [2] or SEL-DOWN [3] switches.



Select the item with SEL-UP/SEL-DOWN switches then decide the item with MODE switch.

– "QUICKSHIFTER"
– "INITIALIZE"

The display shows the message that "PREPARING FOR INITIALIZATION" then start the engine and let it idle.



Do not operate the throttle grip.

Shift the transmission to the neutral position then do not touch the pedal.

Wait for the display shows the message that "INITIALIZE SUCCEEDED" then turn the ignition switch OFF and remove the SCS short connector.

If the display shows the message that "INITIALIZE FAILURE", check the mounting conditions of the shift stroke and shift drum angle sensors, then restart the initialization again.

SHIFT SPINDLE SWITCH

REMOVAL/INSTALLATION

Remove the fuel tank (page 7-8).

Remove the nut [1], shift spindle switch wire [2], shift spindle switch [3] and sealing washer [4].

Route the wire properly (page 1-23).

Installation is in the reverse order of removal.

TORQUE:
Shift spindle switch:
12 N·m (1.2 kgf·m, 9 lbf·ft)
Shift spindle switch terminal nut:
1.7 N·m (0.2 kgf·m, 1.3 lbf·ft)

NOTE:
- Replace the sealing washer with a new one.

CLUTCH SWITCH

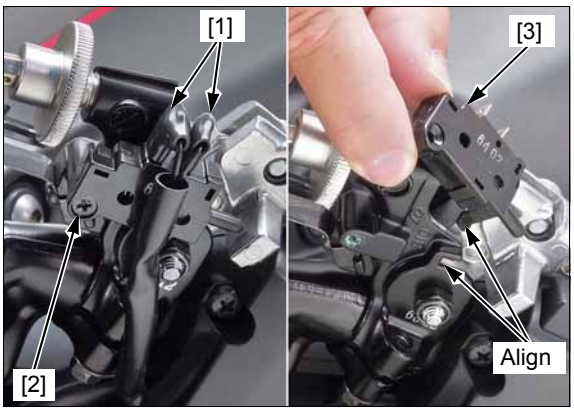
REMOVAL/INSTALLATION

Disconnect the clutch switch wire connectors [1].

Remove the screw [2] and clutch switch [3].

Installation is in the reverse order of removal.

NOTE:
- Align the clutch switch hook with clutch lever holder cut-out.



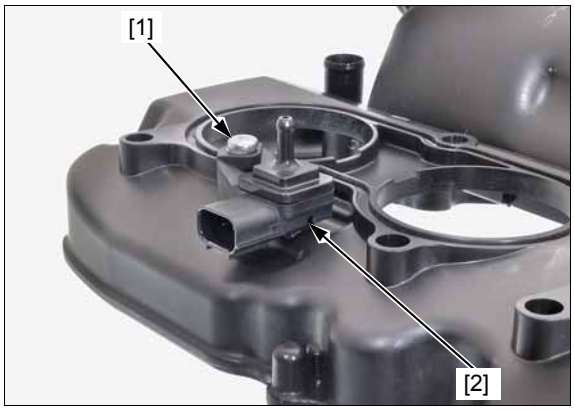
MAP SENSOR

REMOVAL/INSTALLATION

Remove the air cleaner housing (page 7-10).

Remove the screw [1] and MAP sensor [2] from the air cleaner housing.

Installation is in the reverse order of removal.



IAT SENSOR

REMOVAL/INSTALLATION

Lift and support the fuel tank (page 7-8).

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

Remove the screws [2] and IAT sensor [3] from the air cleaner housing cover.

Remove the O-ring [4].

Installation is in the reverse order of removal.

NOTE:

- Replace the O-ring with a new one.

TORQUE:
IAT sensor mounting screw:
1.1 N·m (0.1 kgf·m, 0.8 lbf·ft)

ECT SENSOR

REMOVAL/INSTALLATION

Remove the thermostat housing (page 8-6).

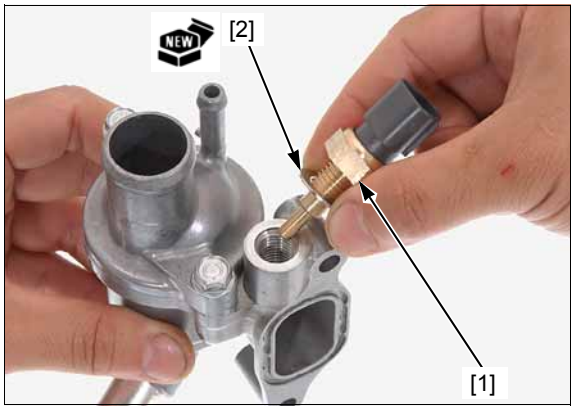
Remove the ECT sensor [1] and sealing washer [2].

Installation is in the reverse order of removal.

NOTE:

- Replace the sealing washer with a new one.

TORQUE: 23 N·m (2.3 kgf·m, 17 lbf·ft)



CMP SENSOR

REMOVAL/INSTALLATION

Remove the air cleaner housing (page 7-10).

Disconnect the CMP sensor 3P (Blue) connector [1].

Remove the bolt [2], CMP sensor [3] and O-ring [4] from the cylinder head cover.

Installation is in the reverse order of removal.

NOTE:

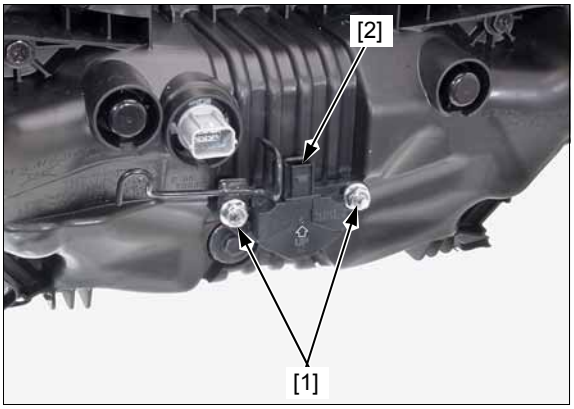
- Apply oil to a new O-ring and install it.

BANK ANGLE SENSOR

REMOVAL/INSTALLATION

Remove the upper cowl (page 2-18).

Remove the nuts [1] and bank angle sensor [2] from the front cowl.

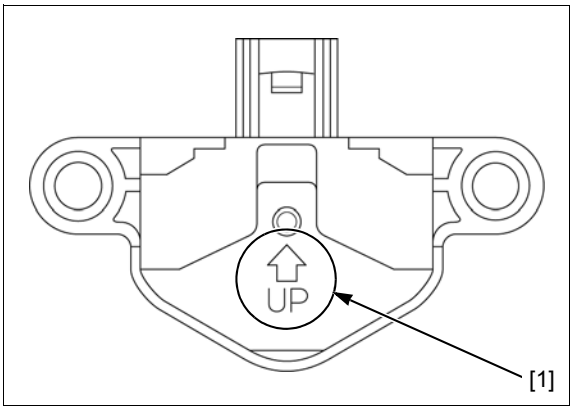


Installation is in the reverse order of removal.

- Install the bank angle sensor with its "UP" mark [1] facing up.

TORQUE:

Bank angle sensor mounting nut:
5.2 N·m (0.5 kgf·m, 3.8 lbf·ft)



SYSTEM INSPECTION

Connect the MCS (page 4-7).
Remove the bank angle sensor (page 4-83).

Connect the bank angle sensor 2P (Black) connector.

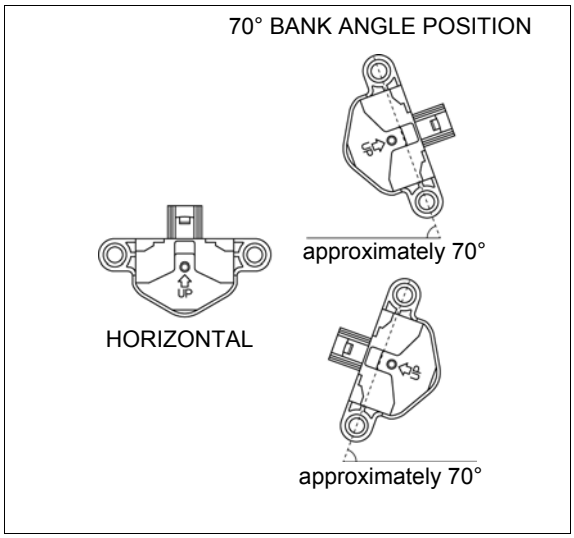
Place the bank angle sensor horizontally as shown.

Turn the ignition switch ON and engine stop switch "○".
Read the voltage with the MCS.

STANDARD: 7.00 – 8.80 V

Incline the bank angle sensor approximately 70° to the left or right with keeping the ignition switch ON.
Read the voltage with MCS.

STANDARD: 0.40 – 0.84 V



O_2 SENSOR

REMOVAL/INSTALLATION

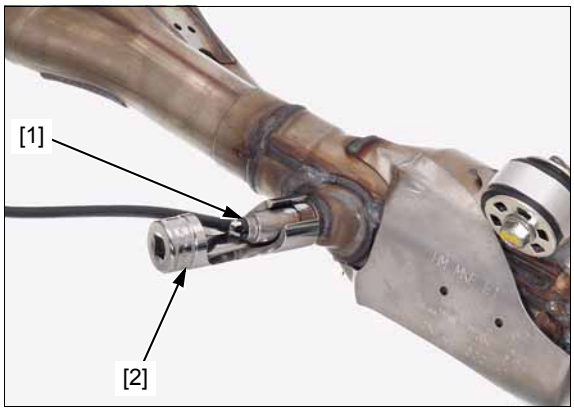
Remove the exhaust pipe (page 2-25).

Remove the O_2 sensor [1] using the special tool.

TOOL:
Sensor socket wrench [2] **FRXM17 (Snap on) or equivalent**

NOTICE

- *Handle the O_2 sensor with care.*
- *Do not get grease, oil, or other materials in the O_2 sensor air hole.*
- *Be careful not to damage the sensor wire.*
- *Do not use an impact wrench while removing or installing the O_2 sensor.*



Installation is in the reverse order of removal.

TORQUE: 24.5 N·m (2.5 kgf·m, 18 lbf·ft)

EGCA

REMOVAL/INSTALLATION

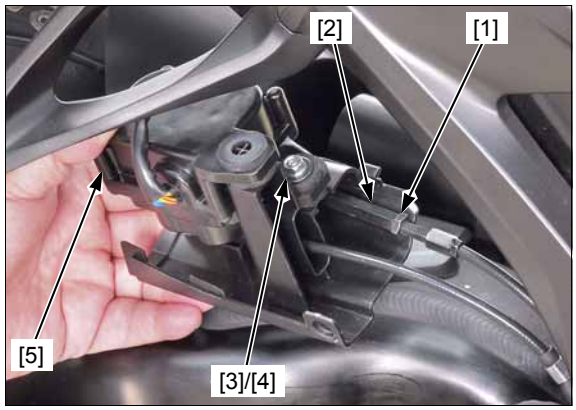
Remove the IMU cover (page 2-5).

Disconnect the EGCA 6P (Black) connector [1].

Remove the socket bolt [1] and EGCA cover [2].

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

Remove the bolt [3], collar [4] and EGCA [5].



Turn the EGCA pulley [1] and disconnect the EGCA cables [2] from the EGCA pulley.

Installation is in the reverse order of removal.

Adjust the EGCA cable (page 4-85).

WHEEL SPEED SENSOR (CBR1000RR)

AIR GAP INSPECTION

Support the motorcycle securely using a hoist or equivalent and raise the wheel off the ground.

Measure the air gap at several points by turning the wheel slowly.

– Front: Between the sensor and pulser ring
– Rear: Between the caliper bracket and pulser ring

It must be within specification.

Standard:
Front: 0.40 – 1.20 mm (0.016 – 0.047 in)
Rear: 0.73 – 1.19 mm (0.029 – 0.047 in)

The air gap cannot be adjusted.
If it is not within specification, check each part for deformation, looseness or damage.

Check the wheel speed sensor for damage, and replace if necessary.

Check the pulser ring for deformation or damage, and replace if necessary.

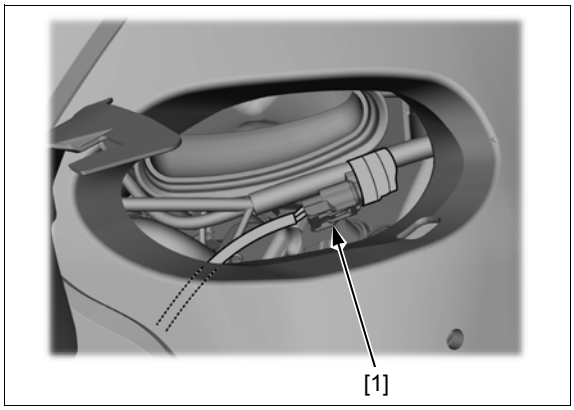
– Front pulser ring (page 16-17)
– Rear pulser ring (page 17-6)

REMOVAL/INSTALLATION

FRONT WHEEL SPEED SENSOR

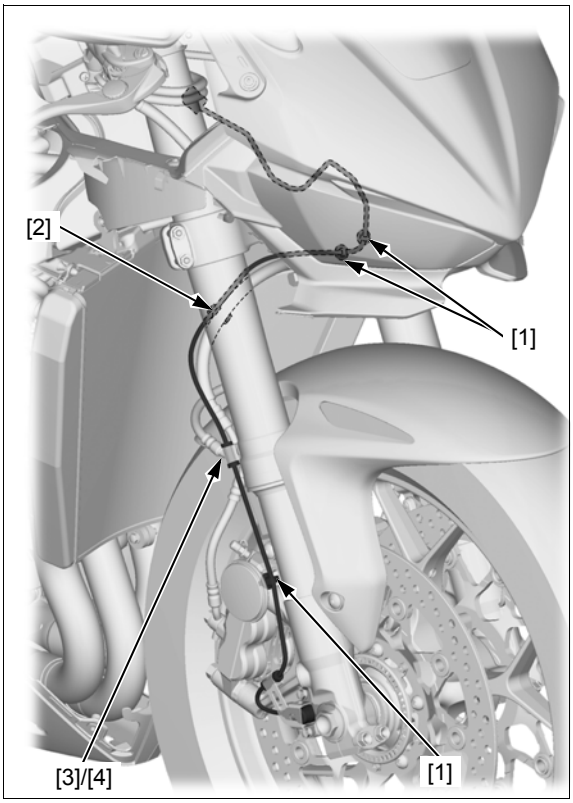
Remove the left intake air duct (page 2-14).

Disconnect the front wheel speed sensor 2P (Orange) connector [1].



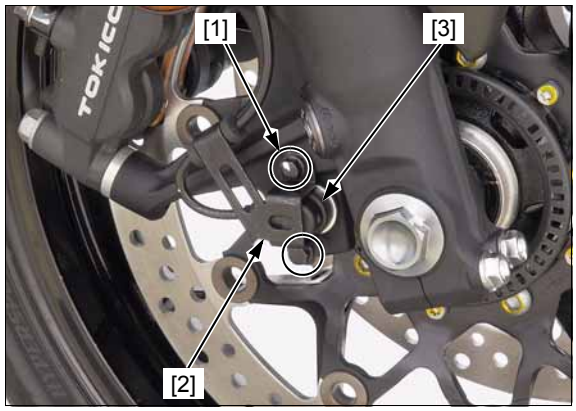
Remove the wire clips [1] and release the sensor wire from the clamp [2].

Remove the bolt [3] and wire clamp [4].



Remove the following:

– Bolts [1]
– Wire guide [2]
– Front wheel speed sensor [3]



Route the sensor wire properly (page 1-23)

Installation is in the reverse order of removal.

NOTE:

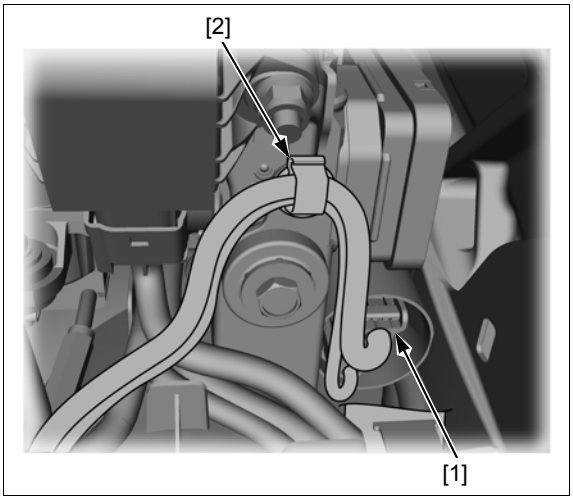
- Clean the sensor tip and sensor installation area thoroughly, and be sure that no foreign materials are allowed.

After installation, check the air gap (page 4-86).

REAR WHEEL SPEED SENSOR

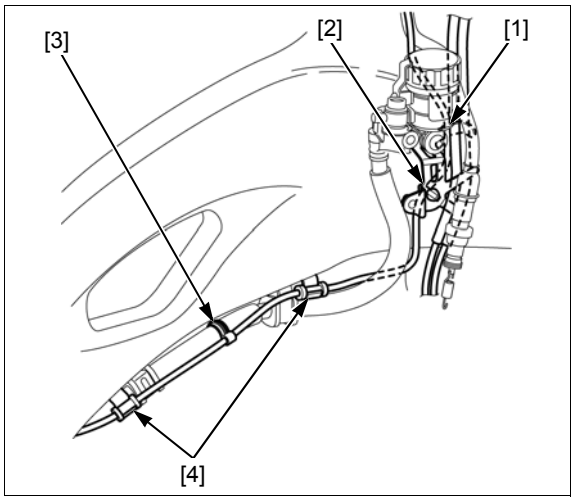
Disconnect the rear wheel speed sensor 2P (Black) connector [1].

Release the sensor wire from the wire clamp [2].



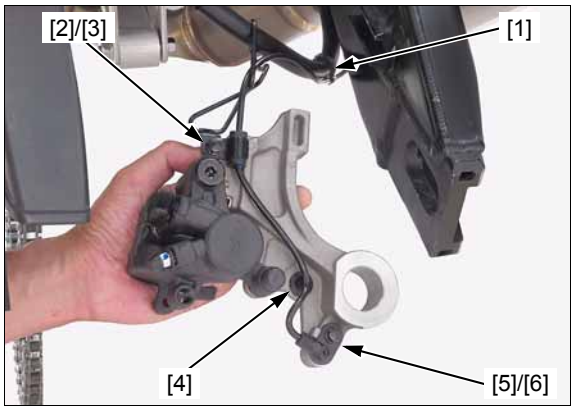
Release the sensor wire from the clamp [1] and remove the wire clip [2].

Remove the wire clip [3] from the brake hose and release the sensor wire from the clamps [4].



Remove the following:

– Rear wheel (page 17-5).
– Wire clip [1]
– Two bolt [2] and clamp [3]
– Wire clip [4]
– Bolt [5] and rear wheel speed sensor [6]



Route the sensor wire properly (page 1-23)

Installation is in the reverse order of removal.

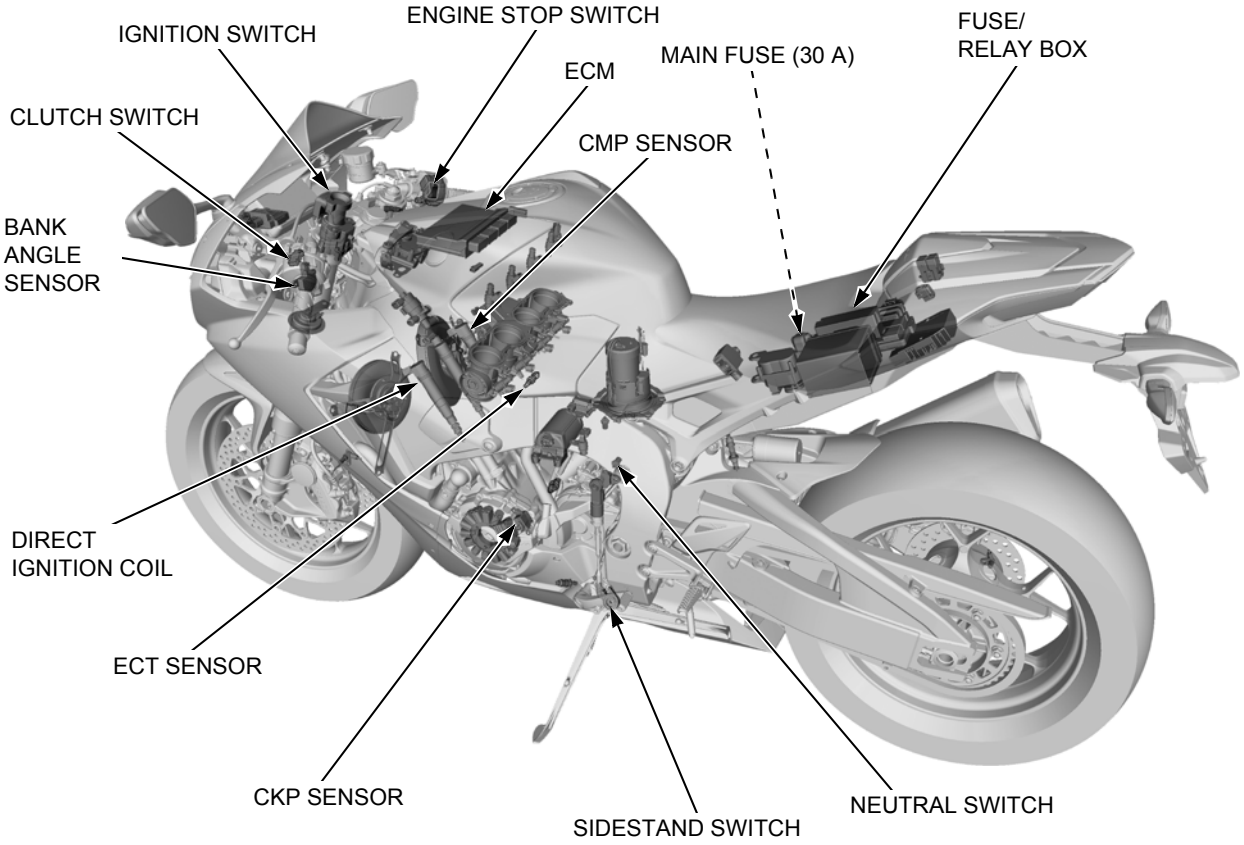
NOTE:

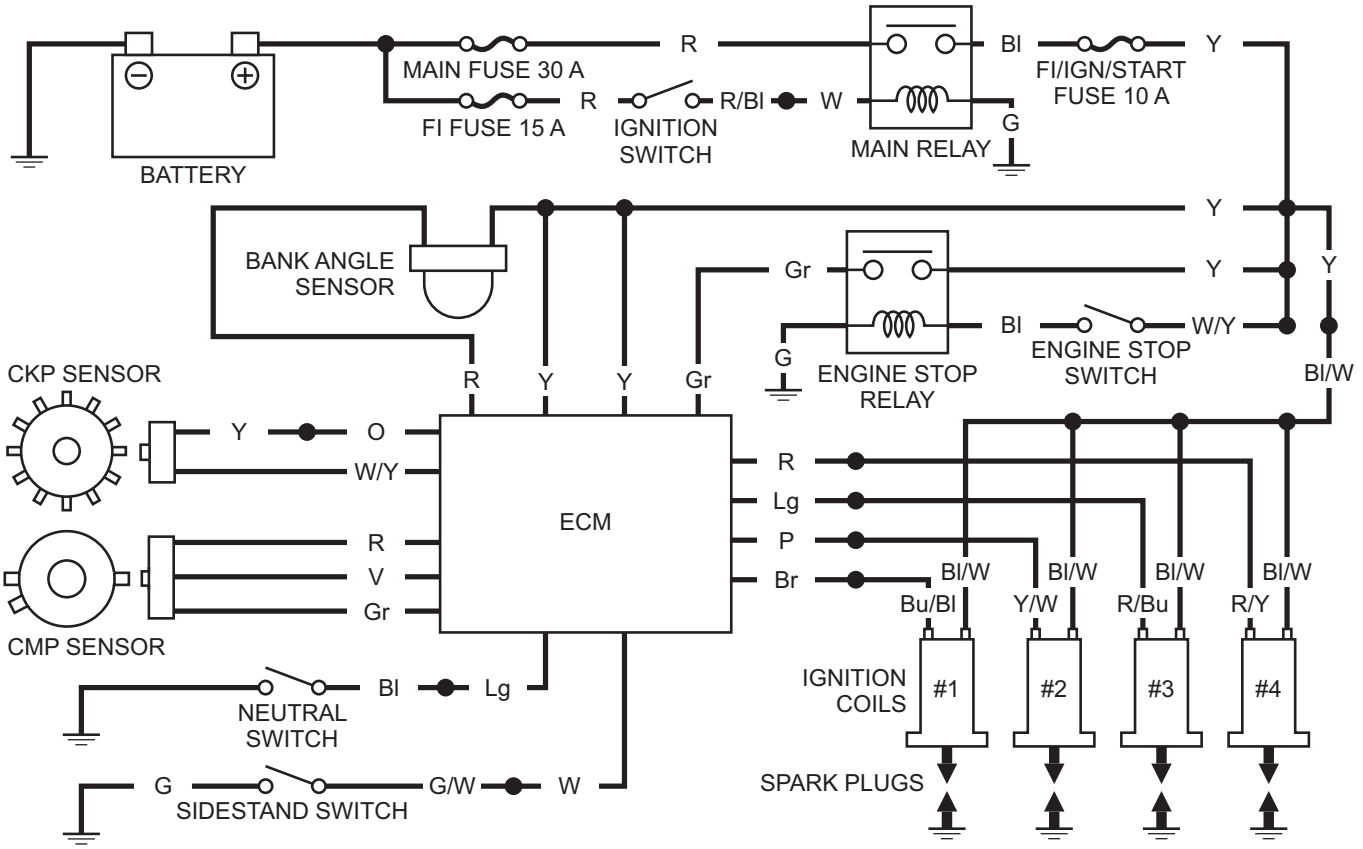
- Clean the sensor tip and sensor installation area (caliper bracket) thoroughly, and be sure that no foreign materials are allowed.
- For rear wheel installation (page 17-8)

After installation, check the air gap (page 4-86).

5. IGNITION SYSTEM

SYSTEM DIAGRAM





SERVICE INFORMATION

GENERAL

NOTICE

- *The ECM may be damaged if dropped. Also if the connector is disconnected when current is flowing, the excessive voltage may damage the module. Always turn off the ignition switch before servicing.*
- *Use spark plug of the correct heat range. Using spark plug with an incorrect heat range can damage the engine.*
- Some electrical components may be damaged if terminals or connectors are connected or disconnected while the ignition switch is ON and current is present.
- When servicing the ignition system, always follow the steps in the troubleshooting sequence (page 5-3).
- This motorcycle's ICM is built into the ECM.
- The ignition timing does not normally need to be adjusted since the ECM is factory preset.
- A faulty ignition system is often related to poor connections. Check those connections before proceeding.
  Make sure the battery is adequately charged.
  Using the starter motor with a weak battery results in a slower engine cranking speed as well as no spark at the spark plug.
- This motorcycle features direct ignition coils, where the ignition coil and spark plug cap are integrated.
  There are four direct ignition coils.
- For PGM-FI troubleshooting information (page 4-6).
- The following components information
  – Ignition switch (page 21-16)
  – Engine stop switch (page 21-17)
  – Sidestand switch (page 21-20)
  – Neutral switch (page 21-19)
  – ECM (page 4-73)

TROUBLESHOOTING

- Inspect the following before diagnosing the system.
  – Faulty spark plug
  – Loose direct ignition coil and spark plug connection
  – Loose direct ignition coil connectors
  – Water got into the direct ignition coil (shorting the ignition coil secondary voltage)
- If there is no spark at one cylinder, temporarily exchange the direct ignition coil with the other good one and perform the spark test. If there is spark, the original direct ignition coil is faulty.
- "Initial voltage" of the ignition primary coil is battery voltage with the ignition switch turned ON and engine stop switch turned "○" (The engine is not cranked by the starter motor).

No spark at all plugs

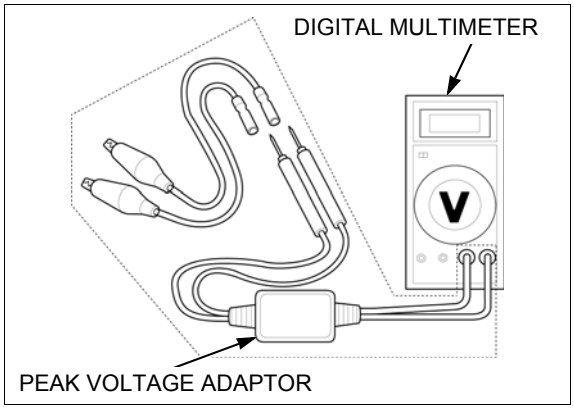
Unusual condition		Probable cause (Check in numerical order)
Ignition coil input voltage	No input voltage with the ignition switch ON (other electrical components are normal).	1. Faulty battery 2. Faulty main fuse (30 A) 3. Faulty FI/IGN/START fuse (10 A), FI fuse (15 A) 4. Faulty ignition switch 5. Faulty main relay 6. Faulty direct ignition coil or its related circuit 7. Faulty ECM
CKP sensor	Peak voltage is lower than standard value.	1. The multimeter impedance is too low; below 10 MΩ/DCV. 2. Cranking speed is too low (battery under charged). 3. The sampling timing of the tester and measured pulse were not synchronized (system is normal if measured voltage is over the standard voltage at least once). 4. Faulty CKP sensor (in case when above No. 1 – 3 are normal).
	No peak voltage.	1. Faulty peak voltage adaptor. 2. Faulty CKP sensor.

IGNITION SYSTEM INSPECTION

- If there is no spark at any plug, check all connections for loose or poor contact before measuring each peak voltage.
- Use the recommended digital multimeter or commercially available digital multimeter with an impedance of 10 MΩ/DCV minimum.
- The display value differs depending upon the internal impedance of the multimeter.
- If the Imrie diagnostic tester (model 625) is used, follow the manufacturer's instruction.

Connect the peak voltage tester or peak voltage adaptor to the digital multimeter.

TOOL:
Imrie diagnostic tester (model 625) or
Peak voltage adaptor 07HGJ-0020100
with commercially available digital multimeter
(impedance 10 MΩ/DCV minimum)



IGNITION COIL INPUT VOLTAGE

Disconnect the direct ignition coils from the spark plugs (page 3-6).

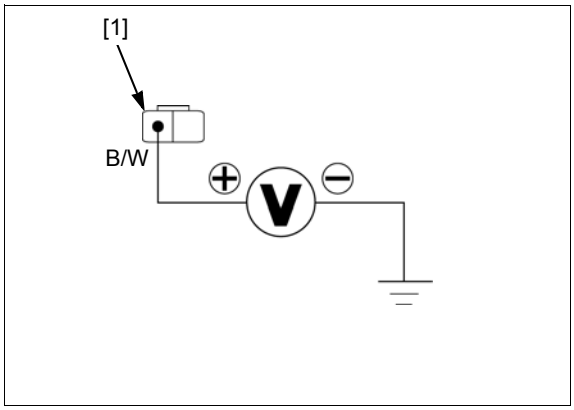
Connect the ignition switch 2P (Black) connector.

Disconnect the direct ignition coil 2P connector [1].

Turn the ignition switch ON.

Measure the input voltage.

Connection: Black/white (+) – Ground (–)
Standard: Battery voltage



CKP SENSOR PEAK VOLTAGE

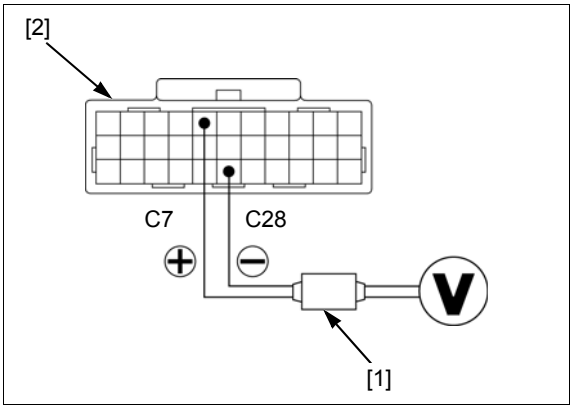
- Check all system connections before inspection. If the system is disconnected, incorrect peak voltage might be measured.
- Check cylinder compression and check that the spark plugs are installed correctly.

Lift and support the fuel tank (page 7-8).

Disconnect the ECM 33P (Black) connector [1] from the ECM.

Connect the peak voltage tester or peak voltage adaptor [1] probes to the connector [2] terminal of the wire side.

TOOLS:
Imrie diagnostic tester (model 625) or
Peak voltage adaptor 07HGJ-0020100
with commercially available digital multimeter
(impedance 10 MΩ/DCV minimum)
Test probe 07ZAJ-RDJA110



Connection: C7 (+) – C28 (–)

Crank the engine and read the peak voltage.

PEAK VOLTAGE: 0.7 V minimum

If the peak voltage measured at ECM connector is abnormal, measure the peak voltage at the CKP sensor connector.

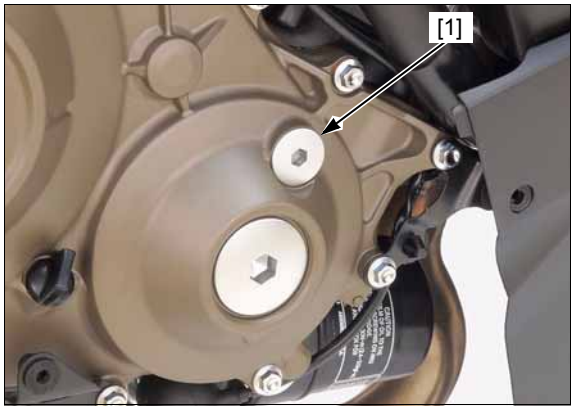
Disconnect the CKP sensor 2P (Red) connector [1] and connect the tester probes to the terminal (Orange and White/yellow).
In the same manner as at the ECM connector, measure the peak voltage and compare it to the voltage measured at the ECM connector.

- If the peak voltage measured at the ECM is abnormal and the one measured at the CKP sensor is normal, check the 2P (Red) connector for loose connection and the wire harness for an open circuit or loose connection.
- If both peak voltage measured are abnormal, check each item in the troubleshooting chart (page 5-3).
  If all items are normal, the CKP sensor is faulty. For CKP sensor replacement (page 12-3).

IGNITION TIMING

Warm up the engine.

Stop the engine and remove the timing hole cap [1].



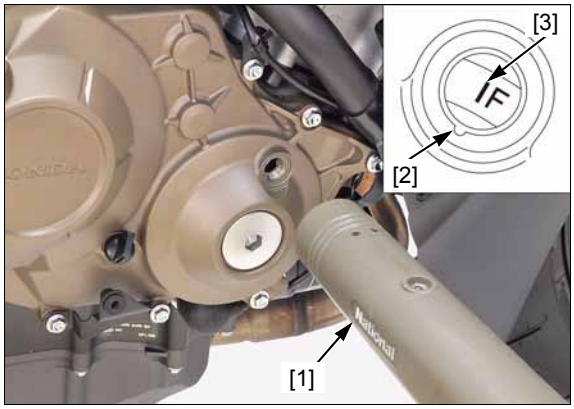
Read the instructions for timing light operation.

Connect the timing light [1] to the No.1 direct ignition coil connector wire.

Start the engine, let it idle and check the ignition timing.

IDLE SPEED: 1,200 ± 100 min^{-1} (rpm)

The ignition timing is correct if the index mark [2] on the right crankcase cover aligns the "F" mark [3] as shown.



Apply oil to a new O-ring [1] and install it to the timing hole cap.

Apply grease to the timing hole cap [2] threads and tighten the timing hole cap to the specified torque.

TORQUE: 6.0 N·m (0.6 kgf·m, 4.4 lbf·ft)

6. ELECTRIC STARTER

SERVICE INFORMATION

GENERAL

NOTICE

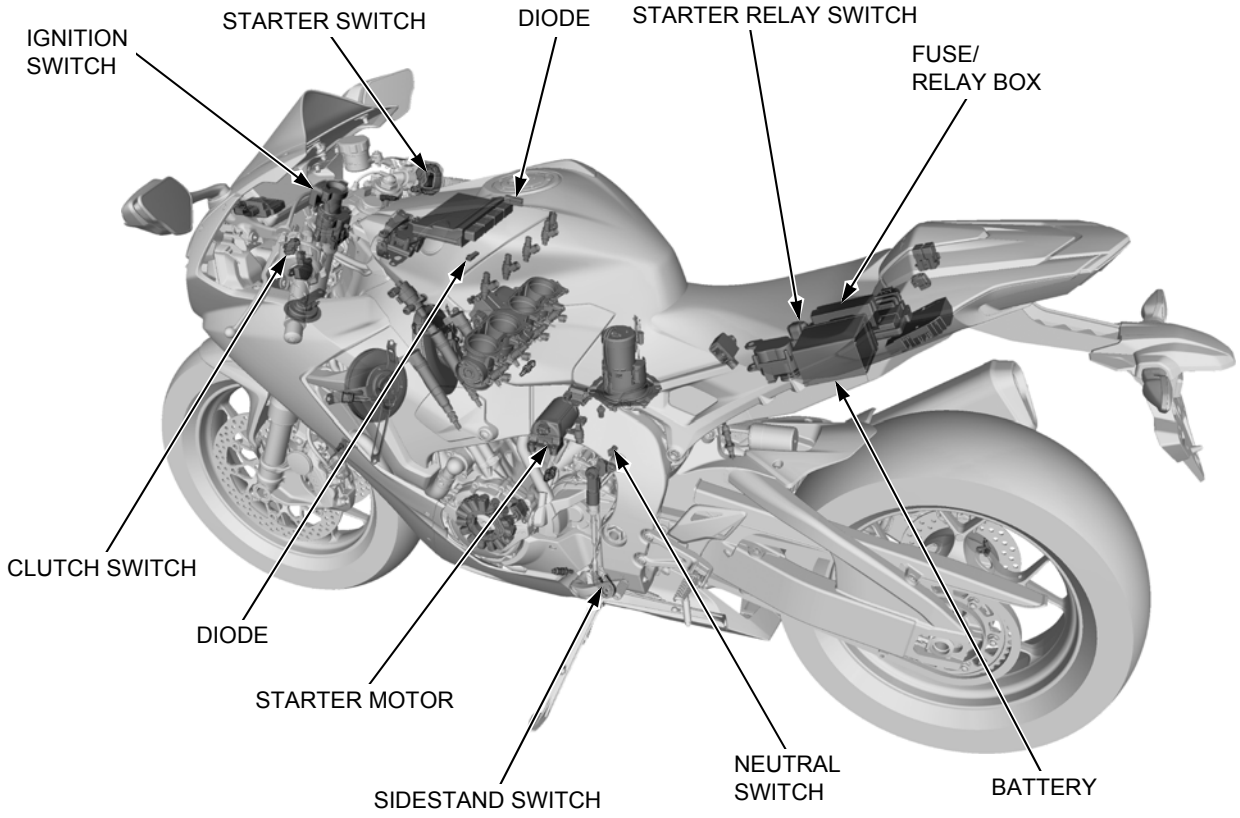
If current is kept flowing through the starter motor to turn it while the engine is not cranking over, the starter motor may be damaged.

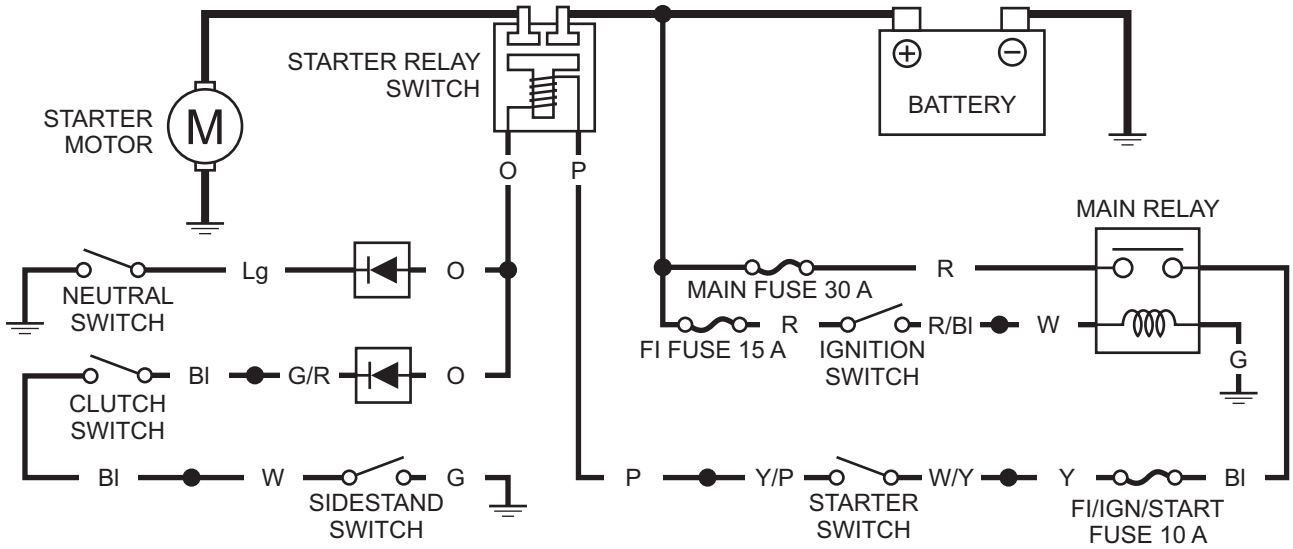
- Always turn the ignition switch OFF before servicing the starter motor. The motor could suddenly start, causing serious injury.
- The starter motor can be serviced with the engine in the frame.
- When checking the starter system, always follow the steps in the troubleshooting flow chart (page 6-2).
- A weak battery may be unable to turn the starter motor quickly enough, or supply adequate ignition current.
- For the starter clutch servicing (page 11-16).
- Refer to the following components information.
  - Ignition switch (page 21-16)
  - Starter switch (page 21-17)
  - Neutral switch (page 21-19)
  - Sidestand switch (page 21-20)
  - Clutch switch (page 4-81)

TROUBLESHOOTING

Unusual condition		Probable cause (Check in numerical order)
Starter motor	Starter motor does not turn	1. Loose or poor contact on related connectors and terminals 2. Blown fuse 3. Weak battery 4. Faulty starter relay switch 5. Faulty starter motor 6. Loose connection, open or short circuit in starter motor cable 7. Faulty starter switch 8. Open circuit in starter relay switch ground circuit 9. Faulty starter relay 10. Open or short circuit in starter relay switch power circuit 11. Loose contact or open circuit in related wires
	Starter motor does not turn when the transmission is in any gear with the sidestand retracted and clutch lever pulled in	1. Loose or poor contact on related connectors and terminals 2. Faulty diode 3. Faulty clutch switch 4. Faulty sidestand switch 5. Loose contact or open circuit in related wires
	Starter motor does not turn when the transmission is in neutral with the sidestand lowered and clutch lever released	1. Loose or poor contact on related connectors and terminals 2. Faulty diode 3. Faulty neutral switch 4. Loose contact or open circuit in related wires
	Starter motor turns slowly	1. Low battery voltage 2. Poorly connected battery terminal cable 3. Poorly connected starter motor cable 4. Faulty starter motor 5. Poorly connected battery ground cable
	Starter motor turns, but engine does not turn	1. Starter motor is running backwards – Case assembled improperly – Terminals connected improperly 2. Faulty starter clutch 3. Damaged or faulty starter idle gear and/or reduction gear
	Starter relay switch "Clicks", but engine does not turn over	1. Crankshaft does not turn due to engine problems

SYSTEM DIAGRAM





STARTER MOTOR

REMOVAL/INSTALLATION

- With the ignition switch OFF, disconnect the battery negative (–) cable before servicing the starter motor (page 20-6).

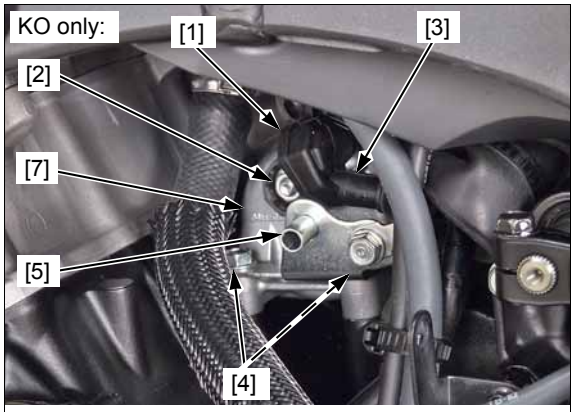
KO only: Remove the EVAP canister (page 7-22).

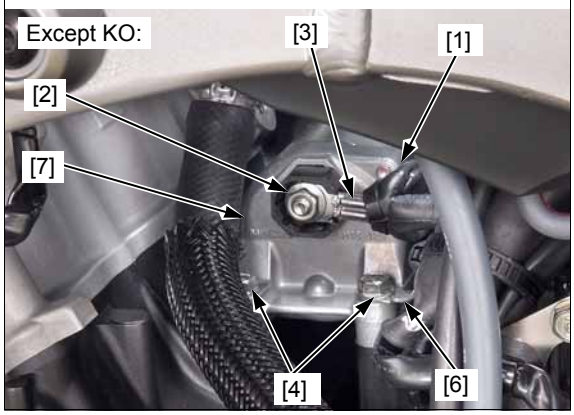
Open the rubber cap [1], then remove the terminal nut [2] and starter motor cable [3] from the starter motor.

KO only: Remove the starter motor mounting bolts [4] and stay [5].

Except KO: Remove the starter motor mounting bolts [4] and disconnect the battery negative (–) cable [6].

Remove the starter motor [7] from the crankcase.





Remove the O-ring [1] from the starter motor.

Installation is in the reverse order of removal.

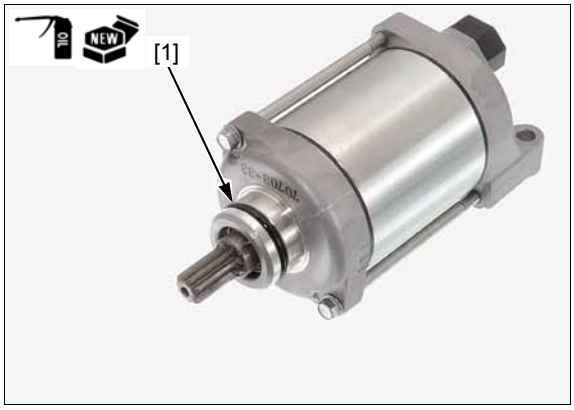
NOTE:

- Replace the O-ring with a new one.
- Apply engine oil to the new O-ring.

TORQUE:

Terminal nut:

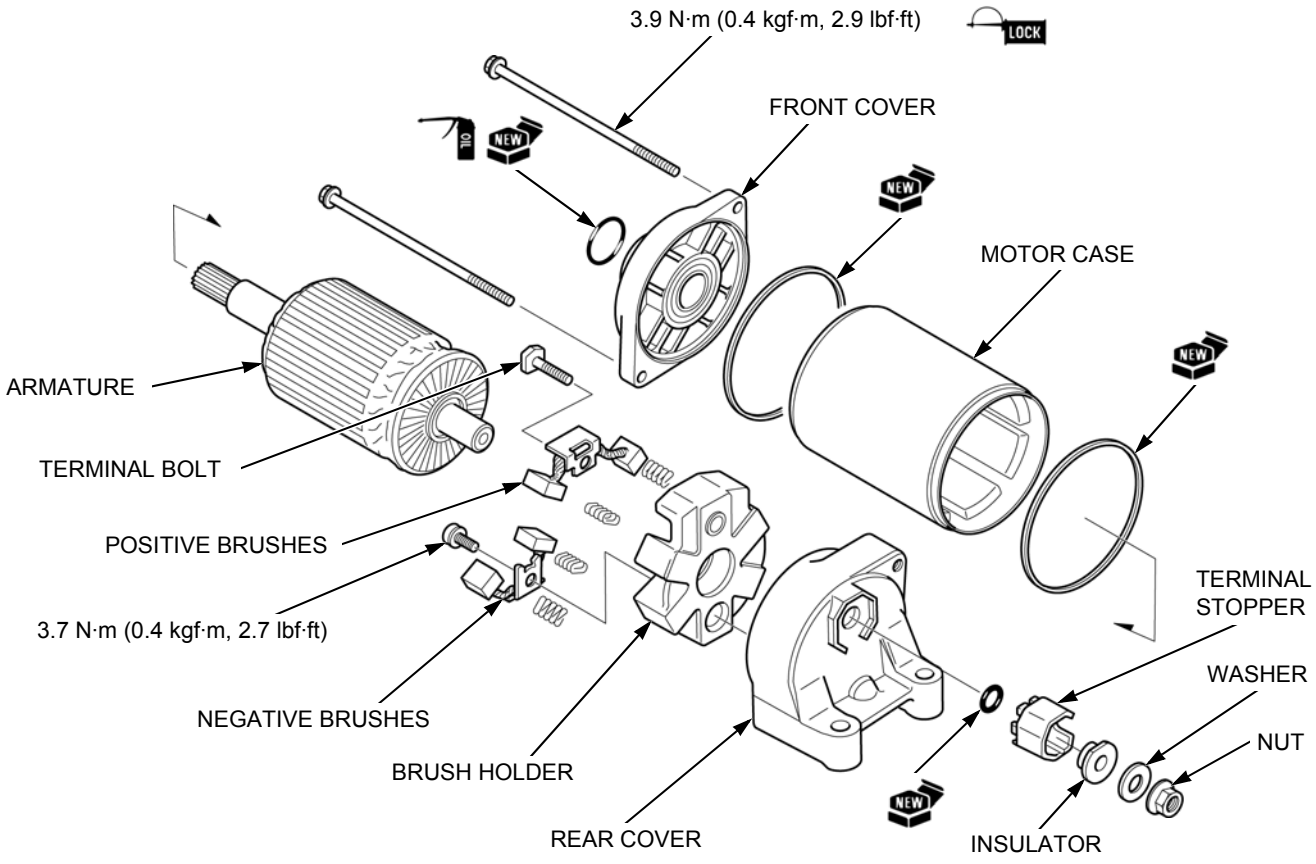
10 N·m (1.0 kgf·m, 7 lbf·ft)



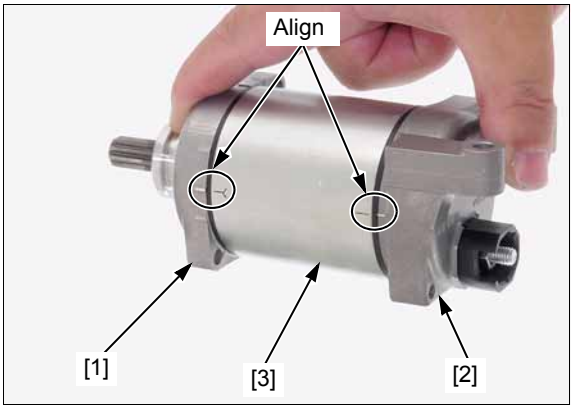
DISASSEMBLY/ASSEMBLY

NOTICE

The coil may be damaged if the magnet pulls the armature against the motor case.



When installing the front cover [1] and rear cover [2] onto the motor case [3], align the lines as shown.



INSPECTION

FRONT COVER

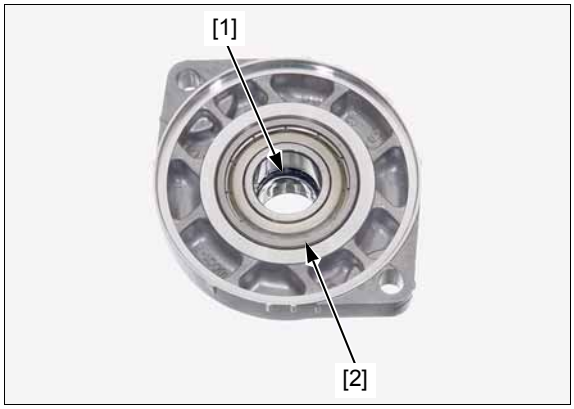
Check the oil seal [1] in the front cover for deterioration, wear, or damage.

Turn the inner race of the bearing [2] in the front cover with your finger.

The bearing should turn smoothly and quietly.

Also check that the outer race fits tightly in the front cover.

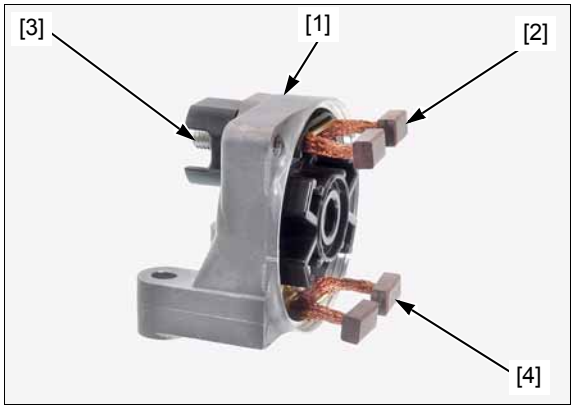
Replace the starter motor as an assembly if necessary.



REAR COVER

Check for continuity or no continuity for each part of rear cover [1] as below:

– Between the positive brush [2] and cable terminal [3]: should be continuity.
– Between the cable terminal and the rear cover: should be no continuity.
– Between the positive brush and rear cover: should be no continuity.
– Between positive brush and negative brush [4]: should be no continuity.



ARMATURE

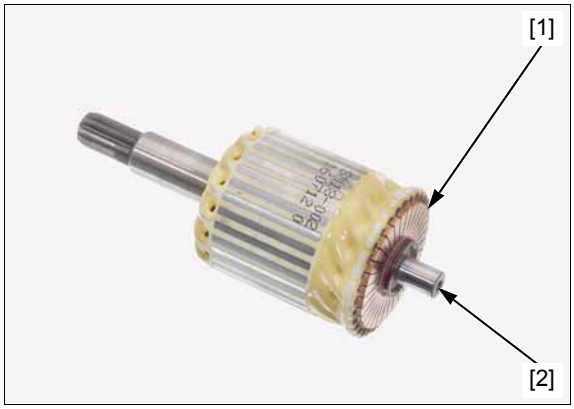
Clean the metallic debris off the commutator bars [1].

Check the commutator bars for discoloration.

Check for continuity on the armature as below:

– Between pair of commutator bars: there should be continuity.
– Between each commutator bar and the armature shaft [2]: should be no continuity.

Replace the starter motor as an assembly if necessary.



STARTER RELAY SWITCH

REMOVAL/INSTALLATION

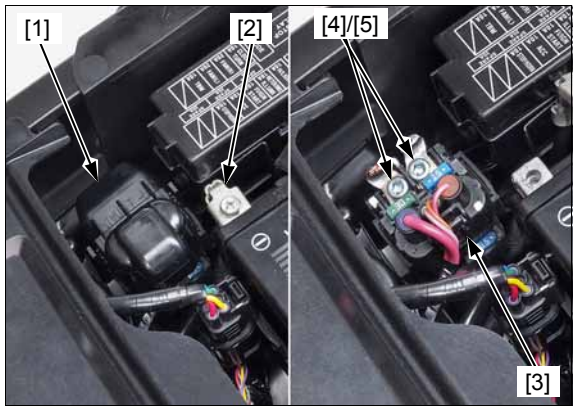
Remove the main seat (page 2-4).

Turn the ignition switch OFF.

Remove the starter relay switch cover [1].

Disconnect the battery negative (–) cable [2] (page 20-6).
Disconnect the starter relay switch 4P (Black) connector [3].
Remove the bolts [4] and disconnect the starter relay switch wires [5].
Remove the starter relay switch.

Installation is in the reverse order of removal.

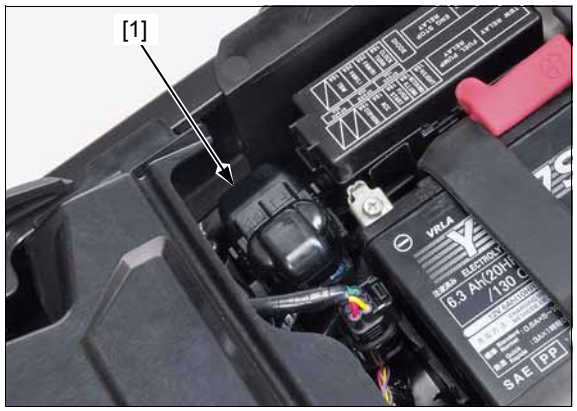


INSPECTION

Remove the main seat (page 2-4).

Shift the transmission into neutral.
Turn the ignition switch ON and press the starter switch button.
The coil is normal if the starter relay switch [1] clicks.

If you don't hear the switch "CLICK", inspect the relay switch using the procedure below.

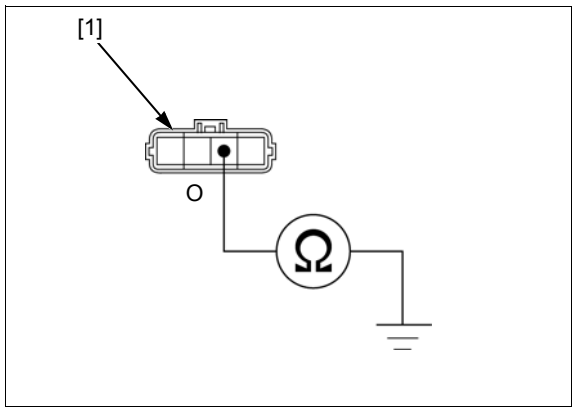


GROUND LINE INSPECTION

Disconnect the starter relay switch 4P (Black) connector [1].

Check for continuity between the Orange terminal (ground line) and ground.

If there is continuity when the transmission is in neutral and clutch lever released or when the clutch lever pulled and the sidestand up, the ground circuit is normal (In neutral, there is a slight resistance due to the diode).



INPUT LINE INSPECTION

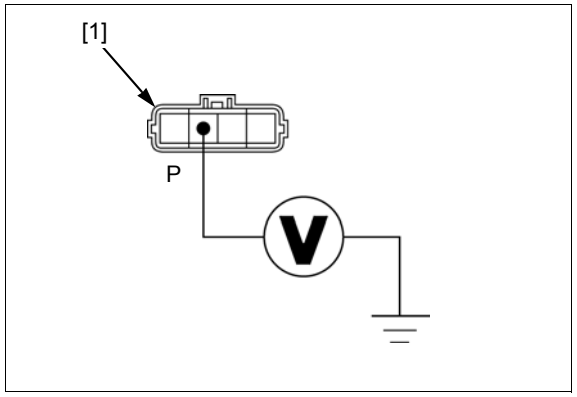
Measure the voltage between the Pink terminal (input line) and ground.

Turn the ignition switch ON and press the starter switch button.

There should be battery voltage.

If there is no battery voltage, inspect the following:

– Main fuse (30 A)
– FI/IGN/START fuse (10 A), FI fuse (15 A)
– Main relay
– Ignition switch (page 21-16)
– Starter switch (page 21-17)
– Open circuit in related wire



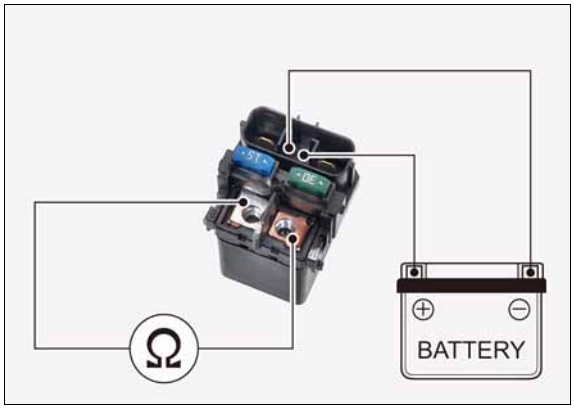
CONTINUITY INSPECTION

Remove the starter relay switch (page 6-7).

Connect an ohmmeter to the starter relay switch large terminals.

Connect a fully charged 12 V battery positive (+) wire to the starter relay switch Pink terminal and negative (–) wire to the Orange terminal.

There should be continuity between the large terminals while the battery is connected, and no continuity when the battery is disconnected.



DIODE

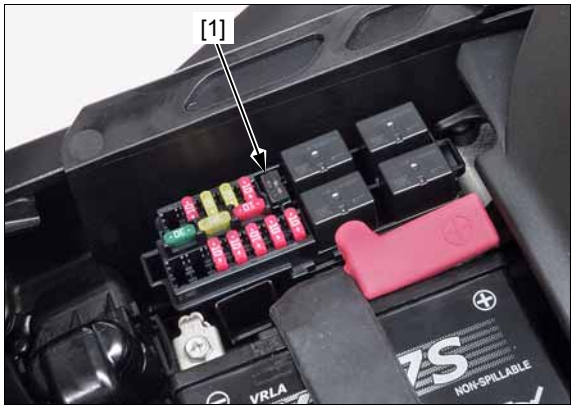
REMOVAL/INSTALLATION

3 terminals

Remove the main seat (page 2-4).

Open the fuse/relay box and remove the diode [1].

Installation is in the reverse order of removal.

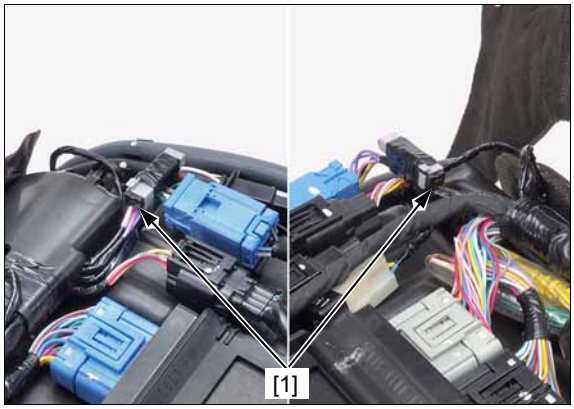


2 terminals

Lift and support the fuel tank (page 3-4).

Remove the diodes [1] from the main wire harness.

Installation is in the reverse order of removal.

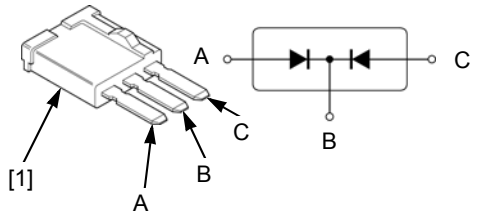


INSPECTION

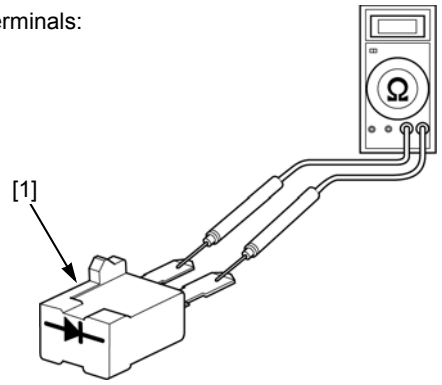
Check for continuity between the diode [1] terminals. When there is continuity, a small resistance value will register.

If there is continuity in one direction, the diode is normal.

3 terminals:



2 terminals:



MEMO

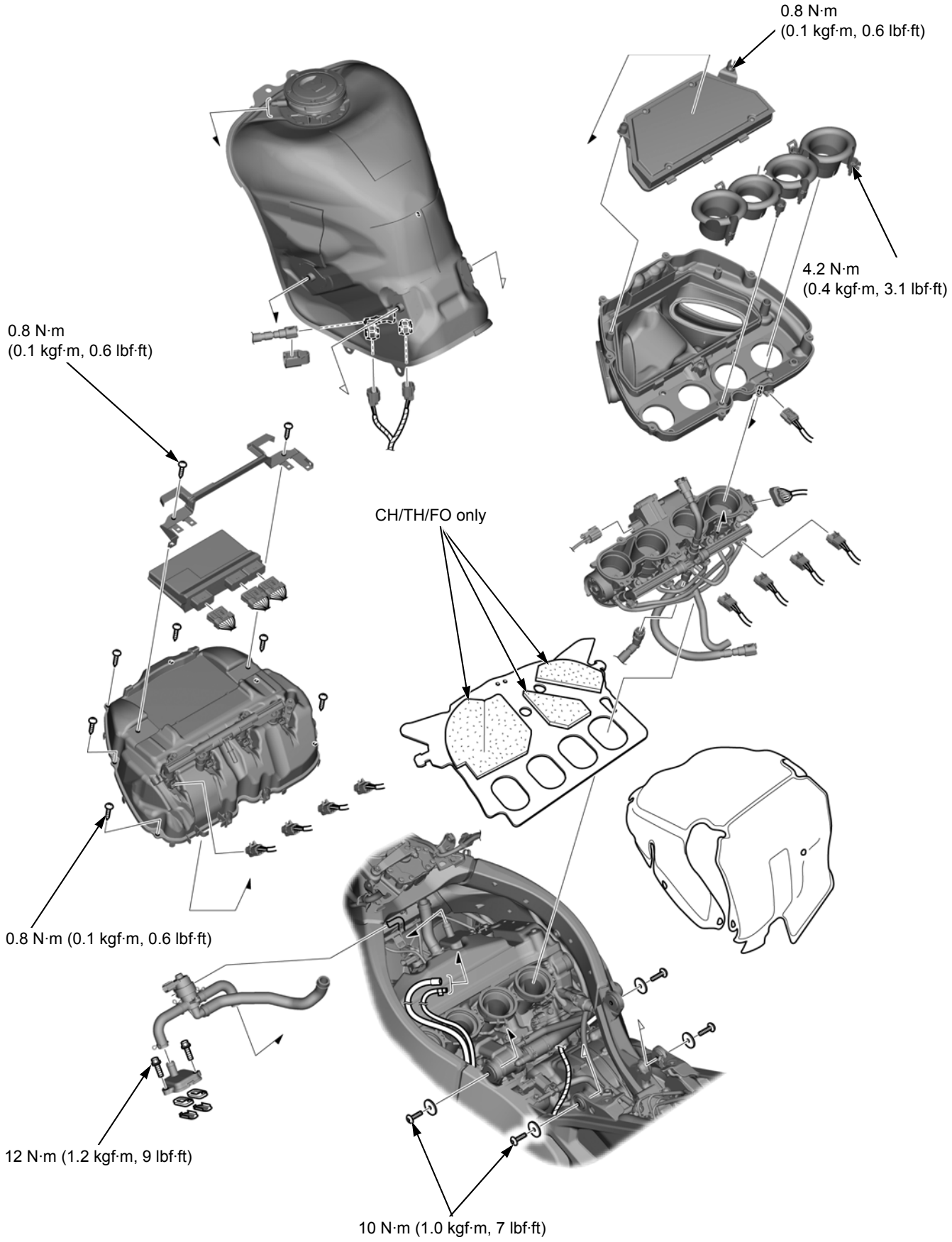
7. FUEL SYSTEM

SERVICE INFORMATION

GENERAL

- Work in a well ventilated area. Smoking or allowing flames or sparks in the work area or where gasoline is stored can cause a fire or explosion.
- Before disconnecting the fuel feed hose, relieve fuel pressure from the system (page 7-4).
- Bending or twisting the control cables will impair smooth operation and could cause the cables to stick or bind, resulting in loss of motorcycle control.
- Do not snap the throttle valve from full open to full close. It may cause incorrect idle operation.
- Seal the intake ports with tape or a clean cloth to keep dirt and debris from entering the engine after the throttle body or fuel rail has been removed.
- Do not damage the throttle body. It may cause incorrect throttle valve operation.
- Prevent dirt and debris from entering the throttle bore and air passages after the throttle body has been removed. Clean them using compressed air if necessary.
- Do not loosen or tighten the white painted nuts and screws of the throttle body. Loosening or tightening them can cause throttle valve and idle control failure.
- The parts of the throttle body not shown in this manual should not be disassembled.
- For fuel reserve sensor inspection (page 21-16)

COMPONENT LOCATION



FUEL LINE INSPECTION

FUEL PRESSURE RELIEVING

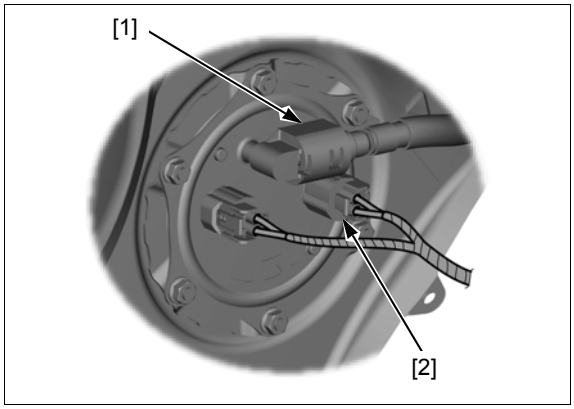
- Before disconnecting the fuel hose, relieve pressure from the system as follows.

1. Turn the ignition switch OFF.

   Lift and support the fuel tank (page 3-4).

   Remove the quick connect fitting cover [1] (fuel pump side only).

2. Disconnect the fuel pump 2P (Brown) connector [2].
3. Start the engine, and let it idle until the engine stalls.
4. Turn the ignition switch OFF.



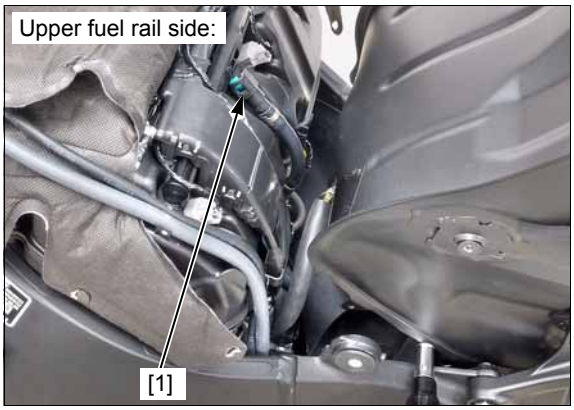
QUICK CONNECT FITTING REMOVAL

NOTE:

- Clean around the quick connect fitting [1] before disconnecting the fuel feed hose, and be sure that no dirt is allowed to enter into the fuel system.
- Do not bend or twist the fuel feed hose.

1. Relieve the fuel pressure (page 7-4).
2. Disconnect the battery negative (–) cable (page 20-6).
3. Check the fuel quick connect fitting for dirt, and clean if necessary.

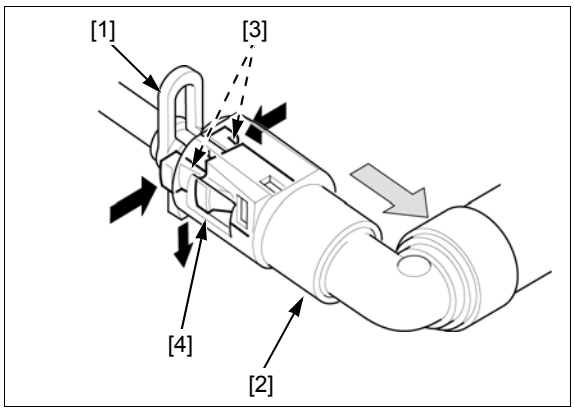
   Place a shop towel over the quick connect fitting.



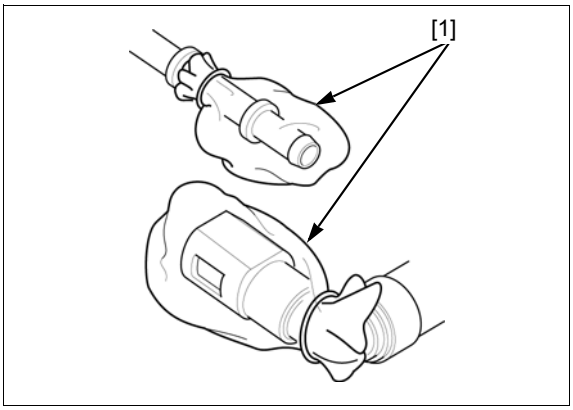
4. Pull and release the rubber damper [1] from the retainer.
5. Hold the connector [2] with one hand and squeeze the retainer tabs [3] with the other hand to release them from the locking pawls [4].

   Pull the connector off, then remove the rubber damper and retainer from the fuel joint.

- Absorb the remaining fuel in the fuel hose from flowing out with a shop towel.
- Be careful not to damage the hose or other parts.
- Do not use tools.
- If the connector does not move, keep the retainer tabs pressed down, and alternately pull and push the connector until it comes off easily.



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

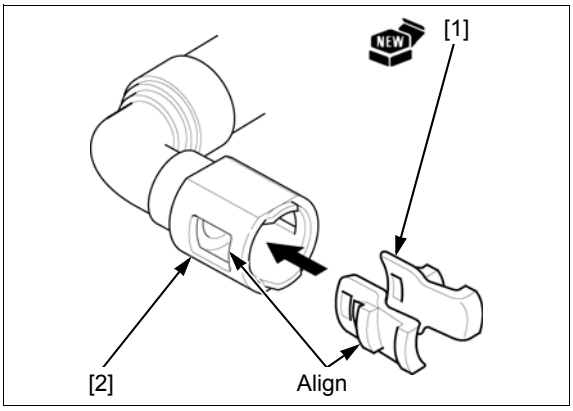


QUICK CONNECT FITTING INSTALLATION

- Always replace the retainer of the quick connect fitting when the fuel hose is disconnected.
- If the rubber damper is damaged or cut, replace it with a new one.
- Do not bend or twist the fuel hose.
- If any retainer needs replacing, use the same manufacturer's retainer as the ones being removed (The various manufactures feature different retainer specification).

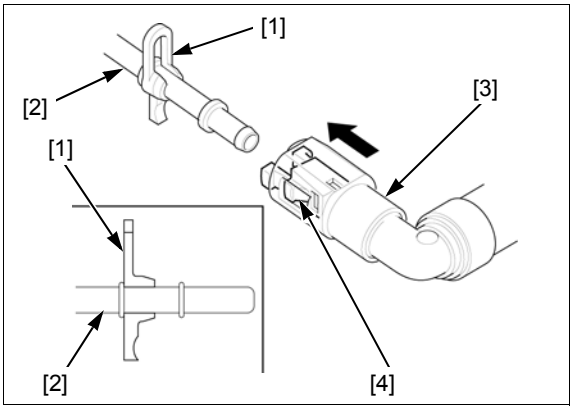
1. Insert a new retainer [1] into the connector [2].

- Align the retainer locking pawls with the connector grooves.

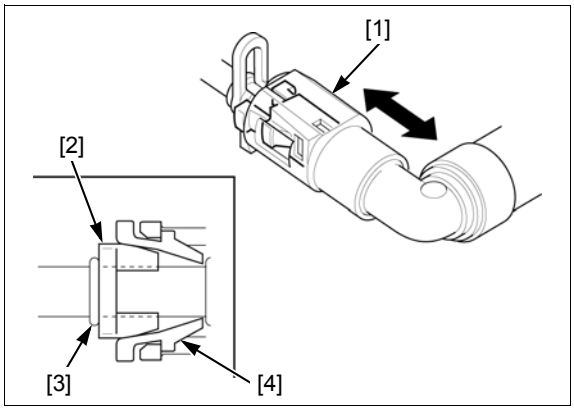


2. Install the rubber damper [1] and seat it onto the fuel joint [2] as shown.
   Align the quick connect fitting [3] with the fuel joint. Then press the quick connect fitting onto the pipe until both retainer pawls [4] lock with a "CLICK".

   If it is hard to connect, put a small amount of engine oil on the pipe end.



3. Make sure the connection is secure and that the pawls are firmly locked into place; check visually and by pulling the connector [1].
4. Make sure the rubber damper [2] is in place (between the flange [3] and retainer tab [4]).



FUEL PRESSURE NORMALIZATION

1. Connect the fuel pump unit 2P (Blown) connector [1].

   Install the quick connect fitting cover [2] (fuel pump side only)

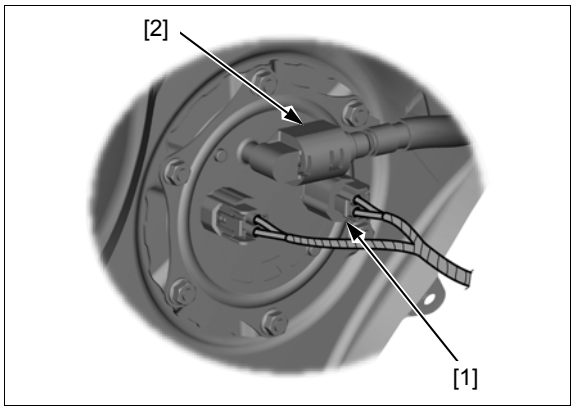
   Connect the battery negative (–) cable (page 20-6).
2. Turn the ignition switch ON and engine stop switch "".

   The fuel pump will run for about 2 seconds and fuel pressure will rise.

NOTE:

- Do not start the engine.

3. Turn the ignition switch OFF.
4. Repeat 2 or 3 times, and check that there is no leakage in the fuel supply system.
5. Remove the support and close the fuel tank (page 3-4).



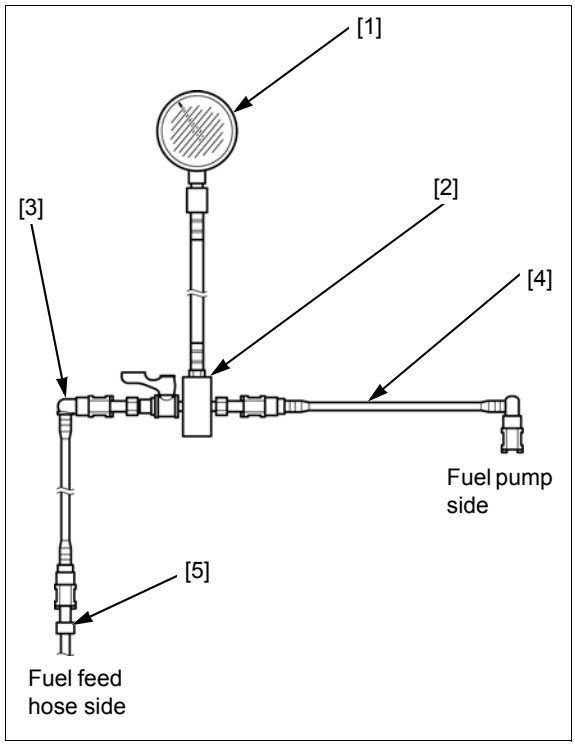
FUEL PRESSURE TEST

Relieve the fuel pressure (page 7-4).
Disconnect the quick connect fitting (fuel pump side) (page 7-4).

Attach the special tools between the fuel pump joint and fuel feed hose.

TOOLS:

Fuel pressure gauge [1]	**07406-0040004**
Pressure gauge manifold [2]	**07ZAJ-S5A0111**
Hose attachment, 9 mm/9 mm [3]	**07ZAJ-S5A0120**
Hose attachment, 8 mm/9 mm [4]	**07ZAJ-S7C0100**
Attachment joint, 8 mm/9 mm [5]	**07ZAJ-S7C0200**



Temporarily connect the battery negative (–) cable and fuel pump unit 3P (Black) connector.
Start the engine and let it idle.
Read the fuel pressure.

Standard:
392 kPa (4.0 kgf/cm^2, 56.9 psi)

If the fuel pressure is higher than specified, replace the fuel pump unit.
If the fuel pressure is lower than specified, inspect the following:

– Fuel line leaking
– Pinched or clogged fuel hose or fuel tank breather hose
– Fuel pump unit (page 7-9)

After inspection, relieve the fuel pressure (page 7-4).

Remove the special tools.

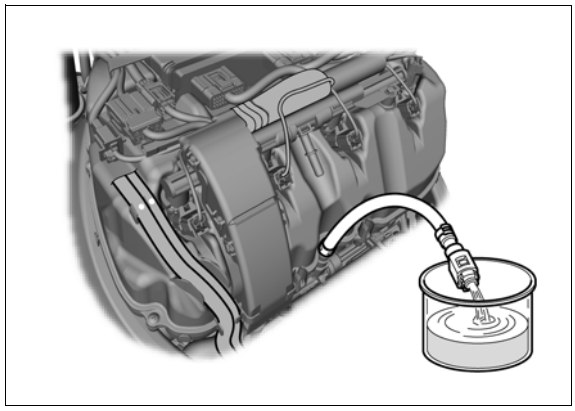
Connect the quick connect fitting (page 7-5).

FUEL FLOW INSPECTION

Disconnect the quick connect fitting from the secondary fuel rail (page 7-4).

Clean up any spilled fuel.

Place the end of the fuel feed hose [1] into an approved fuel container.



Temporarily connect the battery negative (–) cable and fuel pump unit 3P (Black) connector.
Turn the ignition switch ON and engine stop switch "".
Measure the amount of fuel flow.

NOTE:

- The fuel pump operates for 2 seconds. Repeat 5 times to meet the total measuring time.
- Return fuel to the fuel tank when the measurement is completed.

Amount of fuel flow:
414 cm^3 (14.0 US oz, 14.6 Imp oz) minimum/ 10 seconds at 12 V

If the fuel flow is less than specified, inspect the following:

– Pinched or clogged fuel hose or fuel tank breather hose
– Fuel pump unit (page 7-9)

Connect the quick connect fitting (page 7-5).

FUEL TANK

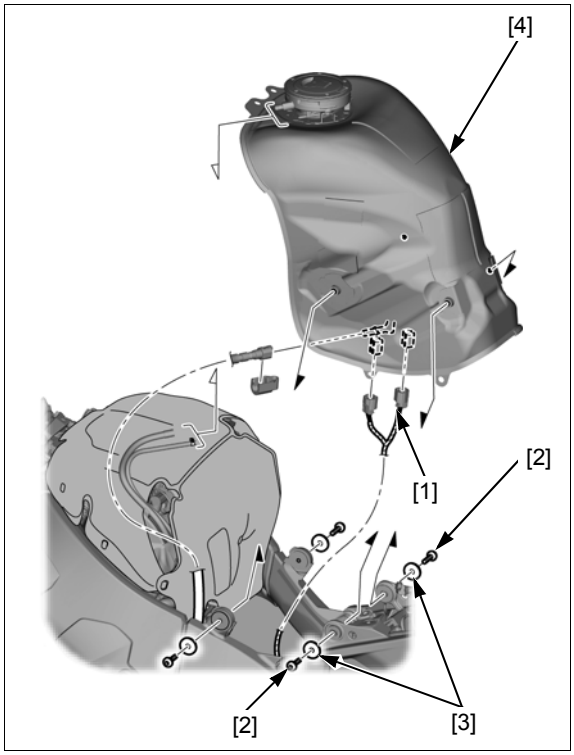
REMOVAL/INSTALLATION

Relieve the fuel pressure (page 7-4) and disconnect the quick connect fitting from the fuel tank.

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

Remove the support, fuel tank pivot bolts [2], collars [3] and fuel tank [4].

For fuel pump unit removal (page 7-9).



Installation is in the reverse order of removal.

NOTE:

- A pressure release can be heard when opening the fuel cap, but this is not blockage of the passage. If checking for clog in the passage of the fuel tank side is necessary, apply air pressure to the breather hose end with the fuel filler cap opened.
- If the fuel filler cap was removed, replace the breather seal [1] with a new one.
- Route the hoses, wires and harness properly.
- Be careful not to damage the harness and hose.
- After installing the fuel tank, make sure the drain, breather hose and fuel hoses are not kinked or bound.

TORQUE:

Fuel filler cap bolt:
1.8 N·m (0.2 kgf·m, 1.3 lbf·ft)

Fuel tank mounting bolt:
10 N·m (1.0 kgf·m, 7 lbf·ft)

FUEL PUMP UNIT

INSPECTION

Turn the ignition switch ON and engine stop switch "○" and confirm that the fuel pump operates for a few seconds.
If the fuel pump does not operate, inspect as follows:

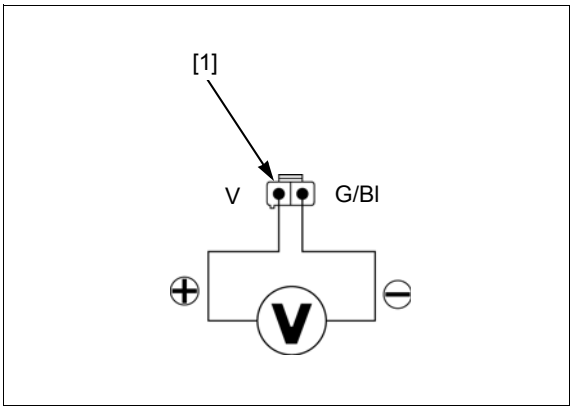
Turn the ignition switch OFF.

Disconnect the fuel pump unit 2P (Brown) connector (page 7-4).

Turn the ignition switch ON.

Measure the voltage at the wire harness side 2P (Brown) connector [1].

CONNECTION: Violet (+) – Green/Black (–)



There should be battery voltage for a few seconds.

If there is battery voltage for a few seconds, replace the fuel pump unit.

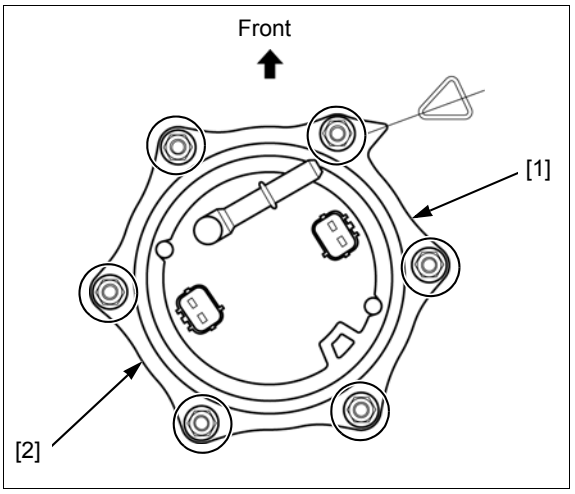
If there is no battery voltage, inspect the following:

– Fuel pump relay
– Fuel pump relay related circuit
– Open circuit in the Violet or Green/black wire
– ECM power/ground line (page 4-74)

REMOVAL

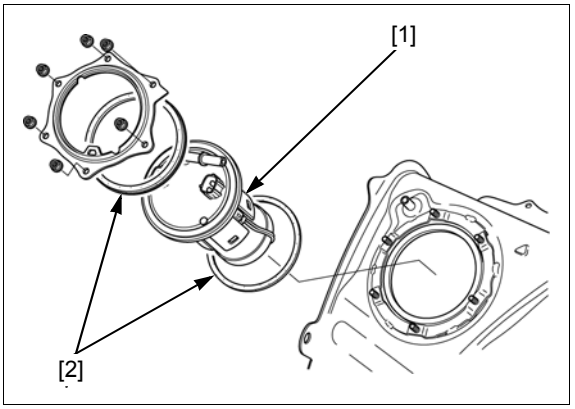
Remove the fuel tank (page 7-8).

Remove the fuel pump unit mounting nuts [1] and setting plate [2].



Be careful not to damage the pump wire and fuel level gauge.

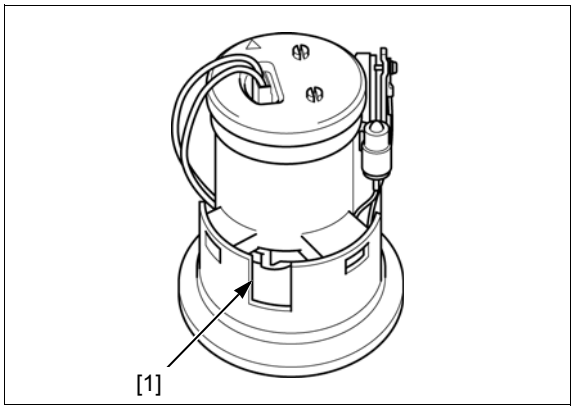
Remove the fuel pump unit [1] and packings [2].



INSPECTION

Check the fuel pump unit for wear or damage, replace it if necessary.

Clean the fuel strainer screen [1] with non-flammable or high flash point solvent.



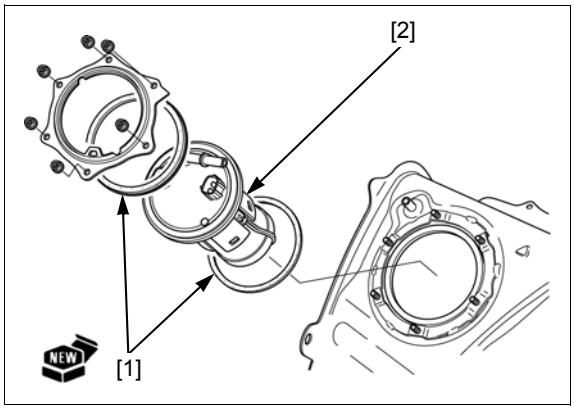
INSTALLATION

Always replace the old packing with new ones.

Place new packings [1] onto the fuel pump unit [2].

Be careful not to damage the pump wire and fuel level gauge.

Install the fuel pump unit to the fuel tank.

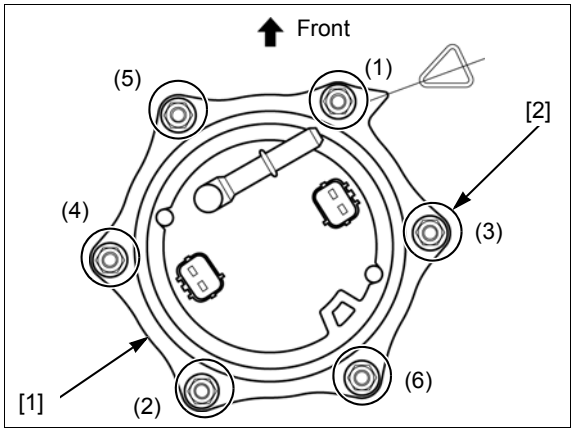


CBR1000RR/RA's setting plate/nuts and CBR1000S1/S2's setting plate/nuts are using a different material. Do not exchange.

Install the setting plate [1] and tighten the fuel pump mounting nuts [2] to the specified torque in the specified sequence as shown.

TORQUE: 12 N·m (1.2 kgf·m, 9 lbf·ft)

Install the fuel tank (page 7-8).



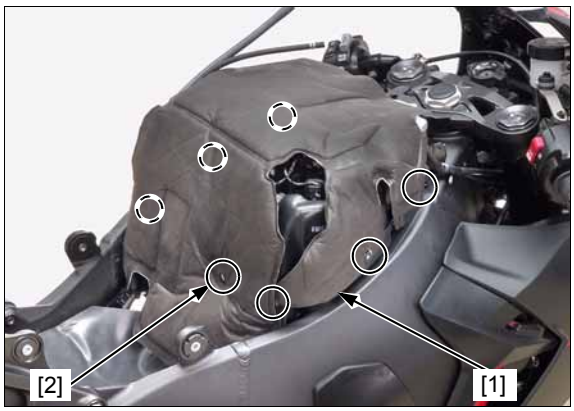
AIR CLEANER HOUSING

REMOVAL/INSTALLATION

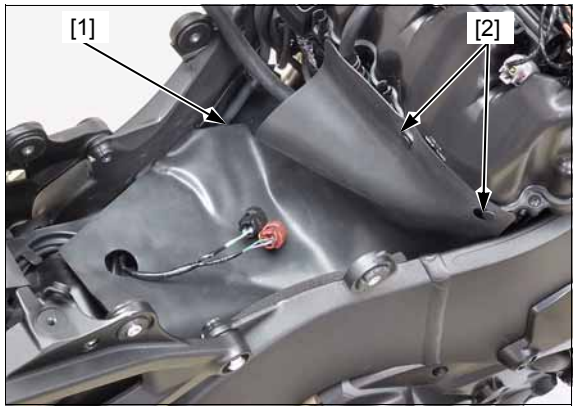
- For MAP sensor removal/installation (page 4-82)
- For secondary injector removal/installation (page 7-16)

Remove the fuel tank (page 7-8).

Remove the air cleaner cover [1] from the bosses [2] of the upper housing.

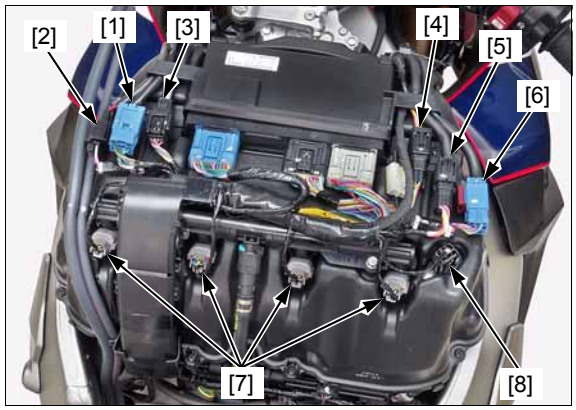


CH/TH/FO only: Remove the air cleaner rear rubber [1] from the bosses [2] of the upper housing.



Disconnect the following:

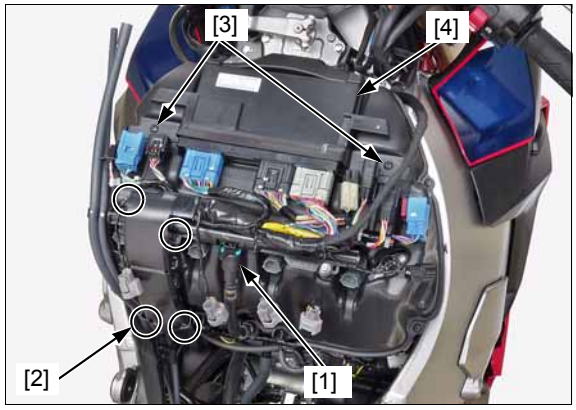
– Except CH: Left handlebar switch 6P (Blue) connector [1]
– CH only: Left handlebar switch 8P connector [1].
– Ignition switch 2P (Black) connector [2]
– Left handlebar switch 8P (Black) connector [3]
– HISS 4P (Black) connector [4]
– APS 6P (Black) connector [5]
– Right handlebar switch 6P (Blue) connector [6]
– Secondary injector 2P (Gray) connector [7]
– IAT sensor 2P (Black) connector [8]



Disconnect the quick connect fitting [1] from the upper fuel rail joint (page 7-4).

Release the hooks [2].

Remove the screws [3] and lift the ECM [4].

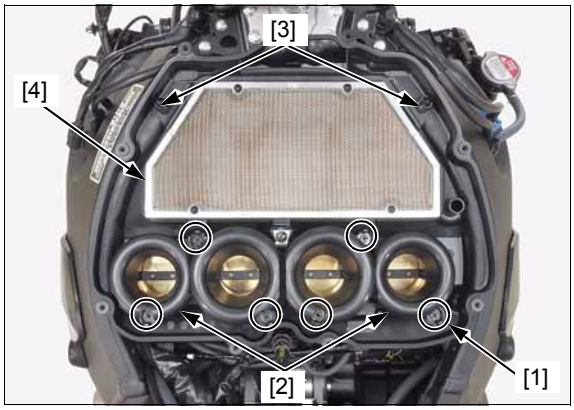


Remove the screws [1] and upper housing [2].

Remove the intake air duct (page 2-14).

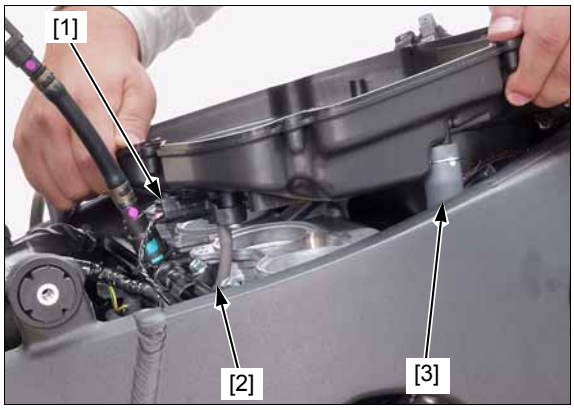
Remove the screws [1] and air funnels [2].

Remove the screws [3] and air cleaner element [4].



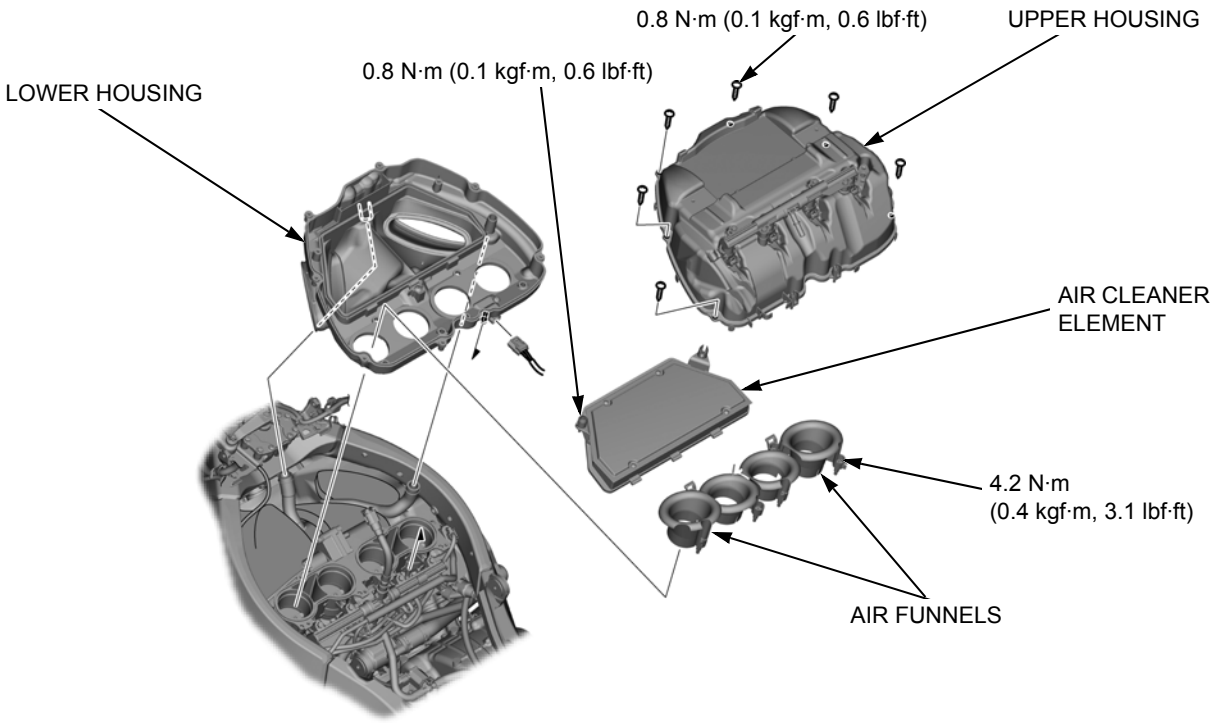
Disconnect the MAP sensor 3P (Black) connector [1] and vacuum hose [2].

Disconnect the PAIR air suction hose [3] from the lower housing.



Disconnect the crankcase breather hose [1] from the lower housing.

- Be careful not to enter the dirt into the intake port.



Installation is in the reverse order of removal.

TORQUE:
Air cleaner housing screw:
0.8 N·m (0.1 kgf·m, 0.6 lbf·ft)
Air cleaner element screw:
0.8 N·m (0.1 kgf·m, 0.6 lbf·ft)
Air funnel screw:
4.2 N·m (0.4 kgf·m, 3.1 lbf·ft)

THROTTLE BODY

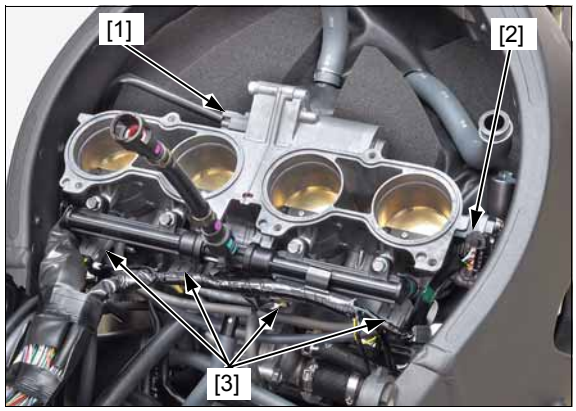
REMOVAL/INSTALLATION

Remove the following:

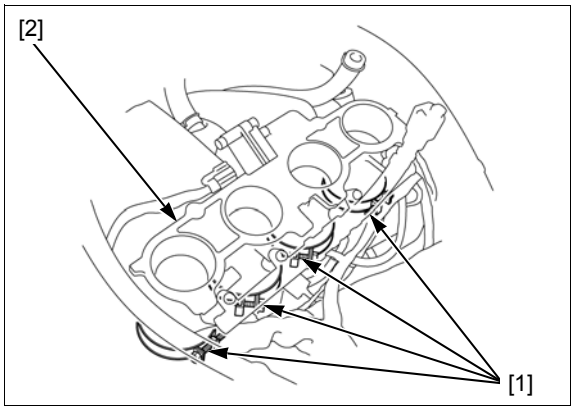
– Middle cowls (page 2-13)
– Air cleaner housing (page 7-10)

Disconnect the following:

– TBW 2P connector [1]
– TP sensor 6P connector [2]
– Primary injector 2P (Gray) connectors [3]



Loosen the insulator band screws [1] using a long type phillips screwdriver.

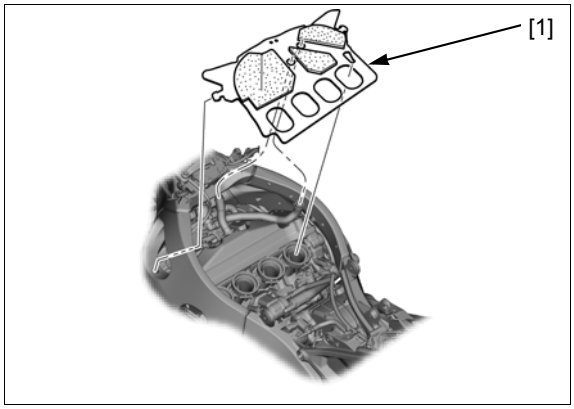


When removing the throttle body, do not hold it by the fuel rail.

Remove the throttle body [2] from the cylinder head.

- Seal the cylinder head intake ports with tape or a clean cloth to keep dirt and debris from entering the intake ports after the throttle body has been removed. If debris is allowed to enter the ports the engine may be damaged.
- The throttle body is factory pre-set. Do not disassemble.
- Do not loosen or tighten the bolts and screws of the throttle body. Loosening or tightening them can cause throttle valve and idle control failure.

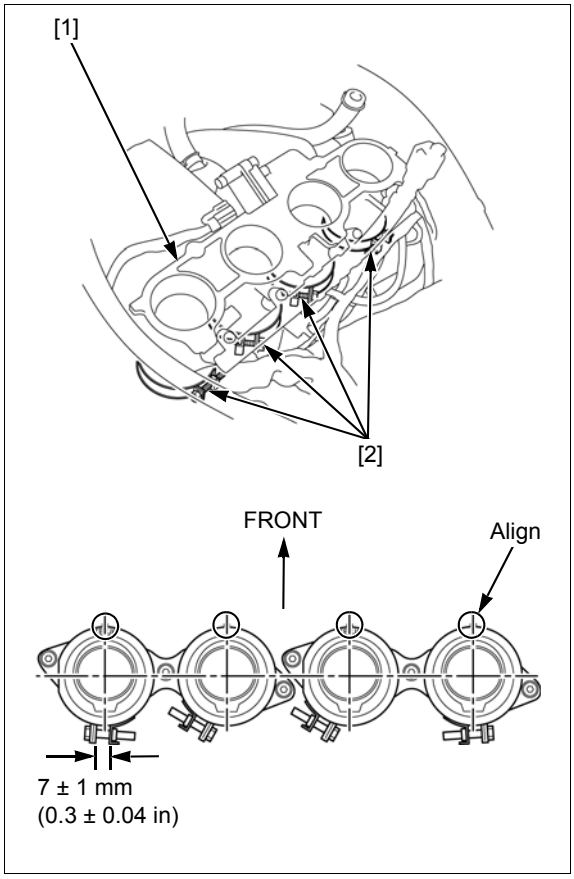
Remove the heat guard rubber [1] from the insulator.



Installation is in the reverse order of removal.

NOTE:

- Before installing the throttle body, make sure the insulator band's screws are positioned correctly, as shown in the illustration.
- When installing the throttle body [1], do not hold it by the fuel rail.
- Tighten the engine side insulator band screws [2] so that the insulator band distance is 7 ± 1 mm (0.3 ± 0.04 in)
- Align the insulator band hole with the insulator boss.



PRIMARY INJECTOR

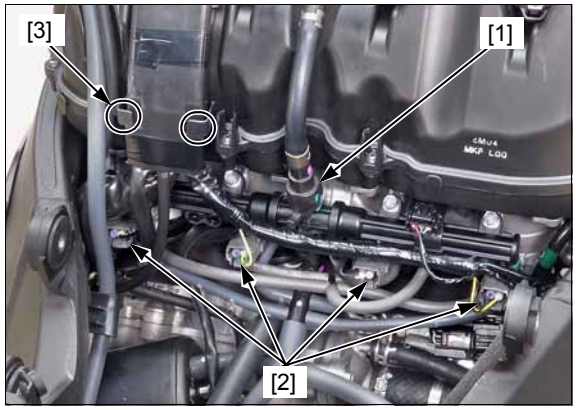
REMOVAL/INSTALLATION

Remove the fuel tank (page 7-8).

Disconnect the quick connect fitting [1] (page 7-4).

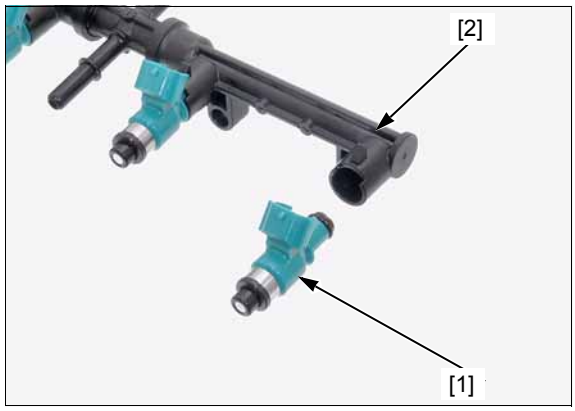
Disconnect the primary injector 2P (Gray) connectors [2].

Release the hooks [3].

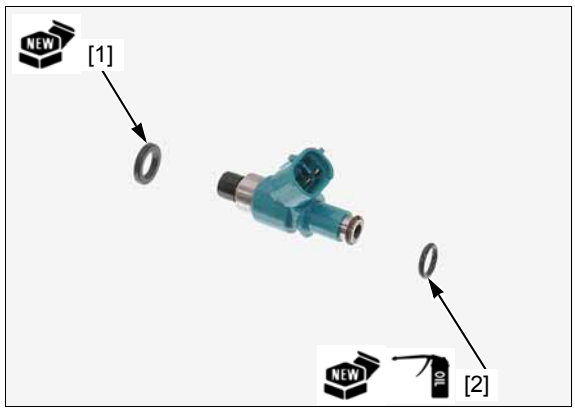


Remove the bolts [1] and fuel rail assembly [2].

Remove the injectors [1] from the fuel rail [2].



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



Remove the fuel rails [1] and O-rings [2] from the fuel rail joint [3].

Installation is in the reverse order of removal.

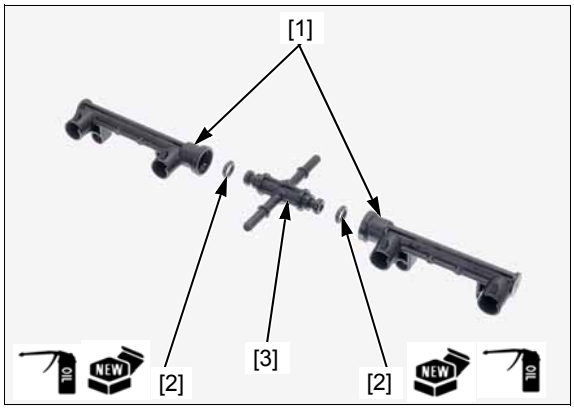
NOTE:

- Apply oil to new O-rings and install them.

TORQUE:

Fuel rail mounting bolts:

5.1 N·m (0.5 kgf·m, 3.8 lbf·ft)



SECONDARY INJECTOR

REMOVAL/INSTALLATION

Lift and support the fuel tank (page 3-4).

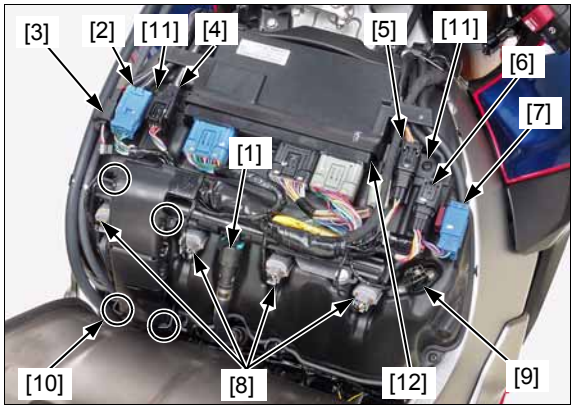
Relieve the fuel pressure and disconnect the quick connect fitting [1] from the upper fuel rail joint (page 7-4).

Disconnect the following:

– Except CH: Left handlebar switch 6P (Blue) connector [2]
– CH only: Left handlebar switch 8P connector [2].
– Ignition switch 2P (Black) connector [3]
– Left handlebar switch 8P (Black) connector [4]
– HISS 4P (Black) connector [5]
– APS 6P (Black) connector [6]
– Right handlebar switch 6P (Blue) connector [7]
– Secondary injector 2P (Gray) connectors [8]
– IAT sensor 2P (Black) connector [9]

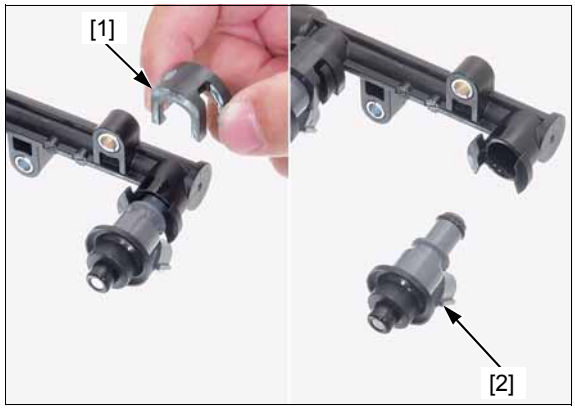
Release the hooks [10].

Remove the screws [11] and lift the ECM [12].

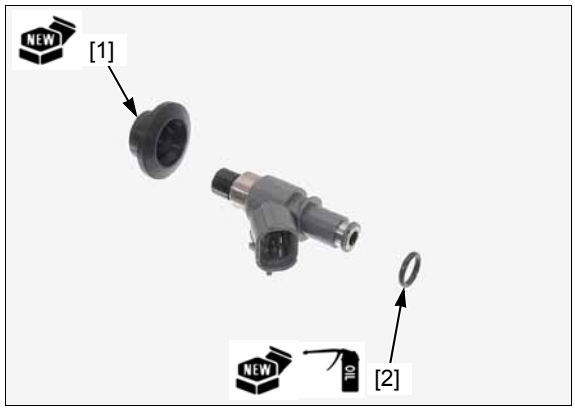


Remove the bolts [1], injector plate [2] and fuel rail assembly [3] from the air cleaner housing.

Remove the retainers [1] and injectors [2] from the fuel rail.



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

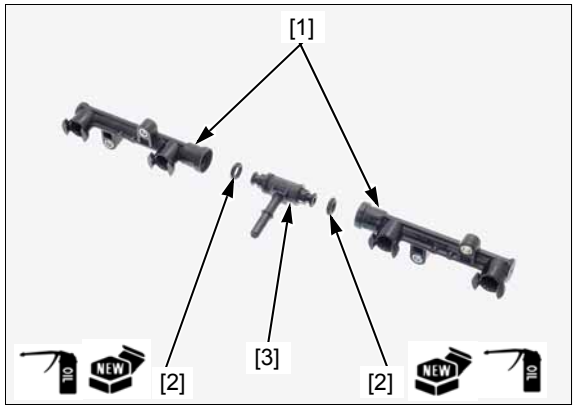


Remove the fuel rails [1] and O-rings [2] from the fuel rail joint [3].

Installation is in the reverse order of removal.

NOTE:

- Apply oil to new O-rings and install them.



SECONDARY AIR SUPPLY SYSTEM

SYSTEM INSPECTION

Start the engine and warm it up to coolant temperature is 80°C (176°F).

Stop the engine.

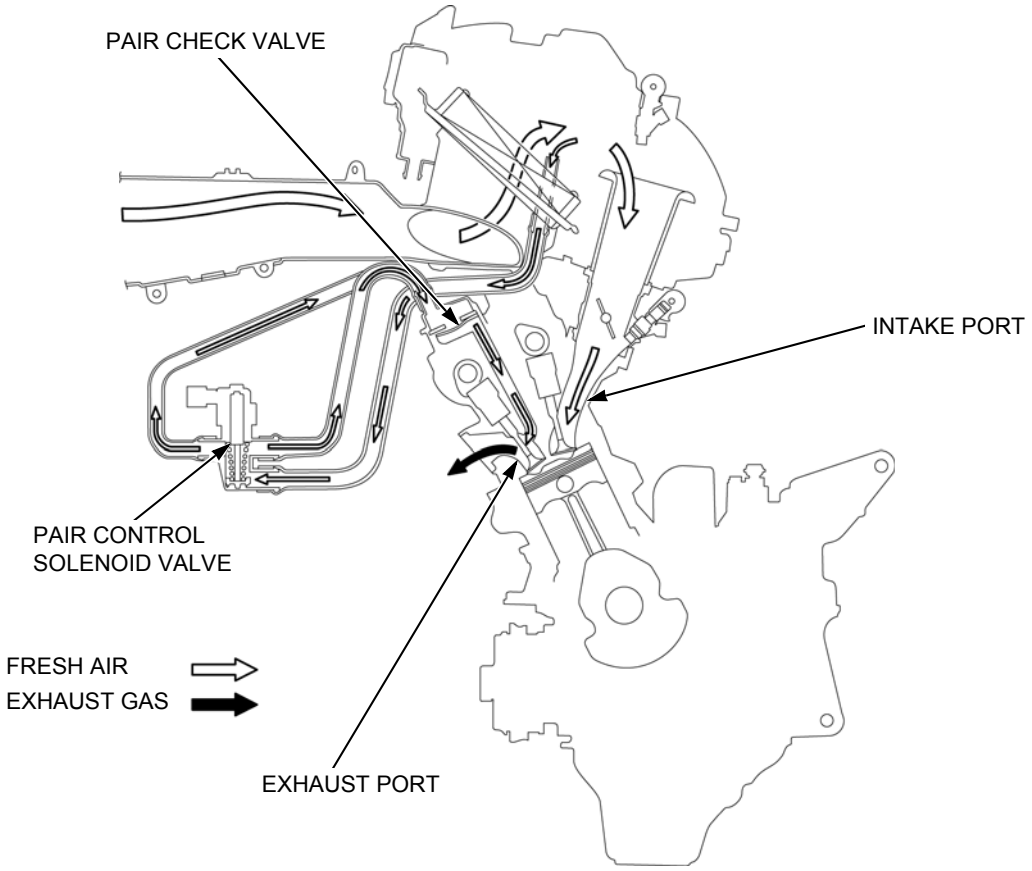
Open the air cleaner upper cover (page 7-10).

Check that the secondary air intake port [1] is clean and free of carbon deposits.

Check the PAIR check valves if the port for carbon fouling (page 7-17).

Start the engine and open the throttle slightly to be certain that air is sucked in through the air intake port.

If the air is not drawn in, check the air suction hoses for clogs and PAIR control solenoid valve.



PAIR CONTROL SOLENOID VALVE

REMOVAL/INSTALLATION

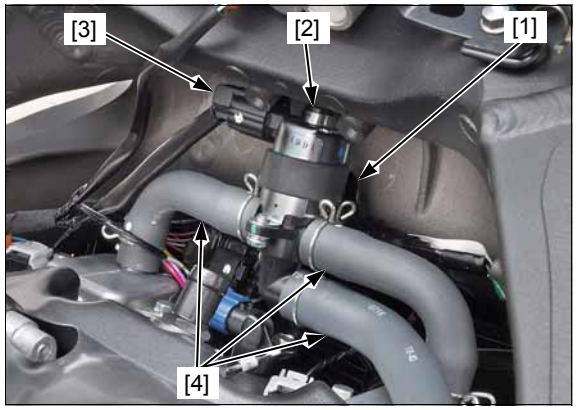
Remove the air cleaner housing (page 7-10).

Pull up the front of heat guard rubber [1].

Remove the direct ignition coil wire harness clip [1] from the PAIR control solenoid valve [2].

Disconnect the PAIR control solenoid valve 2P (Black) connector [3].
Disconnect the PAIR air suction hoses [4].

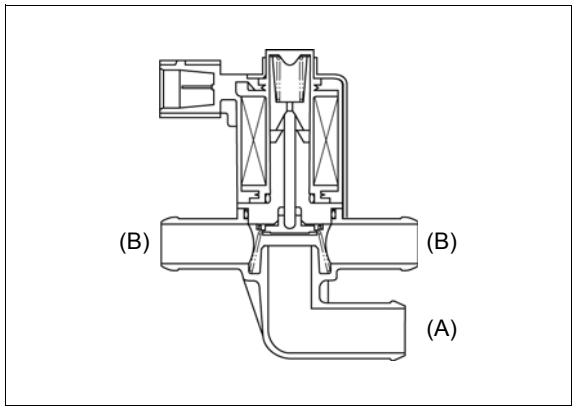
Installation is in the reverse order of removal.



INSPECTION

Remove the PAIR control solenoid valve.

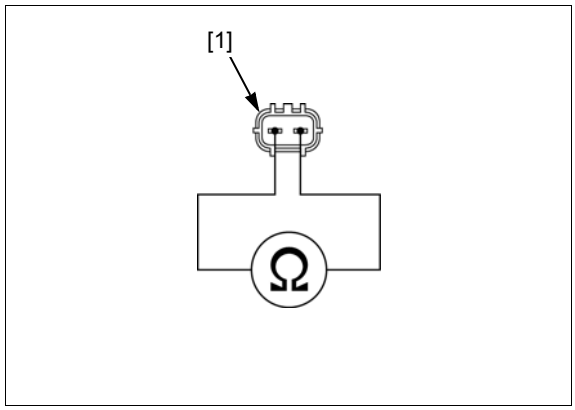
Check that air does not flow (A) to (B) when a 12 V battery is connected to the PAIR control solenoid valve terminals. Air should flow (A) to (B) when there is no voltage applied to the PAIR valve terminals.



Check the resistance between the terminals of the PAIR control solenoid valve connector [1].

Standard: 23 – 27 Ω (20°C/68°F)

If the resistance is out of specification, replace the PAIR control solenoid valve.



PAIR CHECK VALVE REMOVAL/ INSTALLATION

Remove the bolts [1] and PAIR check valve cover [2].

Remove the PAIR check valves [1] from the cylinder head cover.

Check the PAIR check valve for wear or damage, replace if necessary.

Remove the baffle plates [1] from the cylinder head cover.

Installation is in the reverse order of removal.

NOTE:

- Apply locking agent to the PAIR check valve cover bolt threads.

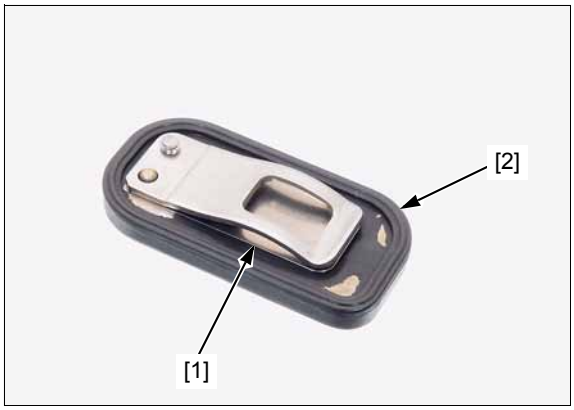
TORQUE:
PAIR check valve cover bolt:
12 N·m (1.2 kgf·m, 9 lbf·ft)

PAIR CHECK VALVE INSPECTION

Remove the PAIR check valves (page 7-19).

Check the reed valve [1] for damage or fatigue. Replace if necessary.

Replace the PAIR check valve if the rubber seat [2] is cracked, deteriorated or damaged, or if there is clearance between the reed and seat.



EVAP

EVAP PURGE CONTROL SOLENOID VALVE REMOVAL/INSTALLATION

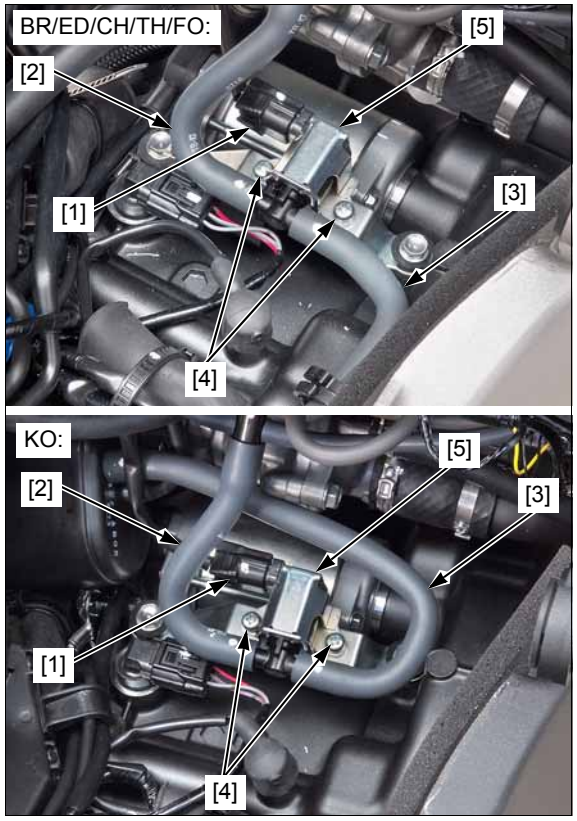
Remove the fuel tank (page 7-8).

Disconnect the following:

– EVAP purge control solenoid valve 2P (Black) connector [1].
– EVAP purge control solenoid valve-to-throttle body hose [2]
– EVAP canister-to-purge control solenoid valve hose [3]

Remove the screws [4] and EVAP purge control solenoid valve [5].

Installation is in the reverse order of removal.



EVAP PURGE CONTROL SOLENOID VALVE INSPECTION

Remove the EVAP purge control solenoid valve (page 7-21).

Check the air flow from hose fitting A (input port) to hose fitting B (output port) of the EVAP purge control solenoid valve [1].

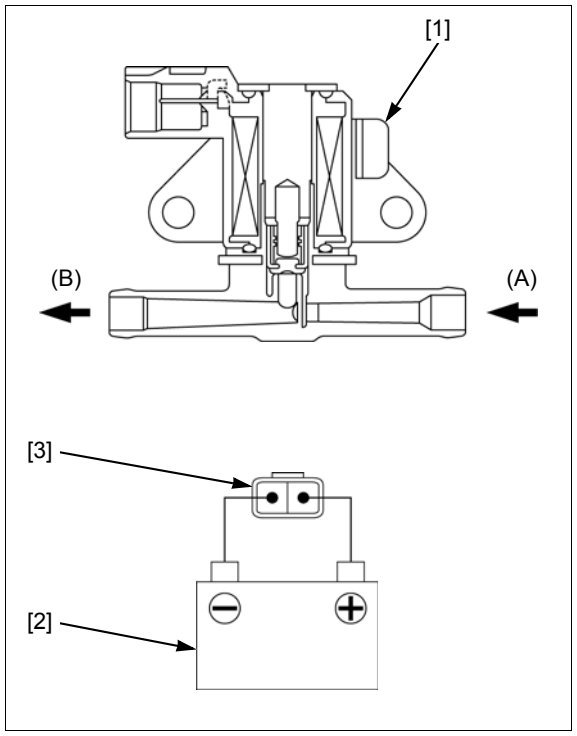
Air should not flow.

Connect a 12 V battery [2] to the solenoid valve 2P (Black) connector [3] as shown.

Air should flow out when the battery is connected.

Replace the solenoid valve if it does not operate properly.

Install the EVAP purge control solenoid valve (page 7-21).



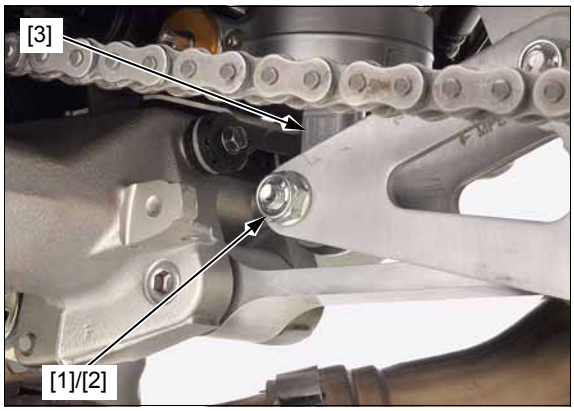
EVAP CANISTER REMOVAL/ INSTALLATION (BR/ED/CH/TH/FO)

Support the motorcycle and raise the rear wheel off the ground.

Support the rear wheel securely.

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

Move the shock absorber [3] rearward.



Disconnect the following:

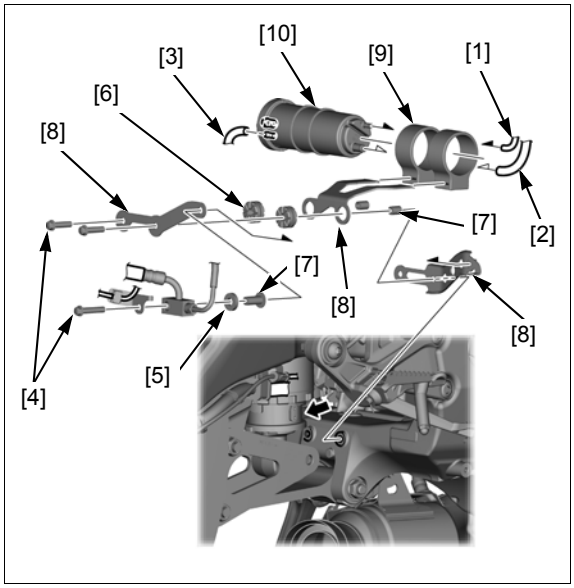
– Fuel tank breather hose (to fuel tank) [1]
– Canister-to-purge control solenoid valve hose [2]
– Canister drain hose [3]

Remove the bolts [4], washer [5], grommets [6], collars [7], stays [8], rubber mounts [9] and canister [10].

Correctly route the hoses (page 1-23).

Installation is in the reverse order of removal.

TORQUE:
Canister mounting bolt:
10 N·m (1.0 kgf·m, 7 lbf·ft)
Shock absorber mounting nut:
44 N·m (4.5 kgf·m, 32 lbf·ft)



EVAP CANISTER REMOVAL/ INSTALLATION (KO)

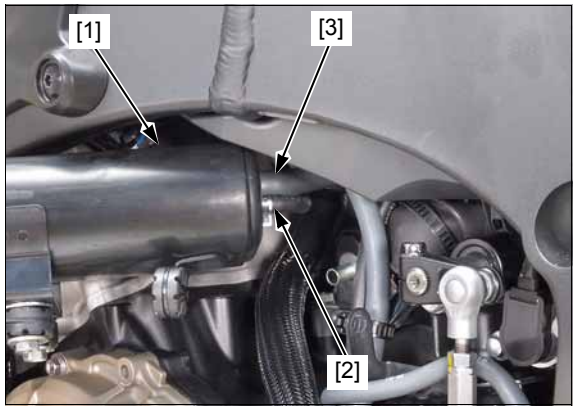
Remove the canister cover (page 2-21).

Remove the bolts [1].

Disconnect the canister drain hose [2].

Pull the canister [1] then disconnect the fuel tank breather hose (to fuel tank) [2] and canister-to-purge control solenoid valve hose [3].

Remove the canister assembly.



Remove the bolts [1], washers [2], grommets [3], collars [4], stay [5] and canister [6].

Correctly route the hoses (page 1-23).

Installation is in the reverse order of removal.

TORQUE:

Canister mounting bolt:
8.0 N·m (0.8 kgf·m, 5.9 lbf·ft)

MEMO

8. COOLING SYSTEM

SERVICE INFORMATION

GENERAL

⚠WARNING

Removing the radiator cap while the engine is hot can allow the coolant to spray out, seriously scalding you.
Always let the engine and radiator cool down before removing the radiator cap.

NOTICE

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

- Add coolant at the reserve tank. Do not remove the radiator cap except to refill or drain the system.
- All cooling system services can be done with the engine installed in the frame.
- Avoid spilling coolant on painted surfaces.
- After servicing the system, check for leaks with a cooling system tester.
- For ECT sensor inspection (page 21-14).
- For ECT sensor remove/installation (page 4-82).

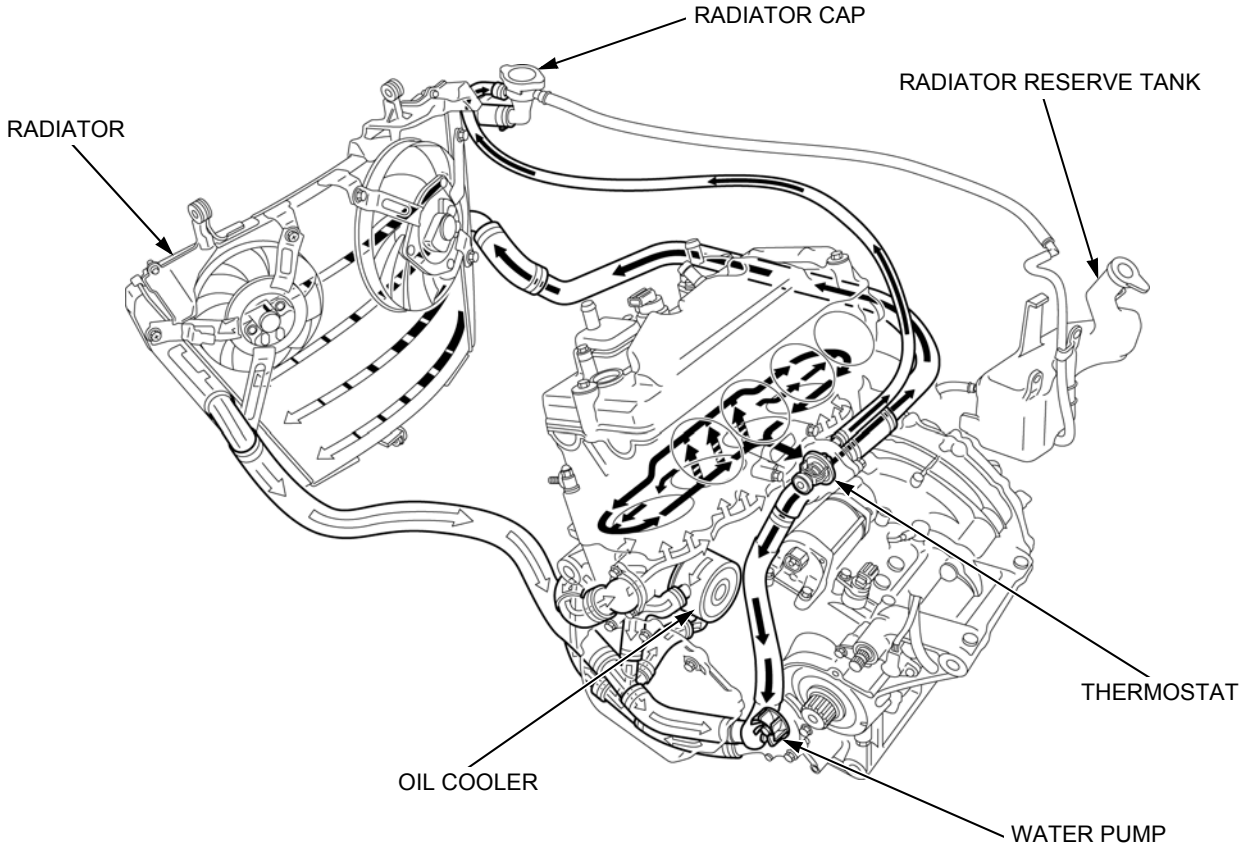
TROUBLESHOOTING

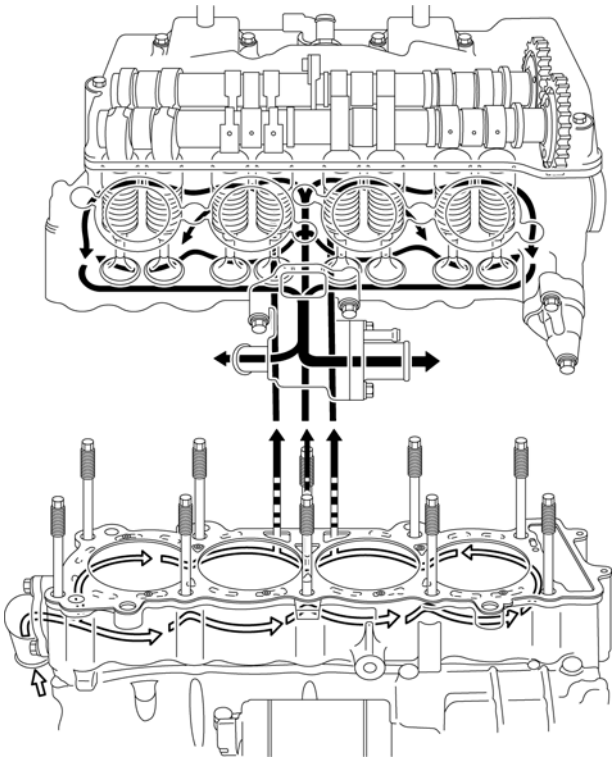
Engine temperature too high
- Faulty engine coolant temperature meter or ECT sensor
- Thermostat stuck closed
- Faulty radiator cap
- Insufficient coolant
- Passage blocked in radiator, hoses or water jacket
- Air in system
- Faulty cooling fan motor
- Faulty fan motor relay
- Faulty water pump

Engine temperature too low
- Faulty temperature gauge or ECT sensor
- Thermostat stuck open
- Faulty fan motor relay

Coolant leak
- Faulty water pump mechanical seal
- Deteriorated O-rings
- Faulty radiator cap
- Damaged or deteriorated cylinder head gasket
- Loose hose connection or clamp
- Damaged or deteriorated hose

SYSTEM FLOW PATTERN



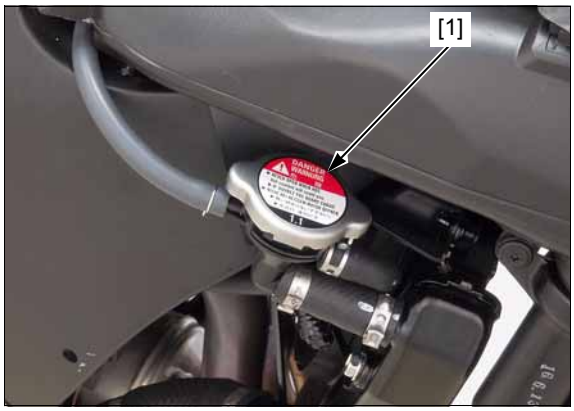


SYSTEM TESTING

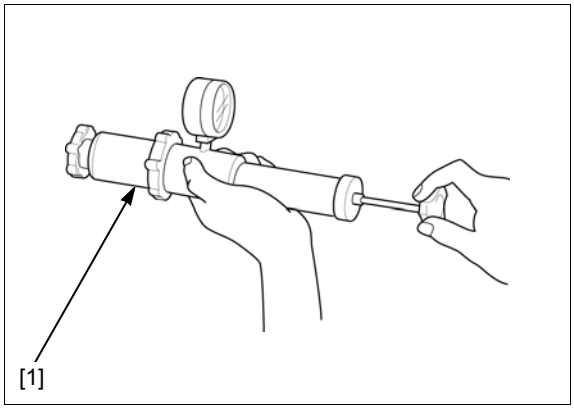
RADIATOR CAP/SYSTEM PRESSURE INSPECTION

Remove the right middle cowl (page 2-13).

Remove the radiator cap [1].



Wet the sealing surfaces of the cap, then install the cap onto the tester [1].



Pressure test the radiator cap.
Replace the radiator cap if it does not hold pressure, or if relief pressure is too high or too low.
It must hold specified pressure for at least 6 seconds.

RADIATOR CAP RELIEF PRESSURE:
108 – 137 kPa (1.1 – 1.4 kgf/cm^2, 16 – 20 psi)

Install the tester to the radiator.

Apply pressure to the radiator, engine, and hoses and check for leaks.

NOTICE

Excessive pressure can damage the cooling system components. Do not exceed 137 kPa (1.4 kgf/cm^2, 20 psi).

Repair or replace components if the system will not hold specified pressure for at least 6 seconds.

COOLANT REPLACEMENT

REPLACEMENT/AIR BLEEDING

NOTE:

- When filling the system or reserve tank with coolant or checking the coolant level, place the motorcycle in an upright position on a flat, level surface.
- Drain the coolant while the engine is cold.

Remove the radiator cap (page 8-4).

Remove the under cowl (page 2-20).

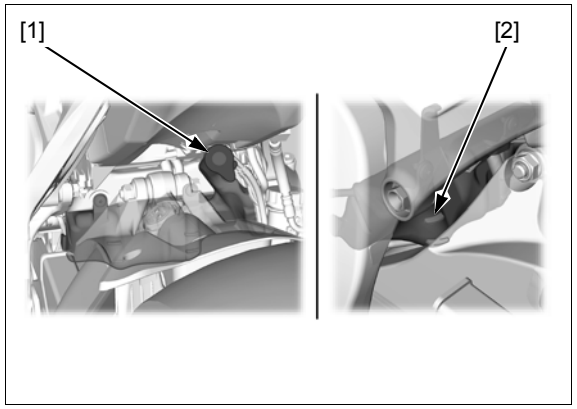
Remove the water pump drain bolt [1], sealing washer [2] and drain the coolant.

Reinstall the drain bolt with a new sealing washer.
Tighten the water pump drain bolt to the specified torque.

TORQUE: 12 N·m (1.2 kgf·m, 9 lbf·ft)

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

Remove the radiator reserve tank cap [1] and fill the reserve tank to the upper level line [2].



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 three or four 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.
5. Check the level of coolant in the reserve tank and fill to the upper level if it is low.

NOTE:

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

Install the radiator reserve tank cap.

After installation, check that there are no coolant leaks.

Install the removed parts in the reverse order of removal.

THERMOSTAT

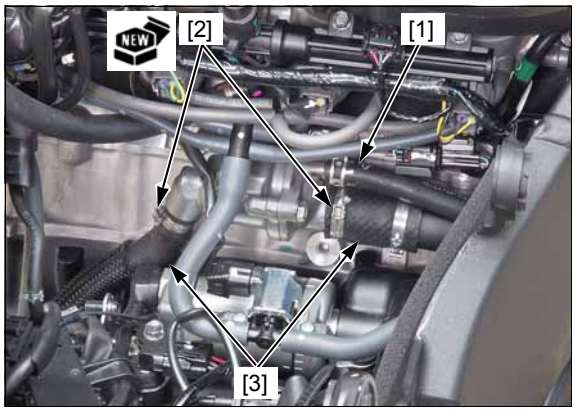
- For ECT sensor removal/installation (page 4-82).

REMOVAL/INSTALLATION

Drain the coolant (page 8-4).
Remove the fuel tank (page 7-8).

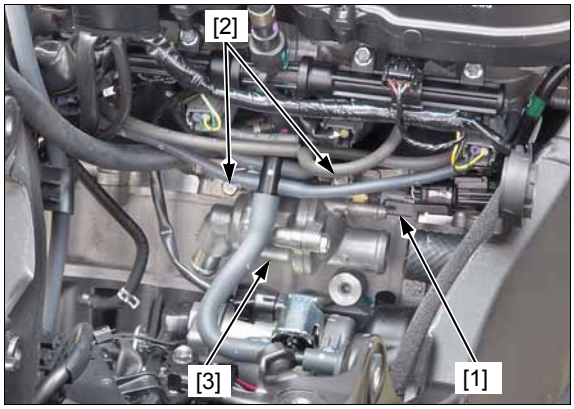
Disconnect the water hose [1].

Cut off and remove the hose clamps [2] then disconnect the water hoses [3].



Disconnect the ECT sensor 3P (Gray) connector [1].

Remove the bolts [2] and thermostat housing [3].



Remove the O-ring [1] from the thermostat housing groove.

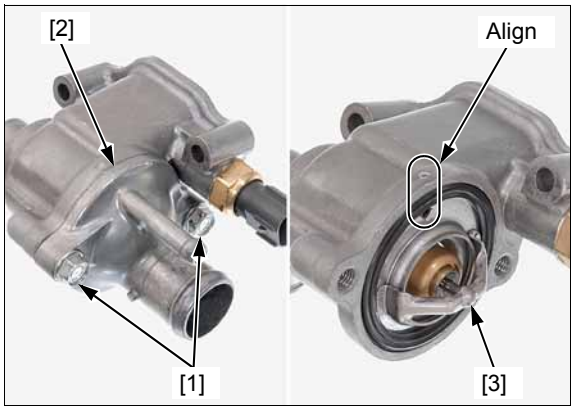
Remove the bolts [1] and thermostat housing cover [2].

Remove the thermostat [3] from the housing.

Installation is in the reverse order of removal.

NOTE:

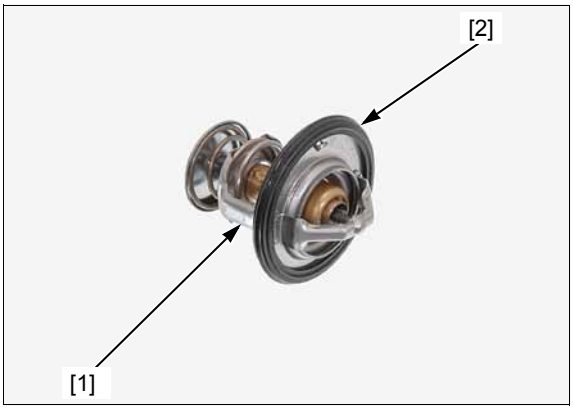
- Install the thermostat into the housing by aligning the thermostat air bleed hole with the housing "○" mark.
- Connect the water hoses and tighten the hose clamp screws securely (page 1-19).
- Fill the system with the recommended coolant and bleed any air (page 8-4).



TORQUE:
Thermostat cover bolt:
12 N·m (1.2 kgf·m, 9 lbf·ft)

INSPECTION

Visually inspect the thermostat [1] for damage.
Replace the thermostat if the valve stays open at room temperature.
Check for damage of the seal ring [2].



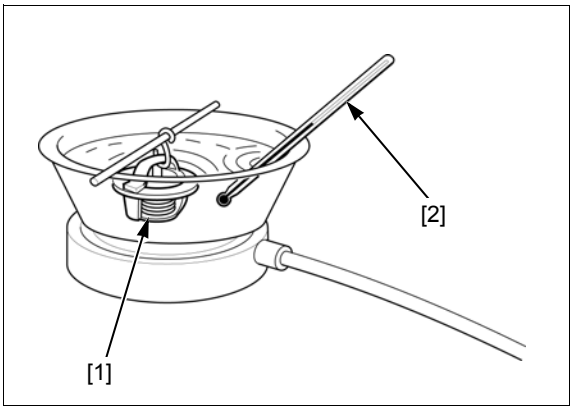
Do not let the thermostat or thermometer [2] touch the container, or you will get a false reading.

Heat a container of water with an electric heating element for 5 minutes.
Suspend the thermostat [1] in heated water to check its operation.

THERMOSTAT BEGIN TO OPEN:
80 – 84°C (176 – 183°F)

VALVE LIFT:
8 mm (0.3 in) minimum at 95°C (203°F)

Replace the thermostat if the valve opens at a temperature other than those specified.



RADIATOR/COOLING FAN

REMOVAL/INSTALLATION

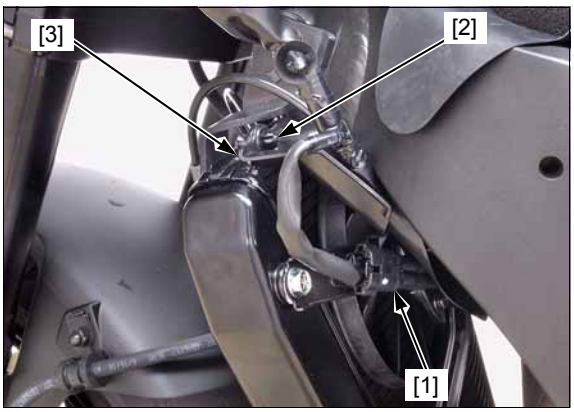
NOTE:
- Be careful not to damage the radiator fins.

Remove the middle cowls (page 2-13).

Drain the coolant (page 8-4).

Disconnect the left fan motor 2P (Black) connector [1].

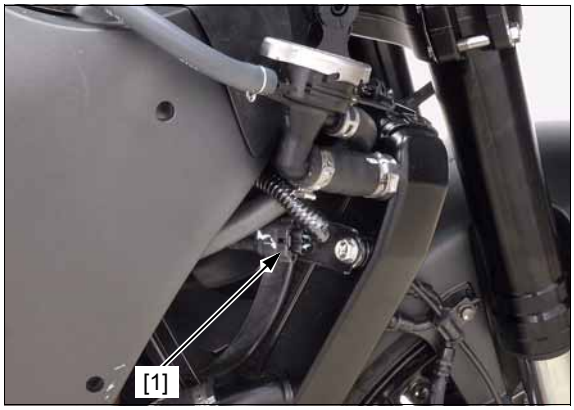
Remove the trim clip [2] and left heat guard plate [3].



Loosen the hose clamp screw and disconnect the left radiator hose.

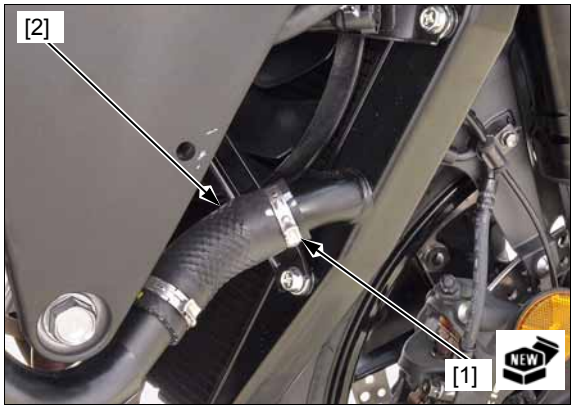
Cut off and remove the hose clamp [1] then disconnect the left radiator hose [2].

Disconnect the right fan motor 2P (Black) connector [1].

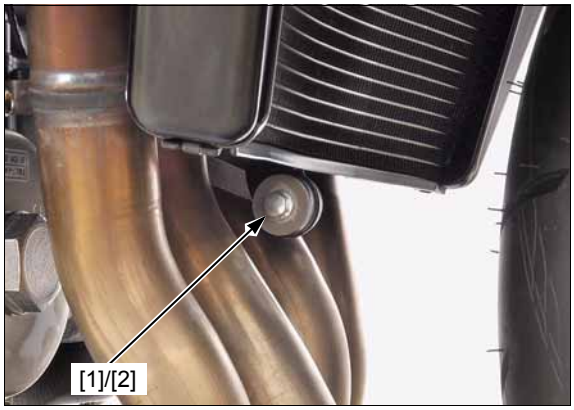


Cut off and remove the hose clamp [1] then disconnect the water hose [2].

Cut off and remove the hose clamp [1] then disconnect the right radiator hose [2].



Remove the radiator lower mounting bolt [1] and washer [2].

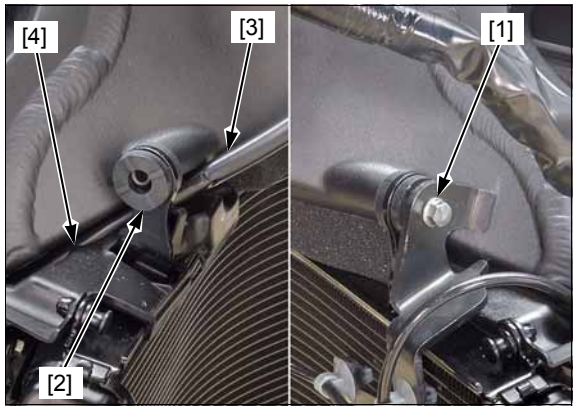


Remove the radiator upper mounting bolt [1].

Be careful not to damage the radiator fins.

Release the radiator upper grommet [2] from the frame boss to remove the radiator.

Release the clutch cable [3] from the cable guide of the right heat guard plate [4].



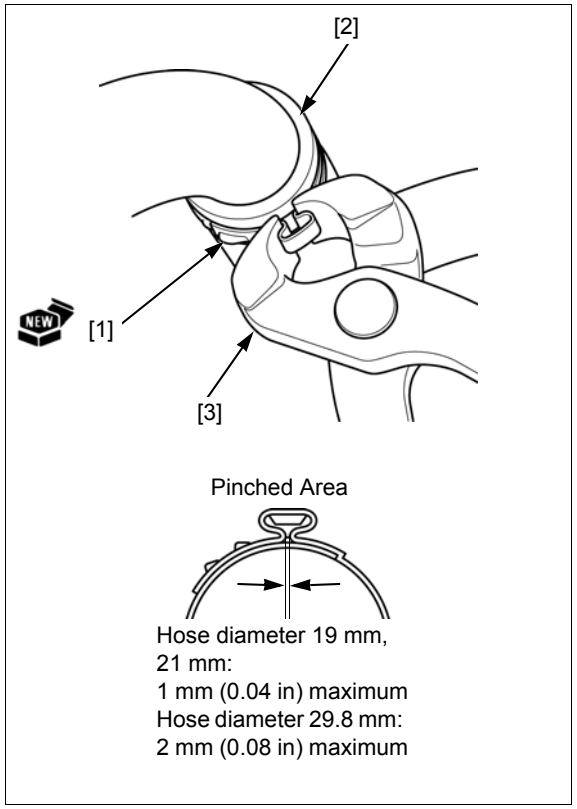
Installation is in the reverse order of removal.

NOTE:

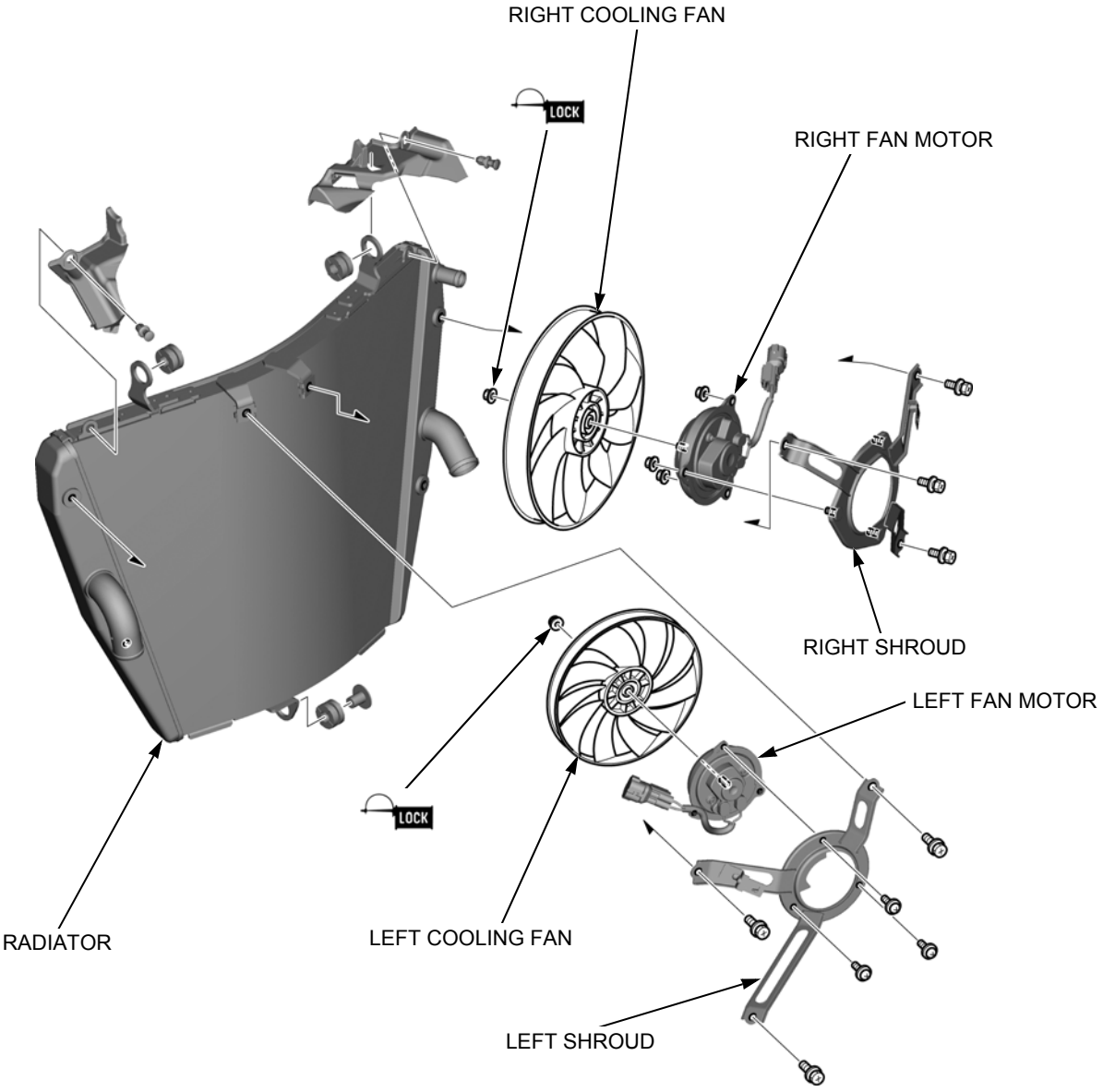
- Install a new water hose bands [1] onto the water hose [2] then connect the water hoses.
- Pinch the ear portion of the water hose band with a pincher until the pinched area clearance is 1 mm (0.04 in) or 2 mm (0.08 in) maximum as shown to secure water hose.

TOOL:

Pincher [3] **Oetiker 1098 or equivalent**



DISASSEMBLY/ASSEMBLY



NOTE:

- Install the cooling fan to the fan motor shaft by aligning the flat surfaces.
- Apply locking agent to the cooling fan mounting nut threads.

WATER PUMP

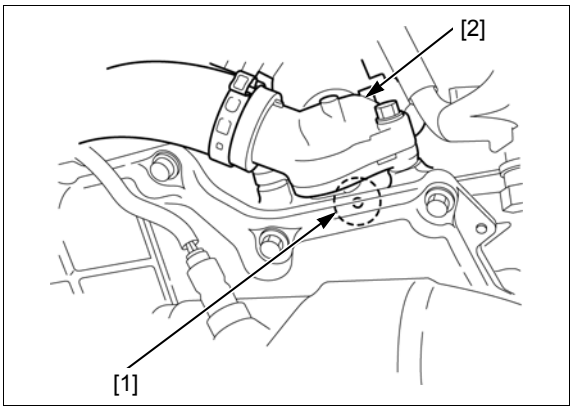
MECHANICAL SEAL INSPECTION

Remove the Under cowl (page 2-20).

Check the bleed hole [1] of the water pump [2] for signs of coolant leakage.

- A small amount of coolant weeping from the bleed hole is normal.
- Make sure that there is no continuous coolant leakage from the bleed hole while operating the engine.

Replace the water pump as an assembly if necessary.



REMOVAL/INSTALLATION

Remove the following:

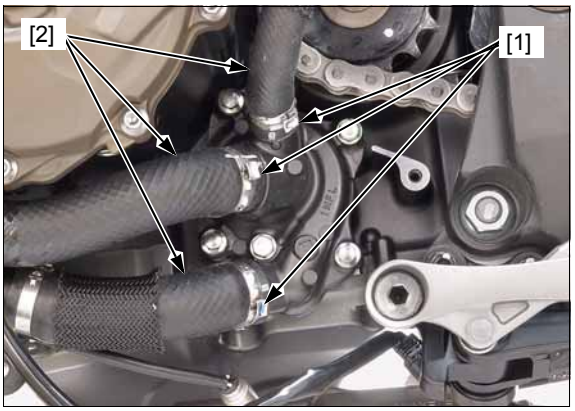
– Under cowl (page 2-20)
– Left rear cover (page 2-21)

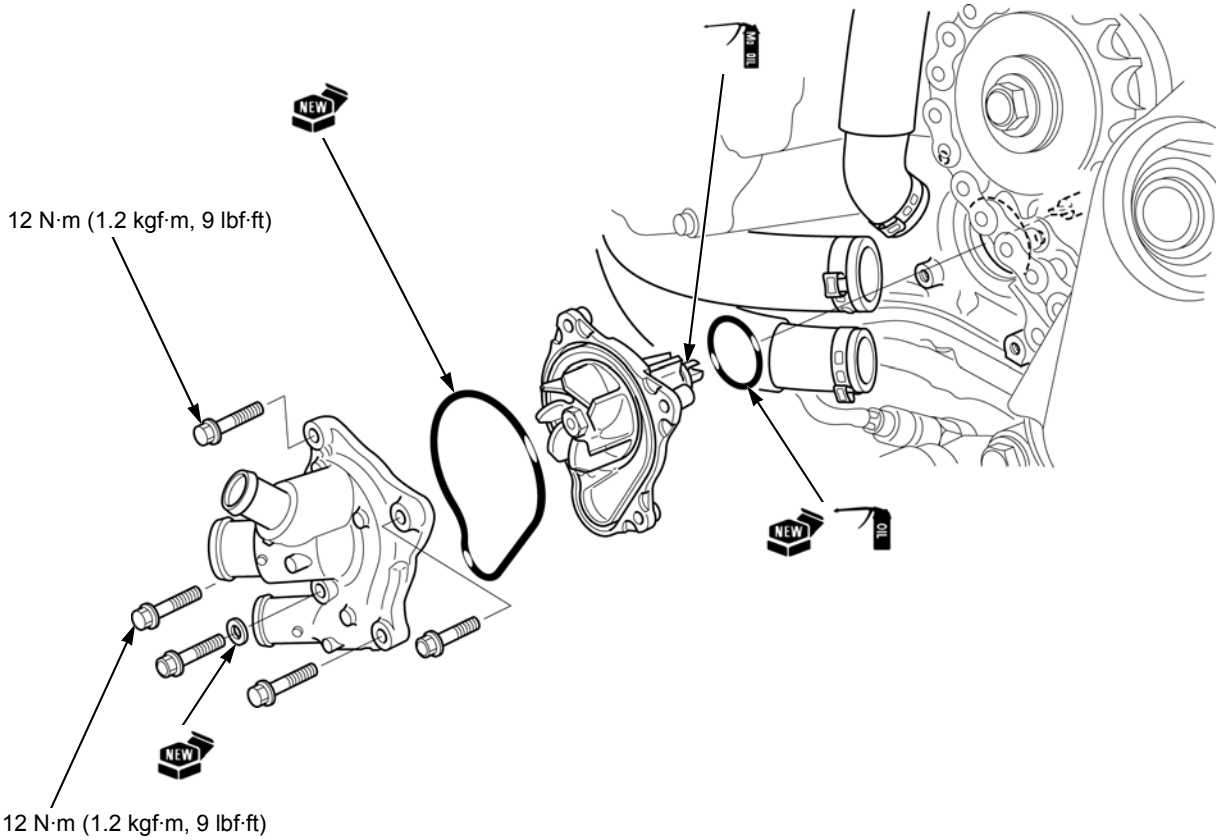
Drain the coolant (page 8-4).

Cut off and remove the hose clamps [1] then disconnect the water hoses [2].

NOTE:

Do not disassemble the water pump body.

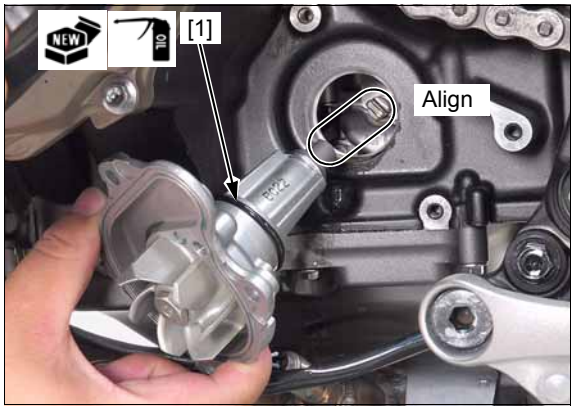




Installation is in the reverse order of removal.

NOTE:

- Apply oil to a new O-ring [1] and install it onto the stepped portion of the water pump body.
- Install the water pump body into the crankcase while aligning the water pump shaft groove with the oil pump shaft end by turning the water pump impeller.



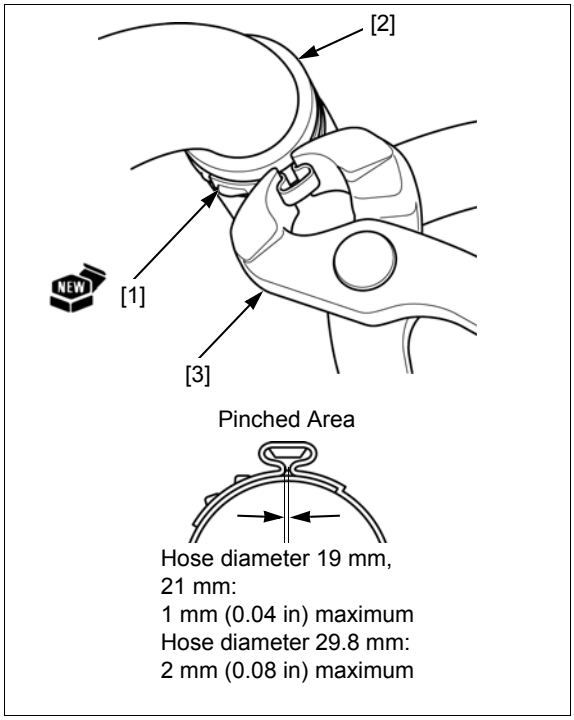
TORQUE:

Water pump assembly bolt:
12 N·m (1.2 kgf·m, 9 lbf·ft)

- Install a new water hose bands [1] onto the water hose [2] then connect the water hoses.
- Pinch the ear portion of the water hose band with a pincher until the pinched area clearance is 1 mm (0.04 in) or 2 mm (0.08 in) maximum as shown to secure water hose.

TOOL:

Pincher [3] **Oetiker 1098 or equivalent**



RADIATOR RESERVE TANK

REMOVAL/INSTALLATION

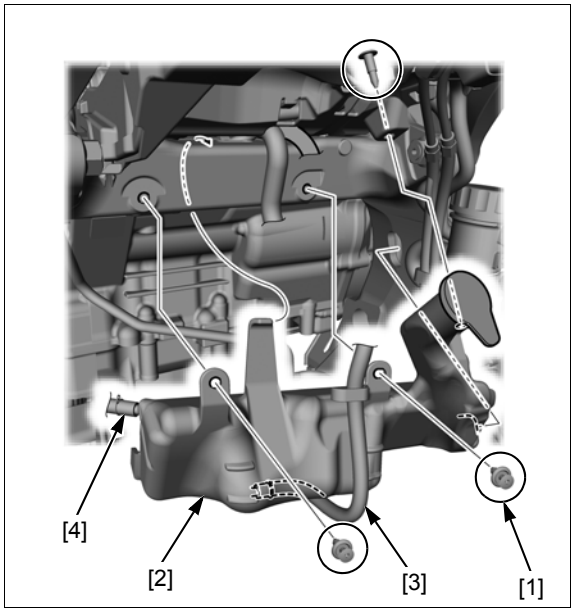
Lift and support the fuel tank (page 3-4).

Remove the swingarm (page 17-16).

Remove the trim clips [1] and radiator reserve tank [2].

Disconnect the siphon hose [3] and drain the coolant from the reserve tank.
Disconnect the coolant overflow hose [4] from the reserve tank.

Installation is in the reverse order of removal.



9. LUBRICATION SYSTEM

SERVICE INFORMATION

GENERAL

⚠ CAUTION

Used engine oil may cause skin cancer if repeatedly left in contact with the skin for prolonged periods. Although this is unlikely unless you handle used oil on a daily basis, it is still advisable to thoroughly wash your hands with soap and water as soon as possible after handling used oil.

- This section covers service of the oil pump and oil cooler.
- The oil pump can be serviced with the engine installed in the frame.
- The service procedures in this section must be performed with the engine oil drained.
- When removing and installing the oil pump, use care not to allow dust or dirt to enter the engine.
- If any portion of the oil pump is worn beyond the specified service limits, replace the oil pump as an assembly.
- After the oil pump has been installed, check that there are no oil leaks and that oil pressure is correct.

TROUBLESHOOTING

Oil level too low
- Oil consumption
- External oil leak
- Worn piston rings
- Improperly installed piston rings
- Worn cylinders
- Worn valve stem seals
- Worn valve guide

Low oil pressure
- Oil level low
- Clogged oil strainer
- Internal oil leak
- Incorrect oil being used

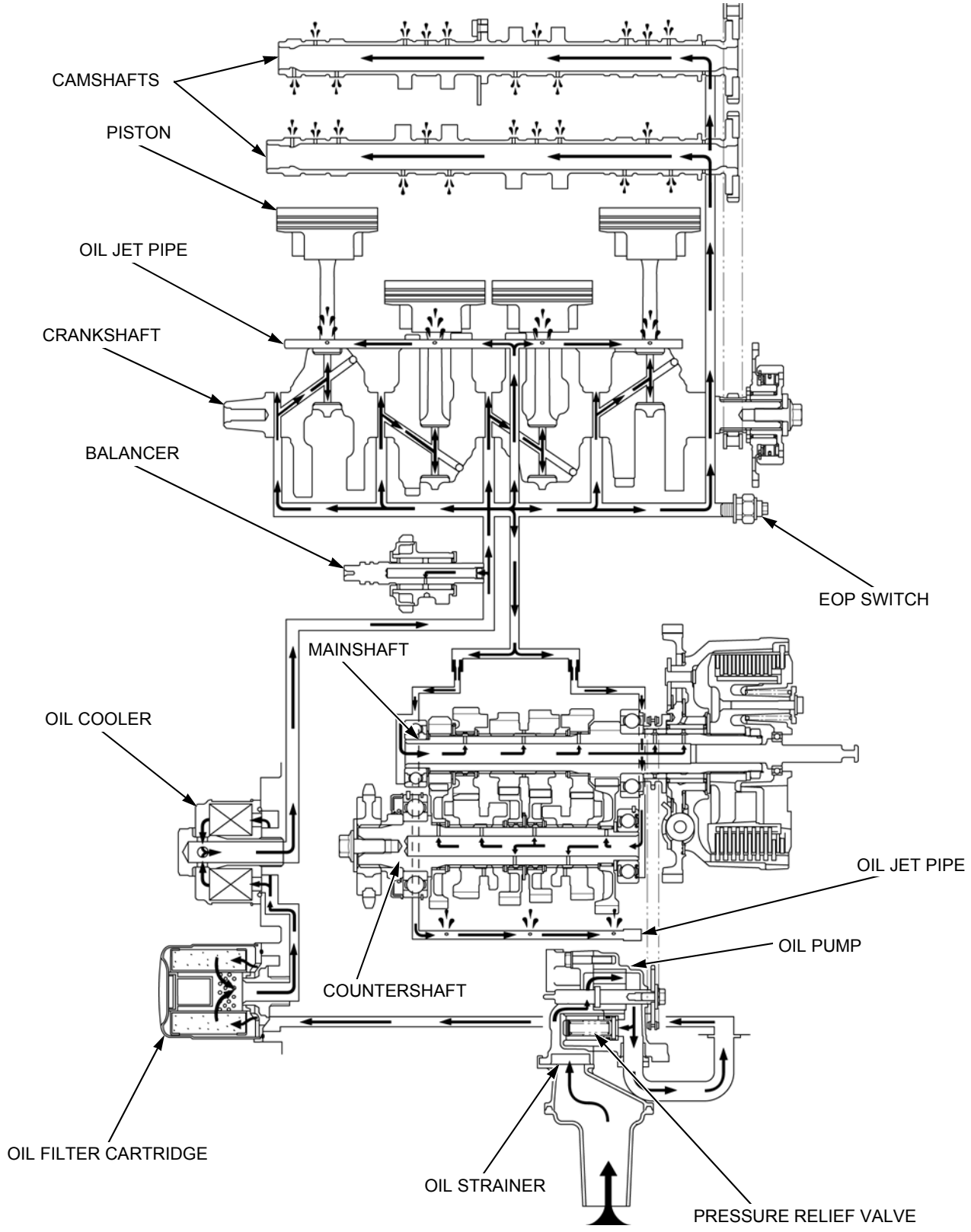
No oil pressure
- Oil level too low
- Oil pressure relief valve stuck open
- Broken oil pump drive chain
- Broken oil pump drive or driven sprocket
- Damaged oil pump
- Internal oil leak

High oil pressure
- Oil pressure relief valve stuck closed
- Clogged oil filter, oil cooler gallery or metering orifice
- Incorrect oil being used

Oil contamination
- Oil or filter not changed often enough
- Worn piston rings

Oil emulsification
- Blown cylinder head gasket
- Leaky coolant passage
- Entry of water

LUBRICATION SYSTEM DIAGRAM



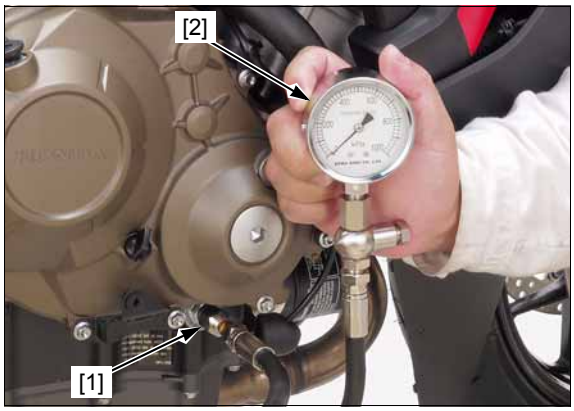
OIL PRESSURE INSPECTION

If the oil pressure indicator remains on while the engine is running, check the indicator system (page 21-15) before checking the oil pressure.

Remove the EOP switch (page 21-15).

Install the oil pressure gauge attachment [1] to the switch base.
Connect the oil pressure gauge [2] to the oil pressure gauge attachment.

TOOLS:
Oil pressure gauge set 07506-3000001
Oil pressure gauge attachment 07406-0030000
or equivalent commercially available



Check the engine oil level (page 3-12).

Warm the engine to normal operating temperature (approximately 80°C/176°F) and increase the engine speed to 6,000 min^{-1} (rpm) and read the oil pressure.

Standard:
90 kPa (0.92 kgf/cm^2, 13 psi) at 1200 min^{-1} (rpm)/ (80°C/176°F)

Stop the engine and remove the tools.

Install the EOP switch (page 21-15).

OIL PUMP

REMOVAL/INSTALLATION

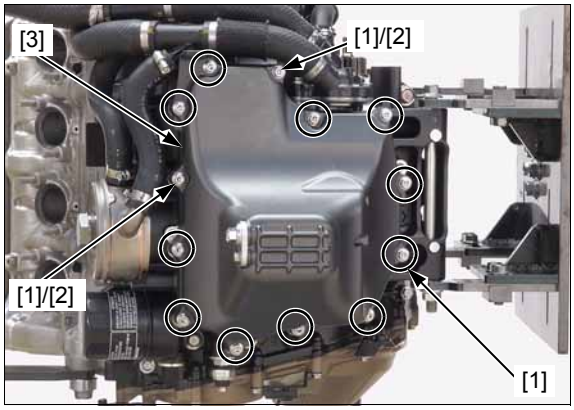
Drain the engine oil (page 3-12).

Remove the exhaust pipe (page 2-25).

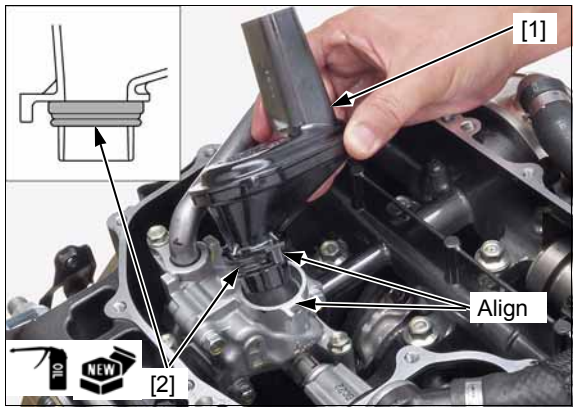
Remove the bolts [1], washers [2] and oil pan [3].

NOTE:

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



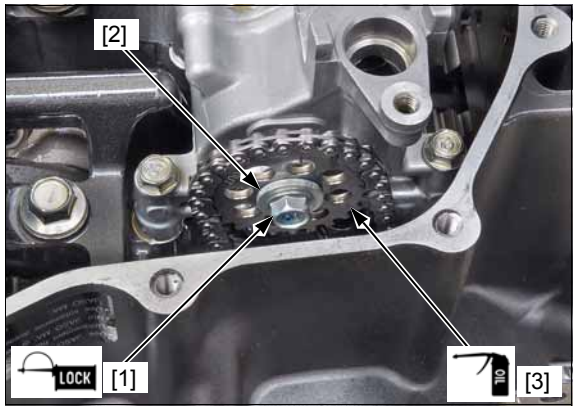
Remove the oil strainer [1] and seal ring [2].



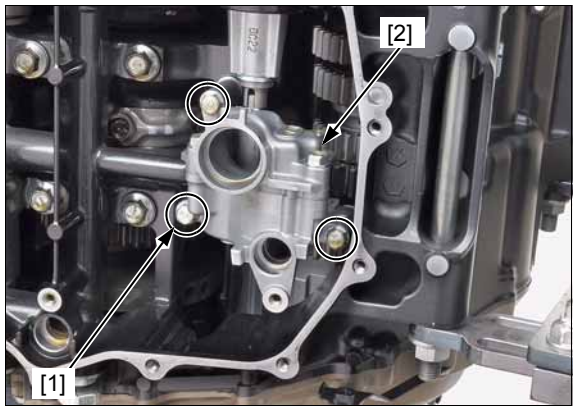
Remove the oil pipe mounting bolts [1], oil pipe [2] and seal rings [3].

Clean the oil pipe in solvent thoroughly and check for damage.

Remove the oil pump driven sprocket bolt [1], washer [2] and oil pump driven sprocket [3].



Remove the bolts [1] and oil pump assembly [2].

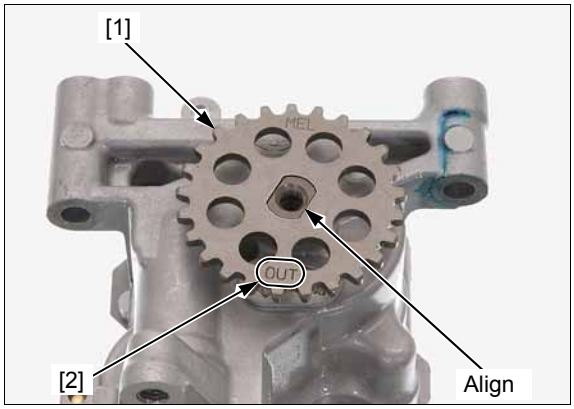


Remove the dowel pins [1].

Installation is in the reverse order of removal.

NOTE:

- Replace the seal rings with new ones and coat them with engine oil.
- Install the driven sprocket [1] with its “OUT” mark [2] facing out by aligning the flat surfaces.
- Apply locking agent to the oil pump driven sprocket bolt threads (page 1-19).



TORQUE:
Oil pump driven sprocket bolt:
15 N·m (1.5 kgf·m, 11 lbf·ft)

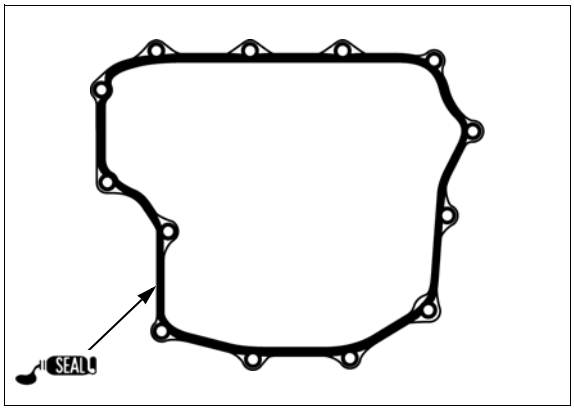
- Apply engine oil to the oil pump driven sprocket.
- Apply locking agent to the oil pipe mounting bolt threads (page 1-19).

TORQUE:
Oil pipe mounting bolt:
12 N·m (1.2 kgf·m, 9 lbf·ft)

- Clean the oil pan mating surface thoroughly.

Do not apply sealant than necessary.

- Apply sealant (TB 1207B or equivalent) to the mating surface.
- Fill the crankcase with the recommended oil (page 3-12).
- Start the engine and check that there are no oil leaks.



OIL COOLER

REMOVAL/INSTALLATION

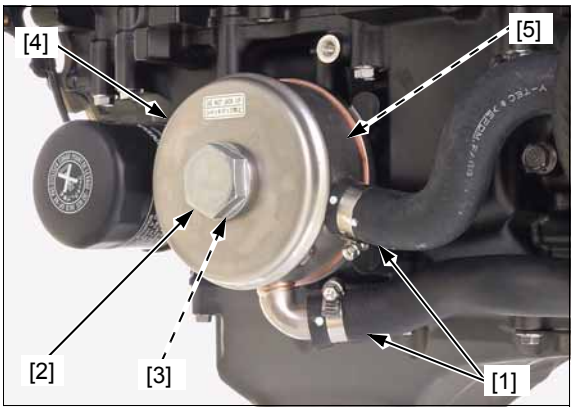
Drain the engine oil (page 3-12).

Remove the exhaust pipe (page 2-25).

Loosen the hose clamp screws and disconnect the water hoses [1] from the oil cooler.

Remove the bolt [2], sealing washer [3], oil cooler [4] and O-ring [5].

Check the oil cooler for damage.



Installation is in the reverse order of removal.

NOTE:

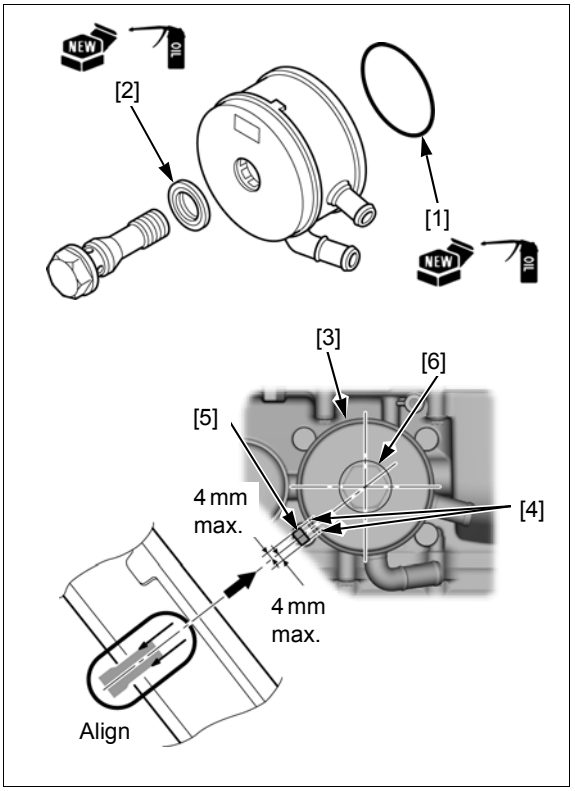
- Apply oil to a new O-ring [1] and install it into the oil cooler groove.
- Apply oil to the seating surface of a new sealing washer [2].

Do not stagger the arrows more than 4 mm (0.2 in).

- Place the oil cooler [3] onto the crankcase by aligning the arrows [4] with the edges of the crankcase boss [5]. Install the oil cooler bolt with the sealing washer and temporarily tighten it.
- Hold the oil cooler by your hand securely to prevent misalignment of the arrow position and tighten the bolt [6] to the specified torque.

TORQUE: 59 N·m (6.0 kgf·m, 44 lbf·ft)

- Make sure the arrows are in alignment with the boss.
- Fill the crankcase with the recommended oil (page 3-12).
- Check for coolant and oil leaks.



MEMO

10. CYLINDER HEAD/VALVES

SERVICE INFORMATION

GENERAL

- This section covers service of the cylinder head, valves and camshaft.
- The camshaft services can be done with the engine installed in the frame. The cylinder head service requires engine removal.
- When disassembling, mark and store the disassembled parts to ensure that they are reinstalled in their original locations.
- Clean all disassembled parts with cleaning solvent and dry them by blowing them off with compressed air before inspection.
- Camshaft lubricating oil is fed through oil passages in the cylinder head. Clean the oil passages before assembling cylinder head.
- Be careful not to damage the mating surfaces when removing the cylinder head cover and cylinder head.
- For CMP sensor removal/installation (page 4-83).

TROUBLESHOOTING

- Engine top-end problems usually affect engine performance. These problems can be diagnosed by a compression test or by tracing engine noises to the top-end with a sounding rod stethoscope.
- If the performance is poor at low speeds, check for white smoke in the crankcase breather hose. If the hose is smoky, check for a seized piston ring.

Compression too low, hard starting or poor performance at low speed

- Valves:
  - Incorrect valve clearance adjustment
  - Burned or bent valve
  - Incorrect valve timing
  - Broken valve spring
  - Uneven valve seating
- Cylinder head:
  - Leaking or damaged cylinder head gasket
  - Warped or cracked cylinder head
  - Loose spark plug
- Worn cylinder, piston or piston rings

Compression too high, overheating or knocking

- Excessive carbon build-up on piston crown or on combustion chamber

Excessive smoke

- Cylinder head:
  - Worn valve stem or valve guide
  - Damaged stem seal
- Worn cylinder, piston or piston rings

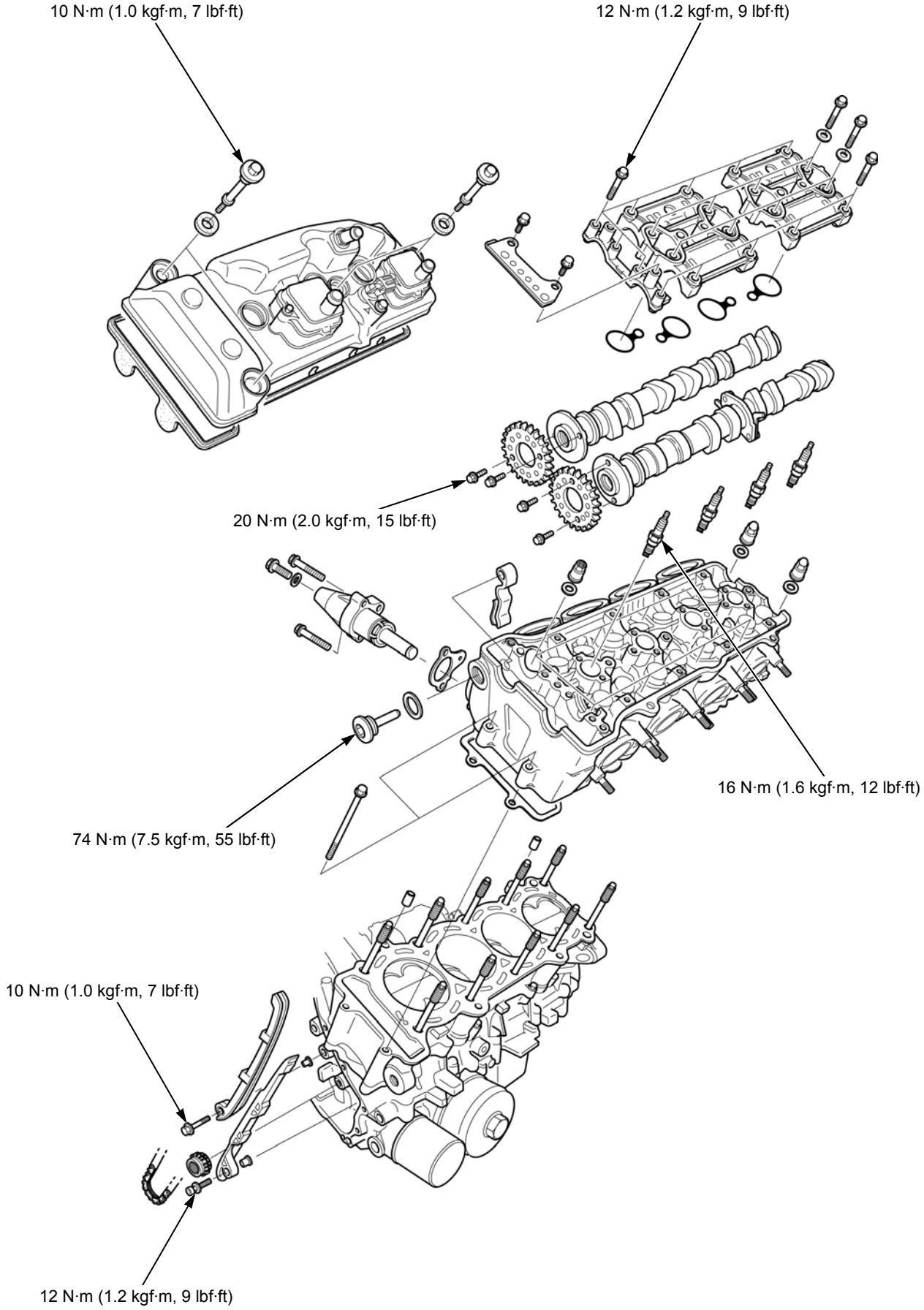
Excessive noise

- Cylinder head:
  - Incorrect valve clearance adjustment
  - Sticking valve or broken valve spring
  - Damaged or worn camshaft
  - Loose or worn cam chain
  - Worn or damaged cam chain
  - Worn or damaged cam chain tensioner
  - Worn cam sprocket teeth
- Worn cylinder, piston or piston rings

Rough idle

- Low cylinder compression

COMPONENT LOCATION



CYLINDER COMPRESSION

Warm up the engine to normal operating temperature. Stop the engine, disconnect the all direct ignition coils/ spark plug caps and remove the spark plugs (page 3-6).

Connect the ignition switch 2P (Black) and right handlebar switch 6P (Blue) connectors.

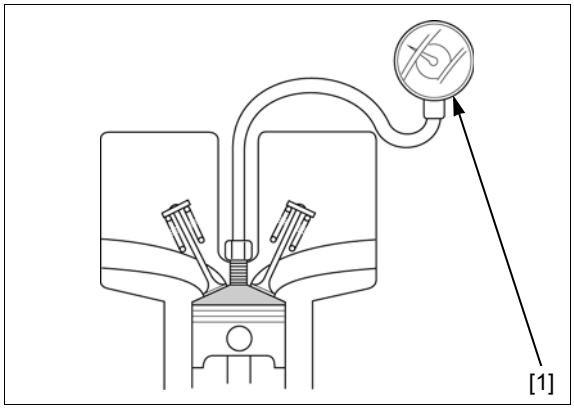
Install the compression gauge [1] into the spark plugs hole.

TOOL:
Compression gauge attachment 07RMJ-MY50100

Turn the ignition switch ON.

Shift the transmission into the neutral position.

Open the throttle all the way and crank the engine with the starter motor until the gauge reading stops rising. The maximum reading is usually reached within 4 – 7 seconds.



COMPRESSION PRESSURE:
1299 kPa (13.25 kgf/cm^2, 188 psi) at 300 min^{-1} (rpm)

Low compression can be caused by:
– Blown cylinder head gasket
– Improper valve adjustment
– Valve leakage
– Worn piston ring or cylinder

High compression can be caused by:
– Carbon deposits in combustion chamber or on piston head

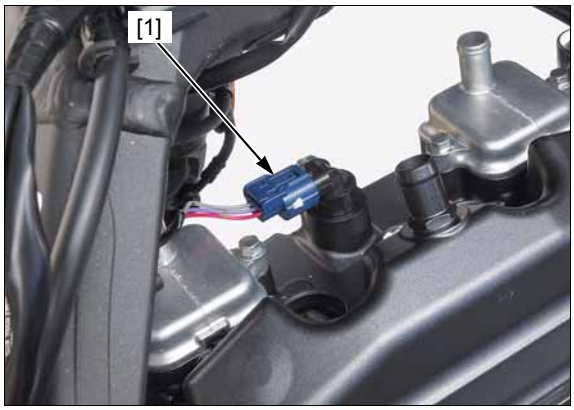
CYLINDER HEAD COVER REMOVAL/ INSTALLATION

• For CMP sensor removal/installation (page 4-83).

Remove the following:

– Radiator (page 8-7)
– Air cleaner housing (page 7-10)
– PAIR control solenoid valve (page 7-18)
– Direct ignition coils (page 3-6)

Disconnect the CMP sensor 3P (Blue) connector [1].



Remove the cylinder head cover bolts [1] and washers [2].

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

Remove the cylinder head cover packing [1].

Remove the bolts [2] and breather plate [3].

Installation is in the reverse order of removal.

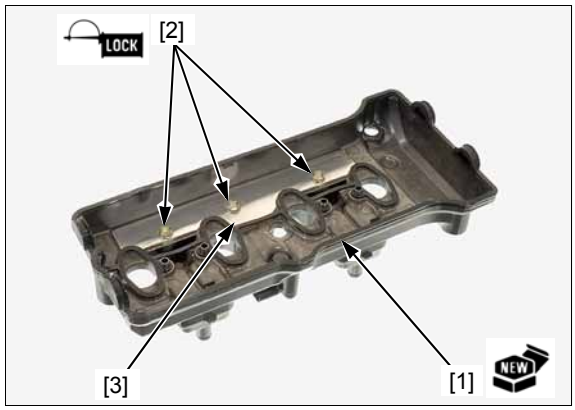
NOTE:

- Apply locking agent to the breather plate mounting bolt threads.

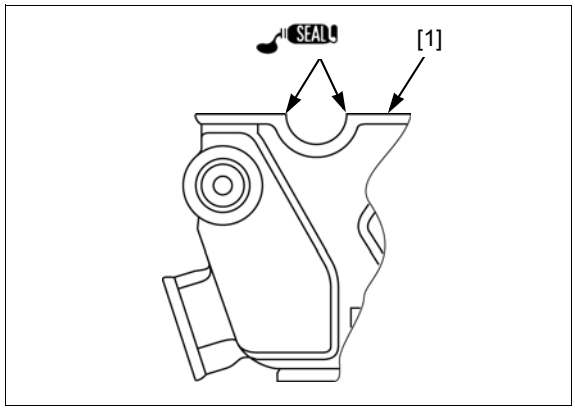
TORQUE:

Breather plate bolt:

12 N·m (1.2 kgf·m, 9 lbf·ft)



- Clean the cylinder head mating surface [1] thoroughly.
- Apply liquid sealant (TB5211C manufactured by ThreeBond, KE45T manufactured by Shin-Etsu Silicone or an equivalent) to the cylinder head as shown.
- Do not apply more liquid sealant than necessary.

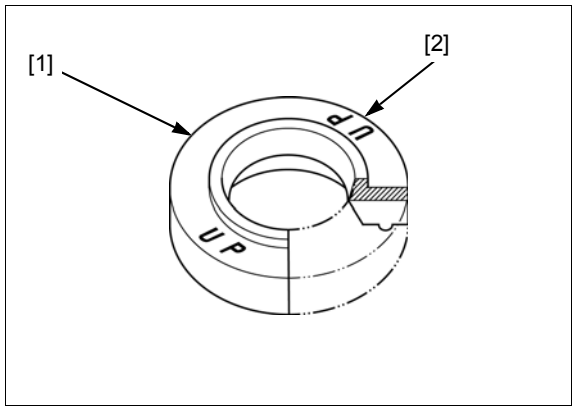


- Check that the mounting rubbers [1] are in good condition, and replace them if necessary.
- Install the mounting rubbers with their "UP" marks [2] facing up.

TORQUE:

Cylinder head cover bolt:

10 N·m (1.0 kgf·m, 7 lbf·ft)



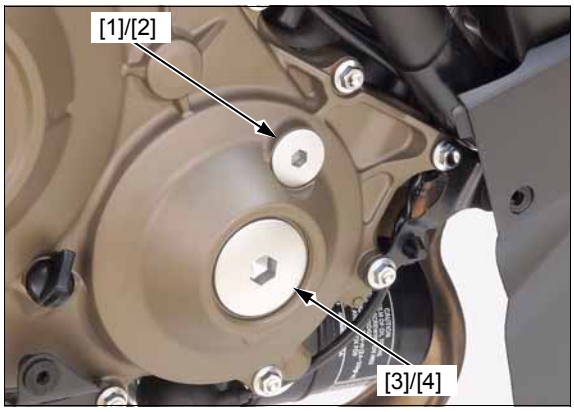
CAMSHAFT REMOVAL

Remove the following:

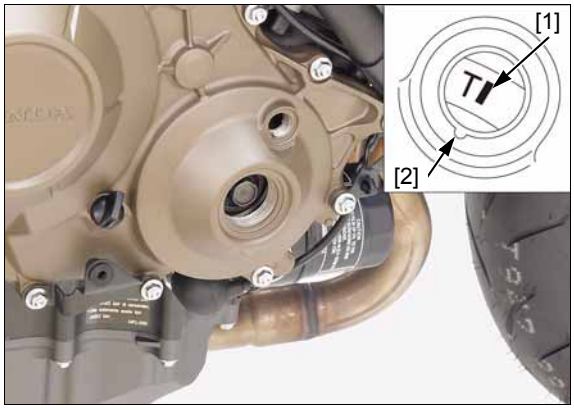
– Cylinder head cover (page 10-4)
– CH, TH, FO only: Right rear under cover (page 2-21)

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

Remove the crankshaft hole cap [3] and O-ring [4].

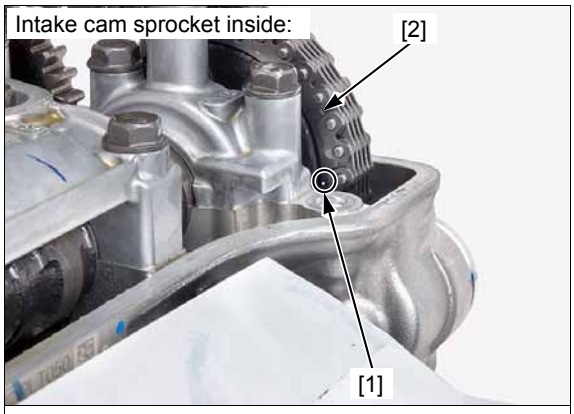


Turn the crankshaft clockwise and align the “T” mark [1] with the index mark [2] on the right crankcase cover.

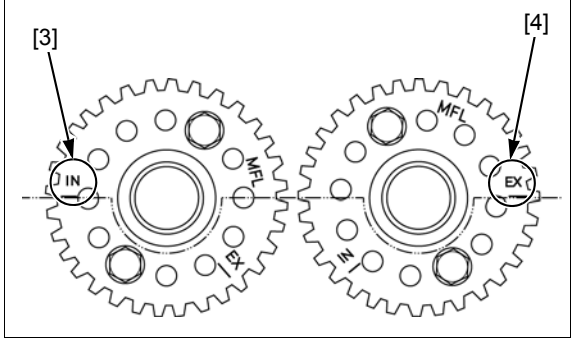


- The inside punch mark [1] of the intake cam sprocket [2] must be flush with the cylinder head upper surface.
- The cam sprocket outside timing marks (“IN” [3] and “EX” [4]) must be flush with the cylinder head upper surface and facing outward as shown.

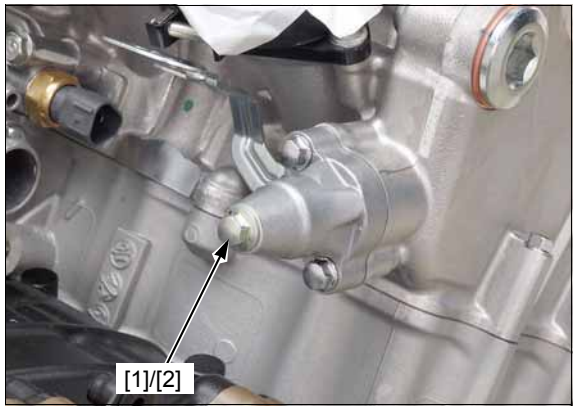
If the timing marks on the cam sprockets are facing inward, turn the crankshaft clockwise one full turn (360°) and realign the timing marks with the cylinder head surface so they are facing outward.



Cam sprockets outside:



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

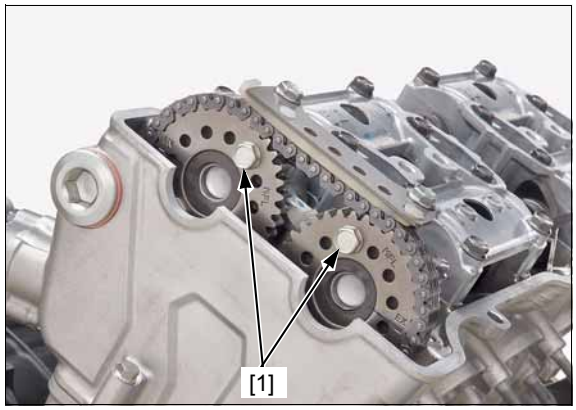


Turn the tensioner lifter shaft fully in (clockwise) and secure it using the tensioner stopper to prevent damaging the cam chain.

TOOL:
Tensioner stopper [1] 070MG-0010100

Remove the cam sprocket bolts [1] from the intake and exhaust camshafts.

NOTE:
Be careful not to drop the cam sprocket bolts and into the crankcase.

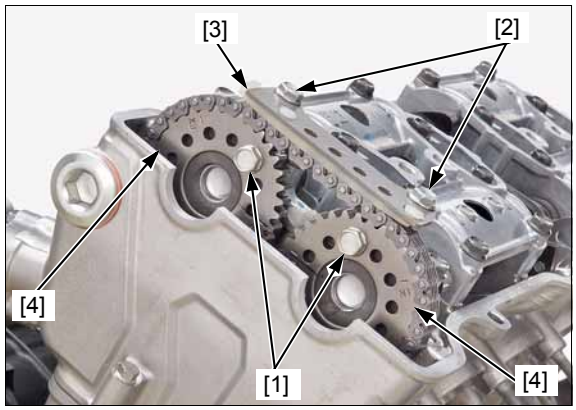


Turn the crankshaft clockwise one full turn (360°), remove the other cam sprocket bolts [1] from the camshafts.

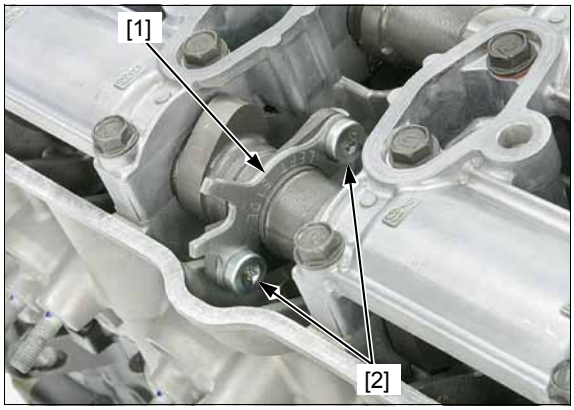
NOTE:
Be careful not to drop the cam sprocket bolts and cam sprocket into the crankcase.

Remove the bolts [2] and cam chain guide B [3].

Remove the cam sprockets [4] from the camshafts.



If you plan to replace the camshaft and/or CMP sensor rotor [1], loosen the CMP sensor rotor bolts [2].



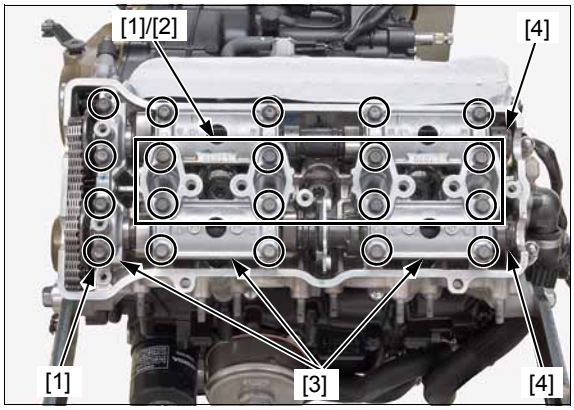
Suspend the cam chain with a piece of wire to prevent the chain from falling into the crankcase.

Loosen and remove the camshaft holder bolts [1], washers [2], then remove the camshaft holders [3] and camshafts [4].

NOTE:

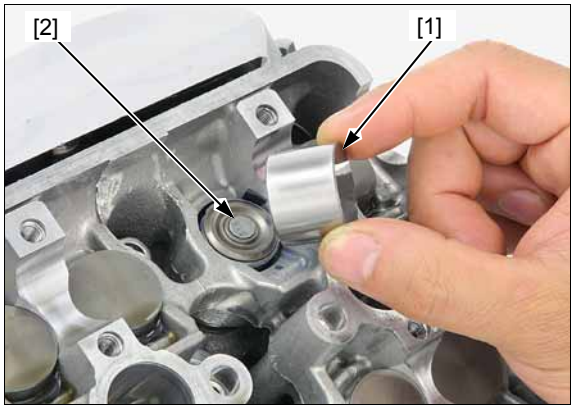
From outside to inside, loosen the bolts in a crisscross pattern in several steps or the camshaft holder might break.

Do not forcibly remove the dowel pins from the camshaft holders.



Remove the valve lifters [1] and shims [2].

- Be careful not to damage the valve lifter bore.
- The shim may stick to the inside of the valve lifter. Do not allow the shims to fall into the crankcase.
- Mark all valve lifters and shims to ensure correct reassembly in their original locations.
- The valve lifter can be easily removed with a valve lapping tool or magnet.
- The shims can be easily removed with a tweezers or magnet.



INSPECTION

Inspect the following parts for damage, abnormal wear, deformation, burning, or clogs in oil passages.

– Cam sprocket
– Camshaft
– Camshaft holder/dowel pin
– Cam chain guide B
– Valve lifter

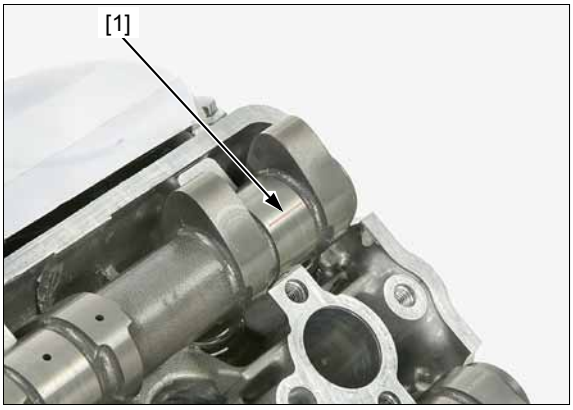
Measure each part according to CYLINDER HEAD/VALVE SPECIFICATIONS (page 1-8).

Replace any part if it is out of the service limit.

CAMSHAFT OIL CLEARANCE

Do not rotate the camshaft when using plastigauge.

Wipe any oil from the journals of the camshaft, cylinder head and camshaft holders.
Lay a strip of plastigauge [1] lengthwise on top of each camshaft journal.



Be sure the dowel pins in the camshaft holder align the holes in the cylinder head.

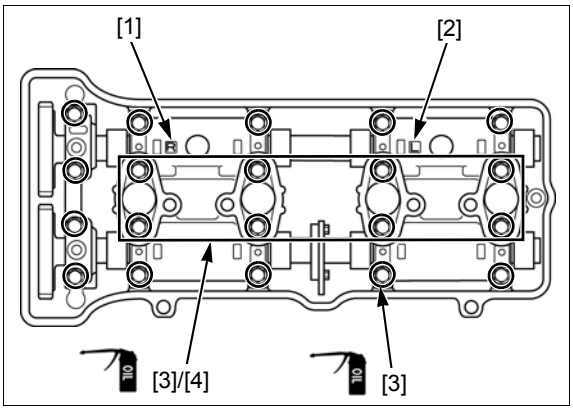
Install each camshaft holder to the correct locations with the identification marks.

- No mark: right camshaft holder
- "R" mark [1]: center camshaft holder
- "L" mark [2]: left camshaft holder

Apply oil to the threads and seating surfaces of the camshaft holder bolts [3].

Install the holder bolts with the eight sealing washers [4].

Finger tighten the bolts.



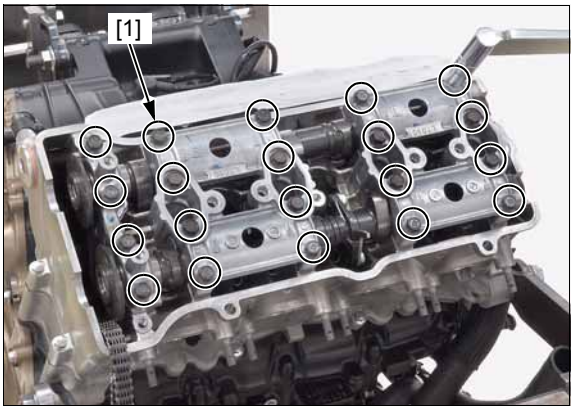
Gradually tighten the camshaft holder bolts [1] until the camshaft holders lightly contact the cylinder head surface.

NOTICE

Failure to tighten the camshaft holder in a crisscross pattern might cause a camshaft holder to break.

Tighten all camshaft holder bolts in the numerical order cast on the camshaft holders.

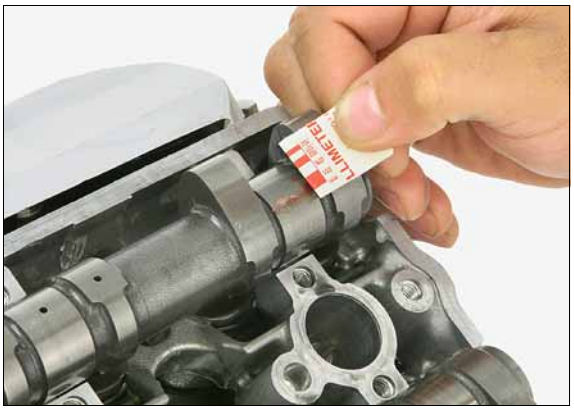
TORQUE: 12 N·m (1.2 kgf·m, 9 lbf·ft)



Remove the camshaft holders and measure the width of each plastigauge.
The widest thickness determines the oil clearance.

SERVICE LIMIT: 0.10 mm (0.004 in)

When the service limits are exceeded, replace the camshaft and recheck the oil clearance.
Replace the cylinder head and camshaft holders as a set if the clearance still exceeds the service limit.

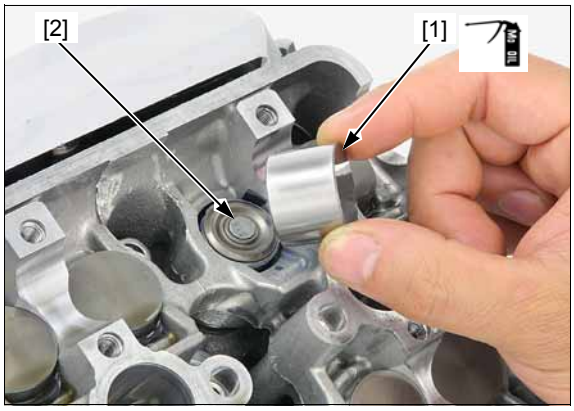


CAMSHAFT INSTALLATION

Apply molybdenum oil solution to the sliding surface of each valve lifter [1].

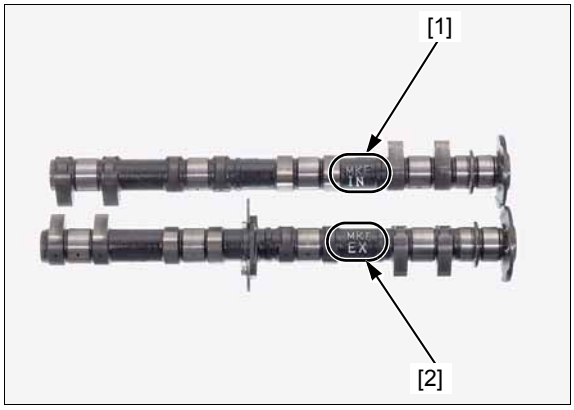
Install the shims and valve lifters in their original locations.

Install the shims [2] and valve lifters to the cylinder head.



Each camshaft has an identification mark.

- "IN" [1]: Intake camshaft
- "EX" [2]: Exhaust camshaft



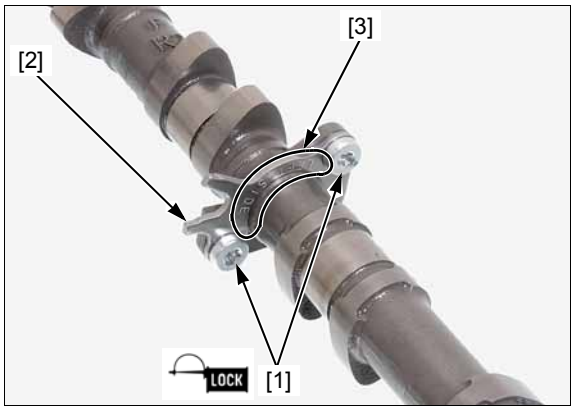
Exhaust camshaft only:

Apply locking agent to the CMP sensor rotor bolts [1] threads.

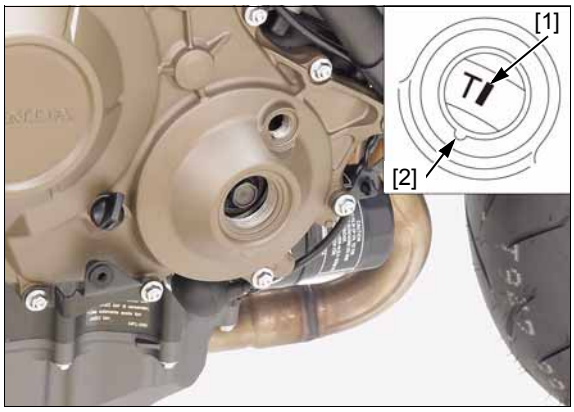
Install the CMP sensor rotor with the "LEFT SIDE" mark [3] facing left side as shown.

Install the CMP sensor rotor [2] and bolts.

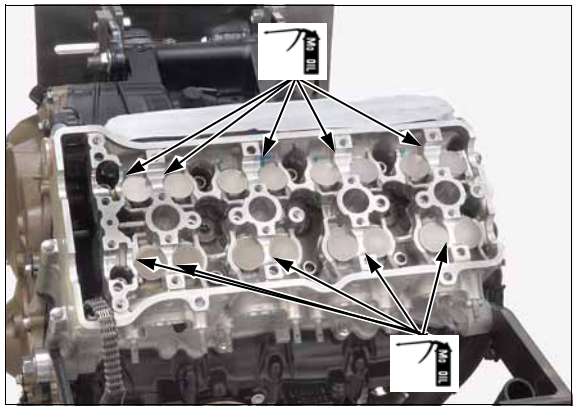
Do not tighten the bolts yet.



Turn the crankshaft clockwise and align the "T" mark [1] with the index mark [2] on the right crankcase cover.



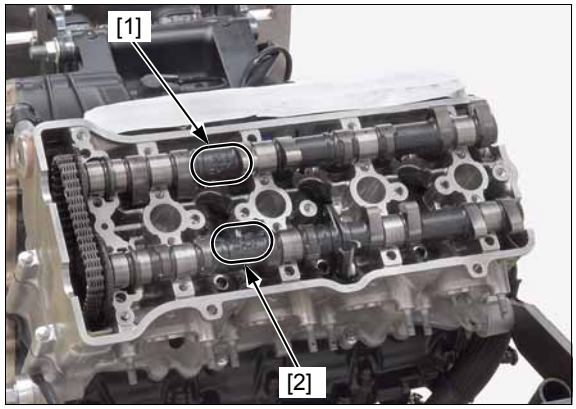
Apply molybdenum oil solution to the camshaft journal of the cylinder head.



Install the intake and exhaust camshafts.

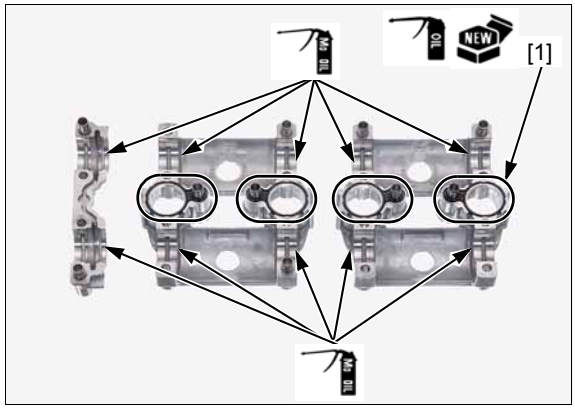
Each camshaft has an identification mark.

- “IN” [1]: Intake camshaft
- “EX” [2]: Exhaust camshaft



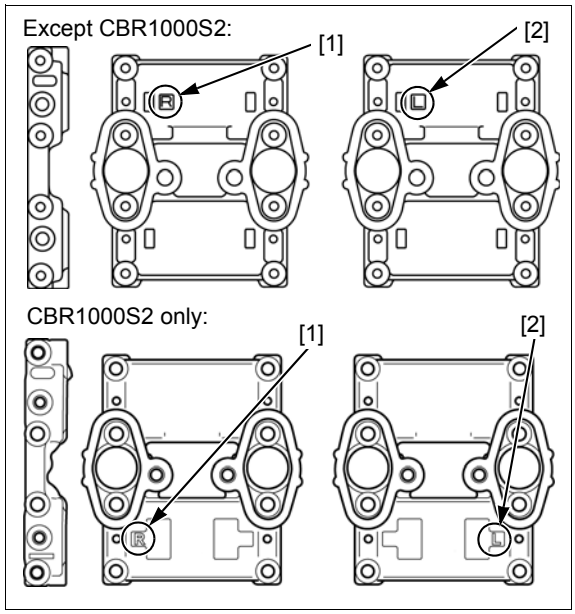
Coat new O-rings [1] with oil and install them into the grooves in the camshaft holders.

Apply molybdenum oil solution to the camshaft journals of the camshaft holders.



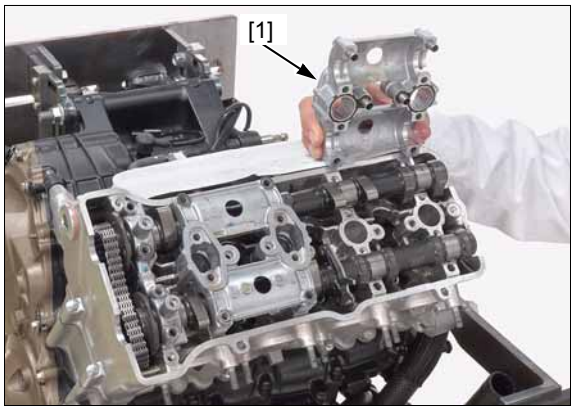
Note the correct locations with the identification marks as shown.

– No mark: right camshaft holder
– “R” mark [1]: center camshaft holder
– “L” mark [2]: left camshaft holder



Be sure to align the dowel pins in the camshaft holder with the holes in the cylinder head.

Install each camshaft holder [1] onto the camshafts.



Apply oil to the threads and seating surfaces of the camshaft holder bolts [1].
Install the twenty holder bolts with new eight sealing washers [2] as shown.

Finger tighten the bolts.

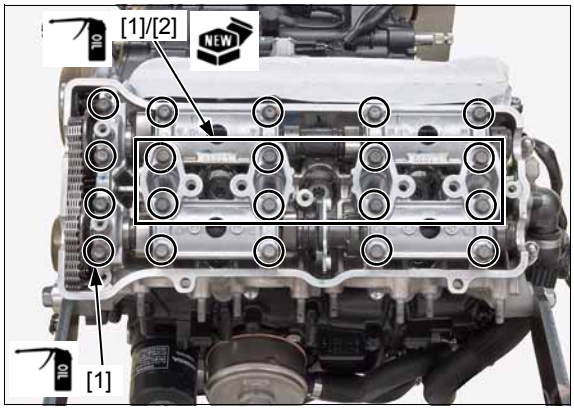
Gradually tighten the camshaft holder bolts until the camshaft holders lightly contact the cylinder head surface.

NOTICE

Failure to tighten the camshaft holder in a crisscross pattern might cause a camshaft holder to break.

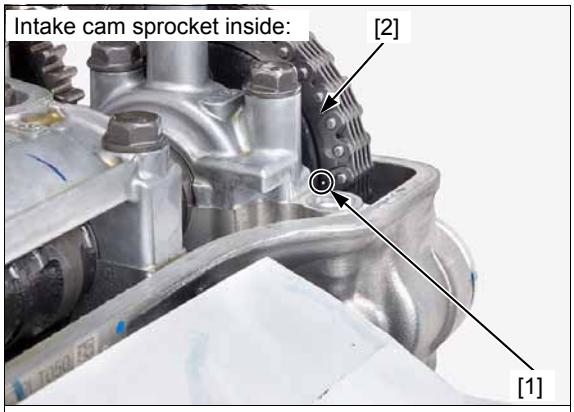
Tighten all camshaft holder bolts in the numerical order cast on the camshaft holders.

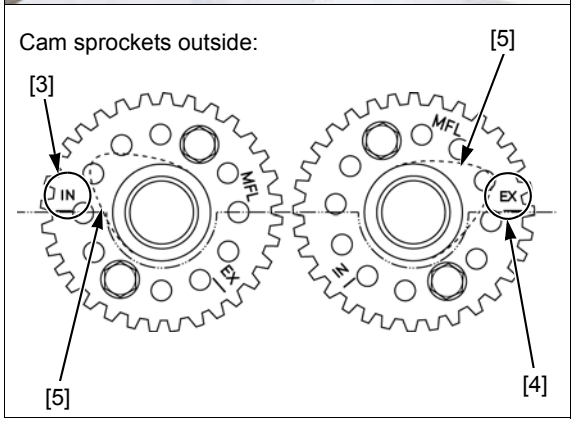
TORQUE: 12 N·m (1.2 kgf·m, 9 lbf·ft)



Install the cam sprockets to the camshaft.

- The inside punch mark [1] of the intake cam sprocket [2] must be flush with the cylinder head upper surface.
- The cam sprocket outside timing marks (“IN” [3] and “EX” [4]) must be flush with the cylinder head upper surface and facing outward as shown.
- Install the cam sprockets with the NO.1 cam lobes [5] facing up and out as shown.





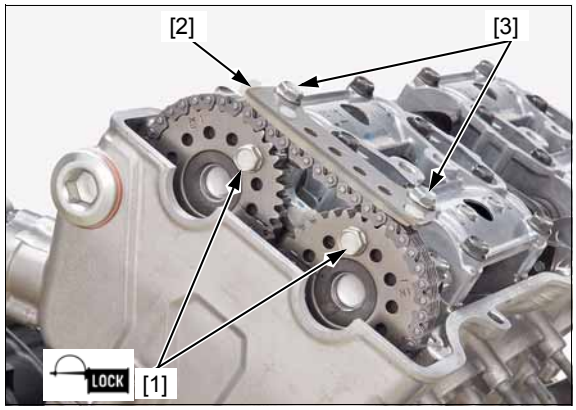
Apply locking agent to the cam sprocket bolts [1] threads.

Tighten the cam sprocket bolts to the specified torque.

TORQUE: 20 N·m (2.0 kgf·m, 15 lbf·ft)

Turn the crankshaft clockwise one full turn (360°) and tighten the other cam sprocket bolts.

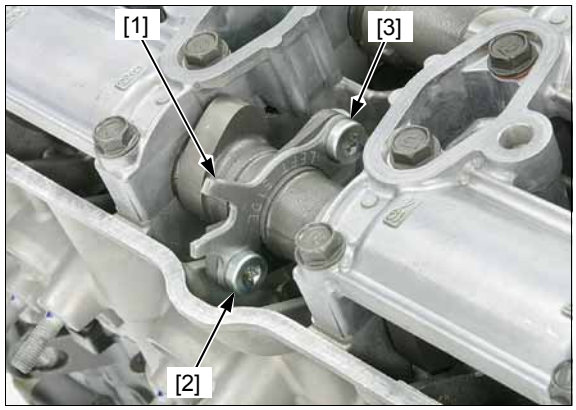
Install the cam chain guide B [2], and tighten the bolts [3].



In case the CMP sensor rotor [1] was removed, tighten the CMP sensor rotor bolt [2] to the specified torque.

TORQUE: 12 N·m (1.2 kgf·m, 9 lbf·ft)

Turn the crankshaft clockwise one full turn (360°) and tighten the other CMP sensor rotor bolt [3].



Remove the tensioner stopper [1] from the cam chain tensioner lifter.

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

Install the following:

– Cylinder head cover (page 10-4)
– CH, TH, FO only: Right rear under cover (page 2-21)

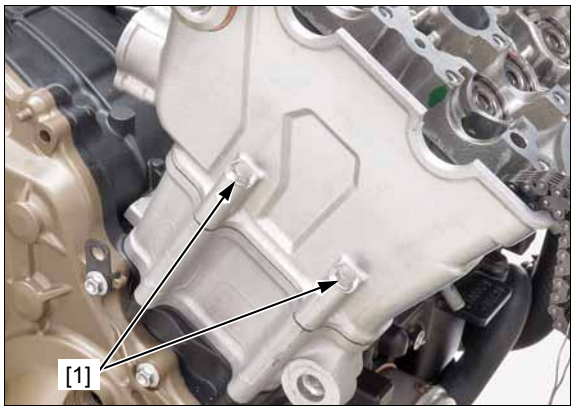
CYLINDER HEAD

REMOVAL

Remove the following:

– Engine (page 15-4)
– Thermostat housing (page 8-6)
– Cam chain tensioner lifter (page 10-25)
– Camshaft (page 10-6)

Remove the bolts [1].

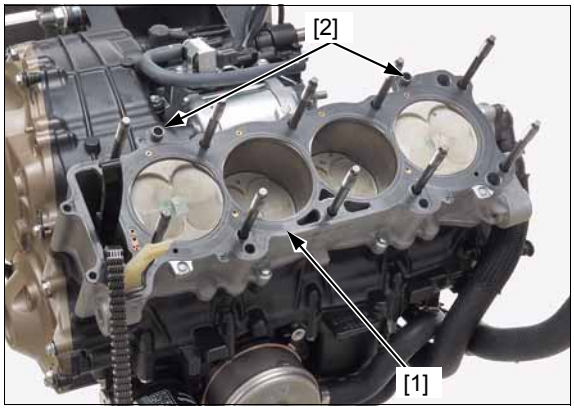


Loosen the nuts in a crisscross pattern in two or three steps.

Remove the cylinder head nuts [1] and washers [2].

Remove the cylinder head [3].

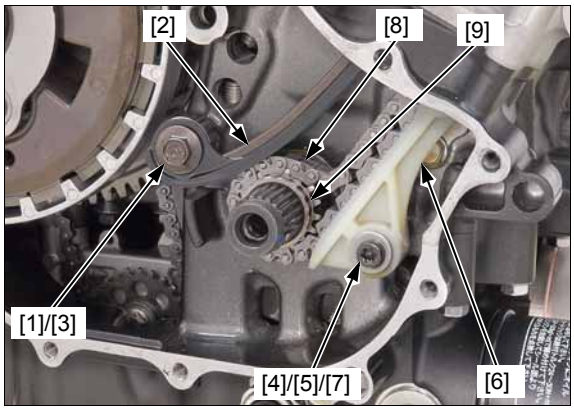
Remove the gasket [1] and dowel pins [2].



Remove the following:

– Right crankcase cover (page 11-4)
– Starter clutch (page 11-16)

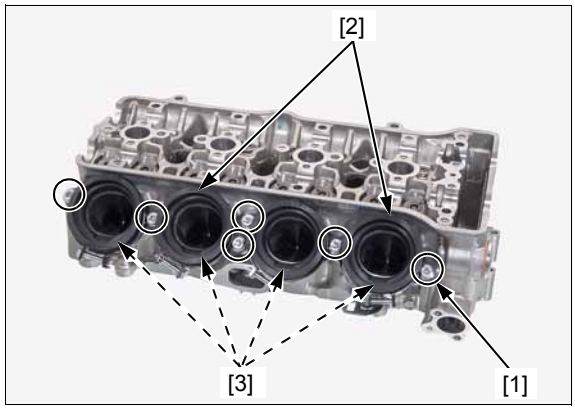
Remove the bolt [1], cam chain tensioner A [2] and collar [3].
Remove the bolt [4], washer [5], cam chain guide A [6] and collar [7].
Remove the cam chain [8] and timing sprocket [9] from the crankshaft.



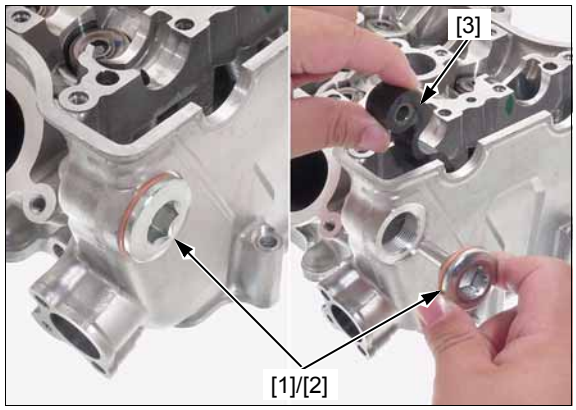
DISASSEMBLY

Remove the cylinder head (page 10-14).

Remove the bolts [1], insulators [2] and O-rings [3].



Remove the bolt [1], sealing washer [2] and cam chain tensioner B [3] from the cylinder head.



Remove the spark plugs from the cylinder head.

Install the tappet hole protector into the valve lifter bore.

TOOL:

Tappet hole protector [1]	**07HMG-MR70002**

To prevent loss of tension, do not compress the valve springs more than necessary to remove the cotters.

Remove the valve spring cotters using the special tools as shown.

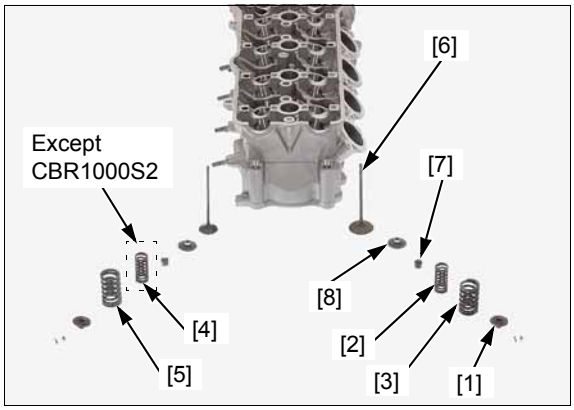
TOOLS:

Valve spring compressor	**07757-0010000**
Valve spring compressor attachment	**07959-KM30101**

Mark all parts during disassembly so they can be placed back in their original locations.

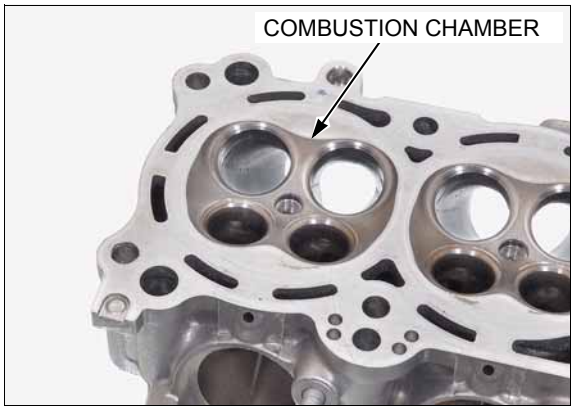
Remove the following:

– Spring retainer [1]
– Inner [2]/outer [3] valve springs (IN)
– Except CBR1000S2: Inner [4]/outer [5] valve springs (EX)
– CBR1000S2 only: valve spring (EX) [5]
– Valve [6]
– Stem seal [7]
– Valve spring seat [8]



Avoid damaging the gasket surface.

Remove carbon deposits from the combustion chambers.
Check the spark plug hole and valve areas for cracks.



INSPECTION

Inspect the following parts for damage, abnormal wear, deformation, burning or clogs in oil passages.

– Cylinder head
– Valve springs
– Cam chain tensioner A
– Cam chain tensioner B
– Cam chain guide A
– Valves
– Valve guides

Measure each part according to CYLINDER HEAD/VALVE SPECIFICATIONS (page 1-8).

Replace any part if it is out of service limit.

NOTE:

- Ream the valve guide using the valve guide reamer to remove any carbon build up before measuring the guide (page 10-17).
- Refer to valve seat inspection (page 10-18).

VALVE GUIDE REPLACEMENT

Chill the replacement valve guides in the freezer section of a refrigerator for about an hour.

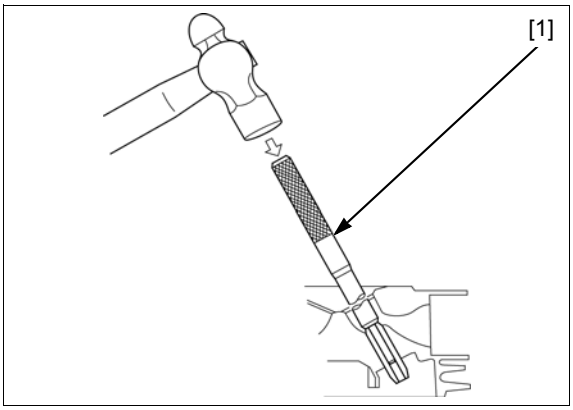
Do not use a torch to heat the cylinder head; it may cause warping.

Heat the cylinder head to 100 – 150°C (212 – 302°F) with a hot plate or oven.
To avoid burns, wear heavy gloves when handling the heated cylinder head.

Support the cylinder head and drive out the valve guides from combustion chamber side of the cylinder head.

TOOLS:
Valve guide driver

IN:	**07HMD-ML00101**
EX:	**07JMD-KY20100**

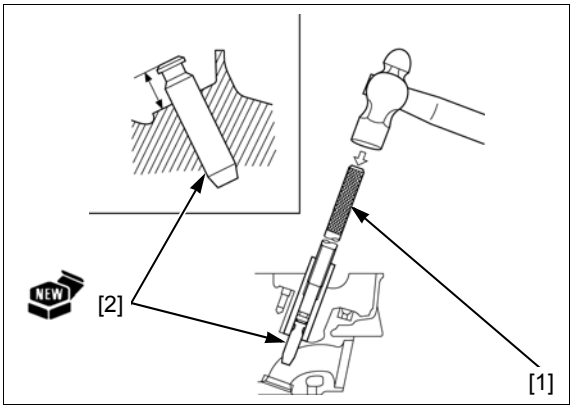


Adjust the valve guide driver [1] to the specified depth.

SPECIFIED DEPTH:
IN: 14.4 – 14.7 mm (0.57 – 0.58 in)
EX: 15.7 – 16.0 mm (0.62 – 0.63 in)

TOOL:

Valve guide driver	**07743-0020000**



While the cylinder head is still heated, drive in new valve guides [2] from the camshaft side until the exposed depth is the specified value.

Let the cylinder head cool to room temperature.

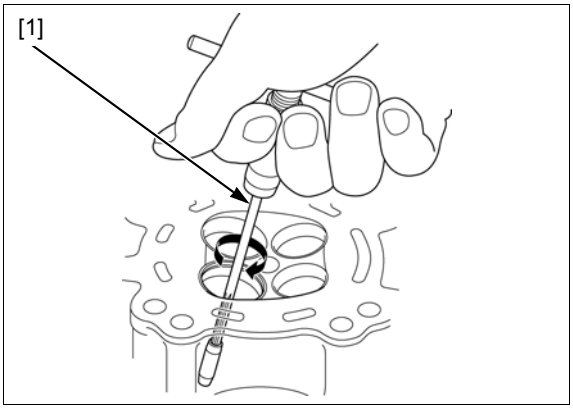
Use cutting oil on the reamer during this operation.

Ream new valve guides after installation.
Insert the reamer [1] from the combustion chamber side of the head and also always rotate the reamer clockwise.

TOOLS:
Valve guide reamer

IN (4.508 mm):	**07HMH-ML00101**
EX (4.008 mm):	**07MMH-MV90100**

- Take care not to tilt or lean the reamer in the guide while reaming.



Clean the cylinder head thoroughly to remove any metal particles.
Reface the valve seat (page 10-18).

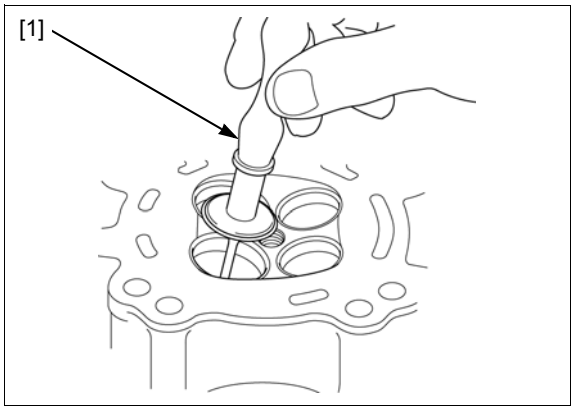
VALVE SEAT INSPECTION/REFACING

Disassemble the cylinder head (page 10-15).

Clean the intake and exhaust valves thoroughly to remove carbon deposits.

Apply a light coating of Prussian Blue to the valve seats.

Tap the valves and seats using a rubber hose or other hand-lapping tool [1].



Measure the valve seat width according to CYLINDER HEAD/VALVE SPECIFICATIONS (page 1-8).

The valves cannot be ground. If the valve face is burned, badly worn, or if it contacts the seat unevenly, replace the valve.

Inspect the valve seat face for:

- Uneven seat width:
  – replace the valve and reface the valve seat.
- Damaged face:
  – replace the valve and reface the valve seat.
- Contact area (too high or too low)
  – reface the valve seat.

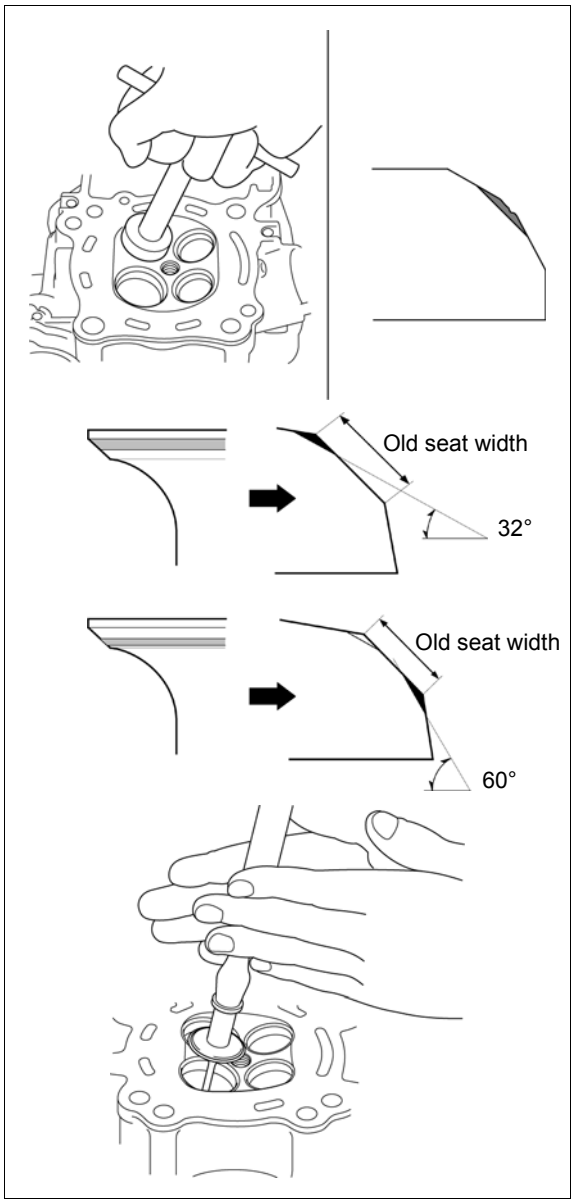
REFACING

Reface the valve seat using the following tools.

TOOLS:

Cutter holder, 4.5 mm (IN)	**07781-0010600**
Cutter holder, 4.0 mm (EX)	**07781-0010500**
Seat cutter, 33 mm (45° IN)	**07780-0010800**
Seat cutter, 24.5 mm (45° EX)	**07780-0010100**
Flat cutter, 33 mm (32° IN/EX)	**07780-0012900**
Flat cutter, 25 mm (32° IN/EX)	**07780-0012000**
Interior cutter, 34 mm (60° IN/EX)	**07780-0014700**
Interior cutter, 26 mm (60° IN/EX)	**07780-0014500**

Standard:
IN/EX: 0.90 – 1.10 mm (0.035 – 0.043 in)
SERVICE LIMIT:
IN/EX: 1.5 mm (0.06 in)



NOTE:

- Follow the refacer manufacturer's operating instructions.
- Be careful not to grind the seat more than necessary.

1. Use a 45° seat cutter, remove any roughness or irregularities from the seat.
2. Use a 32° flat cutter, remove the top 1/4 of the existing valve seat material.
3. Use a 60° interior cutter, remove the bottom 1/4 of the existing valve seat material.
4. Using a 45° seat cutter, cut the seat to the proper width.
   Make sure that all pitting and irregularities are removed.

INTAKE SIDE:

After refacing, wash the cylinder head and valves.

NOTICE

- *Do not lap the intake valves. They are titanium and have a thin oxide coating. Lapping will damage this coating.*
- *Use the intake valve as new ones.*

EXHAUST SIDE:

After cutting the exhaust seat, apply lapping compound to the exhaust valve face, and lap the exhaust valve using light pressure.

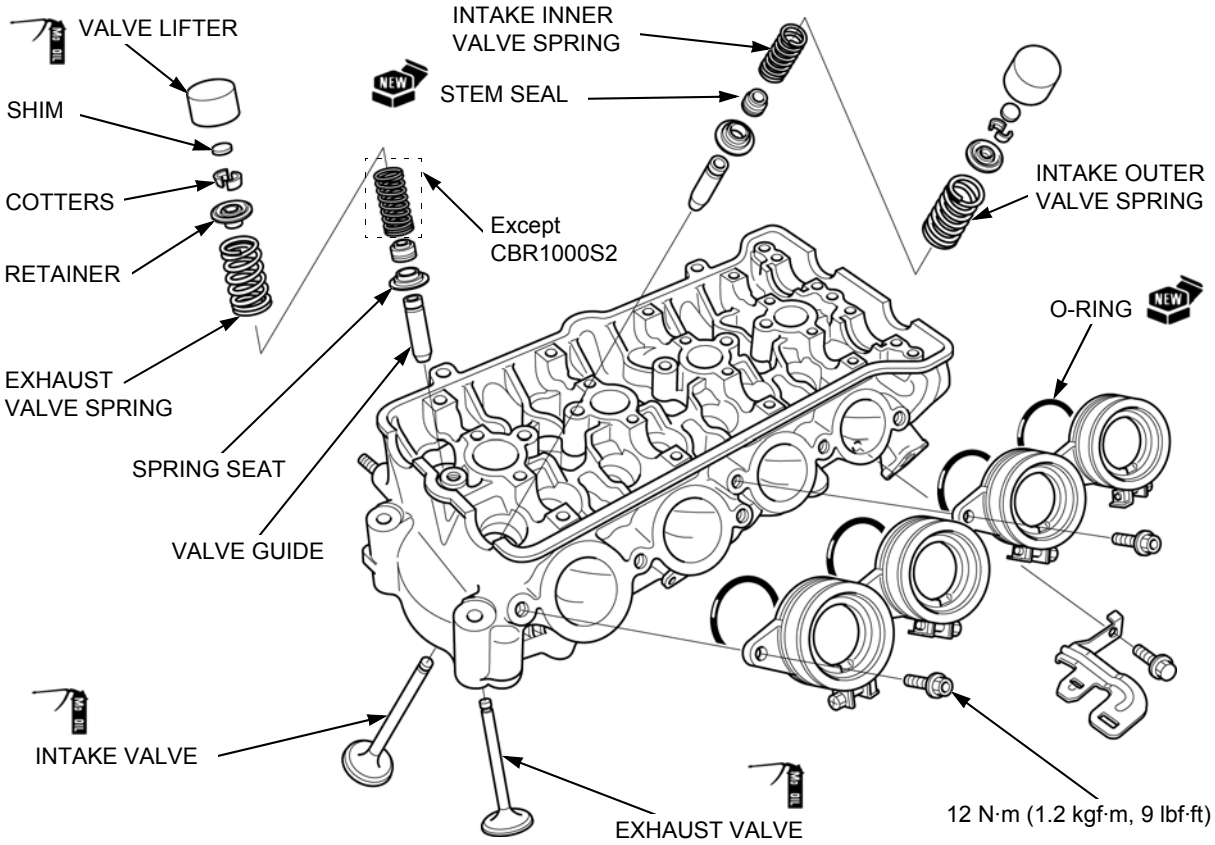
After lapping, wash all residual compound off the cylinder head and valve.

NOTICE

- *Excessive lapping pressure may deform or damage the seat.*
- *Change the angle of lapping tool frequently to prevent uneven seat wear.*
- *Do not allow any lapping compound to enter the guides.*

Assemble the cylinder head (page 10-19).

ASSEMBLY



Blow through all oil passages in the cylinder head with compressed air.

Install the tappet hole protector into the valve lifter bore.

TOOL:
Tappet hole protector [1] 07HMG-MR70002

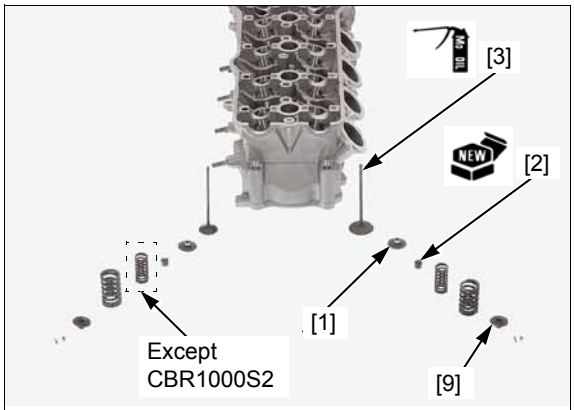
Install the valve spring seats [1].
Install new stem seals [2].

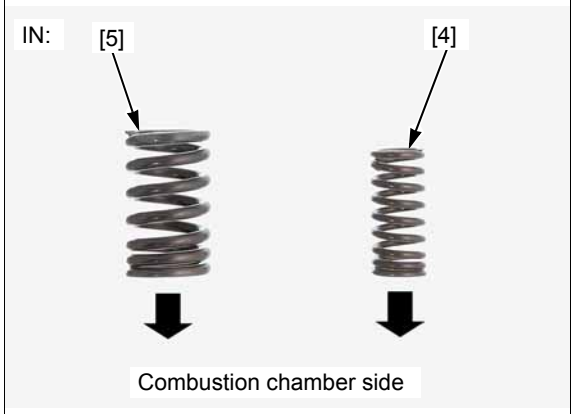
Lubricate the valve stems with molybdenum oil solution. Insert the valve [3] into the valve guide while turning it slowly to avoid damage to the stem seal.

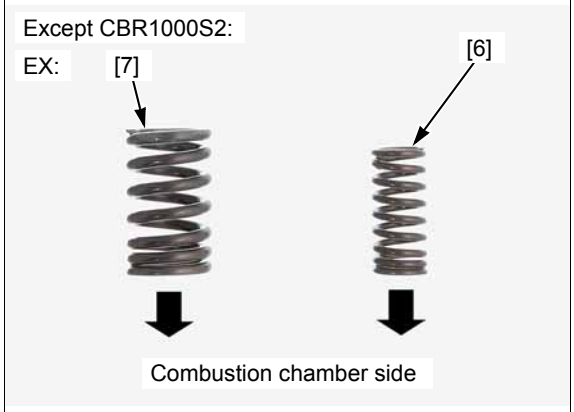
Install the valve springs with the tightly wound coils facing the combustion chamber.

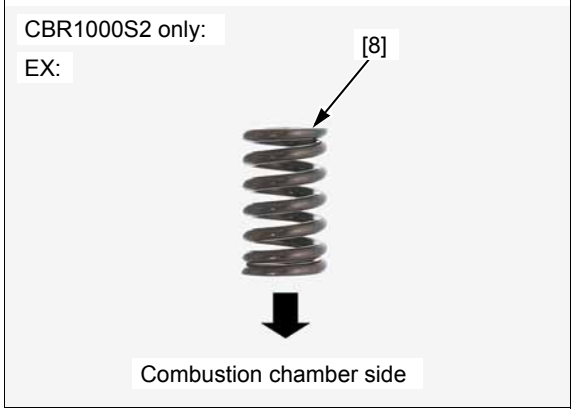
- The valve springs have paint marks
  Except CBR1000S2:
  – IN (inner) [4]: Green
  – IN (outer) [5]: Green
  – EX (inner) [6]: Pink
  – EX (outer) [7]: Pink
  CBR1000S2 only:
  – IN (inner) [4]: Light blue
  – IN (outer) [5]: Light blue
  – EX [8]: Orange

Install the valve spring retainer [9].









Grease the cotters to ease installation.

Install the valve cotters using the special tool as shown.

NOTE:

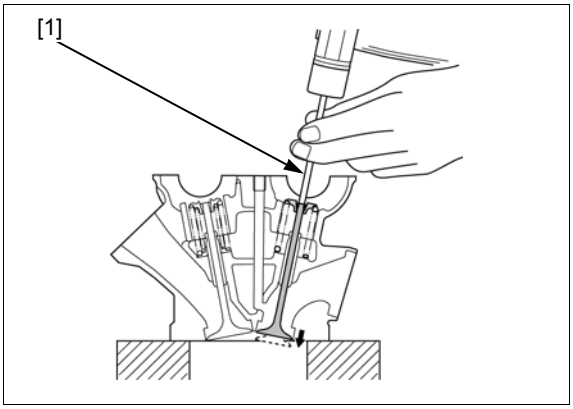
To prevent loss of tension, do not compress the valve spring more than necessary.

TOOLS:

Valve spring compressor	**07757-0010000**
Valve spring compressor attachment	**07959-KM30101**

Support the cylinder head above the work bench surface to prevent possible valve damage.

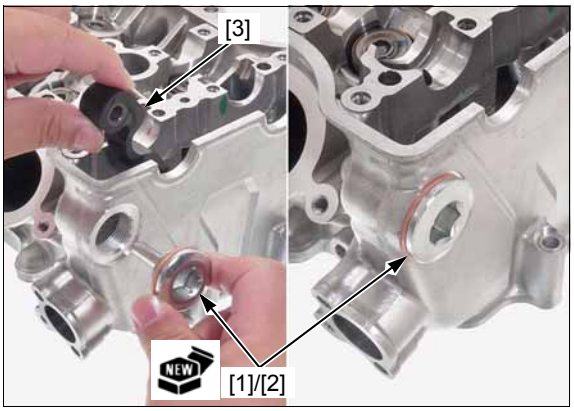
Tap the valve stems gently with hammer and shaft [1] as shown to seat the cotters firmly.



Install a new sealing washer [1], bolt [2] and cam chain tensioner B [3] as shown.

Tighten the cam chain tensioner B pivot bolt to the specified torque.

TORQUE: 74 N·m (7.5 kgf·m, 55 lbf·ft)

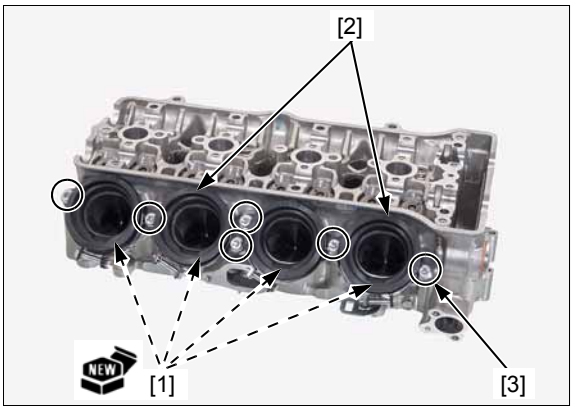


Install new O-rings [1] to the insulator grooves.

Install the insulators [2] to the cylinder head and tighten the bolts [3] to the specified torque.

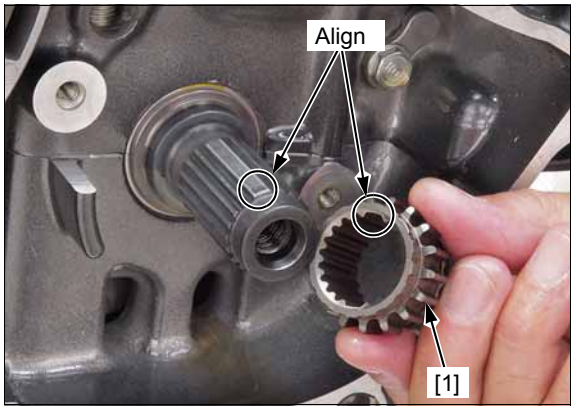
TORQUE: 12 N·m (1.2 kgf·m, 9 lbf·ft)

For spark plug installation (page 3-6)



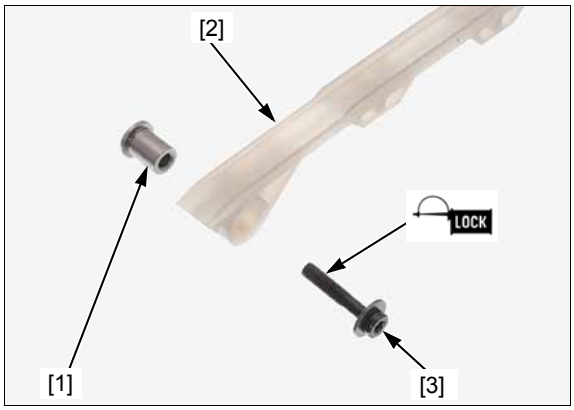
INSTALLATION

Install the timing sprocket [1] by aligning the wide teeth between the crankshaft and sprocket.



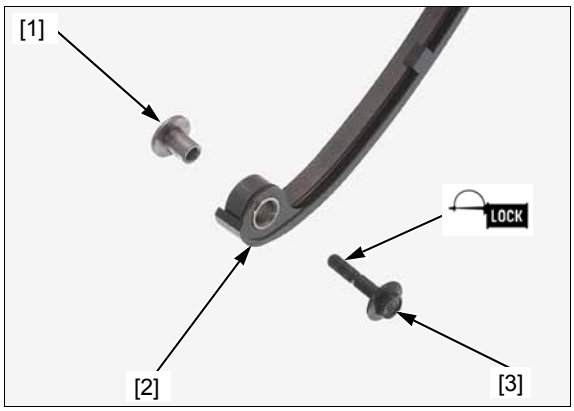
Install the collar [1] to the cam chain guide A [2].

Apply locking agent to the cam chain guide A bolt/ washer [3] threads.



Install the collar [1] to the cam chain tensioner A [2].

Apply locking agent to the cam chain tensioner A pivot bolt [3] threads (page 1-19).



Install the cam chain [1].

Install the cam chain guide A [2] and tighten the bolt/ washer [3] to the specified torque.

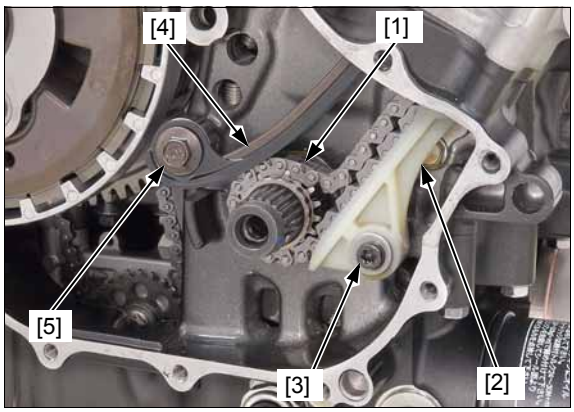
TORQUE: 12 N·m (1.2 kgf·m, 9 lbf·ft)

Install the cam chain tensioner A [4] and tighten the bolt [5] to the specified torque.

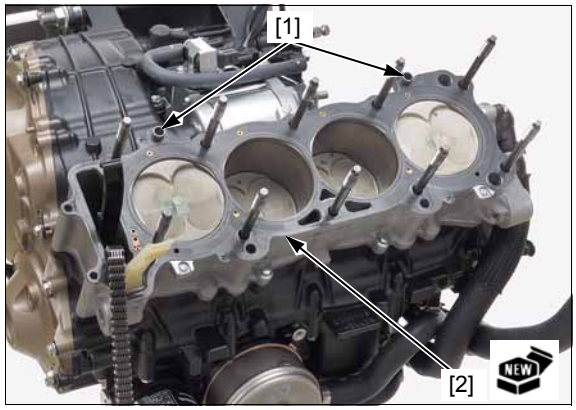
TORQUE: 10 N·m (1.0 kgf·m, 7 lbf·ft)

Install the following:

– Starter clutch (page 11-16)
– Right crankcase cover (page 11-4)

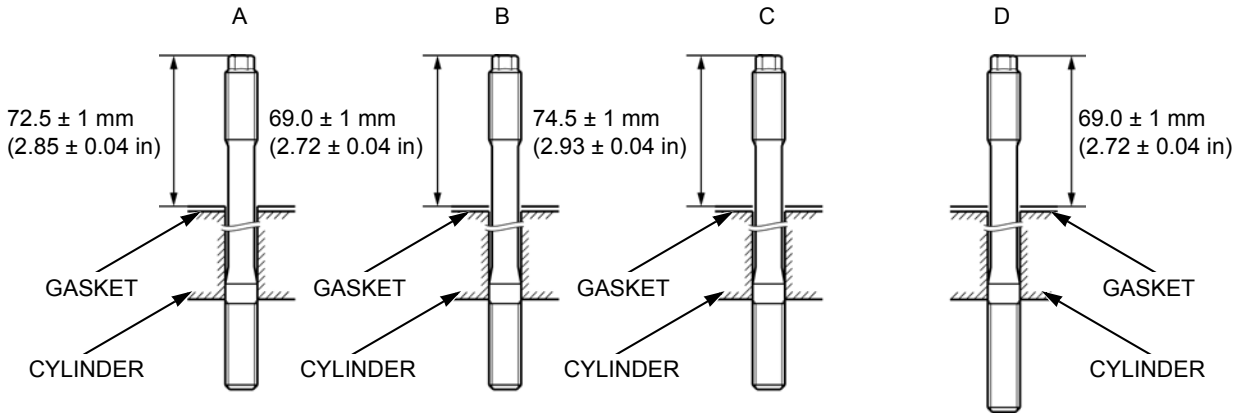


Install the dowel pins [1] and a new cylinder head gasket [2] as shown.

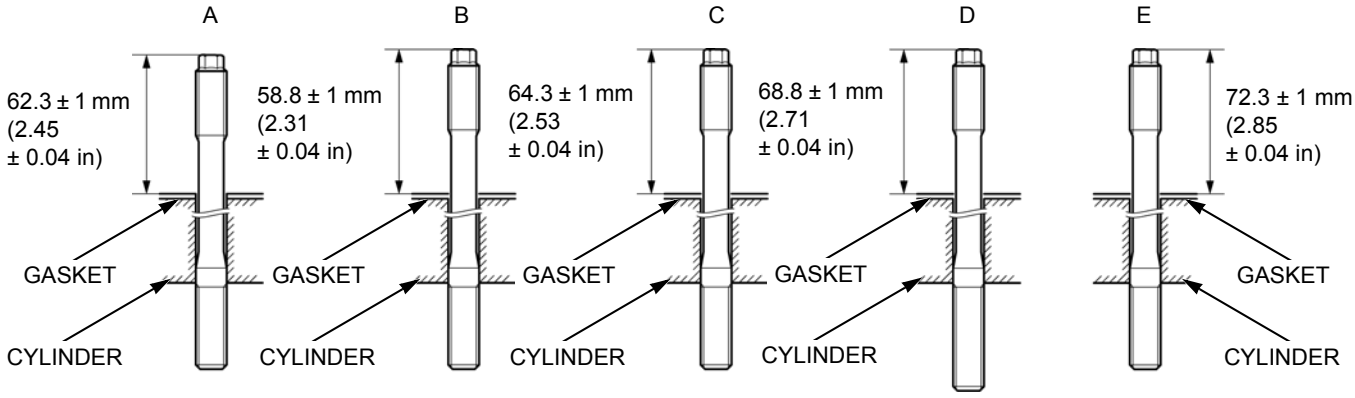


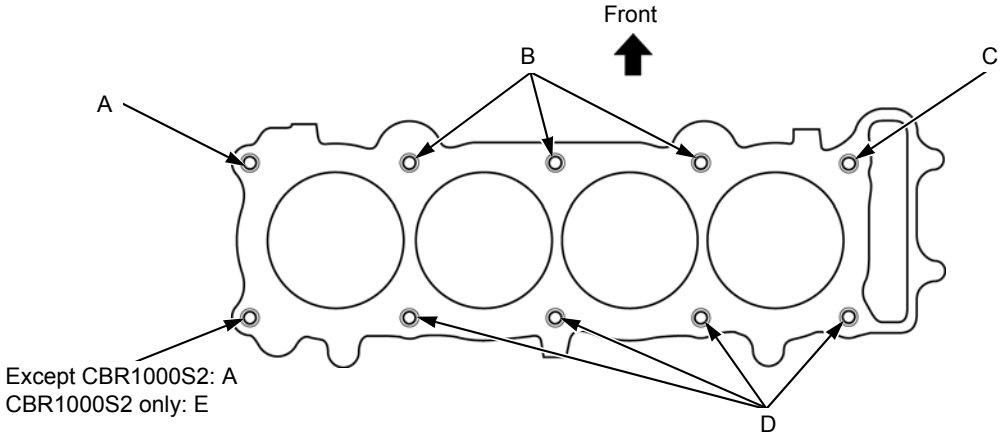
Check that the cylinder stud bolt height from the bolt head to cylinder gasket surface is within specification.

Except CBR1000S2:

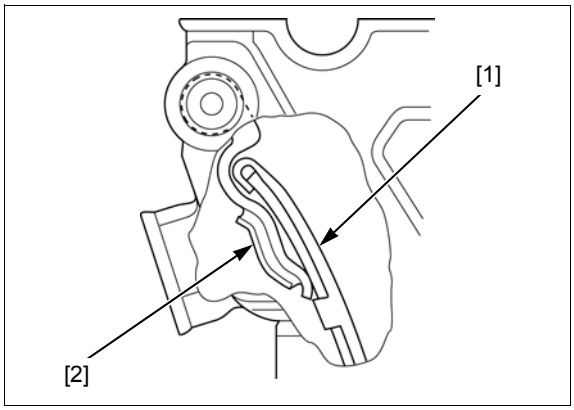


CBR1000S2 only:





Install the cylinder head onto the cylinder block while aligning the cam chain tensioner A [1] and B [2] as shown.



Apply oil to the stud bolt [1] threads.

Apply oil to the washers [2] and install them.

Apply oil to the cylinder head nut [3] threads and seating surface and install them.

Tighten the cylinder head nuts as follows:

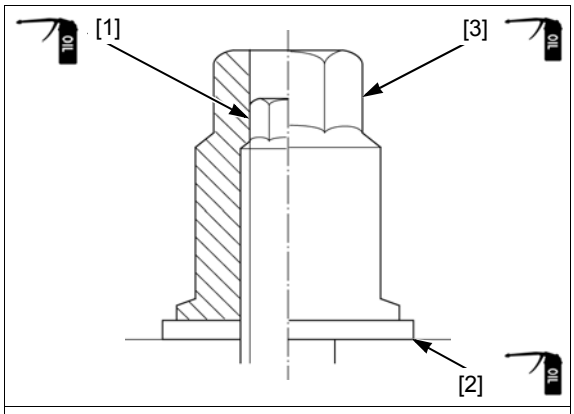
1. Tighten the cylinder head nuts to the specified torque in the specified sequence as shown.

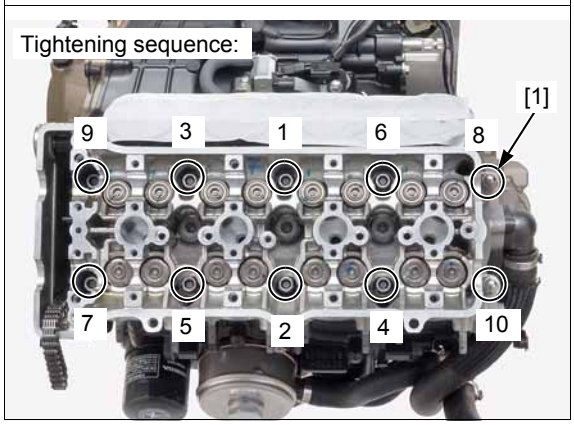
   TORQUE: 25 N·m (2.5 kgf·m, 18 lbf·ft)

2. Further tighten the cylinder head nuts to the specified torque in the specified sequence as shown.

   Further tighten the cylinder head nuts 135°.

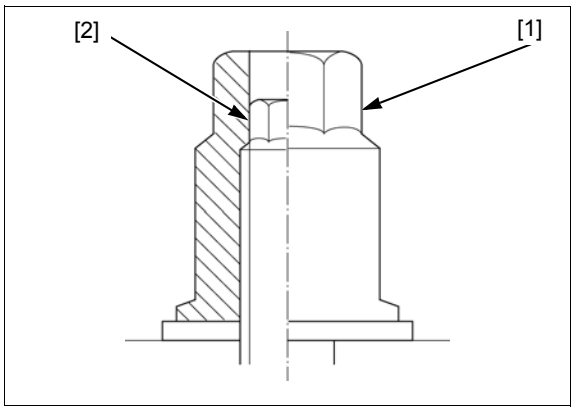
   TORQUE: 25 N·m (2.5 kgf·m, 18 lbf·ft) + 135°





3. Loosen the cylinder head nuts [1] in a crisscross pattern in two or three steps and remove them.
4. Tighten the stud bolts [2] to the specified torque.

   TORQUE: 20 N·m (2.0 kgf·m, 15 lbf·ft)



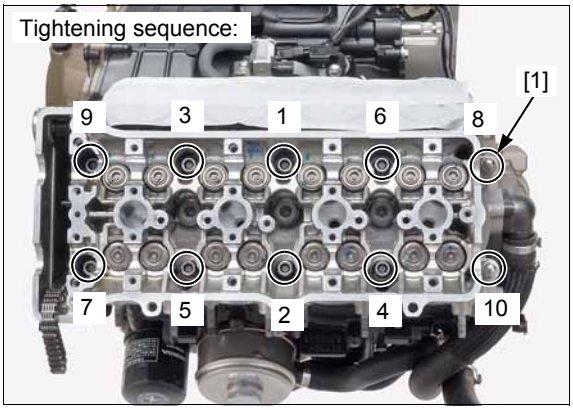
5. Tighten the cylinder head nuts [1] to the specified torque in the specified sequence as shown.

   TORQUE: 25 N·m (2.5 kgf·m, 18 lbf·ft)

6. Further tighten the cylinder head nuts to the specified torque in the specified sequence as shown.

   Further tighten the cylinder head nuts 135°.

   TORQUE: 25 N·m (2.5 kgf·m, 18 lbf·ft) + 135°



Tighten the bolts [1] securely.

Install the following:

– Camshaft (page 10-10)
– Cam chain tensioner lifter (page 10-25)
– Thermostat housing (page 8-6)

CAM CHAIN TENSIONER LIFTER

REMOVAL/INSTALLATION

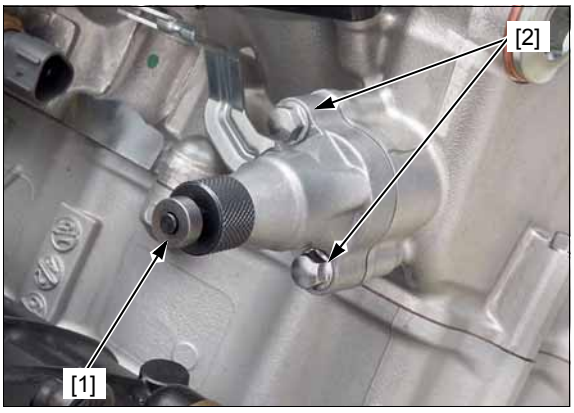
Lift and support the fuel tank (page 3-4).

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

Turn the tensioner shaft fully in (clockwise) and secure it using the tensioner stopper to prevent damaging the cam chain.

TOOL:
Tensioner stopper [1] **070MG-0010100**

Remove the bolts [2].

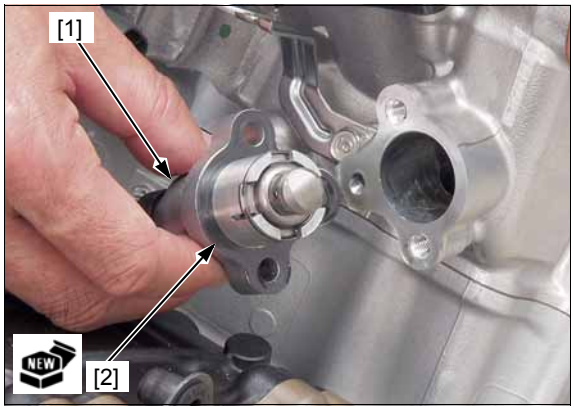


Remove the cam chain tensioner lifter [1] and gasket [2].

Installation is in the reverse order of removal.

NOTE:

- Note the installation direction of the gasket.

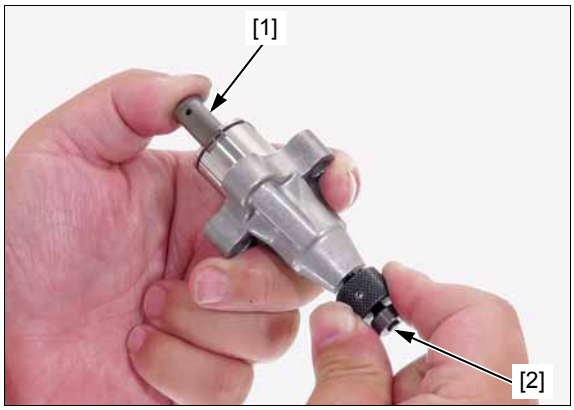


INSPECTION

Check the cam chain tensioner lifter [1] operation:

– The cam chain tensioner lifter shaft should not go into the lifter body when it is pushed.
– When it is turned clockwise with the tensioner stopper or a screwdriver, the shaft should be pulled into the lifter body. The shaft should spring out of the lifter body as soon as the tensioner holder is released.

TOOL:
Tensioner stopper [2] 070MG-0010100



11. CLUTCH/STARTER CLUTCH/GEARSHIFT LINKAGE

SERVICE INFORMATION

GENERAL

- This section covers service of the clutch, starter clutch and gearshift linkage. All service can be done with the engine installed in the frame.
- Engine oil viscosity and level have an effect on clutch disengagement. When the clutch does not disengage or the motorcycle creeps with clutch disengaged, inspect the engine oil level before servicing the clutch system.
- The primary drive gear and clutch outer guide inserts are select fit and identified by codes. Select replacement bearings from the code tables (page 11-11).
- When using the lock nut wrench, use a deflecting beam type torque wrench 500 mm (20.0 in) long. 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 lock nut. The specification given below is the actual torque applied to the lock nut, not the reading on the torque wrench when used with the lock nut wrench. The procedure later in the text gives both actual and indicated torque readings.

TROUBLESHOOTING

Clutch lever is too hard to pull in
- Damaged clutch lifter mechanism
- Faulty clutch lifter bearing
- Clutch lifter piece installed improperly

Clutch slips when accelerating
- Worn clutch disc
- Weak clutch springs
- Engine oil mixed with molybdenum or graphite additive

Clutch will not disengage or motorcycle creeps with clutch disengaged
- Clutch plate warped
- Loose clutch center lock nut
- Oil level too high
- Improper oil viscosity
- Damaged clutch lifter mechanism
- Clutch lifter piece installed improperly

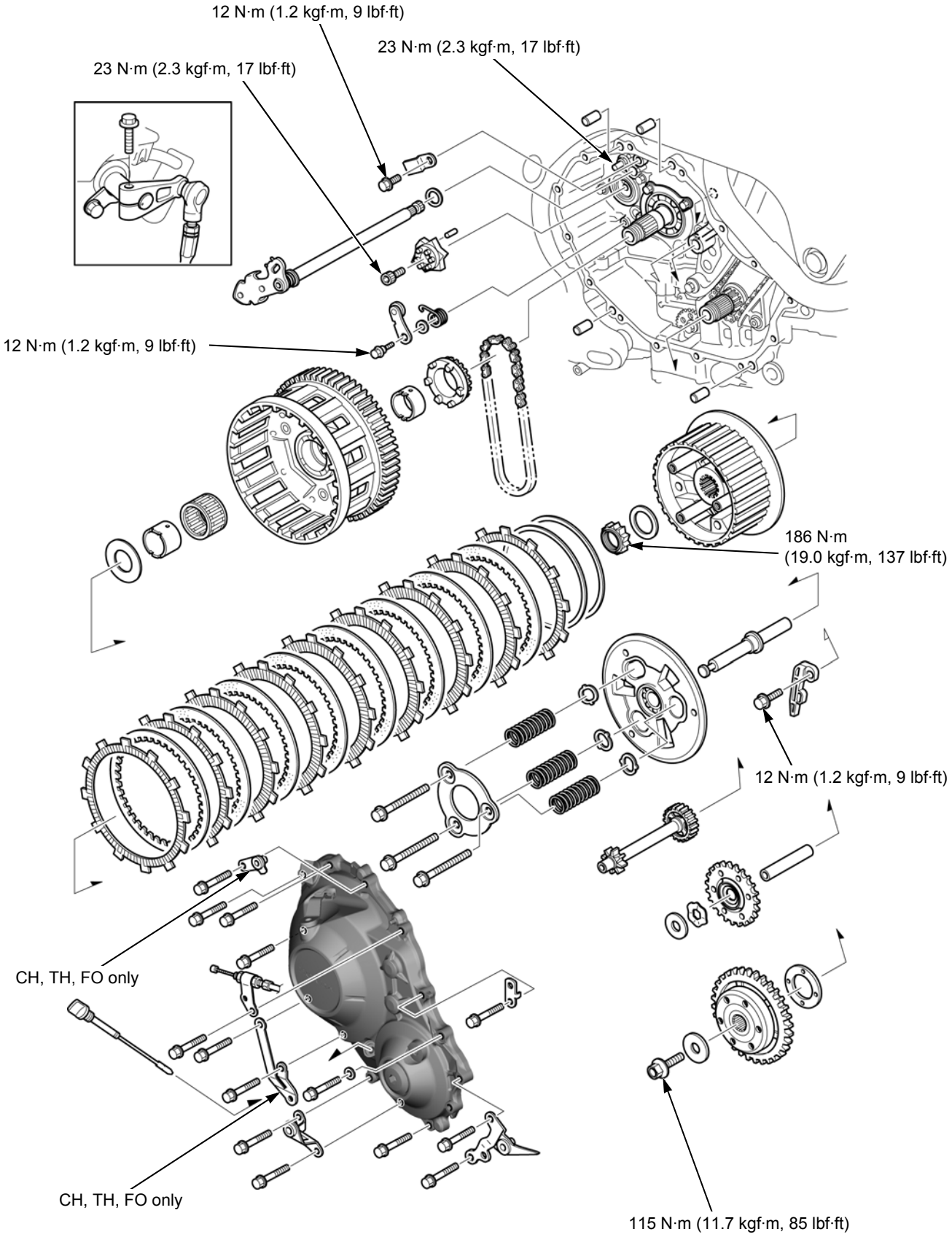
Hard to shift
- Improper clutch operation
- Improper oil viscosity
- Bent shift fork
- Bent shift fork shaft
- Bent fork claw
- Damaged gearshift cam
- Loose stopper plate bolt
- Damaged stopper plate and pin
- Damaged gearshift spindle

Transmission jumps out of gear
- Worn shift drum stopper arm
- Weak or broken shift drum stopper arm return spring
- Loose stopper plate bolt
- Bent shift fork shaft
- Damaged gearshift cam
- Damaged or bent shift forks
- Worn gear engagement dogs or slots

Gearshift pedal will not return
- Weak or broken gearshift spindle return spring
- Bent gearshift spindle

Engine does not turn
- Faulty starter clutch
- Damaged reduction gear/shaft
- Damaged idle gear/shaft

COMPONENT LOCATION



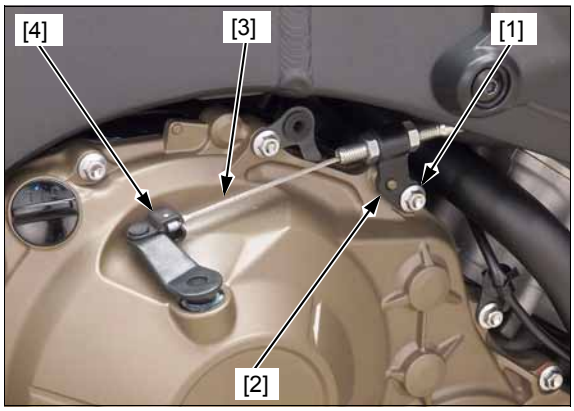
RIGHT CRANKCASE COVER

REMOVAL/INSTALLATION

Remove the following:

– Right middle cowl (page 2-13)
– CH, TH, FO only: Right rear under cover (page 2-21)
– Except CH, TH, FO: Under cowl (page 2-20)

Remove the bolt [1] and clutch cable guide plate [2], then disconnect the clutch cable [3] end from the clutch lifter lever [4].



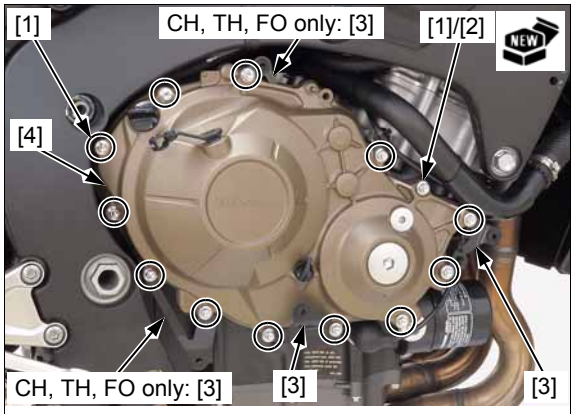
Loosen the right crankcase cover bolts [1] crisscross pattern in two or three steps.

CH, TH, FO only: Remove the bolts, sealing washer [2] and four stays [3].

Except CH, TH, FO: Remove the bolts, sealing washer [2] and two stays [3].

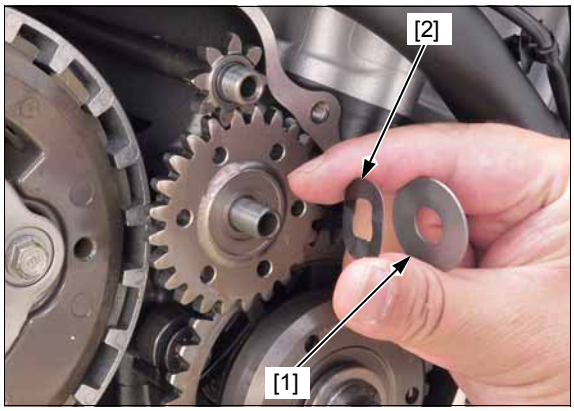
Be careful not to drop the clutch lifter lever return spring [5] into the oil pan.

Remove the right crankcase cover [4] while turning the clutch lifter lever counterclockwise to disengage the lifter lever spindle from the lifter piece.



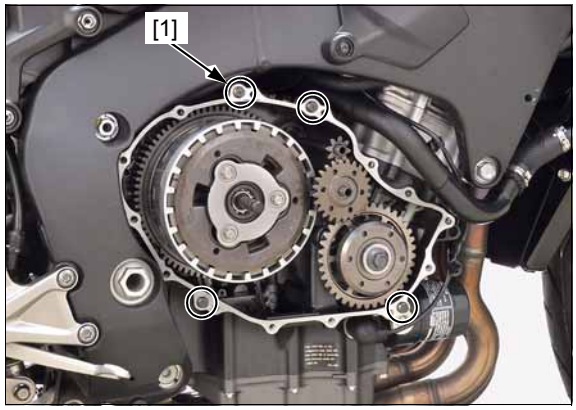
Be careful not to drop the thrust/ wave washers into the oil pan.

Remove the thrust washer [1] and wave washer [2] from the starter idle gear shaft.



Remove the four dowel pins [1].

Clean off any sealant from the right crankcase cover mating surfaces.



NOTE:

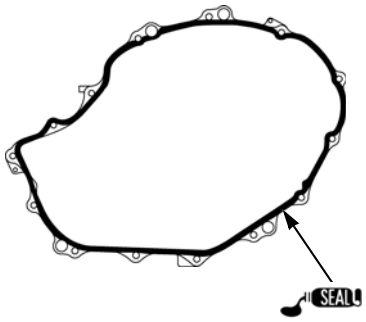
- Do not turn the crankshaft counterclockwise after removing the right crankcase cover to prevent the starter reduction gear from damage.

Installation is in the reverse order of removal.

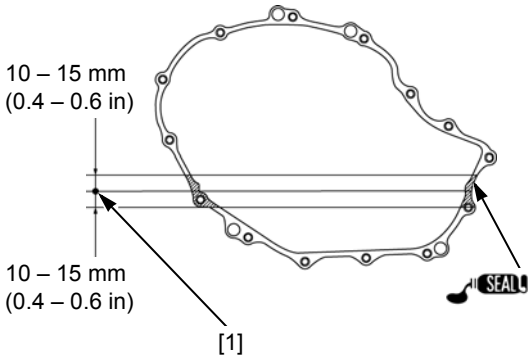
NOTE:

- Apply sealant (TB 1207B or equivalent) to the mating surface of the right crankcase cover as shown.
- Apply sealant (TB 1207B or equivalent) to the crankcase mating surface area [1] of the crankcase as shown.
- Install the right crankcase cover while turning the lifter lever clockwise to engage the lifter lever spindle groove with the lifter piece flange.
- Check that there are no oil leaks.
- Adjust the clutch lever freeplay (page 3-23).

Cover side:



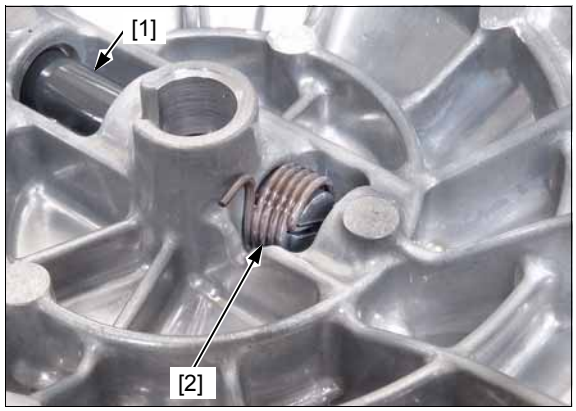
Crankcase side:



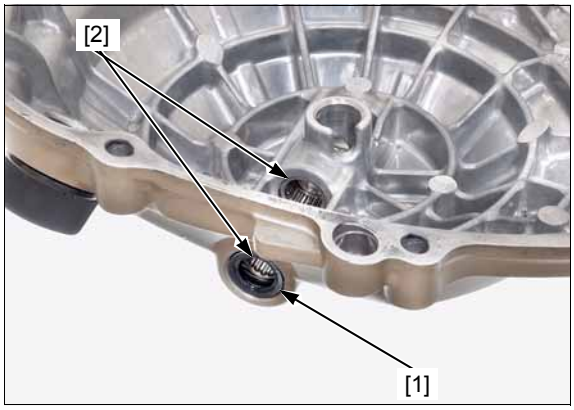
CLUTCH LIFTER LEVER

Remove the clutch lifter lever and return spring from the right crankcase cover.

Check the lifter lever [1] spindle for wear or damage.
Check the return spring [2] for fatigue or damage.

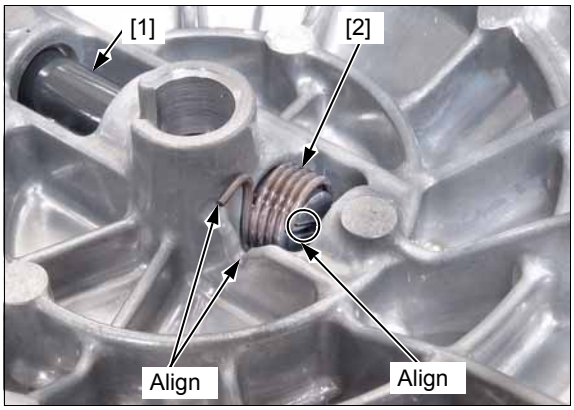


Check the oil seal [1] and needle bearings [2] for wear or damage.



Install the clutch lifter lever [1] and return spring [2] to the right crankcase cover as shown.

- Align the return spring end with the clutch lifter lever groove.
- Align the return spring hook with the right crankcase cover groove.



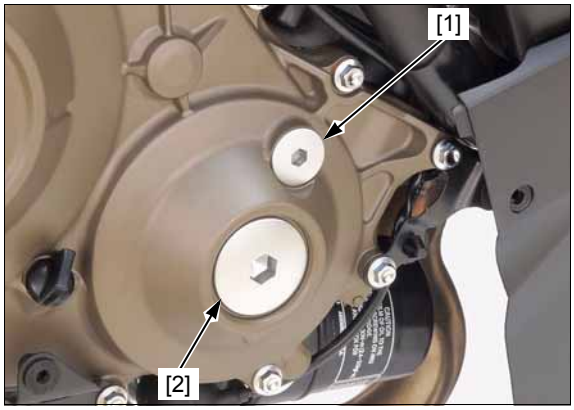
CLUTCH

REMOVAL

Remove the following:

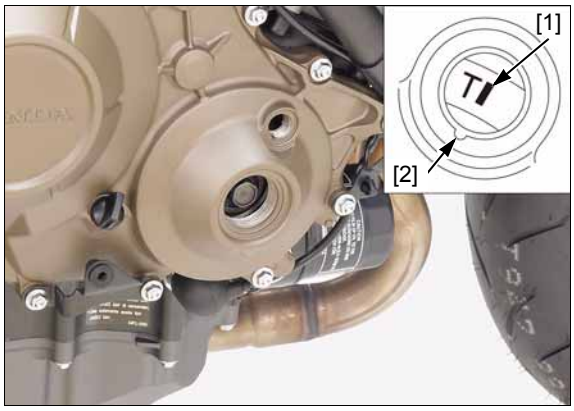
– Right middle cowl (page 2-13)
– CH, TH, FO only: Right rear under cover (page 2-21)

Remove the timing hole cap [1] and crankshaft hole cap [2].



To ease removal of the clutch outer, turn the crankshaft clockwise and align the “T” mark [1] with the index mark [2] on the right crankcase cover.

Remove the right crankcase cover (page 11-4).



Remove the starter idle gear [1] and shaft [2].

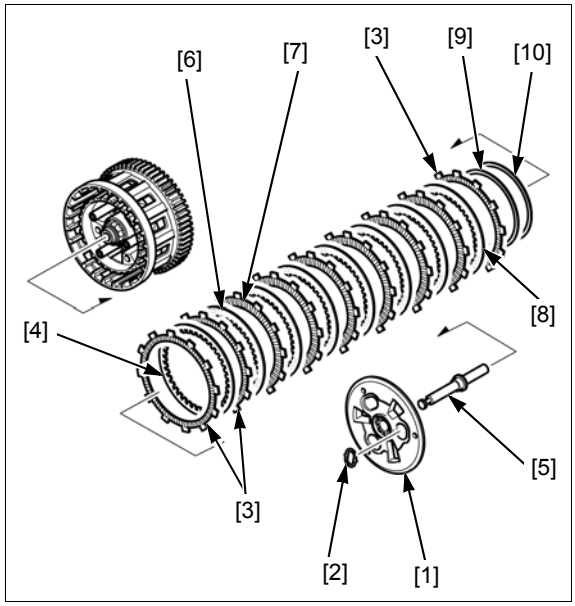
Loosen the set plate bolts [1] in a crisscross pattern in 2 or 3 steps, and remove the bolts, set plate [2], and clutch springs [3].

Remove the following:

– Clutch pressure plate [1]
– Clutch spring seats [2]
– Clutch disc B [3] (3 pcs)
– Clutch plate C [4]
– Clutch lifter pin [5]
– Clutch plates A [6] (6 pcs)
– Clutch discs A [7] (6 pcs)
– Clutch plate B [8]
– Judder spring [9]
– Judder spring seat [10]

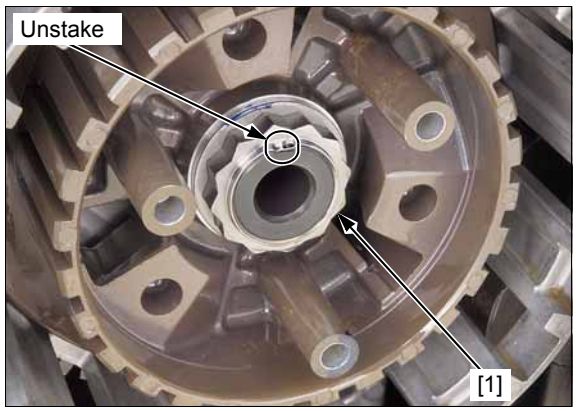
NOTE:

• When removing the clutch discs and plates, note the number of the clutch discs and plates.



Be careful not to damage the mainshaft threads.

Unstake the clutch center lock nut [1].

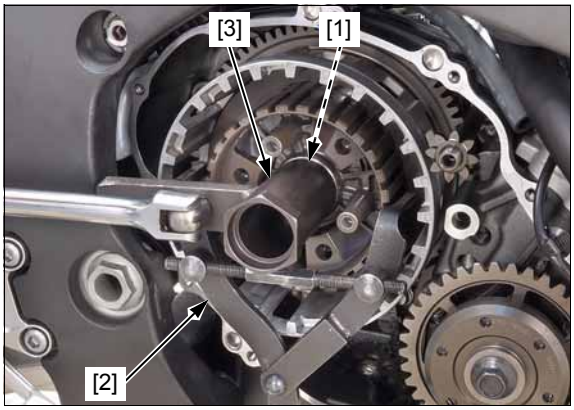


Install special tools and loosen the clutch center lock nut [1] while holding the clutch center with the special tool.

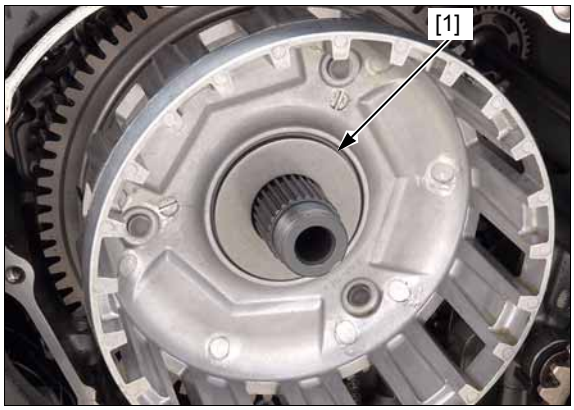
TOOLS:

Clutch center holder [2]	**07724-0050002**
Lock nut wrench 30 x 40 mm [3]	**07916-9690000**

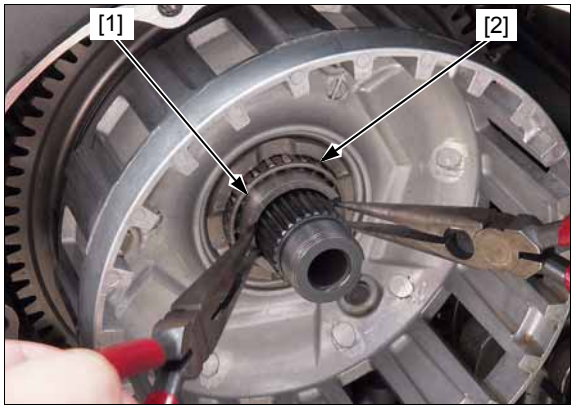
Remove the lock nut.



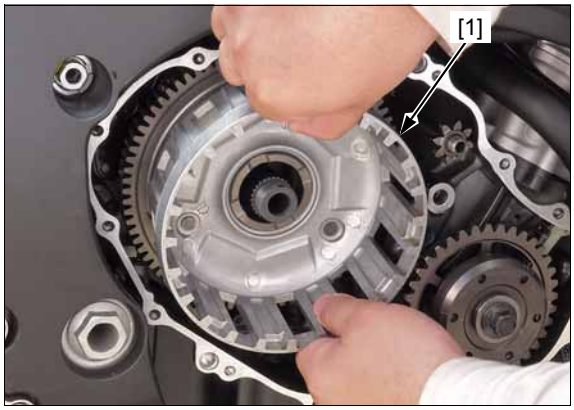
Remove the thrust washer [1].



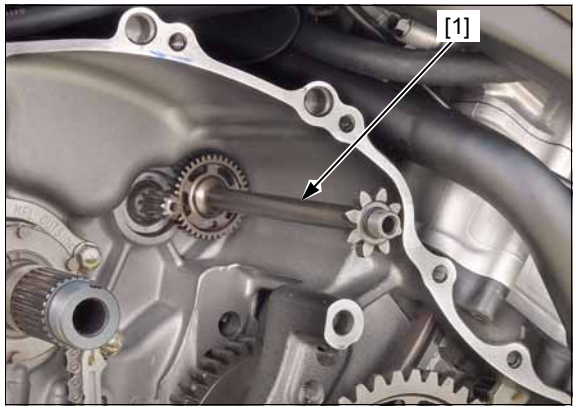
Remove the clutch outer guide [1] and needle bearing [2].



Remove the clutch outer [1].

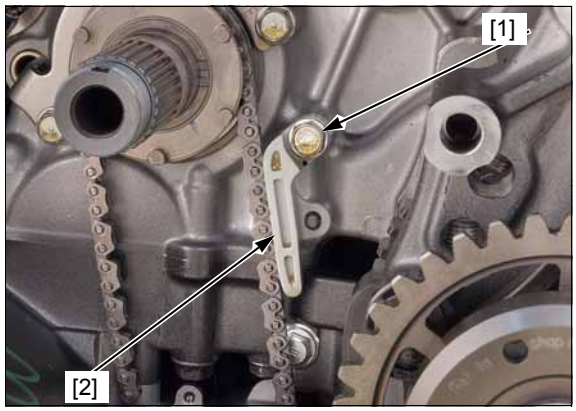


Remove the starter reduction gear [1] from the crankcase.

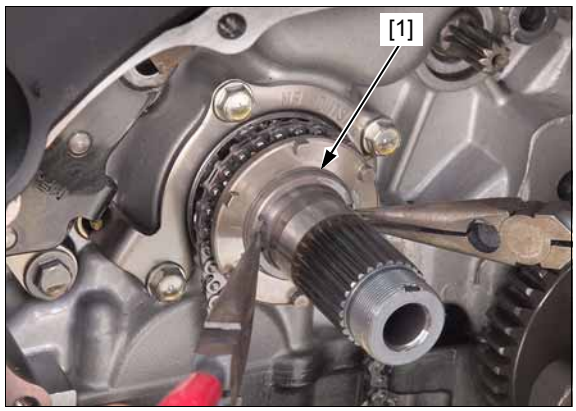


Be careful not to drop the parts into the oil pan.

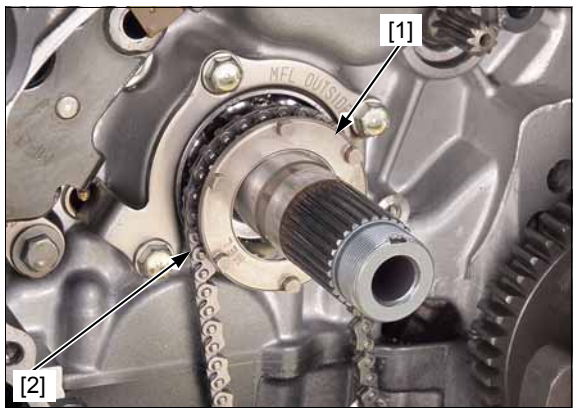
Remove the bolt [1] and oil pump drive chain guide [2].



Remove the oil pump drive sprocket guide [1].



Remove the oil pump drive sprocket [1] and chain [2].

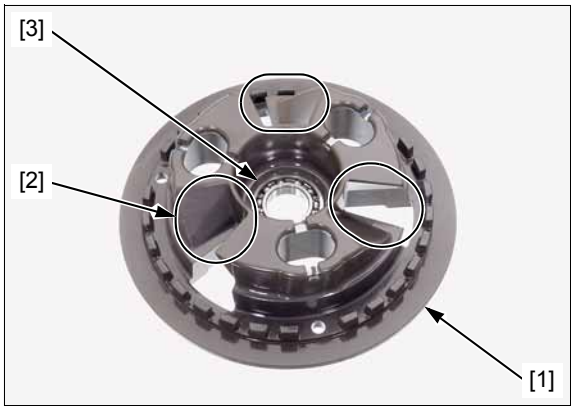


INSPECTION

Check the following of the clutch pressure plate [1] for scratches, damage, abnormal wear and deformation.

– Cam areas [2]
– Grooves
– Disc sliding surface
– Bearing [3]

Replace the clutch pressure plate if necessary.



Check the following of the clutch center [1] for scratches, damage, abnormal wear and deformation.

– Cam areas [2]
– Grooves
– Disc sliding surface

Replace the clutch center if necessary.

Check the following of the clutch outer [1] for scratches, damage, abnormal wear and deformation.

– Slots [2]
– Primary driven gear [3]

Replace the clutch outer if necessary.

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

– Clutch springs
– Clutch spring seats
– Clutch lifter pin
– Clutch discs/plates
– Judder spring
– Judder spring seat
– Clutch outer guide

Measure each part according to CLUTCH/STARTER CLUTCH/GEARSHIFT LINKAGE SPECIFICATIONS (page 1-8).

Replace any part if it is out of service limit.

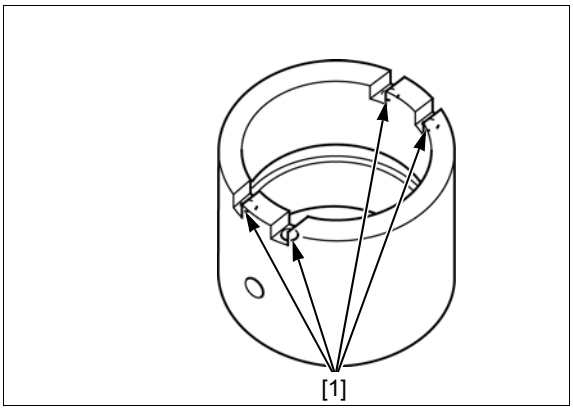
NOTE:

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

NEEDLE BEARING SELECTION

The primary driven gear has I.D. code paint [1].

The clutch outer guide has O.D. code marks [1] as shown.

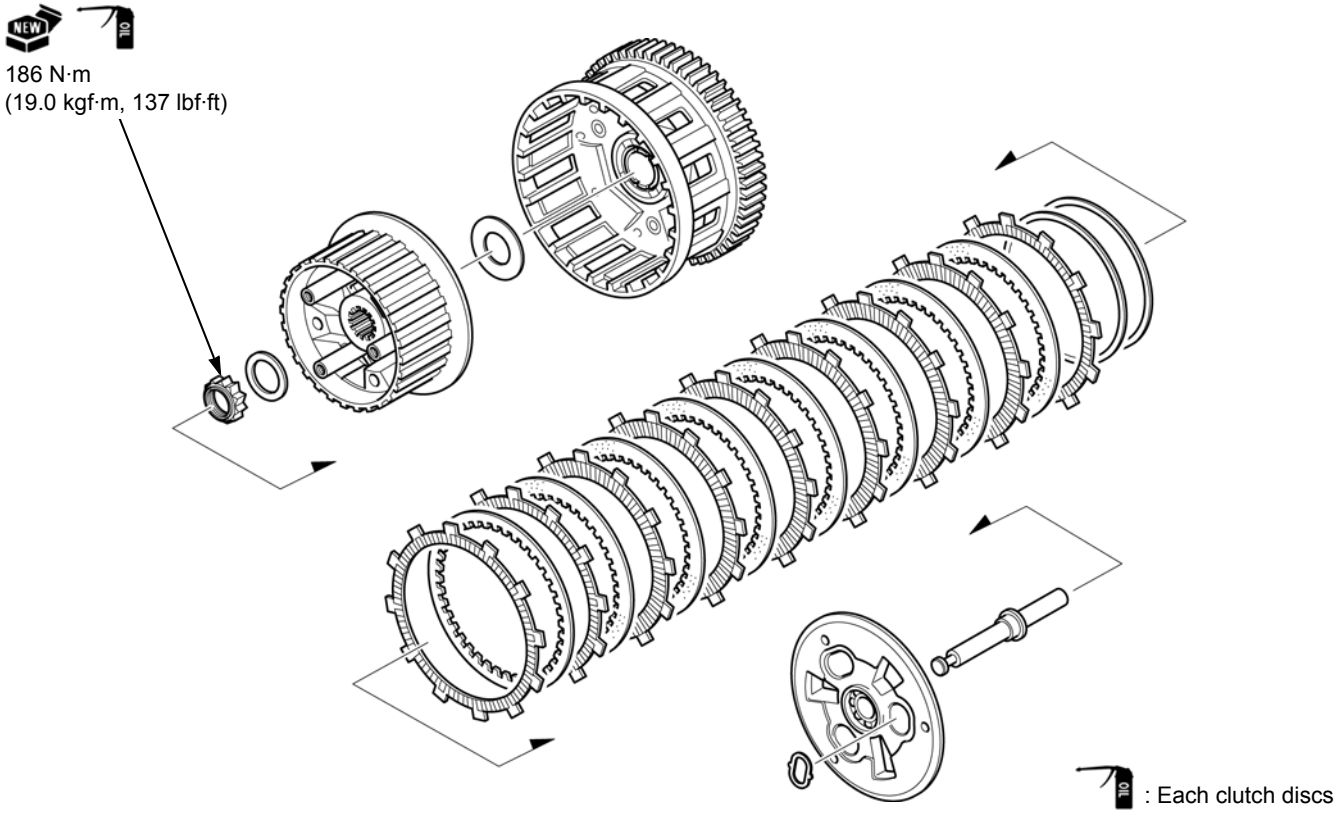


Cross-reference the primary driven gear and clutch outer guide codes to determine the replacement needle bearing.
Refer to the selection table below for bearing selection.

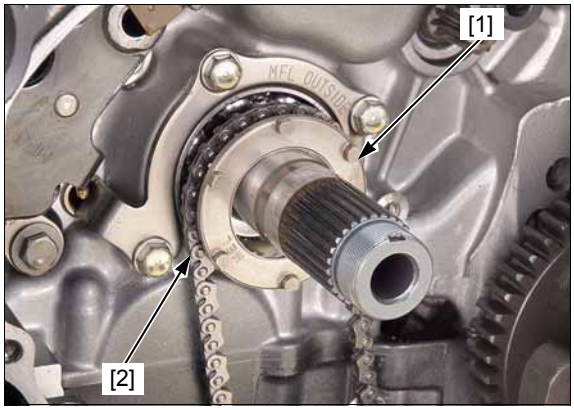
NEEDLE BEARING SELECTION TABLE

			CLUTCH OUTER GUIDE O.D. CODE MARK		
			GUIDE A (two O.D. code)	**GUIDE B (three O.D. code)**	**GUIDE C (four O.D. code)**
			35.007 – 35.012 mm (1.3782 – 1.3784 in)	**35.001 – 35.007 mm (1.3780 – 1.3782 in)**	**34.996 – 35.001 mm (1.3778 – 1.3780 in)**
PRIMARY DRIVEN GEAR I.D. CODE PAINT	Blue	41.011 – 41.016 mm (1.6146 – 1.6148 in)	NEEDLE BEARING B	NEEDLE BEARING A	–
	Yellow	41.005 – 41.011 mm (1.6144 – 1.6146 in)	NEEDLE BEARING C	NEEDLE BEARING B	NEEDLE BEARING A
	Green	41.000 – 41.005 mm (1.6142 – 1.6144 in)	–	NEEDLE BEARING C	NEEDLE BEARING B

INSTALLATION

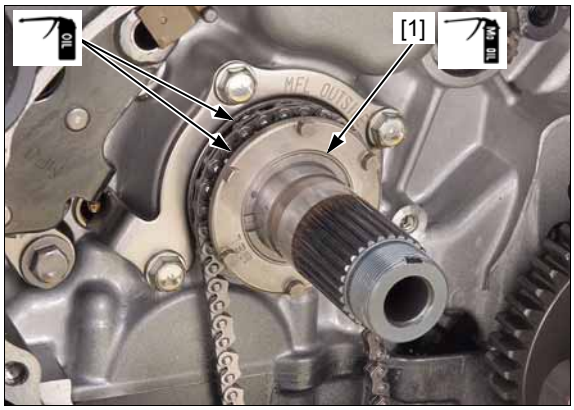


Install the oil pump drive sprocket [1] and drive chain [2].



Apply molybdenum oil solution to the oil pump drive sprocket guide [1] sliding surface and install it to the mainshaft.

Apply oil to the oil pump drive sprocket teeth and drive chain.

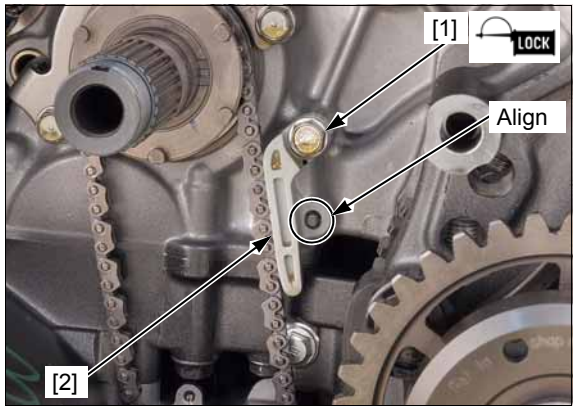


Be careful not to drop the parts into the oil pan.

Apply locking agent to the oil pump drive chain guide mounting bolt [1] threads (page 1-19).

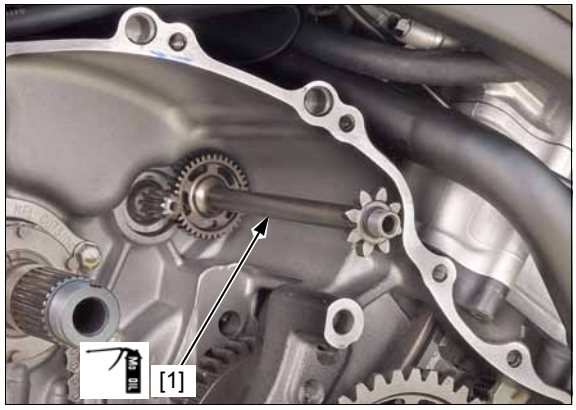
Install the oil pump drive chain guide [2] by aligning its hole with the crankcase tab and tighten the bolt to the specified torque.

TORQUE: 12 N·m (1.2 kgf·m, 9 lbf·ft)



Apply molybdenum oil solution to the starter reduction gear [1] sliding surface.

Install the starter reduction gear into the crankcase.



Apply molybdenum oil solution to the clutch outer [1] sliding surface.

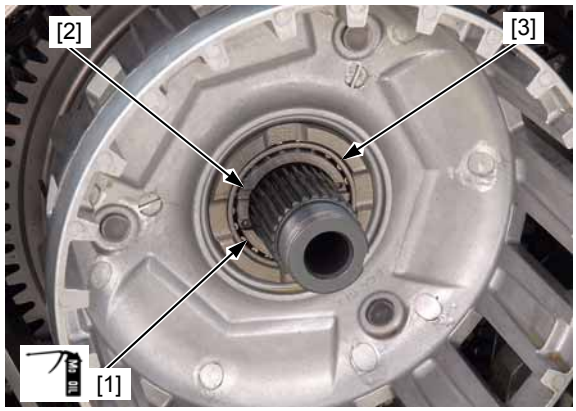
Make sure the starter reduction gear is installed into the crankcase before installing the clutch outer.

Install the clutch outer by aligning the tabs of the oil pump drive sprocket with the holes of the clutch outer.

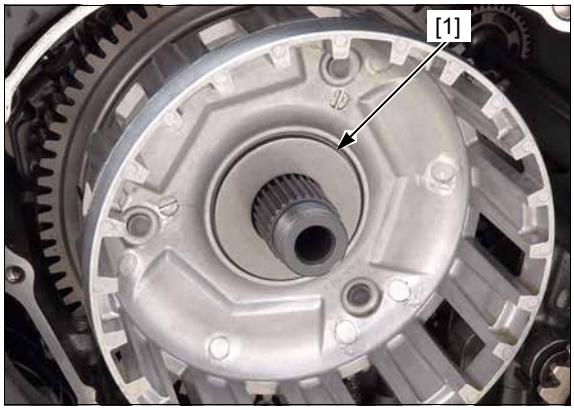
Apply molybdenum oil solution to the clutch outer guide [1] sliding surface.

Install the clutch outer guide with its grooves [2] facing out.

Install the clutch outer guide and needle bearing [3] onto the mainshaft.



Install the thrust washer [1].



Apply engine oil to a new clutch center lock nut threads and seating surface.

Install the clutch center lock nut [1] onto the mainshaft.

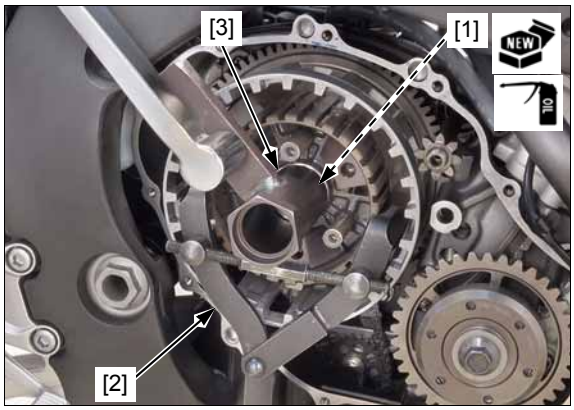
Install special tools and tighten the clutch center lock nut to the specified torque by holding the clutch center with the special tool.

TOOLS:

Clutch center holder [2]	**07724-0050002**
Lock nut wrench 30 x 40 mm [3]	**07916-9690000**

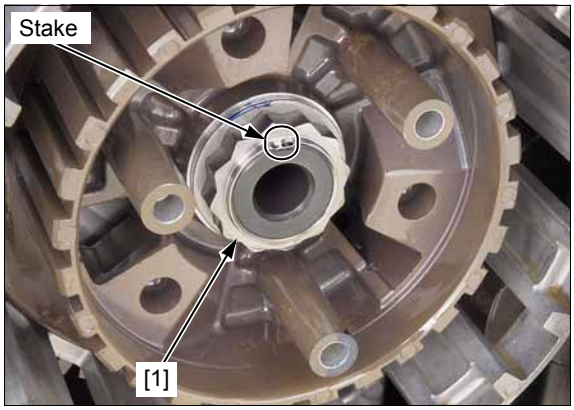
TORQUE:

Actual: 186 N·m (19.0 kgf·m, 137 lbf·ft)
Indicated: 169 N·m (17.2 kgf·m, 125 lbf·ft)



Be careful not to damage the mainshaft threads.

Stake the lock nut [1] into the mainshaft groove with a punch.



Apply molybdenum oil solution to the entire surface of judder spring seat and judder spring.

Install the judder spring seat [1] and judder spring [2] onto the clutch center [3] as shown.

Apply engine oil to the entire surface of clutch discs.

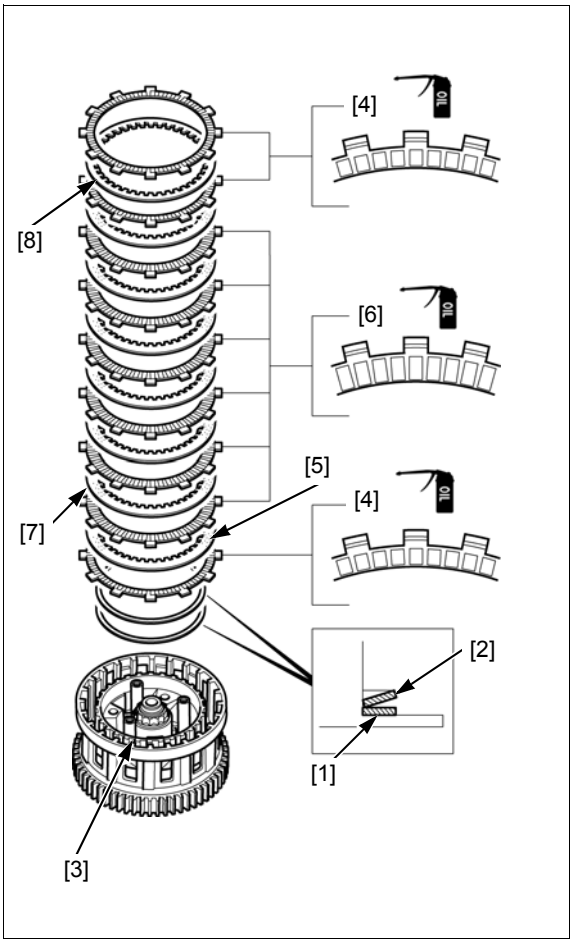
Install the clutch disc B [4] and plate B [5] onto the clutch center.

NOTE:

- Clutch disc B: smaller lining width than disc A
- Clutch plate B: surface treatment difference from clutch plate A

Install the clutch discs A [6] (6 pcs) and plates A [7] (6 pcs) alternately, starting with the disc A.

Install the clutch disc B, plate C [8], disc B.



Install the clutch lifter pin [1].

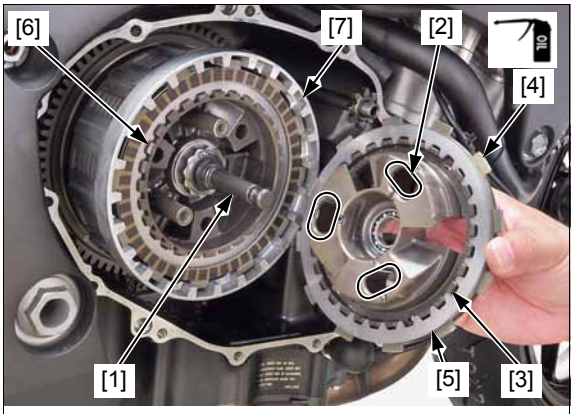
Install the spring seats [2] onto the clutch pressure plate [3] grooves.

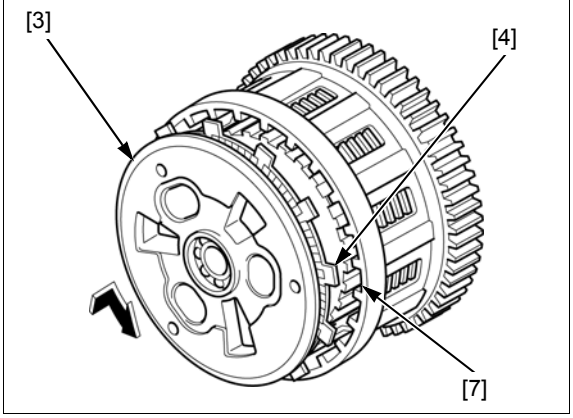
NOTE:

- Make sure that the spring seats are fully seated in the pressure plate grooves.

Apply engine oil to the entire surface of clutch disc B.
Install the clutch disc B [4] onto the clutch pressure plate.
Install the clutch plate C [5] by aligning its tabs with the pressure plate grooves.

Put the clutch pressure plate assembly onto the clutch center [6] by aligning each cam area and insert them by rotating counterclockwise.
Install the clutch disc B tabs into the shallow slots of the clutch outer [7].





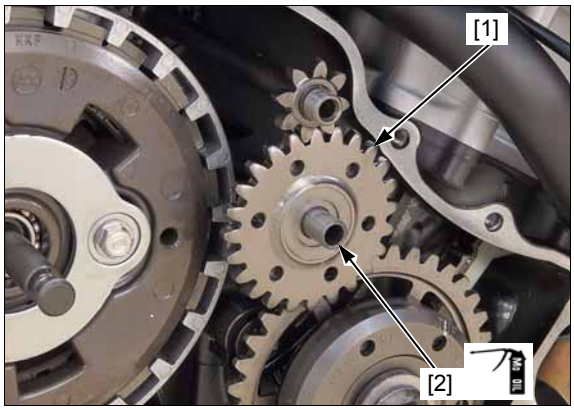
Install the clutch springs [1], set plate [2] and set plate bolts [3].

Tighten the set plate bolts in a crisscross pattern in 2 or 3 steps.

Apply molybdenum oil solution to the starter idle gear shaft sliding surface.

Install the starter idle gear [1] and shaft [2].

Install the right crankcase cover (page 11-4).



Apply oil to new O-rings [1] and install it to the timing hole cap [2] and crankshaft hole cap [3].

Apply grease to the timing hole cap and crankcase hole cap threads.

Tighten the timing hole cap to the specified torque.

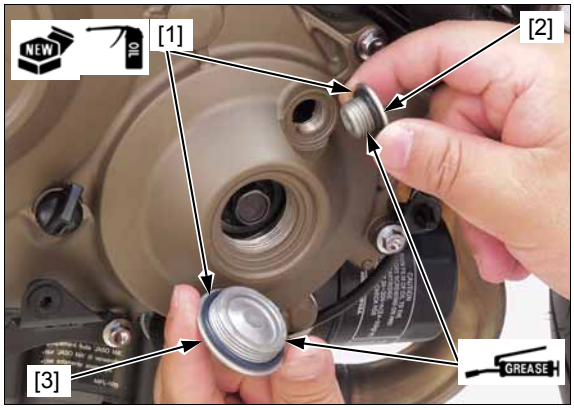
TORQUE: 6 N·m (0.6 kgf·m, 4.4 lbf·ft)

Tighten the crankcase hole cap to the specified torque.

TORQUE: 8 N·m (0.8 kgf·m, 5.9 lbf·ft)

Install the following:

– Right middle cowl (page 2-13)
– CH, TH, FO only: Right rear under cover (page 2-21)



STARTER CLUTCH

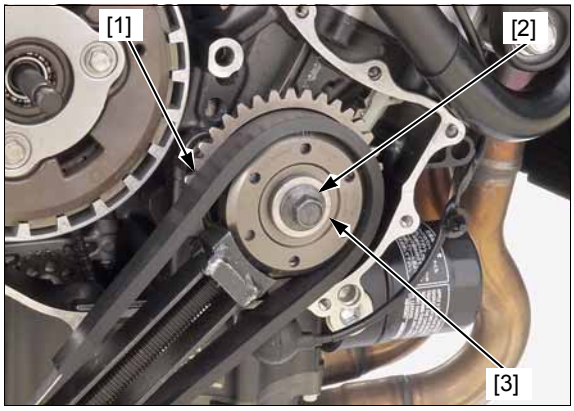
REMOVAL/INSTALLATION

Remove the right crankcase cover (page 11-4).

Hold the starter clutch outer with the special tool.

TOOL:
Flywheel holder [1] 07725-0040001

Remove the starter clutch mounting bolt [2], washer [3] and flywheel holder.



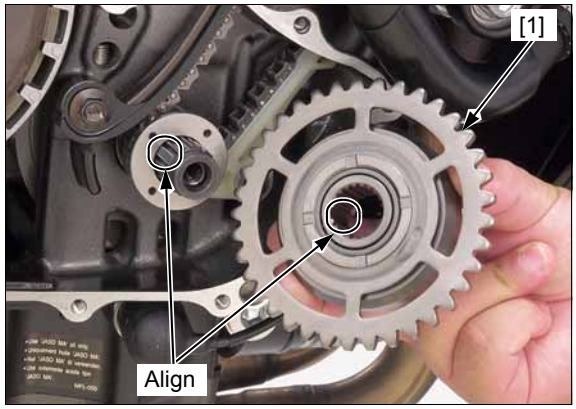
Remove the starter clutch assembly [1].

Remove the thrust washer [1].

Installation is in the reverse order of removal.

NOTE:

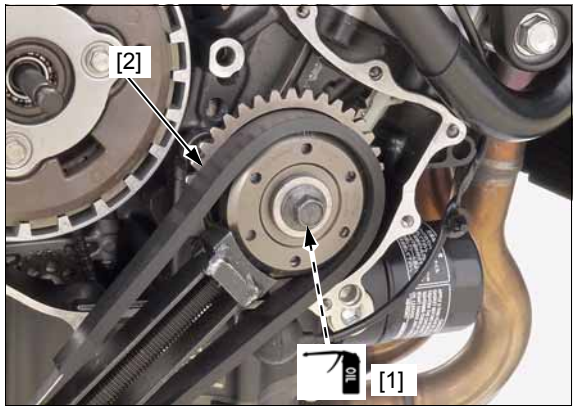
- Install the starter clutch assembly [1] to the crankshaft while aligning the wide teeth of the crankshaft with the starter clutch assembly.



- Apply oil to the starter clutch mounting bolt [1] threads and seating surface then tighten the bolt to the specified torque.

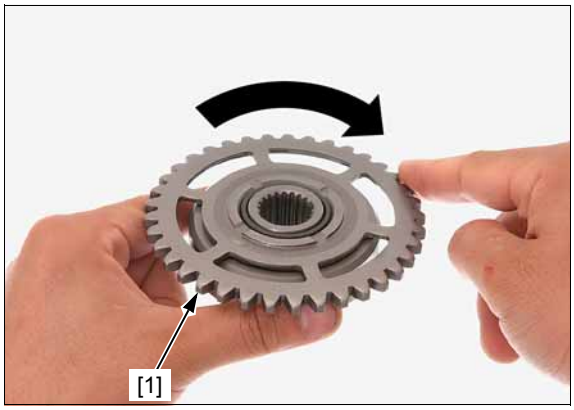
TOOL:
Flywheel holder [1] 07725-0040001

TORQUE: 115 N·m (11.7 kgf·m, 85 lbf·ft)

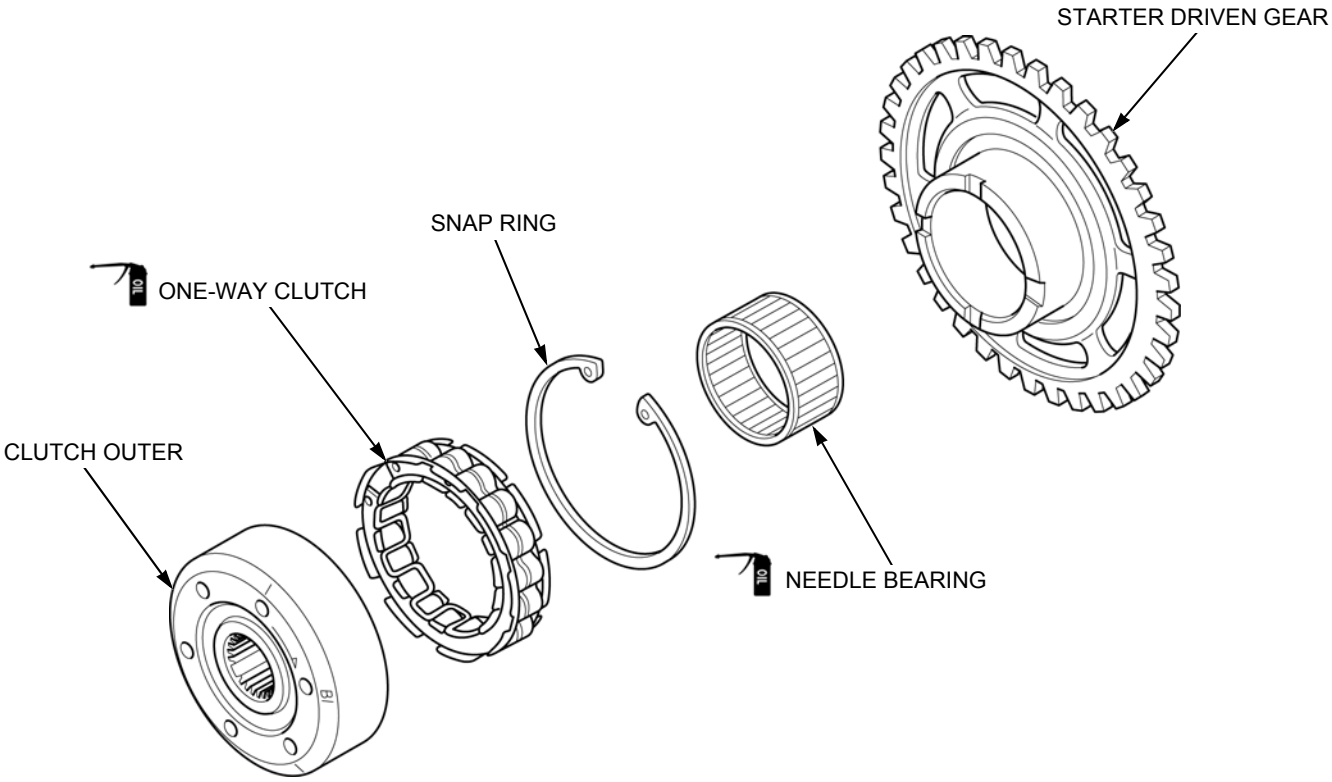


DISASSEMBLY/ASSEMBLY

Check the operation of the one-way clutch by turning the driven gear [1].
You should be able to turn the driven gear clockwise smoothly, but the gear should not turn counterclockwise.



Remove the starter driven gear by turning it clockwise.



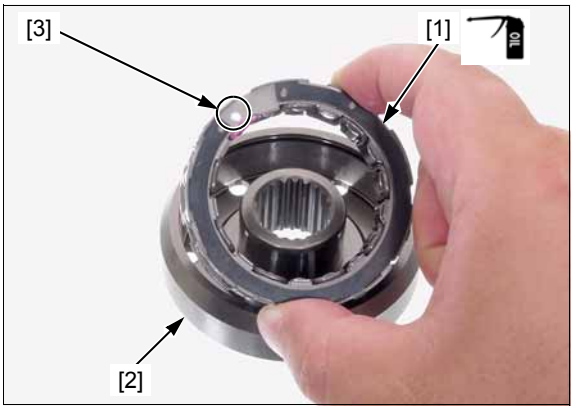
Inspect the following parts for scratches, damage, abnormal wear, or deformation.

- Starter driven gear
- Starter clutch outer
- Starter one-way clutch

Measure each part according to CLUTCH/STARTER CLUTCH/GEARSHIFT LINKAGE SPECIFICATIONS (page 1-8).

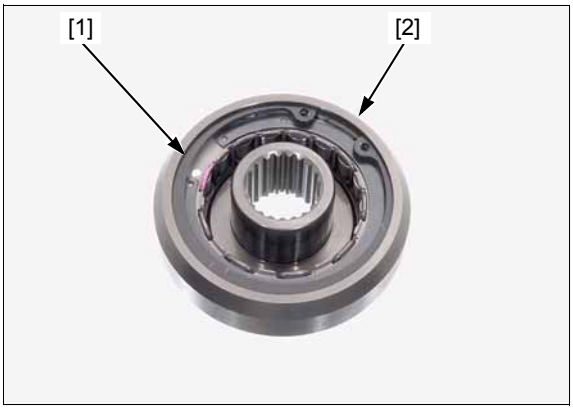
Replace the any part if necessary.

Apply oil to the one-way clutch [1] sliding surface.
Install the one-way clutch into the starter clutch outer [2] with its paint mark [3] facing out.



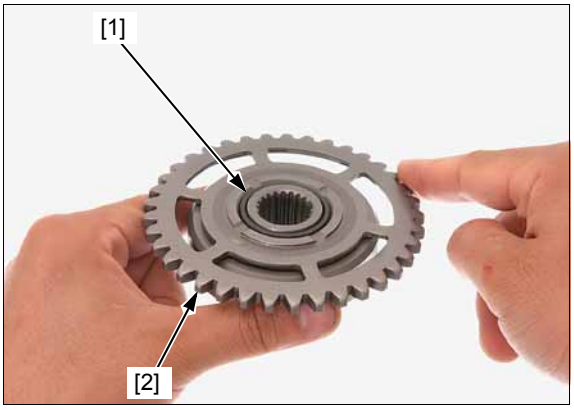
After installing the snap ring, always rotate it in its groove to be sure it is fully seated.

Install the snap ring [1] into the starter clutch outer [2] groove securely.



Install the starter driven gear and needle bearing [1] into the starter clutch outer while turning the starter driven gear [2] clockwise.

Recheck the one-way clutch operation.



GEARSHIFT LINKAGE

REMOVAL

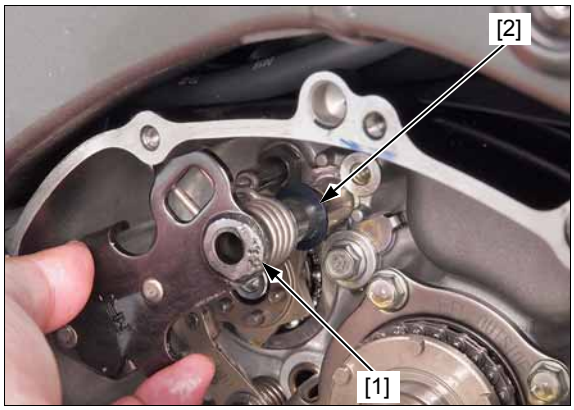
Remove the following:

– Right crankcase cover (page 11-4)
– Clutch (page 11-6)
– Shift spindle switch (page 4-81)

Remove the bolt [1] and disconnect the gearshift arm [2] from the gearshift spindle.

Remove the bolt [1] and setting plate [2].

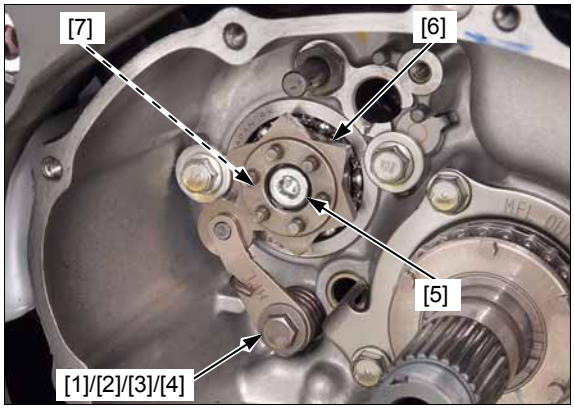
Pull the gearshift spindle [1] and thrust washer [2] out of the crankcase.



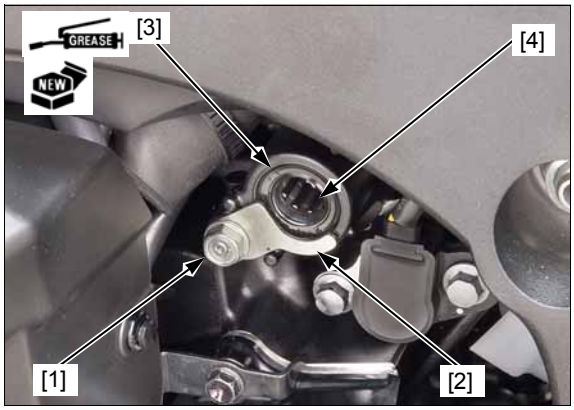
Be careful not to drop the parts into the oil pan.

Remove the following:

- Stopper arm pivot bolt [1]
- Stopper arm [2]
- Washer [3]
- Return spring [4]
- Shift drum center bolt [5]
- Gearshift cam [6]
- Dowel pin [7]

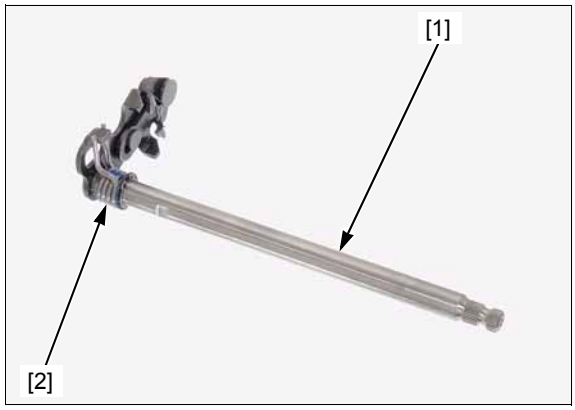


Remove the bolt [1], setting plate [2], oil seal [3] and needle bearing [4].



INSPECTION

Check the gearshift spindle [1] for wear, damage or bending.
Check the return spring [2] for fatigue or damage.

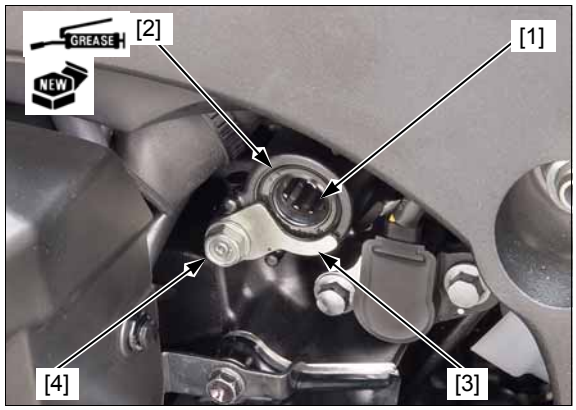


INSTALLATION

Install the needle bearing [1] into the crankcase.

Apply grease to a new oil seal [2] lips, then install it into the crankcase securely.

Install the setting plate [3] and tighten the bolt [4] securely.



Apply locking agent to the shift drum stopper arm pivot bolt [1] threads (page 1-19).

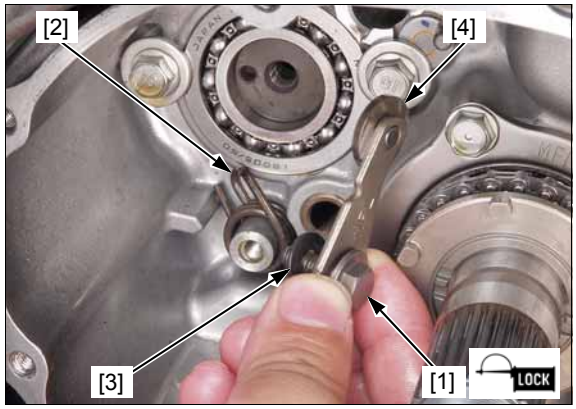
Be careful not to drop the parts into the oil pan.

Install the following:

– Return spring [2]
– Washer [3]
– Stopper arm [4]
– Stopper arm pivot bolt

Tighten the stopper arm pivot bolt to the specified torque.

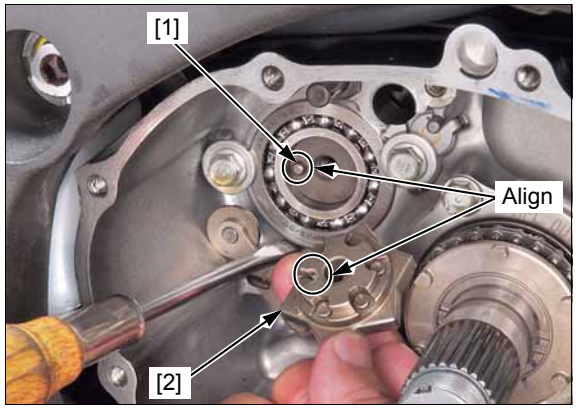
TORQUE: 12 N·m (1.2 kgf·m, 9 lbf·ft)



Install the dowel pin [1] onto the shift drum.

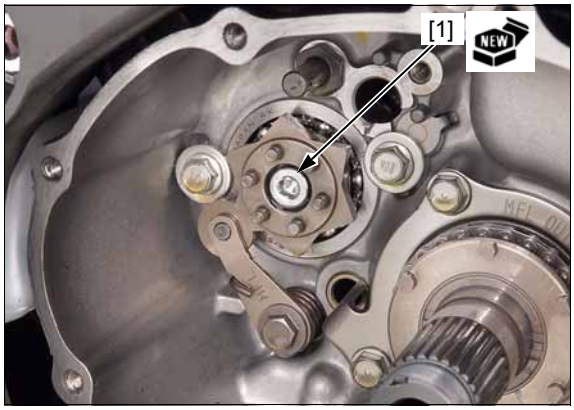
Align the dowel pin on the shift drum with the wide groove on the gearshift cam.

Install the gearshift cam [2] while holding the stopper arm using a screwdriver as shown.

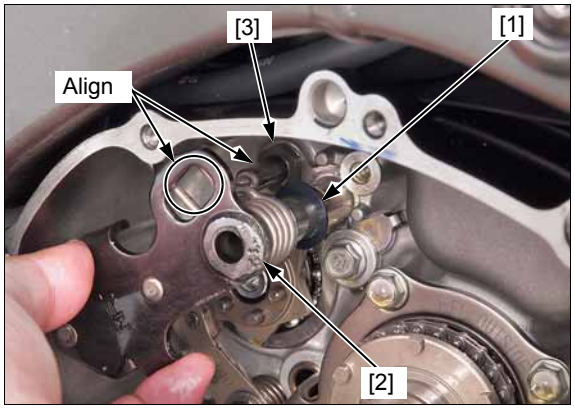


Tighten a new shift drum center bolt [1] to the specified torque.

TORQUE: 23 N·m (2.3 kgf·m, 17 lbf·ft)

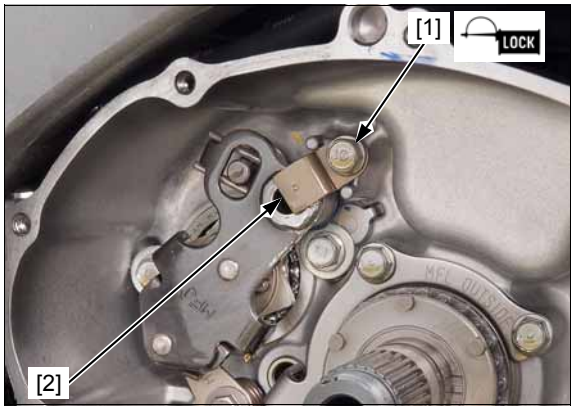


Install the thrust washer [1] and gearshift spindle [2] into the crankcase while aligning the spring ends with the stopper pin [3].



Apply locking agent to the setting plate bolt [1] threads (page 1-19).
Install the setting plate [2] and tighten the bolt to the specified torque.

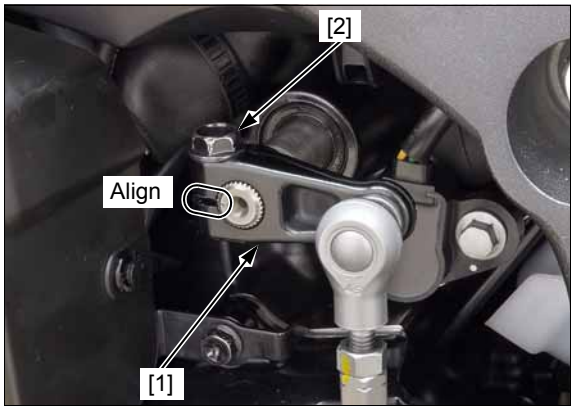
TORQUE: 12 N·m (1.2 kgf·m, 9 lbf·ft)



Install the gearshift arm [1] to the gearshift spindle, aligning the arm slit with the punch mark on the gearshift spindle.
Install and tighten the pinch bolt [2].

Install the following:

– Shift spindle switch (page 4-81)
– Clutch (page 11-12)
– Right crankcase cover (page 11-4)



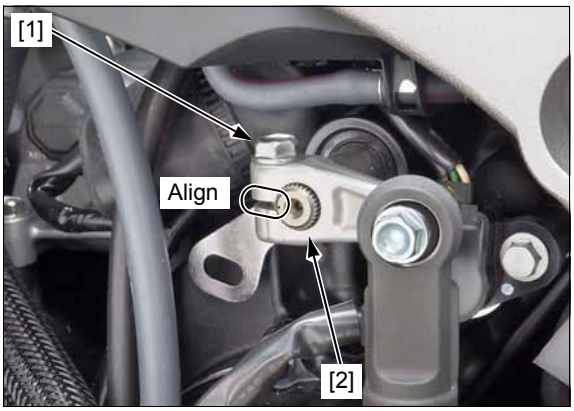
GEARSHIFT PEDAL

REMOVAL/INSTALLATION

KO only: Remove the EVAP canister (page 7-22).

CBR1000S1/S2: Disconnect the shift stroke sensor 3P (Black) connector [1] and remove the harness clamp [2].

Remove the pinch bolt [1] and gearshift arm [2] from the gearshift spindle.

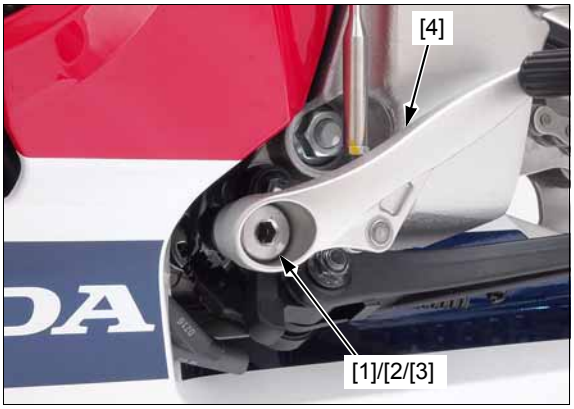


Remove the pivot bolt [1], wave washer [2], washer [3] and gearshift pedal [4].

Installation is in the reverse order of removal.

NOTE:

- Apply grease to the gearshift pedal pivot sliding area (grease groove) of the pivot bolt.
- Align the slit of the gearshift arm with the punch mark on the spindle



ADJUSTMENT

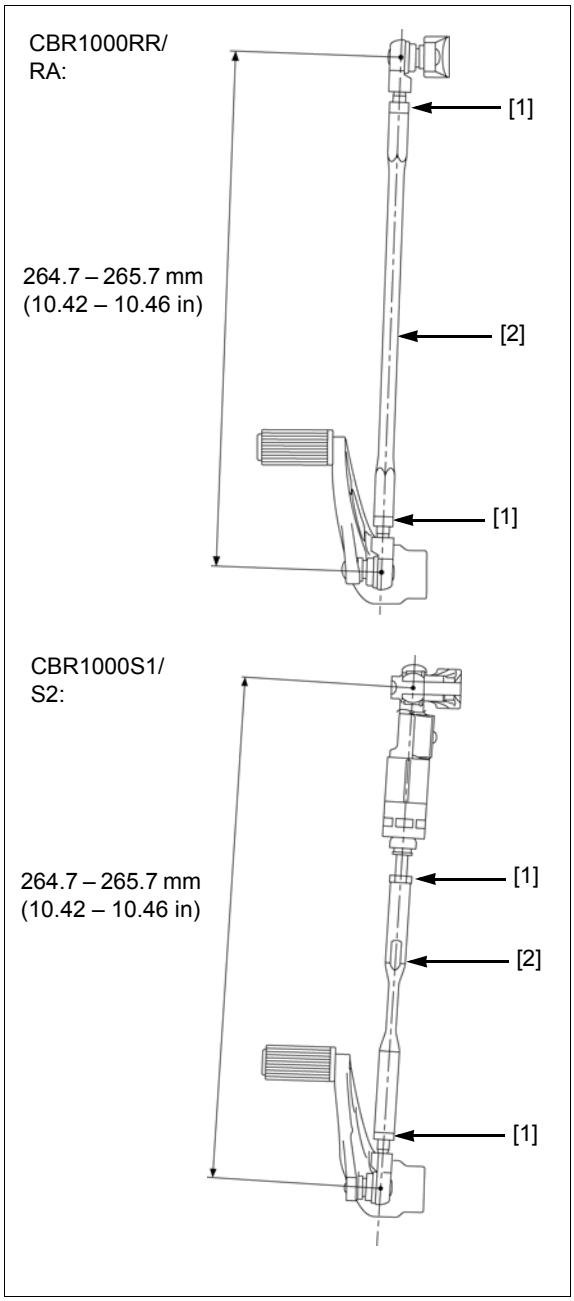
When adjusting the gearshift pedal height, perform the procedure as follows:

The upper lock nut has left hand threads.

Loosen the lock nuts [1].

Adjust the tie-rod [2] length so that the distance between the ball joint ends is standard length as shown.

After adjustment tighten the lock nuts securely.



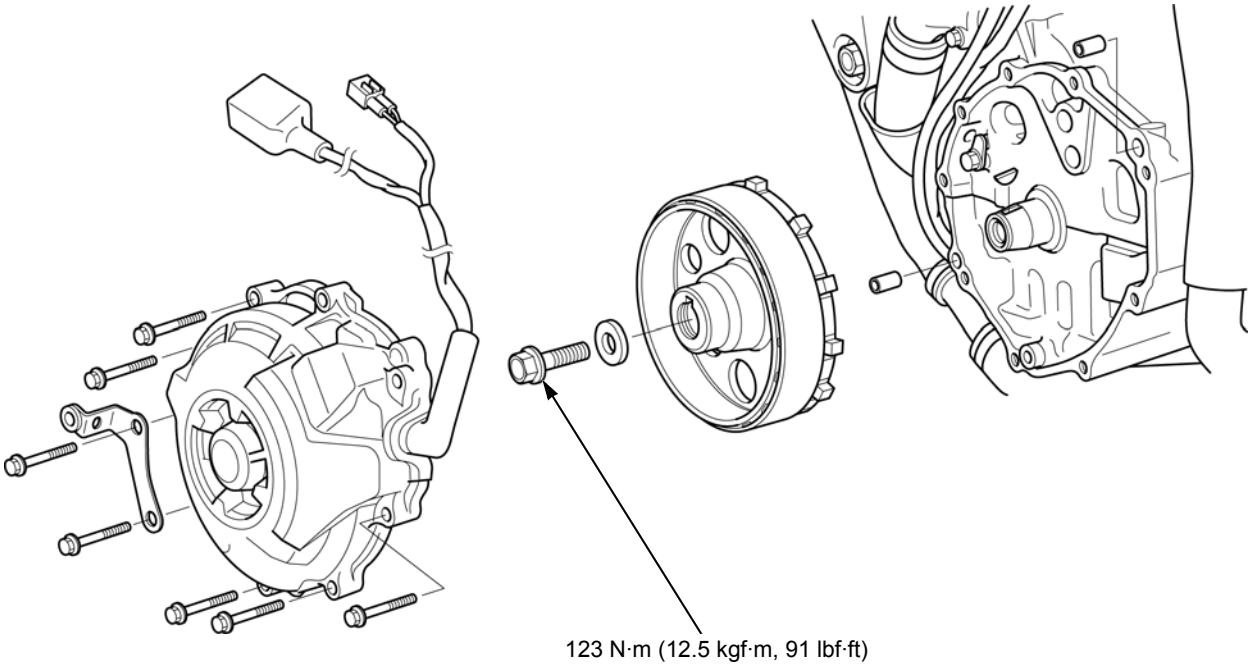
12. ALTERNATOR

SERVICE INFORMATION

GENERAL

- This section covers service of the stator and flywheel. All service can be done with the engine installed in the frame.
- For stator inspection (page 20-7).

COMPONENT LOCATION



ALTERNATOR COVER

REMOVAL/INSTALLATION

Remove the following:

– Fuel tank (page 7-8)
– Left middle cowl (page 2-13)
– Left rear cover (page 2-21)
– Regulator cover (page 2-9)
– KO only: EVAP canister (page 7-22)
– Except CBR1000RR: ABS modulator (page 19-24)

Disconnect the alternator 3P (Black) connector [1].

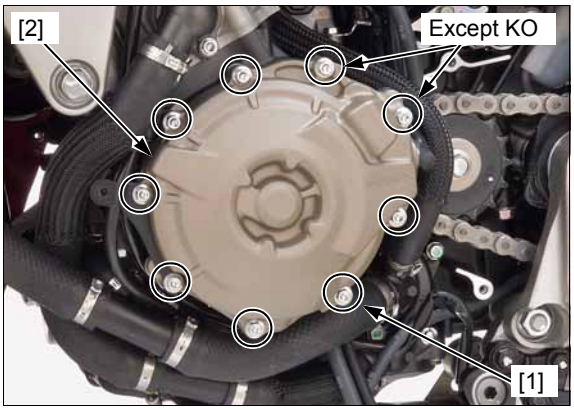
Disconnect the CKP sensor 2P (Red) connector [1].

Except KO: Remove the nine bolts [1] and alternator cover [2].

KO only: Remove the seven bolts [1] and alternator cover [2].

NOTE:

- Engine oil will run out when the alternator cover is removed. Set a oil pan under the engine and add the recommended oil to the specified level after installation.
- Loosen the bolts in a crisscross pattern in two or three steps securely.
- The alternator cover (stator) is magnetically attracted to the flywheel, be careful during removal.



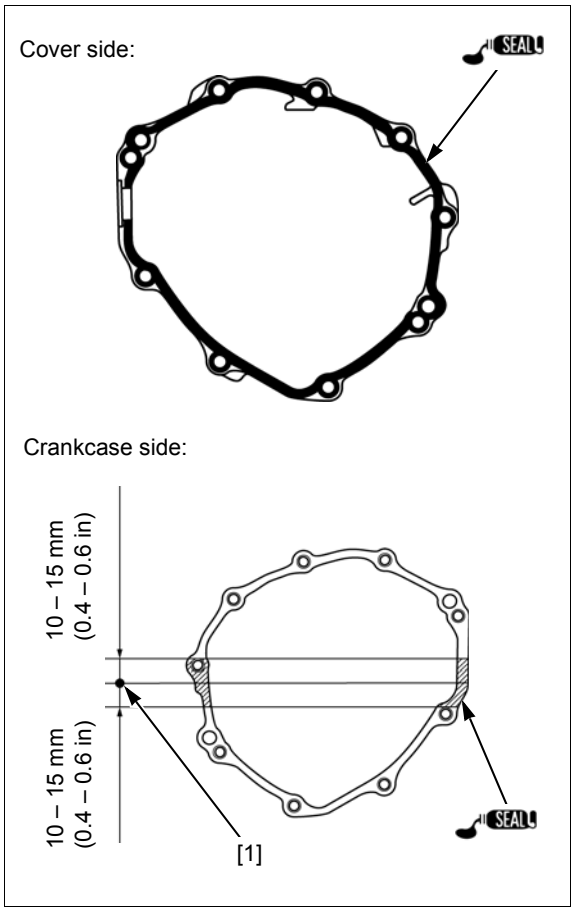
Remove the dowel pins [1].

Clean off any sealant from the alternator cover mating surfaces.

Installation is in the reverse order of removal.

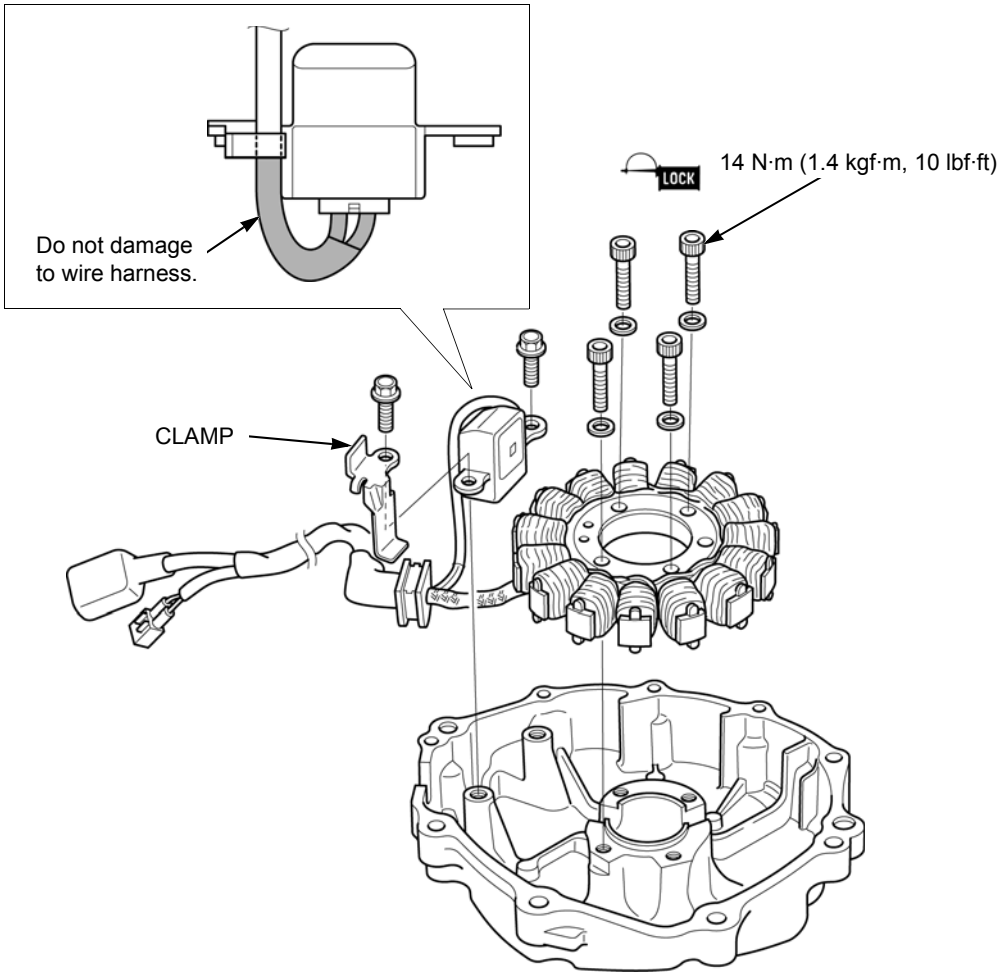
NOTE:

- Apply sealant (TB 1207B or equivalent) to the mating surface of the alternator cover.
- Apply sealant (TB 1207B or equivalent) to the crankcase mating surface area [1] of the crankcase.
- After installation, add the recommended engine oil to the specified level.
- Check the engine oil level (page 3-12).



STATOR

REMOVAL/INSTALLATION



NOTE:

- Apply locking agent to the stator mounting bolt.

TORQUE:

Stator mounting bolt:
14 N·m (1.4 kgf·m, 10 lbf·ft)

FLYWHEEL

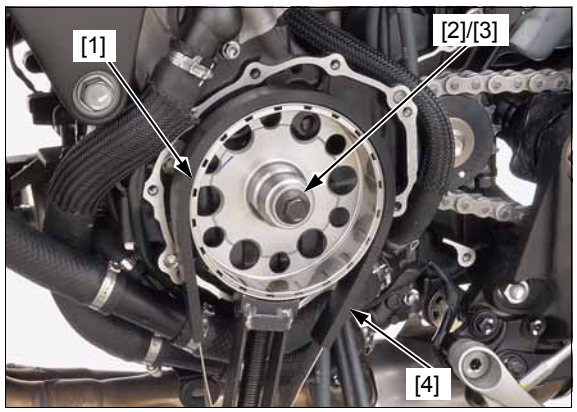
REMOVAL/INSTALLATION

Remove the alternator cover (page 12-3).

Hold the flywheel [1] using the special tool then remove the flywheel bolt [2] and washer [3].

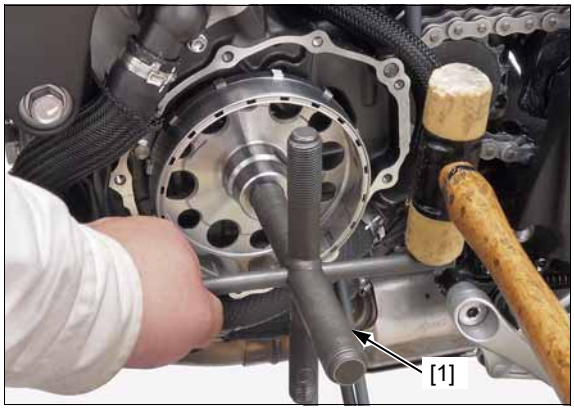
TOOL:

Flywheel holder [4] **07725-0040001**



Remove the flywheel using the special tool.

TOOL:
Rotor puller [1] **07733-0020001**



Remove the woodruff key [1] from the crankshaft.

Installation is in the reverse order of removal.

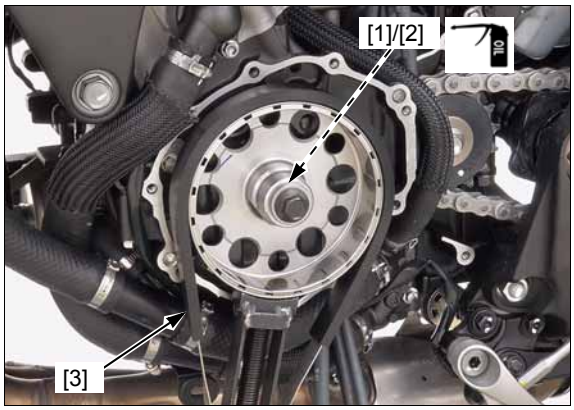
NOTE:

- Clean any oil from the tapered area of the crankshaft and flywheel thoroughly.
- Install the flywheel to the crankshaft by aligning the flywheel groove with the woodruff key.

- Apply oil to the flywheel bolt [1] threads and seating surface then install the bolt and washer [2].

TOOL:
Flywheel holder [3] **07725-0040001**

TORQUE:
Flywheel bolt:
123 N·m (12.5 kgf·m, 91 lbf·ft)



13. CRANKCASE/TRANSMISSION/BALANCER

SERVICE INFORMATION

GENERAL

- The crankcase must be separated to service the following:
  – Transmission
  – Crankshaft (page 14-4)
  – Piston (page 14-13)
  – Balancer (page 13-16)
  – Cylinder (page 14-13)
- The following components must be removed before separating the crankcase:
  – Engine (page 15-4)
  – Clutch (page 11-6)/gearshift linkage (page 11-19)
  – Starter clutch (page 11-16)
  – Flywheel (page 12-5)
  – Cylinder head (page 10-14)
  – Oil pump (page 9-4)/oil filter (page 3-13)/oil cooler (page 9-7)
  – Starter motor (page 6-4)
  – Water pump (page 8-11)
  – EOP switch (page 21-15)
  – VS sensor (page 4-77)
  – Neutral switch (page 21-19)
  – Shift spindle switch (page 4-81)
  – Shift drum angle sensor (page 4-78)
- Be careful not to damage the crankcase mating surfaces when servicing.
- Prior to assembling the crankcase halves, apply sealant to their mating surfaces. Wipe off excess sealant thoroughly.
- The crankpin and main journal bearing inserts are select fit and are identified by color codes. Select replacement bearings from the code tables. After selecting new bearings, recheck the oil clearance with a plastigauge. Incorrect oil clearance can cause major engine damage.

TROUBLESHOOTING

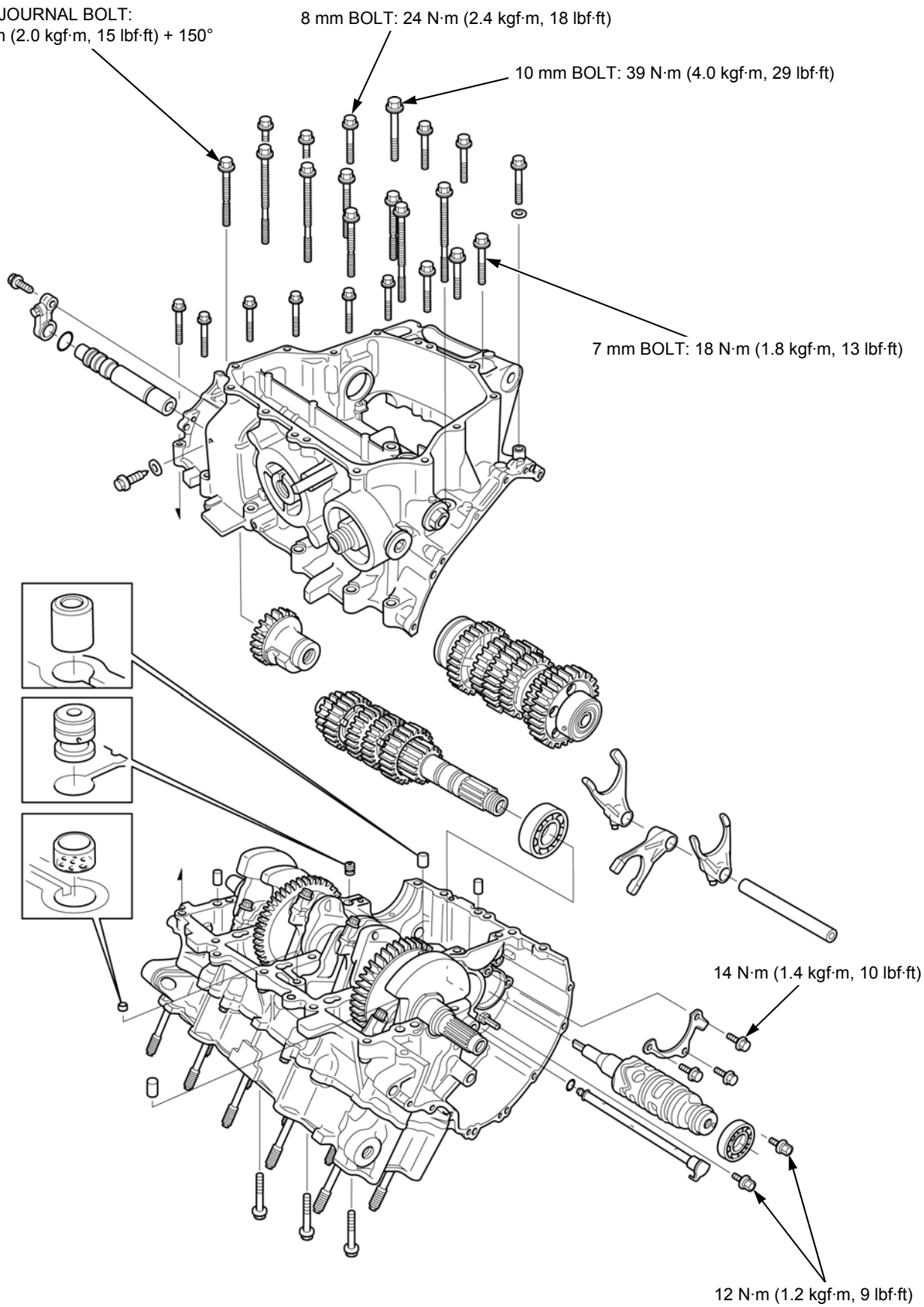
Hard to shift
- Improper clutch operation
- Incorrect engine oil weight
- Bent shift fork
- Bent shift fork shaft
- Bent shift fork claw
- Damaged shift drum groove
- Bent gearshift spindle

Transmission jumps out of gear
- Worn gear dogs
- Worn gear shifter groove
- Bent shift fork shaft
- Broken shift drum stopper arm
- Broken shift drum stopper arm spring
- Worn or bent shift forks
- Broken gearshift spindle return spring

Excessive engine noise
- Worn or damaged transmission gear
- Worn or damaged transmission bearings
- Worn or damaged main journal bearings
- Worn or damaged crankpin bearings
- Worn or damaged connecting rod small end
- Worn or damaged balancer shaft bearings
- Improper balancer installation

Engine vibration
- Excessive crankshaft runout
- Improper balancer timing

COMPONENT LOCATION



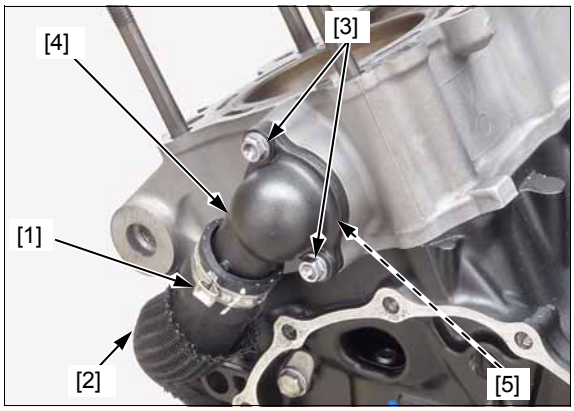
CRANKCASE

SEPARATION

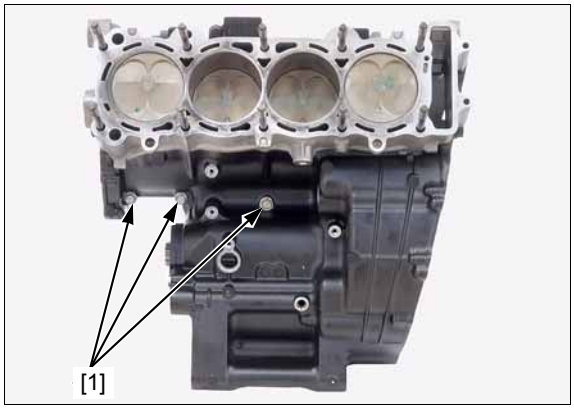
For Service Information for removal of necessary parts before separating the crankcase (page 13-2).

Cut off and remove the hose clamp [1] then disconnect the water hose [2].

Remove the bolts [3], water hose joint [4] and O-ring [5].



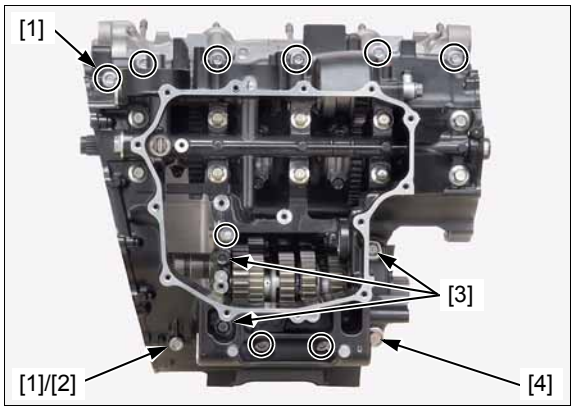
Remove the 7 mm bolts [1].



Place the engine upside down.
Loosen the bolts in a crisscross pattern in two or three steps.
Remove the 7 mm bolts [1], sealing washer [2], 8 mm bolts [3] and 10 mm bolt [4].

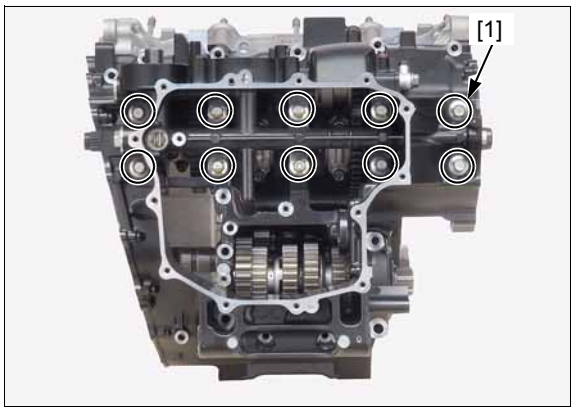
NOTE:

- Be careful not to bend the stud bolts.



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

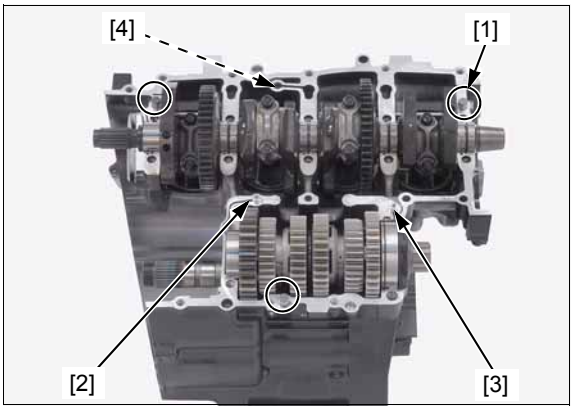
Separate the lower crankcase from the upper crankcase.



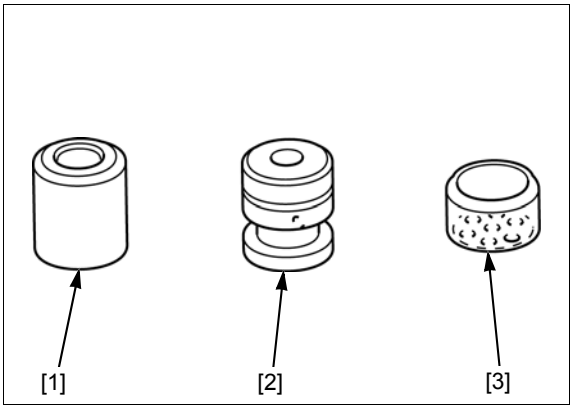
Remove the dowel pins [1], oil orifice A [2], oil orifice B [3] and oil orifice C [4].

Clean any sealant off from the crankcase mating surface.

Clean the oil orifices in solvent thoroughly.

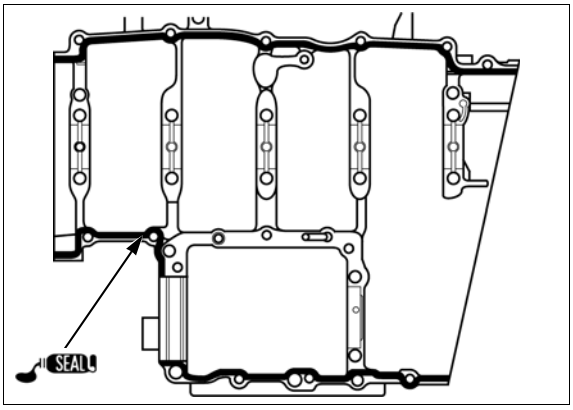


Check the oil orifice A [1], oil orifice B [2] and oil orifice C [3] for clogs, and replace them if necessary.

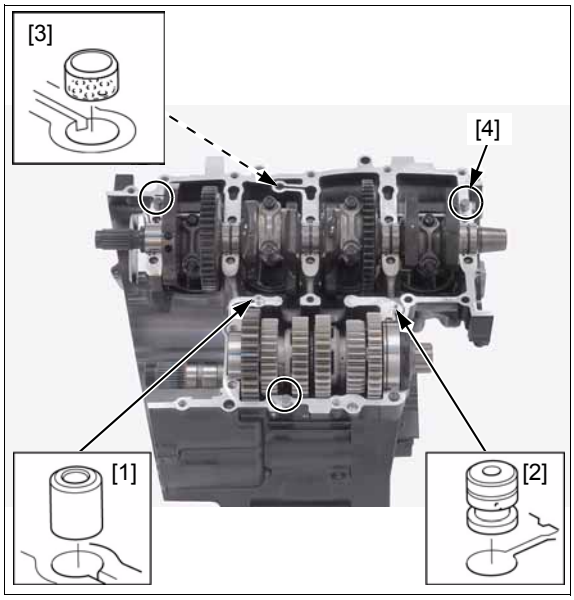


ASSEMBLY

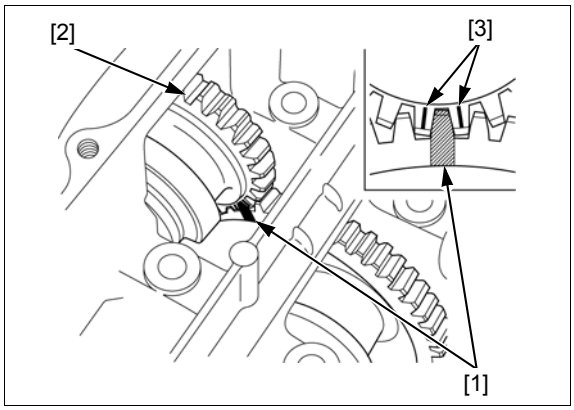
Apply a light, but thorough, coating of liquid sealant (TB 1207B or equivalent) to the crankcase mating surface. Do not apply sealant to the crankcase 8 mm bolt (main journal bolt) area and the oil passage area as shown.



Install the oil orifice A [1], oil orifice B [2] and oil orifice C [3] in the upper crankcase.
Install the dowel pins [4].

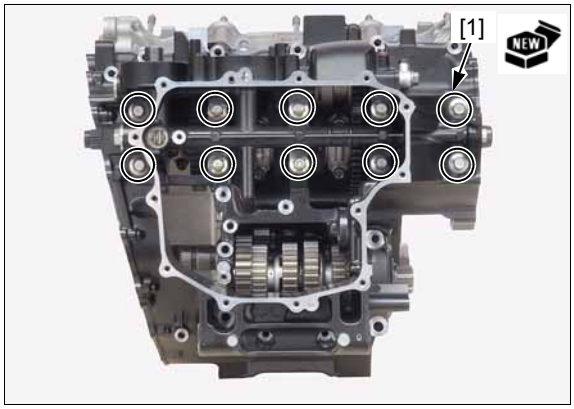


Install the lower crankcase onto the upper crankcase while aligning the crankshaft balancer drive gear white paint mark [1] with between the balancer gear [2] index lines [3] as shown.



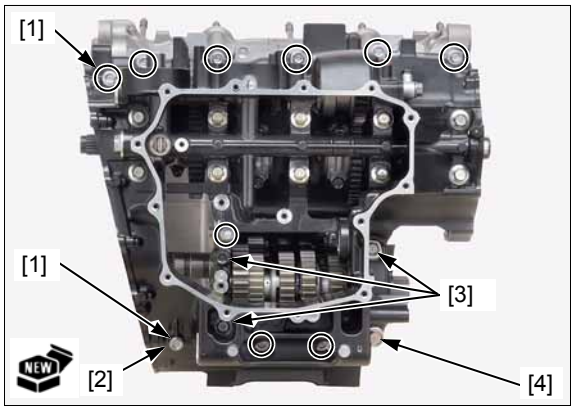
- Tighten the crankcase main journal bolts using the Plastic Region Tightening Method.
- Do not reuse the crankcase main journal bolts, because the correct axial tension will not be obtained.
- The crankcase main journal bolts are pre-coated with an oil additive for axial tension stability. Do not remove the oil additive from the new main journal bolts surface.

Install new crankcase main journal bolts [1].



The sealing washer location is indicated on the upper crankcase using the "△" mark.

Loosely install the crankcase 7 mm bolts [1], sealing washer [2], 8 mm bolts [3], 10 mm bolts [4].



PLASTIC REGION TIGHTENING METHOD:

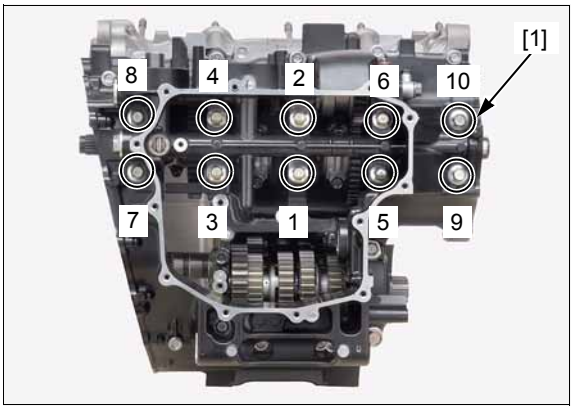
Make sure the upper and lower crankcase are seated securely.

Tighten the crankcase main journal bolts [1] as follows:

Tighten the crankcase main journal bolts in numerical order as shown in the illustration in two or three steps to the specified torque.

Further tighten the crankcase main journal bolts 150°.

TORQUE: 20 N·m (2.0 kgf·m, 15 lbf·ft) + 150°



Tighten the 10 mm bolt [1] to the specified torque.

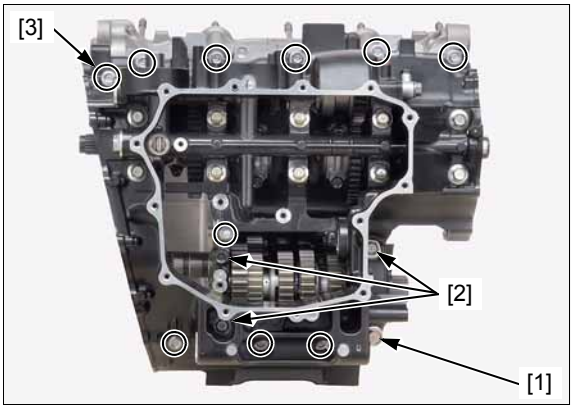
TORQUE: 39 N·m (4.0 kgf·m, 29 lbf·ft)

Tighten the 8 mm bolt [2] to the specified torque.

TORQUE: 24 N·m (2.4 kgf·m, 18 lbf·ft)

From the inside to outside, tighten the 7 mm bolts [3] to the specified torque.

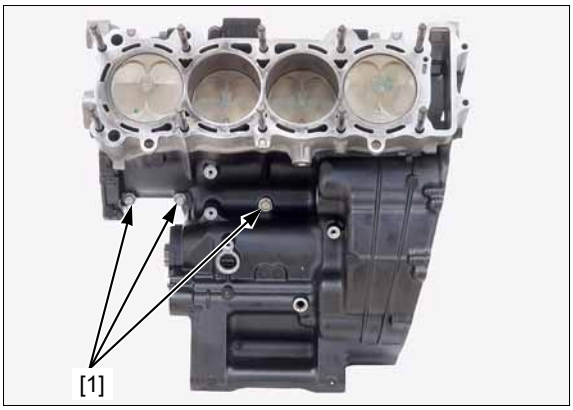
TORQUE: 18 N·m (1.8 kgf·m, 13 lbf·ft)



Place the engine with the lower side down.

Install the 7 mm bolts [1] to the specified torque.

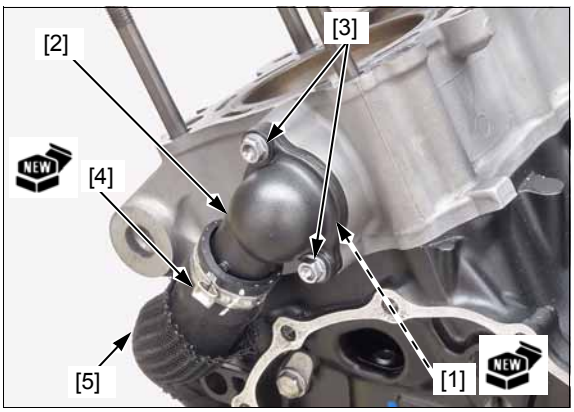
TORQUE: 18 N·m (1.8 kgf·m, 13 lbf·ft)



Install a new O-ring [1] into the groove of the water hose joint [2].
Install the water hose joint to the cylinder block.

Tighten the bolts [3] securely.

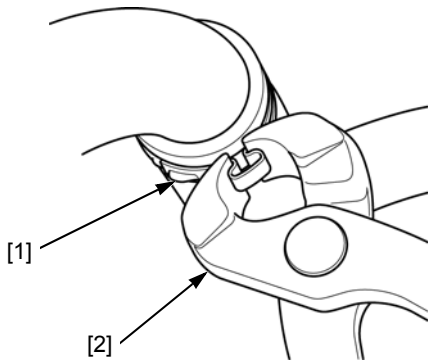
Install a new water hose band [4] onto the water hose [5] then connect the water hose to the water hose joint.

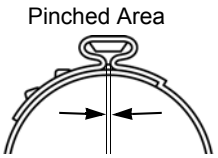


Pinch the ear portion of the water hose band [1] with a pincher until the pinched area clearance is 1 mm (0.04 in) or 2 mm (0.08 in) maximum as shown to secure water hose.

TOOL:
Pincher [2] **Oetiker 1098 or equivalent**

Install the removed parts in the reverse order of removal.





Hose diameter 19 mm, 21 mm:
1 mm (0.04 in) maximum
Hose diameter 29.8 mm:
2 mm (0.08 in) maximum

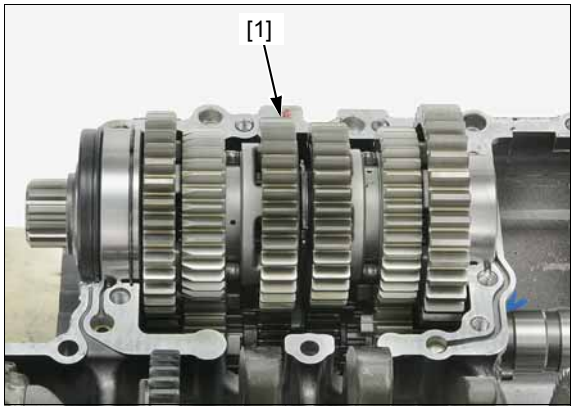
SHIFT FORK/SHIFT DRUM/ TRANSMISSION

REMOVAL

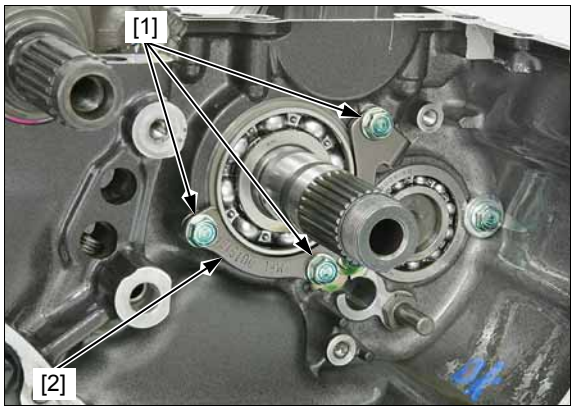
Separate the crankcase halves (page 13-4).

Remove the countershaft assembly [1].

Disassemble the countershaft assembly.
Clean all disassembled parts in solvent thoroughly.

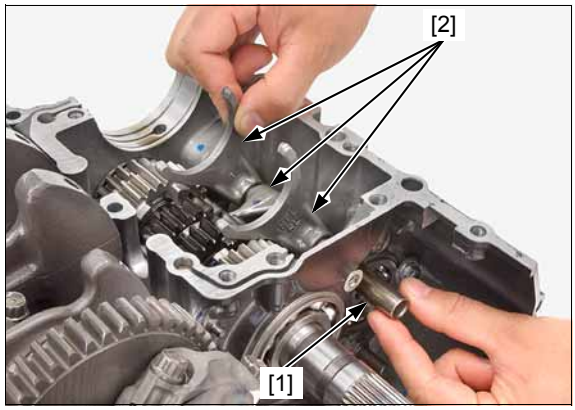


Remove the mainshaft bearing set plate bolts [1] and mainshaft bearing set plate [2].



Remove the fork shaft [1] and shift forks [2].

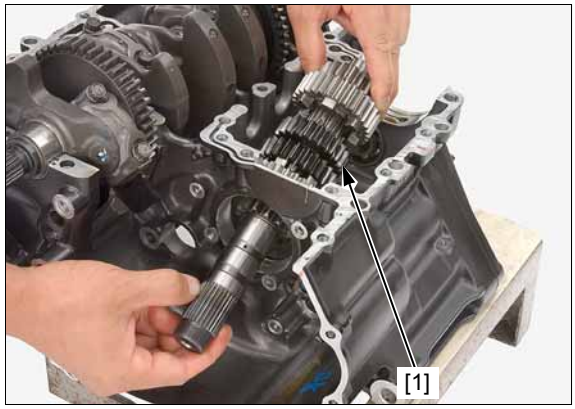
- Mark all shift forks direction to ensure correct reassembly in their original locations.



Remove the mainshaft bearing [1] from the crankcase.

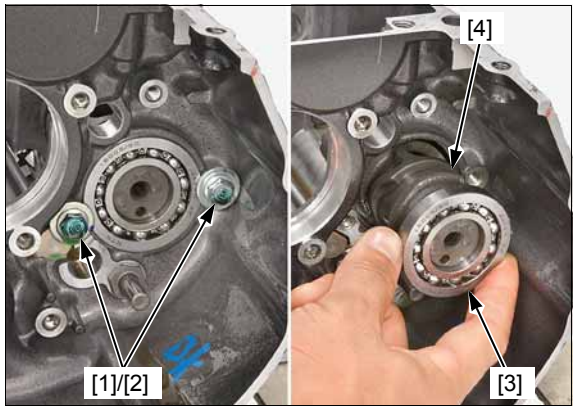
Remove the mainshaft assembly [1].

Disassemble the mainshaft assembly.
Clean all disassembled parts in solvent thoroughly.



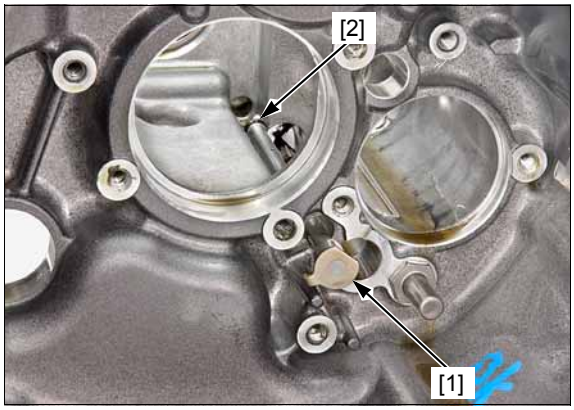
Remove the bolts [1] and washers [2].

Remove the bearing [3] and shift drum [4].



Remove the oil jet pipe [1] and O-ring [2].

Clean the oil jet pipe in solvent thoroughly.



MAINSHAFT BEARING REPLACEMENT

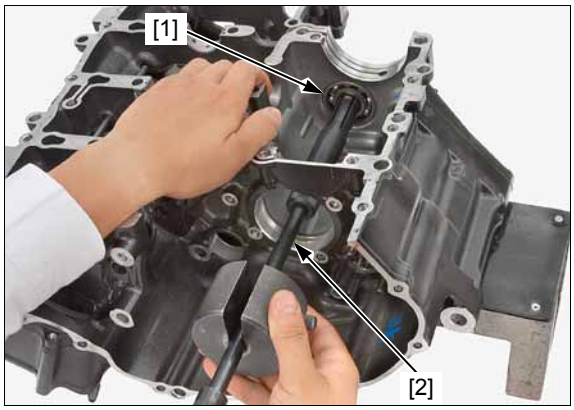
Remove the following:

– Crankshaft (page 14-4)
– Countershaft (page 13-8)
– Mainshaft (page 13-8)

Remove the mainshaft bearing [1] using the special tools as shown.

TOOLS:

Bearing remover set, 20 mm [2]	**07936-3710600**
Remover weight	**07741-0010201**
Remover handle	**07936-3710100**



Drive in a new bearing squarely with the marks facing toward the inside of the crankcase.

Drive a new bearing [1] into the left crankcase using the special tools.

TOOLS:

Driver [2]	**07949-3710001**
Attachment, 42 x 47 mm [3]	**07746-0010300**
Pilot, 20 mm [4]	**07746-0040500**

INSPECTION

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

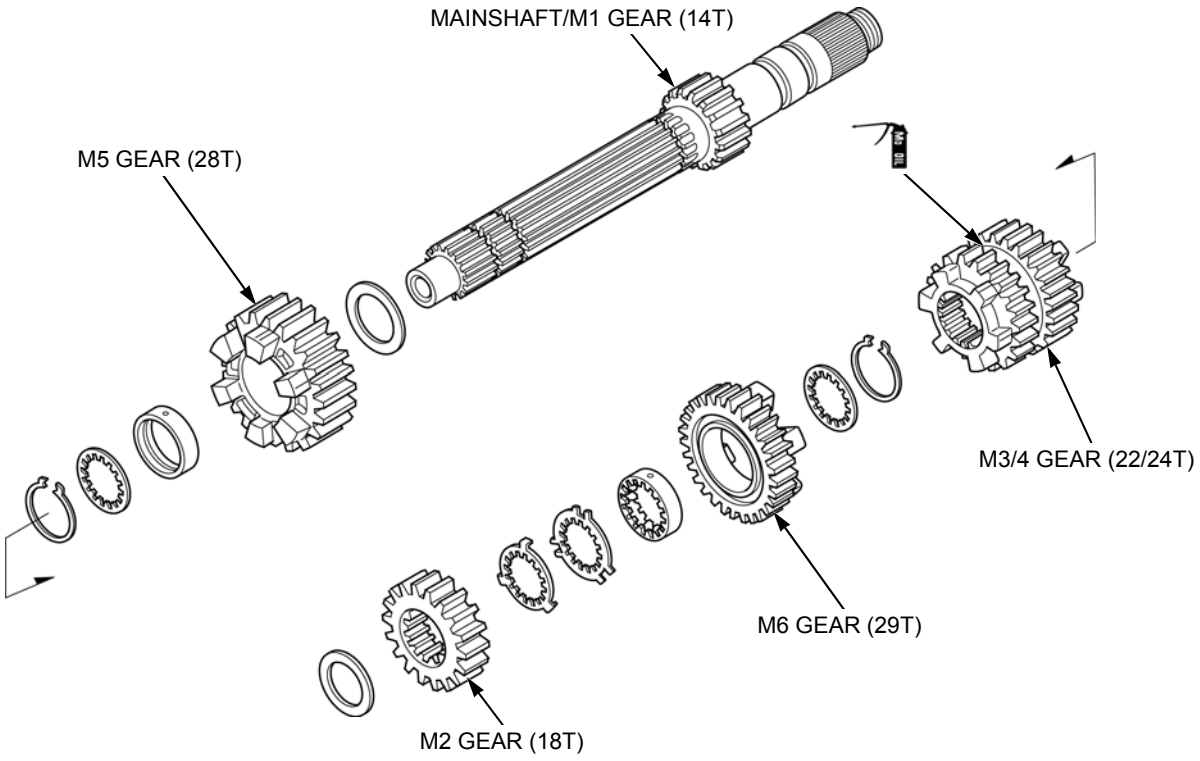
– Transmission gears
– Transmission bushings
– Transmission bearings
– Shift drum/bearing
– Shift forks
– Shift fork shafts
– Oil jet pipe

Measure each part according to CRANKCASE/ TRANSMISSION SPECIFICATIONS (page 1-9).

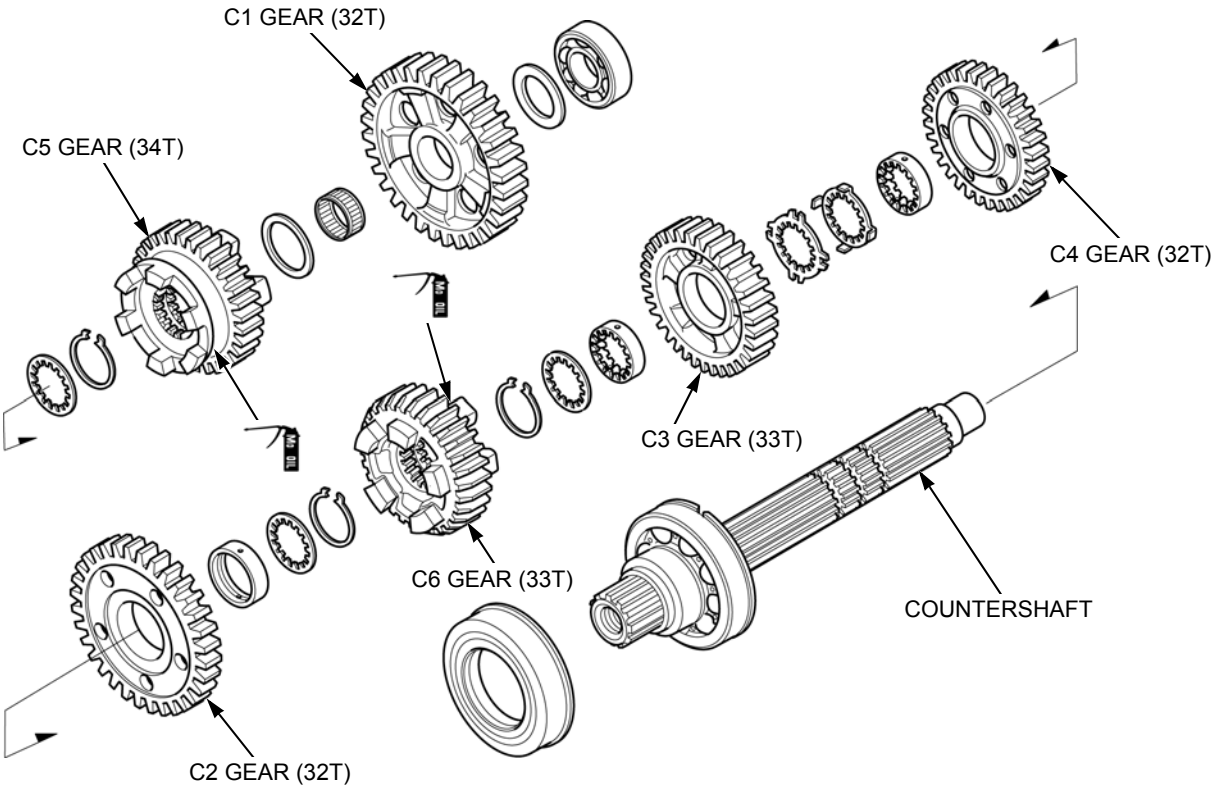
Replace the any part if necessary.

DISASSEMBLY/ASSEMBLY

MAINSHAFT:

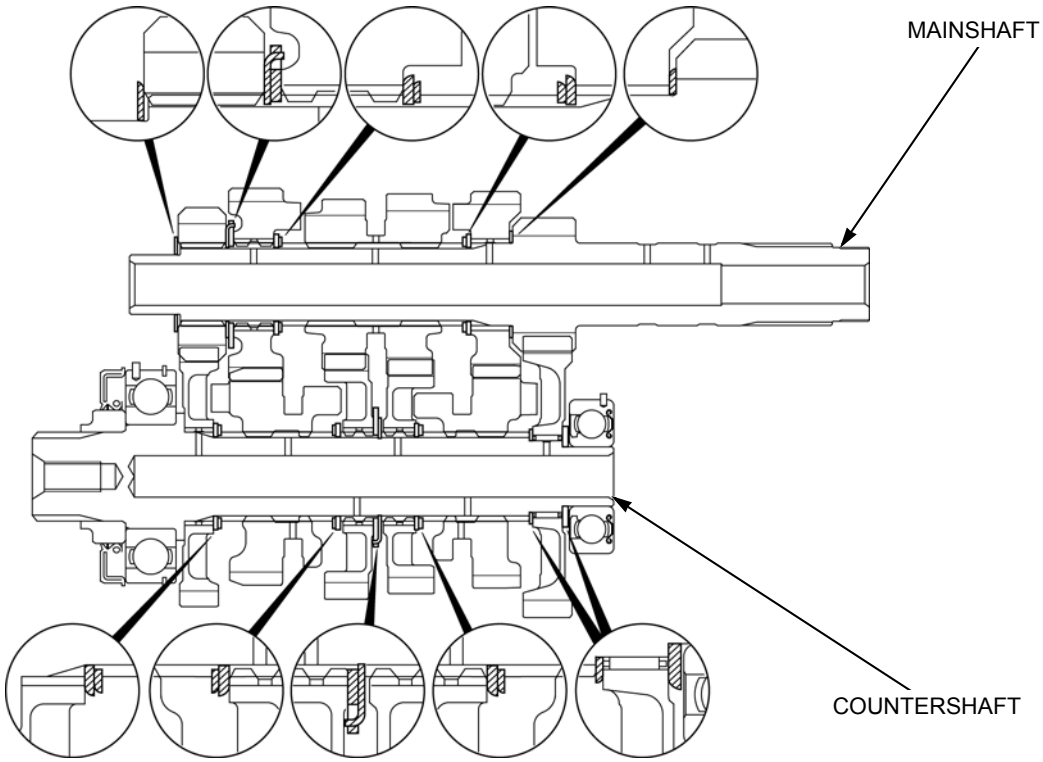


COUNTERSHAFT:



NOTE:

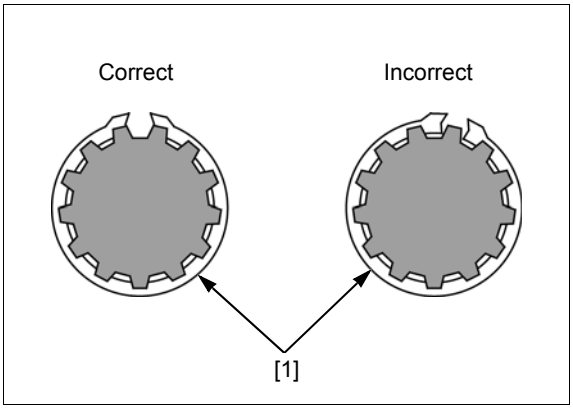
- Apply engine oil to the gear teeth, sliding surface and bushings.
- Apply molybdenum oil solution to the shift fork grooves.



Assemble the transmission gears and shafts.

- Coat each gear with clean engine oil and check for smooth movement.
- Align the lock washer tabs with the spline washer grooves.

- Always install the thrust washers and snap rings [1] with the chamfered (rolled) edge facing away from the thrust load.
- Install the snap rings so that the end gap aligns with the groove of the splines.
- Make sure that the snap rings are fully seated in the shaft groove after installing them.

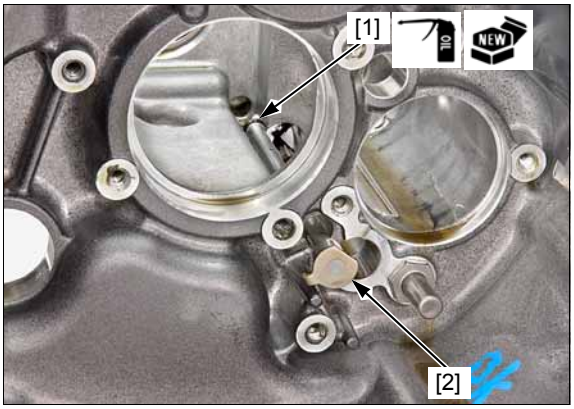


INSTALLATION

Be careful not to damage a new O-ring.

Apply oil to a new O-ring [1] and install it to the oil jet pipe [2].

Install the oil jet pipe into the upper crankcase by aligning its tab with the crankcase groove.

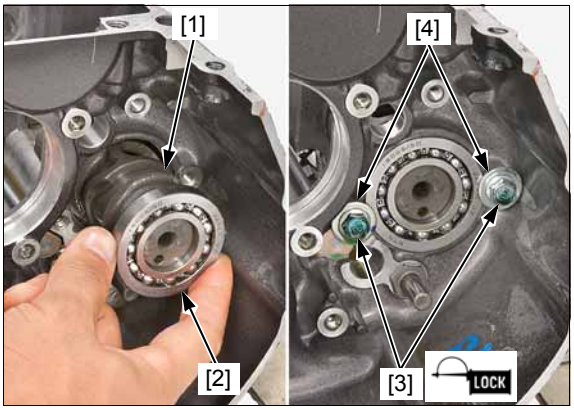


Install the shift drum [1] and bearing [2] into the crankcase.

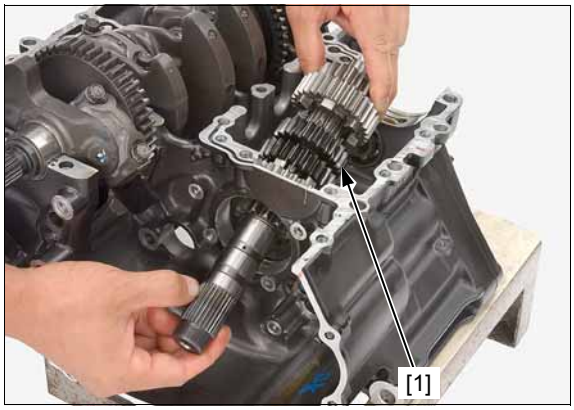
Apply locking agent to the shift drum bearing set bolts [3] threads (page 1-19).

Install the bolts and washers [4] then tighten the bolts to the specified torque.

TORQUE: 12 N·m (1.2 kgf·m, 9 lbf·ft)



Install the mainshaft assembly [1] into the crankcase.

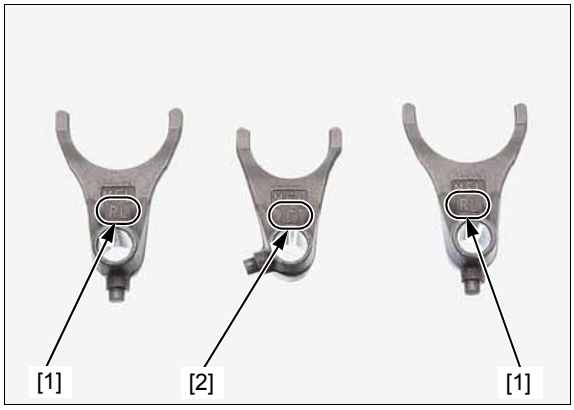


Install the bearing into the crankcase with the marked side facing out.

Install the mainshaft bearing [1] into the crankcase.

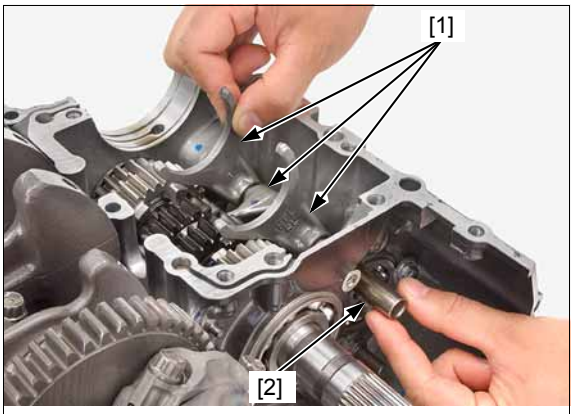
The shift forks have the following identification marks:

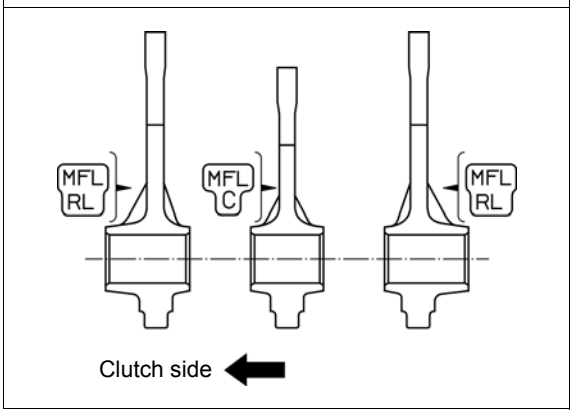
– “RL” [1] for right/left
– “C” [2] for center



Install the shift forks [1] into the shift drum guide grooves and insert the fork shaft [2].

- Face the shift fork marks as follows:
  – “RL” marks to the outside
  – “C” mark to the right side (clutch side)
- The “C” shift fork claw aligns the gear shifter groove.



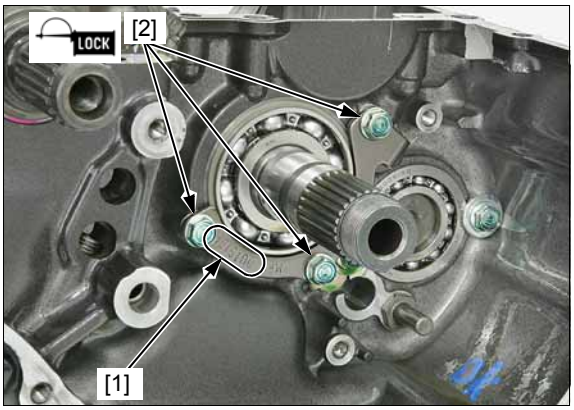


Apply locking agent to the mainshaft bearing set plate bolt threads (page 1-19).

Install the mainshaft bearing set plate with its “OUT SIDE” mark [1] facing out.

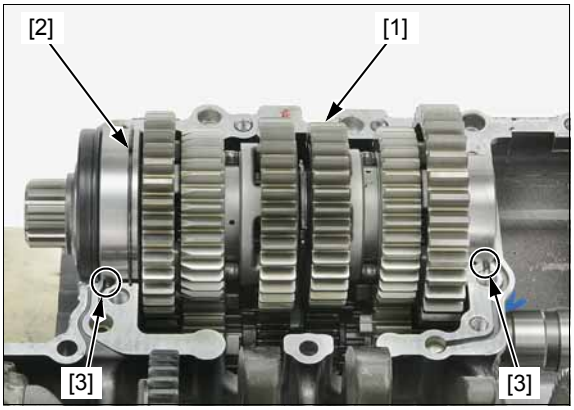
Tighten the bolts [2] to the specified torque.

TORQUE: 14 N·m (1.4 kgf·m, 10 lbf·ft)



Install the countershaft assembly [1] by aligning the countershaft bearing snap ring [2] with the crankcase groove.

Also align the countershaft bearing stopper pins [3] with the grooves in the crankcase.



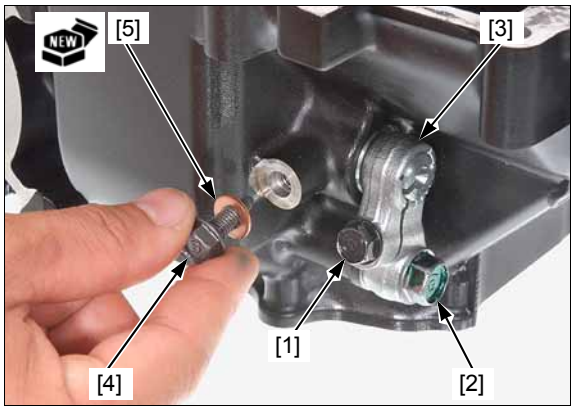
BALANCER

REMOVAL/INSTALLATION

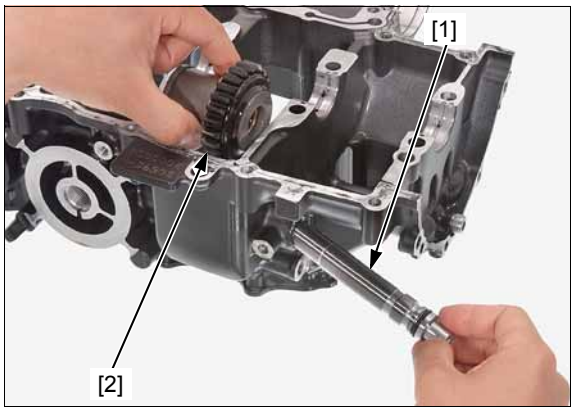
Separate the crankcase halves (page 13-4).

Loosen the balancer shaft pinch bolt [1].
Remove the bolt [2] and balancer shaft holder [3].

Remove the sealing bolt [4] and sealing washer [5].



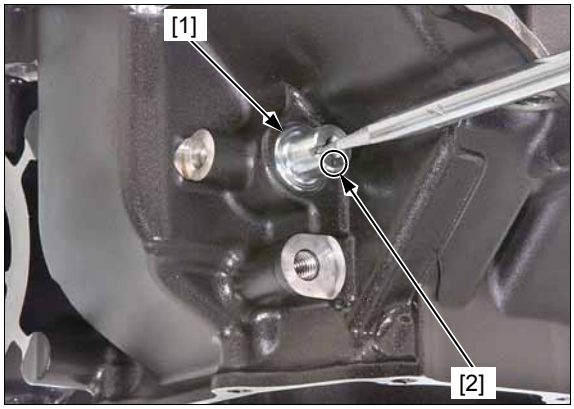
Pull the balancer shaft [1] out and remove the balancer weight assembly [2] from the lower crankcase.



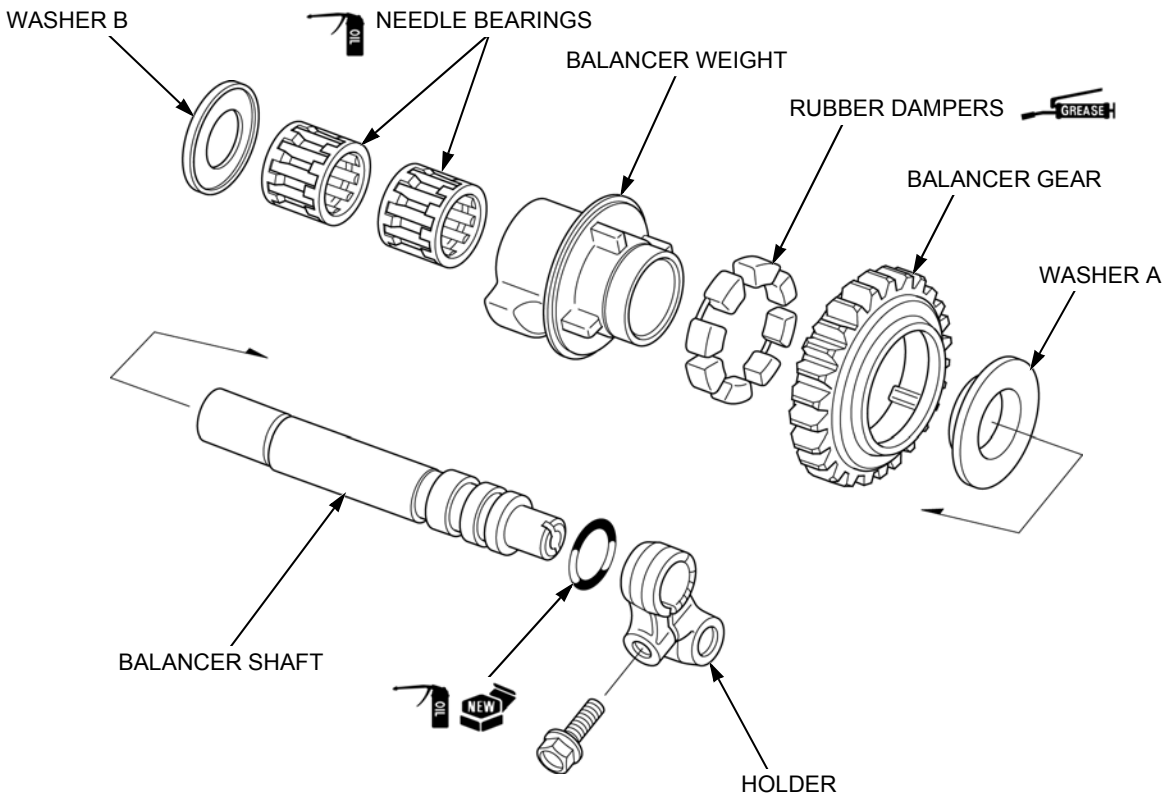
Installation is in the reverse order of removal.

NOTE:

- Turn the balancer shaft [1] and place the punch mark [2] on the shaft facing down.
- Adjust the backlash (page 13-19).



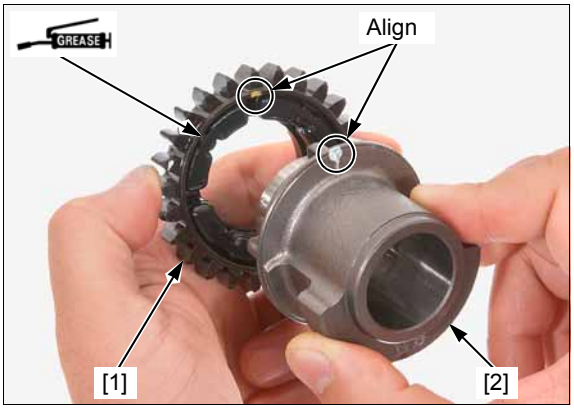
DISASSEMBLY/ASSEMBLY



Apply grease to the damper rubber fitting area.

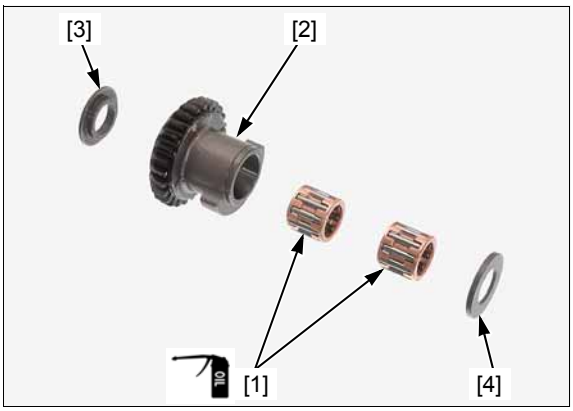
Install the damper rubbers into the balancer gear.

Assemble the balancer gear [1] and weight [2] while aligning the marks.

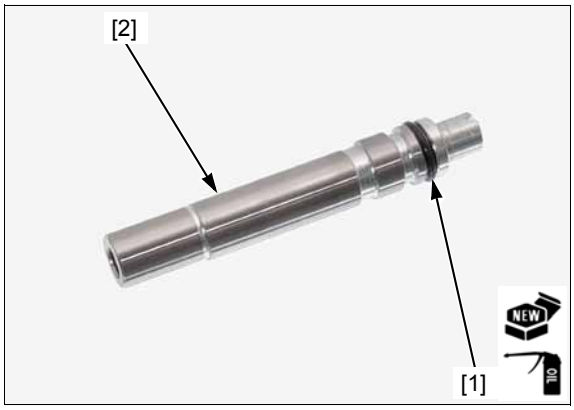


Apply oil to the needle bearings [1] and install them into the balancer weight assembly [2].

Install the washer A [3] and B [4] as shown.



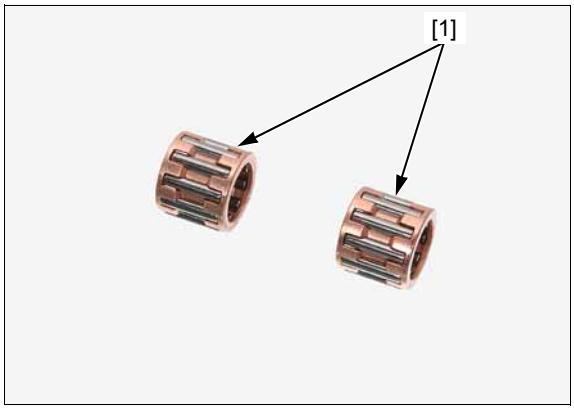
Apply oil to a new O-ring [1] and install it to the balancer shaft [2] groove.



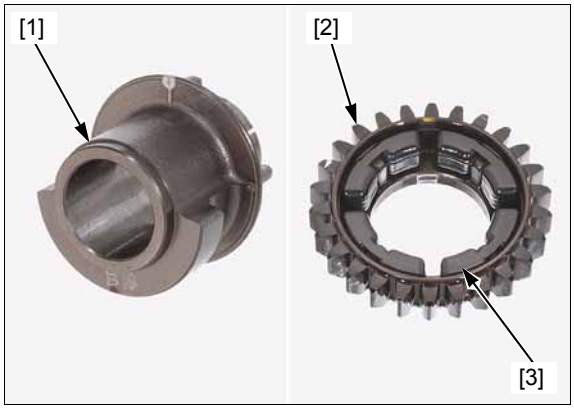
INSPECTION

Replace the balancer weight, balancer shaft, needle bearing as a set

Check each needle bearing [1] for wear or damage, replace if necessary.



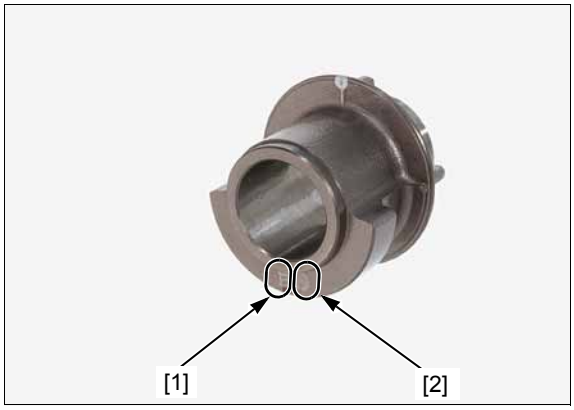
Check the balancer weight [1] and gear [2] for wear or damage.
Check the rubber dampers [3] for fatigue or damage, replace if necessary.



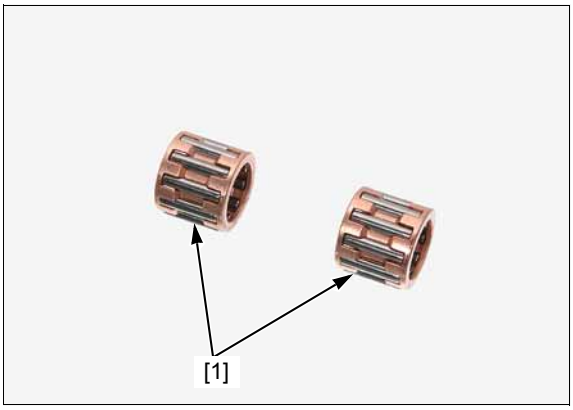
BALANCER BEARING SELECTION

The balancer weight and needle bearings are select fitted.

The balancer weight has weight side I.D. code letter [1] and gear side I.D. code letter [2] as shown.
The marking identify each I.D. of the balancer weight as shown.



Reference the balancer weight I.D. code letters to determine the replacement bearing [1] color.
Refer to the selection table below for bearing selection.



BALANCER BEARING SELECTION TABLE:

		BALANCER WEIGHT I.D. CODE		
		A	B	C
		26.996 – 27.000 mm (1.0628 – 1.0630 in)	26.991 – 26.996 mm (1.0626 – 1.0628 in)	26.987 – 26.991 mm (1.0625 – 1.0626 in)
BALANCER SHAFT	17.990 – 17.996 mm (0.7083 – 0.7085 in)	Blue	White	Green

BALANCER GEAR BACKLASH ADJUSTMENT

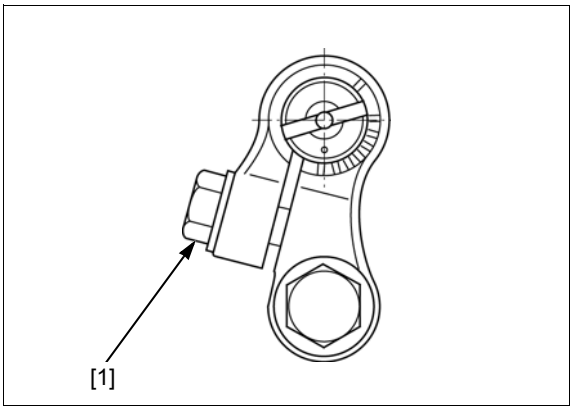
- Excessive force can cause balancer gear, bearing and shaft damage. Do not turn the shaft more than necessary.

INITIAL BACKLASH ADJUSTMENT

Install the engine into the frame (page 15-8).

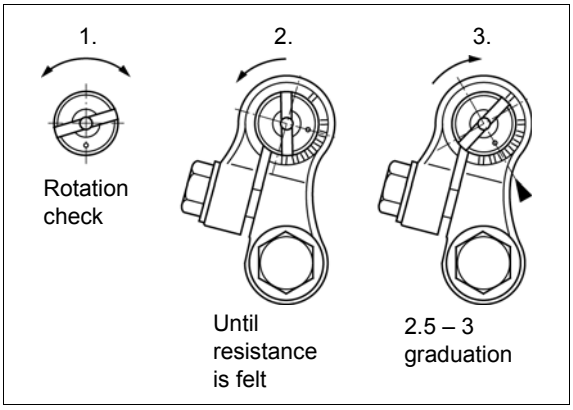
Adjust the backlash while the engine is cold (below 35°C/ 95°F) and while it is not running.

Loosen the balancer shaft holder pinch bolt [1].



Adjust the backlash as follows:

1. Check the balancer shaft for smooth rotation by turning it clockwise and counterclockwise until it can not turn.
2. Turn the balancer shaft counterclockwise until resistance is felt.
3. Then back it off 2.5 – 3 graduation using the slot as a measure.



FINAL BACKLASH ADJUSTMENT

Warm up the engine and let it idle.

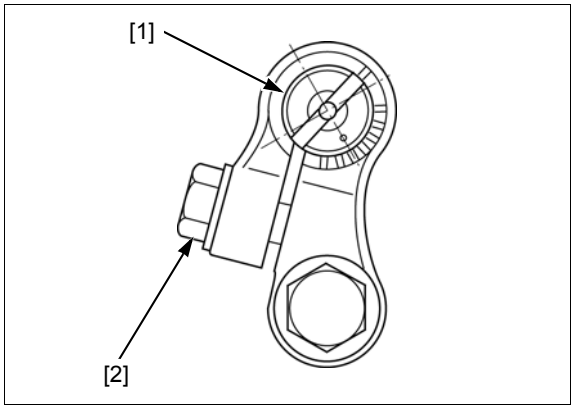
If the balancer gear noises are excessive, adjust the balancer backlash as follows:

Turn the balancer gear shaft [1] counterclockwise until the gears begin to make a “whining” noise. Then turn the gear shaft clockwise until the gear “whining” noise disappears.

Tighten the balancer shaft pinch bolt [2].

After all gear backlash adjustments are done, snap the throttle and make sure the gear noises are not excessive.

If the gear “whine” noise is excessive, the backlash is too small.
If the gear “rattling” noise is excessive, the backlash is excessive.



14. CRANKSHAFT/PISTON/CYLINDER

SERVICE INFORMATION

GENERAL

- The crankcase must be separated to service the following:
  – Crankshaft (page 14-4)
  – Piston (page 14-13)
  – Cylinder (page 14-13)
- Mark and store the connecting rods, bearing caps and bearing inserts to be sure of their correct locations for reassembly.
- The crankpin and main journal bearing inserts are select fit and are identified by color codes. Select replacement bearings from the code tables. After selecting new bearings, recheck the oil clearance with a plastigauge. Incorrect oil clearance can cause major engine damage.
- Clean the oil passages in the upper crankcase with compressed air before installing the pistons.
- Separate the crankcase halves (page 13-4) when removing the piston.

TROUBLESHOOTING

Cylinder compression is too low, hard to starting or poor performance at low speed
- Leaking cylinder head gasket
- Worn, stuck or broken piston ring
- Worn or damaged cylinder and piston

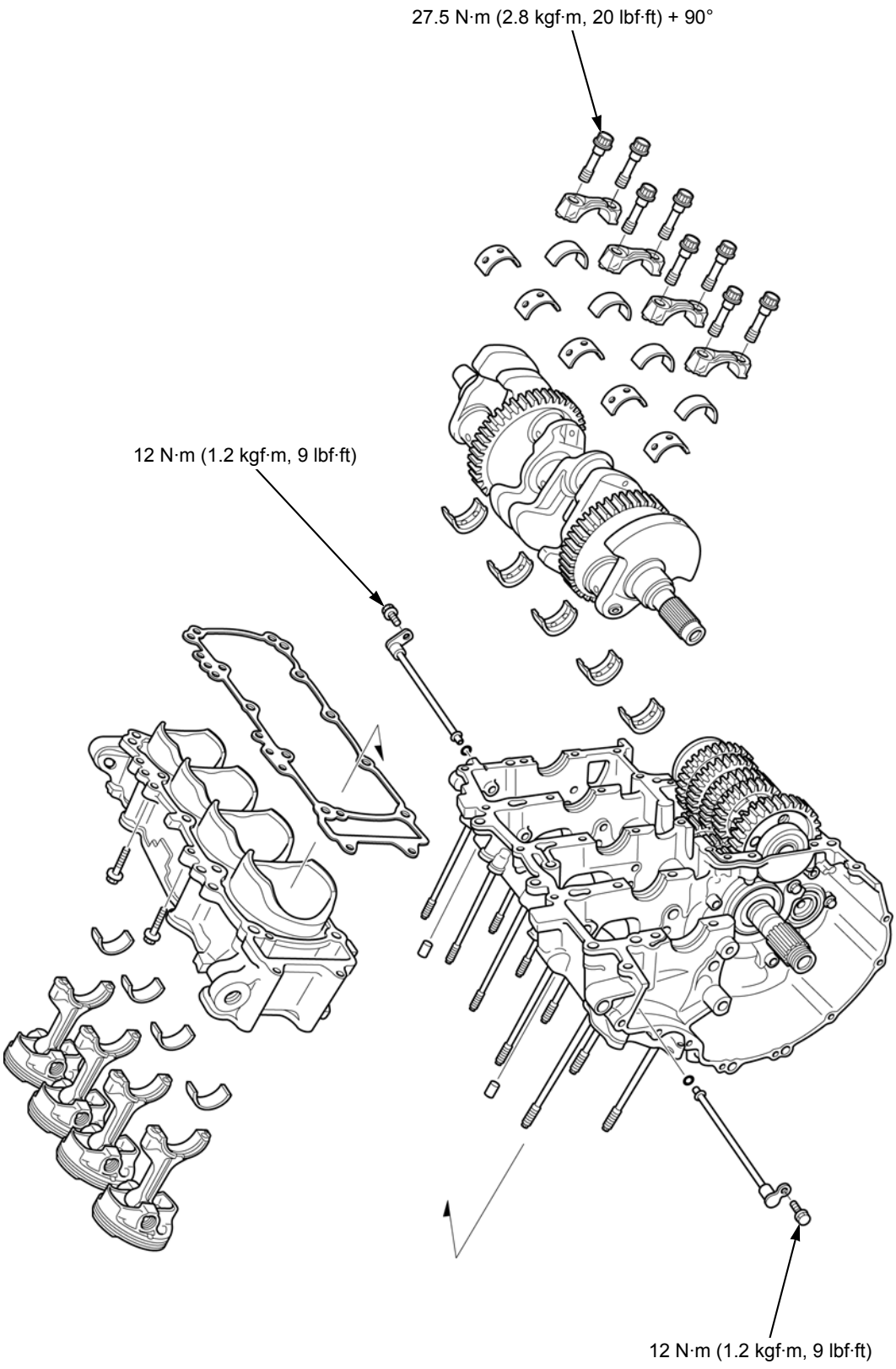
Cylinder compression too high, overheating or knocking
- Excessive carbon built-up on piston head or combustion chamber

Excessive smoke
- Worn cylinder, piston or piston ring
- Improper installation of piston rings
- Scored or scratched piston or cylinder wall

Abnormal noise
- Worn piston pin or piston pin hole
- Worn connecting rod small end
- Worn cylinder, piston or piston rings
- Worn main journal bearings
- Worn crankpin bearings

Engine vibration
- Excessive crankshaft runout
- Improper balancer timing

COMPONENT LOCATION



CRANKSHAFT

Separate the crankcase halves (page 13-4).

SIDE CLEARANCE INSPECTION

Measure the connecting rod side clearance.

SERVICE LIMIT: 0.35 mm (0.014 in)

If the clearance exceeds the service limit, replace the connecting rod.
Recheck and if still out of limit, replace the crankshaft.

REMOVAL

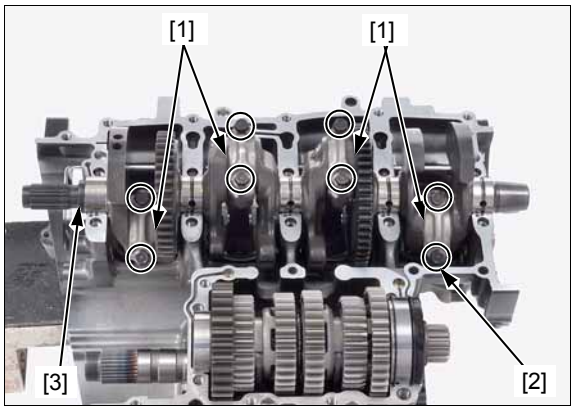
NOTICE

- *Before removal, position all the pistons at TDC (Top Dead Center) to prevent damaging the crankpin with the connecting rod.*
- *Do not interchange the bearing inserts. They must be installed in their original locations or the correct bearing oil clearance may not be obtained, resulting in engine damage.*

Mark the bearing caps [1] and bearings as you remove them to indicate the correct cylinder for reassembly.

Remove the crankpin bearing cap bolts [2] and bearing caps.

Remove the crankshaft [3].



Remove the bolts [1], oil jet pipes [2] and O-rings [3] from the upper crankcase.

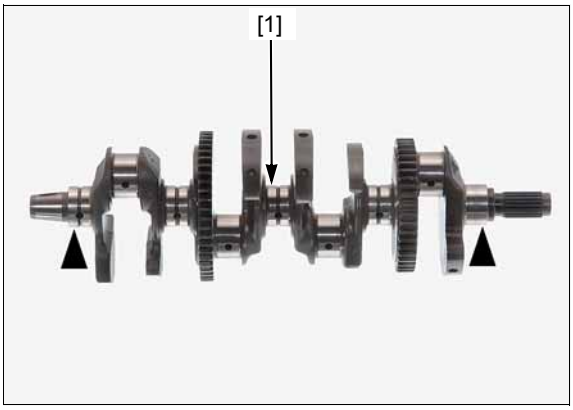
Clean the oil jet pipes in solvent thoroughly.

INSPECTION

Support the crankshaft on both end journals.
Set a dial gauge on the center main journal of the crankshaft.
Rotate the crankshaft two revolutions and read the runout at the measurement point [1].

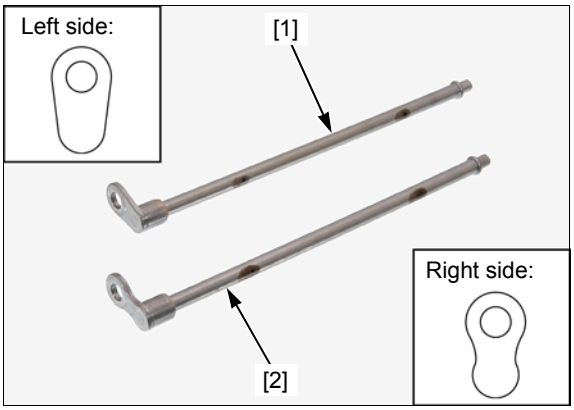
SERVICE LIMIT: 0.05 mm (0.002 in)

Check the primary drive gear and balancer drive gear teeth for abnormal wear or damage.



Inspect the left oil jet pipe [1] and right oil jet pipe [2] for clogs, bending or damage.

Replace them if necessary.

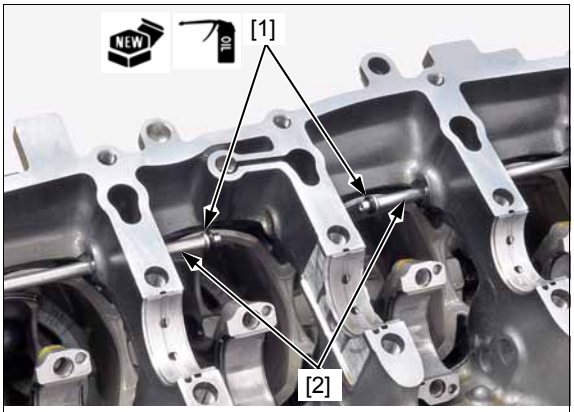


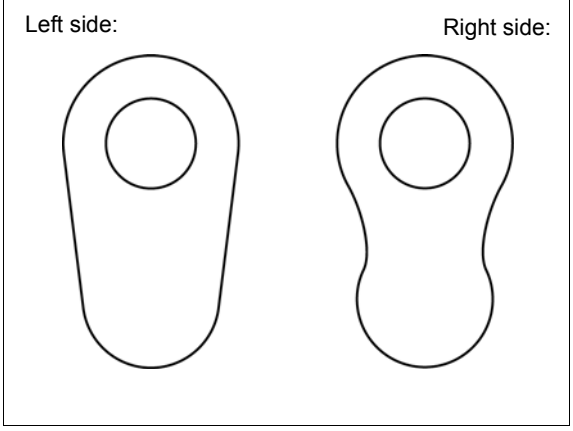
INSTALLATION

Apply oil to new O-rings [1] and install them to the oil jet pipes [2].

Be careful not to damage the O-rings.

Install the oil jet pipes into the upper crankcase as shown.

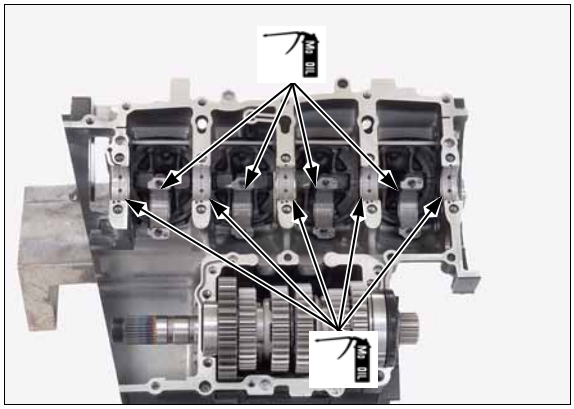




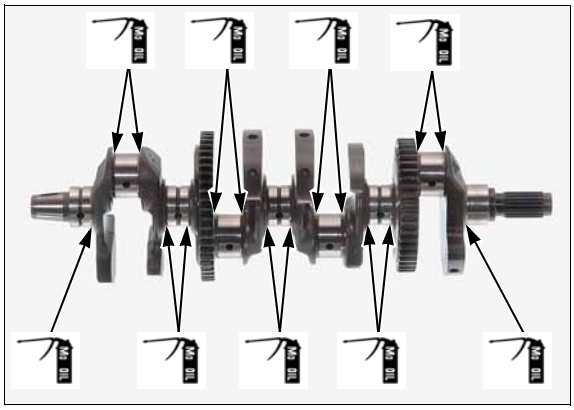
Apply locking agent to the oil jet pipe mounting bolts [1] threads (page 1-19) and tighten them to the specified torque.

TORQUE: 12 N·m (1.2 kgf·m, 9 lbf·ft)

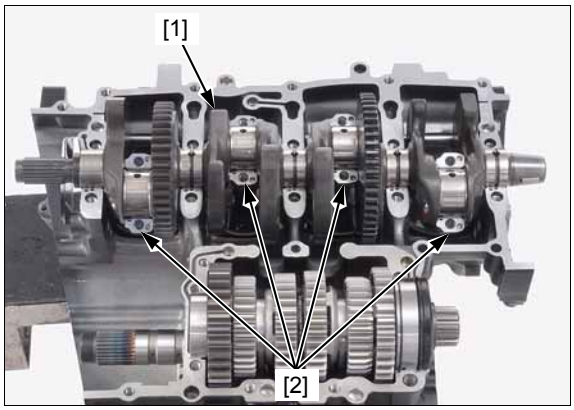
Apply molybdenum oil solution to the main journal bearing sliding surfaces on the upper crankcase and crankpin bearing sliding surfaces on the connecting rods.



Apply molybdenum oil solution to the thrust surfaces of the crankshaft as shown.

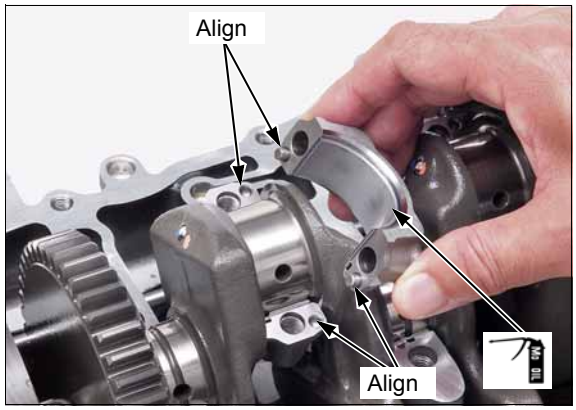


Install the crankshaft [1] onto the upper crankcase.
Set the connecting rods [2] to the crankpins.



Apply molybdenum oil solution to the crankpin bearing sliding surfaces on the crankpin bearing caps.

Install the crankpin bearing caps, aligning the dowel pins with the holes in the connecting rods.
Be sure each part is installed in its original position, as noted during removal.



PLASTIC REGION TIGHTENING METHOD:

The crankpin bearing cap bolts cannot be reused. Once the bolts have been loosened replace them with new ones.

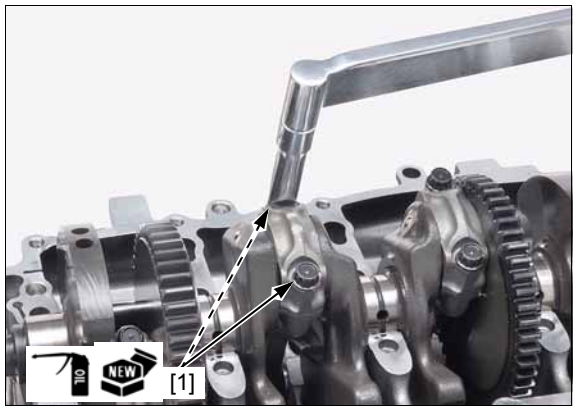
Apply oil to new crankpin bearing cap bolts [1] threads and seating surfaces, and install them.

Tighten the bolts in two or three steps alternately.

Further tighten the bolts 90°.

TORQUE: 27.5 N·m (2.8 kgf·m, 20 lbf·ft) + 90°

Assemble the crankcase halves (page 13-5).



MAIN JOURNAL BEARING

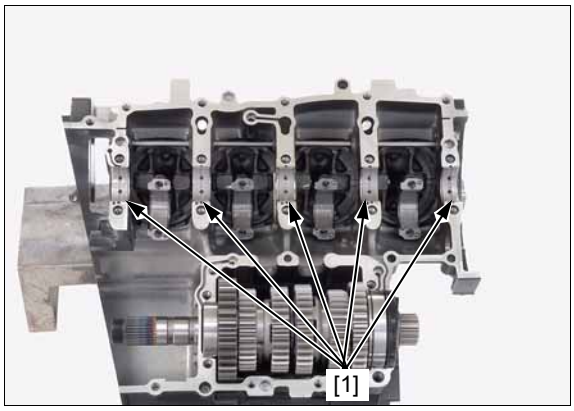
NOTICE

Do not interchange the bearing inserts. They must be installed in their original locations or the correct bearing oil clearance may not be obtained, resulting in engine damage.

Remove the crankshaft (page 14-4).

BEARING INSPECTION

Inspect the main journal bearing inserts [1] on the upper and lower crankcase halves for unusual wear or peeling.
Check the bearing tabs for damage.



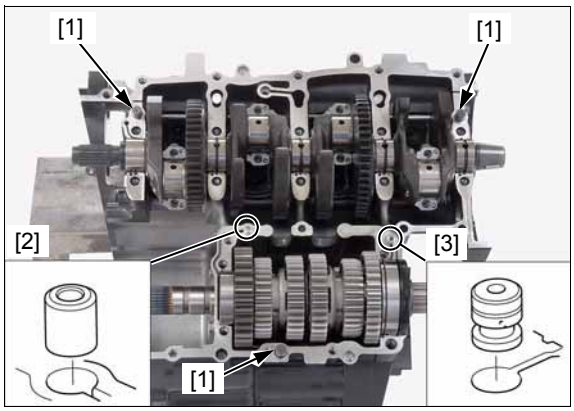
OIL CLEARANCE INSPECTION

Clean off any oil from the bearing inserts and main journals.
Install the crankshaft onto the upper crankcase.
Put a strip of plastigauge [1] lengthwise on each main journal avoiding the oil hole.

- Do not rotate the crankshaft during inspection.

Install the dowel pins [1], oil orifice A [2] and oil orifice B [3] onto the upper crankcase.

Install the lower crankcase onto the upper crankcase.



PLASTIC REGION TIGHTENING METHOD:

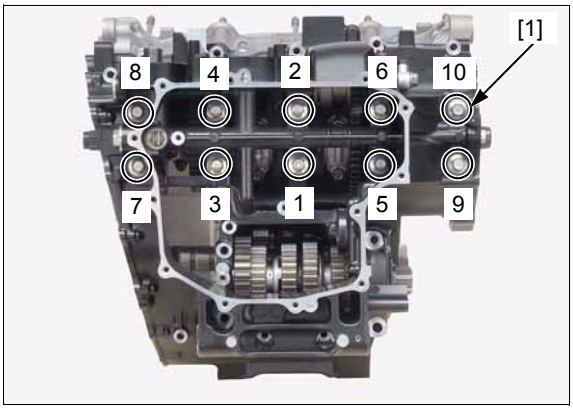
Install the crankcase main journal bolts [1].
Make sure the upper and lower crankcase are seated securely.

Tighten the crankcase main journal bolts as follows:

Tighten the crankcase main journal bolts in numerical order in the illustration in two or three steps to the specified torque.

Further tighten the crankcase main journal bolts 150°.

TORQUE: 20 N·m (2.0 kgf·m, 15 lbf·ft) + 150°



Remove the crankcase main journal bolts and lower crankcase, measure the compressed plastigauge at its widest point on each main journal to determine the oil clearance.

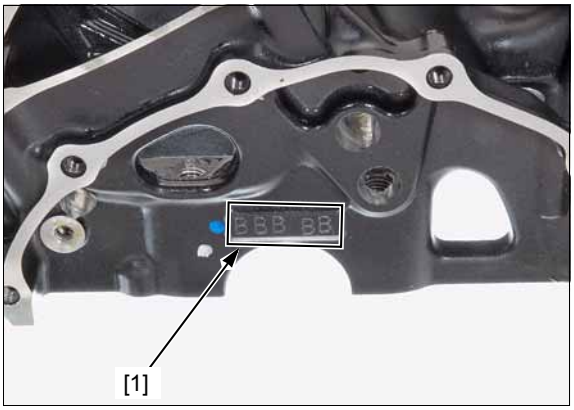
SERVICE LIMIT: 0.05 mm (0.002 in)

If the oil clearance exceeds the service limit, select a replacement bearing.

BEARING SELECTION

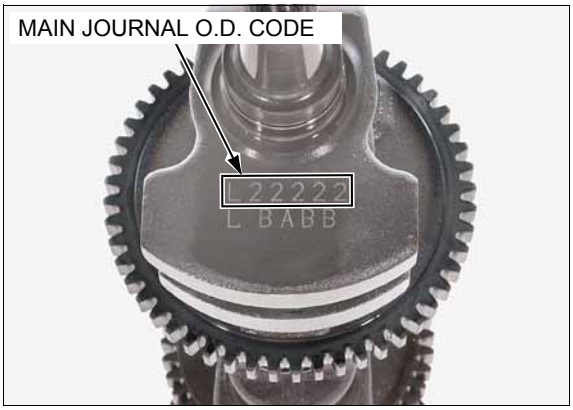
Letters (A, B or C) on the left side of upper crankcase are bearing support I.D. codes from left to right.

Record the crankcase bearing support I.D. code [1] letters from the pad on the left side of the upper crankcase as shown.

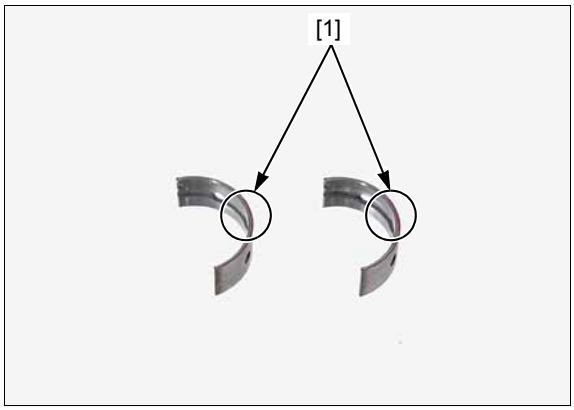


Numbers (1, 2 or 3) on the crank weight are main journal O.D. codes from left to right.

Record the corresponding main journal O.D. code numbers from the crank weight.



Cross reference the main journal and bearing support codes to determine the replacement bearing color code [1].



BEARING THICKNESS:

Brown: Thickest
Green:
Yellow:
Pink:
Red: Thinnest

NOTICE

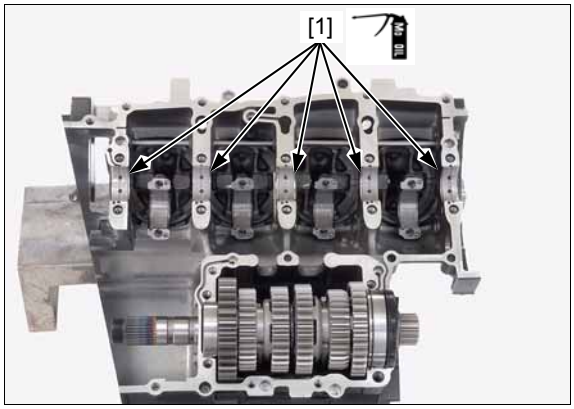
After selecting new bearings, recheck the clearance with a plastigauge. Incorrect clearance can cause severe engine damage.

MAIN JOURNAL BEARING SELECTION TABLE:

			BEARING SUPPORT I.D. CODE		
			A	B	C
			37.000 – 37.006 mm (1.4567 – 1.4569 in)	37.006 – 37.012 mm (1.4569 – 1.4572 in)	37.012 – 37.018 mm (1.4572 – 1.4574 in)
MAIN JOURNAL O.D. CODE	1	34.000 – 34.006 mm (1.3386 – 1.3388 in)	Red	Pink	Yellow
	2	33.994 – 34.000 mm (1.3383 – 1.3386 in)	Pink	Yellow	Green
	3	33.988 – 33.994 mm (1.3381 – 1.3383 in)	Yellow	Green	Brown

BEARING INSTALLATION

Clean the bearing outer surfaces and crankcase bearing supports.
Apply molybdenum oil solution to the main journal bearings sliding surfaces.
Install the main journal bearing inserts [1] onto the crankcase bearing supports, aligning each tab with each groove



CRANKPIN BEARING

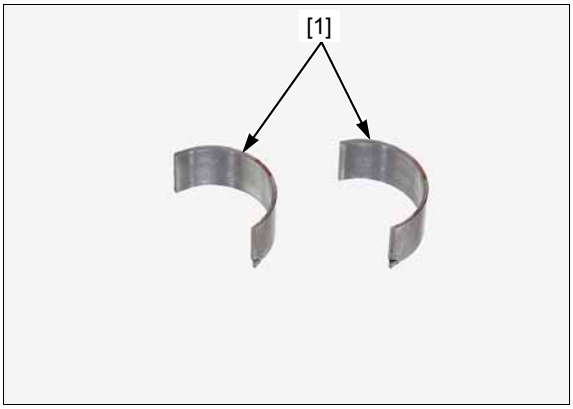
NOTICE

Do not interchange the bearing inserts. They must be installed in their original locations or the correct bearing oil clearance may not be obtained, resulting in engine damage.

Remove the crankshaft (page 14-4).

BEARING INSPECTION

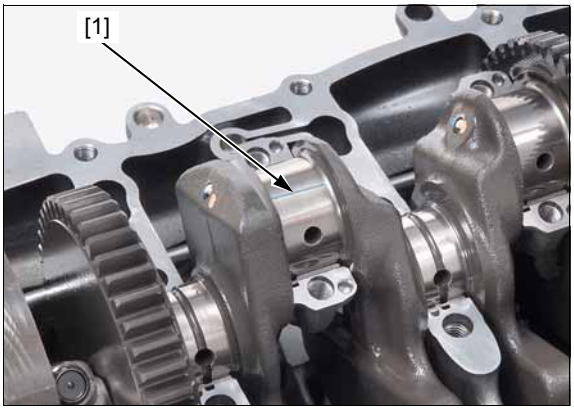
Check the bearing inserts [1] for unusual wear or peeling.
Check the bearing tabs for damage.



OIL CLEARANCE INSPECTION

Clean off any oil from the bearing inserts and crankpins.
Carefully install the crankshaft onto the upper crankcase.
Set the connecting rods onto the crankpins.
Put a strip of plastigauge [1] lengthwise on each crankpin avoiding the oil hole.

- Do not rotate the crankshaft during inspection.



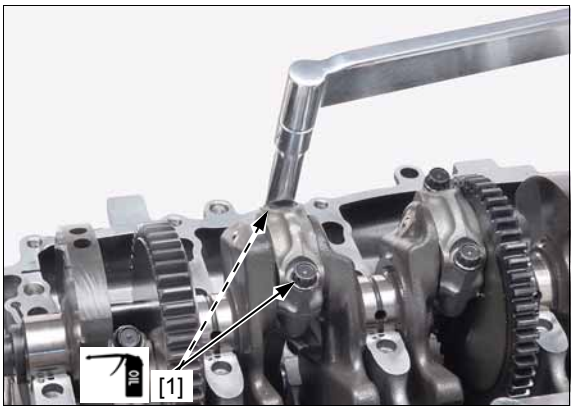
Carefully install the crankpin bearing caps, aligning the dowel pins with the holes in the connecting rods.

Use the removed crankpin bearing cap bolts when checking the oil clearance.

Apply oil to the crankpin bearing cap bolt [1] threads and seating surfaces and install the bolts.
Tighten the bolts in two or three steps alternately to the specified torque.

Further tighten the bolts 90°.

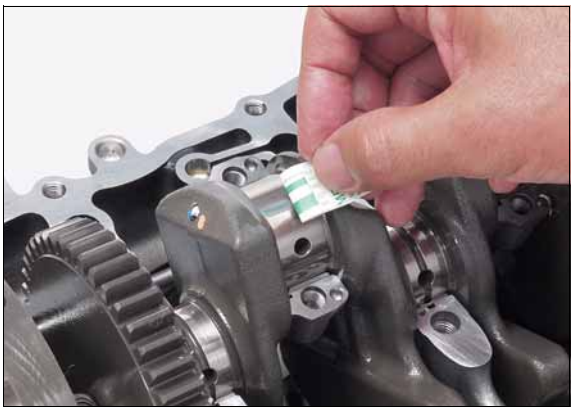
TORQUE: 21.6 N·m (2.2 kgf·m, 16 lbf·ft) + 90°



Remove the bearing caps and measure the compressed plastigauge at its widest point on the crankpin to determine the oil clearance.

SERVICE LIMIT: 0.072 mm (0.003 in)

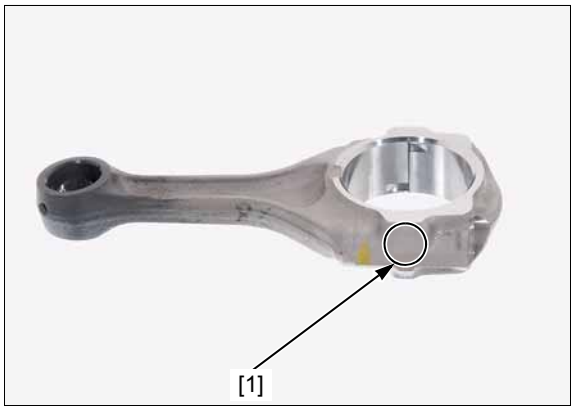
If the oil clearance exceeds the service limit, select the correct replacement bearings.



BEARING SELECTION

Numbers (1, 2 or 3) on the connecting rods are the connecting rod I.D. codes.

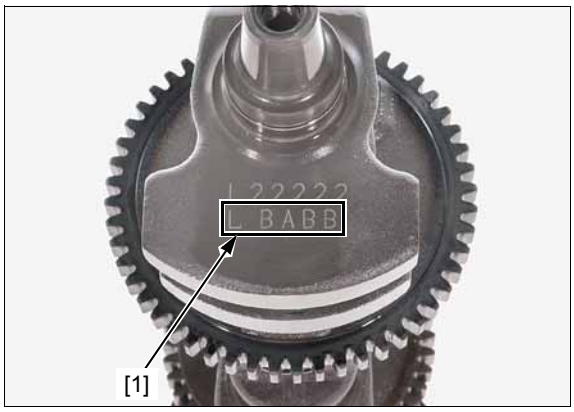
Record the connecting rod I.D. code [1] (1, 2 or 3) or measure the I.D. with the crankpin bearing cap installed without bearing inserts.



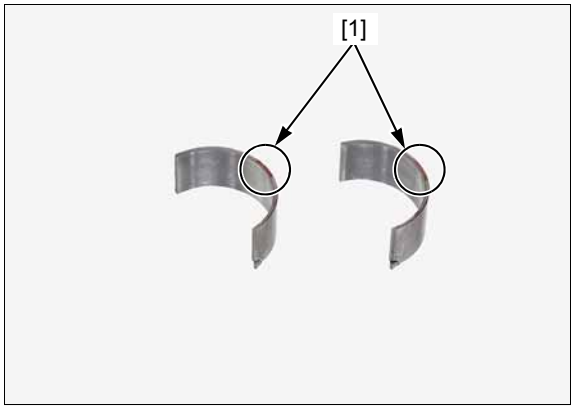
Letters (A, B or C) on the crank weight are the crankpin O.D. codes from left to right.

If you are replacing the crankshaft, record the corresponding crankpin O.D. code letter [1] (A, B or C).

If you are reusing the crankshaft, measure the crankpin O.D. with a micrometer.



Cross-reference the connecting rod and crankpin codes to determine the replacement bearing color code [1].



BEARING THICKNESS:

Blue: **Thickest**
Black:
Brown:
Green:
Yellow: **Thinnest**

NOTICE

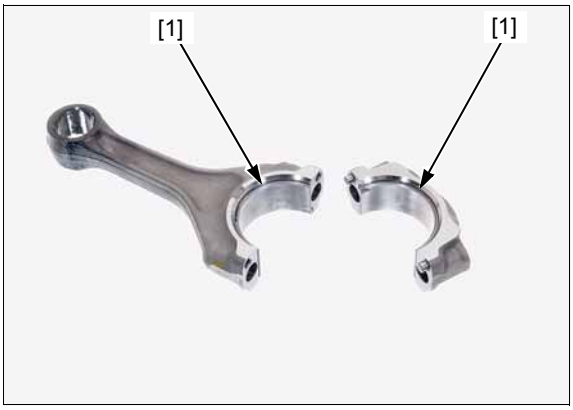
After selecting new bearings, recheck the clearance with a plastigauge. Incorrect clearance can cause severe engine damage.

CRANKPIN BEARING SELECTION TABLE:

			CONNECTING ROD I.D. CODE		
			1	2	3
			39.500 – 39.506 mm (1.5551 – 1.5554 in)	39.506 – 39.512 mm (1.5554 – 1.5556 in)	39.512 – 39.518 mm (1.5556 – 1.5558 in)
CRANKPIN O.D. CODE	A	36.497 – 36.503 mm (1.4369 – 1.4371 in)	Yellow	Green	Brown
	B	36.491 – 36.497 mm (1.4367 – 1.4369 in)	Green	Brown	Black
	C	36.485 – 36.491 mm (1.4364 – 1.4367 in)	Brown	Black	Blue

BEARING INSTALLATION

Clean the bearing outer surfaces, crankpin bearing cap and connecting rod.
Install the crankpin bearing inserts [1] onto the bearing cap and connecting rod, aligning each tab with each groove.



PISTON/CYLINDER

PISTON/CONNECTING ROD/ CYLINDER REMOVAL

NOTICE

- *Before piston removal, place a clean shop towel around the connecting rod to prevent damaging the cylinder.*
- *Do not try to remove the piston/connecting rod assembly from bottom of the cylinder; the assembly will get stuck in the gap between the cylinder liner and the upper crankcase.*
- *Do not interchange the bearing inserts. They must be installed in their original locations or the correct bearing oil clearance may not be obtained, resulting in engine damage.*

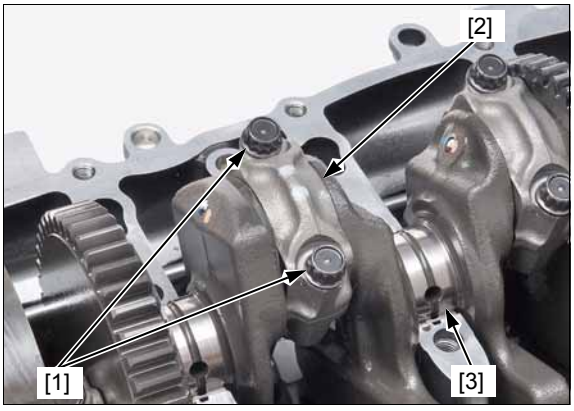
Separate the crankcase halves (page 13-4).

Mark all parts as you remove them to indicate the correct cylinder for reassembly.

Remove the bolts [1] and crankpin bearing caps [2].

Remove the following:

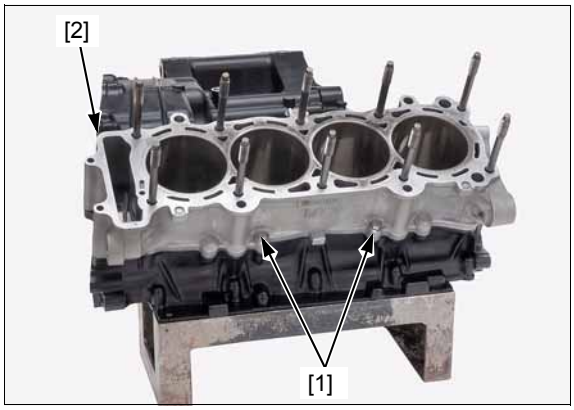
– Crankshaft [3] (page 14-4)
– Countershaft (page 13-13)



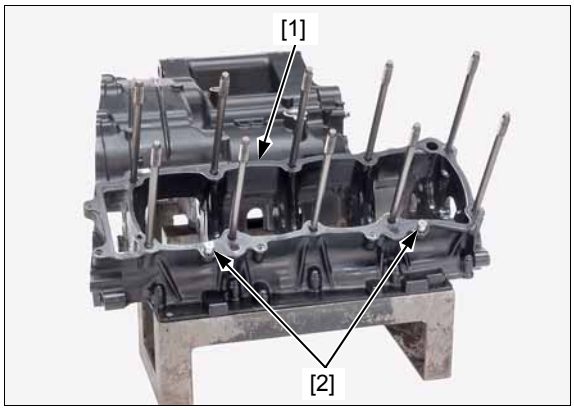
Do not try to remove the connecting rod/ piston assembly from the bottom of the cylinder; the assembly will be locked when the oil ring expands in the gap between the cylinder liner and the upper crankcase.

Remove the piston/connecting rod assembly [1] from the top of the cylinder.

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

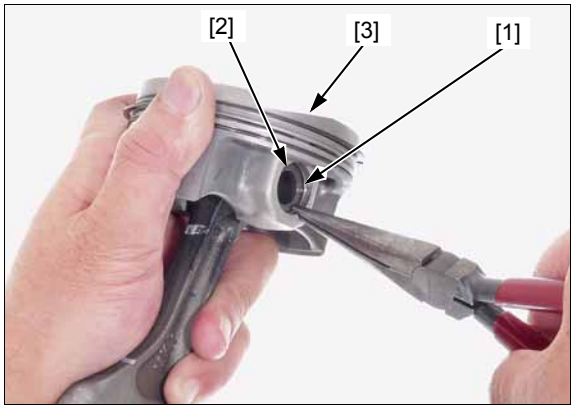


Remove the gasket [1] and dowel pins [2].



PISTON REMOVAL

Remove the piston pin clip [1] with pliers.
Push the piston pin [2] out of the piston and connecting rod, and remove the piston [3].



PISTON RING REMOVAL

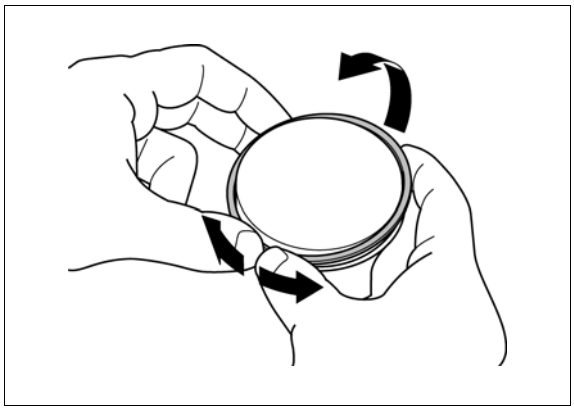
Be careful not to damage the piston ring by spreading the ends too far.

Spread each piston ring ends and remove them by lifting up at a point opposite the gap.

Clean carbon deposits from the piston ring grooves with a ring that will be discarded.

NOTE:

- Never use a wire brush; it will scratch the groove.



INSPECTION

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

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

Measure each part and calculate the clearance according to CRANKSHAFT/PISTON/CYLINDER SPECIFICATIONS (page 1-9).

Replace any part if it is out of service limit.

PISTON RING INSTALLATION

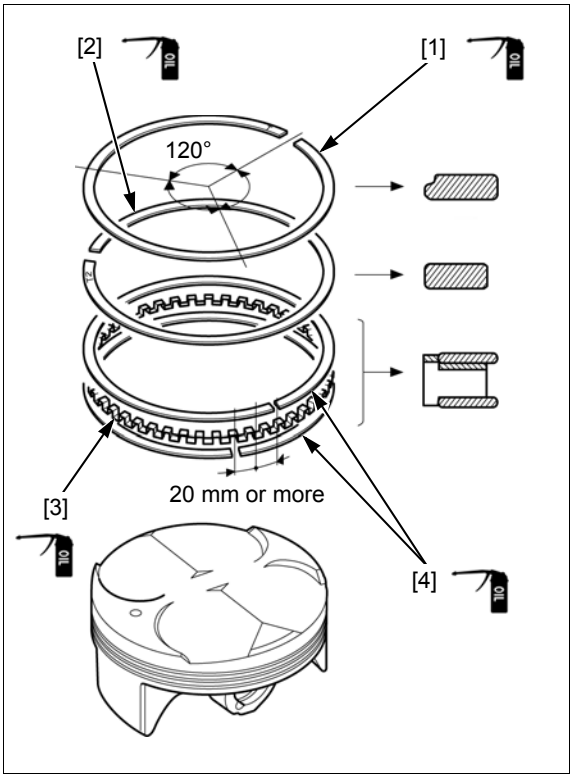
Clean the piston ring grooves thoroughly and install the piston rings.

NOTE:

- Apply oil to the piston rings.
- Avoid piston and piston ring damage during installation.
- Install the piston rings with the marked side facing up.
  – "T", "GTP", "A", "U" or "FTE" mark: top ring [1]
  – "T2", "GTP", "A2", "U2" or "FTE2" mark: second ring [2]
- To install the oil ring, install the spacer [3] first, then install the side rails [4].

Stagger the piston ring end gaps 120° apart from each other.
Stagger the side rail end gaps as shown.

After installation, the rings should rotate freely in the ring groove.

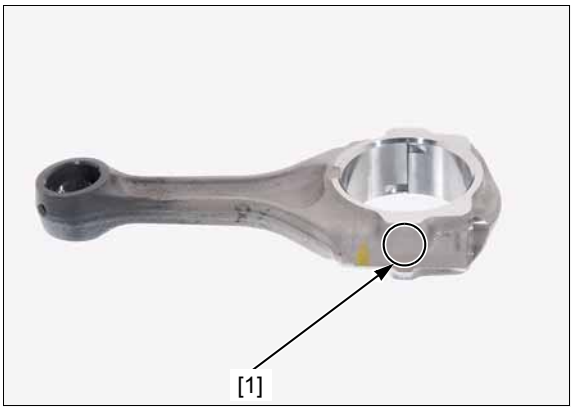


PISTON INSTALLATION

NOTE:

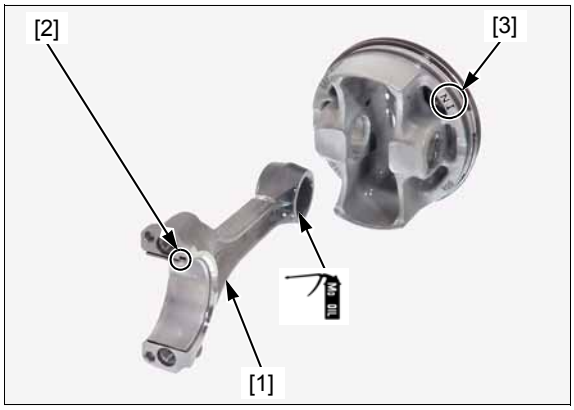
- If the connecting rod assembly is to be replaced with a new one, it must be replaced with a set of four (i.e. same weight range).

Letters (A, B, C or D) on the connecting rods are the connecting rod weight range codes [1].



Apply molybdenum oil solution to the connecting rod [1] small end inner surfaces and piston pin sliding surfaces.

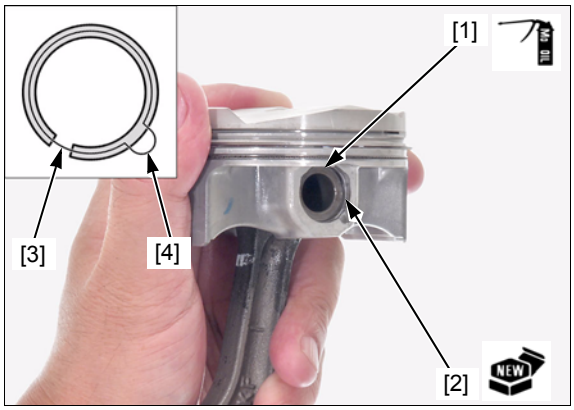
Assemble the piston and connecting rod with the journal bearing tab [2] facing to the piston “IN” mark [3].



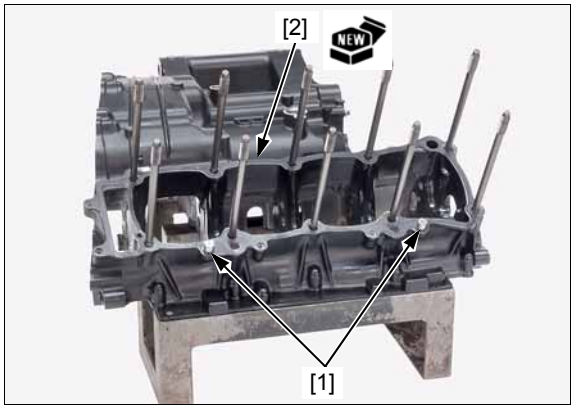
Apply molybdenum oil solution to the piston pin [1] sliding surface.

Install the piston pin and secure it using new piston pin clips [2].

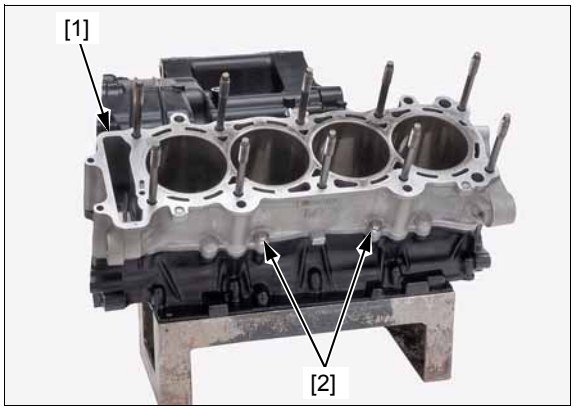
- Make sure that the piston pin clips are seated securely.
- Do not align the piston pin clip end gap [3] with the piston cut-out [4].



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



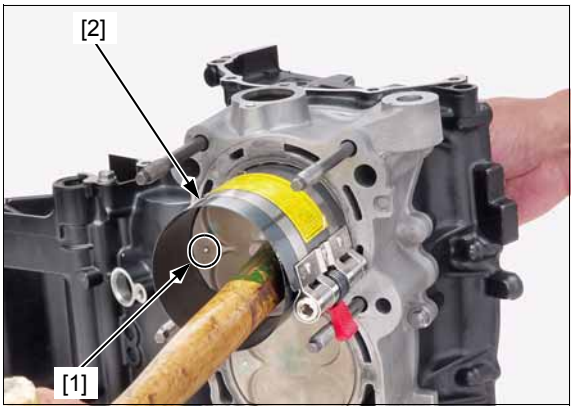
Install the cylinder [1] and tighten the bolts [2] securely.



Coat the cylinder walls, pistons and piston rings with engine oil.

Install the piston/connecting rod assembly with the piston punch mark [1] facing the intake side.

Install the piston/connecting rod assemblies into the cylinders using a commercially available piston ring compressor tool [2].
When reusing the connecting rods, they must be installed in their original locations.



NOTICE

- *While installing the piston, be careful not to damage the top surface of the cylinder, especially around the cylinder bore.*
- *Be careful not to damage the cylinder and crankpin with the connecting rod.*

Make sure the piston ring compressor tool sits flush on the top surface of the cylinder.

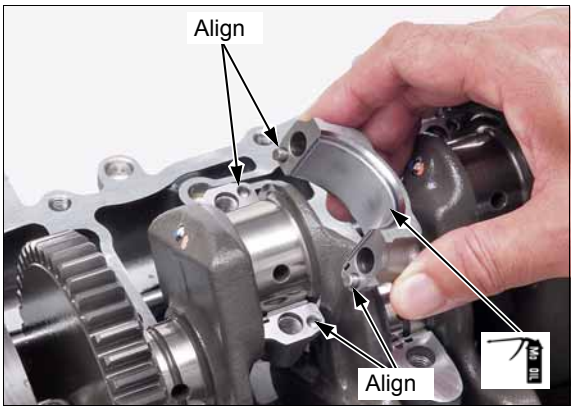
Use the handle of a plastic hammer or equivalent tool to tap the piston into the cylinder.

Install the following:

– Crankshaft (page 14-5)
– Countershaft (page 13-13)

Apply molybdenum oil solution to the crankpin bearing sliding surface on the bearing caps.

Install the crankpin bearing caps, aligning the dowel pins with the holes in the connecting rods.



PLASTIC REGION TIGHTENING METHOD:

The crankpin bearing cap bolts cannot be reused. Once the bolts have been loosened replace them with new ones.

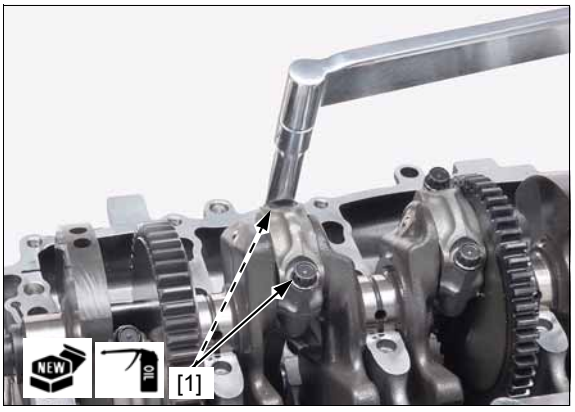
Apply oil to new crankpin bearing cap bolt [1] threads and seating surfaces, and install the bolts.

Tighten the bolts in two or three steps alternately to the specified torque.

Further tighten the bolts 90°.

TORQUE: 27.5 N·m (2.8 kgf·m, 20 lbf·ft) + 90°

Assemble the crankcase halves (page 13-5).



MEMO

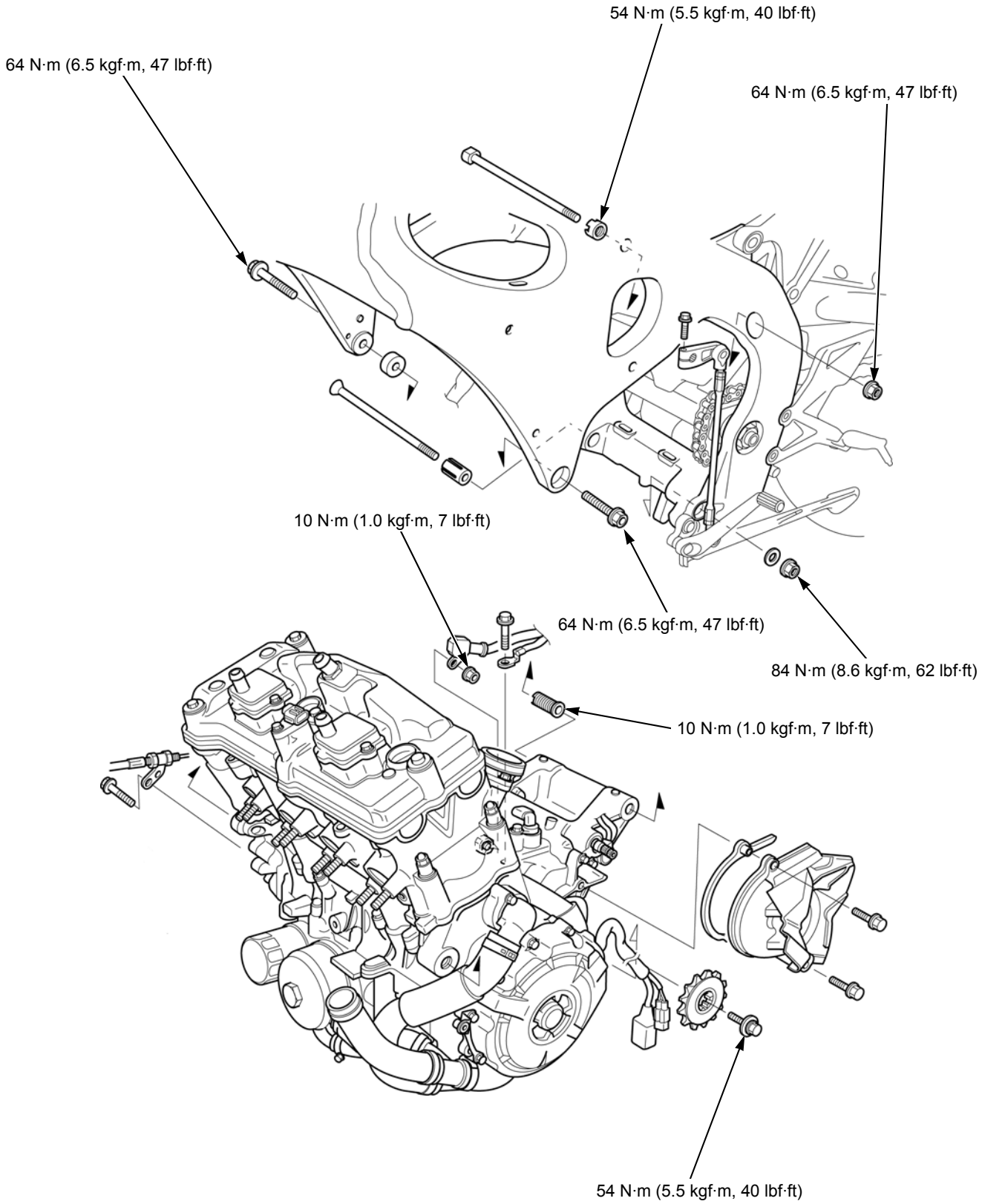
15. ENGINE REMOVAL/INSTALLATION

SERVICE INFORMATION

GENERAL

- A hoist or equivalent is required to support the motorcycle when removing and installing the engine.
- A floor jack or other adjustable support is required to support and maneuver the engine.
- Do not use the oil filter and oil cooler as a jacking point.
- When using the lock nut wrench for the engine hanger lock nut, use a deflecting beam type torque wrench 500 mm (20.0 in) long.
  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 lock nut. The specification given is the actual torque applied to the lock nut, not the reading on the torque wrench. Do not overtighten the lock nut. The specification later in the text gives both actual and indicated.
- The following components can be serviced with the engine installed in the frame.
  – Alternator (page 12-5)
  – Clutch (page 11-6)
  – Camshaft (page 10-6)
  – Gearshift linkage (page 11-19)
  – Oil cooler (page 9-7)
  – Oil pump (page 9-4)
  – Water pump (page 8-11)
- The following components require engine removal for service.
  – Cylinder head (page 10-14)
  – Crankshaft (page 14-4)
  – Piston/cylinder (page 14-13)
  – Shift fork/shift drum/transmission (page 13-8)
  – Balancer (page 13-16)
- When installing the engine, be sure to tighten the engine mounting fasteners to the specified torque in the specified sequence. If you mistake the torque or sequence, loosen all mounting fasteners, then tighten them again to the specified torque in the correct sequence.

COMPONENT LOCATION

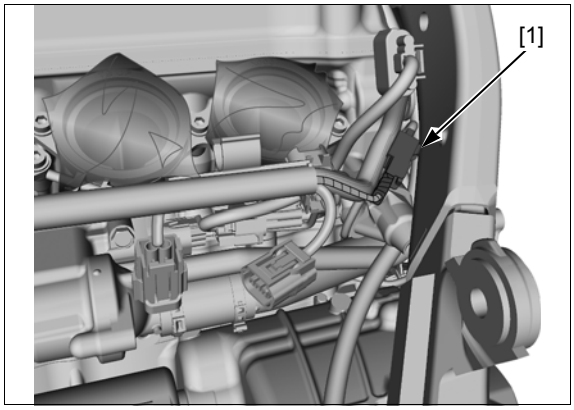


ENGINE REMOVAL

Drain the engine oil (page 3-12).
Drain the coolant from the system (page 8-4).

Remove the following:

– Under cowl (page 2-20)
– Middle cowls (page 2-13)
– CH/TH/FO only: Right rear under cover (page 2-21)
– Regulator cover (page 2-9)
– KO only: EVAP canister (page 7-22)
– Exhaust pipe (page 2-25)
– Radiator (page 8-7)
– Left rear cover (page 2-21)
– Throttle body (page 7-13)
– PAIR control solenoid valve (page 7-18)
– Direct ignition coils (page 3-6)
– Except CBR1000RR: ABS modulator (page 19-24)



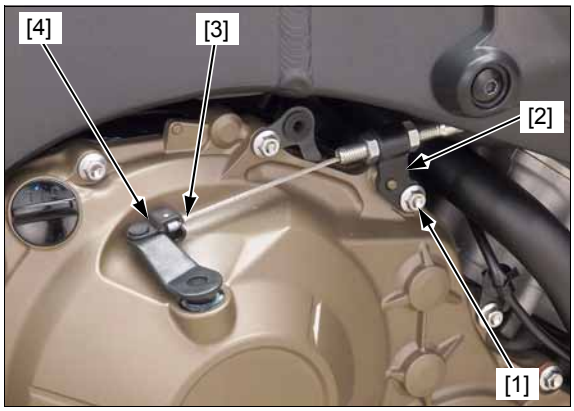
NOTE:

- With the ignition switch OFF, disconnect the battery negative (–) cable (page 20-6).
- Seal the cylinder head intake ports with tape or a clean cloth to keep dirt and debris from entering the intake ports.

Fully slacken the drive chain (page 3-17).

Disconnect the engine sub-wire 1P (White) connector [1].

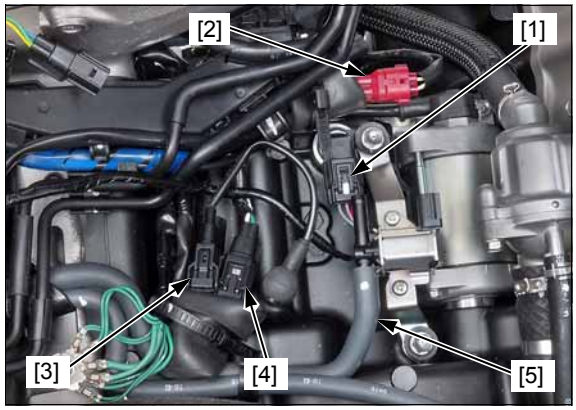
Remove the bolt [1] and clutch cable guide plate [2], then disconnect the clutch cable [3] end from the clutch lifter lever [4].



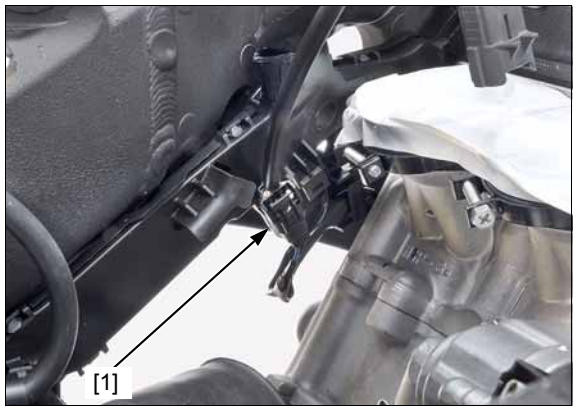
Disconnect the alternator 3P (Black) connector [1].

Disconnect the VS sensor 3P (Black) [1], CKP sensor 2P (Red) [2], shift spindle switch 1P (Black) [3] and shift drum angle sensor/neutral switch 4P (Black) [4] connectors.

BR/ED/CH/TH/FO: Disconnect the EVAP canister-to-purge control solenoid valve hose [5]



Disconnect the sidestand switch 2P (Black) connector [1].

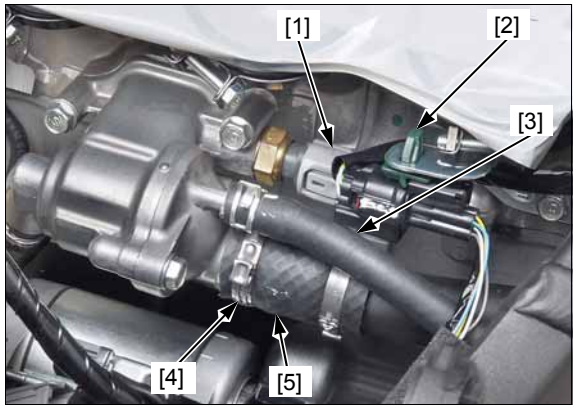


Disconnect the ECT sensor 3P (Gray) connector [1].

Release the clip holder [2] from the stay.

Disconnect the water hose [3].

Cut off and remove the hose clamp [4] then disconnect the water hose [5].

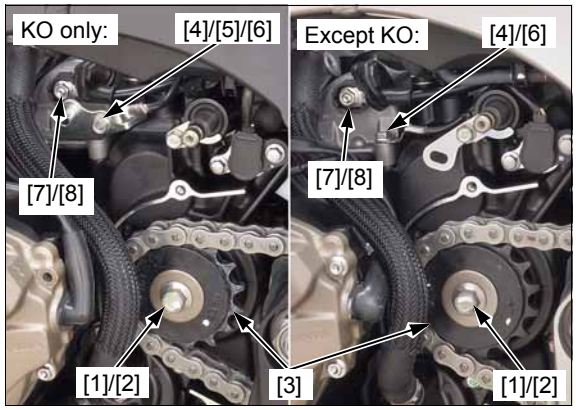


Remove the bolt [1], washer [2] and drive sprocket [3].

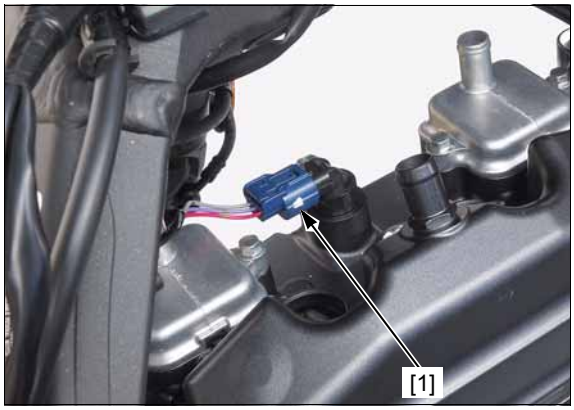
KO only: Remove the bolt [4], nut [5] and disconnect the battery negative (–) cable [6].

Except KO: Remove the bolt [4] and disconnect the battery negative (–) cable [6].

Remove the nut [7] and disconnect the starter motor cable [8].



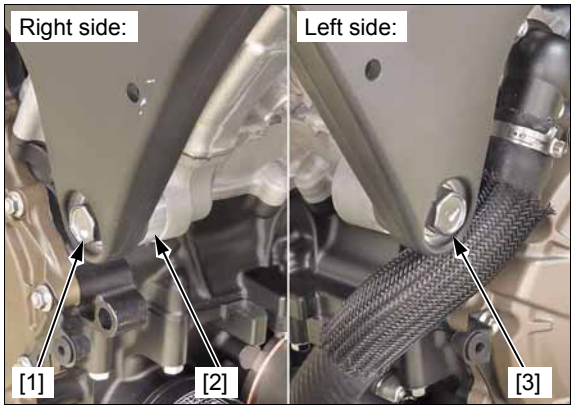
Disconnect the CMP sensor 3P (Blue) connector [1].



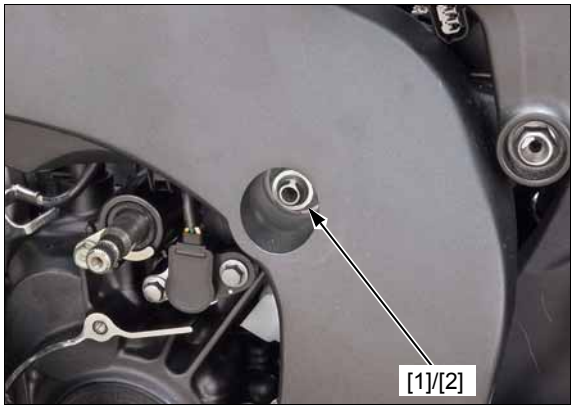
Support the engine using a jack or other adjustable support.

Remove the right front engine hanger bolt [1] and collar [2].

Remove the left front engine hanger bolt [3].



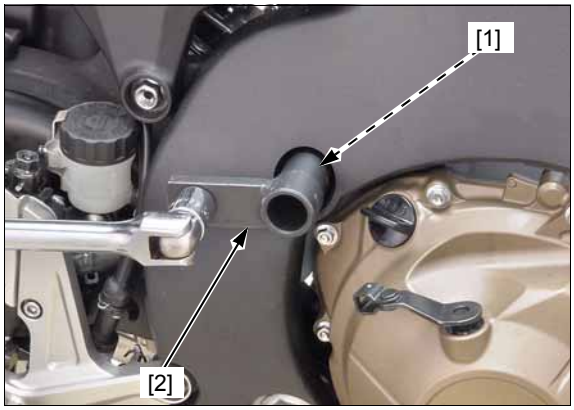
Remove the upper engine hanger nut [1] while holding the engine hanger bolt [2].



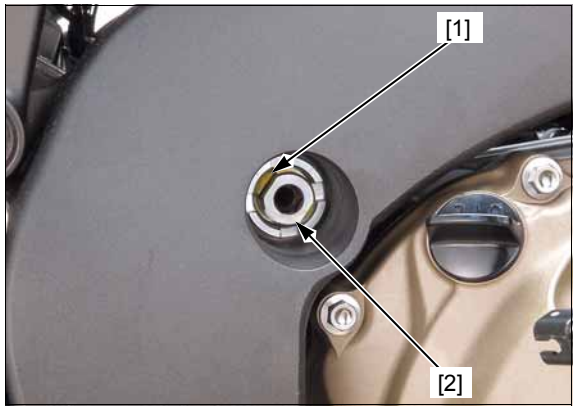
Do not remove the upper engine hanger lock nut yet.

Loosen the upper engine hanger lock nut [1] using the special tool.

TOOL:
Lock nut wrench, 20 mm [2] 07VMA-MBB0101



Turn the upper engine hanger adjusting bolt [1] counterclockwise fully by turning the upper engine hanger bolt [2].



Remove the lower engine hanger nut [1] and washer [2] while holding the engine hanger bolt [3].

Support the engine using a jack or other adjustable support to ease removal of the engine hanger bolts.

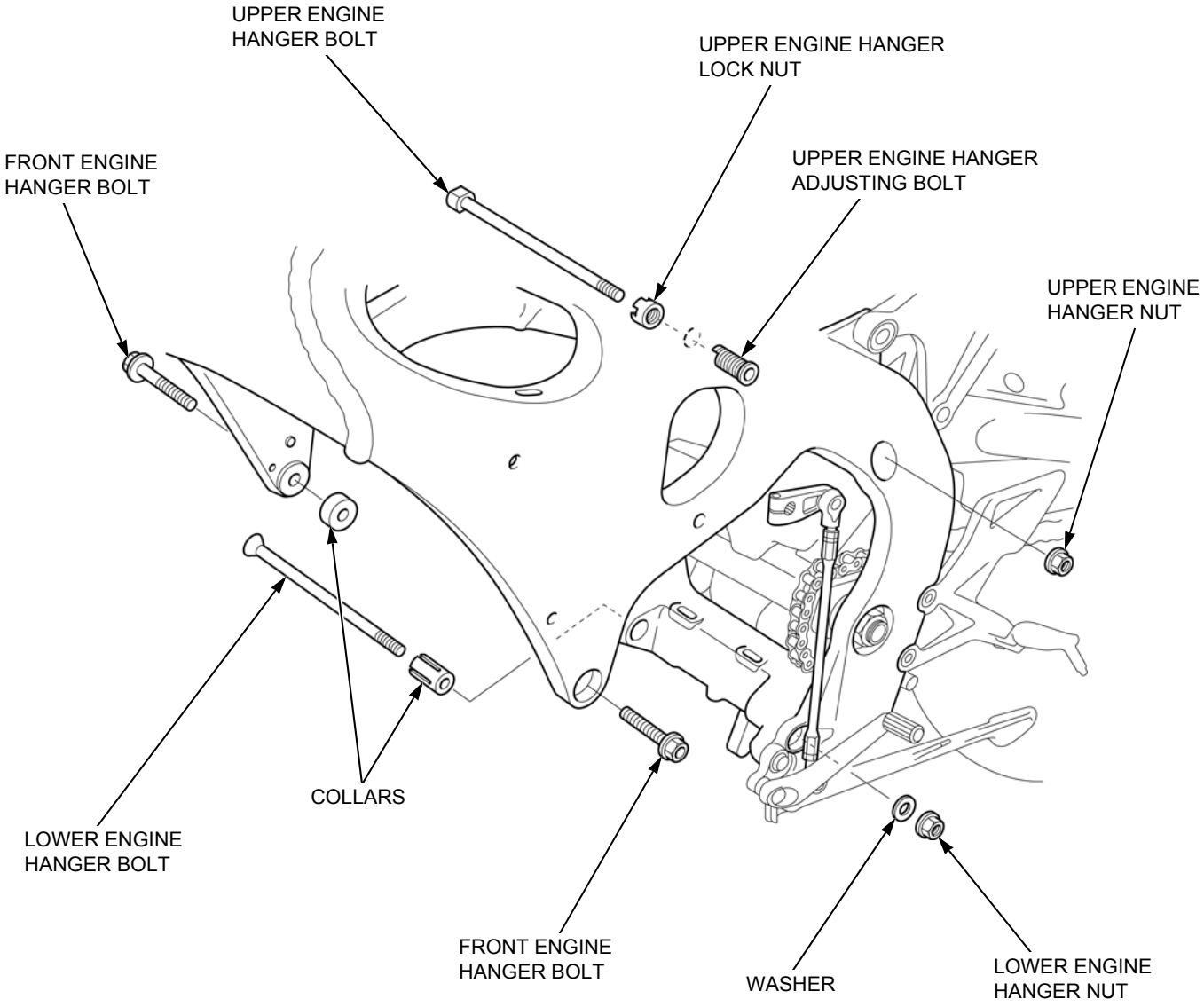
Remove the following:

– Lower engine hanger bolt and collar [4]
– Upper engine hanger bolt

Carefully lower the adjustable support, then remove the engine from the frame.

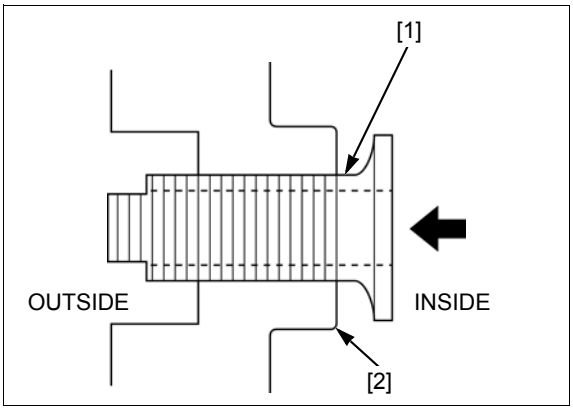
Remove the upper engine hanger lock nut and adjusting bolt.

ENGINE INSTALLATION



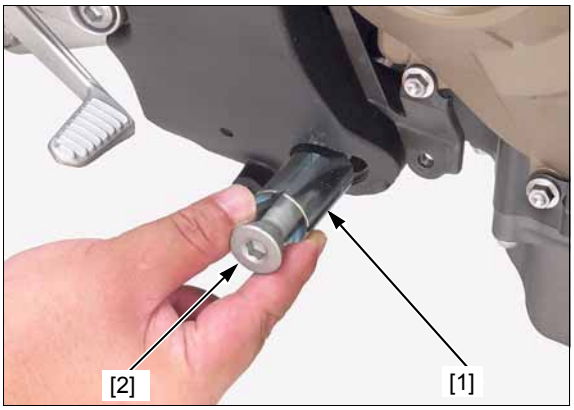
- Note the direction of the hanger bolts/collars.
- When tightening the lock nut with the lock nut wrench, refer to the torque wrench reading information in “SERVICE INFORMATION” (page 15-2).
- The jack height must be continually adjusted to relieve stress from the mounting fasteners.
- Route the wires, hoses and cables properly (page 1-23).
- Be sure to tighten all engine mounting fasteners to the specified torque in the specified sequence described on the following pages. If you mistake the tightening torque or sequence, loosen all mounting fasteners, then tighten them again to the specified torque in the specified sequence.

Install the upper engine hanger adjusting bolt [1] fully from the inside of the frame [2].



Carefully install the engine into the frame.

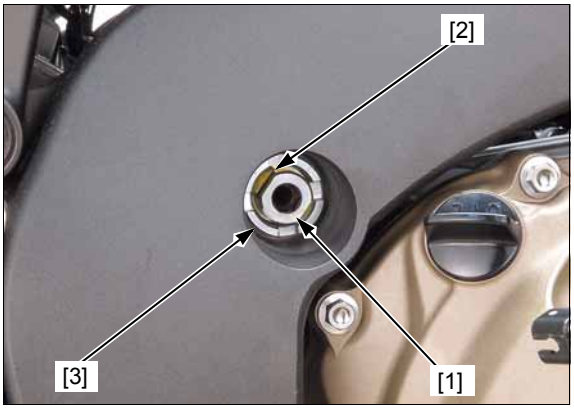
Install the collar [1] and lower engine hanger bolt [2] from the right side.



Install the upper engine hanger bolt [1] from the right side.

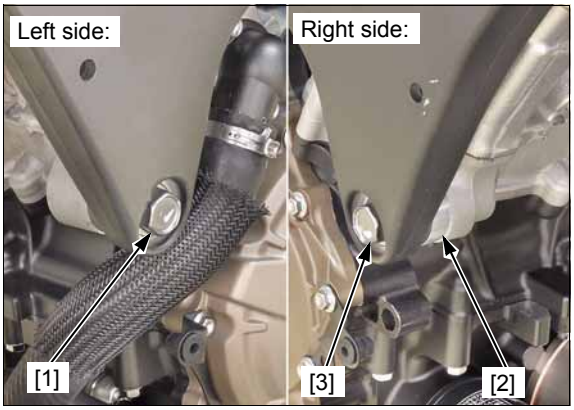
Align the straight portions of the engine hanger bolt head with the adjusting bolt [2] bosses.

Loosely install the upper engine hanger lock nut [3].



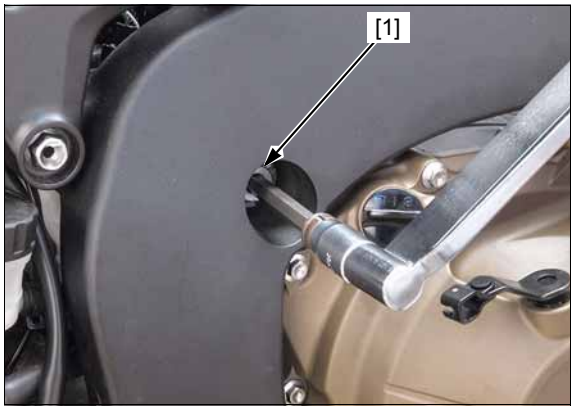
Loosely install the left front engine hanger bolt [1].

Loosely install the collar [2] and right front engine hanger bolt [3].



Tighten the upper engine hanger adjusting bolt to the specified torque by turning the upper engine hanger bolt [1].

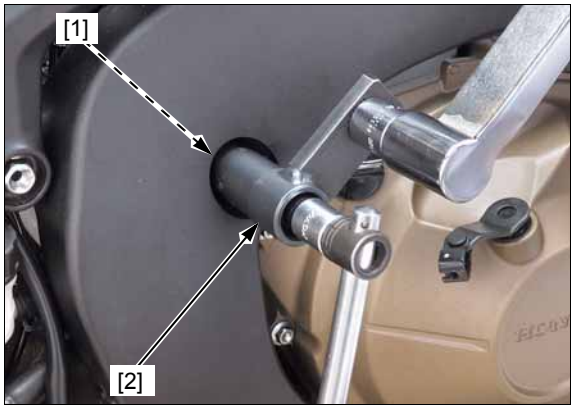
TORQUE: 10 N·m (1.0 kgf·m, 7 lbf·ft)



Install the upper engine hanger lock nut [1].
Hold the adjusting bolt by holding the hanger bolt and tighten the lock nut to the indicated below torque.

TOOL:
Lock nut wrench, 20 mm [2] 07VMA-MBB0101

TORQUE:
Actual: 54 N·m (5.5 kgf·m, 40 lbf·ft)
Indicated: 49 N·m (5.0 kgf·m, 36 lbf·ft)



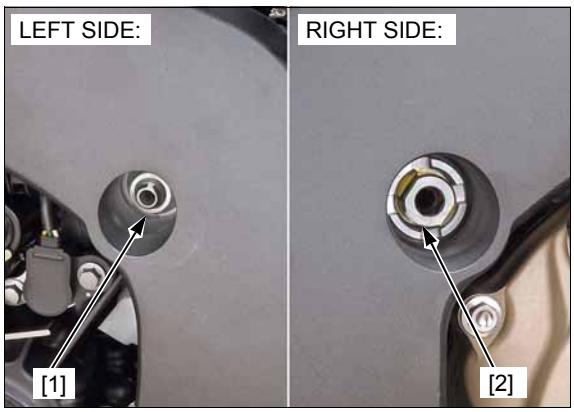
Install the washer [1] and lower engine hanger nut [2].

Tighten the lower engine hanger nut to the specified torque while holding the hanger bolt.

TORQUE: 84 N·m (8.6 kgf·m, 62 lbf·ft)

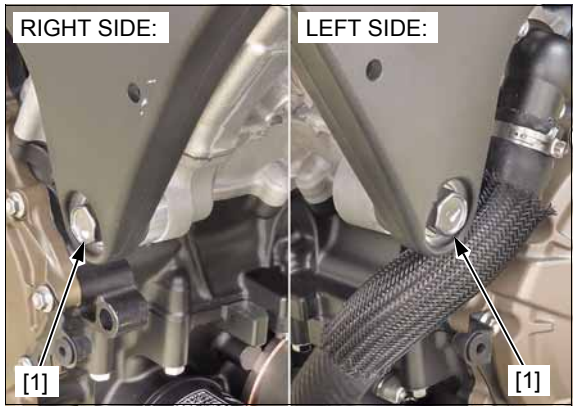
Tighten the upper engine hanger nut [1] to the specified torque while holding the hanger bolt [2].

TORQUE: 64 N·m (6.5 kgf·m, 47 lbf·ft)



Tighten the front engine hanger bolts [1] to the specified torque.

TORQUE: 64 N·m (6.5 kgf·m, 47 lbf·ft)



Route the wires properly (page 1-23).

KO only: Install the battery negative (–) cable [1] and bolt [2] then tighten the nut [3] securely.

Except KO: Install the battery negative (–) cable [1] and tighten the bolt [2] securely.

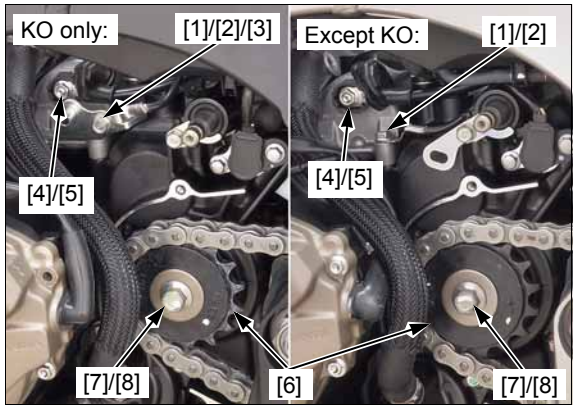
Connect the stater motor cable [4] and tighten the nut [5] to the specified torque.

TORQUE: 10 N·m (1.0 kgf·m, 7 lbf·ft)

Install the drive sprocket [6] with its marks facing out.

Install the washer [7] and drive sprocket bolt [8], then tighten the bolt to the specified torque.

TORQUE: 54 N·m (5.5 kgf·m, 40 lbf·ft)

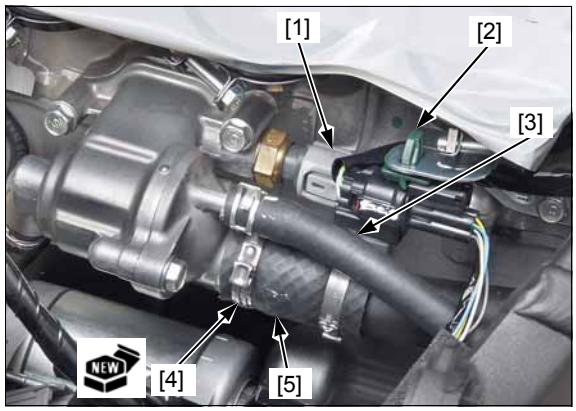


Connect the ECT sensor 3P (Gray) connector [1].

Install the clip holder [2] to the stay.

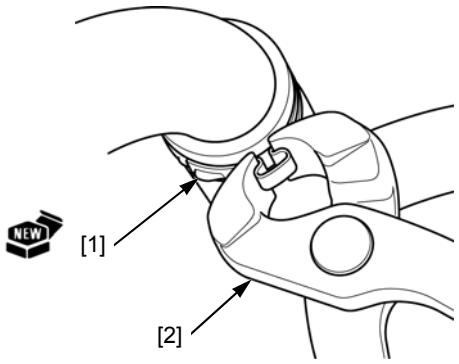
Connect the water hose [3].

Install a new water hose band [4] onto the water hose [5] then connect the water hose to the thermostat housing.

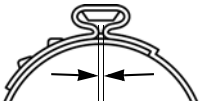


Pinch the ear portion of the water hose band [1] with a pincher until the pinched area clearance is 1 mm (0.04 in) or 2 mm (0.08 in) maximum as shown to secure water hose.

TOOL:
Pincher [2] **Oetiker 1098 or equivalent**



Pinched Area

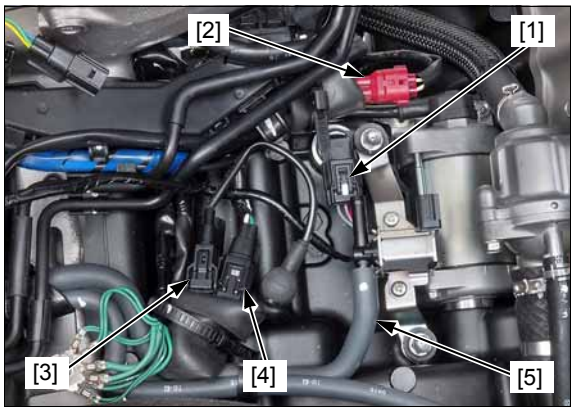


Hose diameter 19 mm, 21 mm:
1 mm (0.04 in) maximum
Hose diameter 29.8 mm:
2 mm (0.08 in) maximum

Connect the sidestand switch 2P (Black) connector [1].

Connect the VS sensor 3P (Black) [1], CKP sensor 2P (Red) [2], shift spindle switch 1P (Black) [3] and shift drum angle sensor/neutral switch 4P (Black) [4] connectors.

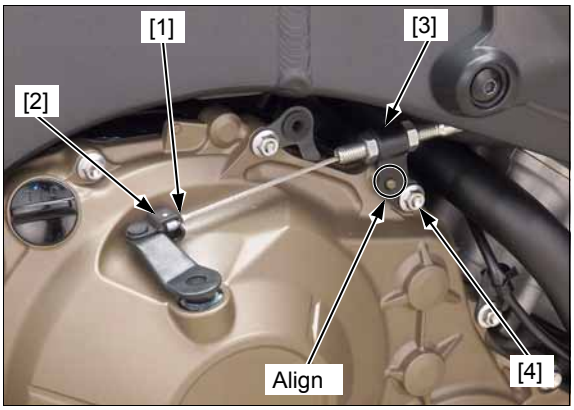
BR/ED/CH/TH/FO: Connect the EVAP canister-to-purge control solenoid valve hose [5]



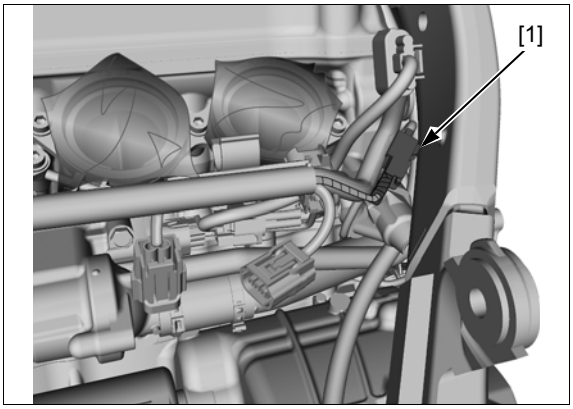
Connect the alternator 3P (Black) connector [1].

Connect the clutch cable end [1] to the clutch lifter lever [2].

Install the clutch cable guide plate [3] by aligning its hole with the right crankcase cover boss and tighten the bolt [4] securely.



Connect the engine sub-wire 1P (White) connector [1].



Install the following:

– Except CBR1000RR: ABS modulator (page 19-24)
– Direct ignition coils (page 3-6)
– PAIR control solenoid valve (page 7-18)
– Throttle body (page 7-13)
– Left rear cover (page 2-21)
– Radiator (page 8-7)
– Exhaust pipe (page 2-25)
– KO only: EVAP canister (page 7-22)

Adjust the drive chain slack (page 3-17).
Fill the crankcase with engine oil (page 3-12).
Fill the cooling system and bleed any air (page 8-4).
Check the engine oil level (page 3-12).
Check the clutch lever freeplay (page 3-23).
Check the exhaust system for leaks.
Check for coolant leaks.

Install the following:

– Regulator cover (page 2-9)
– CH/TH/FO only: Right rear under cover (page 2-21)
– Middle cowls (page 2-13)
– Under cowl (page 2-20)

MEMO

16. FRONT WHEEL/SUSPENSION/STEERING

SERVICE INFORMATION

GENERAL

- When servicing the front wheel, fork or steering stem, support the motorcycle using a safety stand or hoist.
- A contaminated brake disc or pad reduces stopping power. Discard contaminated pads and clean a contaminated disc with a high quality brake degreasing agent.
- After the front wheel installation, check the brake operation by applying the brake lever.
- For brake system information (page 18-2).
- Use only tires marked “TUBELESS” and tubeless valves on rim marked “TUBELESS TIRE APPLICATION”.
- CBR1000S1/S2: Do not disassemble the fork.

TROUBLESHOOTING

NOTE:

If there is any problem at steering, remove the HESD (page 16-29) and inspect the steering condition. Check the HESD by using the Function Test (page 16-5) in case of no faulty parts at steering.

Hard steering
- Faulty HESD
- Steering stem adjusting nut too tight
- Worn or damaged steering head bearings
- Bent steering stem
- Insufficient tire pressure

Steers to one side or does not track straight
- Faulty HESD
- Damaged or loose steering head bearings
- Bent forks
- Bent axle
- Bent frame
- Worn or damaged wheel bearings
- Worn or damaged swingarm pivot bearings

Front wheel wobbling
- Bent rim
- Worn or damaged front wheel bearings
- Faulty tire
- Unbalanced front tire and wheel

Front wheel turns hard
- Faulty front wheel bearings
- Bent front axle
- Front brake drag

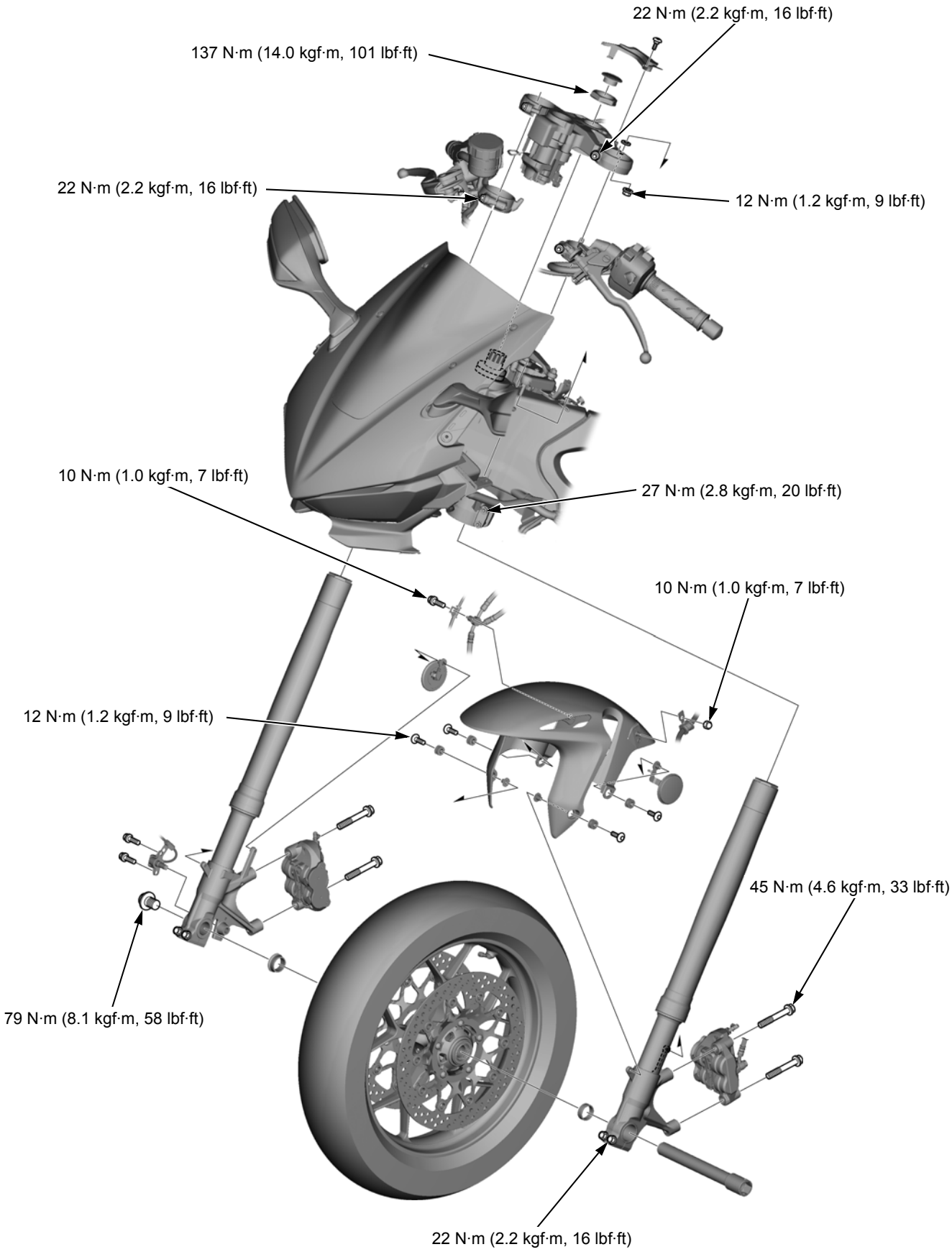
Soft suspension
- Insufficient fluid in fork
- Incorrect fork fluid weight
- Weak fork springs
- Insufficient tire pressure

Hard suspension
- Bent fork tubes
- Too much fluid in fork
- Incorrect fork fluid weight
- Clogged fork fluid passage

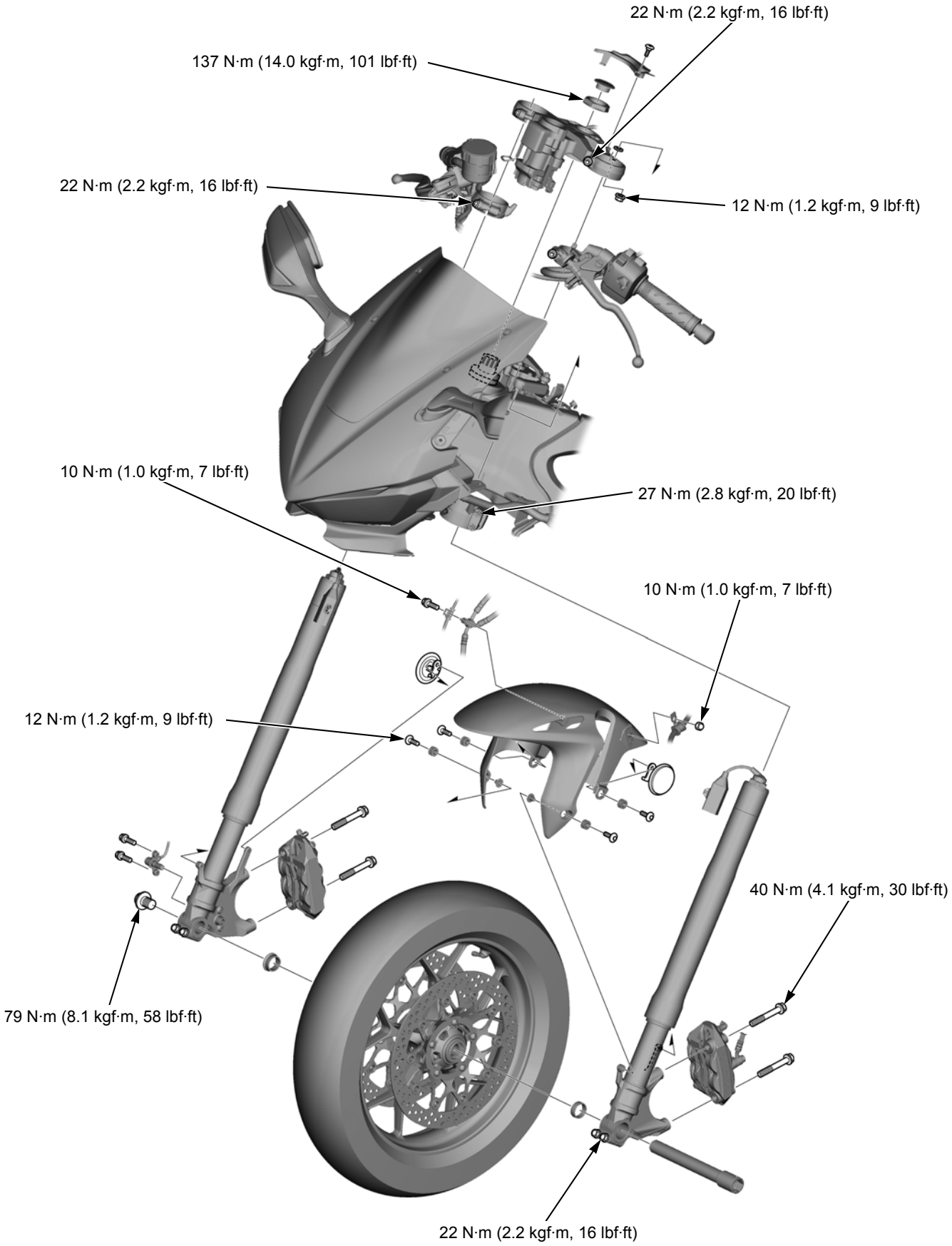
Front suspension noise
- Insufficient fluid in fork
- Loose fork fasteners

COMPONENT LOCATION

CBR1000RR/RA (Except BR/IN/KO/TH shown):



CBR1000S1/S2 (Except BR/IN/KO/TH shown):



HESD TROUBLESHOOTING

- The HESD system is equipped with a Self-Diagnostic System that is linked to the PGM-FI system (page 4-10). If the MIL lights, follow the DTC troubleshooting to remedy the problem (page 16-6).
  The HESD system is also equipped with a Function Test Mode to check the HESD under maximum damping characteristics. If there is any abnormal condition in the HESD system without MIL lighting, follow the HESD function test and check the HESD function.
- The HESD system includes a fail-safe function to secure a minimum running capability even when there is any trouble in the system. When any abnormality is detected by the self-diagnosis function, the ECM stops the HESD system control by shutting off the current supply to the linear solenoid and the HESD will operate under minimum damping characteristics accordingly.
- For PGM-FI system diagram.
  – CBR1000RR (page 4-4)
  – CBR1000RA/S1/S2 (page 4-5)
- For MCS information (page 4-7)
- For DTC readout (page 4-7)
- For DTC index (page 4-10) before starting troubleshooting.
- A faulty HESD system is often related to poorly connected or corroded connectors. Check those connections before proceeding.

If the following symptom occurred to the HESD and MIL come on, readout the DTC and perform the troubleshooting in accordance with DTC.

- DTC P2158 (66-1) (page 4-36)
- DTC P1000 (51-1) (page 16-6)
- No DTC, although HESD does not work (page 16-5).
  – When the vehicle speed rises, the damping force does not increase.
  – Although vehicle is not running, the damping force is strong (hard steering).

HESD FUNCTION TEST

NOTE:

- The HESD system is also equipped with a Function Test Mode, so that a technician can compare the minimum with maximum damping characteristics without riding. The HESD system is set to minimum damping at no vehicle speed under normal conditions. By using the Function Test Mode, the ECM operates the linear solenoid with maximum current so the HESD system is temporarily set to maximum damping.
- It is not possible to use the HESD Function Test Mode when any problem occur (MIL lighting).
- Before performing the HESD function test, remove the HESD (page 16-29) and check the following.
  – Wear or damage of steering head bearing (page 3-28)
  – HESD-to-steering linkage

HESD FUNCTION TEST PROCEDURE

- Support the motorcycle using a hoist or equivalent and raise the front wheel off the ground.
- Before function test, check the feel for minimum damping characteristics with moving the steering right and left quickly several times. Operate the steering quickly and at a uniform force any time of the test.

Perform the HESD function test as follows:

1. Lower the sidestand (sidestand switch OFF).
2. Shift the transmission into any gear other than neutral.
3. Open the throttle grip fully.
4. Turn the ignition switch ON while keeping the state of 1 – 3.

   The HESD indicator starts blinking and the HESD system enters the Function Test Mode for 10 seconds.

   Make sure that the damping characteristics (force) changes, by means of comparing the minimum damping characteristics before Function Test with the maximum damping characteristics under the Function Test.

   If the HESD damping characteristics (force) in Function Test Mode does not change at all, replace the HESD with a new one (page 16-29).

DTC TROUBLESHOOTING

DTC	Causes	Symptoms	Refer to
P2158 (66-1)	• Loose or poor contact on rear wheel speed sensor connector • Rear wheel speed sensor or its circuit malfunction	• Engine operates normally • HESD does not function – ECM does not control the linear solenoid – Minimum damping characteristics	4-36
P1000 (51-1)	• Loose or poor contact of the HESD solenoid connector • HESD solenoid or its circuit malfunction	• Engine operates normally • HESD does not function – ECM does not control the linear solenoid – Minimum damping characteristics	16-6

DTC P1000 (LINEAR SOLENOID)

NOTE:

- Before starting the inspection, check for loose or poor contact on the linear solenoid connector and recheck the DTC.
- If the ECM is replaced, perform the key registration Procedures (page 22-5)

1. Linear Solenoid Circuit Inspection

Turn the ignition switch OFF.
Disconnect the ECM 33P (Black) connector (page 4-73).
Measure the resistance at the wire harness side 33P (Black) connector [1].

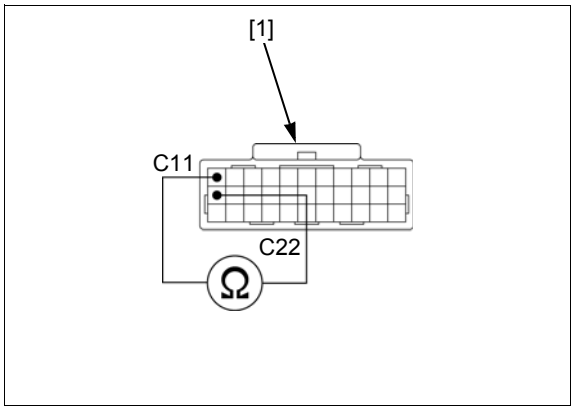
Connection: C11 – C22

TOOL:
Test probe **07ZAJ-RDJA110**

Is the resistance within 10 – 15 Ω (20°C/68°F)?

YES – GO TO STEP 3.

NO – GO TO STEP 2.



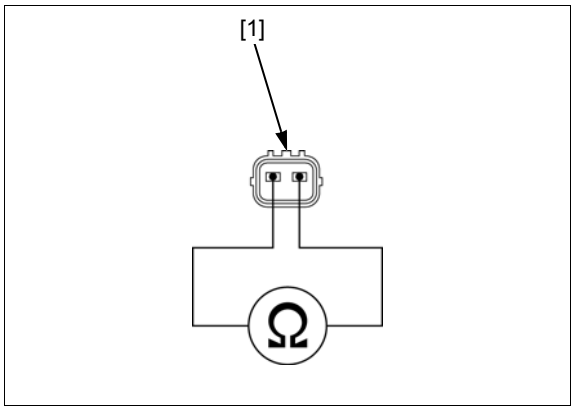
2. Linear Solenoid Resistance Inspection

Remove the HESD (page 16-29).
Measure the resistance between the linear solenoid side 2P connector [1] terminals.

Is the resistance within 10 – 15 Ω (20°C/68°F)?

YES – Open circuit in the White/green or White/blue wire

NO – Faulty linear solenoid



3. Linear Solenoid Short Circuit Inspection

Check for continuity between the wire harness side 33P (Black) connector [1] and ground.

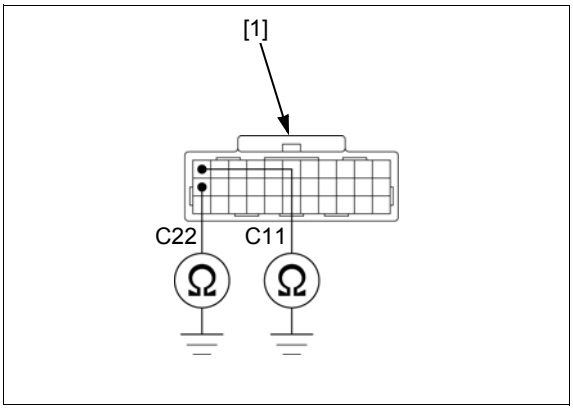
Connection: C11 – Ground
C22 – Ground

TOOL:
Test probe **07ZAJ-RDJA110**

Is there continuity?

YES – Short circuit in the White/green or White/blue wire

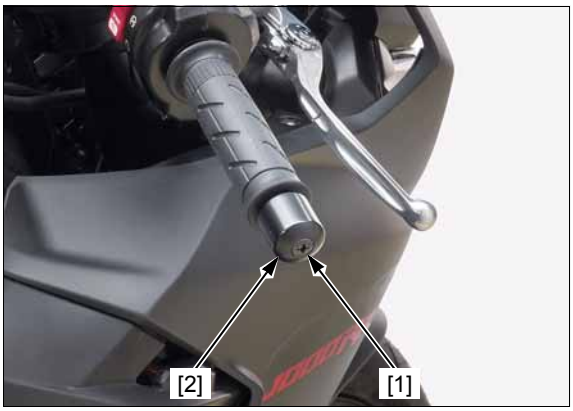
NO – Replace the ECM with a known good one, and recheck.



HANDLEBARS

REMOVAL

Remove the screw [1] and right handlebar weight [2].

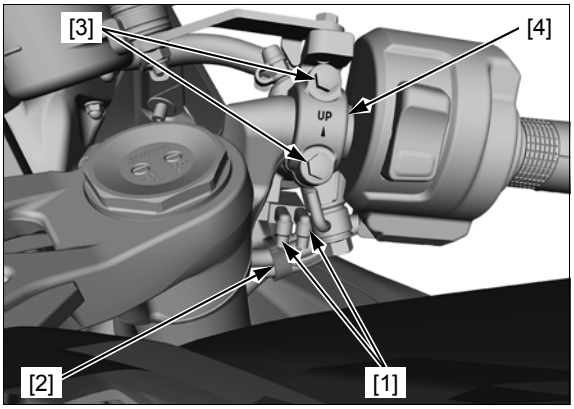


Disconnect the wire connectors [1] from the front brake light switch.

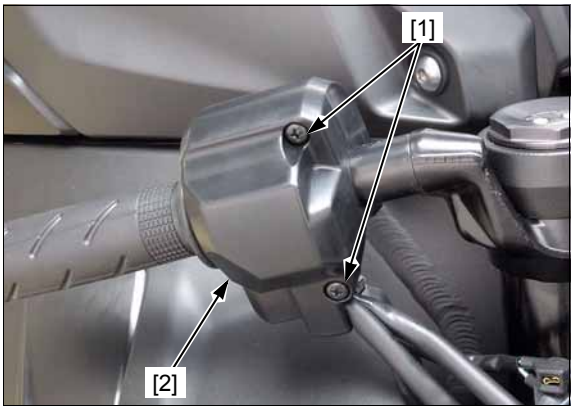
Remove the clip [2] from the brake hose and right handlebar switch wires.

Keep the brake master cylinder reserve tank upright to prevent air from entering the hydraulic system.

Remove the bolts [3], holder [4] and master cylinder assembly.

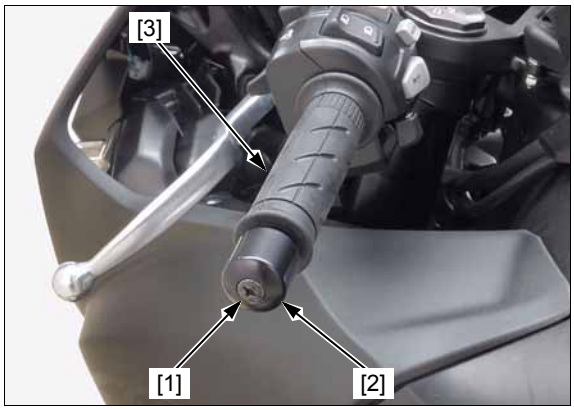


Remove the screws [1] and housing cover [2] from the right handlebar switch.



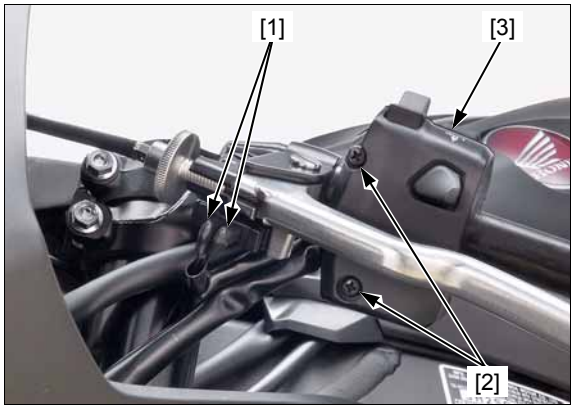
Loosen the holder screw [1] of the right handlebar switch/APS.

Remove the screw [1], left handlebar weight [2] and grip [3] from the handlebar.



Disconnect the wire connectors [1] from the clutch switch.

Remove the screws [2] and left handlebar switch housing [3].



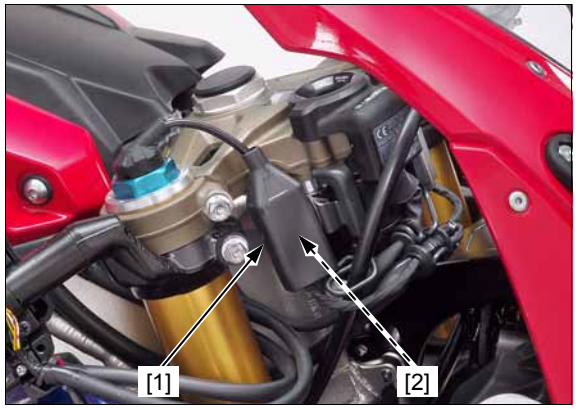
Loosen the clutch lever bracket pinch bolt [1].

Remove the screw [1] and steering damper cover [2] by releasing the tab [3].

Remove the nut [1] by holding the second arm joint [2] and disconnect the second arm from the top bridge.

Remove the washer [3] from the second arm.

CBR1000S1/S2 only: Slide the connector cover [1] off the damping adjuster 4P connector [2]. Remove the 4P connector from the stay and disconnect it. Remove the other side connector in the same manner.

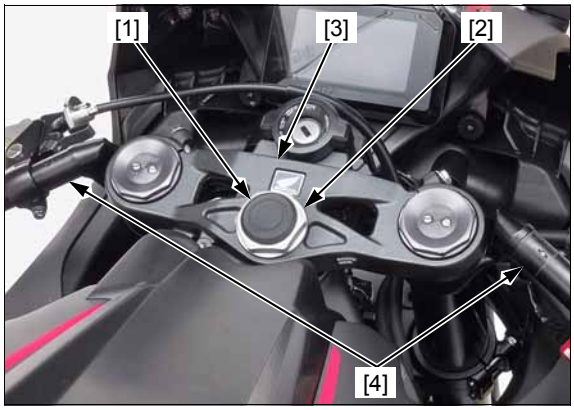


Loosen the top bridge pinch bolt [1] and handlebar pinch bolt [2].

Remove the cap [1], steering stem nut [2] and top bridge [3] with immobilizer receiver and ignition switch wire connector connected.

Remove the handlebars [4] from the fork sliders.

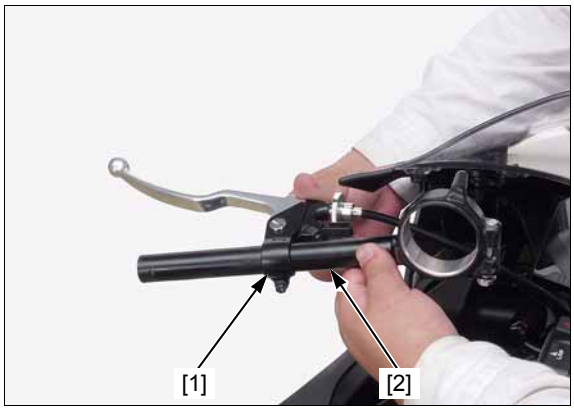
Remove the clutch lever bracket and right handlebar switch/APS from the handlebars.



INSTALLATION

Install the clutch lever bracket [1] onto the left handlebar [2].

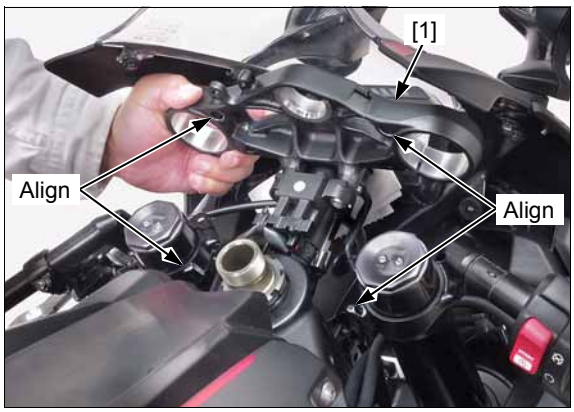
Install the left handlebar onto the left fork slider.



Install the right handlebar switch/APS [1] onto the right handlebar [2].

Install the right handlebar onto the right fork slider.

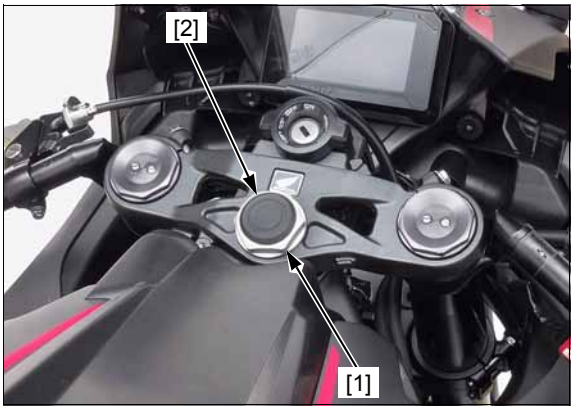
Install the top bridge [1] while aligning its holes with the handlebar stopper pins.



Install the steering stem nut [1] and tighten it to the specified torque.

TORQUE: 137 N·m (14.0 kgf·m, 101 lbf·ft)

Install the steering stem cap [2].



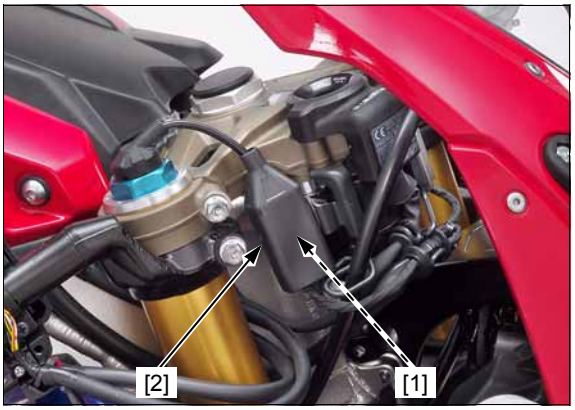
Tighten the top bridge pinch bolts [1] to the specified torque.

TORQUE: 22 N·m (2.2 kgf·m, 16 lbf·ft)

Tighten the handlebar pinch bolts [2] to the specified torque.

TORQUE: 22 N·m (2.2 kgf·m, 16 lbf·ft)

CBR1000S1/S2 only: Connect the damping adjuster 4P connector [1] and install it onto the stay. Install the connector cover [2] over the 4P connector properly. Install the other side connector in the same manner.



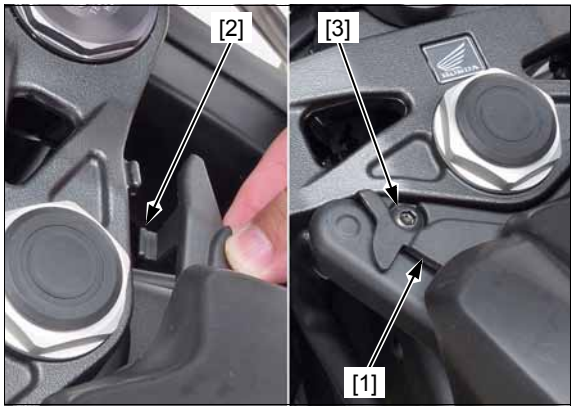
Install the washer [1] to the second arm joint and connect the second arm to the top bridge.

Install the nut [2] and tighten it to the specified torque by holding the second arm joint [3].

TORQUE: 12 N·m (1.2 kgf·m, 9 lbf·ft)

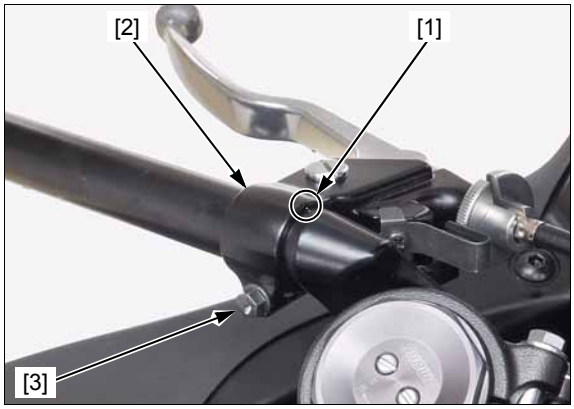
Install the steering damper cover [1] onto the top bridge by hooking the tab [2] to the top bridge.

Install the screw [3] and tighten it securely.



Align the punch marks [1] on the left handlebar and clutch lever bracket [2].

Tighten the pinch bolt [3] securely.

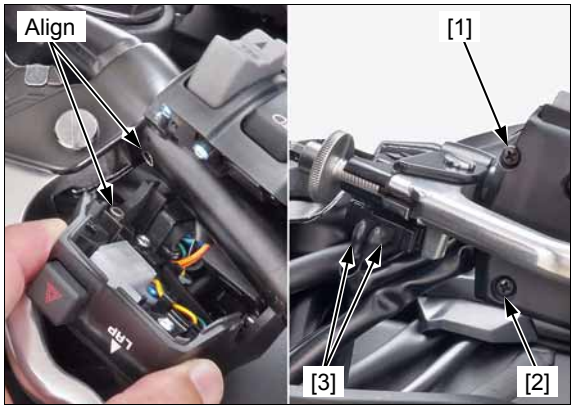


Install the left handlebar switch housing by aligning its pin with the hole in the handlebar.

Tighten the upper screw [1] first, then tighten the lower screw [2] to the specified torque.

TORQUE: 2.5 N·m (0.3 kgf·m, 1.8 lbf·ft)

Connect the wire connectors [3] to the clutch switch securely.

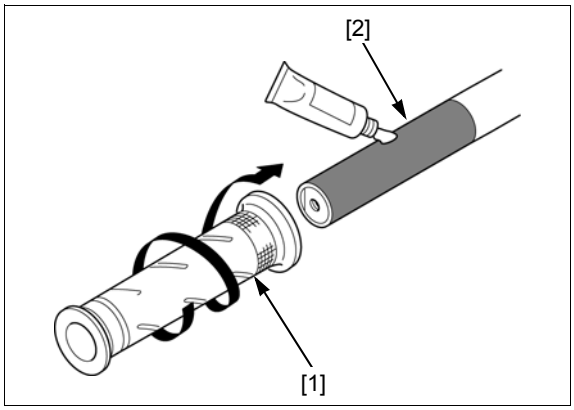


Apply Honda Bond A or equivalent adhesive to the inner surface of the grip [1] and to the clean surfaces of the left handlebar [2].

Wait 3 – 5 minutes and install the grip onto the left handlebar.

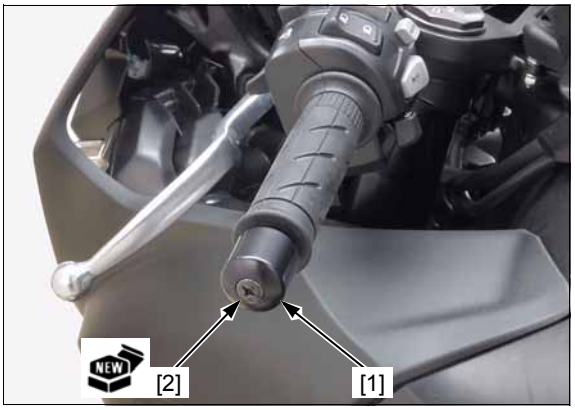
Allow the adhesive to dry for an hour before using.

Rotate the grip for even application of the adhesive.

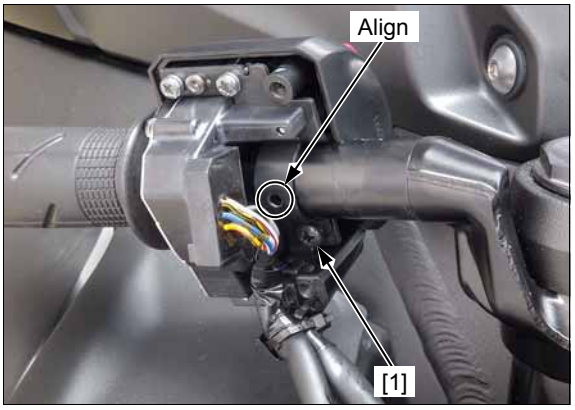


Install the left handlebar weight [1] and a new screw [2], and tighten the screw to the specified torque.

TORQUE: 10 N·m (1.0 kgf·m, 7 lbf·ft)



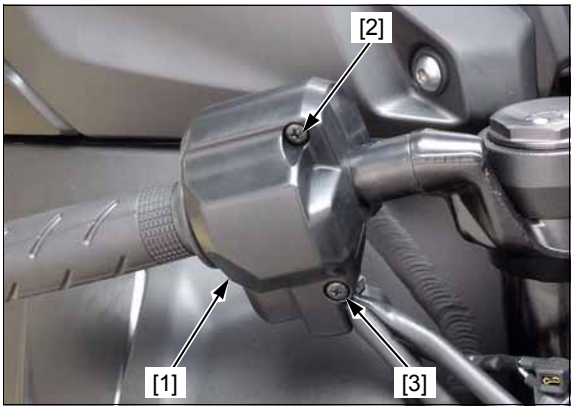
Align the holder boss of the right handlebar switch/APS with the hole in the handlebar, and tighten the holder screw [1] securely.



Install the housing cover [1] onto the right handlebar switch.

Tighten the upper screw [2] first, then tighten the lower screw [3] to the specified torque.

TORQUE: 2.5 N·m (0.3 kgf·m, 1.8 lbf·ft)



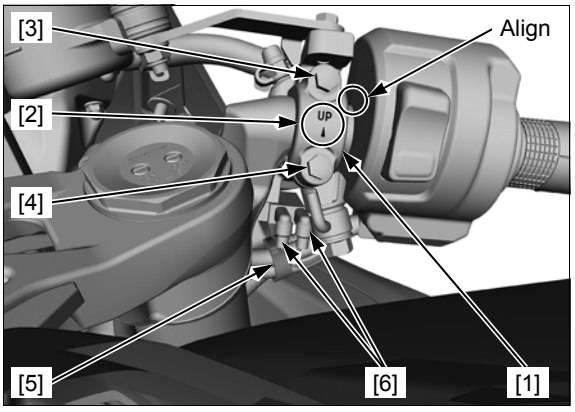
Install the master cylinder and holder [1] with its "UP" mark [2] facing up.

Aligning the end of the master cylinder with the punch mark on the handlebar, and tighten the upper bolt [3] first, then tighten the lower bolt [4].

TORQUE: 12 N·m (1.2 kgf·m, 9 lbf·ft)

Install the clip [5] onto the brake hose and right handlebar switch wires properly (page 1-23).

Connect the wire connectors [6] to the front brake switch.



Install the right handlebar weight [1] and a new screw [2], and tighten the screw to the specified torque.

TORQUE: 10 N·m (1.0 kgf·m, 7 lbf·ft)

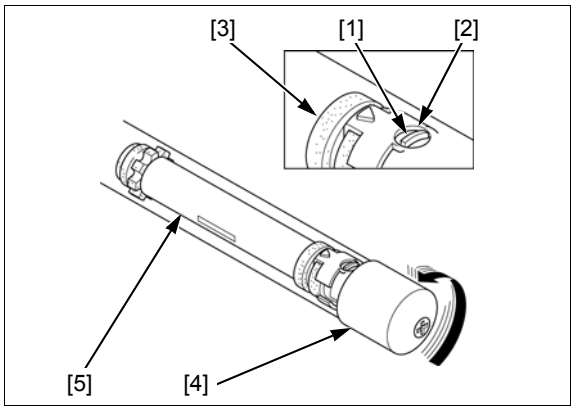
HANDLEBAR WEIGHT REPLACEMENT

Remove the left grip and right handlebar switch/APS from the handlebars (page 16-7).

Straighten the weight retainer tab [1] by the screwdriver or punch.

Apply lubricant spray through the tab locking hole [2] to the weight rubber [3] for easy removal.

Temporarily install the handlebar weight [4] and screw, then remove the inner weight [5] by turning the handlebar weight.



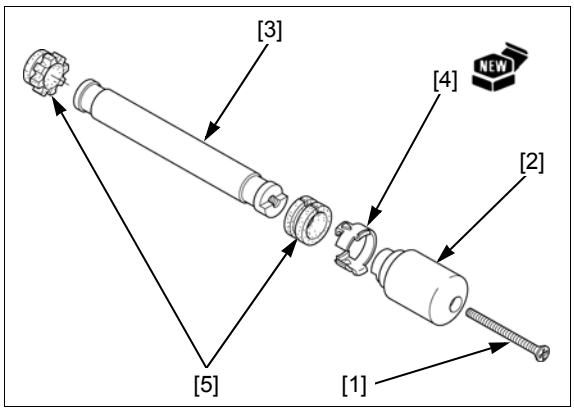
Remove the screw [1] and handlebar weight [2] from the inner weight [3].

Remove the retainer ring [4] and weight rubbers [5].

Check the wight rubbers for deterioration or damage and replace them with new ones if necessary.

Install the weight rubbers and a new retainer ring onto the inner weight.

Temporarily install the handlebar weight and screw.

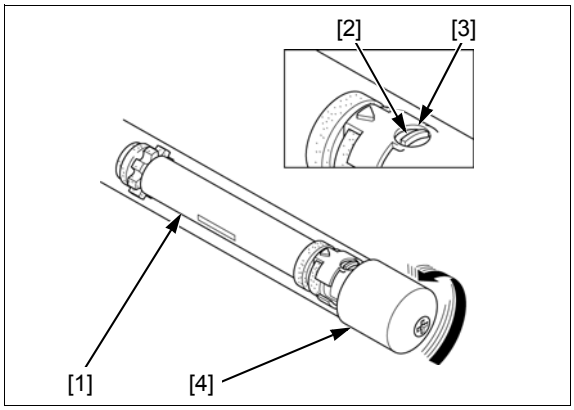


Insert the inner weight assembly [1] into the handlebar.

Turn the handlebar weight and hook the retainer ring tab [2] with the locking hole [3] in the handlebar.

Remove the screw and handlebar weight [4].

Install the left grip and right handlebar switch/APS onto the handlebars (page 16-10).



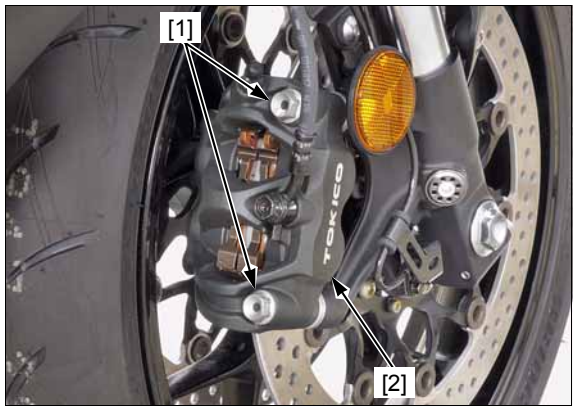
FRONT WHEEL

REMOVAL

Remove the bolts [1] and brake calipers [2].

Do not operate the brake lever after the brake caliper is removed.

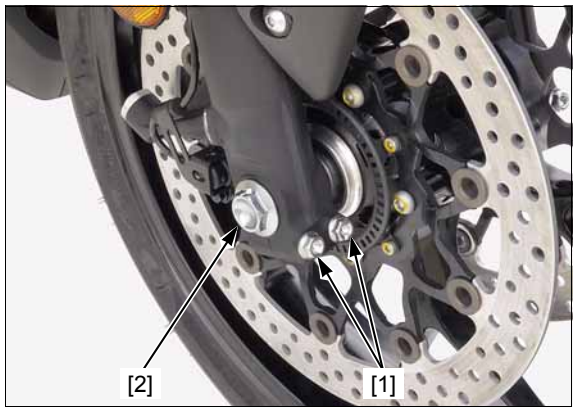
Support the brake caliper with a piece of wire so that it does not hang from the brake hose. Do not twist the brake hose.



Loosen the right axle holder bolts [1].

Remove the axle bolt [2].

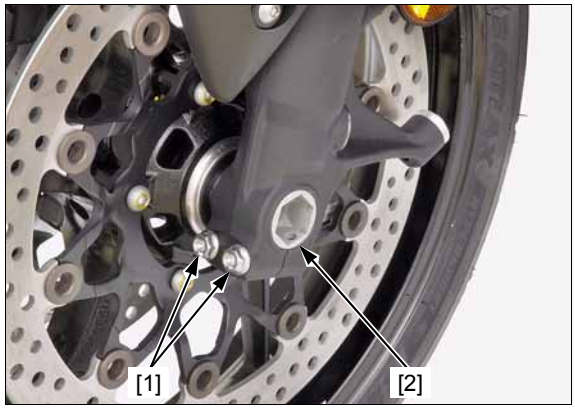
Support the motorcycle securely and raise the front wheel off the ground using a safety stand or a hoist.



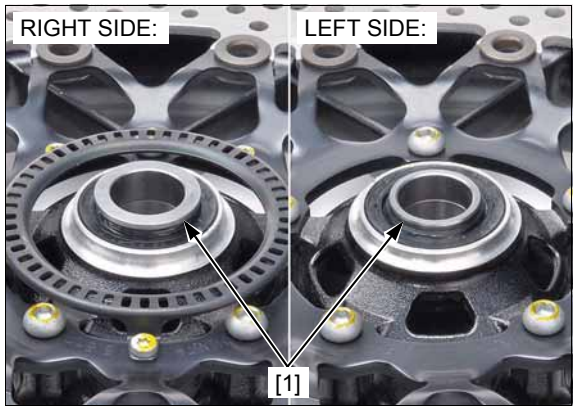
Loosen the left axle holder bolts [1].

Be careful not to damage the pulser ring.

Remove the axle [2] and front wheel.



Remove the right and left side collars [1].



INSPECTION

Turn the inner race of each bearing with your finger.
The bearings should turn smoothly and quietly.
Also check that the outer race fits tightly in the wheel hub.

Inspect the following parts for damage, abnormal wear, deformation, or bend.

– Front axle
– Front wheel

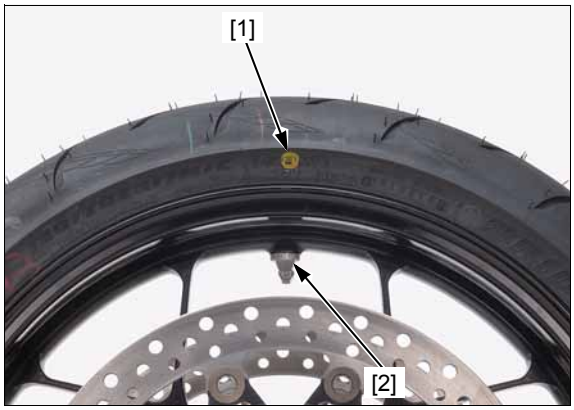
Measure each part according to FRONT WHEEL/ SUSPENSION/STEERING SPECIFICATIONS (page 1-10).

Replace any part if it is out of service limit.

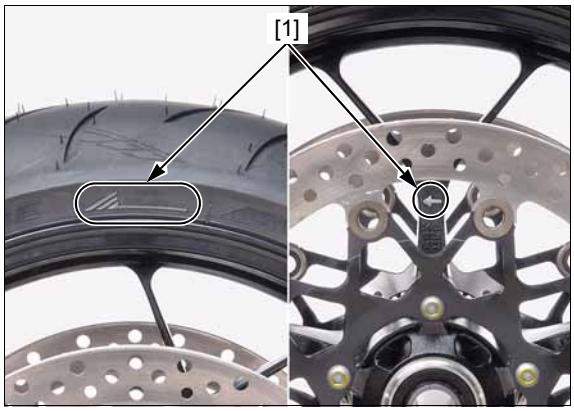
WHEEL BALANCE

NOTE:

- Wheel balance directly affects the stability, handling and overall safety of the motorcycle. Always check balance whenever the tire has been removed from the rim.
- For optimum balance, the tire balance mark [1] (a paint dot on the side wall) must be located next to the valve stem [2]. Remount the tire if necessary.



Note the rotating direction (arrow) marks [1] on the tire and wheel upon tire mounting. Always mount the tire onto the wheel with the marks facing in the same direction.

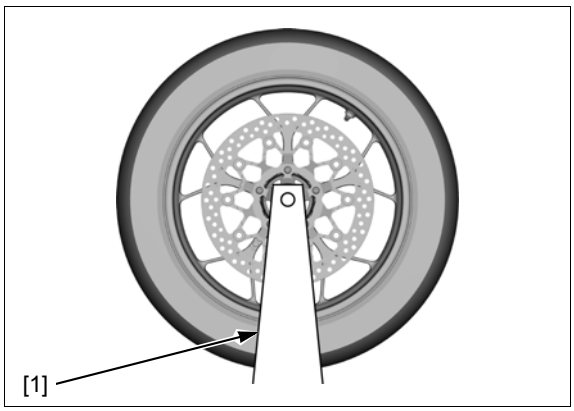


Mount the wheel, tire and brake discs assembly in an inspection stand [1].

Spin the wheel, allow it to stop, and mark the lowest (heaviest) point of the wheel with a chalk.

Do this two or three times to verify the heaviest area.

If the wheel is balanced, it will not stop consistently in the same position.



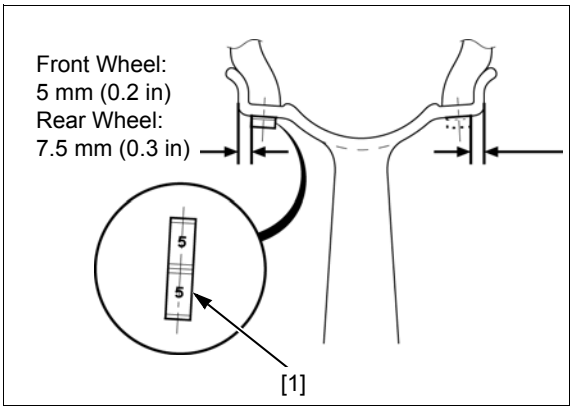
To balance the wheel, install the balance weights [1] on the highest side of the rim, on the side opposite the chalk marks. Add just enough weight so the wheel will no longer stop in the same position when it is spun.

Do not add more than 60 g to the wheel.

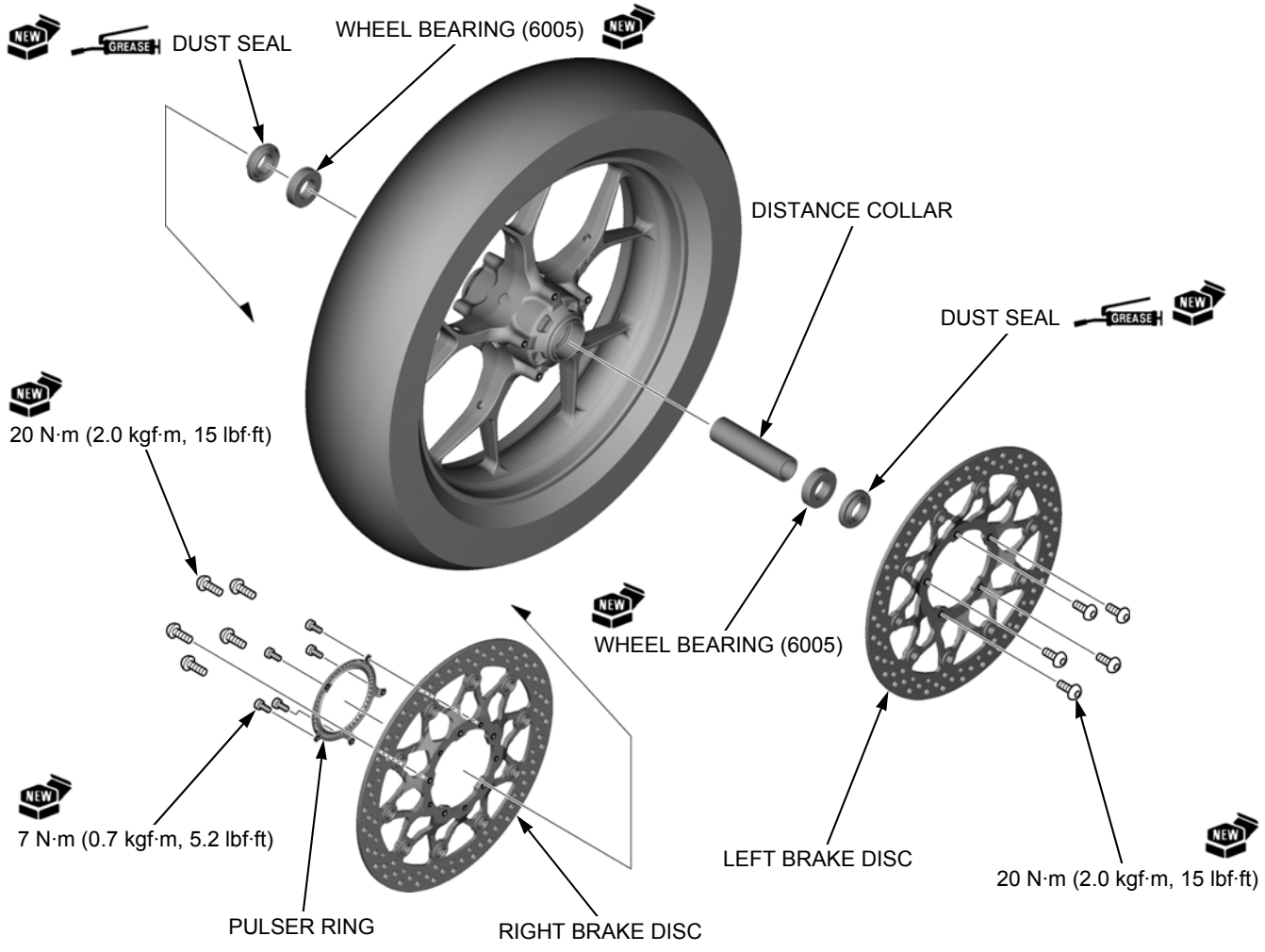
Press the weights by your hands firmly and make sure they are not come off the rim.

NOTE:

- Stick-type balance weights should be used on this motorcycle. Use genuine Honda balance weights.
  - Before installing the weights, remove any adhesive from the rim thoroughly and clean the area where new weights are to be placed with degreasing agent. Take care not to scratch the rim surface.
  - Do not touch the adhesive surface of the weight with your bare hands when installing.
  - The balance weights are always replaced with new ones whenever they are removed. Do not reuse them.
- The weights are attached to the position at 5 mm (front)/7.5 mm (rear) from the side surface of the rim in the direction as shown.
- If the weight exceeds 10 g, install same amount of the balance weights on the right and left symmetrical position.



DISASSEMBLY/ASSEMBLY



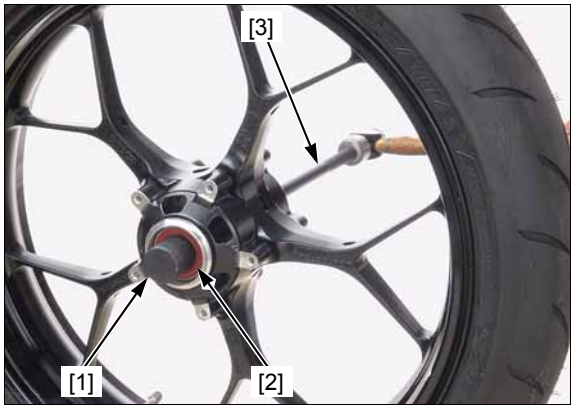
WHEEL BEARING REPLACEMENT

Install the bearing remover head [1] into the bearing [2]. From the opposite side, install the bearing remover shaft [3] and drive the bearing out of the wheel hub.

TOOLS:

Bearing remover head, 25 mm	**07746-0050800**
Bearing remover shaft	**07GGD-0010100**

Remove the distance collar and drive out the other bearing.



Never install the old bearings. Once the bearings have been removed, the bearings must be replaced with new ones.

Drive in a new right bearing squarely with its marked side facing up until it is fully seated using the special tools.

Install the distance collar.

Drive in a new left bearing squarely with its marked side facing up until it is seated to the distance collar using the special tools.

TOOLS:

Driver [1]	**07749-0010000**
Attachment, 42 x 47 mm [2]	**07746-0010300**
Pilot, 25 mm [3]	**07746-0040600**

TIRE VALVE REMOVAL/ INSTALLATION

Remove the tire.

Remove the nut [1], tire valve [2] and O-ring [3].

Clean the valve installation area of the rim with a degreasing agent.
If a puncture repair product was used, thoroughly clean the inside of the wheel rim.

Do not apply grease to the O-ring.

Install a new O-ring onto the tire valve.

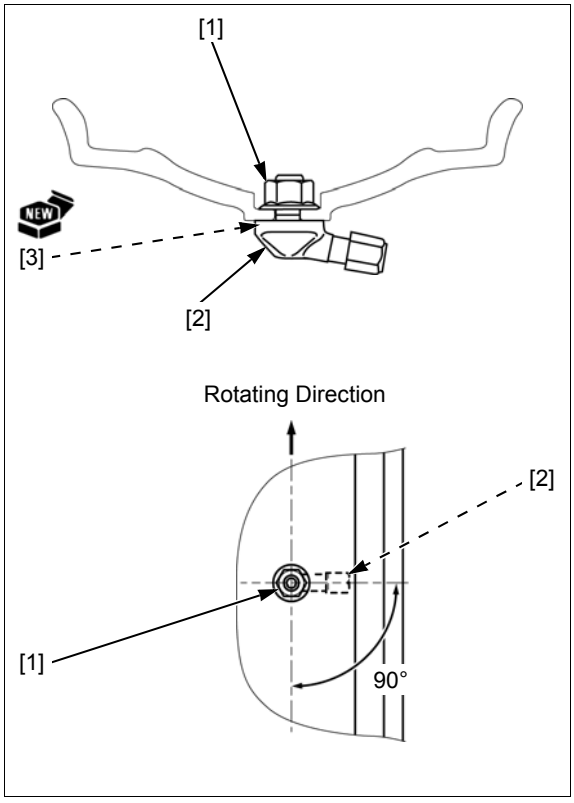
Gradually screw in the tire valve and position it with the valve neck facing the right side of the motorcycle and parallel with the axle.

Make sure that the valve seating surface is fully seated on the wheel and tighten the valve nut while holding the tire valve.

TORQUE: 6.5 N·m (0.7 kgf·m, 4.8 lbf·ft)

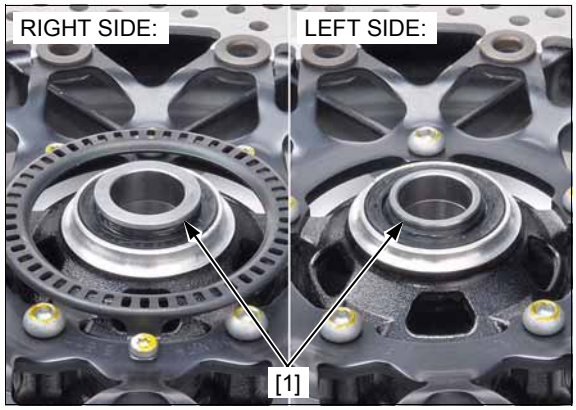
After the tire valve installation, make sure that the tire valve neck is facing to the right side and parallel to the axle direction.

Install the tire.



INSTALLATION

Install the right and left side collars [1].



Be careful not to damage the pulser ring.

Install the front wheel between the fork legs.

Apply a thin layer of grease to the front axle surface.

Install the front axle [1] from the left side.

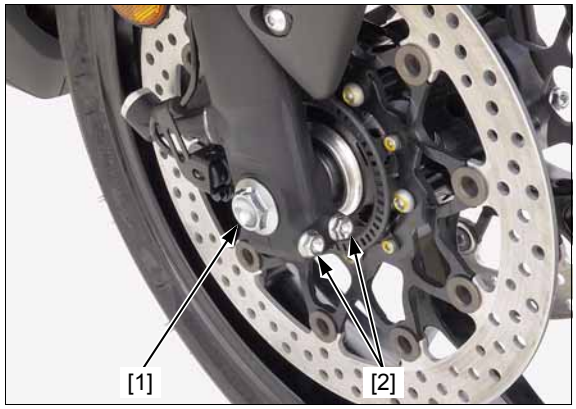
Install the axle bolt [1].

Hold the axle and tighten the axle bolt to the specified torque.

TORQUE: 79 N·m (8.1 kgf·m, 58 lbf·ft)

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

TORQUE: 22 N·m (2.2 kgf·m, 16 lbf·ft)



Be careful not to damage the brake pads.

Install the brake caliper [1] onto the fork leg so that the disc is positioned between the pads.

Install new mounting bolts [2] and tighten them to the specified torque.

TORQUE:
CBR1000RR/RA: 45 N·m (4.6 kgf·m, 33 lbf·ft)
CBR1000S1/S2: 40 N·m (4.1 kgf·m, 30 lbf·ft)

Install the other brake caliper.

Check the brake operation by applying the brake lever.

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

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

TORQUE: 22 N·m (2.2 kgf·m, 16 lbf·ft)

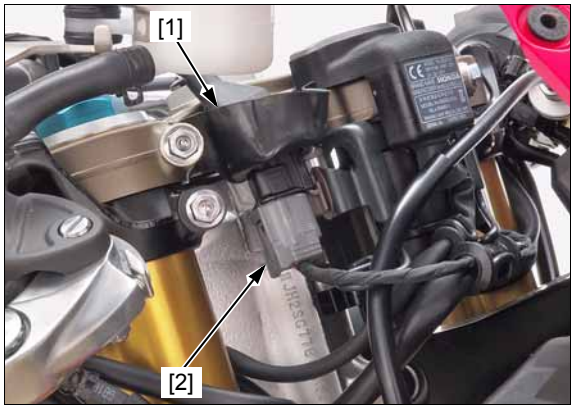
FORK

REMOVAL

Remove the following:

– Intake air duct (page 2-14)
– Front wheel (page 16-15)
– Front fender (page 2-23)

CBR1000S1/S2 only: Slide the connector cover [1] off the damping adjuster 4P connector [2]. Remove the 4P connector from the stay and disconnect it.



Loosen the pinch bolts [1] of the handlebar and top bridge.

Take care not to scratch the cap head.

CBR1000RR/RA only: When the fork leg will be disassembled, loosen the fork cap [2], but do not remove it yet.

TOOL:
Fork cap wrench [3] **070MA-MGP0100**

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

While holding the fork leg, loosen the bottom bridge pinch bolts [1]. Pull the fork leg down and remove it out of the fork bridges.

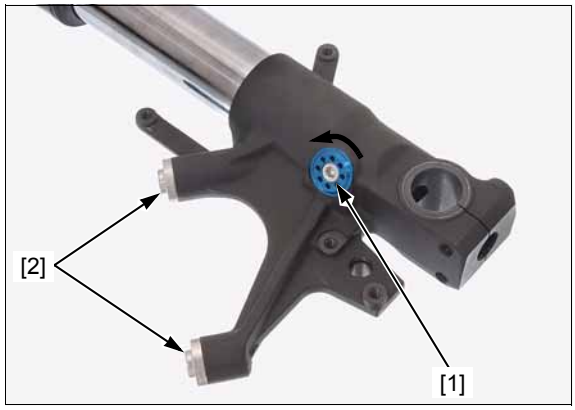
NOTE:

- CBR1000S1/S2 only: Do not disassemble the fork.

DISASSEMBLY (CBR1000RR/RA only)

Turn the spring pre-load adjuster [1] counterclockwise to the softest position (be sure to record the number of turns from the starting position).

Remove the collars [2] if necessary.



Remove the stopper ring [1] being careful not to scratch the outer tube.

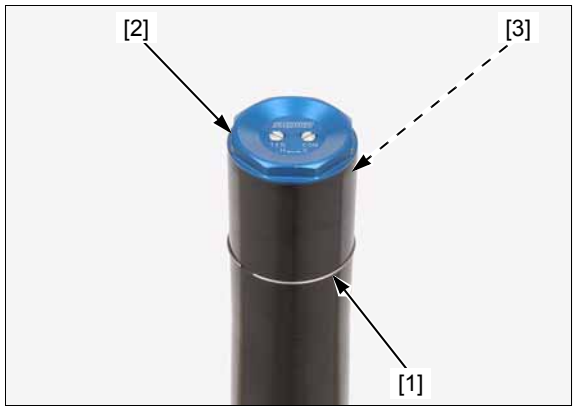
Take care not to scratch the cap head.

Remove the fork cap [2] from the outer tube.

TOOL:
Fork cap wrench 070MA-MGP0100

Lower the outer tube slowly and rest it onto the axle holder.

Remove the O-ring [3] from the fork cap.



Hold the axle holder on the slide pipe in a vise with soft jaws or shop towels.

Loosen the rod guide case [1] using the special tool.

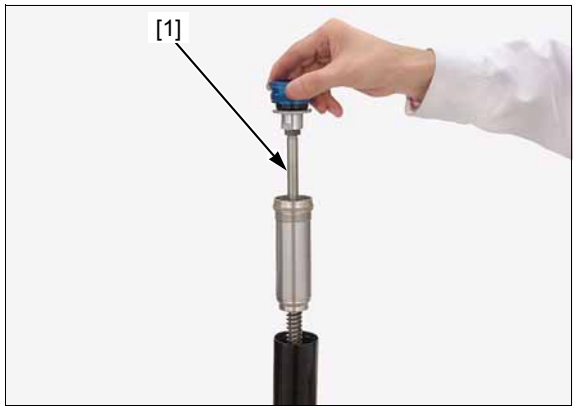
TOOL:
Rod guide case wrench [2] 070MB-MGP0100

The piston rod assembly is under spring pressure; hold the fork cap securely when removing.

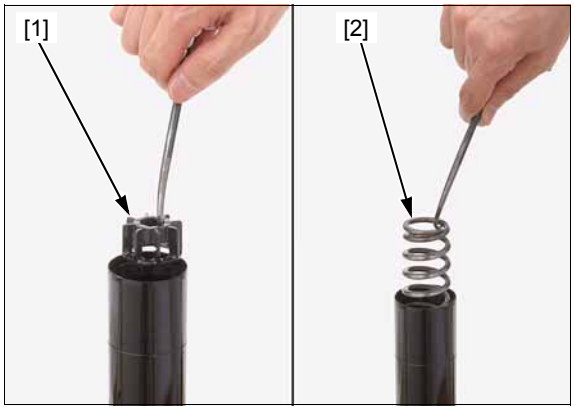
Remove the rod guide case from the slide pipe by turning the tool by hand.

Remove the following:

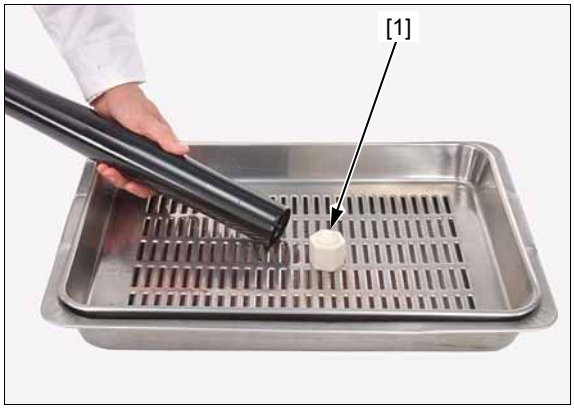
– Piston rod assembly [1]



– Spring collar B [1]
– Fork spring [2]

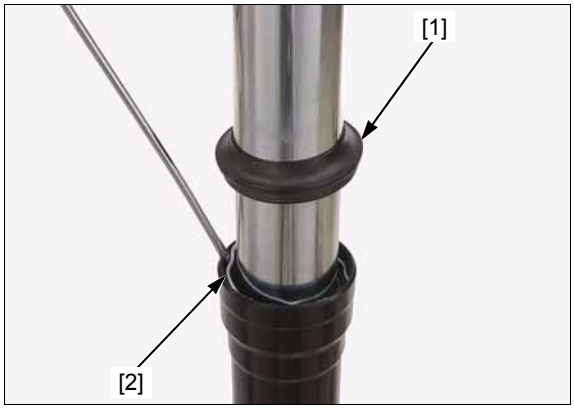


– Spring collar A [1] (pour out the fork fluid by pumping the slide pipe up and down several times)



Be careful not to scratch the slide pipe.

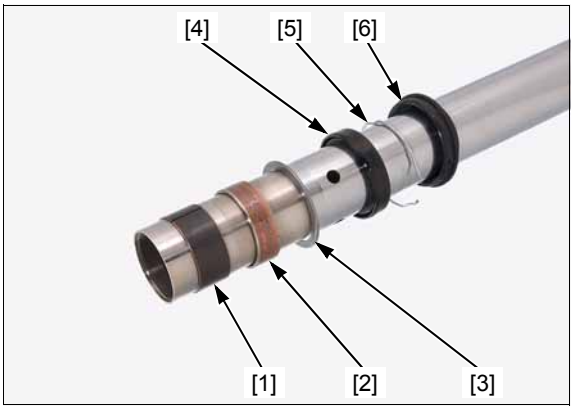
– Dust seal [1]
– Stopper ring [2]



Using quick successive motions, pull the slide pipe out of the outer tube.

Remove the following from the slide pipe:

- Slider bushing [1]
- Guide bushing [2]
- Back-up ring [3]
- Oil seal [4]
- Stopper ring [5]
- Dust seal [6]

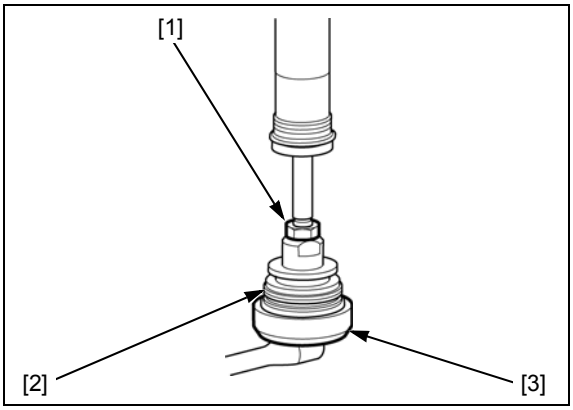


Take care not to scratch the cap head.

Loosen the piston rod nut [1] while holding the fork cap [2] with the special tool.

TOOL:
Fork cap wrench [3] 070MA-MGP0100

Remove the fork cap.



INSPECTION (CBR1000RR/RA only)

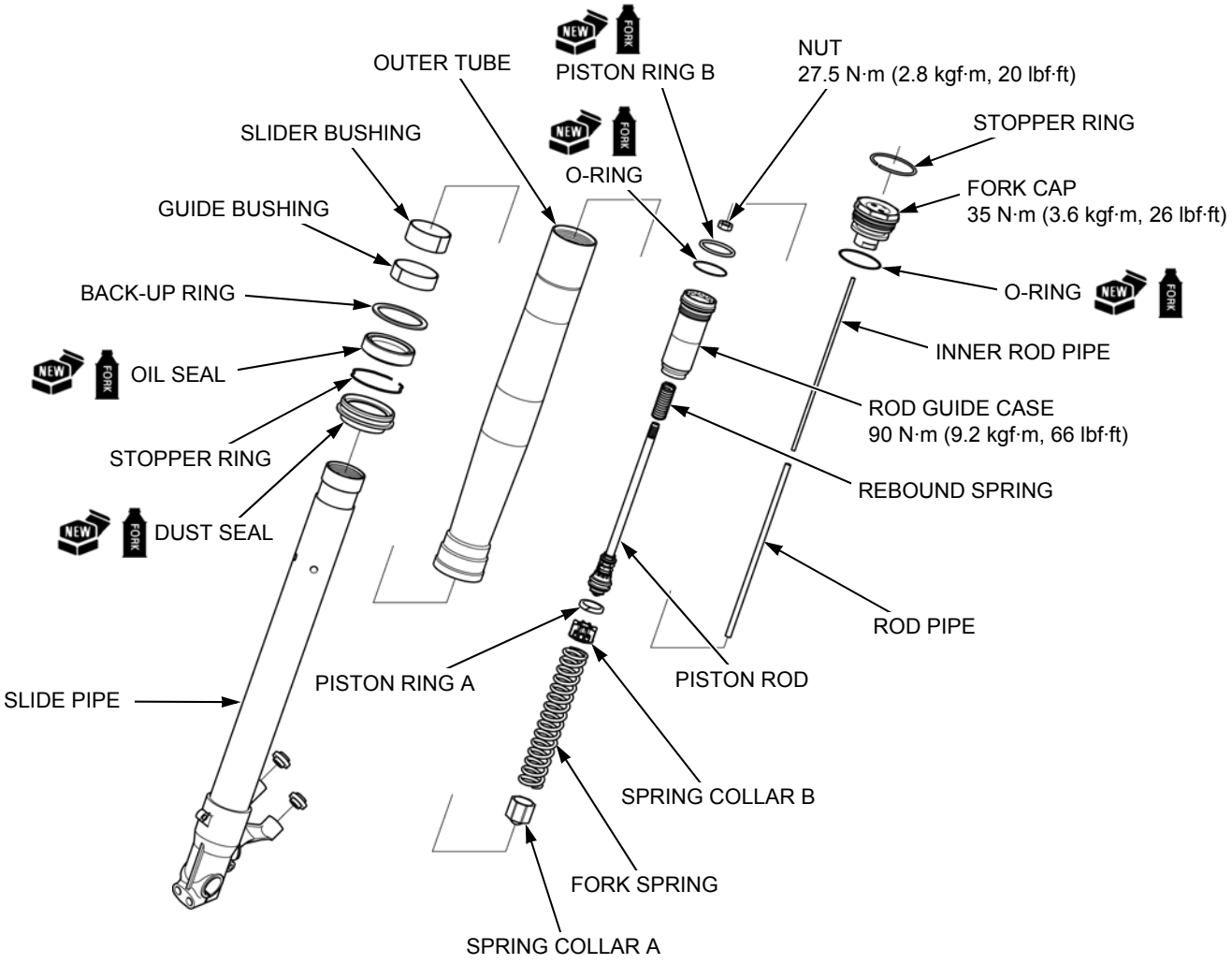
Inspect the following parts for damage, abnormal wear, deformation, looseness or bend.

- Fork cap
- Rod pipes
- Rod guide case
- Piston rod
- Rebound spring/fork spring
- Spring collars
- Outer tube
- Slider bushing
- Guide bushing
- Back-up ring
- Stopper rings
- Slide pipe

Measure each part according to FRONT WHEEL/ SUSPENSION/STEERING SPECIFICATIONS (page 1-10).

Replace any part if it is out of service limit.

ASSEMBLY (CBR1000RR/RA only)



Assemble the piston rod and rod guide case.

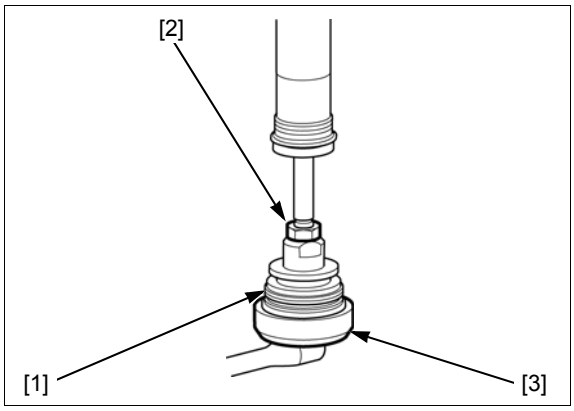
Install the fork cap [1] onto the piston rod and screw it until the cap just touches the rod end.

Take care not to scratch the cap head.

Hold the fork cap with the special tool and tighten the rod nut [2].

TOOL:
Fork cap wrench [3] 070MA-MGP0100

TORQUE: 27.5 N·m (2.8 kgf·m, 20 lbf·ft)



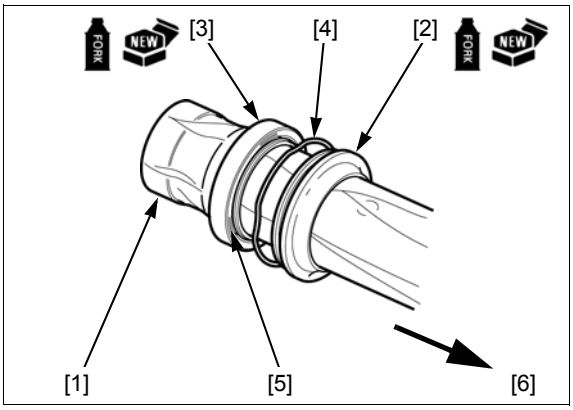
Cover the slide pipe end with a plastic wrap [1] or equivalent to avoid damaging the seals on the edges.

Apply fork fluid to the lips of a new dust seal [2] and a oil seal [3].

Install the following onto the slide pipe:

– Dust seal
– Stopper ring [4]
– Oil seal (with the marked side [5] facing the axle holder side [6])

Remove the plastic wrap.



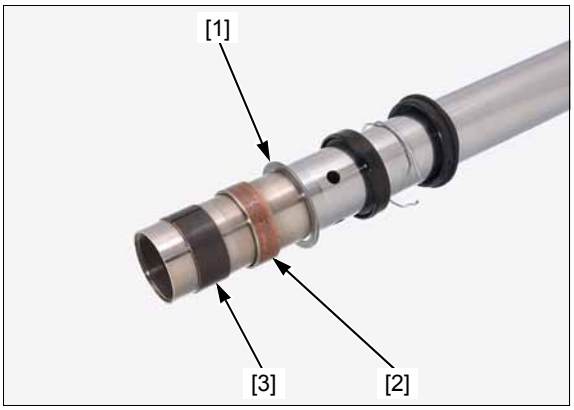
Remove the burrs from the slider bushing mating surface, being careful not to peel off the coating.

Be careful not to damage the coating on the bushing. Do not spread open the bushing more than necessary.

Install the following onto the slide pipe:

– Back-up ring [1] (with the groove facing the outer tube)
– Guide bushing [2]
– Slider bushing [3]

Install the slide pipe into the outer tube.

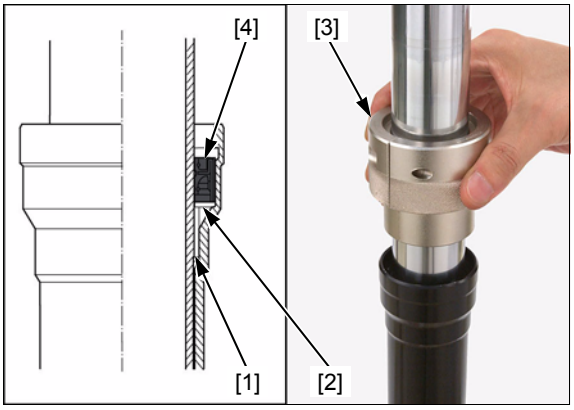


Rest the guide bushing [1] and back-up ring [2] on the outer tube, and drive the guide bushing into place, using the special tool.

TOOL:

Fork seal driver [3]	**07YMD-MCF0100**

Drive the oil seal [4] until the stopper ring groove is visible, using the same tool.



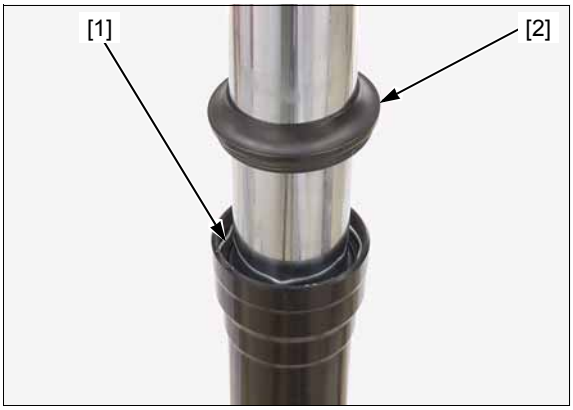
Do not scratch the fork tube sliding surface.

Install the stopper ring [1] into the groove in the outer tube.

NOTE:

• Make sure the stopper ring is securely set in the groove.

Install the dust seal [2] into the outer tube.

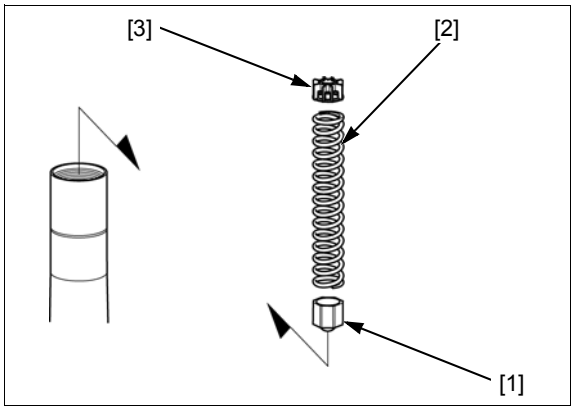


Lower the outer tube and rest it onto the axle holder.

Note the installation direction of the collars.

Insert the following into the slide pipe:

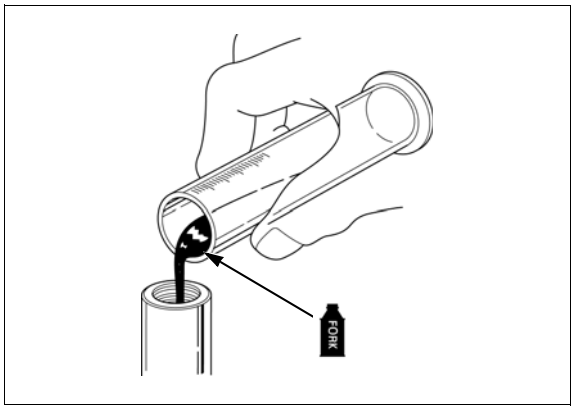
– Spring collar A [1] (with the round side facing down)
– Fork spring [2]
– Spring collar B [3] (with the flange side facing down)



After installing the piston rod assembly, pour the total amount of fluid as described in the later step.

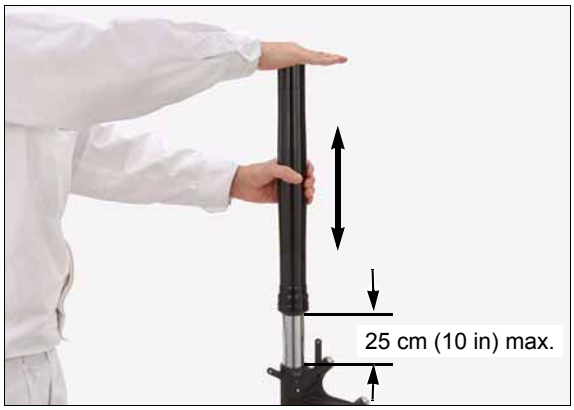
Pour the recommended fork fluid up to the side holes in the slide pipe with the fork leg compressed.

RECOMMENDED FORK FLUID:
Honda ULTRA CUSHION OIL SS-47 (10W) or equivalent
FORK FLUID CAPACITY:
515 ± 2.5 cm³ (17.4 ± 0.08 US oz, 18.1 ± 0.09 Imp oz)



Do not extend the outer tube more than 25 cm (10 in) from the axle holder. The fork fluid will spill out of the side holes in the slide pipe.

Slowly pump the outer tube 8 – 10 times to remove any trapped air completely.

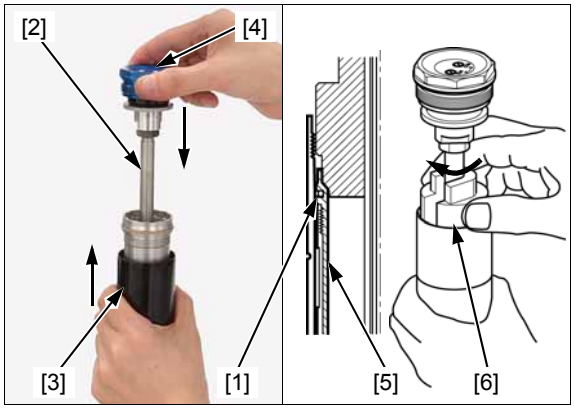


Be careful not to damage piston ring B [1] on the rod guide case on the edge or threads.

Insert the piston rod assembly [2] into the slide pipe while extending the outer tube [3] with the fork cap [4] held down.

Using the special tool, screw the rod guide case [5] by hand to install it into the slide pipe with the outer tube lifted up.

TOOL:
Rod guide case wrench [6] 070MB-MGP0100



Hold the axle holder on the slide pipe in a vise with soft jaws or shop towels.

Tighten the rod guide case [1] to the specified torque, using the same tool [2].

TORQUE: 90 N·m (9.2 kgf·m, 66 lbf·ft)

Fill the rod guide case with the remaining fork fluid.

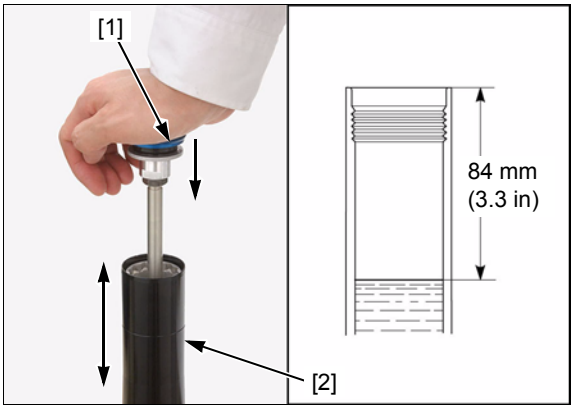
RECOMMENDED FORK FLUID:
Honda ULTRA CUSHION OIL SS-47 (10W)
or equivalent

Hold the fork cap [1] down, then pump the outer tube [2] several times to remove any trapped air completely.

Compress the outer tube fully and measure the fluid level from the top of the outer tube by supporting the fork leg vertically.

FORK FLUID LEVEL: 84 mm (3.3 in)

Adjust the fluid level as required.



Do not clamp the tube too tight or it could get damaged.

Place the outer tube in a vise with soft jaws or shop towels.

Coat a new O-ring [1] with fork fluid and install it into the fork cap groove.

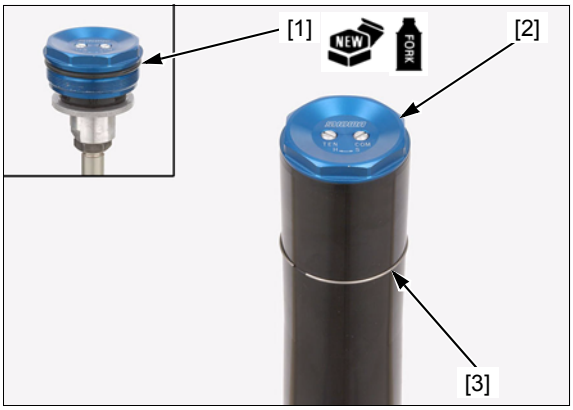
Take care not to scratch the cap head.

Install the fork cap [2] into the outer tube and tighten it.

TOOL:
Fork cap wrench 070MA-MGP0100

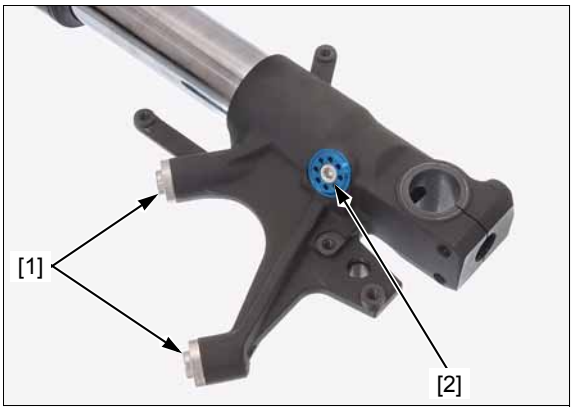
TORQUE: 35 N·m (3.6 kgf·m, 26 lbf·ft)

Install the stopper ring [3] into the outer tube groove.



Install the collars [1] if they are removed.

Return the pre-load adjuster [2] to the original position as noted before disassembly.



INSTALLATION

Route the wires, cables and hose properly (page 1-23).

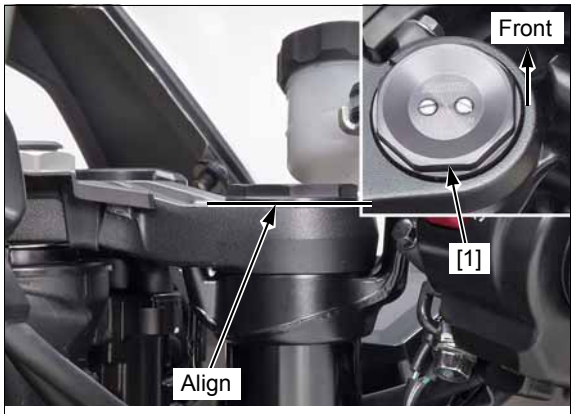
Install the fork leg into the bottom bridge, handlebar and top bridge.

CBR1000RR/RA: Align the top of the outer tube with the upper surface of the top bridge and parallel the adjusters on the fork cap [1] to the top bridge (rider can be read characters) as shown, then tighten the bottom bridge pinch bolt to determine the fork position.

CBR1000S1/S2: Align the top of the outer tube with the upper surface of the top bridge and tighten the bottom bridge pinch bolt to determine the fork position.

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

TORQUE: 27 N·m (2.8 kgf·m, 20 lbf·ft)

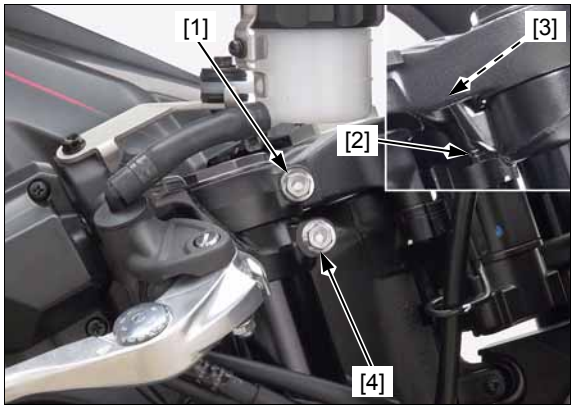


Tighten the top bridge pinch bolt [1].

TORQUE: 22 N·m (2.2 kgf·m, 16 lbf·ft)

Be sure to align the handlebar stopper pin [2] with the hole [3] in the top bridge. Tighten the handlebar pinch bolt [4] while seating the handlebar against the bridge.

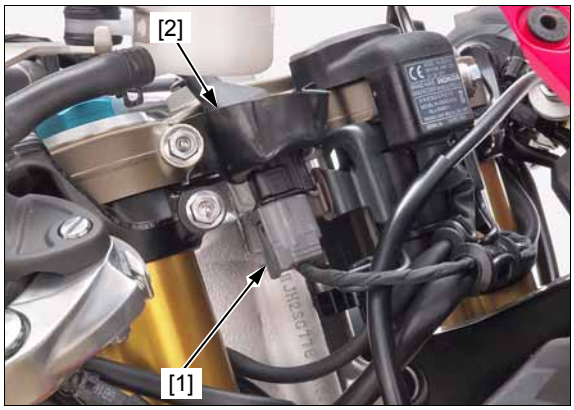
TORQUE: 22 N·m (2.2 kgf·m, 16 lbf·ft)



CBR1000S1/S2 only: Connect the damping adjuster 4P connector [1] and install it onto the stay. Install the connector cover [2] over the 4P connector properly.

Install the following:

– Front fender (page 2-23)
– Front wheel (page 16-19)
– Intake air duct (page 2-14)



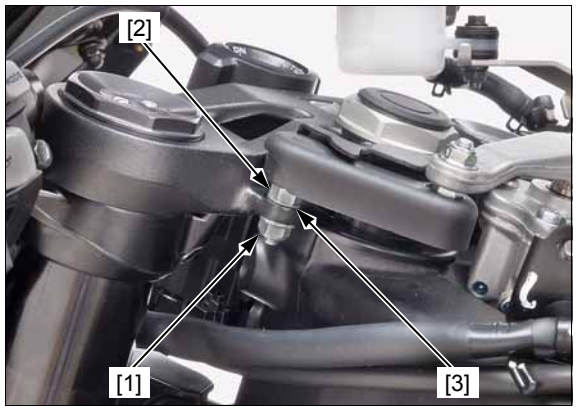
HESD

REMOVAL

Remove the air cleaner housing (page 7-10).

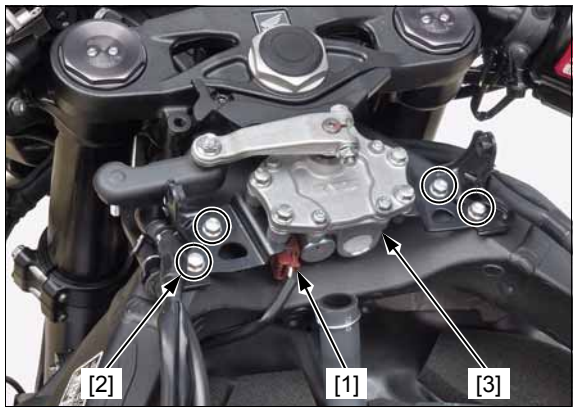
Remove the nut [1] by holding the second arm joint [2] and disconnect the second arm from the top bridge.

Remove the washer [3] from the second arm joint.



Disconnect the HESD 2P (Brown) connector [1].

Remove the bolts [2] and HESD [3] from the frame.



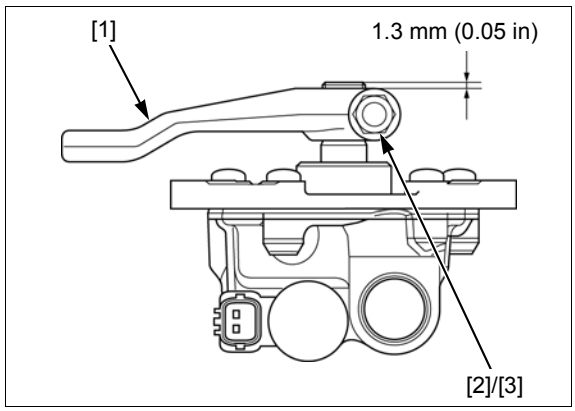
INSTALLATION

If the torque arm [1] is removed, install it to the specified height as shown:

STANDARD: 1.3 mm (0.05 in)

Install the torque arm bolt [2] and nut [3], and tighten the nut to the specified torque.

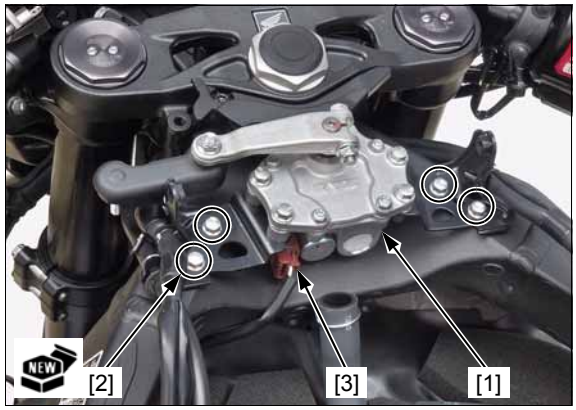
TORQUE: 12.5 N·m (1.3 kgf·m, 9.2 lbf·ft)



Install the HESD [1] and new bolts [2] onto the frame, and tighten the bolts to the specified torque.

TORQUE: 10 N·m (1.0 kgf·m, 7 lbf·ft)

Connect the HESD 2P (Brown) connector [3] to the steering damper securely.

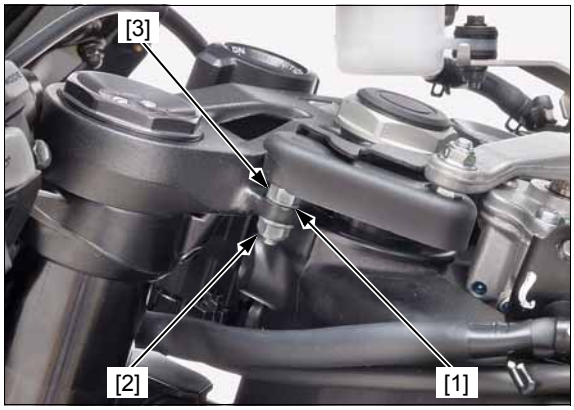


Install the washer [1] to the second arm joint and connect the second arm to the top bridge.

Install the nut [2] and tighten it to the specified torque by holding the second arm joint [3].

TORQUE: 12 N·m (1.2 kgf·m, 9 lbf·ft)

Install the air cleaner housing (page 7-10).



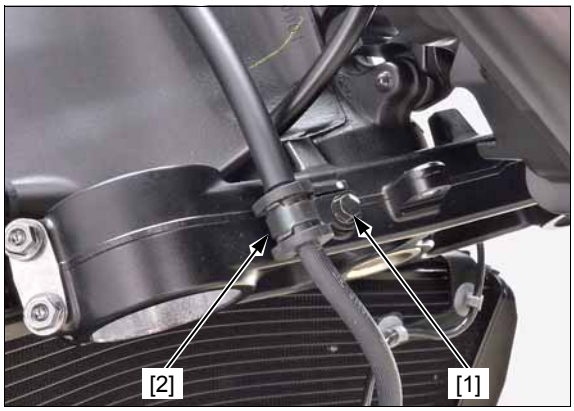
STEERING STEM

REMOVAL

Remove the following:

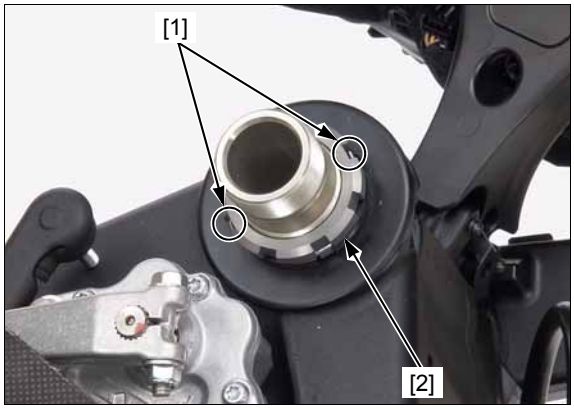
– Horn (page 21-21)
– Handlebars (page 16-7)
– Forks (page 16-20)

Remove the bolt [1] and brake hose clamp.



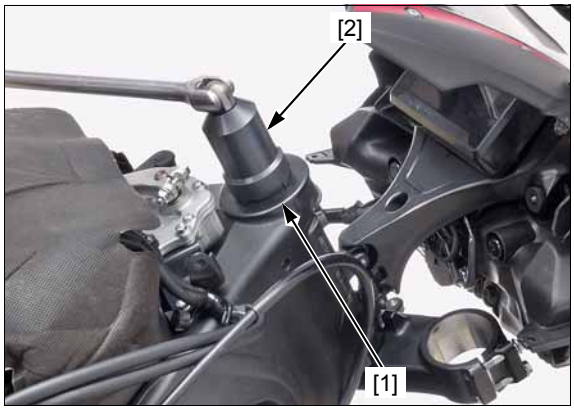
Straighten the lock washer tabs [1].

Remove the lock nut [2] and lock washer.



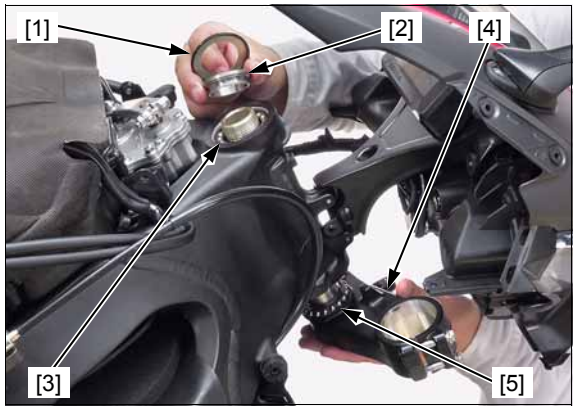
Remove the steering stem adjusting nut [1] using the special tool.

TOOL:
Steering stem socket [2] 07HMA-MR70100



Remove the following:

– Dust seal [1]
– Upper bearing inner race [2]
– Upper bearing [3]
– Steering stem [4]
– Lower bearing [5]



OUTER RACE REPLACEMENT

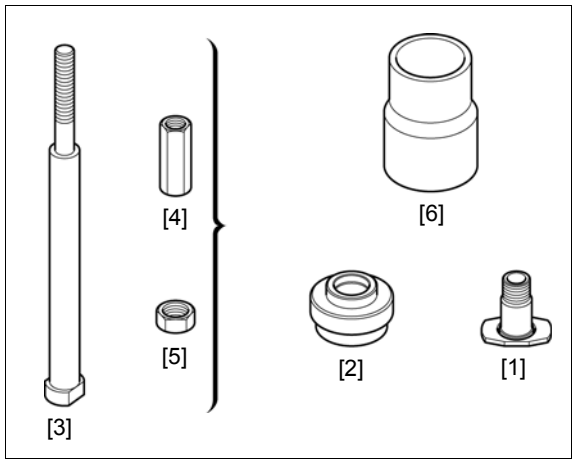
Replace the outer races using the following:

TOOLS:

Bearing remover [1]	**07NMF-MT70110**
Driver attachment [2] (2 required)	**07NMF-MT70120**
Driver shaft assembly	**07946-KM90301**
– Driver shaft [3]	
– Nut A [4]	
– Nut B [5]	
Assembly base [6]	**07946-KM90600**

NOTE:

• Always replace the bearings and races as a set.



Install the special tools into the steering head as shown.

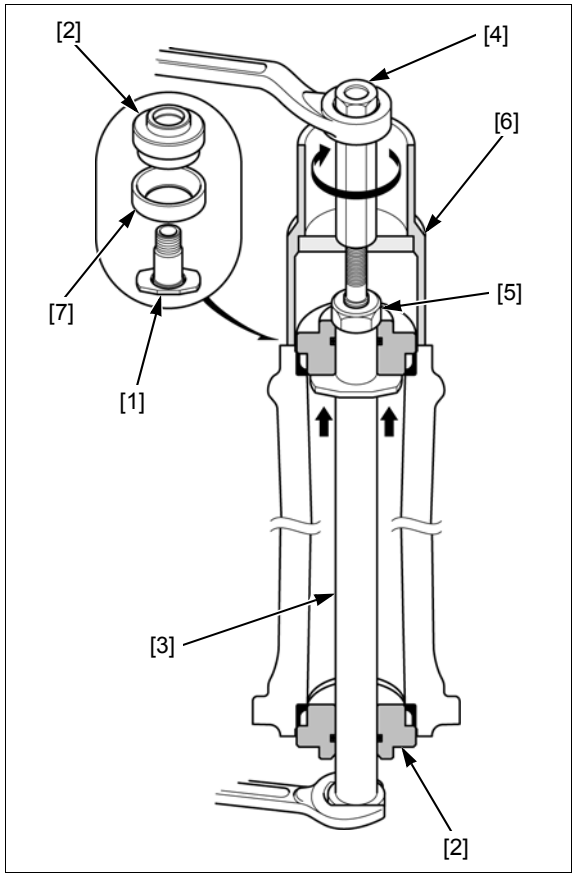
TOOLS:

Bearing remover [1]	**07NMF-MT70110**
Driver attachment [2] (2 required)	**07NMF-MT70120**
Driver shaft assembly	**07946-KM90301**
– Driver shaft [3]	
– Nut A [4]	
– Nut B [5]	
Assembly base [6]	**07946-KM90600**

Align the bearing remover with the grooves in the steering head.

Lightly tighten nut B with a wrench.

Holding the driver shaft with a wrench, turn nut A gradually to remove the upper outer race [7].

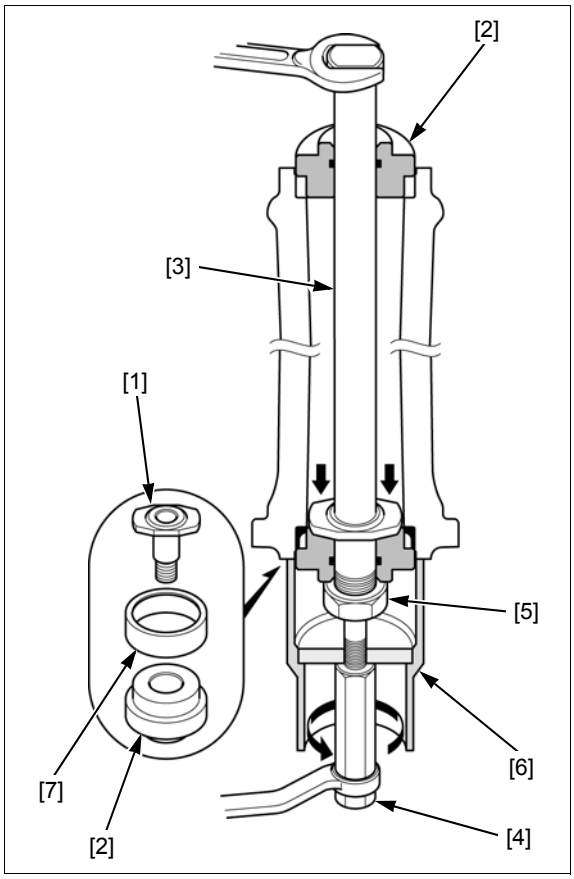


Install the special tools into the steering head as shown and r

TOOLS:

Bearing remover [1]	**07NMF-MT70110**
Driver attachment [2] (2 required)	**07NMF-MT70120**
Driver shaft assembly	**07946-KM90301**
– Driver shaft [3]	
– Nut A [4]	
– Nut B [5]	
Assembly base [6]	**07946-KM90600**

Remove the lower outer race [7] using the same procedure as for the upper outer race.



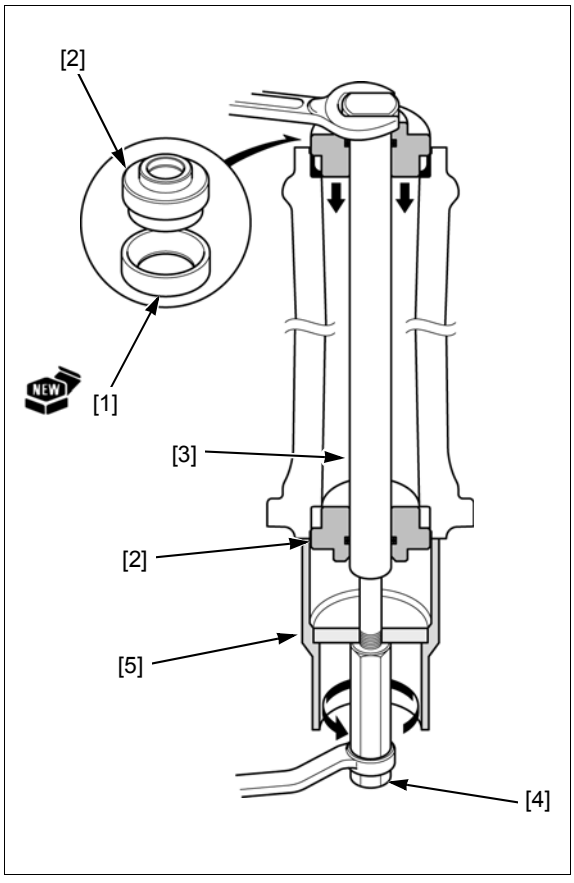
Remove any burrs from the outer race installation surface of the steering head.

Install a new upper outer race [1] with the special tools as shown.

TOOLS:

Driver attachment [2] (2 required)	**07NMF-MT70120**
Driver shaft assembly	**07946-KM90301**
– Driver shaft [3]	
– Nut A [4]	
Assembly base [5]	**07946-KM90600**

Hold the driver shaft with a wrench and turn the nut A gradually until upper outer race is fully seated.



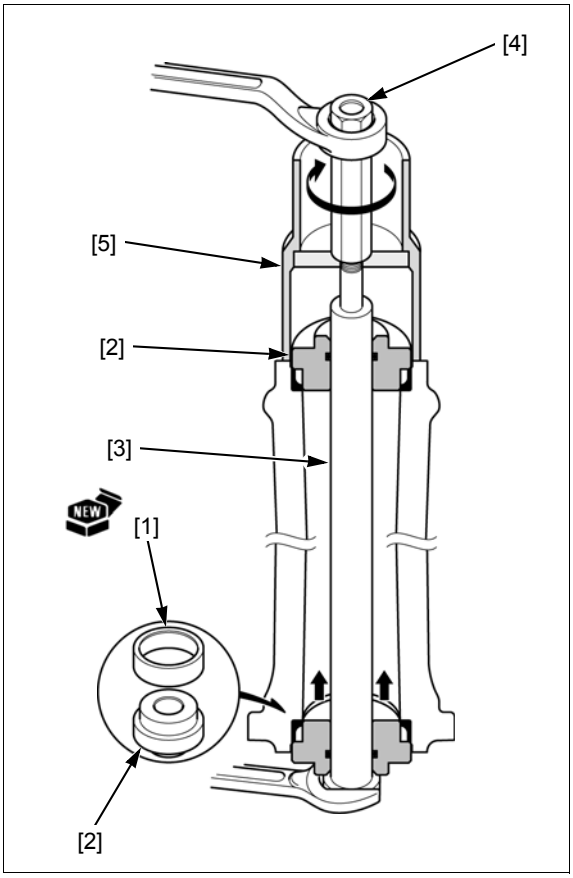
Remove any burrs from the outer race installation surface of the steering head.

Install a new lower outer race [1] with the special tools as shown.

TOOLS:

Driver attachment [2] (2 required)	**07NMF-MT70120**
Driver shaft assembly	**07946-KM90301**
– Driver shaft [3]	
– Nut A [4]	
Assembly base [5]	**07946-KM90600**

Hold the driver shaft with a wrench and turn the nut A gradually until lower outer race is fully seated.

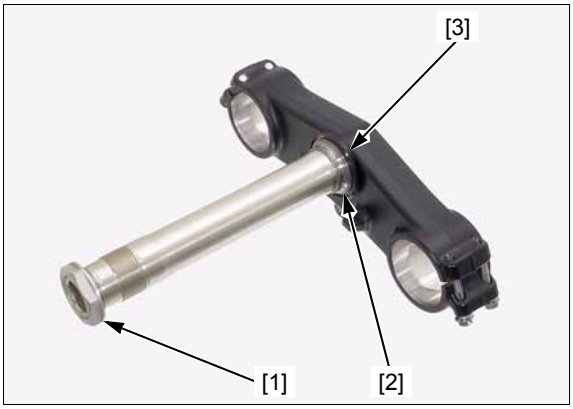


LOWER INNER RACE REPLACEMENT

Temporarily install the steering stem nut [1] onto the stem to prevent the threads from being damaged when removing the lower bearing inner race [2] from the stem.

Remove the lower bearing inner race with a chisel or equivalent tool, being careful not to damage the stem.

Remove the dust seal [3].

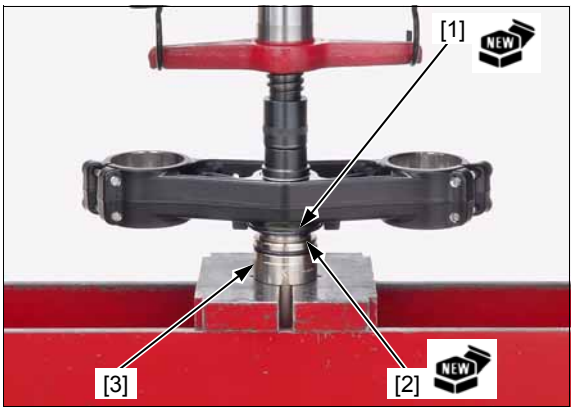


Apply the specified grease (page 1-19) to the lips of a new dust seal [1] and install it over the steering stem.

Install a new lower bearing inner race [2] using a special tool and a hydraulic press.

TOOL:

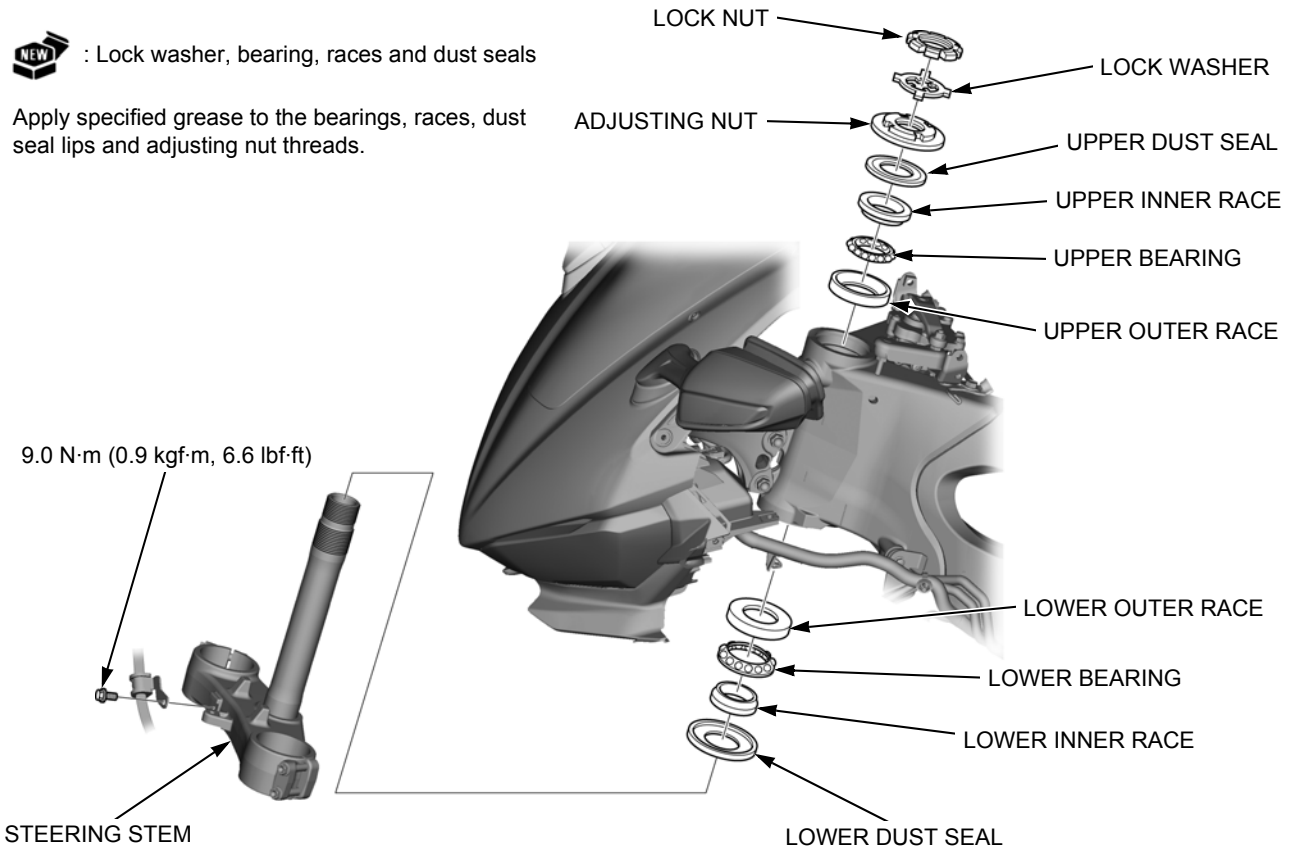
Attachment, 35.2 mm I.D. [3]	**07947-KA20200**



INSTALLATION

: Lock washer, bearing, races and dust seals

Apply specified grease to the bearings, races, dust seal lips and adjusting nut threads.

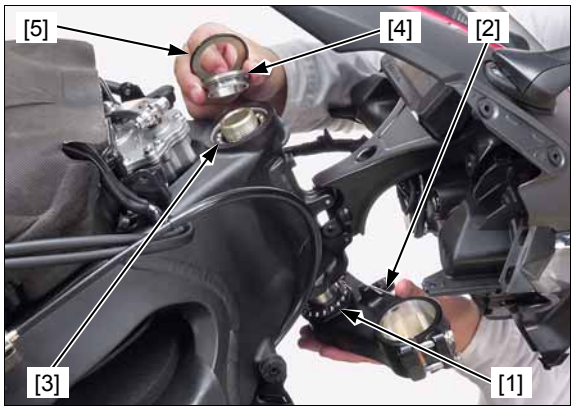


Apply the specified grease (page 1-20) to the upper and lower bearings and bearing races.

Install the lower bearing [1] onto the steering stem [2].

Insert the steering stem into the steering head pipe.

Install the upper bearing [3], inner race [4] and dust seal [5].

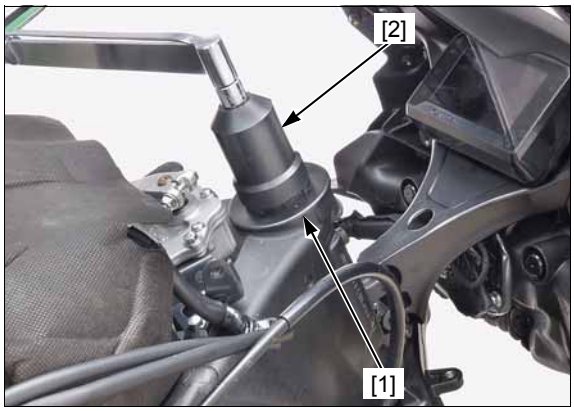


Apply the specified grease to the steering stem adjusting nut threads (page 1-19).

Tighten the steering stem adjusting nut [1] to the initial torque.

TOOL:
Steering stem socket [2] 07HMA-MR70100

TORQUE: 37 N·m (3.8 kgf·m, 27 lbf·ft)



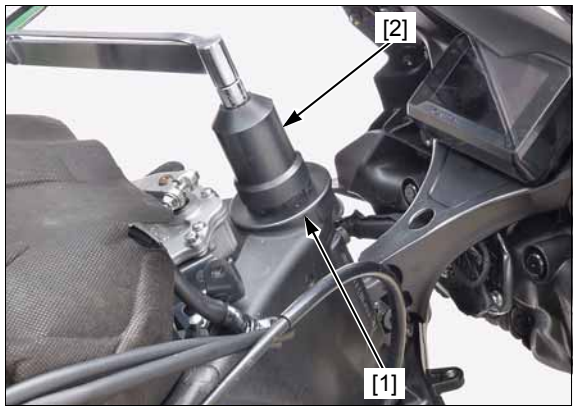
Move the steering stem [1] right and left, lock-to-lock, five times to seat the bearings.

Retighten the steering stem adjusting nut [1] to the specified torque.

TOOL:
Steering stem socket [2] 07HMA-MR70100

TORQUE: 37 N·m (3.8 kgf·m, 27 lbf·ft)

Recheck that the steering stem moves smoothly without play or binding.



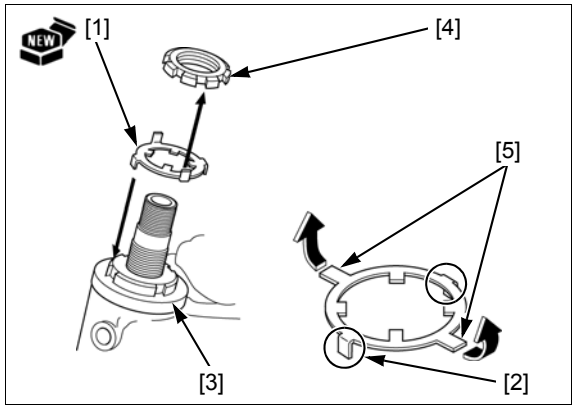
Install a new lock washer [1] onto the steering stem.

Align the tabs [2] of the lock washer with the grooves in the adjusting nut [3].

Install the lock nut [4] and finger tighten it.

Hold the adjusting nut and further tighten the lock nut within 1/4 turn (90°) enough to align its grooves with the lock washer tabs.

Bend the lock washer tabs [5] up into the lock nut grooves.



Route the brake hose properly (page 1-23).

Install the front brake hose clamp [1] and bolt [2], and tighten the bolt to the specified torque.

TORQUE: 9.0 N·m (0.9 kgf·m, 6.6 lbf·ft)

Install the following:

– Handlebars (page 16-10)
– Forks (page 16-28)

Make sure that the steering stem moves smoothly, without play or binding.

MEMO

17. REAR WHEEL/SUSPENSION

SERVICE INFORMATION

GENERAL

- When servicing the rear wheel and suspension, support the motorcycle using a safety stand or hoist.
- A contaminated brake disc or pad reduces stopping power. Discard contaminated pads and clean a contaminated disc with a high quality brake degreasing agent.
- After the rear wheel installation, check the brake operation by applying the brake pedal.
- Use Honda genuine replacement bolts and nuts for all suspension pivot and mounting point.
- The shock absorber contains nitrogen under high pressure. Do not allow fire or heat near the shock absorber.
- CBR1000RR/RA: Before disposal of the shock absorber, release the nitrogen (page 17-14).
- Use only tires marked “TUBELESS” and tubeless valves on rim marked “TUBELESS TIRE APPLICATION”.
- CBR1000S1/S2: Do not disassemble the shock absorber.
- For brake system information (page 18-2).
- For wheel balance inspection (page 16-16)
- For tire valve removal/installation (page 16-18)
- For driven sprocket inspection (page 3-18)

TROUBLESHOOTING

Soft suspension
- Weak shock absorber spring
- Incorrect suspension adjustment
- Oil leakage from damper unit
- Insufficient tire pressure

Hard suspension
- Incorrect suspension adjustment
- Damaged rear suspension pivot bearings
- Bent damper rod
- Bent swingarm pivot
- Tire pressure too high

Rear wheel wobbling
- Bent rim
- Worn or damaged rear wheel bearings
- Faulty rear tire
- Unbalanced rear tire and wheel
- Insufficient rear tire pressure
- Faulty swingarm pivot bearings

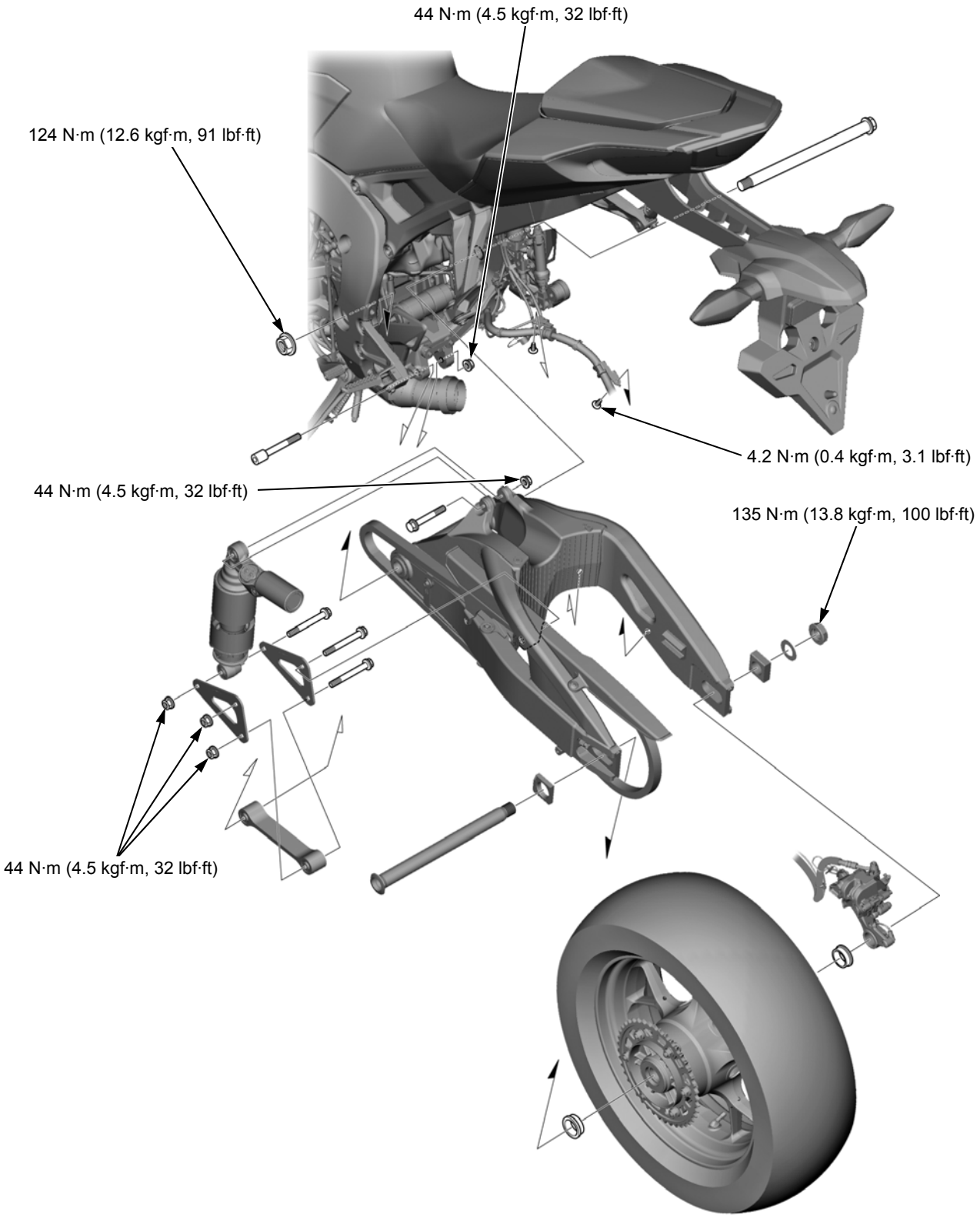
Rear wheel turns hard
- Faulty rear wheel bearings
- Bent rear axle
- Rear brake drag
- Drive chain too tight

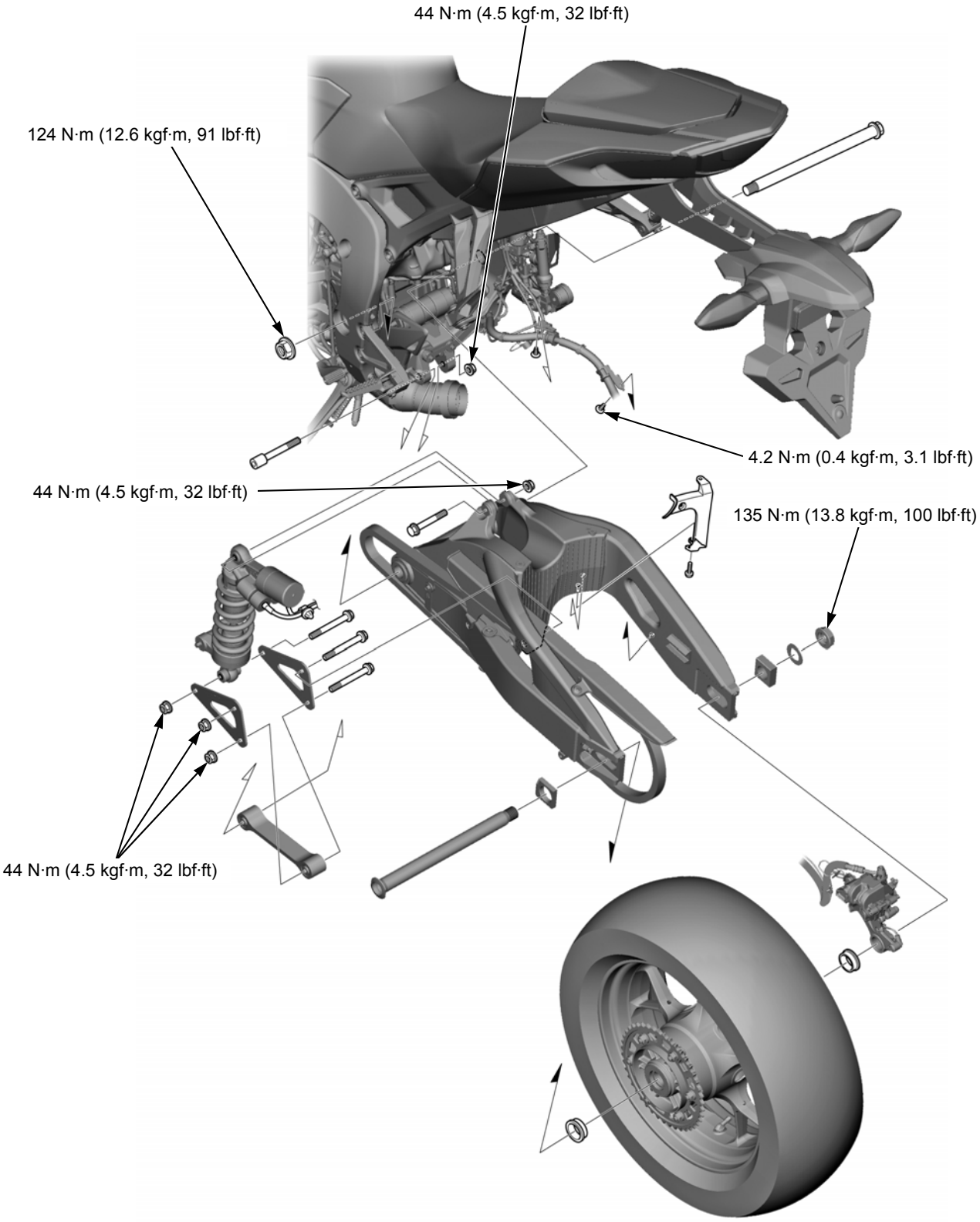
Rear suspension noise
- Faulty rear shock absorber
- Loose rear suspension fasteners
- Worn rear suspension pivot bearings

Steers to one side or does not track straight
- Bent rear axle
- Axle alignment/chain adjustment not equal on both sides

COMPONENT LOCATION

CBR1000RR/RA




44 N·m (4.5 kgf·m, 32 lbf·ft)
124 N·m (12.6 kgf·m, 91 lbf·ft)
4.2 N·m (0.4 kgf·m, 3.1 lbf·ft)
44 N·m (4.5 kgf·m, 32 lbf·ft)
135 N·m (13.8 kgf·m, 100 lbf·ft)
44 N·m (4.5 kgf·m, 32 lbf·ft)

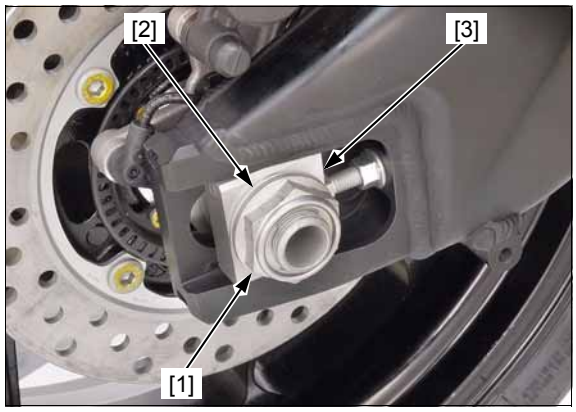
REAR WHEEL

REMOVAL

Support the motorcycle securely and raise the rear wheel off the ground using a hoist or safety stand.

Fully slacken the drive chain (page 3-17).

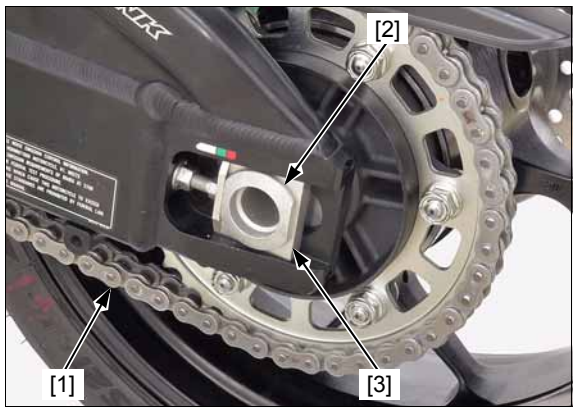
Remove the rear axle nut [1], washer [2] and right adjusting plate [3].



Push the rear wheel forward.

Derail the drive chain [1] from the driven sprocket.

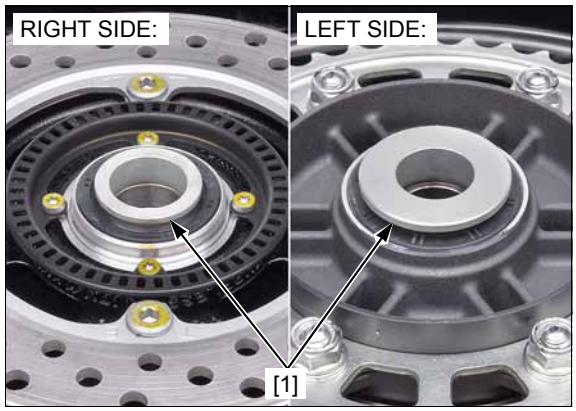
Remove the rear axle [2] and left adjusting plate [3].



Do not hang the caliper by the brake hose. Do not twist the brake hose. Do not operate the brake pedal after removing the rear wheel.

Remove the rear brake caliper bracket [1] and rear wheel.

Remove the right and left side collars [1].



INSPECTION

Turn the inner race of each bearing with your finger. The bearings should turn smoothly and quietly. Also check that the outer race fits tightly in the wheel hub.

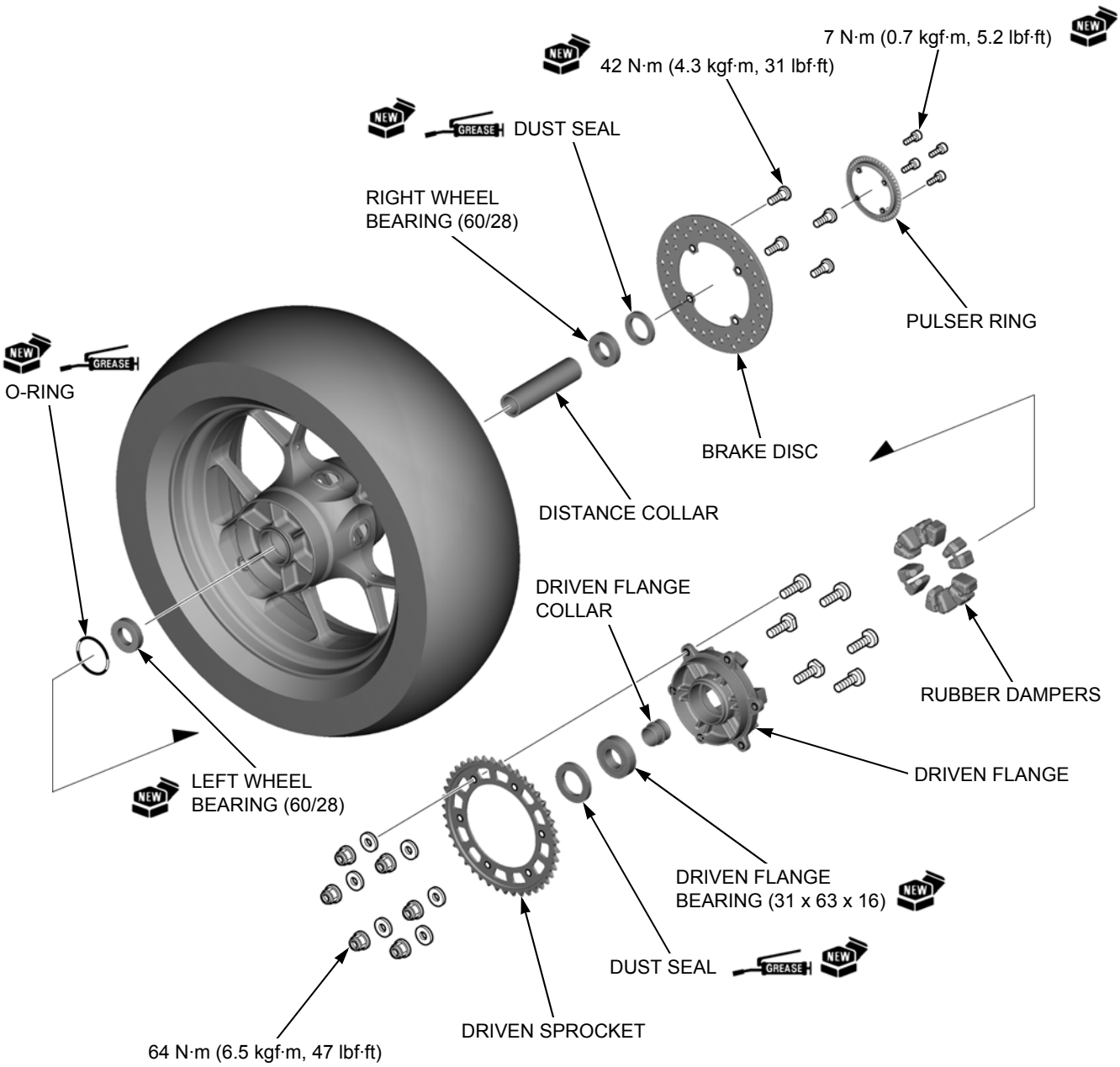
Inspect the following parts for damage, abnormal wear, deformation or bends.

– Rear axle
– Rear wheel

Measure each part according to REAR WHEEL/ SUSPENSION SPECIFICATIONS (page 1-10).

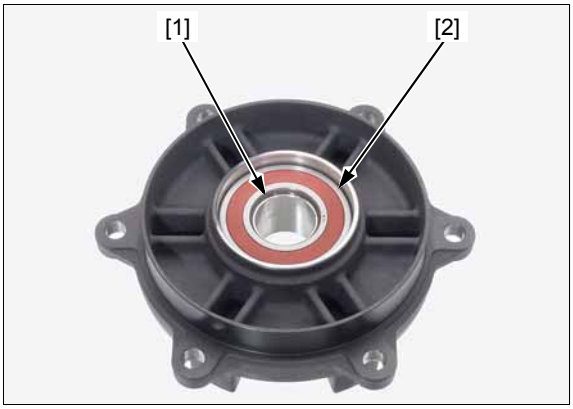
Replace any part if it is out of service limit.

DISASSEMBLY/ASSEMBLY

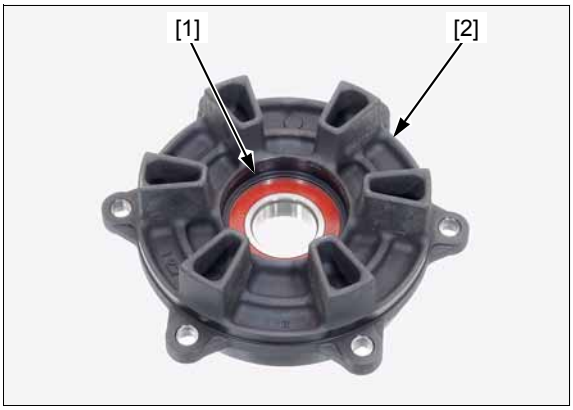


DRIVEN FLANGE BEARING REPLACEMENT

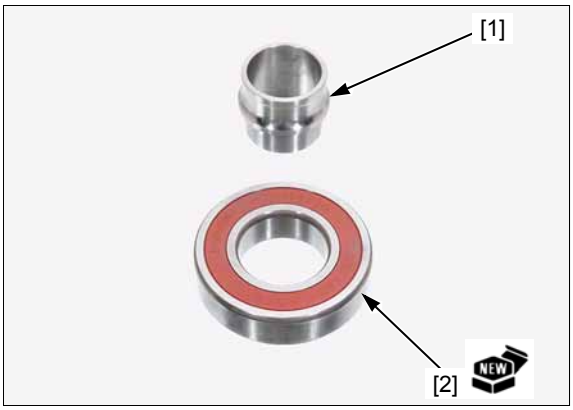
Press the collar [1] out of the driven flange bearing [2].



Press the bearing [1] out of the driven flange [2].



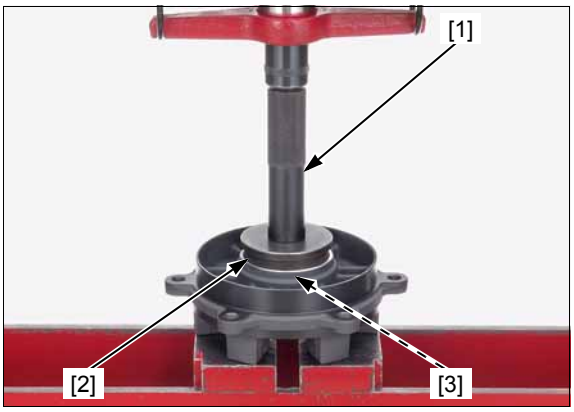
Press the driven flange collar [1] into a new driven flange bearing [2] until it is fully seated.



Press the driven flange bearing/collar into the driven flange until it is fully seated using the special tools.

TOOLS:

Driver [1]	**07749-0010000**
Attachment, 62 x 68 mm [2]	**07746-0010500**
Pilot, 28 mm [3]	**07746-0041100**



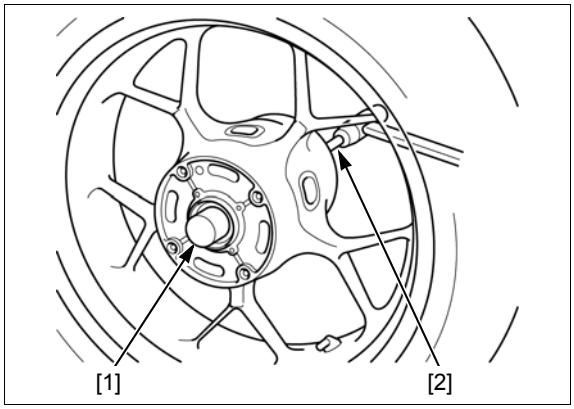
WHEEL BEARING REPLACEMENT

Install the bearing remover head [1] into the bearing. From the opposite side, install the bearing remover shaft [2] and drive the bearing [3] out of the wheel hub.

Remove the distance collar and drive out the other bearing.

TOOLS:

Bearing remover head, 28 mm	**07746-0050900**
Bearing remover shaft	**07GGD-0010100**



Never install the old bearings, once the bearings have been removed, the bearings must be replaced with new ones.

Drive in a new right bearing squarely with its marked side facing up until it is fully seated.

Install the distance collar.

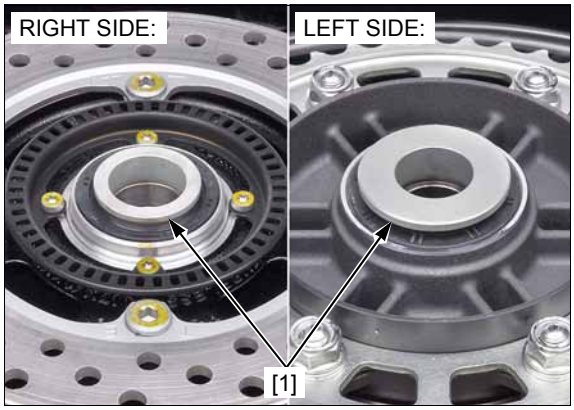
Drive in a new left bearing squarely with its marked side facing up until it is seated to the distance collar, being careful not to damage the distance collar.

TOOLS:

Driver [1]	**07749-0010000**
Attachment, 52 x 55 mm [2]	**07746-0010400**
Pilot, 28 mm [3]	**07746-0041100**

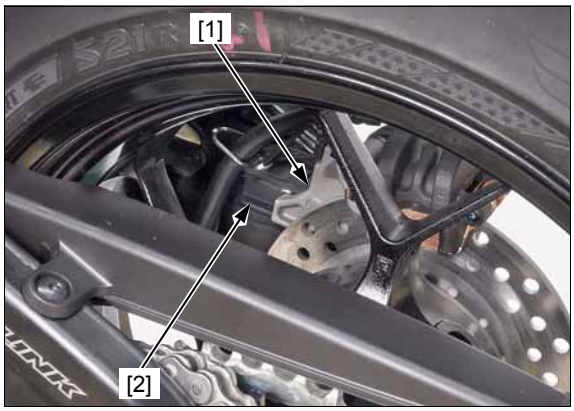
INSTALLATION

Install the right and left side collars [1].



Be careful not to damage the brake pads.

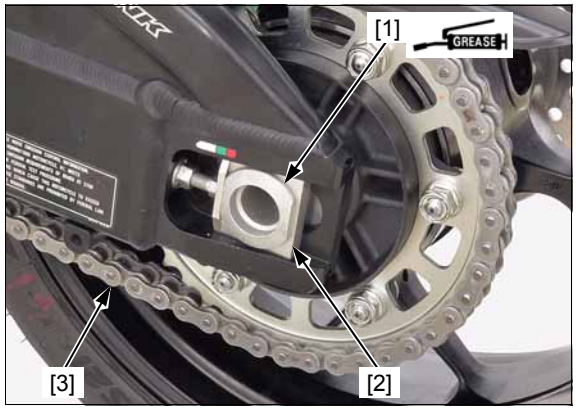
Install the rear brake caliper bracket [1] onto the guide rail [2] of the swingarm while placing the rear wheel into the swingarm.



Apply a thin coat of grease to the outer surface of the rear axle [1].

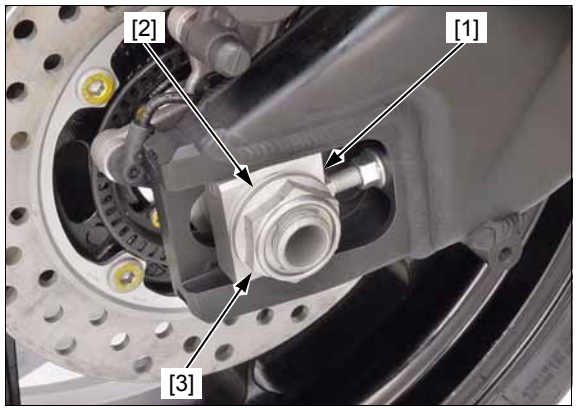
Install the left adjusting plate [2] and rear axle.

Install the drive chain [3] over the driven sprocket.



Install the right adjusting plate [1], washer [2] and rear axle nut [3].

Adjust the drive chain slack (page 3-17).



SUSPENSION LINKAGE

REMOVAL

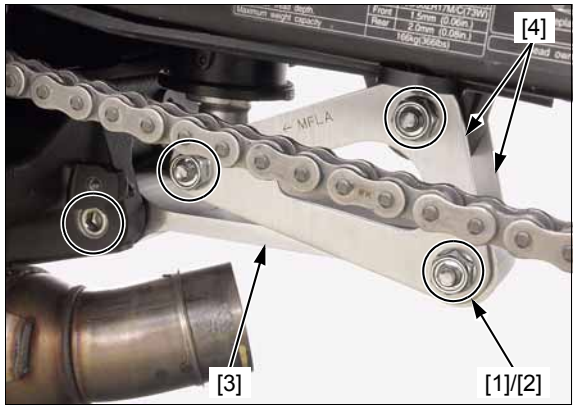
Remove the muffler (page 2-24).

Support the motorcycle using a hoist or equivalent, and raise the rear wheel off the ground.

Support the rear wheel securely.

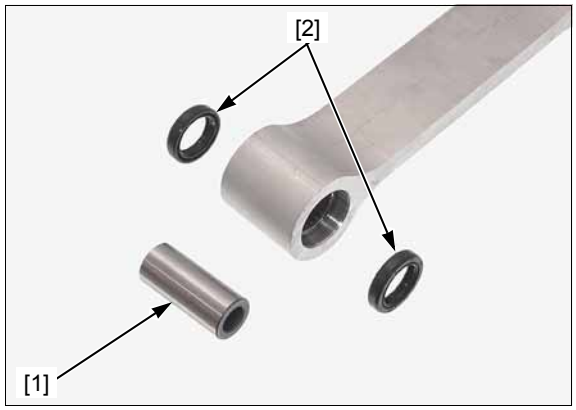
Remove the following:

– Nuts [1] and bolts [2]
– Shock link [3]
– Shock arms [4]



SHOCK LINK BEARING REPLACEMENT

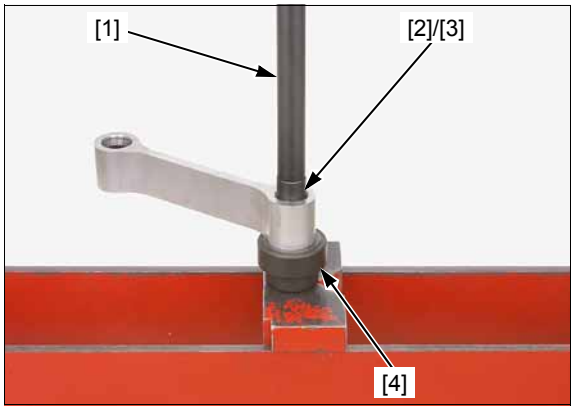
Remove the pivot collar [1] and dust seals [2].



Press the needle bearings out of the shock link using the special tools.

TOOLS:

Driver [1]	**07949-3710001**
Attachment, 22 x 24 mm [2]	**07746-0010800**
Pilot, 17 mm [3]	**07746-0040400**
Attachment, 30 mm I.D. [4]	**07746-0030300**



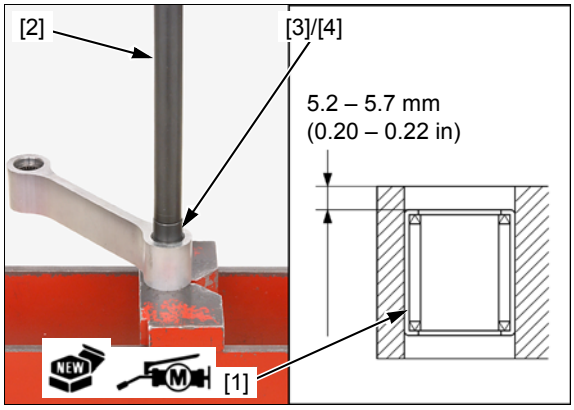
Press the needle bearing into the shock link with the marked side facing up.

Pack new needle bearings with molybdenum disulfide grease.

Press the needle bearing [1] into the shock link so that the it is 5.2 – 5.7 mm (0.20 – 0.22 in) below the outer surface of the shock link using the special tools.

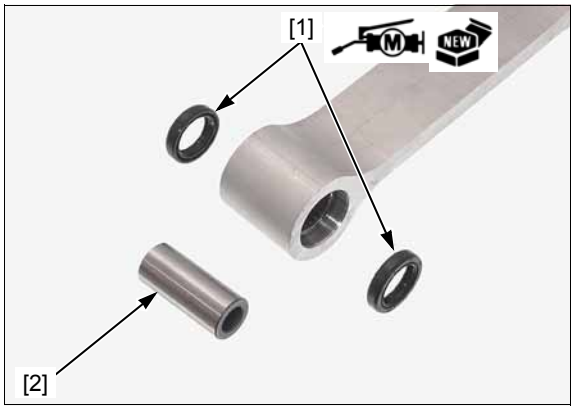
TOOLS:

Driver [2]	**07949-3710001**
Attachment, 22 x 24 mm [3]	**07746-0010800**
Pilot, 17 mm [4]	**07746-0040400**



Apply molybdenum disulfide grease to the lips of new dust seal [1] and install them into the shock link.

Install the pivot collar [2] into the shock link.



INSTALLATION

Support the rear wheel securely.

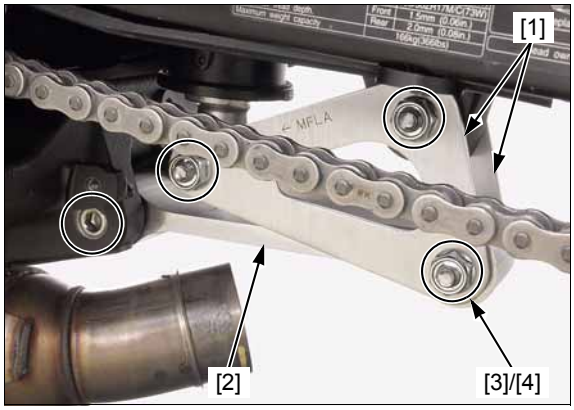
Loosely install the following:

– Shock arms [1]
– Shock link [2]
– Bolts [3]/nuts [4]

Tighten the nuts to the specified torque.

TORQUE: 44 N·m (4.5 kgf·m, 32 lbf·ft)

Install the muffler (page 2-24).

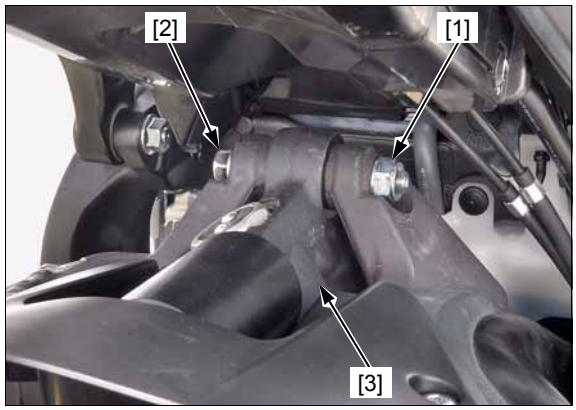


SHOCK ABSORBER (CBR1000RR/RA)

REMOVAL

Remove the suspension linkage (page 17-9).

Remove the shock absorber upper mounting nut [1] and bolt [2], then remove the shock absorber [3] downward.



INSPECTION

Visually inspect the shock absorber for damage.

Check the following:

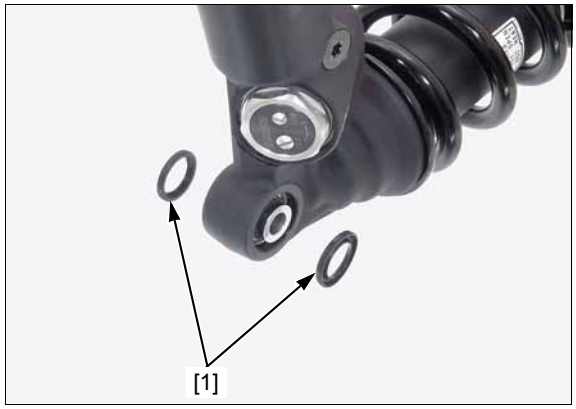
– Damper rod for bends or damage
– Damper unit for deformation or oil leaks

Inspect all the other parts for wear or damage.
If necessary, replace the shock absorber as an assembly.

BEARING REPLACEMENT

UPPER BEARING

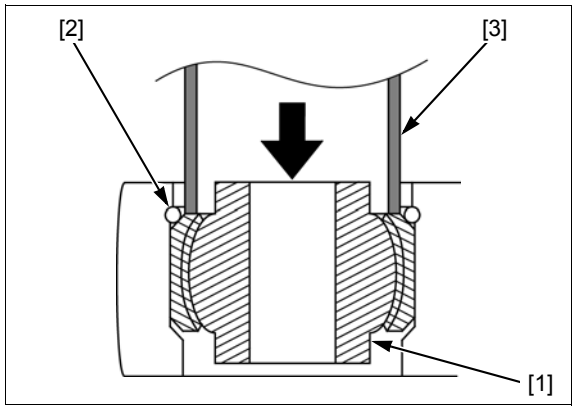
Remove the dust seals [1].



Press the spherical bearing [1] to get the clearance necessary to remove the stopper ring [2] using the special tool.

TOOL:
Bearing driver **07GMD-KT80100**
(Use only 17 mm collar [3])

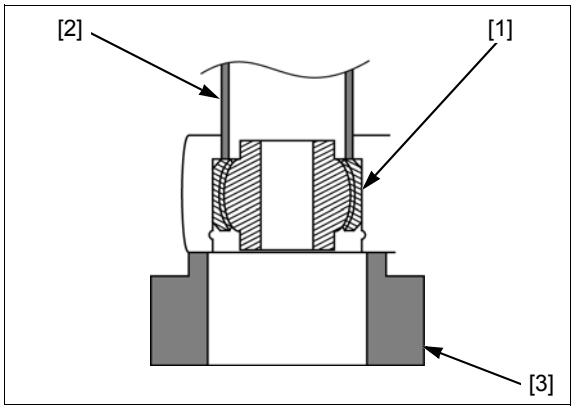
Remove the stopper ring.



Press the spherical bearing [1] out of the upper mount using the special tools.

TOOLS:

Bearing driver (Use only 17 mm collar [2])	**07GMD-KT80100**
Attachment, 30 mm I.D. [3]	**07746-0030300**

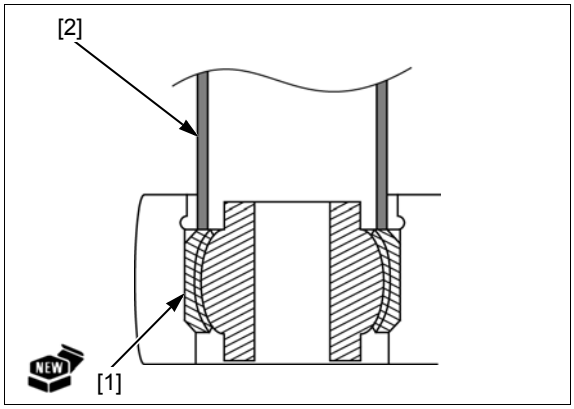


Drive the bearing in evenly; do not allow it to tilt.

Press a new spherical bearing [1] into the upper mount using the special tool.

TOOL:

Bearing driver (Use only 17 mm collar [2])	**07GMD-KT80100**

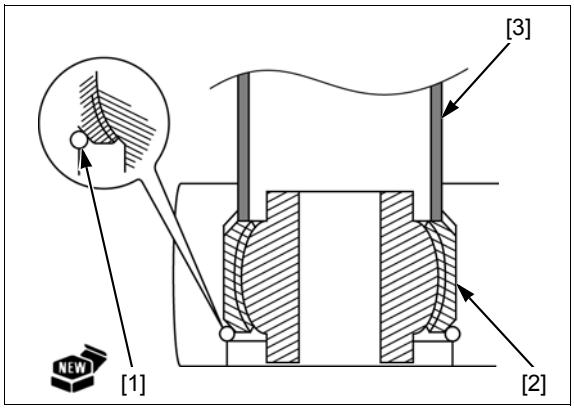


Install a new stopper ring [1] into the groove in the upper mount securely.

Press the spherical bearing [2] using the special tool until it seats against the stopper ring.

TOOL:

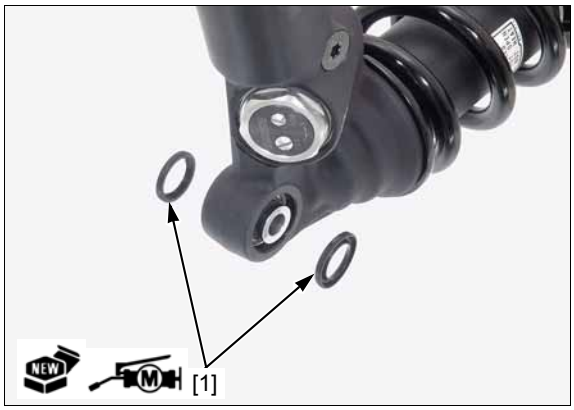
Bearing driver (Use only 17 mm collar [3])	**07GMD-KT80100**



The left dust seal O.D. is larger than right dust seal O.D.

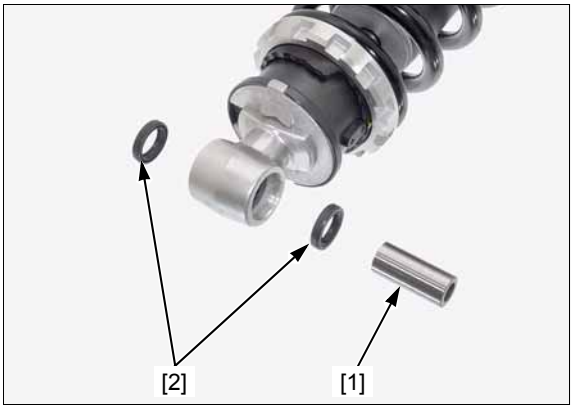
Apply molybdenum disulfide grease to the lips of new dust seals [1].

Install the dust seals until they are fully seated.



LOWER BEARING

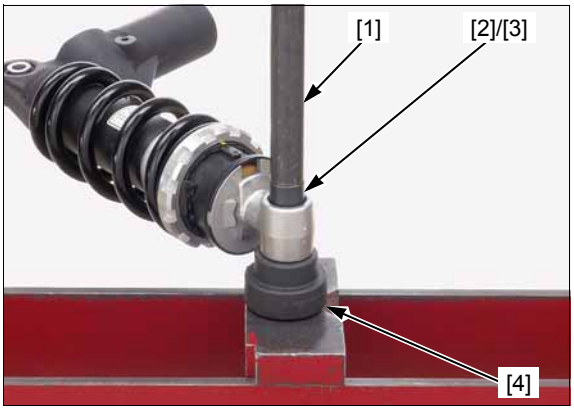
Remove the collar [1] dust seals [2].



Press the needle bearing out of the lower mount using the special tools.

TOOLS:

Driver [1]	**07949-3710001**
Attachment, 22 x 24 mm [2]	**07746-0010800**
Pilot, 17 mm [3]	**07746-0040400**
Attachment, 25 mm I.D. [4]	**07746-0030200**

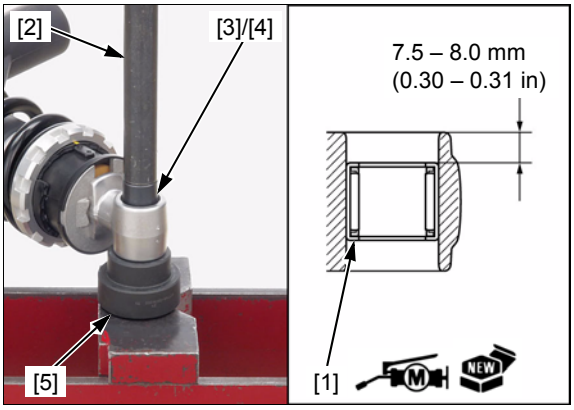


Apply molybdenum disulfide grease to a new needle bearing [1].

Press the needle bearing into the lower mount so that the needle bearing surface is 7.5 – 8.0 mm (0.30 – 0.31 in) below the end of the lower mount surface using the special tools.

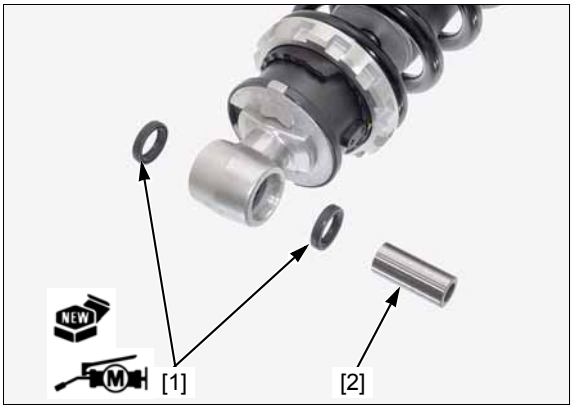
TOOLS:

Driver [2]	**07949-3710001**
Attachment, 22 x 24 mm [3]	**07746-0010800**
Pilot, 17 mm [4]	**07746-0040400**
Attachment, 25 mm I.D. [5]	**07746-0030200**



Apply molybdenum disulfide grease to the lips of new dust seals [1]

Install the dust seals and collar [2]

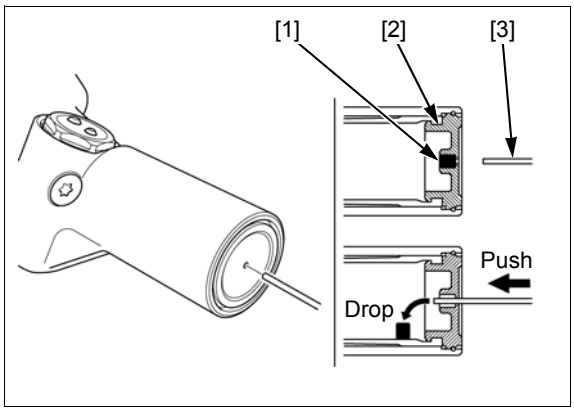


SHOCK ABSORBER DISPOSAL PROCEDURE

NOTE:

- Before disposal of the shock absorber, release the nitrogen from the reservoir.
- Put on safety glasses.

Release the nitrogen from the reservoir by pushing and dropping the packing [1] from the reservoir cap [2] using a 2 mm (0.07 in) shaft [3].



INSTALLATION

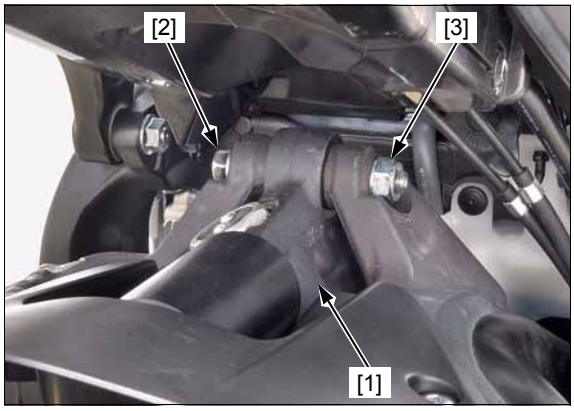
Support the rear wheel securely.

Install the shock absorber [1] into the swingarm from the right side.

Install the upper mounting bolt [2].
Install the upper mounting nut [3] and tighten it to the specified torque.

TORQUE: 44 N·m (4.5 kgf·m, 32 lbf·ft)

Install the suspension linkage (page 17-10).



SHOCK ABSORBER (CBR1000S1/S2)

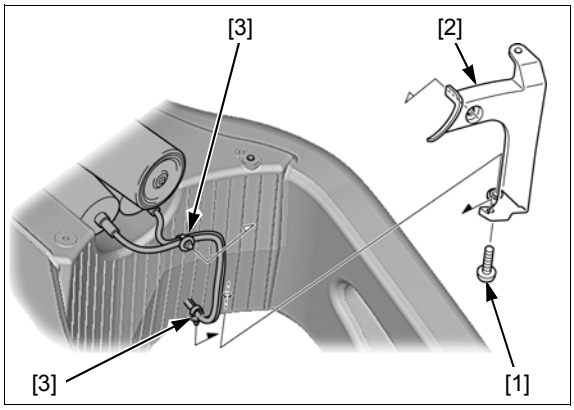
NOTE:

- Do not disassemble the shock absorber.

REMOVAL/INSTALLATION

Remove the following:

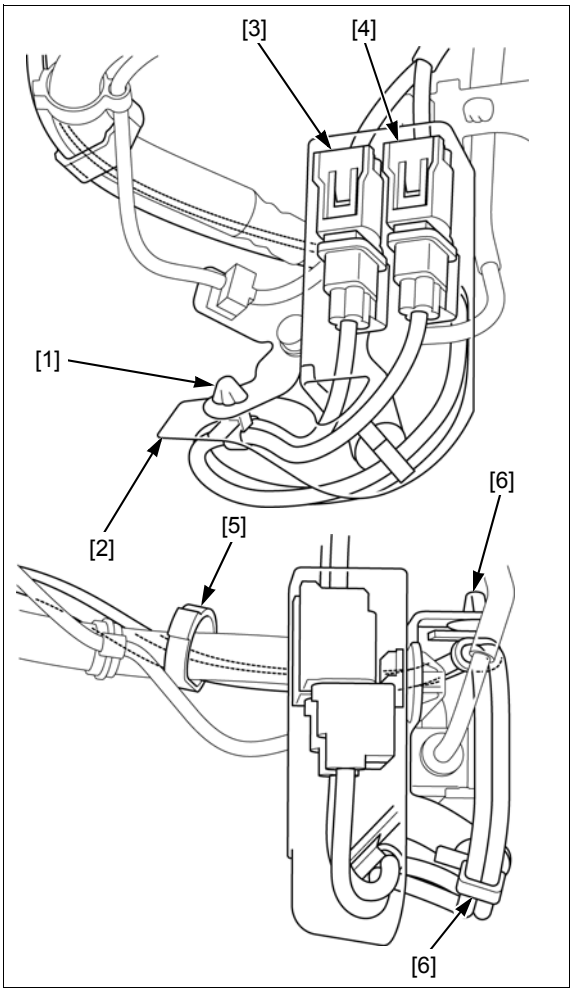
– Rear wheel (page 17-5)
– Suspension linkage (page 17-9)
– Rear fender C [3] (page 2-12)
– Socket screw [1]
– Wire cover [2]
– Wire clips [3] from the cover



Remove the wire clip [1] and connector cover [2], and slide the cover off the damping adjuster 4P (Black) connector [3] and 4P (Gray) connector [4].

Remove the connectors from the stay and disconnect them.

Remove the clamp [5] and adjuster wire clips [6].



Remove the upper mounting nut [1] and bolt [2].

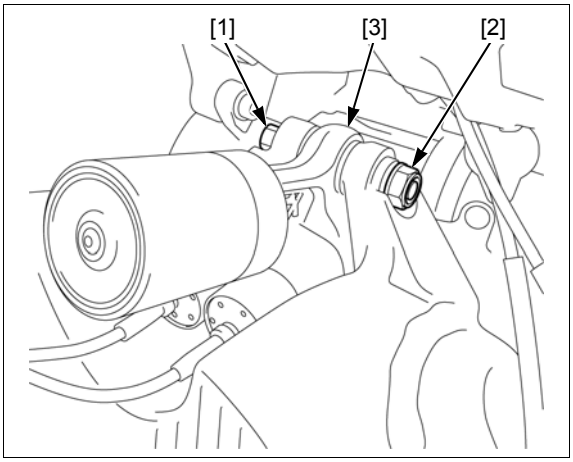
Support the swingarm in the horizontal position and free the upper portion of the shock absorber [3] from the swingarm. Then lower the swingarm and remove the shock absorber downward from the right side of the swingarm.

Install the shock absorber into the frame in the reverse order of removal.

TORQUE:
Upper mounting nut: 44 N·m (4.5 kgf·m, 32 lbf·ft)

Install the following:

– Rear fender C [3] (page 2-12)
– Suspension linkage (page 17-10)
– Rear wheel (page 17-8)



INSPECTION

Visually inspect the shock absorber for damage.

Check the following:

– Damper rod for bends or damage
– Damper unit for deformation or oil leaks

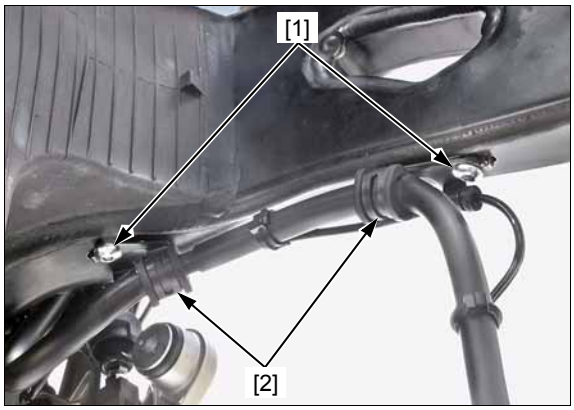
Inspect all the other parts for wear or damage.

SWINGARM

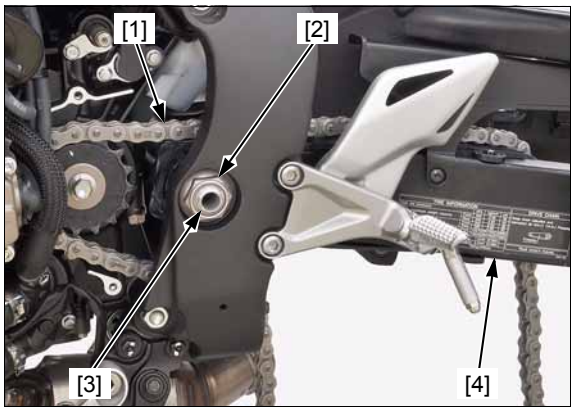
REMOVAL

Remove the following:

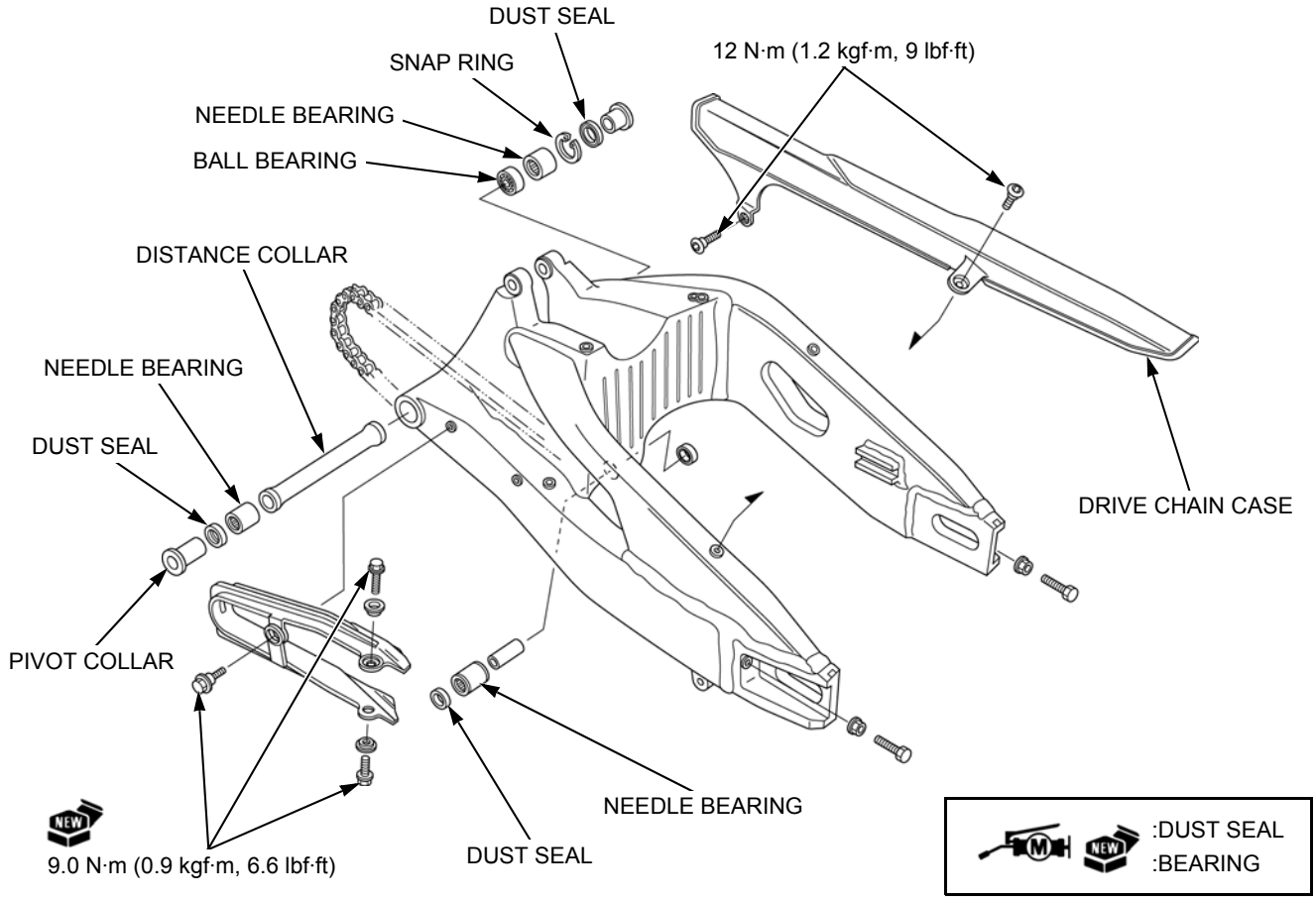
- Drive sprocket cover (page 2-21)
- Rear fender C (page 2-12)
- Rear wheel (page 17-5)
- Shock absorber
  - CBR1000RR/RA (page 17-11)
  - CBR1000S1/S2 (page 17-14)
- Special screws [1]
- Brake hose clamps [2]



- Drive chain [1] from the drive sprocket
- Pivot nut [2]
- Pivot bolt [3]
- Swingarm [4]



DISASSEMBLY/ASSEMBLY



Install the drive chain slider by aligning its tab with the groove in the swingarm.

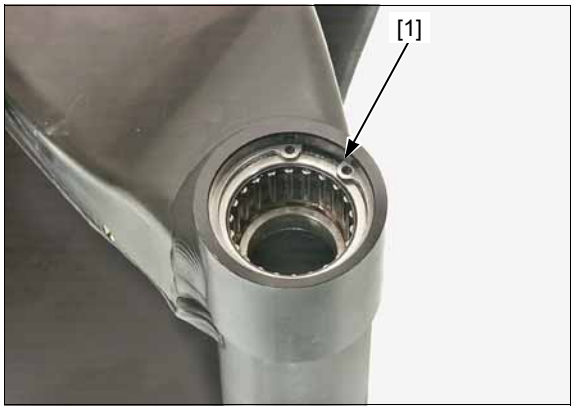
INSPECTION

Inspect the following parts for damage, abnormal wear, or deformation and replace if necessary.

- Dust seals
- Pivot collars
- Swingarm
- Bearings
- Drive chain slider

PIVOT BEARING REPLACEMENT

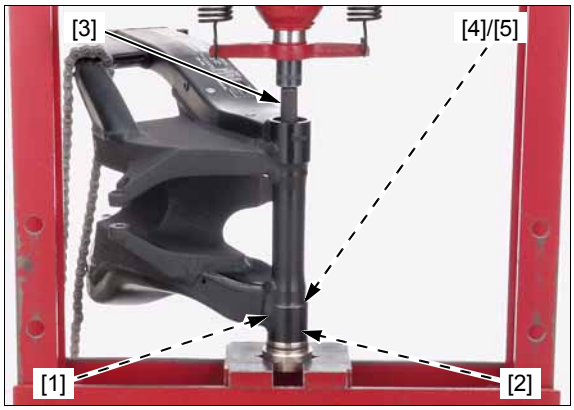
Remove the snap ring [1] from the swingarm right pivot.



Press the right pivot needle bearing [1] and ball bearing [2] out of the swingarm pivot using the special tools.

TOOLS:

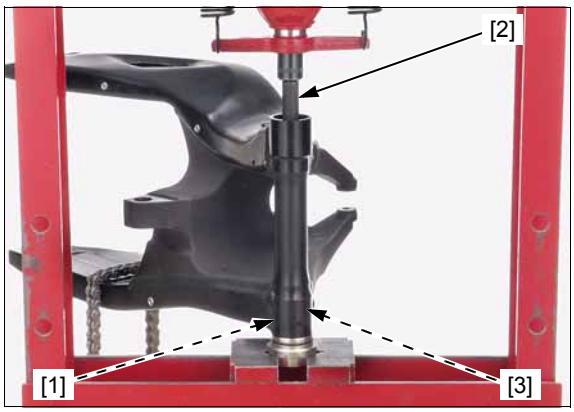
Driver [3]	**07949-3710001**
Attachment, 28 x 30 mm [4]	**07946-1870100**
Pilot, 25 mm [5]	**07746-0040600**



Press the left pivot needle bearing [1] out of the swingarm pivot using the special tools.

TOOLS:

Driver [2]	**07949-3710001**
Attachment, 32 x 35 mm [3]	**07746-0010100**

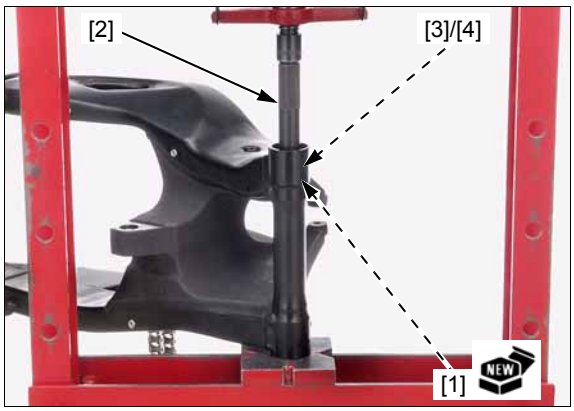


Press the ball bearing with the marked side facing out.

Press a new ball bearing [1] into the swingarm right pivot until it is fully seated using the special tools.

TOOLS:

Driver [2]	**07749-0010000**
Attachment, 40 x 42 mm [3]	**07746-0010900**
Pilot, 25 mm [4]	**07746-0040600**



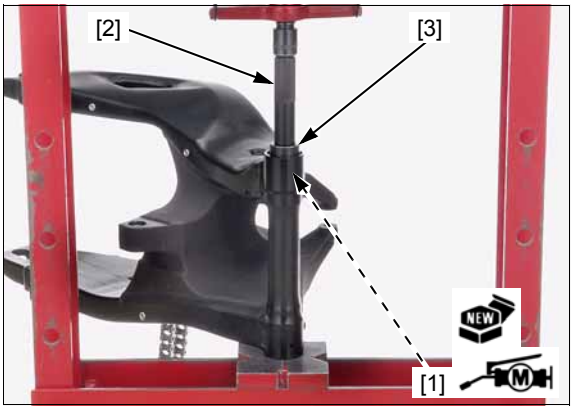
Pack a new needle bearing [1] with molybdenum disulfide grease.

Press the needle bearing with the marked side facing out.

Press the needle bearing into the swingarm right pivot until it is fully seated using the special tools.

TOOLS:

Driver [2]	**07749-0010000**
Attachment, 40 x 42 mm [3]	**07746-0010900**



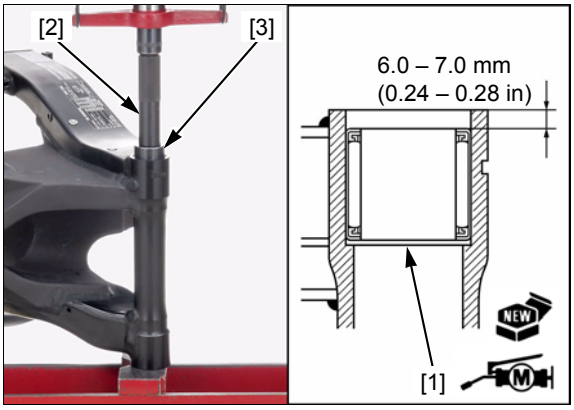
Pack a new needle bearing [1] with molybdenum disulfide grease.

Press the needle bearing with the marked side facing out.

Press the needle bearing into the swingarm left pivot so that the needle bearing surface is 6.0 – 7.0 mm (0.24 – 0.28 in) below the outer surface of the swingarm pivot using the special tools.

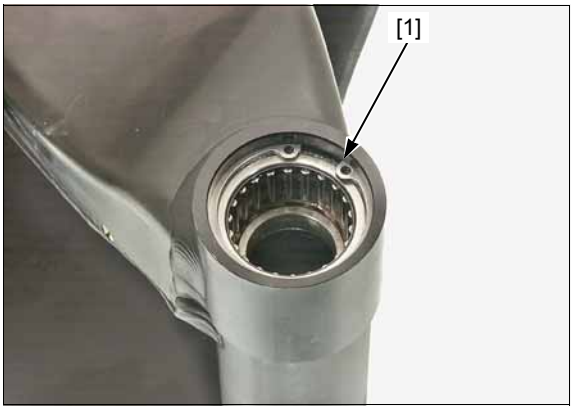
TOOLS:

Driver [2]	**07749-0010000**
Attachment, 40 x 42 mm [3]	**07746-0010900**



Make sure that the snap ring is firmly seated in the groove.

Install the snap ring [1] into the groove in the swingarm right pivot. securely.

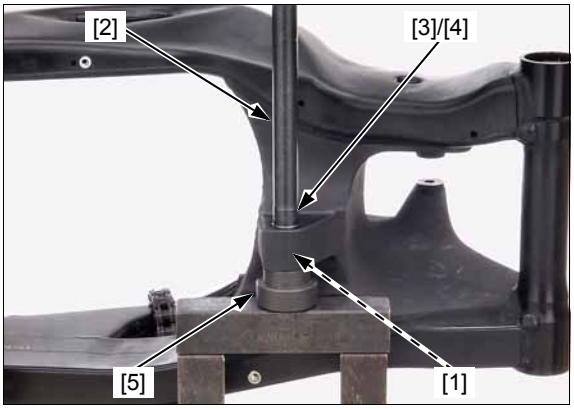


SHOCK ARM-TO-SWINGARM BEARING REPLACEMENT

Press the needle bearing [1] out of the swingarm using the special tools.

TOOLS:

Driver [2]	**07949-3710001**
Attachment, 22 x 24 mm [3]	**07746-0010800**
Pilot, 17 mm [4]	**07746-0040400**
Attachment, 30 mm I.D. [5]	**07746-0030300**

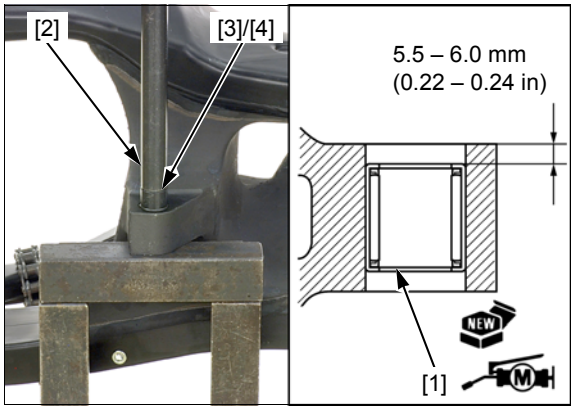


Pack a new needle bearing [1] with molybdenum disulfide grease.

Press the needle bearing into the swingarm so that the needle bearing surface is 5.5 – 6.0 mm (0.22 – 0.24 in) below the end of the swingarm using the special tools.

TOOLS:

Driver [2]	**07949-3710001**
Attachment, 22 x 24 mm [3]	**07746-0010800**
Pilot, 17 mm [4]	**07746-0040400**



INSTALLATION (CBR1000RR/RA)

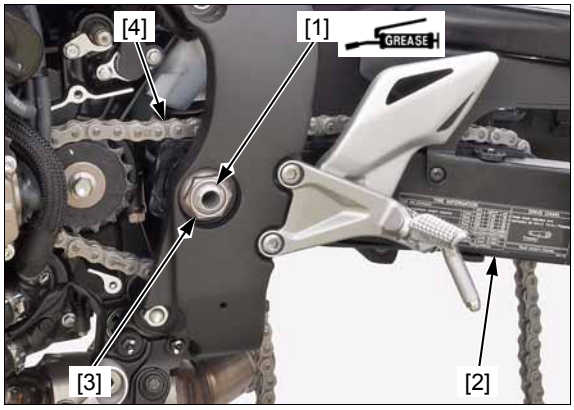
Apply a thin coat of grease to the sliding surface of the swingarm pivot bolt [1].

Install the swingarm [2] in the frame and insert the pivot bolt from the right side.

Install the pivot nut [3] and tighten it to the specified torque.

TORQUE: 124 N·m (12.6 kgf·m, 91 lbf·ft)

Install the drive chain [4] over the drive sprocket.



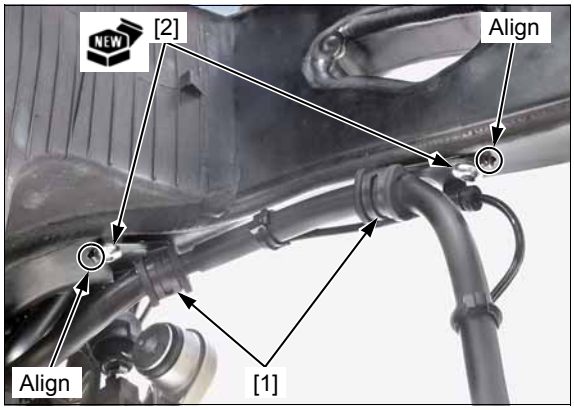
Install the brake hose clamps [1] onto the swingarm by aligning the tabs with the holes.

Install new special screws [2] and tighten them to the specified torque.

TORQUE: 4.2 N·m (0.4 kgf·m, 3.1 lbf·ft)

Install the following:

– Shock absorber
  – CBR1000RR/RA (page 17-14)
  – CBR1000S1/S2 (page 17-14)
– CBR1000RR/RA only: Rear wheel (page 17-8)
– CBR1000RR/RA only: Rear fender C (page 2-12)
– Drive sprocket cover (page 2-21)



18. HYDRAULIC BRAKE

SERVICE INFORMATION

GENERAL

⚠ CAUTION

Frequent inhalation of brake pad dust, regardless of material composition, could be hazardous to your health.
- Avoid breathing dust particles.
- Never use an air hose or brush to clean brake assemblies. Use an OSHA-approved vacuum cleaner.

NOTICE

Spilling brake fluid will severely damage instrument lenses and painted surface. It is also harmful to some rubber parts. Be careful whenever you remove the reservoir cover; make sure the front reservoir is horizontal first.

- This section covers service of the conventional brake components of the brake system. For Anti-lock Brake System (ABS) service (page 19-2).
- A contaminated brake disc or pad reduces stopping power. Discard contaminated pads and clean a contaminated disc with a high quality brake degreasing agent.
- Check the brake system by applying the brake lever or pedal after the air bleeding.
- Never allow contaminates (dirt, water, etc.) to get into an open reservoir.
- Once the hydraulic system has been opened, or if the brake feels spongy, the system must be bled.
- Always use fresh DOT 4 brake fluid from a sealed container when servicing the system. Do not mix different types of fluid, they may not be compatible.
- Remove the throttle body to replace the front brake pipes.
- Always check brake operation before riding the motorcycle.

TROUBLESHOOTING

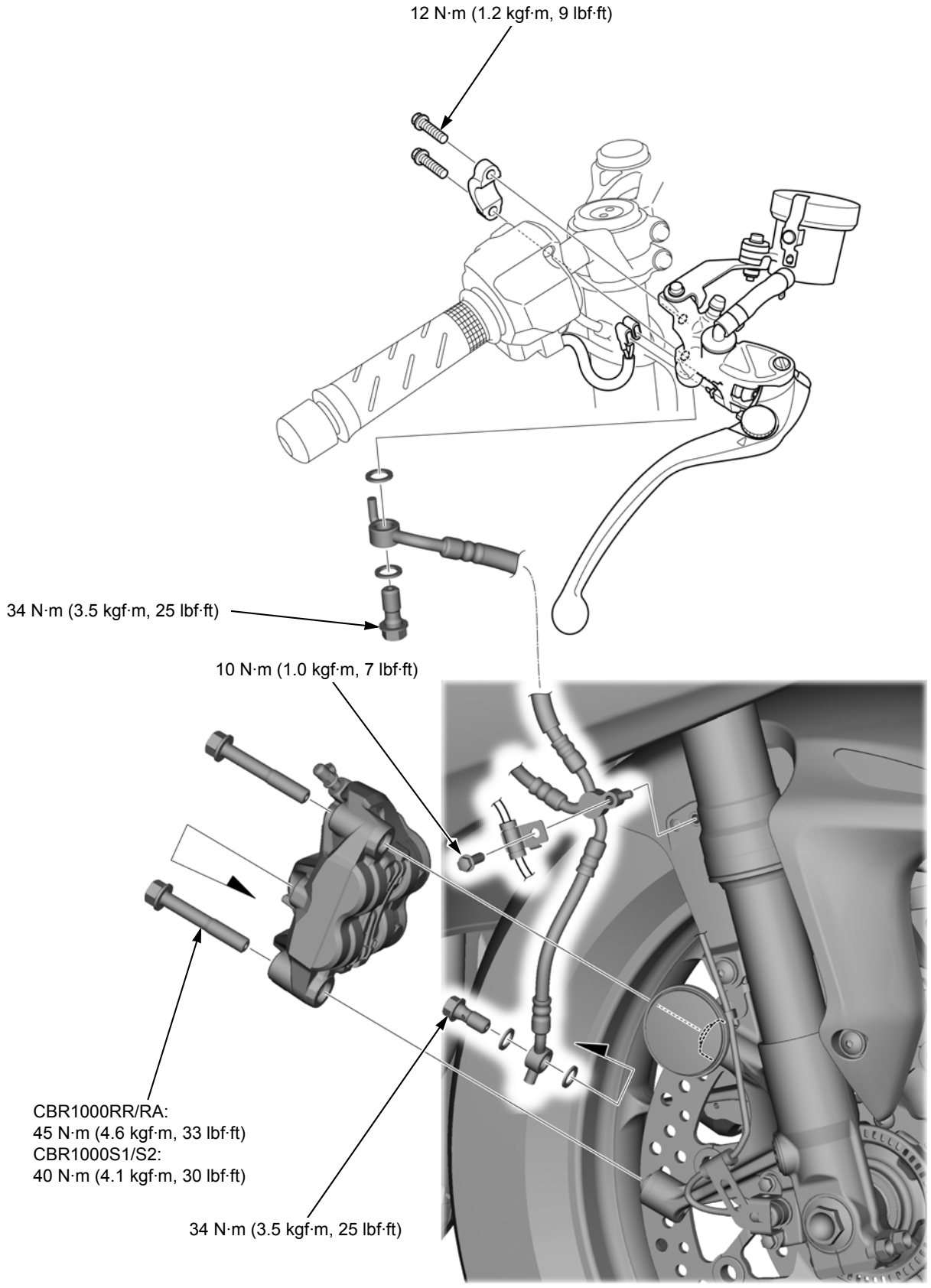
Brake lever/pedal soft or spongy
- Air in hydraulic system
- Leaking hydraulic system
- Contaminated brake pad/disc
- Worn caliper piston seal
- Worn master piston cups
- Worn brake pad/disc
- Contaminated caliper
- Contaminated master cylinder
- Caliper not sliding properly
- Low brake fluid level
- Clogged fluid passage
- Warped/deformed brake disc
- Sticking/worn caliper piston
- Sticking/worn master piston
- Bent brake lever/pedal

Brake lever/pedal hard
- Clogged/restricted fluid passage
- Sticking/worn caliper piston
- Caliper not sliding properly
- Worn caliper piston seal
- Sticking/worn master piston
- Bent brake lever/pedal

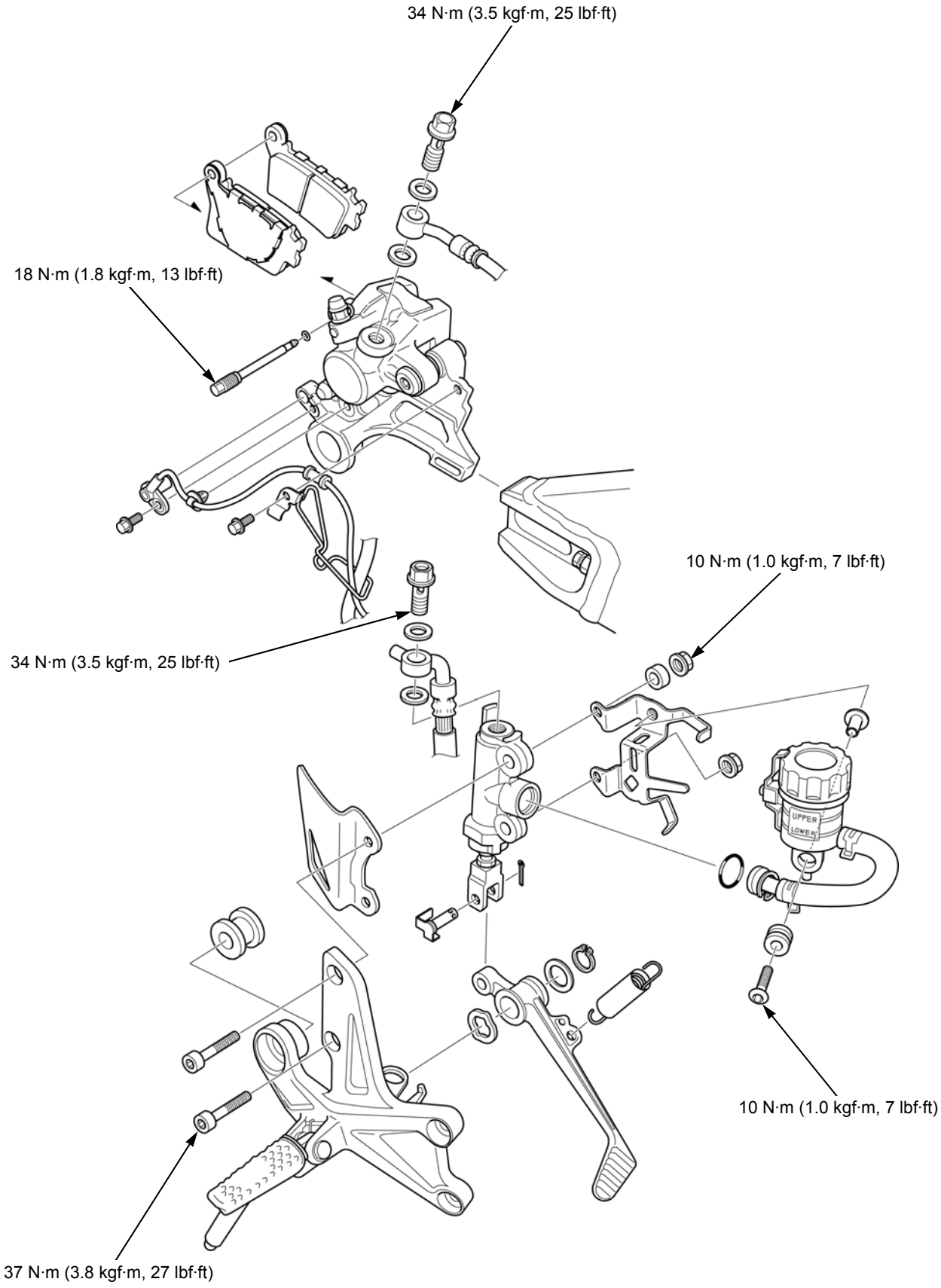
Brake drags
- Contaminated brake pad/disc
- Misaligned wheel
- Badly worn brake pad/disc
- Warped/deformed brake disc
- Caliper not sliding properly
- Clogged/restricted fluid passage
- Sticking/worn caliper piston
- Sticking master piston

COMPONENT LOCATION

FRONT:



REAR:


34 N·m (3.5 kgf·m, 25 lbf·ft)
18 N·m (1.8 kgf·m, 13 lbf·ft)
10 N·m (1.0 kgf·m, 7 lbf·ft)
34 N·m (3.5 kgf·m, 25 lbf·ft)
UPPER
LOWER
10 N·m (1.0 kgf·m, 7 lbf·ft)
37 N·m (3.8 kgf·m, 27 lbf·ft)

BRAKE FLUID REPLACEMENT/AIR BLEEDING

BRAKE FLUID DRAINING

Front brake only: Turn the handlebar so the reservoir is level.

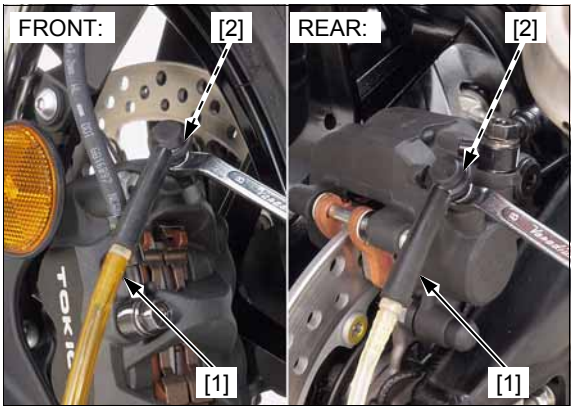
Remove the following:

– Screw [1]
– Stopper plate [2]
– Reservoir cap [3]
– Set plate [4]
– Diaphragm [5]

Connect a bleed hose [1] to the caliper bleed valve [2].

Loosen the bleed valve and pump the brake lever or pedal until no more fluid flows out of the bleed valve.

Close the bleed valve.



BRAKE FLUID FILLING/AIR BLEEDING

FRONT BRAKE

Fill the front reservoir to the upper level line with DOT 4 brake fluid from a sealed container.

Connect a commercially available brake bleeder to the front master cylinder bleed valve [1].

Operate the brake bleeder and loosen the bleed valve.

Check the fluid level often while bleeding to prevent air from being pumped into the system.

If an automatic refill system is not used, add fluid when the fluid level in the reservoir is low.

NOTE:

- When using a brake bleeding tool, follow the manufacturer's operating instructions.

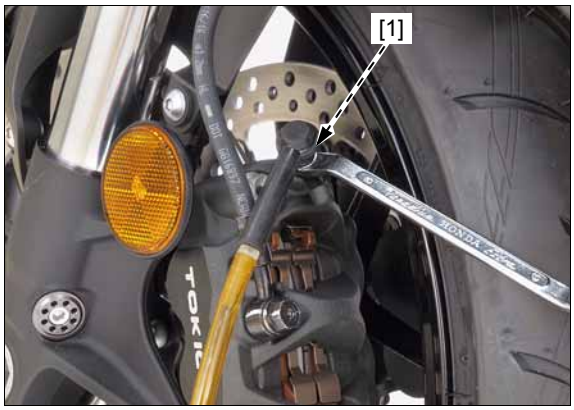
If air enters the bleeder from around the bleed valve threads, seal the threads with teflon tape.

Perform the bleeding procedure until air bubbles do not appear in the bleed hose.

Tighten the master cylinder bleed valve to the specified torque.

TORQUE: 6.0 N·m (0.6 kgf·m, 4.4 lbf·ft)

Connect a commercially available brake bleeder to the front brake caliper bleed valve [1].



If air enters the bleeder from around the bleed valve threads, seal the threads with teflon tape.

Perform the bleeding procedure until the system is completely flushed/bled.

Close the brake caliper bleed valve and operate the brake lever. If it still feels spongy, bleed the system again.

After bleeding the system completely, tighten the brake caliper bleed valve to the specified torque.

TORQUE:
CBR1000RR/RA: 8.0 N·m (0.8 kgf·m, 5.9 lbf·ft)
CBR1000S1/S2: 13 N·m (1.3 kgf·m, 10 lbf·ft)

Fill the front reservoir with DOT 4 brake fluid to the upper level line from a sealed container.

If the brake bleeder is not available, use the following procedure.

Connect a bleed hose [1] to the front master cylinder bleed valve [2].

Pump up the system pressure with the brake lever until the lever resistance is felt.

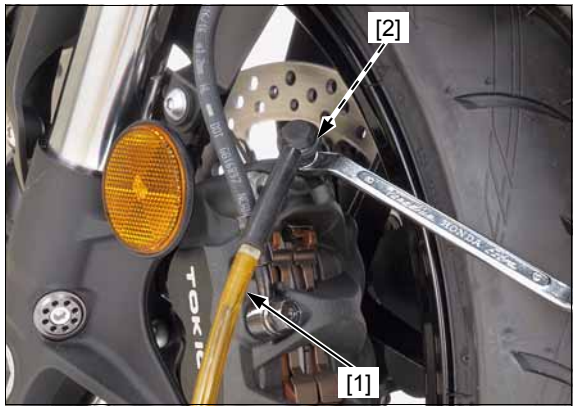
Do not release the brake lever or pedal until the bleed valve has been closed.

1. Squeeze the brake lever all the way, and loosen the bleed valve 1/4 of a turn. Wait several seconds and then close it.
2. Release the brake lever slowly and wait several seconds after it reaches the end of its travel.
3. Repeat the steps 1 and 2 until there are no air bubbles in the bleed hose.

Tighten the master cylinder bleed valve to the specified torque.

TORQUE: 6.0 N·m (0.6 kgf·m, 4.4 lbf·ft)

Connect a bleed hose [1] to the front brake caliper bleed valve [2].



Repeat the steps 1 through 3 at the caliper bleed valve.

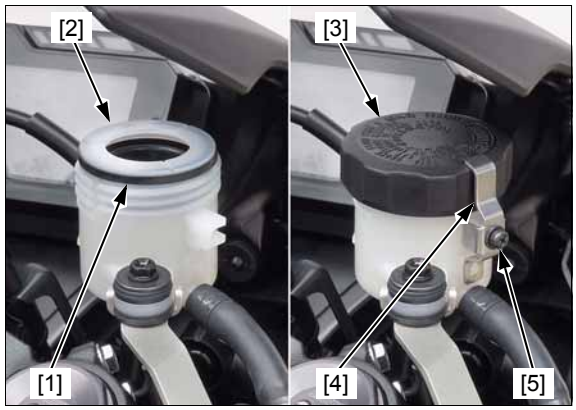
After bleeding the system completely, tighten the brake caliper bleed valve to the specified torque.

TORQUE:
CBR1000RR/RA: 8.0 N·m (0.8 kgf·m, 5.9 lbf·ft)
CBR1000S1/S2: 13 N·m (1.3 kgf·m, 10 lbf·ft)

Fill the front reservoir with DOT 4 brake fluid to the upper level line from a sealed container.

Install the following:

– Diaphragm [1]
– Set plate [2]
– Reservoir cap [3]
– Stopper plate [4]
– Screw [5]



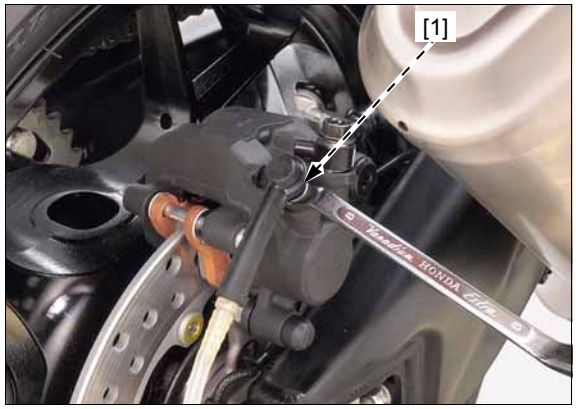
Tighten the screw to the specified torque.

TORQUE: 1.2 N·m (0.1 kgf·m, 0.9 lbf·ft)

REAR BRAKE

Fill the rear reservoir to the upper level line with DOT 4 brake fluid from a sealed container.

Connect a commercially available brake bleeder to the rear brake caliper bleed valve [1].



Operate the brake bleeder and loosen the bleed valve.

Check the fluid level often while bleeding to prevent air from being pumped into the system.

If an automatic refill system is not used, add fluid when the fluid level in the reservoir is low.

NOTE:

- When using a brake bleeding tool, follow the manufacturer's operating instructions.

If air enters the bleeder from around the bleed valve threads, seal the threads with teflon tape.

Perform the bleeding procedure until the system is completely flushed/bled.

Close the brake caliper bleed valve and operate the brake pedal. If it still feels spongy, bleed the system again.

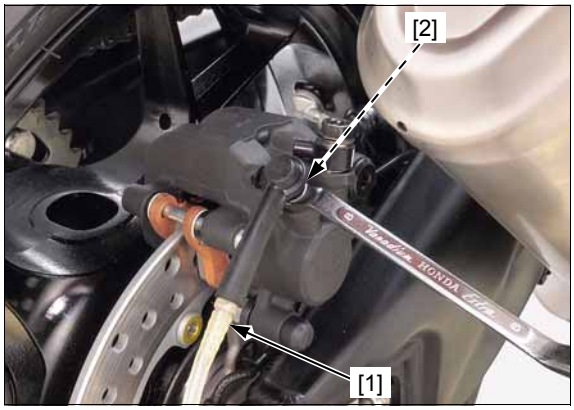
After bleeding the system completely, tighten the brake caliper bleed valve to the specified torque.

TORQUE: 6.0 N·m (0.6 kgf·m, 4.4 lbf·ft)

Fill the rear reservoir with DOT 4 brake fluid to the upper level line from a sealed container.

If the brake bleeder is not available, use the following procedure.

Connect a bleed hose [1] to the rear brake caliper bleed valve [2].



Pump up the system pressure with the brake pedal until the lever resistance is felt.

Do not release the brake lever or pedal until the bleed valve has been closed.

1. Depress the brake pedal all the way, and loosen the bleed valve 1/4 of a turn. Wait several seconds and then close it.
2. Release the brake pedal slowly and wait several seconds after it reaches the end of its travel.
3. Repeat the steps 1 and 2 until there are no air bubbles in the bleed hose.

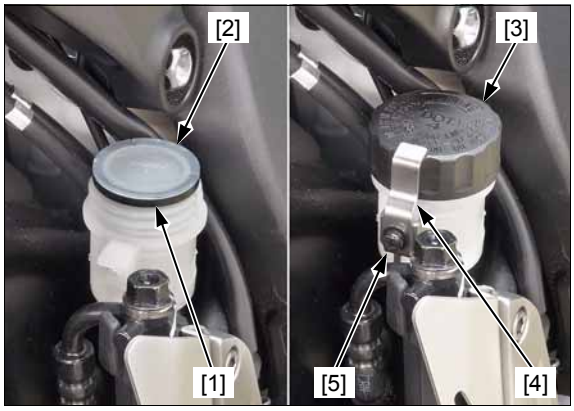
After bleeding the system completely, tighten the brake caliper bleed valve to the specified torque.

TORQUE: 6.0 N·m (0.6 kgf·m, 4.4 lbf·ft)

Fill the rear reservoir with DOT 4 brake fluid to the upper level line from a sealed container.

Install the following:

– Diaphragm [1]
– Set plate [2]
– Reservoir cap [3]
– Stopper plate [4]
– Screw [5]



Tighten the screw to the specified torque.

TORQUE: 1.2 N·m (0.1 kgf·m, 0.9 lbf·ft)

BRAKE PAD/DISC

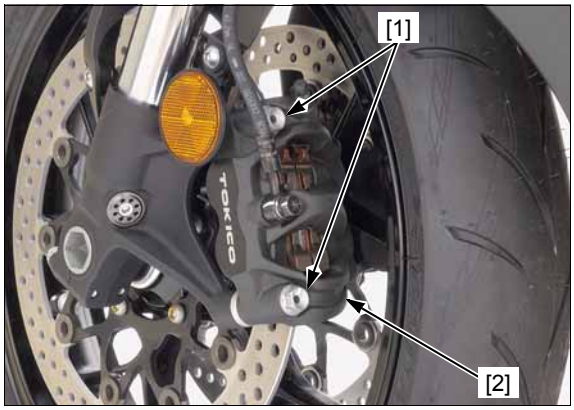
BRAKE PAD REMOVAL/ INSTALLATION

NOTE:

- Always replace the brake pads in pairs to ensure even disc pressure.
- Check the fluid level in the reservoir as this operation causes the fluid level to rise.

FRONT

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



Do not operate the brake lever after removing the pads.

Push the caliper pistons all the way in to allow installation of new brake pads by pushing the bake pads with a screwdriver or equivalent.

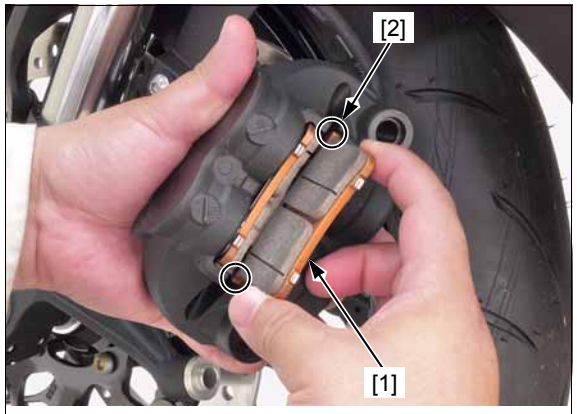
Slide the one pad [1] inward to release its tabs [2] from the grooves in the caliper body, and remove it.

Remove the other pad in the same manner.

Remove the pad spring [3].

Clean the inside of the caliper body especially around the caliper pistons.

Set the pad spring into the caliper body as shown.

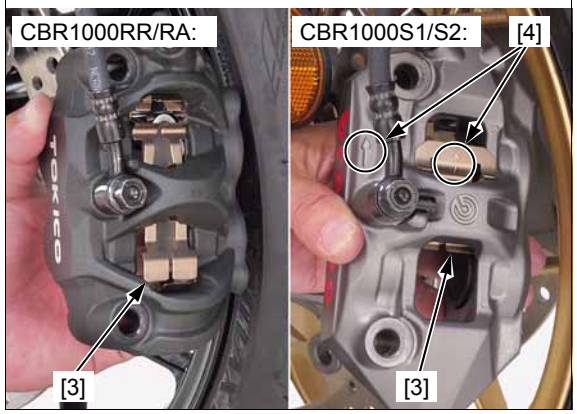


NOTE:

- CBR1000S1/S2: Note that the arrows [4] on the pad spring and caliper body are in the same direction.

Install the one pad by setting the tabs into the grooves in the caliper body while pushing in the pad against the pad spring straight. Slide the pad to seat it on the caliper pistons.

Install the other pad in the same manner.



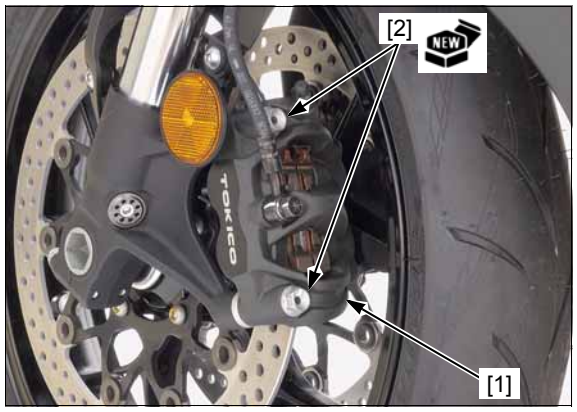
Be careful not to damage the brake pads.

Install the brake caliper [1] to the fork leg so that the disc is positioned between the pads.

Install new mounting bolts [2] and tighten them to the specified torque.

TORQUE:
CBR1000RR/RA: 45 N·m (4.6 kgf·m, 33 lbf·ft)
CBR1000S1/S2: 40 N·m (4.1 kgf·m, 30 lbf·ft)

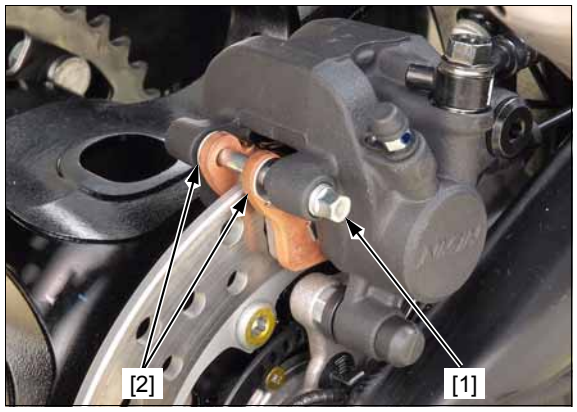
Operate the brake lever to seat the caliper pistons against the pads.



REAR

Do not operate the brake pedal after removing the pads.

Remove the pad pin [1] and brake pads [2].



Be sure the stopper ring [1] on the pad pin [2] is in good condition, and replace it with a new one if necessary.

Coat the stopper ring with silicone grease.

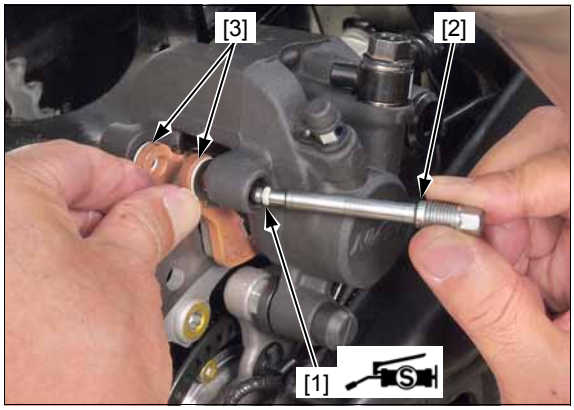
Install the pads [3] so that their ends are rest on the pad retainer properly.

Install the pad pin by pushing the pads against the pad spring to align the pad pin holes in the pads and caliper body.

Tighten the pad pin to the specified torque.

TORQUE: 18 N·m (1.8 kgf·m, 13 lbf·ft)

Operate the brake pedal to seat the caliper piston against the pads.



BRAKE DISC INSPECTION

Visually inspect the brake disc for damage or cracks.

Measure the brake disc according to HYDRAULIC BRAKE SPECIFICATIONS (page 1-11) and replace if necessary.

FRONT MASTER CYLINDER

REMOVAL/INSTALLATION

Drain the brake fluid from the front brake hydraulic system (page 18-5).

When removing the oil bolt, cover the end of the brake hose to prevent contamination.

Remove the following:

– Brake light switch connectors [1]
– Oil bolt [2]
– Sealing washers [3]
– Brake hose eyelet joint [4]
– Two bolts [5]
– Master cylinder holder [6]
– Master cylinder [7]

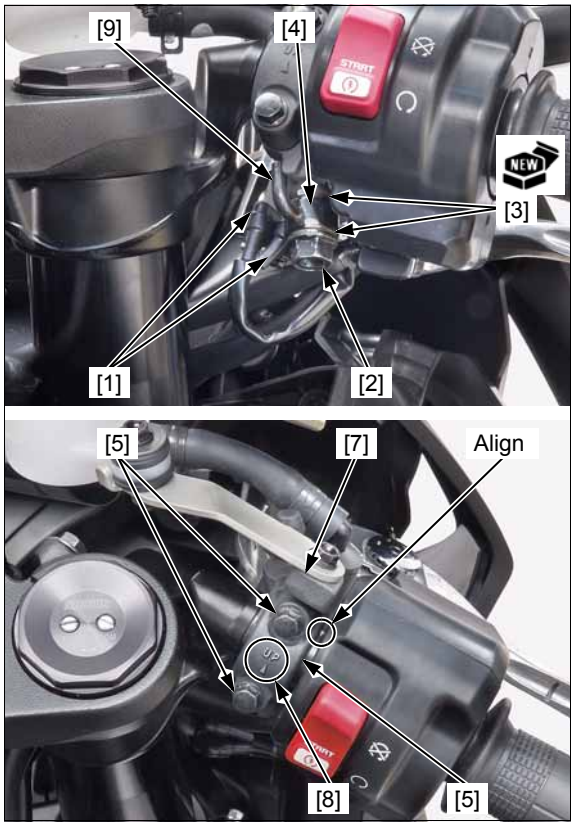
Installation is in the reverse order of removal.

NOTE:

- Replace the sealing washers with new ones.
- Install the master cylinder holder with the "UP" mark [8] facing up.
- Align the edge of the master cylinder with the punch mark on the handlebar, and tighten the upper bolt first then tighten the lower bolt.
- Be sure to rest the eyelet joint stopper pin [9] against the master cylinder when tightening the oil bolt.

TORQUE:
Front master cylinder holder bolt:
12 N·m (1.2 kgf·m, 9 lbf·ft)
Oil bolt:
34 N·m (3.5 kgf·m, 25 lbf·ft)

Fill and bleed the front brake hydraulic system (page 18-6).



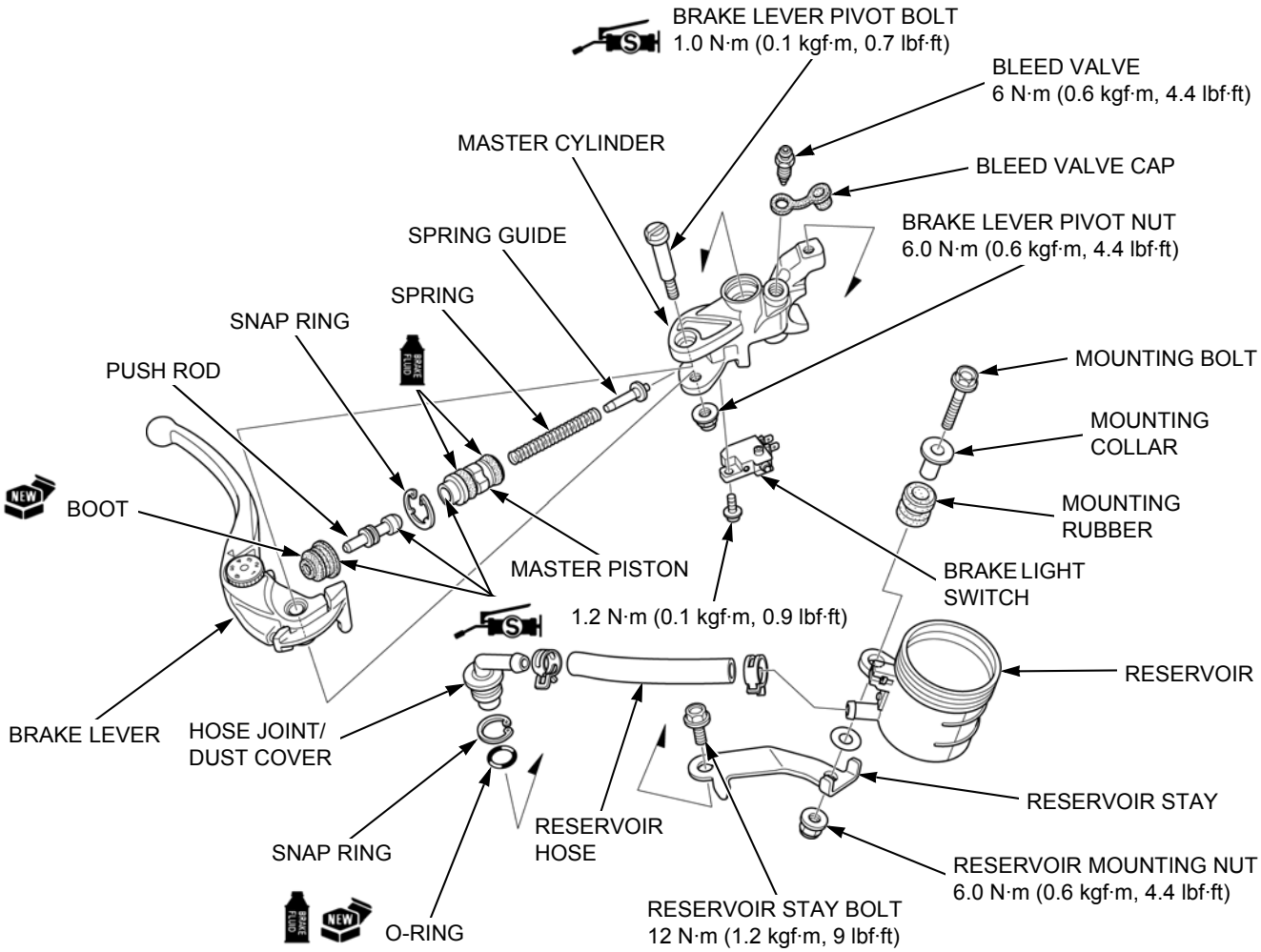
DISASSEMBLY/ASSEMBLY

NOTE:

- Use special tool to remove and install the snap ring.

TOOL:
Snap Ring Pliers **07914-SA50001**

- Do not allow the piston cup lips to turn inside out.
- Install the snap ring with the chamfered edge facing the thrust load side and be certain it is firmly seated in the groove. Do not reuse the snap ring which could easily spin in the groove.
- Align the switch boss with the master cylinder hole properly.
- When tightening the pivot nut, hold the pivot bolt.



INSPECTION

Check the following parts for scoring, scratches, deterioration or damage.

– Master cylinder
– Master piston
– Piston cups
– Spring
– Boot

Measure the parts according to HYDRAULIC BRAKE SPECIFICATIONS (page 1-11).

Replace any part if it is out of service limit.

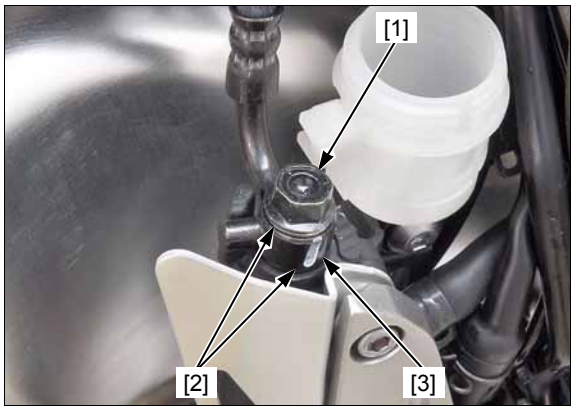
REAR MASTER CYLINDER

REMOVAL

Drain the brake fluid from the rear brake hydraulic system (page 18-5).

When removing the oil bolt, cover the end of the brake hose to prevent contamination.

Remove the brake hose oil bolt [1], sealing washers [2] and brake hose eyelet joint [3].



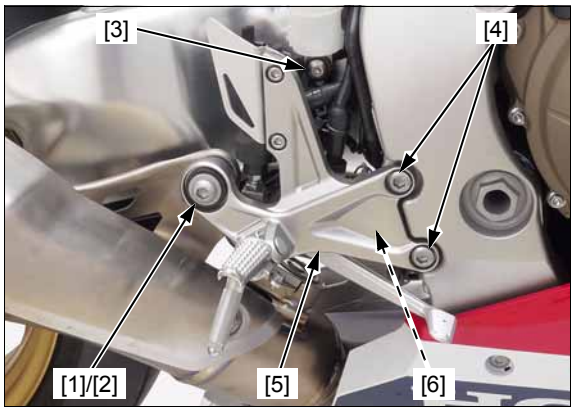
Support the muffler securely.

Remove the muffler mounting nut [1] and bolt [2].

Remove the reservoir mounting bolt [3] and release the EGCA cables from the cable guides of the step guard stay.

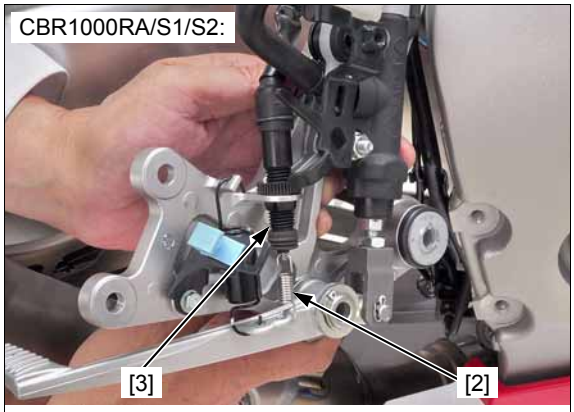
Except CBR1000RR: Release the clip [6] from the rear brake pipe.

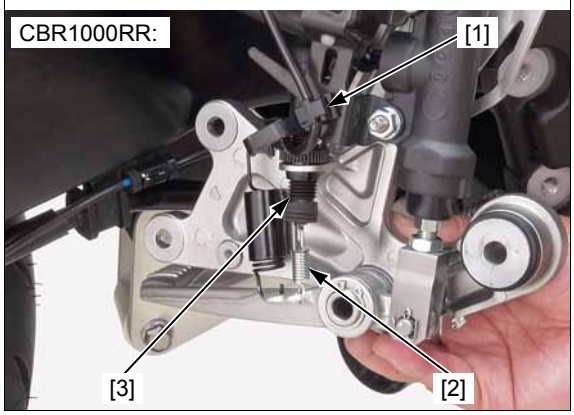
Remove the bolts [4] and right main step bracket assembly [5] from the frame.



CBR1000RR only: Remove the rear wheel speed wire clip [1] from the step guard stay.

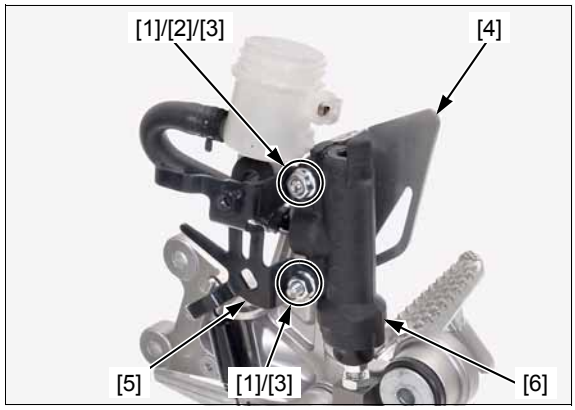
Unhook the spring [2] and remove the rear brake light switch [3] from the main step bracket.



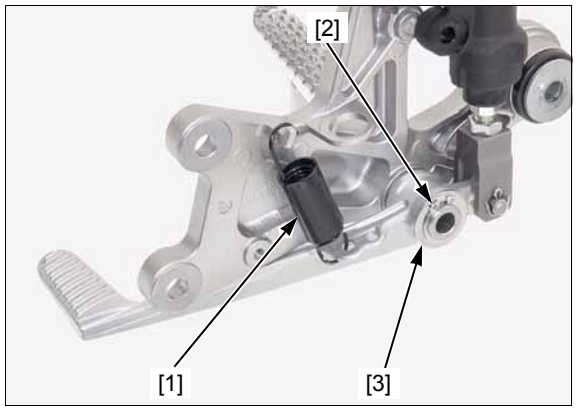


Remove the following:

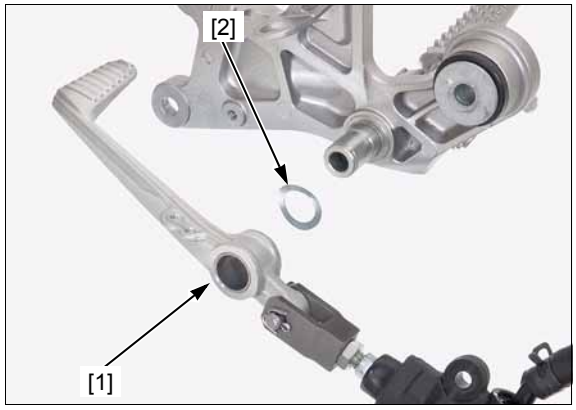
– Nuts [1]
– Collar [2]
– Bolts [3]
– Step guard [4]
– Step guard stay [5]
– Master cylinder [6]



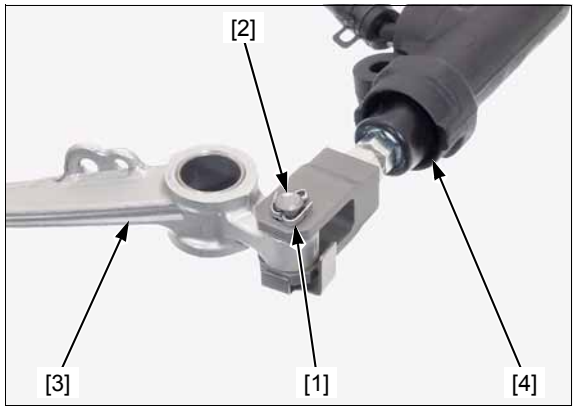
– Brake pedal return spring [1]
– Snap ring [2]
– Washer [3]



– Brake pedal [1]
– Wave washer [2]



– Cotter pin [1]
– Joint pin [2]
– Brake pedal [3]
– Master cylinder [4]



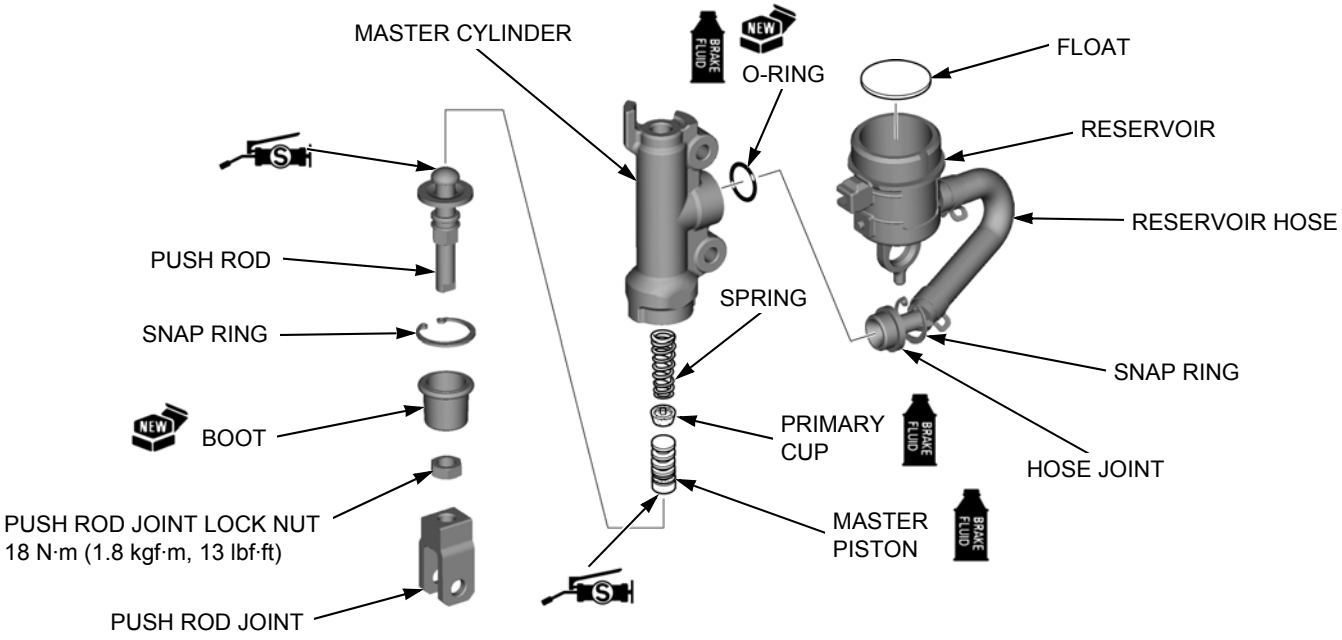
DISASSEMBLY/ASSEMBLY

NOTE:

- Use special tool to remove and install the snap ring.

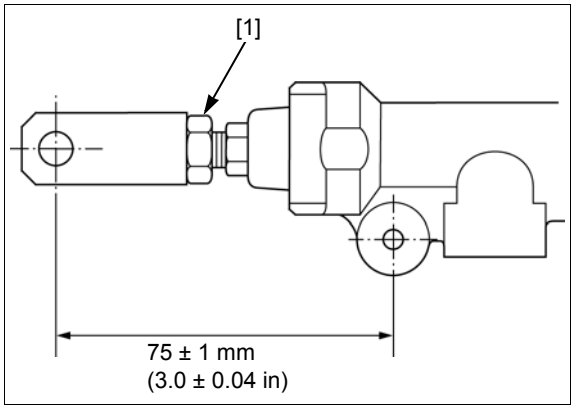
TOOL:
Snap Ring Pliers 07914-SA50001

- Install the snap ring with the chamfered edge facing the thrust load side and be certain it is firmly seated in the groove. Do not reuse the snap ring which could easily spin in the groove.
- Do not allow the piston cup lips to turn inside out.



If the push rod is disassembled, adjust the push rod length so that the distance between the center of the master cylinder lower mounting bolt hole and joint pin hole is 75 ± 1 mm (3.0 ± 0.04 in). After adjustment, tighten the lock nut [1] to the specified torque.

TORQUE: 18 N·m (1.8 kgf·m, 13 lbf·ft)



INSPECTION

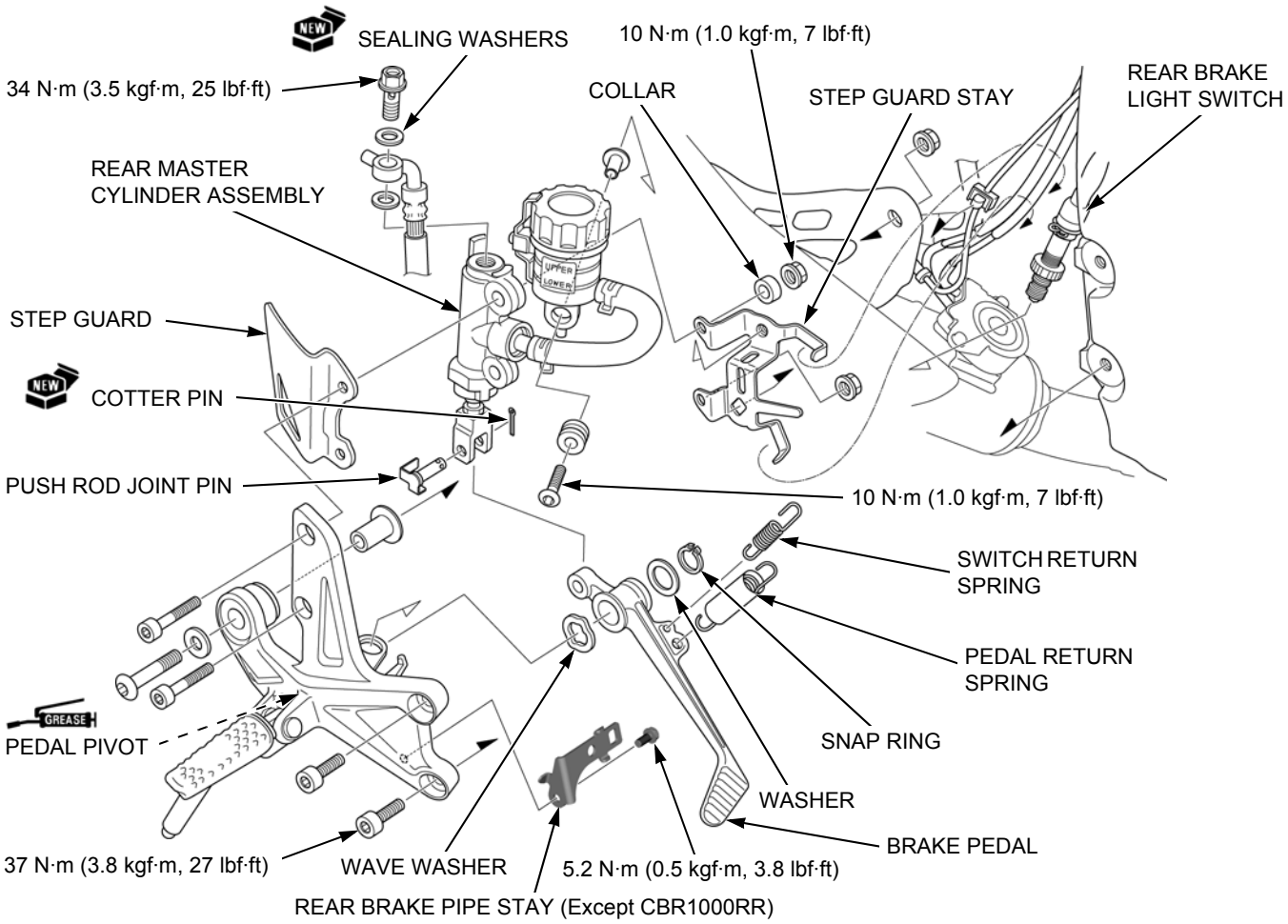
Check the following parts for scoring, scratches, deterioration or damage.

– Master cylinder
– Master piston
– Piston cups
– Spring
– Boot

Measure the parts according to HYDRAULIC BRAKE SPECIFICATIONS (page 1-11).

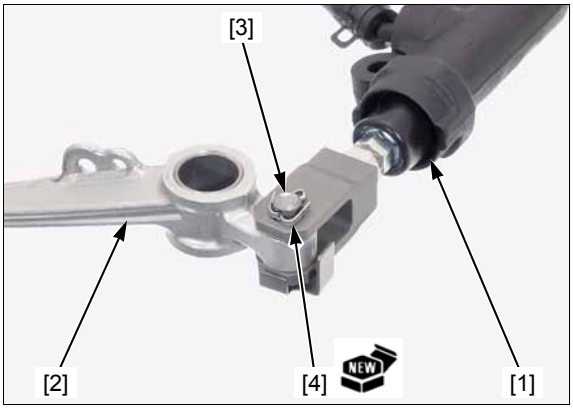
Replace any part if it is out of service limit.

INSTALLATION



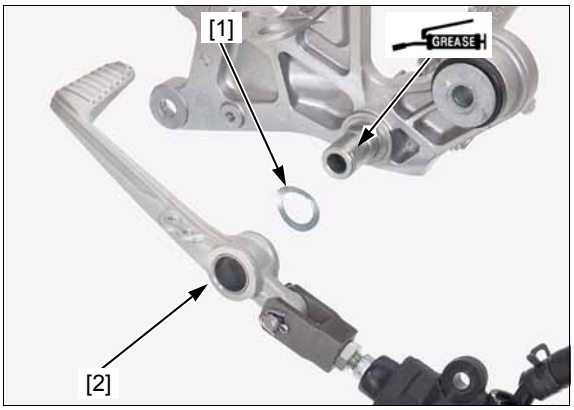
Install the following onto the master cylinder [1]:

- Brake pedal [2]
- Joint pin [3]
- New cotter pin [4]



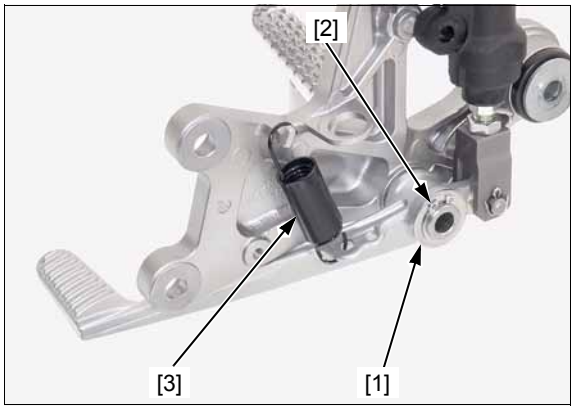
Apply grease to the rear brake pedal pivot sliding surface.

Install the wave [1] washer and brake pedal [2].



Install the washer [1] and snap ring [2].

Install the brake pedal return spring [3] by hooking its ends to the pedal and main step bracket as shown.

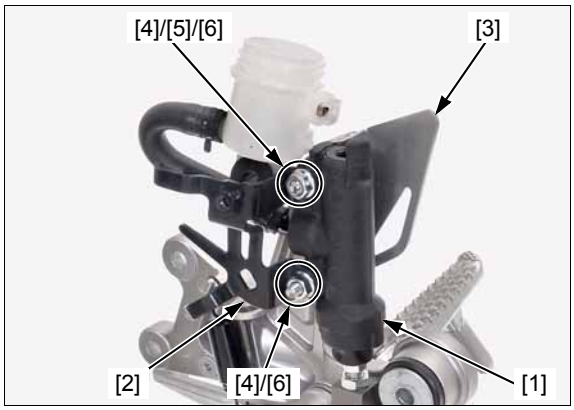


Install the following:

– Master cylinder [1]
– Step guard stay [2]
– Step guard [3]
– Bolts [4]
– Collar [5]
– Nuts [6]

Tighten the nuts to the specified torque.

TORQUE: 10 N·m (1.0 kgf·m, 7 lbf·ft)

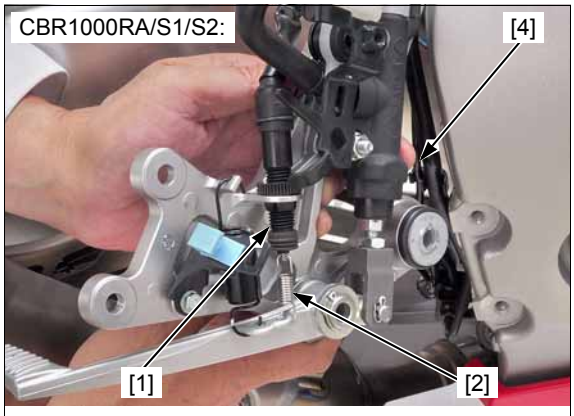


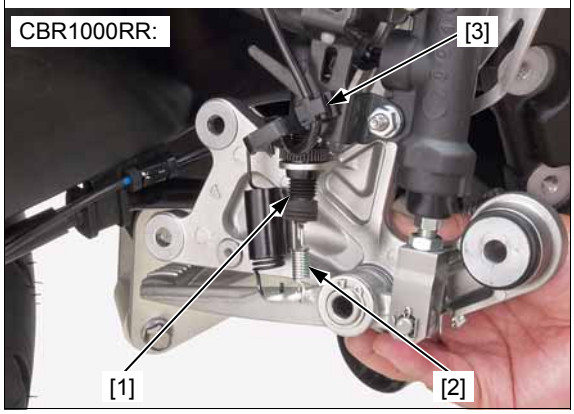
Install the rear brake light switch [1] and hook the spring [2] to the brake pedal as shown.

Route the wire properly (page 1-23)

CBR1000RR only: Install the rear wheel speed wire clip [3] onto the step guard stay.

Except CBR1000RR: Make sure that the rear wheel speed wire [4] is clamped securely with the rear brake pipe as shown.



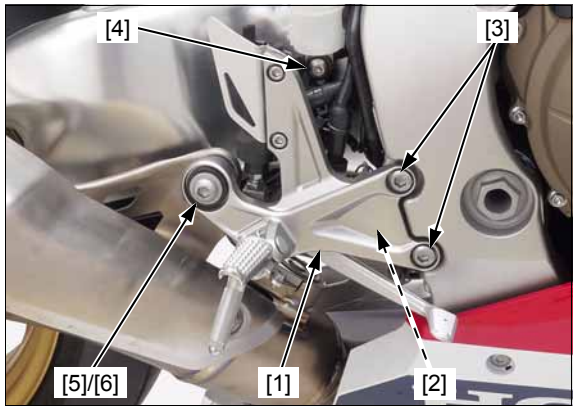


Except CBR1000RR: Fit the clip [2] onto the rear brake pipe.

Install the right main step bracket assembly [1] onto the frame.

Install the bolts [3] and tighten them to the specified torque.

TORQUE: 37 N·m (3.8 kgf·m, 27 lbf·ft)



Route the cables properly (page 1-23)

Install the EGCA cables into the cable guides of the step guard stay.

Set the reservoir boss into the step guard stay hole, install the mounting bolt [4] and tighten it to the specified torque.

TORQUE: 10 N·m (1.0 kgf·m, 7 lbf·ft)

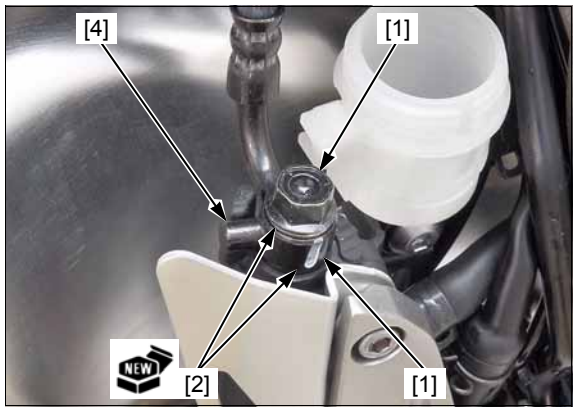
Install the muffler mounting bolt [5] and nut [6], and tighten the bolt securely.

Install brake hose eyelet joint [1] with new sealing washers [2] and oil bolt [3].

Rest the eyelet joint stopper pin [4] against the master cylinder and tighten the oil bolt to the specified torque.

TORQUE: 34 N·m (3.5 kgf·m, 25 lbf·ft)

Fill and bleed the rear brake hydraulic system (page 18-7).



FRONT BRAKE CALIPER

REMOVAL/INSTALLATION

Drain the brake fluid from the front brake hydraulic system (page 18-5).

When removing the oil bolt, cover the end of brake hose to prevent contamination.

Remove the brake hose oil bolt [1], sealing washers [2] and brake hose eyelet joint [3].

Remove the front brake pads (page 18-8).

Installation is in the reverse order of removal.

NOTE:

- Replace the sealing washers with new ones.
- Be sure to rest the eyelet joint (left side) or eyelet joint stopper pin (right side) against the caliper body when tightening the oil bolt.

TORQUE:
Oil bolt: 34 N·m (3.5 kgf·m, 25 lbf·ft)

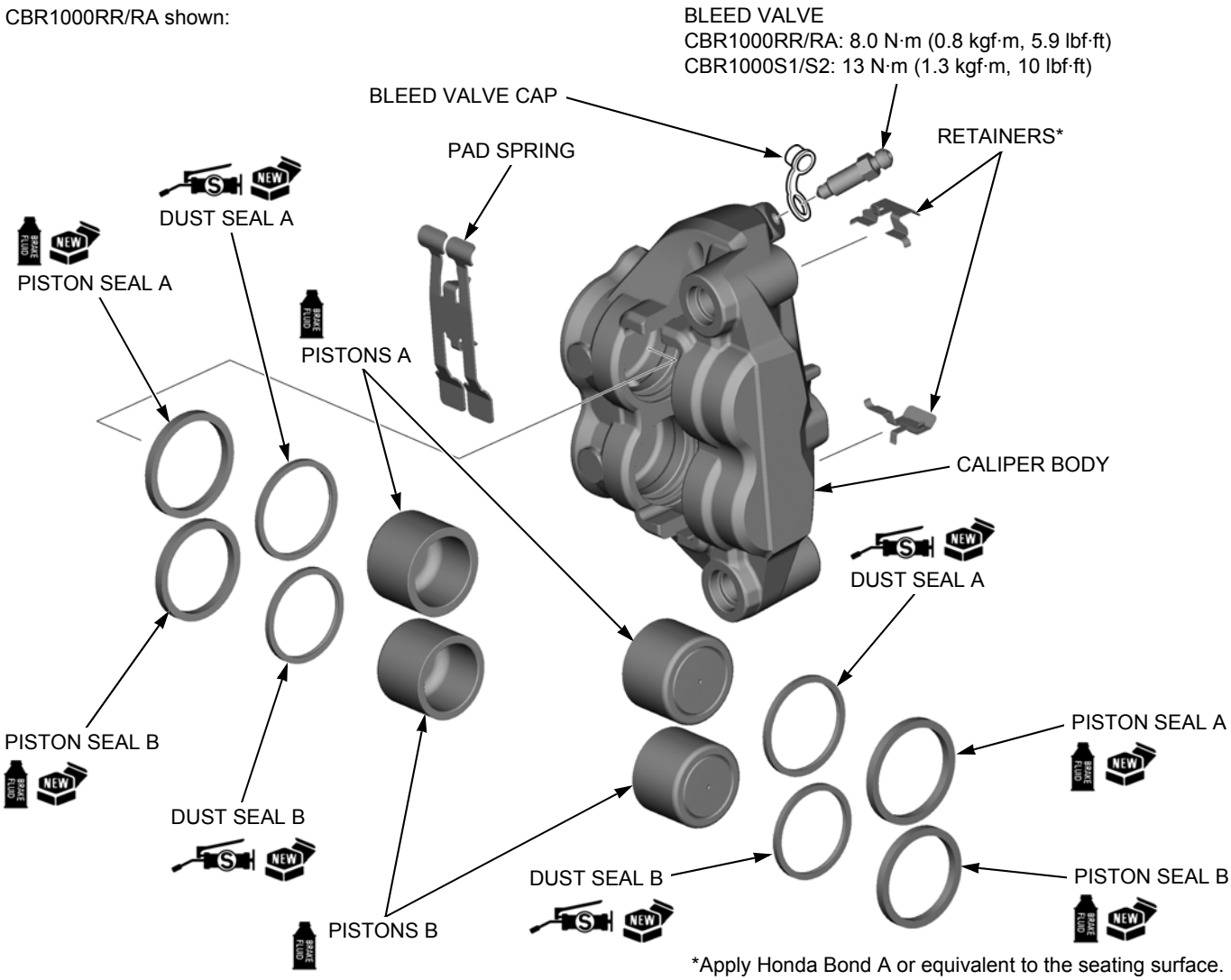
Fill and bleed the front brake hydraulic system (page 18-6).

DISASSEMBLY/ASSEMBLY

NOTE:

- Be careful not to scratch the caliper piston and cylinder sliding surfaces.
- Mark the pistons to ensure that they are reinstalled in their original locations.
  – Caliper pistons A (upper; 32 mm O.D.)
  – Caliper pistons B (lower; 30 mm O.D.)
- When removing the caliper pistons with compressed air, place a shop towel between the pistons to prevent damaging the pistons and caliper body. Do not use high pressure or bring the nozzle too close to the fluid inlet.
- Install the pistons with the opening toward the pads.

CBR1000RR/RA shown:



*Apply Honda Bond A or equivalent to the seating surface.

INSPECTION

Check the following parts for scoring, scratches, deterioration or damage.

– Caliper cylinders
– Caliper pistons

Measure the parts according to HYDRAULIC BRAKE SPECIFICATIONS (page 1-11).

Replace any part if it is out of service limit.

REAR BRAKE CALIPER

REMOVAL/INSTALLATION

Drain the brake fluid from the rear brake hydraulic system (page 18-5).

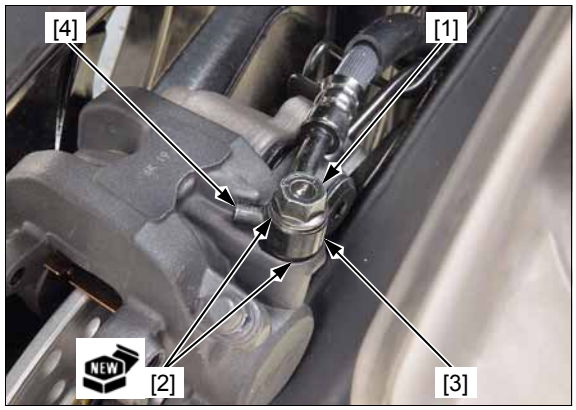
Remove the rear brake pads (page 18-9)

When removing the oil bolt, cover the end of brake hose to prevent contamination.

Remove the brake hose oil bolt [1], sealing washers [2] and brake hose eyelet joint [3].

Remove the rear wheel speed sensor (page 19-22).

Installation is in the reverse order of removal.



NOTE:

- Replace the sealing washers with new ones.
- Be sure to rest the eyelet stopper pin [4] against the caliper body when tightening the oil bolt.

TORQUE:

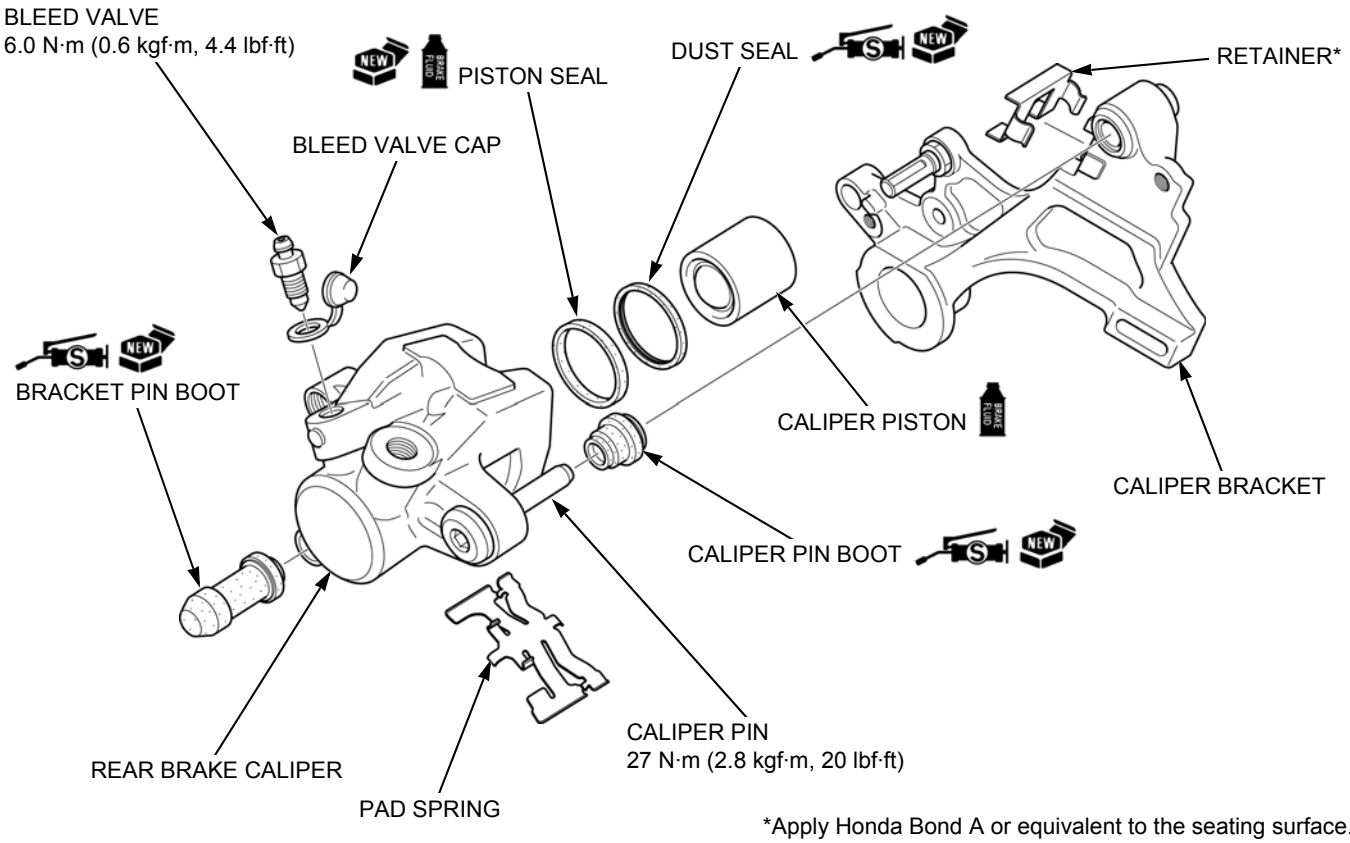
Oil bolt: 34 N·m (3.5 kgf·m, 25 lbf·ft)

Fill and bleed the rear brake hydraulic system (page 18-7).

DISASSEMBLY/ASSEMBLY

NOTE:

- Be careful not to scratch the caliper piston and cylinder sliding surfaces.
- When removing the caliper piston with compressed air, place a shop towel over the piston to prevent damaging the piston and caliper body. Do not use high pressure or bring the nozzle too close to the fluid inlet.
- Install the piston with the opening toward the pads.



*Apply Honda Bond A or equivalent to the seating surface.

INSPECTION

Check the following parts for scoring, scratches, deterioration or damage.

– Caliper cylinder
– Caliper piston

Measure the parts according to HYDRAULIC BRAKE SPECIFICATIONS (page 1-11).

Replace any part if it is out of service limit.

19. ANTI-LOCK BRAKE SYSTEM (ABS) (Except CBR1000RR)

SERVICE INFORMATION

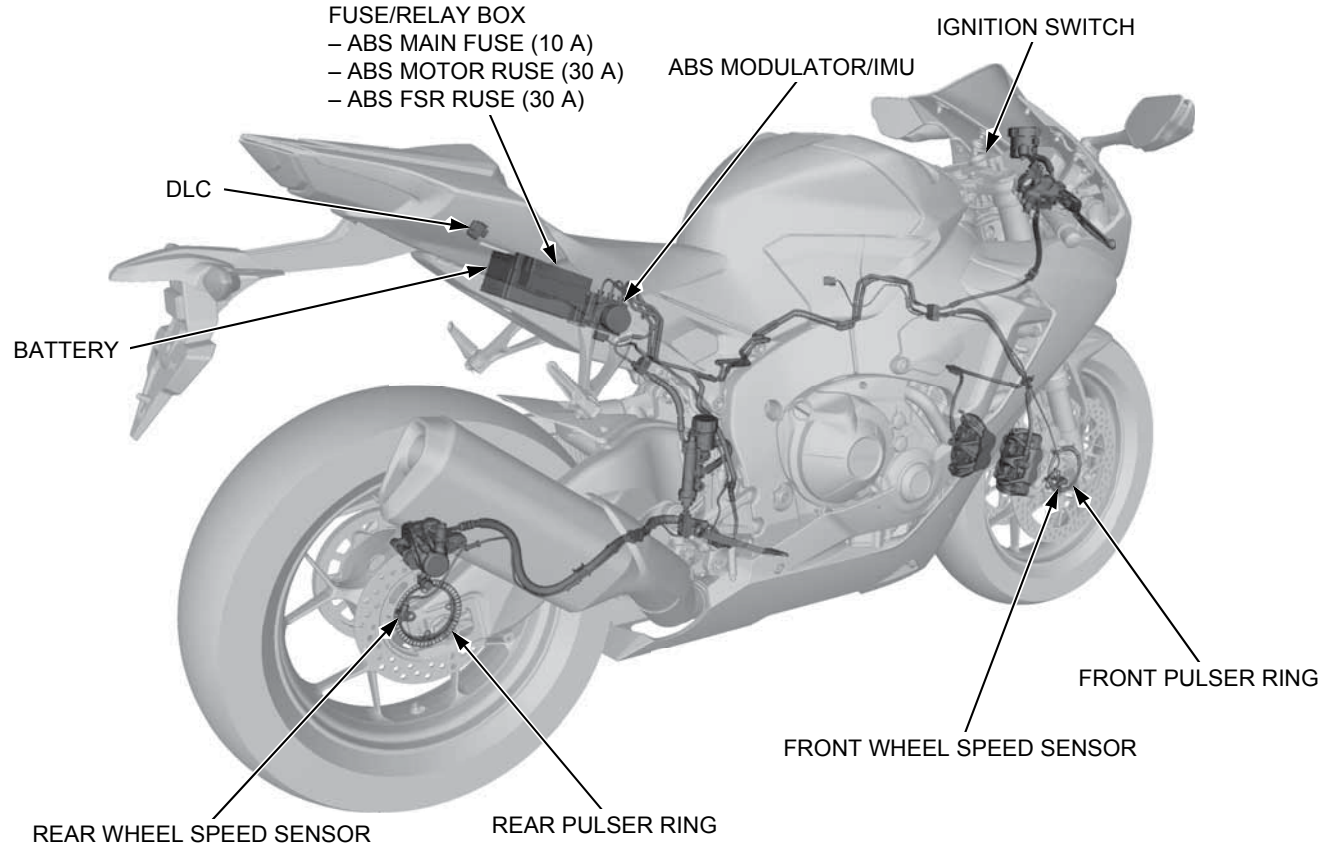
GENERAL

NOTICE

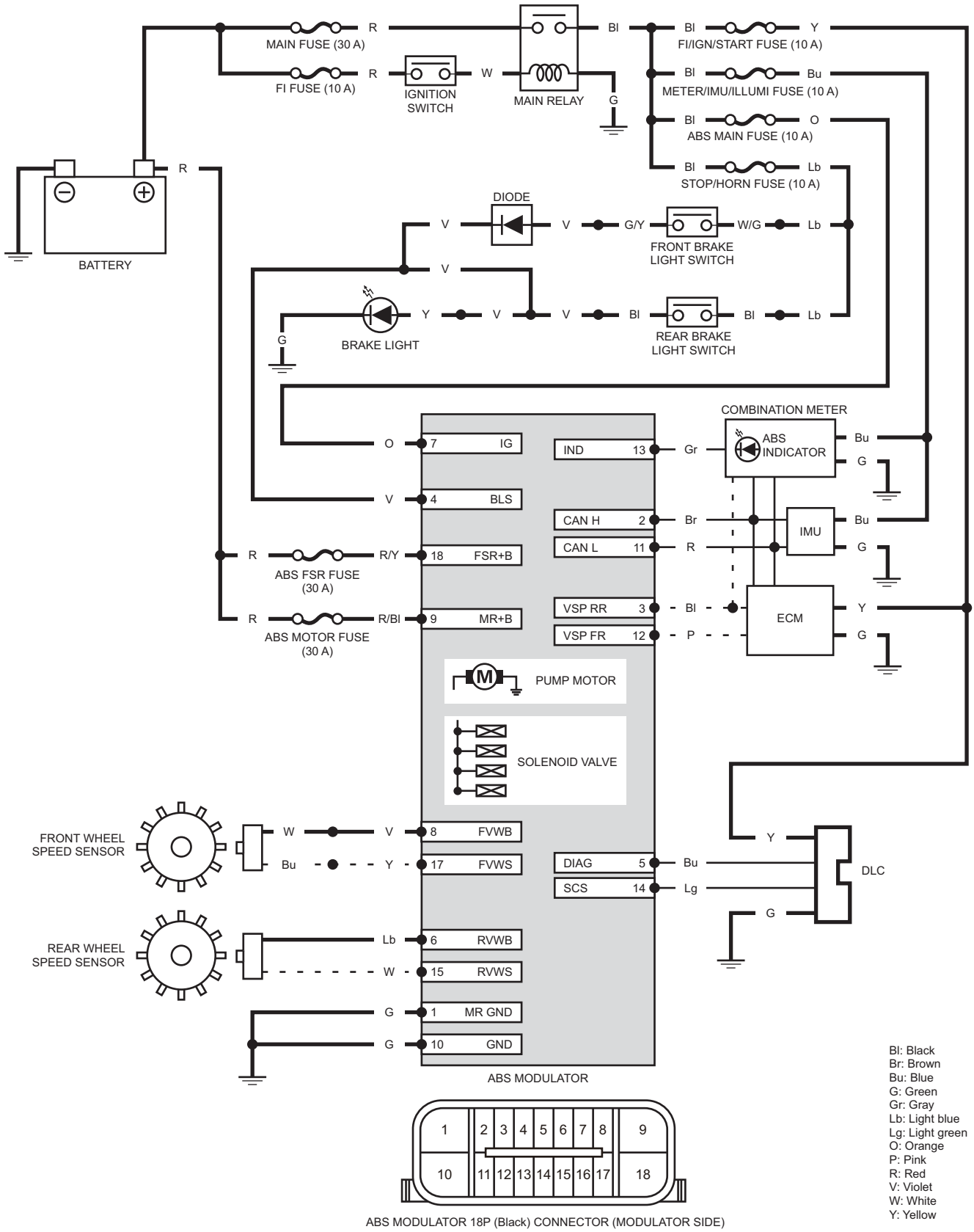
- *The ABS modulator may be damaged if dropped. Also if a connector is disconnected when current is flowing, the excessive voltage may damage the control unit. Always turn off the ignition switch before servicing.*
- *Spilling brake fluid will severely damage plastic parts and painted surfaces. It is also harmful to some rubber parts.*
- This section covers service of the Anti-lock Brake System (ABS). For other service (conventional brake) of the brake system, see Hydraulic Brake section (page 18-2).
- The ABS control unit is integrated in the modulator. Do not disassemble the ABS modulator. Replace the ABS modulator as an assembly when the it is faulty.
- The ABS control unit performs pre-start self-diagnosis to check whether the ABS functions normally until the vehicle speed reaches 10 km/h (6 mph). After pre-start self-diagnosis, the ABS control unit monitors the ABS functions and vehicle running condition constantly until the ignition switch is turned OFF (ordinary self-diagnosis).
- When the ABS control unit detects a problem, it stops the ABS function and switches back to the conventional brake operation, and the ABS indicator blinks or stays on. Take care during the test-ride.
- Read "ABS TROUBLESHOOTING INFORMATION" carefully, inspect and troubleshoot the ABS system according to the troubleshooting flow chart. Observe each step of the procedures one by one. Write down the DTC and probable faulty part before starting diagnosis and troubleshooting.
- Use a fully charged battery. Do not diagnose with a charger connected to the battery.
- After troubleshooting, erase the DTC and perform the pre-start self-diagnosis to be sure that the ABS indicator is operating normally (page 19-4).
- Troubles not resulting from a faulty ABS (e.g. brake disc squeak, unevenly worn brake pad) cannot be recognized by the ABS diagnosis system.
- When the IMU is replaced, make sure that it is installed properly (page 4-75).
- When the wheel speed sensor and/or pulser ring is replaced, be sure to check the air gap (page 19-21).
- The following color codes are used throughout this section.

Be = Beige	Bl = Black	Br = Brown	Bu = Blue	G = Green	Gr = Gray	Lb = Light blue
Lg = Light green	O = Orange	P = Pink	R = Red	V = Violet	W = White	Y = Yellow

SYSTEM LOCATION



SYSTEM DIAGRAM



ABS TROUBLESHOOTING INFORMATION

SYSTEM DESCRIPTION

SUMMARY OF ABS PRE-START SELF-DIAGNOSIS SYSTEM

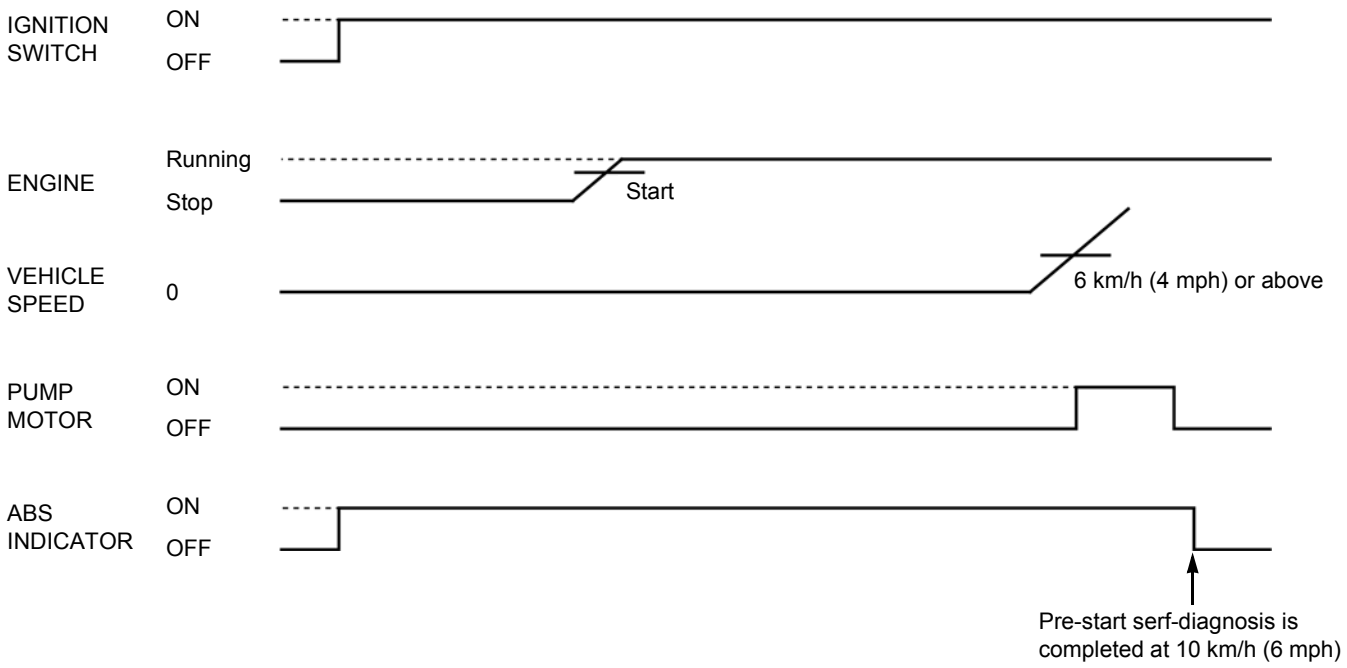
The ABS pre-start self-diagnosis system diagnoses the electrical system as well as the operating status of the modulator. When there is any abnormality, the problem and the associated part can be detected by reading the DTC.

When the motorcycle is running, pulse signals generated at the front and rear wheel speed sensors are sent to the ABS control unit. When the vehicle speed reaches approximately 6 km/h (4 mph), the ABS control unit operates the pump motor to check it. When the vehicle speed reaches 10 km/h (6 mph), the ABS control unit turns off the ABS indicator if the system is normal and the pre-start self-diagnosis is completed.

If any problem is detected, the ABS indicator blinks or comes on and stays on to notify the rider of the problem. The self-diagnosis is also made while the motorcycle is running, and the ABS indicator blinks when a problem is detected.
When the ABS indicator blinks, the cause of the problem can be identified by reading the DTC (page 19-5).

If the ABS indicator does not come on when the ignition switch is turned ON, or the ABS indicator stays on after the pre-start self-diagnosis is completed although the ABS system is normal, the ABS indicator circuit may be faulty. Follow the troubleshooting (page 19-9).

Pre-start serf-diagnosis when the system is normal:



PRE-START SELF-DIAGNOSIS PROCEDURE (Daily check)

1. Turn the ignition switch ON with the engine stop switch "".
2. Make sure the ABS indicator comes on.
3. Start the engine.
4. Ride the motorcycle and increase the vehicle speed to approximately 10 km/h (6 mph).
5. The ABS is normal if the ABS indicator goes off.

MCS INFORMATION

Refer to the PGM-FI system (page 4-7).

DTC READOUT

NOTE:

- The DTC is not erased by turning the ignition switch OFF while the DTC is being output. Note that turning the ignition switch ON again does not indicate the DTC. To show the DTC again, repeat the DTC readout procedures from the beginning.
- Be sure to record the indicated DTC(s).
- After diagnostic troubleshooting, erase the DTC and perform the pre-start self-diagnosis procedure to be sure that there is no problem in the ABS (page 19-4).
- Do not apply the brake during DTC readout.

Connect the MCS to the DLC (page 4-7).

Read the DTC, stored data and follow the DTC index (page 19-7).

If the MCS is not available, perform the following.

Reading DTC with the ABS indicator

1. Connect the SCS short connector to the DLC (page 4-8).
2. Turn the ignition switch ON with the engine stop switch to "".

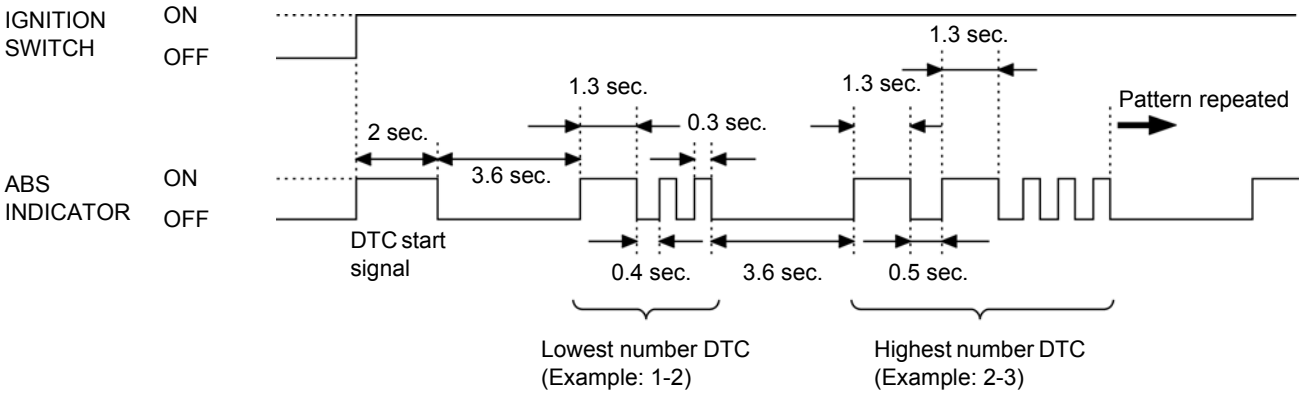
   The ABS indicator should come on for 2 seconds (start signal), then goes off for 3.6 seconds and starts DTC indication.
   The DTC is indicated by the number of the times of the ABS indicator blinking.
   If the DTC is not stored, the ABS indicator stays on.
3. Turn the ignition switch OFF and disconnect the SCS short connector.

   Install the removed parts in the reverse order of removal.

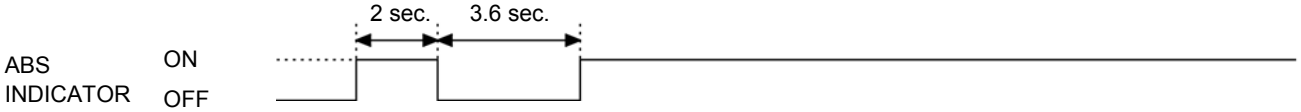
DTC INDICATION PATTERN

NOTE:

- The ABS indicator indicates the DTC by blinking a specified number of times. The indicator has two types of blinking, a long blink and short blink. The long blink lasts for 1.3 seconds, the short blink lasts for 0.3 seconds. For example, when one long blink is followed by two short blinks, the DTC is 1-2 (one long blink = 1 blink, plus two short blinks = 2 blinks).
- When the ABS control unit stores some DTCs, the ABS indicator shows the DTCs in the order from the lowest number to highest number. For example, when the ABS indicator indicates DTC 1-2, then indicates DTC 2-3, two failures have occurred.



When the DTC is not stored:



ERASING STORED DTC

NOTE:

- The stored DTC can not be erased by simply disconnecting the battery negative cable.

Connect the MCS to the DLC (page 4-8).

Erase the DTC with the MCS while the engine is stopped.

To erase the DTC without MCS, refer to the following procedure.

How to erase the DTC without MCS

1. Connect the SCS short connector to the DLC (page 4-8).
2. While squeezing the brake lever, turn the ignition switch ON with the engine stop switch to "". The ABS indicator should come on for 2 seconds and go off.
3. Release the brake lever immediately after the ABS indicator goes off. The ABS indicator should come on.
4. Squeeze the brake lever immediately after the ABS indicator comes on. The ABS indicator should go off.
5. Release the brake lever immediately after the ABS indicator goes off.

   When the DTC is erased, the ABS indicator blinks 2 times and stays on.
   If the ABS indicator does not blink 2 times, the self-diagnostic memory has not been erased, so try again.
6. Turn the ignition switch OFF and disconnect the SCS connector from the DLC.

   Install the removed parts in the reverse order of removal.

CIRCUIT INSPECTION

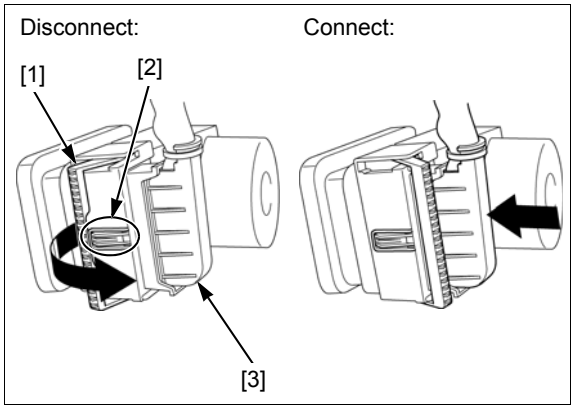
INSPECTION AT ABS MODULATOR CONNECTOR

Remove the IMU cover (page 2-5).

Turn the ignition switch OFF.

Disconnecting procedure:
Turn the lock lever [1] to this side while pressing the lock tab [2] to release it. Be sure the lock lever is turned all the way and disconnect the ABS modulator 18P (Black) connector [3].

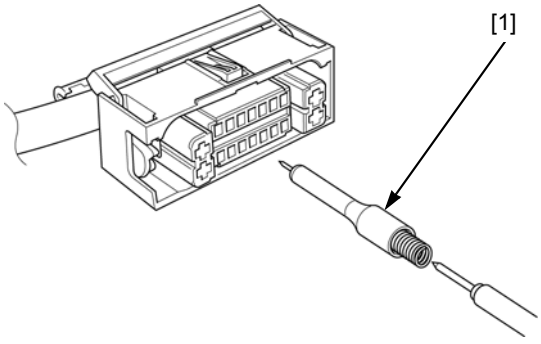
Connecting procedure:
Be sure to seat the lock lever against the wire side of the connector fully. Connect the ABS modulator 18P (Black) connector by pressing it straight at the area as shown (arrow) until the lock tab clicks.
Make sure the connector is locked securely.



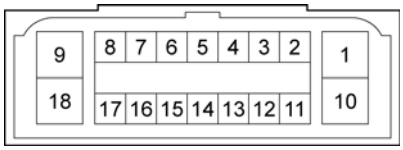
- Always clean around and keep any foreign material away from the connector before disconnecting it.
- A faulty ABS is often related to poorly connected or corroded connections. Check those connections before proceeding.
- In testing at ABS modulator 18P (Black) connector terminals (wire harness side; except No. 1, No. 9, No. 10 and No. 18 terminals), always use the test probe [1]. Insert the test probe into the connector terminal, then connect the digital multimeter probe to the test probe.

TOOL:

Test probe	**07ZAJ-RDJA110**



TERMINAL LAYOUT:



(Terminal side of the wire harness)

DTC INDEX

NOTE:

- The ABS indicator might blink in the following cases. Correct the faulty part.
  – Incorrect tire pressure.
  – Tires not recommended for the motorcycle were installed (incorrect tire size).
  – Deformation of the wheel or tire.
- The ABS indicator might blink while riding under the following conditions. This is temporary failure. Be sure to erase the DTC (page 19-5).
  Then, test-ride the motorcycle above 30 km/h (19 mph) and check the DTC (page 19-5). Ask the rider for the riding conditions in detail when the motorcycle is brought in for inspection.
  – The motorcycle has continuously run bumpy roads.
  – The front wheel leaves the ground for a long time when riding (wheelie).
  – Only either the front or rear wheel rotates.
  – The ABS operates continuously.
  – The ABS control unit has been disrupted by an extremely powerful radio wave (electromagnetic interference).

DTC	Function failure	Detection		Symptom/Fail-safe function	Refer to
		A	B		
–	ABS indicator malfunction • ABS modulator voltage input line • Indicator related wires • Combination meter • ABS modulator • ABS MAIN fuse (10 A)			• ABS indicator never comes ON at all	19-9
				• ABS indicator stays ON	19-9
1-1	Front wheel speed sensor circuit malfunction (open circuit) • Wheel speed sensor or related wires	○	○	• Stops ABS operation	19-11
1-2	Front wheel speed sensor malfunction • Wheel speed sensor, pulser ring or related wires • Electromagnetic interference		○	• Stops ABS operation	19-11
1-3	Rear wheel speed sensor circuit malfunction (open circuit) • Wheel speed sensor or related wires	○	○	• Stops ABS operation	19-13
1-4	Rear wheel speed sensor malfunction • Wheel speed sensor, pulser ring or related wires • Electromagnetic interference		○	• Stops ABS operation	19-13
2-1	Front pulser ring • Pulser ring or related wires		○	• Stops ABS operation	19-11
2-3	Rear pulser ring • Pulser ring or related wires		○	• Stops ABS operation	19-13
3-1 3-2 3-3 3-4	Solenoid valve malfunction • Fail safe relay (ABS modulator) or related wires • Solenoid valve (ABS modulator) • ABS FSR fuse (30 A)	○	○	• Stops ABS operation	19-15
4-1	Front wheel lock • Riding condition		○	• Stops ABS operation	19-11
4-2	Front wheel lock (Wheelie) • Riding condition		○		19-11
4-3	Rear wheel lock • Riding condition		○	• Stops ABS operation	19-13
5-1	Pump motor lock • Pump motor (ABS modulator) or related wires • ABS MOTOR fuse (30 A)	○	○	• Stops ABS operation	19-15
5-2	Motor relay stuck off • Motor relay (ABS modulator) or related wires • ABS MOTOR fuse (30 A)	○	○	• Stops ABS operation	
5-3	Motor relay stuck on • Motor relay (ABS modulator) or related wires	○	○	• Stops ABS operation	
5-4	Fail-safe relay malfunction • Motor relay (ABS modulator) or related wires • ABS FSR fuse (30 A)	○	○	• Stops ABS operation	19-17
6-1	Power circuit under voltage • Input voltage (too low) • ABS MAIN fuse (10 A) • ABS MOTOR fuse (30 A)	○	○	• Stops ABS operation	19-18

DTC	Function failure	Detection		Symptom/Fail-safe function	Refer to
		A	B		
6-2	Power circuit over voltage • Input voltage (too high) • ABS MAIN fuse (10 A) • ABS MOTOR fuse (30 A)	○	○	• Stops ABS operation	19-18
7-1	Tire malfunction • Tire size		○	• Stops ABS operation	19-19
8-1	ABS control unit • ABS control unit malfunction (ABS modulator)	○	○	• Stops ABS operation	19-19
8-3	IMU malfunction • Acceleration sensor • Gyro sensors • IMU stay	○	○	• Stops ABS operation	19-19
8-4		○	○	• Stops ABS operation	
8-5	IMU circuit malfunction • IMU and related wires	○	○	• Stops ABS operation	19-20

(A) Pre-start self-diagnosis (page 19-4)

(B) Ordinary self-diagnosis: diagnoses while the motorcycle is running (after pre-start self-diagnosis)

ABS INDICATOR CIRCUIT TROUBLESHOOTING

ABS INDICATOR DOES NOT COME ON (when the ignition switch turned ON)

NOTE:

- Before starting this inspection, check the initial operation of the combination meter (page 21-9).

1. Indicator Operation Inspection

Turn the ignition switch OFF.
Disconnect the ABS modulator 18P (Black) connector (page 19-6).
Turn the ignition switch ON with the engine stop switch "".
Check the ABS indicator.

Does the ABS indicator come on?

YES – Faulty ABS modulator

NO – GO TO STEP 2.

2. Indicator Signal Line Short Circuit Inspection

Turn the ignition switch OFF.
Check for continuity between the wire harness side 18P (Black) connector [1] and ground.

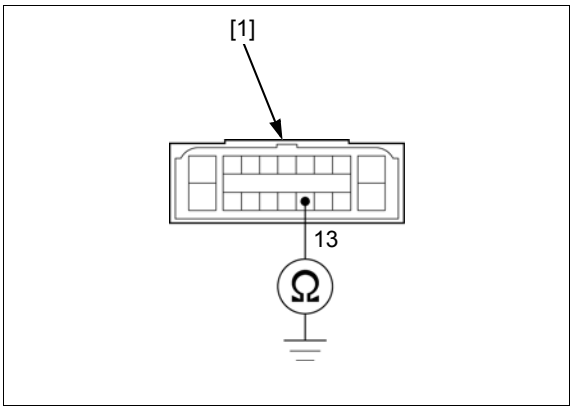
TOOL:
Test probe **07ZAJ-RDJA110**

Connection: 13 – Ground

Is there continuity?

YES – Short circuit in the Gray wire

NO – Faulty combination meter



ABS INDICATOR STAYS ON (Indicator does not go off when the motorcycle is running)

1. Service Check Line Short Circuit Inspection

Turn the ignition switch OFF.
Disconnect the ABS modulator 18P (Black) connector (page 19-6).
Check for continuity between the wire harness side 18P (Black) connector [1] and ground.

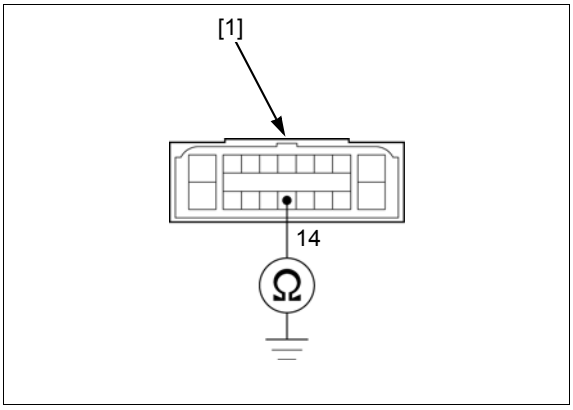
TOOL:
Test probe **07ZAJ-RDJA110**

Connection: 14 – Ground

Is there continuity?

YES – Short circuit in the Light green wire

NO – GO TO STEP 2.



2. Indicator Signal Line Open Circuit Inspection

Short the wire harness side 18P (Black) connector [1] terminal to the ground with a jumper wire [2].

TOOL:
Test probe **07ZAJ-RDJA110**

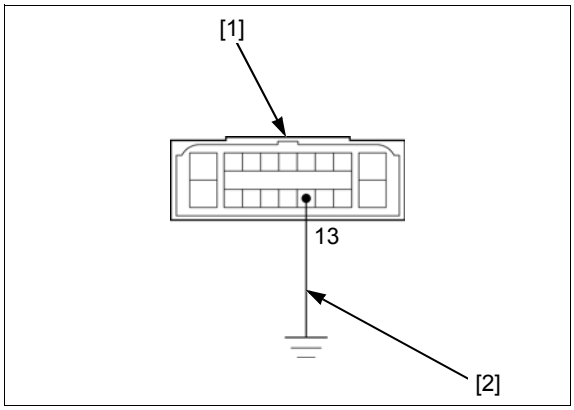
Connection: 13 – Ground

Turn the ignition switch ON with the engine stop switch "".
Check the ABS indicator.

Does it go off?

YES – GO TO STEP 3.

NO – • Open circuit in the Gray wire
• Faulty combination meter (if the Gray wire is OK)



3. Modulator Ground Line Open Circuit Inspection

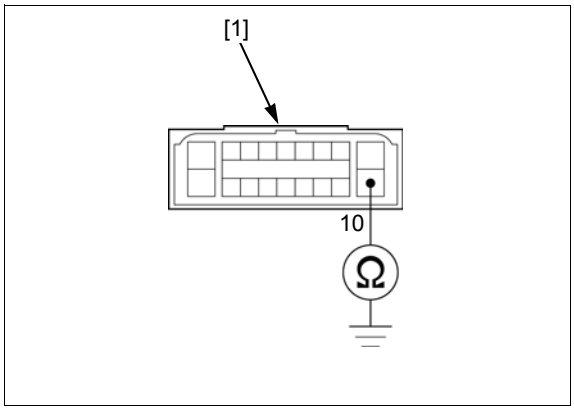
Turn the ignition switch OFF.
Check for continuity between the wire harness side ABS modulator 18P (Black) connector [1] terminal and ground.

Connection: 10 – Ground

Is there continuity?

YES – GO TO STEP 4.

NO – Open circuit in the Green wire



4. Fuse Inspection

Open the fuse/relay box cover.
Check the ABS MAIN fuse (10 A) for blown.

Is the fuse blown?

YES – GO TO STEP 5.

NO – GO TO STEP 6.

5. Power Input Line Short Circuit Inspection

With the ABS MAIN fuse (10 A) removed, check for continuity between the wire harness side 18P (Black) connector [1] and ground.

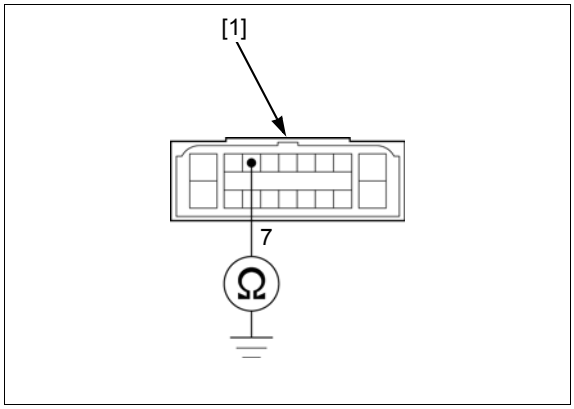
TOOL:
Test probe **07ZAJ-RDJA110**

Connection: 7 – Ground

Is there continuity?

YES – Short circuit in the Orange wire

NO – Intermittent failure. Replace the ABS MAIN fuse (10 A) with a new one, and recheck.



6. Power Input Line Open Circuit Inspection

Install the ABS MAIN fuse (10 A).
Turn the ignition switch ON with the engine stop switch "".
Measure the voltage between the wire harness side 18P (Black) connector [1] and ground.

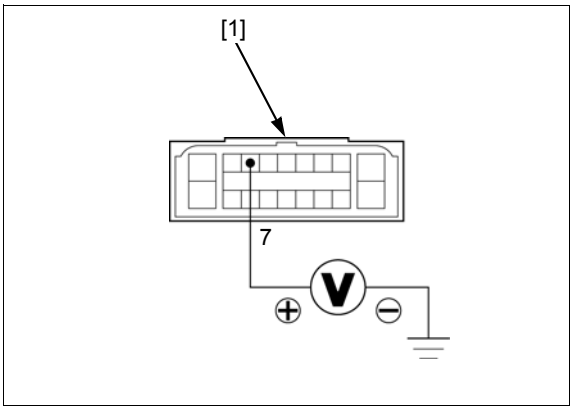
TOOL:
Test probe **07ZAJ-RDJA110**

Connection: 7 (+) – Ground (–)

Is there battery voltage?

YES – Faulty ABS modulator

NO – Open circuit in the Orange wire



DTC TROUBLESHOOTING

NOTE:
- Perform inspection with the ignition switch OFF, unless otherwise specified.
- All connector diagrams in the troubleshooting are viewed from the terminal side.
- Use a fully charged battery. Do not diagnose with a charger connected to the battery.
- When the ABS modulator assembly is detected to be faulty, recheck the wire harness and connector connections closely before replacing it.
- After diagnostic troubleshooting, erase the DTC (page 19-5).
  Then test-ride the motorcycle to check that the ABS indicator operates normally during pre-start self-diagnosis (page 19-4).

DTC 1-1, 1-2, 2-1, 4-1 or 4-2 (Front Wheel Speed Sensor Circuit/Front Wheel Speed Sensor/Front Pulser Ring/Front Wheel Lock)

NOTE:
- The ABS indicator might blink under unusual riding or conditions (page 19-7). This is temporary failure.
  Erase the DTC (page 19-5).
  Then test-ride the motorcycle above 30 km/h (19 mph) and check that the ABS indicator operates normally (page 19-4).
- If the DTC 4-1 is indicated, check the front brake for drag.

1. Speed Sensor Air Gap Inspection

Measure the air gap between the speed sensor and pulser ring (page 19-21).

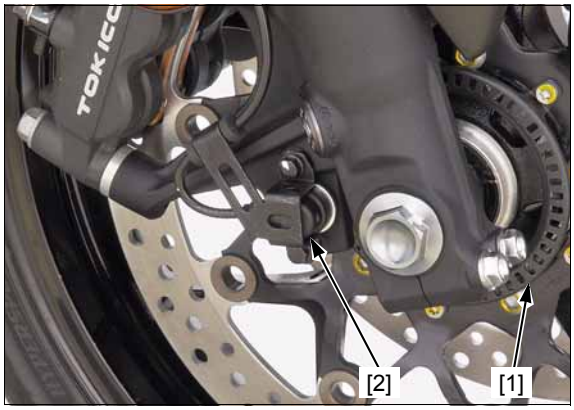
Is the air gap correct?

YES – GO TO STEP 2.

NO – Check each part for deformation and looseness and correct accordingly. Recheck the air gap.

2. Speed Sensor Condition Inspection

Inspect the area around the front wheel speed sensor:
Check that there is iron or other magnetic deposits between the pulser ring [1] and wheel speed sensor [2], and the pulser ring slots for obstructions.
Check the installation condition of the pulser ring or wheel speed sensor for looseness.
Check the pulser ring and sensor tip for deformation or damage (e.g., chipped pulser ring teeth).



Are the sensor and pulser ring in good condition?

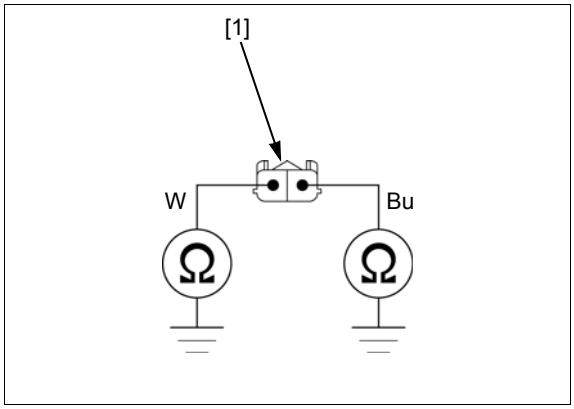
YES – GO TO STEP 3.

NO – Remove any deposits. Install properly or replace faulty part.

3. Front Wheel Speed Sensor Short Circuit Inspection

Disconnect the front wheel speed sensor 2P (Orange) connector (page 19-21).
Check for continuity between each terminal of the sensor side 2P (Blue) connector [1] and ground.

Connection: White – Ground
Blue – Ground



Is there continuity?

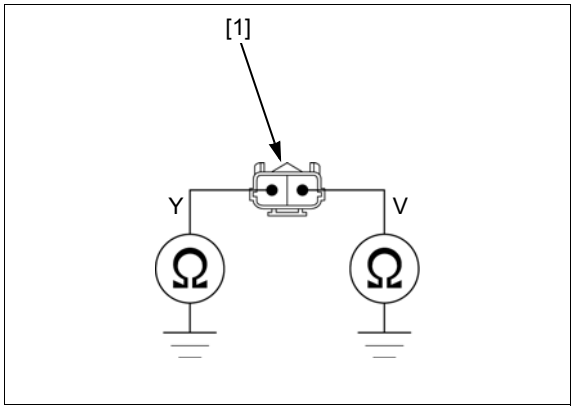
YES – Faulty front wheel speed sensor

NO – GO TO STEP 4.

4. Front Wheel Speed Sensor Line Short Circuit Inspection

Disconnect the ABS modulator 18P (Black) connector (page 19-6).
Check for continuity between each terminal of the wire harness side 2P (Orange) connector [1] and ground.

Connection: Yellow – Ground
Violet – Ground



Is there continuity?

YES – • Short circuit in the Yellow wire
• Short circuit in the Violet wire

NO – GO TO STEP 5.

5. Front Wheel Speed Sensor Line Open Circuit Inspection

Short the wire harness side 18P (Black) connector [1] terminals with a jumper wire [2].

Connection: 8 – 17

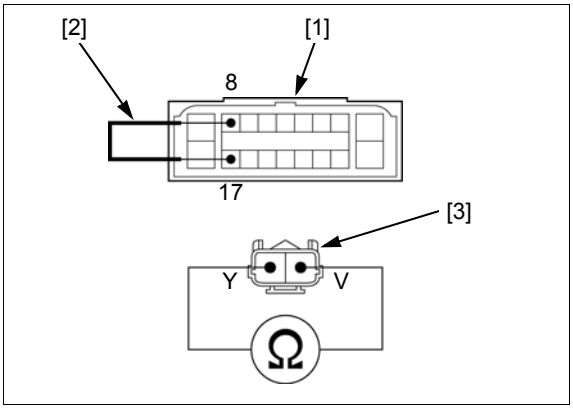
Check for continuity between the wire harness side 2P (Orange) connector [3] terminals.

Connection: Yellow – Violet

Is there continuity?

YES – GO TO STEP 6.

NO – Open circuit in the Yellow or Violet wire



6. Failure Reproduction with a New Speed Sensor

Replace the front wheel speed sensor with a new one (page 19-21).
Connect the 18P (Black) connector and 2P (Orange) connector.
Erase the DTC (page 19-5).
Test-ride the motorcycle above 30 km/h (19 mph).
Recheck the DTC (page 19-5).

Is the DTC 1-1, 1-2, 2-1, 4-1 or 4-2 indicated?

YES – Faulty ABS modulator

NO – Faulty original wheel speed sensor

DTC 1-3, 1-4, 2-3, or 4-3 (Rear Wheel Speed Sensor Circuit/Rear Wheel Speed Sensor/Rear Pulser Ring/Rear Wheel Lock)

NOTE:

- The ABS indicator might blink under unusual riding or conditions (page 19-7). This is temporary failure. Erase the DTC (page 19-5).
  Then test-ride the motorcycle above 30 km/h (19 mph) and check that the ABS indicator operates normally (page 19-4).
- If the DTC 4-3 is indicated, check the rear brake for drag.

1. Speed Sensor Air Gap Inspection

Measure the air gap between the speed sensor and pulser ring (page 19-21).

Is the air gap correct?

YES – GO TO STEP 2.

NO – Check each part for deformation and looseness and correct accordingly. Recheck the air gap.

2. Speed Sensor Condition Inspection

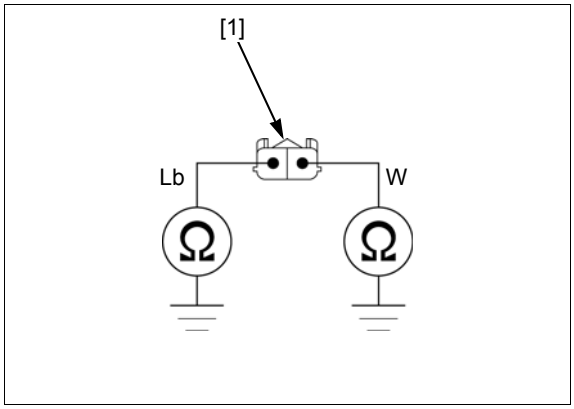
Inspect the area around the rear wheel speed sensor:
Check that there is iron or other magnetic deposits between the pulser ring [1] and wheel speed sensor [2], and the pulser ring slots for obstructions.
Check the installation condition of the pulser ring or wheel speed sensor for looseness.
Check the pulser ring and sensor tip for deformation or damage (e.g., chipped pulser ring teeth).

Are the sensor and pulser ring in good condition?

YES – GO TO STEP 3.

NO – Remove any deposits. Install properly or replace faulty part.

3. Rear Wheel Speed Sensor Short Circuit Inspection



Disconnect the rear wheel speed sensor 2P (Black) connector (page 19-22).
Check for continuity between each terminal of the sensor side 2P (Black) connector [1] and ground.

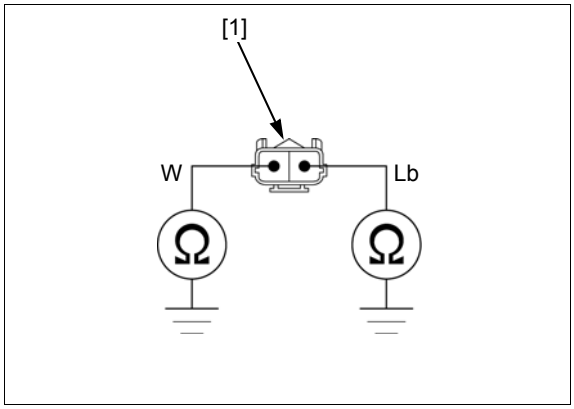
Connection: Light blue – Ground
White – Ground

Is there continuity?

YES – Faulty rear wheel speed sensor

NO – GO TO STEP 4.

4. Rear Wheel Speed Sensor Line Short Circuit Inspection



Disconnect the ABS modulator 18P (Black) connector (page 19-6).
Check for continuity between each terminal of the wire harness side 2P (Black) connector [1] and ground.

Connection: White – Ground
Light blue – Ground

Is there continuity?

YES – • Short circuit in the White wire
• Short circuit in the Light blue wire

NO – GO TO STEP 5.

5. Rear Wheel Speed Sensor Line Open Circuit Inspection

Short the wire harness side 18P (Black) connector [1] terminals with a jumper wire [2].

Connection: 6 – 15

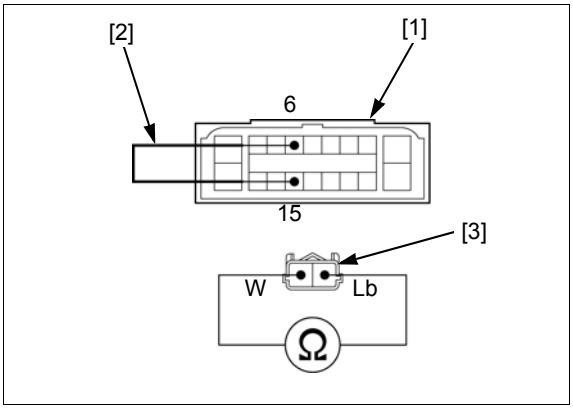
Check for continuity between the wire harness side 2P (Black) connector [3] terminals.

Connection: White – Light blue

Is there continuity?

YES – GO TO STEP 6.

NO – Open circuit in the White or Light blue wire



6. Failure Reproduction with a New Speed Sensor

Replace the rear wheel speed sensor with a new one (page 19-22).
Connect the 18P (Black) connector and 2P (Black) connector.
Erase the DTC (page 19-5).
Test-ride the motorcycle above 30 km/h (19 mph).
Recheck the DTC (page 19-5).

Is the DTC 1-3, 1-4, 2-3, or 4-3 indicated?

YES – Faulty ABS modulator

NO – Faulty original wheel speed sensor

DTC 3-1, 3-2, 3-3 or 3-4 (Solenoid Valve)

NOTE:
- If the DTC 5-4 is indicated, troubleshoot it first.

1. Failure Reproduction

Erase the DTC (page 19-5).
Test-ride the motorcycle above 30 km/h (19 mph).
Recheck the DTC (page 19-5).

Is the DTC 3-1, 3-2, 3-3 or 3-4 indicated?

YES – Faulty ABS modulator

NO – Solenoid valve is normal (intermittent failure).

DTC 5-1, 5-2 or 5-3 (Pump Motor Lock/ Motor Relay)

1. Fuse Inspection

Turn the ignition switch OFF.
Remove the main seat (page 2-4).
Remove the fuse/relay box cover.
Check the ABS MOTOR fuse (30 A) for blown.

Is the fuse blown?

YES – GO TO STEP 2.

NO – GO TO STEP 3.

2. Motor Power Input Line Short Circuit Inspection

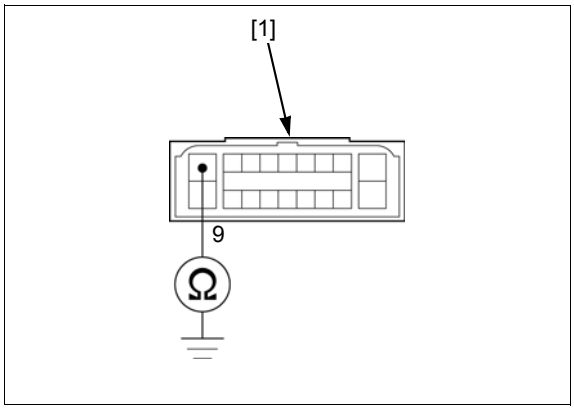
Disconnect the ABS modulator 18P (Black) connector (page 19-6).
With the ABS MOTOR fuse (30 A) removed, check for continuity between the wire harness side 18P (Black) connector [1] and ground.

Connection: 9 – Ground

Is there continuity?

YES – Short circuit in the Red/black wire

NO – Intermittent failure. Replace the ABS MOTOR fuse (30 A) with a new one, and recheck.



3. Motor Power Input Line Open Circuit Inspection

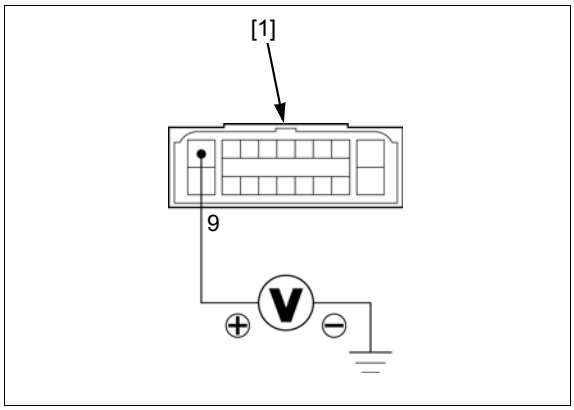
Install the ABS MOTOR fuse (30 A).
Disconnect the ABS modulator 18P (Black) connector (page 19-6).
Measure the voltage between the wire harness side 18P (Black) connector [1] and ground.

Connection: 9 (+) – Ground (–)

Is there battery voltage?

YES – GO TO STEP 4.

NO – Open circuit in the Red/black or Red wire between the 18P (Black) connector and battery



4. Motor Power Ground Line Open Circuit Inspection

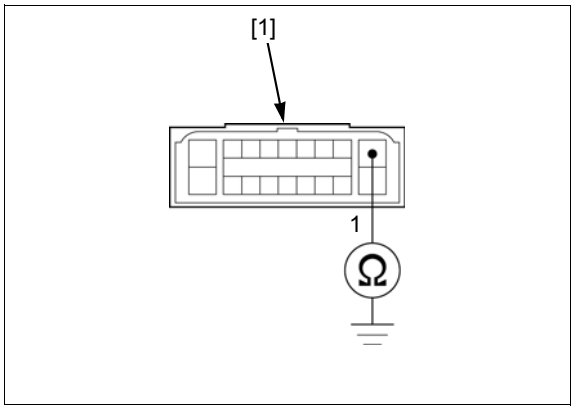
Check for continuity between the wire harness side 18P (Black) connector [1] and ground.

Connection: 1 – Ground

Is there continuity?

YES – GO TO STEP 5.

NO – Open circuit in the Green wire



5. Failure Reproduction

Turn the ignition switch OFF.
Connect the ABS modulator 18P (Black) connector.
Erase the DTC (page 19-5).
Test-ride the motorcycle above 30 km/h (19 mph).
Recheck the DTC (page 19-5).

Is the DTC 5-1, 5-2 or 5-3 indicated?

YES – Faulty ABS modulator

NO – Motor relay is normal (intermittent failure).

DTC 5-4 (Fail-safe Relay)

1. Fuse Inspection

Turn the ignition switch OFF.
Remove the main seat (page 2-4).
Remove the fuse/relay box cover.
Check the ABS FSR fuse (30 A) for blown.

Is the fuse blown?

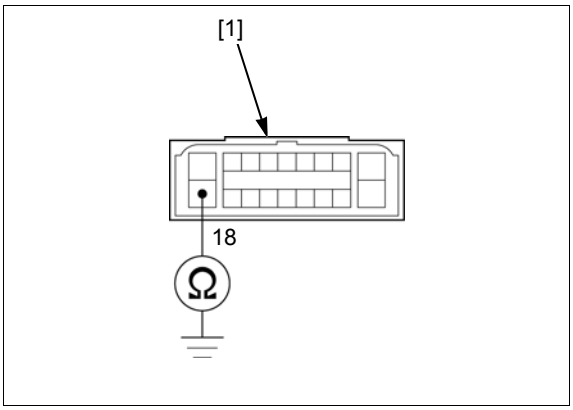
YES – GO TO STEP 2.

NO – GO TO STEP 3.

2. Solenoid Valve Power Input Line Short Circuit Inspection

Disconnect the ABS modulator 18P (Black) connector (page 19-6).
With the ABS FSR fuse (30 A) removed, check for continuity between the wire harness side 18P (Black) connector [1] and ground.

Connection: 18 – Ground



Is there continuity?

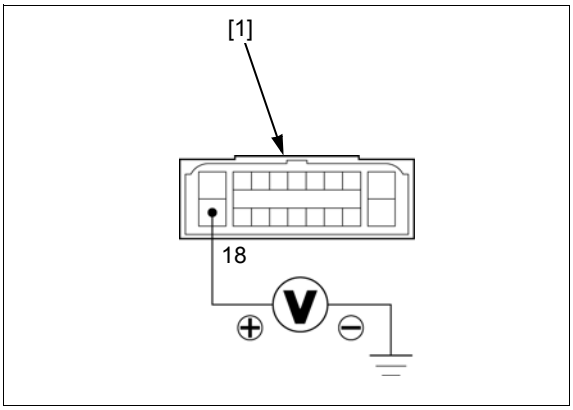
YES – Short circuit in the Red/yellow wire

NO – Intermittent failure. Replace the ABS FSR fuse (30 A) with a new one, and recheck.

3. Solenoid Valve Power Input Line Open Circuit Inspection

Install the ABS FSR fuse (30 A).
Disconnect the ABS modulator 18P (Black) connector (page 19-6).
Measure the voltage between the wire harness side 18P (Black) connector [1] and ground.

Connection: 18 (+) – Ground (–)



Is there battery voltage?

YES – GO TO STEP 4.

NO – Open circuit in the Red/yellow or Red wire between the 18P (Black) connector and battery

4. Failure Reproduction

Connect the ABS modulator 18P (Black) connector.
Erase the DTC (page 19-5).
Test-ride the motorcycle above 30 km/h (19 mph).
Recheck the DTC (page 19-5).

Is the DTC 5-4 indicated?

YES – Faulty ABS modulator

NO – Solenoid valve is normal (intermittent failure).

DTC 6-1 or 6-2 (Power Circuit)

1. Fuse Inspection

Turn the ignition switch OFF.
Remove the main seat (page 2-4).
Remove the fuse/relay box cover.
Check the ABS MOTOR fuse (30 A) for blown.

Is the fuse blown?

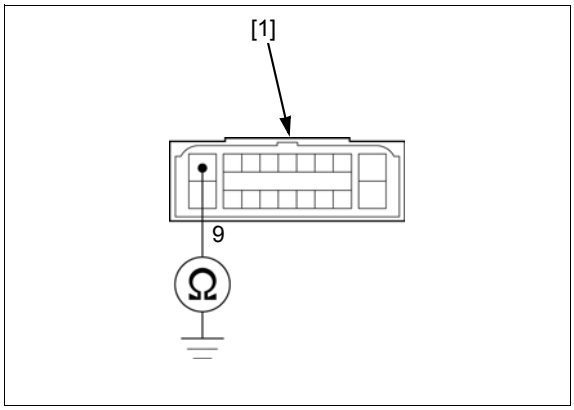
YES – GO TO STEP 2.

NO – GO TO STEP 3.

2. Motor Power Input Line Short Circuit Inspection

Disconnect the ABS modulator 18P (Black) connector (page 19-6).
With the ABS MOTOR fuse (30 A) removed, check for continuity between the wire harness side 18P (Black) connector [1] and ground.

Connection: 9 – Ground



Is there continuity?

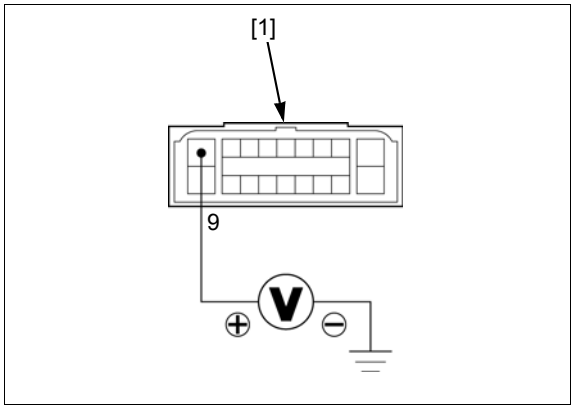
YES – Short circuit in the Red/black wire

NO – Intermittent failure. Replace the ABS MOTOR fuse (30 A) with a new one, and recheck.

3. Motor Power Input Line Open Circuit Inspection

Install the ABS MOTOR fuse (30 A).
Disconnect the ABS modulator 18P (Black) connector (page 19-6).
Measure the voltage between the wire harness side 18P (Black) connector [1] and ground.

Connection: 9 (+) – Ground (–)



Is there battery voltage?

YES – GO TO STEP 4.

NO – Open circuit in the Red/black or Red wire between the 18P (Black) connector and battery

4. Battery Voltage Inspection

Inspect the battery voltage (page 20-6).

Is the battery voltage less than 8.0 V?

YES – Replace the battery (page 20-6).

NO – GO TO STEP 5.

5. Charging Voltage Inspection

Inspect the battery charging voltage (page 20-7).

Is the voltage more than 16.0 V?

YES – Faulty regulator/rectifier

NO – GO TO STEP 6.

6. Failure Reproduction

Erase the DTC (page 19-5).
Test-ride the motorcycle above 30 km/h (19 mph).
Recheck the DTC (page 19-5).

Is the DTC 6-1 or 6-2 indicated?

YES – Faulty ABS modulator

NO – Power circuit is normal (intermittent failure)

DTC 7-1 (Tire Size)

NOTE:

- Check the following and correct the faulty part.
  – Incorrect tire pressure.
  – Tires not recommended for the motorcycle were installed (incorrect tire size).
  – Deformation of the wheel or tire.

1. Failure Reproduction

If the above items are normal, recheck the DTC indication:
Erase the DTC (page 19-5).
Test-ride the motorcycle above 30 km/h (19 mph).
Recheck the DTC (page 19-5).

Is the DTC 7-1 indicated?

YES – Faulty ABS modulator

NO – Tire size is normal (intermittent failure)

DTC 8-1 (ABS Control Unit)

1. Failure Reproduction

Erase the DTC (page 19-5).
Test-ride the motorcycle above 30 km/h (19 mph).
Recheck the DTC (page 19-5).

Is the DTC 8-1 indicated?

YES – Faulty ABS modulator

NO – ABS control unit is normal (intermittent failure)

DTC 8-3 or 8-4 (IMU)

NOTE:

- The ABS indicator might blink under unusual riding or conditions (page 19-7). This is temporary failure.
  Erase the DTC (page 19-5).
  Then test-ride the motorcycle above 30 km/h (19 mph) and check that the ABS indicator operates normally (page 19-4).

1. IMU System Inspection

Erase the DTC (page 19-5).
Recheck the DTC (page 19-5).

Is the DTC 8-3 or 8-4 indicated?

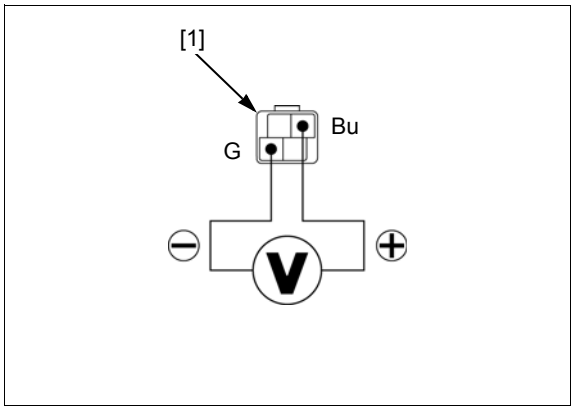
YES – GO TO STEP 2.

NO – GO TO STEP 3.

2. IMU Input Voltage Inspection

Turn the ignition switch OFF.
Disconnect the IMU 4P (Black) connector (page 4-75).
Turn the ignition switch ON and engine stop switch "".
Measure the voltage between the 4P (Black) connector [1] terminals.

Connection: Blue (+) – Green (–)



Does the battery voltage exist?

YES – Faulty IMU

NO – • Open circuit in Blue wire
• Open circuit in Green wire

3. Failure Reproduction

Erase the DTC (page 19-5).
Test-ride the motorcycle above 30 km/h (19 mph).
Recheck the DTC (page 19-5).

Is the DTC 8-3 or 8-4 indicated?

YES – GO TO STEP 4.

NO – IMU is normal (intermittent failure)

4. IMU Installation Inspection

Check the correct IMU installation (page 4-75).

Is the IMU installed correctly?

YES – Faulty IMU

NO – Faulty IMU stay

DTC 8-5 (IMU CIRCUIT)

1. PGM-FI DTC Check

Check the PGM-FI DTC (page 4-7).

Does the ECM store the DTC U0125 (103-3)?

YES – Perform the DTC U0125 troubleshooting (page 4-65).

NO – GO TO STEP 2.

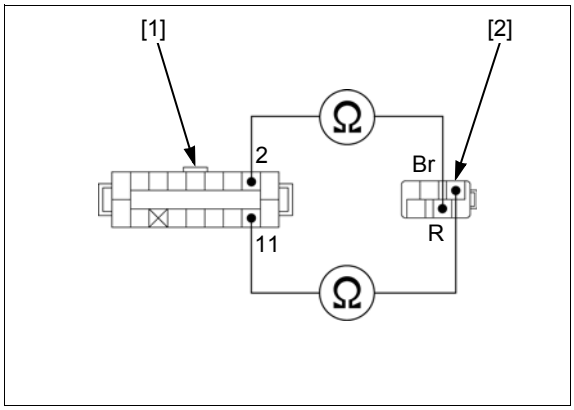
2. ABS Control Unit CAN Line Open Circuit Inspection

Disconnect the following:

– ABS modulator 18P (Black) connector (page 19-6)
– IMU 4P (Black) connector (page 4-75)

Check for continuity between the 18P (Black) connector [1] and 4P (Black) connector [2].

Connection: 2 – Brown
11 – Red



Is there continuity?

YES – GO TO STEP 3.

NO – • Open circuit in the Brown wire
• Open circuit in the Red wire

3. IMU Inspection

Replace the IMU with a known good one (page 4-75).
Erase the DTC (page 19-5).
Test-ride the motorcycle above 30 km/h (19 mph).
Recheck the DTC (page 19-5).

Is the DTC 8-5 indicated?

YES – Faulty ABS modulator

NO – Faulty original IMU

WHEEL SPEED SENSOR

AIR GAP INSPECTION

Support the motorcycle securely using a hoist or equivalent and raise the wheel off the ground.

Measure the air gap at several points by turning the wheel slowly.

– Front: Between the sensor and pulser ring
– Rear: Between the caliper bracket and pulser ring

It must be within specification.

Standard:
Front: 0.40 – 1.20 mm (0.016 – 0.047 in)
Rear: 0.73 – 1.19 mm (0.029 – 0.047 in)

The air gap cannot be adjusted.
If it is not within specification, check each part for deformation, looseness or damage.

Check the wheel speed sensor for damage, and replace if necessary.

Check the pulser ring for deformation or damage, and replace if necessary.

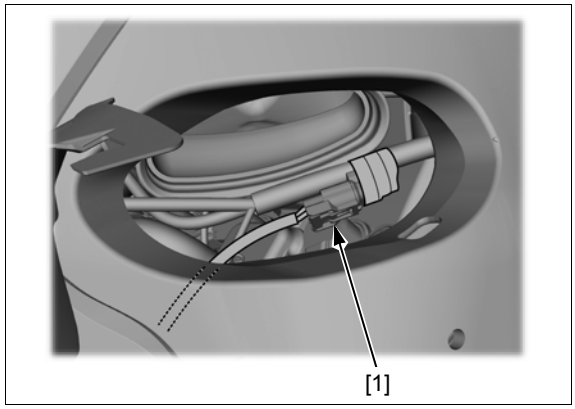
– Front pulser ring (page 16-17)
– Rear pulser ring (page 17-6)

REMOVAL/INSTALLATION

FRONT WHEEL SPEED SENSOR

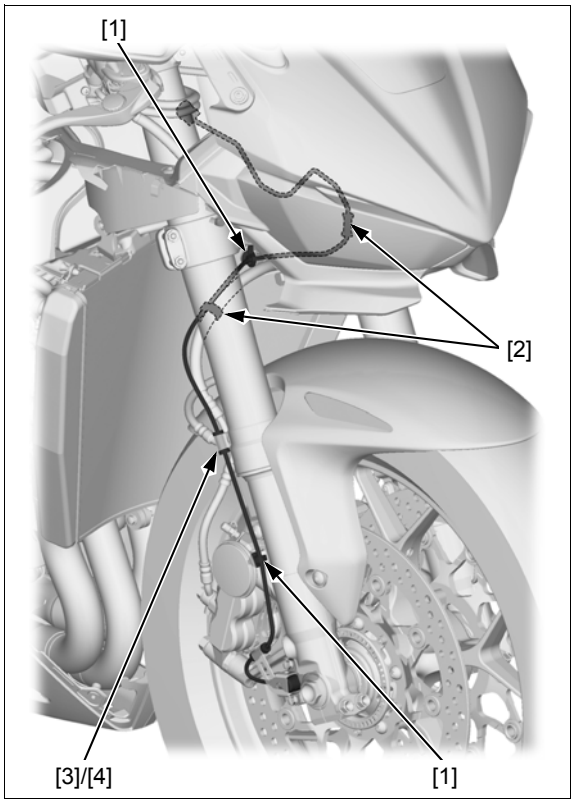
Remove the left intake air duct (page 2-14).

Disconnect the front wheel speed sensor 2P (Orange) connector [1].



Remove the wire clips [1] and release the sensor wire from the clamps [2].

Remove the bolt [3] and wire clamp [4].



Remove the following:

– Bolts [1]
– CBR1000RA only: Wire guide [2]
– Front wheel speed sensor [3]

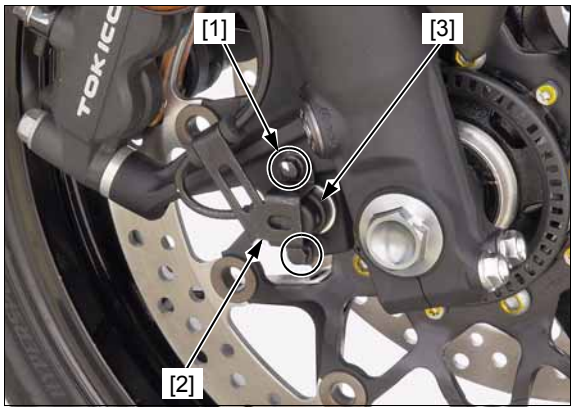
Route the sensor wire properly (page 1-23)

Installation is in the reverse order of removal.

NOTE:

• Clean the sensor tip and sensor installation area thoroughly, and be sure that no foreign materials are allowed.

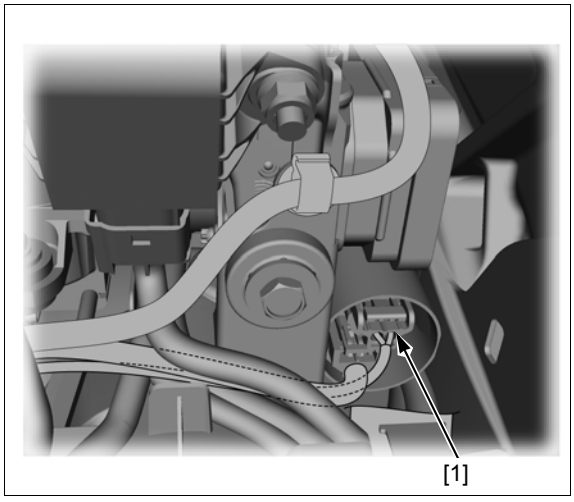
After installation, check the air gap (page 19-21).



REAR WHEEL SPEED SENSOR

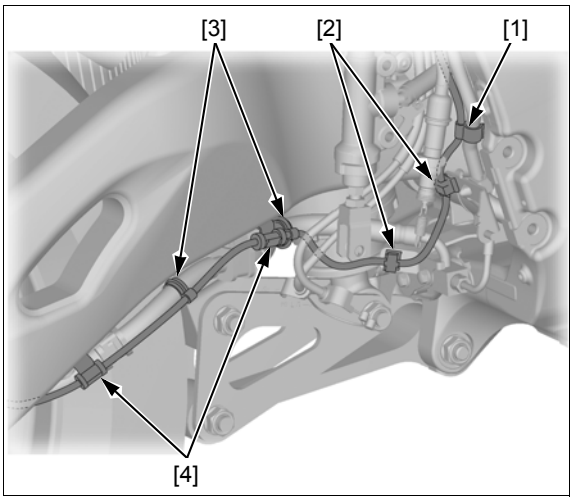
Remove the ABS modulator (page 19-24).

Disconnect the rear wheel speed sensor 2P (Black) connector [1].



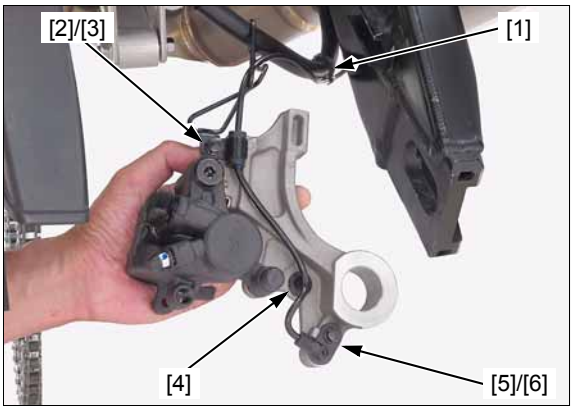
Release the sensor wire from the clamp [1] and remove the wire clips [2].

Remove the wire clips [3] from the brake hose and release the sensor wire from the clamps [4].



Remove the following:

– Rear wheel (page 17-5).
– Wire clip [1]
– Two bolt [2] and clamp [3]
– Wire clip [4]
– Bolt [5] and rear wheel speed sensor [6]



Route the sensor wire properly (page 1-23)

Installation is in the reverse order of removal.

NOTE:

- Clean the sensor tip and sensor installation area (caliper bracket) thoroughly, and be sure that no foreign materials are allowed.
- For rear wheel installation (page 17-8)

After installation, check the air gap (page 19-21).

ABS MODULATOR

REMOVAL/INSTALLATION

Drain the brake fluid from the brake hydraulic systems (page 18-5).

Remove the fuel tank (page 7-8).

Disconnect the ABS modulator 18P (Black) connector [1] (page 19-6).

Loosen the brake pipe joint nuts [2] to disconnect the brake pipes.

NOTE:

- After disconnecting, cover the ends of the brake pipes to prevent contamination.

Remove the pipes from the clamps on rear fender B.

Remove the following:

– Special bolt [3]
– Bake hose joint [4]
– Two bolts/washers [5]
– ABS modulator [6]
– IMU/stay [7]

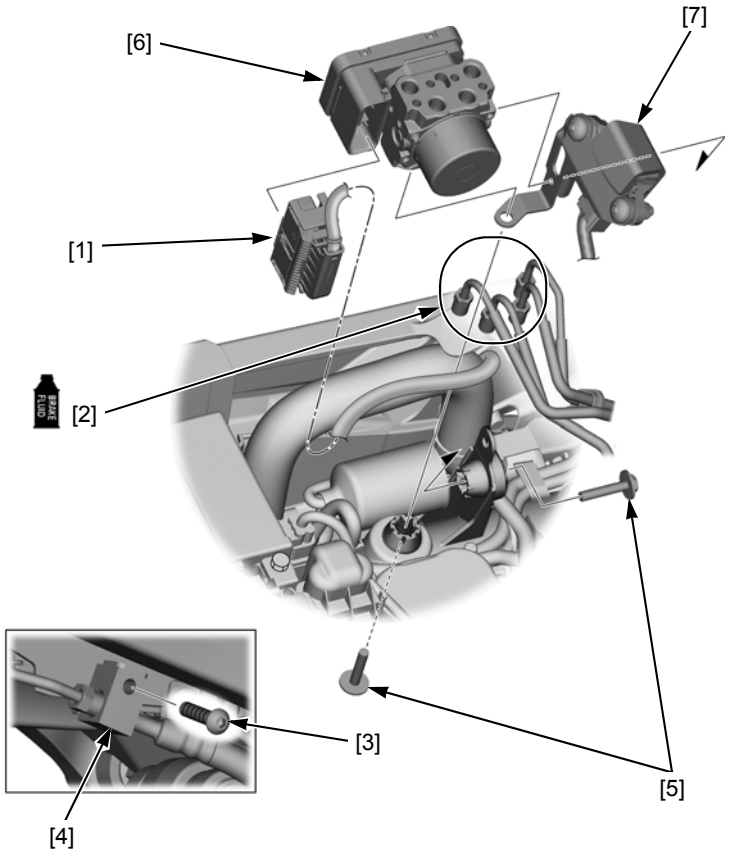
Installation is in the reverse order of removal.

NOTE:

- Apply brake fluid to the threads of the brake pipe joint nuts.

TORQUE:
Brake pipe joint nut: 14 N·m (1.4 kgf·m, 10 lbf·ft)

Fill and bleed the brake hydraulic systems (page 18-6).



20. BATTERY/CHARGING SYSTEM

SERVICE INFORMATION

GENERAL

⚠WARNING

- The battery gives off explosive gases; keep sparks, flames and cigarettes away. Provide adequate ventilation when charging.
- The battery contains sulfuric acid (electrolyte). Contact with skin or eyes may cause severe burns. Wear protective clothing and a face shield.
  – If electrolyte gets on your skin, flush with water.
  – If electrolyte gets in your eyes, flush with water for at least 15 minutes and call a physician immediately.
- Electrolyte is poisonous.
  – If swallowed, drink large quantities of water or milk and call your local Poison Control Center or a call a physician immediately.

NOTICE

- *Always turn OFF the ignition switch before disconnecting any electrical component.*
- *Some electrical components may be damaged if terminals or connectors are connected or disconnected while the ignition switch is ON and current is present.*

- CBR1000RR/RA: For extended storage, remove the battery, give it a full charge, and store it in a cool, dry space. For maximum service life, charge the stored battery every two weeks.
- CBR1000S1/S2: For extended storage, remove the battery, give it a full charge, and store it in a dry space. For maximum service life, charge the stored battery at a suitable time.
- For extended storage, remove the battery, give it a full charge, and store it in a cool, dry space. For maximum service life, charge the stored battery every two weeks.
- For a battery remaining in a stored motorcycle, disconnect the negative battery cable from the battery terminal.
- The maintenance free battery must be replaced when it reaches the end of its service life.
- CBR1000RR/RA: The battery can be damaged if overcharged or undercharged, or if left to discharge for a long period. These same conditions contribute to shortening the “life span” of the battery. Even under normal use, the performance of the battery deteriorates after 2–3 years.
- Battery voltage may recover after battery charging, but under heavy load, battery voltage will drop quickly and eventually die out. For this reason, the charging system is often suspected as the problem. Battery overcharge often results from problems in the battery itself, which may appear to be an overcharging symptom. If one of the battery cells is shorted and battery voltage does not increase, the regulator/rectifier supplies excess voltage to the battery. Under these conditions, the electrolyte level goes down quickly.
- Before troubleshooting the charging system, check for proper use and maintenance of the battery. Check if the battery is frequently under heavy load, such as having the headlight and taillight on for long periods of time without riding the motorcycle.
- The battery will self-discharge when the motorcycle is not in use. For this reason, charge the battery every two weeks to prevent sulfation from occurring.
- When checking the charging system, always follow the steps in the troubleshooting flow chart:
  – CBR1000RR/RA: See page 20-3
  – CBR1000S1/S2: See page 20-4
- For alternator service (page 12-2).

BATTERY CHARGING

- Turn power ON/OFF at the charger, not at the battery terminal.
- CBR1000RR/RA: For battery charging, do not exceed the charging current and time specified on the battery. Using excessive current or extending the charging time may damage the battery.
- CBR1000S1/S2: These models are equipped with the Lithium Ion (Li-Ion) battery. To charge the battery, use only the specified battery charger (C1401B manufactured by ELIIY Power Co., Ltd.).
- Quick charging should only be done in an emergency; slow charging is preferred.

BATTERY TESTING

Refer to the instruction in the Operation Manual for the recommended battery tester for details about battery testing.
The recommended battery tester puts a “load” on the battery so that the actual battery condition can be measured.

Recommended battery tester: BM-210 or BATTERY MATE or equivalent

TROUBLESHOOTING

BATTERY IS DAMAGED OR WEAK

1. BATTERY TEST

Remove the battery (page 20-6).
Check the battery condition using the recommended battery tester.

Recommended battery tester: BM210 or BATTERY MATE or equivalent

Is the battery in good condition?

YES – GO TO STEP 2.

NO – Faulty battery

2. CURRENT LEAKAGE TEST

Install the battery (page 20-6).
Check the battery current leakage test (page 20-6).

Is the current leakage below 0.1 mA?

YES – GO TO STEP 4.

NO – GO TO STEP 3.

3. CURRENT LEAKAGE TEST WITHOUT REGULATOR/RECTIFIER CONNECTED

Disconnect the regulator/rectifier connector and recheck the battery current leakage.

Is the current leakage below 0.1 mA?

YES – Faulty regulator/rectifier

NO –
- Shorted wire harness
- Faulty ignition switch

4. ALTERNATOR CHARGING COIL INSPECTION

Check the alternator charging coil (page 20-7).

Is the alternator charging coil resistance within 0.1 – 1.0 Ω (20°C/68°F)?

YES – GO TO STEP 5.

NO – Faulty charging coil

5. CHARGING VOLTAGE INSPECTION

Measure and record the battery voltage using a digital multimeter (page 20-6).
Start the engine.
Measure the charging voltage (page 20-7).
Compare the measurement to result of the following calculation.

Standard:
Measured BV < Measured CV < 15.5 V
- **BV = Battery Voltage (page 20-6)**
- **CV = Charging Voltage (page 20-7)**

Is the measured charging voltage within the standard voltage?

YES – Faulty battery

NO – GO TO STEP 6.

6. REGULATOR/RECTIFIER SYSTEM INSPECTION

Check the voltage and continuity at the regulator/rectifier connector (page 20-8).

Are the results of checked voltage and continuity correct?

YES – Faulty regulator/rectifier

NO –
- Open circuit in related wire
- Shorted wire harness
- Loose or poor contacts of related terminal

ELECTRICAL SYSTEM DOES NOT TURNED ON WHEN THE IGNITION SWITCH IS TURNED ON OR STARTER MOTOR CANNOT BE TURNED (CBR1000S1/S2 only)

1. ELECTRICAL SYSTEM INSPECTION

Remove the battery (page 20-6).
Connect a fully charged 12 V battery and turn the ignition switch ON.

Is the electrical system turned ON?

YES – GO TO STEP 2.

NO – • Check the following:
– Main fuse
– Main relay
– Sub-fuses
– Related wires

2. STARTER SYSTEM INSPECTION

Check that the starter motor can be turned.

Can the starter motor be turned?

YES – GO TO STEP 3.

NO – Check the starter system (page 6-2).

3. BATTERY CONDITION INSPECTION

Check the battery for cracked or deformed case, electrolyte leakage, nasty smell or heat generation.

Is the battery in above conditions?

YES – Follow the emergency manual.

NO – GO TO STEP 4.

4. BATTERY VOLTAGE INSPECTION

Leave the battery for 30 minutes and check the battery voltage.

Is the voltage below 6 V or above 14.6?

YES – Replace the battery (page 20-6).

NO – GO TO STEP 5.

5. CHARGING CONDITION INSPECTION

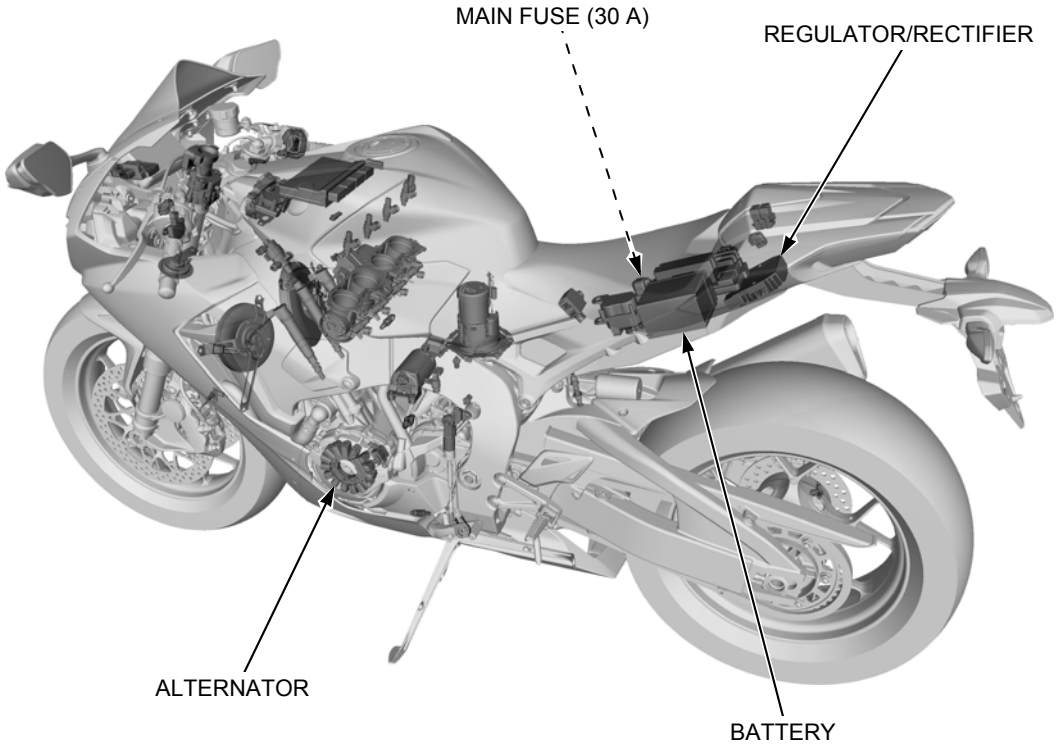
Charge the battery using the specified battery charger (C1401B manufactured by ELIIY Power Co., Ltd.).

Is the battery charged?

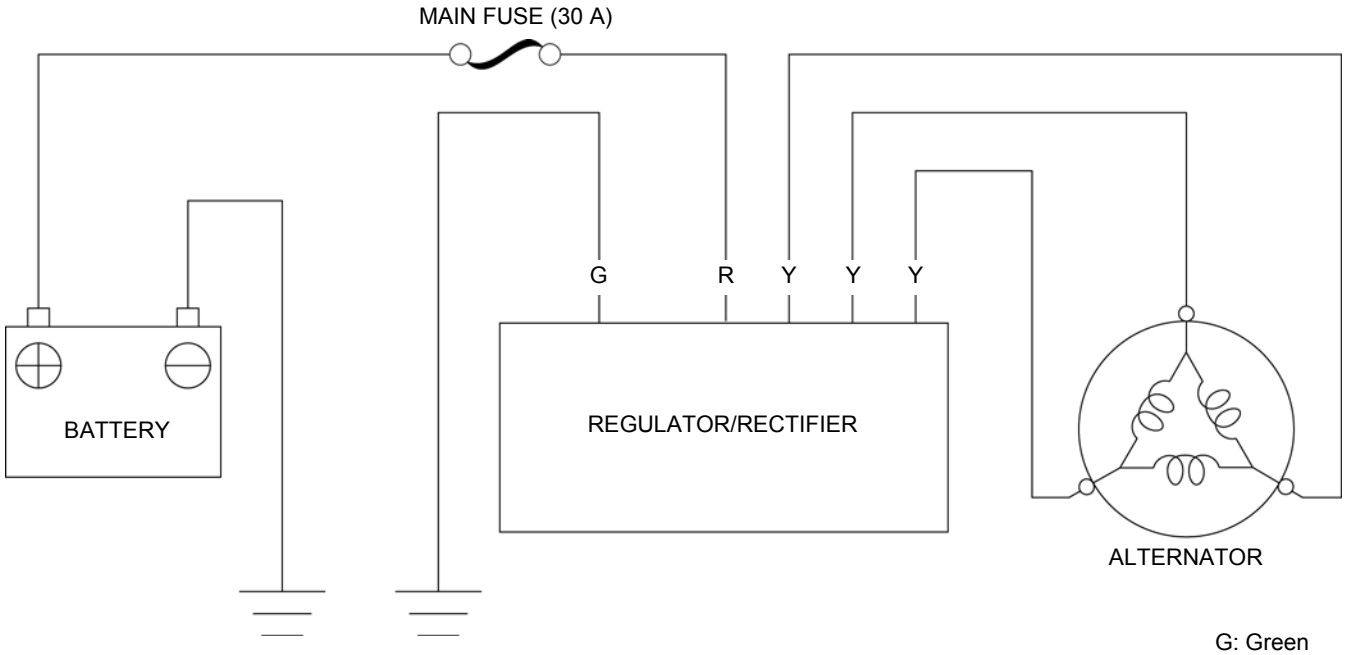
YES – Battery is normal.

NO – Replace the battery (page 20-6).

SYSTEM LOCATION



SYSTEM DIAGRAM



G: Green
R: Red
Y: Yellow

BATTERY

REMOVAL/INSTALLATION

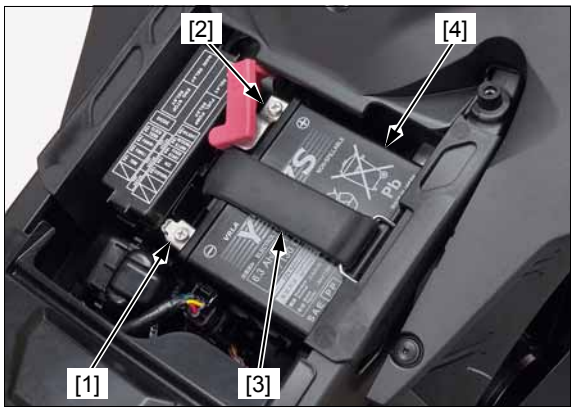
Always turn the ignition switch OFF before removing the battery.

Remove the main seat (page 2-4).

Disconnect the negative (–) cable [1] and then the positive (+) cable [2].
Remove the battery holder band [3] and battery [4].

Connect the positive terminal first and then the negative cable.

Install the battery in the reverse order of removal.



VOLTAGE INSPECTION

Remove the main seat (page 2-4).

Measure the battery voltage using a digital multimeter.

VOLTAGE:
Fully charged: 13.0 – 13.2 V
Under charged: Below 12.4 V

CHARGING SYSTEM INSPECTION

CURRENT LEAKAGE INSPECTION

Remove the main seat (page 2-4).

Turn the ignition switch OFF and disconnect the battery negative (–) cable from the battery.

Connect the ammeter (+) probe [1] to the negative (–) cable [2] and ammeter (–) probe [3] to the battery (–) terminal [4].

With the ignition switch OFF, check for current leakage.

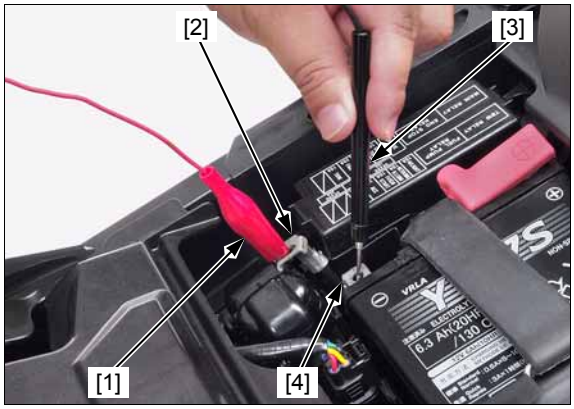
NOTE:

- When measuring current using a tester, set it to a high range, and then bring the range down to an appropriate level. Current flow higher than the range selected may blow out the fuse in the tester.
- While measuring current, do not turn the ignition switch ON. A sudden surge of current may blow out the fuse in the tester.

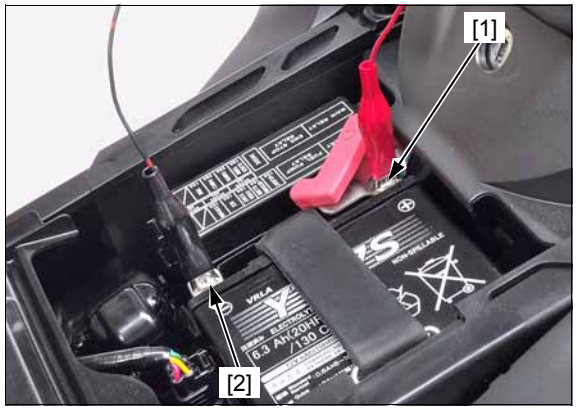
SPECIFIED CURRENT LEAKAGE: 0.1 mA max.

If current leakage exceeds the specified value, a short circuit is likely.

Locate the shorted circuit by disconnecting connections one by one and measuring the current.



CHARGING VOLTAGE INSPECTION



Be sure the battery is in good condition before performing this test.

Warm the engine to normal operating temperature and stop the engine.

Remove the main seat (page 2-4).

Connect the multimeter between the positive terminal [1] and negative terminal [2] of the battery.

NOTE:

- To prevent a short, make absolutely certain which are the positive and negative terminals or cable.
- Do not disconnect the battery or any cable in the charging system without first switching OFF the ignition switch. Failure to follow this precaution can damage the tester or electrical components.

Restart the engine.

With the headlight on Hi beam, measure the voltage on the multimeter when the engine runs at 5,000 min^{-1} (rpm).

Standard:

Measured BV < Measured CV < 15.5 V at 5,000 min^{-1} (rpm)

BV = Battery Voltage (page 20-6)

CV = Charging Voltage

ALTERNATOR CHARGING COIL

INSPECTION

Remove the regulator cover (page 2-9).

Slide the connector cover [1] off the alternator 3P (Black) connector [2] and disconnect the connector.

Check the connector for loose contact or corroded terminals.

Measure the resistance at the wire harness side connector.

Connection: Yellow – Yellow

Standard: 0.1 – 1.0 Ω (at 20°C/68°F)

Check for continuity between the wire harness side connector and ground.

Connection: Yellow – Ground

There should be no continuity.

If readings are far beyond the standard, or if any wire has continuity to ground, replace the stator.

For stator replacement (page 12-5).

REGULATOR/RECTIFIER

SYSTEM INSPECTION

Remove the regulator cover (page 2-9).

Slide the connector cover [1] off the regulator/rectifier 2P (Black) connector [2] and disconnect the connector.

Check the connector for loose contact or corroded terminals.

Measure the voltage between the wire harness side connector and ground.

Connection: Red – Ground

There should be battery voltage at all times.

Check for continuity between the wire harness side connector and ground.

Connection: Green – Ground

There should be continuity at all times.

REMOVAL/INSTALLATION

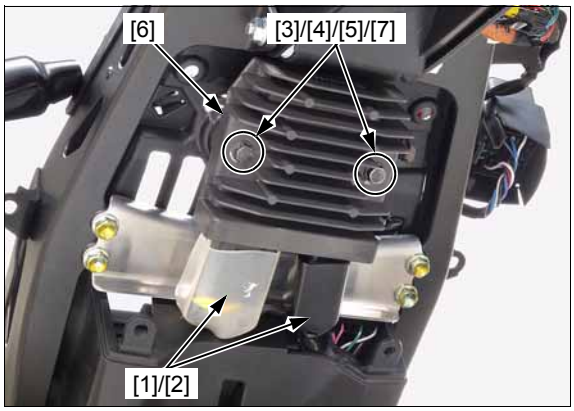
Remove the regulator cover (page 2-9).

Slide the connector covers [1] off the alternator 3P (Black) and regulator/rectifier 2P (Black) connectors [2], and disconnect the connectors.

Remove the following:

– Nuts [3]
– Washers [4]
– Bolts [5]
– Regulator/rectifier [6]
– Collars [7]

Installation is in the reverse order of removal.



21. LIGHTS/METERS/SWITCHES

SERVICE INFORMATION

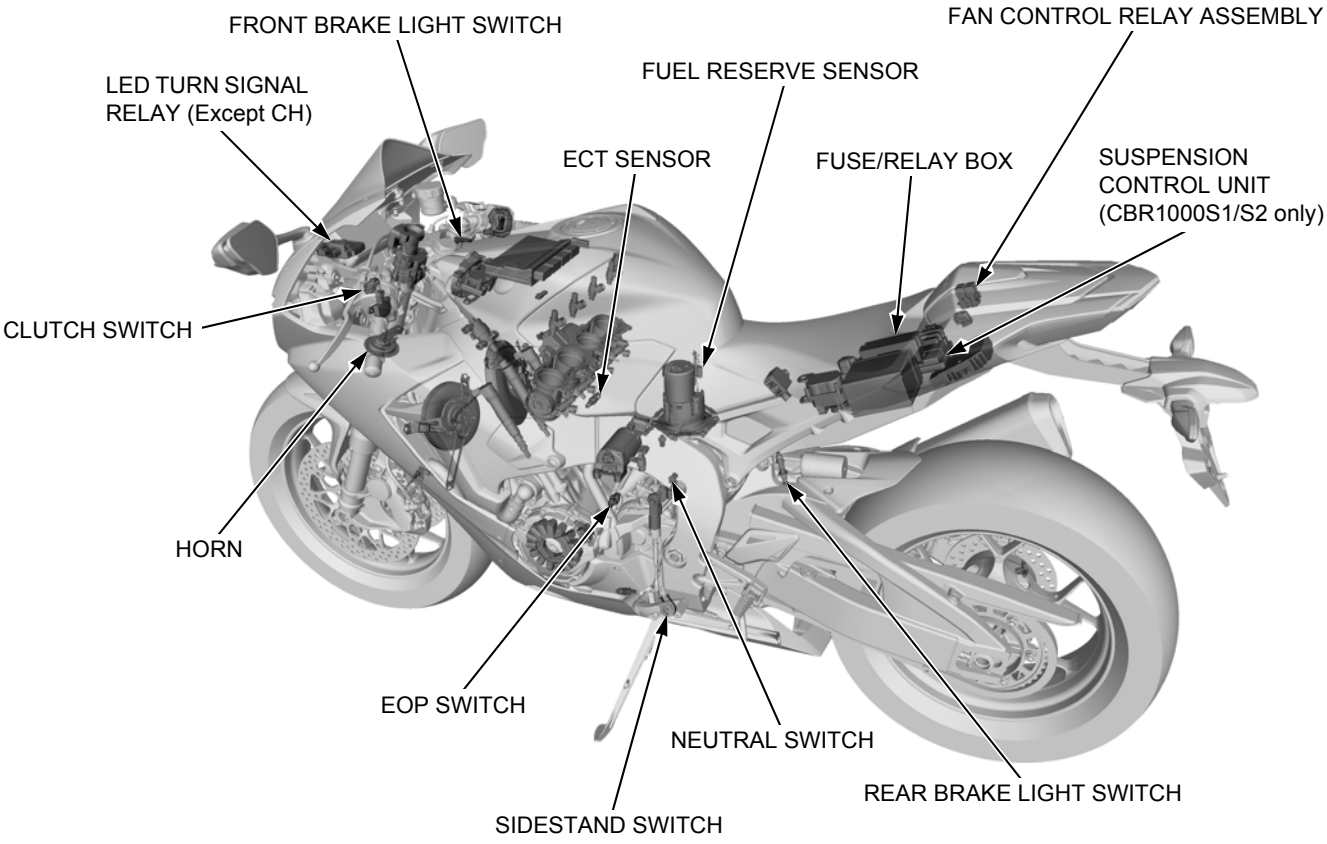
GENERAL

- Check the battery condition before performing any inspection that requires proper battery voltage.
- A continuity test can be made with the switches installed on the motorcycle.
- The following color codes are used throughout this section.

Be = Beige	Bl = Black	Br = Brown	Bu = Blue	G = Green	Gr = Gray	Lb = Light blue
Lg = Light green	O = Orange	P = Pink	R = Red	V = Violet	W = White	Y = Yellow

- For front turn signal light removal/installation (page 2-16)
- Except CH: For headlight and LED turn signal relay removal/installation (page 2-19)
- CH: For headlight, headlight relay and turn signal relay removal/installation (page 2-19)
- For rear turn signal light removal/installation (page 2-10)
- For license light removal/installation (page 2-10)

SYSTEM LOCATION

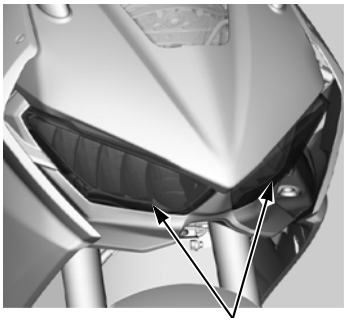


HEADLIGHT

SYSTEM INSPECTION

NOTE:

- If any LED in the headlights [1] does not turn on, replace the headlight unit (page 2-18).
- The headlights are controlled by the combination meter. They are turned on after the engine is started.
- Check the following before troubleshooting:
  – Battery condition
  – HEADLIGHT fuse (10 A)
  – Dimmer switch
  – CH only: Headlight relay and related circuit
  – CH only: Headlight switch



Headlight does not light with the engine running

1. Headlight Unit Ground Line Open Circuit Inspection

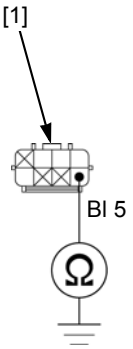
Disconnect the headlight unit 8P (Black) connector.
Check for continuity between the wire harness side 8P (Black) connector [1] and ground.

Connection: Black 5 – Ground

Is there continuity?

YES – GO TO STEP 2.

NO – Open circuit in the Black wire between the headlight unit and ground point



2. Headlight Unit Power source Line Open Circuit Inspection

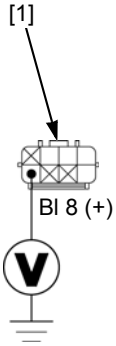
Turn the ignition switch ON.
CH only: Turn the headlight switch ON.
Measure the voltage between the wire harness side 8P (Black) connector [1] and ground.

Connection: Black 8 (+) – Ground (–)

Is there Battery voltage?

YES – GO TO STEP 3.

NO – • Except CH: Open circuit in the Black wire between the headlight unit and fuse/relay box
• CH: Open circuit in the Black wire between the headlight unit and headlight relay



3. Headlight Unit Inspection

Turn the ignition switch OFF.
Disconnect the combination meter 32 P (Gray) connector (page 21-9).
Ground the wire harness side 32 P (Gray) connector [1] with the jumper wire.

TOOL:
Test probe **07ZAJ-RDJA110**

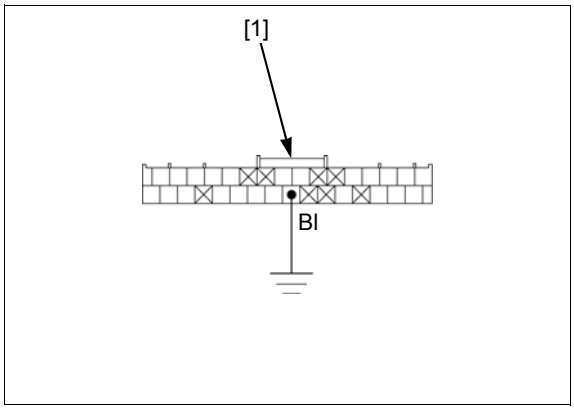
Connection: Black – Ground

Temporarily connect 8P (Black) connector.
Turn the ignition switch ON.
CH only: Turn the headlight switch ON.

Does the headlight come on?

YES – Replace the meter assembly (page 21-11).

NO – GO TO STEP 4.



4. Headlight Control Line Open Circuit Inspection

Turn the ignition switch OFF.
Disconnect the 8P (Black) connector.
Check for continuity between the wire harness side 32 P (Gray) connector [1] and 8P (Black) connector [2].

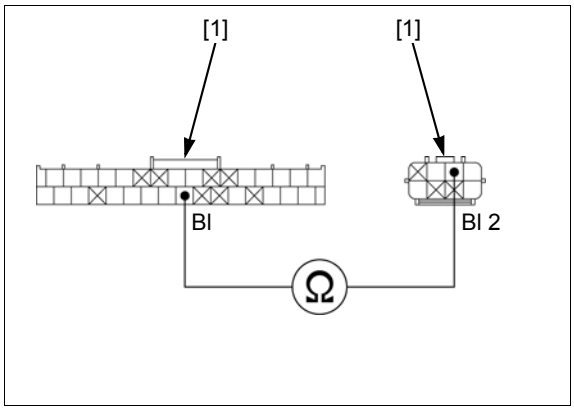
TOOL:
Test probe **07ZAJ-RDJA110**

Connection: Black 2 – Black

Is there continuity?

YES – Replace the headlight unit (page 2-18)

NO – Open circuit in the Black wire between the headlight unit and combination meter



High beam headlight does not light with the dimmer switch turned to "≡D"

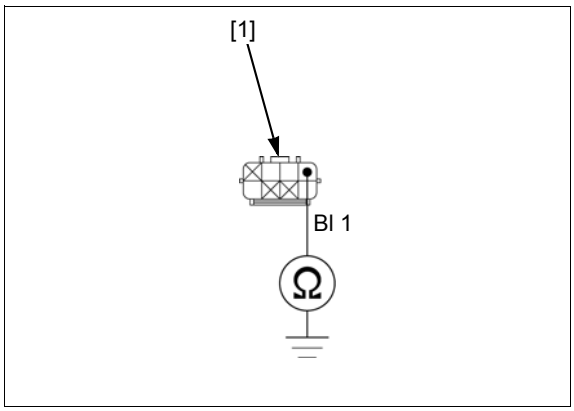
Disconnect the headlight unit 8P (Black) connector.

Turn the dimmer switch to "≡D".

Check for continuity between the wire harness side 8P (Black) connector [1] and ground.

Connection: Black 1 – Ground

- If there is continuity, replace the headlight unit (page 2-18).
- If there is no continuity, check the following:
  – Open circuit in the Black wire between the headlight unit and left handlebar (dimmer) switch
  – Open circuit in the Green wire between the left handlebar (dimmer) switch and ground point.



High beam indicator does not come on with the headlight high beam on

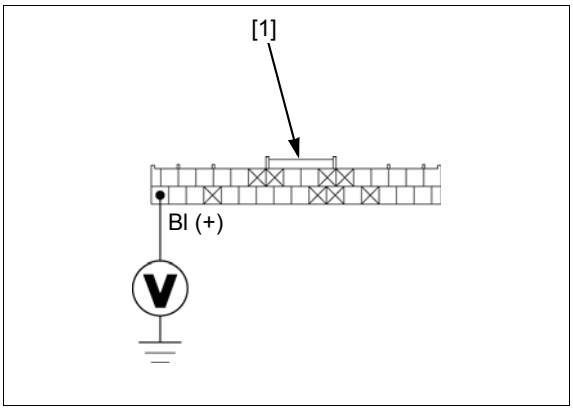
Disconnect the combination meter 32P (Gray) connector (page 21-9).

Temporarily connect the headlight unit 8P (Black) connector.

Turn the ignition switch ON and dimmer switch to "≡D".

CH only: Turn the headlight switch ON.

Measure the voltage between the 32P (Gray) connector [1] and ground.



TOOL:
Test probe **07ZAJ-RDJA110**

Connection: Black (+) – Ground (–)

- If there is battery voltage, replace the meter assembly (page 21-11).
- If there is no voltage, check for an open circuit in the Black wire.
  If the wire is normal, replace the headlight unit (page 2-18).

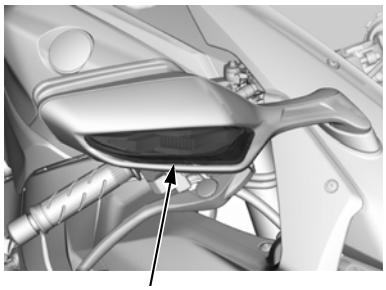
TURN SIGNAL LIGHT/LED TURN SIGNAL RELAY (Except CH)

SYSTEM INSPECTION

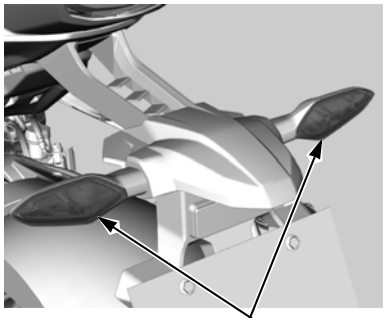
NOTE:

- If any LED in the turn signal light [1] does not turn on, replace the turn signal light.
  – Front: page 2-16
  – Rear: page 2-9
- The turn signal lights are controlled by the LED turn signal relay.
- Except IN: The front turn signal lights have position light function.
- If there is an open circuit in the one (front or rear) turn signal light, the other turn signal light blinks faster than usual in order to notify the rider of the problem.
- The hazard flasher system can be operated with the ignition switch turned ON.
- When the ignition switch is turned OFF while the hazard flasher system is operating, the system is continue operating until the hazard switch is turned off.
- Check the following before troubleshooting:
  – Battery condition
  – METER/IMU/ILLUMI fuse (10 A)
  – CLOCK/TURN fuse (10 A)
  – Turn signal switch and hazard switches

FRONT:



REAR:



Turn signal lights do not operate at all when the turn signal switch or hazard switch is operated with the ignition switch turned ON

1. LED Turn Signal Relay Ground Line Open Circuit Inspection

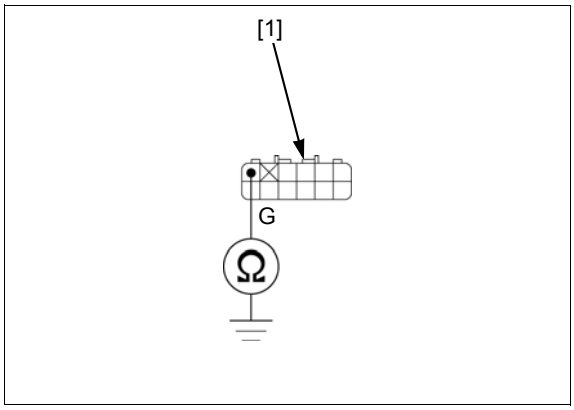
Disconnect the LED turn signal relay 12P (Black) connector.
Check for continuity between the wire harness side 12P (Black) connector [1] and ground.

Connection: Green – Ground

Is there continuity?

YES – GO TO STEP 2.

NO – Open circuit in the Green wire between the LED turn signal relay and ground point



2. LED Turn Signal Relay Battery Power Line Open Circuit Inspection

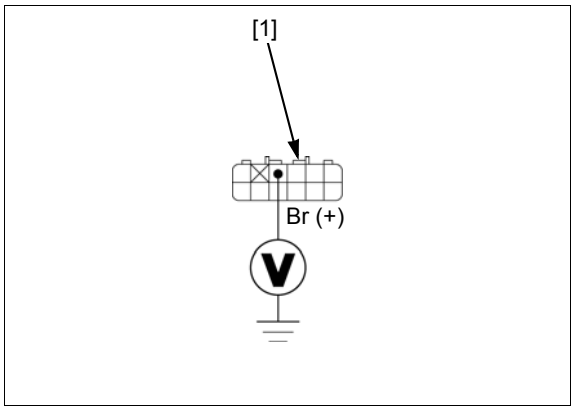
Measure the voltage between the wire harness side 12P (Black) connector [1] and ground.

Connection: Brown (+) – Ground (–)

Is there Battery voltage?

YES – GO TO STEP 3.

NO – Open circuit in the Brown wire between the LED turn signal relay and fuse/relay box (CLOCK/TURN fuse)



3. LED Turn Signal Relay Ignition Power Line Open Circuit Inspection

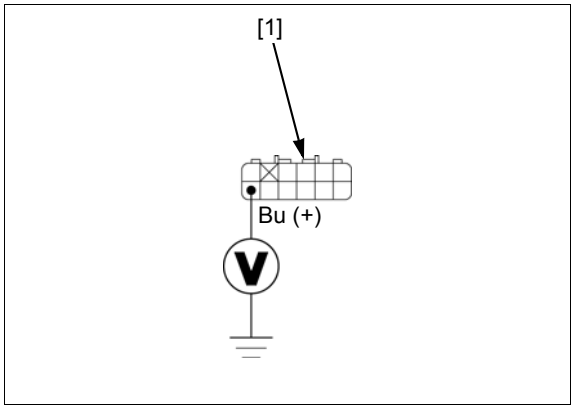
Turn the ignition switch ON.
Measure the voltage between the wire harness side 12P (Black) connector [1] and ground.

Connection: Blue (+) – Ground (–)

Is there Battery voltage?

YES – GO TO STEP 4.

NO – Open circuit in the Blue wire between the LED turn signal relay and fuse/relay box (METER/IMU/ILLUMI fuse)



4. Turn Signal Switch/Hazard Switch Power Input Line Open Circuit Inspection

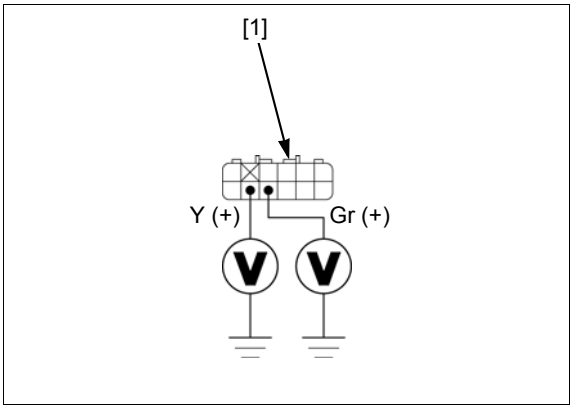
Push the hazard switch.
Measure the voltage between the wire harness side 12P (Black) connector [1] and ground.

Connection:
Gray (+) – Ground (–)
Yellow (+) – Ground (–)

Is there Battery voltage?

YES – Replace the LED turn signal relay (page 2-18).

NO – Open circuit in the Brown wire between the left handlebar (turn signal) switch and fuse/relay box (CLOCK/TURN fuse)



Turn signal indicator does not come on with the turn signal lights blinking

Disconnect the combination meter 32P (Gray) connector (page 21-9).

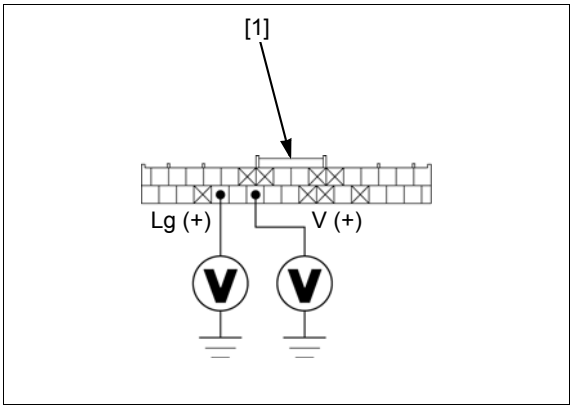
Temporarily connect the LED turn signal relay 12P (Black) connector.

Turn the ignition switch ON and operate the turn signal switch.

Measure the voltage between the 32P (Gray) connector [1] and ground.

TOOL:
Test probe **07ZAJ-RDJA110**

Connection:
Right: Light green (+) – Ground (–)
Left: Violet (+) – Ground (–)



- If there is battery voltage, replace the meter assembly (page 21-11).
- If there is no voltage, check for an open circuit in the Light green or Violet wire.
  If the wire is normal, replace the LED turn signal relay (page 2-18).

Right turn signal lights do not blink
- Open circuit in the Gray wire between the left handlebar (turn signal) switch and LED turn signal relay

Left turn signal lights do not blink
- Open circuit in the Yellow wire between the left handlebar (turn signal) switch and LED turn signal relay

One (front or rear) turn signal light blinks faster than usual (the other turn signal light does not blink)
- Open circuit in the following between the LED turn signal relay and the turn signal light
  – Right front: White wire
  – Left front: Pink wire
  – Right rear: Light blue wire
  – Left rear: Orange
- Open circuit in the Green wire between the turn signal light and ground point
- Replace the turn signal light
  – Front: page 2-16
  – Rear: page 2-9

TURN SIGNAL LIGHT (CH)

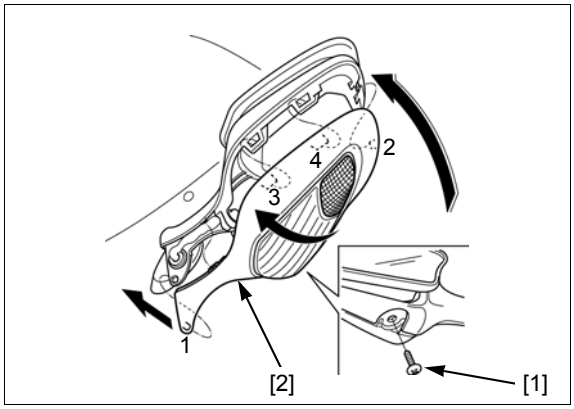
BULB REPLACEMENT

FRONT

Remove the screw [1] and turn the rearview mirror for ease removal of the front cover [2] as shown.

Be careful not to damage the tabs.

Release the front cover tabs in the specified sequence as shown and remove the front cover.

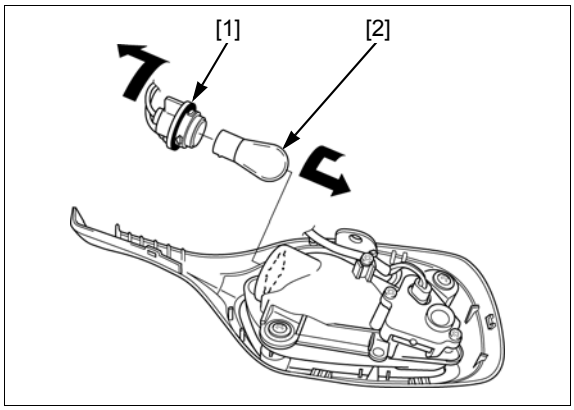


Turn the bulb socket [1] counterclockwise and remove it.

Turn the bulb [2] counterclockwise while pushing it in and remove it.

Install a new bulb in the reverse order of removal.

TORQUE:
Rearview mirror front cover screw:
1.0 N·m (0.1 kgf·m, 0.7 lbf·ft)



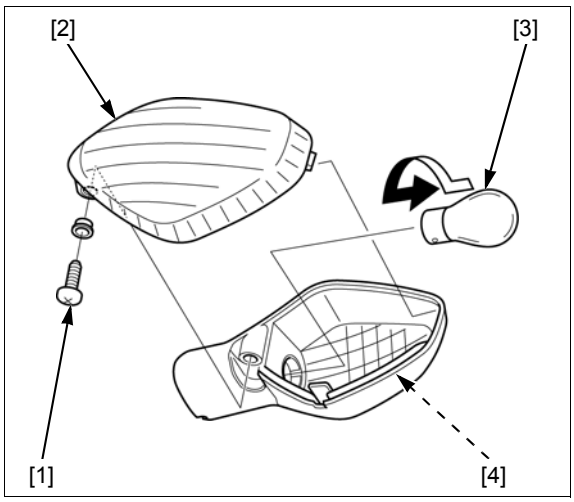
REAR

Remove the screw [1] and turn signal lens [2].

Turn the bulb [3] counterclockwise while pushing it in and remove it.

Check the seal gasket [4] in the base groove for deterioration or damage and replace if necessary.

Install a new bulb in the reverse order of removal.



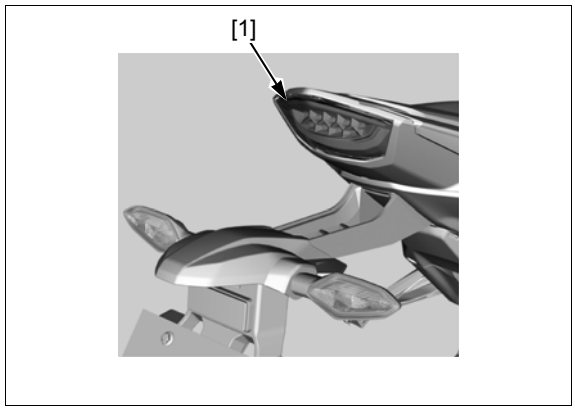
BRAKE/TAILLIGHT

INSPECTION

Turn the ignition switch ON, and check the taillight operation.

Check that all LED in the brake/taillight unit [1] illuminate with the front brake lever and/or rear brake pedal applied.

If any LED does not turn on, replace the brake/taillight (page 21-9).



REMOVAL/INSTALLATION

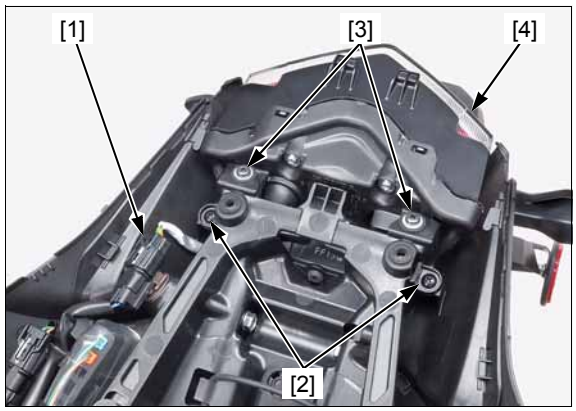
Remove the rear upper cowl (page 2-7).

Disconnect the brake/taillight 3P (Black) connector [1].

Remove the following:

– Two rear under cowl screws [2]
– Two brake/taillight mounting screws [3]
– Brake/taillight [4]

Installation is in the reverse order of removal.



COMBINATION METER

INITIAL OPERATION CHECK

When the ignition switch is turned ON, the opening symbol will show on the display.

If the display does not show the opening symbol, check the power and ground lines (page 21-9).

If the power and ground lines are normal, replace the meter assembly (page 21-11).

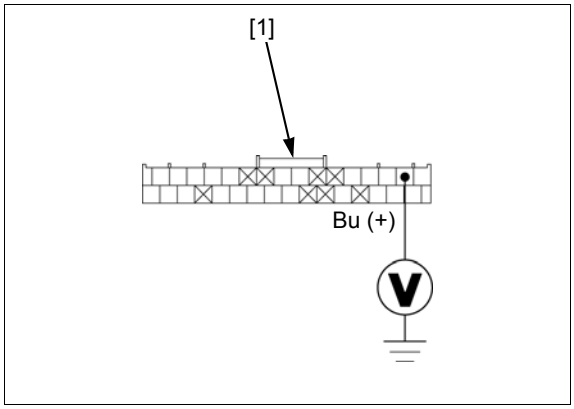
POWER/GROUND LINE INSPECTION

Remove the front cowl (page 2-18).

Remove the dust cover [1], disconnect the 32P (Gray) connector [2] from the combination meter and check the following:

POWER INPUT LINE

Measure the voltage between the wire harness side 32P (Gray) connector [1] and ground.



TOOL:
Test probe 07ZAJ-RDJA110

Connection: Blue (+) – Ground (–)

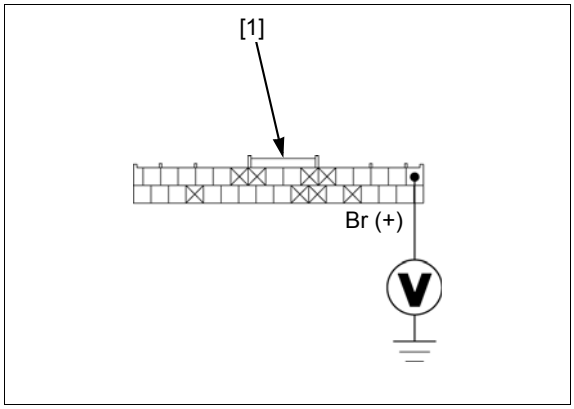
There should be battery voltage with the ignition switch turned ON.

If there is no voltage, check the following:

– Open circuit in the Blue wire between the fuse/relay box and combination meter
– Blown METER/IMU/ILLUMI fuse (10 A)

BACK-UP LINE

Measure the voltage between the wire harness side 32P (Gray) connector [1] and ground.



TOOL:
Test probe 07ZAJ-RDJA110

Connection: Brown (+) – Ground (–)

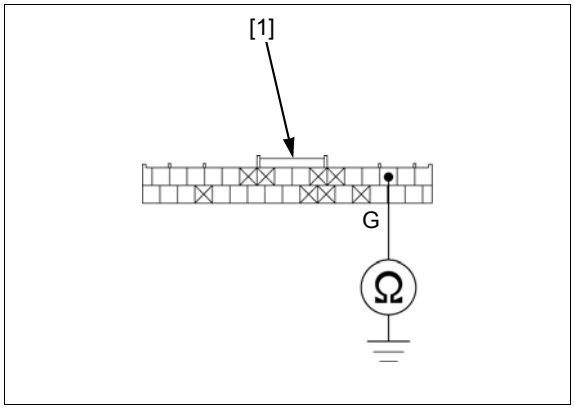
There should be battery voltage at all times.

If there is no voltage, check the following:

– Open circuit in the Brown wire between the fuse/relay box and combination meter
– Blown CLOCK/TURN fuse (10 A)

GROUND LINE

Check for continuity between the wire harness side 32P (Gray) connector [1] and ground.



TOOL:
Test probe 07ZAJ-RDJA110

Connection: Green – Ground

There should be continuity at all times.

If there is no continuity, check for open circuit in the Green wire between the combination meter and ground point.

REMOVAL/INSTALLATION

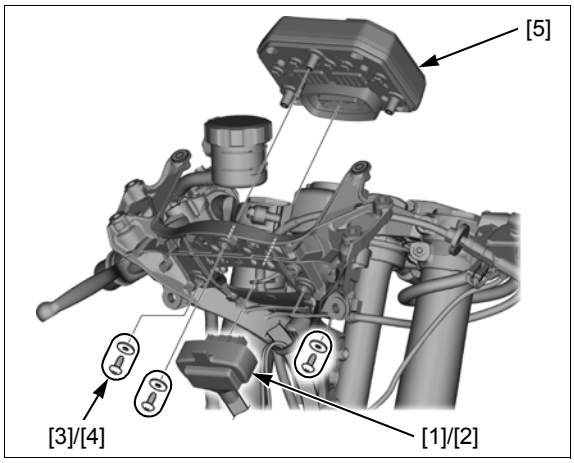
Remove the front cowl (page 2-18).

Remove the dust cover [1] and disconnect the 32P (Gray) connector [2].

Remove the following:

– Three mounting screws [3] and washers [4]
– Combination meter [5]

Installation is in the reverse order of removal.



TORQUE:
Combination meter mounting screw:
1.0 N·m (0.1 kgf·m, 0.7 lbf·ft)

DISASSEMBLY/ASSEMBLY

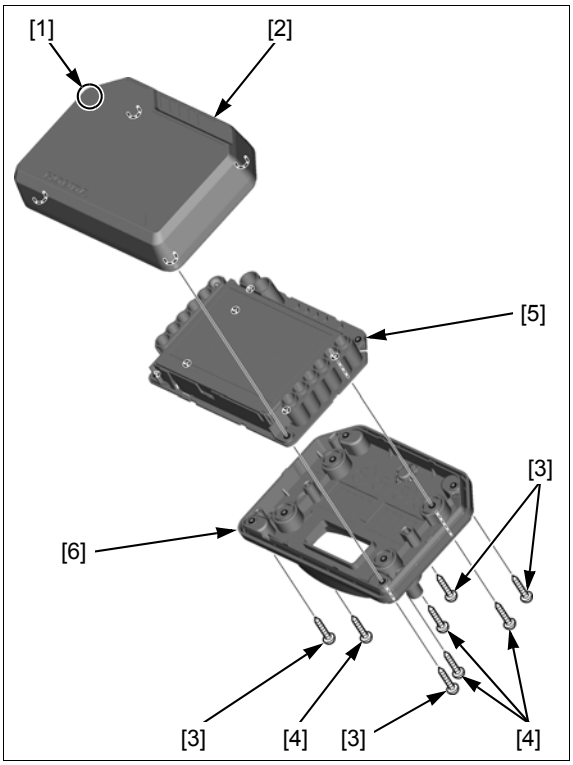
NOTE:

- The combination meter on this model is equipped with the automatic brightness control system. Be careful not to damage the lens [1] of the upper case [2] for the photosensor.

Remove the following:

– Four tapping screws [3]
– Upper case
– Four tapping screws [4]
– Meter assembly [5]
– Lower case [6]

Assembly is in the reverse order of disassembly.



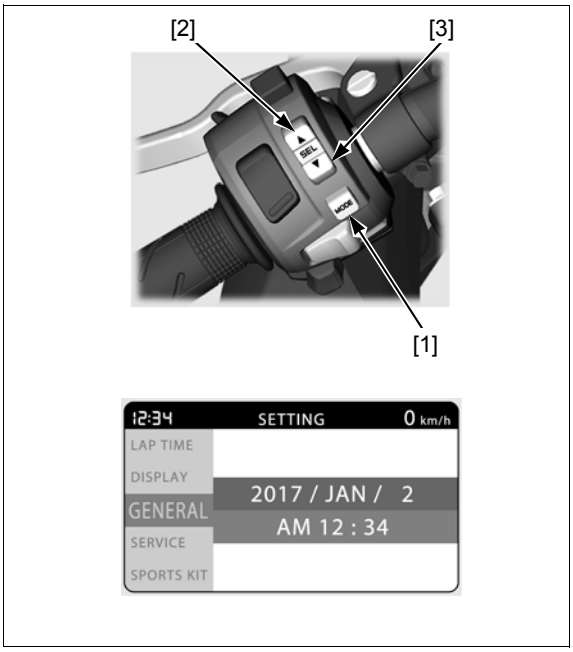
DATE & TIME SETTING PROCEDURE

Turn the ignition switch ON.

1. Press and hold the MODE button [1], and SEL (up) button [2] or SEL (down) button [3] until the SETTING mode is displayed.
2. Press the SEL (up) or SEL (down) button to select the GENERAL menu, and press the MODE button.
3. Pressing the SEL (up) or SEL (down) button to select the DATE & TIME menu, and press the MODE button.
4. Press the SEL (up) or SEL (down) button until the desired value of third digit of year is displayed, and press the MODE button.
5. Press the SEL (up) or SEL (down) button until the desired value of fourth digit of year is displayed, and press the MODE button.
6. Press the SEL (up) or SEL (down) button until the desired month is displayed, and press the MODE button.
7. Press the SEL (up) or SEL (down) button until the desired day is displayed, and press the MODE button.
8. Press the SEL (up) or SEL (down) button to select the AM or PM, and press the MODE button.
9. Press the SEL (up) or SEL (down) button until the desired hour is displayed, and press the MODE button.
10. Press the SEL (up) or SEL (down) button until the desired minute is displayed, and press the MODE button.

NOTE:

- Press and hold the SEL (up) or SEL (down) button to move the menu fast.



SPEEDOMETER

SYSTEM INSPECTION

Except CBR1000RR:

1. ABS DTC Check

Check the ABS DTC (page 19-5).

Does the ABS modulator have any DTC?

YES – Follow the ABS DTC index (page 19-7).

NO – GO TO STEP 2.

2. Rear Wheel Speed Sensor Signal Input Line Open Circuit Inspection

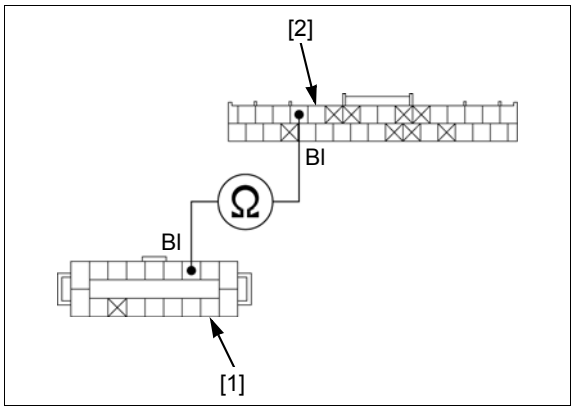
Turn the ignition switch OFF.

Disconnect the following:
– ABS modulator 18P (Black) connector (page 19-6)
– Combination meter 32P (Gray) connector (page 21-9)

Check for continuity between the wire harness side 18P (Black) connector [1] and 32P (Gray) connector [2].

TOOL:
Test probe **07ZAJ-RDJA110**

Connection: Black – Black



Is there continuity?

YES – GO TO STEP 3.

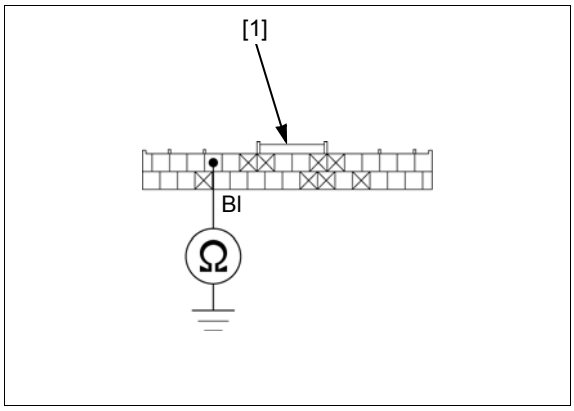
NO – Open circuit in the Black wire

3. Rear Wheel Speed Sensor Signal Input Line Short Circuit Inspection

Check for continuity between the wire harness side 32P (Gray) connector [1] terminal and ground.

TOOL:
Test probe **07ZAJ-RDJA110**

Connection: Black – Ground



Is there continuity?

YES – Short circuit in the Black wire

NO – GO TO STEP 4.

4. Combination Meter Inspection

Replace the combination meter with a known good one (page 21-10).
Connect the ABS modulator 18P (Black) connector.
Test-ride the motorcycle and check the speedometer.

Does the speedometer operate properly?

YES – Faulty original combination meter

NO – Replace the ABS modulator with a known good one (page 19-24) and recheck.

CBR1000RR:

1. Rear Wheel Speed Sensor Short Circuit Inspection

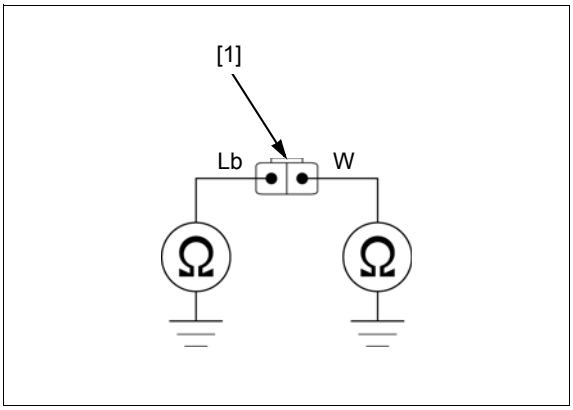
Turn the ignition switch OFF.
Disconnect the rear wheel speed sensor 2P (Black) connector (page 4-87).
Check for continuity between the sensor side 2P (Black) connector [1] and ground.

Connection: White – Ground
Light blue – Ground

Is there continuity?

YES – Faulty rear wheel speed sensor

NO – GO TO STEP 2.



2. Rear Wheel Speed Sensor Line Short Circuit Inspection

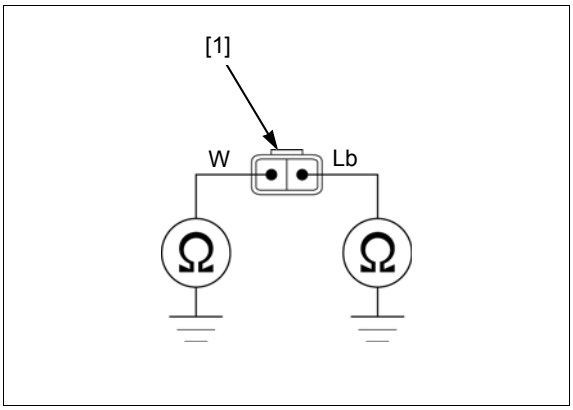
Disconnect the combination meter 32P (Gray) connector (page 21-9).
Check for continuity between the wire harness side 2P (Black) connector [1] and ground.

Connection: White – Ground
Light blue – Ground

Is there continuity?

YES – • Short circuit in the White wire
• Short circuit in the Light blue wire

NO – GO TO STEP 3.



3. Rear Wheel Speed Sensor Line Open Circuit Inspection

Short the wire harness side 32P (Gray) connector [1] terminals with a jumper wire [2].

TOOL:
Test probe 07ZAJ-RDJA110

Connection: Light blue – White

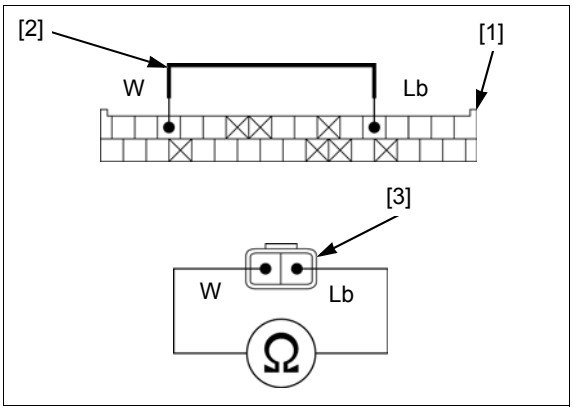
Check for continuity at the wire harness side 2P (Black) connector [3].

Connection: Light blue – White

Is there continuity?

YES – GO TO STEP 4.

NO – Open circuit in the Light blue or White wire



4. Rear Wheel Speed Sensor Inspection

Replace the rear wheel speed sensor with a new one (page 4-87).
Connect the 32P (Gray) connector.
Test-ride the motorcycle and check the speedometer.

Does the speedometer operate properly?

YES – Faulty original rear wheel speed sensor

NO – Faulty combination meter

TACHOMETER

SYSTEM INSPECTION

If the tachometer does not operate properly, check that the ECM stores the DTC 19-1, DTC 103-1 or DTC 103-2 (page 4-7).

If the ECM stores DTC, follow the DTC troubleshooting (page 4-10).

If the ECM does not store DTC, replace the meter assembly (page 21-11).

ECT SENSOR

INSPECTION

Remove the ECT sensor (page 4-82).

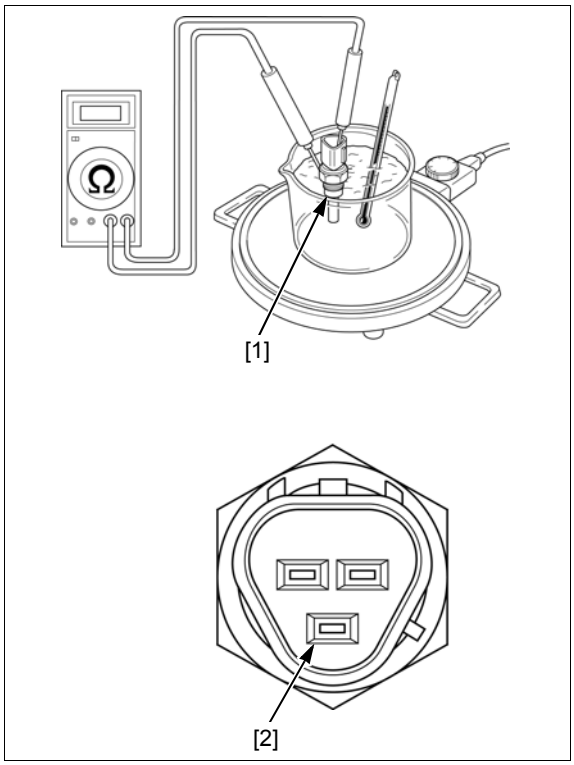
Suspend the ECT sensor [1] in a pan of coolant on an electric heating element and measure the resistance between the sensor terminal [2] and sensor body as the coolant heats up.

- Soak the ECT sensor in coolant up to its threads with at least 40 mm (1.6 in) from the bottom of the pan to the bottom of the sensor.
- Keep the temperature constant for 3 minutes before testing. A sudden change of temperature will result in incorrect readings. Do not let the thermometer or ECT sensor touch the pan.

Temperature	50°C (122°F)	80°C (176°F)
Resistance	6.8 – 7.4 kΩ	2.1 – 2.7 kΩ

Replace the sensor if it is out of specification.

Install the ECT sensor (page 4-82).



ENGINE OIL PRESSURE INDICATOR/ EOP SWITCH

INSPECTION

NOTE:

- The oil pressure indicator should come on when the ignition switch is turned ON and go off when the engine is started.

Engine oil pressure indicator does not come on when the ignition switch is turned ON

Remove the EOP switch wire terminal (page 21-15).

Ground the wire terminal with a jumper wire.

Turn the ignition switch ON and check the oil pressure indicator. The indicator should come on.

If the indicator comes on, replace the EOP switch.

If the indicator does not come on, check for an open circuit in the Black and Blue wires between the switch and combination meter. If the wires are normal, replace the combination meter.

Indicator stays on while the engine is running

Remove the EOP switch wire terminal (page 21-15).

Turn the ignition switch ON and check the engine oil pressure indicator.

If the indicator does not come on, check the following:

– Engine oil level (page 3-12)
– Engine oil pressure (page 9-4)

If they are normal, replace the EOP switch (page 21-15).

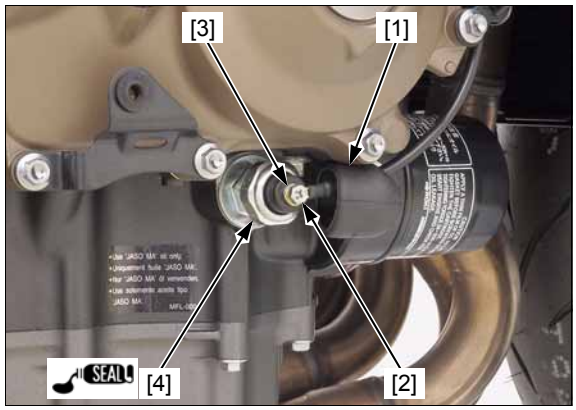
If the indicator comes on, check for short circuit in the Black and Blue wires between the switch and combination meter. If the wires are OK, replace the combination meter

REMOVAL/INSTALLATION

Remove the under cowl (page 2-20).

Remove the following:

– Dust cover [1]
– Bolt/washer [2]
– Wire terminal [3]
– Oil pressure switch [4]



Installation is in the reverse order of removal.

NOTE:

- Apply sealant (TB1207B manufactured by ThreeBond or equivalent) to the EOP switch treads.

TORQUE:
EOP switch:
12 N·m (1.2 kgf·m, 9 lbf·ft)
EOP switch terminal bolt/washer:
2.0 N·m (0.2 kgf·m, 1.5 lbf·ft)

Check the engine oil level (page 3-12).

FUEL RESERVE SENSOR

INSPECTION

NOTE:

- When the fuel level in the fuel tank is low, the low fuel indicator comes on and information display [1] appears.

Turn the ignition switch ON and check the low fuel indicator.

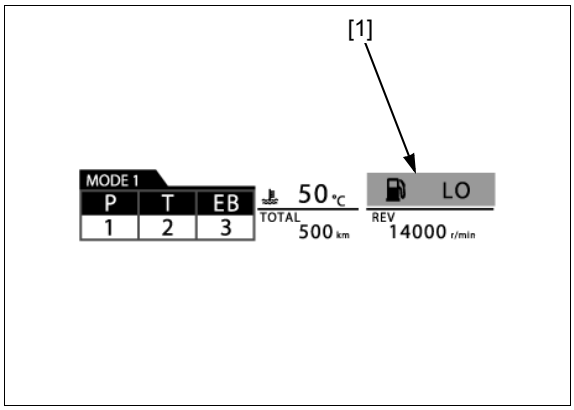
If the indicator is blinking, check the following:

– Open or short circuit in the White wire between the combination meter and fuel reserve sensor 2P (Black) connector
– Open circuit in the Green wire between the fuel reserve sensor 2P (Black) connector and ground point.

If the wires are normal, replace the fuel pump unit (page 7-9).

If the low fuel indicator does not come on and information display does not appear when the fuel level is low, disconnect the 2P (Black) connector (page 7-8) from the fuel tank and turn the ignition switch ON.

- If the low fuel indicator is blinking, replace the fuel pump unit (page 7-9).
- If the low fuel indicator is not blinking, replace the meter assembly (page 21-11).



IGNITION SWITCH

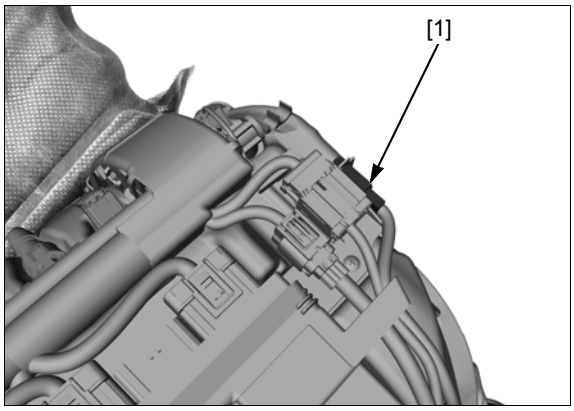
INSPECTION

Lift and support the fuel tank (page 3-4).

Disconnect the ignition switch 3P (Black) connector [1].

Check for continuity between the wire terminals of the ignition switch connector in each switch position.

Refer to the wiring diagram for the terminals and switch status (page 23-2).

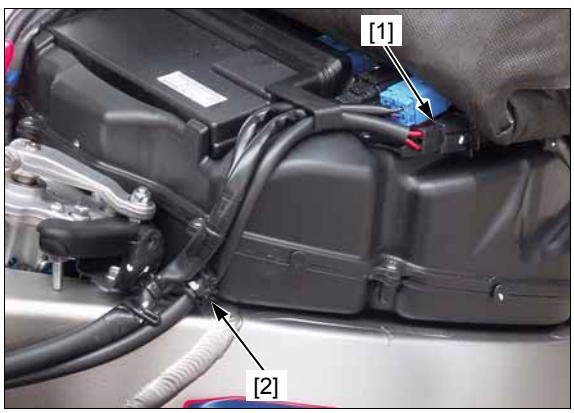


REMOVAL/INSTALLATION

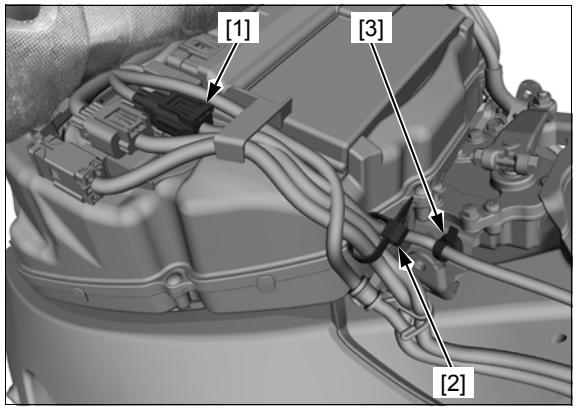
Remove the top bridge without removing the handlebar (page 16-9)

Lift and support the fuel tank (page 3-4).

Disconnect the ignition switch 3P (Black) connector [1] and release the wire from the clamp [2].



Disconnect the immobilizer receiver 4P (Black) connector [1], and remove the wire band [2] and wire clip [3].



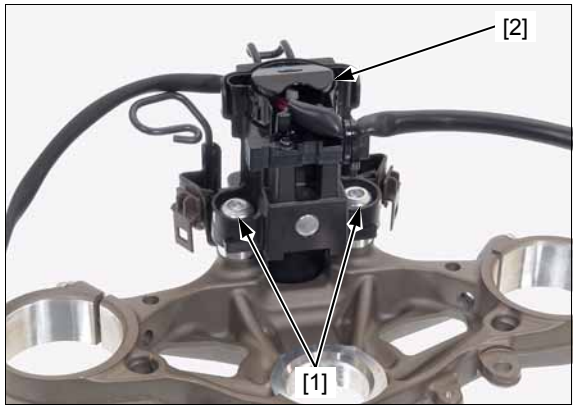
Remove the mounting bolts [1] and ignition switch [2].

NOTE:

- Use a drill or an equivalent tool when removing the mounting bolts.

Install the ignition switch and new mounting bolt onto the top bridge, and tighten bolts to the specified torque.

TORQUE: 26 N·m (2.7 kgf·m, 19 lbf·ft)



Route the wires properly (page 1-23)

Install the removed parts in the reverse order of removal.

Install the steering stem (page 16-10).

NOTE:

- If the ignition switch is replaced, perform the key registration procedures (page 22-4).

HANDLEBAR SWITCHES

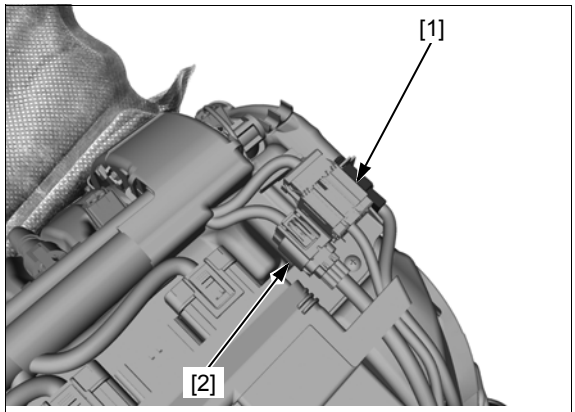
Lift and support the fuel tank (page 3-4).

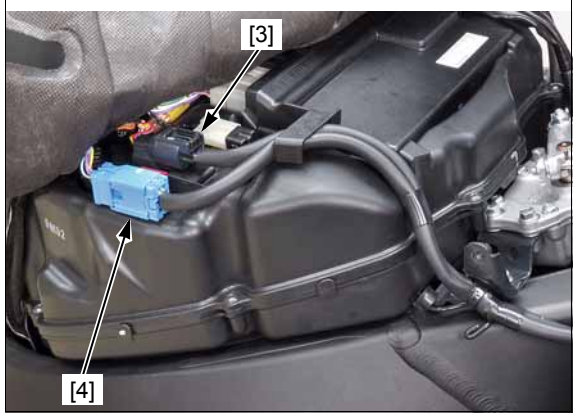
Disconnect the following:

– Except CH: Left handlebar switch 6P (Blue) connector [1]
– CH: Left handlebar switch 8P (Blue) connector [1]
– Left handlebar switch 8P (Black) connector [2]
– Right handlebar switch 6P (Black) connector [3]
– Right handlebar switch 6P (Blue) connector [4]

Check for continuity between the wire terminals of the handlebar switch connector in each switch position.

Refer to the wiring diagram for the terminals and switch status (page 23-2).





BRAKE LIGHT SWITCH

FRONT

Disconnect the wire connectors [1] from the front brake light switch and check for continuity between the switch terminals.

There should be continuity with the brake lever squeezed, and there should be no continuity with the brake lever is released.

REAR

Remove the following:

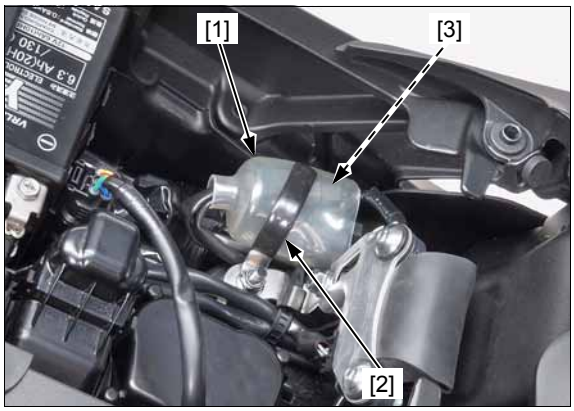
– CBR1000RA/S1/S2: ABS modulator (page 19-24)
– CBR1000RR: IMU cover (page 2-5)

CBR1000RR: Release the connector boot [1] from the clamp [2].

Disconnect the rear brake light switch 2P (Black) connector [3].

Check for continuity between the switch side connector terminals.

There should be continuity with the brake pedal depressed, and there should be no continuity with the brake pedal is released.

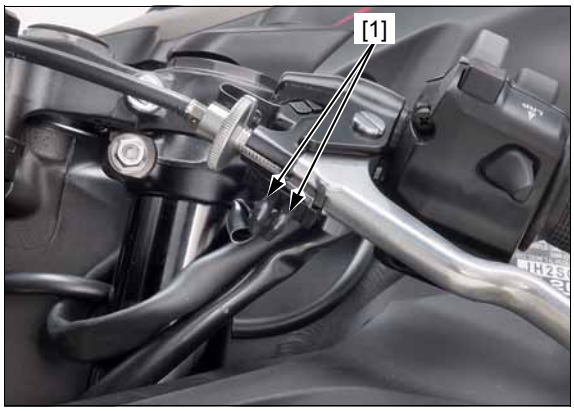


CLUTCH SWITCH

INSPECTION

Disconnect the wire connectors [1] from the clutch switch and check for continuity between the switch terminals.

There should be continuity with the clutch lever squeezed, and there should be no continuity with the clutch lever is released.



REMOVAL/INSTALLATION

Disconnect the wire connectors [1] from the clutch switch.

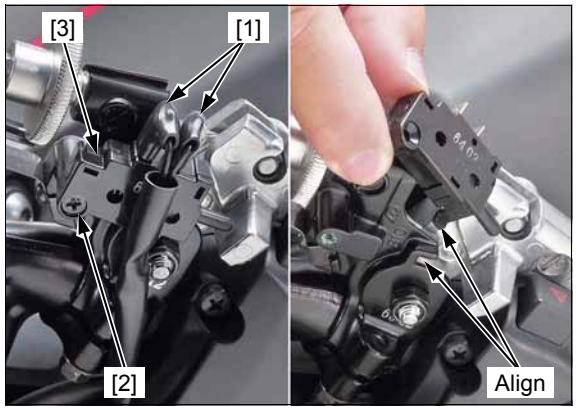
Remove the mounting screw [2] and clutch switch [3] while squeezing the clutch lever.

Squeeze the clutch lever and install the clutch switch by aligning the lug with the groove in the bracket.

Install a new mounting screw and tighten it to the specified torque.

TORQUE: 0.6 N·m (0.1 kgf·m, 0.4 lbf·ft)

Connect the clutch switch connectors.



NEUTRAL SWITCH

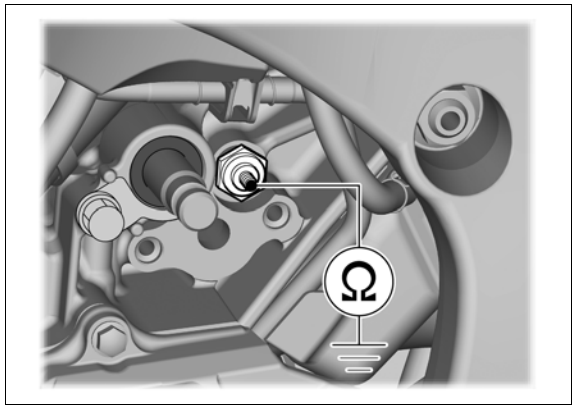
INSPECTION

It is not necessary to remove the fuel tank.

Remove the shift drum angle sensor from the crankcase without disconnecting the 4P (Black) connector (page 4-78).

Shift the transmission into neutral and check for continuity between the neutral switch terminal and ground.

There should be continuity with the transmission in neutral, and no continuity when the transmission is in gear.



REMOVAL/INSTALLATION

It is not necessary to remove the fuel tank.

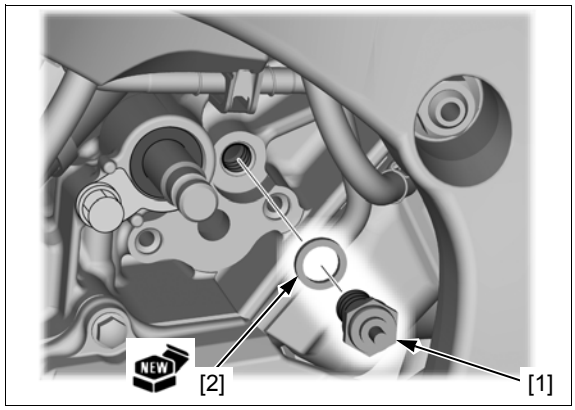
Remove the shift drum angle sensor from the crankcase without disconnecting the 4P (Black) connector (page 4-78).

Remove the neutral switch [1] and sealing washer [2].

Install the neutral switch with a new sealing washer and tighten it to the specified torque.

TORQUE: 12 N·m (1.2 kgf·m, 9 lbf·ft)

Install the shift drum angle sensor (page 4-78).



SIDESTAND SWITCH

INSPECTION

Remove the left middle cowl (page 2-13).

Remove the sidestand switch 2P (Black) connector [1] from the stay and disconnect it.

Check for continuity between the switch side 2P (Black) connector terminals.

Continuity should exist only when the sidestand is retracted.

Connect the 2P (Black) connector and install it onto the stay.

Install the left middle cowl (page 2-13).

REMOVAL/INSTALLATION

Disconnect the sidestand switch 2P (Black) connector (page 21-20).

Remove the mounting bolt [1] and sidestand switch [2].

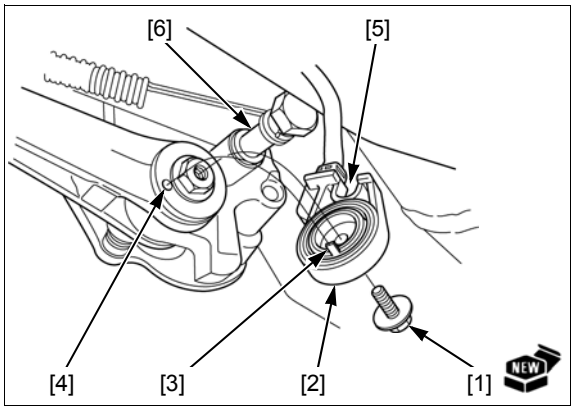
Route the wire properly (page 1-23).

Installation is in the reverse order of removal.

NOTE:

- Align the sidestand switch tab [3] with the sidestand hole [4].
- Align the sidestand switch groove [5] with the return spring hook pin [6].
- Replace the mounting bolt with a new one.

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



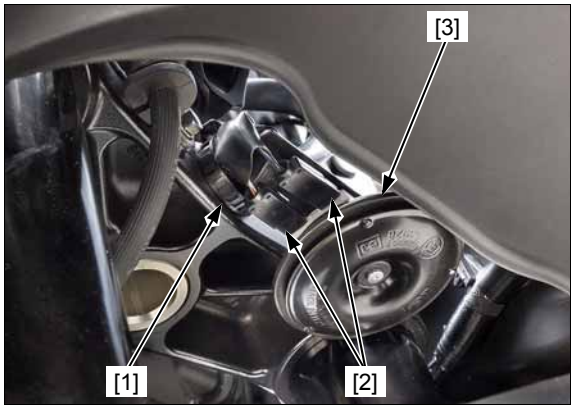
HORN

INSPECTION

Remove the wire band [1] and disconnect the wire connectors [2] from the horn [3].

Connect a 12 V battery to the horn terminals directly.

The horn is normal if it sounds when the 12 V battery is connected across the horn terminals.



REMOVAL/INSTALLATION

Disconnect the horn wire connectors (page 21-20).

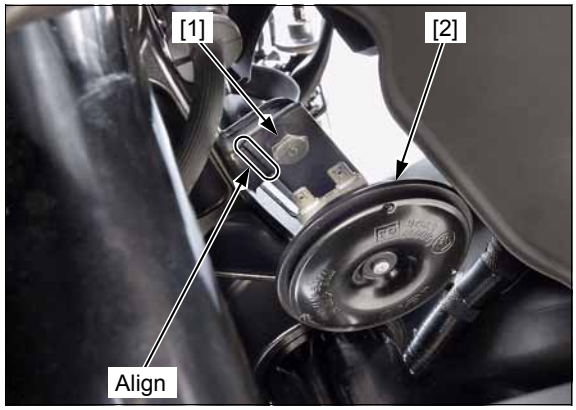
Remove the mounting bolt [1] and horn [2].

Route the wire properly (page 1-23).

Installation is in the reverse order of removal.

NOTE:

- Align the edges of the horn stay and steering stem properly.



CONTROL RELAY

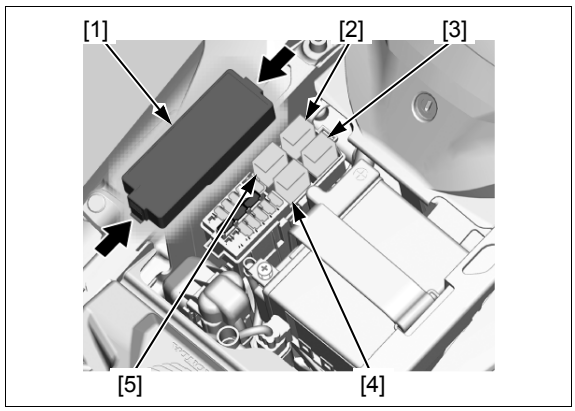
REMOVAL/INSTALLATION

MAIN RELAY/TBW RELAY/FUEL PUMP RELAY/ ENGINE STOP RELAY

Remove the following:

- Main seat (page 2-4)
- Fuse/relay box cover [1]
- Each relay
  - Main relay [2]
  - TBW relay [3]
  - Fuel pump relay [4]
  - Engine stop relay [5]

Installation is in the reverse order of removal.

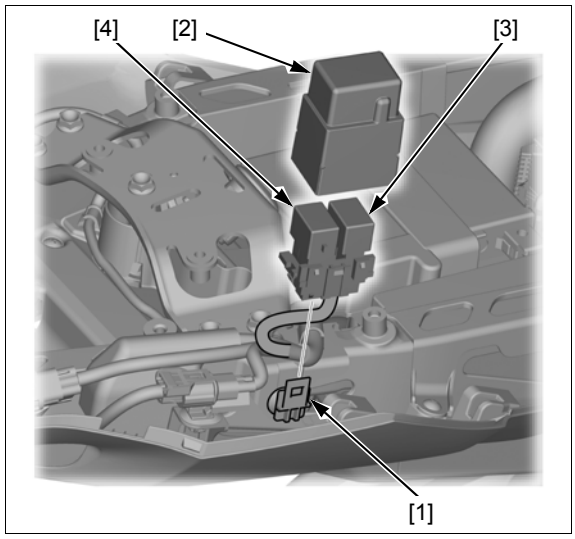


FAN CONTROL RELAYS

Remove the following:

- Rear upper cowl (page 2-7)
- Fan control relay assembly from the stay [1] of rear fender B
- Relay cover [2]
- Left fan control relay [3] and right fan control relay [4]

Installation is in the reverse order of removal.



RELAY INSPECTION

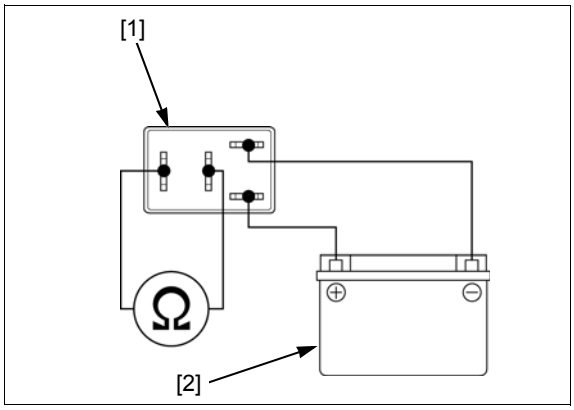
Remove the relay (page 21-21).

Connect an ohmmeter to the relay [1] terminals as shown.

Connect a 12 V battery [2] to the relay terminals as shown.

There should be continuity only when the 12 V battery is connected.

If there is no continuity when the 12 V battery is connected, replace the relay with a new one.



TURN SIGNAL RELAY (CH only)

SYSTEM INSPECTION

NOTE:

- If there is an open circuit in the one (front or rear) turn signal light, the other turn signal light blinks faster than usual in order to notify the rider of the problem.
- Check the following before troubleshooting:
  – METER/IMU/ILLUMI fuse (10 A)
  – Turn signal switch
  – Turn signal light bulb

1. Turn Signal Relay Ground Line Open Circuit Inspection

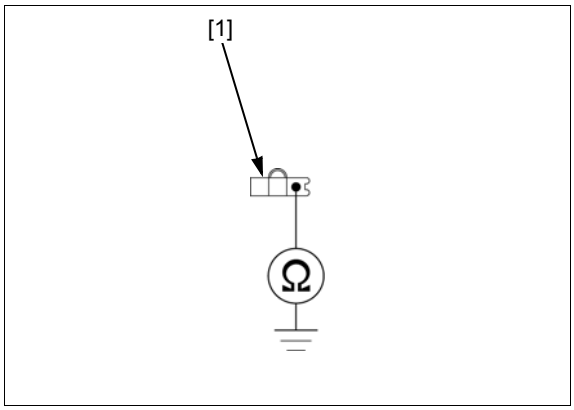
Disconnect the turn signal relay 3P (Black) connector [1].
Check for continuity between the wire harness side 3P (Black) connector [1] and ground

Connection: Green – Ground

Is there continuity?

YES – GO TO STEP 2.

NO – Open circuit in the Green wire between the turn signal relay and ground point



2. Turn Signal Relay Power and Output Line Open Circuit Inspection

Connect the wire harness side 3P (Black) connector [1] with a jumper wire [2].

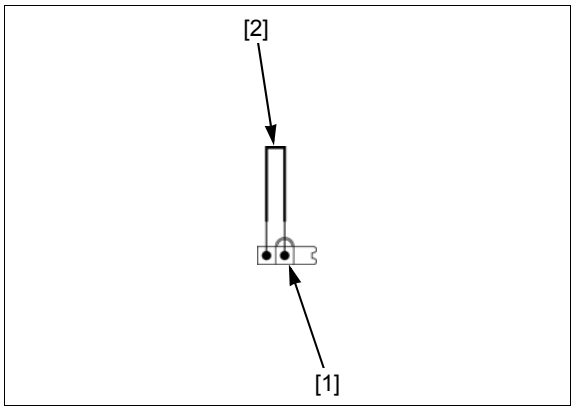
Connection: Blue – Gray

Turn the ignition switch ON.
Operate the turn signal switch and check the turn signal lights.

Do the lights come on?

YES – Faulty turn signal relay

NO –
- Open circuit in the Blue wire between the fuse/relay box and turn signal relay
- Open circuit in the Gray wire between the turn signal relay and left handlebar (turn signal) switch



HEADLIGHT RELAY (CH only)

For relay inspection (page 21-22).

SYSTEM INSPECTION

NOTE:

- Check the following before troubleshooting:
  – HEADLIGHT fuse (10 A)
  – Headlight switch

1. Headlight Relay Coil Ground Line Open Circuit Inspection

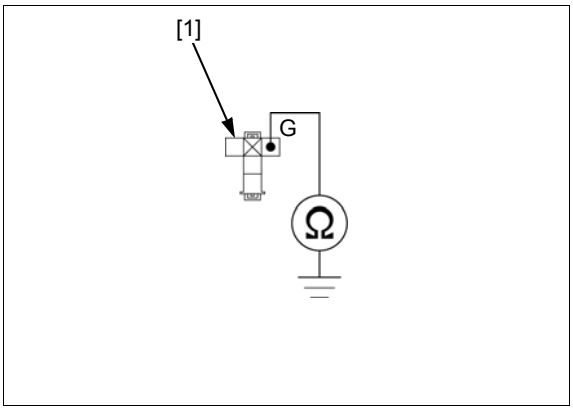
Disconnect the headlight relay 4P connector [1].
Check for continuity between the wire harness side 4P connector [1] and ground

Connection: Green – Ground

Is there continuity?

YES – GO TO STEP 2.

NO – Open circuit in the Green wire between the headlight relay and ground point



2. Headlight Relay Coil Power Line Open Circuit Inspection

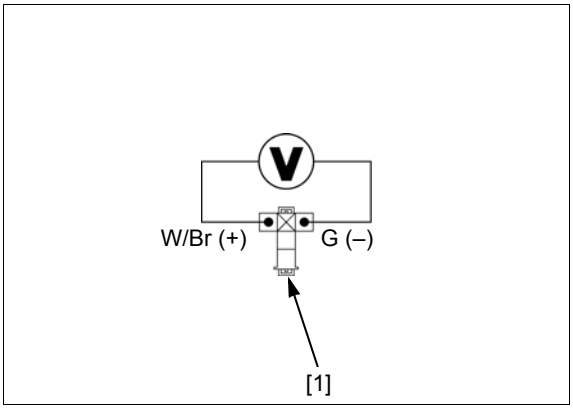
Turn the ignition switch ON.
Turn the lighting switch on.
Measure the voltage at the wire harness side 4P connector [1].

Connection: White/brown (+) – Green (–)

Is there battery voltage?

YES – GO TO STEP 3.

NO – • Open circuit in the White/brown wire between the headlight relay and left handlebar (lighting) switch
• Open circuit in the White wire between the left handlebar (lighting) switch and fuse/relay box



3. Headlight Relay Power Source Line Open Circuit Inspection

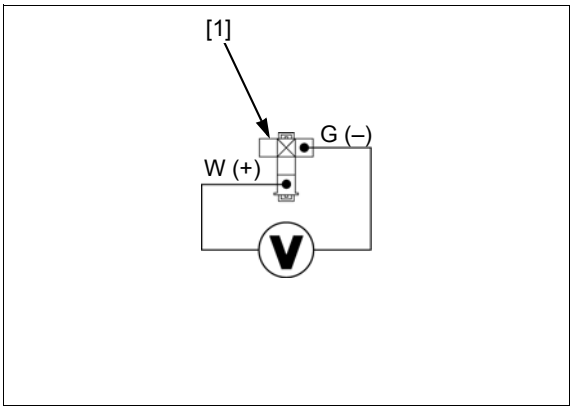
Measure the voltage at the wire harness side 4P connector [1].

Connection: White (+) – Green (–)

Is there battery voltage?

YES – Check the headlight relay (page 21-22)

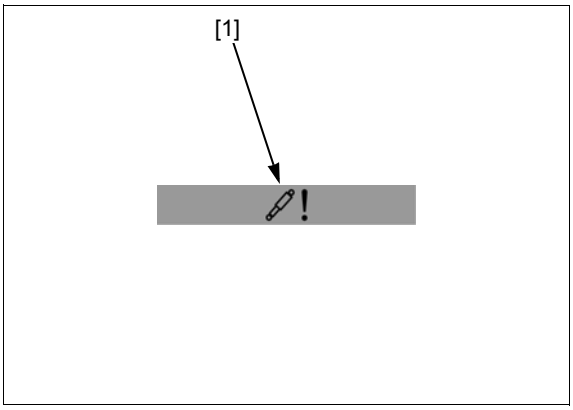
NO – Open circuit in the White wire between the headlight relay and fuse/relay box



ELECTRIC SUSPENSION SYSTEM (CBR1000S1/S2 only)

SELF-DIAGNOSIS SYSTEM

The electric suspension system is equipped with the self-diagnosis system. When any abnormality occurs in the system, the SCU displays the electric suspension system failure information [1] on the combination meter and stores a DTC in its erasable memory.



DTC READOUT

Turn the ignition switch ON.

1. Press and hold the MODE button [1], and SEL (up) button [2] or SEL (down) button [3] until the SETTING mode is displayed.
2. Press the SEL (up) or SEL (down) button to select the SERVICE menu, and press the MODE button.
3. Pressing the SEL (up) or SEL (down) button to select the DTC menu, and press the MODE button. The current DTC(s) will be displayed.

Read the current DTC(s) and follow the DTC index (page 21-25).

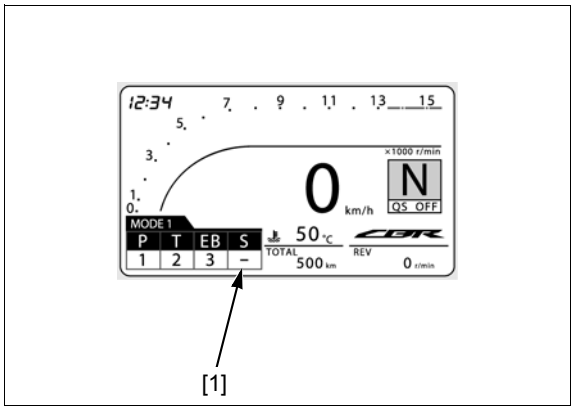
DTC INDEX

DTC	Causes	Symptoms	Refer to
S1	• SCU power input circuit voltage too low	• Electric suspension system does not function	21-26
S2	• SCU power input circuit too high	• Electric suspension system does not function	21-26
S3	CAN communication malfunction • No message to SCU from combination meter	• Electric suspension system does not function	21-27
S4	CAN communication malfunction • No message to SCU from ECM	• Electric suspension system does not function	21-28
S5	CAN communication malfunction • No message to SCU from ABS control unit	• Electric suspension system does not function	21-28
S6	CAN communication malfunction • Abnormal message to SCU from combination meter	• Electric suspension system does not function	21-27
S7	CAN communication malfunction • Abnormal message to SCU from ECM • Faulty ECM	• Electric suspension system does not function	21-28
S8	CAN communication malfunction • Abnormal message to SCU from ABS control unit • Faulty ABS control unit	• Electric suspension system does not function	21-28
S10	SCU memory malfunction • Faulty SCU	• Electric suspension system does not function	21-29
S11	• Fork compression damping adjuster driver circuit temperature too high	• Electric suspension system does not function	21-30
S12	• Fork rebound damping adjuster driver circuit temperature too high	• Electric suspension system does not function	21-30
S13	• Shock absorber compression damping adjuster driver circuit temperature too high	• Electric suspension system does not function	21-30
S14	• Shock absorber rebound damping adjuster driver circuit temperature too high	• Electric suspension system does not function	21-30
S15	• Fork compression damping adjuster driver circuit voltage too low	• Electric suspension system does not function	21-30
S16	• Fork rebound damping adjuster driver circuit voltage too low	• Electric suspension system does not function	21-30
S17	• Shock absorber compression damping adjuster driver circuit voltage too low	• Electric suspension system does not function	21-30
S18	• Shock absorber rebound damping adjuster driver circuit voltage too low	• Electric suspension system does not function	21-30
S19	• Fork compression damping adjuster driver circuit-to-CPU communication malfunction	• Electric suspension system does not function	21-30
S20	• Fork rebound damping adjuster driver circuit-to-CPU communication malfunction	• Electric suspension system does not function	21-30
S21	• Shock absorber compression damping adjuster driver circuit-to-CPU communication malfunction	• Electric suspension system does not function	21-30
S22	• Shock absorber rebound damping adjuster driver circuit-to-CPU communication malfunction	• Electric suspension system does not function	21-30
S30	• Fork compression damping adjuster or its circuit malfunction	• Electric suspension system does not function	21-31
S31	• Fork rebound damping adjuster or its circuit malfunction	• Electric suspension system does not function	21-32
S32	• Shock absorber compression damping adjuster or its circuit malfunction	• Electric suspension system does not function	21-33
S33	• Shock absorber rebound damping adjuster or its circuit malfunction	• Electric suspension system does not function	21-35

SCU POWER/GROUND LINE INSPECTION

NOTE:

- If the suspension setting indicator (S) [1] blinks "–", check the SCU power/ground lines.
- Check that the ABS MAIN fuse (10 A) is in good condition before inspection.



Disconnect the SCU 34P (Black) connector (page 21-36).

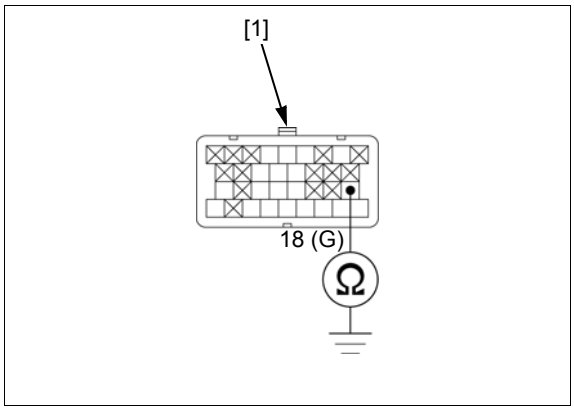
Check for continuity between the wire harness side 34P (Black) connector [1] and ground.

TOOL:
Test probe 07ZAJ-RDJA110

Connection: 18 (Green) – Ground

There should be continuity at all times.

If there is no continuity, check for open circuit in the Green wire between the SCU and ground point.



Turn the ignition switch ON.

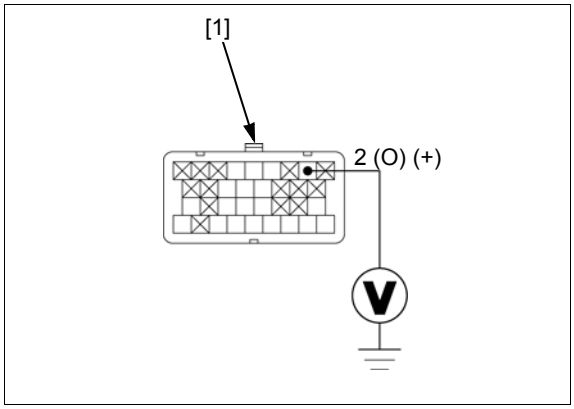
Measure the voltage between the wire harness side 34P (Black) connector [1] and ground.

TOOL:
Test probe 07ZAJ-RDJA110

Connection: 2 (Orange) (+) – Ground (–)

There should be battery voltage when the ignition switch is turned ON.

If there is no voltage, check for open circuit in the Orange wire between the suspension control unit and fuse/relay box.



DTC TROUBLESHOOTING

DTC S1 or S2 (SCU POWER INPUT CIRCUIT VOLTAGE)

NOTE:

- Before starting the troubleshooting, check for loose or poor contact on the SCU 34P (Black) connector.

1. Failure Information Recheck

Turn the ignition switch OFF.
Turn the ignition switch ON and check that the electric suspension system failure information is displayed (page 21-24).

Is the failure information displayed?

YES – GO TO STEP 2.

NO – Intermittent failure

2. DTC Recheck

Read the DTC (page 21-24).

Is the DTC S1 or S2 indicated?

YES – GO TO STEP 3.

NO – Follow the DTC index (page 21-25).

3. Charging System Inspection

Perform the charging system troubleshooting (page 20-3).

Is the charging system normal?

YES – Replace the SCU (page 21-36).

NO – Follow the troubleshooting instructions.

DTC S3 or S6 (CAN COMMUNICATION MALFUNCTION TO SCU FROM COMBINATION METER)

NOTE:

- Before starting the troubleshooting, check for loose or poor contact on the SCU 34P (Black) connector.

1. Failure Information Recheck

Turn the ignition switch OFF.
Turn the ignition switch ON and check that the electric suspension system failure information is displayed (page 21-24).

Is the failure information displayed?

YES – GO TO STEP 2.

NO – Intermittent failure

2. DTC Recheck

Read the DTC (page 21-24).

Is the DTC S3 or S6 indicated?

YES – GO TO STEP 3.

NO – Follow the DTC index (page 21-25).

3. SCU-to-Combination Meter CAN Line Open Circuit Inspection

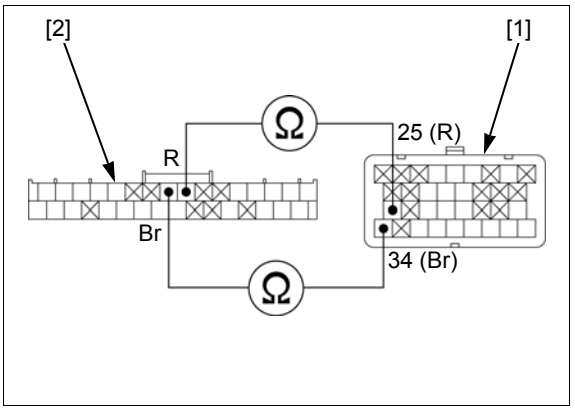
Turn the ignition switch OFF.
Disconnect the following:

– SCU 34P (Black) connector (page 21-36)
– Combination meter 32P (Gray) connector (page 21-9)

Check for continuity between the wire harness side 34P (Black) connector [1] and 32P (Gray) connector [2].

TOOL:
Test probe **07ZAJ-RDJA110**

Connection: 25 (Red) – Red
34 (Brown) – Brown



Are there continuity?

YES – Replace the SCU (page 21-36).

NO – Open circuit in the Brown wire or Red wire between the SCU and combination meter

DTC S4 or S7 (CAN COMMUNICATION MALFUNCTION TO SCU FROM ECM)

NOTE:

- Before starting the troubleshooting, check for loose or poor contact on the SCU 34P (Black) connector.
- Make sure that the MIL does not light with the ignition switch ON. If it lights, read the PGM-FI DTC (page 4-7).

1. Failure Information Recheck

Turn the ignition switch OFF.
Turn the ignition switch ON and check that the electric suspension system failure information is displayed (page 21-24).

Is the failure information displayed?

YES – GO TO STEP 2.

NO – Intermittent failure

2. DTC Recheck

Read the DTC (page 21-24).

Is the DTC S4 or S7 indicated?

YES – GO TO STEP 3.

NO – Follow the DTC index (page 21-25).

3. SCU-to-ECM CAN Line Open Circuit Inspection

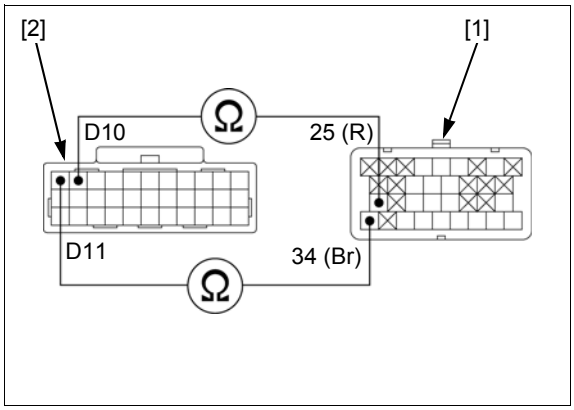
Turn the ignition switch OFF.
Disconnect the following:

– SCU 34P (Black) connector (page 21-36)
– ECM 33P (Gray) connector (page 4-73)

Check for continuity between the wire harness side 34P (Black) connector [1] and 33P (Gray) connector [2].

TOOL:
Test probe **07ZAJ-RDJA110**

Connection: 25 (Red) – D10
34 (Brown) – D11



Are there continuity?

YES – Replace the SCU (page 21-36).

NO – Open circuit in the Brown wire or Red wire between the SCU and ECM

DTC S5 or S8 (CAN COMMUNICATION MALFUNCTION TO SCU FROM ABS CONTROL UNIT)

NOTE:

- Before starting the troubleshooting, check for loose or poor contact on the SCU 34P (Black) connector.
- Before proceeding, check that the ABS is normal (page 19-4).

1. Failure Information Recheck

Turn the ignition switch OFF.
Turn the ignition switch ON and check that the electric suspension system failure information is displayed (page 21-24).

Is the failure information displayed?

YES – GO TO STEP 2.

NO – Intermittent failure

2. DTC Recheck

Read the DTC (page 21-24).

Is the DTC S5 or S8 indicated?

YES – GO TO STEP 3.

NO – Follow the DTC index (page 21-25).

3. SCU-to-ABS Control Unit CAN Line Open Circuit Inspection

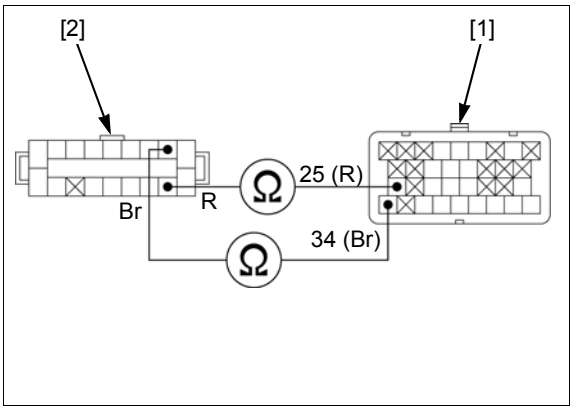
Turn the ignition switch OFF.
Disconnect the following:

– SCU 34P (Black) connector (page 21-36)
– ABS modulator 18P (Black) connector (page 21-9)

Check for continuity between the wire harness side 34P (Black) connector [1] and 18P (Black) connector [2].

TOOL:
Test probe 07ZAJ-RDJA110

Connection: 25 (Red) – Red
34 (Brown) – Brown



Is there continuity?

YES – Replace the SCU (page 21-36).

NO – Open circuit in the Brown wire or Red wire between the SCU and ABS modulator

DTC S10 (SCU MEMORY MALFUNCTION)

1. Failure Information Recheck

Turn the ignition switch OFF.
Turn the ignition switch ON and check that the electric suspension system failure information is displayed (page 21-24).

Is the failure information displayed?

YES – GO TO STEP 2.

NO – Intermittent failure

2. DTC Recheck

Read the DTC (page 21-24).

Is the DTC S10 indicated?

YES – Replace the SCU (page 21-36).

NO – Follow the DTC index (page 21-25).

DTC S11, S12, S13 or S14 (DAMPING ADJUSTER DRIVER CIRCUIT TEMPERATURE TOO HIGH)

1. **Failure Information Recheck**

   Turn the ignition switch OFF and cool the SCU.
   Turn the ignition switch ON and check that the electric suspension system failure information is displayed (page 21-24).

   Is the failure information displayed?

   YES – GO TO STEP 2.

   NO – Intermittent failure

2. **DTC Recheck**

   Read the DTC (page 21-24).

   Is the DTC S11, S12, S13 or S14 indicated?

   YES – Replace the SCU (page 21-36).

   NO – Follow the DTC index (page 21-25).

DTC S15, S16, S17 or S18 (DAMPING ADJUSTER DRIVER CIRCUIT VOLTAGE TOO LOW)

1. **Failure Information Recheck**

   Turn the ignition switch OFF.
   Turn the ignition switch ON and check that the electric suspension system failure information is displayed (page 21-24).

   Is the failure information displayed?

   YES – GO TO STEP 2.

   NO – Intermittent failure

2. **DTC Recheck**

   Read the DTC (page 21-24).

   Is the DTC S15, S16, S17 or S18 indicated?

   YES – Replace the SCU (page 21-36).

   NO – Follow the DTC index (page 21-25).

DTC S19, S20, S21 or S22 (DAMPING ADJUSTER DRIVER CIRCUIT-TO-CPU COMMUNICATION MALFUNCTION)

1. **Failure Information Recheck**

   Turn the ignition switch OFF.
   Turn the ignition switch ON and check that the electric suspension system failure information is displayed (page 21-24).

   Is the failure information displayed?

   YES – GO TO STEP 2.

   NO – Intermittent failure

2. **DTC Recheck**

   Read the DTC (page 21-24).

   Is the DTC S19, S20, S21 or S22 indicated?

   YES – Replace the SCU (page 21-36).

   NO – Follow the DTC index (page 21-25).

DTC S30 (FORK COMPRESSION DAMPING ADJUSTER MALFUNCTION)

NOTE:

- Before starting the troubleshooting, check for loose or poor contact on the SCU 34P (Black) connector and fork compression damping adjuster 4P (Black) connector.

1. Failure Information Recheck

Turn the ignition switch OFF.
Turn the ignition switch ON and check that the electric suspension system failure information is displayed (page 21-24).

Is the failure information displayed?

YES – GO TO STEP 2.

NO – Intermittent failure

2. DTC Recheck

Read the DTC (page 21-24).

Is the DTC S30 indicated?

YES – GO TO STEP 3.

NO – Follow the DTC index (page 21-25).

3. Fork Compression Damping Adjuster Line Open Circuit Inspection

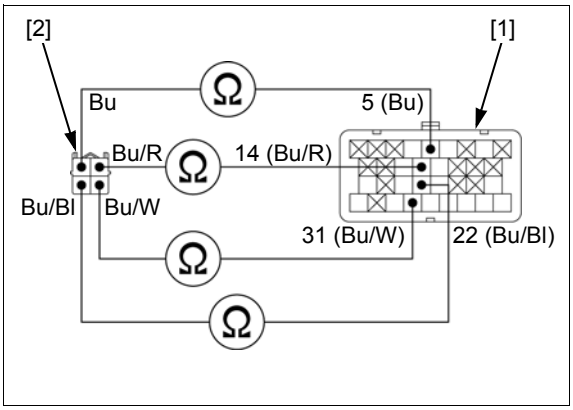
Turn the ignition switch OFF.
Disconnect the following:

– SCU 34P (Black) connector (page 21-36)
– Fork compression damping adjuster 4P (Black) connector (left side) (page 3-25)

Check for continuity between the wire harness side 34P (Black) connector [1] and 4P (Black) connector [2].

TOOL:
Test probe 07ZAJ-RDJA110

Connection: 14 (Blue/red) – Blue/red
5 (Blue) – Blue
22 (Blue/black) – Blue/black
31 (Blue/white) – Blue/white



Are there continuity?

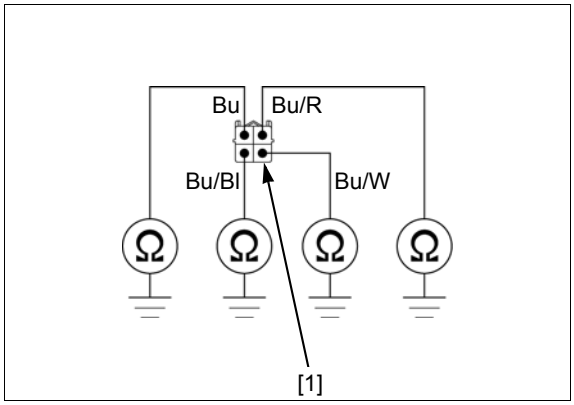
YES – GO TO STEP 4.

NO – • Open circuit in the Blue/red or Blue wire
• Open circuit in the Blue/black or Blue/white wire

4. Fork Compression Damping Adjuster Line Short Circuit Inspection

Check for continuity between the wire harness side 4P (Black) connector [1] and ground

Connection: Blue/red – Ground
Blue – Ground
Blue/black – Ground
Blue/white – Ground



Are there continuity?

YES – • Short circuit in the Blue/red or Blue wire
• Short circuit in the Blue/black or Blue/white wire

NO – Faulty fork compression damping adjuster (Replace the left fork.)

DTC S31 (FORK REBOUND DAMPING ADJUSTER MALFUNCTION)

NOTE:

- Before starting the troubleshooting, check for loose or poor contact on the SCU 34P (Black) connector and fork rebound damping adjuster 4P (Gray) connector.

1. Failure Information Recheck

Turn the ignition switch OFF.
Turn the ignition switch ON and check that the electric suspension system failure information is displayed (page 21-24).

Is the failure information displayed?

YES – GO TO STEP 2.

NO – Intermittent failure

2. DTC Recheck

Read the DTC (page 21-24).

Is the DTC S31 indicated?

YES – GO TO STEP 3.

NO – Follow the DTC index (page 21-25).

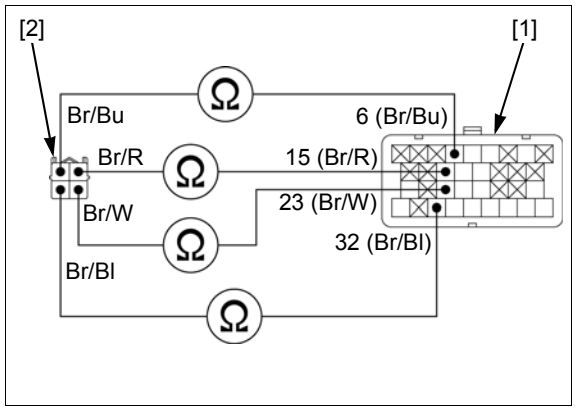
3. Fork Rebound Damping Adjuster Line Open Circuit Inspection

Turn the ignition switch OFF.
Disconnect the following:

– SCU 34P (Black) connector (page 21-36)
– Fork rebound damping adjuster 4P (Gray) connector (right side) (page 3-25)

Check for continuity between the wire harness side 34P (Black) connector [1] and 4P (Gray) connector [2].

TOOL:
Test probe 07ZAJ-RDJA110



Connection: 15 (Brown/red) – Brown/red
6 (Brown/blue) – Brown/blue
32 (Brown/black) – Brown/black
23 (Brown/white) – Brown/white

Are there continuity?

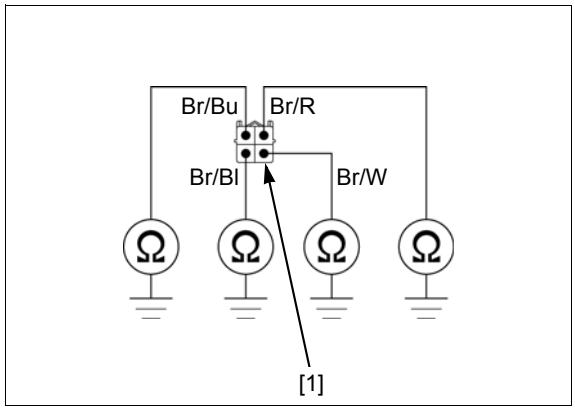
YES – GO TO STEP 4.

NO –
- Open circuit in the Brown/red or Brown/blue wire
- Open circuit in the Brown/black or Brown/white wire

4. Fork Rebound Damping Adjuster Line Short Circuit Inspection

Check for continuity between the wire harness side 4P (Black) connector [1] and ground

Connection: Brown/red – Ground
Brown/blue – Ground
Brown/black – Ground
Brown/white – Ground



Are there continuity?

YES –
- Short circuit in the Brown/red or Brown/blue wire
- Short circuit in the Brown/black or Brown/white wire

NO – Faulty fork rebound damping adjuster (Replace the right fork.)

DTC S32 (SHOCK ABSORBER COMPRESSION DAMPING ADJUSTER MALFUNCTION)

NOTE:

- Before starting the troubleshooting, check for loose or poor contact on the SCU 34P (Black) connector, sub-wire harness 4P (Black) connector and shock absorber compression damping adjuster 4P (Black) connector.

1. Failure Information Recheck

Turn the ignition switch OFF.
Turn the ignition switch ON and check that the electric suspension system failure information is displayed (page 21-24).

Is the failure information displayed?

YES – GO TO STEP 2.

NO – Intermittent failure

2. DTC Recheck

Read the DTC (page 21-24).

Is the DTC S32 indicated?

YES – GO TO STEP 3.

NO – Follow the DTC index (page 21-25).

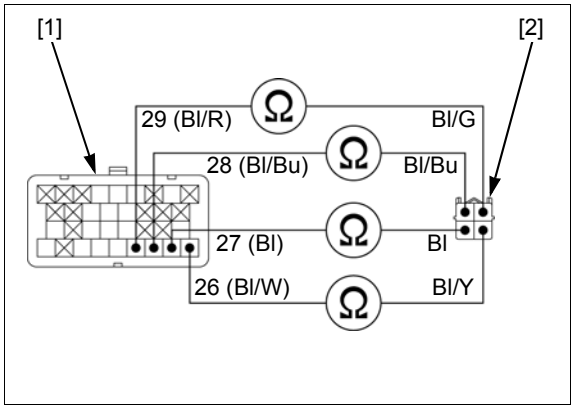
3. Shock Absorber Compression Damping Adjuster Line Open Circuit Inspection

Turn the ignition switch OFF.
Disconnect the following:

– SCU 34P (Black) connector (page 21-36)
– Shock absorber compression damping adjuster 4P (Black) connector (page 17-15)

Check for continuity between the wire harness side 34P (Black) connector [1] and sub-wire harness side 4P (Black) connector [2].

TOOL:
Test probe 07ZAJ-RDJA110



Connection: 29 (Black/red) – Black/green
28 (Black/blue) – Black/blue
27 (Black) – Black
26 (Black/white) – Black/yellow

Are there continuity?

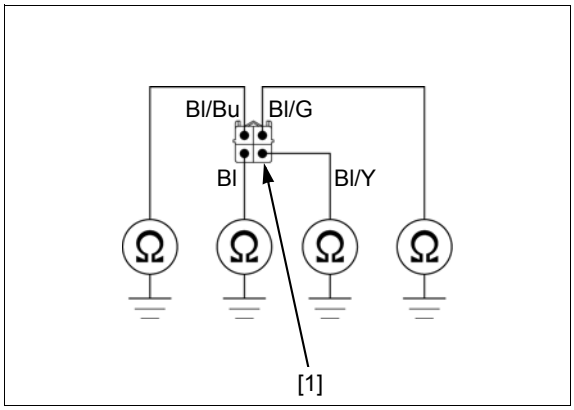
YES – GO TO STEP 4.

NO – • Open circuit in the Black/red, Black/green or Black/blue wire
• Open circuit in the Black, Black/white or Black/yellow wire

4. Shock Absorber Compression Damping Adjuster Line Short Circuit Inspection

Check for continuity between the sub-wire harness side 4P (Black) connector [1] and ground

Connection: Black/green – Ground
Black/blue – Ground
Black – Ground
Black/yellow – Ground



Are there continuity?

YES – • Short circuit in the Black/red, Black/green or Black/blue wire
• Short circuit in the Black, Black/white or Black/yellow wire

NO – Faulty shock absorber compression damping adjuster (Replace the shock absorber.)

DTC S33 (SHOCK ABSORBER REBOUND DAMPING ADJUSTER MALFUNCTION)

NOTE:

- Before starting the troubleshooting, check for loose or poor contact on the SCU 34P (Black) connector, sub-wire harness 4P (Gray) connector and shock absorber rebound damping adjuster 4P (Gray) connector.

1. Failure Information Recheck

Turn the ignition switch OFF.
Turn the ignition switch ON and check that the electric suspension system failure information is displayed (page 21-24).

Is the failure information displayed?

YES – GO TO STEP 2.

NO – Intermittent failure

2. DTC Recheck

Read the DTC (page 21-24).

Is the DTC S33 indicated?

YES – GO TO STEP 3.

NO – Follow the DTC index (page 21-25).

3. Shock Absorber Rebound Damping Adjuster Line Open Circuit Inspection

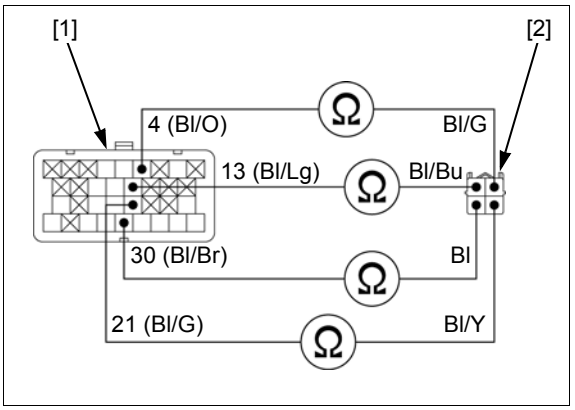
Turn the ignition switch OFF.
Disconnect the following:

– SCU 34P (Black) connector (page 21-36)
– Shock absorber rebound damping adjuster 4P (Gray) connector (page 17-15)

Check for continuity between the wire harness side 34P (Black) connector [1] and sub-wire harness side 4P (Gray) connector [2].

TOOL:
Test probe 07ZAJ-RDJA110

Connection: 4 (Black/orange) – Black/green
13 (Black/light green) – Black/blue
30 (Black/brown) – Black
21 (Black/green) – Black/yellow



Are there continuity?

YES – GO TO STEP 4.

NO –
- Open circuit in the Black/orange, Black/green, Black/light green or Black/blue wire
- Open circuit in the Black/brown, Black, Black/green or Black/yellow wire

4. Shock Absorber Rebound Damping Adjuster Line Short Circuit Inspection

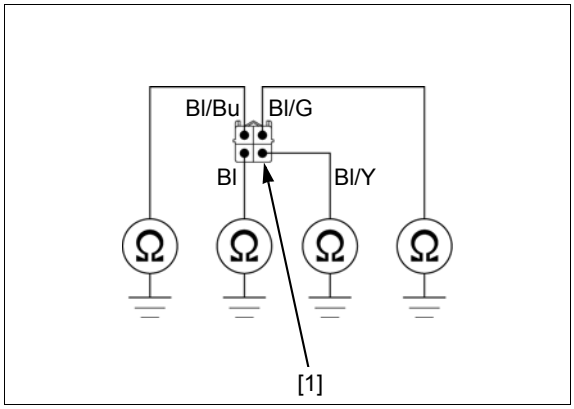
Check for continuity between the sub-wire harness side 4P (Gray) connector [1] and ground

Connection: Black/green – Ground
Black/blue – Ground
Black – Ground
Black/yellow – Ground

Are there continuity?

YES – • Short circuit in the Black/orange, Black/green, Black/light green or Black/blue wire
• Short circuit in the Black/brown, Black, Black/green or Black/yellow wire

NO – Faulty shock absorber rebound damping adjuster (Replace the shock absorber.)



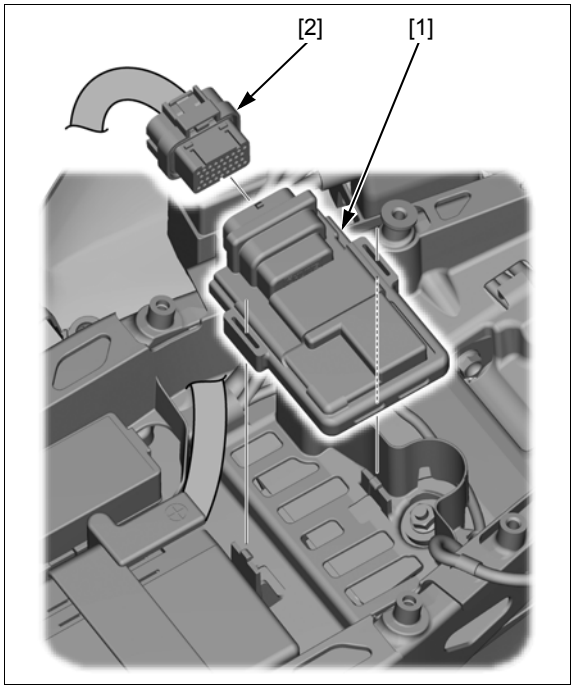
SCU REMOVAL/INSTALLATION

Remove the cross upper plate (page 2-7).

Remove the suspension control unit [1] from rear fender B.

Disconnect the suspension control unit 34P (Black) connector [2].

Installation is in the reverse order of removal.



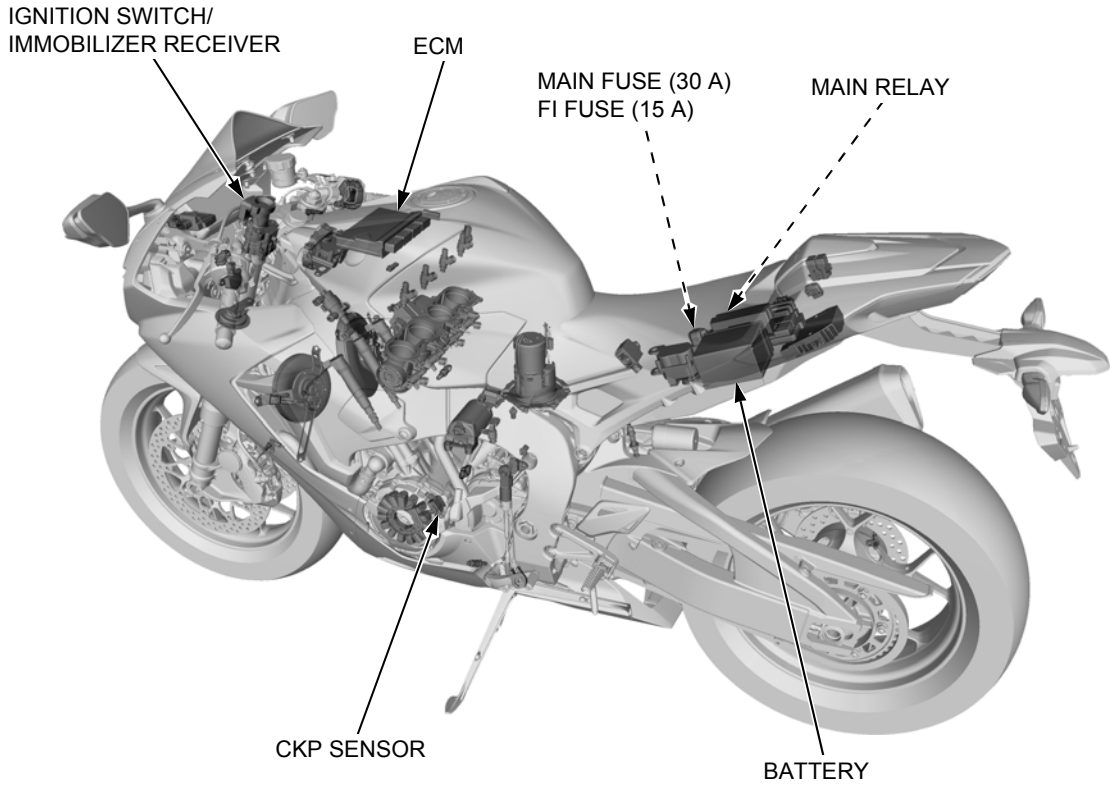
22. IMMOBILIZER SYSTEM (HISS)

SERVICE INFORMATION

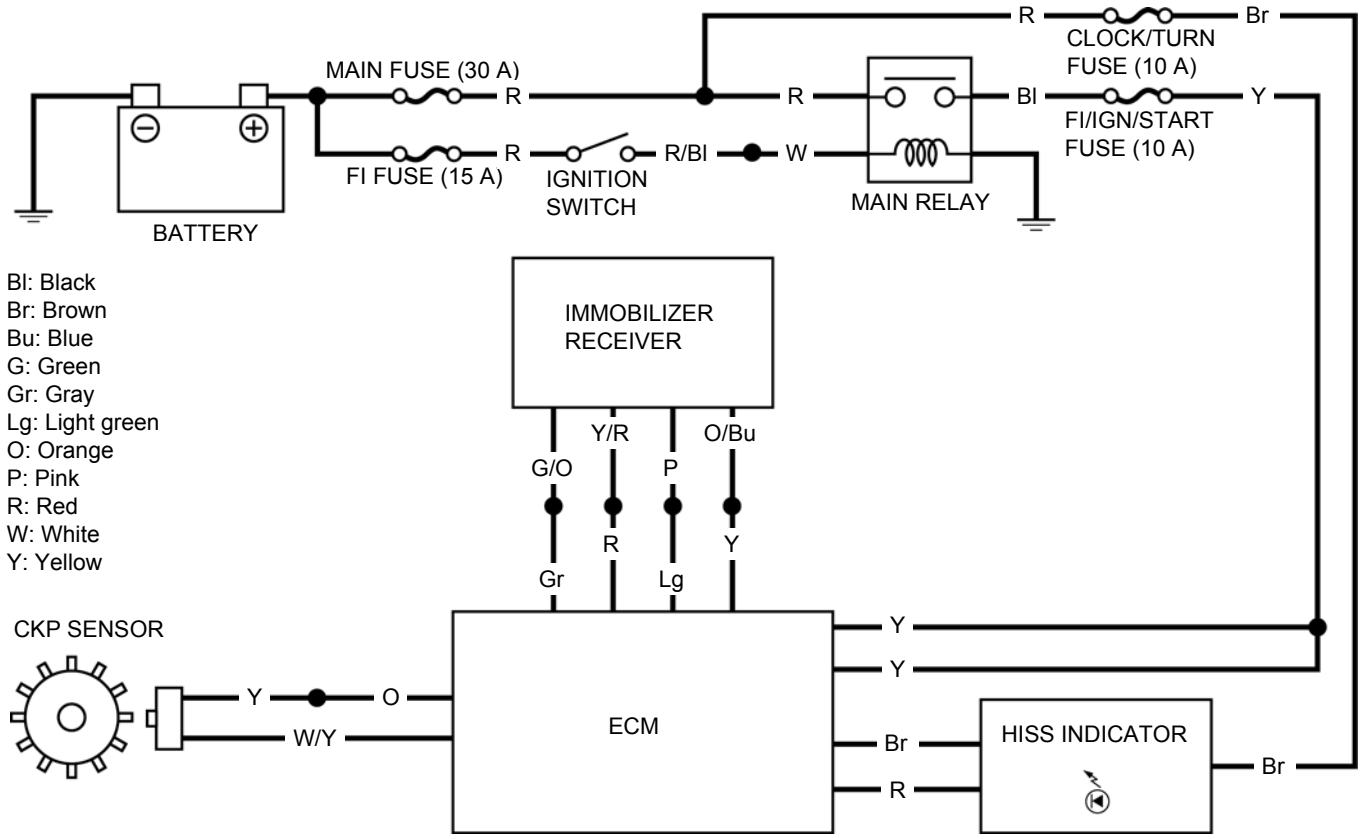
GENERAL

- When checking the immobilizer system (HISS), follow the steps in the troubleshooting flow chart (page 22-7).
- Keep the immobilizer key away from the other vehicle's immobilizer key when using it. The jamming of the key code signal may occur and the proper operation of the system will be obstructed.
- The key has built-in electronic part (transponder). Do not drop and strike the key against a hard material object, and do not leave the key on the dashboard in the car, etc. where the temperature will rise. Do not leave the key in the water for a prolonged time such as by washing the clothes.
- The ECM as well as the transponder keys must be replaced if all transponder keys have been lost.
- The system does not function with a duplicated key unless the code is registered into the transponder with the HISS.
- The ECM can store up to four key codes. (The four keys can be registered.)
- Do not modify the immobilizer system as it can cause the system failure. (The engine cannot be started.)
- For ignition system inspection (page 5-4).
- For ignition switch servicing (page 21-16).

SYSTEM LOCATION



SYSTEM DIAGRAM



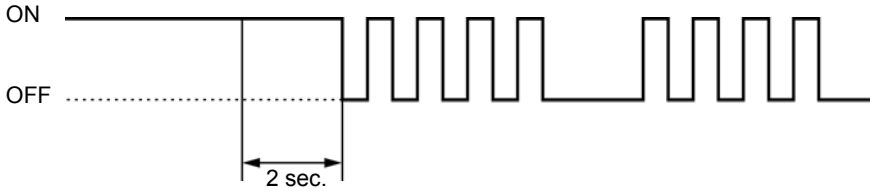
KEY REGISTRATION PROCEDURES

When the key has been lost, or additional spare key is required:

1. Obtain a new transponder key.
2. Grind the key in accordance with the shape of the original key.
3. Apply 12 V battery voltage to the CKP sensor lines of the ECM using the special tool (page 22-6).
4. Turn the ignition switch ON with the original key. The HISS indicator comes on and it remains on.

- The code of the original key recognized by the ECM.
- If there is any problem in the HISS, the system will enter the diagnostic mode and the indicator will remain on for approx. ten seconds, then it will indicate the diagnostic code (page 22-6).

5. Disconnect the red clip of the inspection adaptor from the battery positive (+) terminal for two seconds or more, then connect it again. The indicator remains on for approx. two seconds, then it blinks four times repeatedly.



- The HISS enters the registration mode. Registrations of all key except the original key inserted in the ignition switch are cancelled. (Registration of the lost key or spare key is cancelled.)

  The spare key must be registered again.

6. Turn the ignition switch OFF and remove the key.
7. Turn the ignition switch ON with a new key or the spare key. (Never use the key registered in previous steps.) The indicator comes on for two seconds then it blinks four times repeatedly.

- The new key or spare key is registered in the ECM.
- If there is any problem in the registration, the system will enter the diagnostic mode and the indicator will remain on for approx. ten seconds, then it will indicate the diagnostic code (page 22-7).
- Keep the other transponder key away from the immobilizer receiver more than 50 mm (2.0 in).

8. Repeat the steps 6 and 7 when you continuously register the other new key.

   The ECM can store up to four key codes. (The four keys can be registered.)

9. Turn the ignition switch OFF, remove the inspection adaptor and connect the CKP sensor 2P (Red) connector.
10. Turn the ignition switch ON with the registered key.

- The HISS returns to the normal mode.

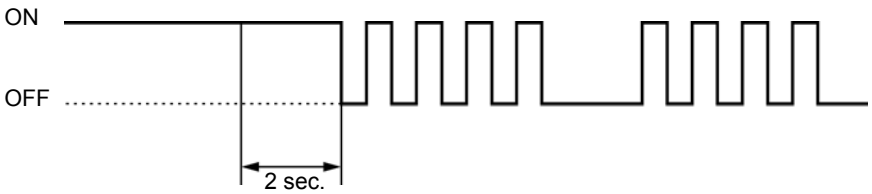
11. Check that the engine can be started using all registered key.

When the ignition switch is faulty:

1. Obtain a new ignition switch and two new transponder keys.
2. Remove the ignition switch (page 21-16).
3. Apply 12 V battery voltage to the CKP sensor lines of the ECM using the special tool (page 22-6).
4. Set the original (registered) key near the immobilizer receiver so that the transponder in the key can communicate with the receiver.
5. Connect a new ignition switch to the wire harness and turn it ON with a new transponder key. (Keep the ignition switch away from the receiver.) The HISS indicator comes on and it remains on.

- The code of the original key recognized by the ECM.
- If there is any problem in the HISS, the system will enter the diagnostic mode and the indicator will remain on for approx. ten seconds, then it will indicate the diagnostic code (page 22-6).

6. Disconnect the red clip of the inspection adaptor from the battery positive (+) terminal for two seconds or more, then connect it again. The indicator remains on for approx. two seconds, then it blinks four times repeatedly.



- The HISS enters the registration mode. Registrations of all key except the original key set near the receiver are cancelled.

7. Turn the ignition switch OFF and remove the key.
8. Install the ignition switch onto the top bridge (page 21-16).
9. Turn the ignition switch ON with a first new key. The indicator comes on for two seconds, then it blinks four times repeatedly.

- The first key or spare key is registered in the ECM.
- If there is any problem in the registration, the system will enter the diagnostic mode and the indicator will remain on for approx. ten seconds, then it will indicate the diagnostic code (page 22-7).

10. Turn the ignition switch OFF and disconnect the red clip of the inspection adaptor from the battery positive (+) terminal.
11. Turn the ignition switch ON (with the first key registered in step 9). The HISS indicator comes on for two seconds, then it goes off.

- The HISS returns to the normal mode.

12. Turn the ignition switch OFF and connect the red clip of the inspection adaptor to the battery positive (+) terminal.
13. Turn the ignition switch ON (with the first key registered in step 9). The HISS indicator comes on and it remains on.

- The code of the first key is recognized by the ECM.
- If there is any problem in the immobilizer system (HISS), the system will enter the diagnostic mode and the indicator will remain on for approx. ten seconds, then it will indicate the diagnostic code (page 22-6).

14. Disconnect the red clip of the inspection adaptor from the battery positive (+) terminal for two seconds or more, then connect it again. The indicator remains on for approx. two seconds then it blinks four times repeatedly.

- The HISS enters the registration mode. Registration of the original key used in step 4 is cancelled.

15. Turn the ignition switch OFF and remove the key.

16. Turn the ignition switch ON with a second new key. (Never use the key registered in previous step.) The indicator comes on for two seconds, then it blinks four times repeatedly.

- The second key or spare key is registered in the ECM.
- If there is any problem in the registration, the system will enter the diagnostic mode and the indicator will remain for approx. ten seconds, then it will indicate the diagnostic code (page 22-7).
- Keep the other transponder key away from the immobilizer receiver more than 50 mm (2.0 in).

17. Repeat the steps 15 and 16 when you continuously register the other new key.

- The ECM can store up to four key codes. (The four keys can be registered.)

18. Turn the ignition switch OFF, remove the inspection adaptor and connect the CKP sensor 2P (Red) connector.

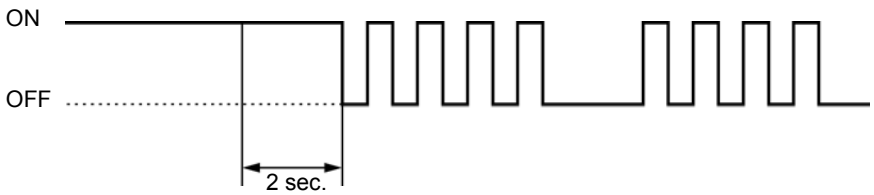
19. Turn the ignition switch ON with the registered key.

- The HISS returns to the normal mode.

20. Check that the engine can be started using all registered key.

When all keys have been lost, or the ECM is faulty

1. Obtain a new ECM and two new transponder keys.
2. Grind the keys in accordance with the shape of the original key (or use the key number plate when all key have been lost).
3. Replace the ECM with a new one (page 4-73).
4. Turn the ignition switch ON with a first new key. The HISS indicator comes on for two seconds, then it blinks four times repeatedly.



- The first key is registered in the ECM.
- If there is any problem in the registration, the system will enter the diagnostic mode and the indicator will remain on for approx. ten seconds, then it will indicate the diagnostic code (page 22-7).

5. Turn the ignition switch OFF and remove the first key.
6. Turn the ignition switch ON with a second new key. The HISS indicator comes on for two seconds, then it blinks four times repeatedly.

- The second key is registered in the ECM.
- If there is any problem in the registration, the system will enter the diagnostic mode and the indicator will remain for approx. ten seconds, then it will indicate the diagnostic code (page 22-7).

7. Turn the ignition switch OFF and remove the second key.

- The system (ECM) will not enter the normal mode unless the two keys are registered in ECM.
- The third new key cannot be continuously registered. When it is necessary to register the third key, follow the procedures "When the key has been lost, or additional key is required" (page 22-3).

8. Check that the engine can be started using all registered keys.

DIAGNOSTIC CODE INDICATION

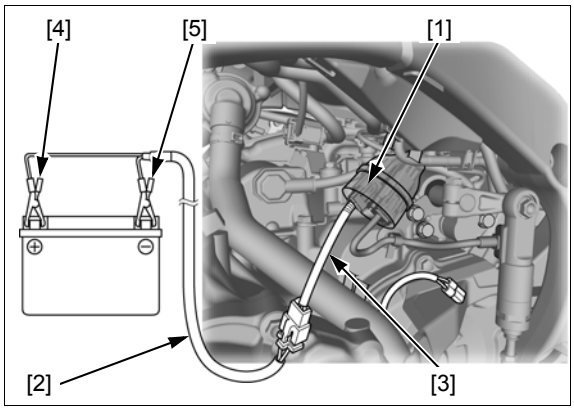
KO only: Remove the EVAP canister (page 7-22).

Disconnect the CKP sensor 2P (Red) connector [1].

Connect the special tools to the wire harness side 2P (Red) connector [1].

TOOLS:

Inspection adaptor [2]	**07XMZ-MBW0101**
Adaptor, test harness [3]	**070MZ-MEC0101**



Connect the Red clip [4] of the adaptor to the 12 V battery positive (+) terminal and black clip [5] to the negative (–) terminal.

Turn the ignition switch ON with the properly registered key.

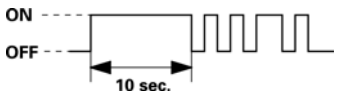
The HISS indicator will come on for approx. ten seconds then it will start blinking to indicate the diagnostic code if the system is abnormal.

The blinking frequency is repeated.

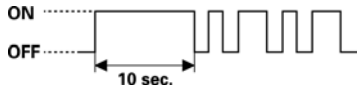
The HISS indicator remains on when the system is normal. (The system is in the normal mode and the diagnostic code does not appear.)

DIAGNOSTIC CODE

When the system (ECM) enters the diagnostic mode from the normal mode:

BLINKING PATTERN	SYMPTOM	PROBLEM	PROCEDURE
	ECM data is abnormal.	Faulty ECM	Replace the ECM.
	Code signals cannot send or receive.	Faulty immobilizer receiver or wire harness	Follow the troubleshooting (page 22-8).
	Identification code is disagree.	Jamming by the other transponder	Keep the other vehicle's transponder key away from the immobilizer receiver more than 50 mm (2.0 in).
	Secret code is disagree.		

When the system (ECM) enters the diagnostic mode from the registration mode:

BLINKING PATTERN	SYMPTOM	PROBLEM	PROCEDURE
	Registration is overlapped.	The key is already registered properly.	Use a new key or cancelled key.
	Code signals cannot send or receive.	Communication fails	Follow the troubleshooting (page 22-8).
	Registration is impossible.	The key is already registered on the other system.	Use a new key.

TROUBLESHOOTING

The HISS indicator comes on for approx. two seconds then it goes off, when the ignition switch is turned ON with the properly registered key and the HISS functions normally. If there is any problem or the properly registered key is not used, the indicator will remains on.

HISS indicator does not come on when the ignition switch is turned ON

1. **Fuse Inspection**

   Check the CLOCK/TURN fuse (10 A).

   Is the fuse blow?

   YES – Replace the fuse.

   NO – GO TO STEP 2.

2. **Combination Meter Inspection**

   Check the combination meter initial operation (page 21-9).

   Does the meter display initial operation?

   YES – GO TO STEP 3.

   NO – Check the combination meter power and ground lines (page 21-9)

3. **CAN Line Inspection**

   Check that the ECM stores the DTC U0155 (103-2) (page 4-7).

   Is the DTC U0155 (103-2) stored?

   YES – Troubleshoot the DTC U0155 (page 4-64).

   NO – Check the ECM power/ground lines (page 4-74).

HISS indicator remains on with the ignition switch ON

1. **Immobilizer Receiver Jamming Inspection**

   Check that there is any metal obstruction or the other vehicle's transponder key near the immobilizer receiver and key.

   Is there any metal obstruction or the other key?

   YES – Remove it and recheck.

   NO – GO TO STEP 2.

2. First Transponder Key Inspection

Turn the ignition switch ON with the spare transponder key and check the HISS indicator.
The indicator should come on for 2 seconds then go off.

Does the indicator go off?

YES – Faulty first transponder key

NO – GO TO STEP 3.

3. Diagnostic Code Inspection

Perform the diagnostic code indication procedure (page 22-6) and check that the HISS indicator comes on then it starts blinking.

Is there indicator Blinks or Stay Lit?

YES – Read the diagnostic code (page 22-6).

NO – GO TO STEP 4.

4. CAN Line Inspection

Check that the ECM stores the DTC U0155 (103-2) (page 4-7).

Is the DTC U0155 (103-2) stored?

YES – Troubleshoot the DTC U0155 (page 4-64).

NO – GO TO STEP 5.

5. CKP Sensor Line Inspection

Check the CKP sensor lines (page 22-9).

Are the CKP lines normal?

YES – Faulty ECM

NO – Repair the CKP line and recheck.

Diagnostic code ⎍⎍⎍⎍ is indicated (Code signals cannot send or receive)

1. Immobilizer Receiver Power Input Line Inspection

Check the immobilizer receiver power input line (page 22-9).

Is the input line normal?

NO – Open or short circuit in the Red wire

YES – GO TO STEP 2.

2. Immobilizer Receiver Ground Line Inspection

Check the immobilizer receiver ground line (page 22-10).

Is the ground line normal?

YES – GO TO STEP 3.

NO – Open circuit in the Gray wire

3. Immobilizer Receiver Signal Line Inspection

Check the immobilizer receiver signal lines (page 22-10).

Are the signal lines normal?

YES – GO TO STEP 4.

NO – • Open or short circuit in the Light green wire
• Open or short circuit in the Yellow wire

4. Immobilizer Receiver Inspection

Replace the immobilizer receiver with a know good one (page 22-11).
Perform the diagnostic code indication procedure (page 22-6).

Is the Diagnostic code ⎍⎍⎍⎍ indicated?

YES – Replace the ECM with a known good one and recheck.

NO – Faulty original immobilizer receiver

HISS INDICATOR

POWER INPUT LINE INSPECTION

Inspect the combination meter power/ground line (page 21-9)

HISS INDICATOR LINE INSPECTION

Check that the ECM stores the DTC 103-2 (page 4-7).

If the ECM stores DTC, follow the DTC troubleshooting (page 4-10).

ECM

CKP SENSOR LINE INSPECTION

Disconnect the following:

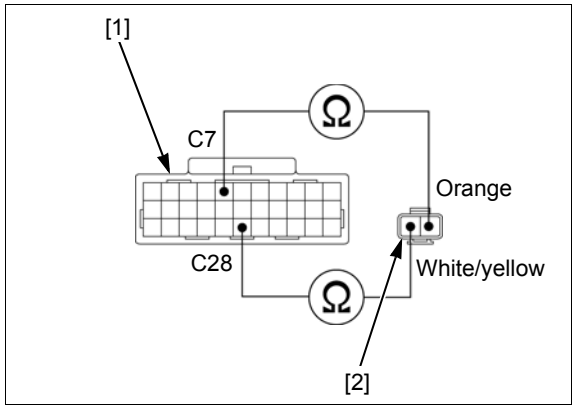
– CKP sensor 2P (Red) connector (page 22-6)
– ECM 33P (Black) connector (page 4-73)

Check for continuity between the 33P (Black) connector [1] and 2P (Red) connector [2].

TOOL:
Test probe **07ZAJ-RDJA110**

Connection: C7 – Orange
C28 – White/yellow

There should be continuity.



IMMOBILIZER RECEIVER

Lift and support the fuel tank (page 3-4).

Disconnect the immobilizer receiver 4P (Black) connector [1].

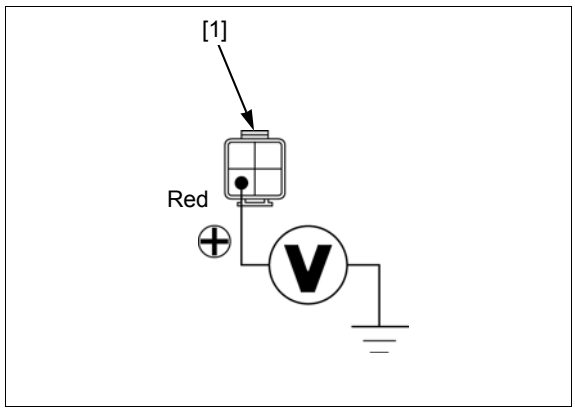
POWER INPUT LINE INSPECTION

Turn the ignition switch ON and engine stop switch "".

Measure the voltage between the wire harness side 4P (Black) connector [1] and ground.

Connection: Red (+) – Ground (–)

There should be approx. 5 V.

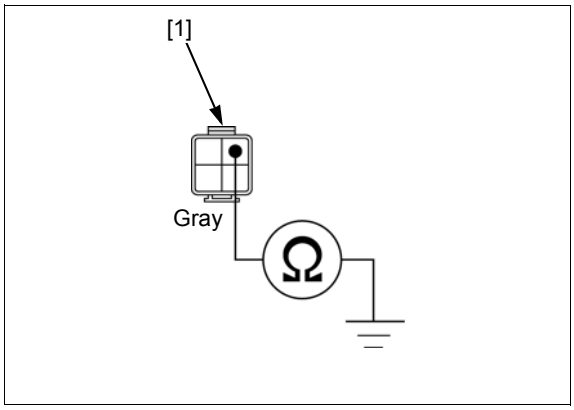


GROUND LINE INSPECTION

Check for continuity between the wire harness side 4P (Black) connector [1] and ground.

Connection: Gray – Ground

There should be continuity at all times.



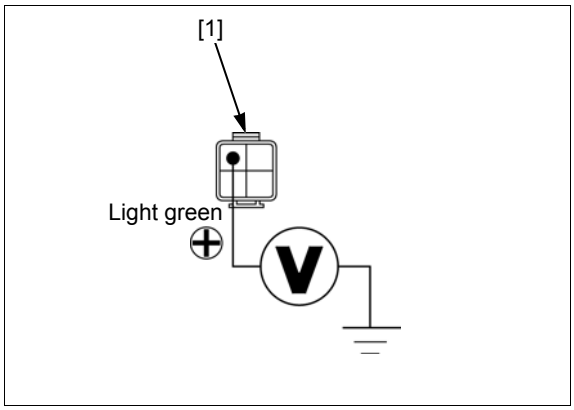
SIGNAL LINE INSPECTION

Turn the ignition switch ON and engine stop switch "".

Measure the voltage between the wire harness side 4P (Black) connector [1] and ground.

Connection: Light green (+) – Ground (–)

There should be approx. 5 V.



Turn the ignition switch OFF.

Disconnect the ECM 33P (Black) connector (page 4-73).

Check for continuity between the wire harness side 33P (Black) connector [1] and 4P (Black) connector [2].

TOOL:
Test probe **07ZAJ-RDJA110**

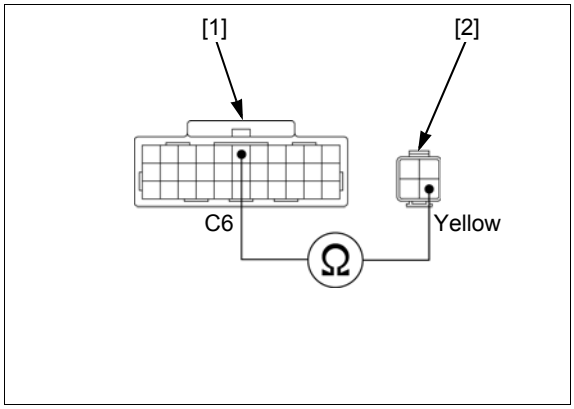
Connection: C6 – Yellow

There should be continuity.

Check for continuity between the wire harness side 4P (Black) connector [1] and ground.

Connection: Yellow – Ground

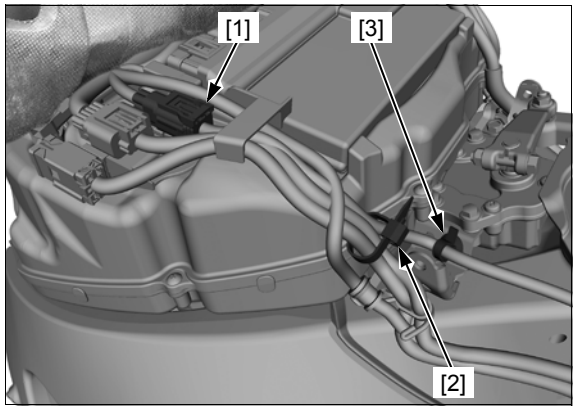
There should be no continuity.



REMOVAL/INSTALLATION

Lift and support the fuel tank (page 3-4).

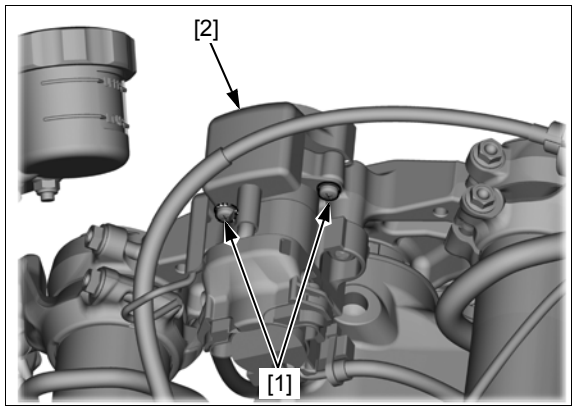
Disconnect the immobilizer receiver 4P (Black) connector [1], and remove the wire band [2] and wire clip [3].



Remove the mounting screws [1] and immobilizer receiver [2].

Route the immobilizer receiver wire properly (page 1-23).

Installation is in the reverse order of removal.



REPLACEMENT PARTS FOR PROBLEM

Problem	Replacement parts				
	Transponder Key	Immobilizer receiver	ECM	Ignition switch	*Accessory lock and key
One Key has been lost, or additional spare key is required.	○				
All key have been lost, or ECM is faulty.	○		○		
Immobilizer receiver is faulty.		○			
Ignition switch is faulty.	○			○	
*Accessory lock is faulty.					○

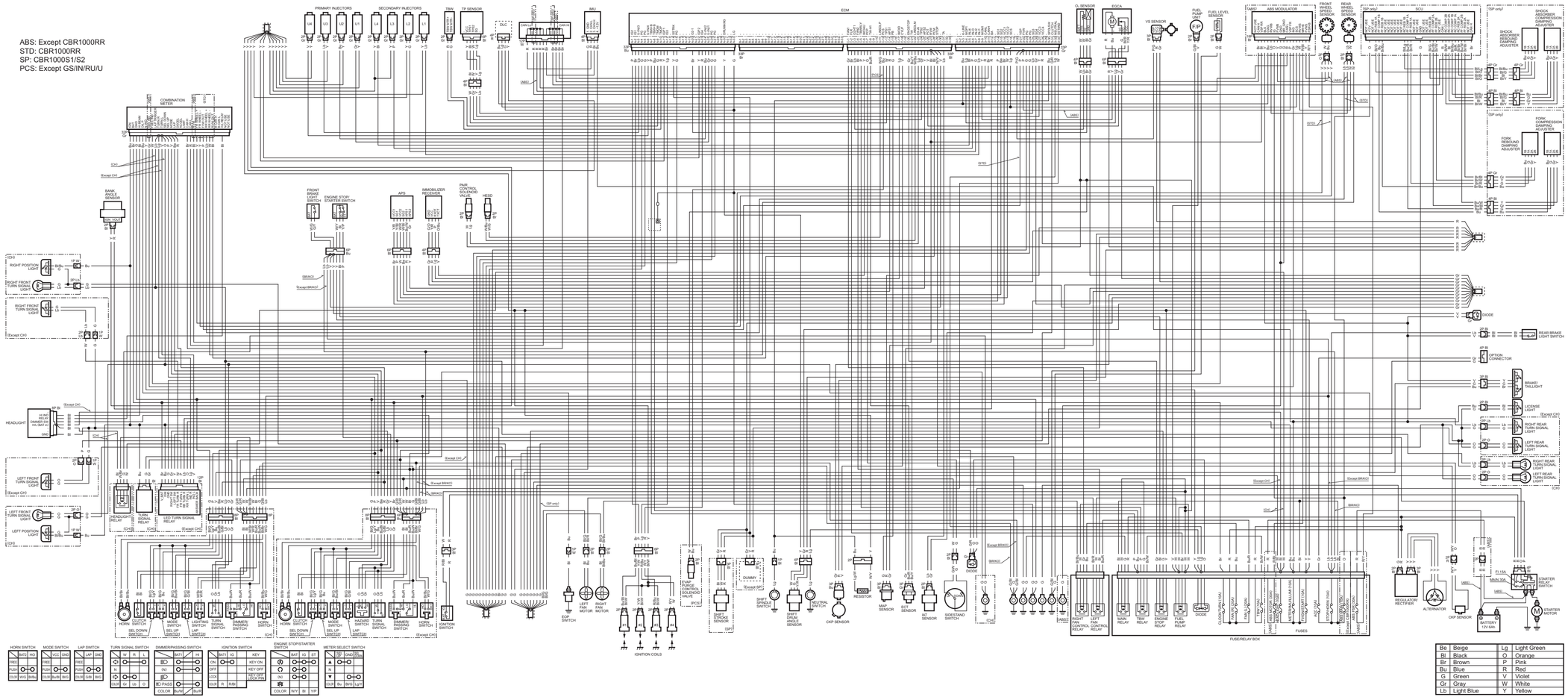
*Accessory lock means the seat lock or fuel fill cap.

MEMO

23. WIRING DIAGRAM

WIRING DIAGRAM

ABS: Except CBR1000RR
STD: CBR1000RR
SP: CBR1000S1/S2
PCS: Except GS/IN/RU/U



Be	Beige	Lg	Light Green
Bl	Black	O	Orange
Br	Brown	P	Pink
Bu	Blue	R	Red
G	Green	V	Violet
Gr	Gray	W	White
Lb	Light Blue	Y	Yellow

MEMO

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HONDA

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