



DEATHACE HONDA



SERVICE MANUAL

2008
CBR1000RR

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.

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.

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.

⚠ WARNING

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

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

⚠ 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.

HOW TO USE THIS MANUAL

This service manual describes the service procedures for the CBR1000RR.

Follow the Maintenance Schedule (Section 4) recommendations to ensure that the vehicle is in peak operating condition and the emission levels are within the standards set by the U.S. Environmental Protection Agency (EPA) and California Air Resources Board (CARB) and Transport Canada.

Performing the first scheduled maintenance is very important. It compensates for the initial wear that occurs during the break-in period.

Sections 1 and 4 apply to the whole motorcycle. Section 3 illustrates procedures for removal/installation of components that may be required to perform service described in the following sections. Section 5 through 21 describe parts of the motorcycle, grouped according to location.


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.

If you are not familiar with this motorcycle, read Technical Features in Section 2.

If you don't know the source of the trouble, go to section 23 Troubleshooting.

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.

ALL INFORMATION, ILLUSTRATIONS, DIRECTIONS AND SPECIFICATIONS INCLUDED IN THIS PUBLICATION ARE BASED ON THE LATEST PRODUCT INFORMATION AVAILABLE AT THE TIME OF APPROVAL FOR PRINTING. Honda Motor Co., Ltd. RESERVES THE RIGHT TO MAKE CHANGES AT ANY TIME WITHOUT NOTICE AND WITHOUT INCURRING ANY OBLIGATION WHATSOEVER. NO PART OF THIS PUBLICATION MAY BE REPRODUCED WITHOUT WRITTEN PERMISSION. THIS MANUAL IS WRITTEN FOR PERSONS WHO HAVE ACQUIRED BASIC KNOWLEDGE OF MAINTENANCE ON Honda MOTORCYCLES, MOTOR SCOOTERS OR ATVS.












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SERVICE PUBLICATION OFFICE

CONTENTS

	GENERAL INFORMATION	1
	TECHNICAL FEATURES	2
	FRAME/BODY PANELS/EXHAUST SYSTEM	3
	MAINTENANCE	4
ENGINE AND DRIVE TRAIN	LUBRICATION SYSTEM	5
	FUEL SYSTEM (PGM-FI)	6
	COOLING SYSTEM	7
	ENGINE REMOVAL/INSTALLATION	8
	CYLINDER HEAD/VALVES	9
	CLUTCH/STARTER CLUTCH/GEARSHIFT LINKAGE	10
	ALTERNATOR	11
	CRANKCASE/TRANSMISSION/BALANCER	12
	CRANKSHAFT/PISTON/CYLINDER	13
CHASSIS	FRONT WHEEL/SUSPENSION/STEERING	14
	REAR WHEEL/SUSPENSION	15
	HYDRAULIC BRAKE	16
ELECTRICAL	BATTERY/CHARGING SYSTEM	17
	IGNITION SYSTEM	18
	ELECTRIC STARTER	19
	LIGHTS/METERS/SWITCHES	20
	WIRING DIAGRAM	21
	TROUBLESHOOTING	22
	INDEX	23

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.

	<p>Replace the part(s) with new one(s) before assembly.</p>
	<p>Use recommended engine oil, unless otherwise specified.</p>
	<p>Use molybdenum oil solution (mixture of the engine oil and molybdenum grease in a ratio of 1:1).</p>
	<p>Use multi-purpose grease (Lithium based multi-purpose grease NLGI #2 or equivalent).</p>
	<p>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</p>
	<p>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. Honda Moly 60 (U.S.A. only) Rocol ASP manufactured by Rocol Limited, U.K. Rocol Paste manufactured by Sumico Lubricant, Japan</p>
	<p>Use silicone grease.</p>
	<p>Apply locking agent. Use a middle strength locking agent unless otherwise specified.</p>
	<p>Apply sealant.</p>
	<p>Use DOT 4 brake fluid. Use the recommended brake fluid unless otherwise specified.</p>
	<p>Use Fork or Suspension Fluid.</p>

1. GENERAL INFORMATION

SERVICE RULES	1-2	FRONT WHEEL/SUSPENSION/STEERING SPECIFICATIONS	1-10
MODEL IDENTIFICATION.....	1-3	REAR WHEEL/SUSPENSION SPECIFICATIONS	1-10
GENERAL SPECIFICATIONS.....	1-5	HYDRAULIC BRAKE SPECIFICATIONS... ..	1-11
LUBRICATION SYSTEM SPECIFICATIONS.....	1-7	BATTERY/CHARGING SYSTEM SPECIFICATIONS	1-11
FUEL SYSTEM (PGM-FI) SPECIFICATIONS	1-7	IGNITION SYSTEM SPECIFICATIONS	1-11
COOLING SYSTEM SPECIFICATIONS	1-7	ELECTRIC STARTER SPECIFICATIONS	1-11
CYLINDER HEAD/VALVES SPECIFICATIONS.....	1-8	LIGHTS/METERS/SWITCHES SPECIFICATIONS	1-12
CLUTCH/STARTER CLUTCH/GEARSHIFT LINKAGE SPECIFICATIONS	1-8	TORQUE VALUES	1-13
CRANKCASE/TRANSMISSION/BALANCER SPECIFICATIONS	1-9	LUBRICATION & SEAL POINTS	1-18
CRANKSHAFT/PISTON/CYLINDER SPECIFICATIONS	1-9	CABLE & HARNESS ROUTING	1-20
		EMISSION CONTROL SYSTEMS	1-37

GENERAL INFORMATION

SERVICE RULES

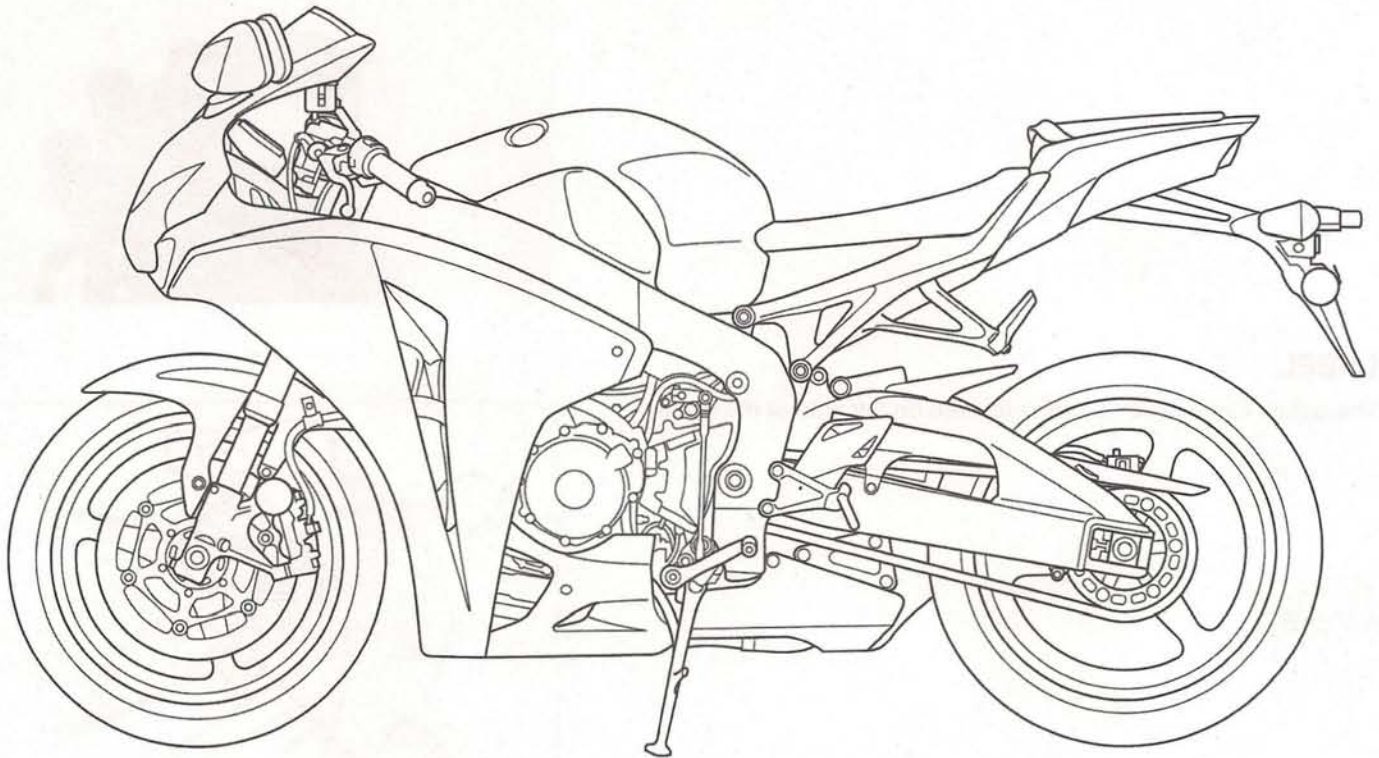
1. Use genuine Honda or Honda-recommended parts and lubricants or their equivalents. Parts that don't meet Honda's design specifications may cause damage to the motorcycle.
2. Use the special tools designed for this product to avoid damage and incorrect assembly.
3. Use only metric tools when servicing 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 1-20).
9. Do not bend or twist control cables. Damaged control cables will not operate smoothly and may stick or bind.

ABBREVIATION

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

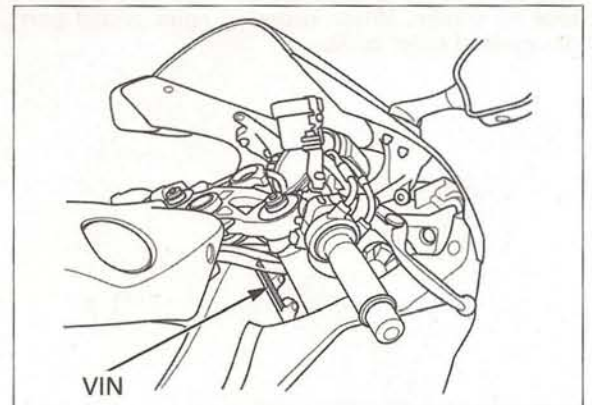
Abbrev. term	Full term
CKP sensor	Crankshaft Position sensor
CMP sensor	Camshaft Position sensor
DLC	Data Link Connector
DTC	Diagnostic Trouble Code
ECM	Engine Control Module
ECT sensor	Engine Coolant Temperature sensor
EEPROM	Electrically Erasable Programmable Read Only Memory
ECV	Exhaust Control Valve
ECV POT	Exhaust Control Valve Potentiometer
EBV	Exhaust Gas Bypass Valve
EGCA	Exhaust Gas Control Actuator
EOP switch	Engine Oil Pressure switch
HDS	Honda Diagnostic System
HESD	Honda Electronic Steering Damper
IACV	Idle Air Control Valve
IAT sensor	Intake Air Temperature sensor
IDC solenoid valve	Intake Duct Control solenoid valve
MAP sensor	Manifold Absolute Pressure sensor
MIL	Malfunction Indicator Lamp
PAIR	Pulsed Secondary Air Injection
PGM-FI	Programmed Fuel Injection
SCS connector	Service Check Short connector
TP sensor	Throttle Position sensor
VS sensor	Vehicle Speed sensor

MODEL IDENTIFICATION



SERIAL NUMBERS

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



The engine serial number is stamped on the front side of the lower crankcase as shown.



GENERAL INFORMATION

The throttle body identification number is stamped on the left side of the throttle body as shown.

THROTTLE BODY IDENTIFICATION NUMBER



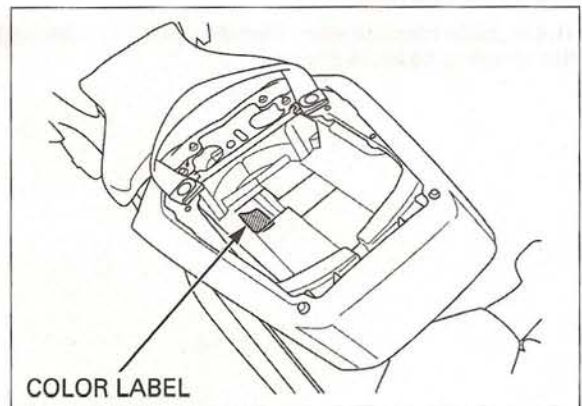
LABEL

The Safety Certification Label is located on left side of the frame.



SAFETY CERTIFICATION LABEL

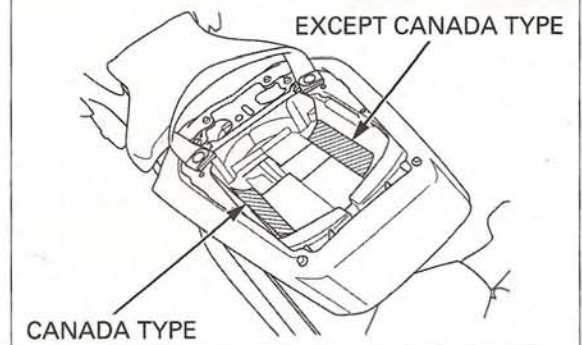
The color label is attached on the license light stay under the pillion seat as shown. When ordering color-coded parts, always specify the designated color code.



COLOR LABEL

The Emission Control Information Label is located on the license light stay as shown.

EMISSION CONTROL INFORMATION LABEL



CANADA TYPE

EXCEPT CANADA TYPE

GENERAL SPECIFICATIONS

	ITEM	SPECIFICATIONS
DIMENSIONS	Overall length Overall width Overall height Wheelbase Seat height Footpeg height Ground clearance Curb weight Except California type: California type: Maximum weight capacity	2,080 mm (81.9 in) 685 mm (27.0 in) 1,130 mm (44.5 in) 1,410 mm (55.5 in) 820 mm (32.3 in) 396 mm (15.6 in) 130 mm (5.1 in) 199 kg (439 lbs) 200 kg (441 lbs) 166 kg (366 lbs)
FRAME	Frame type Front suspension Front axle travel Rear suspension Rear axle travel Front tire size Rear tire size Front tire brand Bridgestone Dunlop Rear tire brand Bridgestone Dunlop Front brake Rear brake Caster angle Trail length Fuel tank capacity	Diamond Telescopic fork 110 mm (4.3 in) Swingarm 138 mm (5.4 in) 120/70ZR17 M/C (58W) 190/50ZR17 M/C (73W) BT015F RADIAL F Qualifier PTK BT015R RADIAL F Qualifier NK Hydraulic double disc Hydraulic single disc 23° 18' 96.3 mm (3.8 in) 17.7 liters (4.68 US gal, 3.89 Imp gal)
ENGINE	Cylinder arrangement Bore and stroke Displacement Compression ratio Valve train Intake valve opens at 1 mm (0.04 in) lift closes at 1 mm (0.04 in) lift Exhaust valve opens at 1 mm (0.04 in) lift closes at 1 mm (0.04 in) lift Lubrication system Oil pump type Cooling system Air filtration Engine dry weight Firing order	4 cylinders in-line, inclined 27.6° from vertical 76.0 x 55.1 mm (2.99 x 2.17 in) 999 cm ³ (60.94 cu-in) 12.3 : 1 Chain driven, DOHC 21° BTDC 43° ABDC 41° BBDC 14° ATDC Forced pressure and wet sump Trochoid Liquid cooled Paper element 62.5 kg (137.8 lbs) 1 - 2 - 4 - 3
FUEL DELIVERY SYSTEM	Type Throttle bore	PGM-FI 46 mm (1.8 in)
DRIVE TRAIN	Clutch system Clutch operation system Transmission Primary reduction Final reduction Gear ratio 1st 2nd 3rd 4th 5th 6th Gearshift pattern	Multi-plate, wet Cable operating Constant mesh, 6-speeds 1.717 (79/46) 2.625 (42/16) 2.285 (32/14) 1.777 (32/18) 1.500 (33/22) 1.333 (32/24) 1.214 (34/28) 1.137 (33/29) Left foot operated return system, 1 - N - 2 - 3 - 4 - 5 - 6

GENERAL INFORMATION

	ITEM	SPECIFICATIONS
ELECTRICAL	Ignition system	Computer-controlled digital transistorized with electric advance
	Starting system	Electric starter motor
	Charging system	Triple phase output alternator
	Regulator/rectifier	FET shorted/triple phase, full wave rectification
	Lighting system	Battery

LUBRICATION SYSTEM SPECIFICATIONS

ITEM		STANDARD	SERVICE LIMIT
Engine oil capacity	After draining	2.8 liters (3.0 US qt, 2.5 Imp qt)	-
	After oil filter change	3.0 liters (3.2 US qt, 2.6 Imp qt)	-
	After disassembly	3.7 liters (3.9 US qt, 3.3 Imp qt)	-
Recommended engine oil		Pro Honda GN4 4-stroke oil (U.S.A. and Canada) or equivalent motor oil API service classification: SG or Higher JASO T 903 standard: MA Viscosity: SAE 10W-30	-
Oil pressure at EOP switch		590 kPa (6.0 kgf/cm ² , 86 psi) at 6,000 rpm/(80°C/176°F)	-
Oil pump	Tip clearance	0.15 (0.006)	0.20 (0.008)
	Body clearance	0.15 – 0.21 (0.006 – 0.008)	0.35 (0.014)
	Side clearance	0.04 – 0.09 (0.002 – 0.004)	0.17 (0.007)

FUEL SYSTEM (PGM-FI) SPECIFICATIONS

ITEM		SPECIFICATIONS
Throttle body identification number	Except California type	GQ23C
	California type	GQ23B
Idle speed		1,200 ± 100 rpm
Throttle grip freeplay		2 – 5 mm (1/16 – 3/16 in)
IAT sensor resistance (at 20°C/68°F)		1 – 4 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
IDC solenoid valve resistance (at 20°C/68°F)		28 – 32 Ω
CKP sensor peak voltage (at 20°C/68°F)		0.7 V minimum
Fuel pressure at idle		343 kPa (3.5 kgf/cm ² , 50 psi)
Fuel pump flow (at 12 V)		167 cm ³ (5.6 US oz, 5.9 Imp oz) minimum/10 seconds

COOLING SYSTEM SPECIFICATIONS

ITEM		SPECIFICATIONS
Coolant capacity	Radiator and engine	3.0 liters (3.2 US qt, 2.6 Imp qt)
	Reserve tank	0.34 liter (0.36 US qt, 0.30 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		Pro Honda HP Coolant or an equivalent high quality ethylene glycol antifreeze containing silicate free corrosion inhibitors
Standard coolant concentration		1:1 (mixture with distilled water)

GENERAL INFORMATION

CYLINDER HEAD/VALVES SPECIFICATIONS

Unit: mm (in)

ITEM			STANDARD	SERVICE LIMIT
Cylinder compression			1,196 kPa (12.2 kgf/cm ² , 174 psi) at 210 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	IN	37.34 – 37.58 (1.470 – 1.480)	37.32 (1.469)
		EX	36.58 – 36.82 (1.440 – 1.450)	36.56 (1.439)
	Runout		–	0.05 (0.002)
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)	25.97 (1.022)
	Valve lifter bore I.D.	IN/EX	26.010 – 26.026 (1.0240 – 1.0246)	26.04 (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)	4.54 (0.179)
		EX	4.000 – 4.012 (0.1575 – 0.1580)	4.04 (0.159)
	Stem-to-guide clearance	IN	0.010 – 0.037 (0.0004 – 0.0015)	0.075 (0.0030)
		EX	0.020 – 0.047 (0.0008 – 0.0019)	0.085 (0.0033)
	Valve guide projection above cylinder head	IN	15.1 – 15.4 (0.59 – 0.61)	–
		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	IN	Inner	35.25 (1.388)	34.5 (1.36)
		Outer	38.93 (1.533)	38.2 (1.50)
	EX		39.68 (1.562)	38.9 (1.53)
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 (3/8 – 13/16)	–
Clutch	Spring free height		5.70 (0.224)	4.7 (0.19)
	Disc thickness	Disc A	3.72 – 3.88 (0.146 – 0.153)	3.6 (0.14)
		Disc B	3.22 – 3.38 (0.127 – 0.133)	3.1 (0.12)
		Disc C	3.22 – 3.38 (0.127 – 0.133)	3.1 (0.12)
Plate warpage		–	0.30 (0.012)	
Clutch outer guide A (Without ID mark)	I.D.	27.993 – 28.003 (1.1021 – 1.1025)	28.012 (1.1028)	
	O.D.	35.004 – 35.012 (1.3781 – 1.3784)	34.994 (1.3777)	
Clutch outer guide B (With ID mark)	I.D.	27.993 – 28.003 (1.1021 – 1.1025)	28.012 (1.1028)	
	O.D.	34.996 – 35.004 (1.3778 – 1.3781)	34.986 (1.3774)	
Primary driven gear I.D.	White	41.008 – 41.016 (1.6145 – 1.6148)	41.026 (1.6152)	
	Black	41.000 – 41.008 (1.6142 – 1.6145)	41.018 (1.6149)	
Oil pump drive sprocket guide	I.D.	28.000 – 28.021 (1.1024 – 1.1032)	28.030 (1.1035)	
	O.D.	34.975 – 34.991 (1.3770 – 1.3776)	34.965 (1.3766)	
Oil pump drive sprocket I.D.			35.025 – 35.145 (1.3789 – 1.3837)	35.155 (1.3841)
Mainshaft O.D. at clutch outer guide			27.980 – 27.990 (1.1016 – 1.1020)	27.96 (1.101)
Mainshaft O.D. at oil pump drive sprocket guide			27.980 – 27.990 (1.1016 – 1.1020)	27.96 (1.101)
Starter driven gear boss O.D.			45.657 – 45.673 (1.7975 – 1.7981)	45.642 (1.7969)

CRANKCASE/TRANSMISSION/BALANCER SPECIFICATIONS

Unit: mm (in)

ITEM		STANDARD	SERVICE LIMIT
Shift fork	I.D.	14.000 – 14.018 (0.5512 – 0.5519)	14.03 (0.552)
	Claw thickness	5.93 – 6.00 (0.233 – 0.236)	5.9 (0.23)
Shift fork shaft O.D.		13.957 – 13.975 (0.5495 – 0.5502)	13.95 (0.549)
Transmission	Gear I.D.	M5, M6	31.000 – 31.025 (1.2205 – 1.2215)
		C1	28.000 – 28.021 (1.1024 – 1.1032)
		C2, C3, C4	33.000 – 33.025 (1.2992 – 1.3002)
	Gear busing 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-to-bushing clearance	M5, C2	0.020 – 0.070 (0.0008 – 0.0028)
		M6, C3, C4	0.025 – 0.075 (0.0010 – 0.0030)
	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)	
Bushing to shaft clearance	M5, C2	0.005 – 0.039 (0.0002 – 0.0015)	

CRANKSHAFT/PISTON/CYLINDER SPECIFICATIONS

Unit: mm (in)

ITEM		STANDARD	SERVICE LIMIT	
Crankshaft	Connecting rod side clearance	0.15 – 0.30 (0.006 – 0.012)	0.35 (0.014)	
	Crankpin bearing oil clearance	0.030 – 0.052 (0.0012 – 0.0020)	0.06 (0.002)	
	Main journal bearing oil clearance	0.019 – 0.037 (0.0007 – 0.0015)	0.05 (0.002)	
	Runout	–	0.05 (0.002)	
Piston, piston rings	Piston O.D. at 5 mm (0.2 in) from bottom	75.965 – 75.985 (2.9907 – 2.9915)	75.895 (2.9880)	
	Piston pin bore I.D.	17.002 – 17.008 (0.6694 – 0.6696)	17.030 (0.6705)	
	Piston pin O.D.	16.994 – 17.000 (0.6691 – 0.6693)	16.980 (0.6685)	
	Piston-to-piston pin clearance	0.002 – 0.014 (0.0001 – 0.0006)	0.04 (0.002)	
	Piston ring end gap	Top	0.22 – 0.32 (0.009 – 0.126)	0.52 (0.020)
		Second	0.40 – 0.55 (0.016 – 0.022)	0.74 (0.029)
		Oil (side rail)	0.20 – 0.70 (0.008 – 0.028)	1.00 (0.040)
Piston ring-to-ring groove clearance	Top	0.040 – 0.080 (0.0016 – 0.0032)	0.120 (0.0050)	
	Second	0.015 – 0.050 (0.0006 – 0.0020)	0.075 (0.0030)	
Cylinder	I.D.	76.000 – 76.015 (2.9921 – 2.9927)	76.025 (2.9931)	
	Out-of-round	–	0.10 (0.004)	
	Taper	–	0.10 (0.004)	
	Warpage	–	0.10 (0.004)	
Cylinder-to-piston clearance		0.015 – 0.050 (0.0006 – 0.0020)	0.10 (0.004)	
Connecting rod small end I.D.		17.030 – 17.042 (0.6705 – 0.6709)	17.048 (0.6712)	
Connecting rod-to-piston pin clearance		0.030 – 0.048 (0.0012 – 0.0019)	0.07 (0.003)	

GENERAL INFORMATION

FRONT WHEEL/SUSPENSION/STEERING SPECIFICATIONS

Unit: mm (in)

ITEM		STANDARD	SERVICE LIMIT
HESD linear solenoid resistance (at 20°C/68°F)		10 – 15 Ω	–
Minimum tire tread depth		–	1.5 (0.06)
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		–	0.2 (0.01)
Wheel rim runout	Radial	–	2.0 (0.08)
	Axial	–	2.0 (0.08)
Wheel balance weight		–	60 g (2.1oz) max.
Fork	Spring free length	234.0 (9.21)	229.3 (9.03)
	Tube runout	–	0.20 (0.008)
	Recommended fork fluid	Pro Honda Suspension Fluid SS-47 (10 W)	–
	Fluid level	93 (3.7)	–
	Fluid capacity	517 ± 2.5 cm ³ (17.5 ± 0.08 US oz, 18.2 ± 0.09 Imp oz)	–
	Pre-load adjuster initial setting	6 turns from minimum	–
	Rebound damping adjuster initial setting	2-1/4 turns out from full hard	–
Compression damping adjuster initial setting		2 turns out from full hard	–
Steering head bearing pre-load		12 – 17 N (1.2 – 1.7 kgf)	–

REAR WHEEL/SUSPENSION SPECIFICATIONS

Unit: mm (in)

ITEM		STANDARD	SERVICE LIMIT
Minimum tire tread depth		–	2.0 (0.08)
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		–	0.2 (0.01)
Wheel rim runout	Radial	–	2.0 (0.08)
	Axial	–	2.0 (0.08)
Wheel balance weight		–	60 g (2.1 oz) max.
Drive chain	Size/link	DID	DID50VA11-116YB
		RK	RK50HFOZ6-116LJFZ
	Slack	25 – 35 (1.0 – 1.4 in)	–
Shock absorber	Spring pre-load adjuster standard position		Position 4
	Rebound damping adjuster initial setting		2-1/4 turns out from full hard
	Compression damping adjuster initial setting		2 turns out from full hard

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 runout	-	0.30 (0.012)	
	Master cylinder I.D.	17.460 – 17.503 (0.6874 – 0.6891)	17.503 (0.6891)	
	Master piston O.D.	17.321 – 17.367 (0.6819 – 0.6837)	17.321 (0.6819)	
	Caliper cylinder I.D.	A	32.080 – 32.130 (1.2630 – 1.2650)	32.130 (1.2650)
		B	30.280 – 30.330 (1.1921 – 1.1941)	30.330 (1.1941)
	Caliper piston O.D.	A	31.967 – 32.000 (1.2585 – 1.2598)	31.967 (1.2585)
B		30.167 – 30.200 (1.1877 – 1.1890)	30.167 (1.1877)	
Rear	Specified brake fluid	DOT 4	-	
	Brake disc thickness	4.8 – 5.2 (0.19 – 0.20)	4.0 (0.16)	
	Brake disc runout	-	0.30 (0.012)	
	Master cylinder I.D.	14.000 – 14.043 (0.5512 – 0.5529)	14.043 (0.5529)	
	Master piston O.D.	13.957 – 13.984 (0.5495 – 0.5506)	13.957 (0.5495)	
	Caliper cylinder I.D.	30.230 – 30.280 (1.1902 – 1.1921)	30.280 (1.1921)	
	Caliper piston O.D.	30.082 – 30.115 (1.1843 – 1.1856)	30.082 (1.1843)	

BATTERY/CHARGING SYSTEM SPECIFICATIONS

ITEM		SPECIFICATIONS	
Battery	Capacity	12 V – 6 Ah	
	Current leakage	2.0 mA max.	
	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	
Alternator	Capacity	0.399 kW/5000 rpm	
	Charging coil resistance (at 20°C/68°F)	0.1 – 1.0 Ω	

IGNITION SYSTEM SPECIFICATIONS

ITEM		SPECIFICATIONS
Spark plug (Iridium)	NGK	IMR9E-9HES
	DENSO	VUH27ES
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

ELECTRIC STARTER SPECIFICATIONS

Unit: mm (in)

ITEM	STANDARD	SERVICE LIMIT
Starter motor brush length	12.0 (0.47)	6.5 (0.26)

GENERAL INFORMATION

LIGHTS/METERS/SWITCHES SPECIFICATIONS

ITEM		SPECIFICATIONS	
Bulbs	Headlight	Hi	12 V – 55 W
		Lo	12 V – 55 W
	Position light		LED x 2
	Brake/tail light		LED
	License light		12 V – 5 W
	Turn signal light		12 V – 21 W x 4
	Instrument light		LED
	Turn signal indicator		LED x 2
	High beam indicator		LED
	Neutral indicator		LED
	MIL		LED
	Fuel indicator		LED
	REV indicator		LED
	Engine oil pressure/ coolant temperature warning indicator		LED
Fuse	Main fuse		30 A
	Sub fuse		10 A x 4, 20 A x 4
Tachometer peak voltage		10.5 V minimum	
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 and nut	10 (1.0, 7)	6 mm screw	9.0 (1.0, 6.6)
8 mm bolt and nut	22 (2.2, 16)	6 mm flange bolt (8 mm head, large flange)	12 (1.2, 9)
10 mm bolt and nut	34 (3.5, 25)	8 mm flange bolt and nut	27 (2.8, 20)
12 mm bolt and nut	54 (5.5, 40)	10 mm flange bolt and nut	39 (4.0, 29)

ENGINE & FRAME TORQUE VALUES

- Torque specifications listed below are for important fasteners.
- Others should be tightened to standard torque values (page 1-13).

FRAME/BODY PANELS/EXHAUST SYSTEM

ITEM	Q'TY	THREAD DIA. (mm)	TORQUE N·m (kgf·m, lbf·ft)	REMARKS
Windscreen mounting bolt	4	5	1.5 (0.2, 1.1)	
Seat rail mounting nut	2	10	54 (5.5, 40)	
Seat rail mounting bolt	2	10	44 (4.5, 32)	
Seat rail assembly bolt	1	8	30 (3.1, 22)	
Air duct resonator mounting screw	2	4	1.1 (0.1, 0.8)	
Vacuum chamber stay mounting screw	2	4	1.1 (0.1, 0.8)	
Lower cowl mounting special screw	2	6	10 (1.0, 7)	
Lower cowl mounting screw	2	5	1.5 (0.2, 1.1)	
Center cross plate mounting bolt	4	6	12 (1.2, 9)	
Exhaust pipe joint nut	8	7	12 (1.2, 9)	
Front fender mounting screw	4	6	12 (1.2, 9)	
Rearview mirror mounting nut	4	6	10 (1.0, 7)	
Rearview mirror front cover screw	2	5	1.0 (0.1, 0.7)	
Main step bracket mounting bolt	4	8	37 (3.8, 27)	
Pillion step bracket mounting bolt	4	8	27 (2.8, 20)	
Exhaust pipe stud bolt	8	8	–	See page 3-33
Air duct mounting screw	4	4	1.1 (0.1, 0.8)	
Air duct cover mounting screw	4	5	1.5 (0.2, 1.1)	
Heat guard mounting screw	3	6	10 (1.0, 7)	
Muffler rear cap mounting screw	3	5	4.2 (0.4, 3.1)	
Middle cowl mounting screw	4	5	1.5 (0.2, 1.1)	
Seat mounting special screw	2	6	4.3 (0.4, 3.2)	
Muffler band bolt	1	8	17 (1.7, 13)	

MAINTENANCE

ITEM	Q'TY	THREAD DIA. (mm)	TORQUE N·m (kgf·m, lbf·ft)	REMARKS
Spark plug	4	10	16 (1.6, 12)	
Timing hole cap	1	45	18 (1.8, 13)	Apply grease to the threads.
Oil filter cartridge	1	20	26 (2.7, 19)	Apply oil to the threads and O-ring.
Oil drain bolt	1	12	30 (3.1, 22)	
Oil filter boss	1	20	–	See page 4-19 Apply locking agent to the crankcase side threads.
Air cleaner element mounting screw	2	4	0.8 (0.08, 0.6)	
EGCA cable lock nut	1	10	22 (2.2, 16)	

GENERAL INFORMATION

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.

FUEL SYSTEM (PGM-FI)

ITEM	Q'TY	THREAD DIA. (mm)	TORQUE N·m (kgf·m, lbf·ft)	REMARKS
Bank angle sensor mounting screw	2	4	1.1 (0.1, 0.8)	
ECT sensor	1	12	23 (2.3, 17)	
Primary fuel rail mounting bolt	4	5	5.1 (0.5, 3.8)	
IACV setting plate torx screw	2	4	2.1 (0.2, 1.5)	
Knock sensor mounting bolt	1	8	22 (2.2, 16)	
Fuel pump mounting nut	6	6	12 (1.2, 9)	See page 6-49
Fuel tank mounting bolt	4	6	10 (1.0, 7)	
IAT sensor mounting screw	2	5	1.1 (0.1, 0.8)	
MAP sensor mounting screw	1	5	5.0 (0.5, 3.7)	
ECM setting plate screw	2	4	0.8 (0.08, 0.6)	
Fuel tank cap socket bolt	6	4	1.8 (0.2, 1.3)	
Air cleaner housing screw	14	4	0.8 (0.08, 0.6)	
Throttle cable adjuster lock nut	1	6	5.5 (0.6, 4.1)	
Canister mounting bolt	2	6	8.0 (0.8, 5.9)	

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 housing cover bolt	2	6	12 (1.2, 9)	CT bolt
Fan motor shroud mounting bolt	6	6	8.4 (0.9, 6.2)	
Left fan motor mounting screw	3	4	2.7 (0.3, 2.0)	
Left cooling fan mounting nut	1	3	1.0 (0.1, 0.7)	Apply locking agent to the threads.
Right fan motor mounting nut	3	5	5.2 (0.5, 3.8)	
Right cooling fan mounting nut	1	5	2.7 (0.3, 2.0)	Apply locking agent to the threads.
Water pump impeller	1	6	12 (1.2, 9)	

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)	

CYLINDER HEAD/VALVES

ITEM	Q'TY	THREAD DIA. (mm)	TORQUE N·m (kgf·m, lbf·ft)	REMARKS
Cylinder head nut	10	9	–	See page 9-29 Apply oil to the threads and seating surface.
Camshaft holder bolt	20	6	12 (1.2, 9)	
Cylinder head cover bolt	4	6	10 (1.0, 7)	Apply locking agent to the threads.
PAIR check valve cover bolt	4	6	12 (1.2, 9)	
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)	Apply locking agent to the threads.
Cam chain guide A bolt	1	6	12 (1.2, 9)	
Insulator mounting bolt	6	6	12 (1.2, 9)	Apply locking agent to the threads.
Breather plate mounting bolt	3	6	12 (1.2, 9)	
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	128 (13.1, 94)	Apply oil to the threads and seating surface.
Shift drum center bolt	1	8	23 (2.3, 17)	Stake 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)	Apply oil to the threads and seating surface.
Starter clutch mounting bolt	1	10	93 (9.5, 69)	
Oil pump drive chain guide mounting bolt	1	6	12 (1.2, 9)	Apply locking agent to the threads.
Gearshift spindle setting plate bolt	1	6	12 (1.2, 9)	Apply locking agent to the threads.

ALTERNATOR

ITEM	Q'TY	THREAD DIA. (mm)	TORQUE N·m (kgf·m, lbf·ft)	REMARKS
Stator mounting bolt	4	6	12 (1.2, 9)	Apply oil to the threads and seating surface.
Flywheel bolt	1	10	113 (11.5, 83)	

CRANKCASE/TRANSMISSION/BALANCER

ITEM	Q'TY	THREAD DIA. (mm)	TORQUE N·m (kgf·m, lbf·ft)	REMARKS	
Mainshaft bearing set plate bolt	3	6	12 (1.2, 9)	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)	12	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°	See page 12-23	

GENERAL INFORMATION**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 13-8
(retightening)	8	8	21.6 (2.2, 16) + 90°	See page 13-12
Oil jet pipe mounting bolt	2	6	12 (1.2, 9)	Apply locking agent to the threads.

FRONT WHEEL/SUSPENSION/STEERING

ITEM	Q'TY	THREAD DIA. (mm)	TORQUE N-m (kgf-m, lbf-ft)	REMARKS
Handlebar weight mounting screw	2	6	10 (1.0, 7)	ALOC screw; replace with a new one.
Front brake disc bolt	12	6	20 (2.0, 15)	ALOC bolt; replace with a new one.
Front axle bolt	1	18	79 (8.1, 58)	
Front axle holder bolt	4	8	22 (2.2, 16)	
Fork socket bolt	2	10	34 (3.5, 25)	
Fork bolt	2	46	34 (3.5, 25)	
Handlebar pinch bolt	2	8	26 (2.7, 19)	
Top bridge pinch bolt	2	8	22 (2.2, 16)	
Bottom bridge pinch bolt	2	8	27 (2.8, 20)	
Steering stem adjusting nut	1	35	-	See page 14-40
Steering stem adjusting lock nut	1	35	-	See page 14-40
Steering stem nut	1	33	137 (14.0, 101)	
Compression adjuster plug bolt	2	14	17 (1.7, 13)	
HESD mounting bolt	4	6	10 (1.0, 7)	ALOC bolt; replace with a new one.
Second arm nut	2	6	12 (1.2, 9)	U-nut
Fork damper rod lock nut	2	10	20 (2.0, 15)	
Front brake hose clamp bolt	1	6	9.0 (0.9, 6.6)	
HESD torque arm nut	1	6	12.5 (1.3, 9.2)	U-nut

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 a new one.
Driven sprocket nut	6	10	64 (6.5, 47)	U-nut
Rear axle nut	1	22	113 (11.5, 83)	U-nut
Shock absorber mounting nut	2	10	44 (4.5, 32)	U-nut
Shock arm-to-swingarm nut	1	10	44 (4.5, 32)	U-nut
Drive chain case bolt	2	6	12 (1.2, 9)	
Drive chain slider bolt	3	6	9.0 (0.9, 6.6)	ALOC bolt; replace with a new one.
Swingarm pivot nut	1	22	113 (11.5, 83)	U-nut
Shock link nut	2	10	44 (4.5, 32)	U-nut