

2001-2003

Product: 2001-2003 Honda CBR600F4i Motorcycle Service Repair Workshop Manual

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HONDA

SERVICE MANUAL

CBR600F4i

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HOW TO USE THIS MANUAL

CONTENTS

This service manual describes the service procedures for the CBR600F41.

Follow the Maintenance Schedule (Section 3) 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, California Air Resources Board 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 3 apply to the whole motorcycle. Section 2 illustrates procedures for removal/installation of components that may be required to perform service described in the following sections. Sections 4 through 19 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 procedures.

If you are not familiar with this motorcycle, read Technical Feature in Section 21.

If you do not know the source of the trouble, go to section 22 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.

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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.

	<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 a locking agent. Use a medium 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

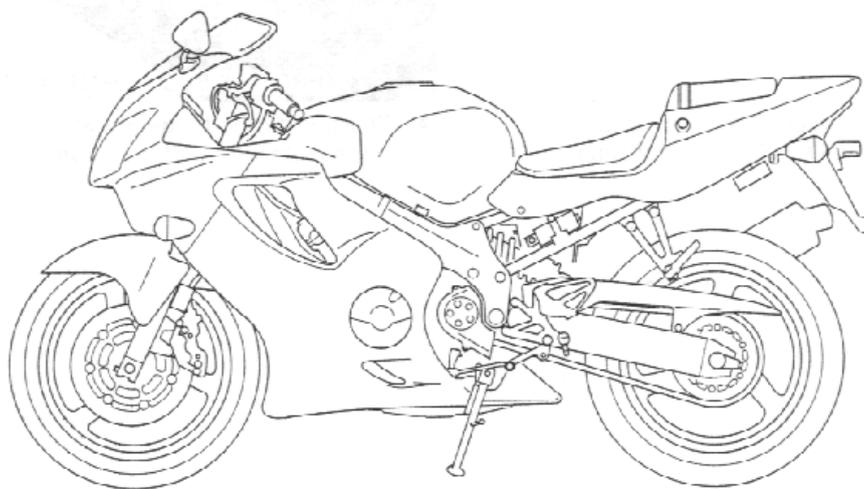
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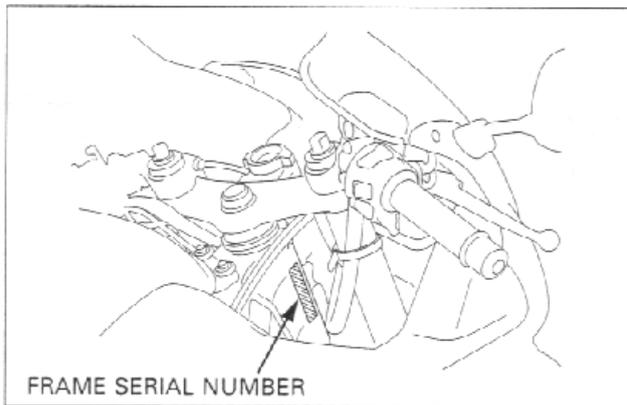
SERVICE RULES

1. Use genuine HONDA or HONDA-recommended parts and lubricants or their equivalents. Parts that do not 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 on pages 1-23 through 1-37, Cable and Harness Routing.

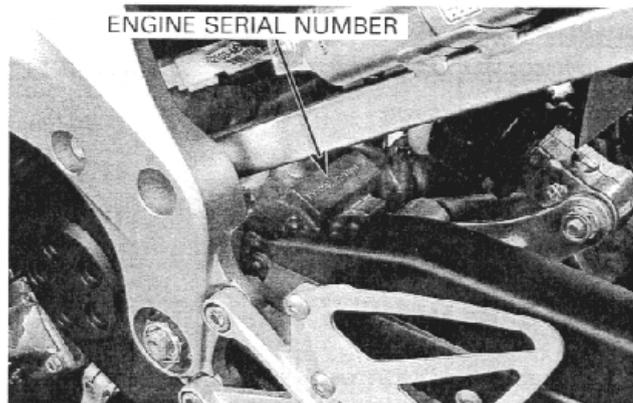
MODEL IDENTIFICATION



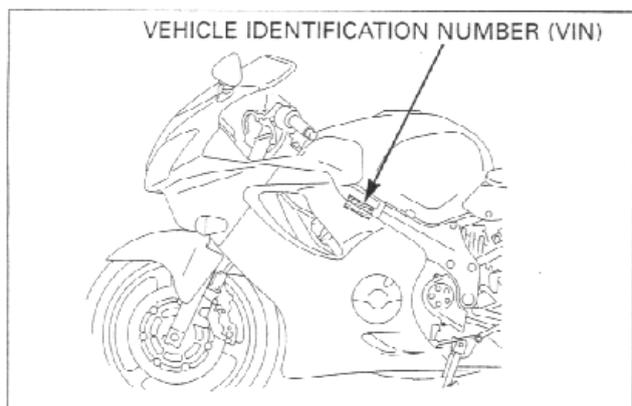
GENERAL INFORMATION



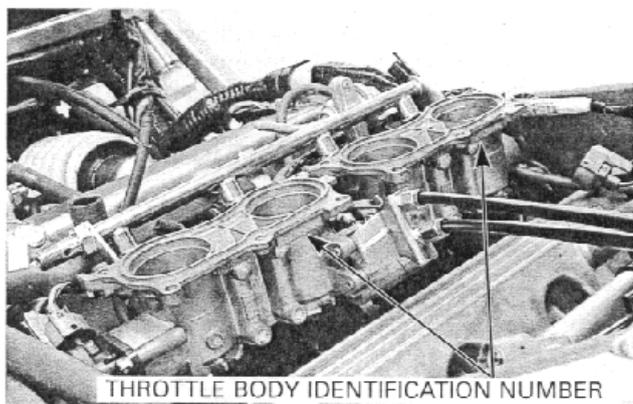
- (1) The frame serial number is stamped on the right side of the steering head.



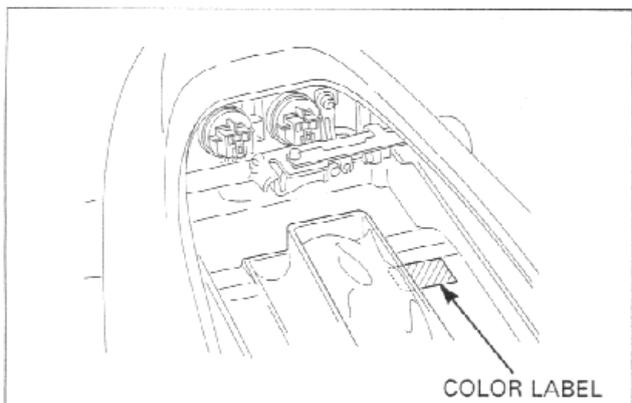
- (2) The engine serial number is stamped on the right side of the upper crankcase.



- (3) The Vehicle Identification Number (VIN) is located on left side of the main frame on the Safety Certification Labels.



- (4) The throttle body identification number is stamped on the intake side of the throttle body as shown.



- (5) The color label is attached as shown. When ordering color-coded parts, always specify the designated color code.

SPECIFICATIONS

GENERAL		
	ITEM	SPECIFICATIONS
DIMENSIONS	Overall length Overall width Overall height Wheelbase Seat height Footpeg height Ground clearance Dry weight 49 States/Canada type California type Curb weight 49 States/Canada type California type Maximum weight capacity	2,041 mm (80.4 in) 685 mm (27.0 in) 1,135 mm (44.7 in) 1,386 mm (54.6 in) 810 mm (31.9 in) 360 mm (14.2 in) 135 mm (5.3 in) 168 kg (370 lbs) 169 kg (373 lbs) 196 kg (432 lbs) 197 kg (434 lbs) 175 kg (386 lbs)
FRAME	Frame type Front suspension Front axle travel Rear suspension Rear axle travel Front tire size Rear tire size Front tire brand Rear tire brand Front brake Rear brake Caster angle Trail length Fuel tank capacity	Diamond Telescopic fork 120 mm (4.7 in) Swingarm 120 mm (4.7 in) 120/70 ZR 17 (58W) 180/55 ZR 17 (73W) BT010FF (Bridgestone) D207FJ (Dunlop) Pilot SPORT E (Michelin) BT010RF (Bridgestone) D207P (Dunlop) Pilot SPORT E (Michelin) Hydraulic double disc Hydraulic single disc 24° 96 mm (3.8 in) 18.0 liter (4.76 US gal, 3.96 Imp gal)
ENGINE	Cylinder arrangement Bore and stroke Displacement Compression ratio Valve train Intake valve opens ——— at 1 mm closes ——— (0.04 in) lift Exhaust valve opens ——— closes ——— Lubrication system Oil pump type Cooling system Air filtration Engine dry weight Firing order	4 cylinders in-line, inclined 31° from vertical 67.0 x 42.5 mm (2.64 x 1.67 in) 599 cm ³ (36.5 cu-in) 12.0 : 1 Chain driven, DOHC 22° BTDC 43° ABDC 38° BBDC 7° ATDC Forced pressure and wet sump Trochoid Liquid cooled Paper element 59 kg (130 lbs) 1 - 2 - 4 - 3

GENERAL INFORMATION

GENERAL (Cont'd)

ITEM		SPECIFICATIONS
CARBURETION	Type Throttle bore	PGM-FI (Programmed Fuel Injection) 38 mm (1.5 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 1.822 (82/45) 2.875 (46/16) 2.833 (34/12) 2.062 (33/16) 1.647 (28/17) 1.421 (27/19) 1.272 (28/22) 1.173 (27/23) Left foot operated return system, 1 - N - 2 - 3 - 4 - 5 - 6
ELECTRICAL	Ignition system Starting system Charging system Regulator/rectifier Lighting system	Computer-controlled digital transistorized with electric advance Electric starter motor Triple phase output alternator SCR shorted/triple phase, full wave rectification Battery

GENERAL INFORMATION

Unit: mm (in)

LUBRICATION SYSTEM		STANDARD	SERVICE LIMIT
ITEM			
Engine oil capacity	After draining	3.0 liter (3.2 US qt, 2.6 Imp qt)	—
	After draining/filter change	3.3 liter (3.5 US qt, 2.9 Imp qt)	—
	After disassembly	3.7 liter (3.9 US qt, 3.3 Imp qt)	—
Recommended engine oil		Pro HONDA GN4 or HP4 4-stroke oil (U.S.A. and Canada) or Honda 4-stroke oil (Canada only), or equivalent motor oil API service classification SF or SG Viscosity: SAE 10W-40	—
Oil pressure at oil pressure switch		490 kPa (5.0 kgf/cm ² , 71 psi) at 6,000 rpm (80°C/176°F)	—
Oil pump rotor	Tip clearance	0.15 (0.006)	0.20 (0.008)
	Body clearance	0.15 – 0.22 (0.006 – 0.009)	0.35 (0.014)
	Side clearance	0.02 – 0.07 (0.001 – 0.003)	0.10 (0.004)

FUEL SYSTEM (Programmed Fuel Injection)		SPECIFICATIONS
ITEM		
Throttle body identification number	except California type	G090C
	California type	G090B
Starter valve vacuum difference		20 mm Hg
Base throttle valve for synchronization		No.1
Idle speed		1,300 ± 100 rpm
Throttle grip free play		2 – 6 mm (1/16 – 1/4 in)
Intake air temperature sensor resistance (at 20°C/68°F)		1 – 4 kΩ
Engine coolant temperature sensor resistance (at 20°C/68°F)		2.3 – 2.6 kΩ
Fuel injector resistance (at 20°C/68°F)		11.1 – 12.3 Ω
PAIR solenoid valve resistance (at 20°C/68°F)		20 – 24 Ω
Cam pulse generator peak voltage (at 20°C/68°F)		0.7 V minimum
Ignition pulse generator peak voltage (at 20°C/68°F)		0.7 V minimum
Manifold absolute pressure at idle		150 – 250 mm Hg
Fuel pressure at idle		343 kPa (3.5 kgf/cm ² , 50 psi)
Fuel pump flow (at 12-V)		Minimum 188 cm ³ (6.4 US oz, 6.6 Imp oz) for 10 seconds

GENERAL INFORMATION

COOLING SYSTEM

ITEM		SPECIFICATIONS
Coolant capacity	Radiator and engine	2.7 liter (2.9 US qt, 2.4 Imp qt)
	Reserve tank	0.31 liter (0.33 US qt, 0.27 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	90 °C (194 °F)
	Valve lift	8 mm (0.3 in) minimum
Recommended antifreeze		Pro Honda HP Coolant or an equivalent high quality ethylene glycol antifreeze containing corrosion protection inhibitors
Standard coolant concentration		50% mixture with soft water

CYLINDER HEAD/VALVES

Unit: mm (in)

ITEM		STANDARD	SERVICE LIMIT
Cylinder compression		1,226 kPa (12.5 kgf/cm ² , 178 psi) at 350 rpm	—
Valve clearance	IN	0.20 ± 0.03 (0.008 ± 0.001)	—
	EX	0.28 ± 0.03 (0.011 ± 0.001)	—
Camshaft	Cam lobe height	IN	36.56 – 36.80 (1.439 – 1.449)
		EX	35.34 – 35.58 (1.391 – 1.401)
	Runout	—	0.05 (0.002)
Oil clearance		0.030 – 0.072 (0.0012 – 0.0028)	0.10 (0.004)
Valve lifter	Valve lifter O.D.	25.978 – 25.993 (1.0228 – 1.0233)	25.97 (1.022)
	Valve lifter bore I.D.	26.010 – 26.026 (1.0240 – 1.0246)	26.04 (1.025)
Valve, valve guide	Valve stem O.D.	IN	3.975 – 3.990 (0.1565 – 0.1571)
		EX	3.965 – 3.980 (0.1561 – 0.1567)
	Valve guide I.D.	IN/EX	4.000 – 4.012 (0.1575 – 0.1580)
	Stem-to-guide clearance	IN	0.010 – 0.037 (0.0004 – 0.0015)
		EX	0.020 – 0.047 (0.0008 – 0.0019)
	Valve guide projection above cylinder head	IN	16.1 – 16.4 (0.63 – 0.65)
EX		14.3 – 14.6 (0.56 – 0.57)	
Valve seat width	IN/EX	0.90 – 1.10 (0.035 – 0.043)	
Valve spring free length	IN	Outer	42.2 (1.66)
		Inner	36.4 (1.43)
	EX	36.3 (1.43)	
Cylinder head warpage		—	0.10 (0.004)

GENERAL INFORMATION

Unit: mm (in)

CLUTCH/GEARSHIFT LINKAGE		STANDARD	SERVICE LIMIT
ITEM			
Clutch lever free play		10 – 20 (3/8 – 13/16)	—
Clutch	Spring free length	44.7 (1.76)	43.4 (1.71)
	Disc thickness	2.92 – 3.08 (0.115 – 0.121)	2.6 (0.10)
	Plate warpage	—	0.30 (0.012)
Clutch outer guide	I.D.	25.000 – 25.021 (0.9843 – 0.9851)	25.03 (0.985)
	O.D.	34.975 – 34.991 (1.3770 – 1.3776)	34.97 (1.377)
Mainshaft O.D. at clutch outer guide		24.980 – 24.993 (0.9835 – 0.9840)	24.96 (0.983)

Unit: mm (in)

ALTERNATOR/STARTER CLUTCH		STANDARD	SERVICE LIMIT
ITEM			
Starter driven gear boss O.D.		51.699 – 51.718 (2.0354 – 2.0361)	51.684 (2.0348)

Unit: mm (in)

CRANKCASE/TRANSMISSION			STANDARD	SERVICE LIMIT
ITEM				
Shift fork, fork shaft	I.D.		12.000 – 12.021 (0.4724 – 0.4733)	12.03 (0.474)
	Claw thickness		5.93 – 6.00 (0.233 – 0.236)	5.9 (0.23)
	Shift fork shaft O.D.		11.957 – 11.968 (0.4707 – 0.4712)	11.95 (0.470)
Transmission	Gear I.D.	M5, M6	28.000 – 28.021 (1.1024 – 1.1032)	28.04 (1.104)
		C2, C3, C4	31.000 – 31.025 (1.2205 – 1.2215)	31.04 (1.222)
	Gear bushing O.D.	M5, M6	27.959 – 27.980 (1.1007 – 1.1016)	27.94 (1.100)
		C2	30.955 – 30.980 (1.2187 – 1.2197)	30.94 (1.218)
		C3, C4	30.950 – 30.975 (1.2185 – 1.2195)	30.93 (1.218)
	Gear-to-bushing clearance	M5, M6	0.020 – 0.062 (0.0008 – 0.0024)	0.10 (0.004)
		C2	0.020 – 0.070 (0.0008 – 0.0028)	0.10 (0.004)
		C3, C4	0.025 – 0.075 (0.0010 – 0.0030)	0.11 (0.004)
	Gear bushing I.D.	M5	24.985 – 25.006 (0.9837 – 0.9845)	25.016 (0.9849)
		C2	27.985 – 28.006 (1.1018 – 1.1026)	28.021 (1.1032)
	Mainshaft O.D.	at M5	24.967 – 24.980 (0.9830 – 0.9835)	24.96 (0.983)
	Countershaft O.D.	at C2	27.967 – 27.980 (1.1011 – 1.1016)	27.96 (1.101)
Bushing to-shaft clearance	M5	0.005 – 0.039 (0.0002 – 0.0015)	0.06 (0.002)	
	C2	0.005 – 0.039 (0.0002 – 0.0015)	0.06 (0.002)	

GENERAL INFORMATION

Unit: mm (in)

CRANKSHAFT/PISTON/CYLINDER		STANDARD	SERVICE LIMIT	
ITEM				
Crankshaft	Connecting rod side clearance	0.10 - 0.25 (0.004 - 0.010)	0.30 (0.012)	
	Crankpin bearing oil clearance	0.028 - 0.052 (0.0011 - 0.0020)	0.06 (0.002)	
	Main journal bearing oil clearance	0.020 - 0.038 (0.0008 - 0.0015)	0.05 (0.002)	
	Runout	—	0.05 (0.002)	
Piston, piston rings	Piston O.D. at 15 mm (0.6 in) from bottom	66.965 - 66.985 (2.6364 - 2.6372)	66.90 (2.634)	
	Piston pin bore I.D.	17.002 - 17.008 (0.6694 - 0.6696)	17.02 (0.670)	
	Piston pin O.D.	16.994 - 17.000 (0.6691 - 0.6693)	16.98 (0.669)	
	Piston-to-piston pin clearance	0.002 - 0.014 (0.0001 - 0.0006)	0.04 (0.002)	
	Piston ring end gap	Top	0.10 - 0.20 (0.004 - 0.008)	0.4 (0.02)
		Second	0.18 - 0.30 (0.007 - 0.012)	0.5 (0.02)
		Oil (side rail)	0.2 - 0.7 (0.01 - 0.03)	1.0 (0.04)
	Piston ring-to-ring groove clearance	Top	0.020 - 0.050 (0.0008 - 0.0020)	0.08 (0.003)
Second		0.015 - 0.050 (0.0006 - 0.0020)	0.08 (0.003)	
Cylinder	I.D.	67.000 - 67.015 (2.6378 - 2.6384)	67.10 (2.642)	
	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 - 0.0022)	0.10 (0.004)	
Connecting rod small end I.D.		17.016 - 17.034 (0.6699 - 0.6706)	17.04 (0.671)	
Connecting rod-to-piston pin clearance		0.016 - 0.040 (0.0006 - 0.0016)	0.06 (0.002)	

GENERAL INFORMATION

Unit: mm (in)

FRONT WHEEL/SUSPENSION/STEERING			
ITEM		STANDARD	SERVICE LIMIT
Minimum tire tread depth		—	1.5 (0.06)
Cold tire pressure	Up to 90 kg (200 lb) load	250 kPa (2.50 kgf/cm ² , 36 psi)	—
	Up to maximum weight capacity	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 (2.1 oz) max.
Fork	Spring free length	286 (11.3)	280.3 (11.03)
	Tube runout	—	0.20 (0.008)
	Recommended fork fluid	Pro Honda Suspension Fluid SS-8	—
	Fluid level	116 (4.6)	—
	Fluid capacity	462 ± 2.5 cm ³ (15.6 ± 0.08 US oz, 16.3 ± 0.09 Imp oz)	—
	Pre-load adjuster initial setting	4th groove from top	—
	Rebound adjuster initial setting	1-3/4 turns out from fully turned in	—
	Compression adjuster initial setting	1-1/4 turns out from fully turned in	—
Steering head bearing pre-load		1.0 – 1.5 kgf (2.2 – 3.3 lbf)	—

Unit: mm (in)

REAR WHEEL/SUSPENSION			
ITEM		STANDARD	SERVICE LIMIT
Minimum tire tread depth		—	2.0 (0.08)
Cold tire pressure	Up to 90 kg (200 lb) load	290 kPa (2.90 kgf/cm ² , 42 psi)	—
	Up to maximum weight capacity	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	DID525HV-108LE
		RK	RKGB525ROZ1-108LE
	Slack	25 – 35 (1 – 1-3/8)	
Shock absorber	Spring adjuster standard position	Position 3	
	Rebound adjuster initial setting	1-1/2 turns out from fully turned in	
	Compression adjuster initial setting	1-1/2 turns out from fully turned in	

GENERAL INFORMATION

Unit: mm (in)

HYDRAULIC BRAKE

ITEM		STANDARD	SERVICE LIMIT	
Front	Specified brake fluid	Honda DOT 4 Brake Fluid	—	
	Brake disc thickness	4.4 – 4.6 (0.17 – 0.18)	3.5 (0.14)	
	Brake disc runout	—	0.20 (0.008)	
	Master cylinder I.D.	15.870 – 15.913 (0.6248 – 0.6265)	15.925 (0.6270)	
	Master piston O.D.	15.827 – 15.854 (0.6231 – 0.6242)	15.815 (0.6226)	
	Caliper cylinder I.D.	A	33.96 – 34.01 (1.337 – 1.339)	34.02 (1.339)
		B	32.030 – 32.080 (1.2610 – 1.2630)	32.09 (1.263)
	Caliper piston O.D.	A	33.802 – 33.835 (1.3308 – 1.3321)	33.794 (1.3305)
B		31.877 – 31.910 (1.2550 – 1.2563)	31.869 (1.2547)	
Rear	Specified brake fluid	Honda DOT 4 Brake Fluid	—	
	Brake pedal height	75 (3.0)	—	
	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)	14.055 (0.5533)	
	Master piston O.D.	13.957 – 13.984 (0.5495 – 0.5506)	13.945 (0.5490)	
	Caliper cylinder I.D.	38.18 – 38.23 (1.053 – 1.505)	38.24 (1.506)	
	Caliper piston O.D.	38.098 – 38.148 (1.4999 – 1.5019)	38.09 (1.500)	

BATTERY/CHARGING SYSTEM

ITEM		SPECIFICATIONS	
Battery	Capacity	12-V – 8.6 Ah	
	Current leakage	2.0 mA max.	
	Voltage (20°C/68°F)	Fully charged	13.0 – 13.2-V
		Needs charging	Below 12.3-V
	Charging current	Normal	0.9 A/5 – 10 h
Quick		4.5 A/0.5 h	
Alternator	Capacity	0.433 kW/5,000 rpm	
	Charging coil resistance (20°C/68°F)	0.1 – 1.0 Ω	

IGNITION SYSTEM

ITEM		SPECIFICATIONS
Spark plug (iridium)	NGK	IMR9A-9H
	DENSO	IUH27D
Spark plug gap		0.80 – 0.90 mm (0.031 – 0.035 in)
Ignition coil peak voltage		100 V minimum
Ignition pulse generator peak voltage		0.7 V minimum
Ignition timing ("F" mark)		13° BTDC at idle

GENERAL INFORMATION

Unit: mm (in)

ELECTRIC STARTER		
ITEM	STANDARD	SERVICE LIMIT
Starter motor brush length	12.0 – 13.0 (0.47 – 0.51)	6.5 (0.26)

LIGHTS/METERS/SWITCHES			
ITEM		SPECIFICATIONS	
Bulbs	Headlight	Hi	12V – 55 W
		Lo	12V – 55 W
	Brake/tail light		12V – 21/5 W x 2
	Front turn signal/running light		12V – 32/3 CP (23/8 W) x 2
	Rear turn signal light		12V – 32 CP (23 W) x 2
	License light		12V – 4 CP (5 W)
	Instrument light		LED
	Turn signal indicator		LED
	High beam indicator		LED
	Neutral indicator		LED
	Oil pressure indicator		LED
	PGM-FI warning indicator		LED
	Low fuel indicator		LED
Fuse	Main fuse		30 A
	PGM-FI fuse		20 A
	Sub fuse		10 A x 6
Tachometer peak voltage		10.5 V minimum	
Fan motor switch	Start to close (ON)		98 – 102 °C (208 – 216 °F)
	Stop to open		93 – 97 °C (199 – 207 °F)

GENERAL INFORMATION

TORQUE VALUES

FASTENER TYPE	TORQUE N•m (kgf•m, lbf•ft)	FASTENER TYPE	TORQUE N•m (kgf•m, lbf•ft)
5 mm hex bolt and nut	5 (0.5, 3.6)	5 mm screw	4 (0.4, 2.9)
6 mm hex bolt and nut	10 (1.0, 7)	6 mm screw	9 (0.9, 6.5)
8 mm hex bolt and nut	22 (2.2, 16)	6 mm flange bolt (8 mm head, small flange)	10 (1.0, 7)
10 mm hex bolt and nut	34 (3.5, 25)	6 mm flange bolt (8 mm head, large flange)	12 (1.2, 9)
12 mm hex bolt and nut	54 (5.5, 40)	6 mm flange bolt (10 mm head) and nut	12 (1.2, 9)
		8 mm flange bolt and nut	26 (2.7, 20)
		10 mm flange bolt and nut	39 (4.0, 29)

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

- NOTES:
1. Apply sealant to the threads.
 2. Apply a locking agent to the threads.
 3. Stake.
 4. Apply oil to the threads and flange surface.
 5. U-nut.
 6. ALOC bolt/screw: replace with a new one.
 7. Apply grease to the threads.
 8. Apply molybdenum disulfide oil to the threads and seating surface.
 9. CI bolt.

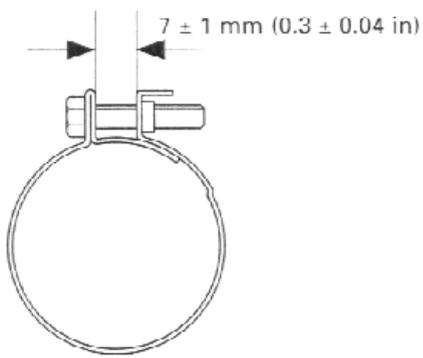
ENGINE

ITEM	Q'TY	THREAD DIA. (mm)	TORQUE N•m (kgf•m, lbf•ft)	REMARKS
MAINTENANCE:				
Spark plug	4	10	12 (1.2, 9)	
Timing hole cap	1	45	18 (1.8, 13)	NOTE 7
Engine oil filter cartridge	1	20	26 (2.7, 20)	NOTE 4
Engine oil drain bolt	1	12	29 (3.0, 22)	
LUBRICATION SYSTEM:				
Oil main gallery sealing bolt	2	20	29 (3.0, 22)	NOTE 2
Oil pump cover bolt	1	6	8 (0.8, 5.8)	NOTE 9
Oil cooler bolt (filter boss)	1	20	64 (6.5, 47)	NOTE 4
FUEL SYSTEM (Programmed Fuel Injection):				
ECT (Engine Coolant Temperature)/thermo sensor	1	12	23 (2.3, 17)	
Throttle body insulator band screw	8	5	See page 1-14	
Throttle cable bracket mounting bolt	2	5	3 (0.35, 2.5)	
Starter valve lock nut	4	10	2 (0.18, 1.3)	
Starter valve synchronization plate screw	4	3	1 (0.09, 0.7)	
Fast idle wax unit link plate screw	1	3	1 (0.09, 0.7)	
Fast idle wax unit mounting screw	2	6	5 (0.5, 3.6)	
Pressure regulator mounting bolt	2	6	10 (1.0, 7)	
Vacuum joint for synchronization	2	5	3 (0.3, 2.2)	
COOLING SYSTEM:				
Water pump cover flange bolt	2	6	12 (1.2, 9)	NOTE 9
Thermostat cover flange bolt	2	6	12 (1.2, 9)	NOTE 9
ENGINE MOUNTING:				
Drive sprocket special bolt	1	10	54 (5.5, 40)	

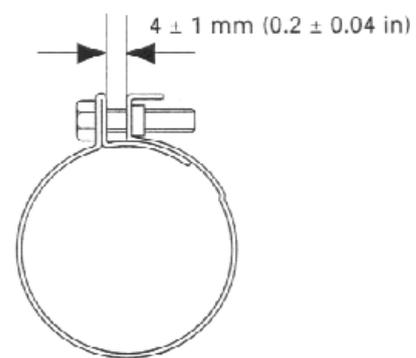
ENGINE (Cont'd)				
ITEM	Q'TY	THREAD DIA. (mm)	TORQUE N-m (kgf-m, lbf-ft)	REMARKS
CYLINDER HEAD/VALVES:				
Cylinder head mounting bolt/washer	10	9	47 (4.8, 35)	NOTE 8
Camshaft holder flange bolt	20	6	12 (1.2, 9)	NOTE 4
Cylinder head sealing bolt	1	14	18 (1.8, 13)	NOTE 2
Cylinder head cover bolt	3	6	10 (1.0, 7)	
Breather plate flange bolt	3	6	12 (1.2, 9)	NOTE 2, 9
PAIR reed valve cover SH bolt	4	6	12 (1.2, 9)	NOTE 9
Cam sprocket flange dowel bolt	4	7	20 (2.0, 14)	NOTE 2
Cam pulse generator rotor flange dowel bolt	2	6	12 (1.2, 9)	NOTE 2
Cam chain lifter mounting socket bolt	2	6	10 (1.0, 7)	
Cam chain tensioner pivot socket bolt	1	6	10 (1.0, 7)	NOTE 2
Cam chain guide bolt/washer	1	6	12 (1.2, 9)	
Cylinder head stud bolt (exhaust pipe stud bolt)	8	6	See page 1-14	
CLUTCH/GEARSHIFT LINKAGE:				
Clutch center lock nut	1	22	127 (13.0, 94)	NOTE 3, 4
Clutch spring bolt/washer	5	6	12 (1.2, 9)	
Oil pump driven sprocket bolt/washer	1	6	15 (1.5, 11)	NOTE 2
Shift drum center socket bolt	1	8	23 (2.3, 17)	NOTE 2
Shift drum stopper arm pivot bolt	1	6	12 (1.2, 9)	
Gearshift spindle return spring pin	1	8	22 (2.2, 16)	
Ignition pulse generator wire guide bolt/washer	1	6	12 (1.2, 9)	
ALTERNATOR/STARTER CLUTCH:				
Alternator stator socket bolt	4	6	12 (1.2, 9)	
Starter clutch outer socket bolt	6	8	16 (1.6, 12)	NOTE 2
Flywheel flange bolt	1	10	103 (10.5, 76)	NOTE 4
Starter wire clamp flange bolt	1	6	12 (1.2, 9)	NOTE 9
CRANKCASE/TRANSMISSION:				
Mainshaft bearing set plate bolt	3	6	12 (1.2, 9)	NOTE 2
Gearshift drum bearing/fork shaft set bolt/washer	2	6	12 (1.2, 9)	NOTE 2
Crankcase bolt (main journal)	10	8	25 (2.6, 19)	NOTE 8
Crankcase bolt	1	10	39 (4.0, 29)	
Crankcase bolt	6	7	18 (1.8, 13)	
Crankcase bolt (upper side)	5	8	25 (2.5, 18)	
CRANKSHAFT/PISTON/CYLINDER:				
Connecting rod bearing cap nut	8	7	25 (2.6, 19)	NOTE 4
IGNITION SYSTEM:				
Ignition pulse generator rotor special bolt	1	10	59 (6.0, 43)	
ELECTRIC STARTER:				
Starter motor terminal nut	1	6	12 (1.2, 9)	
LIGHTS/METERS/SWITCHES:				
Oil pressure switch	1	PT 1/8	12 (1.2, 9)	NOTE 1
Oil pressure switch wire terminal bolt/washer	1	4	2 (0.2, 1.4)	
Neutral switch	1	10	12 (1.2, 9)	

GENERAL INFORMATION

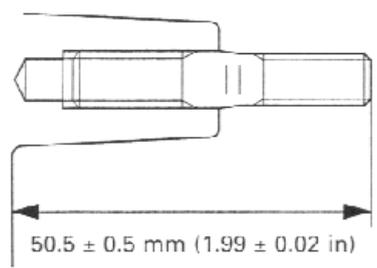
Insulator clamp (throttle body side):

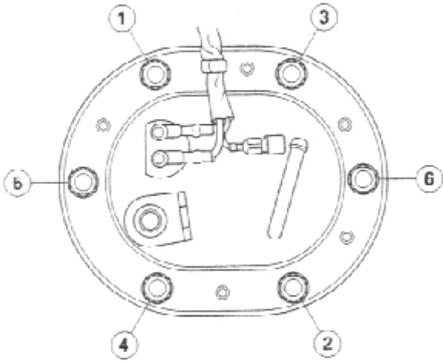


Insulator clamp (cylinder head side):



Exhaust pipe stud bolt:



FRAME					
ITEM	Q'TY	THREAD DIA. (mm)	TORQUE N·m (kgf·m, lbf·ft)	REMARKS	
FRAME BODY PANELS/EXHAUST SYSTEM:					
Upper cowl-to-lower cowl screw	6	5	2 (0.15, 1.1)		
Inner half cowl-to-lower cowl screw	6	6	2 (0.15, 1.1)		
Windscreen setting screw	6	4	1 (0.05, 0.4)		
Seat rail upper mounting flange bolt/nut	2	10	49 (5.0, 36)		
Seat rail lower mounting flange bolt/nut	2	10	49 (5.0, 36)		
Exhaust pipe joint flange nut	8	7	12 (1.2, 9)		
Muffler band flange bolt	2	8	23 (2.3, 17)		
Passenger footpeg bracket flange bolt	4	8	26 (2.7, 20)		
FUEL SYSTEM (Programmed Fuel Injection):					
Fuel filler cap bolt	3	4	2 (0.18, 1.3)		
Service check bolt	1	6	15 (1.5, 11)		
Fuel hose banjo bolt (fuel tank side)	1	12	22 (2.2, 16)		
Fuel hose sealing nut (throttle body side)	1	12	22 (2.2, 16)		
Fuel pump mounting nut	6	6	12 (1.2, 9)		
					
O ₂ sensor (California type only)	1	12	25 (2.6, 19)		
COOLING SYSTEM:					
Cooling fan mounting nut	1	5	3 (0.27, 2.0)	NOTE 2	
Fan motor mounting nut	3	5	5 (0.5, 3.6)		
ENGINE MOUNTING:					
Front engine hanger bolt	2	10	39 (4.0, 29)	See page 7-10	
Center engine hanger bolt	2	10	39 (4.0, 29)		
Center engine hanger adjusting bolt	1	20	3 (0.3, 2.2)		
Center engine hanger lock nut	1	20	54 (5.5, 40)		
Rear engine hanger nut	1	10	39 (4.0, 29)		
Rear engine hanger adjusting bolt	1	22	3 (0.3, 2.2)		
Rear engine hanger lock nut (right side)	1	22	54 (5.5, 40)		
Shock link bracket nut	2	10	39 (4.0, 29)		
FRONT WHEEL/SUSPENSION/STEERING:					
Handlebar weight mounting screw	2	6	10 (1.0, 7)	NOTE 6	
Front brake disc bolt	12	6	20 (2.0, 14)	NOTE 6	
Front axle bolt	1	14	59 (6.0, 43)		
Front axle holder flange bolt	4	8	22 (2.2, 16)		
Front brake hose clamp flange bolt (left front)	1	6	12 (1.2, 9)		
Front brake hose 3-way joint flange bolt (right front)	1	6	12 (1.2, 9)		
Fork socket bolt	2	10	34 (3.5, 25)	NOTE 2	
Fork bolt	2	39	23 (2.3, 17)		
Fork top bridge pinch socket bolt	2	8	23 (2.3, 17)		
Fork bottom bridge pinch flange bolt	2	10	39 (4.0, 29)		
Steering bearing adjusting nut	1	26	25 (2.5, 18)	See page 13-29	
Steering bearing adjusting nut lock nut	1	26	—		
Steering stem nut	1	24	103 (10.5, 76)		
Front brake hose clamp bolt (steering stem)	1	6	10 (1.0, 7)		

GENERAL INFORMATION

FRAME (Cont'd)				
ITEM	Q'TY	THREAD DIA. (mm)	TORQUE N·m (kgf·m, lbf·ft)	REMARKS
REAR WHEEL/SUSPENSION:				
Rear brake disc bolt	4	8	42 (4.3, 31)	NOTE 6
Final driven sprocket nut	6	10	64 (6.5, 47)	NOTE 5
Rear axle nut	1	18	93 (9.5, 69)	NOTE 5
Rear shock absorber mounting nut	2	10	44 (4.5, 33)	NOTE 5
Shock link plate-to-swingarm nut	1	10	44 (4.5, 33)	NOTE 5
Shock link-to-shock link plate nut	1	10	44 (4.5, 33)	NOTE 5
Shock link-to-bracket nut	1	10	44 (4.5, 33)	NOTE 5
Drive chain slider flange bolt	2	6	9 (0.9, 6.5)	NOTE 6
Swingarm pivot adjusting bolt	2	30	7 (0.7, 5.1)	See page 14 22
Swingarm pivot adjusting bolt lock nut	2	30	64 (6.5, 47)	
Swingarm pivot nut	1	18	93 (9.5, 69)	
HYDRAULIC BRAKE:				
Front master cylinder reservoir cap screw	2	4	2 (0.2, 1.4)	
Front brake lever pivot bolt	1	6	1 (0.1, 0.7)	
Front brake lever pivot nut	1	6	6 (0.6, 4.3)	
Front brake light switch screw	1	4	1 (0.1, 0.7)	
Front master cylinder mounting bolt	2	6	12 (1.2, 9)	
Front brake caliper assembly torx bolt	8	8	23 (2.3, 17)	NOTE 2
Front brake caliper mounting flange bolt	4	8	30 (3.1, 22)	NOTE 6
Rear master cylinder push rod joint nut	1	8	18 (1.8, 13)	
Rear master cylinder mounting bolt	2	6	9 (0.9, 6.5)	
Rear brake reservoir mounting bolt/nut	1	6	12 (1.2, 9)	
Rear brake caliper bolt	1	8	23 (2.3, 17)	
Rear brake caliper pin bolt	1	12	27 (2.8, 20)	
Pad pin	5	10	18 (1.8, 13)	
Pad pin plug	1	10	3 (0.3, 2.2)	
Brake hose oil bolt	5	10	34 (3.5, 25)	
Brake caliper bleeder valve	3	8	6 (0.6, 4.3)	
LIGHTS/METERS/SWITCHES:				
Side stand switch bolt	1	6	10 (1.0, 7)	NOTE 6
Ignition switch mounting bolt	2	8	25 (2.5, 18)	
Fan motor switch	1	16	18 (1.8, 13)	NOTE 1
OTHERS:				
Side stand pivot bolt	1	10	10 (1.0, 7)	
Side stand pivot lock nut	1	10	29 (3.0, 22)	
Side stand bracket flange bolt	2	10	44 (4.5, 33)	NOTE 6
Driver footpeg bracket socket bolt	4	8	26 (2.7, 20)	

TOOLS

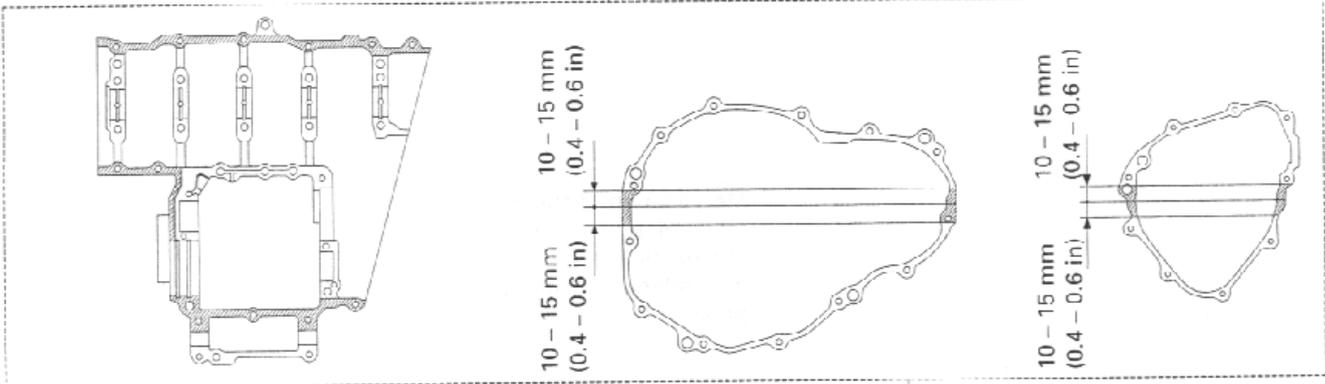
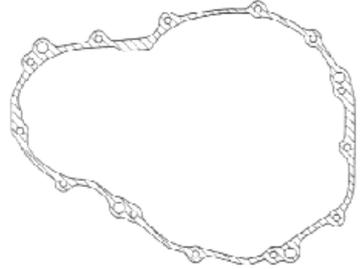
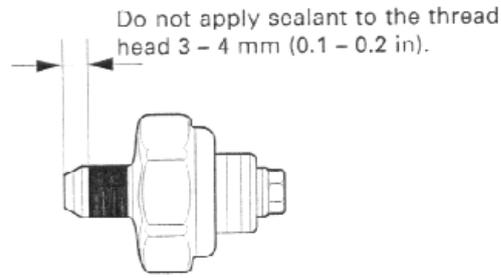
- NOTES: 1. Equivalent commercially available in U.S.A.
 2. Not available in U.S.A.
 3. Alternative tool.
 4. Newly designed tool.

DESCRIPTION	TOOL NUMBER	REMARKS	REF. SEC.
Fuel pressure gauge	07406-0040003	NOTE 3: 07406-0040002	5
Oil pressure gauge set	07506-3000000	NOTE 1	4
Oil pressure gauge attachment	07510-MJ10100	NOTE 1	4
Universal bearing puller	07631-0010000	NOTE 1	12
Clutch center holder	07724-0050002	NOTE 1	9
Flywheel holder	07725-0040000	NOTE 1	10
Rotor puller	07733-0020001	NOTE 3: 07933-3950000	10
Remover weight	07741-0010201	NOTE 3: 07916 371020A (U.S.A. only)	14
Attachment, 32 x 35 mm	07746-0010100		9, 14
Attachment, 37 x 40 mm	07746-0010200		9, 14
Attachment, 42 x 47 mm	07746-0010300		13, 14
Attachment, 52 x 55 mm	07746-0010400		14
Attachment, 24 x 26 mm	07746-0010700		14
Attachment, 22 x 24 mm	07746-0010800		14
Inner driver C	07746-0030100		11
Attachment, 25 mm I.D.	07746-0030200		12
Attachment, 30 mm I.D.	07746-0030300		11
Pilot, 17 mm	07746-0040400		9, 14
Pilot, 20 mm	07746-0040500		13, 14
Pilot, 25 mm	07746-0040600		14
Pilot, 35 mm	07746-0040800		9
Pilot, 28 mm	07746-0041100		14
Bearing remover shaft	07746-0050100		13, 14
Bearing remover head, 20 mm	07746-0050600		13, 14
Driver	07749-0010000		9, 13, 14
Valve spring compressor	07757-0010000		8
Valve seat cutter		NOTE 1	8
Scat cutter, 24.5 mm (45° EX)	07780-0010100		
Seat cutter, 27.5 mm (45° IN)	07780-0010200		
Flat cutter, 24 mm (32° EX)	07780-0012500		
Flat cutter, 27 mm (32° IN)	07780-0013300		
Interior cutter, 22 mm (60° EX)	07780-0014202		
Interior cutter, 26 mm (60° IN)	07780-0014500		
Cutter holder, 4.0 mm	07781-0010500		
Lock nut wrench	07908-4690003		14
Snap ring pliers	07914-SA50001		15
Steering stem socket	07916-3710101	NOTE 4: 07916-3710100	13
Bearing remover handle	07936-3710100		14
Bearing remover head	07936-3710600		14
Attachment, 28 x 30 mm	07946-1870100		14
Ball race remover set	07946-KM90001	NOTE 3:	13
- Driver attachment, A	07946-KM90100	Can be used with the following	
- Driver attachment, B	07946-KM90200	combination (U.S.A. only):	
- Driver shaft assembly	07946-KM90300	07VMF-MAT0100	
- Bearing remover, A	07946-KM90401	07VMF-MAT0200	
- Bearing remover, B	07946-KM90500	07VMF-KZ30200	
- Assembly base	07946-KM90600	07VMF-MAT0300	
		07VMF-MAT0400	
		07947-KA50100	
		07965-MA60000	
		07946-ME90200	
Steering stem driver	07946-MB00000		13
Fork seal driver weight	07947-KA50100		13
Fork seal driver attachment	07946-KA40200		13
Driver	07949-3710001	NOTE 3: 07946-MJ00100	14

GENERAL INFORMATION

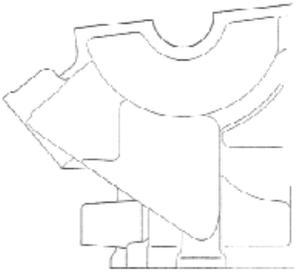
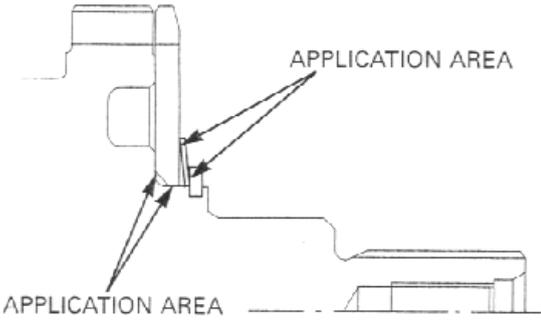
DESCRIPTION	TOOL NUMBER	REMARKS	REF. SEC.
Valve spring compressor attachment	07959-KM30101		8
Oil filter wrench	07HAA-PJ70100		3
Peak voltage adaptor	07HGJ-0020100		5, 17, 19
Tappet hole protector	07HMG-MR70002		8
Drive chain tool set	07HMH-MR10103	NOTE 3: 07HMH-MR1010B (U.S.A. only)	3
Valve guide driver	07JMD-KY20100		8
Bearing remover set	07LMC-KV30100		14
Valve guide reamer, 4.008 mm	07MMH-MV90100	NOTE3: 07MMH-WV9010A (U.S.A. only)	8
Compression gauge attachment	07RMJ-MY50100	NOTE 1	8
Lock nut wrench	07VMA-MBB0100	NOTE 3: 07VMA-MBB0101	7
ECM test harness	07YMZ-0010100	Two required	5
Attachment, 34 mm	07ZMD-MBW0100	NOTE 4	14
Attachment, 37 mm	07ZMD-MBW0200	NOTE 4	14
		NOTE 3: 07746-0010100 (for swingarm right pivot radial ball bearing installation)	
		NOTE 3: 07946-MJ00100 with 07HMC-MR70100 (for swingarm left pivot needle bearing removal)	
		NOTE 3: 07746-0010200 (for swingarm left pivot needle bearing installation)	

LUBRICATION & SEAL POINTS

ENGINE	LOCATION	MATERIAL	REMARKS
<p>Crankcase mating surface</p> 	<p>Liquid sealant (Three Bond 1207B or equivalent)</p>		
<p>Oil pan mating surface</p> 			
<p>Right crankcase cover mating surface</p> 			
<p>Oil pressure switch threads</p> <p>Do not apply sealant to the thread head 3 - 4 mm (0.1 - 0.2 in).</p> 			

GENERAL INFORMATION

ENGINE (Cont'd)

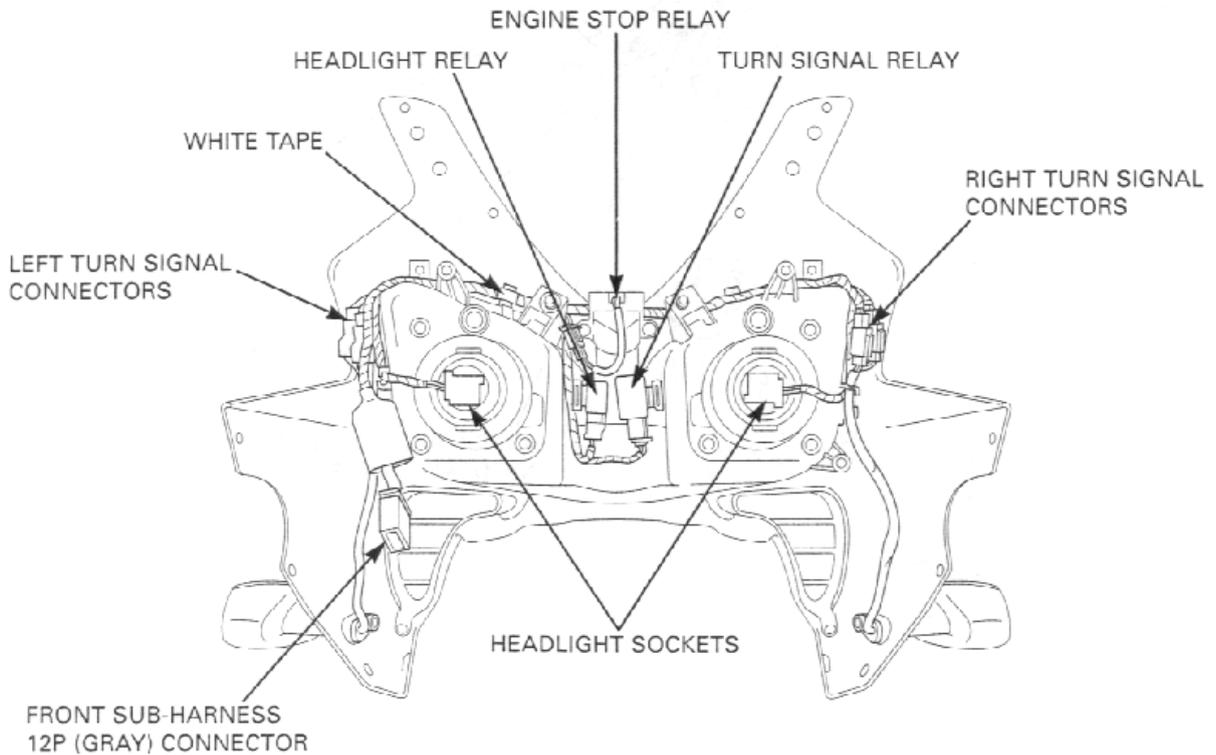
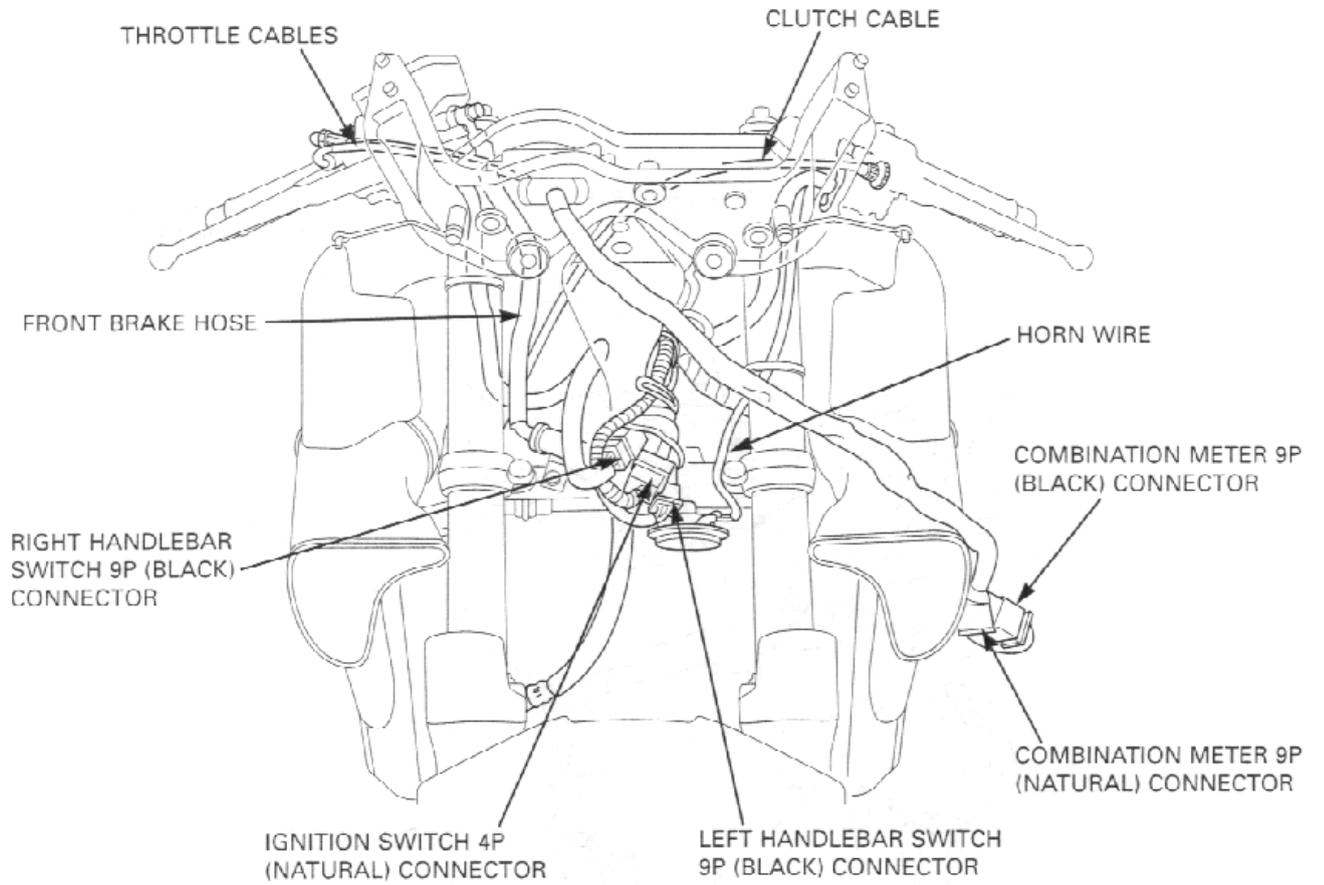
LOCATION	MATERIAL	REMARKS
<p>Cylinder head semi-circular cut-out</p> 	<p>Sealant</p>	
<p>Main journal bearing surface Piston pin sliding surface Connecting rod bearing surface Connecting rod small end inner surface Crankshaft thrust surface Camshaft lobes/journals and thrust surface Valve stem (valve guide sliding surface) Valve lifter outer sliding surface Water pump shaft spline and thrust washer sliding surface Clutch outer/primary driven gear sliding surface Clutch outer guide sliding surface M3/4, C5, C6 shifter gear (shift fork grooves) Starter reduction gear shaft outer surface Primary sub-gear friction spring sliding surface</p> 	<p>Molybdenum disulfide oil (a mixture of 1/2 engine oil and 1/2 molybdenum disulfide grease)</p>	
<p>Piston ring sliding area Oil strainer packing Clutch disc surface Starter one way clutch sliding surface Connecting rod nut threads Flywheel bolt threads and seating surface Main journal 9-mm bolt threads and seating surface (after removing anti-rust oil additive) Cylinder head special bolt (after removing anti-rust oil additive) Clutch center lock nut threads Oil filter cartridge threads and O-ring Camshaft holder bolt threads and seating surface Oil cooler center bolt threads Each gear teeth and rotating surface Each bearing Each O-ring Other rotating area and sliding surface</p>	<p>Engine oil</p>	

ENGINE (Cont'd)		
LOCATION	MATERIAL	REMARKS
Timing hole cap threads Each oil seal lips	Multi purpose grease	
Upper crankcase sealing bolt threads Lower crankcase sealing bolt threads Cylinder head sealing bolt threads Cylinder head cover breather joint threads Cylinder head sealing bolt threads Cam pulse generator rotor bolt threads Starter one-way clutch outer bolt threads Oil pump driven sprocket bolt threads Shift drum bearing set plate bolt threads Mainshaft bearing set plate bolt threads Cam sprocket bolt threads Cylinder head cover breather plate bolt threads Shift drum center bolt threads Cam chain tensioner pivot bolt threads Spindle plate tightening bolt threads	Locking agent	Coating width: 6.5 ± 1 mm

GENERAL INFORMATION

FRAME	LOCATION	MATERIAL	REMARKS
	Seat catch hook sliding area Front wheel dust seal lips Final driven flange-to-rear wheel hub mating surface and O-ring Rear wheel dust seal lips Rear wheel side collar inner surface Throttle grip pipe flange Clutch lever pivot bolt sliding area Rear brake pedal pivot sliding area Gearshift pedal link tie-rod ball joints Gearshift pedal pivot Rider footpeg sliding area Pillion footpeg sliding area Side stand pivot Center stand pivot	Multi-purpose grease	
	Steering head bearing sliding surface Steering head dust seal lips Swingarm pivot bearings Swingarm pivot dust seal lips Shock arm and shock link needle bearings Shock arm and shock link dust seal lips Shock absorber needle bearings Shock absorber dust seal lips	Multi-purpose grease (Shell Alvania EP2 or equivalent)	
	Throttle cable A, B outer inside Clutch cable outer inside Clutch cable outer inside	Cable lubricant	
	Handlebar grip rubber inside	Honda Bond A or Honda Hand Grip Cement (U.S.A. only)	
	Steering bearing adjustment nut threads	Engine oil	
	Front brake lever to master piston contacting area Front brake lever pivot Rear master brake master piston-to-push rod contacting area Brake caliper dust seals Rear brake caliper boot inside Rear brake caliper pin boot inside	Silicone grease	
	Brake master piston and cups Brake caliper piston and piston seals	DOT 4 brake fluid	
	Fork cap O-ring Fork dust seal and oil seal lips	Fork fluid	
	Rear brake reservoir hose joint screw threads Front brake caliper assembly bolt threads Rear brake caliper pin bolt threads	Locking agent	

CABLE & HARNESS ROUTING



GENERAL INFORMATION

