

2002-2004



**HONDA**

**SERVICE MANUAL**

**VTX1800C**

# HOW TO USE THIS MANUAL

This service manual describes the service procedures for the VTX1800.

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 (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 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.

Section 4 through 20 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 don't know the source of the trouble, go to section 21 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.**












HONDA MOTOR CO., LTD.  
SERVICE PUBLICATION OFFICE

# CONTENTS

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

# 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

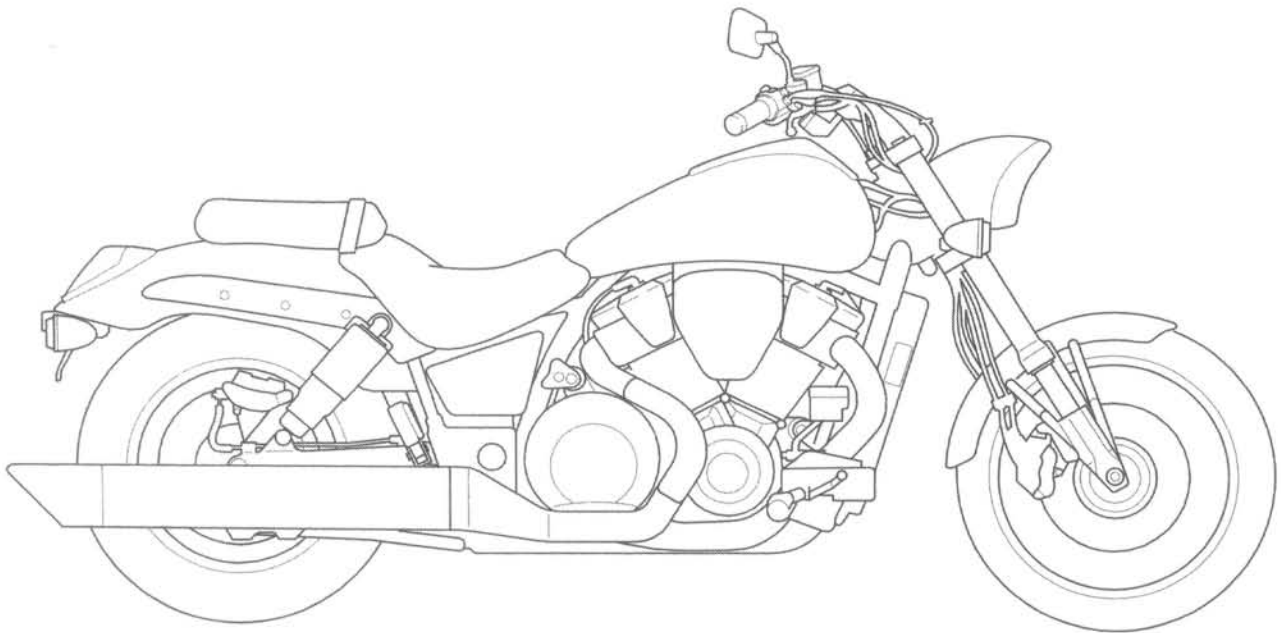
<b>SERVICE RULES</b>	<b>1-1</b>	<b>LUBRICATION &amp; SEAL POINTS</b>	<b>1-19</b>
<b>MODEL IDENTIFICATION</b>	<b>1-1</b>	<b>CABLE &amp; HARNESS ROUTING</b>	<b>1-23</b>
<b>SPECIFICATIONS</b>	<b>1-3</b>	<b>EMISSION CONTROL SYSTEMS</b>	<b>1-33</b>
<b>TORQUE VALUES</b>	<b>1-12</b>	<b>EMISSION CONTROL INFORMATION LABELS (U.S.A. ONLY)</b>	<b>1-36</b>
<b>TOOLS</b>	<b>1-17</b>		

1

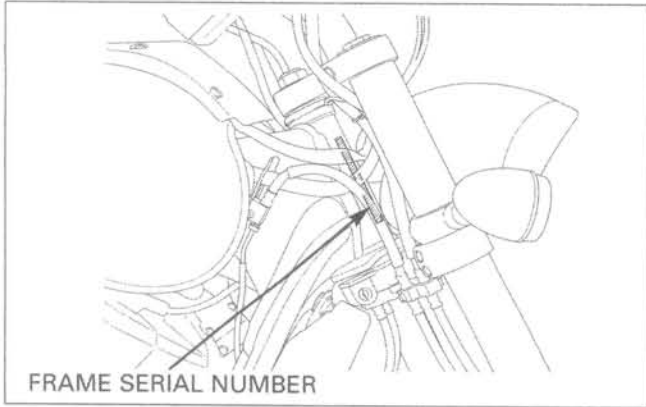
## SERVICE RULES

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 1-32, Cable and Harness Routing.

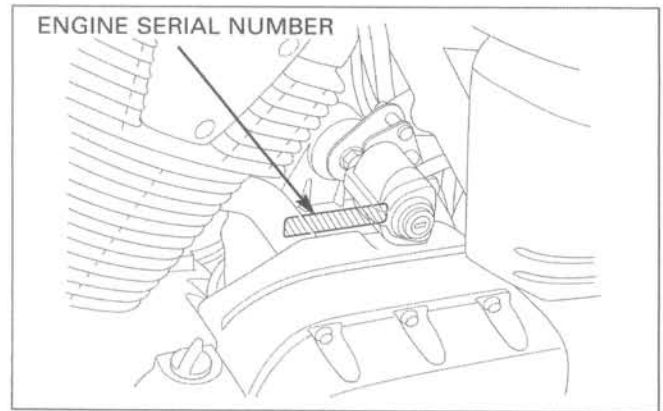
## MODEL IDENTIFICATION



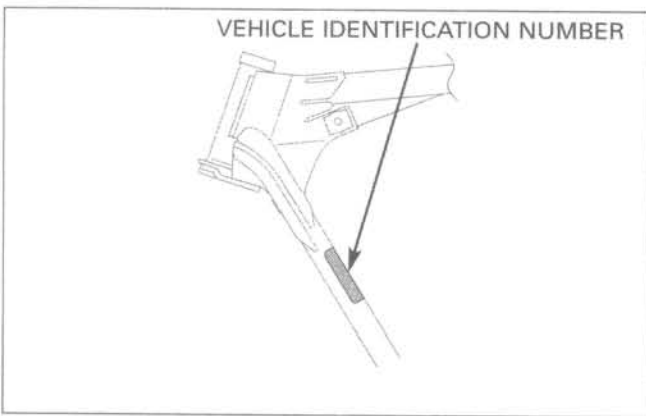
## GENERAL INFORMATION



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



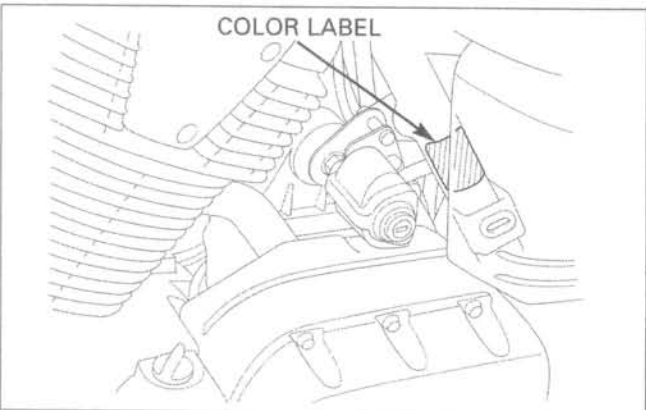
- (2) The engine serial number is stamped on the right side of the upper crankcase.



- (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	2,455 mm (96.7 in)	
	Overall width	930 mm (36.6 in)	
	Overall height	1,125 mm (44.3 in)	
	Wheelbase	1,715 mm (67.5 in)	
	Seat height	695 mm (27.3 in)	
	Footpeg height	278 mm (10.9 in)	
	Ground clearance	130 mm (5.1 in)	
	Dry weight	49 state/Canada type California type	320 kg (705 lbs) 322 kg (710 lbs)
	Curb weight	49 state/Canada type California type	340 kg (750 lbs) 342 kg (754 lbs)
	Maximum weight capacity	49 state/California type Canada type	183 kg (403 lbs) 187 kg (412 lbs)
FRAME	Frame type	Double cradle	
	Front suspension	Telescopic fork	
	Front axle travel	110 mm (4.3 in)	
	Rear suspension	Swingarm	
	Rear axle travel	100 mm (3.9 in)	
	Front tire size	130/70 R18 63H	
	Rear tire size	180/70 R16 77H	
	Front tire brand	(Dunlop) D251F	
	Rear tire brand	(Dunlop) D251	
	Front brake	Hydraulic double disc	
	Rear brake	Hydraulic single disc	
	Caster angle	32°	
	Trail length	146 mm (5.7 in)	
Fuel tank capacity	17.0 liter (4.49 US gal, 3.74 Imp gal)		
ENGINE	Cylinder arrangement	2 cylinders 52° V transverse	
	Bore and stroke	101.0 x 112.0 mm (3.98 x 4.41 in)	
	Displacement	1,795 cm <sup>3</sup> (109.5 cu-in)	
	Compression ratio	9.0 : 1	
	Valve train	Chain driven, OHC	
	Intake valve	opens — at 1 mm closes — (0.04 in) lift	
	Exhaust valve	opens — closes —	
	Lubrication system	Forced pressure and dry sump	
	Oil pump type	Trochoid	
	Cooling system	Liquid cooled	
	Air filtration	Paper element	
	Engine dry weight	122.5 kg (270 lbs)	
	Firing order	Front - 232° - Rear - 488° - Front -	
Cylinder number	Front: #1, Rear: #2		

**GENERAL INFORMATION**

**GENERAL (Cont'd)**

ITEM		SPECIFICATIONS
CARBURETION	Type Throttle bore	PGM-FI (Programmed Fuel Injection) 42 mm (1.7 in)
DRIVE TRAIN	Clutch system Clutch operation system Transmission Primary reduction Secondary reduction (Output drive reduction) Final reduction Gear ratio                   1st 2nd 3rd 4th 5th  Gearshift pattern	Multi-plate, wet Hydraulic operating Constant mesh, 5-speeds 1.571 (55/35) 0.944 (17/18) 3.091 (34/11) 2.353 (40/17) 1.478 (34/23) 1.111 (30/27) 0.871 (27/31) 0.697 (23/33)  Left foot operated return system, 1 - N - 2 - 3 - 4 - 5
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				
		ITEM	STANDARD	SERVICE LIMIT
Engine oil capacity	After draining		3.5 liter (3.7 US qt, 3.1 Imp qt)	—
	After draining/filter change		3.7 liter (3.9 US qt, 3.3 Imp qt)	—
	After disassembly		4.5 liter (4.8 US qt, 4.0 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			530 kPa (5.4 kgf/cm <sup>2</sup> , 77 psi) at 5,000 rpm/(80°C/176°F)	—
Oil pump rotor	Feed 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	0.02 – 0.07 (0.001 – 0.003)	0.10 (0.004)
	Scavenge 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	0.02 – 0.07 (0.001 – 0.003)	0.10 (0.004)

FUEL SYSTEM (Programmed Fuel Injection)		
ITEM	SPECIFICATIONS	
Throttle body identification number	GQ42A	
Idle speed	800 ± 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)	13.4 – 14.2 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	290 mm Hg	
Fuel pressure at idle	343 kPa (3.5 kgf/cm <sup>2</sup> , 50 psi)	
Fuel pump flow (at 12 V)	188 cm <sup>3</sup> (6.4 US oz, 6.6 Imp oz) minimum/10 seconds	

COOLING SYSTEM		
ITEM	SPECIFICATIONS	
Coolant capacity	Radiator and engine	2.60 liter (2.75 US qt, 2.29 Imp qt)
	Reserve tank	0.46 liter (0.49 US qt, 0.40 Imp qt)
Radiator cap relief pressure		108 – 137 kPa (1.1 – 1.4 kgf/cm <sup>2</sup> , 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 equivalent high quality ethylene glycol antifreeze containing silicate-free corrosion inhibitors
Standard coolant concentration		1:1 mixture with soft water



# GENERAL INFORMATION

CYLINDER HEAD/VALVES			Unit: mm (in)	
ITEM			STANDARD	SERVICE LIMIT
Cylinder compression			657 kPa (6.7 kgf/cm <sup>2</sup> , 95 psi) at 320 rpm	—
Valve clearance		IN	0.13 ± 0.02 (0.005 ± 0.001)	—
		EX	0.32 ± 0.02 (0.013 ± 0.001)	—
Camshaft	Cam lobe height	IN	39.953 – 40.033 (1.5729 – 1.5761)	39.92 (1.572)
		EX	39.423 – 39.503 (1.5521 – 1.5552)	39.40 (1.551)
	Runout		—	0.05 (0.002)
	Oil clearance		0.040 – 0.101 (0.0016 – 0.0040)	0.12 (0.005)
Rocker arm, rocker arm shaft	Rocker arm shaft O.D.	IN/EX	13.976 – 13.994 (0.5502 – 0.5509)	13.92 (0.548)
	Rocker arm I.D.	IN/EX	14.006 – 14.024 (0.5514 – 0.5521)	14.05 (0.553)
	Rocker arm-to-rocker arm shaft clearance		0.012 – 0.048 (0.0005 – 0.0019)	0.14 (0.006)
Valve, valve guide	Valve stem O.D.	IN	6.575 – 6.590 (0.2589 – 0.2594)	6.57 (0.259)
		EX	7.955 – 7.970 (0.3132 – 0.3138)	7.94 (0.313)
	Valve guide I.D.	IN	6.600 – 6.615 (0.2598 – 0.2604)	6.635 (0.2612)
		EX	8.000 – 8.015 (0.3150 – 0.3156)	8.055 (0.3171)
	Stem-to-guide clearance	IN	0.010 – 0.040 (0.0039 – 0.0016)	0.08 (0.003)
		EX	0.030 – 0.060 (0.0012 – 0.0024)	0.12 (0.005)
	Valve guide projection above cylinder head	IN	16.4 – 16.6 (0.646 – 0.654)	—
		EX	17.7 – 17.9 (0.697 – 0.705)	—
Valve seat width	IN	1.10 – 1.30 (0.043 – 0.051)	1.70 (0.669)	
	EX	1.40 – 1.60 (0.055 – 0.063)	2.00 (0.079)	
Valve spring free length		IN	43.5 (1.71)	41.9 (1.65 )
		EX	44.2 (1.74)	42.4 (1.67)
Cylinder head warpage			—	0.10 (0.004)

## GENERAL INFORMATION

Unit: mm (in)

<b>CYLINDER/PISTON</b>				
ITEM		STANDARD	SERVICE LIMIT	
Piston, piston rings	Piston O.D. at 18mm (0.7in) from bottom	100.97 – 100.99 (3.9752 – 3.9760)	100.91 (3.973)	
	Piston pin bore I.D.	24.002 – 24.008 (0.9450 – 0.9452)	24.018 (0.9456)	
	Piston pin O.D.	23.994 – 24.000 (0.9446 – 0.9449)	23.984 (0.9443)	
	Piston-to-piston pin clearance	0.002 – 0.014 (0.0001 – 0.0006)	0.034 (0.0013)	
	Piston ring end gap	Top	0.25 – 0.40 (0.010 – 0.016)	0.55 (0.022)
		Second	0.40 – 0.55 (0.016 – 0.022)	0.70 (0.028)
		Oil (side rail)	0.20 – 0.70 (0.008 – 0.028)	0.90 (0.035)
	Piston ring-to-ring groove clearance	Top	0.015 – 0.050 (0.0006 – 0.0020)	0.07 (0.003)
Second		0.015 – 0.050 (0.0006 – 0.0020)	0.07 (0.003)	
Cylinder	I.D.	101.000 – 101.015 (3.9763 – 3.9770)	101.05 (3.978)	
	Out-of-round	—	0.10 (0.004)	
	Taper	—	0.10 (0.004)	
	Warpage	—	0.10 (0.004)	
Cylinder-to-piston clearance		0.01 – 0.045 (0.0004 – 0.0018)	0.32 (0.126)	
Connecting rod small end I.D.		24.020 – 24.041 (0.9457 – 0.9465)	24.051 (0.9469)	
Connecting rod-to-piston pin clearance		0.020 – 0.047 (0.0008 – 0.0019)	0.07 (0.003)	

Unit: mm (in)

<b>CLUTCH/GEARSHIFT LINKAGE</b>			
ITEM		STANDARD	SERVICE LIMIT
Recommended clutch fluid		DOT 4 brake fluid	—
Clutch master cylinder	Cylinder I.D.	12.700 – 12.743 (0.5000 – 0.5017)	12.76 (0.502)
	Piston O.D.	12.657 – 12.684 (0.4983 – 0.4994)	12.65 (0.498)
Clutch	Spring free length	58.2 (2.29)	56.7 (2.23)
	Disc thickness	3.72 – 3.88 (0.146 – 0.153)	3.1 (0.12)
	Plate warpage	—	0.30 (0.012)
Clutch outer guide I.D.		27.995 – 28.012 (1.1022 – 1.1028)	28.8 (1.106)
Mainshaft O.D. at clutch outer guide		27.980 – 27.993 (1.1016 – 1.1021)	27.970 (1.1012)

Unit: mm (in)

<b>ALTERNATOR/STARTER CLUTCH</b>			
ITEM		STANDARD	SERVICE LIMIT
Starter driven gear boss	O.D.	57.759 – 57.768 (2.2740 – 2.2743)	57.639 (2.2692)
	I.D.	44.000 – 44.016 (1.7323 – 1.7329)	44.10 (1.736)

## GENERAL INFORMATION

Unit: mm (in)

CRANKSHAFT/TRANSMISSION			STANDARD	SERVICE LIMIT
ITEM				
Crankshaft	Connecting rod side clearance		0.10 – 0.25 (0.004 – 0.010)	0.28 (0.011)
	Crankpin bearing oil clearance		0.032 – 0.062 (0.0015 – 0.0024)	0.070 (0.0028)
	Main journal bearing oil clearance		0.030 – 0.054 (0.0011 – 0.0021)	0.068 (0.0027)
	Runout		—	0.05 (0.002)
Shift fork, fork shaft	I.D.		14.000 – 14.018 (0.5512 – 0.5519)	14.04 (0.553)
	Claw thickness		5.93 – 6.00 (0.233 – 0.236)	5.83 (0.230)
	Shift fork shaft O.D.		13.966 – 13.984 (0.5498 – 0.5506)	13.956 (0.5494)
Transmission	Gear I.D.	M4, M5	31.000 – 31.025 (1.2205 – 1.2215)	31.035 (1.2218)
		C1	30.000 – 30.025 (1.1811 – 1.1821)	30.035 (1.1825)
		C2/C3	33.000 – 33.025 (1.2992 – 1.3002)	33.035 (1.3006)
	Gear bushing O.D.	M4,M5	30.950 – 30.975 (1.2185 – 1.2195)	30.94 (1.218)
		C1	25.987 – 26.000 (1.0232 – 1.0236)	25.977 (1.0227)
		C2/C3	32.950 – 32.965 (1.2972 – 1.2978)	32.94 (1.297)
	Gear-to-bushing clearance	M4, M5	0.025 – 0.075 (0.0010 – 0.0030)	0.095 (0.0037)
		C2/C3	0.035 – 0.075 (0.0014 – 0.0030)	0.095 (0.0037)
	Gear bushing I.D.	M4	27.985 – 28.006 (1.1018 – 1.1025)	28.03 (1.104)
		C1	22.050 – 22.150 (0.8681 – 0.8720)	22.170 (0.8728)
		C2/C3	30.000 – 30.030 (1.1811 – 1.1823)	30.050 (1.1831)
	Mainshaft O.D.	at M4	27.959 – 27.980 (1.1007 – 1.1016)	27.940 (1.1000)
		clutch outer guide	27.980 – 27.993 (1.1016 – 1.1021)	27.970 (1.1012)
	Countershaft O.D.	at C1	21.980 – 21.993 (0.8653 – 0.8659)	21.97 (0.865)
		at C2/C3	29.959 – 29.980 (1.1795 – 1.1803)	29.94 (1.179)
	Bushing-to-shaft clearance	M4	0.005 – 0.047 (0.0002 – 0.0019)	0.067 (0.0026)
C1		0.057 – 0.170 (0.0022 – 0.0067)	0.190 (0.0075)	
C2/C3		0.020 – 0.071 (0.0008 – 0.0028)	0.091 (0.0036)	

Unit: mm (in)

FINAL DRIVE			STANDARD	SERVICE LIMIT
ITEM				
Recommended final drive oil			Hypoid gear oil, SAE #80	—
Final drive oil capacity	at disassembly		150 cm <sup>3</sup> (5.1 US oz, 5.3 Imp oz)	—
	at draining		120 cm <sup>3</sup> (4.1 US oz, 4.2 Imp oz)	—
Final drive gear backlash			0.05 – 0.015 (0.002 – 0.006)	0.30 (0.012)
Backlash difference between measurement			—	0.10 (0.004)
Ring gear-to-stop pin clearance			0.30 – 0.60 (0.012 – 0.024)	—
Final drive gear assembly preload			0.2 – 0.4 N•m (2 – 4 kgf•cm, 1.7 – 3.5 lbf•ft)	—

## 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		225 kPa (2.25 kgf/cm <sup>2</sup> , 33 psi)	—	
	Up to maximum weight capacity		225 kPa (2.25 kgf/cm <sup>2</sup> , 33 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	Right	329.7 (12.98)	323.1 (12.72)	
		Left	329.7 (12.98)	323.1 (12.72)	
	Slider runout			—	0.20 (0.008)
	Recommended fork fluid			Pro Honda Suspension Fluid SS-8	—
	Fluid level	Right		111 (4.4)	—
		Left		110 (4.3)	—
	Fluid capacity	Right		686 ± 2.5 cm <sup>3</sup> (23.2 ± 0.08 US oz, 24.1 ± 0.09 Imp oz)	—
		Left		770 ± 2.5 cm <sup>3</sup> (26.0 ± 0.08 US oz, 27.1 ± 0.09 Imp oz)	—
Steering head bearing pre-load			0.8 – 1.2 kgf (1.8 – 2.6 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		225 kPa (2.25 kgf/cm <sup>2</sup> , 33 psi)	—
	Up to maximum weight capacity		250 kPa (2.50 kgf/cm <sup>2</sup> , 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.
Shock absorber	Spring adjuster standard position		Position 2	—

# GENERAL INFORMATION

Unit: mm (in)

## HYDRAULIC BRAKE

ITEM		STANDARD	SERVICE LIMIT	
Front	Specified brake fluid	DOT 4	—	
	Brake disc thickness	4.5 (0.18)	3.5 (0.14)	
	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)	13.94 (0.549)	
	Right caliper cylinder I.D.	A	27.000 – 27.050 (1.0630 – 1.0650)	27.060 (1.0654)
		B	22.650 – 22.700 (0.8917 – 0.8937)	22.710 (0.8941)
		C	25.400 – 25.450 (1.0000 – 1.0020)	25.460 (1.0024)
	Right caliper piston O.D.	A	26.935 – 26.968 (1.0604 – 1.0617)	26.910 (1.0594)
		B	22.585 – 22.618 (0.8892 – 0.8905)	22.560 (0.8882)
		C	25.335 – 25.368 (0.9974 – 0.9967)	25.320 (0.9968)
	Left caliper cylinder I.D.	A	22.650 – 22.700 (0.8917 – 0.8937)	22.710 (0.8941)
		B	25.400 – 25.450 (1.0000 – 1.0020)	25.460 (1.0024)
Left caliper piston O.D.	A	22.585 – 22.618 (0.8892 – 0.8905)	22.560 (0.8882)	
	B	25.335 – 25.368 (0.9974 – 0.9967)	25.320 (0.9968)	
Rear	Specified brake fluid	DOT 4	—	
	Brake pedal height	65.0 ± 1.0 (2.56 ± 0.03)	—	
	Brake disc thickness	7.0 (0.28)	6.0 (0.24)	
	Brake disc runout	—	0.30 (0.012)	
	Master cylinder I.D.	17.460 – 17.503 (0.6874 – 0.6891)	17.515 (0.6896)	
	Master piston O.D.	17.417 – 17.444 (0.6857 – 0.6868)	17.405 (0.6852)	
	Caliper cylinder I.D.	33.960 – 34.010 (1.3370 – 1.3390)	34.020 (1.3394)	
	Caliper piston O.D.	33.878 – 33.928 (1.3338 – 1.3357)	33.870 (1.3335)	

## BATTERY/CHARGING SYSTEM

ITEM		SPECIFICATIONS	
Battery	Capacity	12V – 18 Ah	
	Current leakage	0.1 mA max.	
	Voltage (20°C/68°F)	Fully charged	13.0 – 13.2 V
		Needs charging	Below 12.3 V
	Charging current	Normal	1.8 A/5 – 10 h
Quick		9.0 A/1.0 h	
Alternator	Capacity	0.4 kW/5,000 rpm	
	Charging coil resistance (20°C/68°F)	0.1 – 1.0 Ω	

**IGNITION SYSTEM**

ITEM		SPECIFICATIONS	
Spark plug	Standard	IFR6L11 (NGK)	VK20PRZ11 (DENSO)
	For cold climate/below 5°C/41°F	IFR5L11 (NGK)	VK16PRZ11 (DENSO)
	For extended high speed riding	IFR7L11 (NGK)	VK22PRZ11 (DENSO)
Spark plug gap		1.0 – 1.1 mm (0.039 – 0.043 in)	
Ignition coil peak voltage		100 V minimum	
Ignition pulse generator peak voltage		0.7 V minimum	
Ignition timing ("F" mark)		8 ° BTDC at idle	

Unit: mm (in)

**ELECTRIC STARTER**

ITEM	STANDARD	SERVICE LIMIT
Starter motor brush length	12.0 – 13.0 (0.47 – 0.51)	4.5 (0.18)

**LIGHTS/METERS/SWITCHES**

ITEM			SPECIFICATIONS
Bulbs	Headlight	Hi	12V – 60W
		Lo	12V – 55W
	Brake/tail light		12V – 21/5W x 2
	Front turn signal/running light		12V – 21/5W x 2
	Rear turn signal light		12V – 21W x 2
	License light		12V – 5W
	Instrument light		L.E.D.
	Turn signal indicator		12V – 1.4W
	High beam indicator		12V – 2.0W
	Neutral indicator		12V – 1.4W
	Oil pressure indicator		12V – 1.4W
	PGM-FI warning indicator		12V – 1.4W
	Coolant temperature indicator		12V – 1.4W
	Fuel reserve indicator		12V – 1.4W
Fuse	Main fuse		30 A
	PGM-FI fuse		30 A
	Sub fuse		10 A x 4, 20 A x 2
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 important fasteners.
- Others should be tightened to standard torque values listed above.

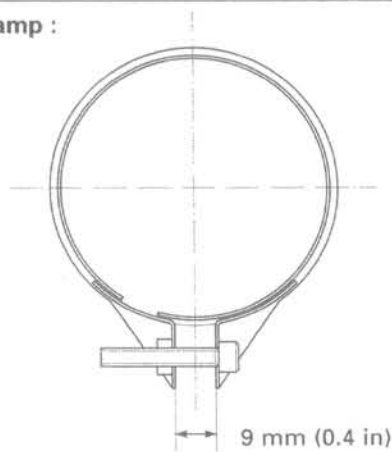
- NOTES:
1. Apply sealant to the threads.
  2. Apply a locking agent to the threads.
  3. Stake.
  4. Apply oil to the threads and flange surface.
  5. U-nut.
  6. ALOC bolt/screw: replace with a new one.
  7. Apply grease to the threads.
  8. Apply molybdenum disulfide oil to the threads and seating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

### ENGINE

ITEM	Q'TY	THREAD DIA. (mm)	TORQUE N•m (kgf•m, lbf•ft)	REMARKS
<b>LUBRICATION SYSTEM:</b>				
Front oil drain bolt	1	12	29 (3.0, 22)	
Rear oil drain bolt	1	12	29 (3.0, 22)	
Oil pump assembly bolt	1	6	13 (1.3, 9)	
Oil pump driven sprocket bolt	1	6	18 (1.8, 13)	NOTE 2
Oil strainer bolt	1	6	13 (1.3, 9)	
Oil filter boss	1	20	18 (1.8, 13)	NOTE 2
Oil filter cartridge	1	20	26 (2.7, 20)	NOTE 4
Oil pressure switch	1	PT 1/8	12 (1.2, 9)	NOTE 1
Oil pressure switch wire terminal screw	1	4	2 (0.2, 1.4)	
<b>COOLING SYSTEM:</b>				
Water pump assembly bolt	2	6	13 (1.3, 9)	
<b>CYLINDER HEAD/VALVES:</b>				
Spark plug	4	14	18 (1.8, 13)	
Spark plug sleeve	2	30	18 (1.8, 13)	NOTE 4
Reed valve cover bolt	4	5	5.1 (0.52, 3.8)	
Cylinder head cover bolt (8 mm)	4	8	26 (2.7, 20)	
(6 mm)	16	6	12 (1.2, 9)	
Cylinder head nut (10 mm)	8	10	49 (5.0, 39)	NOTE 4
(8 mm)	4	8	26 (2.7, 20)	NOTE 4
Camshaft holder bolt	12	8	26 (2.7, 20)	NOTE 4
Cam sprocket bolt	4	7	23 (2.3, 17)	
Valve adjusting screw lock nut	6	—	22 (2.2, 16)	
Cam chain tensioner bolt	4	6	12 (1.2, 9)	

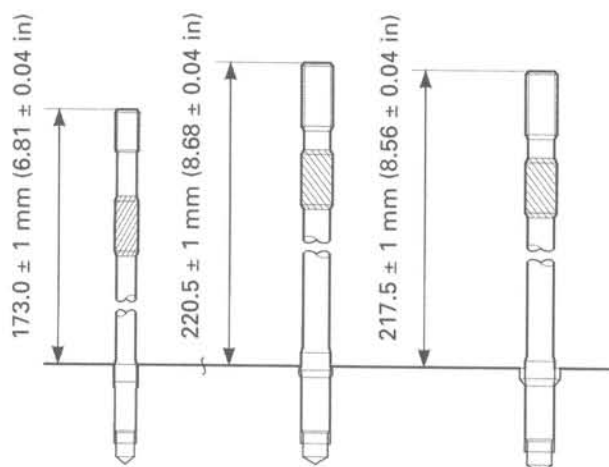
ENGINE (Cont'd)				
ITEM	Q'TY	THREAD DIA. (mm)	TORQUE N•m (kgf•m, lbf•ft)	REMARKS
<b>CLUTCH/GEARSHIFT LINKAGE:</b>				
Clutch lifter plate bolt	5	6	12 (1.2, 9)	
Clutch center lock nut	1	25	186 (19.0, 137)	NOTE 3, 4
Primary drive gear bolt	1	12	137 (14.0, 101)	NOTE 4
Primary driven gear nut	1	25	186 (19.0, 137)	NOTE 3, 4
Shift drum stopper arm bolt	1	6	12 (1.2, 9)	
Shift drum center socket bolt	1	8	23 (2.3, 17)	NOTE 2
Shift return spring pin	1	8	23 (2.3, 17)	
Change pedal pinch bolt	1	6	12 (1.2, 9)	
Slave cylinder bleed valve	1	8	6 (0.6, 4.3)	
<b>ALTERNATOR/STARTER CLUTCH:</b>				
Crankshaft hole cap	1	45	18 (1.8, 13)	NOTE 7
Flywheel bolt	1	12	137 (14.0, 101)	NOTE 4
Starter clutch outer bolt	6	8	29 (3.0, 22)	NOTE 2
Balancer weight bolt	1	12	98 (10.0, 72)	
<b>CRANKCASE/TRANSMISSION:</b>				
Right crankcase bolt	14	8	26 (2.7, 20)	
Left crankcase bolt	1	8	26 (2.7, 20)	
Left crankcase oil orifice bolt	1	8	14 (1.4, 10)	
Connecting rod bearing cap bolt	4	10	49 (5.0, 36)	NOTE 4
Output gear case mounting bolt	4	8	31 (3.2, 23)	
Output drive gear bearing holder bolt	2	8	31 (3.2, 23)	
Output drive gear bearing holder socket bolt	4	8	31 (3.2, 23)	
<b>ELECTRIC STARTER:</b>				
Starter motor cable terminal nut	1	6	7 (0.7, 5.1)	
Starter motor case bolt	2	5	5 (0.5, 3.6)	
<b>LIGHTS/METERS/SWITCHES:</b>				
Neutral switch	1	10	12 (1.2, 9)	

Insulator clamp :

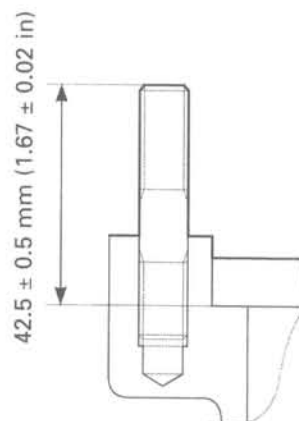


# GENERAL INFORMATION

## Crankcase stud bolts:



## Exhaust pipe stud bolt:



## FRAME

ITEM	Q'TY	THREAD DIA. (mm)	TORQUE N•m (kgf•m, lbf•ft)	REMARKS
<b>FRAME BODY PANELS/EXHAUST SYSTEM:</b>				
Exhaust pipe joint nut	4	8	23 (2.3, 17)	
Muffler band bolt	3	8	17 (1.7, 12)	
Muffler stay nut	2	8	34 (3.5, 25)	
<b>FUEL SYSTEM (Programmed Fuel Injection):</b>				
Air cleaner housing cover bolt	5	5	3.4 (0.35, 2.5)	
Fuel tank rear mounting bolt	1	6	12 (1.2, 9)	
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)	
ECT sensor	1	16	18 (1.8, 13)	
Starter valve screw	2	5	3.4 (0.35, 2.5)	
MAP sensor screw	2	4	2.1 (0.21, 1.5)	
Throttle cable guide screw	2	5	3.4 (0.35, 2.5)	
Fuel pump mounting nut	8	6	12 (1.2, 9)	
O <sub>2</sub> sensor	1	12	25 (2.6, 19)	
<b>COOLING SYSTEM:</b>				
Radiator cover bolt	3	6	10 (1.0, 7)	
Radiator cover side bolt	4	6	3.4 (0.35, 2.5)	

FRAME (Cont'd)				
ITEM	Q'TY	THREAD DIA. (mm)	TORQUE N·m (kgf·m, lbf·ft)	REMARKS
<b>ENGINE MOUNTING:</b>				
Front upper engine mounting nut	1	12	54 (5.5, 40)	
Front lower engine mounting nut	1	12	54 (5.5, 40)	
Rear upper engine mounting nut	1	12	54 (5.5, 40)	
Rear lower engine mounting nut	1	12	54 (5.5, 40)	
Right front upper engine hanger plate bolt	2	8	26 (2.7, 20)	
Left front upper engine hanger plate bolt	2	8	26 (2.7, 20)	
Right front lower engine hanger plate bolt	2	10	39 (4.0, 29)	
Rear upper engine hanger plate bolt	4	8	26 (2.7, 20)	
Rear lower engine hanger plate bolt	4	8	26 (2.7, 20)	
<b>CLUTCH/GEARSHIFT LINKAGE:</b>				
Clutch master cylinder holder bolt	2	6	12 (1.2, 9)	
Clutch master cylinder reservoir cap screw	2	4	1.5 (0.15, 1.1)	
Clutch lever pivot bolt	1	6	1 (0.1, 0.7)	
nut	1	6	6 (0.6, 4.3)	
Clutch switch screw	1	4	1.2 (0.12, 0.9)	
Clutch hose oil bolt	2	10	34 (3.5, 25)	
<b>FINAL DRIVE:</b>				
Final gear case mounting nut	4	10	64 (6.5, 47)	
Final drive oil filler cap	1	30	12 (1.2, 9)	
Final drive oil drain bolt	1	14	20 (2.0, 14)	
Gear case cover bolt (10 mm)	2	10	62 (6.3, 46)	NOTE 2
(8 mm)	6	8	25 (2.6, 19)	
Pinion retainer	1	70	147 (15.0, 108)	
Pinion joint nut	1	16	108 (11.0, 80)	NOTE 2
Pinion retainer lock tab bolt	1	6	10 (1.0, 7)	
Dust guard plate bolt	1	6	10 (1.0, 7)	
<b>FRONT WHEEL/SUSPENSION/STEERING:</b>				
Handlebar upper holder bolt	4	8	26 (2.7, 20)	
Handlebar lower holder nut	2	12	64 (6.5, 47)	NOTE 5
Front axle bolt	1	14	90 (9.2, 67)	
Front axle holder bolt	4	8	22 (2.2, 16)	
Front brake disc bolt	12	6	20 (2.0, 14)	NOTE 6
Steering stem nut	1	24	100 (10.2, 74)	
Top adjusting nut A	1	26	17 (1.7, 12)	
Top adjusting nut B	1	26	—	
Fork top bridge pinch bolt	2	10	55 (5.6, 41)	
Fork bottom bridge pinch bolt	4	8	24 (2.4, 17)	
Fork cap	2	50	34 (3.5, 25)	
Fork cap lock nut	2	10	20 (2.0, 14)	
Fork socket bolt	1	8	20 (2.0, 14)	NOTE 2
Inner fork bolt	1	43	98 (10.0, 72)	
<b>REAR WHEEL/SUSPENSION:</b>				
Rear axle nut	1	18	110 (11.2, 81)	
Rear brake disc bolt	6	8	42 (4.3, 31)	NOTE 6
Driven flange nut	5	12	88 (9.0, 65)	
Left swingarm pivot bolt	1	30	103 (10.5, 76)	
Right swingarm pivot bolt	1	30	14 (1.4, 10)	
Right swingarm pivot lock nut	1	30	113 (11.5, 83)	
Rear shock absorber mounting bolt	4	8	26 (2.7, 20)	
Rear shock absorber lower mounting bolt (final gear case side)	1	12	54 (5.5, 40)	NOTE 2

## GENERAL INFORMATION

### FRAME (Cont'd)

ITEM	Q'TY	THREAD DIA. (mm)	TORQUE N•m (kgf•m, lbf•ft)	REMARKS
<b>HYDRAULIC BRAKE:</b>				
Brake pad pin	3	10	18 (1.8, 13)	
Brake caliper bleed valve	5	8	6 (0.6, 4.3)	
Brake hose oil bolt	7	10	34 (3.5, 25)	
Brake pipe joint bolt	12	10	17 (1.7, 12)	NOTE 4
Brake pipe 2/3 way joint	6	6	12 (1.2, 9)	
Brake hose clamp/stay bolt	7	6	12 (1.2, 9)	
Brake hose guide bolt	1	8	22 (2.2, 16)	NOTE 6
PCV (Proportional Control Valve) mounting bolt	2	6	12 (1.2, 9)	
Front master cylinder holder bolt	2	6	12 (1.2, 9)	
Front master cylinder reservoir cap screw	2	4	1.5 (0.15, 1.1)	
Front brake lever pivot bolt	1	6	1 (0.1, 0.7)	
nut	1	6	6 (0.6, 4.3)	
Front brake light switch screw	1	4	1.2 (0.12, 0.9)	
Rear master cylinder reservoir cover bolt	1	6	12 (1.2, 9)	
Rear master cylinder mounting bolt	2	6	12 (1.2, 9)	
Rear master cylinder push rod lock nut	1	8	18 (1.8, 13)	
Front caliper mounting bolt	4	8	30 (3.1, 22)	NOTE 6
Front caliper body B bolt	6	8	32 (3.3, 24)	NOTE 6
Front caliper pin bolt A	2	8	23 (2.3, 17)	NOTE 2
Front caliper pin bolt	2	8	13 (1.3, 9)	NOTE 2
Rear caliper pin bolt	1	12	27 (2.8, 20)	
Rear caliper bracket pin bolt	1	8	23 (2.3, 17)	NOTE 2
Rear caliper stopper pin bolt	1	18	69 (7.0, 51)	NOTE 6
Brake pedal pivot bolt	1	8	21 (2.1, 15)	
<b>LIGHTS/METERS/SWITCHES:</b>				
Ignition switch mounting bolt	2	6	10 (1.0, 7)	
Ignition switch rear cover screw	4	4	2 (0.2, 1.4)	
Horn mounting bolt	1	8	21 (2.1, 15)	
Fan motor switch	1	16	17 (1.7, 12)	
Side stand switch bolt	1	6	10 (1.0, 7)	NOTE 6
<b>OTHERS:</b>				
Side stand pivot bolt	1	10	10 (1.0, 7)	
Side stand lock nut	1	10	29 (3.0, 22)	NOTE 5
Side stand bracket bolt	3	10	39 (4.0, 29)	
Step holder bolt	4	10	39 (4.0, 29)	
Pillion step holder bolt	2	8	26 (2.7, 20)	
Change pivot shaft	1	8	32 (3.3, 24)	

## 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	07406-004000A		5
Oil pressure gauge	07506-3000001	NOTE 1	4
Oil pressure gauge attachment	07510-4220100	NOTE 1	4
Gear holder	07724-0010100	NOTE 2	10, 18
Flywheel holder	07725-0040000		18
Flywheel puller	07733-0020001	NOTE 3: 07933-3290001	18
Remover weight	07936-371020A	NOTE 3: 07936-3710200	11, 18
Attachment, 32 x 35 mm	07746-0010100		10, 11
Attachment, 37 x 40 mm	07746-0010200		13, 14
Attachment, 42 x 47 mm	07746-0010300		11, 13, 14
Attachment, 52 x 55 mm	07746-0010400		11, 12, 13, 14
Attachment, 62 x 68 mm	07746-0010500		11
Attachment, 72 x 75 mm	07746-0010600		12
Attachment, 24 x 26 mm	07746-0010700		14, 18
Driver, 40 mm I.D.	07746-0030100		12
Attachment, 30 mm I.D.	07746-0030300		12
Pilot, 10 mm	07746-0040100		18
Pilot, 17 mm	07746-0040400		10, 11
Pilot, 20 mm	07746-0040500		11, 13, 14
Pilot, 25 mm	07746-0040600		11
Pilot, 30 mm	07746-0040700		14
Pilot, 35 mm	07746-0040800		12, 13
Pilot, 22 mm	07746-0041000		11
Pilot, 28 mm	07746-0041100		11
Bearing remover head, 20 mm	07746-0050600		13, 14
Driver	07749-0010000		10, 11, 12, 13, 14, 18
Valve spring compressor	07757-0010000		8
Valve seat cutter		NOTE 1	8
Seat cutter, 40 mm (45° IN)	07780-0010500		
Seat cutter, 46 mm (45° EX)	07780-0011200	NOTE 4	
Flat cutter, 38.5 mm (32° IN)	07780-0012400		
Flat cutter, 50 mm (32° EX)	07780-0013600	NOTE 4	
Interior cutter, 34 mm (60° IN)	07780-0014700		
Interior cutter, 45 mm (60° IN)	07780-0014800	NOTE 4	
Cutter holder, 6.6 mm	07781-0010202	NOTE 3: 07942-ZE2000D (U.S.A. only)	8
Pilot screw wrench	07908-4730002		5
Lock nut	07908-4690003		14
Valve adjusting screw wrench, 4 mm	07908-KE90100		3
Retainer wrench	07910-4630100		12
Snap ring pliers	07914-SA50001		10, 15
Steering stem socket	07916-3710100		13
Mainshaft holder	07923-6890101	U.S.A. only	11
Pinion holder plate	07924-ME40010		12
Collar set "C"	07924-ME40020		12
Holder attachment	07930-KA50100		8
Special nut	07931-HB3020A		12
Puller shaft	07931-ME4010B		12
Remover handle	07936-3710100		11, 12
Remover weight	07936-371020A	NOTE 3: 07936-3710200	12
Bearing remover	07936-3710300		11, 12
Bearing remover, 22 mm	07936-3710600		11
Remover shaft	07936-GE00100	NOTE 1	18
Remover head	07936-GE00200	NOTE 1	18
Valve guide driver, 6.6 mm	07942-6570100		8