

HOW TO USE THIS MANUAL

This service manual describes the service procedures for the XL1000V.

Follow the Maintenance Schedule (Section 3) recommendations to ensure that the vehicle is in peak operating condition.

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

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 procedure.

If you don't know the source of the trouble, go to section 21 Troubleshooting.

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HONDA MOTOR CO., LTD.
SERVICE PUBLICATION OFFICE

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IMPORTANT SAFETY NOTICE

▲WARNING *Indicates a strong possibility of severe personal injury or death if instructions are not followed.*

CAUTION: *Indicates a possibility of equipment damage if instructions are not followed.*

NOTE: Gives helpful information.

Detailed descriptions of standard workshop procedures, safety principles and service operations are not included. It is important to note that this manual contains some warnings and cautions against some specific service methods which could cause **PERSONAL INJURY** to service personnel or could damage a vehicle or render it unsafe. Please understand that those warnings could not cover all conceivable ways in which service, whether or not recommended by Honda, might be done or of the possibly hazardous consequences of each conceivable way, nor could Honda investigate all such ways. Anyone using service procedures or tools, whether or not recommended by Honda, *must satisfy himself thoroughly* that neither personal safety nor vehicle safety will be jeopardized by the service methods or tools selected.

TYPE CODE












- Throughout this manual, the following abbreviations are used to identify individual type.

CODE	AREA TYPE
E	U.K.
F	France
ED	European direct sales (Germany, Sweden, Finland, Austria, Denmark, Norway, Switzerland, Belgium, Holland, Portugal)

CODE	AREA TYPE
U	Australia

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 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

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GENERAL SAFETY

CARBON MONOXIDE

If the engine must be running to do some work, make sure the area is well ventilated. Never run the engine in an enclosed area.

▲WARNING

The exhaust contains poisonous carbon monoxide gas that can cause loss of consciousness and may lead to death.

Run the engine in an open area or with an exhaust evacuation system in an enclosed area.

GASOLINE

Work in a well ventilated area. Keep cigarettes, flames or sparks away from the work area or where gasoline is stored.

▲WARNING

Gasoline is extremely flammable and is explosive under certain conditions. KEEP OUT OF REACH OF CHILDREN.

HOT COMPONENTS

▲WARNING

Engine and exhaust system parts become very hot and remain hot for some time after the engine is run. Wear insulated gloves or wait until the engine and exhaust system have cooled before handling these parts.

USED ENGINE OIL

▲WARNING

Used engine oil may cause skin cancer if repeatedly left in contact with the skin for prolonged periods. Although this is unlikely unless you handle used oil on a daily basis, it is still advisable to thoroughly wash your hands with soap and water as soon as possible after handling used oil. KEEP OUT OF REACH OF CHILDREN.

BRAKE DUST

Never use an air hose or dry brush to clean brake assemblies. Use a vacuum cleaner or alternate method to minimize the hazard caused by air borne asbestos fibers.

▲WARNING

Inhaled asbestos fibers have been found to cause respiratory disease and cancer.

BRAKE FLUID

CAUTION:

Spilling fluid on painted, plastic or rubber parts will damage them. Place a clean shop towel over these parts whenever the system is serviced. KEEP OUT OF REACH OF CHILDREN.

GENERAL INFORMATION

COOLANT

Under some conditions, the ethylene glycol in engine coolant is combustible and its flame is not visible. If the ethylene glycol does ignite, you will not see any flame, but you can be burned.

▲WARNING

- *Avoid spilling engine coolant on the exhaust system or engine parts. They may be hot enough to cause the coolant to ignite and burn without a visible flame.*
- *Coolant (ethylene glycol) can cause some skin irritation and is poisonous if swallowed. KEEP OUT OF REACH OF CHILDREN.*
- *Do not remove the radiator cap when the engine is hot. The coolant is under pressure and could scald you.*
- *Keep hands and clothing away from the cooling fan, as it starts automatically.*

CAUTION:

Using coolant with silicate inhibitors may cause premature wear of water pump seals or blockage of radiator passages. Using tap water may cause engine damage.

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 on pages 1-21 through 1-27, Cable & Harness routing.

If it contacts your skin, wash the affected areas immediately with soap and water. If it contacts your eyes, flush them thoroughly with fresh water and get immediate medical attention. If it is swallowed, the victim must be forced to vomit, then rinse mouth and throat with fresh water before obtaining medical attention. Because of these dangers, always keep from the reach of children. Recycle used coolant in an ecologically correct manner.

BATTERY HYDROGEN GAS & ELECTROLYTE

▲WARNING

- *The battery gives off explosive gases; keep sparks, flames and cigarettes away. Provide adequate ventilation when charging.*
- *The battery contains sulfuric acid (electrolyte). Contact with skin or eyes may cause severe burns. Wear protective clothing and a face shield.*
 - *If electrolyte gets on your skin, flush with water.*
 - *If electrolyte gets in your eyes, flush with water for at least 15 minutes and call a physician immediately.*
- *Electrolyte is poisonous.*
 - *If swallowed, drink large quantities of water or milk and follow with milk of magnesia or vegetable oil and call a physician. KEEP OUT OF REACH OF CHILDREN.*

MODEL IDENTIFICATION

- (1) The frame serial number is stamped on the right side of the steering head.
- (2) The engine serial number is stamped on the rear of the upper crankcase.
- (3) The carburetor identification numbers are stamped on the intake side of the carburetor body as shown.
- (4) 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	2,295 mm (90.4 in)
	Overall width	880 mm (34.6 in)
	Overall height	1,460 mm (57.5 in)
	Wheelbase	1,560 mm (61.4 in)
	Seat height	845 mm (33.3 in)
	Footpeg height	334 mm (13.1 in)
	Ground clearance	195 mm (7.7 in)
	Dry weight	220 kg (485 lbs)
	Curb weight	250 kg (551 lbs)
	Maximum weight capacity	201 kg (443 lbs)
FRAME	Frame type	Diamond
	Front suspension	Telescopic fork
	Front wheel travel	175 mm (6.9 in)
	Front axle travel	155.2 mm (6.11 in)
	Rear suspension	Swingarm
	Rear axle travel	155 mm (6.1 in)
	Rear damper	Nitrogen gas filled damper
	Front tire size	110/80 R19 59H
	Rear tire size	150/70 R17 69H
	Tire brand	
	Michelin	Front: T66X /Rear: T66X
	Metzeler	Front: ENDURO4A /Rear: ENDURO4A
	Front brake	Hydraulic double disc brake with 3 pots caliper
	Rear brake	Hydraulic single disc brake with 3 pots caliper
Caster angle	27°30'	
Trail length	110 mm (4.3 in)	
Fuel tank capacity	25 ℓ (6.6 US gal , 5.5 Imp gal)	
ENGINE	Bore and stroke	98.0 × 66.0 mm (3.90 × 2.60 in)
	Displacement	996 cm ³ (60.8 cu-in)
	Compression ratio	9.0 : 1
	Valve train	Chain drive and DOHC
	Intake valve	opens 15° BTDC (At 1 mm lift)
		closes 30° ABDC (At 1 mm lift)
	Exhaust valve	opens 40° BBDC (At 1 mm lift)
		closes 5° ATDC (At 1 mm lift)
	Lubrication system	Forced pressure and wet sump
	Oil pump type	Trochoid
	Cooling system	Liquid cooled
	Air filtration	Paper filter
	Engine dry weight	74.8 kg (164.9 lbs)
Cylinder arrangement	Front - 270° - Rear - 450° - Front	

GENERAL (Cont'd)

ITEM		SPECIFICATIONS
CARBURETOR	Carburetor type Throttle bore	CV (Constant Velocity) type, with flat valve 42 mm (1.7 in)
DRIVE TRAIN	Clutch system Clutch operation system Transmission Primary reduction Final reduction Gear ratio 1st 2nd 3rd 4th 5th Gearshift pattern	Multi-plate, wet Cable operated type Constant mesh, 5-speed 1.682 (74/44) 2.938 (47/16) 2.571 (36/14) 1.706 (29/17) 1.318 (29/22) 1.111 (30/27) 0.962 (25/26) Left foot operated return system, 1 - N - 2 - 3 - 4 - 5
ELECTRICAL	Ignition system Starting system Charging system Regulator/rectifier Lighting system	Full transistor digital ignition 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	At draining	3.4 ℓ (3.6 US qt, 3.0 Imp qt)	_____
	At disassembly	4.1 ℓ (4.3 US qt, 3.6 Imp qt)	_____
	At oil filter change	3.6 ℓ (3.8 US qt, 3.2 Imp qt)	_____
Recommended engine oil		HONDA 4-stroke oil or equivalent motor oil API service classification SE, SF or SG Viscosity: SAE 10W-40	_____
Oil pressure at oil pressure switch		588 kPa (6.0 kgf/cm ² , 85 psi) at 5,000 rpm/(80 °C/176 °F)	_____
Oil pump rotor	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	0.02-0.09 (0.001-0.004)	0.12 (0.005)

FUEL SYSTEM	ITEM	SPECIFICATIONS
Carburetor identification number		VPJ0A
Main jet		Front: # 168 Rear: # 170
Slow jet		# 42
Jet needle number		Front: B51C Rear: B51B
Pilot screw initial opening		See page 5-20
Float level		13.7 ± 0.5 mm (0.54 ± 0.02 in)
Idle speed		1,200 ± 50 min ⁻¹ (rpm)
Throttle grip free play		2-6 mm (1/16-1/4 in)

COOLING SYSTEM	ITEM	SPECIFICATIONS
Coolant capacity	Radiator and engine	2.8 ℓ (3.0 US qt, 2.5 Imp qt)
	Reserve tank	0.5 ℓ (0.5 US qt, 0.4 Imp qt)
Radiator cap relief pressure		108-137 kPa (1.1-1.4 kgf/cm ² , 16-20 psi)
Thermostat	Begin to open	75-82 °C (167-180 °F)
	Fully open	82 °C (180 °F)
	Valve lift	8 mm (0.3 in) minimum
Standard coolant concentration		50% mixture with soft water

GENERAL INFORMATION

CYLINDER HEAD/VALVES			Unit: mm (in)	
ITEM			STANDARD	SERVICE LIMIT
Cylinder compression			1,177 kPa (12.0 kgf/cm ² , 171 psi) at 300 rpm	_____
Cylinder head warpage			_____	0.10 (0.004)
Valve, valve guide	Valve clearance	IN	0.16 (0.006)	_____
		EX	0.31 (0.012)	_____
	Valve stem O.D.	IN	5.975 – 5.990 (0.2352 – 0.2358)	5.965 (0.2348)
		EX	5.965 – 5.980 (0.2348 – 0.2354)	5.955 (0.2344)
	Valve guide I.D.	IN	6.000 – 6.012 (0.2362 – 0.2367)	6.040 (0.2378)
		EX	6.000 – 6.012 (0.2362 – 0.2367)	6.040 (0.2378)
	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	14.0 – 14.2 (0.55 – 0.56)	_____	
	EX	14.0 – 14.2 (0.55 – 0.56)	_____	
Valve seat width		IN/EX	1.1 – 1.3 (0.04 – 0.05)	1.7 (0.07)
Valve spring free length			43.9 (1.73)	42.9 (1.69)
Valve lifter	Valve lifter O.D.	IN/EX	33.978 – 33.993 (1.3377 – 1.3383)	33.97 (1.337)
	Valve lifter bore I.D.	IN/EX	34.010 – 34.026 (1.3390 – 1.3396)	34.04 (1.340)
Camshaft	Cam lobe height	IN	40.080 – 40.240 (1.5779 – 1.5842)	39.780 (1.5661)
		EX	40.230 – 40.390 (1.5839 – 1.5902)	39.930 (1.5720)
	Runout			0.05 (0.002)
	Oil clearance			0.020 – 0.062 (0.0008 – 0.0024)

CLUTCH/GEARSHIFT LINKAGE			Unit: mm (in)	
ITEM			STANDARD	SERVICE LIMIT
Clutch lever free play			10 – 20 (3/8 – 13/16)	_____
Clutch spring free length			49.6 (1.95)	46.6 (1.83)
Clutch disc thickness			3.72 – 3.88 (0.146 – 0.153)	3.5 (0.14)
Clutch plate warpage			_____	0.30 (0.012)
Clutch outer guide	I.D.		28.000 – 28.021 (1.1024 – 1.1032)	28.031 (1.1036)
	O.D.		34.975 – 34.991 (1.3770 – 1.3776)	34.965 (1.3766)
Mainshaft O.D. at clutch outer guide			27.980 – 27.993 (1.1016 – 1.1021)	27.970 (1.1012)

ALTERNATOR/STARTER CLUTCH			Unit: mm (in)	
ITEM			STANDARD	SERVICE LIMIT
Starter driven gear boss O.D.			57.749 – 57.768 (2.2736 – 2.2743)	57.639 (2.2692)

GENERAL INFORMATION

Unit: mm (in)

CRANKCASE/TRANSMISSION ITEM			STANDARD	SERVICE LIMIT
Shift fork	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.	M4, 5	31.000–31.016 (1.2205–1.2211)	31.04 (1.222)
		C1	26.000–26.021 (1.0236–1.0244)	26.04 (1.025)
		C2, 3	33.000–33.025 (1.2992–1.3002)	33.05 (1.301)
	Bushing O.D.	M4, 5	30.955–30.980 (1.2187–1.2197)	30.93 (1.218)
		C2, 3	32.955–32.980 (1.2974–1.2984)	32.93 (1.296)
	Bushing I.D.	M4	27.985–28.006 (1.1018–1.1026)	28.02 (1.103)
		C2	29.985–30.006 (1.1805–1.1813)	30.02 (1.182)
	Gear-to-bushing clearance	M4, 5	0.020–0.061 (0.0008–0.0024)	0.10 (0.004)
		C2, 3	0.020–0.070 (0.0008–0.0028)	0.11 (0.004)
	Mainshaft O.D.	M4	27.967–27.980 (1.1011–1.1016)	27.94 (1.100)
Countershaft O.D.	C2	29.967–29.980 (1.1798–1.1803)	29.92 (1.178)	
Bushing-to-shaft clearance	M4	0.005–0.039 (0.0002–0.0015)	0.06 (0.002)	
	C2	0.010–0.055 (0.0004–0.0022)	0.06 (0.002)	

Unit: mm (in)

CRANKSHAFT/PISTON/CYLINDER ITEM			STANDARD	SERVICE LIMIT
Crankshaft	Connecting rod side clearance		0.10–0.30 (0.004–0.012)	0.40 (0.016)
	Crankpin bearing oil clearance		0.032–0.050 (0.0013–0.0020)	0.060 (0.0024)
	Main journal bearing oil clearance		0.020–0.038 (0.0008–0.0015)	0.048 (0.0019)
	Runout		—	0.10 (0.004)
Cylinder	I.D.		98.005–98.025 (3.8585–3.8592)	98.100 (3.8622)
	Out of round		—	0.10 (0.004)
	Taper		—	0.10 (0.004)
	Warpage		—	0.05 (0.002)
Piston, piston rings	Piston mark direction		"IN" mark facing toward the intake side	—
	Piston O.D.		97.983–97.985 (3.8576–3.8577)	97.900 (3.8543)
	Piston O.D. measurement point		20 mm (0.8 in) from bottom of skirt	—
	Piston pin bore I.D.		24.002–24.008 (0.9450–0.9452)	24.03 (0.946)
	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)	0.55 (0.022)
	Piston ring-to-ring groove clearance	Top	0.065–0.100 (0.0026–0.0039)	0.115 (0.0045)
		Second	0.035–0.070 (0.0014–0.0028)	0.085 (0.0033)
	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)		0.425–0.475 (0.0167–0.0187)	0.70 (0.028)	
Cylinder-to-piston clearance			0.010–0.055 (0.0004–0.0022)	0.200 (0.0079)
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)	0.067 (0.0026)

GENERAL INFORMATION

FRONT WHEEL/SUSPENSION/STEERING		Unit: mm (in)	
ITEM		STANDARD	SERVICE LIMIT
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		—————	0.20 (0.008)
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	428.8 (16.88)	420.2 (16.54)
	Spring direction	With the tapered end facing down	
	Tube runout	—————	0.20 (0.008)
	Recommended fork fluid	Fork fluid	
	Fluid level	114 (4.5)	
Fluid capacity		529 ± 2.5 cm ³ (17.9 ± 0.08 US oz, 18.7 ± 0.09 Imp oz)	
Steering head bearing pre-load		1.0 – 1.5 kgf (2.2 – 3.3 lbf)	

REAR WHEEL/SUSPENSION		Unit: mm (in)	
ITEM		STANDARD	SERVICE LIMIT
Minimum tire tread depth		—————	2.0 (0.08)
Cold tire pressure	Driver only	250 kPa (2.50 kgf/cm ² , 36 psi)	—————
	Driver and passenger	280 kPa (2.80 kgf/cm ² , 41 psi)	—————
Axle runout		—————	0.20 (0.008)
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	DID525 HV/112 LE
		RK	RK525 ROZ1/112 LE
	Slack	35 – 45 (1 3/8 – 1 3/4)	

GENERAL INFORMATION

Unit: mm (in)

HYDRAULIC BRAKE			STANDARD		SERVICE LIMIT	
ITEM						
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.		12.700–12.743 (0.5000–0.5017)		12.755 (0.5022)	
	Master piston O.D.		12.657–12.684 (0.4983–0.4994)		12.645 (0.4978)	
	Secondary master cylinder I.D.		12.700–12.743 (0.5000–0.5017)		12.755 (0.5022)	
	Secondary master piston O.D.		12.657–12.684 (0.4983–0.4994)		12.645 (0.4978)	
	Caliper cylinder I.D.	Right	Upper	27.000–27.050 (1.0630–1.0650)		27.060 (1.0654)
			Middle	22.650–22.700 (0.8917–0.8937)		22.710 (0.8941)
			Lower	27.000–27.050 (1.0630–1.0650)		27.060 (1.0654)
		Left	Upper	25.400–25.450 (1.0000–1.0020)		25.460 (1.0024)
			Middle	22.650–22.700 (0.8917–0.8937)		22.710 (0.8941)
			Lower	25.400–25.450 (1.0000–1.0020)		25.460 (1.0024)
	Caliper piston O.D.	Right	Upper	26.935–26.968 (1.0604–1.0617)		26.910 (1.0594)
			Middle	22.585–22.618 (0.8892–0.8905)		22.560 (0.8882)
Lower			26.935–26.968 (1.0604–1.0617)		26.910 (1.0594)	
Left		Upper	25.335–25.368 (0.9974–0.9987)		25.310 (0.9965)	
		Middle	22.585–22.618 (0.8892–0.8905)		22.560 (0.8882)	
		Lower	25.335–25.368 (0.9974–0.9987)		25.310 (0.9965)	
Rear	Specified brake fluid		DOT 4			
	Brake pedal height		82.5–84.5 (3.25–3.33)			
	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.		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.	Front	22.650–22.700 (0.8917–0.8937)		22.710 (0.8941)	
		Center	27.000–27.050 (1.0630–1.0650)		27.060 (1.0654)	
		Rear	22.650–22.700 (0.8917–0.8937)		22.710 (0.8941)	
	Caliper piston O.D.	Front	22.585–22.618 (0.8892–0.8905)		22.560 (0.8882)	
Center		26.935–26.968 (1.0604–1.0617)		26.910 (1.0594)		
Rear		22.585–22.618 (0.8892–0.8905)		22.560 (0.8882)		

BATTERY/CHARGING SYSTEM			SPECIFICATIONS	
ITEM				
Battery	Capacity		12V–12AH	
	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	1.2 A/5–10h	
Quick		5.0 A/0.5 h		
Alternator	Capacity		0.315 kW/5,000 min ⁻¹ (rpm)	
	Charging coil resistance (20 °C/68 °F)		0.3 – 0.5 Ω	

IGNITION SYSTEM		
ITEM		SPECIFICATIONS
Spark plug		DPR8EVX-9 (NGK)
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)		15° BTDC at idle
Engine coolant temperature (ECT) sensor resistance	At 20 °C (68 °F)	2-3 kΩ
	At 80 °C (176 °F)	200-400 Ω
Throttle sensor	resistance (20 °C/68 °F)	4-6 kΩ
	Input voltage	4.7-5.3 V

ELECTRIC STARTER			Unit: mm (in)
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	High/Low	12V-60/55W × 2
	Position light		12V-5W
	Brake/tail light		12V-21/5W × 2
	Front turn signal light		12V-21W
	Rear turn signal light		12V-21W
	License light		12V-5W
	Instrument light		12V-1.7W, 12V-3.4W × 2
	Turn signal indicator		12V-3.4W × 2
	High beam indicator		12V-1.7W
	Neutral indicator		12V-3.4W
	Oil pressure indicator		12V-3.4W
	Fuel indicator		12V-3.4W
Fuse	Main fuse		30 A
	Sub fuse		20 A × 1, 10 A × 5
Fan motor switch	Start to close (ON)		98-102 °C (208-216 °F)
	Stop to open		93-97 °C (199-207 °F)
Coolant temperature sensor resistance		at 80 °C/176 °F	47-57 Ω
		at 120 °C/248 °F	14-18 Ω
Fuel pump flow capacity			Minimum 700 cm ³ (23.7 US oz, 24.6 Imp oz)/minute at 13 V

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)	9 (0.9 , 6.5)
10 mm hex bolt and nut	34 (3.5 , 25)	6 mm flange bolt (10 mm head)	12 (1.2 , 9)
12 mm hex bolt and nut	54 (5.5 , 40)	and nut	
		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. Apply molybdenum disulfide oil to the threads and flange surface.
 4. Apply grease to the threads.
 5. Stake.
 6. Apply oil to the threads and flange surface.
 7. Apply clean engine oil to the O-ring.
 8. U-nut.
 9. ALOC bolt/screw: replace with a new one.
 10. CT bolt.

ENGINE

ITEM	Q'TY	THREAD DIA. (mm)	TORQUE N·m (kgf·m, lbf·ft)	REMARKS
MAINTENANCE:				
Spark plug	2	12	14 (1.4 , 10)	
Crankshaft hole cap	1	30	15 (1.5 , 11)	NOTE 4
Timing hole cap	1	14	10 (1.0 , 7)	NOTE 4
Oil filter cartridge	1	20	10 (1.0 , 7)	NOTE 6, 7
Oil drain bolt	1	12	30 (3.1 , 22)	
LUBRICATION SYSTEM:				
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)	
Oil pump mounting bolt	3	6	12 (1.2 , 9)	
Oil pump bolt	2	6	13 (1.3 , 9)	
Oil filter boss	1	20	18 (1.8 , 13)	NOTE 2
Oil pump driven sprocket bolt	1	6	15 (1.5 , 11)	NOTE 2
FUEL SYSTEM:				
Carburetor insulator band bolt	4	5	1 (0.1 , 0.7)	
Reed valve cover bolt	4	5	5 (0.52 , 3.8)	NOTE 2
ENGINE MOUNTING:				
Drive sprocket bolt	1	10	54 (5.5 , 40)	
CYLINDER HEAD/VALVES:				
Cylinder head cover bolt	8	6	10 (1.0 , 7)	
Breather plate bolt	4	6	12 (1.2 , 9)	NOTE 2
Cam sprocket bolt	4	7	20 (2.0 , 14)	NOTE 2
Camshaft holder bolt	16	7	21 (2.1 , 15)	NOTE 6
Cylinder head bolt	12	10	53 (5.4 , 39)	NOTE 6
Cylinder head sealing bolt	2	12	32 (3.3 , 24)	NOTE 2
Intake manifold vacuum port socket bolt	2	5	3 (0.34 , 2.5)	

ENGINE (Cont'd)

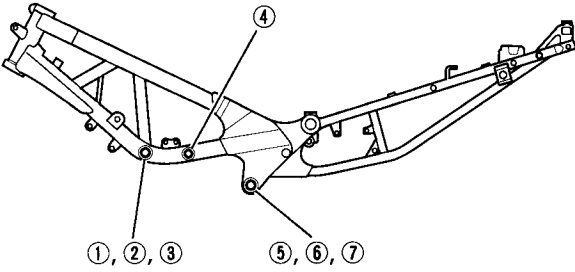
ITEM	Q'TY	THREAD DIA. (mm)	TORQUE N·m (kgf·m, lbf·ft)	REMARKS
CLUTCH/GEARSHIFT LINKAGE:				
Clutch spring bolt	5	6	12 (1.2, 9)	
Clutch center lock nut	1	25	127 (13.0, 94)	NOTE 5, 6
Gearshift cam bolt	1	8	23 (2.3, 17)	NOTE 2
Gearshift spindle return spring pin	1	8	23 (2.3, 17)	
Primary drive gear bolt	1	12	88 (9.0, 65)	NOTE 6
ALTERNATOR/STARTER CLUTCH:				
Flywheel bolt	1	12	157 (16.0, 116)	NOTE 6
Starter one-way clutch socket bolt	6	8	23 (2.3, 17)	NOTE 2
Stator socket bolt	3	6	12 (1.2, 9)	
CRANKCASE/TRANSMISSION:				
Cam chain tensioner bolt	2	8	23 (2.3, 17)	NOTE 2
Cam chain guide bolt	2	8	23 (2.3, 17)	NOTE 2
Crankcase flange bolt	1	10	39 (4.0, 29)	
Crankcase special bolt	8	10	42 (4.3, 31)	NOTE 6
Crankcase sealing bolt (15 mm)	1	15	29 (3.0, 22)	NOTE 2
(18 mm)	1	18	29 (3.0, 22)	NOTE 2
(22 mm)	1	22	29 (3.0, 22)	
(24 mm)	1	24	49 (5.0, 36)	NOTE 2
CRANKSHAFT/PISTON/CYLINDER:				
Connecting rod bolt	4	9	29 (3.0, 22) ± 120°	NOTE 6, 9
IGNITION SYSTEM:				
Ignition pulse generator mounting bolt	2	6	12 (1.2, 9)	NOTE 2
ELECTRIC STARTER:				
Starter motor terminal nut	1	6	10 (1.0, 7)	
LIGHT/METERS/SWITCHES:				
Neutral switch	1	10	12 (1.2, 9)	

FRAME

ITEM	Q'TY	THREAD DIA. (mm)	TORQUE N·m (kgf·m, lbf·ft)	REMARKS
FRAME BODY PANELS/EXHAUST SYSTEM:				
Exhaust pipe joint nut	4	7	12 (1.2, 9)	
Muffler band bolt	2	8	26 (2.7, 20)	
Fuel cock nut	1	22	34 (3.5, 25)	
Upper cowl stay mounting bolt (upper)	2	8	34 (3.5, 25)	
(lower)	2	10	44 (4.5, 33)	
Upper cowl stay mounting nut (head pipe)	1	10	44 (4.5, 33)	
COOLING SYSTEM:				
Thermo sensor	1	PT1/8	9 (0.9, 6.5)	NOTE 1
Engine coolant temperature (ECT) sensor	1	12	23 (2.3, 17)	
Fan motor switch	1	16	17 (1.7, 12)	

GENERAL INFORMATION

FRAME (Cont'd)

ITEM	Q'TY	THREAD DIA. (mm)	TORQUE N-m (kgf-m, lbf-ft)	REMARKS
ENGINE MOUNTING:				
Front engine hanger nut ①	1	12	64 (6.5 , 47)	Page 7-6
Front engine hanger adjusting bolt ②	1	20	3 (0.3 , 2.2)	
Front engine hanger lock nut ③	1	20	54 (5.5 , 40)	
Center engine hanger bolt ④	2	10	39 (4.0 , 29)	
Rear engine hanger nut ⑤	1	12	64 (6.5 , 47)	
Rear engine hanger adjusting bolt ⑥	1	20	3 (0.3 , 2.2)	
Rear engine hanger lock nut ⑦	1	20	54 (5.5 , 40)	
				
FRONT WHEEL/SUSPENSION/STEERING:				
Handlebar weight mounting screw	2	6	10 (1.0 , 7)	NOTE 9
Throttle housing screw	2	5	4 (0.42 , 3.0)	
Bystarter lever pivot bolt	1	6	9 (0.9 , 6.5)	Page 13-33
Handlebar upper holder bolt	4	8	27 (2.8 , 20)	
Handlebar lower holder nut	2	8	27 (2.8 , 20)	
Steering stem nut	1	24	103 (10.5 , 76)	
Steering stem bearing adjusting nut	1	26	25 (2.5 , 18)	
Steering stem bearing lock nut	1	26		
Fork top bridge pinch bolt	4	8	22 (2.2 , 16)	
Fork bottom bridge pinch bolt	4	8	27 (2.8 , 20)	
Front axle bolt	1	14	59 (6.0 , 43)	
Front axle holder bolt	4	8	22 (2.2 , 16)	
Front brake disc bolt	12	6	20 (2.0 , 14)	NOTE 9
Fork socket bolt	2	8	20 (2.0 , 14)	NOTE 2
Fork cap	2	39	22 (2.2 , 16)	
REAR WHEEL/SUSPENSION:				
Rear axle nut	1	18	93 (9.5 , 69)	NOTE 8
Final driven sprocket nut	5	12	108 (11.0 , 80)	NOTE 9
Rear brake disc bolt	4	8	42 (4.3 , 31)	
Shock link bracket bolt	1	12	54 (5.5 , 40)	NOTE 8
Swingarm pivot nut	1	14	59 (6.0 , 43)	
Drive chain slider screw	2	5	4 (0.42 , 3.0)	
Shock absorber upper mounting nut	1	10	59 (6.0 , 43)	
Shock absorber lower mounting nut	1	10	44 (4.5 , 33)	
Shock link-to-bracket nut	1	10	59 (6.0 , 43)	
Shock link-to-shock link plate nut	1	10	44 (4.5 , 33)	
Swingarm-to-shock link plate nut	1	12	88 (9.0 , 65)	

FRAME (Cont'd)

ITEM	Q'TY	THREAD DIA. (mm)	TORQUE N·m (kgf·m, lbf·ft)	REMARKS
HYDRAULIC BRAKE:				
Front brake master cylinder holder bolt	2	6	12 (1.2, 9)	
Front brake master cylinder cap screw	2	4	1 (0.15, 1.1)	
Brake lever pivot bolt	1	6	1 (0.1, 0.7)	
Brake lever pivot nut	1	6	6 (0.6, 4.3)	
Brake lever adjuster	1	5	4 (0.4, 2.9)	
Front brake light switch screw	1	4	1 (0.12, 0.9)	
Right front caliper mounting bolt	2	8	31 (3.2, 23)	NOTE 9
Left front caliper pivot bolt	1	8	31 (3.2, 23)	NOTE 9
Left front caliper bolt (secondary master joint)	1	8	31 (3.2, 23)	NOTE 9
Caliper body B bolt	9	8	32 (3.3, 24)	NOTE 9
Front brake caliper slide pin (main)	3	12	23 (2.3, 17)	
Front brake caliper slide pin (sub)	3	8	13 (1.3, 9)	
Pad pin	3	10	18 (1.8, 13)	
Brake caliper bleed valve	6	8	6 (0.6, 4.3)	
Secondary master cylinder push rod nut	1	8	18 (1.8, 13)	
Secondary master cylinder connector	2	6	10 (1.0, 7)	
Rear master cylinder mounting bolt	2	6	12 (1.2, 9)	
Rear master cylinder reservoir mounting bolt	1	6	12 (1.2, 9)	
Rear master cylinder push rod nut	1	8	18 (1.8, 13)	
Rear master cylinder hose joint screw	1	4	1 (0.15, 1.1)	NOTE 2
Brake hose oil bolt	12	10	35 (3.6, 26)	
Brake pipe joint	8	10	17 (1.7, 12)	NOTE 6
Brake pipe 2/3 way joint	2	6	12 (1.2, 9)	
Brake hose guide bolt	2	6	12 (1.2, 9)	
Delay valve mounting bolt	2	6	12 (1.2, 9)	
PCV (Proportional Control Valve) mounting bolt	2	6	12 (1.2, 9)	
IGNITION SYSTEM:				
Rear ignition coil mounting bolt	2	6	12 (1.2, 9)	
LIGHTS/METERS/SWITCHES:				
Side stand pivot bolt	1	10	10 (1.0, 7)	
Side stand pivot lock nut	1	10	29 (3.0, 22)	
Side stand switch bolt	1	6	10 (1.0, 7)	
Fuel level sensor	1	18	23 (2.3, 17)	
OTHERS:				
Rear turn signal nut	2	10	5 (0.5, 3.6)	
Footpeg bracket bolt	2	8	35 (3.6, 26)	
Bank sensor bolt	2	8	10 (1.0, 7)	
Gearshift pedal link joint nut	2	8	27 (2.8, 20)	

GENERAL INFORMATION

TOOLS

- NOTES: 1. Equivalent commercially available.
 2. Alternative tool.
 3. Newly provided tool.
 4. Newly designed tool.

DESCRIPTION	TOOL NUMBER	REMARKS	REF. SEC.
Carburetor float level gauge	07401-0010000		5
Oil pressure gauge	07506-3000000		4
Oil pressure gauge attachment	07406-0030000		4
Gear holder	07724-0010100		9
Clutch center holder	07724-0050002		9
Flywheel holder	07725-0040000	NOTE 1	10
Rotor puller	07733-0020001		10
Valve guide remover	07742-0010100		8
Remover weight	07741-0010201		6
Adjustable valve guide driver	07743-0020000		8
Attachment, 32 × 35 mm	07746-0010100		9, 14
Attachment, 37 × 40 mm	07746-0010200		9, 14
Attachment, 42 × 47 mm	07746-0010300		9, 13, 14
Attachment, 52 × 55 mm	07746-0010400		13, 14
Attachment, 62 × 68 mm	07746-0010500		14
Attachment, 24 × 26 mm	07746-0010700		14
Attachment, 22 × 24 mm	07746-0010800		14
Driver B	07746-0030100		11
Inner driver, 35 mm	07746-0030400		11
Pilot, 10 mm	07746-0040100		6
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		6, 9, 13, 14
Valve spring compressor	07757-0010000		8
Valve seat cutter		NOTE 1	8
Seat cutter, 35 mm (45° EX)	07780-0010400		
Seat cutter, 40 mm (45° IN)	07780-0010500		
Flat cutter, 35 mm (32° EX)	07780-0012300		
Flat cutter, 38 mm (32° IN)	07780-0012400		
Interior cutter, 37.5 mm (60° EX)	07780-0014100		
Interior cutter, 42 mm (60° IN)	07780-0014400		
Pilot screw wrench	07908-4730002		5
Snap ring pliers	07914-SA50001		15
Steering stem socket	07916-3710101		13
Remover shaft	07936-GE00100		6
Remover head, 10 mm	07936-GE00200		6
Attachment, 28 × 30 mm	07946-1870100		6
Bearing race remover	07946-3710500		13
Needlebearing remover	07946-KA50000		13
Mechanical seal driver attachment	07946-4150400		6
Steering stem driver	07946-MB00000		13
Oil seal driver	07947-KA40200		13
Slider weight	07947-KA50100		13
Driver handle attachment	07949-3710001		14
Ball race remover	07953-MJ10000		13
Driver attachment	07953-MJ10100		
Driver handle	07953-MJ10200		

DESCRIPTION	TOOL NUMBER	REMARKS	REF. SEC.
Oil filter wrench	07HAA-PJ70100	NOTE 3: Imrie diagnostic tester (model 625)	3
Peak voltage adaptor	07HGJ-0020100		17, 19
Drive chain tool set	07HMH-MR10103		3
Needle bearing remover	07LMC-KV30100		14
Lock nut wrench	07VMA-MBB0100		7
Cutter holder, 6 mm	07VMH-MBB0100		8
Valve guide reamer, 6.012 mm	07VMH-MBB0200		8
Analog tester (KOWA)	TH-5H		16, 17, 18, 19
Analog tester (SANWA)	SP-15D		16, 17, 18, 19