

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

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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

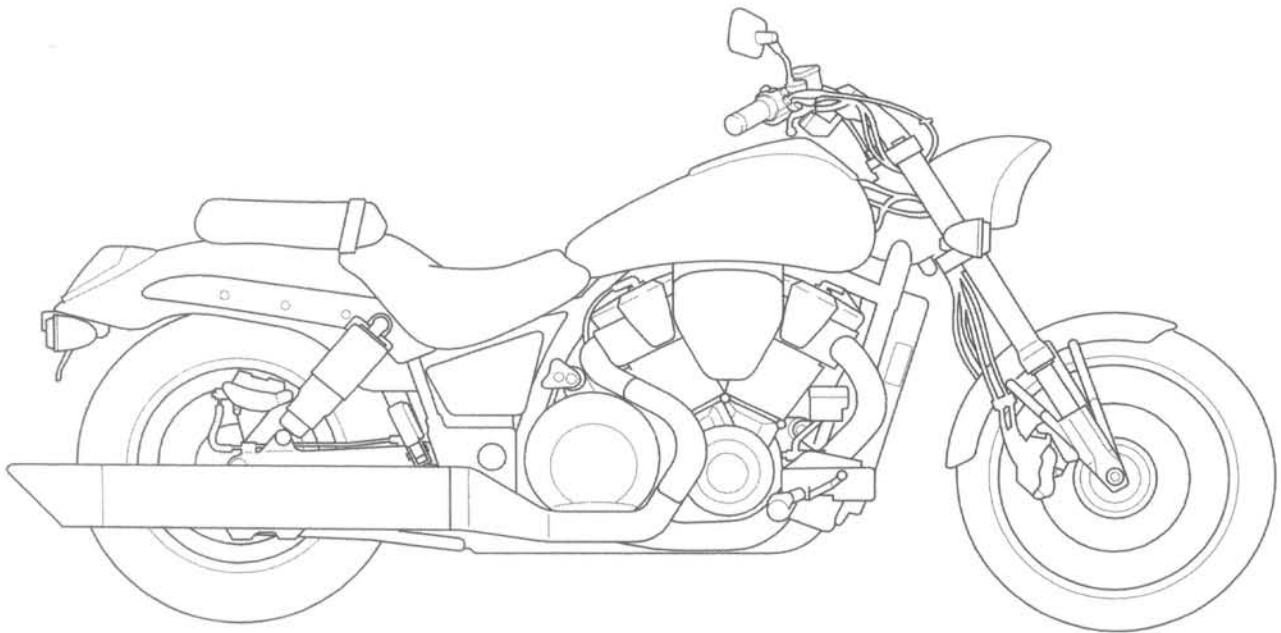
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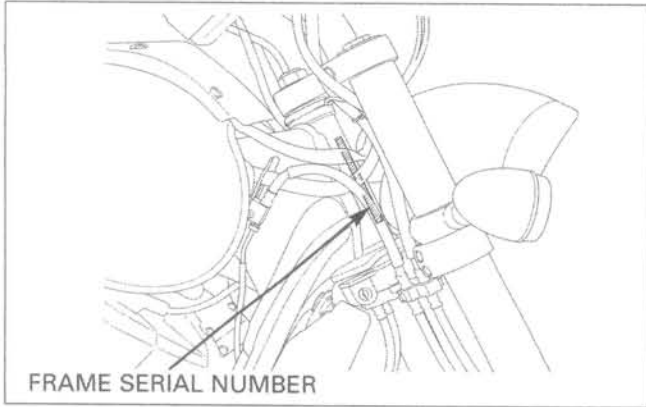
SERVICE RULES

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 1-32, Cable and Harness Routing.

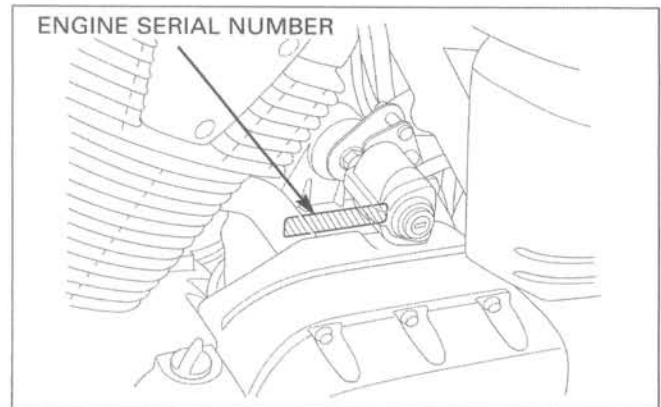
MODEL IDENTIFICATION



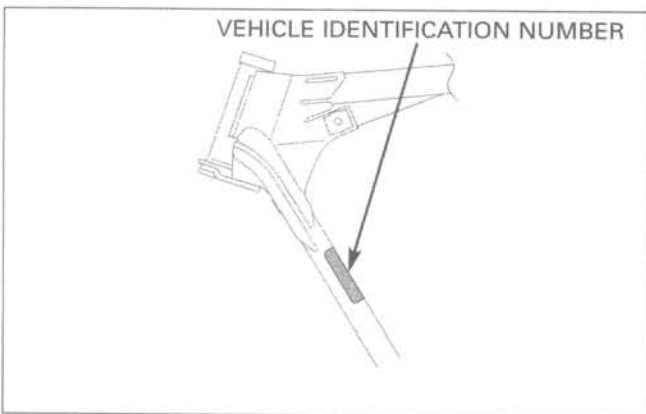
GENERAL INFORMATION



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



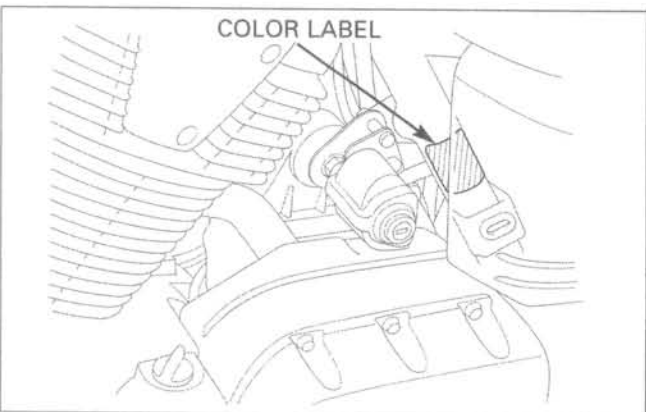
- (2) The engine serial number is stamped on the right side of the upper crankcase.



- (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 ³ (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 ² , 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 ² , 50 psi)	
Fuel pump flow (at 12 V)	188 cm ³ (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 ² , 16 – 20 psi)
Thermostat	Begin to open	80 – 84 °C (176 – 183 °F)
	Fully open	95 °C (203 °F)
	Valve lift	8 mm (0.3 in) minimum
Recommended antifreeze		Pro Honda HP coolant or 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 ² , 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)

CYLINDER/PISTON		STANDARD	SERVICE LIMIT	
ITEM				
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)

CLUTCH/GEARSHIFT LINKAGE		STANDARD	SERVICE LIMIT
ITEM			
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)

ALTERNATOR/STARTER CLUTCH		STANDARD	SERVICE LIMIT
ITEM			
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 ³ (5.1 US oz, 5.3 Imp oz)	—
	at draining	120 cm ³ (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 ² , 33 psi)	—	
	Up to maximum weight capacity		225 kPa (2.25 kgf/cm ² , 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 ³ (23.2 ± 0.08 US oz, 24.1 ± 0.09 Imp oz)	—
		Left		770 ± 2.5 cm ³ (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 ² , 33 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.
Shock absorber	Spring adjuster standard position		Position 2	—

GENERAL INFORMATION

Unit: mm (in)

HYDRAULIC BRAKE			STANDARD	SERVICE LIMIT
ITEM				
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			SPECIFICATIONS
ITEM			
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.

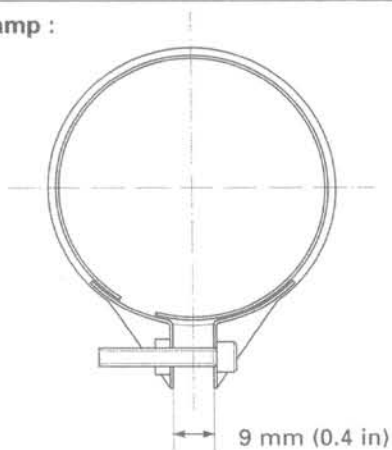
- NOTES:
1. Apply sealant to the threads.
 2. Apply a locking agent to the threads.
 3. Stake.
 4. Apply oil to the threads and flange surface.
 5. U-nut.
 6. ALOC bolt/screw: replace with a new one.
 7. Apply grease to the threads.
 8. Apply molybdenum disulfide oil to the threads and seating surface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

ENGINE

ITEM	Q'TY	THREAD DIA. (mm)	TORQUE N•m (kgf•m, lbf•ft)	REMARKS
LUBRICATION SYSTEM:				
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)	
COOLING SYSTEM:				
Water pump assembly bolt	2	6	13 (1.3, 9)	
CYLINDER HEAD/VALVES:				
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)	

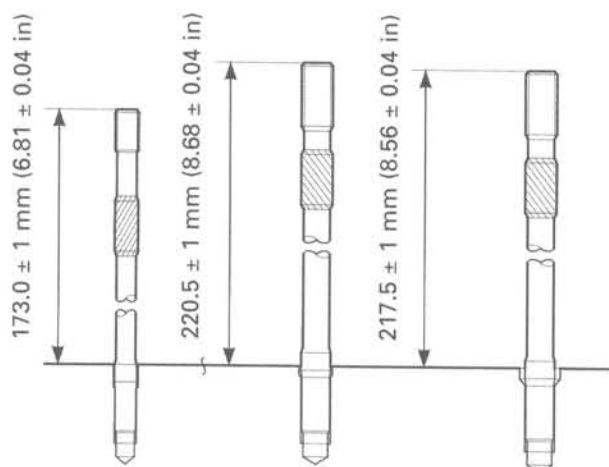
ENGINE (Cont'd)				
ITEM	Q'TY	THREAD DIA. (mm)	TORQUE N•m (kgf•m, lbf•ft)	REMARKS
CLUTCH/GEARSHIFT LINKAGE:				
Clutch lifter plate bolt	5	6	12 (1.2, 9)	
Clutch center lock nut	1	25	186 (19.0, 137)	NOTE 3, 4
Primary drive gear bolt	1	12	137 (14.0, 101)	NOTE 4
Primary driven gear nut	1	25	186 (19.0, 137)	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)	
ALTERNATOR/STARTER CLUTCH:				
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)	
CRANKCASE/TRANSMISSION:				
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)	
ELECTRIC STARTER:				
Starter motor cable terminal nut	1	6	7 (0.7, 5.1)	
Starter motor case bolt	2	5	5 (0.5, 3.6)	
LIGHTS/METERS/SWITCHES:				
Neutral switch	1	10	12 (1.2, 9)	

Insulator clamp :

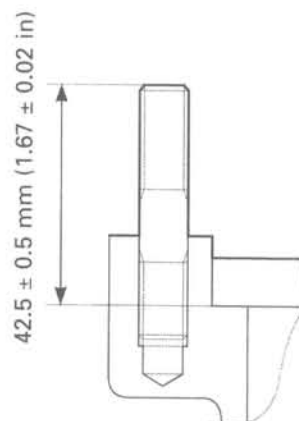


GENERAL INFORMATION

Crankcase stud bolts:



Exhaust pipe stud bolt:



FRAME

ITEM	Q'TY	THREAD DIA. (mm)	TORQUE N•m (kgf•m, lbf•ft)	REMARKS
FRAME BODY PANELS/EXHAUST SYSTEM:				
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)	
FUEL SYSTEM (Programmed Fuel Injection):				
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 ₂ sensor	1	12	25 (2.6, 19)	
COOLING SYSTEM:				
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
ENGINE MOUNTING:				
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)	
CLUTCH/GEARSHIFT LINKAGE:				
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)	
FINAL DRIVE:				
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)	
FRONT WHEEL/SUSPENSION/STEERING:				
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)	
REAR WHEEL/SUSPENSION:				
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
HYDRAULIC BRAKE:				
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)	
LIGHTS/METERS/SWITCHES:				
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
OTHERS:				
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

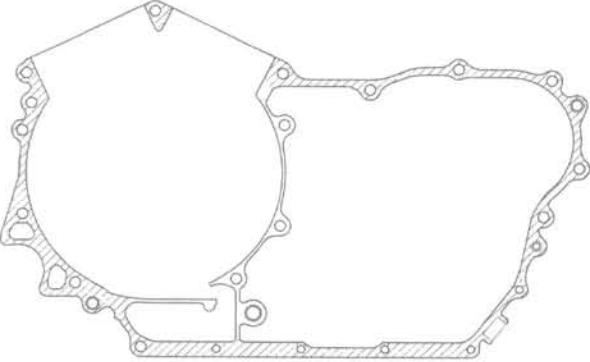
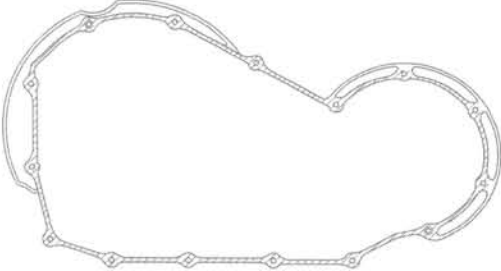
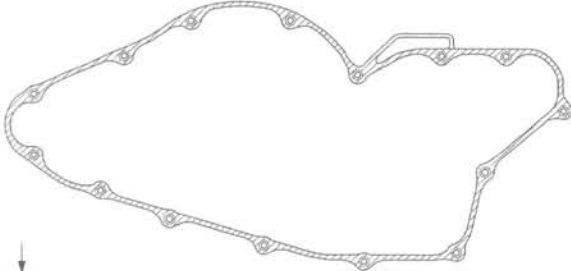
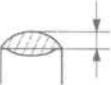
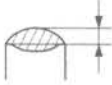
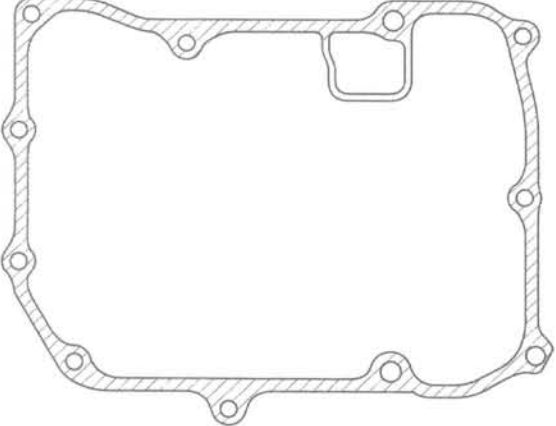
- NOTES: 1. Equivalent commercially available in U.S.A.
 2. Not available in U.S.A.
 3. Alternative tool.
 4. Newly designed tool.

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

GENERAL INFORMATION

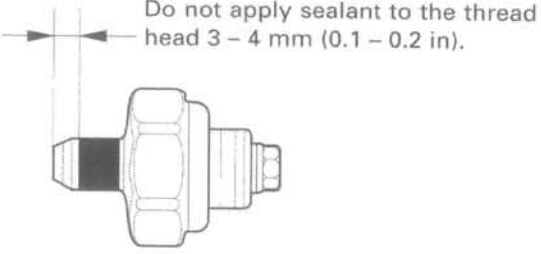
DESCRIPTION	TOOL NUMBER	REMARKS	REF. SEC.
Steering stem driver	07946-MB00000		13
Bearing race remover	07946-3710500		13
Driver	07949-3710001		12, 13, 14
Bearing puller driver attachment	07965-MB00100		12
Oil seal driver	07965-MC70100		12
Valve guide reamer, 6.6 mm	07984-657010D		8
Bearing driver attachment	07GAD-SD40101		12
Bearing remover shaft	07GGD-0010100		13, 14
Oil filter wrench	07HAA-PJ70101	NOTE 3: 07HAA-PJ70100	3
Peak voltage adaptor	07HGJ-0020100	NOTE3: Peak voltage tester	5, 17
Puller base	07HMC-MM8011A		12
Holder plate	07HGB-001010B	NOTE 3: 07HGB-001010A	10
Holder collar A	07HGB-001020B	NOTE 3: 07HGB-001020A	10
Fork seal driver, 45 mm	07KMD-KZ30100		13
Vacuum gauge set	07LMJ-001000A		5
Case puller	07SMC-0010001		12
Lock nut wrench, 36 x 44 mm	07VMA-MZ0010A		13
Torque limiter inspection tool A	07YMJ-MCF0100	NOTE 2	18
Torque limiter inspection tool B	07YMJ-MCF0200	NOTE 2	18
ECU test harness	07YMZ-0010100		5
Valve guide driver, 8 mm	07ZMD-MCHA100	NOTE 4	8
Cutter holder, 8 mm	07ZMH-MCH0100	NOTE 1	8
Valve guide reamer, 8 mm	07ZMH-MCHA200		8
Battery tester	BM-210-AH	NOTE3: BM-210 (U.S.A. only)	16

LUBRICATION & SEAL POINTS

ENGINE	LOCATION	MATERIAL	REMARKS
	<p>Right and left crankcase mating surface</p> 	<p>Liquid sealant (Three Bond 1207B or equivalent)</p>	
	<p>Right and left crankcase cover mating surface</p> <p>Right crankcase cover:</p>  <p>Left crankcase cover:</p>  <p>0.2 - 0.3 mm (0.008 - 0.012 in)</p>  <p>0.2 - 0.3 mm (0.008 - 0.012 in)</p> 		
	<p>Cylinder head cover mating surface</p> 		

GENERAL INFORMATION

ENGINE (Cont'd)

LOCATION	MATERIAL	REMARKS
Ignition pulse generator grommet seating surface Alternator grommet seating surface Oil pressure switch threads 	Liquid sealant (Three Bond 1207B or equivalent)	
Crankshaft bearing thrust surface Crankshaft journals and pins Connecting rod bearing thrust surface Connecting rod small end inner surface Intake and exhaust valve sliding surface Camshaft journals and robes Rocker arm shaft outer surface Rocker arm slipper surface Clutch outer sliding surface Clutch outer guide sliding surface M2/3, C4, C5 shifter gear (shift fork grooves) Transmission spline collar outer surface Transmission collar inner and outer surface Starter reduction gear shaft outer surface Each oil seal lips	Molybdenum disulfide oil (a 1:1 mixture of engine oil and molybdenum disulfide grease)	
Piston outer surface and piston pin hole Piston ring outer surface Piston pin outer surface Connecting rod bearing cap bolt threads and seating surface Oil filter cartridge threads and mating surface Clutch disc lining surface Clutch center lock nut threads and seating surface Primary driven sprocket nut threads and seating surface Balancer weight bolt threads and seating surface Crankcase stud bolt threads Gearshift fork sliding surface Valve adjusting screw threads and seating surface Spark plug sleeve threads and O-rings Flywheel bolt threads and seating surface Primary drive gear bolt threads and seating surface Each bearings Each gears Each O-rings Other sliding and rotating surfaces	Engine oil	
Crankshaft hole cap threads Oil seal lips	Multi-purpose grease	

ENGINE (Cont'd)

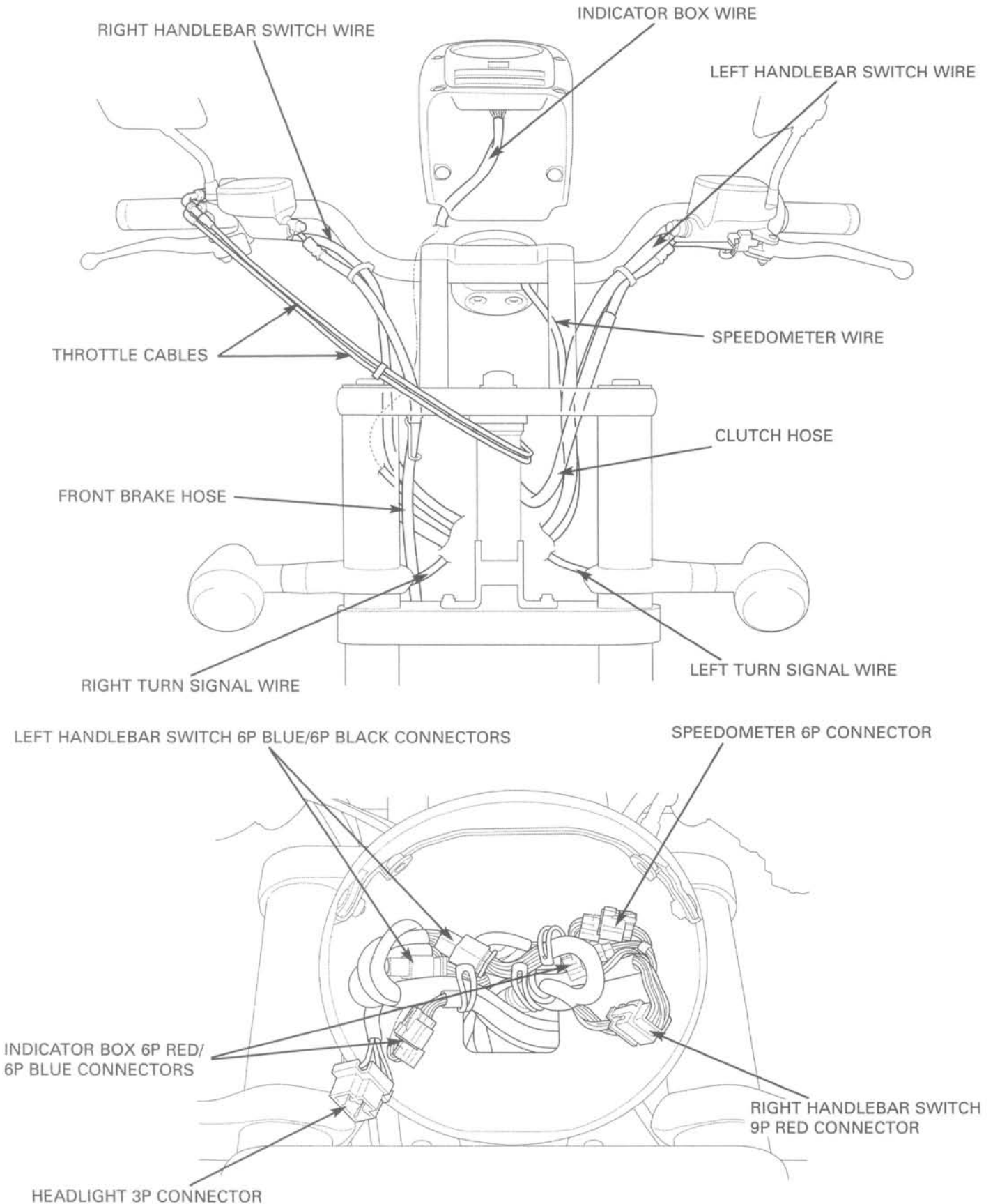
LOCATION	MATERIAL	REMARKS
Oil filter boss case side threads Cam sprocket bolt threads Oil pump driven sprocket bolt threads Shift drum center socket bolt threads Starter clutch outer bolt threads Stator bolt threads Stator wire clamp bolt threads Ignition pulse generator bolt threads and seating surface Bearing set plate A bolt threads Bearing set plate B bolt threads Oil pump chain guide bolt threads	Locking agent	Coating width: 6.5 ± 1 mm

GENERAL INFORMATION

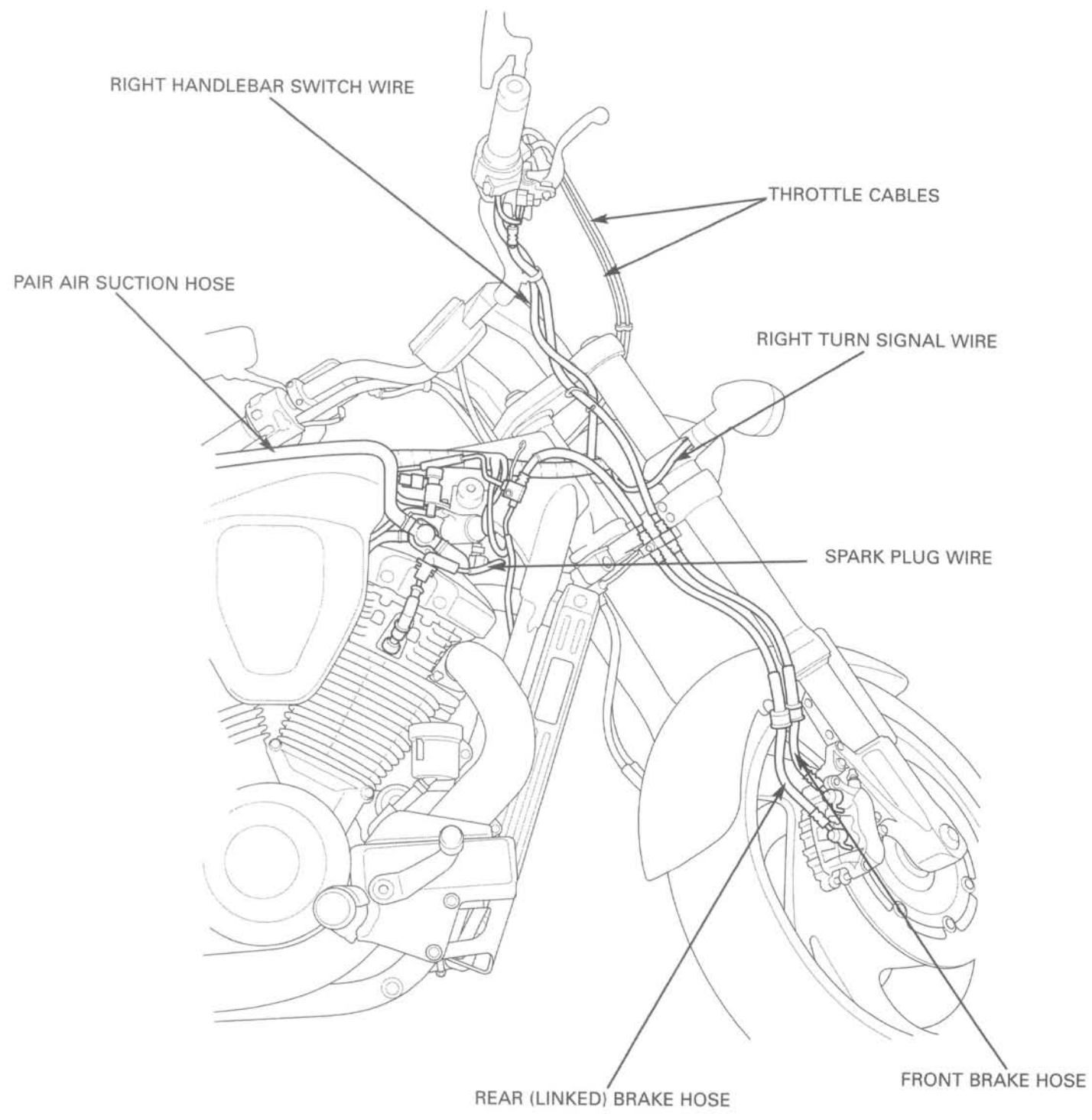
FRAME

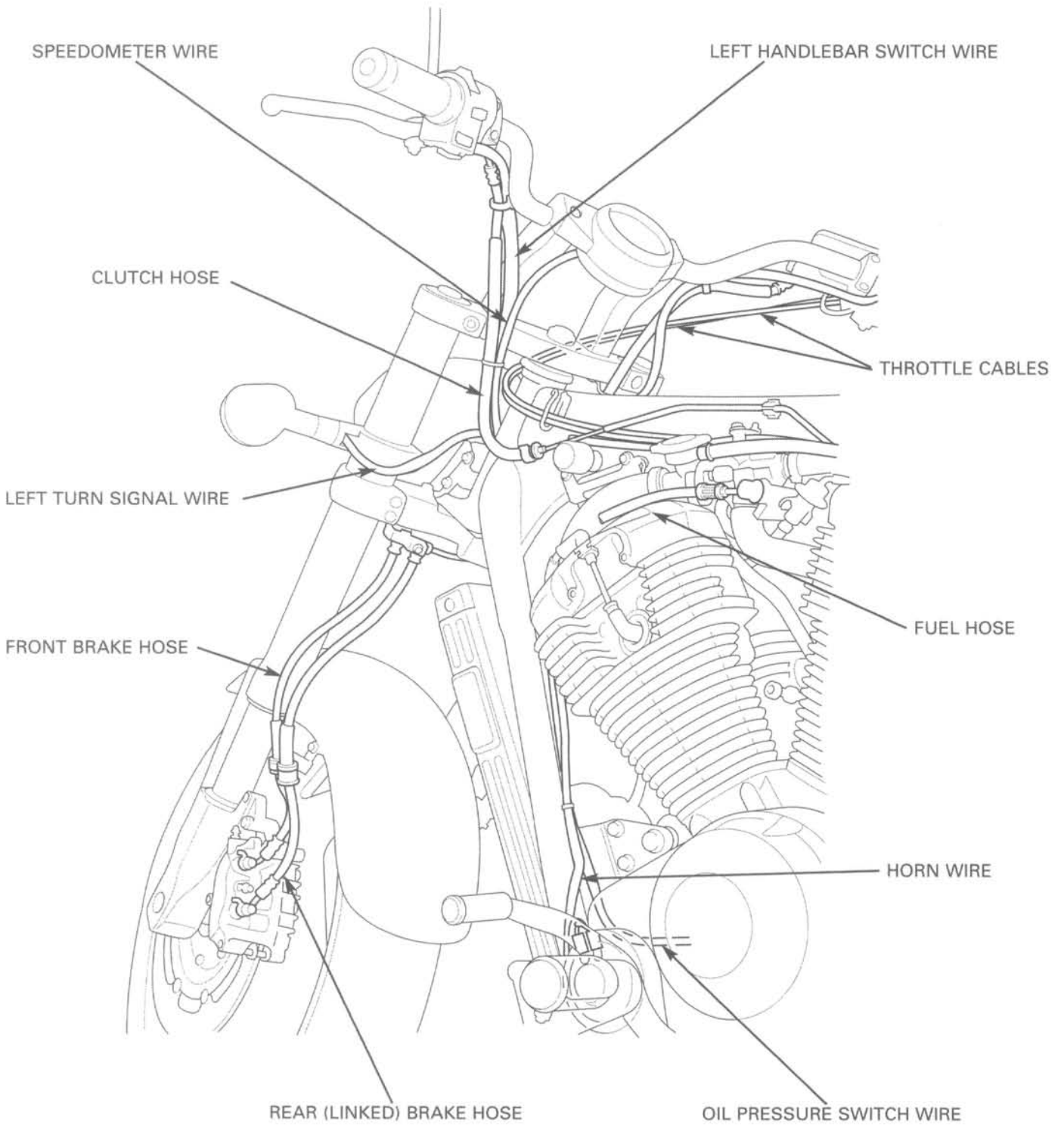
LOCATION	MATERIAL	REMARKS
Final gear case-to-case cover mating surface	Liquid sealant	
Side stand pivot surface Throttle grip pipe flange cable groove Step pivot surface Pillion step pivot surface Brake pedal pivot surface Change pedal pivot surface Front wheel dust seal lips Rear wheel dust seal lips Final gear case oil seal lips	Multi-purpose grease	Apply 1g Apply 0.2 - 0.3 g
Gearshift tie-rod ball joints Steering head bearing rolling area Steering head bearing dust seal lips Swingarm pivot bearing rolling area Swingarm pivot bearing dust seal lips Final drive shaft spline (universal joint) Output driven gear shaft spline (universal joint)	Multi-purpose grease (Shell Albania EP2 or equivalent)	Apply 3 g Apply 1 g Apply 1 g
Rear wheel hub-to-final driven flange mating surface Final driven flange O-ring, O-ring groove Final driven flange sliding portion Final drive pinion joint spline Final gear case ring gear shaft spline (final driven flange side)	Molybdenum disulfide paste (containing more than 40% molybdenum disulfide)	Apply 3 g Apply 2 g Apply 5 g
Throttle cables Speedometer cable	Cable lubricant	
Right and left handlebar grip rubber inner surface	Honda bond A or Honda Hand Grip Cement (U.S.A. only)	
Steering stem top thread A threads	Engine oil	
Front caliper pin bolt and pin bolt A sliding portion Rear caliper pin bolt and bracket pin bolt sliding portion Caliper piston seals Brake lever pivot Front brake lever-to-piston contacting portion Clutch lever pivot Clutch lever-to-piston contacting portion	Silicone grease	Apply 0.4 g Apply 0.1 g Apply 0.1 g Apply 0.1 g Apply 0.1 g
Caliper pistons Brake master cylinder piston and cups Clutch master cylinder piston and cups	DOT 4 brake fluid	
Fork dust seal lips Fork oil seal lips	Pro Honda Suspension Fluid SS-8	
Front caliper pin bolt and pin bolt A threads Rear caliper bracket pin bolt threads Fork socket bolt threads Final driven flange stud bolt threads (gear case side) Final gear case cover 10 mm bolt threads Final drive pinion gear shaft nut threads Rear shock absorber lower mounting 12 mm bolt threads (final gear case side)	Locking agent	

CABLE & HARNESS ROUTING

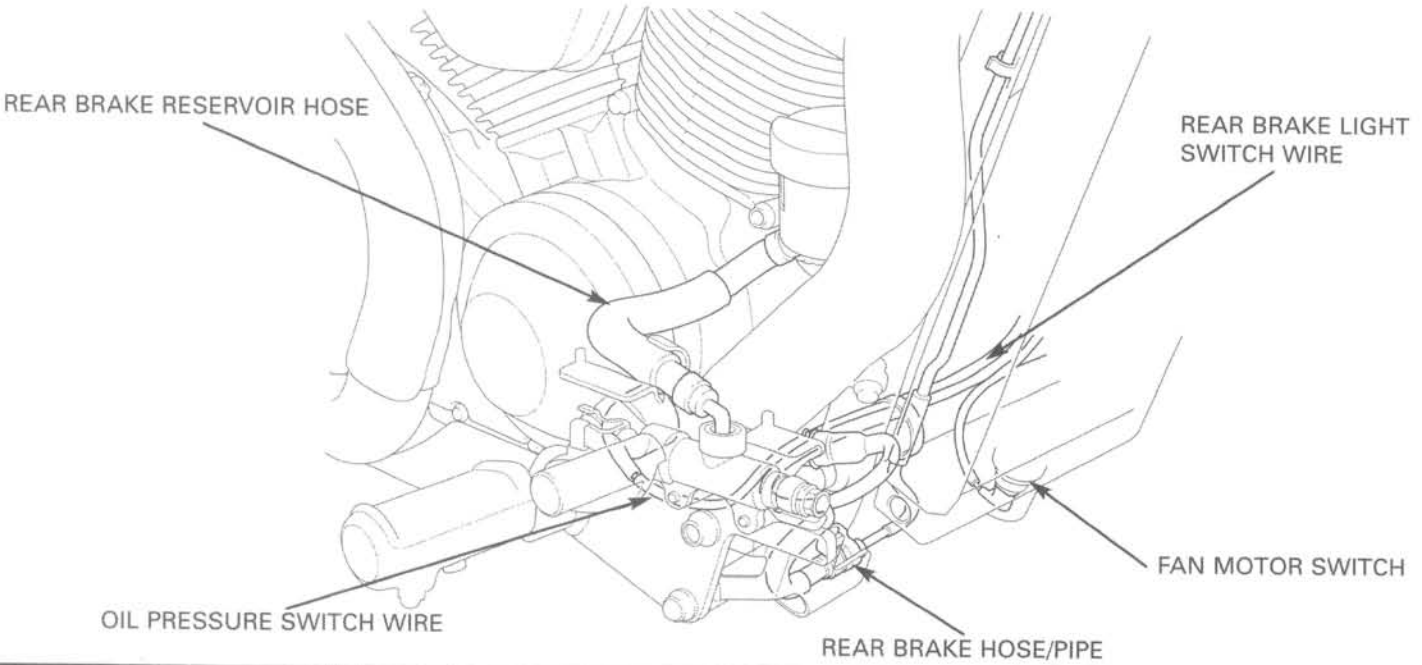
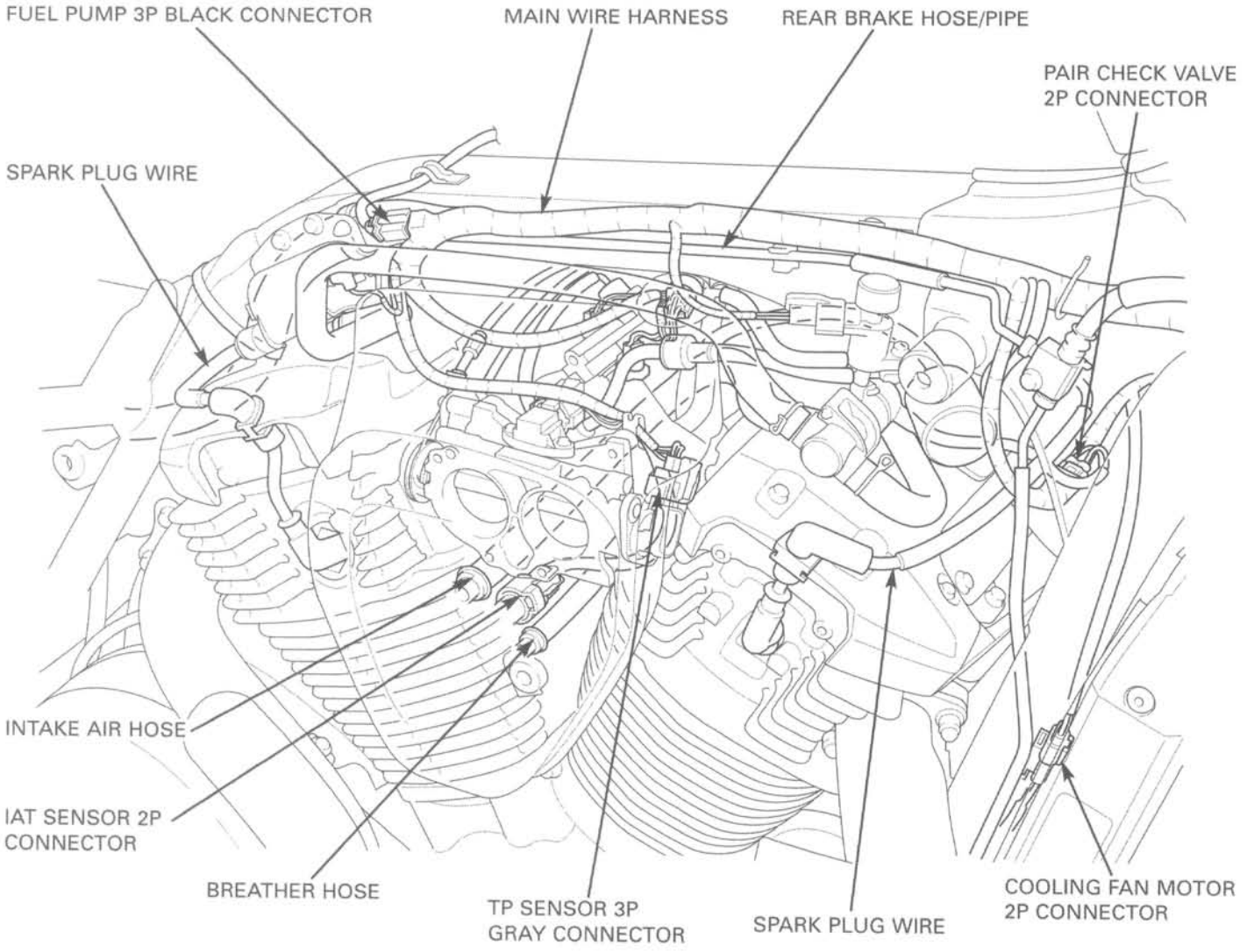


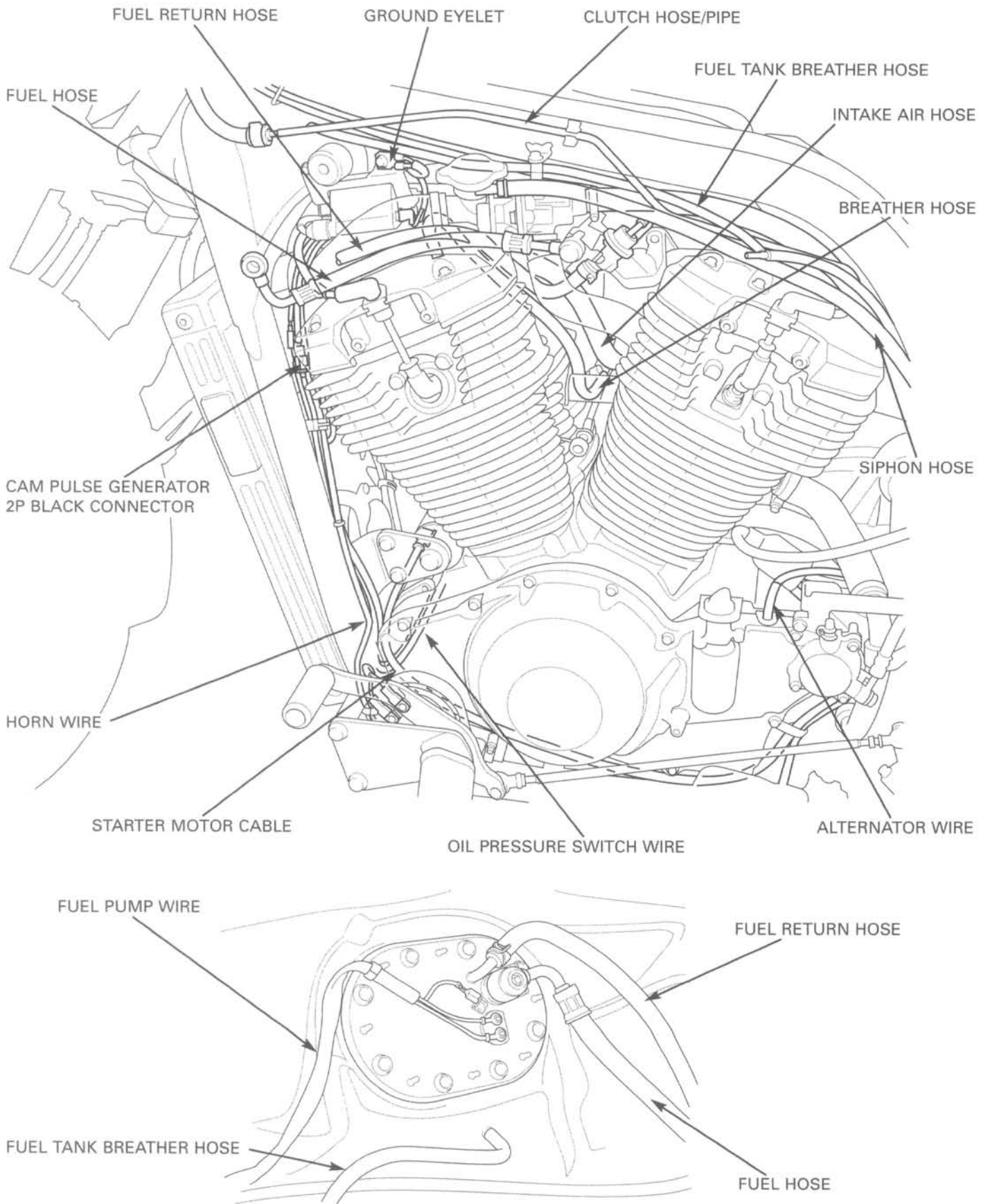
GENERAL INFORMATION





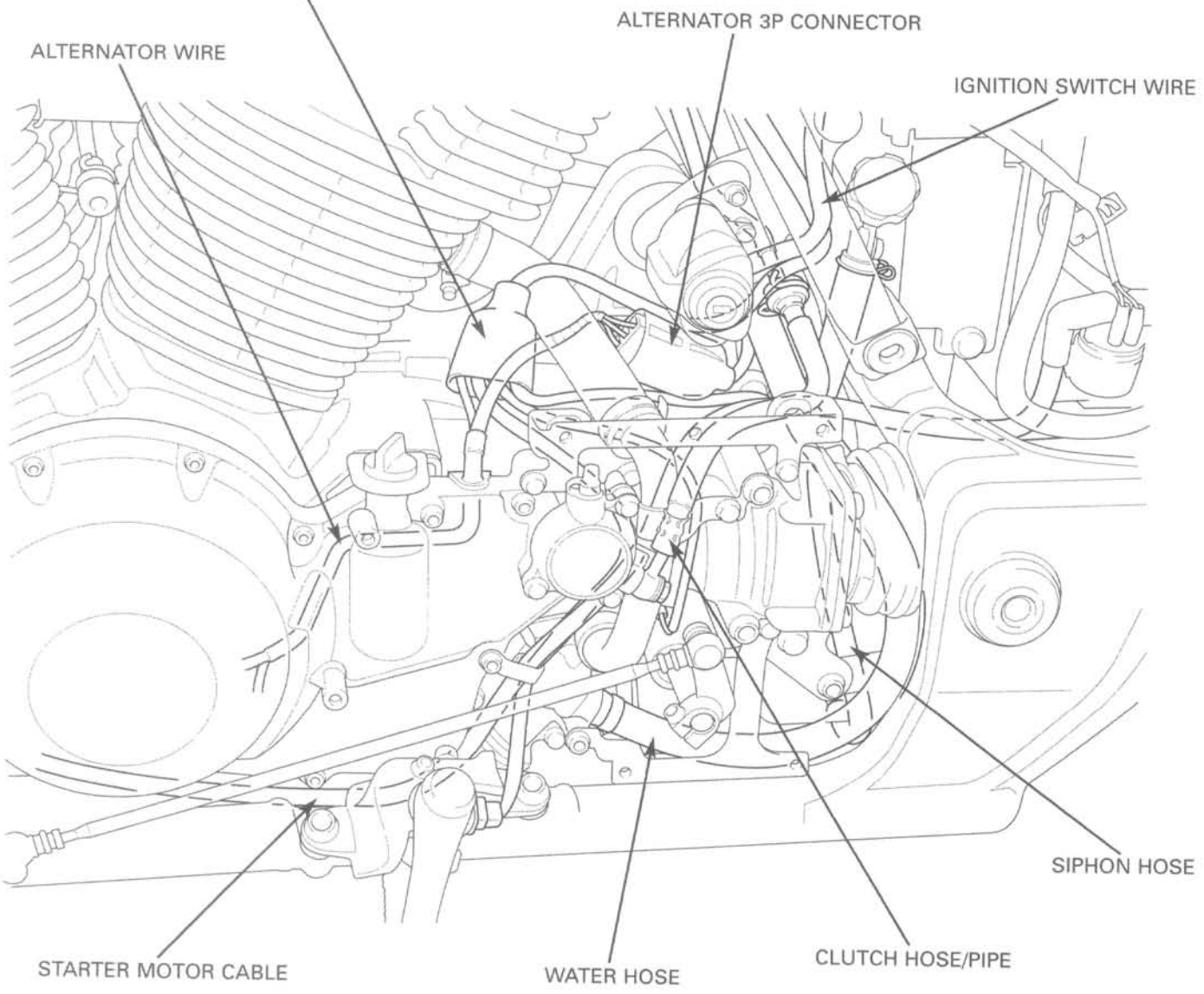
GENERAL INFORMATION

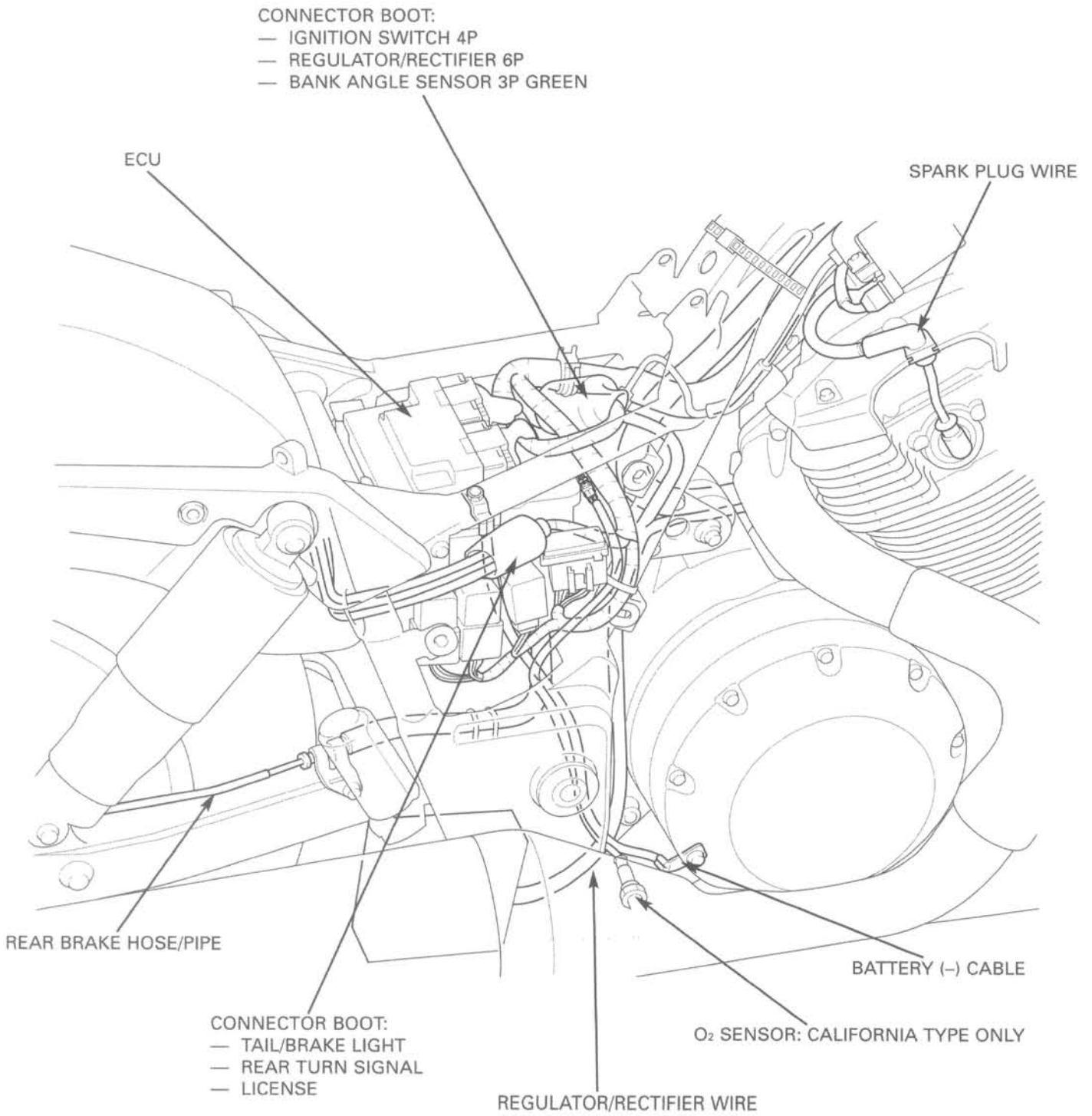




GENERAL INFORMATION

- CONNECTOR BOOT:
— IGNITION PULSE GENERATOR 2P
— SIDE STAND SWITCH 2P GREEN
— SPEED SENSOR 3P

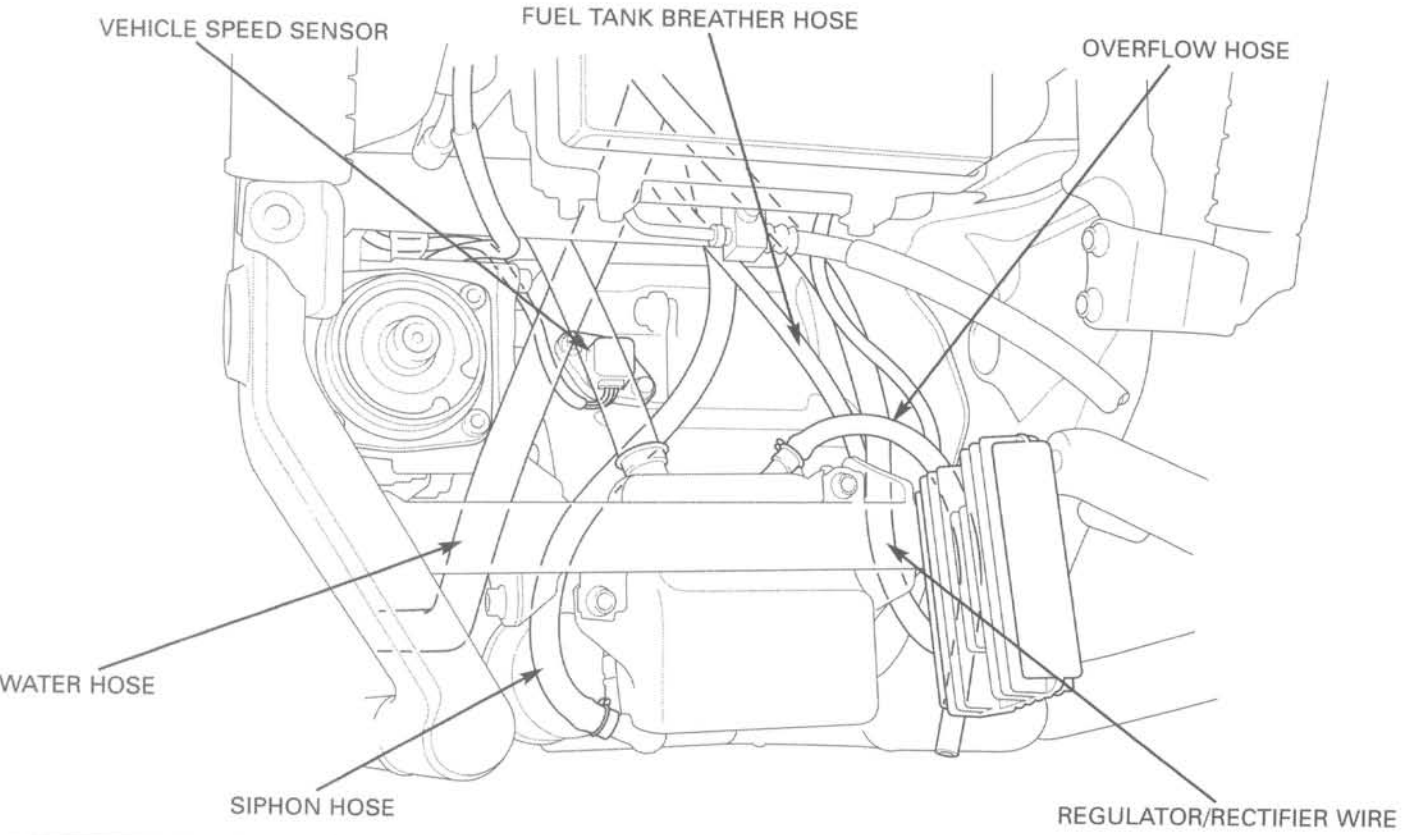
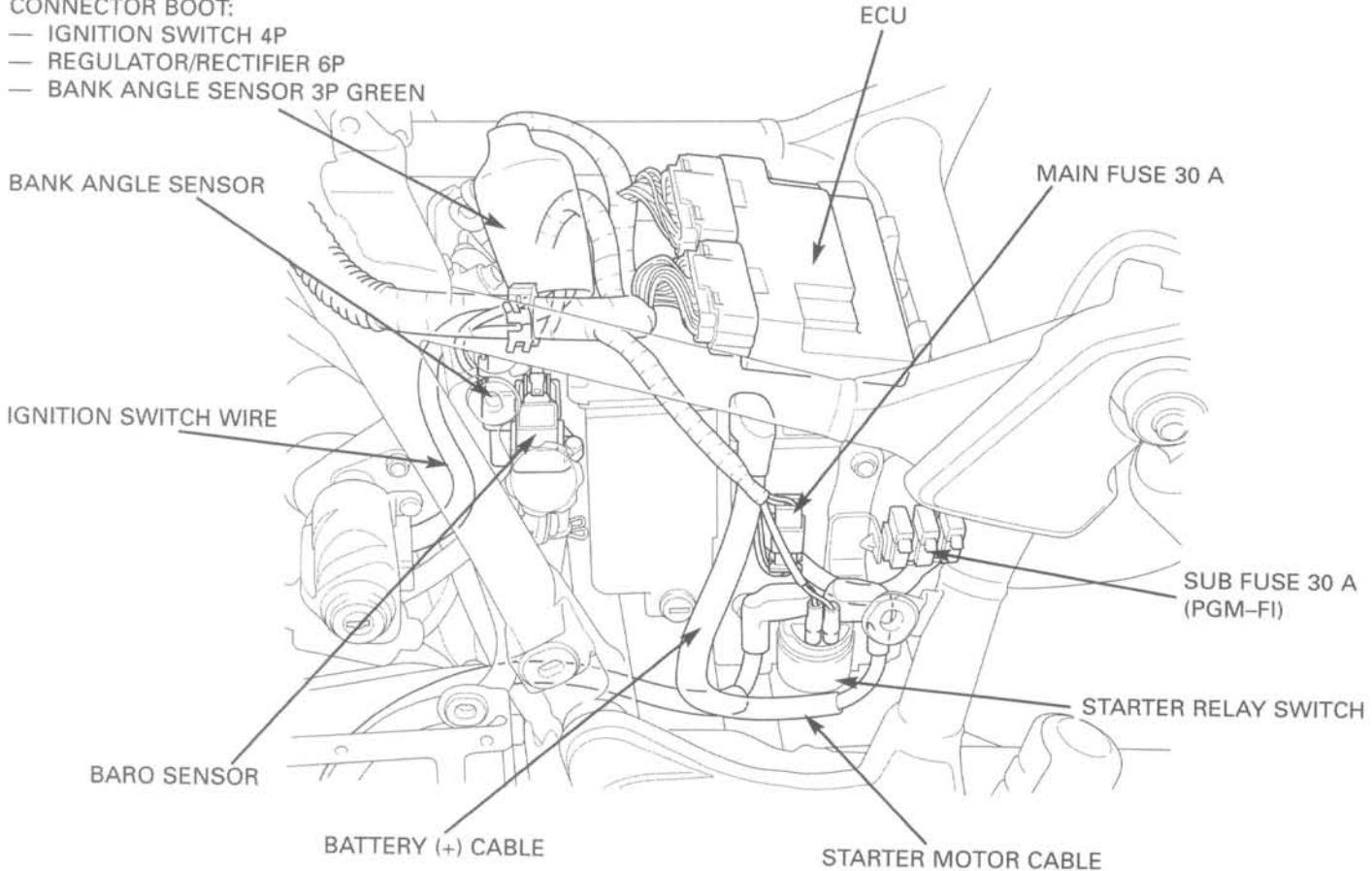


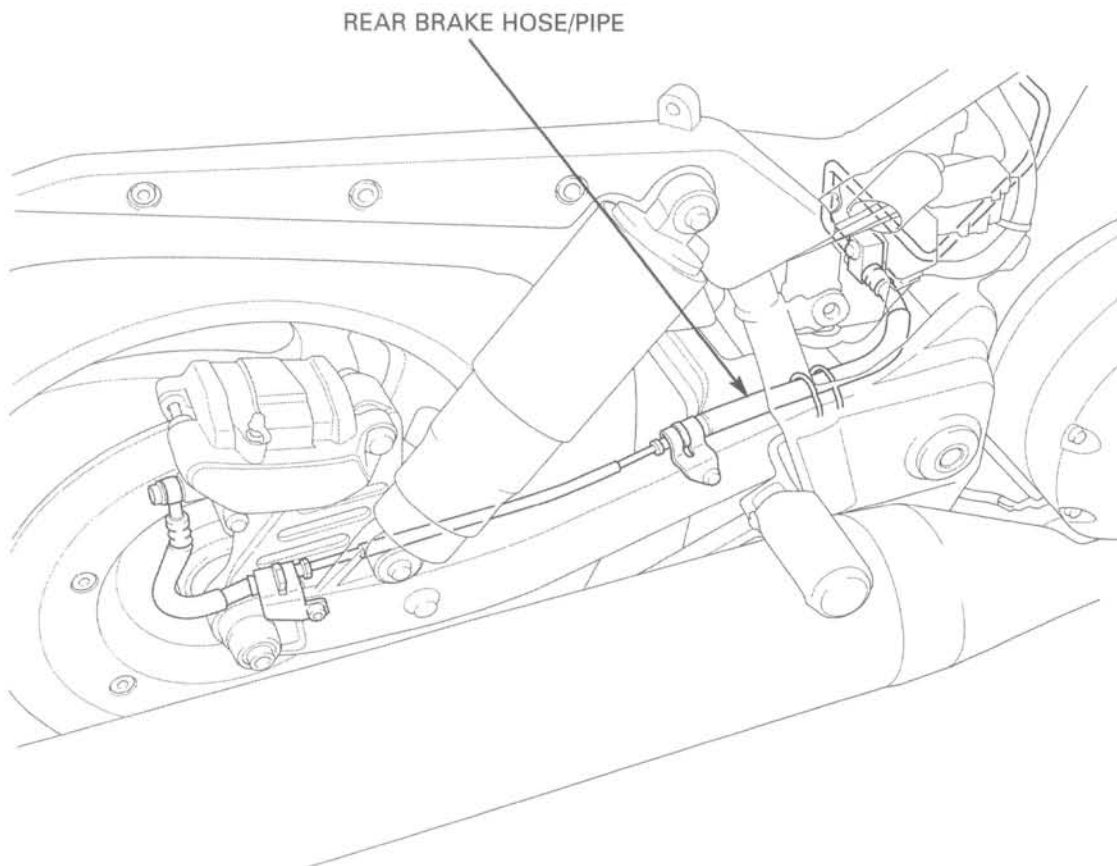
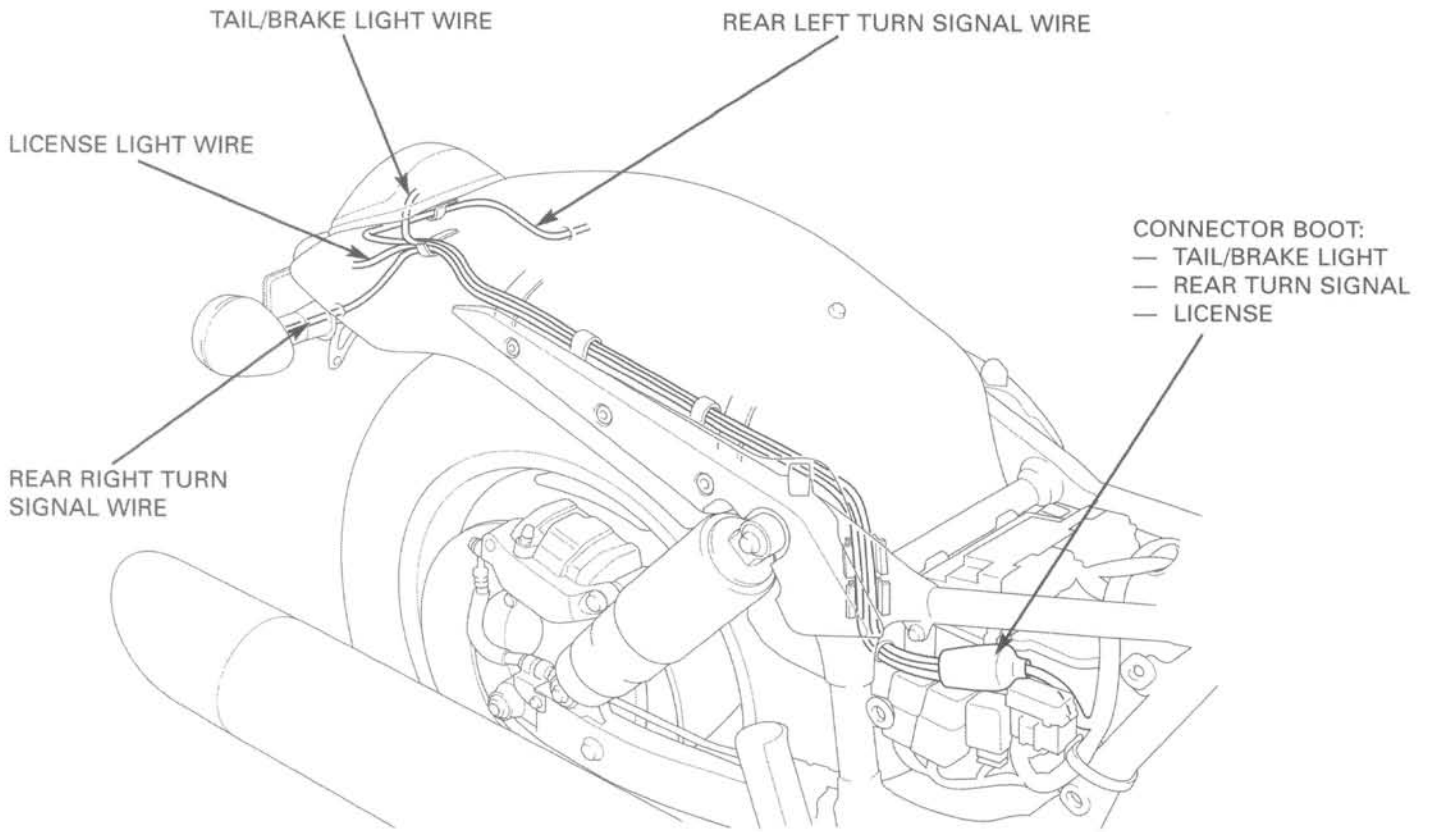


GENERAL INFORMATION

CONNECTOR BOOT:

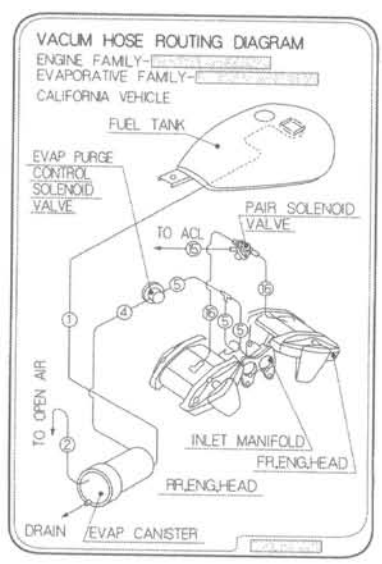
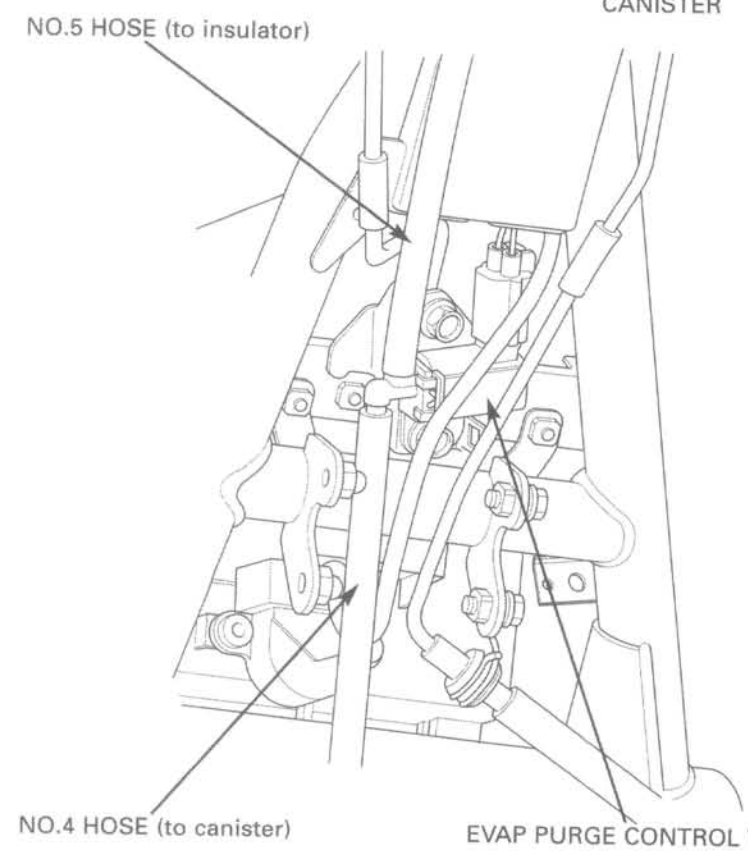
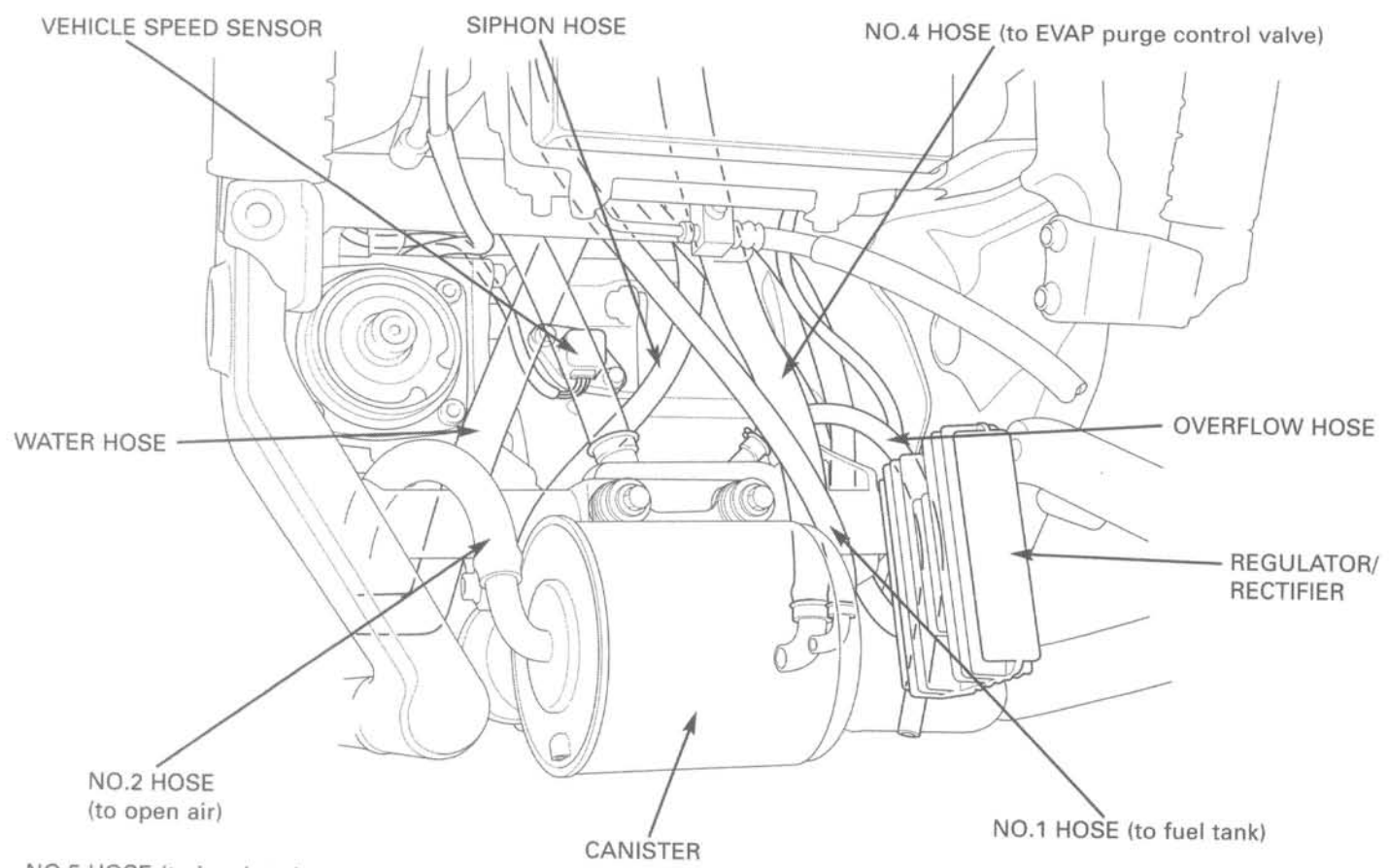
- IGNITION SWITCH 4P
- REGULATOR/RECTIFIER 6P
- BANK ANGLE SENSOR 3P GREEN





GENERAL INFORMATION

CALIFORNIA TYPE:



This label is located on the front of the rear fender.

EMISSION CONTROL SYSTEMS

The U.S. Environmental Protection Agency, California Air Resources Board (CARB) and Transport Canada require manufacturers to certify that their motorcycles comply with applicable exhaust emissions standards during their useful life, when operated and maintained according to the instructions provided, and that motorcycles built after January 1, 1983 comply with applicable noise emission standards for one year or 6,000 km (3,730 miles) after the time of sale to the ultimate purchaser, when operated and maintained according to the instructions provided. Compliance with the terms of the Distributor's Limited Warranty for Honda Motorcycle Emission Control Systems is necessary in order to keep the emissions system warranty in effect.

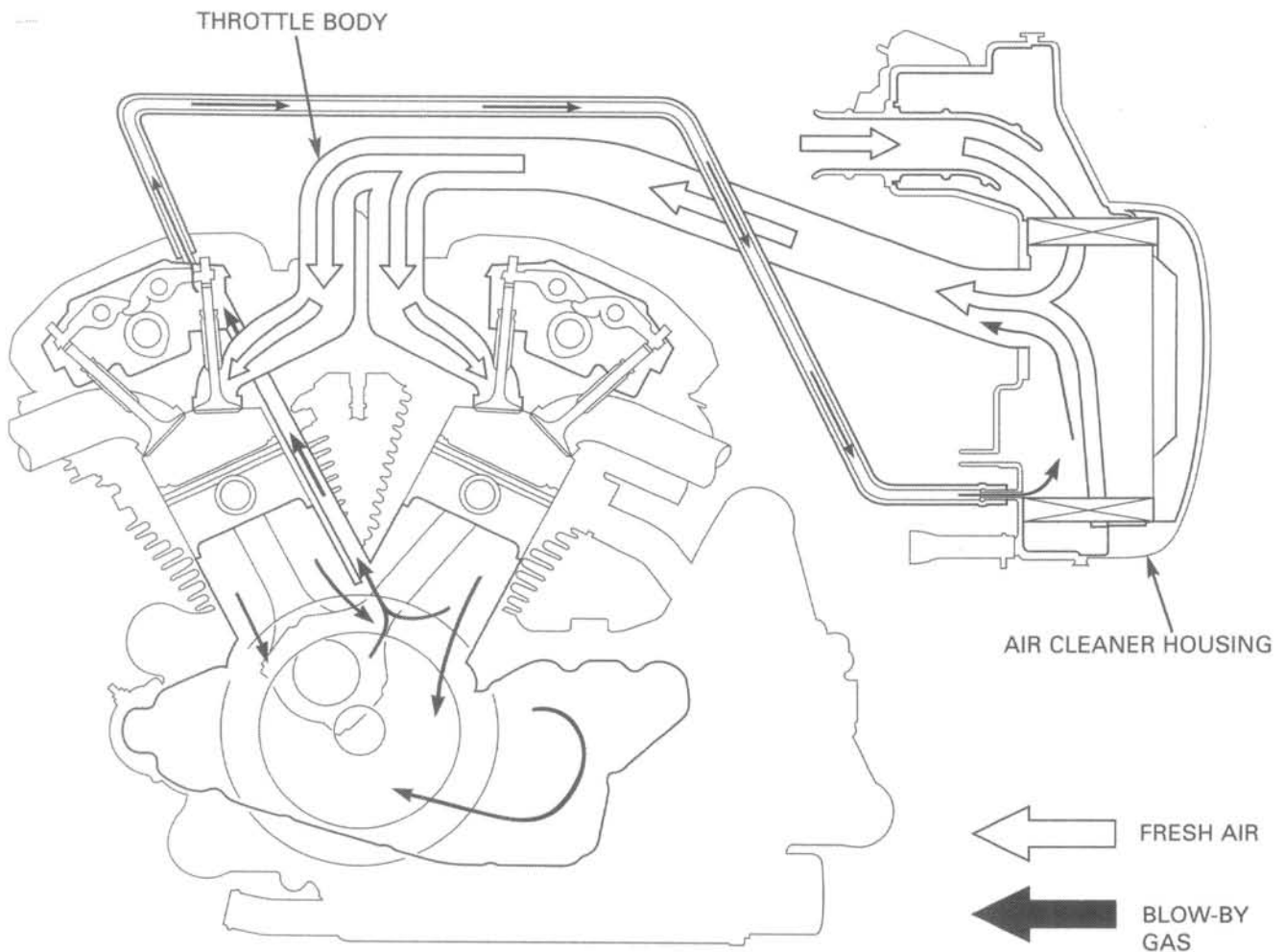
SOURCE OF EMISSIONS

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

Honda Motor Co., Ltd. utilizes lean injection settings as well as other systems, to reduce carbon monoxide and hydrocarbons.

CRANKCASE EMISSION CONTROL SYSTEM

The engine is equipped with a closed crankcase system to prevent discharging crankcase emissions into the atmosphere. Blow-by gas is returned to the combustion chamber through the air cleaner and throttle body.



GENERAL INFORMATION

EXHAUST EMISSION CONTROL SYSTEM (SECONDARY AIR SUPPLY SYSTEM)

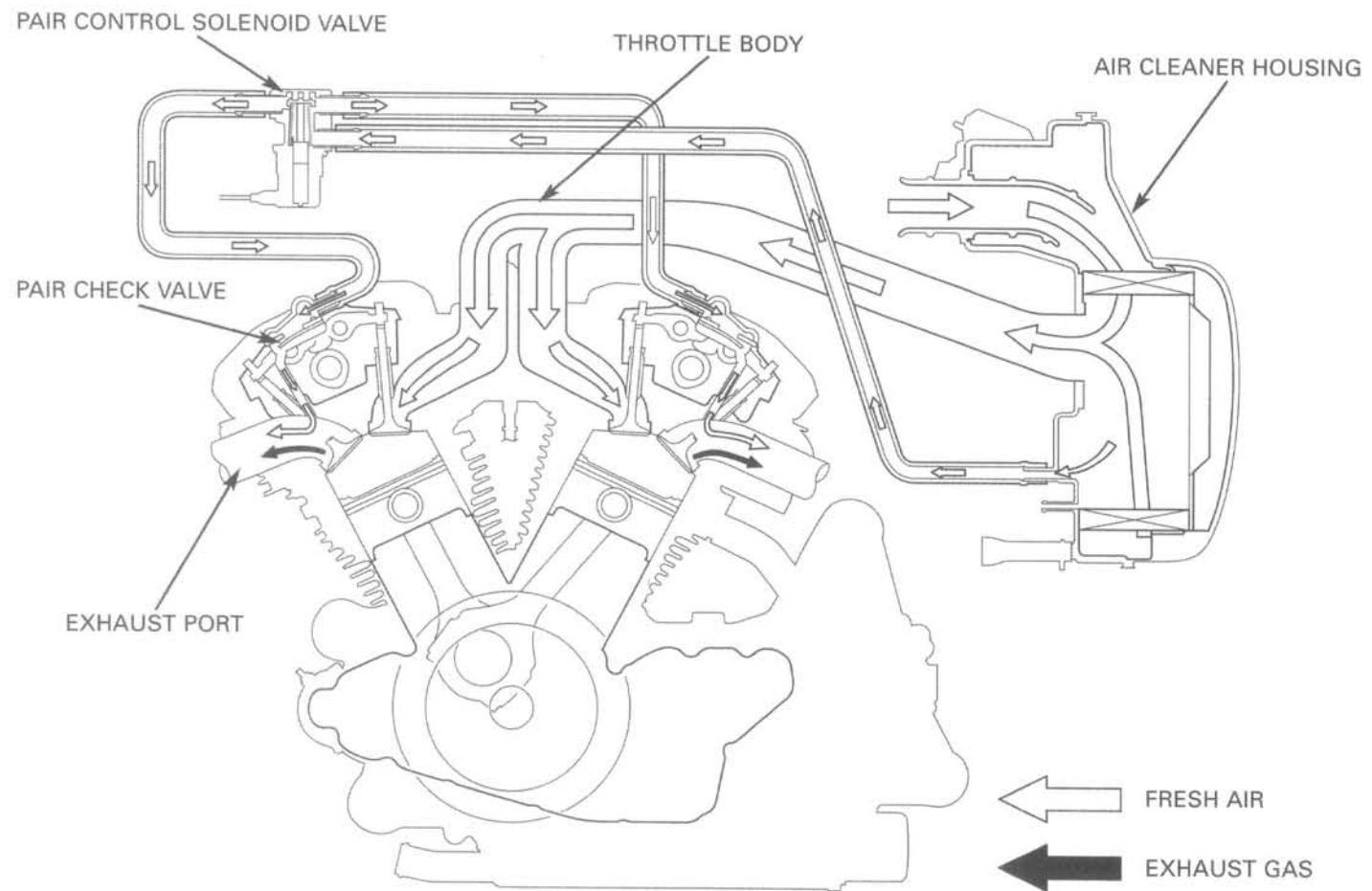
The exhaust emission control system is composed of a lean fuel injection setting, and no adjustments should be made except idle speed adjustment with the throttle stop screw. The exhaust emission control system is separate from the crankcase emission control system.

The exhaust emission control system consists of a secondary air supply system which introduces filtered air into the exhaust gases in the exhaust port. Fresh air is drawn into the exhaust port by the function of the PAIR (Pulse Secondary Air Injection) control valve.

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

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

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



California type:

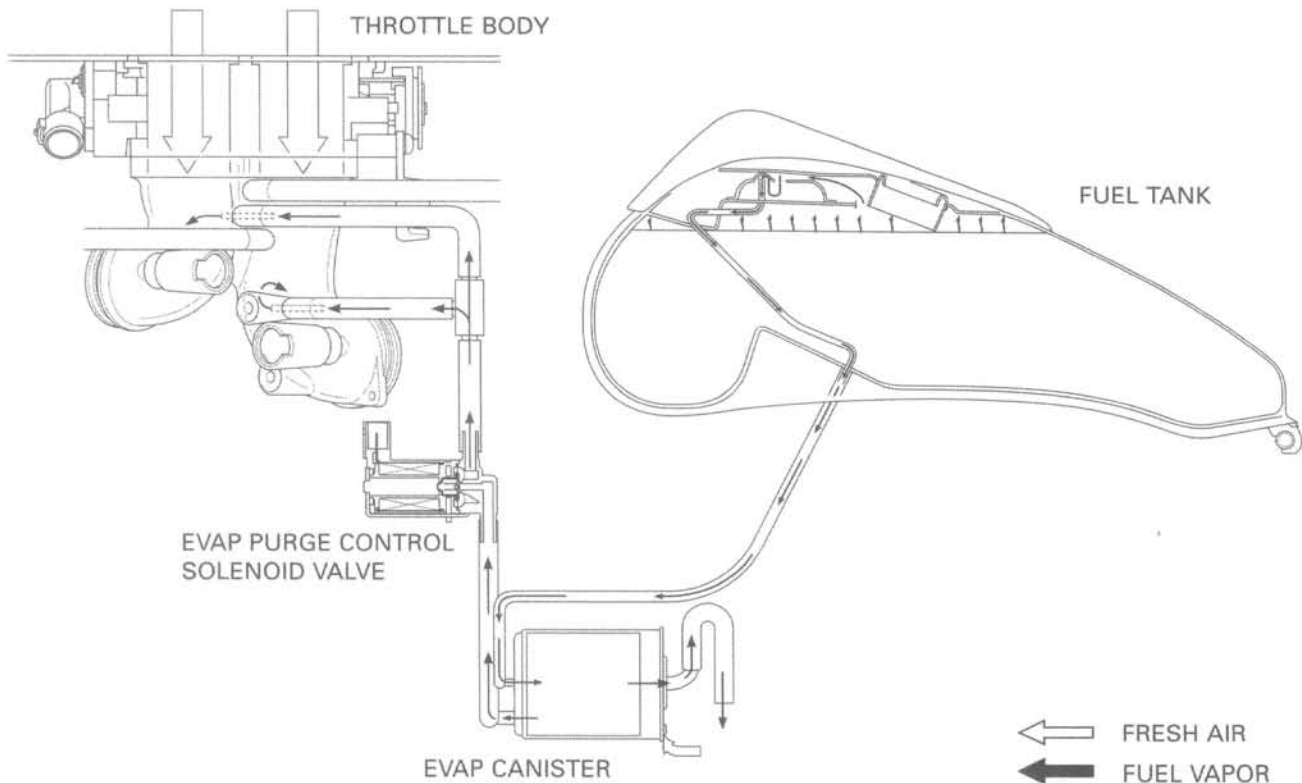
The California type is also equipped with a three-way catalytic converter, and a heated oxygen sensor. The three-way catalytic converters are in the exhaust system. Through chemical reactions, they convert HC, CO, and NOx in the engine's exhaust to carbon dioxide (CO₂), dinitrogen (N₂), and water vapor.

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

EVAPORATIVE EMISSION CONTROL SYSTEM (CALIFORNIA TYPE ONLY)

This model complies with California Air Resources Board evaporative emission requirements.

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



NOISE EMISSION CONTROL SYSTEM

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

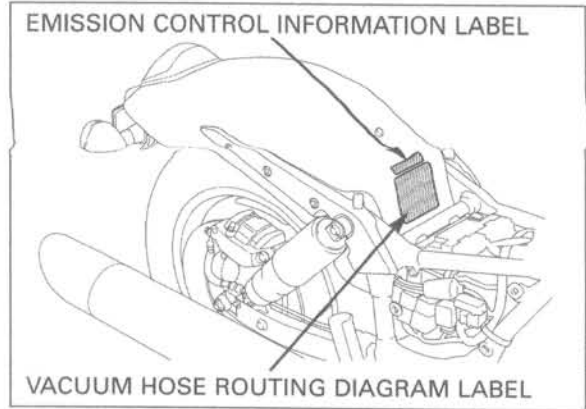
AMONG THOSE ACTS PRESUMED TO CONSTITUTE TAMPERING ARE THE ACTS LISTED BELOW:

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

GENERAL INFORMATION

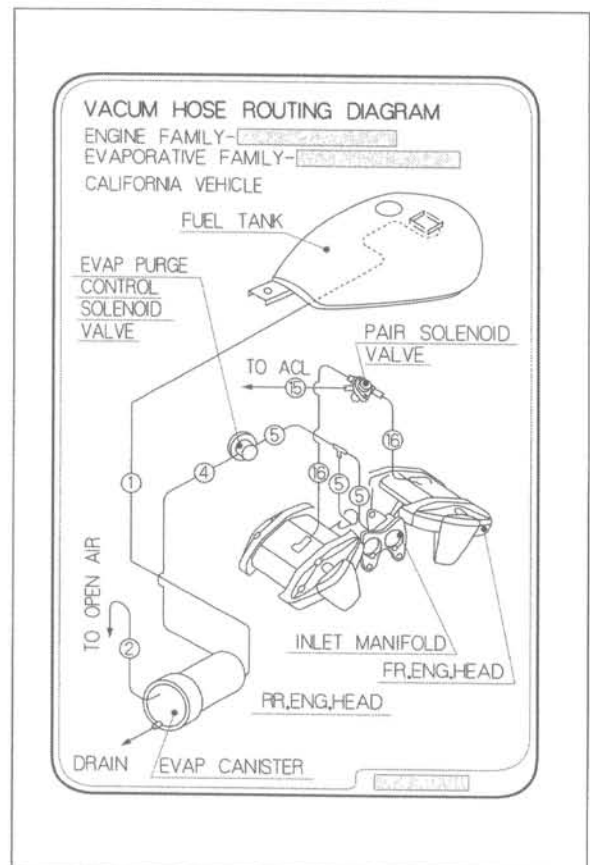
EMISSION CONTROL INFORMATION LABELS (U.S.A. ONLY)

An Emission Control Information Label is located on the front of the rear fender as shown. The seat must be removed to read it. It gives base tune-up specifications.



VACUUM HOSE ROUTING DIAGRAM LABEL (CALIFORNIA TYPE ONLY)

The Vacuum Hose Routing Diagram Label is on the front of the rear fender as shown. The seat must be removed to read it.



2. FRAME/BODY PANELS/EXHAUST SYSTEM

SERVICE INFORMATION	2-1	LEFT CRANKCASE REAR COVER	2-2
TROUBLESHOOTING	2-1	REAR FENDER	2-3
SEAT	2-2	EXHAUST SYSTEM	2-3
SIDE COVER	2-2		

SERVICE INFORMATION

GENERAL

- Work in a well ventilated area. Smoking or allowing flames or sparks in the work area or where gasoline is stored can cause a fire or explosion.
- This section covers removal and installation of the body panels and exhaust system.
- Serious burns may result if the exhaust system is not allowed to cool before components are removed or serviced.
- Always replace the exhaust pipe gaskets after removing the exhaust pipe from the engine.
- When installing the exhaust system, loosely install all of the exhaust pipe fasteners. Always tighten the exhaust clamps first, then tighten the mounting fasteners. If you tighten the mounting fasteners first, the exhaust pipe may not seat properly.
- Always inspect the exhaust system for leaks after installation.

TORQUE VALUES

Exhaust pipe joint nut	23 N•m (2.3 kgf•m, 17 lbf•ft)
Muffler band bolt	17 N•m (1.7 kgf•m, 12 lbf•ft)
Muffler stay nut	34 N•m (3.5 kgf•m, 25 lbf•ft)
O ₂ sensor	25 N•m (2.6 kgf•m, 19 lbf•ft)
Rear master cylinder reservoir cover bolt	12 N•m (1.2 kgf•m, 9 lbf•ft)
Step holder bolt	39 N•m (4.0 kgf•m, 29 lbf•ft)

TROUBLESHOOTING

Excessive exhaust noise

- Broken exhaust system
- Exhaust gas leak

Poor performance

- Deformed exhaust system
- Exhaust gas leak
- Clogged muffler

SEAT

REMOVAL

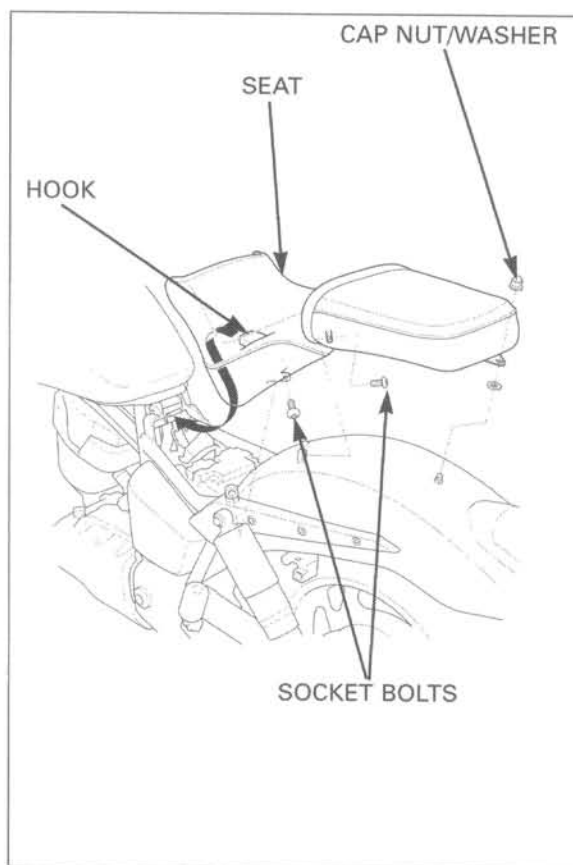
Remove the cap nut, washer and socket bolts.

Slide the seat back and then off.

INSTALLATION

Align the seat hook with the fuel tank rear bracket and install the seat.

Install and tighten the socket bolts securely.
Install the washer and tighten the cap nut securely.



SIDE COVER

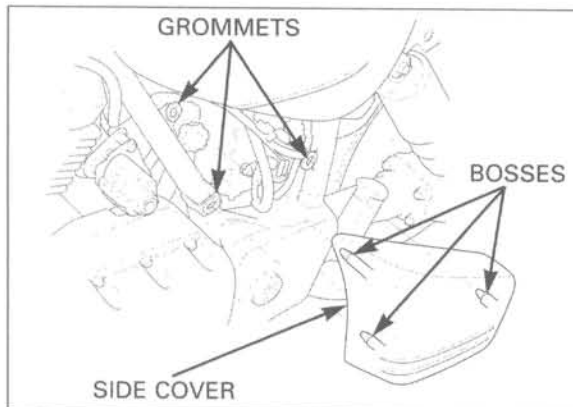
REMOVAL/INSTALLATION

Be careful not to break or deform the side cover bosses.

Release the side cover bosses from the grommets and remove the side cover.

Installation is in the reverse order of removal.

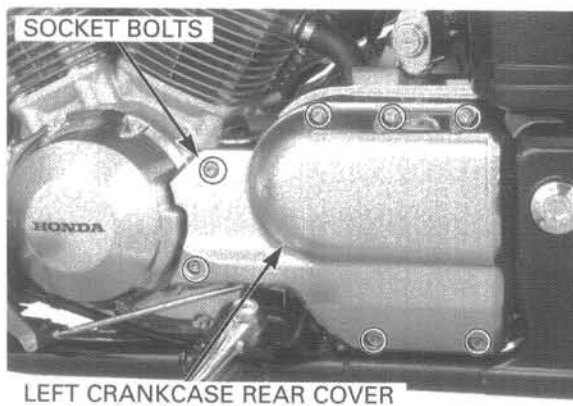
Be careful not to dislodge the grommets in the frame.



LEFT CRANKCASE REAR COVER

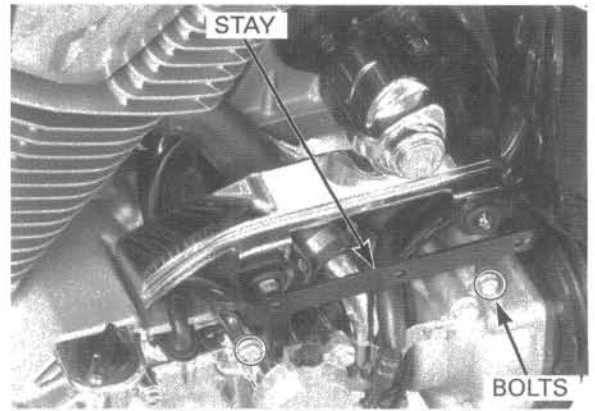
REMOVAL/INSTALLATION

Remove the socket bolts and left crankcase rear cover.



Remove the bolts and left crankcase rear cover stay.

Installation is in the reverse order of removal.



REAR FENDER

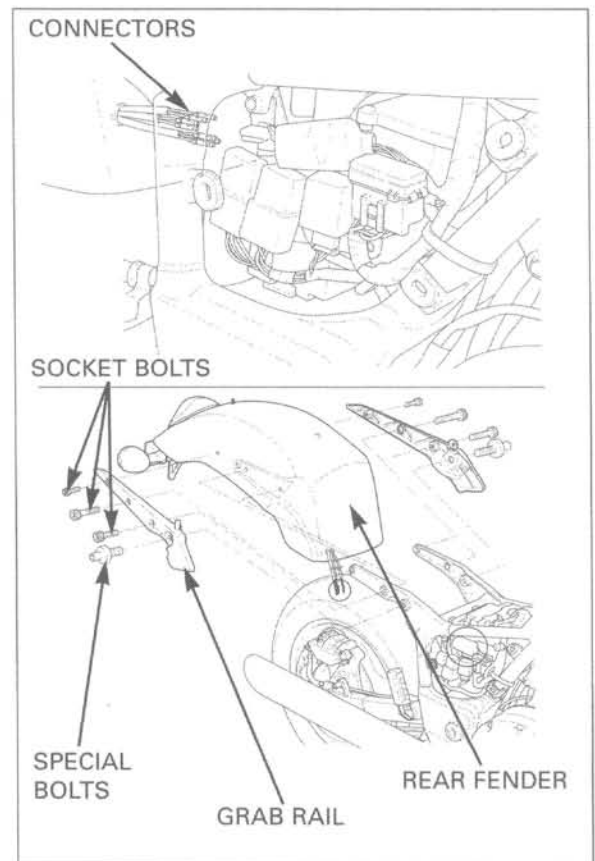
REMOVAL

Remove the right side cover (page 2-2).
Remove the rear shock absorber (page 14-11).

Disconnect the tail/brake light connectors and rear turn signal connectors.

Remove the socket bolts, special bolts and grab rail.
Remove the rear fender.

Installation is in the reverse order of removal.



MUFFLER/EXHAUST PIPE

REMOVAL

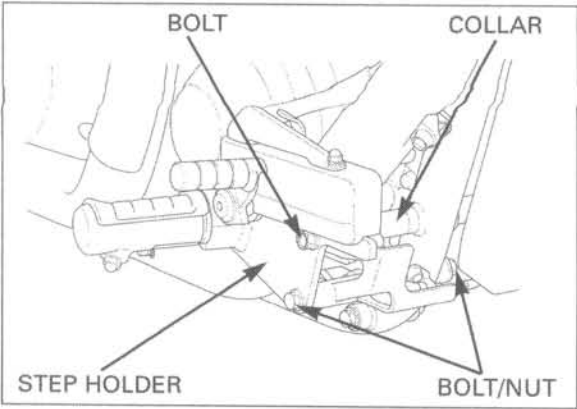
Keep the master cylinder reservoir upright to prevent air from entering the hydraulic system.

Remove the bolt, rear master cylinder reservoir cover and rear master cylinder reservoir.



FRAME/BODY PANELS/EXHAUST SYSTEM

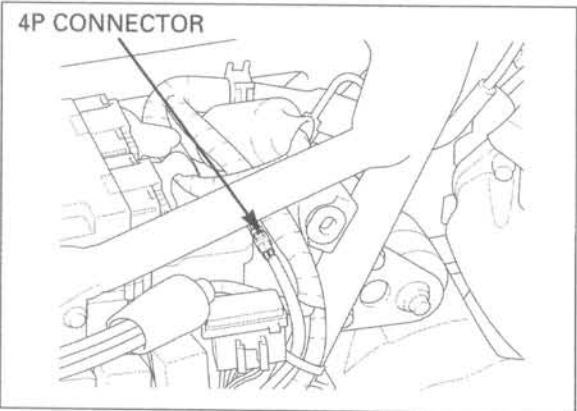
Remove the right step holder bolts, nut and collar.
Remove the right step holder.



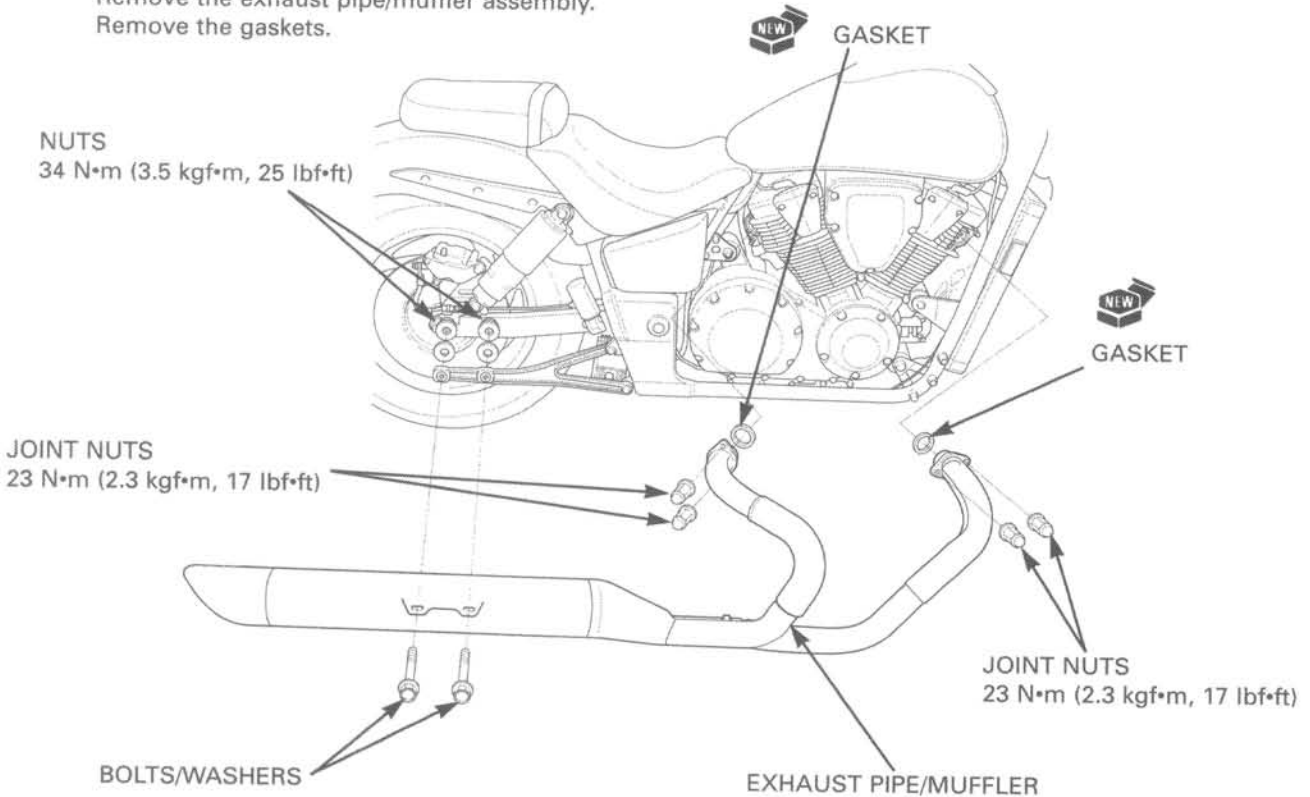
CALIFORNIA
TYPE only:

Remove the seat (page 2-2).

Disconnect the O₂ sensor 4P connector.



Remove the exhaust pipe joint nuts.
Remove the bolts, nuts and washer.
Remove the exhaust pipe/muffler assembly.
Remove the gaskets.



INSTALLATION

It is important to follow the tightening order.

- If the exhaust system will not be disassembled, steps 1 and 2 are not necessary.

Refer to the illustration:

1. Before mounting the exhaust system, assemble the front and rear exhaust pipe by temporarily tightening the exhaust pipe band bolt (1).
2. Temporarily tighten the muffler band bolt (2).
3. Make sure the new gaskets are installed in the correct position.
Insert the exhaust flange into the cylinder head studs and loosely install the exhaust pipe joint nuts (3)/(4).
4. Hold the exhaust pipe/muffler assembly and loosely install the mounting bolts and nuts (5).
After mounting the exhaust system, tighten each fastener in the sequence below.
5. Tighten the muffler band bolt (2) to the specified torque.

TORQUE: 17 N•m (1.7 kgf•m, 12 lbf•ft)

6. Tighten the exhaust pipe band bolt (1) to the specified torque.

TORQUE: 17 N•m (1.7 kgf•m, 12 lbf•ft)

7. Tighten each pair of exhaust pipe joint nuts (3)/(4) alternately in two or three steps.

TORQUE: 23 N•m (2.3 kgf•m, 17 lbf•ft)

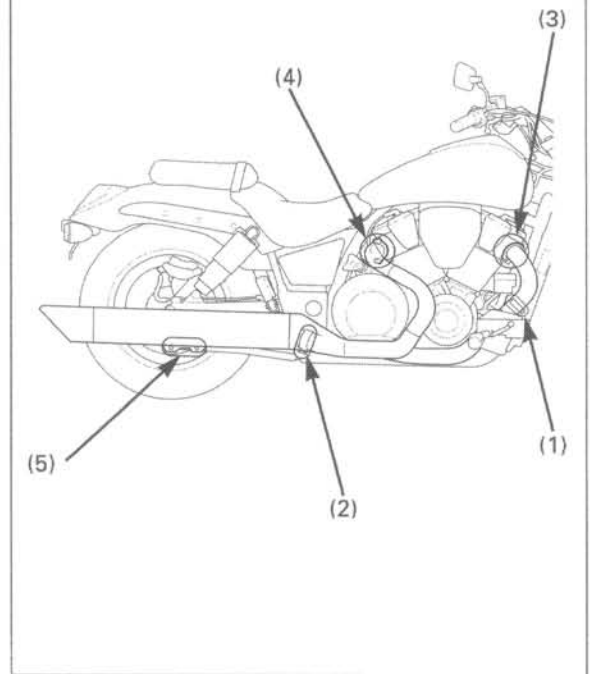
8. Tighten the mounting nuts (5) to the specified torque.

TORQUE: 34 N•m (3.5 kgf•m, 25 lbf•ft)

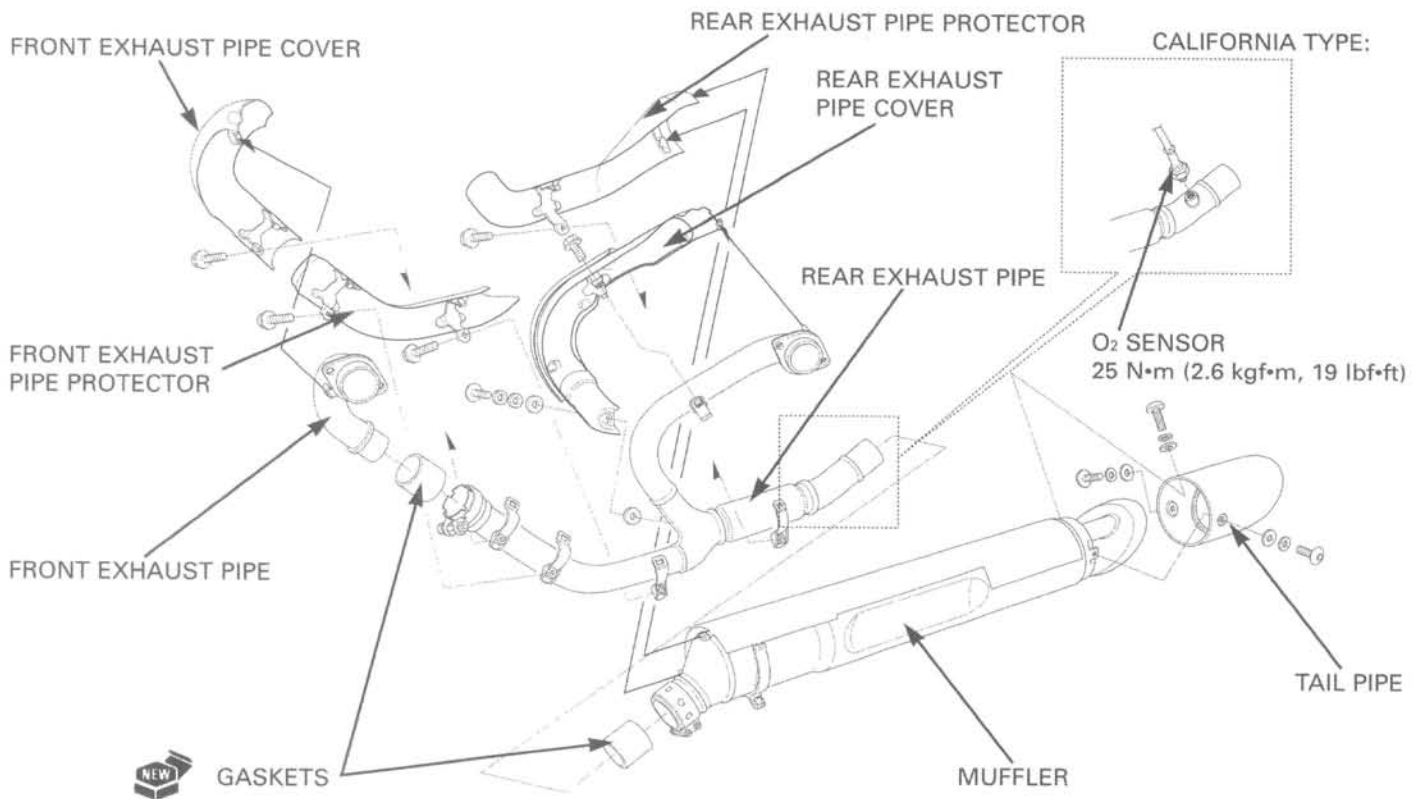
Tighten the exhaust pipe cover bolts if the exhaust cover was removed (see the following page).

After installation, inspect the exhaust system for leaks.

Tightening procedure:

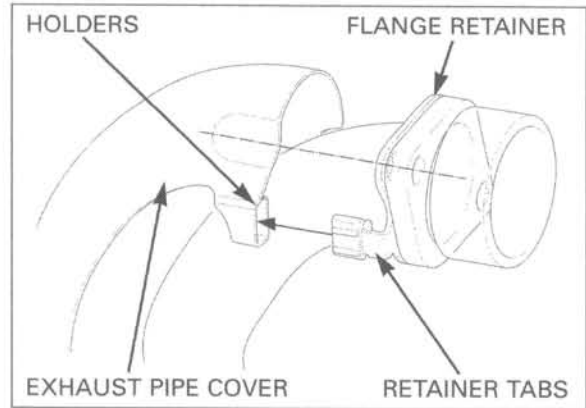


DISASSEMBLY/ASSEMBLY



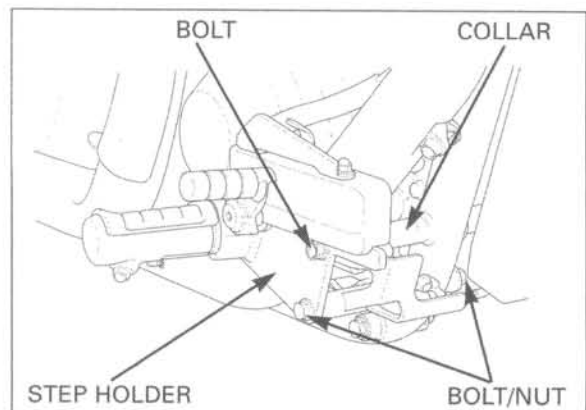
- If the front and rear exhaust pipe covers were removed, temporarily install the exhaust pipe covers when installing the exhaust system onto the engine and tighten the cover band bolts after installing the exhaust system.

Install the exhaust pipe cover by aligning the holders with the tabs of the flange retainer.



Install the right step holder and collar. Install and tighten the bolts and nut to the specified torque.

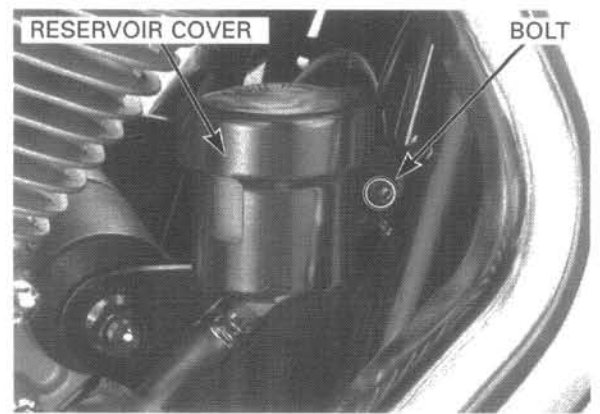
TORQUE: 39 N•m (4.0 kgf•m, 29 lbf•ft)



Install the rear master cylinder reservoir, cover and bolt.

Tighten the rear master cylinder reservoir cover bolt to the specified torque.

TORQUE: 12 N·m (1.2 kgf·m, 9 lbf·ft)



3. MAINTENANCE

SERVICE INFORMATION	3-1	FINAL DRIVE OIL	3-17
MAINTENANCE SCHEDULE	3-3	BRAKE FLUID	3-18
FUEL LINE	3-4	BRAKE PAD WEAR	3-19
THROTTLE OPERATION	3-4	BRAKE SYSTEM	3-19
AIR CLEANER	3-5	BRAKE LIGHT SWITCH	3-20
CRANKCASE BREATHER	3-6	HEADLIGHT AIM	3-20
SPARK PLUG	3-6	CLUTCH SYSTEM	3-21
VALVE CLEARANCE	3-8	CLUTCH FLUID	3-21
ENGINE OIL/OIL FILTER	3-12	SIDE STAND	3-21
ENGINE IDLE SPEED	3-15	SUSPENSION	3-22
RADIATOR COOLANT	3-15	NUTS, BOLTS, FASTENERS	3-22
COOLING SYSTEM	3-15	WHEELS/TIRES	3-23
SECONDARY AIR SUPPLY SYSTEM	3-16	STEERING HEAD BEARINGS	3-23
EVAPORATIVE EMISSION CONTROL SYSTEM (CALIFORNIA TYPE ONLY)	3-17		

SERVICE INFORMATION

GENERAL

- Place the motorcycle on level ground before starting any work.
- Gasoline is extremely flammable and is explosive under certain conditions.
- Work in a well ventilated area. Smoking or allowing flames or sparks in the work area or where the gasoline is stored can cause a fire or explosion.
- 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.
- The exhaust contains poisonous carbon monoxide gas that may 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.

MAINTENANCE

SPECIFICATIONS

ITEM		SPECIFICATIONS	
Throttle grip free play		2 – 6 mm (1/16 – 1/4 in)	
Spark plug	NGK	IFR5L11, IFR6L11, IFR7L11	
	DENSO	VK16PRZ11, VK20PRZ11, VK22PRZ11	
Spark plug gap		1.0 – 1.1 mm (0.039 – 0.043 in)	
Valve clearance	IN	0.13 ± 0.02 mm (0.005 ± 0.001 in)	
	EX	0.32 ± 0.02 mm (0.013 ± 0.001 in)	
Engine oil capacity	After draining	3.5 liter (3.7 US qt, 3.1 Imp qt)	
	After draining/oil filter change	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-30	
Engine idle speed		800 ± 100 rpm	
Recommended brake fluid		DOT 4	
Tire size	Front	130/70 R18 63H	
	Rear	180/70 R16 77H	
Tire brand	Dunlop	Front	D251F
		Rear	D251
Tire air pressure	Up to 90 kg (200 lb) load	Front	225 kPa (2.25 kgf/cm ² , 33 psi)
		Rear	225 kPa (2.25 kgf/cm ² , 33 psi)
	Up to maximum weight capacity	Front	225 kPa (2.25 kgf/cm ² , 33 psi)
		Rear	250 kPa (2.50 kgf/cm ² , 36 psi)
Minimum tire tread depth	Front	1.5 mm (0.06 in)	
	Rear	2.0 mm (0.08 in)	

TORQUE VALUES

Air cleaner housing cover bolt	3.4 N•m (0.35 kgf•m, 2.5 lbf•ft)	
Fuel tank rear mounting bolt	12 N•m (1.2 kgf•m, 9 lbf•ft)	
Spark plug	18 N•m (1.8 kgf•m, 13 lbf•ft)	
Valve adjusting screw lock nut	22 N•m (2.2 kgf•m, 16 lbf•ft)	
Timing hole cap	18 N•m (1.8 kgf•m, 13 lbf•ft)	Apply grease to the threads.
Front oil drain bolt	29 N•m (3.0 kgf•m, 22 lbf•ft)	
Rear oil drain bolt	29 N•m (3.0 kgf•m, 22 lbf•ft)	
Oil filter cartridge	26 N•m (2.7 kgf•m, 20 lbf•ft)	Apply oil to the threads and flange surface.
Final drive oil filler cap	12 N•m (1.2 kgf•m, 9 lbf•ft)	
Final drive oil drain bolt	20 N•m (2.0 kgf•m, 14 lbf•ft)	

TOOLS

Oil filter wrench	07HAA-PJ70101 or 07HAA-PJ70100
Valve adjusting screw wrench, 4 mm	07908-KE90100

MAINTENANCE SCHEDULE

Perform the Pre-ride inspection in the Owner's Manual at each scheduled maintenance period.

I: Inspect and clean, adjust, lubricate or replace if necessary. C: Clean. R: Replace. A: Adjust. L: Lubricate.

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

ITEMS	FREQUENCY	NOTE ↓	ODOMETER READING (NOTE 1)								REFER TO PAGE
			X1,000 mi	0.6	4	8	12	16	20	24	
			X1,000 km	1.0	6.4	12.8	19.2	25.6	32.0	38.4	
EMISSION RELATED ITEMS	* FUEL LINE				I		I		I	3-4	
	* THROTTLE OPERATION				I		I		I	3-4	
	AIR CLEANER	NOTE 2				R			R	3-5	
	CRANKCASE BREATHER	NOTE 3		C	C	C	C	C	C	3-6	
	SPARK PLUG				R		R		R	3-6	
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* NUTS, BOLTS, FASTENERS						I		I	I	3-22	
** WHEELS/TIRES					I		I	I	3-23		
** STEERING HEAD BEARINGS					I		I	I	3-23		

* Should be serviced by an authorized Honda dealer, unless the owner has proper tools and service data and is mechanically qualified.

** In the interest of safety, we recommend these items be serviced only by your Honda dealer.

- NOTES:
- At higher odometer reading, repeat at the frequency interval established here.
 - Service more frequently if the motorcycle is ridden in unusually wet or dusty areas.
 - Service more frequently when riding in rain or at full throttle.
 - California type only.
 - Replace every 2 years, or at indicated odometer interval, whichever comes first. Replacement requires mechanical skill.

FUEL LINE

Remove the indicator box (page 19-7).

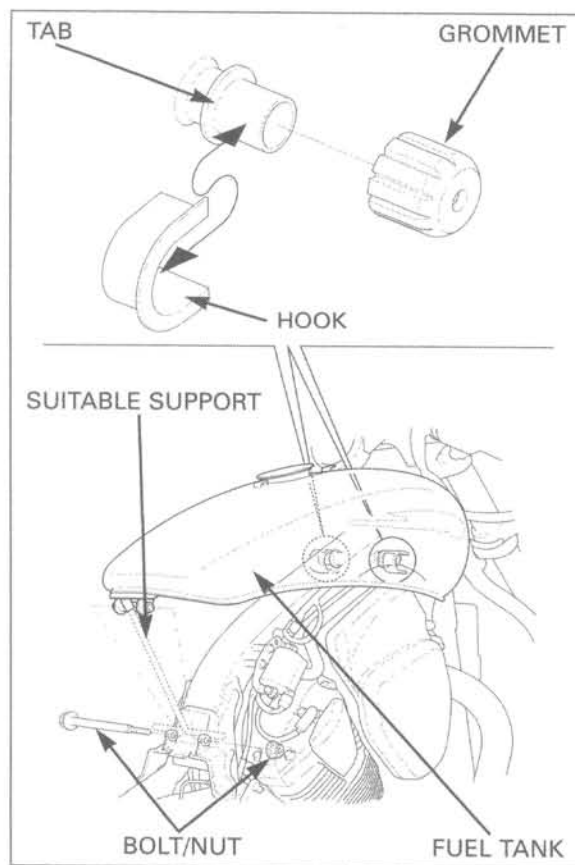
Remove the fuel tank mounting bolt and nut.

Slide the fuel tank back so the hooks on the fuel tank slide off the grommets on the frame.

Remove the grommets from the tabs on the frame.

Install the hooks on the fuel tank to the tabs on the frame.

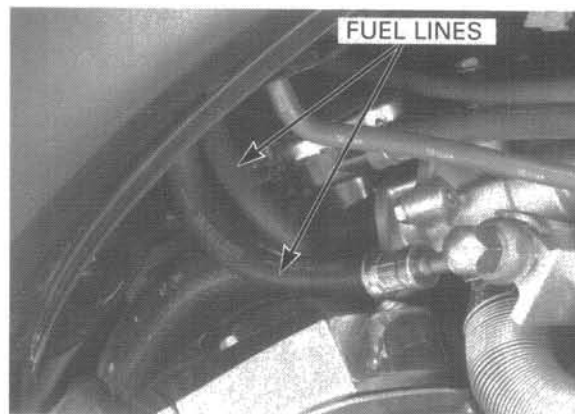
Lift the fuel tank and support the rear end using a support that is approximately 200 mm long.



Check the fuel lines for deterioration, damage or leakage. Replace the fuel line if necessary.

Install the fuel tank in the reverse order of removal.

TORQUE: Fuel tank rear mounting bolt:
12 N·m (1.2 kgf·m, 9 lbf·ft)



THROTTLE OPERATION

Check for smooth throttle grip full opening and automatic full closing in all steering positions.

Check the throttle cables and replace them if they are deteriorated, kinked or damaged.

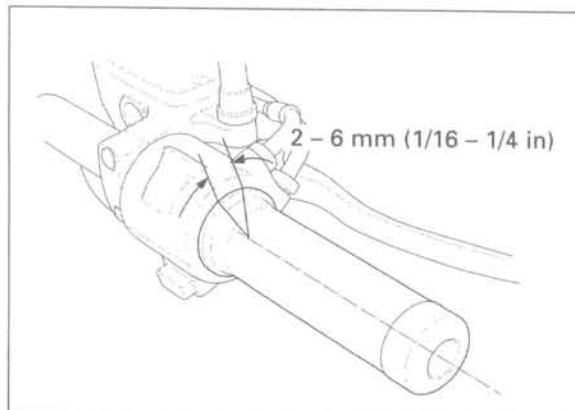
Lubricate the throttle cables, if throttle operation is not smooth.

With the engine idling, turn the handlebar all the way to the right and left to ensure that the idle speed does not change.

If the idle speed increases, check the throttle grip free play and the throttle cable connection.

Measure the free play at the throttle grip flange.

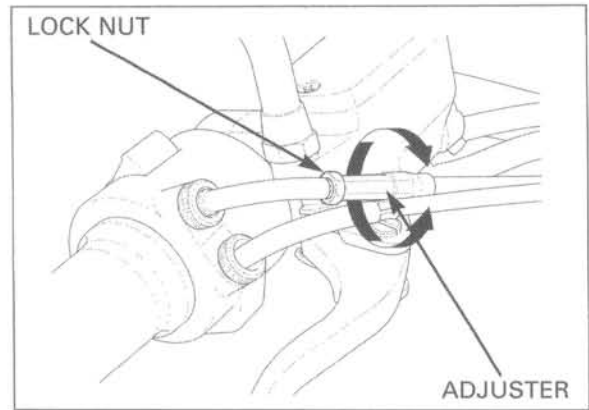
FREE PLAY: 2 - 6 mm (1/16 - 1/4 in)



Reusing a damaged or abnormally bent or kinked throttle cable can prevent proper throttle slide operation and may lead to a loss of throttle control while riding.

Throttle grip free play can be adjusted at either end of the throttle cable.

Minor adjustments are made with the upper adjuster. Adjust the free play by loosening the lock nut and turning the adjuster.



Major adjustments are made with the lower adjuster.

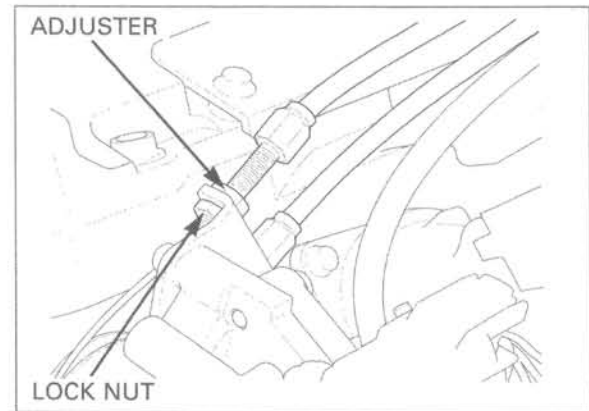
Remove the air cleaner housing (page 5-51).

Adjust the free play by loosening the lock nut and turning the adjuster.

After adjustment, tighten the lock nut securely.

Recheck the throttle operation.

Replace any damaged parts, if necessary.



AIR CLEANER

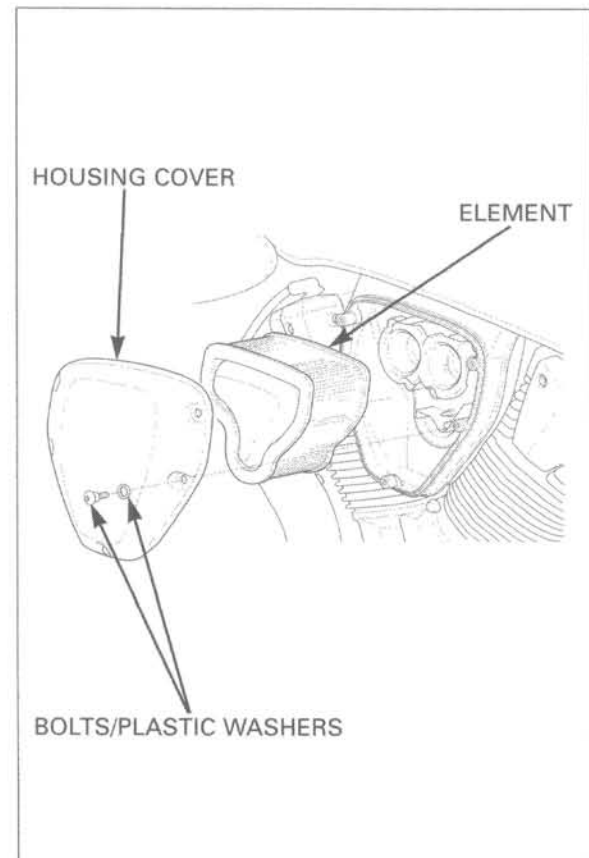
Remove the bolts, plastic washers and air cleaner housing cover.

Remove and discard the air cleaner element in accordance with the maintenance schedule (page 3-3). Also replace the air cleaner element anytime it is excessively dirty or damaged.

At installation, be careful not to forget the plastic washers.

Install the removed parts in the reverse order of removal.

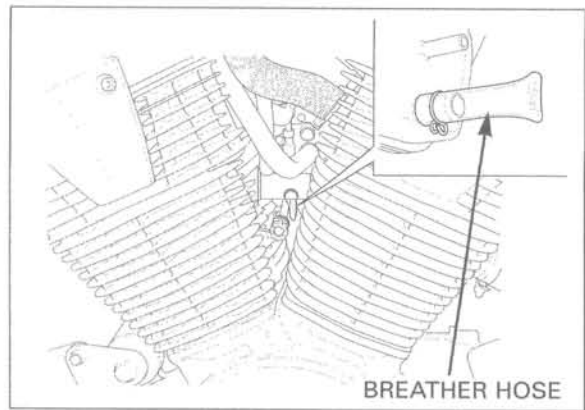
TORQUE: Air cleaner housing cover bolt:
3.4 N·m (0.35 kgf·m, 2.5 lbf·ft)



CRANKCASE BREATHER

Service more frequently when ridden in rain, at full throttle, or after the motorcycle is washed or overturned. Service if deposits can be seen in the transparent section of the breather hose.

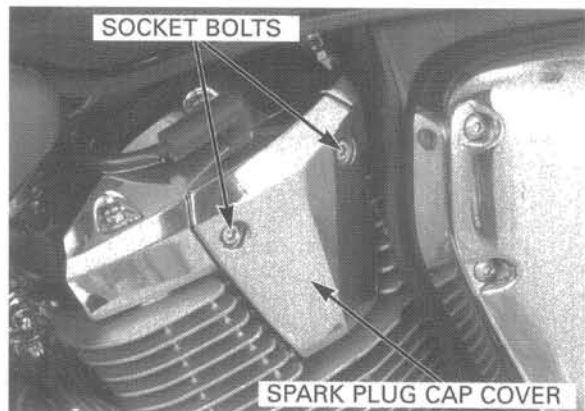
Remove the crankcase breather hose from the air cleaner housing and drain deposits into a suitable container, then install the hose securely.



SPARK PLUG

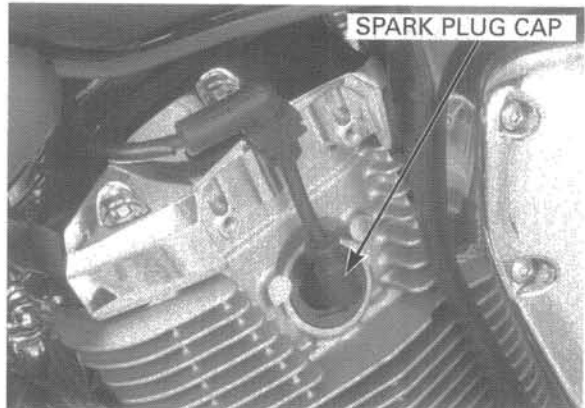
REMOVAL

Remove the socket bolts and spark plug cap cover.



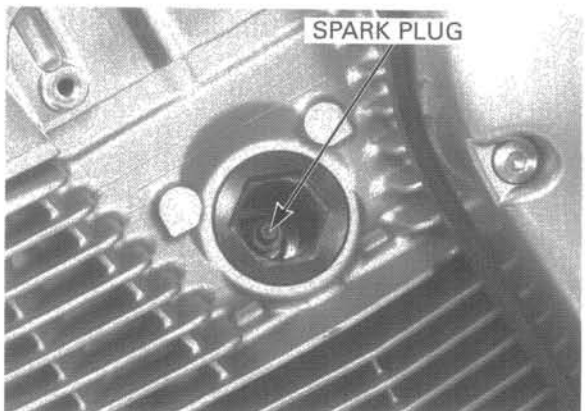
Disconnect the spark plug cap from the spark plug bases.

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



Remove the spark plug using the equipped spark plug wrench or an equivalent tool.

Inspect or replace as described in the maintenance schedule.





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