HOW TO USE THIS MANUAL

This service manual describes the service procedures for the VT750C/CD/CD2/C3/CD3.

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.

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 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

CONTENTS

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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.

	Replace the part(s) with new one(s) before assembly.
	Use recommended engine oil, unless otherwise specified.
	Use molybdenum oil solution (mixture of the engine oil and molybdenum grease in a ratio of 1 : 1).
	Use multi-purpose grease (Lithium based multi-purpose grease NLGI #2 or equivalent).
	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
	Use molybdenum disulfide paste (containing more than 40 % molybdenum disulfide, NLGI #2 or equivalent). Example: Molykote® BR-2 plus, 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
	Use silicone grease.
	Apply a locking agent. Use a middle strength locking agent unless otherwise specified.
	Apply sealant.
	Use DOT 4 brake fluid. Use the recommended brake fluid unless otherwise specified.
	Use Fork or Suspension Fluid.

1. GENERAL INFORMATION

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 the brake assemblies.

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.

COOLANT

Under some conditions, the ethylene glycol in engine coolant is combustible and its flame is not visible. If the engine 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.***
- ***Keep out of reach of pets. Some pets are attracted to the smell and taste of coolant and can die if they drink it.***
- ***Do not remove the radiator cap when the engine is hot. The coolant is under pressure and could scald you.***

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.

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

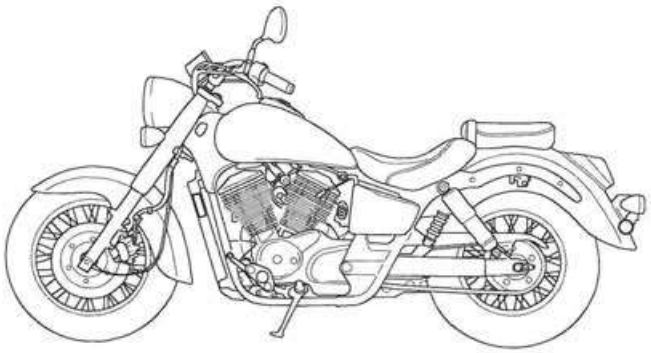
⚠ WARNING

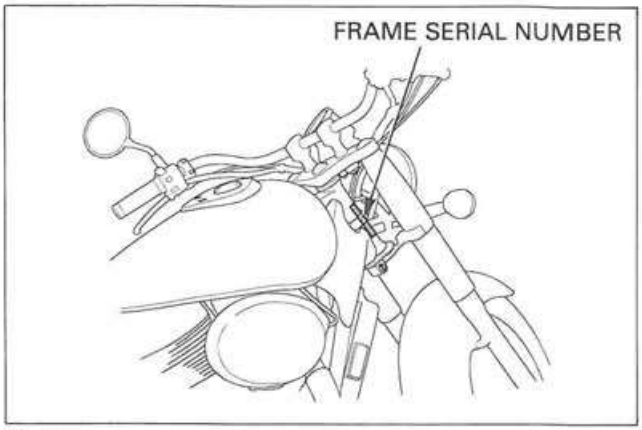
- ***The battery gives off explosive gases; keep sparks, flames and cigarettes away. Provide adequate ventilation when charging.***
- ***The battery contains sulfuric acid (electrolyte). Contact with skin or eyes may cause severe burns. Wear protective clothing and a face shield.***
  - ***If electrolyte 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.***

SERVICE RULES

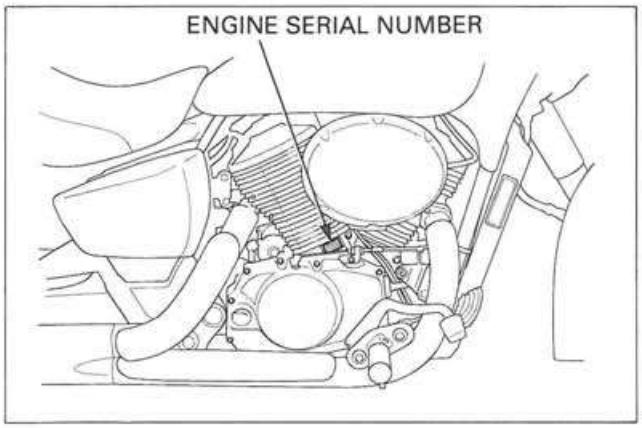
1. Use genuine HONDA or HONDA-recommended parts and lubricants or their equivalents. Parts that don't meet HONDA's design specifications may cause damage to the motorcycle.
2. Use the special tools designed for this product to avoid damage and incorrect assembly.
3. Use only metric tools when servicing 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 1-22 through 1-33, Cable and Harness Routing.

MODEL IDENTIFICATION

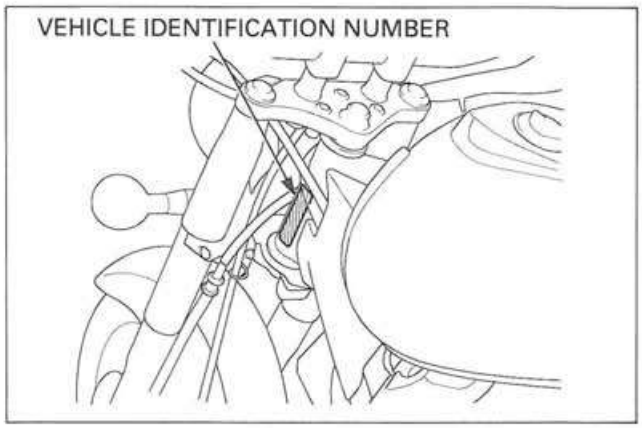




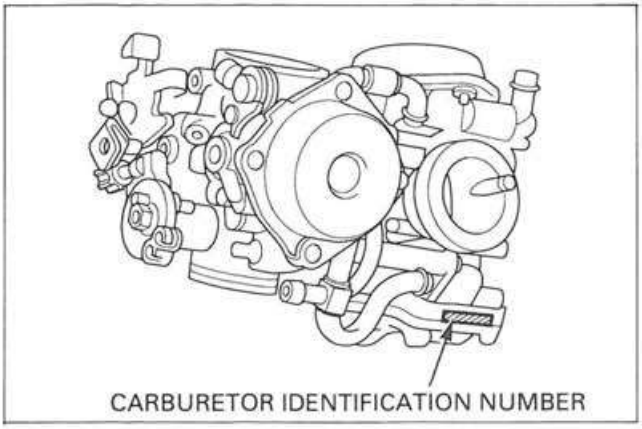
(1) The frame serial number is stamped on the right side of the steering head.



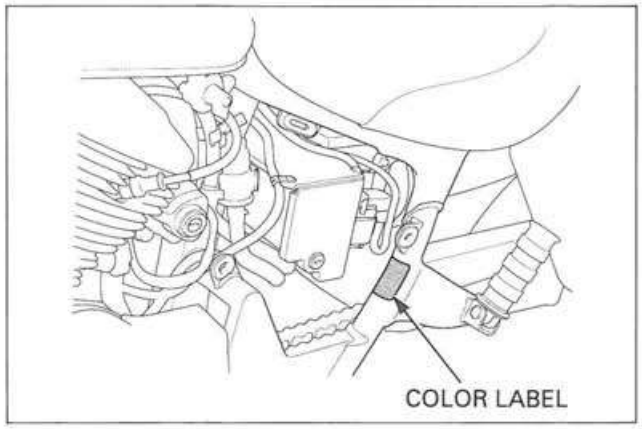
(2) The engine serial number is stamped on the right side of the crankcase below the rear cylinder.



(3) The Vehicle Idenfication Number (VIN) is attached on the left side of the steering head.



(4) The carburetor identification numbers are stamped on the intake side of the carburetor body as shown.



(5) The color label is attached on the frame back of the left side cover. When ordering color-coded parts, always specify the designated color code.

SPECIFICATIONS

ITEM		SPECIFICATIONS
DIMENSIONS	Overall length	2,450 mm (96.5 in)
	Overall width	980 mm (38.6 in)
	Overall height	
	VT750C :	1,135 mm (44.7 in)
	VT750CD/CD2 ('98 – 2000) :	1,135 mm (44.7 in)
	(After 2000) :	1,110 mm (43.7 in)
	VT750C3/CD3 :	1,110 mm (43.7 in)
	Wheelbase	1,615 mm (63.6 in)
	Seat height	700 mm (27.6 in)
	Footpeg height	302 mm (11.9 in)
	Ground clearance	145 mm (5.7 in)
	Dry weight	229 kg (505 lbs)
	Curb weight	246 kg (542 lbs)
	Maximum weight capacity	170 kg (375 lbs)
FRAME	Frame type	Double cradle
	Front suspension	Telescopic fork
	Front wheel travel	140 mm (5.5 in)
	Rear suspension	Swingarm
	Rear wheel travel	90 mm (3.5 in)
	Rear damper	Nitrogen gas filled damper
	Front tire size	120/90–17 64S
	Rear tire size	170/80–15 M/C 77S
	Tire brand Bridgestone	Front: G701/Rear: G702
	Dunlop	Front: D404F/Rear: D404
	Front brake	Hydraulic single disc brake
	Rear brake	Internal expanding shoe
	Caster angle	33° 50'
	Trail length	157 mm (6.2 in)
	Fuel tank capacity	14.0 liter (3.70 US gal, 3.08 Imp gal)
	Fuel tank reserve capacity	3.6 liter (0.95 US gal, 0.79 Imp gal)
ENGINE	Bore and stroke	79.0 X 76.0 mm (3.11 X 2.99 in)
	Displacement	745 cm³ (45.4 cu-in)
	Compression ratio	9.0 : 1
	Valve train	Silent, multi-link chain drive and OHC with rocker arm
	Intake valve opens	0° BTDC — at 1 mm (0.04 in) lift
	Intake valve closes	20° ABDC
	Exhaust valve opens	30° BBDC
	Exhaust valve closes	0° ATDC
	Lubrication system	Forced pressure and wet sump
	Oil pump type	Trochoid
	Cooling system	Liquid cooled
	Air filtration	Paper filter
	Crankshaft type	Unit type, two main journals
	Engine dry weight	68.6 kg (151 lbs)
	Firing order	Front – 308° – Rear – 412° – Front
	Cylinder arrangement	Two cylinders, 52° V transverse
	Cylinder number	Front: #2, Rear: #1
CARBURETOR	Carburetor type	CV (Constant Velocity) dual carburetor with fuel pump
	Throttle bore	34 mm (1.3 in)

GENERAL (Cont'd)

ITEM			SPECIFICATIONS
DRIVE TRAIN	Clutch system		Multi-plate, wet
	Clutch operation system		Mechanical type
	Transmission		Constant mesh, 5-speed
	Primary reduction		1.667 (65/39)
	Final reduction		2.412 (41/17)
	Gear ratio	1st	3.167 (38/12)
		2nd	2.000 (34/17)
		3rd	1.500 (30/20)
		4th	1.174 (27/23)
		5th	1.042 (25/24)
	Gearshift pattern		Left foot operated return system, 1 – N – 2 – 3 – 4 – 5
ELECTRICAL	Ignition system		Full transistor digital ignition
	Starting system		Electric starter motor
	Charging system		Triple phase output alternator
	Regulator/rectifier		SCR shorted/triple phase, full wave rectification
	Lighting system		Battery

LUBRICATION SYSTEM

Unit: mm (in)

ITEM		STANDARD	SERVICE LIMIT
Engine oil capacity	at draining	2.2 liter (2.32 US qt, 1.94 Imp qt)	———
	at disassembly	2.9 liter (3.06 US qt, 2.55 Imp qt)	———
	at oil filter change	2.4 liter (2.54 US qt, 2.11 Imp qt)	———
Recommended engine oil		HONDA GN4 4-stroke oil 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/cm², 77 psi) at 5,500 rpm (80°C/176°F)	———
Oil pump rotor	Tip clearance	0.15 (0.006)	0.20 (0.008)
	Body clearance	0.15 – 0.22 (0.006 – 0.009)	0.35 (0.014)
	Side clearance	0.02 – 0.07 (0.001 – 0.003)	0.10 (0.004)

FUEL SYSTEM

ITEM			SPECIFICATIONS
Carburetor identification number	49 state type	'98	VDFFG
		After '98	VDFFJ
	California type	'98	VDFEB
		After '98	VDFEC
	Canada type	'98 VT750C/CD/CD2	VDFFG
		'98 VT750C3/CD3 After '98	VDFFJ
Main jet	Front		#105
	Rear		#110
Slow jet			#40
Pilot screw	Initial/final opening		See page 5-22
Float level			7.0 mm (0.28 in)
Base carburetor (for synchronization)			Rear cylinder (#1)
Idle speed			1,000 ± 100 rpm
Carburetor vacuum difference			27 kPa (20 mm Hg, 0.7 in Hg)
PAIR control valve specified vacuum			325 mm Hg (12.8 in Hg)
Throttle grip free play			2 – 6 mm (1/12 – 1/4 in)
Fuel pump flow capacity			Minimum 900 cm³ (30.4 US oz, 31.7 Imp oz) per minute at 12 V

COOLING SYSTEM

ITEM		SPECIFICATIONS
Coolant capacity	Radiator and engine	1.75 liter (1.85 US qt, 1.54 Imp qt)
	Reserve tank	0.4 liter (0.42 US qt, 0.35 Imp qt)
Radiator cap relief pressure		108 – 137 kPa (1.1 – 1.4 kgf/cm², 16 – 20 psi)
Thermostat	Begins to open	80 – 84 °C (176 – 183 °F)
	Fully open	95 °C (203 °F)
	Valve lift	8 mm (0.3 in) minimum
Recommended antifreeze		Pro Honda HP Coolant or an equivalent high quality ethylene glycol antifreeze containing corrosion protection inhibitors
Standard coolant concentration		50 % mixture with soft water

CLUTCH SYSTEM

Unit: mm (in)

ITEM		STANDARD	SERVICE LIMIT
Clutch lever free play		10 – 20 (3/8 - 3/4)	———
Clutch spring free length		45.5 (1.79)	43.9 (1.73)
Clutch disc thickness	A	2.62 – 2.78 (0.103 – 0.107)	2.3 (0.09)
	B	2.92 – 3.08 (0.115 – 0.121)	2.6 (0.10)
Clutch plate warpage		———	0.30 (0.012)
Clutch outer guide	I.D.	21.991 – 22.016 (0.8658 – 0.8668)	22.03 (0.867)
	O.D.	29.994 – 30.007 (1.1809 – 1.1814)	29.98 (1.180)
Oil pump drive sprocket I.D.		30.025 – 30.145 (1.1821 – 1.1868)	30.15 (1.187)
Mainshaft O.D. at clutch outer guide		21.967 – 21.980 (0.8648 – 0.8654)	21.95 (0.864)

ALTERNATOR/STARTER CLUTCH

Unit: mm (in)

ITEM		STANDARD	SERVICE LIMIT
Starter driven gear	I.D.	40.000 – 40.021 (1.5748 – 1.5756)	40.10 (1.579)
	O.D.	57.749 – 57.768 (2.2736 – 2.2743)	57.73 (2.273)
Starter clutch outer I.D.		74.414 – 74.440 (2.9297 – 2.9307)	74.46 (2.931)

CYLINDER HEAD/VALVES

Unit: mm (in)

ITEM			STANDARD	SERVICE LIMIT
Cylinder compression			1,275 ± 98 kPa (13.0 ± 1.0 kgf/cm², 185 ± 14 psi) at 400 rpm	———
Cylinder head warpage			———	0.10 (0.004)
Valve, valve guide	Valve clearance	IN	0.13 – 0.17 (0.005 – 0.007)	———
		EX	0.18 – 0.22 (0.007 – 0.009)	———
	Valve stem O.D.	IN	5.475 – 5.490 (0.2156 – 0.2161)	5.45 (0.215)
		EX	6.555 – 6.570 (0.2580 – 0.2587)	6.55 (0.258)
	Valve guide I.D.	IN	5.500 – 5.512 (0.2165 – 0.2170)	5.56 (0.219)
		EX	6.600 – 6.615 (0.2598 – 0.2604)	6.65 (0.262)
	Stem-to-guide clearance	IN	0.010 – 0.037 (0.0004 – 0.0015)	0.10 (0.004)
		EX	0.030 – 0.060 (0.0012 – 0.0024)	0.11 (0.004)
	Valve guide projection above cylinder head	IN	19.5 (0.77)	———
		EX	18.0 (0.71)	———
	Valve seat width	IN/EX	0.90 – 1.10 (0.035 – 0.043)	1.5 (0.06)
Valve spring free length		IN	42.14 (1.659)	40.58 (1.598)
		EX	42.83 (1.686)	41.25 (1.624)
Camshaft	Cam lobe height	IN	38.381 (1.5111)	38.10 (1.500)
		EX	38.407 (1.5121)	38.20 (1.504)
	Journal O.D.		21.959 – 21.980 (0.8645 – 0.8654)	21.90 (0.862)
	Runout		0.030 (0.012)	0.05 (0.002)
	Oil clearance		0.050 – 0.111 (0.0020 – 0.0044)	0.13 (0.005)
	Identification marks		"F": Front, "R": Rear	———
Rocker arm I.D.		IN/EX	12.000 – 12.018 (0.4724 – 0.4731)	12.05 (0.474)
Rocker arm shaft O.D.		IN/EX	11.966 – 11.984 (0.4711 – 0.4718)	11.83 (0.466)
Rocker arm-to-rocker arm shaft clearance			0.016 – 0.052 (0.0006 – 0.0020)	0.07 (0.003)

CYLINDER/PISTON

Unit: mm (in)

ITEM				STANDARD	SERVICE LIMIT
Cylinder	I.D.			79.000 – 79.015 (3.1102 – 3.1108)	79.10 (3.114)
	Out of round			———	0.06 (0.002)
	Taper			———	0.06 (0.002)
	Warpage			———	0.10 (0.004)
Piston, piston rings	Piston mark direction			"IN" mark facing toward the intake side	———
	Piston O.D.			78.97 – 78.99 (3.109 – 3.110)	78.90 (3.106)
	Piston O.D. measurement point			7 – 17 mm (0.3 – 0.7 in) from bottom of skirt	———
	Piston pin bore I.D.			18.002 – 18.008 (0.7087 – 0.7090)	18.05 (0.711)
	Piston pin O.D.			17.994 – 18.000 (0.7084 – 0.7087)	17.98 (0.708)
	Piston-to-piston pin clearance			0.002 – 0.014 (0.0001 – 0.0006)	0.04 (0.002)
	Piston ring-to-ring groove clearance	Top		0.025 – 0.055 (0.0010 – 0.0022)	0.08 (0.003)
		Second		0.015 – 0.045 (0.0006 – 0.0018)	0.07 (0.003)
	Piston ring end gap	Top	'98 – 2000	0.20 – 0.35 (0.008 – 0.014)	0.5 (0.02)
			After 2000	0.15 – 0.25 (0.006 – 0.010)	0.4 (0.02)
		Second	'98 – 2000	0.35 – 0.50 (0.014 – 0.020)	0.7 (0.03)
			After 2000	0.25 – 0.40 (0.010 – 0.016)	0.6 (0.02)
		Oil (side rail)		0.20 – 0.80 (0.008 – 0.031)	1.0 (0.04)
	Piston ring mark	Top		"R" mark	———
		Second		"RN" mark	———
Cylinder-to-piston clearance				0.010 – 0.045 (0.0004 – 0.0018)	0.10 (0.004)
Connecting rod small end I.D.				18.016 – 18.034 (0.7093 – 0.7100)	18.07 (0.711)
Connecting rod-to-piston pin clearance				0.016 – 0.040 (0.0006 – 0.0016)	0.06 (0.002)

CRANKSHAFT/TRANSMISSION

Unit: mm (in)

ITEM			STANDARD	SERVICE LIMIT
Crankshaft	Side clearance		0.05 – 0.20 (0.002 – 0.008)	0.30 (0.012)
	Runout		———	0.03 (0.001)
	Crank pin oil clearance		0.028 – 0.052 (0.0011 – 0.0020)	0.07 (0.003)
	Main journal oil clearance		0.030 – 0.046 (0.0012 – 0.0018)	0.07 (0.003)
Transmission	Gear I.D.	M3, M5	28.000 – 28.021 (1.1024 – 1.1032)	28.04 (1.104)
		C1, C2, C4	31.000 – 31.025 (1.2204 – 1.2215)	31.05 (1.222)
	Bushing O.D.	M3, M5	27.959 – 27.980 (1.1007 – 1.1016)	27.94 (1.100)
		C1, C2, C4	30.950 – 30.975 (1.2185 – 1.2195)	30.93 (1.218)
	Bushing I.D.	M3	25.000 – 25.021 (0.9843 – 0.9851)	25.04 (0.986)
		C2	27.995 – 28.016 (1.1021 – 1.1030)	28.04 (1.104)
	Gear-to-bushing clearance	M3, M5	0.020 – 0.062 (0.0008 – 0.0024)	0.10 (0.004)
		C1, C2, C4	0.025 – 0.075 (0.0010 – 0.0030)	0.11 (0.004)
	Mainshaft O.D.	M3 bushing	24.972 – 24.993 (0.9831 – 0.9840)	24.95 (0.982)
		Case journal A	19.980 – 19.993 (0.7866 – 0.7871)	19.96 (0.786)
		Case journal B	21.967 – 21 .980 (0.8648 – 0.8654)	21.94 (0.864)
	Countershaft O.D.	C2 bushing	27.967 – 27.980 (1.1011 – 1.1016)	27.95 (1.100)
		Case journal A	27.972 – 27.990 (1.1013 – 1.1020)	27.95 (1.100)
		Case journal B	19.980 – 19.993 (0.7866 – 0.7871)	19.96 (0.786)
	Bushing-to-shaft clearance	M3	0.007 – 0.049 (0.0003 – 0.0019)	0.08 (0.003)
		C2	0.015 – 0.049 (0.0006 – 0.0019)	0.08 (0.003)
Shift fork, fork shaft	Fork	I.D.	13.000 – 13.021 (0.5118 – 0.5126)	13.04 (0.513)
		Claw thickness	5.93 – 6.00 (0.233 – 0.236)	5.6 (0.22)
	Fork shaft O.D.		12.966 – 12.984 (0.5105 – 0.5112)	12.90 (0.508)
Shift drum O.D. (at left side journal)			11 .966 – 11.984 (0.4711 – 0.4718)	11.94 (0.470)

FRONT WHEEL/SUSPENSION/STEERING

Unit: mm (in)

ITEM		STANDARD	SERVICE LIMIT
Minimum tire tread depth		—	1.5 (0.06)
Cold tire pressure	Up to 90 kg (200 lb) load	200 kPa (2.00 kgf/cm², 29 psi)	—
	Up to maximum weight capacity	200 kPa (2.00 kgf/cm², 29 psi)	—
Axle runout		—	0.20 (0.008)
Wheel rim runout	Radial	—	2.0 (0.08)
	Axial	—	2.0 (0.08)
Wheel hub-to-rim distance		(page 13-17)	—
Wheel balance weight		—	60 g (2.1 oz)
Fork	Spring free length	303.4 (11.94)	297.3 (11.70)
	Tube runout	—	0.20 (0.008)
	Recommended fork fluid	Pro-Honda Suspension Fluid SS-8	—
	Oil level	108 (4.3)	—
	Oil capacity	514 ± 2.5 cm³ (17.4 ± 0.08 US oz, 18.0 ± 0.09 Imp oz)	—
Steering head bearing preload		0.43 – 1.04 kgf (0.95 – 2.30 lbf)	—

REAR WHEEL/BRAKE/SUSPENSION

Unit: mm (in)

ITEM		STANDARD	SERVICE LIMIT
Minimum tire tread depth		—	2.0 (0.08)
Cold tire pressure	Up to 90 kg (200 lb) load	200 kPa (2.00 kgf/cm², 29 psi)	—
	Up to maximum weight capacity	250 kPa (2.50 kgf/cm², 36 psi)	—
Axle runout		—	0.20 (0.008)
Wheel rim runout	Radial	—	2.0 (0.08)
	Axial	—	2.0 (0.08)
Wheel hub-to-rim distance		(page 14-8)	—
Wheel balance weight		—	70 g (2.5 oz)
Drive chain slack		15 – 25 (3/5 – 1)	40 (1-3/5)
Drive chain link		122L	—
Drive chain size	DID	525 V8	—
	RK	525 SMOZ5	—
Rear brake	Drum I.D.	180.0 – 180.3 (7.09 – 7.10)	181 (7.13)
	Lining thickness	5 (0.2)	2 (0.1)
Brake pedal height		50 mm (2.0 in) above the top of the footpeg	—
Brake pedal free play		20 – 30 (3/4 – 1-1/4)	—
Shock absorber spring preload adjuster setting		2nd position	—

HYDRAULIC BRAKE

Unit: mm (in)

ITEM	STANDARD	SERVICE LIMIT
Specified brake fluid	DOT 4	———
Brake pad wear indicator	———	To groove
Brake disc thickness	5.8 – 6.2 (0.23 – 0.24)	5 (0.2)
Brake disc runout	———	0.30 (0.012)
Master cylinder I.D.	11.000 – 11.043 (0.4331 – 0.4348)	11.05 (0.435)
Master piston O.D.	10.957 – 10.984 (0.4314 – 0.4324)	10.945 (0.4309)
Caliper cylinder I.D.	27.000 – 27.050 (1.0630 –1.0650)	27.06 (1.065)
Caliper piston O.D.	26.935 – 26.968 (1.0604 – 1.0617)	26.93 (1.060)

BATTERY/CHARGING SYSTEM

ITEM			SPECIFICATIONS
Battery	Capacity		12 V – 14 Ah
	Current leakage		1.0 mA max
	Voltage (20°C/68°F)	Fully charged	13.0 – 13.2 V
		Needs charging	Below 12.3 V
	Charging current	Normal	1.4 A/5 – 10 h
		Quick	6.0 A/1 h max
Alternator	Capacity		345 W/5,000 rpm
	Charging coil resistance (20°C/68°F)		0.1 – 0.3 Ω
Regulator/rectifier regulated voltage			14 – 15 V/4,000 rpm

IGNITION SYSTEM

ITEM		SPECIFICATIONS	
Spark plug		NGK	DENSO
	Standard	DPR8EA 9	X24EPR-U9
	For cold climate (below 5°C/41°F)	DPR7EA 9	X22EPR-U9
	For extended high speed riding	DPR9EA 9	X27EPR-U9
Spark plug gap		0.80 – 0.90 mm (0.031 – 0.035 in)	
Ignition coil primary peak voltage		100 V minimum	
Ignition pulse generator peak voltage		0.7 V minimum	
Ignition timing "F" mark		8° BTDC at 1,000 rpm	
Advance	Start	3,000 ± 200 rpm	
	Stop	5,500 ± 200 rpm	
Full advance		24.5° BTDC at 5,500 rpm	

ELECTRIC STARTER

Unit: mm (in)

ITEM	STANDARD	SERVICE LIMIT
Starter motor brush length	12.5 (0.49)	6.5 (0.26)

LIGHTS/METERS/SWITCHES

ITEM			SPECIFICATIONS
Bulbs	Headlight (High/Low beam)		12V – 60/55 W
	Brake/tail light		12V – 32/3 CP
	Front turn signal/running light		12V – 21/5 W X 2
	Rear turn signal light		12V – 21 W X 2
	License light		12V – 4CP
	Speedometer light	VT750C VT750CD/CD2 ('98 – 2000)	12V – 3.4 W
		VT750CD/CD2 (After 2000) VT750C3/CD3	12V – 1.7 W
	Turn signal indicator		12V – 3.4 W
	High beam indicator		12V – 3.4 W
	Neutral indicator		12V – 3.4 W
	Side stand indicator	VT750CD/CD2 (After 2000) VT750C3/CD3	12V – 3.4 W
	Oil indicator	VT750CD/CD2 (After 2000) VT750C3/CD3	12V – 3.4 W
	Temp indicator	VT750CD/CD2 (After 2000) VT750C3/CD3	12V – 3.4 W
Fuse	Main fuse		30 A
	Sub fuse		10 A X 4, 15 A X 1
Fan motor switch	Starts to close (ON)		98 – 102 °C (208 – 216 °F)
	Starts to open (OFF)		93 – 97 °C (199 – 207 °F)
Coolant temperature switch	Starts to close (ON)		112 – 118 °C (259 – 270 °F)
	Starts to open (OFF)		Below 108 °C (252 °F)

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) and nut	12 (1.2, 9)
12 mm hex bolt and nut	54 (5.5, 40)	8 mm flange bolt and nut	26 (2.7, 20)
		10 mm flange bolt and nut	39 (4.0, 29)

- Torque specificatons 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 grease to the threads.
4. Stake.
5. Apply oil to the threads and flange surface.
6. Apply oil to the threads and O-ring.
7. U-nut.
8. ALOC bolt: replace with a new one.
9. Left hand threads
10. CT bolt
11. CT bolt (one-side only)

ENGINE

ITEM	Q'TY	THREAD DIA. (mm)	TORQUE N·m (kgf·m, lbf·ft)	REMARKS
MAINTENANCE:				
Spark plug	4	12	14 (1.4, 10)	
Crankshaft hole cap	1	22	15 (1.5, 11)	NOTE 3
Timing hole cap	1	30	15 (1.5, 11)	NOTE 3
Valve adjusting screw lock nut	6	7	23 (2.3, 17)	NOTE 5
Oil drain bolt	1	14	30 (3.1, 22)	
Oil filter cartridge	1	20	10 (1.0, 7)	NOTE 6
Vacuum plug	2	5	3 (0.3, 2.2)	
LUBRICATION SYSTEM:				
Oil pressure switch	1	PT1/8	12 (1.2, 9)	NOTE 1
Oil pressure switch cord terminal screw	1	4	2 (0.2, 1.4)	
Oil pump cover bolt	3	6	13 (1.3, 9)	NOTE 10
COOLING SYSTEM:				
Water pump cover bolt	3	6	13 (1.3, 9)	NOTE 10
CLUTCH/GEARSHIFT LINKAGE:				
Clutch lifter plate bolt	4	6	12 (1.2, 9)	
Clutch center lock nut	1	18	128 (13.0, 94)	NOTE 4, 5
Primary drive gear bolt	1	12	88 (9.0, 65)	NOTE 5
Gearshift return spring pin	1	8	23 (2.3, 17)	
Oil pump driven sprocket bolt	1	6	15 (1.5, 11)	NOTE 2
ENGINE MOUNTING:				
Left rear cover bolt	1	6	12 (1.2, 9)	
Drive sprocket bolt	2	6	10 (1.0, 7)	
Drive chain guide plate bolt	2	6	12 (1.2, 9)	NOTE 11

ENGINE (Cont'd)

ITEM	Q'TY	THREAD DIA. (mm)	TORQUE N·m (kgf·m, lbf·ft)	REMARKS
ALTERNATOR/STARTER CLUTCH:				
Flywheel bolt	1	12	127 (13.0, 94)	NOTE 5, 9
Stator mounting socket bolt	4	6	12 (1.2, 9)	NOTE 2
Starter one-way clutch hosing bolt	6	8	29 (3.0, 22)	NOTE 2
Stator wire holder socket bolt	1	6	12 (1.2, 9)	NOTE 2
Ignition pulse generator bolt	2	6	12 (1.2, 9)	NOTE 2
CYLINDER HEAD/VALVES:				
Air cleaner housing stay mounting bolt	1	6	13 (1.3, 9)	NOTE 10
EVAP air injection reed valve cover bolt	2	5	5 (0.5, 3.6)	NOTE 10
Cylinder head cover bolt	4	6	10 (1.0, 7)	
Cam sprocket bolt	4	7	23 (2.3, 17)	NOTE 2
Camshaft end holder bolt	4	6	10 (1.0, 7)	
Camshaft holder 8 mm bolt	6	8	23 (2.3, 17)	
8 mm nut	4	8	23 (2.3, 17)	
Cam chain tensioner mounting bolt	4	6	10 (1.0, 7)	
Cylinder head 6 mm bolt	2	6	12 (1.2, 9)	NOTE 5
8 mm bolt	4	8	23 (2.3, 17)	NOTE 5
8 mm nut	2	8	23 (2.3, 17)	NOTE 5
10 mm nut	8	10	47 (4.8, 35)	NOTE 5
Cylinder head fin socket bolt	15	6	10 (1.0, 7)	
Crankcase breather case cover bolt	3	6	12 (1.2, 9)	
CRANKCASE/CRANKSHAFT/TRANSMISSION:				
Crankcase 8 mm bolt	13	8	23 (2.3, 17)	
Connecting rod bearing cap nut	8	8	33 (3.4, 25)	NOTE 5
Neutral switch	1	10	12 (1.2, 9)	
ELECTRIC STARTER:				
Starter motor cable nut	1	6	10 (1.0, 7)	

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	25 (2.5, 18)	
Muffler bracket nut	2	8	26 (2.7, 20)	
Muffler mounting bolt	2	8	26 (2.7, 20)	
Front seat bolt	1	8	26 (2.7, 20)	
Rear seat bolt	1	6	9 (0.9, 6.5)	
Rear fender 8 mm bolt	6	8	26 (2.7, 20)	
Grab rail 10 mm bolt	2	10	64 (6.5, 47)	
24 mm nut	1	14	88 (9.0, 65)	
14 mm bolt	1	14	108 (11.0, 80)	
Fuel tank bolt	1	8	19 (1.9, 14)	
Fuel valve	1	22	34 (3.5, 25)	
Battery box bolt	1	6	10 (1.0, 7)	
Tool box cover screw	4	4	2 (0.2, 1.4)	
MAINTENANCE:				
Air cleaner housing cover bolt	6	6	2 (0.2, 1.4)	
Side stand assembly	2	10	34 (3.5, 25)	
Side stand pivot bolt	1	10	10 (1.0, 7)	
lock nut	1	10	29 (3.0, 22)	
Brake pedal stopper lock nut	1	6	10 (1.0, 7)	
Spoke nipple	104	4	4 (0.4, 2.9)	
COOLING SYSTEM:				
Radiator mounting bolt	1	6	2 (0.2, 1.4)	
Radiator coolant drain bolt	2	6	13 (1.3, 9)	
Fan motor bolt	3	5	3 (0.3, 2.2)	
Cooling fan nut	1	5	3 (0.3, 2.2)	
Radiator filler bolt	2	6	9 (0.9, 6.5)	
Thermostat housing cover bolt	2	6	9 (0.9, 6.5)	
Fan motor switch	1	PT 1/8	8 (0.8, 5.8)	NOTE 1
Water pump cover bolt	2	6	13 (1.3, 9)	
ENGINE MOUNTING:				
Front engine mounting bolt	2	10	54 (5.5, 40)	
Rear engine mounting bolt	1	10	54 (5.5, 40)	
Front engine bracket bolt	2	8	26 (2.7, 20)	
Rear engine bracket bolt	2	8	26 (2.7, 20)	
Gearshift arm pinch bolt	1	6	12 (1.2, 9)	
CLUTCH GEARSHIFT LINKAGE:				
Footpeg set arm bolt	4	8	26 (2.7, 20)	
Gearshift pedal pivot bolt	1	10	34 (3.5, 25)	
FRONT WHEEL/SUSPENSION/STEERING :				
Steering stem nut	1	24	103 (10.5, 76)	See page 13-40
Top thread A	1	26	—	
Top thread B	1	26	—	
Top bridge pinch bolt	2	8	26 (2.7, 20)	
Bottom bridge pinch bolt	2	10	49 (5.0, 36)	
Handlebar upper holder bolt	4	8	23 (2.3, 17)	
Handlebar lower holder nut	2	8	26 (2.7, 20)	
Handlebar switch screw	4	5	3 (0.3,2.2)	
Clutch lever holder bolt	2	6	12 (1.2, 9)	
Front axle	1	14	59 (6.0, 43)	
Front axle pinch bolt	2	8	22 (2.2, 16)	
Front brake disc bolt	6	8	42 (4.3, 31)	NOTE 8
Fork cap	2	38	22 (2.2, 16)	
Fork socket bolt	2	8	29 (3.0, 22)	NOTE 2

FRAME (Cont'd)

ITEM	Q'TY	THREAD DIA. (mm)	TORQUE N·m (kgf·m, lbf·ft)	REMARKS
REAR WHEEL/SUSPENSION:				
Rear axle nut	1	18	93 (9.5, 69)	NOTE 7
Driven sprocket nut	5	12	88 (9.0, 65)	NOTE 7
Rear shock absorber mounting bolt	4	8	26 (2.7, 20)	
Swingarm pivot nut	1	14	88 (9.0, 65)	NOTE 7
Swingarm pivot adjusting bolt	1	26	25 (2.5, 18)	
Swingarm pivot lock nut	1	26	64 (6.5, 47)	
Drive chain slider screw	2	5	3 (0.3, 2.2)	
Brake pedal pivot bolt	1	10	34 (3.5, 25)	
Rear brake stopper arm bolt	2	8	20 (2.0, 14)	
Rear brake arm bolt	1	8	29 (3.0, 22)	
Rear brake middle rod joint bolt	1	10	34 (3.5, 25)	
HYDRAULIC BRAKE:				
Brake caliper mounting bolt	2	8	30 (3.1, 22)	NOTE 6
Caliper pin bolt	1	8	26 (2.7, 20)	
Bracket pin bolt	1	8	13 (1.3, 9)	
Pad pin	1	10	18 (1.8, 13)	
Pad pin plug	1	10	3 (0.3, 2.2)	
Brake caliper bleeder	1	8	6 (0.6, 4.3)	
Brake lever pivot bolt	1	6	1 (0.1, 0.7)	
Brake lever pivot nut	1	6	6 (0.6, 4.3)	
Master cylinder holder bolt	2	6	12 (1.2, 9)	
Master cylinder cover screw	2	4	2 (0.2, 1.4)	
Front brake light switch screw	1	4	1 (0.1, 0.7)	
Brake hose oil bolt	2	10	34 (3.5, 25)	
BATTERY/CHARGING SYSTEM:				
Battery box cover screw	3	6	10 (1.0, 7)	
LIGHTS/METERS/SWITCHES:				
Side stand switch mounting bolt	1	6	10 (1.0, 7)	NOTE 8
Thermosensor	1	PT 1/8	12 (1.2, 9)	NOTE 1

TOOLS

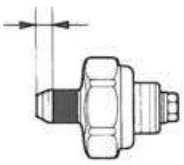
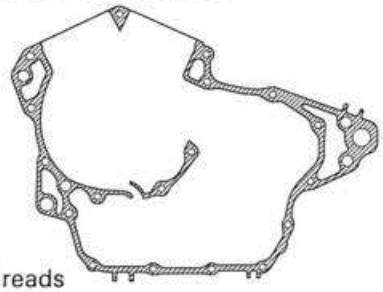
NOTES: 1. Alternative tool.
2. Newly provided tool.
3. Equivalent commercially available in U.S.A.
4. Not available in U.S.A.

DESCRIPTION	TOOL NUMBER	REMARKS	REF. SEC.
Carburetor float level gauge	07401 – 0010000		5
Oil pressure gauge	07506 – 3000000	NOTE 3	4
Vacuum gauge attachment	07510 – 3000200	NOTE 1: 07LMJ-001000A (U.S.A. only)	3
Oil pressure gauge attachment	07510 – 4220100	NOTE 3	4
Gear holder	07724 – 0010100		8
Flywheel holder	07725 – 0040000	NOTE 3	9
Rotor puller	07733 – 0020001	NOTE 1: 07933-3290001	9
Valve guide remover, 5.5 mm	07742 – 0010100		10
Valve guide remover, 6.6 mm	07742 – 0010200		10
Valve guide driver	07743 – 0020000	NOTE 4	10
Valve guide driver attachment (IN)	07743 – MF50100		10
(EX)	07743 – MF50200		10
Attachment, 32 X 35 mm	07746 – 0010100		14
Attachment, 37 X 40 mm	07746 – 0010200		8, 14
Attachment, 42 X 47 mm	07746 – 0010300		12, 13, 14
Attachment, 52 X 55 mm	07746 – 0010400		12, 13
Attachment	07746 – 0030300		
Pilot, 12 mm	07746 – 0040200		8
Pilot, 15 mm	07746 – 0040300		14
Pilot, 20 mm	07746 – 0040500		12, 13, 14
Pilot, 25 mm	07746 – 0040600		12
Pilot, 30 mm	07746 – 0040700		8
Pilot, 22 mm	07746 – 0041000		12, 14
Bearing remover shaft	07746 – 0050100		13, 14
Bearing remover head, 17 mm	07746 – 0050500		14
Bearing remover head, 20 mm	07746 – 0050600		13
Attachment, 28 X 30 mm	07746 – 1870100		13, 14
Driver	07749 – 0010000		12, 13, 14
Valve spring compressor	07757 – 0010000		10
Valve seat cutter			10
Seat cutter, 27.5 mm (45° IN)	07780 – 0010200	NOTE 3	
Seat cutter, 35 mm (45° EX)	07780 – 0010400		
Flat cutter, 28 mm (32° IN)	07780 – 0012100		
Flat cutter, 35 mm (32° EX)	07780 – 0012300		
Interior cutter, 30 mm (60° IN)	07780 – 0014000		
Interior cutter, 37.5 mm (60° EX)	07780 – 0014100		
Cutter holder, 5.5 mm (IN)	07781 – 0010101		
Cutter holder, 6.6 mm (EX)	07781 – 0010202		
Valve adjusting wrench	07908 – KE90000	NOTE 1: 07908-KE90100 (U.S.A. only)	3
Snap ring pliers	07914 – 3230001		2, 14, 15
Steering stem socket	07916 – 3710101	NOTE 1: 07916-3710100	13
Bearing remover set	07936 – 3710001	NOTE 4	12
– Remover weight	07741 – 0010201	NOTE 1: 07936-371020A (U.S.A. only) or 07936-3710200	
– Remover handle	07936 – 3710100		
– Bearing remover set	07936 – 3710600		
Attachment, 28 X 30 mm	07946 – 1870100		8
Bearing race remover	07946 – 3710500		13
Driver shaft	07946 – MJ00100	NOTE 4	14
Attachment	07946 – MJ00200		14
Slider weight	07947 – KA50100		13
Driver attachment set	07947 – KF00100		13

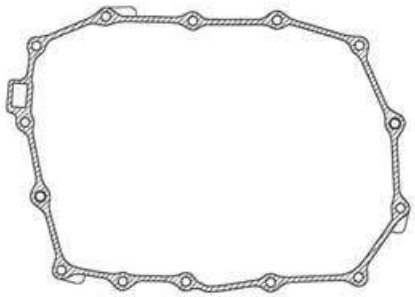
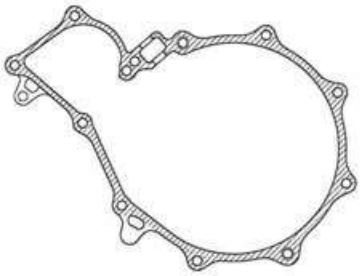
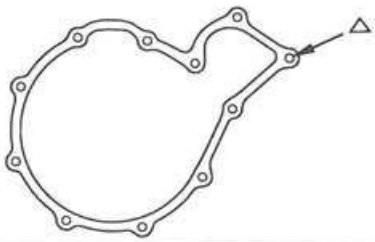
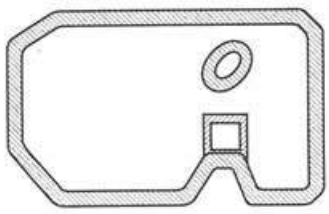
DESCRIPTION	TOOL NUMBER	REMARKS	REF. SEC.
Driver shaft	07949 – 3710001		14
Ball race remover	07953 – MJ10000		13
– Driver attachment	07953 – MJ10100		
– Driver handle	07953 – MJ10200		
Valve guide reamer, 5.510 mm (IN)	07984 – 2000001	NOTE 1: 07984-200000D (U.S.A. only)	10
Valve guide reamer, 6.612 mm (EX)	07984 – ZE20001	NOTE 1: 07984-ZE2000D (U.S.A. only)	10
Swingarm pivot lock nut wrench	07GMA – KT70200	NOTE 4	14
Oil filter wrench	07HAA – PJ70100		3
Peak voltage adapter	07HGJ – 0020100		17
Drive chain tool set	07HMH – MR10103	NOTE 1: 07HMH-MR7010B (U.S.A. only)	3
Spoke wrench	07JMA – MR60100	NOTE 3	3, 13, 14
Clutch center holder	07JMB – MN50301	NOTE 2	8
		NOTE 1: 07HGB-001010B 07HGB-001010A and 07HGB-001020B or 07HGB-001020A (U.S.A. only)	
Pilot screw wrench	07KMA – MS60101		5

LUBRICATION & SEAL POINTS

ENGINE

LOCATION	MATERIAL	REMARKS
Camshaft lobes/journals Valve stem (valve guide sliding surface) Rocker arm slipper surface Rocker arm shaft outer surface Connecting rod bearing surface Crankshaft journals Clutch outer guide outer surface Transmission gear shift fork groove Transmission collar inner and outer surface Transmission spline collar outer surface Connecting rod small end inner surface	Molybdenum disulfide oil (a mixture of 1/2 engine oil and 1/2 molybdenum disulfide grease	
Piston outer surface Piston ring outer surface Piston pin outer surface Primary drive gear bolt threads and seating surface Flywheel bolt threads and seating surface Starter one-way clutch sliding lock surface Starter idle and reduction gear shaft outer surface Clutch center lock nut threads Clutch lifter arm-to-right crankcase cover sliding surface Clutch lifter rod-to-right crankcase cover sliding surface Clutch disc outer surface Cylinder stud bolt threads Cylinder head 8 mm bolt threads Valve adjusting screw threads and seating surface Connecting rod bolt/nut threads and seating surface Cylinder head mounting bolt and nut seating surface Cylinder head cover mount rubber seal whole surface Transmission gear tooth Oil filter cartridge threads and O-ring Each bearings rolling area Each O-rings	Engine oil	
Air cleaner housing-to-chamber band inside surface Crankshaft hole cap threads Timing hole cap threads Each oil seal lips	Multi-purpose grease	
Oil pressure switch threads 3 – 4 mm (0.12 – 0.16 in)  Right and left crankcase mating surface  Fan motor switch threads	Sealant	

ENGINE (Cont'd)

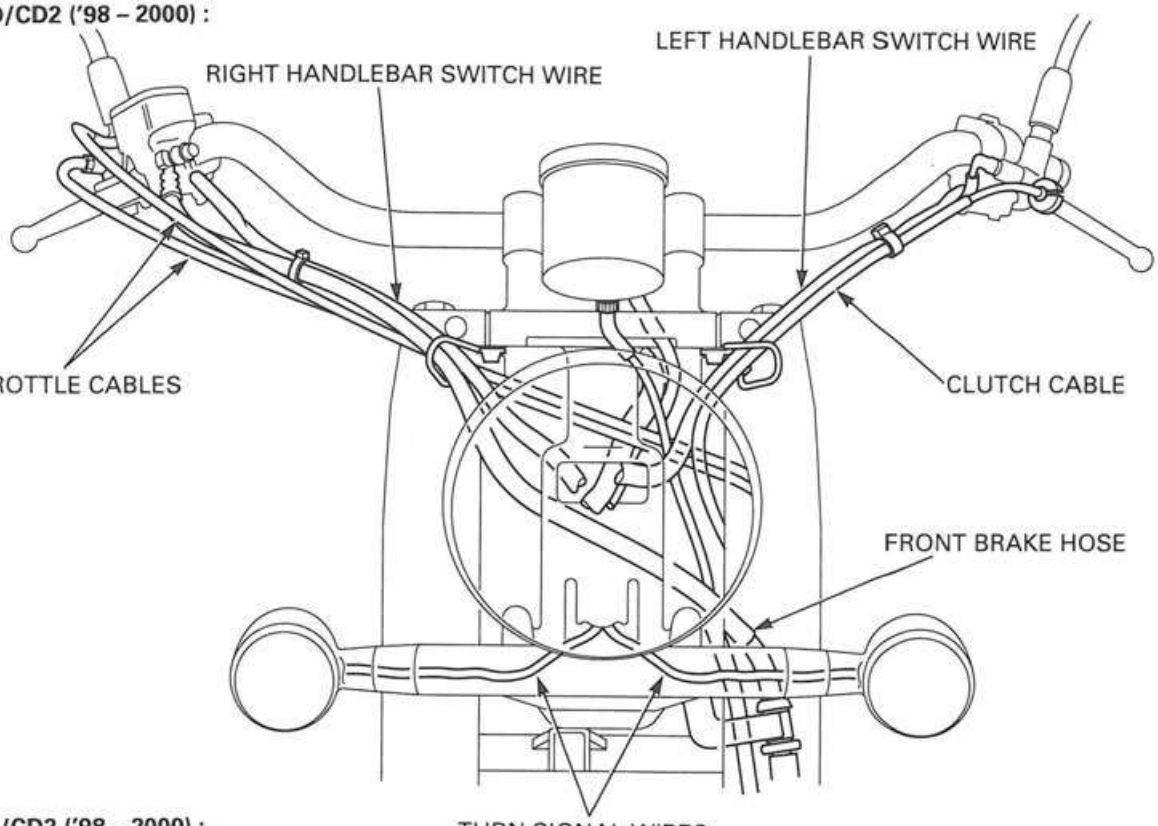
LOCATION	MATERIAL	REMARKS
Right crankcase cover mating surface (After 2000)  Left crankcase cover mating surface (After 2000) 	Sealant	
Cam sprocket bolt threads Starter one-way clutch housing bolt threads Oil pump driven sprocket bolt threads Stator wire holder socket bolt threads Gearshift cam plate bolt threads Transmission bearing set plate bolt threads Countershaft oil seal set plate bolt threads Cam chain tensioner set plate bolt threads Stator mounting bolt threads Oil filter boss crankcase side threads Ignition pulse generator bolt threads Left crankcase cover bolt threads (marked "△") 	Locking agent	Coating width: 6.5 ± 1mm (0.26 ± 0.04 in)
Cylinder head cover-to-gasket groove 	HONDA BOND A or equivalent	

FRAME

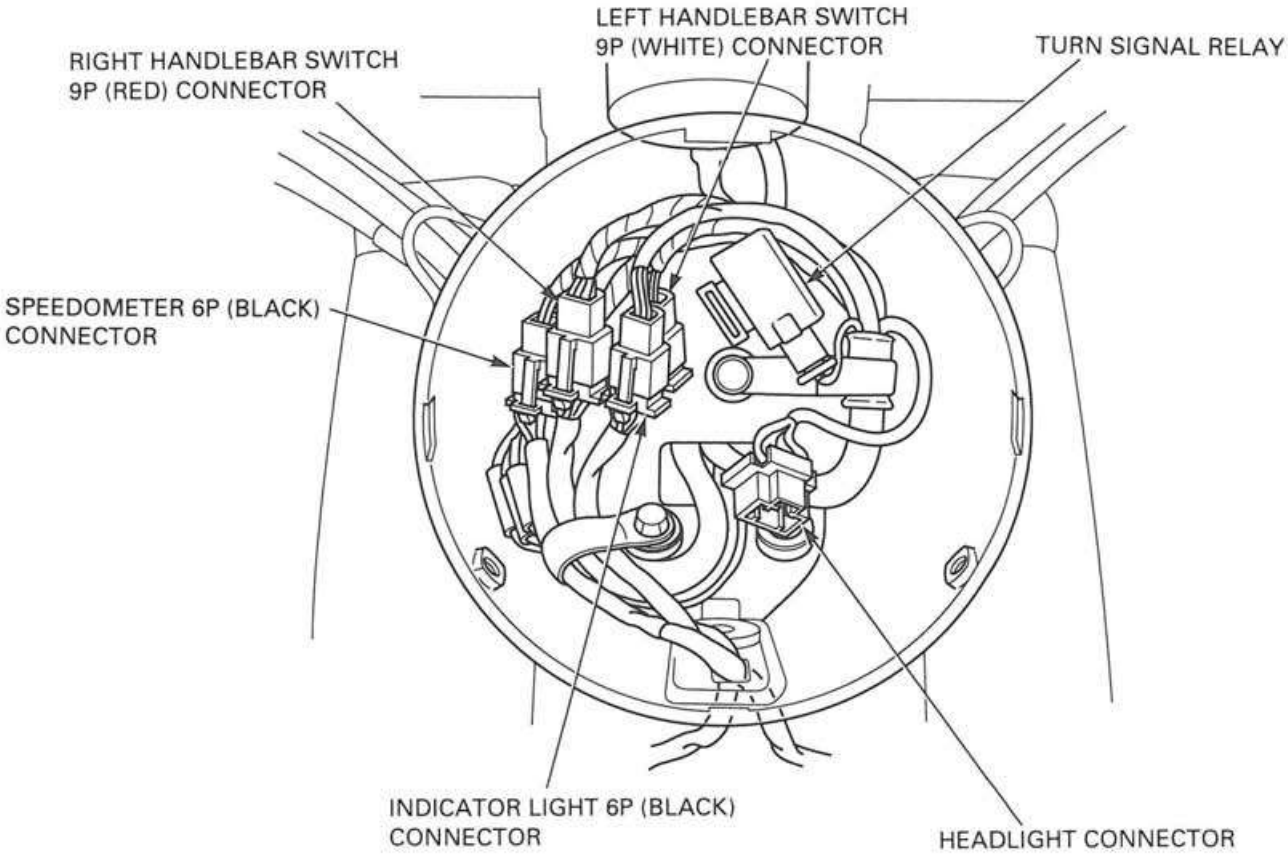
LOCATION	MATERIAL	REMARKS
Steering head bearing sliding surface	Multi-purpose grease	
Steering head dust seal lips		
Clutch lever pivot bolt sliding surface		
Throttle grip inner surface		Spreading 1.0 – 2.0 g
Throttle pipe rolled-up portion		Spreading 0.2 – 0.3 g
Throttle cable end		
Rear wheel axle sliding surface		
Rear brake cam sliding surface		Spreading 0.5 – 1.0 g
Rear brake shoe-to-cam sliding surface		
Rear brake anchor pin sliding surface		Spreading 0.5 – 1.0 g
Rear brake pedal and rod pivot sliding surface		
Rear brake pivot bolt sliding surface		
Swingarm pivot dust seal lips		
Swingarm pivot needle bearing rolling area		
Side stand pivot sliding area		Spreading 1.0 g
Main and pillion step pivot sliding area		
Each dust seal lips		
Each oil seal lips		
Side stand pivot sliding surface	Molybdenum disulfide grease	Spreading 1.0 g
Gearshift pedal pivot sliding surface		
Thermosensor threads	Sealant	
Cylinder joint collar O-ring		
Steering top threads	Engine oil	
Rear brake cam felt seal		
Brake master cylinder cups	DOT 4 brake fluid	
Brake master piston		
Brake caliper piston seals		
Brake lever pivot and piston tips	Silicone grease	Spreading 0.1 g min.
Brake caliper dust seals		
Brake caliper slide pin sliding surface		Spreading 0.4 g min.
Brake caliper bracket pin sliding surface		Spreading 0.4 g min.
Brake caliper slide pin threads	Locking agent	
Brake caliper bracket pin threads		
Front fork socket bolt threads		
Axle and distance collar whole surface	Gear oil	
Drive chain	#80 – 90 gear oil	
Handle grip rubber inside	Pro-Honda Handgrip Cement or equivalent	Spreading 80 % min.
Brake caliper bracket-to-retainer seating area	Threebond #1521	
Front fork rebound spring	Pro-Honda Suspension Fluid SS-8	
Front fork spring		
Fork cap O-ring		
Inside cables	Cable lubricant	

CABLE & HARNESS ROUTING

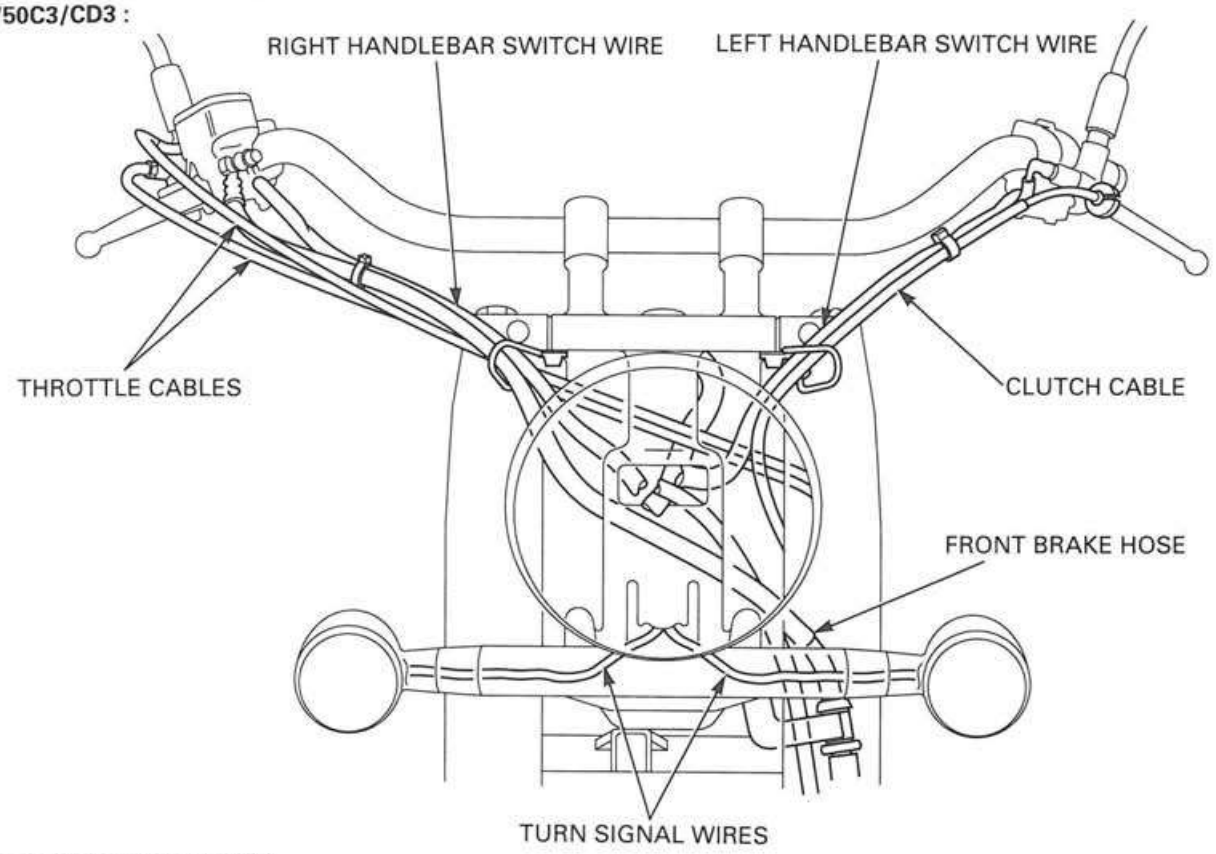
VT750C :
VT750CD/CD2 ('98 – 2000) :



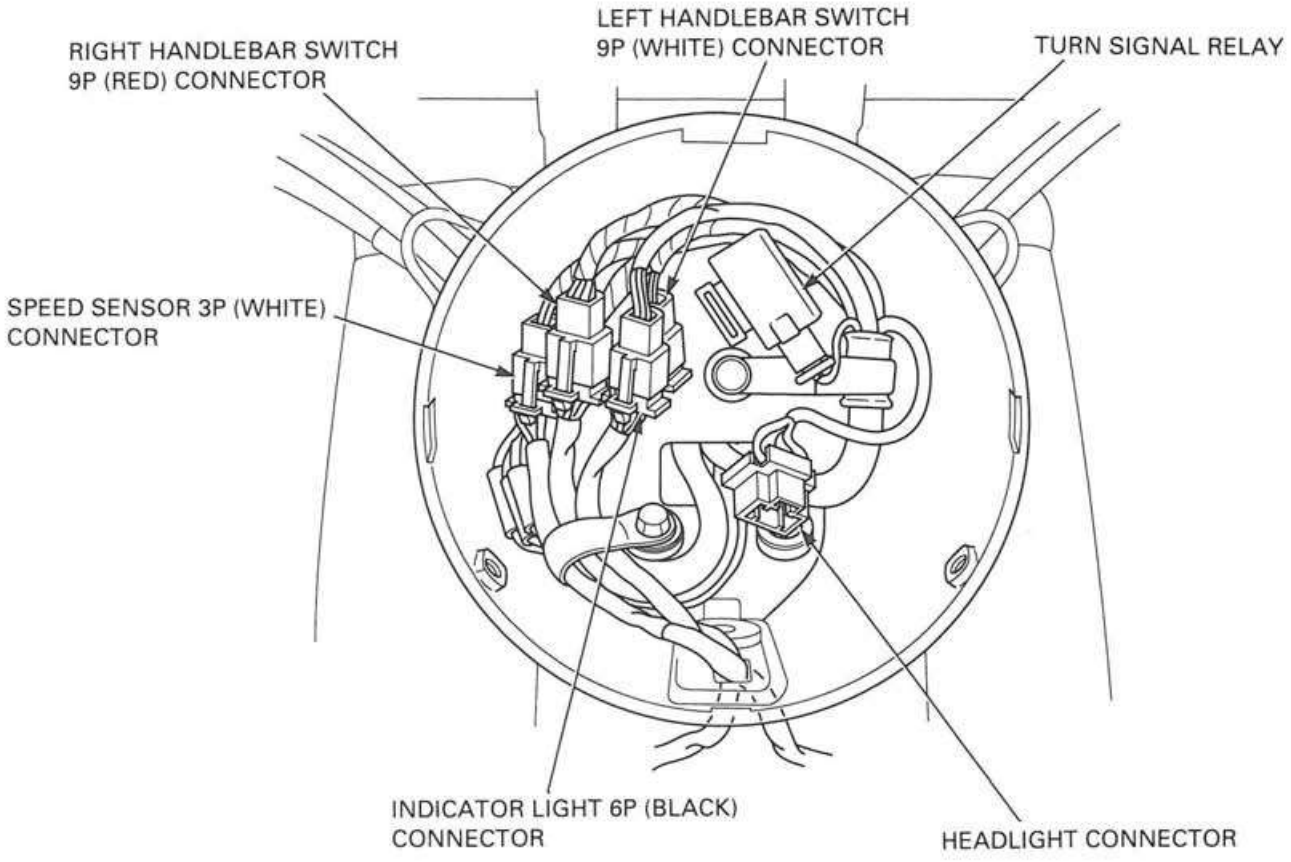
VT750C :
VT750CD/CD2 ('98 – 2000) :



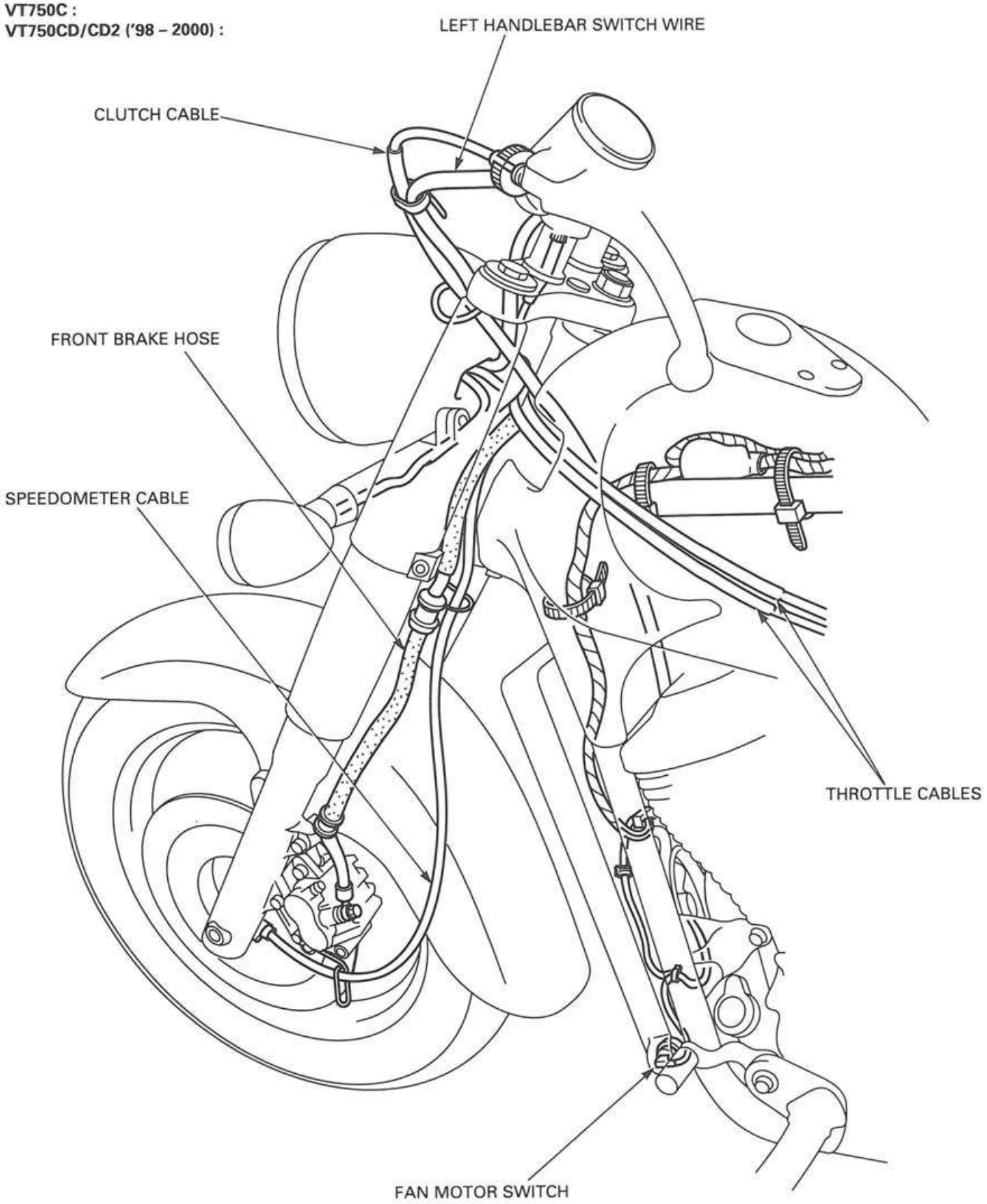
VT750CD/CD2 (After 2000) :
VT750C3/CD3 :



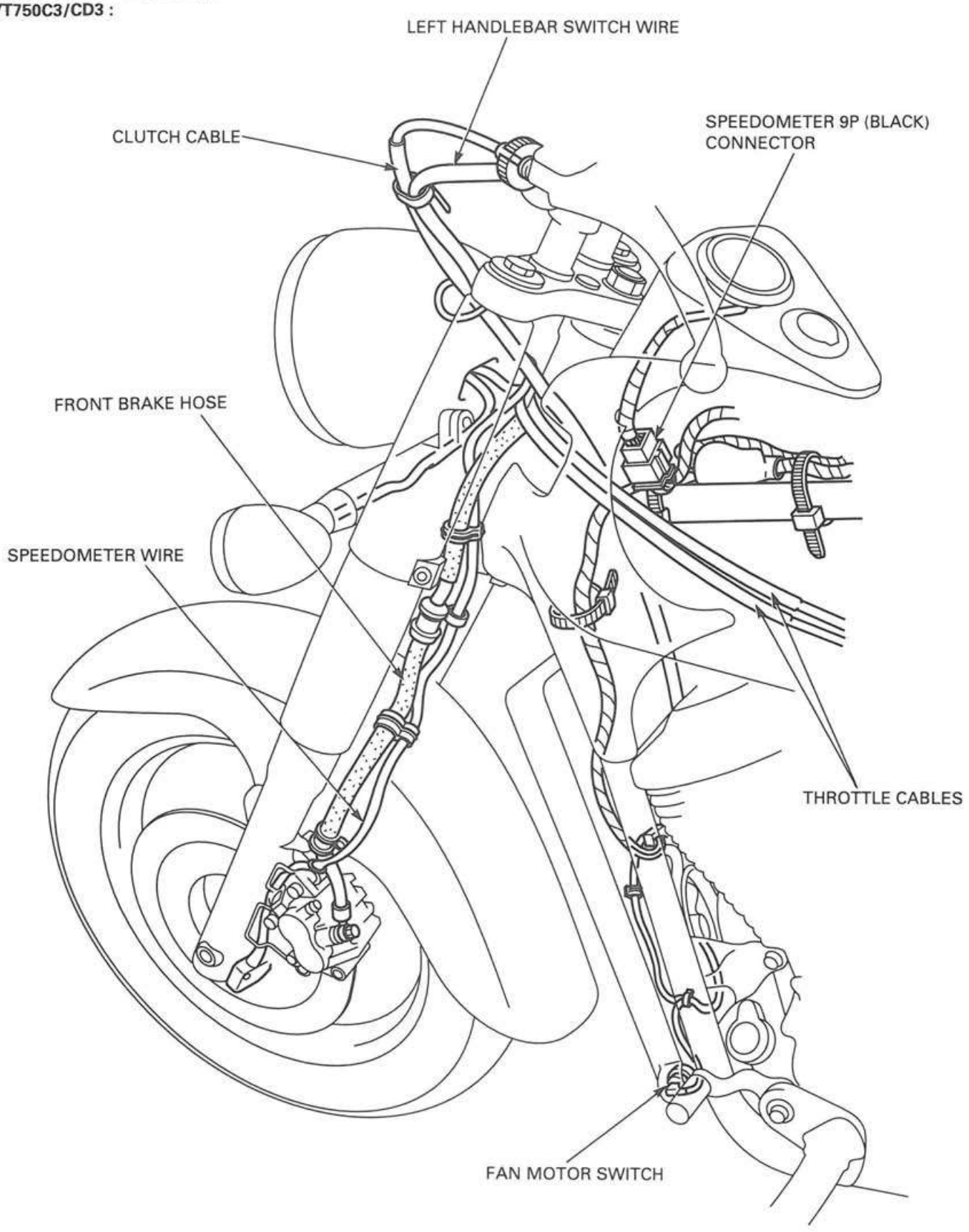
VT750CD/CD2 (After 2000) :
VT750C3/CD3 :

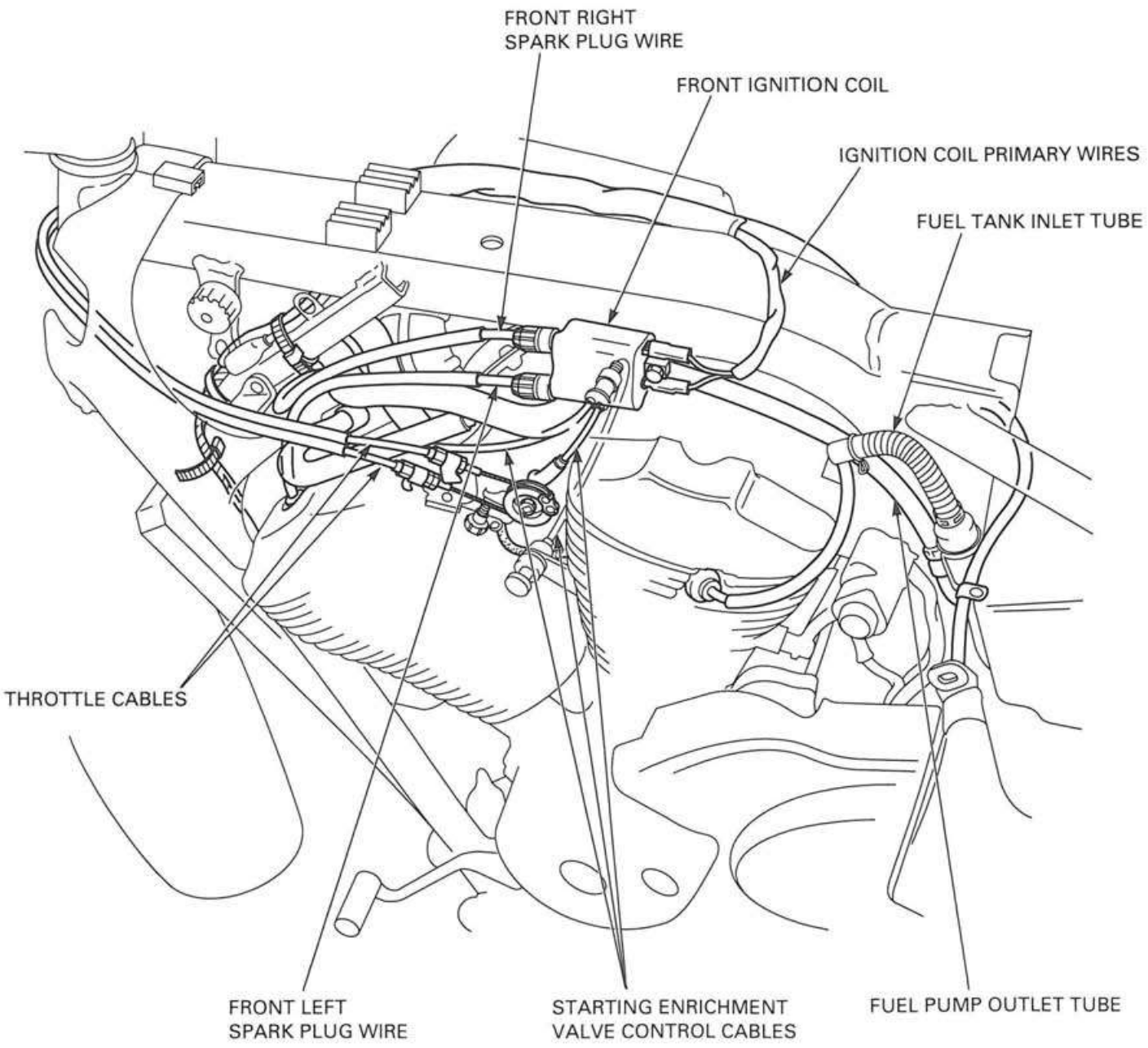


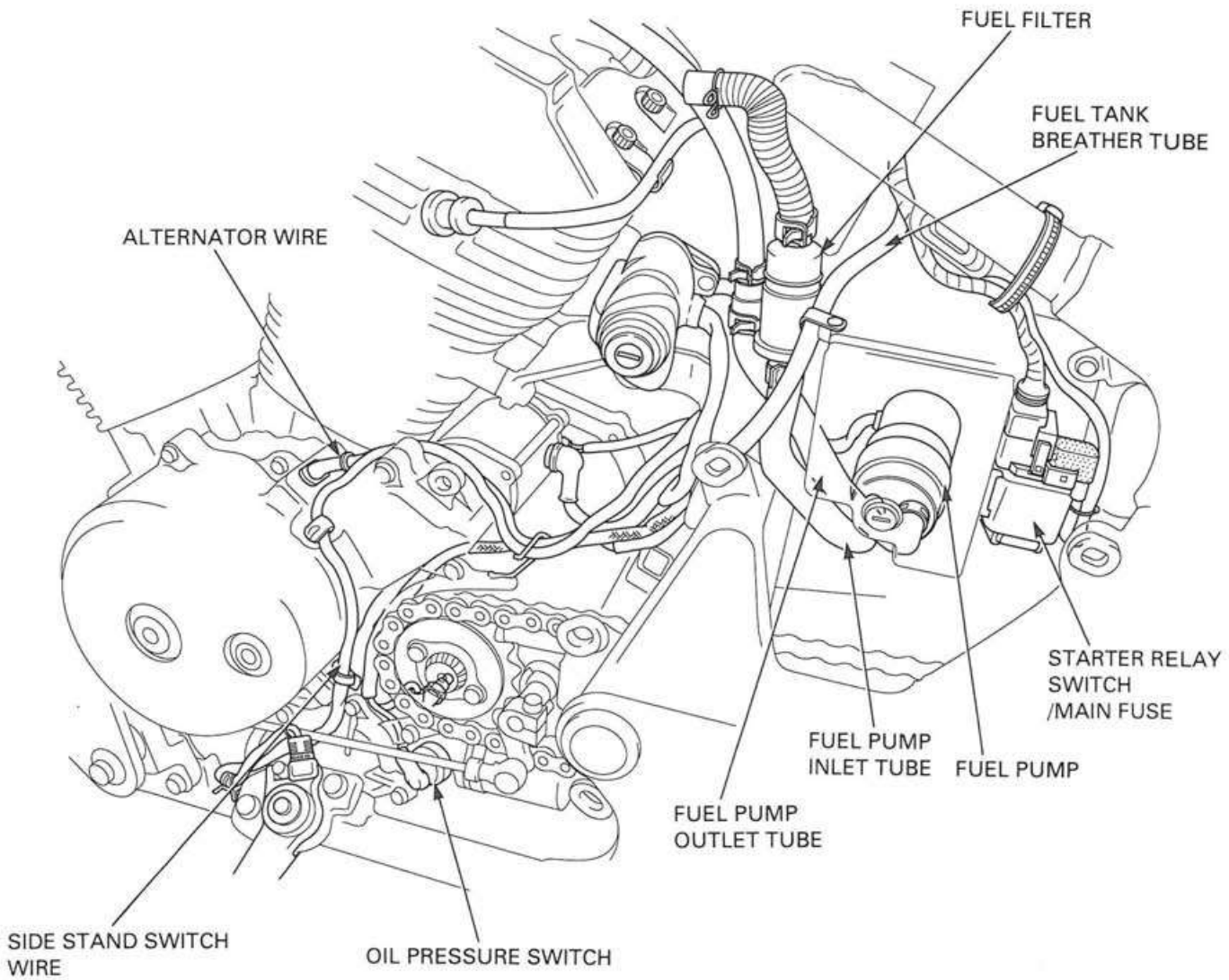
VT750C :
VT750CD/CD2 ('98 – 2000) :

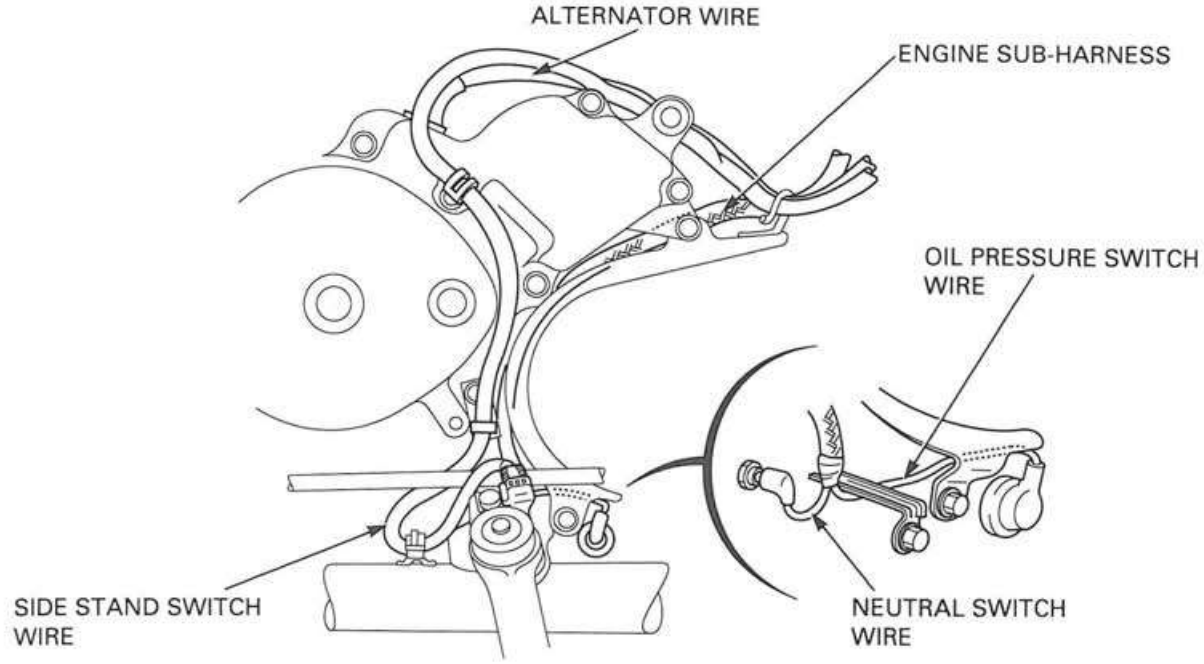


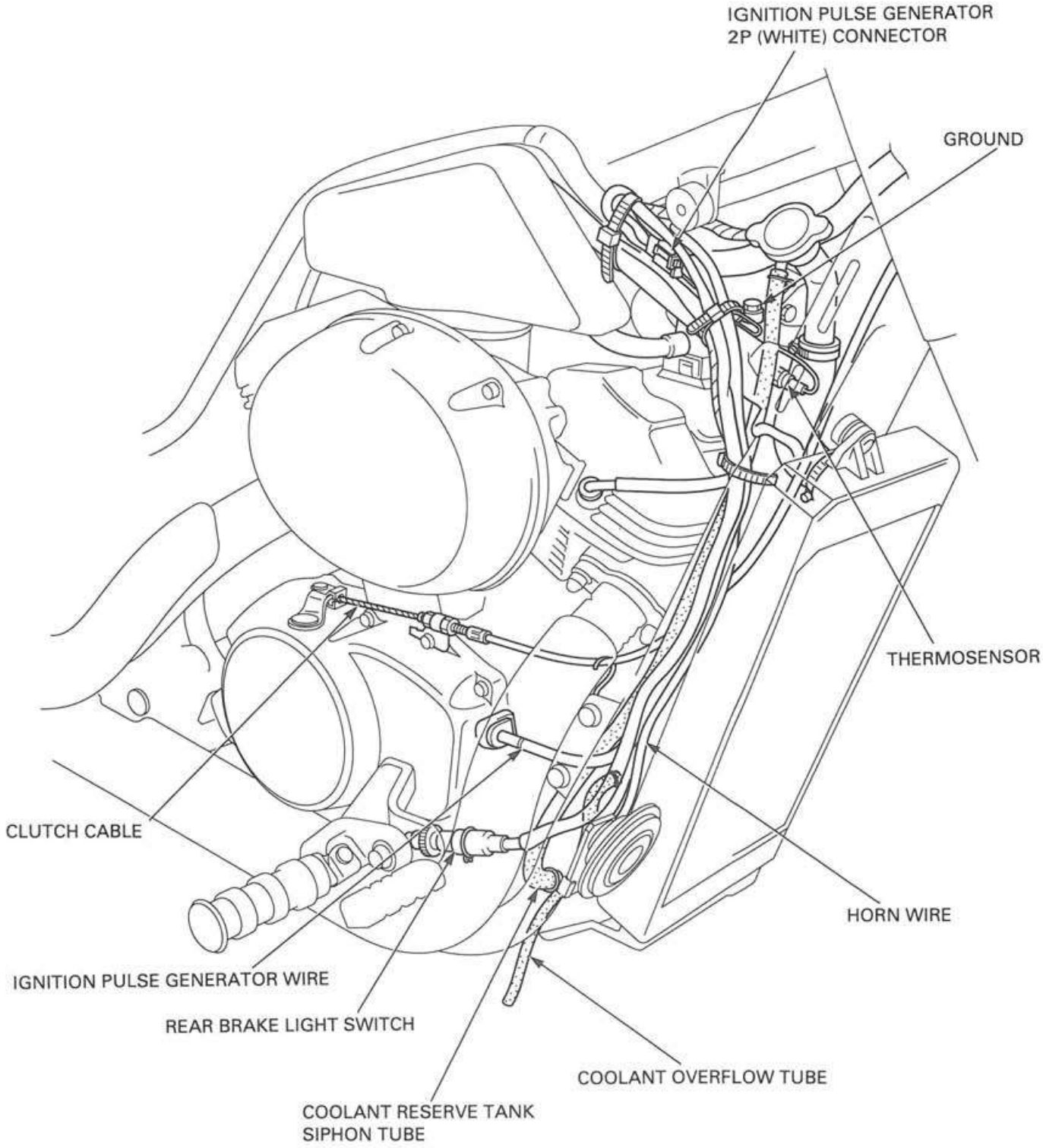
VT750CD/CD2 (After 2000) :
VT750C3/CD3 :

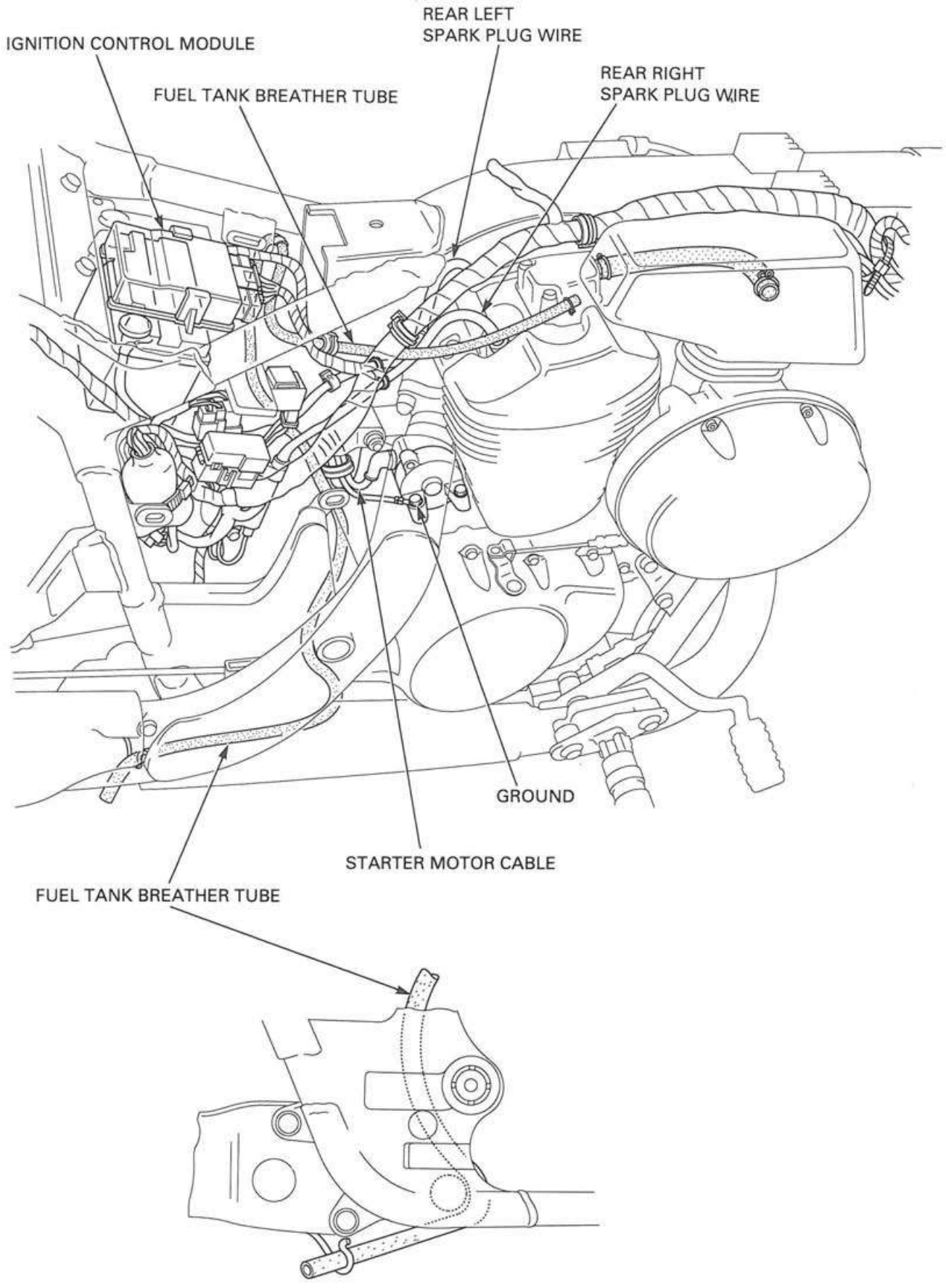



FRONT RIGHT
SPARK PLUG WIRE
FRONT IGNITION COIL
IGNITION COIL PRIMARY WIRES
FUEL TANK INLET TUBE
THROTTLE CABLES
FRONT LEFT
SPARK PLUG WIRE
STARTING ENRICHMENT
VALVE CONTROL CABLES
FUEL PUMP OUTLET TUBE

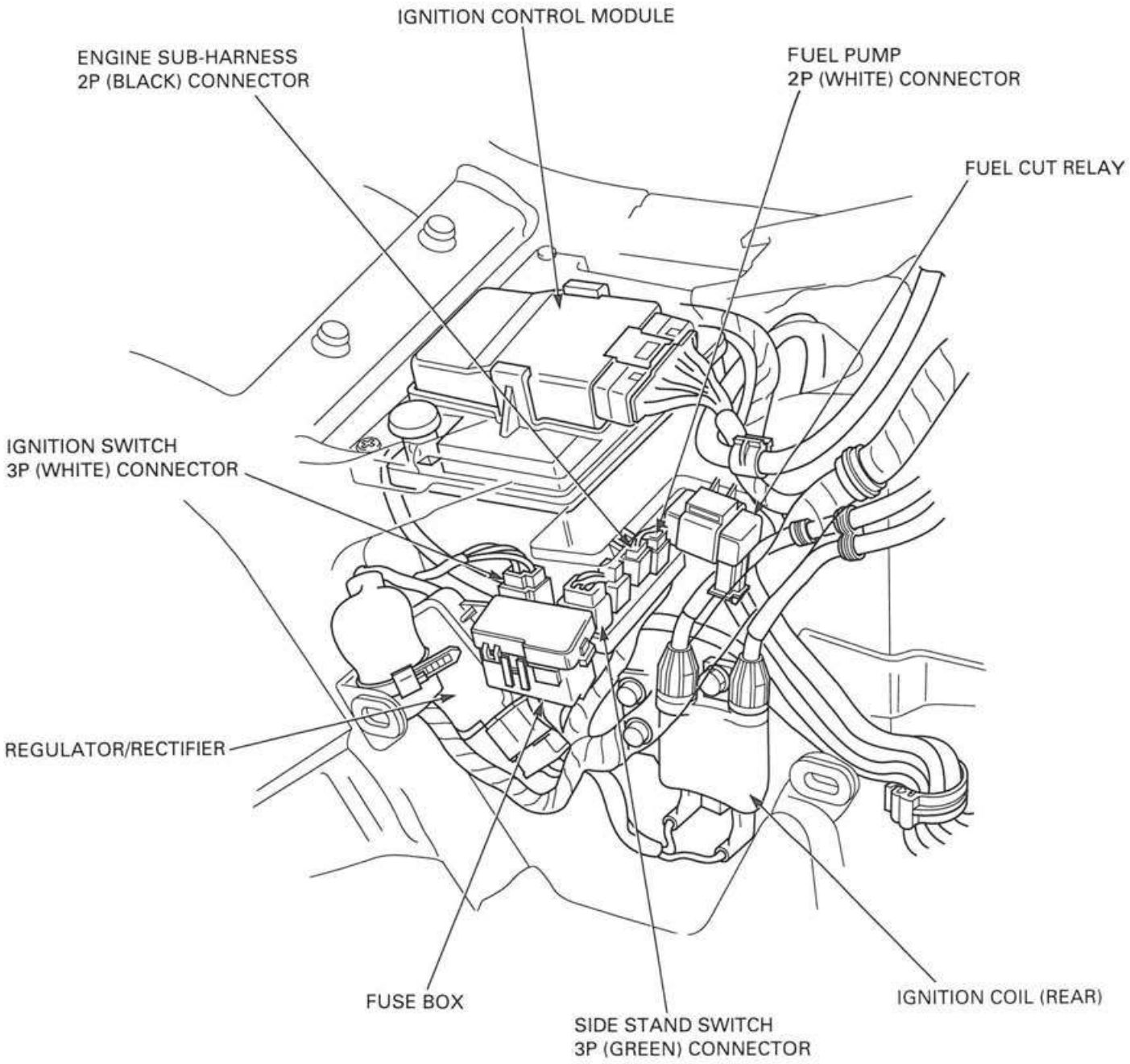

FUEL FILTER
FUEL TANK BREATHER TUBE
ALTERNATOR WIRE
STARTER RELAY SWITCH /MAIN FUSE
FUEL PUMP INLET TUBE
FUEL PUMP
FUEL PUMP OUTLET TUBE
SIDE STAND SWITCH WIRE
OIL PRESSURE SWITCH


ALTERNATOR WIRE
ENGINE SUB-HARNESS
OIL PRESSURE SWITCH WIRE
SIDE STAND SWITCH WIRE
NEUTRAL SWITCH WIRE

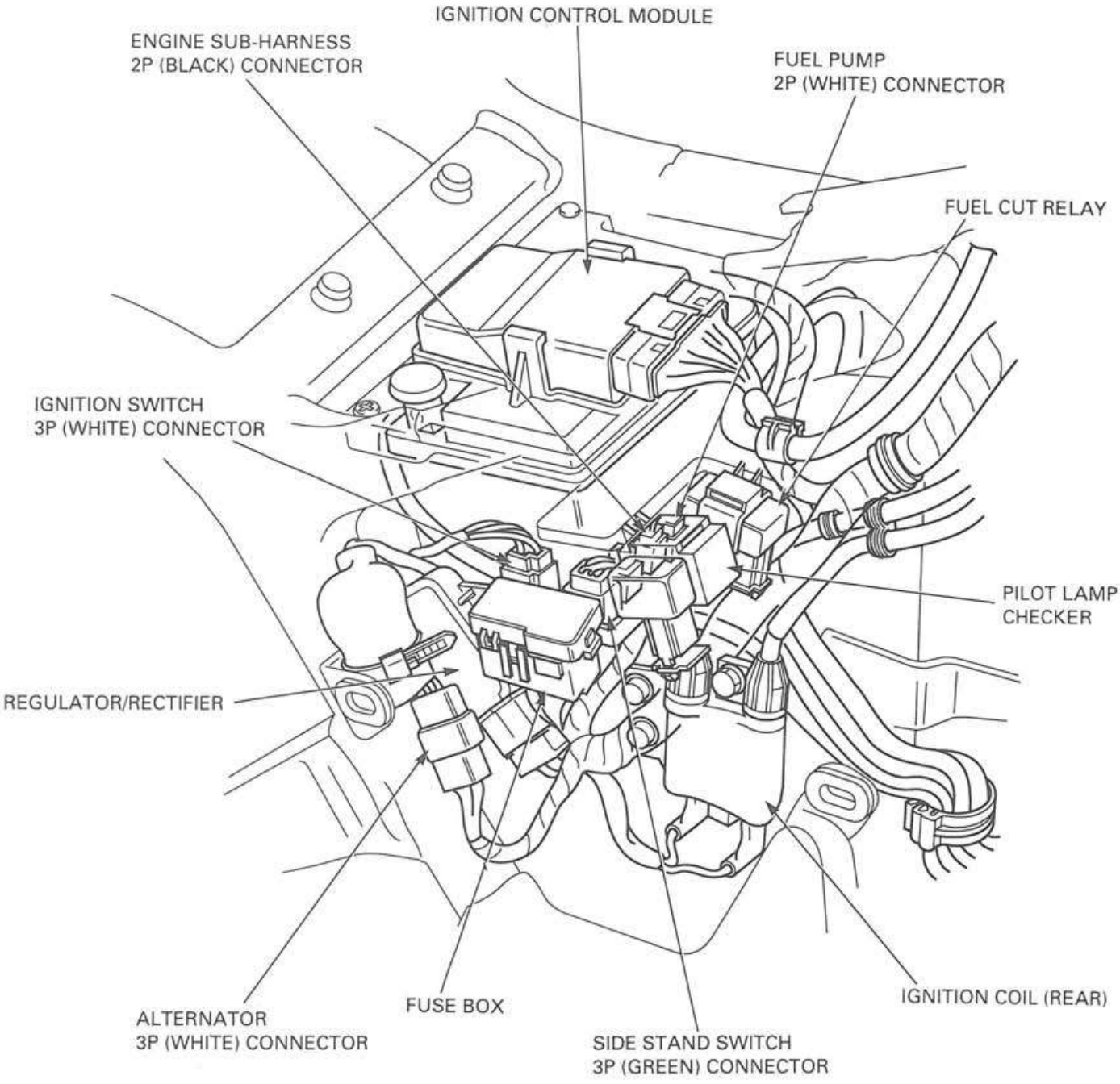

IGNITION PULSE GENERATOR
2P (WHITE) CONNECTOR
GROUND
THERMOSENSOR
CLUTCH CABLE
HORN WIRE
IGNITION PULSE GENERATOR WIRE
REAR BRAKE LIGHT SWITCH
COOLANT OVERFLOW TUBE
COOLANT RESERVE TANK
SIPHON TUBE

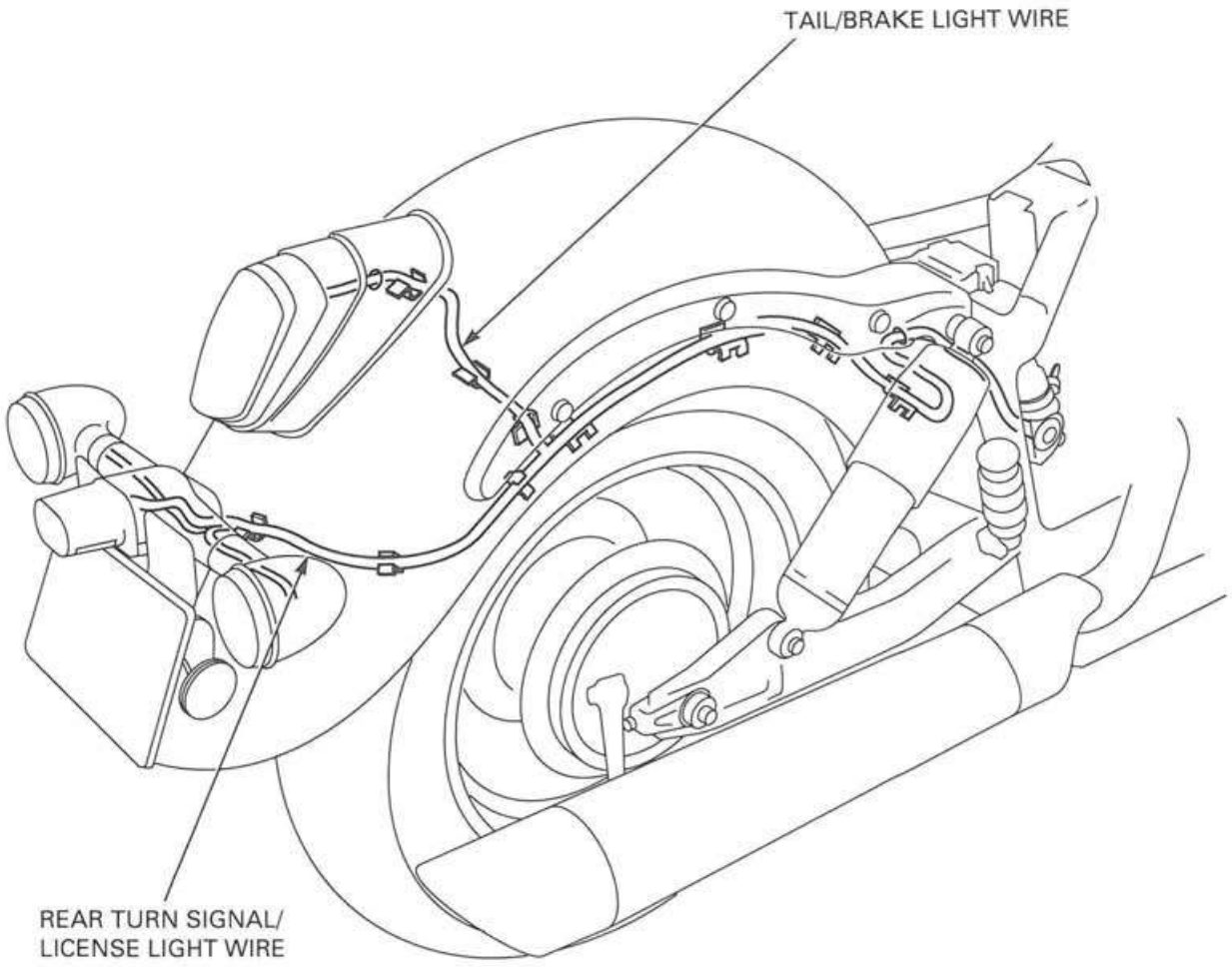

IGNITION CONTROL MODULE
FUEL TANK BREATHER TUBE
REAR LEFT
SPARK PLUG WIRE
REAR RIGHT
SPARK PLUG WIRE
GROUND
STARTER MOTOR CABLE
FUEL TANK BREATHER TUBE

VT750C :
VT750CD/CD2 ('98 – 2000) :



VT750CD/CD2 (After 2000) :
VT750C3/CD3 :

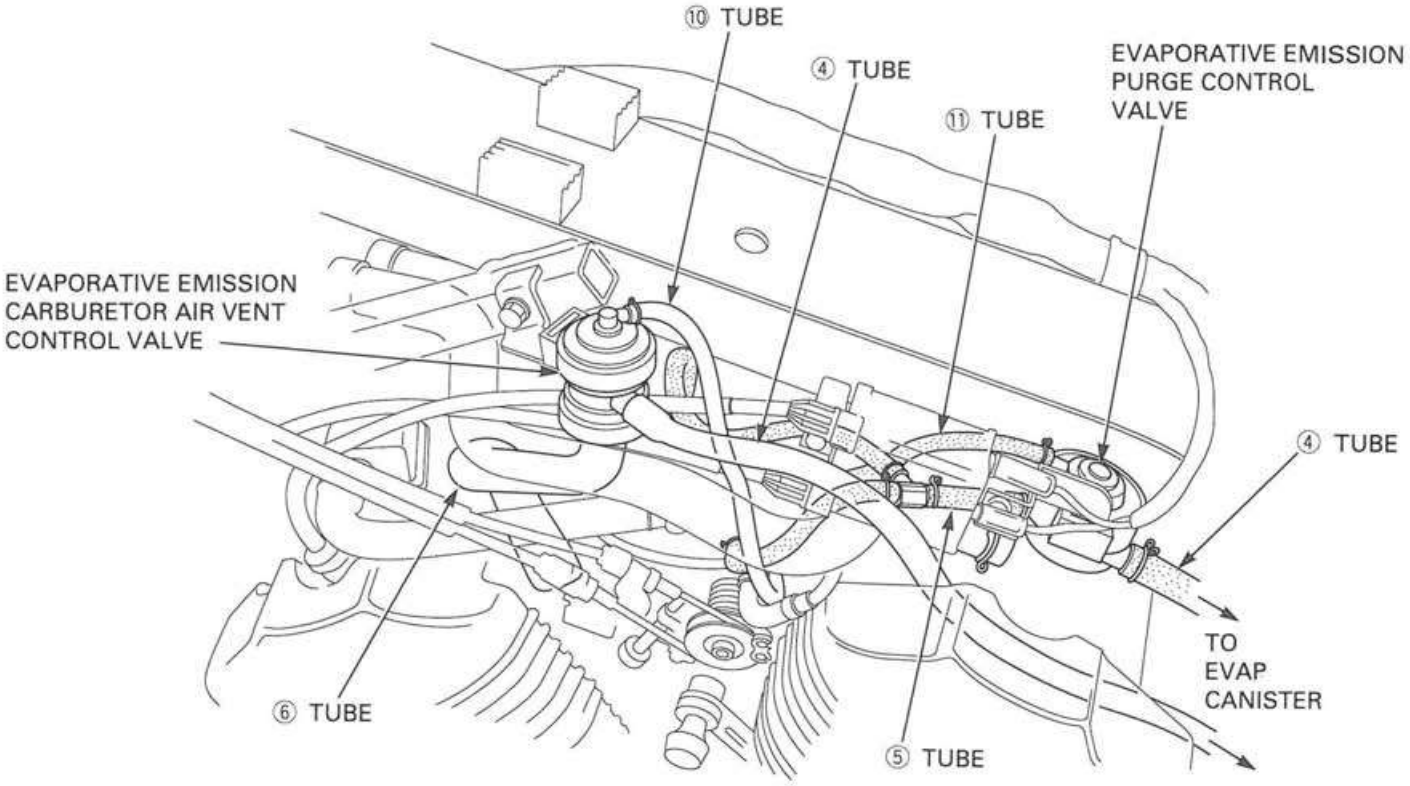


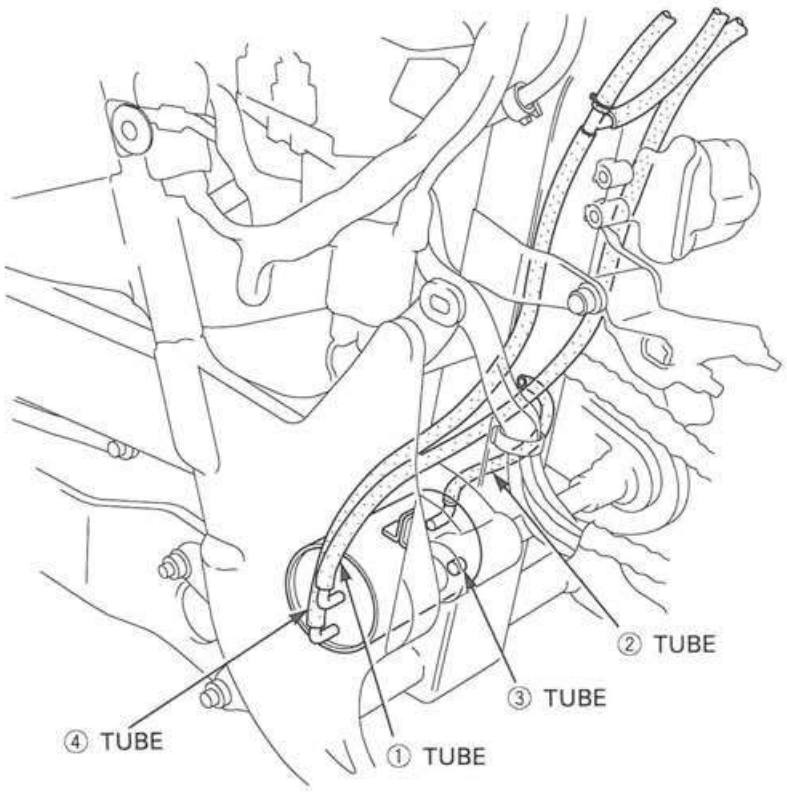

TAIL/BRAKE LIGHT WIRE
REAR TURN SIGNAL/
LICENSE LIGHT WIRE

EVAPORATIVE EMISSION CONTROL SYSTEM (CALIFORNIA TYPE ONLY)

NOTE:

The hoses shown below are numbered as they appear on the Vacuum Hose Routing Diagram Label.





EMISSION CONTROL SYSTEMS

The U.S. Environmental Protection Agency, Transport Canada, and California Air Resources Board (CARB) 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 and hydrocarbons. Control of hydrocarbons is very important because, under certain conditions, they react to from photochemical smog when subjected to sunlight. Carbon monoxide does not react in the same way. but it is toxic.

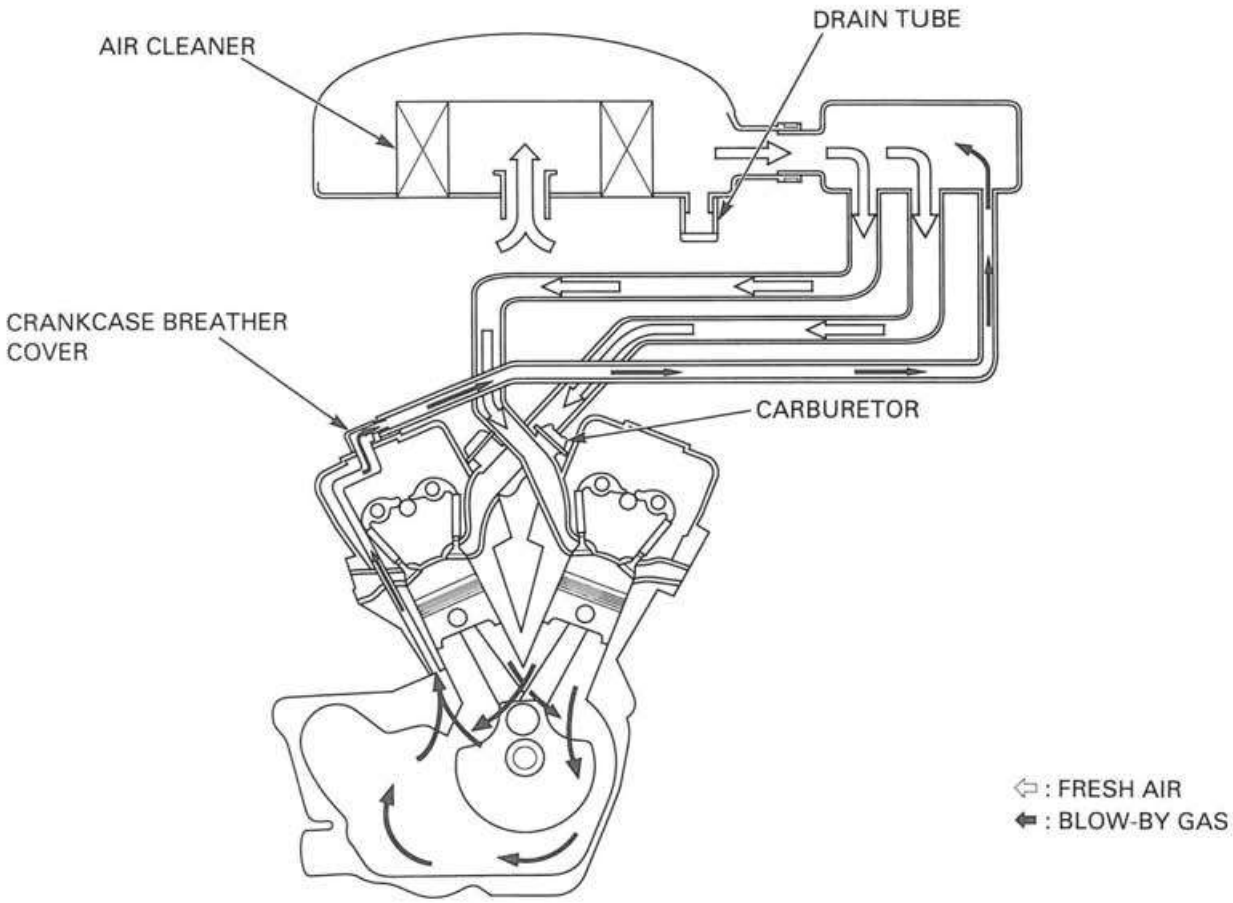
Honda Motor Co., Ltd. utilizes lean carburetor settings as well as other systems, to reduce carbon monoxide and hydrocarbons.

EXHAUST EMISSION CONTROL SYSTEM

The exhaust emission control system is composed of a lean carburetor 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.

CRANKCASE EMISSION CONTROL SYSTEM

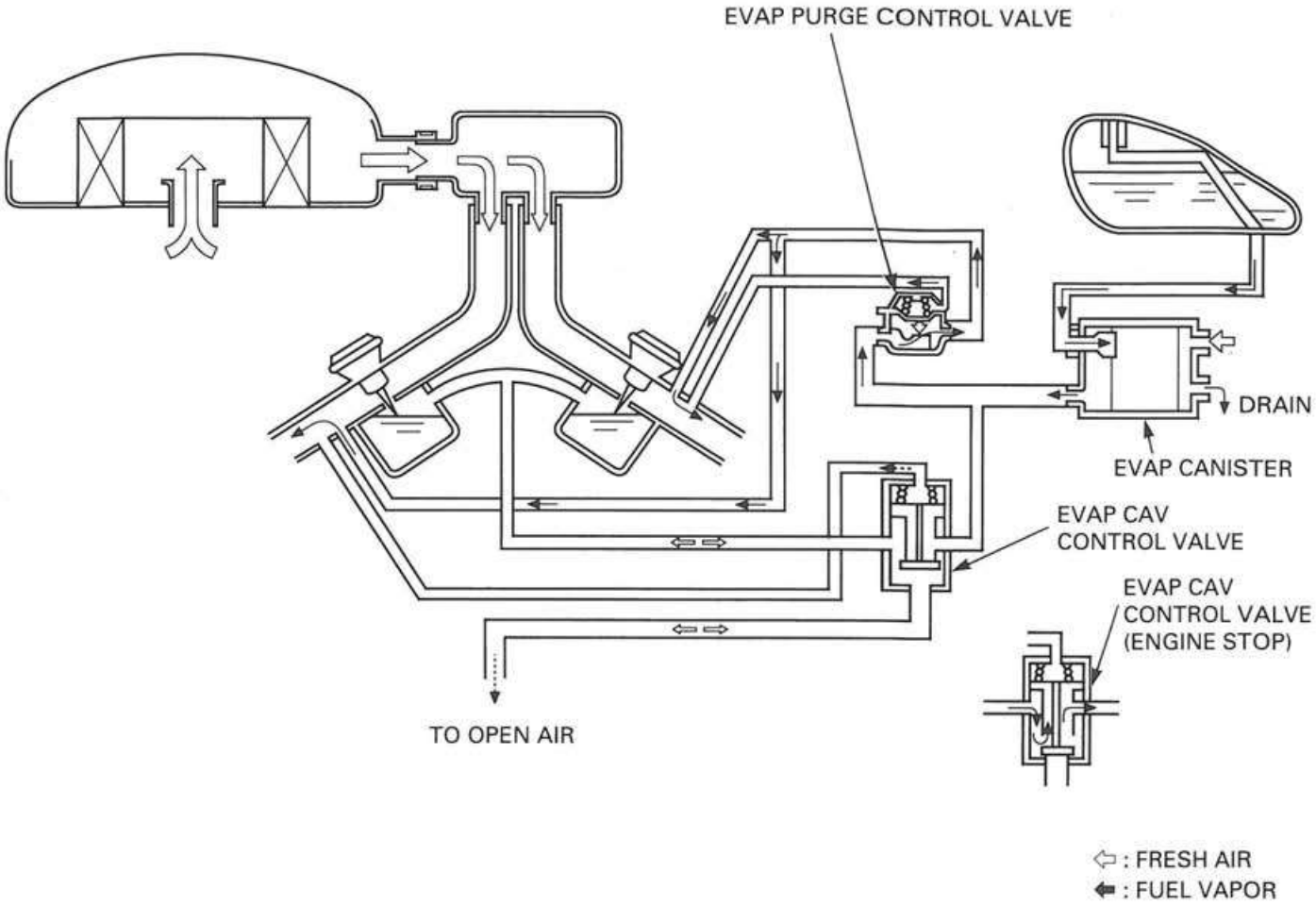
The engine is equipped with a closed crankcase system to prevent discharging crankcase emission into the atmosphere. Blow-by gas is returned to the combustion chamber through the air cleaner and carburetor.



EVAPORATIVE EMISSION CONTROL SYSTEM (CALIFORNIA TYPE ONLY)

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

Fuel vapor from the fuel tank and carburetors 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 valve is open, fuel vapor in the EVAP canister is drawn into the engine through the carburetor. At the same time, the EVAP carburetor air vent (CAV) control valve is open and air is drawn into the carburetor through the valve.



NOISE EMISSION CONTROL SYSTEM

TAMPERING WITH THE NOISE CONTROL SYSTEM IS PROHIBITED: Federal law prohibits the following acts or the causing thereof: (1) The removal or rendering inoperative by any person, other than for purposes of maintenance, repair or replacement, of any device or element of design incorporated into any new vehicle for the purpose of noise control prior to its sale or delivery to the ultimate purchaser or while it is in use; (2) the use of the 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:

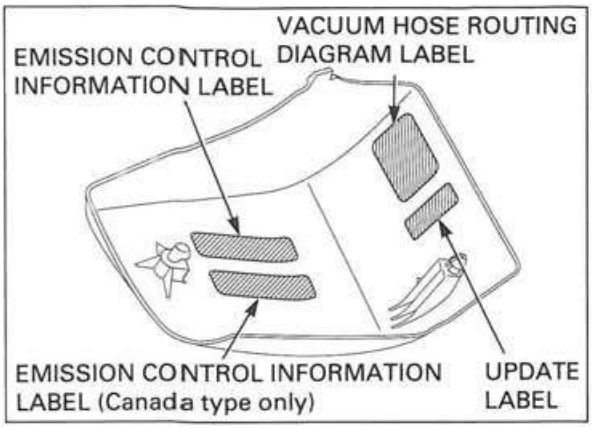
1. Removal of, or puncturing of the muffler, baffles, header pipes or any other component which conducts exhaust gases.
2. Removal of, or puncturing of any part of the intake system.
3. Lack of proper maintenance.
4. Replacing any moving parts of the vehicle, or parts of the exhaust or intake system,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

EMISSION CONTROL INFORMATION LABELS

An Emission Control Information Label is located on the inside of the left side cover as shown.

The left side cover must be removed to read it. Refer to page 2-3 for side cover removal.

It gives base tune-up specifications.

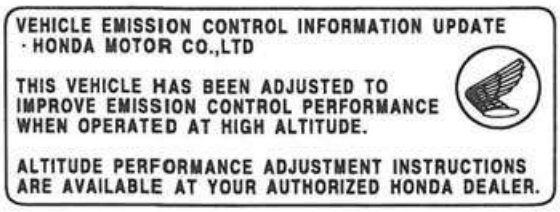


VEHICLE EMISSION CONTROL INFORMATION UPDATE LABEL

After making a high altitude carburetor adjustment, attach an update label on the inside of the left side cover as shown.

Instructions for obtaining the update label are given in Service Letter No. 132.

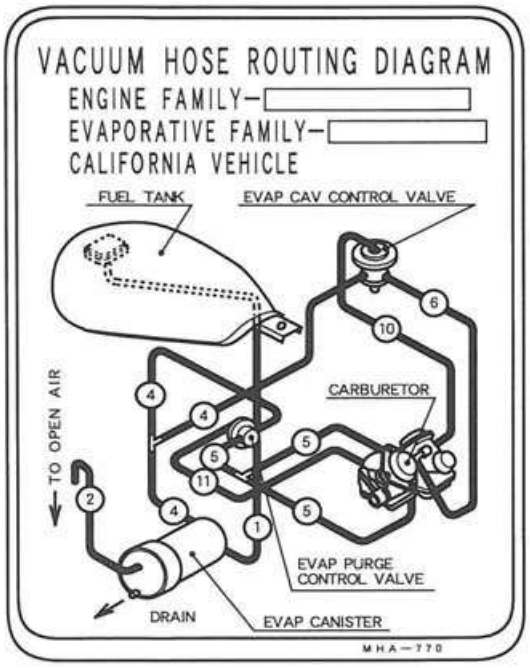
When readjusting the carburetors back to the low altitude specifications, be sure to remove this update label.



VACUUM HOSE ROUTING DIAGRAM LABEL (CALIFORNIA TYPE ONLY)

The Vacuum Hose Routing Diagram Label is on the inside of the left side cover as shown.

The left side cover must be removed to read it. Refer to page 2-3 for side cover removal.



2. FRAME/BODY PANELS/EXHAUST SYSTEM

SERVICE INFORMATION

GENERAL

⚠ WARNING

- ***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.***
- ***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.***
- ***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 enclosed area.***

- 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, fuel tank and exhaust system.
- Always replace the exhaust pipe gaskets when removing the exhaust pipe from the engine.
- Always inspect the exhaust system for leaks after installation.

TORQUE VALUES

Exhaust pipe joint nut	25 N•m (2.5 kgf•m, 18 lbf•ft)
Muffler bracket nut	26 N•m (2.7 kgf•m, 20 lbf•ft)
Muffler mounting bolt	26 N•m (2.7 kgf•m, 20 lbf•ft)
Front seat bolt	26 N•m (2.7 kgf•m, 20 lbf•ft)
Rear seat bolt	9 N•m (0.9 kgf•m, 6.5 lbf•ft)
Rear fender bolt	26 N•m (2.7 kgf•m, 20 lbf•ft)
Grab rail 10 mm bolt	64 N•m (6.5 kgf•m, 47 lbf•ft)
24 mm nut	88 N•m (9.0 kgf•m, 65 lbf•ft)
14 mm bolt	108 N•m (11.0 kgf•m, 80 lbf•ft)
Fuel tank bolt	19 N•m (1.9 kgf•m, 14 lbf•ft)
Fuel valve	34 N•m (3.5 kgf•m, 25 lbf•ft)
Battery box bolt	10 N•m (1.0 kgf•m, 7 lbf•ft)
Tool box cover screw	2 N•m (0.2 kgf•m, 1.4 lbf•ft)

TROUBLESHOOTING

Excessive exhaust noise
- Broken exhaust system
- Exhaust gas leak

Poor performance
- Deformed exhaust system
- Exhaust gas leak
- Clogged muffler

SEAT

REMOVAL

CAUTION:

Be careful not to damage the rear fender surface.

Remove the rear seat mounting bolt.
Slide seat forward and lift up to remove the rear seat.

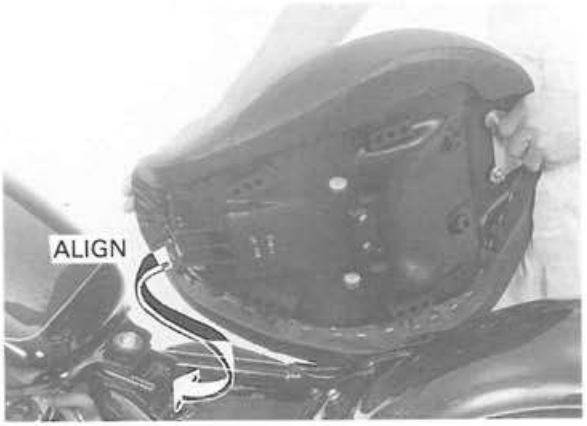
Remove the front seat mounting bolt.
Slide flont seat back and lift up to remove the front seat.

INSTALLATION

CAUTION:

Be careful not to damage the rear fender surface.

Install the front seat by inserting the hook of the seat under the raised lip of the fuel tank and push the seat forward.



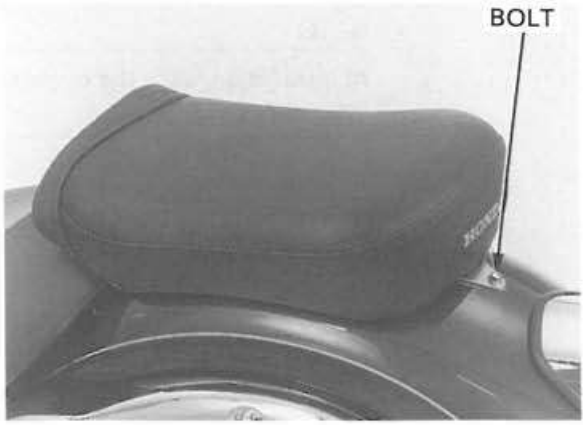
Align the bolt holes and tighten the bolt to the specified torque.

TORQUE: 26 N•m (2.7 kgf•m, 20 lbf•ft)

Install the rear seat by inserting the hook of the seat over the front seat mounting bolt and push the seat backward.

Align the bolt holes and tighten the bolt to the specified torque.

TORQUE: 9 N•m (0.9 kgf•m, 6.5 lbf•ft)



STEERING COVER

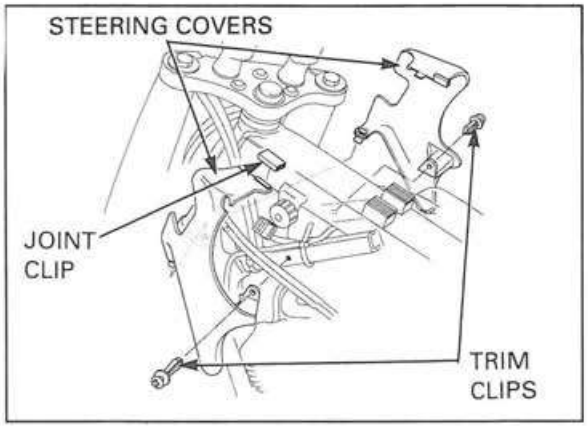
REMOVAL/INSTALLATION

CAUTION:

Be careful not to break the steering cover tabs.

Remove the fuel tank (page 2-4).

Remove the trim clips.
Remove the right and left covers as assembly.
Remove the joint clip and separate the covers.

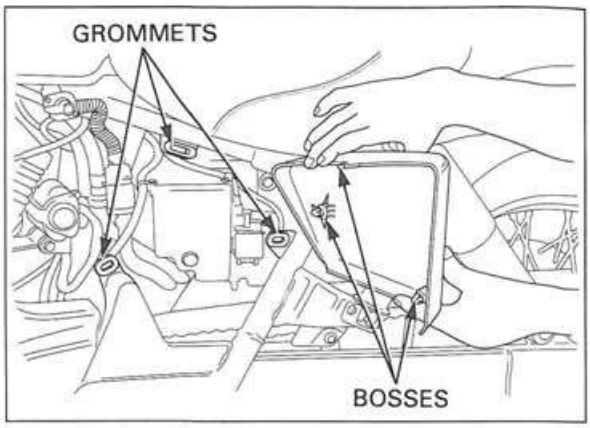


Installation is in the reverse order of removal.

NOTE:

Check that the wire harness do not interfere with handlebar rotation.

SIDE COVER



CAUTION:

Be careful not to break the side cover bosses.

NOTE:

Be careful not to dislodge the grommets in the frame.

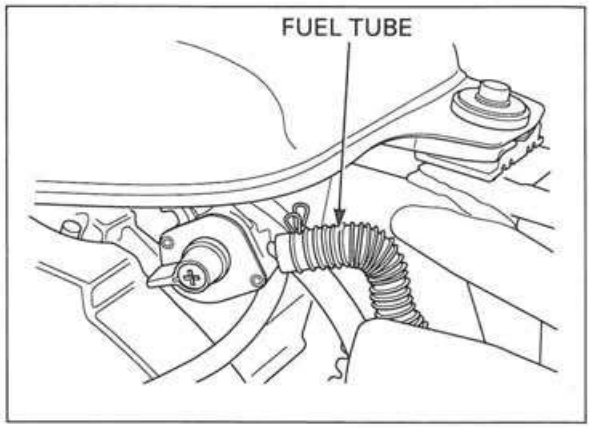
Release the cover bosses from the grommets and side cover.

Installation is in the reverse order of removal.

NOTE:

At installation, align the cover bosses on the frame grommet.

FUEL TANK



⚠ WARNING

Gasoline is extremely flammable and is explosive under certain conditions.

NOTE:

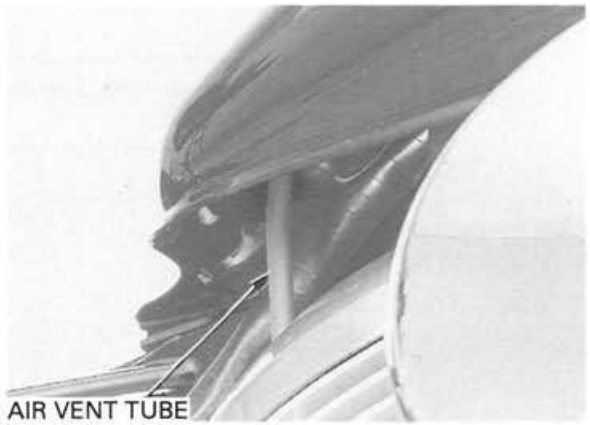
Before disconnecting fuel tube, turn the fuel valve "OFF".

REMOVAL/INSTALLATION

Remove the seat (page 2-2).

VT750C3/CD3 and VT750CD/CD2 (after 2000): Remove the speedometer (page 19-12).

Disconnect the fuel tube and air vent tube (to EVAP canister: California type only) from the fuel tank.



Remove the fuel tank mounting bolt, washer and collar.

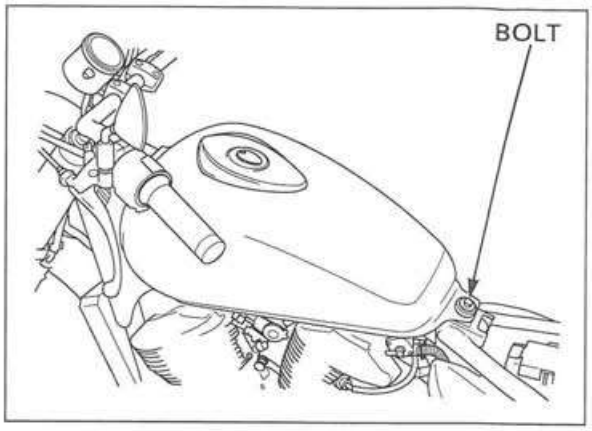
Slide and remove the fuel tank to the back.

Installation is in the reverse order of removal.

TORQUE: Fuel tank mounting bolt:
19 N•m (1.9 kgf•m, 14 lbf•ft)

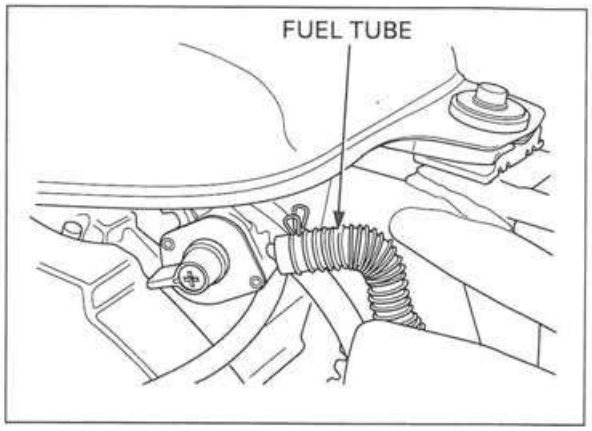
CAUTION:

Be careful not to pinch the wire harness between the fuel tank and the frame.



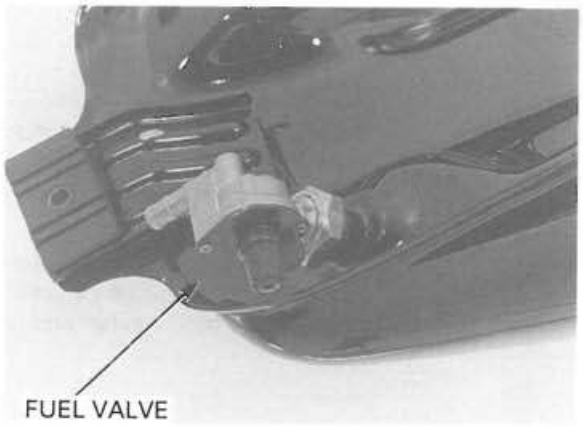
NOTE:

After installation, turn the fuel valve "ON" and check the fuel line for leakage.



DISASSEMBLY/ASSEMBLY

Loosen the fuel valve nut and remove the fuel valve.
Remove the fuel strainer screen and O-ring.



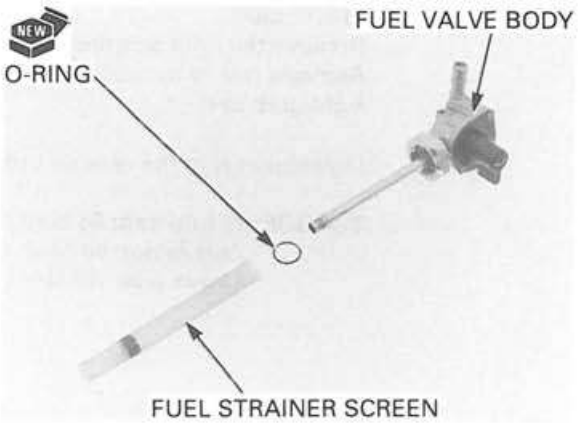
Check that the fuel strainer screen is not clogged or damaged.
Clean or replace if necessary.

Assembly is in the reverse order of disassembly.

NOTE:

Always replace the O-ring with a new one.

TORQUE:
Fuel valve nut: 34 N•m (3.5 kgf•m, 25 lbf•ft)



REAR FENDER

REMOVAL

NOTE:

Be careful not to scratch the fender or deform the connector stay.

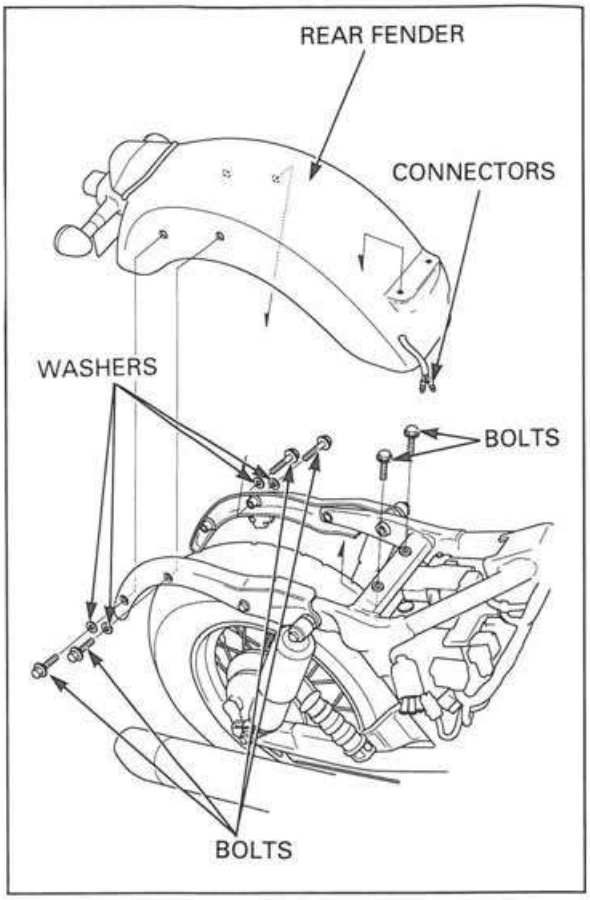
Remove the front and rear seat (page 2-2).
Remove the right side cover (page 2-4).

Disconnect the tail/brake light connectors inside the connector boot.

Remove the bolts, washers and the rear fender.

Installation is in the reverse order of removal.

TORQUE: 26 N·m (2.7 kgf·m, 20 lbf·ft)

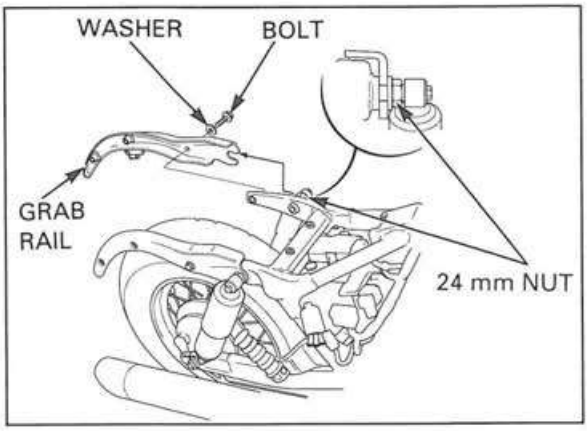


GRAB RAIL

NOTE:

The rear fender must be removed from the frame before servicing the each side grab rails.

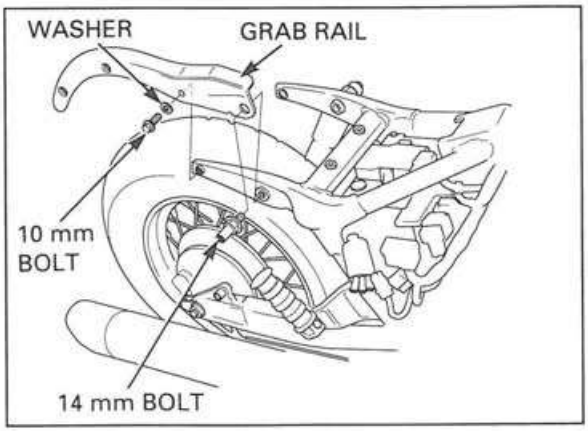
LEFT SIDE
Loosen the left grab rail mounting nut located on the left shock absorber mounting bolt.
Remove the bolt, washer and left grab rail.



RIGHT SIDE
Remove the right side shock absorber (page 14-18).
Remove the 10 mm bolt, washer, 14 mm bolt and right grab rail.

Installation is in the reverse order of removal.

TORQUE: 10 mm bolt: 64 N·m (6.5 kgf·m, 47 lbf·ft)
24 mm nut: 88 N·m (9.0 kgf·m, 65 lbf·ft)
14 mm bolt: 108 N·m (11.0 kgf·m, 80 lbf·ft)



EXHAUST PIPE/MUFFLER

⚠ WARNING

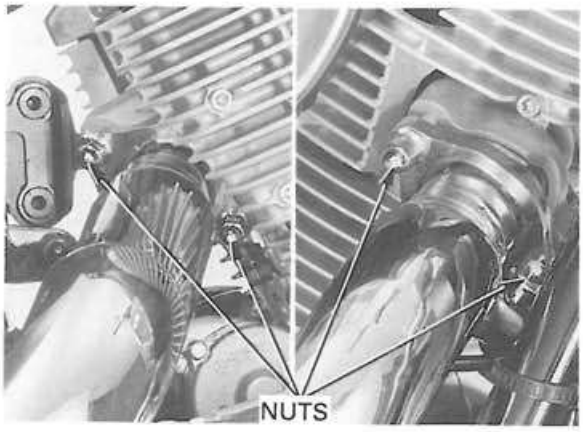
Do not service the exhaust system while it is hot.

CAUTION:

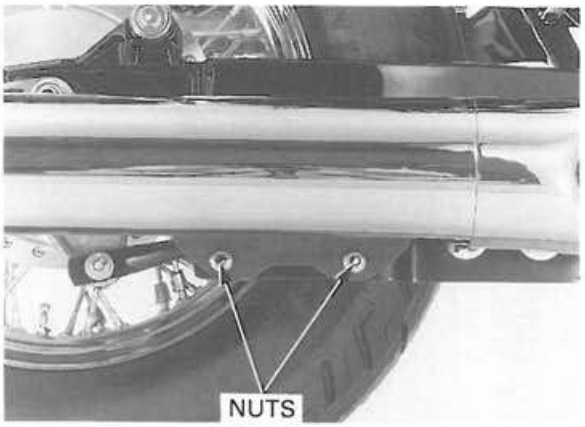
When removing/installing the exhaust pipe/muffler, loosen/tighten the exhaust system fasteners in the order as follows.

REMOVAL

Remove the exhaust pipe joint nuts

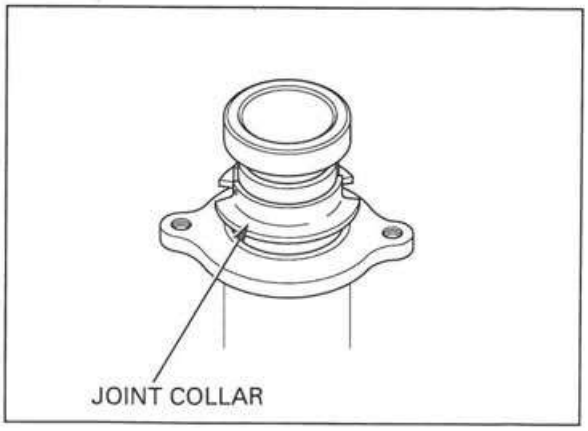


Remove the muffler bracket nuts and exhaust pipe/muffler assembly.



Remove the front and rear gaskets.

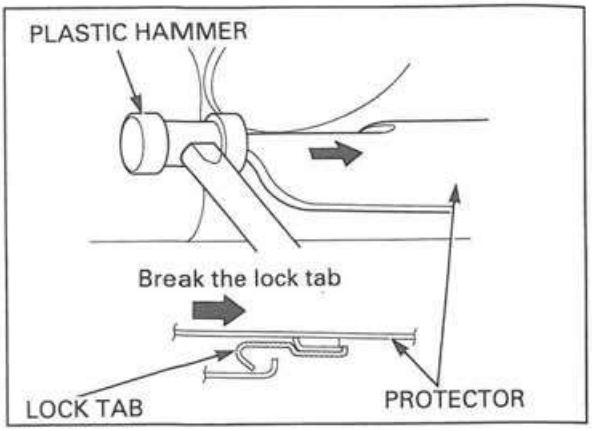
Remove the exhaust pipe joint collar.



The exhaust pipe protectors can be removed without removing the exhaust system from the engine.

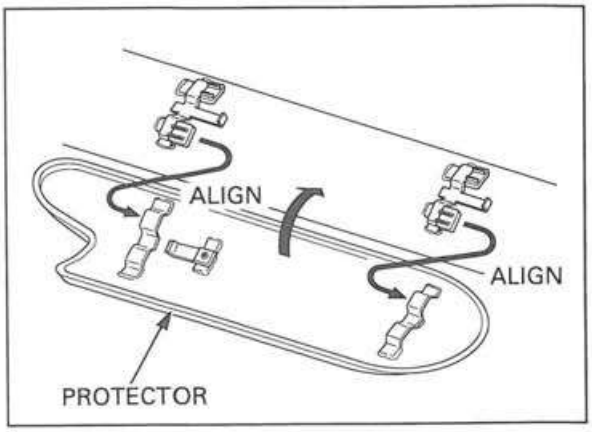
Drive the exhaust pipe protector using the plastic hammer and break the lock tab (reverse side of the protector) and remove it.

Do not reuse the removed protector.

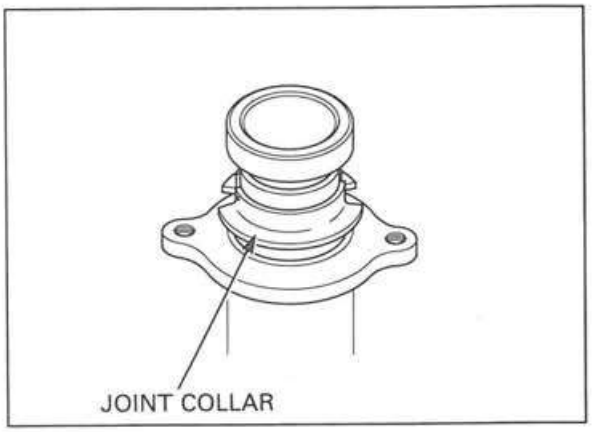


INSTALLATION

Install the exhaust pipe protectors.



Install the exhaust pipe joint collar.



Install the new gaskets.

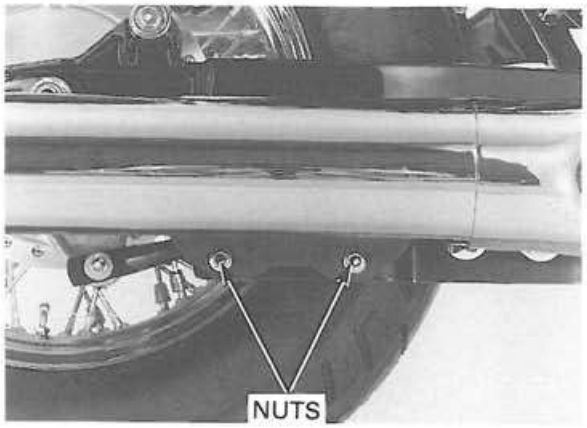
Install the muffler assembly.
Temporarily install the all nuts.

NOTE:

Do not tighten the nuts yet.

Tighten the muffler bracket nuts to the specified torque.

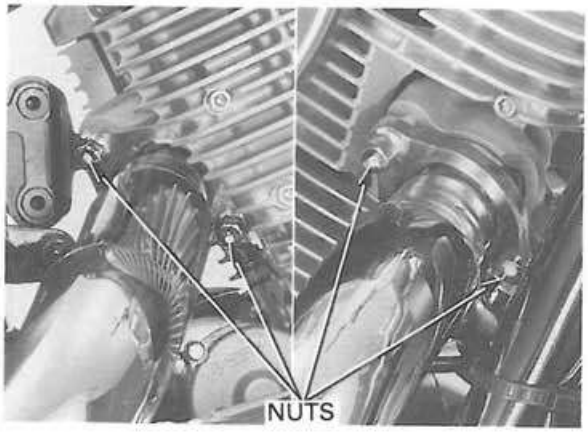
TORQUE: 26 N•m (2.7 kgf•m, 20 lbf•ft)



Always inspect the exhaust system for leaks after installation.

Tighten the exhaust pipe joint nuts to the specified torque.

TORQUE: 25 N•m (2.5 kgf•m, 18 lbf•ft)



MEMO

3. MAINTENANCE

SERVICE INFORMATION

GENERAL

⚠ WARNING

- ***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 enclosed area.***

- Place the motorcycle on a level ground before starting any work.

SPECIFICATIONS

ITEM		SPECIFICATIONS	
Throttle grip free play		2 – 6 mm (1/12 – 1/4 in)	
Spark plug		NGK	DENSO
	Standard	DPR8EA 9	X24EPR-U9
	For cold climate (below 5°C/41°F)	DPR7EA 9	X22EPR-U9
	For extend high speed riding	DPR9EA 9	X27EPR-U9
Spark plug gap		0.80 – 0.90 mm (0.031 – 0.035 in)	
Valve clearance	IN	0.13 – 0.17 mm (0.005 – 0.007 in)	
	EX	0.18 – 0.22 mm (0.007 – 0.009 in)	

ITEM			SPECIFICATIONS
Engine oil capacity	at draining		2.2 liter (2.32 US qt, 1.94 Imp qt)
	at disassembly		2.9 liter (3.06 US qt, 2.55 Imp qt)
	at oil filter change		2.4 liter (2.54 US qt, 2.11 Imp qt)
Recommended engine oil			HONDA GN4 4-stroke oil or equivalent motor oil API service classification SF or SG Viscosity: SAE 10W–40
Engine idle speed			1,000 ± 100 rpm
Carburetor vacuum difference			27kPa (20 mm Hg, 0.7 in Hg)
Drive chain slack			15 – 25 mm (3/5 – 1 in)
Drive chain link			122L
Drive chain size	DID		525V8
	RK		525 SM5
Brake pedal height			50 mm (2.0 in) above the top of the footpeg
Brake pedal free play			20 – 30 mm (3/4 – 1-1/4 in)
Recommended brake fluid			DOT 4
Clutch lever free play			10 – 20 mm (3/8 – 3/4 in)
Tire size		Front	120/90-17 64S
		Rear	170/80-15 M/C 77S
Tire brand	Bridgestone	Front	G701
		Rear	G702
	Dunlop	Front	D404F
		Rear	D404
Tire air pressure	Up to 90 kg (200 lb) load	Front	200 kPa (2.00 kgf/cm², 29 psi)
		Rear	200 kPa (2.00 kgf/cm², 29 psi)
	Up to maximum weight capacity	Front	200 kPa (2.00 kgf/cm², 29 psi)
		Rear	250 kPa (2.50 kgf/cm², 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	2 N•m (0.2 kgf•m, 1.4 lbf•ft)	
Spark plug	12 N•m (1.2 kgf•m, 9 lbf•ft)	
Crankshaft hole cap	15 N•m (1.5 kgf•m, 11 lbf•ft)	Apply grease to the threads
Timing hole cap	15 N•m (1.5 kgf•m, 11 lbf•ft)	Apply grease to the threads
Valve adjusting screw lock nut	23 N•m (2.3 kgf•m, 17 lbf•ft)	Apply oil to the threads and seating surface
Oil drain bolt	34 N•m (3.5 kgf•m, 25 lbf•ft)	
Oil filter cartridge	10 N•m (1.0 kgf•m, 7 lbf•ft)	Apply oil to the threads and O-ring
Vacuum plug	3 N•m (0.3 kgf•m, 2.2 lbf•ft)	
Rear axle nut	88 N•m (9.0 kgf•m, 65 lbf•ft)	U-nut
Spoke nipple	4 N•m (0.4 kgf•m, 2.9 lbf•ft)	
Side stand assembly	34 N•m (3.5 kgf•m, 25 lbf•ft)	
Side stand pivot bolt	10 N•m (1.0 kgf•m, 7 lbf•ft)	
lock nut	29 N•m (3.0 kgf•m, 22 lbf•ft)	
Brake pedal stopper lock nut	10 N•m (1.0 kgf•m, 7 lbf•ft)	

TOOLS

Valve adjusting wrench	07908-KE90000	or 07908-KE90100 (U.S.A. only)
Vacuum gauge attachment	07510-3000200	or 07LMJ-001000A (U.S.A. only)
Oil filter wrench	07HAA-PJ70100	
Drive chain tool set	07HMH-MR10103	or 07HMH-MR7010B (U.S.A. only)
Spoke wrench	07JMA-MR60100	or equivalent commercially available in U.S.A.

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	
			NOTE	X100 km	10	64	128	192	256	320	384	
EMISSION RELATED ITEMS	*	FUEL LINE					I		I		I	3-4
	*	THROTTLE OPERATION					I		I		I	3-4
	*	CARBURETOR CHOKE					I		I		I	3-5
		AIR CLEANER	NOTE 2					R			R	3-6
		CRANKCASE BREATHER	NOTE 3			C	C	C	C	C	C	3-7
		SPARK PLUG				I	R	I	R	I	R	3-7
	*	VALVE CLEARANCE			I		I		I		I	3-9
		ENGINE OIL			R		R		R		R	3-11
		ENGINE OIL FILTER			R		R		R		R	3-11
	*	CARBURETOR SYNCHRONIZATION					I		I		I	3-14
	*	ENGINE IDLE SPEED			I	I	I	I	I	I	I	3-15
		RADIATOR COOLANT	NOTE 4				I		I		R	3-16
	*	COOLING SYSTEM					I		I		I	3-16
	*	EVAPORATIVE EMISSION CONTROL SYSTEM	NOTE 5					I			I	3-17
NON-EMISSION RELATED ITEMS		DRIVE CHAIN			EVERY 500 mi (800 km) I, L							3-18
		BRAKE FLUID	NOTE 4			I	I	R	I	I	R	3-22
		BRAKE SHOE/BRAKE PAD WEAR				I	I	I	I	I	I	3-23
		BRAKE SYSTEM			I		I		I		I	3-23
	*	BRAKE LIGHT SWITCH					I		I		I	3-25
	*	HEADLIGHT AIM					I		I		I	3-25
		CLUTCH SYSTEM			I	I	I	I	I	I	I	3-26
		SIDE STAND					I		I		I	3-26
	*	SUSPENSION					I		I		I	3-27
	*	NUTS, BOLTS, FASTENERS			I		I		I		I	3-27
	**	WHEELS/TIRES			I	I	I	I	I	I	I	3-28
	**	STEERING HEAD BEARINGS			I		I		I		I	3-29

* 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 an authorized HONDA dealer.

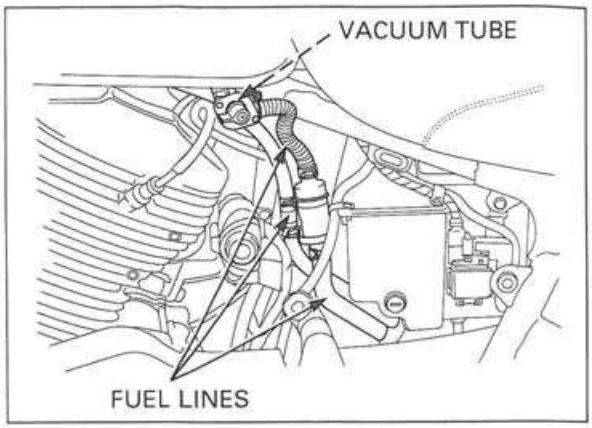
NOTES:
1. At higher odometer reading, repeat at frequency interval established here.
2. Service more frequently when riding in unusually wet or dusty areas.
3. Service more frequently when riding in rain or at full throttle.
4. Replace every 2 years, or at indicated odometer interval, whichever cames first. Replacement requires mechanical skill.
5. California type only.

FUEL LINE

Remove the left side cover (page 2-4).

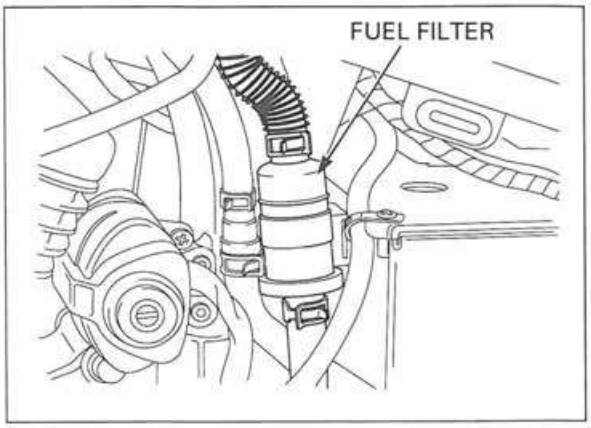
Check the fuel lines for deterioration, damage or leakage.
Replace the fuel lines if necessary.

Also check the fuel valve vacuum tube for damage.
Replace the vacuum tube if necessary.



FUEL FILTER

Pull the fuel filter out, clip the inlet line closed and remove the filter.
Replace the fuel filter with new one, if necessary (page 5-28).



THROTTLE OPERATION

Check for any deterioration or damage to the throttle cables.
Check the throttle grip for smooth operation. Check that the throttle grip returns from the full open to the full closed position smoothly and automatically in all steering positions.
If the throttle grip does not return properly, lubricate the throttle cable, overhaul and lubricate the throttle grip housing.
For cable lubrication: Disconnect the throttle cables at their upper ends (page 13-8). Thoroughly lubricate the cables and their pivot points with a commercially available cable lubricant or a light weight oil.

If the throttle grip still does not return properly, replace the throttle cables.

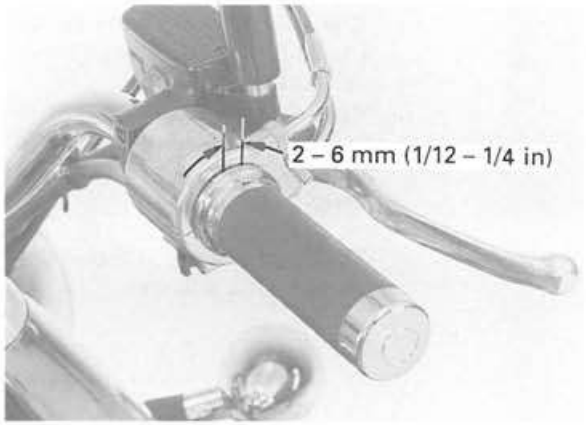
⚠ WARNING

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

With the engine idling, turn the handlebar all the way to the right and left to ensure that idle speed does not change.
If idle speed increases, check the throttle grip free play and the throttle cable connection.

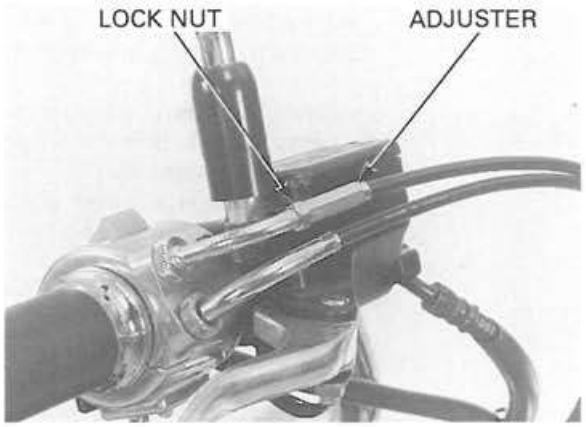
Measure the throttle grip free play at the throttle grip flange.

FREE PLAY: 2 – 6 mm (1/12 – 1/4 in)



Throttle grip free play can be adjusted at either end of the throttle cable. Minor adjustments are made with the upper adjuster.

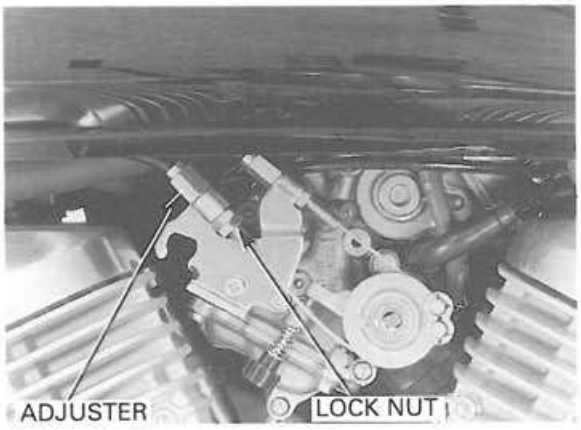
Loosen the lock nut and turn the adjuster to obtain the free play.
After the adjustment, tighten the lock nut securely and reposition the boot properly.



Major adjustments are made with the lower adjuster.

Loosen the lock nuts and turn the adjusters to obtain the free play.
Tighten the lock nuts after the adjustment has been made.

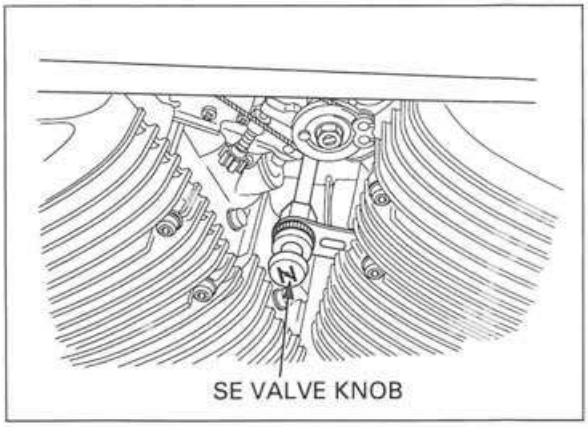
Recheck the free play.



CARBURETOR CHOKE

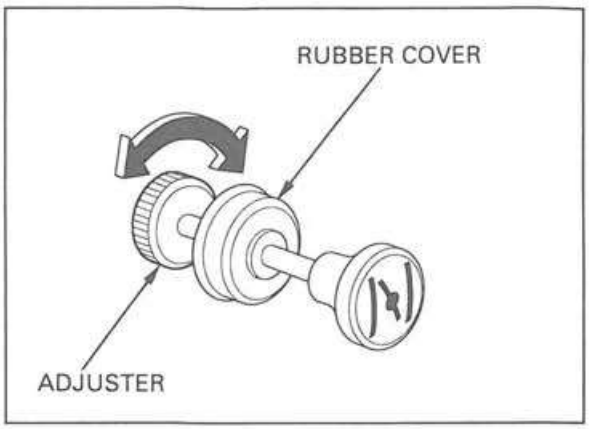
STARTING ENRICHMENT (SE) VALVE

The choke system uses a fuel enriching circuit controlled by an SE valve. The SE valve opens the enriching circuit via a cable when the SE valve knob on the right side of the carburetor is pulled.



Check for smooth operation of the SE valve knob.
Check for any deterioration or damage to the SE valve cable.
If the operation is not smooth, lubricate the SE valve cable and SE valve knob sliding surface with a commercially available cable lubricant or a light weight oil.

To adjust the friction, pull the rubber cover away and turn the adjuster.



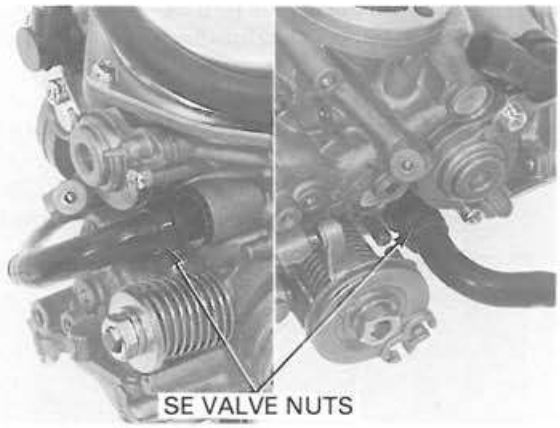
Starting enrichment system operation can be checked by the way the engine starts and runs:

- Difficulty in starting before the engine is warm up (easy once it is warmed up): SE valve is not completely opened.
- Idle speed is erratic even after warm-up (imperfect combustion): SE valve is not completely closed.

When the above symptoms occur, inspect the SE valve using the following procedure.

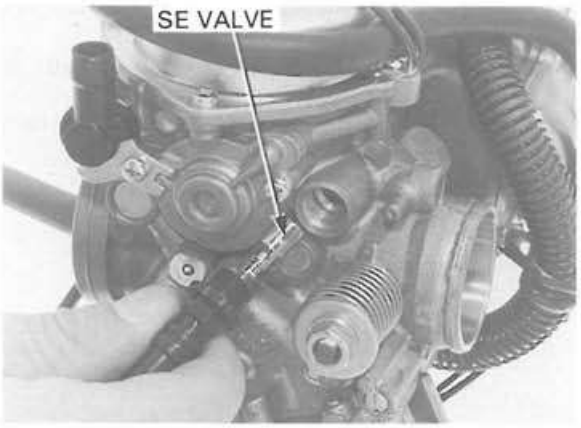
Remove the carburetor (page 5-8).

Loosen the SE valve nuts and remove them from the carburetors.



Pull the SE valve knob all the way out to fully open position and recheck for smooth operation of the SE valve knob.
There should be no free play.

Check valve seat on the SE valve for damage. Reinstall the SE valve in the reverse order of removal.

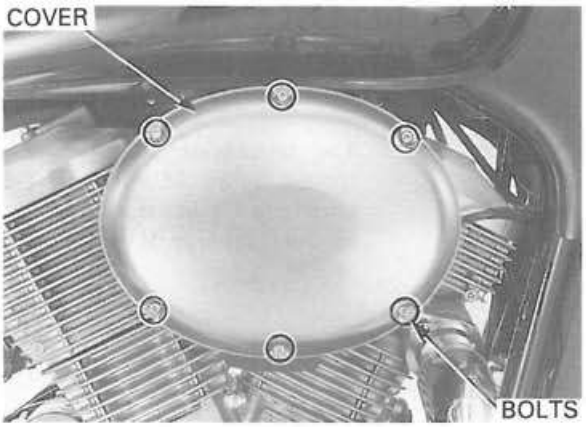


AIR CLEANER

NOTE:

- The viscous paper element type air cleaner cannot be cleaned because the element contains a dust adhesive.
- If the motorcycle is used in wet or dusty areas, more frequent inspections are required.

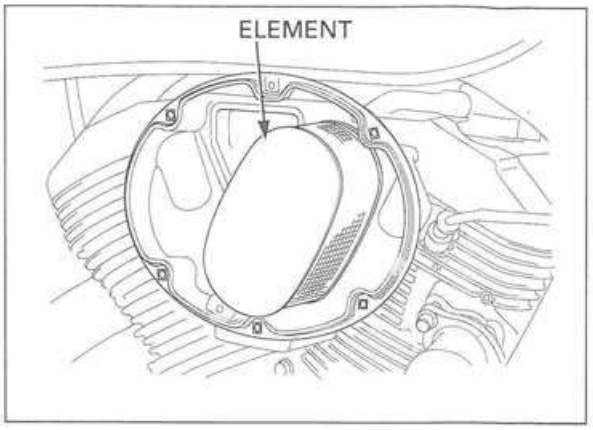
Remove the air cleaner housing cover bolts and cover.



Remove the air cleaner element from the air cleaner housing.
Replace the element accordance with the maintenance schedule.
Also, replace the element any time it is excessively dirty or damaged.

Installation is in the reverse order of removal.

TORQUE:
Air cleaner housing cover bolt:
2 N•m (0.2 kgf•m, 1.4 lbf•ft)



CRANKCASE BREATHER

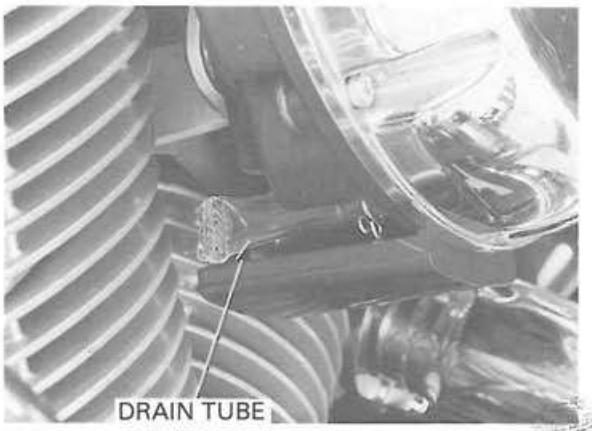
NOTE:

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

The crankcase drain tube is behind the air cleaner housing.

Remove the drain tube from the air cleaner housing to empty any deposits.

Reinstall the drain tube.



SPARK PLUG

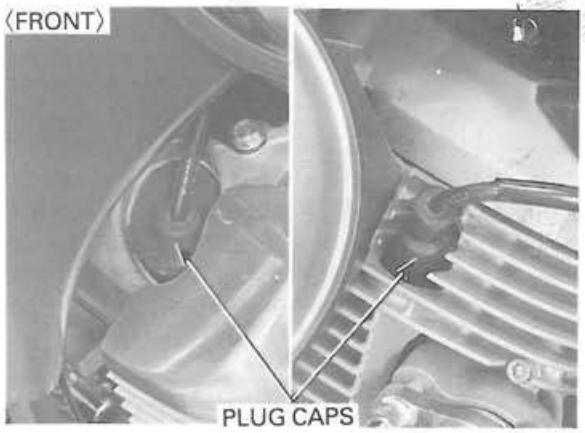
Disconnect the spark plug caps.

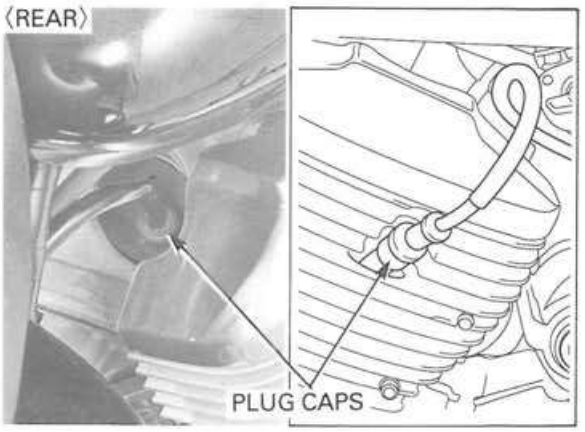
NOTE:

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

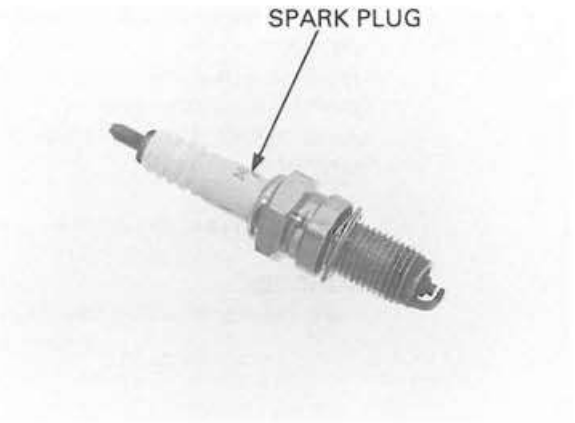
Remove the spark plugs using the spark plug wrench or an equivalent.

Inspect or replace as described in the maintenance schedule (page 3-3).





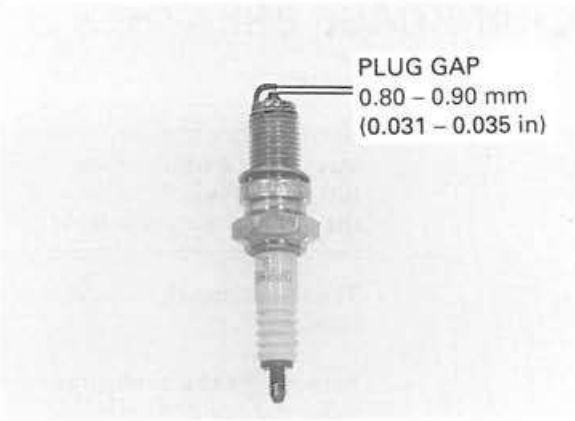
INSPECTION



Check the following and replace if necessary (recommended spark plugs: page 3-1).

- Insulator for damage.
- Electrodes for wear
- Burning condition, coloration;
  - dark to light brown indicates good condition.
  - excessive lightness indicates malfunctioning ignition system or learn mixture.
  - wet or black sooty deposit indicates over-rich mixture.

REUSING A SPARK PLUG



Clean the spark plug electrodes with a wire brush or spark plug cleaner.
Check the gap between the center and side electrodes with a wire-type feeler gauge. If necessary, adjust the gap by bending the side electrodes carefully.

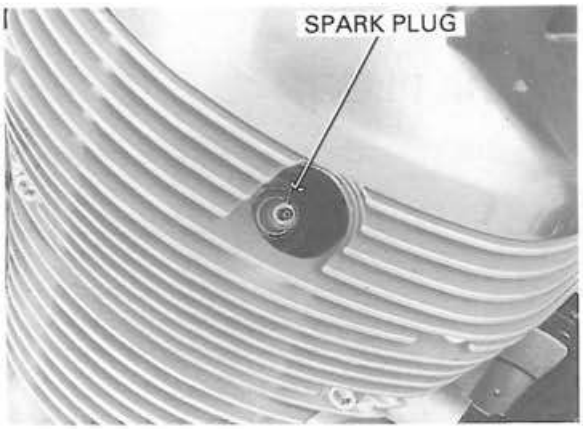
SPARK PLUG GAP: 0.80 – 0.90 mm (0.031 – 0.035 in)

CAUTION:

To prevent damage to the cylinder head, hand-tighten the spark plug before using a wrench to tighten to the special torque.

Reinstall the spark plug in the cylinder head and hand tighten, then torque to specification.

TORQUE: 14 N•m (1.4 kgf•m, 10 lbf•ft)



REPLACING A SPARK PLUG

Set the plug gap to specification with a wire-type feeler gauge (see above).

CAUTION:

Do not overtighten the spark plug.

Install and hand tighten the new spark plug, then tighten it about 1/2 of a turn after the sealing washer contacts the seat of the plug hole.

VALVE CLEARANCE

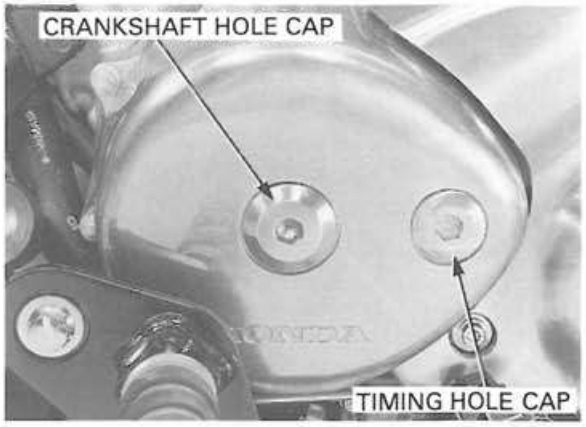
INSPECTION

NOTE:

Inspect and adjust the valve clearance while the engine is cold (below 35°C/95°F)

Remove the cylinder head covers (page 10-5).

Remove the crankshaft hole cap and timing hole cap.

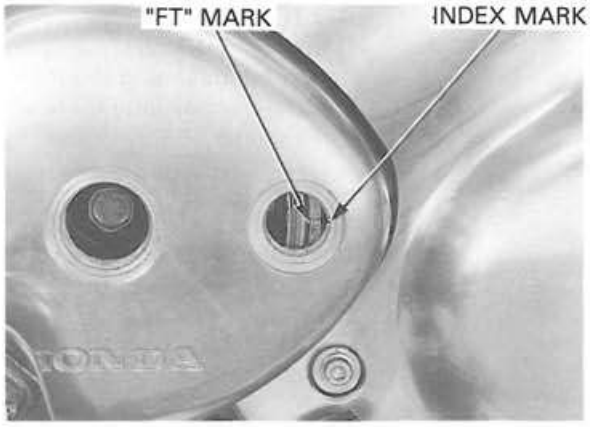


Adjust the front cylinder valves first.

FRONT CYLINDER HEAD

Rotate the flywheel counterclockwise to align the "FT" mark with the index notch on the left crankcase cover.

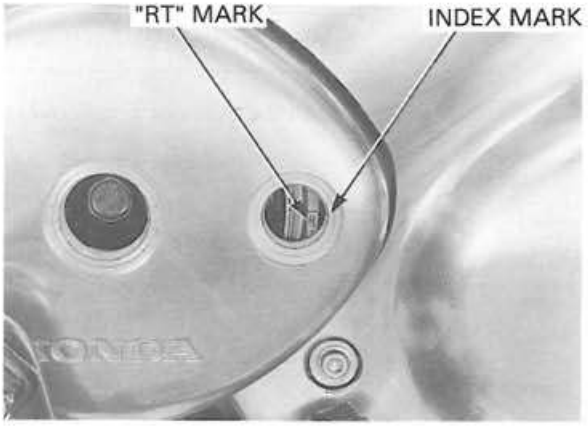
Make sure the piston is at TDC (Top Dead Center) on the compression stroke. The cam lobes will be facing down.



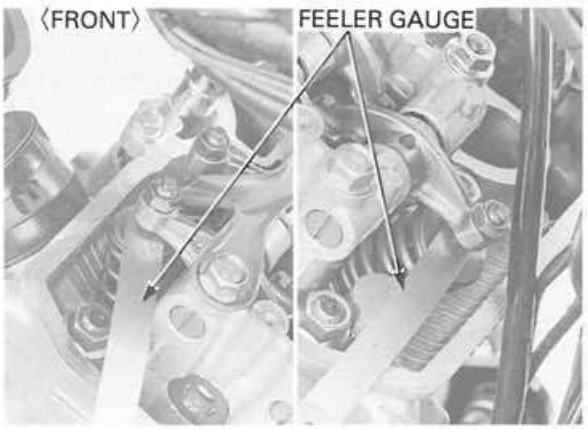
REAR CYLINDER HEAD

Rotate the flywheel counterclockwise to align the "RT" mark with the index notch on the left crankcase cover.

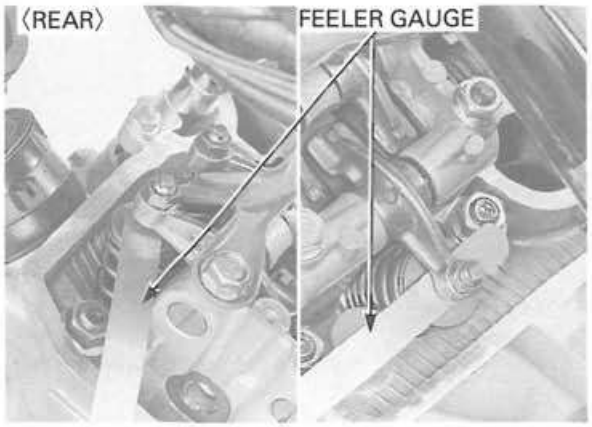
Make sure the piston is at TDC (Top Dead Center) on the compression stroke. The cam lobes will be facing down.



Inspect the clearance of all three valves by inserting a feeler gauge between the adjusting screw and the valve.



VALVE CLEARANCE:
IN: 0.13 – 0.17 mm (0.005 – 0.007 in)
EX: 0.18 – 0.22 mm (0.007 – 0.009 in)



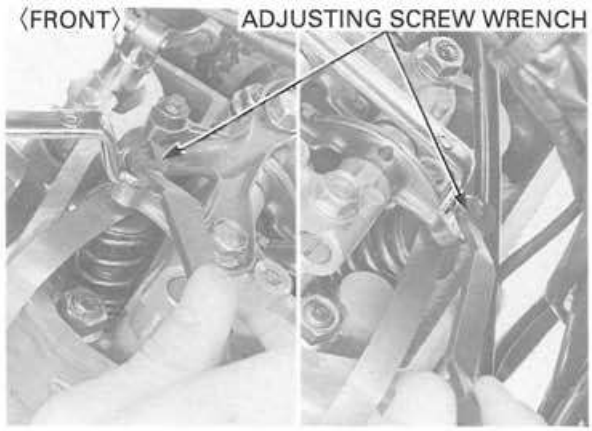
ADJUSTMENT

Adjust by loosening the lock nut and turning the adjusting screw until there is a slight drag on the feeler gauge.

Hold the adjusting screw and tighten the lock nut.

TORQUE: 23 N•m (2.3 kgf•m, 17 lbf•ft)

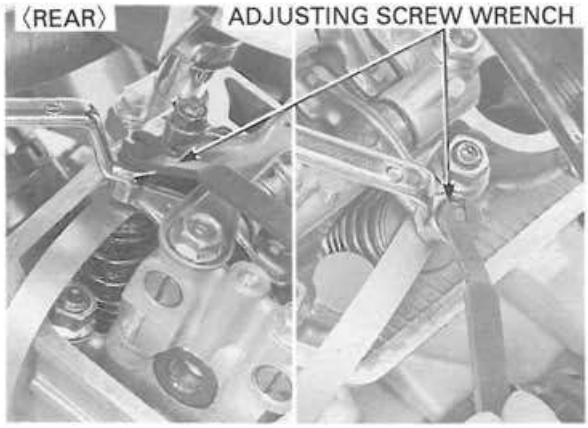
TOOL:
Valve adjusting wrench **07908-KE90000 or 07908-KE90100 (U.S.A. only)**



NOTE:

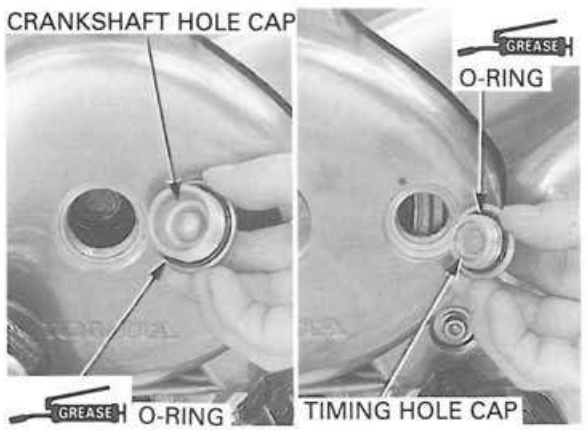
Apply oil to the lock nut threads.

Install the cylinder head covers (page 10-33).



Apply grease to the timing hole cap and crankshaft hole cap threads.
Install and tighten the caps to the specified torque.

TORQUE:
Timing hole cap: 15 N•m (1.5 kgf•m, 11 lbf•ft)
Crankshaft hole cap: 15 N•m (1.5 kgf•m, 11 lbf•ft)



ENGINE OIL/OIL FILTER

OIL LEVEL INSPECTION

⚠ WARNING

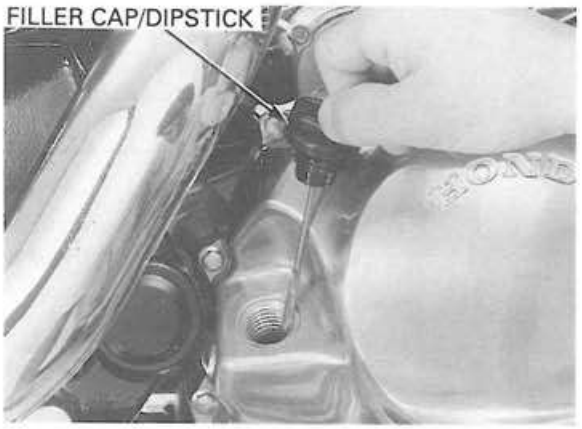
- ***If the engine must be running to do some work, make sure the area is well-ventilated. Never run the engine in an enclosed area. The exhaust contains poisonous carbon monoxide gas that may cause loss of consciousness and may lead to death.***
- ***Engine and exhaust system parts become very hot and remain hot for sometime after the engine is run. Wear insulated gloves or wait until the engine and exhaust system have cooled before handling these parts.***

NOTE:

- Do not screw in the oil cap/level gauge when checking oil level.
- The oil level cannot be correctly measured if the motorcycle is not supported perfectly upright on a level surface.
- As the oil is gradually consumed, it is necessary to periodically check the oil level and replenish the oil volume to its proper level.
- If the oil level is too high, overall engine performance and the actuation of the clutch may be effected. Too little oil may cause engine overheating as well as premature wear to various parts.
- If a different brand or grade of oil or low quality oil is mixed when adding oil, the lubricating function deteriorates.

Support the motorcycle in an upright and level position using a hoist or a jack under the engine.

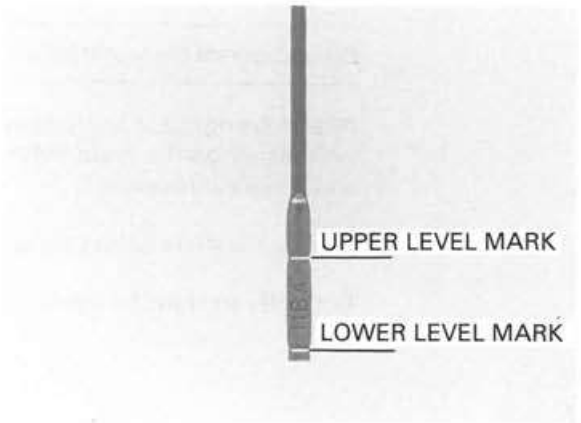
Start the engine and let it idle for a few minutes.
Stop the engine and wait 2 – 3 minutes.



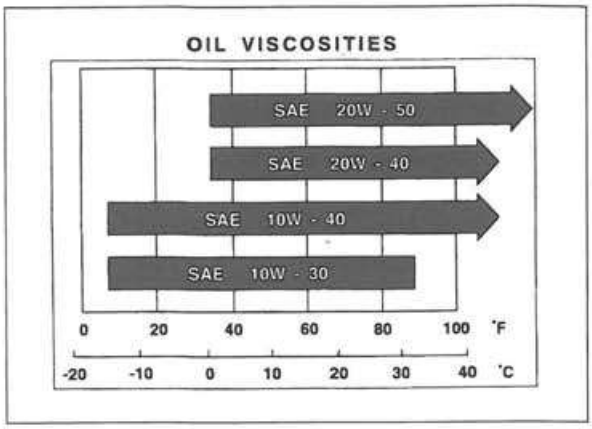
Remove the oil filler cap/dipstick and wipe off the oil from the dipstick with a clean cloth.

With the motorcycle upright on level ground, insert the oil filler cap/dipstick into the stick hole without screwing it in.
Remove the oil filler cap/dipstick and check the oil level.

If the level is below or near the lower level mark on the dipstick, fill to the upper level mark with the recommended oil.



RECOMMENDED ENGINE OIL:
HONDA GN4 4-stroke oil or equivalent motor oil
API service classification SF or SG
Viscosity: SAE 10W-40



NOTE:

Other viscosities shown in the chart may be used when the average temperature in your riding area is within the indicated range.

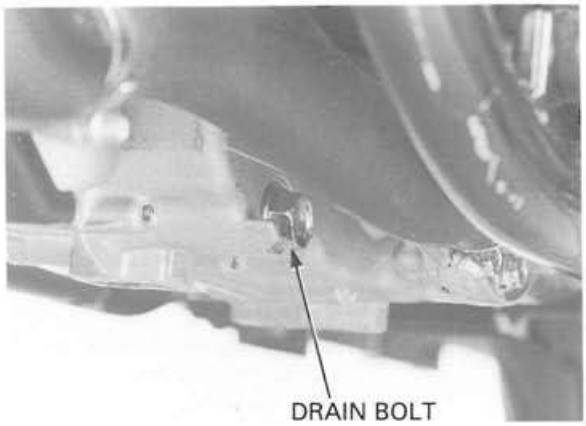
Check the O-ring for damage.

Reinstall the oil filler cap/dipstick.

ENGINE OIL CHANGE

⚠ WARNING

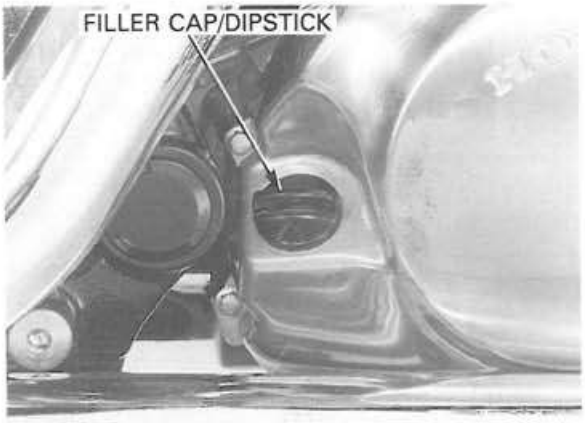
- ***If the engine must be running to do some work, make sure the area is well-ventilated. Never run the engine in an enclosed area. The exhaust contains poisonous carbon monoxide gas that may cause loss of consciousness and may lead to death.***
- ***Engine and exhaust system parts become very hot and remain hot for sometime after the engine is run. Wear insulated gloves or wait until the engine and exhaust system have cooled before handling these parts.***



NOTE:

Change the engine oil with the engine warm and the motorcycle on its side stand to assure complete and rapid draining.

Warm up the engine.
Place an oil drain pan under the engine to catch the oil, then remove the oil drain bolt and oil filler cap/dipstick.



With the engine stop switch "OFF", push the starter button for a few seconds to drain any oil which may be left in the engine.

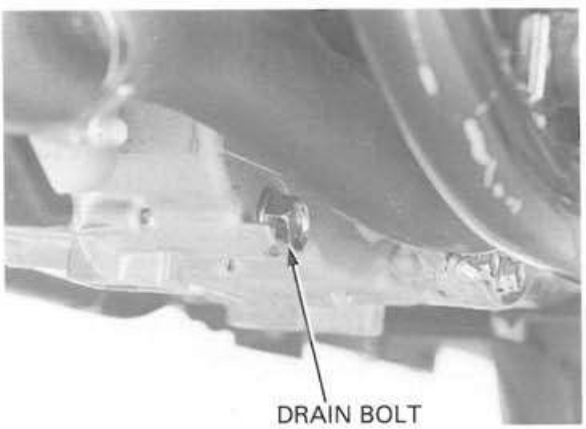
NOTE:

Do not operate the motor for more than few seconds.

After draining the oil completely, check that the sealing washer on the drain bolt is in good condition and replace if necessary.

Tighten the drain bolt to the specified torque.

TORQUE: 30 N·m (3.1 kgf·m, 22 lbf·ft)



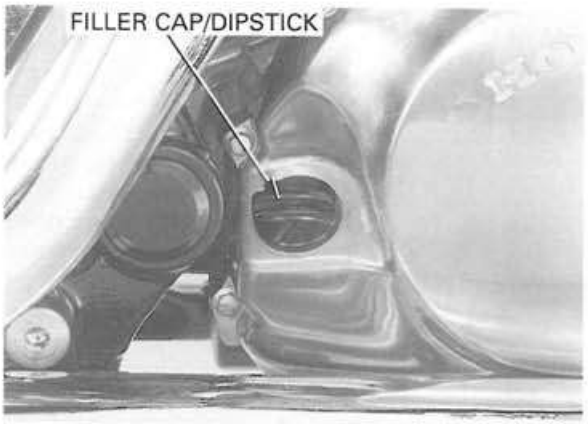
Fill the crankcase with the recommended engine oil.

OIL CAPACITY:
2.2 liter (2.32 US qt, 1.94 Imp qt) at draining
2.9 liter (3.06 US qt, 2.55 Imp qt) at disassembly
2.4 liter (2.54 US qt, 2.11 Imp qt) at oil filter change

Install the oil filter cap/dipstick.

Start the engine and let it idle for 2 or 3 minutes.
Stop the engine and weight a few minutes, then check that the oil level is at the upper level mark with the motorcycle upright.

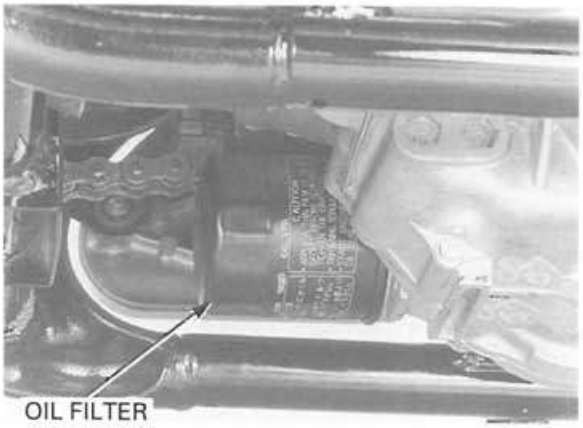
Check that there are no oil leaks.



OIL FILTER CHANGE

⚠ WARNING

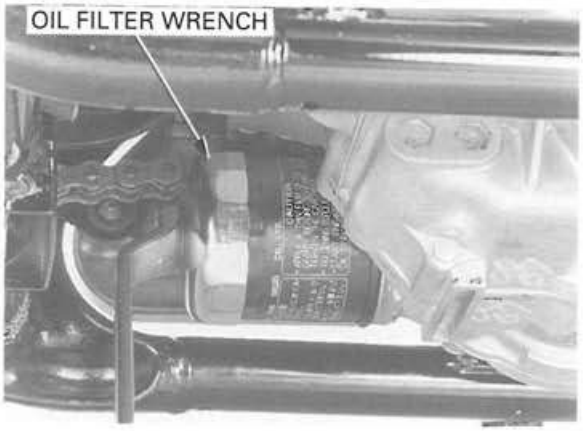
- ***If the engine must be running to do some work, make sure the area is well-ventilated. Never run the engine in an enclosed area. The exhaust contains poisonous carbon monoxide gas that may cause loss of consciousness and may lead to death.***
- ***Engine and exhaust system parts become very hot and remain hot for sometime after the engine is run. Wear insulated gloves or wait until the engine is run. Wear insulated gloves or wait until the engine and exhaust system have cooled before handling these parts.***



Drain the engine oil (page 3-12).

Remove the oil filter using the oil filter wrench.

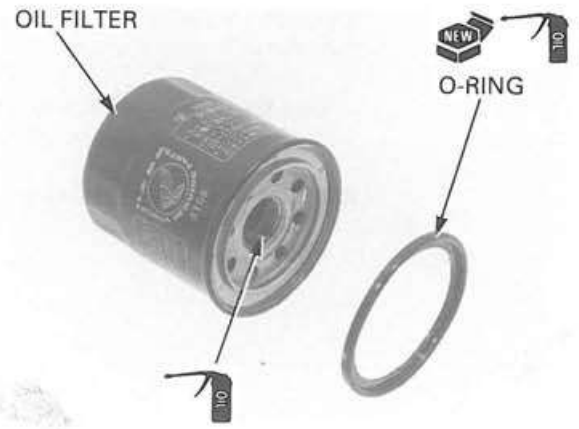
TOOL:
Oil filter wrench **07HAA-PJ70100**



Apply oil to the new oil filter O-ring.

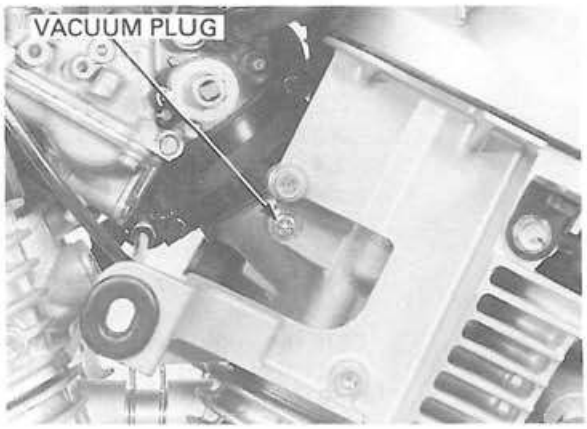
Apply oil to the new oil filter threads.
Install and tighten the new oil filter to the specified torque.

TORQUE: 10 N·m (1.0 kgf·m, 7 lbf·ft)



Fill the crankcase with the recommended engine oil (page 3-12).
Install the oil filler cap/dipstick.
Start the engine and recheck the oil level (page 3-13).
Make sure that there are no oil leaks.

CARBURETOR SYNCHRONIZATION



⚠ WARNING

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.

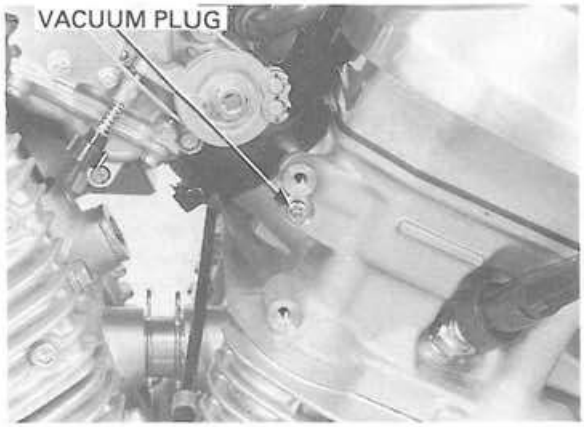
NOTE:

Perform this maintenance with the engine at normal operating temperature and transmission in neutral. Place the motorcycle on a level surface.

Remove the fuel tank mounting bolt. Carefully raise the tank and support it in the frame using a suitable base.

Remove the air cleaner housing (page 5-4).
Remove the rear cylinder head left side fin (page 10-7).

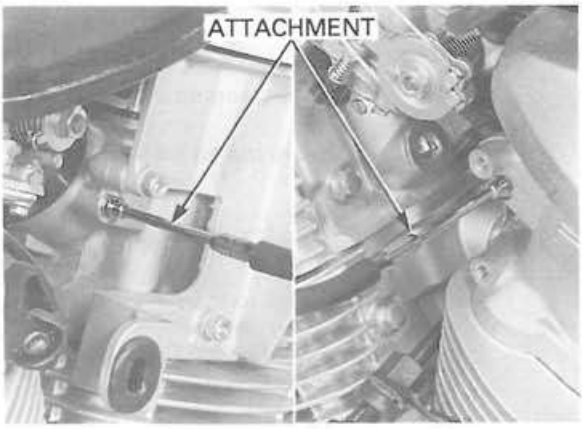
Remove the vacuum plugs and washers from the cylinder head intake ports.



Connect the vacuum gauge and adapters.

TOOL:

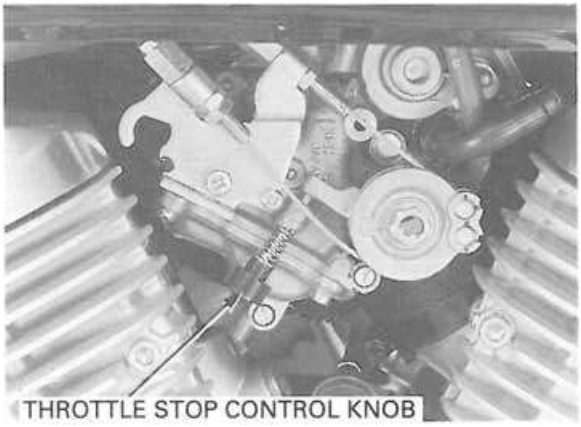
Vacuum gauge attachment	**07510-3000200 or 07LMJ-001000A (U.S.A. only)**



Connect a suitable tube between the fuel tank and fuel line.

1. Turn the fuel valve ON. Start the engine and adjust the idle speed to the specification.

IDLE SPEED: 1,000 ± 100 rpm



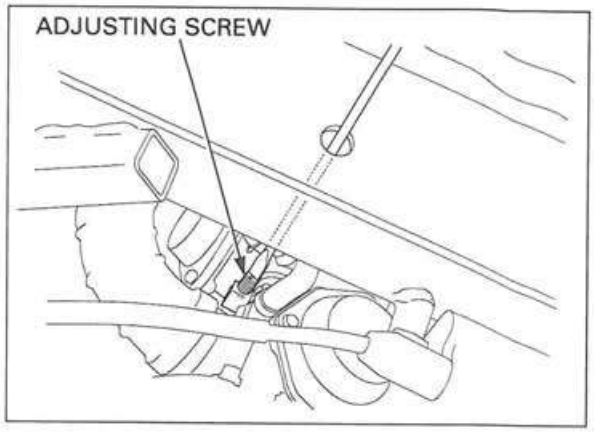
2. Check the difference in vacuum between each carburetor.

CARBURETOR VACUUM DIFFERENCE:
27 kPa (20 mm Hg, 0.7 in Hg)

NOTE:

The base carburetor is the Rear (No.1) carburetor.

3. Synchronize to specification by turning the adjusting screw.
4. Be sure that the synchronization is stable by snapping the throttle grip several times.
5. Snap the throttle grip several times and recheck the idle speed and difference in vacuum between each carburetor.

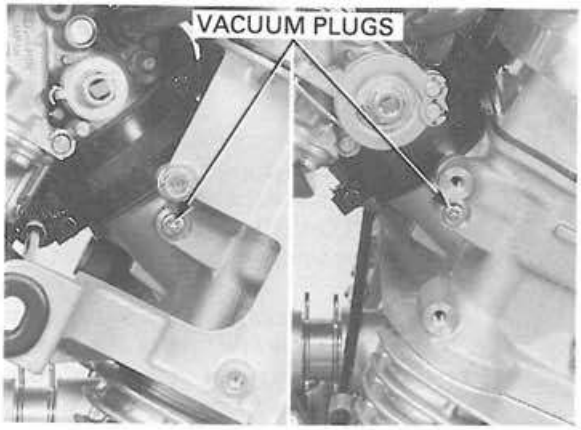


Disconnect the vacuum gauge and adapters.

Install the vacuum plugs and washers.
Tighten the plugs to the specified torque.

TORQUE: 3 N·m (0.3 kgf·m, 2.2 lbf·ft)

Install the rear cylinder head left side fin (page 10-36).
Install the air cleaner housing (page 5-4).



ENGINE IDLE SPEED

⚠ WARNING

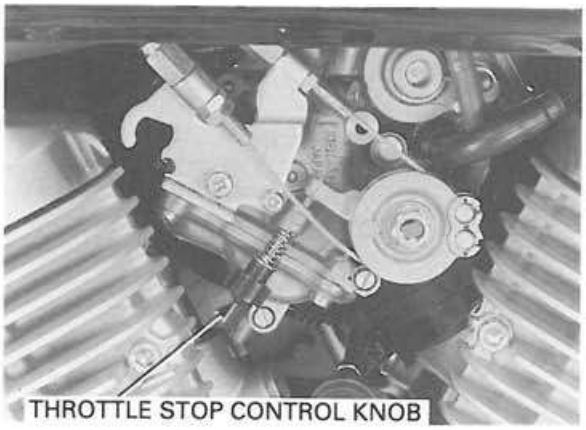
If the engine must be running to do some work, make sure the area is well-ventilated. Never run the engine in an enclosed area. The exhaust contains poisonous carbon monoxide gas that may cause loss of consciousness and may lead to death.

NOTE:

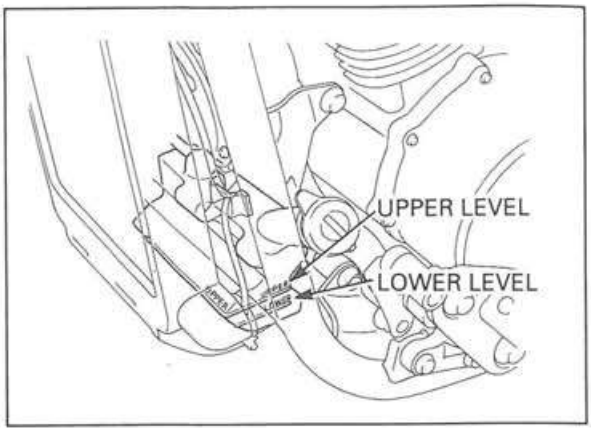
- Perform this maintenance with the engine at normal operating temperature and transmission in neutral. Place the motorcycle on a level surface.
- Engine must be warm for accurate adjustment. Ten minutes of stop-and-go riding is sufficient.

Warm up the engine and shift the transmission into neutral.
Place the motorcycle on its side stand.
Check the idle speed and adjust by turning the throttle stop control knob if necessary.

IDLE SPEED: 1,000 ± 100 rpm



RADIATOR COOLANT



LEVEL CHECK

⚠ WARNING

- ***Wait until the engine is cool before removing the radiator cap. Removing the cap while the engine is hot and the coolant is under pressure may cause serious scalding.***
- ***Radiator coolant is poisonous. Take care to avoid getting coolant in your eyes, on your skin, or on your clothes.***
- ***If coolant gets in your eyes, flush repeatedly with water and contact a doctor immediately.***
- ***If coolant is accidentally swallowed, induce vomiting and contact a doctor immediately.***
- ***KEEP OUT REACH OF CHILDREN.***

Check the coolant level of the reserve tank with the engine running at normal operating temperature. The level should be between the "UPPER" and "LOWER" level lines with the motorcycle in a vertical position on a flat, level surface.

If necessary, remove the reserve tank cap and fill to the "UPPER" level line with a 50-50 solution of distilled water and recommended antifreeze (coolant mixture preparation: page 6-4).

RECOMMENDED ANTIFREEZE :
Pro Honda HP Coolant or an equivalent high quality ethylene glycol antifreeze containing corrosion protection inhibitors

CAUTION:

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

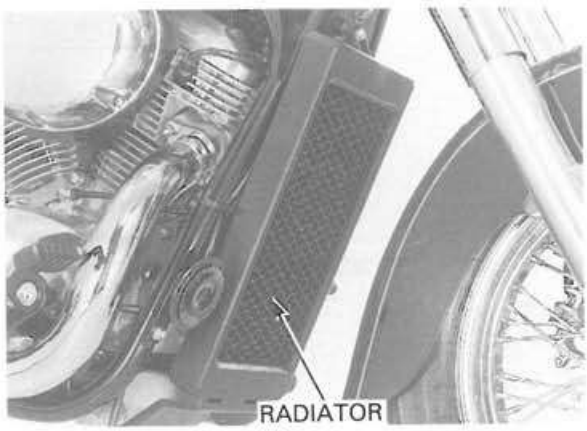
Check to see if there are any coolant leaks when the coolant level decrease very rapidly.

If the reserve tank becomes completely empty, there is a possibility of air getting into the cooling system. Be sure to remove all air from the cooling system as described on page 6-5.

COOLING SYSTEM

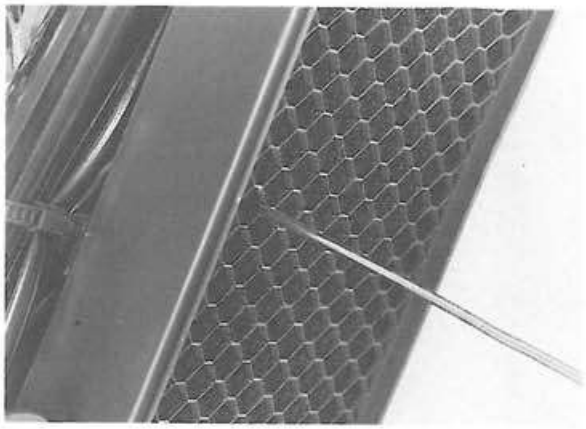
⚠ WARNING

To prevent injury, keep your hands and clothing away from the cooling fan. It may start automatically, without warning.



Check the radiator air passage for clogging or damage.

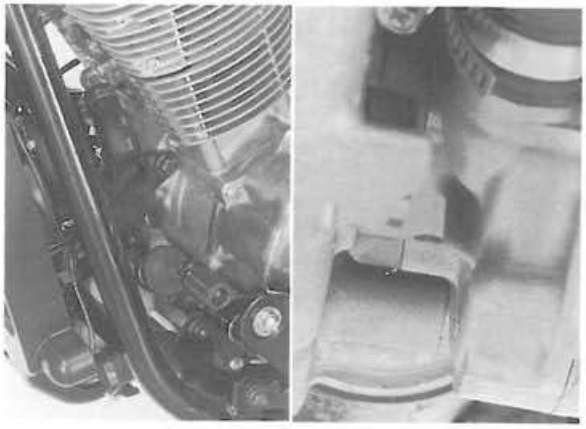
Straighten bent fins with a small, flat blade screwdriver and remove insects, mud or other obstructions with compressed air or low pressure water.
Replace the radiator if the air flow is restricted over more than 20% of the radiating surface.
For radiator replacement, refer to page 6-9.



Remove the fuel tank and steering covers (section 2).

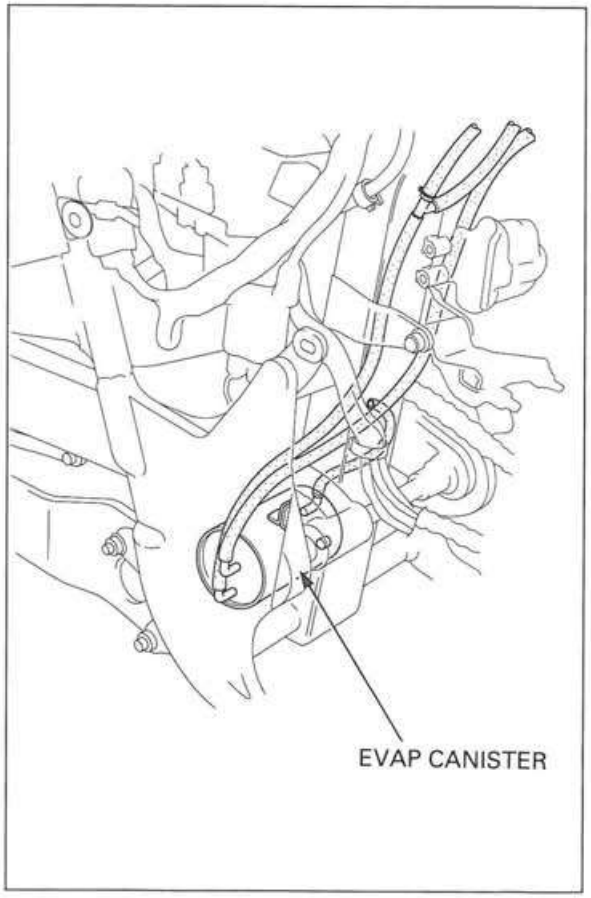
Check for any coolant leakage from the water pump, water hose and hose joints.
Make sure the hoses are in good condition; they should not show any sings of deterioration.
Replace any hose that shows any sign of deterioration.
Check that all hose clamps are tight.

For radiator replacement, refer to 6-9.

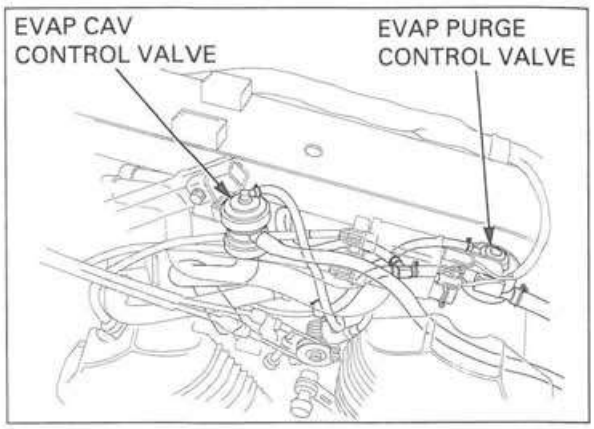


EVAPORATIVE EMISSION CONTROL SYSTEM (CALIFORNIIA TYPE ONLY)

Check the tube between the fuel tank, EVAP canister, EVAP purge control valve and carburetor for deterioration, damage or loose connection.



Check the EVAP canister for cracks or other damage. Refer to the Vacuum Hose Routing Diagram Label and Cable & Harness Routing (page 1-33, 36) for tube connections.



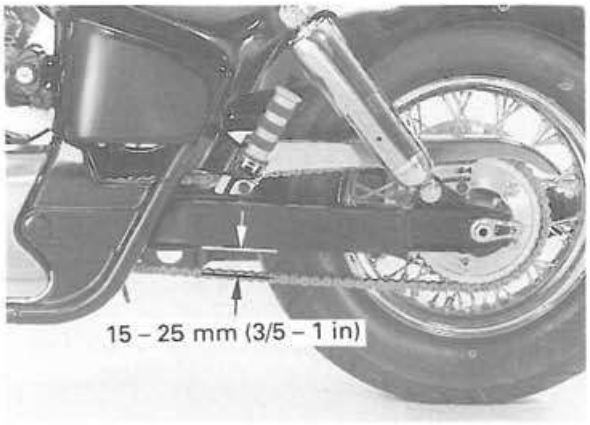
DRIVE CHAIN

DRIVE CHAIN SLACK INSPECTION

⚠ WARNING

Inspecting the drive chain while the engine is running can result in serious hand or finger injury.

Turn the ignition switch OFF, place the motorcycle on its side stand and shift the transmission in neutral.
Check the slack in the drive chain lower run midway between the sprockets.



DRIVE CHAIN SLACK: 15 – 25 mm (3/5 – 1 in)

CAUTION:

Excessive chain slack, 40 mm (1-3/5 in) or more, may damage the frame.

Lubricate the drive chain with #80 – 90 gear oil or drive chain lubricant designed specifically for use with O-ring chains. Wipe off the excess chain lube.

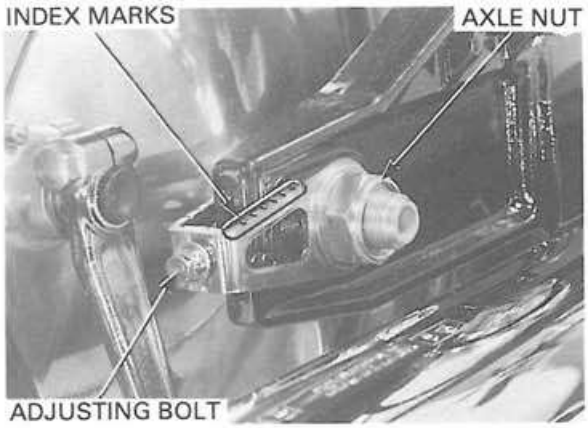
ADJUSTMENT

CAUTION:

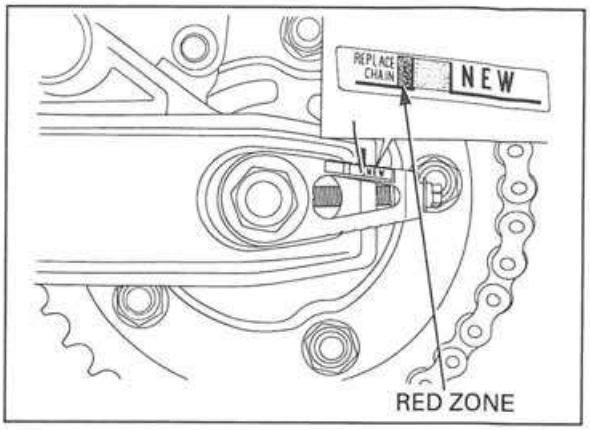
If the adjustment is not the same, the wheel is out of alignment and can cause excessive tire, sprocket and chain wear.

Loosen the rear axle nut.
Turn both adjusting bolts until the correct drive chain slack is obtained.
Make sure the index marks on the both adjusters are aligned with the index marks of the swingarm.
Tighten the rear axle nut to the specified torque.

TORQUE: 88 N·m (9.0 kgf·m, 65 lbf·ft)



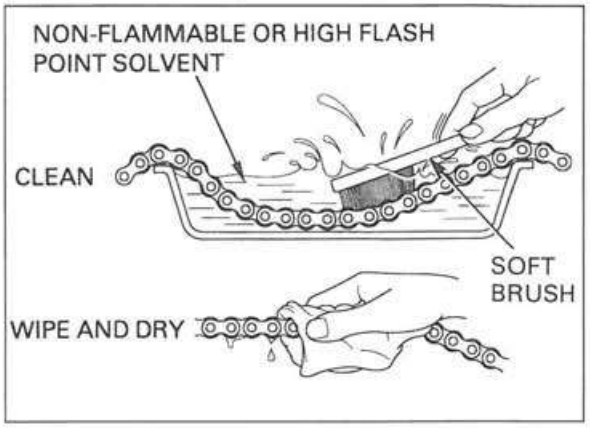
Recheck the drive chain slack and free wheel rotation.
Lubricate the drive chain with #80 – 90 gear oil or drive chain lubricant designed specifically for use with O-ring chains. Wipe off the excess chain lube.
Check the drive chain wear indicator label attached on the left drive chain adjuster.
If the red zone of the indicator label reaches the end of the swingarm, replace the drive chain with a new one (page 3-20).



CLEANING, INSPECTION AND LUBRICATION

CAUTION:

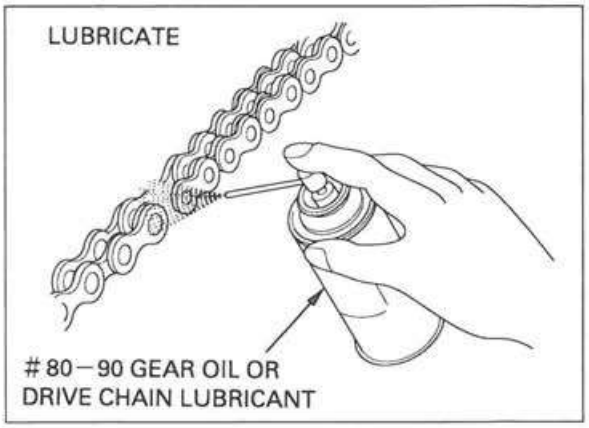
- ***Chains with O-rings should not be treated to the following cleaning and oiling procedure. This treatment will cause degradation of the O-rings and loss of grease, thus shortening chain life.***
- ***Do not use steam or high pressure water washing. Use a chain spray containing a cleaning agent or use gasoline to clean the chain.***



Clean the chain with non flammable or high flash point solvent and wipe it dry.
Be sure the chain has dried completely before lubricating.

Inspect the drive chain for possible damage or wear. Replace any chain that has damaged rollers, loose fitting links, or other wise appears unserviceable. Installing a new chain on badly worn sprockets will cause the new chain to wear quickly. Inspect and replace sprockets as necessary.

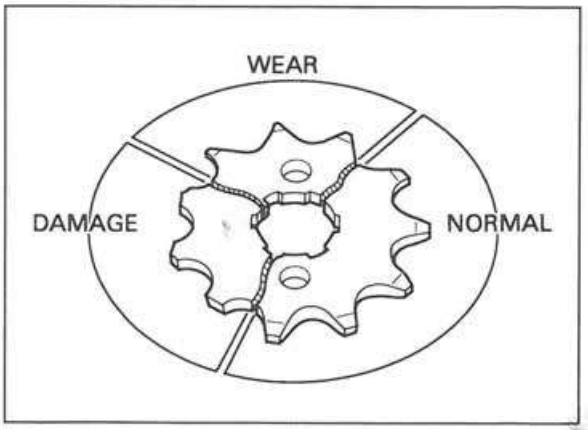
Lubricate the drive chain with #80 – 90 gear oil or drive chain lubricant. Wipe off the excess chain lube.



SPROCKETS INSPECTION

Inspect the drive and driven sprocket teeth for damage or wear. Replace if necessary.
Never use a new drive chain on worn sprockets. Both chain and sprockets must be in good condition, or the new replacement chain will wear rapidly.

Check the attachment bolts and nuts on the drive and driven sprockets.
If any are loose, torque them.



REPLACEMENT

CAUTION:

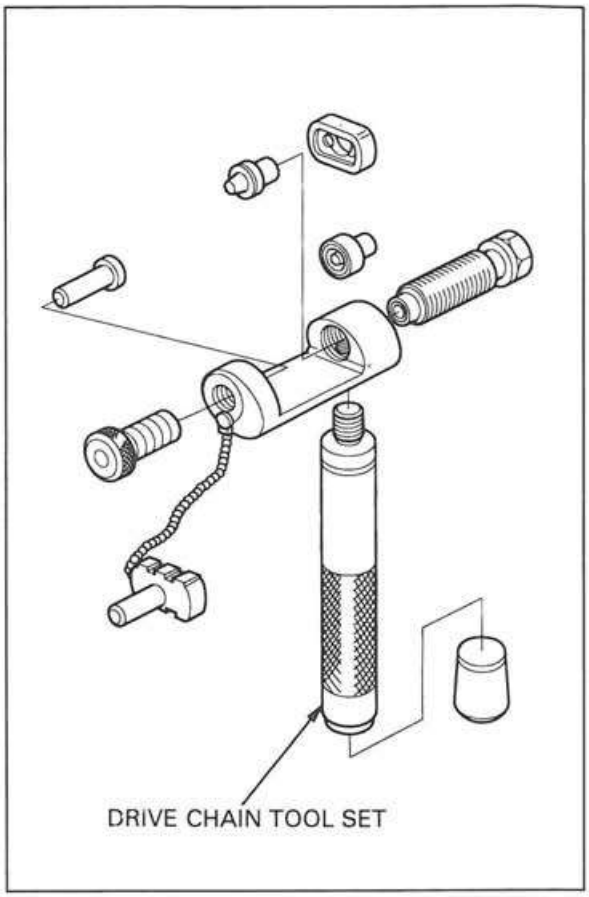
Because of the drive chain is master link joint pin staking type (the ends of the pins are expanded with the special tool), the specified types of chain and special tool must be used to replace. Do not use clip type chains.

This motorcycle uses a drive chain with a staked master link.

Loosen the drive chain (page 3-18).
Assemble the special tool.

When using the special tool, follow the manufacturer's operating instructions.

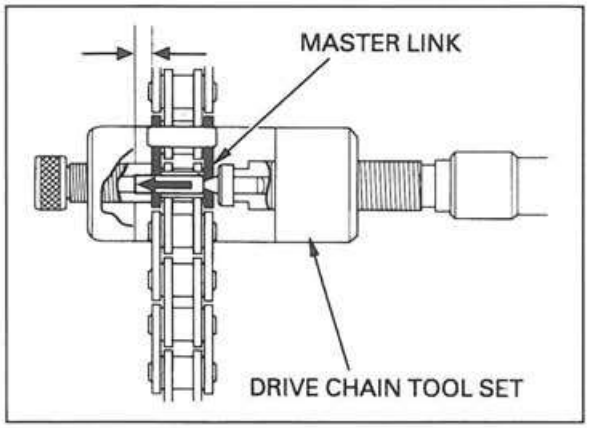
TOOL:
Drive chain tool set — **07HMH-MR10103 or 07HMH-MR7010B (U.S.A. only)**



Locate the drive chain cutter on the staked part of the drive chain and cut the staked pins.

TOOL:
Drive chain tool set — **07HMH-MR10103 or 07HMH-MR7010B (U.S.A. only)**

Remove the drive chain.



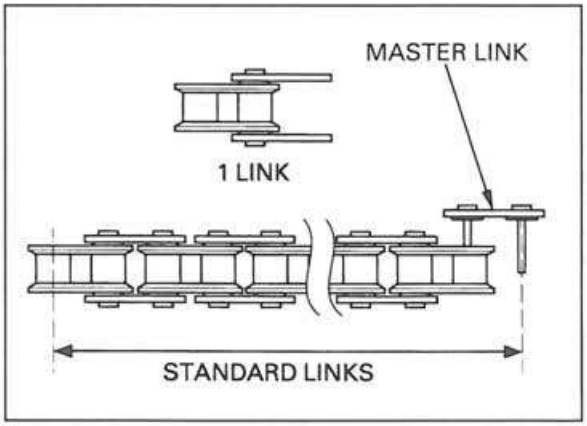
Remove the excess drive chain links from the new drive chain with the drive chain cutter.

NOTE:

- One (1) link is shown in the figure on the right.
- Include the master link when you count the drive chain links

Standard links: 122 links
Replacement chain: DID: 525 V8
RK: 525 SM5

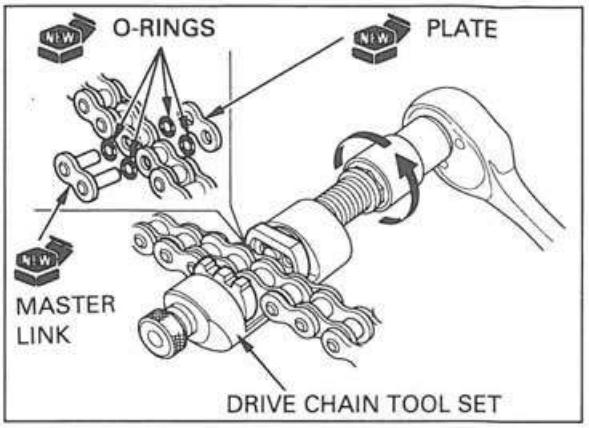
Install the new drive chain over the swingarm.



CAUTION:

Never reuse the old master link, master link plate and O-rings.

Install the new O-rings onto the new master link, and insert the master link from the inside of the drive chain taking care to prevent squeezing.
Install the O-rings and the link plate with the drive chain cutter.



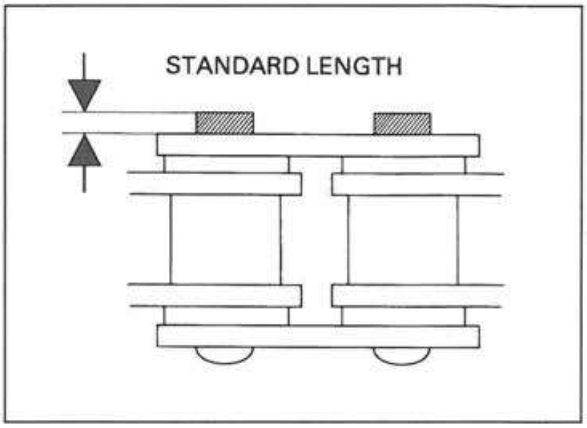
TOOL:

Drive chain tool set	**07HMH-MR10103 or 07HMH-MR7010B (U.S.A. only)**

NOTE:

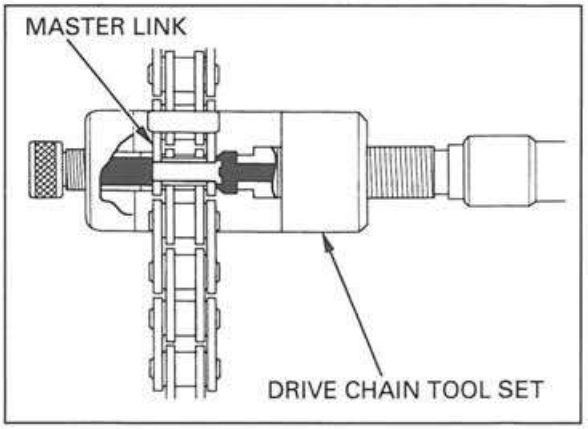
- Install the link plate with the identification mark facing the outside.
- Take care to prevent squeezing of the O-rings.
- Do not remove initially-applied grease from the link to lubricate.

Remove the special tool and check the master link pin length projected from the plate.



STANDARD LENGTH:1.2 – 1.4 mm (0.05 – 0.06 in)

Install the drive chain cutter and stake the ends of the master link pins.



TOOL:

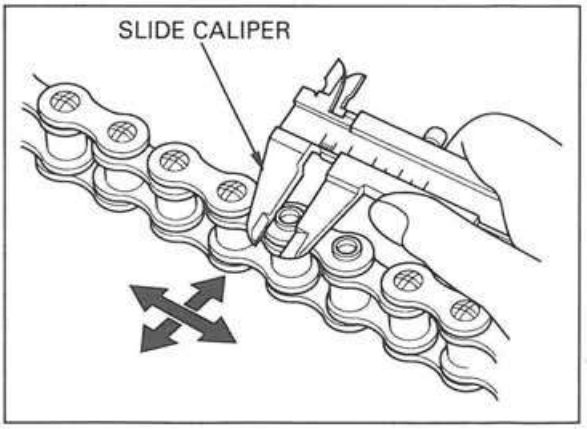
Drive chain tool set	**07HMH-MR10103 or 07HMH-MR7010B (U.S.A. only)**

NOTE:

To prevent overstaking, stake gradually checking the diameter of the staked area using a slide calipers.

After staking, check the staked area of the master link using a slide calipers.

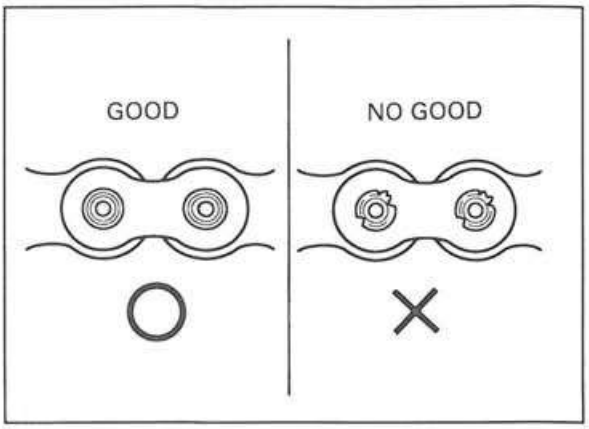
DIAMETER OF THE STAKED AREA:
5.50 – 5.80 mm (0.217 – 0.228 in)



NOTE:

- When the measured staked area is over the prescribed value, restake using the new master link, plate and O-rings.
- When the measured staked area is below the prescribed value, reinstall the drive chain cutter and restake.

Check the staked area of the master link for cracks and the O-rings for damages.
If there is any cracking or damage, replace the master link, plate and O-ring.



CAUTION:

A drive chain with a clip-type master link must not be used.

Check that master link pivots freely on the pins.
If the movement is not smooth, restake using the new master link, plate and O-rings.

Adjust the drive chain play.

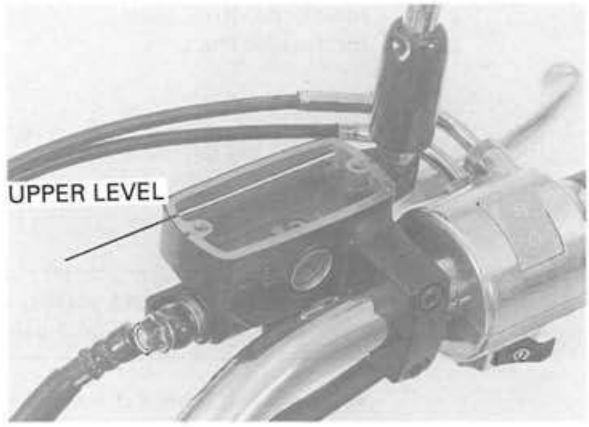
BRAKE FLUID

CAUTION:

- ***Do not remove the cover unless the reser-voir is level because fluid may spill out.***
- ***Do not mix different types of fluid, as they are not compatible with each other.***
- ***Do not allow foreign material to enter the system when filling the reservoir.***
- ***Avoid spilling fluid on painted, plastic or rubber parts. Place a rug over these parts whenever the system is serviced.***

NOTE:

- When the fluid level is low, check the brake pads for wear (see next page). A low fluid level may be due to wear of the brake pads. If the brake pads are worn, the caliper piston is pushed out, and this accounts for a low reservoir level. If the brake pads are not worn and the fluid level is low, check entire system for leaks (page 3-23).
- Do not remove the level float from the reservoir when filling with brake fluid.



Turn the handlebar to the left side so that the reservoir is level and check the front brake reservoir level through the sight glass. If the level (float edge) is near the lower level mark, remove the cover, set plate and diaphragm and fill the reservoir to the casting ledge with DOT 4 brake fluid from a sealed container.

Refer to page 15-3 for brake fluid replacement/bleeding procedures.

BRAKE SHOE/PAD WEAR

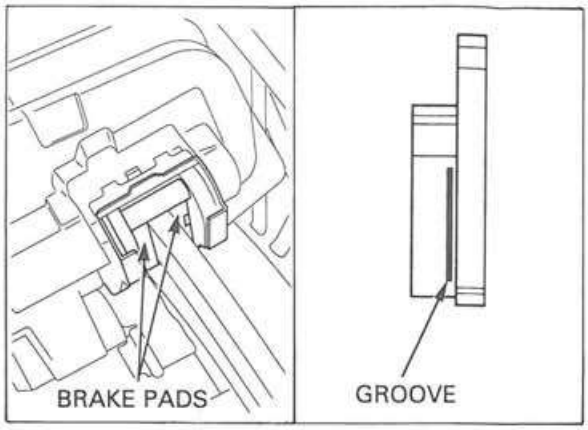
FRONT BRAKE PADS

Check the brake pad for wear.
Replace the brake pads if either pad is worn to the bottom of wear limit groove.

Refer to page 15-5 for brake pad replacement.

CAUTION:

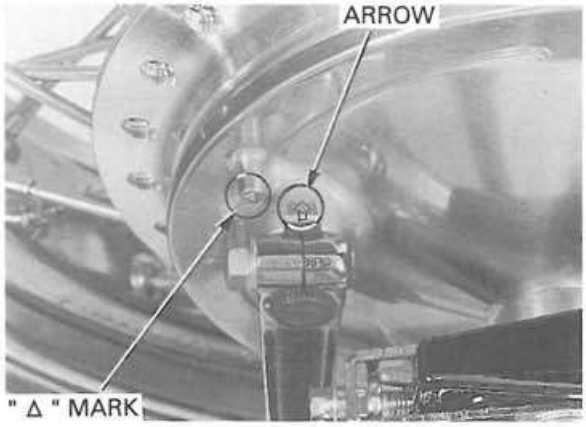
Always replace the brake pads as a set to assure even disc pressure.



REAR BRAKE SHOE

Replace the brake shoes if the arrow on the brake arm aligns with the reference mark " Δ " on full application of the rear brake pedal.

Refor to page 14-12 for brake Shoe replacement.



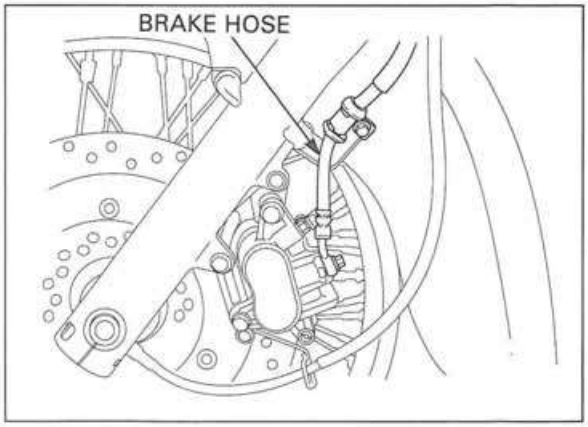
BRAKE SYSTEM

INSPECTION

Firmly apply the brake lever and check the that no air has entered the system. If the lever feels soft or spongy when operated, bleed air from the system.

Inspect the brake hoses and fittings for deterioration, cracks and signs of leakage. Tighten any loose fittings.
Replace hoses and fittings as required.

Refer to page 15-3 for brake bleeding procedures.



BRAKE PEDAL HEIGHT

Check the brake pedal height

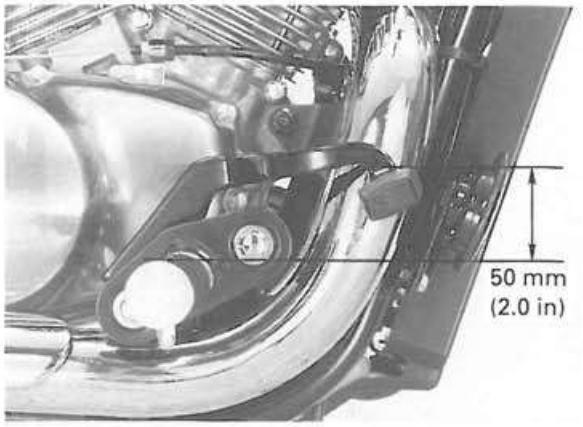
BRAKE PEDAL HEIGHT:
50 mm (2.0 in) above the top of the footpeg

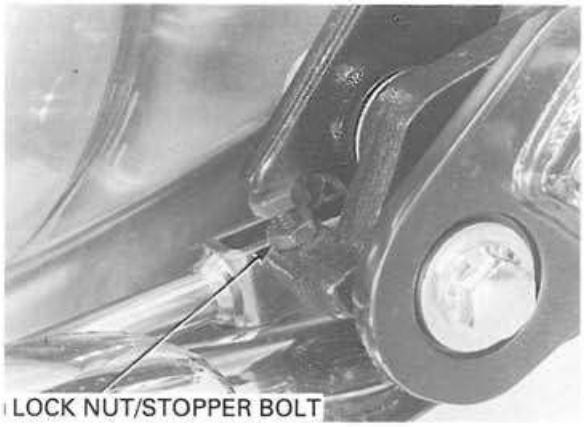
To adjust:
Loosen the stopper bolt lock nut and turn the stopper bolt.
Retighten the lock nut to the specified torque.

TORQUE: 10 N·m (1.0 kgf·m, 7 lbf·ft)

NOTE:

After adjusting the brake pedal height, check the rear brake light switch and brake pedal free play and adjust if necessary.





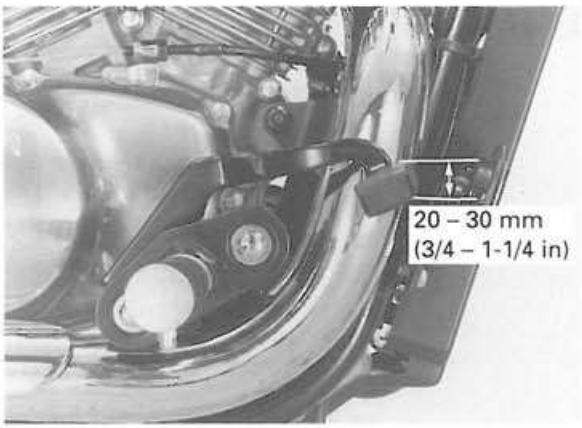
BRAKE PEDAL FREE PLAY

NOTE:

Perform brake pedal free play adjustment after adjusting brake pedal height.

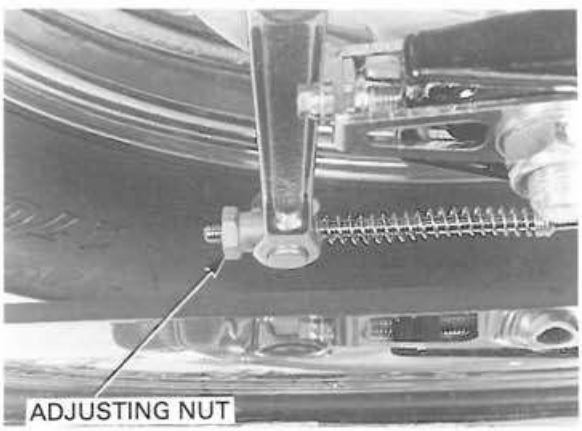
Check the brake pedal free play.

FREE PLAY: 20 – 30 mm (3/4 – 1-1/4 in)

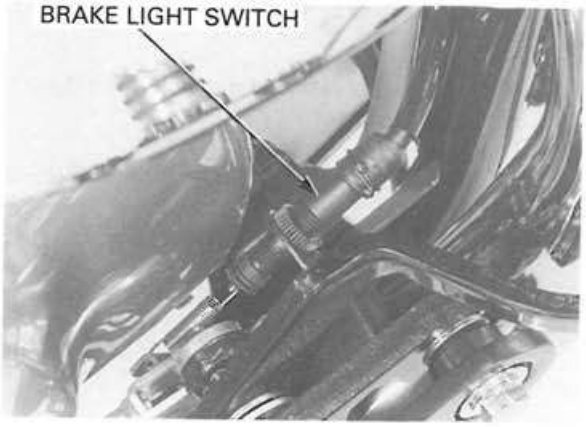


After adjusting the brake pedal free play, check the rear brake light switch operation and adjust if necessary.

If adjustment is necessary, use the rear brake adjusting nut.



BRAKE LIGHT SWITCH



CAUTION:

Allowing the switch body to turn during adjustment can brake the wires in the switch.

NOTE:

- The brake light switch on the front brake lever cannot be adjusted. If the front brake light switch actuation and brake engagement are off, either replace the switch unit or the malfunctioning parts of the system.
- Make all rear brake light switch adjustments after the height adjustment and the brake pedal free play adjustment have been made.

Check the brake light switch operation and adjustment by applying the brakes. Visually inspect for any damage and make sure the reflector plate is clean within the light.
Adjust the rear brake light switch so that the brake light comes on just prior to come on, adjust the switch so that the light comes on at the proper time.

Turn the adjusting nut on the brake light switch and not the switch body and wires to make switch actuation adjustments.
Be sure to hold the switch body firmly while turning the adjusting nut.

Be sure to hold the switch body firmly while turning the adjusting nut.

After adjustment, recheck to be sure the brake light comes on at the proper time.

HEADLIGHT AIM

⚠ WARNING

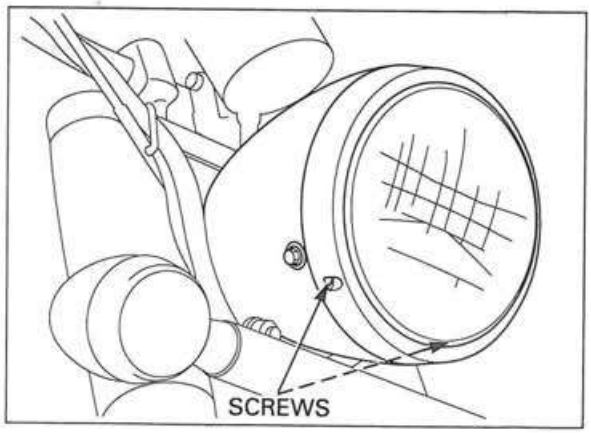
An improperly adjusted headlight may blind oncoming drivers, or it may fall to light the road for a safe distance.

Adjust the headlight beam as specified by local laws and regulations.

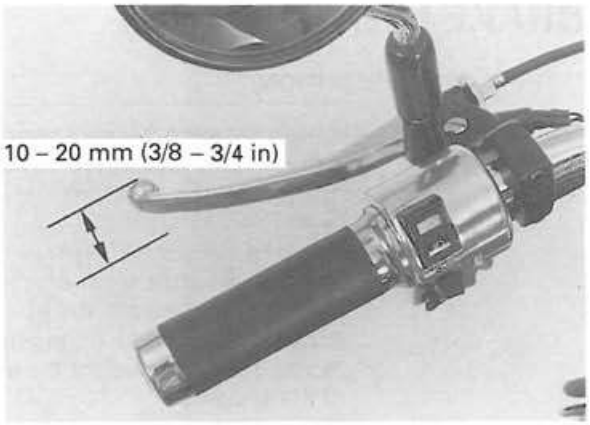
Place the motorcycle on a level surface.

Adjust the headlight beam vertically turning the vertical beam adjusting screw.
A clockwise rotation moves the beam up.

Horizontally beam adjustment are made using the horizontal beam adjusting screw.
A clockwise rotation moves the beam toward the right side of the rider.



CLUTCH SYSTEM



Measure the clutch free play at the end of the clutch lever.

FREE PLAY: 10 – 20 mm (3/8 – 3/4 in)

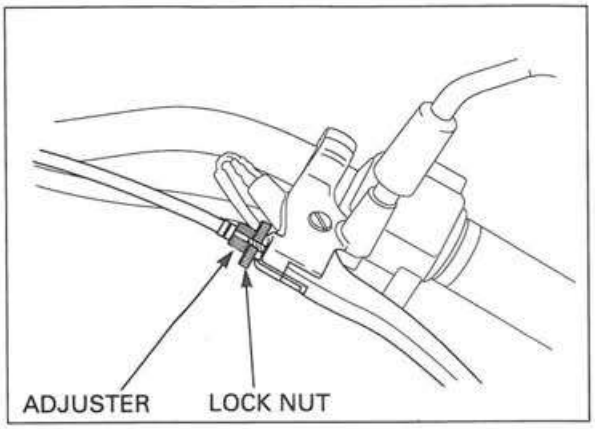
Adjust as follows:

Minor adjustments are made at the adjuster near the lever.
Loosen the lock nut and turn the adjuster. Tighten the lock nut.

CAUTION:

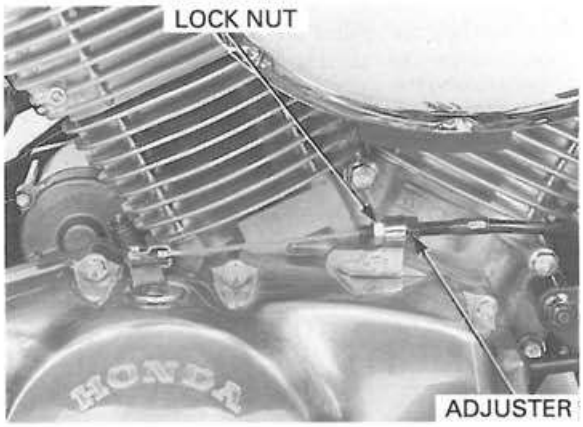
The adjuster may be damaged if it is positioned too far out, leaving minimal thread engagement.

If the adjuster is threaded out near its limit and the correct free play cannot be obtained, turn the adjuster all the way in and back out one turn. Tighten the lock nut and make a major adjustment as described below.



Major adjustment is performed at the clutch arm. Loosen the lock nut and turn the adjusting nut to adjust free play. Hold the adjusting nut securely while tightening the lock nut.

If proper free play cannot be obtained, or the clutch slips during the test ride, disassemble and inspect the clutch (see section 8).



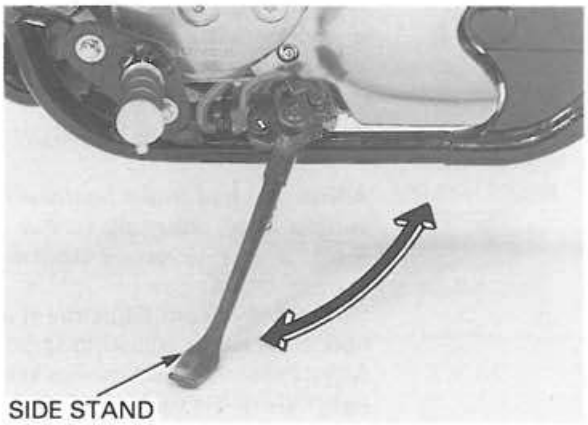
SIDE STAND

Support the motorcycle on a level surface.

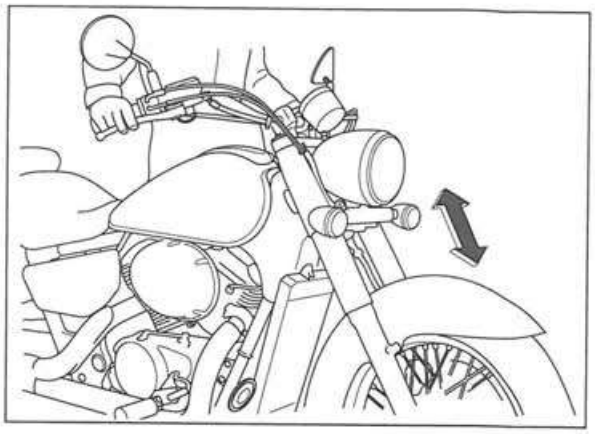
Check the side stand spring for damage or loss of tension.
Check the side stand assembly for freedom of movement and lubricate the side stand pivot if necessary. Make sure that the side stand is not bent.

Check the side stand ignition cut-off system:
- Sit astride the motorcycle and raise the side stand.
- Start the engine with the transmission in neutral, the shift the transmission into gear, with the clutch lever squeezed.
- Move the side stand fully down.
- The engine should stop as the side stand is lowered.

If there a problem with the system, check the side stand switch (section 19).



SUSPENSION



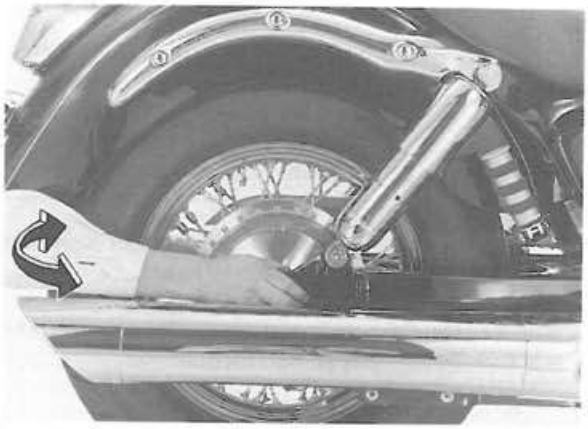
⚠ WARNING

Loose, worn, or damaged suspension parts impair motorcycle stability and control. Repair or replace any damaged components before riding. Riding a motorcycle with faulty suspension increases your risk of an accident and possible injury.

FRONT

Check the action of the fork by operating the front brake and compressing the front suspension several times.
Check the entire fork assembly for signs of leaks, damage or loose fasteners.
Replace damaged components which cannot be repaired.
Tighten all nuts and bolts.

Refer to section 13 for front fork service.

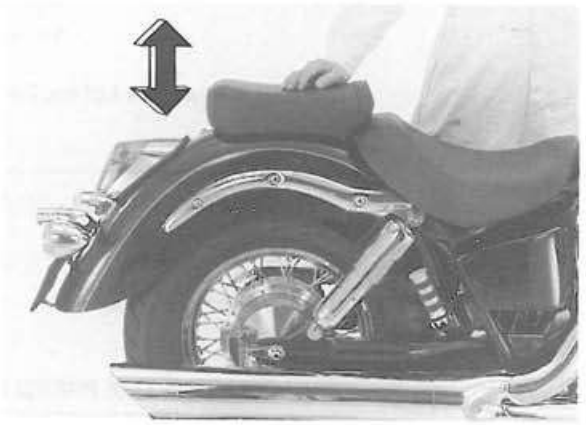


REAR

Support the motorcycle securely using a safety stand or hoist and raise the rear wheel off the ground.
Check for worn swingarm bearings by grabbing the rear wheel and attempting to move the wheel side to side.
Replace the bearings if any looseness is noted (section 14).

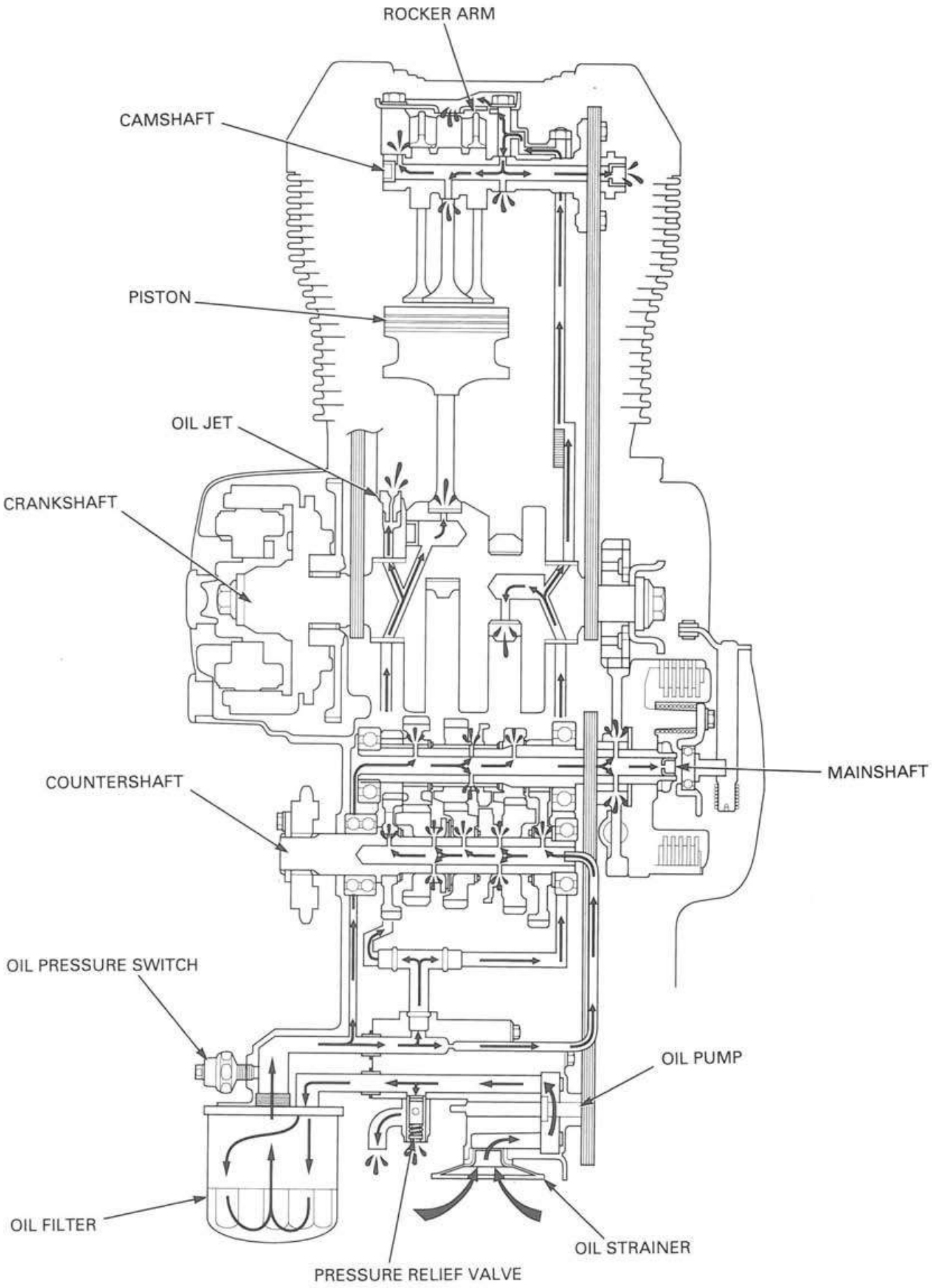
Check the action of the shock absorbers by compressing them several times.
Check the entire shock absorber assembly for signs of leaks, damage or loose fasteners.
Replace damaged components which cannot be repaired.
Tighten all nuts and bolts.

Refer to section 14 for shock absorber service.



NUTS, BOLTS, FASTENERS

Check that all chassis nuts, bolts and screws are tightened to their correct torque values (page 1-13) at the interval shown in the Maintenance Schedule.
Check that all cotter pins, slip clips, hose clamps and cable stays are in place and properly secured.


ROCKER ARM
CAMSHAFT
PISTON
OIL JET
CRANKSHAFT
COUNTERSHAFT
MAINSHAFT
OIL PRESSURE SWITCH
OIL PUMP
OIL FILTER
OIL STRAINER
PRESSURE RELIEF VALVE

4. LUBRICATION SYSTEM

SERVICE INFORMATION

GENERAL

⚠ WARNING

- ***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 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.***
- ***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.***

- The engine must be removed from the frame before servicing the oil pump.
- When removing and installing the oil pump use care not to allow dust or dirt to enter the engine.
- If any portion of the oil pump is worn beyond the specified service limits, replace the oil pump as an assembly.
- After the engine has been installed, check that there are no oil leaks and that oil pressure is correct.
- For oil pressure indicator inspection, refer to section 19 of this manual.

SPECIFICATIONS

Unit: mm (in)

ITEM		STANDARD	SERVICE LIMIT
Engine oil capacity	at draining	2.2 liter (2.32 US qt, 1.94 Imp qt)	———
	at disassembly	2.9 liter (3.06 US qt, 2.55 Imp qt)	———
	at oil filter change	2.4 liter (2.54 US qt, 2.11 Imp qt)	———
Recommended engine oil		HONDA GN4 4-stroke oil 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/cm², 77 psi) at 5,500 rpm (80°C/176°F)	———
Oil pump rotor	Tip clearance	0.15 (0.006)	0.20 (0.008)
	Body clearance	0.15 – 0.22 (0.006 – 0.009)	0.35 (0.014)
	Side clearance	0.02 – 0.07 (0.001 – 0.003)	0.10 (0.004)

TORQUE VALUES

Oil pump cover bolt	13 N•m (1.3 kgf•m, 9 lbf•ft)	
Oil pump driven sprocket bolt	15 N•m (1.5 kgf•m, 11 lbf•ft)	Apply a locking agent to the threads
Oil filter cartridge	10 N•m (1.0 kgf•m, 7 lbf•ft)	Apply oil to the threads and O-ring
Oil drain bolt	34 N•m (3.5 kgf•m, 25 lbf•ft)	
Oil pressure switch	12 N•m (1.2 kgf•m, 9 lbf•ft)	Apply sealant to the threads
Oil pressure switch wire terminal screw	2 N•m (0.2 kgf•m, 1.4 lbf•ft)	

TOOLS

Oil filter wrench	07HAA-PJ70100	
Oil pressure gauge	07506-3000000	or equivalent commercially available in U.S.A.
Oil pressure gauge attachment	07510-4220100	or equivalent commercially available in U.S.A.

TROUBLESHOOTING

Oil level low
- Oil consumption
- External oil leak
- Worn piston ring or incorrect piston ring installation
- Worn valve guide or seal

Oil contamination (White appearance)
- From coolant mixing with oil
  - Faulty water pump mechanical seal
  - Faulty head gasket
  - Water leak in crankcase

No oil pressure
- Oil level too low
- Oil pump drive chain or drive sprocket broken
- Oil pump damaged (pump shaft)
- Internal oil leak

Low oil pressure
- Pressure relief valve stuck open
- Clogged oil filter and strainer screen
- Oil pump worn or damaged
- Internal oil leak
- Incorrect oil being used
- Oil level too low

High oil pressure
- Pressure relief valve stuck closed
- Plugged oil filter, gallery, or metering orifice
- Incorrect oil being used

Seized engine
- No or low oil pressure
- Clogged oil orifice/passage
- Internal oil leak
- Non-recommended oil used

Oil contamination
- Deteriorated oil
- Faulty oil filter
- Worn piston ring (White appearance with water or moisture)
  - Damaged water pump mechanical seal
  - Damaged head gasket
  - Oil relief not frequent enough

Oil pressure warning indicator does not work
- Faulty oil pressure switch
- Short circuit in the indicator wire
- Low or no oil pressure
- Blown bulb

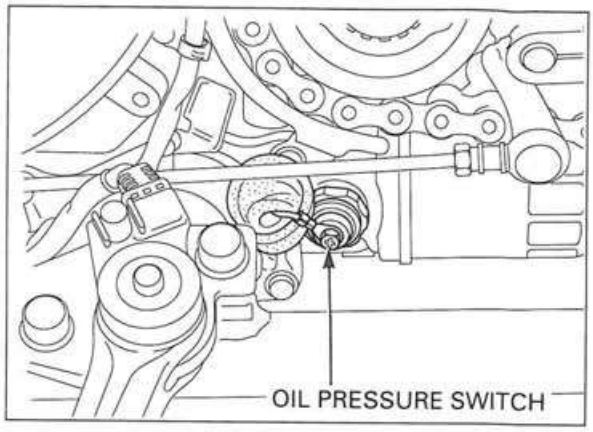
OIL PRESSURE CHECK

NOTE:

If the engine is cold, the pressure reading will be abnormally high. Warm up the engine to normal operating temperature before starting this test.

Warm up the engine.
Stop the engine.
Remove the left rear cover (page 7-3).

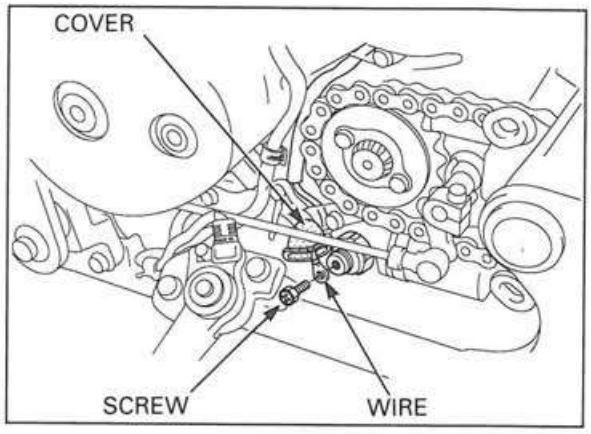
Remove the screw cover and screw.
Disconnect the oil pressure switch wire.



Remove the oil pressure switch.
Connect the oil pressure gauge attachment and gauge to the pressure switch hole.

TOOLS:

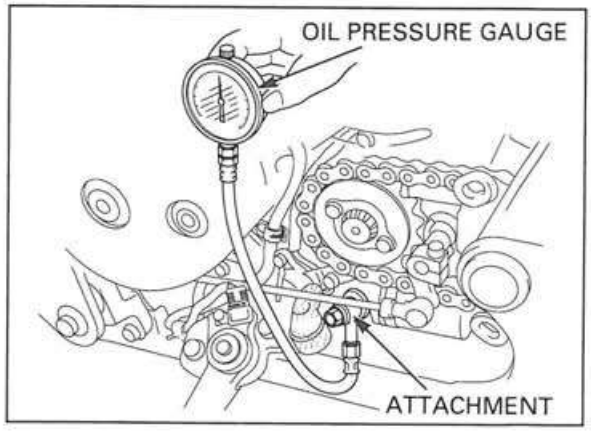
Oil pressure gauge	**07506-3000000 or equivalent commercially available in U.S.A.**
Oil pressure gauge attachment	**07510-4220100 or equivalent commercially available in U.S.A.**



Check the oil level and add the recommended oil if necessary (page 3-11).

Start the engine and check the oil pressure at 5,500 rpm.

OIL PRESSURE: 530 kPa (5.4 kgf/cm², 77 psi) at 5,500 rpm (80 °C/176 °F)



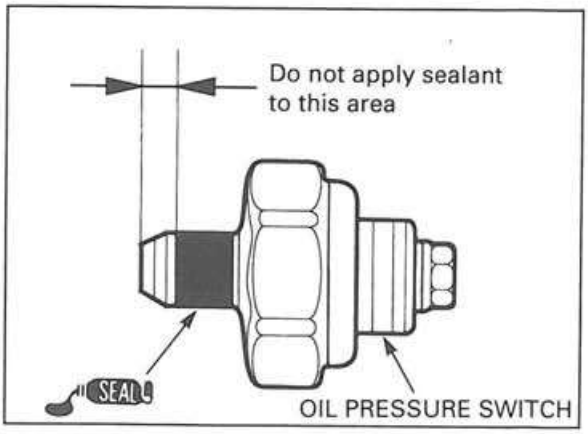
Stop the engine and remove the oil pressure gauge attachment and gauge from the pressure switch hole.

Apply sealant to the oil pressure switch threads as shown and tighten it to the specified torque.

TORQUE: 12 N·m (1.2 kgf·m, 9 lbf·ft)

Connect the oil pressure switch wire and tighten the screw to specified torque.

TORQUE: 2 N·m (0.2 kgf·m, 1.4 lbf·ft)



NOTE:

Route the oil pressure switch wire correctly (page 1-27).

Start the engine.
Check that the oil pressure indicator goes out after one or two seconds. If the oil pressure indicator stays on, stop the engine immediately and determine the cause (page 19-14).

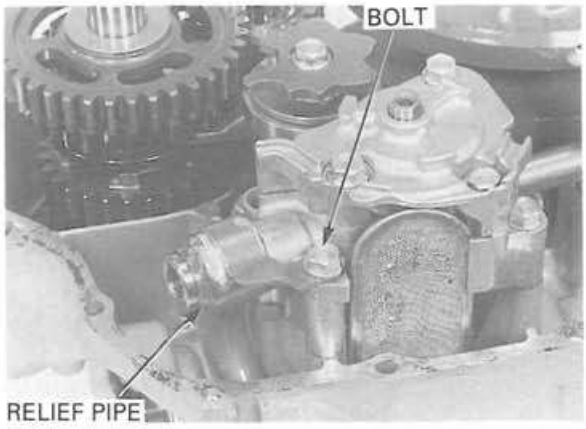
OIL PUMP

REMOVAL

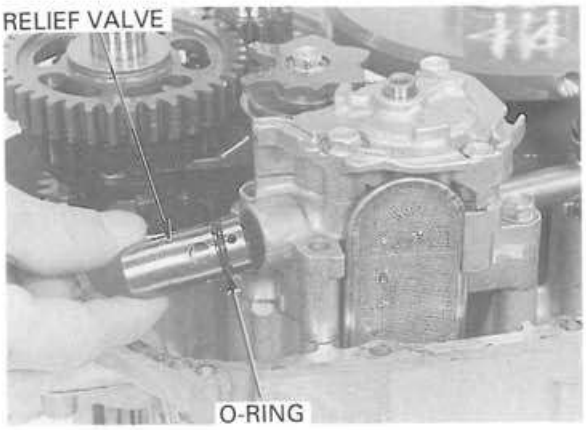
When removing and installing the oil pump, use care not to allow dust or dirt to enter the engine.

Separate the crankcase (page 12-4).

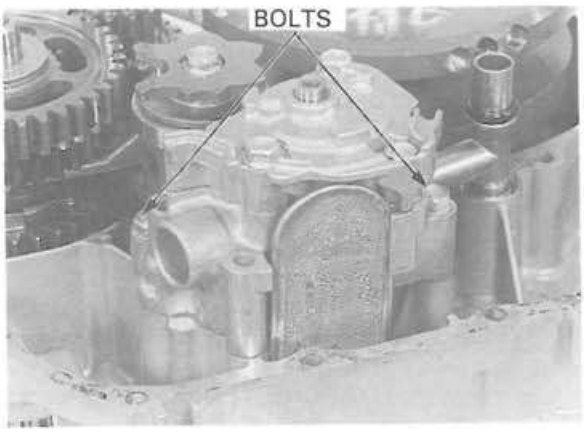
Remove the bolt and oil relief pipe.



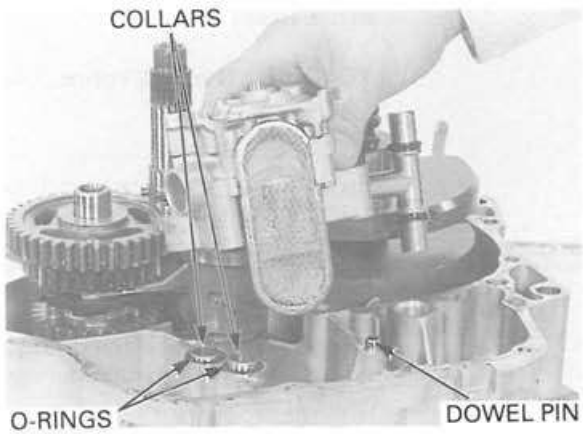
Remove the oil relief valve and O-ring.



Remove the oil pump mounting bolts.



Remove the oil pump.
Remove the collars and O-rings.
Remove the dowel pin.



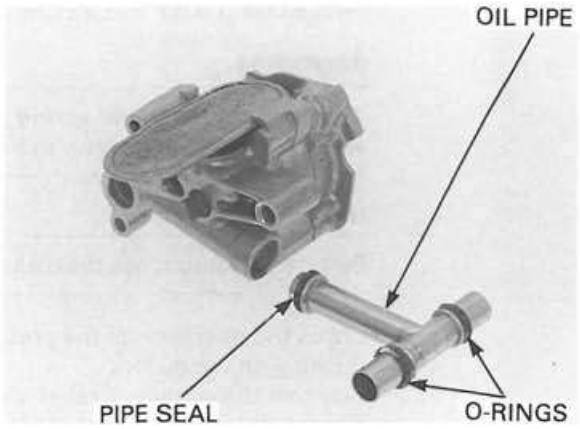
DISASSEMBLY

OIL PUMP DISASSEMBLY

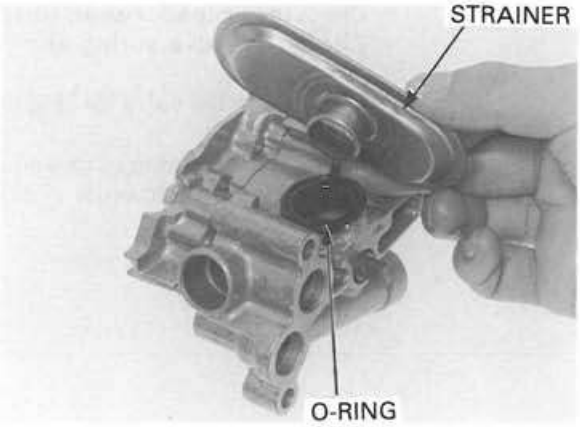
NOTE:

If any portion of the oil pump is worn beyond the specified service limits, replace the oil pump as an assembly.

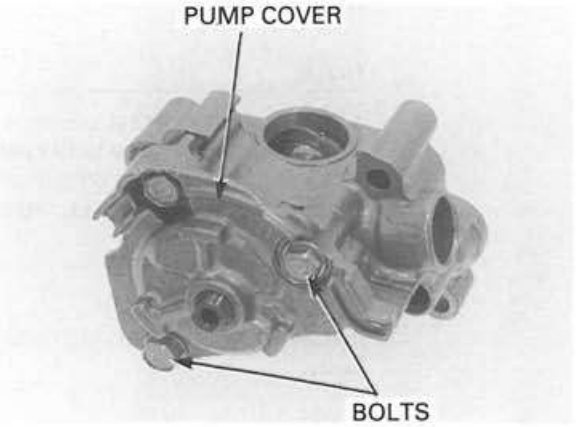
Remove the oil pipe, oil pipe seal and O-rings.



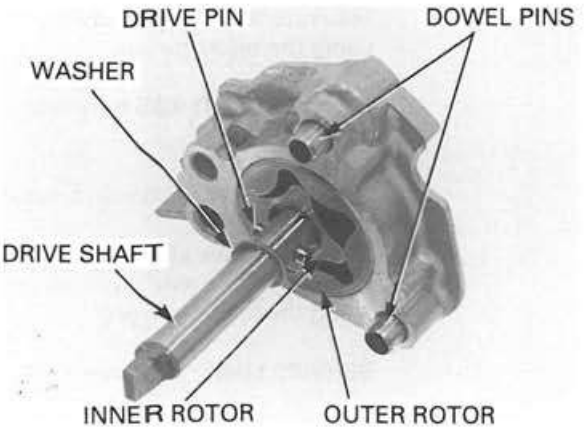
Remove the oil strainer and O-ring.



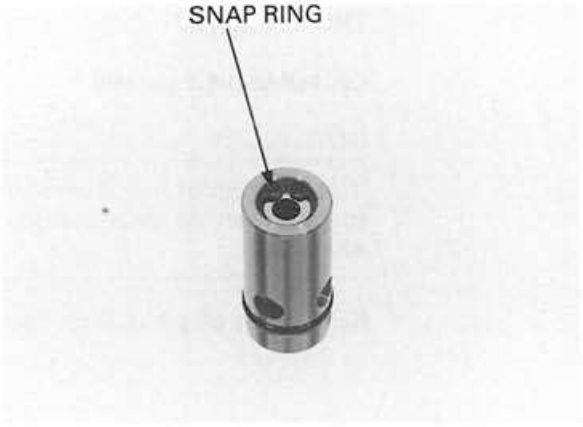
Remove the bolts and pump cover from pump body.



Remove the dowel pins.
Remove the washer, drive shaft, drive pin, inner rotor and outer rotor.



PRESSURE RELIEF VALVE CHECK



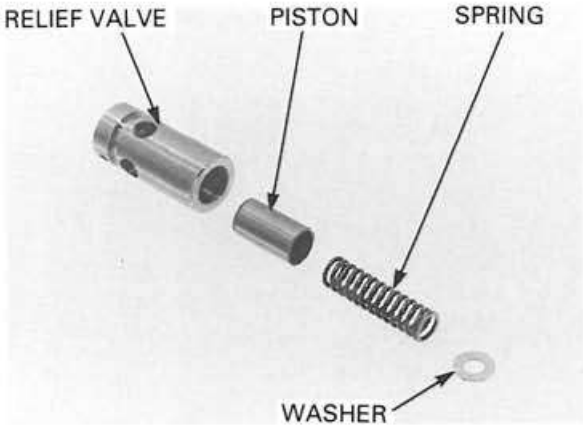
⚠ WARNING

The snap ring is under spring pressure. Use care when removing it and wear eye and face protection.

NOTE:

Be careful not to loose the disassembled parts.

Check the operation of the pressure relief valve by pushing on the piston.
Remove the pressure relief valve snap ring and disassemble the pressure relief valve.



Check the piston for wear, sticking or damage.
Check the valve spring and piston for wear or damage.
Check the relief valve for clogging for damage.

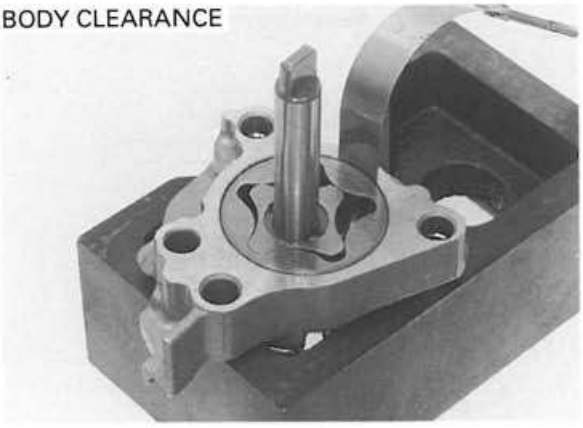
Clean the remaining parts and assemble the relief valve in the reverse order of disassembly.

INSPECTION

NOTE:

- Measure at several places and use the largest reading to compare to the service limit.
- If any portion of the oil pump is worn beyond the specified service limits, replace the oil pump as an assembly.

BODY CLEARANCE



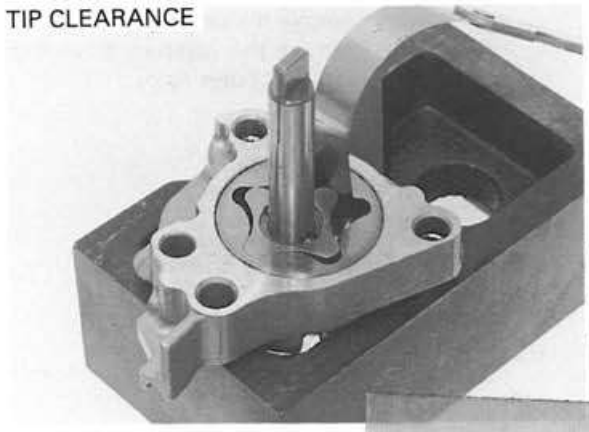
Install the inner rotor and outer rotor to the pump body.

Install the drive shaft properly.

Measure the pump body-to-outer rotor clearance using the feeler gauge.

SERVICE LIMIT: 0.35 mm (0.014 in)

TIP CLEARANCE



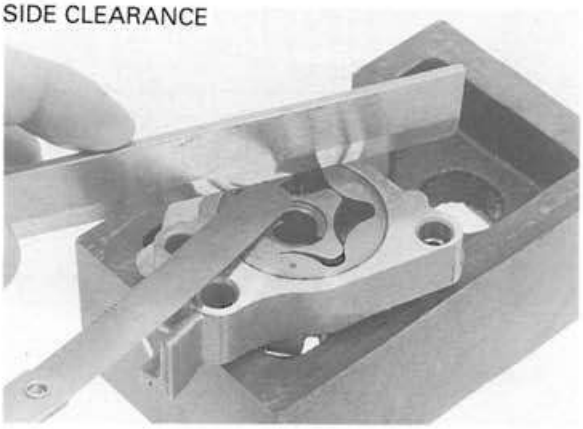
Install the inner rotor and outer rotor to the pump body.
Install the drive shaft properly.
Measure the outer rotor-to-inner rotor clearance using the feeler gauge.

SERVICE LIMIT: 0.20 mm (0.008 in)

SIDE CLEARANCE
Install the inner rotor and outer rotor to the pump body.
Measure the rotor side-to-pump body clearance using the feeler gauge and straight edge.

SERVICE LIMIT: 0.10 mm (0.004 in)

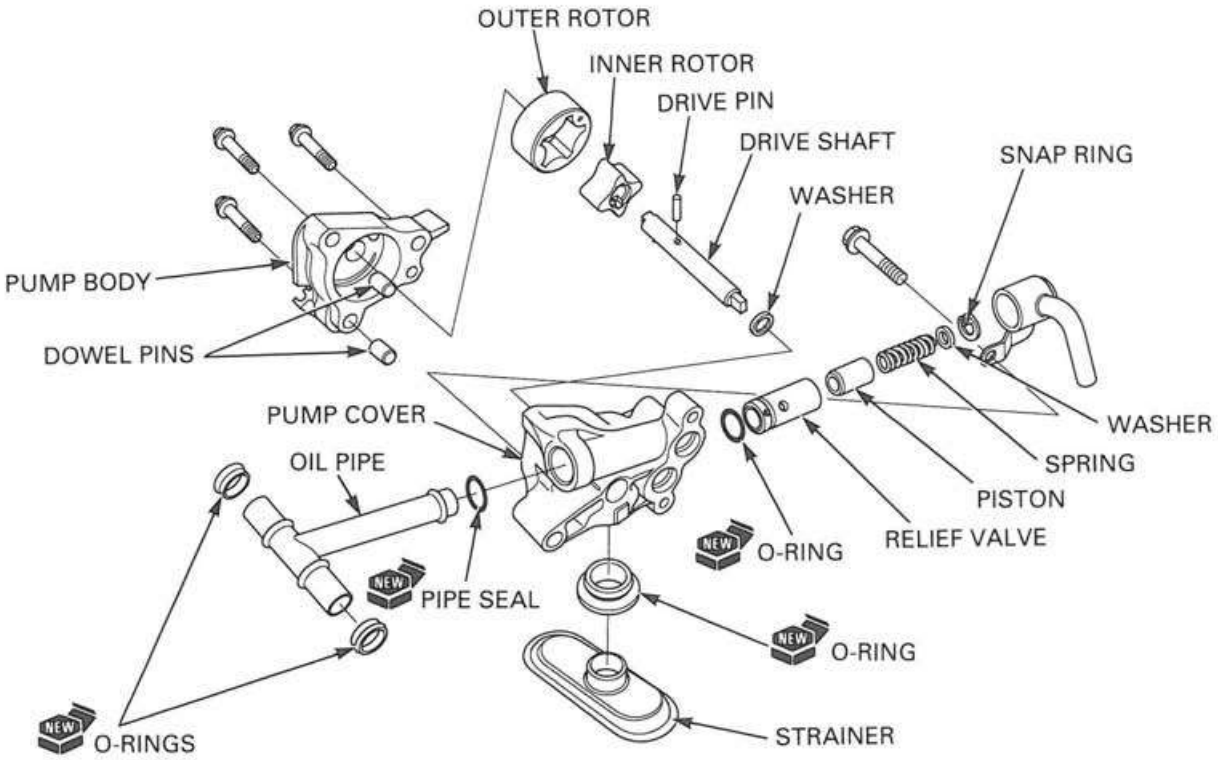
SIDE CLEARANCE



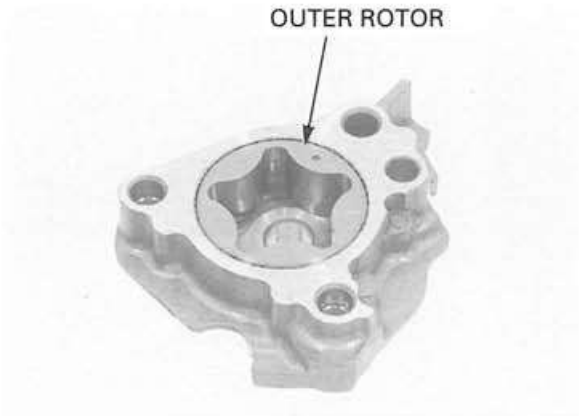
ASSEMBLY

NOTE:

Before assembly, clean all disassembled parts thoroughly with clean engine oil.



Install the outer rotor to the pump body.

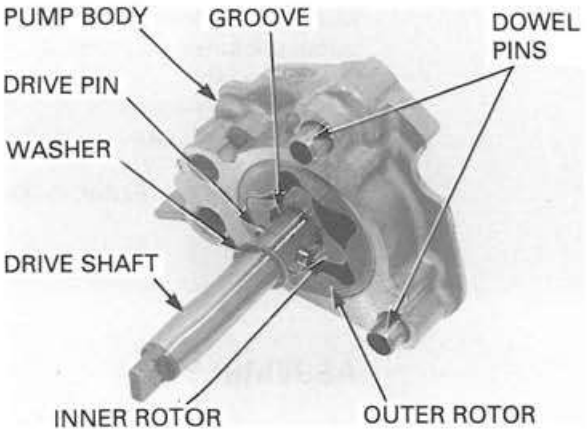


Install the inner rotor to the outer rotor.

NOTE:

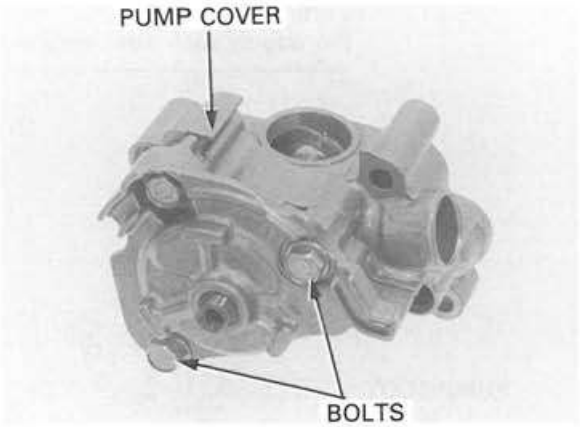
When inner rotor installing, install it with the slots side facing the pump cover.

Install the drive shaft and drive pin by aligning the slots in the inner rotor.
Place the washer into the inner rotor groove.
Install the dowel pin to the pump cover.

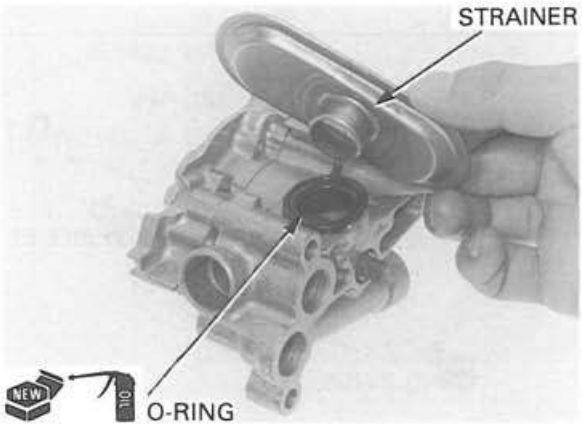


Install the pump body to the pump cover.
Install and tighten the bolts to the specified torque.

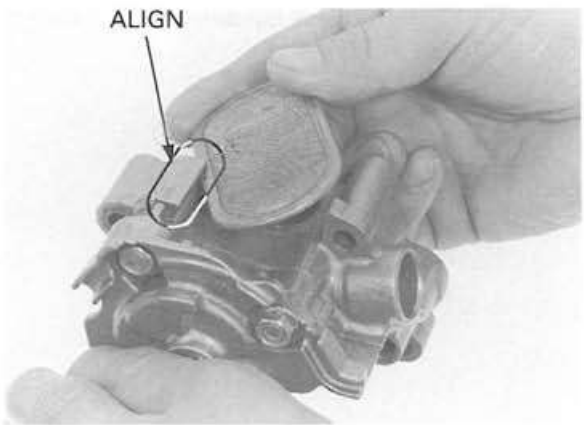
TORQUE: 13 N·m (1.3 kgf·m, 9 lbf·ft)



Clean the oil strainer.
Apply oil to the new O-ring and instal the oil strainer.
Install the oil strainer to the oil pump aligning it to the groove on the oil pump.



Install the oil strainer to the pump body groove securely.

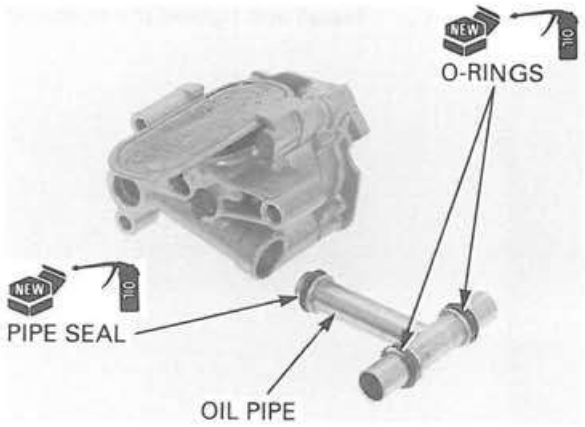


Apply oil to the new oil pipe seal and new O-rings, then install to the oil pipe.

NOTE:

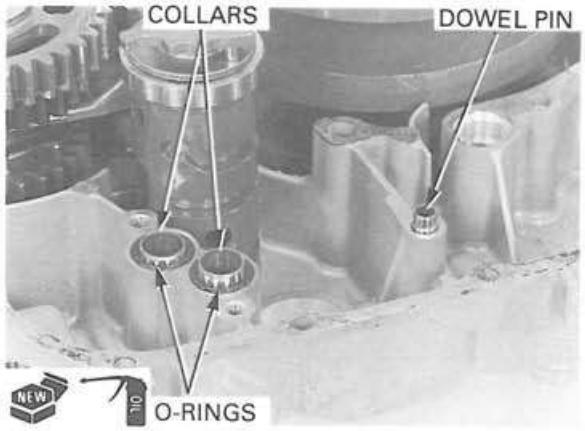
Install the O-rings with their tapered side facing out.

Install the oil pipe to the oil pump securely.

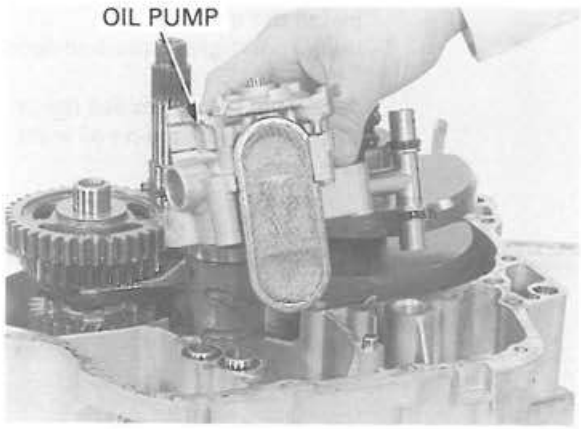


INSTALLATION

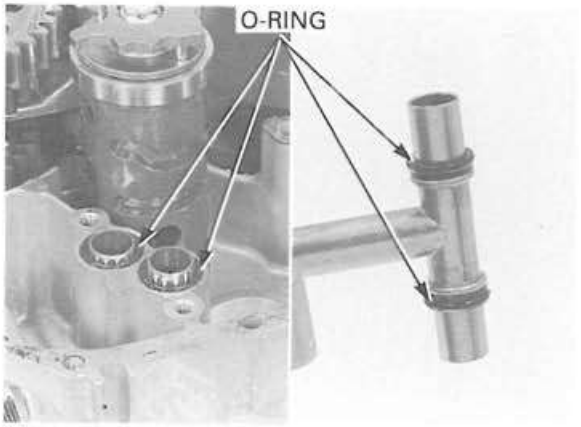
Install the dowel pin.
Install the collars.
Apply oil to the new O-rings and install onto the collars.

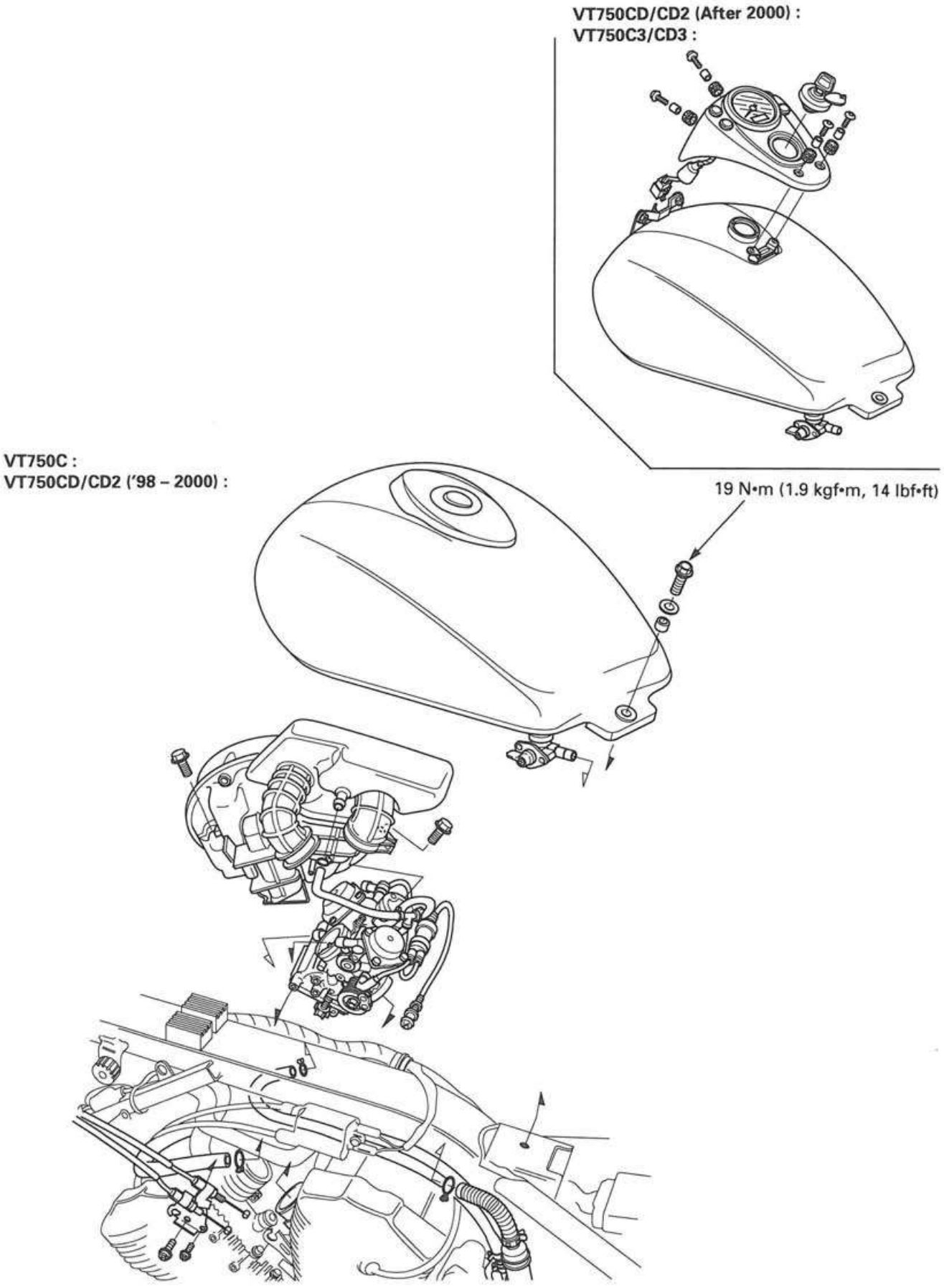


Install the oil pump into the crankcase securely.



Be careful not to damage the O-rings at oil pump installation.




VT750CD/CD2 (After 2000) :
VT750C3/CD3 :
VT750C :
VT750CD/CD2 ('98 – 2000) :
19 N•m (1.9 kgf•m, 14 lbf•ft)

5. FUEL SYSTEM

5

SERVICE INFORMATION

GENERAL

⚠ WARNING

- ***Gasoline is extremely flammable and is explosive under certain condition. KEEP OUT OF REACH OF CHILDREN.***
- ***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 the consciousness and may lead to death. Run the engine in an open area or with an exhaust evacuation system in an enclosed area.***
- ***Bending or twisting the control cables will impair smooth operation and could cause the cable to stick or bind, resulting in loss of vehicle control.***

- 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.

CAUTION:

Be sure to remove the diaphragms before cleaning air and fuel passages with compressed air. The diaphragms might be damaged.

- For fuel tank removal and installation, refer to Section 2.
- Before disassembling the carburetor, place an approved gasoline container under the carburetor drain tube, loosen the carburetor drain screw and drain the carburetor.
- When disassembling the fuel system parts, note: the locations of the O-rings. Replace them with new ones on reassembly.
- After removing the carburetor, wrap the intake ports of the engine with a shop towel or cover them with a piece of tape to prevent any foreign material from dropping into the engine. Be sure to remove the cover when reinstalling the carburetor.

NOTE:

If the vehicle is to be stored for more than one month, drain the float bowls. Fuel left in the float bowls may cause clogged lets resulting in hard starting or poor driveability.

SPECIFICATIONS

ITEM			SPECIFICATIONS
Carburetor identification number	49 state type	'98	VDFFG
		After '98	VDFFJ
	California type	'98	VDFEB
		After '98	VDFEC
	Canada type	'98 VT750C/CD/CD2	VDFFG
		'98 VT750C3/CD3 After '98	VDFFJ
Main jet	Front		#105
	Rear		#110
Slow jet			#40
Pilot screw	Initial/final opening		See page 5-22
Float level			7.0 mm (0.28 in)
Base carburetor (for synchronization)			Rear cylinder (#1)
Idle speed			1,000 ± 100 rpm
Carburetor vacuum difference			27 kPa (20 mm Hg, 0.7 in Hg)
PAIR control valve specified vacuum			325 mm Hg (12.8 in Hg)
Throttle grip free play			2 – 6 mm (1/12 – 1/4 in)
Fuel pump flow capacity			Minimum 900cm³ (30.4 US oz, 31.7 Imp oz) per minute at 12V

TORQUE VALUES

Air cleaner housing cover bolt	2 N•m (0.2 kgf•m, 1.4 lbf•ft)
Fuel tank bolt	19 N•m (1.9 kgf•m, 14 lbf•ft)
Fuel valve nut	34 N•m (3.5 kgf•m, 25 lbf•ft)

TOOLS

Carburetor float level gauge	07401-0010000

TROUBLESHOOTING

Oil level low
- No fuel in tank
- No fuel to carburetor
  - Fuel strainer clogged
  - Fuel filter clogged
  - Fuel valve stuck
  - Fuel line clogged
  - Fuel tank breather clogged
  - Float level faulty
  - Fuel pump malfunction
- Too much fuel getting to the engine
  - Air cleaner clogged
  - Flooded carburetor
- Intake air leak
- Fuel contaminated/deteriorated
  - Jet clogged
- Improper starting enrichment valve operation
- Slow circuit or starting enrichment valve circuit clogged
- Improper throttle operation
- No spark at plug (ignition system faulty)

Lean mixture
- Fuel jets clogged
- Float valve faulty
- Float level too low
- Fuel line restricted
- Intake air leak
- Throttle valve faulty
- Vacuum piston faulty
- Throttle valve faulty
- Fuel pump malfunction

Rich mixture
- Starting enrichment valve open
- Float valve faulty
- Float level too high
- Air jets clogged
- Air cleaner element contaminated
- Flooded carburetor

Engine stalls, hard to start, rough idling
- Fuel line restricted
- Ignition system malfunction
- Fuel mixture too lean/rich
- Fuel contaminated/deteriorated
  - Jet clogged
- Intake air leak
- Idle speed misadjusted
- Float level misadjusted
- Fuel tank breather clogged
- Pilot screw misadjusted
- Slow circuit or starting enrichment valve circuit clogged
- Carburetor synchronization misadjusted
- Fuel pump malfunction
- Valve clearance misadjusted
- Cylinder compression too low

Afterburn when engine braking is used
- Lean mixture in slow circuit
- Air cut-off valve malfuncion

Backfiring or misfiring during acceleration
- Ignition system malfunction (Section 15)
- Fuel mixture too lean

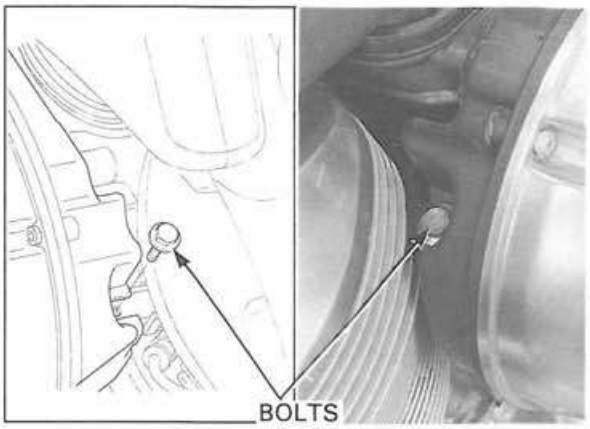
Poor performance (driveability) and poor fuel economy
- Fuel system clogged
- Ignition system malfunction (Section 15)

AIR CLEANER HOUSING

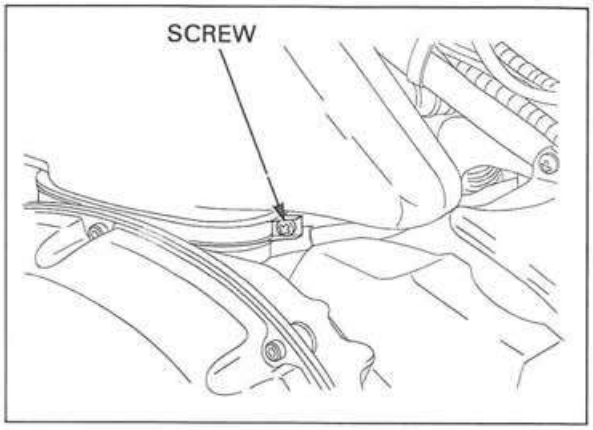
REMOVAL

Remove the fuel tank (page 2-4).

Remove the air cleaner housing mounting bolts.



Loosen the air cleaner housing-to-air cleaner chamber band.
Remove the air cleaner housing.

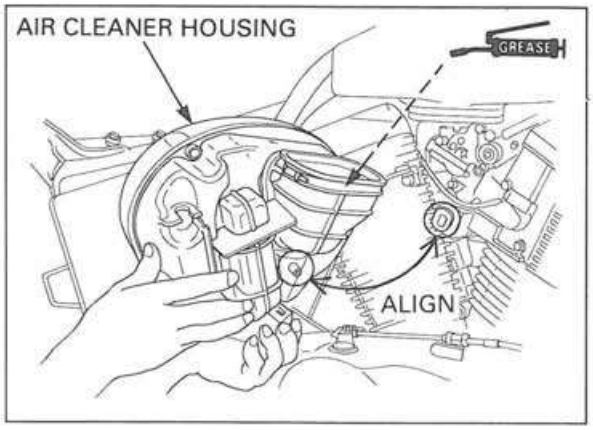


INSTALLATION

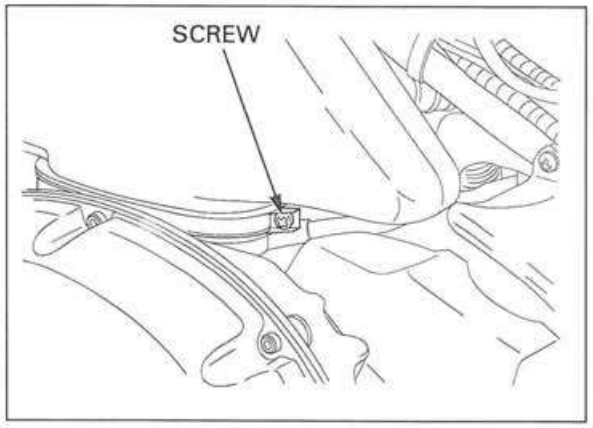
NOTE:

When installing the cleaner housing, apply grease to the inside of the air cleaner housing-to-air cleaner chamber band.

Install the air cleaner housing, aligning its boss into the grommet on the front cylinder head fin.

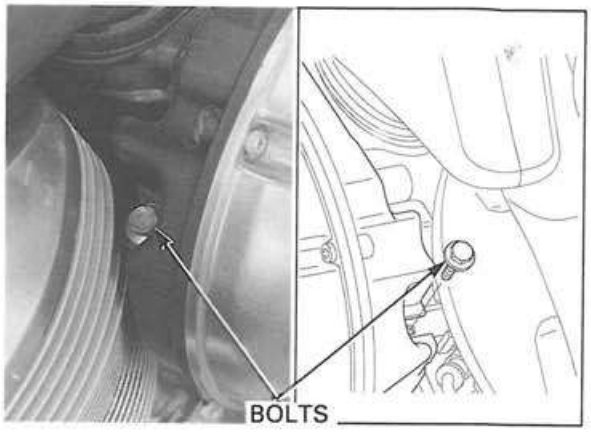


Tighten the air cleaner housing-to-air cleaner chamber band securely.



Install and tighten the air cleaner housing mounting bolts securely.

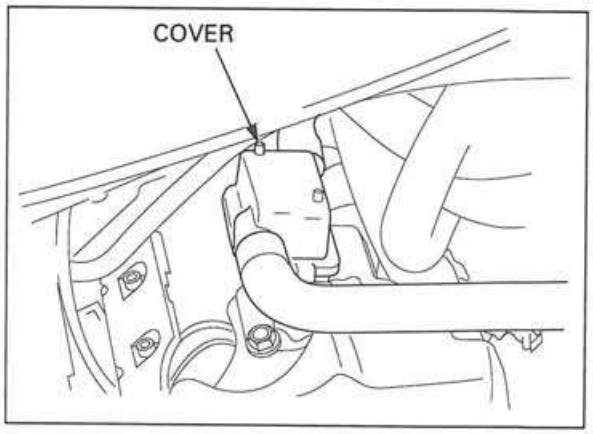
Install the fuel tank (page 2-4).



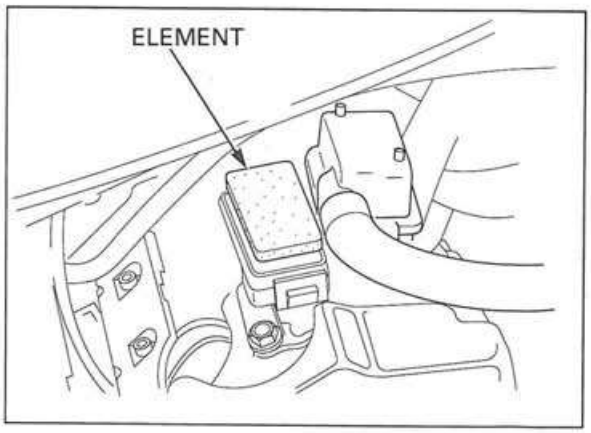
SUB-AIR CLEANER ELEMENT

Remove the fuel tank (page 2-4).

Remove the sub-air cleaner housing cover.



Remove the element.

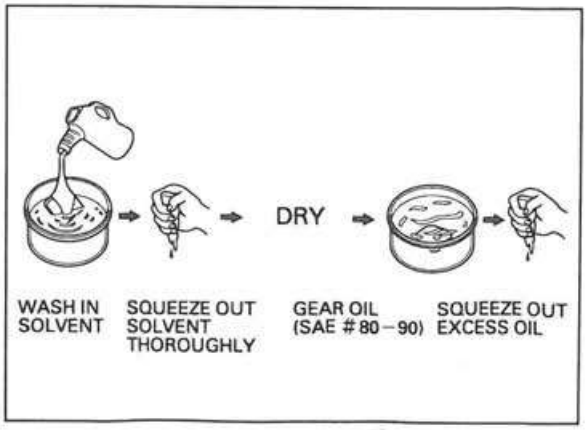


Wash the element in non-flammable or high flash point solvent, squeeze out the solvent thoroughly, and allow the element to dry.

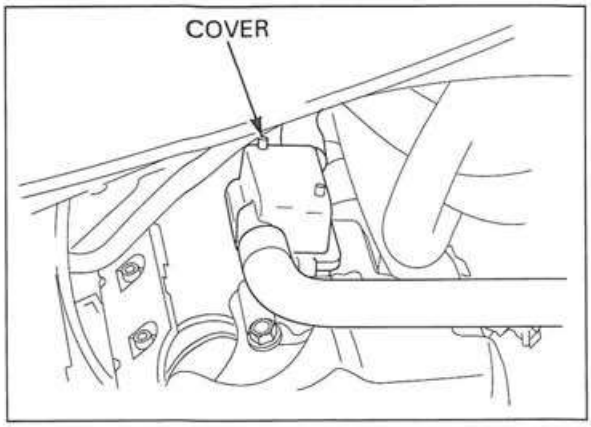
⚠ WARNING

Never use gasoline or low flash point solvents for cleaning the element. A fire or explosion could result.

Allow the element to dry thoroughly.
Soak the element in gear oil (SAE #80–90) and squeeze out the excess.



Install the element and cover.
Install the fuel tank (page 2-4).

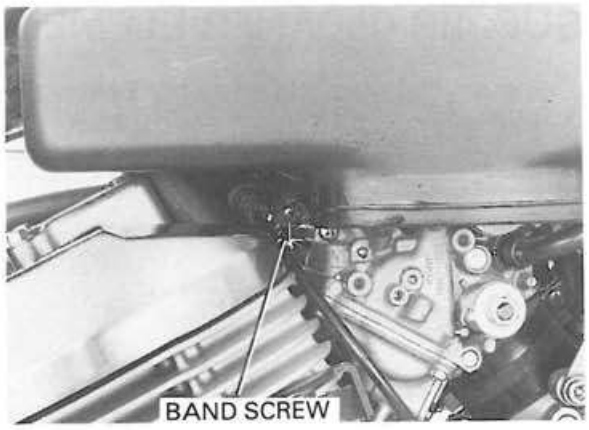


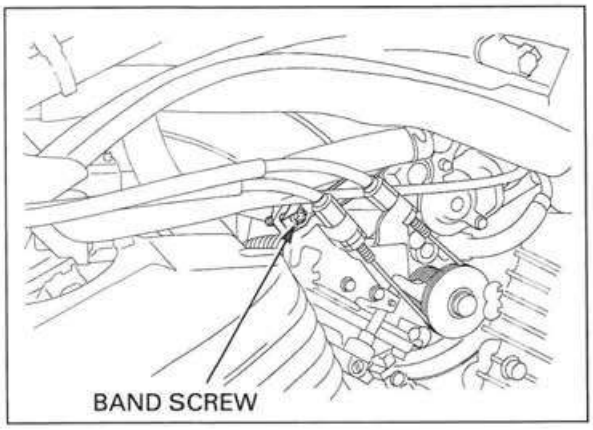
AIR CLEANER CHAMBER

REMOVAL

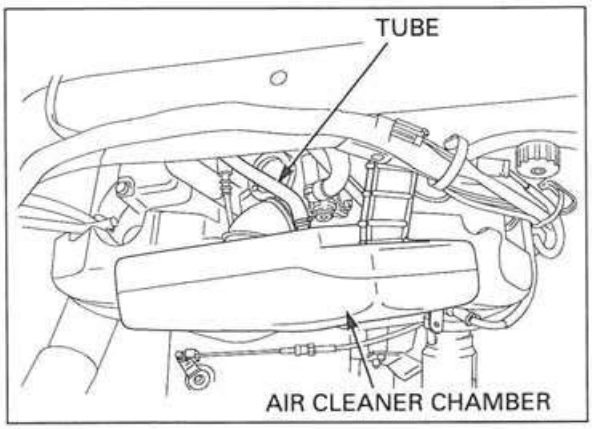
Remove the air cleaner housing (page 5-4).

Loosen the intake duct hose bands at the carburetors and pull out the air cleaner chamber.

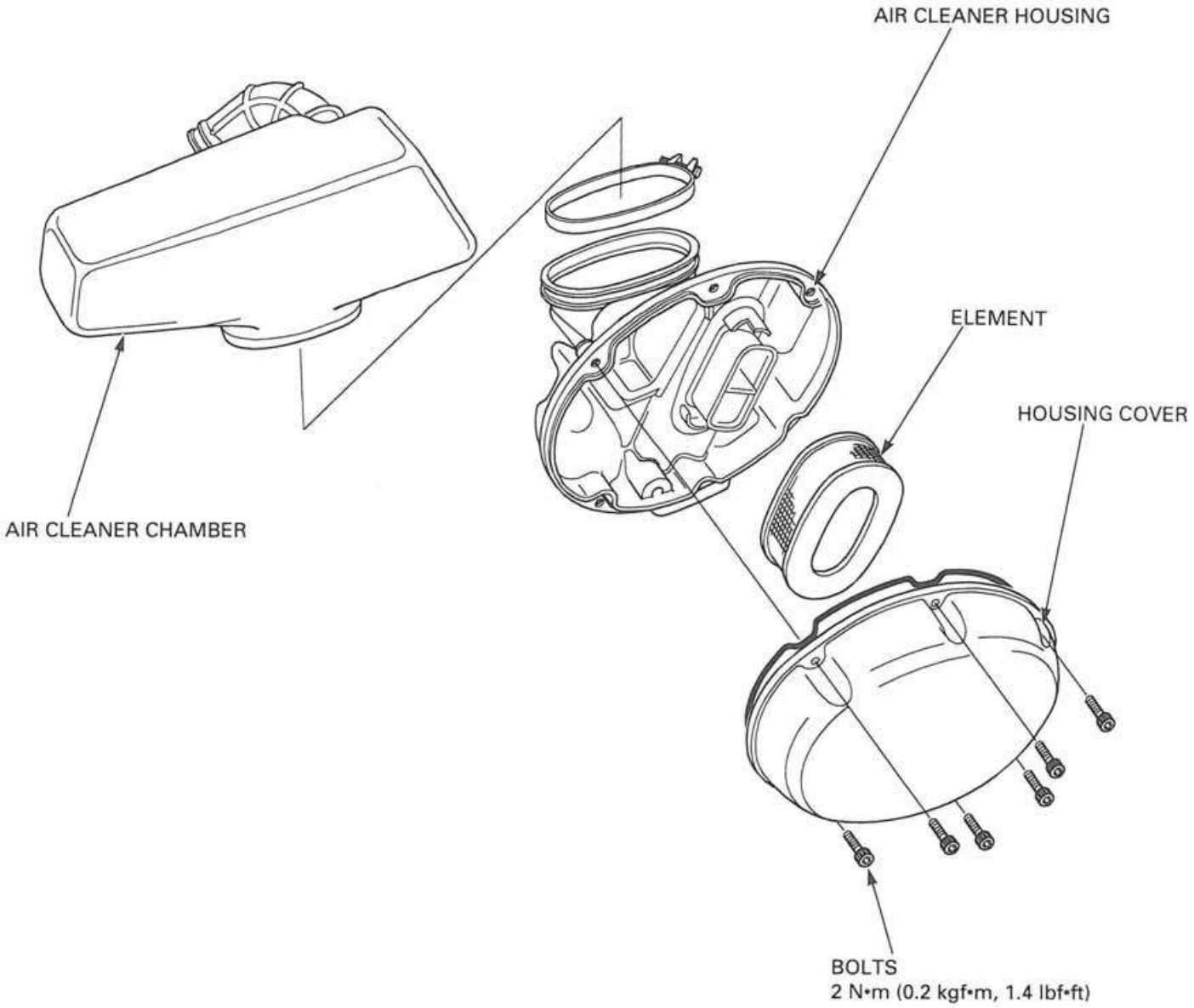




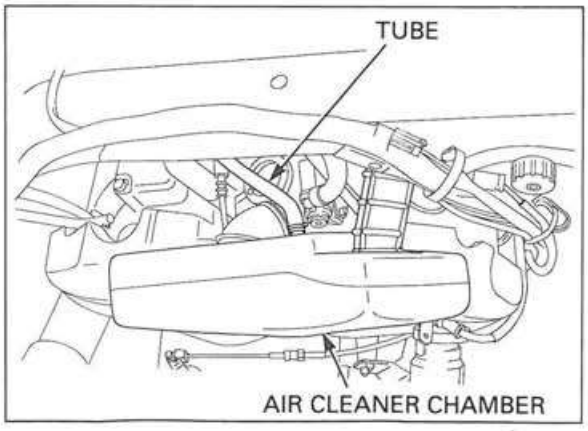
Disconnect the crankcase breather tube.
Remove the air cleaner chamber.



INSTALLATION

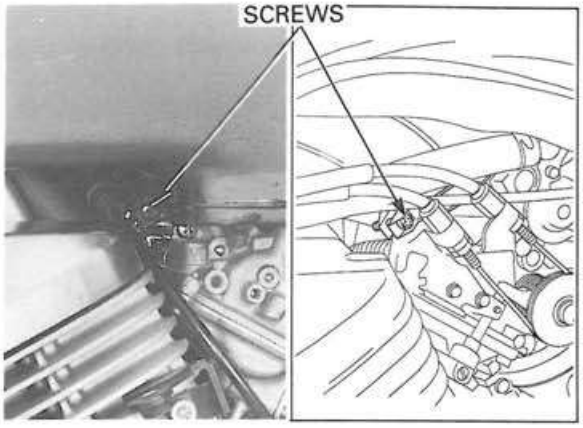


Connect the crankcase breather tube.



Install the air cleaner chamber and connect the intake ducts to the carburetors and tighten the band screws.

Install the air cleaner housing (page 5-4).



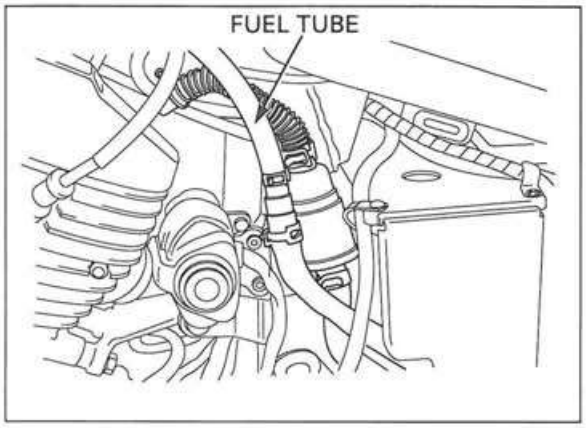
CARBURETOR REMOVAL

⚠ WARNING

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

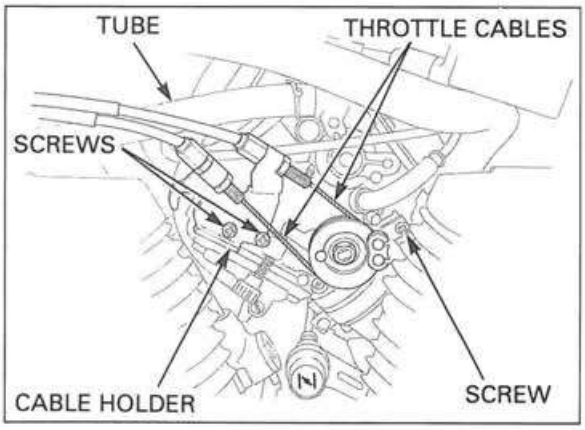
Remove the air cleaner housing (page 5-4).
Remove the air cleaner chamber (page 5-6).
Remove the left side cover (page 2-4).

Loosen the carburetor drain screws and drain the carburetor.

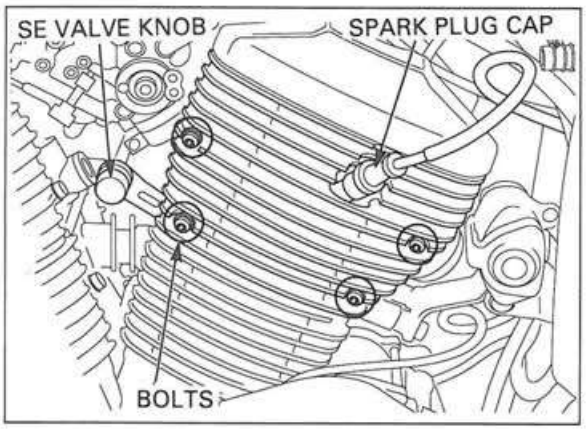


Disconnect the fuel tube from the joint.

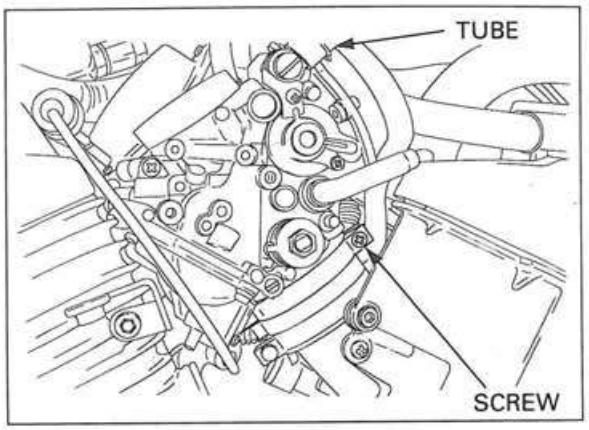
Remove the screws and throttle cable holder.
Remove the throttle cables from the throttle link.
Loosen the insulator band screw.
Disconnect the sub-air cleaner tube.



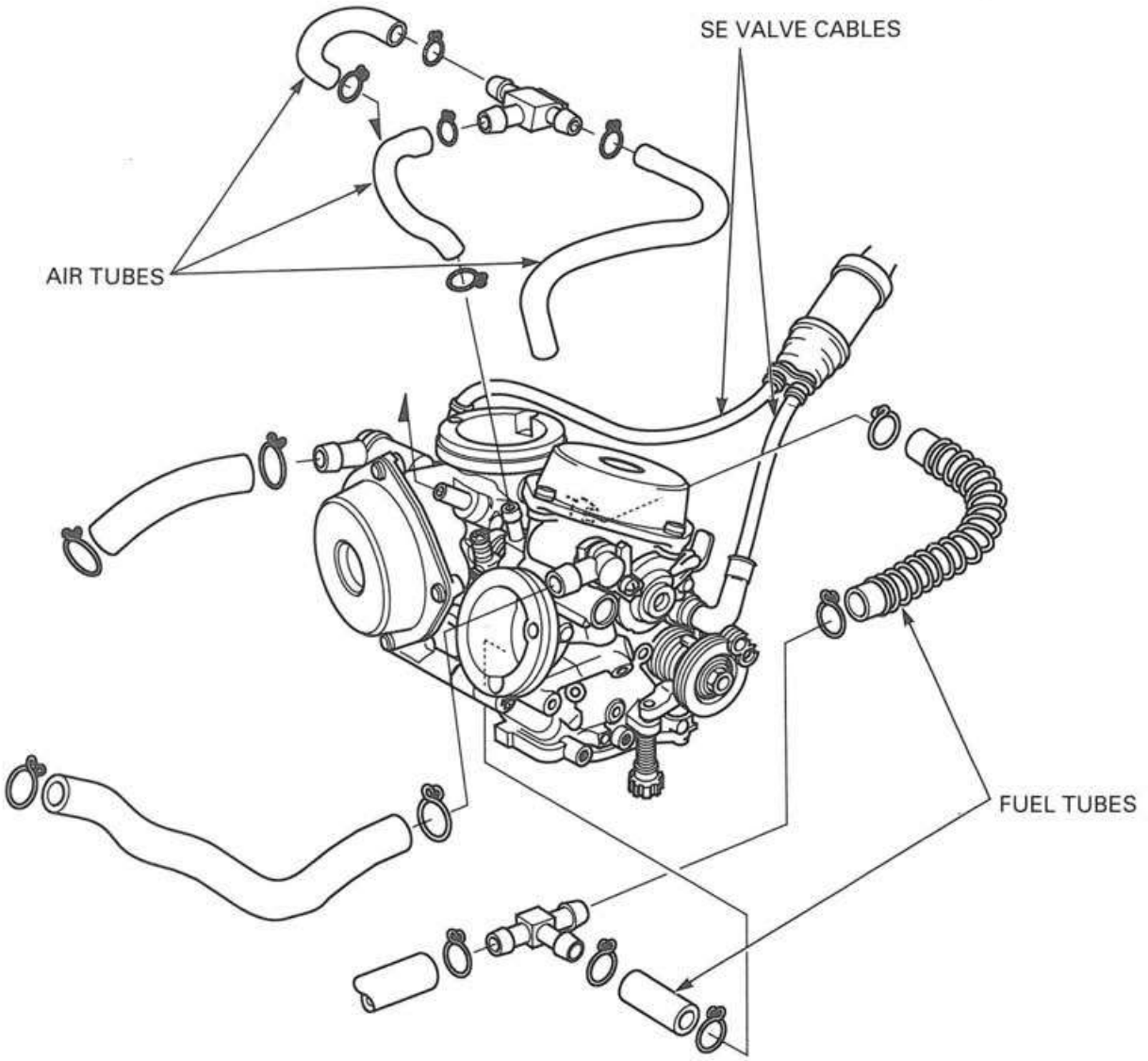
Remove the spark plug cap.
Remove the bolts then remove the rear cylinder left side fin and starting enrichment (SE) valve knob.



Disconnect the sub-air cleaner tubes from the front side carburetor.
Loosen the insulator band screw and remove the carburetors through the right side of the frame.



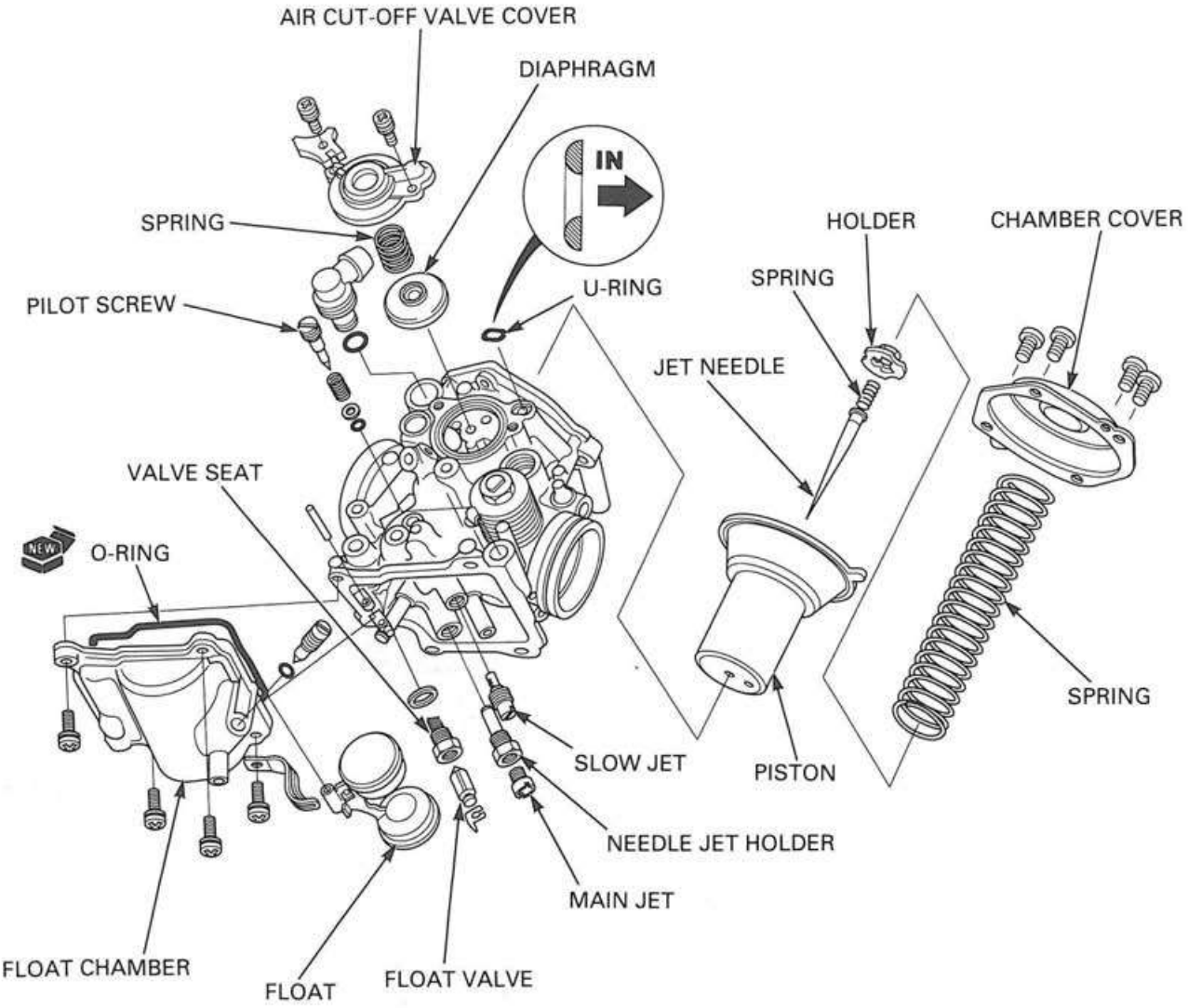
Remove the starting enrichment (SE) valve cable and SE valve from the carburetor by loosening each lock nut.
Remove the air tubes (carburetors-to-air cleaner) and fuel tube from the carburetor.



CARBURETOR DISASSEMBLY/ ASSEMBLY

NOTE:

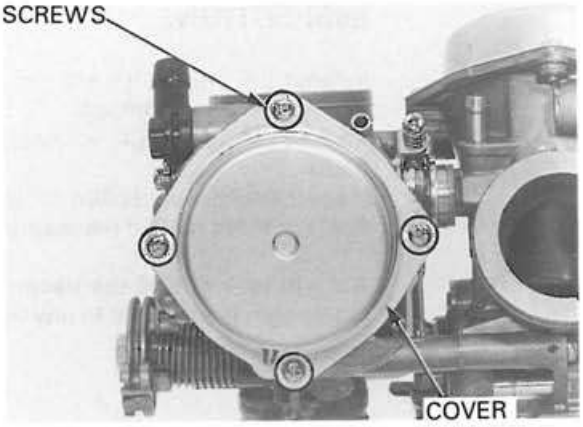
- Vacuum chamber, float chamber and jets can be serviced without separating the carburetors.
- Note the location of each carburetor part so that they can be put back in the original location.
- Keep each carburetor's parts separate from the other's so you can install the parts in their original positions.
- For the following component inspections refer to the applicable pages.
  - Vacuum chamber (page 5-11)
  - Float chamber (page 5-13)
  - Pilot screw (page 5-14)
  - Jets (page 5-13)



VACUUM CHAMBER

DISASSEMBLY

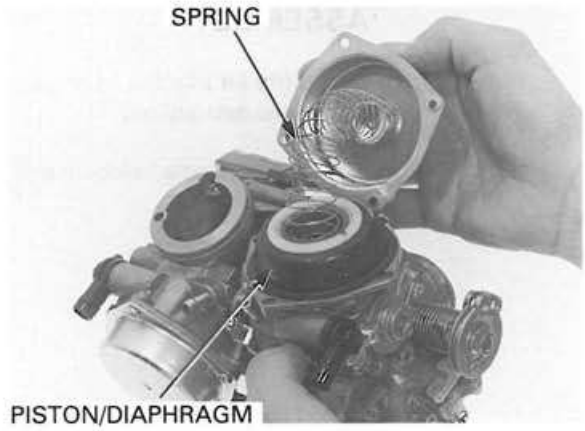
Remove the four screws and vacuum chamber cover.



Remove the spring, and diaphragm/vacuum piston.

Inspect the vacuum piston for wear, nicks, scratches or other damage.

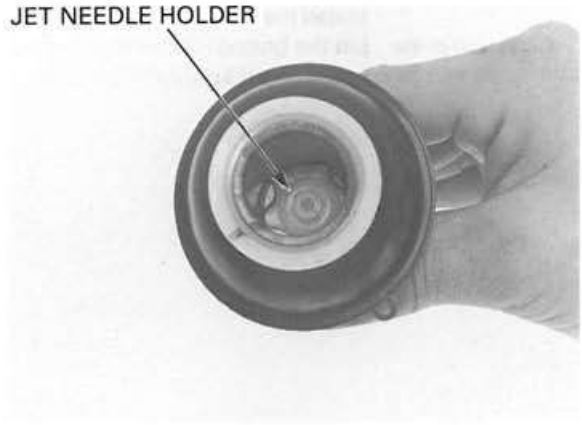
Make sure the piston moves up and down freely in the chamber.



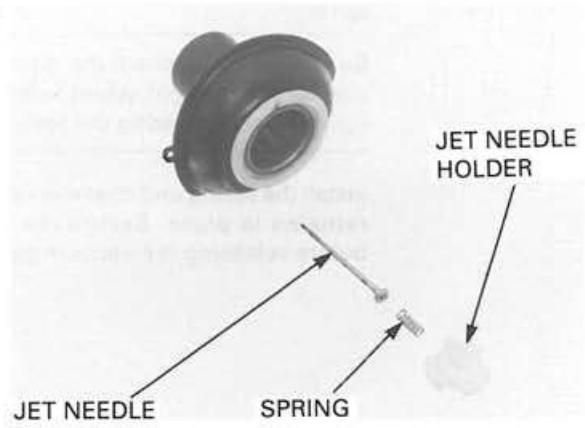
Push the jet needle holder in and turn it in 90 degrees counterclockwise.

CAUTION:

Be careful not to damage the diaphragm.



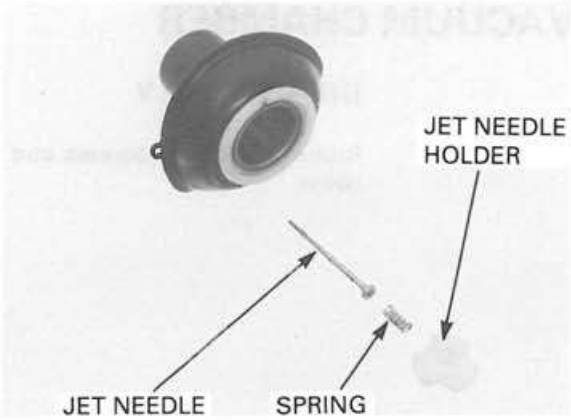
Remove the jet needle holder, spring and jet needle from the piston.



INSPECTION

Inspect the needle for excessive wear at the tip, bending or other damage.
Inspect the diaphragm for damage, fatique or pin holes.
Inspect the vacuum piston for wear or damage.
Replace these parts if necessary.

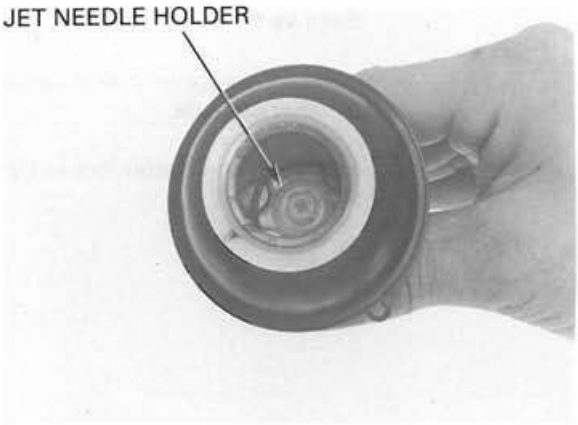
Air will leak out of the vacuum chamber if the diaphragm is damaged in any way-even a pin hole.



ASSEMBLY

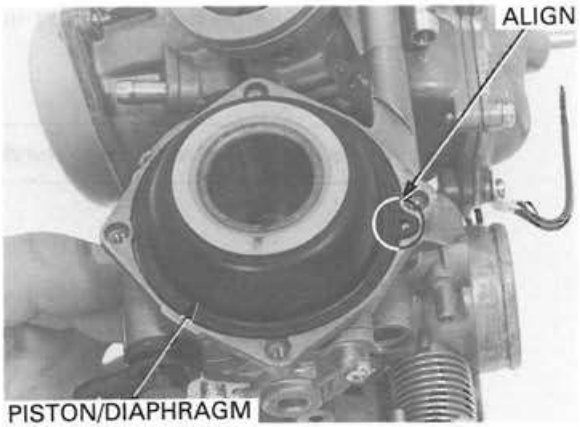
Install the jet needle, spring and jet needle holder to the vacuum piston.

Push the jet needle holder in and turn it in 90 degrees clockwise.



Align the tab of the diaphragm with the cavity.

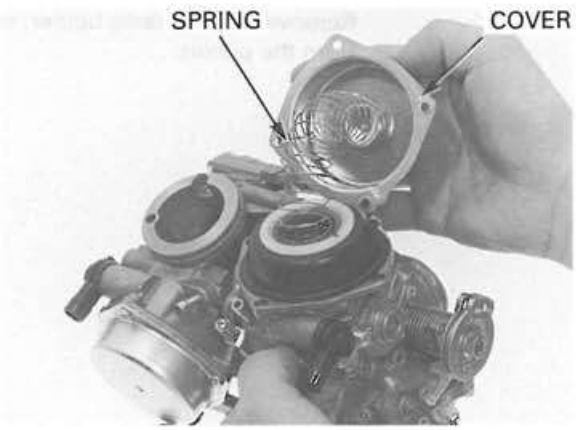
Install the vacuum piston/diaphragm with the cavity. Lift the bottom of the vacuum piston with your finger to set the diaphragm lip in the carburetor body.



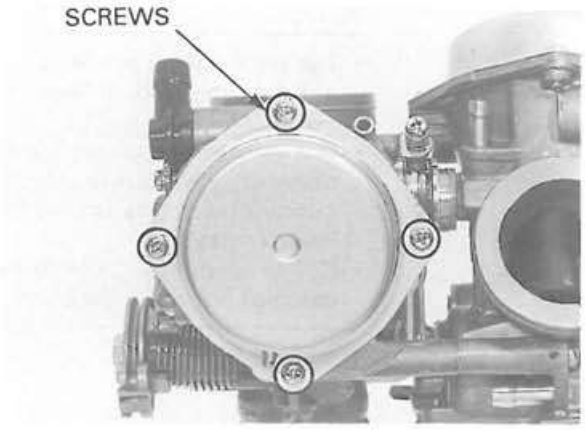
NOTE:

Be careful not to pinch the diaphragm, and to keep the spring straight when installing the chamber cover by compressing the spring.

Install the spring and chamber cover while the piston remains in place. Secure the cover with screws before releasing the vacuum piston.



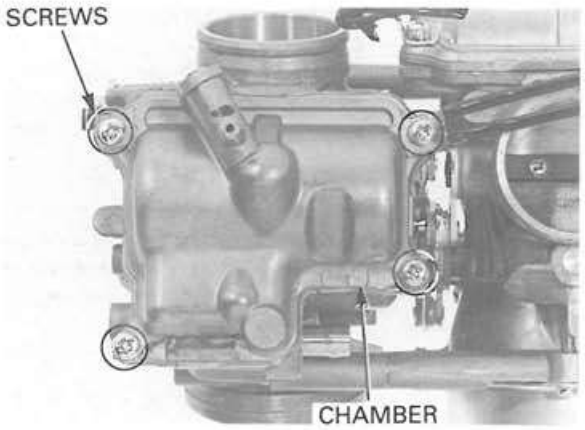
Install and tighten the screws securely.



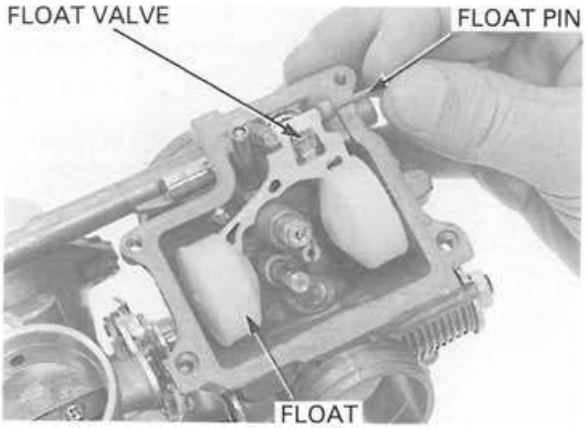
FLOAT CHAMBER

DISASSEMBLY

Remove the screws, float chamber and O-ring.



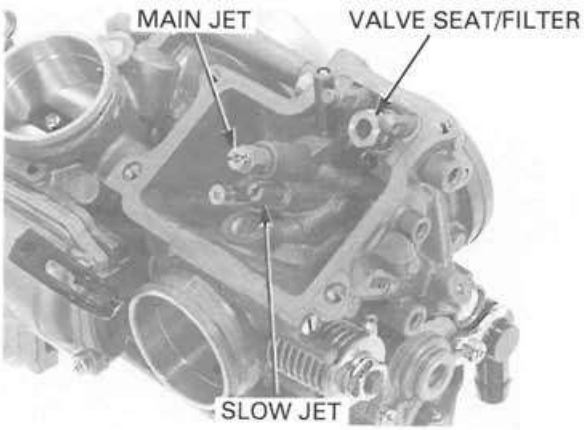
Remove the float pin, float and float valve.



CAUTION:

Handle all jets with care. They can easily be scored or scratched.

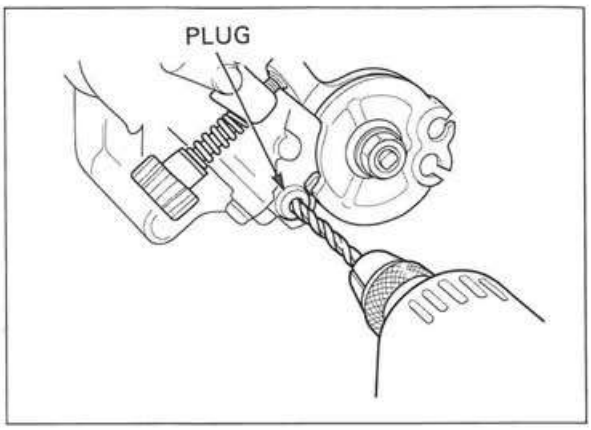
Remove the main jet, needle jet holder, slow jet and valve seat/filter.



NOTE:

- The pilot screws are factory pre-set and should not be removed unless the carburetors are overhauled.
- The pilot screw plugs are factory installed to prevent pilot screw misadjustment. Do not remove the plugs unless the pilot screws are being removed.
- Cover all openings with tape to keep metal particles out when the plugs are drilled.

Center punch the pilot screw plug center the drill point.
Drill through the plug with a 4 mm (5/32 in) drill bit. Attach a drill stop to the bit 3 mm (1/8 in) from the end to prevent drilling into the pilot screw.

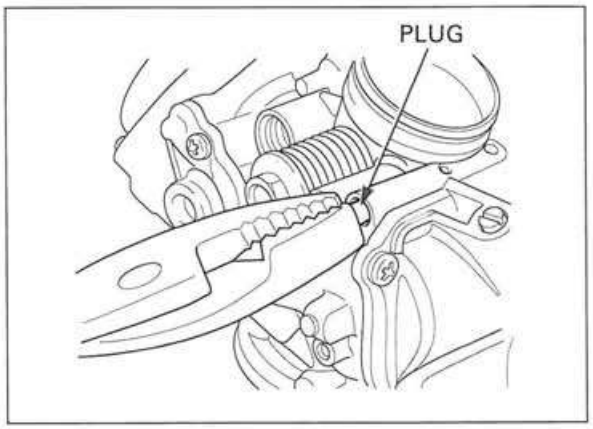


CAUTION:

- ***Be careful not to drill into the pilot screw.***
- ***Both pilot screws must be replaced even if only one requires it, for proper pilot screw adjustment (page 5-22).***

Force a self-tapping 4 mm screw, (P/N 93903-35410) into the drilled plug and continue turning the screw driver until the plug rotates with the screw.

Pull on the screw head with pliers to remove the plug.



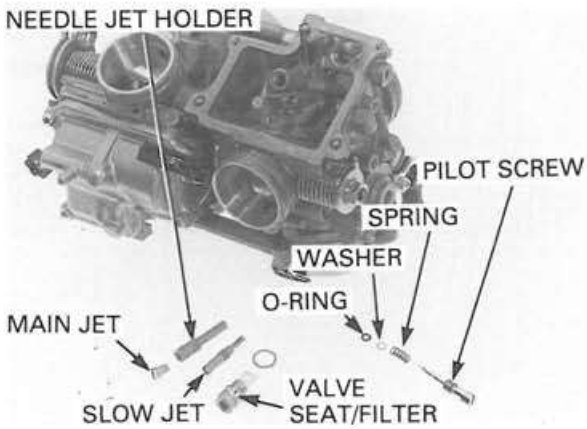
Use compressed air to clean the pilot screw area and remove metal shavings.

Turn each pilot screw in and carefully count the number of turns until it seats lightly; Make a note: of this to use as a reference when reinstalling the pilot screws.

CAUTION:

Damage to the pilot screw seat will occur if the pilot screw is tightened against the seat.

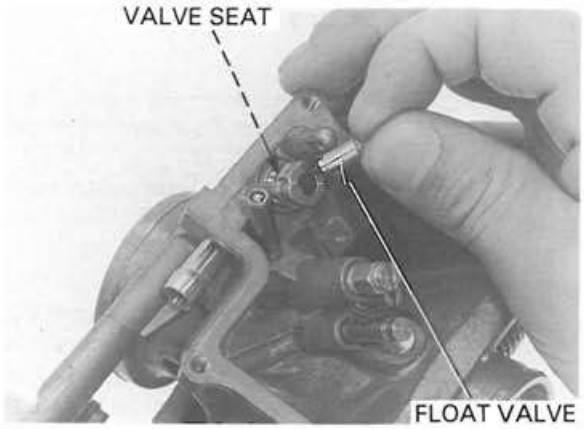
Remove the pilot screw, spring, washer and O-ring.



INSPECTION

A worn or contaminated valve does not seat properly and will eventually flood the carburetor.

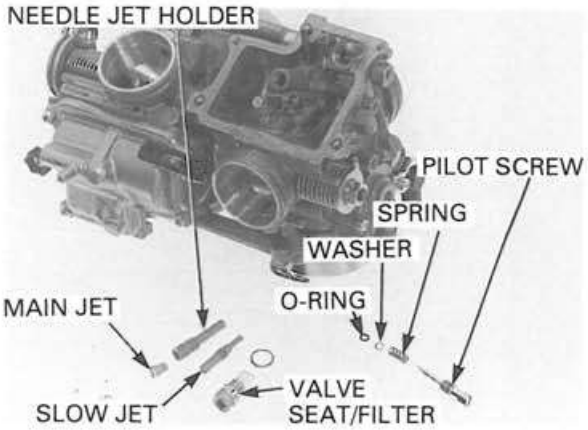
FLOAT VALVE, VALVE SEAT
Check the float valve and valve seat for scoring, scratches, clogging or damage.
Check the tip of the float valve where it contacts the valve seat, for stepped wear or contamination.



JETS
Check the each jets for wear or damage.
Clean the jets with non-flammable or high flash solvent and blow open with compressed air.

VALVE SEAT/FILTER
Check the float valve seat and filter for grooves, nicks or deposits.

PILOT SCREW
Check the pilot screw for stepped wear or damage.
Replace these parts if necessary.

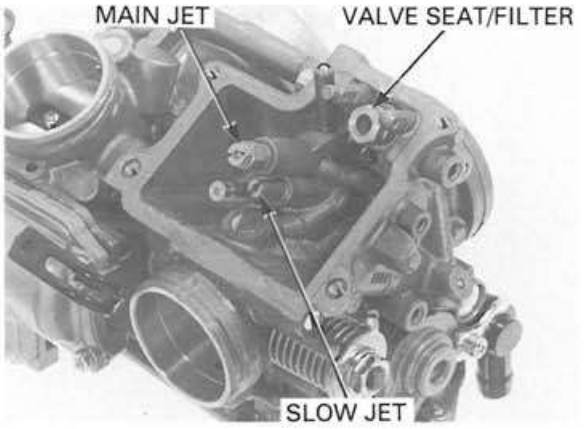


ASSEMBLY

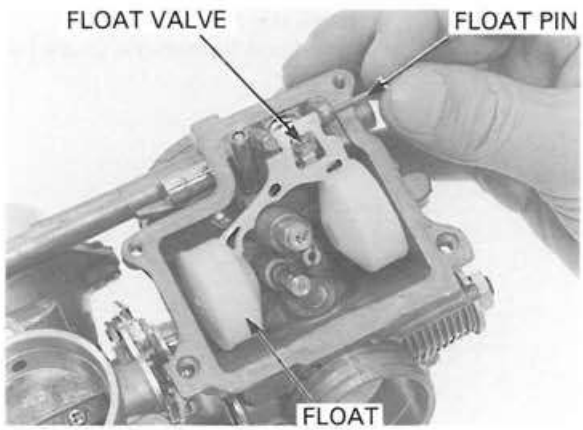
Install the main jet, needle jet holder, slow jet and valve seat/filter.
Install the O-ring, washer, spring, pilot screw and new pilot screw plug.

NOTE:

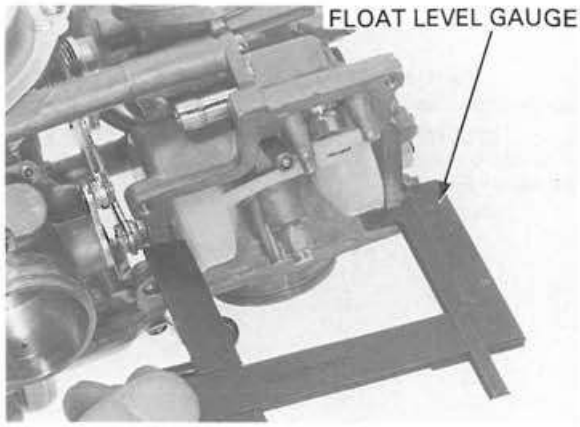
- Install the pilot screw and return it to its original position as noted during removal.
- Perform pilot screw adjustment if new pilot screw is installed (page 5-22).



Hang the float valve onto the float arm lip.
Install the float valve with the float in the carburetor body, then install the float pin through the body and float.



FLOAT LEVEL



NOTE:

- Check the float level after checking the float valve and float.
- Set the float level gauge so that it is perpendicular to the float chamber face and in line with the main jet.

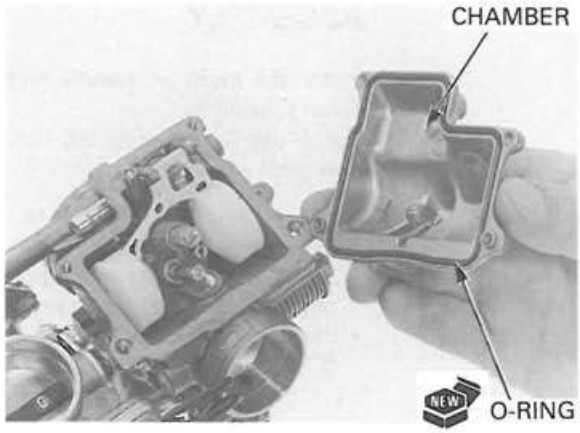
Set the carburetor so that the valve just contact the float arm lip. Be sure that the float valve tip is securely in contact with the valve seat.
Make sure the float level with the float level gauge.

TOOL:
Carburetor float level gauge: 07401-0010000

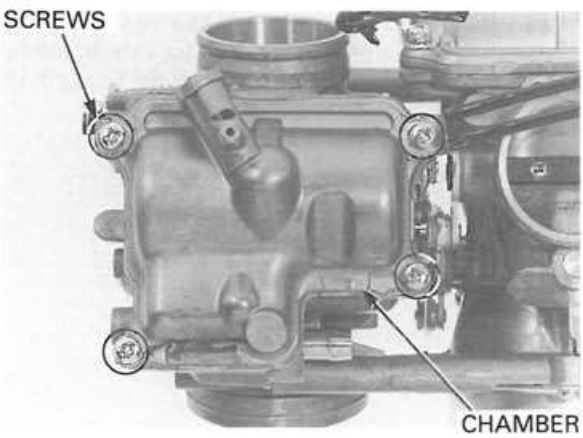
FLOAT LEVEL: 7.0 mm (0.28 in)

If the level is out of specification, replace the float.

Install the new O-ring into the float chamber groove.



Install the float chamber.
Install and tighten the screw securely.



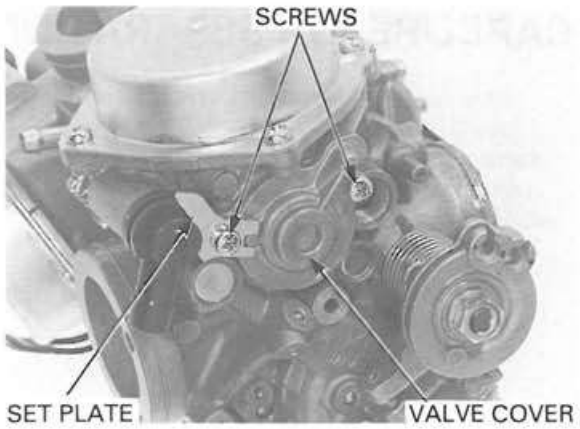
AIR CUT-OFF VALVE

DISASSEMBLY

Remove the two screws, set plate and air cut-off valve cover.

NOTE:

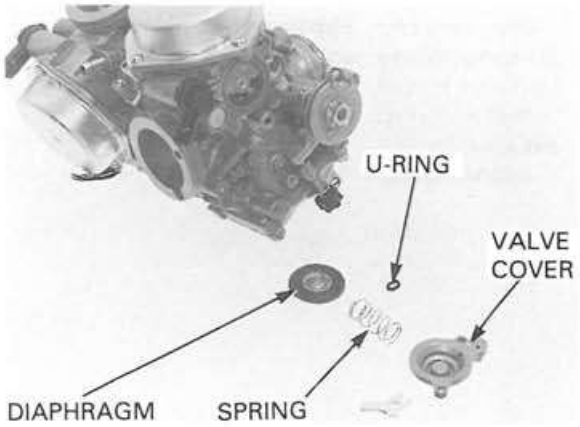
The air cut-off valve cover is under spring pressure. Do not lose the spring and screws.



INSPECTION

Check the diaphragm for deterioration, pin hole or other damage.
Check the spring for deterioration or other damage.
Check the diaphragm needle for excessive wear at the tip or other damage.
Check the orifice of air vent for clogging.
Check the U-ring for damage.

Replace the air cut-off valve as an assembly, if necessary.

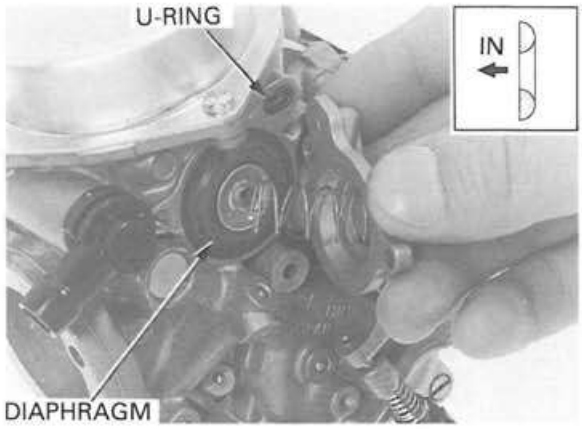


ASSEMBLY

Assembly is in the reverse order of disassembly.

NOTE:

- Install the U-ring with its flat side toward the carburetor body as shown.
- Be careful not pinch the diaphragm.
- Install the set plate aligning its cut-out with the tab on the valve cover.



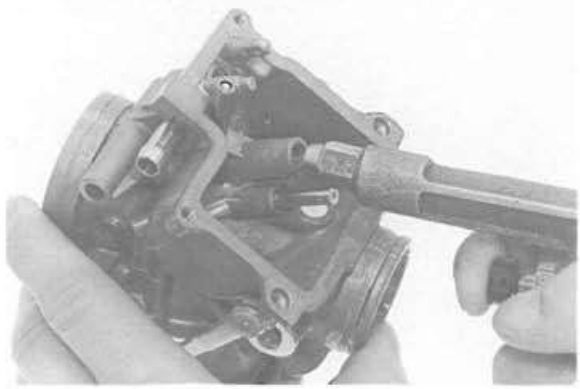
CARBURETOR BODY CLEANING

CAUTION:

- ***Cleaning the air and fuel passages with a piece of wire will damage the carburetor body.***
- ***Remove the diaphragms to prevent damage to them before using air to blow open passage.***

Disassembled the carburetor (page 5-10).

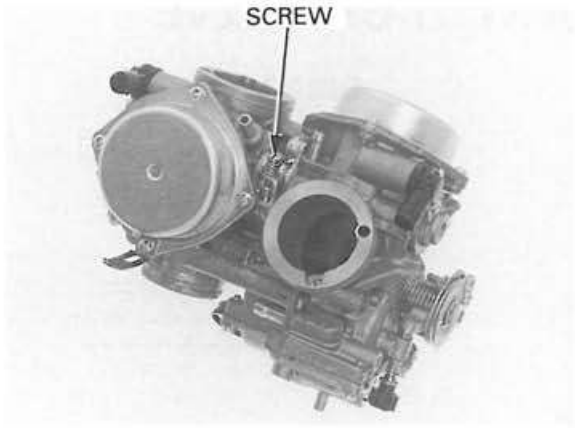
Blow open all air and fuel passages in the carburetor body with compressed air.
Clean the fuel strainer in the float valve using compressed air from the float valve seat side.



CARBURETOR SEPARATION

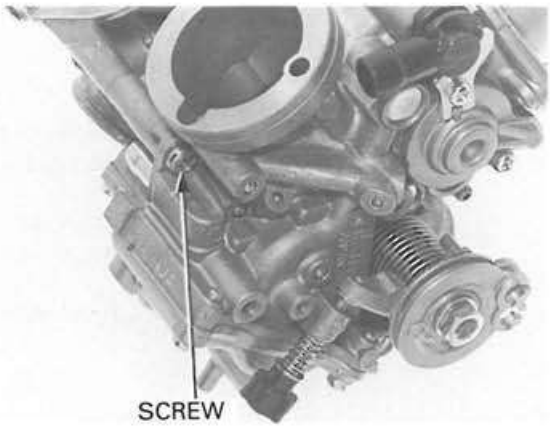
The vacuum chamber, float chamber and jets can be serviced without separating the carburetors.

Loosen the synchronization adjusting screw.



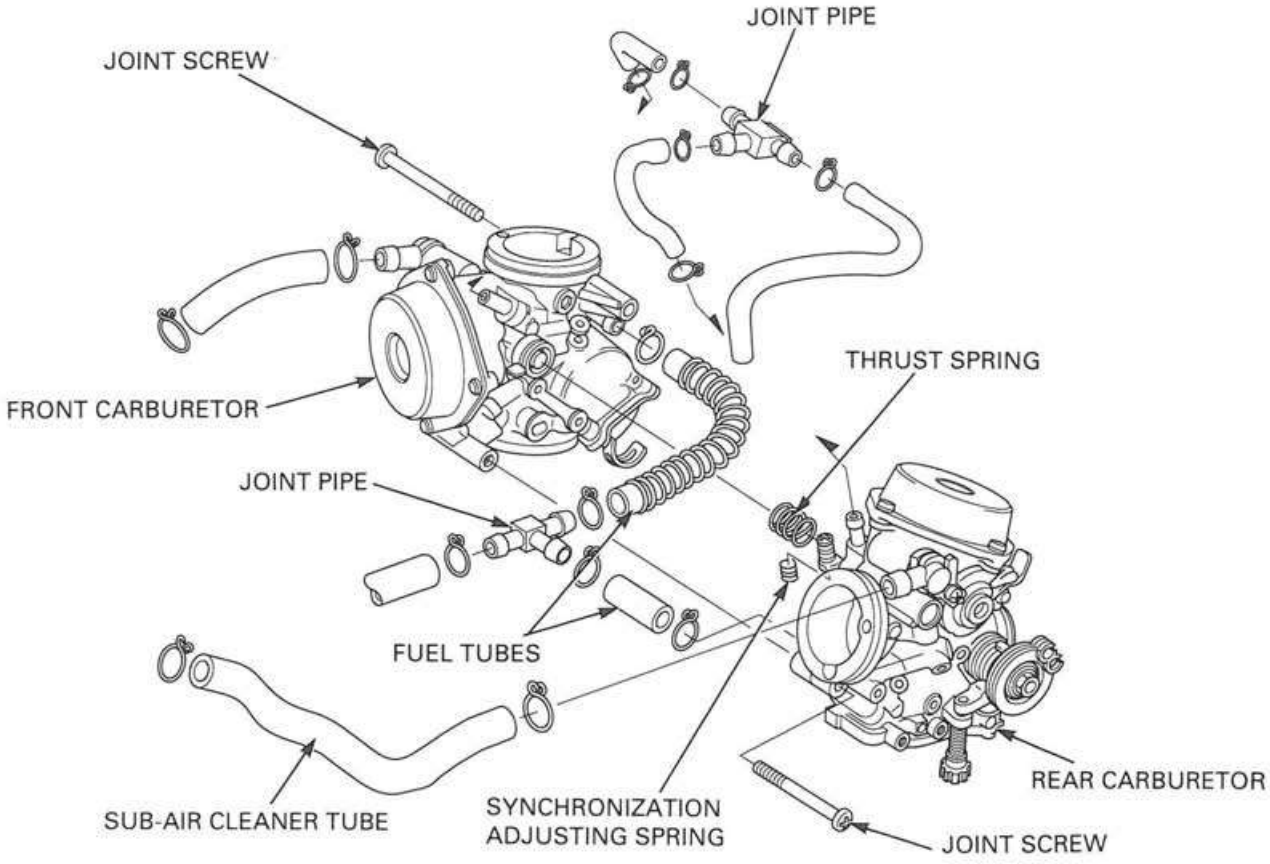
When separating the carburetors, be careful not to loose the thrust spring and synchronization adjusting spring.

Separate the carburetors by removing two attaching screws.



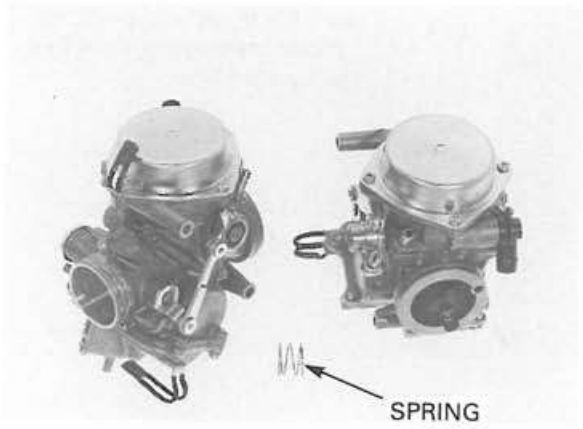
Remove the thrust spring.

CARBURETOR REASSEMBLY

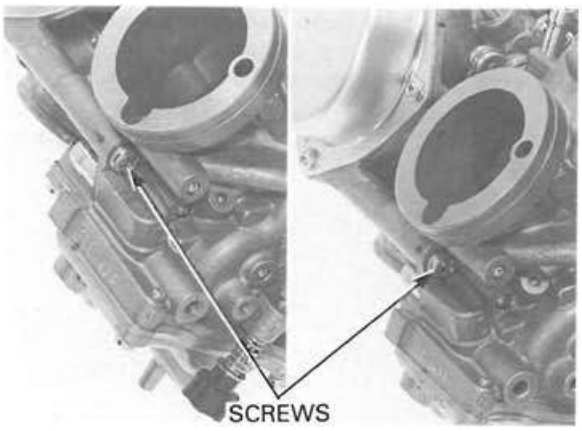


Loosen the synchronization adjusting screw until there is no spring tension.

Install the thrust spring between the throttle links.



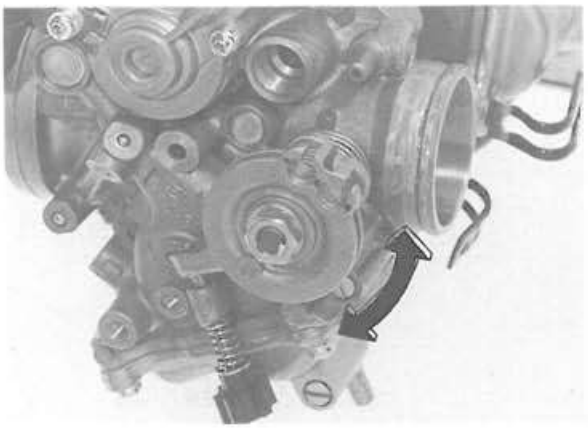
Secure the carburetors together with the two screws.



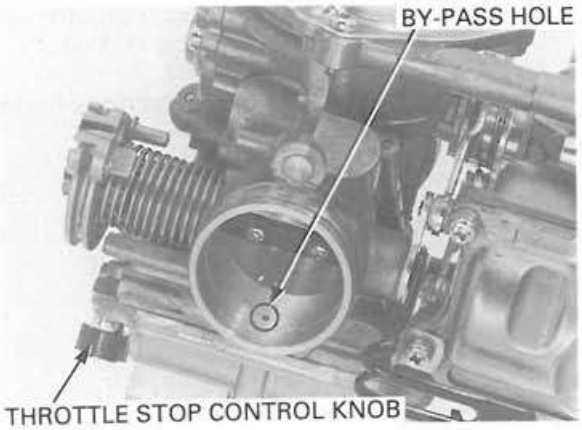
Install the synchronization spring and synchronization adjusting screw.

INSPECT THROTTLE OPERATION AS DESCRIBED BELOW:

Open the throttle slightly by rotating the throttle valve, then release the throttle. Make sure that there is no drag when opening and closing the throttle.

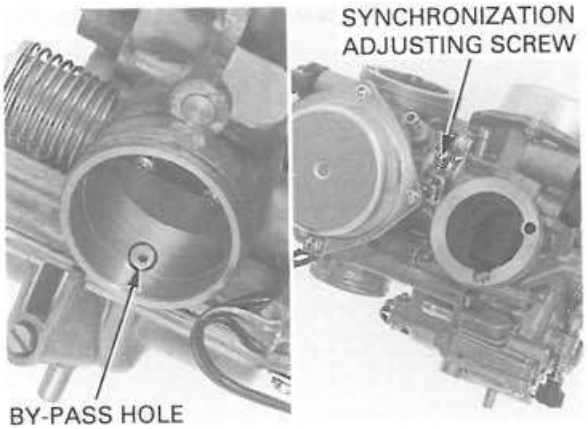


Turn the throttle stop control knob to align the rear cylinder carburetor throttle valve with the edge of the by-pass hole.



Align the front cylinder carburetor throttle valve with the by-pass hole edge by turning the synchronization adjusting screw.

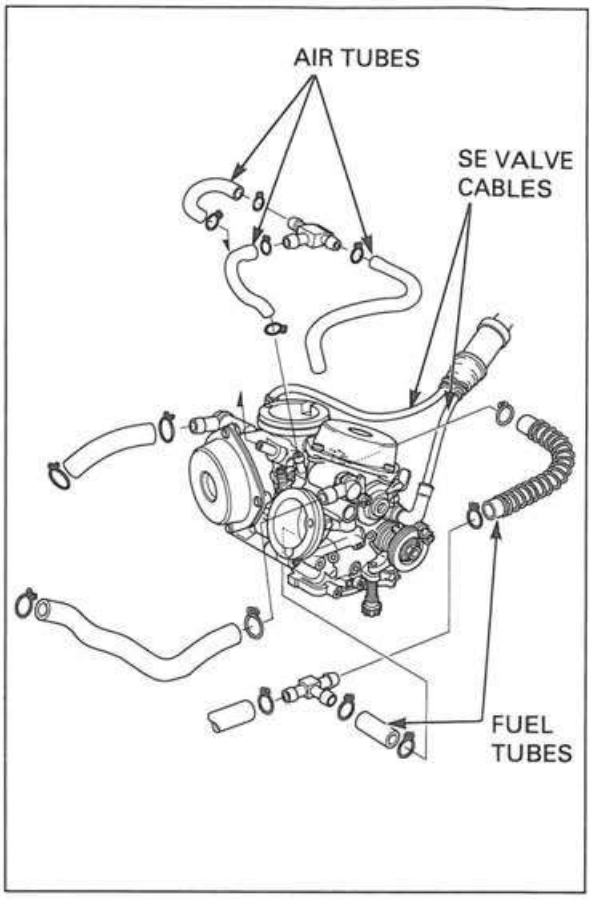
Make sure the throttle returns smoothly.



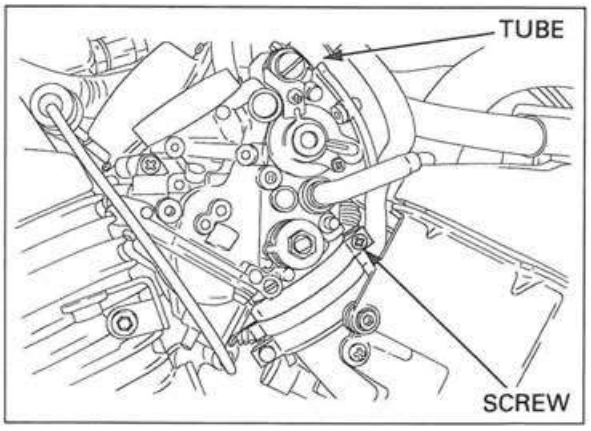
CARBURETOR INSTALLATION

Install the starting enrichment (SE) valve to the carburetor as shown.
Tighten the lock nut securely.

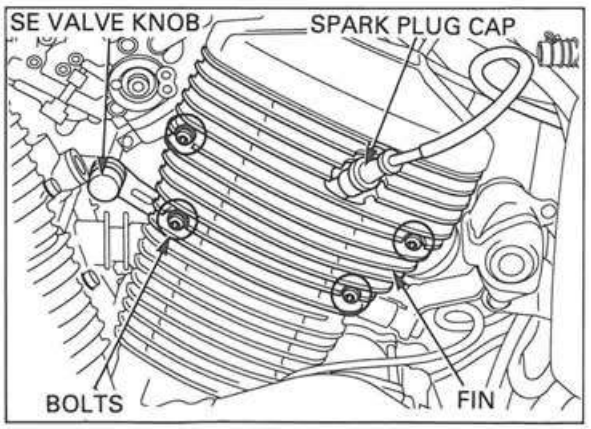
Install the fuel and air tubes (carburetors-to-air cleaner) as shown.



Install the carburetor to the insulator.
Tighten the insulator band screw securely.
Connect the sub-air cleaner tube to the carburetor.



Install the starting enrichment (SE) valve knob and rear cylinder left side fin.
Install and tighten the mounting bolts securely.
Install the spark plug cap.



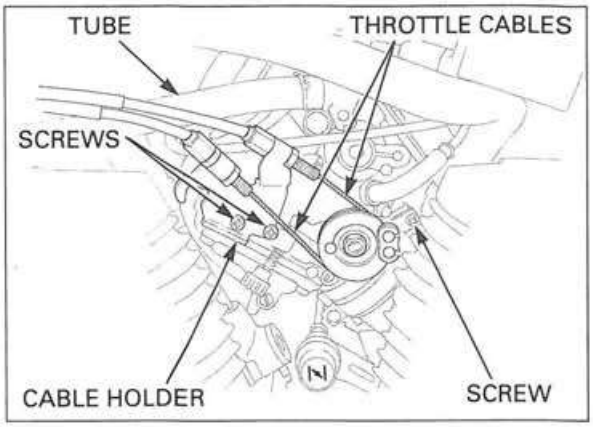
Connect the sub-air cleaner tube to the carburetor.
Tighten the insulator band screw.
Connect the throttle cable to the throttle link.
Install the throttle cable holder to the carburetor.
Install and tighten the mounting screws securely.

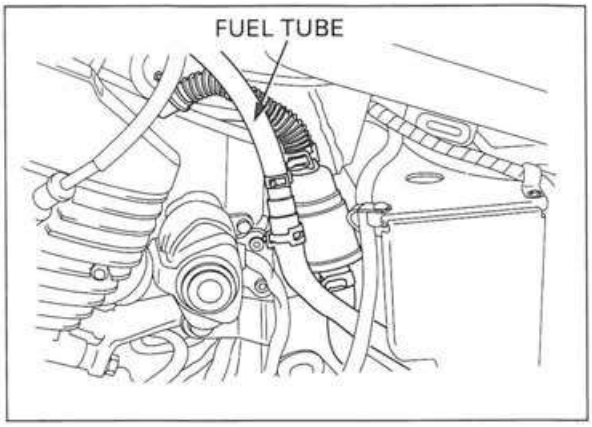
Install the fuel tube onto the clamp.
Connect the fuel tube.

Install the following parts:
- Left side cover (page 2-4)
- Air cleaner chamber (page 5-7)
- Air cleaner housing (page 5-4)
- Fuel tank (page 2-4)

Perform the following inspections and adjustment.
- Pilot screw (see below)
- Carburetor synchronization (page 3-14)
- Throttle grip free play (page 3-4)
- Engine idle speed (page 3-15)
- Carburetor choke (page 3-5)

After installation, turn the ignition switch ON and check the fuel line for leakage.





PILOT SCREW ADJUSTMENT

IDLE DROP PROCEDURE

⚠ WARNING

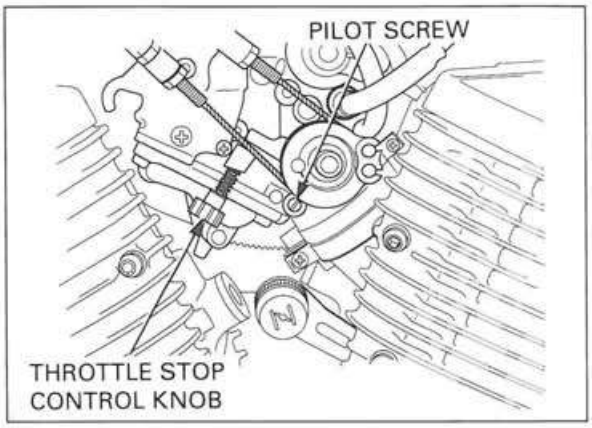
- ***If the engine must be running to do some work, make sure the area is well-ventilated. Never run the engine in an enclosed area.***
- ***The exhaust contains poisonous carbon monoxide gas that may cause loss of consciousness and may lead to death.***

NOTE:

- Make sure the carburetor synchronization is within specification before pilot screw adjustment (page 3-14).
- The pilot screw is factory pre-set and no adjustment can be done unless it is replaced.
- Use a tachometer with graduations of 50 rpm or smaller that will accurately indicate a 50 rpm change.

1. Remove the pilot screw plugs (page 5-14).
2. Turn each pilot screw clockwise until it seats lightly, then back it out to specification given.

INITIAL OPENING: 2-1/4 turns out



CAUTION:

Damage to the pilot screw seat will occur if the pilot screw is tightened against the seat.

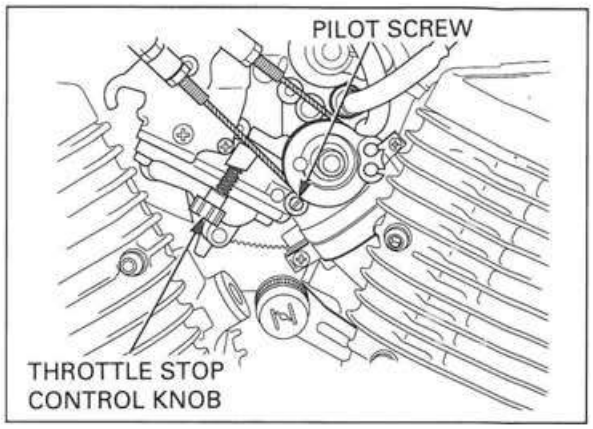
3. Warm up the engine to operating temperature. Stop and go riding for 10 minutes is sufficient.
4. Attach a tachometer according to the manufacturers instructions.
5. Start the engine and adjust the engine idle speed to the specified rpm with the throttle stop control knob.

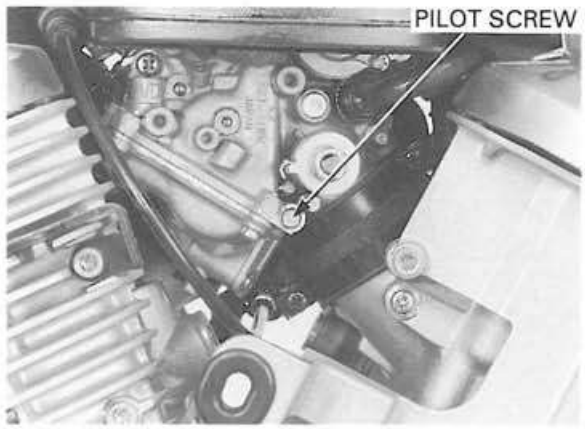
IDLE SPEED: 1,000 ± 100 rpm

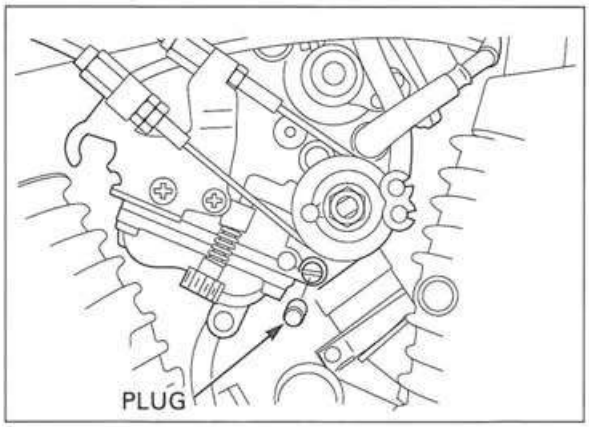
6. Turn each pilot screw 1/2 turn out from the initial setting.
7. If the engine speed increases by 50 rpm or more, turn each pilot screw out by successive 1/2 turn increments until engine speed does not increase.
8. Adjust the idle speed with the throttle stop control knob.
9. Turn the rear cylinder carburetor pilot screw in until the engine speed drops 50 rpm.
10. Turn the rear cylinder carburetor pilot screw counterclockwise to the final opening from the position in step 9.

FINAL OPENING: 1 turn out

11. Adjust the idle speed with the throttle stop control knob.
12. Perform steps 9,10 and 11 for the front cylinder carburetor pilot screw.
13. Drive new pilot screw plugs into the pilot screw bores with a 7 mm valve guide driver (P/N 07942-8230000 or 07942-6570100). When fully seated, the plug surfaces will be recessed 1 mm.







FUEL PUMP

⚠ WARNING

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

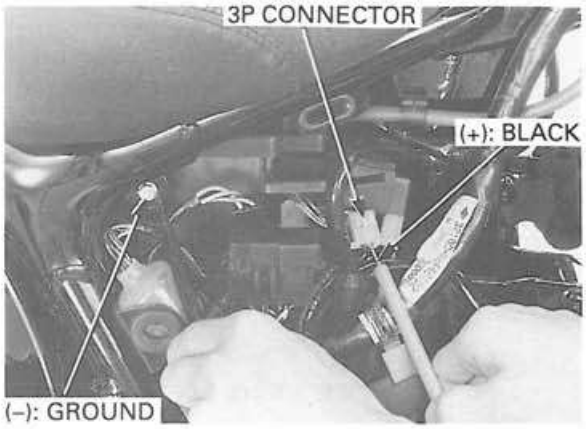
SYSTEM INSPECTION

Remove the right side cover (page 2-4).

Turn the ignition switch OFF.
Disconnect the fuel cut relay 3P connector and connect the voltmeter at the 3P connector wire harness side.

CONNECTION: Black (+) – body ground (–)

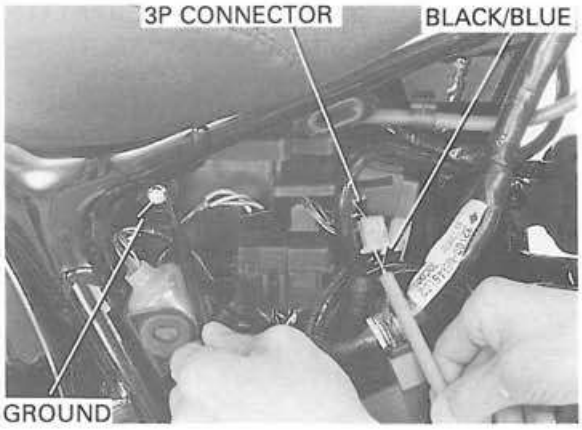
Turn the ignition switch ON.
There should be battery voltage.
If there is no voltage, check for an open circuit or loose connection in Black wire.
If there is battery voltage, check for continuity in the Black/Blue wire.



Check for continuity between the Black/Blue wire and ground at the 3P connector wire harness side.

CONNECTION: Black/Bliue – body ground
STANDARD: No continuity

If there is continuity, replace the fuel cut relay.



If there is no continuity, short the terminals of the 3P connector wire harness side with the suitable jumper wire.

SHORT TERMINALS: Black/Blue – Black

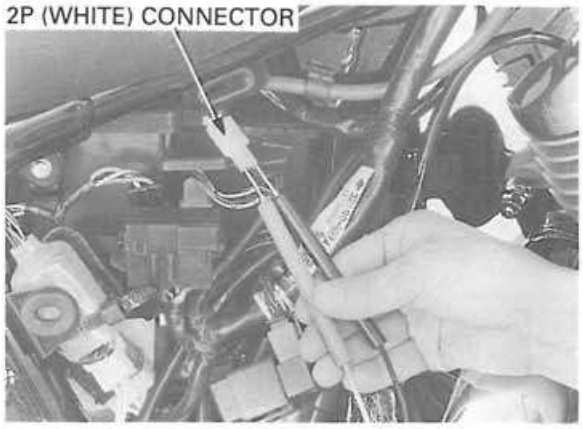
Disconnect the fuel pump 2P (White) connector and connect the voltmeter at the 2P (White) connector wire harness side.

CONNECTION: Black/Blue (+) – Green (–)

Turn the ignition switch ON and measure the voltage at the 2P (White) connector.

STANDARD: Battery voltage

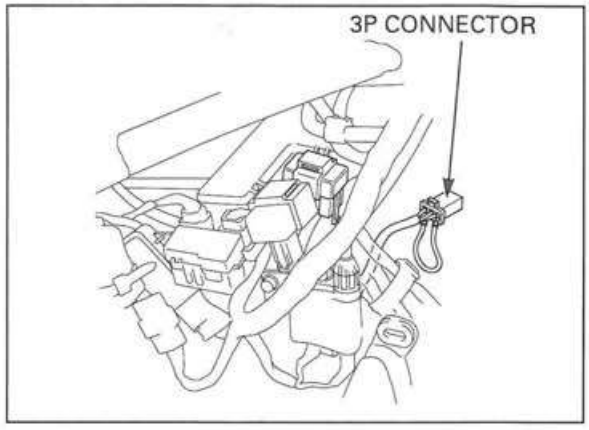
If there is no voltage, check for an open circuit or loose connection in Black/Blue and Green wires.
If there is battery voltage, replace the fuel pump.



DISCHARGE VOLUME INSPECTION

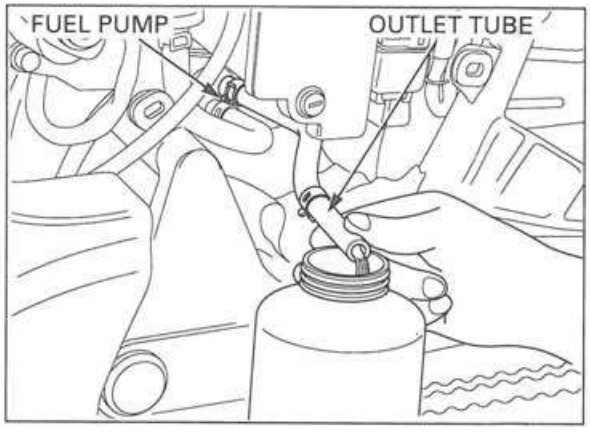
Remove the right and left side covers (page 2-4).

Disconnect the fuel cut relay 3P connector.
Short the Black and Black/Blue terminals with a suitable jumper wire.
Disconnect the fuel pump outlet tube from the tube joint.
Hold a graduated beaker under the fuel pump outlet tube.



Turn the ignition switch ON and let the fuel flow into the beaker for 5 seconds, then turn the ignition switch OFF.
Multiply the amount in the beaker by 12 to determine the fuel pump flow capacity per minute.

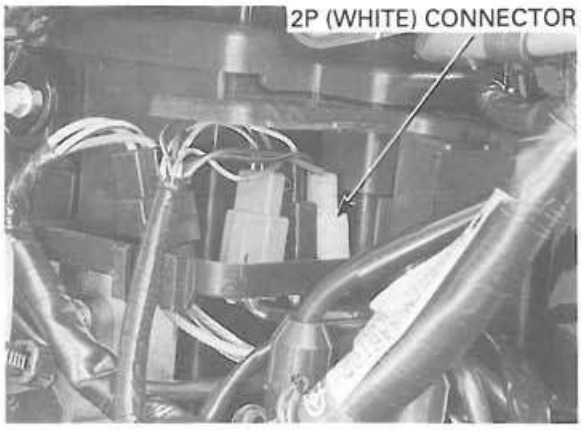
FUEL PUMP FLOW CAPACITY:
900 cm³ (30.4 US oz, 31.7 Imp oz) min./minute



REMOVAL

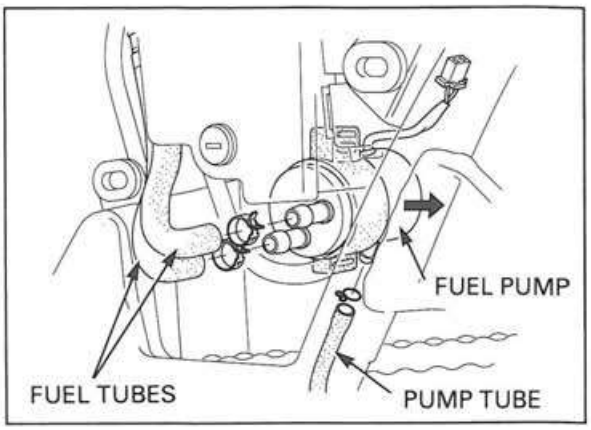
Remove the right and left side covers (page 2-4).

Disconnect the fuel pump 2P (White) connector and remove the fuel pump wire from the clamps.



Disconnect the fuel tubes (pump-to-filter, pump-to-carburetor).

Disconnect the fuel pump tube.
Remove the fuel pump from the pump bracket.



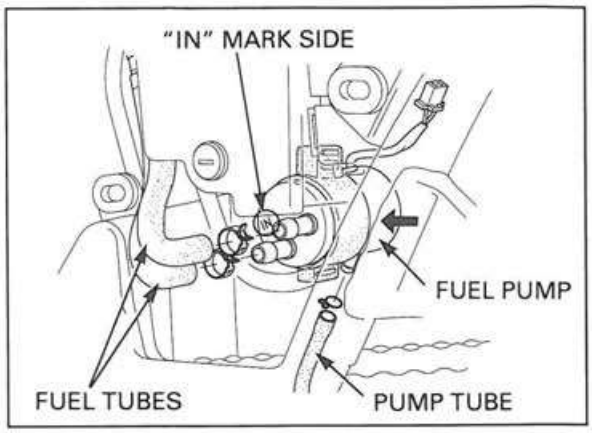
INSTALLATION

Route the wire harness and tubes properly (page 1-22).

Connect the fuel pump tube to the fuel pump.
Install the fuel pump to the pump bracket.
Connect the fuel tubes (pump-to-filter, pump-to-carburetor).

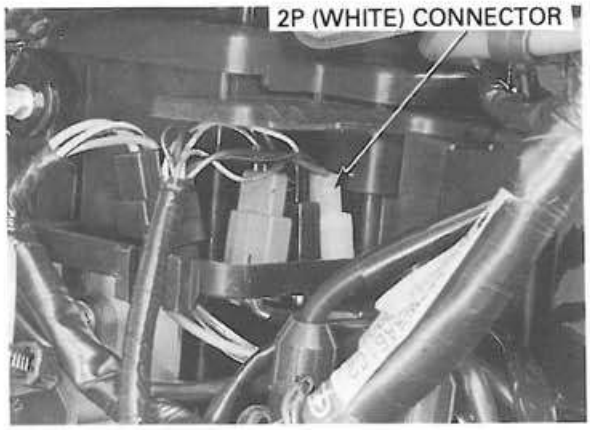
NOTE:

Connect the pump-to-filler fuel tube to the fuel pump "IN" marked side.

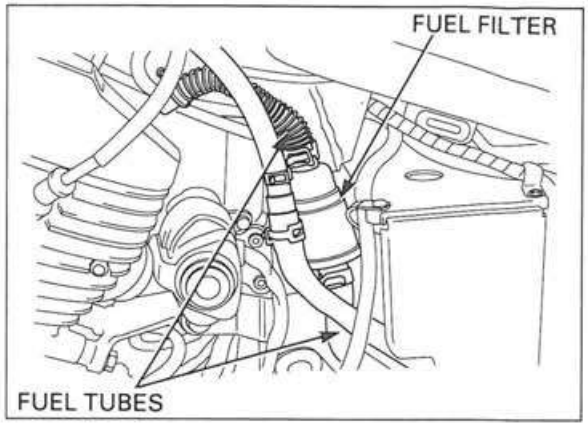


Connect the fuel pump 2P (White) connector and install the fuel pump wire to the clamps.

Install the right and left side covers (page 2-4).



FUEL FILTER



REMOVAL

Remove the left side cover (page 2-4).

Disconnect the fuel tube (pump-to-filter).
Remove the fuel filter and rubber cushion from the filter bracket.

Disconnect the fuel tubes from the fuel filter.
Remove the rubber cushion from the fuel filter.

Check the fuel filter for damage or contamination.
Replace the fuel filter if necessary.

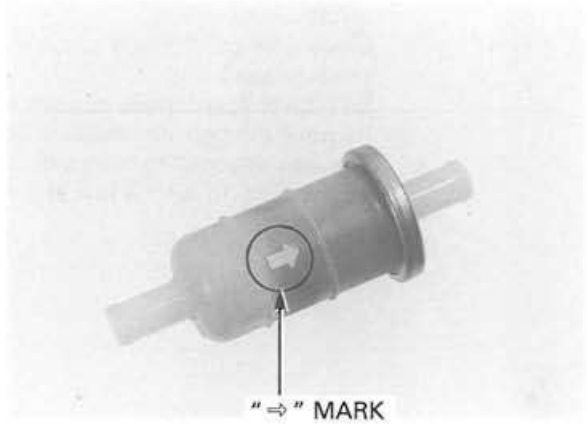
INSTALLATION

Installation is in the reverse order of removal.

NOTE:

At fuel filter and rubber cushion installation, install the filter with the " ⇨ " mark facing the fuel pump.

Install the left side coner (page 2-4).



HIGH ALTITUDE ADJUSTMENT (U.S.A. ONLY)

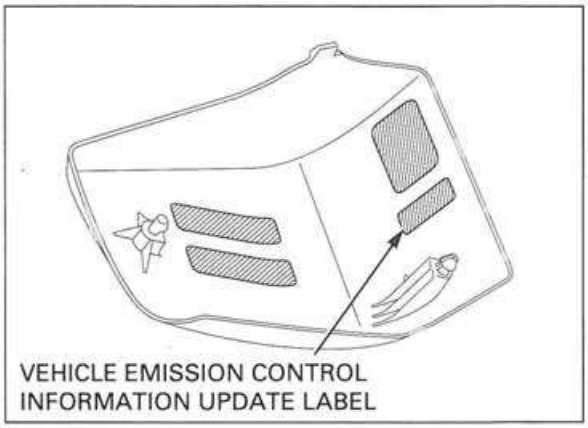
When the vehicle is to be operated continuously above 2,000 m (6,500 feet) the carburetors must be readjusted as follows to improve driveability and decrease exhaust emissions.
Remove each pilot screw plugs (page 5-14).
Warm up the engine to operating temperature. Stop and go driving 10 minutes is sufficient.
Turn each pilot screw plugs to the specification below.

HIGH ALTITUDE SETTING: 1/2 turn in

Adjust the idle speed to 1,000 ± 100 rpm, with the throttle stop screw.
Drive new pilot screw plugs into the pilot screw bores (page 5-23).

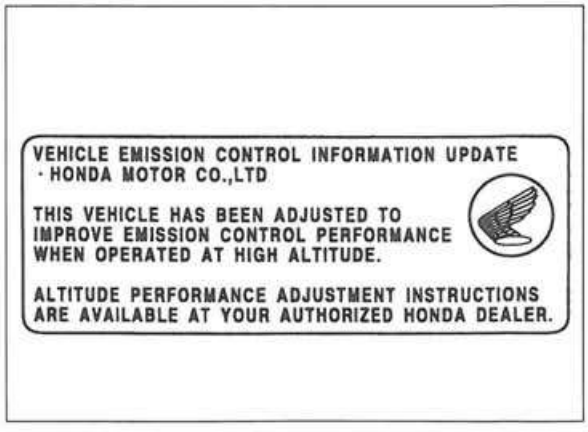
NOTE

This adjustment must be made at high altitude to ensure proper high altitude operation.



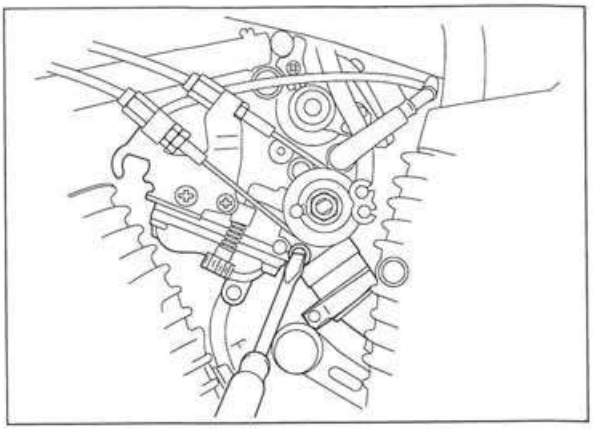
Do not attach the label to any part that can be easily removed from the vehicle.

Attach a Vehicle Emission Control Information update label onto the inside of the left side cover as shown. See SL#132 for information on obtaining the label.



⚠ WARNING

Sustained operation at an altitude lower than 1,500 m (5,000 feet) with the carburetors adjusted for high altitude may cause the engine to idle roughly and engine may stall in traffic and may cause engine damage due to overheating.



When the vehicle is to be operated continuously below 1,500 m (5,000 feet), turn each pilot screw to the specification below, its original position.

LOW ALTITUDE SETTING: 1/2 turn out from high altitude setting

Adjust the idle speed to 1,000 ± 100 rpm with the throttle stop screw.
Drive new pilot screw plugs into the pilot screw bores (page 5-23).
Be sure to make these adjustments at low altitude.
Remove the Vehicle Emission Control Update Label that was attached to the inside of the left side cover after adjusting for the low altitude.

EVAPORATIVE EMISSION PURGE CONTROL VALVE INSPECTION (CALIFORNIA TYPE ONLY)

The evaporative emission purge control valve should be inspected if hot restart is difficult.

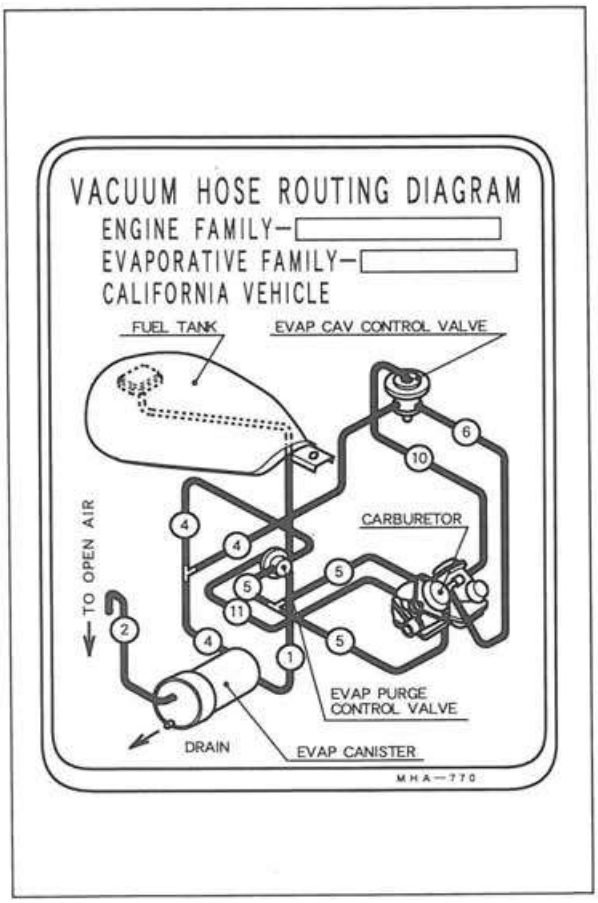
Check the fuel tank, Evaporative Emission Purge Control Valve (EVAP PURGE CONTROL VALVE), and evaporative emission canister hoses to be sure they are not kinked and are securely connected. Replace any hose that shows signs of damage or deterioration.

The EVAP PURGE CONTROL VALVE is located under the fuel tank.

Disconnect the EVAP PURGE CONTROL VALVE hoses from their connections and remove the EVAP PURGE CONTROL VALVE from its mount. Refer to the routing label on the inside of the left side cover for hose connections.

Connect a vacuum pump to the 8 mm (0.31 in) I.D. hose No.5 that goes to the 3-way joint. Apply the specified vacuum to the EVAP PURGE CONTROL VALVE.

SPECIFIED VACUUM: 250 mm (9.8 in) Hg



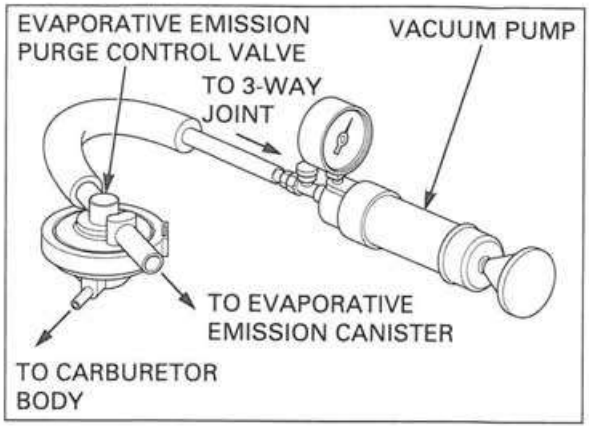
The specified vacuum should be maintained. Replace the EVAP PURGE CONTROL VALVE if vacuum is not maintained.

TOOL:

Vacuum/pressure pump	**A937-041-XXXXX or**
Vacuum pump	**ST-AH-260-MC7**
	(U.S.A. only)

Remove the vacuum pump and connect it to the vacuum hose No.11 that goes to the left carburetor body. Apply the specified vacuum to the EVAP PURGE CONTROL VALVE.

SPECIFIED VACUUM: 250 mm (9.8 in) Hg

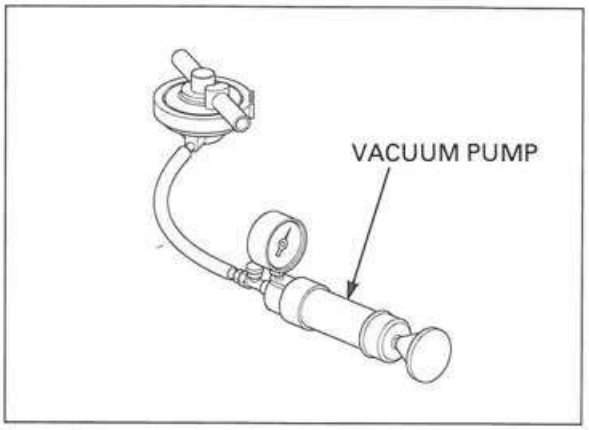


The specified vacuum should be maintained. Replace the EVAP PURGE CONTROL VALVE if vacuum is not maintained.

TOOL:

Vacuum/pressure pump	**A937-041-XXXXX or**
Vacuum pump	**ST-AH-260-MC7**
	(U.S.A. only)

Connect a pressure pump to the 8 mm (0.31 in) I.D. hose No.4 that goes to the evaporative emission canister. While applying the specified vacuum to the EVAP PURGE CONTROL VALVE hose that goes to the 3-way joint pump air through the evaporative emission canister hose. Air should flow through the EVAP PURGE CONTROL VALVE and out the hose that goes to the 3-way joint.
Replace the EVAP PURGE CONTROL VALVE if air does not flow out.



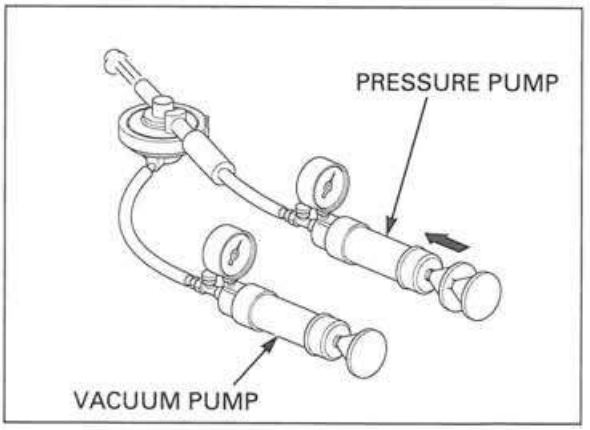
CAUTION:

To prevent damage to the evaporative emission purge control valve, do not use high air pressure sources. Use a hand operated air pump only.

TOOL:

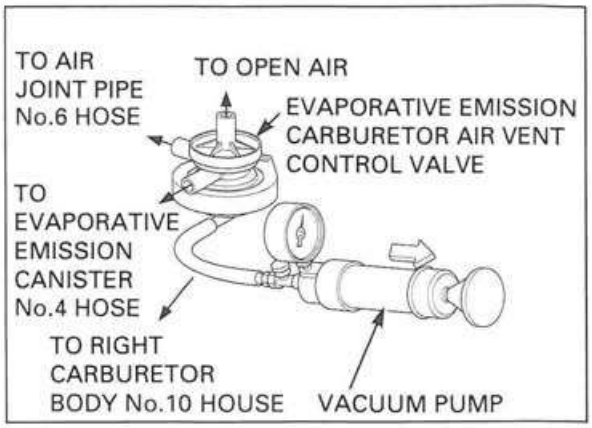
Vacuum/pressure pump	**A937-041-XXXXX or**
Vacuum pump	**ST-AH-260-MC7**
Pressure pump	**ST-AH-255-MC7**
	(U.S.A. only)

Remove the pumps, install the EVAP PURGE CONTROL VALVE on its mount, route and reconnect the hose according to the routing label.



EVAPORATIVE EMISSION CARBURETOR AIR VENT CONTROL VALVE INSPECTION (CALIFORNIA TYPE ONLY)

Disconnect the Evaporative Emission Carburetor Air Vent Control Valve (EVAP CAV CONTROL VALVE) hoses from their connections and remove the EVAP CAV CONTROL VALVE from its mount. Refer to the routing label on left side cover for hose connections.
Connect a vacuum pump to the No.10 hose that goes to the right carburetor body.
Apply the specified vacuum to the EVAP CAV CONTROL VALVE.

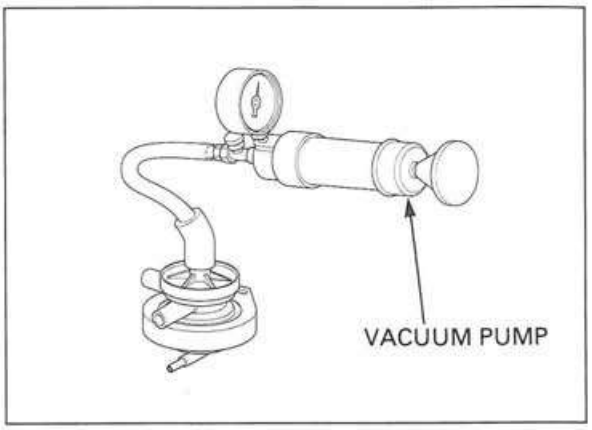


SPECIFIED VACUUM: 250 mm (9.8 in) Hg

TOOL:

Vacuum/pressure pump	**A937-041-XXXXX or**
Vacuum pump	**ST-AH-260-MC7 (U.S.A. only)**

The specified vacuum should be maintained.
Replace the EVAP CAV CONTROL VALVE if vacuum is not maintained.



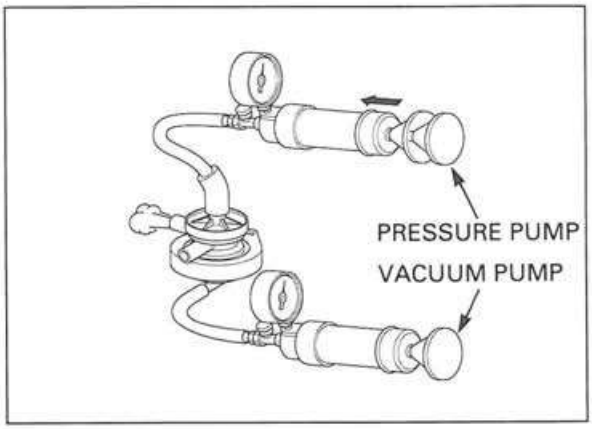
CAUTION:

To prevent damage to the evaporative emission carburetor air vent control valve, do not use high air pressure sources. Use a hand operated air pump only.

Connect the vacuum pump to the air vent port of the EVAP CAV CONTROL VALVE.
Apply vacuum to the EVAP CAV CONTROL VALVE.
The vacuum should hold steady.
Replace the EVAP CAV CONTROL VALVE if vacuum leaks.

TOOL:

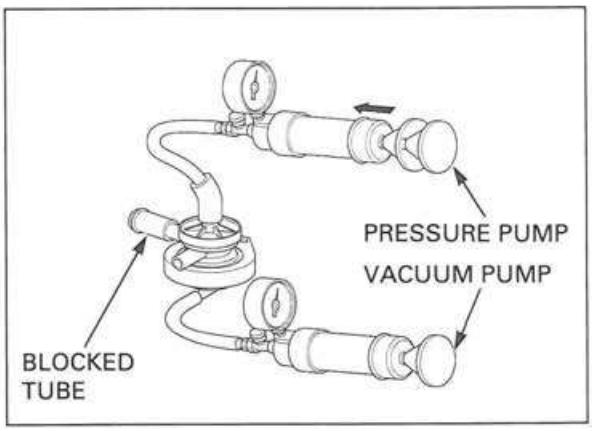
Vacuum/pressure pump	**A937-041-XXXXX or**
Vacuum pump	**ST-AH-260-MC7 (U.S.A. only)**



Connect the vacuum pump to the No.10 hose that goes to the right carburetor body.
Connect the pressure pump to the air vent port of the EVAP CAV CONTROL VALVE.
While applying the vacuum to the EVAP CAV CONTROL VALVE No.10 hose that goes to the right carburetor body, pump air through the EVAP CAV CONTROL VALVE and out the hose that goes to the carburetor air joint pipe.

TOOL:

Vacuum/pressure pump	**A937-041-XXXXX or**
Vacuum pump	**ST-AH-260-MC7**
Pressure pump	**ST-AH-255-MC7**

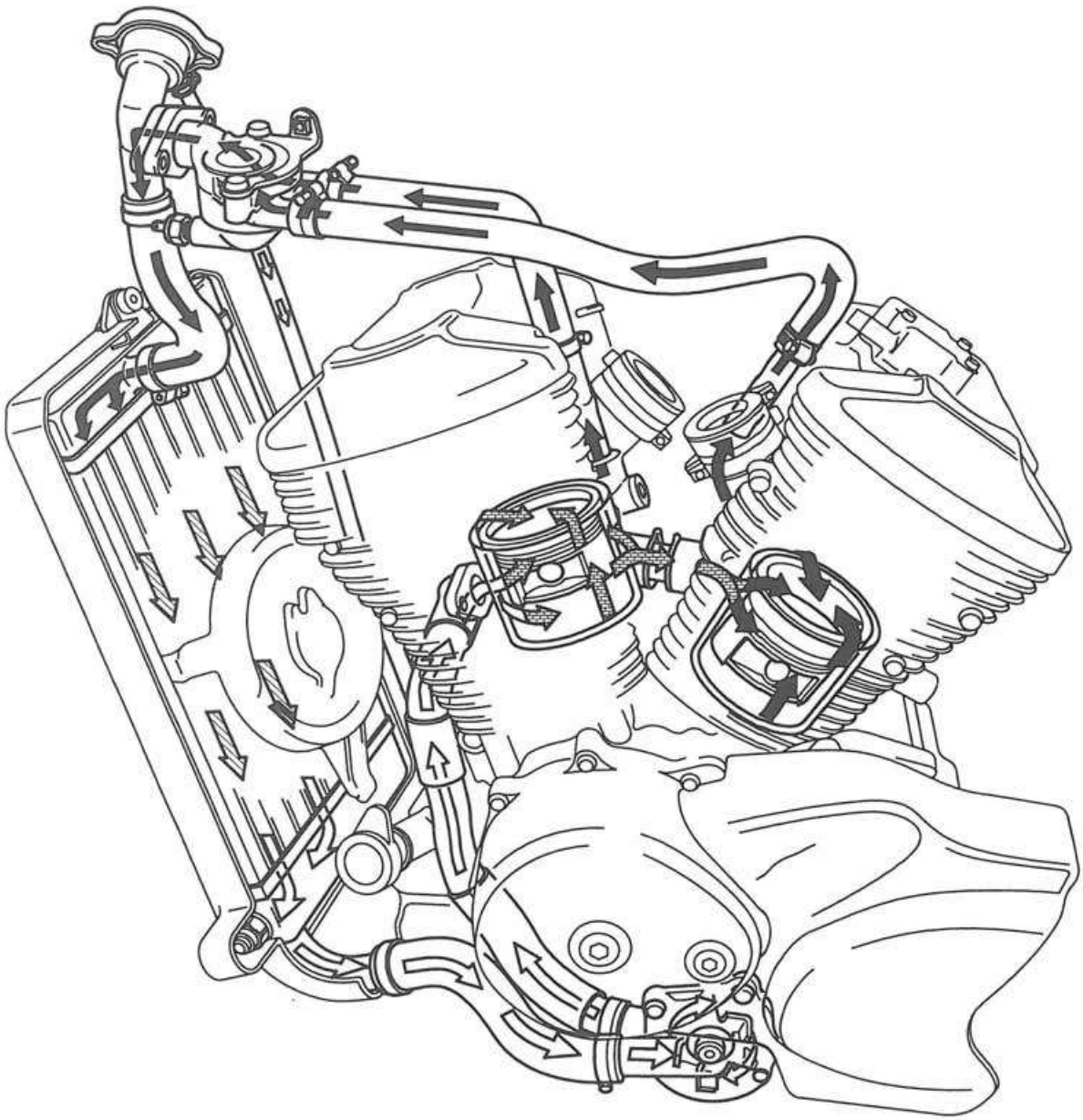


Plug the hose that goes to the carburetor air joint pipe.
While applying vacuum to the EVAP CAV CONTROL VALVE No. 10 hose that goes to the right carburetor body, apply air pressure.
Remove the pumps, install the EVAP CAV CONTROL VALVE on its mount, route and reconnect the hoses according to the routing label.

TOOL:

Vacuum/pressure pump	**A937-041-XXXXX or**
Vacuum pump	**ST-AH-260-MC7**
Pressure pump	**ST-AH-255-MC7**

SYSTEM FLOW PATTERN



6. COOLING SYSTEM

SERVICE INFORMATION

GENERAL

⚠ WARNING

- ***Wait until the engine is cool before slowly removing the radiator cap. Removing the cap while the engine is hot and the coolant is under pressure may cause serious scalding.***
- ***Radiator coolant is toxic. Keep it away from eyes, mouth, skin and clothes.***
  - ***If any coolant gets in your eyes, rinse them with water and consult a doctor immediately.***
  - ***If any coolant in swallowed, induce vomiting, gargle and consult a physician immediately.***
  - ***If any coolant gets on your skin or clothes, rinse thoroughly with plenty of water.***
- ***KEEP OUT OF REACH OF CHILDREN.***

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.

- Add coolant at the reserve tank. Do not remove the radiator cap except to refill or drain the system.
- All cooling system services can be done with the engine in the frame.
- Avoid spilling coolant on painted surfaces.
- After servicing the system, check for leaks with a cooling system tester.
- Refer to Section 19 for fan motor switch and thermo switch inspection.

SPECIFICATIONS

ITEM		SPECIFICATIONS
Coolant capacity	Radiator and engine	1.75 liter (1.85 US qt, 1.54 Imp qt)
	Reserve tank	0.4 liter (0.42 US qt, 0.35 Imp qt)
Radiator cap relief pressure		108 – 137 kPa (1.1 – 1.4 kgf/cm², 16 – 20 psi)
Thermostat	Begins to open	80 – 84 °C/176 – 183 °F
	Fully open	95 °C (203 °F)
	Valve lift	8 mm (0.3 in) minimum
Recommended antifreeze		Pro Honda HP Coolant or an equivalent high quality ethylene glycol antifreeze containing corrosion protection inhibitors
Standard coolant concentration		50% mixture with soft water

TORQUE VALUES

Radiator mounting bolt	2 N•m (0.2 kgf•m, 1.4 lbf•ft)	
Radiator coolant drain bolt	13 N•m (1.3 kgf•m, 9 lbf•ft)	
Fan motor bolt	3 N•m (0.3 kgf•m, 2.2 lbf•ft)	
Cooling fan nut	3 N•m (0.3 kgf•m, 2.2 lbf•ft)	
Radiator filler bolt	9 N•m (0.9 kgf•m, 6.5 lbf•ft)	
Thermostat housing cover bolt	9 N•m (0.9 kgf•m, 6.5 lbf•ft)	
Fan motor switch	8 N•m (0.8 kgf•m, 5.8 lbf•ft)	Apply sealant to the threads
Water pump cover bolt	13 N•m (1.3 kgf•m, 9 lbf•ft)	

TROUBLESHOOTING

Engine temperature too high
- Faulty temperature gauge or thermo switch (Section 19)
- Faulty radiator cap
- Insufficient coolant
- Passages blocked in radiator, hoses or water jacket
- Air in system
- Faulty water pump
- Thermostat stuck closed
- Faulty cooling fan motor
- Faulty fan motor switch

Engine temperature too low
- Faulty temperature gauge or thermo switch (Section 19)
- Thermostat stuck open
- Faulty cooling fan motor switch

Coolant leaks
- Faulty water pump mechanical seal
- Deteriorated O-ring
- Damaged or deteriorated gasket
- Loose hose connection or clamp
- Damaged or deteriorated hose
- Faulty radiator cap

SYSTEM TESTING

COOLANT (HYDROMETER TEST)

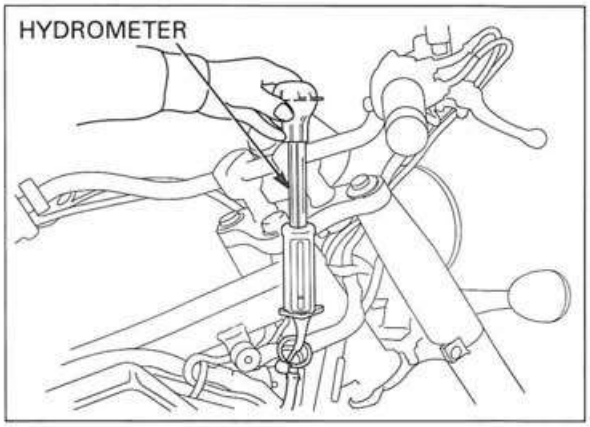
⚠ WARNING

Be sure the engine is cool before removing the cap or you may be severely scalded.

Remove the fuel tank (page 2-4).
Remove the steering covers (page 2-3).

Remove the radiator cap.

Check the coolant gravity using a hydrometer.



STANDARD COOLANT CONCENTRATION: 50 %

Look for contamination and replace the coolant if necessary.

Coolant gravity chart

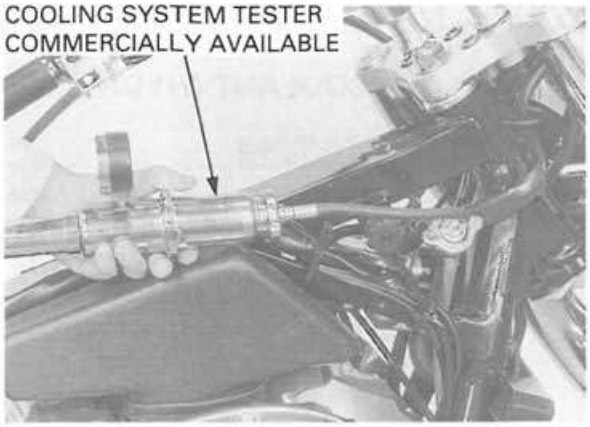
Coolant temperature °C (°F) / Coolant ratio %	0 (32)	5 (41)	10 (50)	15 (59)	20 (68)	25 (77)	30 (86)	35 (95)	40 (104)	45 (113)	50 (122)
5	1.009	1.009	1.008	1.008	1.007	1.006	1.005	1.003	1.001	0.999	0.997
10	1.018	1.017	1.017	1.016	1.015	1.014	1.013	1.011	1.009	1.007	1.005
15	1.028	1.027	1.026	1.025	1.024	1.022	1.020	1.018	1.016	1.014	1.012
20	1.036	1.035	1.034	1.033	1.031	1.029	1.027	1.025	1.023	1.021	1.019
25	1.045	1.044	1.043	1.042	1.040	1.038	1.036	1.034	1.031	1.028	1.025
30	1.053	1.052	1.051	1.049	1.047	1.045	1.043	1.041	1.038	1.035	1.032
35	1.063	1.062	1.060	1.058	1.056	1.054	1.052	1.049	1.046	1.043	1.040
40	1.072	1.070	1.068	1.066	1.064	1.062	1.059	1.056	1.053	1.050	1.047
45	1.080	1.078	1.076	1.074	1.072	1.069	1.066	1.063	1.060	1.057	1.054
50	1.086	1.084	1.082	1.080	1.077	1.074	1.071	1.068	1.065	1.062	1.059
55	1.095	1.093	1.091	1.088	1.085	1.082	1.079	1.076	1.073	1.070	1.067
60	1.100	1.098	1.095	1.092	1.089	1.086	1.083	1.080	1.077	1.074	1.071

RADIATOR CAP/SYSTEM PRESSURE INSPECTION

⚠ WARNING

The engine must be cool before removing the radiator cap, or sever scalding may result.

Remove the fuel tank (page 2-4).
Remove the steering covers (page 2-3).
Remove the radiator cap.



Before installing the cap in the tester, wet the sealing surface.

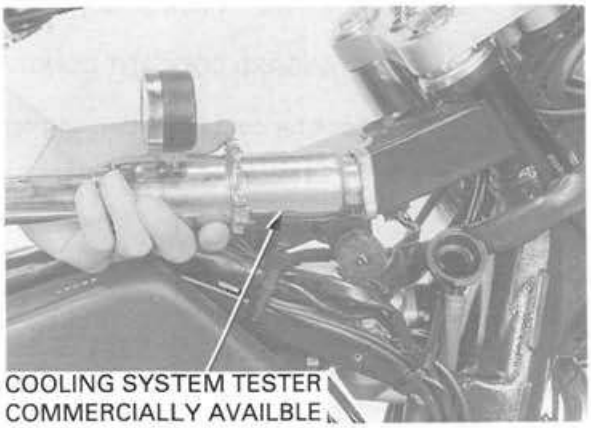
Pressure test the radiator cap. Replace the radiator cap if does not hold pressure, or if relief pressure is too high or too low. It must hold specified pressure for at least 6 seconds.

RADIATOR CAP RELIEF PRESSURE:
108 – 137 kPa (1.1 – 1.4 kgf/cm², 16 – 20 psi)

Pressure the radiator, engine and hoses, and check for leaks.

CAUTION:

Excessive pressure can damage the cooling system components. Do not exceed 137 kPa (1.4 kgf/cm², 20 psi).

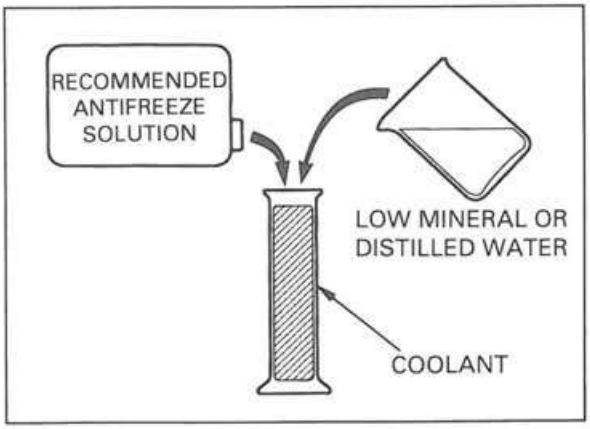


Check the following components if the system will not hold specified pressure for at least 6 seconds.
- All hose and connections
- Water pump installation
- Water pump seal (for leakage)
- Deformed radiator filler neck

COOLANT

⚠ WARNING

- ***Radiator coolant is toxic. Keep it away from eyes, mouth, skin and clothes.***
  - ***If any coolant gets in your eyes, rinse them with water and consult a doctor immediately.***
  - ***If any coolant is swallowed, induce vomiting, gargle and consult a physician immediately.***
  - ***If any coolant gets on your skin or clothes, rinse thoroughly with plenty of water.***
- ***KEEP OUT OF REACH OF CHILDREN***



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.

NOTE:

- The effectiveness of coolant decreases with the accumulation of rust or if there is a change in the mixing proportion during usage. Therefore, for best performance change the coolant regularly as specified in the maintenance schedule.
- Mix only distilled, low mineral water with the antifreeze.

RECOMMENDED ANTIFREEZE :
Pro Honda HP Coolant or an equivalent high quality ethylene glycol antifreeze containing corrosion protection inhibitors

RECOMMENDED MIXTURE:
50 – 50 (Distilled water and recommended anti freeze)

REPLACEMENT/AIR BLEEDING

⚠ WARNING

The engine must be cool before removing the radiator cap, or severe scalding may result.

NOTE:

When filling the system or reserve tank with a coolant (checking the coolant level), place the motorcycle in a vertical position on a flat, level surface.

Remove the fuel tank (page 2-4).
Remove the steering covers (page 2-3).
Remove the radiator cap.

Drain the coolant from the system by removing the drain bolt and sealing washer on the water pump cover.
Remove the rear cylinder coolant drain bolt and drain the coolant.

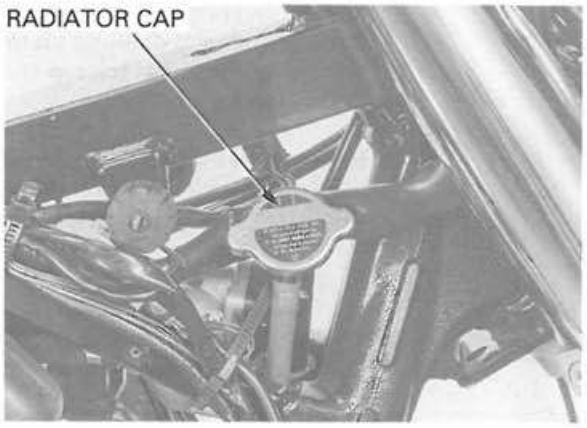
Reinstall the drain bolts with a new sealing washer. Tighten the bolts to the specified torque.

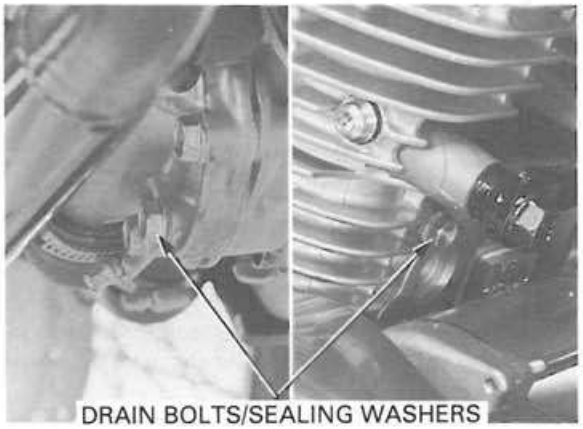
TORQUE: 13 N·m (1.3 kgf·m, 9 lbf·ft)

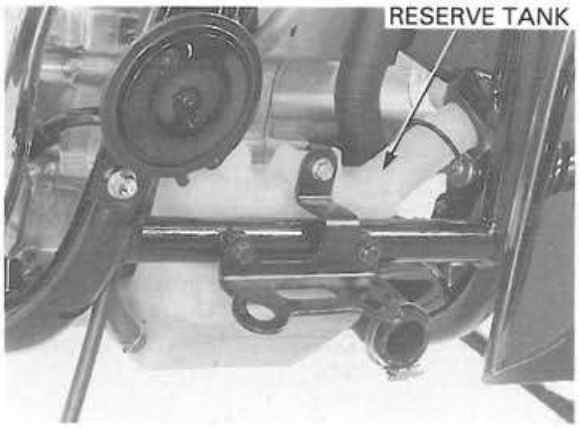
Remove the reserve tank (page 6-18).

Remove the reserve tank cap from the reserve tank and drain the reserve coolant.

Empty the coolant and rinse the inside of the reserve tank with water.

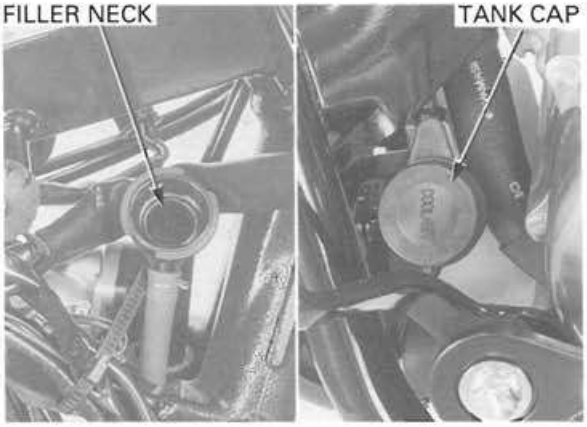






Install the reserve tank (page 6-18).

Fill the system with the recommended coolant through the filler opening up to filler neck.
Remove the reserve tank cap and fill the reserve tank to the upper level line.



Bleed air from the system as follows:

1. Shift the transmission into neutral.
   Start the engine and let it idle for 2 - 3 minutes.
2. Snap the throttle 3 - 4 times to bleed air from the system.
3. Stop the engine and add coolant up to the filler neck. Reinstall the radiator cap.
4. Check the level of coolant in the reserve tank and fill to the upper level if it is low.

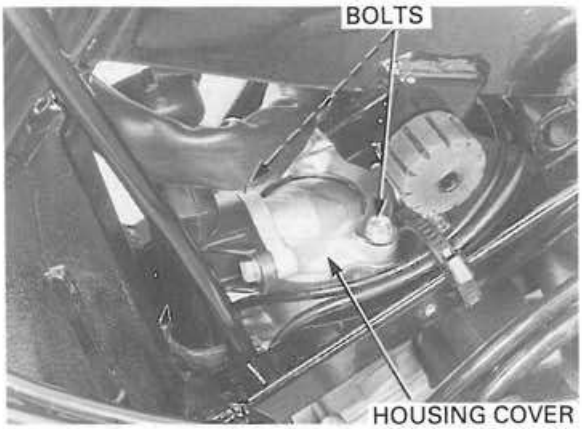
THERMOSTAT

REMOVAL

Remove the following:
– Fuel tank (page 2-4)
– Steering covers (page 2-3)

Drain the coolant (page 6-5).

Remove the radiator filler mounting bolts.
Remove the thermostat housing cover bolts and cover.

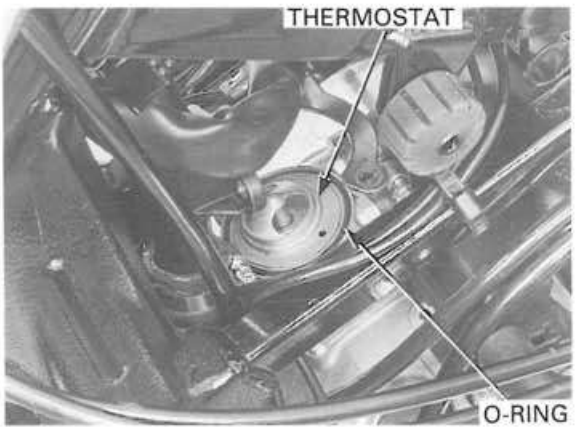


Remove the O-ring and thermostat from the housing.

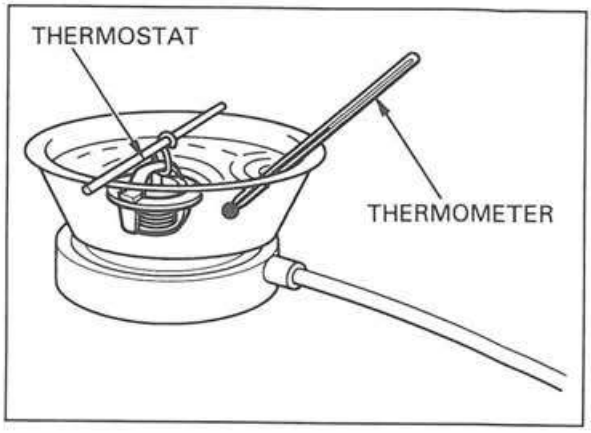
NOTE:

The thermo switch, may be damaged if dropped or shocked. If dropped or shocked, inspect the thermo switch and replace if necessary (page 19-21).

Thermo switch inspection and removal (page 19-22).
Coolant temperature indicator inspection (page 19-21).



INSPECTION



⚠ WARNING

- ***Wear insulated gloves and adequate eye protection.***
- ***Keep flammable materials away from the electric heating element.***

NOTE:

- Do not let the thermostat or thermometer touch the pan, or you will get false readings.
- Replace the thermostat if valve stays open at room temperature, or if it responds at temperatures other than those specified.

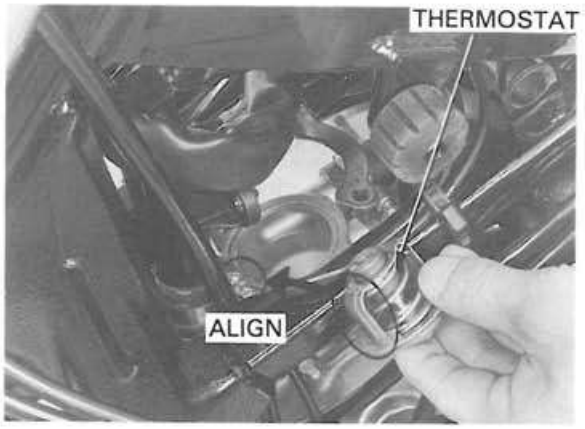
Visually inspect the thermostat for damage.

Heat the water with an electric heating element to operating temperature for 5 minutes.
Suspended the thermostat in heated water to check its operation.

THERMOSTAT BEGINS TO OPEN:
80 – 84°C (176 – 183°F)
VALVE LIFT:
8 mm (0.3 in) minimum at 95°C (203°F)

INSTALLATION

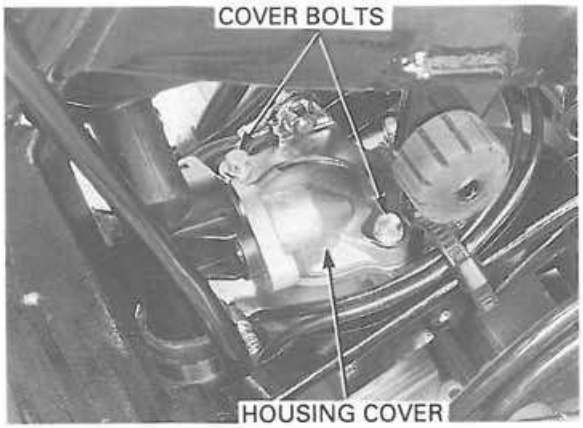
Install the thermostat while aligning it with the groove in the housing.



Install the new O-ring into the housing.

Install the thermostat housing cover.
Install and tighten the housing cover bolts to the specified torque.

TORQUE: 9 N•m (0.9 kgf•m, 6.5 lbf•ft)



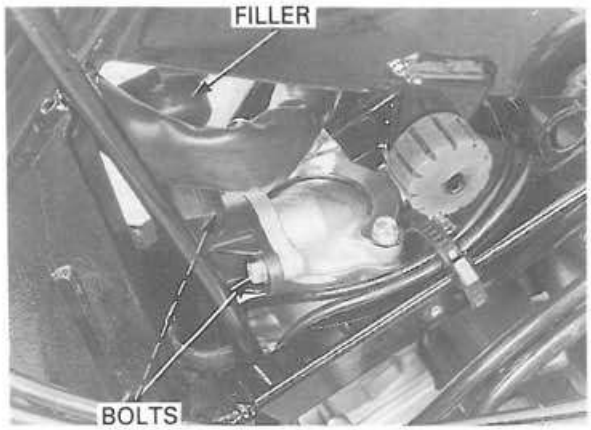
Install the new O-ring to the radiator filler.

Install and tighten the radiator filler mounting bolts to the specified torque.

TORQUE: 9 N•m (0.9 kgf•m, 6.5 lbf•ft)

Install the following:
- Steering covers (page 2-3)
- Fuel tank (page 2-4)

Fill and bleed the cooling system (page 6-6).



RADIATOR/COOLING FAN

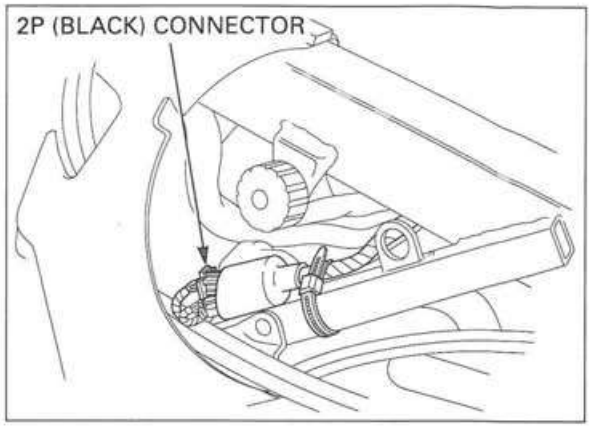
CAUTION:

Be careful not to damage the radiator fins.

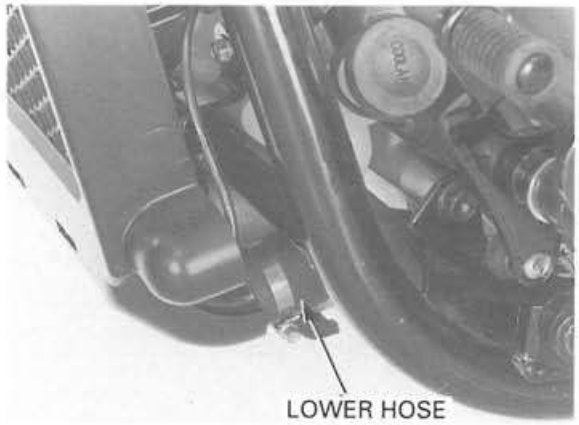
REMOVAL

Drain the coolant (page 6-5).
Remove the fuel tnak (page 2-4).
Remove the steering covers (page 2-3).

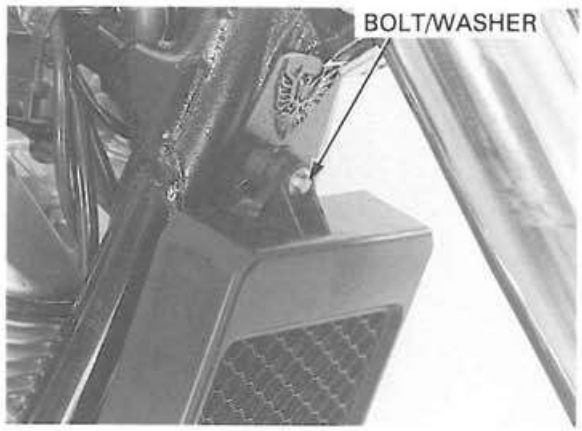
Disconnect the fan motor 2P (Black) connector.



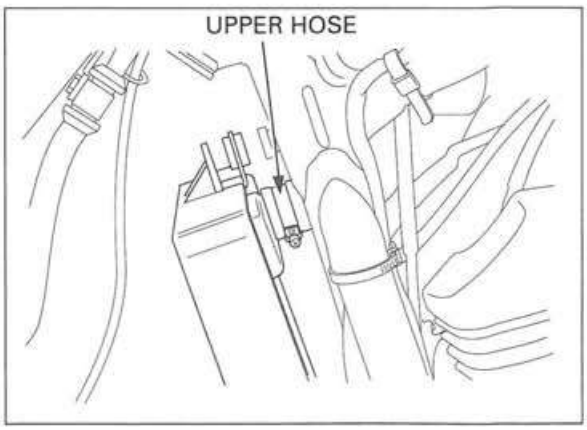
Loosen the hose band and disconnect the lower radiator hose from the radiator.



Remove the radiator mounting bolt and washer then pull out the radiator.



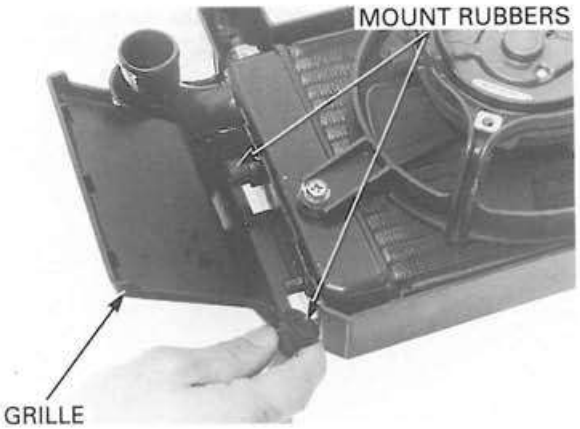
Loosen the hose band and disconnect the upper radiator hose from the radiator.



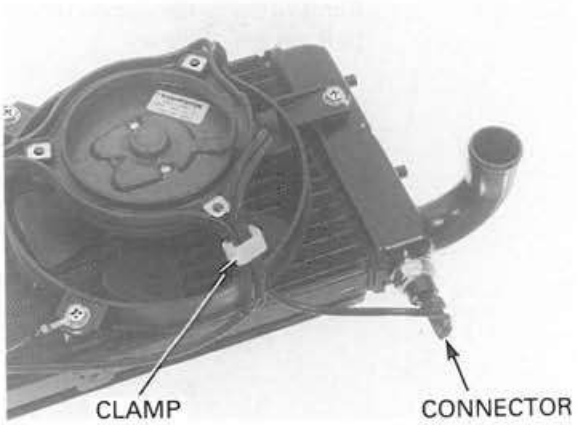
Unhook the radiator mount rubbers from the frame stays and remove the radiator.

DISASSEMBLY

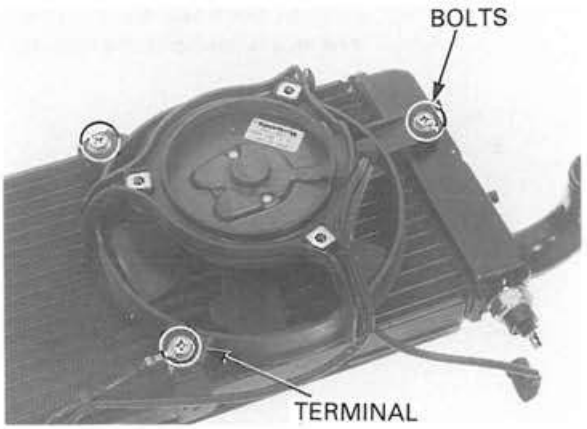
Remove the radiator mount rubbers from the radiator.
Remove the radiator grille from the radiator.



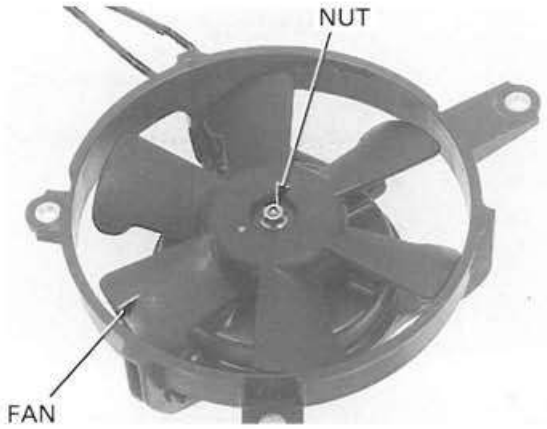
Disconnect the fan motor switch connector.
Remove the wires from the clamp.



Remove the bolts and ground terminal,
Remove the cooling fan assembly from the radiator.

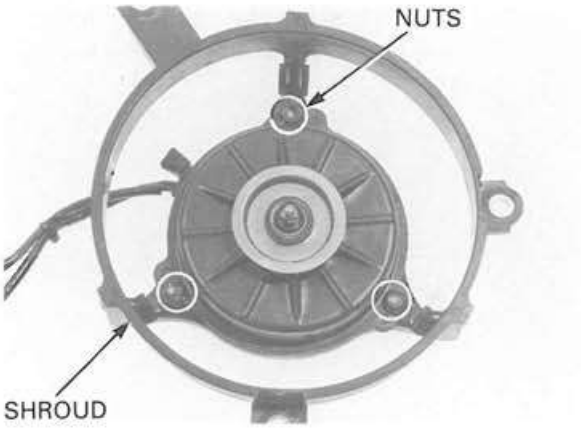


Remove the nut and cooling fan.

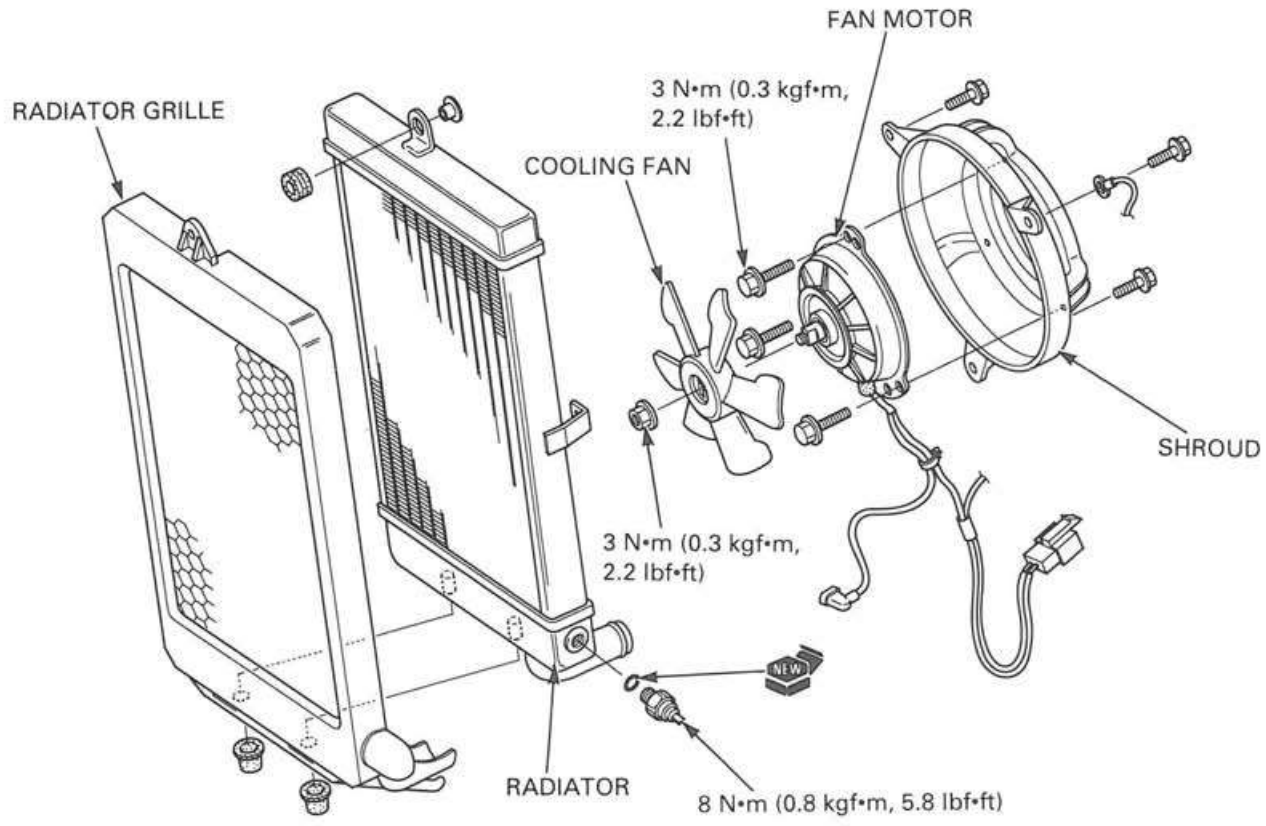


Remove the bolts and fan motor from the shroud.

The fan motor switch removal and inspection procedure is described on page 19-19.



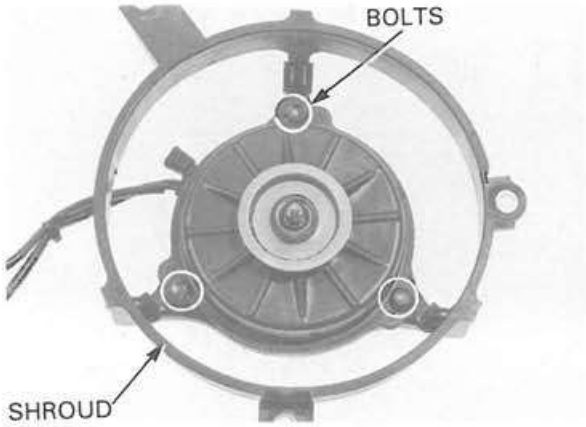
ASSEMBLY



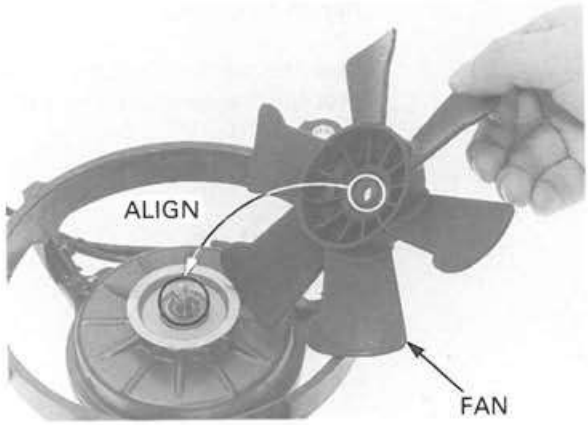
Install the fan motor to the shroud.

Install the tighten the bolts to the specifeid torque.

TORQUE: 3 N·m (0.3 kgf·m, 2.2 lbf·ft)

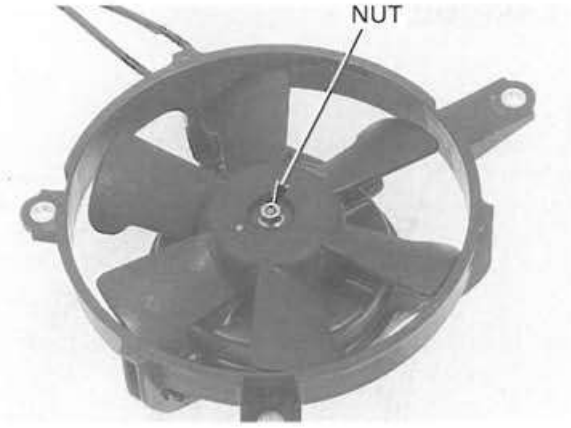


Install the cooling fan onto the motor shaft by aligning the flat surfaces.

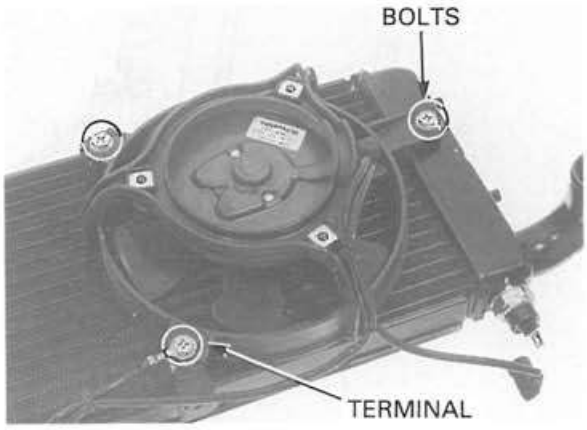


Install and tighten the nut to the specified torque.

TORQUE: 3 N·m (0.3 kgf·m, 2.2 lbf·ft)

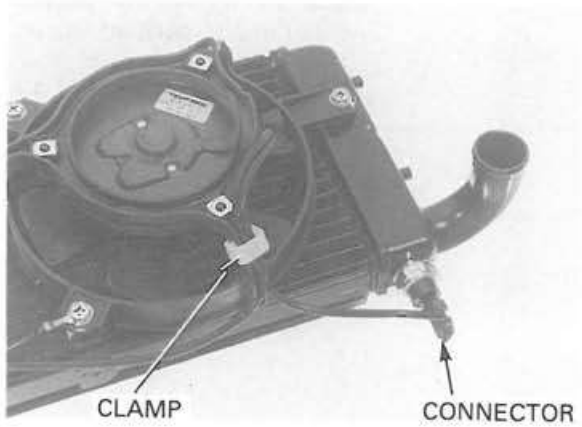


Install the cooling fan assembly to the radiator.
Install and tighten the bolts with the ground terminal.

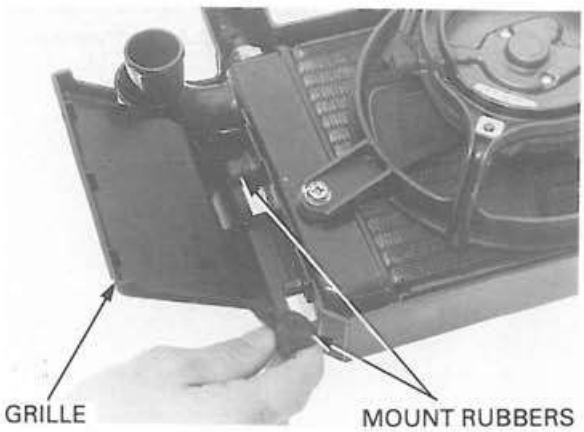


Connect the fan motor switch connector.

Route the ground wire and fan motor switch wire properly, clamp the wires.

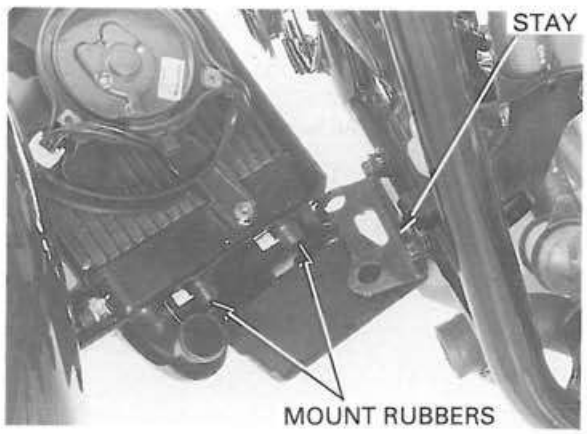


Install the radiator grille to the radiator by aligning its holes with the bosses on the radiator.
Install the radiator mounting rubbers to the radiator bosses.

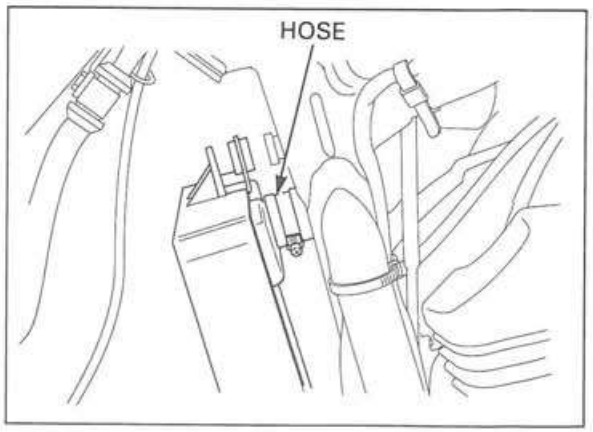


INSTALLATION

Hook the radiator mount rubbers to the frame stay.



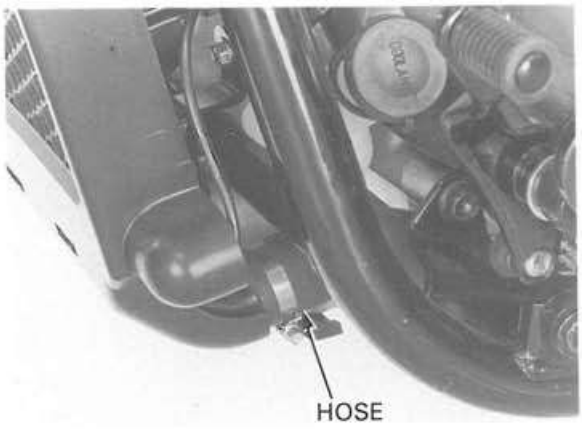
Connect the upper radiator hose and tighten the radiator hose band screw securely.



Install and tighten the radiator mounting bolt and washer to the specified torque.

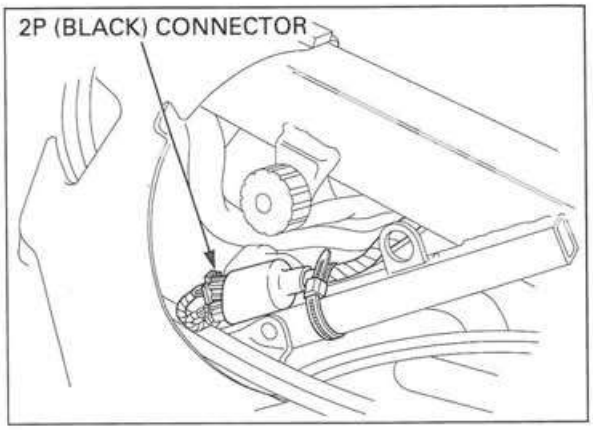
TORQUE: 2 N•m (0.2 kgf•m, 1.4 lbf•ft)

Connect the lower radiator hose and tighten the radiator hose band screw securely.



Connect the fan motor 2P (Black) connector.

Install the steering covers (page 2-3).
Install the fuel tank (page 2-4).
Fill and bleed the cooling system (page 6-6).

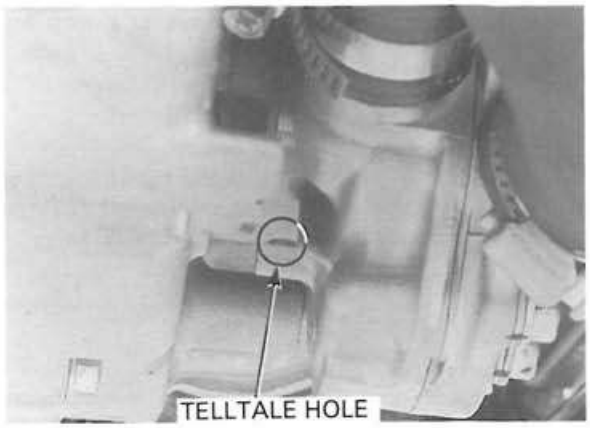


WATER PUMP

MECHANICAL SEAL INSPECTION

The water pump cover and O-ring can be removed with engine in the frame.

Inspect the telltale hole for signs of coolant leakage. If there is leakage, the mechanical seal is defective and the water pump assembly must be replaced.

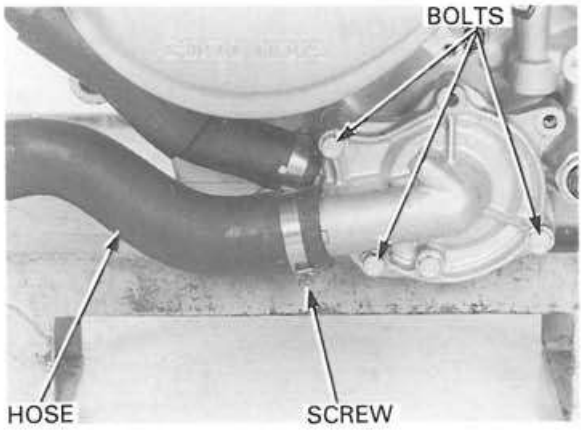


REMOVAL

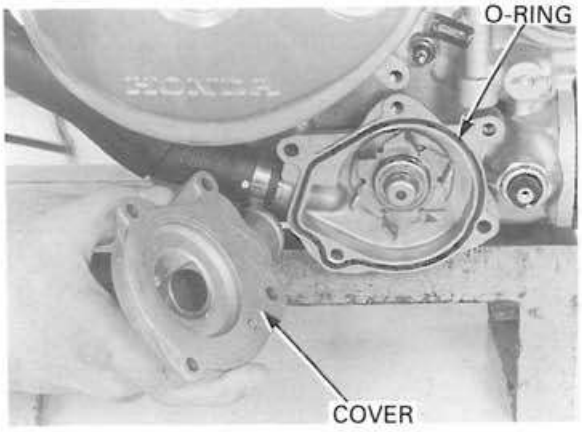
Remove the engine from the frame (Section 7).

Loosen the band screw and remove the water hose from the water pump cover.

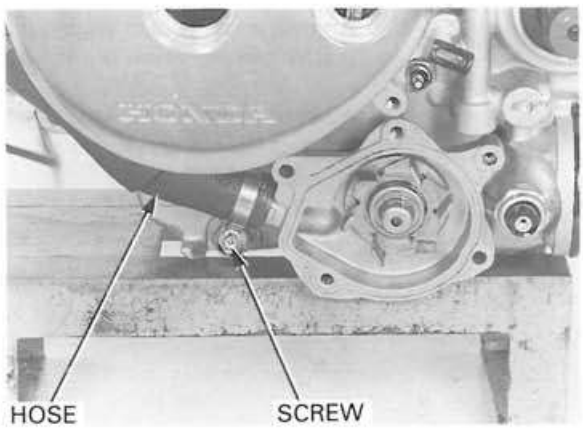
Remove the water pump cover mounting bolts.



Remove the water pump cover and O-ring from the water pump.

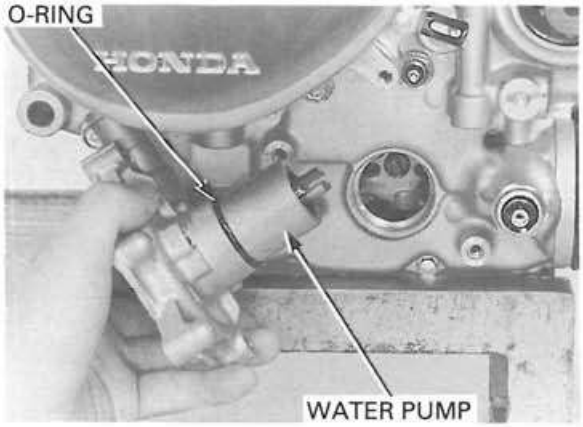


Loosen the band screw and remove the water hose from the water pump.



Do not disassemble the water pump. Replace the pump as an assembly if it is damaged.

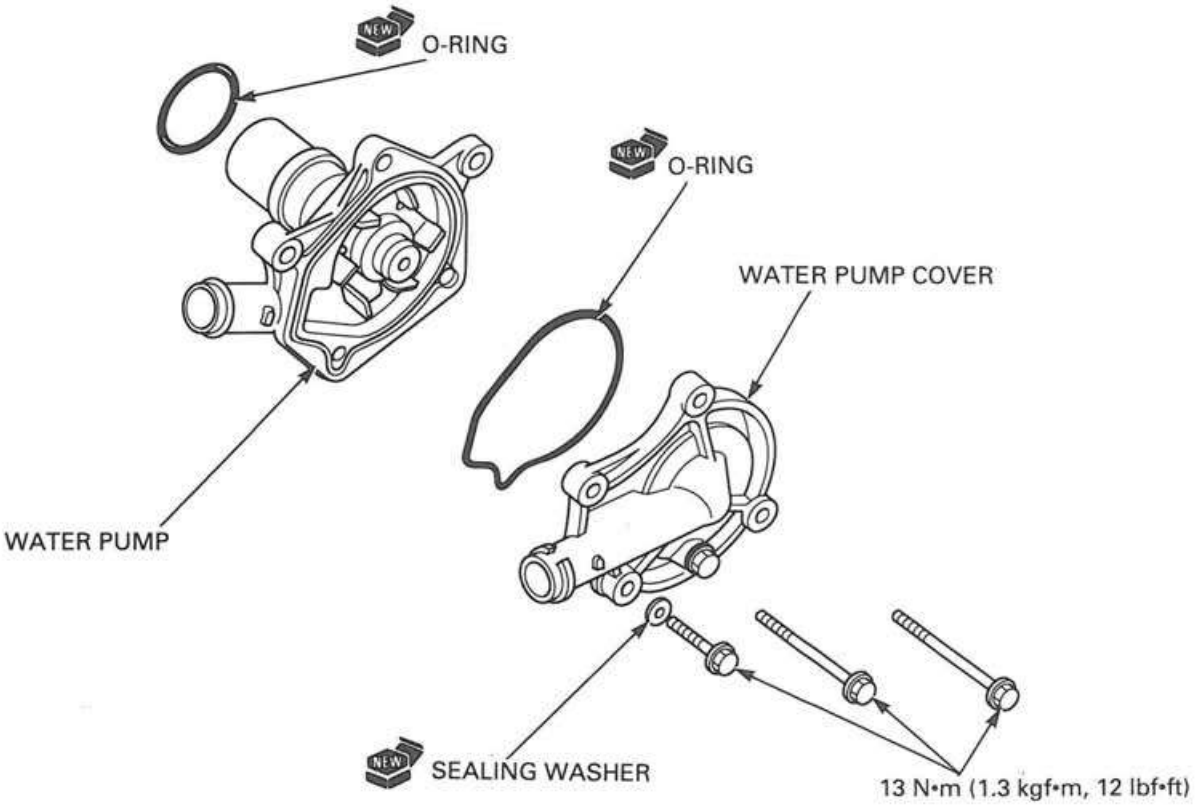
Remove the water pump and O-ring from the crankcase.



INSPECTION

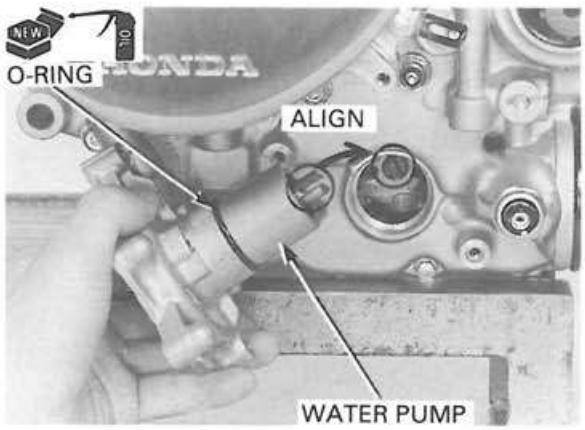
Check the water pump for mechanical seal leakage and bearing deterioration. Replace the water pump as an assembly if necessary.

INSTALLATION

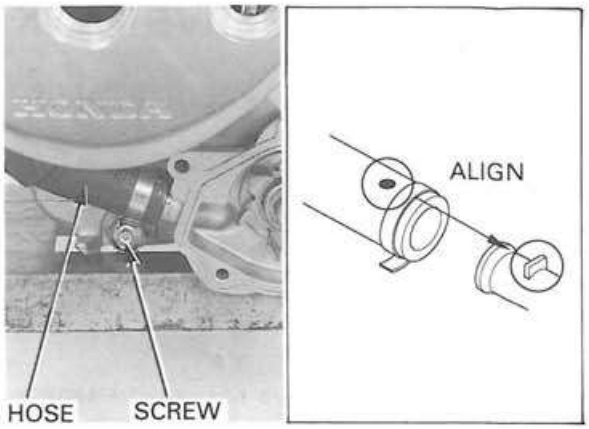


Apply a coat of clean engine oil to a new O-ring and install it in the water pump shaft housing groove.

Align the water pump shaft groove with the oil pump shaft and insert the water pump into the crankcase.

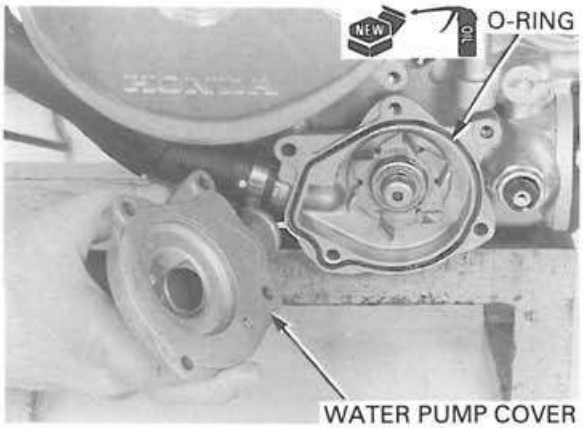


Connect the water hose to the water pump by aligning the white paint on the hose with the boss on the water pipe then tighten the hose band securely.



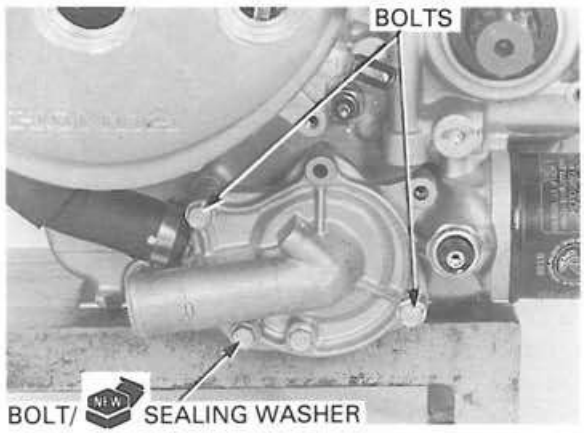
Apply a coat of clean engine oil to a new O-ring and install it around the impeller housing.

Install the water pump cover to the water pump.



Install the bolts and sealing washer as shown. Tighten the cover bolts to the specified torque.

TORQUE: 13 N•m (1.3 kgf•m, 9 lbf•ft)

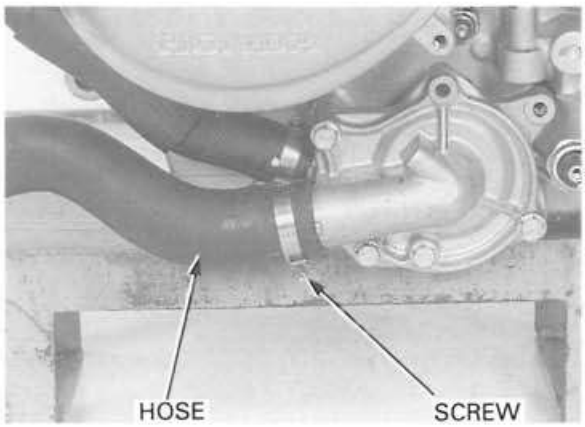


Connect the water hose to the water pump cover then tighten the hose band securely.

Install the engine in the frame (Section 7).

Fill and bleed the cooling system (page 6-6).
Fill the engine with the recommended engine oil (page 3-12).

Check the cooling system for leakage.



RADIATOR RESERVE TANK

REMOVAL/INSTALLATION

Remove the radiator (page 6-9).

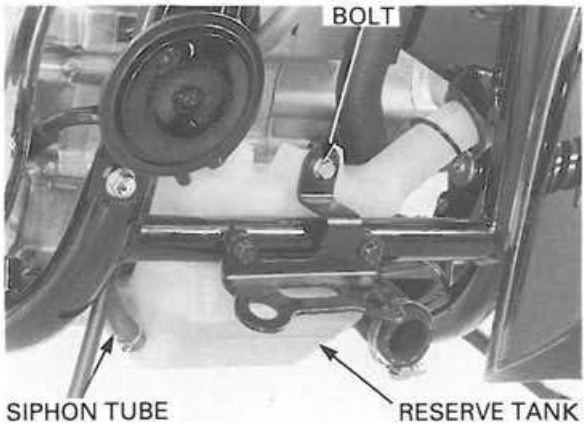
Place a suitable container under the siphon tube joint of the reserve tank.

Disconnect the radiator siphon tube at the reserve tank.

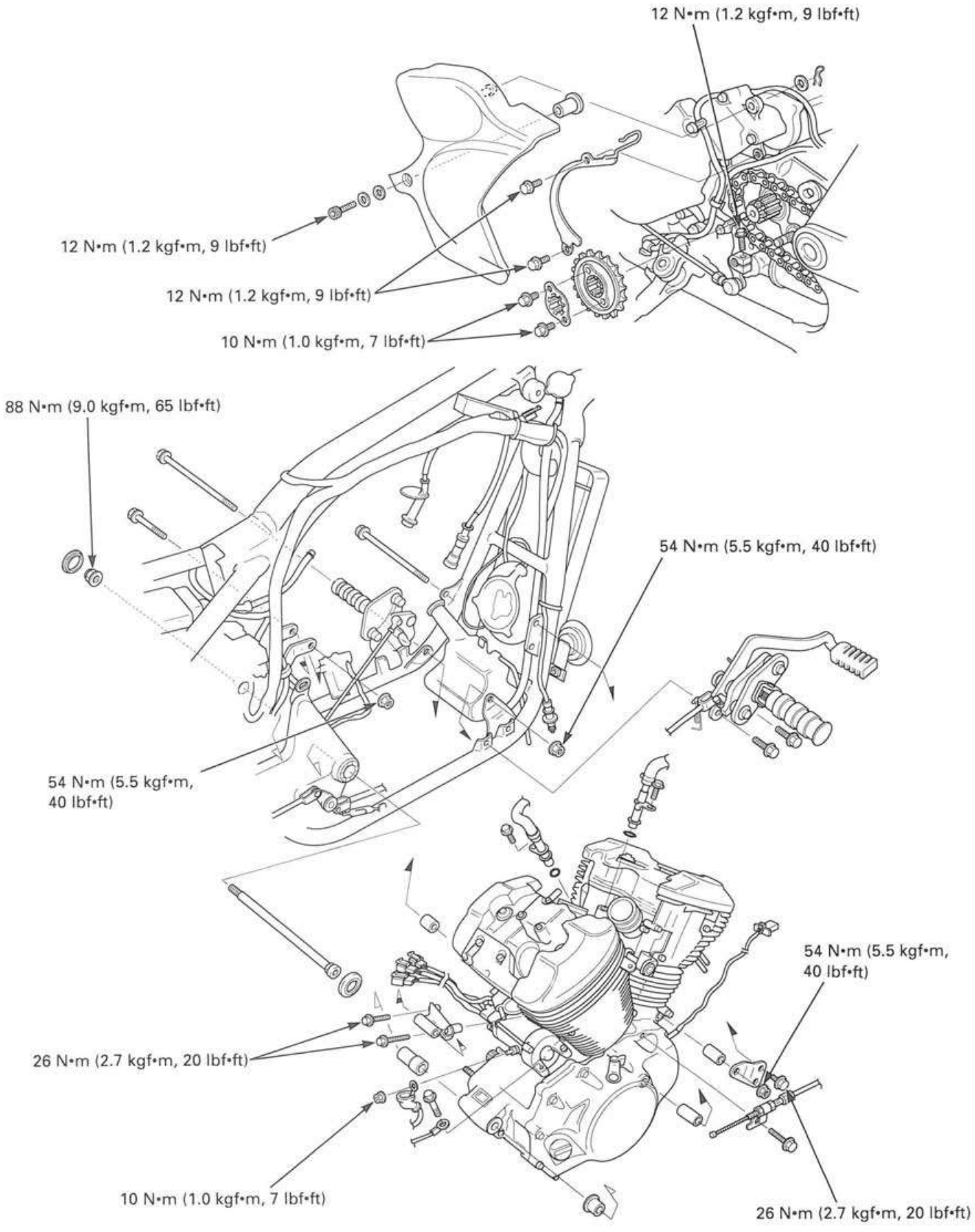
Remove the reserve tank mounting bolt, filler mounting nut and reserve tank.

Installation is in the reverse order of removal.

Fill the reserve tank with coolant (page 6-4).



MEMO


12 N•m (1.2 kgf•m, 9 lbf•ft)
12 N•m (1.2 kgf•m, 9 lbf•ft)
12 N•m (1.2 kgf•m, 9 lbf•ft)
10 N•m (1.0 kgf•m, 7 lbf•ft)
88 N•m (9.0 kgf•m, 65 lbf•ft)
54 N•m (5.5 kgf•m, 40 lbf•ft)
54 N•m (5.5 kgf•m, 40 lbf•ft)
54 N•m (5.5 kgf•m, 40 lbf•ft)
26 N•m (2.7 kgf•m, 20 lbf•ft)
10 N•m (1.0 kgf•m, 7 lbf•ft)
26 N•m (2.7 kgf•m, 20 lbf•ft)

7. ENGINE REMOVAL/INSTALLATION

SERVICE INFORMATION

GENERAL

- A floor jack or other adjustable support is required to support and maneuver the engine.

CAUTION:

Do not support the engine using the oil filter.

7

- When removing/installing the engine, tape the frame around the engine beforehand for fame protection.
- The following components can be serviced with the engine installed in the frame.
  - Alternator (Section 9)
  - Camshaft (Section 10)
  - Carburetor (Section 5)
  - Clutch/gearshift linkage (Section 8)
  - Front cylinder (Section 11)
  - Front cylinder head (Section 10)
  - Ignition pulse generator (Section 17)
  - Starter motor/starter clutch (Section 18)
- The following components require engine removal for service.
  - Cylinder/piston (Section 11)
  - Crankshaft (Section 12)
  - Oil pump (Section 4)
  - Rear cylinder (Section 11)
  - Rear cylinder head (Section 10)
  - Shift fork, shift drum and shift spindle (Section 12)
  - Transmission (Section 12)
  - Water pump body (Section 6)
- After engine installation, adjust the following.
  - Clutch cable (page 3-26)
  - Drive chain (page 3-18)
  - Throttle cable (page 3-4)

SPECIFICATIONS

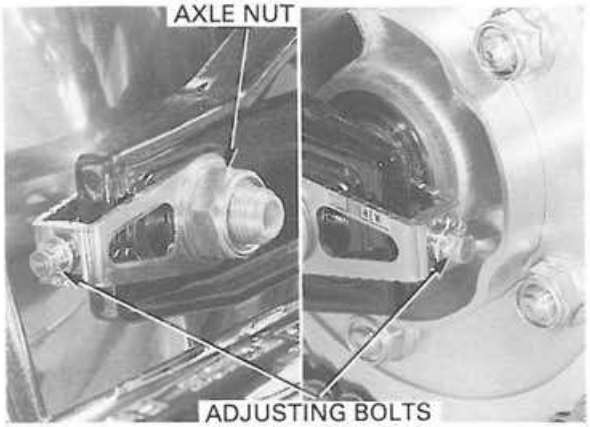
ITEM	SPECIFICATIONS
Engine dry weight	68.6 kg (151 lbs)
Engine oil capacity at disassembly	2.9 liter (3.06 US qt, 2.55 Imp qt)
Coolant capacity	1.75 liter (1.85 US qt, 1.54 Imp qt)

TORQUE VALUES

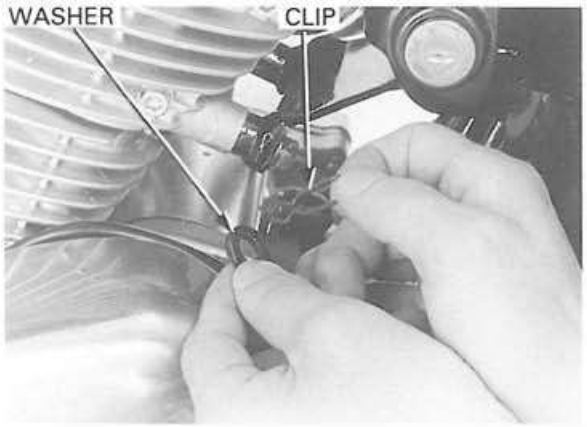
Left rear cover bolt	12 N•m (1.2 kgf•m, 9 lbf•ft)
Drive sprocket bolt	10 N•m (1.0 kgf•m, 7 lbf•ft)
Drive chain guide plate bolt	12 N•m (1.2 kgf•m, 9 lbf•ft)
Oil pressure switch cord terminal screw	2 N•m (0.2 kgf•m, 1.4 lbf•ft)
Front engine mounting bolt	54 N•m (5.5 kgf•m, 40 lbf•ft)
Rear engine mounting bolt	54 N•m (5.5 kgf•m, 40 lbf•ft)
Front engine bracket bolt	26 N•m (2.7 kgf•m, 20 lbf•ft)
Rear engine bracket bolt	26 N•m (2.7 kgf•m, 20 lbf•ft)
Gearshift arm pinch bolt	12 N•m (1.2 kgf•m, 9 lbf•ft)
Swingarm pivot bolt	88 N•m (9.0 kgf•m, 65 lbf•ft)

DRIVE SPROCKET REMOVAL

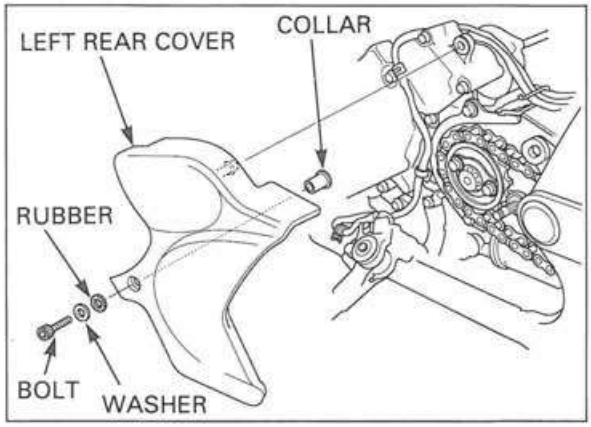
Loosen the rear axle nut.
Turn both adjusting bolts as necessary.
Push the rear wheel forward fully, making the a drive chain fully slack .



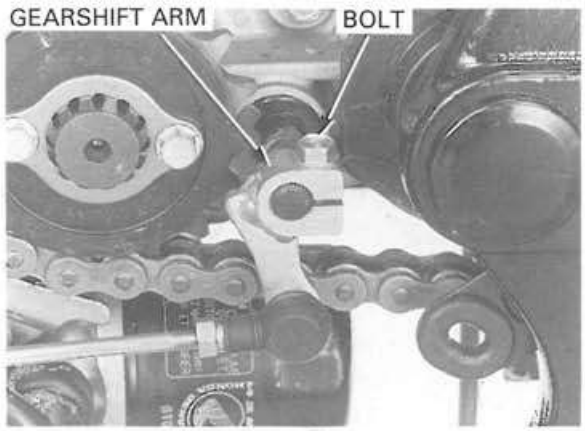
Turn the clip inside the top of the drive sprocket cover up and remove clip and washer.



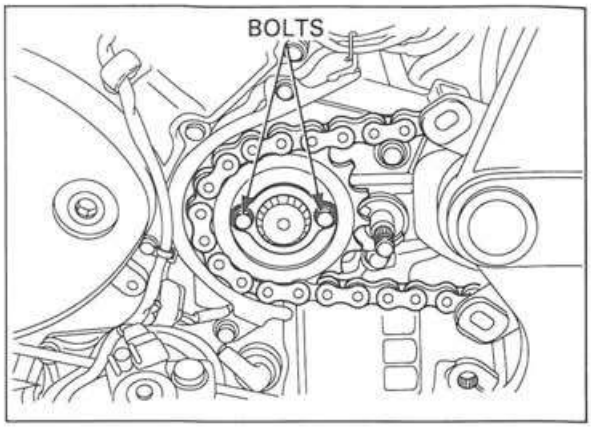
Remove the bolt, washer, rubber, left rear cover and collar.



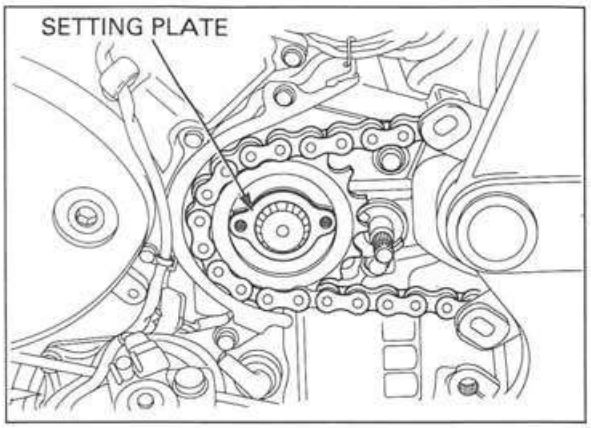
Remove the bolt and gearshift arm.



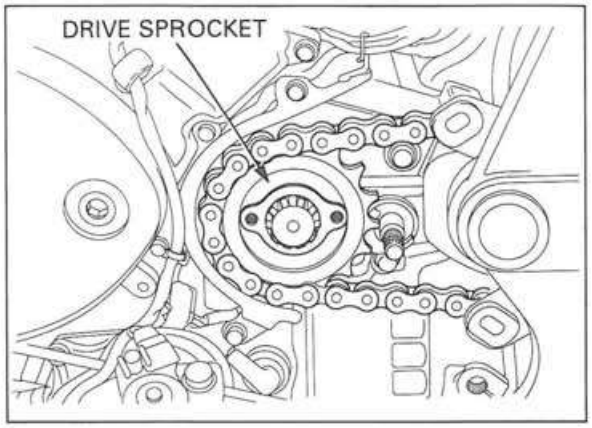
Remove the drive sprocket setting plate bolts.



Align the drive sprocket setting plate tooth and countershaft tooth, then remove the drive sprocket setting plate.



Remove the drive sprocket.



ENGINE REMOVAL

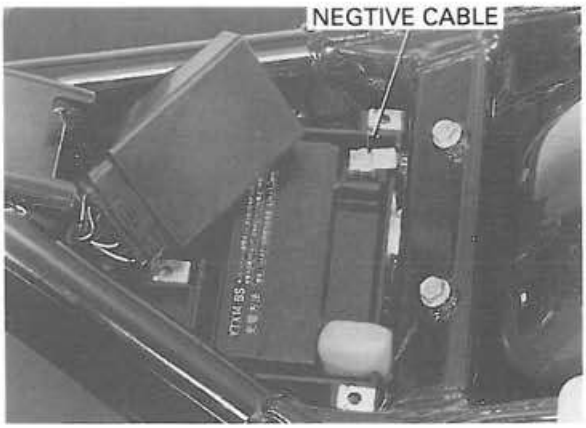
CAUTION:

Do not support the engine using the oil filter.

NOTE:

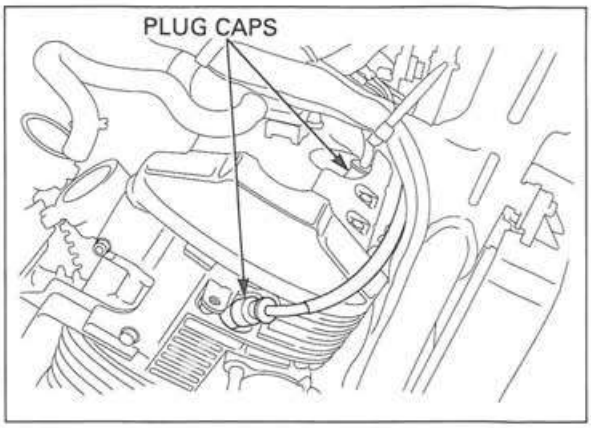
- Support the motorcycle safety stand or a hoist.
- A floor jack or adjustable support is required to support and maneuver the engine. The jack height must be continually adjusted to relieve stress for ease of bolt removal.

Drain the engine oil (page 3-12) and radiator coolant (page 6-5).

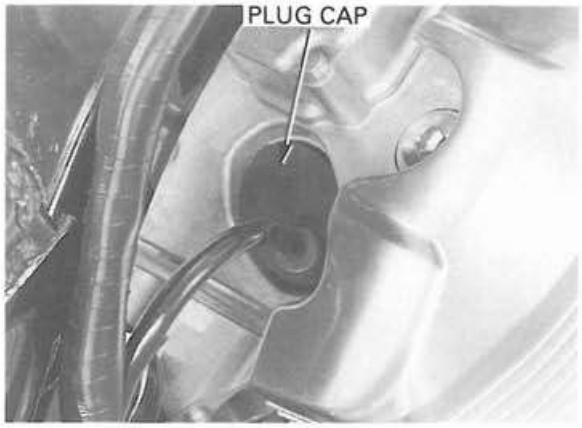


Disconnect the battery negative cable from the battery terminal.

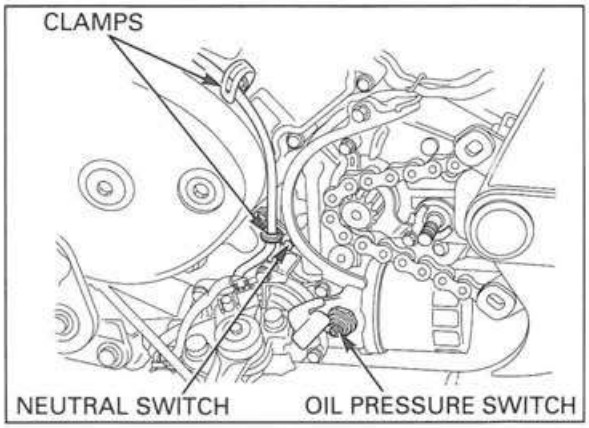
Remove the following:
- Fuel tank (page 2-4)
- Steering cover (page 2-3)
- Air cleaner housing (page 5-4)
- Air cleaner chamber (page 5-6)
- Carburetor (page 5-8)
- Sub-air cleaner housing (page 10-5)
- Cylinder head cover outer cover (page 10-5)
- Exhaust pipe/muffler (page 2-7)
- Right footpeg and rear brake pedal (page 14-15)
- Drive sprocket (page 7-3)



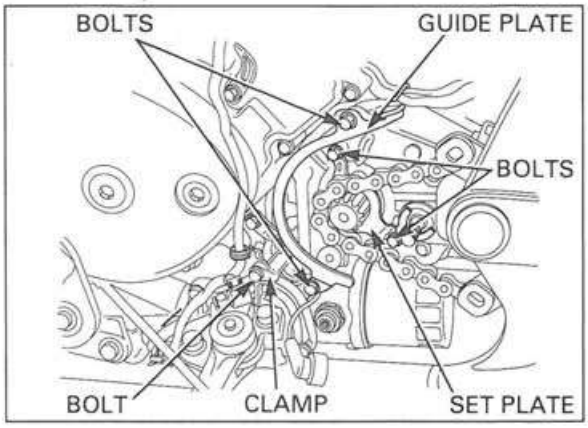
Disconnect the spark plug caps.



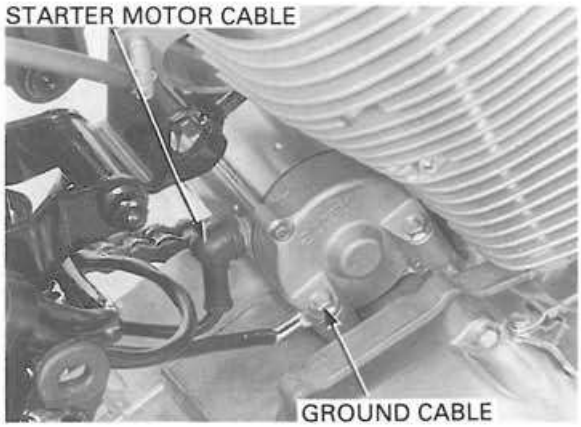
Remove the screw and disconnect the oil pressure switch cord terminal from the switch.
Disconnect the neutral switch cord from the switch terminals.
Free the side stand switch wire from the clamps.



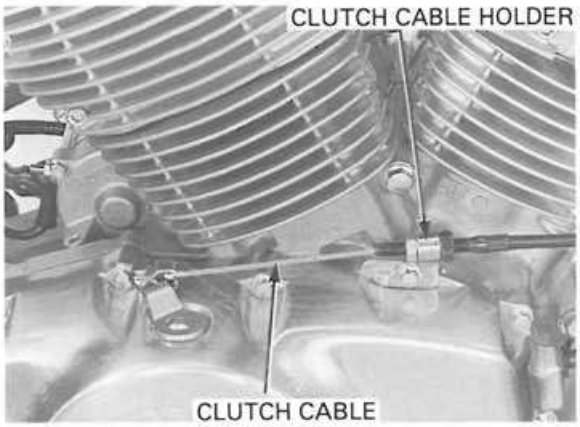
Remove the bolts and clamp, drive chain guide plate and countershaft bearing set plate.
Free the oil pressure and neutral switch wires.



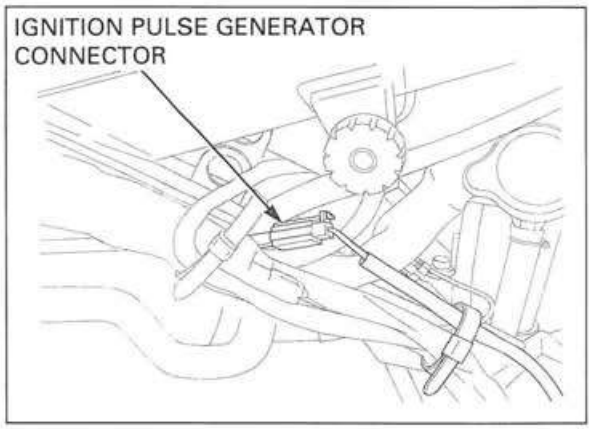
Remove the nuts then disconnect the starter motor cable and ground cable from the starter motor.



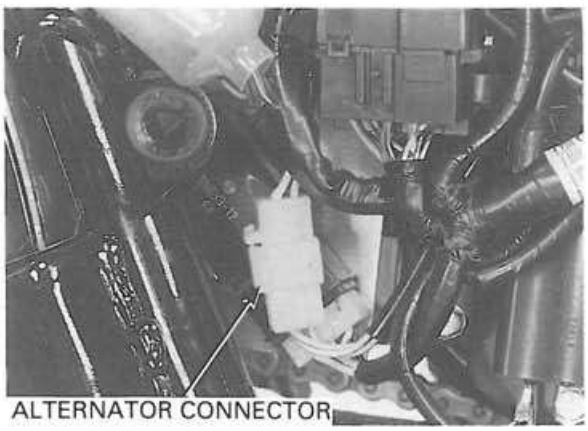
Remove the clutch cable holder bolt and disconnect the clutch cable from the clutch lifter arm.



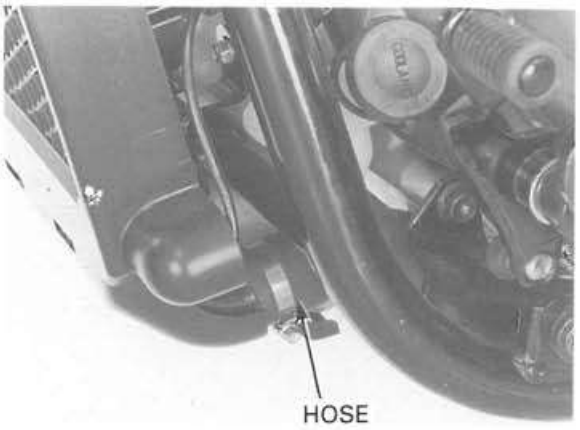
Disconnect the ignition pulse generator wire 2P (White) connector and free the wire harness from the engine and frame.



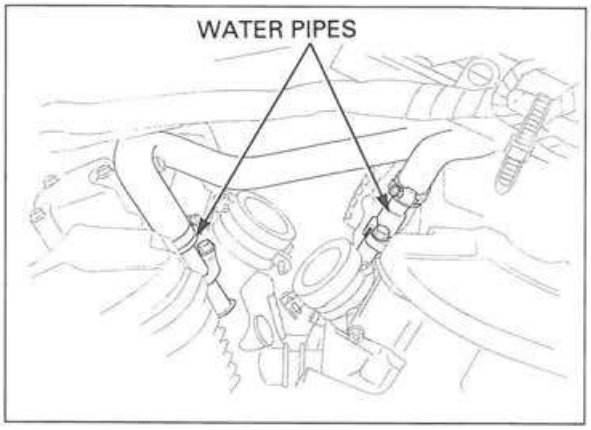
Disconnect the alternator wire 3P connector (White) and free the wire harness from the engine and frame.



Loosen the hose band and disconnect the lower radiator hose from the radiator.



Remove the bolts and disconnect the water pipes (thermostat housing-to-cylinder heads) from the cylinder heads.



The jack height must be continually adjusted to relieve stress for bolt removal.

Place a floor jack or other adjustable support under the engine.

CAUTION:

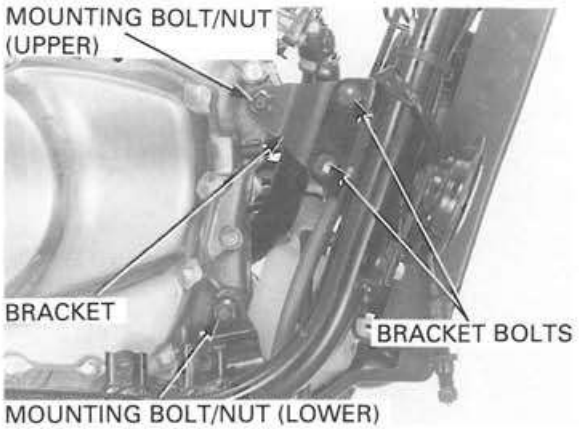
Do not support the engine using the oil filter. This may break the oil filter mount resulting in crankcase replacement.

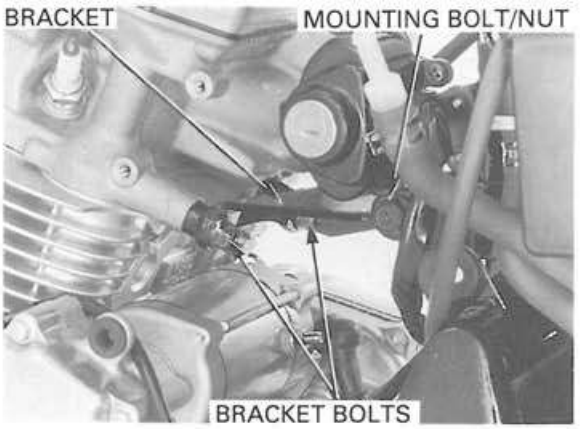
Remove the front upper engine mounting bolt/nut (10 mm) and collar.

Remove the front upper engine bracket bolts (8 mm) and bracket.

Remove the front lower engine mounting bout/nut (10 mm).
Remove the front lower engine bracket bolts (8 mm) and bracket.

Remove the rear engine mounting bolt/nut (10 mm).
Remove the rear engine bracket bolts (8 mm) and bracket.



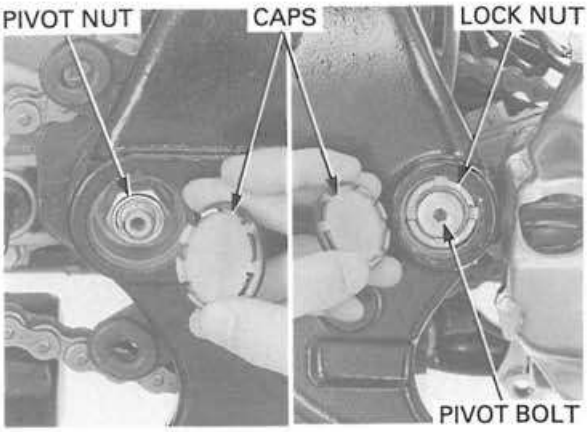


Remove the swingarm pivot bolt caps.
Remove the swingarm pivot nut, lock nut, pivot bolt and collars.

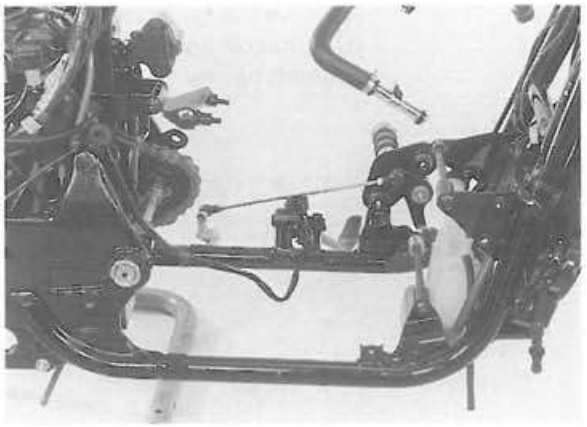
CAUTION:

During engine removal, hold the engine securely and be careful not to damage the frame, engine and radiator fin.

Remove the engine from the right side of the frame.



ENGINE INSTALLATION



CAUTION:

Carefully align the mounting points with the jack to prevent damage to engine, frame, wires and cables.

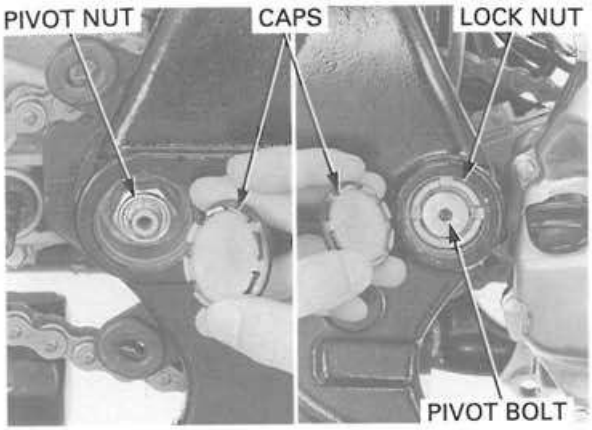
NOTE:

- All the engine mounting bolts and nuts loosely install, then tighten the bolts and nuts to the specified torque.
- At engine installation, temporarily install the drive chain to the gearshift spindle.
- Be sure to install the mounting collars and swingarm dust seals in their correct positions.

Use a floor jack or other adjustable support to carefully maneuver the engine in to place.
Carefully align the bolt holes in the frame and engine.

Install the swingarm pivot collars, pivot bolt and nut. Tighten the swingarm pivot bolt and nuts to the specified torque.
– Tightening procedure (page 14-26).

Install the swingarm pivot bolt caps.

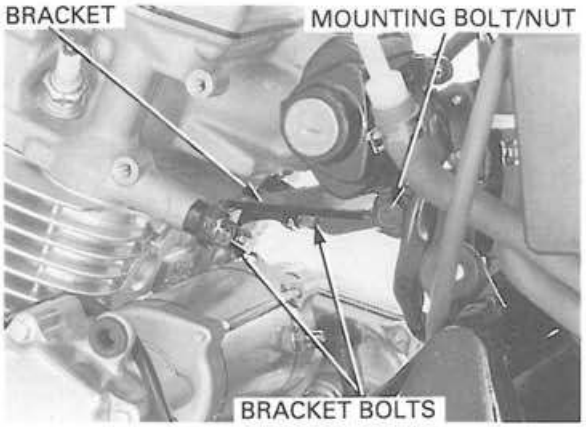


Install the rear engine bracket and bracket bolts (8 mm).
Install the rear engine mounting bolt/nut (10 mm).

Install the front lower engine bracket and bracket bolts (8 mm).
Install the front lower engine mounting bolt/nut (10 mm).

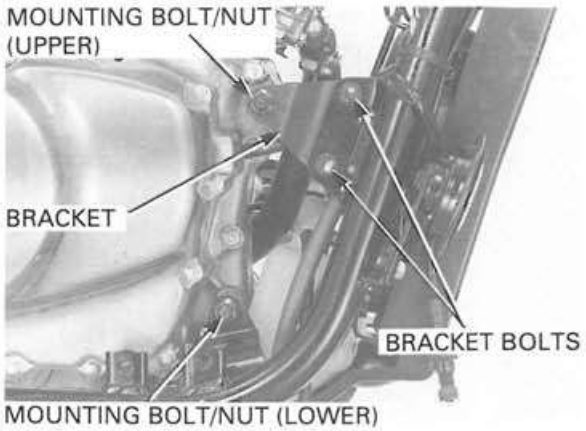
Install the front upper engine bracket and bracket bolts (8 mm).

Install the collar and front upper engine mounting bolt/nut (10 mm).

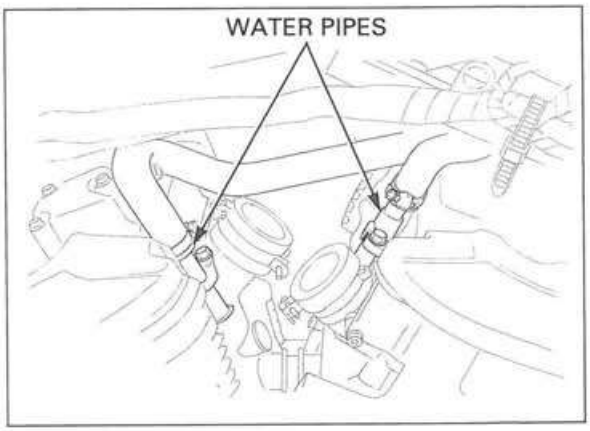


Tighten the engine bracket and mounting bolt/nut to the specified torque.

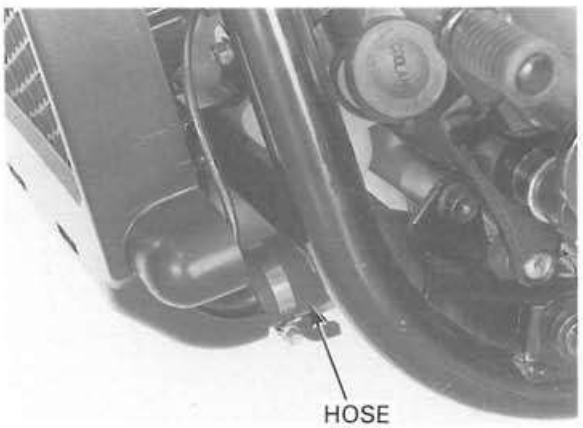
TORQUE:
Front engine mounting bolt
54 N•m (5.5 kgf•m, 40 lbf•ft)
Rear engine mounting bolt
54 N•m (5.5 kgf•m, 40 lbf•ft)
Front engine bracket bolt
26 N•m (2.7 kgf•m, 20 lbf•ft)
Rear engine bracket bolt
26 N•m (2.7 kgf•m, 20 lbf•ft)



Connect the water pipes (thermostat housing-to-cylinder heads) to the cylinder heads.
Install and tighten the mounting bolts securely.

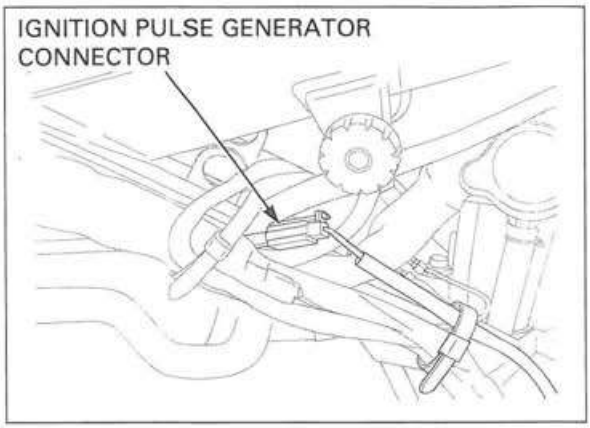


Connect the lower radiator hose to the radiator and tighten the radiator hose band securely.

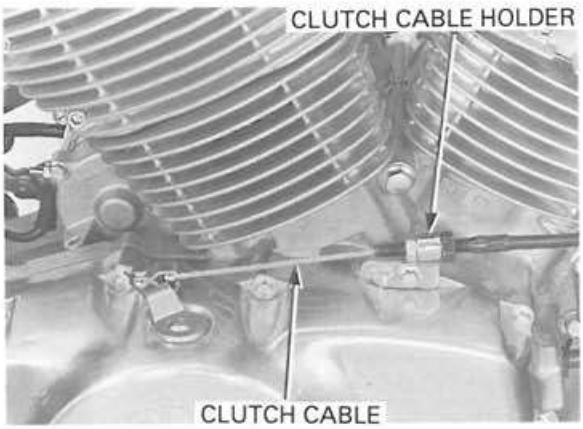


Route the alternator wire harness properly (refer to section 2).
Connect the alternator wire 3P (White) connector.

Route the ignition pulse generator wire harness properly (refer to section 2).
Connect the ignition pulse generator wire 2P (White) connector.

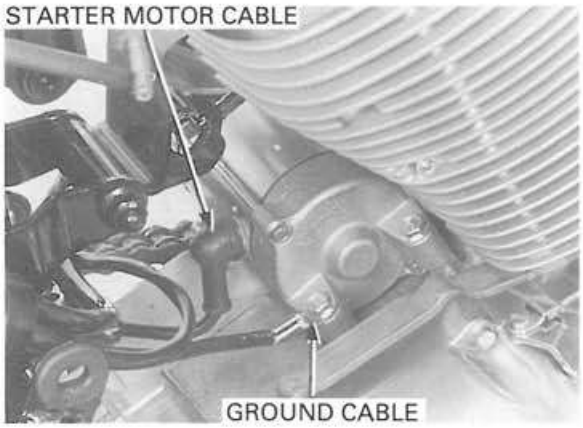


Connect the clutch cable to the clutch lifter arm.
Install the clutch cable holder and bolt.
Tighten the holder bolt securely.



Connect the starter motor cable and ground cable to the starter motor.
Install and tighten the cable nut to the specified torque.

TORQUE: 10 N•m (1.0 kgf•m, 7 lbf•ft)

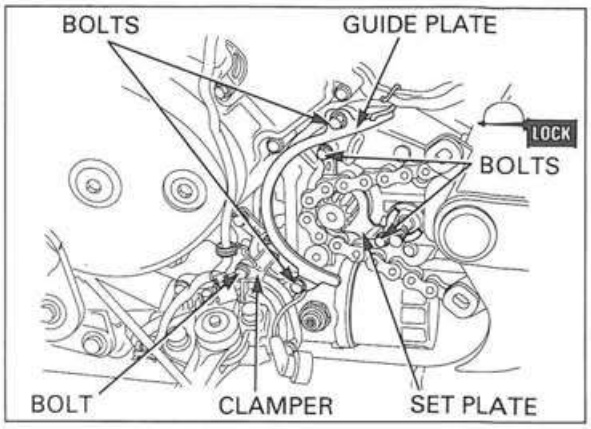


Route the neutral switch and oil pressure switch wire harness properly (refer to section 2).
Clean and apply a locking agent to the countershaft set plate bolt threads.
Install the countershaft oil seal set plate then tighten the mounting bolts securely.

Install the drive chain guide plate then tighten the mounting bolts to the specified torque.

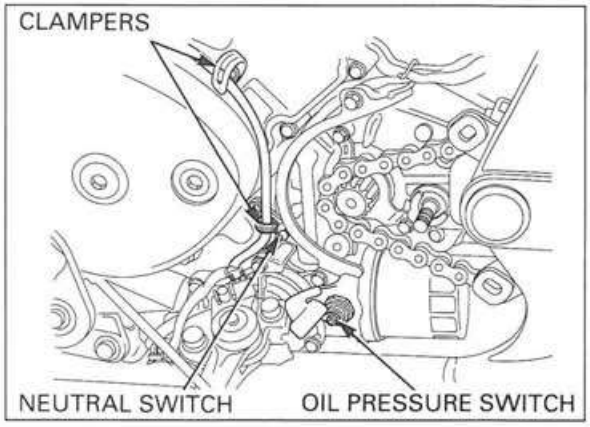
TORQUE: 12 N•m (1.2 kgf•m, 9 lbf•ft)

Install the cord clamper then tighten the mounting bolts securely.



Connect the neutral switch and oil pressure switch cord terminal.
Install and tighten the oil pressure switch terminal screw to the specified torque.

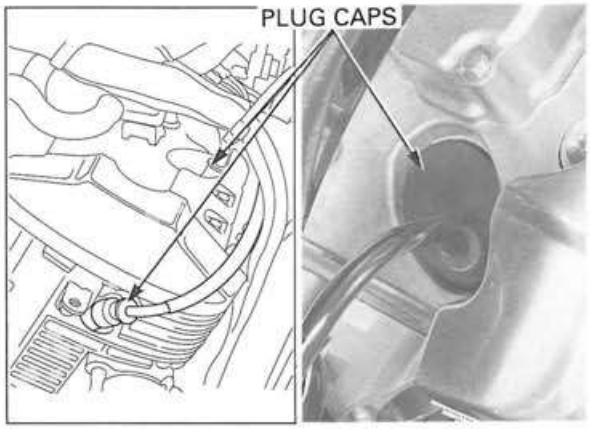
TORQUE: 2 N•m (0.2 kgf•m, 1.4 lbf•ft)



Connect the spark plug caps.

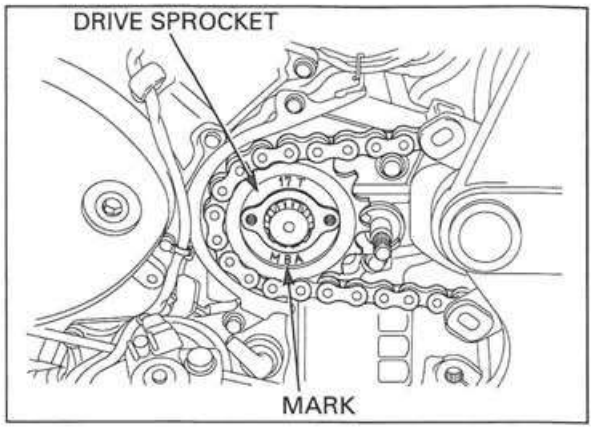
Install the following:
- Drive sprocket (see below)
- Right footpeg and rear brake pedal (page 14-16)
- Exhaust pipe/muffler (page 2-8)
- Sub-air cleaner housing (page 10-35)
- Carburetor (page 5-20)
- Air cleaner chamber (page 5-7)
- Air cleaner housing (page 5-4)
- Steering cover (page 2-3)
- Fuel tank (page 2-4)

Fill the engine oil (page 3-12)
Fill and breed the cooling system (page 6-5).
Connect the battery negative cable to the battery terminal.

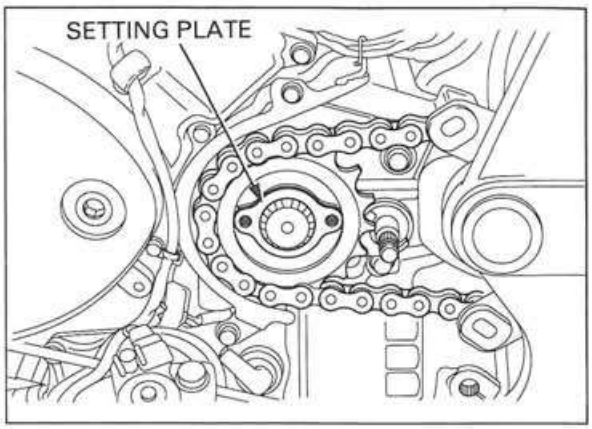


DRIVE SPROCKET INSTALLATION

Install the drive chain to the drive sprocket.
Install the drive sprocket to the coutershaft with its marking side facing out.

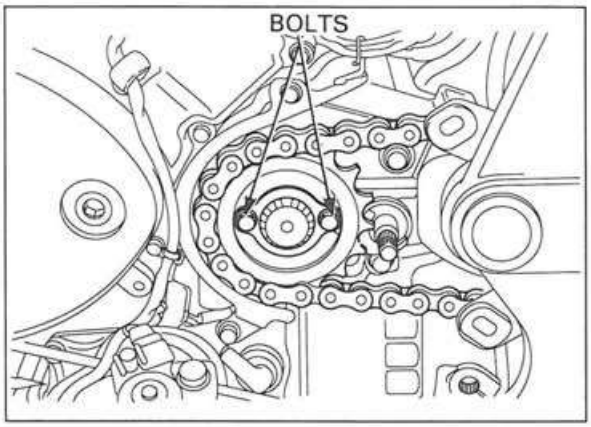


Install the drive sprocket setting plate onto the countershaft and align the bolt holes on the plate with the holes of the sprocket.

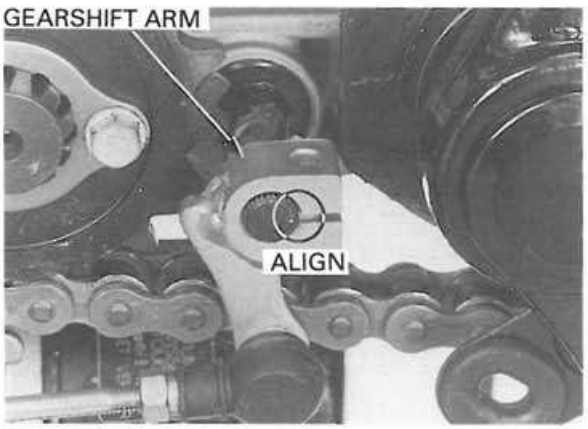


Install and tighten the drive sprocket setting plate bolts to the specified torque.

TORQUE: 10 N•m (1.0 kgf•m, 7 lbf•ft)

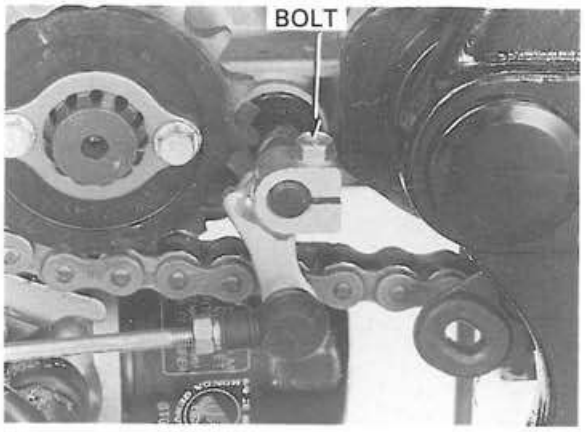


Install the gearshift arm to the gearshift spindle by aligning the punch mark on the spindle with the cut-out of the gearshift arm.



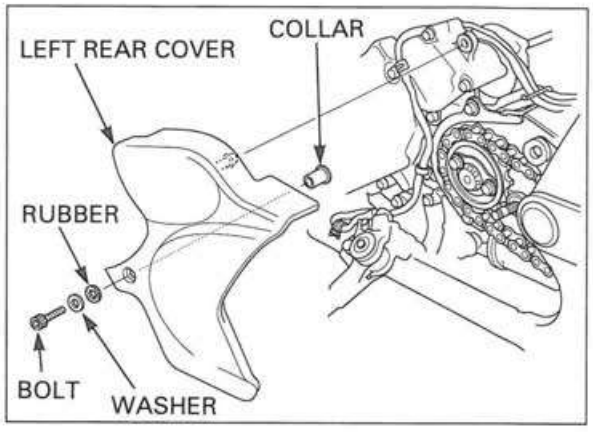
Install and tighten the gearshift arm pinch bolt to the specified torque.

TORQUE: 12 N•m (1.2 kgf•m, 9 lbf•ft)



Install the collar, left rear cover, rubber, washer and bolt.
Tighten the bolt to the specified torque.

TORQUE: 12 N•m (1.2 kgf•m, 9 lbf•ft)

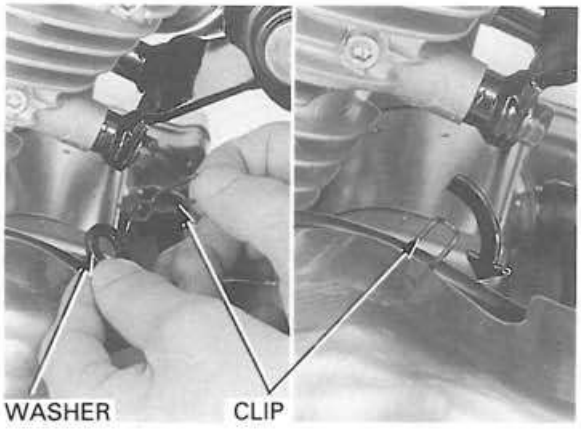


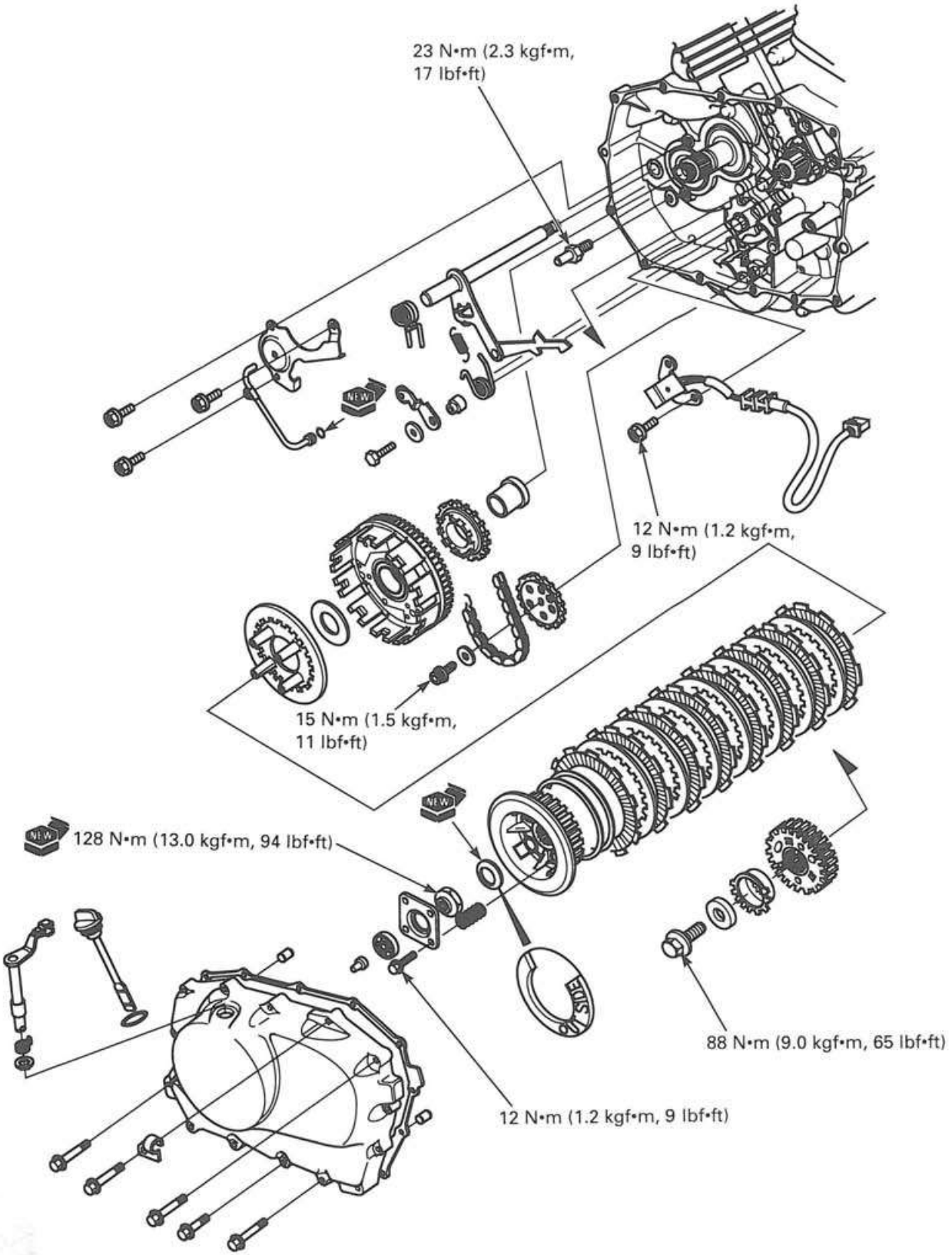
Install the washer and clip to the securely.

NOTE:

After installation, turn the clip clockwise and down behind the left rear cover.

Adjust the drive chain slack (page 3-18).




23 N•m (2.3 kgf•m, 17 lbf•ft)
NEW
12 N•m (1.2 kgf•m, 9 lbf•ft)
15 N•m (1.5 kgf•m, 11 lbf•ft)
NEW
128 N•m (13.0 kgf•m, 94 lbf•ft)
NEW
88 N•m (9.0 kgf•m, 65 lbf•ft)
12 N•m (1.2 kgf•m, 9 lbf•ft)

8. CLUTCH/GEARSHIFT LINKAGE

SERVICE INFORMATION

GENERAL

- The clutch and gearshift linkage maintenance can be done with the engine in the frame.
- Engine oil viscosity and level, and the use of oil additives have an effect on clutch disengagement. Oil additives of kind are not recommended. When the clutch does not disengage or the motorcycle creeps with the clutch disengaged, inspect the engine oil viscosity and level before servicing the clutch system.
- Clean off any gasket material from the right crankcase cover surface.
- Be careful not to damage the crankcase cover mating surface when servicing.
- When removing or servicing the clutch and gearshift linkage, use care not to allow dust or dirt to enter the engine.
- The crankcase must be separated when the transmission requires service (Section 11).
- Refer to section 17 for ignition pulse generator inspection.

8

SPECIFICATIONS

Unit: mm (in)

ITEM		STANDARD	SERVICE LIMIT
Clutch lever free play		10 – 20 (3/8 – 3/4)	———
Clutch spring free length		45.5 (1.79)	43.9 (1.73)
Clutch disc thickness	A	2.62 – 2.78 (0.103 – 0.107)	2.3 (0.09)
	B	2.92 – 3.08 (0.115 – 0.121)	2.6 (0.10)
Clutch plate warpage		———	0.30 (0.012)
Clutch outer guide	I.D.	21.991 – 22.016 (0.8658 – 0.8668)	22.03 (0.867)
	O.D.	29.994 – 30.007 (1.1089 – 1.1814)	29.98 (1.180)
Oil pump drive sprocket I.D.		30.025 – 30.145 (1.1821 – 1.1868)	30.15 (1.187)
Mainshaft O.D. at clutch outer guide		21.967 – 21.980 (0.8648 – 0.8654)	21.95 (0.864)

TORQUE VALUES

Clutch lifter plate bolt	12 N•m (1.2 kgf•m, 9 lbf•ft)	
Clutch center lock nut	128 N•m (13.0 kgf•m, 94 lbf•ft)	Apply oil to the threads and seating surface Stake
Primary drive gear bolt	88 N•m (9.0 kgf•m, 65 lbf•ft)	Apply oil to the threads and seating surface
Ignition pulse generator bolt	12 N•m (1.2 kgf•m, 9 lbf•ft)	Apply a locking agent to the threads
Oil pump driven sprocket bolt	15 N•m (1.5 kgf•m, 11 lbf•ft)	Apply a locking agent to the threads
Gearshift return spring pin	23 N•m (2.3 kgf•m, 17 lbf•ft)	
Gearshift pedal pivot bolt	34 N•m (3.5 kgf•m, 25 lbf•ft)	
Footpeg set arm bolt	26 N•m (2.7 kgf•m, 20 lbf•ft)	

TOOLS

Gear holder	07724-0010100
Attachment, 37 X 40 mm	07746-0010200
Pilot, 12 mm	07746-0040200
Pilot, 30 mm	07746-0040700
Attachment, 28 X 30 mm	07946-1870100
Clutch center holder	07JMB-MN50301 or 07HGB-001010B 07HGB-001010A and 07HGB-001020B or 07HGB-001020A (U.S.A. only)

TROUBLESHOOTING

Clutch lever too hard
- Damaged, kinked or dirty clutch cable
- Faulty clutch lifter plate bearing
- Damaged clutch lifter mechanism
- Improperly routed clutch cable

Clutch will not disengage or motorcycle creeps with clutch disengaged
- Too much clutch lever free play
- Warped clutch plates
- Loose clutch center lock nut
- Engine oil too high, improper oil viscosity

Clutch slips
- Clutch lifter sticking
- Worn clutch discs
- Weak clutch springs
- No clutch lever free play

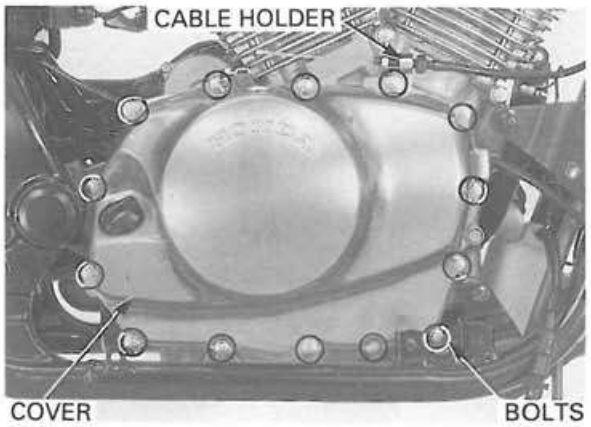
Hard to shift
- Improper clutch operation or incorrect clutch adjustment
- Bent or damaged shift forks (Section 12)
- Bent shift fork shaft (Section 12)
- Bent or damaged gearshift spindle
- Damaged shift drum cam grooves

Transmission jumps out of gear
- Worn gear dogs or slots
- Bent shift fork shaft (Section 12)
- Broken shift drum stopper arm
- Worn or bent shift forks (Section 12)
- Broken shift linkage return spring

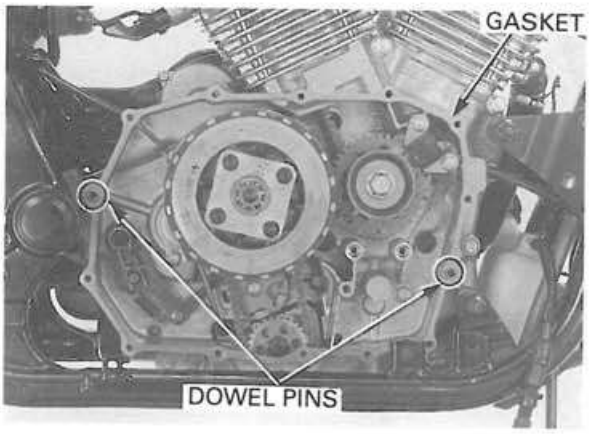
RIGHT CRANKCASE COVER REMOVAL

Drain the engine oil (page 3-12).
Remove the exhaust pipe/muffler (page 2-7).
Remove the right footpeg and rear brake pedal (page 14-15).

Remove the right crankcase bolts, clutch cable guide and cover.
Disconnect the clutch cable from the clutch lifter arm.

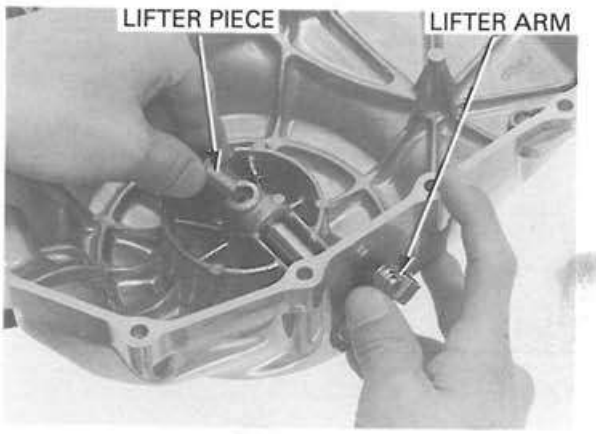


Remove the dowel pins and gasket.

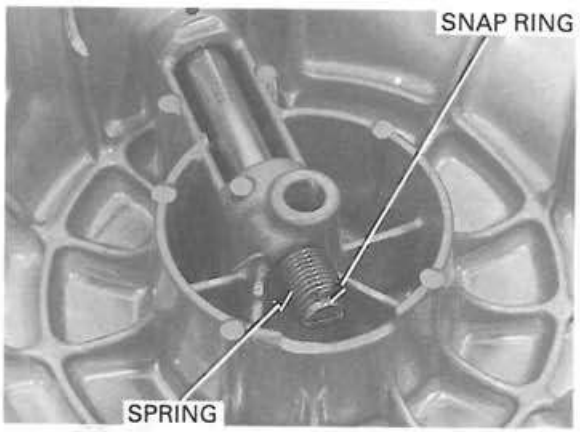


DISASSEMBLY

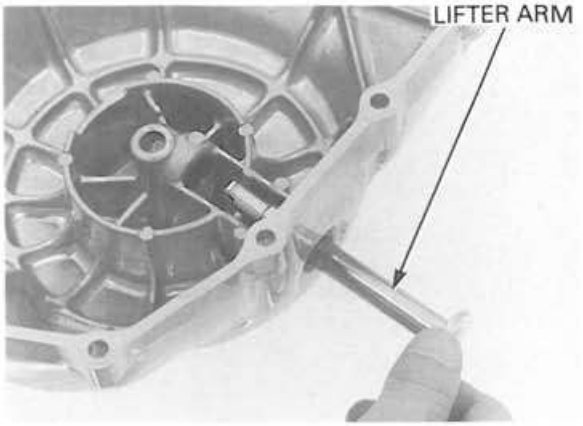
Remove the clutch lifter piece.



Remove the snap ring and return spring from the right crankcase cover.



Remove the clutch lifter arm.

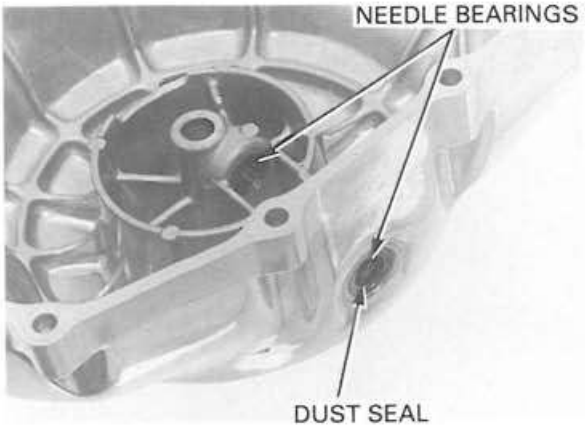


INSPECTION

Check the dust seal fatigue or damage.
Check the needle bearing for wear, damage or loose fit.
Replace these parts if necessary.

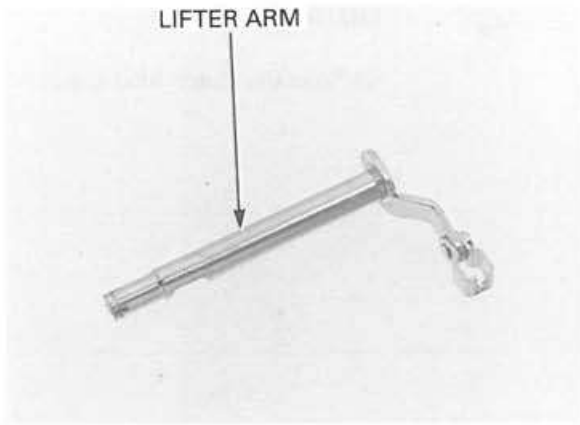
NOTE:

If the dust seal replacement is required, press the dust seal to the case surface.



Check the clutch lifter arm for damage or bending.
Check the spring for fatigue or damage.
Replace these parts if necessary.

Apply grease to the clutch lifter arm sliding surface.
Apply grease to the dust seal lips and needle bearing.

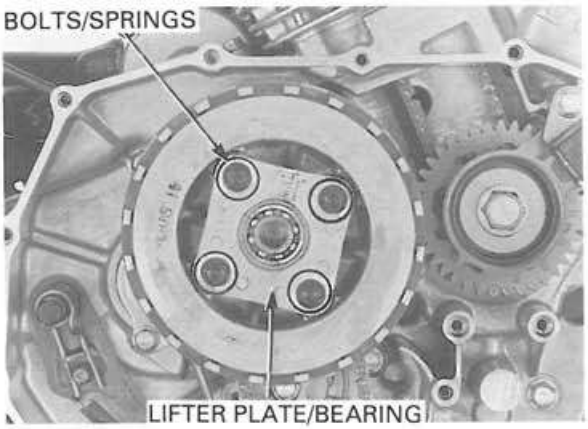


CLUTCH REMOVAL

If the oil pump driven sprocket will be removed, loosen the driven sprocket bolt while the clutch is still installed.

Remove the right crankcase cover (page 8-3).

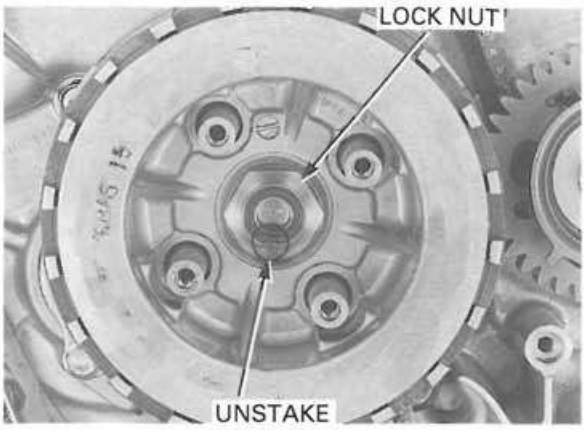
Loosen the clutch lifter plate bolts in a crisscross pattern in 2 or 3 steps.
Remove the lifter plate/bearing and clutch springs.



Unstake the clutch center lock nut.

CAUTION:

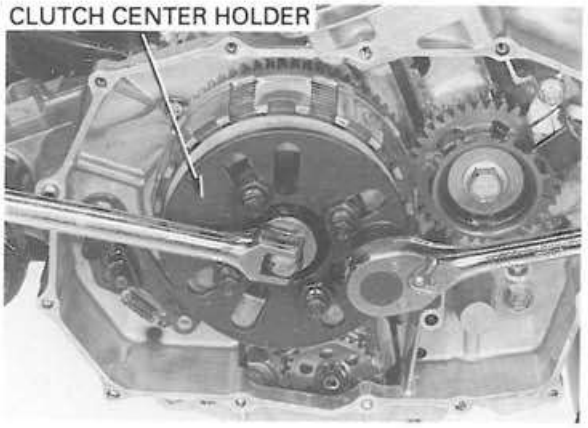
Be careful not to damage the mainshaft threads.



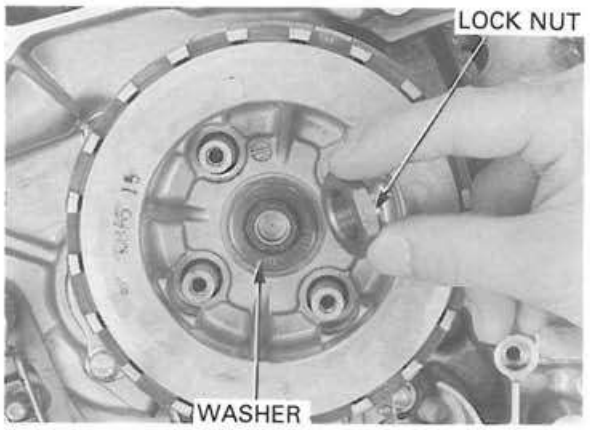
Hold the pressure plate with the clutch center holder and loosen the clutch center lock nut.

TOOL:

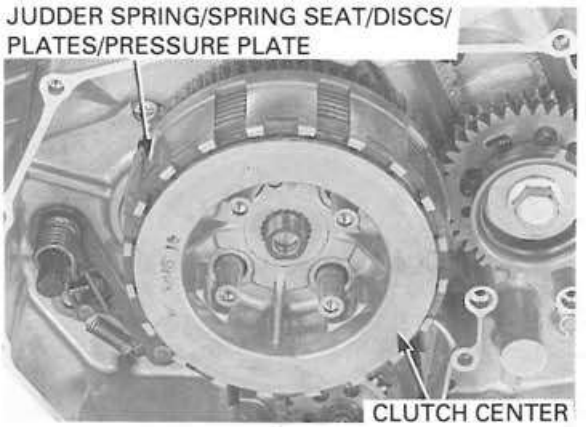
Clutch center holder	**07JMB-MN50301 or 07HGB-001010B 07HGB-001010A and 07HGB-001020B or 07HGB-001020A (U.S.A. only)**



Remove the clutch center lock nut, spring washer and washer.

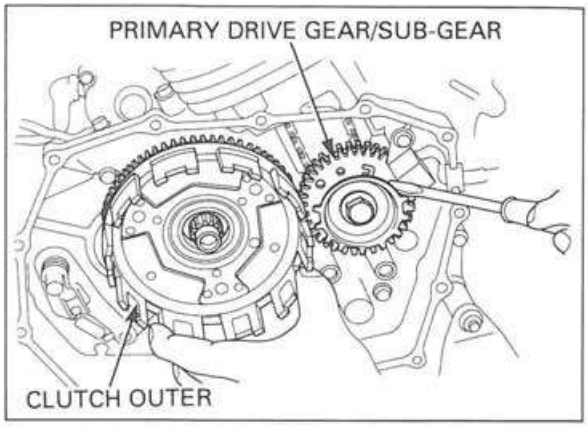


Remove the clutch center.
Remove the judder spring, spring seat, clutch discs and clutch plates.
Remove the pressure plate.

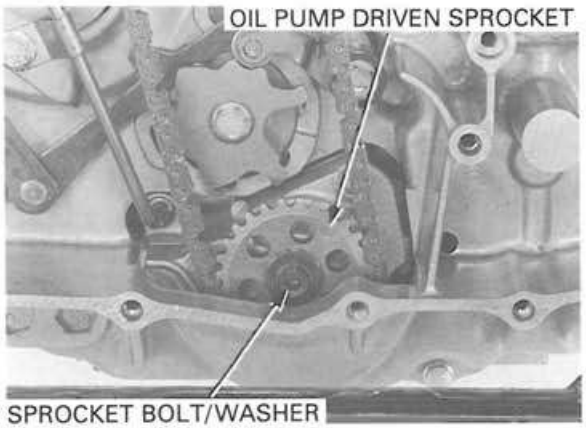


Remove the washer.

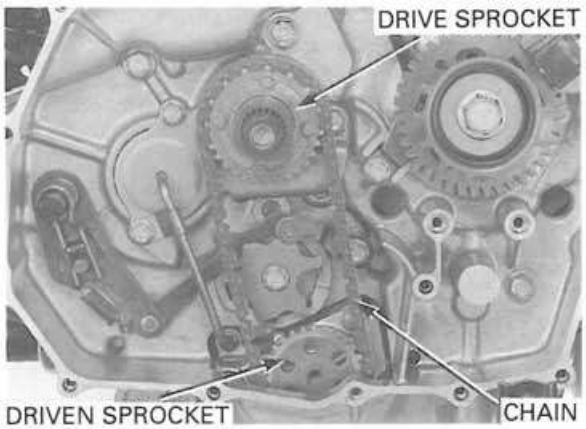
Align the primary drive gear and sub-gear teeth (anti-back-lash gear) with a slotted head screwdriver. Remove the clutch outer.



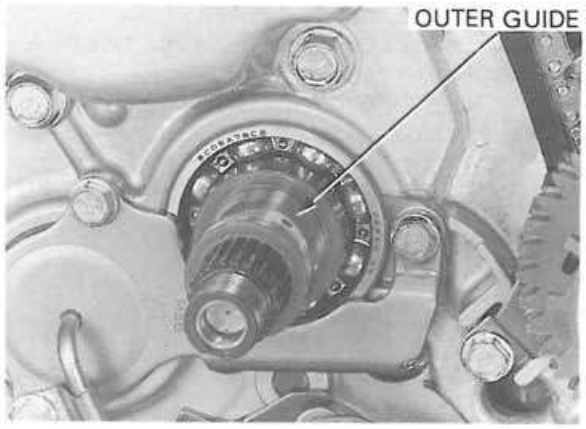
Remove the oil pump driven sprocket bolt and washer.



Remove the oil pump drive sprocket, driven sprocket and oil pump drive chain as a set.



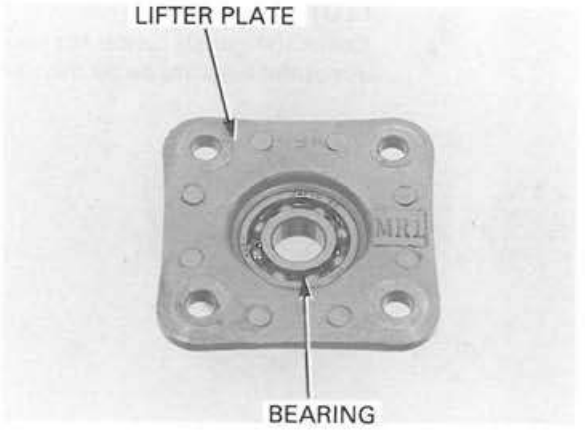
Remove the clutch outer guide.



INSPECTION

LIFTER PLATE BEARING

Check the lifter plate bearing for damage.
Turn the bearing inner race with your finger. The bearing should turn smoothly and quietly without play.
Also check that the bearing outer race fits in the plate.
Replace the bearing if necessary.

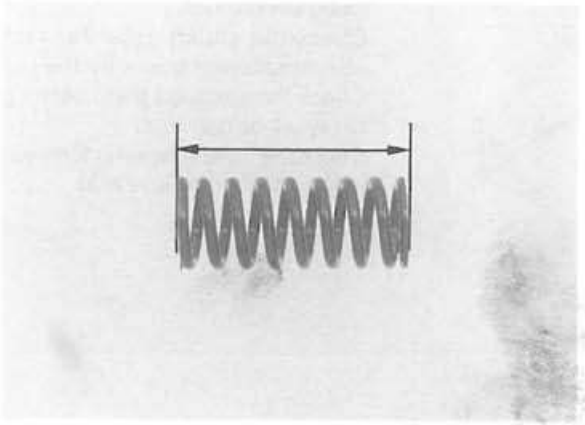


CLUTCH SPRING

Replace the clutch springs as a set.

Measure the clutch spring free length.

SERVICE LIMIT: 43.9 mm (1.73 in)



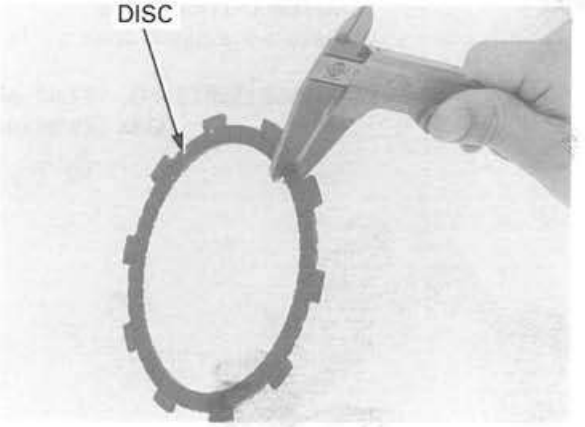
CLUTCH DISC

Replace the discs and plates as a set.

Check the clutch discs for signs of scoring or discoloration.

Measure the thickness of the discs.

SERVICE LIMITS: Disc A: 2.3 mm (0.09 in)
Disc B: 2.6 mm (0.10 in)



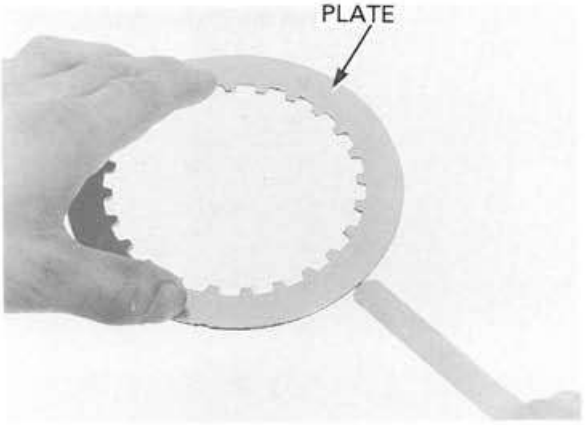
Replace the discs and plates as a set.

CLUTCH PLATE

Check the plate for excessive warpage or discoloration.

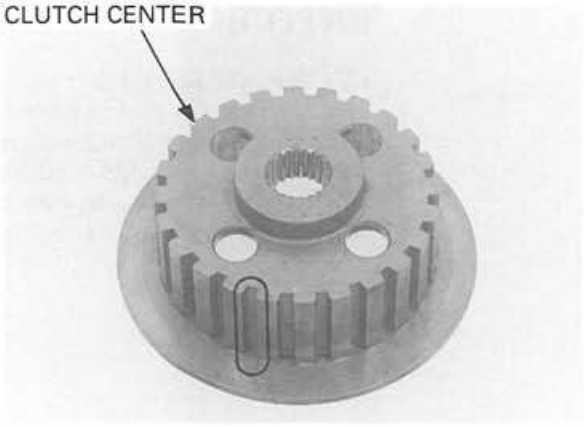
Check the plate warpage on a surface plate using a feeler gauge.

SERVICE LIMIT: 0.30 mm (0.012 in)



CLUTCH CENTER

Check the clutch center for nicks, indentations or abnormal wear made by the clutch plates.

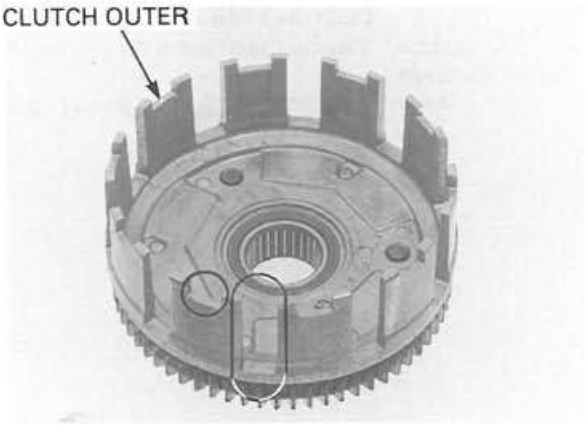


CLUTCH OUTER

Check the clutch outer for nicks, indentations or abnormal wear made by the clutch discs.

Check the serrated teeth of the primary driven gear for wear or damage.

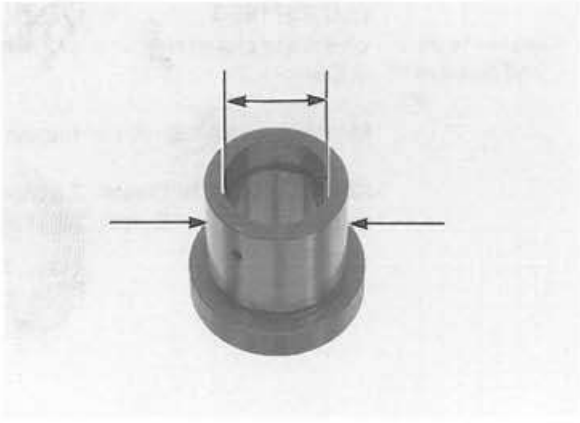
Check the needle bearing for wear or damage; replace as a necessary (page 8-9).



CLUTCH OUTER GUIDE

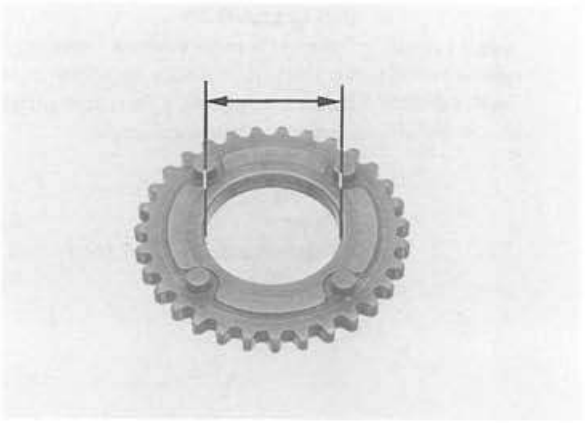
Measure the clutch outer guide.

SERVICE LIMITS: I.D. : 22.03 mm (0.867 in)
O.D. : 29.98 mm (1.180 in)



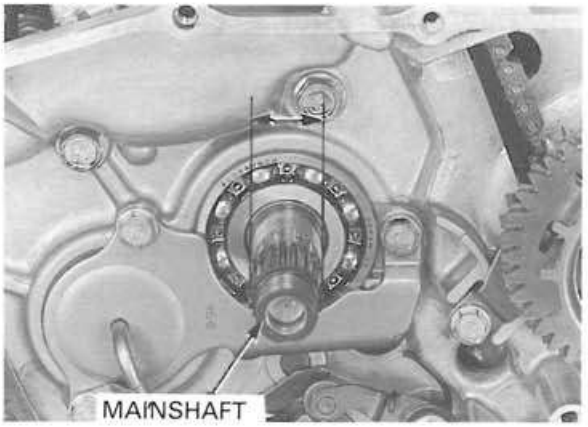
OIL PUMP DRIVE SPROCKET
Check the oil pump drive sprocket for damage. Measure the I.D. of the drive sprocket.

SERVICE LIMIT: 30.15 mm (1.187 in)

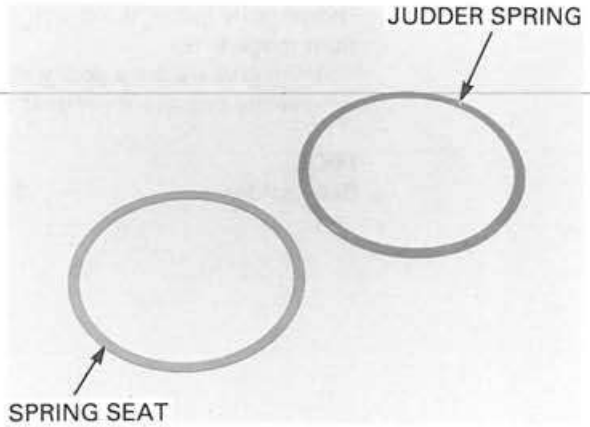


MAINSHAFT
Measure the mainshaft O.D. at the clutch outer guide.

SERVICE LIMIT: 21.95 mm (0.864 in)



JUDDER SPRING, SPRING SEAT
Check the spring seat and judder spring for distortion, wear or damage.

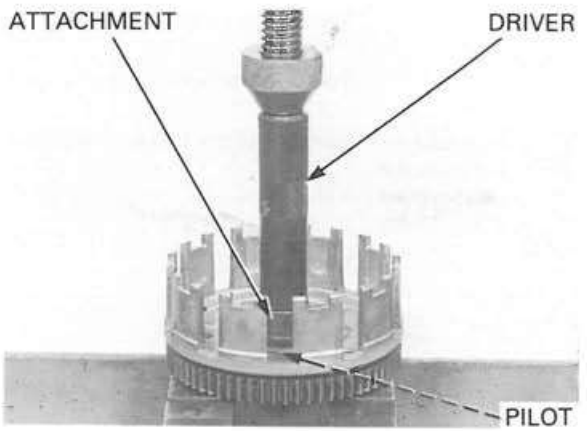


CLUTCH OUTER NEEDLE BEARING REPLACEMENT

REMOVAL
Press the needle bearing out of the clutch outer.

TOOLS:

Driver	**07749-0010000**
Attachment, 37 X 40 mm	**07746-0010200**
Pilot, 30 mm	**07746-0040700**



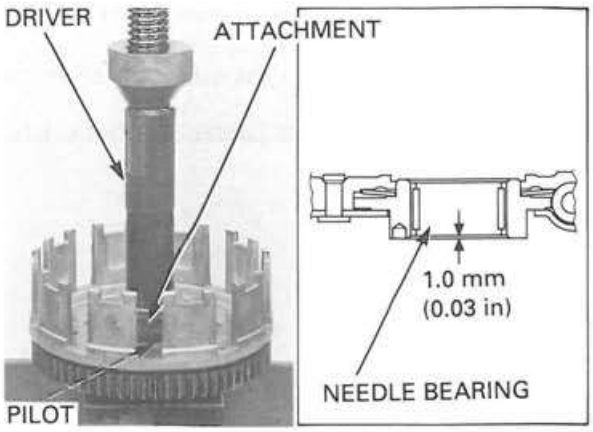
INSTALLATION

Install the new needle bearing with the mark facing out.

Press the new needle bearing into the clutch outer so that the needle bearing outer surface is 1.0 mm (0.03 in). below the outer edge of the clutch outer needle bearing cavity.

TOOLS:

Driver	**07749-0010000**
Attachment, 37 X 40 mm	**07746-0010200**
Pilot, 30 mm	**07746-0040700**

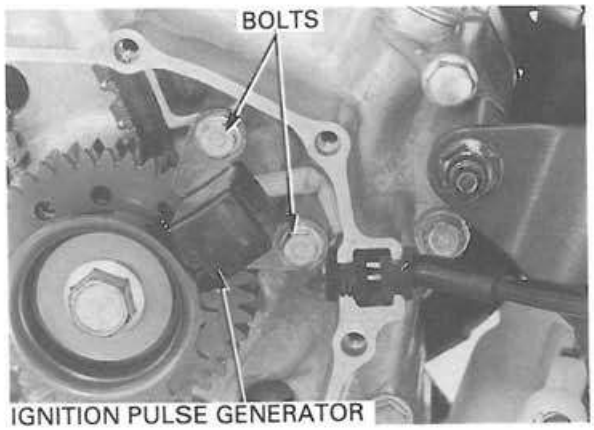


PRIMARY DRIVE GEAR

REMOVAL

Remove the clutch (page 8-4).

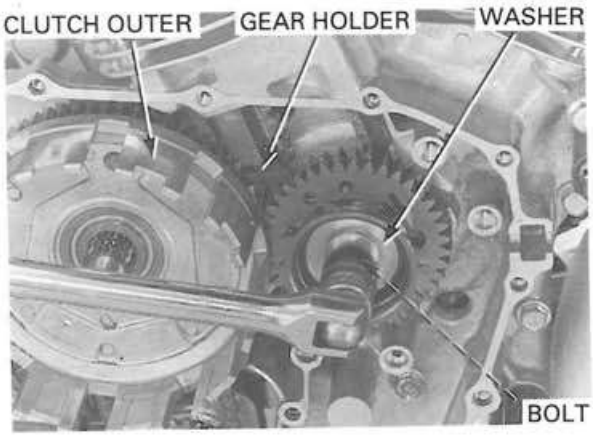
Remove the ignition pulse generator mounting bolts.
Remove the ignition pulse generator and grommets.



Temporarily install the clutch outer onto the mainshaft (page 8-18).
Hold the primary drive gear with the gear holder and remove the primary drive gear bolt and washer.

TOOL:

Gear holder	**07724-0010100**

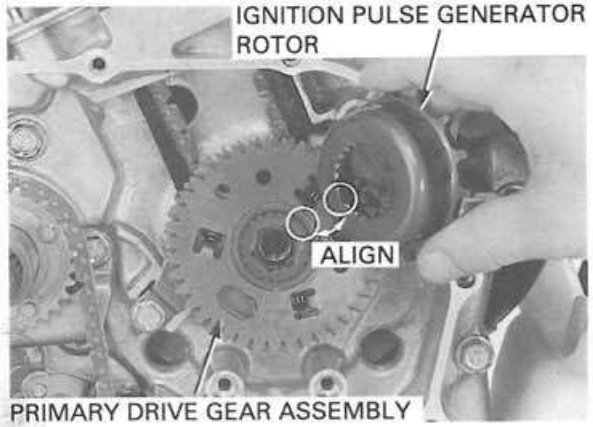


Remove the clutch outer and gear holder (page 8-6).

Remove the ignition pulse generator rotor.

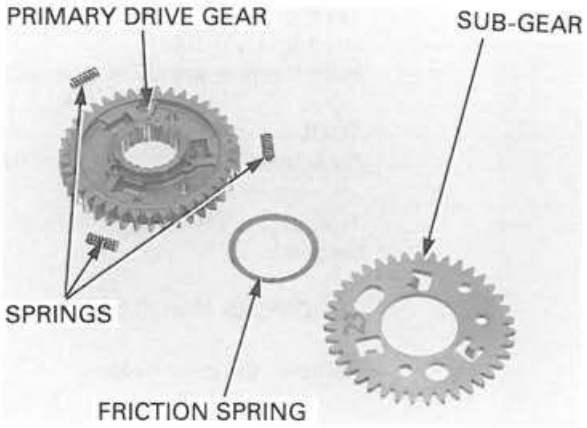
Be careful not to loose the disassembled parts.

Remove the primary drive gear as assembly.



INSPECTION

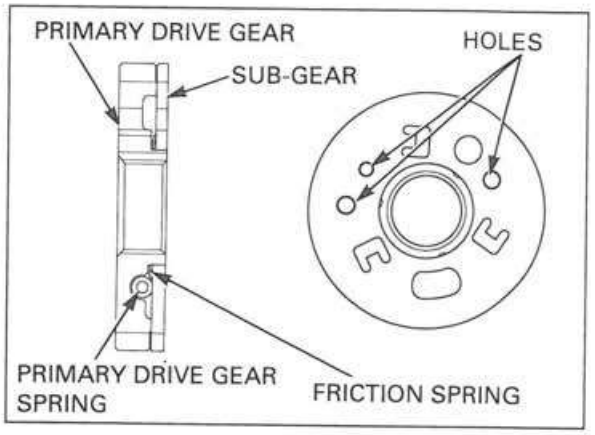
Check the serrated teeth of the primary drive gear for wear or damage.
Check the serrated teeth of the sub-gear for wear or damage.
Check the primary drive gear spring and friction spring for fatigue or damage.



INSTALLATION

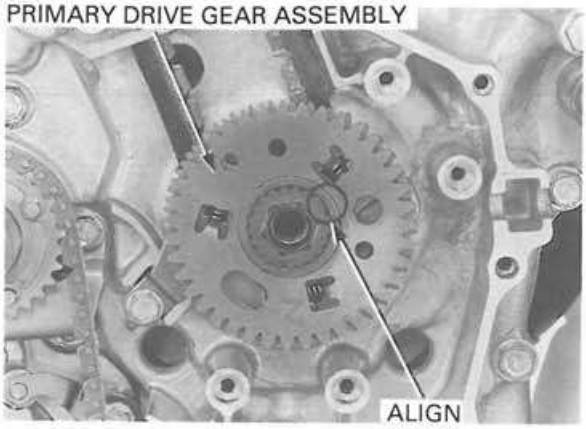
Align the three holes on the sub-gear and primary drive gear.

Assemble the primary drive gear, primary drive gear spring, friction spring and sub-gear as shown.



The primary drive gear will only go on in one position because of the extra wide aligning spline.

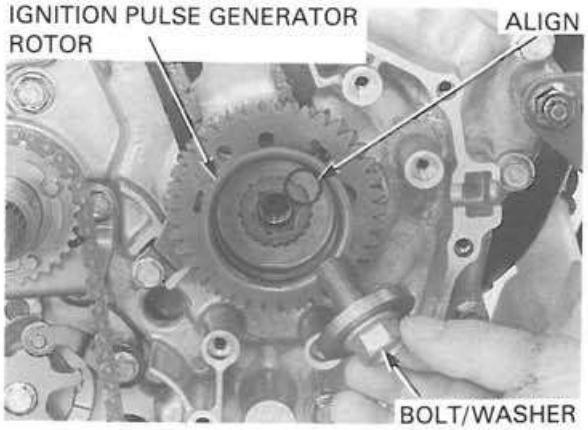
Install the primary drive gear assembly with the sub-gear side facing out.



The ignition pulse generator rotor will only go on in one position because of the extra wide aligning spline.

Install the ignition pulse generator rotor.

Apply engine oil to the primary drive gear bolt threads and seating surface.
Install the washer and primary drive gear bolt.



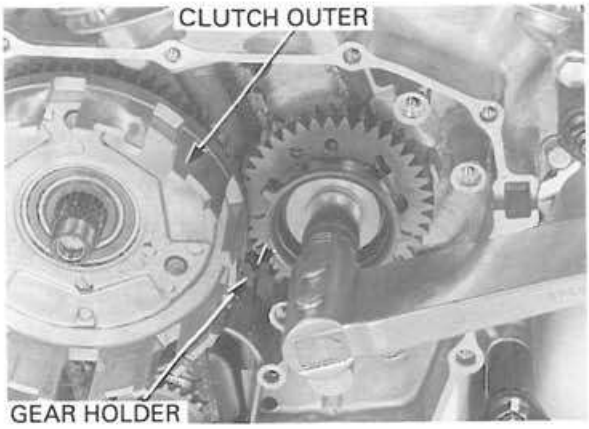
Temporarily install the clutch outer onto the mainshaft (page 8-18).
Hold the primary drive gear with the gear holder.

TOOL:
Gear holder **07724-0010100**

Tighten the primary drive gear bolt to the specified torque.

TORQUE: 88 N·m (9.0 kgf·m, 65 lbf·ft)

Remove the gear holder.



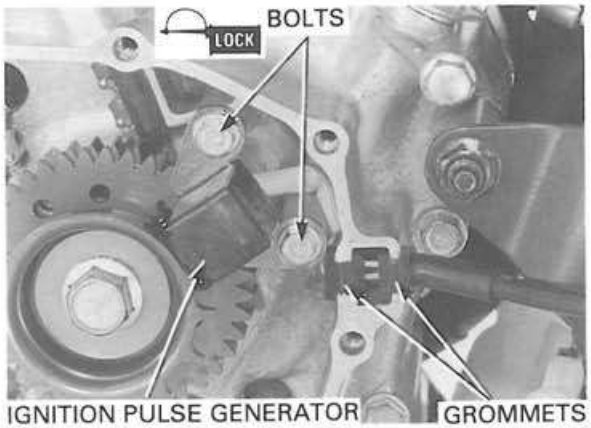
Apply a locking agent to the ignition pulse generator bolt threads.
Install the ignition pulse generator and tighten the bolts to the specified torque.

TORQUE: 12 N·m (1.2 kgf·m, 9 lbf·ft)

Install the clutch (page 8-18).

NOTE:

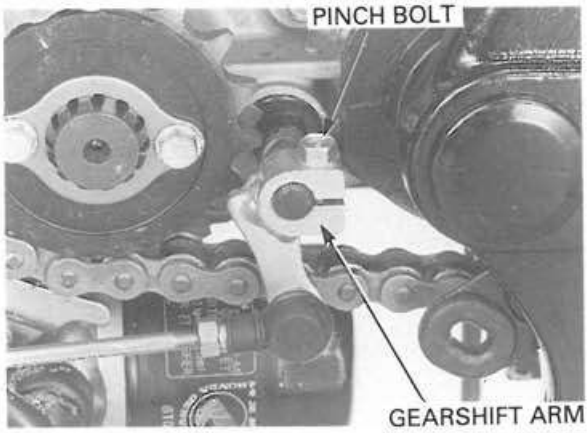
If the ignition pulse generator wire grom-mets were removed from the case groove, reinstall them securely.



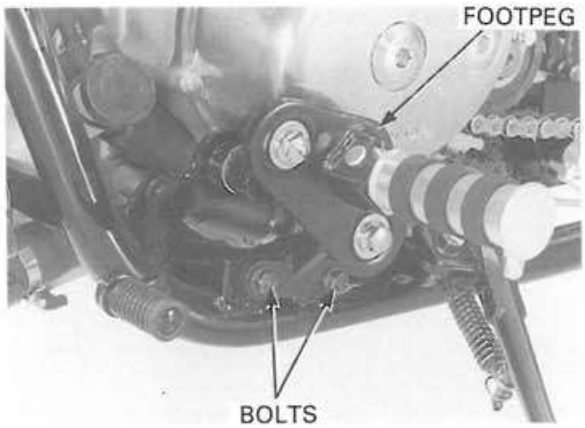
GEARSHIFT LINKAGE

REMOVAL

Remove the left rear cover (page 7-3).
Remove the gearshift arm pinch bolt and gearshift arm from the gearshift spindle.

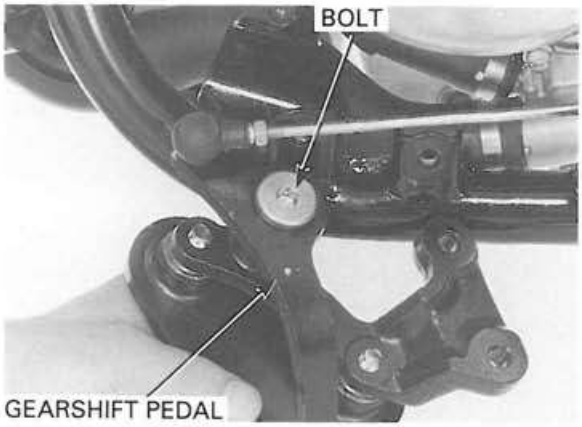


Remove the bolts and left footpeg as assembly.

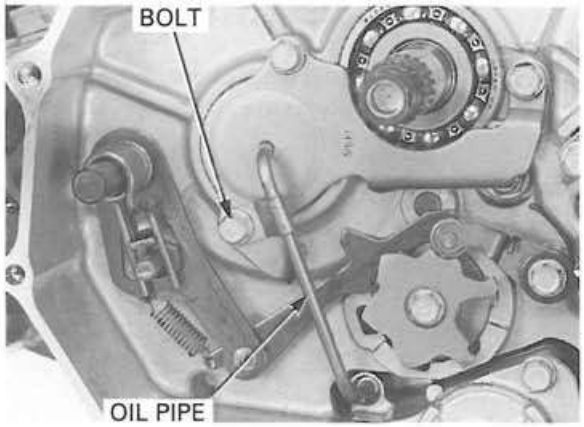


Remove the pivot bolt and gearshift pedal/arm from the left footpeg.

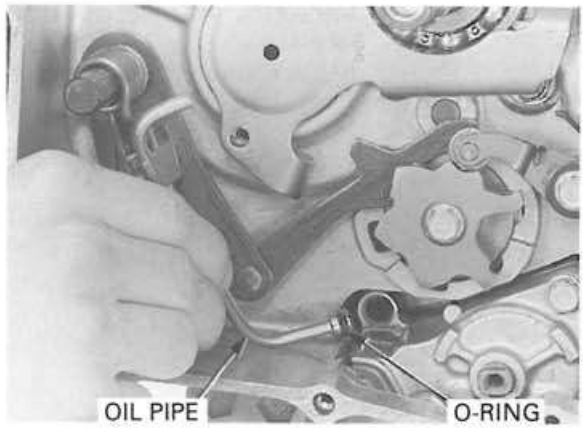
Remove the following:
- Right crankcase cover (page 8-3)
- Clutch (page 8-4)
- Oil pump drive chain (page 8-6)



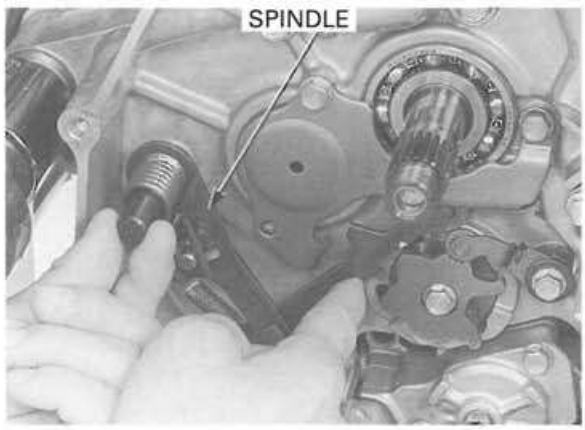
Remove the oil pipe stay mounting bolt and remove the oil pipe mounting bolt.
Pull the oil pipe out of the stay and oil pump.



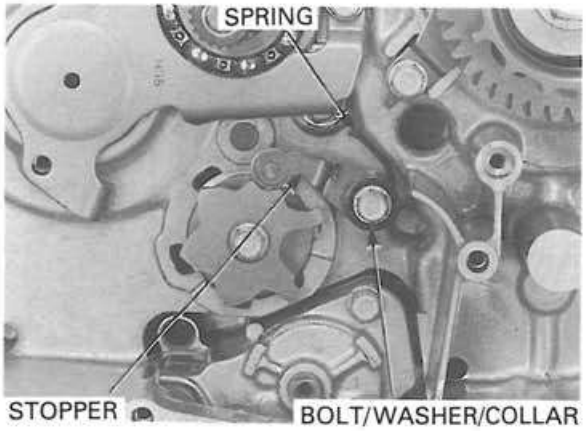
Remove the O-ring from the oil pipe.



Remove the gearshift spindle from the crankcase while unhooking the shifter arm from the gearshift cam plate.

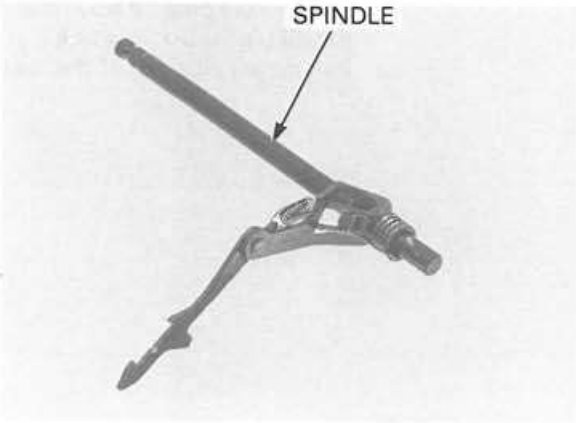


Remove the bolt, washer, gearshift drum stopper, collar and spring.

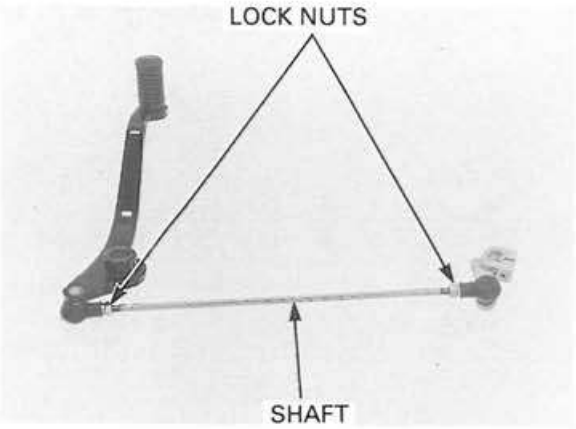


INSPECTION

Check the gearshift spindle for wear or damage.
Check the return spring for fatigue or damage.

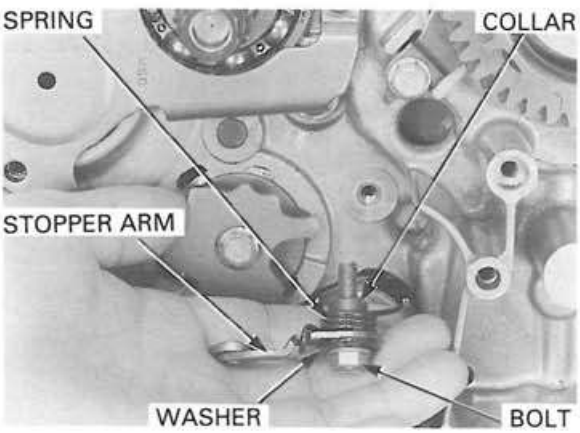


Inspect the gearshift pedal shaft for damage or loose lock nuts.
Replace the shaft if necessary.

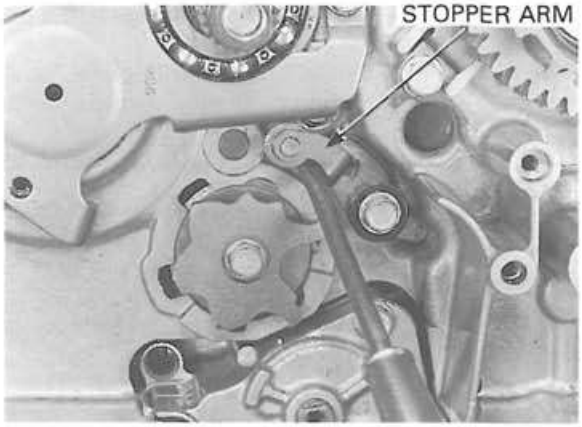


INSTALLATION

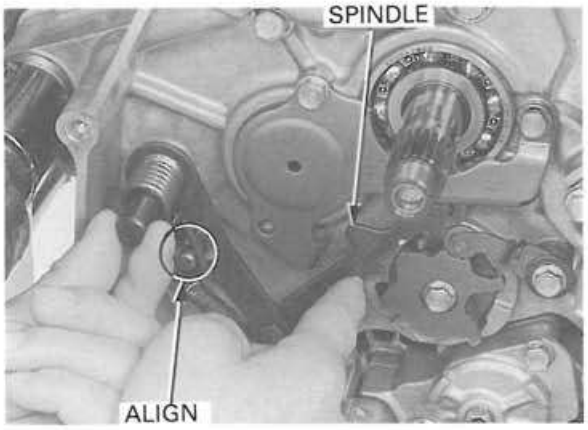
Install the collar, spring, gearshift drum stopper, washer and bolt as shown.



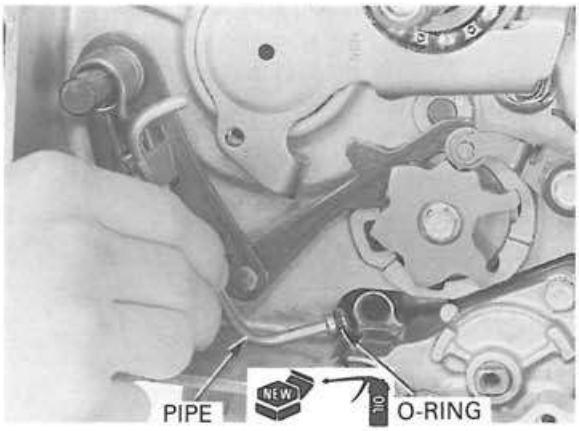
Hold the stopper arm with the screwdriver, and tighten the bolt securely as shown.



Install the gearshift spindle, aligning the return spring ends with the pin in the case.

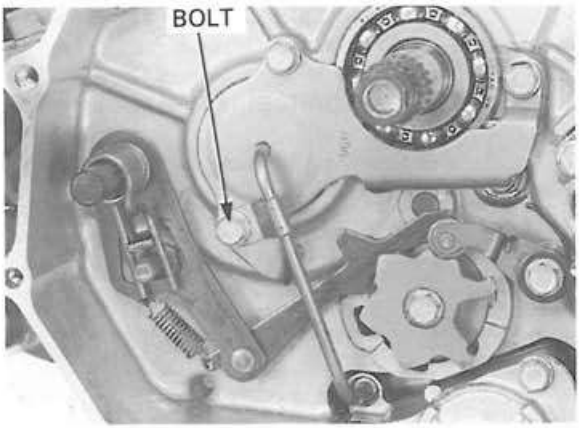


Apply oil to the new O-ring.
Install the oil pipe with a new O-ring onto the oil pipe stay and oil pump.



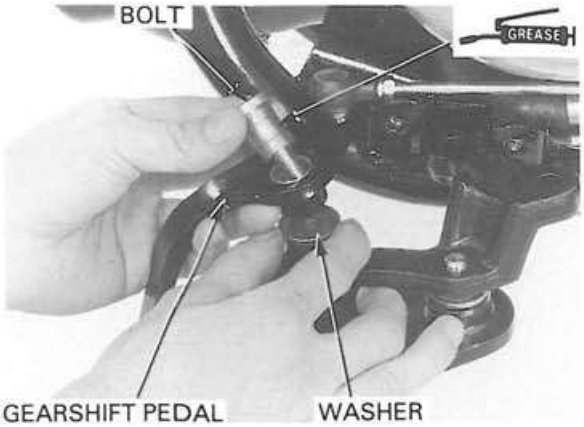
Install and tighten the bolt securely.

Install the following:
- Oil pump drive chain, clutch (page 8-17)
- Right crankcase cover (page 8-21)



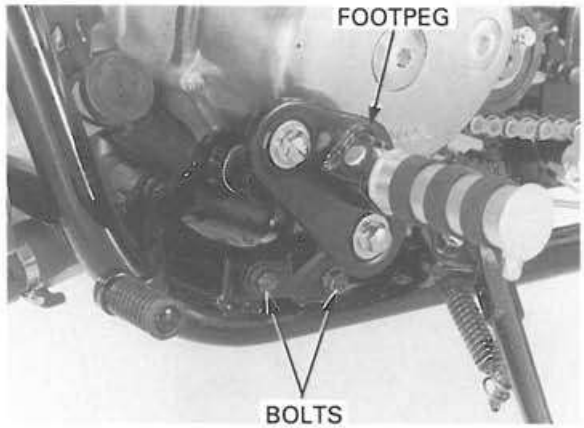
Apply grease to the gearshift pedal pivot bolt sliding area.
Install the gearshift pedal, washer and pivot bolt.
Tighten the mounting bolt to the specified torque.

TORQUE: 34 N·m (3.5 kgf·m, 25 lbf·ft)

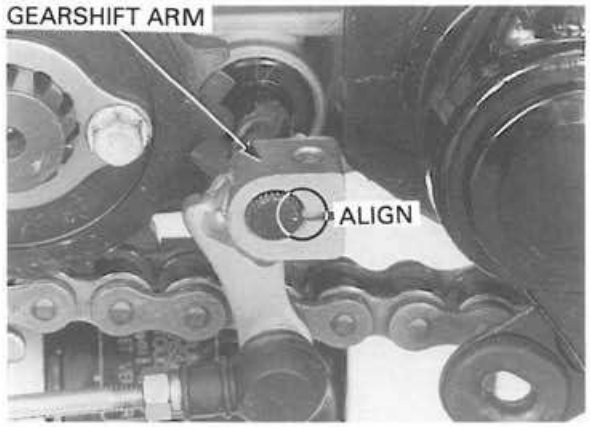


Install the left footpeg assembly.
Install and tighten the mounting bolts to the specified torque.

TORQUE: 26 N·m (2.7 kgf·m, 20 lbf·ft)



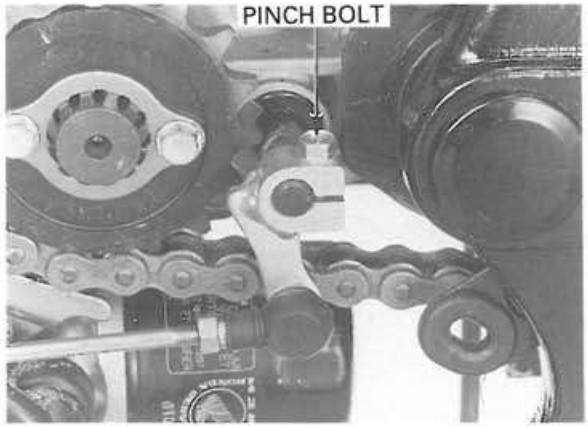
Install the gearshift arm to the gearshift spindle aligning the punch mark on the spindle with the punch mark of the gearshift arm.



Install and tighten the gearshift arm pinch bolt to the specified torque.

TORQUE: 12 N·m (1.2 kgf·m, 9 lbf·ft)

Install the left rear cover (page 7-14).



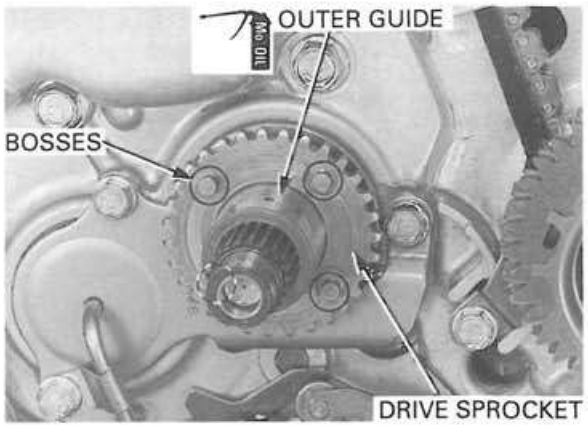
CLUTCH INSTALLATION

NOTE:

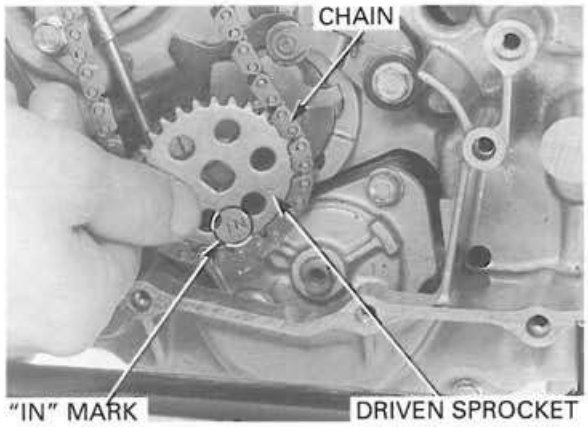
If the oil pump driven sprocket is removed, tighten the driven sprocket bolt to the specified torque after clutch installation.

Install the oil pump drive sprocket with its boss side facing out.

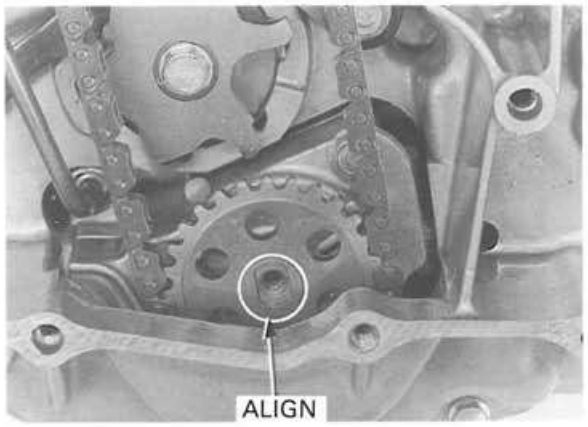
Apply molybdenum disulfide oil to the clutch outer guide outer surface.
Install the clutch outer guide to the mainshaft.
Install the oil pump drive sprocket to the clutch outer guide.



Install the oil pump drive chain to the oil pump drive and driven sprocket.
Install the oil pump driven sprocket with the "IN" mark on the driven sprocket facing inside.



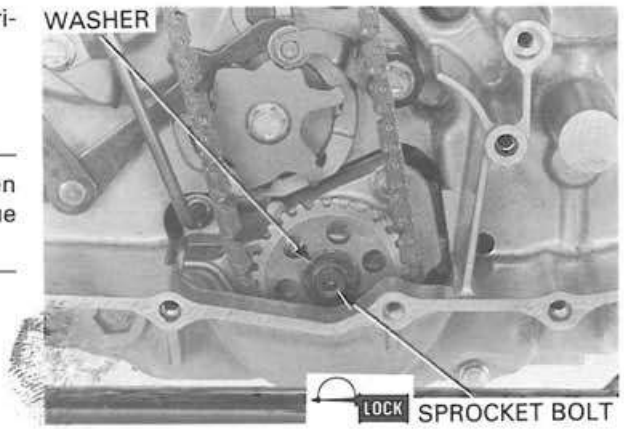
Align the flat surfaces of the driven sprocket hole and oil pump shaft end.



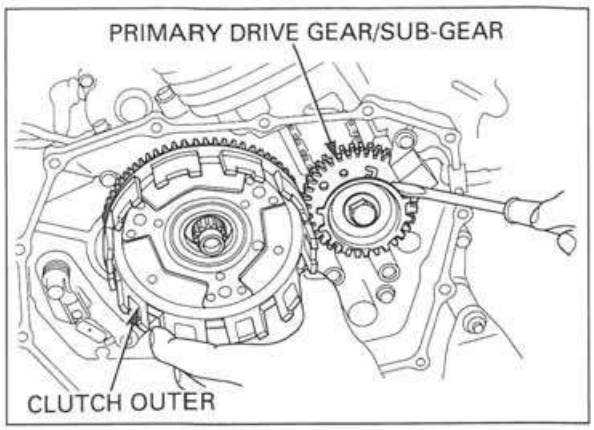
Clean and apply a locking agent to the oil pump driven sprocket bolt threads.
Install the oil pump driven sprocket bolt.

NOTE:

If the oil pump driven sprocket is removed, tighten the driven sprocket bolt to the specified torque after clutch installation.

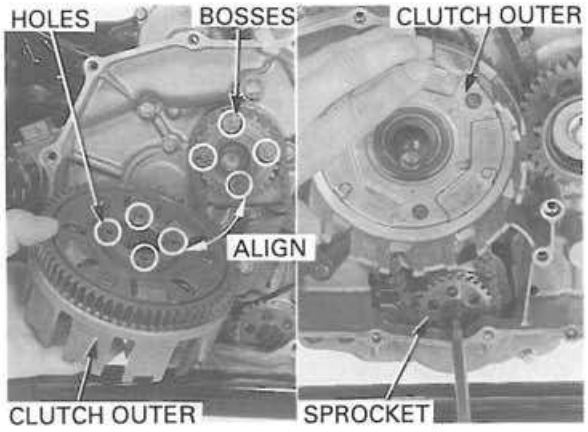


Align the primary drive gear and sub-gear teeth (anti-back-lash gear) with a sloted head screwdriver.
Install the clutch outer onto the mainshaft.

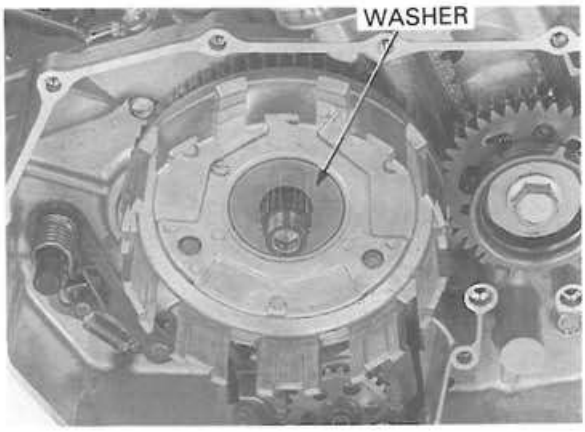


NOTE:

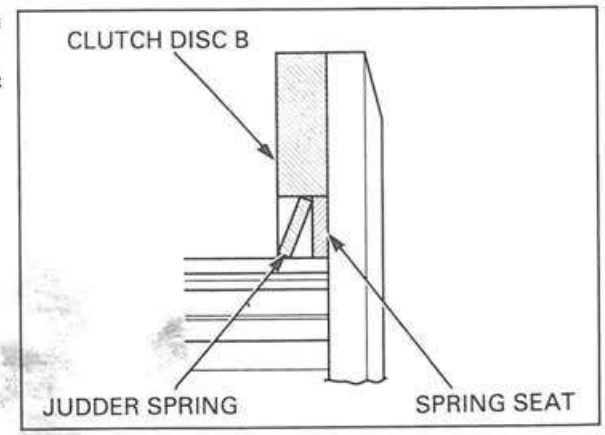
Align the holes in the clutch outer with the bosses on the oil pump drive sprocket while turning the sprock-et with the chain and pushing the clutch outer onto the shaft.



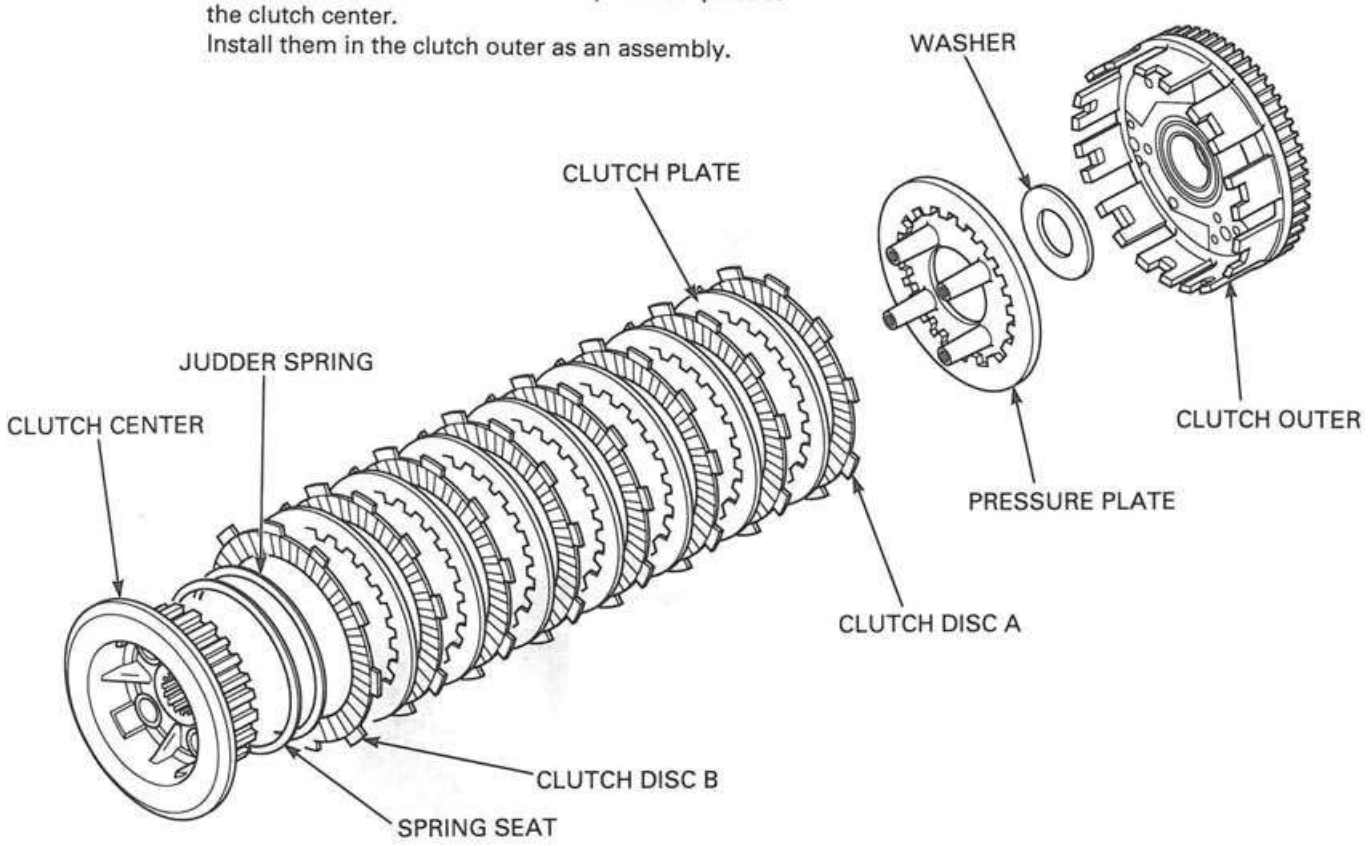
Install the thrust washer onto the mainshaft.



Coat the clutch discs and clutch plates with clean engine oil.
Install the spring seat, judder spring and clutch disc B on the clutch center as shown.

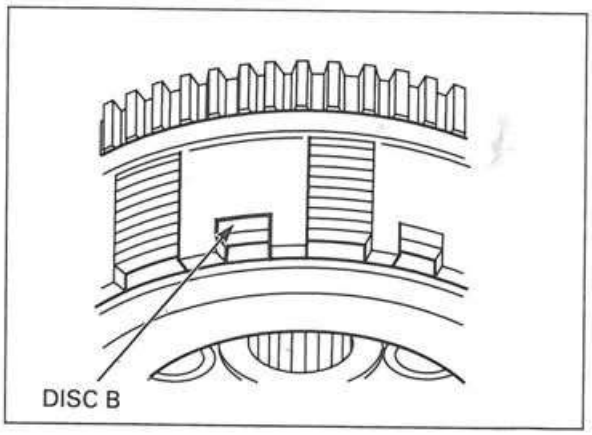


Install the seven clutch plates and seven clutch discs A alternately, and then install the pressure plate to the clutch center.
Install them in the clutch outer as an assembly.



NOTE:

When installing the clutch disc B, align the end groove in the clutch outer with the tabs of disc.



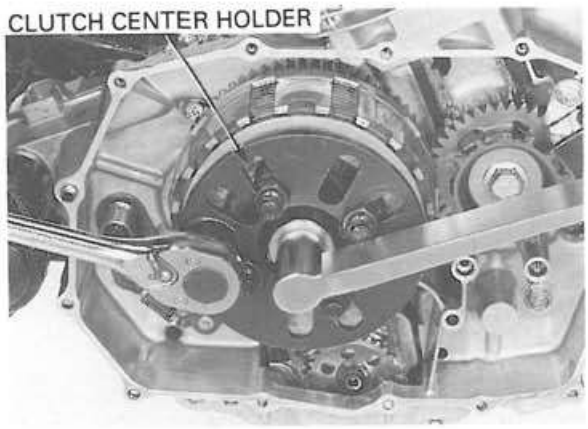
Install the clutch assembly to the mainshaft.
Install the thrust washer.
Install the new spring washer with its "OUT SIDE" mark facing out.
Apply oil to the new clutch center lock nut threads.
Install the lock nut.

Hold the pressure plate with the clutch center holder and tighten the clutch center lock nut to the specified torque.

TOOL:

Clutch center holder	**07JMB-MN50301 or 07HGB-001010B 07HGB-001010A and 07HGB-001020B or 07HGB-001020A (U.S.A. only)**

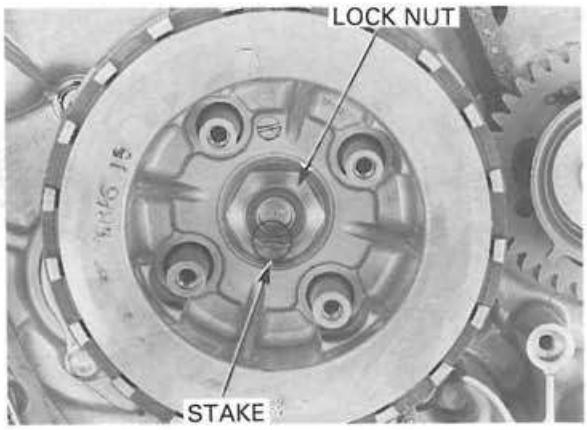
TORQUE: 128 N·m (13.0 kgf·m, 94 lbf·ft)



Remove the special tools and stake the lock nut into the mainshaft groove.

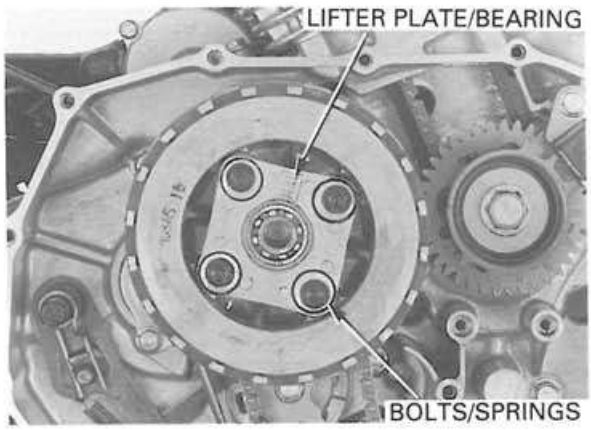
CAUTION:

Be careful not to damage the mainshaft threads.



Install the clutch springs and lifter plate/bearing. Install and tighten the clutch lifter plate bolts in a crisscross pattern in several steps.

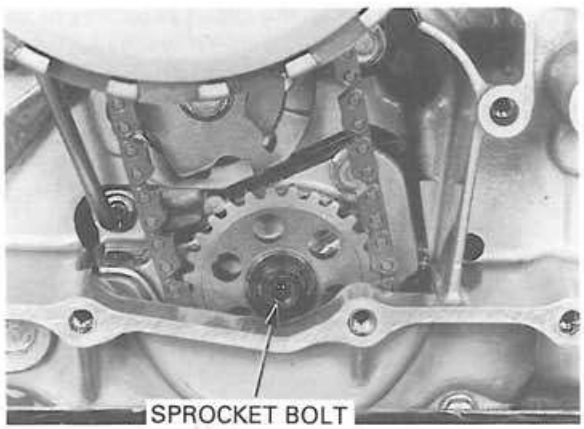
TORQUE: 12 N·m (1.2 kgf·m, 9 lbf·ft)



If the oil pump driven sprocket is removed, tighten the driven sprocket bolt to the specified torque.

TORQUE: 15 N·m (1.5 kgf·m, 11 lbf·ft)

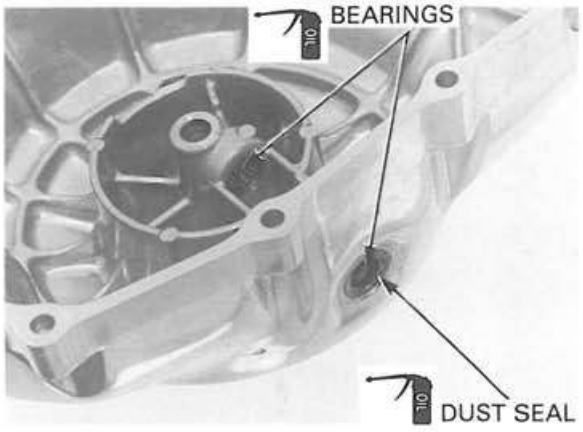
Install the right crankcase cover (see page 8-21).



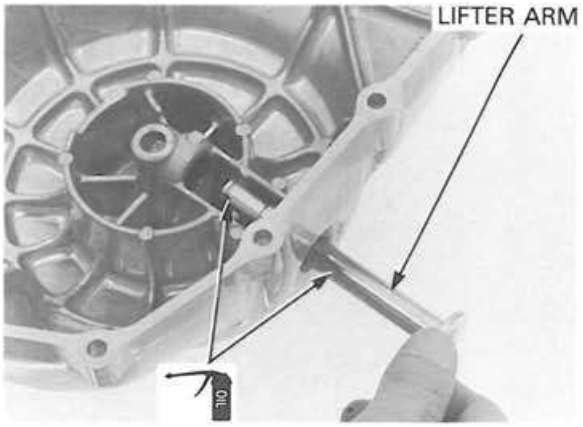
RIGHT CRANKCASE COVER INSTALLATION

ASSEMBLY

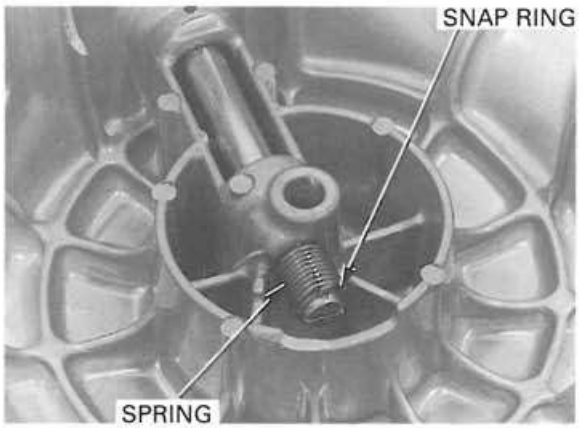
Apply engine oil to the clutch lifter arm pivot needle bearings and dust seal lips.



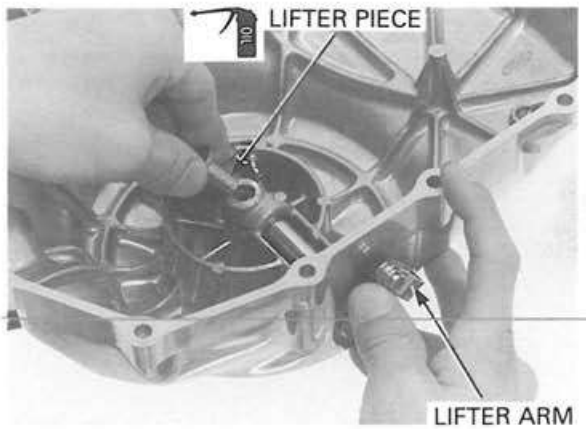
Apply engine oil to the clutch lifter arm sliding surfaces and slit.
Install the clutch lifter arm.



Install the return spring and snap ring.
Hook the spring end in the cover tab securely, and turn the shaft.



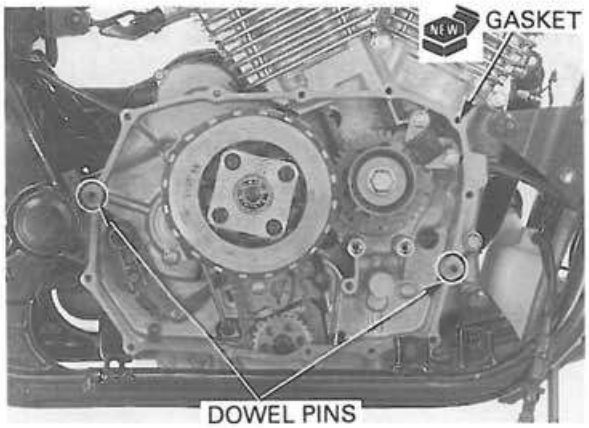
Apply engine oil to the clutch lifter piece.
Install the clutch lifter piece, aligning the piece end with the groove in the clutch lifter arm.



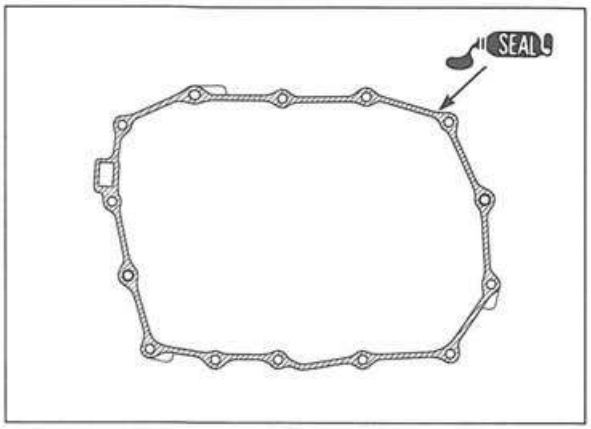
INSTALLATION

Install the dowel pins.

'98 – 2000: Install the new gasket.



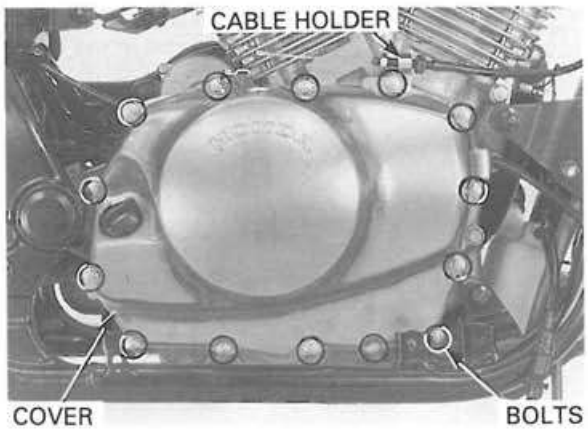
After 2000: Apply liquid sealant to the right crankcase cover mating surface.



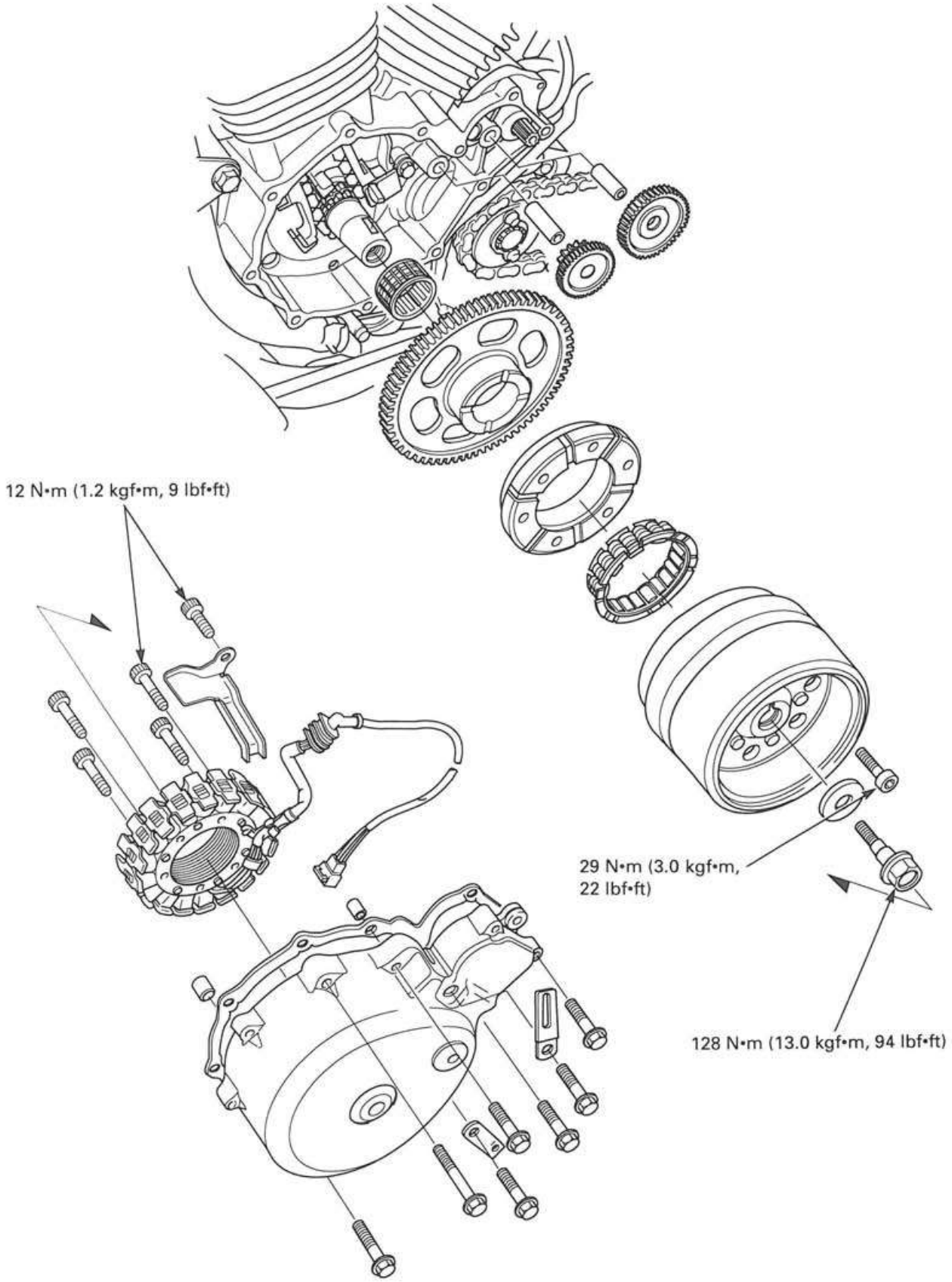
Install the right crankcase cover and clutch cable holder.
Install and tighten the right crackcase cover bolts in a crisscross pattern in several steps.

Install the rear brake pedal and left footpeg (page 14-16).
Install the exhaust pipe/muffler (page 2-8).

Fill the engine oil (page 3-12).
Perform the clutch adjustment (page 3-26).



MEMO


12 N•m (1.2 kgf•m, 9 lbf•ft)
29 N•m (3.0 kgf•m, 22 lbf•ft)
128 N•m (13.0 kgf•m, 94 lbf•ft)

9. ALTERNATOR/STARTER CLUTCH

SERVICE INFORMATION

GENERAL

- The alternator and starter clutch maintenance can be done with the engine in the frame.
- Refer to section 16 for alternator inspection.

SPECIFICATIONS

Unit: mm (in)

ITEM		STANDARD	SERVICE LIMIT
Starter driven gear	I.D.	40.000 – 40.021 (1.5748 – 1.5756)	40.10 (1.579)
	O.D.	57.749 – 57.768 (2.2736 – 2.2743)	57.73 (2.273)
Starter clutch outer I.D.		74.414 – 74.440 (2.9297 – 2.9307)	74.46 (2.931)

TORQUE VALUES

Flywheel bolt	128 N•m (13.0 kgf•m, 94 lbf•ft)	Left hand threads Apply oil to the threads and seating surface
Starter one-way clutch housing bolt	29 N•m (3.0 kgf•m, 22 lbf•ft)	Apply a locking agent to the threads
Stator mounting socket bolt	12 N•m (1.2 kgf•m, 9 lbf•ft)	Apply a locking agent to the threads
Stator wire holder socket bolt	12 N•m (1.2 kgf•m, 9 lbf•ft)	Apply a locking agent to the threads

TOOLS

Flywheel holder	07725 – 0040000	or equivalent commercially available in U.S.A.
Rotor puller	07733 – 0020001	or 07933-3280001

TROUBLESHOOTING

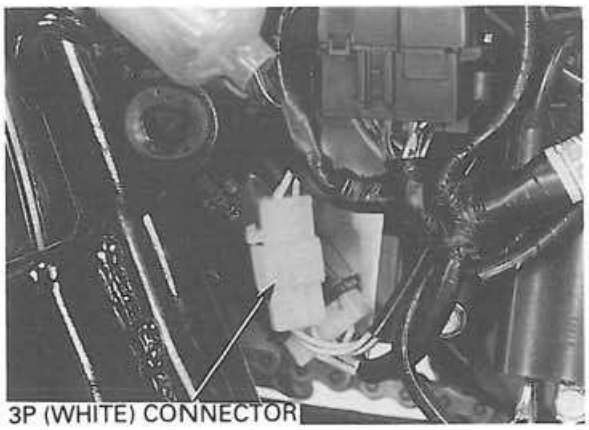
Starter motor turns, but engine does not turn

- Faulty starter clutch
- Damaged reduction gear
- Damaged starter idle gear

STATOR REMOVAL

Refer to page 16-7 for alternator (charging coil) inspection.

Remove the right side cover and disconnect the alternator 3P (White) connector.



Remove the left footpeg and gearshift pedal (page 8-12).
Remove the left rear cover (page 7-3).

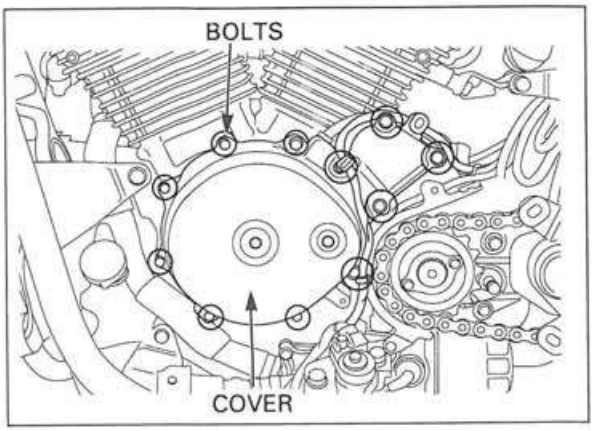
Place a container under the left crankcase cover to catch the engine oil.

Loosen the left crankcase cover bolts in a crisscross pattern in several steps.

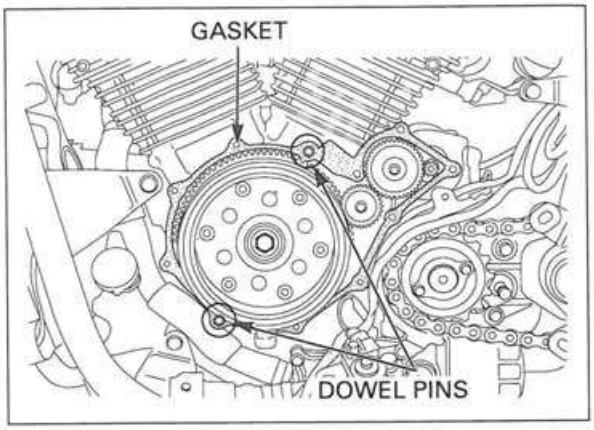
Remove the eleven left crankcase cover bolts and cover.

CAUTION:

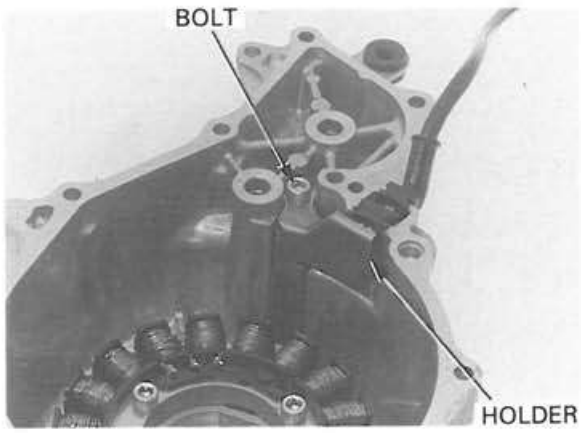
The left crankcase cover (stator) is magnetically attached to the flywheel, be careful during removal.



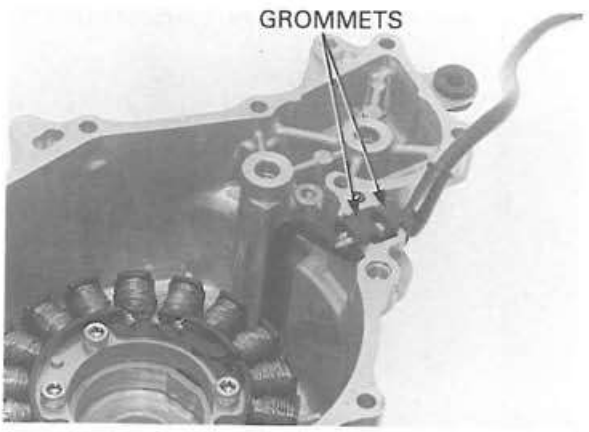
Remove the gasket and dowel pins.



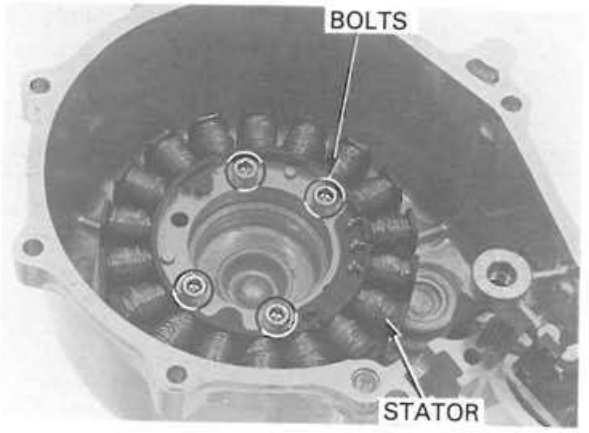
Remove the socket bolts and stator wire holder from the left crankcase cover.



Remove the stator grommets from the left crankcase cover.



Remove the socket bolts and stator from the left crankcase cover.

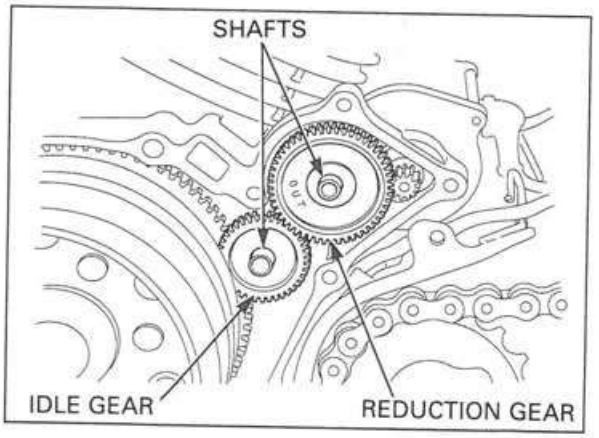


FLYWHEEL, STARTER CLUTCH

FLYWHEEL REMOVAL

Remove the left crankcase cover (page 9-2).

Remove the starter idle gear and shaft.
Remove the starter reduction gear and shaft.



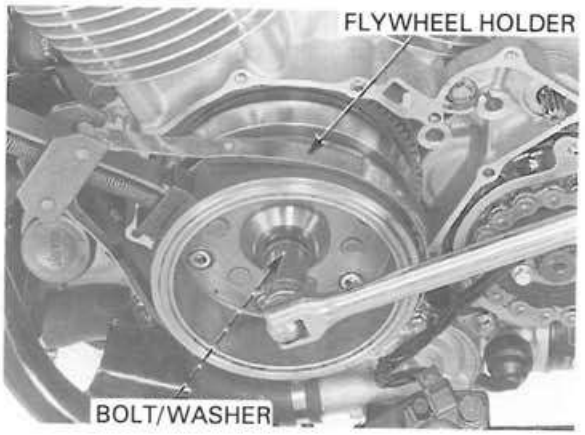
CAUTION:

The flywheel bolt has left hand threads.

Remove the flywheel bolt and washer while holding the flywheel with a flywheel holder.

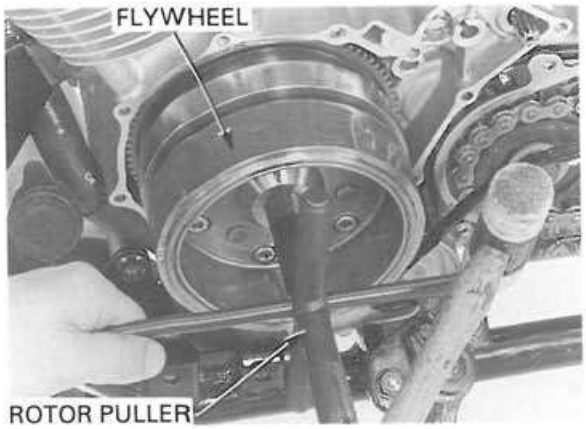
TOOL:

Flywheel holder	**07725-0040000 or equivalent commercially available in U.S.A.**



Remove the flywheel using the rotor puller.

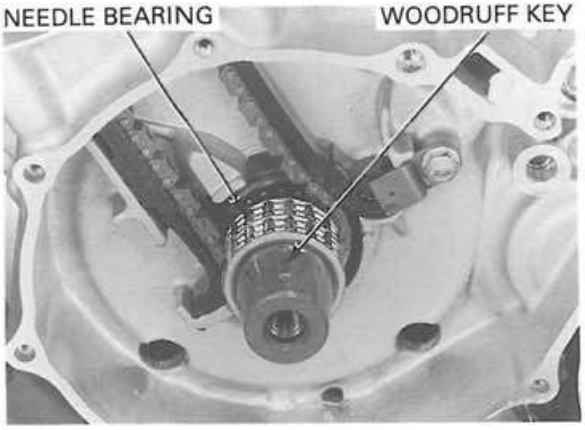
TOOL:
Rotor puller **07733-0020001 or 07933-3280001**



Remove the needle bearing and woodruff key from the crankshaft.

NOTE:

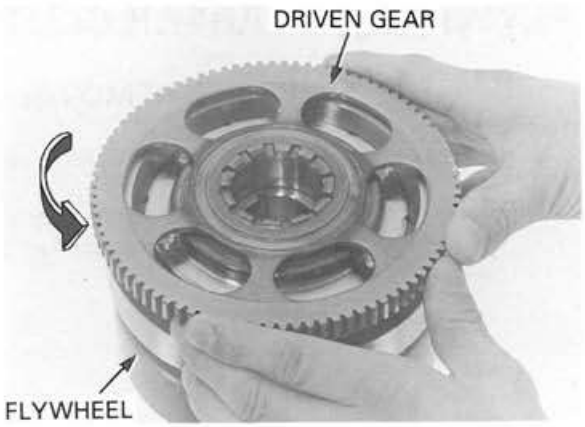
- When woodruff key removal, be careful not to damage the key groove or crankshaft.
- Do not loose the woodruff key.



STARTER DRIVEN GEAR, STARTER CLUTCH REMOVAL

Check that the driven gear turns smoothly in one direction and locks up in the other direction.

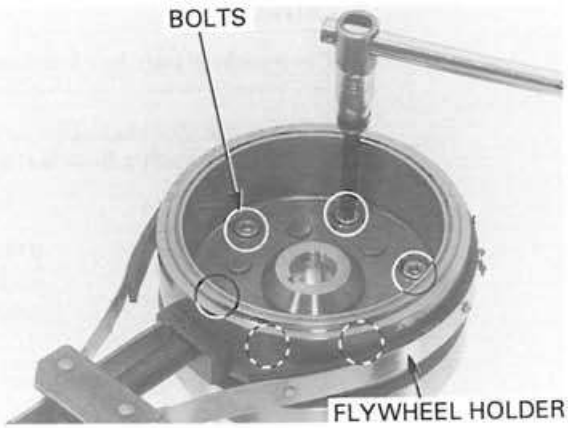
Remove the starter driven gear from the flywheel while turning the driven gear counterclockwise.



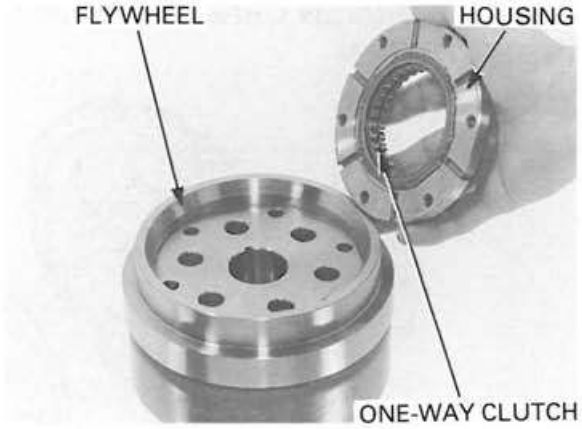
Do not remove the clutch housing and one-way clutch unless it is necessary to inspect them.

Remove the starter one-way clutch torx bolts while holding the flywheel with a flywheel holder.

TOOL:
Flywheel holder **07725-0040000 or equivalent commercially available in U.S.A.**



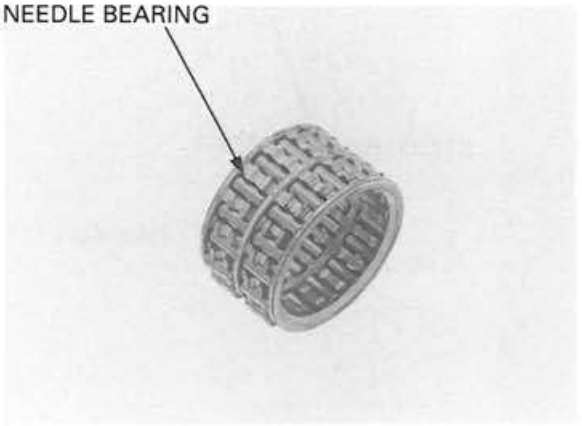
Remove the clutch housing and one-way clutch from the flywheel.



STARTER CLUTCH INSPECTION

NEEDLE BEARING

Check the needle bearing clutch sprag for abnormal wear, damage.

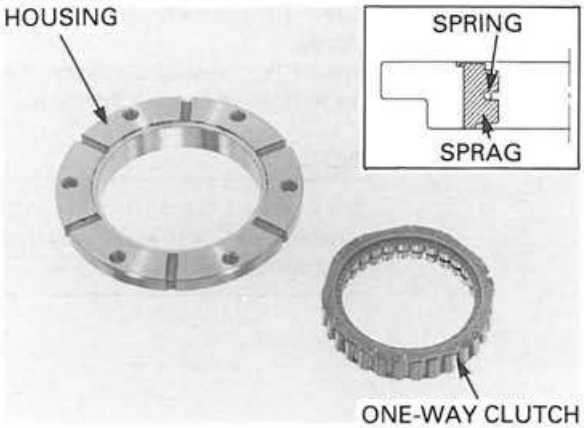


ONE-WAY CLUTCH

Check the one-way clutch sprag for abnormal wear, damage or irregular movement.

NOTE:

- Do not remove the one-way clutch from the clutch housing, unless it is necessary to replace with a new one.
- If removed the spring from the one-way clutch groove, replace the one-way clutch assembly (clutch and spring) with a new one.



CLUTCH HOUSING

Check the clutch inner contact surface of the housing for damage.

STARTER DRIVEN GEAR

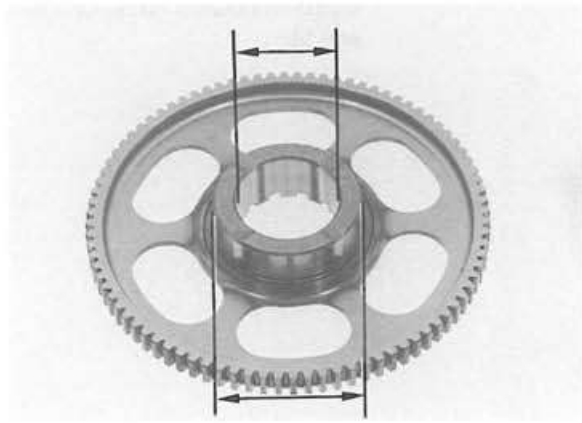
Check the roller contact surface for damage.

Measure the driven gear O.D.

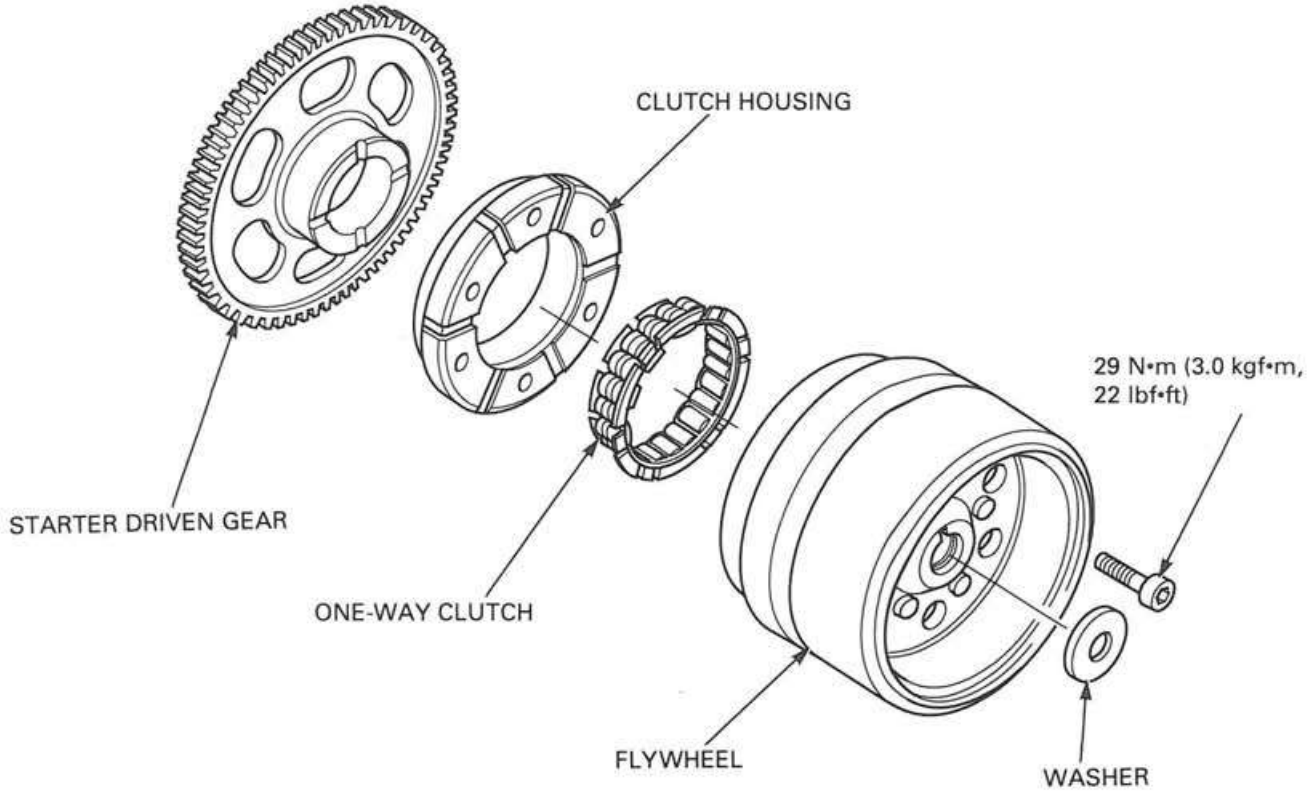
SERVICE LIMIT: 57.73 mm (2.273 in)

Measure the driven gear I.D.

SERVICE LIMIT: 40.10 mm (1.579 in)



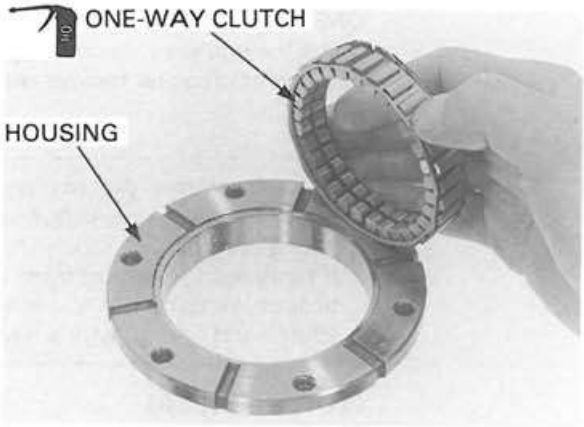
STARTER DRIVEN GEAR, STARTER CLUTCH INSTALLATION



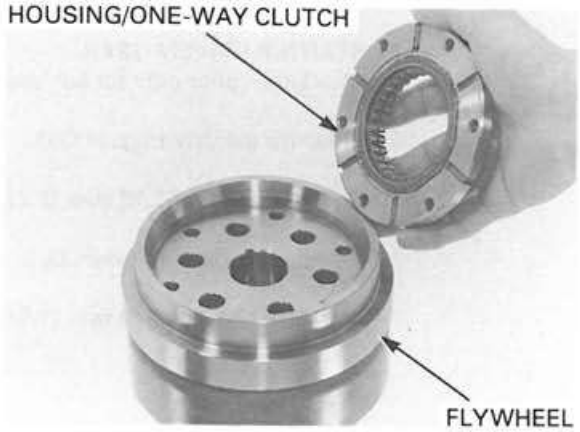
Clean the one-way clutch and apply engine oil to the sprag.
Install the one-way clutch into the clutch housing with its flange side facing flywheel.

NOTE:

If removed the spring from the one-way clutch groove, replace the one-way clutch assembly (clutch and spring) with a new one.



Install the clutch housing/one-way clutch to the flywheel.



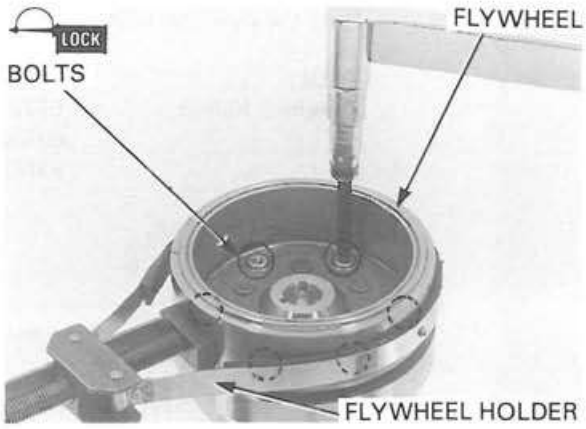
Hold the flywheel using the flywheel holder.

TOOL:

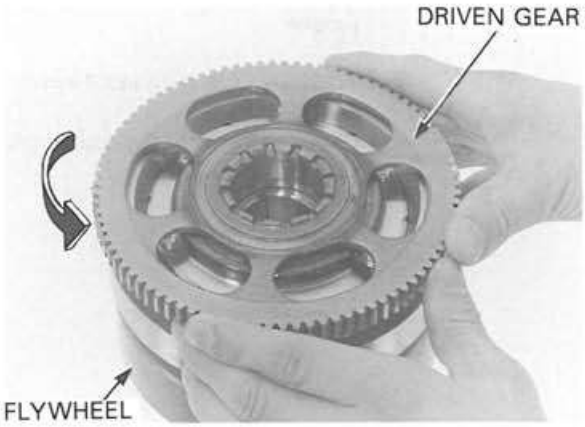
Flywheel holder	**07925-0040000 or equivalent commercially available in U.S.A.**

Clean and apply a locking agent to the starter one-way clutch torx bolt threads.
Install and tighten the starter one-way clutch torx bolts to the specified torque.

TORQUE: 29 N·m (3.0 kgf·m, 22 lbf·ft)



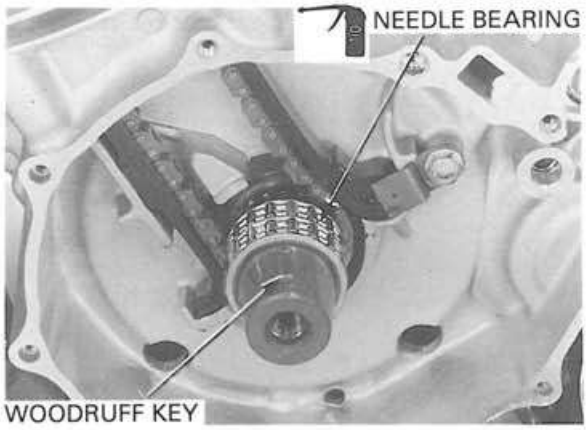
Install the starter driven gear to the flywheel while turning the driven gear counterclockwise.



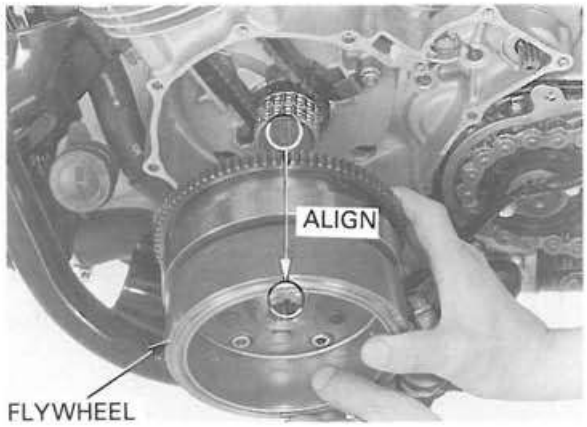
FLYWHEEL INSTALLATION

During woodruff key installation, be careful not to damage the key groove or crankshaft.

Apply engine oil to the needle bearing and install it to the crankshaft.
Wipe any oil off the mating surface of the crankshaft.
Install the woodruff key to the key groove of crankshaft.



Wipe any oil off the mating surface of the flywheel.
Install the flywheel to the crankshaft aligning the key groove of the flywheel with the woodruff key on the crankshaft.



Hold the flywheel using the flywheel holder.

TOOL:

Flywheel holder	**07725-0040000 or equivalent commercially available in U.S.A.**

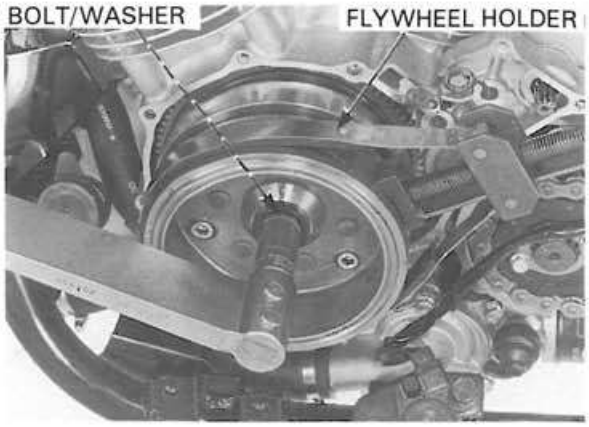
Install the washer.

CAUTION:

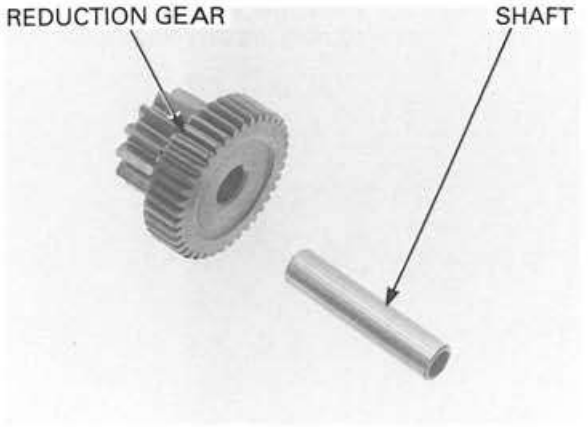
The flywheel bolt has left hand threads.

Apply engine oil to the flywheel bolt threads and seating surface.
Install and tighten the flywheel bolt to the specified torque.

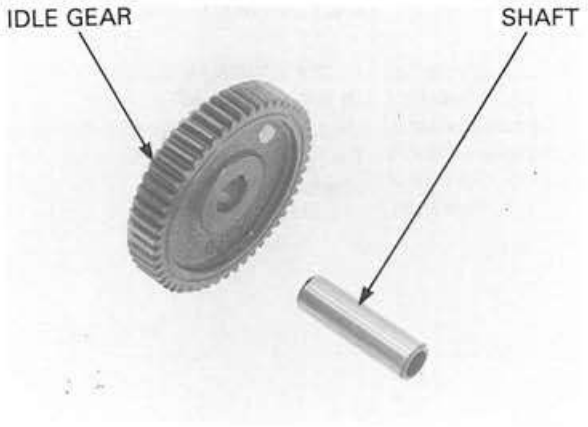
TORQUE: 128 N·m (13.0 kgf·m, 94 lbf·ft)



Check the starter reduction gear, shaft and journal for wear or damage.



Check the starter idle gear, shaft and journal for wear or damage.

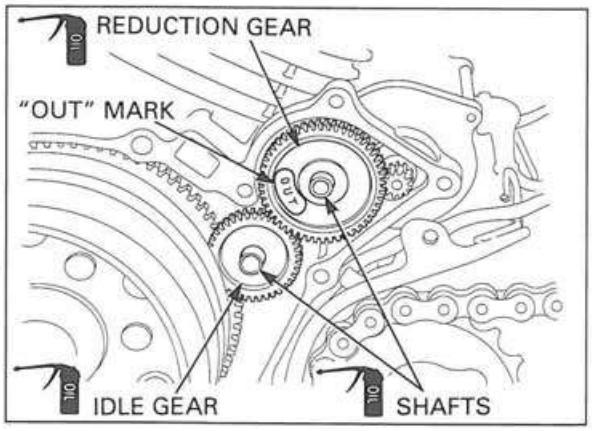


Apply engine oil to the starter reduction gear, starter idle gear and shafts.
Install the starter reduction gear, starter idle gear and shafts to the left crankcase as assembly.

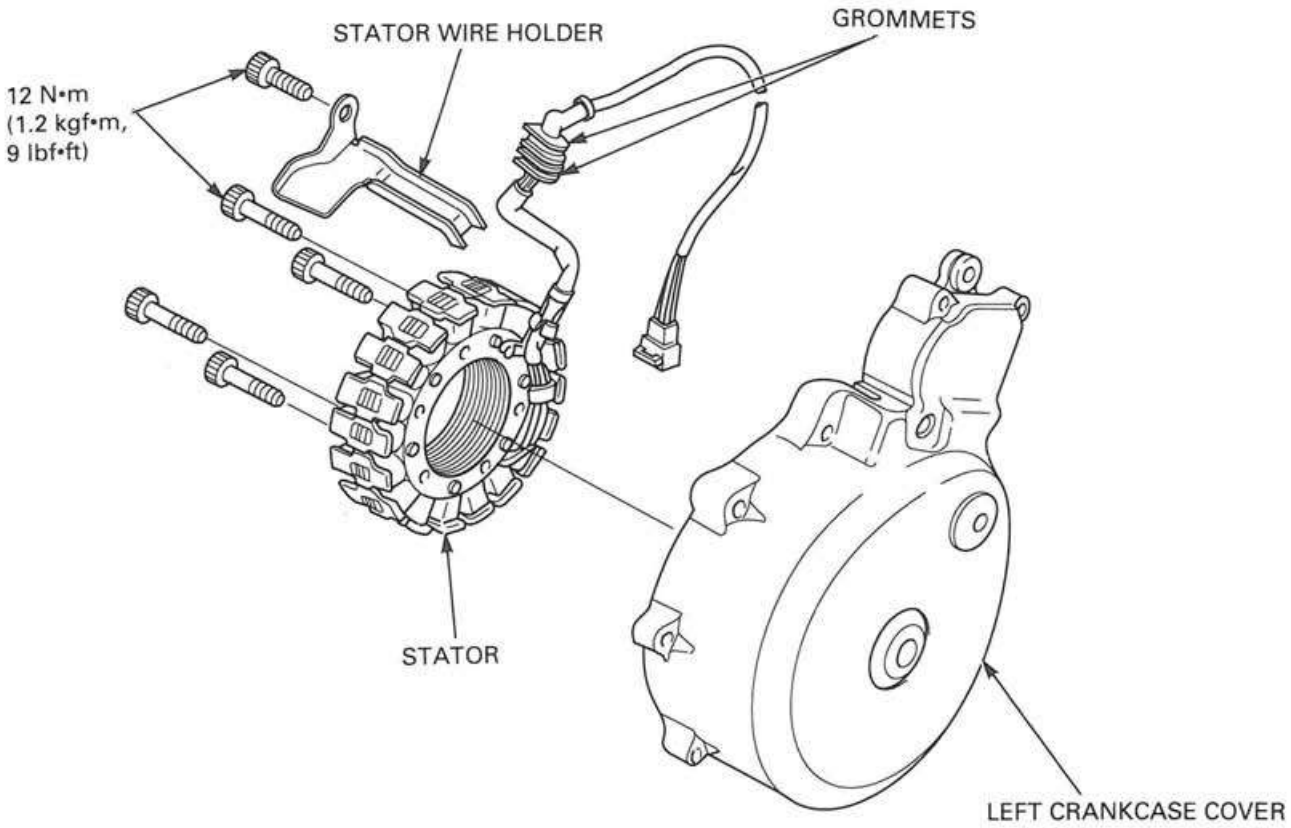
NOTE:

Install the starter drive gear with its "OUT" mark facing out.

Install the stator and left crankcase cover (page 9-10).

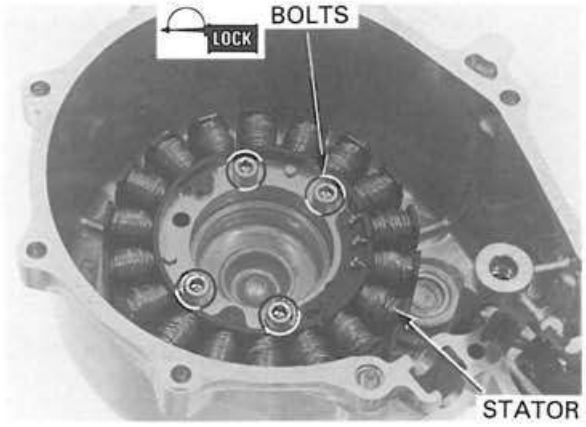


STATOR INSTALLATION

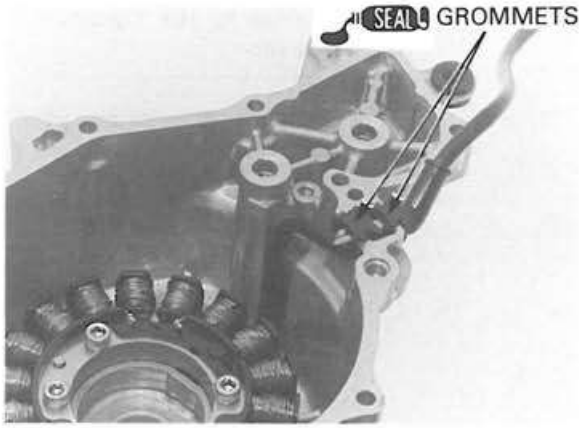


Install the stator to the left crankcase cover.
Clean and apply a locking agent to the stator mounting socket bolt threads.
Install and tighten the stator socket bolts to the specified the torque.

TORQUE: 12 N•m (1.2 kgf•m, 9 lbf•ft)

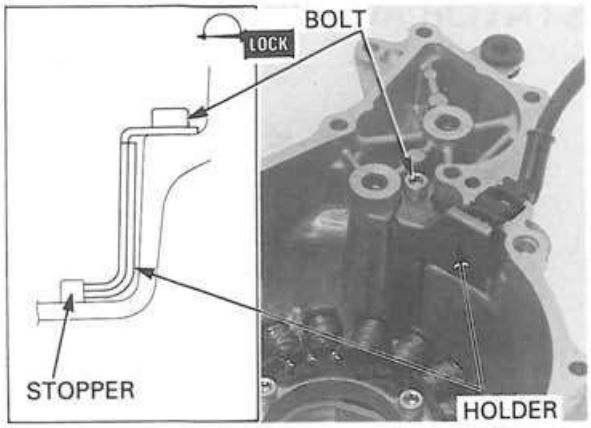


Clean and apply sealant to the wire grommets seating surface and install the grommets into the grooves in the left crankcase cover.



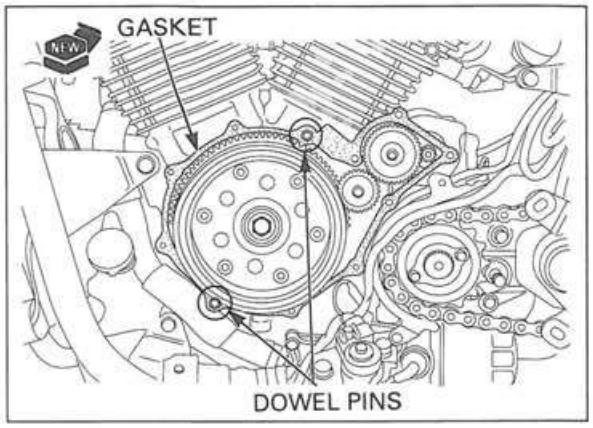
Clean and apply a locking agent to the wire holder socket bolt threads.
Install the stator wire holder to the left crankcase cover as shown.
Install and tighten the socket bolt to the specified torque.

TORQUE: 12 N·m (1.2 kgf·m, 9 lbf·ft)

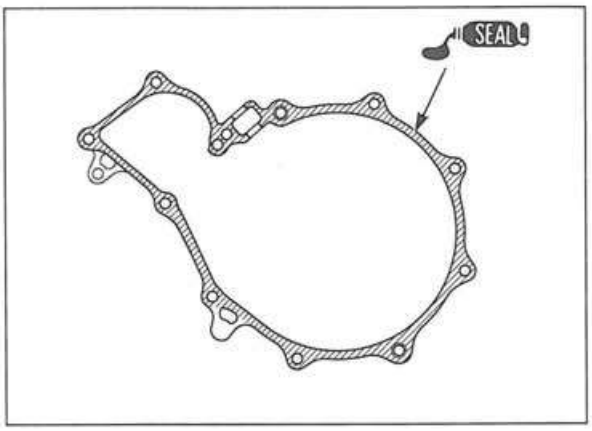


Install the dowel pins.

'98 – 2000: Install the new gasket.



After 2000: Apply liquid sealant to the left crankcase cover mating surface.



Install the left crankcase cover.

NOTE:

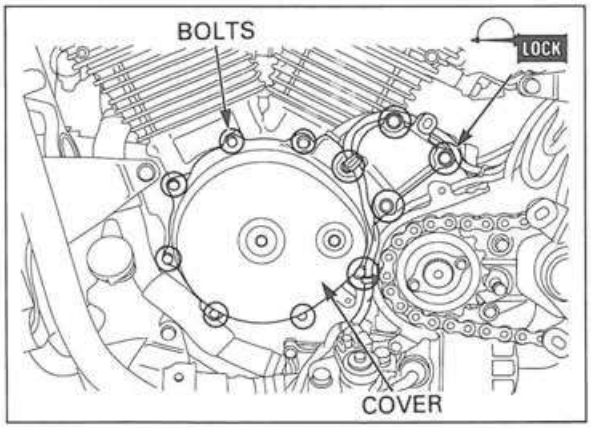
The left crankcase cover (stator) is magnetically attached to the flywheel, be careful during installation.

Clean and apply a locking agent to the left crankcase cover bolt threads as shown.
Install and tighten the left crankcase cover bolts to the specified torque in a crisscross pattern in several steps.

TORQUE: 12 N·m (1.2 kgf·m, 9 lbf·ft)

NOTE:

Route the wire harness properly (page 1-20).

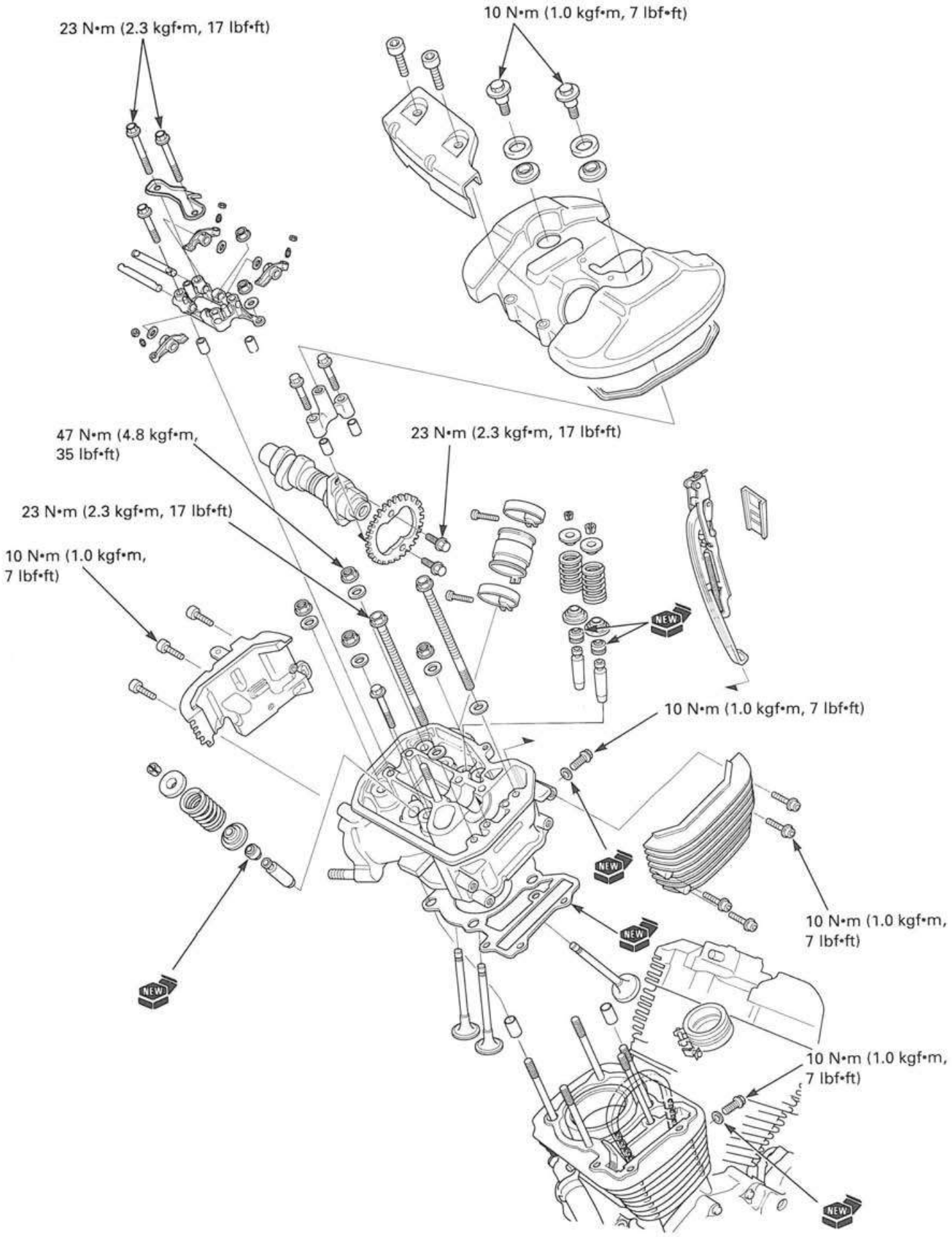


Connect the alternator 3P (White) connector.

Install the following:
- Left rear cover (page 7-14)
- Gearshift pedal and left footpeg (page 8-16)
- Left side cover. (page 2-4)

Check the engine oil level (page 3-11).


3P (WHITE) CONNECTOR


23 N•m (2.3 kgf•m, 17 lbf•ft)
10 N•m (1.0 kgf•m, 7 lbf•ft)
47 N•m (4.8 kgf•m, 35 lbf•ft)
23 N•m (2.3 kgf•m, 17 lbf•ft)
23 N•m (2.3 kgf•m, 17 lbf•ft)
10 N•m (1.0 kgf•m, 7 lbf•ft)
NEW
10 N•m (1.0 kgf•m, 7 lbf•ft)
NEW
NEW
10 N•m (1.0 kgf•m, 7 lbf•ft)
NEW
10 N•m (1.0 kgf•m, 7 lbf•ft)
NEW

10. CYLINDER HEAD/VALVES

SERVICE INFORMATION

GENERAL

- The engine must be removed from the frame before servicing the rear cylinder head.
- The front and rear cylinder head cover and front cylinder head can be serviced with the engine in the frame.
- The camshaft can be serviced with the engine in the frame.
- Be careful not to damage the mating surface when removing the cylinder head cover and cylinder head.
- When disassembling, mark and store the disassembled parts to ensure that they are reinstalled in their original locations.
- Clean all disassembled parts with clean solvent and dry them using compressed air before inspection.
- During assembly apply molybdenum disulfide oil to the camshaft holders, camshaft journals of the cylinder head, rocker arm shafts, rocker arm slipper faces and valve stems to provide initial lubrication.

SPECIFICATIONS

Unit: mm (in)

ITEM			STANDARD	SERVICE LIMIT
Cylinder compression			1,275 ± 98 kPa (13.0 ± 1.0 kgf/cm², 185 ± 14 psi) at 400 rpm	———
Cylinder head warpage			———	0.10 (0.004)
Valve, valve guide	Valve clearance	IN	0.13 – 0.17 (0.005 – 0.007)	———
		EX	0.18 – 0.22 (0.007 – 0.009)	———
	Valve stem O.D.	IN	5.475 – 5.490 (0.2156 – 0.2161)	5.45 (0.215)
		EX	6.555 – 6.570 (0.2580 – 0.2587)	6.55 (0.258)
	Valve guide I.D.	IN	5.500 – 5.512 (0.2165 – 0.2170)	5.56 (0.219)
		EX	6.600 – 6.615 (0.2598 – 0.2604)	6.65 (0.262)
	Stem-to-guide clearance	IN	0.010 – 0.037 (0.0004 – 0.0015)	0.10 (0.004)
		EX	0.030 – 0.060 (0.0012 – 0.0024)	0.11 (0.004)
	Valve guide projection above cylinder head	IN	19.5 (0.77)	———
		EX	18.0 (0.71)	———
	Valve seat width	IN/EX	0.90– 1.10 (0.035 – 0.043)	1.5 (0.06)
Valve spring free length		IN	42.14 (1.659)	40.58 (1.598)
		EX	42.83 (1.686)	41.25 (1.624)

Unit: mm (in)

(Cont'd)

ITEM			STANDARD	SERVICE LIMIT
Camshaft	Came lobe height	IN	38.381 (1.5111)	38.10 (1.500)
		EX	38.407 (1.5121)	38.20 (1.504)
	Journal O.D.		21.959 – 21.980 (0.8645 – 0.8654)	21.90 (0.862)
	Runout		0.030 (0.012)	0.05 (0.002)
	Oil clearance		0.050 – 0.111 (0.0020 – 0.0044)	0.13 (0.005)
	Identification marks		"F": Front, "R": Rear	———
Rocker arm I.D.		IN/EX	12.000 – 12.018 (0.4724 – 0.4731)	12.05 (0.474)
Rocker arm shaft O.D.		IN/EX	11.966 – 11.984 (0.4711 – 0.4718)	11.83 (0.466)
Rocker arm-to-rocker arm shaft clearance			0.016 – 0.052 (0.0006 – 0.0020)	0.07 (0.003)

TORQUE VALUES

Air cleaner housing stay mounting bolt	13 N•m (1.3 kgf•m, 9 lbf•ft)	
EVAP air injection reed valve cover bolt	5 N•m (0.5 kgf•m, 3.6 lbf•ft)	
Cylinder head cover bolt	10 N•m (1.0 kgf•m, 7 lbf•ft)	
Cam sprocket bolt	23 N•m (2.3 kgf•m, 17 lbf•ft)	Apply a locking agent to the threads
Cam shaft end holder bolt	10 N•m (1.0 kgf•m, 7 lbf•ft)	
Cam shaft holder 8 mm bolt	23 N•m (2.3 kgf•m, 17 lbf•ft)	
8 mm nut	23 N•m (2.3 kgf•m, 17 lbf•ft)	
Cam chain tensioner mounting bolt	10 N•m (1.0 kgf•m, 7 lbf•ft)	
Cylinder head 6 mm bolt	12 N•m (1.2 kgf•m, 9 lbf•ft)	Apply oil to the threads and seating surface
8 mm bolt	23 N•m (2.3 kgf•m, 17 lbf•ft)	Apply oil to the threads and seating surface
8 mm nut	23 N•m (2.3 kgf•m, 17 lbf•ft)	Apply oil to the seating surface
10 mm nut	47 N•m (4.8 kgf•m, 35 lbf•ft)	Apply oil to the seating surface
Cylinder head fin socket bolt	10 N•m (1.0 kgf•m, 7 lbf•ft)	
Crankcase breather case cover bolt	12 N•m (1.2 kgf•m, 9 lbf•ft)	ALOC bolt: replace with a new one

TOOLS

Valve guide driver, 5.5 mm		07742-0010100	
Valve guide driver, 6.6 mm		07742-0010200	
Valve guide driver		07743-0020000	Not available in U.S.A.
Valve spring compressor		07757-0010000	
Valve seat cutter			
– Seat cutter	IN 27.5 mm (45°)	07780-0010200	Equivalent commercially available in U.S.A.
	EX 35 mm (45°)	07780-0010400	
– Flat cutter	IN 28 mm (32°)	07780-0012100	
	EX 35 mm (32°)	07780-0012300	
– Interior cutter	IN 30 mm (60°)	07780-0014000	
	EX 37.5 mm (60°)	07780-0014100	
– Cutter holder	5.5 mm (IN)	07781-0010101	
	6.6 mm (EX)	07781-0010201	
Valve guide reamer, 5.510 mm (IN)		07984-2000001	or 07984-200000D (U.S.A. only)
Valve guide reamer, 6.612 mm (EX)		07984-ZE20001	or 07984-ZE2000D (U.S.A. only)

TROUBLESHOOTING

- Engine top-end problems usually affect engine performance. These can be diagnosed by a compression test, or by tracking noises to the top-end
- If performance is poor at low speeds, check for white smoke in the crankcase breather tube. If the tube is smoky, check for a seized piston ring.

Compression too low, hard starting or poor performance at low speed
- Valves
  - Incorrect valve adjustment
  - Burned or bent valves
  - Incorrect valve timing
  - Broken valve spring
  - Uneven valve seating
- Cylinder head
  - Leaking or damaged cylinder head gasket
  - Warped or cracked cylinder head
- Loose spark plug
- Faulty cylinder, piston (Section 11)

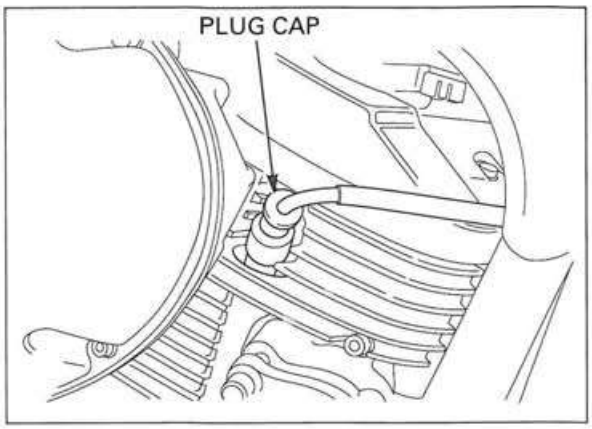
Compression too high
- Excessive carbon build-up in cylinder head or on top of piston

Excessive smoke
- Worn valve stem or valve guide
- Damaged stem seal
- Faulty cylinder, piston (Section 11)

Excessive noise
- Incorrect valve adjustment
- Sticking valve or broken valve spring
- Damaged or worn camshaft
- Loose or worn cam chain
- Worn or damaged cam chain tensioner
- Worn cam sprocket teeth
- Faulty cylinder, piston (Section 11)

Rough idle
- Low cylinder compression

CYLINDER COMPRESSION



⚠ WARNING

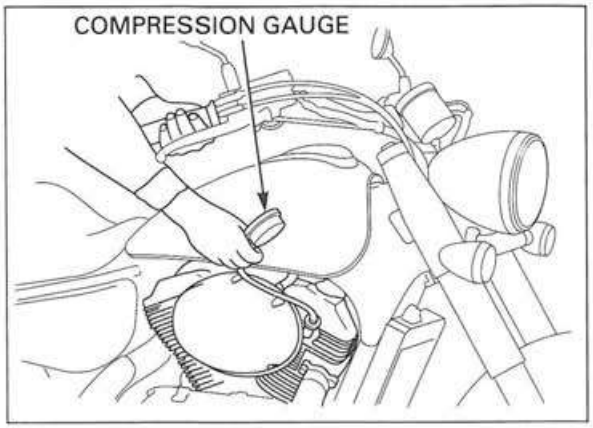
If the engine must be running to do some work, make sure the area is well-ventilated. Never run the engine in an enclosed area.

Warm up the engine to normal operating temperature.

To measure the cylinder compression of each cylinder, remove only one plug at a time.

Stop the engine, disconnect the spark plug caps and remove one spark plug cap at a time.

Shift the transmission into neutral.



Front cylinder compression as following:
– Remove the air cleaner housing (page 5-4).
Rear cylinder compression as following:
– Remove the rear cylinder head left side fin (page 10-7).

Install the compression gauge attachment in a spark plug hole.

Connect the compression gauge to the attachment. Open the throttle all the way and crank the engine with the starter motor.

NOTE:

Crank the engine until the gauge reading stops rising. The maximum reading is usually reached within 4-7 seconds.

STANDARD: 1,275 ± 98 kPa (13.0 ± 1.0 kgf/cm², 185 ± 14 psi) at 400 rpm

If compression is high, it indicates that carbon deposits have accumulated on the combustion chamber and/or the piston crown.

If compression is low, pour 3 - 5 cc (0.1 - 0.2 oz) of clean engine oil into the cylinder through the spark plug hole and recheck the compression.

If the compression increases from the previous value, check the cylinder, piston and piston rings.
- Leaking cylinder head gasket
- Worn piston ring
- Worn cylinder and piston

If compression is the same as the previous value, check the values for leakage.

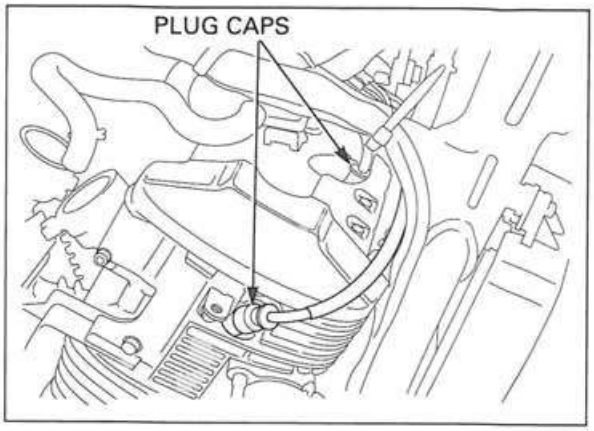
CYLINDER HEAD COVER REMOVAL

FRONT

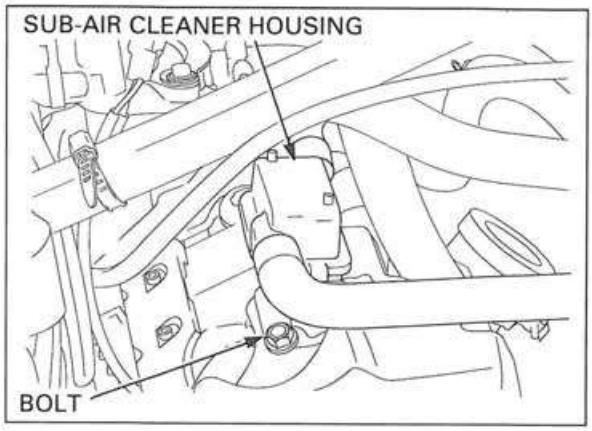
Drain the coolant (page 6-5).

Remove the following:
- Steering covers (page 2-3)
- Fuel tank (page 2-4)
- Air cleaner housing (page 5-4)
- Air cleaner chamber (page 5-6)
- Carburetors (page 5-8)

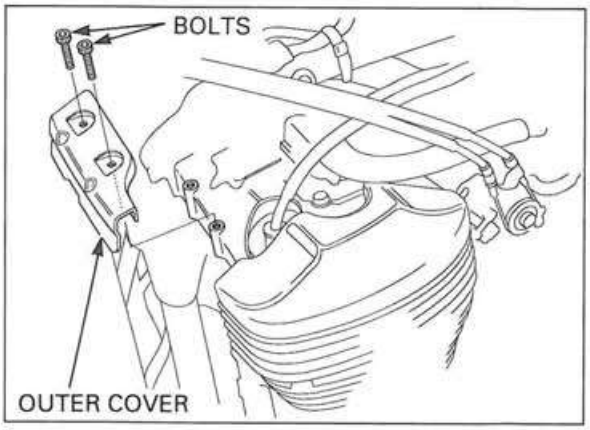
Disconnect the spark plug caps.



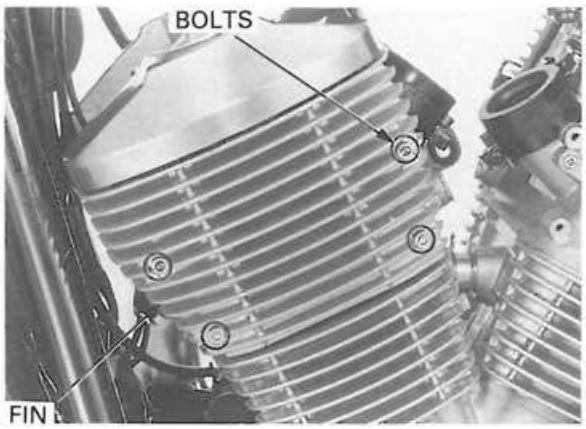
Remove the bolt and sub-air cleaner housing.



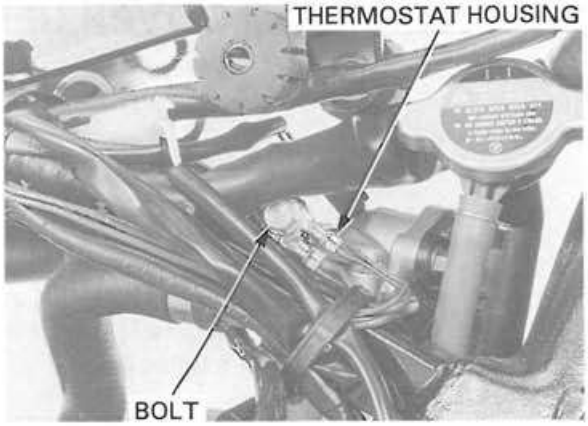
Remove the bolts and cylinder head cover outer cover.



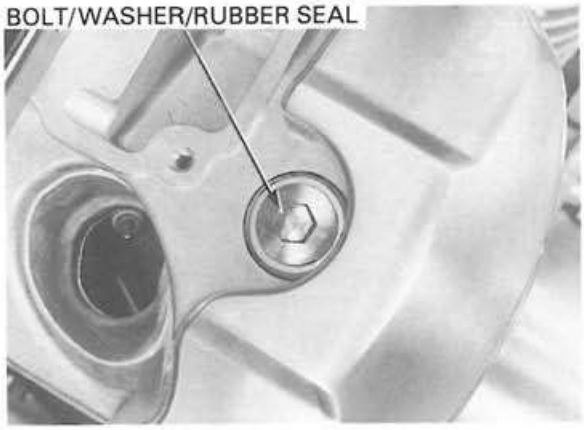
Remove the socket bolts and each side cylinder fins.



Remove the thermostat housing mounting bolt and move the thermostat housing to upward.

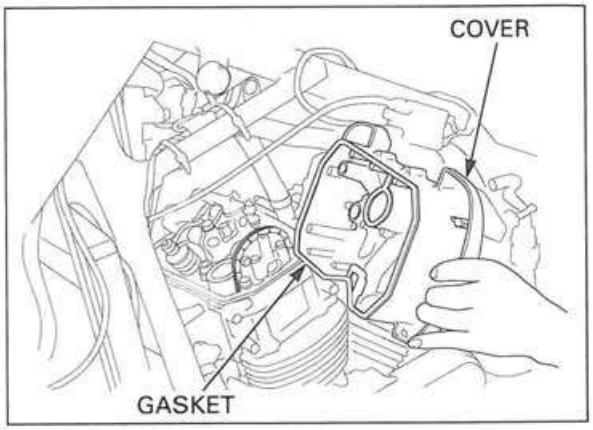


Remove the cylinder head cover bolts, washers and rubber seals.



Be careful not to damage the wire harness and mating surfaces when removing the cylinder head cover.

Remove the cylinder head cover and gasket.



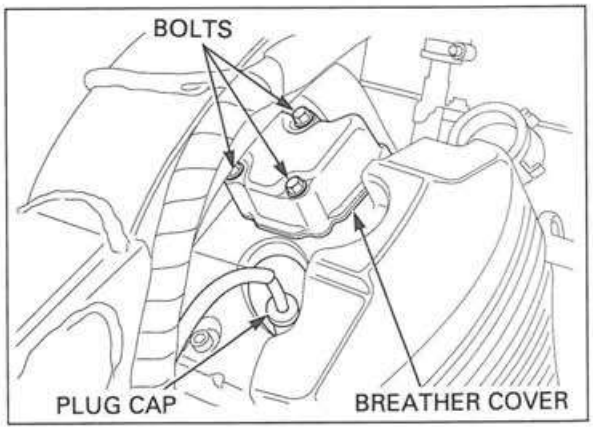
REAR

Drain the coolant (page 6-6).

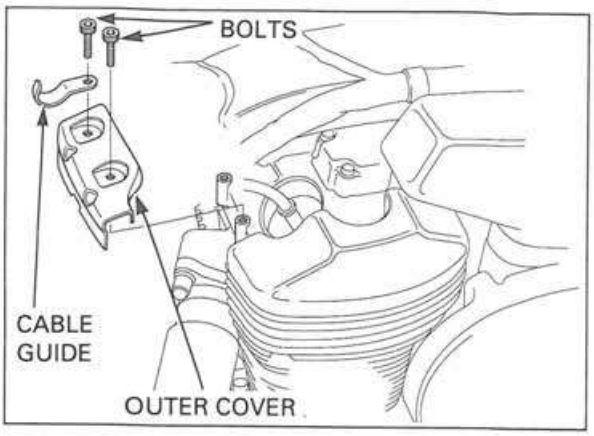
Remove the following:
- Fuel tank (page 2-4)
- Air cleaner housing (page 5-4)
- Air cleaner chamber (page 5-6)
- Carburetors (page 5-8)

Disconnect the spark plug cap.

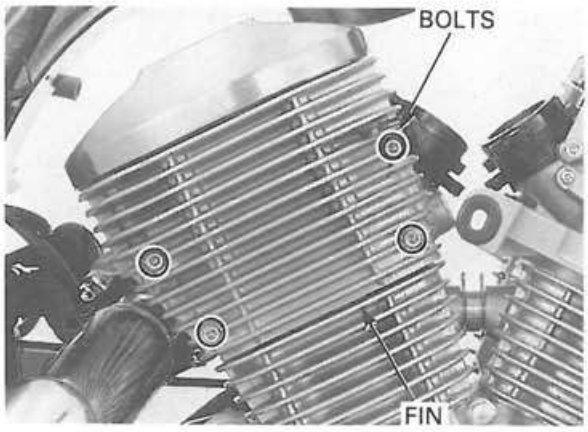
Remove the bolts and breather cover.



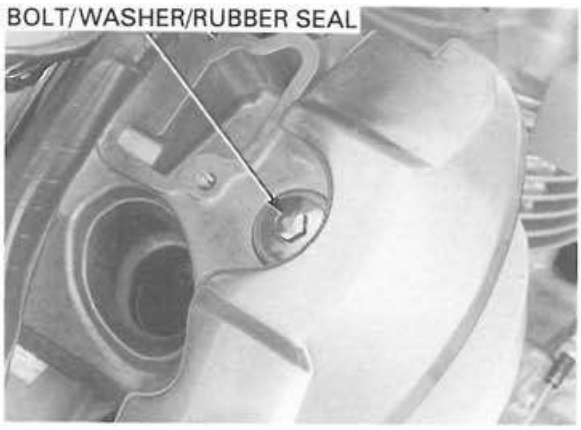
Remove the bolts, cable guide and cylinder head cover outer cover.



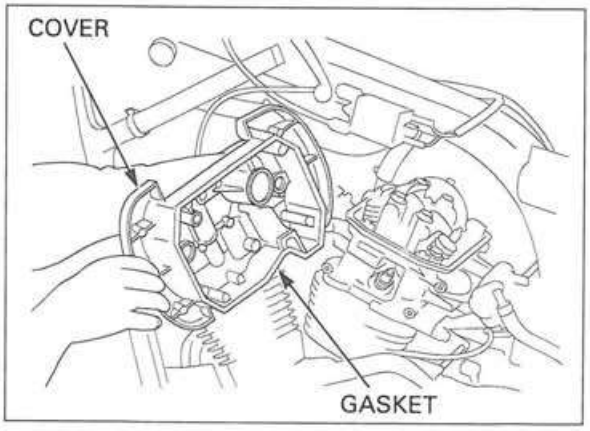
Remove the socket bolts and rear cylinder fin (cylinder head cover removal side).



Remove the cylinder head cover bolts, washers and rubber seals.



Remove the cylinder head cover and gasket.



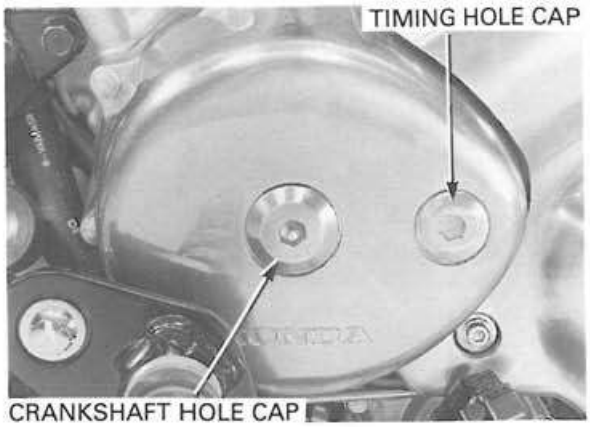
CAMSHAFT REMOVAL

NOTE:

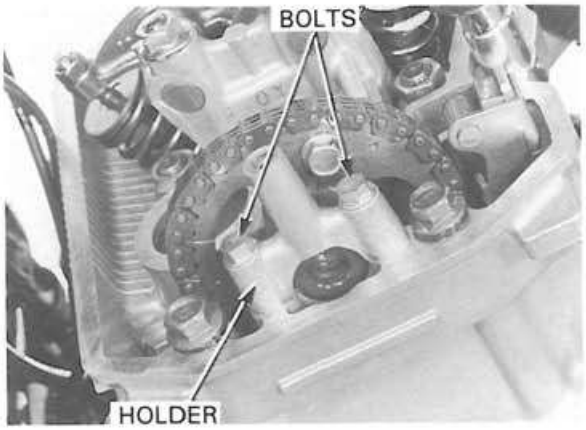
- The camshaft can be serviced with the engine in the frame.
- The front cylinder camshaft service using the same procedure as for the rear cylinder.

Remove the front cylinder head cover (page 10-5).

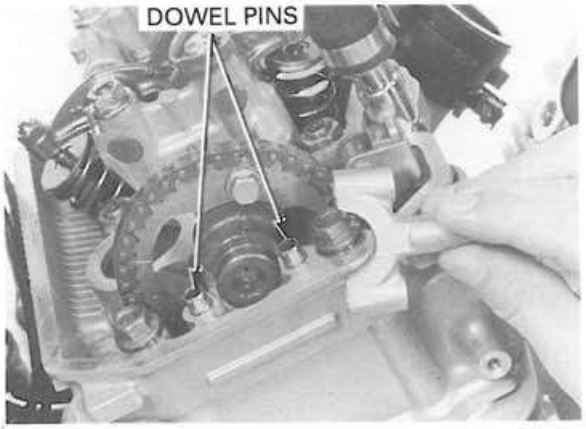
Remove the crankshaft hole cap and timing hole cap from the left crankcase cover.



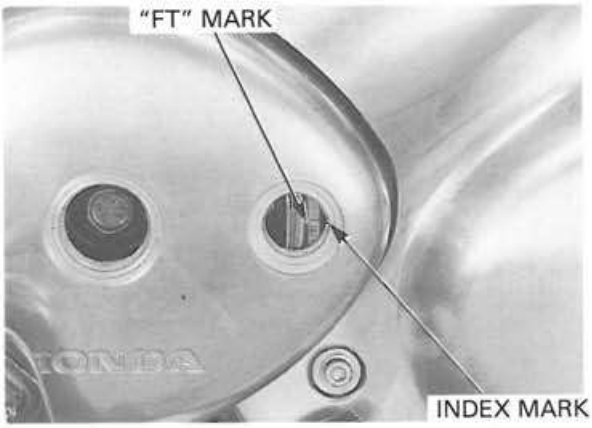
Remove the camshaft end holder bolts and camshaft end holder.



Remove the dowel pins.



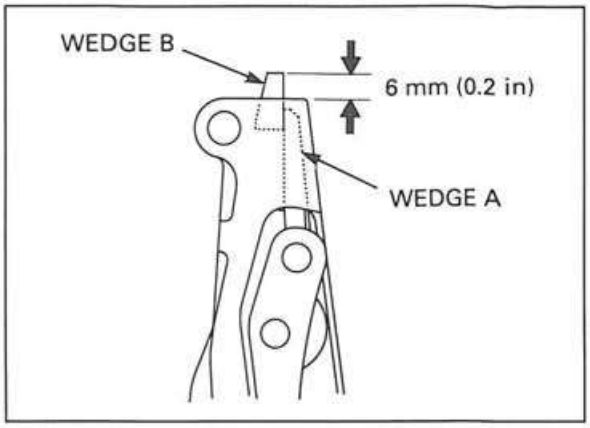
Turn the crankshaft counterclockwise and align the "FT" mark (rear cylinder: "RT" mark) with the index mark on the left crankcase cover.
For rear cylinder mark sure the rear cylinder is at TDC (top dead cen-ter).



Measure the cam chain tensioner wedge B length as shown.

SERVICE LIMIT: 6 mm (0.2 in)

When the service limit is exceeded, replace the cam chain.



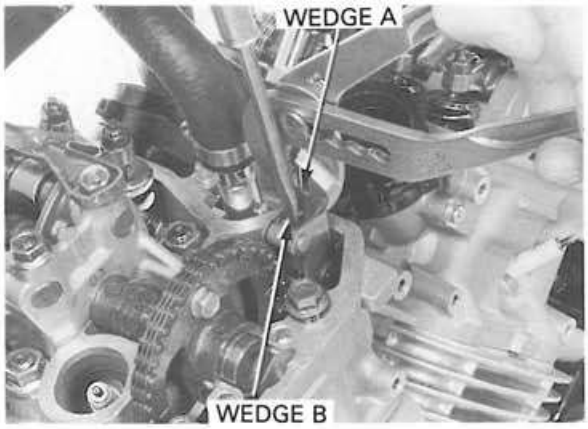
Replace the cam chain is after following parts removal:

Front:
- Front camshaft
- Flywheel (Section 9)

Rear:
- Rear camshaft
- Primary drive gear (Section 8)

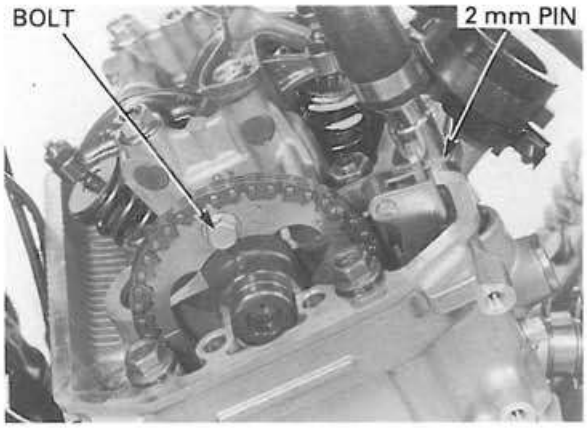
Pull the cam chain tensioner wedge A straight up while holding wedge B push down.
Secure wedge A with a 2 mm pin as shown.

Be careful not to let the 2 mm pin fall into the crankcase.

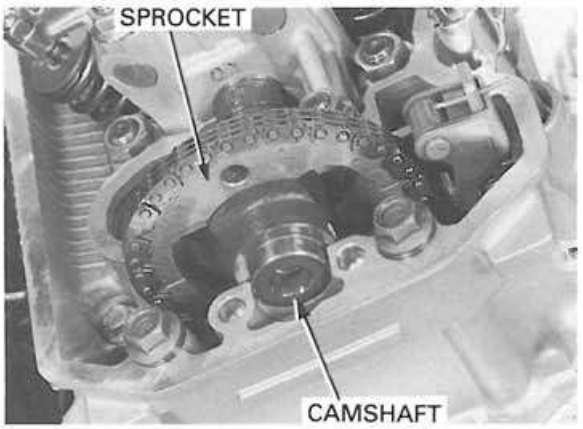


Be careful not to let the cam sprocket bolts fall into the crankcase.

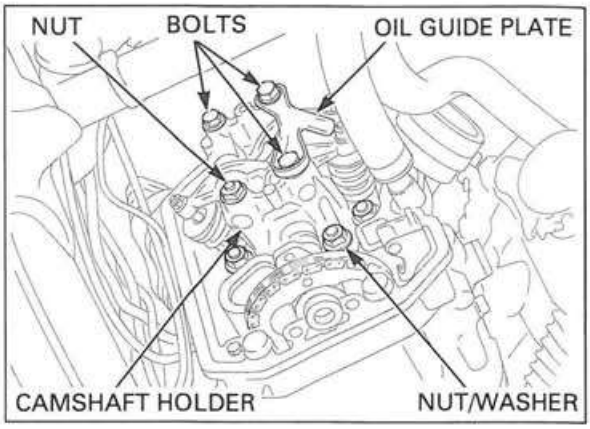
Remove the cam sprocket bolt, turn the crankshaft counterclockwise one full turn (360°) and remove the other cam sprocket bolt.



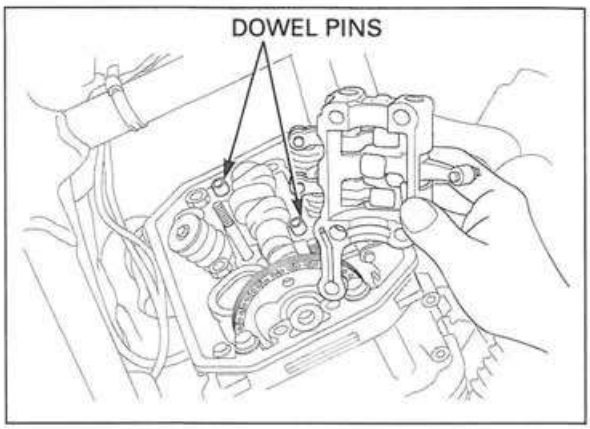
Remove the cam sprocket from the camshaft flange surface.



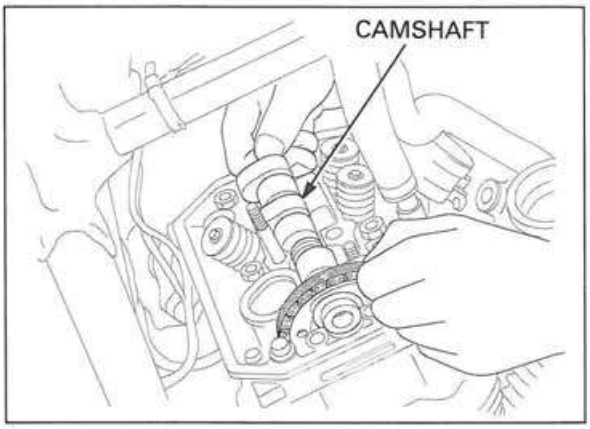
Remove the camshaft holder nuts/washer (8 mm).
Remove the camshaft holder bolts (8 mm) and oil guide plate.
Remove the camshaft holder assembly.



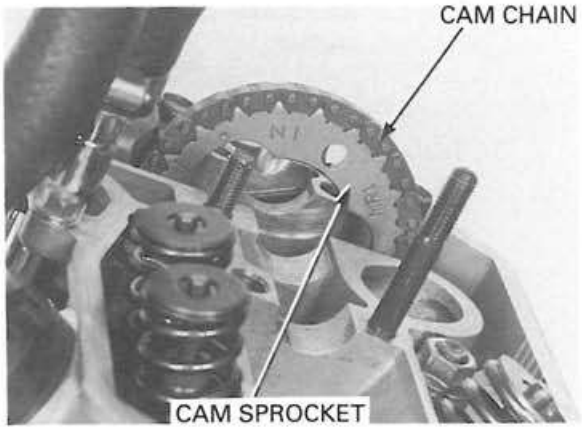
Remove the dowel pins.



Remove the camshaft.



Remove the cam sprocket from cam chain.
Attach a piece of mechanic's wire to the cam chain to prevent it from being dropped into the crankcase.

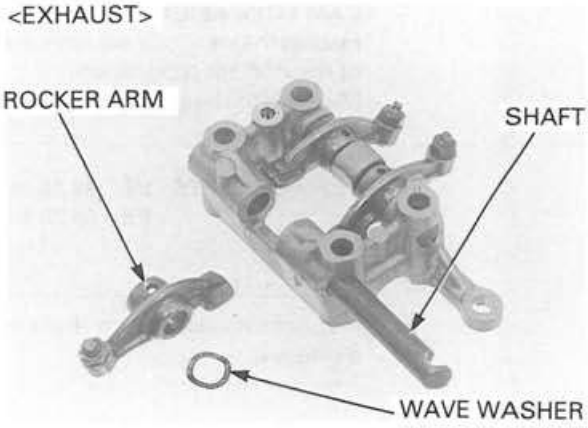


CAMSHAFT HOLDER DISASSEMBLY

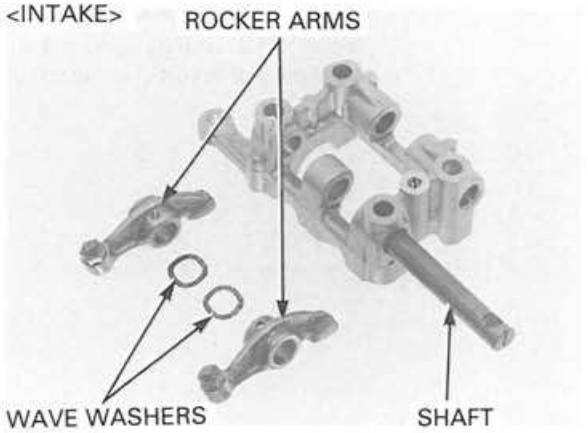
NOTE:

The front cylinder camshaft holder service uses the same procedure as the rear cylinder camshaft holder.

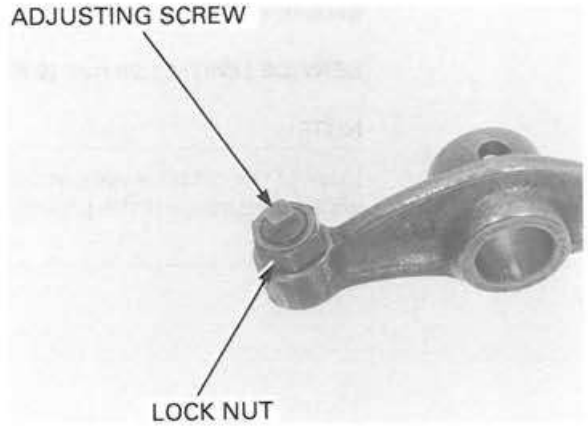
Remove the exhaust rocker arm shaft, exhaust rocker arm and wave washer (12 mm) from the camshaft holder.



Remove the intake rocker arm shaft, intake rocker arms and wave washers (12 mm) from the camshaft holder.



Remove the valve adjuster lock nut and valve adjusting screw.

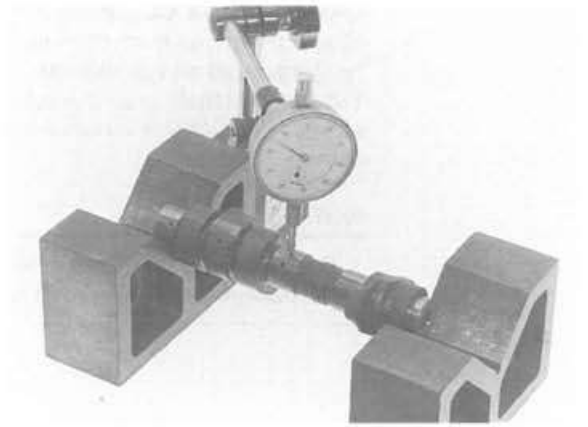


INSPECTION

CAMSHAFT RUNOUT

Support both ends of the camshaft with V-blocks and check the camshaft runout with a dial indicator. Actual runout is 1/2 the total indicator reading.

SERVICE LIMIT: 0.05 mm (0.002 in)



CAM LOBE HEIGHT

Inspect the cam lobe surfaces for scoring or evidence of insufficient lubrication.

Measure the height of each cam lobe using a micrometer.

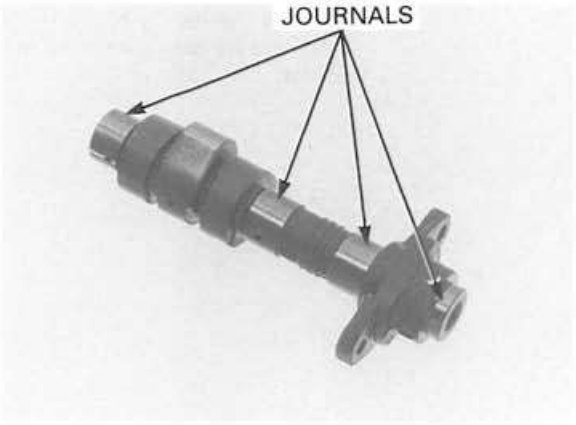
SERVICE LIMITS: IN: 38.10 mm (1.500 in)
EX: 38.20 mm (1.504 in)

NOTE:

Inspect the rocker arm if the cam lobe is worn or damaged.

CAMSHAFT JOURNAL

Inspect the camshaft journal surfaces for scoring or evidence of insufficient lubrication.

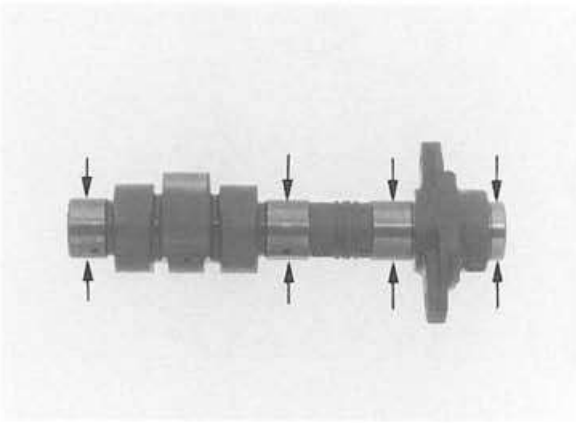


Measure the O.D. of each camshaft journal.

SERVICE LIMIT: 21.90 mm (0.862 in)

NOTE:

Inspect the oil passages and camshaft holder for wear or damage if the journal surface is worn or damaged.



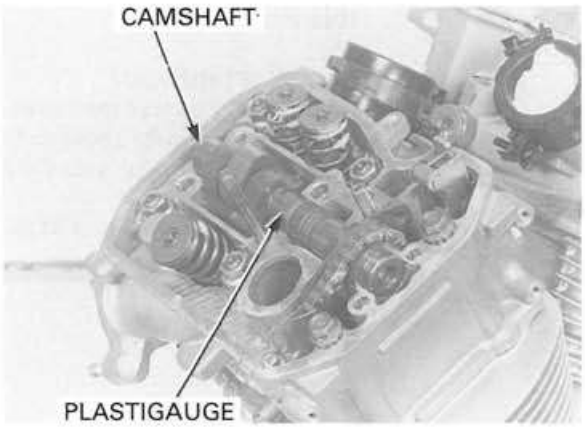
CAMSHAFT OIL CLEARANCE

Clean off any oil from the journals of the camshaft holders, head and camshafts.

Put the camshaft onto the cylinder head and lay a strip of plastigauge lengthwise on the top of each camshaft journal.

NOTE:

- Do not block any oil holes with the plastigauge.
- Do not rotate the camshaft during inspection.

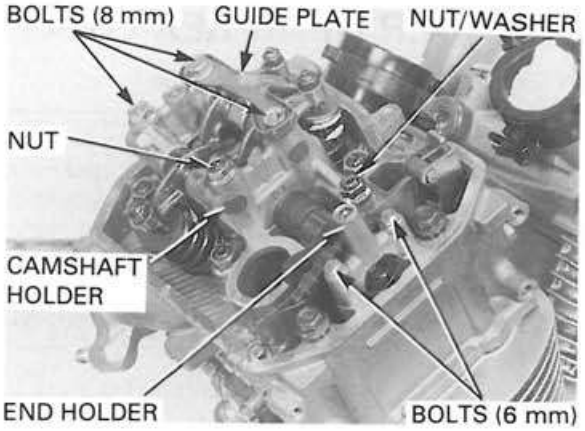


Install the camshaft holder and camshaft end holder. Install and tighten the camshaft holder bolts/nuts (8 mm) to the specified torque in 2 - 3 steps.

TORQUE: 23 N·m (2.3 kgf·m, 17 lbf·ft)

Install and tighten the camshaft holder bolts (6 mm) to the specified torque in 2 - 3 steps.

TORQUE: 10 N·m (1.0 kgf·m, 7 lbf·ft)

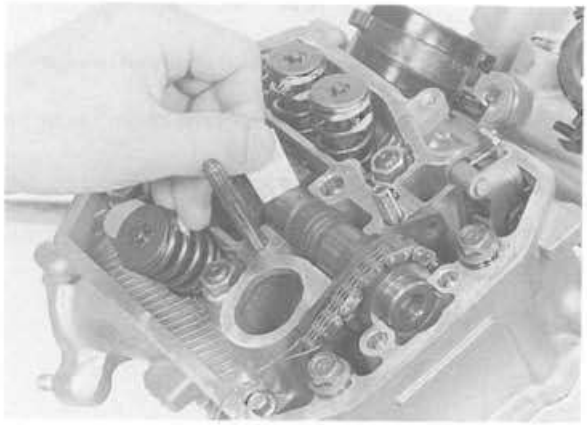


Remove the camshaft holder and measure the width of each plastigauge.
The widest thickness determines the oil clearance.

SERVICE LIMIT: 0.13 mm (0.005 in)

When the service limit is exceeded, replace the camshaft and recheck the oil clearance.

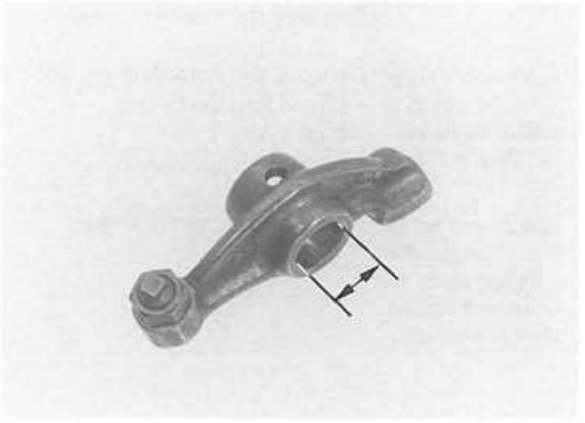
Replace the cylinder head and camshaft holders if the clearance still exceeds the service limit.



ROCKER ARM, ROCKER ARM SHAFT
Inspect the sliding surface of the rocker arms for wear or damage where they contact the camshaft, or for clogged oil holes.
Inspect the contact surface of the valve adjusting screw for wear or damage.

Measure the I.D. of each rocker arm.

SERVICE LIMIT: 12.05 mm (0.474 in)



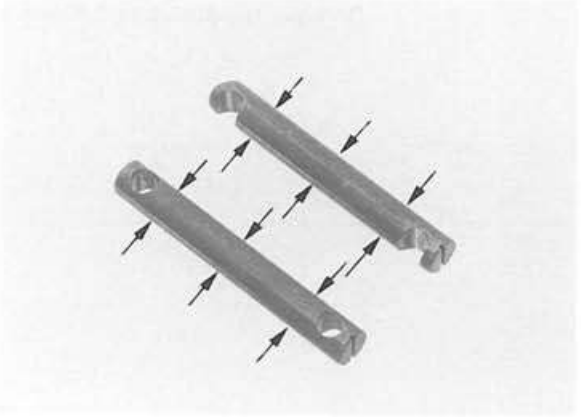
Measure the each rocker arm shaft O.D..

SERVICE LIMIT: 11.83 mm (0.466 in)

Inspect the shaft for wear or damage and calculate the shaft to rocker arm clearance.

SERVICE LIMIT: 0.07 mm (0.003 in)

Replace the rocker arm and/or shaft if necessary.

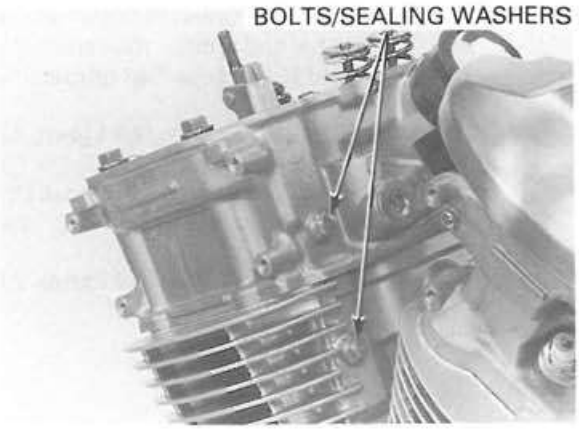


CYLINDER HEAD REMOVAL

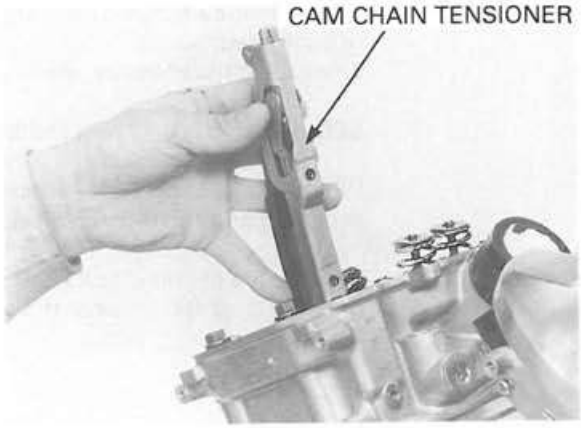
NOTE:

- The engine must be removed from the frame before servicing the rear cylinder head.
- The front cylinder head and rear cylinder head cover can be serviced with the engine in the frame.
- The rear cylinder head service using the same procedure as for the front cylinder head.

Remove the engine from the frame (rear cylinder only/Section 7).
Remove the cylinder head cover (page 10-5).
Remove the camshaft (page 10-8).



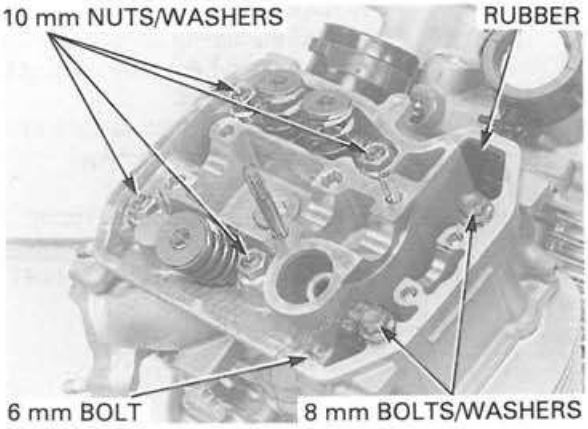
Remove the cam chain tensioner mounting bolts and sealing washers.
Remove the cam chain tensioner.



Remove the cushion rubber.

Loosen the bolts and nuts in a crisscross pattern in several times.

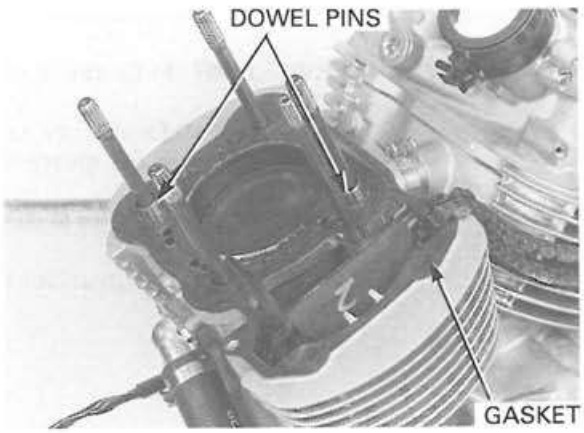
Remove the following cylinder head bolts and nuts:
- 8 mm bolts/washers
- 6 mm bolt
- 10 mm nuts/washers



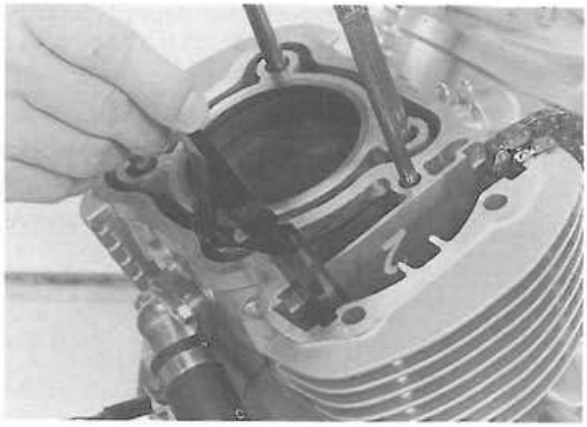
Be careful not to damage the mating surfaces when removing the cylinder head.

Remove the cylinder head.

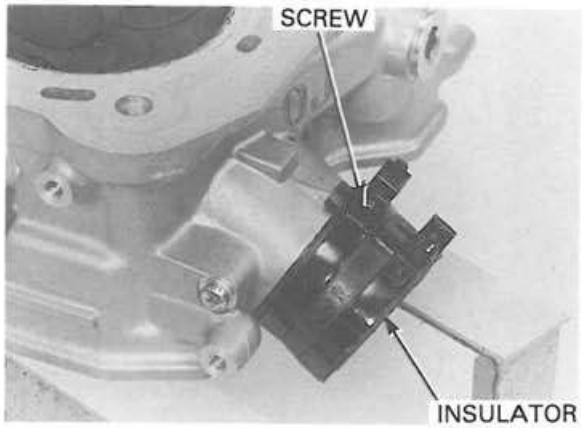
Remove the gasket and dowel pins.



Remove the cam chain guide.



Loosen the screw and remove the carburetor insulator.

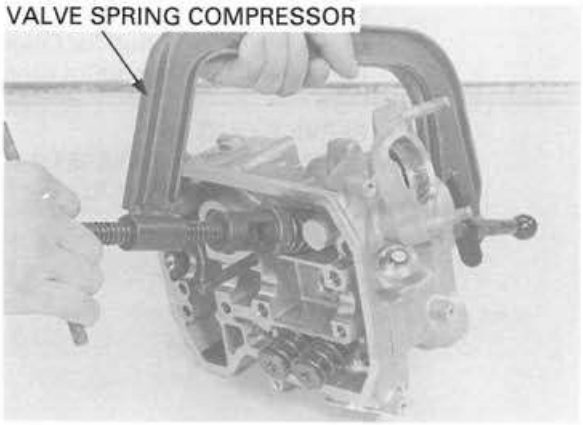


CYLINDER HEAD DISASSEMBLY

Mark all parts during disassembly so they can be placed back in their original position.

Install the valve spring compressor onto the valve and compress the valve spring.

TOOL:
Valve spring compressor 07757-0010000



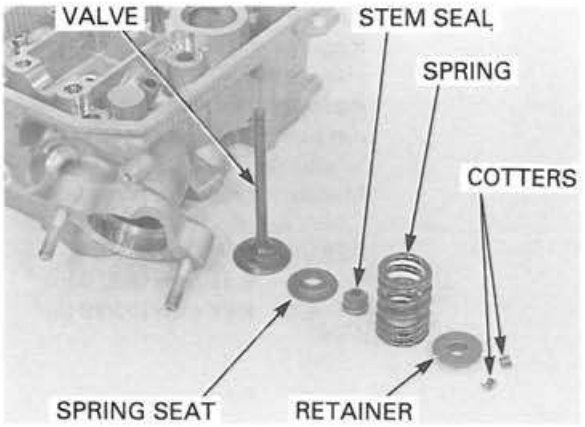
CAUTION:

Compressing the valve spring more than necessary will cause loss of valve spring tension.

Remove the valve spring compressor, then remove the retainers, springs and valves.
Remove the stem seals and spring seats.

NOTE:

Do not reuse a removed stem seal.

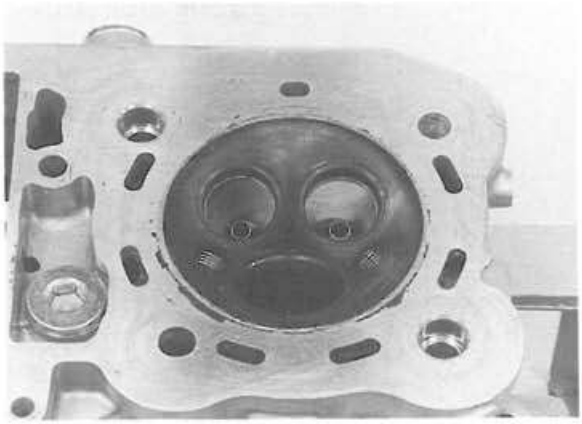


Remove carbon deposits from the combustion chamber and clean off the head gasket surface.

CAUTION:

Avoid damaging the gasket and valve seat surface.

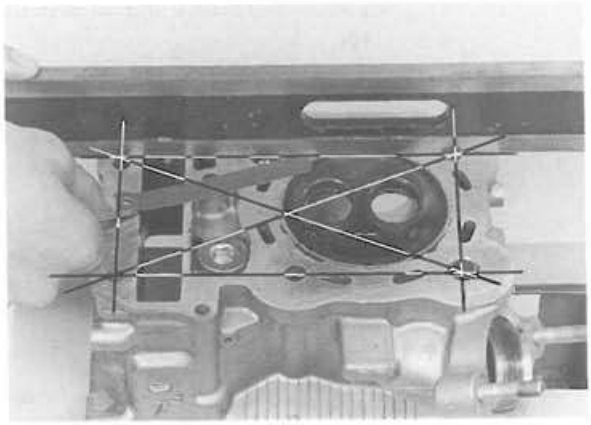
Check the spark plug hole and valve areas for cracks.



INSPECTION

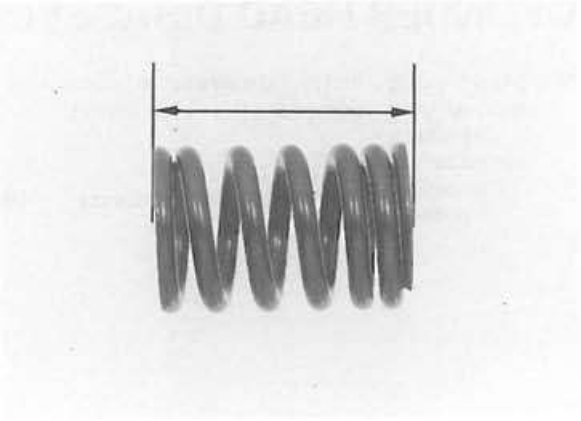
CYLINDER HEAD
Check the cylinder head for warpage with a straight edge and feeler gauge.

SERVICE LIMIT: 0.10 mm (0.004 in)



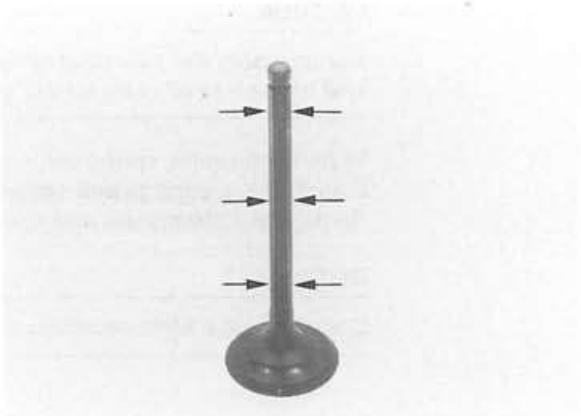
VALVE SPRING
Check the valve spring for fatigue or damage.
Measure the free length of valve springs.

SERVICE LIMITS:
IN: 40.58 mm (1.598 in)
EX: 41.25 mm (1.624 in)

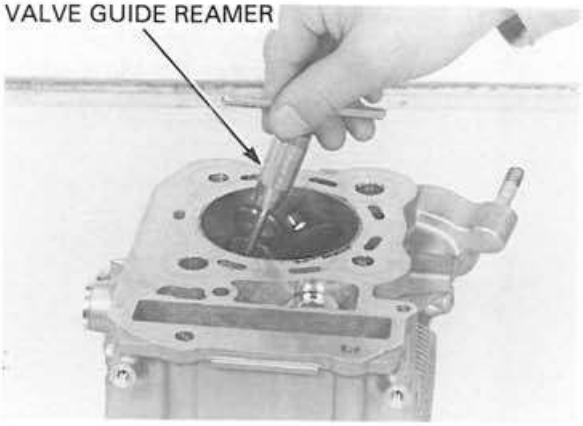


VALVE STEM, VALVE GUIDE
Inspect each valve for bending, burning, scratches or abnormal wear.
Insert the valves in their original positions in the cylinder head. Check that each valve moves up and down smoothly, without binding.
Measure the each valve stem O.D. and record it.

SERVICE LIMITS:
IN: 5.45 mm (0.215 in)
EX: 6.55 mm (0.258 in)



Ream the valve guide to remove any carbon build-up before measuring the guide.
Insert the reamer from the combustion chamber side of the head and always rotate the reamer clockwise.

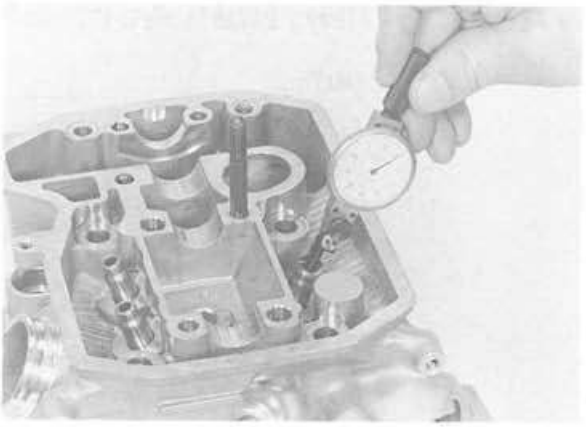


NOTE:

- Take care not to tilt or lean the reamer in the guide while reaming.
- If reaming irregular, oil will leak past the valve stem seal. If could cause improper seat contact that cannot be corrected by refacing.
- Rotate the reamer clockwise, never counterclockwise when inserting and removing.

TOOLS:
Valve guide reamer

5.510 mm (IN)	**07984-2000001 or 07984-200000D (U.S.A. only)**
6.612 mm (EX)	**07984-ZE20001 or 07984-ZE2000D (U.S.A. only)**



Measure each valve guide I.D. and record it.

SERVICE LIMITS:
IN: 5.56 mm (0.219 in)
EX: 6.65 mm (0.262 in)

Subtract each valve stem O.D. from the corresponding guide I.D. to obtain the stem-to-guide clearance.

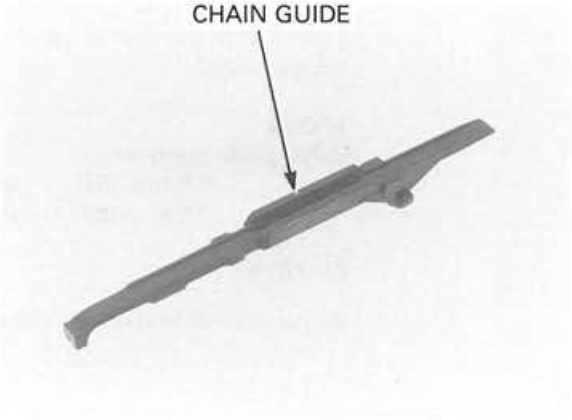
SERVICE LIMITS:
IN: 0.10 mm (0.004 in)
EX: 0.11 mm (0.004 in)

If the stem-to-guide clearance exceeds the service limit, determine if a new guide with standard dimensions would bring the clearance within tolerance.
If so, replace any guides as necessary and ream to fit.
If the stem-to-guide clearance exceeds the service limit with new guide, also replace the valve.

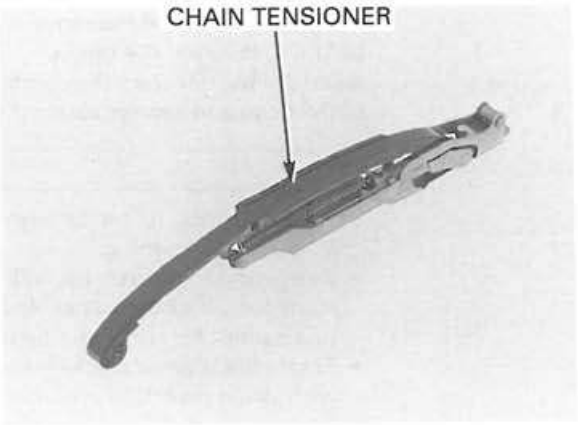
NOTE:

Inspect and reface the valve seats whenever the valve guides are replaced (see page 10-18).

CAM CHAIN GUIDE
Check the cam chain guide for wear or damage.
Replace the cam chain guide if necessary.



CAM CHAIN TENSIONER
Check the cam chain tensioner for wear or damage. Replace the cam chain tensioner if necessary.



VALVE GUIDE REPLACEMENT

NOTE:

Refinish the valve seats whenever the valve guides are replaced to prevent uneven seating.

Chill the valve guides in the freezer section of refrigerator for about an hour.

⚠ WARNING

Wear insulated gloves to avoid burns when handling the heated cylinder head.

Heat the cylinder head to 130 - 140°C (275 - 290°F) with a hot plate or oven. Do not heat the cylinder head beyond 150°C (300°F). Use temperature indicator sticks, available from welding supply stores, to be sure the cylinder head is heated to proper temperature.

CAUTION:

Using a torch to heat the cylinder head may cause warping.

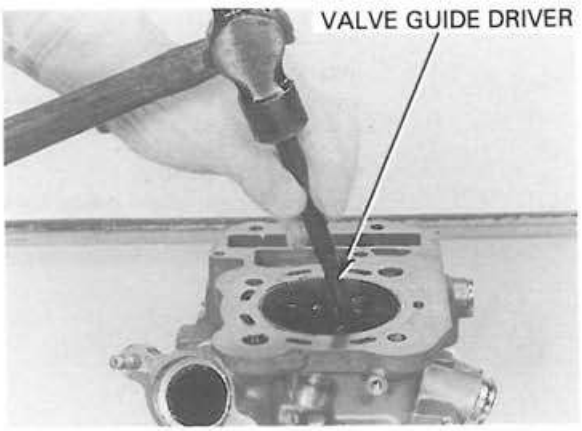
Support the cylinder head and drive out the old guides from the combustion chamber side of the cylinder head.

TOOLS:
Valve guide remover

5.5 mm (IN)	**07742-0010100**
6.6 mm (EX)	**07742-0010200**

CAUTION:

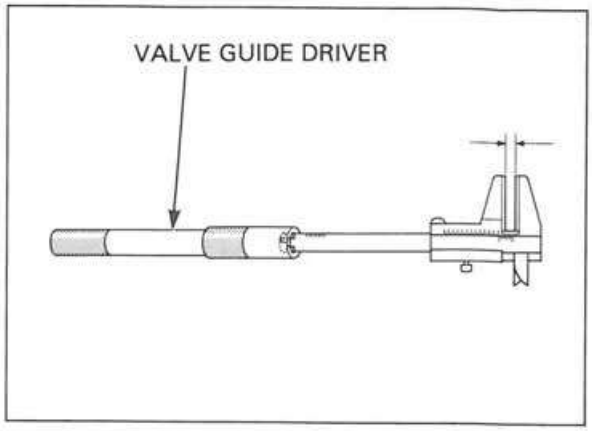
Be careful not to damage the cylinder head.



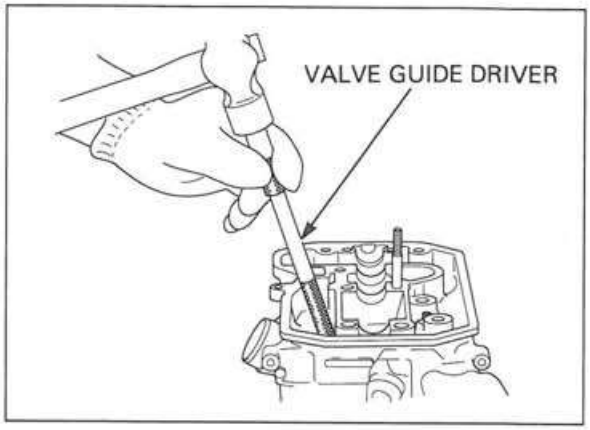
Adjust the valve guide driver to the valve guide height.

TOOL:
Valve guide driver **07743-0020000**
Not available in U.S.A.

VALVE GUIDE PROJECTION ABOVE CYLINDER HEAD:
IN: 19.5 mm (0.77 in)
EX: 18.0 mm (0.71 in)



Drive the new guides in from the camshaft side of the cylinder head to the valve guide height while the cylinder head is still heated.



Let the cylinder head cool to room temperature, then ream the new valve guides.

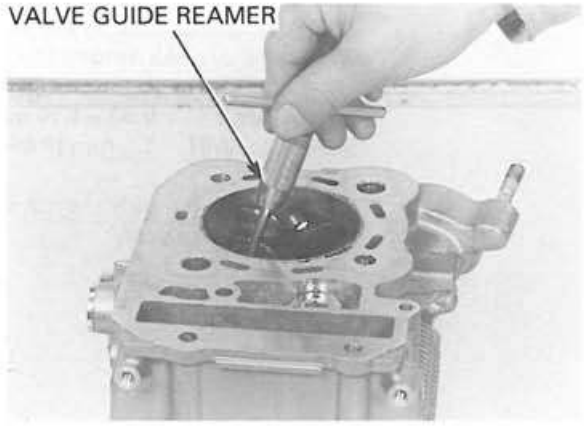
TOOLS:
Valve guide reamer

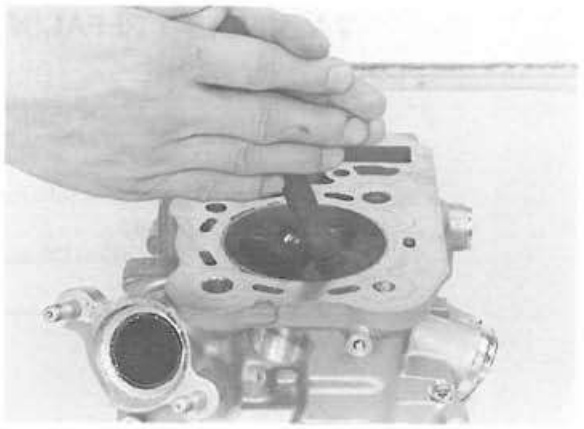
5.510 mm (IN)	**07984-2000001 or 07984-200000D (U.S.A. only)**
6.612 mm (EX)	**07984-ZE20001 or 07984-ZE2000D (U.S.A. only)**

NOTE:

- Take care not to tilt or lean the reamer in the guide while reaming. Otherwise, the valves may be installed slanted, causing oil leakage from the stem seal and improper valve seat contact. This may prevent valve seat refacing.
- Insert the reamer from the combustion chamber side of the head and always rotate the reamer clockwise.

Clean the cylinder head thoroughly to remove any metal particles after reaming and refacing the valve seat.



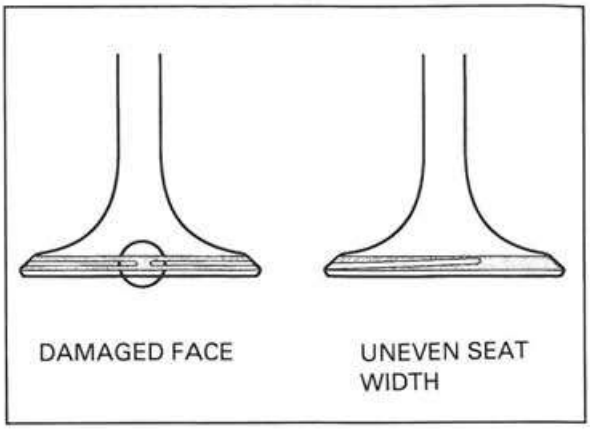


VALVE SEAT INSPECTION/REFACING

INSPECTION

Clean all intake and exhaust valves thoroughly to remove carbon deposits.

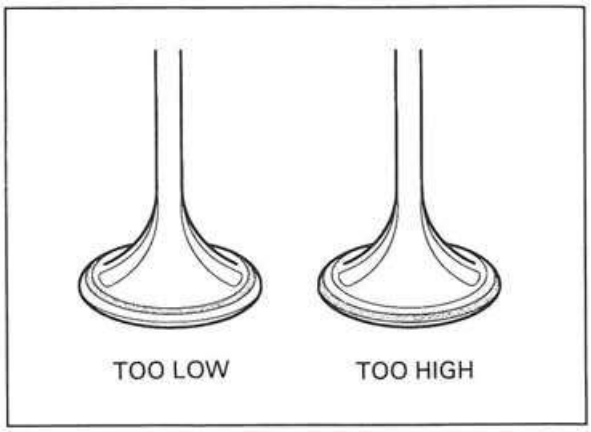
Apply a light coating of Prussian Blue to each valve face.
Tap the valve against the valve seat several times using a hand-lapping tool, without rotating valve, to make a clear pattern.
Remove the valve and inspect the valve seat face.



NOTE:

The valve cannot be ground. If the valve face is burned or badly worn or if it contacts the seat unevenly, replace the valve.

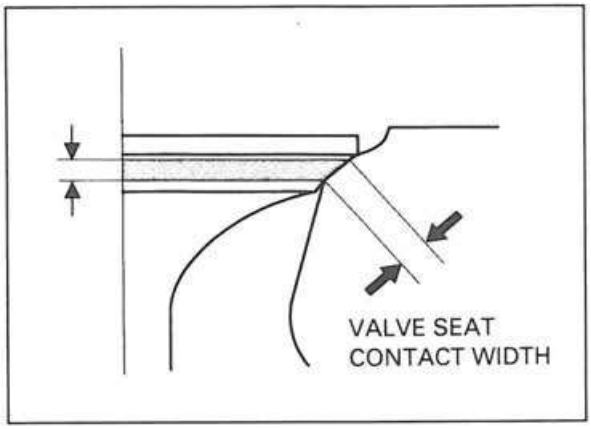
Inspect the valve seat face for:
- Uneven seat width:
  - Bent or collapsed valve stem;
    Replace the valve and reface the valve seat.
- Damaged face:
  - Replace the valve and reface the valve seat.
- Contact area (too high or too low area):
  - Reface the valve seat.



Inspect the width of the valve seat.
The valve seat contact should be within the specified width and even all around the circumference.

STANDARD: 0.90 – 1.10 mm (0.035 – 0.043 in)
SERVICE LIMIT: 1.5 mm (0.06 in)

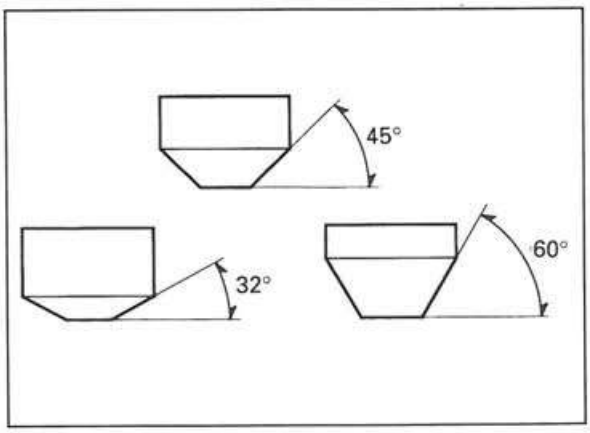
If the valve seat width is not within specification, reface the valve seat.



VALVE SEAT REFACING

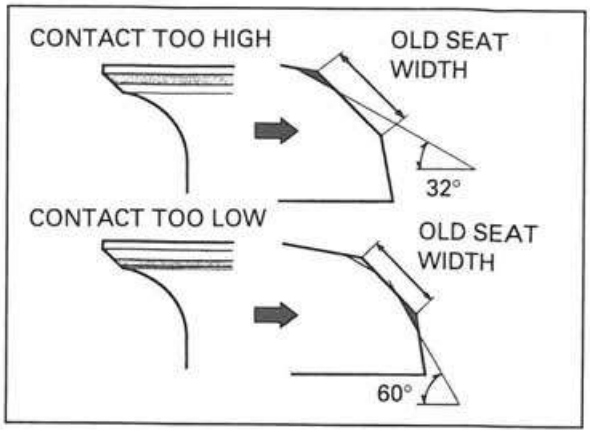
NOTE:

- Follow the refacer manufacturer's operating instruction.
- Reface the valve seat whenever the valve guide has been replaced.
- Be careful not to grind the seat more than necessary.

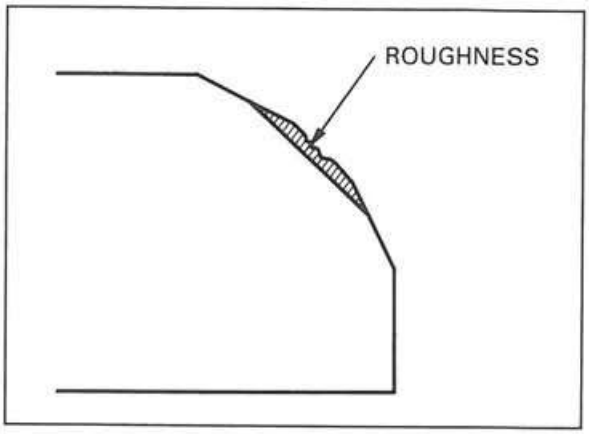


If the contact area is too high on the valve, the seat must be lowered using a 32° flat cutter.

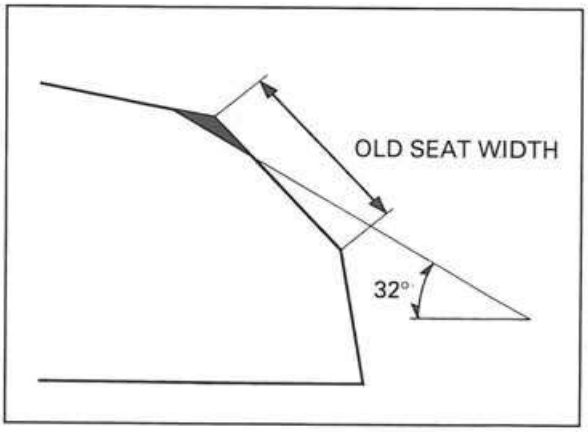
If the contact area is too low on the valve, the seat must be raised using a 60° inner cutter. Refinish the seat to specifications, using a 45° finish cutter.



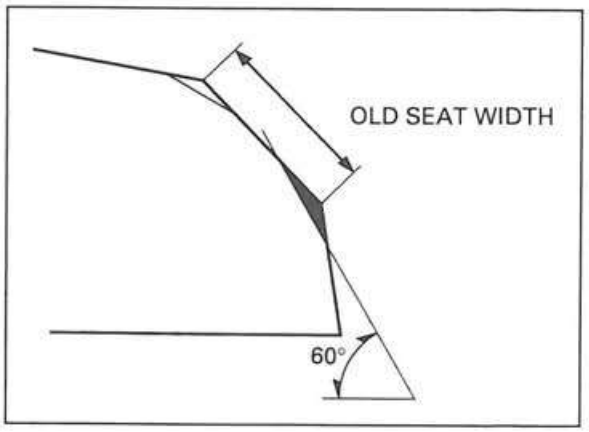
Using a 45° cutter, remove any roughness or irregularities from the seat.



Using a 32° cutter, remove 1/4 of the existing valve seat material.



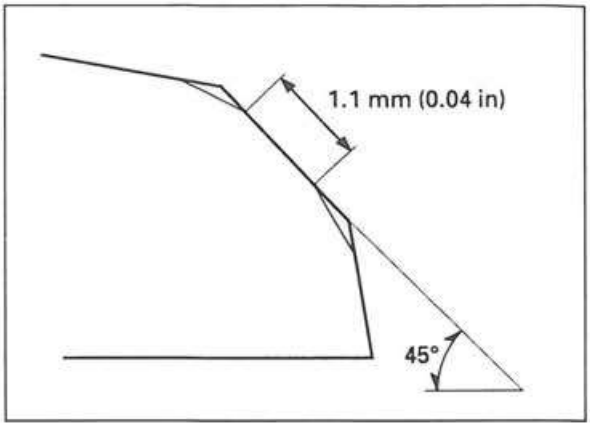
Using a 60° cutter, remove the bottom 1/4 of the old seat.



Using a 45° cutter, cut the seat to the proper width. Make sure that all pitting and irregularities are removed.

CAUTION:

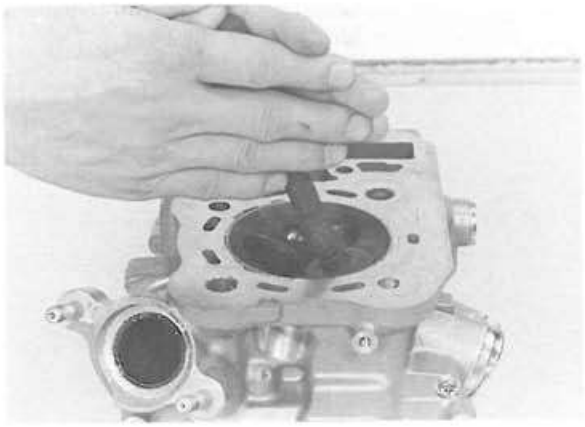
- ***Excessive lapping pressure may deform or damage the seat.***
- ***Change the angle of lapping tool frequently to prevent uneven seat wear.***
- ***Lapping compound can cause damage if it enters between the valve stem and guide.***



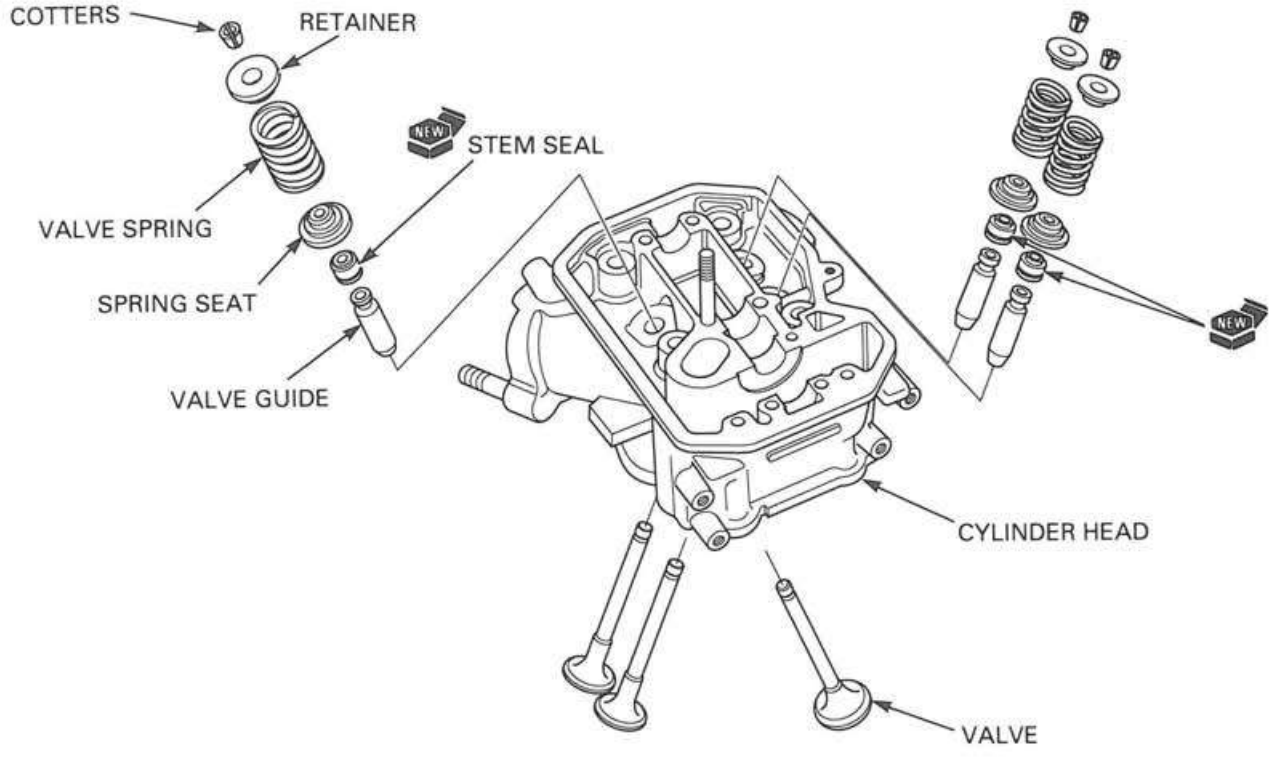
After cutting the seat, apply lapping compound to the valve face, and lap the valve using light pressure.

After lapping, wash any residual compound off the cylinder head and valve.

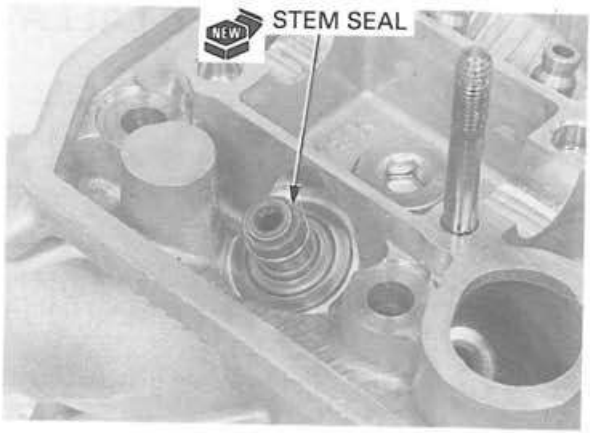
Recheck the seat contact after lapping.



CYLINDER HEAD ASSEMBLY



Install the spring seats and new stem seals.
Lubricate each valve stems and valve guide inner surfaces with molybdenum disulfide oil.

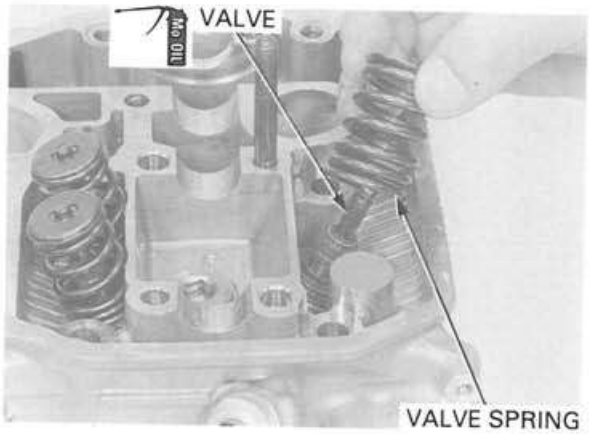


Install the valves into the valve guides.

NOTE:

To avoid damage to the stem seal, turn the valve slowly when valve installing.

Install the valve spring with tightly would coils side facing the combustion chamber.



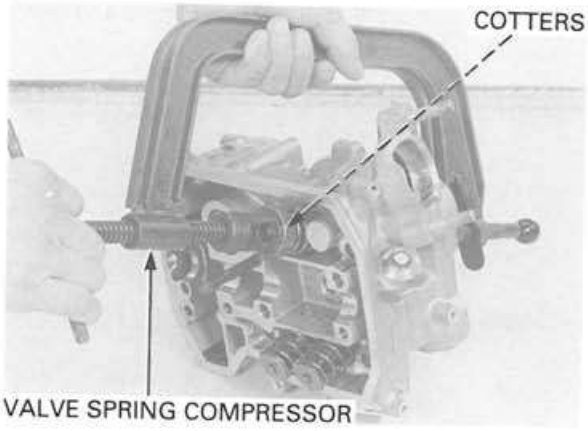
Install the retainers.
Install the valve spring compressor onto the valve and compress the valve springs.

TOOL:

Valve spring compressor	**07757-0010000 or 07957-3290001**

CAUTION:

Compressing the valve springs more than necessary will cause loss of valve spring tension.



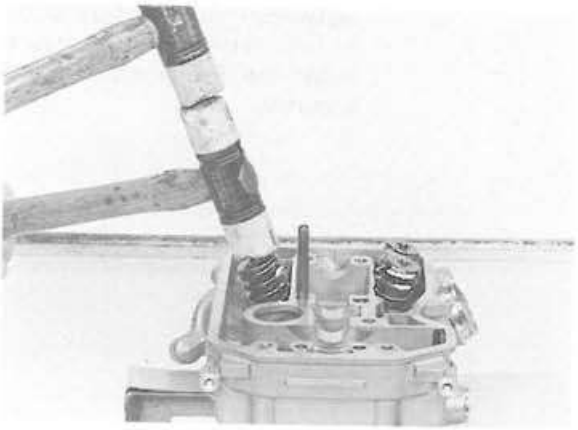
To ease installation of the cotters, grease them first.

Install the valve cotters.

NOTE:

Support the cylinder head so that the valve heads will not contact anything that causes damage.

Set the cotters firmly using two soft hammers as shown. Hold one hammer on the valve stem and gently tap it with the other hammer.

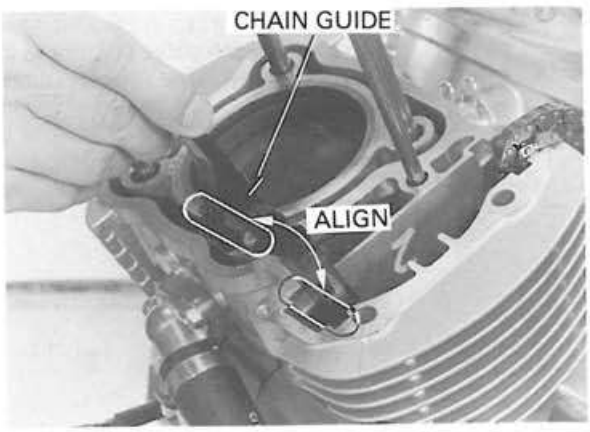


CYLINDER HEAD INSTALLATION

NOTE:

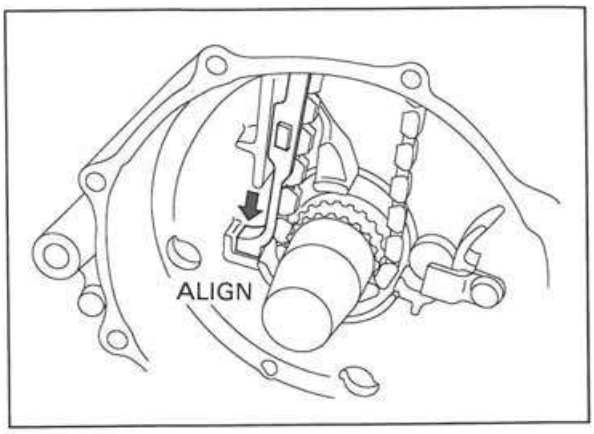
- The front cylinder head service using the same procedure as for the rear cylinder head.
- Be careful not to damage the mating surfaces when cleaning the cylinder mating surface.
- When cleaning the cylinder mating surface, place the shop towel over the cylinder opening to prevent dust or dirt from entering the engine.

Clean any gasket material from the cylinder mating surfaces.

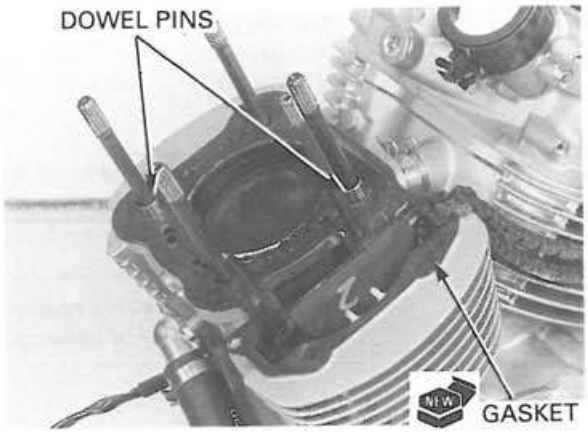


Install the cam chain guide by aligning its tab with the groove on the cylinder.

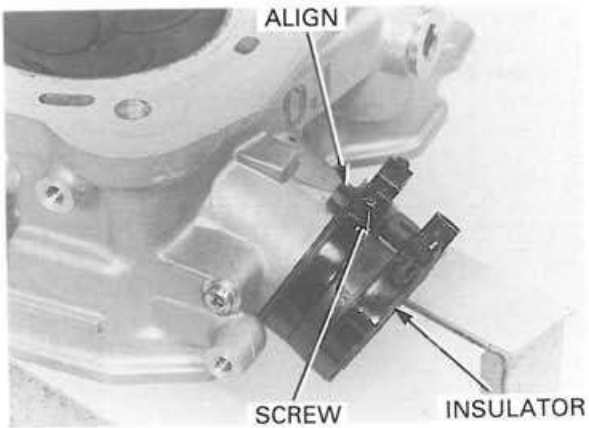
Make sure that the end of the guide is inserted into place in the crankcase.



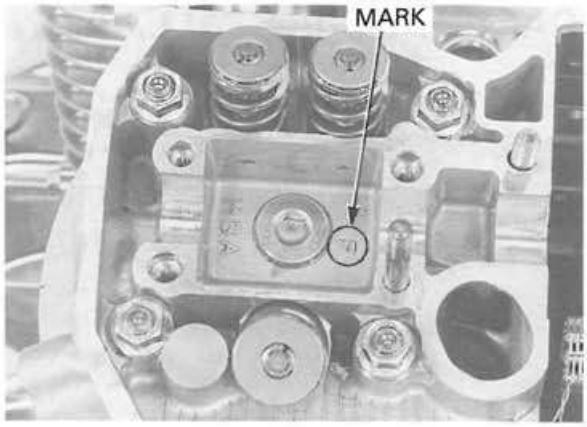
Install the dowel pins and new gasket.



Install the insulator, aligning the boss on the cylinder head with the slot in the insulator as shown.
Install the insulator bands and tighten the screws securely.



Install the cylinder head to the cylinder.



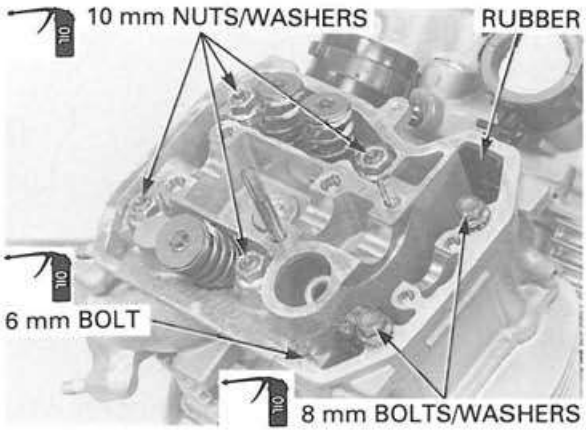
NOTE:

The cylinder heads are identified by marks on its camshaft side.
"F": Front cylinder head
"R": Rear cylinder head

Apply oil to the cylinder head 8 mm bolt threads.
Apply oil to the cylinder head each bolts and nuts seating surfaces.

Install and tighten the cylinder head bolts and nuts to the specified torque:

TORQUE:
10 mm nut: 47 N·m (4.8 kgf·m, 35 lbf·ft)
8 mm bolt/nut: 23 N·m (2.3 kgf·m, 17 lbf·ft)
6 mm bolt: 12 N·m (1.2 kgf·m, 9 lbf·ft)

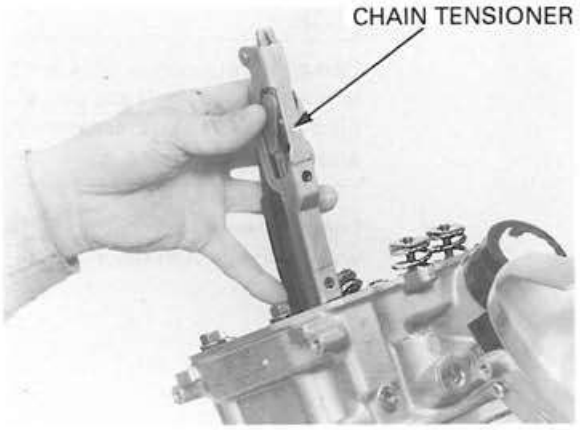


NOTE:

- Tighten all to hand-tight, then torque the larger fasteners before tightening the smaller fasteners.
- Tighten the bolts and nuts in a crisscross pattern in several steps.

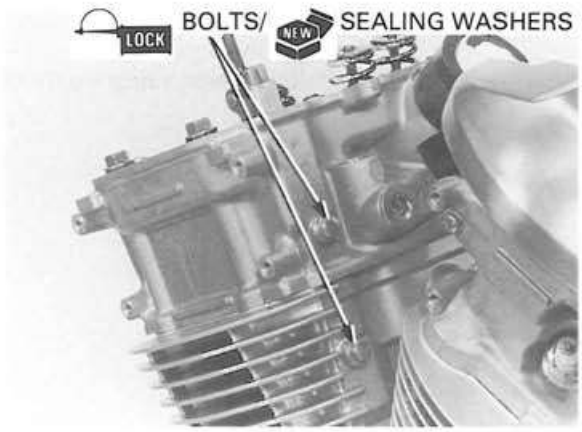
Install the cushion rubber.

Install the cam chain tensioner aligning its end with the groove on the crankcase.



Install the new sealing washers.
Clean and apply a locking agent to the cam chain tensioner bolt threads.
Install and tighten the cam chain tensioner mounting bolt to the specified torque.

TORQUE: 10 N·m (1.0 kgf·m, 7 lbf·ft)



Install the engine to the frame (rear cylinder only/Section 7).
Install the camshaft (page 10-26).
Install the cylinder head cover (page 10-32).