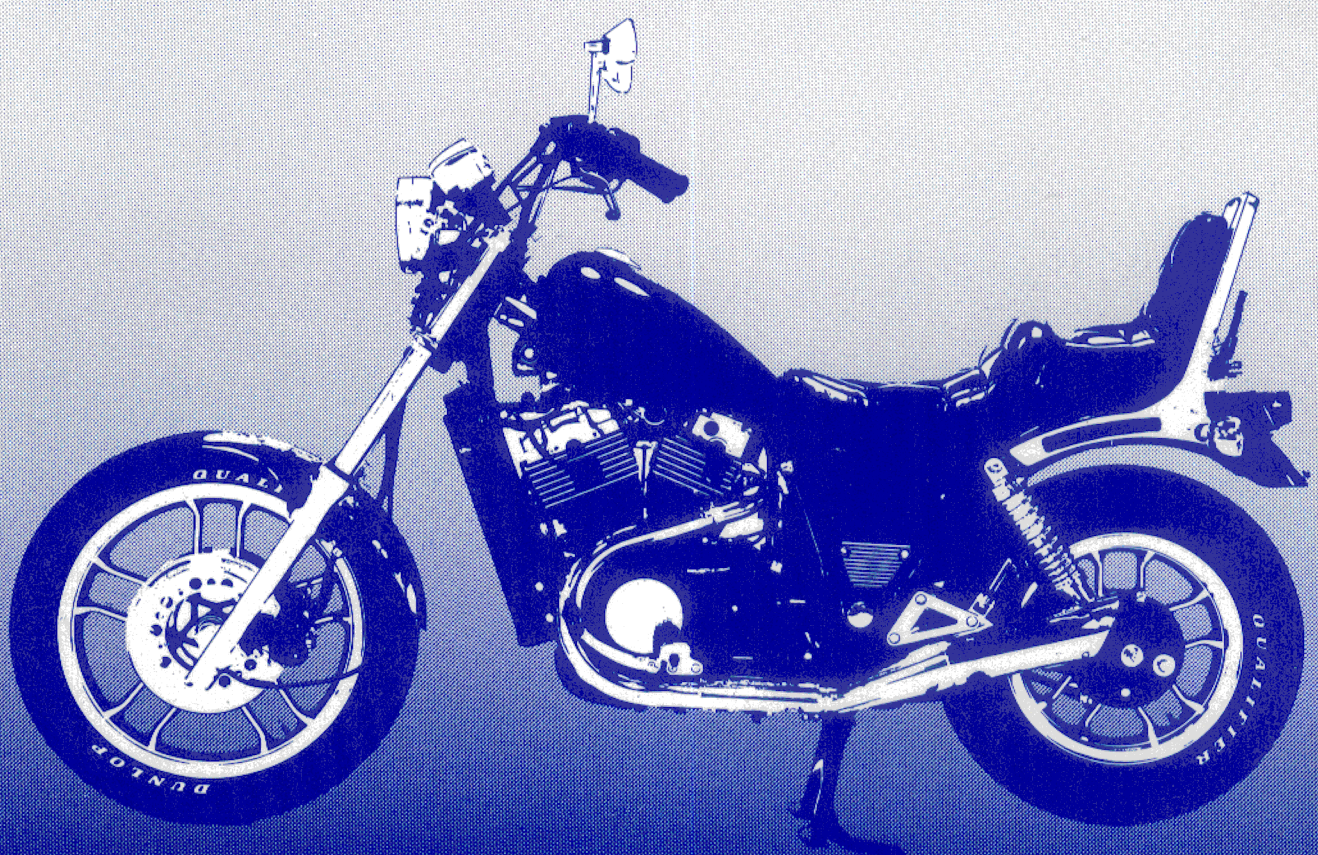
Official

HONDA

SHOP MANUAL

Shadow VT700C VT750C



VT700C : '84-'85
VT750C : '83

IMPORTANT SAFETY NOTICE

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

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

NOTE: Gives helpful information.

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

HOW TO USE THIS MANUAL

This manual is based on the '83 VT750C. Any information that differs between the after '83 models is called out in the text or in a note.

Follow the Maintenance Schedule (Section 3) recommendations to ensure that the vehicle is in peak operating condition and the emission levels are within the standards set by the U.S. Environmental Protection Agency. Performing the first scheduled maintenance is very important. It compensates for the initial wear that occurs during the break-in period.

Sections 1 through 3 apply to the whole motorcycle, while sections 4 through 21 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 page 1 of that section.

Most sections start with an assembly or system illustration, service information and troubleshooting for the section. The subsequent pages give detailed procedures.

If you are not familiar with this motorcycle, read the Technical Features in section 23.

If you don't know the source of the trouble, go to section 24, Troubleshooting.

HONDA MOTOR CO., LTD.
SERVICE PUBLICATIONS OFFICE

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1. GENERAL INFORMATION

GENERAL SAFETY

WARNING

If the engine must be running to do some work, make sure the area is well-ventilated. Never run the engine in a closed area. The exhaust contains poisonous carbon monoxide gas.

WARNING

Gasoline is extremely flammable and is explosive under certain conditions. Do not smoke or allow flames or sparks in your working area.

WARNING

The battery electrolyte contains sulfuric acid. Protect your eyes, skin and clothing. In case of contact, flush thoroughly with water and call a doctor if electrolyte gets in your eyes.

WARNING

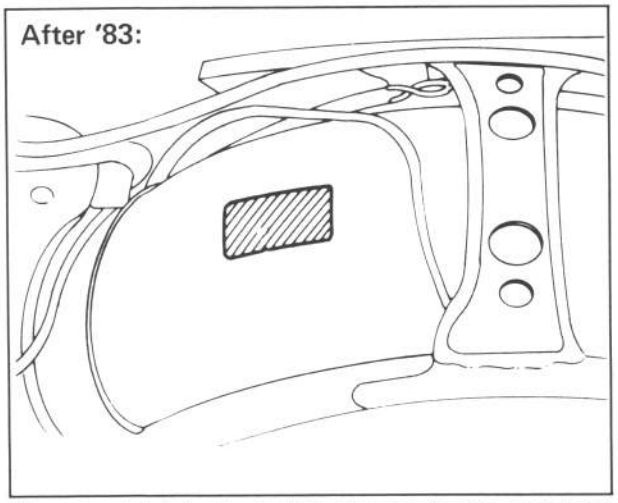
The battery generates hydrogen gas which can be highly explosive. Do not smoke or allow flames or sparks near the battery, especially while charging it.

SERVICE RULES

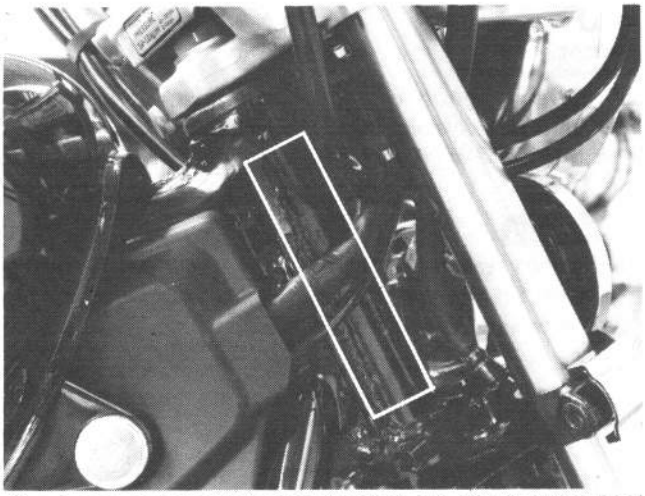
1. Use genuine HONDA or HONDA-recommended parts and lubricants or their equivalents. Parts that do not meet HONDA's design specifications may damage the motorcycle.
2. Use the special tools designed for this product.
3. Use only metric tools when servicing this motorcycle. Metric bolts, nuts, and screws are not interchangeable with English fasteners. The use of incorrect tools and fasteners may damage the motorcycle.
4. Install new gaskets, O-rings, cotter pins, lock plates, etc. when reassembling.
5. When tightening bolts or nuts, begin with the larger-diameter or inner bolts first, and tighten to the specified torque diagonally, 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.

MODEL IDENTIFICATION

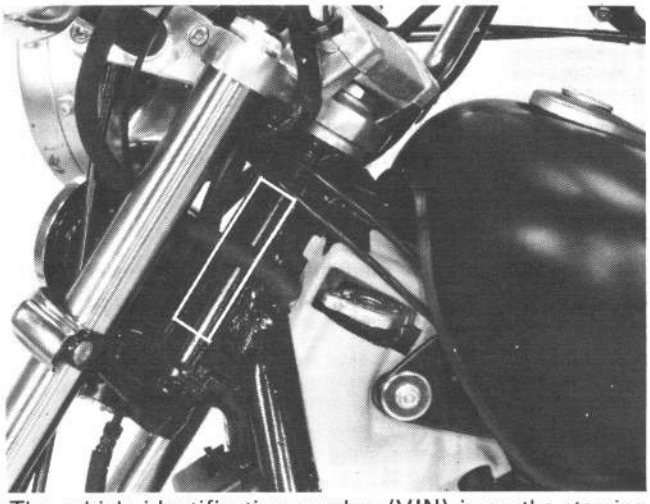
BEGINNING F NO. RC140 * DM000018
E NO. RC14E 200027



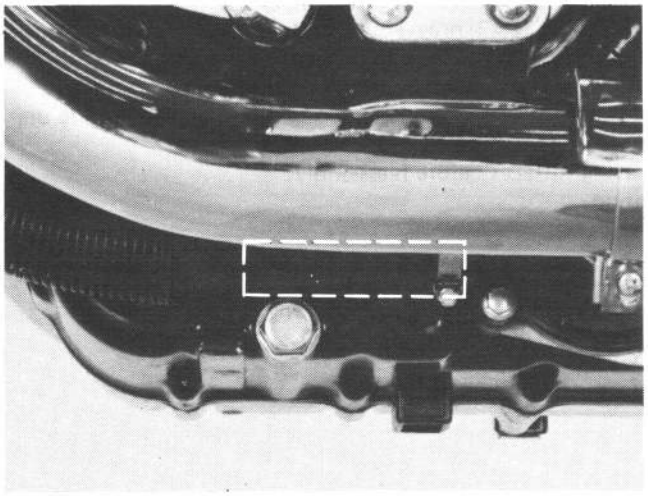
The color label is attached to the rear fender under the seat.



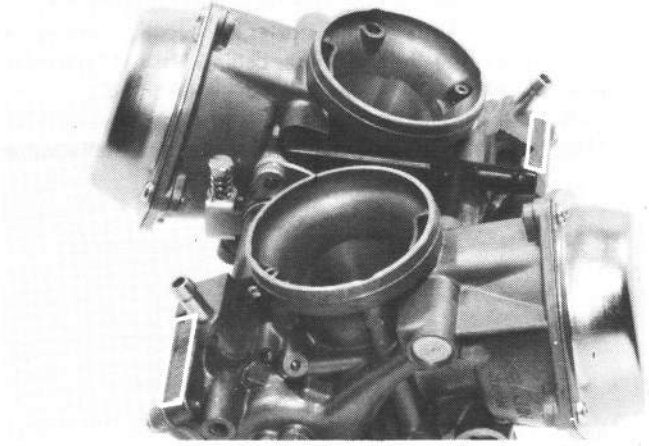
The frame serial number is stamped on the steering head right side.



The vehicle identification number (VIN) is on the steering head left side.



The engine serial number is stamped on the lower left crankcase.



The carburetor identification number is on the carburetor body intake side.

SPECIFICATIONS

ITEM			
DIMENSIONS	Overall length		2,190 mm (86.2 in)
	Overall width		860 mm (33.8 in)
	Overall height		1,200 mm (47.2 in)
	Wheelbase		1,525 mm (60.0 in)
	Seat height		760 mm (29.9 in)
	Foot peg height		330 mm (13.0 in)
	Ground clearance		150 mm (5.90 in)
	Dry weight		211 kg (465 lb)
	Curb weight		225 kg (496 lb)
FRAME	Type		Double cradle
	Front suspension, travel		Telescopic fork 146 mm (5.7 in)
	Rear suspension, travel		Swingarm/Shock absorber, 103 mm (4.1 in)
	Gross vehicle weight rating		395 kg (870 lb)
	Vehicle capacity load		168 kg (370 lb)
	Front tire size		110/90–19 62H
	Rear tire size		140/90–15 70H
	Cold tire pressures	Up to 90 kg (200 lbs) load Front	32 psi (225 kPa, 2.25 kg/cm²)
		Up to 90 kg (200 lbs) load Rear	32 psi (225 kPa, 2.25 kg/cm²)
		Up to vehicle capacity load Front	32 psi (225 kPa, 2.25 kg/cm²)
		Up to vehicle capacity load Rear	40 psi (280 kPa, 2.80 kg/cm²)
	Front brake, lining swept area		Double disc 868 cm² (134.5 sq in)
	Rear brake, lining swept area		Drum 201 cm² (31.2 sq in)
	Fuel capacity		12.5 liters (3.3 US gal, 2.75 Imp gal)
	Fuel reserve capacity		2.0 liters (0.53 US gal, 0.44 Imp gal)
	Caster angle		32°
	Trail		139 mm (5.5 in)
	Front fork oil capacity		470 cc (28.68 cu in)
	Front fork air pressure		0–6 psi (0–40 kPa, 0–0.4 kg/cm²)
ENGINE	Type		Water cooled twin 4-stroke SOHC engine
	Cylinder arrangement		2 cylinders 45° V
	Bore and stroke	'83:	79.5 x 75.5 mm (3.13 x 2.97 in)
		After '83:	76.5 x 75.5 mm (3.01 x 2.97 in)
	Displacement	'83:	749.5 cm³ (45.72 cu in)
		After '83:	694.5 cm³ (42.34 cu in)
	Compression ratio	'83:	9.8 : 1
		After '83:	9.6 : 1
	Valve train		Silent, multi-link chain drive and OHC with rocker arms
	Maximum horsepower	'83:	66 BHP/7,500 rpm
		After '83:	62 BHP/7,500 rpm
	Maximum torque	'83:	6.8 kg-m (49.4 ft-lb)/6,000 rpm
		After '83:	6.3 kg-m (45.8 ft-lb)/6,000 rpm
	Oil capacity		3.5 liters (3.7 US qt, 3.1 Imp qt) after disassembly
			3.0 liters (3.2 US qt, 2.6 Imp qt) after draining
	Coolant capacity		1.7 liters (1.8 US qt, 1.5 Imp qt)
	Lubrication system		Forced pressure and wet sump
	Air filtration		Urethane foam
	Cylinder compression		12 ± 2 kg/cm² (171 ± 28 psi)
	Intake valve Opens	'83, '84:	10° (BTDC) at 1 mm lift
	Intake valve Closes	'83, '84:	40° (ABDC) at 1 mm lift
	Intake valve Opens	After '84:	5° (BTDC) at 1 mm lift
	Intake valve Closes	After '84:	45° (ABDC) at 1 mm lift
	Exhaust valve Opens		40° (BBDC) at 1 mm lift
	Exhaust valve Closes		10° (ATDC) at 1 mm lift
	Valves		Hydraulic tappet
	Engine weight		78 kg (172 lb)
	Idle speed	'83:	900 ± 100 rpm
		After '83:	1000 ± 100 rpm

ITEM		
CARBURETION	Carburetor type	36 mm (1.42 in) Vertical
	Identification number '83:	VD7AA
	'84:	VD7CA [Calif: VD7BA]
	After '84:	VD7CB [Calif: VD7BB]
	Pilot screw initial setting	See page 4-12
	Float level	7.5 mm (0.30 in)
DRIVE TRAIN	Clutch	Wet, multi-plate
	Transmission	5-speed with over drive
	Primary reduction	1.737 : 1
	Secondary reduction	0.806 : 1
	Third reduction	1.188 : 1
	Final reduction	3.400 : 1
	Gear ratio I	2.294 : 1
	Gear ratio II	1.619 : 1
	Gear ratio III	1.292 : 1
	Gear ratio IV	1.074 : 1
	Gear ratio V	0.896 : 1
	Over drive	0.750 : 1
	Gear shift pattern	Left foot operated return system, 1–N–2–3–4–5–OD
	Final drive gear oil capacity '83:	170 cc (5.8 oz) after disassembly 130 cc (4.4 oz) after draining
	After '83:	150 cc (5.1 oz) after disassembly 130 cc (4.4 oz) after draining
ELECTRICAL	Ignition	Full transistor ignition
	Ignition timing "F" mark '83, '84:	5° BTDC at idle
	After '84:	10° BTDC at idle
	Full advance '83, '84:	26° BTDC at 3,500 rpm
	After '84:	26° BTDC at 4,000 rpm
	Pulse air gap	0.3–0.9 mm (0.012–0.035 in)
	Starting system	Starting motor
	Alternator	340 W/5,000 rpm
	Battery capacity	12V–16AH
	Spark plug	

	NGK	ND
Standard	DPR8EA-9	X24EPR-U9
For cold climate (Below 5°C, 41°F)	DPR 7EA-9	X22EPR-U9
For extended high speed riding	DPR 9EA-9	X27EPR-U9

Spark plug gap	0.8–0.9 mm (0.031–0.035 in)
Firing order	Front–225°–Rear–495°–Front
Fuse/Main fuse	10A, 15A/30A

LIGHTS	Headlight (high/low beam)	60/55W	
	Tail/stoplight	8/27W	3/32 cp SAE NO. 1157
	Front turn signal/running light	23/8W x 2	32/3 cp x 2 SAE NO. 1034
	Rear turn signal	23W	32 cp SAE NO. 1073
	Instrument lights	3W x 3	
	Neutral indicator	3W	
	Turn signal indicator	3W x 2	
	High beam indicator	3W	
	Oil pilot lamp	3W	
	Tail light warning lamp	3W	
	Fuel warning lamp	3W	
	O.D. indicator lamp	3W	

TORQUE VALUES

- ENGINE

Item	Q'ty	Thread Dia. (mm)	Torque N·m (kg-m, ft-lb)	Remarks
Cylinder head cover cap nuts	8	10	35–45 (3.5–4.5, 25–33)	
cap nuts	4	8	20–25 (2.0–2.5, 14–18)	Include the cam chain cover.
bolts	12	8	20–25 (2.0–2.5, 14–18)	Include the cam chain cover.
Oil pipe	3	6	10–14 (1.0–1.4, 7–10)	
Spark plug sleeves	2	30	10–15 (1.0–1.5, 7–11)	Apply molybdenum disulfide grease to the threads.
Cam sprocket bolts	4	6	16–20 (1.6–2.0, 12–14)	
Connecting rod bearing cap nuts	4	9	41–45 (4.1–4.5, 30–33)	
Output drive shaft bolt	1	10	35–45 (3.5–4.5, 25–33)	Special
Countershaft bolt	1	10	35–45 (3.5–4.5, 25–33)	Special
Output gear case cap nuts	3	8	21–25 (2.1–2.5, 15–18)	
lock nuts	3	8	21–25 (2.1–2.5, 15–18)	
bolts	4	8	30–40 (3.0–4.0, 22–29)	Socket bolt
Output gear bearing lock nuts (Inner)	2	—	70–80 (7.0–8.0, 51–58)	
(Outer)	2	—	90–110 (9.0–11.0, 65–80)	
Center shift fork bolt	1	7	16–20 (1.6–2.0, 12–14)	
Engine oil drain plug	1	14	30–40 (3.0–4.0, 22–29)	
Engine oil filter	1	20	15–20 (1.5–2.0, 11–14)	Apply engine oil to the O-ring
Oil pressure switch	1	—	10–14 (1.0–1.4, 7–10)	Apply 3-BOND® (No. 1211) or its equivalent to the bolt threads.
Primary gear bolt	1	12	80–100 (8.0–10.0, 58–72)	
Clutch center lock nut	1	22	45–55 (4.5–5.5, 33–40)	
Clutch cover bolts	7	6	8–12 (0.8–1.2, 6–9)	Socket bolts
Crankcase	12	8	20–25 (2.0–2.5, 14–18)	
Right crankcase cover	14	6	8–12 (0.8–1.2, 6–9)	Socket bolts
Left crankcase cover	9	6	8–12 (0.8–1.2, 6–9)	Socket bolts
Flywheel bolt	1	12	80–100 (8.0–10.0, 58–72)	Left-hand threads
Starter clutch torx bolts	6	8	18–25 (1.8–2.5, 13–18)	Apply LOCTITE® #200 or its equivalent to the bolt threads.
Neutral switch	1	14	10–14 (1.0–1.4, 7–10)	
Timing cap	1	45	15–20 (1.5–2.0, 11–14)	Apply molybdenum disulfied grease to the threads.

- CHASSIS

Item	Q'ty	Tread Dia. (mm)	Torque N·m (kg-m, ft-lb)	Remarks
Handlebar upper holder	4	8	20–30 (2.0–3.0, 14–22)	
Caliper mounting bolts	4	10	30–40 (3.0–4.0, 22–29)	
Front axle	1	12	55–65 (5.5–6.5, 40–47)	
Axle pinch bolt	1	8	18–28 (1.8–2.8, 13–20)	
Front fork socket bolts	2	8	15–25 (1.5–2.5, 11–18)	
Fork tube caps	2	31	15–30 (1.5–3.0, 11–22)	
Steering bearing adjustment nuts	1	26	14–16 (1.4–1.6, 10–12)	
Steering stem nut	1	24	80–120 (8.0–12.0, 58–87)	
Front fork top pinch bolts	2	7	9–13 (0.9–1.3, 7–9)	
Front fork bottom pinch bolts	2	10	45–55 (4.5–5.5, 33–40)	

Item	Q'ty	Tread Dia. (mm)	Torque N·m (kg-m, ft-lb)	Remarks
Rear axle nut	1	16	60–80 (6.0–8.0, 43–58)	
Axle pinch bolt	1	8	20–30 (2.0–3.0, 14–22)	
Brake arm	1	8	24–30 (2.4–3.0, 17–22)	
Socket absorber mount nuts	4	10	30–40 (3.0–4.0, 22–29)	
Swingarm left pivot bolt	1	35	100–130 (10.0–13.0, 72–94)	
Swingarm right pivot bolt	1	23	10–14 (1.0–1.4, 7–10)	
Swingarm pivot lock nut	1	35	100–130 (10.0–13.0, 72–94)	
Front brake caliper bracket	2	10	30–40 (3.0–4.0, 22–29)	
Front brake caliper bolts	2	8	20–25 (2.0–2.5, 14–18)	
Front brake caliper pivot bolts	2	10	25–30 (2.5–3.0, 18–22)	
Front brake disc	5	8	35–40 (3.5–4.0, 25–29)	
Brake hose bolts	5	10	25–35 (2.5–3.5, 18–25)	
Brake panel stop bolt	1	8	18–25 (1.8–2.5, 13–18)	
Engine hanger bolts	1	8	20–30 (2.0–3.0, 14–22)	
	2	10	45–60 (4.5–6.0, 23–43)	
	1	12	60–80 (6.0–8.0, 43–58)	
Final drive flange	5	10	50–60 (5.0–6.0, 36–43)	
Final gear case nuts	3	10	60–70 (6.0–7.0, 43–51)	— UBS
Gear case cover bolts	2	10	35–45 (3.5–4.5, 25–33)	
	6	8	23–28 (2.3–2.8, 17–20)	
Exhaust pipe joint nuts	4	6	8–14 (0.8–1.4, 6–10)	
Exhaust pipe clamp bolts	4	8	18–28 (1.8–2.8, 13–20)	
Sub-frame bolts Upper	2	10	70–80 (7.0–8.0, 51–58)	— Socket bolt
Lower	2	10	35–45 (3.5–4.5, 25–33)	
Pinion nut	1	16	100–120 (10–12, 72–87)	
Pinion bearing retainer	1	—	100–120 (10–12, 72–87)	
Clutch fluid reservoir cover	2	4	1–2 (0.1–0.2, 0.7–0.9)	
Clutch lever pivot nut	1	6	5–7 (0.5–0.7, 4–5)	

Torque specifications listed above are for important fasteners. Others should be tightened to standard torque values listed on belows.

- STANDARD TORQUE VALUES

Item	Torque Values N·m (kg-m, ft-lb)	Item	Torque Values N·m (kg-m, ft-lb)
5 mm bolt and nut	4–6 (0.4–0.6, 3–4)	5 mm screw	3–5 (0.3–0.5, 2–4)
6 mm bolt and nut	8–12 (0.8–1.2, 6–9)	6 mm screw	7–11 (0.7–1.1, 5–8)
8 mm bolt and nut	18–25 (1.8–2.5, 13–18)	6 mm flange bolt and nut	10–14 (1.0–1.4, 7–10)
10 mm bolt and nut	30–40 (3.0–4.0, 22–29)	8 mm flange bolt and nut	20–30 (2.0–3.0, 14–22)
12 mm bolt and nut	50–60 (5.0–6.0, 36–43)	10 mm flange bolt and nut	30–40 (3.0–4.0, 22–29)

TOOLS

◆ SPECIAL

Description	Part No.	Remarks/Alternative tool	Part No.	Ref. Sect.
Oil filter wrench	07912–MB00000	These tools are new and have not been used.		2
Hydraulic tappet bleeder	07973–ME90000			10
Main bearing remover attachment	07946–ME90100			13
Main bearing driver attachment	07946–ME90200			13
Pinion joint holer	07926–ME90000			14
S/A lock nut wrench	07908–ME90000			17
Oil pressure gauge	07506–3000000	Equivalant commercially available in U.S.A.		2
Oil pressure gauge attachment	07510–4220100			2
Vacuum gauge set	07404–0020000	Vacuum gauge set (U.S.A. only)	M937B–021–XXXX	3
Hand vacuum pump/gauge	ST–AH–260–MC7	Hand vacuum pump/ gauge (U.S.A. only)	A973X–041–XXXX	4
Valve guide driver, 7 mm	07942–8230000			4
Snap ring pliers	07914–3230001			7, 15, 16
Shaft holder	07923–6890101			7, 12, 13
Gear holder	07924–MC70001	Modify 07924–4150000 or 07924–MC70000		7, 10
Torx bit	————	Equivalent commercially availble in U.S.A.		8
Fork tube holder attachment	07930–KA50100			10
Valve guide driver attachment				
(IN)	07943–6570100			10
(EX)	07943–6890100			10
Valve guide reamer	07984–6570100			10
Valve guide remover, 6.1 mm	07942–6570100			10
Lock nut wrench, 30/64 mm	07916–MB00000			13, 14
Remover handle	07936–3710100			13, 17
Bearing remover, 17 mm	07936–3710300			13
Bearing remover, 20 mm	07936–3710600			13
Attachment	07946–3710200			13
Driver	07949–3710000			13, 14
Damper compressor	07964–3710000			13
Ring gear Dis/Assembly tool	07965–3710100			13
Main bearing remover/driver	07973–MC70000			13
Driver	07947–4630300	Fork seal driver	07947–3710101	14
		Attachment, 37x40 mm	07746–0010200	14
Pinion puller	07935–MB00000	Pinion puller	07931–4630200	14
		Pinion puller attachment kit	07931–MB00000	14
Attachment	07945–3330300			14
Attachment	07947–6340201			14
O-ring guide	07973–4630200			14
Steering stem socket	07916–3710100			15

Description	Part No.	Remarks/Alternative tool	Part No.	Ref. Sect.
Hex wrench, 6 mm	07917–3230000	Equivalent commercially available in U.S.A.		15
Steering stem driver	07946–MB00000	Steering stem driver	07946–3710100	15
		Shock absorber compressor attachment (Collar)	07964–MB00200	15
Fork seal driver	07947–4630100			15
Swingarm bearing remover	07936–4150000	Swingarm pivot remover	07936–3710500	17
Shockabsorber compressor attachment	07959–MB10000			17
Socket bit, 10 mm	07917–3710000			17

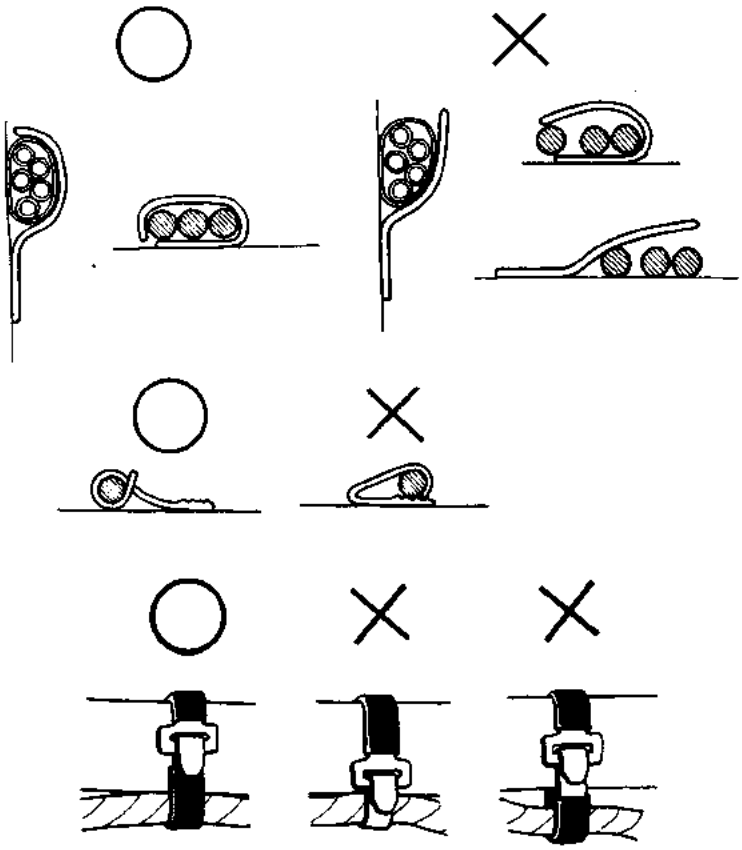
- COMMON

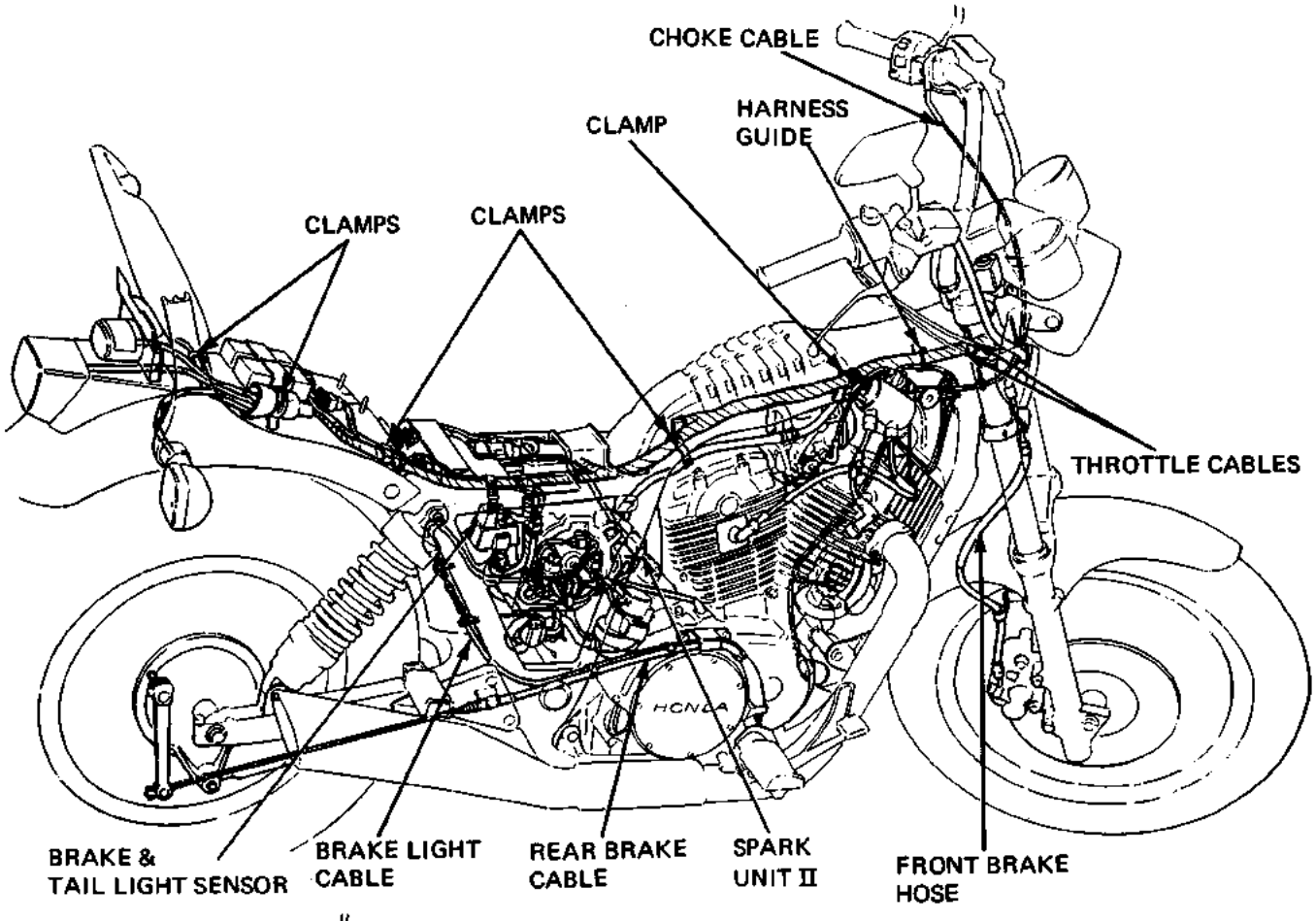
Description	Part No.	Remarks/Alternative tool	Part No.	Ref. Sect.
Float level gauge	07401–0010000			4
Lock nut wrench 17 x 27 mm	07716–0020300			7
Extension bar	07716–0020500			7, 15
Attachment, 37 x 40 mm	07746–0010200			7, 14
Pilot, 35 mm	07746–0040800			7
Driver	07749–0010000			7, 13, 14, 15, 17
Rotor puller	07733–0020001	Rotor puller	07933–3950000	8
Valve guide driver	07742–0010200	Valve guide driver	07942–6570100	10
Valve spring compressor	07757–0010000	Valve spring compressor	07957–3290001	10
Remover weight	07741–0010201	Remover weight	07936–3710200	13, 17
Attachment, 32 x 35 mm	07746–0010100			13, 14, 17
Attachment, 42 x 47 mm	07746–0010300			13, 14, 15 17
Attachment, 52 x 55 mm	07746–0010400			13, 14
Attachment, 62 x 68 mm	07746–0010500			13
Pilot, 17 mm	07746–0040400			13, 17
Pilot, 25 mm	07746–0040600			13
Pilot, 30 mm	07746–0040700			13, 14
Attachment, 30 mm I.D.	07746–0030300			13
Driver	07746–0030100			14
Attachment, 25 mm I.D.	07746–0030200			14
Lock nut wrench, 30 x 32 mm	07716–0020400	Equivalent commercially available in U.S.A.		15
Pilot, 15 mm	07746–0040300			15
Bearing remover expander	07746–0050100	Equivalent commercially available in U.S.A.		15, 17
Bearing remover collet, 15 mm	07746–0050400			15, 17
Shock absorber compressor	07959–3290001			17
Bearing remover collet, 17 mm	07746–0050500	Equivalent commercially available in U.S.A.		17
Socket bit, 17 mm	07703–0020500	Equivalent commercially available in U.S.A.		17

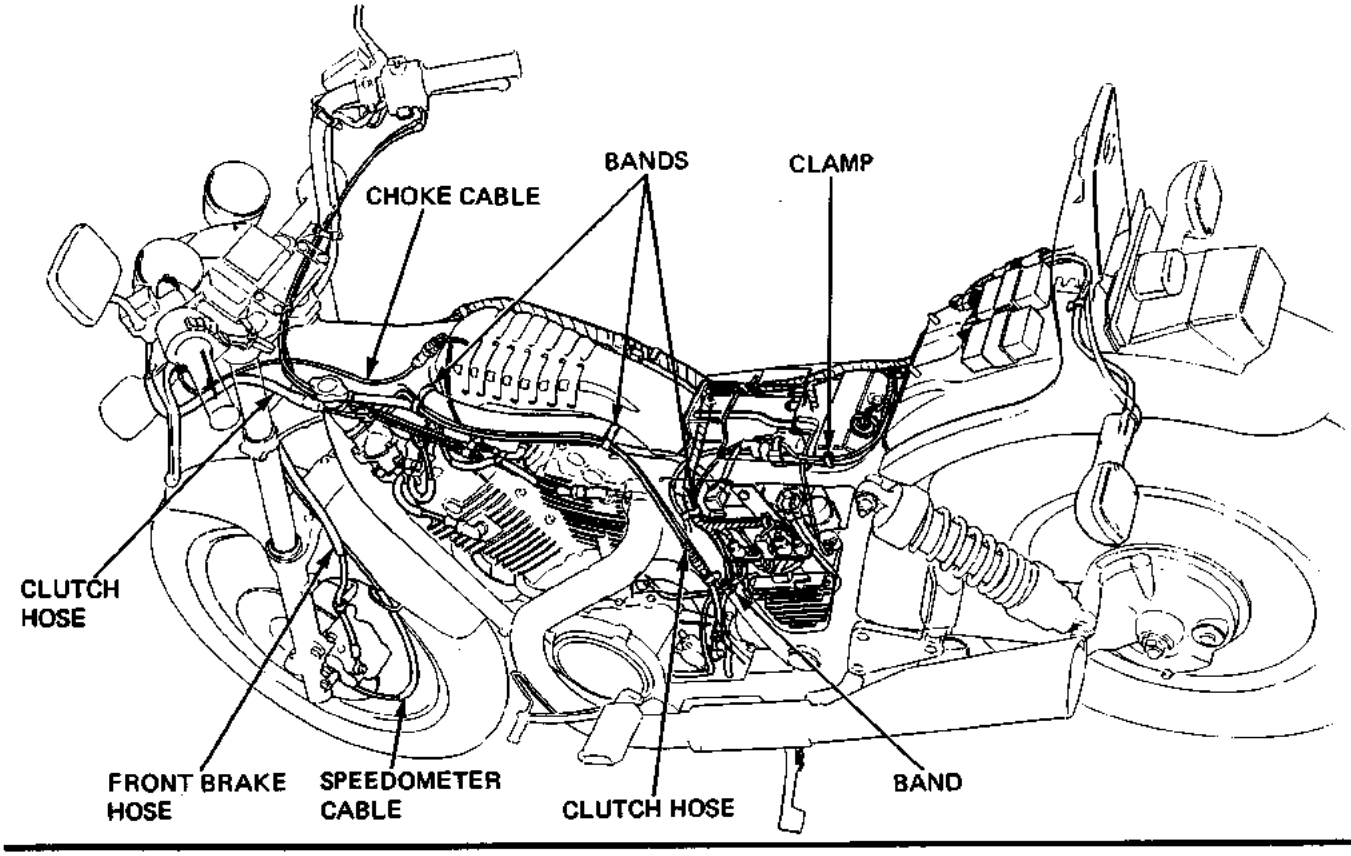
CABLE & HARNESS ROUTING

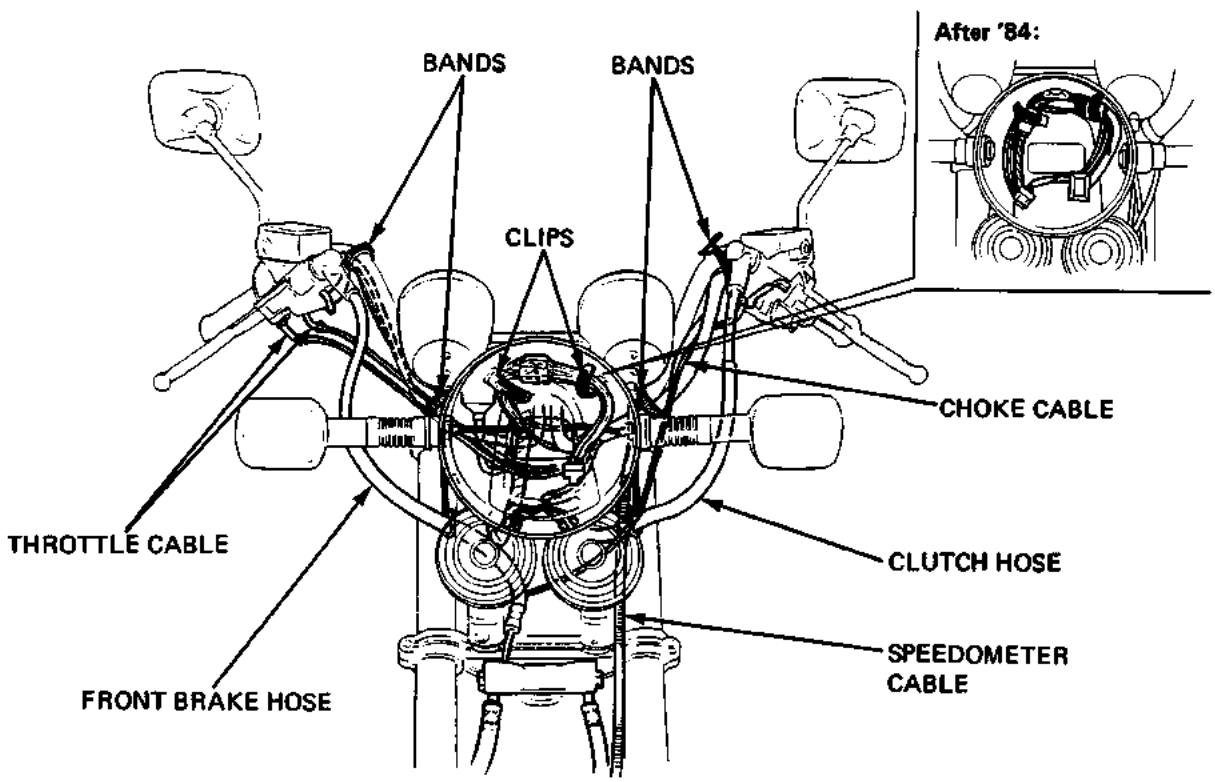
Note the following when routing cables and wire harnesses.
A loose wire, harness or cable can be safety hazard. After clamping, check each wire to be sure it is secure.

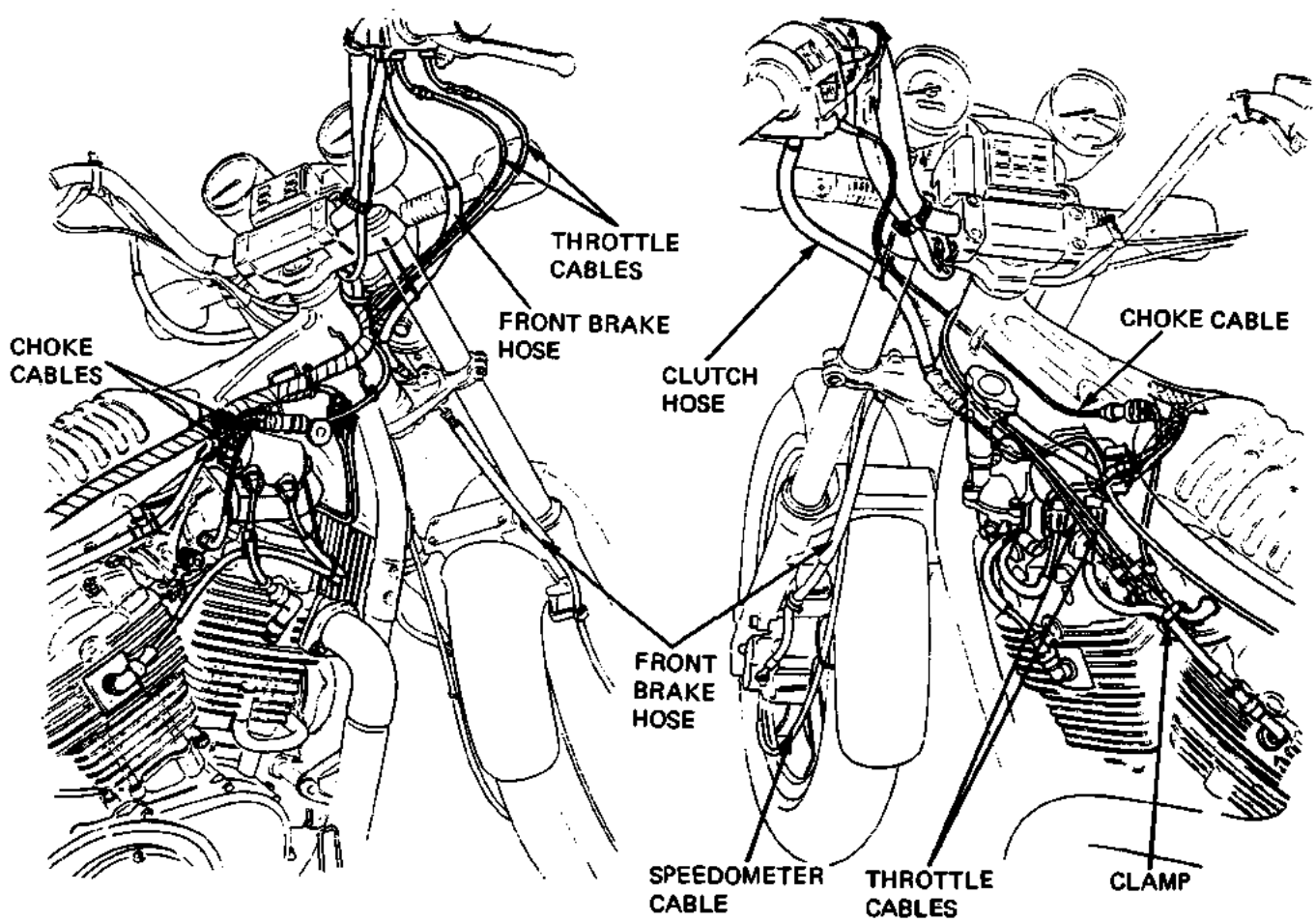
- Do not squeeze wires against the weld or end of its clamp when a weld-on clamp is used.
- Secure wires and wire harnesses to the frame with their respective wire bands at the designated locations. Tighten the bands so that only the insulated surfaces contact the wires or wire harnesses.
- Route harnesses so they are not pulled that or have excessive slack.
- Protect wires and harnesses with electrical tape or tube if they are contact a sharp edge or corner. Clean the attaching surface thoroughly before applying tape.
- Do not use wires or harnesses with a broken insulator. Repair by wrapping them with a protective tape or replace them.
- Route wire harnesses to avoid sharp edges or corners.
- Also avoid the projected ends of bolts and screws.
- Keep wire harnesses away from the exhaust pipes and other hot parts.
- Be sure grommets are seated in their grooves properly.
- After clamping, check each harness to be certain that it is not interferring with any moving or sliding parts.
- After routing, check that the wire harnesses are not twisted or kinked.
- Wire harnesses routed along the handlebars should not be pulled taut, have excessive slack, be pinched, or interfer with adjacent or surrounding parts in all steering positions.

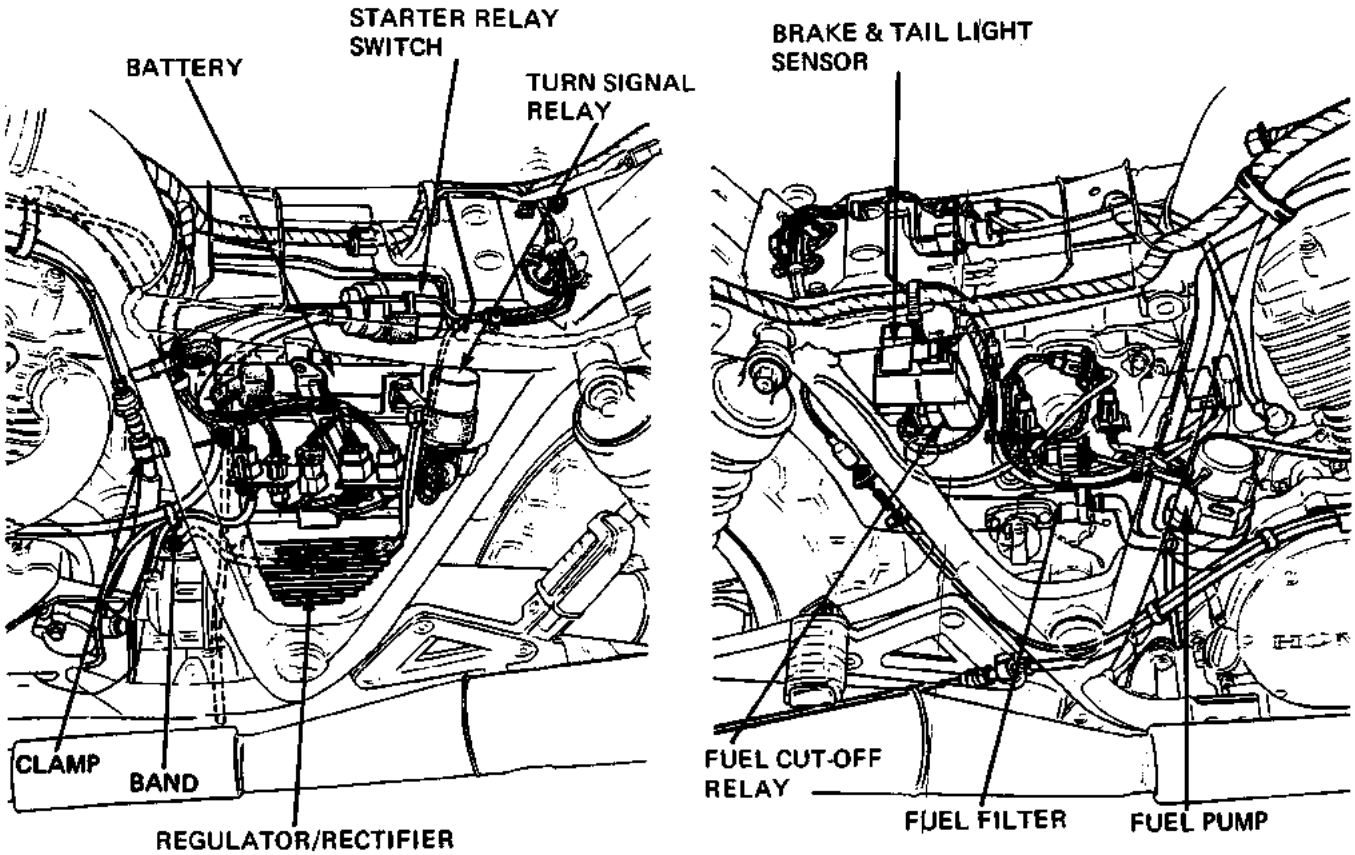


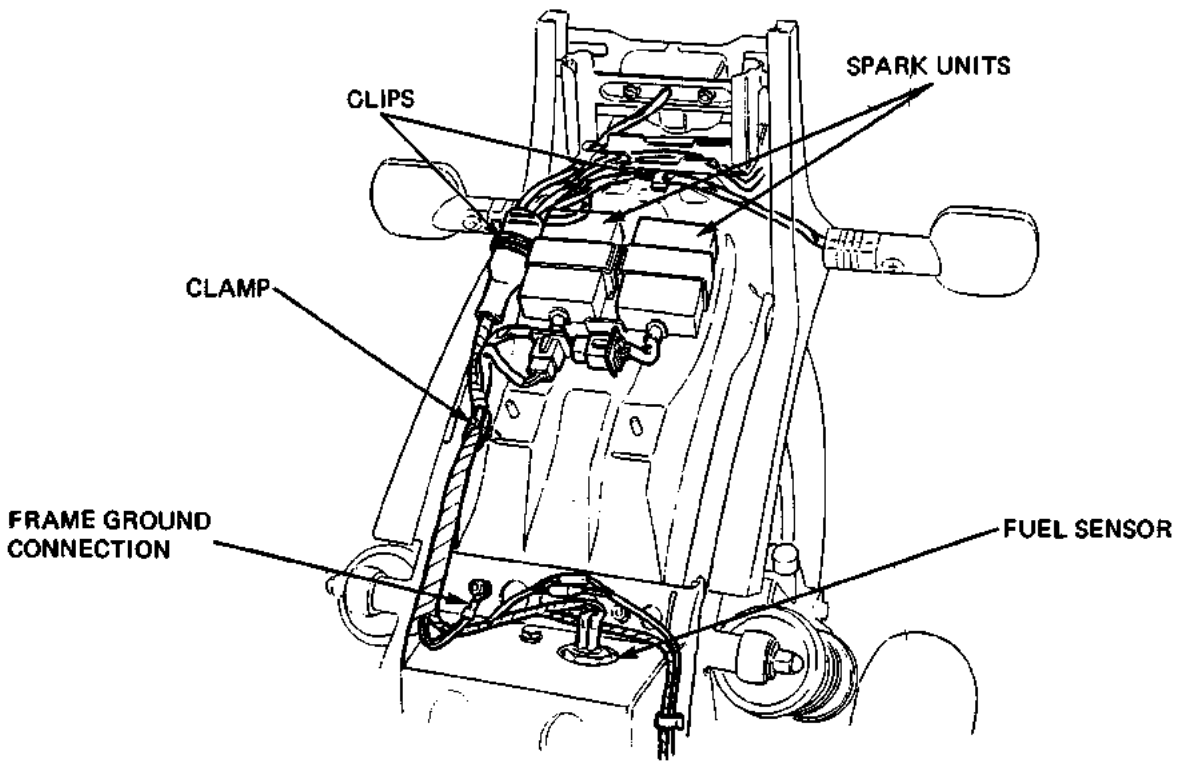

CHOKE CABLE
HARNESS GUIDE
CLAMP
CLAMPS
CLAMPS
THROTTLE CABLES
BRAKE & TAIL LIGHT SENSOR
BRAKE LIGHT CABLE
REAR BRAKE CABLE
SPARK UNIT II
FRONT BRAKE HOSE


BANDS
CLAMP
CHOKE CABLE
CLUTCH HOSE
FRONT BRAKE HOSE
SPEEDOMETER CABLE
CLUTCH HOSE
BAND


After '84:
BANDS
BANDS
CLIPS
CHOKE CABLE
THROTTLE CABLE
CLUTCH HOSE
SPEEDOMETER CABLE
FRONT BRAKE HOSE


THROTTLE CABLES
FRONT BRAKE HOSE
CHOKE CABLES
CLUTCH HOSE
CHOKE CABLE
FRONT BRAKE HOSE
SPEEDOMETER CABLE
THROTTLE CABLES
CLAMP


STARTER RELAY SWITCH
BATTERY
TURN SIGNAL RELAY
BRAKE & TAIL LIGHT SENSOR
CLAMP
BAND
REGULATOR/RECTIFIER
FUEL CUT-OFF RELAY
FUEL FILTER
FUEL PUMP


SPARK UNITS
CLIPS
CLAMP
FRAME GROUND CONNECTION
FUEL SENSOR

EMISSION CONTROL SYSTEMS

The U.S. Environmental Protection Agency and California Air Resources Board (CARB) require manufacturers to certify that their motorcycles comply with applicable exahust 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 Warranties for Honda Motorcycle Emission Control Systems is necessary in order to keep the emission 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 form photochemical smog when subjected to sunlight. Carbon monoxide does not react in the same way, but it is toxic.

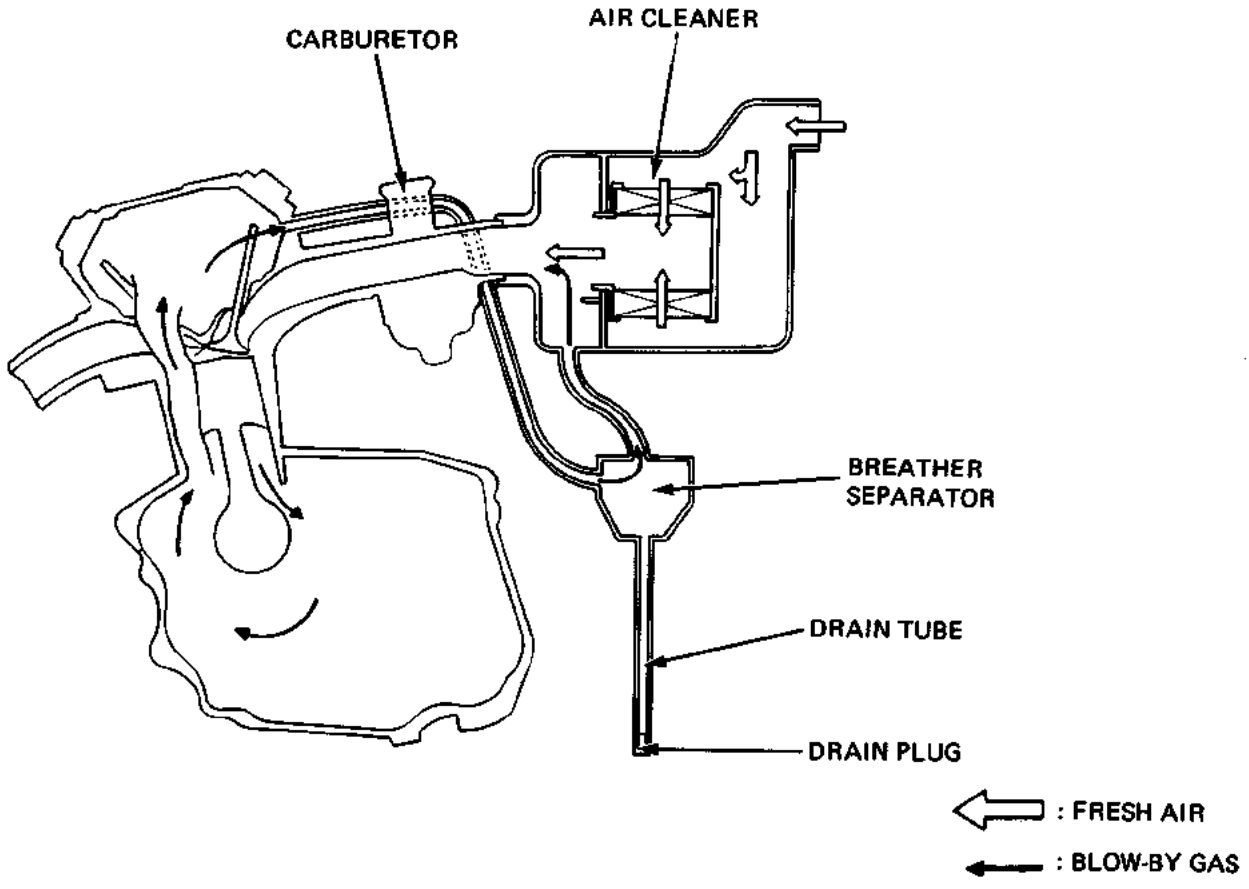
Honda Motor Co., Ltd. utilizes lean carburetor settings as well as other systems, to reduce carbon monoxide and hydrocarbons.

EXHAUST EMISSION CONTROL SYSTEM

The exhaust emission control system is composed of lean carburetor settings, and no adjustments should be made except idle speed adjustment with the throttle stop screw.

CRANKCASE EMISSION CONTROL SYSTEM

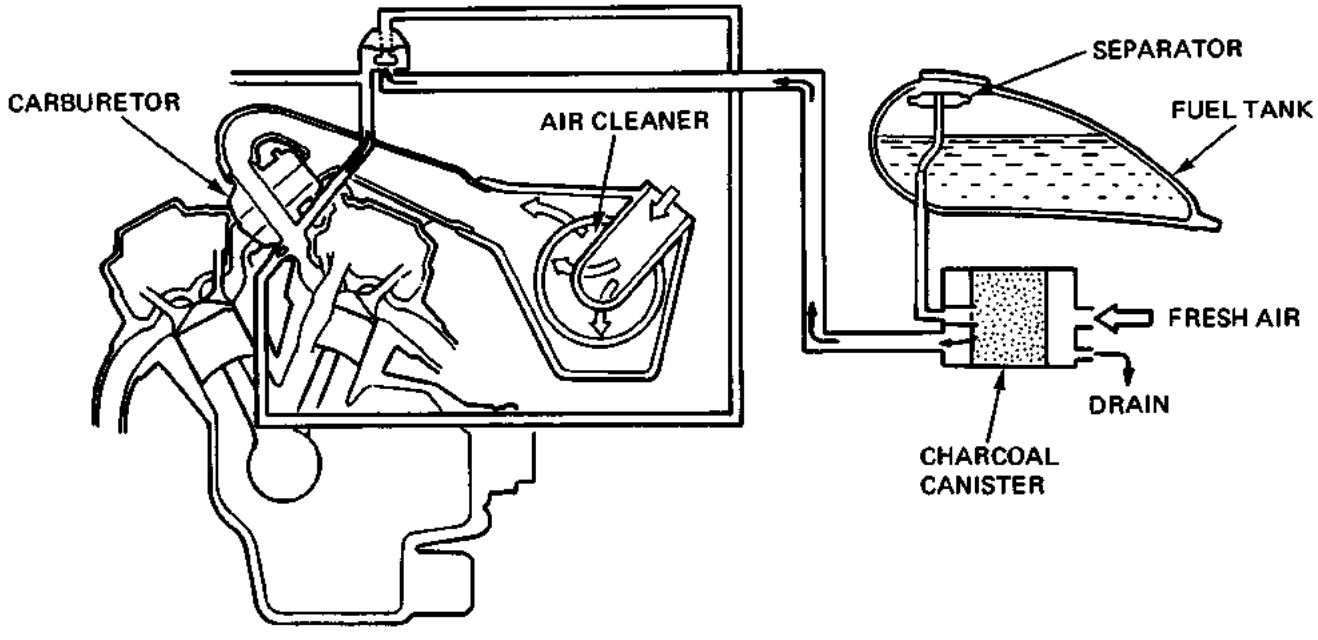
The engine is equipped with a closed crankcase system which routes crankcase emissions through the air cleaner and into the combustion chamber. Condensed crankcase vapors are accumulated in a storage tank which must be emptied periodically. See the Maintenance Schedule in section 3.



EVAPORATIVE EMISSION CONTROL SYSTEM (After '83: California model only)

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

Fuel vapor from the fuel tank is routed into a charcoal canister where it is abosorbed and stored while the engine is stopped. When the engine is running and the purge control diaphragm valve is open, fuel vapor in the charcoal canister is drawn into the engine through the carburetor.



NOISE EMISSION CONTROL SYSTEM

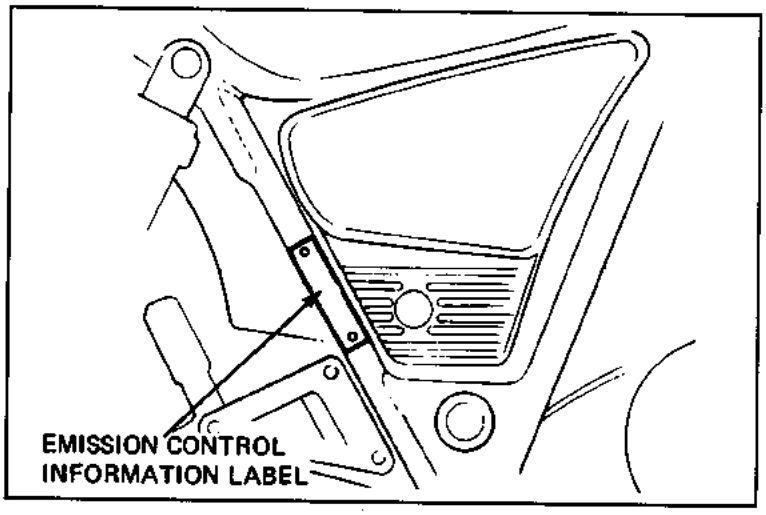
TAMPERING WITH THE NOISE CONTROL SYSTEM IS PROHIBITED: Federal law prohibits the following acts or the causing thereof: (1) The removal or rendering inoperative by any person, other than for purposes of maintenance, repair or replacement, of any device or element of design incorporated into any new vehicle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

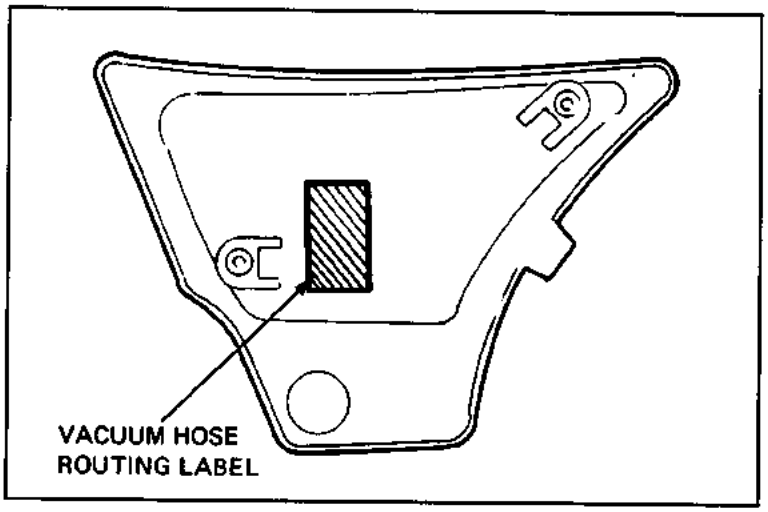
EMISSION CONTROL INFORMATION LABEL

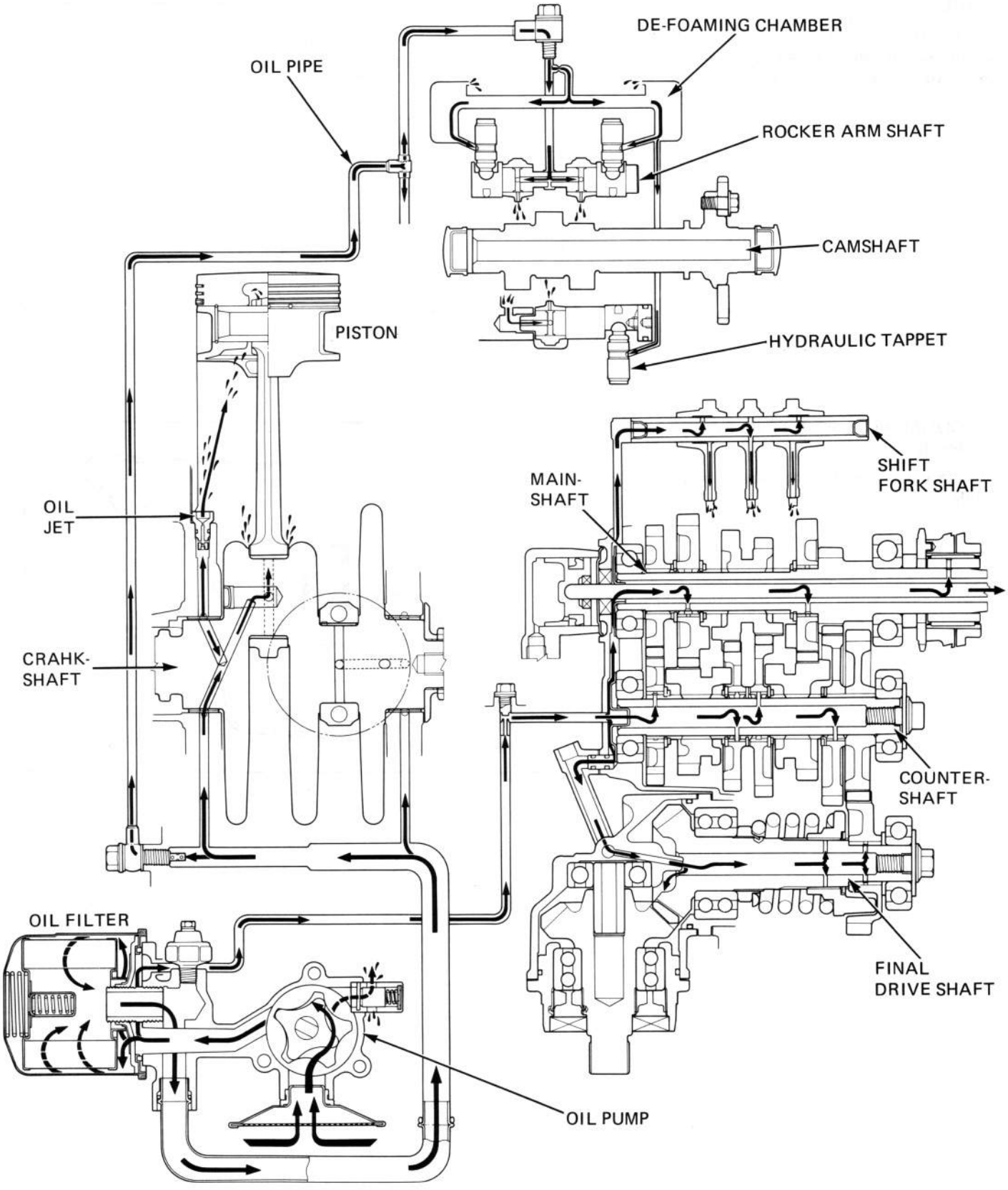
An Emission Control Information Label is located on the rear down tube behind the right side cover as shown. If gives basic tune-up specifications.



VACUUM HOSE ROUTING LABEL (After '83: California model)

The Vacuum Hose Routing Label is attached to the inside of the left side cover.




DE-FOAMING CHAMBER
OIL PIPE
ROCKER ARM SHAFT
CAMSHAFT
PISTON
HYDRAULIC TAPPET
SHIFT
FORK SHAFT
MAIN-
SHAFT
OIL
JET
CRAHK-
SHAFT
COUNTER-
SHAFT
OIL FILTER
FINAL
DRIVE SHAFT
OIL PUMP

2. LUBRICATION

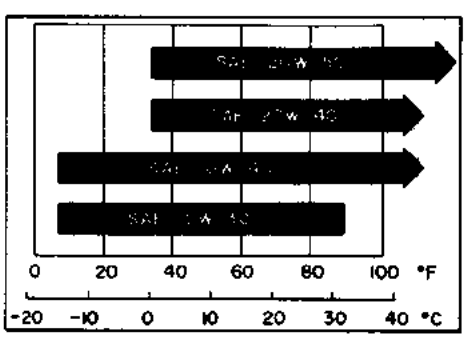
SERVICE INFORMATION

GENERAL

- To remove the oil pump, the following parts must be removed:
- Front cylinder exhaust pipe (Section 5).
- Right sub-frame (Section 5).
- Clutch assembly (Section 7).
- Gear shift linkage (Section 8).

SPECIFICATIONS

Engine oil

Oil capacity	3.0 liter (3.2 US qt, 2.6 Imp qt) after draining 3.5 liter (3.7 US qt, 3.1 Imp qt) after disassembly
Oil recommendation	Use Honda 4-Stroke Oil or equivalent. API Service Classification: SE or SF. Viscosity: SAE 10W–40 Other viscosities shown in the chart may be used when the average temperature in your riding area is within the indicated range. OIL VISCOSITIES 
Oil pressure (at oil pressure switch)	5.4 ± 0.7 kg/cm² (62.6 ± 9.9 psi) at 6,000 rpm (80°C/176°F)
Oil pump delivery	36 liter (38.1 U.S. qt)/min. at 6,000 rpm

Oil pump service data

	STANDARD	SERVICE LIMIT
Rotor tip clearance	0.15 mm (0.006 in)	0.20 mm (0.008 in)
Pump body clearance	0.15–0.22 mm (0.006–0.009 in)	0.35 mm (0.014 in)
Pump end clearance	0.02–0.07 mm (0.001–0.003 in)	0.10 mm (0.004 in)

Final drive gear

	'83:	After '83:
Oil capacity	170 cc (5.7 oz.) after disassembly 130 cc (4.4 oz.) after draining	150 cc (5.1 oz.) after disassembly 130 cc (4.4 oz.) after draining
Recommended oil	Hypoid gear oil: Above 5°C/41°F SAE #90 Below 5°C/41°F SAE #80	Hypoid gear oil: SAE 80

TORQUE VALUES

Engine oil drain plug	30–40 N·m (3.0–4.0 kg-m, 22–29 ft-lb)	
Engine oil filter	15–20 N·m (1.5–2.0 kg-m, 11–14 ft-lb)	
Oil pressure switch	10–14 N·m (1.0–1.4 kg-m, 7–10 ft-lb)	– Apply 3-BOND® No. 1211 or its equivalent to the bolt threads.
Oil pump	8–12 N·m (0.8–1.2 kg-m, 6–9 ft-lb)	
Oil pump driven sprocket	8–12 N·m (0.8–1.2 kg-m, 6–9 ft-lb)	

TOOLS

Special

Oil pressure gauge	07506–3000000	– or commercially available.
Oil pressure gauge attachment	07510–4220100	
Oil filter wrench	07912–MB00000	

TROUBLESHOOTING

Oil level too low – high oil consumption
1. External oil leaks.
2. Worn piston rings.
3. Worn valve guide or seal.

Oil contamination
1. Oil or filter not changed often enough.
2. Head gasket faulty.
3. Worn piston rings.

Low oil pressure
1. Oil level low.
2. Pressure relief valve stuck open.
3. Plugged oil pick-up screen.
4. Oil pump worn.
5. External oil leaks.

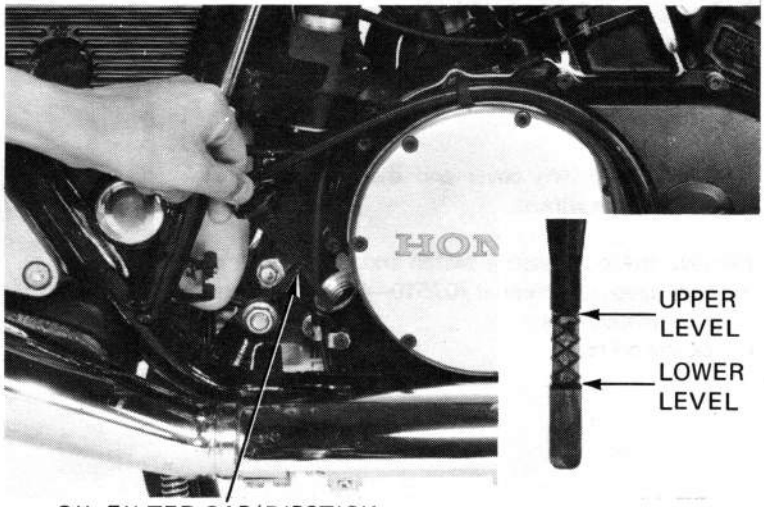
High oil pressure
1. Pressure relief valve stuck open.
2. Plugged oil filter, gallery, or metering orifice.
3. Incorrect oil being used.

No oil pressure
1. Oil level low.
2. Oil pump drive chain broken.
3. Oil pump faulty.
4. Internal oil leakage.

ENGINE OIL LEVEL

Place the motorcycle on its center stand.
Check the oil level with the filler cap/dipstick.
Do not screw it in when making this check.

If the oil level is below or near the lower level mark on the dipstick, add the recommended oil (page 2-1) up to the upper level line.



ENGINE OIL & FILTER CHANGE

NOTE:

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

Remove the oil filler cap, and drain plug and drain the oil. Remove the oil filter with a filter wrench. Discard the oil filter.
Check that the sealing washer on the drain plug is in good condition and install it.

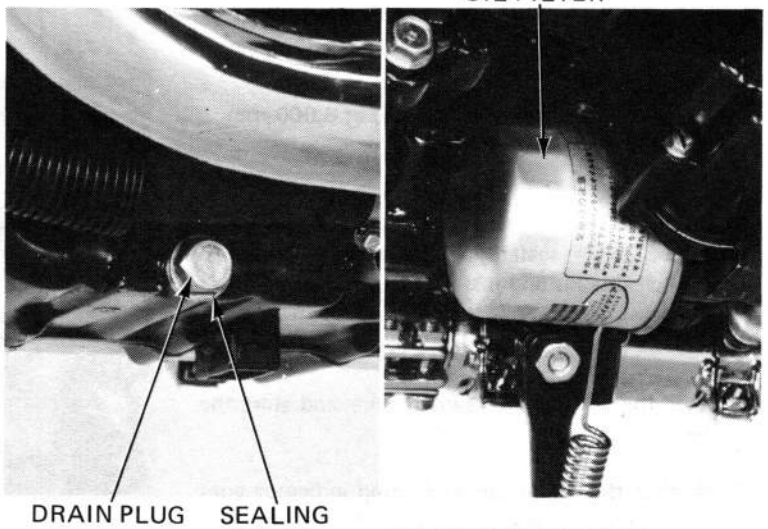
TORQUE: 30–40 N·m
(3.0–4.0 kg-m, 22–29 ft-lb)

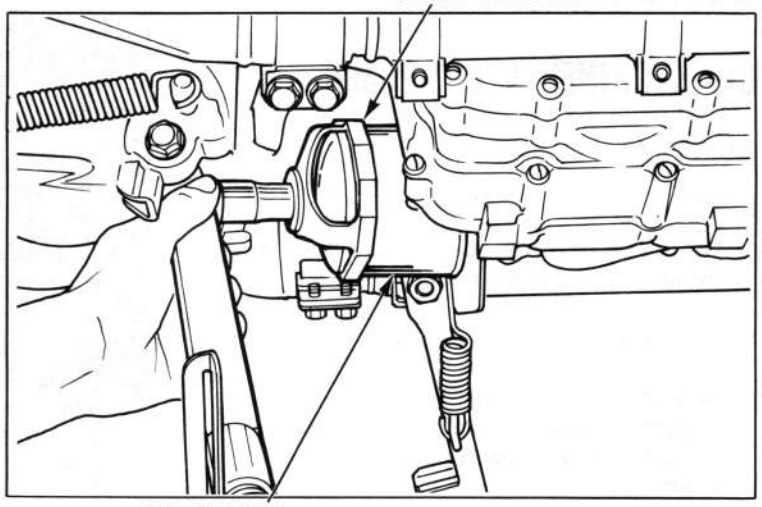
Apply oil to the new oil filter O-ring and install the new oil filter.

Torque the oil filter with a filter wrench after placing the motorcycle on its side stand.

TORQUE: 15–20 N·m
(1.5–2.0 kg-m,11–14 ft-lb)

After tightening the oil filter, place the motorcycle back on its center stand.
Fill the crankcase with 3.0 liters (3.2 US qt, 2.6 Imp. qt.) of the recommended oil (page 2-1).
Install the oil filler cap/dipstick.
Start the engine and let it idle for 2–3 minutes. Stop the engine and check that the oil level is at the upper level mark on the dipstick. Make sure there are no oil leaks.



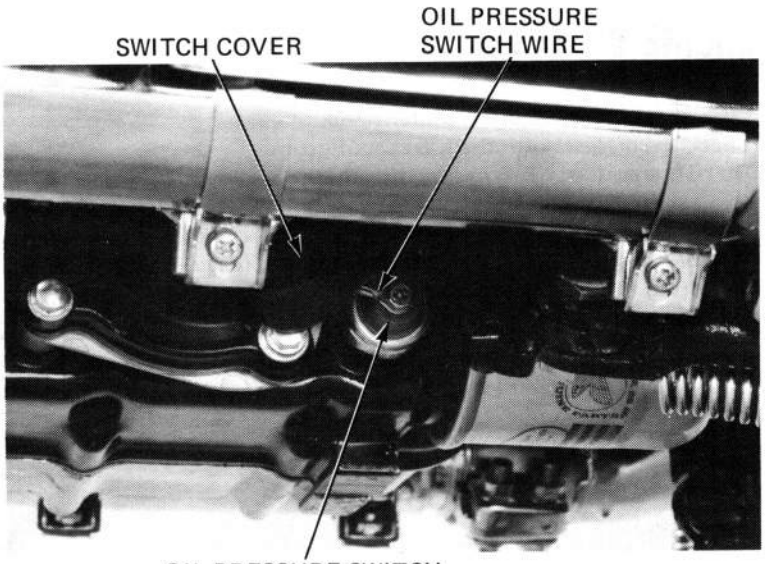


OIL PRESSURE CHECK

Warm the engine up to normal operating temperature (approximately 80°C/176°F).
Stop the engine.

Remove the switch cover and disconnect the oil pressure switch wire.

Remove the oil pressure switch and connect an oil pressure gauge attachment (07510–4220100) to the pressure switch hole.
Check the oil level.



Start the engine and check the oil pressure at 6,000 rpm.

OIL PRESSURE:
5.4 ± 0.7 kg/cm² (62.6 ± 9.9 psi) at 6,000 rpm (80°C/176°F)

Stop the engine.

Apply 3-BOND® sealant or equivalent to the pressure switch threads and install.

TORQUE: 10–14 N·m (1.0–1.4 kg-m, 7–10 ft-lb)

Connect the oil pressure switch wire and start the engine.

Check that the oil pressure warning indicator goes out after one or two seconds. If the oil pressure warning indicator stays on, stop the engine immediately and determine the cause.

OIL STRAINER & OIL PUMP

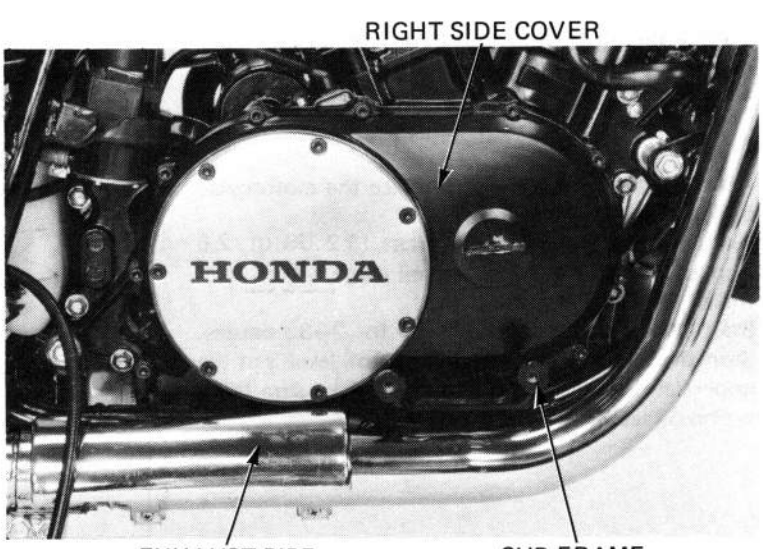
REMOVAL

NOTE:

> The oil strainer can be removed with the engine mounted in the frame.

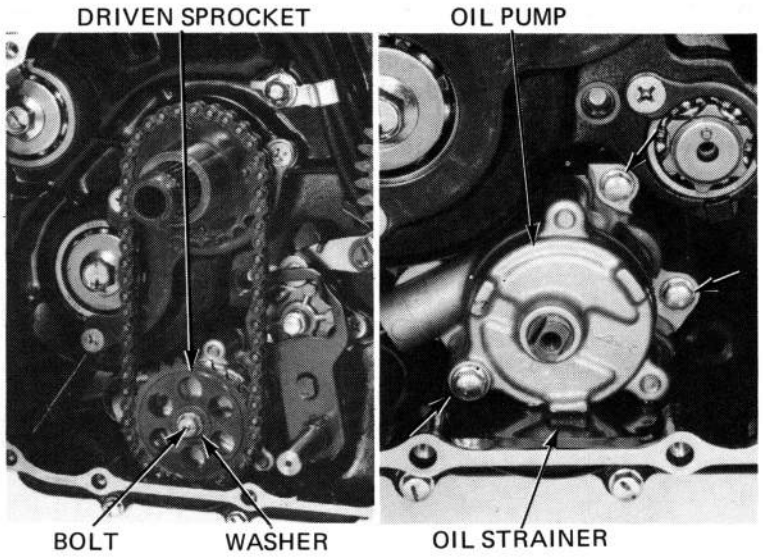
Drain the engine oil.

Remove the following parts:
- right foot peg with the rear brake pedal.
- front cylinder exhaust pipe.
- sub-frame.
- right side cover.

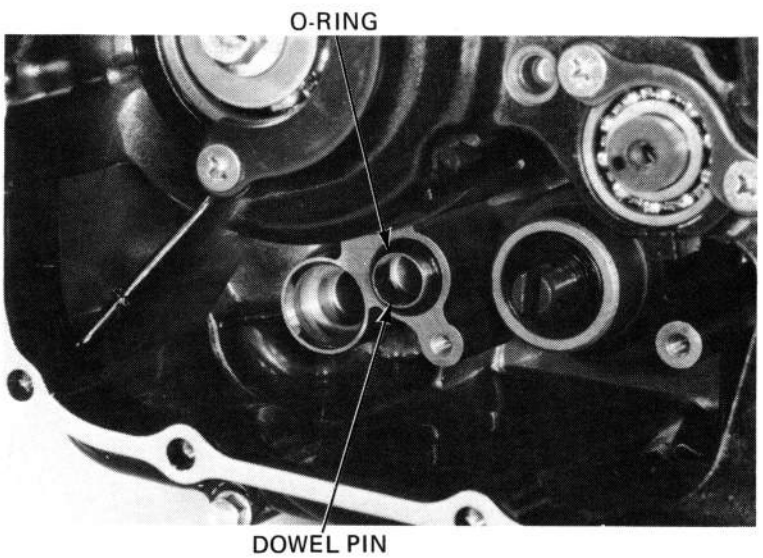


Remove the following parts:
- clutch assembly (page 7-11).
- oil pump driven sprocket by removing the bolt and washer.
- gear shift linkage (page 9-2).

Pull the oil strainer downward out of the oil pump. Remove the oil pump by removing the mounting bolts and remove the oil strainer.



Remove the O-ring and dowel pin.



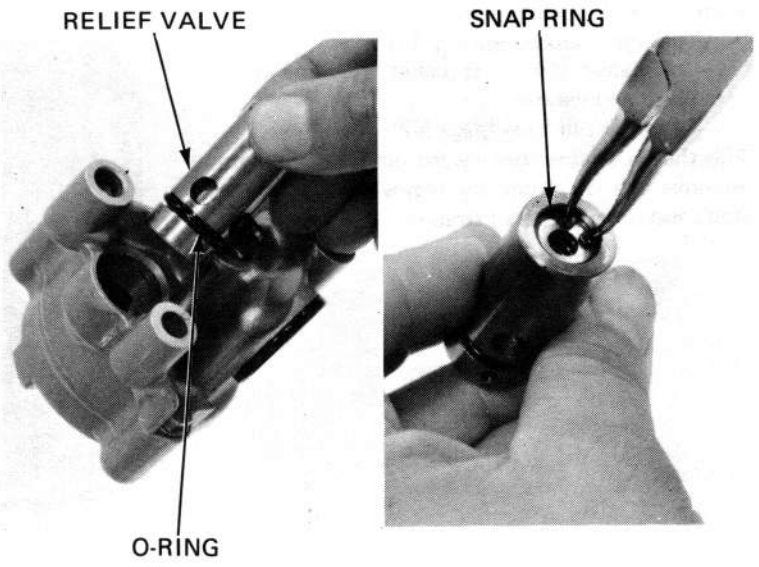
OIL STRAINER CLEANING

Clean the oil strainer with non-flammable solvent.

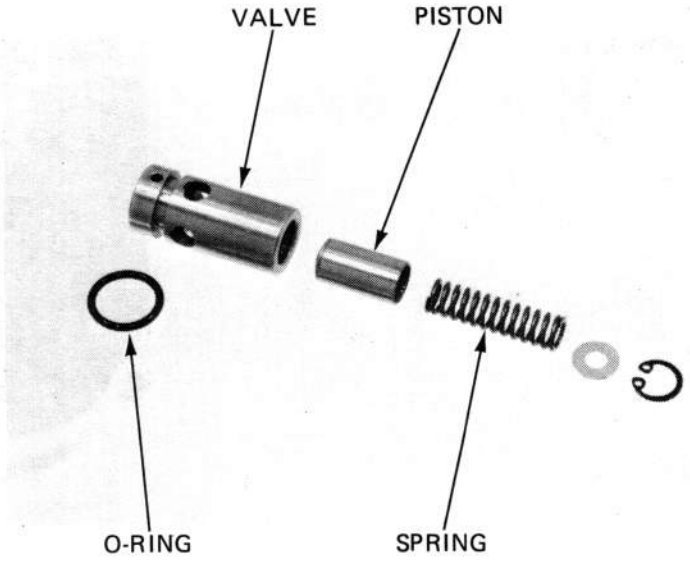
RELIEF VALVE CHECK

Remove the relief valve from the oil pump.
Make sure the O-ring is in good condition.

Remove the relief valve snap ring and disassemble the relief valve.

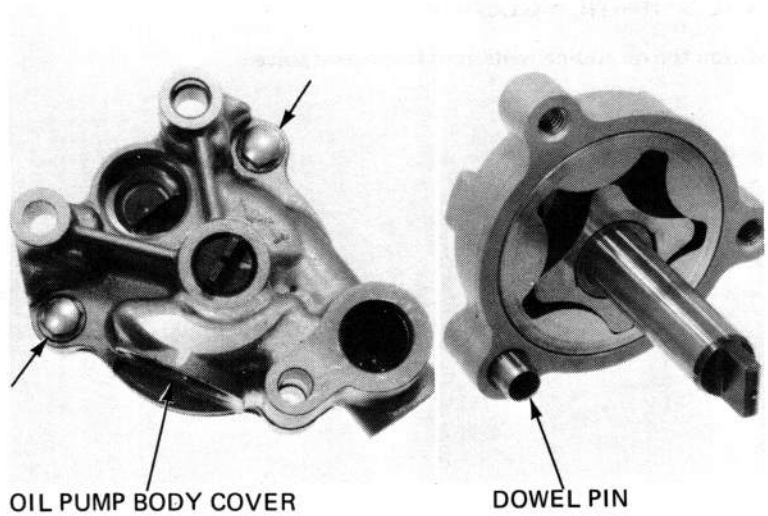


Check the spring and piston for wear or damage.
Check the valve for clogging or damage.
Assemble the parts in the reverse order of disassembly. Be sure to use new O-rings.



OIL PUMP DISASSEMBLY

Remove the oil pump body cover and remove the dowel pin.

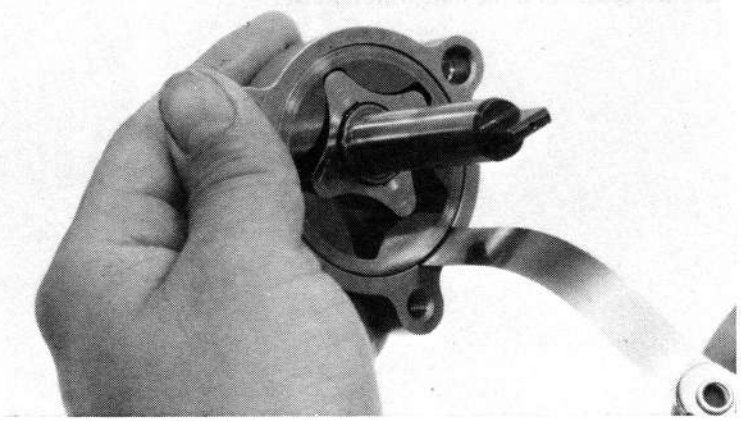


Measure the rotor tip clearance.

STANDARD: 0.15 mm (0.006 in)
SERVICE LIMIT: 0.20 mm (0.008 in)

Measure the pump body clearance.

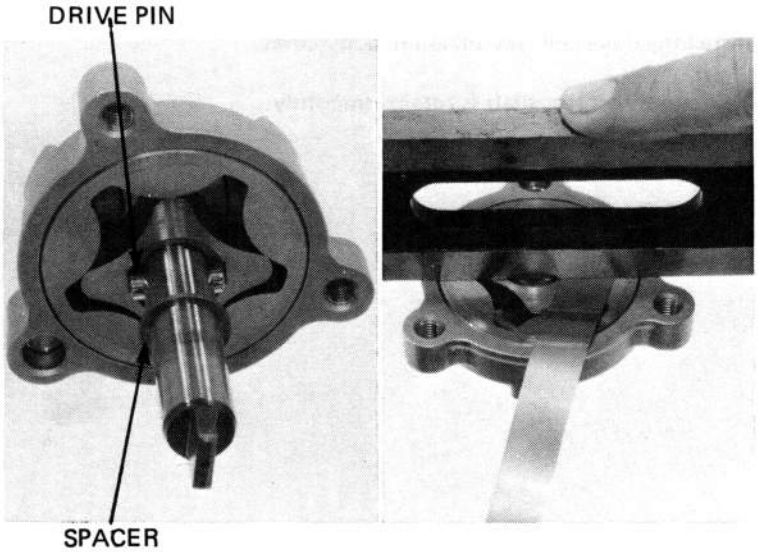
STANDARD: 0.15–0.22 mm (0.006–0.009 in)
SERVICE LIMIT: 0.35 mm (0.014 in)



Remove the spacer and drive pin from the rotor shaft.

Remove the rotor shaft and measure the pump end clearance.

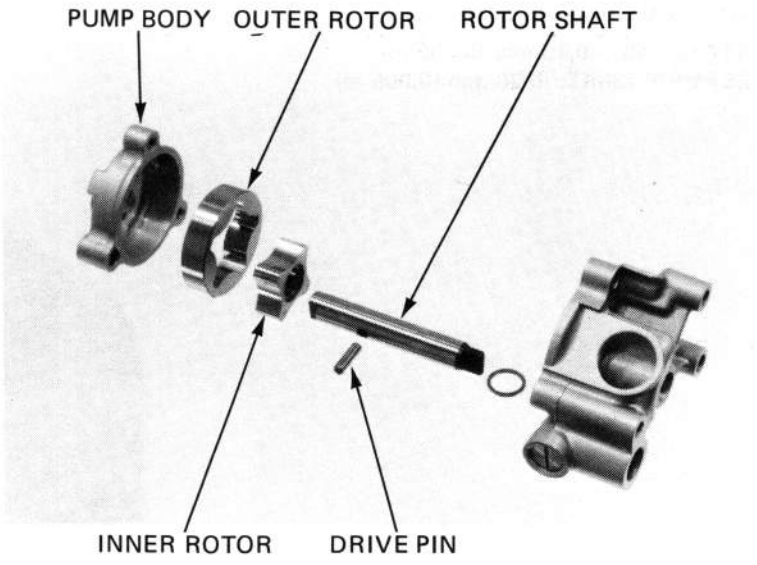
STANDARD: 0.02–0.07 mm (0.001–0.003 in)
SERVICE LIMIT: 0.10 mm (0.004 in)



ASSEMBLY

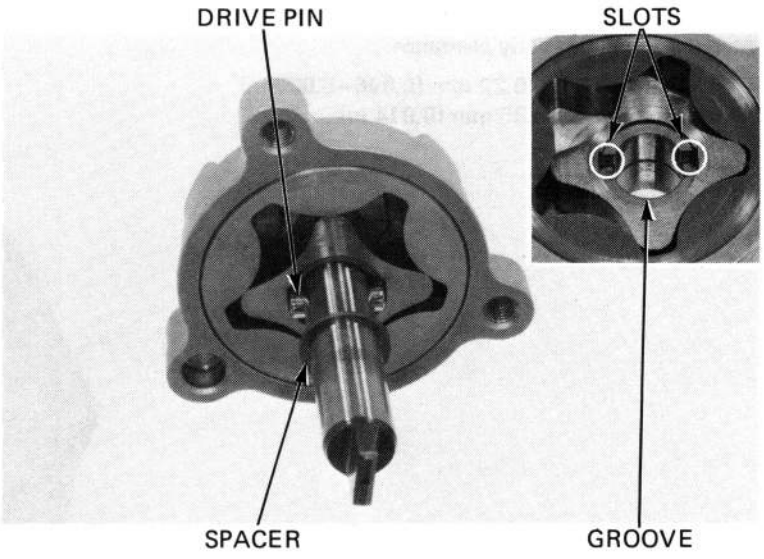
Install the outer rotor into the body and insert the rotor shaft.

Insert the drive pin into the rotor shaft.



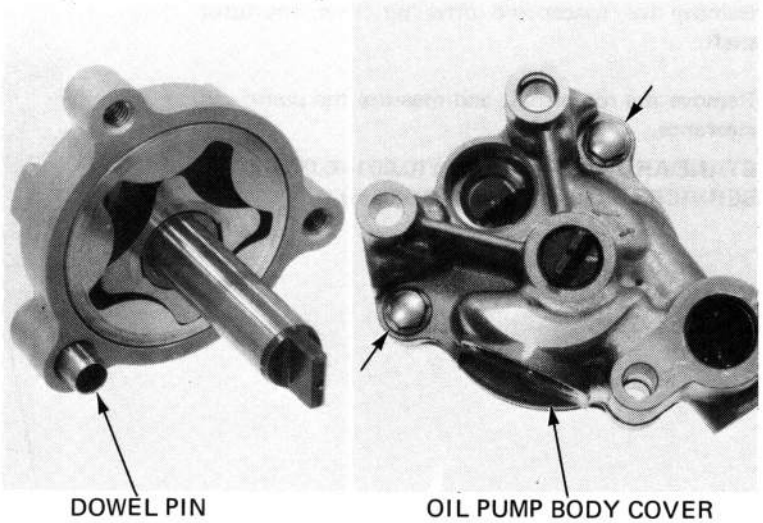
Align the slots in the inner rotor with the drive pin.

Placé the spacer into the inner rotor groove.



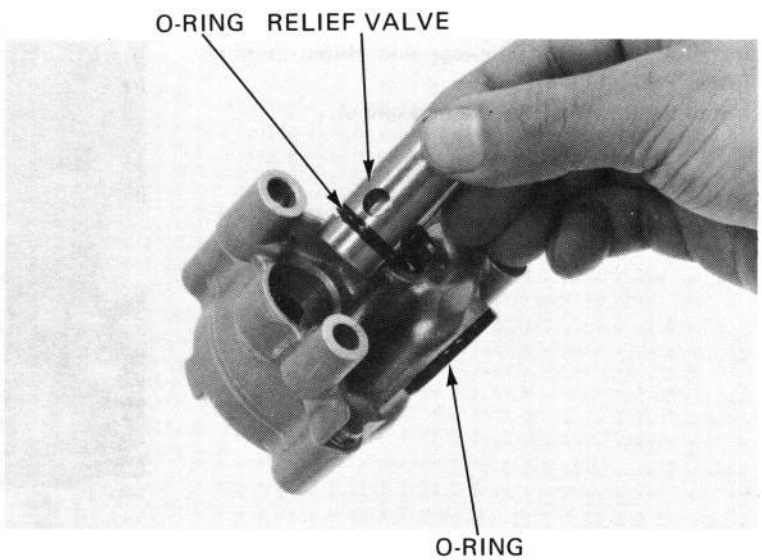
Install the dowel pin and oil pump body cover.

Make sure the rotor shaft is rotaing smoothly.



Install the relief valve with a new O-ring into the oil pump body.

Install a new O-ring into the oil strainer hole.



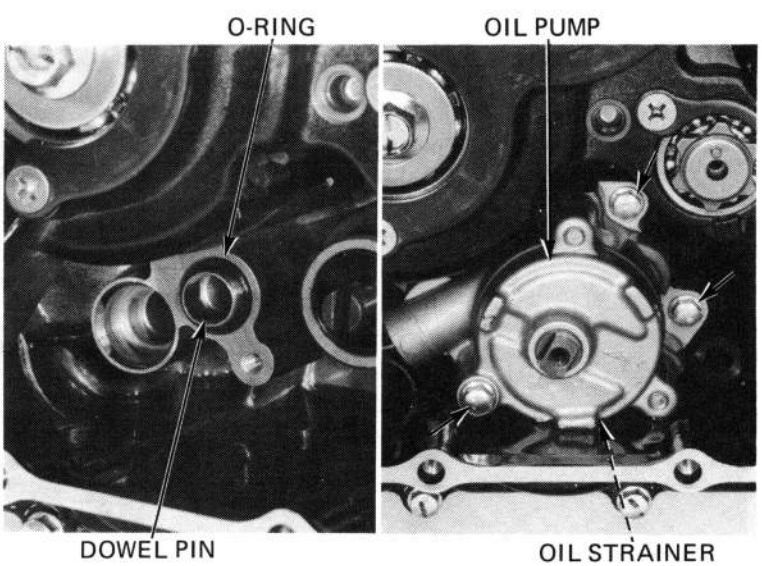
INSTALLATION

Install the dowel pin and a new O-ring.

Put the oil strainer into the crankcase, and then install the oil pump. Tighten the bolts.

TORQUE: 8–12 N·m
(0.8–1.2 kg-m, 6–9 ft-lb)

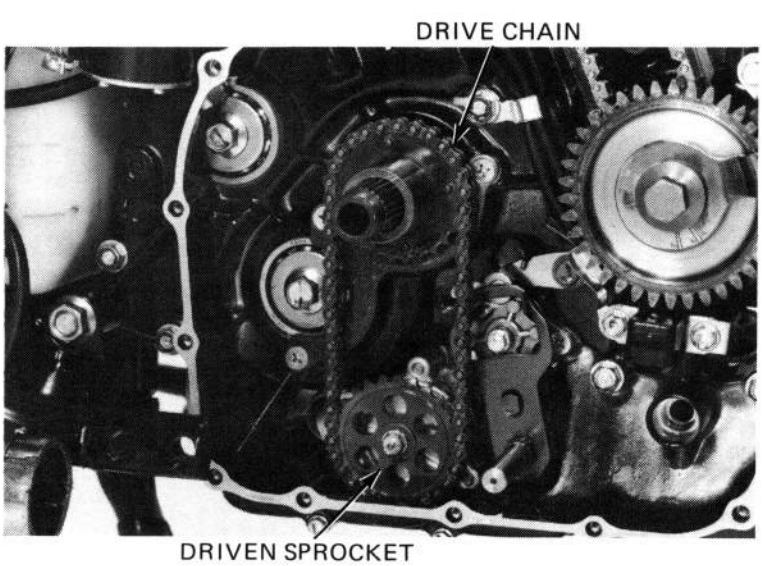
Install the oil strainer.



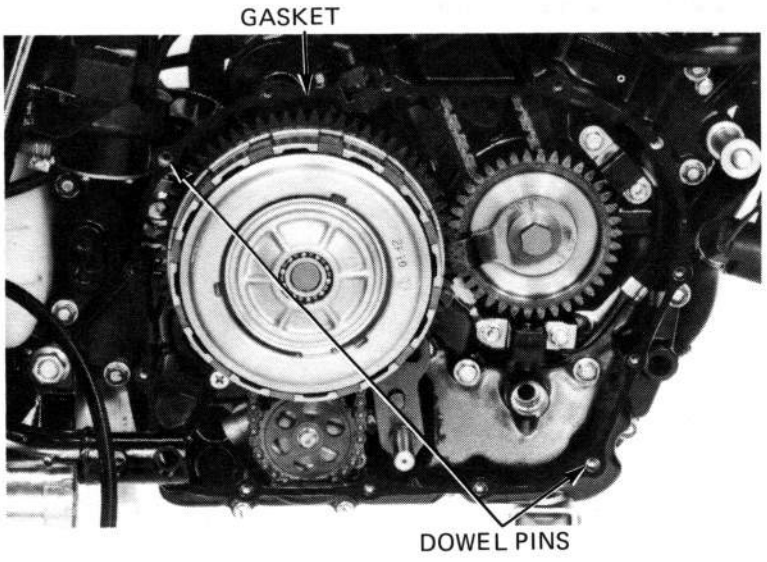
Place the oil pump driven sprocket into the drive chain. The "IN" mark on the driven sprocket should face the crankcase.

Install the washer and tighten the bolt.

TORQUE: 8–12 N·m
(0.8–1.2 kg-m, 6–9 ft-lb)

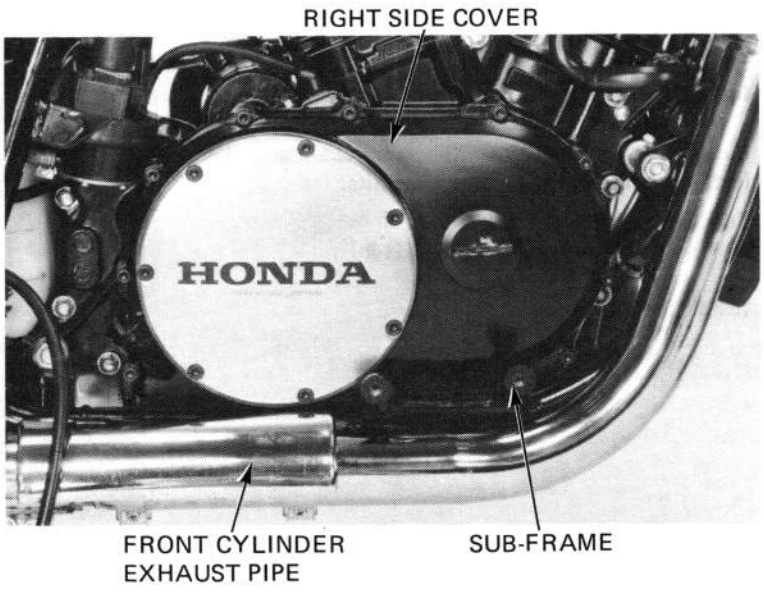


Install the gear shift linkage and clutch assembly (pages 7-17 and 9-4).
Install the dowel pins and a new gasket.



Install the following parts:
- right side cover.
- right sub-frame.
- front cylinder exhaust pipe.
- right foot peg with the rear brake pedal.

Fill the engine with the recommended oil (page 2-3).



FINAL DRIVE OIL

CHECK

Place the motorcycle on its center stand on level ground.

Remove the oil filler cap.

Check that the oil level reaches the lower edge of the oil filler cap hole.

Check for leaks, if the level is low. Pour fresh oil through the oil filler hole until it reaches the lower edge.

CHANGE

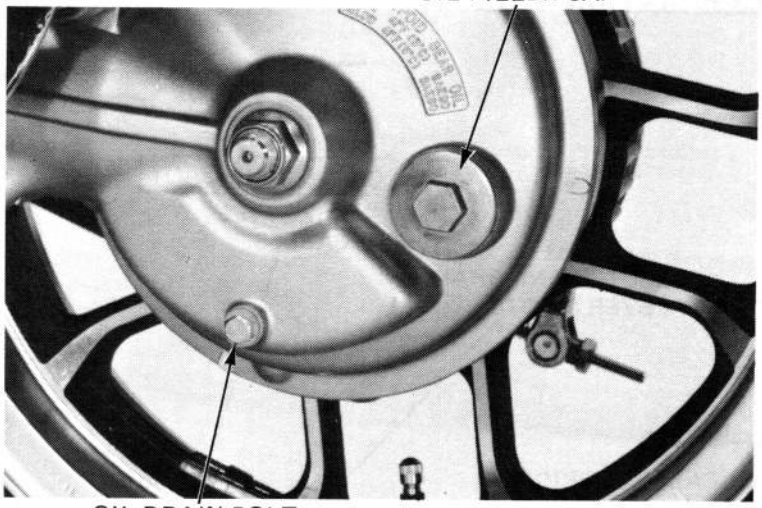
Remove the oil filler cap and drain bolt to drain all oil from the final gear case.

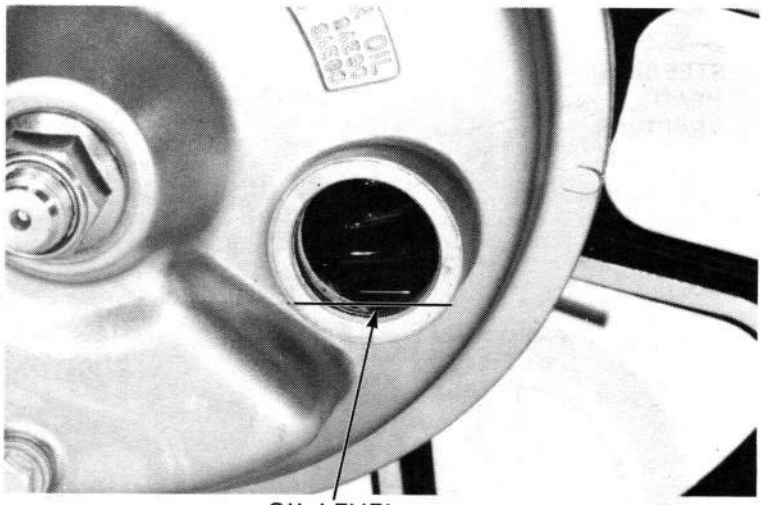
Install the drain bolt securely.

Fill the gear case with the recommended oil up to the correct level (above).

OIL CAPACITY: 130 cc (4.4 oz)
RECOMMENDED OIL:
'83:
HYPOID GEAR OIL API,
GL–5 SAE #90 (Above 5°C/41°F)
SAE #80 (Below 5°C/41°F)

After '83:
HYPOID GEAR OIL: SAE #80

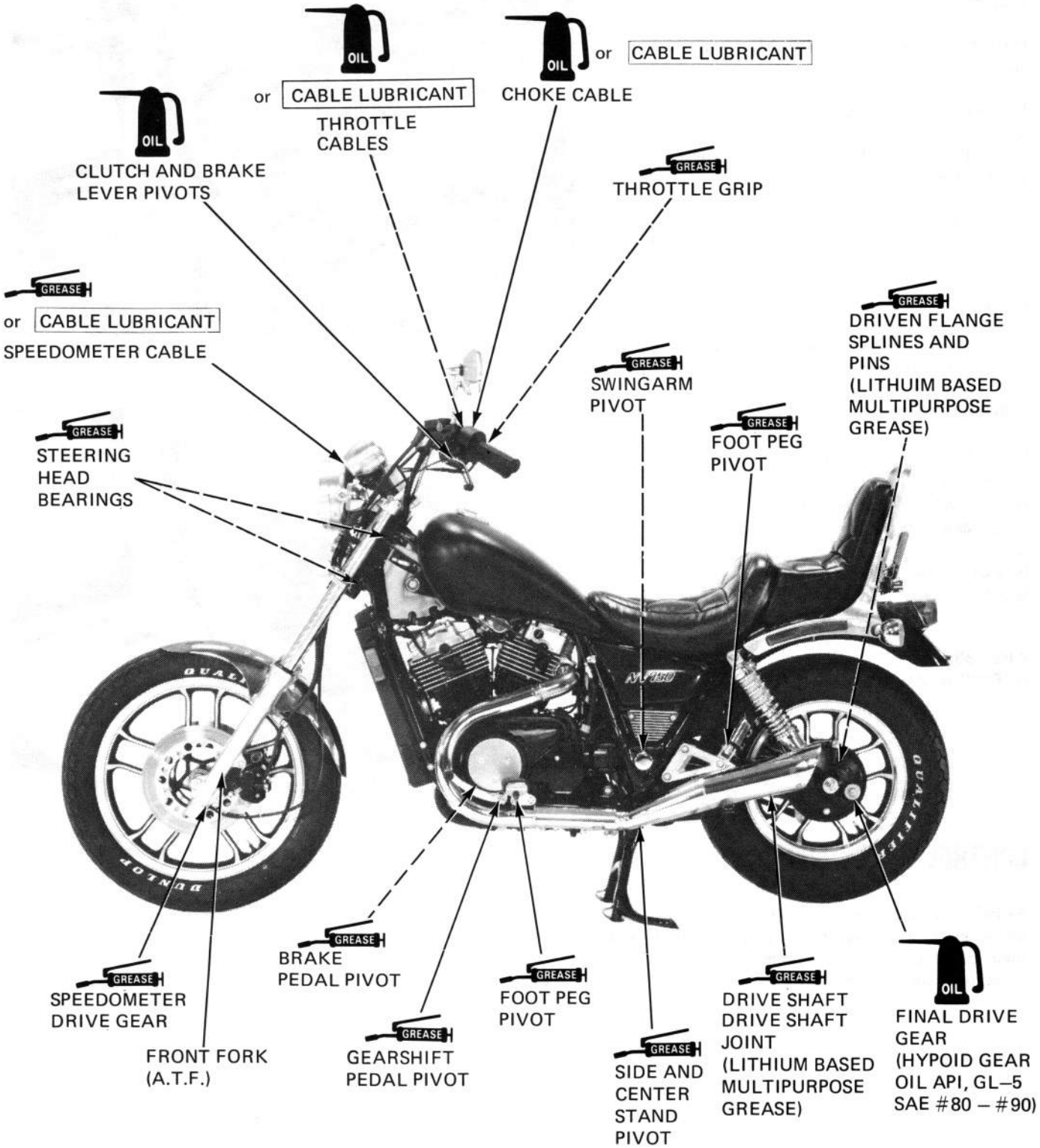




CONTROL CABLE LUBRICATION

Periodically, disconnect the throttle cables at their upper ends. Thoroughly lubricate the cables and their pivot points with a commercially available cable lubricant or a light weight oil.

LUBRICATION POINTS



3. MAINTENANCE

SERVICE INFORMATION

GENERAL

- Engine oil See page 2-3
- Engine oil filter See page 2-3
- Final drive gear oil See page 2-11

SPECIFICATIONS

< ENGINE >

Spark plugs:

Standard		For cold climate (below 5°C, 41°F)		For extended high speed riding	
NGK	ND	NGK	ND	NGK	ND
DPR8EA-9	X24EPR-U9	DPR7EA-9	X22EPR-U9	DPR9EA-9	X27EPR-U9

Spark plug gap: 0.8–0.9 mm (0.031–0.035 in)

Ignition timing		
At idle:	'83, '84:	5°BTDC
	After '84:	10°BTDC
Full advance:	'83, '84:	26°BTDC at 3,500 rpm
	After '84:	26°BTDC at 4,000 rpm
Idle speed:		900 ± 100 rpm
Carburetor synchronization:		Both carburetor within 40 mm (1.6 in) Hg of each other
Cylinder compression:		12 ± 2 kg/cm² (171 ± 28 psi)
Throttle grip free play:		2–6 mm (1/8–1/4 in)

< CHASSIS >

Rear brake pedal free play:	20–30 mm (3/4–1-1/4 in)
Front fork air pressure:	0–6 psi (0–40 kPa, 0–0.4 kg/cm²)

Tire:

Tire size		Front	Rear
		110/90–19 62H	140/90–15 70H
Cold tire pressure, psi (kPa, kg/cm²)	Up to 90 kg (200 lbs) load	32 (225, 2.25)	32 (225, 2.25)
	90 kg (200 lbs) load to vehicle capacity load	32 (225, 2.25)	40 (280, 2.80)
Tire brand	Bridgestone	L303	G508
	Dunlop	F11	K627C

TOOLS

Special:

Vacuum gauge set	07404–0020000 or M937B–021–XXXXX (U.S.A. only)

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

		ITEM \ FREQUENCY	WHICHEVER COMES FIRST ➡ / EVERY ⬇	ODOMETER READING (NOTE 3) 600 mi (1,000 km)	4,000 mi (6,400 km)	8,000 mi (12,800 km)	12,000 mi (19,200 km)	16,000 mi (25,600 km)	20,000 mi (32,000 km)	24,000 mi (38,400 km)	Refer to page
EMISSION RELATED ITEMS	*	FUEL LINES				I		I		I	3-4
	*	FUEL FILTER								R	3-4
	*	THROTTLE OPERATION		I		I		I		I	3-5
	*	CARBURETOR-CHOKE				I		I		I	3-6
		AIR CLEANER	NOTE 1		C	C	C	C	C	C	3-7
		CRANKCASE BREATHER	NOTE 2		C	C	C	C	C	C	3-7
		SPARK PLUGS			R	R	R	R	R	R	3-8
		ENGINE OIL	YEAR	R		R		R		R	2-3
		ENGINE OIL FILTER	YEAR	R		R		R		R	2-3
	*	CARBURETOR-SYNCHRONIZATION		I		I		I		I	3-9
	*	CARBURETOR-IDLE SPEED		I	I	I	I	I	I	I	3-10
		RADIATOR COOLANT				I		I		*R	3-10
	*	RADIATOR CORE				I		I		I	3-11
	*	COOLING SYSTEM HOSES & CONNECTIONS		I		I		I		I	3-11
	*	EVAPORATIVE EMISSION CONTROL SYSTEM	NOTE 3			I		I		I	3-12
NON-EMISSION RELATED ITEMS		FINAL DRIVE OIL				I		I		R	2-11
		BATTERY	MONTH	I	I	I	I	I	I	I	3-13
		BRAKE FLUID (FRONT)	MONTH I 2 YEARS* R	I	I	I	*R	I	I	*R	3-13
		BRAKE SHOE/PAD WEAR			I	I	I	I	I	I	3-14
		BRAKE SYSTEM		I		I		I		I	3-14
	*	BRAKE LIGHT SWITCH		I		I		I		I	3-16
	*	HEADLIGHT AIM		I		I		I		I	3-16
		CLUTCH FLUID	MONTH I 2 YEARS* R	I	I	I	*R	I	I	*R	3-16
		CLUTCH SYSTEM		I		I		I		I	3-16
		SIDE STAND				I		I		I	3-17
	*	SUSPENSION		I		I		I		I	3-17
	*	NUTS, BOLTS, FASTENERS		I		I		I		I	3-19
	**	WHEELS		I		I		I		I	3-18
	**	STEERING HEAD BEARINGS		I		I		I		I	3-19

* SHOULD BE SERVICED BY AN AUTHORIZED HONDA DEALER, UNLESS THE OWNER HAS PROPER TOOLS AND SERVICE DATA AND IS MECHANICALLY QUALIFIED.

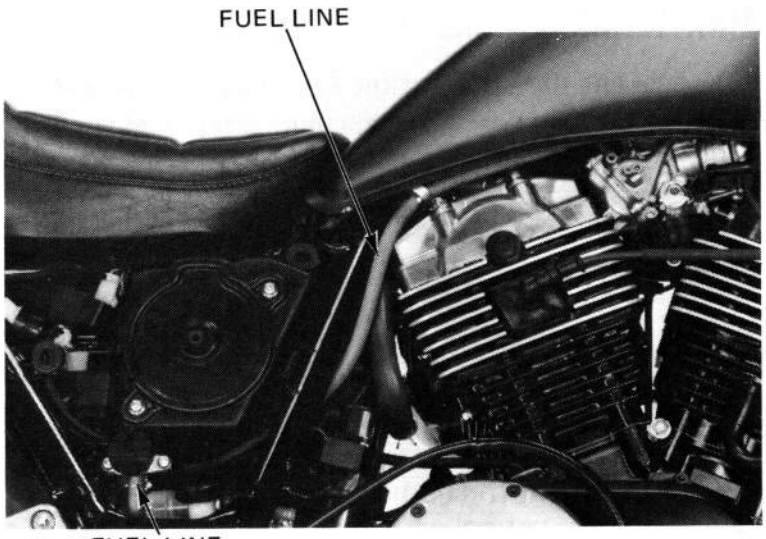
** IN THE INTEREST OF SAFETY, WE RECOMMEND THESE ITEMS BE SERVICED ONLY BY AN AUTHORIZED HONDA DEALER.

NOTE: 1. SERVICE MORE FREQUENTLY WHEN RIDING IN DUSTY AREAS.
2. SERVICE MORE FREQUENTLY WHEN RIDING IN RAIN OR AT FULL THROTTLE (U.S.A. ONLY).
3. '84 CALIFORNIA NODEL.
4. FOR HIGHER ODOMETER READING, REPEAT AT THE FREQUENCY INTERVAL ESTABLISHED HERE.

FUEL LINES

Check the fuel lines for deterioration, damage, or leakage.

Replace if necessary.



FUEL FILTER

Turn the fuel valve OFF.
Remove the right side cover, radiator reserve tank cap and pull out the fuel filter.
Clamp the fuel line between the fuel filter and fuel pump shut.

Disconnect the fuel lines from the filter.

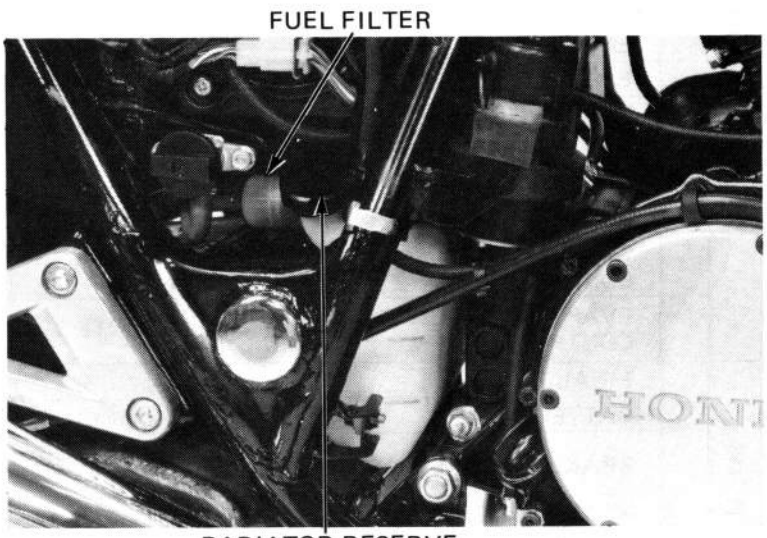
Replace the fuel filter with a new one when indicated by the maintenance schedule. (See page 3-3).

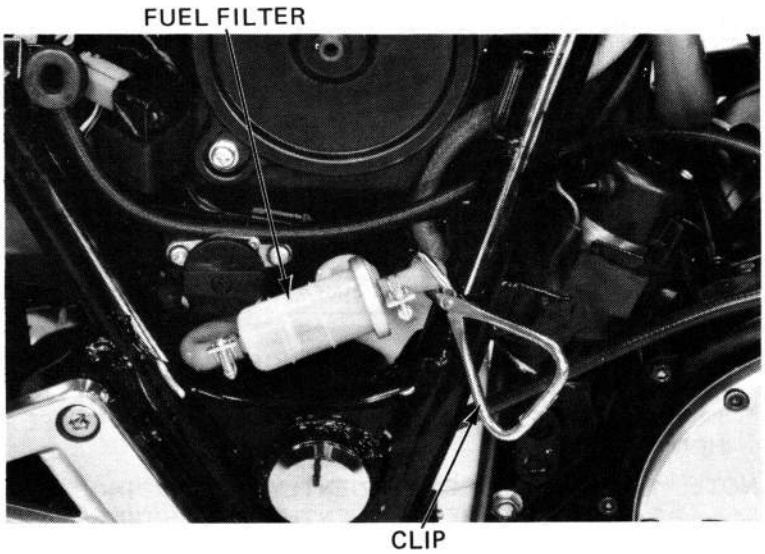
WARNING

Gasoline is flammable and is explosive under certain conditions. Do not smoke or allow flames or sparks in your working area.

Install the removed parts and remove the clip.

After installing, turn the fuel valve ON and check that there are no fuel leaks.





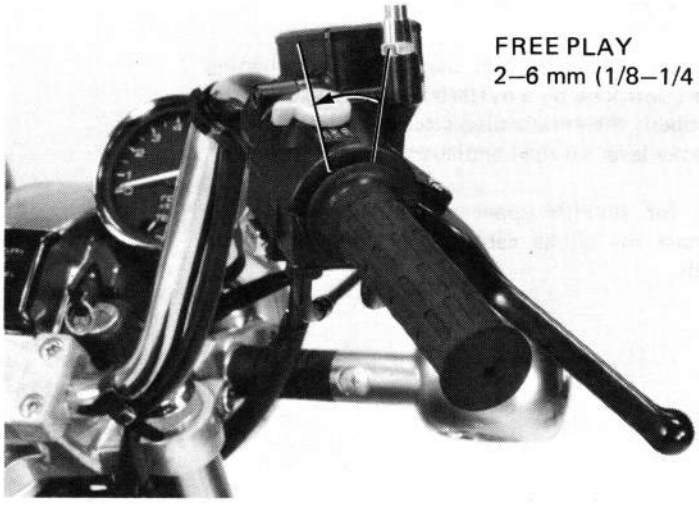
THROTTLE OPERATION

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

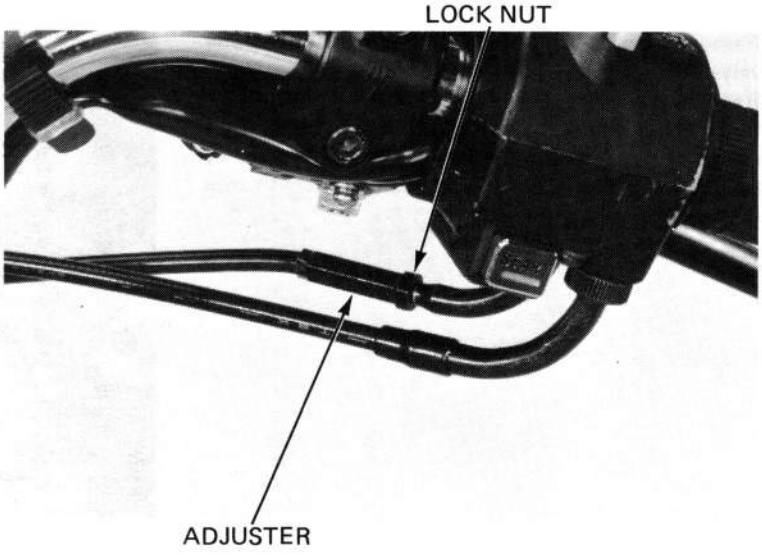
Make sure there is no deterioration, damage, or kinking in the throttle cables. Replace any damaged parts.
Lubricate the throttle cables (page 2-12), if throttle operation is not smooth.

Measure throttle grip free play at the throttle grip flange.

FREE PLAY: 2–6 mm (1/8–1/4 in)



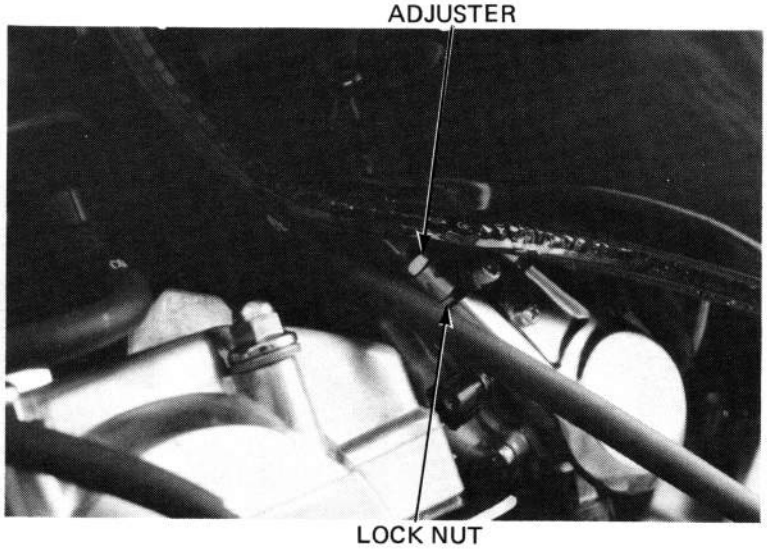
Throttle grip free play can be adjusted at either end of the throttle cable. Minor adjustments are made with the upper adjuster.



Major adjustments are made with the lower adjuster.

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

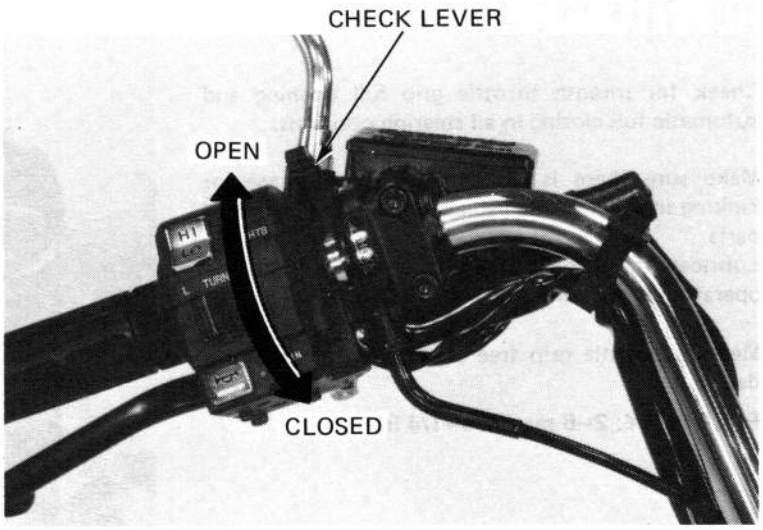
Recheck throttle operation.



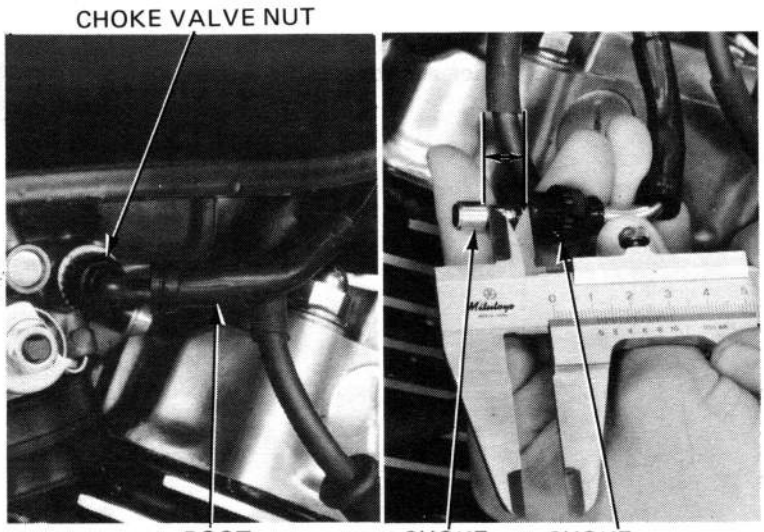
CARBURETOR CHOKE

This model choke system uses a fuel enrichening circuit controlled by a bystarter valve. The bystarter valve opens the enrichening circuit via a cable when the choke lever on the handlebar is pushed up.

Check for smooth upper choke lever operation. Lubricate the choke cable if the operation is not smooth.



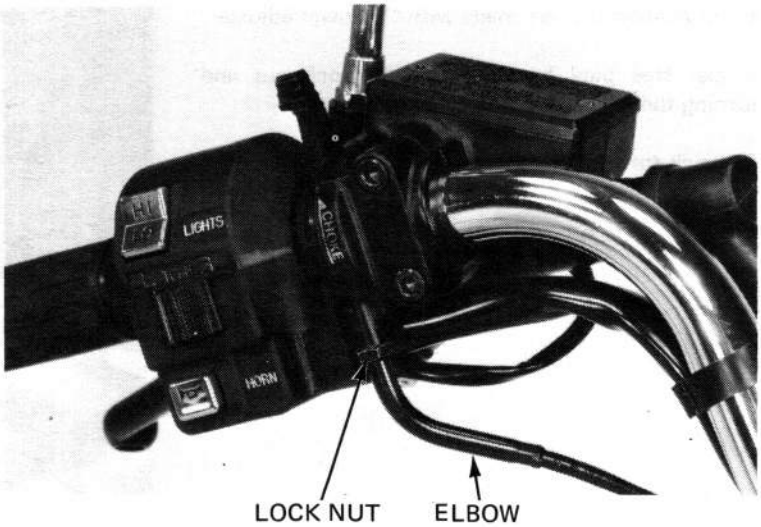
Remove the choke cable boots and loosen the choke valve nuts on the carburetors.
Remove the choke valve from the carburetor.
Push the choke lever on the handlebar all the way down to fully closed and make sure the distance between the nut's threads and valve is 10–11 mm (0.39–0.43 in).



Adjust within specifictions by loosening the lock nut and turning the cable's elbow at the clutch housing. Tighten the lock nut. Recheck the distance.

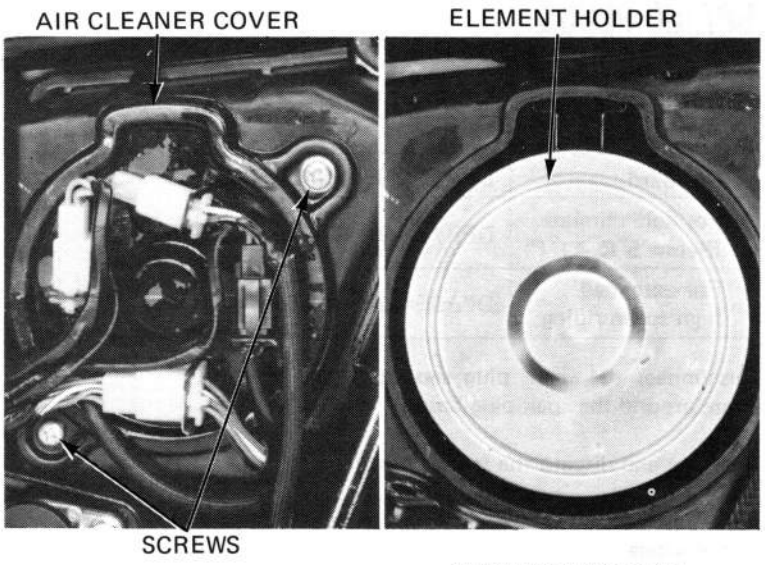
Thread the choke valve in by hand and then tighten the choke valve nut 1/4 turn with a 14 mm wrench. Install the choke cable boots.

Reinstall the removed parts in the reverse order of disassembly.



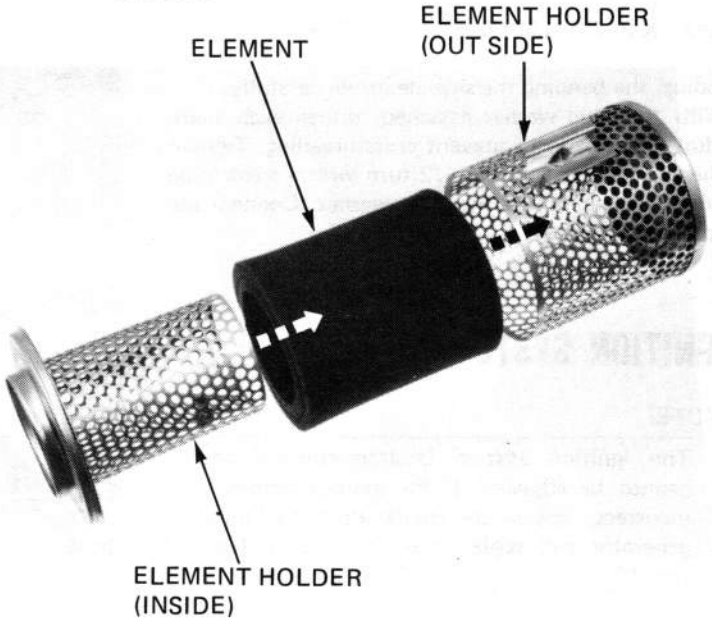
AIR CLEANER

Remove the right side cover.
Remove the air cleaner cover screws and cover.
Pull the air cleaner element holder out of the air cleaner case.



Wash the elements in non-flammable or high flash point solvent, squeeze out and let them dry.
Soak the elements in gear oil (SAE #80–#90) and squeeze out the excess.

Install the removed parts in the reverse order of diassembly.



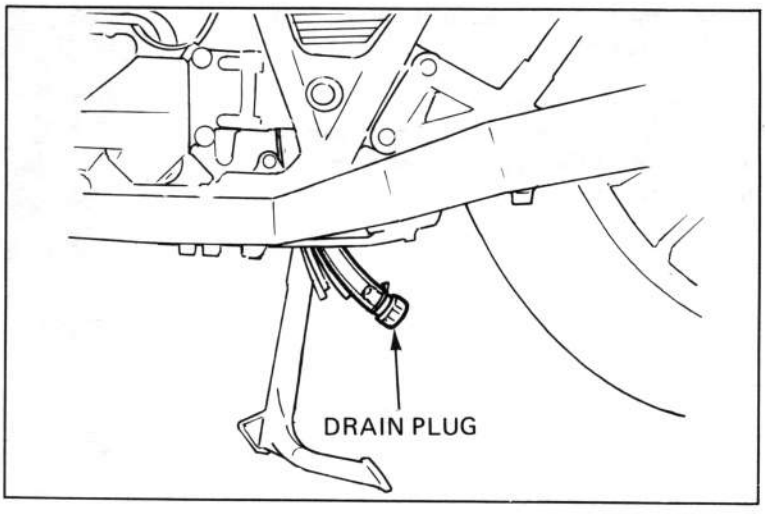
CRANKCASE BREATHER

Remove the plug from the drain tube to empty any deposits.

Install the drain plug.

NOTE:

> Service more frequently when riding in rain, or at full throttle, or if the deposit level can be seen in the transparent section of the drain tube.



SPARK PLUGS

RECOMMENDED SPARK PLUGS

	NGK	ND
Standard	DPR8EA-9	X24EPR-U9
For cold climiate (Below 5°C, 41°F)	DPR7EA-9	X22EPR-U9
For extended high speed riding	DPR9EA-9	X27EPR-U9

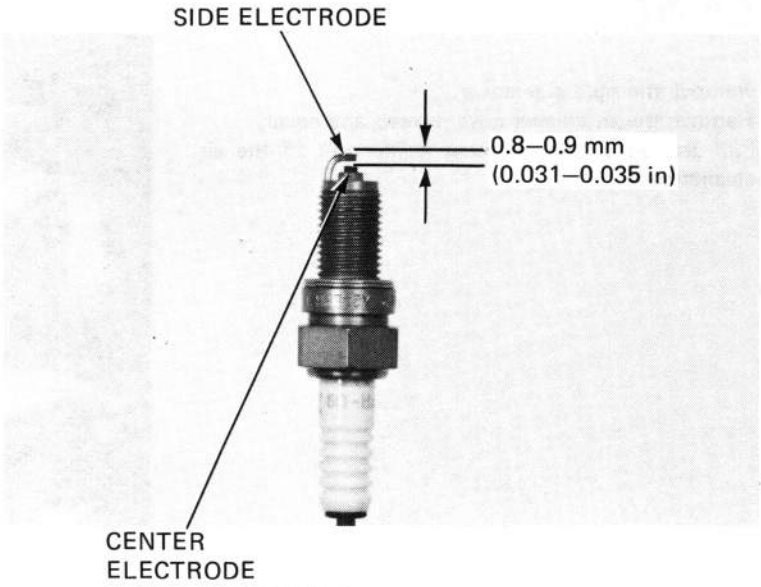
Disconnect the spark plug caps and clean any dirt from around the spak plug bases.

Remove and discard the spark plugs.

Measure the new spark plug gaps using a wire-type feeler gauge.

SPARK PLUG GAP: 0.8–0.9 mm (0.031–0.035 in)

Adjust the bending the side electrode carefully.
With the plug washer attached, thread each spark plug in by hand to prevent crossthreading. Tighten the spark plugs another 1/2 turn with a spark plug wrench to compress the plug washer. Connect the spark plug caps.



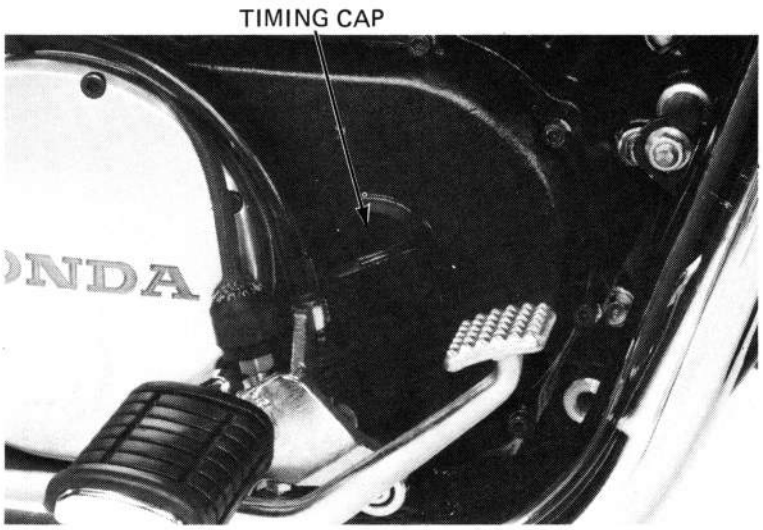
IGNITION SYSTEM

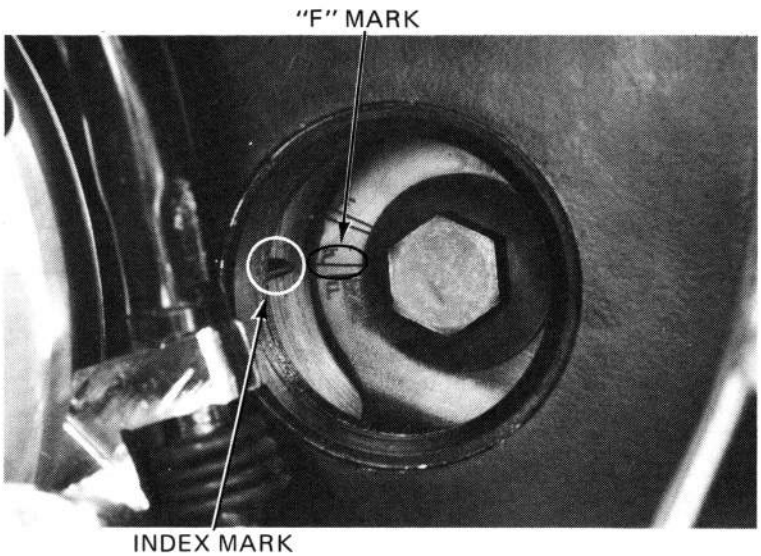
NOTE:

> The ignition system is transistorized and cannot be adjusted. If the ignition timing is incorrect, check the spark unit and pulse generator and replace any faulty parts (Section 19).

Warm up the engine
Remove the timing inspection hole cap on the right crankcase cover.

Connect the timing light.
The timing is correct if the "F" mark aligns with the index mark on the right crankcase cover at 900 rpm for each cylinder.



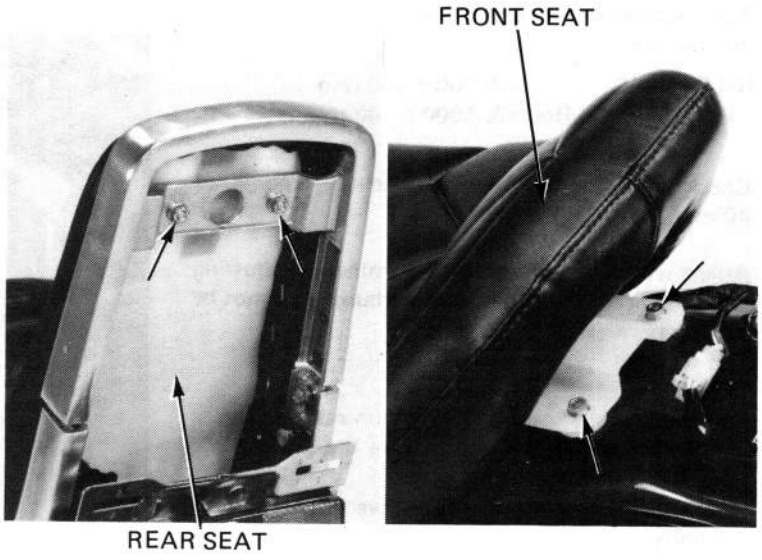


CARBURETOR SYNCHRONIZATION

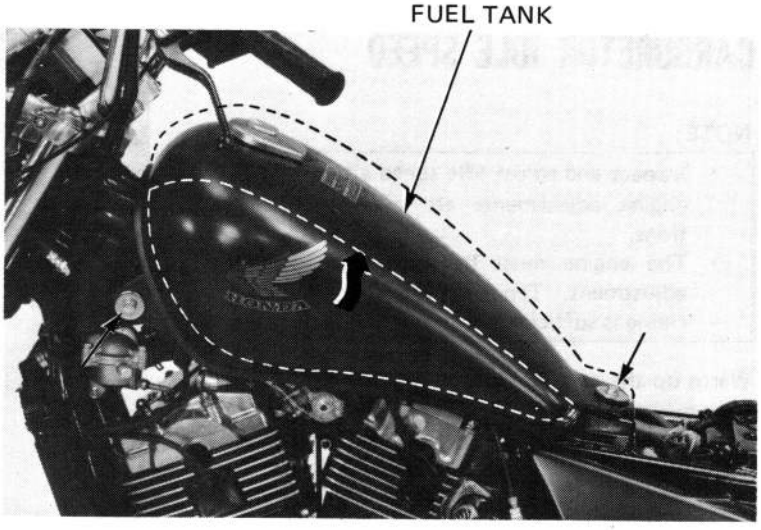
NOTE:

> Perform this maintenance with the engine at normal operating temperature, transmission in neutral, and motorcycle on its center stand.

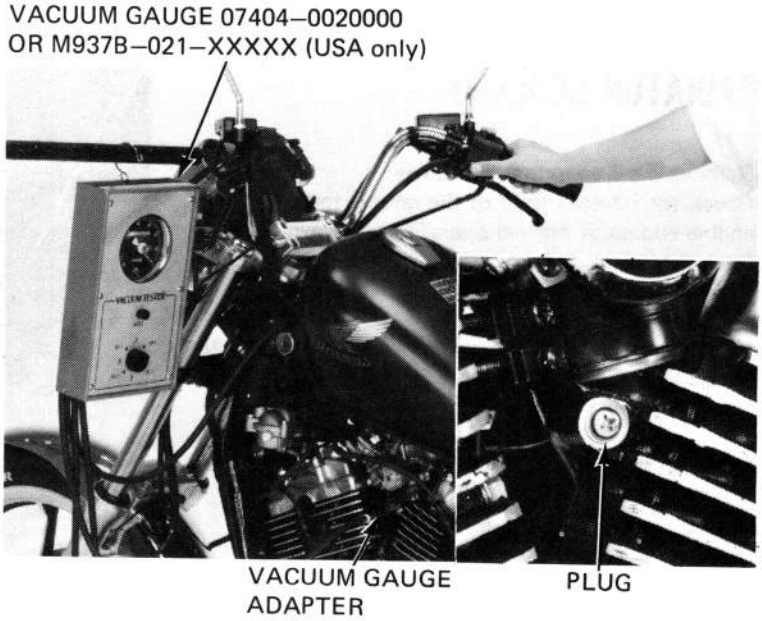
Unlock and remove the tool box at the back of the rear seat with the key.
Remove the rear and front seats.



Move the fuel tank back about 25–50 mm (1–2 in) removing the fuel tank mounting bolts.
Let it rest on the frame.



Remove the plugs from the cylinder head intake ports and install the vacuum gauge adapters.
Connect the vacuum gauges.



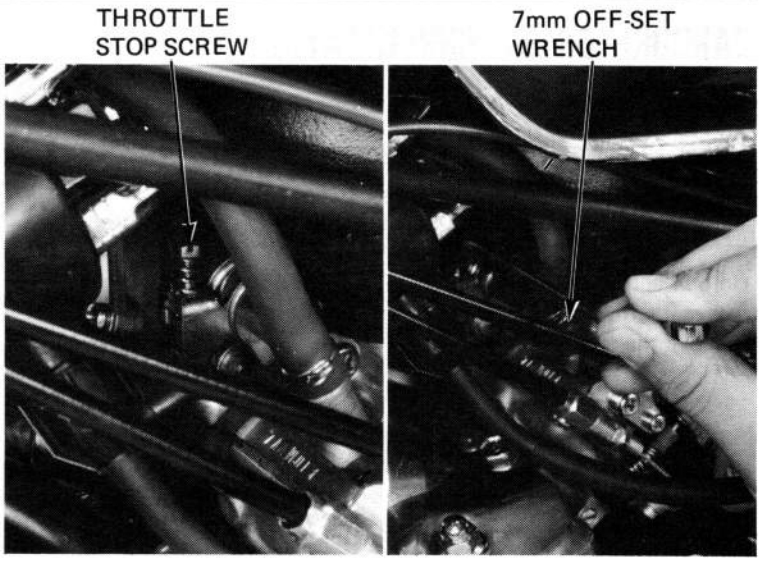
Warm up the engine and adjust the idle speed with the throttle stop screw.

IDLE SPEED: **'83: 900 ± 100 rpm**
After '83: 1000 ± 100 rpm

Check that the difference in vacuum readings is 40 mm (1.6 in) Hg or less.

Adjust within specifications by turning the adjusting screw, if necessary. The No. 1 carburetor cannot be adjusted.
It is the base.

Recheck the idle speed and synchronization.
Disconnect the gauges and remove the gauge adapters from the ports.
Install the removed parts in the reverse order of disassembly.

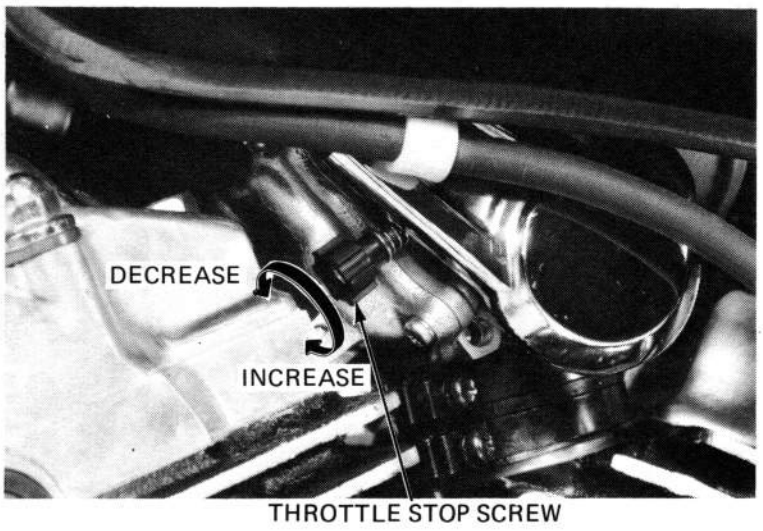


CARBURETOR IDLE SPEED

NOTE:

- Inspect and adjust idle speed after all other engine adjustments are within specifications.
- The engine must be warm for accurate adjustment. Ten minutes of stop-and-go riding is sufficient.

Warm up the engine, shift to NEUTRAL, and place the motorcycle on its center stand. Turn the throttle stop screw as required to obtain the specified idle speed.



RADIATOR COOLANT

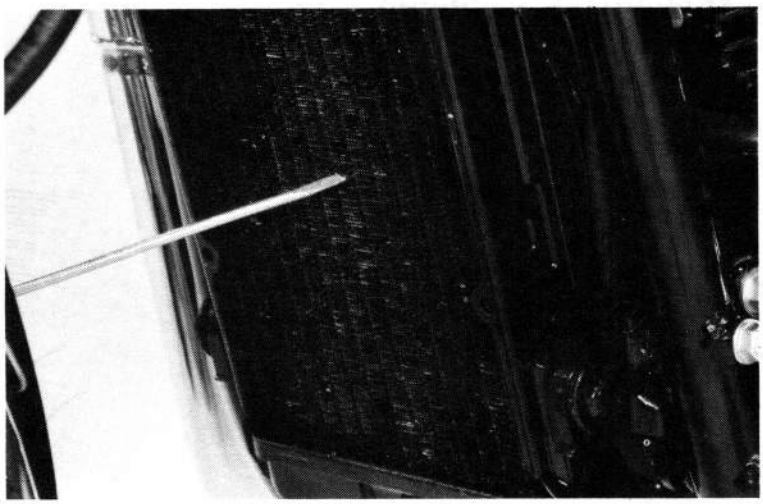
Remove the frame right side cover.
Check the coolant level of the reserve tank with the engine runing at normal operating temperature. The level should be between the "FULL" and "LOW" level lines.

If necessary, remove the reserve tank cap and fill to the "FULL" level line with a 50/50 mixture of distilled water and anti-freeze.

Reinstall the cap and frame side cover.

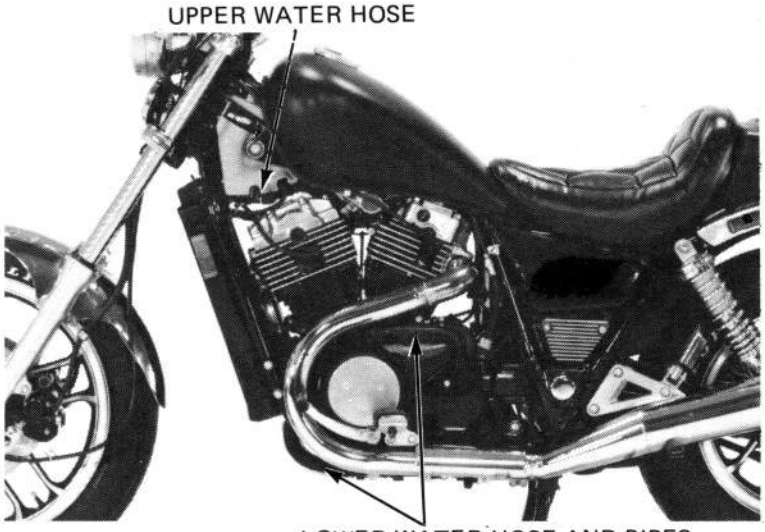
RADIATOR CORE

Check the air passages for clogging or damage.
Straighten bent fins or collapsed core tubes.
Remove insects, mud or any obstructions with compressed air or low water pressure.
Replace the radiator if the air flow is restricted over more than 20% of the radiating surface.



COOLING SYSTEM HOSES & CONNECTIONS

Make sure the hoses are in good condition; they should not have any signs of deterioration.
Replace any hose that does.
Check that all hose clamps are tight.



CYLINDER COMPRESSION

Warm up the engine to normal operating temperature.

Stop the engine, disconnect both spark plug caps and remove one spark plug from each cylinder.

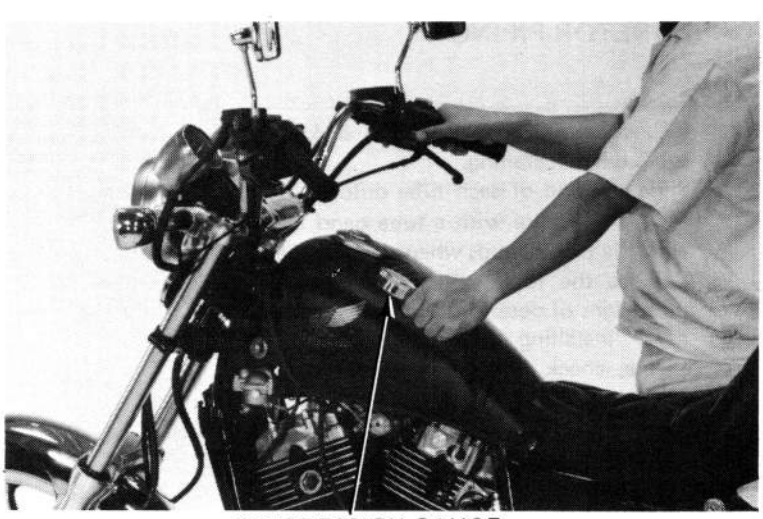
Insert the compression gauge. Open the throttle all the way and crank the engine with the starter motor. Crank the engine until the gauge reading stops rising. The maximum reading is usually reached within 4-7 seconds.

COMPRESSION PRESSURE:
12 ± 2 kg/cm² (171 ± 28 psi)

If compression is low, check for the following:

- Leaky valves
- Leaking cylinder head gasket
- Worn piston/ring/cylinder.

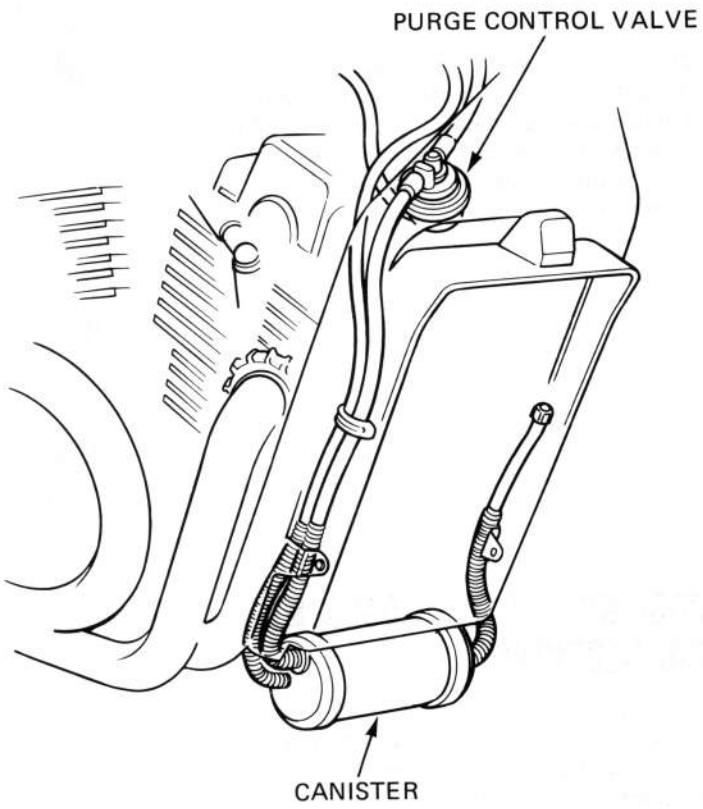
If compression is high, it indicates that carbon deposits have accumulated on the combustion chamber and/or the piston crown.



EVAPORATIVE EMISSION CONTROL SYSTEM
(After'83 : California model only)

Check all hoses to be sure they are securely connected and not kinked. Repalce any hose that shows signs of deterioration.

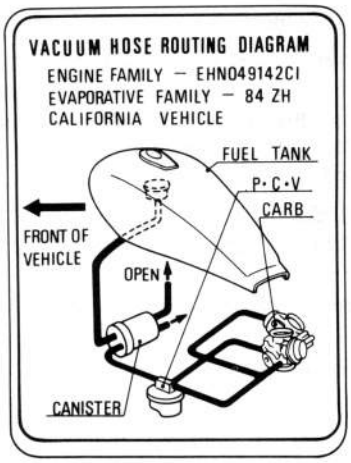
Check the canister for cracks or damage.



CARBURETOR PIPING

NOTE:

- Be careful not to bend, twist or kink the tubes when installing.
- Slide the end of each tube onto its fitting fully and secure with a tube band. Secure with the tube clamps whenever specified.
- Replace the tubes with new ones if they show signs of deterioration or damage.
- After installing the carburetor on the engine, check that the tubes are not contacting sharp edges or corners.



BATTERY

Remove the left side cover and inspect the battery fluid level. When the fluid level nears the lower level, remove the battery and add distilled water to the upper level line as follows:

Remove the regulator/rectifier holder bolt and open the holder.

Disconnect the negative cable at the battery terminal. The remove the positive cable.

Pull out the battery and add distilled water to the upper level line.

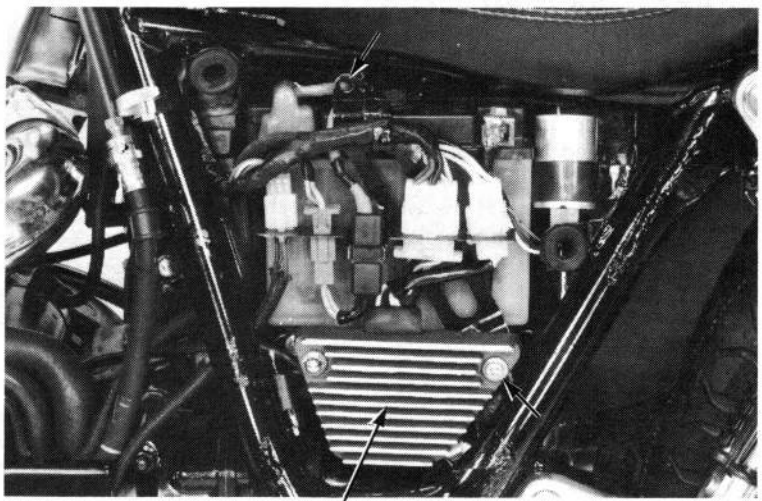
Reinstall the battery.

NOTE:

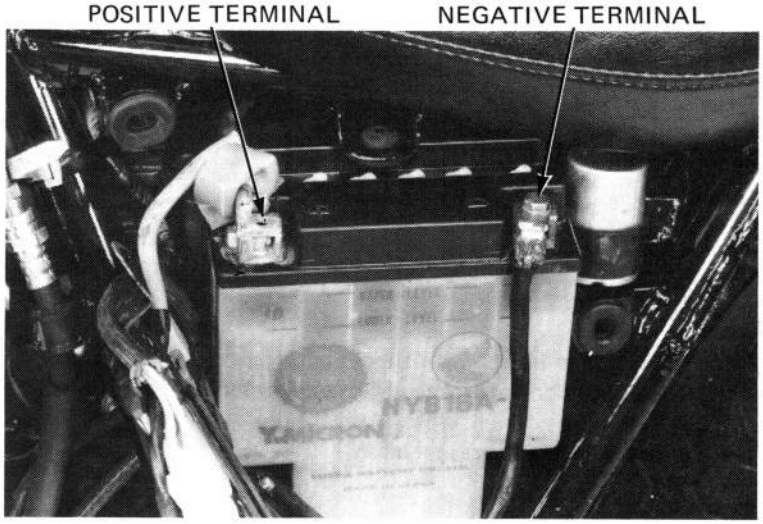
Add only distilled water. Tap water will shorten the service life of the battery.

WARNING

The battery electrolyte contains sulphuric acid. Protect your eyes, skin, and clothing. If electrolyte gets in your eyes; flush them thoroughly with water and get prompt medical attention.



REGULATOR/RECTIFIER HOLDER



BRAKE FLUID

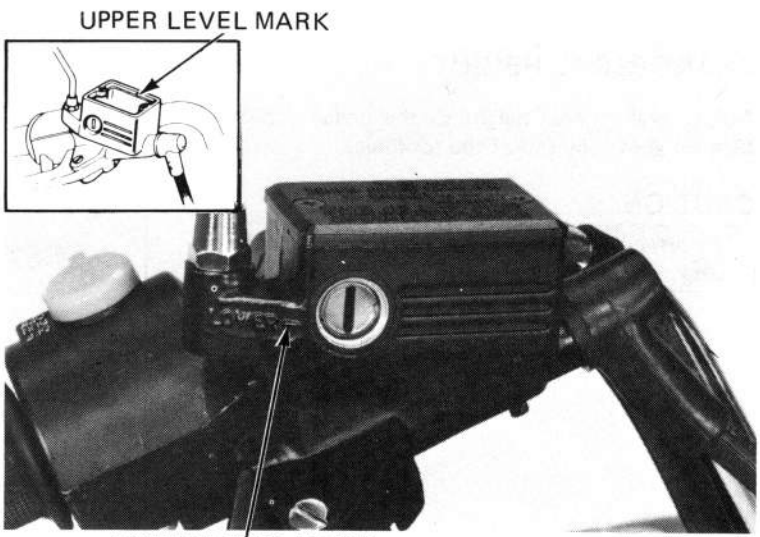
Check the front brake fluid reservoir level. If the level nears the lower level mark remove the cover and diaphram. Fill the reservoir with DOT-3 Brake Fluid to the upper level mark located inside the reservoir.

Check the entire system for leaks, if the level is low.

CAUTION:

- *Do not remove the cover until the handlebar has been turned so that the reservoir is level.*
- *Avoid operating the brake lever with the cap removed. Brake fluid will squirt out if the lever is pulled.*
- *Do not mix different types of fluid, as they are not compartible with each other.*

Refer to section 17 for brake bleeding procedures.



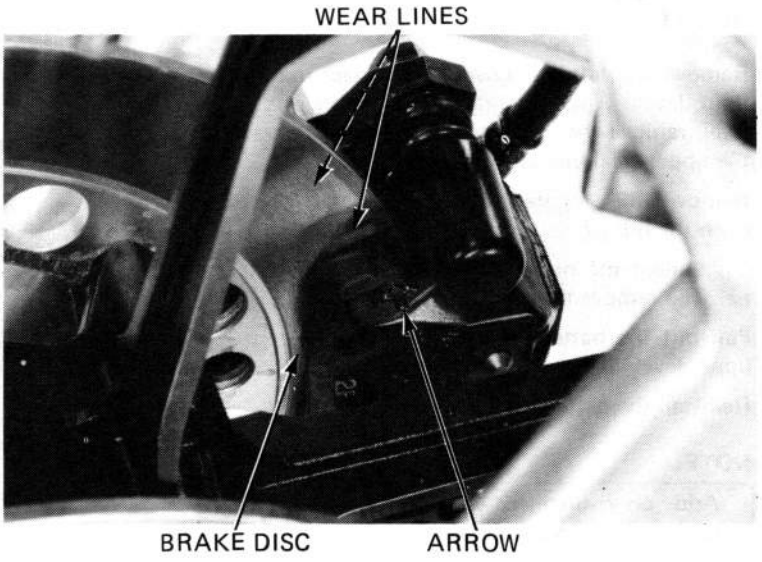
BRAKE SHOE/PAD WEAR

BRAKE PAD WEAR

Check the brake pads for wear by looking through the slot indicated by the arrow cast on the caliper assembly.
Replace the brake pads if the wear line on the pads reaches the edge of the brake disc (page 17-5).

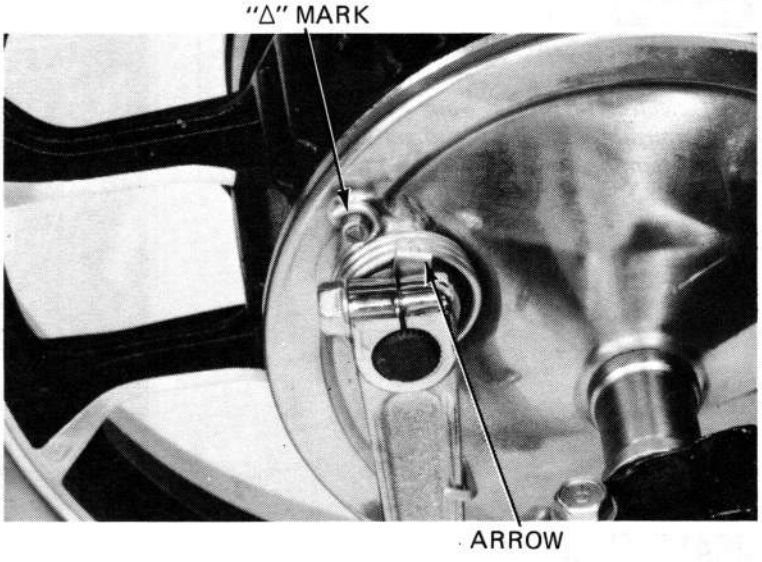
CAUTION:

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



BRAKE SHOE INSPECTION

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.



BRAKE SYSTEM

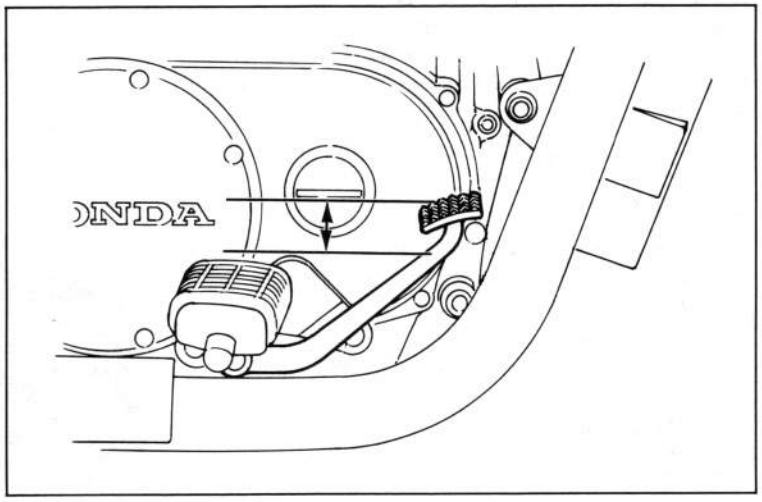
Inspect the brake hoses and fittings for deterioration, cracks and signs of leakage. Tighten any loose fittings.
Replace hoses and fittings as required.

BRAKE PEDAL HEIGHT

Adjust brake pedal height so the pedal is 20 mm (3/4 in) above the top of the foot peg.

CAUTION:

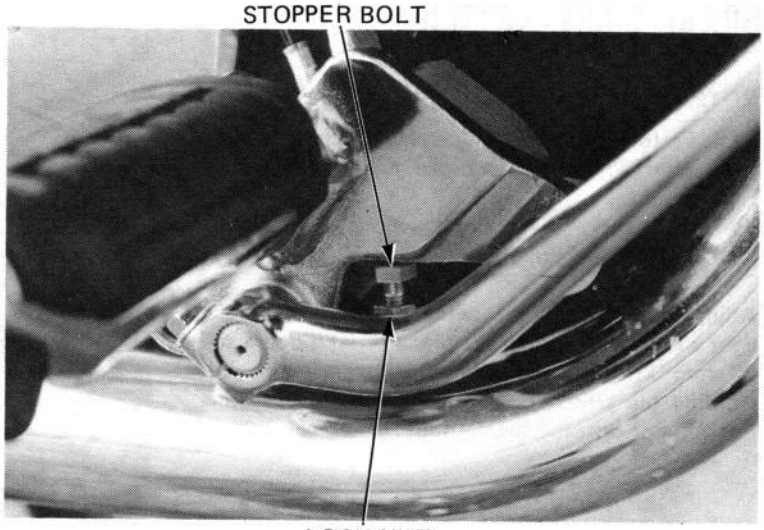
Incorrect brake pedal height can cause brake drag.



To Adjust:
Loosen the stopper bolt lock nut and turn the stopper bolt.
Retighten the lock nut.

NOTE:

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



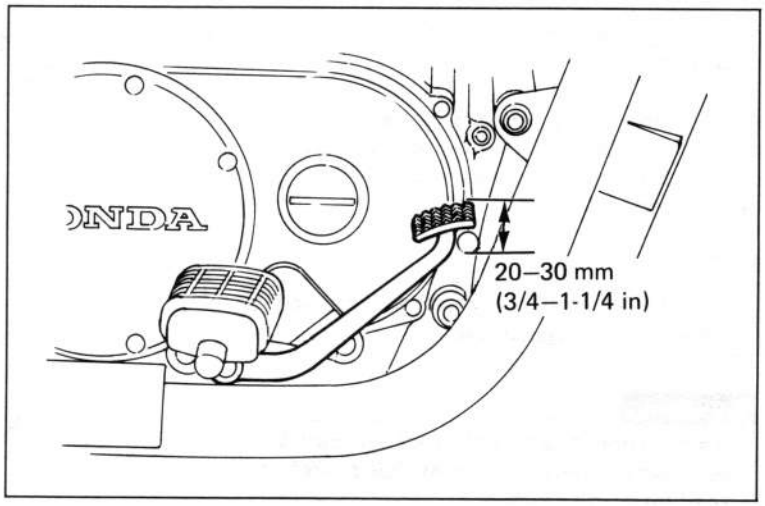
BRAKE PEDAL FREE PLAY

NOTE:

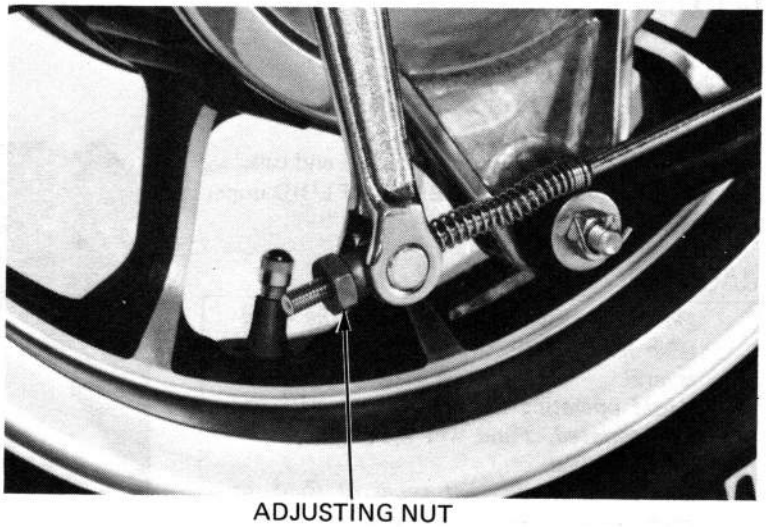
> Perform brake pedal free play adjustment after adjusting brake pedal height.

Check the brake pedal free play.

FREE PLAY: 20–30 mm (3/4–1-1/4 in)



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

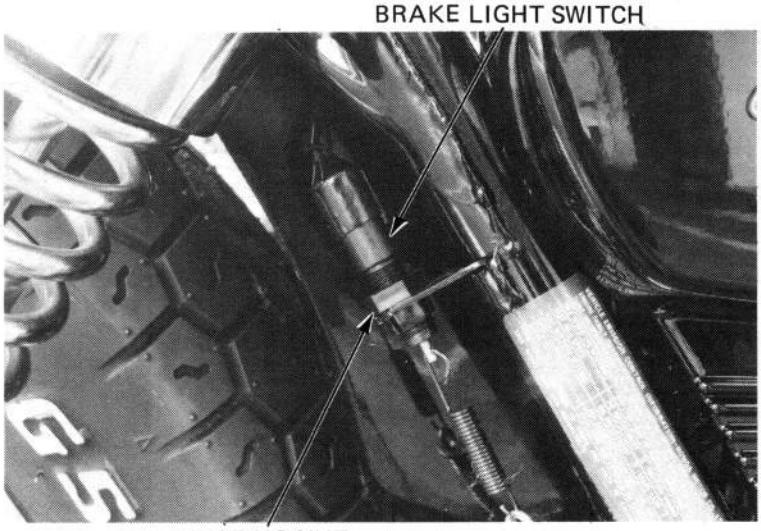


BRAKE LIGHT SWITCH

NOTE:

- Perform rear brake light switch adjustment after adjusting the brake pedal play and height.
- The front brake light switch does not require adjustment.

Adjust the brake light switch so that the brake light will come on when the brake pedal is depressed 20 mm (3/4 in), and brake engagement begins. Holding the switch body and turning the adjusting nut. Do not turn the switch body.



HEADLIGHT AIM

Adjust vertically by loosening both headlight case mounting bolts.

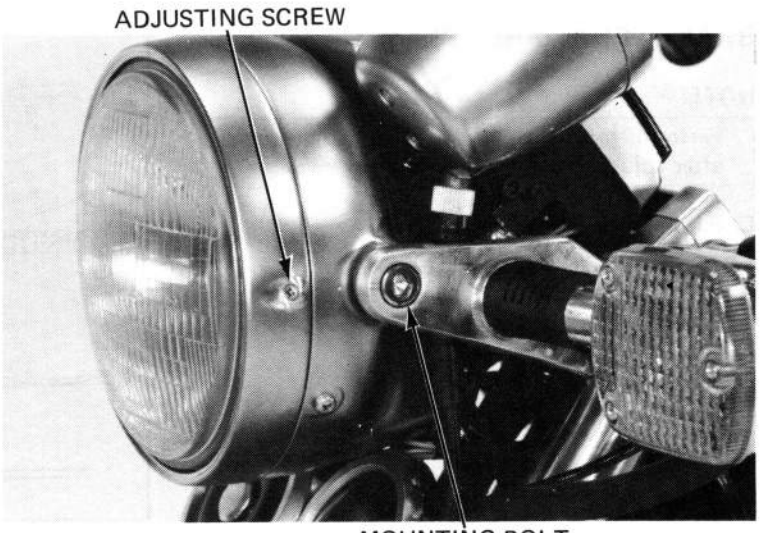
Adjust horizontally by turning the adjusting screw on the headlight rim. Turn the adjusting screw clockwise to direct the beam toward the right side of the rider.

NOTE:

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

WARNING

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

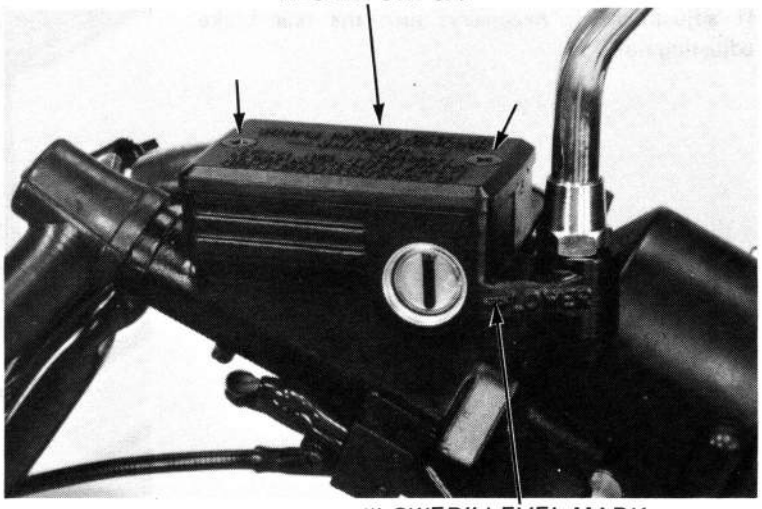


CLUTCH

Check the clutch fluid level.
If the level is under the lower level mark, check the clutch system for leak.
Remove the reservoir cap mount screws and cap.
Fill the reservoir with DOT-3 BRAKE FLUID upper the lower level mark.

CAUTION:

- *Do not remove the cover until the handlebar has been turned so that the reservoir is level.*
- *Avoid operating the clutch lever with the cap removed. Fluid will squirt out if the lever is pulled.*
- *Do not mix different types of fluid, as they are not compartible with each other.*



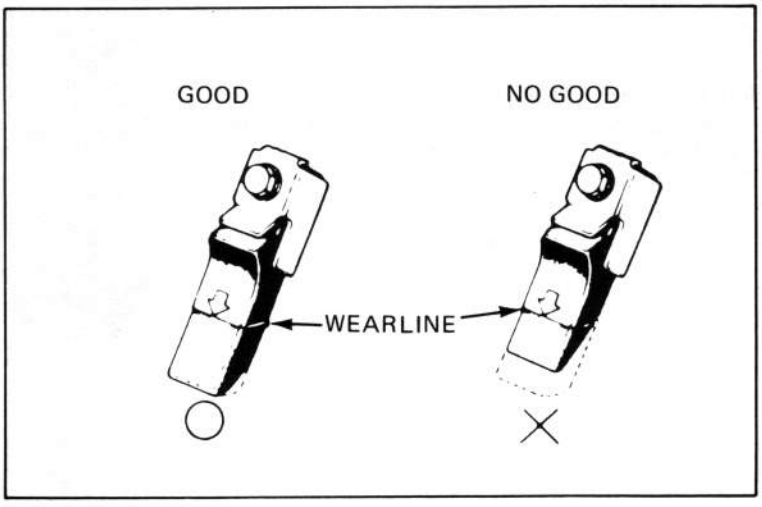
SIDE STAND

Check the rubber pad for deterioration or wear. Replace if any wear extends to wear line as shown.

Check the side stand spring for damage and loss of tension, and the side stand assembly for freedom of movement. Make sure the side stand is not bent.

NOTE:

- When replacing, use a rubber pad with the mark "Over 260 lbs ONLY".
- Spring tension is correct if the measurements fall within 2–3 kg (4.4–6.6 lb), when pulling the side stand lower end with a spring scale.



SUSPENSION

WARNING

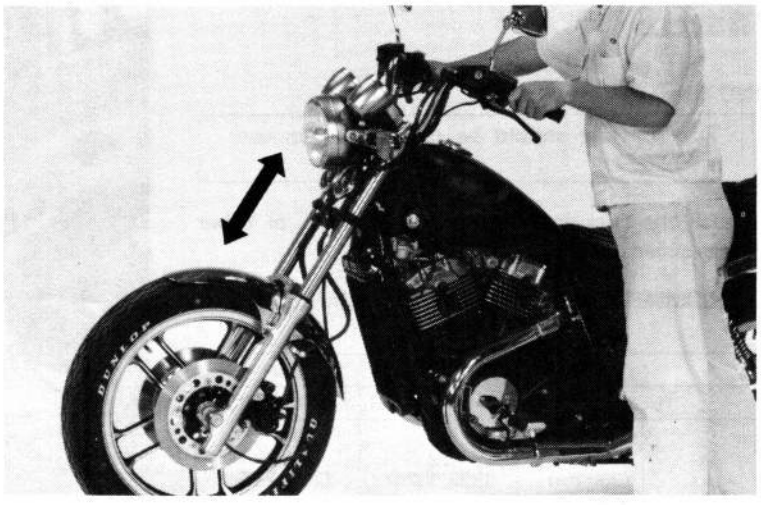
Do not ride a vehicle with faulty suspension. Loose, worn or damaged suspension parts impair vehicle stability and control.

FRONT

Check the action of the front forks by compressing them several times.

Check the entire fork assembly for leaks or damage. Replace damaged components which cannot be repaired.

Tighten all nuts and bolts.

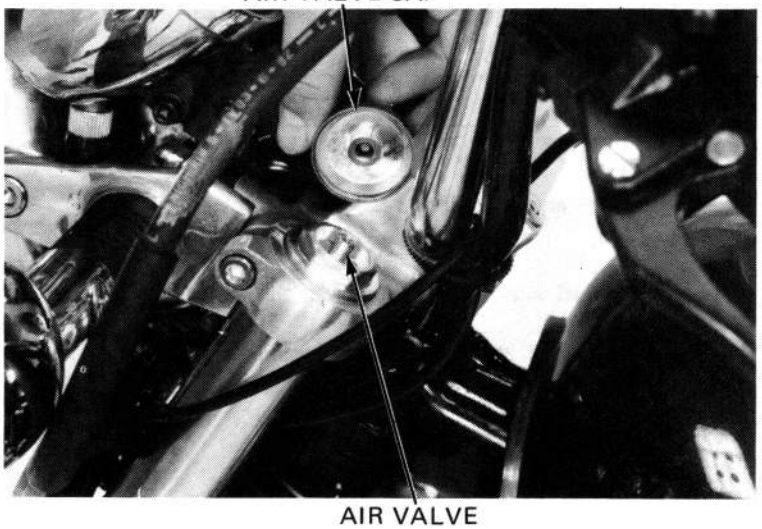


Check the front fork air pressure when the forks are cold.

Place the vehicle on its center stand.

Remove each air valve cap and measure the air pressure.

AIR PRESSURE:
0–6 psi (0–40 kPa, 0–0.4 kg/cm^2)

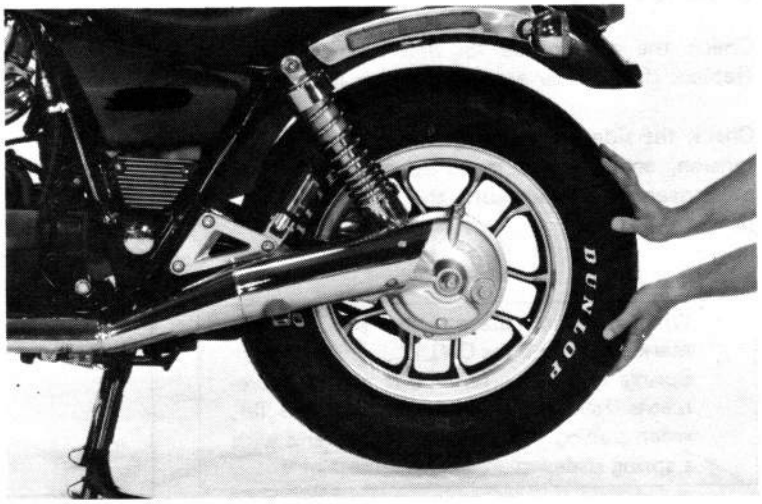


REAR

Place the motorcycle no its center stand.

Move the rear wheel sideways with force to see if the swingarm bearings are worn. Replace the bearings if there is any looseness (page 16-5).
Check the shock absorbers for leaks or damage.

Tighten all rear suspension nuts and bolts.



WHEELS

NOTE:

> Tire pressure should be checked when tires are COLD.

Check the tires for cuts, imbedded nails, or other sharp objects.

RECOMMENDED TIRES AND PRESSURES:

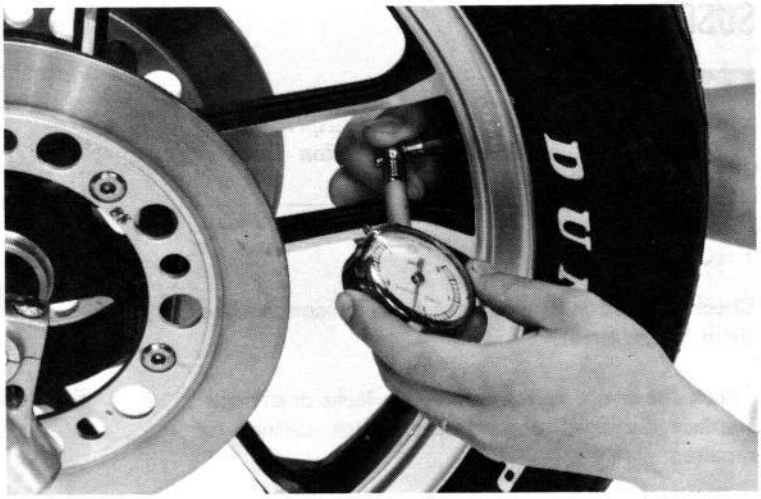
		Front	Rear
Tire size		110/90-19 62H	140/90-15 70H
Cold tire pressure psi (kPa, kg/cm²)	Up to 90 kg (200 lbs) load	32 (225, 2.25)	32 (225, 2.25)
	90 kg (200 lbs) load to vehicle capacity load	32 (225, 2.25)	40 (280, 2.8)
Tire brand	BRIDGE-STONE	L303	G508
	DUNLOP	F11	K627C

Check the front and rear wheels for trueness (page 15-15 and 16-5.

Measure the tread depth at the center of the tires.

Replace the tires if the tread depth reaches the following limits:

Minimum tread depth:
Front: 1.5 mm (1/16 in)
Rear: 2.0 mm (3/32 in)



STEERING HEAD BEARINGS

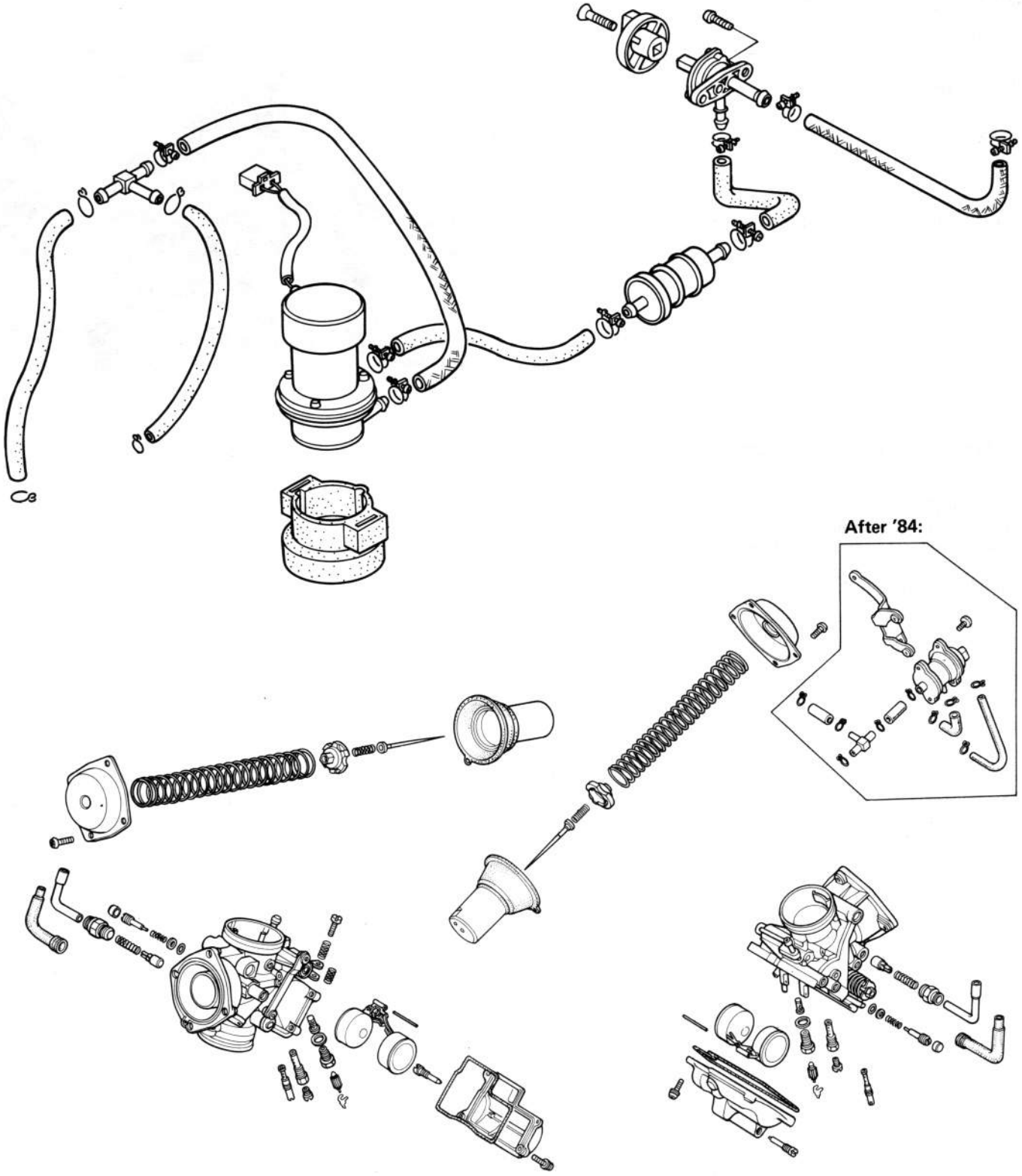
NOTE:

> Check that the control cables do not interfere with handlebar rotation.

Raise the front wheel off the ground and check that the handlebar rotates freely. If the handlebar moves unevenly, binds, or has vertical movement, adjust the steering head bearing by turning the steering head adjusting nut (page 15-31).

NUTS, BOLTS, FASTENERS

Check that all chassis nuts and bolts are tightened to their correct torque values (Section 1) at the intervals shown in the Maintenance Schedule (Page 3-3).
Check all cotter pins, safety clips, hose clamps and cable stays.


After '84:

4. FUEL SYSTEM

SERVICE INFORMATION

GENERAL

WARNING

Gasoline is extremely flammable and is explosive under certain conditions. Work in a well ventilated area. Do not smoke or allow flames or sparks in the work area.

- The engine uses down draft carburetors.
- When disassembling fuel system parts, note the locations of the O-rings. Replace them with new ones on reassembly.
- The float bowls have drain screws that can be loosened to drain residual gasoline.
- Fuel pump inspection is in section 21.

TOOLS

Special

Pressure pump	ST–AH–255–MC7 (U.S.A. only)
Vacuum pump	ST–AH–260–MC7 (U.S.A. only)
Valve guide driver, 7 mm	07942–8230000 (U.S.A. only)

Common

Float gauge	07401–0010000

SPECIFICATIONS

[ ] ..... California model

	'83:	'84:	After '84:
Venturi dia.	Primary 14.2 mm (0.56 in) Secondary 34.2 mm (1.35 in)	← ←	14.8 mm (0.58 in) ←
Identification No.	VD7AA	VD7CA [VD7BA]	VD7CB [VD7BB]
Float level	7.5 mm (0.30 in)	←	←
Main jet	#115	#120	←
Idle speed	900 ± 100 rpm	1,000 ± 100 rpm	←
Throttle grip free play	2–6 mm (0.08–0.24 in)	←	←
Pilot screw initial opening	See page 4-12	←	←

TROUBLESHOOTING

Engine cranks but own't start
1. No fuel in tank.
2. No fuel to carburetor.
3. Engine flooded with fuel.
4. No spark at plug (ignition system faulty).
5. Air cleaner clogged.
6. Intake air leak.
7. Improper choke operation.
8. Improper throtle operation.

Hard starting or stalling after starting
1. Improper choke operation.
2. Ignition malfunction.
3. Carburetor faulty.
4. Fuel contaminated.
5. Intake air leak.
6. Idle speed incorrect.

Rough idle
1. Ignition system faulty.
2. Idle speed incorrect.
3. Incorrect carburetor synchronization.
4. Carburetor faulty.
5. Fuel contaminated.

Misfiring during acceleration
1. Ignition system faulty.

Misfiring during acceleration
– Ignition system faulty.

Backfiring
1. Ignition system faulty.
2. Carubretor faulty.

Poor performance (driveability) and poor fuel economy
1. Fuel system clogged.
2. Ignition system faulty.

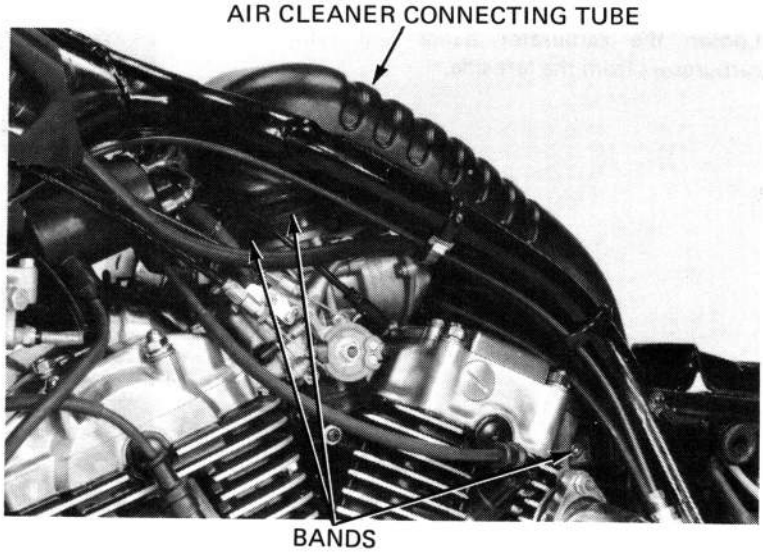
Lean mixture
1. Clogged fuel jets.
2. Piston stuck closed.
3. Faulty float valve.
4. Float level low.
5. Fuel cap vent blocked.
6. Fuel strainer screen clogged.
7. Restricted fuel line.
8. Intake air leak.
9. Restricted or faulty fuel pump

Rich mixture
1. Clogged air jets.
2. Faulty float valve.
3. Float level too high.
4. Choke bystarter stuck clogged.
5. Dirty air cleaner.

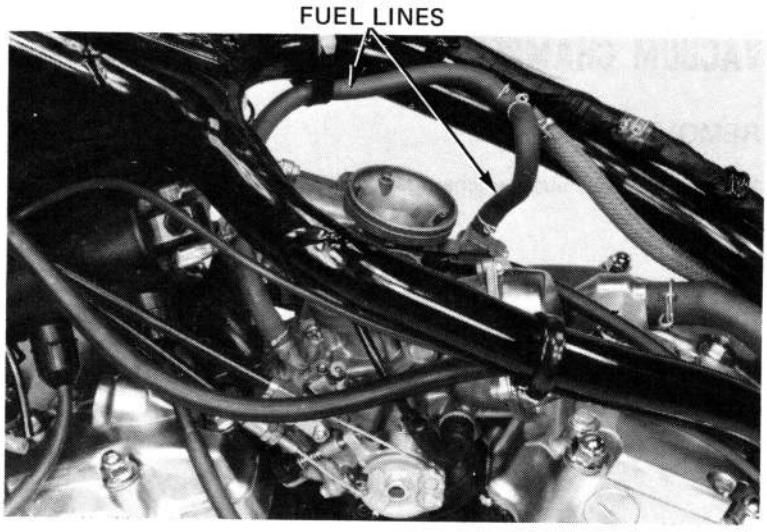
CARBURETOR REMOVAL

Remove the fuel tank (page 4-13).

Loosen the air cleaner connecting tube bands and remove the connecting tube.



Disconnect the fuel lines at the carburetors.



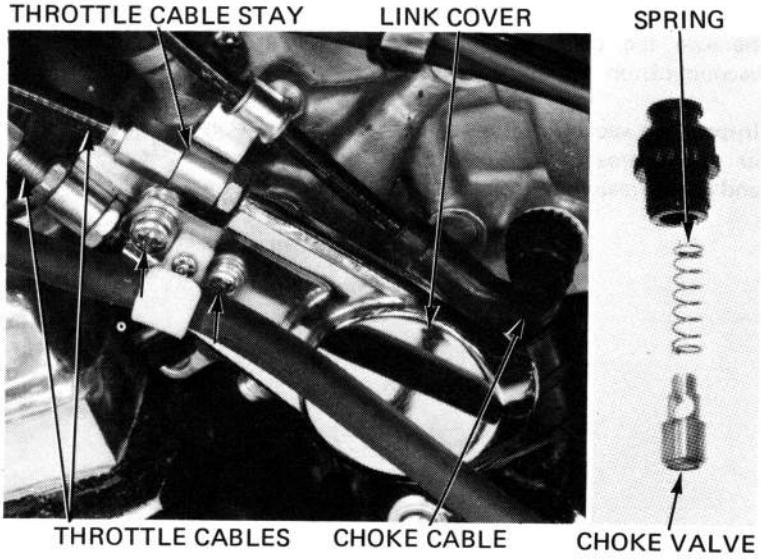
Remove the screws attaching the throttle cable stay and the throttle link cover and stay.

Disconnect the throttle cables from the throttle drum.

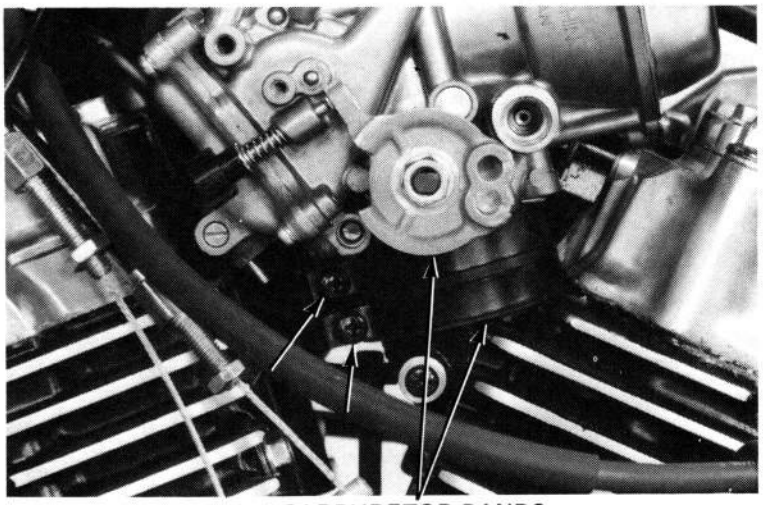
Remove the choke cables from the carburetors.

Remove the choke valve and spring from the choke cable.

Check the choke valve and spring for nicks, grooves, or other damage.



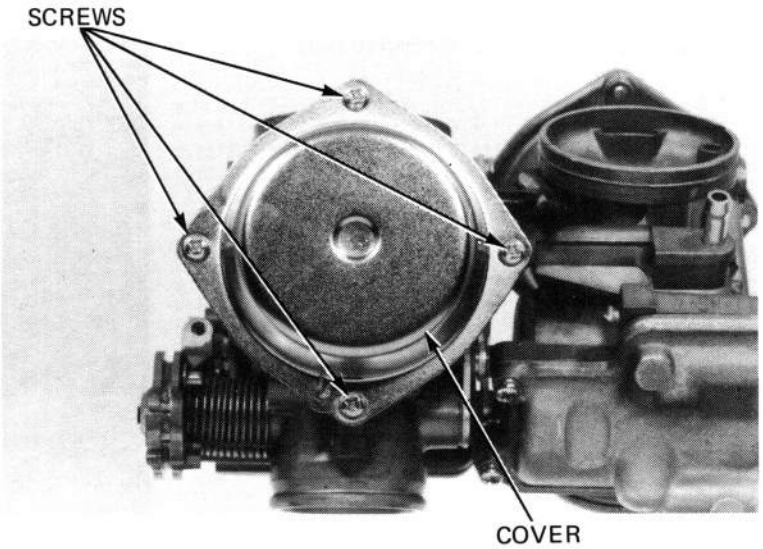
Loosen the carburetor bands and remove the carburetors from the left side.



VACUUM CHAMBER

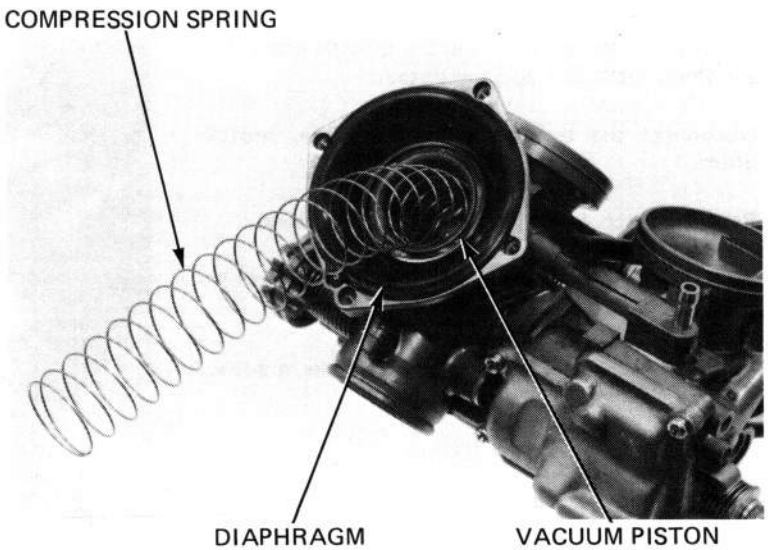
REMOVAL

Remove the four vacuum chamber cover screws and cover.



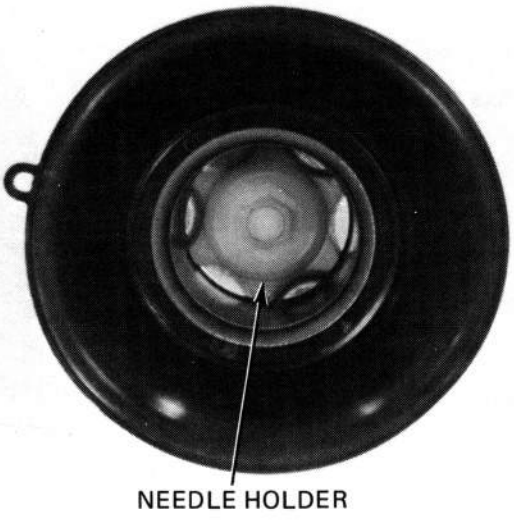
Remove the compression spring, diaphragm and vacuum piston.

Inspect the vacuum piston for wear, nicks, scratches or other damage. Make sure the piston moves up and down freely in the chamber.



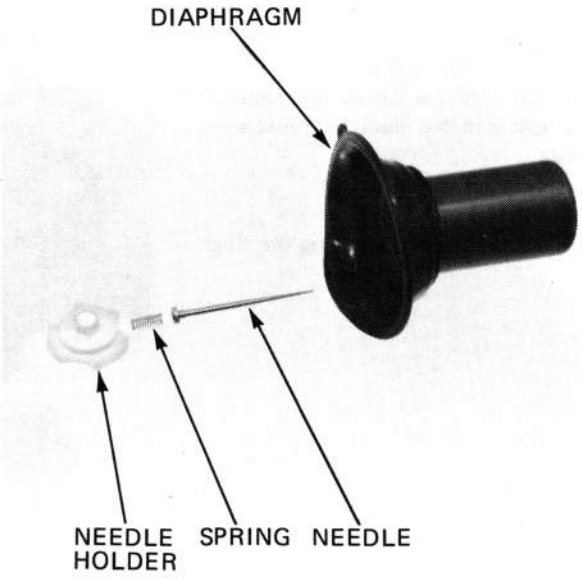
Push the needle holder in and turn it 60 degrees with an 8 mm socket. Then remove the needle holder, spring and needle from the piston.

Remove the plastic washer from the piston.



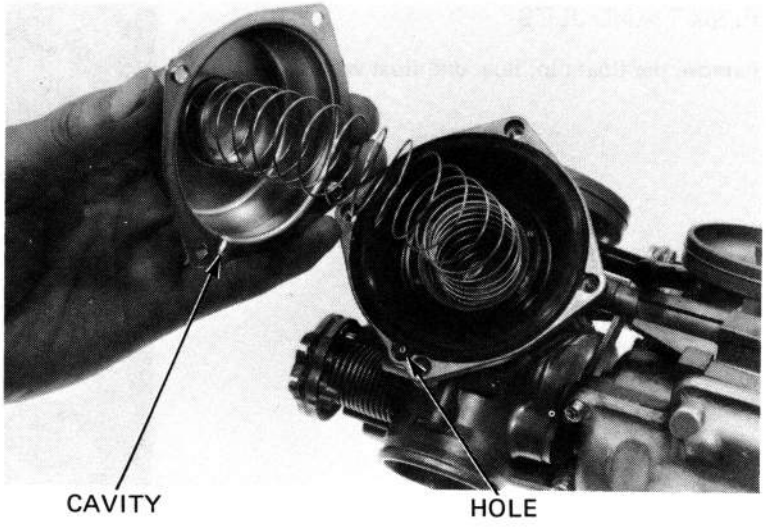
Inspect the needle for excessive wear at the tip and for bending, or other damage.

Check the diaphragm for deterioration and tears.



INSTALLATION

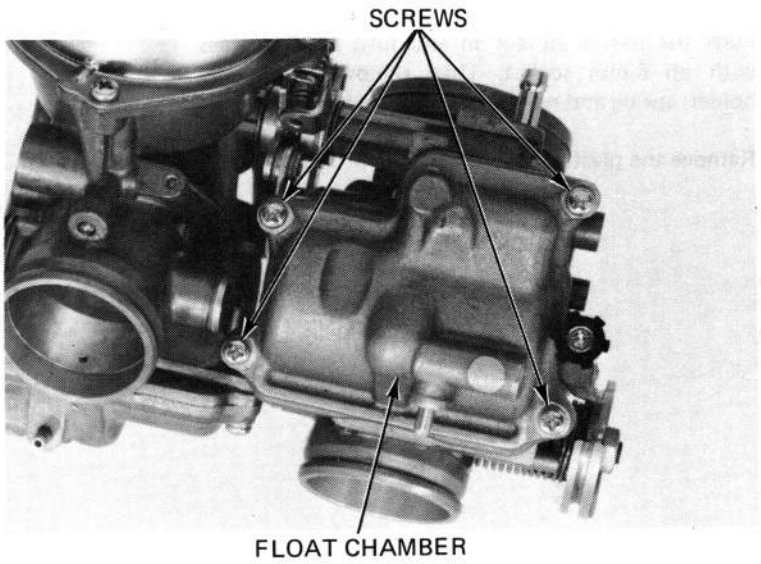
Installation is essentially the reverse of removal. Install the chamber cover so that its cavity aligns with the hole in the diaphragm.



FLOAT CHAMBER

REMOVAL

Remove the four float chamber screws and the float chamber.

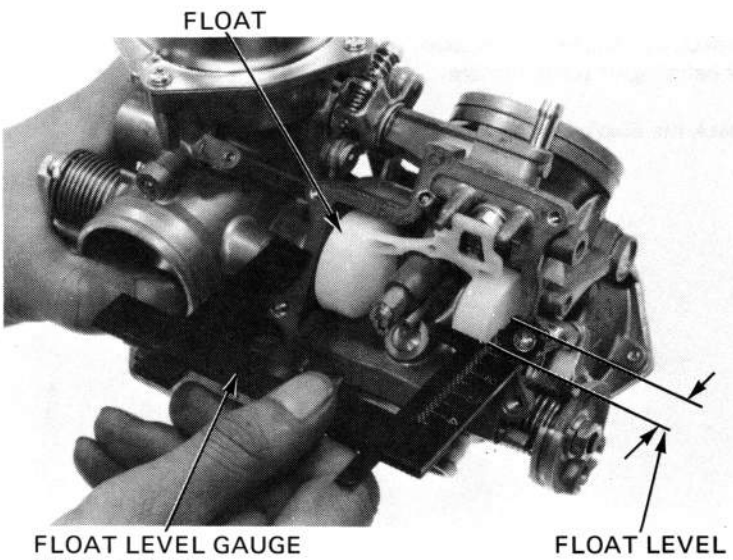


FLOAT LEVEL

Measure the float level with the carburetor inclined 15°–45° from vertical and the float tang just contacing the float valve.

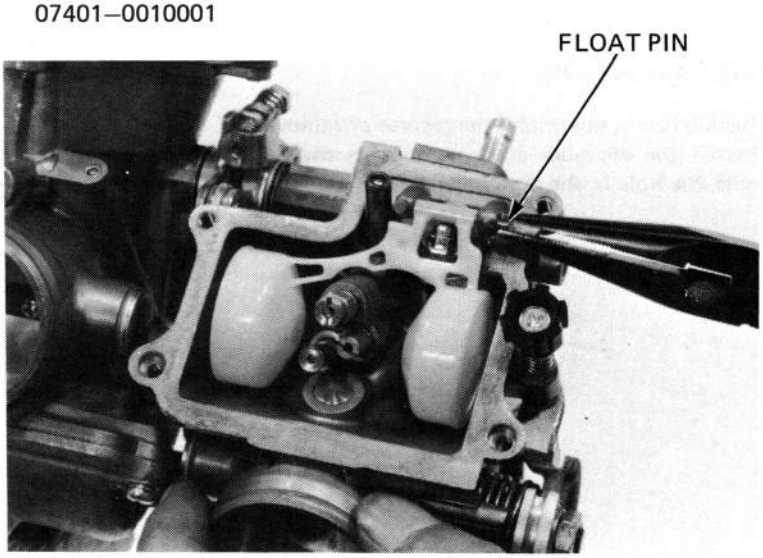
SPECIFICATIONS: 7.5 mm (0.30 in)

Adjust the float level by carefully bending the float tang.



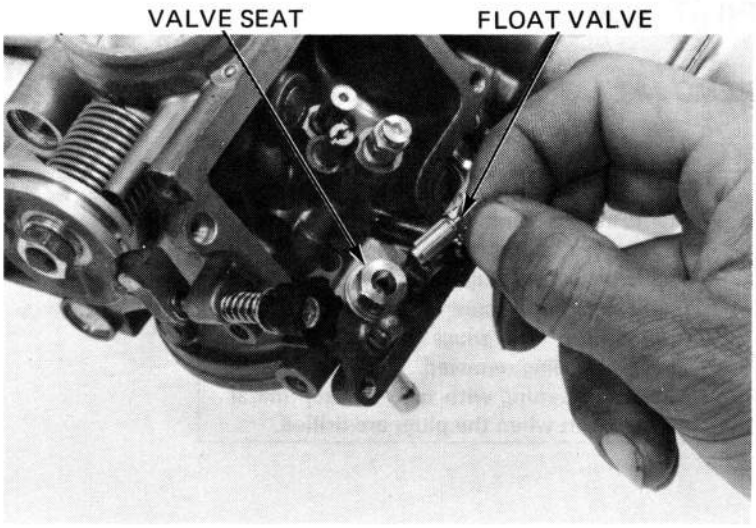
FLOAT AND JETS

Remove the float pin, float and float valve.



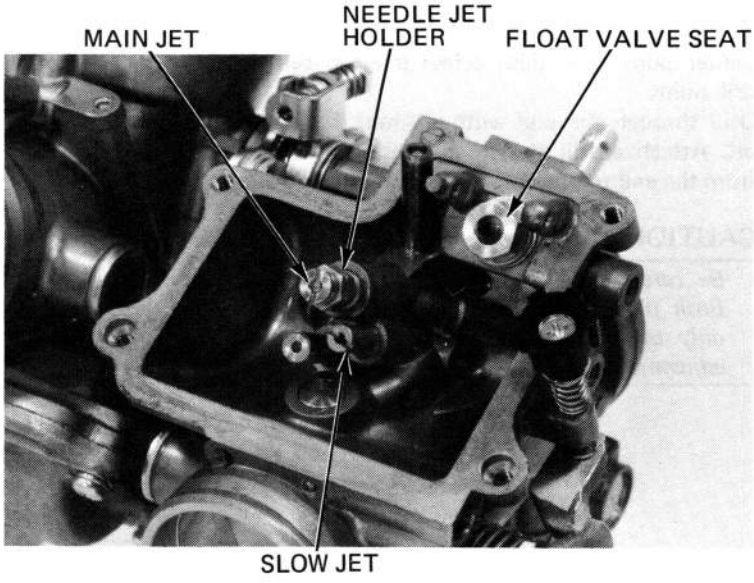
Inspect the float valve for grooves and nicks.

Inspect the operation of the float valve.



Remove the main jet, needle jet holder and slow jet.

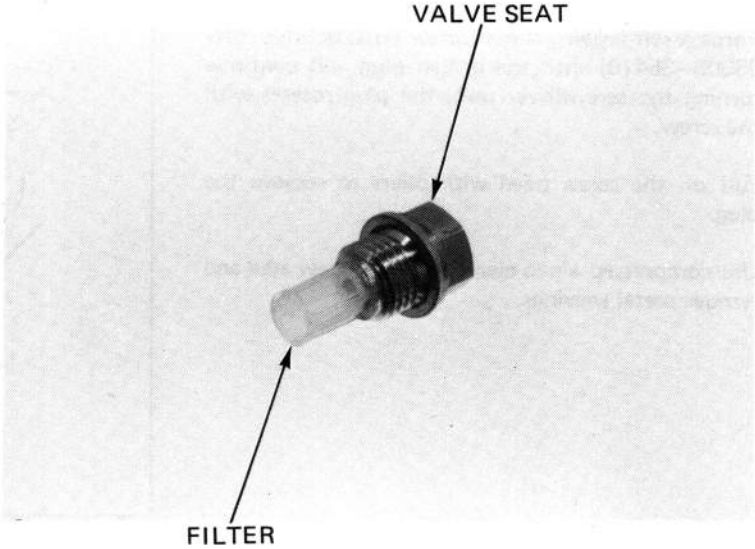
Remove the float valve seat and filter.



Inspect the float valve seat and filter for grooves, nicks or deposits.

ASSEMBLY

Assemble the float chamber components in the reverse order of disassembly.



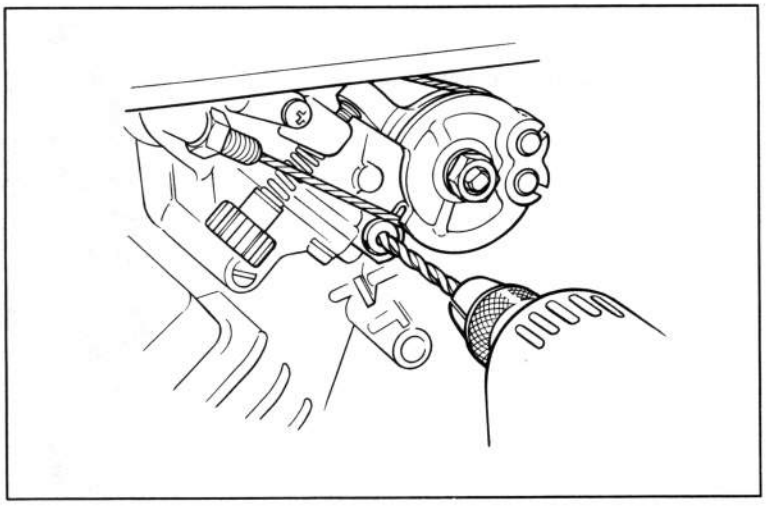
PILOT SCREW

REMOVAL

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 opening with tape to keep metal particles out when the plugs are drilled.

Center punch the pilot screw plug to 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.



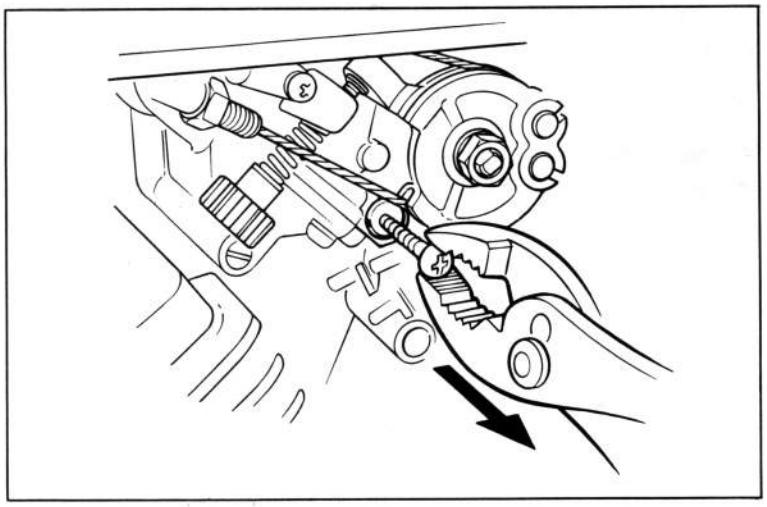
CAUTION:

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 4-12).

Force a self-tapping 4 mm screw (H/C 069399, P/N 93903–35410) into the drilled plug and continue turning the screwdriver 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 before 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.

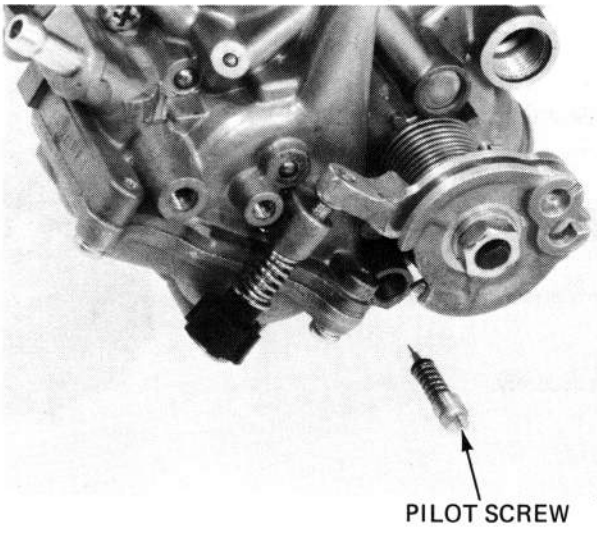
Remove the pilot screws and inspect them. Replace them if they are worn or damaged.

INSTALLATION

Install the pilot screws and return them to their original position as noted during removal.
Perform pilot screw adjustment if new pilot screws are installed (page 4-12).

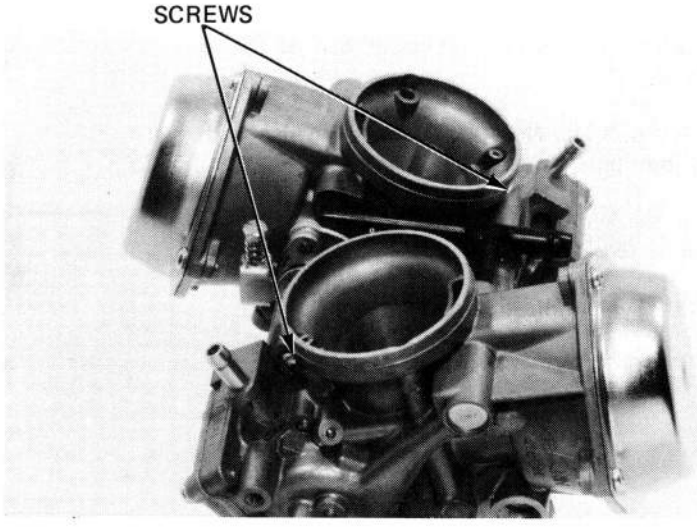
NOTE:

- Do not install new plugs on new pilot screw holes until after adjustment has been made.
- If you replace the pilot screw in one carburetor, you must replace the pilot screw in the other carburetor for proper pilot screw adjustment.

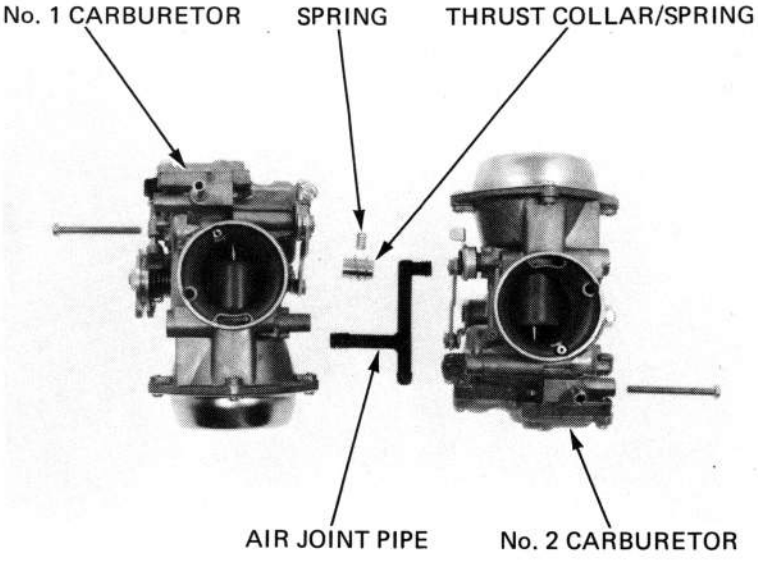


CARBURETOR SEPARATION

Remove the two screws assembling the carburetors.

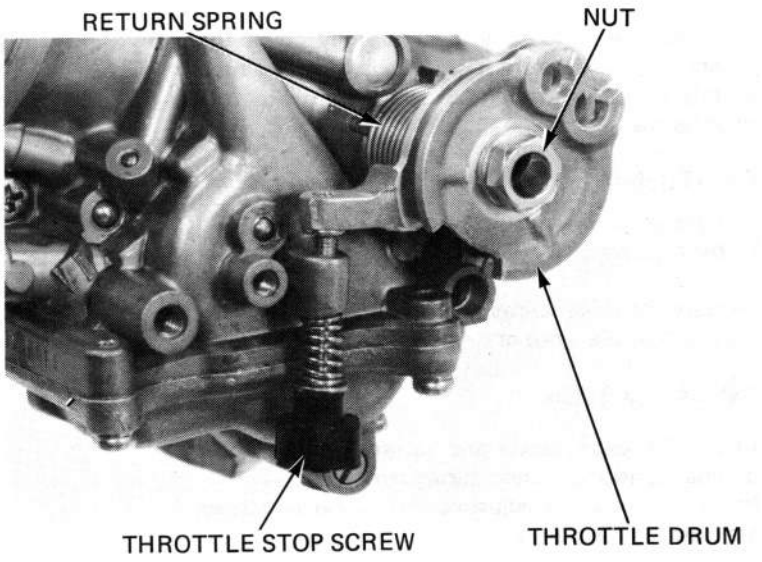


Carefully separate the No. 1 and No. 2 carburetors.



Loosen the throttle stop screw.

Remove the nut attaching the throttle drum and remove the throttle drum and return spring.



CARBURETOR ASSEMBLY

Install the throttle return spring, throttle drum and nut.

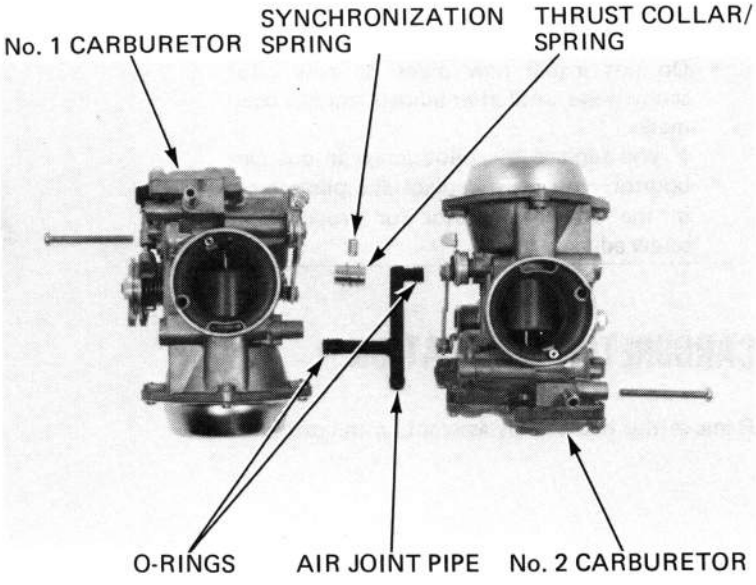
Tighten the nut securely.

Coat new O-rings with oil and install them on the air joint pipe.

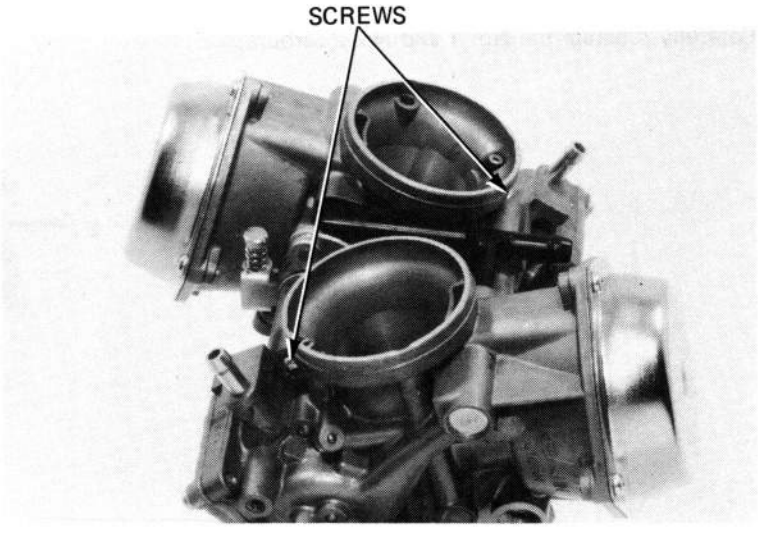
Put the No. 1 and No. 2 carburetors together with the air joint pipe, thrust collar and spring.

Loosen the synchronization adjusting screw until there is no tension.

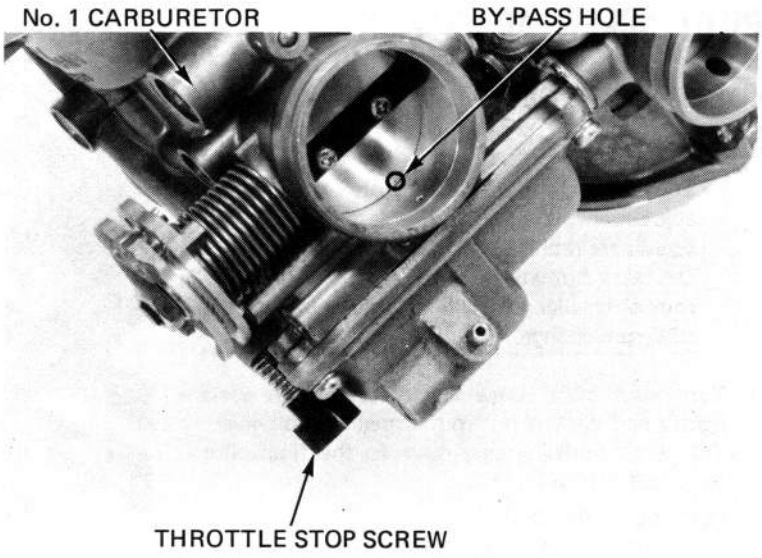
Install the synchronization spring.



Secure the carburetors together with the two attaching screws.



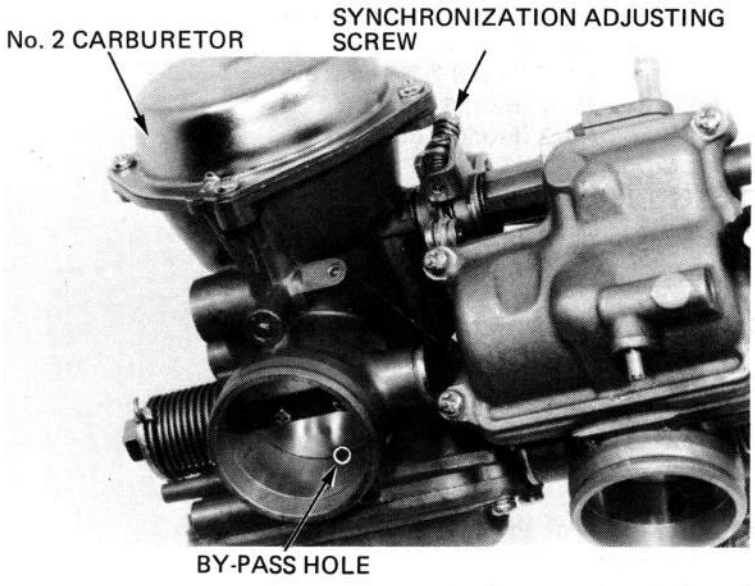
Turn the throttle stop screw to align the No. 1 throttle valve with the edge of the by-pass hole.



Align the No. 2 throttle valve with the by-pass hole edge by turning the synchronization adjusting screw.

Inspect throttle operation as described below:

- Open the throttle slightly by pressing on the throttle linkage. Then release the throttle.
- Make sure that it returns smoothly.
- Make sure that there is no drag when opening and closing the throttle.



CARBURETOR INSTALLATION

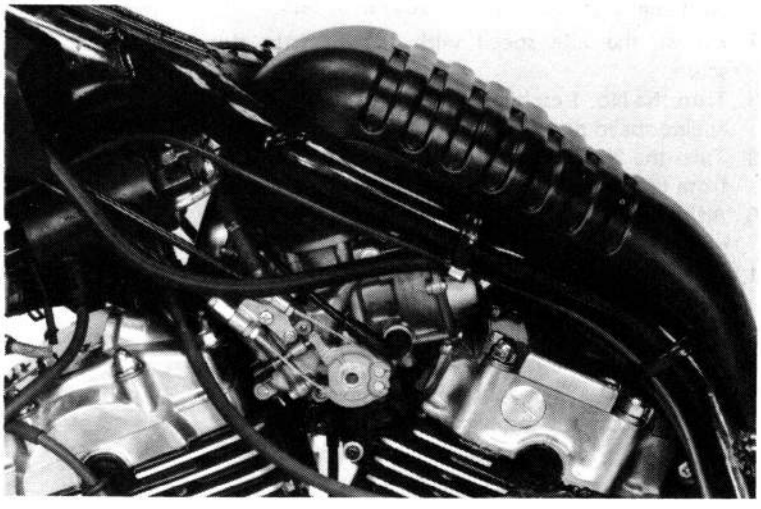
Installation is essentially the reverse of removal.

NOTE:

> Routh the throttle and choke cables properly (page 1–9 to 1–11).

Perform the following inspections and adjustments.

- Throttle operation (page 3-5).
- Carburetor choke (page 3-6).
- Carburetor idle speed (page 3-10).
- Carburetor synchronization (page 3-9).



PILOT SCREW ADJUSTMENT

IDLE DROP PROCEDURE (U.S.A. ONLY)

NOTE:

- The pilot screws are factory pre-set and no adjustment is necessary unless the pilot screws are replaced (page 4-8).
- Use a tachometer with graduations of 50 rpm or smaller that will accurately indicate a 50 rpm change.

1. Turn each pilot screw clockwise until it seats lightly and back it out to the specification given. This is an initial setting prior to the final pilot screw adjustment.

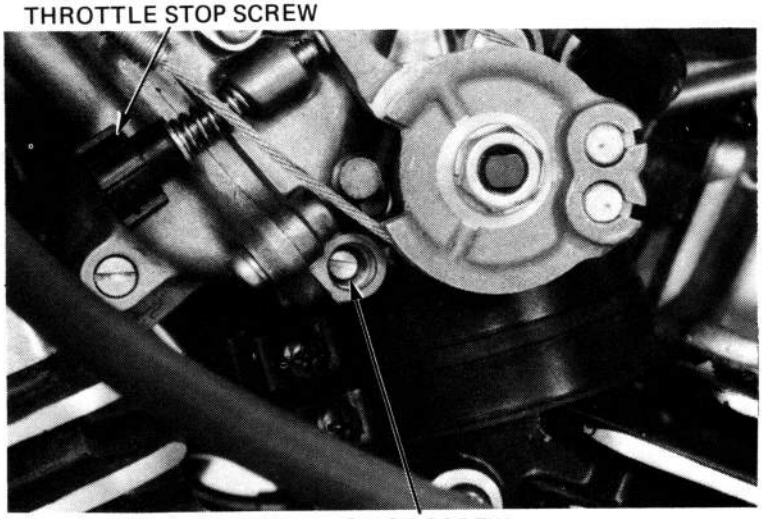
INITIAL OPENING:

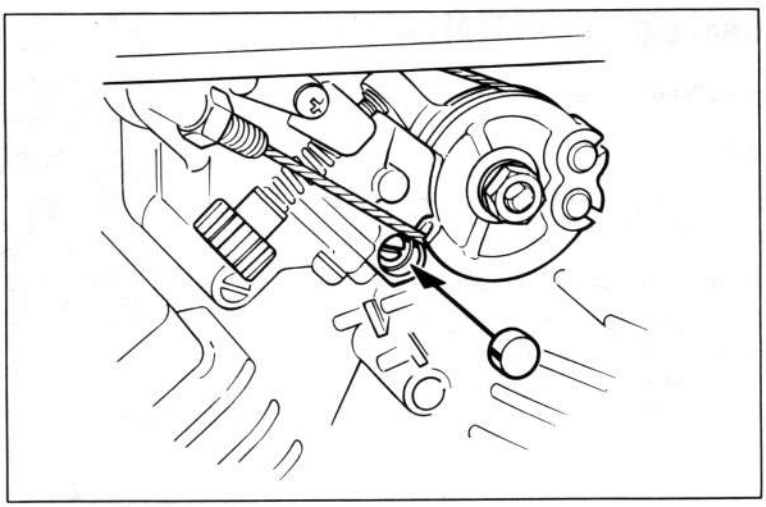
'83: No. 1 (Rear) 2-1/2 turns out
No. 2 (Front) 2-1/2 turns out
'84: No. 1 (Rear) 2-3/4 turns out
No. 2 (Front) 2-3/4 turns out
After '84: No. 1 (Rear) 3 turns out
No. 2 (Front) 3 turns out

CAUTION:

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

2. Warm up the engine to operating temperature. Stop and go driving for 10 minutes is sufficient.
3. Attach a tachometer according to the manufacturer's instructions.
4. Adjust the idle speed with the throttle stop screw.
5. Turn each pilot screw 1/2 turn out from the initial setting.
6. If the engine speed increases by 50 rpm or more, turn each pilot screw out by a continual 1/2 turn until engine speed drops by 50 rpm or less.
7. Adjust the idle speed with the throttle stop screw.
8. Turn the No. 1 carburetor pilot screw in until the engine speed drops 50 rpm.
9. Turn the No. 1 carburetor pilot screw 1 turn out from the position obtained in step 8.
10. Adjust the idle speed with the throttle stop screw.
11. Perform steps 8, 9 and 10 for the No. 2 carburetor pilot screw.
12. Drive new pilot screw plugs into the pilot screw bores with a 7 mm valve guide drive (P/N 07942 −8230000). When fully seated the plug surfaces will be recessed 1 mm.





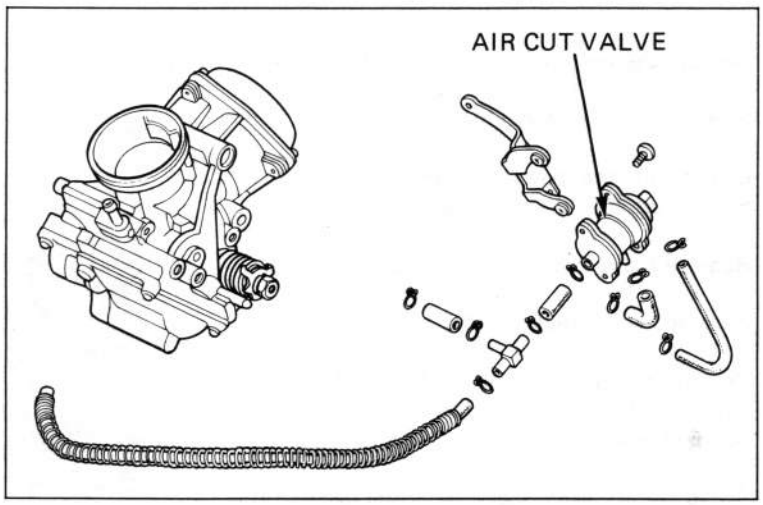
AIR CUT VALVE (After '84)

Remove the air cut valve bracket from the carburetor.

CAUTION:

Do not disassemble the air cut valve.

Install the air cut valve in the reverse order of removal.



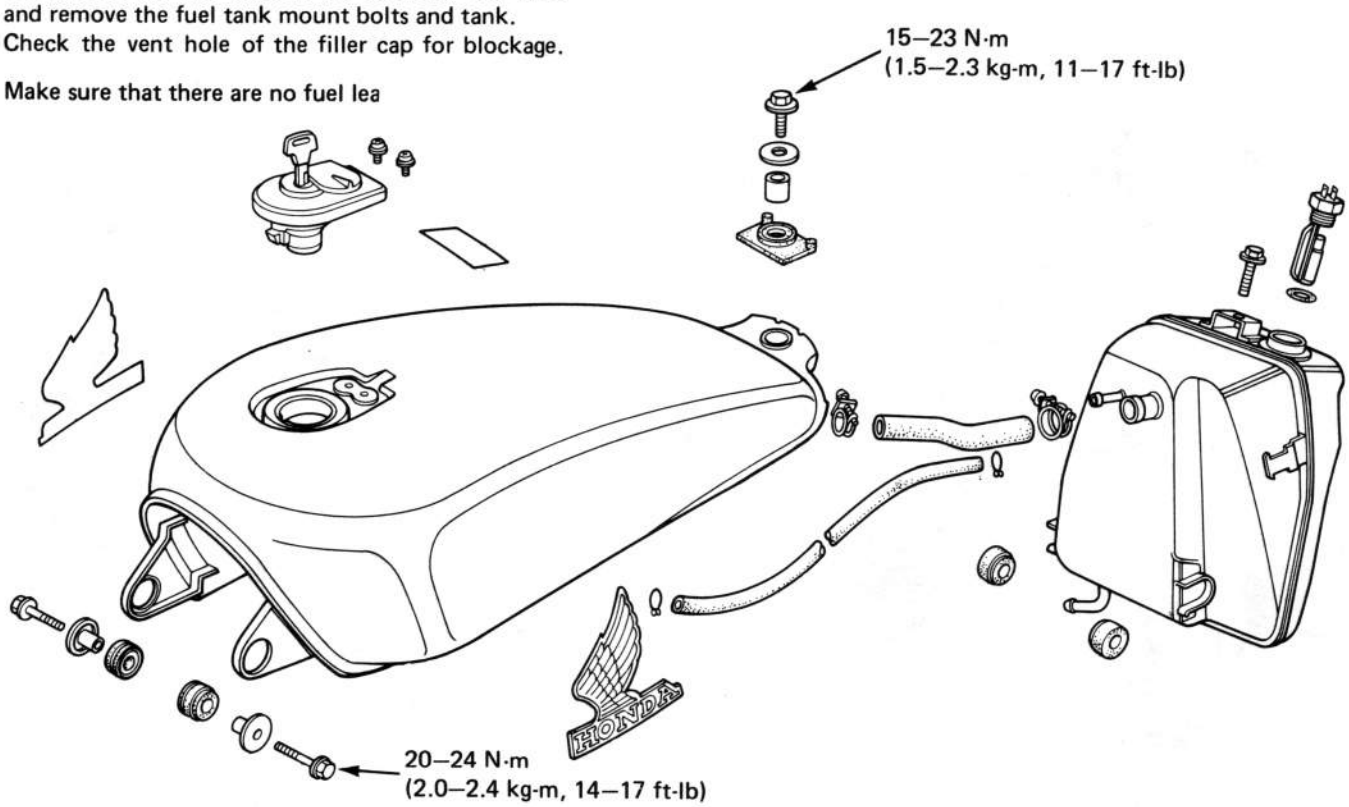
FUEL TANK

WARNING

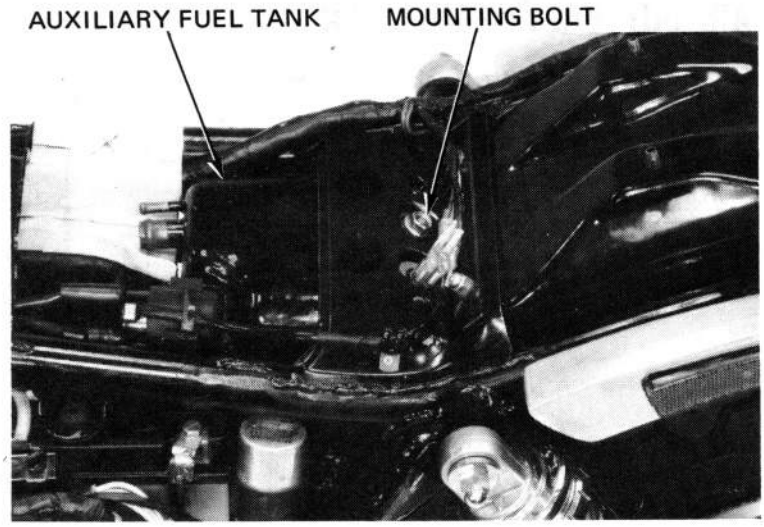
Do not allow flames or sparks near gasoline. Wipe up spilled gasoline at once.

Turn the fuel valve OFF and disconnect the fuel line at the fuel filter.
Turn the fuel valve ON and drain the fuel into a clean container.
Disconnect the fuel lines at the auxiliary fuel tank and remove the fuel tank mount bolts and tank.
Check the vent hole of the filler cap for blockage.

Make sure that there are no fuel lea



AUXILIARY FUEL TANK



Remove the seat, main fuel tank and side covers.

Remove the regulator/rectifier.

Disconnect the battery negative cable, then the positive cable and remove the battery.

Remove the rear wheel (page 16-3).

Remove rear fenders A and B.

Detach the auxiliary fuel tank hose from the fuel pump. Remove the auxiliary fuel tank mounting bolt and tank.

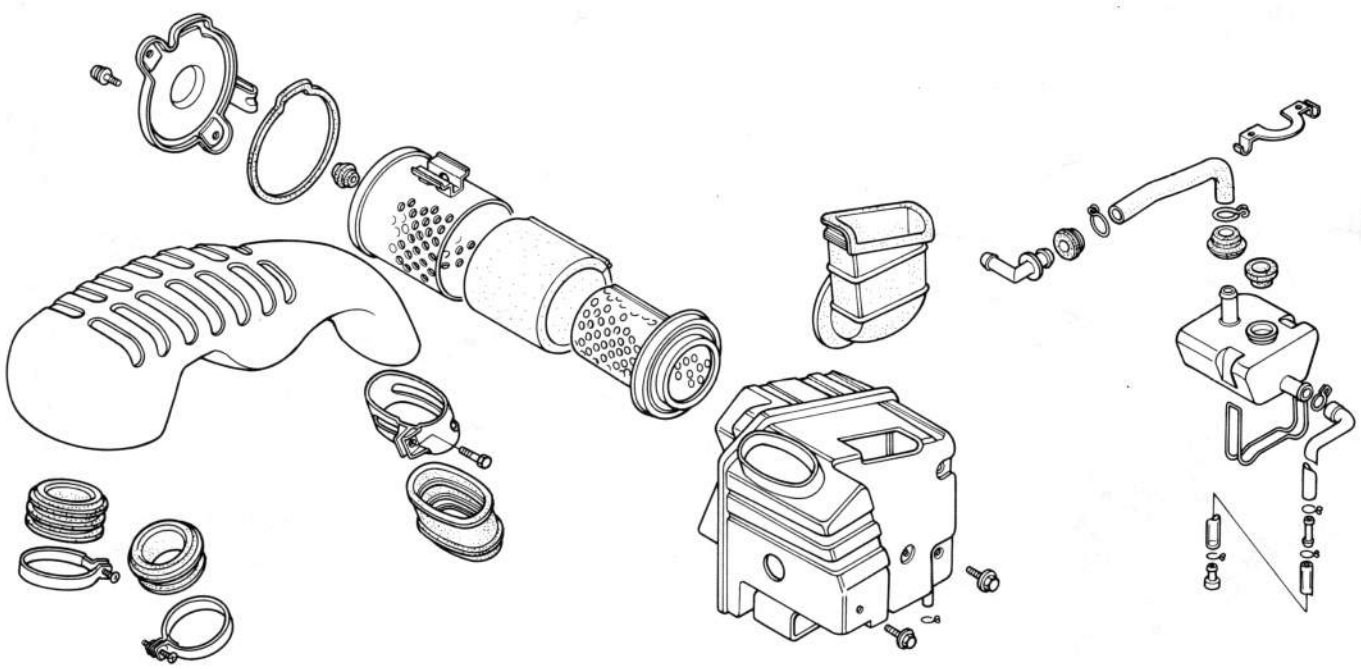
Install the auxiliary fuel tank in the reverse order of removal.

AIR CLEANER CASE

Check the air cleaner case for deterioration. Replace it if it has any signs of deterioration.

CRANKCASE VENTILATION SYSTEM

Check that the breather tube is not restricted.



FUEL PUMP

Remove the frame right side cover.

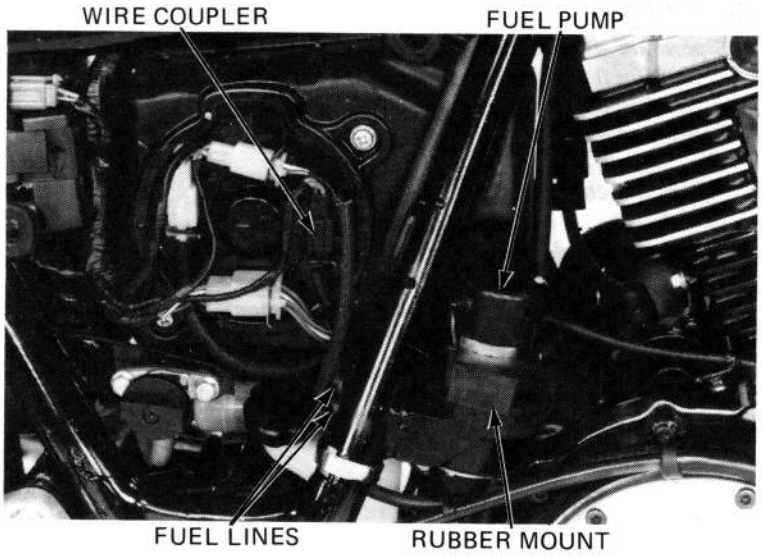
Disconnect the fuel pump wire coupler.

Turn the fuel valve OFF.

Detach the fuel inlet and outlet lines from the fuel pump.

Remove the fuel pump from its rubber mount.

Install the fuel pump in the reverse order of removal.



HIGH ALTITUDE ADJUSTMENT (USA onlY)

When the vehicle is to be operated continuously above 2,000 m (6,500 feet) the carburetor must be readjusted as follows to improve driveability and decrease exhaust emissions.

Warm up the engine to operating temperature. Stop and go driving for 10 minutes is sufficient.

Remove each pilot screw plug (page 4-8).

Turn each pilot screw clockwise 1 turn.

Adjust the idle speed to specification (page 4-1), with the throttle stop screw.

Drive new pilot screw plugs into the pilot screw bores (page 4-12).

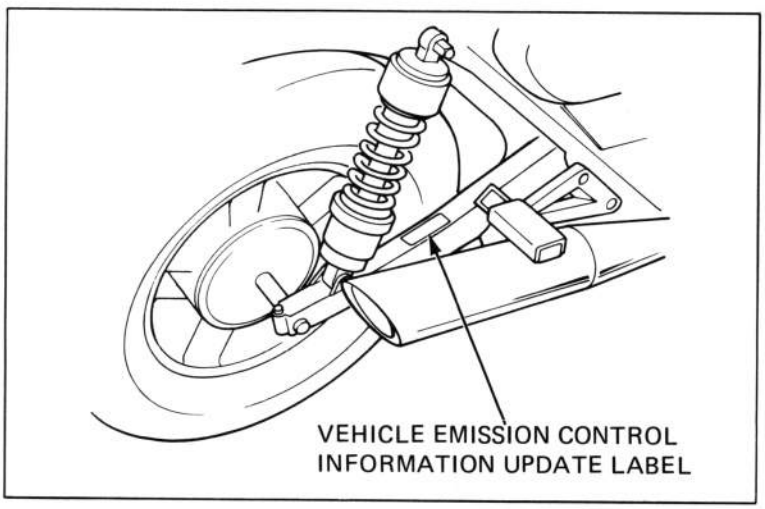
NOTE:

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

Attach a Vehicle Emission Control Information Update label onto the swingarm as shown. See SL #132 for information on obtaining the label.

NOTE:

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



VEHICLE EMISSION CONTROL INFORMATION UPDATE
-HONDA MOTOR CO., LTD.
THIS VEHICLE HAS BEEN ADJUSTED TO IMPROVE EMISSION CONTROL PERFORMANCE WHEN OPERATED AT HIGH ALTITUDE.
ALTITUDE PERFORMANCE ADJUSTMENT INSTRUCTIONS ARE AVAILABLE AT YOUR AUTHORIZED HONDA DEALER.

WARNING

Operation at an altitude lower than 1,500 m (5,000 feet) with the carburetors adjusted for high altitudes may cause the engine to idle roughly and stall.

When the vehicle is to be operated continuously below 1,500 m (5,000 feet), turn each pilot screw counterclockwise 1 turn to its original position after removing each pilot screw plug and adjust the idle speed to specification (page 4-1). Drive new pilot screw plugs into the pilot screw bores (page 4-12). Be sure to do these adjustments at low altitude.

PURGE CONTROL VALVE INSPECTION (CALIFORNIA MODEL)

NOTE:

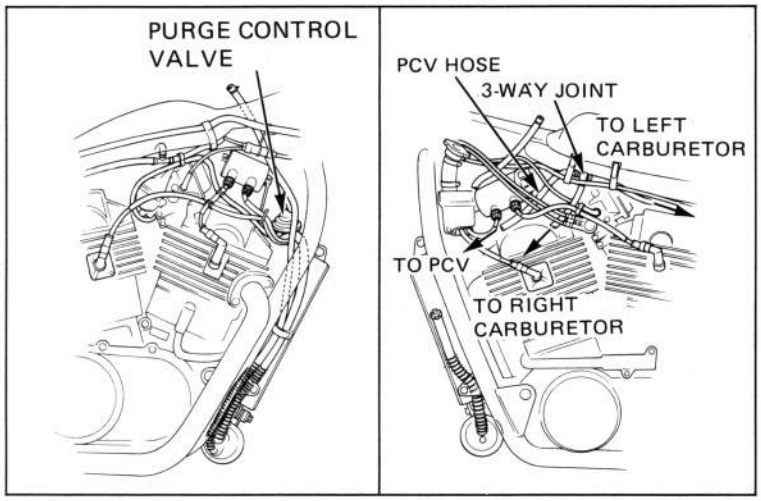
> The purge control valve should be inspected if hot restart is difficult.

Check all fuel tank, Purge Control Valve (PCV), and charcoal canister hoses to be sure they are not kinked and are securely connected. Replace any hose that shows signs of damage or deterioration.

NOTE:

> The PCV is located on the frame above the front cylinder.

Disconnect the PCV hose at the 3-way joint and remove the PCV 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 I.D. hose that gose to the 3-way joint. Apply the specified vacuum to the PCV.

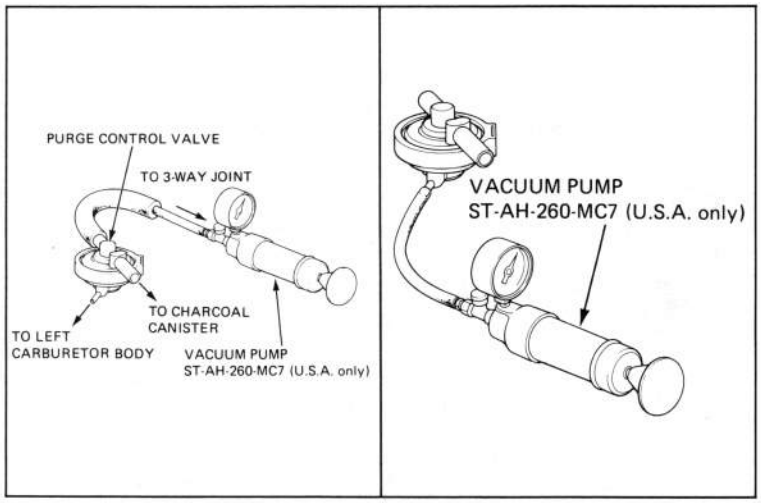
SPECIFIED VACUUM: 250 mm (9.8 in) Hg

The specified vacuum should be maintained.
Replace the PCV if vacuum is not maintained.

Remove the vacuum pump and connect it to the vacuum hose that goes to the left carburetor body. Apply the specified vacuum to the PCV.

SPECIFIED VACUUM: 250 mm (9.8 in) Hg

The specified vacuum should be maintained.
Replace the PCV if vacuum is not maintained.

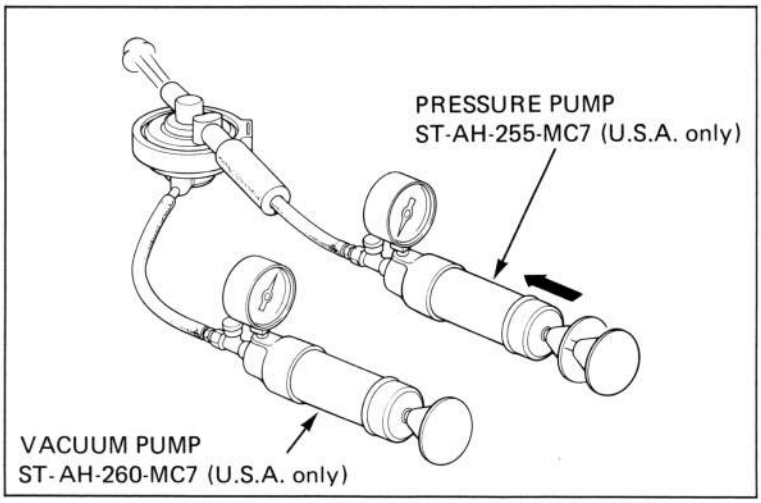


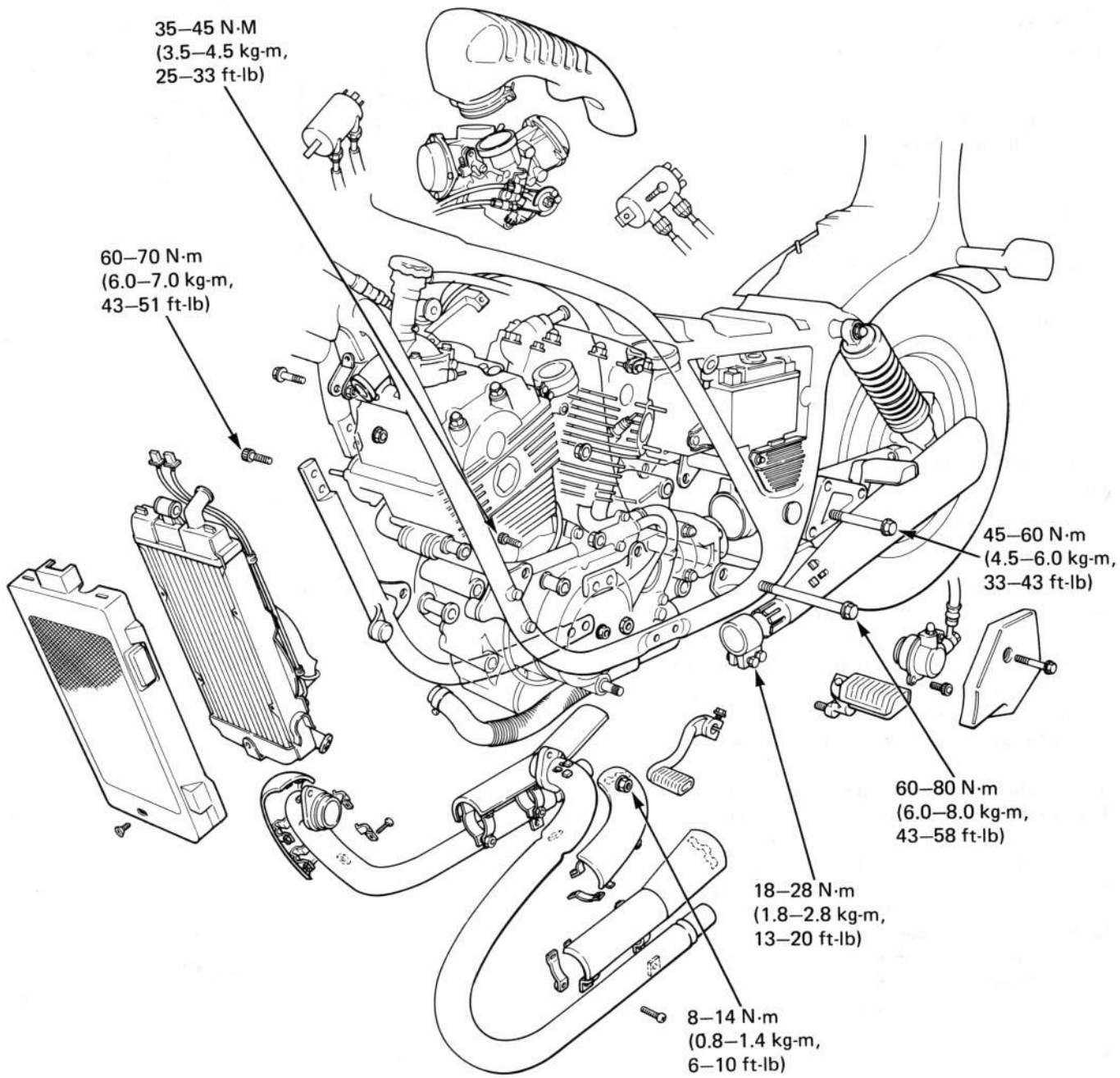
Connect a pressure pump to the 8 mm I.D. hose that goes to the charcoal canister. While applying the specified vacuum to the PCV hose that goes to the 3-way joint pump air through the canister hose. Air should flow through the PCV and out the hose that goes to the 3-way joint.
Replace the PCV if air dose not flow out.

CAUTION:

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

Remove the pumps, install the PCV on its mount, route and reconnect the hoses according to the routing label.




35–45 N·M
(3.5–4.5 kg-m,
25–33 ft-lb)
60–70 N·m
(6.0–7.0 kg-m,
43–51 ft-lb)
45–60 N·m
(4.5–6.0 kg-m,
33–43 ft-lb)
60–80 N·m
(6.0–8.0 kg-m,
43–58 ft-lb)
18–28 N·m
(1.8–2.8 kg-m,
13–20 ft-lb)
8–14 N·m
(0.8–1.4 kg-m,
6–10 ft-lb)

5. ENGINE REMOVAL/INSTALLATION

SERVICE INFORMATION

GENERAL

- A floor jack or other adjustable support is required to support and maneuver the engine.
- The following parts or components can be serviced with the engine installed in the frame:
  - Clutch
  - Gearshift linkage
  - Oil pump and oil filter
  - Alternator
  - Starter motor
  - Carburetors

SPECIFICATIONS

Engine dry weight		78 kg (172 lb)
Oil capacity		3.5 liters (3.7 U.S. qt)

TORQUE VALUES

Engine hanger bolts		
– 8 mm bolt		20–30 N·m (2.0–3.0 kg-m, 14–22 ft-lb)
– 10 mm bolt		45–60 N·m (4.5–6.0 kg-m, 33–43 ft-lb)
– 12 mm bolt		60–80 N·m (6.0–8.0 kg-m, 43–58 ft-lb)
Sub-frame bolts	(Upper)	70–80 N·m (7.0–8.0 kg-m, 51–58 ft-lb)
	(Lower)	35–45 N·m (3.5–4.5 kg-m, 25–33 ft-lb)
Exhaust pipe joint nut		8–14 N·m (0.8–1.4 kg-m, 6–10 ft-lb)
Exhaust pipe clamp bolt		18–28 N·m (1.8–2.8 kg-m, 13–20 ft-lb)

ENGINE REMOVAL

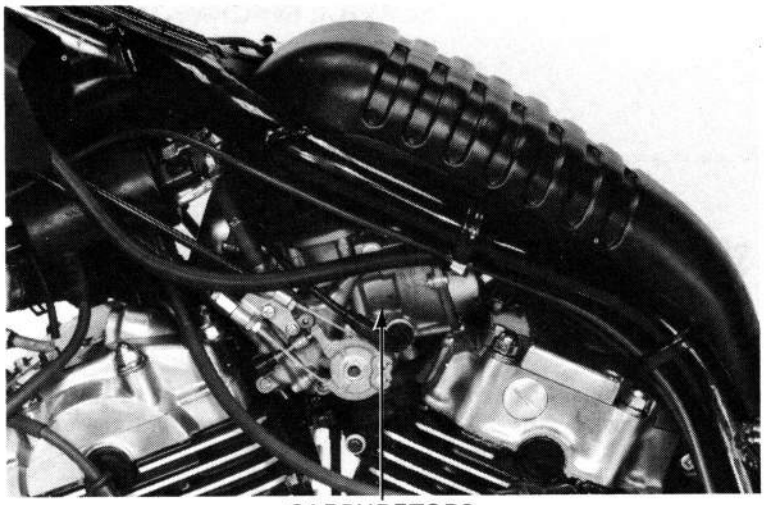
Place the motorcycle on its center stand.

Remove the seat and fuel tank.

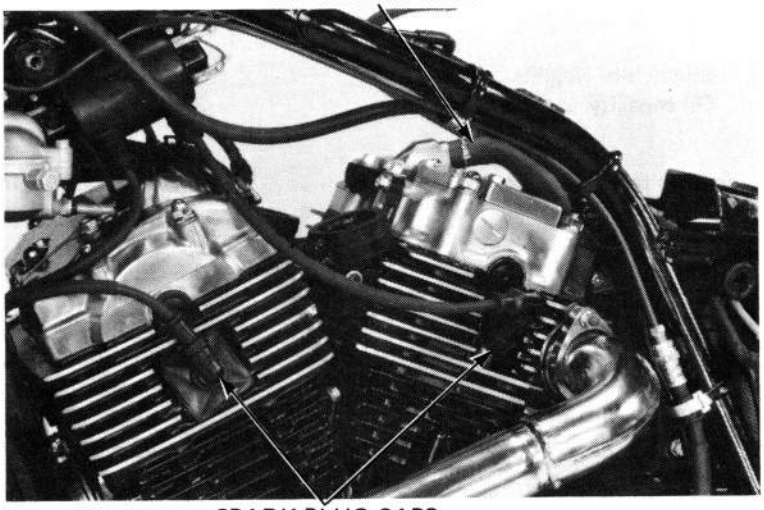
Remove the left and right frame side covers.

Drain the engine oil (page 2-3) and the coolant (page 6-3).

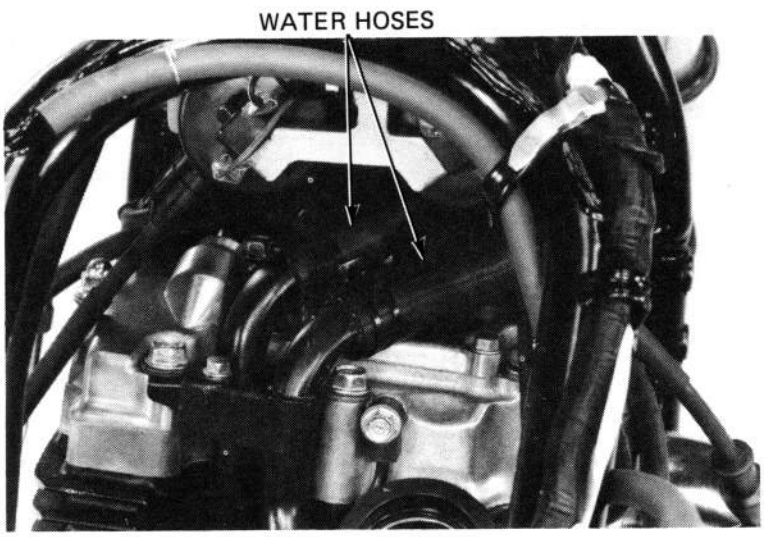
Remove the carburetors (page 4-3).



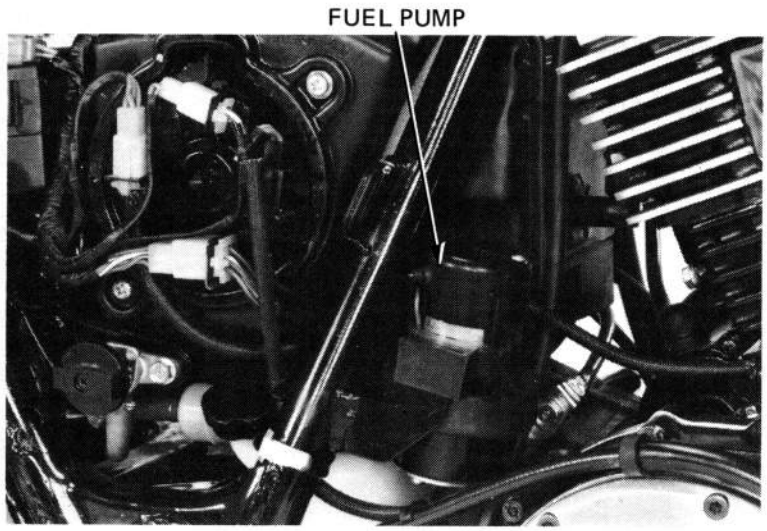
Disconnect the spark plug caps and the crankcase breather tube at the cylinder head cover.



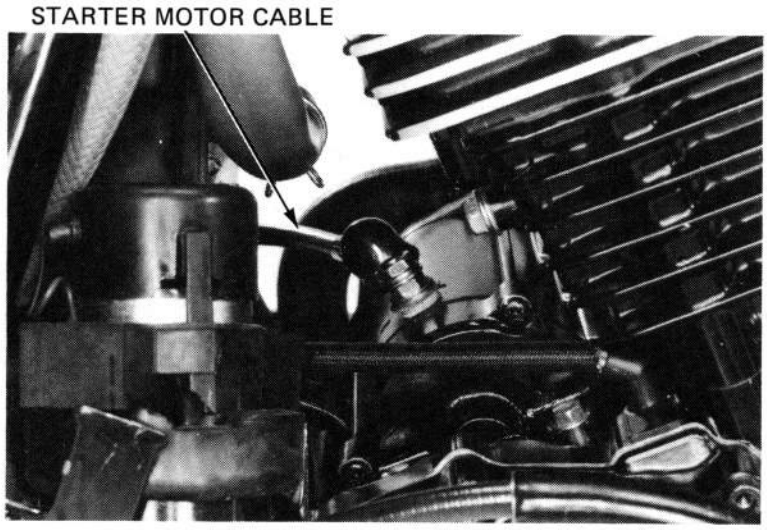
Disconnect the water hoses at the cylinder head.



Remove the fuel pump from the bracket with the fuel lines connected.

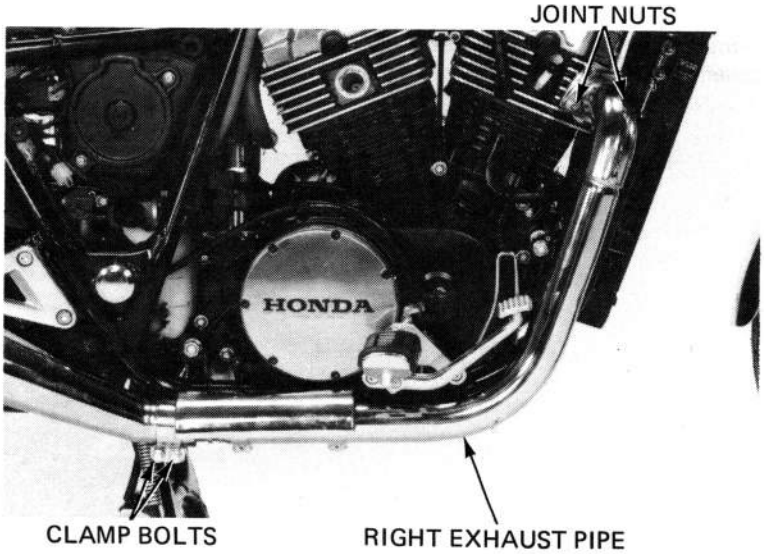


Disconnect the starter motor cable at the starter motor.



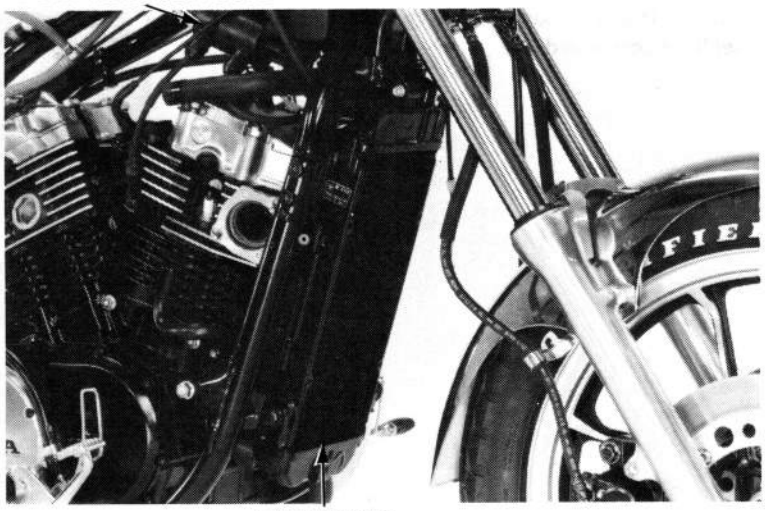
Loosen the right exhaust pipe clamp bolts.

Remove the right exhaust pipe joint nuts and remove the right exhaust pipe.



Remove the radiator (page 6-6).

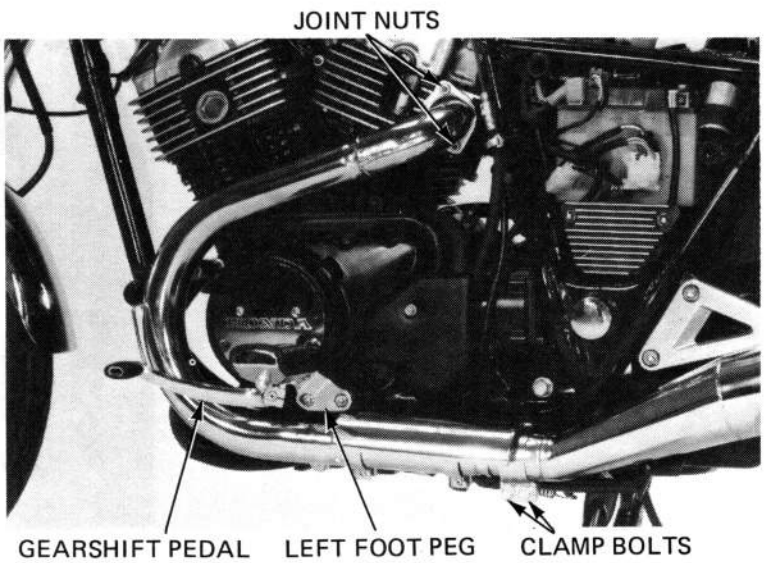
Remove the right ignition coil.



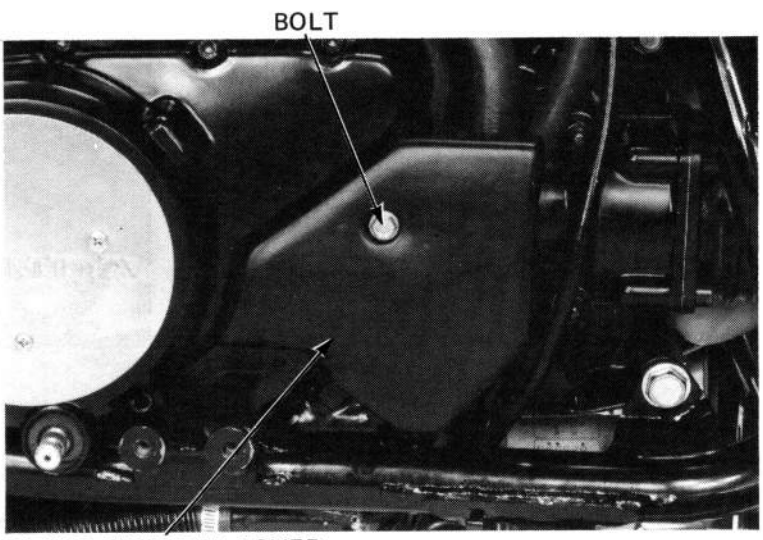
Remove the left foot peg and gearshift pedal.

Loosen the left exhaust pipe clamp bolts.

Remove the exhaust pipe joint nuts and remove the left exhaust pipe.



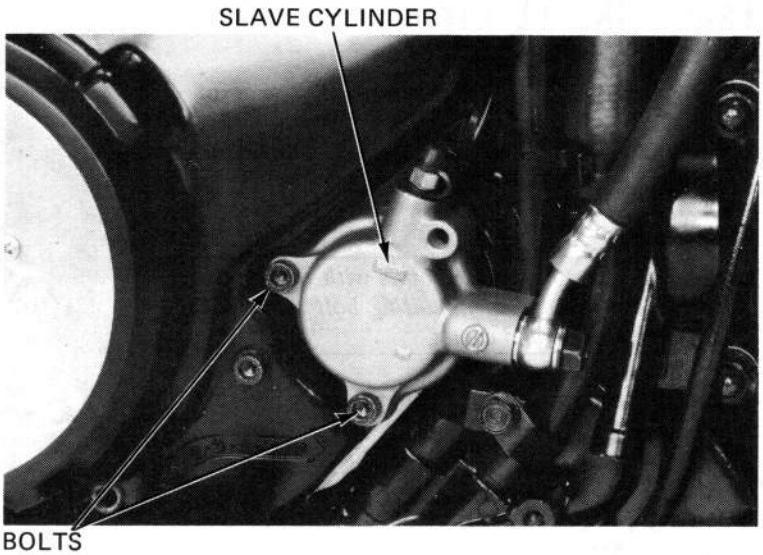
Remove the bolt attaching the clutch slave cylinder cover and cover.



Remove the slave cylinder mounting bolts and slave cylinder with the clutch hose connected.

NOTE:

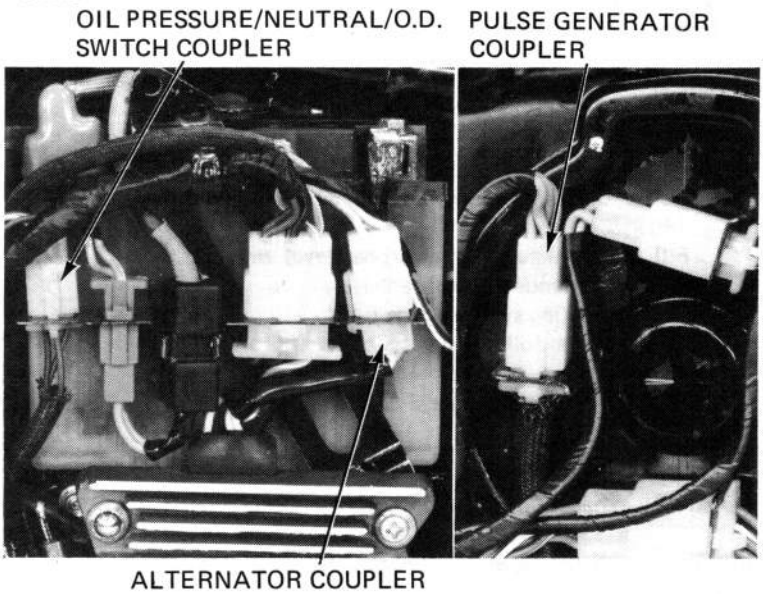
> Do not operate the clutch lever after removing the clutch slave cylinder. To do so will cause difficulty in installing the slave cylinder.



Disconnect the oil pressure, neutral and O.D. switch wire coupler.

Disconnect the alternator wire coupler.

Disconnect the pulse generator wire coupler.



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

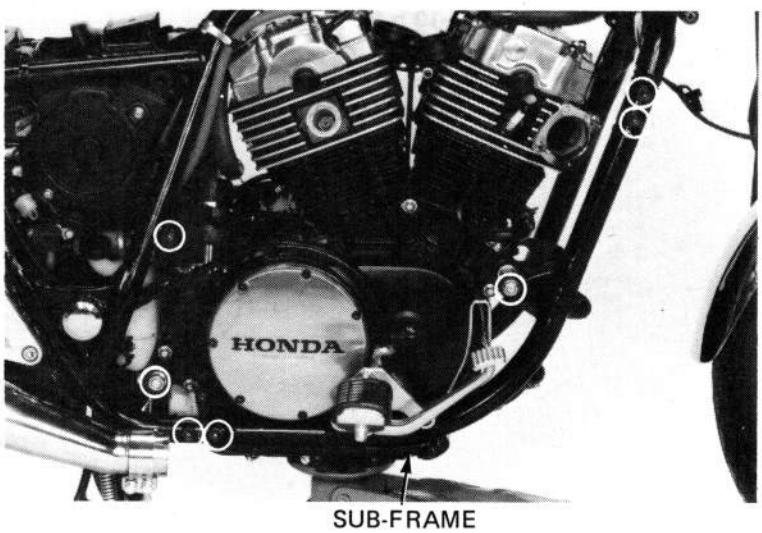
NOTE:

> The jack height must be continuously adjusted so that the mounting bolts can be removed, and so stress is relieved from other bolts until they are removed.

Remove the right subframe.

Remove the engine mounting bolts.

Remove the engine from the right side while disconnecting the drive shaft universal joint from the engine.



ENGINE INSTALLATION

Engine installation is essentially the reverse of removal.
Use a floor jack or other adjustable support to carefully manuever the engine into place.

CAUTION:

Carefully align mounting points with the jack to prevent damage to mounting bolt threads and wire harness and cables.

Tighten the all fasteners to the specified torque:

ENGINE MOUNT BOLTS:
12 mm 60–80 N·m (6.0–8.0 kg-m, 43–58 ft-lb)
10 mm 45–60 N·m (4.5–6.0 kg-m, 33–42 ft-lb)
8 mm 20–30 N·m (2.0–3.0 kg-m, 14–22 ft-lb)
SUB-FRANE BOLTS:
Upper 70–80 N·m
(7.0–8.0 kg-m, 51–58 ft-lb)
Lower 35–45 N·m
(3.5–4.5 kg-m, 25–33 ft-lb)

NOTE:

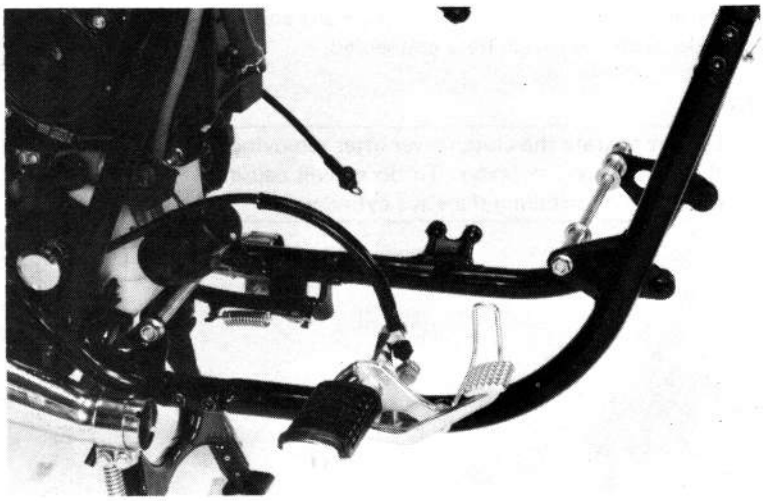
- Route the wires and cables properly (page 1-9).
- Fill the crankcase to the proper level with the recommended oil (page 2-1).
- Fill the cooling system (page 6-3).
- Perform the following inspection and adjustments:
  Throttle operation (page 3-5).
  Clutch (page 3-5).

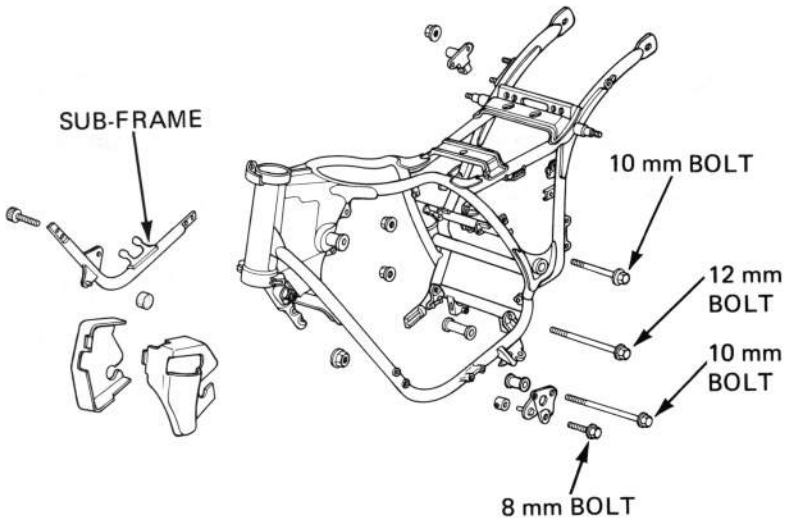
Install the exhaust system:
Install new exhaust pipe joint gaskets.

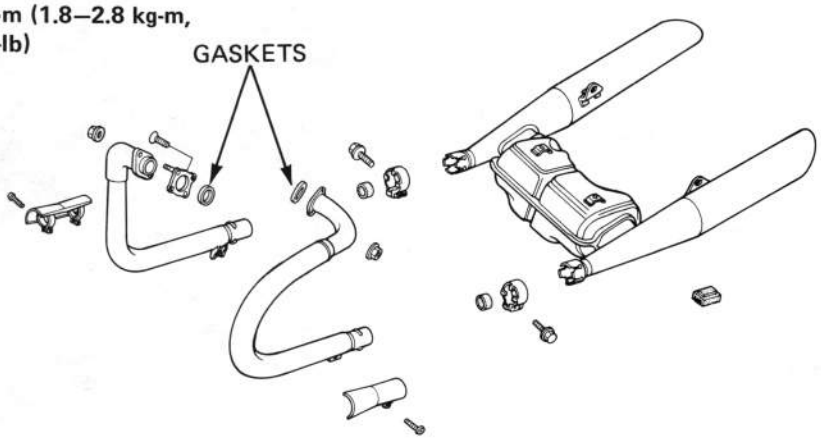
Install the exhaust pipes and tighten the joint nuts and clamp bolts.

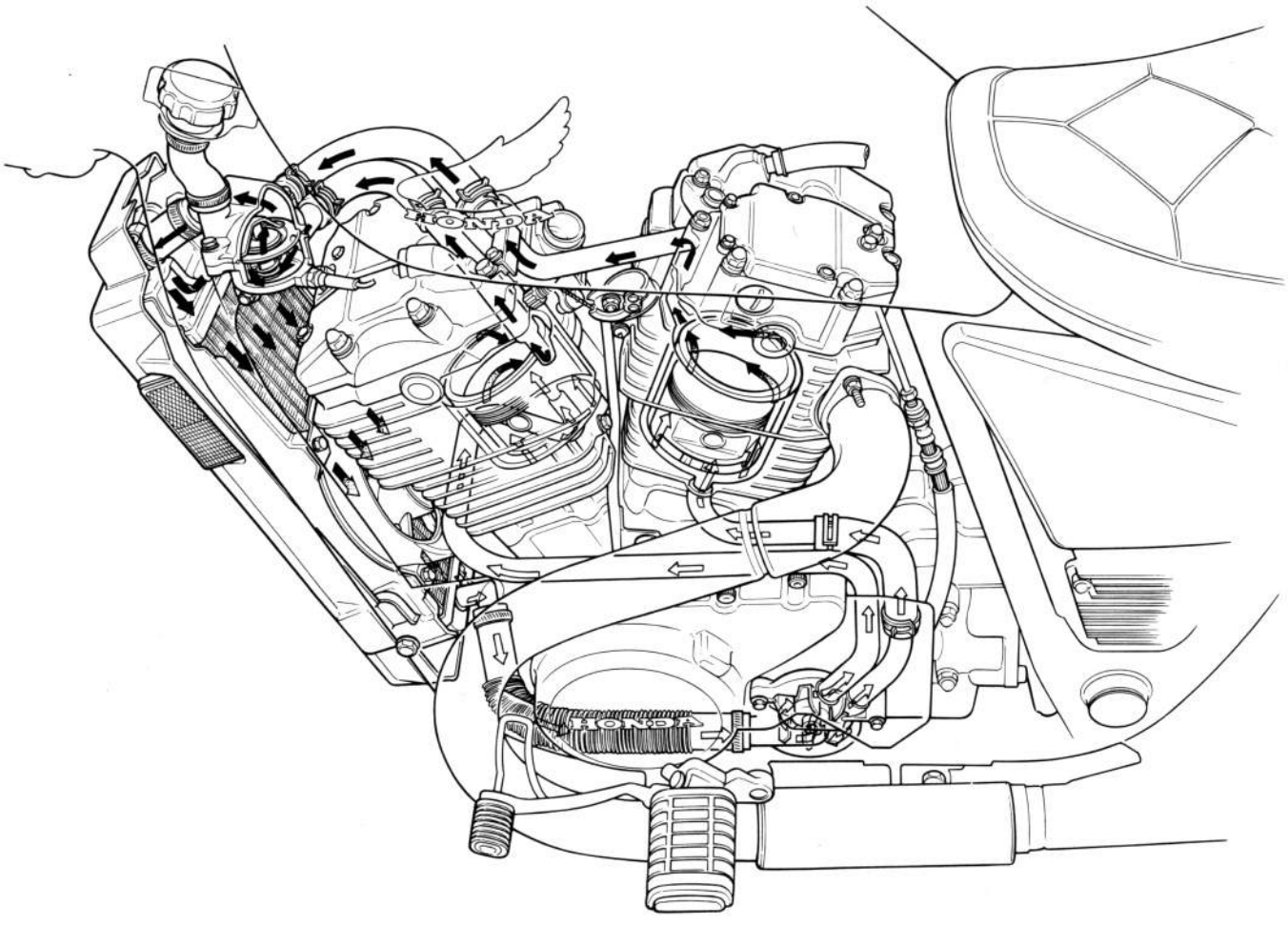
TORQUE: JOINT NUTS: 8–14 N·m (0.8–1.4 kg-m, 6–10 ft-lb)

CLAMP BOLTS: 18–28 N·m (1.8–2.8 kg-m, 13–20 ft-lb)









6. COOLING SYSTEM

SERVICE INFORMATION

GENERAL

WARNING

Do not remove the radiator cap when the engine is hot. The coolant is under pressure and severe scalding could result. The engine must be cool before servicing the cooling system.

- Use only distilled water and ethylene glycol in the cooling system. A 50–50 mixture is recommended for maximum corrosion protection. Do not use alcohol-based antifreeze or an antifreeze with self sealing properties.
- Add coolant at the reserve tank. Do not remove the radiator cap except to refill or drain the system.
- Radiator, cooling fan and thermostet services can be made 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 21 for fan motor thermostatic switch and temperature sensor inspections.

SPECIFICATIONS

Radiator cap relief pressure	0.75–1.05 kg/cm^2(10.7–14.9 psi)
Freezing point (Hydrometer test):	55% Distilled water + 45% ethylene glycol: –32°C (–25°F) 50% Distilled water + 50% ethylene glycol: –37°C (–34°F) 45% Distilled water + 55% ethylene glycol: –44.5°C (–48°F)
Coolant capacity: Radiator and engine Reserve tank Total system	 1.7 liters (1.80 US qt) 0.4 liters (0.42 US qt) 2.1 liters (2.22 US qt)
Thermostat	Begins to open: 80° to 84°C (176° to 183°F) Valve lift: Minimum of 8 mm at 95°C (0.315 in at 203°F)
Boiling point (with 50–50 mixture):	Unpressurized: 107.7°C (226°F) Cap on, pressurized: 125.6°C (258°F)

TOOLS

Special

Cooling system tester	Commercially available

TROUBLESHOOTING

Engine temperature too high

1. Faulty temperature gauge or gauge sensor
2. Thermostat stuck closed
3. Faulty radiator cap
4. Insufficient coolant
5. Passages blocked in radiator, hoses, or water jacket
6. Fan blades bent
7. Faulty fan motor

Engine temperature too low

1. Faulty temperature gauge or gauge sensor
2. Thermostat stuck open

Coolant leaks

1. Faulty pump mechanical seal
2. Deteriorated O-rings
3. Loose or too tight hose clamps

SYSTEM TESTING

COOLANT

Test the coolant mixture with an antifreeze tester. For maximum corrosion protection, a 50–50% solution of ethylene glycol and distilled water is recommended.

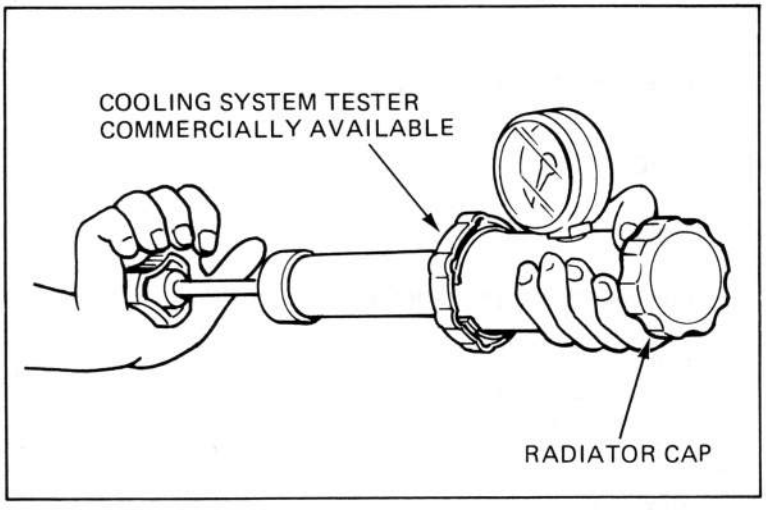
RADIATOR CAP INSPECTION

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

NOTE:

Before installing the cap on the tester, apply water to sealing surfaces.

RADIATOR CAP RELIEF PRESSURE:
0.9 ± 0.15 kg/cm² (12.8 ± 2.1 psi)

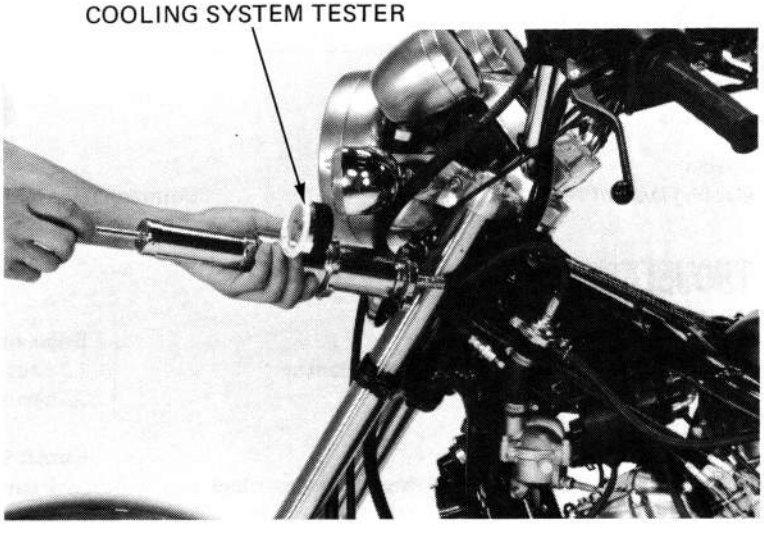


Pressurize the radiator, engine and hoses, and check for leaks.

CAUTION:

Excessive pressure can damage the radiator. Do not exceed 1.05 kg/cm² (14.9 psi)

Repair or replace components if the system will not hold specified pressure for at least six seconds.



COOLANT REPLACEMENT

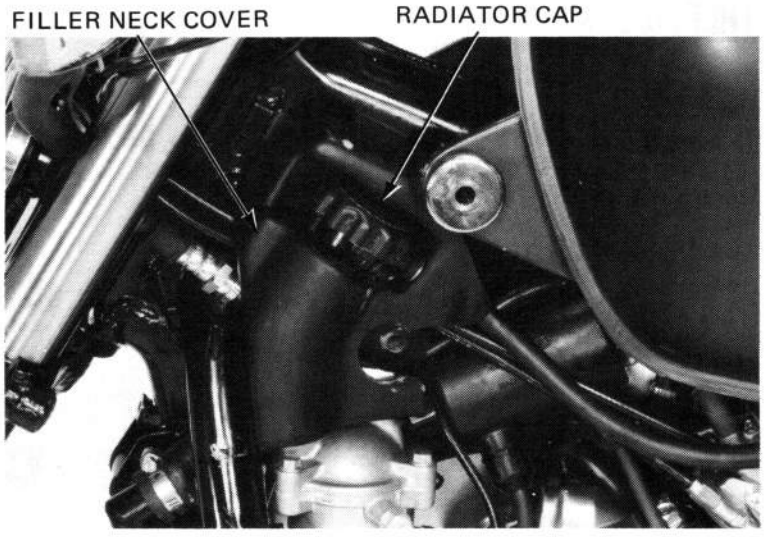
CAUTION:

The engine must be cool before servicing the cooling system, or severe scalding may result.

Remove the fuel tank front mounting bolts and raise the front of the fuel tank.

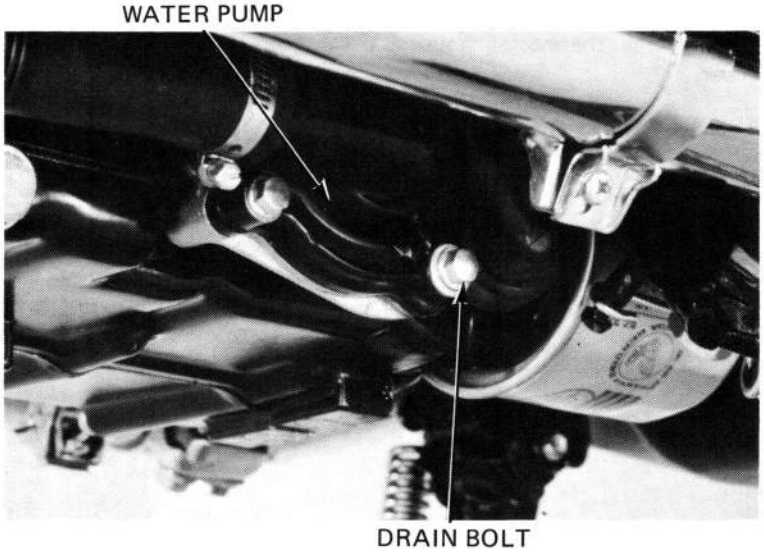
Remove the radiator filler neck cover.

Remove the radiator cap.



Remove the drain bolt located at the water pump and drain the system coolant.

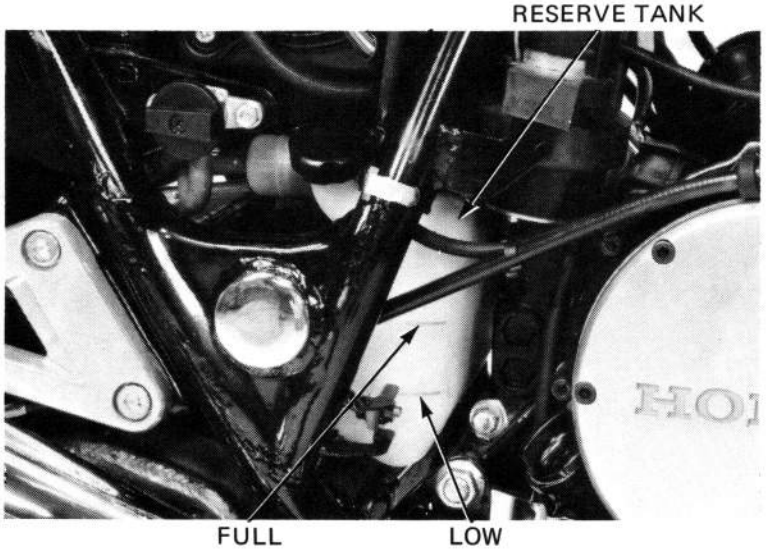
Replace the drain bolt.



Fill the system with a 50–50 mixture of distilled water and ethylene glycol.

Bleed air from the radiator.

- Start the engine and run until there are no air bubbles in the coolant, and the level stabilizes.
- Stop the engine and add coolant up to the proper level if necessary.
- Reinstall the radiator cap.
- Check the level of coolant in the reserve tank and fill to the correct level if it is low.



THERMOSTAT

REMOVAL

Turn the fuel valve OFF.

Remove the seat and fuel tank.

Remove the coolant drain bolt, and drain the coolant (page 6-3).

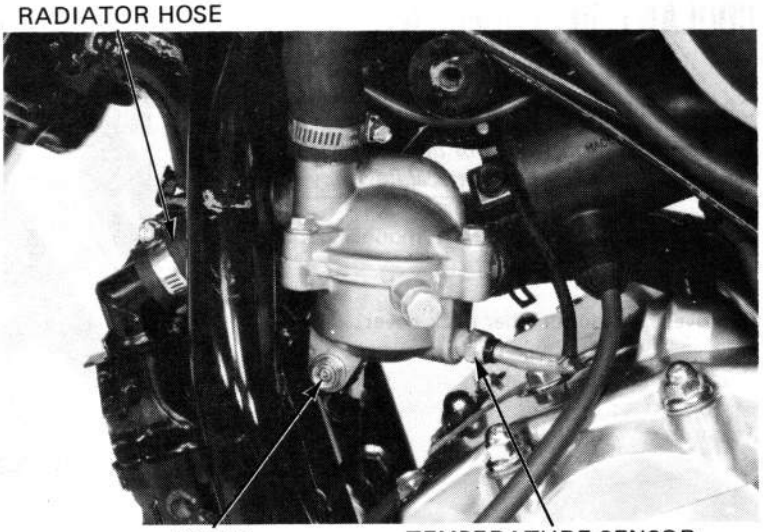
Remove the radiator cover.

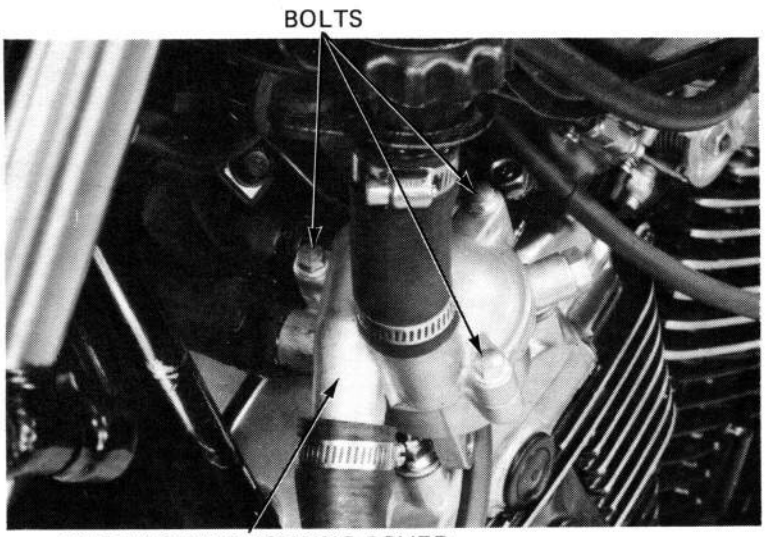
Disconnect the radiator upper hose at the radiator.

Disconnect the wire connector from the temperature sensor.

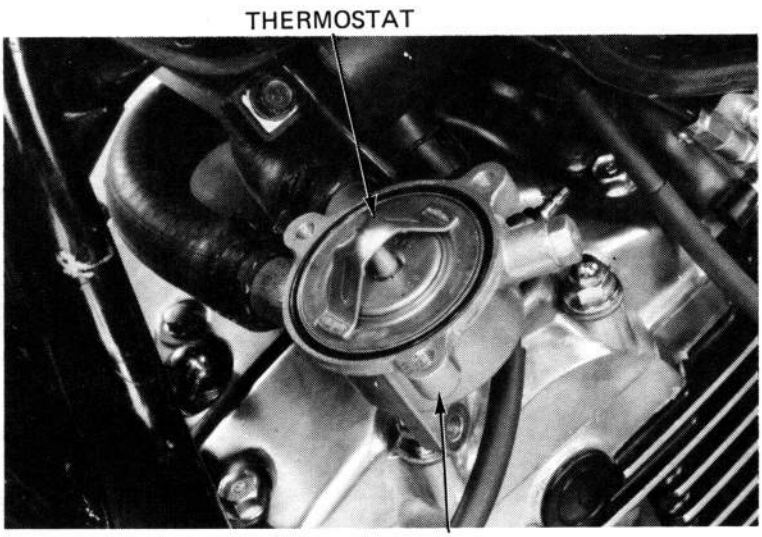
Remove the bolt attaching the thermostat housing to the frame.

Remove the thermostat housing cover bolts and cover.





Remove the thermostat from the housing.



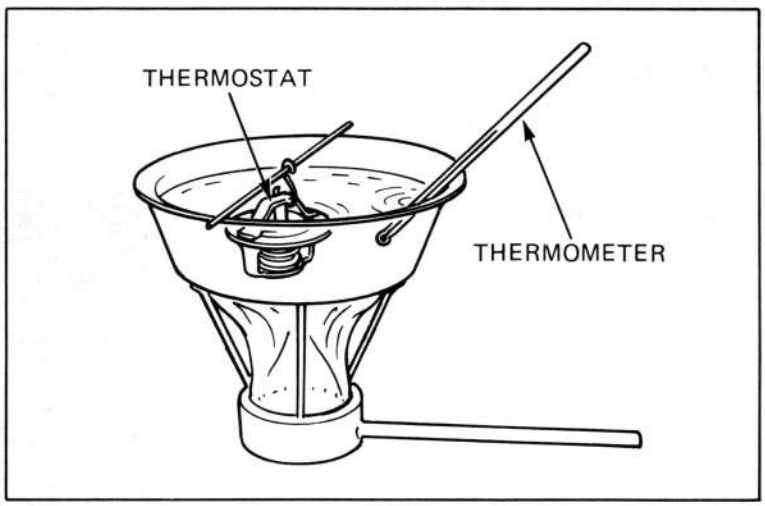
INSPECTION

Visually inspect the thermostat for damage.
Suspend the thermostat in heated water to check its operation. Do not let the thermostat or thermometer touch the pan or false readings will result.

Replace the thermostat if the valve stays open at room temperature, or if it responds at temperatures other than those specified.

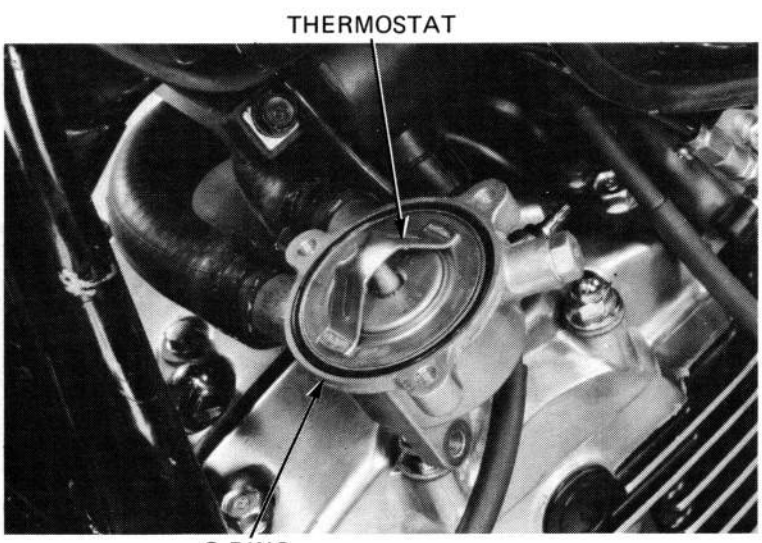
Technical Data

Starts to open	80° to 84°C (176° to 183°F)
Valve lift	8 mm minimum (0.31 in) when heated to 95°C (203°F) for five minutes.



INSTALLATION

Install a new O-ring on the thermostat housing and insert the thermostat into the housing.



Install the thermostat housing cover and tighten the bolts.

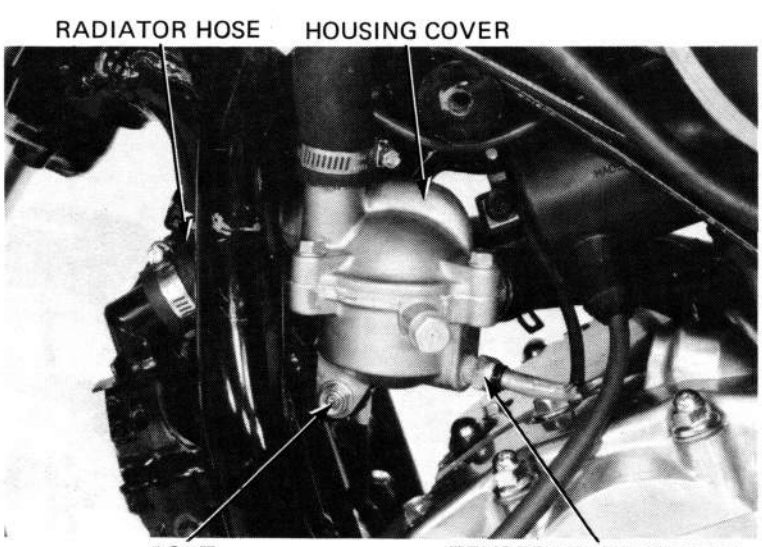
Connect the radiator upper hose to the radiator and tighten the hose band.

Secure the thermostat housing to the frame with the bolt.

Connect the wire lead to the temperature sensor.

Fill the cooling system (page 6-3).

Install the radiator filler neck cover, fuel tank, seat and radiator cover.

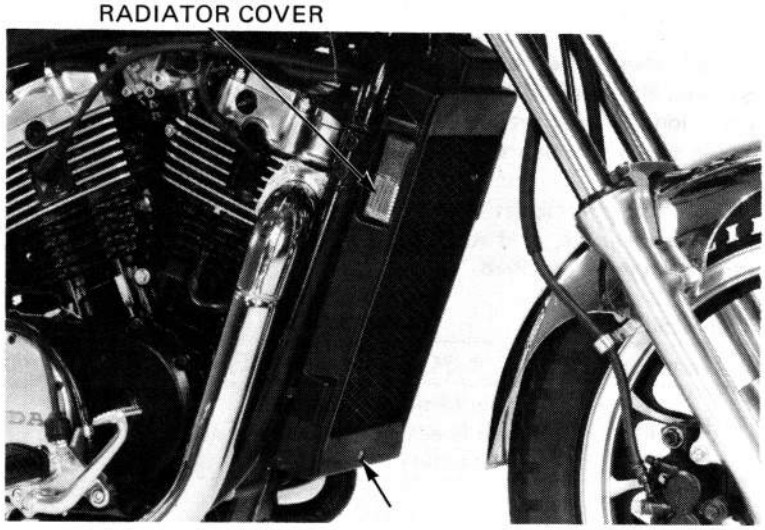


RADIATOR/COOLING FAN

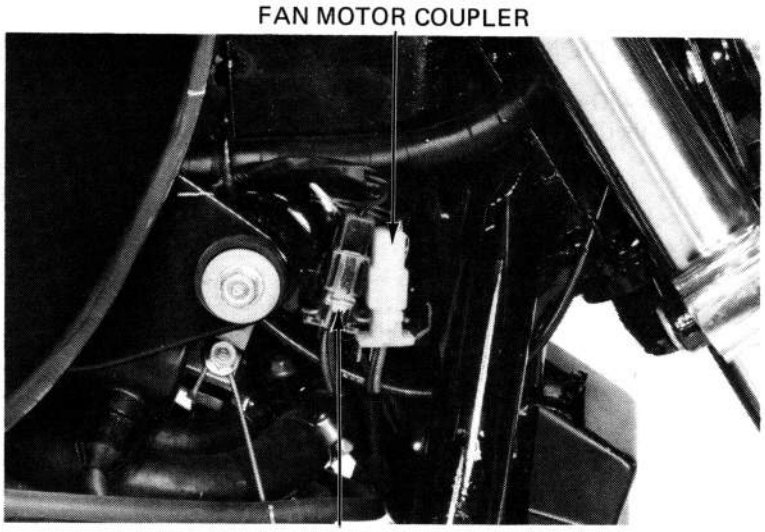
REMOVAL

Remove the drain bolt and drain the coolant (page 6-3).

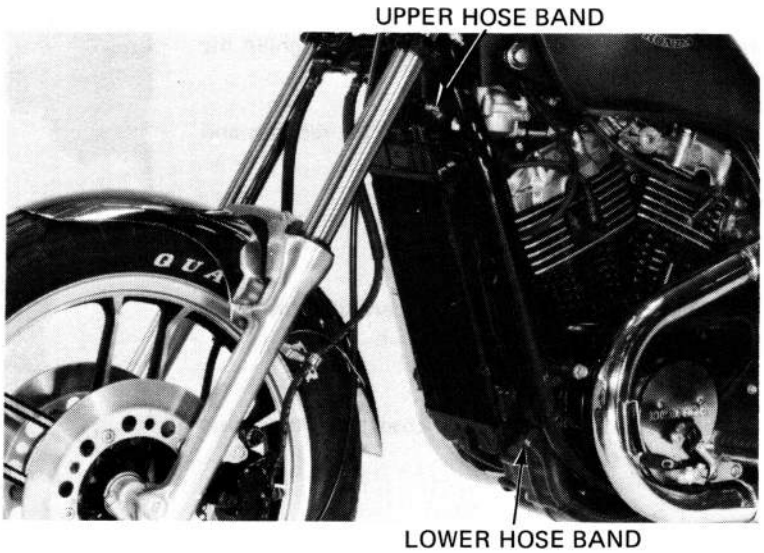
Remove the radiator cover.



Disconnect the fan motor and thermostatic switch couplers from the wire harness.

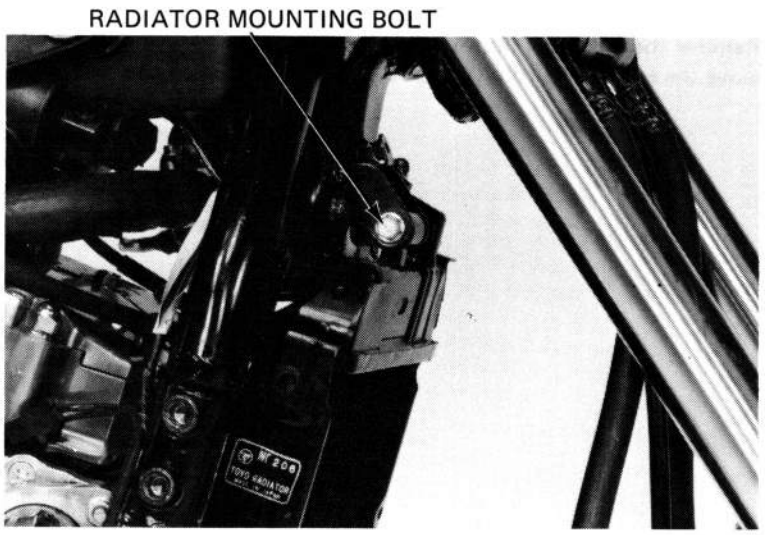


Loosen the upper and lower hose bands.



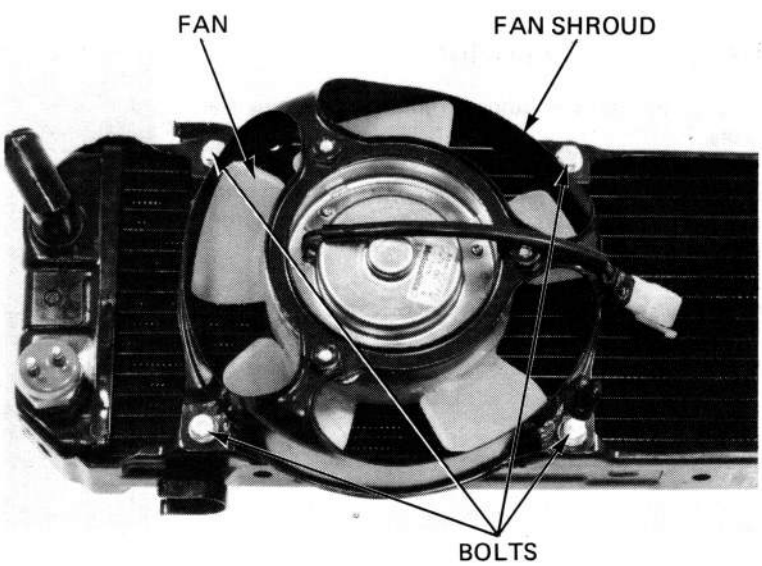
Remove the radiator mounting bolt.

Remove the radiator while pulling the upper and lower hoses off.

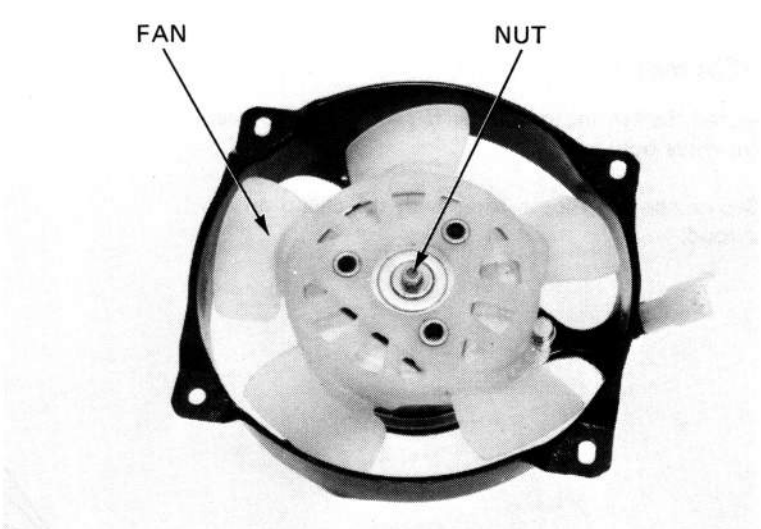


DISASSEMBLY

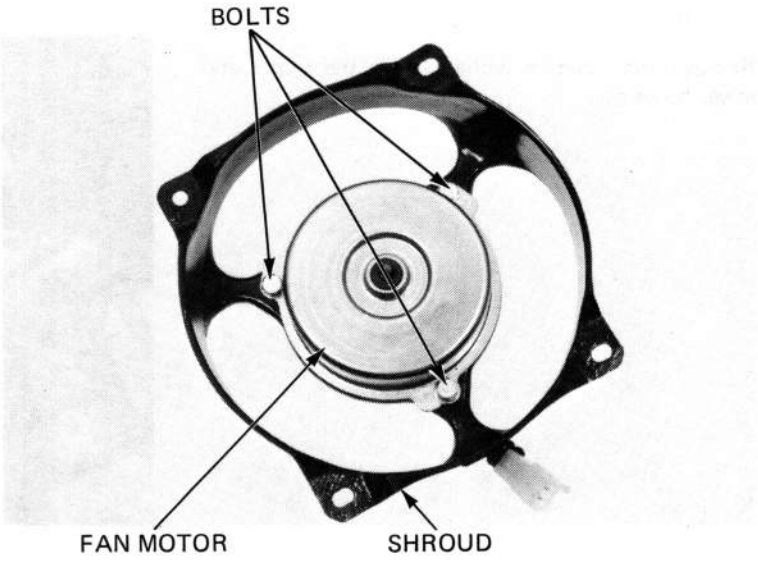
Remove the fan shroud with the fan by removing the four bolts.



Remove the fan attaching nut and pull the fan off the fan motor.



Remove the three fan motor attaching bolts and remove the fan motor from the shroud.

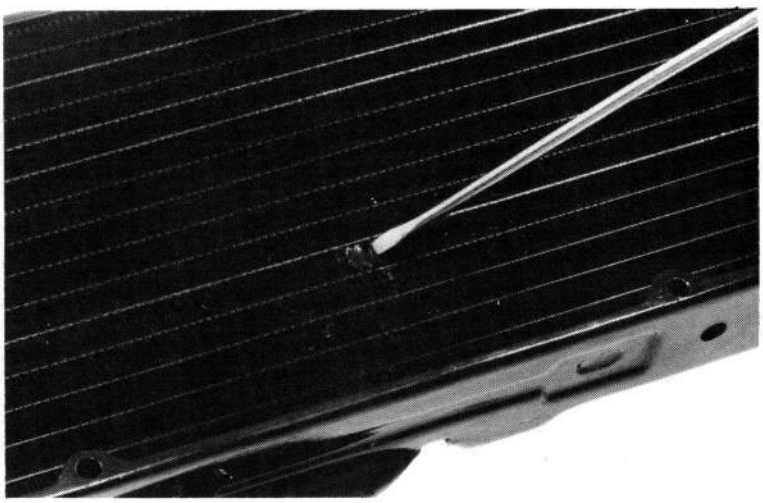


RADIATOR INSPECTION

Inspect the radiator soldered joints and seams for leaks.

Blow dirt out from between core fins with compressed air. If insects, etc., are clogging the radiator, wash them off with low pressure water.

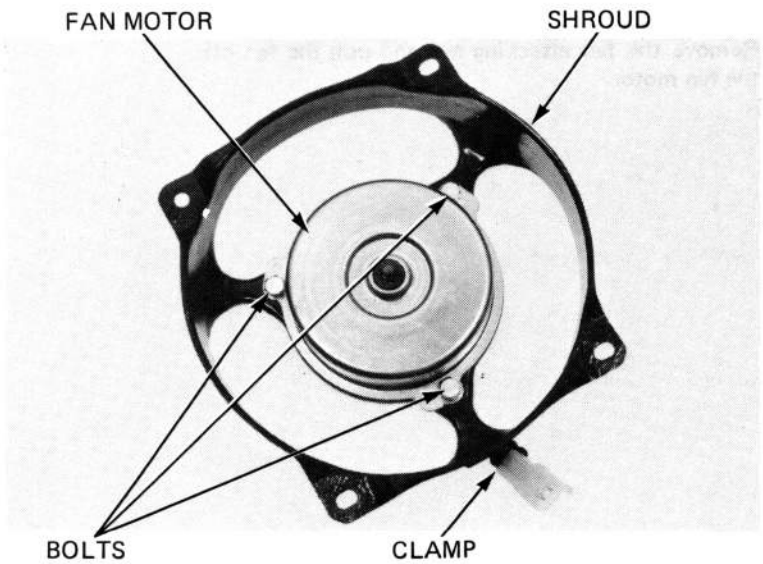
Carefully straighten any bent fins.



ASSEMBLY

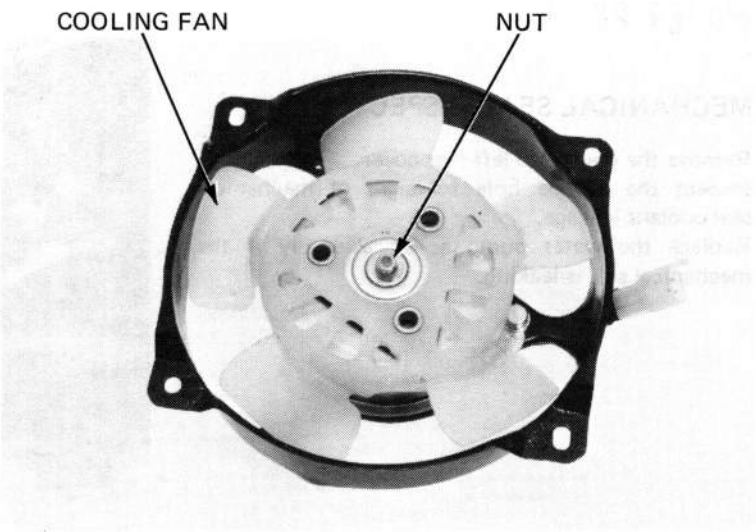
Install the fan motor on the fan shroud and tighten the three bolts.

Secure the fan motor wires with the clamp on the shroud.

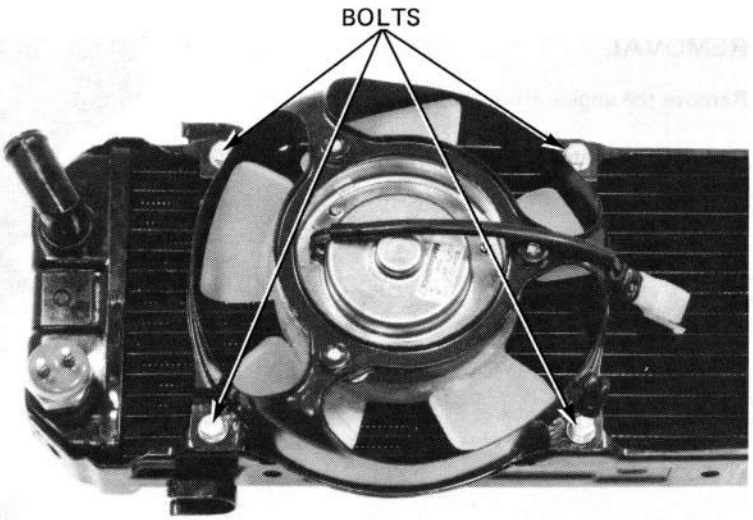


Place the fan over the motor shaft.

Apply a locking agent to the fan motor shaft threads, install and torque the plain washer, lock washer and nut.



Attach the fan shroud to the radiator with the four bolts.



INSTALLATION

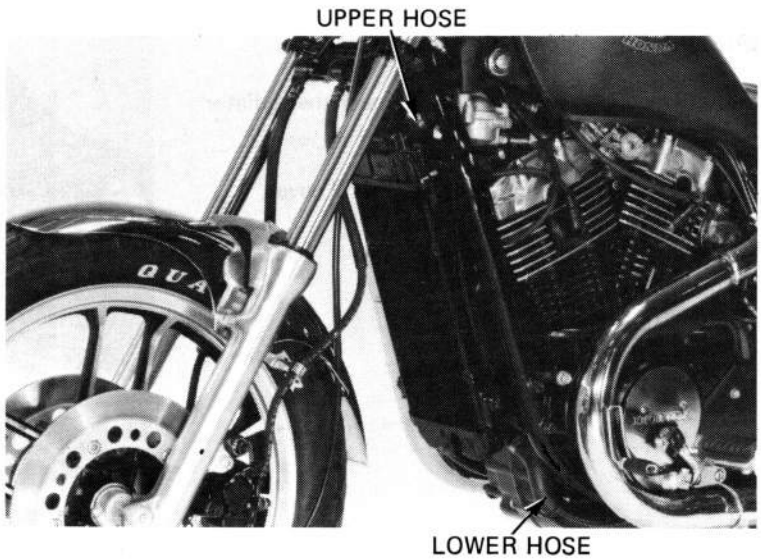
Install the radiator onto the frame and tighten the mounting bolts.

Connect the upper and lower hoses to the radiator and tighten the hose bands.

Connect the thermostatic switch and fan motor wire couplers to the wire harness.

Install the radiator cover.

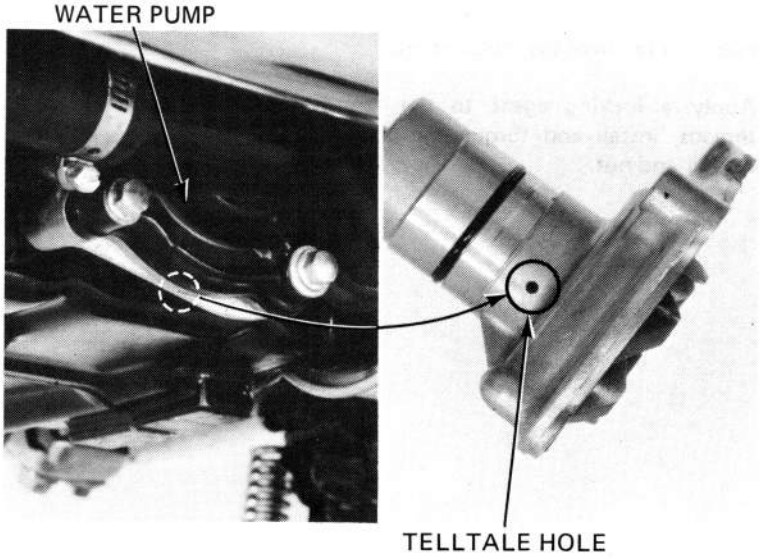
Fill the cooling system (page 6-3).



WATER PUMP

MECHANICAL SEAL INSPECTION

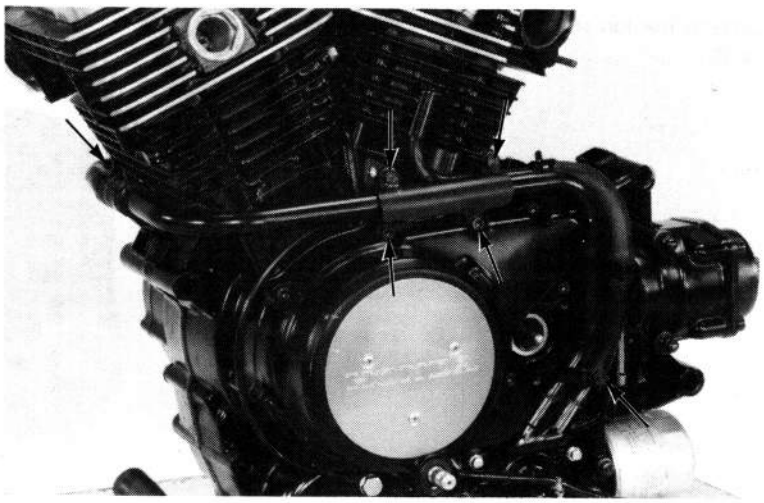
Remove the crankcase left rear cover.
Inspect the telltale hole for signs of mechanical seal coolant leakage.
Replace the water pump as an assembly if the mechanical seal is leaking.



REMOVAL

Remove the engine from the frame (Section 5).

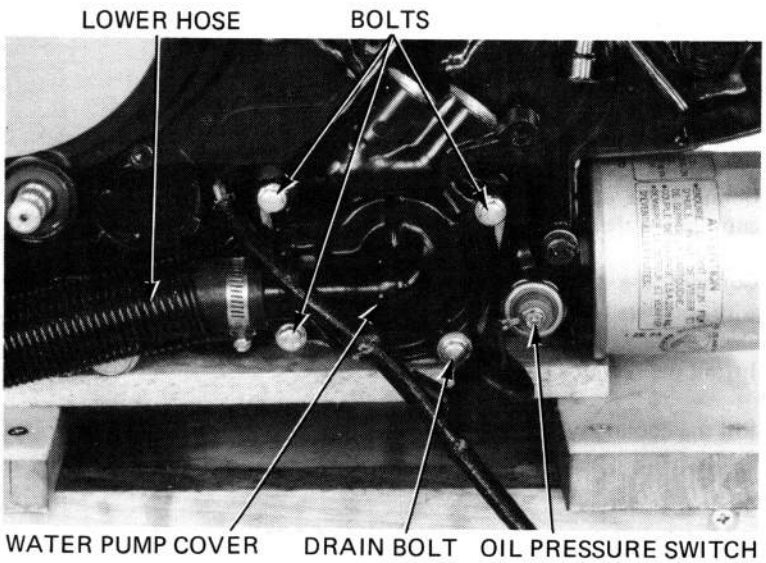
Remove the water pipes and hoses from the engine.



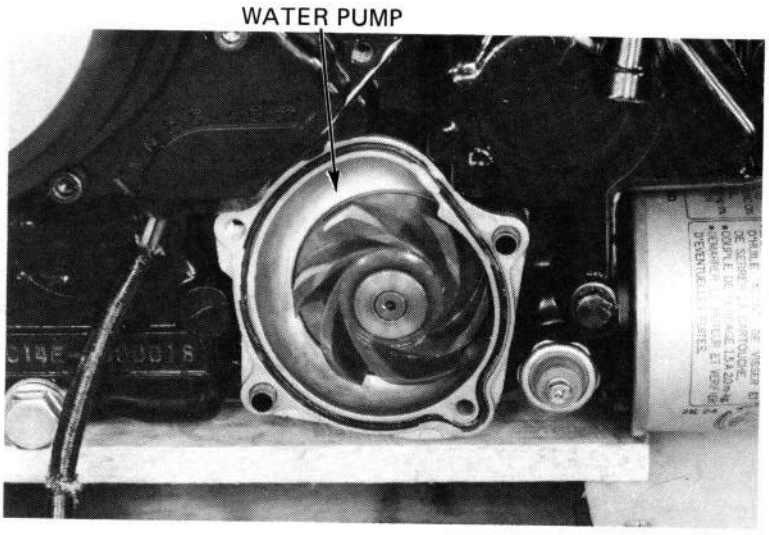
Disconnect the oil pressure switch wire.

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

Remove the water pump cover bolts and cover.

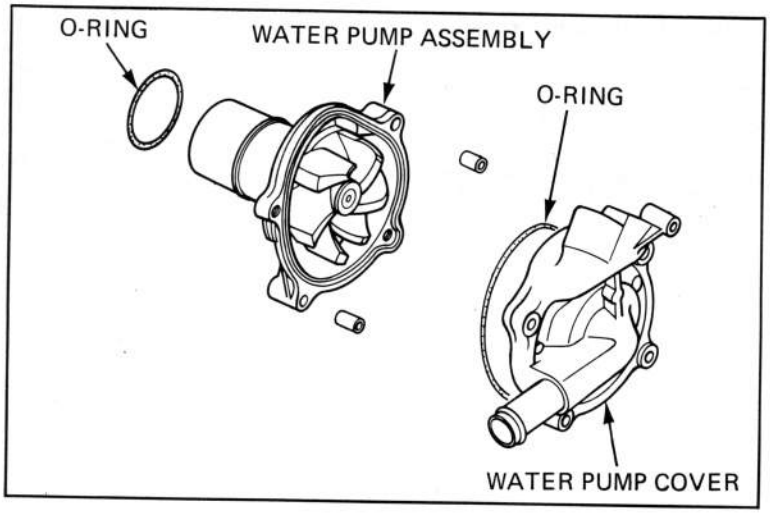


Pull the water pump off the crankcase.



INSPECTION

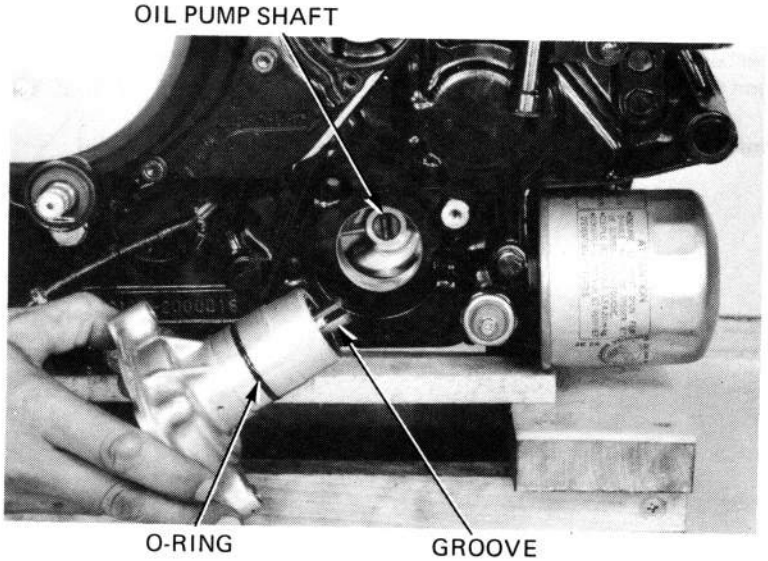
Check the water pump for mechanical seal leakage and bearing deterioration. Replace the water pump as an assembly if necessary.



INSTALLATION

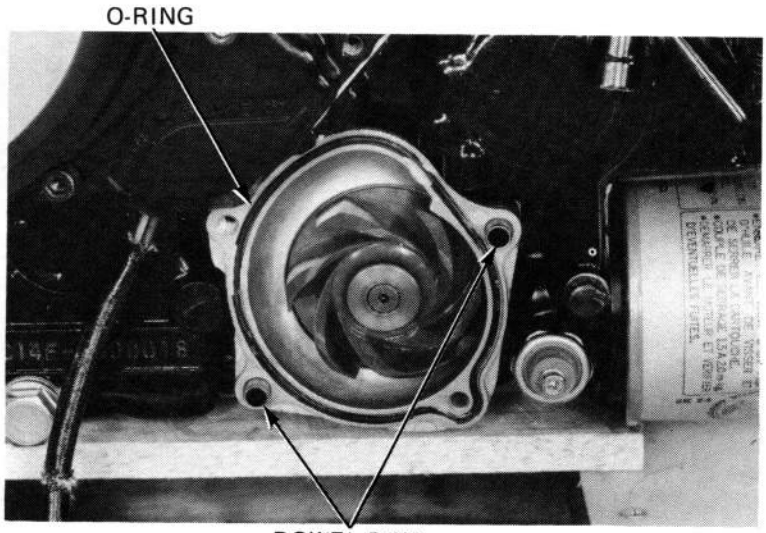
Apply a coat of clean engine oil to a new O-ring and install it in the water pump shaft housing groove.

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



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

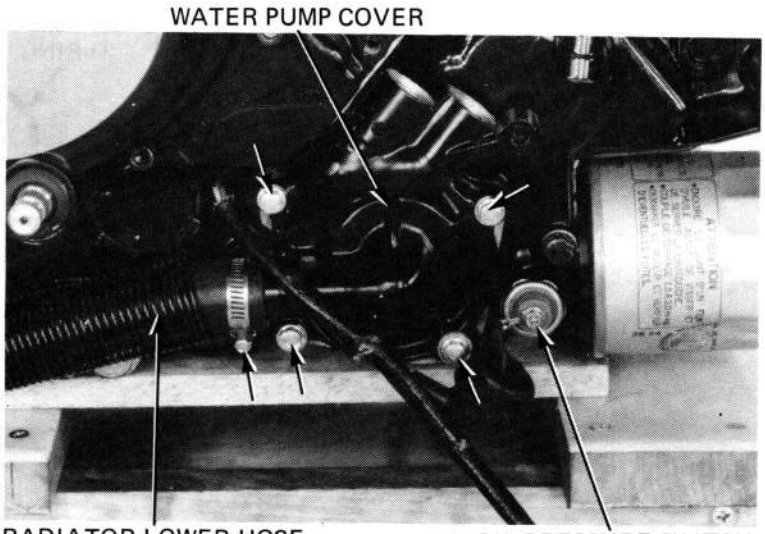
Install the two dowel pins.



Install the water pump cover.

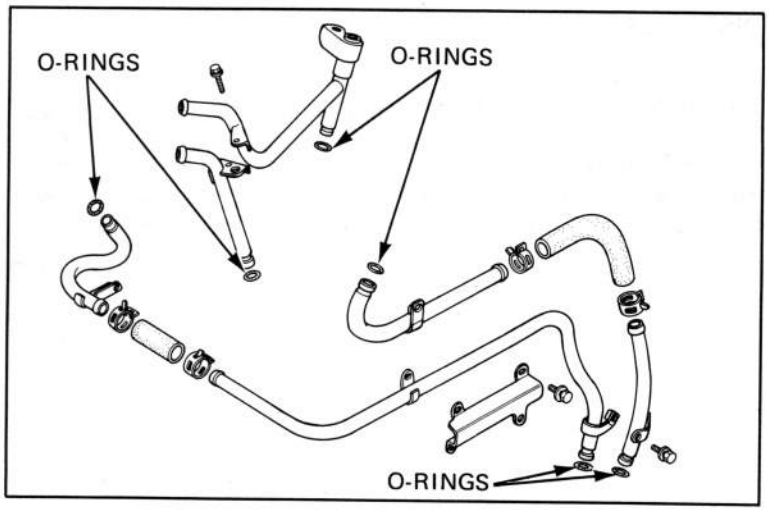
Connect the radiator lower hose to the water pump cover and tighten the hose band.

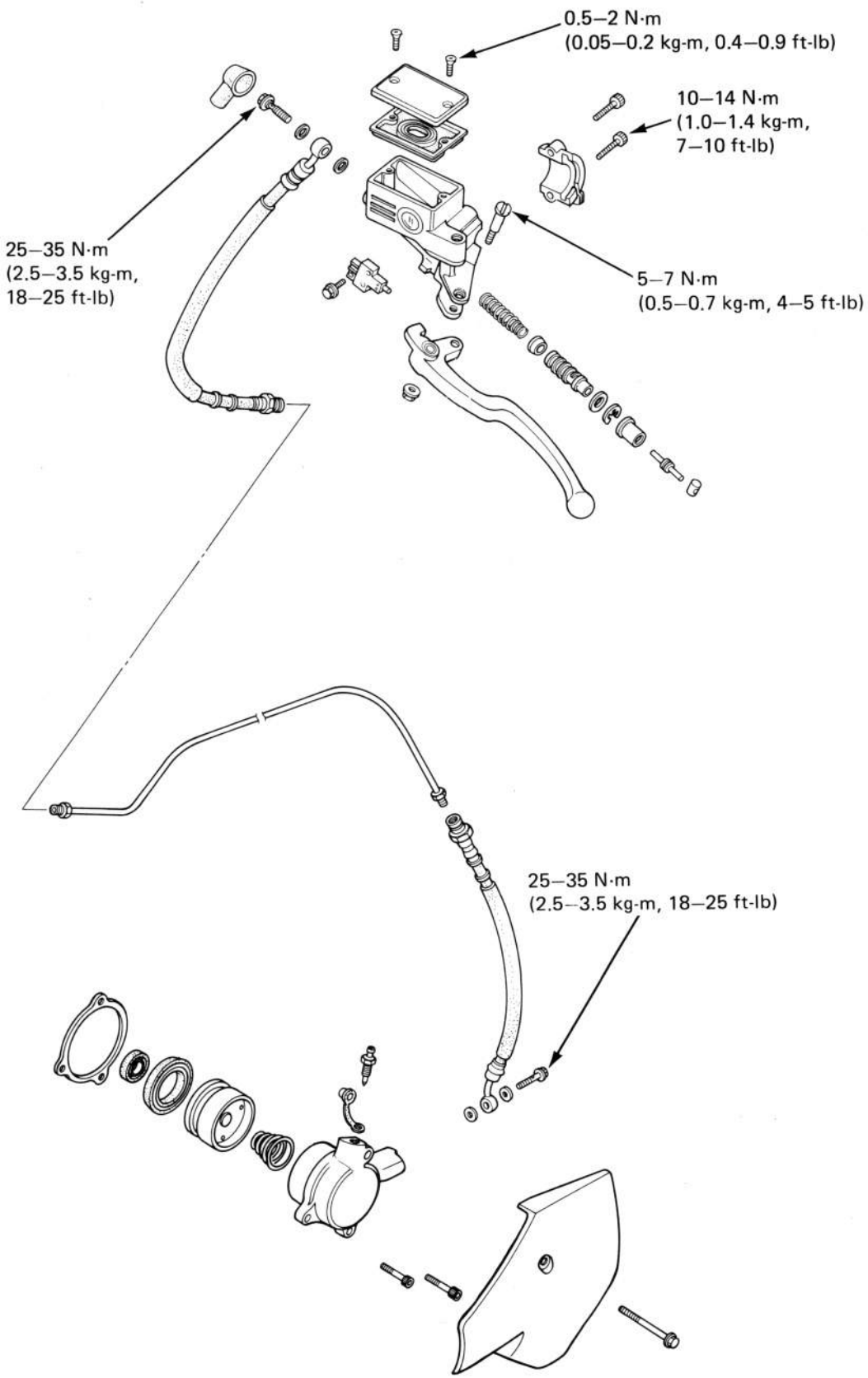
Connect the oil pressure switch wire to the switch.



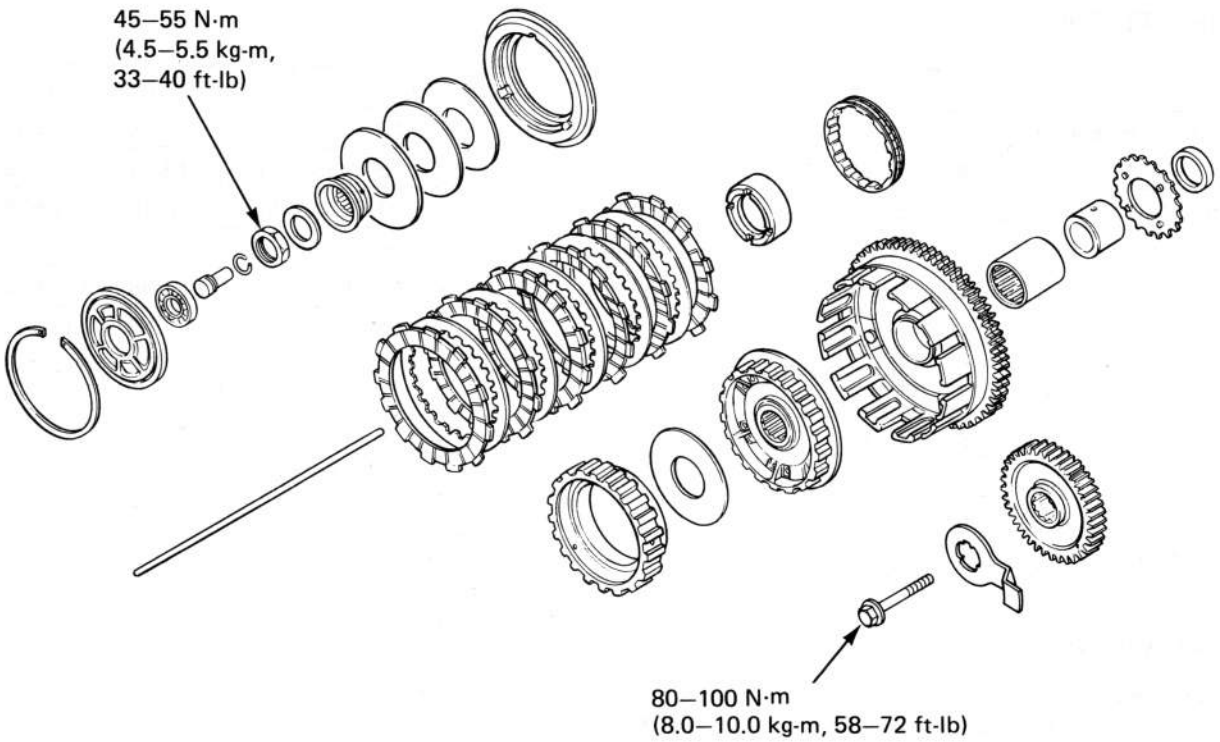
Install the water pipes and hoses with new O-rings and tighten the hose bands.

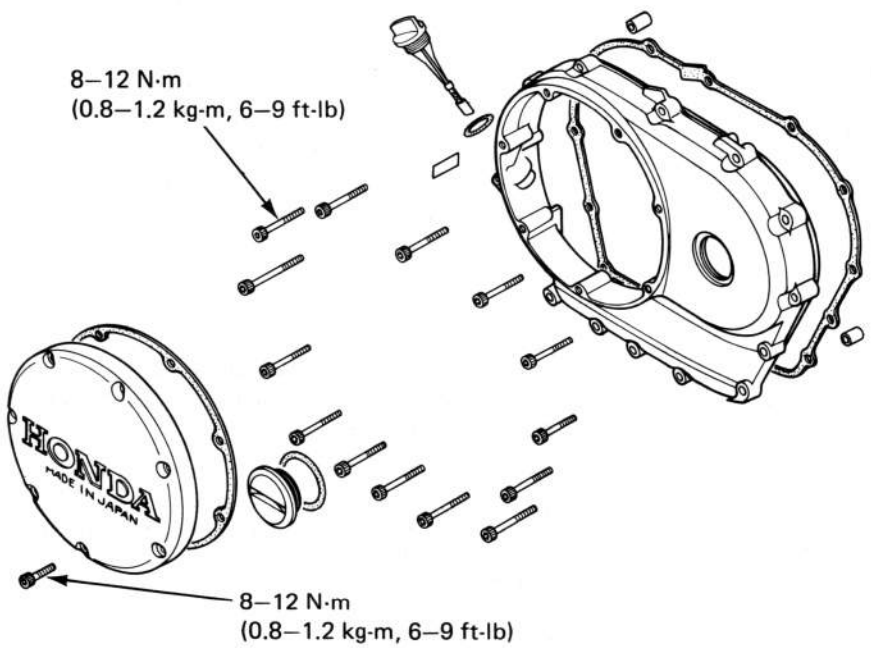
Install the engine into the frame (page 5-6).




0.5–2 N·m
(0.05–0.2 kg-m, 0.4–0.9 ft-lb)
10–14 N·m
(1.0–1.4 kg-m,
7–10 ft-lb)
25–35 N·m
(2.5–3.5 kg-m,
18–25 ft-lb)
5–7 N·m
(0.5–0.7 kg-m, 4–5 ft-lb)
25–35 N·m
(2.5–3.5 kg-m, 18–25 ft-lb)

7. CLUTCH





SERVICE INFORMATION

GENERAL

- This section covers removal and installation of the clutch hydraulic system, clutch and primary driver gear.
- DOT-3 brake fluid is used for the hydraulic clutch and is referred to as clutch fluid in this section. Do not use other types of fluid as they are not compatible.
- Clutch maintenance can be done with the engine in the frame.

SPECIFICATIONS

		STANDARD	SERVICE LIMIT
Clutch master cylinder	Cylinder I.D.	14.000–14.043 mm (0.5512–0.5524 in)	14.06 mm (0.553 in)
	Piston O.D.	13.957–13.984 mm (0.5495–0.5506 in)	13.94 mm (0.549 in)
Clutch slave cylinder	Cylinder I.D.	38.100–38.162 mm (1.5000–1.5024 in)	38.18 mm (1.503 in)
	Piston O.D.	38.036–38.075 mm (1.4975–1.4990 in)	38.02 mm (1.497 in)
Clutch	Outer guide I.D.	24.995–25.012 mm (0.9841–0.9847 in)	25.08 mm (0.987 in)
	Spring free height	3.9 mm (0.15 in)	3.6 mm (0.14 in)
	Clutch center B I.D.	74.414–74.440 mm (2.9297–2.9307 in)	74.50 mm (2.933 in)
	One way clutch inner O.D.	57.710–57.840 mm (2.2720–2.2772 in)	57.60 mm (2.268 in)
	Disc thickness	3.72–3.88 mm (0.147–0.153 in)	3.1 mm (0.12 in)
	Plate warpage	–	0.30 mm (0.012 in)
Pulse coil air gap		0.3–0.9 mm (0.01–0.04 in)	–

TORQUE VALUES

Clutch hose oil bolts		25–35 N·m (2.5–3.5 kg-m, 18–25 ft-lb)
Clutch fluid reservoir cover		1–2 N·m (0.1–0.2 kg-m, 0.7–0.9 ft-lb)
Clutch lever pivot nut		5–7 N·m (0.5–0.7 kg-m, 4–5 ft-lb)
Clutch center lock nut		45–55 N·m (4.5–5.5 kg-m, 33–40 ft-lb)
Clutch cover bolts		8–12 N·m (0.8–1.2 kg-m, 6–9 ft-lb)
Right crankcase cover bolts		8–12 N·m (0.8–1.2 kg-m, 6–9 ft-lb)
Primary gear bolt		80–100 N·m (8.0–10.0 kg-m, 58–72 ft-lb)
Sub-frame bolts	Upper	70–80 N·m (7.0–8.0 kg-m, 51–58 ft-lb)
	Lower	35–45 N·m (3.5–4.5 kg-m, 25–33 ft-lb)
Exhaust pipe joint nuts		8–14 N·m (0.8–1.4 kg-m, 6–10 ft-lb)
Exhaust pipe clamp bolts		18–28 N·m (1.8–2.8 kg-m, 13–20 ft-lb)

TOOLS

Special

Snap ring pliers	07914–3230001 or commercially available in U.S.A.
Gear holder	07924–MC70001 or modified 07924–MC70000 or 07924–4150000
Shaft holder	07923–6890101

Common

Extension bar	07716–0020500 ┐
Lock nut wrench, 17 x 27 mm	07716–0020300 ┘ or commercially available in U.S.A.
Driver	07749–0010000
Attachment, 37 x 40 mm	07746–0010200
Pilot, 35 mm	07746–0040800

TROUBLESHOOTING

Clutch lever soft or spongy
1. Air bubbles in hydraulic system.
2. Low fluid level.
3. Hydraulic system leaking.

Clutch lever too hard
1. Sticking piston(s).
2. Clogged hydraulic system.

Clutch slips
1. Hydraulic system sticking.
2. Discs worn.
3. Spring weak.

Clutch will not disengage
1. Air bubbles in hydraulic system.
2. Low fluid level.
3. Hydraulic system leaking.
4. Hydraulic system sticking.
5. Plates warped.

Motorcycle creeps with clutch disengaged
1. Air bubbles in hydraulic system.
2. Low fluid level.
3. Hydraulic system leaking.
4. Hydraulic system sticking.
5. Plates warped.

Excessive lever pressure
1. Hydraulic system sticking.
2. Lifter mechanism damaged.

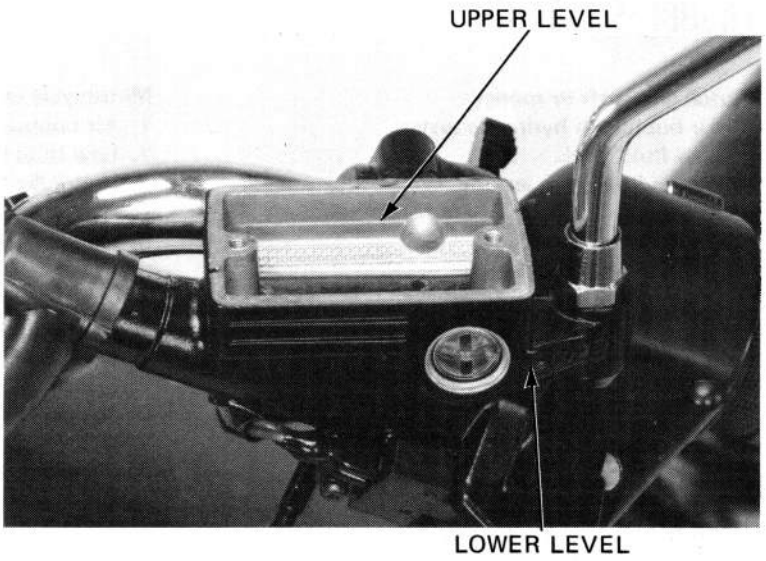
Clutch operation feels rough
1. Outer drum slots rough.
2. Sticking piston(s).

CLUTCH FLUID REPLACEMENT/ AIR BLEEDING

Check the fluid level with the fluid reservoir parallel to the ground.

CAUTION:

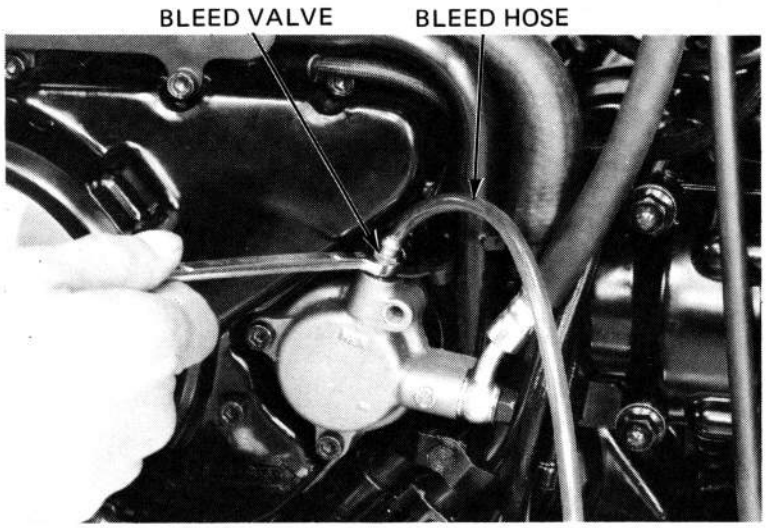
- *Install the diaphragm on the reservoir when operating the clutch lever. Failure to do so will allow clutch fluid to squirt out of the reservoir during clutch operation.*
- *Avoid spilling fluid on painted surfaces. Place a rag over the fuel tank whenever the system is serviced.*



CLUTCH FLUID DRAINING

Connect a bleed hose to the bleed valve.

Loosen the slave cylinder bleed valve and pump the clutch lever. Stop operating the lever when no more fluid flows out of the bleed valve.



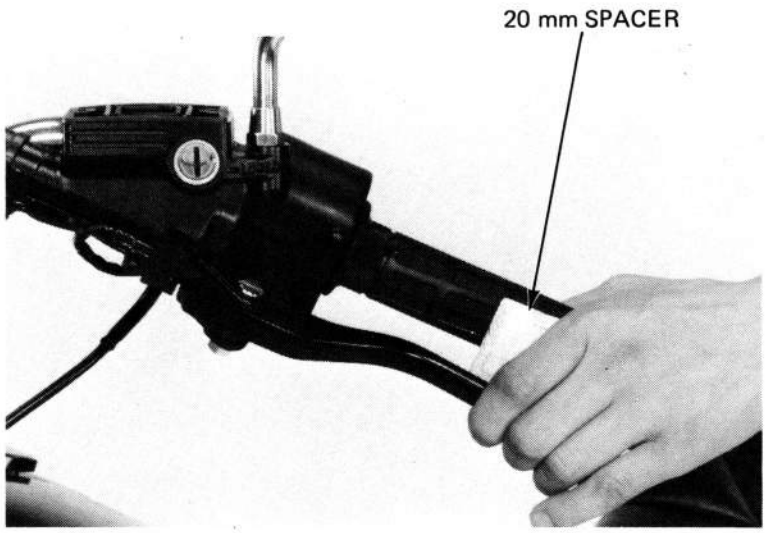
CLUTCH FLUID FILLING

NOTE:

Do not mix different types of fluid since they are not compatible.

Close the bleed valve, fill the reservoir, and install the diaphragm.

To prevent piston overtravel and clutch fluid seepage, keep a 20 mm (3/4 in) spacer between the handlebar grip and lever when bleeding the clutch system. Pump up the system pressure with the lever until there are no air bubbles in the fluid flowing out of the reservoir small hole and lever resistance is felt. Then bleed the system.



AIR BLEEDING

NOTE:

- Check the fluid level often while bleeding the clutch to prevent air from being pumped into the system.
- Use only DOT 3 brake fluid from a sealed container.
- Do not mix brake fluid types and never reuse the fluid which has been pumped out during bleeding, or the efficiency of the clutch system will be impaired.

1) Squeeze the clutch lever, open the bleed valve 1/2 turn, then close the valve

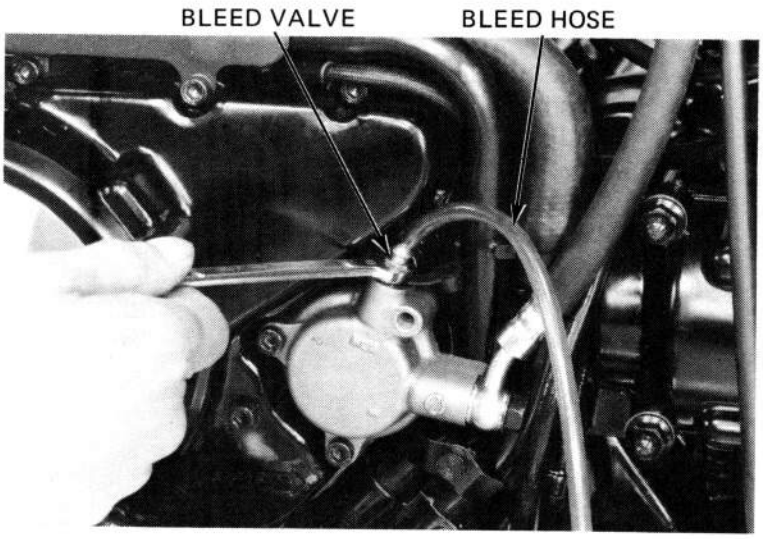
NOTE:

> Do not release the clutch lever until the bleed valve has been closed again.

2) Release the clutch lever slowly and wait several seconds after it reaches the end of its travel.

Repeat the above steps until bubbles cease to appear in the fluid at the end of the hose.

Fill the fluid reservoir up to between the upper and the lower levels.



CLUTCH MASTER CYLINDER

DISASSEMBLY

Drain clutch fluid from the hydraulic system.

Remove the rear view mirror and clutch lever.

Disconnect the clutch switch wires and remove the clutch hose.

CAUTION:

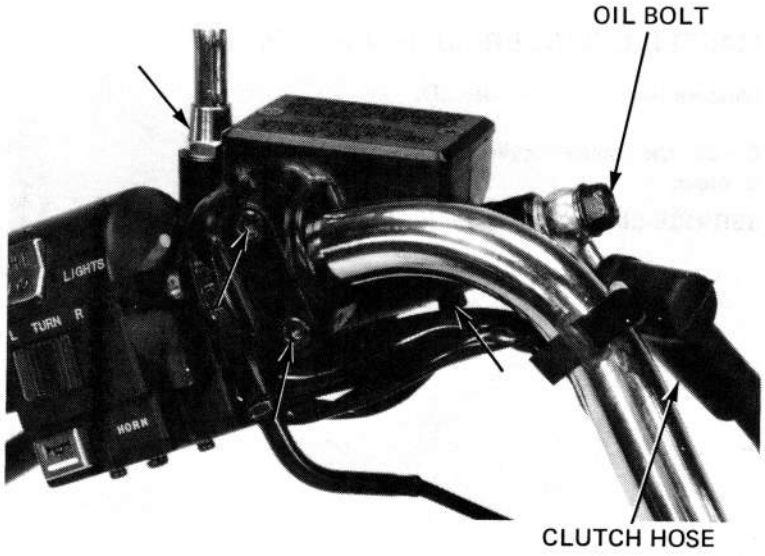
> *Avoid spilling clutch fluid on painted surfaces. Place a rag over the fuel tank whenever the clutch system is serviced.*

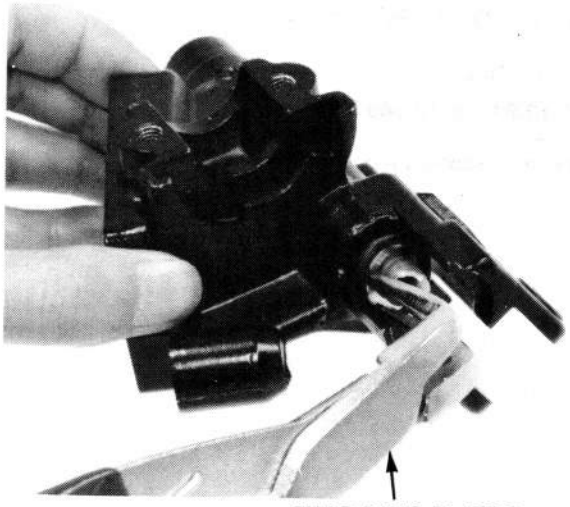
NOTE:

> When removing the oil bolt, cover the end of the hose to prevent contamination and secure the hose.

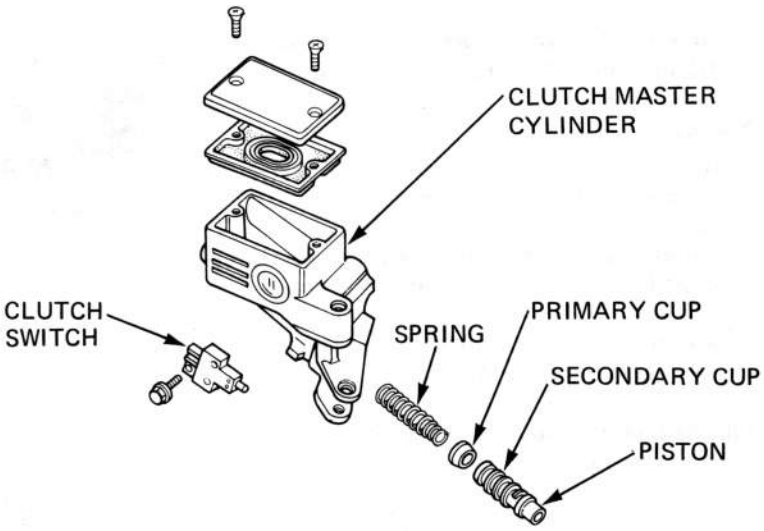
Remove the master cylinder.

Remove the push rod boot and circlip from the master cylinder body.





Remove the following:
- piston and secondary cup.
- primary cup and spring.
- clutch switch, if necessary.

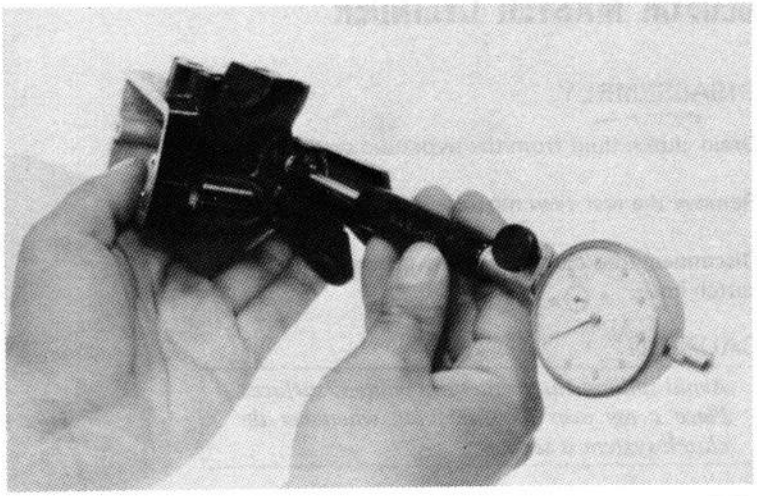


MASTER CYLINDER I.D. INSPECTION

Measure the master cylinder I.D.

Check the master cylinder for scores, scratches or nicks.

SERVICE LIMIT: 14.06 mm (0.553 in)

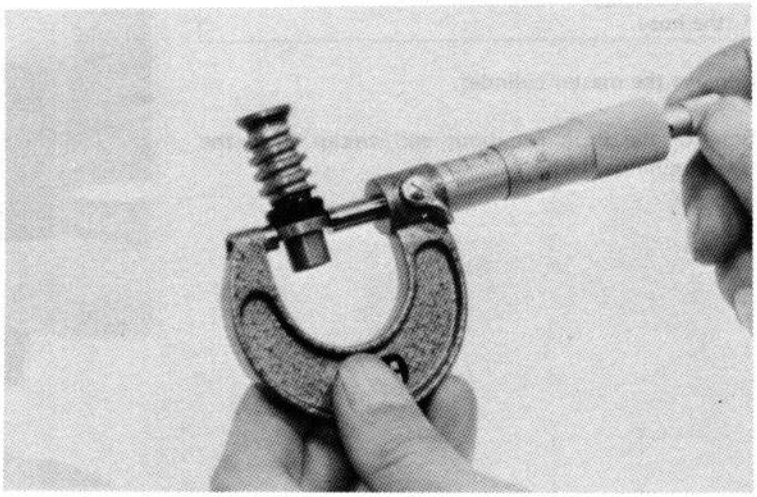


MASTER PISTON O.D. INSPECTION

Measure the master piston O.D.

SERVICE LIMIT: 13.94 mm (0.549 in)

Check the primary and secondary cups for damage before assembly.



ASSEMBLY

CAUTION:

Handle the master piston, spring, primary cup and secondary cup as a set.

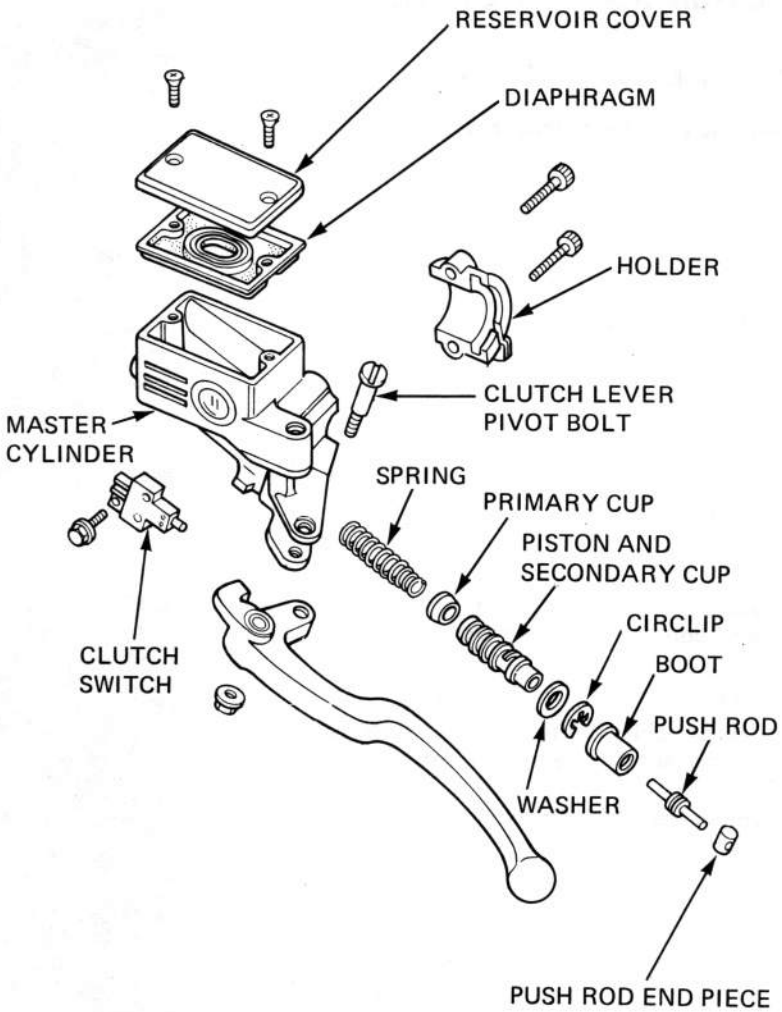
Coat all parts with clean brake fluid before assembly.

Install the spring, primary cup and piston.

CAUTION:

When installing the cups, do not allow the lips to turn inside out.

Install the circlip making sure it is seated firmly in the groove Then install the boot and push rod.
Install the clutch switch, if it was removed.

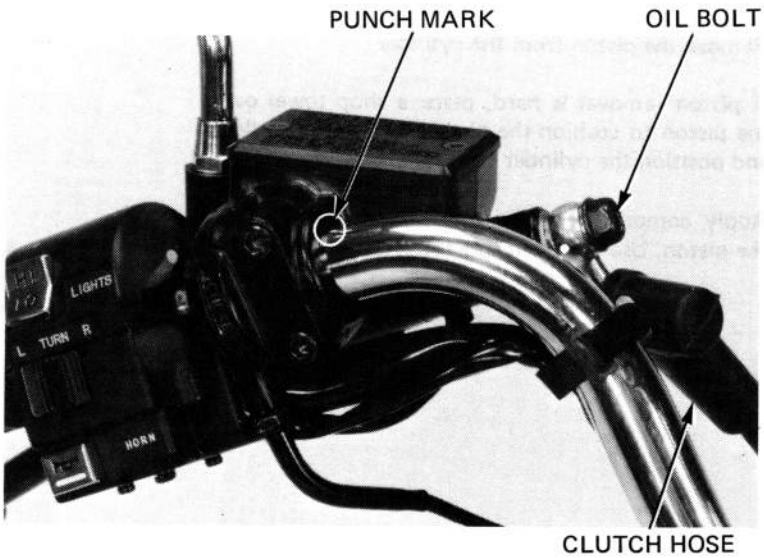


Place the master cylinder on the handlebar and install the holder and the two mounting bolts.
Align the end of the holder with the handlebar punch mark.
Tighten the top bolt first, then the bottom bolt.

Install the oil hose with the bolt and its two sealing washers.

Install the push rod end piece into the clutch lever hole and install the clutch lever.

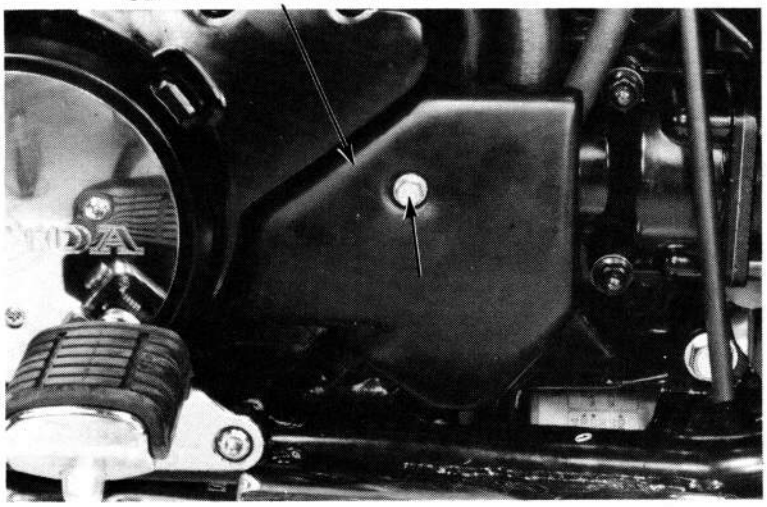
Connect the clutch switch wires to the switch terminals. Fill the reservoir and bleed the clutch system (page 7-4).



CLUTCH SLAVE CYLINDER

DISASSEMBLY

Remove the slave cylinder cover.

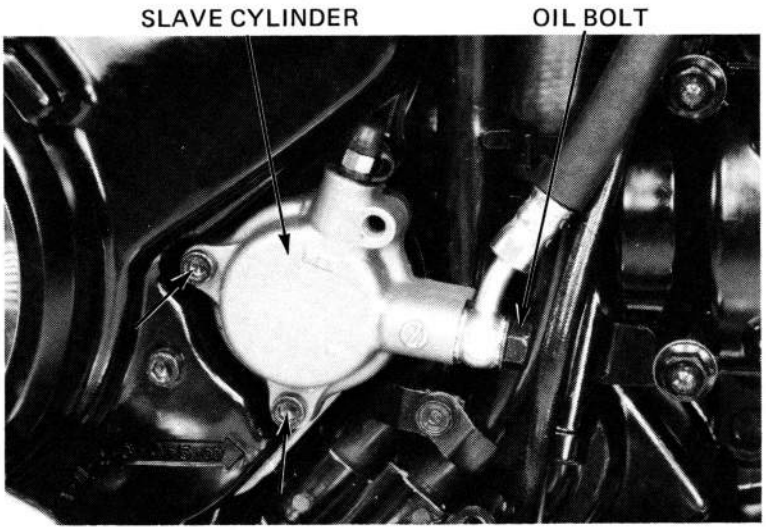


Place a container under the slave cylinder, remove the oil bolt and disconnect the clutch hose.

NOTE:

> Avoid spilling clutch fluid on painted surfaces to prevent damage to the paint.

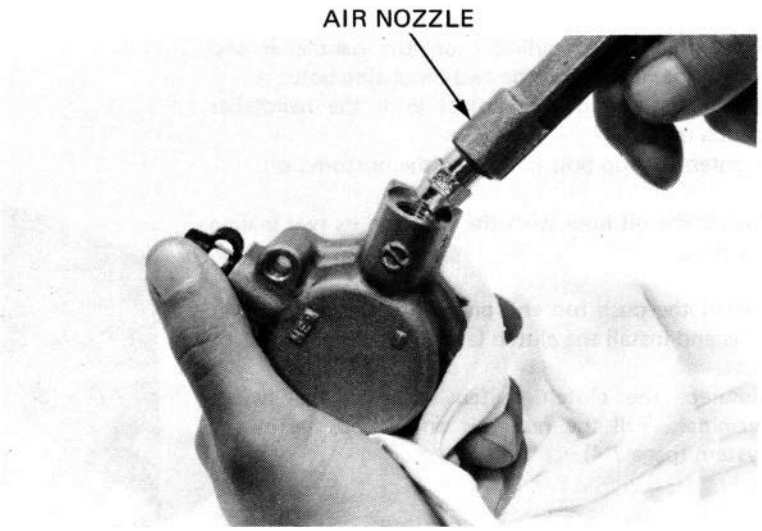
Remove the slave cylinder.



Remove the piston from the cylinder.

If piston removal is hard, place a shop towel over the piston to cushion the piston when it is expelled, and position the cylinder with the piston down.

Apply compressed air to the fluid inlet to remove the piston. Use the air in short spurts.

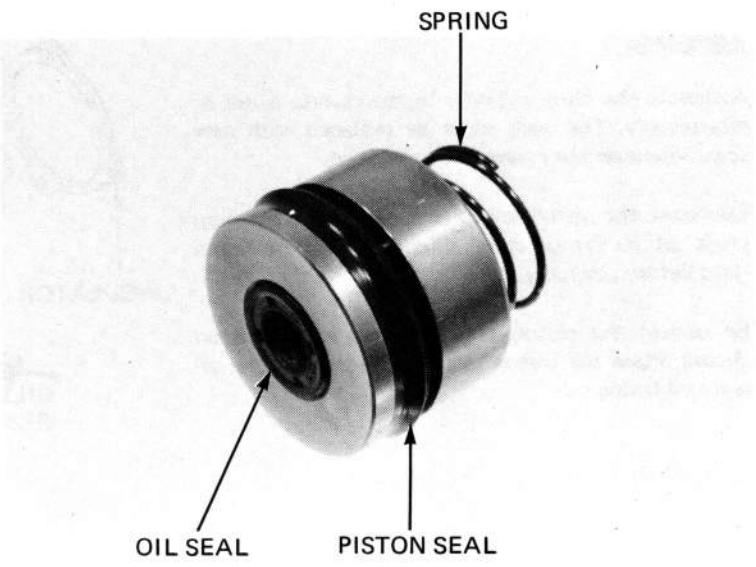


Remove the spring from the slave cylinder.

Remove the oil and piston seals.

Clean the piston groove with clutch fluid.

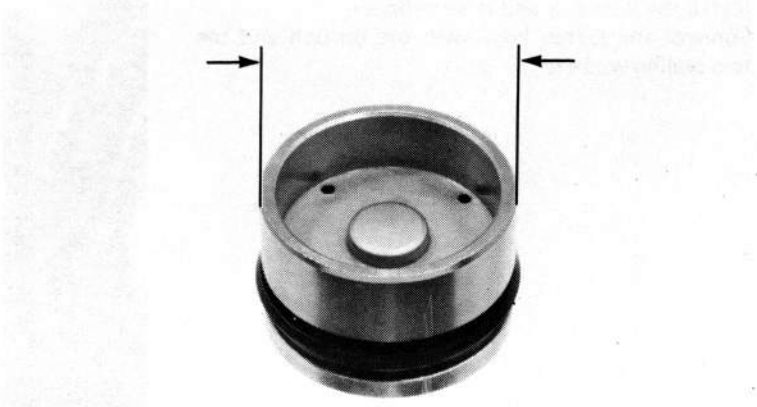
Check the piston spring for weakness or damage.



PISTON O.D. INSPECTION

Check the piston for scoring or scratches.
Measure the outside diameter of the piston with a micrometer.

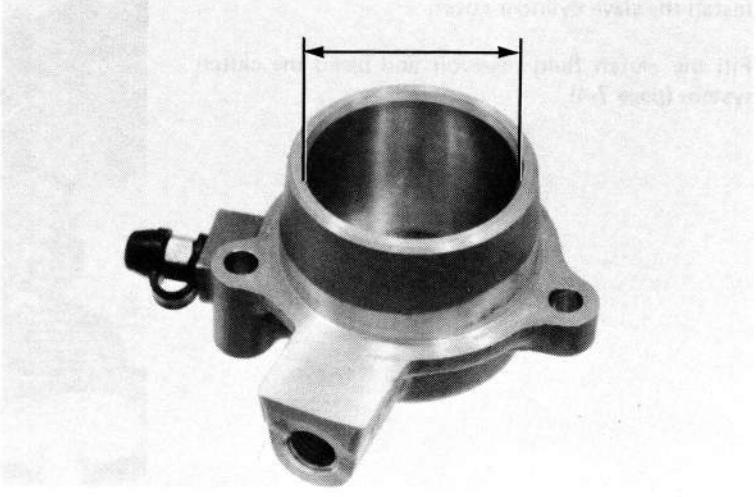
SERVICE LIMIT: 38.02 mm (1.497 in)



CYLINDER I.D. INSPECTION

Check the slave cylinder for scoring or scratches.
Measure the inside diameter of the cylinder bore.

SERVICE LIMIT: 38.18 mm (1.503 in)

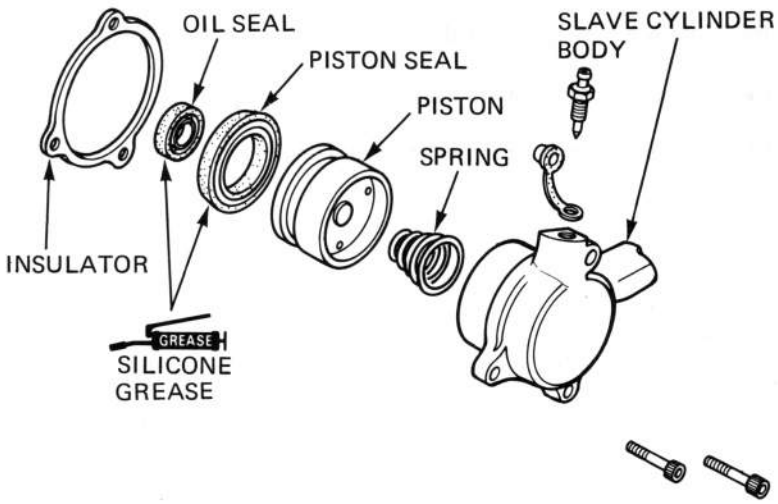


ASSEMBLY

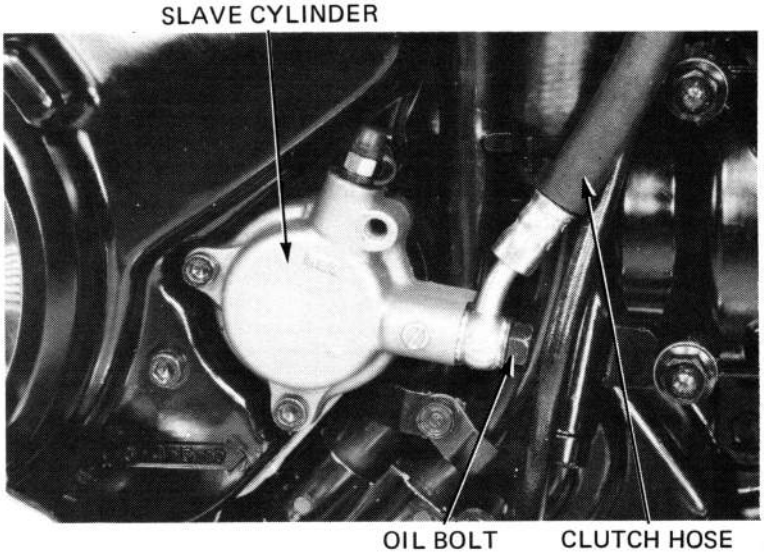
Assemble the slave cylinder in the reverse order of disassembly. The seals must be replaced with new ones whenever they have been removed.

Lubricate the piston and piston seal with a medium grade of Hi-Temperature silicone grease or brake fluid before assembly.

Be certain the piston seal is seated in the piston groove. Place the piston in the cylinder with the oil seal end facing out.

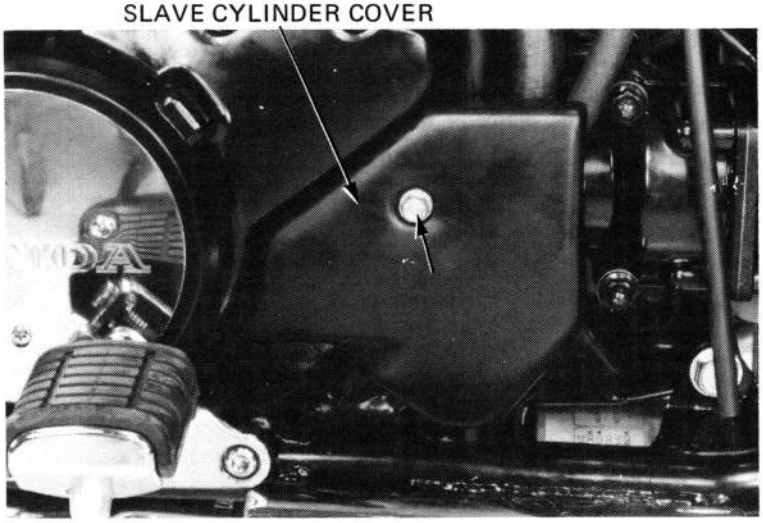


Install the insulator and slave cylinder.
Connect the clutch hose with the oil bolt and the two sealing washers.



Install the slave cylinder cover.

Fill the clutch fluid reservoir and bleed the clutch system (page 7-4).

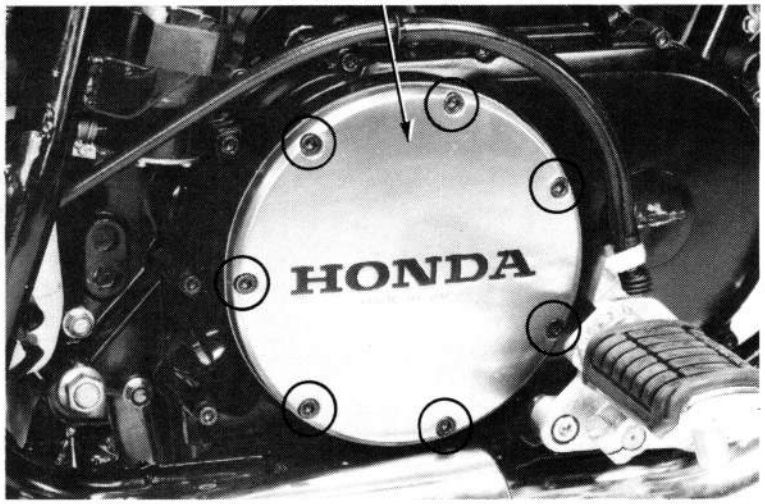


CLUTCH DISASSEMBLY

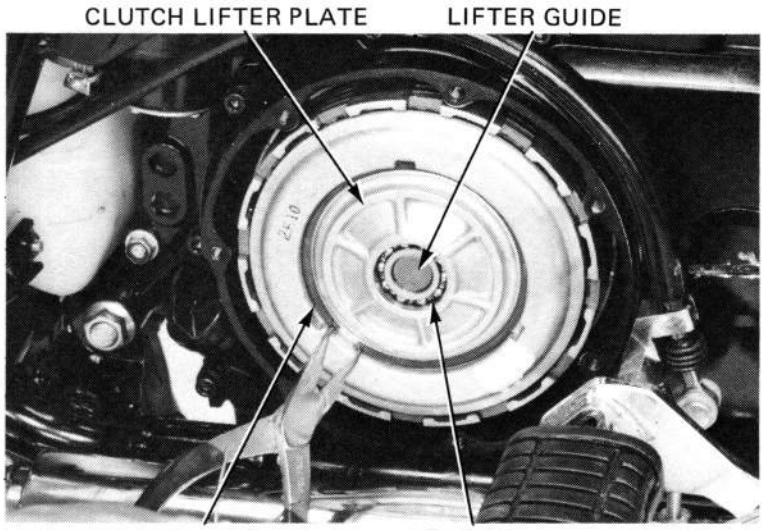
NOTE:

> All clutch components, except for the clutch outer, can be serviced by removing the clutch cover. The right crankcase cover does not need to be removed.

Drain the engine oil and remove the clutch cover and gasket.



Remove the snap ring, clutch lifter plate, bearing, lifter guide and lifter rod.



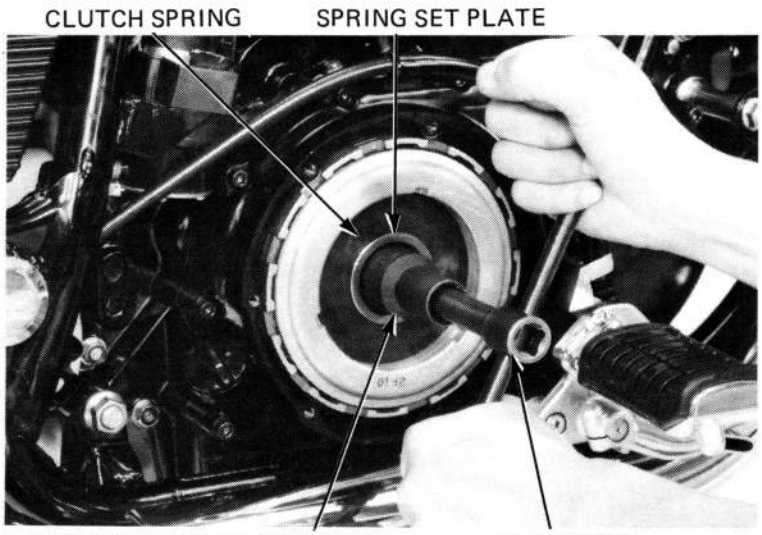
Shift the transmission into high gear and apply the rear brake.

NOTE:

> When the engine is not in the frame, shift the transmission into gear and use the MAINSHAFT HOLDER, P/N 07923–6890100, to hold the final shaft.

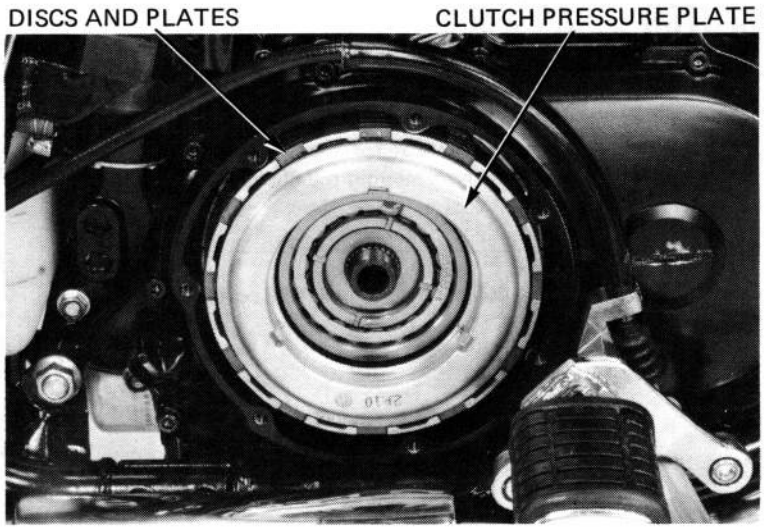
Remove the lock nut and lock washer.

Remove the clutch spring set plate, clutch spring and two washers.

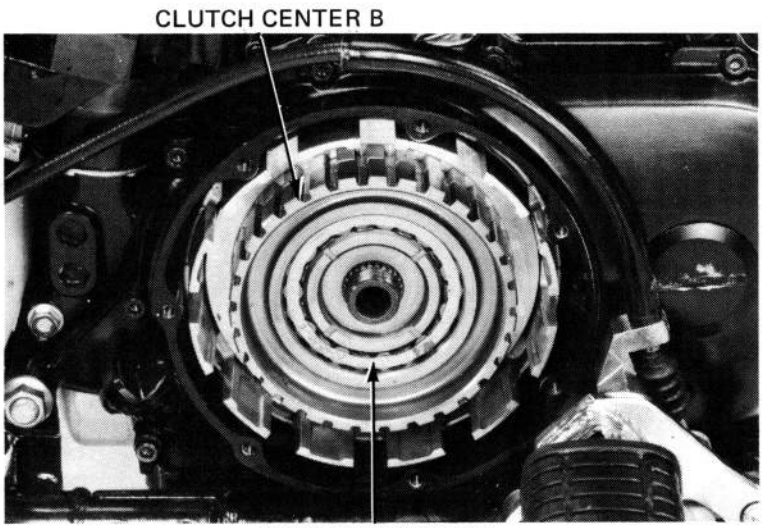


Remove the clutch pressure plate.

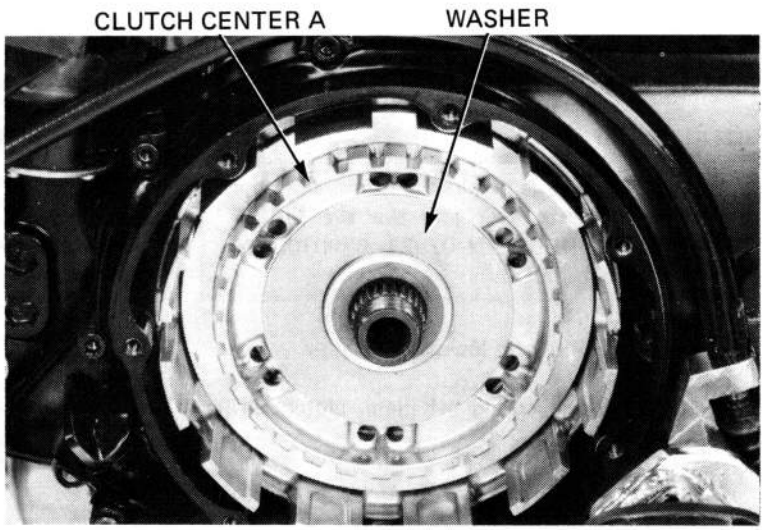
Remove the clutch plates and discs.



Remove clutch center B and the one-way clutch as an assembly.



Remove clutch center A and washer.



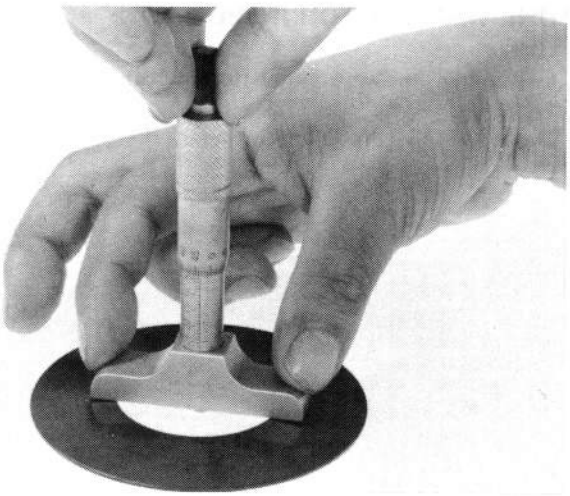
INSPECTION

CLUTCH SPRING

Measure the height of the clutch spring.

SERVICE LIMIT: 3.6 mm (0.14 in)

Replace the spring if it is shorter than the service limit.

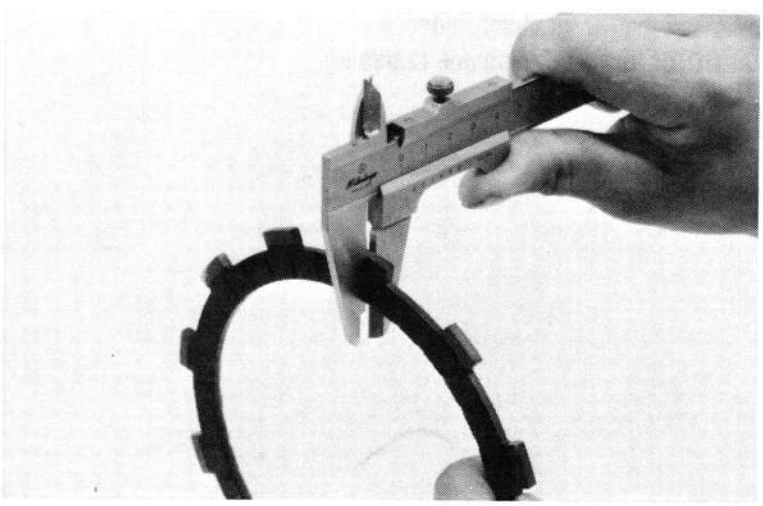


CLUTCH DISC

Replace the clutch discs if they show signs of scoring or discoloration. Measure the thickness of each disc.

SERVICE LIMIT: 3.1 mm (0.12 in)

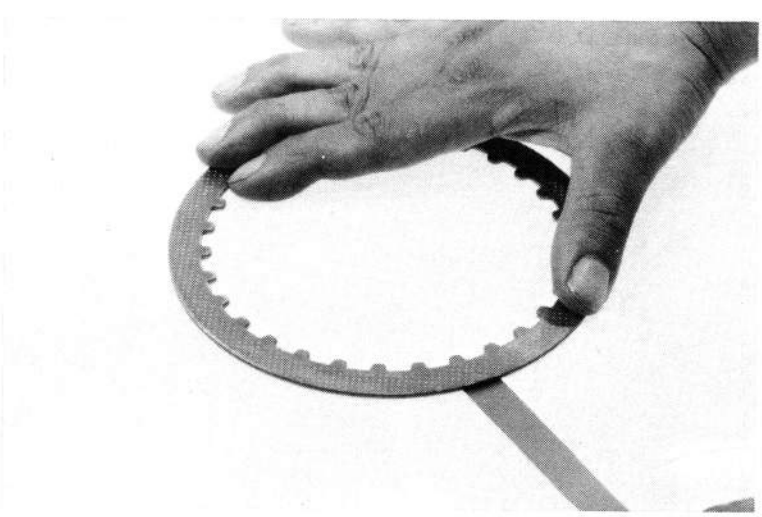
Replace any discs that are thinner than the service limit.



CLUTCH PLATE

Check for plate warpage on a surface plate, using a feeler gauge.

SERVICE LIMIT: 0.30 mm (0.012 in)



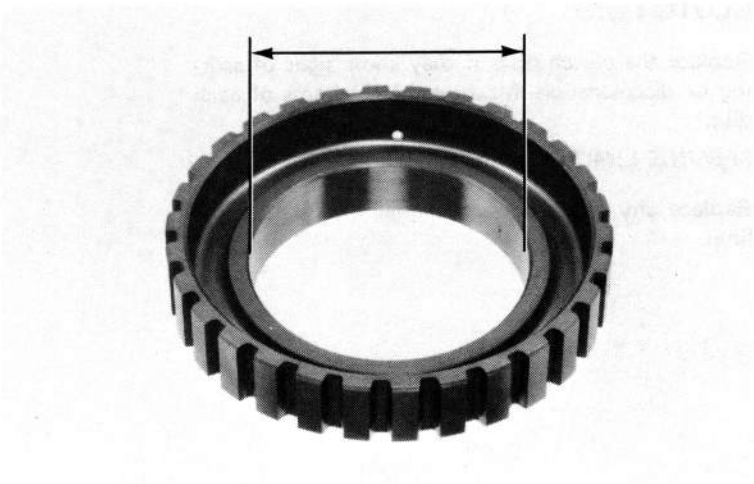
ONE WAY CLUTCH INSPECTION

Inspect the one way clutch for smooth operation.

Check the rollers for excessive wear.

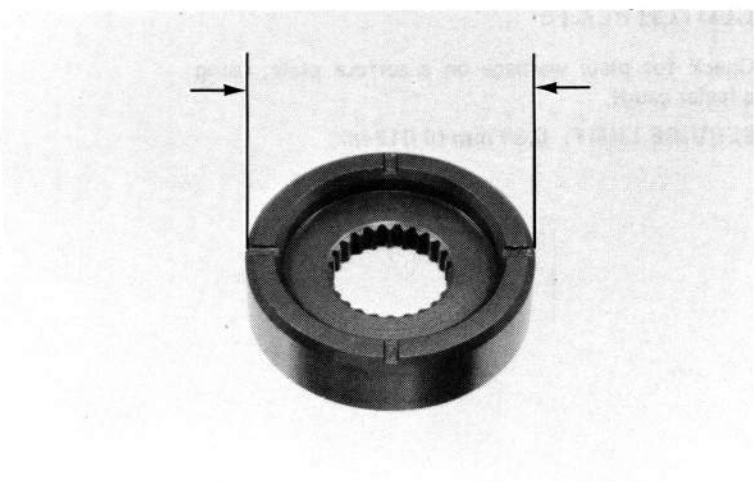
Measure the I.D. of clutch center B.

SERVICE LIMIT: 74.50 mm (2.933 in)



Measure the O.D. of the one way clutch inner.

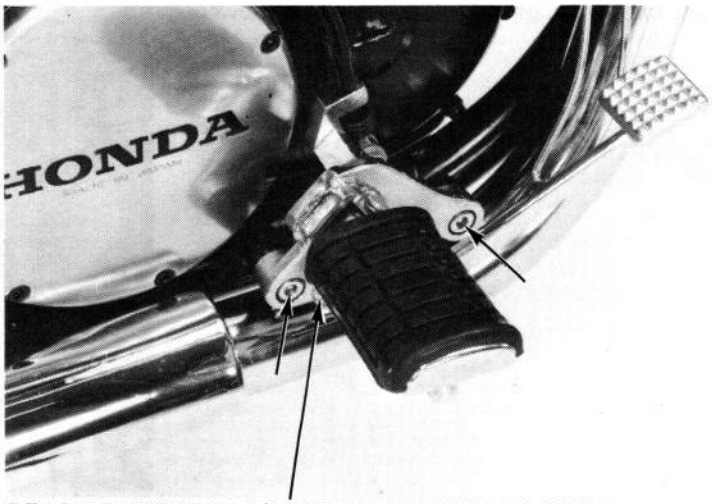
SERVICE LIMIT: 57.60 mm (2.268 in)



CLUTCH OUTER REMOVAL

Drain the engine oil.

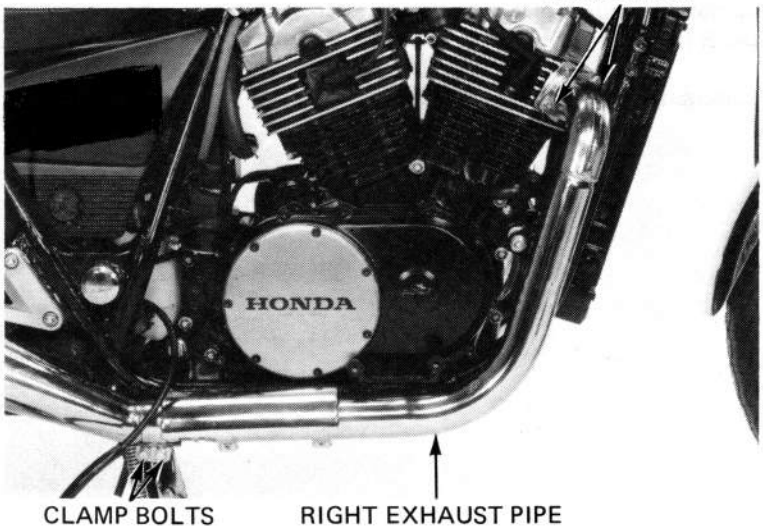
Remove the rear brake pedal/right foot peg bracket.



REAR BRAKE PEDAL/RIGHT FOOT PEG BRACKET

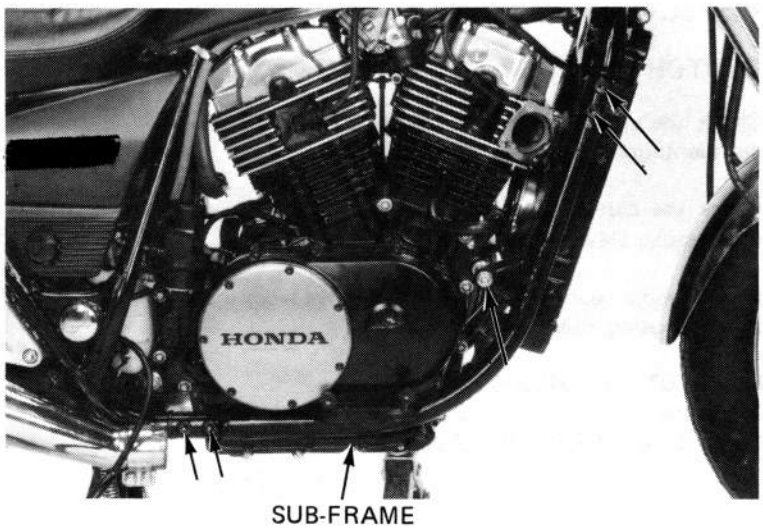
Loosen the two right exhaust pipe clamp bolts.

Remove the exhaust pipe joint nuts and remove the right exhaust pipe.

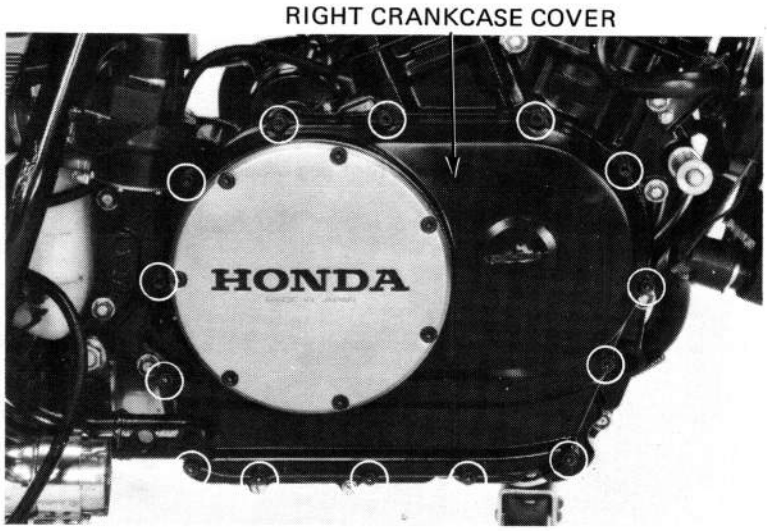


Place a jack or other adjustable support under the engine to support the engine.

Remove the four sub-frame bolts, engine mount nut and sub-frame.

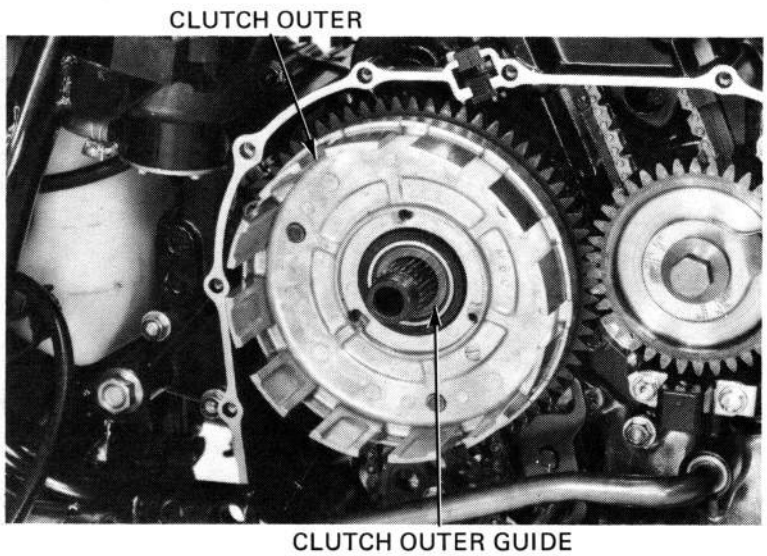


Remove the right crankcase cover, gasket and dowel pins.



Remove the clutch plates, discs and clutch centers A and B (page 7-11).

Remove the clutch outer and outer gauide.



INSPECTION

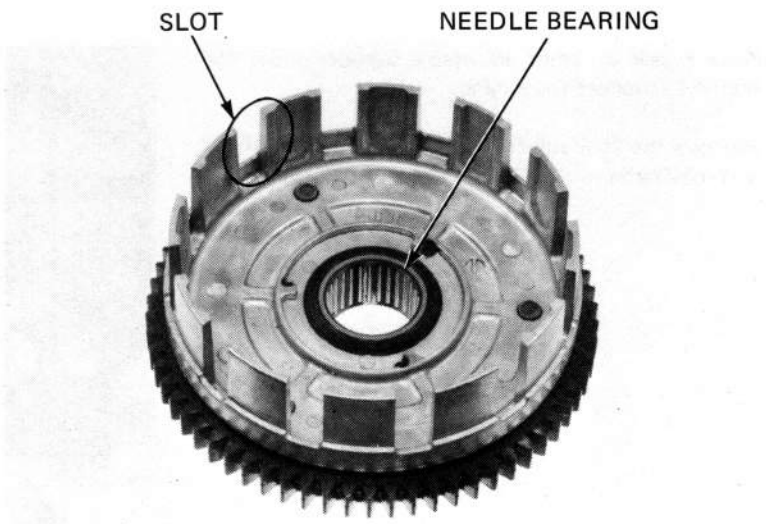
CLUTCH OUTER

Check the slots in the clutch outer for nicks, cuts or indentations made by the friction discs.

Check the clutch outer needle bearing for damage or excessive play.

If the needle bearing is difficult to remove from the clutch housing, use the following tools:

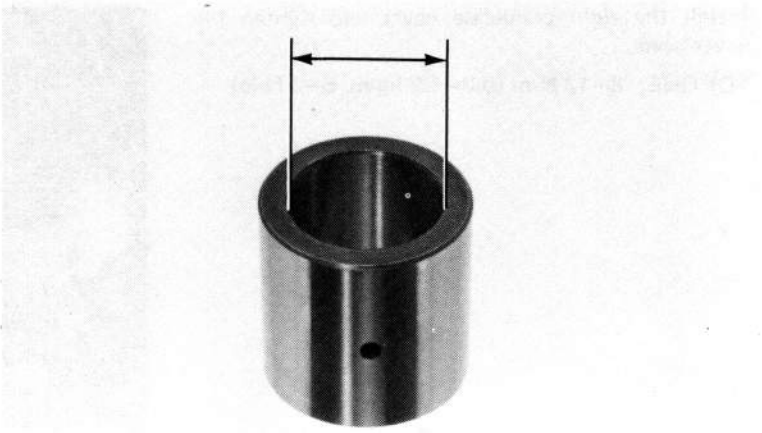
Driver: 07749–0010000
Attachment, 37 x 40 mm: 07746–0010200
Pilot, 35 mm: 07746–0040800



CLUTCH OUTER GUIDE

Measure the I.D. of the clutch outer guide.

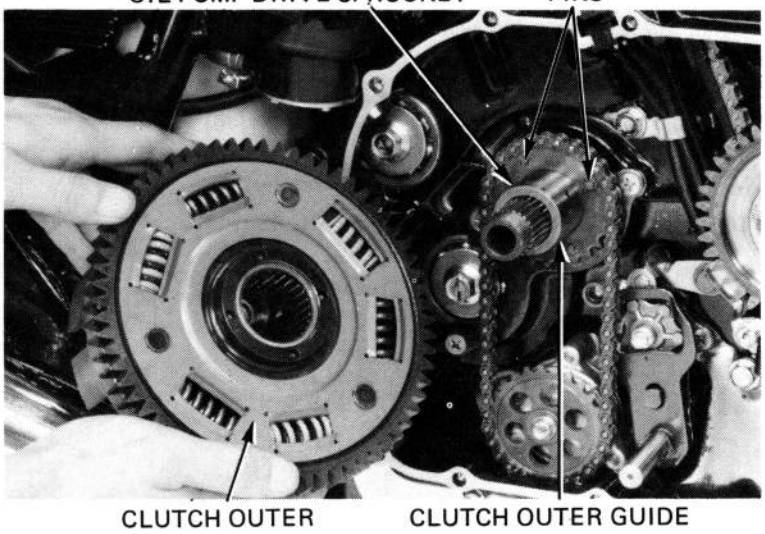
SERVICE LIMIT: 25.08 mm (0.987 in)



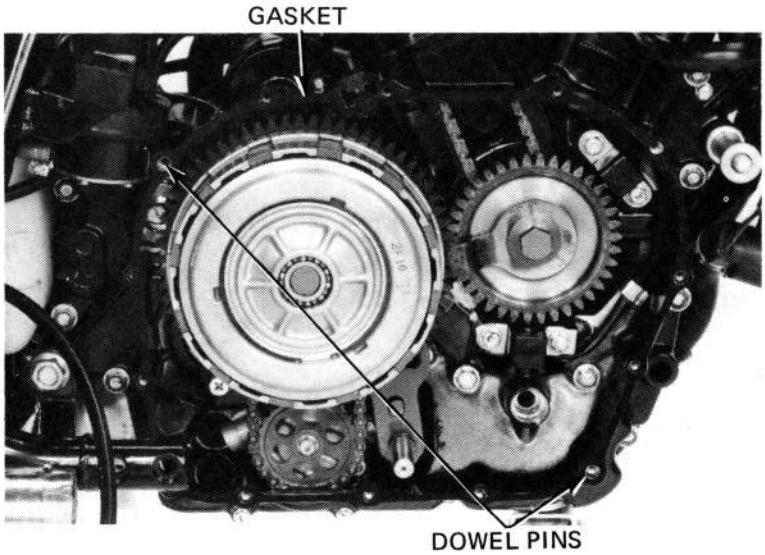
CLUTCH ASSEMBLY

Install the clutch outer guide over the mainshaft. Install the needle bearing into the clutch outer.

Align the holes in the clutch outer with the pins on the oil pump drive sprocket and install the clutch outer over the guide.

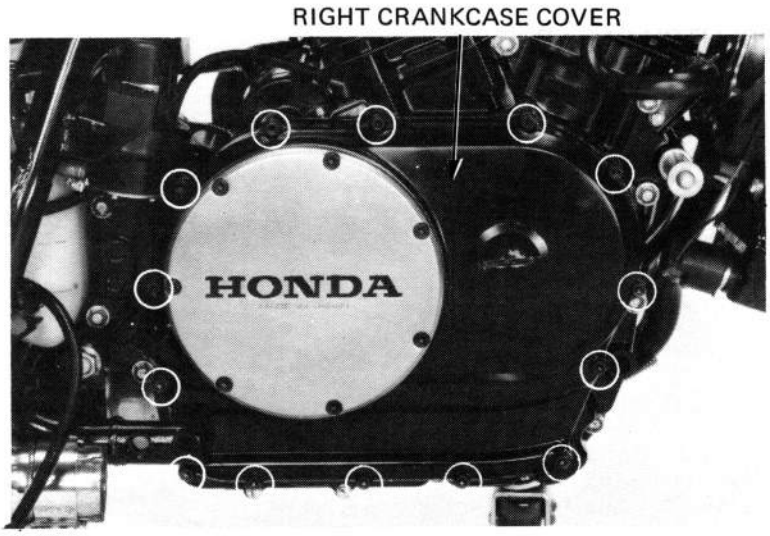


Install the dowel pins and a new gasket.



Install the right crankcase cover and tighten the cover bolts.

TORQUE: 8–12 N·m (0.8–1.2 kg-m, 6–9 ft-lb)

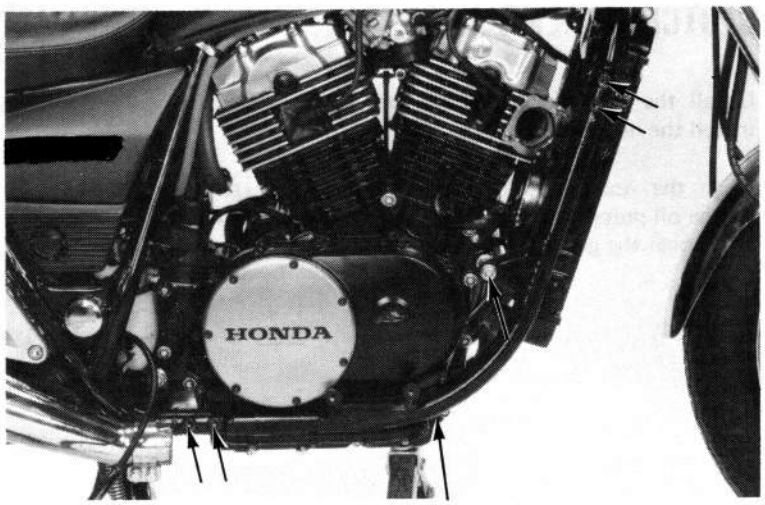


Install the sub-frame and tighten the bolts.

TORQUE:
Upper 70–80 N·m (7.0–8.0 kg-m, 51–58 ft-lb)
Lower 35–45 N·m (3.5–4.5 kg-m, 25–33 ft-lb)

Install and torque the engine mount 10 mm nut.

TORQUE: 45–60 N·m (4.5–6.0 kg-m, 33–43 ft-lb)



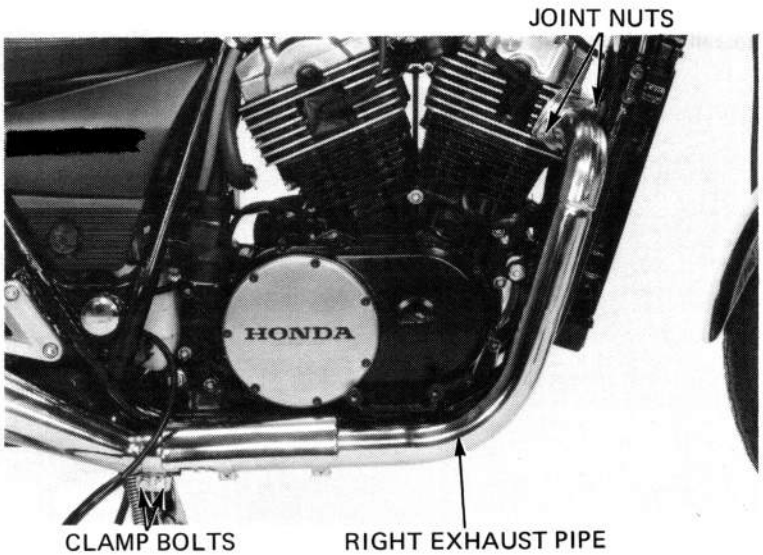
Install the right exhaust pipe and tighten the exhaust pipe joint nuts.

TORQUE: 8–14 N·m (0.8–1.4 kg-m, 6–10 ft-lb)

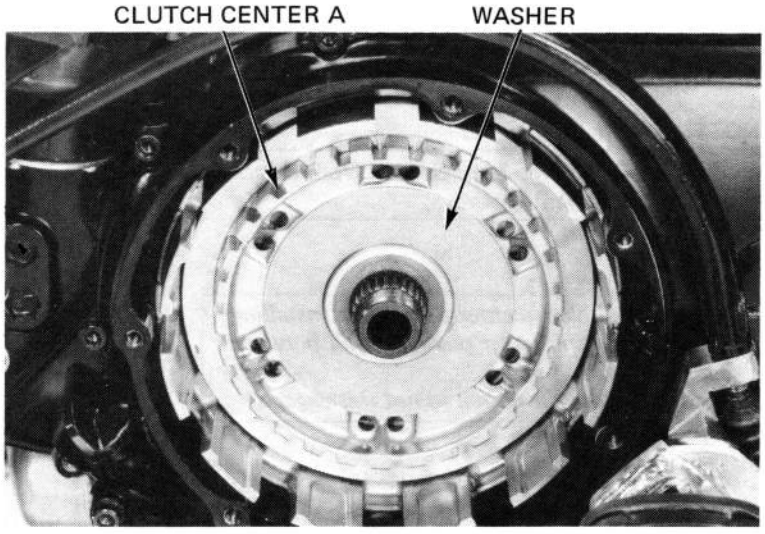
Tighten the exhaust pipe clamp bolts.

TORQUE: 18–28 N·m (1.8–2.8 kg-m, 13–20 ft-lb)

Fill the crankcase with oil (page 2-3).



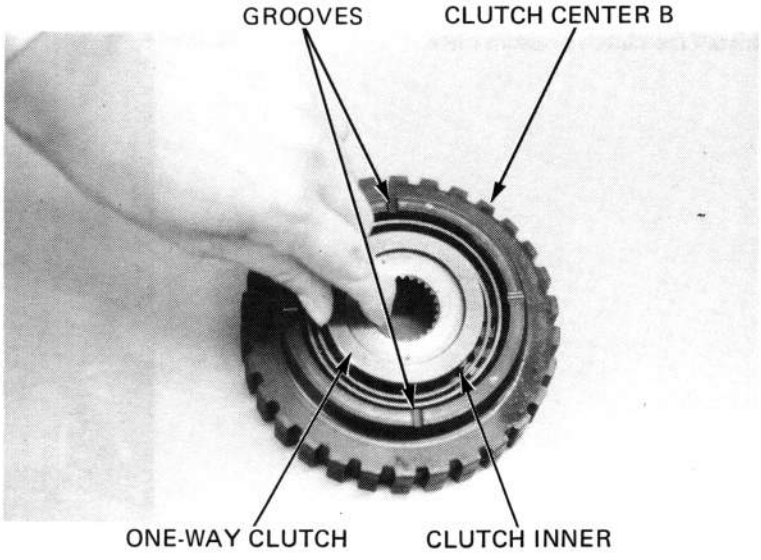
Install clutch center A and the washer.



Install the one-way clutch into clutch center B with its flanged cage facing out.

Place clutch center B with the grooved side facing up.

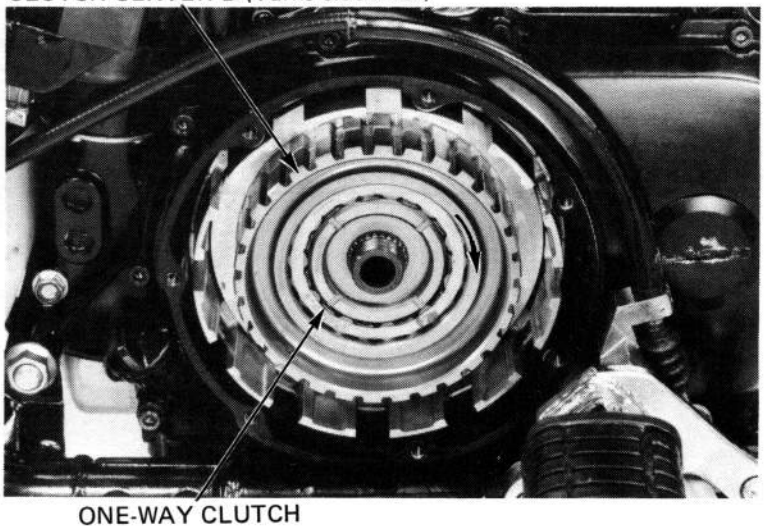
Install the clutch inner into the one-way clutch with its grooves facing down. Turn it clockwise as you install it.



Install the one-way clutch/clutch center B assembly over the mainshaft.

NOTE:

> Make sure the one way clutch assembly is installed correctly by turning the clutch center B. The clutch center should turn clockwise freely and should not turn counterclockwise.



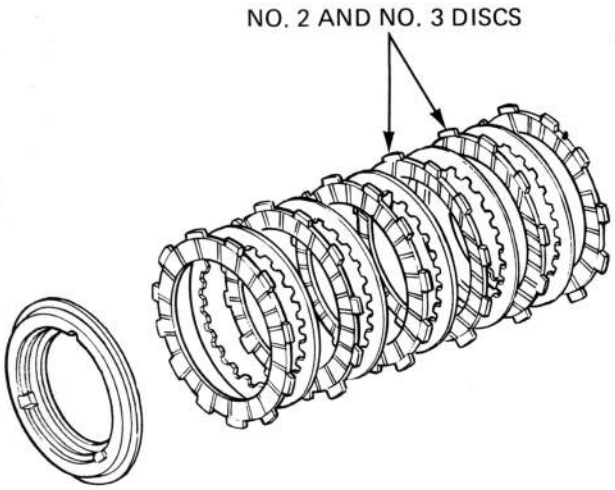
Coat the discs and plates with clean engine oil. Install the clutch discs and plates as shown.

NOTE:

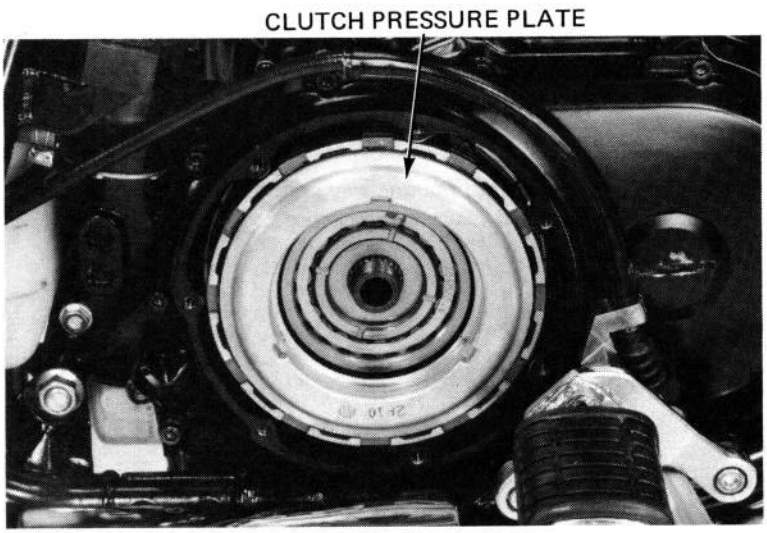
> The No. 2 and No. 3 clutch discs from the inside have different grooves.

CAUTION:

> *Do not pull cluth center B out after installing the discs and plates or plate will fall between clutch centers A and B.*
> *This will cause the clutch to not this engage.*



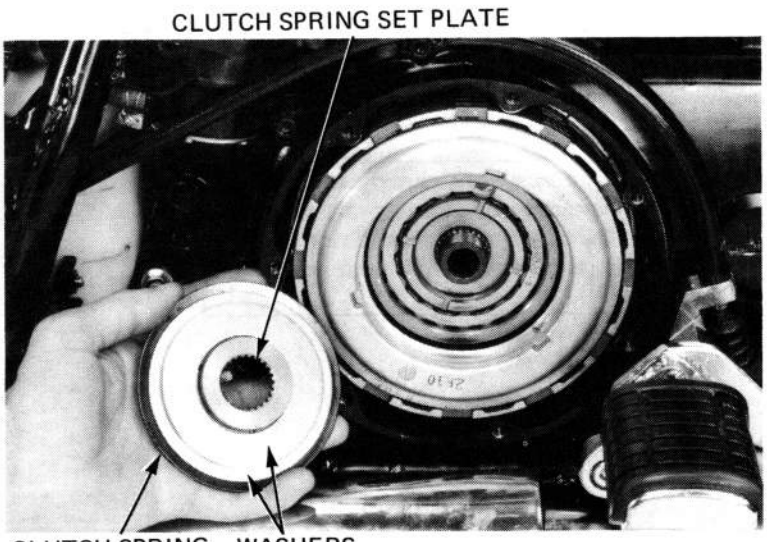
Install the clutch pressure plate.



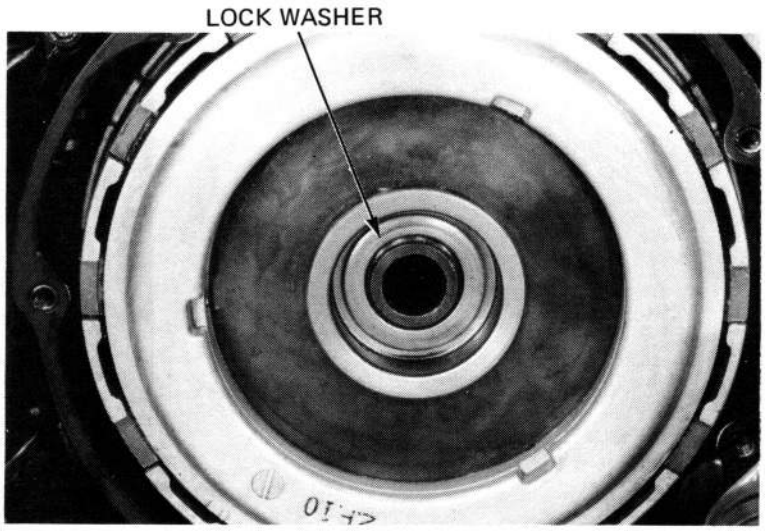
Install the clutch spring set plate, clutch spring, and washers.

NOTE:

> Install the clutch spring with the dished face towards the inside.



Install the lock washer with its dished face towards the inside.



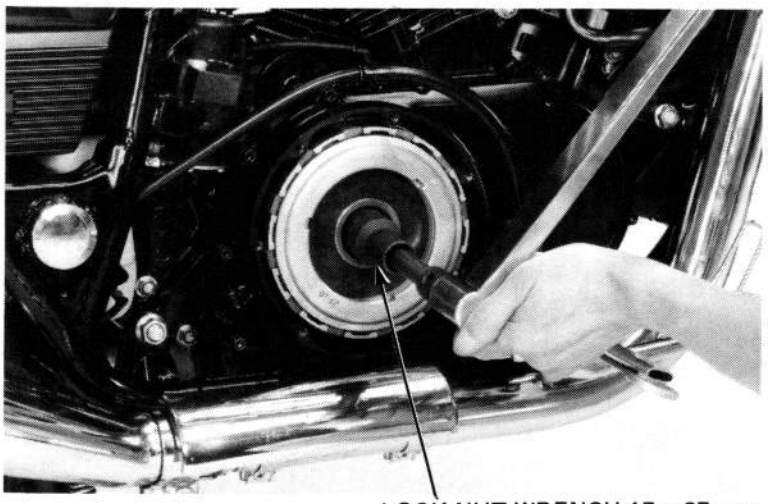
Place the transmission in 6th gear.

Apply the rear brake and tighten the lock nut.

NOTE:

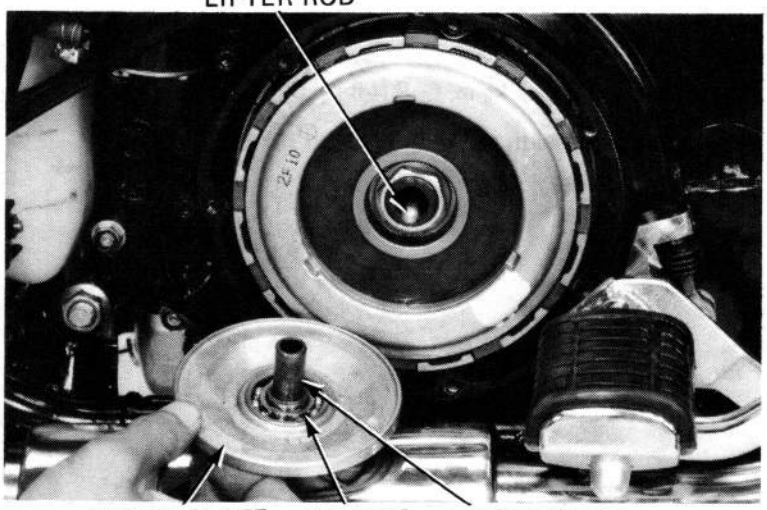
> When servicing the clutch with the engine out of the frame, shift the transmission into gear and hold the output shaft with the HOLDER 07923–6890101.

TORQUE:
45–55 N·m (4.5–5.5 kg-m, 33–40 ft-lb)

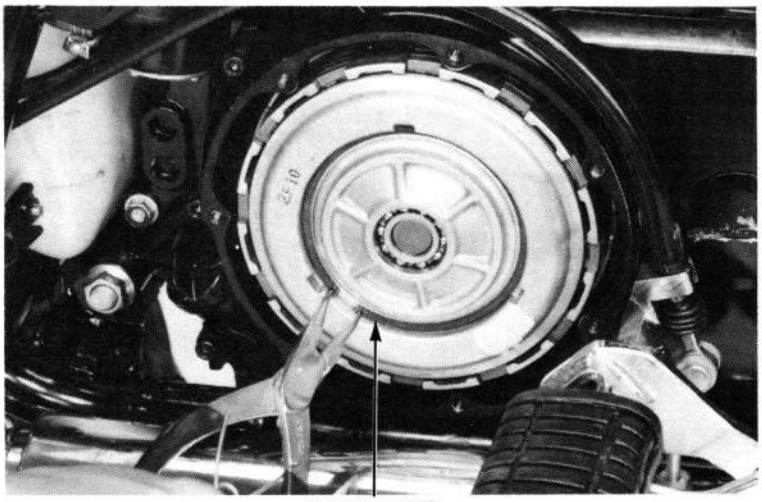


Install the clutch lifter rod.

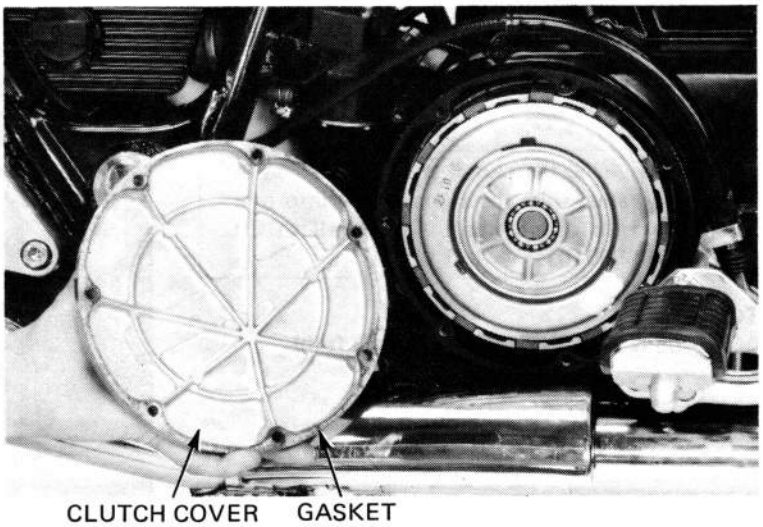
Install the clutch lifter plate, lifter guide and bearing.



Install the snap ring.



Install a new gasket onto the clutch cover.



Install the clutch cover and tighten the cover bolts.

TORQUE:
8–12 N·m (0.8–1.2 kg-m, 6–9 ft-lb)

Fill the crankcase with the recommended oil (page 2-3).