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 an enclosed area. The exhaust contains posisonous carbon monoxide gas that can cause the loss of consciousness and may lead to death.

⚠ 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.

⚠ WARNING

- *Gasoline is extremely flammable and is explosive under certain conditions so work in a well ventilated area with the engine stopped. Do not smoke or allow flames or sparks in the work area or where gasoline is stored.*

⚠ WARNING

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

CAUTION

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

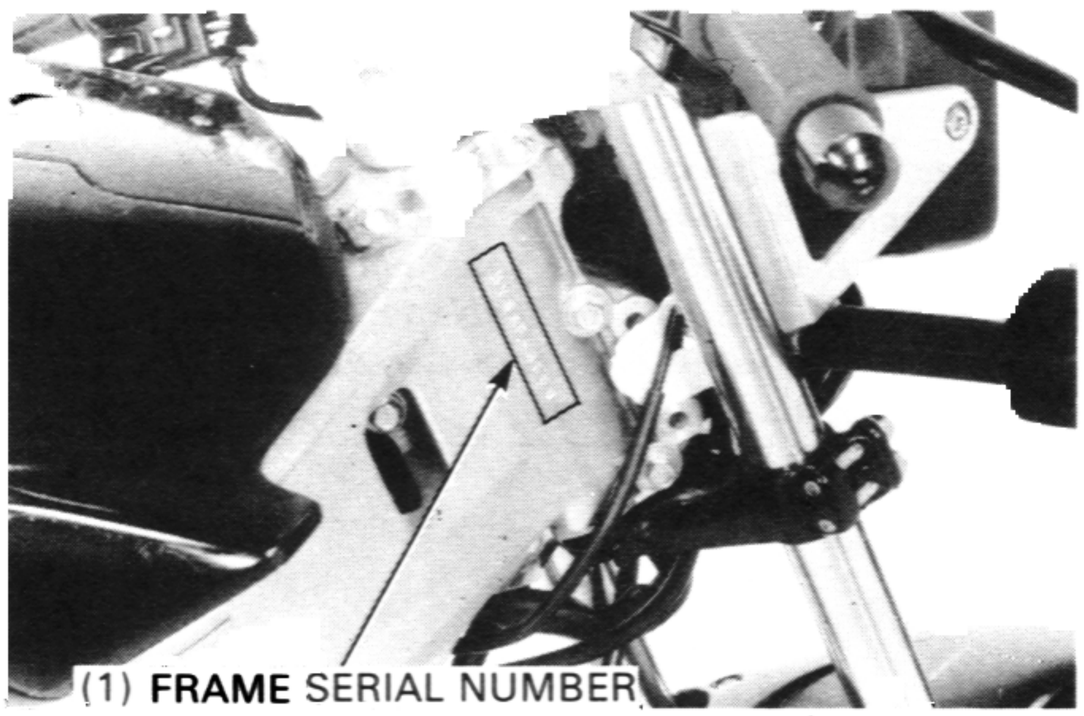
SERVICE RULES

1) Use genuine HONDA or HONDA-recommended parts and lubricants or their equivalents. Parts that don't meet HONDA's design specifications may damage to the vehicle.
2) Use the special tools designed for this product to avoid damage and incorrect assembly.
3) Use only metric tools when servicing the vehicle. Metric bolts, nuts, and screws are not interchangeable with English fasteners.
4) Install new gaskets, O-rings, cotter pins, and lock plates when reassembling.
5) When tightening bolts or nuts, begin with the larger-diameter or inner bolts first. Then tighten to the specified torque diagonally in 1-5 steps, unless a particular sequence is specified.
6) Clean parts in non-flammable or high flash point solvent upon disassembly.
7) Lubricate any sliding surfaces before reassembly.
8) After reassembly, check all parts for proper installation and operation.

MODEL IDENTIFICATION

NSR 125 F

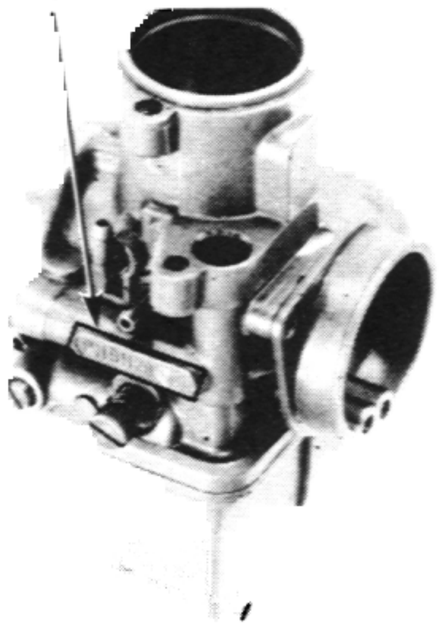
NSR 125 R



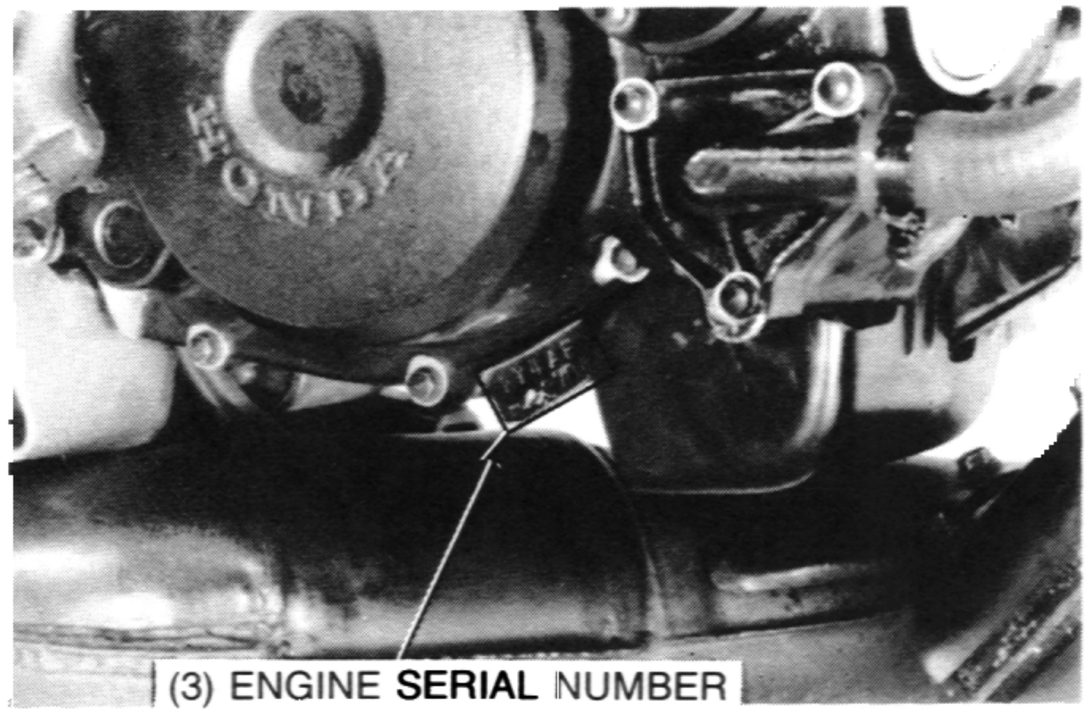
(1) **FRAME** SERIAL NUMBER

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

(2) CARBURETOR IDENTIFICATION NUMBER



The carburetor identification number is stamped on the carburetor body left side.



(3) ENGINE **SERIAL** NUMBER

The engine serial number is stamped on the crankcase lower right side.

SPECIFICATIONS

[R-Type] {R-Type Code}

ITEM			SPECIFICATIONS
DIMENSIONS	Overall length		2,010 mm (79.1 in) [2,060 mm (81.1 in) SW-FI-SD] {2,015 mm (79.3 in) F-8H}
	Overall width		680 mm (26.7 in) [690 mm (27.1 in)]
	Overall height		1,035 mm (40.7 in) [1,080 mm (42.5 in)]
	Wheelbase		1,350 mm (53.1 in)
	Seat height		780 mm (30.7 in)
	Footpeg height		345 mm (13.6 in)
	Ground clearance		135 mm (5.3 in)
	Dry weight		121 kg (266 lb) [127 kg (279,4 lb)]
	Curb weight		132 kg (290 lb) [138 kg (304 lb)]
FRAME	Type		Almi cast bolt on
	Front suspension, travel		Telescopic fork, 135 mm (5.3 in)
	Rear suspension, travel (at rear axle)		Pro link, 110 mm (4.3 in)
	Front tire size		100/80-17 52S
	Rear tire size		130/70-18 63S
	Cold tire pressure	Rider only — Front	200 kPa (2.00 kg/cm², 29 psi)
		Rider only — Rear	225 kPa (2.25 kg/cm², 33 psi)
		Rider and one passenger — Front	200 kPa (2.00 kg/cm², 29 psi)
		Rider and one passenger — Rear	250 kPa (2.50 kg/cm², 36 psi)
	Front brake, lining swept area		Hydraulic single disc, 61.4 cm² (9.5 sq in)
	Rear brake lining swept area		Hydraulic single disc, 48.9 cm² (7.6 sq in)
	Fuel capacity		10.0 lt. (2.6 US gal, 2,19 Imp gal)
	Fuel reserve capacity		2.0 lt. (0,52 US gal, 0,43 Imp gal)
	Caster angle		25°30'
	Trail lenght		97 mm (3.8 in)
	Fork oil capacity		280 cc (9.4 US oz, 7.8 Imp oz)
ENGINE	Type		Water cooled 2-stroke
	Cylinder arrengement		Single cylinder 18.5° inclined from vertical
	Bore and stroke		54.0 × 54.5 mm (2.13 × 2.15 in)
	Displacement		124.8 cm² (7.62 cu in)
	Compression ratio		7.0:1
	Transmission oil capacity		0,75 liters (0.79 US qt, 0.66 Imp qt) after disassembly
			0,70 liters (0.74 US qt, 0.62 Imp qt) after draining
	Engine oil tank capacity		1.0 liters (1.06 US qt, 0.88 Imp qt)
	Coolant capacity		1.1 liters (1,16 US qt, 0,96 Imp qt)
	Lubrication system		Separate lubrication
	Air filtration		Oiled urethane foam
	Cylindercompression		1,000 ± 20 kPa (10 ± 2 kg/cm², 142 ± 28 psi)
	Port timing	Intake — Open	Reed valve controlled
		Intake — Close	Reed valve controlled
		Exhaust — Open	75°-95° BBDC
		Exhaust — Close	73°-93° ABDC
		Scavenge — Open	64° BBDC
		Scavenge — Close	62° ABDC
	Engine dry weight		22 kg (49 lb)
	Idle speed		1.400 ± 100 min⁻¹ (rpm)
CARBURETOR	Type		Throttle valve
	Identification number		PHBH 28 FS
	Venturi diameter		28 mm
	Pilot screw initial opening		2.5 turns out {2 turns out SW}
	Float level		24 ± 0.5 mm (0.94 ± 0.02 in)

SPECIFICATIONS

[R-Type] {R-Type Code}

ITEM		SPECIFICATIONS
DRIVE TRAIN	Clutch	Wet multi plate
	Transmission	6-speed constant mesh
	Primary reduction	3,250 (65/20)
	Gear ratios I	3,090 (34/11)
	II	2.000 (30/15)
	III	1.470 (25/17)
	IV	1.210 (23/19)
	V	1.043 (24/23)
	VI	0.916 (22/24)
	Final reduction	2.692 (35/13)
	Gearshift pattern	1—N—2—3—4—5—6
ELECTRICAL	Ignition	CDI
	Ignition timing F mark	24.3° ± 2°/3,000 min⁻¹ (rpm)
	Alternator	168W/5,000 min⁻¹ (rpm) [276W/5,000 min⁻¹ (rpm)]
	Spark plug	
	Spark plug gap	0.7-0.8 mm (0.028—0.031 in)
	Fuse	15A
LIGHTS	Headlight (high/low beam)	12V 35W/35W [12V 25W/25W × 2] {12V60W/55W-SW}
	Position light	12V 5W [12V 5W × 2]
	Brake/taillight	12V 21W/5W
	Turn signal light	12V 10W × 4
	Instrument light	12V 1.7W × 4
	Neutral indicator light	12V 3W
	Turn signal indicator light	12V 3W × 2
	High beam indicator light	12V 1.7W

	NGK	ND
Standard	BR9ECS	W27ESR-U
For extended high speed riding	BR10ES	W31ESR-U

TORQUE VALUES

ENGINE

ITEM	Q' ty	THREAD DIA. (mm)	TORQUE N·m (kg-m, ft-lb)	REMARKS
Water pump impeller	1	7	12 (1.2, 9)	
Cylinder head nut	6	7	16 (1.6, 12)	
Cylinder nut	4	8	23 (2.3, 17)	
Clutch center lock nut	1	14	65 (6.5, 47)	
Primary drive gear	1	12	65 (6.5, 47)	
Shift drum center pin	1	8	22 (2.2, 16)	Allpy a locking agent to the threads
Shift drum stopper bolt	1	6	12 (1.2, 9)	
Flywheel nut	1	12	65 (6.5, 47)	
Balancer driven gear nut	1	14	60-70 (6.0-7.0, 43-51)	
Crankcase bolt	11	6	9 (0.9, 6.5)	
Transmission oil drain bolt	1	8	27 (2.7, 20)	
Starter motor bolt	2	8	27 (2.7, 20)	

FRAME

ITEM	Q' ty	THREAD DIA. (mm)	TORQUE N·m (kg-m, ft-lb)	REMARKS
Fuel valve lock nut	1		10 (1.0, 7)	Apply a locking agent to the threads.
Engine mounting nut	3	10	37 (3.7, 27)	
Expansion chamber/silencer mounting nut	2	8	22 (2.2, 16)	
Expansion chamber joint nut	2	6	10 (1.0, 7)	
Front master cylinder holder bolt	2	6	10 (1.0, 7)	
Clutch lever bracket holder bolt	2	6	10 (1.0, 7)	
Front brake disc bolt	6	6	15 (1.5, 11)	
Front axle	1	12	55 (5.5, 40)	
Front axle pinch bolt	1	8	22 (2.2, 16)	
Fork slider socket bolt	2	10	28 (2.8, 20)	Apply a locking agent to the threads.
Lower fork pinch bolt	4	8	27 (2.7, 20)	
Upper fork pinch bolt	2	7	11 (1.1, 8)	
Fork tube cap	2	–	18 (1.8, 13)	
Front caliper bracket bolt	2	8	27 (2.7, 20)	
Steering adjustment nut	1	22	2 (0.2, 1.4)	
Steering stem nut	1	22	70 (7.0, 51)	

ITEM	Q'ty	THREAD DIA. (mm)	TORQUE N·m (kg-m, ft-lb)	REMARKS
Wheel flange bolt	10	6	15 (1.5, 11)	
Brake disc bolt (REAR)	3	10	33 (3.3, 24)	
(FRONT)	6	6	1.5 (1.5, 11)	
Driven sprocket bolt	5	10	45 (4.5, 33)	
Rear axle nut	1	16	90 (9.0, 65)	
Shock absorber upper mounting bolt	1	14	15 (1.5, 11)	
Shock absorber upper mounting bolt lock nut	1	22	35 (3.5, 25)	
Shock absorber upper mounting nut	1	8	35 (3.5, 25)	
Shock absorber lower mounting bolt	1	8	35 (3.5, 25)	
Shock arm-to-swing arm nut	1	10	45 (4.5, 33)	
Shock link-to-frame nut	1	10	45 (4.5, 33)	
Shock arm-to-shock link nut	1	10	45 (4.5, 33)	
Drive chain slider screw	2	—	9 (0.9, 6.5)	
Swing arm pivot bolt lock nut	1	22	70 (7.0, 51)	
Swing arm pivot nut	1	14	70 (7.0, 51)	
Bleed valve	2	6	6 (0.6, 4.3)	
Master cylinder reservoir cap screw	4	4	1.5 (0.15, 1.1)	
Brake hose bolt	2	10	30 (3.0, 22)	
Caliper bracket pin bolt A	1	8	18 (1.8, 13)	
Caliper bracket pin bolt B	1	8	23 (2.3, 17)	
Brake lever pivot nut	1	6	10 (1.0, 7)	
Caliper inner plate bolt	2	10	55 (5.5, 40)	
Rear caliper bolt	2	8	30 (3.0, 22)	

Torque specifications listed on previous page are for important fasteners. Others should be tightened to standard torque values listed below.

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	5 (0.5, 3.6)	5 mm screw	4 (0.4, 2.9)
6 mm bolt and nut	10 (1.0, 7)	6 mm screw	9 (0.9, 6.5)
8 mm bolt and nut	22 (2.2, 16)	6 mm flange bolt and nut	12 (1.2, 9)
10 mm bolt and nut	35 (3.5, 25)	8 mm flange bolt and nut	27 (2.7, 20)
12 mm bolt and nut	55 (5.5, 40)	10 mm flange bolt and nut	40 (4.0, 29)

TOOLS

NEWLY PROVIDED

DESCRIPTION	NUMBER	REF. SECT.
Rotor puller	07JMC–KY40100	9
Lock nut wrench	07JMA–KY40100	12

SPECIAL

DESCRIPTION	NUMBER	REF. SECT.
Bearing remover set, 12 mm		5
–Remover handle		5
–Bearing remover		5
Mechanical seal driver attachment		5
Attachment, 28×30 mm		5
Clutch center holder		8
Crankcase puller		10
Universal bearing puller		10
Bearing remover		10
Remover handle		10
Crankshaft assembly collar A		10
Crankshaft assmbly shaft A		10
Crankcase assembly tool		10
–Cankcase assembly collar B		10
–Crankcase assembly shaft B		10
Ball race remover		11
Fork seal driver attachment		11
Steering stem driver		11
Steering stem socket		11
Shock absorber spring compressor		12
Bearing remover, 20 mm		12
Remover sliding weight		12

COMMON

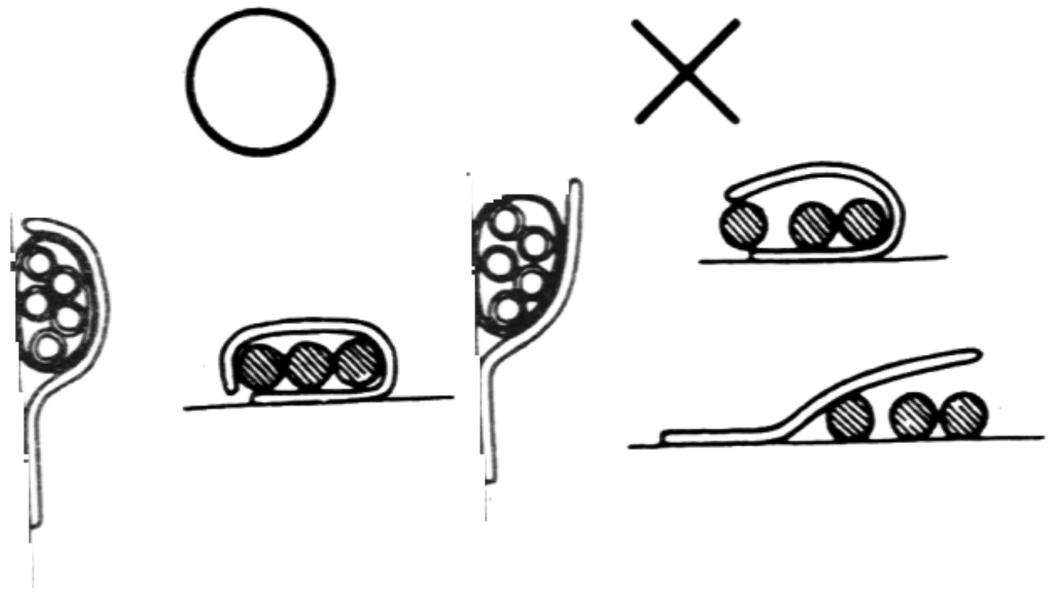
DESCRIPTION	NUMBER	REF. SECT.
Float level gauge	07401–0010000	4
Driver	07749–0010000	5, 10, 11, 12
Pilot, 12 mm	07746–0040200	5
Lock nut wrench, 20×24 mm	07716–0020100	8, 9
Extension bar	07716–0020500	8, 9
Flywheel holder	07725–0040000	8, 9
Attachment, 37×40 mm	07746–0010200	10, 11, 12
Attachment, 42×47 mm	07746–0010300	10
Attachment, 52×55 mm	07746–0010400	10
Attachment, 62×68 mm	07746–0010500	10

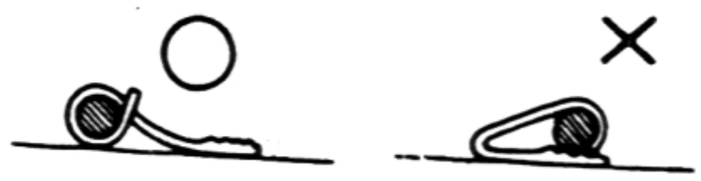
DESCRIPTION	NUMBER	REF. SECT.
Pilot, 15 mm	07746−0040300	10, 11
Pilot, 17 mm	07746−0040400	10, 12
Pilot, 20 mm	07746−0040500	10, 12
Pilot, 25 mm	07746−0040600	10, 12
Pilot, 22 mm	07746−0041000	10
Bearing remover shaft	07746−0050100	11, 12
Bearing remover head, 12 mm	07746−0050300	11
Bearing remover head, 17 mm	07746−0050500	12
Attachment, 32×35mm	07746−0010100	11, 12
Fork seal driver	07747−0010100	11
Digital multitester (KOWA)	07411−0020000	15, 19
Circuit tester (SANWA) or	07308−0020000	15, 16, 17, 18, 19
Circuit tester (KOWA)	TH5H	

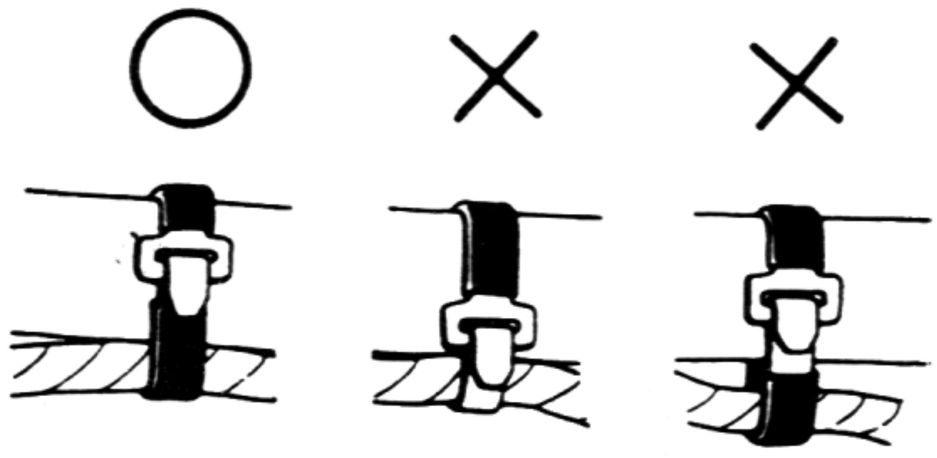
CABLE & HARNESS ROUTING

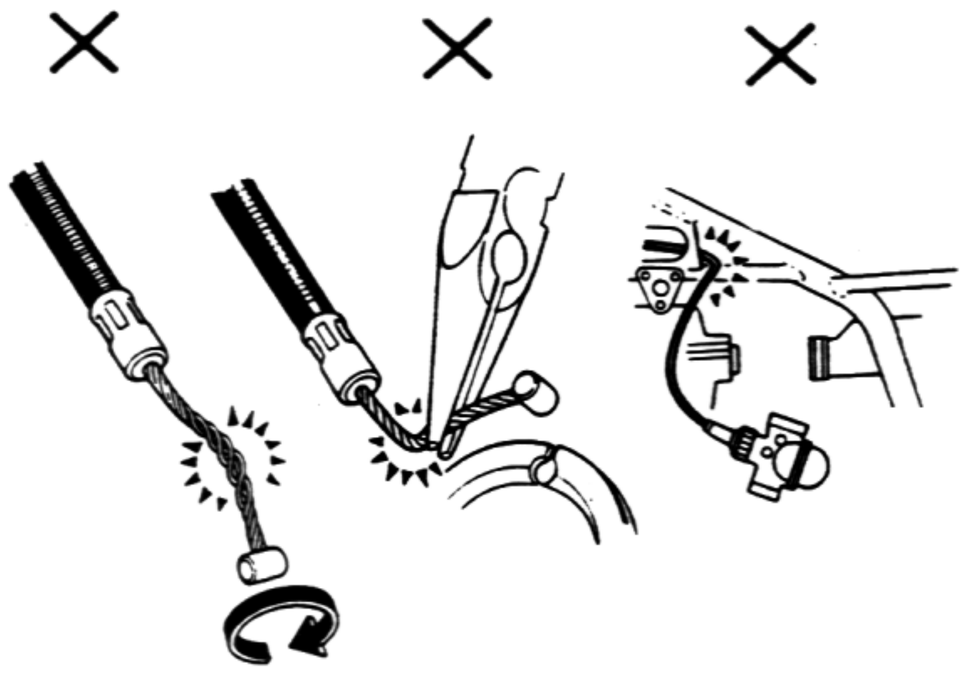
Note the following when routing cables and wire harnesses:

- A loose wire, harness of cable can be a safety hazard. After clamping, check each wire to be sure it is secure.
- Do not squeeze a wire against a 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 insulased surfaces contact the wires or wire harnesses.
- Route harnesses so they are not pulled taut or have excessive slack.
- Protect wires and harnesses with electrical tape or tubes if they contact a sharp edge or corner.
  Clean the attaching surface thoroughly before applying tape.
- Do not use a wire or harness with a broken insulator. Repair by wrapping them with 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 pipe and other parts that get hot.
- Be sure grommets are seated in their grooves properly.
- After clamping, chek each harness to be certain that it is not interfering with any moving or sliding parts.
- Wire harnesses routed along the handlebars should not be pulled taut, have excessive slack, be pinched by, or interfere with adjacent or surrounding parts in all steering positions.
- After routing, check that the wire harnesses are not twisted or kinked.
- Do not bend or twist control cables. Damaged control cables will not operate smoothly and may stick or bind.

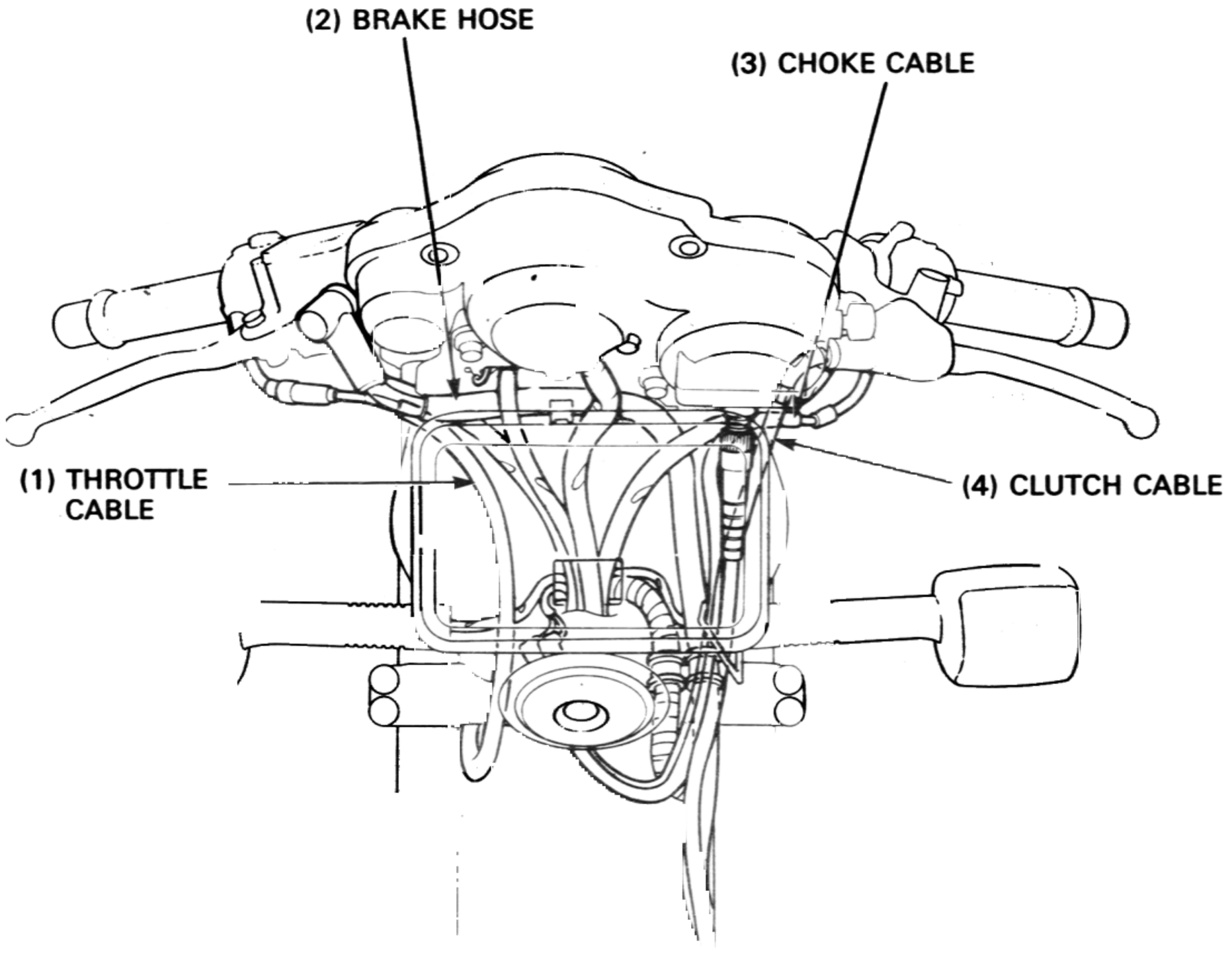


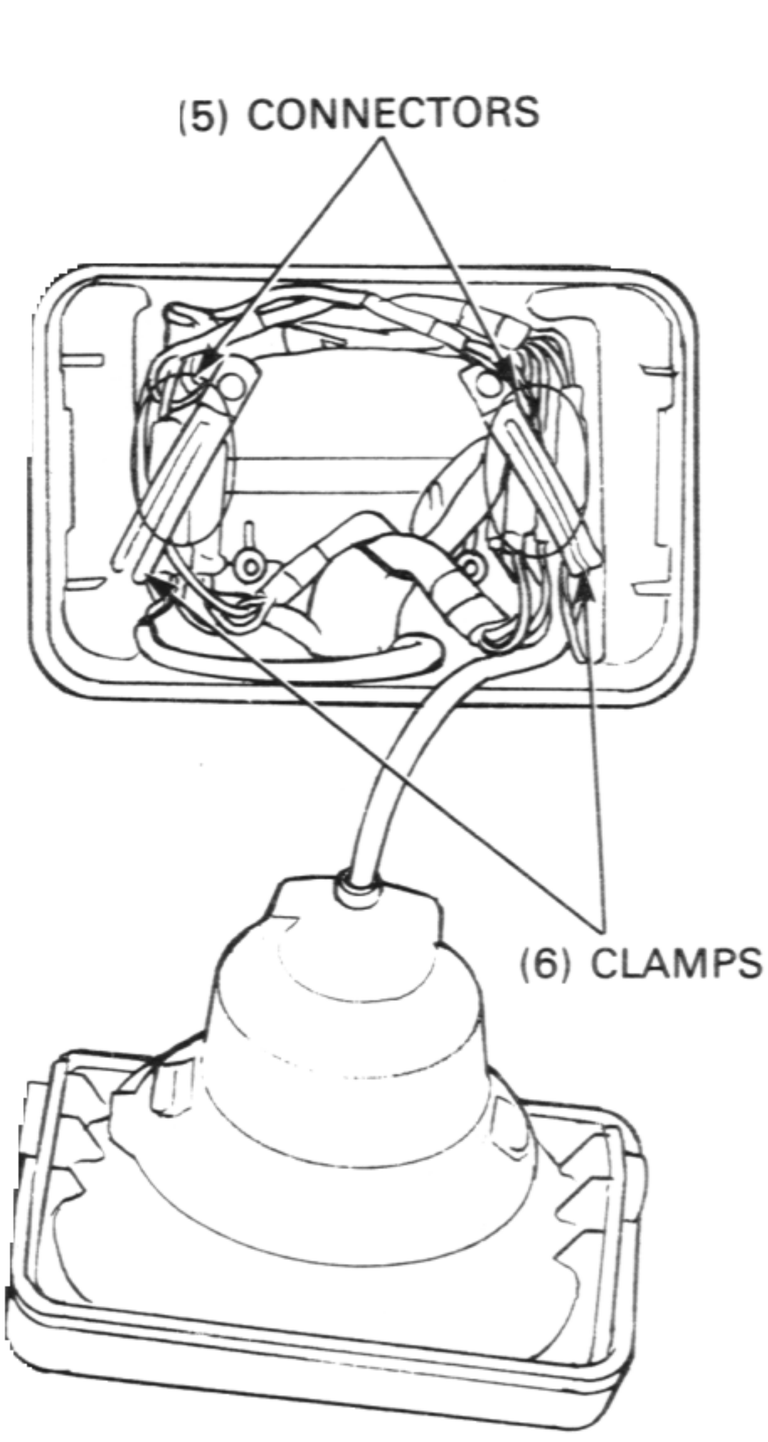


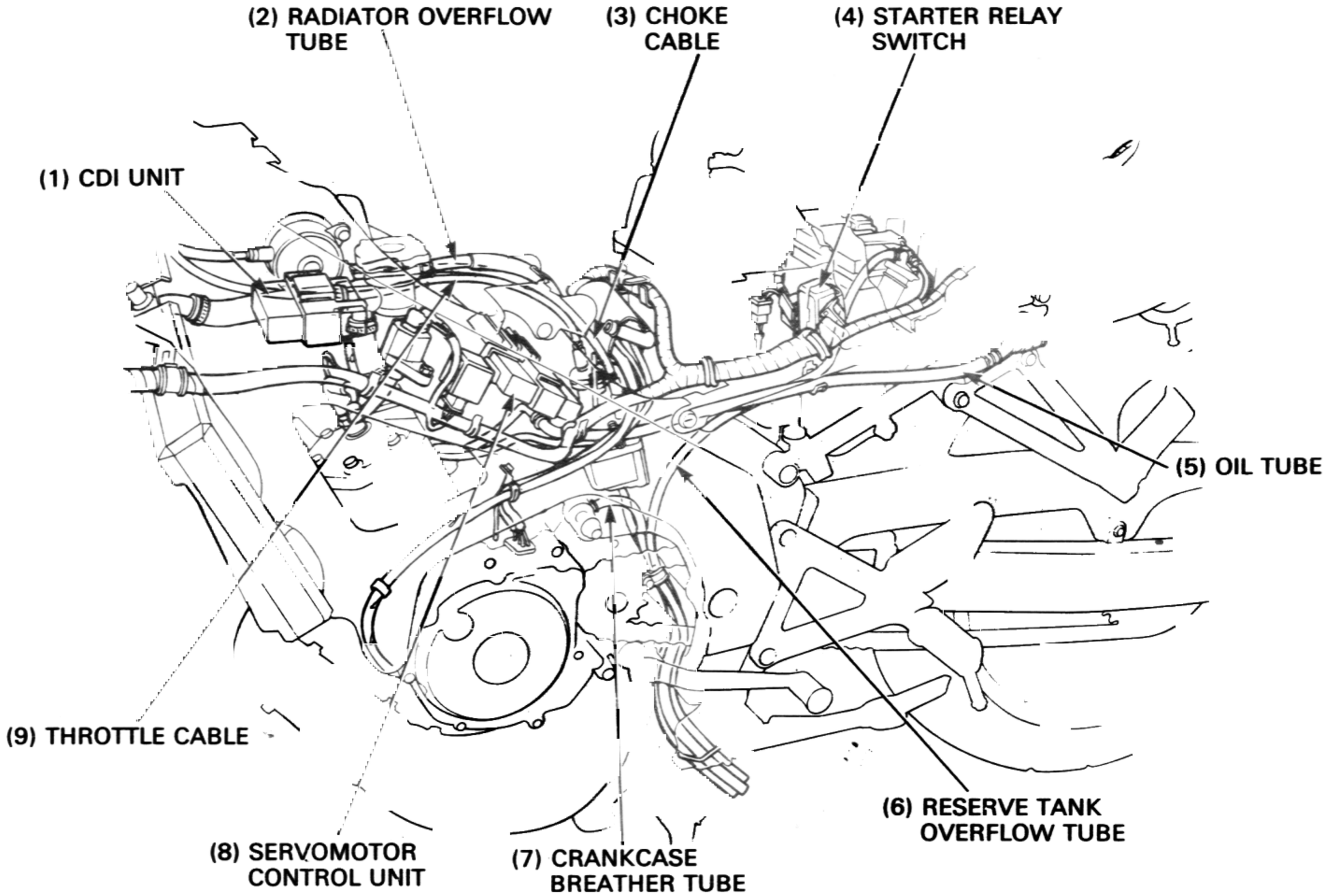


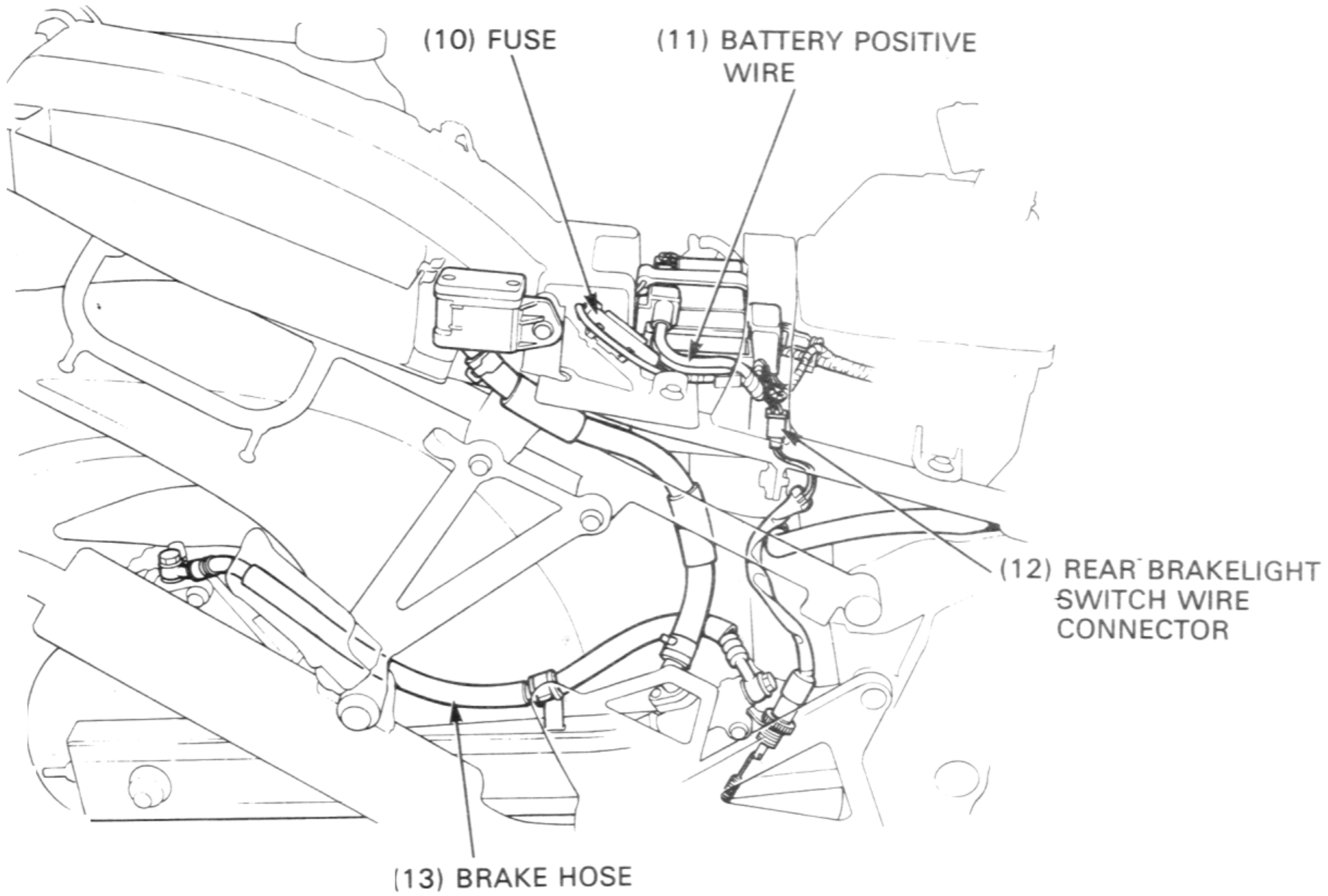


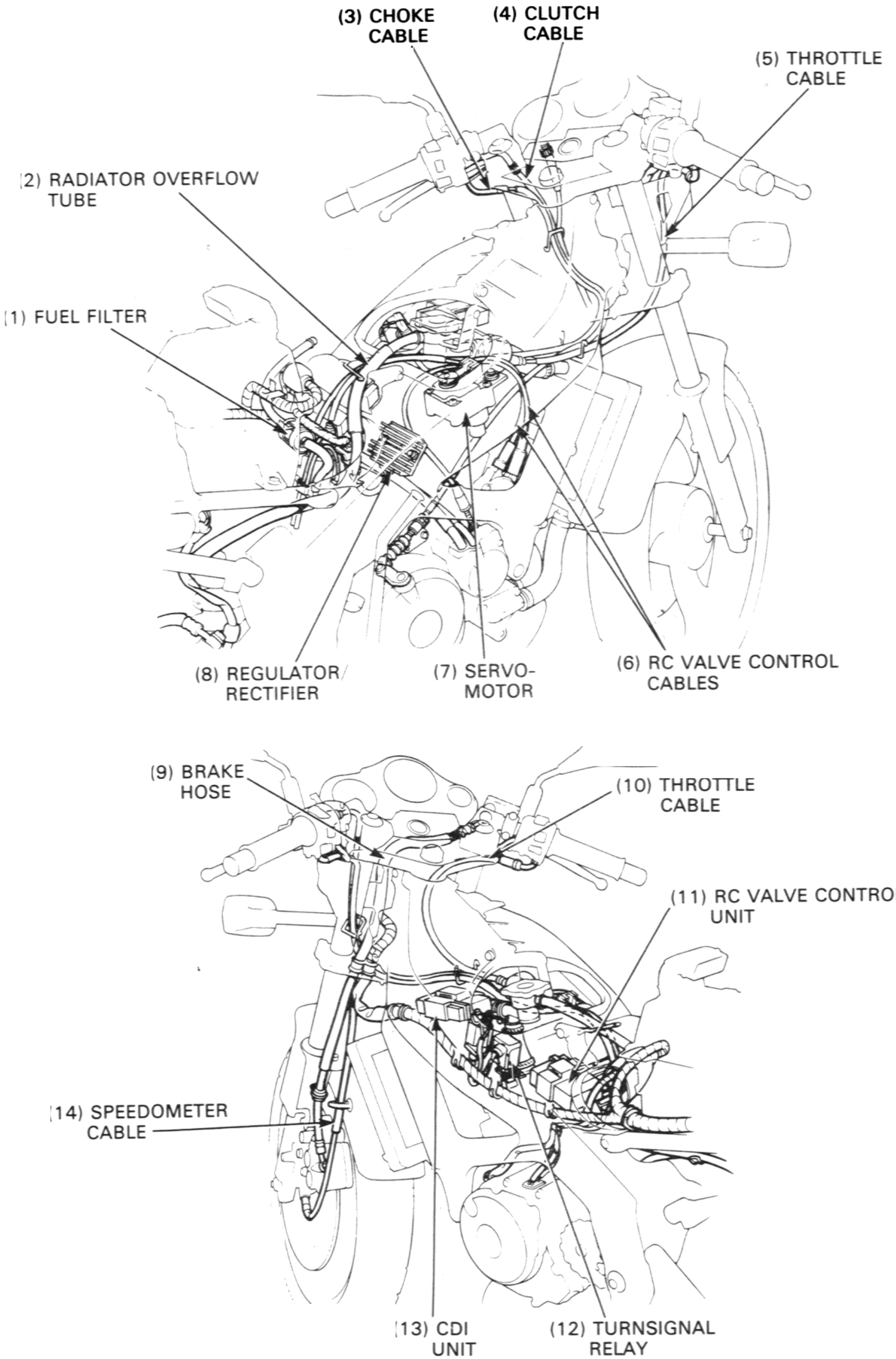
O: CORRECT
×: INCORRECT

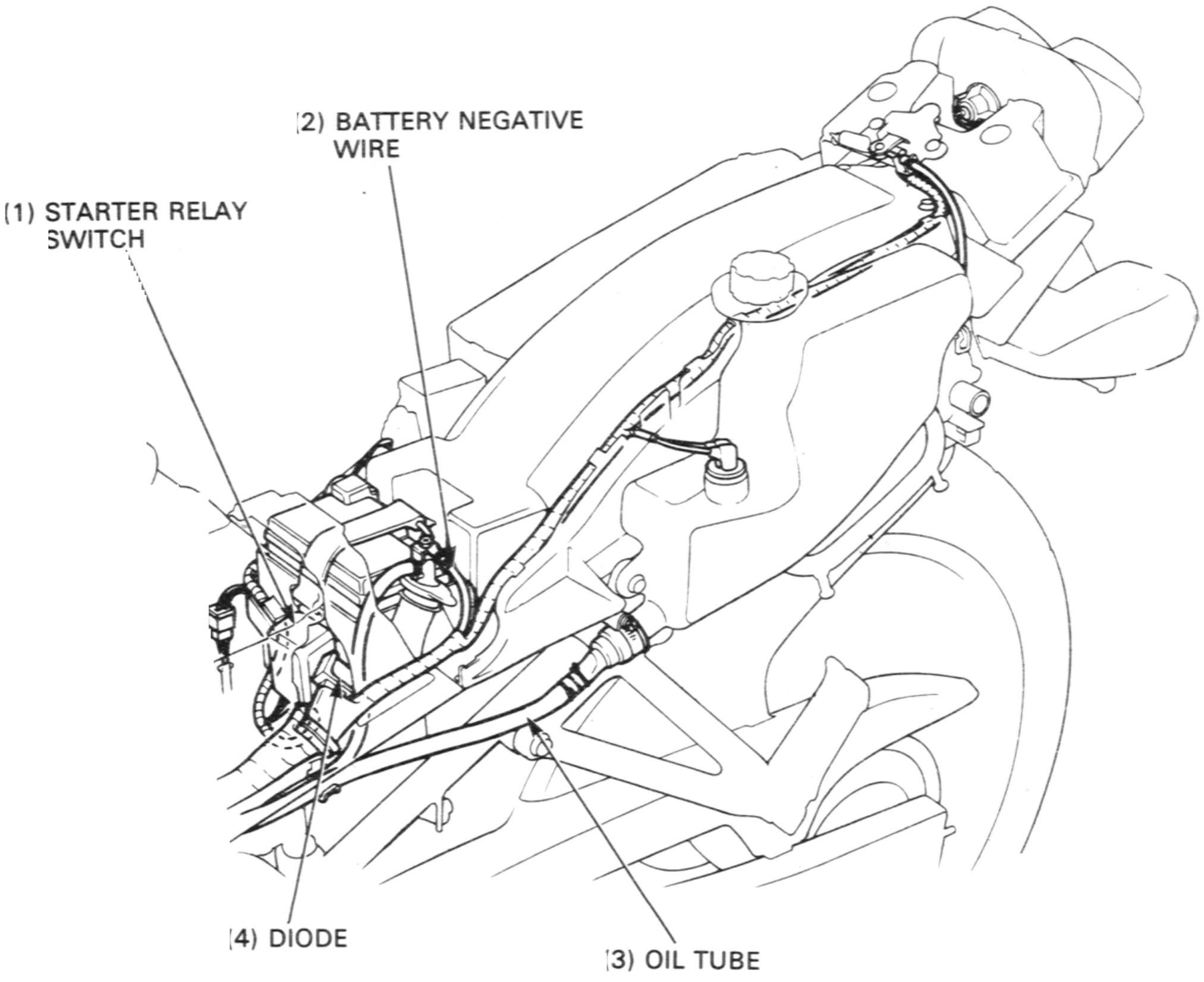

(2) BRAKE HOSE
(3) CHOKE CABLE
(1) THROTTLE CABLE
(4) CLUTCH CABLE

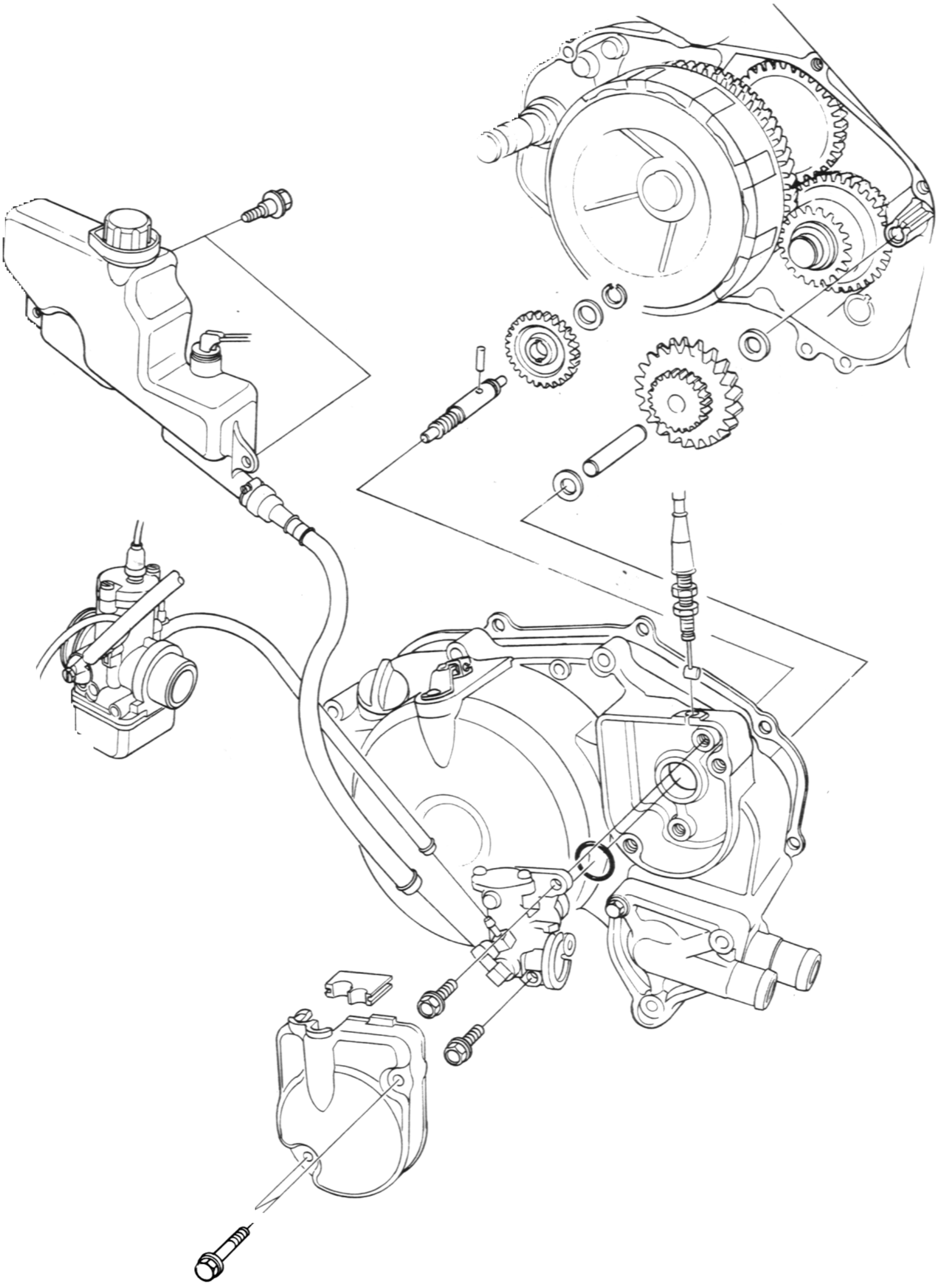

(5) CONNECTORS
(6) CLAMPS


(1) CDI UNIT
(2) RADIATOR OVERFLOW TUBE
(3) CHOKE CABLE
(4) STARTER RELAY SWITCH
(5) OIL TUBE
(6) RESERVE TANK OVERFLOW TUBE
(7) CRANKCASE BREATHER TUBE
(8) SERVOMOTOR CONTROL UNIT
(9) THROTTLE CABLE


(10) FUSE
(11) BATTERY POSITIVE WIRE
(12) REAR BRAKELIGHT SWITCH WIRE CONNECTOR
(13) BRAKE HOSE


(3) CHOKE CABLE
(4) CLUTCH CABLE
(5) THROTTLE CABLE
(2) RADIATOR OVERFLOW TUBE
(1) FUEL FILTER
(8) REGULATOR/ RECTIFIER
(7) SERVO-MOTOR
(6) RC VALVE CONTROL CABLES
(9) BRAKE HOSE
(10) THROTTLE CABLE
(11) RC VALVE CONTROL UNIT
(14) SPEEDOMETER CABLE
(13) CDI UNIT
(12) TURNSIGNAL RELAY


(2) BATTERY NEGATIVE WIRE
(1) STARTER RELAY SWITCH
(4) DIODE
(3) OIL TUBE



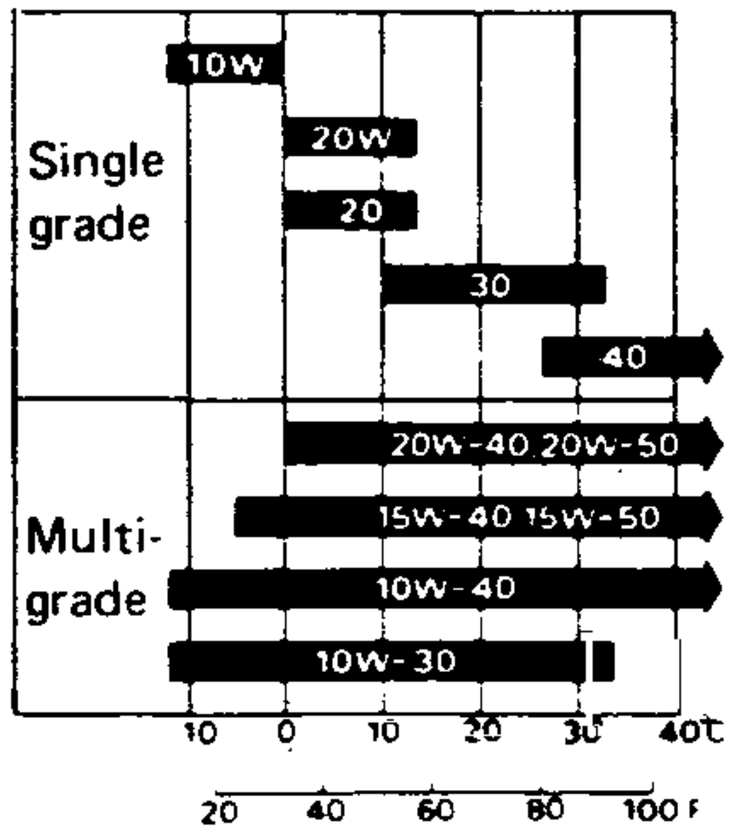
SERVICE INFORMATION

GENERAL

- Lubrication system service can be porformed with the engine in the frame.
- When removing and installing the oil pump, use care not to allow dust or dirt to enter the oil lines.
- Do not attempt to disassemble the oil pump.
- Bleed air from the oil pump if there is air in the oil tube (from the oil tank to the oil pump) or whenever the oil tube has been disconnected.
- Bleed air from the oil pass tube (from the oil pump to the carburetor) whenever oil lines have been disconnected.
- Refer to page 3-6 for the engine oil strainer cleaning.

SPECIFICATIONS

Engine oil recommendation:	Honda 2-stroke oil or equivalent
Engine oil tank capacity:	1.0 liters (1.06 US qt, 0.88 Imp qt)
Transmission oil capacity:	0.70 liters (0.74 US qt, 0.62 Imp qt) after draining
Transmission oil recommendation:	Honda 4-stroke oil or equivalent Viscosity: SAE 10W-40 API Service classification: SE or SF Other viscosities shown in the chart may be used when the average temperature in your riding area is within the indicated range.



TROUBLESHOOTING

Excessive smoke and/or carbon on spark plug
- Pump not properly adjusted (excessive oil)
- Low quality engine oil
- Incorrect engine oil

Overheating
- Oil pump not adjusted properly (insufficient oiling)
- Low quality oil
- Incorrect engine oil

Seized piston
- No oil in tank or clogged oil line
- Pump not properly adjusted (insufficient oiling)
- Air in oil lines
- Faulty oil pump

Oil not flowing out of tank
- Clogged oil tank cap breather hole
- Clogged oil strainer

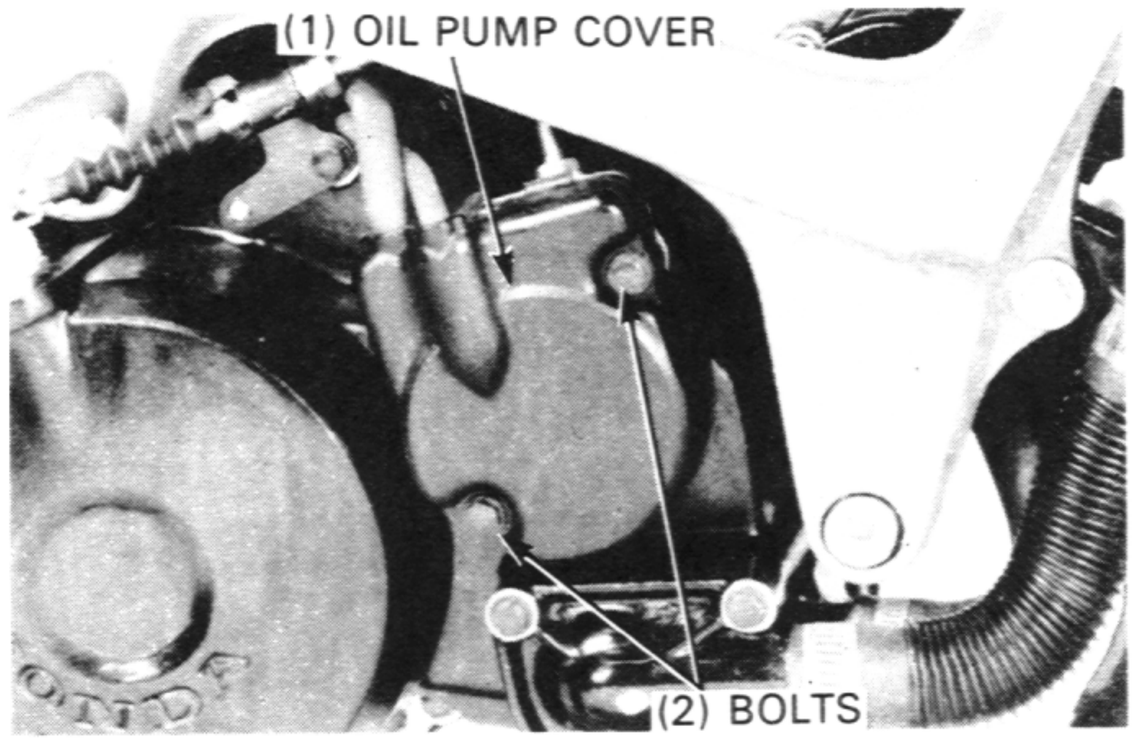
OIL PUMP

REMOVAL

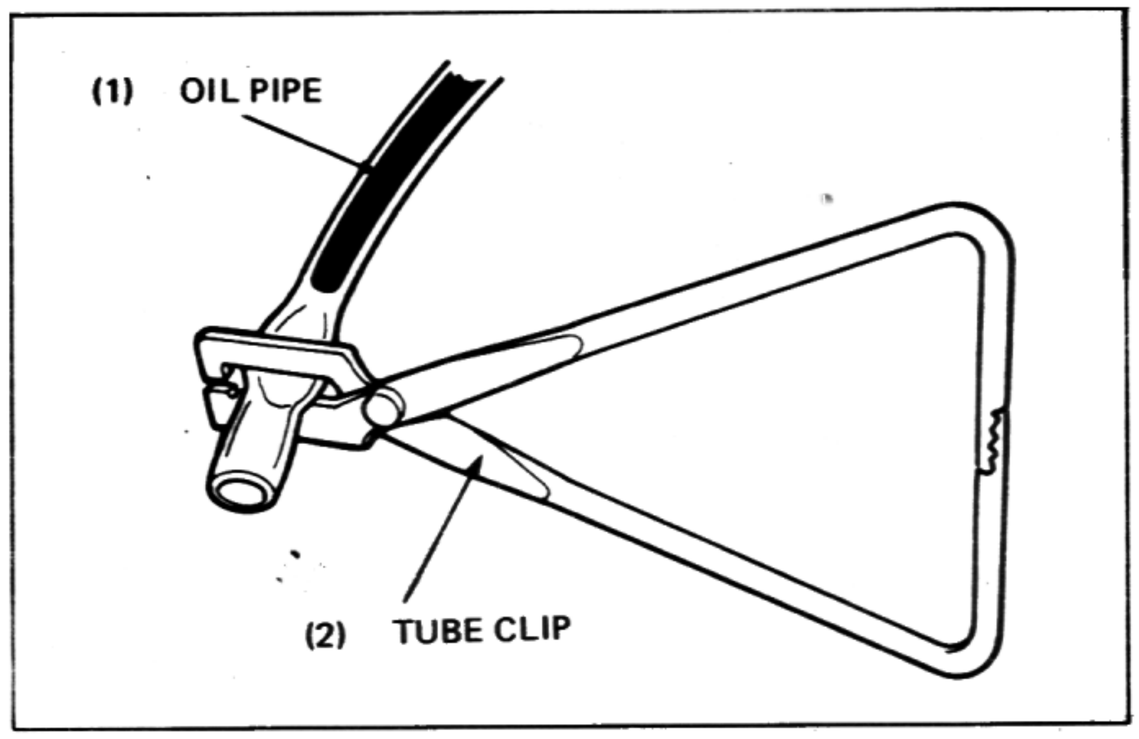
NOTE

- Clean the oil pump and the crankcase before removing the oil pump.

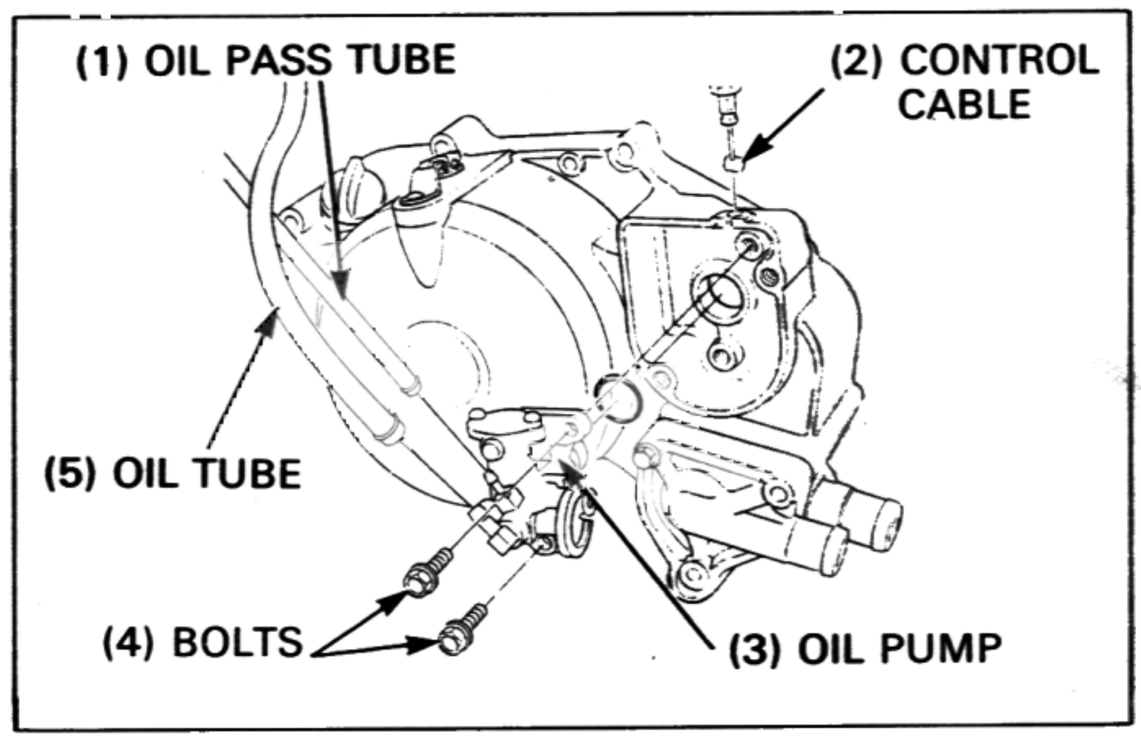
Remove the oil pump cover.



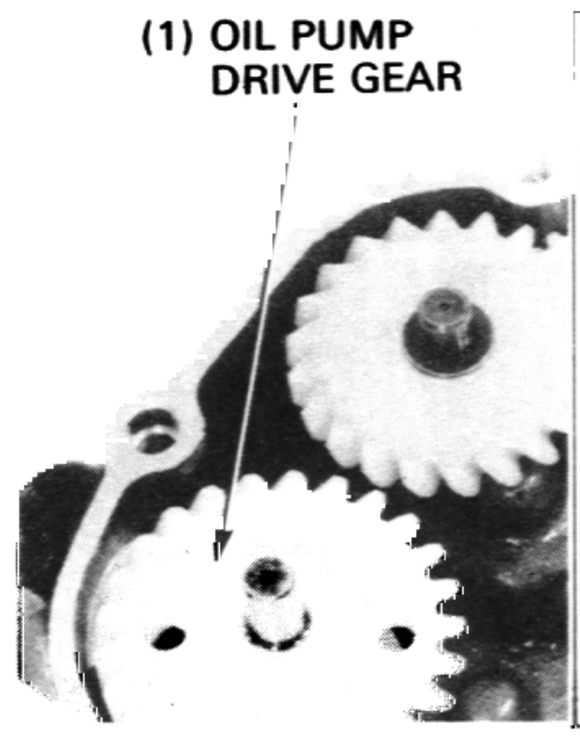
Clamp the oil tube and pass tube to prevent oil from flowing out.

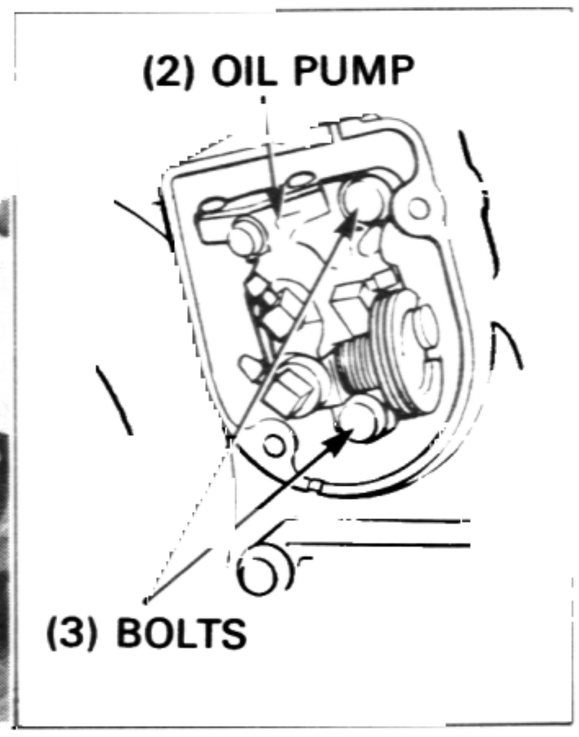


Disconnect the oil control cable from the oil pump drum.
Disconnect the oil tube and pass tube from the oil pump.
Remove the right crankcase cover (page8-3).



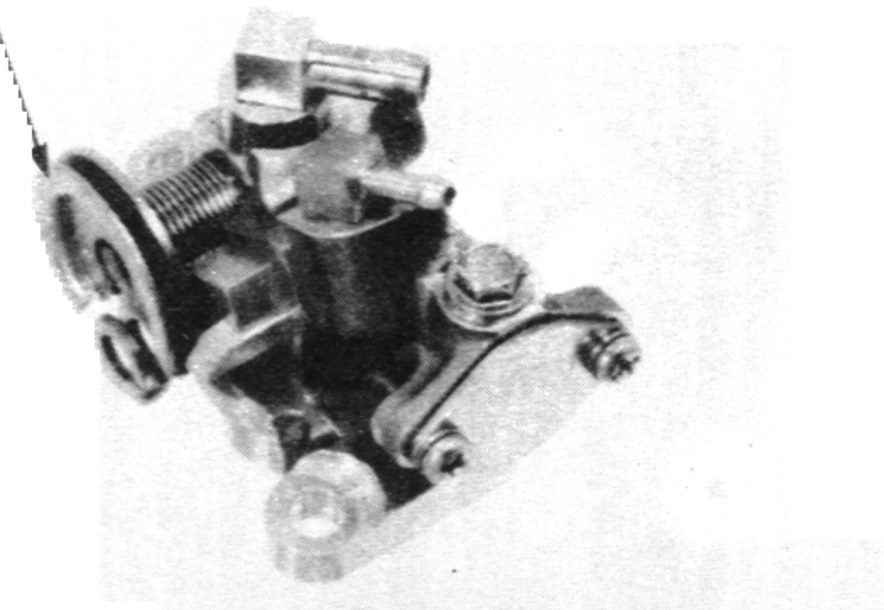
Remove the oil pump drive gear.
Remove the oil pump mounting bolts and oil pump from the right crankcase cover.





INSPECTION

(1) OIL PUMP DRUM

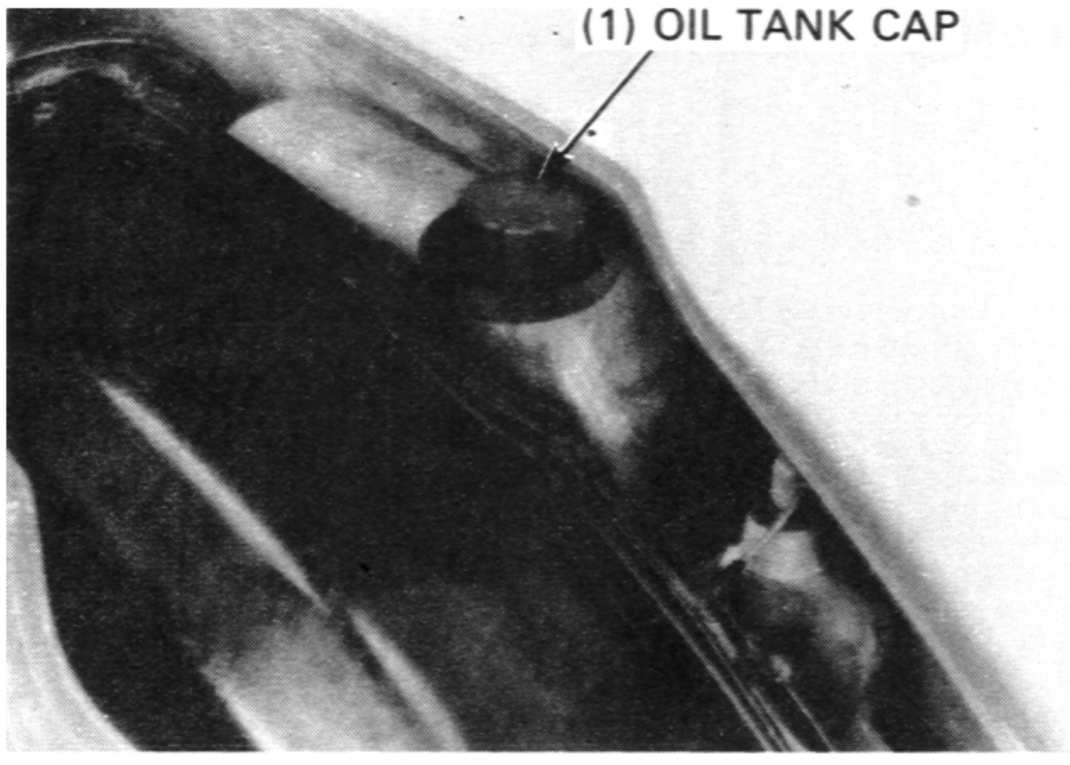


CAUTION

- *Do not disassemble the oil pump.*

Check the oil pump body for damage.
Check the oil pump drum for smooth operation.

AIR BLEEDING/INSTALLATION



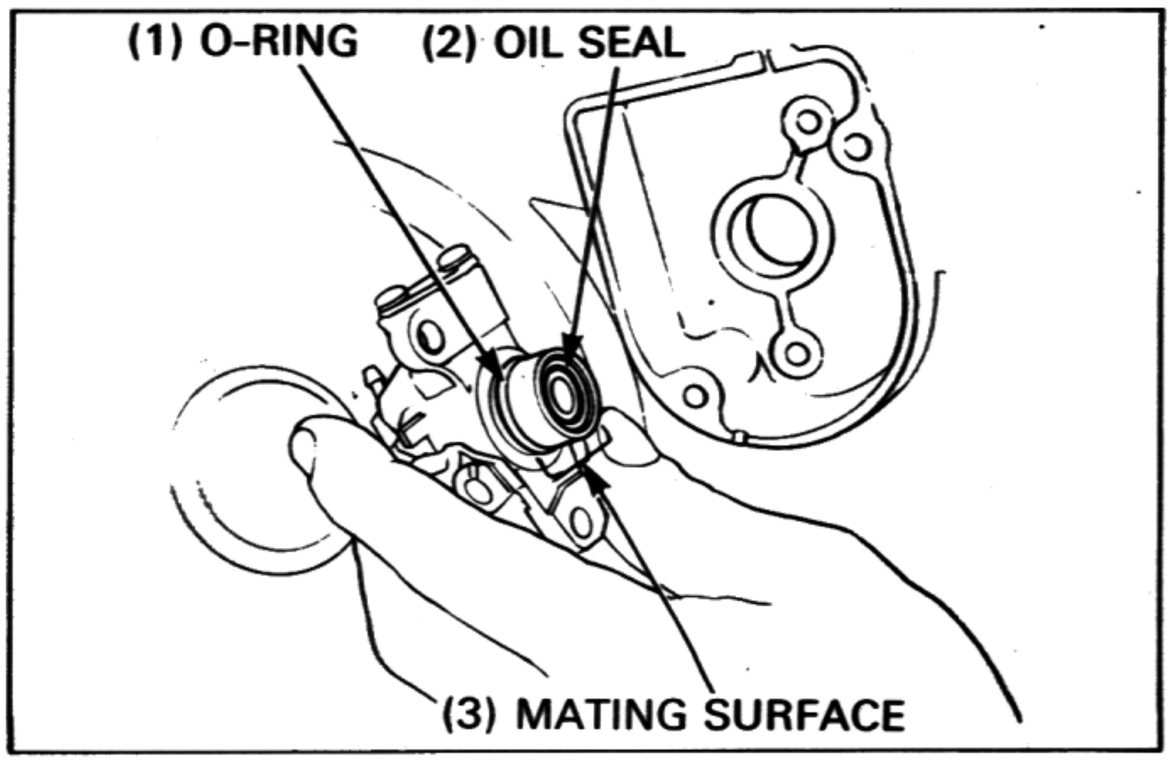
CAUTION

- *Air in the oil system will block or restrict oil flow and may result in severe engine damage.*
- *Bleed air from the system whenever the oil lines have been disconnected or there is air in the line.*

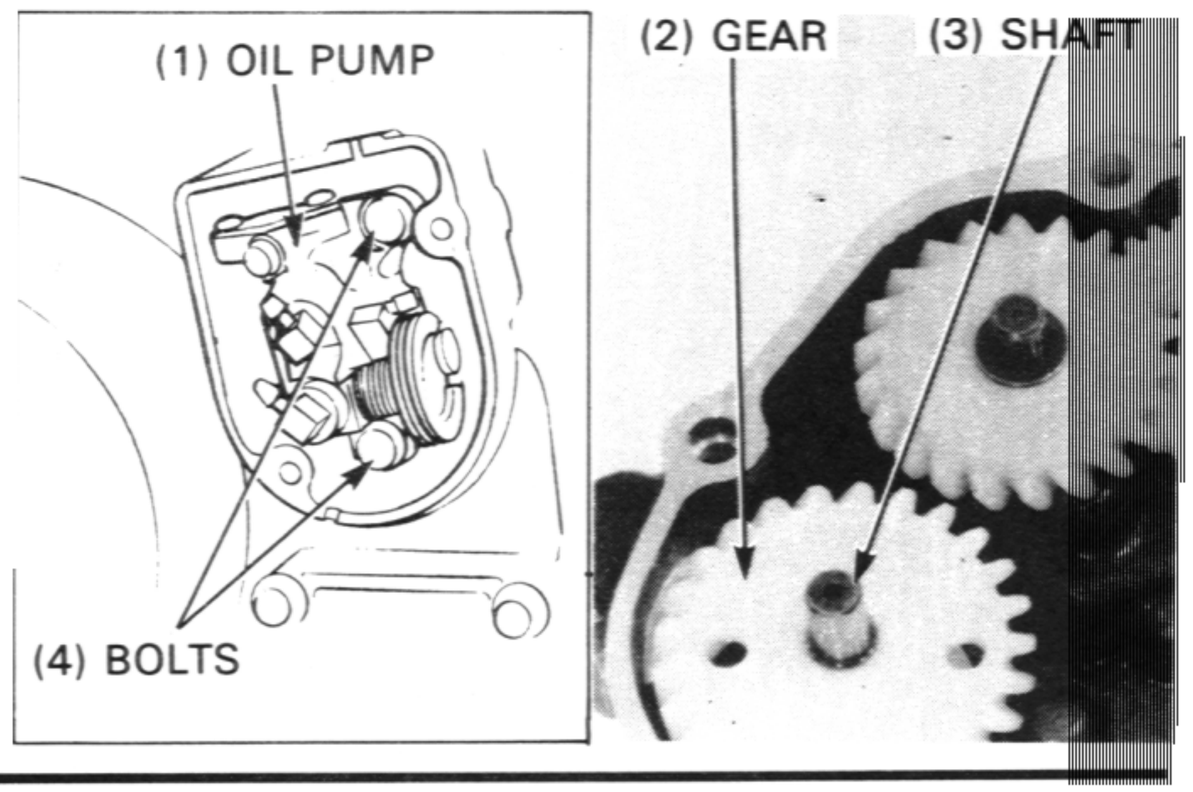
Remove the seat and oil tank cap, and fill the tank with the recommended engine oil.

RECOMMENDED OIL: HONDA 2-stroke oil or equivalent

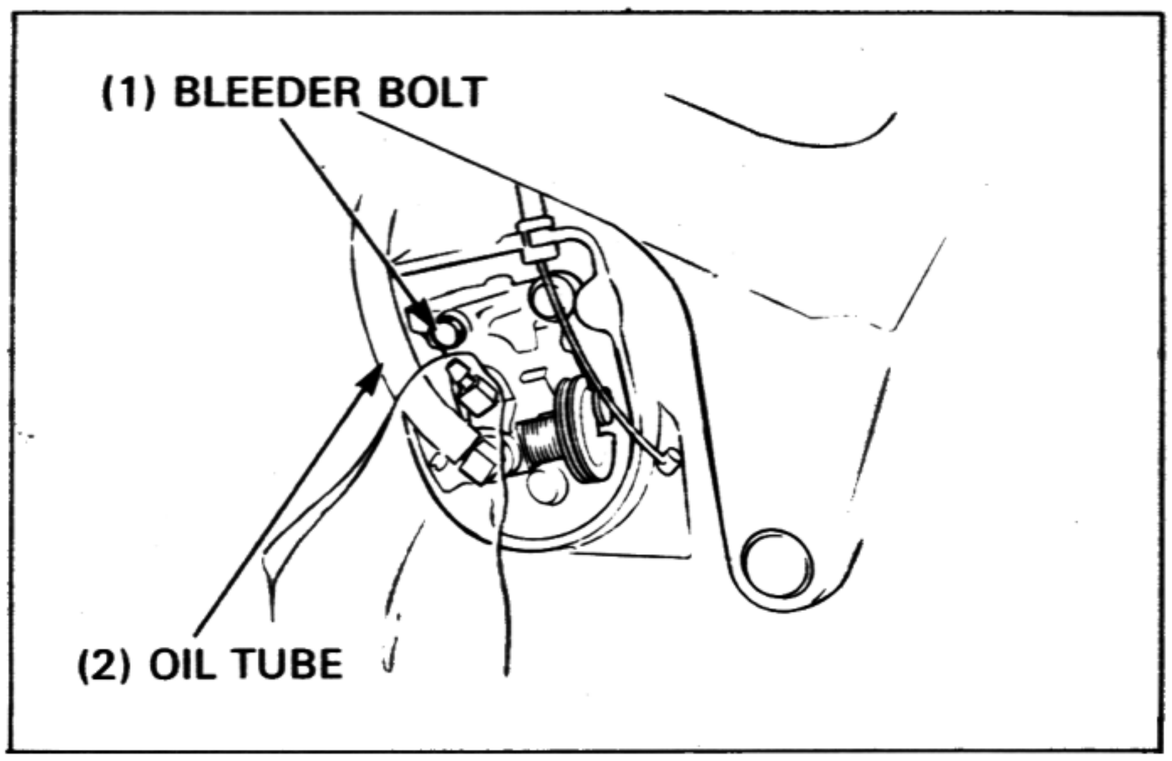
Check the oil seal and O-ring for damage or deterioration.
Check the right crankcase cover mating surface of the oil pump for damage.
Coat the O-ring with clean engine oil, and install the oil pump onto the right crankcase cover



Secure the oil pump with two mounting bolts.
Install the oil pump drive shaft into the oil pump and install the gear onto the shaft.
Install the right crankcase cover (page 8-16).



Make sure that the oil tube is filled with the oil and connect it to the oil pump.
Place a shop towel around the oil pump.
Loosen the bleeder bolt on the oil pump and allow the oil to flow out until air bubbles do not appear in the oil.
Tighten the bleeder bolt.



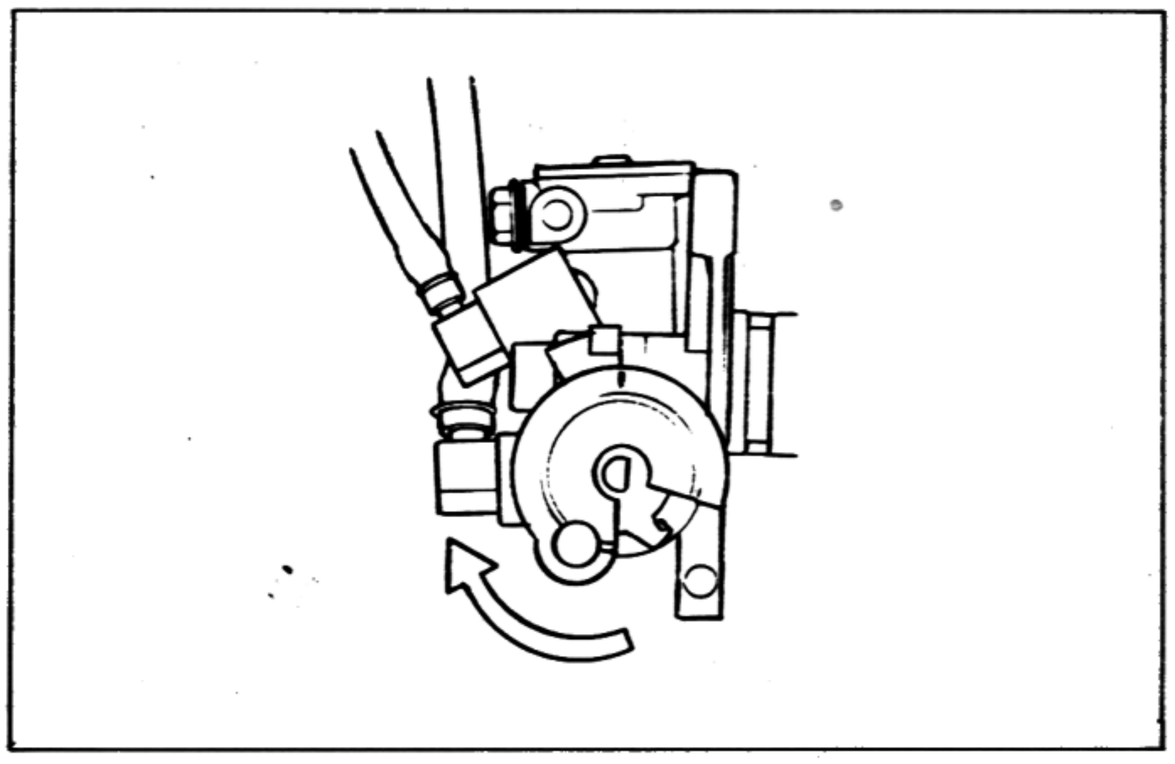
Drain the fuel from the carburetor.
Turn the fuel valve OFF and disconnect the fuel line from the fuel valve.
Connect the fuel line to the container filled with fuel-oil mixture (25-50 parts fuel to 1 part oil).
Remove the air cleaner case (page 4-5).
Start the engine and run for about 10 minutes with the oil pump drum turned to fully open position to force air out of the oil pass tube with oil.

⚠ WARNING

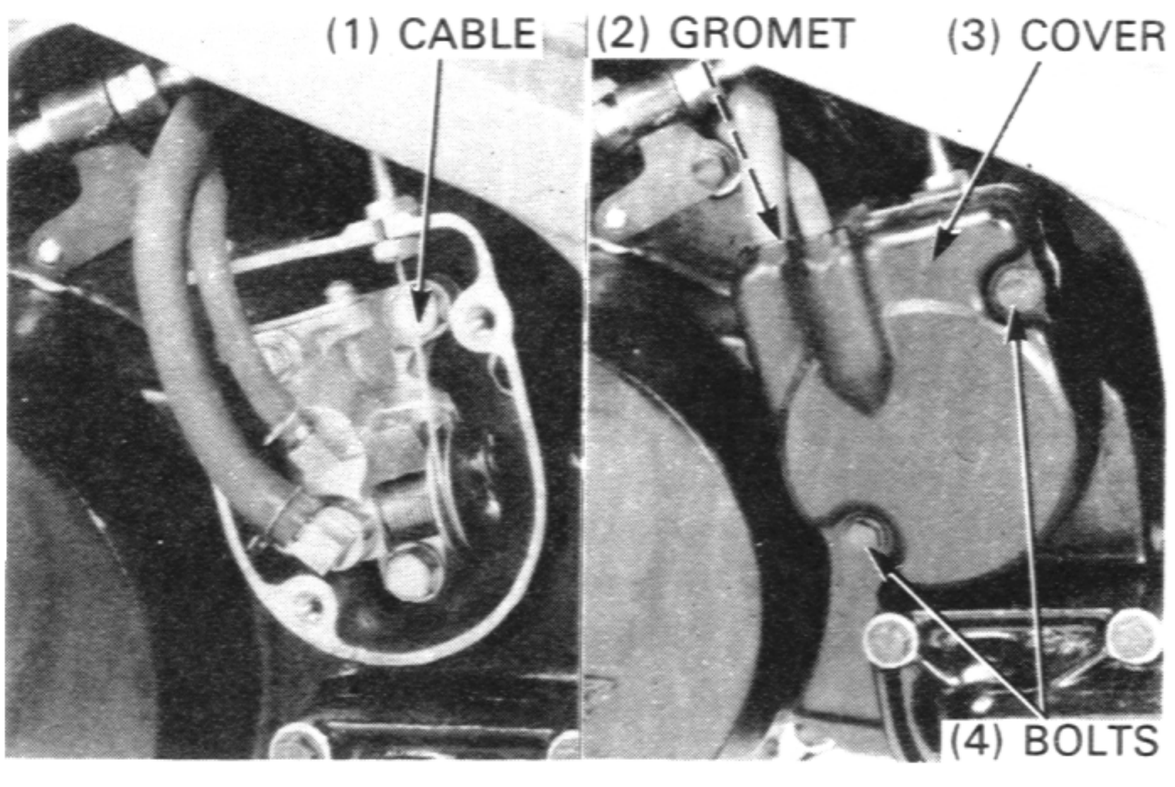
- ***If the engine must be running to do some work, make sure the area is well ventilated. Never run the engine in an enclosed area. The exhaust contains poisonous carbon monoxide gas that can cause the loss of consciousness and may lead to death.***

CAUTION

- *Use only the recommended engine oil (page 2-1).*
- *Do not race the engine.*



Connect the fuel line to the fuel valve.
Connect the oil control cable to the oil pump drum.
Adjust the oil control cable and install the oil pump cover with the grommet.
Secure the oil pump cover with the bolts.

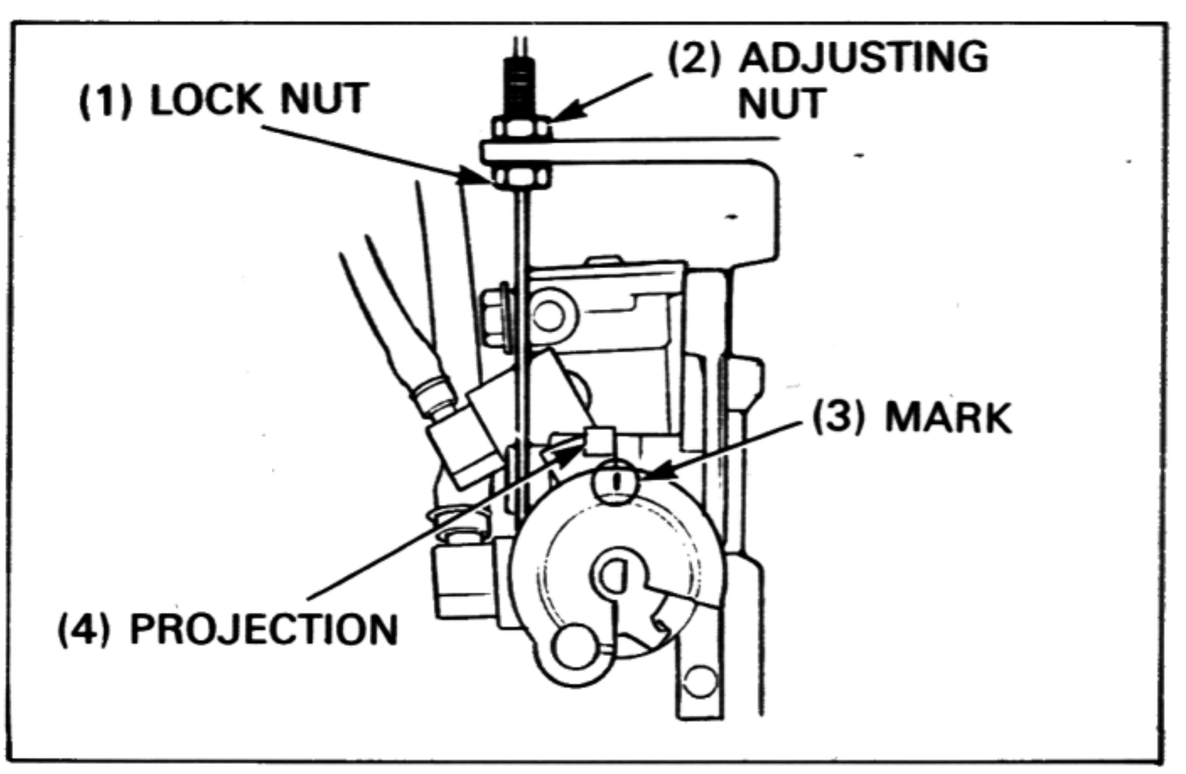


OIL PUMP CONTROL CABLE ADJUSTMENT

NOTE

- The oil pump control cable should be adjusted after the throttle grip free play adjustment.

Remove the oil pump cover.
Loosen the oil control cable lock nut and open the throttle fully.
Check that the aligning mark on the oil pump control drum is aligned with the index mark projection on the pump body.
Adjust if necessary by turning the adujusting nut.



CAUTION

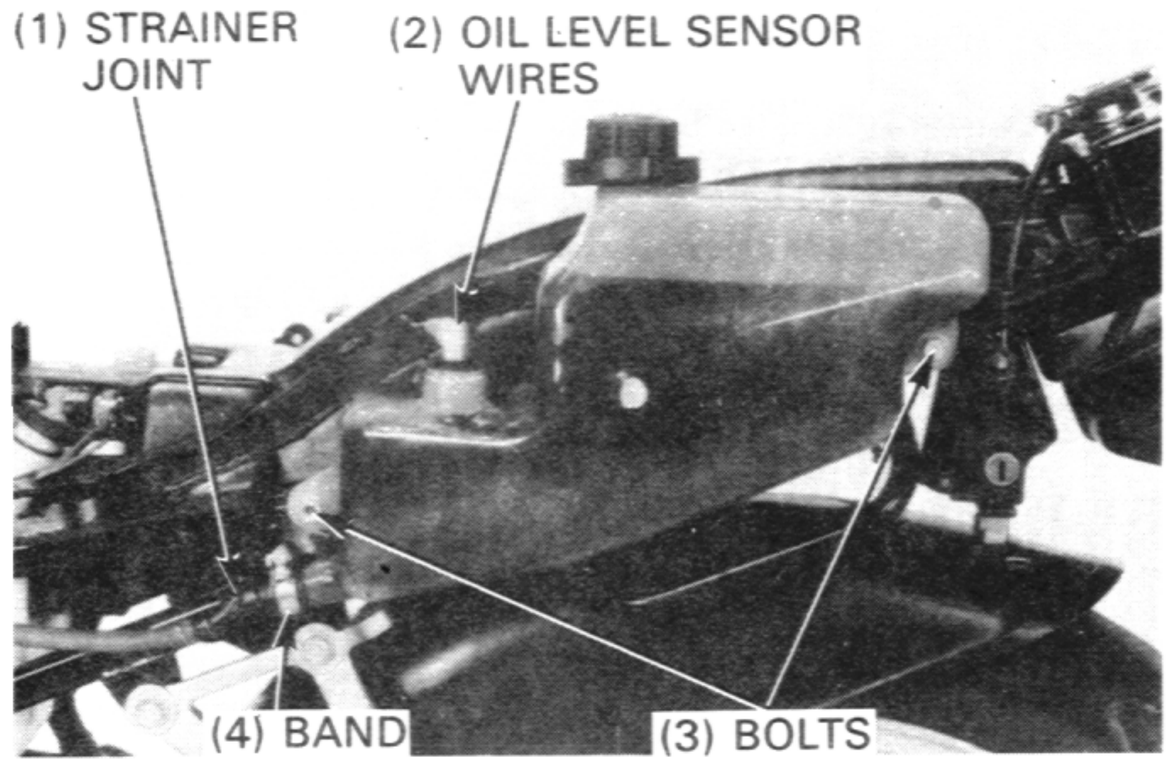
- *An adjustment within 1 mm (0.04 in) of index mark on the open side is acceptable. However, the aligning mark must never be on the closed side on the index mark, otherwise engine damage will occur because of insufficient lubrication.*

Tighten the control cable lock nut and install the oil pump cover.

OIL TANK

REMOVAL/INSTALLATION

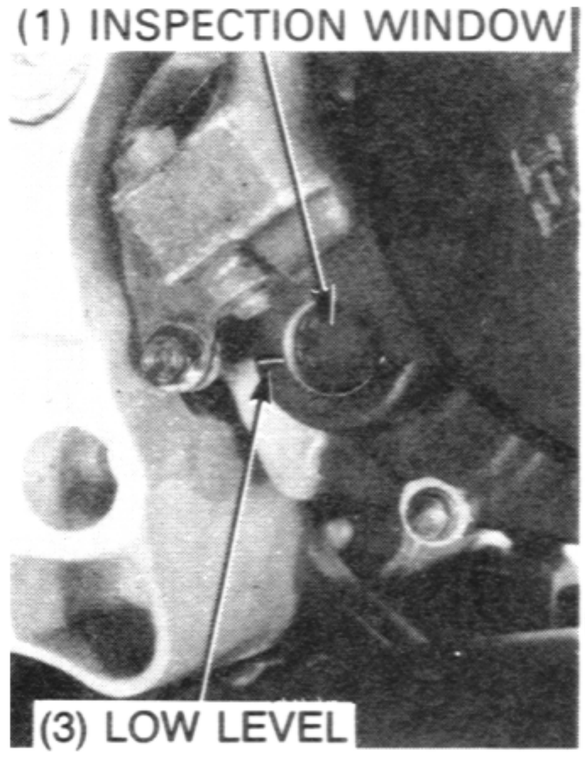
Remove the left fairing (page 4-3).
Disconnect the oil level sensor wires.
Loosen the oil strainer joint band, remove the strainer joint at the bottom of the oil tank and allow the oil to drain into a clean container.
Remove the two mounting bolts and oil tank.
Install the oil tank in the reverse order of removal.
After installation, fill the oil tank with the recommended engine oil and bleed air from system.

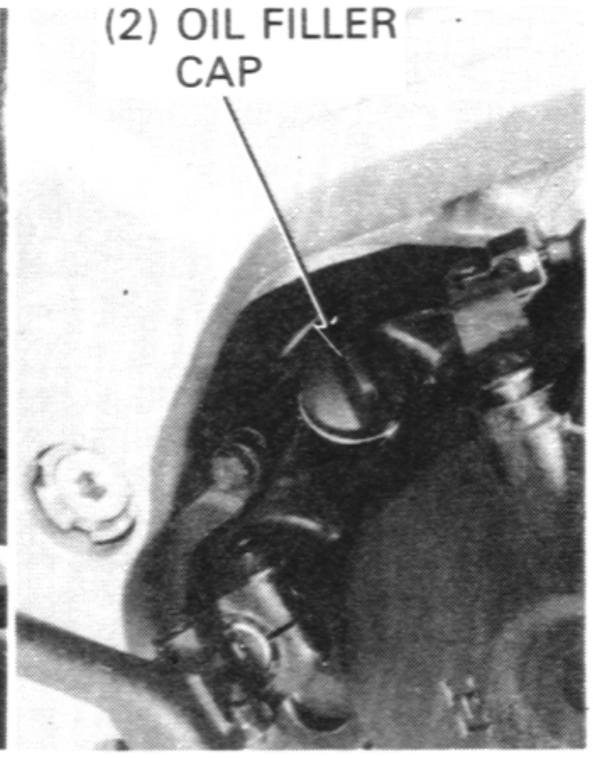


TRANSMISSION OIL

CHECK

Place the motorcycle on firm, level ground and support it on its center stand.
Start the engine and let it idle for a few minutes, then stop the engine.
Check the oil level through the inspection window.
If the oil level is under the low level, remove the oil filler cap and fill the recommended transmission oil (see page 2-1) since to reached the upper part of the inspection window.

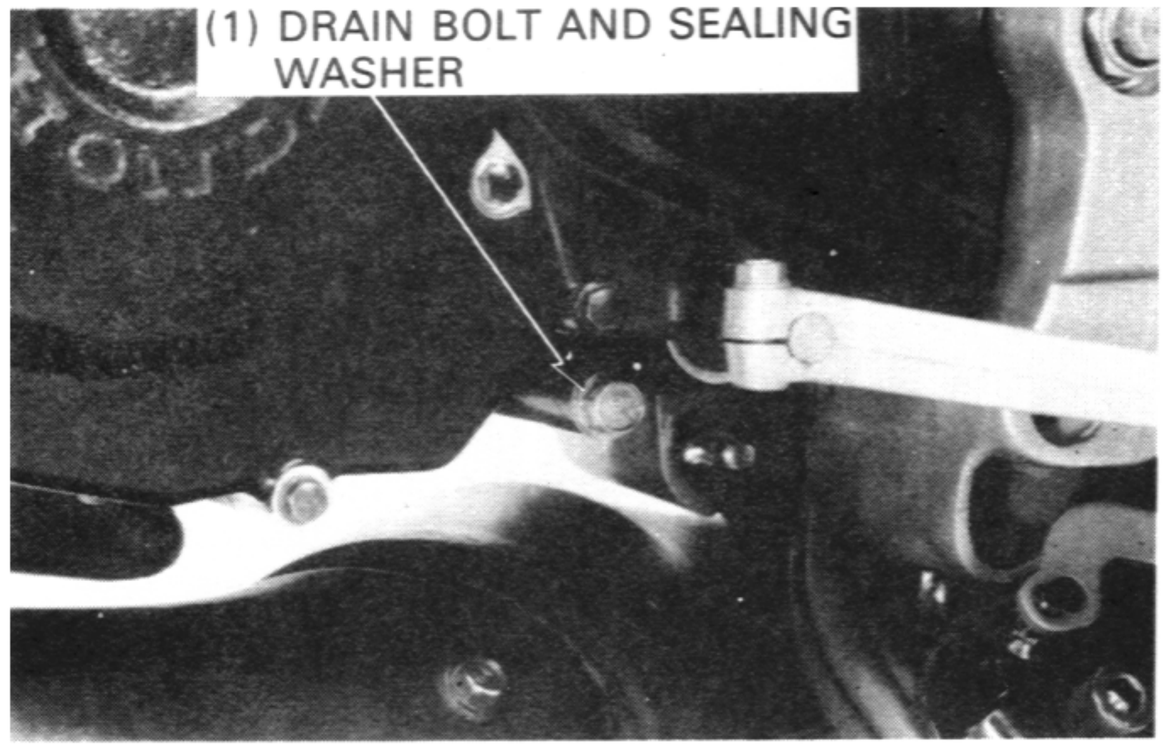




CHANGE

Remove the transmission oil filler cap.
Place the oil drain pan under the engine to catch the oil, and remove the oil drain bolt to drain the oil.
After the oil has been completely drained, check that the sealing washer on the drain bolt is in good condition and install the drain bolt.
Fill the crankcase with the recommended transmission oil up to the upper part of the ispection window.

OIL CAPACITY: 0.70 liter (0.74 US qt, 0.62 Imp qt) after draining

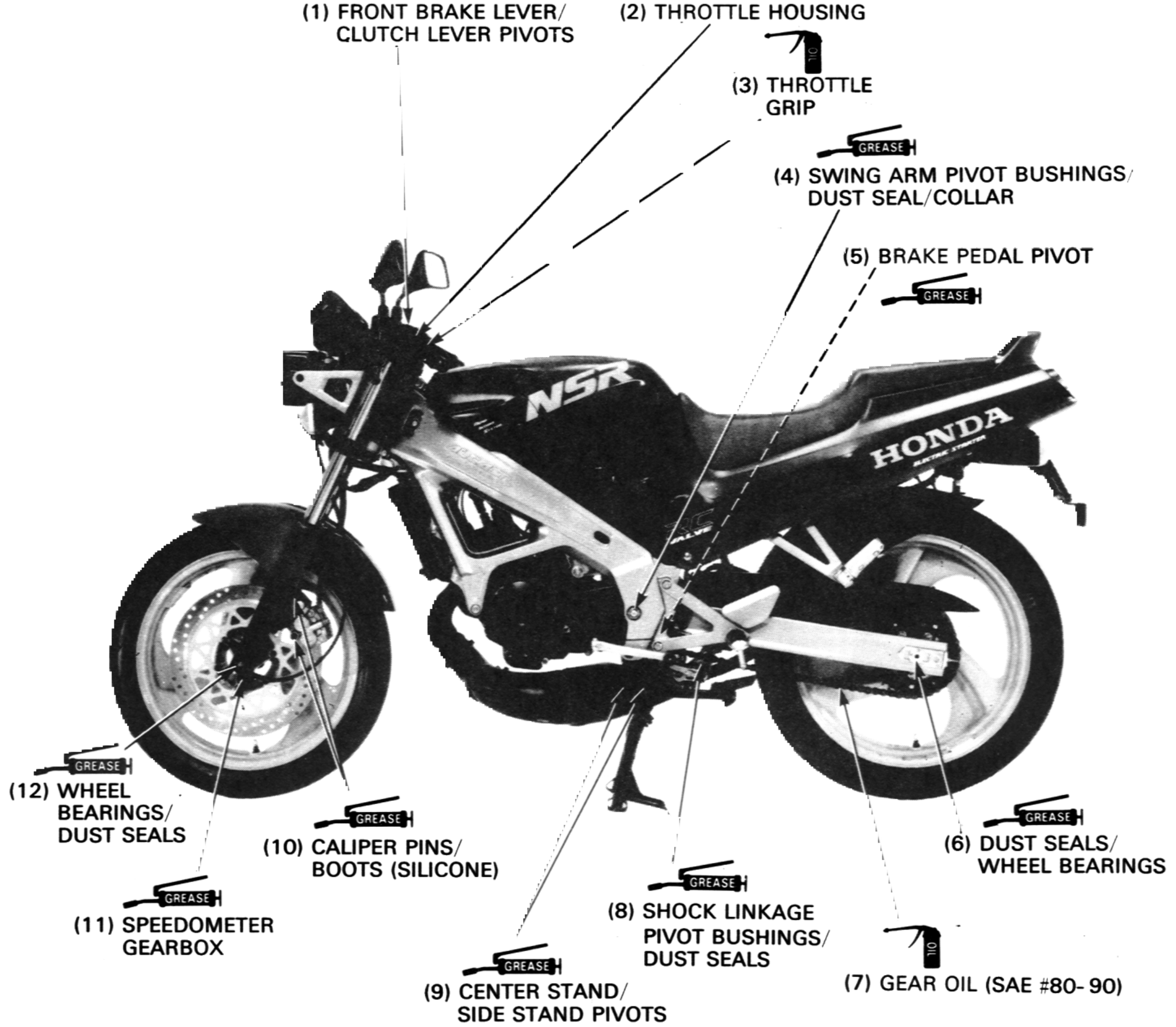


LUBRICATION POINTS

Use general purpose grease when no other specification is given. Apply oil or grease to any 2 sliding surfaces and cables not shown here.

CONTROL CABLE LUBRICATION

Periodically disconnect the throttle, oil control, choke and clutch cables at their upper ends. Thoroughly lubricate the cables and their pivot points with a commercially avaliable cable lubricant.



SERVICE INFORMATION

GENERAL

⚠ WARNING

If the engine must be running to do some work, make sure the area is well ventilated. Never run the engine in an enclosed area. The exhaust contain poisonous carbon monxide gas that can cause the loss of consciousness and may lead to death.
Gasoline is extreamely flammable and explosive under certain conditions. Work in a well ventilated area with the engine stopped. Do not smoke or allow flames or sparks in the work area or where gasoline is stored.

SPECIFICATIONS

Engine

Throttle grip free play	2–6 mm (1/8–1/4 in)
Bystarter valve stroke	10–11 mm (0.39–0.43 in)
Spark plug gap	0.7–0.8 mm (0.028–0.031 in)
Spark plugs:	

	NGK	ND
Standard	BR9ECS	W27ESR–U
For extended high speed riding	BR10ES	W31ESR–U

Idle speed		1,400 ± 100 min^{-1} (rpm)
Cylinder compression		1,000 ± 200 kPa (10 ± 2 kg/cm^2, 142 ± 2 8 psi)
Ignition timing	F mark	24.3° ± 2°/3,000 min^{-1} (rpm)

Frame

Drive chain slack	25–35 mm (1–1–3/8 in)
Clutch lever free play	10–20 mm (3/8–3/4 in)
Tires :	

		FRONT	REAR
Cold tire pressure kPa (kg/cm^2, psi)	Rider only	200 (2.00, 29)	225 (2.25, 33)
	Rider and one passenger	200 (2.00, 29)	250 (2.50, 36)
Tire size		100/80–17 52S	130/70–18 63S

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

TORQUE VALUES

Rear axle nut	90 N·m (9.0 kg-m, 65 ft-lb)

MAINTENANCE SCHEDULE

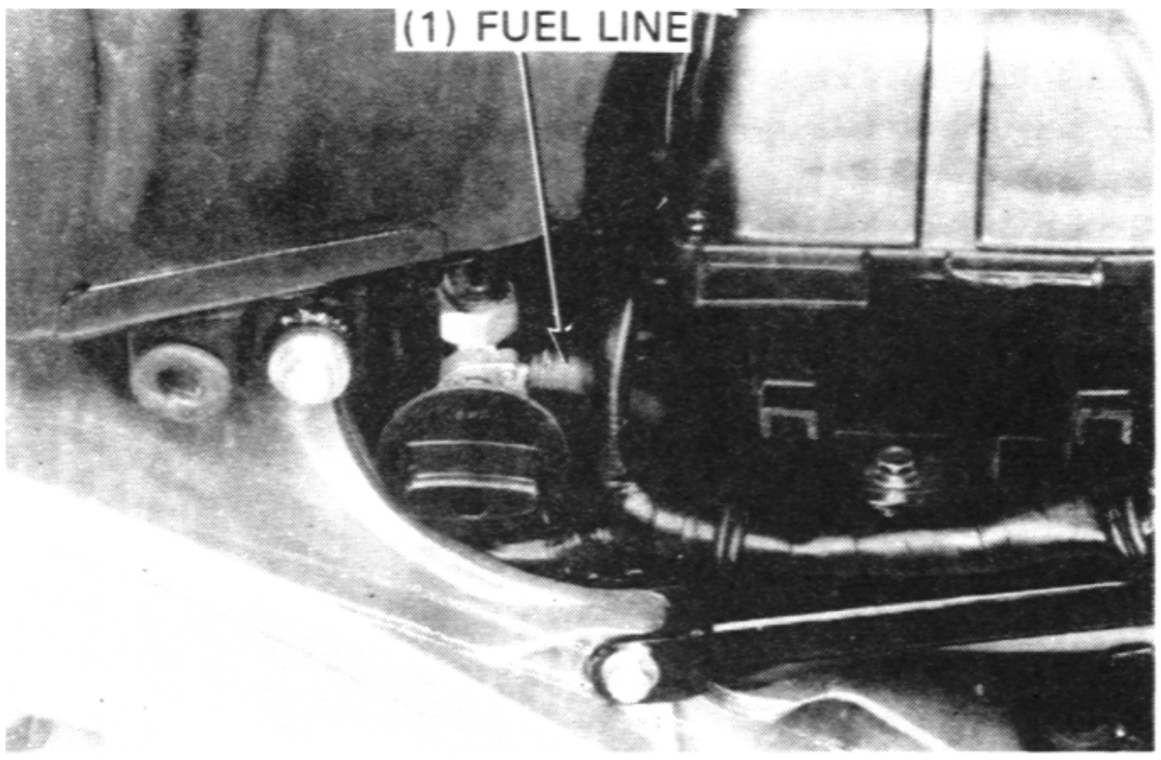
Pereform the Pre-ride Insepction at each scheduled maintenance period.
I : INSPECT AND CLEAN, ADJUST, LUBRICATE OR REPLACE IF NECESSARY.
C : CLEAN R : REPLACE A : ADJUST L : LUBRICATE

	FREQUENCY / ITEM	WHICHEVER COMES → FIRST ↓ NOTES	×1,000 km ×1,000 mi MONTHS	ODOMETER READING (NOTE 2) 1 0.6	4 2.5 6	8 5 12	12 7.5 18	REFER TO PAGE
*	FUEL LINE				I	I	I	3–3
*	FUEL FILTER					I		3–3
*	THROTTLE OPERATION			I	I	I	I	3–3
*	CARBURETOR CHOKE				I	I	I	3–4
	AIR CLEANER	NOTE 1			C	C	C	3–5
	SPARK PLUG			I : EVERY 2,000 km (1,250 mi) R : EVERY 4,000 km (2,500 mi)				3–6
	TRANSMISSION OIL		2YEARS * R					2–5
*	ENGINE OIL LINES				I	I	I	3–6
*	ENGINE OIL STRAINER SCREEN						C	3–6
* *	OIL PUMP			I	I	I	I	2–4
*	CARBURETOR IDLE SPEED			I	I	I	I	3–7
	RADIATOR COOLANT					I		3–7
	RADIATOR CORE					I		3–7
	COOLING SYSTEM			I		I		3–8
* *	CYLINDER HEAD DECARBONIZATION					C		7–2
* *	CYLINDER EXHAUST PORT DECARBONIZATION					C		7–5
* *	MUFFLER DECARBONIZATION						C	
	DRIVE CHAIN			I, L EVERY 1,000 km (600 mi)				3–9
	BRAKE FLUID		MONTH : I 2 YEARS : R	I	I	I	I	3–10
	BRAKE PAD WEAR				I	I	I	3–10
	BRAKE SYSTEM			I	I			3–11
*	BRAKELIGHT SWITCH			I	I	I	I	3–11
*	HEADLIGHT AIM			I	I	I	I	3–11
	CLUTCH SYSTEM			I		I		3–11
	SIDE STAND				I	I	I	3–12
*	SUSPENSION			I		I		3–13
*	NUTS, BOLTS, FASTENERS			I	I	I	I	3–13
* *	WHEELS/TIRES			I	I	I	I	3–14
	STEERING HEAD BEARINGS			I		I		3–14

* : 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) For higher odometer reading, repeat at the frequency interval established here.

FUEL LINE

Remove the left faireing (page 4-3).
Check the fuel line for leakage or deterioration, and replace if necessary.

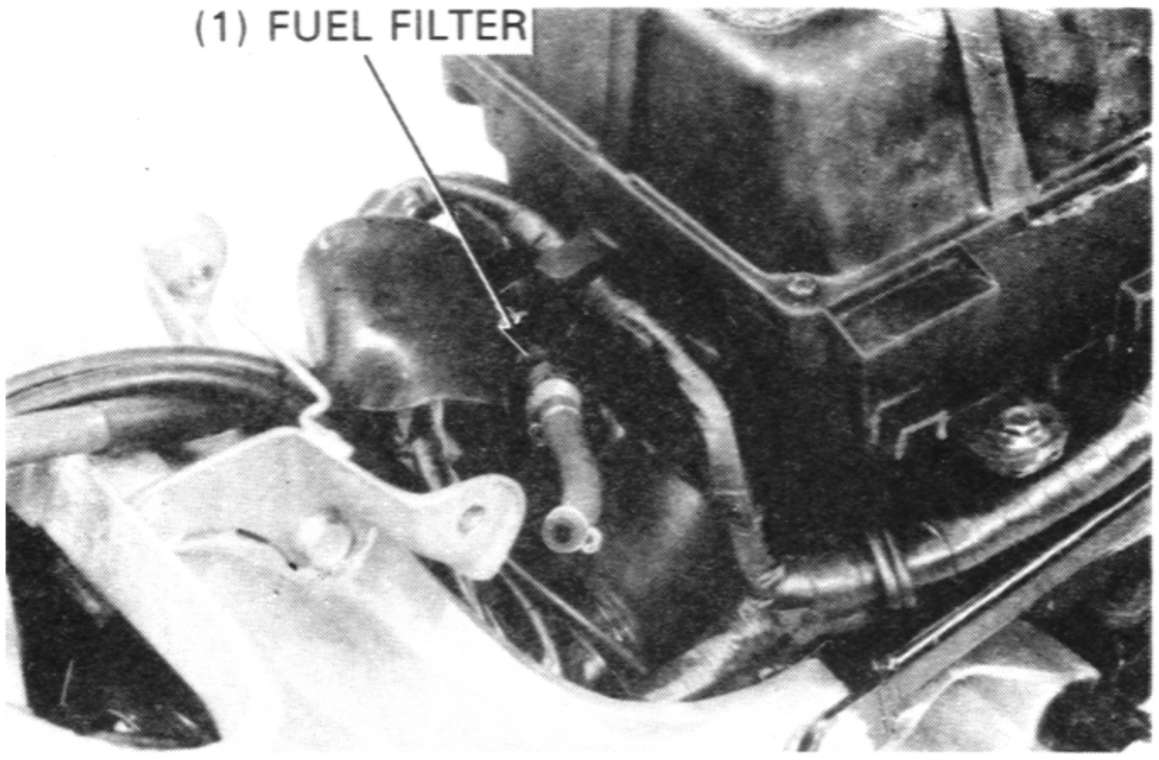


FUEL FILTER

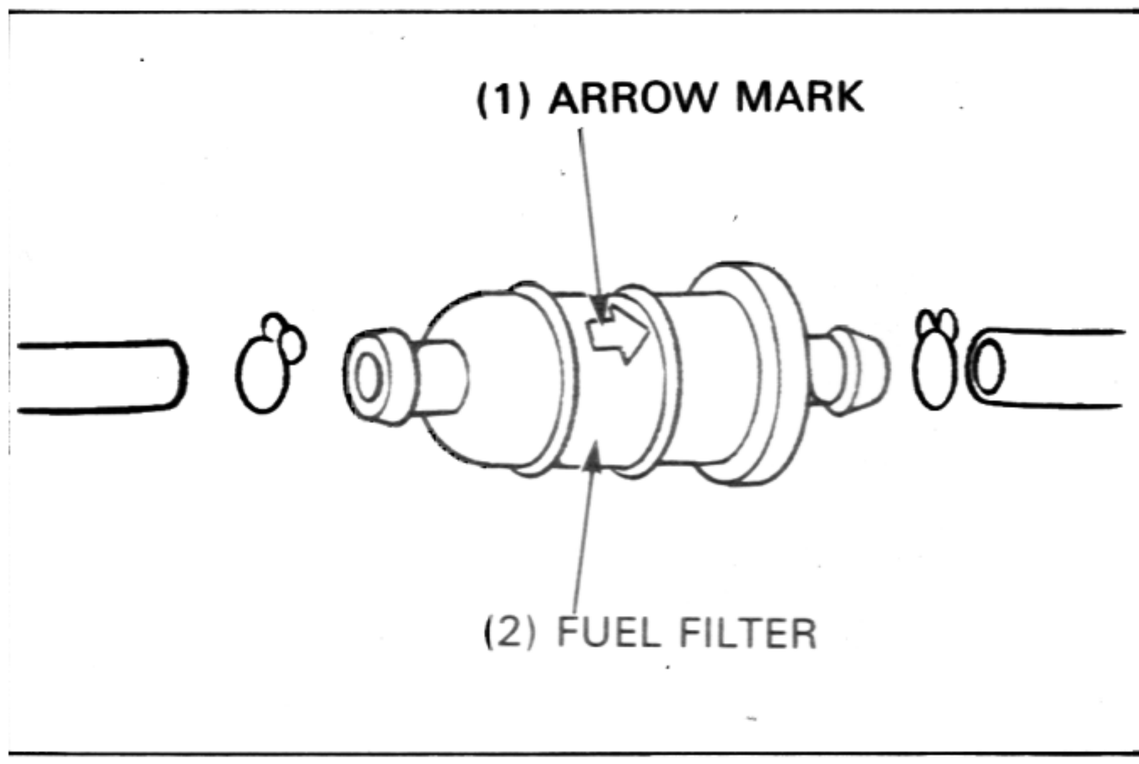
⚠ WARNING

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

Remove the fuel tank (page 4-3).
Check the fuel filter for clogging or being dirty, and replace with a new one if necessary.



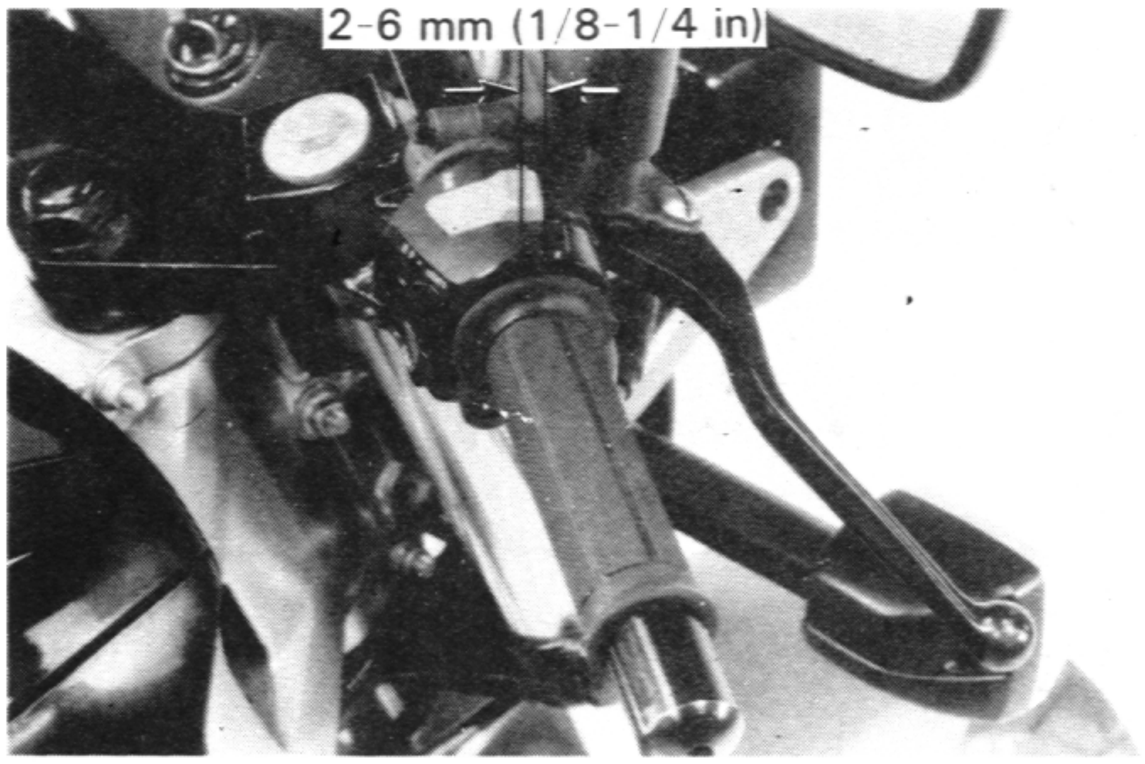
Install a new fuel filter with the arrow mark on the fiter pointing the carburetor side.
After installation, check for fuel free flow by turning the fuel valve ON.



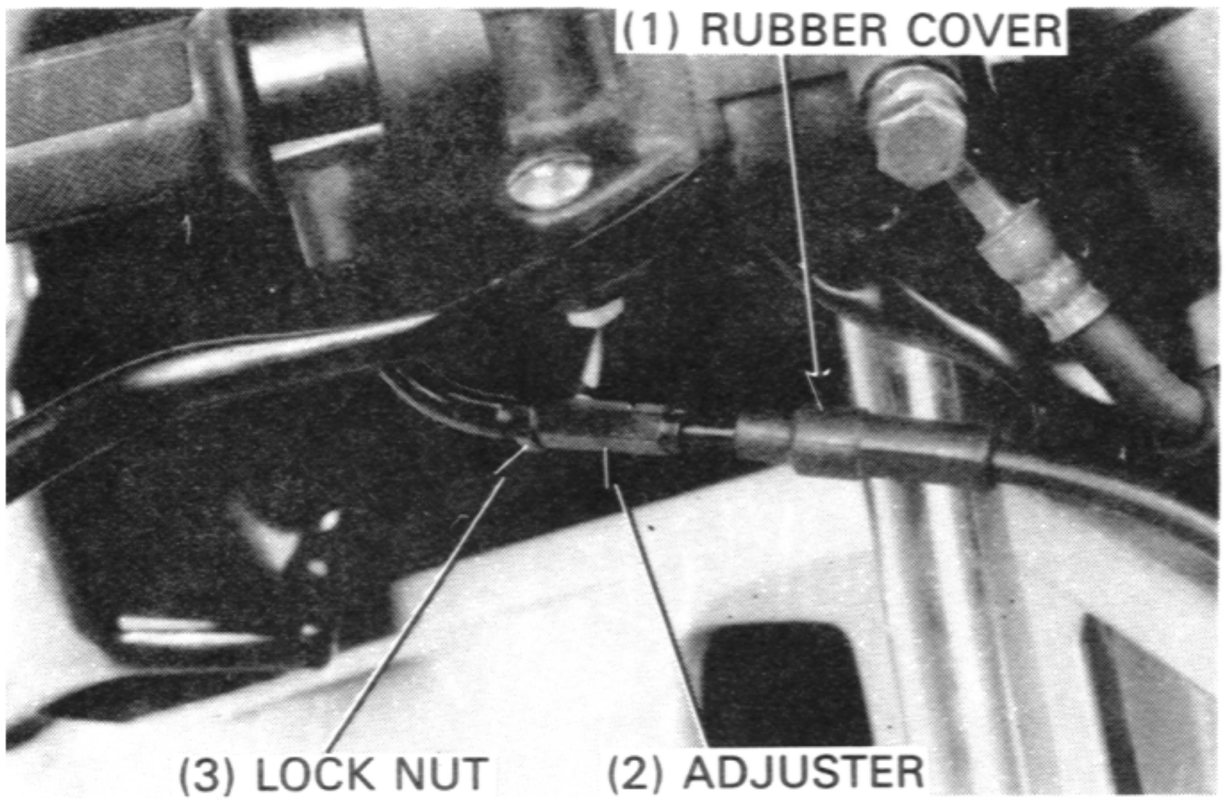
THROTTLE OPERATION

Check the throttle grip for smooth operation, complete opening and automatic closing in all steering positions.
Make sure there is no deterioration, damage or kinking in the throttle cables. Replace any damaged parts.
Lubricate the trottle cables (page 2-6) 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)

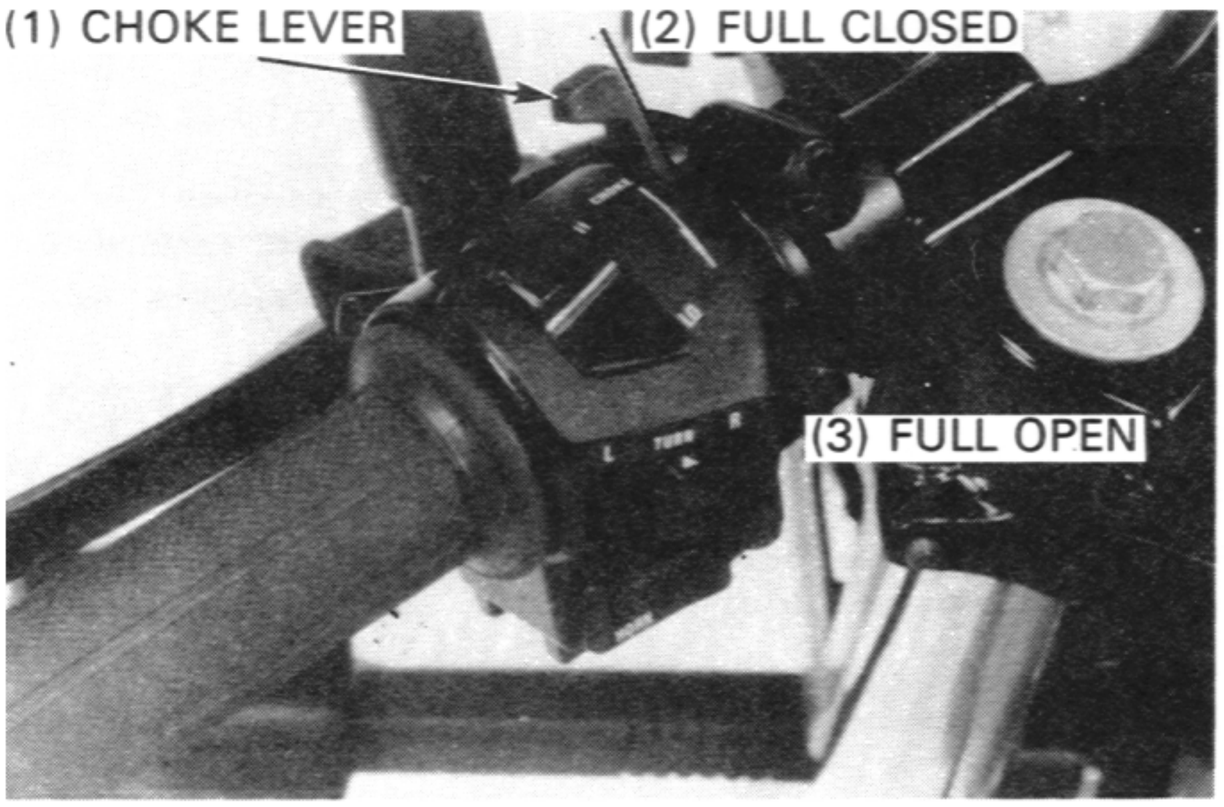


Adjust as follows:
Pull the rubber caver off the adjuster.
Loosen the lock nut and turn the adjuster as required.
Tighten the lock nut.
Recheck the throttle operration.



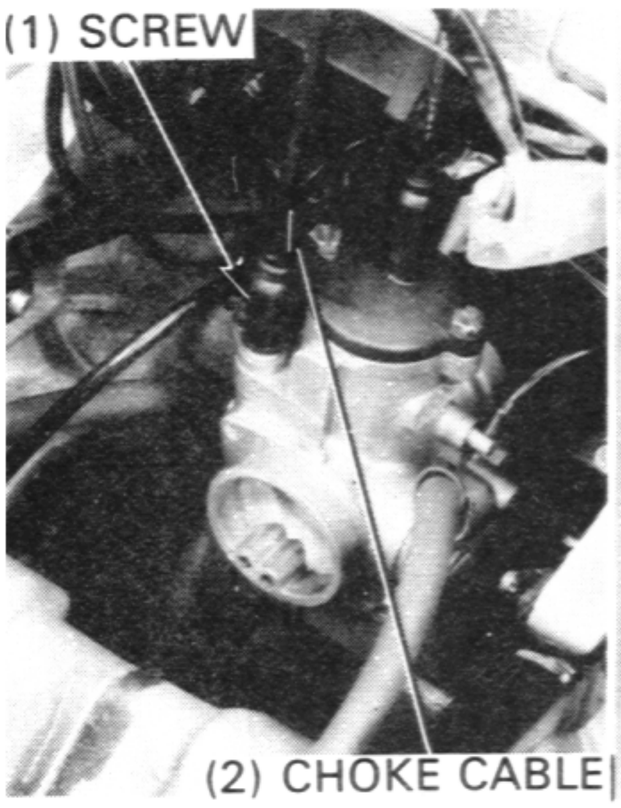
CARBURETOR CHOKE

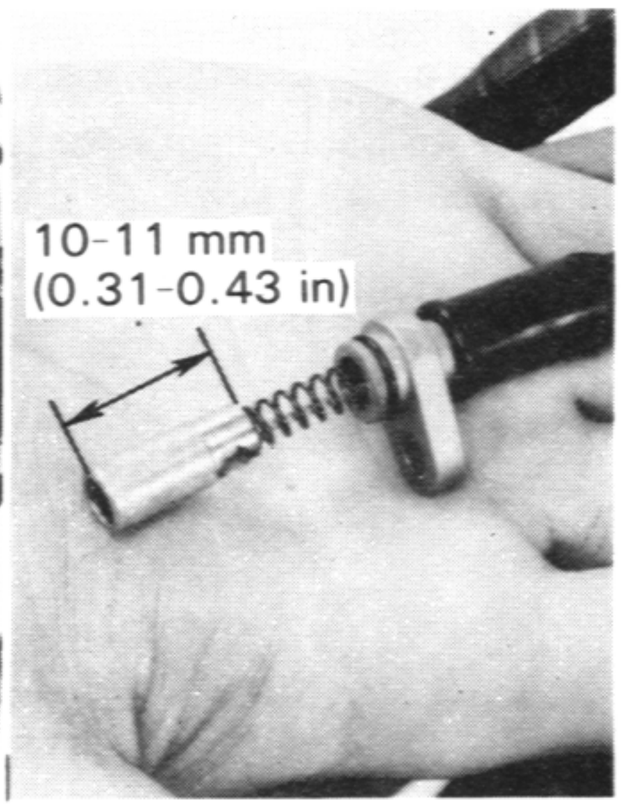
This model choke system uses a fuel enrichening circuit controlled by a bystater valve. The bystarter valve opens the enrichening circuit when the choke lever on the handlebar is pulled back.



Remove the air cleaner case (page 4-5) and disconnect the choke cable by removing the screw.
Measure the bystarter valve stroke when the choke lever is pulled back all the way from the full closed position.

BYSTARTER VALVE STROKE: 10-11mm (0.39-0.43in)

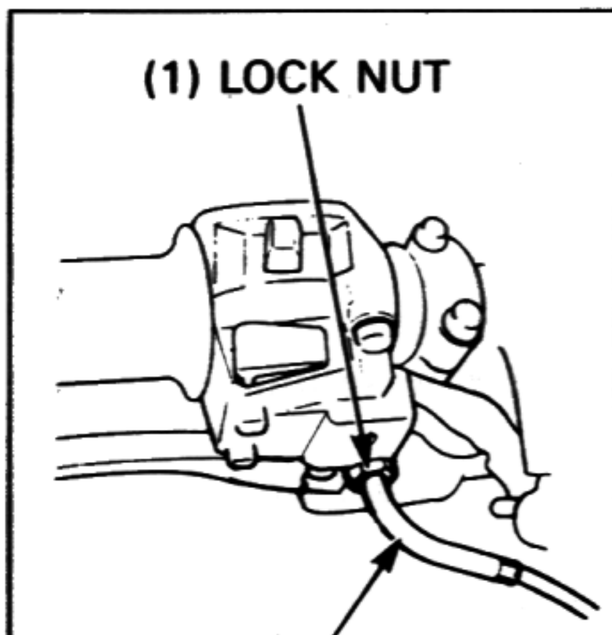


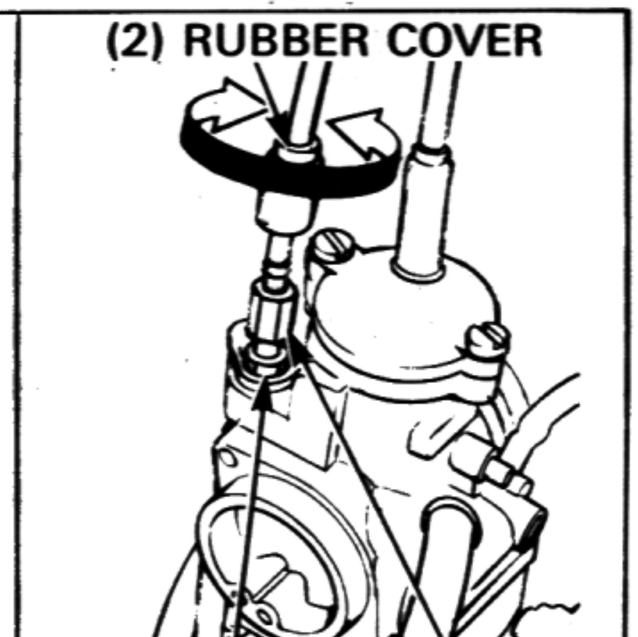


If the valve stroke is out of specification, adjust following procedure below:
Minor adjustment is made with the cable's elbow at the left handle switch housing.
Loosen the lock nut and turn the elbow as requiered.
Tighten the lock nut.

Majour adjustment is made with the lower adjuster.
Slide the rubber cover up, loosen the adjuster lock nut and turn the lower adjuster as required. Tighten the lock nut securely and recheck the valve stroke.

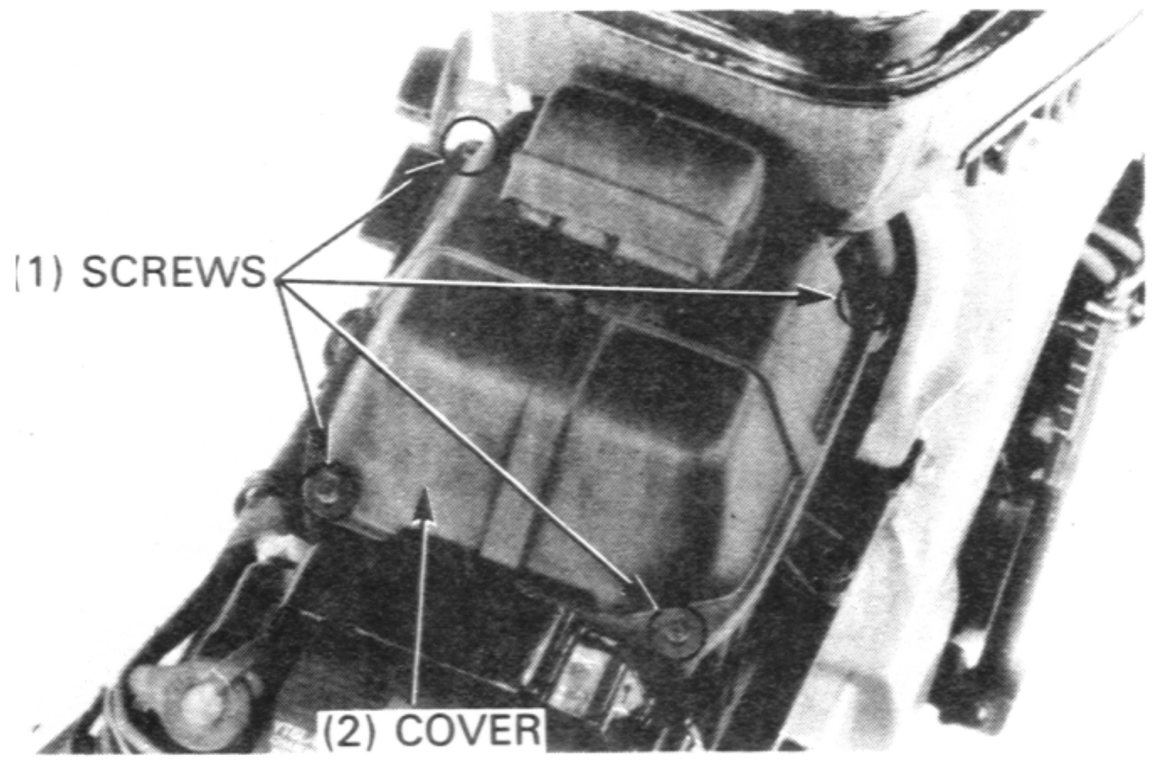
Install the air cleaner (page 4-5) and fuel tank (page 4-4).



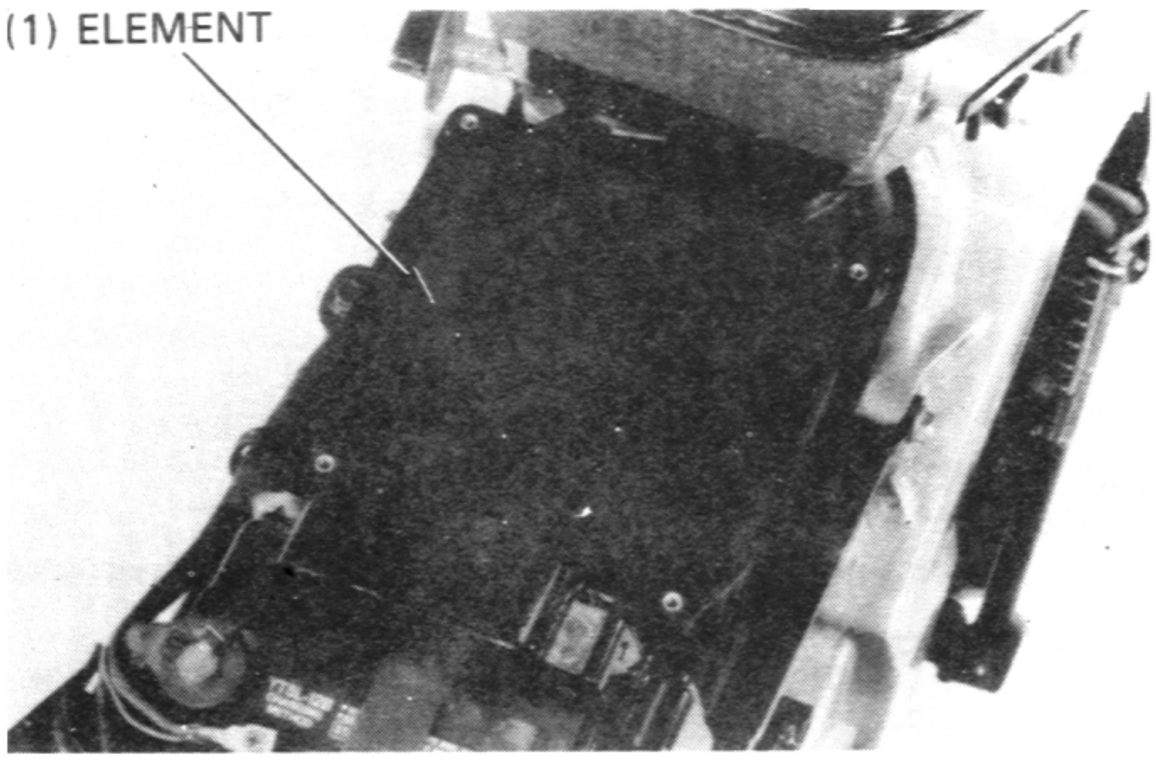


AIR CLEANER

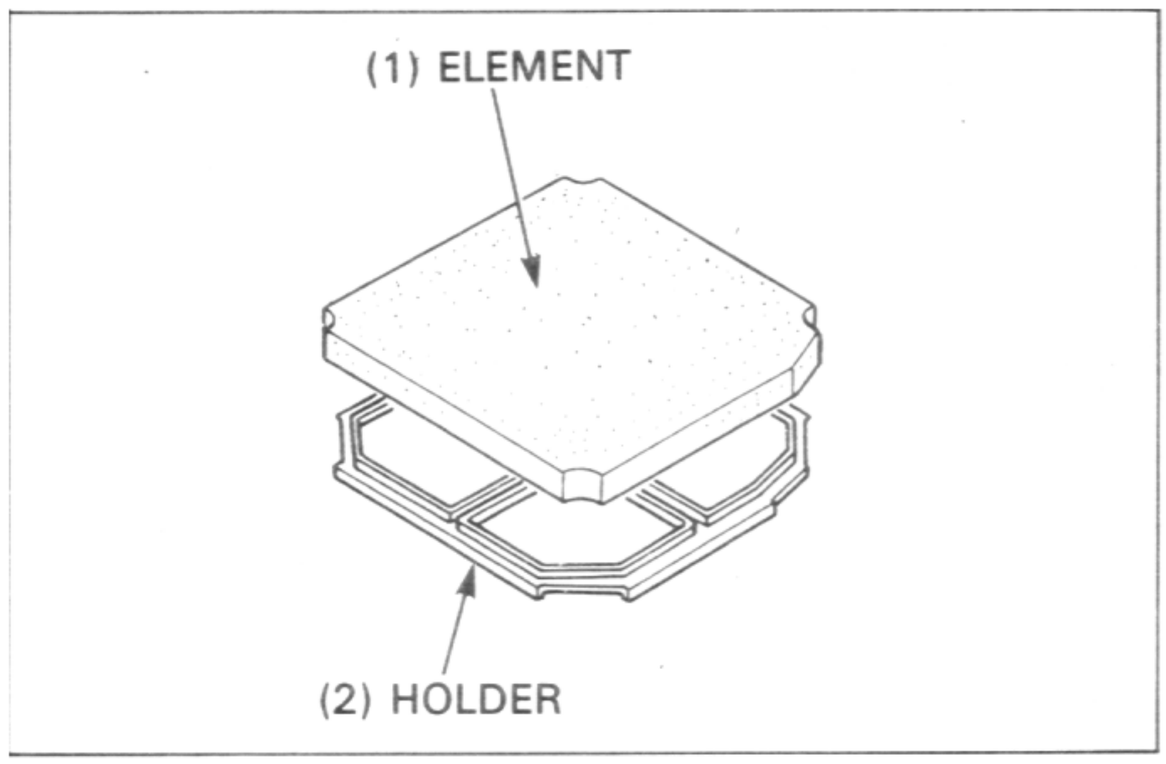
Remove the right and left fairings (page 4-3).
Remove the four air cleaner case cover attaching screws and the cover.



Remove the air cleaner element from the case.



Remove the element holder from the element.

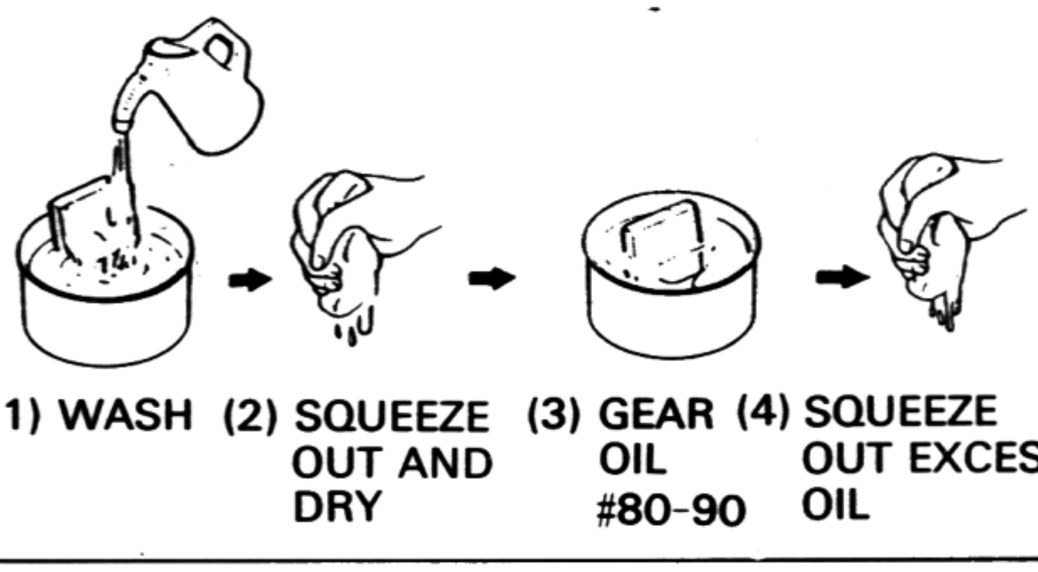


Wash the element in non-flammable or high flash point solvent.
squeeze out the solvent thoroughly, and allow to dry.

⚠ WARNING

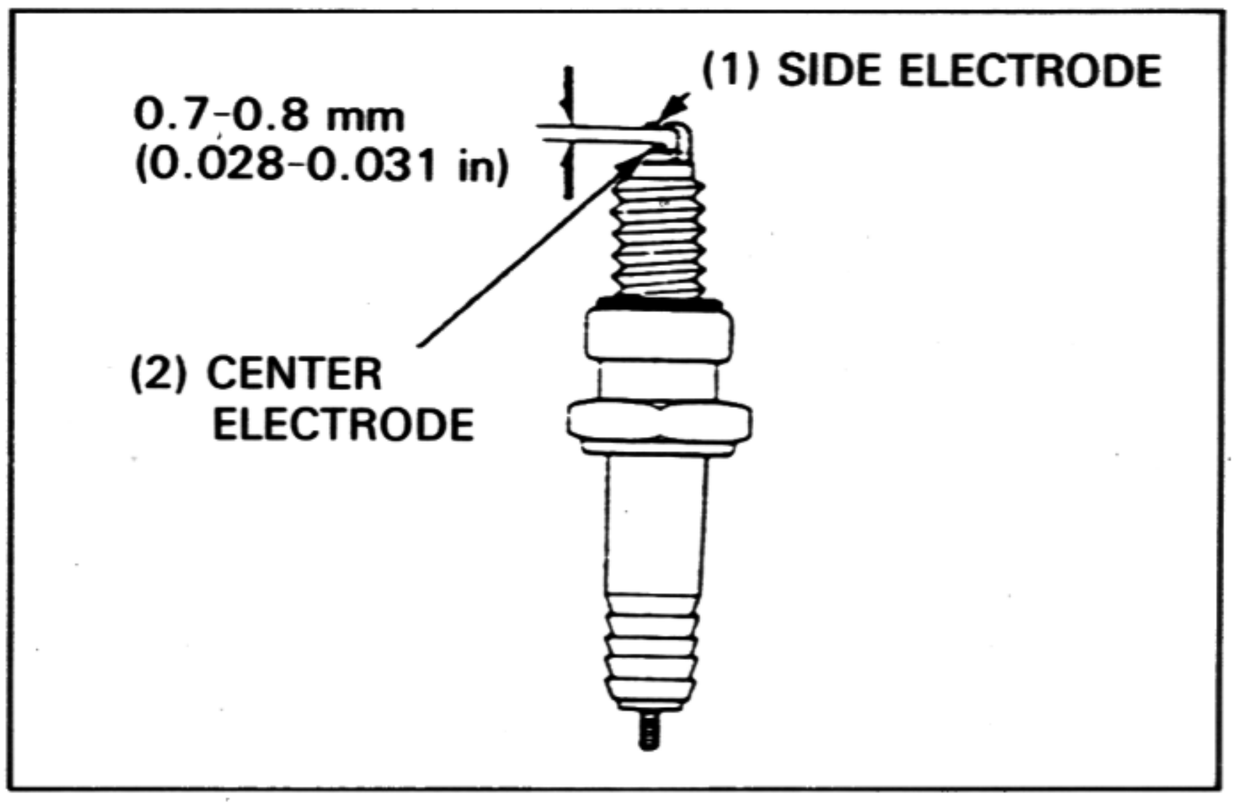
- ***Never use the gasoline or low flash point solvents for cleaning the air cleaner element. A fire or explosion could result.***

Soak the element in gear oil (SAE # 80-90) and squeeze out oil.
Install the element holders onto the element holder.
Install the air cleaner element into the air cleaner case.
Install the air cleaner case cover and secure it with the four screws.
Install the right and left fairings (page 4-3).



SPARK PLUG

Disconnect the spark plug cap and remove the spark plug. Visually inspect the spark plug electrodes for wear. The center electrode should have square edges and the side electrode should have a constant thickness. Discard the spark plug if there is apparent wear or if the insulator is cracked or chipped. Measure the gap with a wire-type feeler gauge and adjust if necessary by carefully bending the side electrode.



SPARK PLUG GAP : 0.7-0.8 mm (0.028-0.031 in)

SPARK PLUG :

	NGK	ND
Standard	BR9ECS	W27ESR-U
For extended high Speed riding	BR10ES	W31ESR-U

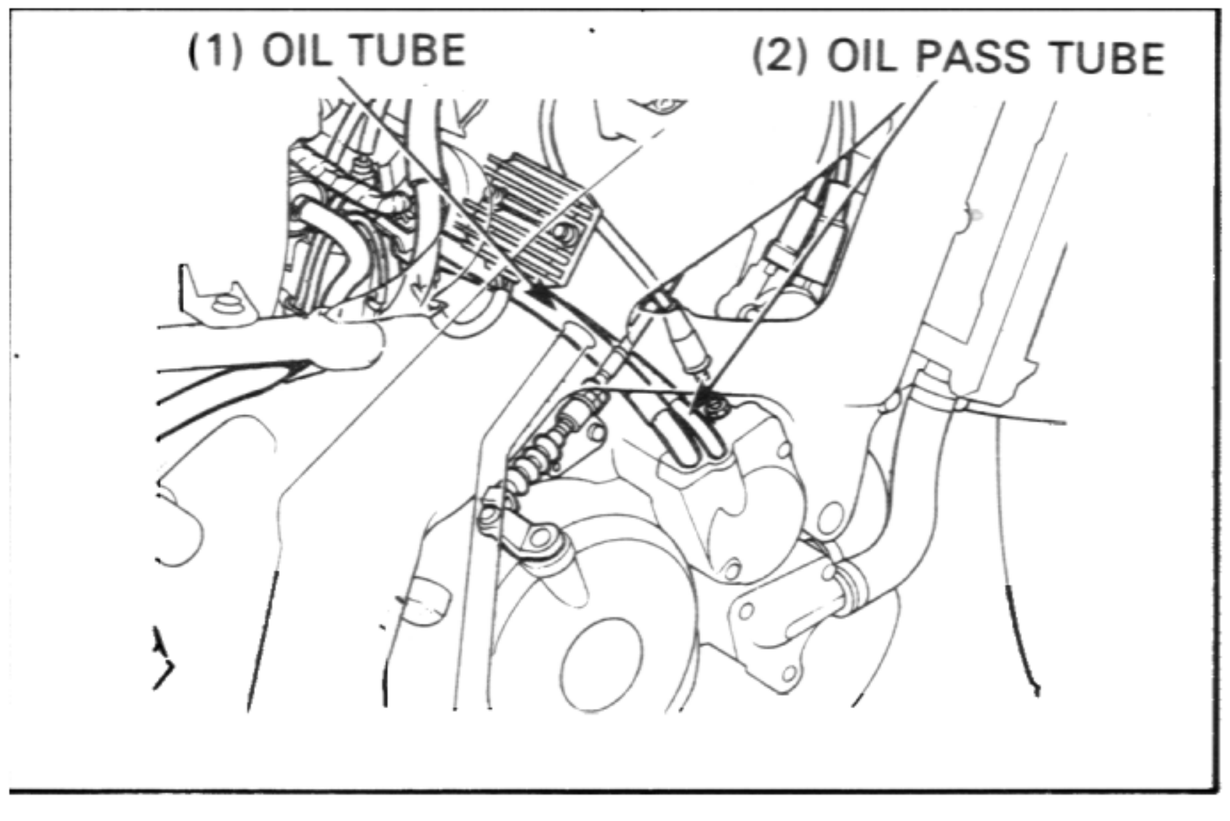
With the plug washer attached, thread the spark plug in by hand to prevent cross threading. Tighten the spark plug another 1/2 turn with a spark plug wrench to compress the plug washer.

Connect the spark plug cap to the plug.

ENGINE OIL LINE

Check the engine oil line and replace any parts which show deterioration, damage or leakage.

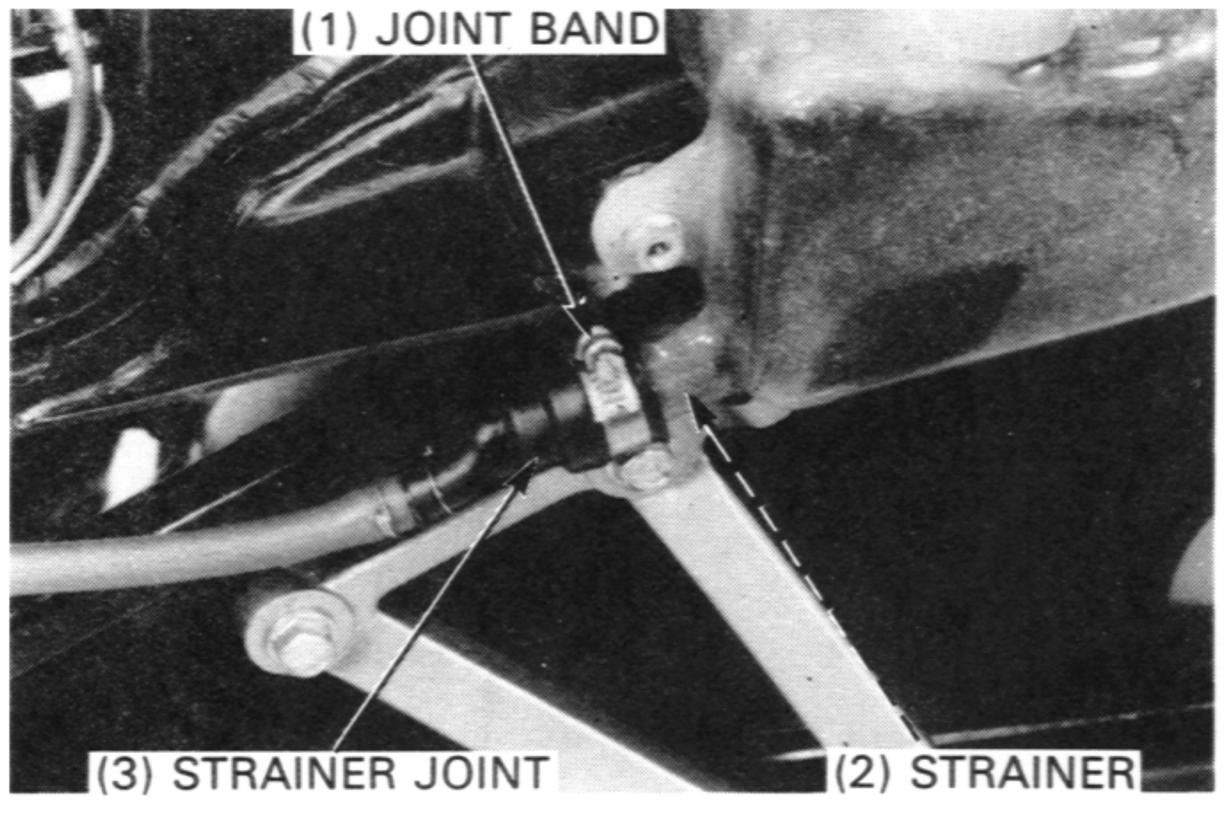
Bleed the oil pump and oil lines, if they have air bubbles in them (page 2-3)



ENGINE OIL STRAINER SCREEN

Loosen the oil strainer joint band, remove the strainer joint at the bottom of the oil tank and allow the oil to drain into a clean container.

Remove the oil strainer from the strainer joint.



Clean the oil strainer with compressed air. Replace the oil strainer if necessary.

Reinstall the strainer into the strainer ioint.

Install the joint onto the oil tank and tighten the joint band securely.

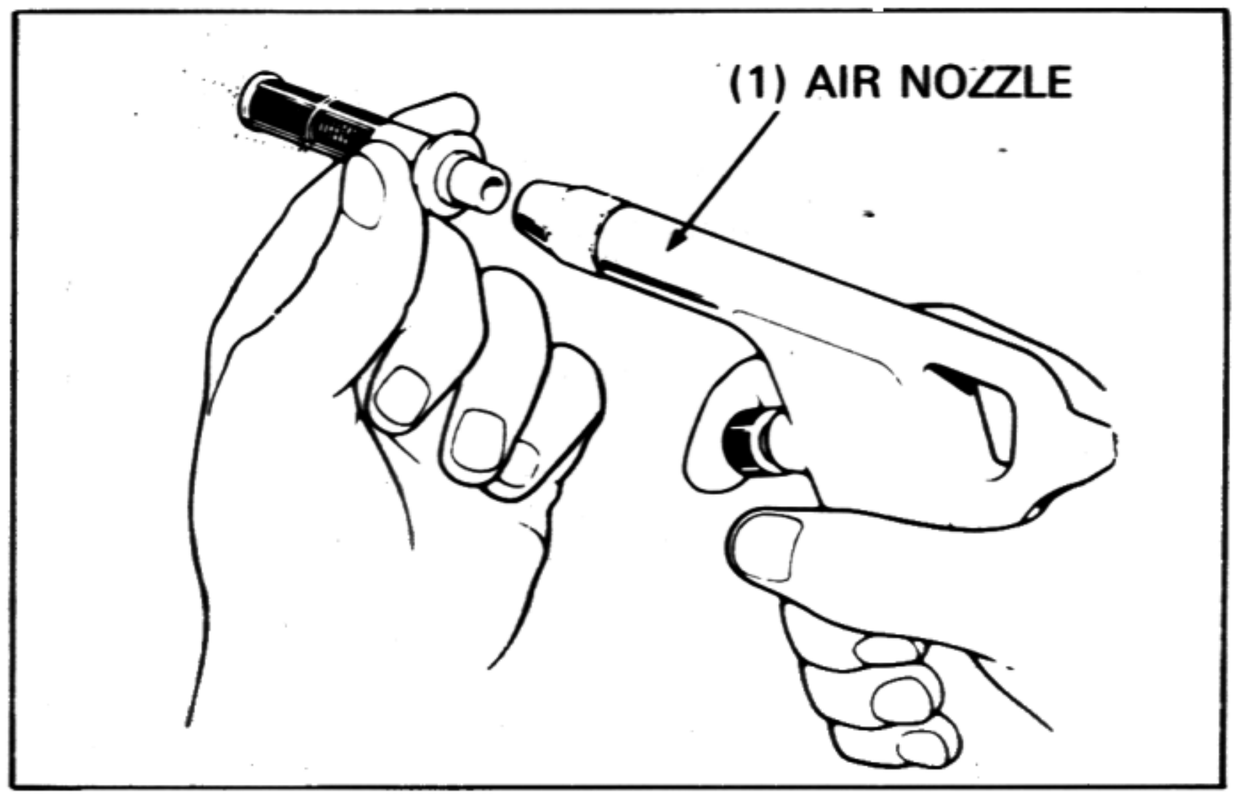
Fill the oil tank with the recommended oil and bleed air from the oil pump and oil lines (page 2-3).

OIL TANK CAPACITY: 1.0 lit (1.06 US qt, 0.88 Imp qt)

RECOMMENDED ENGINE OIL: Honda 2-stroke oil or equivalent

NOTE

- Connect the oil line securely and check for the oil leakage.



CARBURETOR IDLE SPEED

⚠ WARNING

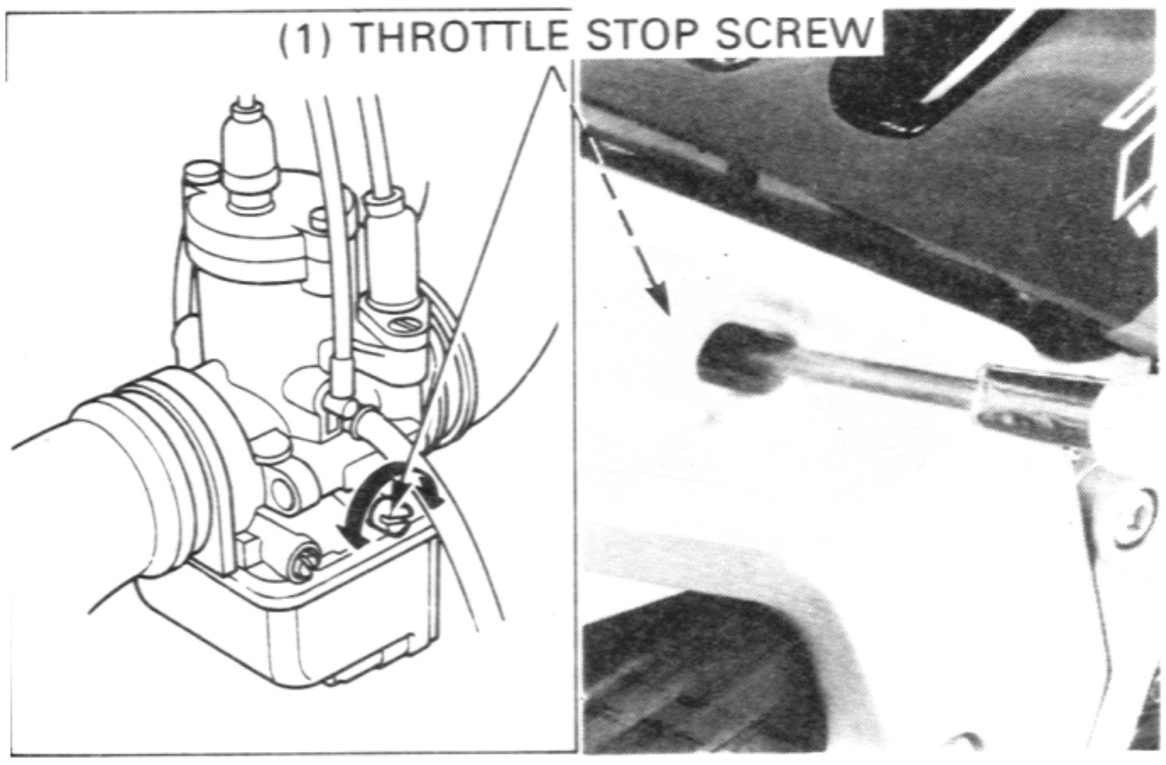
- ***If the engine must be running to do some work, make sure the area is well ventilated. Never run the engine in an enclosed area. The exhaust contains poisonous carbon monoxide gas that can cause the loss of consciousness and may lead to death.***

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.
Place the motorcycle on its center stand and shift the transmission into neutral.
Check the idle speed and adjust by turning the throttle stop screw if necessary.

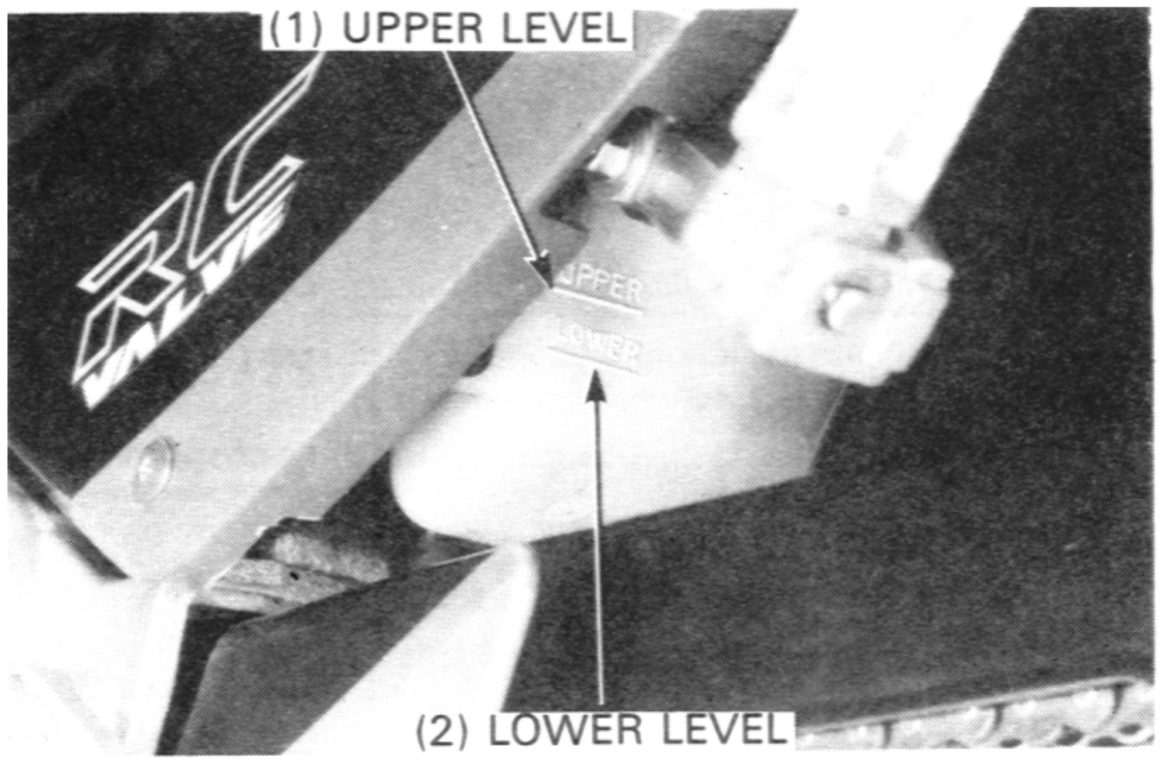
IDLE SPEED: 1,400 ± 100 min⁻¹ (rpm)



RADIATOR COOLANT

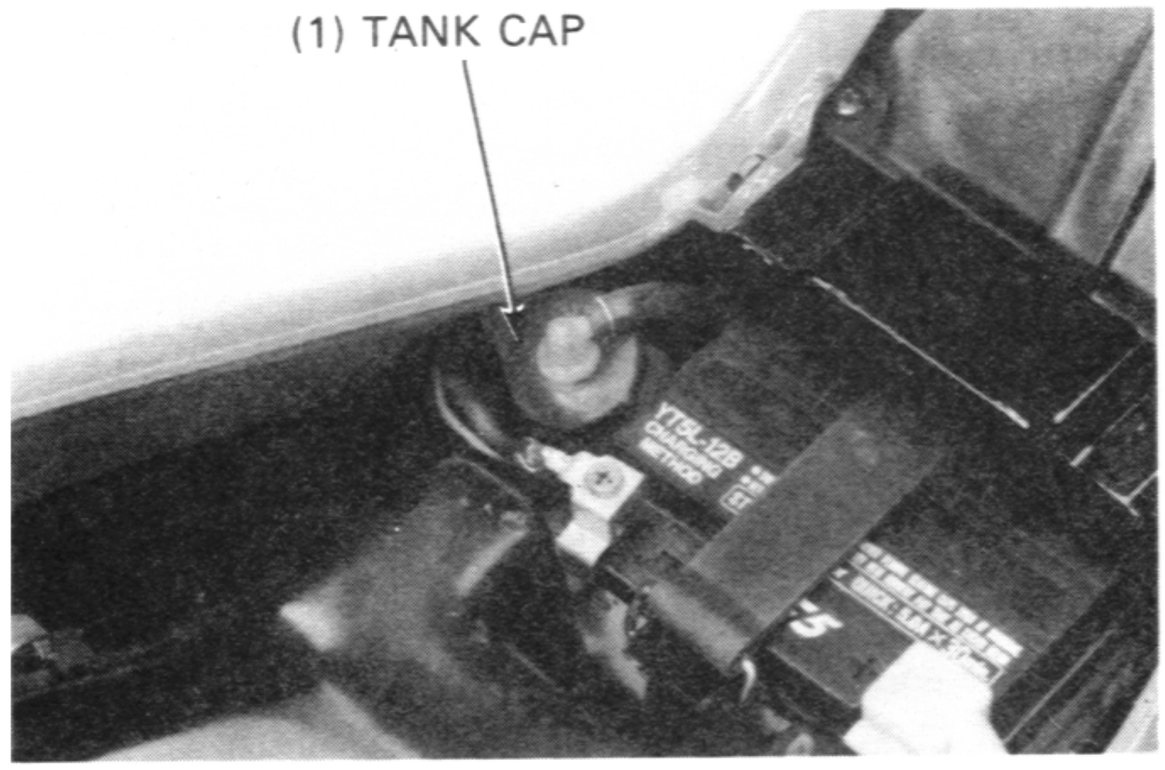
⚠ WARNING

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



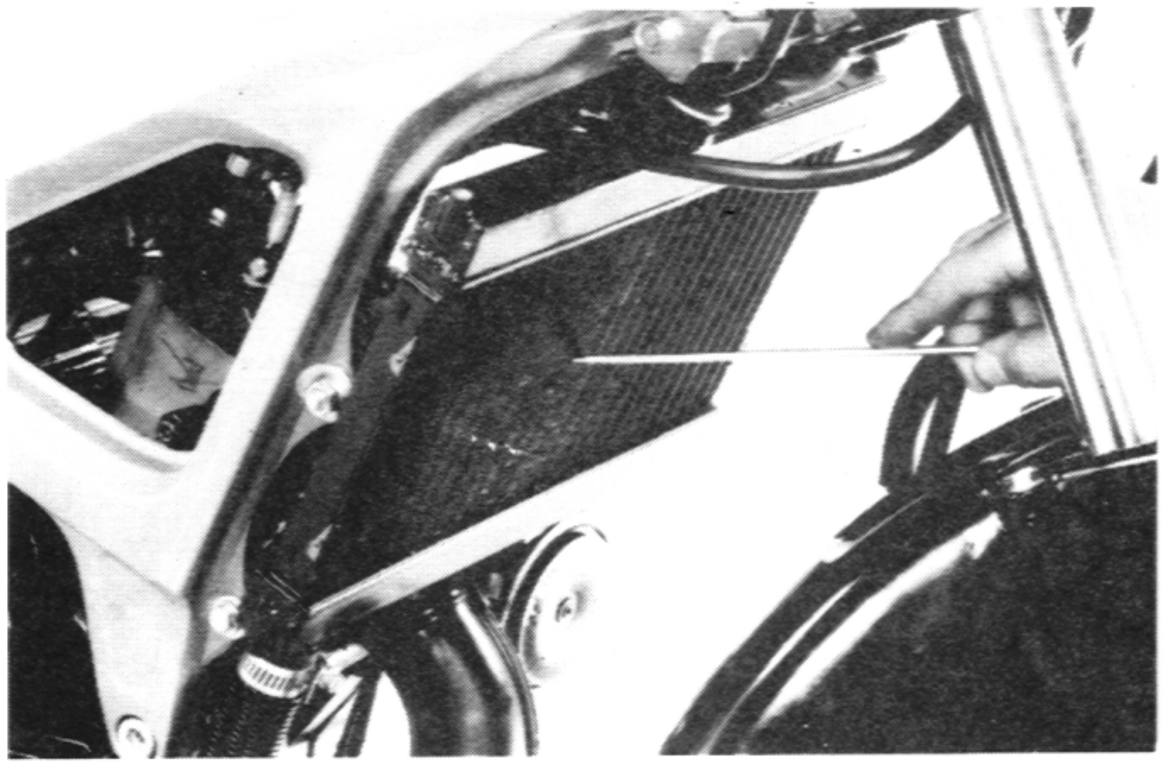
Remove the right fairing (page 4-3).
Check the coolant level of the reserve tank with the engine running at normal operating temperature. The level should be between the "UPPER" and "LOWER" level lines.

If necessary, remove the seat and reserve tank cap and fill to the "UPPER" level line with 50/50 mixture of distilled water and antifreeze.
Reinstall the reserve tank cap and seat.

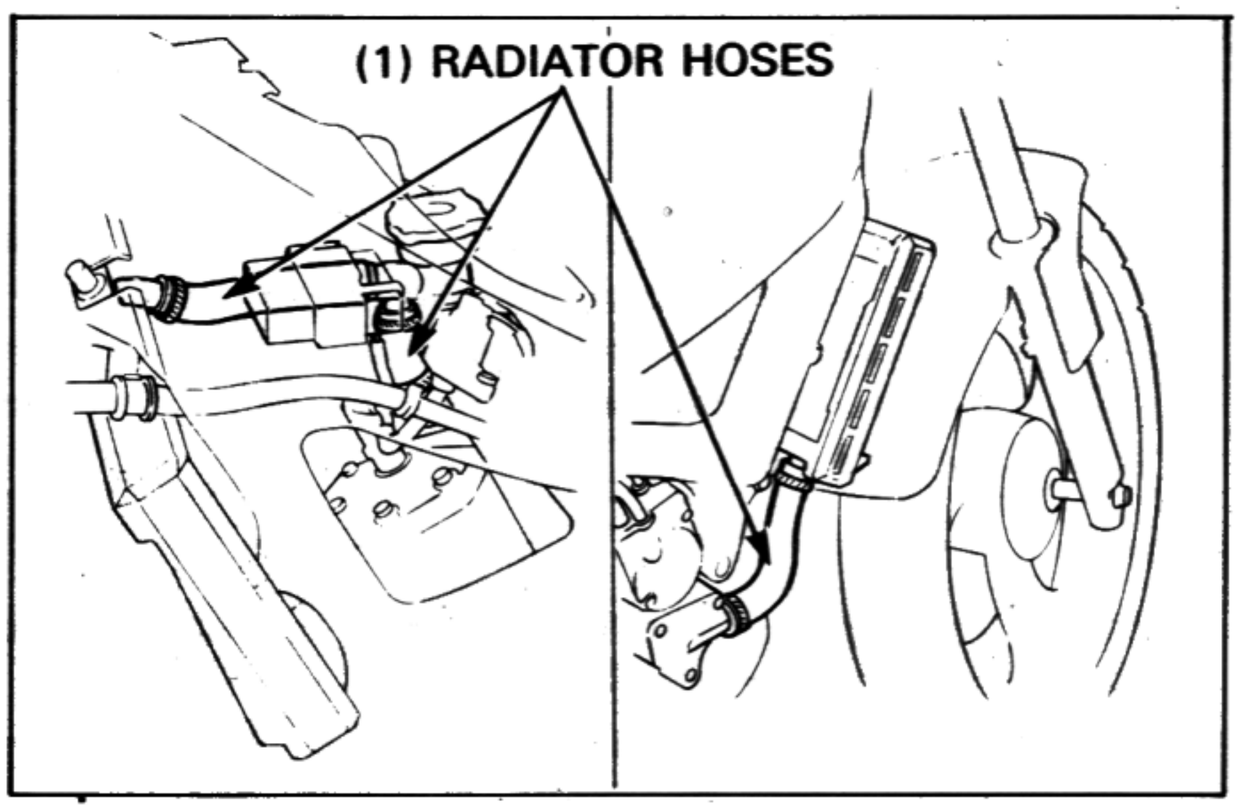


COOLING SYSTEM

Check the radiator core for clogging or damage.
Straighten the bent fins and collapsed tubes.
Remove the 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.
For radiator replacement, refer to the page 5-7.



Check the cooling system hoses for cracks, deterioration or other demage, and replace if necessary.
Check that all hose clamps are secure.



CYLINDER COMPRESSION

Warm the engine up to the normal operating temperature.

⚠ WARNING

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

Remove the spark plug cap and spark plug.
Install the compression gauge to the spark plug hole.
Turn the engine stop switch "OFF".

Open the throttle all the way and crank the engine with the starter motor or by operating the kickstarter pedal several times.

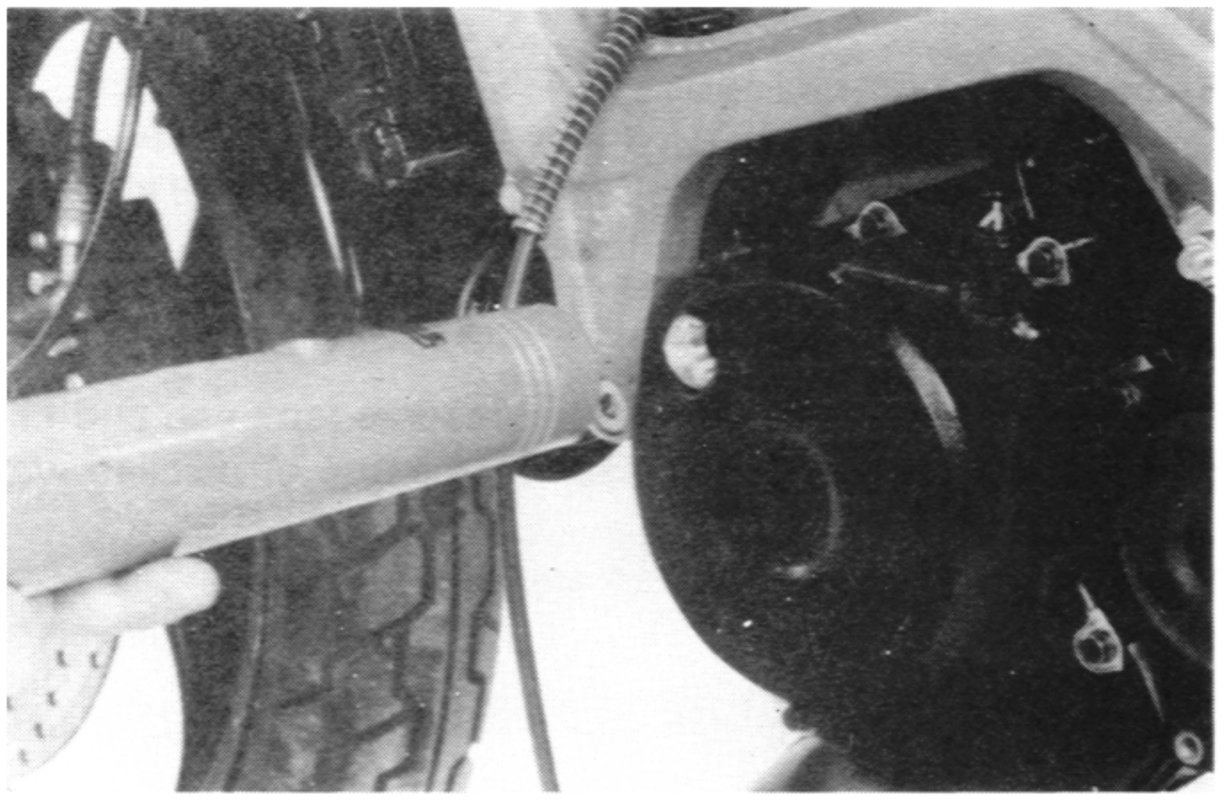
NOTE

- Be sure compression is not leaking at the gauge connection.
- Crank the engine until the gauge reading stops rising.

COMPRESSION PRESSURE:
1,000 ± 200 (10 ± 2 kg/cm², 142 ± 28 psi)

Low compression can be caused by:
- Faulty reed valve.
- Leaking cylinder head gasket.
- Worn piston rings and cylinder
- Worn cylinder.
- Damaged crankshaft oil seal.

High compression can be caused by:
- Carbon deposits in combustion chamber or on top of the piston.



IGNITION TIMING

NOTE

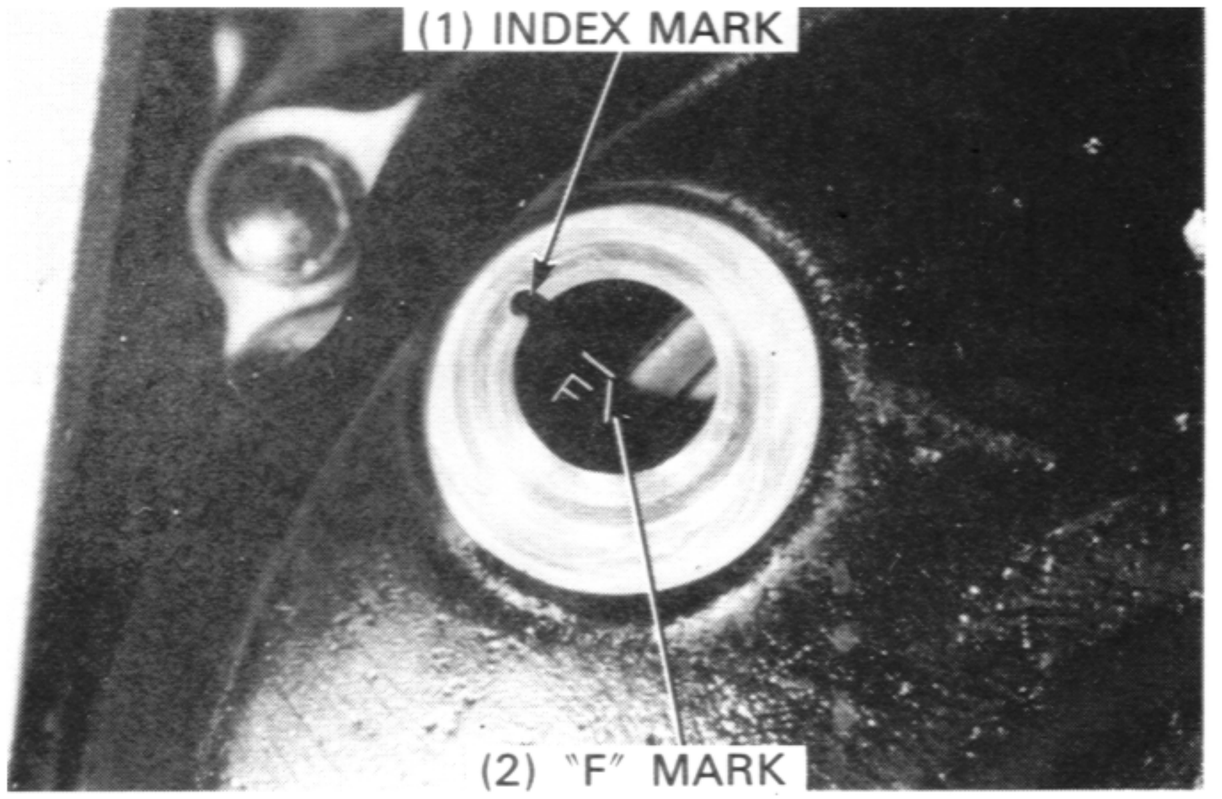
- The Capacitive Discharge Ignition system is factory pre-set and can not be adjusted. Ignition timing inspection procedures are given as follows.

Warm the engine up to the operating temperature.

⚠ WARNING

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

Start the engine and raise the engine speed to 3,000 min^{-1} (rpm) by turning the throttle stop screw in.
Remove the timing hole cap.
Connect a timing light.
Inspect the ignition timing.
Timing is correct if the "F" mark on the alternator rotor is aligned with the index mark on the left crankcase cover at 3,000 min^{-1} (rpm).
If the ignition timing is incorrect, perform the system inspection (page 16-3).



DRIVE CHAIN

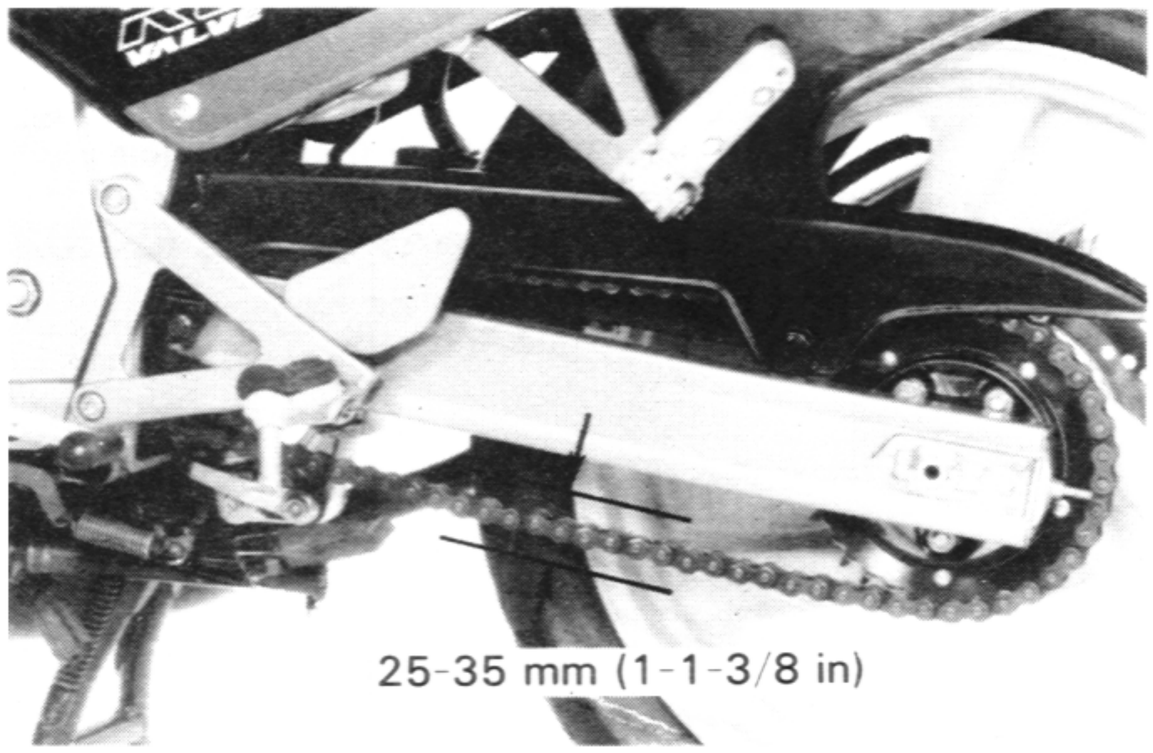
⚠ WARNING

- ***Never inspect or lubricate the drive chain while the engine is running.***

INSPECTION

Stop the engine and shift the transmission into neutral.
Measure the drive chain slack midway between the sprokets.

DRIVE CHAIN SLACK:25-35mm (1-1-3/8in)

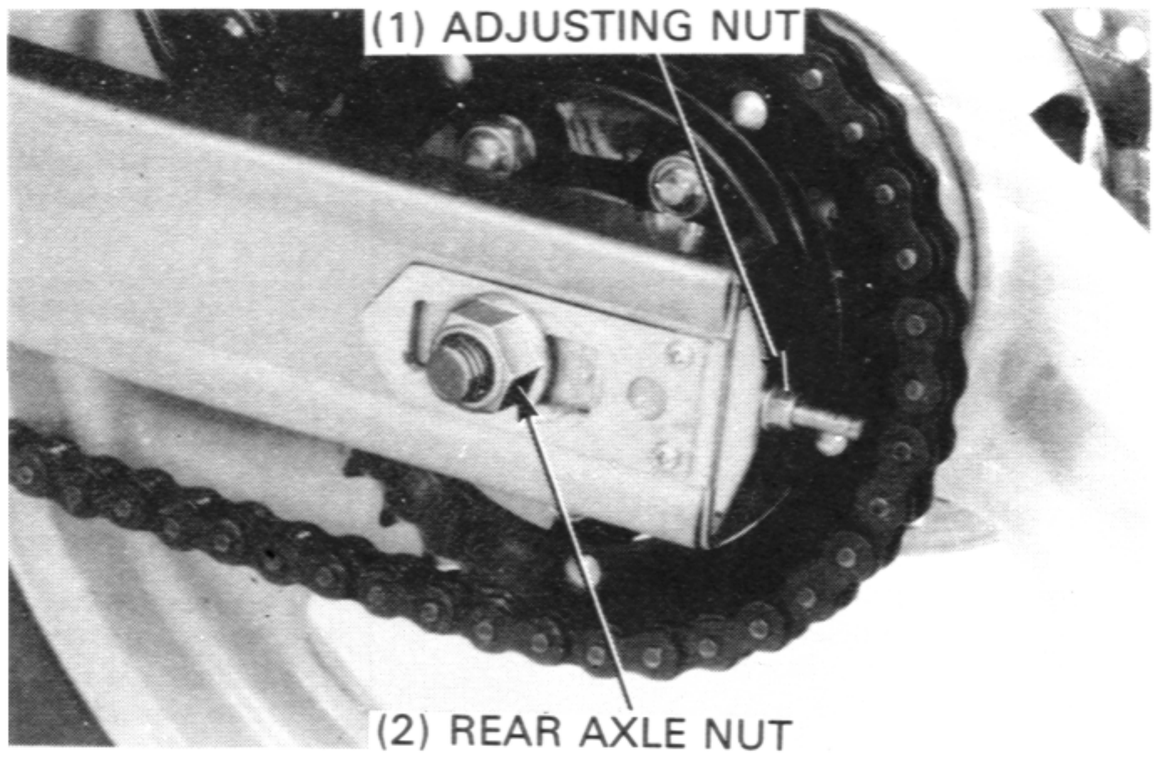


ADJUSTMENT

Loosen the rear axle nut and turn the both adjusting nuts in equal number of turns untill the correct drive chain slack is obtained.
Make sure that the same graduation scale on the both adjusters align with the rear ends of the slot in the adjuster plate.
Tighten the rear axle nut.

TORQUE:90N·m (9.0kg-m, 65ft-lb)

Tighten the adjusting nuts securely.

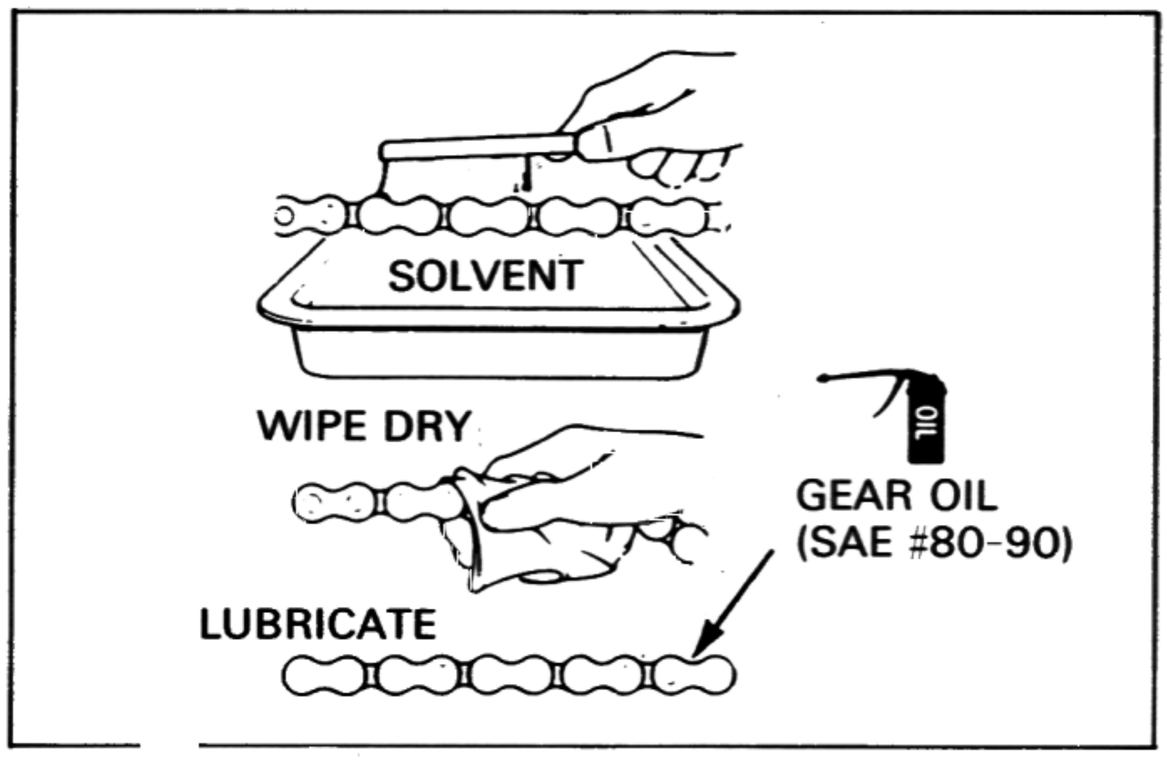


NOTE

- Drive chain and sproket must be replaced as a set with new ones if the specified chain slack can not be obtained with the chain adjusting nuts.

LUBRICATION AND CLEANING

If the drive chain extreamely dirty, clean the drive chain with kerosene.
Wipe dry and lubricate only with SAE # 80 or # 90 gear oil.

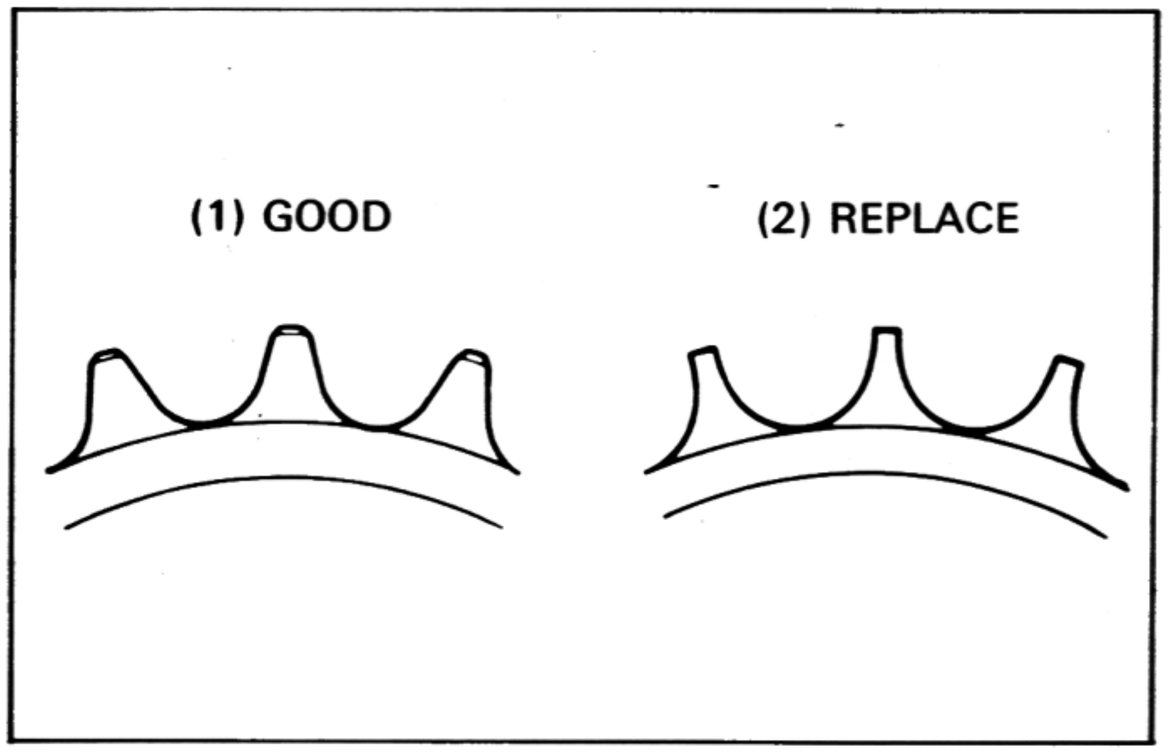


DRIVE SPROCKET

Inspect the drive chain and sprockets for damage or wear.
A drive chain with damaged rollers or loose pins must be replaced. Replace the sprocket which is damaged or excessively worn.

NOTE

- Never install a new drive chain on worn sprockets or a worn chain on new sprockets. Both chain and sprocket must be replaced as a set, or the new replacement chain or sprockets will wear rapidly.



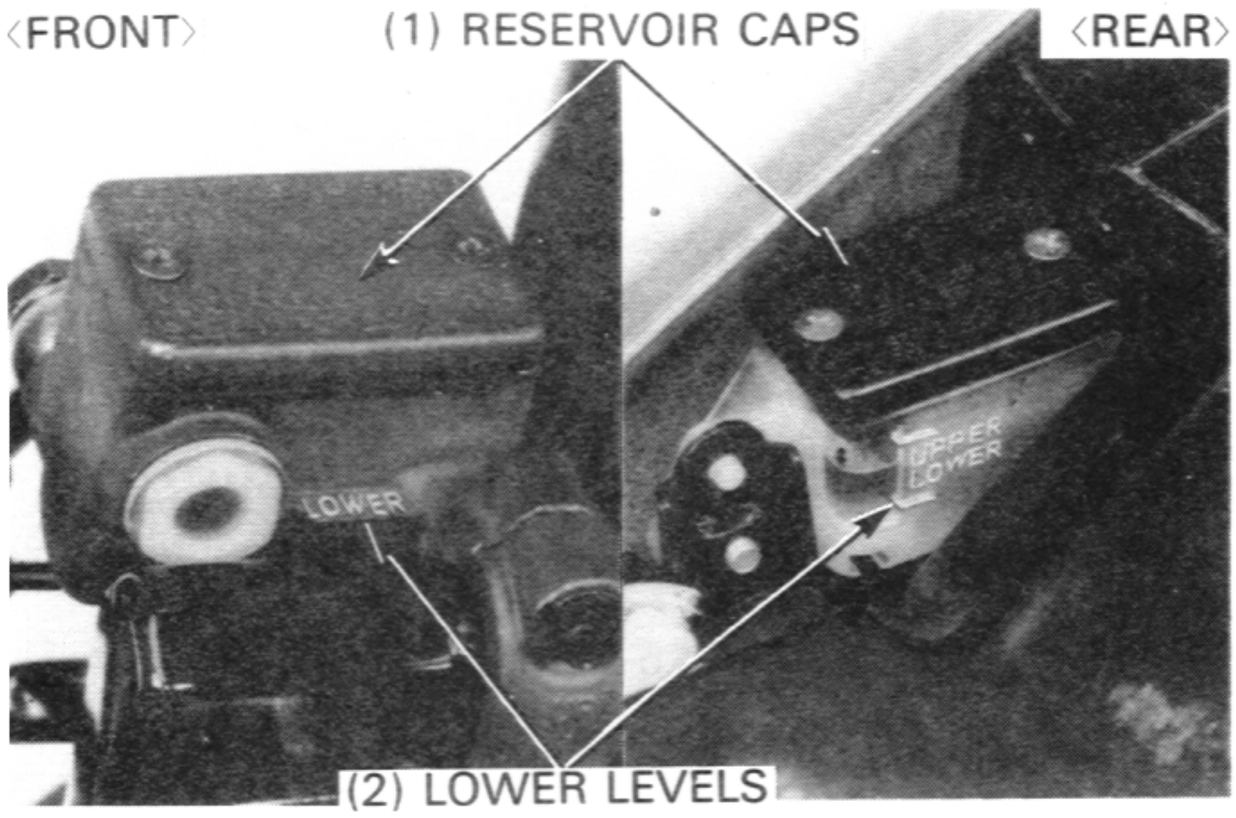
BRAKE FLUID

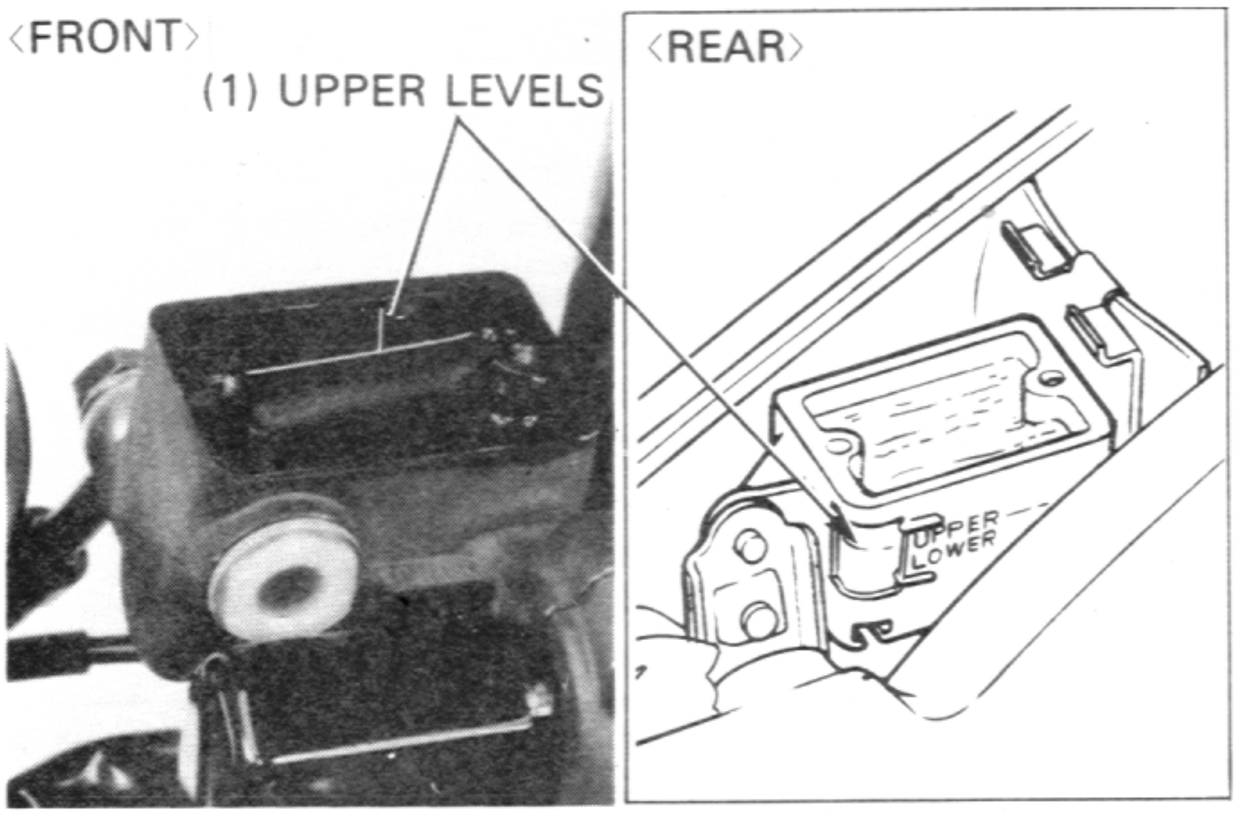
Check the brake fluid level if the level nears the lower level, remove the reservoir cap, set plate and diaphgram. Fill the reservoir to the upper level with DOT 4 brake fluid from a sealed container. Check the system for leaks.

CAUTION

- *Do not remove the reservoir cap until the handlebar has been turned so that the reservoir is level.*
- *Do not mix different type of fluid, as they are not compatible with each other.*
- *Do not allow foreign material to enter the system when filling the reservoir.*
- *Avoid spilling the fluid on painted, plastic or rubber parts.*

Refer to section 13 for brake breeding procedures.



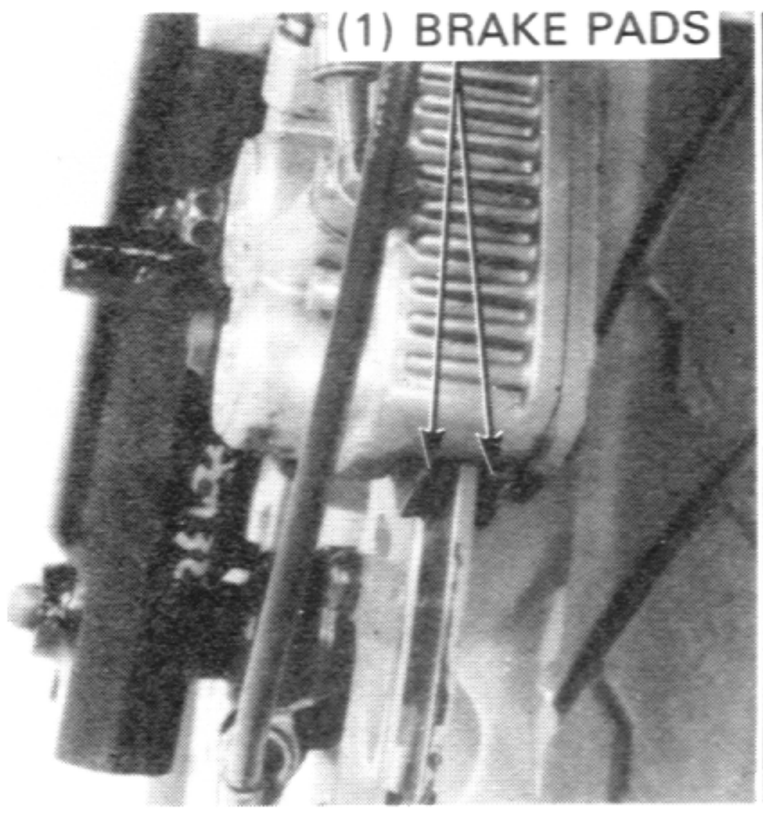


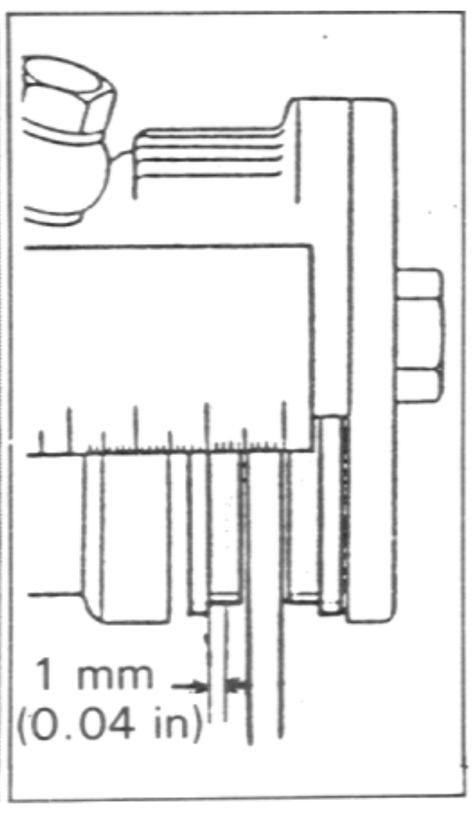
BRAKE PAD WEAR

CAUTION

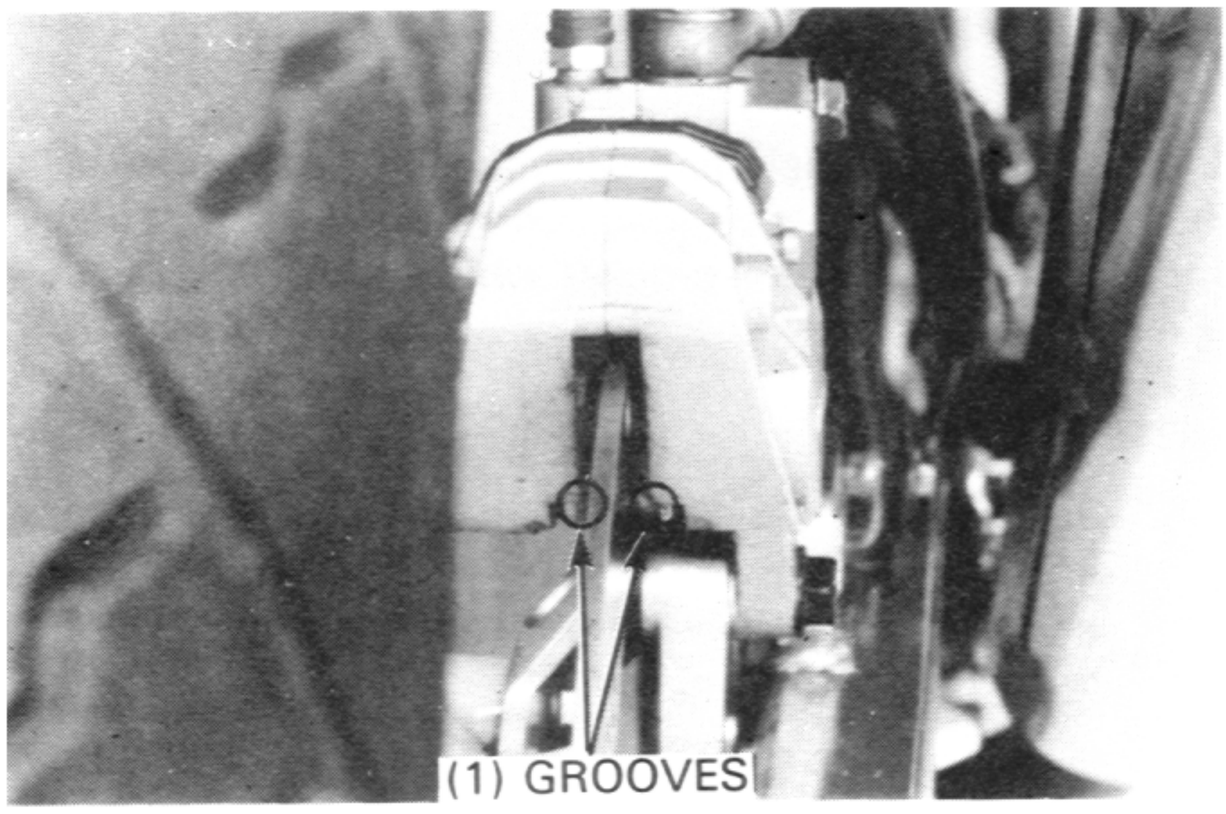
- *Always replace the pads in pairs to assure even disc pressure.*

Front:
Check the brake pads for wear by measuring their thickness.
Replace the pads if their thickness are less than 1mm (0.04in) (page 13-5).





Rear:
Check the rear brake pads for wear.
Replace the brake pads if the wear grooves in the brake pads reach the brake disc.
Refer to page 13-7 for replacement.



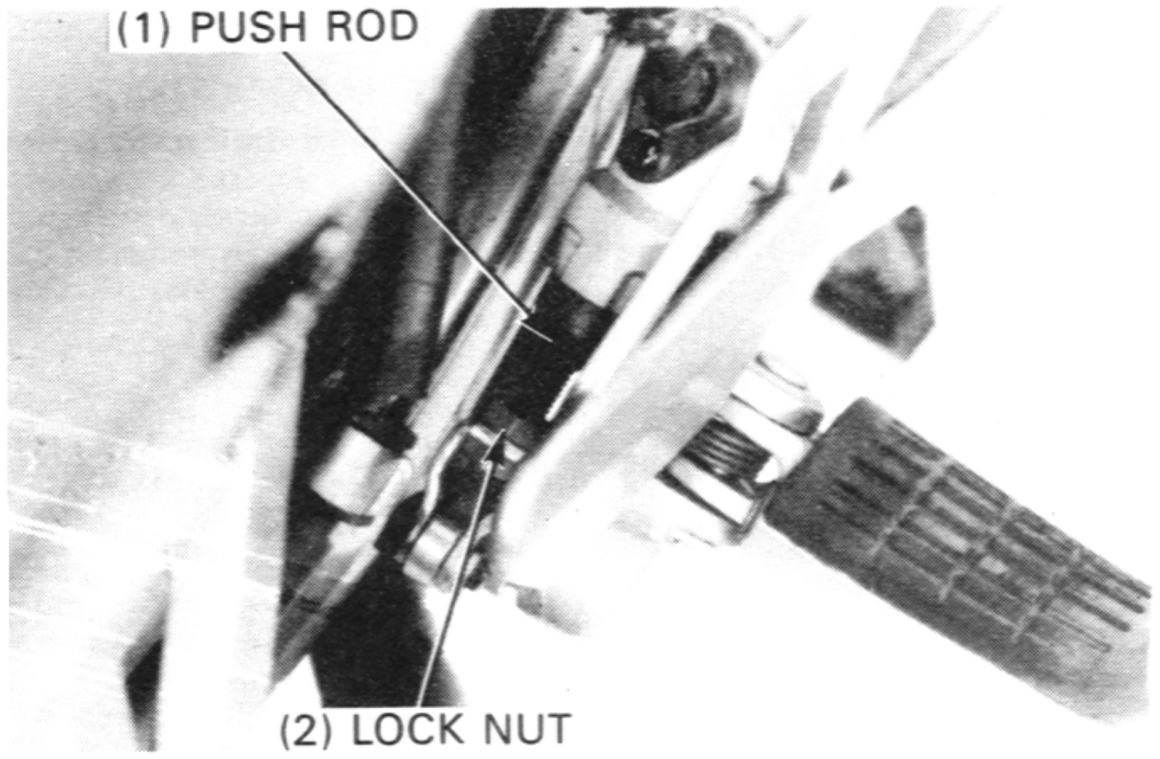
BRAKE SYSTEM

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

BRAKE PEDAL HEIGHT

To adjust the brake pedal height, loosen the lock nut and turn the rear master cylinder push rod as regired.
After adjustment, tighten the lock nut securely.

TORQUE : 18 N·m (1.8 kg-m, 13 ft-lb)

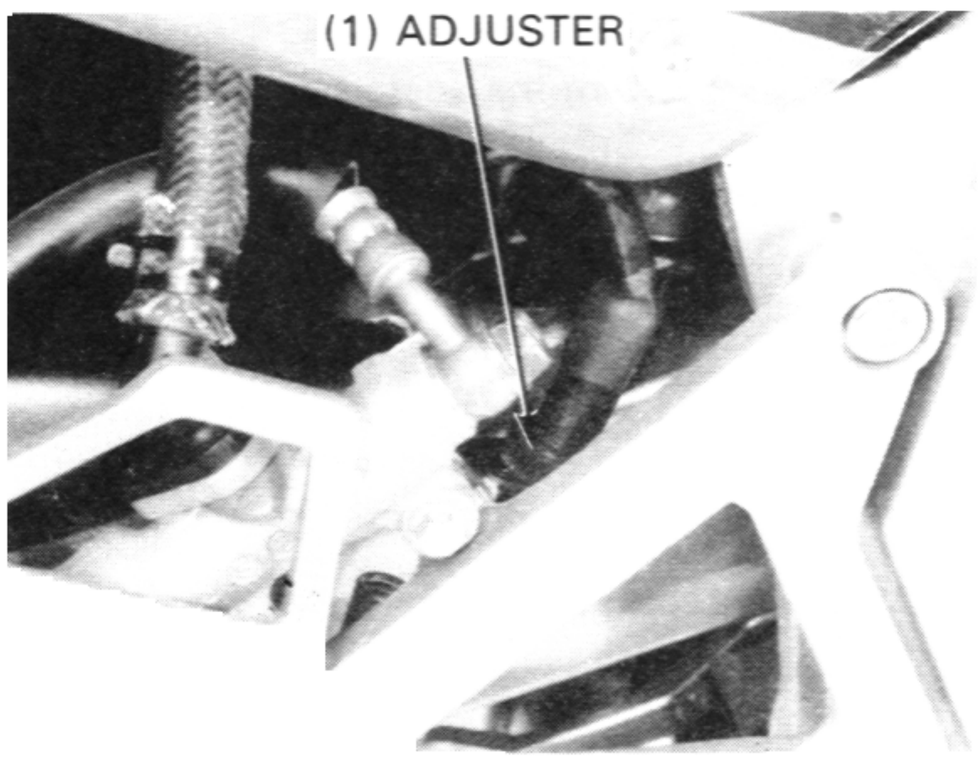


BRAKELIGHT SWITCH

NOTE

- Perform rear brakelight swich adjustment after adjusting the brake pedal height.
- The front brakelight switch does not require adjustment.

Adjust the brakelight switch so that the brakelight will come on just before the brake engagement begins.
Hold the switch body and turn the adjusting nut. Do not turn the switch body.



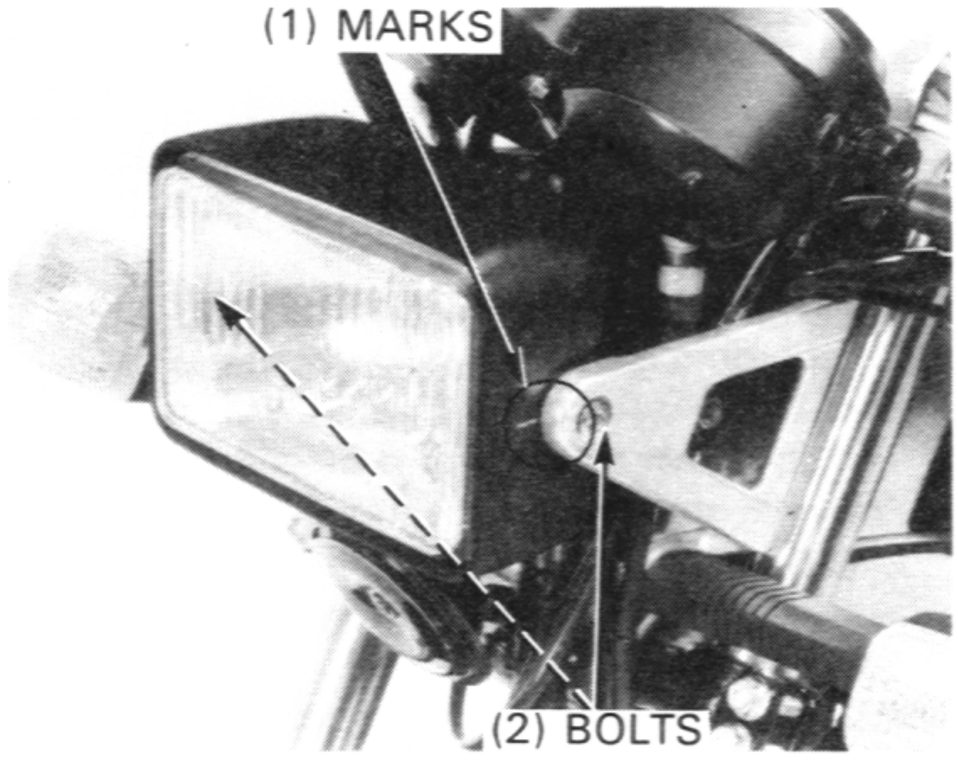
HEADLIGHT AIM

Loosen the headlight mounting bolts and align the marks on the headlight and headlight case bracket.
Tighten the headlight mounting bolts.

For "R-Type" adjust headlight using the registred screw, located under the front center cowl.

⚠ WARNING

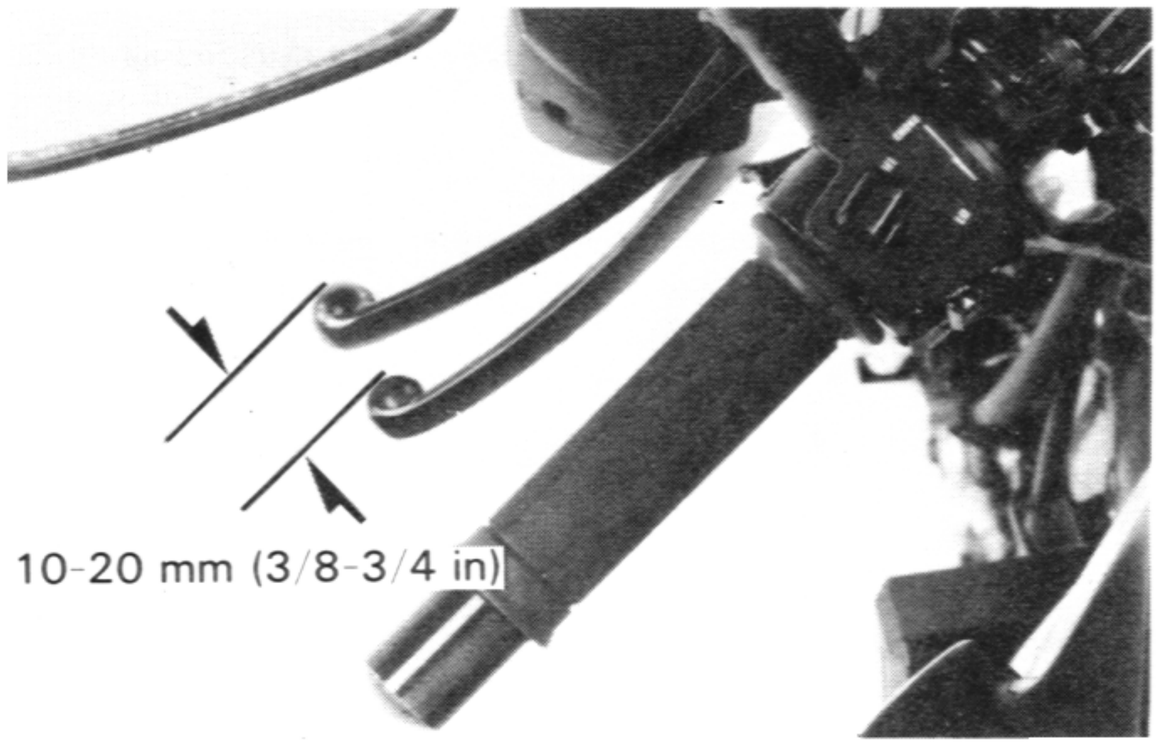
- ***An improperly adjusted headlight may blind oncoming drivers, or it may fail to light the road for a sate distance.***



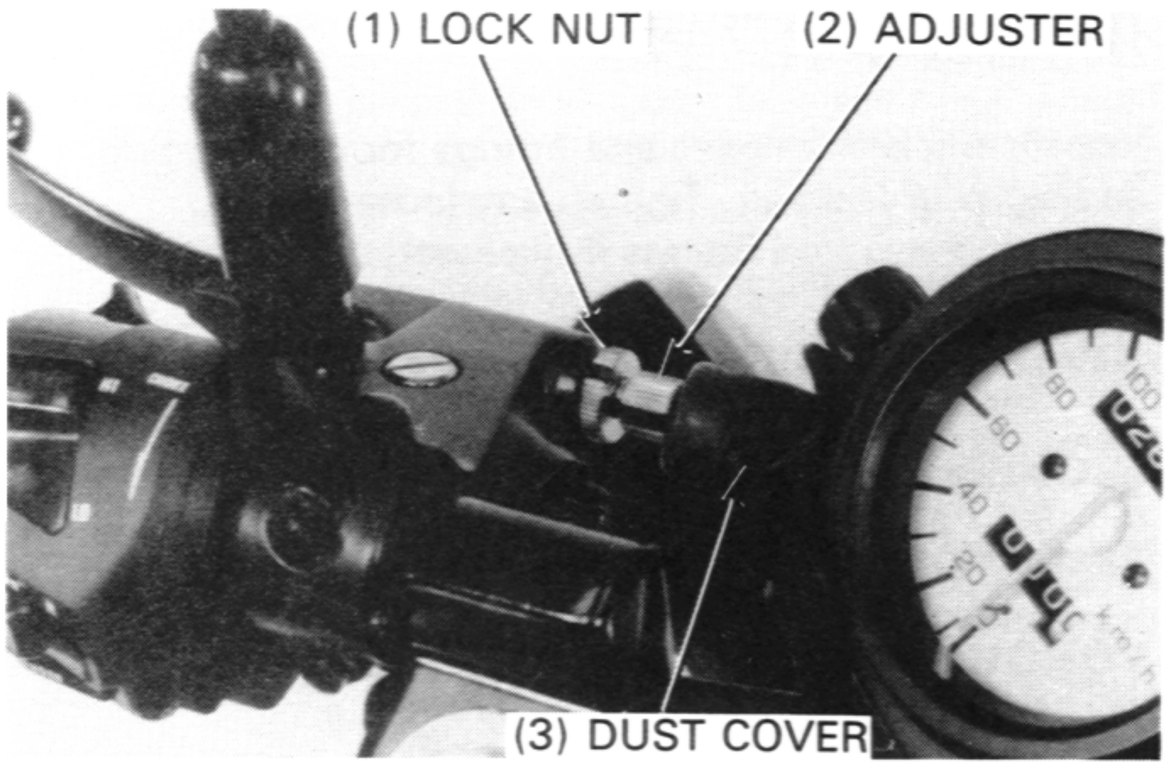
CLUTCH SYSTEM

Measure the clutch lever free play at the lever end.

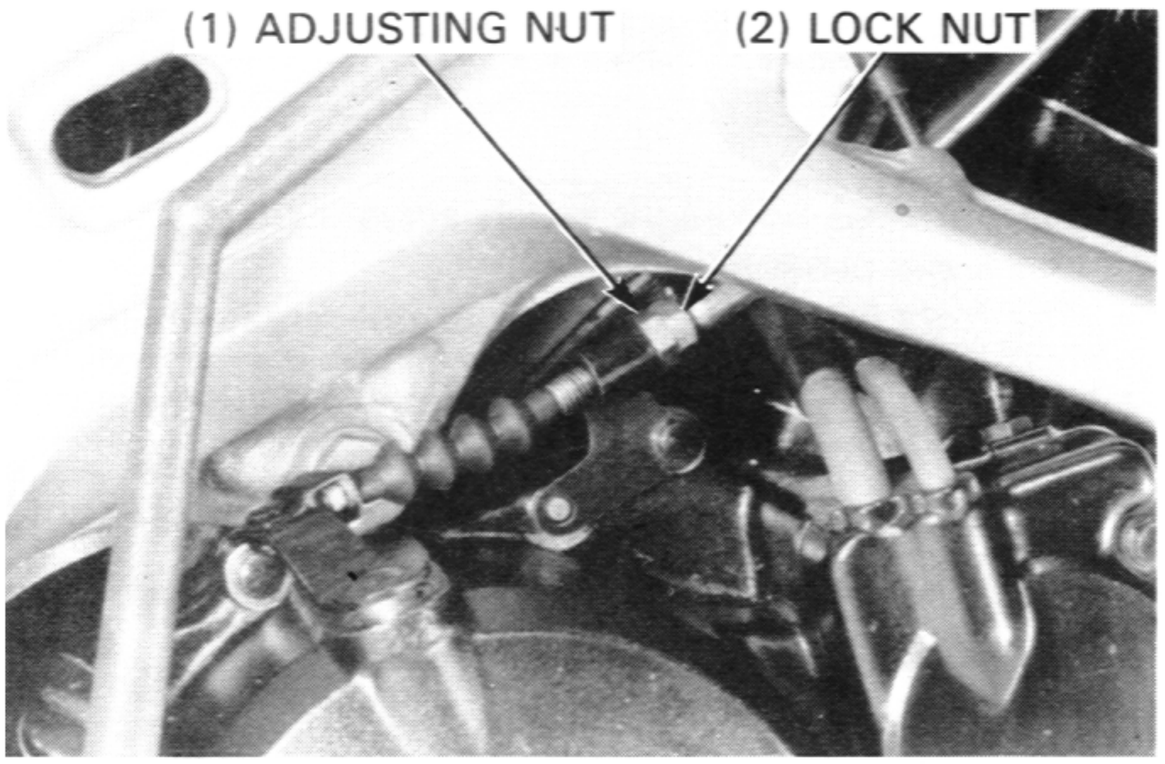
FREE PLAY: 10-20mm (3/8-3/4 in)



Adjust as follows:
Minor adjustmets are made at the upper adjuster.
Slide the dust cover off, loosen the lock nut and turn the adjuster.
Tighten the lock nut and install the dust cover.

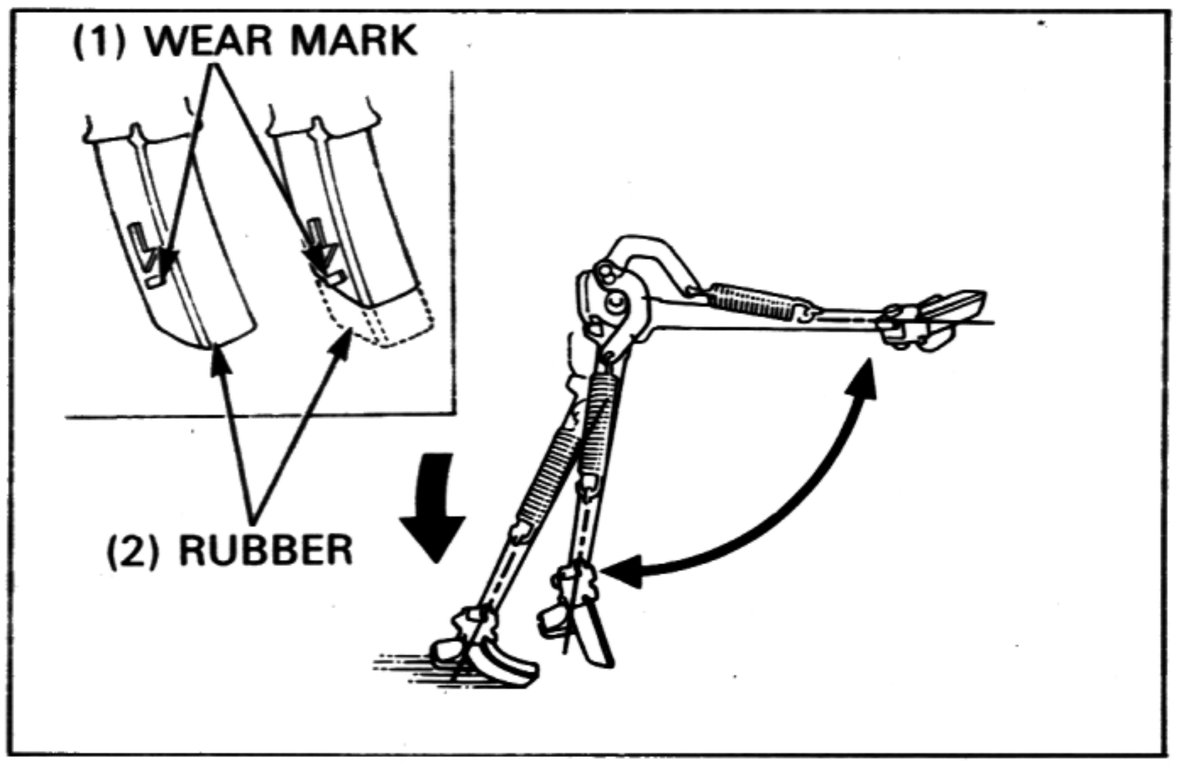


Major adjustments are made with the lower adjuster.
Loosen the lock nut and turn the adjusting nut.
Tighten the lcok nut.
Check the clutch operation and lever free play.



SIDE STAND

Check the rubber pad for wear or damage.
Replace the rubber pad if wear extends to the wear line.
Check the side stand operation.
The side stand should lower easily to its first stop, then lock to support the motorcycle as the rubber touches the ground.
When the motorcycle is lifted upright, the stand should automatically move to the first clic, and retract when kicked up.
If the side stand does not move freely, disassemble it;
Remove the return spring at the retracted position.
Remove the pivot bolt and remove the side stand assembly from the frame.
Check the following parts for wear or damage:
– inside of the pivot and pivot collar
– pivot dust seal
Lubricate the pivot area with clean grease and reassemble the side stand.

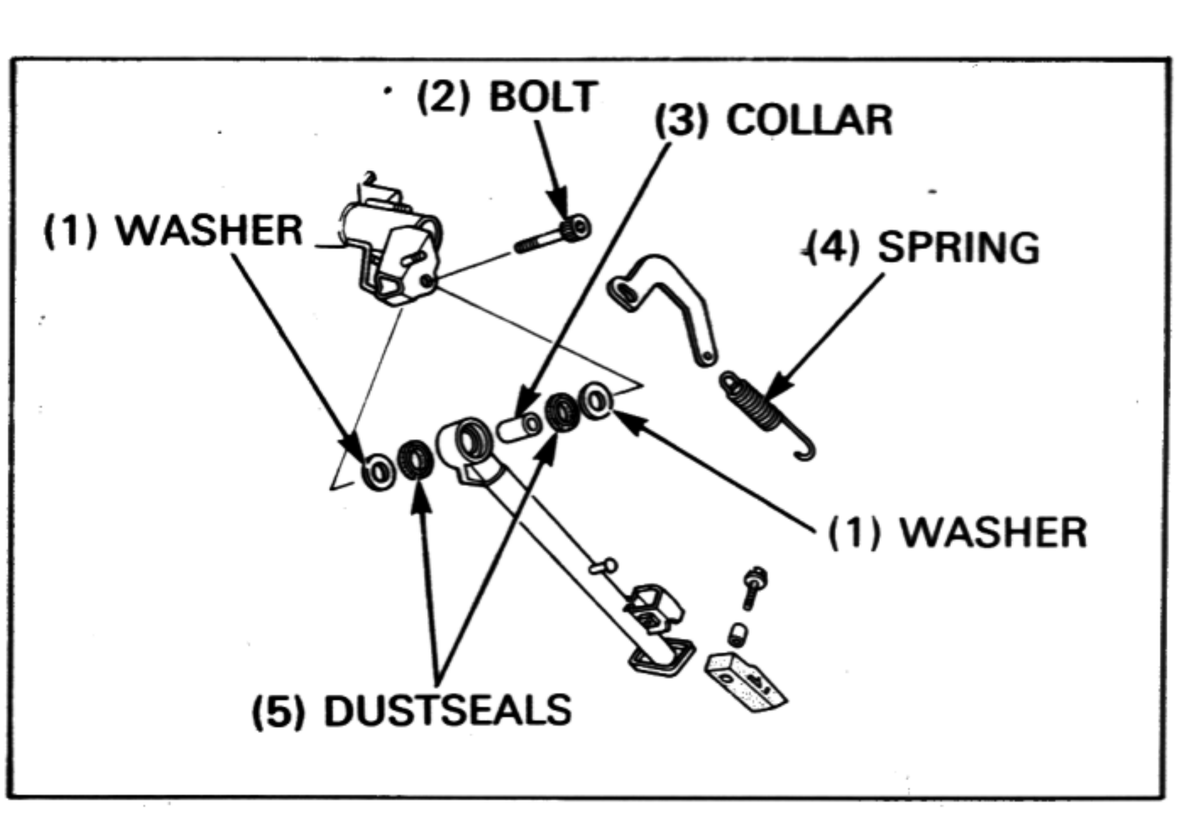


CAUTION

Install the dust seal with its mark side facing in.
Make sure that the dust seal spring is seated on the outside of the seal lips after installing the pivot collar.

TORQUE:
Side stand pivot bolt: 35 N·m (3.5 kg-m, 25 ft-lb)

Recheck the side stand movement.



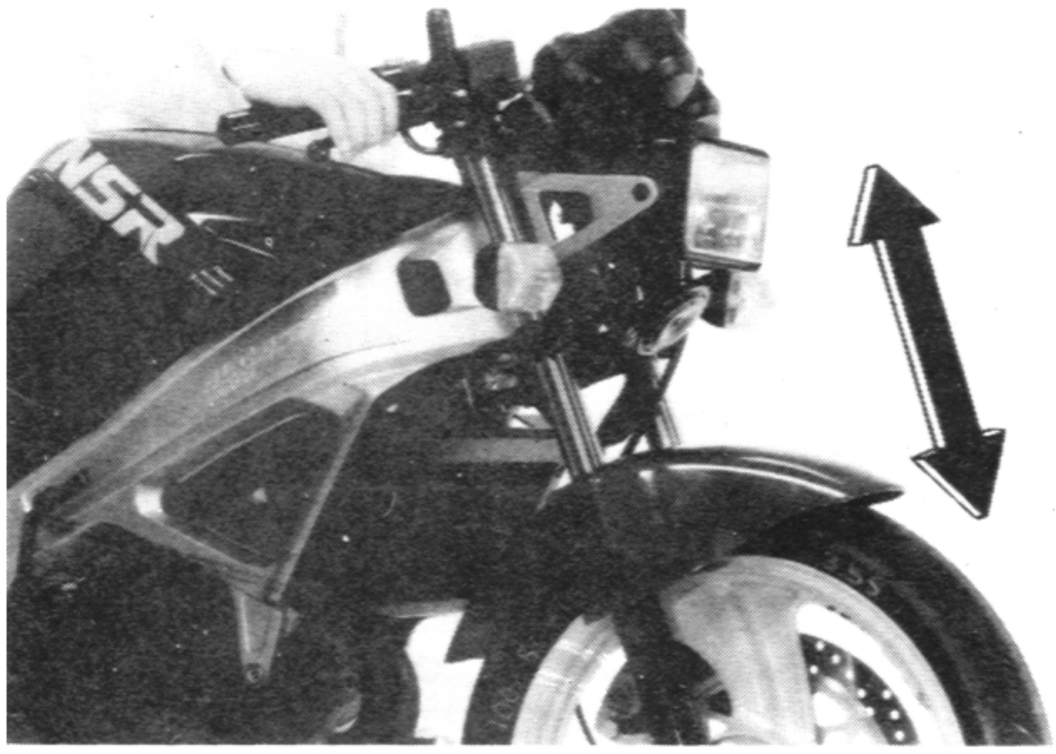
SUSPENSION

⚠ WARNING

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

FRONT

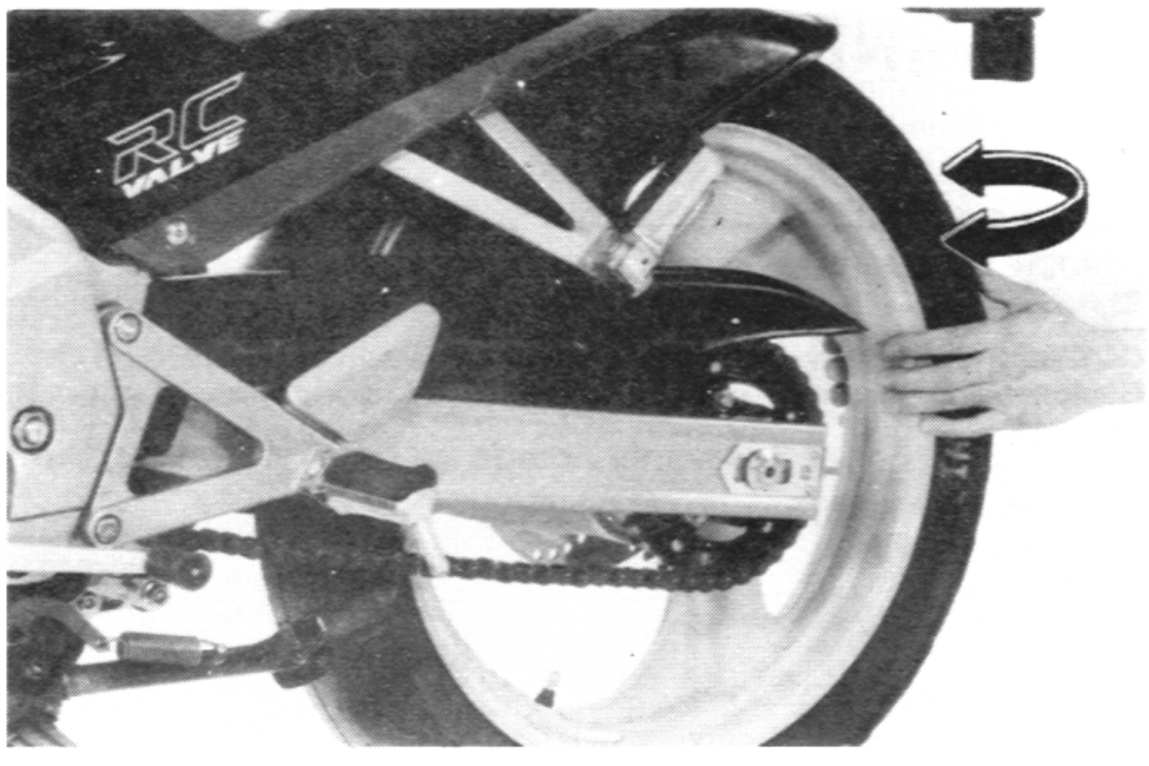
Check the action of the front suspension by compressing it several times with the brake lever pulled in.
Check entire fork assmbly for leaks or damage.
Replace damaged components which can not be repaired.
Tighten all nuts and bolts.



REAR

Check the action of the shock absorber by compressing it several times as shown.
Replace any damaged components which can not be repaired.
Tighten all nuts and bolts.

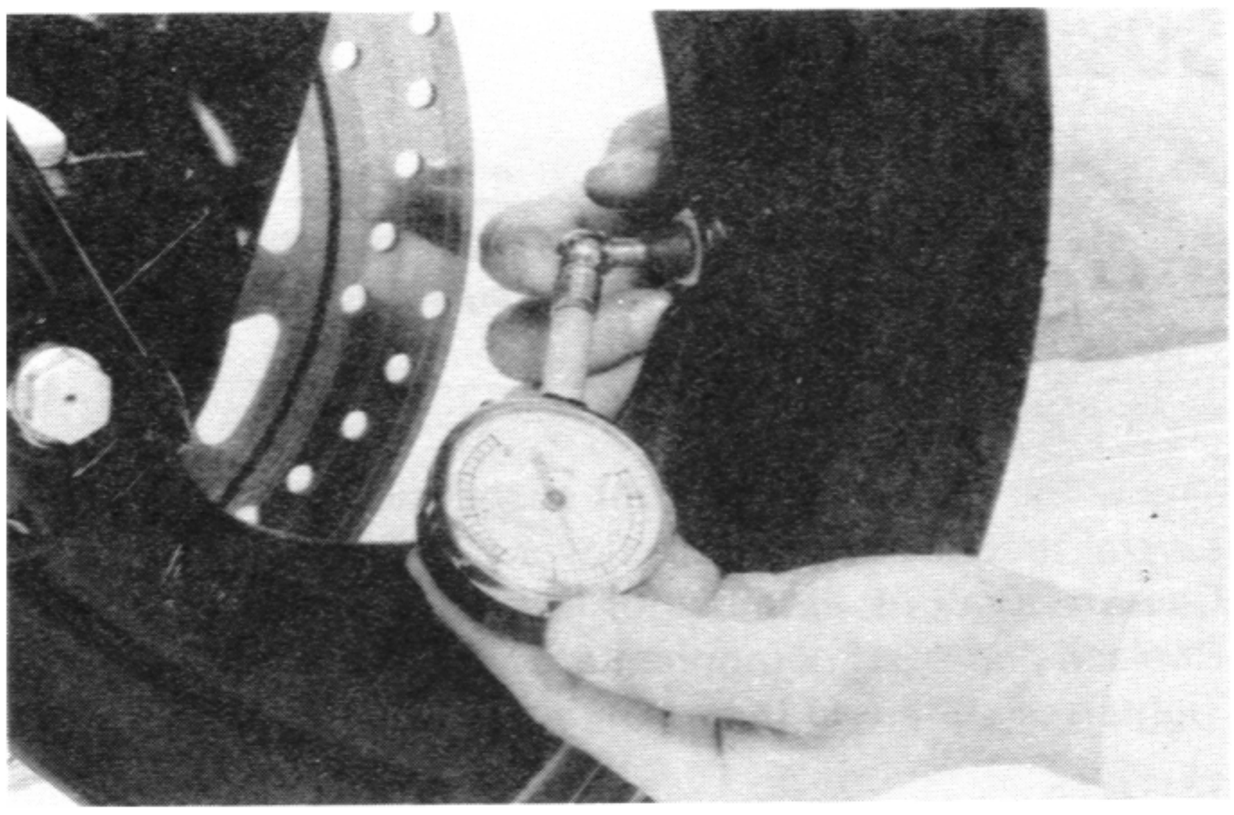
Place the motorcycle on its center stand.
Check for worn swing arm bushings by grabbing the rear wheel as shown, and attempting to move the wheel side to side. Replace the bushings if any looseness is noted (page 12 -13).



NUTS, BOLTS, FASTENERS

Check that all chassis nuts and bolts are tightened to correct torque values (page 1-5).
Check that all cotter pins, safety clips, hose clamps and cable stays are in place.

WHEELS



NOTE

- Tire pressure should be checked when tires are COLD.

Check the tire for cuts, imbedded nails, or other damage.

Recommended tire pressures and tire sizes:

		Front	Rear
Cold tire pressure kPa (kg/cm², psi)	Rider only	200 (2.00, 29)	225 (2.25, 33)
	Rider and one passenger	200 (2.00, 29)	250 (2.50, 36)
Tire size		100/80–17 52S	130/70–18 63S

Check the front and rear wheels for trueness (Refer to sections 12 and 13).
Measure the tread depth at the center of the tires.
Replace the tires when the tread depth reaches the following limits:
Minimun 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.
Check that the handlebar moves freely from side to side. If the handlebar moves unevenly, binds or has vertical movement, inspect the steering head bearings (Section 11).

RC VALVE

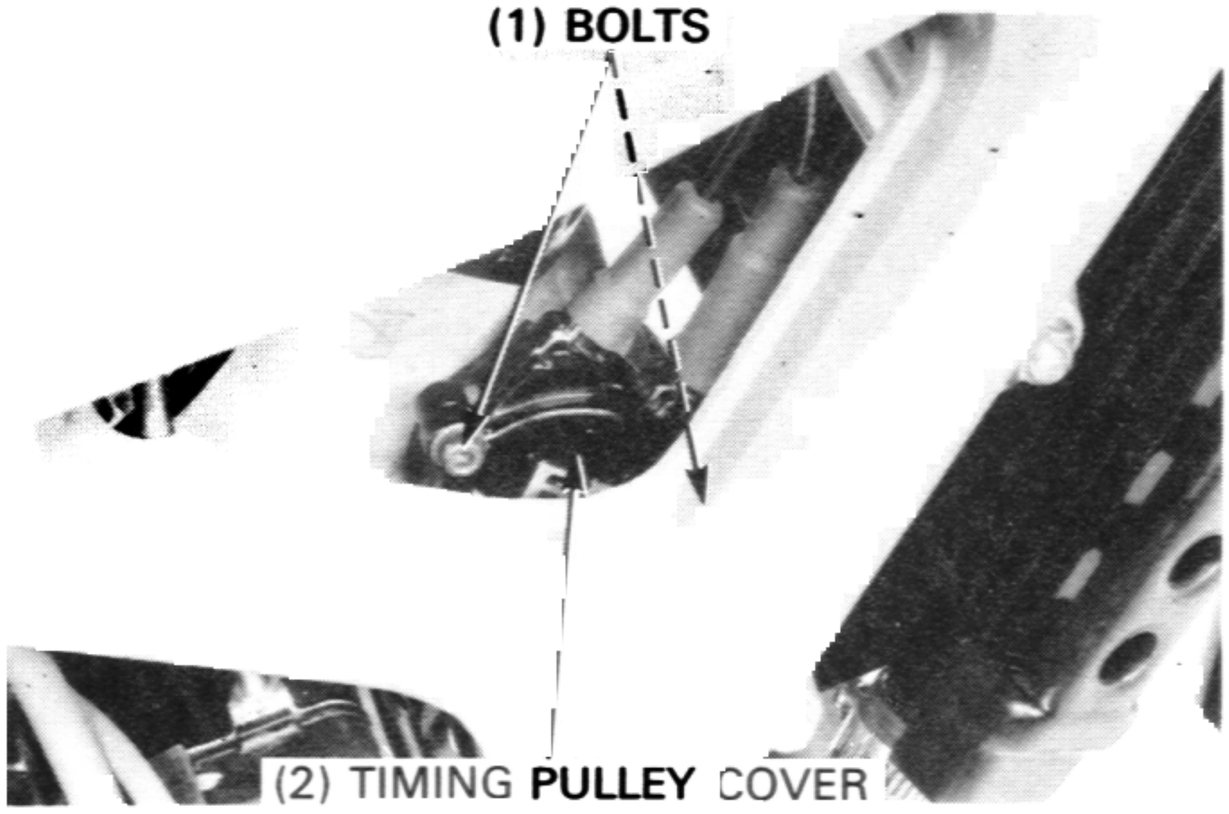
CONTROL CABLE ADJUSTMENT

Turn the ignition switch ON and start the engine. During idling, stop the engine by turning the ignition switch OFF.

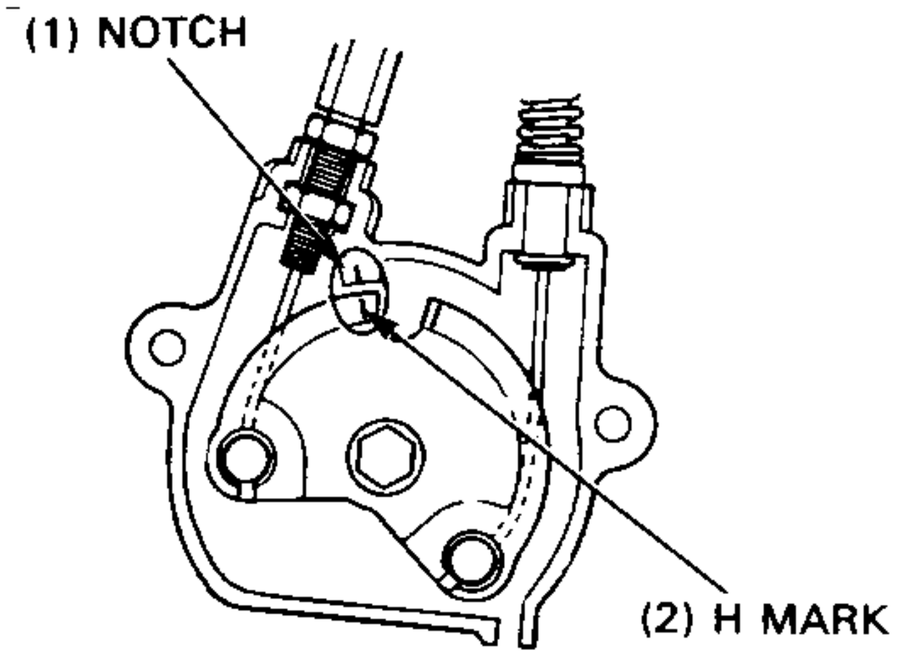
NOTE

- Do not stop the engine with the engine stop switch.

Loosen the front cover bolt and remove the rear cover bolt and timing pulley cover.



Check the gap between the notch on the cable guide base and the H mark on the RC valve timing pulley should be within 0.3mm (0.01in).
If the gap exceeds 0.3mm (0.01in), adjust the valve timing as following;

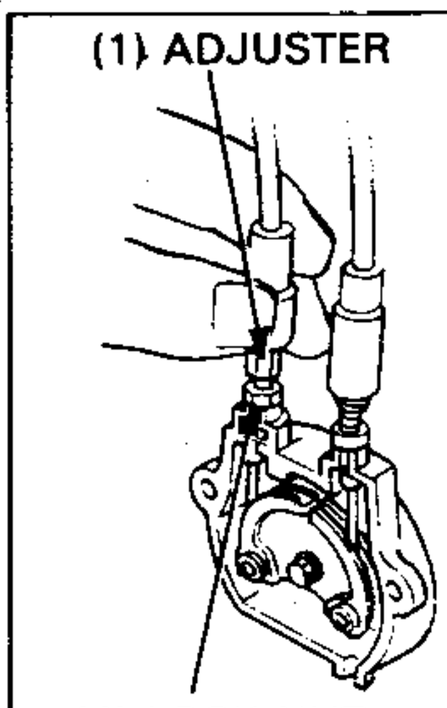


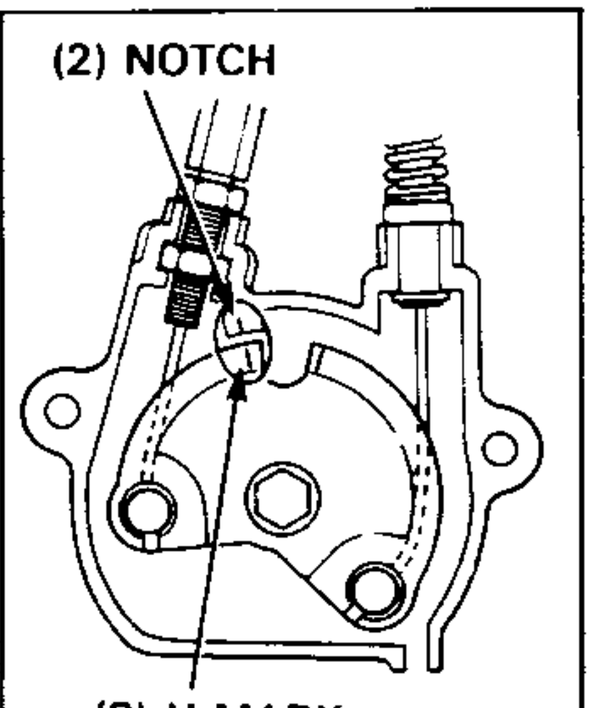
Loosen the lock nut and adjust the gap by turning the adjuster.

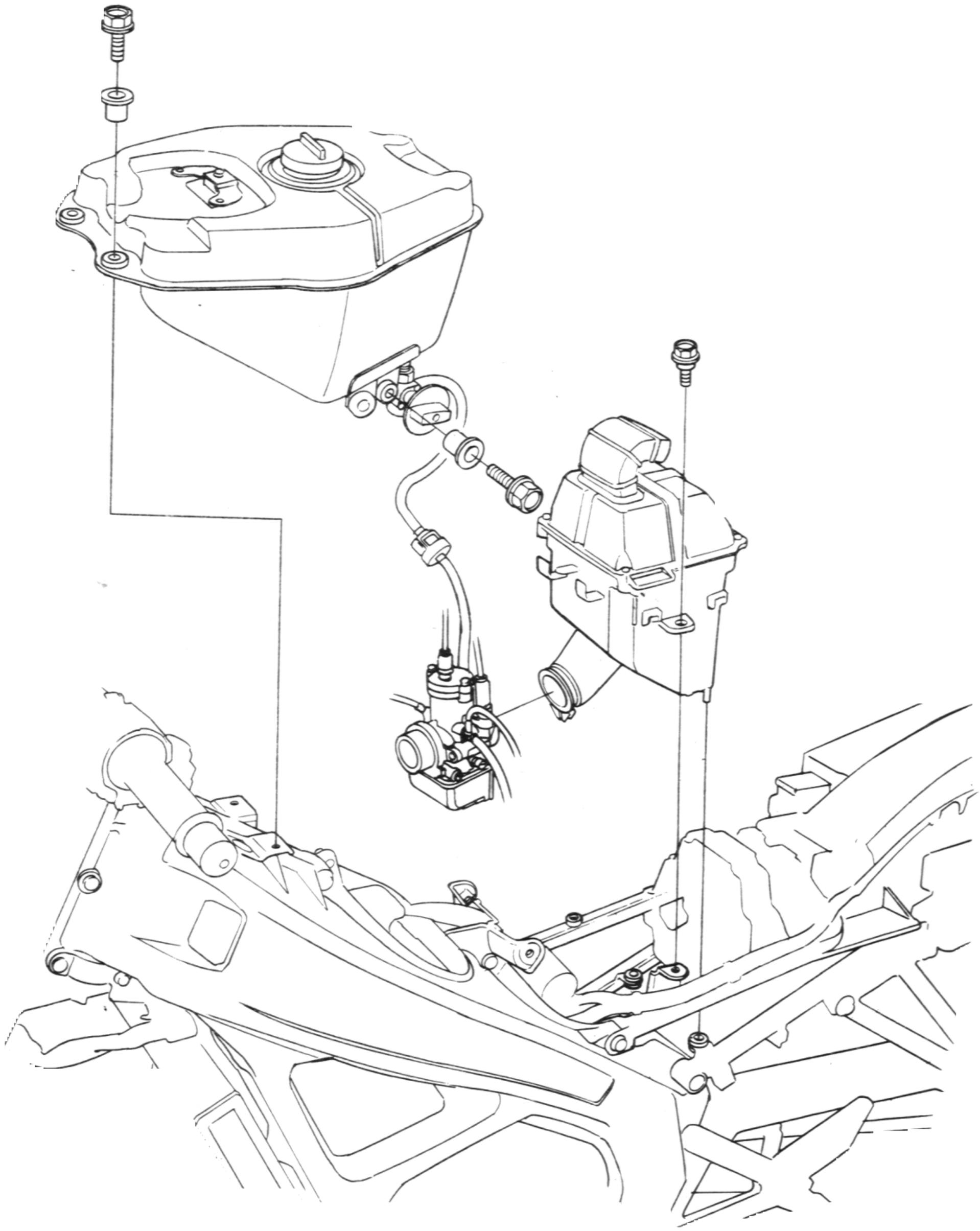
NOTE

- While turning the adjuster, hold the cable tube to prevent tube from being twisted.

Tighten the lock nut securely.
After adjustment, start the engine and make sure that the gap is within 0.3mm (0.01in).
Install the timing pulley cover in the reverse order of removal.







SERVICE INFORMATION

GENERAL

⚠ WARNING

- ***Gasoline is extreamely flammable and explosive under certain conditions. Work in a well ventilated area with the engine stopped. Do not smoke or allow flames or sparks in the work area or where gasoline is stored.***
- ***If the engine must be running to do some work, make sure the area is well ventilated. Never run the engine in an enclosed area. The exhaust contains poisonous carbon monoxide gas that can cause the loss of consiousness and may lead to death.***

CAUTION

- *Do not bend or twist control cables. Damaged control cables will not operate smoothly and may stick or bind.*

NOTE

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

- When disassembling the fuel system parts, note the location of the O-rings. Replace them with new anes on reassembly.
- Bleed air from the oil pass tube whenever it is disconnected.

SPECIFICATIONS

Fuel tank capacity	10.0 liters (2.6 US gal, 2.19 Imp gal)
Fuel reserve capacity	2.0 liters (0.52 US gal, 0.43 Imp gal)

Carburetor

{R-Type - SW}

Identification number	PHBH28FS
Type	Piston valve
Venturi diameter	28 mm(1.10 in)
Pilot screw opening	2.5 turns out {2 turns out - SW}
Idle speed	1,400±100 min^{-1} (rpm)
Main jet	# 132
Slow jet	# 52
Throttle lever free play	2−6 mm (1/8−1/4 in)
Jet needle setting	3nd groove
Float level	24±0.5 mm (0.94±0.02 in)

TORQUE VALUE

Fuel valve lock nut	10N·m (1.0 kg-m, 7 ft-lb) Apply a locking agent to the threads

TOOL

Common

Float level gauge	07401−0010000

TROUBLESHOOTING

Engine cranks but won't start
- No fuel in tank.
- No fuel to carburetor.
- Engine flooded with fuel.
- No spark at plug (faulty ignition system).
- Clogged air cleaner.
- Intake air leak.
- Improper choke operation.
- Improper throttle operation.

Hard starting or stalling after starting
- Improper choke operation.
- Ignition malfunction.
- Faulty carburetor.
- Contaminated fuel.
- Intake air leak.
- Incorrect idle speed.

Rough idle
- Faulty ignition system.
- Incorrect idle speed.
- Faulty carburetor.
- Contaminated fuel.

Misfiring during acceleration
- Faulty ignition system.

Backfiring
- Fautly ignition system.
- Fautly carburetor.
- Faulty reed ualve.

Poor performance (driveability) and poor fuel economy
- Clogged fuel system.
- Faulty ignition system.

Lean mixture
- Clogged fuel jets.
- Faulty float valve.
- Low float level.
- Blocked fuel cap vent.
- Clogged fuel strainer screen.
- Restricted fuel line.
- Intake air leak.

Rich mixture
- Clogged air jets.
- Faulty float valve.
- Float level too high.
- Carburetor choke stuck closed.
- Dirty air cleaner.

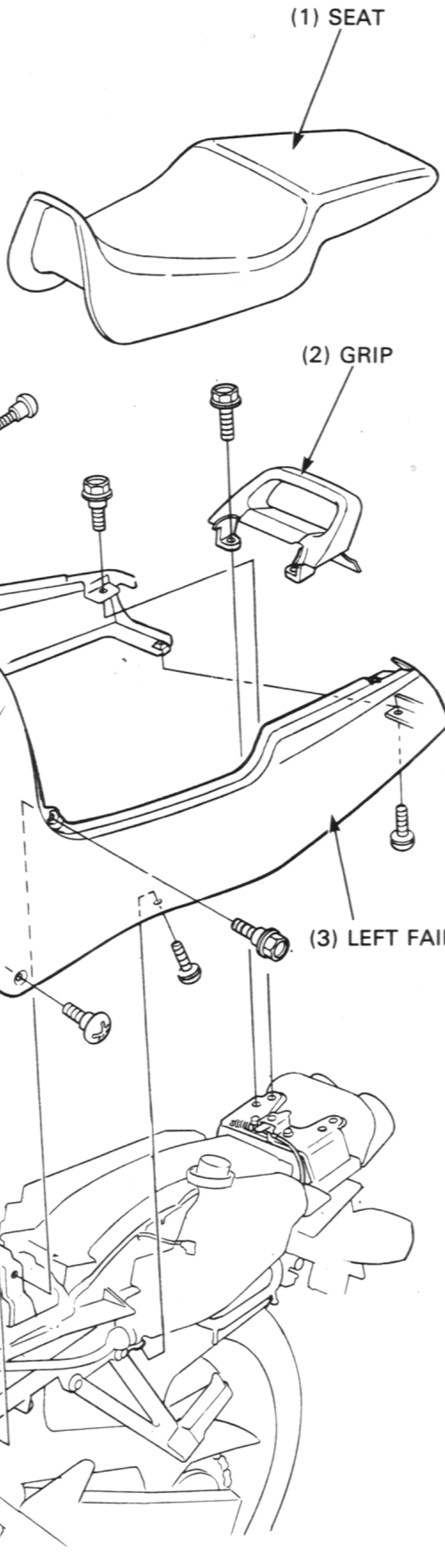
FUEL TANK

REMOVAL INSTALLATION

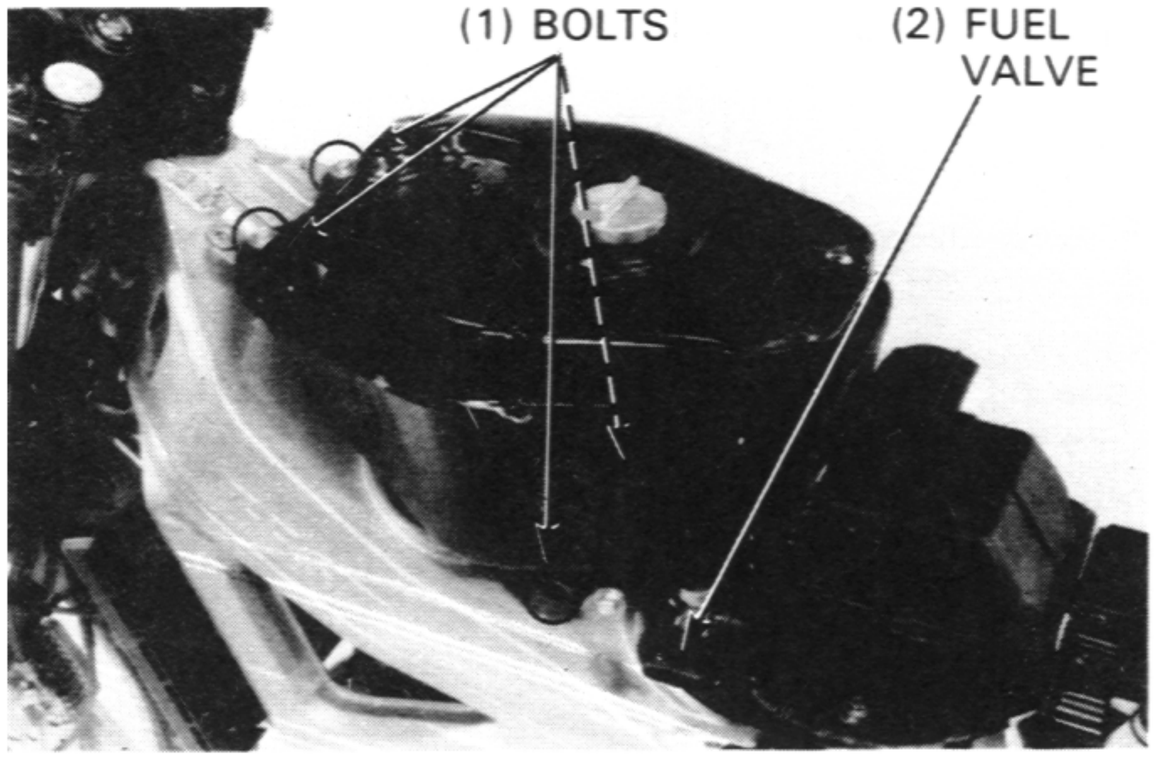
⚠ WARNING

- ***Keep gasoline away from flames or sparks.***
- ***Wipe up spilled gasoline at once.***

Remove the follows in the order as follows.
— Seat
— Fuel tank covers
— Seat end grip
— Left and right fairings
— For "R-Type" remove the lower cowls and pull out the upper cowl before to remove the left and right fairings



Turn the fuel valve OFF and disconnect the fuel tube from the fuel valve.
Remove the four fuel tank mounting bolts and fuel tank.



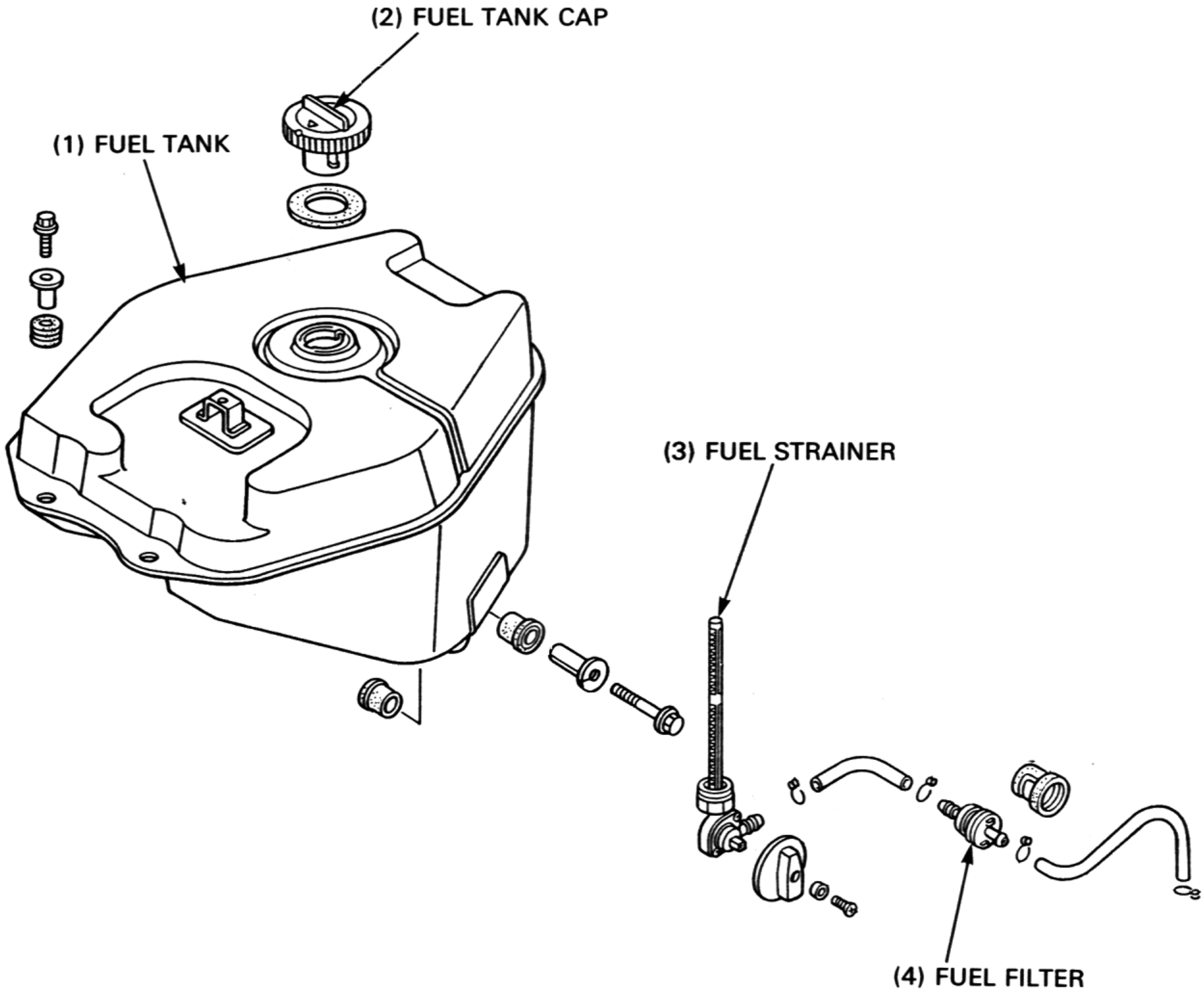
⚠ WARNING

- ***Keep gasoline away from flames or sparks. Wipe up spilled gasoline at once.***

Install the fuel tank in the reverse order of removal.

NOTE

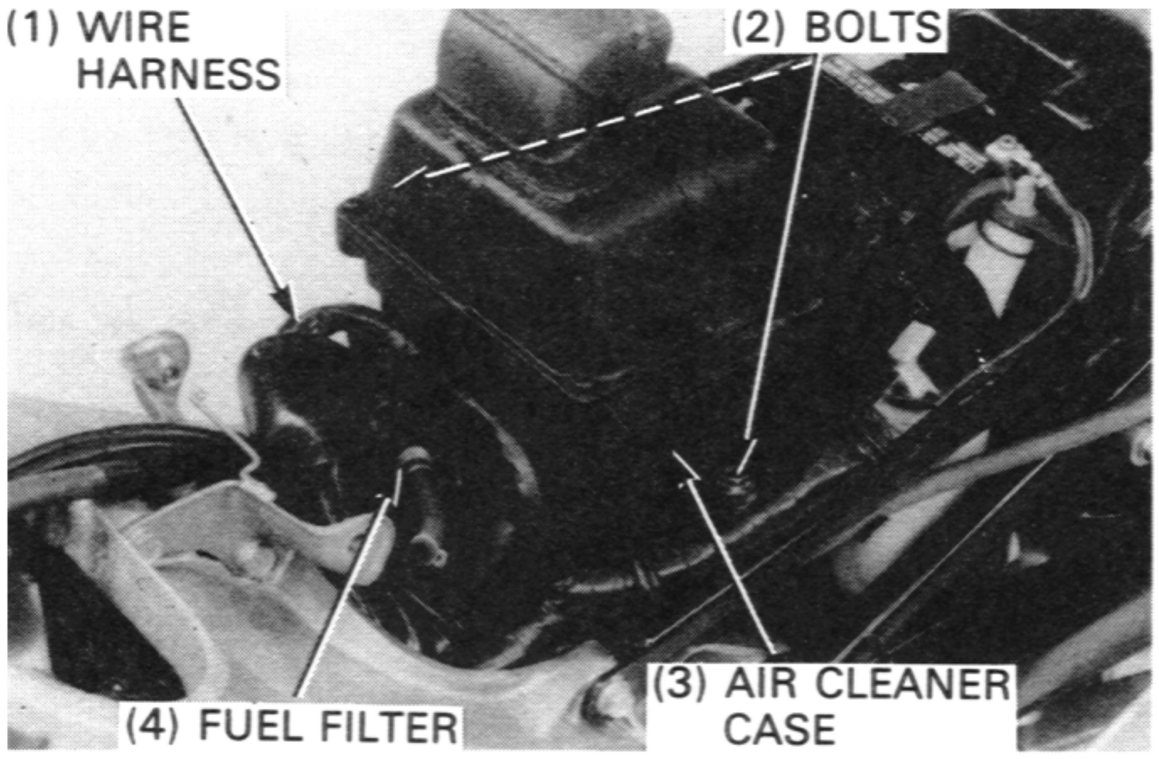
- **After installation, make sure there are no fuel leaks.**



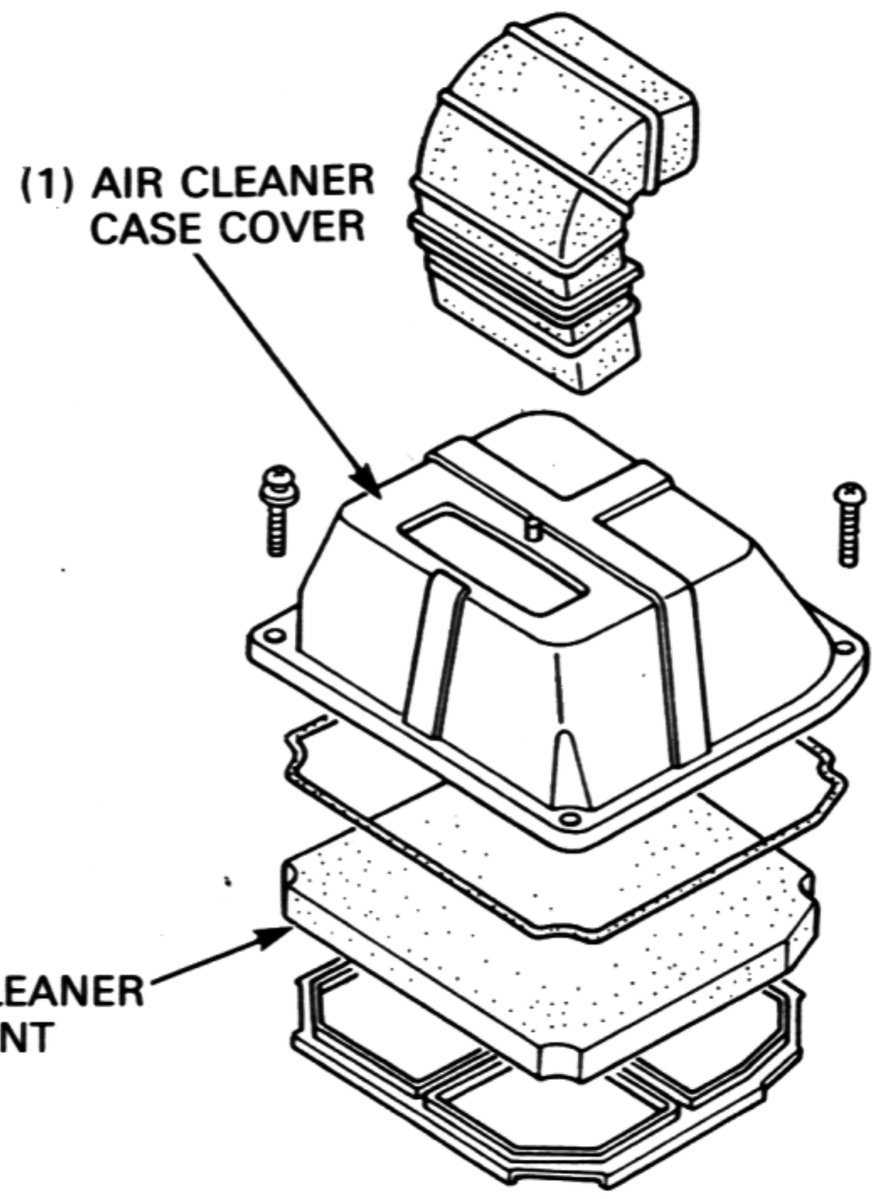
AIR CLEANER CASE

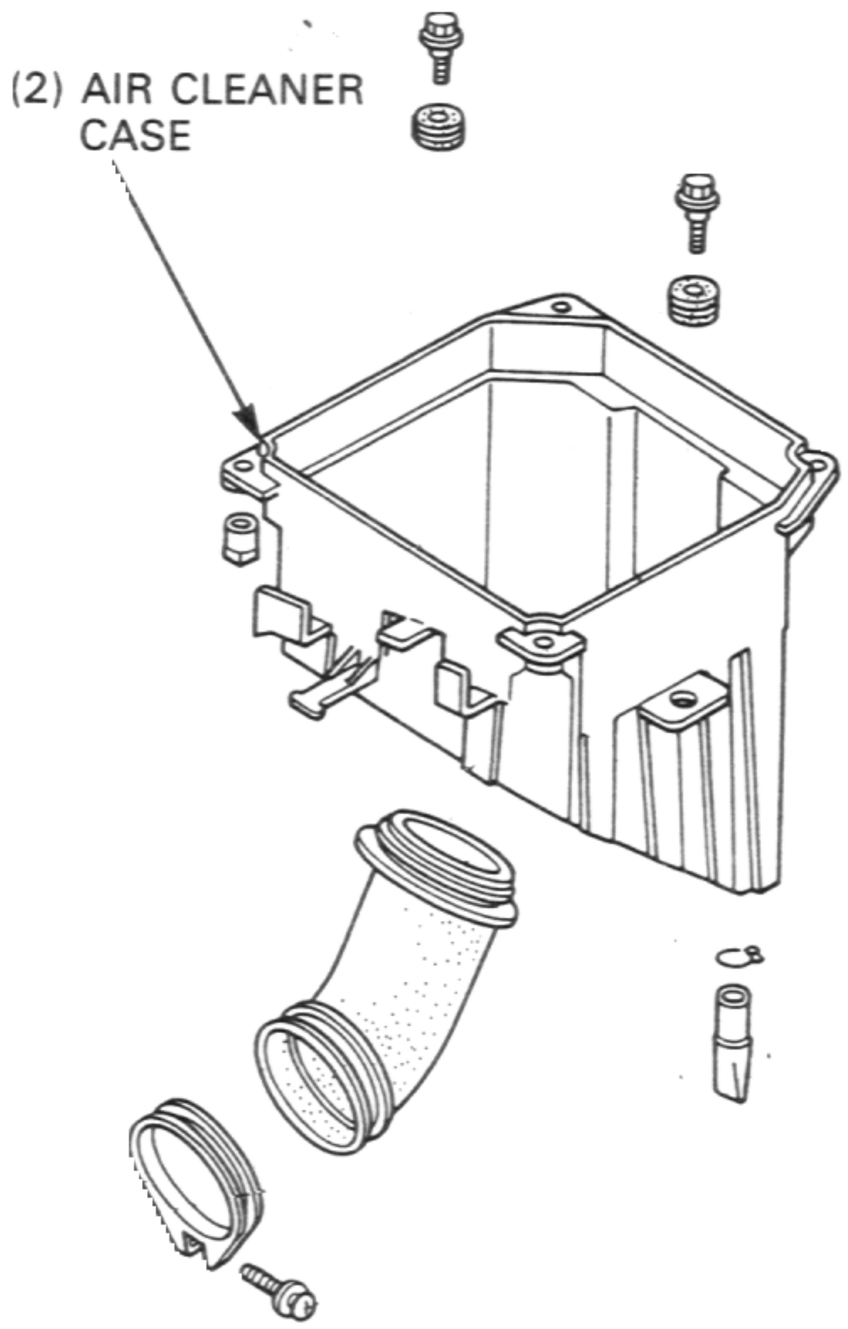
REMOVAL INSTALLATION

Remove the fuel tank (page 3-4).
Remove the fuel filter and main wire harness from the air cleaner case.
Loosen the connecting tube band, and remove the air cleaner case mounting bolts and air cleaner case.
Check the air cleaner case for cracks.



Install the air cleaner case in the reverse order of removal.

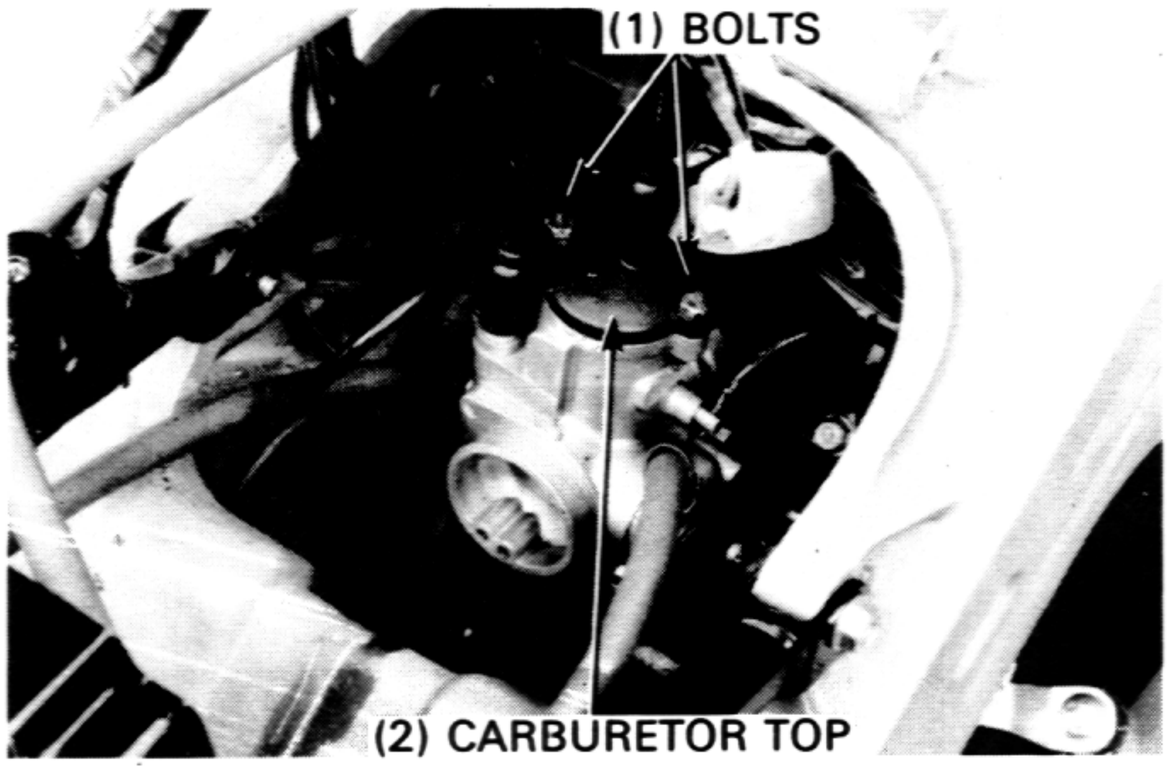




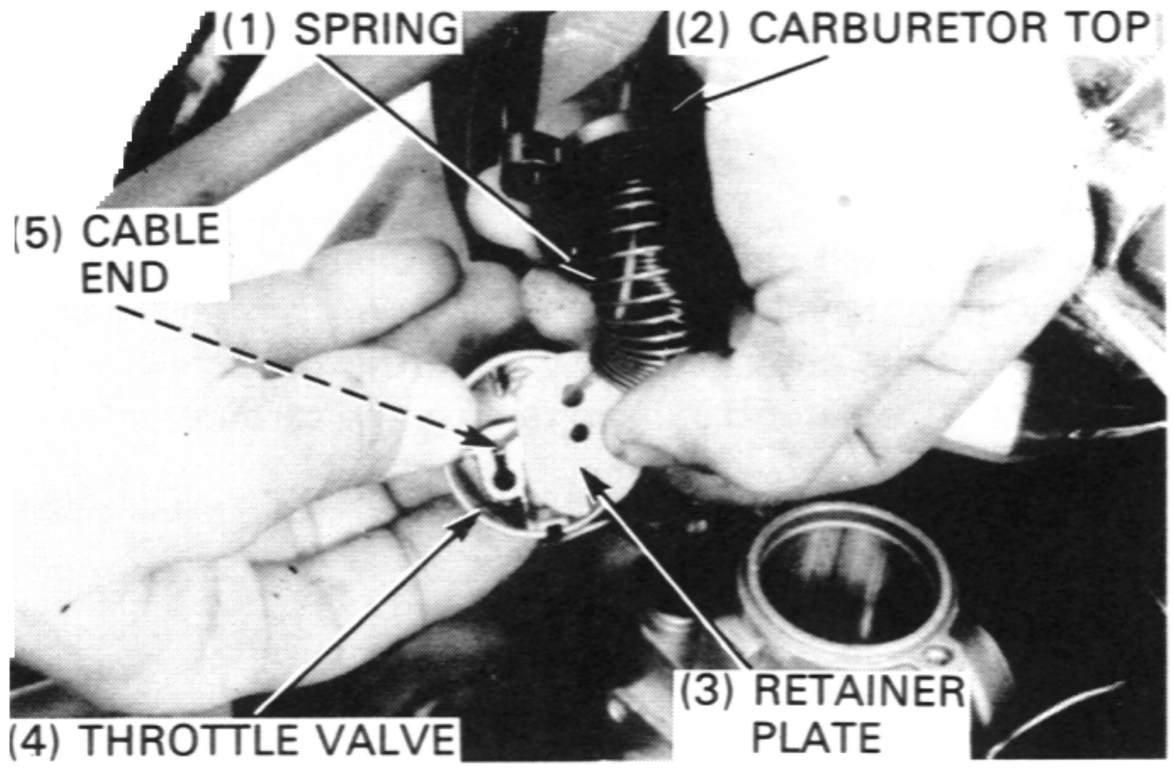
THROTTLE VALVE

DISASSEMBLY

Remove the air cleaner case (page 4-5).
Remove the two carburetor top attaching bolts.
Remove the carburetor top and throttle valve from the carburetor.



Compress the throttle valve spring against the carburetor top, slide the throttle cable end sideways and remove the throttle valve, retainer plate, throttle valve spring and carburetor top from the throttle cable.



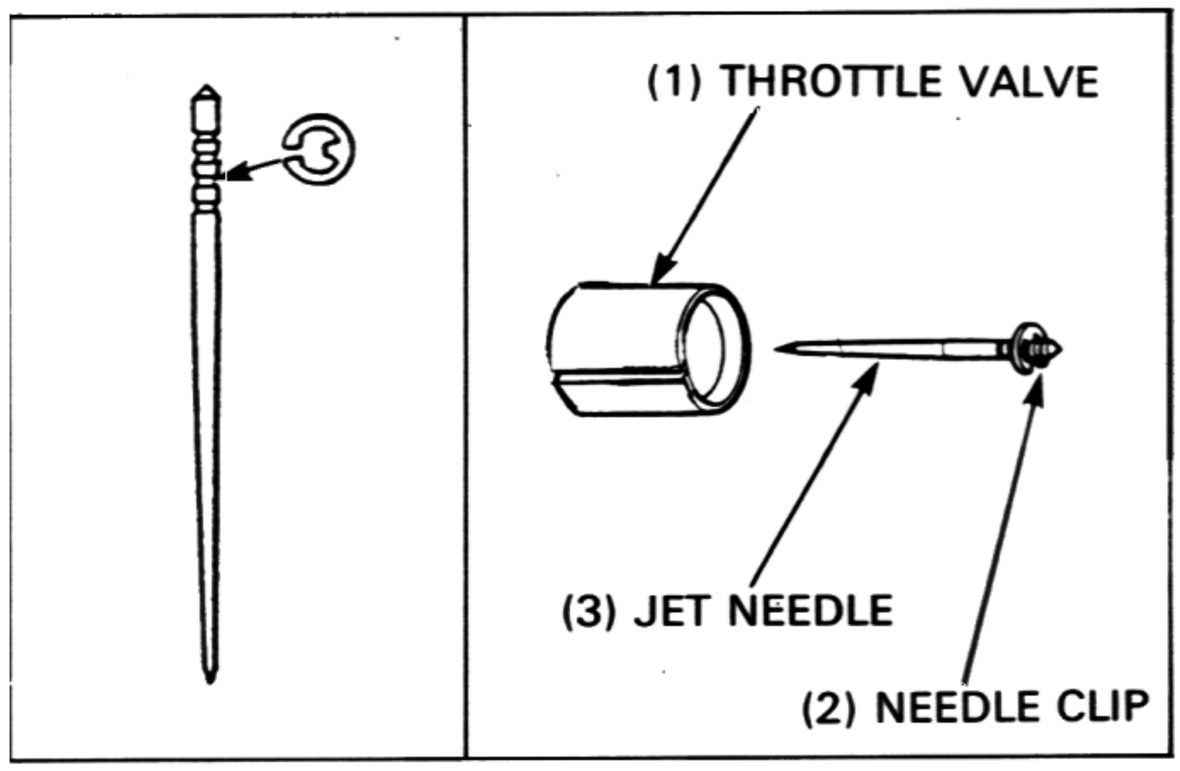
Remove the jet needle and needle clip from the throttle valve.
Inspect the throttle valve and jet needle surfaces for dirt, scratches or wear.

INSTALLATION

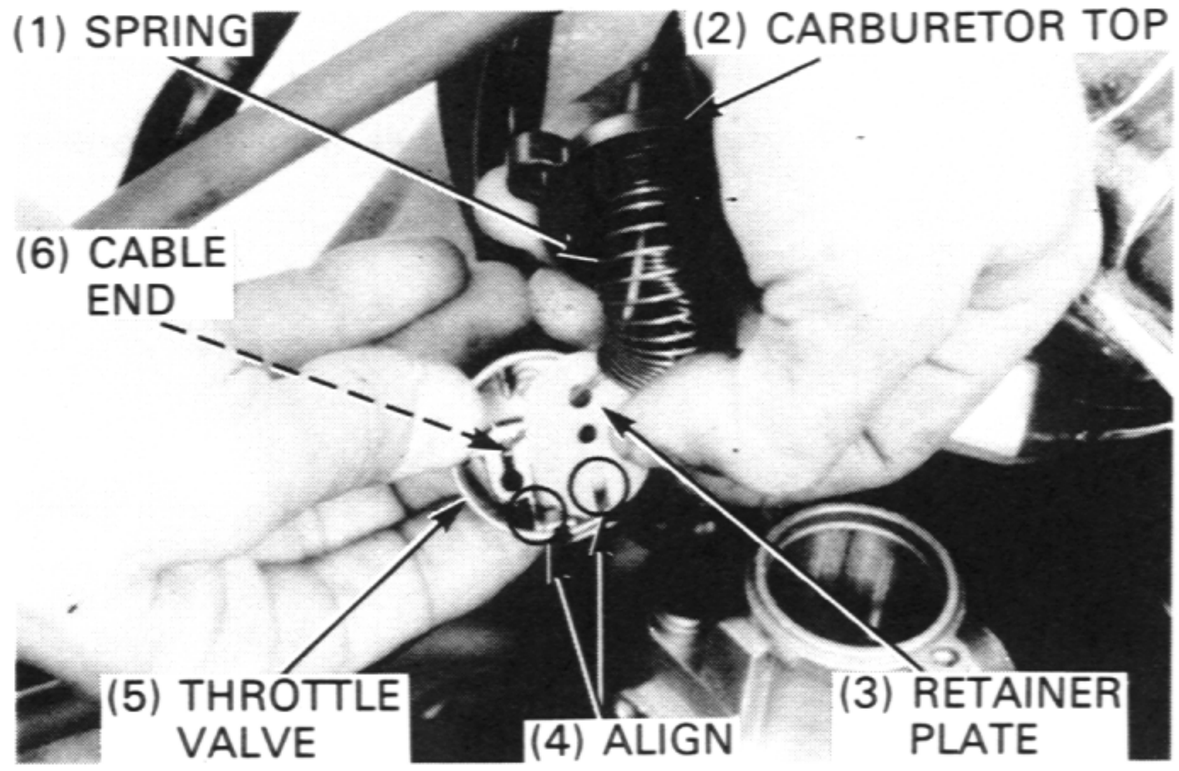
Install the needle clip on the jet needle.

STANDARTD SETTING: 3rd groove

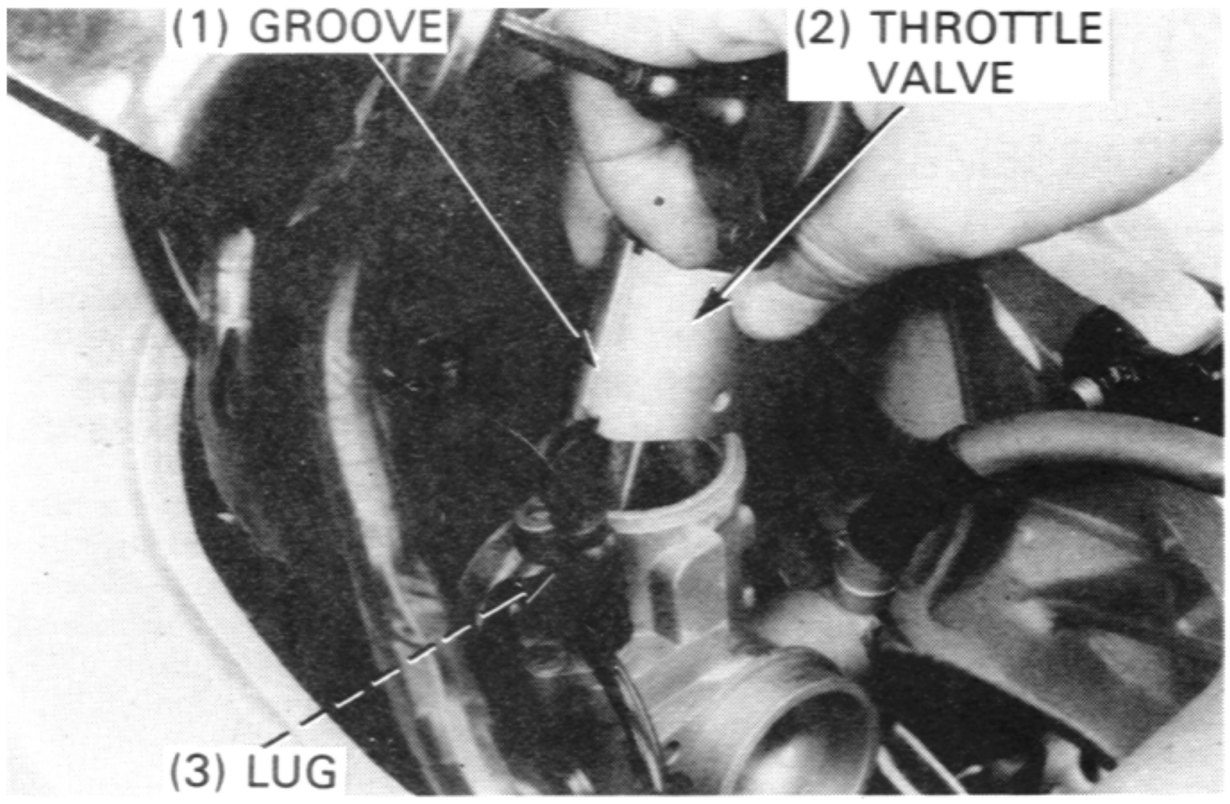
Install the jet needle into the throttle valve.



Assemble the throttle cable, carburetor top, throttle valve spring and retainer plate.
Compress the throttle valve spring against the carburetor top, insert the throttle cable end into the throttle valve and slide it sideways.
Set the retaining plate in the throttle valve, aligning the slit in the plate with the rib of the throttle valve.



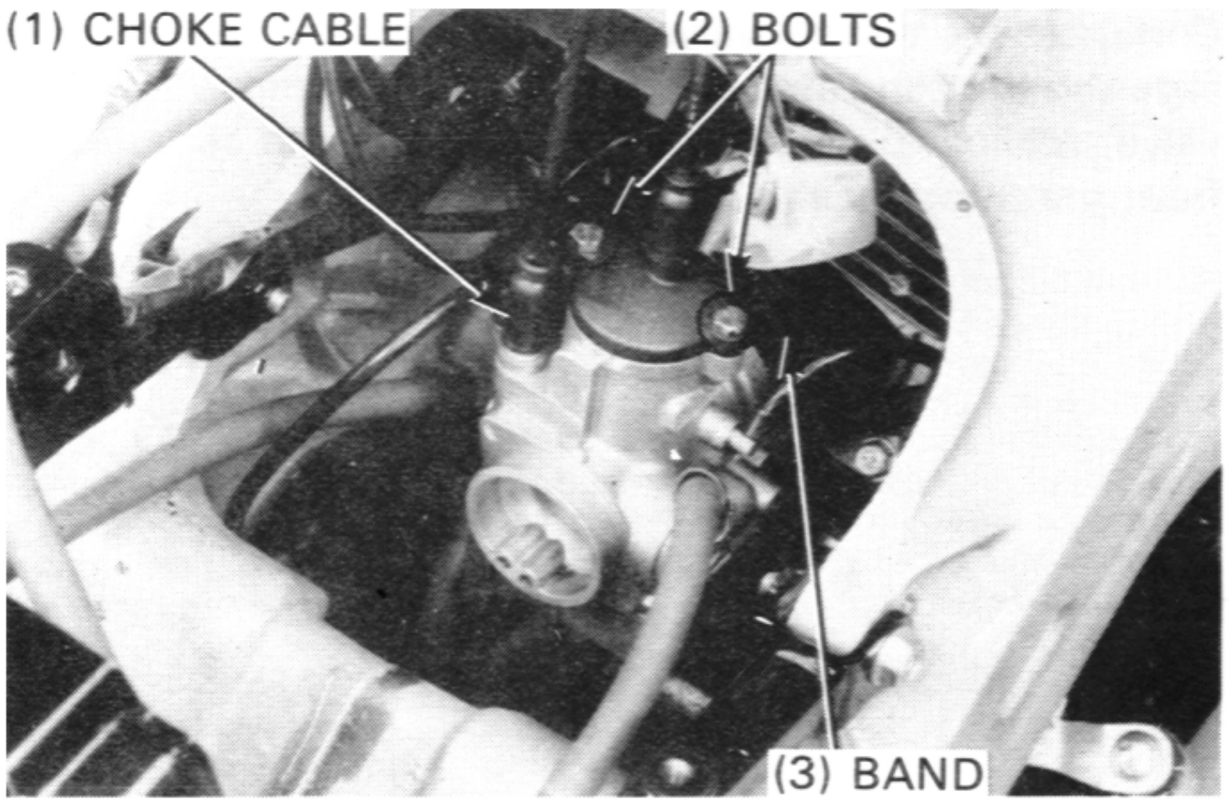
Align the throttle valve groove with the lug in the carburetor, and install the throttle valve into the carburetor.
Install the carburetor top and tighten the bolts securely.
Check the throttle lever free play and adjust if necessary (page 3-3).
Install the air cleaner case (page 4-5).
Install the fuel tank (page 4-3).



CARBURETOR

REMOVAL

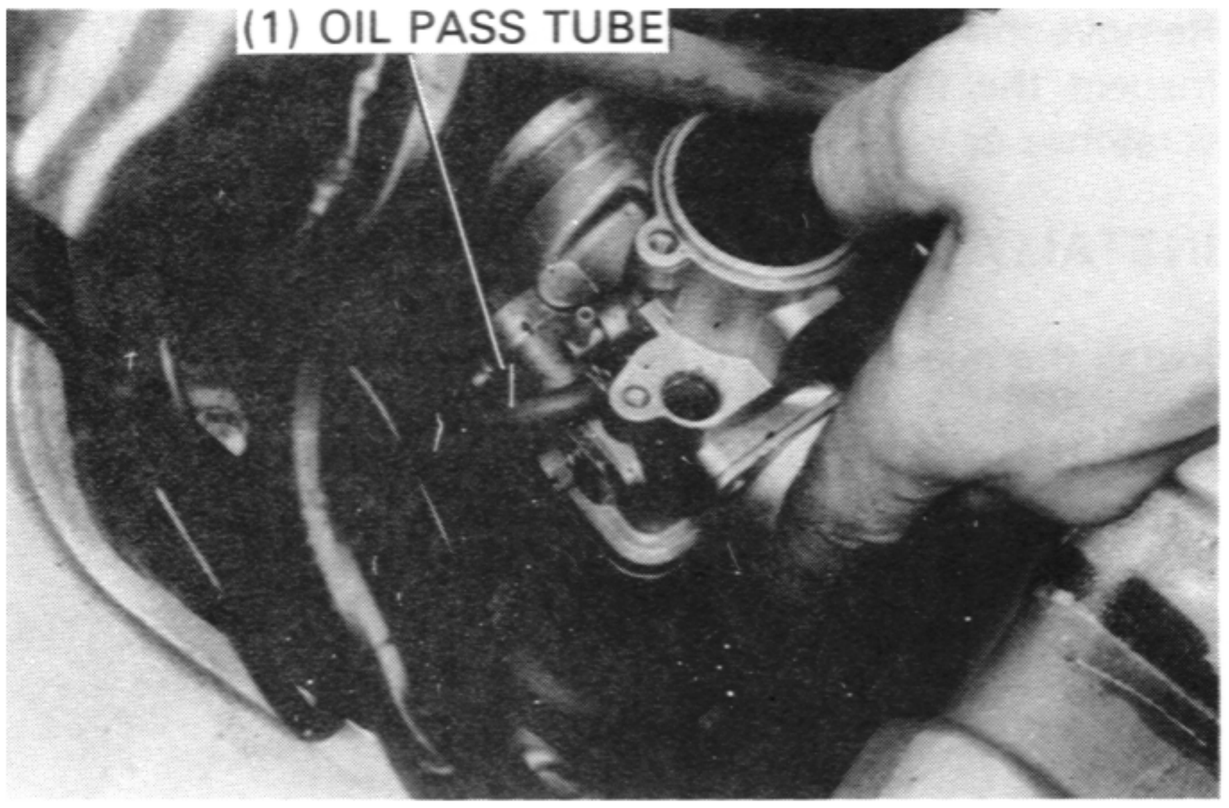
Remove the two carburetor top attaching bolts, carburetor top and throttle valve.
Disconnect the choke cable by removing the screw.
Loosen the insulator band and remove the carburetor from the insulator.



Disconnect the oil pass tube from the carburetor.

NOTE

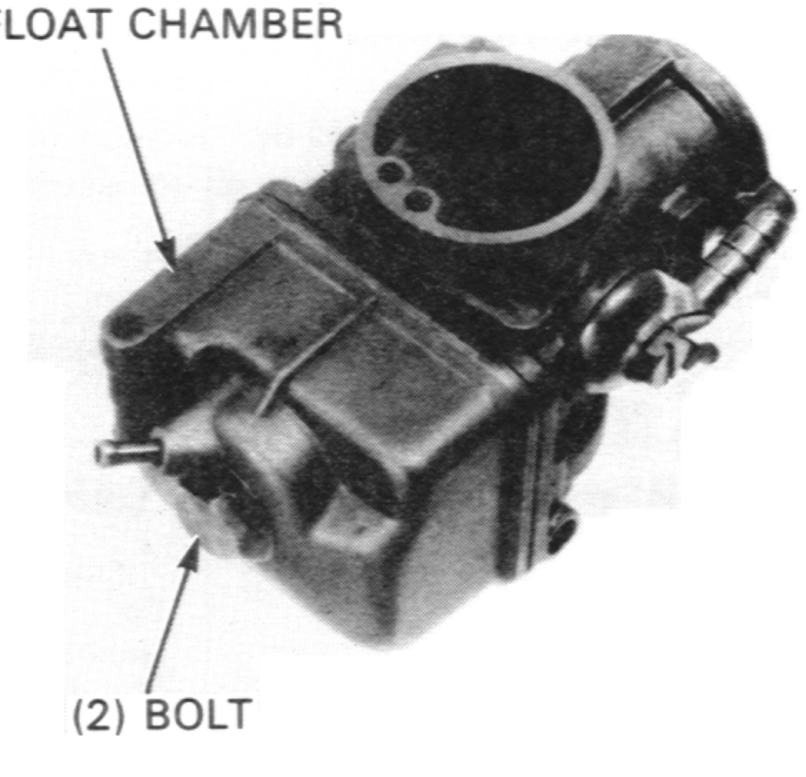
- Hold the disconnected oil pass tube upper than oil pump prevent oil from flowing out from the oil pass tube.



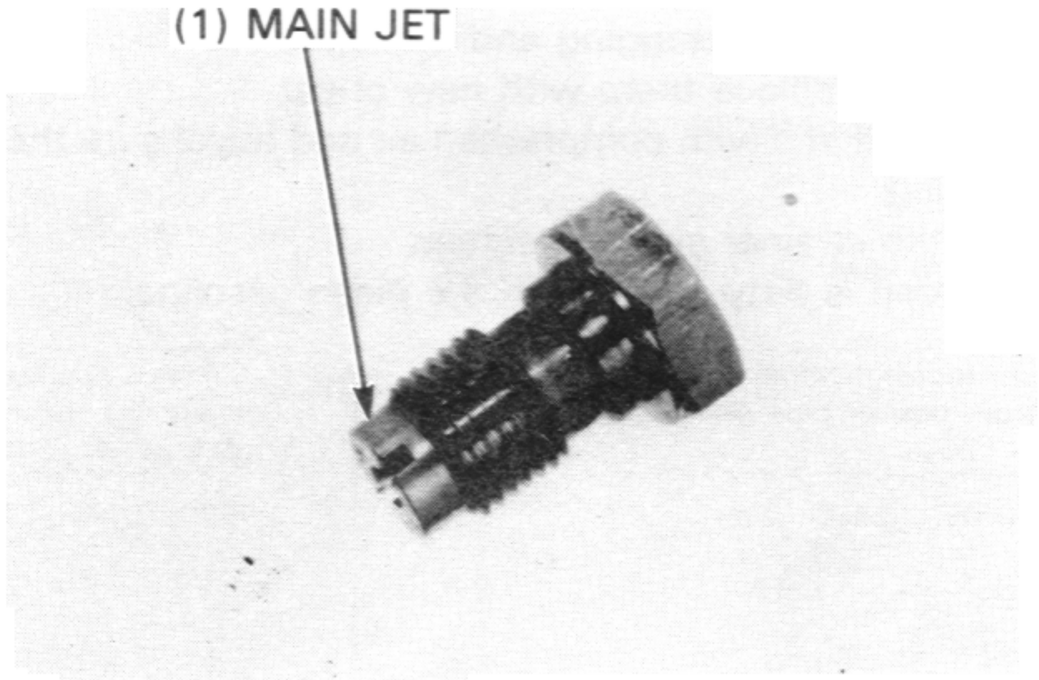
DISASSEMBLY

Disconnect the overflow and fuel tubes from the carburetor body.

Remove the float chamber bolt, float chamber and o-ring.



Blow the main jet on the float chamber bolt with compressed air and make sure there is no clogging.
Replace the main jet if necessary.

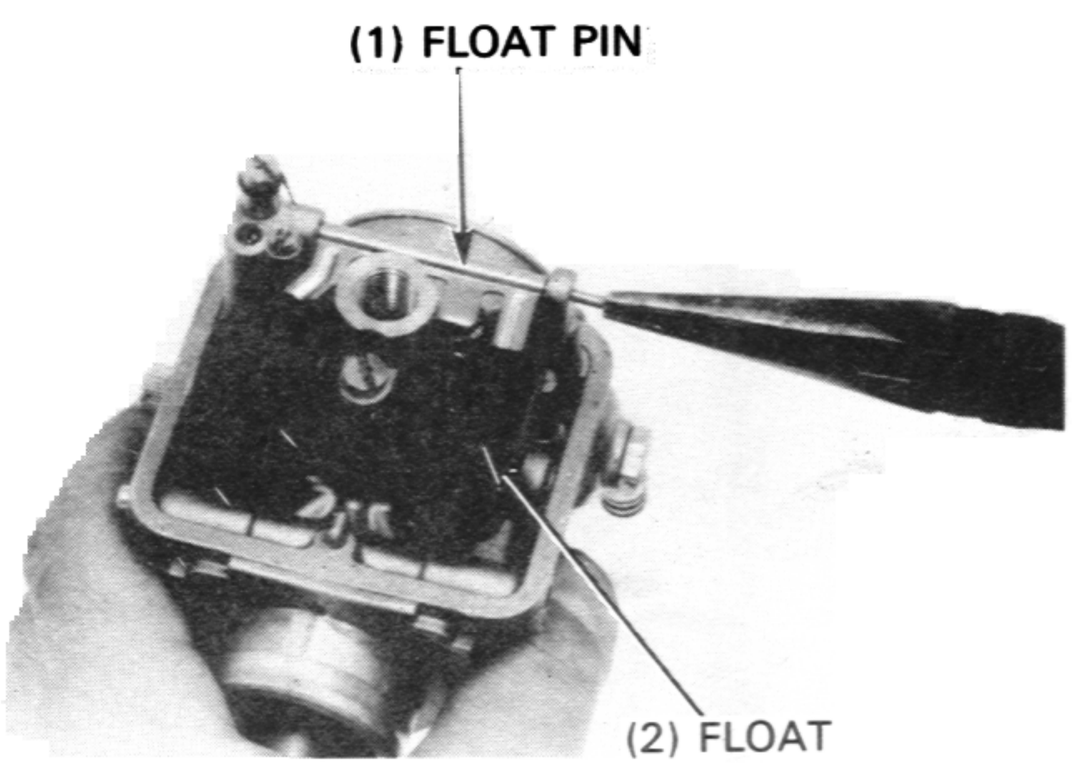


Remove the float pin and float.

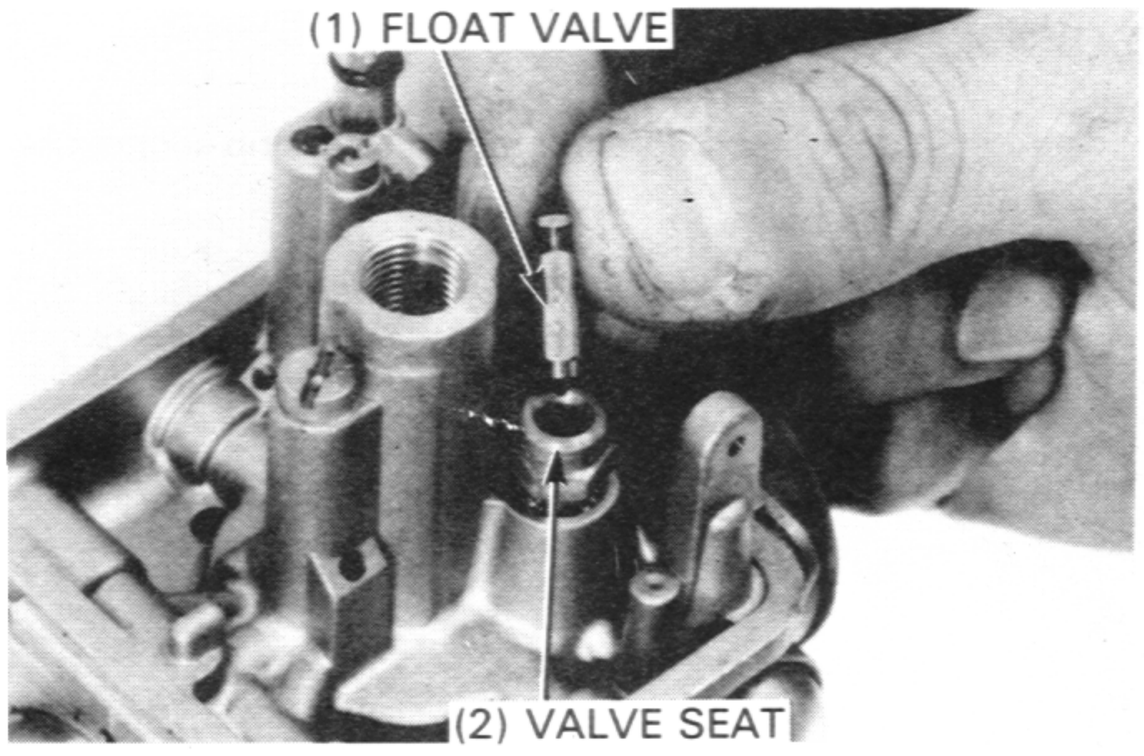
NOTE

- When removing the float pin, pinch its notched part.

Inspect the float pin for scores.
Inspect the float for cracks.
Replace the damaged parts with a new one if necessary.



Remove the float valve and check the valve for wear or deterioration of the rubber tip.
Inspect the valve seat for scores or other damage.
Replace the damaged part with a new one if necessary.

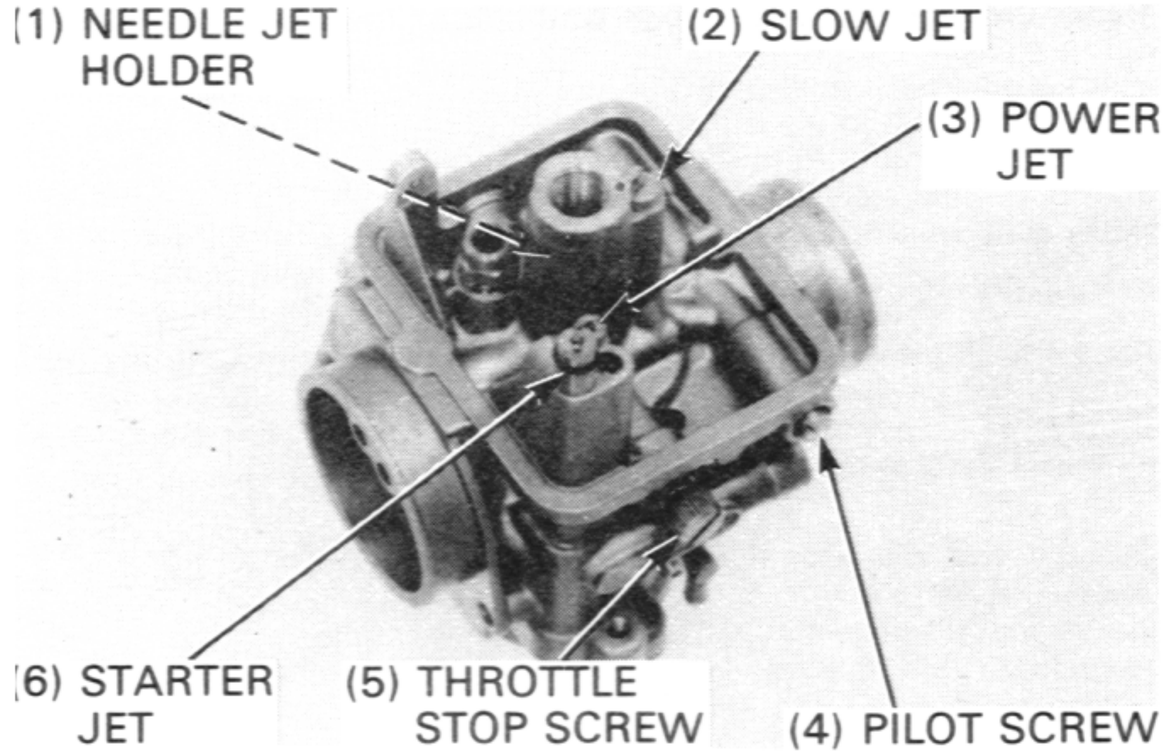


Remove the slow jet, needle jet holder, starter jet and power jet from the carburetor.
Turn the pilot screw in and record the number of turns until it seats lightly. Use this as a reference of reinstallation.

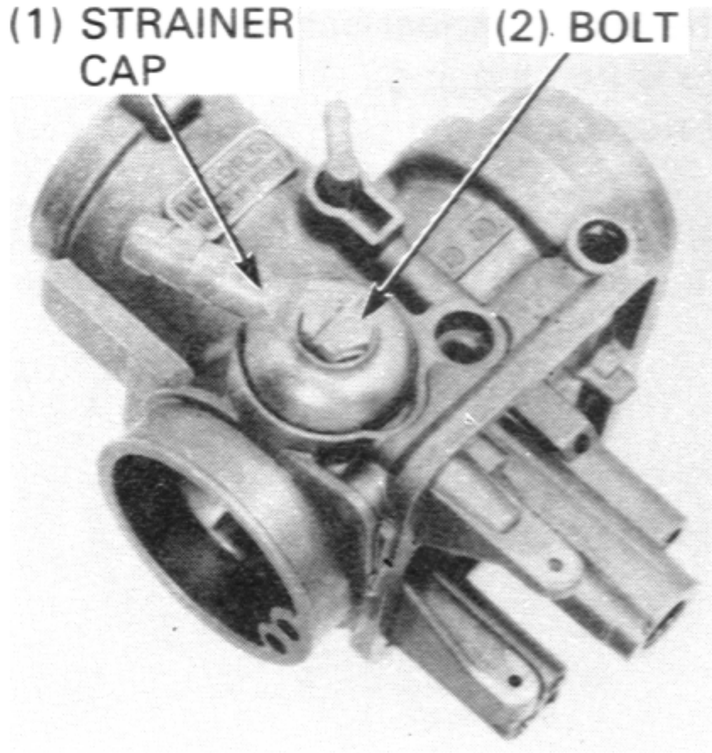
CAUTION

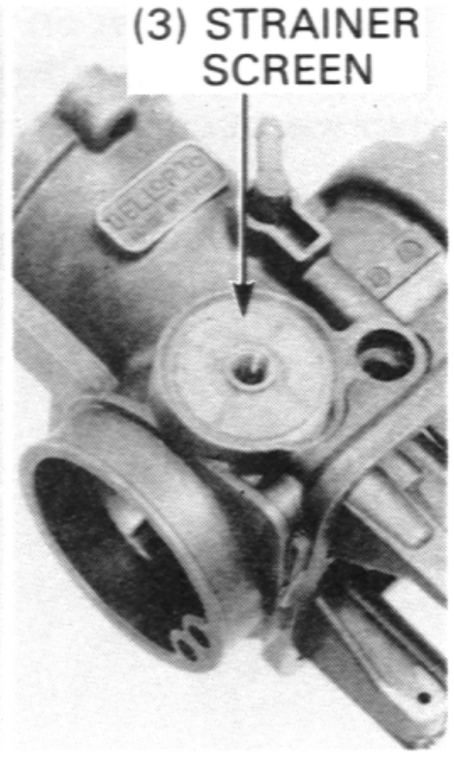
- *Damage to the pilot screw seat will occur if the pilot screw is tightened against the seat.*

Remove the pilot screw and throttle stop screw.

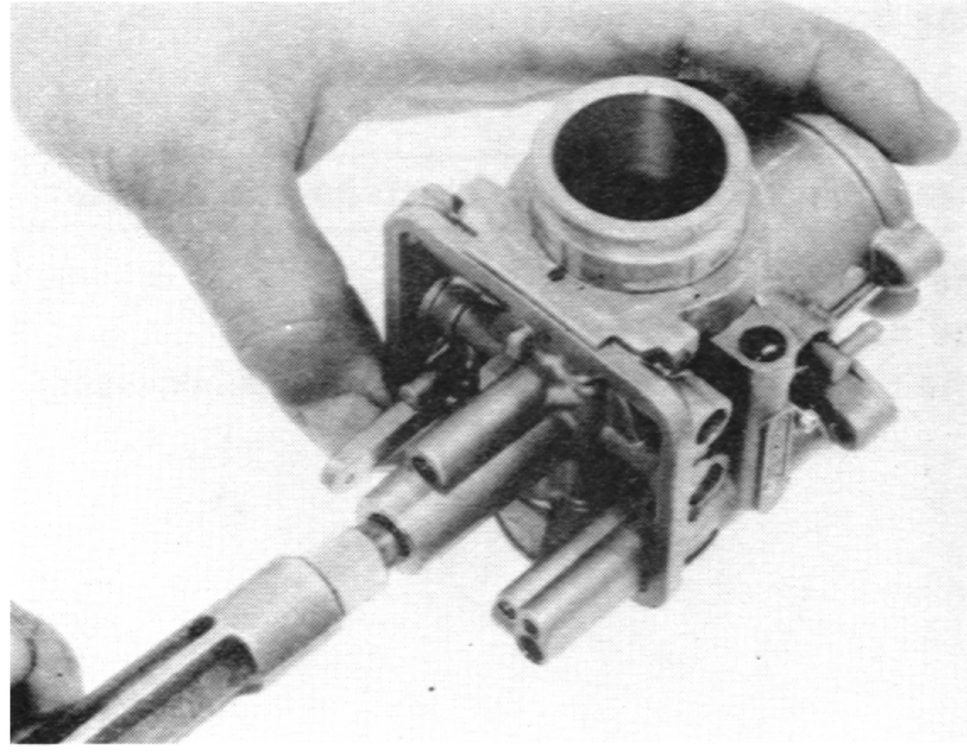


Inspect each jet for clogging and damage.
If necessary, replace them with new ones.
Blow open all jets with compressed air and make sure there is no clogging.
Remove the strainer cap and screen.
If the screen is dirty, clean it in the clean gasoline.



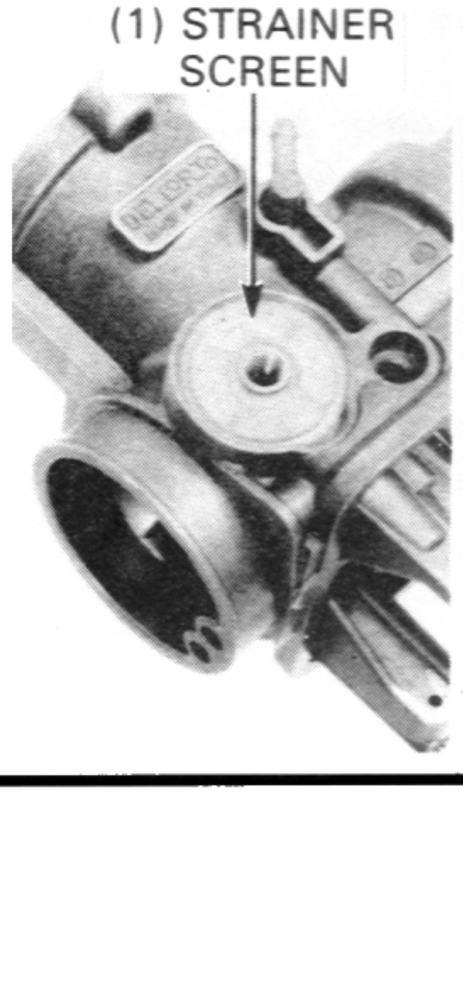


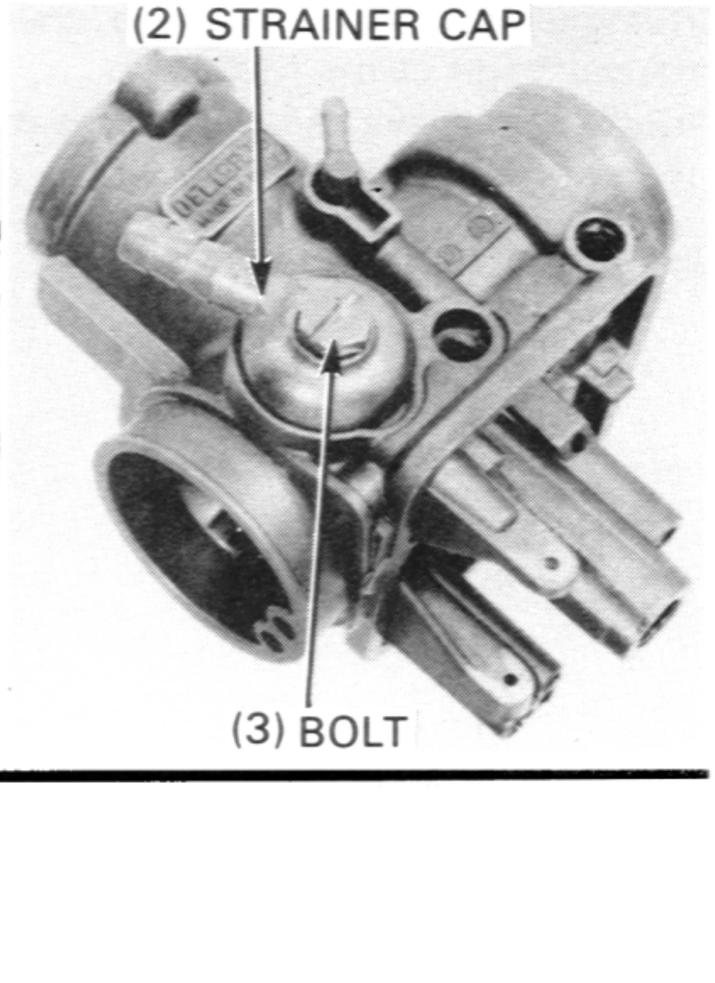
Blow open all carburetor body openings with compressed air.



ASSEMBLY

Install the strainer screen and strainer cap, and secure the cap with the bolt.





Install all jets, needle jet holder, throttle stop and pilot screws.

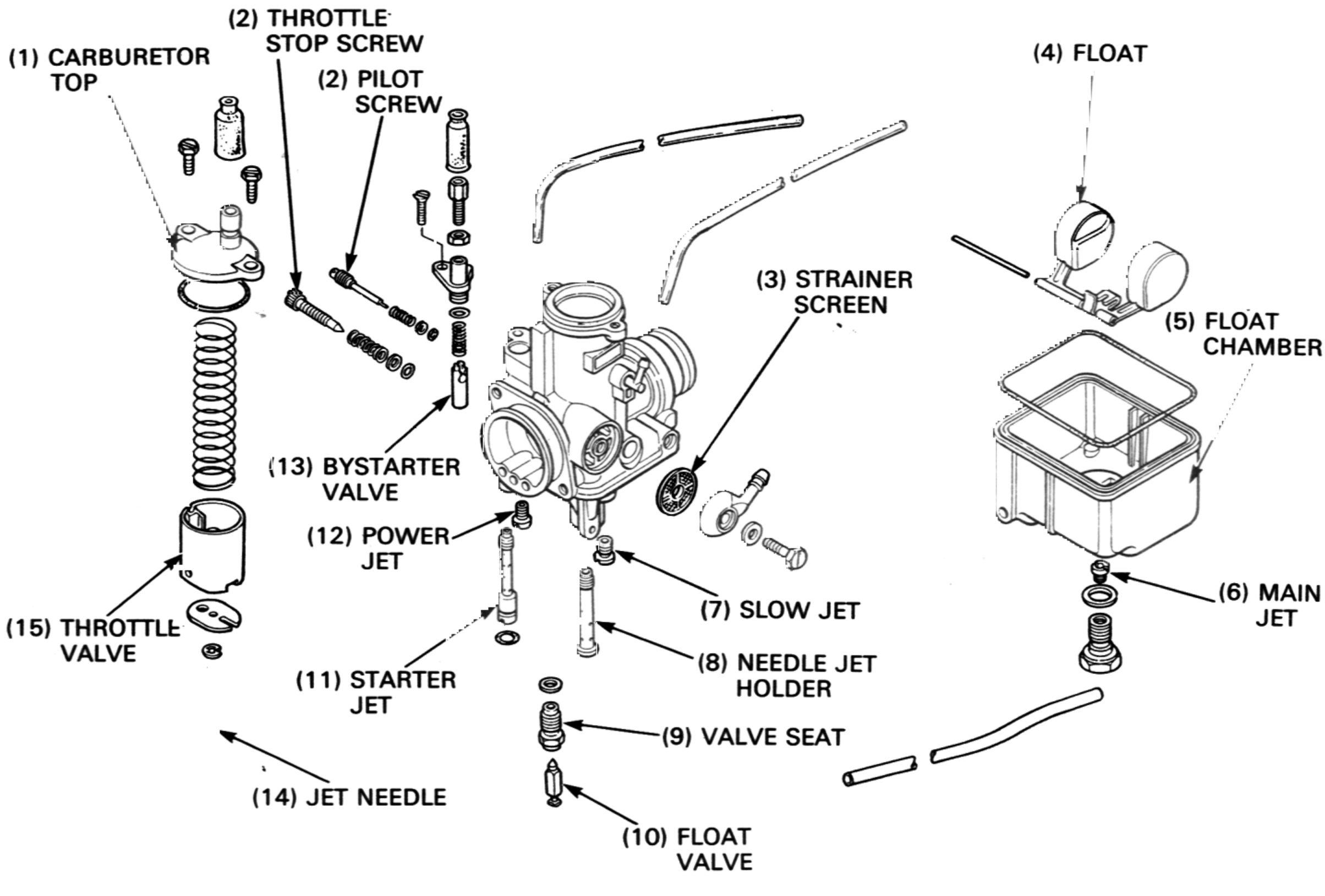
NOTE

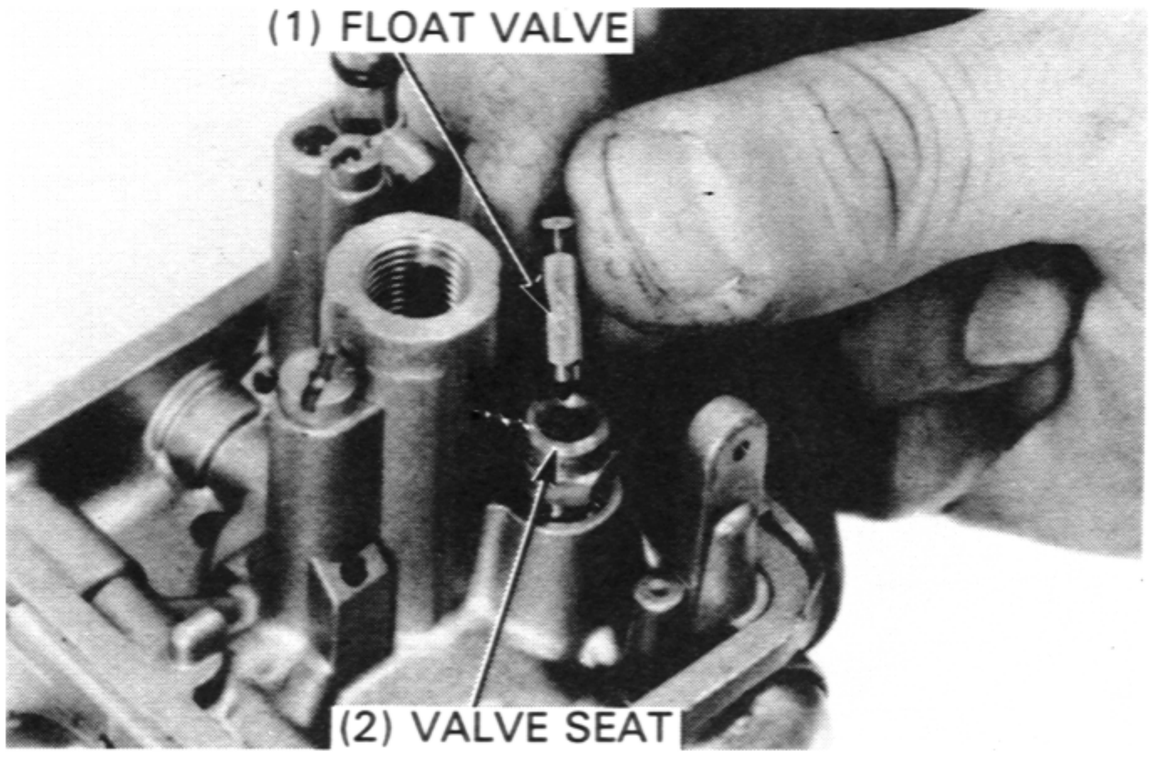
- When installing the pilot screw, screw it in until it seats lightly and return it to its original position as noted during removal.
- Perform pilot screw adjustment if a new screw is installed (page 4-13).

CAUTION

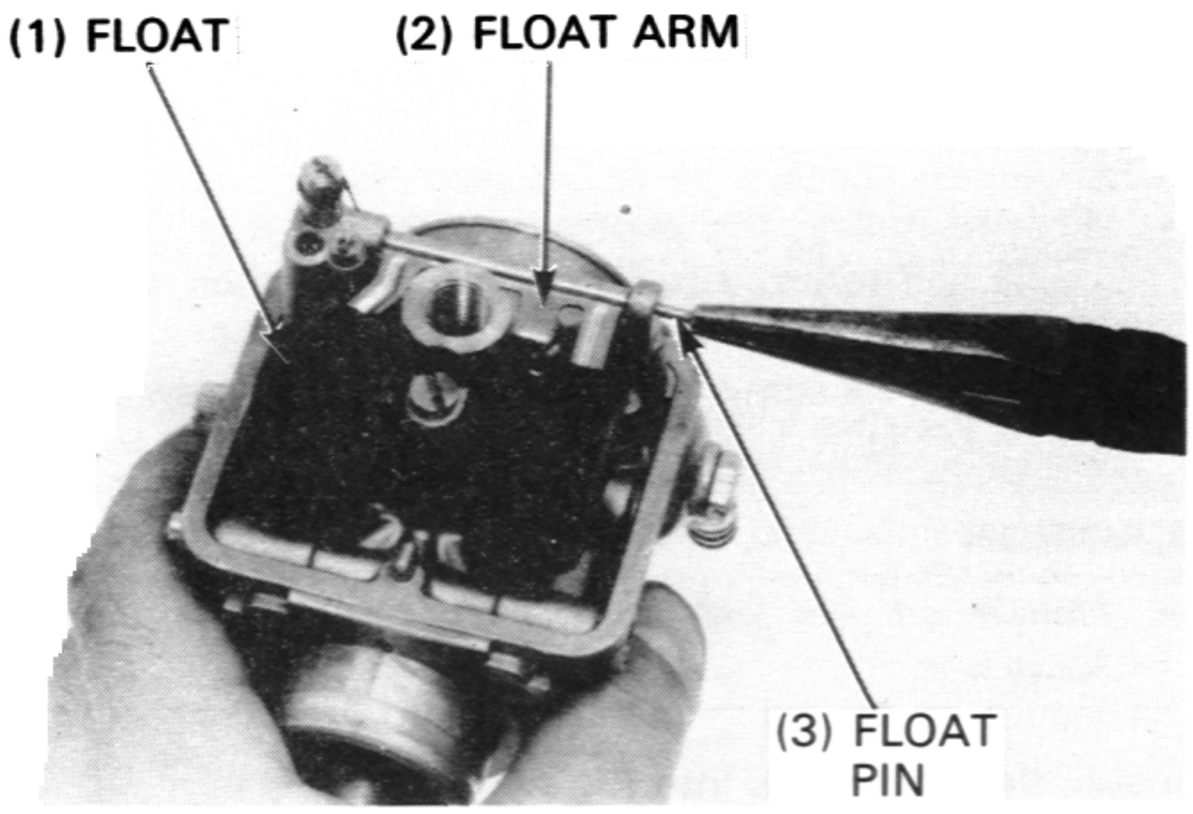
Handle all jets with care. They can easily be scored of scratched.

Install the float valve into the valve seat.





Install the float on the carburetor body.
Insert the float pin through the carburetor and float.



NOTE

- When installing the float pin, pinch its notched part.

Check the valve and float for smooth operation.

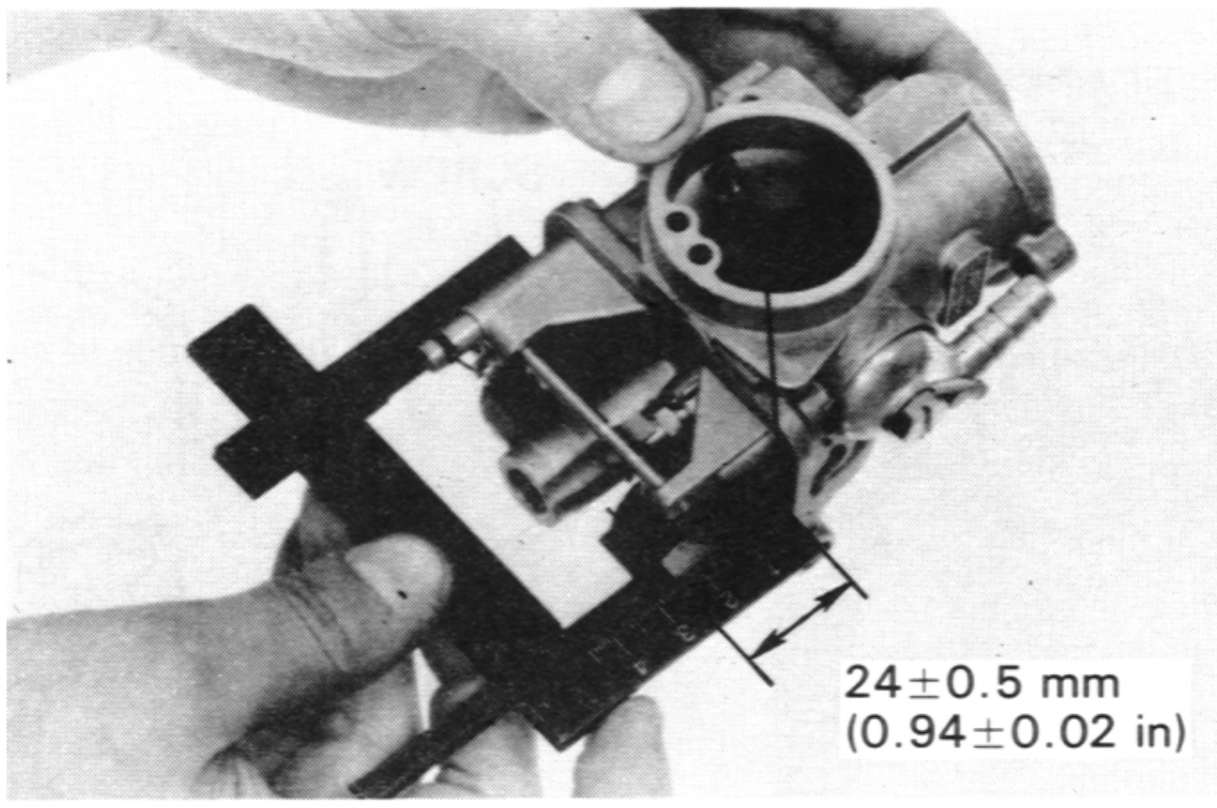
FLOAT LEVEL INSPECTION

With the float valve seated and the float arm just touching the valve, measure the float level with the float level gauge as shown.

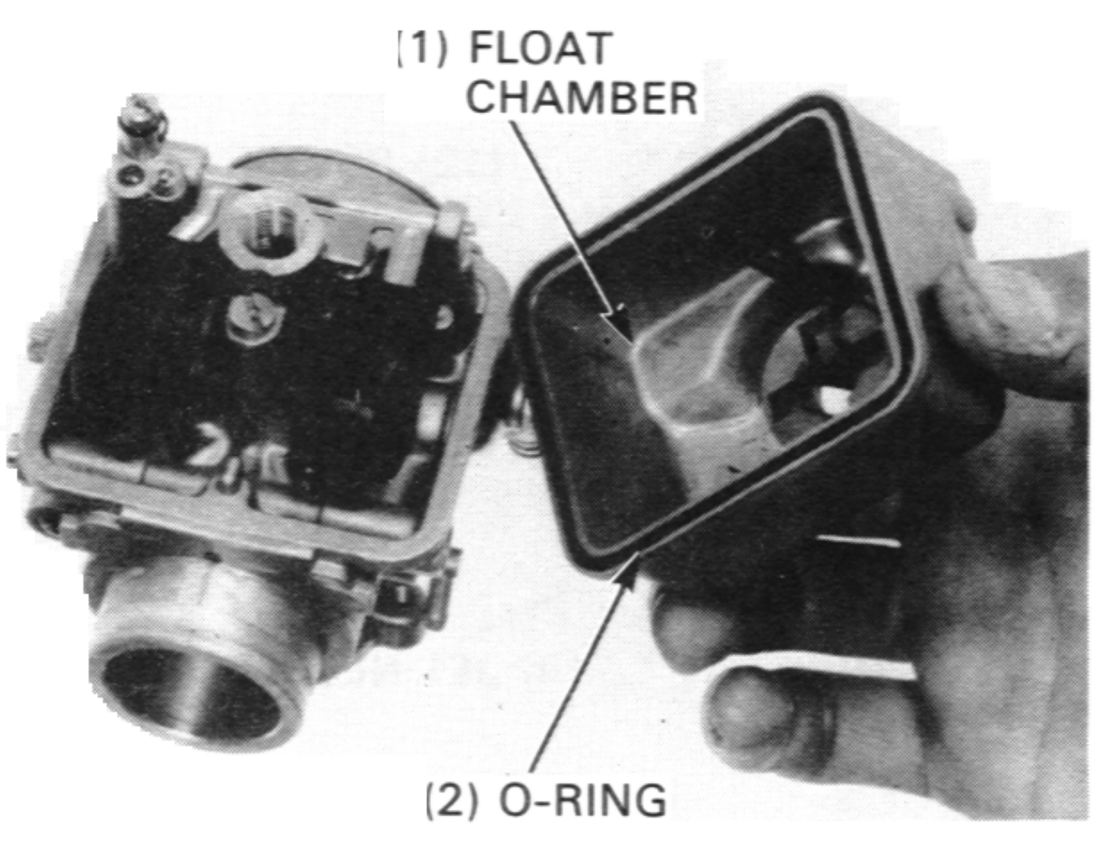
FLOAT LEVEL: 24±0.5 mm (0.94±0.02 in)

TOOL
Float level gauge 07401-0010000

Adjust the float level by carefully bending the float arm.

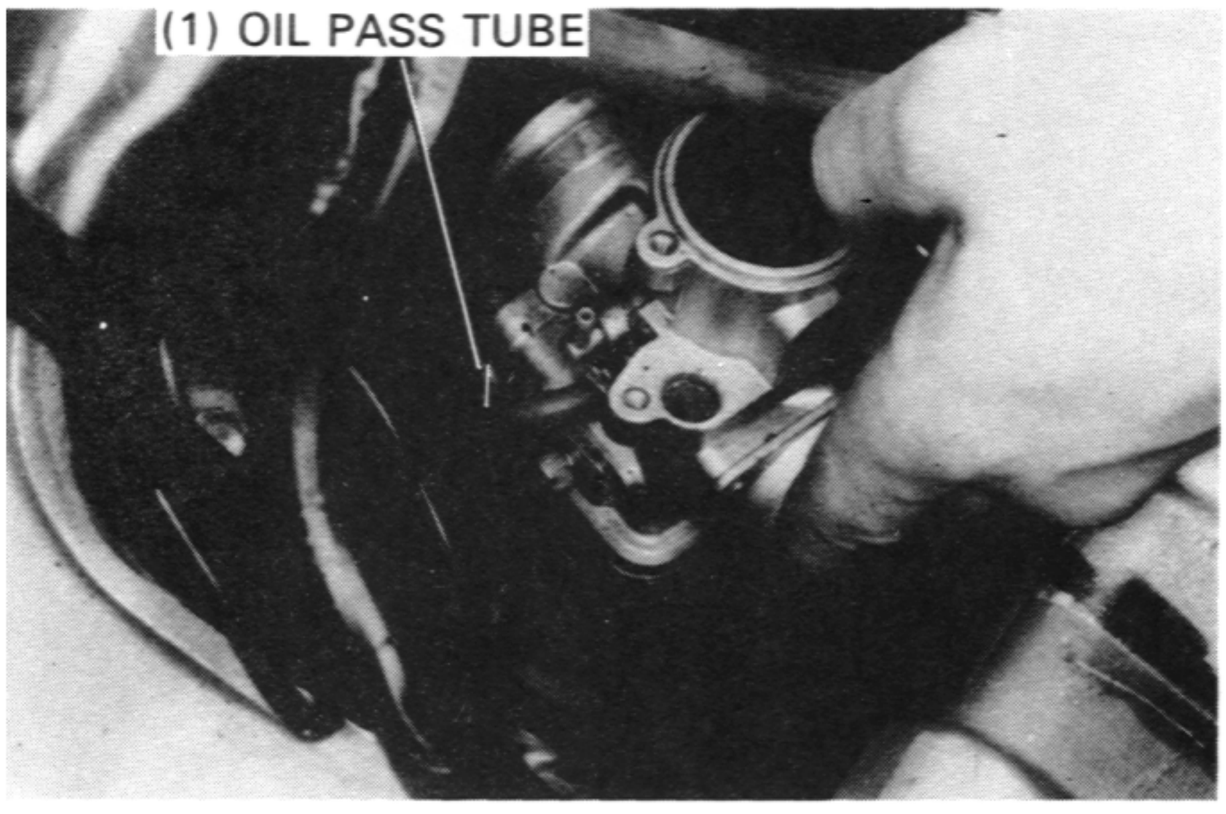


Install a new O-ring in the float chamber groove.
Install the float chamber and tighten the float chamber bolt securely.

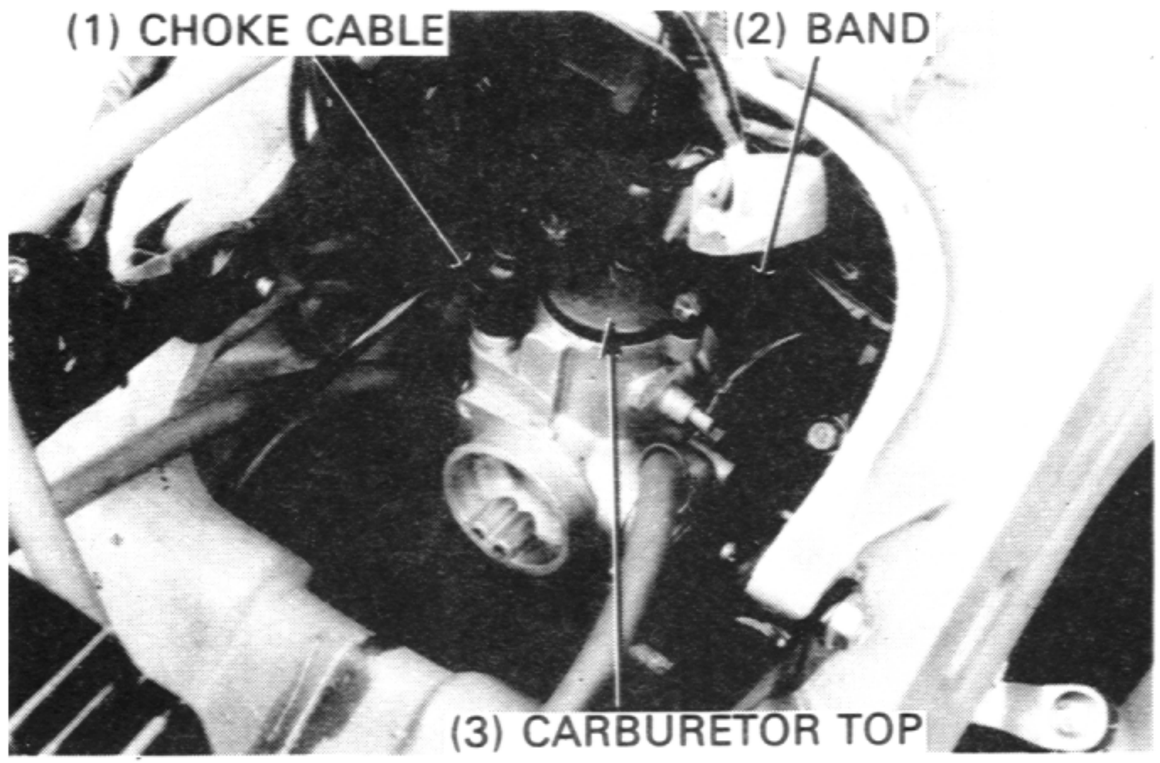


INSTALLATION

Connect the oil pass tube to the carburetor.



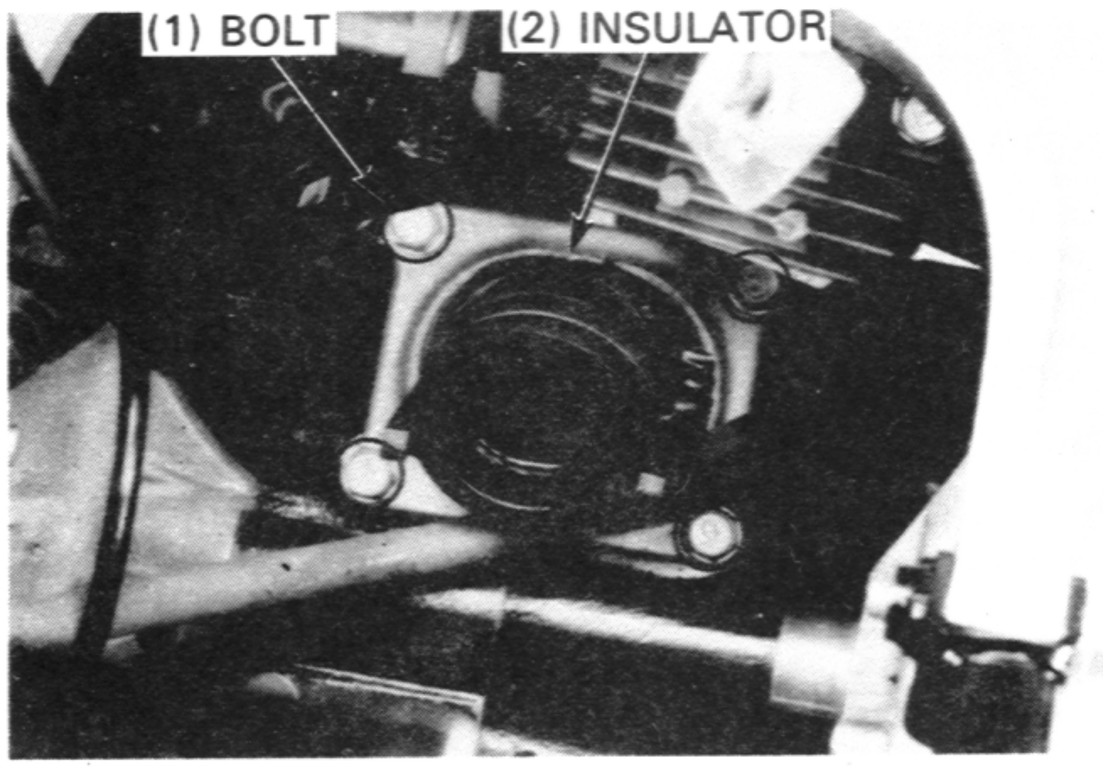
Install the carburetor to the carburetor insulator and tighten the insulator band.
Connect the choke cable to the carburetor and secure it with the screw.
Install the throttle valve and carburetor top (page 4-6).



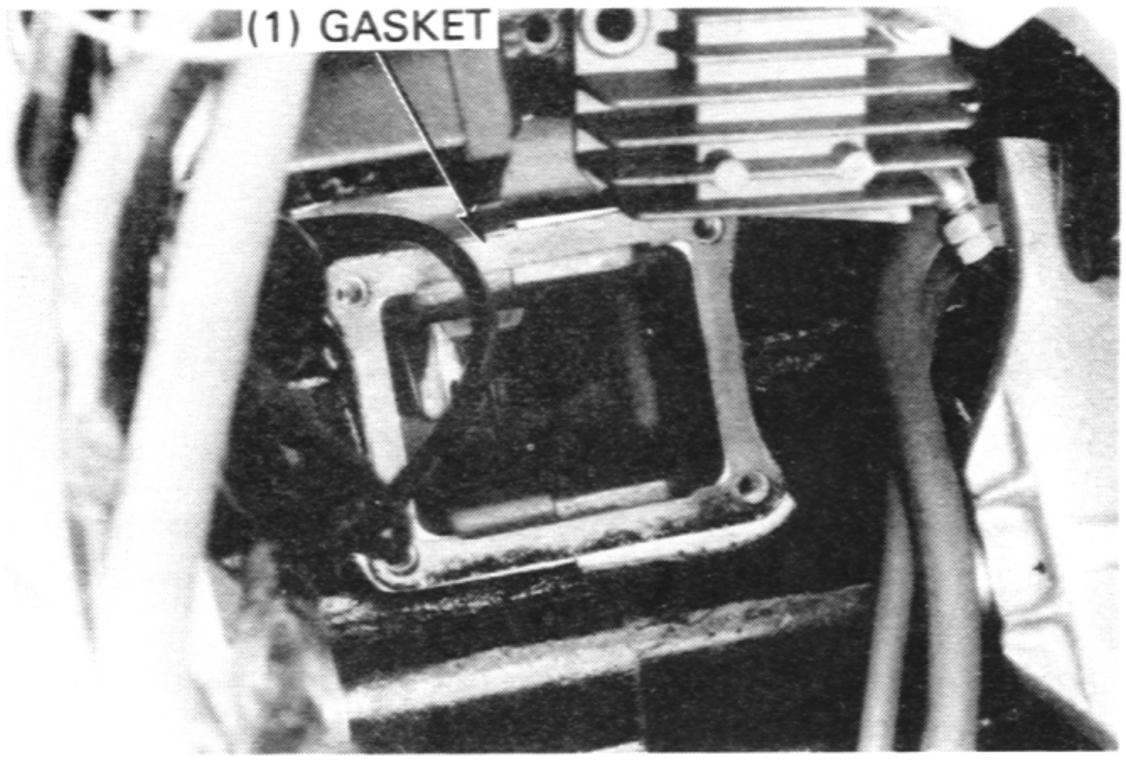
REED VALVE

REMOVAL

Remove the carburetor (page 4-7).
Remove the four attaching bolts and carburetor insulator from the crankcase.



Remove the gasket from the crankcase.



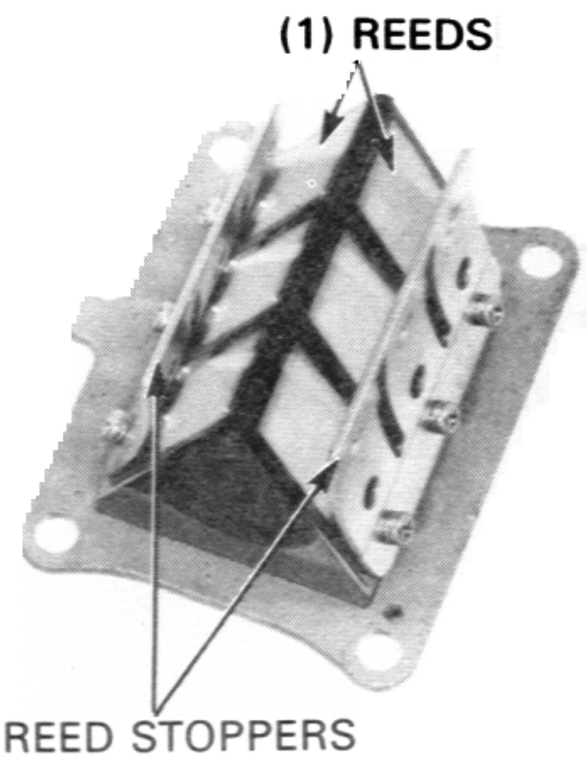
INSPECTION

Inspect the carburetor insulator for damage or deterioration
Replace it with a new one if necessary.

Inspect the reed valve for damaged or weak reeds.
Inspect the valve seat for cracks, damage or clearance between the seat and reed. Replace the valve if necessary.

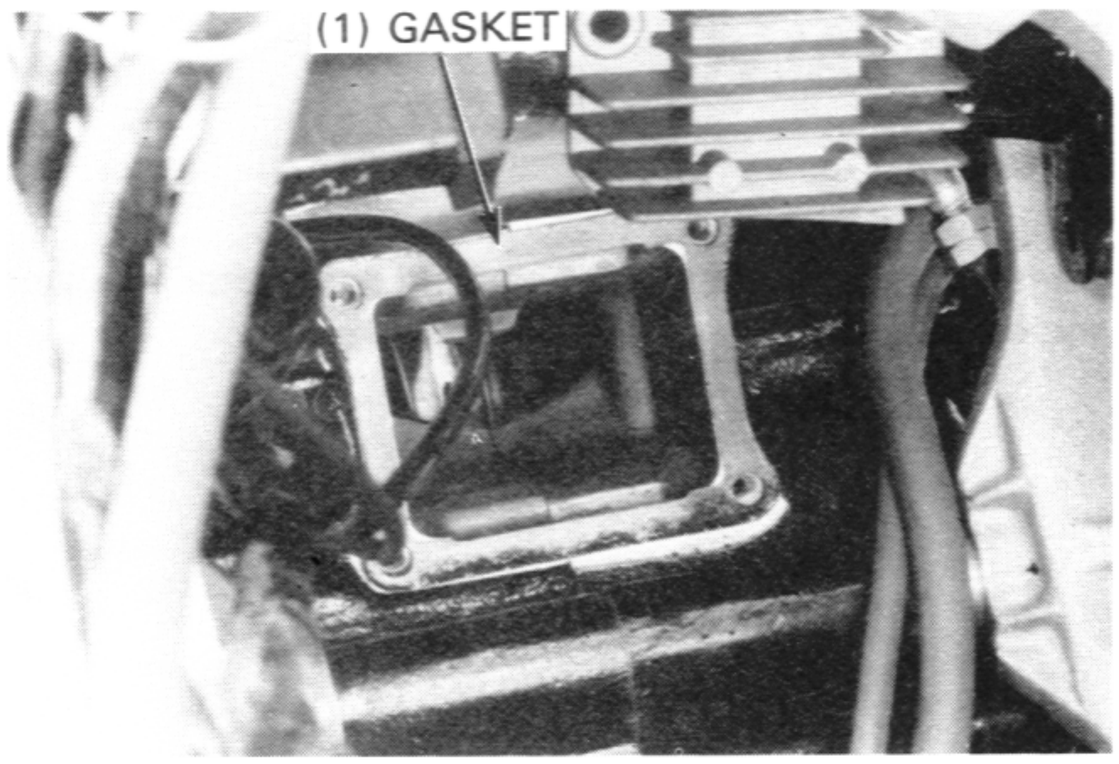
CAUTION

Do not disassemble or bend the reed stopper. To do so can cause loss of power and engine damage. If the stopper, reed or valve seat is faulty, replace them as a unit.

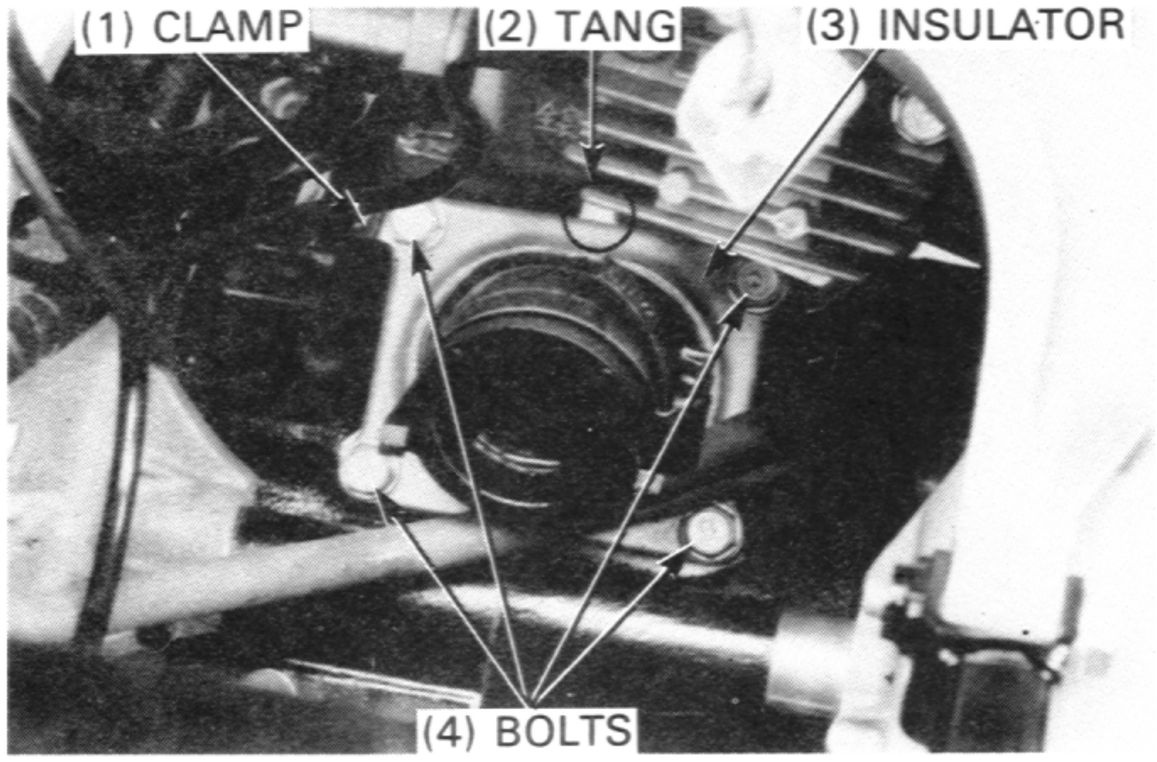


INSTALLATION

Install a new gasket on the crankcase.



Install the reed valve with its tang facing up.
Install the carburetor insulator and tighten the four attaching bolts with the clamp.
Install the carburetor (page 4-11).



PILOT SCREW ADJUSTMENT

NOTE

- The pilot screw is factory pre-set. Adjustment is not necessary unless the carburetor is overhauled or a new pilot screw is installed.
- Damage to the pilot screw seat will occur if the pilot screw is tightened against the seat.

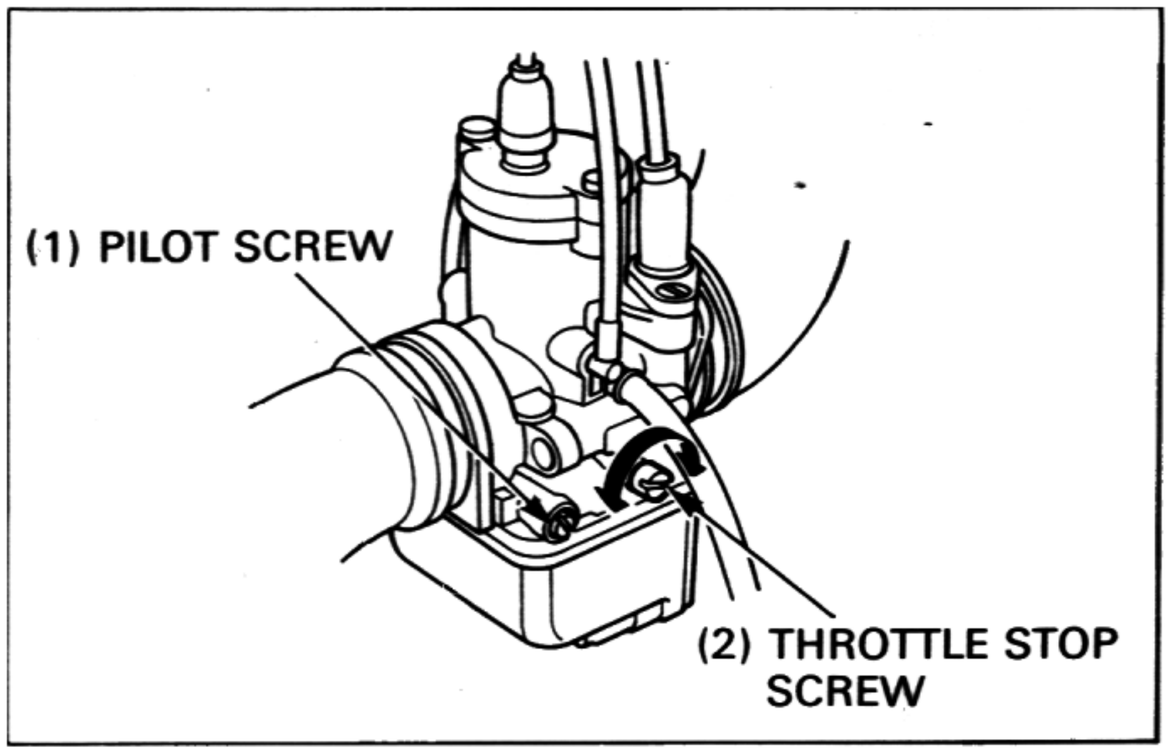
Turn the pilot screw clockwise until it seats lightly and back it out 2.5 turns (2 turns for "R-Type" SW).
Warm the engine up to operating temperature.

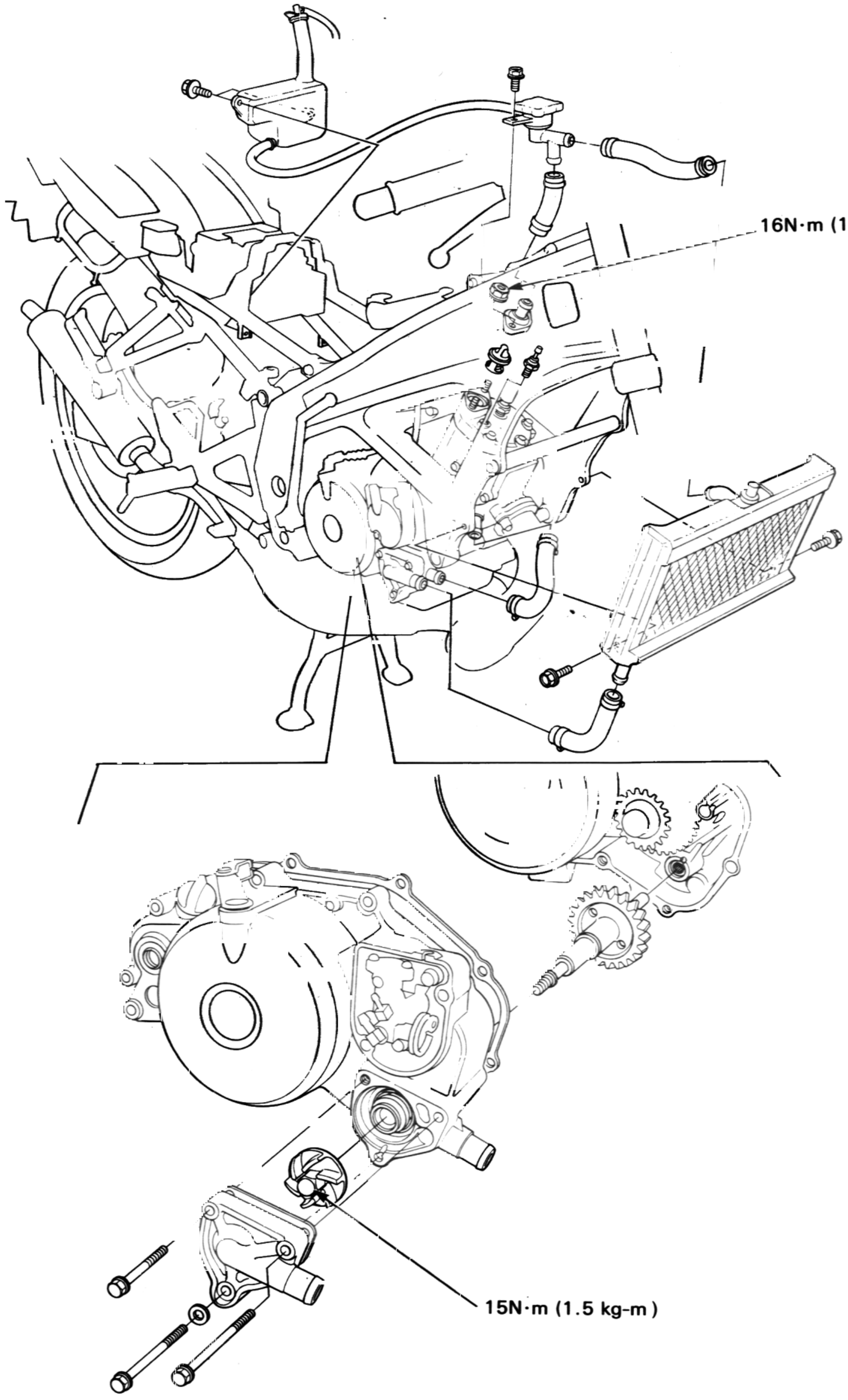
⚠ WARNING

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

Start the engine and adjust the idle speed with the throttle stop screw.

IDLE SPEED: 1,400 ± 100 min^{-1} (rpm)




16N·m (1.6 kg-m)
15N·m (1.5 kg-m)

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

- 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.
- Add coolant at the reserve tank. Do not remove the radiator cap except to refill or drain the system.
- To service the water pump mechanical seal, remove the right crankcase cover.
- All cooling system service can be done with the engine in the frame.
- Radiator and thermostat 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 17 for temperature sensor inspection.

SPECIFICATIONS

Radiator cap relief pressure	75−105 kPa (0.75-1.05 kg/cm², 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	0.9 liter (0.95 US qt, 0.79 Imp qt) 0.2 liter (0.21 US qt, 0.18 Imp qt) 1.1 liter (1.16 US qt, 0.97 Imp qt)
Thermostat	Begins to open: 69.5° to 72.5°C (157° to 163°F) Valve lift: Minimum of 3.5 mm at 80°C (0.14 in at 176°F)
Boiling point (with 50-50 mixture):	Unpressurized: 107.7°C (226°F) Cap on, pressurized: 125.6°C (258°F)

TORQUE VALUES

Water purp impeller	15 N·m (1.5 kg-m, 11 ft-lb)

TOOLS

Special

Mechanical	
Mechanical seal driver attachment	07945−4150400
Attachment, 28 × 30 mm	07946−1870100
Common	
Driver	07749−0010000
Pilot, 12 mm	07746−0040200

TROUBLESHOOTING

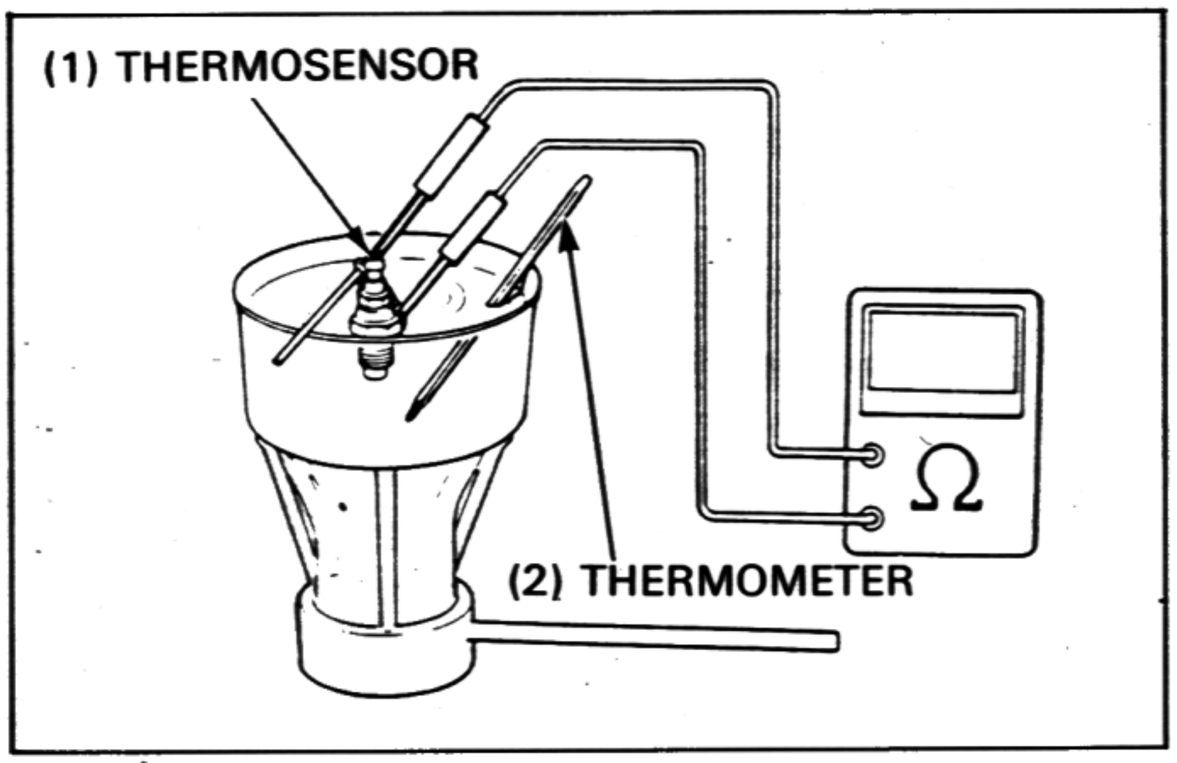
Engine temperature too high
- Faulty temperature gauge or gauge sensor
- Thermostat stuck closed
- Faulty radiator cap
- Insufficient coolant or coolant level too low
- Passages blocked in radiator, hoses, or water jacket
- Faulty water pump
- Air bubbles in cooling system

Engine temperature too low
- Faulty temperature or gauge sensor
- Thermostat stuck open

Coolant leaks
- Faulty pump mechanical seal
- Loose water hose connections
- Damaged or diteriorated water hoses

Suspend the sensor in oil over a burner and measure the resistance through the sensor as the oil heats up.

Temperature	60°C	85°C	110°C	120°C
	140°F	185°F	230°F	248°F
Resistance	104.0Ω	43.9Ω	20.3Ω	16.1Ω



⚠ WARNING

- ***Wear gloves and eye protection.***
- ***Heated oil is highty flammable. Keep it away from open flames.***

NOTE

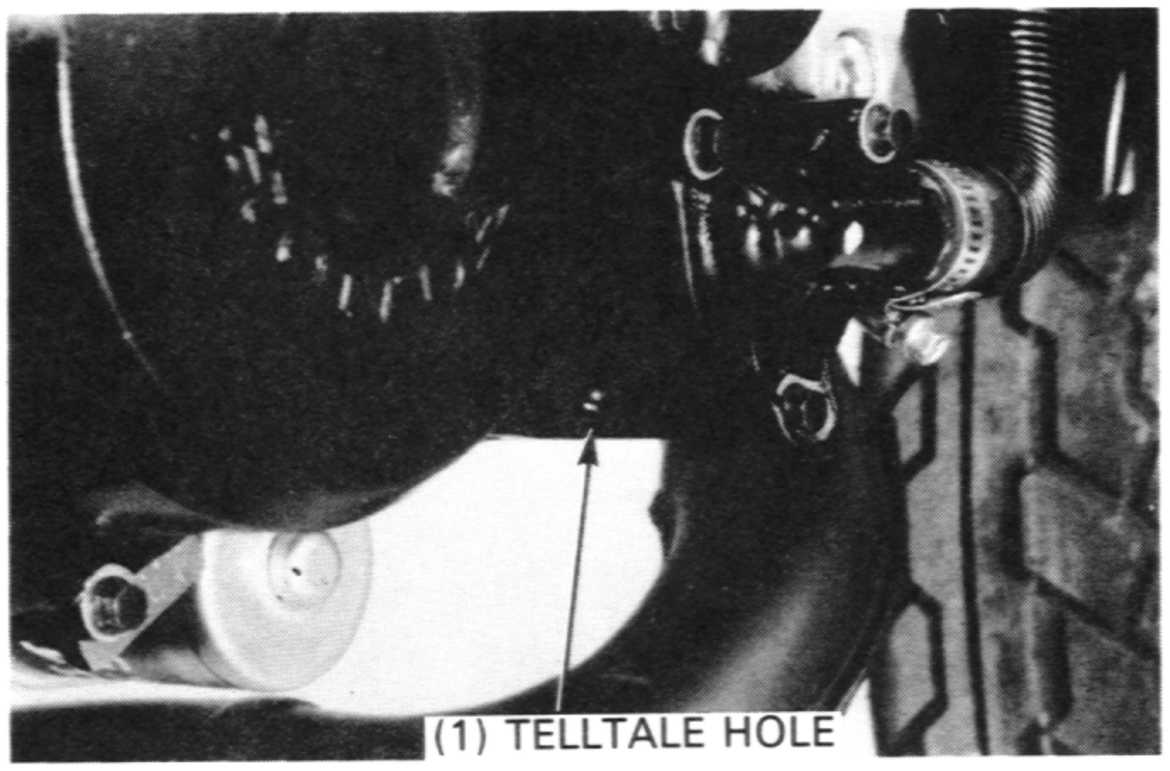
- Oil must be used as the heated liquid to check the function above 100°C (212°F)
- You will get false readings if either the sensor or thermometer touch the pan.

Apply sealant to the threads, tighten and reconnect the thermosensor.

WATER PUMP

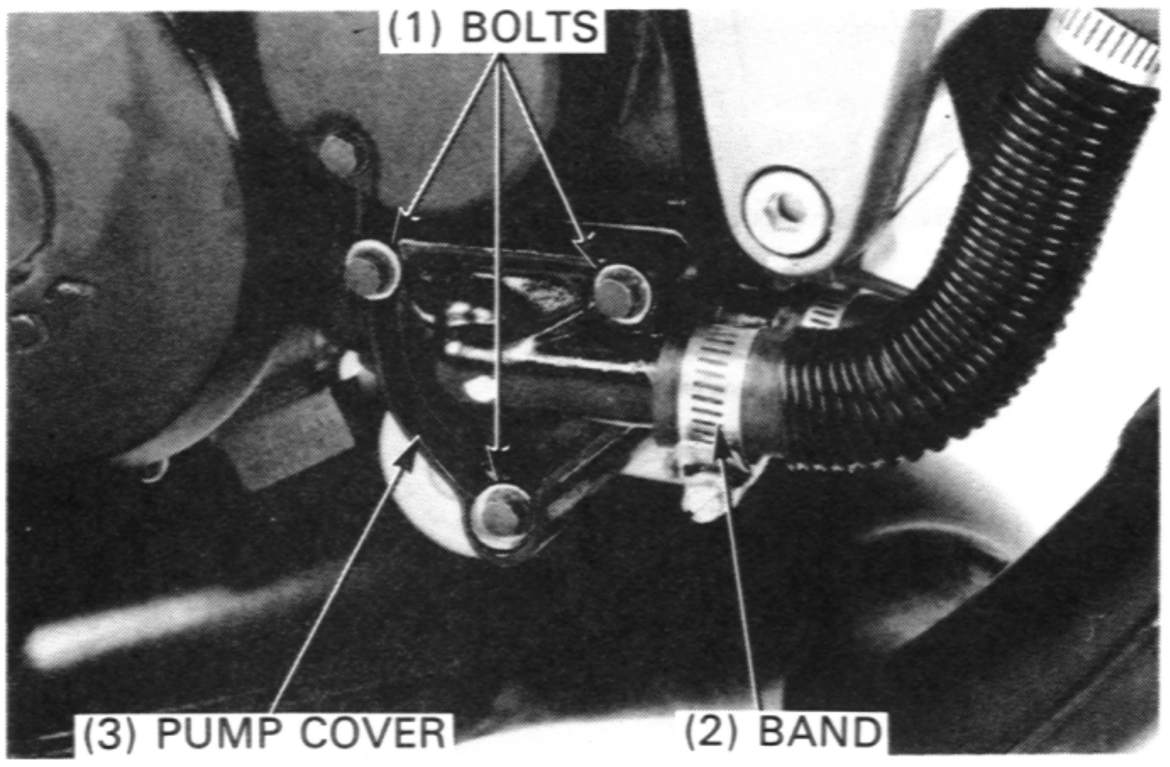
MECHANICAL SEAL INSPECTION

Inspect the telltale hole for signs of coolant leakage.
Replace the mechanical seal if there is leaking.

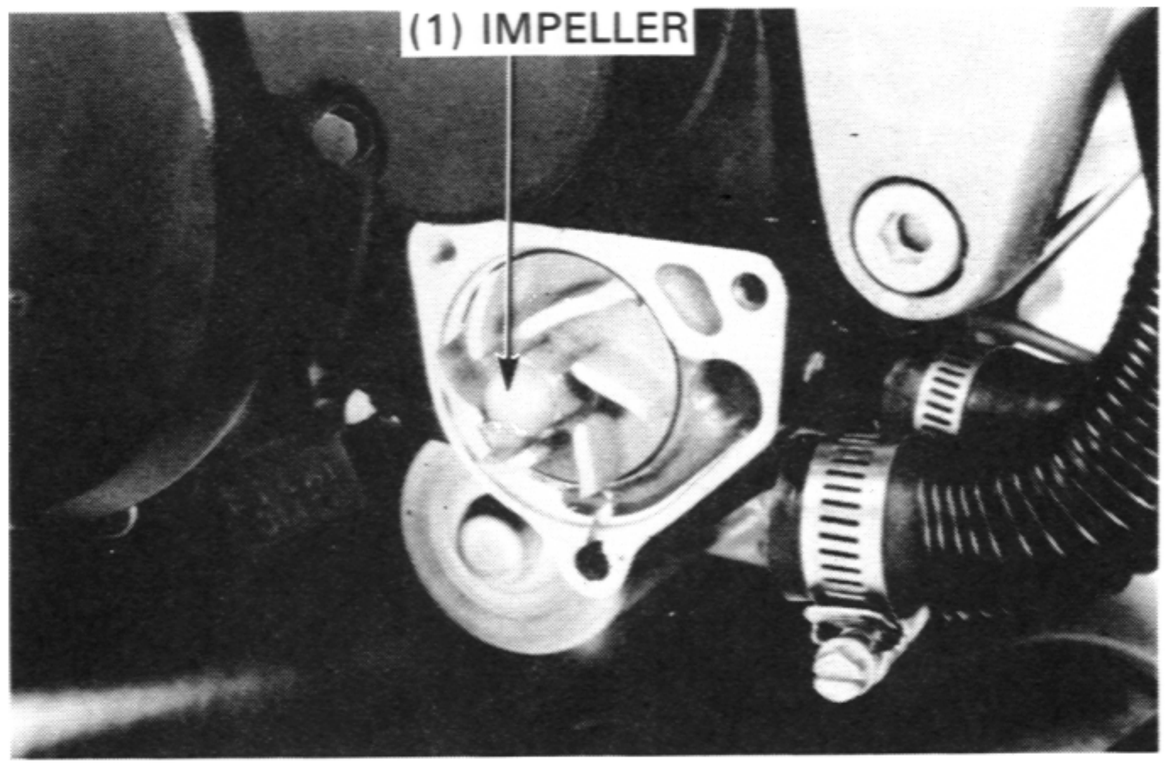


REMOVAL

Drain the coolant (page 5-4).
Loosen the radiator hose band and disconnect the radiator hose from the water pump cover.
Remove the three water pump cover attaching bolts and cover.
Remove the gasket.



Remove the impeller and washer by turning the nut on the impeller counterclockwise.
Inspect the impeller for damage.

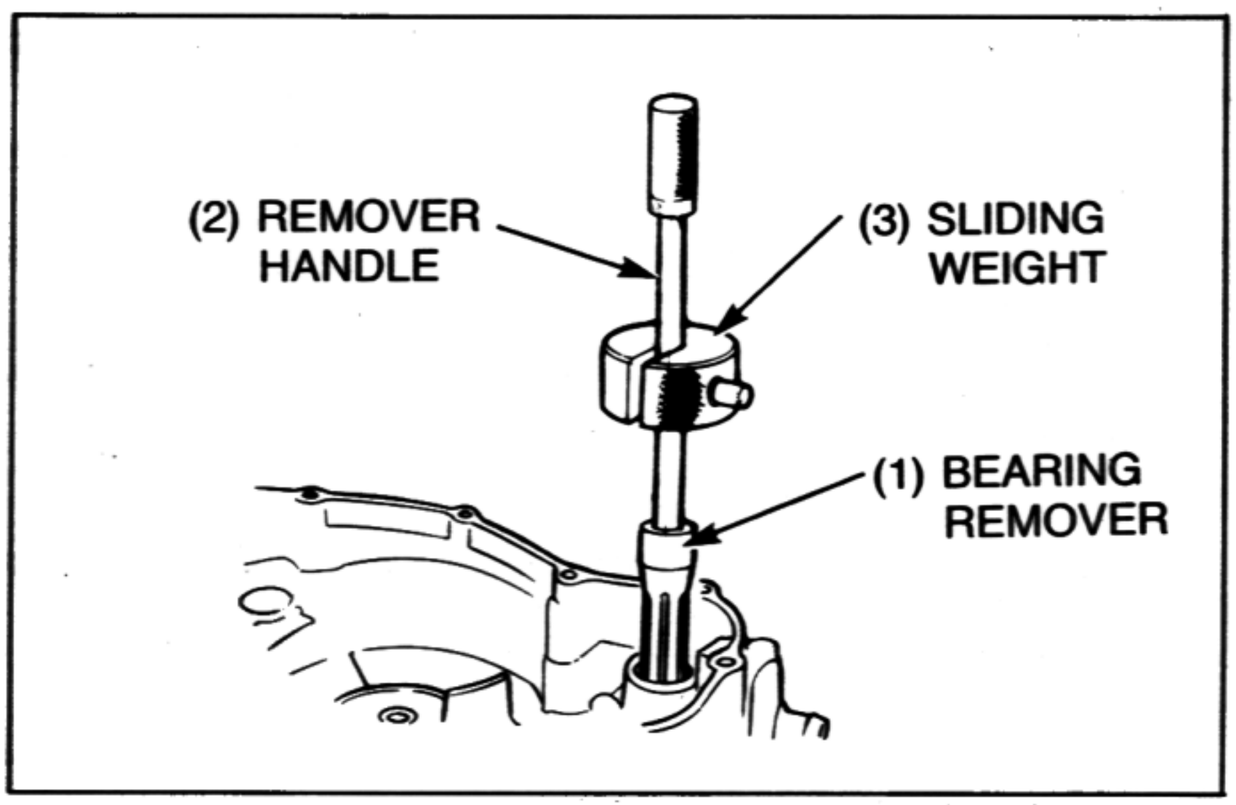


MECHANICAL SEAL REPLACEMENT

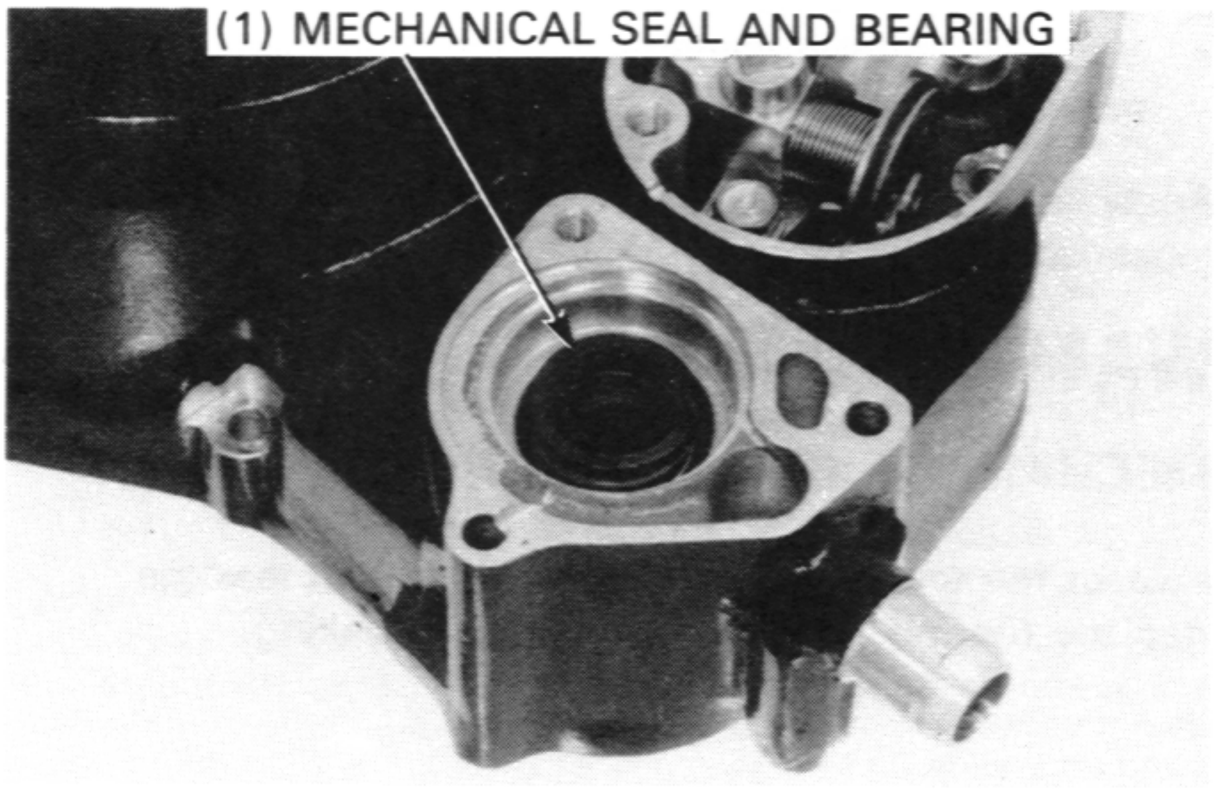
Remove the right crankcase cover (page 8-3).
Remove the water pump shaft inner bearing from the right crankcase cover.

TOOLS:

Bearing remover set, 12mm	07936-1660001
-Bearing remover	07936-1660110
-Remover handle	07936-1660120
-Remover sliding weight	07741-0010201



Remove the water pump shaft outer bearing and mechanical seal from the right crankcase cover.



Drive a new mechanical seal into the right crankcase cover.

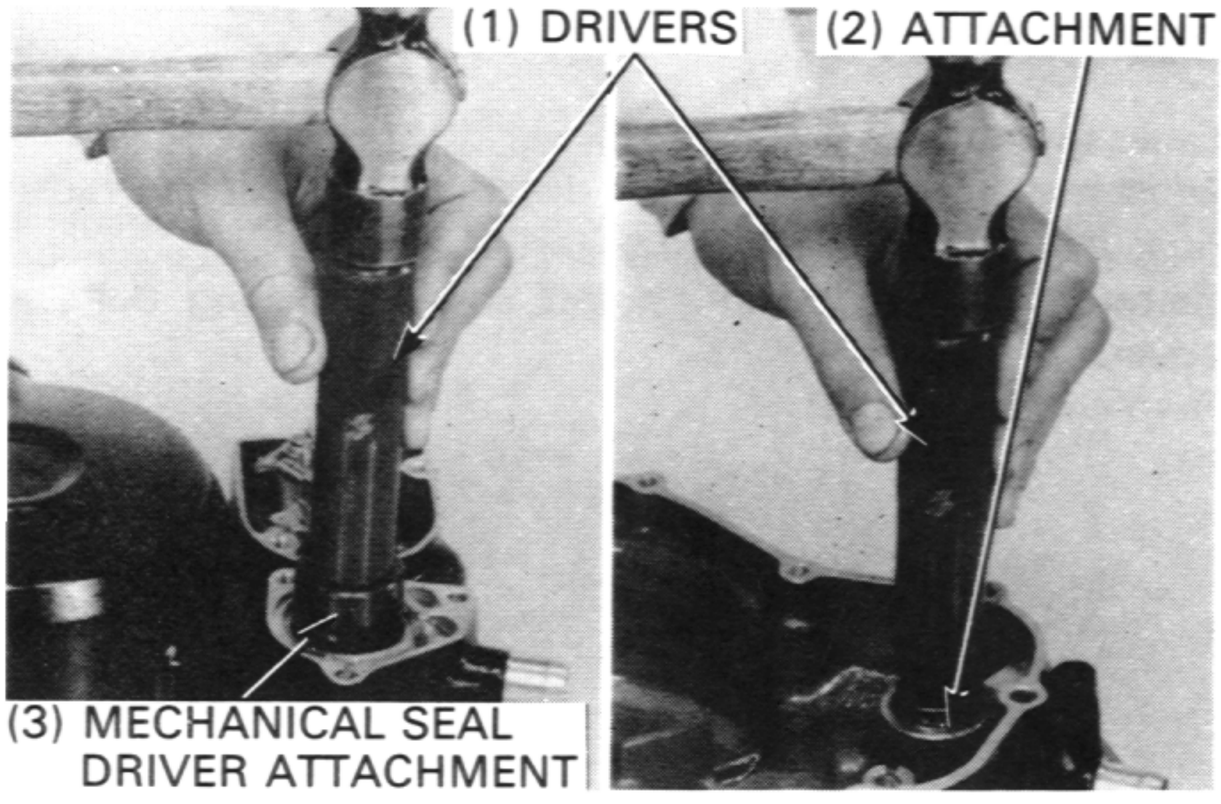
TOOLS:

Driver	07749-0010000
Mechanical seal driver attachment	07945-4150400

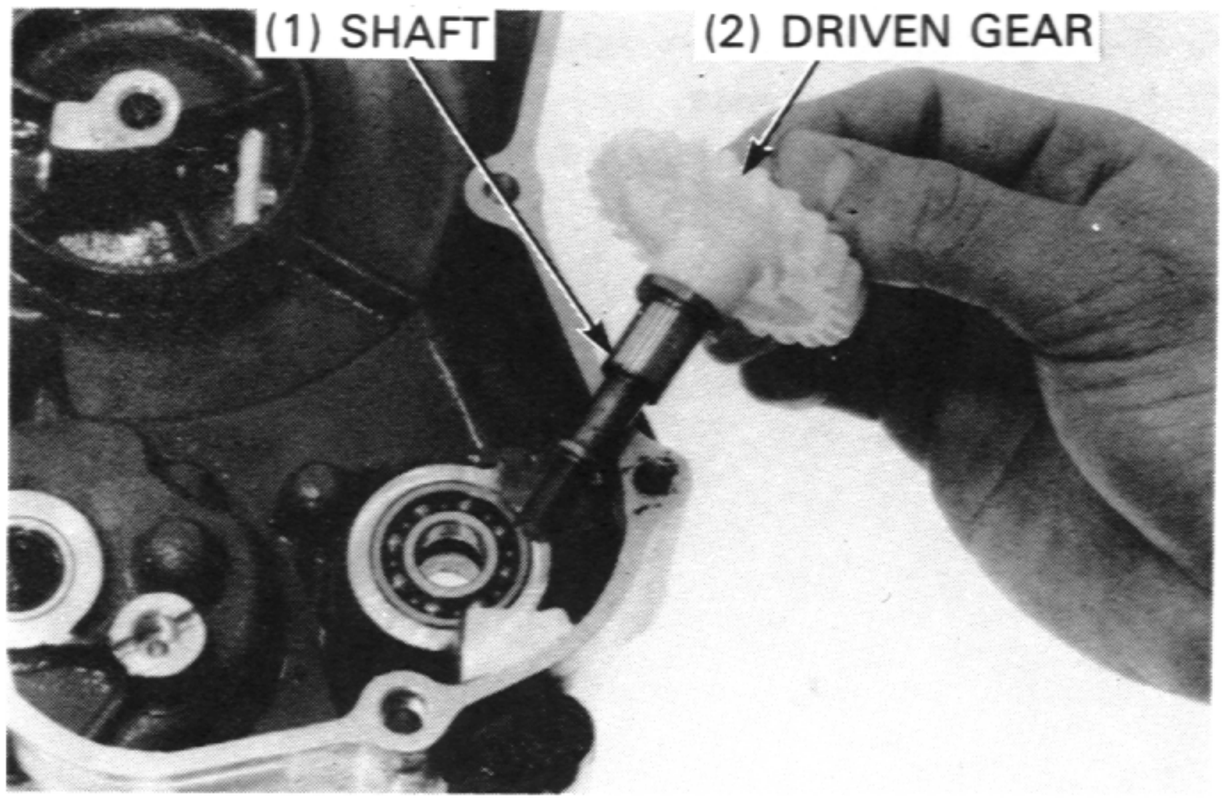
Drive new water pump shaft bearings into the right crankcase cover.

TOOLS:

Driver	07749-0010000
Attachment, 28×30mm	07946-1870100
Pilot, 12mm	07746-0040200



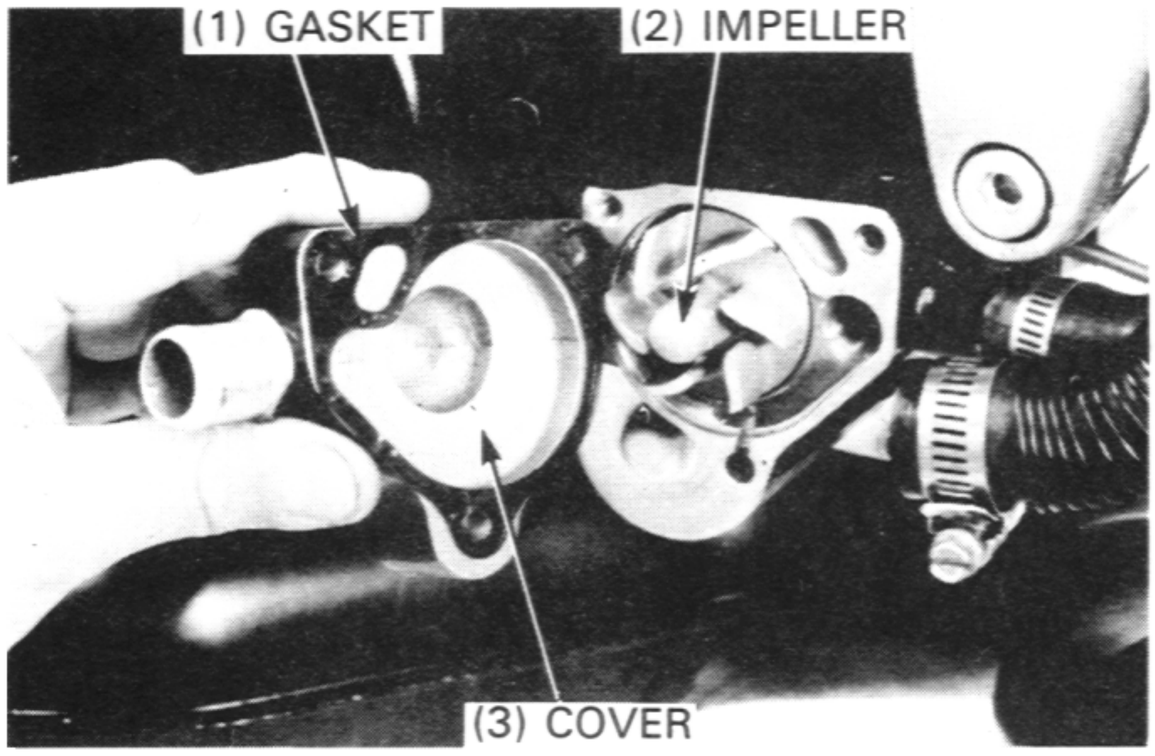
Inspect the water pump driven gear and water pump shaft for wear or damage.
Install water pump shaft into the water pump shaft bearings.



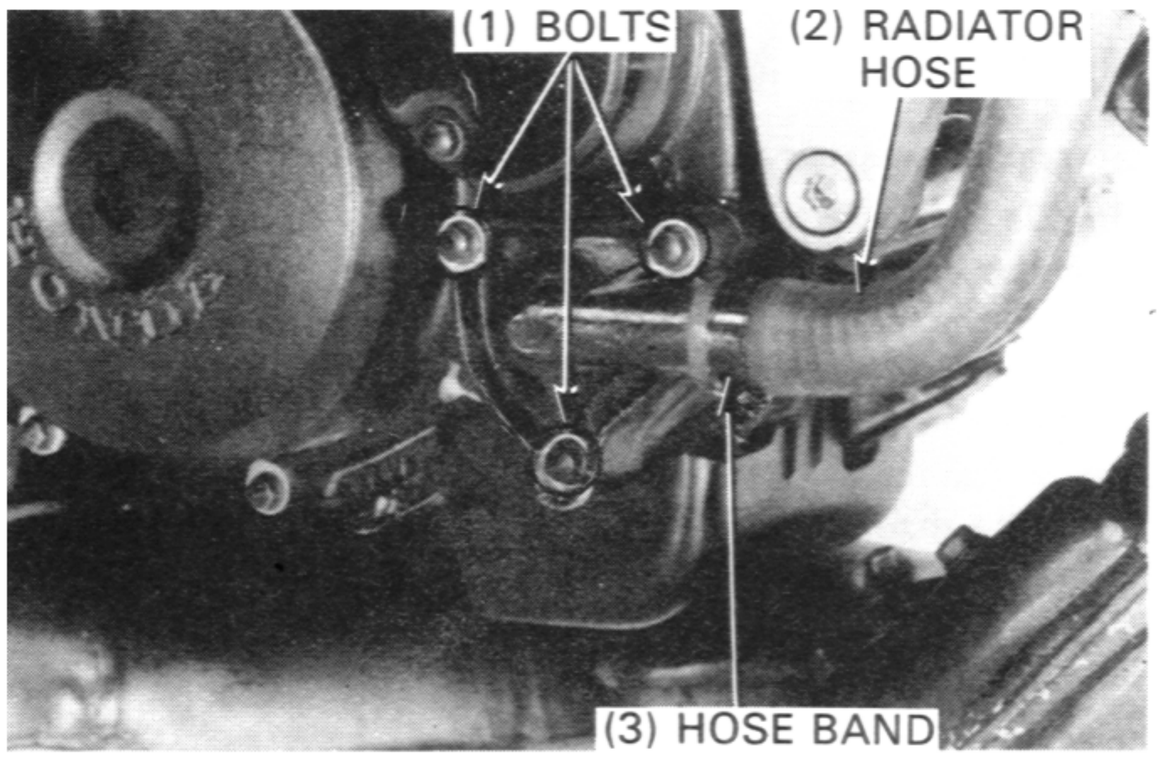
Install the washer and impeller and tighten the impeller to the specified torque.

TORQUE: 15N·m (1.5kg-m, 11ft-lb)

Install a new gasket and water pump cover.



Secure the water pump cover with three attaching bolts.
Connect the radiator hose and secure it with the hose band.
Fill and bleed the cooling system (page 5-4).

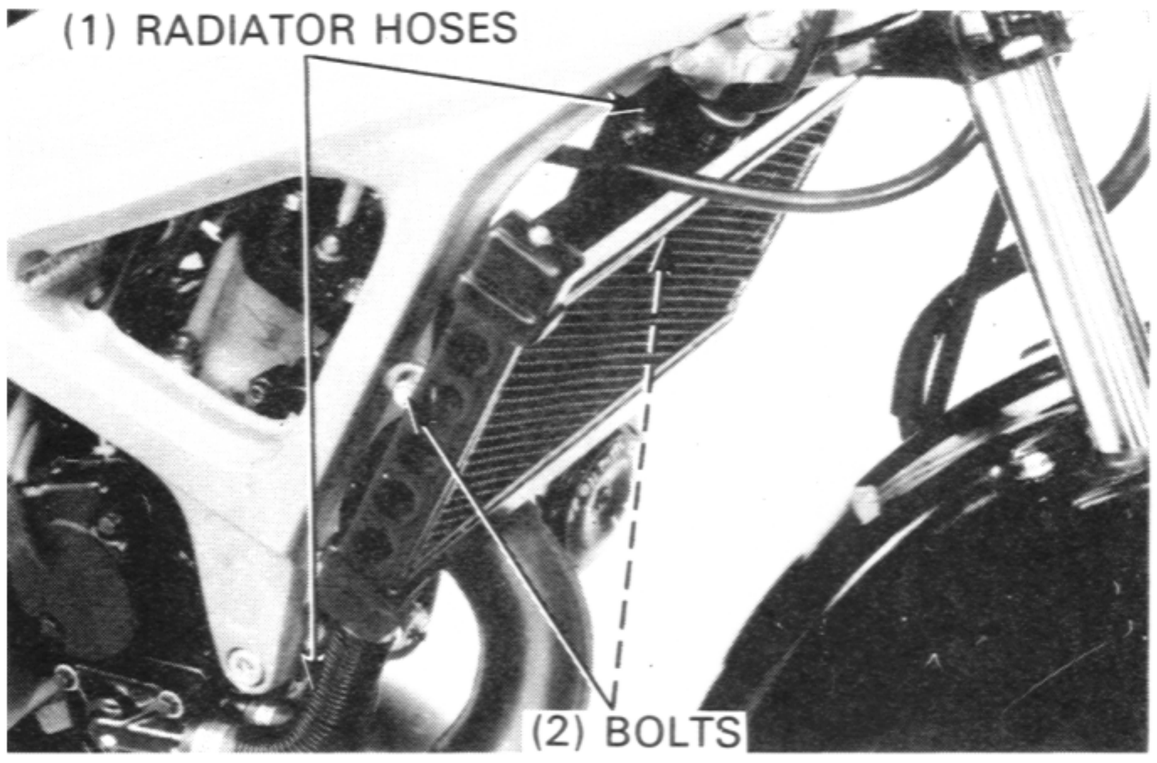


RADIATOR

REMOVAL/INSTALLATION

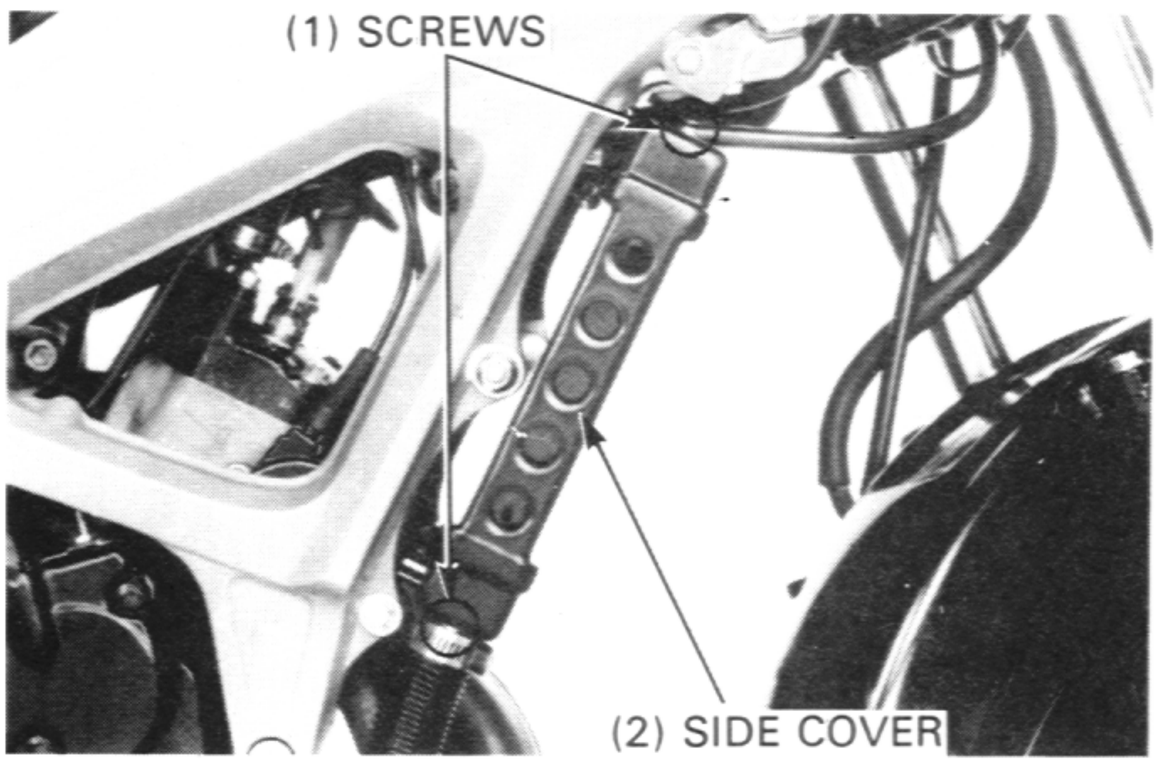
Drain the coolant (page 5-4).
Disconnect the radiator hoses from the radiator.
Remove the radiator mounting bolts and radiator.

Install the radiator in the reverse order of removal.
Fill and bleed the cooling system (page 5-4).



RADIATOR GRILLE REMOVAL/INSTALLATION

Remove the radiator side covers by removing the screws.



SERVICE INFORMATION

GENERAL

- The engine must be removed from the frame to service the tramsmission and crankshaft.

SPECIFICATIONS

Transmission oil capacity		0.70 lit.(0.74 US gal. 0.62 Imp gal) after draining 0.75 lit.(0.79 US gal. 0.66 Imp gal) after disassembly
Coolant capacity	Engine and radiator	0.9 lit.(0.95 US qt. 0.79 Imp qt)
	Reserve tank	0.2 lit.(0.21 US qt. 0.18 Imp qt)

TORQUE VALUES

Engine mounting nut	37N · m (3.7kg-m, 27ft-lb)
Expansion chamber/silencer mounting bolt	22N · m (2.2kg-m, 16ft-lb)
Expansion chamber joint nut	10N · m (1.0kg-m, 7ft-lb)

SERVICE INFORMATION

GENERAL

- All cylinder head, cylinder and piston maintenance and inspection can be done with the engine installed.
- Before disassembly, clean the engine to prevent dirt and dust from entering the cylinder and crankcase.
- Remove all gasket material from the mating surfaces of the cylinder and crankcase.
- Clean all disassembled parts throughly before inspction. Coat all sliding surfaces with clean 2-stroke oil before assembly.

SPECIFICATIONS

ITEM			STANDARD mm (in)	SERVICE LIMIT mm (in)
Cylinder head warpage			–	0.10 (0.004)
Cylinder I.D.		Code A	54.020–54.025 (2.1268–2.1270)	54.095 (2.1297)
		Code B	54.015–54.020 (2.1266–2.1268)	54.090 (2.1295)
		Code C	54.010–54.015 (2.1264–2.1266)	54.085 (2.1293)
		Code D	54.005–54.015 (2.1262–2.1264)	54.080 (2.1291)
			54.000–54.005 (2.1260–2.1262)	54.075 (2.1289)
Piston, piston pin, piston ring	Piston O.D. 15 mm (0.6 in) from piston skirt bottom	Code A	53.976–53.980 (2.1250–2.1252)	53.906 (2.1223)
		Code B	53.971–53.975 (2.1248–2.1250)	53.901 (2.1221)
		Code C	53.966–53.970 (2.1246–2.1248)	53.896 (2.1219)
		Code D	53.961–53.965 (2.1244–2.1246)	53.891 (2.1217)
		Code E	53.956–53.960 (2.1243–2.1244)	53.886 (2.1215)
	Piston pin bore		16.002–16.008 (0.6300–0.6302)	16.03 (0.631)
			15.994–16.000 (0.6279–0.6299)	15.98 (0.629)
	Piston pin-to-bore clearance		0.002–0.014 (0.0001–0.0006)	0.04 (0.0016)
	Piston ring end gap		0.30–0.45 (0.012–0.018)	0.50 (0.020)
Cylinder-to-piston clearance			0 040–0.049 (0.0016–0.0019)	0.080 (0.0031)
Connecting rod small end I.D.			20.002–20.014 (0.7875–0.7880)	20.03 (0.789)

TORQUE VALUES

Cylinder head nut	16 N·m (1.6 kg-m, 12 ft-lb)
Cylinder nut	23 N·m (2.3 kg-m, 17 ft-lb)

TROUBLESHOOTING

Compression too low, hard starting or poor performance at low speed
- Leaking cylinder head gasket
- Loose spark plug
- Worn, stuck or broken piston rings
- Faulty reed valve
- Leaking crankcase gasket

Conpression too high overheating or knocking
- Excessive carbon busit-up in cylinder or piston top

Abnormal noise-piston
- Worn cylinder and piston
- Worn piston pin or piston pin bore
- Worn connecting rod small end bearing

Abnormal noise-piston rings
- Worn, stuck or broken piston rings
- Worn or damaged cylinder

Contaminated coolant
- Leaking cylinder head gasket

CYLINDER/PISTON REMOVAL

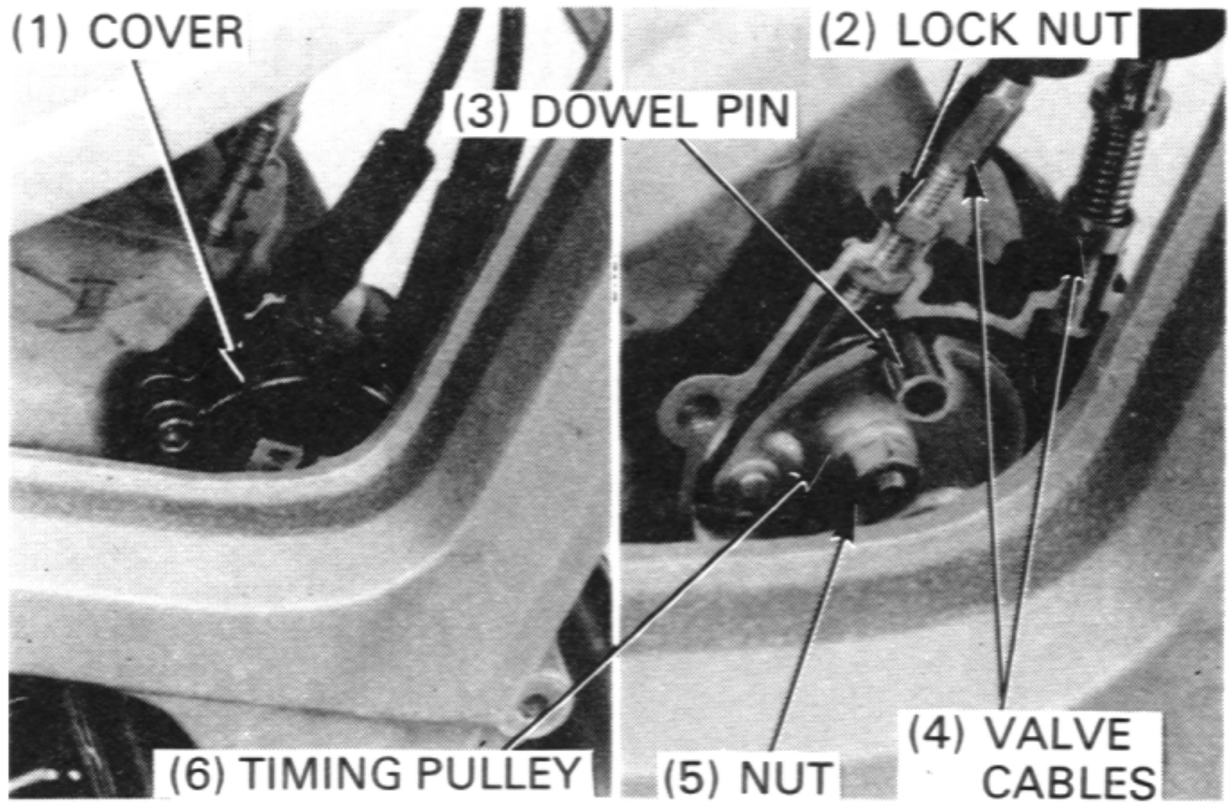
CYLINDER REMOVAL

Remove the two socket bolts and RC valve cover.

Loosen the lock nut and disconnect the valve cables from the valve timing pulley.

Align the hole in the cable guide base with the cut-out in the timing pulley and secure the timing pulley with a dowel pin (6mm O.D.).

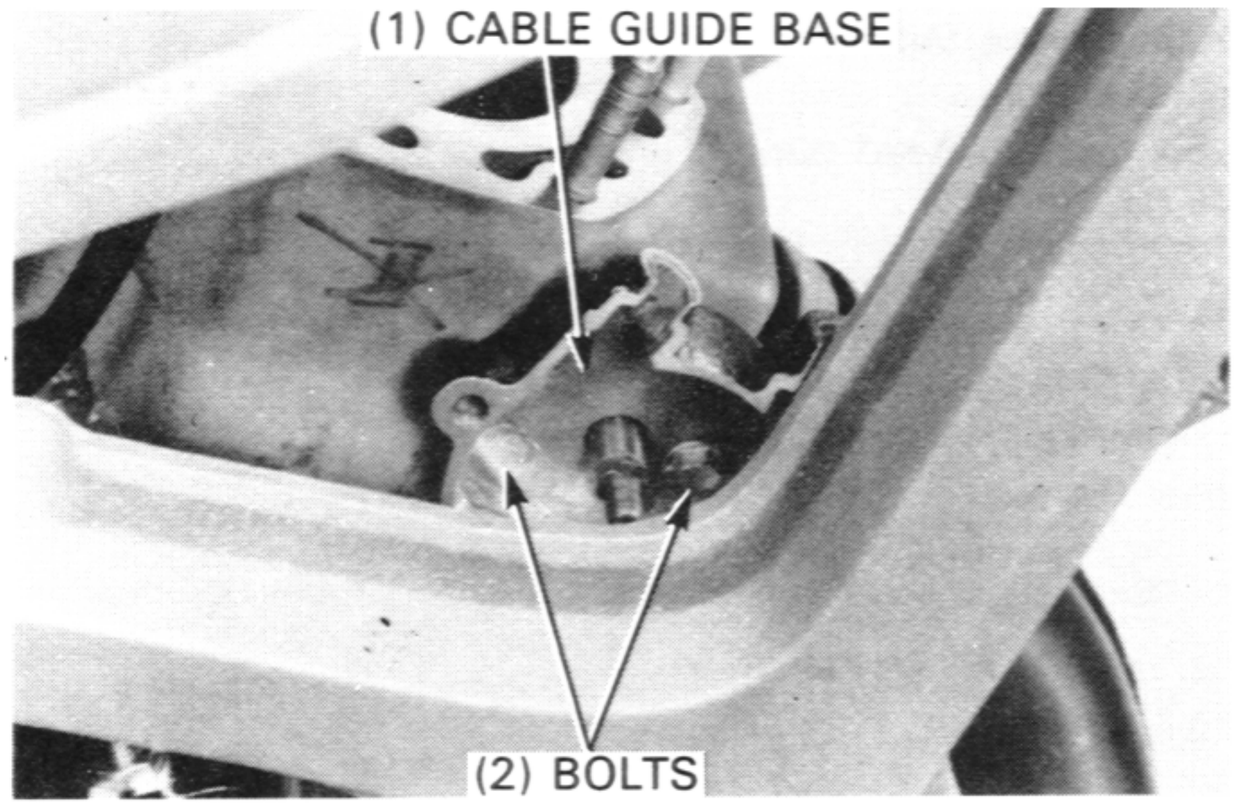
Remove the nut and timing pulley.



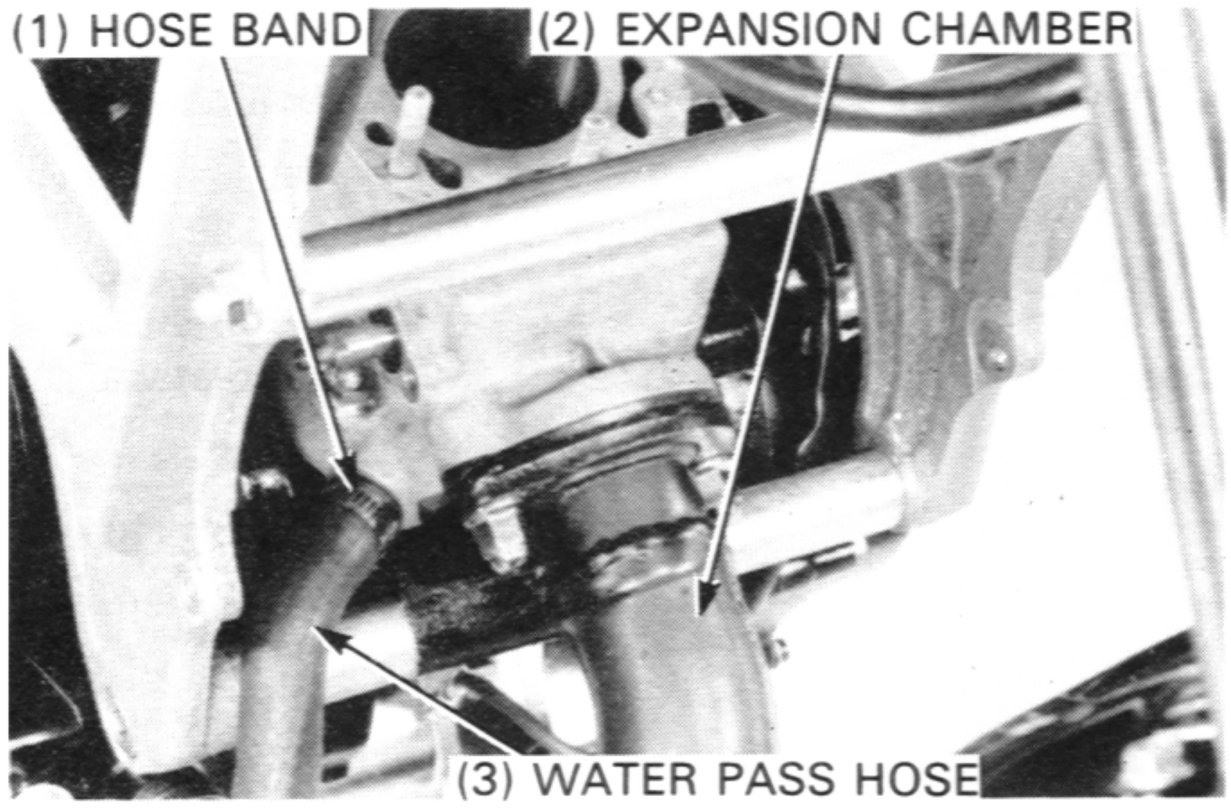
NOTE

- The timing pulley nut has left hand threads.

Remove the two bolts and cable guide base from the cylinder.



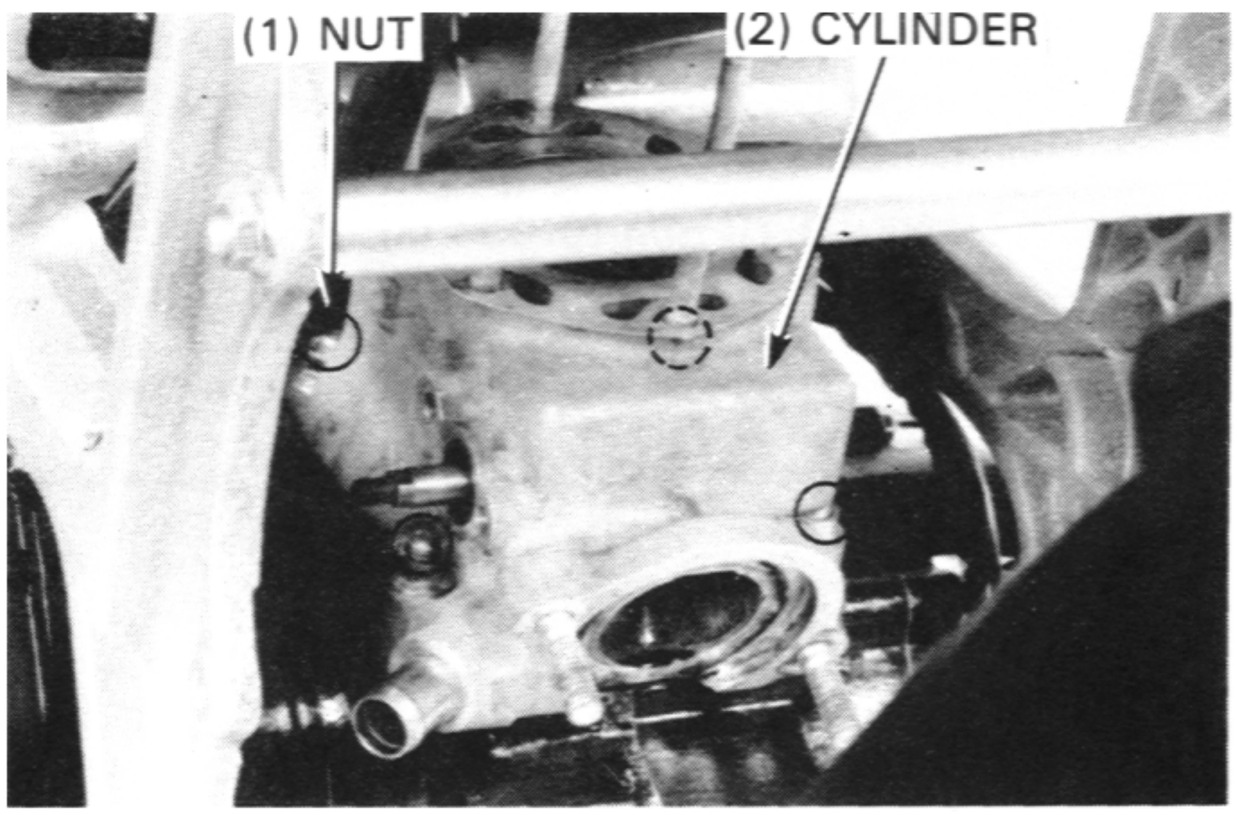
Disconnect the water pass hose and remove the expansion chamver (page 6-2).



Remove the four cylinder nuts and cylinder.

NOTE

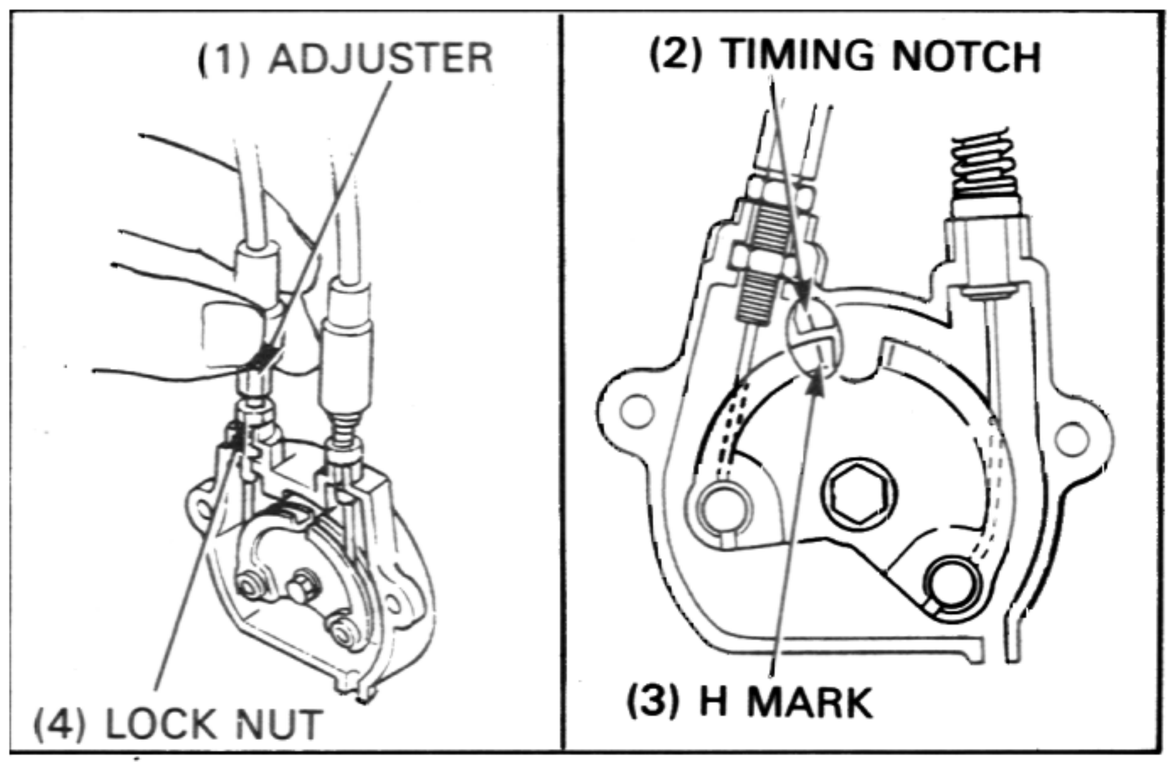
- Loosen the nuts in a crisscross pattern in several steps.
- Do not pry the cylinder base mating surface with a screw driver.



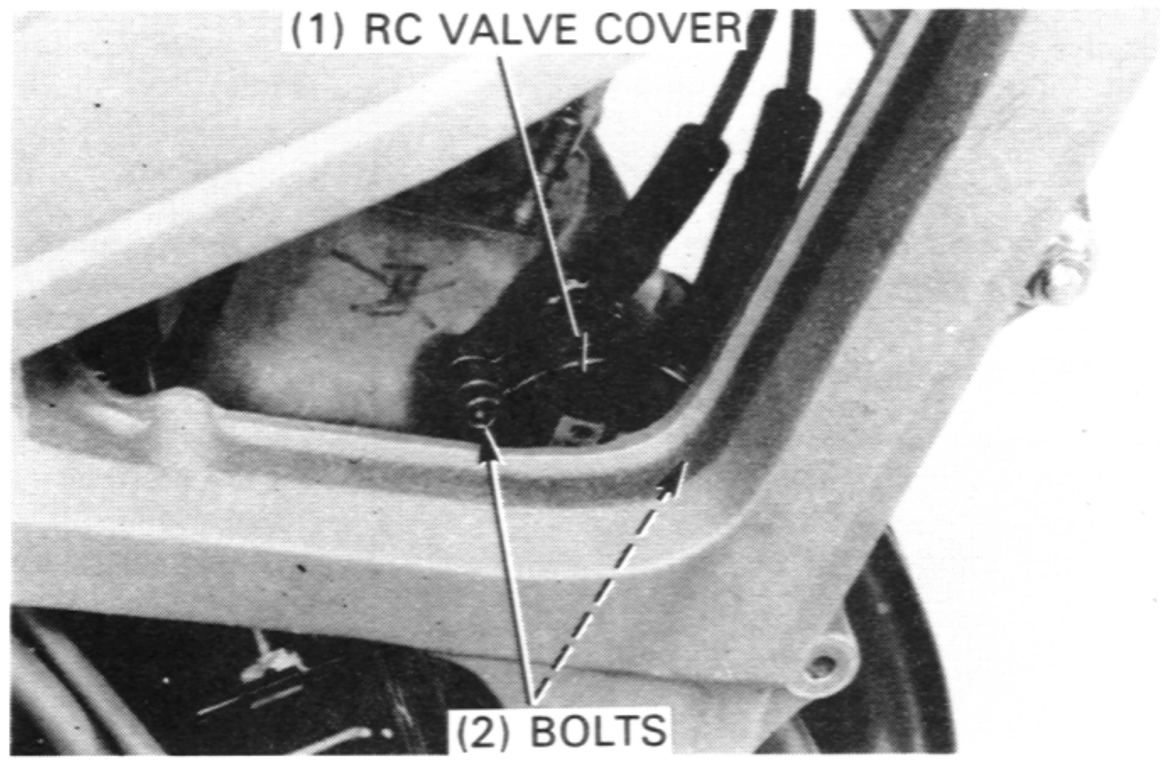
Align the timing notch on the cable guide base with the H mark on the valve timing pulley by turning the adjuster, holding the outer tube to prevent it from being twisted.
Tighten the lock nut securely.

Remove the screw locked the valve servomotor pulley.

To sung the cables, turn the timing pulley 5° to 10° several times and make sure the timing notch on the cable guide base aligns with the H mark on the timing pulley when the tab on the servomotor pulley aligns with the arrow on the motor cover.
If not so, readjust the valve timing.
Check the valves for proper operation (page 3-14).

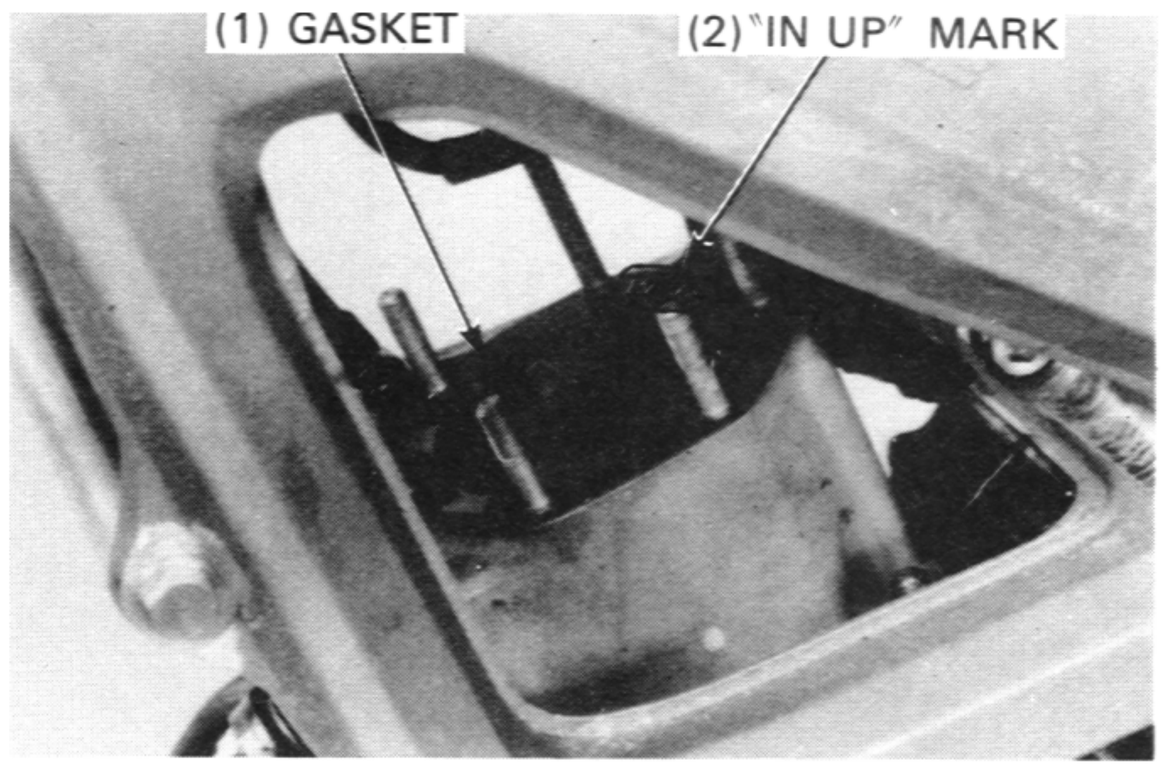


Install the RC valve cover and secure it with the two bolts.

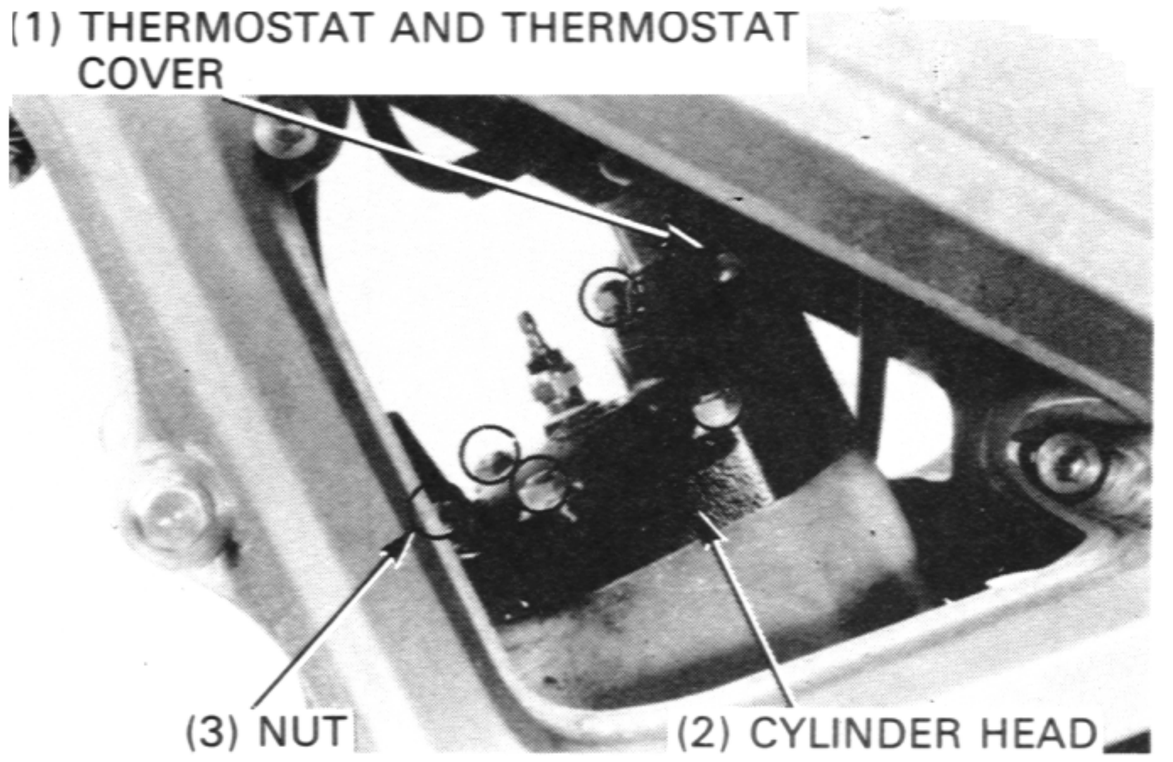


CYINDER HEAD INSTALLATION

Install a new cylinder head gasket with the "IN UP" mark facing intake side and up.



Install the cylinder head, thermostat and thermostat cover, and tighten the cylinder head nuts in a crisscross pattern in several steps.



Rear caliper hanger pin	18 N·m (1.8 kg-m, 13ft-lb)
Rear caliper hanger pin plug	25 N·m (2.5 kg-m, 18 ft-lb)

TOOL	
Snap ring pliers	07914-3230001

TROUBLESHOOTING

Brake lever soft or spongy
- Air bubbles in hydraulic system
- Low fluid level
- Hydraulic system leaking

Brake lever too hard
- Sticking piston(s)
- Clogged hydraulic system
- Pads glazed or excessively worn

Brake drag
- Hydraulic system sticking
- Sticking piston(s)

Brakes grab or pull to one side
- Pads contaminated
- Disc of wheel misaligned

Brake chatter squeal
- Pads contaminated
- Excessive disc runout
- Caliper installed incorrectly
- Disc or wheel misaligned

SERVICE INFORMATION

GENERAL

⚠ WARNING

- *The battery gives off explosive gases; keep sparks, flames and cigarettes away. Provide adequate ventilation when charging.*
- *The battery contains sulfuric acid (electrolyte). Contact with skin or eyes may cause severe burns. Wear protective clothing and a face shield.*
  - *If electrolyte gets on your skin, flush with water.*
  - *If electrolyte gets in your eyes, flush with water for at least 15 minutes and call a physician.*
- *Electrolyte is poisonous.*
  - *If swallowed, drink large quantities of water or milk and allow with milk of magnesia or vegetable oil and call a physician.*
- *If the engine must be running to do some work, make sure the area is well ventilated. Never run the engine in an enclosed area. The exhaust contains poisonous carbon monoxide gas that can cause loss of conciousness and may lead to death.*

- The folowing color codes are used throughout the electrical sections.

Bu = Blue	G = Green	Lg = Light Green	R = Red
Bl = Black	Gr = Gray	O = Orange	W = White
Br = Brown	Lb = Light Blue	P = Pink	Y = Yellow

- Slow charge the battery whenever possible, quick charging should be an emergency procedure only.
- Remove the battery from the motorcycle for charging.
- The bettery on this motorcycle is a sealed type. Do not try to remove the filler hole caps even during charging. Do not use a non-sealed battery as a replacement.
- All charging system components can be checked on the motorcycle.
- When inspecting the charging system, check the system components and lines step-by-step according to the troubleshooting sequence on the next page.
- Alternator removal is described in section 9.

SPECIFICATIONS

ITEM			STANDARD NSR 125 F	STANDARD NSR 125 R
Battery	Capacity		12V - 4Ah	←
	Voltage at 20°C (68°F)	Fully charged	13.1V	←
		Needs charging	Below 12,8V	←
	Charging current		0,4 amperes	←
	Charging time		5-10 Hr	←
Regulator/ rectifier	Type		Single phase/full-wave battery voltage detected type	Three-phase/full wave battery voltage detected type
	Regulated voltage/ampere		13.5-15.5V/2,5A at 5,000 min^{-1} (rpm)	←—
Alternator	Capacity		0.168 KW/5,000 min^{-1} (rpm)	0.276 kW/5,000 min^{-1} (rpm)
	Charging coil resistance		0.3-0.7Ω (at 20°C/68°F)	0.2-0.6Ω (at 20°C/68°F)

TOOLS

Digital mutitester (KOWA)	07411-0020000
Circuit tester (SANWA)	07308-0020001
or	
Circuit tester (KOWA)	TH-5H

TROUBLESHOOTING

Battery overcharged

- Loose or poorly connected BI terminal of the regulator rectifier 5P Connector
- Open circuit in BI wire
- Faulty regulator/rectifier

Battery undercharged

Inspect the battery using guidelines begining on page 15-3. Substitute a fully charged battery if necessary.

↓

Perform the leakage test (page 15-4).

ABOVE 1 mA LEAKAGE → • Short circuit in related wire harness
• Faulaty battery

↓ UNDER 1 mA LEAKAGE

Start the engine and check the regulated voltage and ampere (page 15-4).

NORMAL → • Faulty battery

↓ LOW VOLTAGE (SAME AS BATTERY VOLTAGE)

Disconnect the regulator/rectifier 5P connector and check the charging coil resistance (page 15-5).

ABNORMAL → Check the alternator charging coil by itself (page 15-6).

- NORMAL → • Open circuit in Pink or Yellow wire harnesses • Loose or poor contact of related connector
- ABNORMAL → • Faulty alternator (charging coil)

NORMAL

Using regulator/rectifier 5P connector, measure voltage (page 15-5).

NO VOLTAGE → • Loose or poor contact of related connectors • Open circuit in Black or Red wire harnesses

↓ BATTERY VOLTAGE COMES

Check the regulator/rectifier by itself (page 15-5).

↓ ABNORMAL

→ • Faulty regulator/rectifier

SERVICE INFORMATION

⚠ WARNING

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

GENERAL

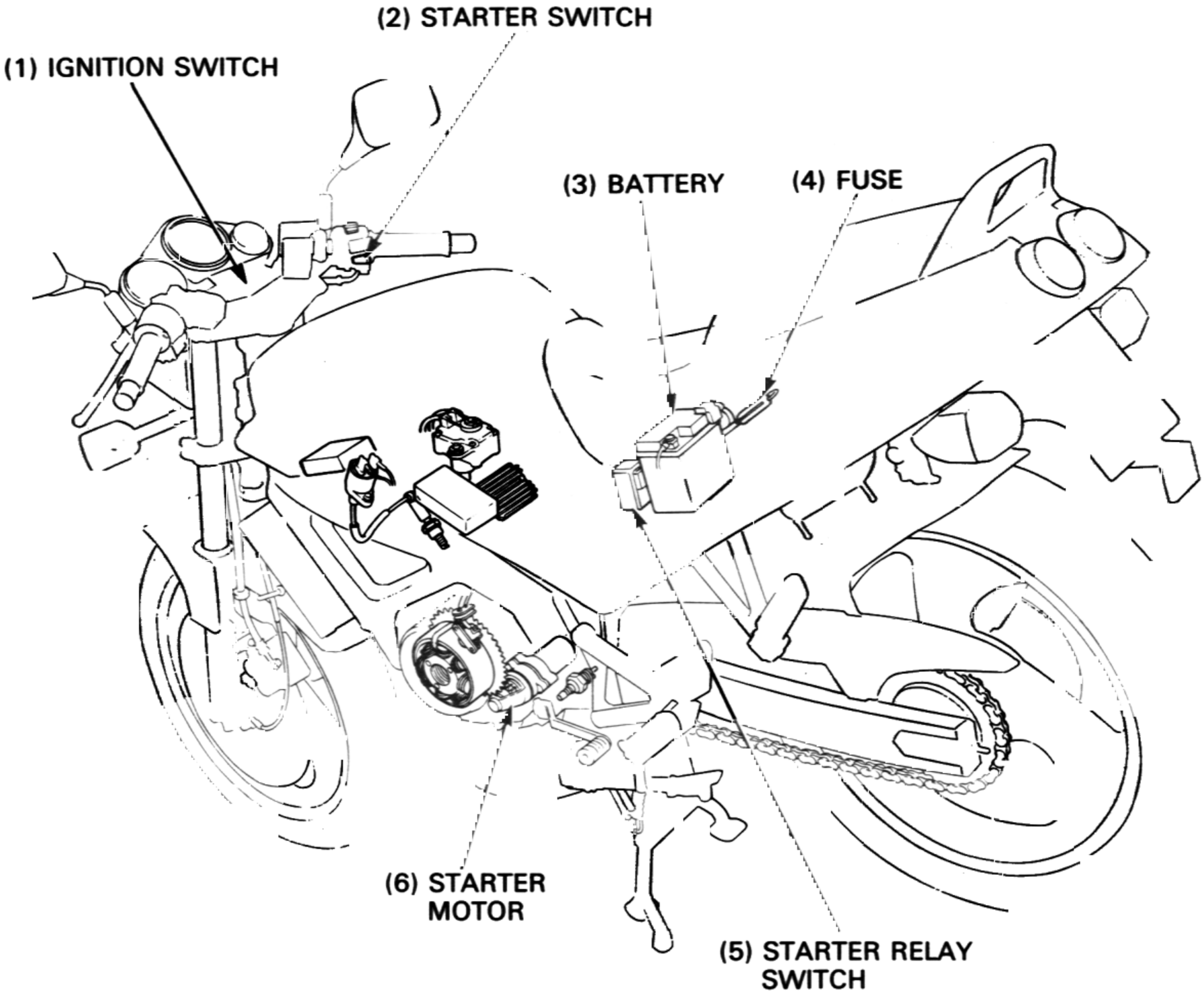
- Ignition timing does not normally need to be adjusted since the CDI (Capacitive Discharge Ignition) unit is factory Preset.
- For spark plug inspection, refer to page 3-6.
- For alternator or pluse generator removal/installation, see section 9.
- When inspecting the ignition system, check the system components and lines step-by-step according to the trouble-shooting sequence on the next page.

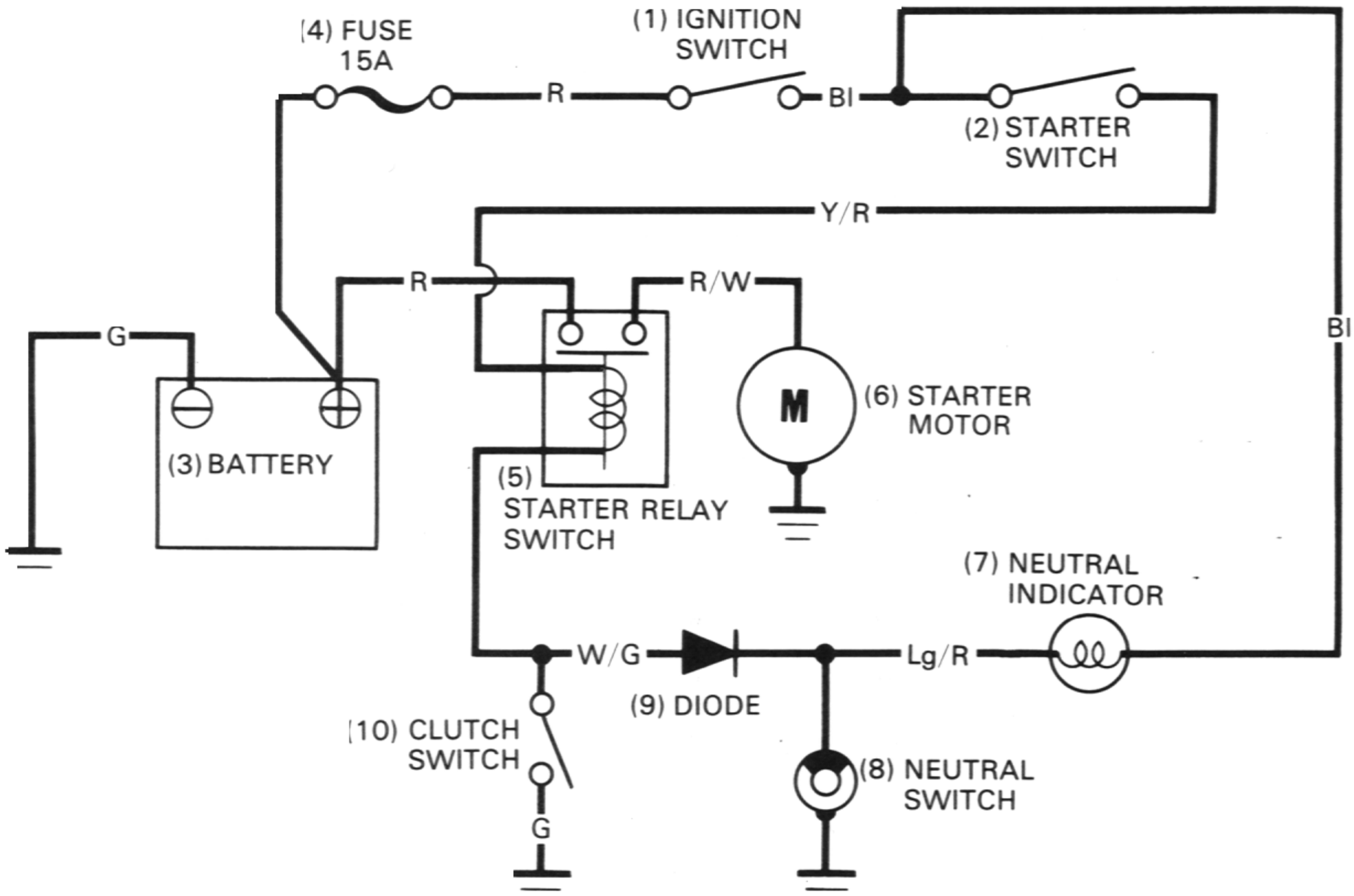
SPECIFICATIONS

ITEM			STANDARD
Spark plug	Standard		BR9ECS (NGK) W27ESR-U (ND)
	For extended high speed riding		BR10ES (NGK) W31ESR-U (ND)
Spark plug gap			0.7-0.8 mm (0.028-0.031 in)
Ignition timing	F mark		24,3° ± 2 BTDC at 3,000 min^{-1} (rpm)
Ignition coil (20°C/68°F)	Primary coil resistance		0.1-0.3Ω
	Secondary coil resistance	(Without spark plug cap)	2.7-3.5 KΩ
		(With spark plug cap)	6.5-9.7 KΩ
Pulse generator resistance (20°C/68°F)			180-280Ω
Alternator excitar coil resistance (20°C/68°F)			95-155Ω (F-Type) 80-180Ω (R-Type)

TOOLS

Digital multitester	07411-0020000
or	
Circuit tester (SANWA)	07308-0020001
Circuit tester (KOWA)	TH-5H


(2) STARTER SWITCH
(1) IGNITION SWITCH
(3) BATTERY
(4) FUSE
(6) STARTER MOTOR
(5) STARTER RELAY SWITCH


(4) FUSE 15A
(1) IGNITION SWITCH
R
Bl
(2) STARTER SWITCH
Y/R
R
R/W
G
(3) BATTERY
(5) STARTER RELAY SWITCH
M
(6) STARTER MOTOR
Bl
(7) NEUTRAL INDICATOR
W/G
Lg/R
(9) DIODE
(10) CLUTCH SWITCH
G
(8) NEUTRAL SWITCH

17

SERVICE INFORMATION

GENERAL

- The starter motor can be removed with the engine in the frame.
- When inspecting the starter system, check the system components and lines step-by-step according to the trouble-shooting sequence on the next page.

SPECIFICATIONS

ITEM	STANDARD	SERVICE LIMIT
Starter motor brush length	9 mm (0.4in)	4 mm (0.2 in)

TROUBLESHOOTING

NOTE

The starter motor could turn when the transmission is in neutral or the clutch disengaged.
Check the following items before troubleshooting the system:
– Burned fuse (15A).
– Battery and starter motor cables for loose connection.
– Battery discharged.

Starter motor do not turn in neutral position

Check the starter relay switch for operation. You should hear the relay 'CLICK' when the starter swich buttorn is depressed.

'CLICK' HEARD → Apply battery voltage to the starter motor directly and check the operation.

- TURN
  - Loose or poor contact cable
  - Faulty starter relay switch (page 17-8)
- DO NOT TURN
  - Faulty starter motor (page 17-4).

'CKICK' NOT HEARD → Check the neutral indicator for function.

- ABNORMAL
  - Faulty neutral switch (page 18-9)
  - Loose or poor contact connector of the neutral swich
  - Faulty ignition switch (page 18-5)
  - Neutral indicator bulb burned
- NORMAL → Check the starter relay switch for continuity (page 17-8)
  - ABNORMAL → Faulty starter relay switch
  - NORMAL
    - Loose or poor contact connector of the clutch diode
    - Faulty starter switch (page 18-8)
    - Faulty clutch diode (page 17-9)
    - Open or short circuit in wire harness
    - Loose or poor contact conector of the starter relay switch

Starter motor does not turn even if the clutch lever is depressed with the transmission in gear.
- Faulty clutch switch (page 18-8)
- Loose or poor contact of white/Green or Green wire connectors
- Open circuit in white/Green or Green wire harness

Starter motor turns engine slowly
- Weak battery
- Excessive resistance in circuit
- Binding in starter motor

Starter motor and engine turn, but engine does not start
- Faulty ignition system (see section 16)
- Engine problems (see section 3)
  – Low compression
  – Fould spark plug

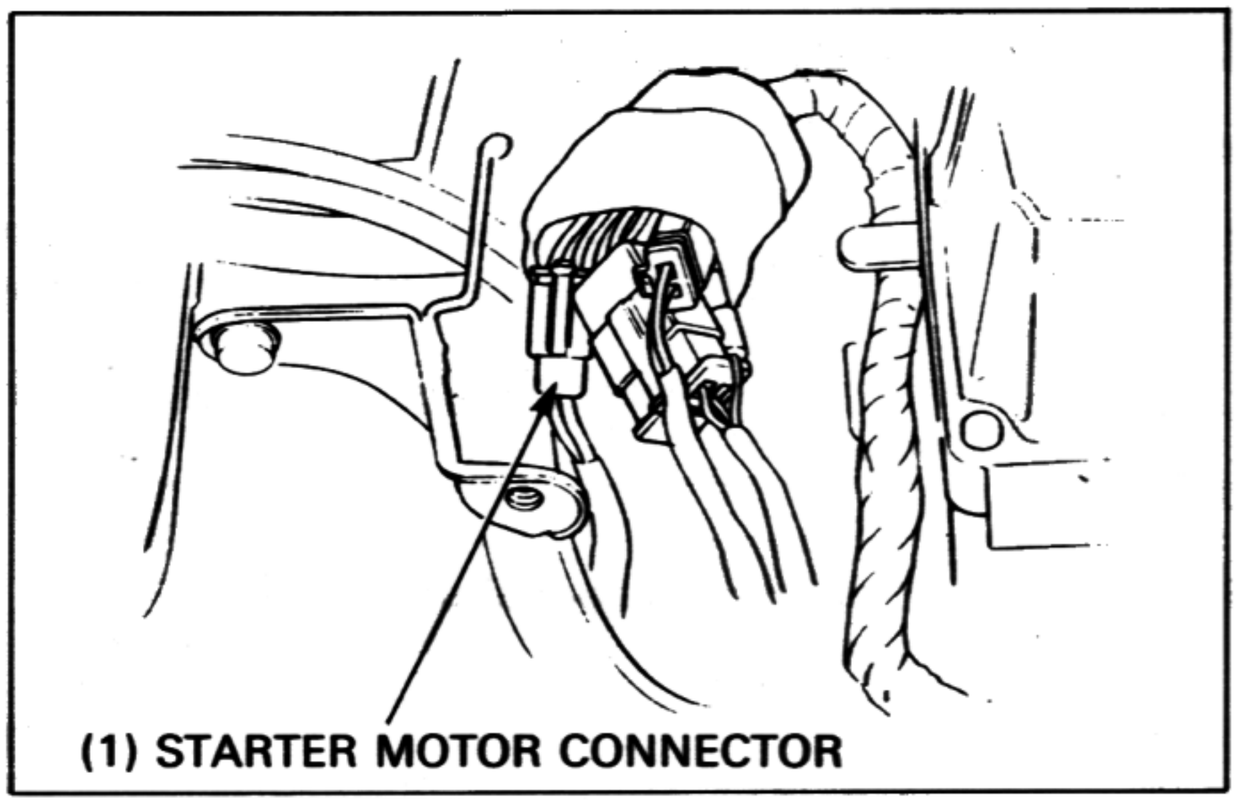
STARTER MOTOR

REMOVAL

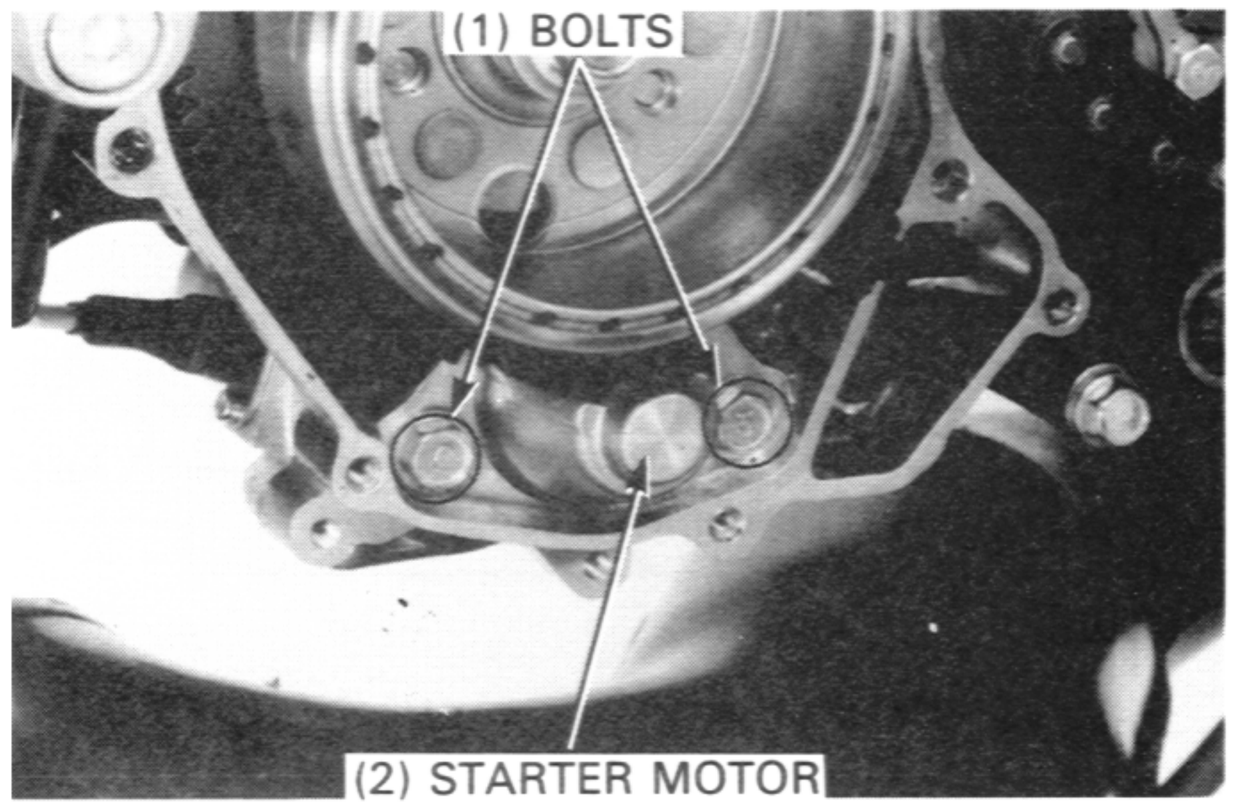
⚠ WARNING

With the ignition switch OFF, remove the negative cable at the battery before servicing the starter motor.

Remove the fuel tank (page 4-3).
Put the rubber cover off and disconnect the starter motor connector.

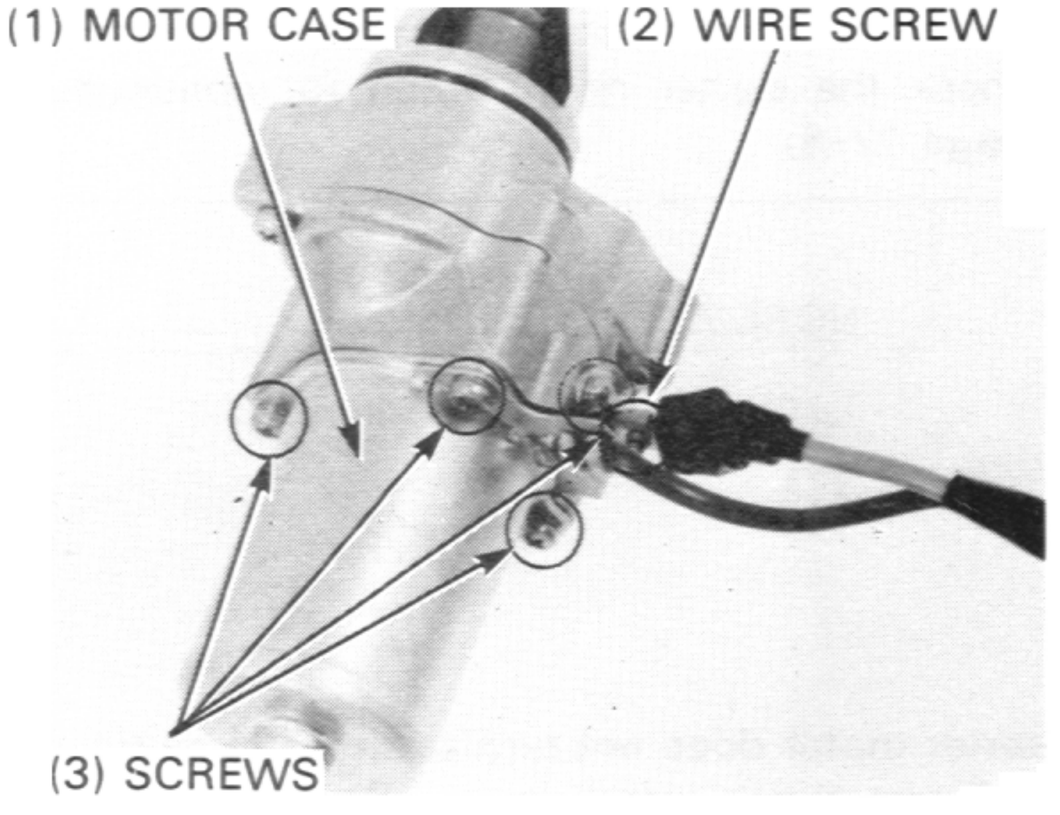


Remove the left crankcase cover (page 9-2) and remove the two bolts and starter moter from the left crankcase.



DISASSEMBLY

Remove the three screws and starter motor case.
Disconnect the starter motor wire by removing the wire screw.

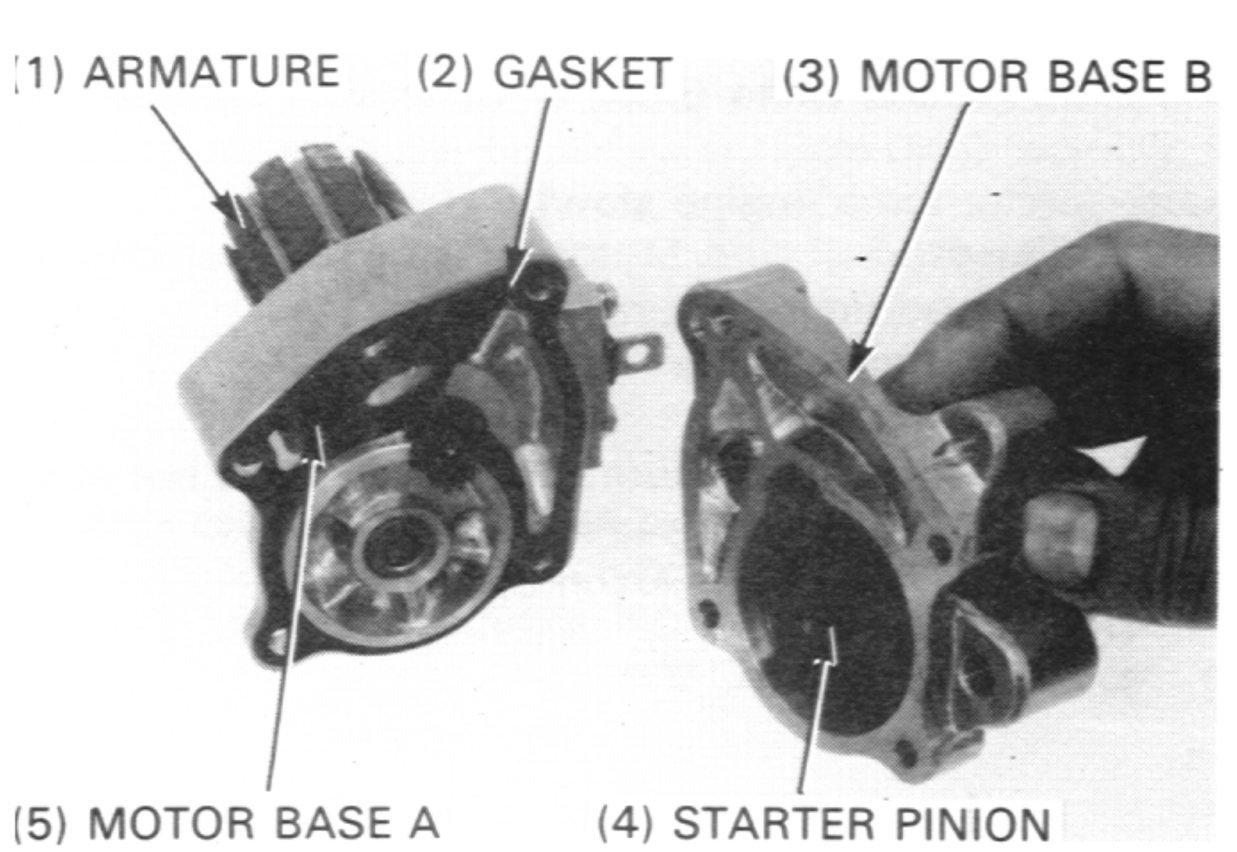


Remove the armature and gasket from the starter motor base A.

NOTE

- When removing the armature, be careful to prevent the motor brush springs from jumping out.

Remove the starter pinion from the starter motor base B.



SERVICE INFORMATION

GEANERAL

- All plastic components have locking tabs that must be released before disconnecting.
- To isolate an electrical failure, check the continuity of the electrical path through the part. A continuity check can usually be made without removing from the motorcycle. Simply disconnect the wires and connect the continuity tester or volt-ohmmeter to the terminals or connectors.
- A continuity tester is useful when checking to find out whether or not there is an electrical connection between the two points. An ohmmeter is needed to measure the resistance of a circuit, such as when there is a specific coil resistace involved, or when checking for high resistance caused by corroded connections.

SPECIFICATIONS

	F-Type	R-Type
Headlight	12V 35/35W	12V 25/25W x 2
Brake and taillight	12V 21/5W	12V 5W x 2
Instrument illumination	12V 1.7W x 4	←
Turn signal light	12V 10W x 4	←
Position light	12v 5W	←
Neutral indicator	12V 3W	←
Turn signal indicator	12V 3W x 2	←
Hi-beam indicator	12V 1.7W	←
Fuse	15A	←

TORQUE VALUES

Ignition switch bolt — 10 N·m (1.0 kg-m, 7ft-lb) apply a locking agent to the threads

TROUBLESHOOTING

No lights come on when ignition switchis turned on:
- Bulb at fault or burned out
- Faulty switch
- Fuse blown
- Wiring loose, broken, or at fault
- Battery dead or disconnected

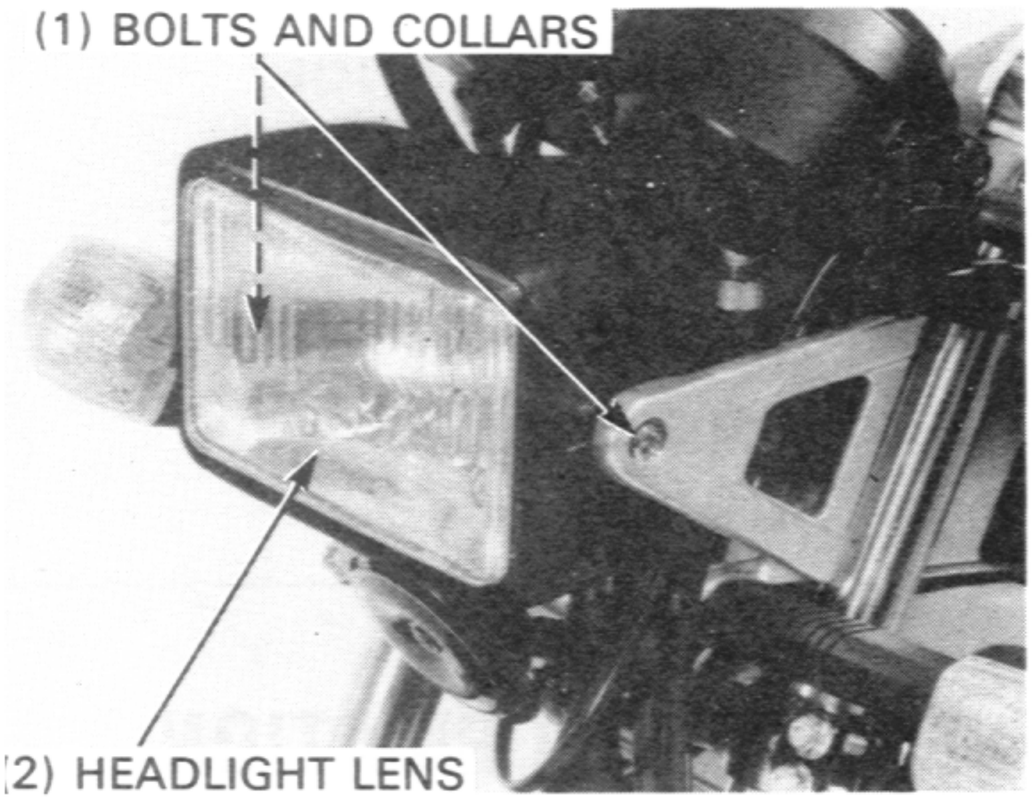
All lights come on, but dimly, when ignition switch is turned on:
- Battery voltage low
- Wiring or switch has exessive resistance

Headlight beam does not shift when HI-LO switch is operated:
- Beam filament burned out
- Faulty dimmer switch
- Wiring loose, broken or at fault

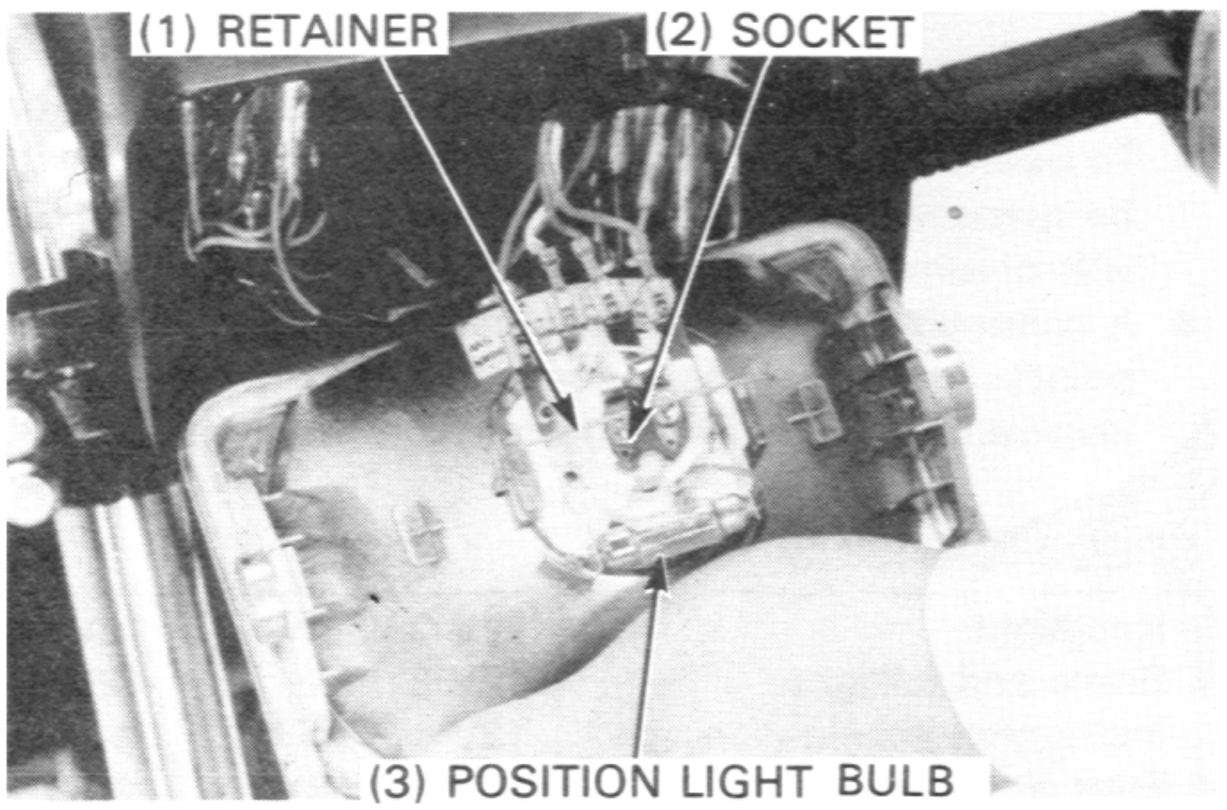
HEADLIGHT

BULB REPLACEMENT

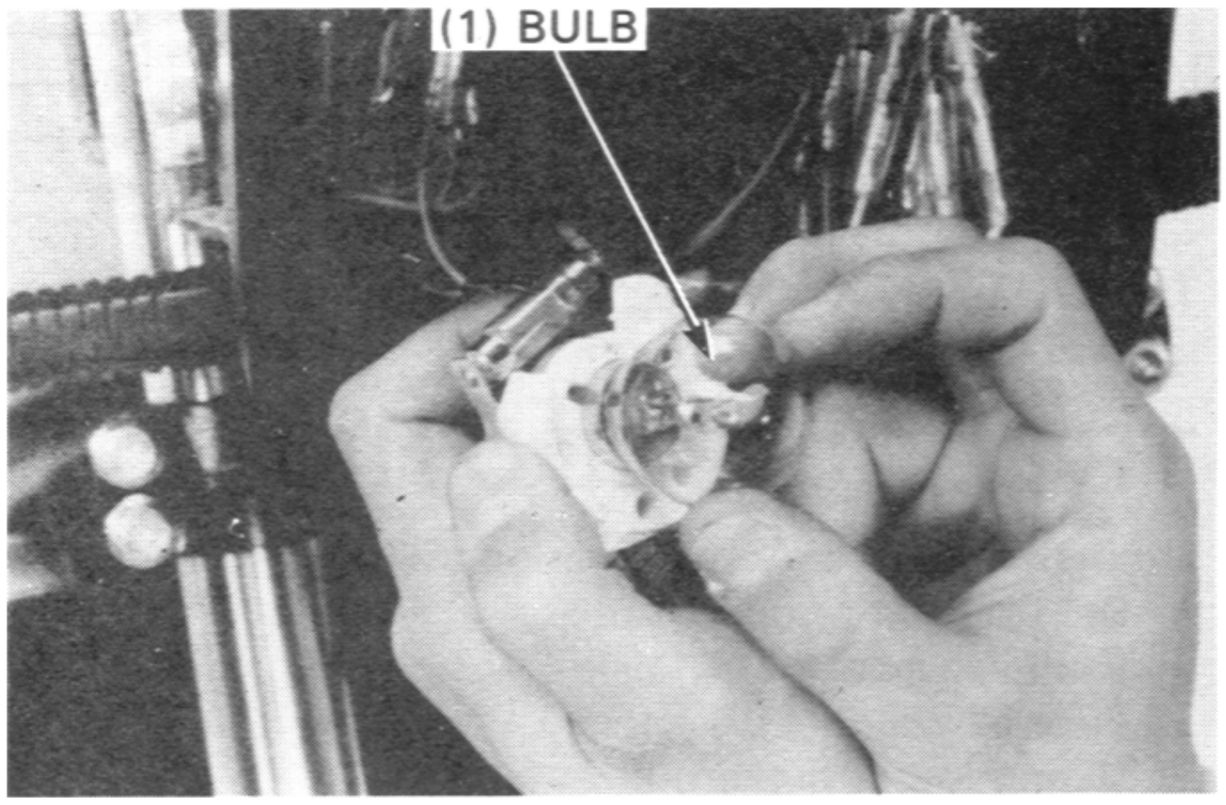
Remove the bolts, collars and headlight lens from the headlight case.



Release the bulb socket retainer and remove the socket from the headlight lens.
Replace the position light bulb if necessary.



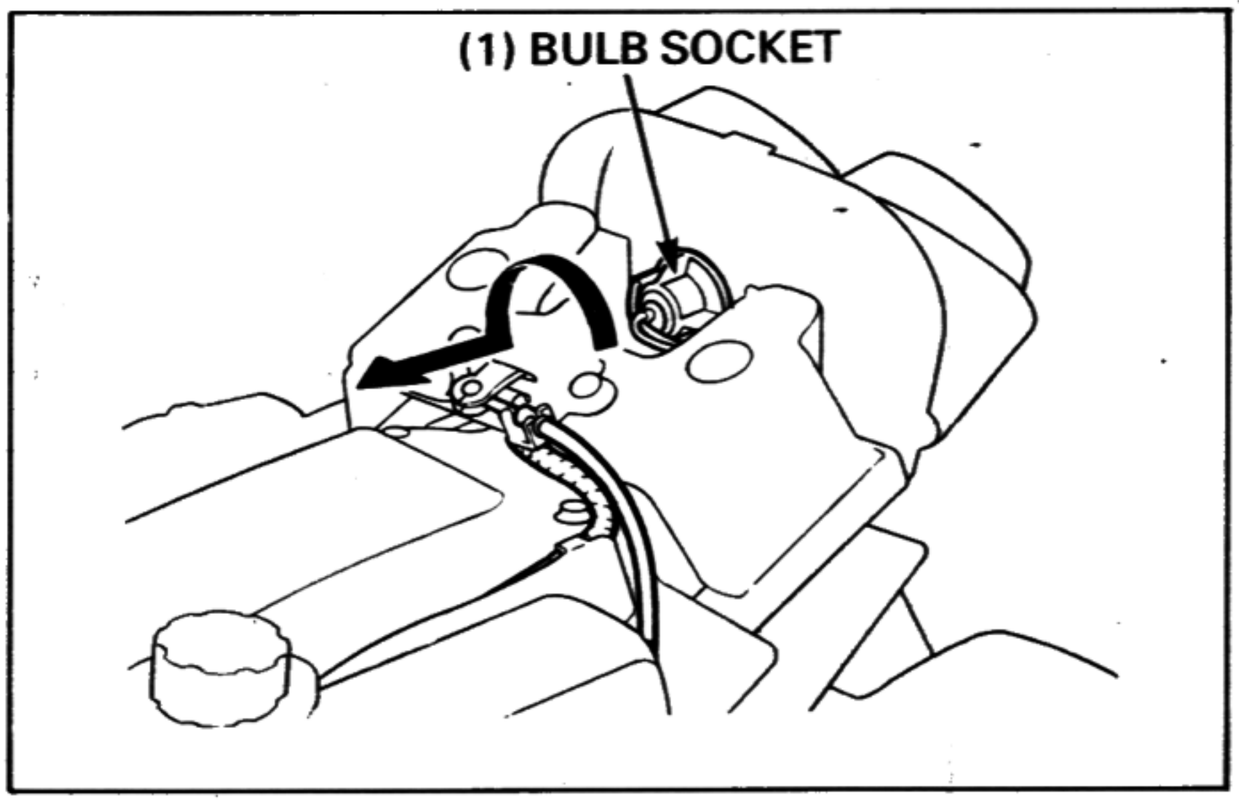
Remove the bulb by pushing in and turning it counterclockwise.
Install a new bulb in the reverse order of removal.
Install the removed parts in the reverse order of removal.



BRAKE AND TAILLIGHT

BULB REPLCACEMTNT

Remove the seat and brake/taillight socket by turning it counterclockwise.
Replace the bulb with a new one in the reverse order of removal.
Install the seat.



SERVICE INFORMATION

GENERAL

⚠ WARNING

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

- Refer to page 3-14 for the RC valve cable adjustment.
- when inspecting the servomotor, check the servomotor and servomotor lines step-by-step according to the trouble-shooting sequence on the next page.

TROUBLESHOOTING

Engine durned, emits excessive smoke or lacks of power.

Check the RC valve control unit and servo motor for operation (page 19-3).
- ABNORMAL → • Faulty RC valves
  • The RC valve control cables are adjusted incorrectly
  • Faulty RC valve control cable

NORMAL ↓

Check the RC valve control unit connectors for loose or poor contact and check that continuity exists between the White/red terminals of the CDI unit 4p connector and control unit 3p connector.
Make sure battery voltage comes when the ignition switch "ON" (page 19-3).
- ABNORMAL → • Short circuit in related wire harness
  • Loose or poor contact of related connector

NORMAL ↓

Check the servomotor gears for damage (page 19-4).
- DAMAGED → • Faulty servomotor gears (replace the servemotor as an assembly (page 19-5).

NORMAL ↓

Check the sevomotor by itself (page 19-4).
- ABNORMAL → • Faulty servomotor

NORMAL ↓

Check the servomotor variable resistance (page 19-5).
- ABNORMAL → • Faulty variable resister (replace the servomotor with a new one) (page 19-5).

NORMAL ↓

Check the CDI unit 4P connector for loose or poor contact.
Measure the resistance between the probes
(W/R and L/Y) (page 19-5)
- ABNORMAL → Faulty CDI unit

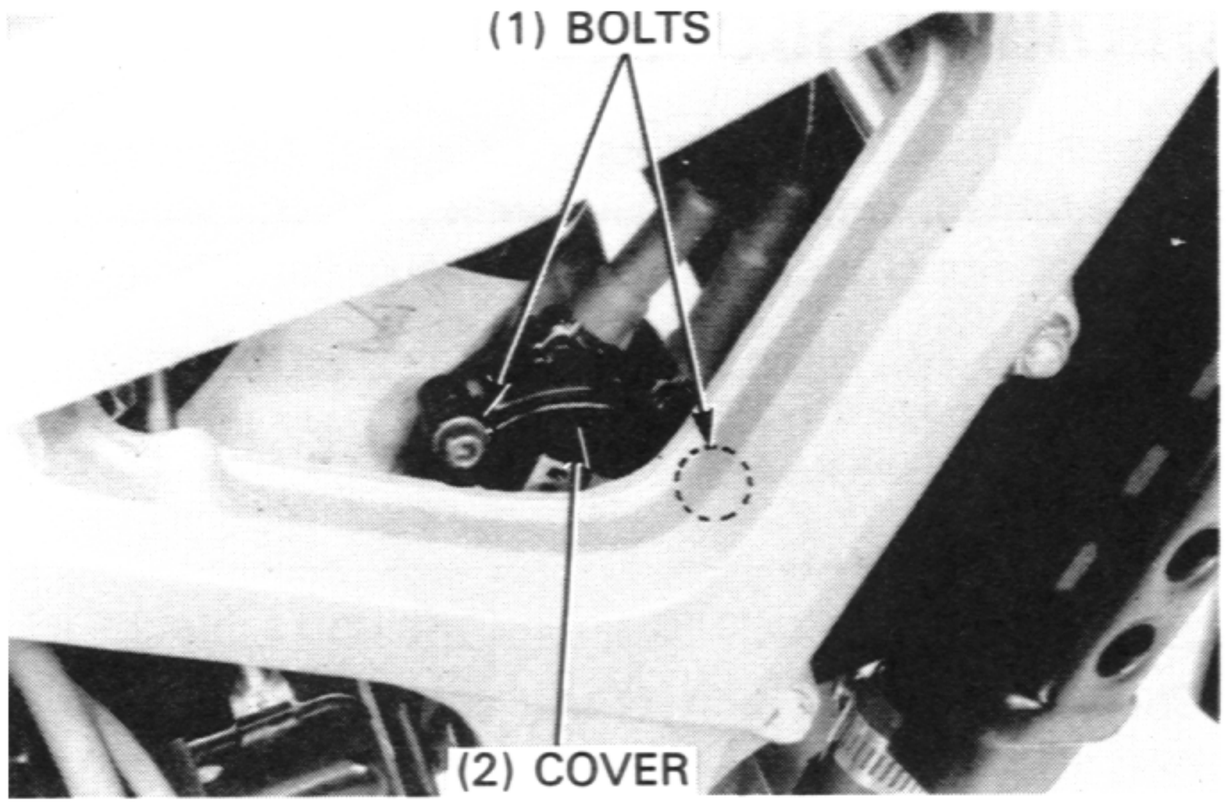
NORMAL ↓

Faulty servomotor control unit.
Replace the servomotor control unit with a new one (page 19-5).

SERVOMOTOR

RC VALVE OPERATION INSPECTION

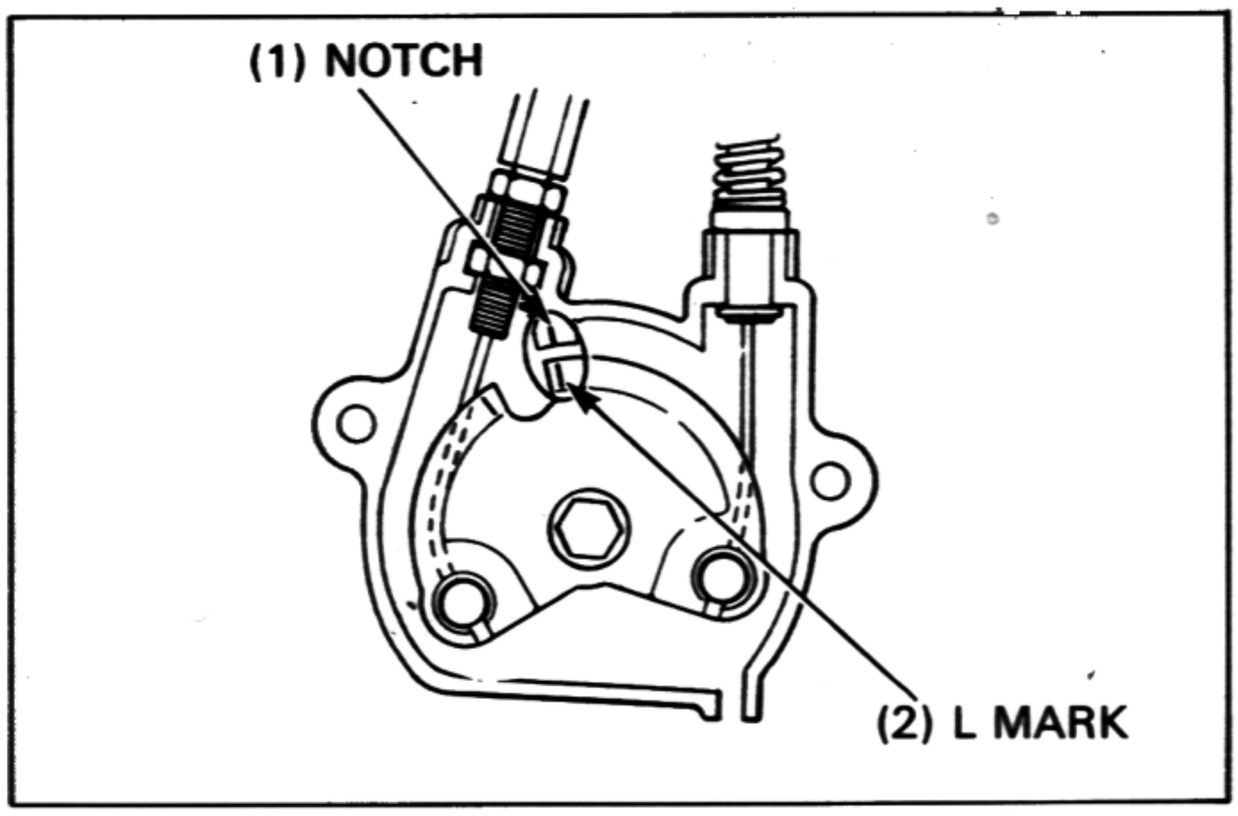
Before performing this inspection, adjust the RC valve control cables (page 3-14).
Remove the rear attaching bolt and loosen the front attaching bolt and remove the RC valve shaft plate cover.

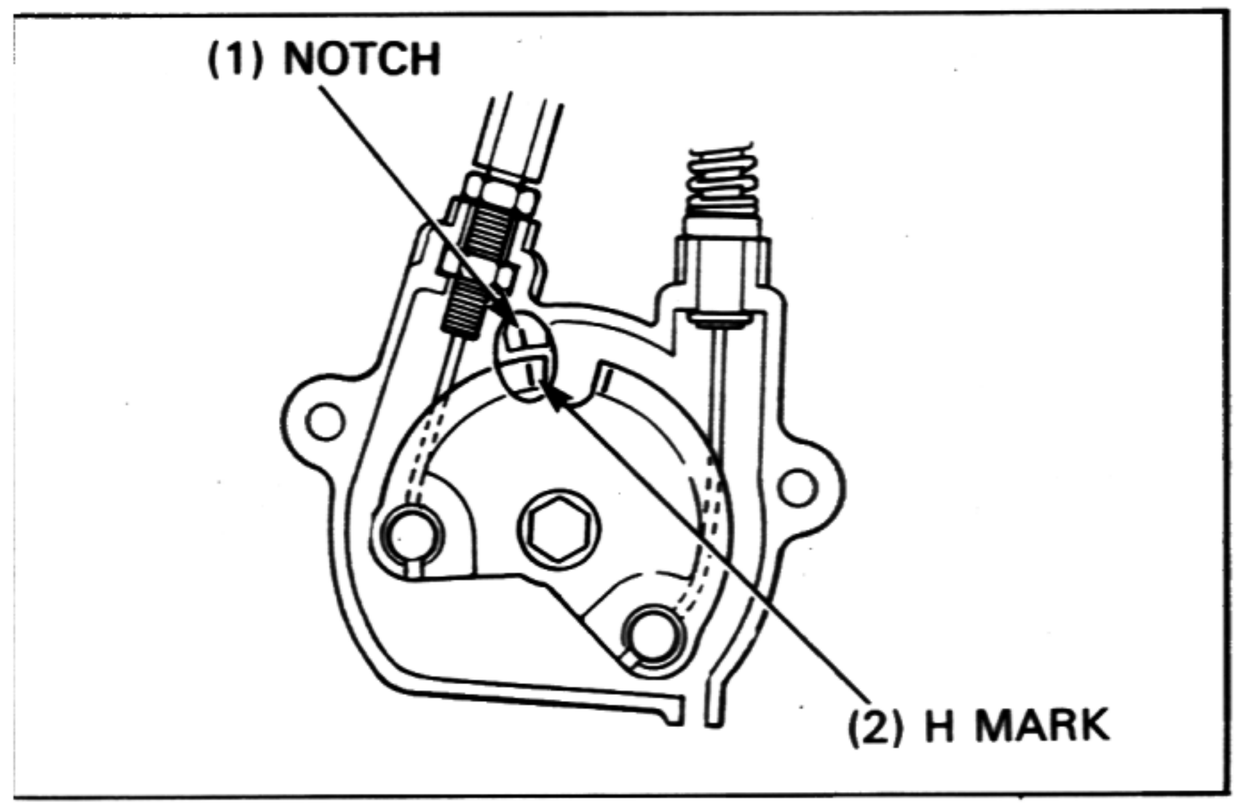


Make sure that the notch on the cable guide base aligns with the L make on the valve shaft plate within the error of 0.3 mm (0.1 in) when turning the ignition switch "ON".

Start the engine and check that the notch on the cable guide base aligns with the the H mark on the valve shaft plate within the error of 0.3 mm (0.1 in).
Gradually raise the engine rpm up to 2,700 min^{-1} (rpm) and check that the notch on the cable guide base aligns with the L mark on the valve shaft plate within the error of 0.3 mm (0.01 in).

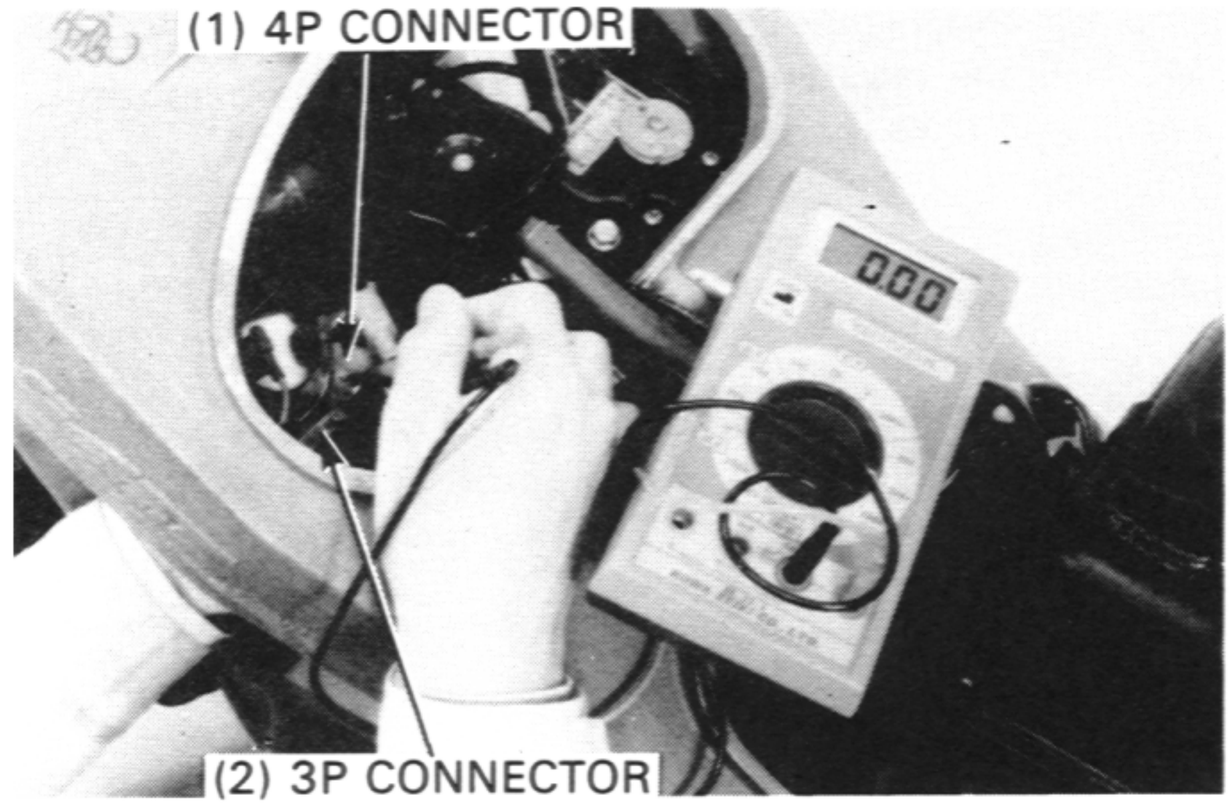
Gradually raise the engine speed further and check that the L mark on the valve shaft plate begins to turn clockwise away from the notch on the cable guide base at 6,800 min^{-1} (rpm) then the H mark on the valve guide plate aligns with the notch on the cable guide base at 8,500 min^{-1} (rpm).





SERVOMOTOR INSPECTION

Remove the fuel tank (page 4-3).
Check the RC valve 3p connector for loose or poor contact and disconnect the connector, then check the terminals of the connector for corrode.
Disconnect the CDI unit 4p connector and check that continuity exist between the White/Red terminals of thé 3p and 4p connectors.
Connect the CDI unit 4p connector.



POOR PERFORMANCE AT IDEL AND LOW SPEED

		PROBABLE CAUSE
1 Try spark test	WEAK OR INTERMITTENT SPARK →	• GO TO PAGE 15-2
GOOD SPARK ↓		
2. Check carburetor pilot screw adjustment	INCORRECT →	• Improperly adjusted pilot screw
CORRECT ↓		
3. Check if air is leaking past carburetor insulator	LEAKING →	• Deteriorated insulator O-ring • Loose carburetor • Faulty gasket
NOT LEAKING ↓		
4. Test cylinder compression	LOW COMPRESSION →	• Stuck piston rings • Faulty reed valve • Leak crankcase • Worn cylinder and piston rings • Blown cylinder head gasket • Faulty crankshaft oil seal • Flaw in cylinder and cylinder head
COMPRESSION NORMAL ↓		
5. Check ignition timing	INCORRECT →	• GO TO PAGE 16-2
CORRECT		• Clogged carburetor

POOR HIGH SPEED PERFORMANCE

		PROBABLE CAUSE
1 Check ignition timing	INCORRECT →	• GO TO PAGE 15-2
CORRECT ↓		
2. Remove spark plug and check condition	DISCOLORED OR DIRTY-	• Spark plug not serviced frequently enough • Spark plug with incorrect heat range • Rich or lean air/fuel mixture • Clogged air cleaner • Clogged fuel line • Air coming in through insulator • Clogged carburetor • Clogged fuel tank cap beather bole
NORMAL ↓		
3. Check for slipping clutch	CLUTCH SLIPS-	• Weak clutch springs • Worn clutch disc/plates • Warped clutch disc/plate • Clutch cable misadiusted • Faulty clutch lifter system
NORMAL ↓		
4. Check carburetor jets for clogging	CLOGGED — (Clean them)	• Air cleaner dirty • Faulty air cleaner • Loose carburetor
	NORMAL →	Go to "ENGINE LACKS POWER" (page 21-2)