Official

HONDA

SHOP MANUAL

NH80 aero80

'85

IMPORTANT SAFETY NOTICE

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

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

NOTE: Gives helpful information.

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

1. GENERAL INFORMATION

GENERAL SAFETY

WARNING

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

WARNING

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

WARNING

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

WARNING

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

SERVICE RULES

1. Use genuine HONDA or HONDA-recommended parts and lubricants or their equivalents. Parts that do not meet HONDA's design specifications may damage the scooter.
2. Use the special tools designed for this product.
3. Use only metric tools when servicing this scooter. Metric bolts, nuts, and screws are not interchangeable with English fasteners. The use of incorrect tools and fasteners may damage the scooter.
4. Install new gaskets, O-rings, cotter pins, lock plates, etc. when reassembling.
5. When tightening bolts or nuts, begin with larger-diameter or inner bolts first, and tighten to the specified torque diagonally in 2—3 steps, unless a particular sequence is specified.
6. Clean parts in non-flammable or high flash point solvent upon disassembly. Lubricate any sliding surfaces before reassembly.
7. After reassembly, check all parts for proper installation and operation.
8. Route all electrical wires as shown on page 1-7 Cable and Harness Routing and always away from sharp edges and areas where they might be pinched between moving parts.

HOW TO USE THIS MANUAL

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

Sections 1 through 3 apply to the whole motor scooter, while sections 4 through 14 describe parts of the scooter, grouped according to location.

Find the section you want on this page, then turn to the table of contents on page 1 of that section.

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

If you don't know what the source of the trouble is, refer to section 16, Troubleshooting.

HONDA MOTOR CO., LTD.
Service Publications Office

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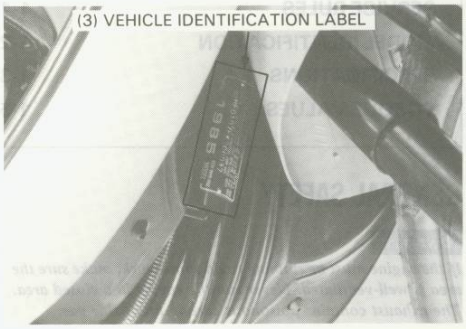
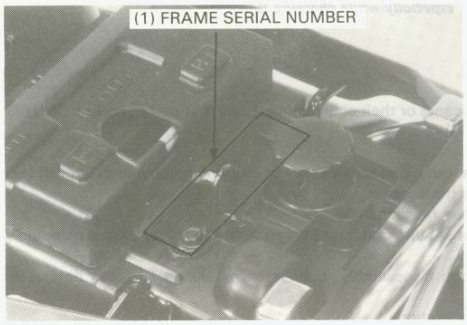
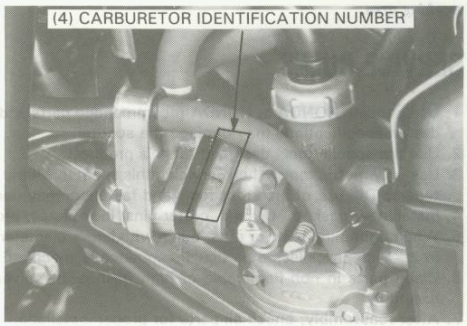
MODEL IDENTIFICATION



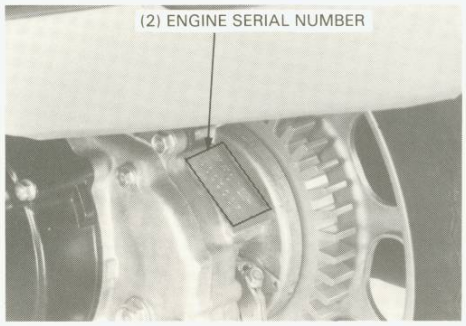
The vehicle identification number is on the frame pipe beneath the front cover.



The frame serial number is on the frame body under the seat.



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



The engine serial number is stamped on the back of the crankcase near the rear wheel.

The color label is attached to the left side of the fuel tank, under the seat.

SPECIFICATIONS

ITEM				SPECIFICATIONS
DIMENSIONS	Overall length			1,715 mm (67.5 in)
	Overall width			680 mm (26.7 in)
	Overall height			1,050 mm (41.3 in)
	Wheelbase			1,185 mm (46.6 in)
	Seat height			745 mm (29.3 in)
	Foot peg height			270 mm (10.6 in)
	Ground clearance			110 mm (4.3 in)
	Dry weight			77 kg (170.0 lb)
	Curb weight			82 kg (180.8 lb)
FRAME	Type			Back bone
	Front suspension, travel			Bottom link, 73 mm (2.9 in)
	Rear suspension, travel			Engine/Final drive unit swing arm, 78 mm (3.1 in)
	Gross vehicle weight rating			234 kg (520 lb)
	Vehicle capacity load			152 kg (335 lb)
	Front tire size			3.50—10—4PR
	Rear tire size			3.50—10—4PR
	Cold tire pressure	Up to 90 kg (200 lbs) load	Front	150 kPa (1.5 kg/cm², 21 psi)
			Rear	175 kPa (1.75 kg/cm², 24 psi)
		Up to vehicle capacity load	Front	150 kPa (1.5 kg/cm², 21 psi)
			Rear	225 kPa (2.25 kg/cm², 32 psi)
	Front brake, lining swept area			Internal expanding shoe, 86 cm² (13.4 sq in)
	Rear brake, lining swept area			Internal expanding shoe, 60 cm² (9.3 sq in)
	Fuel capacity			4.8 liter (1.2 US gal, 1.1 Imp gal)
	Caster			27° 30′
	Trail			74.0 mm (2.9 in)
ENGINE	Type			Air cooled 2-stroke
	Cylinder arrangement			Single cylinder 15° inclined from vertical
	Bore and stroke			48 x 44 mm (1.89 x 1.73 in)
	Displacement			80 cm³ (4.88 cu in)
	Compression ratio			6.8 : 1
	Transmission oil capacity			0.09 liter (3.0 US oz, 3.2 Imp oz)
	Oil tank capacity			1.2 liter (1.27 US qt, 1.06 Imp qt)
	Lubrication system			Lubricated by mixing oil with fuel
	Air filtration			Oiled urethane foam
	Cylinder compression			1,000—1,400 kPa (10.0—14.0 kg/cm², 142—200 psi)
	Port timing	Intake	Open	Reed valve controlled
			Close	Reed valve controlled
		Exhaust	Open	80° BBDC
			Close	80° ABDC
		Scavenge	Open	55° BBDC
			Close	55° ABDC
	Engine dry weight			17.5 kg (38.58 lb)
	Idle speed			1,800 ± 100 min⁻¹ (rpm)

ITEM		SPECIFICATION	
CARBURETION	Carburetor type, size	Piston valve, 16 mm (0.63 in) venturi dia.	
	Identification number	PB54E	
	Air screw	Refer to page 4-8	
	Float level	8.5 mm (0.33 in)	
DRIVE TRAIN	Clutch type	Automatic dry centrifugal clutch	
	Primary reduction	V-belt	
	Gear ratio	1.07—2.3 : 1	
	Final reduction	7.978 : 1	
ELECTRICAL	Ignition type	C.D.I.	
	Ignition timing "F" mark	18° BTDC at idle	
	Starting system	Starting motor	
	Alternator	12 V—107 W/5,000 min^{-1} (rpm)	
	Battery capacity	12 V—4 AH	
	Spark plug	NGK	ND
	Standard	BPR6HSA	W20FPR-L
	For cold climate (Below 5°C, 41°F)	BPR4HSA	W14FPR-L
	For extended high speed riding	BPR8HSA	W24FPR-L
	Spark plug gap	0.6—0.7 mm (0.024—0.028 in)	
	Fuse capacity	10 A	
LIGHTS	Headlight (High/Low)	12 V—25/25 W	
	Tail/brake light	12 V—2/32 cp	
	Turn signals (Front)	12 V—32 cp	SAE No. 1156
	(Rear)	12 V—32 cp	SAE No. 1156
	Speedometer light	12 V—2 cp	SAE No. 57
	Oil indicator	LED	
	Turn signal indicator	12 V—2 cp	SAE No. 57
	High beam indicator	12 V—2 cp	SAE No. 57

TORQUE VALUES

ENGINE

ITEM	THREAD DIA. mm	TORQUE N·m (kg-m, ft-lb)	REMARKS
Cylinder head bolt	6	8–12 (0.8–1.2, 6–9)	While the engine is cold (below 35°C, 95°F).
Flywheel nut	10	35–40 (3.5–4.0, 25–29)	
Drive pulley nut	10	35–40 (3.5–4.0, 25–29)	
Clutch outer nut	10	35–40 (3.5–4.0, 25–29)	
Driven face and clutch nut	–	35–40 (3.5–4.0, 25–29)	
Intake pipe bolt	6	8–12 (0.8–1.2, 6–9)	
Carburetor bolt	6	9–12 (0.9–1.2, 7–9)	
Crankcase bolt	6	8–12 (0.8–1.2, 6–9)	
Transmission oil drain bolt	6	10–14 (1.0–1.4, 7–10)	
Movable driven face cover bolt	4	2.5–4.0 (0.25–0.40, 2–3)	Apply locking agent
Muffler mouting bolt	8	32–38 (3.2–3.8, 23–28)	

FRAME

ITEM	THREAD DIA. mm	TORQUE N·m (kg-m, ft-lb)	REMARKS
Steering stem nut	–	120–150 (12.0–15.0, 87–108)	
Front axle nut	12	50–70 (5.0–7.0, 36–51)	Self-locking nut
Engine hanger bolt	10	27–33 (2.7–3.3, 20–24)	Self-locking nut
Front brake torque link bolt	8	24–30 (2.4–3.0, 17–22)	
Front brake arm bolt	6	8–12 (0.8–1.2, 6–9)	
Front pivot arm bolt	8	24–30 (2.4–3.0, 17–22)	Self-locking nut
Front shock absorber upper mount bolt	8	20–24 (2.0–2.4, 14–17)	
Front shock absorber lower mount bolt	8	0.8–1.2 (0.08–0.12, 0.6–0.9)	
Front shock absorber lower mount lock nut	8	15–20 (1.5–2.0, 11–14)	
Front shock damper rod lock nut	8	15–25 (1.5–2.5, 11–18)	Apply locking agent
Steering stem lock nut	–	5–13 (0.5–1.3, 4–10)	
Rear shock absorber upper mount bolt	10	30–45 (3.0–4.5, 22–32)	
Rear shock absorber lower mount bolt	8	20–30 (2.0–3.0, 14–22)	
Rear axle nut	14	80–100 (8.0–10.0, 58–72)	
Rear brake arm bolt	5	4–7 (0.4–0.7, 3–5)	
Rear shock damper rod lock nut	8	15–25 (1.5–2.5, 11–18)	Apply locking agent

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

STANDARD TORQUE VALUES

ITEM	TORQUE N·m (kg-m, ft-lb)	ITEM	TORQUE N·m (kg-m, ft-lb)
5 mm bolt and nut	4.5–6 (0.45–0.6, 3–4)	5 mm screw	3.5–5 (0.35–0.5, 2–4)
6 mm bolt and nut	8–12 (0.8–1.2, 6–9)	6 mm screw, SH bolt	7–11 (0.7–1.1, 5–8)
8 mm bolt and nut	18–25 (1.8–2.5, 13–18)	6 mm flange bolt and nut	10–14 (1.0–1.4, 7–10)
10 mm bolt and nut	30–40 (3.0–4.0, 22–29)	8 mm flange bolt and nut	24–30 (2.4–3.0, 17–22)
12 mm bolt and nut	50–60 (5.0–6.0, 36–43)	10 mm flange bolt and nut	34–45 (3.4–4.5, 25–33)

TOOLS

SPECIAL

DESCRIPTION	NUMBER	ALTERNATIVE	NUMBER	REF. PAGE
Universal bearing puller	07631—0010000	Equivalent commercially available in U.S.A.		10-3
Lock nut wrench, 39 mm	07916—1870002			8-8, 12
Lock nut wrench, 45 mm	07916—1870101			12-16, 18
Lock nut wrench	07916—KM10000			12-16, 18
Drive pulley holder	07923—KM10000			8-2, 6
Crankcase puller	07935—KG80000			8-7, 10-2
Bearing remover, 12 mm	07936—1660100			9-3, 8-10
Bearing remover, 15 mm	07936—KC10500			8-9, 9-3
Remover weight	07741—0010201	Remover weight	07936—3710200	8-9, 10, 9-3
Bearing driver	07945—GC80000			8-11
Attachment, 28 x 30 mm	07946—1870100			8-12
Ball race remover	07946—GA70000			12-16
Clutch spring compressor	07960—KM10000			8-8, 12
Assembly collar	07965—1480100			9-5
Assembly bolt	07965—1480200			9-5, 10-4, 5
Assembly collar	07965—GC70100			10-4, 5
Spring attachment holder	07967—1180100			13-5, 6
Shock absorber attachment	07967—GA70101			13-5, 6
Hand vacuum pump	ST-AH-260-MC7	(U.S.A. only) or commercially available		3-3, 4-11
Sanwa electrical tester	07038—0020000	Kowa electrical tester	TH-5H	14-6, 9
		or Kowa digital multimeter (U.S.A. only)	KS-AHM-32-003	

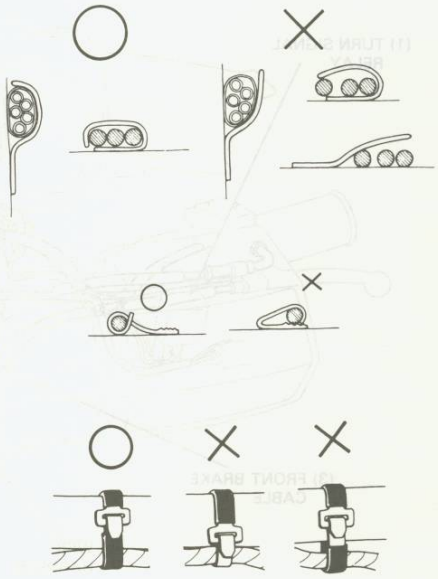
COMMON

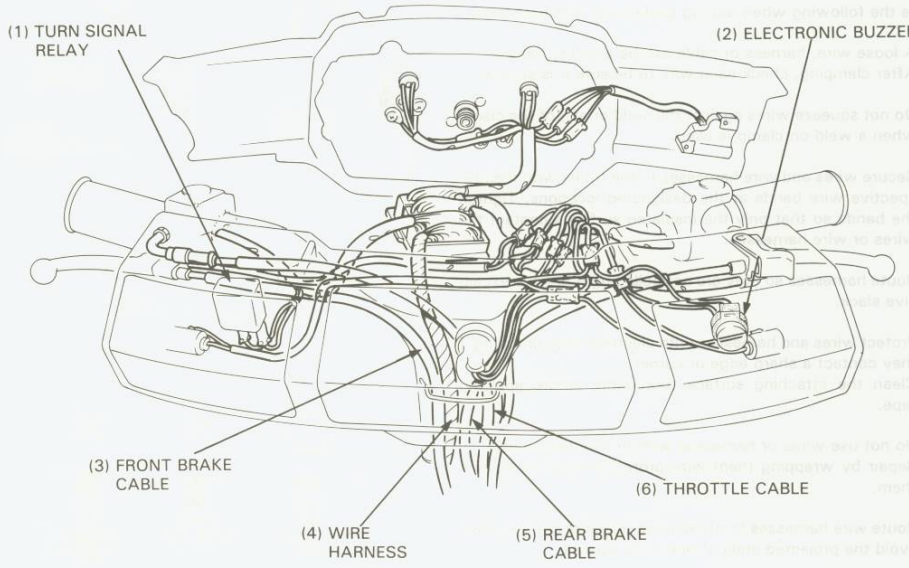
DESCRIPTION	NUMBER	ALTERNATIVE	NUMBER	REF. PAGE
Float level gauge	07401—0010000			4-6
Lock nut wrench, 30 x 32 mm	07716—0020400	Equivalent commercially available in U.S.A.		12-4
Extension bar	07716—0020500			12-4
Universal holder	07725—0030000			7-2, 3, 8-7, 13
Rotor puller	07733—0010000	Rotor puller	07933—0230000	7-2
Attachment, 32 x 35 mm	07746—0010100			9-4, 12-7
Attachment, 37 x 40 mm	07746—0010200			9-4
Attachment, 42 x 47 mm	07746—0010300			12-17, 10-3, 4
Pilot, 12 mm	07746—0040200			9-4, 12-7
Pilot, 15 mm	07746—0040300			8-12, 9-4
Pilot, 17 mm	07746—0040400			9-4
Pilot, 25 mm	07746—0040600			10-3, 4
Bearing remover shaft	07746—0050100	Equivalent commercially available in U.S.A.		12-7
Bearing remover head, 12 mm	07746—0050300			12-7
Driver	07749—0010000			
Shock absorber compressor	07959—3290001			13-5, 6
Fork seal driver	07747—0010100	Fork Seal driver	07947—3550000	12-17
Fork seal driver attachment	07747—0010400			

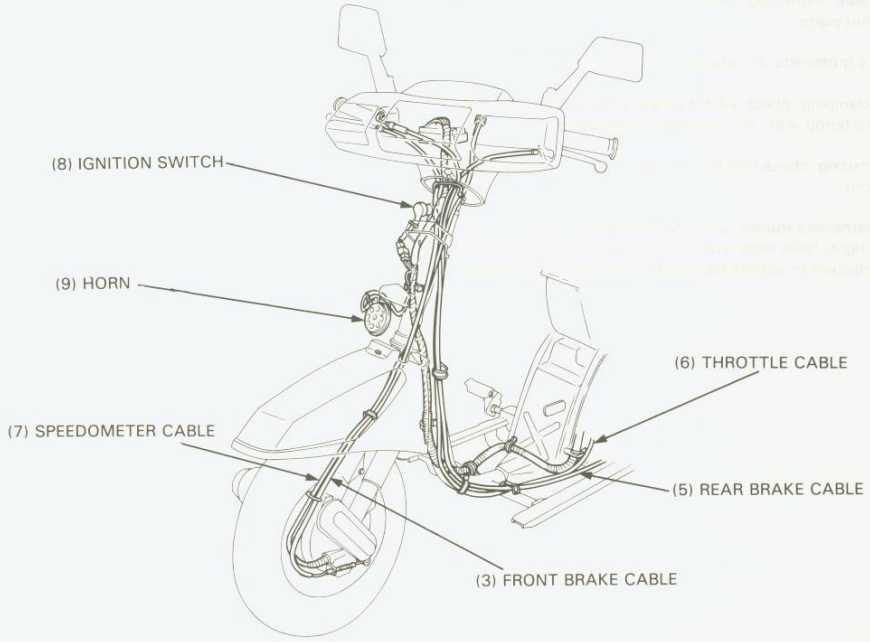
CABLE & HARNESS ROUTING

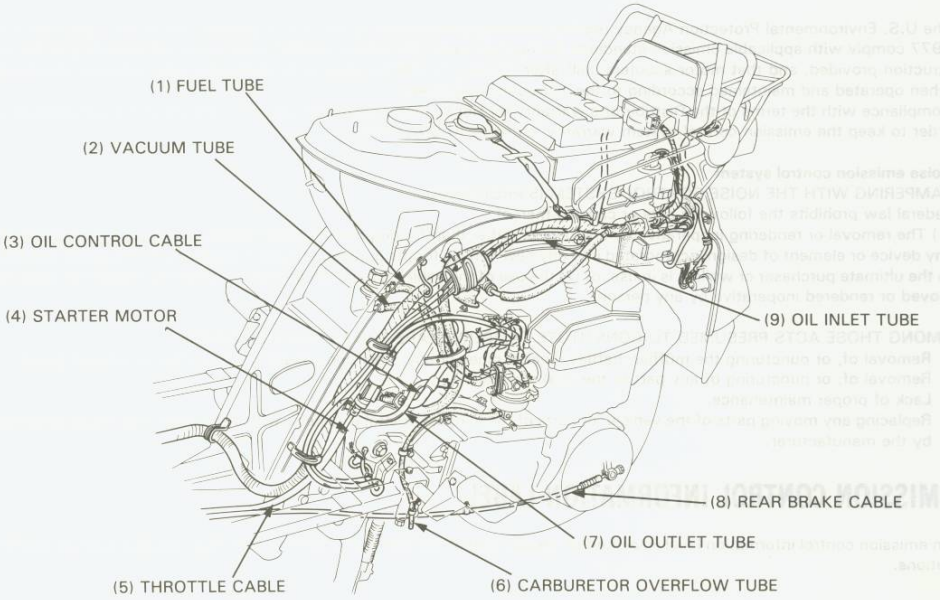
Note the following when routing cables and wire harnesses.

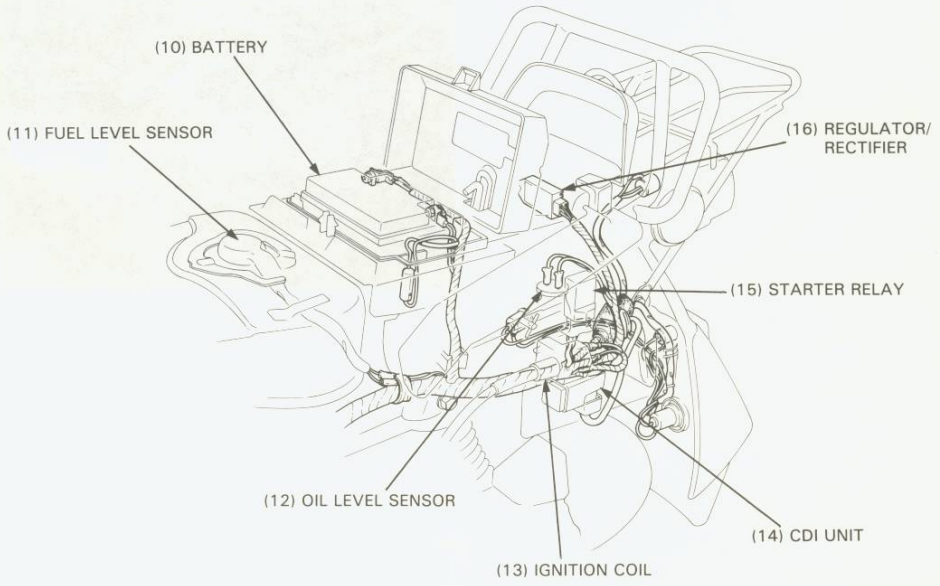
- A loose wire, harness or cable can be a safety hazard. After clamping, check each wire to be sure it is secure.
- Do not squeeze wires against the weld or end of the clamp when a weld-on clamp is used.
- Secure wires and wire harnesses to the frame with their respective wire bands at the designated locations. Tighten the bands so that only the insulated surfaces contact the wires or wire harnesses.
- Route harnesses so they are not pulled tight or have excessive slack.
- Protect wires and harnesses with electrical tape or tubing if they contact a sharp edge or corner.
  Clean the attaching surface thoroughly before applying tape.
- Do not use wires or harnesses with broken insulation. 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 pipes and other hot parts.
- Be sure grommets are seated in their grooves properly.
- After clamping, check each harness to be certain that it is not interfering with any moving or sliding parts.
- After routing, check that the wire harnesses are not twisted or kinked.
- Wire harnesses routed along the handlebars should not be pulled tight, have excessive slack, be pinched, or interfere with adjacent or surrounding parts in all steering positions.




(1) TURN SIGNAL RELAY
(2) ELECTRONIC BUZZER
(3) FRONT BRAKE CABLE
(4) WIRE HARNESS
(5) REAR BRAKE CABLE
(6) THROTTLE CABLE


(8) IGNITION SWITCH
(9) HORN
(6) THROTTLE CABLE
(7) SPEEDOMETER CABLE
(5) REAR BRAKE CABLE
(3) FRONT BRAKE CABLE


(1) FUEL TUBE
(2) VACUUM TUBE
(3) OIL CONTROL CABLE
(4) STARTER MOTOR
(5) THROTTLE CABLE
(6) CARBURETOR OVERFLOW TUBE
(7) OIL OUTLET TUBE
(8) REAR BRAKE CABLE
(9) OIL INLET TUBE


(10) BATTERY
(11) FUEL LEVEL SENSOR
(12) OIL LEVEL SENSOR
(13) IGNITION COIL
(14) CDI UNIT
(15) STARTER RELAY
(16) REGULATOR/
RECTIFIER

EXHAUST AND NOISE EMISSION CONTROL SYSTEMS (U.S.A. ONLY)

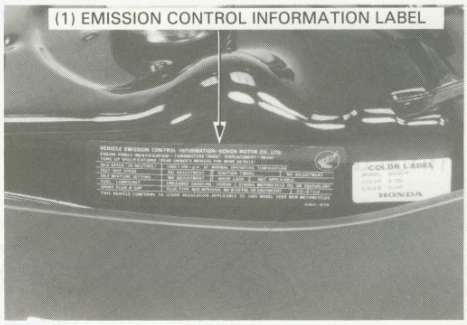
The U.S. Environmental Protection Agency requires manufacturers to certify that motor scooters built after December 31, 1977 comply with applicable emission standards during their useful life when operated and maintained according to the instruction provided, and that motor scooters built after January 1, 1983 comply with applicable noise emission standards when operated and maintained according to the instructions provided.
Compliance with the terms of the Distributor's warranty for Honda motor scooters Emission Control System is necessary in order to keep the emission control system warranty in effect. (U.S.A. ONLY)

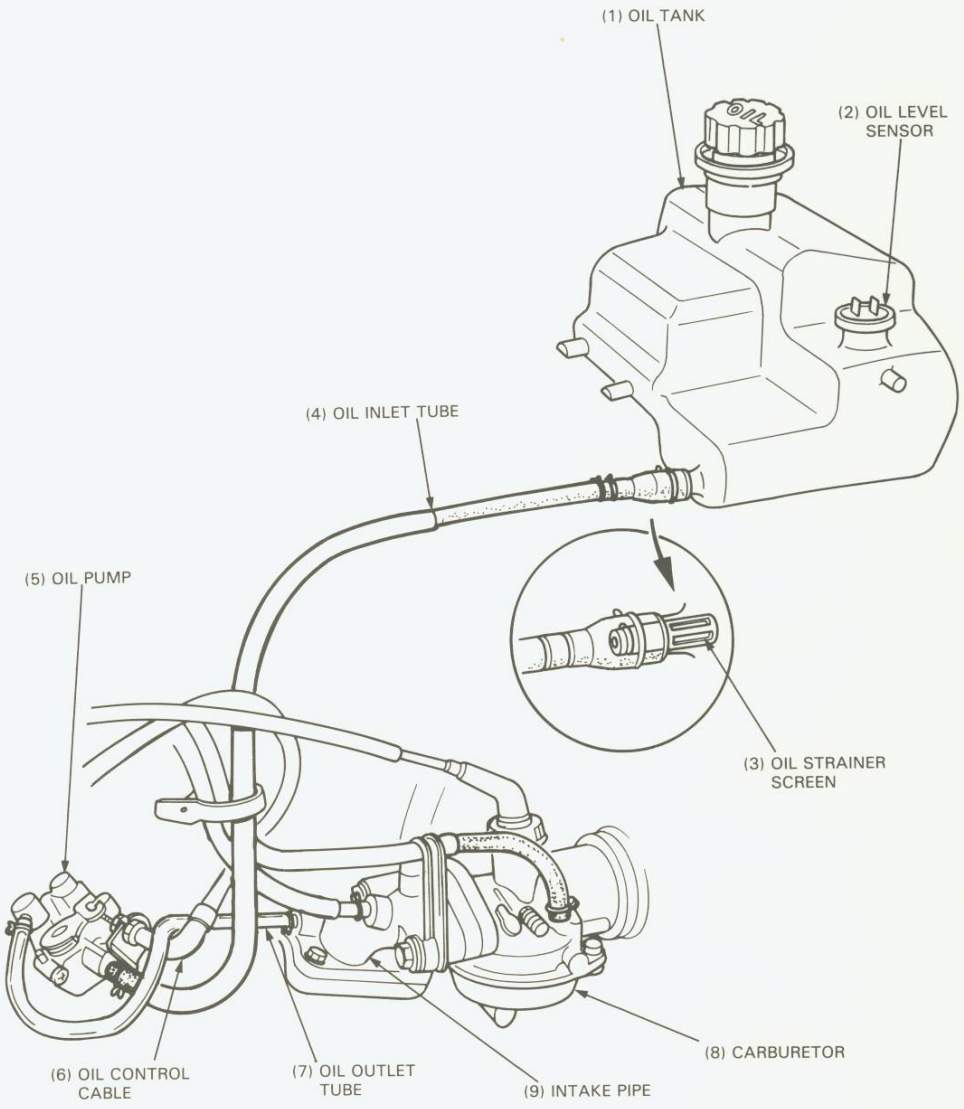
Noise emission control system
TAMPERING WITH THE NOISE CONTROL SYSTEM IS PROHIBITED:
Federal law prohibits the following acts or causing thereof:
(1) The removal or rendering inoperative by any person, other than for purposes of maintenance, repair, or replacement, of any device or element of design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

AMONG THOSE ACTS PRESUMED TO CONSTITUTE TAMPERING ARE THE ACTS LISTED BELOW:
1. Removal of, or puncturing the muffler, baffles, header pipes or any other component which conducts exhaust gases.
2. Removal of, or puncturing of any part of the intake system.
3. Lack of proper maintenance.
4. Replacing any moving parts of the vehicle, or parts of the exhaust or intake system, with parts other than those specified by the manufacturer.

EMISSION CONTROL INFORMATION LABEL

An emission control information label is located on the left side of the fuel tank under the seat. It gives basic tune-up specifications.




(1) OIL TANK
(2) OIL LEVEL SENSOR
(4) OIL INLET TUBE
(5) OIL PUMP
(3) OIL STRAINER SCREEN
(8) CARBURETOR
(6) OIL CONTROL CABLE
(7) OIL OUTLET TUBE
(9) INTAKE PIPE

2. LUBRICATION

SERVICE INFROMATION

GENERAL

- The engine must be removed from the frame when removing and installing the oil pump.
- When removing and installing the oil pump, use care not to allow dust and dirt to enter the engine and oil line.
- Bleed air from the oil pump if there is air in the oil inlet line (from the oil tank to the oil pump) or if the oil line is disconnected.
- Bleed air from the oil outlet line(from the oil pump to the intake pipe) if the line is disconnected.

SPECIFICATIONS

Engine oil recommendation:	Honda 2-stroke oil or equivalent
Engine oil tank capacity:	1.2 liters (1.3 us qt, 1.1 Imp qt)
Transmission oil capacity:	0.09 liter(3.0 US oz, 3.2 Imp oz)
Transmission oil recommendation:	Honda 4-stroke oil or equivalent Viscosity: SAE 10W-40 API Service classification: SE or SF

TORQUE VALUE

Transmission oil drain bolt	10—14 N·m (1.0—1.4 kg-m, 7—10 ft-lb)

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

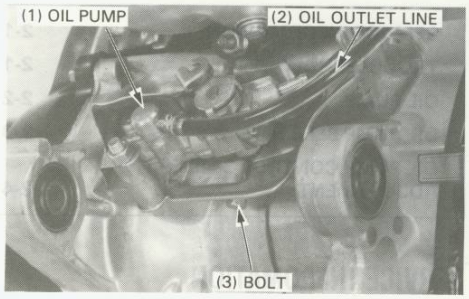
REMOVAL

NOTE

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

Remove the engine (section 5).
Remove the starter motor (page 14-11).

Disconnect the oil outlet line from the intake pipe.
Remove the oil pump attaching bolt and remove the oil pump.

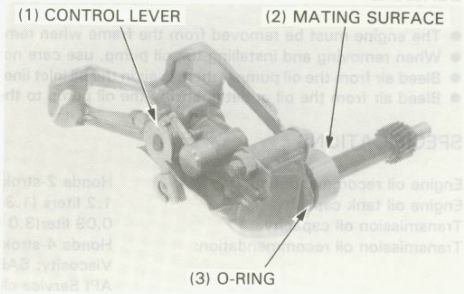


INSPECTION

CAUTION

- *Do not disassemble the oil pump.*

Check for the following:
- Damaged or weak O-rings
- Damage to crankcase mating surface
- Damage to pump body
- Control lever operation
- Worn or damaged pump gears
- Oil leaks

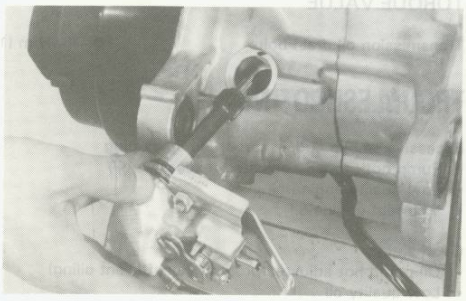


INSTALLATION

Luburicate the pump gear and O-ring with clean grease and install the oil pump onto the crankcase.

CAUTION

- *Make sure that the oil pump is inserted into the crankcase properly.*

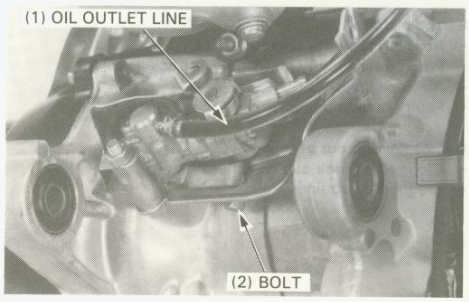


Tighten the oil pump attaching bolt securely and connect the oil outlet line.

Install the starter motor and the engine.

NOTE

- After installation, perform the following:
  - Control cable adjustment (page 2-4).
  - Oil pump bleeding.
  - Check for oil leaks.



OIL PUMP BLEEDING

CAUTION

- *Air in the oil system will block or restrict oil flow and may result in severe engine damage.*
- *Bleed air from the oil lines whenever the oil lines or pump have been removed or there is air in the lines.*
- *Bleed air from the oil inlet line first, then bleed air from the oil outlet line.*

OIL INLET LINE/OIL PUMP

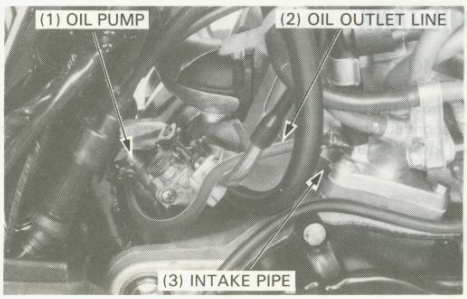
Remove the frame rear and center covers (page 11-2).
Fill the oil tank with recommended oil.

Place a shop towel around the oil pump and disconnect the oil inlet line from the pump.

Fill the oil pump by squirting clean oil through the joint (about 3 cc)

Fill the oil line and connect it to the joint of the oil pump.

After installation, make sure there is no air in the oil inlet line, then bleed the outlet line.



OIL OUTLET LINE

WARNING

- ***Perform this operation in a well ventilated area.***

1. Disconnect the oil outlet line at the intake pipe and force air out of the tube by filling it with oil using an oil squirt can.
2. Connect the oil outlet line to the intake pipe.
3. Start the engine and allow it to idle with the oil control lever in the fully open position, making sure that there are no air bubbles in the oil from the oil pump.
4. If there are air bubbles, repeat steps 1 through 3 until the oil line is free of air bubbles.

CAUTION

- *Do not race the engine unnecessarily.*

Install the frame rear and center covers (page 11-2).

OIL PUMP CONTROL CABLE ADJUSTMENT

NOTE

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

Remove the left frame rear and center covers (page 11-2).

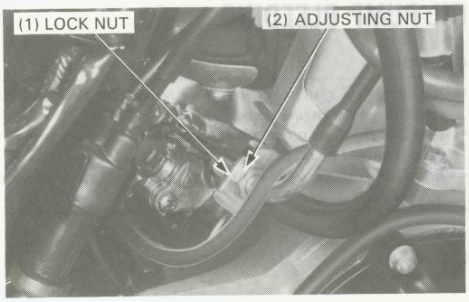
Loosen the oil pump control cable lock nut and open the throttle fully.

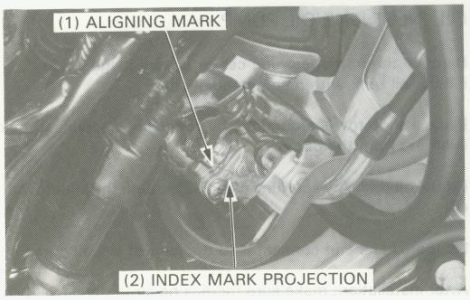
Check that the aligning mark on the oil pump control lever is aligned with the index mark projection on the pump body.

Adjust if necessary by turning the adjusting 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 of the index mark, otherwise engine damage will occur because of insufficient lubrication.*

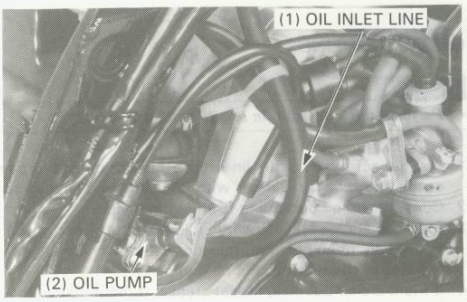




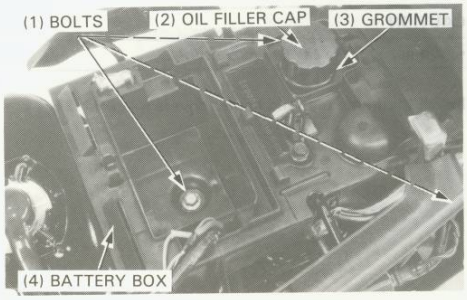
OIL TANK

REMOVAL

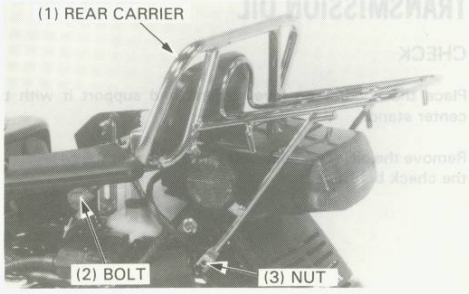
Remove the frame rear and center covers (page 11-2).
Disconnect the oil inlet line at the oil pump and drain the engine oil into a clean container.



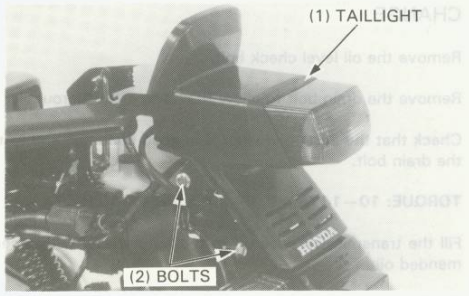
Remve the following:
- battery (page 14-3) and battery cushion rubber.
- starter relay from the battery box.
- oil filler cap and grommet.
- three battery box mounting bolts and the battery box.



Remove the rear carrier by removing the bolts and nuts.



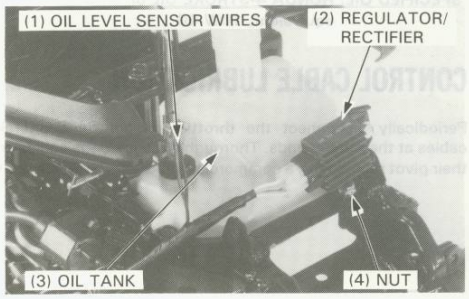
Remove the taillight assembly by removing the four bolts.

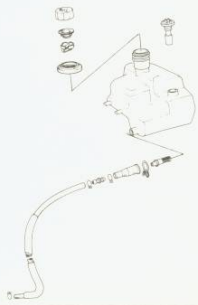


Remove the regulator/rectifier with the bracket by removing the nut.
Disconnect the oil level sensor wires from the sensor and remove the oil tank.

INSTALLATION

Install the oil tank in the reverse order of removal.
Bleed the oil lines (page 2-3).



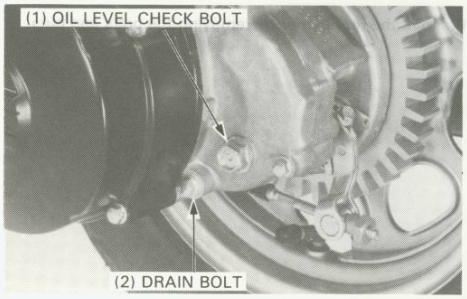


TRANSMISSION OIL

CHECK

Place the scooter on level ground and support it with the center stand.

Remove the oil level check bolt and check that the oil level is at the check bolt hole.



CHANGE

Remove the oil level check bolt.

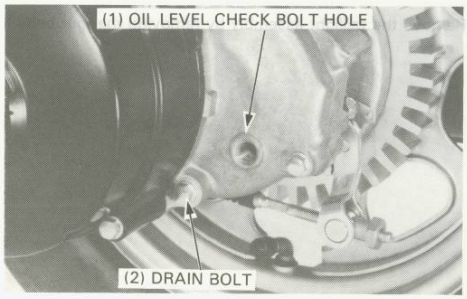
Remove the drain bolt to allow the oil to drain thoroughly.

Check that the sealing washer is in good condition and install the drain bolt.

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

Fill the transmission case up to the proper level with recommended oil.

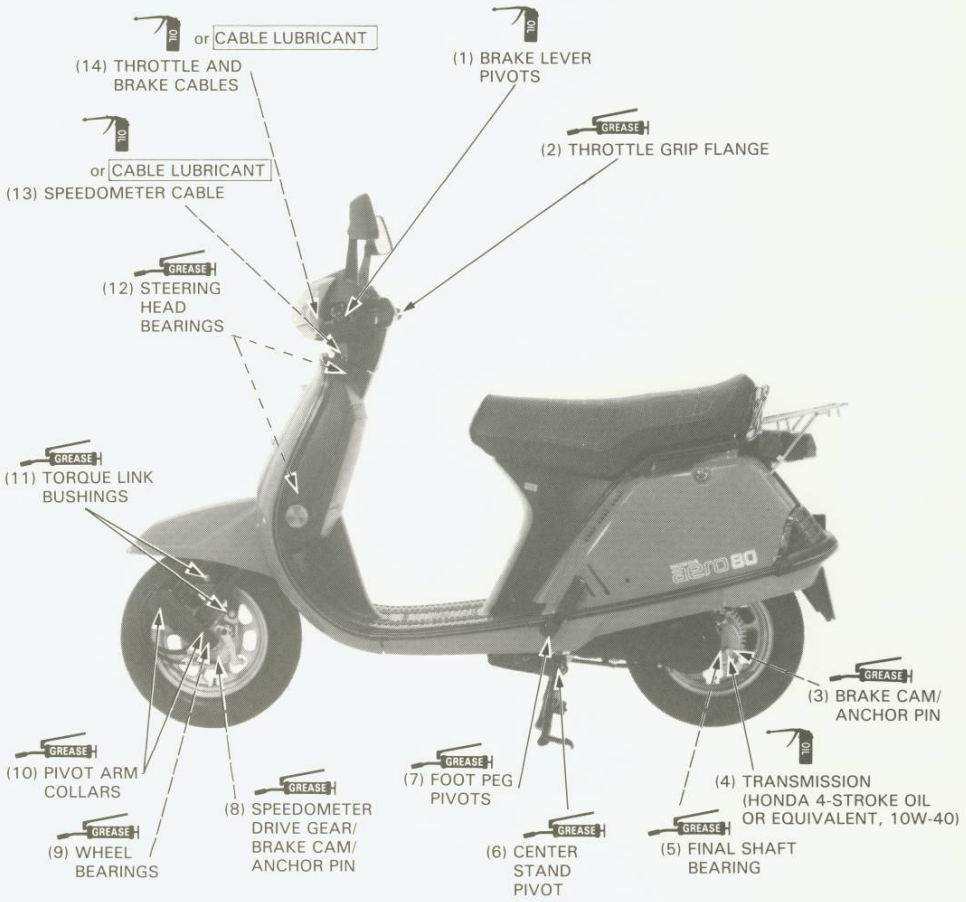
OIL CAPACITY: 0.09 liter (3.0 US oz, 3.2 Imp oz)
SPECIFIED OIL: HONDA 4-STROKE OIL or equivalent, 10W-40



CONTROL CABLE LUBRICATION

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

LUBRICATION POINTS



3. MAINTENANCE

SERVICE INFORMATION

GENERAL

Oil pump	See page 2-2.
Transmission oil	See page 2-6.
Clutch shoe wear	See page 8-10.

SPECIFICATIONS

Engine

Spark plug:

Standard		For cold climate (below 5°C, 41°F)		For extended high speed riding	
NGK	ND	NGK	ND	NGK	ND
BPR6HSA	W20FPR-L	BPR4HSA	W14FPR-L	BPR8HSA	W24FPR-L

Spark plug gap:	0.6—0.7 mm (0.024—0.028 in)
Throttle grip free play:	2—6 mm (1/8—1/4 in)
Idle speed:	1,800 ± 100 min^{-1} (rpm)
Cylinder compression:	1,000—1,400 kPa (10.0—14.0 kg/cm^2, 142—200 psi)

Chassis

Front brake free play:	10—20 mm (3/8—3/4 in)
Rear brake free play:	10—20 mm (3/8—3/4 in)

Tire:

Tire size		Front	Rear
		3.50—10—4PR	3.50—10—4PR
Cold tire pressure kPa (kg/cm^2, psi)	Up to 90 kg (200 lbs) load	150 (1.5, 21)	175 (1.75, 24)
	90 kg (200 lbs) load and up to vehicle capacity load	150 (1.5, 21)	225 (2.25, 32)

TOOL

Hand vacuum pump	ST—AH—260—MC7 (U.S.A only) or commercially available

MAINTENANCE SCHEDULE

Perform the Pre-ride Inspection in the Owner's Manual at each scheduled maintenance period.
I : INSPECT AND CLEAN, ADJUST, LUBRICATE, OR REPLACE, IF NECESSARY.
C : CLEAN
R : REPLACE
A : ADJUST
L : LUBRICATE

		ITEM \ FREQUENCY	WHICHEVER COMES FIRST ➡ / EVERY ⬇	ODOMETER READING (NOTE 2) 600 mi (1,000 km)	2,500 mi (4,000 km)	5,000 mi (8,000 km)	7,500 mi (12,000 km)	Refer to page
EMISSION RELATED ITEMS	*	FUEL LINES			I	I	I	3-3
	*	FUEL FILTER					R	3-3
	*	THROTTLE OPERATION			I	I	I	3-4
		AIR CLEANER	NOTE 1		C	C	C	3-4
		SPARK PLUG			R	R	R	3-5
	**	OIL PUMP			I	I	I	2-2
		ENGINE OIL LINES			I	I	I	3-5
	*	ENGINE OIL STRAINER SCREEN				C		3-6
	**	MUFFLER DECARBONIZATION					C	3-6
	*	CARBURETOR-IDLE SPEED		I	I	I	I	3-7
NON-EMISSION RELATED ITEMS	*	TRANSMISSION OIL	2 YEARS R*					2-6
		BRAKE SHOE WEAR			I	I	I	3-7
		BRAKE SYSTEM		I	I	I	I	3-8
		PARKING BRAKE		I	I	I	I	3-9
	*	BRAKE LIGHT SWITCH			I	I	I	3-9
	*	HEADLIGHT AIM			I	I	I	3-9
	*	SUSPENSION			I	I	I	3-9
	*	NUTS, BOLTS, FASTENERS		I	I	I	I	3-10
	**	CLUTCH SHOE WEAR			I	I	I	8-10
	**	WHEELS			I	I	I	3-10
	**	STEERING HEAD BEARINGS		I			I	3-11

* Should be serviced by an authorized Honda Scooter 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 Scooter Dealer.

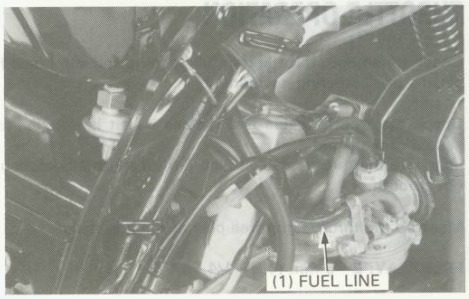
NOTES: 1. Service more frequently when riding in dusty areas.
2. For higher odometer readings, repeat at the frequency interval established here.

FUEL LINES

Remove the left frame rear and center covers (page 11-2).

Check the fuel lines and replace any parts which show deterioration, damage or leakage.

Install the left frame rear and center covers.



FUEL FILTER

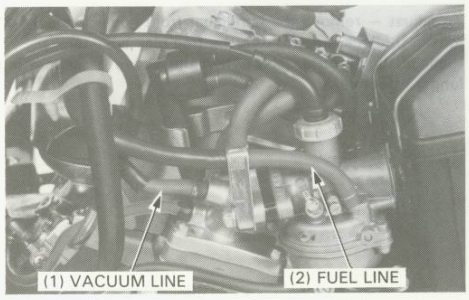
Remove the left frame rear and center covers (page 11-2).

Disconnect the fuel line from the carburetor, and the vacuum line from the intake pipe.

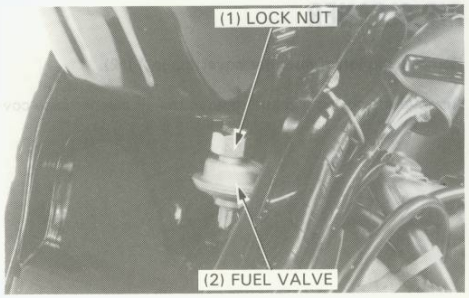
Apply vacuum to the vacuum line using a vacuum pump and drain the fuel into a clean container.

WARNING

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



Loosen the fuel valve lock nut and remove the fuel valve.



Remove the fuel filter and clean it with compressed air.

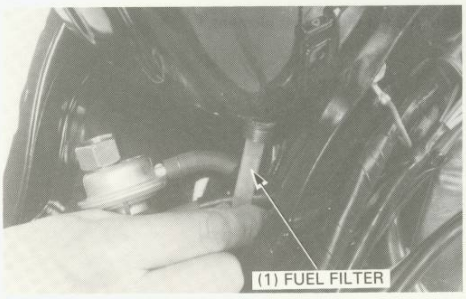
Install the fuel filter and fuel valve and tighten the lock nut.

NOTE

- Do not over tighten the lock nut.

Connect the fuel and vacuum lines.
Fill the fuel tank, start the engine and check for leaks.

Install the left frame center and rear covers.



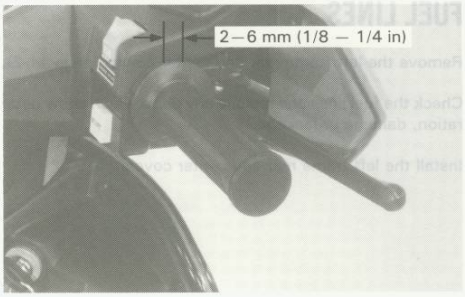
THROTTLE OPERATION

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

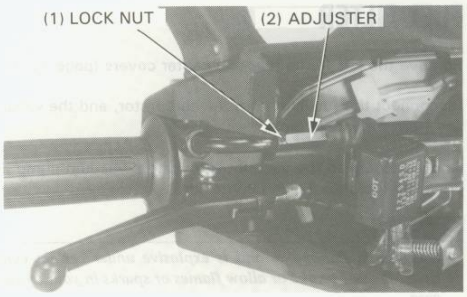
Check the throttle cable and replace it if it is deteriorated, kinked or damaged.
Lubricate the throttle cable (page 2-6), if throttle operation is not smooth.

Measure the throttle grip free play at the grip flange.

FREE PLAY: 2—6 mm (1/8—1/4 in)



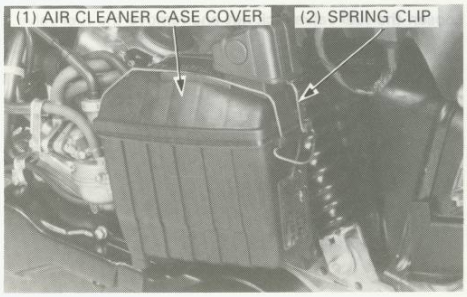
To adjust — remove the handlebar front cover (page 14-21), loosen the lock nut and turn the free play adjuster.
Replace the throttle cable when the above procedure is no longer effective.



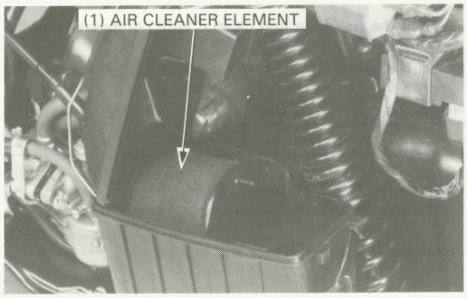
AIR CLEANER

Remove the left frame rear cover (page 11-2).

Remove the spring clip and remove the air cleaner case cover.



Remove the air cleaner element.



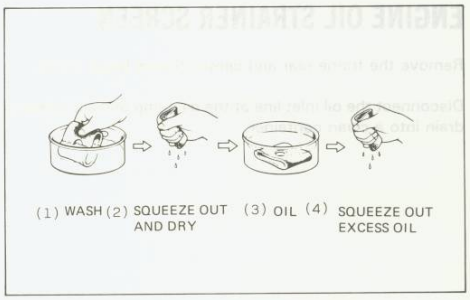
Wash the element in non-flammable or high flash point solvent, squeeze out and allow to dry.

WARNING

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

Soak the element in clean motor oil (SAE 10W—40) or gear oil (#80—90) and squeeze out the excess.

Reinstall the element, element holder, air cleaner case cover and left frame rear cover.



SPARK PLUG

RECOMMENDED SPARK PLUGS

	NGK	ND
Standard	BPR6HSA	W20FPR-L
For cold climate (Below 5°C, 41°F)	BPR4HSA	W14FPR-L
For extended high speed riding	BPR8HSA	W24FPR-L

Remove the frame rear covers (page 11-2).
Disconnect the spark plug cap and clean any dirt from around the spark plug base.

Remove and discard the spark plug.

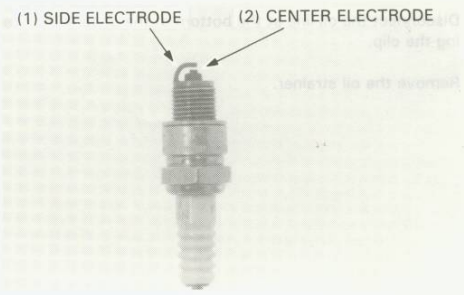
Measure the new spark plug gap using a wire-type feeler gauge.

SPARK PLUG GAP: 0.6—0.7 mm (0.024—0.028 in)

Adjust by bending the side electrode carefully.

With the plug washer attached, thread the spark plug in by hand to prevent crossthreading.

Tighten the spark plug another 1/2 turn with a spark plug wrench to compress the plug washer.
Then connect the spark plug cap.



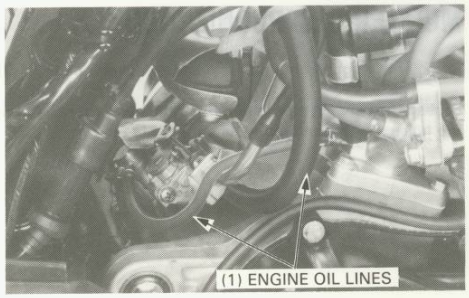
ENGINE OIL LINE

Remove the frame rear and center covers (page 11-2).

Check the engine oil lines 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).

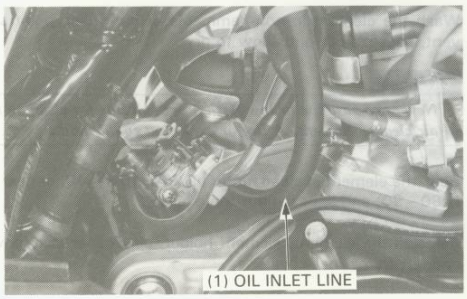
Install the frame rear and center covers.



ENGINE OIL STRAINER SCREEN

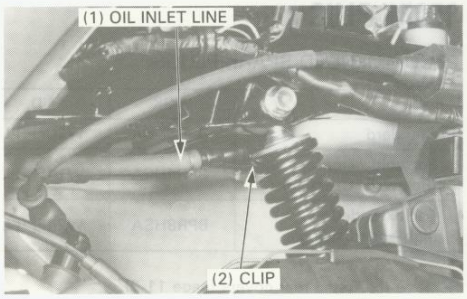
Remove the frame rear and center covers (page 11-2).

Disconnect the oil inlet line at the oil pump and allow the oil to drain into a clean container.



Disconnect the oil line at the bottom of the oil tank by loosening the clip.

Remove the oil strainer.

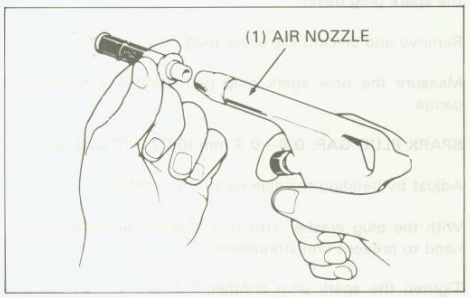


Clean the oil strainer with compressed air. Replace the oil strainer if necessary.

Reinstall the strainer.

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

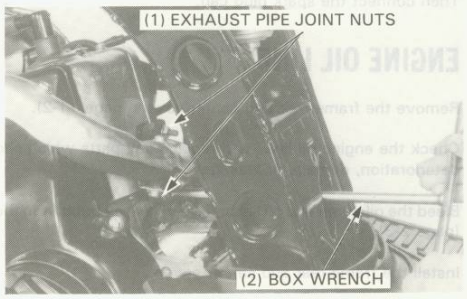
Connect the oil lines securely and check for oil leaks.



MUFFLER DECARBONIZATION

Remove the right frame rear and center covers (page 11-2).

Loosen the exhaust pipe joint nuts using a box wrench through the holes in the frame body as shown.



Remove the muffler mounting bolts, collar and rear fender bolt then remove the muffler.
Clean the carbon from the muffler.
Loosely install the muffler.

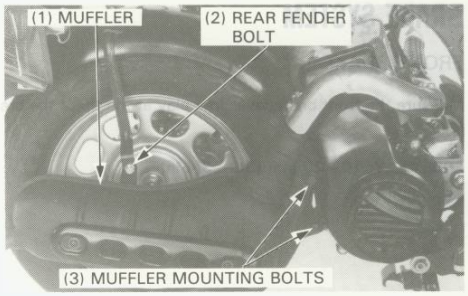
NOTE

- Install the collar onto the lower mounting bolt.

Tighten the two exhaust pipe joint nuts, then upper and lower mounting bolts and rear fender bolt.

TORQUE: UPPER AND LOWER MOUNTING BOLTS
32–38 N·m (3.2–3.8 kg-m, 23–28 ft-lb)

After tightening the mounting bolts and rear fender bolt check the joint nuts for looseness.
After installation, check for exhaust gas leaks.



CARBURETOR IDLE SPEED

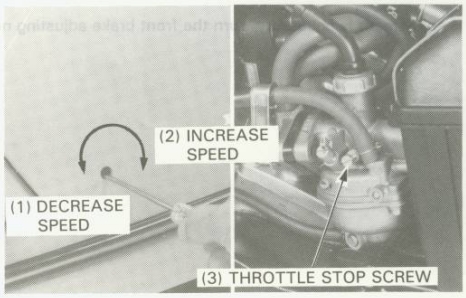
NOTE

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

Warm up the engine and place the scooter on its center stand.

Turn the throttle stop screw as required to obtain the specified idle speed.

IDLE SPEED: 1,800 ± 100 min^{-1} (rpm)



COMPRESSION TEST

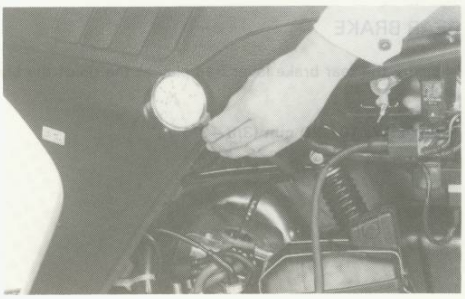
Remove the left frame rear cover and warm up the engine.
Stop the engine and remove the spark plug.

Insert a compression gauge. Open the throttle grip fully and crank the engine with the starter motor.

COMPRESSION: 1,000–1,400 kPa
(10.0–14.0 kg/cm^2, 142–200 psi)

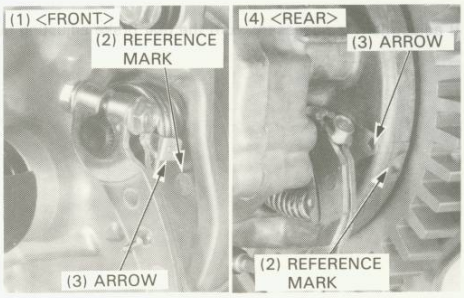
Low compression can be caused by a blown cylinder head gasket, or worn piston rings or cylinder.

High compression can be caused by carbon deposits in the combustion chamber or on the piston head.



BRAKE SHOE WEAR

Replace the brake shoes if the arrow on the brake arm aligns with the reference mark "△" when the brake is fully applied.

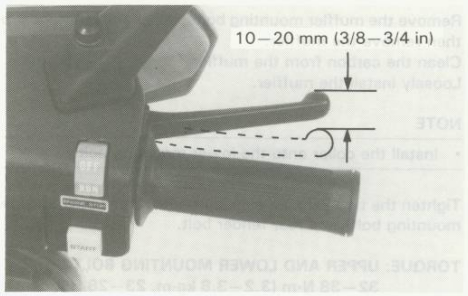


BRAKE SYSTEM

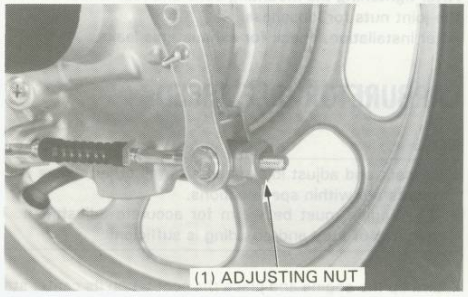
FRONT BRAKE

Measure the front brake lever free play at the tip of the brake lever.

FREE PLAY: 10—20 mm (3/8—3/4 in)



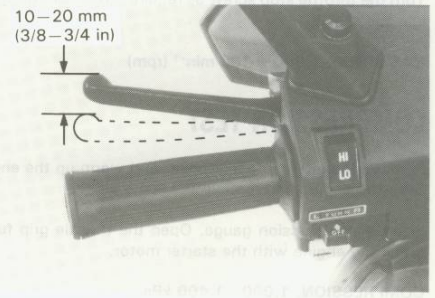
If adjustment is necessary, turn the front brake adjusting nut.



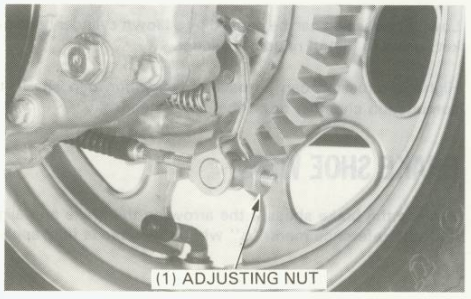
REAR BRAKE

Measure the rear brake lever free play at the tip of the brake lever.

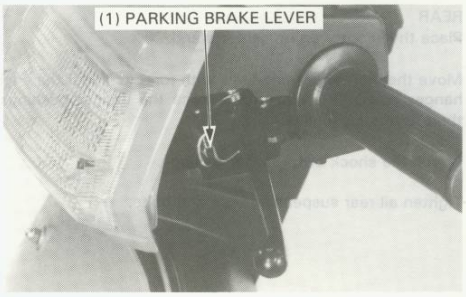
FREE PLAY: 10—20 mm (3/8—3/4 in)



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



PARKING BRAKE



NOTE

- Inspect the parking brake after the rear brake is adjusted properly.

Apply the parking brake and check that the rear wheel is locked securely.

Squeeze the rear brake lever. The parking brake should release automatically.

BRAKE LIGHT SWITCH

Check that the brake light comes on when brake engagement begins. Replace the switch if the brake light does not come on at the proper time.

NOTE

- The brake light switches cannot be adjusted.

HEADLIGHT AIM

Adjust the headlight beam vertically by turning the vertical adjusting screw. Turn the adjusting screw clockwise to direct the beam down.

Adjust the headlight beam horizontally by turning the horizontal adjusting screw. Turn the adjusting screw clockwise to direct the beam toward the left side of the rider.

NOTE

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

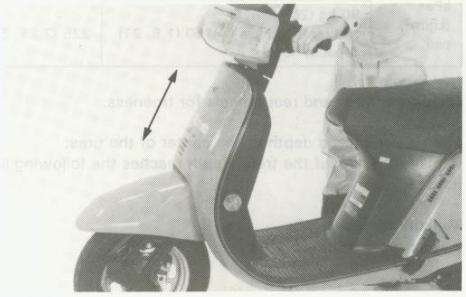
WARNING

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

SUSPENSION

WARNING

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



FRONT

Check the action of the front fork/shocks by compressing them several times. Check the entire fork assembly for damage.
Replace damaged components which cannot be repaired.

Tighten all nuts and bolts.

REAR
Place the scooter on its center stand.

Move the rear wheel sideways with force to see if the engine hanger bushings are worn. Replace the hanger bushings if there is any looseness.

Check the shock absorber for damage.

Tighten all rear suspension nuts and bolts.

NUTS, BOLTS, FASTENERS

Check that all chassis nuts and bolts are tightened to their correct torque values (page 1-5) at the intervals shown in the Maintenance Schedule (page 3-2).

Check all cotter pins, safety clips, hose clamps and cable stays.

WHEELS

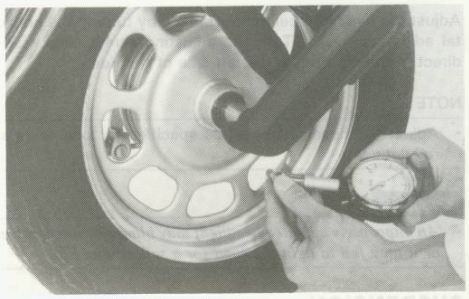
NOTE

- Tire pressure should be checked when tires are COLD.

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

RECOMMENDED TIRES AND PRESSURES:

		Front	Rear
Tire size		3.50—10—4PR	3.50—10—4PR
Cold tire pressure kPa (kg/m^2, psi)	Up to 90 kg (200 lbs) load	150 (1.5, 21)	175 (1.75, 24)
	90 kg (200 lbs) and up to vehicle capacity load	150 (1.5, 21)	225 (2.25, 32)

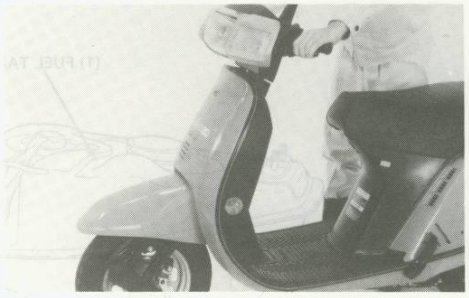


Check the front and rear wheels for trueness.

Measure the tread depth at the center of the tires.
Replace the tires if the tread depth reaches the following limits:

Minimum tread depth:
Front: 0.8 mm (0.03 in)
Rear: 0.8 mm (0.03 in)

STEERING HEAD BEARINGS

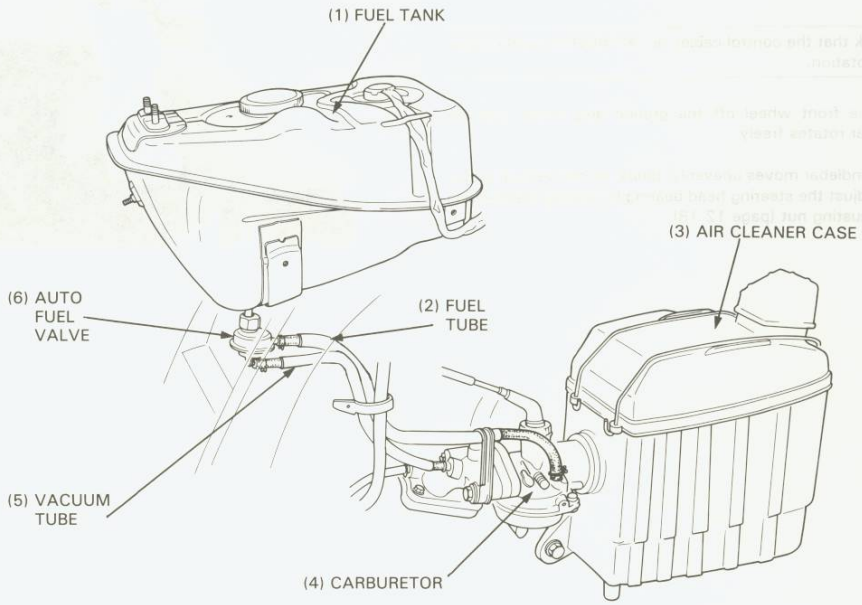


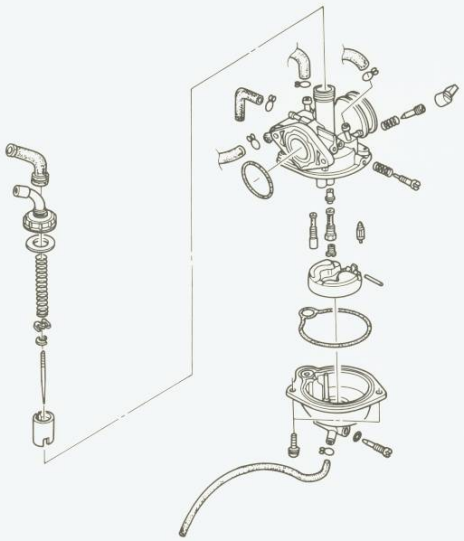
NOTE

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

Raise the front wheel off the ground and check that the handlebar rotates freely.

If the handlebar moves unevenly, binds, or has vertical movement, adjust the steering head bearing by turning the steering head adjusting nut (page 12-18).


(1) FUEL TANK
(3) AIR CLEANER CASE
(6) AUTO FUEL VALVE
(2) FUEL TUBE
(5) VACUUM TUBE
(4) CARBURETOR



4. FUEL SYSTEM

SERVICE INFORMATION

GENERAL

WARNING

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

- The fuel tank is equipped with an auto fuel valve that is turned OFF automatically when the engine is stopped.
- Use caution when working with gasoline. Always work in a well-ventilated area and away from sparks or flames.
- When disassembling fuel system parts, note the locations of the O-rings. Replace them with new ones during assembly.
- Bleed air from the oil outlet line whenever it is disconnected.

SPECIFICATIONS

Carburetor	Venturi diameter	16 mm (0.63 in)
	Identification number	PB54E
	Float level	8.5 mm (0.33 in)
	Air screw opening	See page 4-8
	Idle speed	1,800 ± 100 min^{-1} (rpm)
	Throttle grip free play	2–6 mm (1/8–1/4 in)
	Main jet	#88

TORQUE VALUES

Carburetor bolt	9–12 N·m (0.9–1.2 kg-m, 7–9 ft-lb)
Intake pipe bolt	8–12 N·m (0.8–1.2 kg-m, 6–9 ft-lb)

TOOLS

Special

Hand vacuum pump	ST-AH-260-MC7 (U.S.A. only) or commercially available

Common

Float level gauge	07401–0010000

TROUBLESHOOTING

Engine cranks but won't start
- No fuel in tank
- Fuel not reaching carburetor
- Too much fuel getting to cylinder
- Clogged air cleaner

Engine idles roughly, stalls or runs poorly
- Idle speed incorrect
- No spark at plug
- Loss of compression
- Rich mixture
- Lean mixture
- Clogged air cleaner
- Intake pipe leaking
- Fuel contaminated

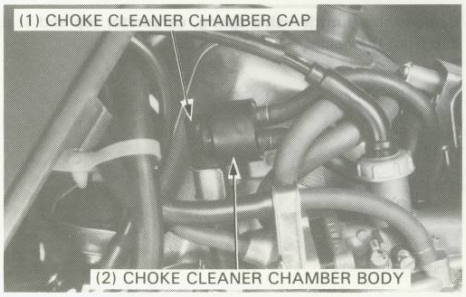
Rich mixture
- Faulty float valve
- Float level too high
- Carburetor jets clogged

Lean mixture
- Carburetor fuel jets clogged
- Fuel cap vent clogged
- Clogged fuel filter
- Fuel line kinked or restricted
- Faulty float valve
- Float level too low
- Clogged air vent tube

CARBURETOR CHOKE CLEANER

Remove the left frame rear cover (page 11-2).

Remove the choke cleaner chamber cap from the chamber body.



Remove the choke cleaner element from the chamber.

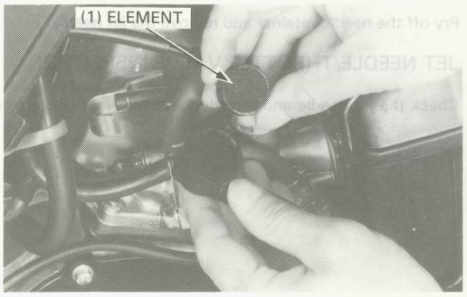
Wash the element in non-flammable or high flash point solvent, squeeze out the excess and allow it to dry.

WARNING

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

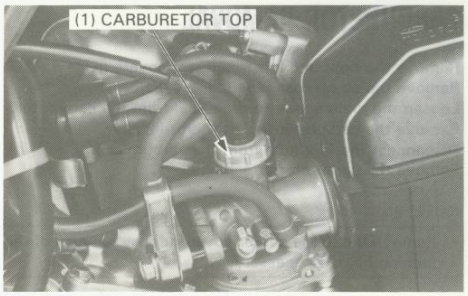
Soak the element in clean motor oil (SAE 10W—40) or gear oil (#80—90) and squeeze out excess.

Reinstall the carburetor choke cleaner element and chamber, and clamp the chamber in position.

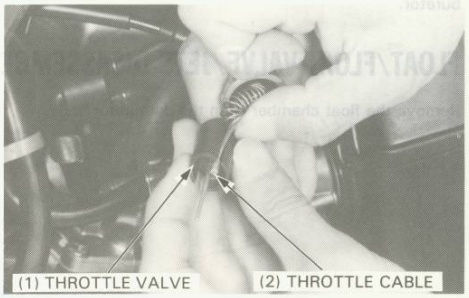


THROTTLE VALVE DISASSEMBLY

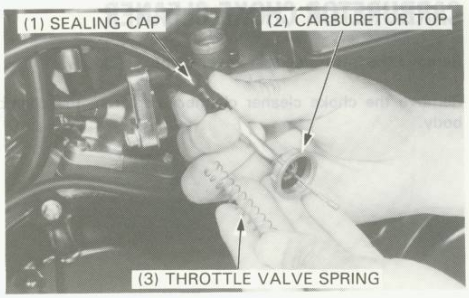
Remove the left frame rear cover (page 11-2) and the carburetor top.



Disconnect the throttle cable from the throttle valve.



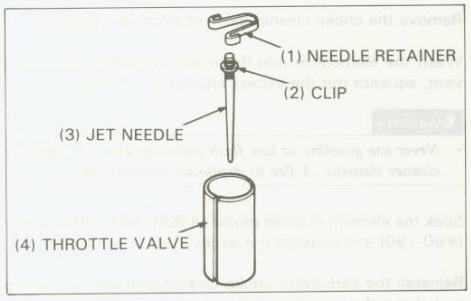
Remove the throttle valve spring, carburetor top and sealing cap from the cable.



Pry off the needle retainer and remove the jet needle.

JET NEEDLE/THROTTLE VALVE INSPECTION

Check the jet needle and throttle valve for wear or damage.

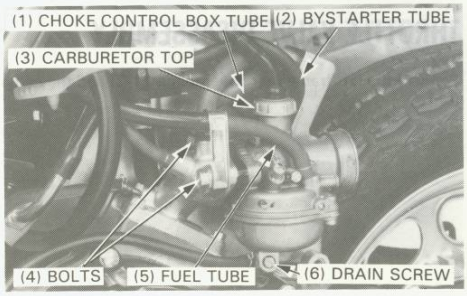


CARBURETOR REMOVAL

Remove the right and left frame rear covers (page 11-2).
Remove the air cleaner case (page 4-13).
Loosen the drain screw to drain fuel from the carburetor.
Remove the carburetor top and throttle valve.
Disconnect the fuel tube from the carburetor.
Remove the carburetor attaching bolts.

NOTE

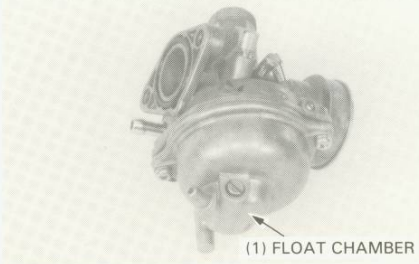
- Remove the frame center cover for easy removal of the attaching bolts if necessary.



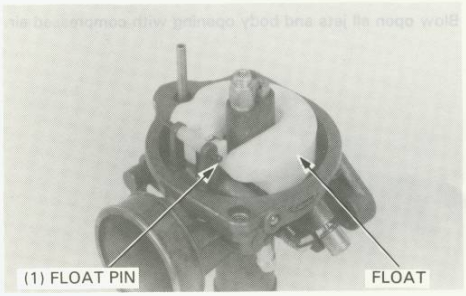
Disconnect the control box and bystarter tubes from the carburetor.

FLOAT/FLOAT VALVE/JETS DISASSEMBLY

Remove the float chamber from the carburetor body.



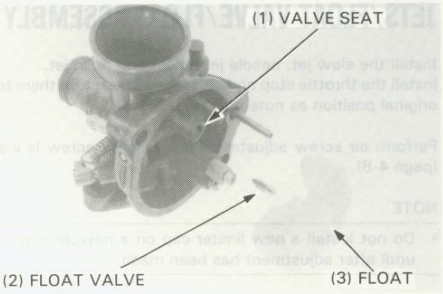
Remove the carburetor float and float valve by removing the pin.



FLOAT/FLOAT VALVE INSPECTION

Check the valve seat for wear or damage.

Check the float for deformation or fuel inside the float.



NOTE

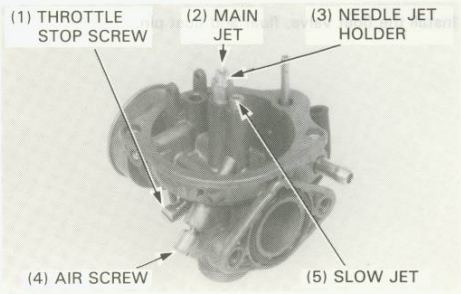
- The air screw is factory pre-set and should not be removed unless the carburetor is overhauled.
- The air screw limiter cap is factory installed to prevent air screw misadjustment. Break its tab with pliers when the air screw is to be removed.

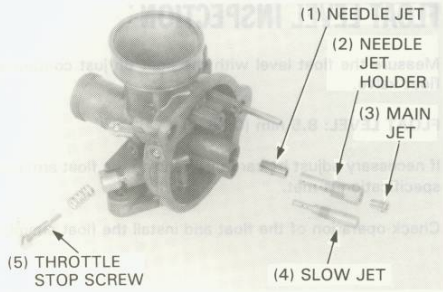
Before removing the throttle stop and air screws, turn each one in and record the number of rotations until it seats, so it can be returned to its original position.

CAUTION

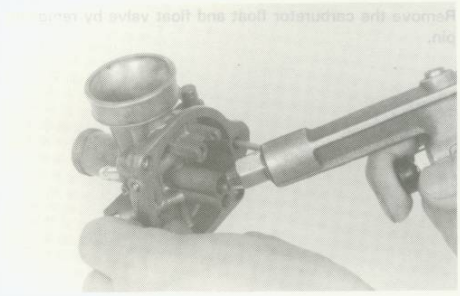
- *Do not force the air screw against its seat to prevent damage to the seat.*

Remove the throttle stop and air screws.
Remove the main jet, needle jet holder, needle jet and slow jet.





Blow open all jets and body opening with compressed air.



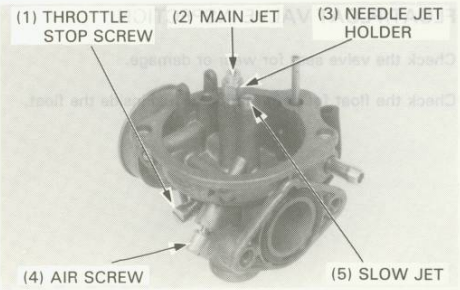
JETS/FLOAT VALVE/FLOAT ASSEMBLY

Install the slow jet, needle jet holder and main jet.
Install the throttle stop and air screws and return them to their original position as noted during removal.

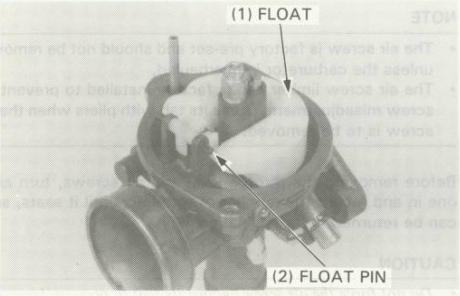
Perform air screw adjustment if a new air screw is installed (page 4-8).

NOTE

- Do not install a new limiter cap on a new air screw head until after adjustment has been made.



Install the float valve, float and float pin.



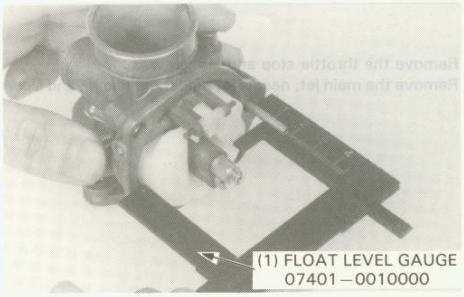
FLOAT LEVEL INSPECTION

Measure the float level with the float tip just contacting the float valve.

FLOAT LEVEL: 8.5 mm (0.33 in)

If necessary adjust by carefully bending the float arm until the specification is met.

Check operation of the float and install the float chamber.



CARBURETOR INSTALLATION

CAUTION

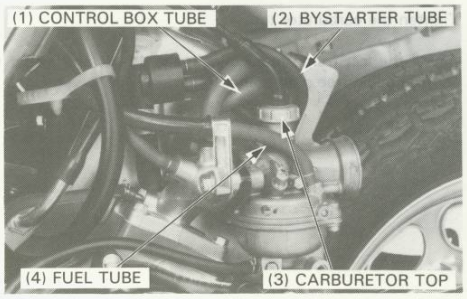
- *Do not allow foreign particles to enter the carburetor.*

Connect the control box and bystarter tubes to the carburetor.
Install the carburetor and connect the fuel tube.
Install the frame center cover if it was removed.

Install the carburetor top.

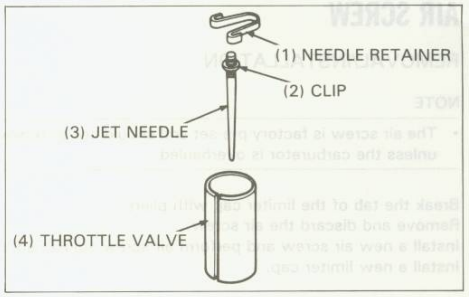
Install the air cleaner case (page 4-13).

Install the right and left frame rear covers (page 11-2).
Perform the following adjustments:
- Throttle cable free play (page 3-4).
- Oil pump (page 2-4).
- Idle speed (page 3-7).



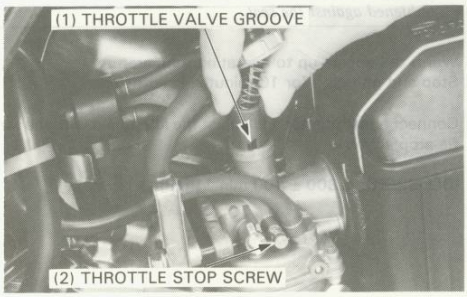
THROTTLE VALVE ASSEMBLY

Install the jet needle on the throttle valve and secure with the needle retainer.



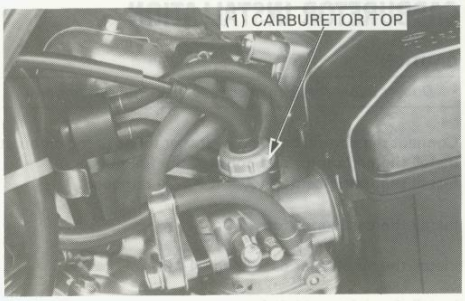
Assemble the seal cap, carburetor top and throttle spring.

Connect the throttle cable to the throttle valve.
Slide the throttle valve into the carburetor body, aligning the groove in the valve with the throttle stop screw on the carburetor body.



Tighten the carburetor top.

Install the left frame rear cover (page 11-2), and adjust the throttle cable free play (page 3-4).



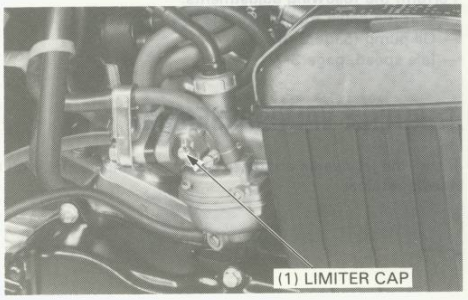
AIR SCREW

REMOVAL/INSTALLATION

NOTE

- The air screw is factory pre-set and should not be removed unless the carburetor is overhauled.

Break the tab of the limiter cap with pliers.
Remove and discard the air screw.
Install a new air screw and perform air screw adjustment.
Install a new limiter cap.



ADJUSTMENT

NOTE

- The air screw is factory pre-set and no adjustment is necessary unless the air screw is replaced.

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

INITIAL OPENING: 1-3/8 turns out

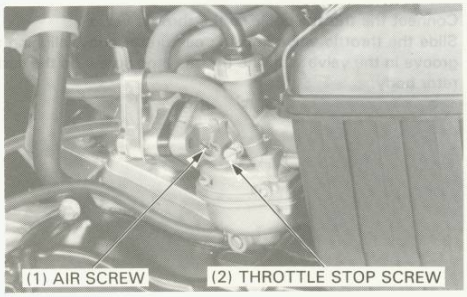
CAUTION

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

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

Connect a tachometer and adjust the idle speed with the throttle stop screw.

IDLE SPEED: 1,800 ± 100 min^{-1} (rpm)



Turn the air screw in or out to obtain the highest engine speed.

Readjust the idle speed to 1,800 ± 100 min^{-1} (rpm), using the throttle stop screw.

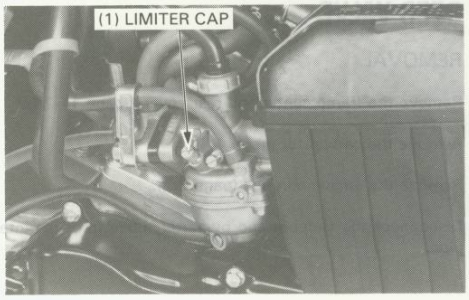
LIMITER CAP INSTALLATION

A new limiter cap must be installed after air screw adjustment is completed.
Cement the new limiter cap over the air screw, using LOCTITE® #601 or equivalent.

The limiter cap should be placed against its stop, preventing further adjustment that would enrich the fuel mixture. (The cap position permits counterclockwise rotation and prevents clockwise rotation).

NOTE

- An air screw limiter cap must be installed. It prevents misadjustment that could cause poor performance and increase emissions.

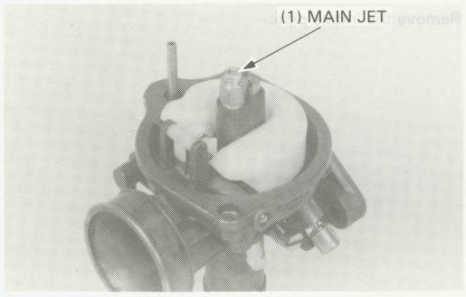


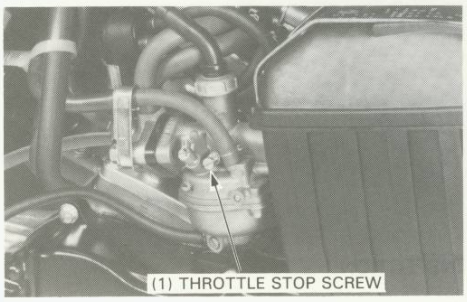
HIGH ALTITUDE ADJUSTMENT

For sustained high altitude operation (above 2,000 m/6,500 ft) install a #82 main jet and readjust idle speed.
Remove the carburetor from the engine and remove the float chamber.
Replace the standard main jet with the #82 high altitude main jet.
Assemble and install the carburetor.
Adjust idle speed to 1,800 ± 100 min^{-1} (rpm), using the throttle stop screw.

CAUTION

- *Sustained operation at altitudes lower than 1,500 m (5,000 ft) with the high altitude main jet installed may cause engine overheating and damage. For sustained operation below 1,500 m (5,000 ft), reinstall the standard main jet and readjust idle speed.*



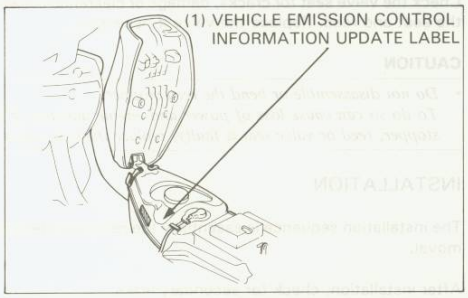


	Standard 2,000 m (6,500 ft) max.	High altitude type 1,500 m (5,000 ft) min.
Main jet	#88	#82
Idle speed	1,800±100 min^{-1} (rpm)	←
Air screw initial opening	Factory pre-set	←

Attach the vehicle Emission Control Information Update Label as shown.

NOTE

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



REED VALVE

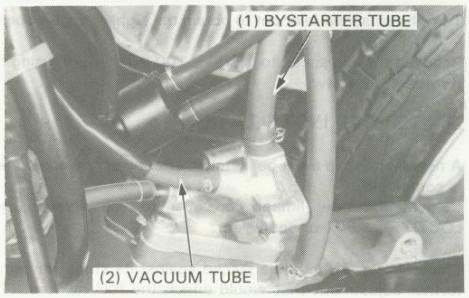
REMOVAL

Remove the frame center and rear covers (page 11-2).

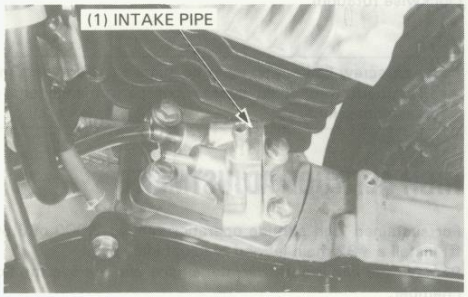
Remove the carburetor (page 4-4).

Remove the engine shrouds (page 6-2).

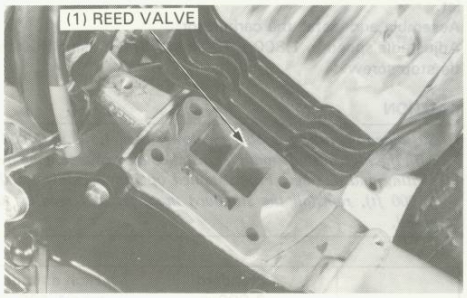
Disconnect the vacuum and bystarter tubes from the intake pipe.



Remove the intake pipe.



Remove the reed valve.

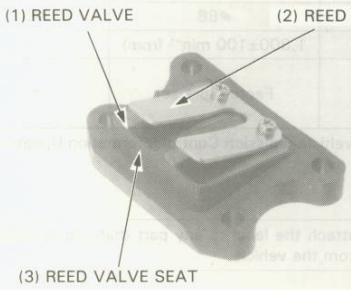


INSPECTION

Check the reed valve for damaged or weak reeds.
Check 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

The installation sequence is essentially the reverse order of removal.

After installation, check for secondary leaks.

AUTO FUEL VALVE

INSPECTION

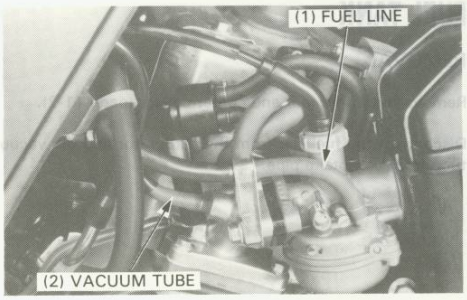
WARNING

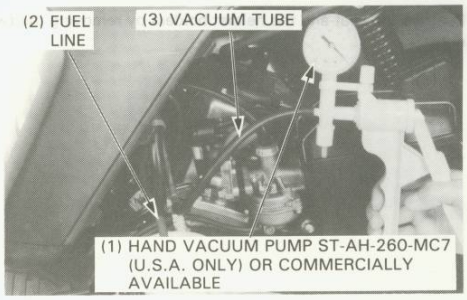
- ***Gasoline is extremely flammable and is explosive under certain conditions. Perform this operation in a well ventilated area and do not smoke or allow sparks in the area.***

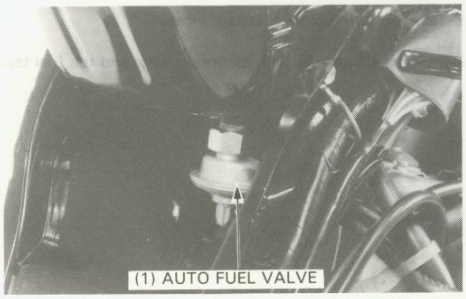
With the engine stopped, disconnect the fuel line from the carburetor and check if fuel is flowing out of the fuel line.

The fuel valve is normal if fuel ceases to flow out of the fuel line after the remaining fuel (5—10 cc) has been drained out of the fuel valve and fuel line thoroughly. Should fuel fail to stop flowing out of the fuel line, check the vacuum tube for blockage.

Disconnect the vacuum tube from the intake pipe and apply vacuum to the vacuum tube. The fuel valve is normal if fuel flows out of the fuel line when vacuum is applied. If fuel does not flow out of the fuel line when negative pressure is applied, Clean the vacuum tube with compressed air.





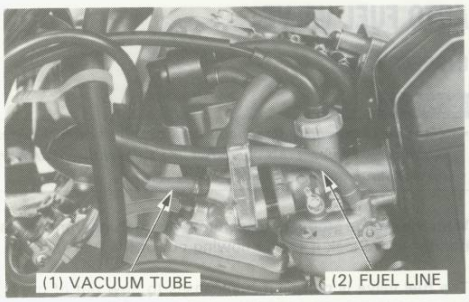


FUEL TANK

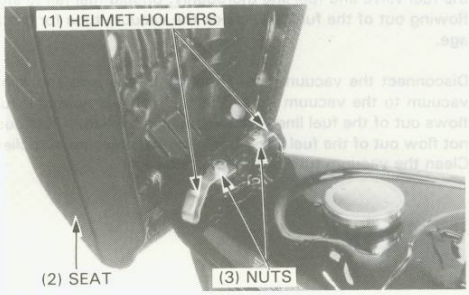
REMOVAL

Remove the frame rear and center covers (page 11-2).

Disconnect the fuel line from the carburetor and the vacuum tube from the intake pipe.

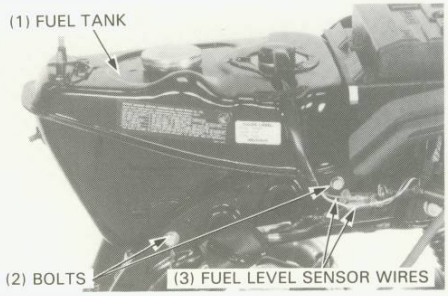


Remove the seat and the helmet holders by removing the two nuts.



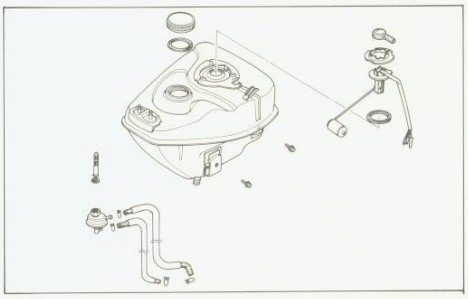
Disconnect the fuel level sensor wires.

Remove the four fuel tank mounting bolts and the fuel tank.



INSTALLATION

The installation sequence is essentially the reverse order of removal.

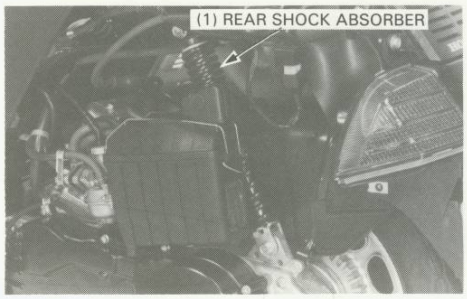


AIR CLEANER CASE

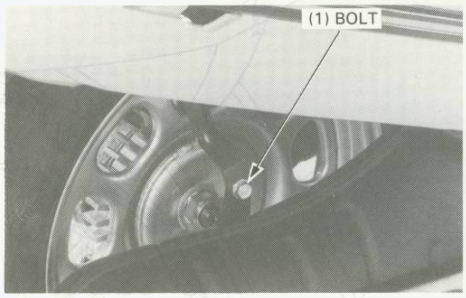
REMOVAL/INSTALLATION

Remove the left frame rear cover (page 11-2).

Remove the rear shock absorber (page 13-5).



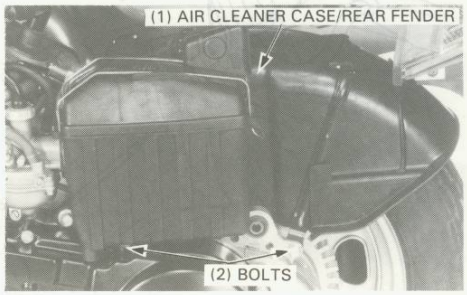
Remove the right rear fender bracket bolt.

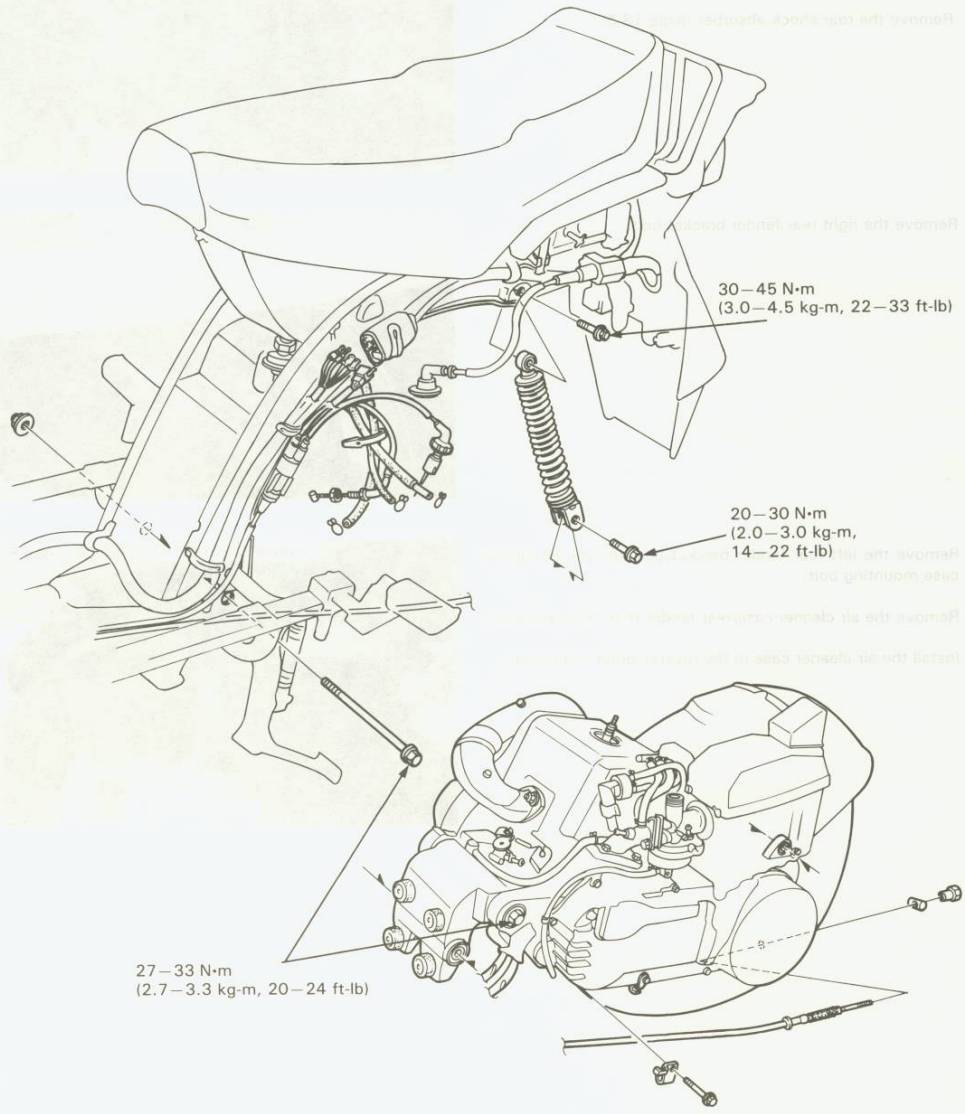


Remove the left rear fender bracket bolt and the air cleaner case mounting bolt.

Remove the air cleaner case/rear fender from the carburetor.

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




30—45 N·m
(3.0—4.5 kg-m, 22—33 ft-lb)
20—30 N·m
(2.0—3.0 kg-m,
14—22 ft-lb)
27—33 N·m
(2.7—3.3 kg-m, 20—24 ft-lb)

5. ENGINE REMOVAL/INSTALLATION

SERVICE INFORMATION

GENERAL

Parts requiring engine removal for servicing:
- Oil pump
- Starter motor
- Crankshaft

SPECIFICATIONS

Engine weight:	17.5 kg (38.58 lb)

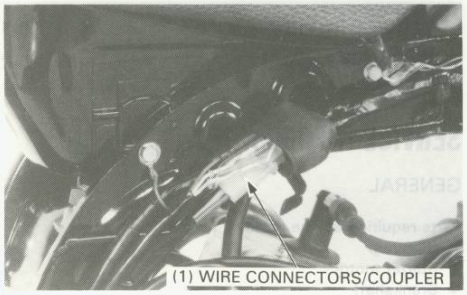
TORQUE VALUES

Engine mounting bolt	27—33 N·m (2.7—3.3 kg-m, 20—24 ft-lb)
Rear shock absorber upper mounting bolt	30—45 N·m (3.0—4.5 kg-m, 22—33 ft-lb)
Rear shock absorber lower mounting bolt	20—30 N·m (2.0—3.0 kg-m, 14—22 ft-lb)

ENGINE REMOVAL

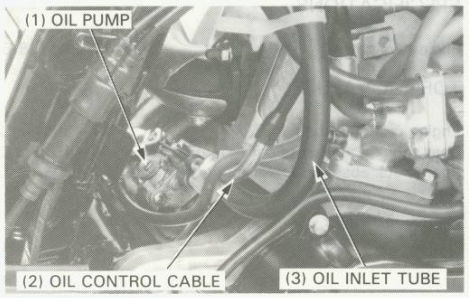
Remove the frame rear and center covers (page 11-2).

Disconnect the pulse generator, alternator wire connectors, and the starter motor wire coupler from the harness.



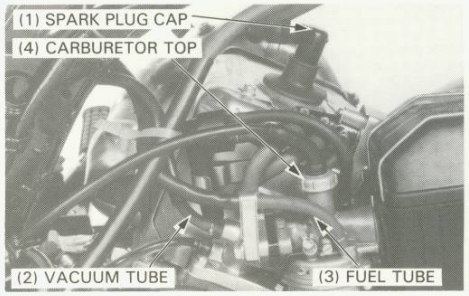
Pinch the oil inlet tube with a tube clamp and disconnect it from the oil pump.

Disconnect the oil control cable from the pump.



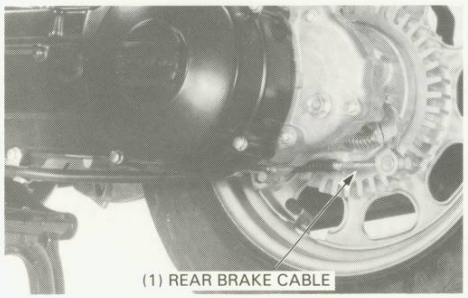
Disconnect the spark plug cap and remove the carburetor top.

Disconnect the fuel line from the carburetor and the vacuum tube from the intake pipe.

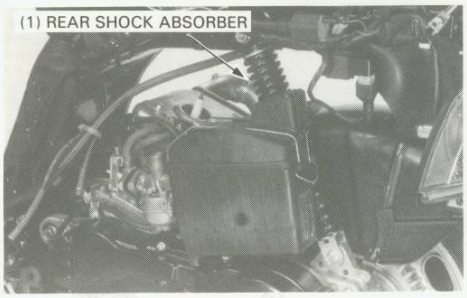


Disconnect the brake cable from the brake arm by removing the adjusting nut, cable set plate bolt and plate.

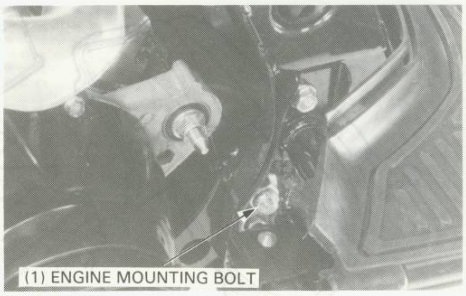
Remove the brake cable from the cable clamps on the right crankcase cover.



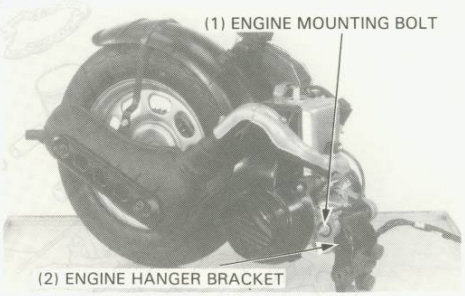
Remove the rear shock absorber (page 13-5).



Remove the engine mounting bolt and separate the engine from the frame.



Remove the engine hanger bracket by removing the engine mounting bolt.



ENGINE INSTALLATION

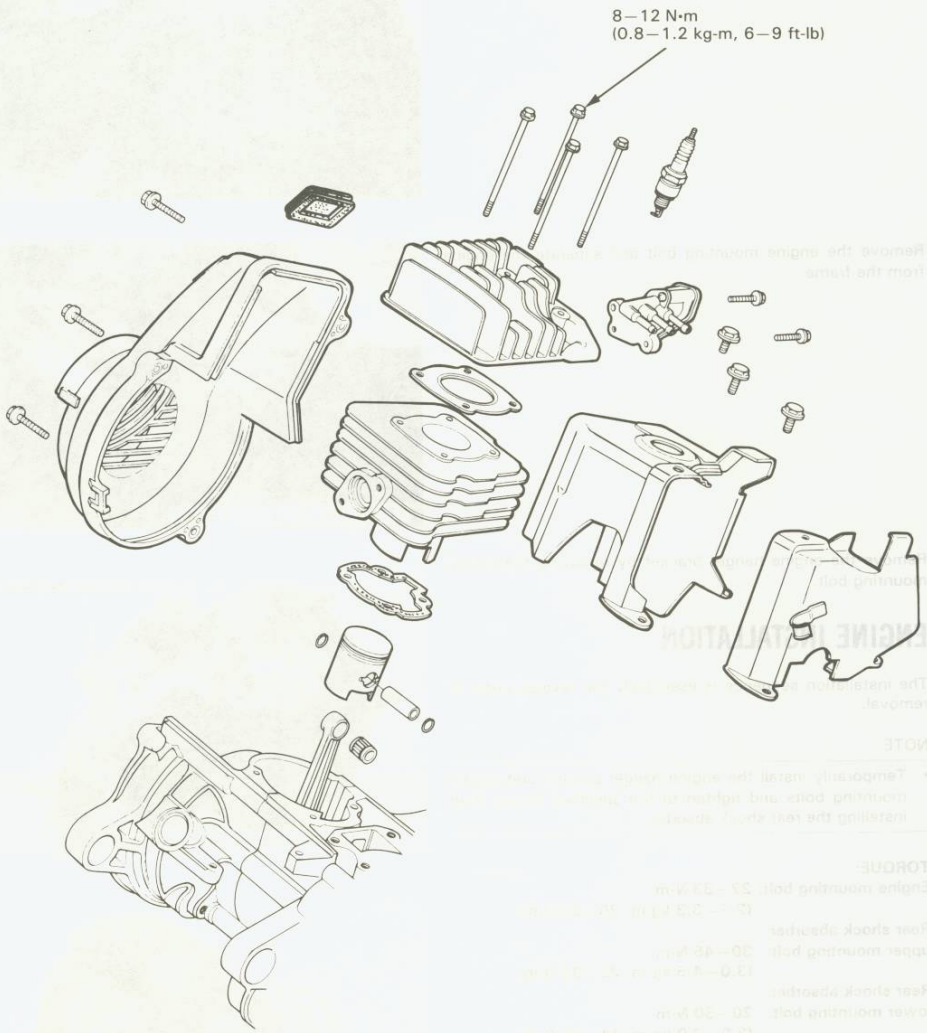
The installation sequence is essentially the reverse order of removal.

NOTE

- Temporarily install the engine hanger bracket and engine mounting bolts and tighten to the specified torque after installing the rear shock absorber.

TORQUE:
Engine mounting bolt: 27–33 N·m (2.7–3.3 kg-m, 20–24 ft-lb)
Rear shock absorber upper mounting bolt: 30–45 N·m (3.0–4.5 kg-m, 22–33 ft-lb)
Rear shock absorber lower mounting bolt: 20–30 N·m (2.0–3.0 kg-m, 14–22 ft-lb)

Inspect and adjust the following after installation:
- Wire and cable routing (pages 1-8,9)
- Throttle cable (page 3-4)
- Oil control cable (page 2-4)
- Oil pump bleeding/priming (page 2-3)
- Rear brake (page 3-8)


8—12 N·m
(0.8—1.2 kg-m, 6—9 ft-lb)

6. CYLINDER HEAD/CYLINDER/PISTON

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.
- Use caution when disassembling and assembling the cylinder head, cylinder and piston to avoid damaging them.
- Clean all disassembled parts thoroughly before inspection. Coat all sliding surfaces with clean motor oil before assembly.

SPECIFICATIONS

ITEM		STANDARD mm(in)	SERVICE LIMIT mm(in)
Cylinder head	Warpage	——	0.10 (0.004)
Piston	Piston O.D.	47.955—47.970 (1.8880—1.8886)	47.90 (1.886)
	Cylinder-to-piston clearance	0.035—0.050 (0.0013—0.0020)	0.10 (0.004)
	Piston pin bore	12.002—12.008 (0.4725—0.4728)	12.03 (0.473)
	Piston pin O.D.	11.994—12.000 (0.4722—0.4724)	11.98 (0.472)
	Piston-to-piston pin clearance	0.002—0.012 (0.0001—0.0005)	0.030 (0.0012)
	Piston ring end gap (top/second)	0.15—0.35 (0.006—0.014)	0.60 (0.024)
	Connecting rod small end I.D.	17.005—17.017 (0.6695—0.6700)	17.03 (0.670)
Cylinder	I.D.	48.000—48.010 (1.8898—1.8902)	48.05 (1.892)

TORQUE VALUE

Cylinder head	8—12 N·m (0.8—1.2 kg-m, 6—9 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
- Worn or damaged cylinder and piston
- Faulty reed valve

Compression too high, overheating or knocking
- Excessive carbon build-up in cylinder or on piston top

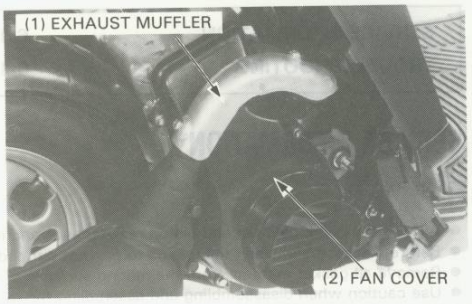
Abnormal noise — piston
- Worn cylinder and piston
- Worn piston pin or piston pin hole
- Worn connecting rod small end bearing

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

CYLINDER HEAD

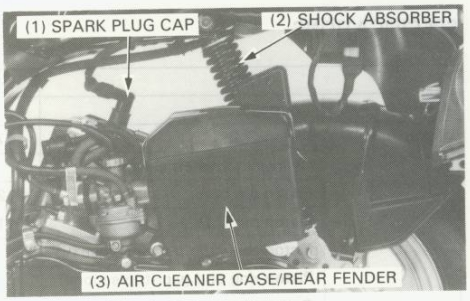
CYLINDER HEAD REMOVAL

Remove both frame rear covers (page 11-2).
Remove the exhaust muffler (page 3-6) and the cooling fan cover.

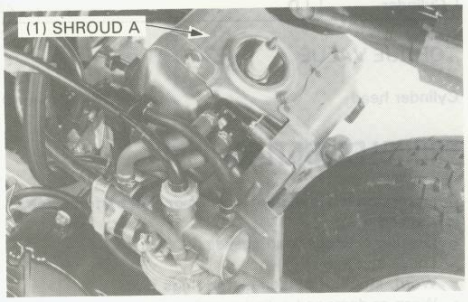


Remove the spark plug cap and the rear shock absorber.

Remove the air cleaner case/rear fender (page 4-13).

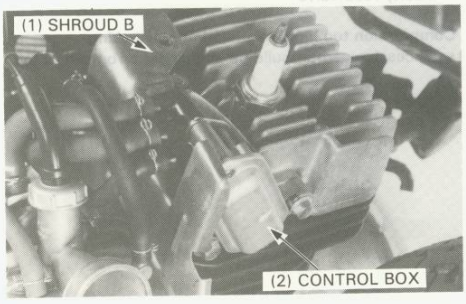


Remove engine shroud A.



Remove the bolts attaching the control box and remove the control box.

Remove engine shroud B.

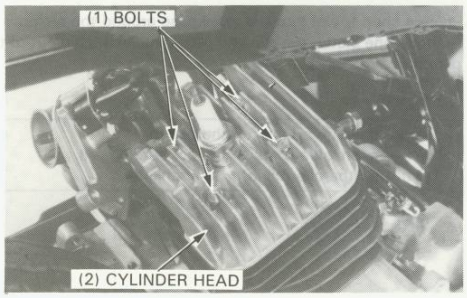


Remove the four cylinder head attaching bolts and remove the cylinder head.

NOTE

- Loosen the bolts in a crisscross pattern in 2 or 3 steps to prevent head distortion.

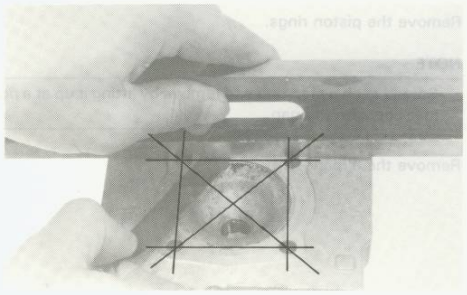
Remove the spark plug from the cylinder head.



CYLINDER HEAD INSPECTION

Check the cylinder head for warpage with a straight edge and a feeler gauge in the directions shown.

SERVICE LIMIT: 0.10 mm (0.004 in)

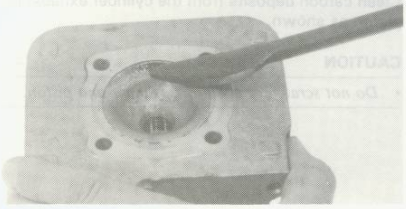


DECARBONIZING COMBUSTION CHAMBER

Remove the carbon build-up from the combustion chamber using a scraper as shown.

NOTE

- Do not scratch the combustion chamber wall or the cylinder mating surface.



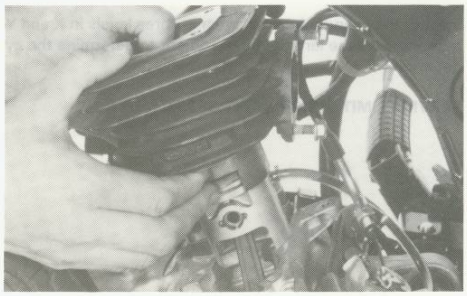
CYLINDER/PISTON

CYLINDER REMOVAL

Pull the cylinder up and off being careful not to let the piston get damaged.

CAUTION

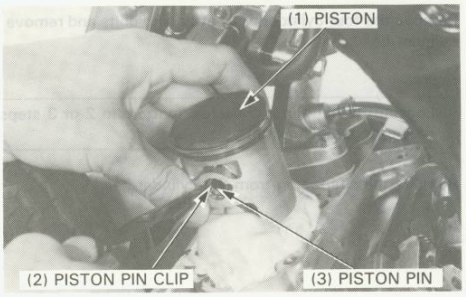
- *Do not pry between the cylinder and crankcase or strike the fins.*



Place a shop towel into the crankcase around the piston. Remove one piston pin clip and press the piston pin out of the piston.

NOTE

- Do not damage or scratch the piston.
- Do not apply side force to the connecting rod.
- Do not let the clip fall into the crankcase.

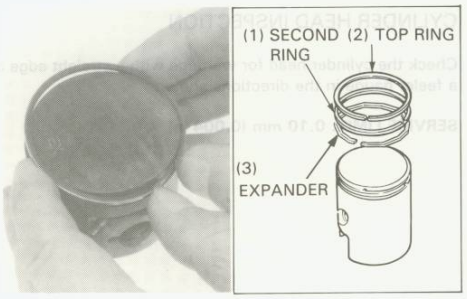


Remove the piston rings.

NOTE

- Spread each piston ring and remove by lifting it up at a point just opposite the gap.

Remove the expander.



CYLINDER/PISTON INSPECTION

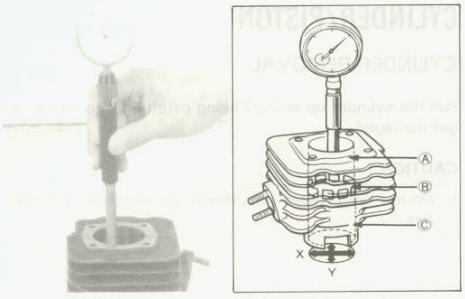
Check the cylinder and piston for wear or damage.
Clean carbon deposits from the cylinder exhaust port area and piston as shown.

CAUTION

- *Do not scratch or score the cylinder and piston.*

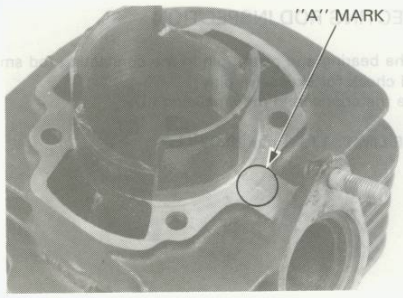
Inspect the cylinder bore for wear at three levels in X and Y directions. Use the largest measurement to determine the cylinder wear.

SERVICE LIMIT: 48.05 mm (1.892 in)



NOTE

- The cylinder may or may not have an "A" mark on its crankcase mating surface as shown. When the cylinder is replaced, replace it with a similar one, to match the crankcase.

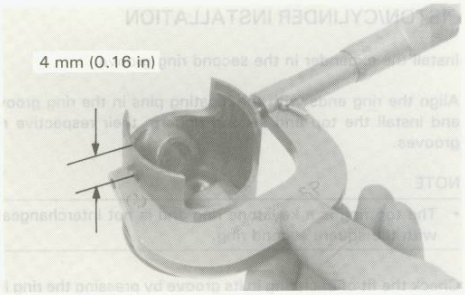


Measure the piston O.D. at a point 4 mm (0.16 in) from the bottom of the skirt.

SERVICE LIMIT: 47.90 mm (1.886 in)

Calculate the piston-to-cylinder clearance.

SERVICE LIMIT: 0.10 mm (0.004 in)

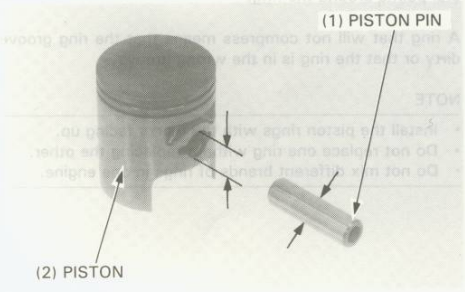


Measure the piston pin hole I.D.

SERVICE LIMIT: 12.03 mm (0.473 in)

Measure the piston pin O.D.

SERVICE LIMIT: 11.98 mm (0.472 in)



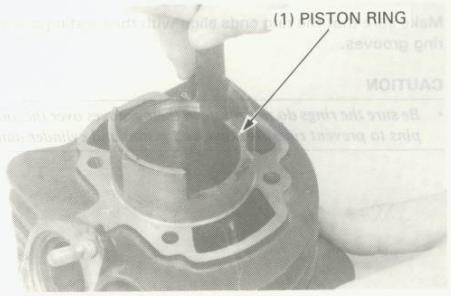
PISTON RING INSPECTION

Measure each piston ring end gap.

SERVICE LIMIT: 0.60 mm (0.024 in)

NOTE

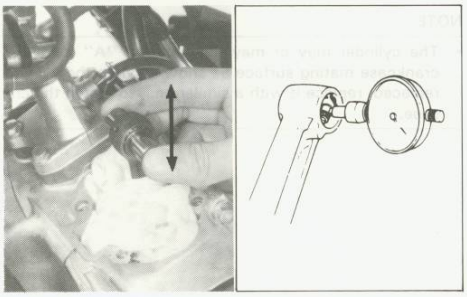
- Use the piston to set each ring squarely in the cylinder.



CONNECTING ROD INSPECTION

Install the bearing and piston pin in the connecting rod small end and check for excessive play.
Measure the connecting rod small end I.D.

SERVICE LIMIT: 17.03 mm (0.670 in)



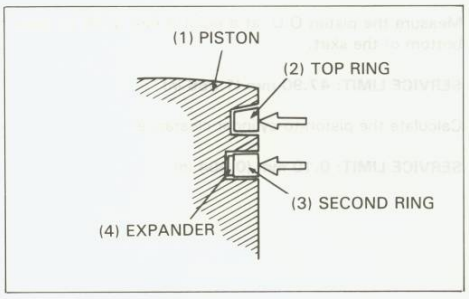
PISTON/CYLINDER INSTALLATION

Install the expander in the second ring groove.

Align the ring ends with the locating pins in the ring grooves and install the top and second rings in their respective ring grooves.

NOTE

- The top ring is a keystone ring and is not interchangeable with the square second ring.

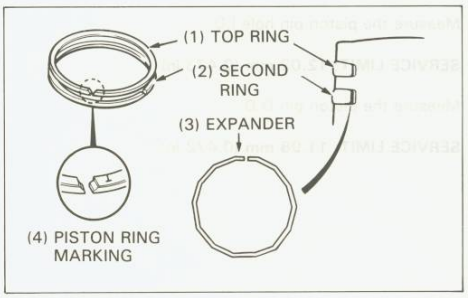


Check the fit of each ring in its groove by pressing the ring into the groove to make sure that it is flush with the piston at several points around the ring.

A ring that will not compress means that the ring groove is dirty or that the ring is in the wrong groove.

NOTE

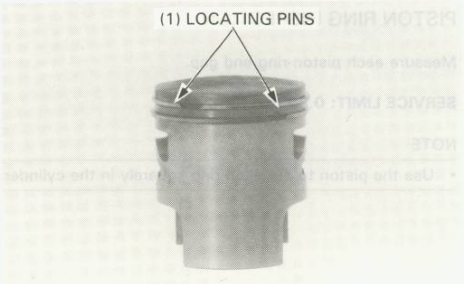
- Install the piston rings with the marks facing up.
- Do not replace one ring without replacing the other.
- Do not mix different brands of rings in one engine.



Make sure that the ring ends align with the locating pins in the ring grooves.

CAUTION

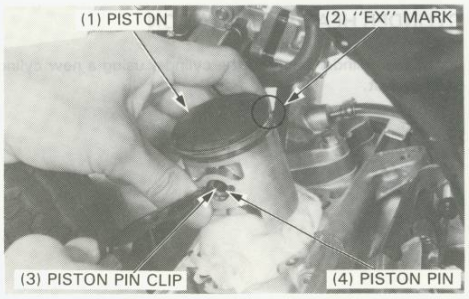
- *Be sure the rings do not rotate in their grooves over the locating pins to prevent ring breakage and piston and cylinder damage.*



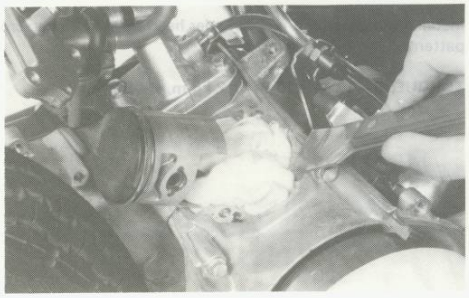
Place a shop towel over the crankcase opening to prevent piston pin clips from falling into the crankcase.

Coat the needle bearing and piston pin with 2-stroke oil. Install the needle bearing in the connecting rod, and install the piston "EX" mark facing the exhaust side.

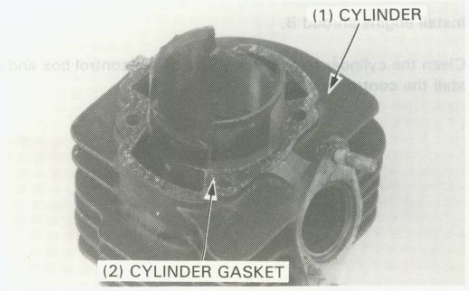
Install new piston pin clips.



Remove all gasket material from the cylinder and crankcase mating surfaces.



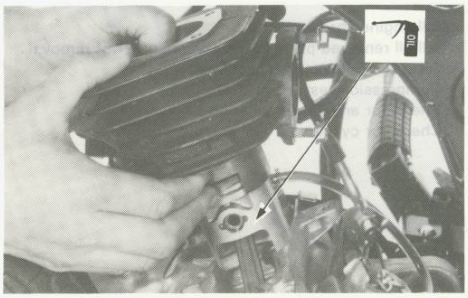
Place a new cylinder gasket on the cylinder.



Lubricate the cylinder and piston with 2-stroke oil and install the cylinder over the piston while compressing the piston rings.

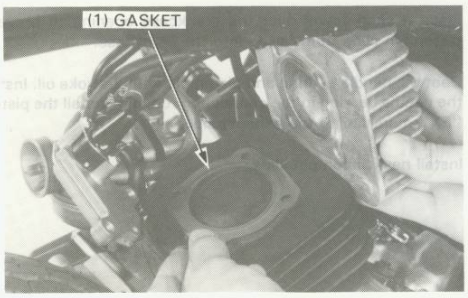
CAUTION

- *Avoid damaging the sliding surface of the piston.*



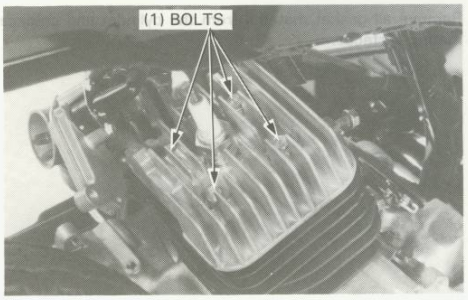
CYLINDER HEAD INSTALLATION

Install the cylinder head on the cylinder using a new cylinder head gasket.



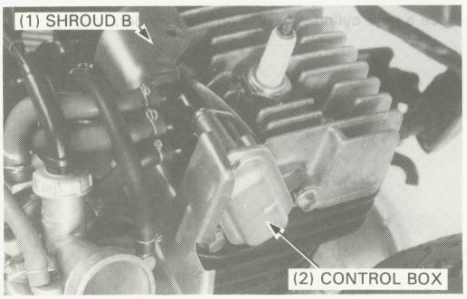
Install and tighten the four cylinder head bolts in a criss-cross pattern.

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

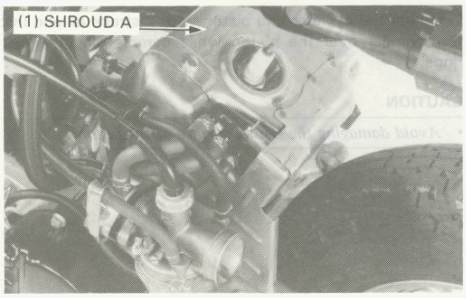


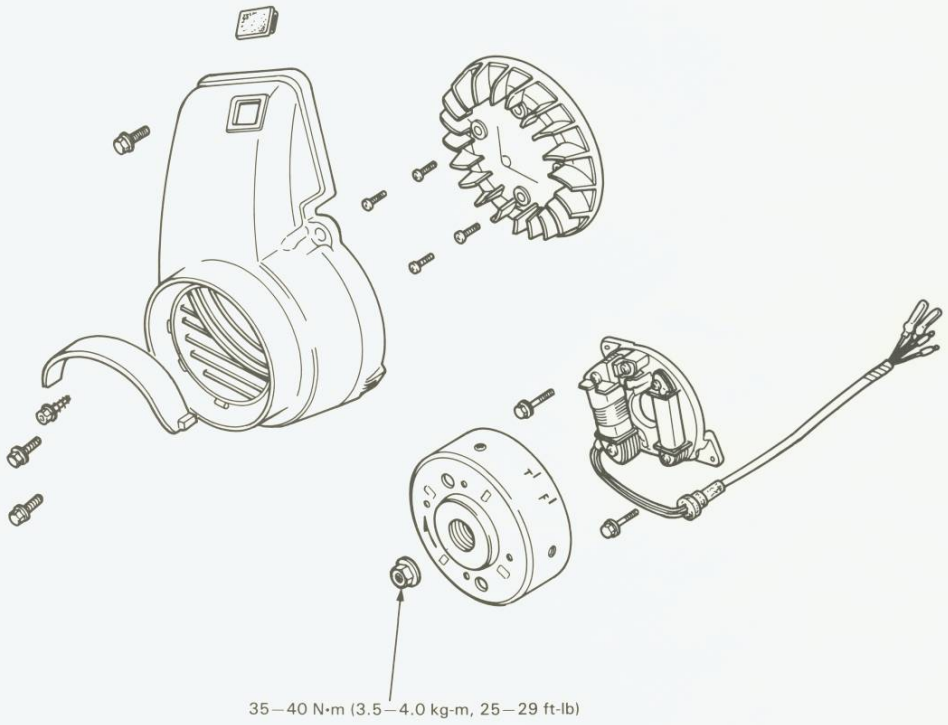
Install engine shroud B.

Clean the cylinder head mating face of the control box and install the control box.



Install engine shroud A.
Install all removed parts in the reverse order of removal.
Perform the following inspections:
- Compression test (page 3-7).
- Check for any abnormal engine noise.
- Check for cylinder air leaks.




35—40 N•m (3.5—4.0 kg-m, 25—29 ft-lb)

7. ALTERNATOR

SERVICE INFORMATION

GENERAL

- All alternator maintenance can be done with the engine installed.
- Do not remove the pulse generator from the stator base.
- See Section 14 for alternator inspection.

TORQUE VALUE

Flywheel	35—40 N·m (3.5—4.0 kg-m, 25—29 ft-lb)

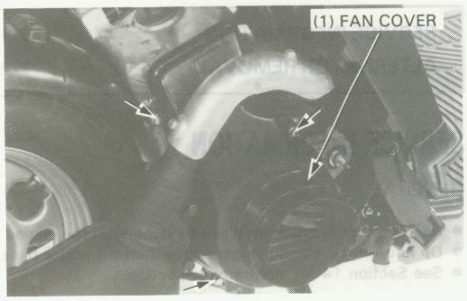
TOOLS

Common

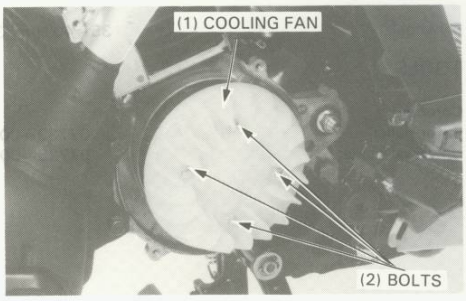
Rotor puller	07733—0010000 or 07933—0230000
Universal holder	07725—0030000

ALTERNATOR REMOVAL

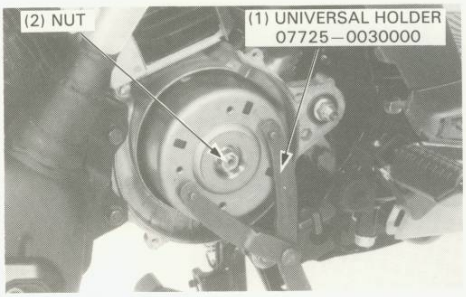
Remove both frame rear covers (page 11-2) and the fan cover.



Remove the four cooling fan bolts and the cooling fan.

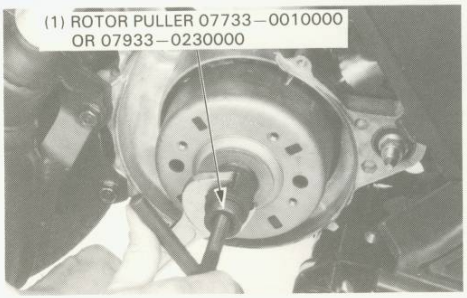


Hold the flywheel using the universal holder and remove the flywheel nut.



Remove the flywheel with the rotor puller.

Remove the woodruff key from the shaft.

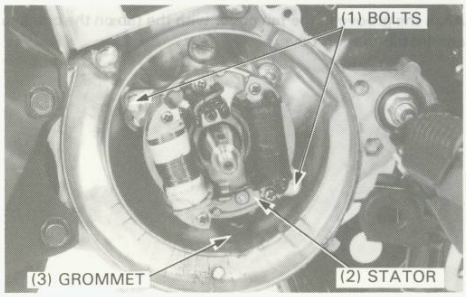


Disconnect the alternator wire connectors.

Remove the two bolts attaching the stator and remove the stator.

NOTE

- Do not remove the pulse generator from the stator base.
- Avoid damaging the stator coils.

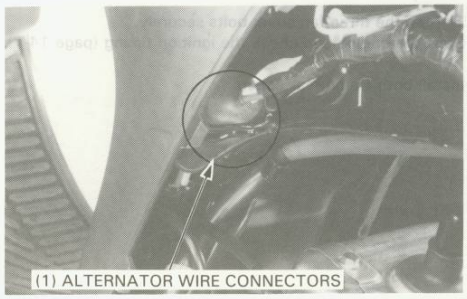


ALTERNATOR INSTALLATION

Install the alternator wire grommet in the case.
Install the stator then install the woodruff key in the keyway in the crankshaft.

Connect the alternator wire connectors.

Route the alternator wires properly and secure with the wire clamp.



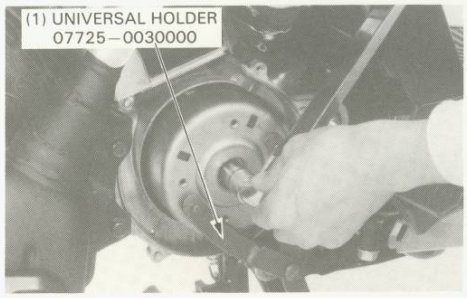
Clean the tapered hole in the flywheel of any burrs and install the flywheel onto the crankshaft.

NOTE

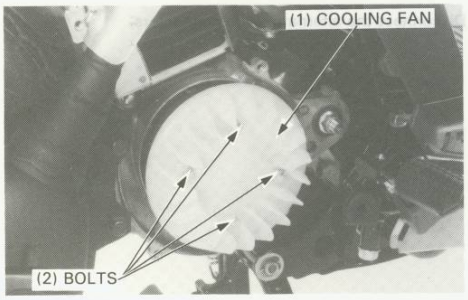
- Make sure that there are no foreign particles inside the flywheel.

Torque the flywheel nut.

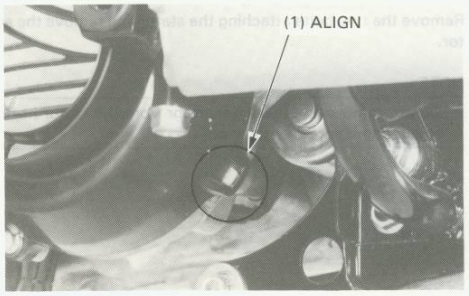
TORQUE: 35–40 N·m (3.5–4.0 kg-m, 25–29 ft-lb)



Install the cooling fan.

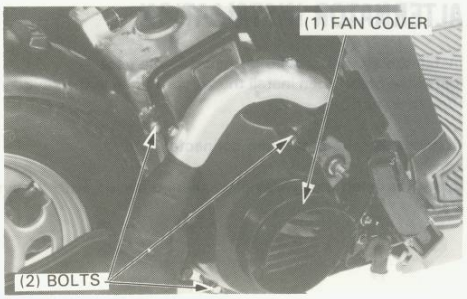


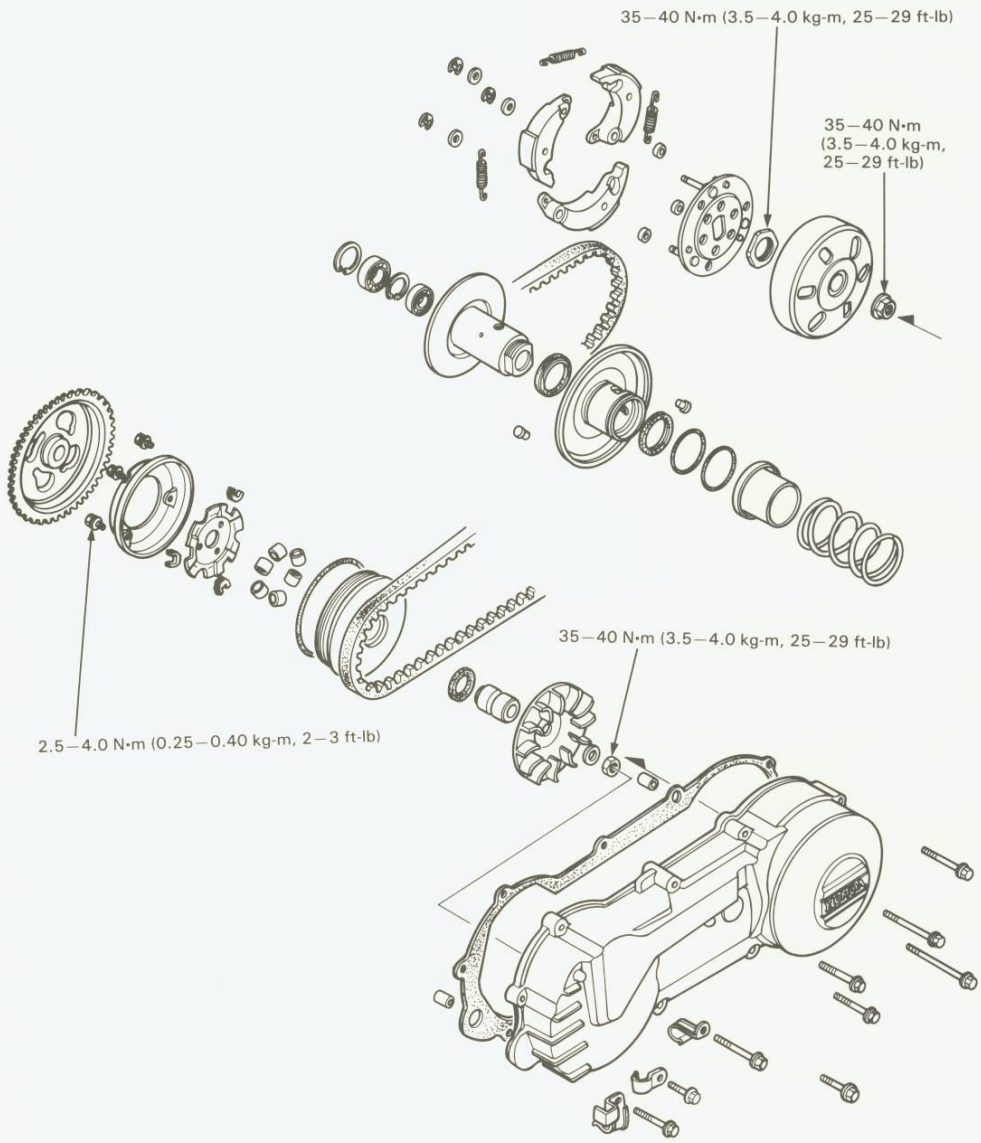
Align the groove in the fan cover with the tab on the crankcase and install the fan cover.



Tighten the three fan cover bolts securely.
Start the engine and check the ignition timing (page 14-7).

Install both frame rear covers.




35–40 N·m (3.5–4.0 kg-m, 25–29 ft-lb)
35–40 N·m
(3.5–4.0 kg-m,
25–29 ft-lb)
35–40 N·m (3.5–4.0 kg-m, 25–29 ft-lb)
2.5–4.0 N·m (0.25–0.40 kg-m, 2–3 ft-lb)

8. DRIVE AND DRIVEN PULLEYS/CLUTCH

SERVICE INFORMATION

GENERAL

- Avoid getting grease and oil on the drive belt and pulley faces.

SPECIFICATIONS

ITEM	STANDARD mm (in)	SERVICE LIMIT mm (in)
Movable drive face bushing I.D.	24.000–24.021 (0.9449–0.9457)	24.07 (0.948)
Drive face boss O.D.	23.970–23.990 (0.9437–0.9444)	23.94 (0.943)
Weight roller O.D.	17.92–18.08 (0.706–0.712)	17.4 (0.69)
Clutch outer I.D.	112.0–112.2 (4.41–4.42)	112.5 (4.43)
Driven face spring free length	64.5 (2.54)	59.1 (2.33)
Driven face O.D.	33.950–33.975 (1.3366–1.3376)	33.93 (1.336)
Movable driven face I.D.	34.000–34.025 (1.3386–1.3396)	34.06 (1.341)

TORQUE VALUES

Movable drive face nut	35–40 N·m(3.5–4.0 kg-m, 25–29 ft-lb)
Movable driven face lock nut	35–40 N·m(3.5–4.0 kg-m, 25–29 ft-lb)
Clutch outer nut	35–40 N·m(3.5–4.0 kg-m, 25–29 ft-lb)
Movable face cover bolt	2.5–4.0 N·m(0.25–0.40 kg-m, 2–3 ft-lb)

TOOLS

Special	
Clutch spring compressor	07960–KM10000
Bearing driver	07945–GC80000
Lock nut wrench, 39 mm	07916–1870002
Crankcase puller	07935–KG80000
Bearing driver attachment, 28 x 30 mm	07946–1870100
Drive pulley holder	07923–KM10000
Bearing remover, 15 mm	07936–KC10500
Remover weight	07741–0010201 or 07936–3710200
Bearing remover, 12 mm	07936–1660100
Common	
Universal holder	07725–0030000
Pilot, 15 mm	07746–0040300
Driver	07749–0010000

TROUBLESHOOTING

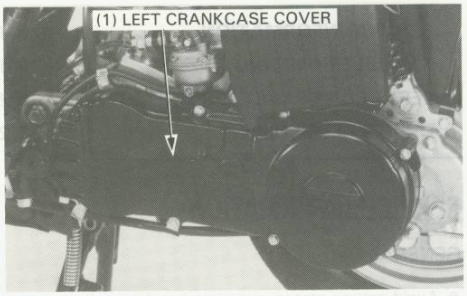
Engine starts but scooter won't move
- Worn drive belt
- Damaged ramp plate
- Worn or damaged clutch lining
- Broken driven face spring

Engine stalls or scooter creeps
- Broken clutch weight spring

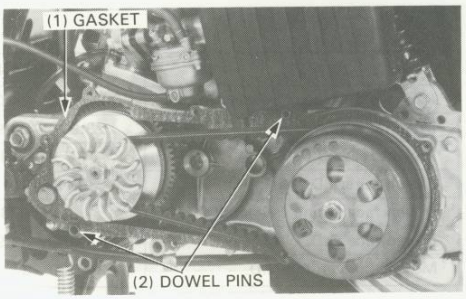
Poor performance at high speed or lack of power
- Worn drive belt
- Weak driven face spring
- Worn weight roller
- Faulty driven face

LEFT CRANKCASE COVER REMOVAL

Remove the frame center cover and left frame rear cover (page 11-2).
Remove the bolts and left crankcase cover.



Remove the gasket and two dowel pins.



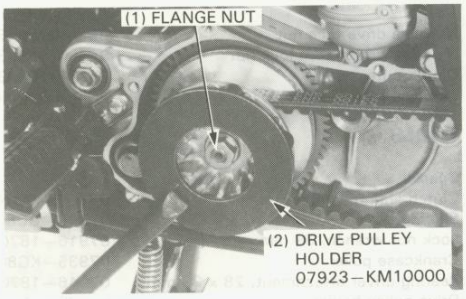
DRIVE PULLEY/BELT

DRIVE BELT REMOVAL/INSPECTION

Use the drive pulley holder to hold the drive face and remove the flange nut and drive face.
Remove the drive belt.

CAUTION

- *Do not bend the drive belt.*



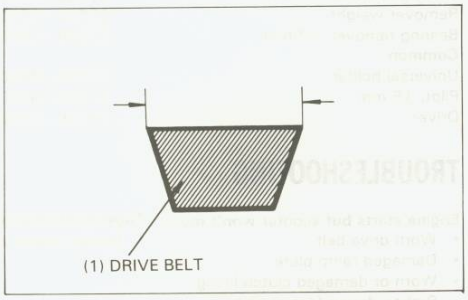
Check the drive belt for cracks, separation or abnormal or excessive wear.

Measure the drive belt width.

SERVICE LIMIT: 13.5 mm (0.531 in)

NOTE

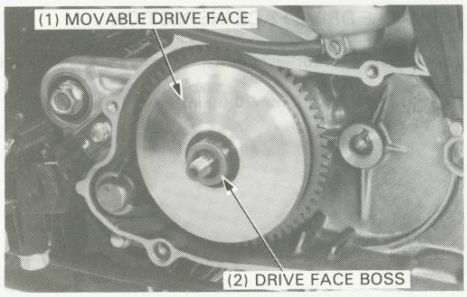
- Use only a genuine Honda replacement drive belt.



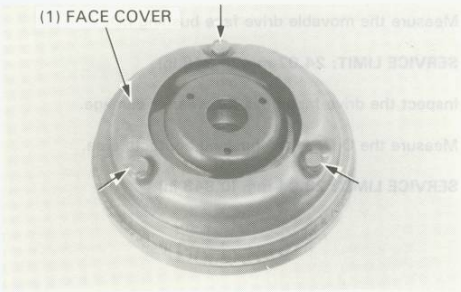
MOVABLE DRIVE FACE REMOVAL/ DISASSEMBLY

Remove the movable drive face assembly.

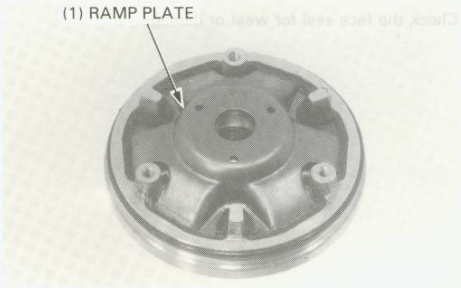
Remove the drive face boss.



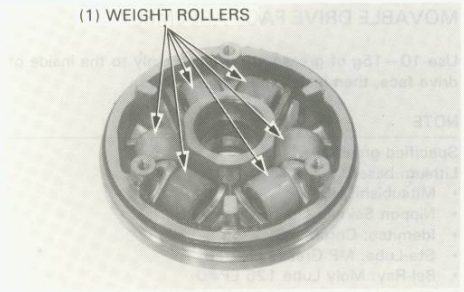
Remove the three bolts attaching the movable drive face cover and remove the cover.



Remove the ramp plate.



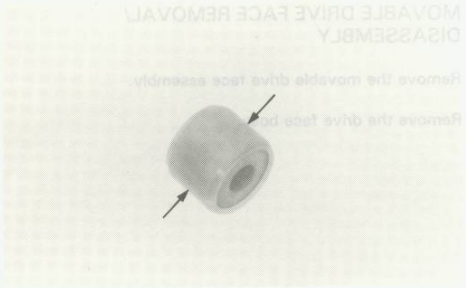
Remove the weight rollers.



MOVABLE DRIVE FACE INSPECTION

Check each roller for wear or damage and measure the O.D.

SERVICE LIMIT: 17.4 mm (0.69 in)



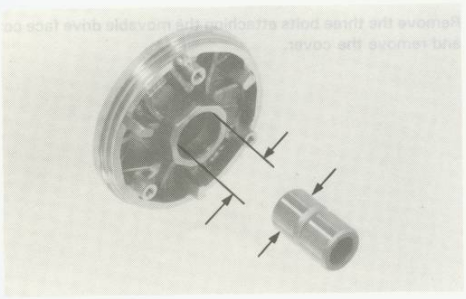
Measure the movable drive face bushing I.D.

SERVICE LIMIT: 24.07 mm (0.948 in)

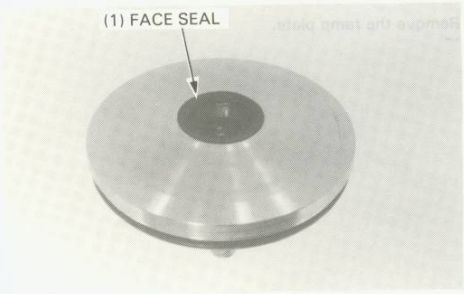
Inspect the drive face boss for wear or damage.

Measure the O.D. at the bushing contacte area.

SERVICE LIMIT: 23.94 mm (0.943 in)



Check the face seal for wear or damage.

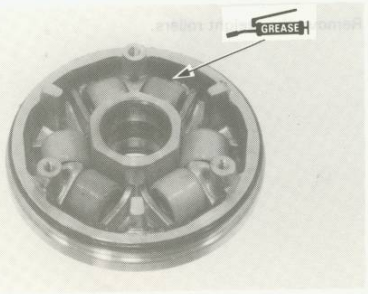


MOVABLE DRIVE FACE ASSEMBLY

Use 10—15g of grease and apply evenly to the inside of the drive face, then install the weight rollers.

NOTE

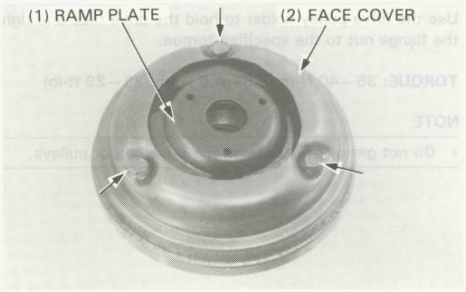
Specified grease:
Lithium based
- Mitsubishi: HD-3
- Nippon Sekiyu: Lipanox Deluxe 3
- Idemitsu: Coronex 3
- Sta-Lube: MP Grease #3141
- Bel-Ray: Moly Lube 126 EP#0

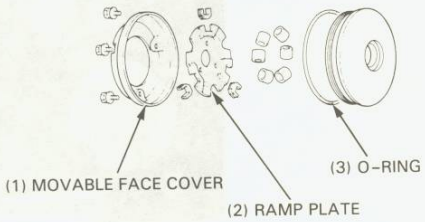


Install the ramp plate and movable face cover.

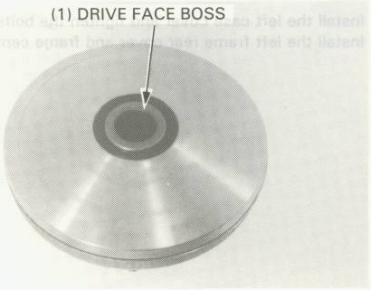
Make sure that the O-ring is in position, then tighten the cover bolts to the specified torque.

TORQUE: 2.5—4.0 N·m (0.25—0.40 kg-m, 2—3 ft-lb)





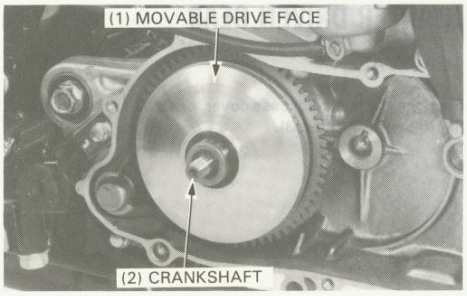
Install the boss in the movable drive face.



MOVABLE FACE INSTALLATION

Clean the crankshaft and drive face bass, and install the movable drive face assembly onto the crankshaft.

Install the drive belt and drive face.

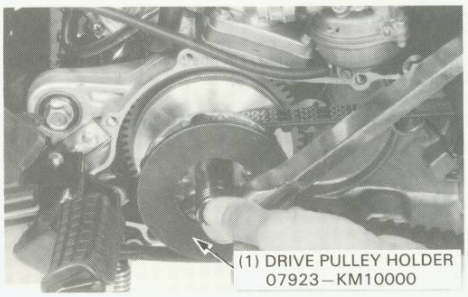


Use the drive pulley holder to hold the drive face and tighten the flange nut to the specified torque.

TORQUE: 35–40 N·m (3.5–4.0 kg-m, 25–29 ft-lb)

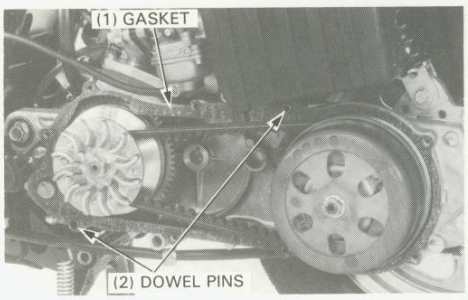
NOTE

- Do not get oil or grease on the drive belt or pulleys.



LEFT CRANKCASE COVER INSTALLATION

Install the gasket and dowel pins.

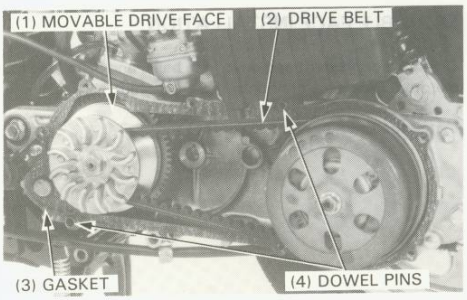


Install the left case cover and tighten the bolts securely.
Install the left frame rear cover and frame center cover.

STARTER DRIVEN GEAR

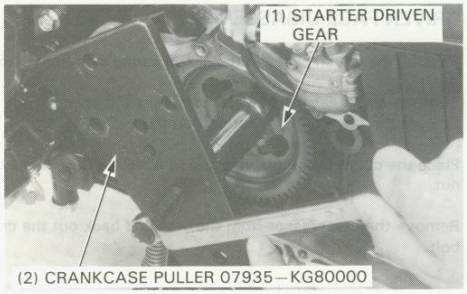
REMOVAL

Remove the left crankcase cover, drive belt and movable drive face (pages 8-2 and 3).



Attach the crankcase puller as shown with the two long special bolts.

Remove the starter driven gear with the puller.

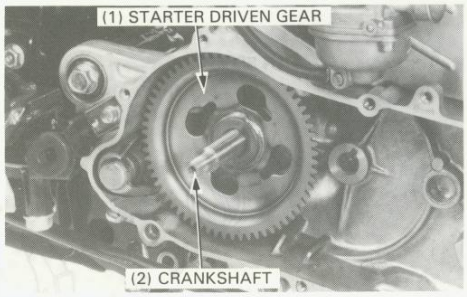


INSTALLATION

Install the starter driven gear onto the crankshaft.

Install the movable drive face assembly with the drive belt (page 8-5).

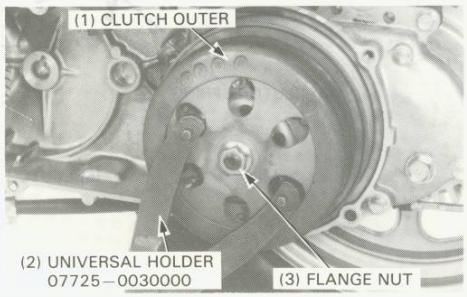
Install the left crankcase cover (page 8-6).



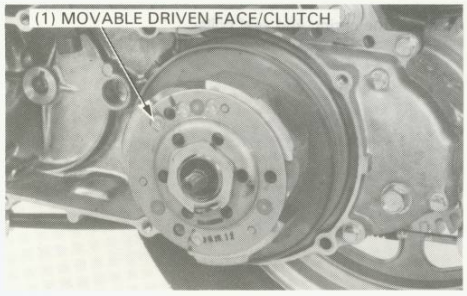
CLUTCH/DRIVEN PULLEY

CLUTCH REMOVAL

Remove the left crankcase cover, drive belt and drive face (pages 8-2 and 3).
Hold the clutch with the universal holder and remove the flange nut, then remove the clutch outer.



Remove the movable driven face and the clutch from the drive shaft.



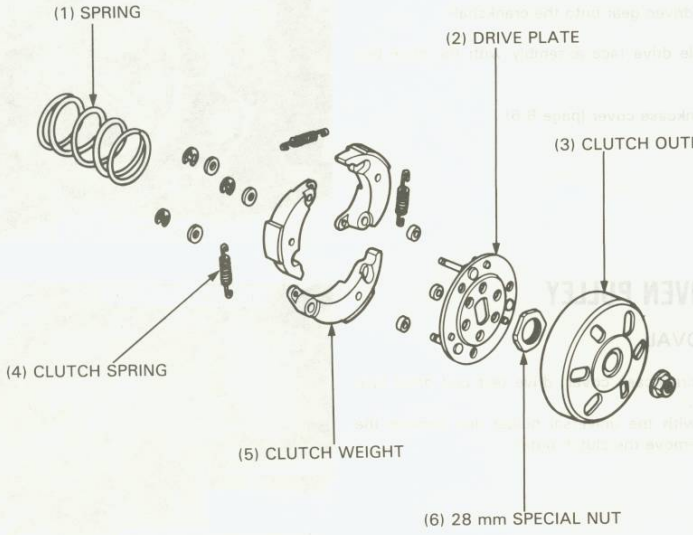
DRIVEN FACE DISASSEMBLY

Position the driven pulley in the clutch spring compressor tool.

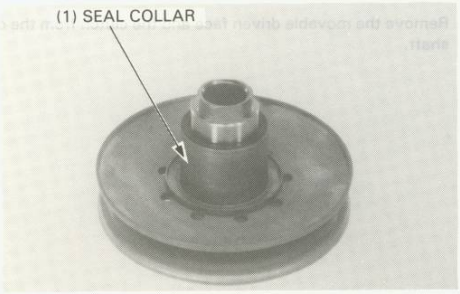
Turn the compressor handle to compress the spring.
Be sure the drive bolt is centered on the pulley.

Place the compressor in a vise and remove the 28 mm special nut.

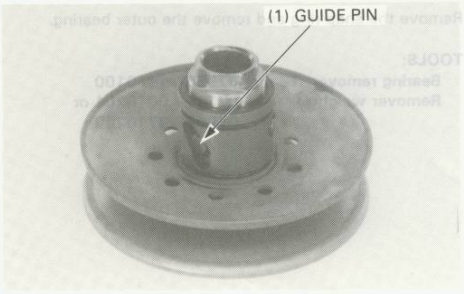
Remove the compressor from the vise and back out the drive bolt.

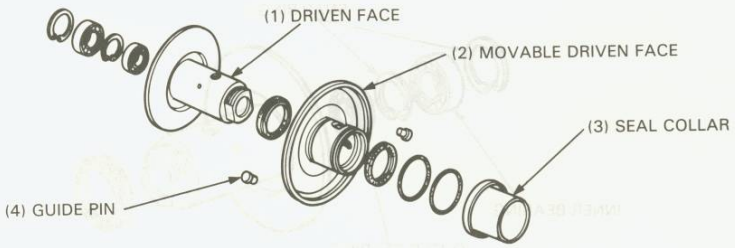


Remove the spring and seal collar.

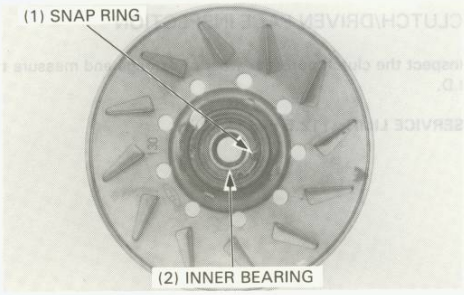


Withdraw the guide pins.

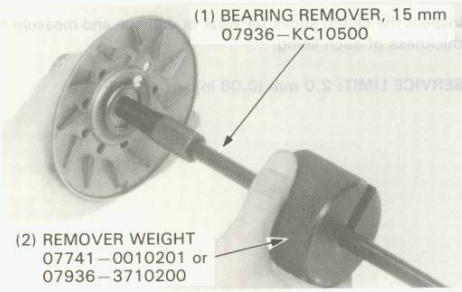




Remove the snap ring.



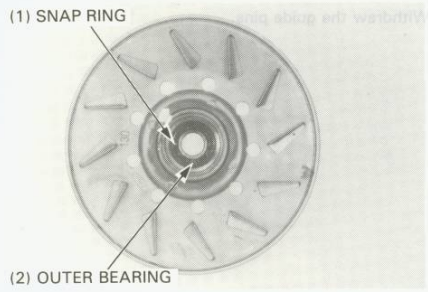
Remove the inner bearing using the bearing remover.

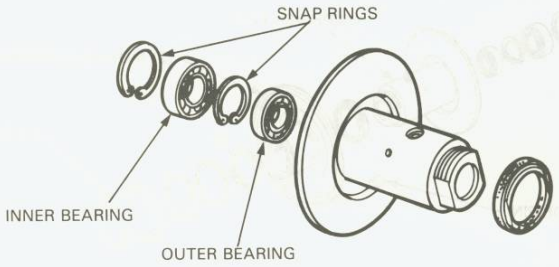


Remove the snap ring and remove the outer bearing.

TOOLS:

Bearing remover, 12 mm	**07936–1660100**
Remover weight	**07741–0010201 or 07936–3710200**

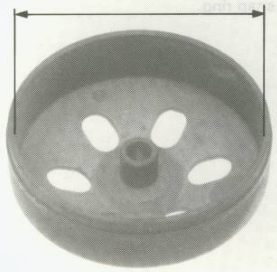




CLUTCH/DRIVEN FACE INSPECTION

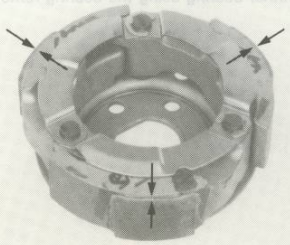
Inspect the clutch outer for wear or damage and measure the I.D.

SERVICE LIMIT: 112.5 mm (4.43 in)



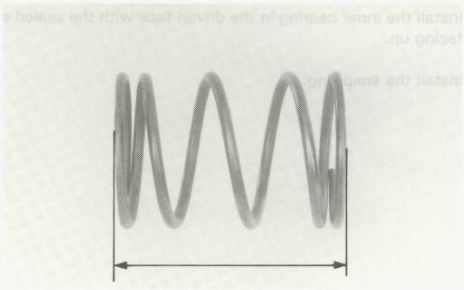
Inspect the clutch shoes for wear or damage and measure the thickness of each lining.

SERVICE LIMIT: 2.0 mm (0.08 in)



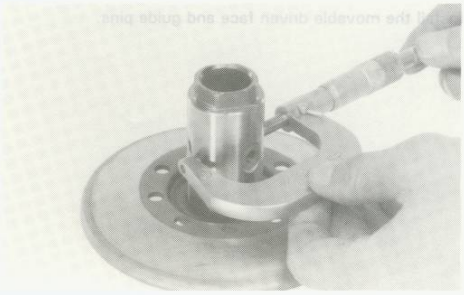
Measure the driven face spring free length.

SERVICE LIMIT: 59.1 mm (2.33 in)



Inspect the driven face assembly for wear or damage and measure the O.D.

SERVICE LIMIT: 33.93 mm (1.336 in)

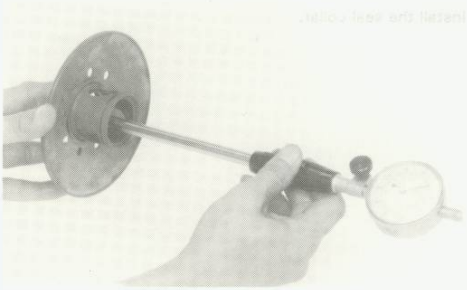


Inspect the movable driven face for wear or damage and measure the I.D.

SERVICE LIMIT: 34.06 mm (1.341 in)

Check the guide groove for wear.

Check the oil seal for wear, damage or other faults.



DRIVEN FACE ASSEMBLY

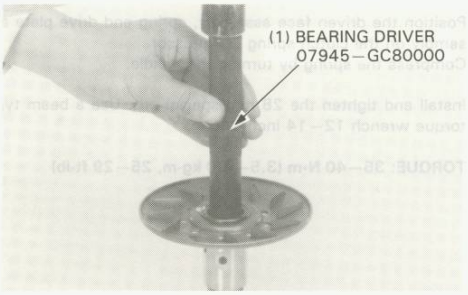
Using the Bearing Driver install the outer bearing in the driven face with the sealed end facing down.

Seat the snap ring in its groove.

Pack all bearing cavities with 5.0—5.5 g of grease.

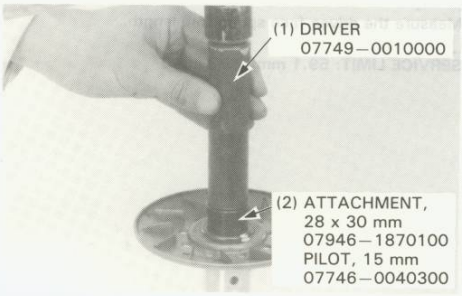
NOTE

- Specified grease: Nippon Sekiyu Lipanox Deluxe 3
  Sta-Lube MP Grease #3141
  Bel-Ray Moly-Lube 126 EP#0

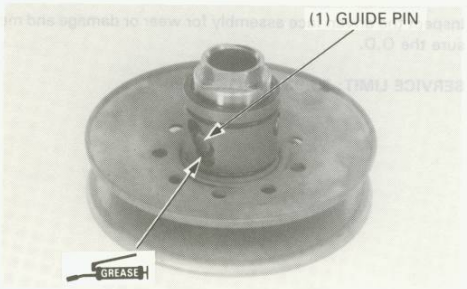


Install the inner bearing in the driven face with the sealed end facing up.

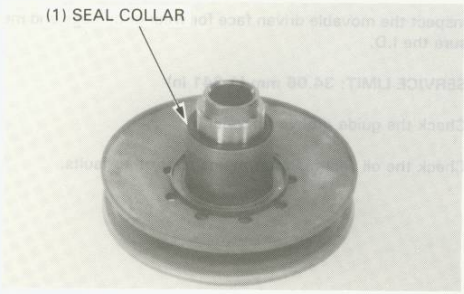
Install the snap ring.



Install the movable driven face and guide pins.



Install the seal collar.



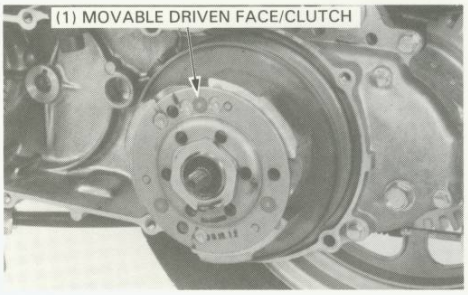
Position the driven face assembly, spring and drive plate assembly on the clutch spring compressor.
Compress the spring by turning the handle.

Install and tighten the 28 mm special nut. Use a beam type torque wrench 12—14 inches long.

TORQUE: 35—40 N·m (3.5—4.0 kg-m, 25—29 ft-lb)

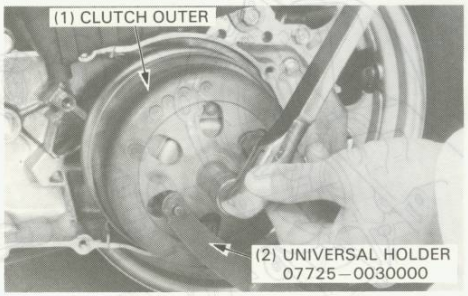
CLUTCH/DRIVEN PULLEY INSTALLATION

Install the movable driven face/clutch on the drive shaft.



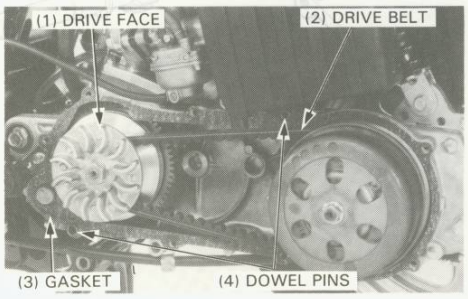
Install the clutch outer and torque the nut while holding the clutch outer with the universal holder.

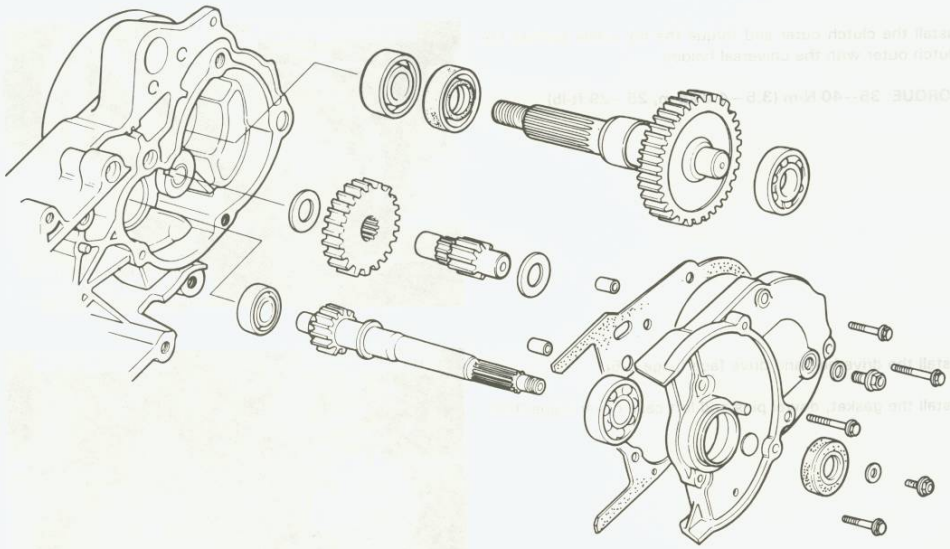
TORQUE: 35—40 N·m (3.5—4.0 kg-m, 25—29 ft-lb)



Install the drive belt and drive face (page 8-5)

Install the gasket, dowel pins and left case cover (page 8-6).





9. TRANSMISSION

SERVICE INFORMATION

SPECIFICATIONS

Specified oil	Honda 4-stroke oil SAE 10W—40 or equivalent
Oil quantity	0.09 liter: (3.0 US oz, 3.2 Imp oz)

TOOLS

Special

Bearing remover, 12 mm	07936—1660100
Bearing remover, 15 mm	07936—KC10500
Remover weight	07741—0010201 or 07936—3710200
Assembly collar	07965—1480100
Assembly bolt	07965—1480200

Common

Attachment, 32 x 35 mm	07746—0010100
Attachment, 37 x 40 mm	07746—0010200
Pilot, 12 mm	07746—0040200
Pilot, 15 mm	07746—0040300
Pilot, 17 mm	07746—0040400
Driver	07749—0010000

TROUBLESHOOTING

Engine starts, but scooter won't move
- Damaged transmission
- Seized or burnt belt

Abnormal noise
- Worn, seized or chipped gears
- Worn bearing

Oil leaks
- Oil level too high
- Worn or damaged oil seal

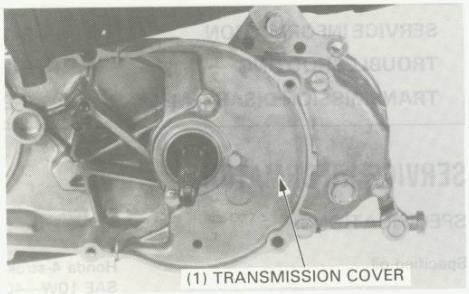
TRANSMISSION DISASSEMBLY

Remove the driven pulley (page 8-7).

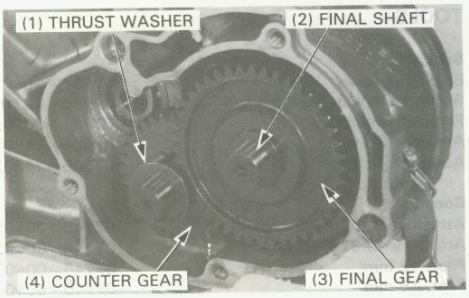
Remove the rear wheel (page 13-2).

Place an oil drain pan under the final reduction case to catch the oil, then remove the transmission cover bolts and cover.

Remove the two dowel pins and the gasket.

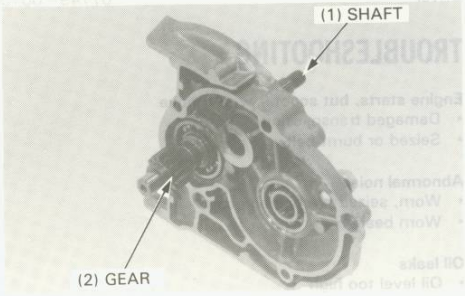


Remove the final gear, countershaft and counter gear.



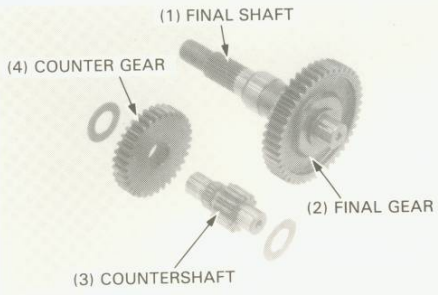
TRANSMISSION INSPECTION

Inspect the driveshaft and gear for excessive wear or damage.



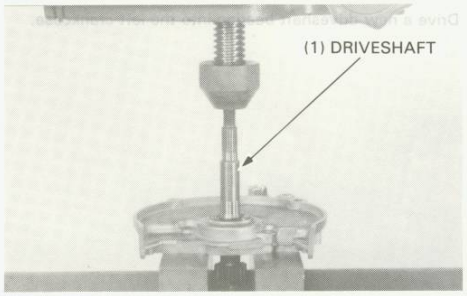
Check the countershaft and gear for excessive wear or damage.

Check the final gear for wear, damage or signs of seizure.



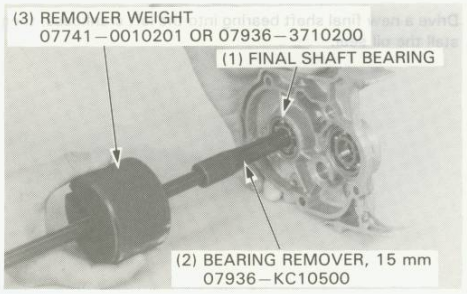
DRIVESHAFT REMOVAL

Use a hydraulic press to remove the driveshaft from the transmission cover.

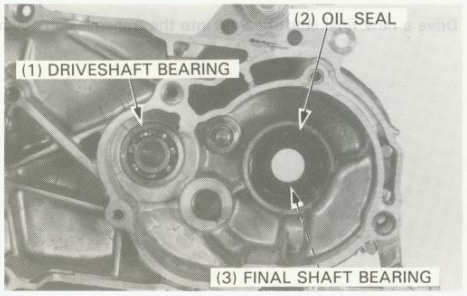


TRANSMISSION BEARING REPLACEMENT

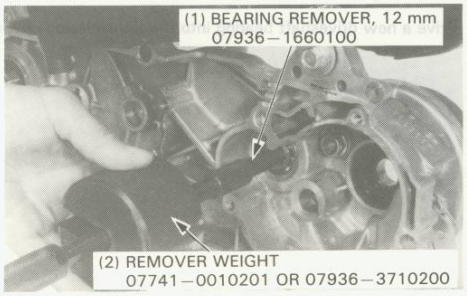
Check the transmission cover final shaft bearing, driveshaft bearing and oil seal for damage.
Replace if necessary.



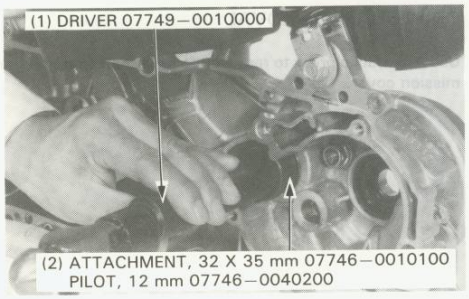
Check the left crankcase driveshaft bearing, oil seal and final shaft bearing for damage.
Replace if necessary.



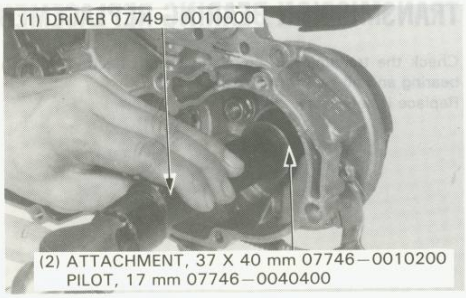
Remove the driveshaft bearing from the left crankcase using the special tools.



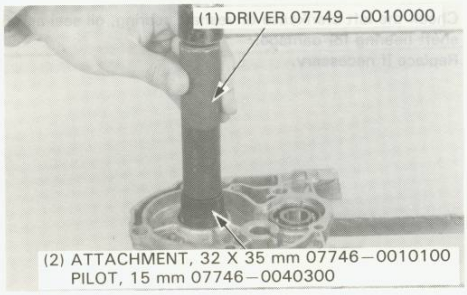
Drive a new driveshaft bearing into the left crankcase.



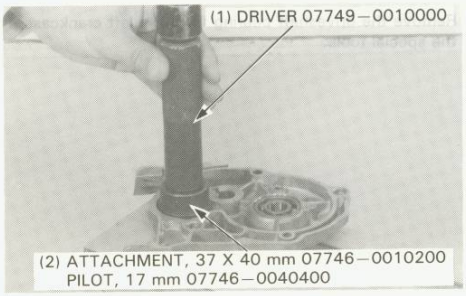
Drive a new final shaft bearing into the left crankcase, then install the oil seal.



Drive a new final shaft bearing into the transmission cover.

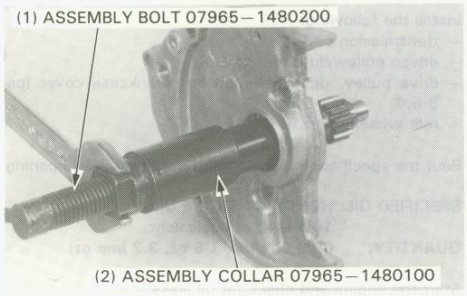


Drive a new driveshaft bearing into the transmission cover.

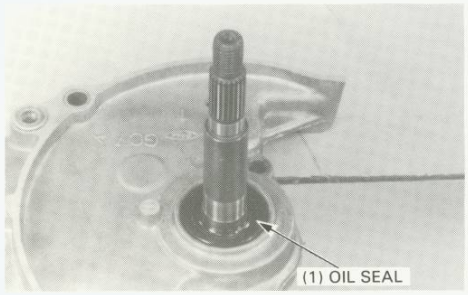


TRANSMISSION ASSEMBLY

Insert the driveshaft into the driveshaft bearing in the cover from the left side.



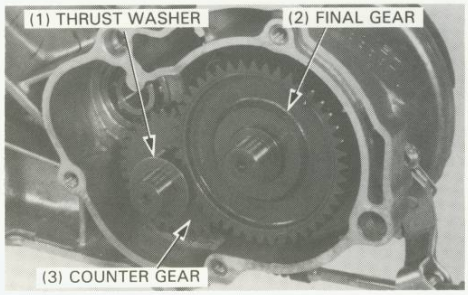
Install the oil seal.



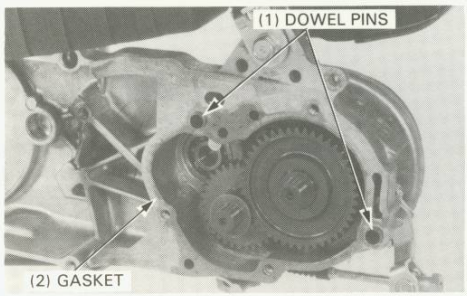
Assemble the inner thrust washer and counter gear onto the countershaft, then install them in the left crankcase.

Install the final shaft and final gear in the case.

Install the outer thrust washer onto the countershaft.



Install a new gasket and dowel pins.

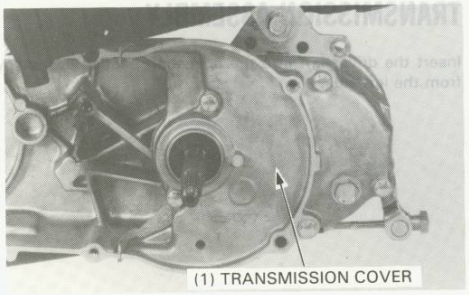


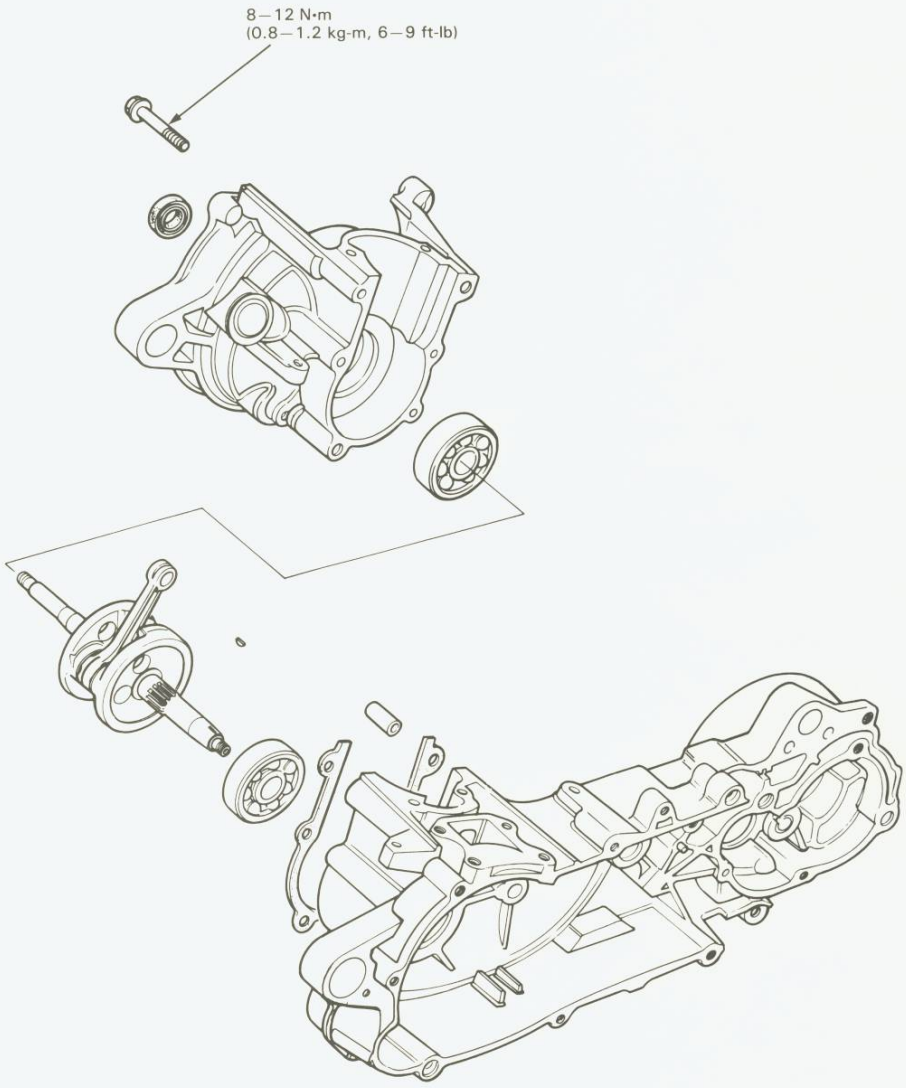
Install the following:
- transmission cover.
- driven pulley/clutch (page 8-13)
- drive pulley, drive belt and left crankcase cover (pages 8-5,6)
- rear wheel (page 13-2).

Pour the specified amount of oil through the filler opening.

SPECIFIED OIL: HONDA 4-STROKE OIL
10W—40 or equivalent
QUANTITY: 0.09 liter (3.0 US oz, 3.2 Imp oz)

Start the engine and check for oil leaks.


(1) TRANSMISSION COVER


8—12 N·m
(0.8—1.2 kg-m, 6—9 ft-lb)

10. CRANKCASE/CRANKSHAFT

SERVICE INFORMATION

GENERAL

- This section covers crankcase separation to service the crankshaft.
- The following parts must be removed before separating the crankcase:
  - Engine — Section 5
  - Carburetor — Section 4
  - Oil pump — Section 2
  - Reed valve — Section 4
  - Drive pulley — Section 8
  - Alternator — Section 7
  - Cylinder head, cylinder — Section 6
- In addition to the above, the transmission must be removed when the left crankcase half needs to be replaced (See section 9).
- When assembling the crankcase and crankshaft, force the crankshaft into the case bore with the special tool rested against the crankshaft bearing inner race. To do this, it is necessary to remove the old bearing from the crankshaft and drive a new bearing into the crankcase. Use a new oil seal after assembling the crankcase.

SPECIFICATIONS

ITEM	STANDARD mm (in)	SERVICE LIMIT mm (in)
Connecting rod big end side clearance	0.15—0.55 (0.006—0.022)	0.7 (0.03)
Connecting rod big end radial clearance	0.007—0.019 (0.0003—0.0007)	0.04 (0.002)
Crankshaft runout	——	0.10 (0.004)

TORQUE VALUE

Crankcase bolt	8—12 N·m (0.8—1.2 kg-m, 6—9 ft-lb)

TOOLS

Special

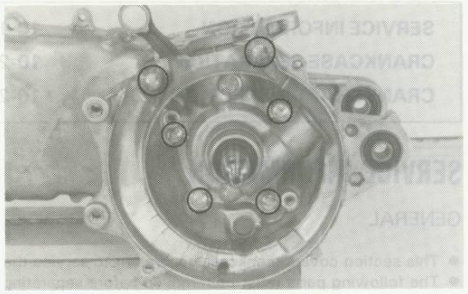
Case puller	07935—KG80000
Universal bearing puller	07631—0010000 or Equivalent commercially available in U.S.A.
Assembly collar	07965—GC70100
Assembly bolt	07965—1480200

Common

Driver	07749—0010000
Attachment, 42 x 47 mm	07746—0010300
Pilot, 25 mm	07746—0040600

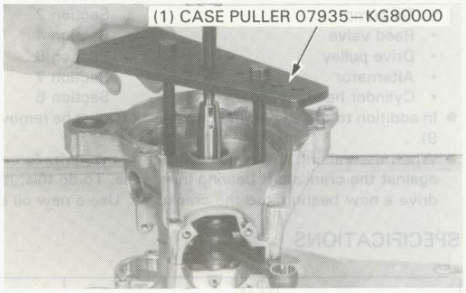
CRANKCASE SEPARATION

Remove the crankcase attaching bolts.



Attach the crankcase puller on the right crankcase as shown with the two special long bolts.

Remove the right crankcase from the left crankcase.



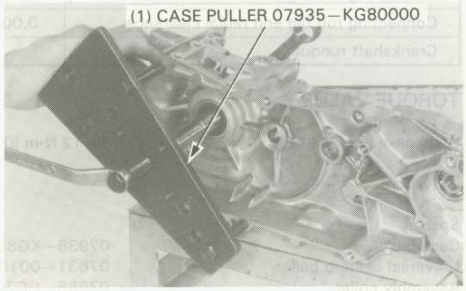
Attach the special tool on the left crankcase as shown with the three special short bolts.

Remove the crankshaft.

CAUTION

- *Do not drive the crankshaft out with a hammer.*

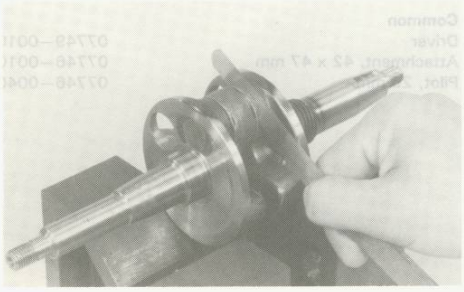
Remove the crankshaft bearing from the crankshaft (page 10-3).



CRANKSHAFT INSPECTION

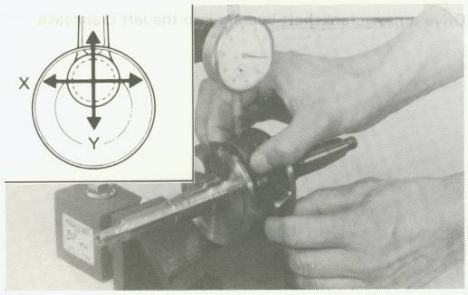
Measure the connecting rod big end side clearance with a feeler gauge.

SERVICE LIMIT: 0.7 mm (0.03 in)



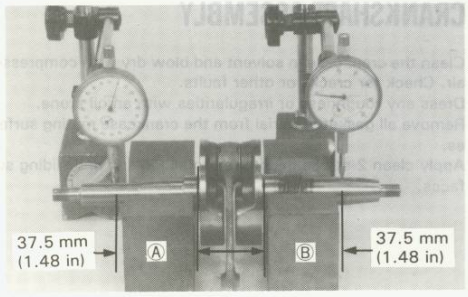
Measure the connecting rod big end radial clearance at two points in the X and Y directions.

SERVICE LIMIT: 0.04 mm (0.002 in)



Set the crankshaft on a stand or in V-blocks and read the runout at points A and B using a dial gauge.

SERVICE LIMIT: 0.10 mm (0.004 in)

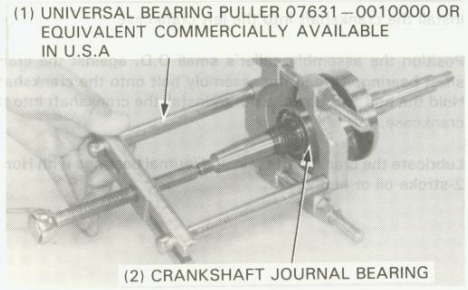


BEARING REPLACEMNT

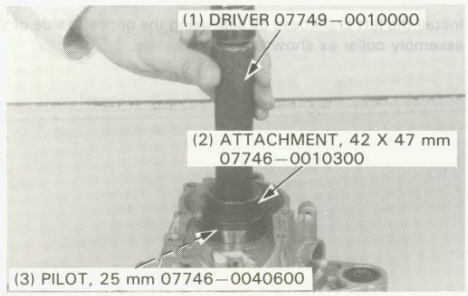
CAUTION

- *Always replace the crankshaft bearings with new ones whenever the crankcase is separated.*

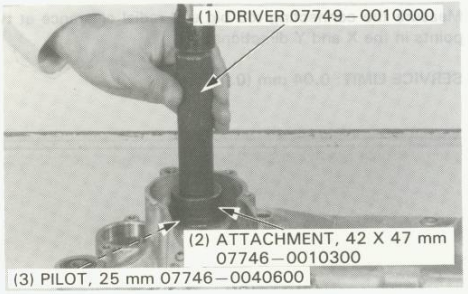
Remove the crankshaft bearing from the crankshaft.
Remove and discard the oil seals from the right and left crankcases.
Drive out the crankcase bearings.



Drive a new crankshaft bearing into the right crankcase.

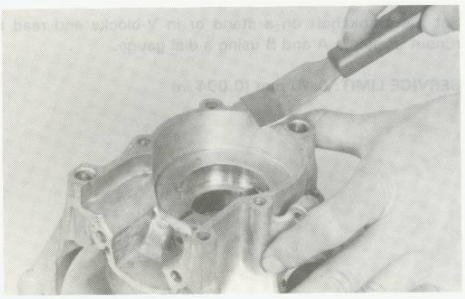


Drive a new crankshaft bearing into the left crankcase.



CRANKSHAFT ASSEMBLY

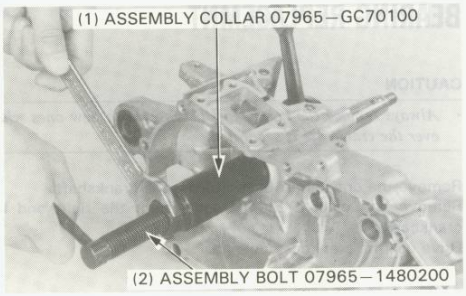
Clean the crankcase in solvent and blow dry with compressed air. Check for cracks or other faults.
Dress any roughness or irregularities with an oil stone.
Remove all gasket material from the crankcase mating surfaces.
Apply clean 2-stroke injector oil to all moving and sliding surfaces.



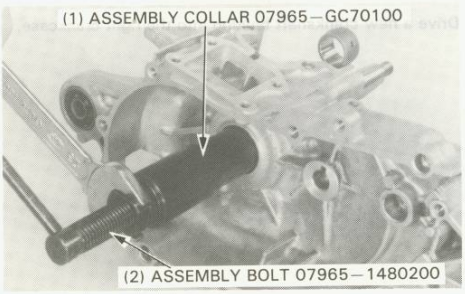
Install the crankshaft into the left crankcase.

Position the assembly collar's small O.D. against the crankshaft bearing. Thread the assembly bolt onto the crankshaft. Hold the bolt and turn the nut to install the crankshaft into the crankcase.

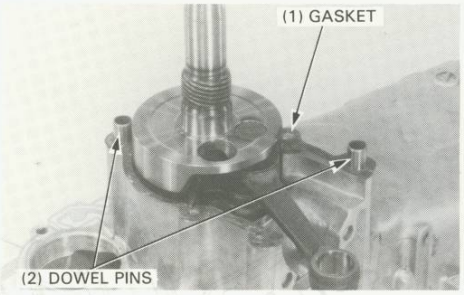
Lubricate the crankshaft main and journal bearings with Honda 2-stroke oil or equivalent.



Install the left crankcase oil seal using the opposite side of the assembly collar as shown.

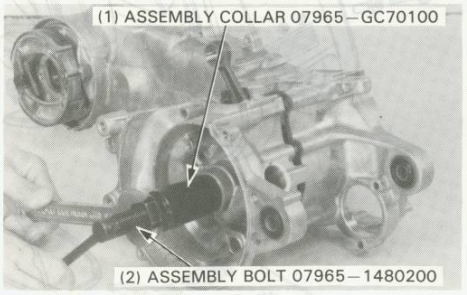


Install a new gasket and dowel pins onto the crankcase mating surface.

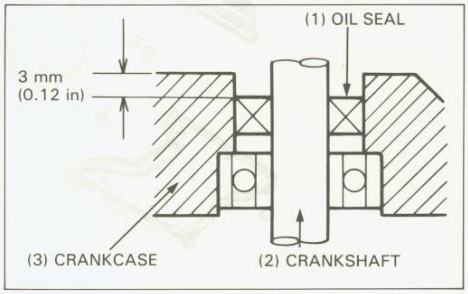


Assemble the crankcase halves; place the collar with the small O.D. against the right crankshaft bearing. Thread the bolt through the collar onto the crankshaft.

Hold the bolt and turn the nut clockwise to draw the crankcase halves together.



Install a new right crankcase oil seal using the same tool until the seal is 3 mm (0.12 in) below the surface of the right crankcase as shown.



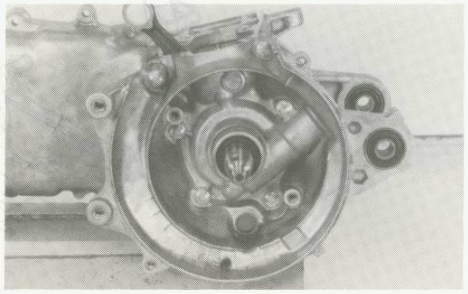
Install the crankcase attaching bolts

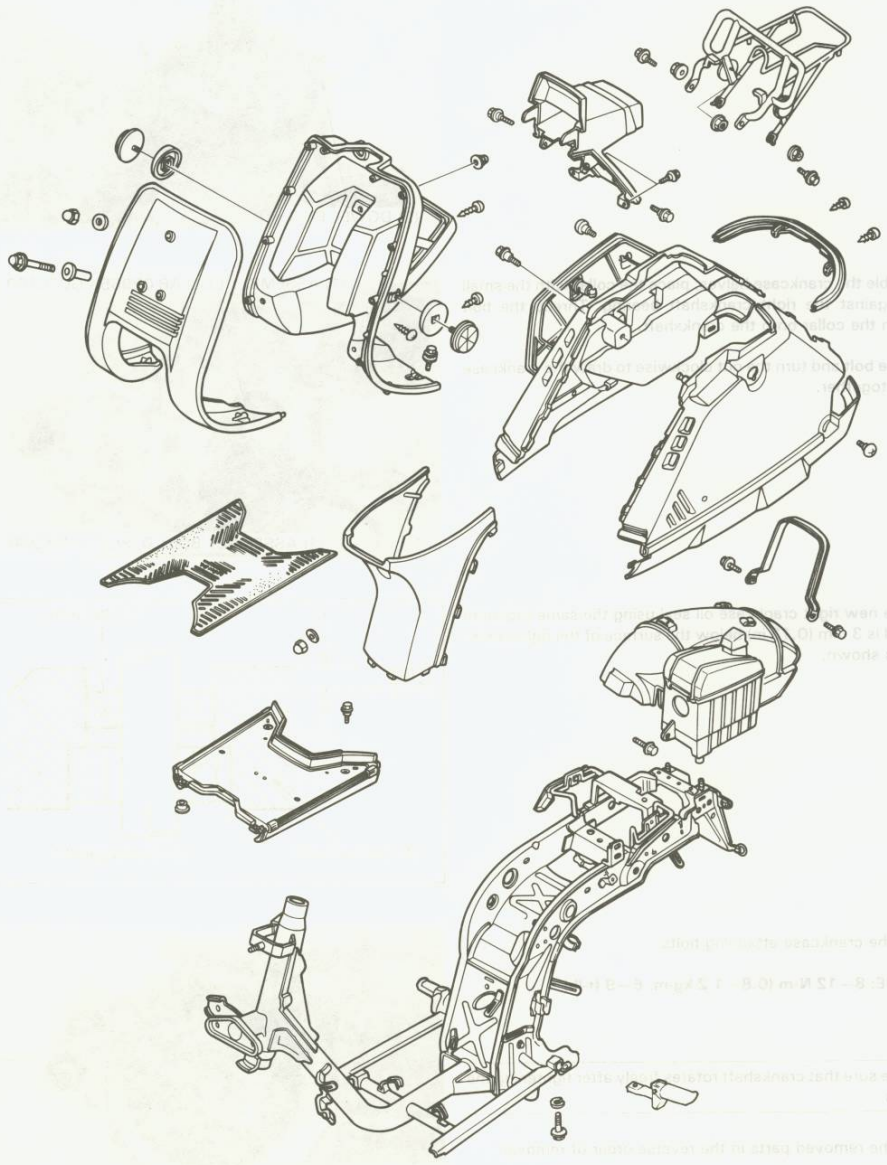
TORQUE: 8–12 N·m (0.8–1.2 kg-m, 6–9 ft-lb)

NOTE

- Make sure that crankshaft rotates freely after tightening the bolts.

Install the removed parts in the reverse order of removal.





11. FRAME COVERS

SERVICE INFORMATION

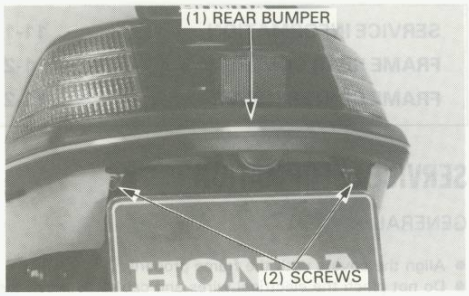
GENERAL

- Align the covers with the frame properly.
- Do not pinch the electrical wires and cables between the cover and the frame.
- Make sure that the locating tabs are engaged securely.

FRAME REAR COVERS

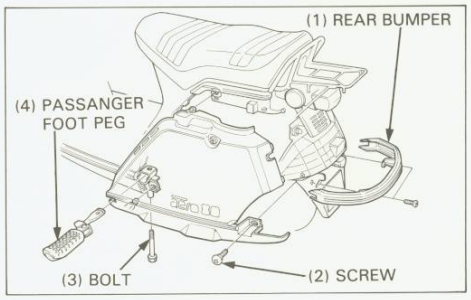
REMOVAL/INSTALLATION

Remove the two screws attaching the rear bumper and remove the bumper.



Remove the left passanger foot peg by removing the bolt.
Remove the left frame rear cover screw.

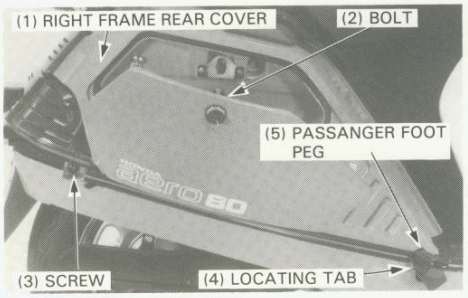
Pull the two locating tabs out of the frame and remove the cover.



Remove the right passanger foot peg by removing the bolt.
Open the side trunk and remove the right frame side cover bolt and screw.

Pull the locating tab out of the frame and remove the cover.

Install the frame rear covers in the reverse order of removal.



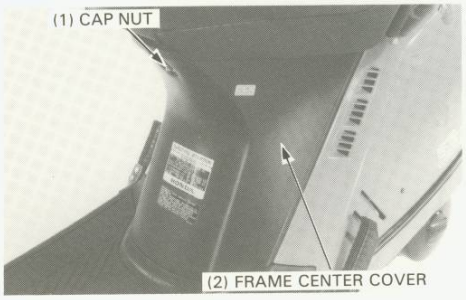
FRAME CENTER COVER

REMOVAL/INSTALLATION

Remove the frame center cover cap nut and washer.

Raise the center cover upward to release its tabs, raise the seat and remove the cover.

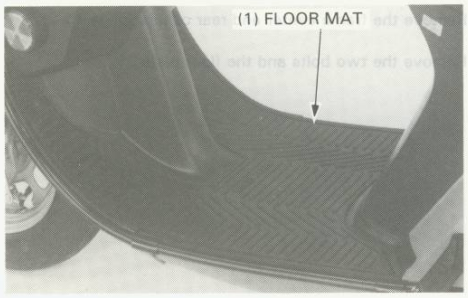
Install the frame center cover in the reverse order of removal.



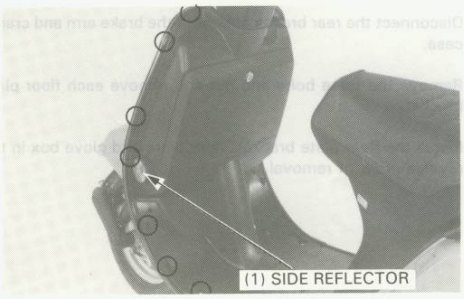
FRONT COVER

REMOVAL/INSTALLATION

Remove the floor mat.



Remove the side reflectors and bases.
Remove the 14 front cover attaching screws.

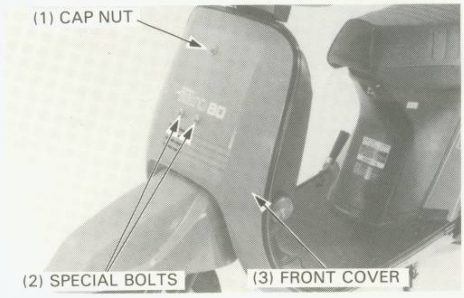


Remove the two special bolts and the cap nut, and remove the front cover.

Install the front cover in the reverse order of removal.

NOTE

- The reflector bases are marked "R" and "L" for the right and left sides.

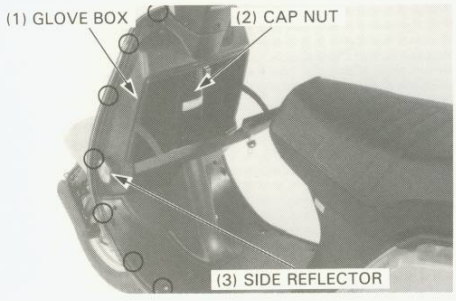


GLOVE BOX/FLOOR PLATE

REMOVAL/INSTALLATION

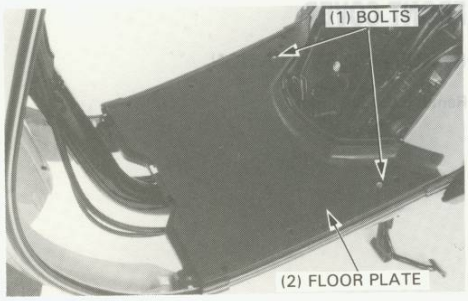
Remove the floor mat and the side reflectors.
Open the glove box and remove the cap nut.

Remove the 14 front cover screws and remove the glove box.



Remove the frame center and rear covers (page 11-2).

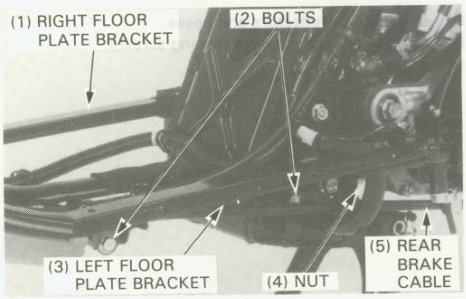
Remove the two bolts and the floor plate.

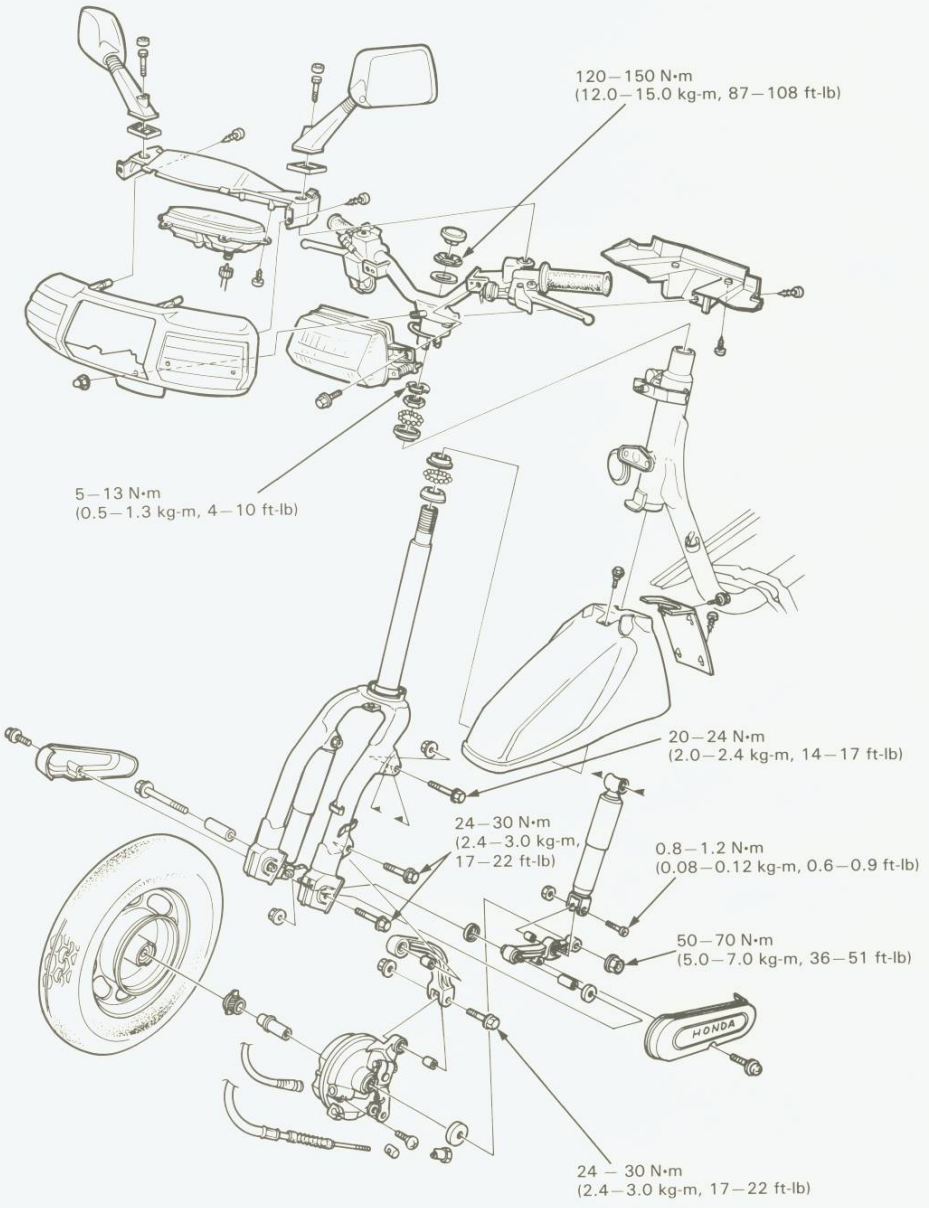


Disconnect the rear brake cable from the brake arm and crankcase.

Remove the three bolts and nut and remove each floor plate bracket.

Install the floor plate bracket, floor plate and glove box in the reverse order of removal.




120–150 N·m
(12.0–15.0 kg-m, 87–108 ft-lb)
5–13 N·m
(0.5–1.3 kg-m, 4–10 ft-lb)
20–24 N·m
(2.0–2.4 kg-m, 14–17 ft-lb)
24–30 N·m
(2.4–3.0 kg-m,
17–22 ft-lb)
0.8–1.2 N·m
(0.08–0.12 kg-m, 0.6–0.9 ft-lb)
50–70 N·m
(5.0–7.0 kg-m, 36–51 ft-lb)
HONDA
24 – 30 N·m
(2.4–3.0 kg-m, 17–22 ft-lb)

12. STEERING/FRONT WHEEL/BRAKE/SUSPENSION

SERVICE INFORMATION

SPECIFICATIONS

ITEM		STANDARD mm (in)	SERVICE LIMIT mm (in)
Axle runout		—	0.2 (0.01)
Rim runout	Radial	—	2.0 (0.08)
	Axial	—	2.0 (0.08)
Shock spring free length		200 (7.9)	190 (7.5)
Front brake drum I.D.		110.0 (4.33)	111.0 (4.37)
Brake lining thickness		4.0 (0.156)	2.0 (0.08)

TORQUE VALUES

Steering stem nut	120—150 N·m (12.0—15.0 kg-m, 87—108 ft-lb)
Front axle nut	50—70 N·m (5.0—7.0 kg-m, 36—51 ft-lb)
Brake torque link bolt	24—30 N·m (2.4—3.0 kg-m, 17—22 ft-lb)
Brake arm bolt	8—12 N·m (0.8—1.2 kg-m, 6—9 ft-lb)
Pivot arm bolt/nut	24—30 N·m (2.4—3.0 kg-m, 17—22 ft-lb)
Shock absorber upper mount bolt	20—24 N·m (2.0—2.4 kg-m, 14—17 ft-lb)
Shock absorber lower mount bolt	0.8—1.2 N·m (0.08—0.12 kg-m, 0.6—0.9 ft-lb)
Shock absorber lower mount bolt lock nut	15—20 N·m (1.5—2.0 kg-m, 11—14 ft-lb)
Shock damper rod lock nut	15—25 N·m (1.5—2.5 kg-m, 11—18 ft-lb)
Steering stem lock nut	5—13 N·m (0.5—1.3 kg-m, 4—10 ft-lb)

TOOLS

Special

Lock nut wrench, 45 mm	07916—1870101
Lock nut wrench	07916—KM10000
Ball race remover	07946—GA70000

Common

Extension bar	07716—0020500
Lock nut wrench, 30 x 32 mm	07716—0020400 — or Equivalent commercially available in U.S.A.
Bearing remover shaft	07746—0050100
Bearing remover head, 12 mm	07746—0050300 — or Equivalent commercially available in U.S.A.
Driver	07749—0010000
Attachment, 32 x 35 mm	07746—0010100
Pilot, 12 mm	07746—0040200
Attachment, 42 x 47 mm	07746—0010300
Fork seal driver	07747—0010100
Fork seal driver attachment	07747—0010400 — Fork seal driver 07947—3550000

TROUBLESHOOTING

Hard steering
- Steering top cone race too tight
- Steering stem bearings damaged
- Steering ball and cone races damaged
- Insufficient tire pressure

Steers to one side or does not track straight
- Uneven front shocks
- Bent front fork
- Bent front axle

Front wheel wobbling
- Bent rim
- Axle nut tightened improperly
- Bent spoke plate
- Faulty or unevenly worn tire
- Excessive wheel bearing play

Soft suspension
- Weak shock springs

Front suspension noise
- Fork link binding
- Loose front fork fasteners
- Bent shock rod

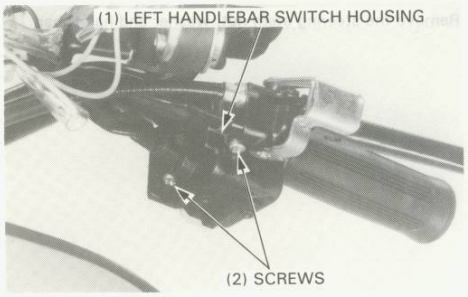
HANDLEBAR

REMOVAL

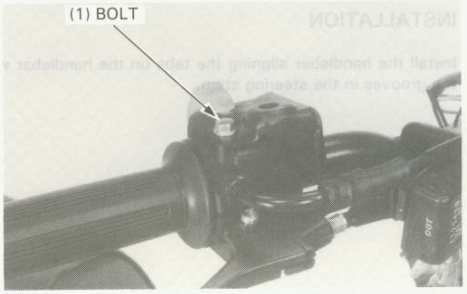
Remove the headlight and instruments (section 14).

Remove the handlebar lower cover by removing the screw.

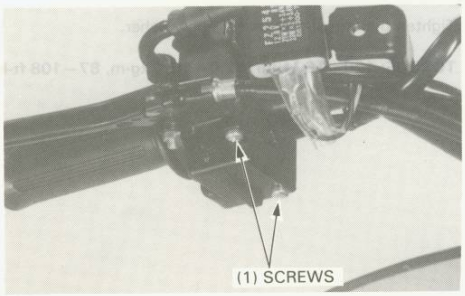
Remove the left handlebar switch housing by removing the screws.



Remove the right handlebar switch housing bolt.

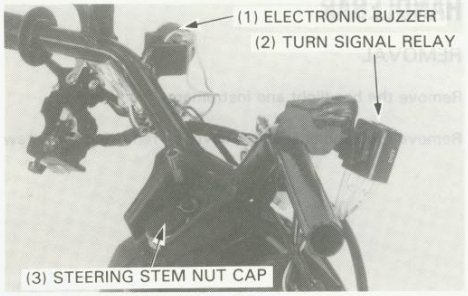


Remove the right handlebar switch by removing the screws.

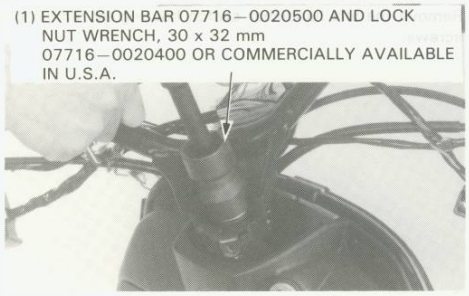


Remove the electronic buzzer and turn signal relay from the handlebar.

Remove the steering stem nut cap.

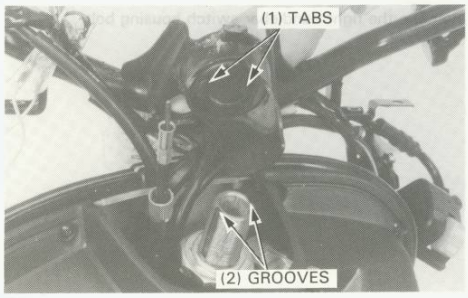


Remove the steering stem nut, washer and handlebar.



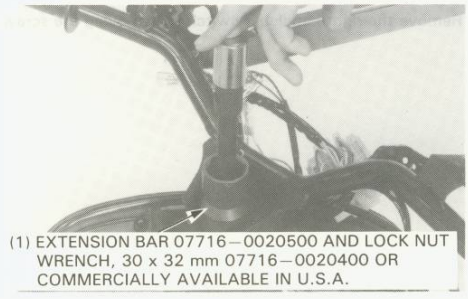
INSTALLATION

Install the handlebar aligning the tabs on the handlebar with the grooves in the steering stem.

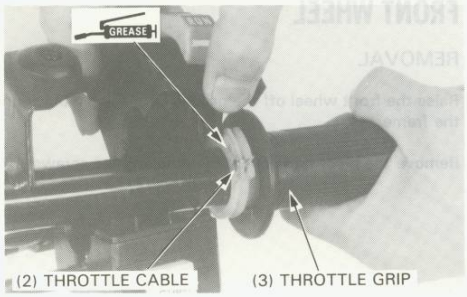


Tighten the steering stem nut and washer.

TORQUE: 120–150 N·m (12.0–15.0 kg-m, 87–108 ft-lb)

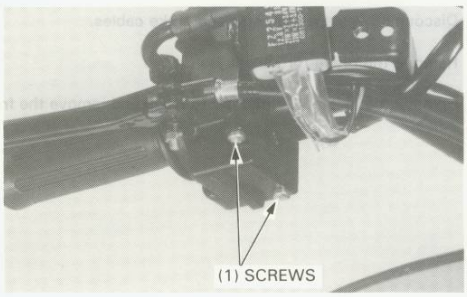


Apply grease to the throttle grip area on the handlebar.
Install the throttle grip and connect the throttle cable.

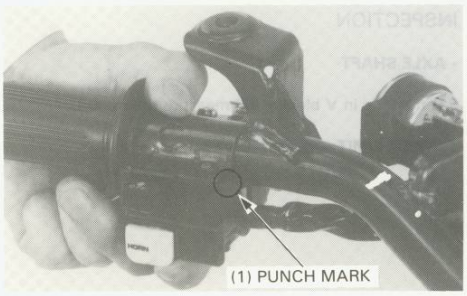


Install the right handlebar switch housing and tighten the bolt.

Tighten the right handlebar switch housing forward screw first, then tighten the rear screw.
Check that the throttle grip rotates freely in all steering positions.



Install the left switch housing onto the handlebar aligning its end with the punch mark on the handlebar.
Tighten the forward screw first, then tighten the rear screw.



Install the removed parts in the reverse order of removal.

Adjust the following:
- Brake lever free play (page 3-8)
- Headlight aim (page 3-9)
- Throttle grip free play (page 3-4)

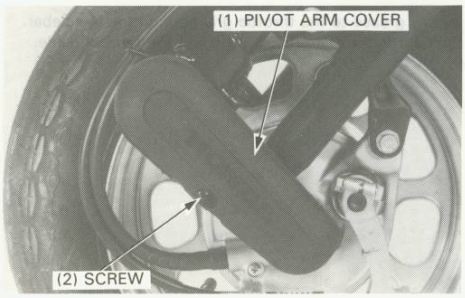
Check the operation of all electric parts.

FRONT WHEEL

REMOVAL

Raise the front wheel off the ground by placing a block under the frame.

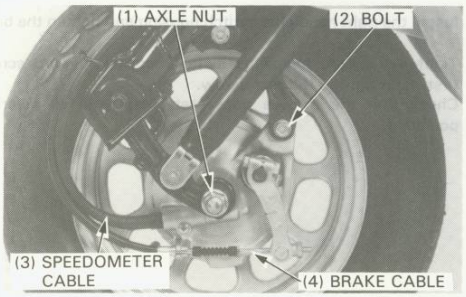
Remove the pivot arm covers by removing the screws.



Disconnect the speedometer and brake cables.

Remove the brake torque link bolt.

Remove the axle nut, withdraw the axle and remove the front wheel.

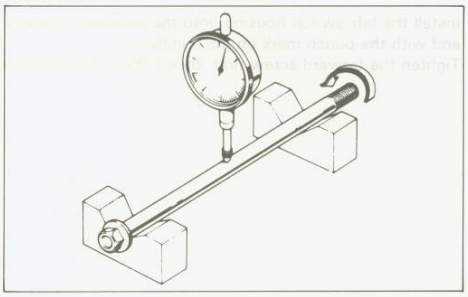


INSPECTION

• AXLE SHAFT

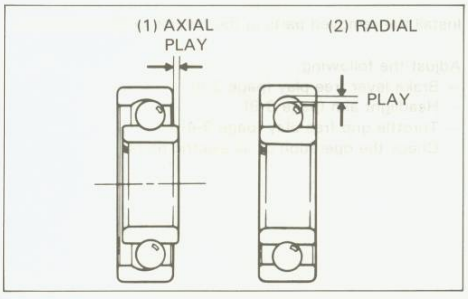
Set the axle in V blocks and measure the runout.

SERVICE LIMIT: 0.2 mm (0.01 in)



• WHEEL BEARING

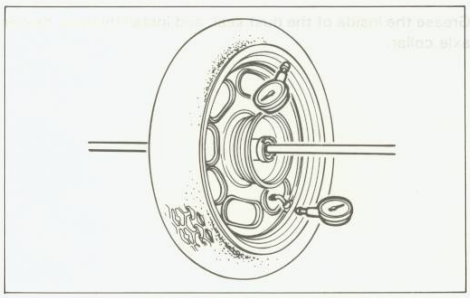
Check the wheel bearing play by placing the wheel in a truing stand and spinning the wheel by hand.
Replace the bearings if they are noisy or have excessive play.



• **WHEEL RIM**

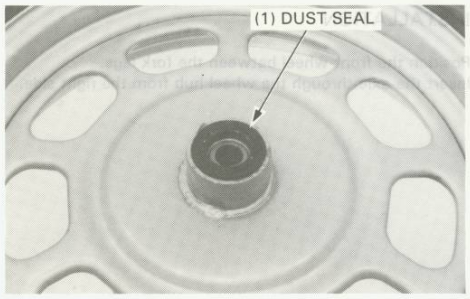
Check the rim runout by placing the wheel in a truing stand. Then spin the wheel by hand and read the runout using a dial gauge.

SERVICE LIMITS:
Radial: 2.0 mm (0.08 in)
Axial: 2.0 mm (0.08 in)



DISASSEMBLY

Remove the dust seal.



Remove the wheel bearings and distance collar.

ASSEMBLY

Pack all bearing cavities with grease.

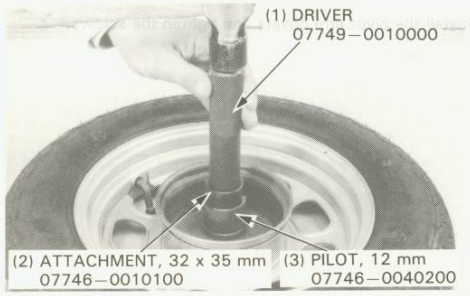
Drive in the left bearing and install the distance collar. Then drive in the right bearing.

NOTE

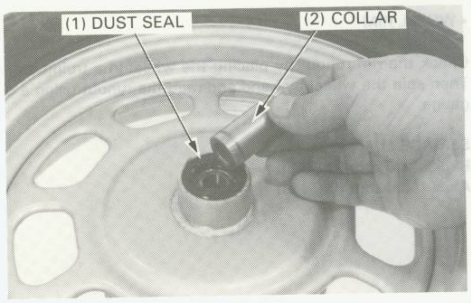
- Drive in the bearings squarely.
- Install the bearings with the sealed ends facing out.

WARNING

- ***Contaminated brake linings reduce stopping power. Keep grease off the linings and brake drum.***

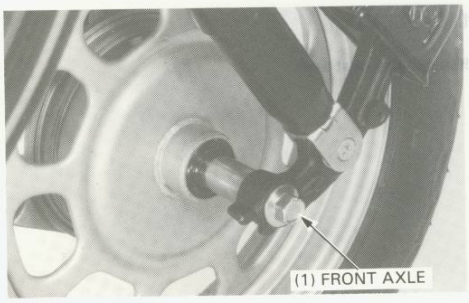


Grease the inside of the dust seal, and install the dust seal and axle collar.



INSTALLATION

Position the front wheel between the fork legs.
Insert the axle through the wheel hub from the right side.



Tighten the axle nut to the specified torque.

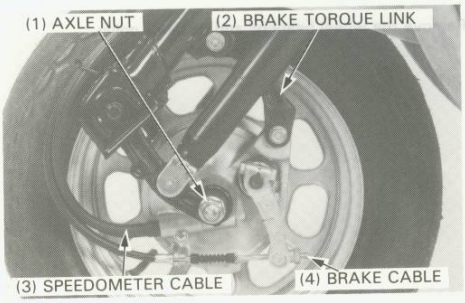
TORQUE: 50—70 N·m
(5.0—7.0 kg-m, 36—51 ft-lb)

Connect the brake torque link to the brake panel using the bolt and nut and tighten the nut.

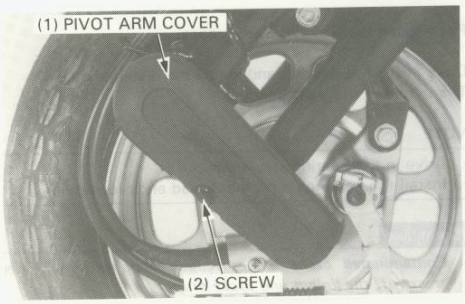
TORQUE: 24—30 N·m (2.4—3.0 kg-m, 17—22 ft-lb)

Connect the speedometer cable to the speedometer gearbox and the brake cable to the front brake arm.

Adjust the front brake lever free play (page 3-8).



Install the pivot arm covers and tighten the screws.

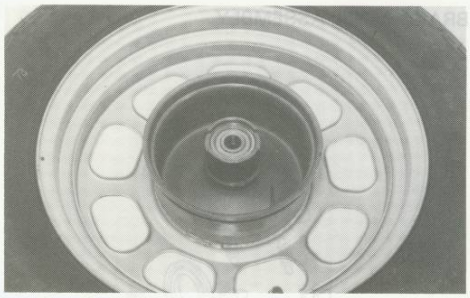


FRONT BRAKE

REMOVAL/INSPECTION

Remove the front wheel (page 12-6).
Remove the brake panel, and measure the brake drum I.D.

SERVICE LIMIT: 111.0 mm (4.37 in)

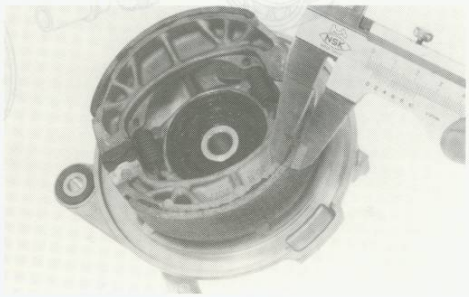


Measure the brake lining thickness.

SERVICE LIMIT: 2.0 mm (0.08 in)

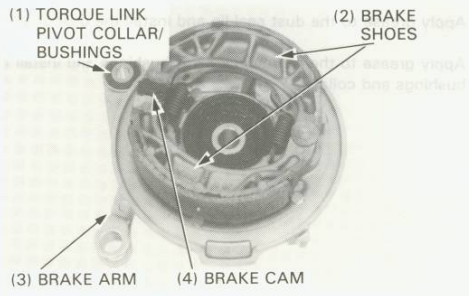
WARNING

- ***Contaminated brake linings reduce stopping power. Keep grease off the linings.***
- ***Brake dust contains asbestos which can be harmful to your health. Do not use compressed air to clean brake parts. Use a vacuum with a sealed dust collector. Wear a protective face mask and wash your hands when finished.***

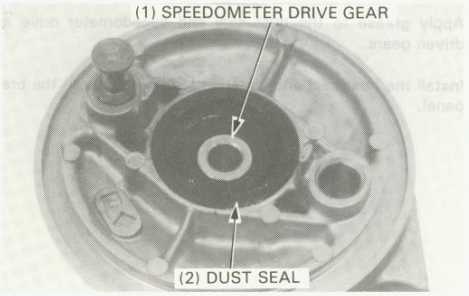


BRAKE PANEL DISASSEMBLY

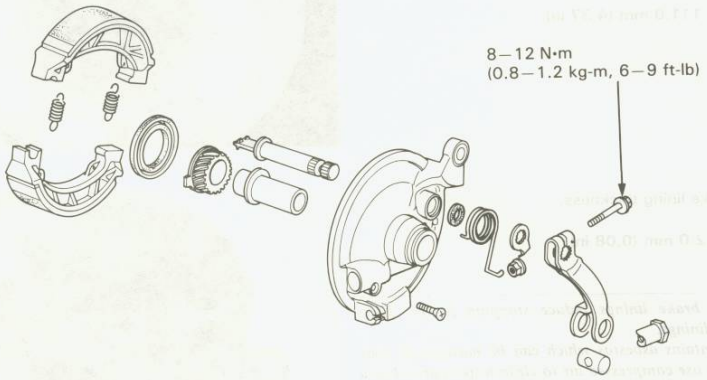
Remove the following parts:
— brake shoes, arm and cam
— dust seal
— torque link pivot collar and bashings



Remove the speedometer drive gear and the dust seal.

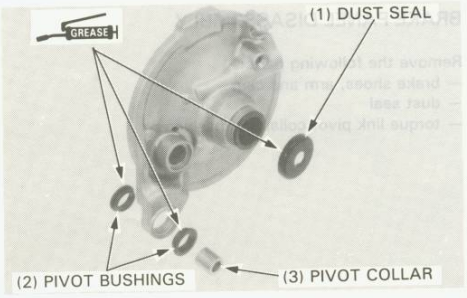


BRAKE PANEL ASSEMBLY



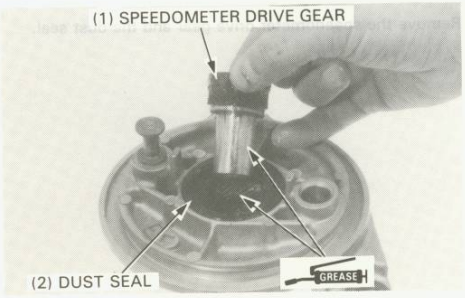
Apply grease to the dust seal lip and install the dust seal.

Apply grease to the torque link pivot bushings and install the bushings and collar.



Apply grease to the dust seal and speedometer drive and driven gears.

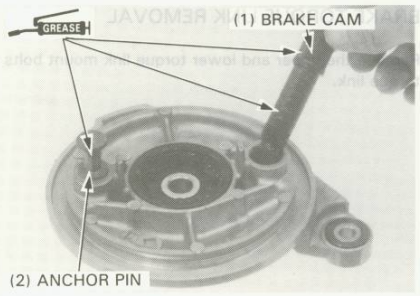
Install the dust seal and speedometer drive gear in the brake panel.



Apply grease to the anchor pin and brake cam.
Install the brake cam.

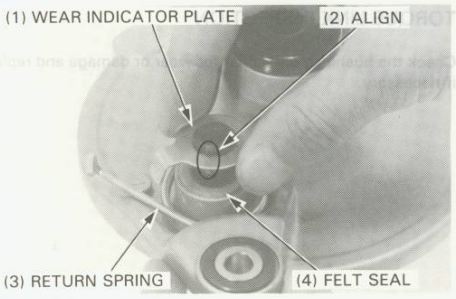
WARNING

- *Avoid getting grease on the inside of the brake drum or braking power will be reduced. Clean the inside of the brake panel thoroughly.*



Install the felt seal and brake arm return spring.

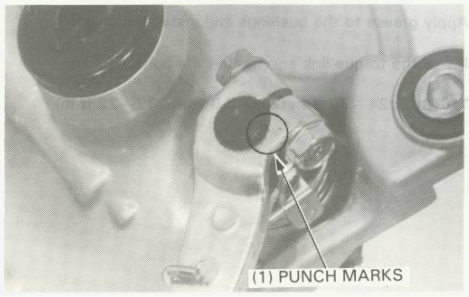
Install the wear indicator plate, aligning its wide tooth with the wide groove on the brake cam.



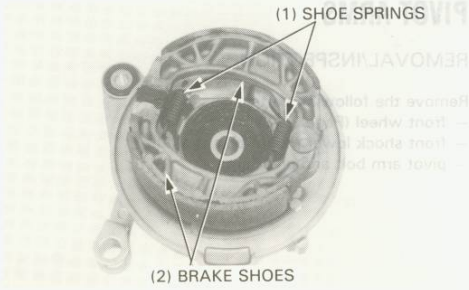
Install the brake arm on the brake cam, aligning the punch marks.

Tighten the brake arm bolt.

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

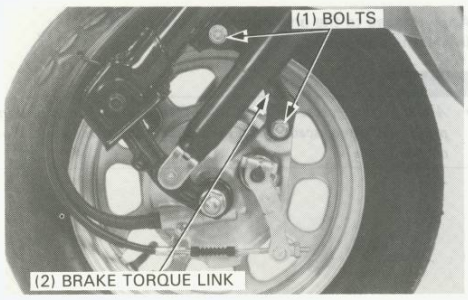


Install the brake shoes and springs.



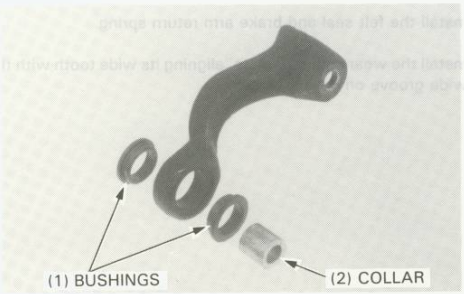
BRAKE TORQUE LINK REMOVAL

Remove the upper and lower torque link mount bolts and the torque link.



TORQUE LINK INSPECTION

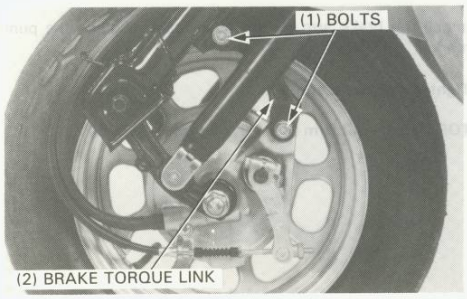
Check the bushings and collar for wear or damage and replace if necessary.



Apply grease to the bushings and install the collar.

Install the torque link and tighten the bolts.

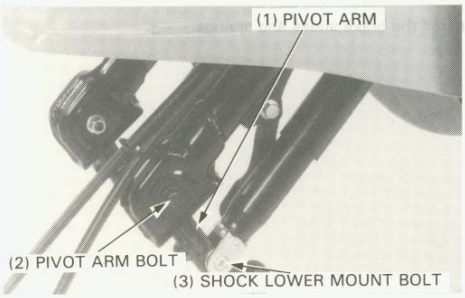
TORQUE: 24—30 N·m (2.4—3.0 kg-m, 17—22 ft-lb)



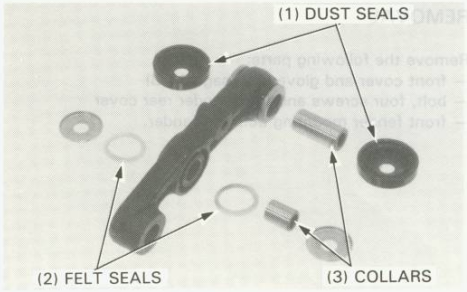
PIVOT ARMS

REMOVAL/INSPECTION

Remove the following parts:
- front wheel (Page 12-6)
- front shock lower mount bolt and nut
- pivot arm bolt and pivot arm.



Check the dust seals, collars and felt seals for wear or damage and replace if necessary.



INSTALLATION

Assemble and install the pivot arm and tighten the pivot arm bolt.

TORQUE: 24–30 N·m (2.4–3.0 kg-m, 17–22 ft-lb)

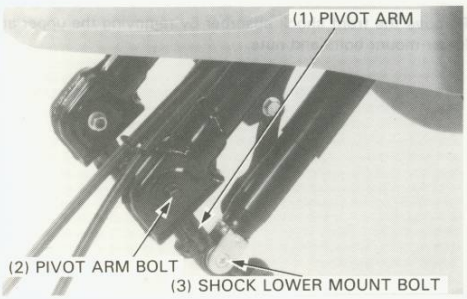
Install and tighten the shock lower mount bolt.

TORQUE: 0.8–1.2 N·m (0.08–0.12 kg-m, 0.6–0.9 ft-lb)

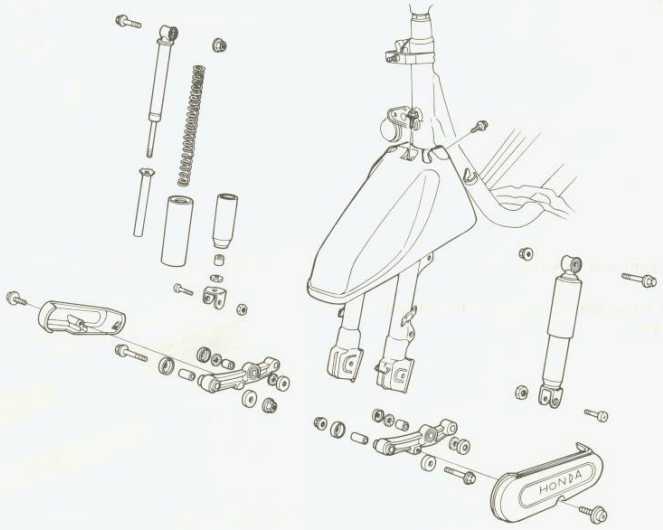
Tighten the shock lower mount lock nut.

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

Install the front wheel (Page 12-7).

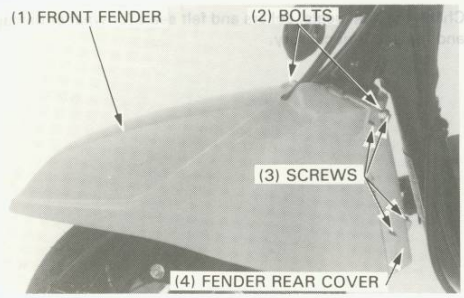


FRONT SHOCK ABSORBER

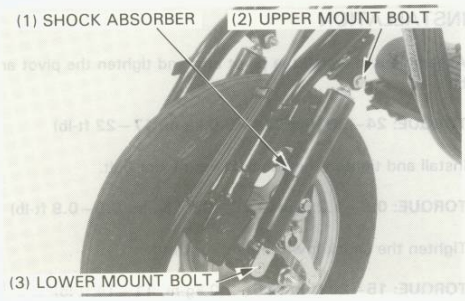


REMOVAL

Remove the following parts:
- front cover and glove box (page 11-3)
- bolt, four screws and front fender rear cover
- front fender mounting bolt and fender.

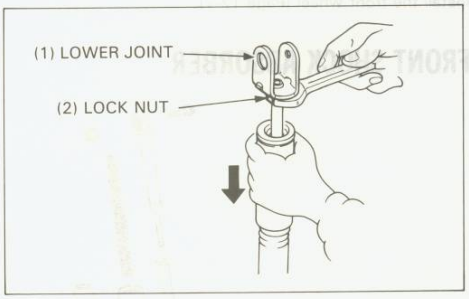


Remove the front shock absorber by removing the upper and lower mount bolts and nuts.



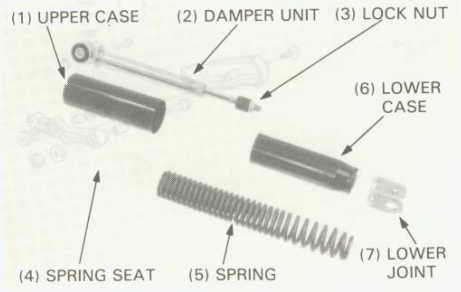
DISASSEMBLY

Compress the front shock spring by hand and loosen the lock nut and lower joint.



Remove the lower joint and lock nut.

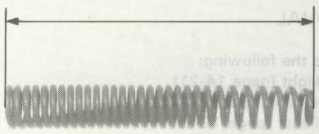
Remove the lower case, spring, spring seat and upper case from the damper unit.



SPRING INSPECTION

Measure the spring free length.

SERVICE LIMIT: 190 mm (7.5 in)



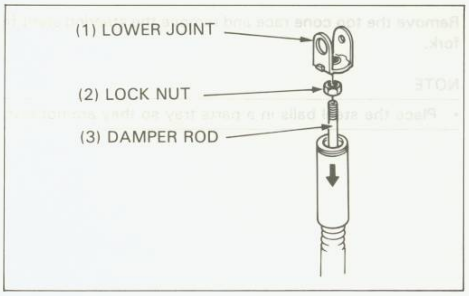
ASSEMBLY

Extend the damper rod fully and install the upper case, spring seat, spring and lower case.

Apply a thread locking agent to the lock nut and damper rod threads and screw the lock nut onto the damper rod fully.

Install the lower joint and tighten the lock nut.

TORQUE: 15—25 N·m (1.5—2.5 kg-m, 11—18 ft-lb)



INSTALLATION

Install the front shock absorber with the upper and lower mount bolts and nuts.
Tighten the upper mount nut.

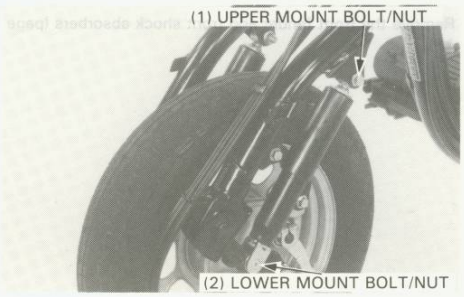
TORQUE: 20—24 N·m (2.0—2.4 kg-m, 14—17 ft-lb)

Tighten the lower mount bolt.

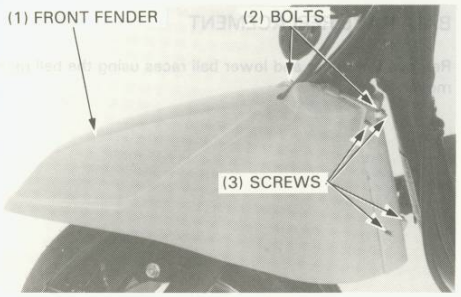
TORQUE: 0.8—1.2 N·m (0.08—0.12 kg-m, 0.6—0.9 ft-lb)

Tighten the lower mount lock nut.

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



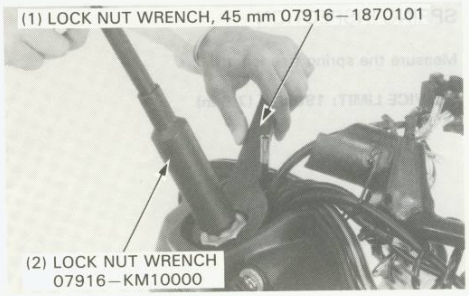
Install the front fender and fender rear cover using the two bolts and four screws.



STEERING STEM/FRONT FORK

REMOVAL

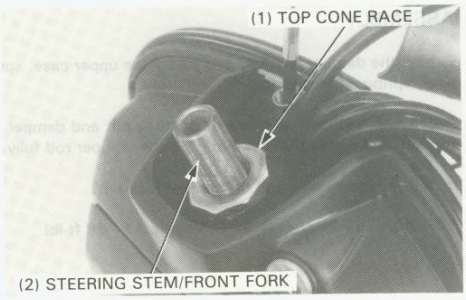
Remove the following:
- headlight (page 14-21)
- instruments (page 14-18)
- handlebar (page 12-3)
- front wheel (page 12-6)
- steering stem lock nut



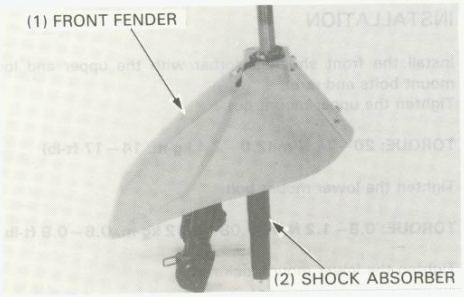
Remove the top cone race and remove the steering stem/front fork.

NOTE

- Place the steel balls in a parts tray so they are not lost.

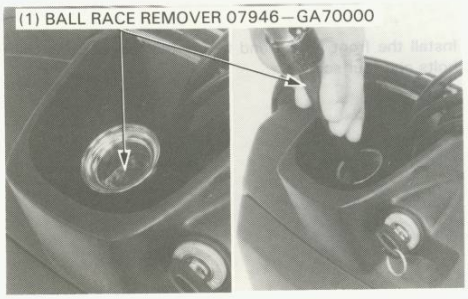


Remove the front fender and front shock absorbers (page 12-13).

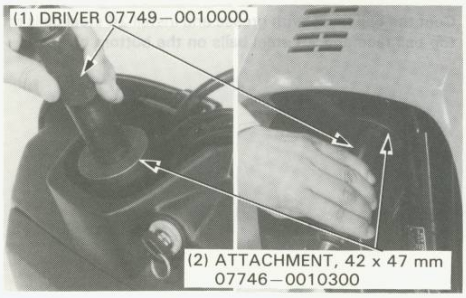


BALL RACE REPLACEMENT

Remove the upper and lower ball races using the ball race remover.

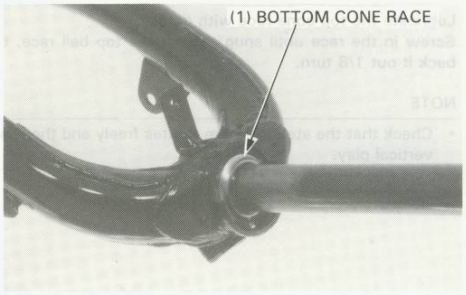


Drive in new top and bottom ball races until they bottom.

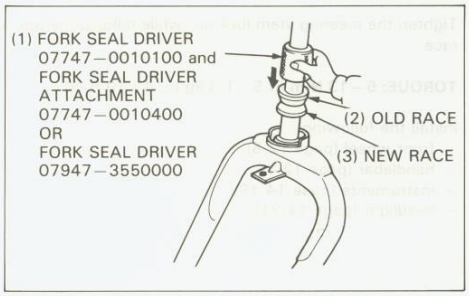


BOTTOM CONE RACE REPLACEMENT

Remove the bottom cone race with a cold chisel, being careful not to damage the steering stem.

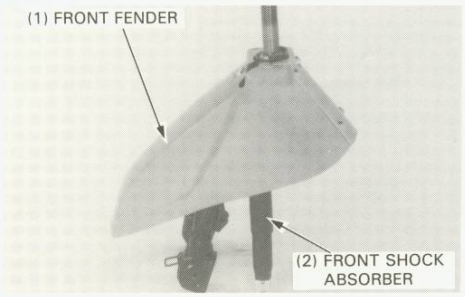


Drive a new bottom cone race into place using the old race and special tools as shown.

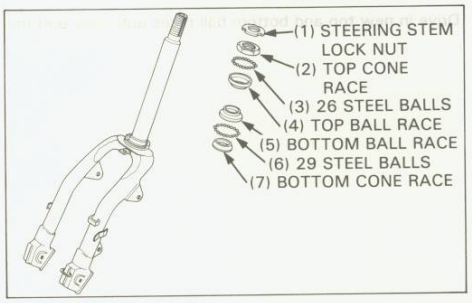


INSTALLATION

Install the shock absorbers and front fender onto the steering stem/front fork (page 12-15).



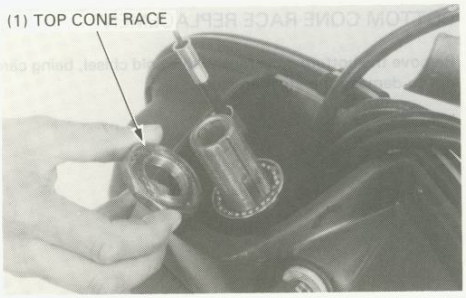
Coat the ball races with grease and install 26 steel balls on the top ball race and 29 steel balls on the bottom ball race.



Lubricate the top cone race with grease.
Screw in the race until snug against the top ball race, then back it out 1/8 turn.

NOTE

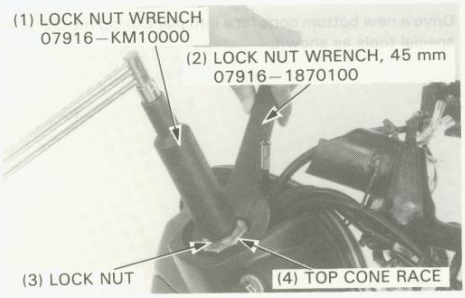
- Check that the steering stem rotates freely and there is no vertical play.

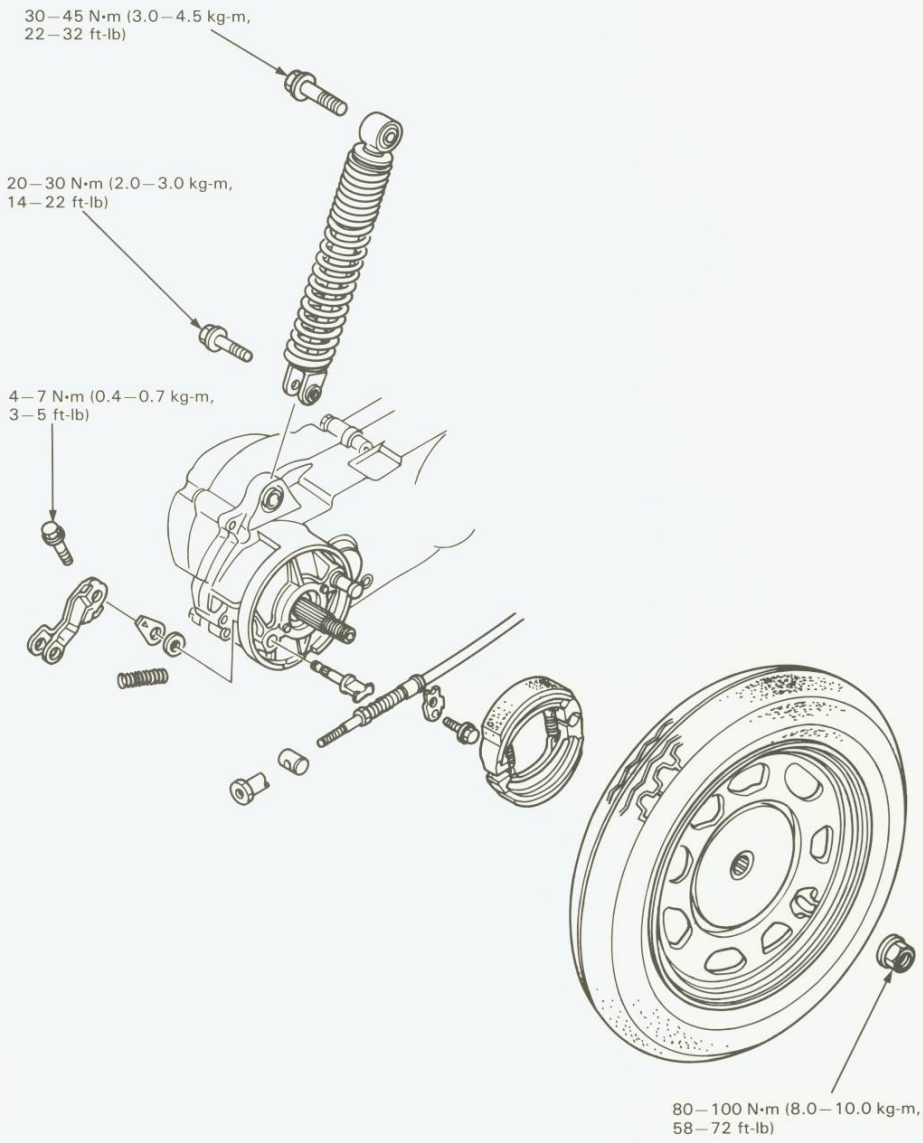


Tighten the steering stem lock nut while holding the top cone race.

TORQUE: 5–13 N·m (0.5–1.3 kg-m, 4–10 ft-lb)

Install the following:
- front wheel (page 12-8)
- handlebar (page 12-4)
- instruments (page 14-19)
- headlight (page 14-21)




30–45 N·m (3.0–4.5 kg-m,
22–32 ft-lb)
20–30 N·m (2.0–3.0 kg-m,
14–22 ft-lb)
4–7 N·m (0.4–0.7 kg-m,
3–5 ft-lb)
80–100 N·m (8.0–10.0 kg-m,
58–72 ft-lb)

13. REAR WHEEL/BRAKE/SUSPENSION

SERVICE INFORMATION

GENERAL

- Brake dust contains asbestos which can be harmful to your health. Do not use compressed air to clean brake drums or brake pads. Use a vacuum with a sealed dust collector. Wear a protective face mask and thoroughly wash your hands when finished.

SPECIFICATIONS

ITEM	STANDARD mm (in)	SERVICE LIMIT mm (in)
Rear wheel rim runout	——	2.0 (0.08)
Brake drum I.D.	95.0 (3.74)	95.5 (3.76)
Brake lining thickness	5.0 (0.20)	2.0 (0.08)
Rear shock absorber spring free length	230.6 (9.08)	225 (8.9)

TORQUE VALUES

Rear shock upper mount bolt	30—45 N·m (3.0—4.5 kg-m, 22—32 ft-lb)
Rear shock lower mount bolt	20—30 N·m (2.0—3.0 kg-m, 14—22 ft-lb)
Rear shock damper rod lock nut	15—25 N·m (1.5—2.5 kg-m, 11—18 ft-lb)
Rear axle nut	80—100 N·m (8.0—10.0 kg-m, 58—72 ft-lb)
Rear brake arm bolt	4—7 N·m (0.4—0.7 kg-m, 3—5 ft-lb)

TOOLS

Special

Rear shock absorber attachment	07967—GA70101
Spring attachment holder	07967—1180100

Common

Rear shock absorber compressor	07959—3290001

TROUBLESHOOTING

Rear wheel wobbling
- Bent rim
- Faulty tire
- Axle not tightened properly

Soft suspension
- Weak shock absorber spring

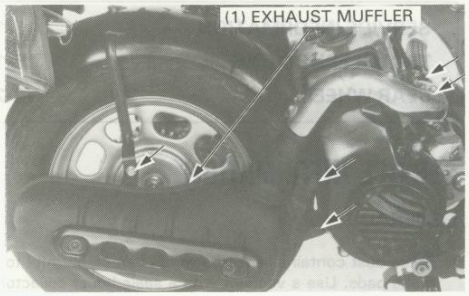
Brake squeaks
- Worn brake linings
- Foreign matter on linings
- Rough brake drum shoe contacting face

Poor brake performance
- Brake not adjusted properly
- Contaminated brake linings
- Worn brake linings
- Worn brake shoes at cam contacting area
- Worn brake cam
- Worn brake drum
- Improper engagement between brake arm and camshaft serrations

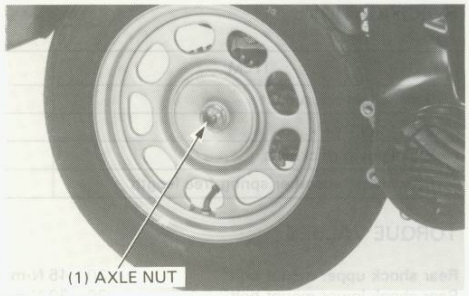
REAR WHEEL

REMOVAL

Remove the frame center cover and both frame rear covers (page 11-2).
Remove the exhaust muffler (page 3-6).



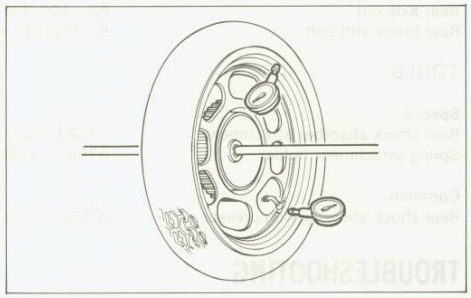
Remove the axle nut and the rear wheel.



REAR WHEEL RIM RUNOUT INSPECTION

Check the rim for runout using a dial gauge as shown.

SERVICE LIMITS:
Radial: 2.0 mm (0.08 in)
Axial: 2.0 mm (0.08 in)



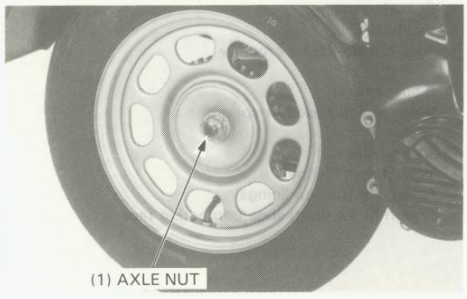
INSALLATION

Install the rear wheel and tighten the axle nut.

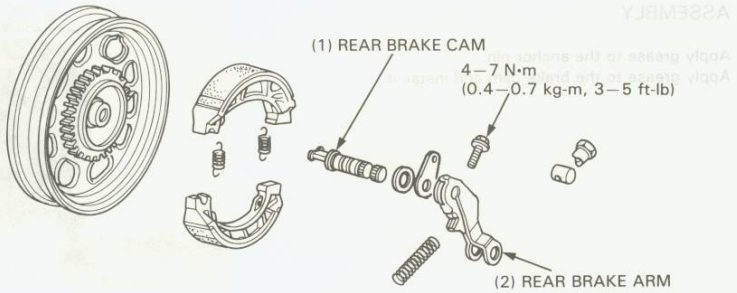
TORQUE: 80—100 N·m (8.0—10.0 kg-m, 58—72 ft-lb)

Install the exhaust muffler (page 3-6).

Install both frame rear covers and frame center cover (page 11-2).



REAR BRAKE

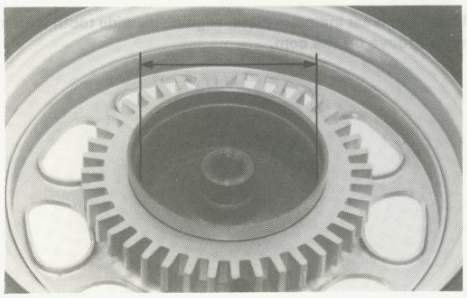


Remove the rear wheel (page 13-2).

DRUM INSPECTION

Measure the rear brake drum I.D.

SERVICE LIMIT: 95.5 mm (3.76 in)



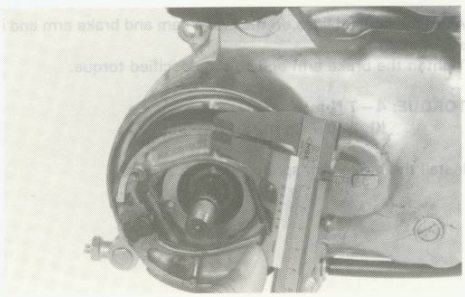
LINING INSPECTION

Measure the rear brake lining thickness.

SERVICE LIMIT: 2.0 mm (0.08 in)

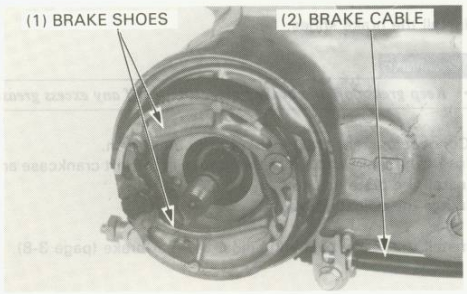
WARNING

- ***Keep grease off the brake linings. Wipe off excess grease.***



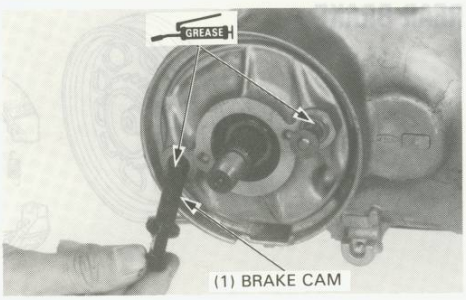
DISASSEMBLY

Disconnect the brake cable from the brake arm.
Remove the brake shoes, brake arm and brake cam.

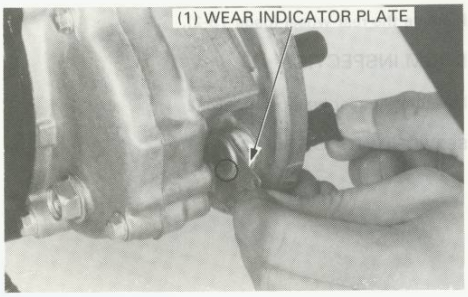


ASSEMBLY

Apply grease to the anchor pin.
Apply grease to the brake cam and install it.



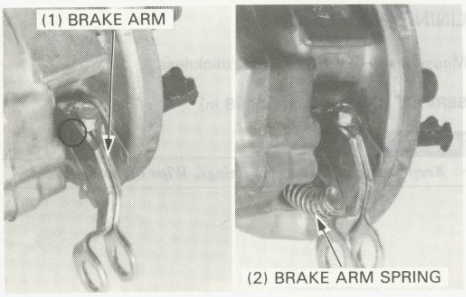
Install the wear indicator plate, aligning its wide tooth with the wide groove on the cam.



Align the scribed lines on the brake cam and brake arm and install the arm.
Tighten the brake arm bolt to the specified torque.

TORQUE: 4—7 N·m
(0.4—0.7 kg-m, 3—5 ft-lb)

Install the brake arm spring.



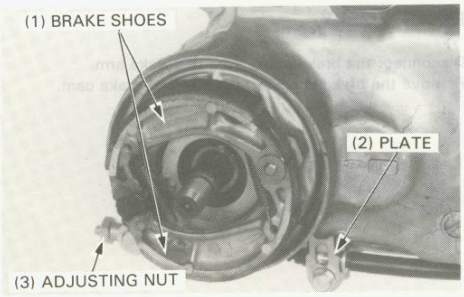
Install the brake shoes.

WARNING

- ***Keep grease off the brake linings. Wipe off any excess grease.***

Connect the rear brake cable to the brake arm.
Insert the brake cable into the groove in the left crankcase and install the plate as shown.
Install the adjusting nut.

Install the rear wheel and adjust the rear brake (page 3-8).

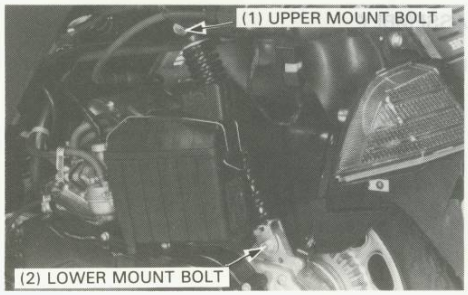


REAR SHOCK ABSORBER

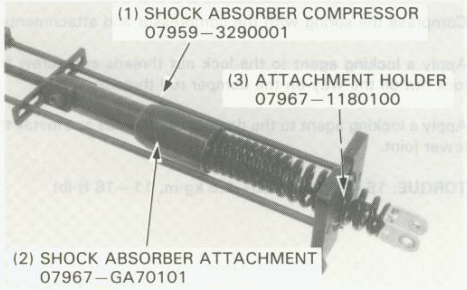
REMOVAL/DISASSEMBLY

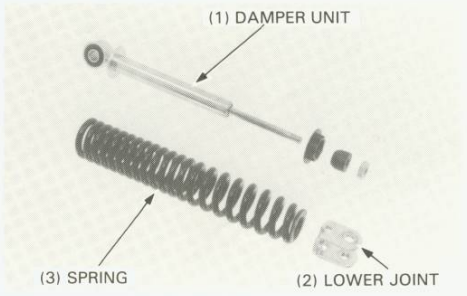
Remove the left frame rear cover (page 11-2).

Remove the rear shock absorber upper and lower mount bolts, then remove the rear shock absorber.



Remove the rear shock absorber lower joint by compressing it with the compressor.
Remove the shock spring.



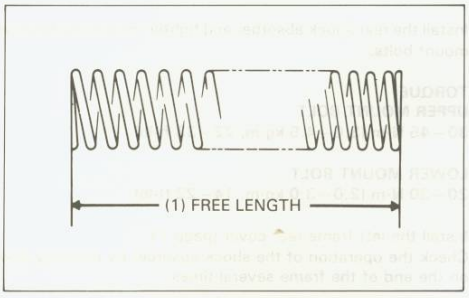


SPRING FREE LENGTH

Measure the spring free length.

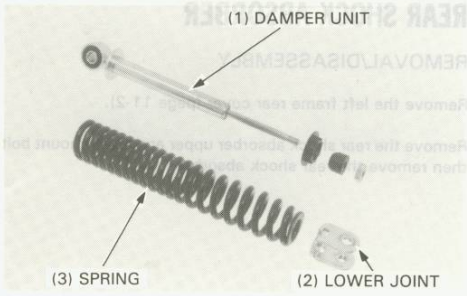
SERVICE LIMIT: 225 mm (8.9 in)

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



ASSEMBLY

Install the spring with the tightly wound coils facing up.

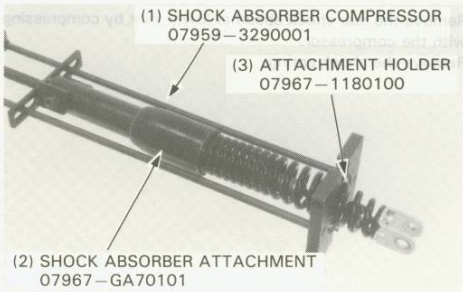


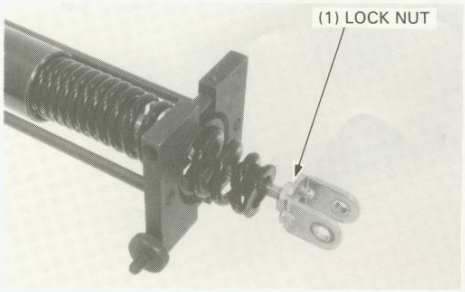
Compress the spring with the compressor and attachments.

Apply a locking agent to the lock nut threads and screw the lock nut all the way on the damper rod threads.

Apply a locking agent to the damper rod threads and install the lower joint.

TORQUE: 15—25 N·m (1.5—2.5 kg-m, 11—18 ft-lb)



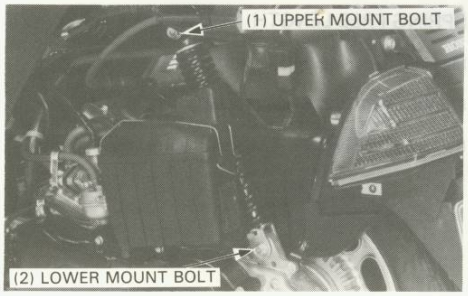


Install the rear shock absorber and tighten the upper and lower mount bolts.

TORQUE:
UPPER MOUNT BOLT
30—45 N·m (3.0—4.5 kg-m, 22—33 ft-lb)

LOWER MOUNT BOLT
20—30 N·m (2.0—3.0 kg-m, 14—22 ft-lb)

Install the left frame rear cover (page 11-2).
Check the operation of the shock absorber by pressing down on the end of the frame several times.



14. ELECTRICAL EQUIPMENT

SERVICE INFORMATION

GENERAL

- Quick charge a battery only in an emergency. Slow-charging is preferred.
- Remove the battery from the scooter for charging. If the battery must be charged on the scooter, disconnect the battery cables.
- The battery on this scooter is a sealed type. Never remove the filling hole caps even when the battery is being charged. Use only a sealed type battery on this vehicle.
- Be sure to charge the battery with the amount of current and for the time indicated on the battery label and on page 14-3. Charging with excessive current and/or too fast may cause battery failure.
- For alternator removal, see section 7.
- Ignition timing cannot be adjusted. If the timing is incorrect, inspect the CDI unit and alternator and replace any faulty parts.

WARNING

- ***Do not smoke around a charging battery, and keep sparks away from it. The gas produced by a battery will explode if a flame or spark is brought near.***

SPECIFICATIONS

ITEM			
Battery	Capacity Charging current Charging time	12V4AH Standard: 0.5 A, Maximum: 5.0 A At standard: 5.0 hours, At maximum: 30 minutes	
Alternator	Charging rpm Capacity	2,000 min^{-1} (rpm) max. (14 V) 0.9 A min. (14 V)/4,000 min^{-1} (rpm) 1.4 A min. (14 V)/6,000 min^{-1} (rpm)	
Spark plug		NGK	ND
	Standard	BPR6HSA	W20FPR-L
	For cold climate	BPR4HSA	W14FPR-L
	For extended high speed riding	BPR8HSA	W24FPR-L
Spark plug gap		0.6—0.7 mm (0.024—0.028 in)	
Ignition timing		18° BTDC at 1,800 min^{-1} (rpm)	

TOOL

Sanwa electrical tester (SP-10D) P/N 07308—0020000, or Kowa electrical tester (TH-5H), or Kowa digital multimeter KS—AHM—32—003 (U.S.A. only)

TROUBLESHOOTING

CHARGING SYSTEM

No power-key turned on
- Dead battery
- Disconnected battery cable
- Main fuse burned out
- Faulty ignition switch

Low power-key turned on
- Weak battery
- Loose battery connection

Low power-engine running
- Battery undercharged
- Charging system failure
- Loose connection or short circuit in lighting system

Intermittent power
- Loose battery connection
- Loose charging system connection
- Loose starting system connection

Charging system failure
- Loose, broken, or shorted wire or connection
- Faulty voltage regulator
- Faulty alternator

IGNITION SYSTEM

No spark at plug
- Faulty spark plug
- Poorly connected, broken or shorted wire
  - — Between alternator and CDI unit
  - — Between CDI unit and ignition coil
  - — Between CDI unit and ignition switch
  - — Between ignition coil and spark plug
- Faulty ignition switch
- Faulty ignition coil
- Faulty CDI unit
- Faulty alternator

Engine starts but runs poorly
- Ignition primary circuit
  - — Faulty ignition coil
  - — Loose or bare wire or connector
  - — Poorly connected ignition switch
- Ignition secondary circuit
  - — Faulty ignition coil
  - — Faulty spark plug
  - — Faulty spark plug wire
  - — Poorly insulated plug cap
- Improper ignition timing
  - — Faulty alternator
  - — Stator not installed properly
  - — Faulty CDI unit

STARTING SYSTEM

Starter won't run
- Fuse burned out
- Weak battery
- Faulty ignition switch
- Faulty starter switch
- Faulty front or rear stop switch
- Faulty starter relay
- Poorly connected, broken or shorted wire
- Faulty starter motor

Lack of power
- Weak battery
- Loose or bare wire or connection
- Foreign matter stuck in starter or starter gear

Engine does not crank—starter rotates
- Faulty starter pinion
- Reverse rotation of starter
- Low battery

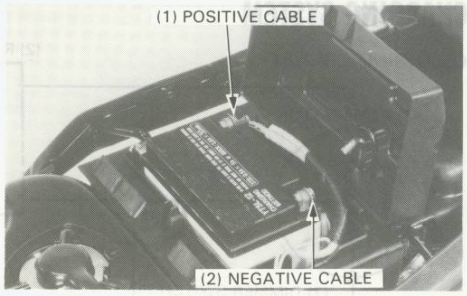
BATTERY

REMOVAL

Raise the seat and open the battery cover.

Disconnect the negative cable from the battery first, then the positive cable.

Remove the battery.



VOLTAGE INSPECTION

Measure the battery voltage using a digital voltmeter (07411 – 0020000).

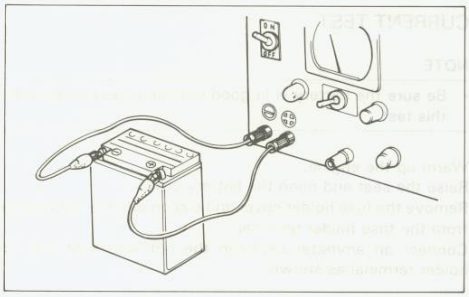
VOLTAGE: Fully charged: 13.0 – 13.2 V
Under charged: 12.3 V

CHARGING

Connect the charger positive ⊕ cable to the battery positive ⊕ terminal.

Connect the charger negative ⊖ cable to the battery negative ⊖ terminal.

	Standard	Maximum
Charging current	0.5 A	5.0 A
Charging time	5 hours	30 minutes



WARNING

- ***Keep flames and sparks away from a charging battery.***
- ***Turn power ON/OFF at the charger, not at the battery terminals.***

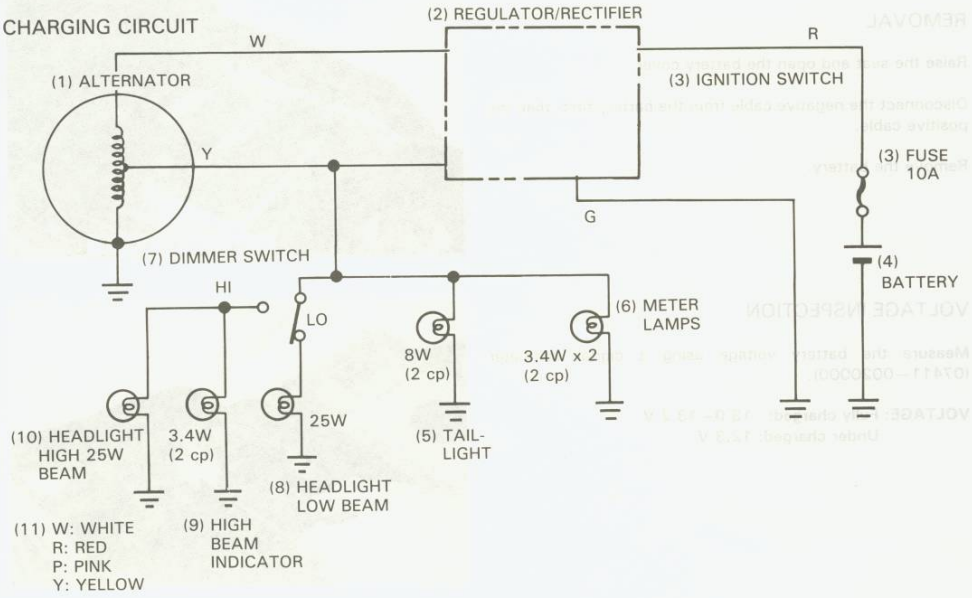
CAUTION

- *Quick-charging should only be done in an emergency; slow-charging is preferred.*
- *Be sure to charge the battery with the correct current and for the time indicated above.*
  Charging with excessive current and/or too fast may cause battery failure.

After installing the battery, coat the terminals with clean grease.

CHARGING SYSTEM

CHARGING CIRCUIT



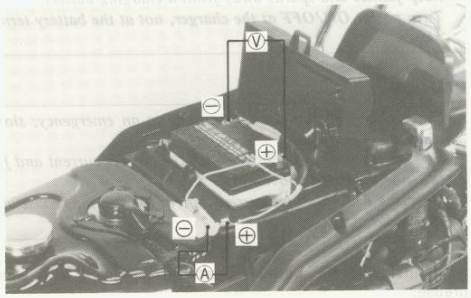
CURRENT TEST

NOTE

- Be sure the battery is in good condition before performing this test.

Warm up the engine.
Raise the seat and open the battery cover.
Remove the fuse holder cover and disconnect the red wire lead from the fuse holder terminal.
Connect an ammeter between the red wire lead and fuse holder terminal as shown.

Connect the voltmeter across the battery terminals.
Start the engine, gradually increase engine speed and read the ammeter and voltmeter. The ampere and voltage should be OA and 14–15V.
If the readings do not meet the specifications, check the wires for a loose connection and repair if necessary. If the wires are in good condition, replace the regulator/rectifier with a new one and retest.
If the readings still do not meet the specifications, perform the alternator output test (see next page).



ALTERNATOR OUTPUT TEST

Disconnect the regulator/rectifier coupler.
Remove the yellow wire from the coupler and reconnect the coupler.
Connect the ammeter and voltmeter the same as for the current test (previous page).
Start the engine and gradually increase the engine speed.

Charging rpm (initial)	4,000 min^{-1} (rpm)	6,000 min^{-1} (rpm)
2,000 min^{-1} (rpm) max (14 V)	0.9 A min. (14 V)	1.4 A min. (14 V)

Replace the alternator stator if the output is not within specifications. (See section 7).

ALTERNATOR INSPECTION

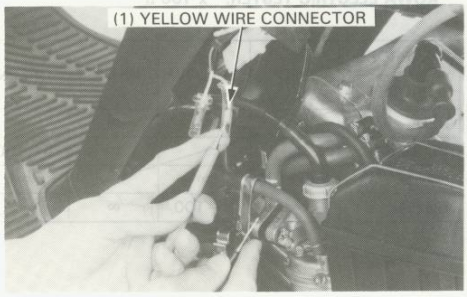
NOTE

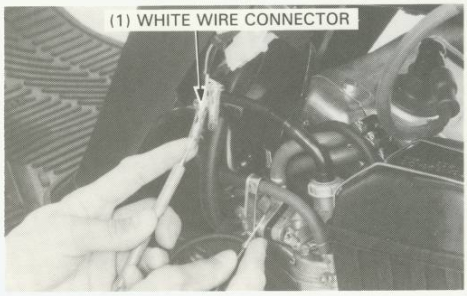
- This test can be made without removing the stator from the engine.

Remove the left frame rear cover (page 11-2).
Disconnect the stator wire connectors.
Measure the resistance between the wires as follows:

RESISTANCE:
YELLOW AND ENGINE GROUND 0.1—1.5 ohm
WHITE AND ENGINE GROUND 0.2—2.0 ohms

Replace the alternator stator if the resistance is not within specifications (See section 7).

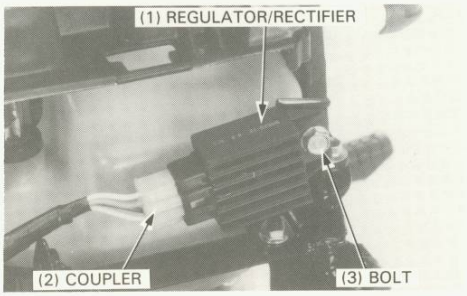




REGULATOR/RECTIFIER INSPECTION

Remove the taillight/rear turn signal assembly (Page 14-22).
Disconnect the regulator/rectifier coupler.

Remove the regulator/rectifier by removing the attaching bolt.



Measure the resistances between the terminals.
Replace the regulator/rectifier with a new one if the readings do not fall within the limits shown in the table.

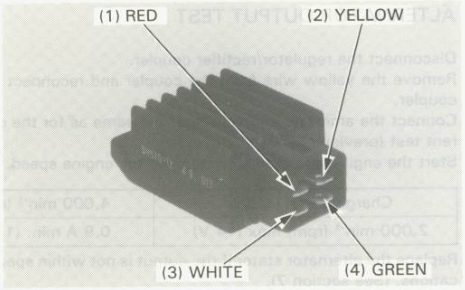
NOTE

- For accurate testing, it is necessary to use a specified tester. Use of an improper tester or measurements in the improper range may give false readings.
- Use Sanwa Electric Tester SP-10D (07308–0020000), Kowa Electric Tester TH-5H or Kowa Digital Multi Tester KS–AHM–32–003 (U.S.A. only).

Measuring range:
SANWA ELECTRIC TESTER: x KΩ
KOWA ELECTRIC TESTER: x 100 Ω

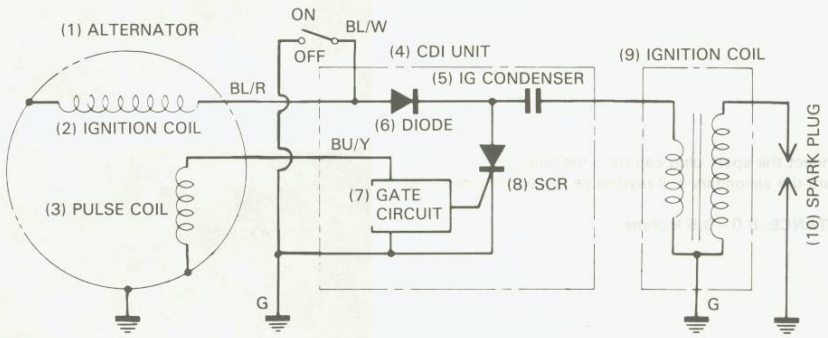
(1) UNIT: KΩ

+ PROBE / – PROBE	RED	YELLOW	WHITE	GREEN
RED		∞	∞	∞
YELLOW	∞		∞	5–100
WHITE	0.5–100	∞		∞
GREEN	∞	5–100	∞	



IGNITION SYSTEM

IGNITION SYSTEM CIRCUIT



SPARK PLUG

For spark plug gap inspection and adjustment, see Page 3-5.

IGNITION TIMING

NOTE

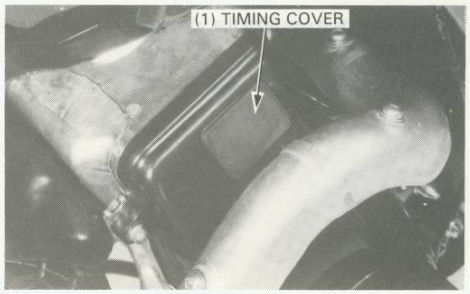
- The CDI ignition timing is not adjustable. If the ignition timing is not correct, check the CDI unit and alternator and replace any faulty parts.

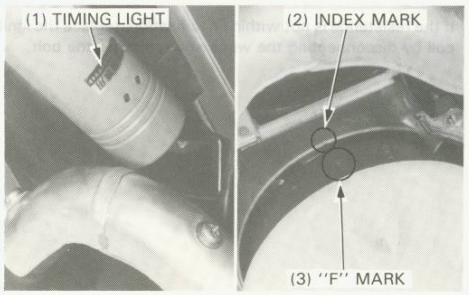
Remove the right frame rear cover.

Remove the timing cover and check the ignition timing with a timing light.

Timing is correct if the index mark aligns with the "F" mark (within 3°) at 1,800 min^{-1} (rpm)

IGNITION TIMING: 18 ± 3° BTDC at 1,800 min^{-1} (rpm)



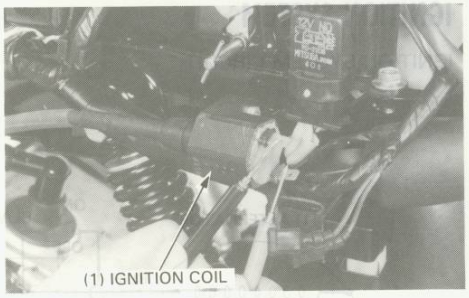


IGNITION COIL INSPECTION

Remove the left frame rear cover (page 11-2).

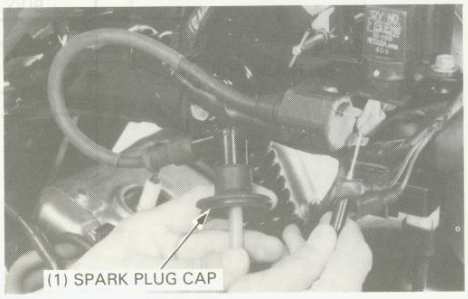
Disconnect the primary wires from the ignition coil and measure the primary coil resistance.

RESISTANCE: 0.2—0.3 ohms



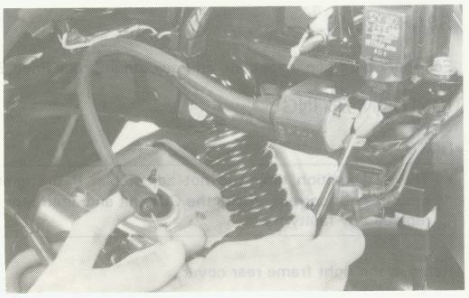
Disconnect the spark plug cap from the plug.
Measure the secondary coil resistance through the plug cap.

RESISTANCE: 8.0—8.5 k ohms

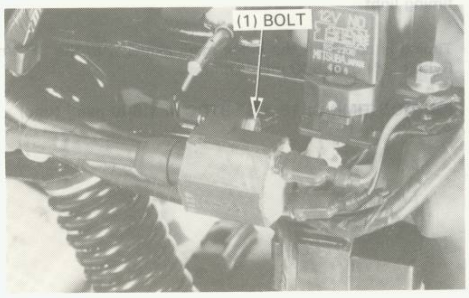


Unscrew the plug cap from the wire and measure the secondary coil resistance.

RESISTANCE: 3.4—4.2 k ohms



If the resistance is not within specification, replace the ignition coil by disconnecting the wires and removing the bolt.



PULSE GENERATOR INSPECTION

NOTE

- It is not necessary to remove the stator to make this test.

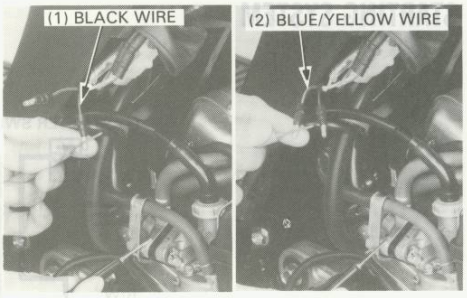
Remove the left frame rear cover (page 11-2).

Disconnect the stator coupler.

Measure the resistances between the terminals with an ohmmeter.

RESISTANCE:
BLACK/RED AND ENGINE GROUND 100—400 ohms
BLUE/YELLOW AND ENGINE GROUND10—100 ohms

Replace the pulse generator with the alternator stator as an assembly if resistance is not within specifications (See section 7).

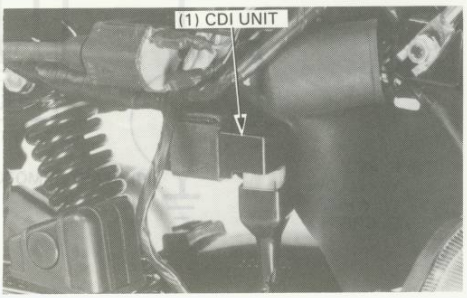


CDI UNIT INSPECTION

Remove the left frame rear cover (page 11-2).

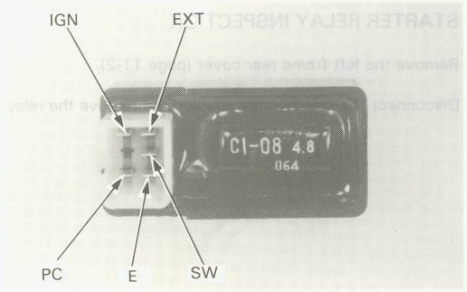
Disconnect the CDI unit coupler and remove the CDI unit.

Measure the resistances between the terminals.
Replace the CDI unit if the readings do not fall within the limits in the table.



NOTE

- For accurate testing, it is necessary to use a specified tester. Use of an improper tester or measurements in an improper range may give false readings.
- Use Sanwa Electric Tester SP-10D (07308—0020000), Kowa Electric Tester TH-5H or Kowa Digital Multi Tester KS—AHM—32—003 (U.S.A. only).
- In the table, "Needle swings then returns" indicates that there is a charging current applied to a condenser. The needle will then remain at "∞" unless the condenser is discharged.

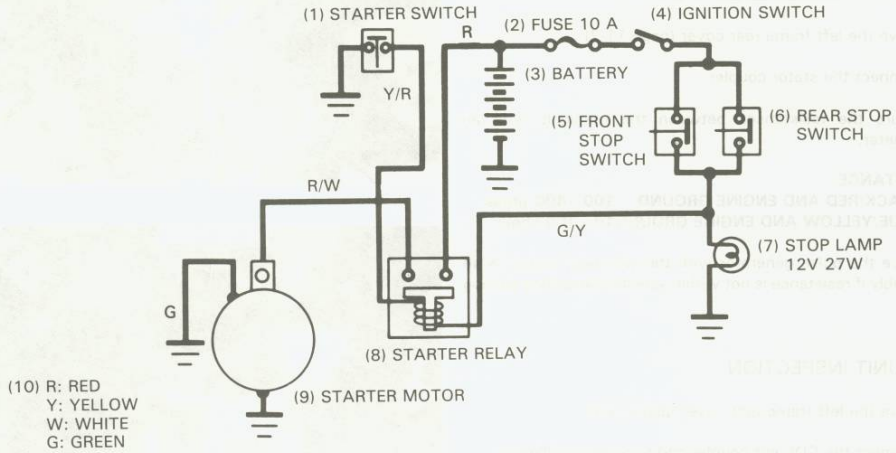


Measuring range:
SANWA ELECTRIC TESTER: X kΩ
KOWA ELECTRIC TESTER: X100Ω

UNIT: KΩ

⊕ PROBE / ⊖ PROBE	SW	EXT	PC	E	IGN
SW		∞	∞	∞	∞
EXT	0.1—10		∞	∞	"Needle swings then returns"
PC	0.5—200	0.5—50		1—50	∞
E	0.2—30	0.1—10	∞		∞
IGN	∞	∞	∞	∞	

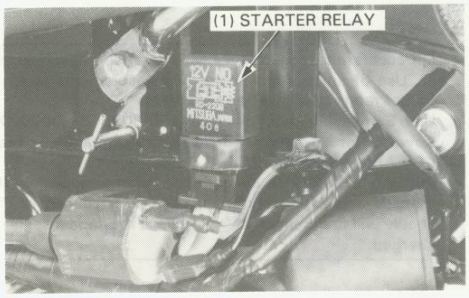
STARTING SYSTEM



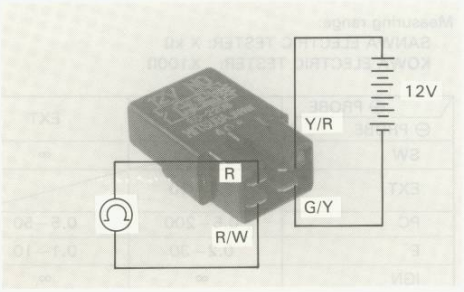
STARTER RELAY INSPECTION

Remove the left frame rear cover (page 11-2).

Disconnect the starter relay coupler and remove the relay.



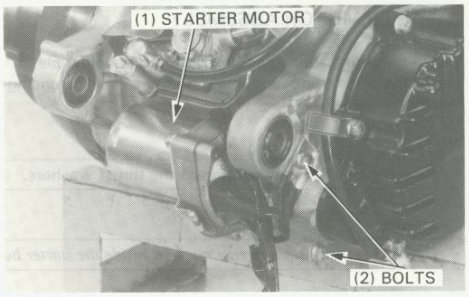
There should be continuity between the red and red/white terminals only when the positive probe of a 12V battery is attached to the green/yellow wire terminal and the negative probe is attached to the yellow/red wire terminal.



STARTER MOTOR REMOVAL/DISASSEMBLY

Remove the engine (section 5).

Remove the two bolts attaching the starter motor and remove the starter motor.

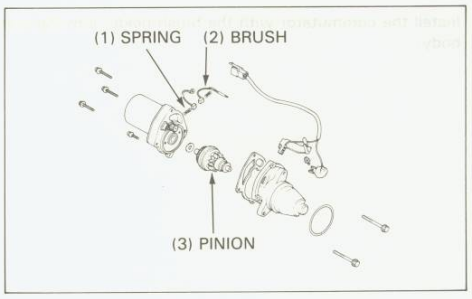


STARTER MOTOR DISASSEMBLY

Disconnect the starter wires.

NOTE

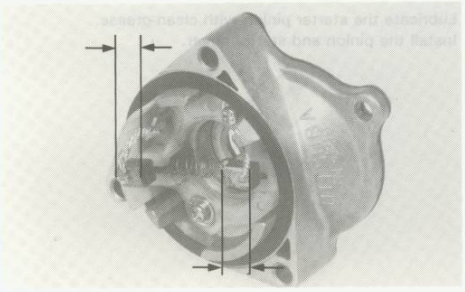
- The brush springs will pop out when removing the brush holder plate.
- Record the number and location of the commutator thrust washers.



BRUSH INSPECTION

Measure the length of each brush.

SERVICE LIMIT: 3.0 mm (0.12 in)



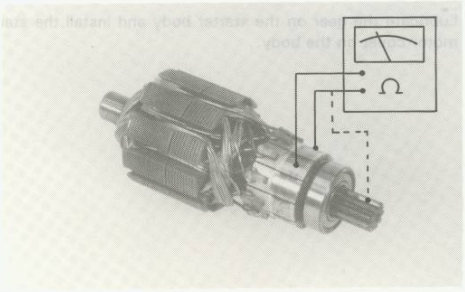
COMMUTATOR INSPECTION

Check the commutator for discoloration and other visual faults. Blackened adjacent segments are an indication of a shorted circuit.

NOTE

- Do not use sand paper to clean the commutator.

Check for continuity between segments, and between the commutator and shaft. The commutator is normal if there is continuity between the segments. There should be no continuity between the commutator and shaft.



STARTER MOTOR ASSEMBLY

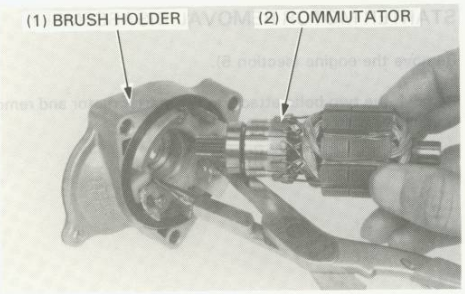
Install the brush springs and brushes in the holder plate. Install the commutator and thrust washers while extending the brushes outward.

NOTE

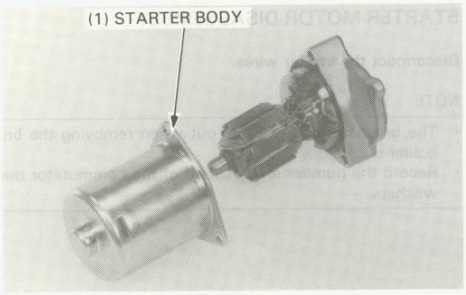
- Note the number and location of the thrust washers.

CAUTION

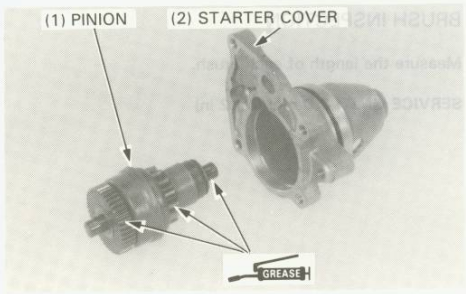
- *Check that there is no foreign material inside the starter body.*



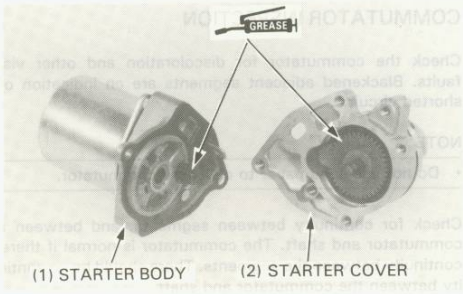
Install the commutator with the brush holder into the starter body.



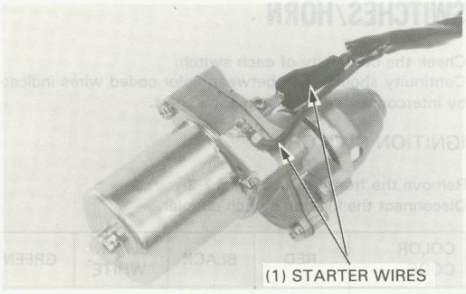
Lubricate the starter pinion with clean grease. Install the pinion and starter cover.



Lubricate the gear on the starter body and install the starter motor cover on the body.



Connect the starter wires.



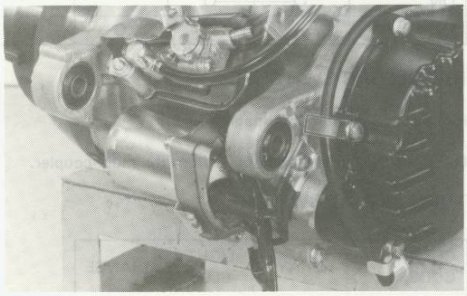
STARTER MOTOR INSTALLATION

NOTE

- Before installing the starter, test operation by connecting the starter coupler to the wire harness.

Install the starter motor in the reverse order of removal. Secure the wires with the wire clamps.

Install the engine (Section 5).



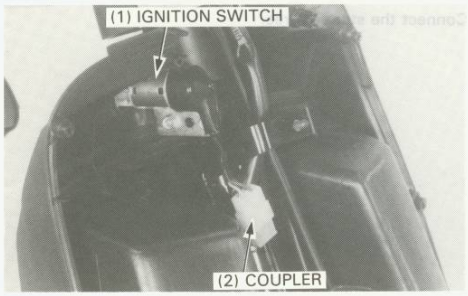
SWITCHES/HORN

Check the continuity of each switch.
Continuity should exist between color coded wires indicated by interconnected circles on each chart.

IGNITION SWITCH

Remove the front cover (page 11-2).
Disconnect the ignition switch coupler.

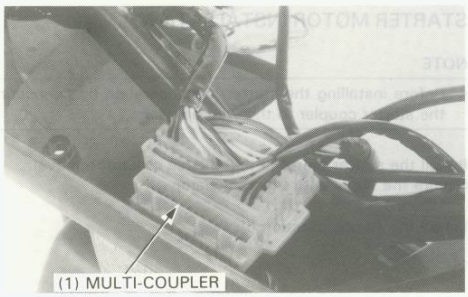
COLOR CODE	RED	BLACK	BLACK/ WHITE	GREEN
TERMINAL	BAT 1	BAT 2	IG	E
ON	O	O		
OFF			O	O



HANDLEBAR SWITCHES

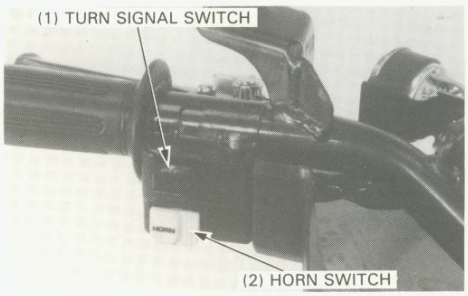
Remove the instruments (page 14-18).

Disconnect each switch coupler from the multi-coupler.



TURN SIGNAL SWITCH

COLOR CODE	GRAY	LIGHT BLUE	ORANGE
TERMINAL	W	R	L
R	O	O	
PUSH (N)			
N			
L	O		O

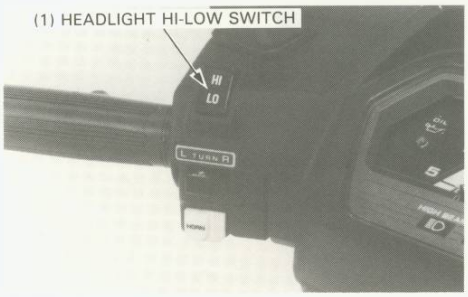


HORN SWITCH

COLOR CODE	LIGHT BLUE	BLACK
TERMINAL	HO	BAT 2
FREE		
PUSH	O	O

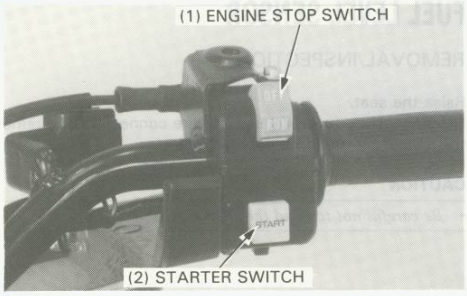
HEADLIGHT HI-LOW SWITCH

COLOR CODE	YELLOW	BLUE	WHITE
TERMINAL	HL	Hi	Lo
Hi	O	O	
(N)	O	O	O
Lo	O		O



ENGINE STOP SWITCH

COLOR CODE	BLACK/ WHITE	GREEN
TERMINAL	IG	E
OFF	○	○
RUN		



STARTER SWITCH

COLOR CODE	YELLOW/ RED	GREEN
TERMINAL	ST	E
FREE		
PUSH	○	○

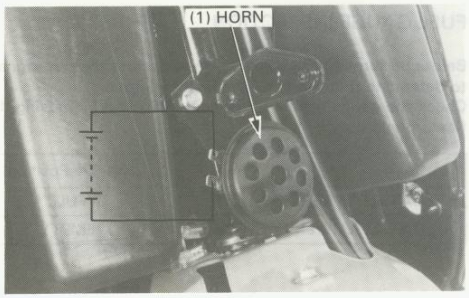
FRONT/REAR STOPLIGHT SWITCH

The switch is normal if there is continuity when the brake lever is applied.
The switches are not adjustable.

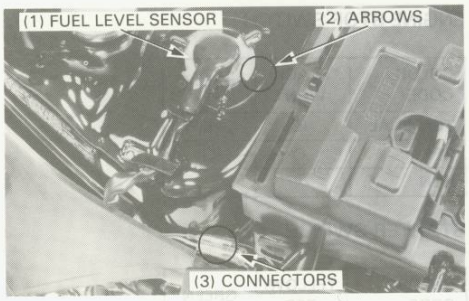
HORN

Remove the front cover (page 11-3).

The horn is normal if it sounds when a 12V battery is connected across the terminals.



FUEL LEVEL SENSOR



REMOVAL/INSPECTION

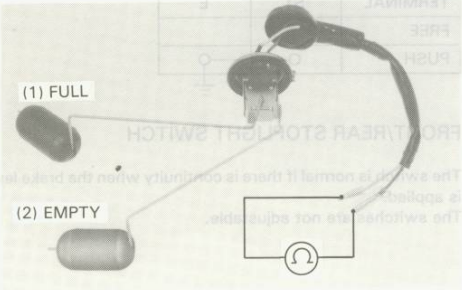
Raise the seat.
Disconnect the fuel level sensor wire connectors and remove the sensor by turning it counterclockwise.

CAUTION

- *Be careful not to bend the float arm.*

Measure the resistances between the terminals with the float at the UPPER (FULL) and LOWER (EMPTY) positions.

Float position	Resistance
UPPER(FULL) position	4–10 Ω
LOWER (EMPTY) position	97.5–107.5 Ω

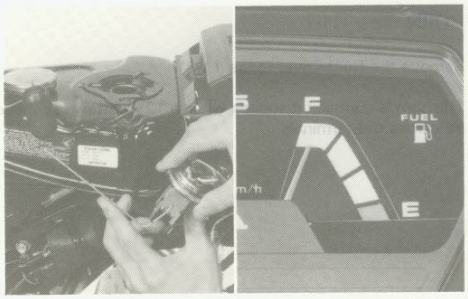


Before installing the sensor, check the fuel gauge (see below):

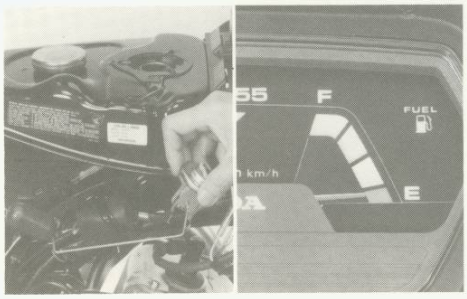
FUEL GAUGE INSPECTION

Before performing the following test, operate the turn signals to determine that the battery circuit is normal.
Check the gauge needle for correct indication by moving the float up and down.

	Needle Position
FLOAT AT UPPER POSITION	"FULL"
FLOAT AT LOWER POSITION	"EMPTY"



To install the sensor turn it clockwise until its arrow aligns with the arrow on the fuel tank. Make sure the wires are connected.

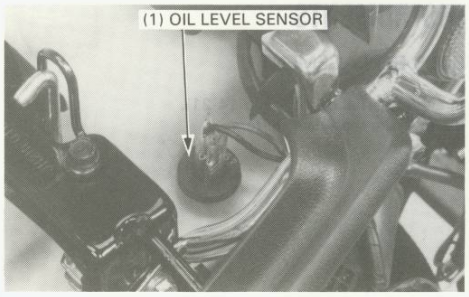


OIL LEVEL SENSOR

INSPECTION

Remove the battery box (page 2-4).

Disconnect the wires and remove the sensor.

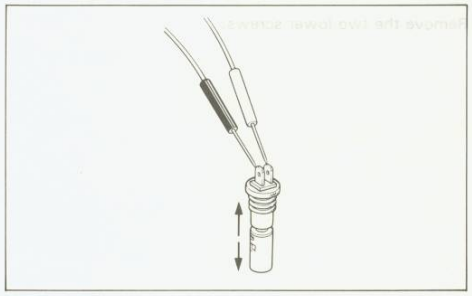


Lower the float fully until it will no longer go.
Measure the resistance between the terminals as shown.

RESISTANCE: 0 ohms

With the float raised fully, measure the resistance between the terminals.

RESISTANCE: ∞ ohms

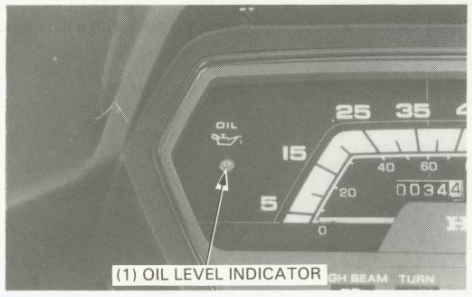


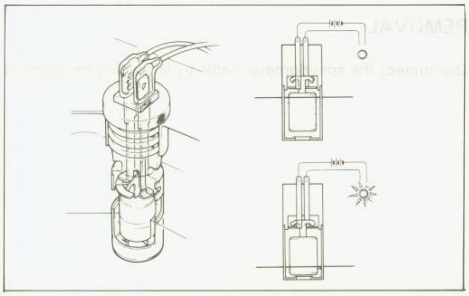
Connect the wires and turn the ignition switch ON.

Operate the turn signals to see that the battery circuit is normal, then perform the following inspection.

Raise and lower the float to make sure that the oil level indicator blinks on and off.

Should the indicator fail to go on and go out as the float is moved up and down, check for a loose connection and repeat the above procedure.

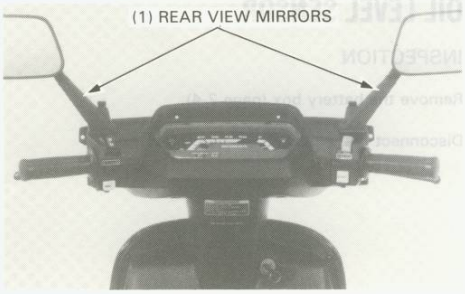




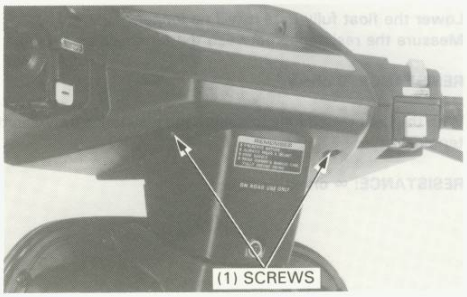
INSTRUMENTS

BULB REPLACEMENT

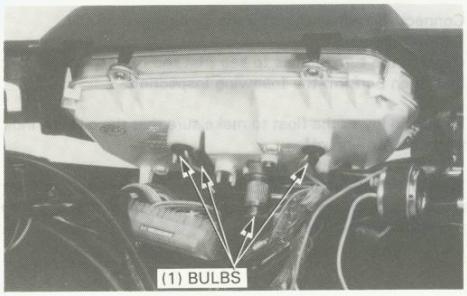
Remove the headlight (page 14-21).
Remove the rear view mirrors.



Remove the two lower screws.

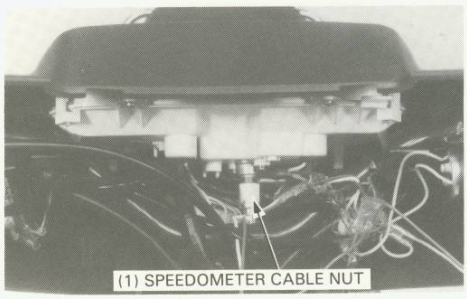


Raise the instruments and replace the bulb with a new one.

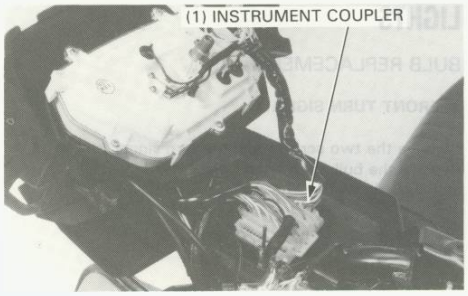


REMOVAL

Disconnect the speedometer cable by loosening the cable nut.

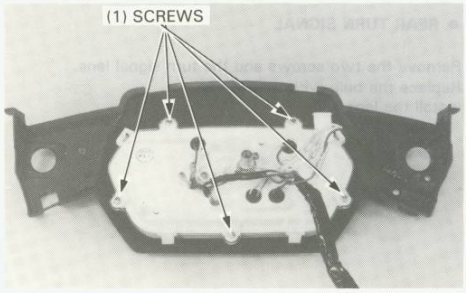


Disconnect the instrument coupler from the multicoupler.



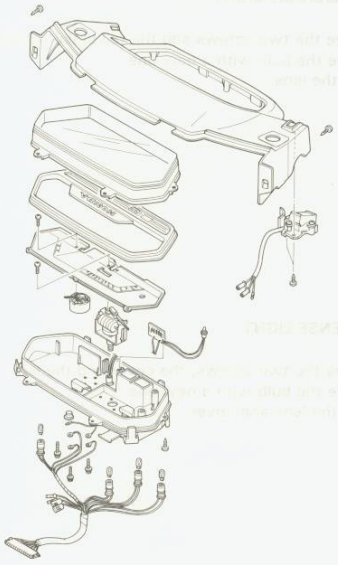
Remove the five screws and disconnect the headlight hi-low switch wire connectors.

Remove the instruments from the handlebar upper cover.
Install the instruments in the reverse order of removal.



DISASSEMBLY/ASSEMBLY

Release the four tabs and remove the instrument lens.
Remove the speedometer and terminal screws and disassemble the instruments.
Assemble the instruments in the reverse order of disassembly.

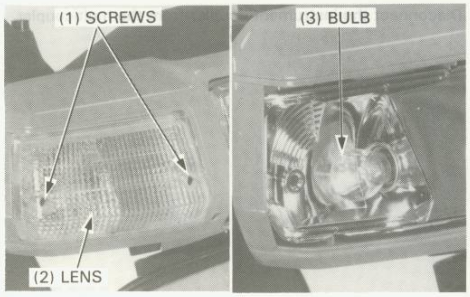


LIGHTS

BULB REPLACEMENT

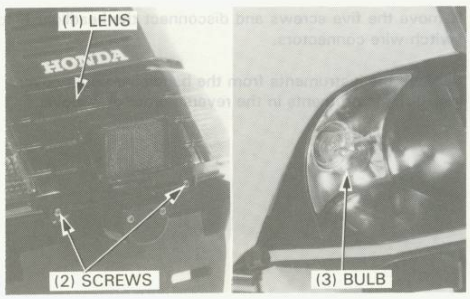
- **FRONT TURN SIGNAL**

Remove the two screws and the turn signal lens.
Replace the bulb with a new one.
Install the lens.



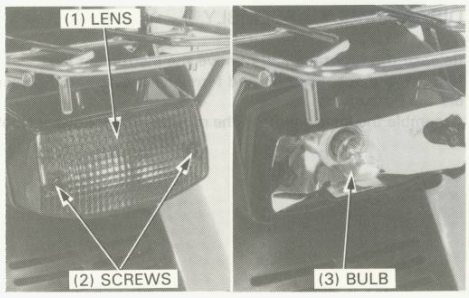
- **REAR TURN SIGNAL**

Remove the two screws and the turn signal lens.
Replace the bulb with a new one.
Install the lens



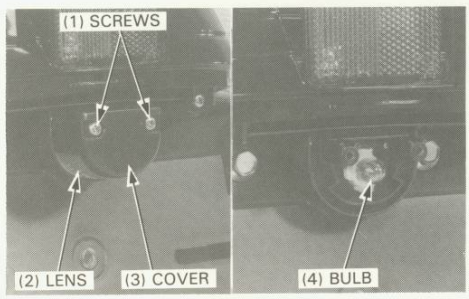
- **TAIL/BRAKE LIGHT**

Remove the two screws and the tail/brake light lens.
Replace the bulb with a new one.
Install the lens.



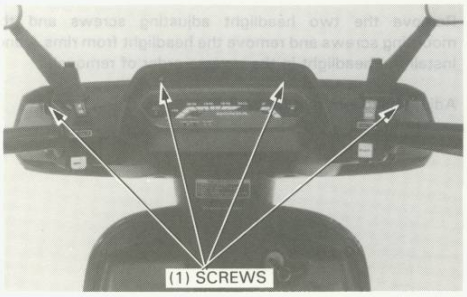
- **LICENSE LIGHT**

Remove the two screws, the cover and the lens.
Replace the bulb with a new one.
Install the lens and cover.

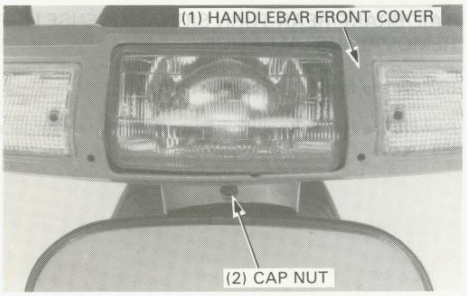


HEADLIGHT/FRONT TURN SIGNAL REMOVAL/INSTALLATION

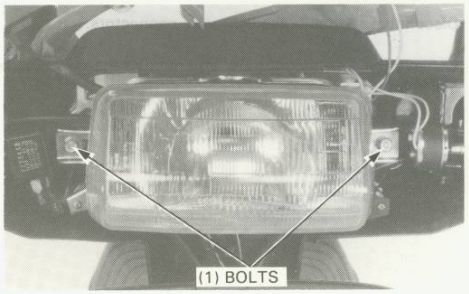
Remove the four screws.



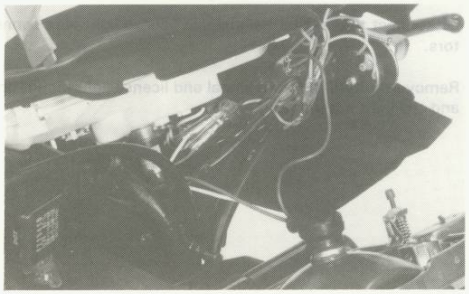
Remove the cap nut and handlebar front cover.



Remove the two headlight mount bolts.

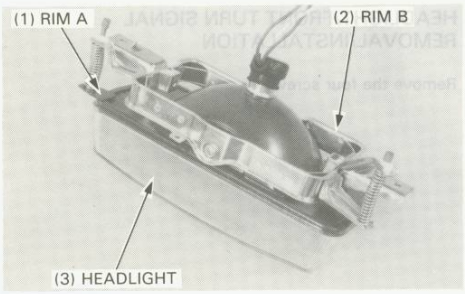


Disconnect the headlight and front turn signal wire connectors and remove the headlight and front cover.



Remove the two headlight adjusting screws and three mounting screws and remove the headlight from rims A and B. Install the headlight in the reverse order of removal.

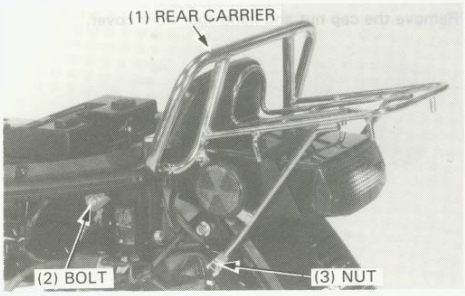
Adjust headlight aim (page 3-9).



TAIL/BRAKE/REAR TURN SIGNAL/LICENSE LIGHT REMOVAL/INSTALLATION

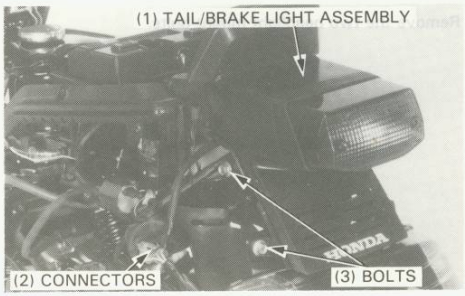
Remove the frame rear covers (section 11).

Remove the two bolts and nuts attaching the rear carrier and the carrier.



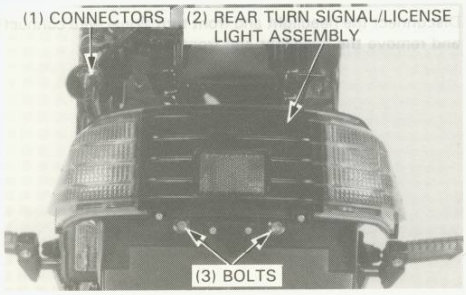
Disconnect the tail/brake light wire connectors.

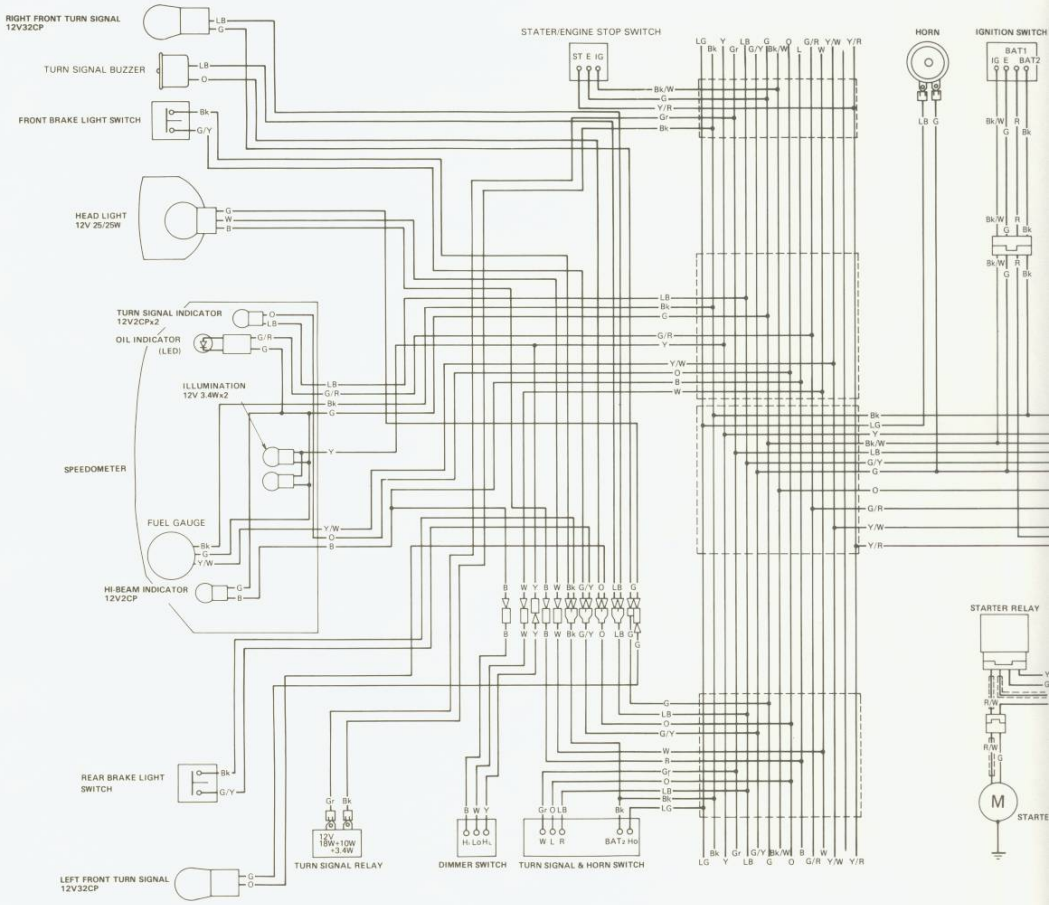
Remove the four mount bolts and remove the tail/brake light assembly.



Disconnect the rear turn signal and license light wire connectors.

Remove the two rear turn signal and license light mount bolts and the light assembly.





IGNITION SWITCH

	IG	E	BAT_1	BAT_2
ON			○	○
OFF	○	○		
COLOR	Bk/W	G	R	Bk

ENGINE STOP SWITCH

	IG	E
OFF	○	○
RUN		
COLOR	Bk/W	G

STARTER SWITCH

	ST	E
FREE		
PUSH	○	○
COLOR	Y/R	G

DIMMER SWITCH

	H_1	H_2	Lo
ON	H_1	○	
	(N)	○	○
	Lo		○
COLOR	Y	L	W

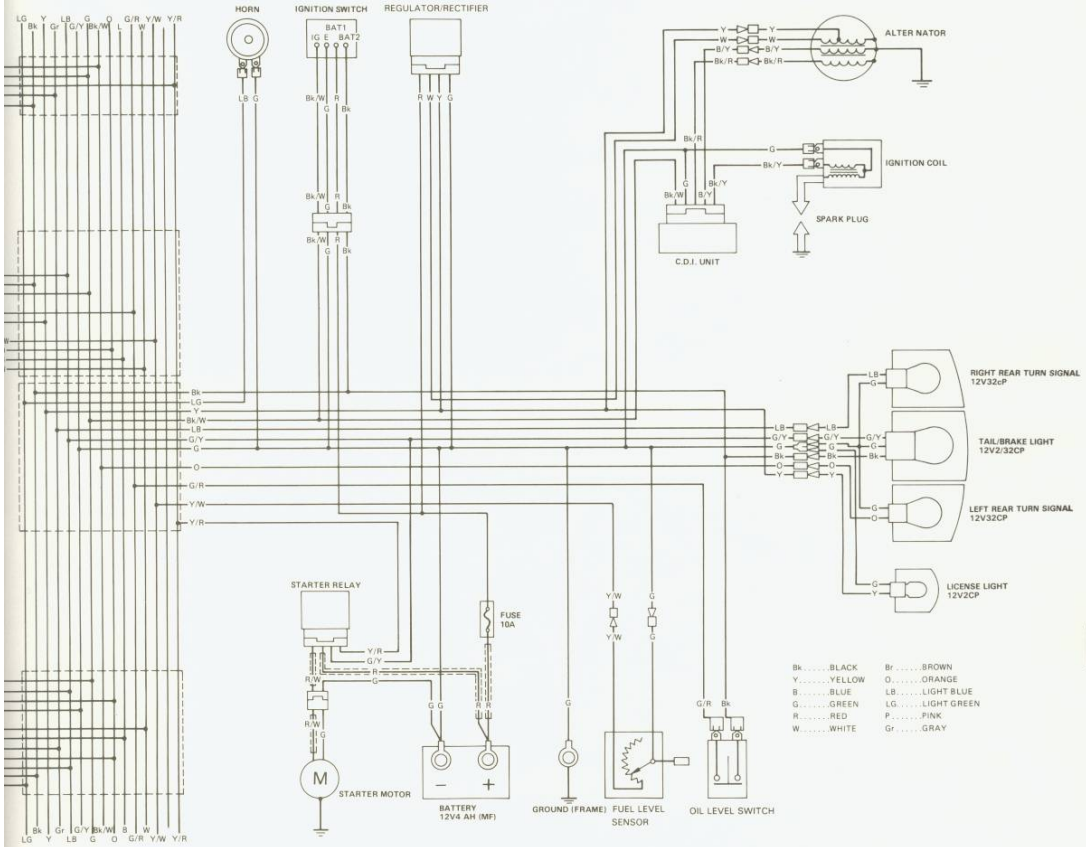
TURN SIGNAL SWITCH

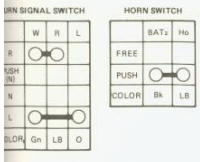
	W	R	L
R	○	○	
PUSH (N)			
N			
L			○
COLOR	Gn	LB	O

HORN SWITCH

	BAT_2	Ho
FREE		
PUSH	○	○
COLOR	Bk	LB

15. WIRING DIAGRAM





15

16. TROUBLESHOOTING

ENGINE DOES NOT START OR IS HARD TO START

		Probable Cause
1. Check if fuel is getting to carburetor by loosening drain screw	NOT GETTING TO CARBURETOR →	(1) No fuel in fuel tank (2) Clogged fuel tube to carburetor or vacuum tube to inlet pipe (3) Clogged float valve (4) Clogged fuel tank cap breather hole (5) Clogged fuel strainer
GETTING TO CARBURETOR ↓		
2. Try spark test	WEAK OR NO SPARK →	(1) Faulty spark plug (2) Fouled spark plug (3) Faulty CDI unit (4) Faulty pulse generator (5) Open or shorted spark plug wire (6) Open or shorted ignition coil (7) Faulty ignition switch
SPARK JUMPS ↓		
3. Test cylinder compression	LOW COMPRESSION →	(1) Stuck piston rings (2) Faulty or deteriorated reed valve (3) Worn cylinder and piston rings (4) Flaw in cylinder or cylinder head (5) Compression leak past crankcase (6) Blown cylinder head gasket
NORMAL COMPRESSION ↓		
4. Start by following normal starting procedure	ENGINE FIRES BUT SOON STOPS →	(1) Faulty choke control box (2) Air leaking past intake pipe (3) Improper ignition timing (4) Carbon blocking exhaust system
ENGINE DOES NOT FIRE ↓		
5. Remove spark plug	WET PLUG →	(1) Carburetor flooded (2) Faulty choke control box (3) Throttle valve open excessively
DRY		

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ENGINE LACKS POWER

		Probable Cause
1. Lightly accelerate engine ENGINE SPEED INCREASES	ENGINE SPEED DOES NOT INCREASE SUFFICIENTLY →	(1) Clogged air cleaner (2) Restricted fuel flow (3) Clogged fuel tank cap breather hole (4) Clogged muffler
2. Check ignition timing CORRECT	INCORRECT →	(1) Faulty CDI unit (2) Faulty pulse generator
3. Test cylinder compression NORMAL	TOO LOW →	(1) Worn cylinder or piston rings (2) Blown cylinder head gasket (3) Flaws in cylinder or cylinder head (4) Faulty or deteriorated reed valve
	TOO HIGH →	Carbon build-up in combustion chamber
4. Check carburetor for clogging NOT CLOGGED	CLOGGED →	Carburetor not serviced frequently enough
5. Remove spark plug NOT FOULED OR DISCOLORED	FOULED OR DISCOLORED →	(1) Plug not serviced frequently enough (2) Use of plug with improper heat range
6. Check if engine overheats NOT OVERHEATED	OVERHEATED →	(1) Worn cylinder or piston (2) Fuel air mixture too lean (3) Use of improper grade of fuel (4) Excessive carbon build-up in combustion chamber (5) Ignition timing too advanced
7. Try rapid acceleration or run at high speed ENGINE DOES NOT KNOCK	ENGINE KNOCKS →	(1) Excessive carbon build-up in combustion chamber (2) Use of improper grade of fuel (3) Clutch slipping (4) Fuel air mixture too lean

POOR PERFORMANCE AT LOW AND IDLE SPEEDS

		Probable Cause
1. Check ignition timing	INCORRECT →	(1) Faulty CDI unit (2) Faulty pulse generator
CORRECT ↓		
2. Check carburetor air screw for proper adjustment	INCORRECT →	(1) Fuel air mixture too rich (Perform idle drop) (2) Fuel air mixture too lean (Perform idle drop)
CORRECT ↓		
3. Check if air is leaking past intake pipe	LEAKING →	(1) Loose carburetor (2) Deteriorated inlet pipe gasket (3) Deteriorated insulator O-ring
NOT LEAKING ↓		
4. Try spark test	WEAK OR INTERMITTENT SPARK →	(1) Faulty, carbon or wet fouled spark plug (2) Faulty CDI unit (3) Faulty pulse generator (4) Faulty ignition coil (5) Broken or shorted spark plug wire (6) Faulty ignition switch
GOOD SPARK		

POOR PERFORMANCE AT HIGH SPEED

		Probable Cause
1. Check ignition timing	INCORRECT →	(1) Faulty CDI unit (2) Faulty pulse generator
CORRECT ↓		
2. Disconnect fuel tube at fuel valve	FUEL FLOW RESTRICTED →	(1) No fuel in fuel tank (2) Clogged fuel tube or fuel filter (3) Clogged fuel tank cap breather hole (4) Blocked fuel valve vacuum tube
FUEL FLOWS FREELY ↓		
3. Remove carburetor and check for a clogged jet	CLOGGED →	Clean
NOT CLOGGED		

CLUTCH AND DRIVE/DRIVEN PULLEYS

	Probable cause
1. If engine fires but scooter does not start	(1) Worn or slipping drive belt (2) Broken ramp plate (3) Broken driven face spring (4) Separated clutch lining (5) Damaged driven pulley shaft splines (6) Faulty transmission (7) Seized transmission
2. If scooter creeps or engine starts but soon stops	(1) Broken shoe spring (2) Stuck clutch outer weight (3) Seized pivot
3. If engine lacks power at start of a grade	(1) Worn or slipping drive belt (2) Worn weight roller (3) Seized drive pulley bearing (4) Weak driven face spring (5) Worn or seized driven pulley bearing
4. If engine lacks power at high speed	(1) Worn or slipping drive belt (2) Worn weight roller (3) Worn driven pulley bearing
5. If there is abnormal noise or smell	(1) Oily or greasy substances on drive belt/pulley (2) Worn drive belt (3) Weak driven face spring (4) Worn or seized driven pulley bearing

POOR HANDLING

LOSS OF CONTROL ---------- Check tire pressure	Probable Cause
1. If steering is heavy	(1) Steering head adjuster too tight (2) Damaged steering cones or steel balls
2. If either wheel is wobbling	(1) Excessive wheel bearing play (2) Bent rim (3) Loose axle nut
3. If the scooter pulls to one side	(1) Misaligned front and rear wheels (2) Bent front fork

POOR FRONT/REAR SUSPENSION PERFORMANCE ---- Check tire pressure	Probable Cause
1. If suspension is too soft	(1) Weak shock spring (2) Excessive load (3) Leaky damper
2. If suspension is too hard	Bent fork or shock rod
3. If suspension is noisy	(1) Slider binding (2) Damaged shock stopper rubber

POOR BRAKE PERFORMANCE - - - - - Check brake adjustment

	Probable Cause
1. If wear indicator arrow aligns with index mark on brake panel →	(1) Worn brake shoes (2) Worn brake cam (3) Worn cam contacting face of shoe (4) Worn brake drum
2. If either brake is squealing →	(1) Worn brake shoes (2) Foreign matter on brake lining (3) Rough shoe contact face of brake drum
3. If brake performance is poor →	(1) Faulty or elongated brake cable (2) Brake shoes partially contacting brake drum (3) Mud or water in brake drum (4) Brake linings fouled with grease or oil

OIL INDICATOR

INDICATOR DOES NOT LIGHT

		Probable Cause
1. Check battery circuit by operating turn signals	SIGNALS DIM, REMAIN ON OR DOES NOT OPERATE →	(1) Blown fuse (2) Weak or dead battery (3) Faulty ignition switch (4) Disconnected wire connector (5) Broken wire harness
SIGNALS OPERATING CORRECTLY (60 – 120 flashes/min)		
2. Remove instruments and connect green/red wire to battery positive terminal and green wire to negative terminal	LED DOES NOT LIGHT →	Faulty LED or LED drive circuit
LED LIGHT FOR A MOMENT		
3. Check for loose, disconnected or improperly connected terminal	INCORRECT →	(1) Loose or disconnected terminal (2) Broken wire harness (3) Incorrect connection
CORRECT		
4. Remove oil level switch and check operation Float up: Indicator off Float down: Indicator on	INCORRECT →	(1) Stuck float (2) Faulty oil level switch
CORRECT		

INDICATOR LAMP REMAINS ON WITH SUFFICIENT OIL IN OIL TANK (IGNITION SWITCH ON)

		Probable Cause
1. Check for loose, disconnected or improperly connected terminals	INCORRECT →	(1) Loose or disconnected terminal (2) Broken wire harness (3) Incorrect connection
CORRECT		
2. Remove oil level switch and check operation Float up: Indicator off Float down: Indicator on	INCORRECT →	(1) Jammed or stuck float (2) Faulty oil level sensor
CORRECT		

FUEL GAUGE

POINTER DOES NOT REGISTER CORRECTLY (IGNITION SWITCH ON)

		Probable Cause
1. Check battery circuit by operating turn signals	SIGNALS DIM, REMAIN ON OR DOES NOT OPERATE AT ALL →	(1) Blown fuse (2) Weak or dead battery (3) Faulty ignition switch (4) Disconnected or loose terminal (5) Open circuit
SIGNALS OPERATE PROPERLY ↓		
2. Remove fuel level sensor and check for operation by moving float Float up: Pointer at FULL Float down: Pointer at EMPTY	POINTER MOVES →	Faulty fuel level sensor
POINTER DOES NOT MOVE ↓		
3. Check operation of pointer by opening and shorting fuel unit terminals on harness side	POINTER MOVES →	Open or shorted fuel level sensor
POINTER DOES NOT MOVE ↓		
4. Check for loose, disconnected or mis-connected terminals	INCORRECT →	(1) Disconnected terminals (2) Mis-connected terminals
CORRECT →		Shorted or open circuit in gauge

POINTER FLUCTUATES OR SWINGS VIOLENTLY (IGNITION SWITCH ON)

		Probable Cause
1. Check battery circuit by operating turn signals	SIGNALS DIM, REMAIN ON OR DOES NOT OPERATE AT ALL →	(1) Blown fuse (2) Weak or dead battery (3) Broken or shorted ignition switch (4) Loose or disconnected terminal (5) Open circuit
SIGNALS OPERATE PROPERLY ↓		
2. Remove fuel level sensor and check for operation of pointer by moving float	POINTER DOES NOT MOVE IN ACCORDING WITH FLOOT →	Loose or poor connection in fuel level sensor
POINTER MOVES ↓		
3. Check each connector	INCORRECT →	Loose or disconnected terminal
CORRECT →		Open or shorted circuit in gauge

STARTER MOTOR

STARTER MOTOR DOES NOT ROTATE

		Probable Cause
1. Check operation of brake light by operating brakes	DOES NOT GO ON →	(1) Blown fuse (2) Weak or dead battery (3) Faulty stop light switch (4) Disconnected terminal (5) Open or shorted ignition switch
WENT ON ↓		
2. Check battery circuit by operating turn signals	SIGNALS DIM, REMAIN ON OR DO NOT OPERATE AT ALL →	Dead battery
SIGNALS OPERATE PROPERLY (60—120 flashes/min) ↓		
3. Check starter relay for operation by depressing starter switch	ABNORMAL →	(1) Poorly contacted starter switch (2) Open or shorted starter relay (3) Loose connector or terminal
NORMAL ↓		
4. Test starter by connecting it to battery directly	DOES NOT ROTATED →	(1) Worn brushes (2) Open or shorted rotor windings (3) Open starter motor cable (4) Loose terminal
ROTATES →		Broken wire harness

STARTER MOTOR ROTATES BUT SLUGGISHLY OR FAILS TO CRANK ENGINE

		Probable Cause
1. Check battery circuit by operating turn signals	SIGNALS DIM, REMAIN ON OR DO NOT OPERATE →	Weak or dead battery
SIGNALS OPERATE PROPERLY ↓	AT ALL	
2. Connect starter motor cable across battery terminals	TURNS PROPERLY →	(1) Loose connector or terminal (2) Poorly contacted starter relay (3) Faulty starter clutch
TURNS SLOWLY (SPEED NOT CHANGED) ↓		
3. Rotate crankshaft	TURNS HARD →	Seized engine
TURNS EASY →		Faulty starter motor

STARTER WON'T STOP ROTATING

		Probable Cause
1. Turn ignition switch OFF	STOPS →	(1) Pinion stuck out (2) Faulty starter switch
DOES NOT STOP →		Starter relay shorted or stuck closed

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