

HOW TO USE THIS MANUAL

Follow the Maintenance Schedule recommendations to ensure that the vehicle is in peak operating condition. 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 motor 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.

All information, illustrations, directions and specifications included in this publication are based on the latest product information available at the time of approval for printing. Honda Motor Co., Ltd. reserves the right to make changes at any time without notice and without incurring any obligation whatever.

No part of this publication may be reproduced without written permission.

HONDA MOTOR CO., LTD.
Service Publications Office

CONTENTS

	GENERAL INFORMATION	1
	LUBRICATION	2
	MAINTENANCE	3
ENGINE	FUEL SYSTEM	4
	ENGINE REMOVAL/INSTALLATION	5
	CYLINDER HEAD/CYLINDER/PISTON	6
	ALTERNATOR	7
	KICK STARTER/DRIVE AND DRIVEN PULLEYS/CLUTCH	8
	FINAL REDUCTION	9
	CRANKCASE/CRANKSHAFT	10
CHASSIS	FRAME COVERS	11
	STEERING/FRONT WHEEL/BRAKE/SUSPENSION	12
	REAR WHEEL/BRAKE/SUSPENSION	13
ELECTRICAL	ELECTRICAL EQUIPMENT	14
	WIRING DIAGRAM	15
	TROUBLESHOOTING	16
	INDEX	17

1. GENERAL INFORMATION

GENERAL SAFETY	1-1	TOOLS	1-7
SERVICE RULES	1-1	CABLE & HARNESS ROUTING	1-8
MODEL IDENTIFICATION	1-2	NOISE EMISSION CONTROL SYSTEMS (U.S.A. only)	1-11
SPECIFICATIONS	1-3		
TORQUE VALUES	1-5		

1

GENERAL SAFETY

⚠ WARNING

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

⚠ WARNING

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

⚠ 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.

⚠ WARNING

Inhaled asbestos fibers have been found to cause respiratory disease and cancer. Never use an air hose or dry brush to clean brake assemblies.

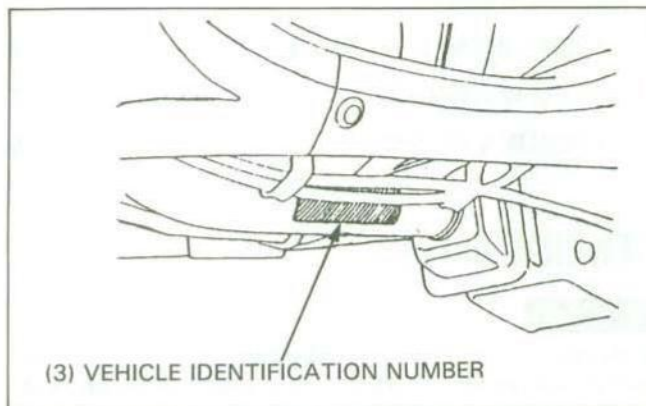
Use an OSHA-approved vacuum cleaner or alternate method approved by OSHA designed to minimize the hazard caused by airborne asbestos fibers.

SERVICE RULES

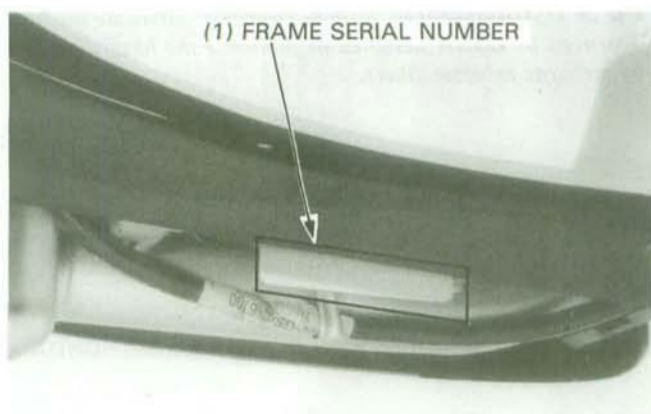
1. Use genuine HONDA or HONDA-recommended parts and lubricants or their equivalents. Parts that do not meet HONDA's design specifications may damage the scooter.
2. Use the special tools designed for this scooter.
3. Use only metric tools when servicing this scooter. Metric bolts, nuts, and screws are 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 or 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 re-assembly.
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.

GENERAL INFORMATION

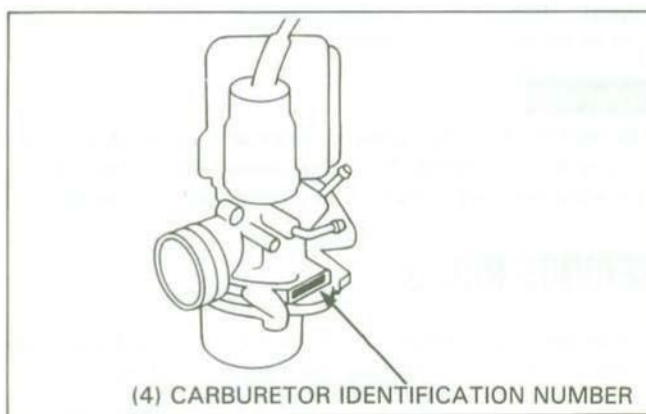
MODEL IDENTIFICATION



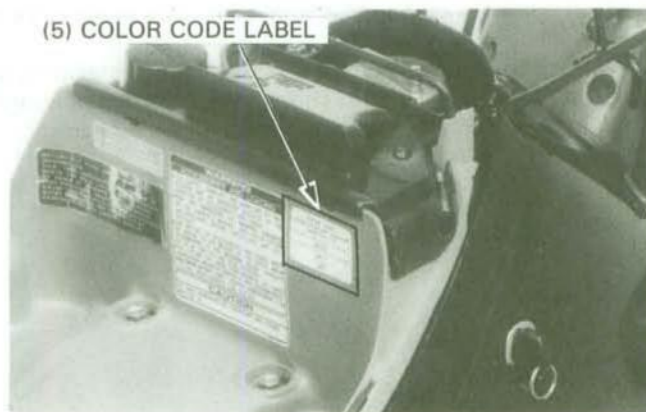
The Vehicle Identification Number is on the Safety Certification label which is attached to the frame pipe under the floor panel.



The frame serial number is stamped on the left side of the frame.



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



The color code label is attached to the trunk below the seat. When ordering a color coded part, always specify its designated color.

SPECIFICATIONS

ITEM		SPECIFICATIONS
DIMENSIONS	Overall length	1,545 mm (60.8 in)
	Overall width	650 mm (25.6 in)
	Overall height	1,000 mm (39.4 in)
	Wheelbase	1,090 mm (42.9 in)
	Ground clearance	100 mm (3.9 in)
	Dry weight	49 kg (108 lbs)
FRAME	Type	Back bone
	Front suspension, travel	Telescopic, 56 mm (2.20 in)
	Rear suspension, travel	Final drive unit/swingarm, 59 mm (2.32 in)
	Maximum weight capacity	180 lbs
	Front tire size, pressure	2.50—10—4PR, 150 kPa (1.50 kg/cm ² , 22 psi)
	Rear tire size, pressure	2.50—10—4PR, 225 kPa (2.25 kg/cm ² , 33 psi)
	Front brake	Internal expanding shoe
	Rear brake	Internal expanding shoe
	Fuel capacity	3.8 liter (1.00 US gal, 0.84 Imp gal)
	Caster angle	27°30'
ENGINE	Trail	80 mm (3.1 in)
	Type	Air cooled 2-stroke
	Cylinder arrangement	Single cylinder inclined 15° from vertical
	Bore and stroke	41.0 x 37.4 mm (1.61 x 1.47 in)
	Displacement	49 cm ³ (3.0 cu in)
	Compression ratio	SB50 6.8:1, SB50P 7.0:1
	Transmission oil capacity	90 cc (3.0 US oz, 2.5 Imp oz)
	Lubrication system	Oil automatically mixed with gasoline
	Port timing	
	Intake	Open
		Close
	Exhaust	Open
		Close
	Scavenge	Open
		Close
	Idle speed	1,800 ± 100 rpm
CARBURETION	Carburetor type	Piston valve
	Identification number	SB50: PA34C, SB50P: PA34B
	Air screw initial opening	SB50: 1-7/8 turn out, SB50P: 1-3/4 turns out
	Float level	12.2 mm (0.48 in)

GENERAL INFORMATION

ITEM		SPECIFICATIONS	
DRIVE TRAIN	Clutch type	Automatic dry centrifugal clutch	
	Primary reduction	V-Belt	
ELECTRICAL	Gear ratio	1.8 : 1	
	Final reduction	6.385 : 1	
	Ignition	Capacitive Discharge Ignition (CDI)	
	Starting system	Starter motor and kick starter	
	Alternator		
	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 (0.02—0.03 in)	
LIGHTS	Ignition timing "F" mark	15° ± 2 BTDC at 3,000 rpm	
	Battery capacity	12 V—3 AH	
	Headlight Low/High	12 V—25/25 W	
	Tail/stoplight	12 V—8/27 W	
	Turn signal Front/Rear	12 V—17 W/12 V—17 W	
	Speedometer light	12 V—3.4 W	
	High beam indicator	12 V—1.7 W	
	Turn signal indicator	12 V—3.4 W	

TORQUE VALUES

ENGINE

Item	Q'ty	Thread Dia (mm)	Torque			Remarks
			N·m	kg-m	ft-lb	
Cylinder head bolt	4	6	10	1.0	7	While engine is cold
Flywheel nut	1	10	38	3.8	27	
Drive face nut	1	10	38	3.8	27	
Clutch outer nut	1	10	38	3.8	27	
Driven face special nut	1	28	38	3.8	27	
Oil check bolt	1	8	13	1.3	9	Self-locking nut
Engine mounting bolt	1	8	40	4.0	29	
Engine mounting bracket bolt	1	10	55	5.5	40	
Exhaust pipe joint nut	2	6	12	1.2	9	While engine is cold
Exhaust muffler mounting bolt	2	8	27	2.7	20	
Spark plug	1	—	14	1.4	10	
Crankcase bolt	5	6	10	1.0	7	
Starter motor yoke screw	2	—	0.3	0.03	0.2	

FRAME

Item	Q'ty	Thread Dia (mm)	Torque			Remarks
			N·m	kg-m	ft-lb	
Rear axle nut	1	12	73	7.3	53	Self-locking nut
Front axle nut	1	10	45	4.5	33	
Rear shock (upper) nut	1	10	38	3.8	27	Self-locking nut
(lower) bolt	1	8	27	2.7	20	
Rear shock damper lock nut	1	8	20	2.0	14	Self-locking nut
Speedometer cable set screw	1	4	2	0.2	1.4	
Front brake arm bolt	1	5	6	0.6	4.3	Self-locking nut
Rear brake arm bolt	1	5	6	0.6	4.3	
Steering stem lock nut	1	BCI	70	7.0	51	Self-locking nut
Handlebar pinch bolt	1	10	45	4.5	33	
Oil tank bolt	1	6	10	1.0	7	Self-locking nut
Fuel tank bolt	3	6	13	1.3	9	
Brake lever nut	1	5	4	0.4	2.9	Self-locking nut
Mirror assembly lock nut	2	8	27	2.7	20	
Kick starter bolt	1	6	10	1.0	7	Self-locking nut
Trunk mounting bolt	4	6	12	1.2	9	
Fuel valve nut	1	16	18	1.8	13	Self-locking nut
Fuel meter screw	4	5	3.5	0.35	2.5	
Rear brake lever bracket bolt	1	5	4	0.4	2.9	Self-locking nut
Throttle housing bolt	1	5	4	0.4	2.9	
Battery terminal	2	5	4	0.4	2.9	Self-locking nut
Front turn signal lens screw	2	—	0.6	0.06	0.4	
Rear turn signal lens screw	2	—	0.8	0.08	0.6	Self-locking nut
Tail/brake light screw	2	—	1.0	0.10	0.7	

GENERAL INFORMATION

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

STANDARD TORQUE VALUES

SH (Small Head) bolt: 6 mm bolt with 8 mm flange head

Item	Torque			Item	Torque		
	N·m	kg-m	ft-lb		N·m	kg-m	ft-lb
5 mm bolt and nut	5	0.5	4	5 mm screw	4	0.4	3
6 mm bolt and nut	10	1.0	7	6 mm screw, SH bolt	9	0.9	7
8 mm bolt and nut	22	2.2	16	6 mm flange bolt and nut	12	1.2	9
10 mm bolt and nut	35	3.5	25	8 mm flange bolt and nut	27	2.7	20
12 mm bolt and nut	55	5.5	40	10 mm flange bolt and nut	40	4.0	29

TOOLS

SPECIAL

DESCRIPTION	TOOL NUMBER	ALTERNATE TOOL	REF. SEC.
Vacuum pump	A937X-041-XXXXX	ST-AH-260-MC7 (U.S.A. only)	4
Bearing driver	07945-GC80000		8
Lock nut wrench, 39 x 41 mm	07GMA-KS40100		8
Clutch spring compressor	07960-KM10000		8
Bearing remover set, 12 mm	07936-1660001		9
(Bearing remover, 12 mm)	(07936-1660100)		9
(Bearing remover weight)	(07741-0010201)	07936-3710200	9
Driver head	07946-KM40701		9
Crank assembly collar	07965-GM00100		10
Crank assembly bolt	07965-GM00300		10
Case puller	07935-GK80000		10
* Universal bearing puller	07631-0010000	Equivalent commercially available in U.S.A.	10
Lock nut wrench	07916-KM10000		12
Lock nut wrench, 45 mm	07916-1870101	Equivalent commercially available in U.S.A.	12
Attachment, 28 x 30 mm	07946-1870100		12
Ball race remover	07946-GA70000		12
Snap ring pliers	07914-3230001		12
Rear shock attachment B	07967-GA70200		13
Digital multi-meter	07411-0020000	KS-AHM-32-003 (U.S.A. only)	14
Battery Tester	BM-210		14
Christie Battery Charger	MC1012/12 (U.S.A. only)		14

* These tools are not available in the U.S.A. Refer to the alternate tool column.

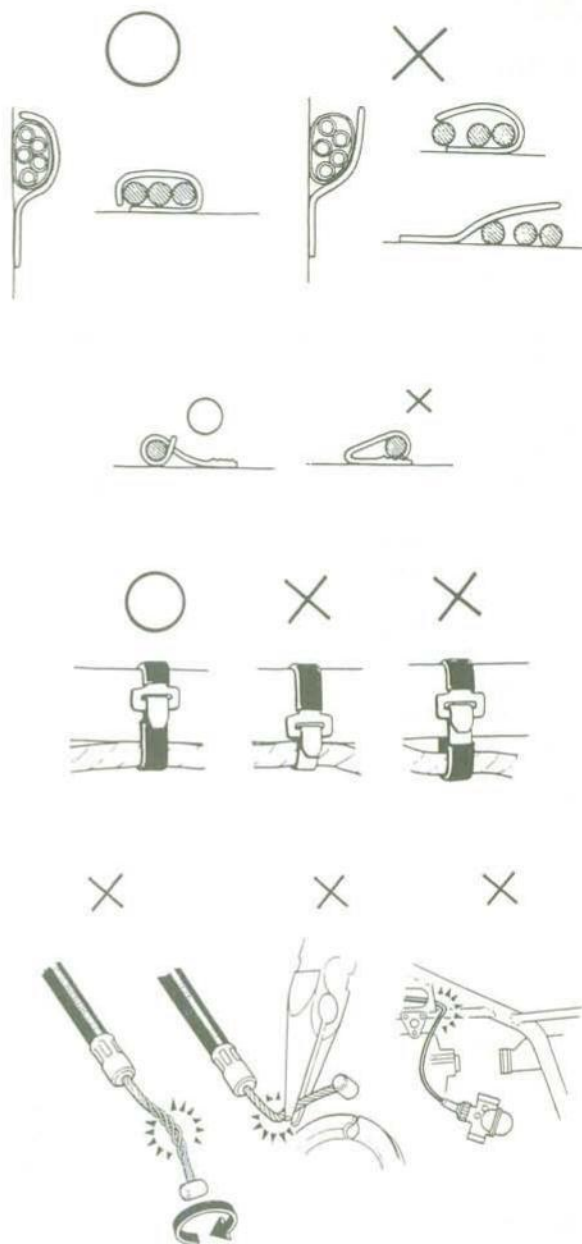
COMMON

DESCRIPTION	TOOL NUMBER	ALTERNATE TOOL	REF. SEC.
Float level gauge	07401-0010000		4
Universal holder	07725-0030000		7, 8
Flywheel puller	07733-0010000	07933-0010000	7
Pilot, 12 mm	07746-0040200		9
Attachment, 32 x 35 mm	07746-0010100		9
Pilot, 15 mm	07746-0040300		8, 9
Attachment, 37 x 40 mm	07746-0010200		10
Attachment, 24 x 26 mm	07746-0010700		8
Pilot, 10 mm	07746-0040100		12
Pilot, 17 mm	07746-0040400		10
Attachment, 42 x 47 mm	07746-0010300		10, 12
Pilot, 20 mm	07746-0040500		10
Driver	07749-0010000		8, 9, 10, 12
Bearing remover shaft	07746-0050100	Equivalent commercially available in U.S.A.	12
Bearing remover head, 10 mm	07746-0050200		12
Shock absorber compressor	07GME-0010000		13
(Compressor screw assy)	(07GME-0010100)		13

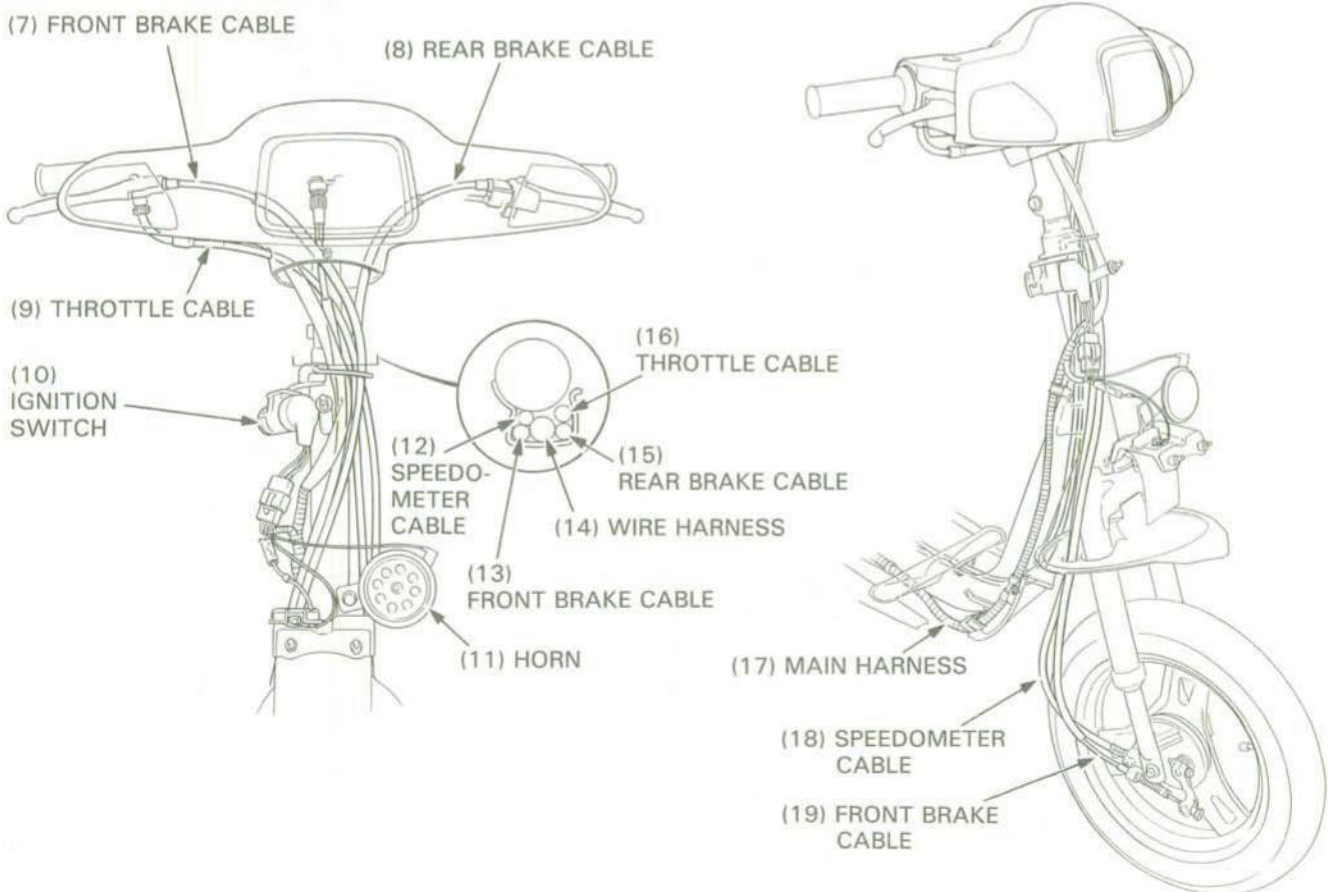
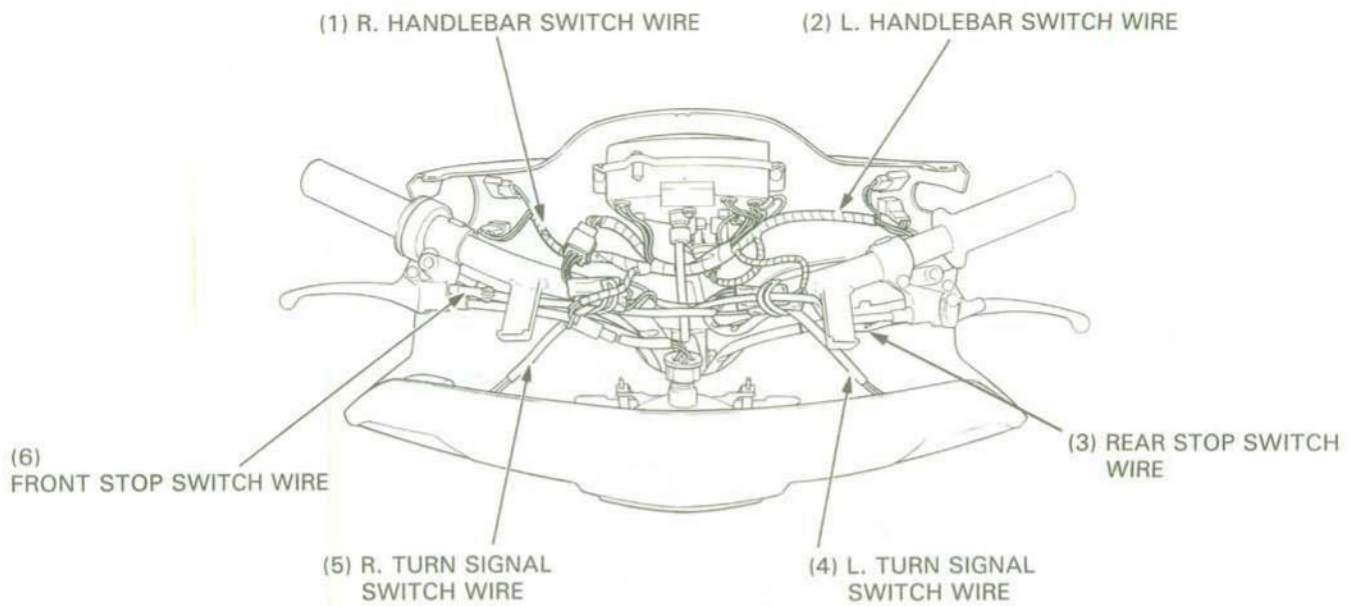
CABLE & HARNESS ROUTING

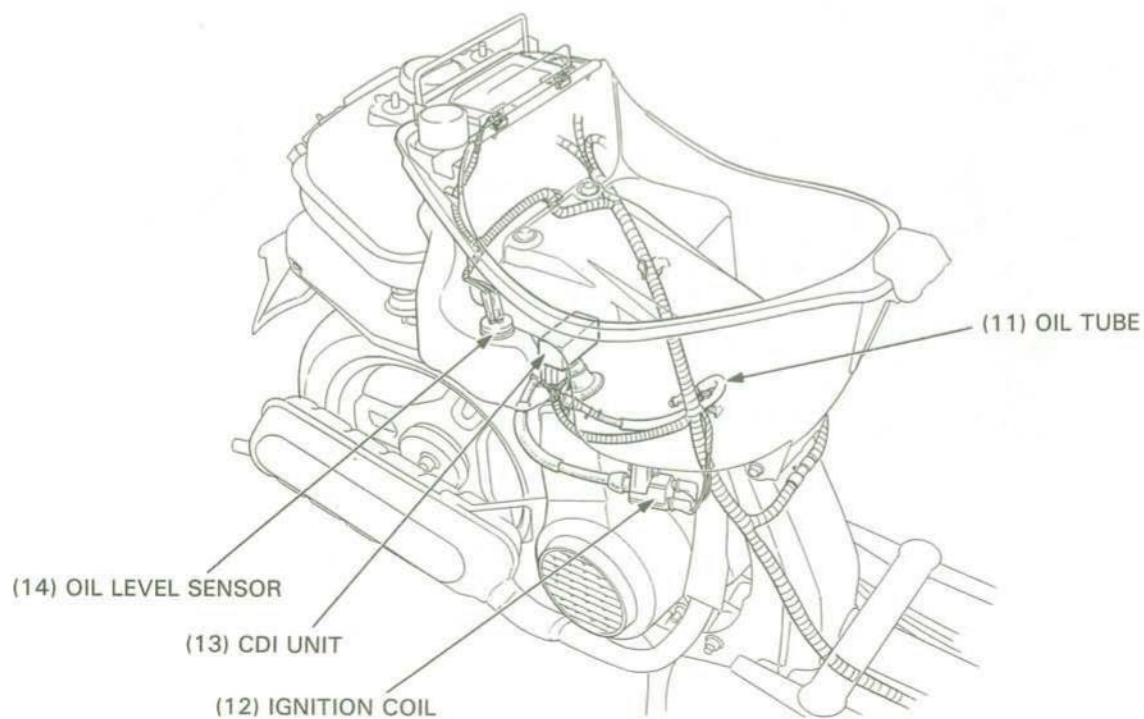
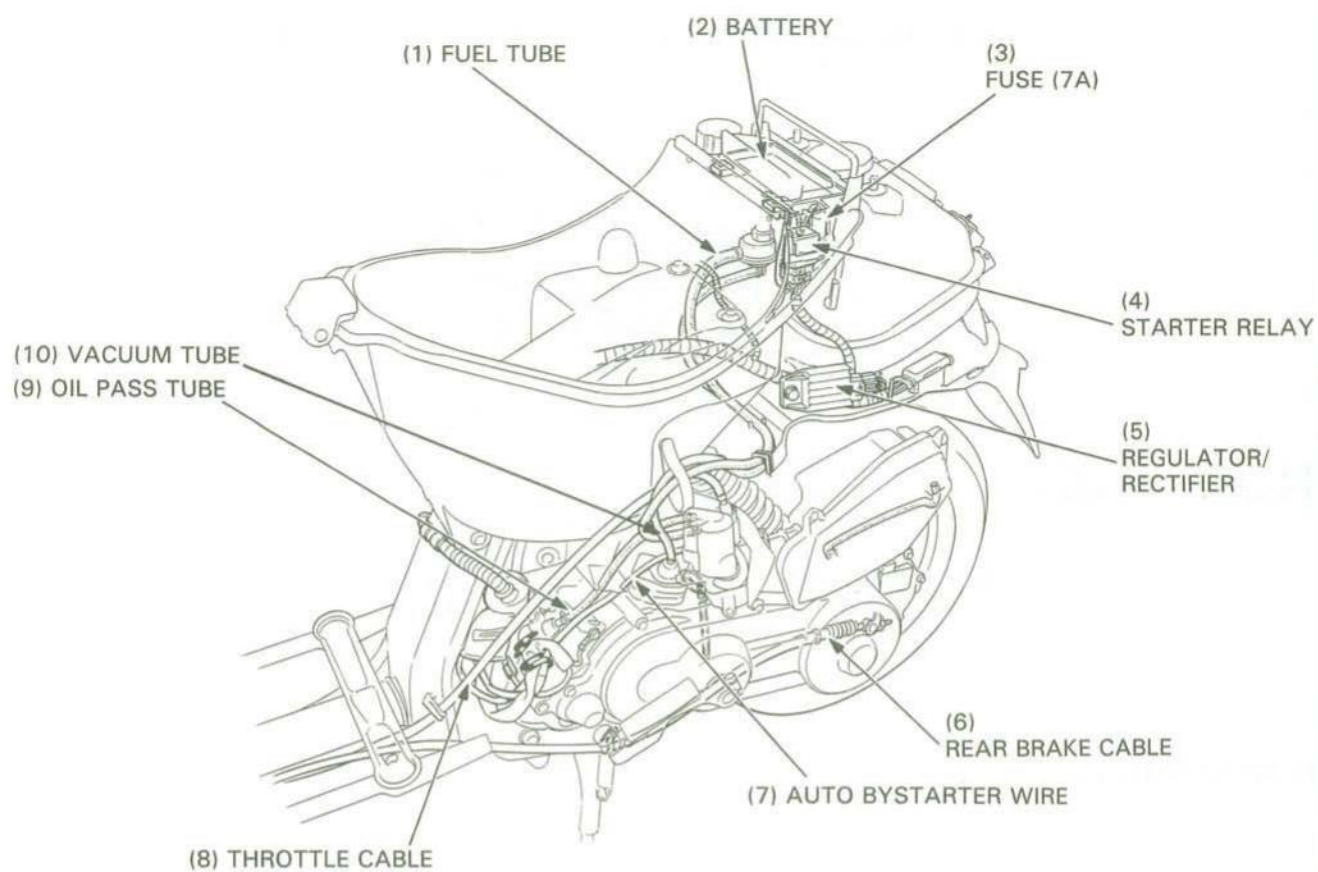
Note the following when routing cables and wire harnesses.

- 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 a weld or end of a clamp.
- 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 tubes 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 a protective tape or replace them.
- Route wire harnesses to avoid sharp edges and 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.
- Wire harnesses routed along the handlebars should not be pulled taut, have excessive slack, be pinched, or interfere with adjacent or surrounding parts in all steering positions.
- After routing, check that the wire harnesses are not twisted or kinked.
- Do not bend or twist control cables. Damaged control cables will not operate smoothly and may stick or bind.



O: CORRECT
X: INCORRECT





NOISE EMISSION CONTROL SYSTEMS (U.S.A only)

The U.S. Environmental Protection Agency requires manufacturers to certify that vehicles built after January 1, 1983 will comply with applicable noise emission standards for one year or 3,730 miles (6,000 km) after the time of sale to the ultimate purchaser, when operated and maintained according to the instructions provided. Compliance with the terms of the Distributor's Warranty for the Honda Vehicle Noise Emission Control System is necessary in order to keep the noise emission control system in effect.

TAMPERING WITH THE NOISE CONTROL SYSTEM IS PROHIBITED:

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

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

1. Removal of, or puncturing the muffler, baffles, header pipes or any other component which conducts 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.

OIL PUMP

REMOVAL

Remove both side covers (page 11-2).

NOTE

- Before removing the oil pump, clean the pump and crankcase.

Clamp the oil lines so oil does not flow out and disconnect the lines from the oil pump.

Remove the oil pump set plate attaching bolt and remove the oil pump.

INSPECTION

Inspect for the following and replace the pump if necessary:

- Damage to crankcase mating surface
- Damage to pump body
- Worn or damaged pump gears
- Oil leaks

NOTE

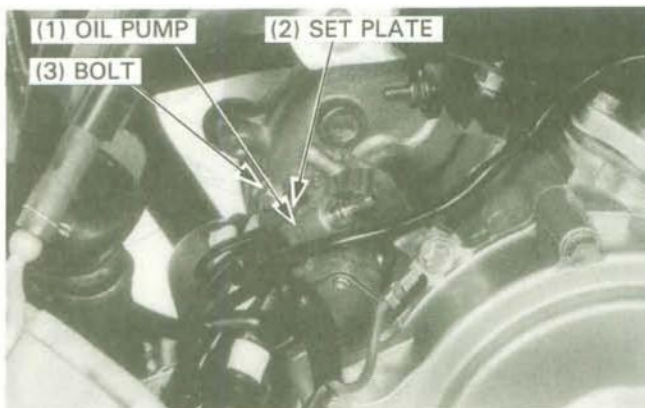
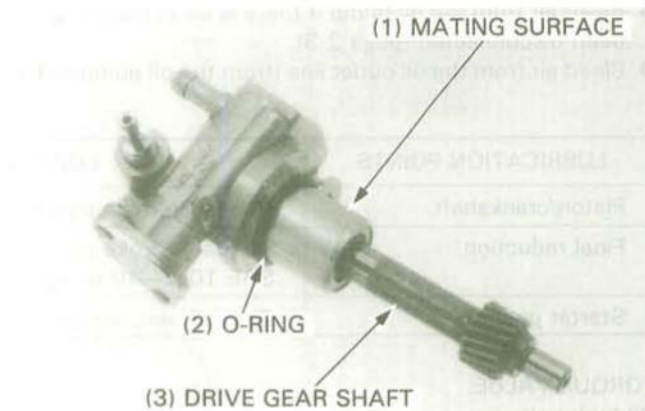
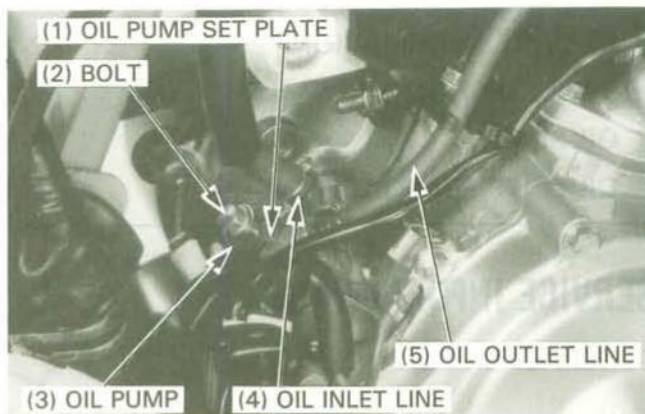
- The oil pump cannot be serviced.

INSTALLATION

Lubricate the O-ring with grease or oil.

Lubricate the oil pump gear with molybdenum disulfide grease and install the pump.

Be sure the pump is properly seated, then install the pump set plate and tighten the attaching bolt securely.



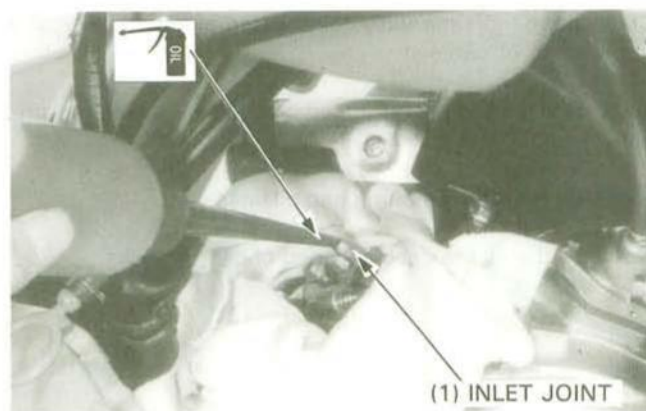
Reconnect the oil inlet and outlet lines.
After installation, bleed the oil pump and check for leaks.



OIL LINES/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 oil 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 side covers (page 11-2).

Fill the oil tank with the recommended oil.

Place a piece of clean cloth around the oil pump and disconnect the oil inlet line from the pump.

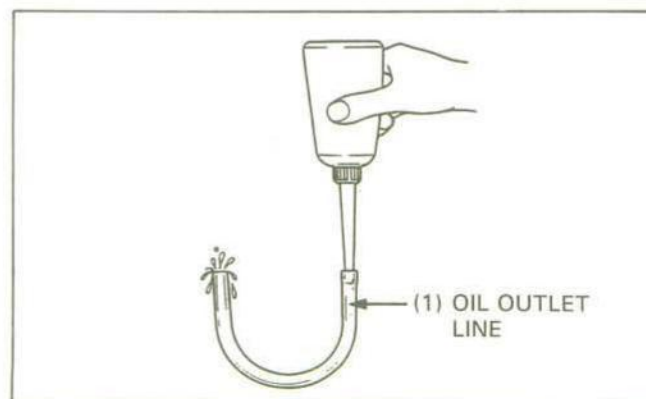
Fill the oil pump by pumping clean oil through the joint (about 3 cc).

Drain the oil in a clean container until there is no air bubble in the oil flow from the oil inlet line. Hold the tube end and quickly connect it to the oil pump joint.
Then bleed the outlet line.

OUTLET LINE

Remove the outlet line from the carburetor and oil pump.
Fill the outlet line with the recommended oil as shown.

Install the outlet line to the oil pump and carburetor.
Install the frame side covers (page 11-2).



LUBRICATION

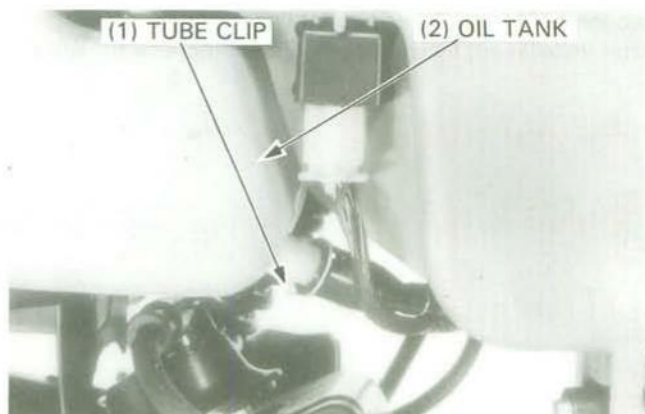
OIL STRAINER

Remove both frame side covers (page 11-2).

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

Loosen the tube clip and disconnect the oil tube joint under the oil tank.

Remove the oil strainer.

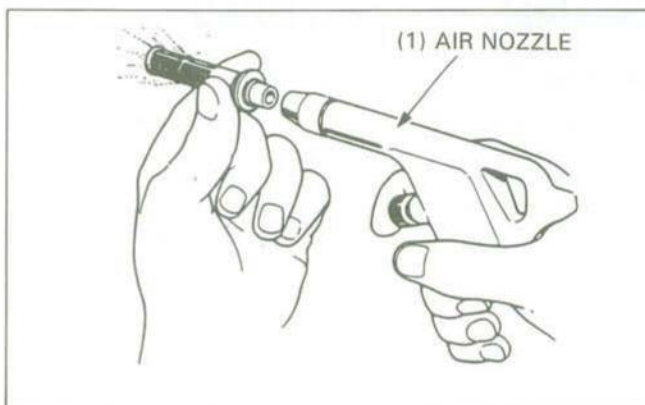


Clean the oil strainer with compressed air, then reinstall it in the reverse of removal.

Fill the oil tank with the recommended oil up to the proper level.

Bleed air from the oil pump and oil lines.

Connect the oil lines securely and check for leaks.



OIL TANK

REMOVAL

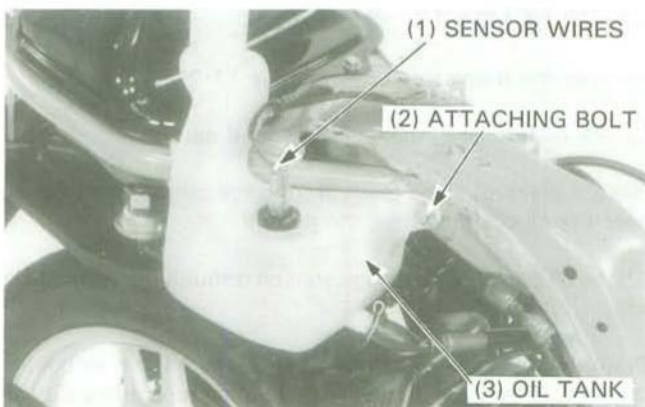
Remove both frame side covers and the trunk (see Section 11).

Disconnect the oil level sensor wires from the oil level sensor.

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

Remove the oil tank attaching bolt and remove the oil tank. Clean the interior of the oil tank thoroughly.

Clean the oil strainer.



INSTALLATION

Install the oil tank in the reverse order of removal.

Refill the oil tank up to the proper level and check for oil leaks.

Bleed the oil lines (page 2-3).

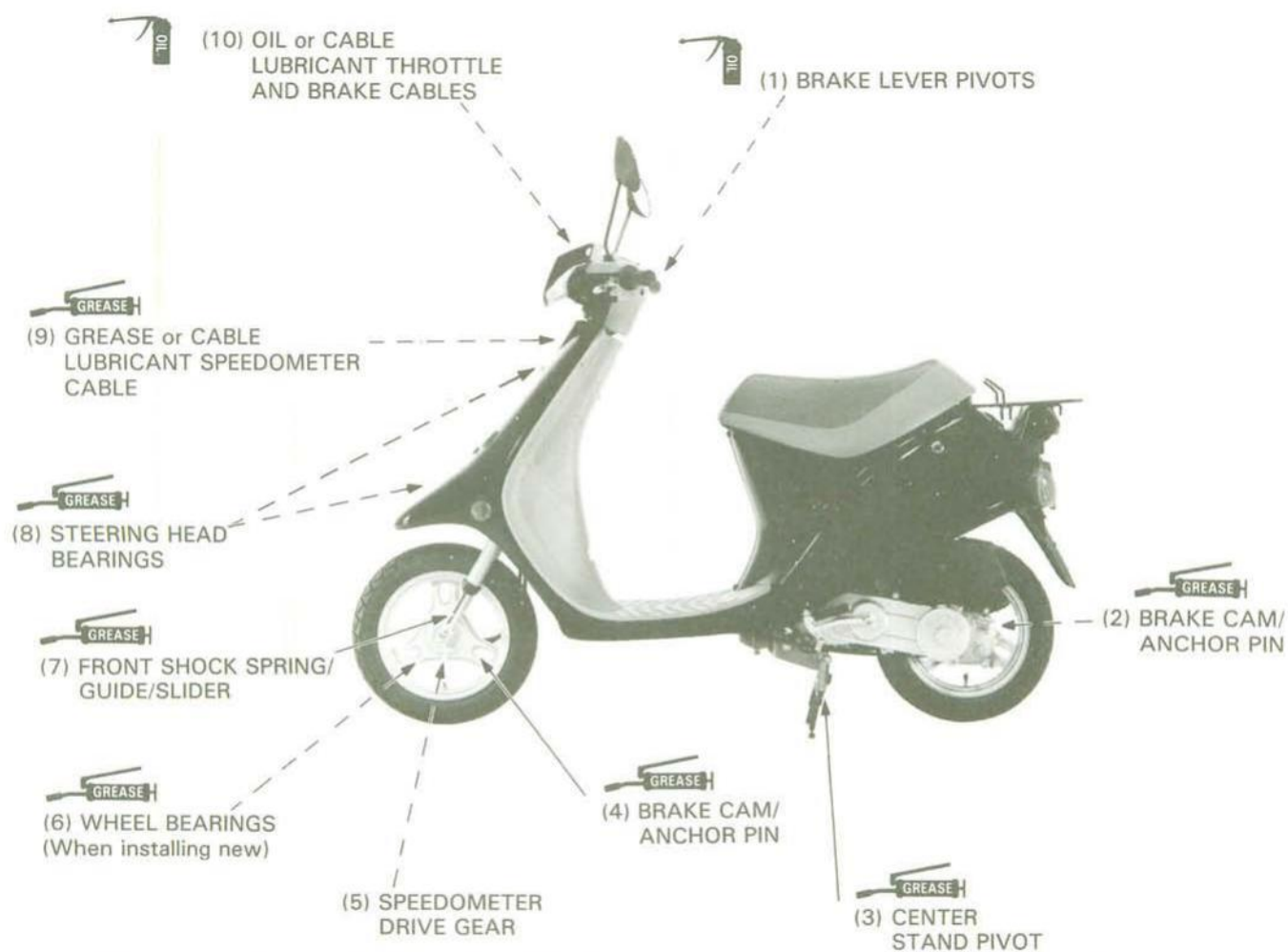
LUBRICATION POINTS

ENGINE

LUBRICATION POINTS	LUBRICANT	REMARKS
Piston/crankshaft	Honda 2-stroke injector oil or equivalent	
Final reduction	Honda 4-stroke oil SAE 10 W-40 or equivalent	90cc (3.0 US oz, 2.5 Imp oz) (See page 3-7)
Starter gear	General purpose grease	

FRAME

Apply clean engine oil or grease to cables and parts not called out.



MEMO



3. MAINTENANCE

3

SERVICE INFORMATION	3-1	BRAKE FREE PLAY	3-5
MAINTENANCE SCHEDULE	3-2	HEADLIGHT AIM	3-5
FUEL LINE	3-3	SUSPENSION OPERATION	3-6
THROTTLE OPERATION	3-3	NUTS, BOLTS, FASTENERS	3-6
AIR CLEANER ELEMENT	3-3	TIRES	3-6
SPARK PLUG	3-4	STEERING HEAD BEARINGS	3-7
CARBURETOR	3-4	TRANSMISSION CASE	3-7
BRAKE SHOE WEAR	3-5		

SERVICE INFORMATION

GENERAL

⚠ WARNING

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

SPECIFICATIONS

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)

Throttle grip free play

2—6 mm (1/8—1/4 in)

Idle speed

1,800 ± 100 min⁻¹ (rpm)

Brake lever free play

Front

10—20 mm (3/8—3/4 in)

Rear

10—20 mm (3/8—3/4 in)

Tire size

Front

2.50—10—4PR

Rear

2.50—10—4PR

Tire pressure

Front

150 kPa (1.50 kg/cm², 22 psi)

Rear

225 kPa (2.25 kg/cm², 33 psi)

MAINTENANCE SCHEDULE

Perform the Pre-ride Inspection (Owner's Manual, page 34) 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 ↓	→ x 1,000 mi x 1,000 km	ODOMETER READING (NOTE 2)				Refer to page
				0.6	2.5	5	7.5	
* FUEL LINE				—	I	I	I	3-3
* THROTTLE OPERATION				—	I	I	I	3-3
** OIL PUMP AND OIL LINE				—	I	I	I	2-2
AIR CLEANER		NOTE 1		—	C	C	C	3-3
SPARK PLUG		NOTE 3		EVERY 1,000 mi (1,600 km) R				3-4
** DECARBONIZING		NOTE 3		EVERY 2,000 mi (3,200 km) C				6-3
* CARBURETOR-IDLE SPEED				I	I	I	I	3-4
BRAKE SHOE WEAR				—	I	I	I	3-5
BRAKE SYSTEM				I	I	I	I	3-5
* BRAKE LIGHT SWITCH				—	I	I	I	14-16
* HEADLIGHT AIM				—	I	I	I	3-5
* SUSPENSION				—	I	I	I	3-6
* NUTS, BOLTS, FASTENERS				I	—	I	—	3-6
** CLUTCH SHOE WEAR				—	—	I	—	8-6
** WHEELS/TIRES				—	I	I	I	3-6
** STEERING HEAD BEARINGS				I	—	—	I	3-7

* SHOULD BE SERVICED BY YOUR 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 YOUR AUTHORIZED HONDA SCOOTER DEALER.

NOTE: (1) Service more frequently when riding in unusually wet or dusty areas.

(2) At higher odometer readings, repeat at the frequency interval established here.

(3) HONDA 2 STROKE MOTORCYCLE OIL has been specifically tested and is recommended for this engine. The use of other oils may cause excessive carbon build-up in the engine and exhaust system, resulting in loss of power and possible engine damage.

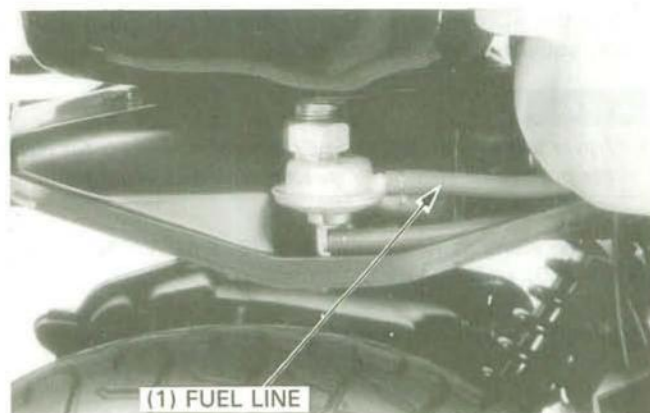
FUEL LINE

Remove both frame side covers (page 11-2).

Inspect the fuel line for damage or deterioration.

Check that the fuel line is intact and has clamps at each connection.

Replace any parts that are damaged, leaking or show signs of deterioration.



THROTTLE OPERATION

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

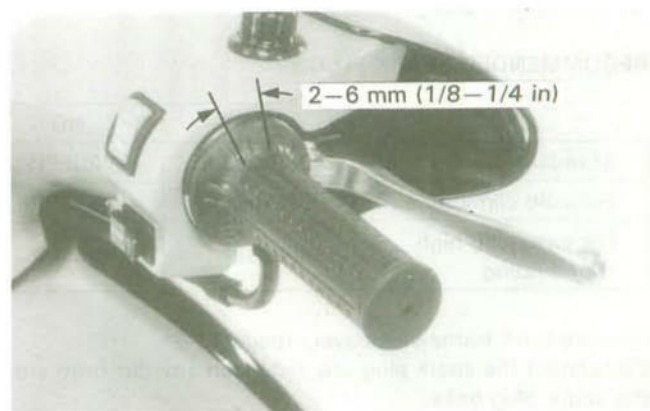
Make sure there is no deterioration, damage or kinking in the throttle cable. Replace any damaged parts.

Disconnect the throttle cable upper end (page 12-3).

Thoroughly lubricate the cable with a commercially available cable lubricant or grease. Install the throttle cable in the reverse order of removal.

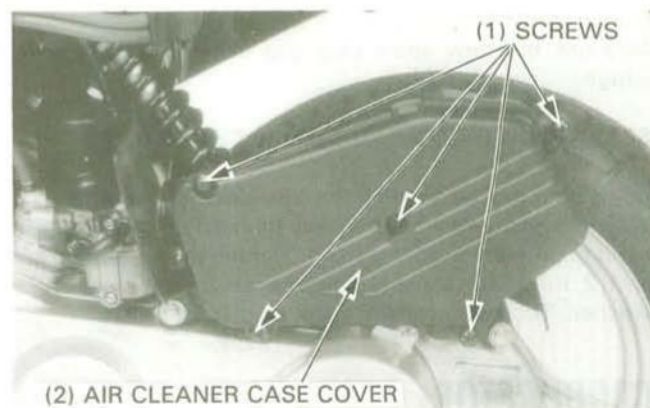
Measure the throttle grip free play at the throttle grip flange.

FREE PLAY: 2–6 mm (1/8–1/4 in)

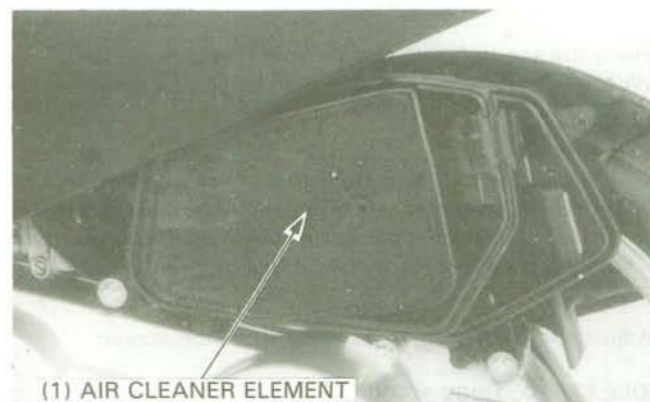


AIR CLEANER ELEMENT

Remove the five air cleaner case cover attaching screws and remove the air cleaner case cover.



Remove the air cleaner element.



MAINTENANCE

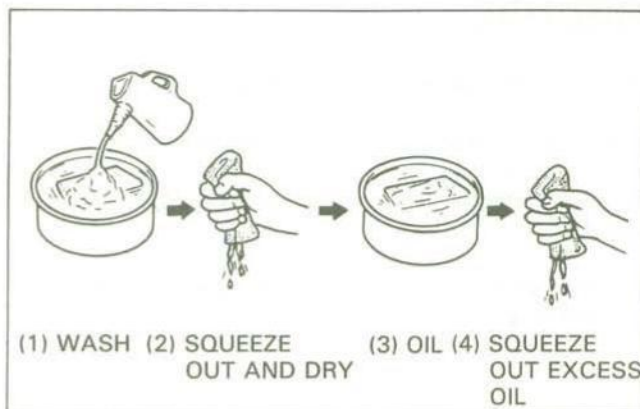
Wash the element in non-flammable or high flash point solvent, squeeze out and allow to dry.

⚠ WARNING

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

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

Reinstall the element, and the air cleaner case cover.



SPARK PLUG

RECOMMENDED SPARK PLUGS:

	NGK	ND
Standard	BPR6HSA	W20FPR-L
For cold climate	BPR4HSA	W14FPR-L
For extended high speed riding	BPR8HSA	W24FPR-L

Remove both frame side covers (page 11-2).

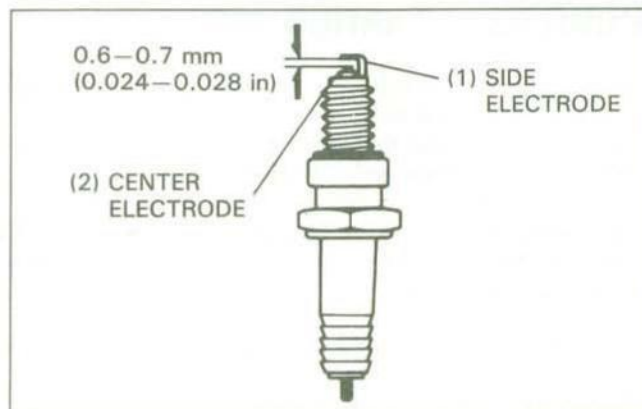
Disconnect the spark plug cap and clean any dirt from around the spark plug base.

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 the gap by bending the side electrode carefully. With the plug washer attached, thread the spark plug in by hand to prevent cross threading. Tighten the spark plug another 1/2 turn with a spark plug wrench to compress the plug washer. Then connect the spark plug cap.



CARBURETOR

IDLE SPEED ADJUSTMENT

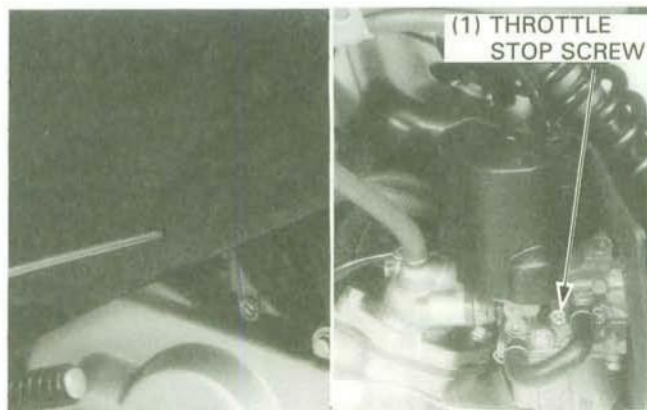
Place the scooter on its center stand on level ground. Warm up the engine and attach an engine tachometer.

⚠ WARNING

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

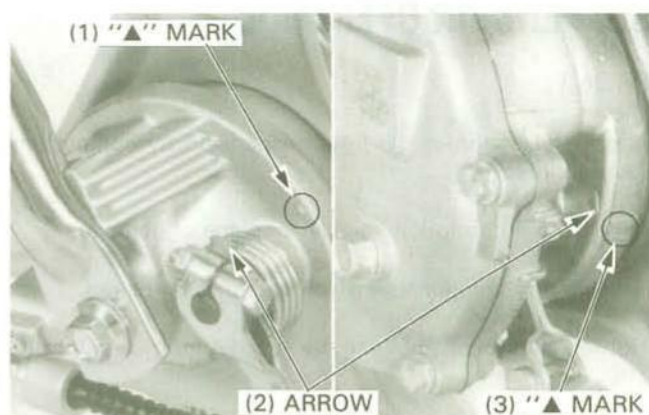
Adjust the idle speed with the throttle stop screw.

IDLE SPEED: 1,800 ± 100 min⁻¹ (rpm)



BRAKE SHOE WEAR

Replace the brake shoes if the arrow on the brake arm aligns with the reference mark "▲" on full application of the front or rear brake.



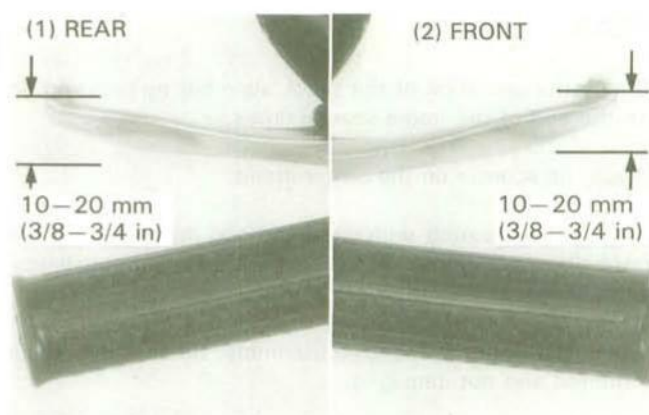
BRAKE FREE PLAY

Measure the front and rear brake lever free play at the end of the levers.

FREE PLAY:

FRONT: 10–20 mm (3/8–3/4 in)

REAR: 10–20 mm (3/8–3/4 in)



If adjustment is necessary, turn the brake adjusting nut.

HEADLIGHT AIM

Place the scooter on level ground and support it with the center stand. Start the engine and allow it to idle.

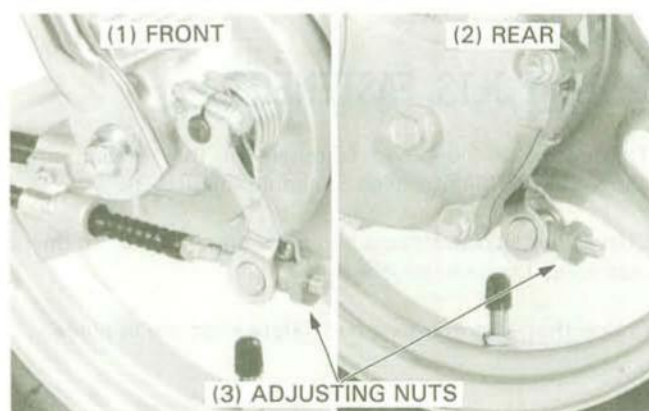
⚠ WARNING

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

Make sure that the headlight and taillight are on. Check the operation of the headlight dimmer (Lo-Hi) switch. Adjust the headlight beam by turning the adjusting screw.

CAUTION

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



SUSPENSION OPERATION

FRONT

Check the action of the front suspension by compressing it several times.

Check the entire fork assembly for signs of damage.

Replace any components which cannot be repaired.

Tighten all nuts and bolts to the specified torque values (page 1-5).



REAR

Check the operation of the shock absorber by pressing down on the end of the frame several times.

Place the scooter on the center stand.

Hold the rear carrier with one hand and move the left crankcase sideways with force to see if the swingarm bushings are worn. Replace if excessively worn.

Check the entire suspension assembly. Be sure it is securely mounted and not damaged.

Tighten all nuts and bolts to the specified torque value (page 1-5).



NUTS, BOLTS, FASTENERS

Tighten bolts, nuts and fasteners at the regular intervals shown in the Maintenance Schedule (page 3-2).

Check that all chassis nuts and bolts are tightened to their correct torque values (page 1-5).

Check that all cotter pins and safety clips are in place.

TIRES

Check the tire pressures when the tires are COLD.

TIRE PRESSURES:

FRONT: 150 kPa (1.5 kg/cm², 22 psi)

REAR: 200 kPa (2.25 kg/cm², 33 psi)

TIRE SIZES:

FRONT: 2.50-10-4 PR

REAR: 2.50-10-4 PR

Check the tires for wear, damage or embedded objects.



STEERING HEAD BEARINGS

NOTE

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

Place the scooter on the center stand. Raise the front wheel off the ground by placing a support under the frame.

Check that the handlebar rotates freely. If it moves unevenly, binds, or has vertical movement, adjust the steering head bearings by turning the steering head adjusting nut (page 12-13).



TRANSMISSION CASE

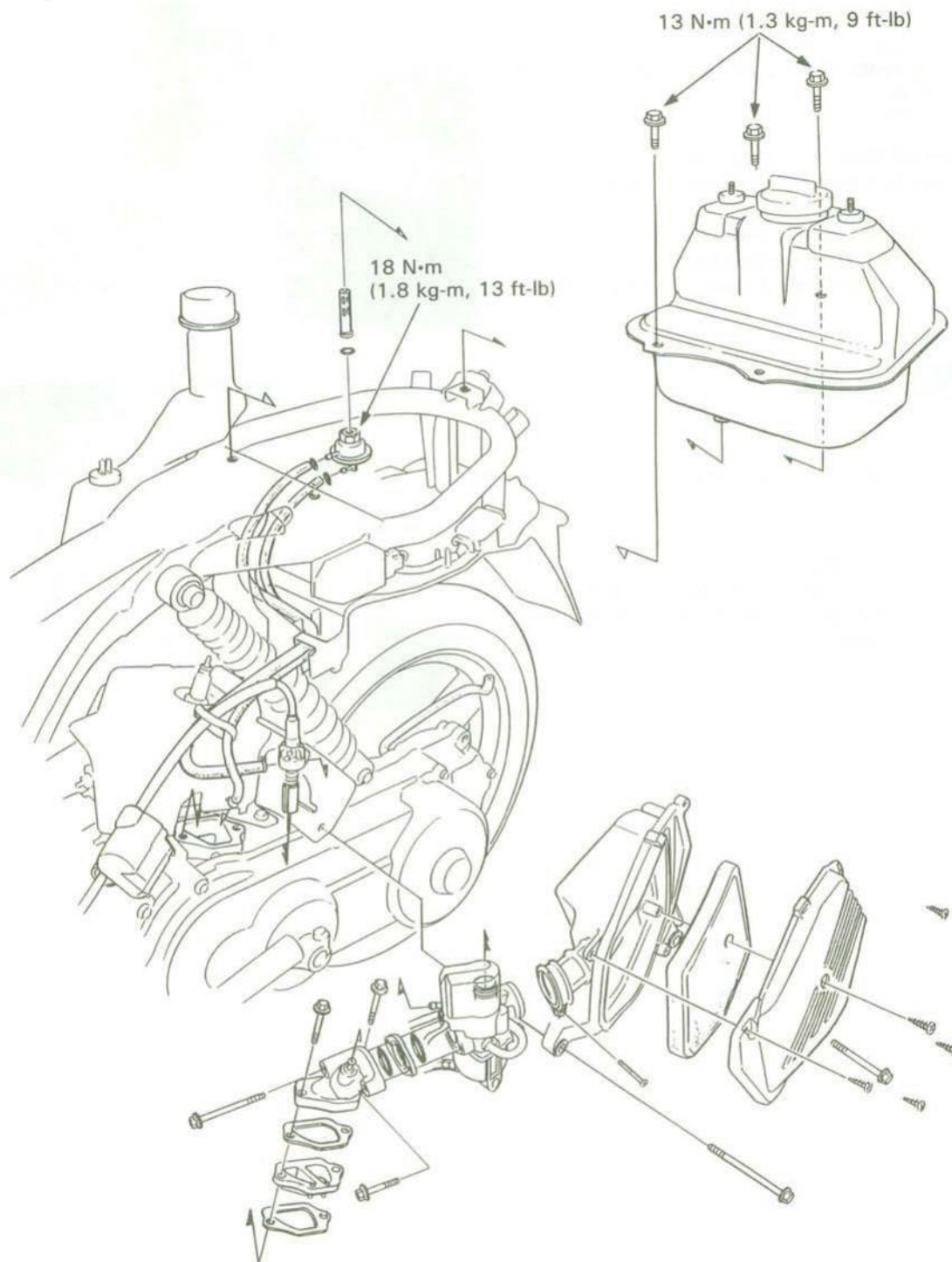
NOTE

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

Start the engine and let it idle for a few minutes.

Stop the engine, remove the oil level check bolt and check that the oil level is at the bottom edge of the oil level check bolt hole. If the level is low, pour enough oil into the hole to correct the level.





SERVICE INFORMATION	4-1	CARBURETOR INSTALLATION	4-10
TROUBLESHOOTING	4-2	REED VALVE	4-10
AIR CLEANER CASE	4-3	AIR SCREW ADJUSTMENT	4-11
THROTTLE VALVE REMOVAL	4-4	HIGH ALTITUDE ADJUSTMENT (U.S.A. Only)	4-12
THROTTLE VALVE INSTALLATION	4-5	AUTO FUEL VALVE INSPECTION/ MAINTENANCE	4-13
CARBURETOR REMOVAL	4-6	FUEL TANK	4-13
AUTO BYSTARTER	4-6	FUEL STRAINER CLEANING	4-13
CARBURETOR DISASSEMBLY	4-8		
CARBURETOR ASSEMBLY	4-9		
FLOAT LEVEL INSPECTION	4-10		

SERVICE INFORMATION

GENERAL

⚠ WARNING

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

- The fuel tank is equipped with an auto fuel valve that is turned OFF automatically when the engine is stopped.
- 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

Venturi diameter	14 mm (0.55 in)
Identification number	SB50: PA34C, SB50P: PA34B
Float level	12.2 mm (0.48 in)
Air screw opening	SB50: 1-7/8 turns out, SB50P: 1-3/4 turns out
Main jet	#68
Idle speed	1,800 ± 100 min ⁻¹ (rpm)
Throttle grip free play	2–6 mm (1/8–1/4 in)
Jet needle setting	2nd groove

TORQUE VALUES

Fuel valve lock nut	18 N·m (1.8 kg-m, 13 ft-lb)
Fuel tank bolt	13 N·m (1.3 kg-m, 9 ft-lb)

TOOLS

Special	
Vacuum pump	A937X—041—XXXXX or ST—AH—260—MC7 (U.S.A. only, included in Turbo kit.)

Common	
Float level gauge	07401—0010000

TROUBLESHOOTING

Engine cranks but won't start

- No fuel in tank
- No fuel to carburetor
- Too much fuel getting into cylinder
- No spark at plug (ignition malfunction)
- Air cleaner clogged
- Faulty auto bystarter
- Clogged fuel line
- Clogged fuel strainer
- Stuck fuel valve diaphragm

Engine idles roughly, stalls, or runs poorly

- Idle speed incorrect
- Ignition malfunction
- Low compression
- Rich mixture
- Lean mixture
- Air cleaner clogged
- Air leaking into inlet pipe
- Fuel contaminated

Lean mixture

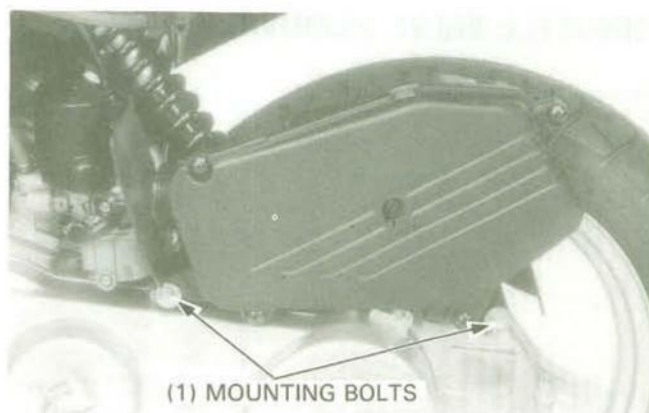
- Carburetor fuel jets clogged
- Fuel cap vent hole clogged or blocked
- Fuel strainer clogged
- Fuel line kinked or restricted
- Float valve faulty
- Float level too low
- Carburetor air vent tube clogged

Rich mixture

- Disconnected automatic bystarter wires
- Faulty automatic bystarter
- Faulty float valve
- Float level too high
- Carburetor air jets clogged
- Air cleaner dirty

AIR CLEANER CASE

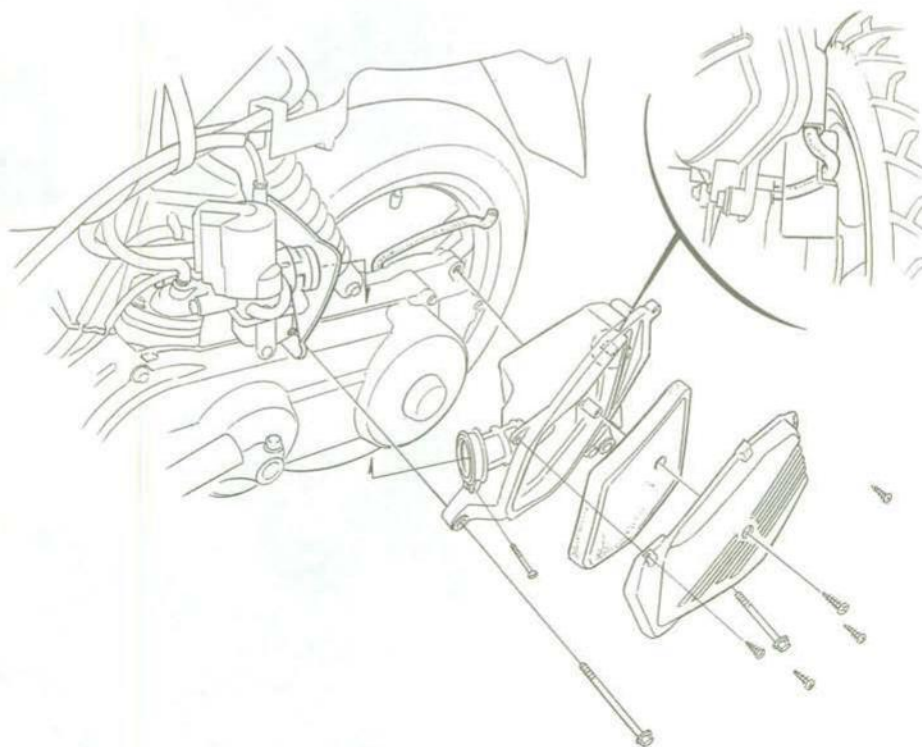
Remove both frame side covers (page 11-2).
Remove the air cleaner case mounting bolts.



Disconnect the crankcase breather tube from the air cleaner case and loosen the carburetor connecting tube hand.

Disconnect the connecting tube and remove the air cleaner case.

Installation is the reverse order of removal.



THROTTLE VALVE REMOVAL

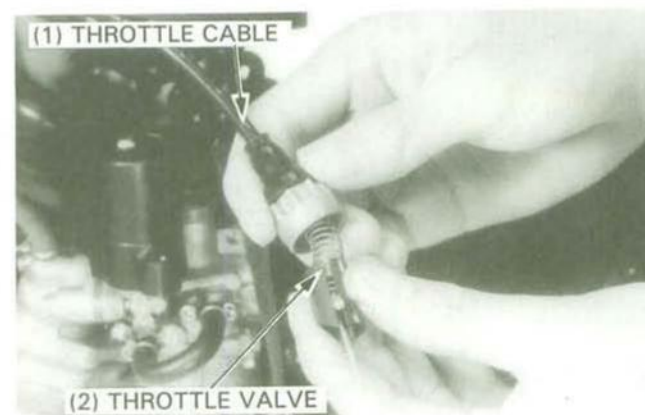
Remove the carburetor cover.



Remove the carburetor cap and pull out the throttle valve.



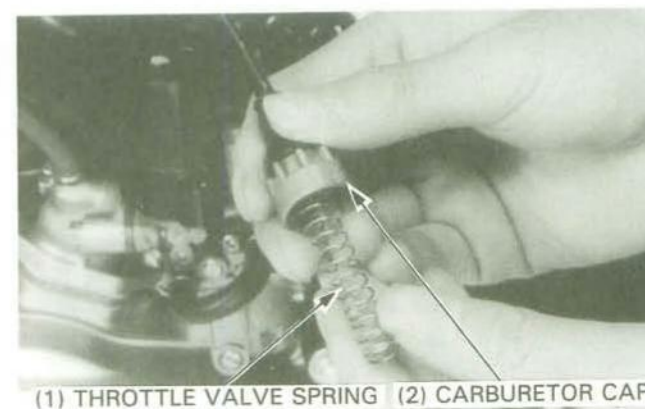
Disconnect the throttle cable from the throttle valve.



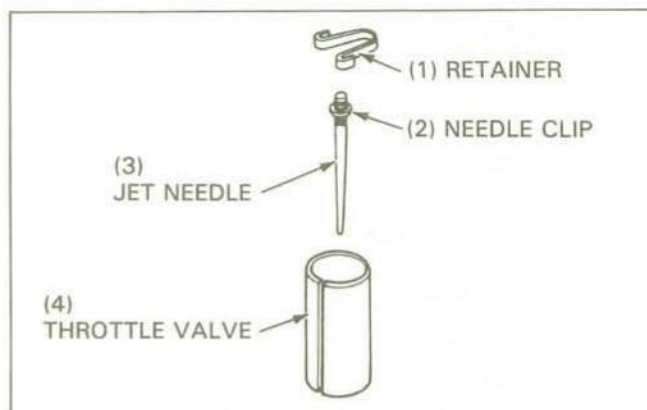
Remove the throttle valve spring from the cap/cable.

CAUTION

- The carburetor cap is an integral part of the throttle cable assembly. The cap cannot be separated from the assembly without causing damage to the cable.



Pry out the retainer and remove the jet needle.
Check the jet needle and throttle valve for wear or damage and replace them if necessary.

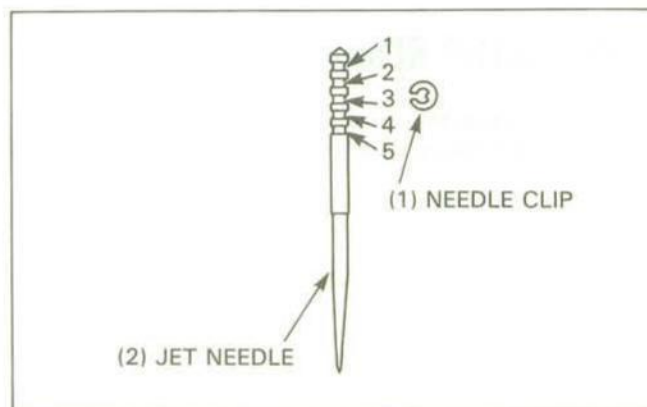


THROTTLE VALVE INSTALLATION

Install the needle clip on the jet needle.

STANDARD SETTING: 2nd groove

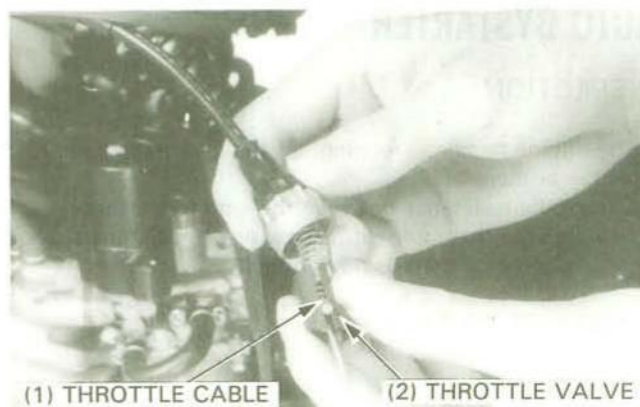
Install the jet needle into the throttle valve and secure with the retainer.



Assemble the throttle valve spring to the cap/cable assembly.



Connect the throttle cable to the throttle valve.



FUEL SYSTEM

Slide the throttle valve into the carburetor body.

NOTE

- Align the groove in the valve with the throttle stop screw on the carburetor body.

Tighten the carburetor cap and install the carburetor cover.

Perform the following adjustments and operations:

- Throttle cable free play adjustment (page 3-3).
- Oil pump and line bleeding (page 2-3).
- Idle speed adjustment (page 3-4).

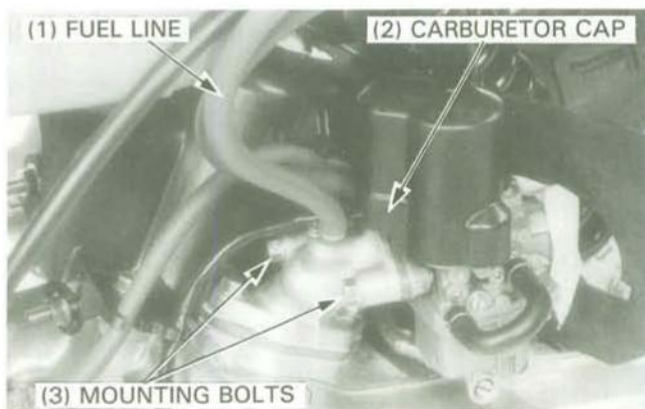
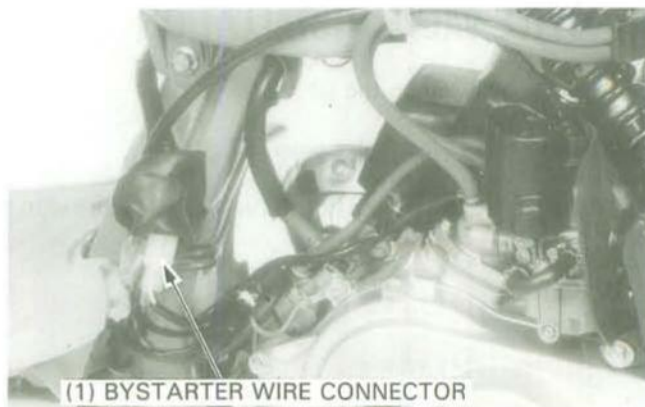
Install the frame side covers (page 11-2).

CARBURETOR REMOVAL

Remove the frame side covers (page 11-2).

Remove the air cleaner case and disconnect the bystarter wire connector.

Remove the carburetor cap and pull out the throttle valve. Disconnect the fuel line from the carburetor body. Remove the carburetor mounting bolts and remove the carburetor.



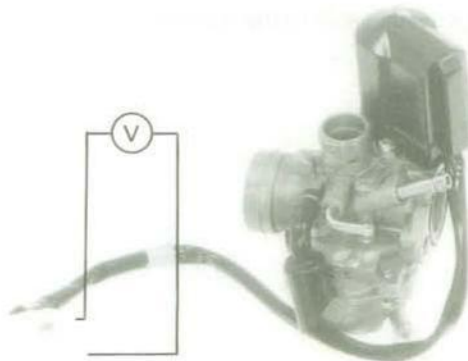
AUTO BYSTARTER

INSPECTION

If the engine has been running, let the carburetor cool for 10 minutes or more.

Measure the resistance between the auto bystarter wires. Replace the auto bystarter with a new one if resistance is out of specification or if there is no continuity.

RESISTANCE: 10 Ω max.



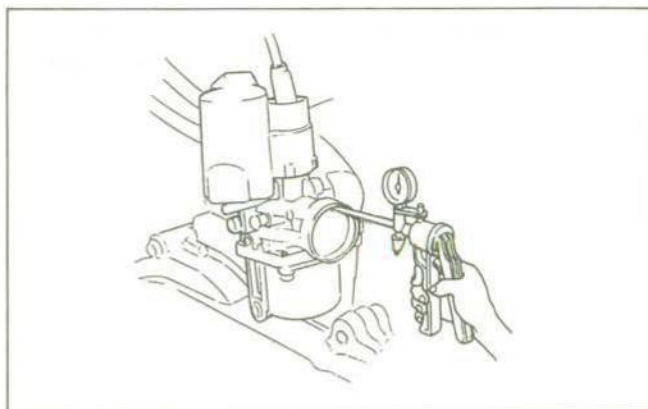
Let the carburetor sit for 30 minutes.
Connect a pressure tester to the enriching circuit.
Apply pressure to the circuit.

If the passage is blocked, replace the auto bystarter with a new one.

TOOL:

Vacuum pump

A937X-041-XXXXX or
ST-AH-260-MC7
(U.S.A. only, included in
Turbo kit)



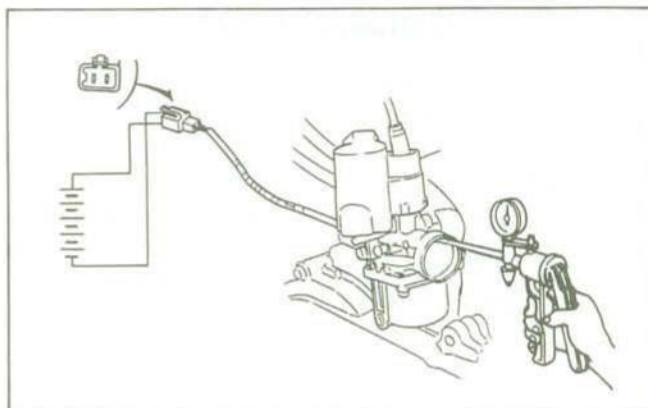
Connect a 12V battery between the auto bystarter wires and wait five minutes.
Connect a pressure tester to the fuel enriching circuit and apply pressure to it.

Replace the auto bystarter with a new one if there is no restriction to the pressure applied.

TOOL:

Vacuum pump

A937-041-XXXXX or
ST-AH-260-MC7
(U.S.A. only, included in
Turbo kit)

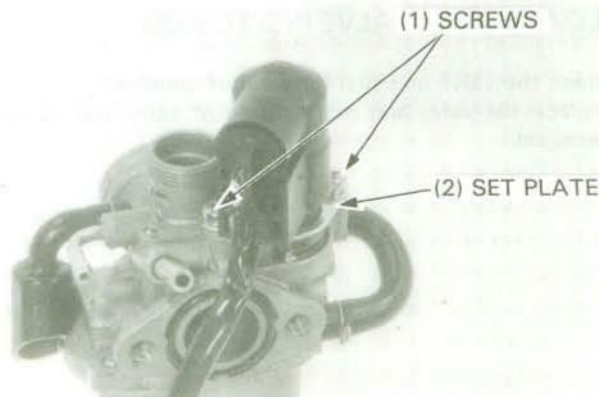


REPLACEMENT

Remove the auto bystarter cover.

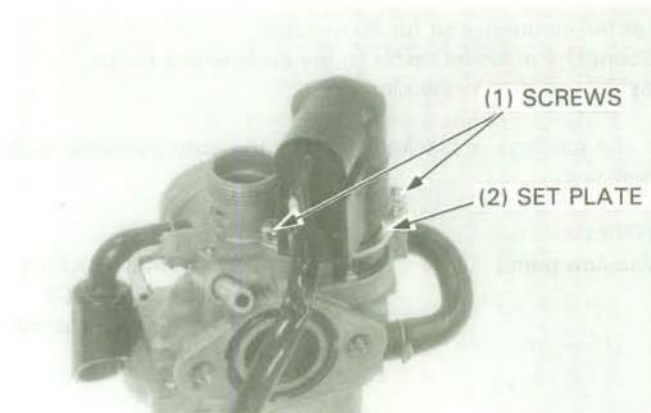


Remove the two screws, set plate and auto bystarter from the carburetor body.



FUEL SYSTEM

Install new auto bystarter into the carburetor until it is fully seated, and secure it with the set plate and two screws.



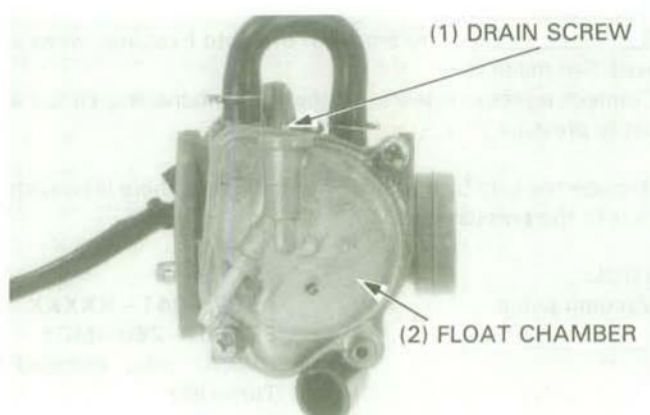
CARBURETOR DISASSEMBLY

Place a drain pan under the carburetor and loosen the carburetor drain screw to allow fuel to drain into the drain pan.

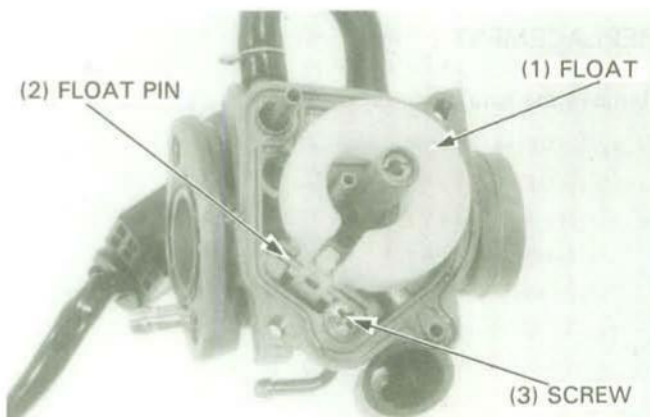
WARNING

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

Remove the float chamber from the carburetor body.
Remove the O-ring from the carburetor body.

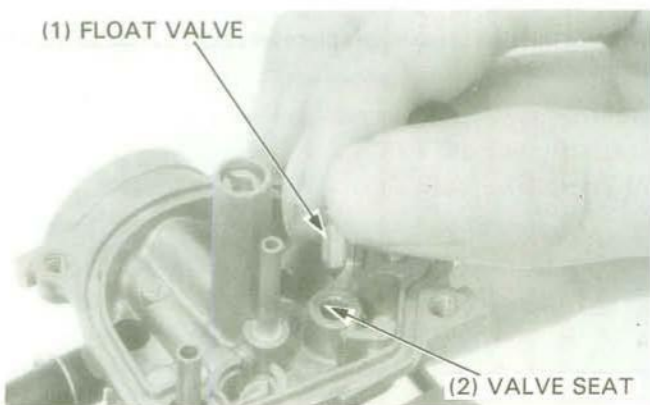


Remove the float pin, float and float valve by removing the attaching screw.



FLOAT/FLOAT VALVE INSPECTION

Check the valve and seat for wear or damage.
Replace the valve and seat as a set if either part is worn or damaged.



Turn in the throttle stop screw and record the number of turns it takes before it seats lightly.
Repeat this procedure with the air screw.

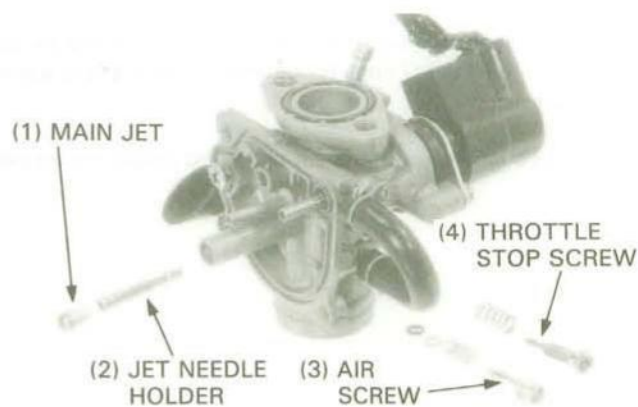
CAUTION

- Do not force the screws against their seats to prevent damaging them.

Remove the throttle stop screw and air screw.
Remove the main jet and jet needle holder.

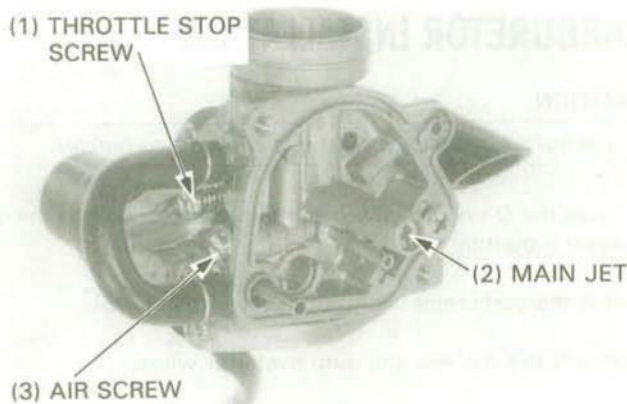
Check all parts for wear or damage.

Blow open all jets and body openings with compressed air.

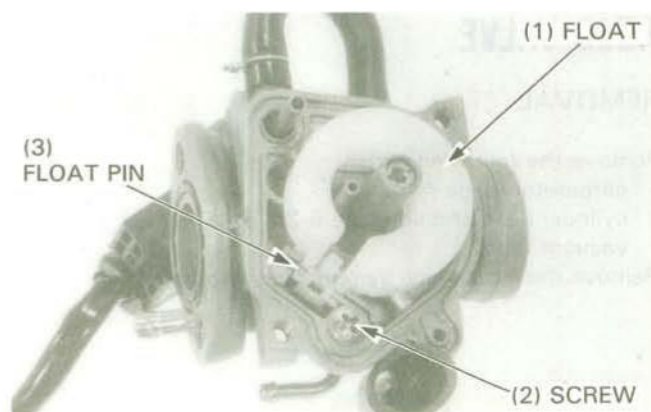


CARBURETOR ASSEMBLY

Install the jet needle holder and main jet.
Install the air and throttle stop screws to their original positions recorded during disassembly.



Install the float valve, float and float pin.
Tighten the float screw securely.
Install the O-ring onto the carburetor body groove.



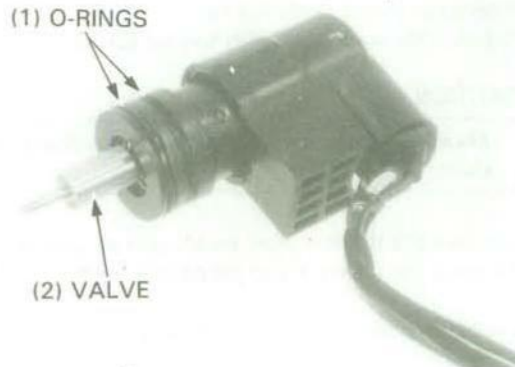
FUEL SYSTEM

If the auto bystarter was removed, inspect the valve for wear or damage, and the O-rings for deterioration. Replace parts as necessary.

Install the bystarter with the set plate and screws, then install the cover.

(1) O-RINGS

(2) VALVE



FLOAT LEVEL INSPECTION

Remove the O-ring from the carburetor body. Measure the float level with the float lip just contacting the float valve.

FLOAT LEVEL: 12.2 mm (0.48 in)

Replace the float if the level is incorrect. Reinstall the O-ring onto the carburetor body groove. Check the operation of the float and install the float chamber.

TOOL:

Float level gauge

07401-0010000

(1) FLOAT LEVEL GAUGE



CARBURETOR INSTALLATION

CAUTION

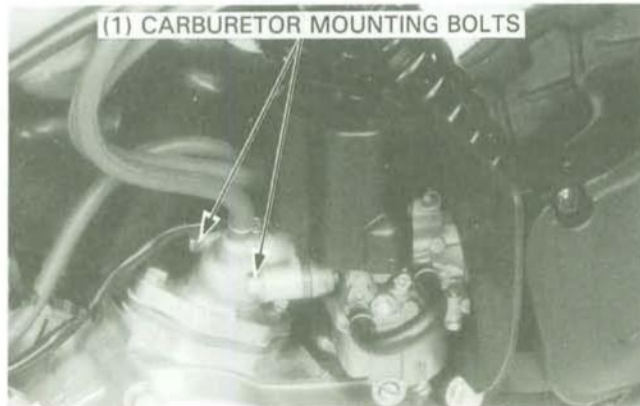
- Do not allow foreign particles to enter the carburetor.

Be sure the O-ring is in place on the carburetor. Install the carburetor mounting bolts.

Install the carburetor cap/throttle valve (page 4-5).

Connect the fuel line and auto bystarter wires.

(1) CARBURETOR MOUNTING BOLTS



REED VALVE

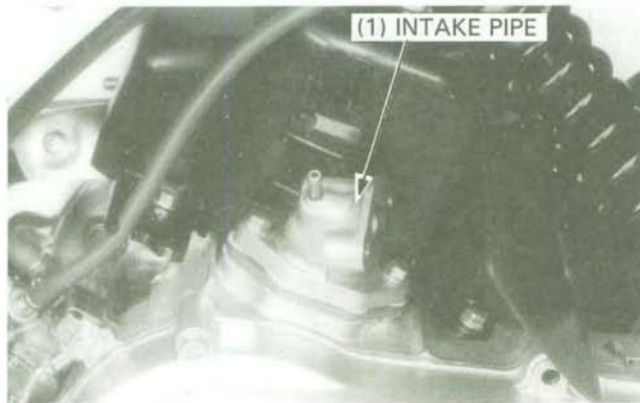
REMOVAL

Remove the following parts:

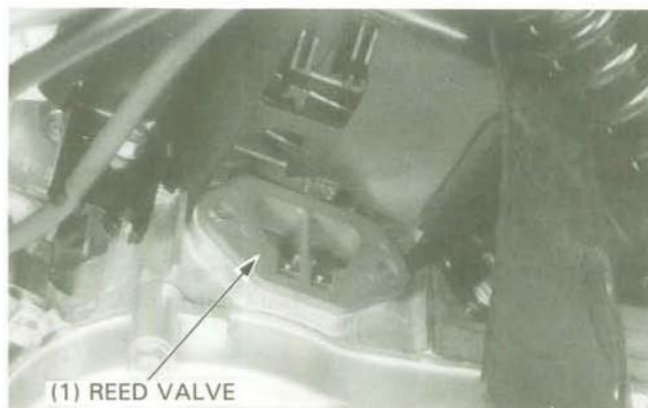
- carburetor (page 4-6).
- cylinder head shroud (page 6-2).
- vacuum tube.

Remove the intake pipe by removing two bolts.

(1) INTAKE PIPE



Remove the reed valve.

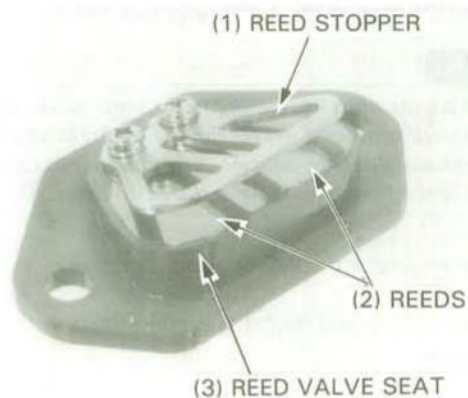


INSPECTION

Check the reed valve assembly for damage or weak reeds. Check the valve seat for cracks, damage or clearance between the seat and reed. Replace the assembly 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, reeds or valve seat are faulty, replace them as a unit.*



INSTALLATION

The installation sequence is essentially the reverse order of removal.

After installation, check for secondary air leaks.



AIR SCREW ADJUSTMENT

NOTE

- The air screw is factory pre-set. Adjustment is not necessary unless the carburetor is overhauled or a new air screw is installed.

FUEL SYSTEM

Turn the air screw clockwise until it seats lightly and then back it out to specification given below.

CAUTION

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

AIR SCREW OPENING: SB50: 1-7/8 turns out
SB50P: 1-3/4 turns out



Warm up the engine to operating temperature.

WARNING

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

Stop the engine and connect a tachometer.

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

IDLE SPEED: 1,800 $\pm$ 100 rpm

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

Readjust the idle speed to specified rpm with the throttle stop screw.

Make sure that the engine does not miss or run erratically.

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

When the vehicle is to be operated continuously above 2,000 m (6,500 feet), the carburetor main jet must be replaced with a high altitude type main jet to improve driveability and decrease exhaust emissions.

Drain the fuel from the float chamber and remove the carburetor (page 4-6).

Remove the float chamber.

Replace the main jet (standard #68) with a high altitude type main jet (#65).

1. Warm up the engine to operating temperature.
2. Turn the air screw counterclockwise 1/4 turn.
3. Adjust the idle speed to 1,800 $\pm$ 100 rpm with the throttle stop screw.

Reinstall the float chamber and install the carburetor (page 4-10).

AUTO FUEL VALVE INSPECTION/MAINTENANCE

⚠ WARNING

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

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 has been drained out of the fuel valve and fuel line.

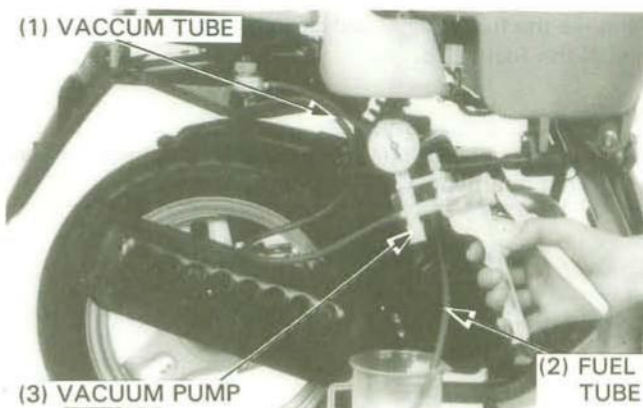
If fuel continues to flow, perform the following operation:

- Clear the vacuum tube of any obstruction.
 - Direct a jet of compressed air to the fuel valve from the top. Disconnect the vacuum tube from the intake pipe and apply vacuum to the 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, do the following:
- Clean the vacuum tube and fuel strainer with compressed air.
 - Loosen a stuck diaphragm by directing a jet of compressed air to the fuel valve from the bottom. Hold the air nozzle about 3 inches from the inlet.

TOOL:

Vacuum pump

A937X-041-XXXXX or
ST-AH-260-MC7
(U.S.A. only)



FUEL TANK

REMOVAL

⚠ WARNING

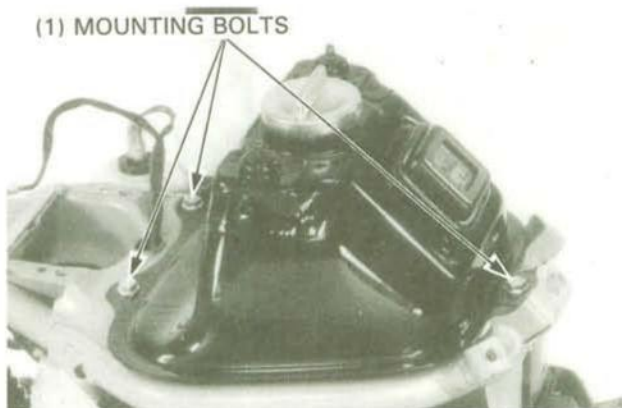
- Gasoline is extremely flammable and is explosive under certain conditions. Work in a well ventilated area with the engine stopped. Do not smoke or allow flames or sparks in the work area or where gasoline is stored.

Remove both frame side covers (page 11-2).

Remove the seat.

Remove the fuel line and vacuum tube.

Remove the fuel tank mounting bolts and the tank.



FUEL STRAINER CLEANING

⚠ WARNING

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

Remove the fuel tank.

Loosen the lock nut and remove the fuel valve.

Drain the gasoline into a suitable container.



FUEL SYSTEM

Remove the fuel strainer and clean it with compressed air.
Install the fuel valve.

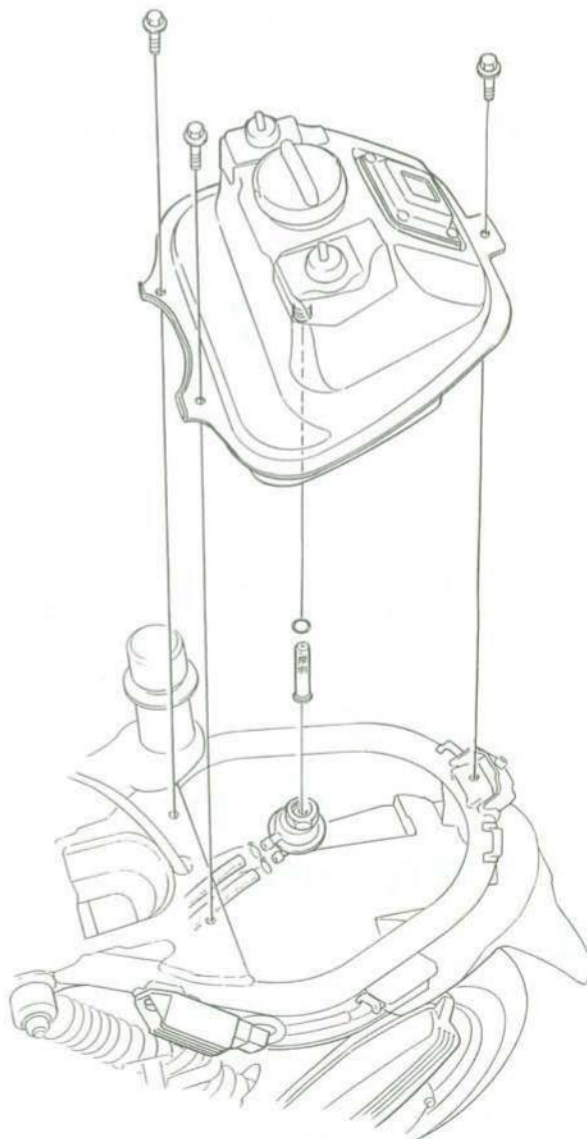
NOTE

- After assembling, refill the fuel tank and check for leaks.
- Do not overtighten the lock nut.

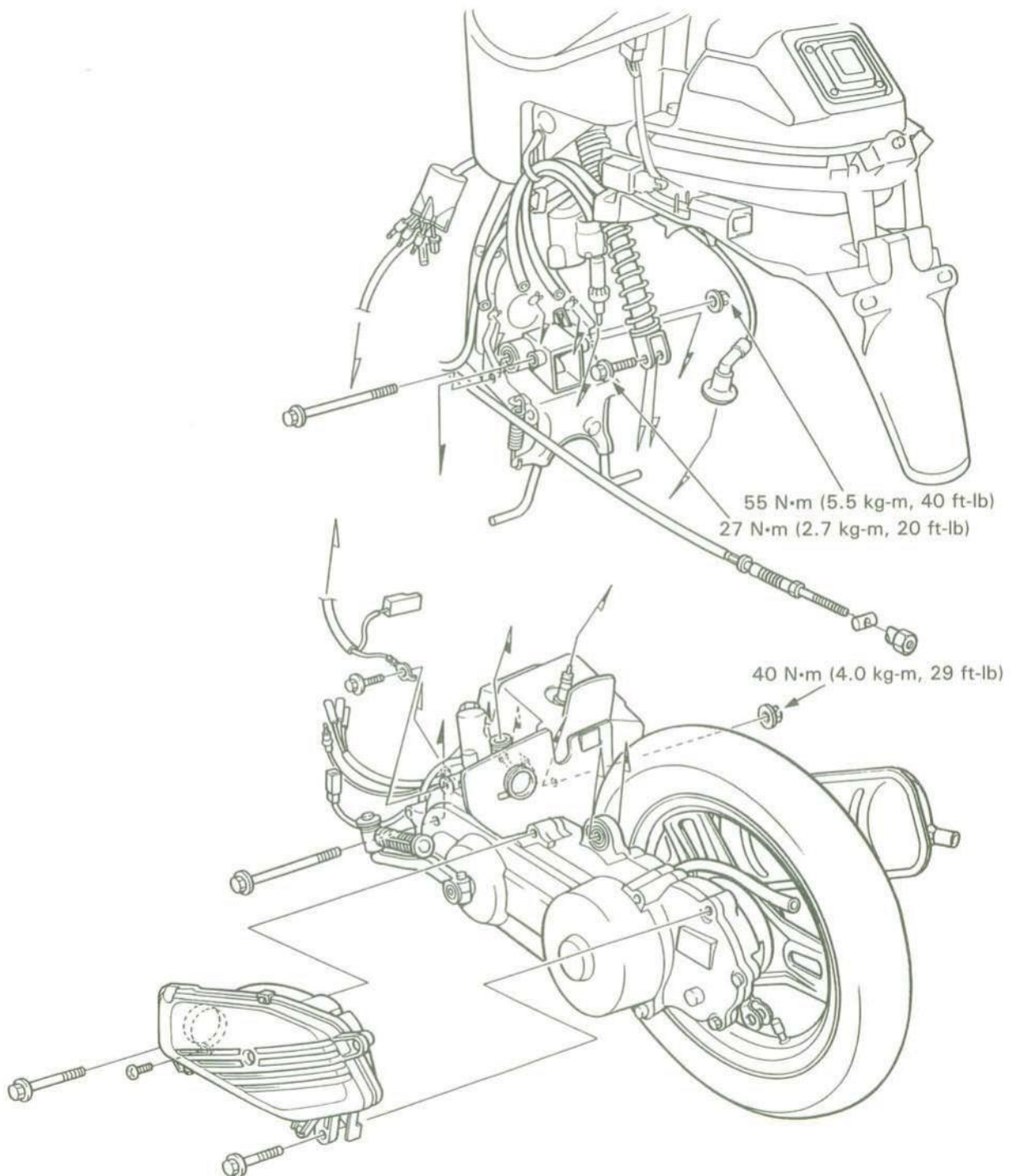


INSTALLATION

Installation is essentially the reverse order of removal.



MEMO



5. ENGINE REMOVAL/INSTALLATION

SERVICE INFORMATION
ENGINE REMOVAL

5-1 ENGINE INSTALLATION
5-2

5-4

SERVICE INFORMATION

GENERAL

- The engine must be removed to service the crankshaft.

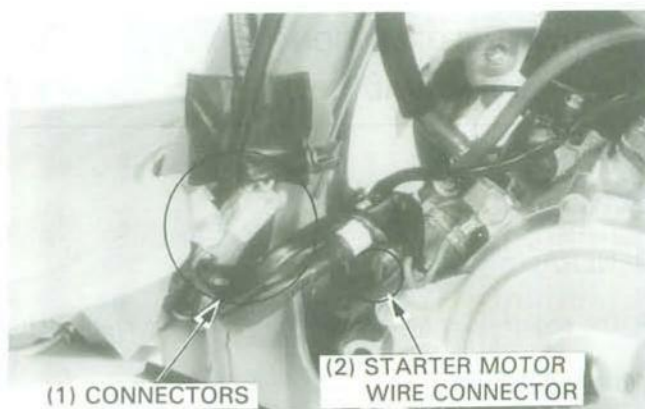
TORQUE VALUES

Engine mounting bolts	40 N·m (4.0 kg-m, 29 ft-lb)
Rear shock absorber lower bolt	27 N·m (2.7 kg-m, 20 ft-lb)
Engine mounting bracket bolt	55 N·m (5.5 kg-m, 40 ft-lb)

ENGINE REMOVAL

Remove the rear carrier and both frame side covers (page 11-2).

Disconnect the alternator, starter motor and auto bystarter wire connectors.



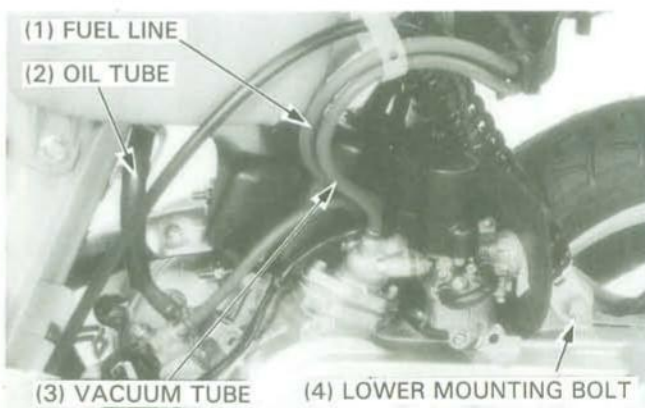
Remove the two air cleaner case mounting bolts and disconnect the crankcase breather tube.

Loosen the band screw and separate the connecting tube from the carburetor to remove the case.

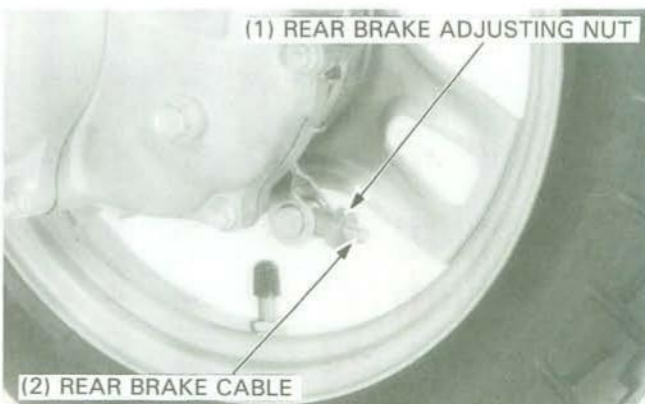


Remove the carburetor cap from the carburetor (page 4-4). Disconnect the oil, fuel and vacuum tubes.

Remove the rear shock absorber lower mounting bolt.



Remove the rear brake adjusting nut and rear brake cable from the clamp on the left crankcase.



Remove the spark plug cap.



Place a workstand under the engine to support it. Remove the engine mounting bolt and nut and separate the engine from the frame. Remove the following parts when the crankcase is to be separated.

- Carburetor
- Intake pipe and reed valve
- Oil pump
- Rear wheel
- Alternator
- Starter motor
- Drive/driven pulleys
- Cylinder head/cylinder/piston



ENGINE MOUNTING BRACKET REMOVAL

Remove the engine mounting bracket bolt and nut and remove the bracket.



ENGINE INSTALLATION

The installation sequence is essentially the reverse of removal. Torque the engine mounting bolt and shock absorber lower mounting bolt to the specified torque values.

TORQUE:

ENGINE MOUNTING BOLT:

40 N·m (4.0 kg-m, 29 ft-lb)

REAR SHOCK ABSORBER LOWER MOUNTING BOLT:

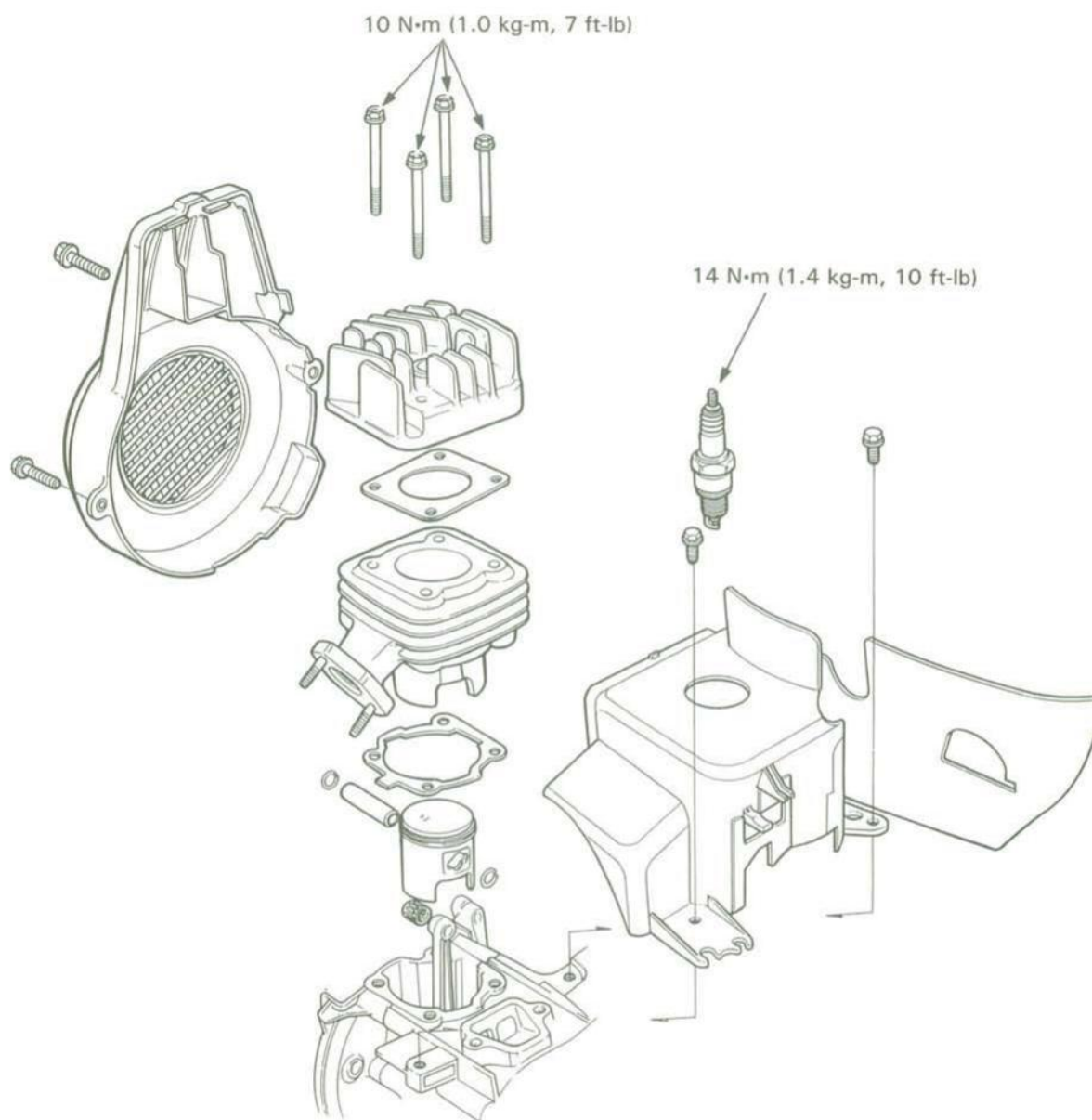
27 N·m (2.7 kg-m, 20 ft-lb)

Perform the following inspections and adjustments after installation:

- Wire and cable routing (page 1-8)
- Carburetor adjustment (page 3-4)
- Rear brake adjustment (page 3-5)
- Oil lines/pump bleeding (page 2-3)



MEMO



6. CYLINDER HEAD/CYLINDER/PISTON

SERVICE INFORMATION	6-1	CYLINDER/PISTON	6-4
TROUBLESHOOTING	6-1	COMPRESSION TEST	6-9
CYLINDER HEAD	6-2		

SERVICE INFORMATION

GENERAL

▲ WARNING

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

- All cylinder head, cylinder and piston service can be done with the engine installed in the frame.
- 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 2-stroke injector oil before assembly.

SPECIFICATIONS

ITEM	STANDARD mm (in)	SERVICE LIMIT mm (in)
Cylinder head warpage	—	0.10 (0.004)
Cylinder warpage	—	0.10 (0.004)
Cylinder bore	41.000–41.020 (1.6142–1.6150)	41.05 (1.616)
Piston O.D. (4 mm from bottom of piston skirt)	40.955–40.970 (1.6124–1.6130)	40.90 (1.610)
Cylinder-to-piston clearance	0.035–0.050 (0.0014–0.0020)	0.10 (0.004)
Piston pin hole I.D.	10.002–10.008 (0.3938–0.3940)	10.03 (0.395)
Piston pin O.D.	9.994–10.000 (0.3935–0.3937)	9.98 (0.393)
Piston-to-piston pin clearance	0.002–0.014 (0.0001–0.0006)	0.03 (0.001)
Piston ring end gap (top, second)	0.10–0.25 (0.004–0.010)	0.40 (0.016)
Connecting rod small end I.D.	14.005–14.015 (0.5514–0.5518)	14.03 (0.552)

TORQUE VALUES

Cylinder head bolt	10 N·m (1.0 kg-m, 7 ft-lb)
Spark plug	14 N·m (1.4 kg-m, 10 ft-lb)
Exhaust pipe joint nut	12 N·m (1.2 kg-m, 9 ft-lb)
Muffler mounting bolt	27 N·m (2.7 kg-m, 20 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 head or on top of piston

Abnormal noise (piston)

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

Abnormal noise

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

CYLINDER HEAD

REMOVAL

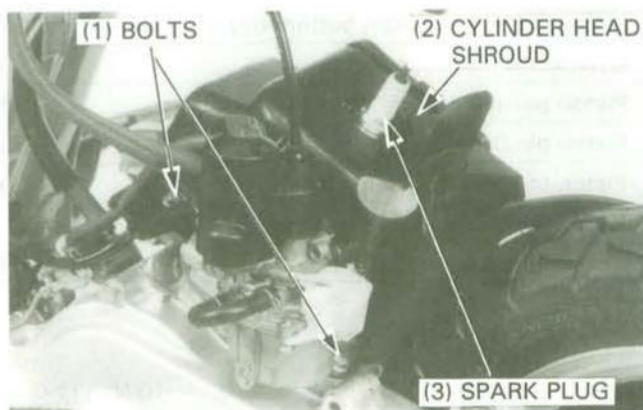
Remove the following:

- both frame side covers (page 11-2)
- trunk (page 11-4)
- rear fender (page 11-5)
- air cleaner case (page 4-3)

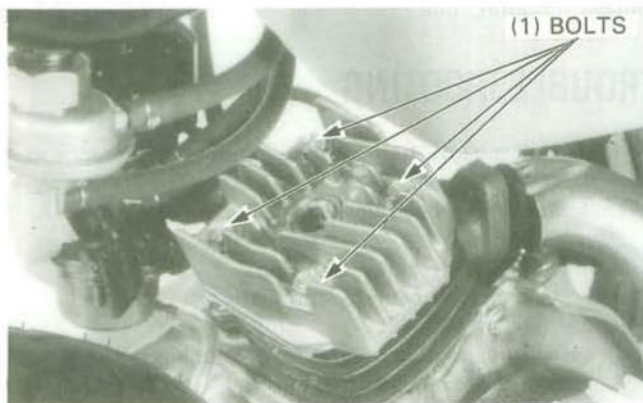
Remove the fan cover.



Remove the cylinder head shroud mounting bolts and cylinder head shroud.
Remove the spark plug.



Remove the four cylinder head bolts, then remove the cylinder head and the head gasket.



INSPECTION

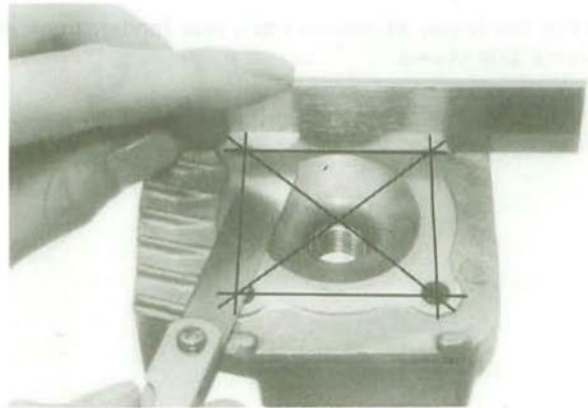
Remove the carbon deposits from the combustion chamber and the piston head.
Clean the head gasket surface.

CAUTION

- *Avoid damaging the combustion chamber wall and gasket surfaces.*

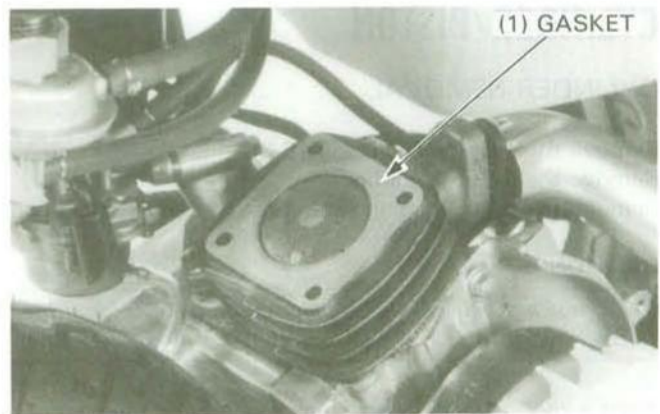
Check the cylinder head for warpage with a straight edge and a feeler gauge in the directions shown.

SERVICE LIMIT: 0.10 mm (0.004 in)



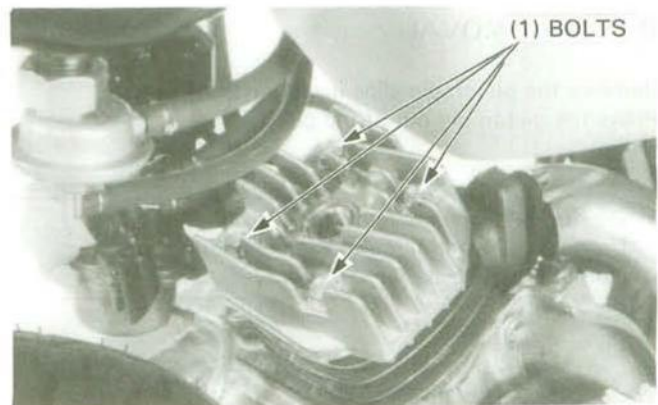
INSTALLATION

Install a new cylinder head gasket.



Install the cylinder head on the cylinder.
Install and tighten the four cylinder head bolts in a crisscross pattern, in 2 to 3 steps.

TORQUE: 10 N·m (1.0 kg·m, 7 ft·lb)



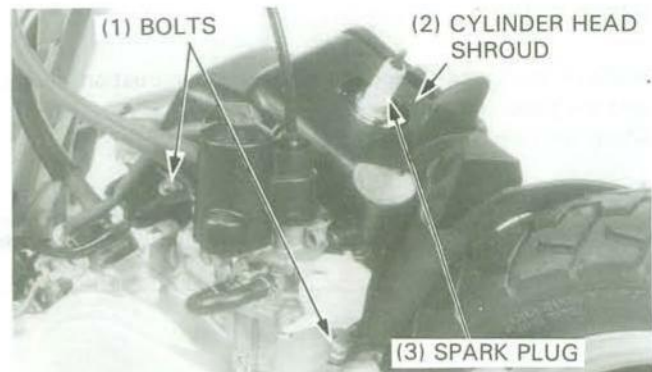
CYLINDER HEAD/CYLINDER/PISTON

Install the cylinder head shroud and tighten the mounting bolts.

Install the spark plug and spark plug cap.

TORQUE: 14 N·m (1.4 kg-m, 10 ft-lb)

Install the air cleaner case (page 4-3).



Install the fan cover, air cleaner case, rear fender, trunk and both frame side covers.



CYLINDER/PISTON

CYLINDER REMOVAL

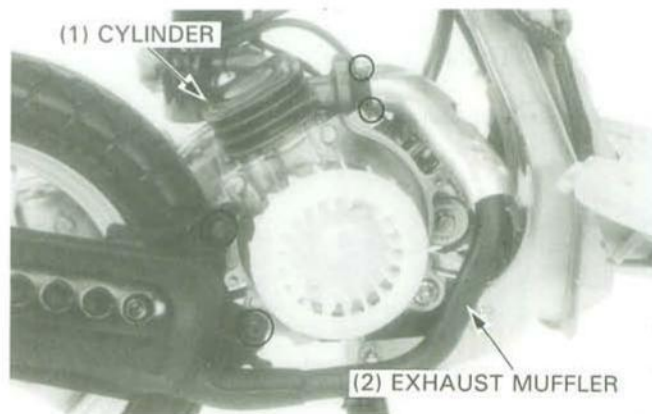
Remove the cylinder head (page 6-3).

Remove the exhaust muffler.

Remove the cylinder being careful not to damage the piston.

CAUTION

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



Place a shop towel into the crankcase around the piston.

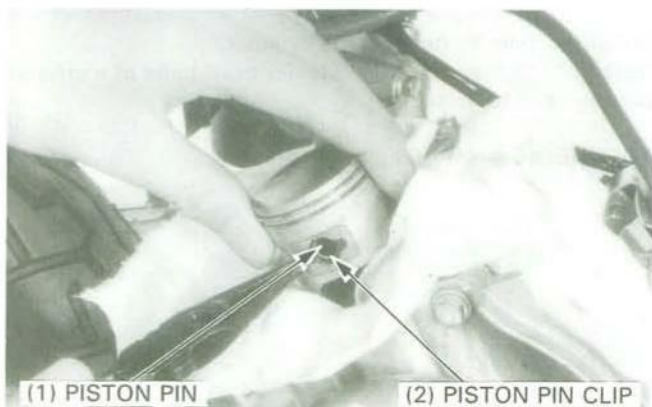
PISTON REMOVAL

Remove the piston pin clips using a pair of pliers.

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 clips fall into the crankcase.



PISTON RING/EXPANDER REMOVAL

Remove the piston rings.

NOTE

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



CYLINDER/PISTON INSPECTION

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

CAUTION

- Do not scratch or score the cylinder liner.

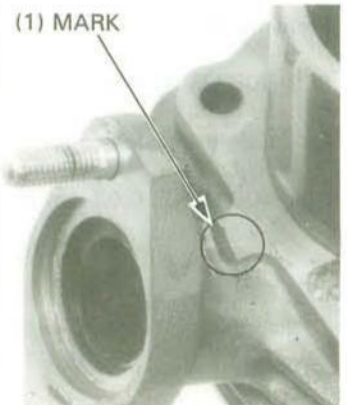
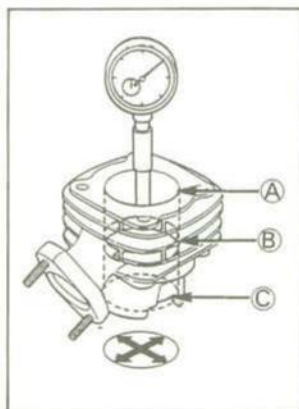


Inspect the cylinder bore for wear at three levels in the X and Y directions. Use the largest measurement to determine the amount of cylinder wear.

SERVICE LIMIT: 41.05 mm (1.616 in)

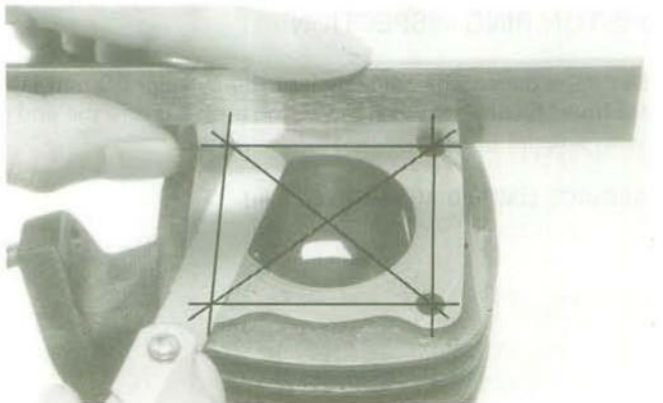
CAUTION

- The cylinder has or not an A mark on the crankcase mating face as shown. When the cylinder is replaced, use a new cylinder with the similar one as the old one.



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

SERVICE LIMIT: 0.10 mm (0.004 in)



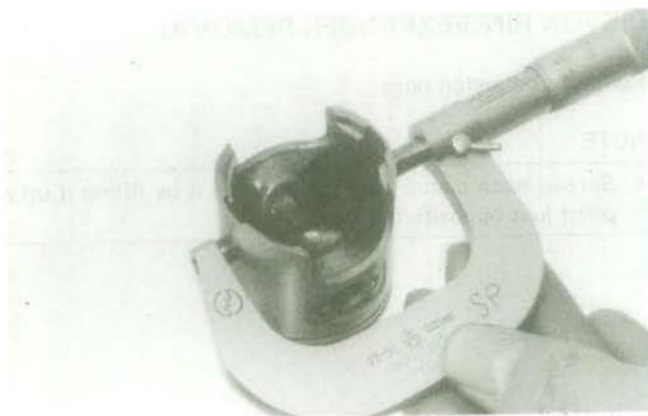
CYLINDER HEAD/CYLINDER/PISTON

Measure the piston O.D. at a point 4 mm from the bottom of the skirt.

SERVICE LIMIT: 40.90 mm (1.610 in)

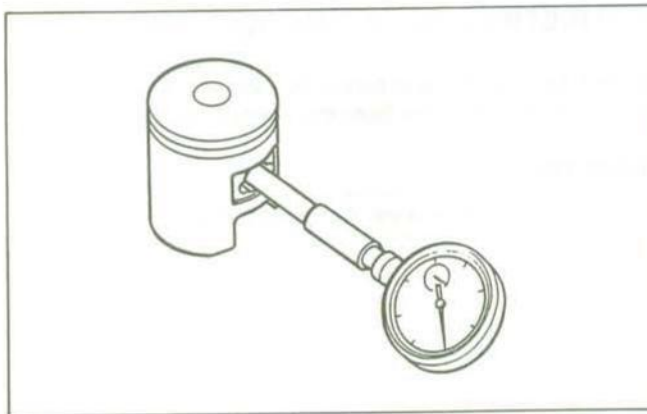
Calculate the piston-to-cylinder clearance.

SERVICE LIMIT: 0.10 mm (0.004 in)



Measure the piston pin hole I.D.

SERVICE LIMIT: 10.03 mm (0.395 in)



Measure the piston pin O.D.

SERVICE LIMIT: 9.98 mm (0.393 in)

Calculate the piston-to-piston pin clearance.

SERVICE LIMIT: 0.03 mm (0.001 in)



PISTON RING INSPECTION

Set each piston ring squarely into the cylinder 30 mm (1-1/4 in) from the bottom using the piston and measure the end gap with a feeler gauge.

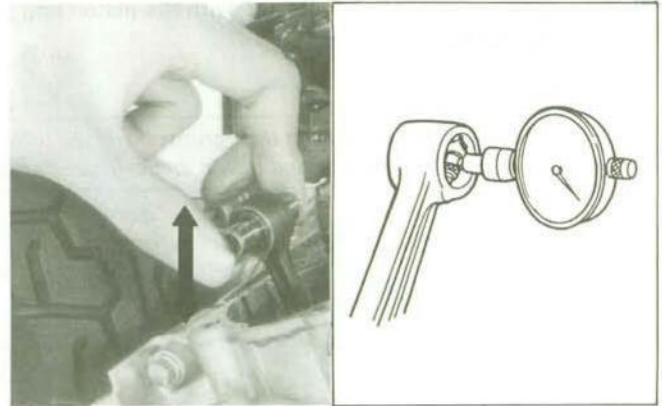
SERVICE LIMIT: 0.40 mm (0.016 in)



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: 14.03 (0.552 in)

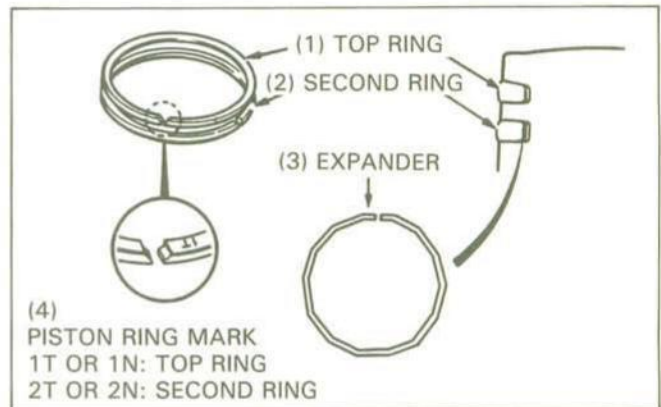


PISTON/CYLINDER INSTALLATION

Clean the piston ring grooves.
Lubricate the piston rings and piston ring grooves with clean 2-stroke oil.
Install the piston rings on the piston, with the marks facing up.

NOTE

- After installation, check that the rings rotate freely in the ring grooves.

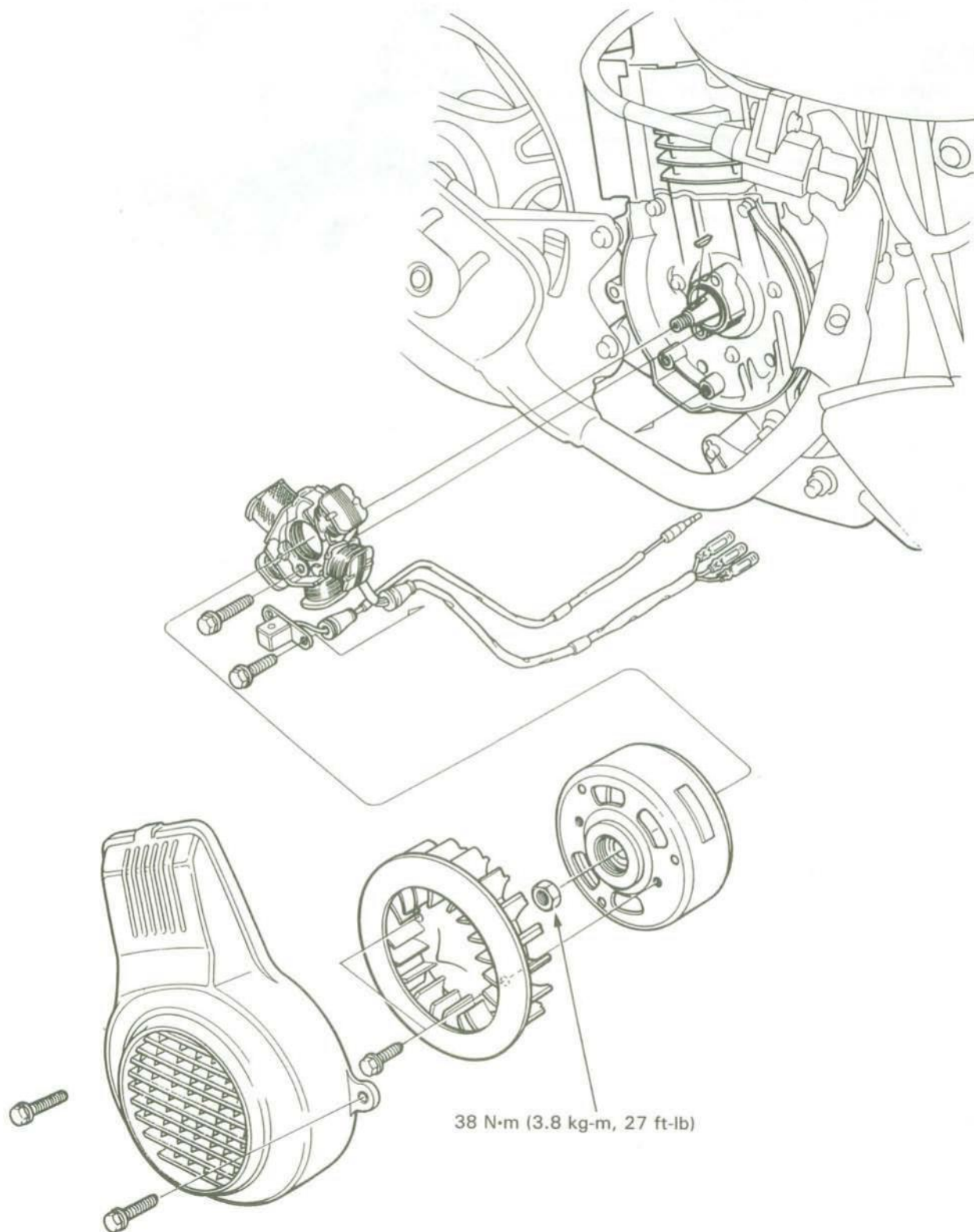


Remove all gasket material from the cylinder and crankcase mating surfaces.



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

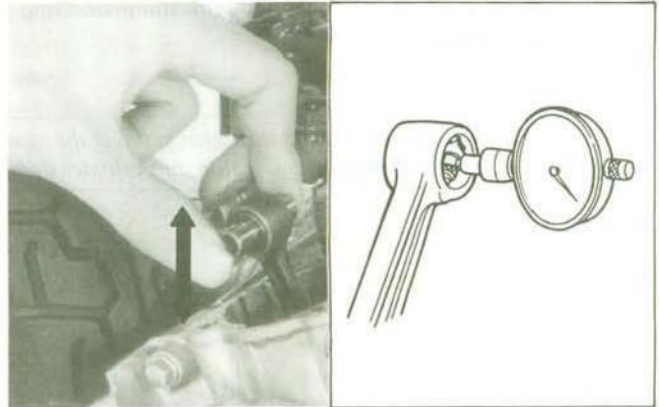




CONNECTING ROD INSPECTION

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: 14.03 (0.552 in)

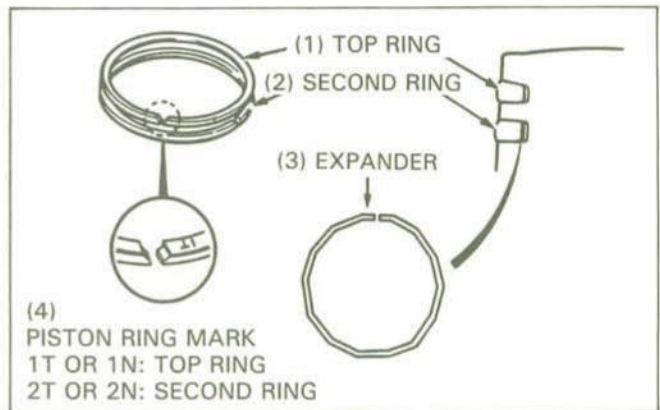


PISTON/CYLINDER INSTALLATION

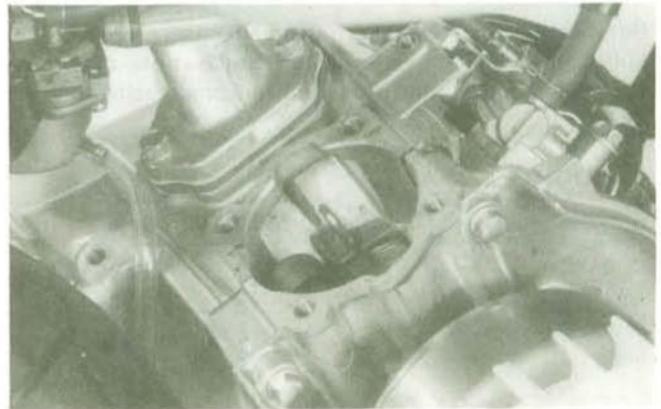
Clean the piston ring grooves.
Lubricate the piston rings and piston ring grooves with clean 2-stroke oil.
Install the piston rings on the piston, with the marks facing up.

NOTE

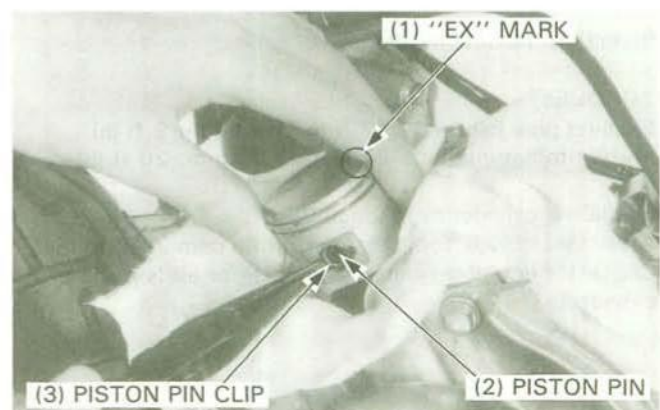
- After installation, check that the rings rotate freely in the ring grooves.



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



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



CYLINDER HEAD/CYLINDER/PISTON

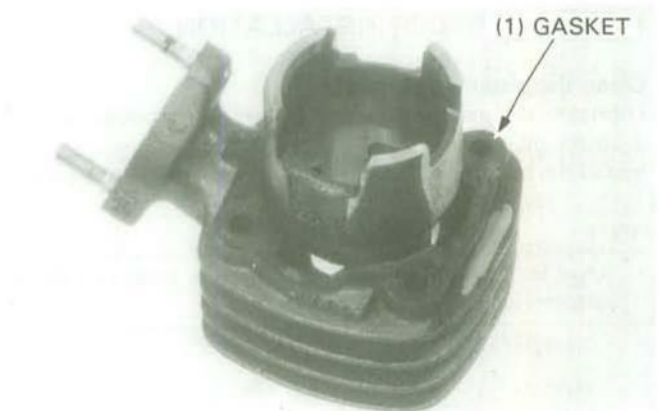
Be sure the ring end gaps are aligned with the piston ring pins in the ring grooves.

CAUTION

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



Install a new cylinder gasket onto the cylinder.



Remove the shop towel from the crankcase.
Lubricate the piston and cylinder 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.*



Install the exhaust muffler.

TORQUE:

Exhaust pipe joint nut 12 N·m (1.2 kg-m, 9 ft-lb)
Muffler mounting bolt 27 N·m (2.7 kg-m, 20 ft-lb)

Install the cylinder head (page 6-3).
After assembly is complete, perform a compression test.
Check for any abnormal engine noise or air leakage past the cylinder.



COMPRESSION TEST

Remove the frame side covers (page 11-2).
Warm up the engine.

⚠ WARNING

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

Stop the engine and remove the spark plug.
Insert a compression gauge.
Open the throttle grip fully and operate the starter motor several times.

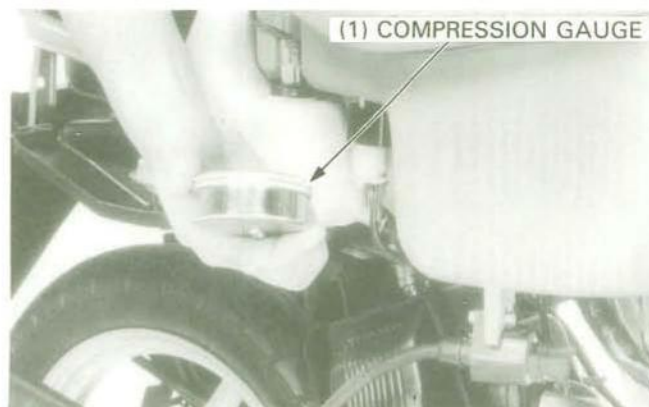
COMPRESSION: 980 kPa (10.0 kg/cm², 142 psi)

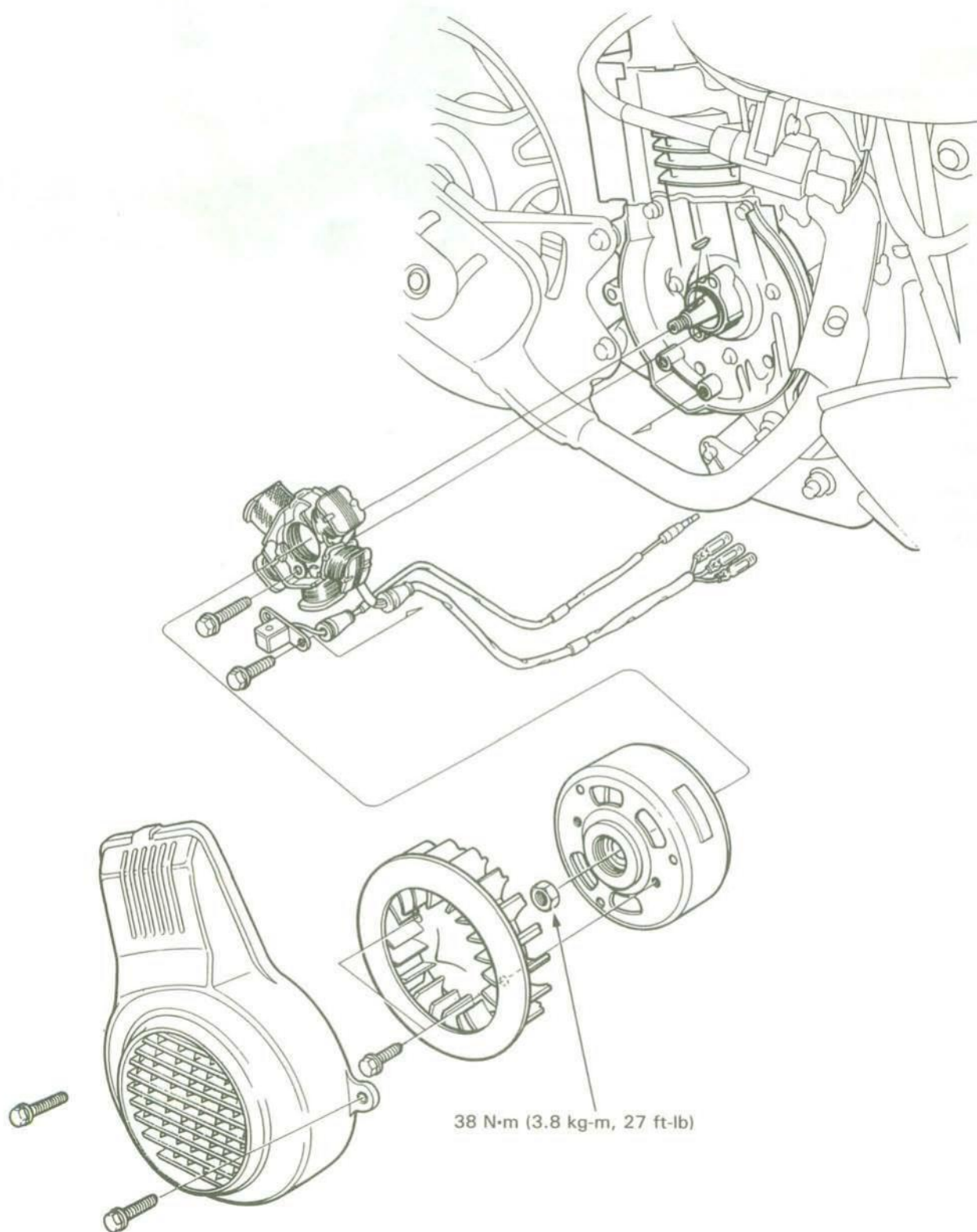
Low compression can be caused by:

- Leaking cylinder head gasket
- Worn piston rings
- Worn cylinder

High compression can be caused by:

- Carbon deposits in combustion chamber or on top of the piston.





SERVICE INFORMATION

GENERAL

- This section covers flywheel and alternator removal. See Section 14 for alternator inspection.

TORQUE VALUE

Flywheel nut 38 N·m (3.8 kg-m, 27 ft-lb)

TOOLS

Common

Flywheel puller
Universal holder

07733-0010000 or 07933-0010000
07725-0030000

ALTERNATOR

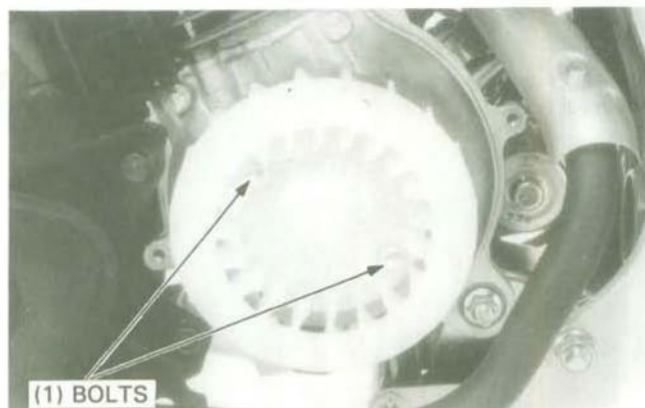
ALTERNATOR

REMOVAL

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



Remove the two bolts attaching the cooling fan and remove the cooling fan.



Hold the flywheel with the universal holder and remove the flywheel flange nut.

TOOL:

Universal holder

07725-0030000



Remove the flywheel with the flywheel puller. Remove the woodruff key.

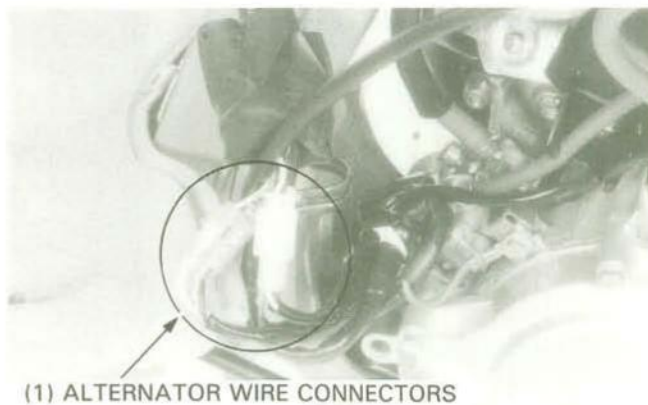
TOOL:

Flywheel puller

07733-0010000 or
07933-0010000

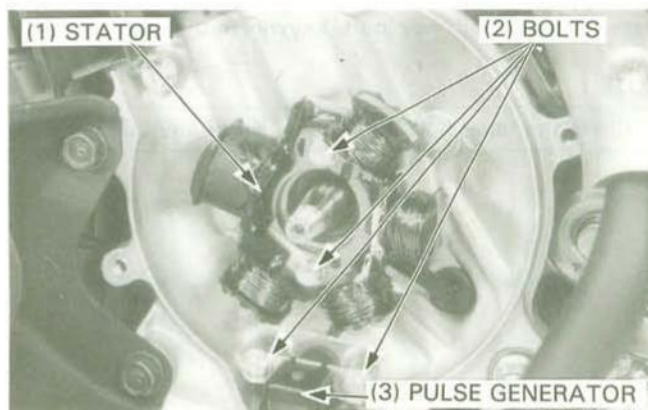


Disconnect the alternator wire connectors.



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

Remove the two bolts attaching the pulse generator and remove the pulse generator.

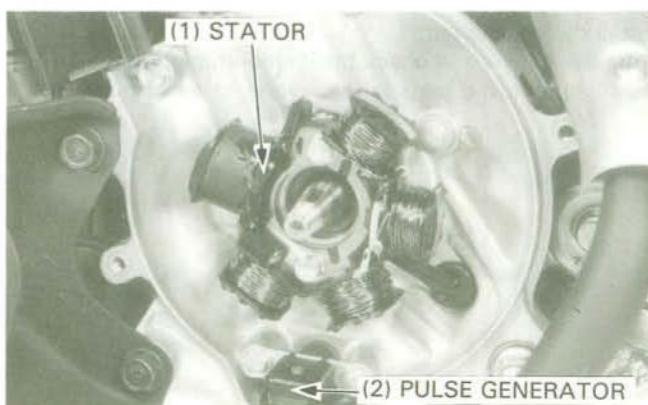


INSTALLATION

Install the alternator wire grommet in the case groove.

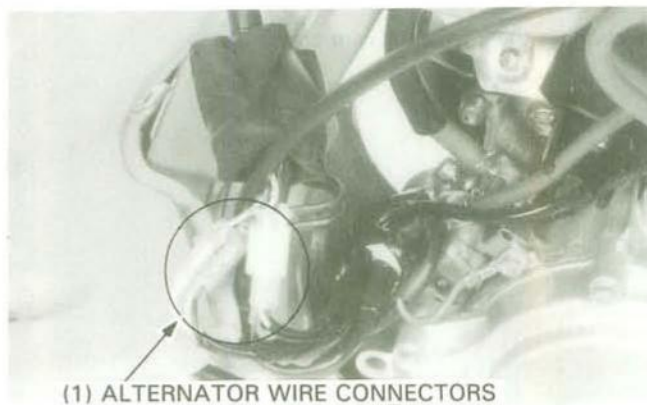


Install the stator and pulse generator.



ALTERNATOR

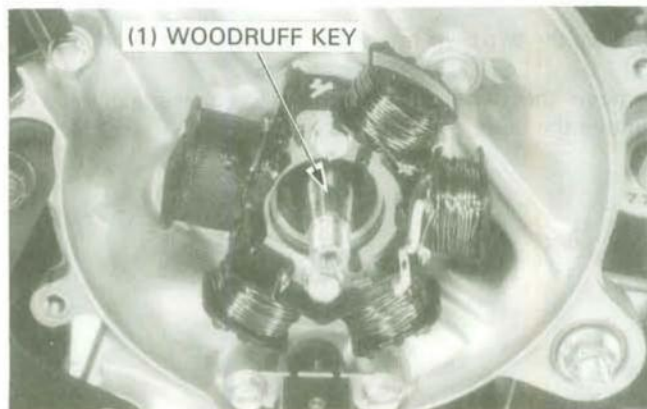
Connect the alternator wire connectors.



Install the woodruff key in the keyway in the crankshaft.

NOTE

- Clean the taper hole in the flywheel of any burrs and dirt.



Install the flywheel onto the crankshaft.

NOTE

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

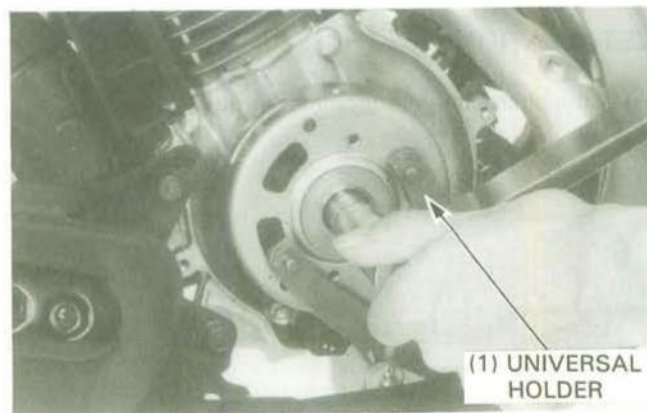
Hold the flywheel with the universal holder and torque the flywheel flange nut.

TOOL:

Universal holder

07725-0030000

TORQUE: 38 N·m (3.8 kg-m, 27 ft-lb)

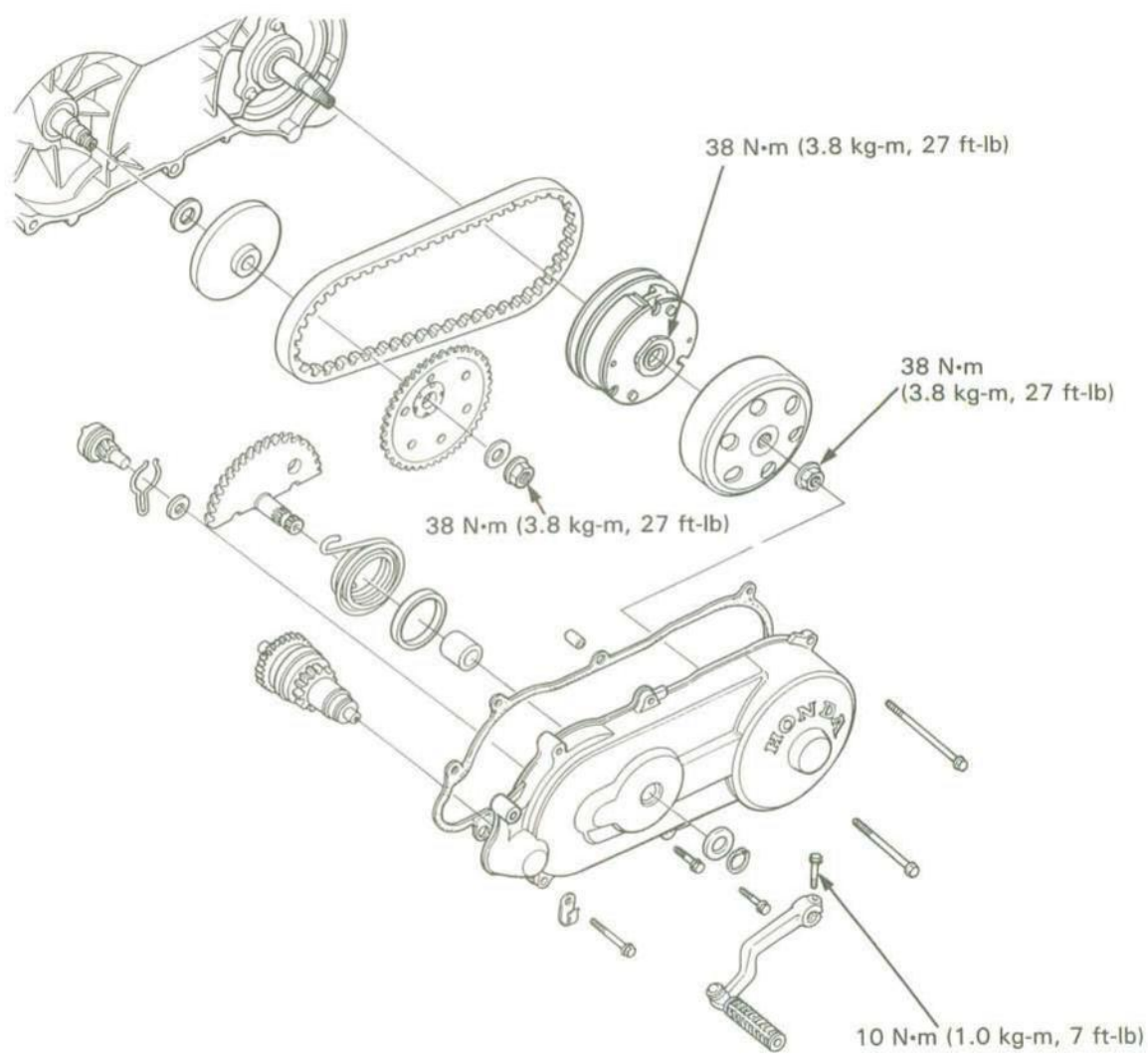


Install the cooling fan.

Start the engine and check the ignition timing (page 14-8).
Install all removed parts in the reverse order of removal.



MEMO



8. KICK STARTER/DRIVE AND DRIVEN PULLEYS/CLUTCH

SERVICE INFORMATION	8-1	DRIVE PULLEY	8-6
TROUBLESHOOTING	8-1	CLUTCH/DRIVEN PULLEY	8-6
KICK STARTER	8-2	STARTER PINION	8-10
DRIVE BELT	8-5		

SERVICE INFORMATION

GENERAL

SPECIFICATIONS

ITEM	STANDARD mm (in)	SERVICE LIMIT mm (in)
Drive belt width	11.4 (0.45)	10.4 (0.41)
Clutch outer I.D.	97.0–97.2 (3.82–3.83)	97.5 (3.84)
Clutch shoe thickness	3.5 (0.138)	1.5 (0.06)
Driven face spring free length	59.9 (2.36)	56.0 (2.20)
Driven pulley face O.D.	33.965–33.985 (1.3372–1.3380)	33.950 (1.3366)
Movable face bushing I.D.	34.000–34.045 (1.3386–1.3404)	34.060 (1.3409)

TORQUE VALUES

Kick starter bolt	10 N·m (1.0 kg-m, 7 ft-lb)
Drive pulley nut	38 N·m (3.8 kg-m, 27 ft-lb)
Clutch outer nut	38 N·m (3.8 kg-m, 27 ft-lb)
Clutch lock nut	38 N·m (3.8 kg-m, 27 ft-lb)

TOOLS

Special

Lock nut wrench, 39 x 41 mm	07GMA—KS40100
Clutch spring compressor	07960—KM10000
Bearing driver	07945—GC80000

Common

Universal holder	07725—0030000
Driver	07749—0010000
Attachment, 24 x 26 mm	07746—0010700
Pilot, 15 mm	07746—0040300

TROUBLESHOOTING

Engine starts, but motor scooter won't move

- Worn drive belt
- Worn or damaged clutch lining
- Broken driven face spring
- Damaged driven pulley shaft splines

Engine stalls or motor scooter moves suddenly

- Broken clutch weight spring
- Damaged clutch lining

Poor performance at high speed or lack of power

- Worn drive belt
- Weak driven face spring
- Faulty driven face
- Worn or seized driven pulley bearing

Clutch noise or smell

- Oil or grease on drive belt or pulley
- Worn drive belt
- Weak driven face spring
- Worn or seized driven pulley bearing

KICK STARTER

LEFT CRANKCASE COVER REMOVAL

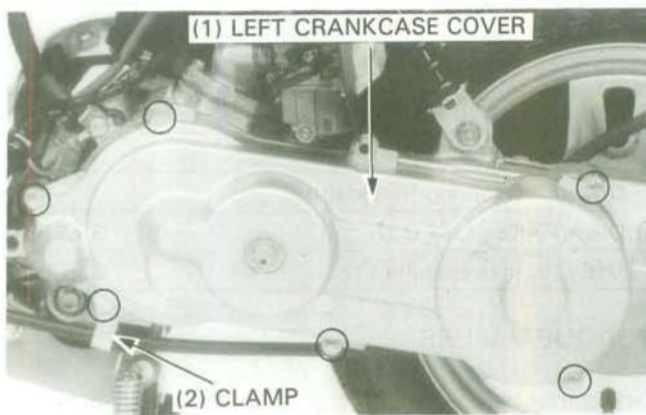
Remove the following:

- both frame side covers (page 11-2).
- air cleaner case.
- kick starter pedal.

- rear brake cable from the clamp.
- left crankcase cover attaching bolts and the cover.
- gasket and dowel pins.

NOTE

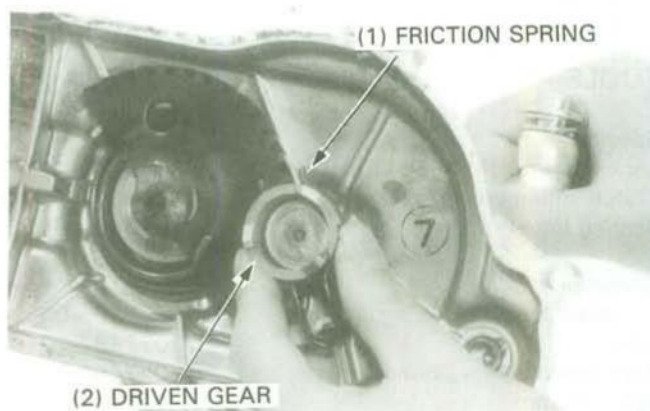
- Never operate the starter motor with the left crankcase cover removed.



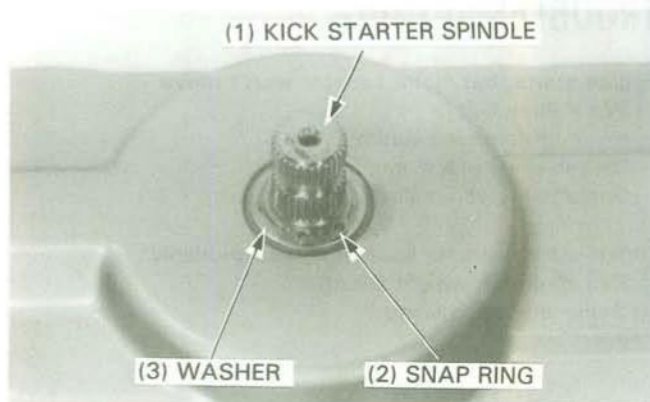
KICK STARTER REMOVAL

Temporarily install the kick starter pedal onto the kick starter spindle.

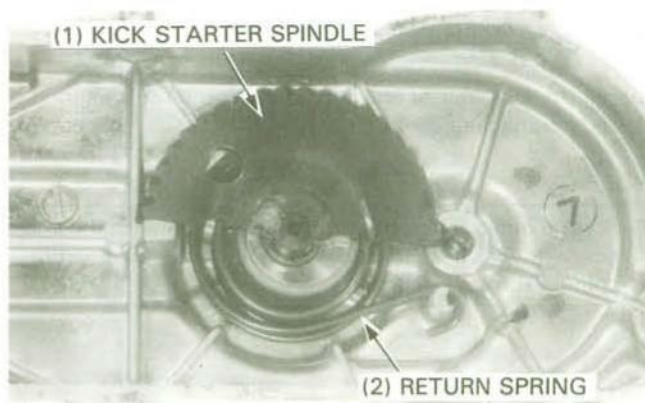
Remove the starter driven gear and friction spring by turning the kick starter pedal.



Remove the snap ring and washer from the kick starter spindle.

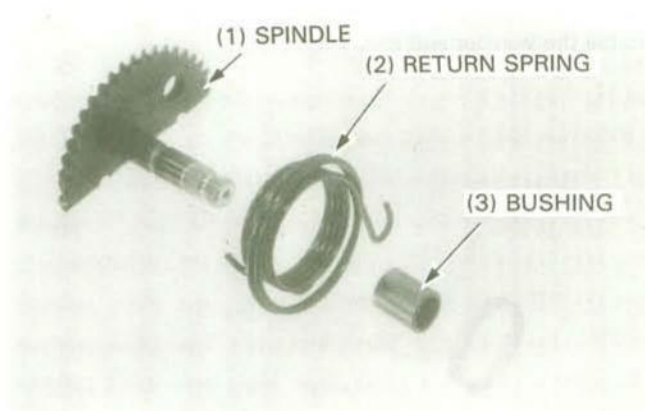


Remove the kick starter spindle and return spring from the left crankcase cover.
Remove the spindle bushing.

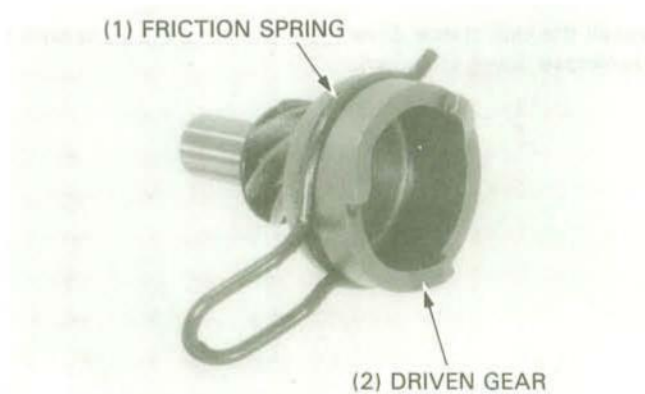


KICK STARTER INSPECTION

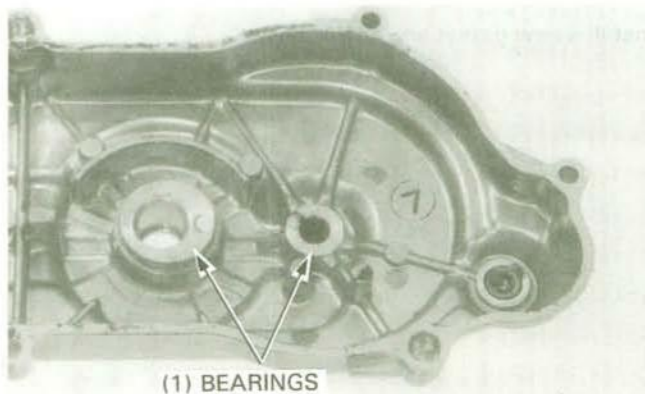
Check the kick starter spindle and bushing for wear or damage.
Check the return spring for wear or damage.



Check the kick starter driven gear and friction spring for wear or damage.



Check the kick starter spindle and driven gear bearings for wear or damage.



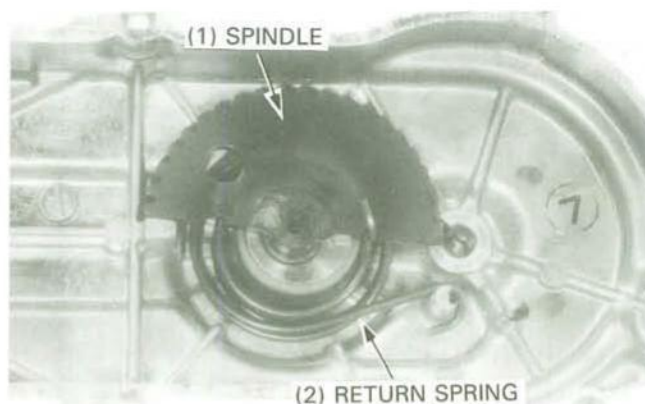
KICK STARTER/DRIVE AND DRIVEN PULLEYS/CLUTCH

KICK STARTER INSTALLATION

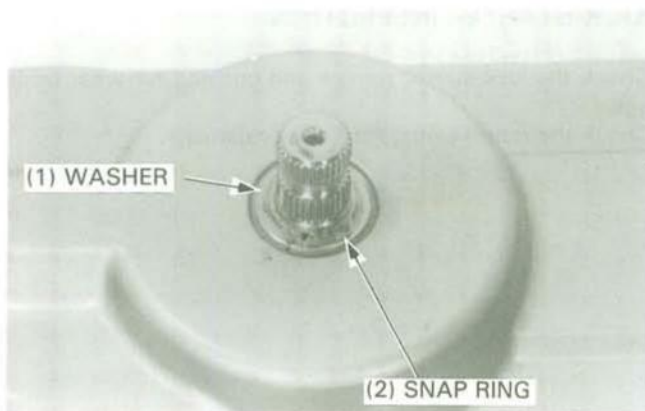
Install the kick starter bushing, spindle and return spring onto the left crankcase cover.

NOTE

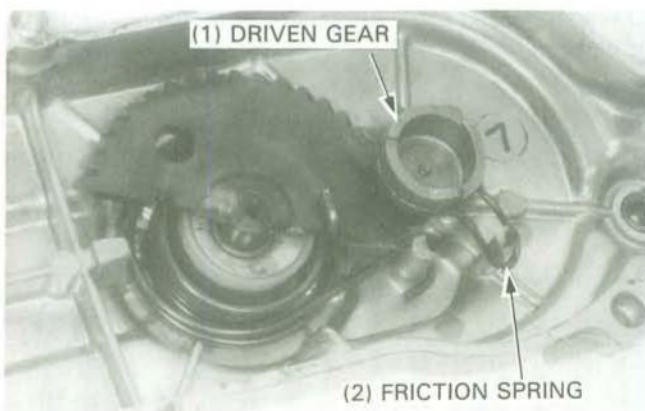
- Pry the inner end of the spring out of way with the end of a screwdriver, if difficulty is encountered in inserting the spindle through the spring.



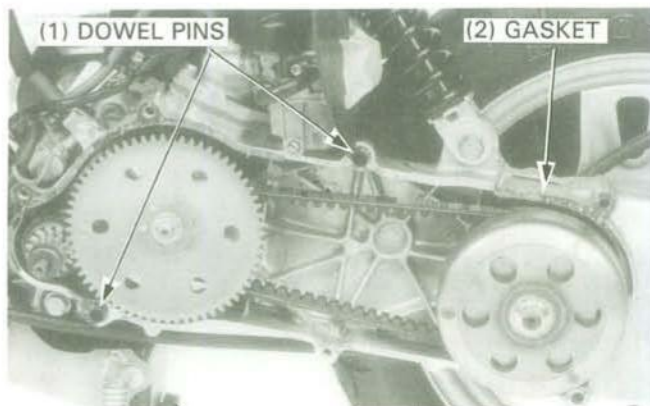
Install the washer and snap ring.



Install the kick starter driven gear and friction spring onto the crankcase cover as shown.

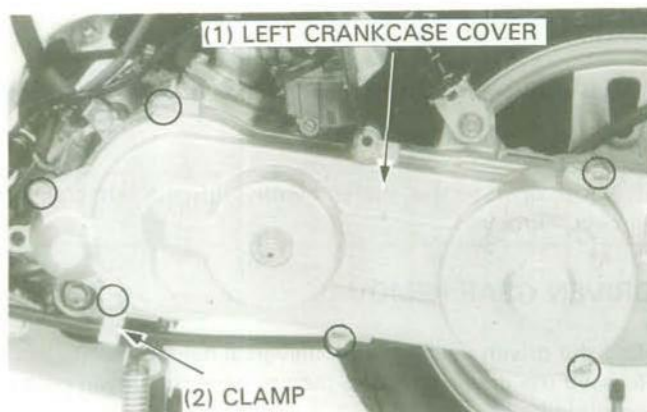


Install a new gasket and dowel pins.

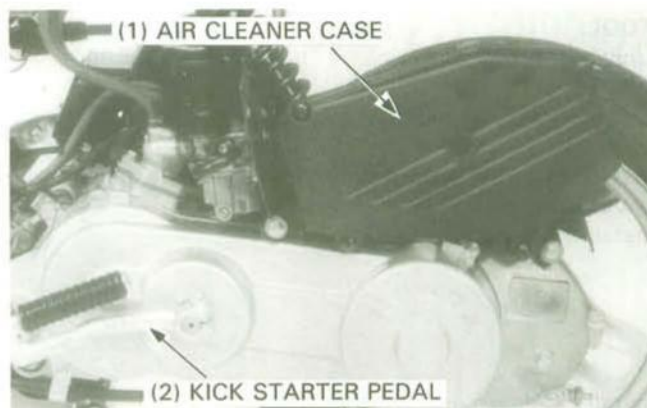


Install the following:

- left crankcase cover.
- rear brake cable to the clamp.



- kick starter pedal.
- air cleaner case.
- frame side covers (page 11-2).



DRIVE BELT

Remove both frame side covers (page 11-2).

Remove the left crankcase cover (page 8-2).

INSPECTION

Check the drive belt for cracks, separation or abnormal or excessive wear. Measure the width of the belt at its widest point.

SERVICE LIMIT: 10.4 mm (0.41 in)

Replace the belt if it is narrower than the service limit.

NOTE

- Use only a genuine Honda replacement drive belt.



REPLACEMENT

Remove the pulley driven gear (page 8-6).
Remove the drive belt from the drive face boss.
Remove the clutch outer and driven pulley (page 8-6).
Remove the drive belt from the driven pulley.

Install a new belt onto the driven pulley and squeeze it to spread the driven pulley groove.
Install the driven pulley and clutch outer (page 8-10).
Install the drive belt over the drive face boss and install the pulley driven gear (page 8-6).

DRIVE PULLEY

Remove the frame side covers and the left crankcase cover.

NOTE

- Never operate the starter motor with the left crankcase cover removed.

DRIVEN GEAR REMOVAL

Hold the driven gear with the universal holder.
Remove the driven gear nut, then remove the driven gear and the drive belt.
Remove the drive face.

TOOL:

Universal holder 07725-0030000

DRIVEN GEAR INSTALLATION

Install the thrust washer onto the crankshaft, then install the drive face.
Install the drive belt.

Install the driven gear, washer and nut.

Hold the gear with the universal holder, then tighten the nut.

TORQUE: 38 N·m (3.8 kg-m, 27 ft-lb)

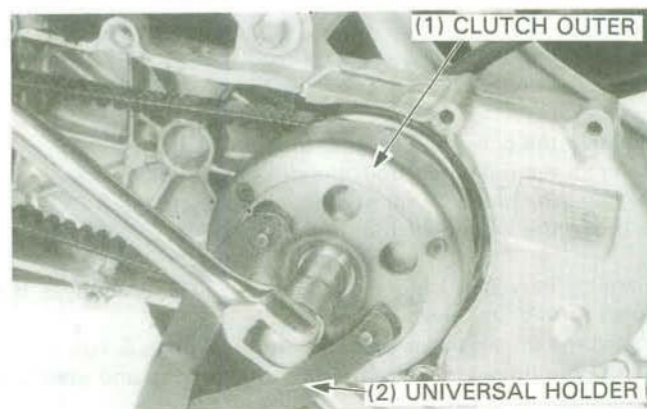
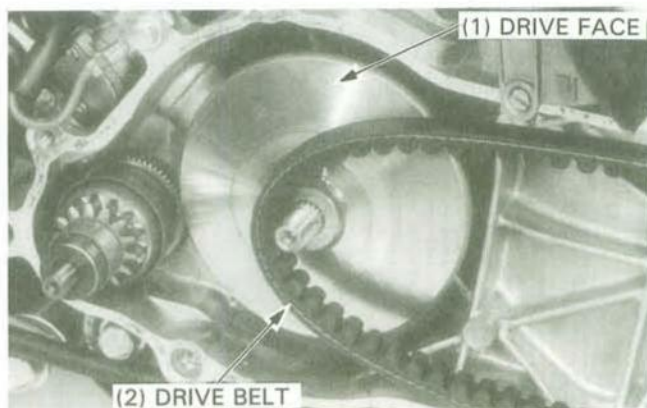
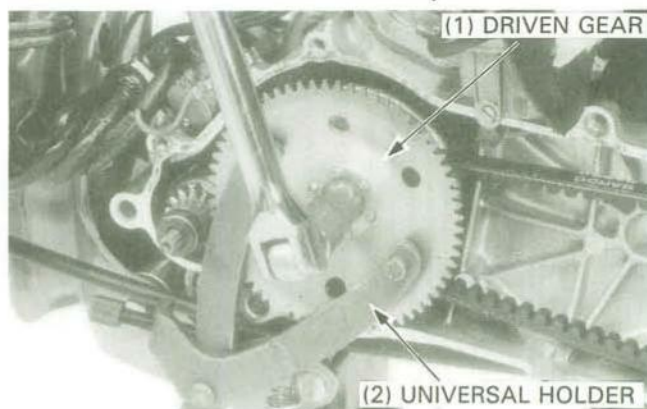
NOTE

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

TOOL:

Universal holder 07725-0030000

Install the left crankcase cover and the frame side covers.



CLUTCH/ DRIVEN PULLEY

REMOVAL

Remove both frame side covers (page 11-2), the kick starter pedal and the left crankcase cover.

Remove the pulley driven gear and drive belt.

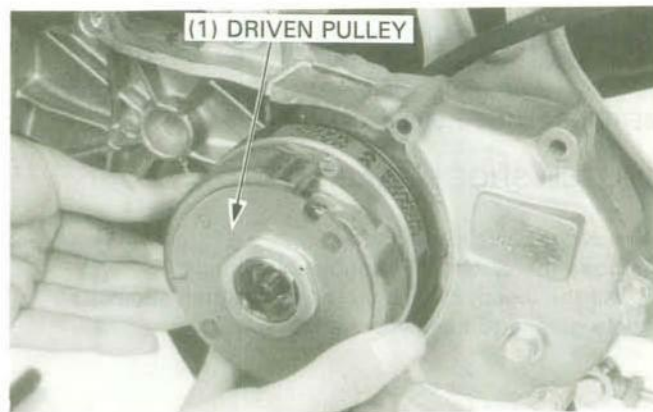
Hold the clutch outer with the universal holder.

Remove the nut, then remove the clutch outer.

TOOL:

Universal holder 07725-0030000

Remove the driven pulley/clutch assembly from the drive shaft.



CLUTCH DISASSEMBLY

Install the clutch spring compressor and remove the 28 mm nut.

CAUTION

- Do not overtighten the clutch spring compressor.

Remove the compressor, then remove the clutch and driven face spring from the pulley.

TOOLS:

Clutch spring compressor	07960—KM10000
Lock nut wrench, 39 x 41 mm	07GMA—KS40100



CLUTCH INSPECTION

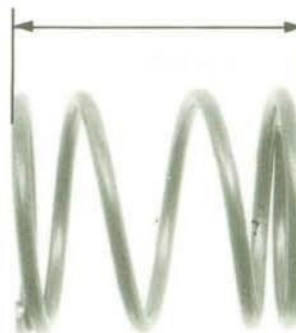
Inspect the clutch outer for wear or damage.
Measure the clutch outer I.D.

SERVICE LIMIT: 97.5 mm (3.84 in)



Measure the driven face spring free length.

SERVICE LIMIT: 56.0 mm (2.20 in)



KICK STARTER/DRIVE AND DRIVEN PULLEYS/CLUTCH

Inspect the clutch shoes for wear or damage.
Measure the thickness of each shoe.

SERVICE LIMIT: 1.5 mm (0.06 in)

CLUTCH SHOE REPLACEMENT

Remove the circlips and washers.
Remove the clutch shoes and shoe springs.
Install the clutch springs on the new clutch shoes.
Apply grease to the pivot shafts.

(1) E-CLIP/WASHER

(2) CLUTCH SHOE

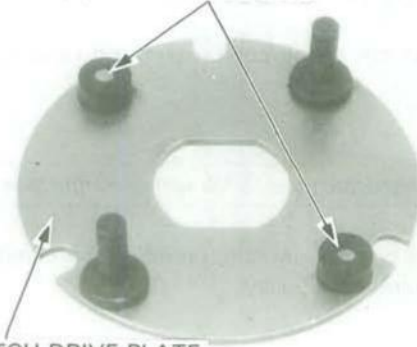
(3) CLUTCH SPRING



Check the damper rubbers and replace them if they are damaged.
Install the clutch shoes onto the drive plate and secure them with the washers and circlips.

(1) DAMPER RUBBERS

(2) CLUTCH DRIVE PLATE



DRIVEN PULLEY DISASSEMBLY

Remove the movable face from the driven pulley face.

(1) MOVABLE FACE

(2) DRIVEN PULLEY FACE



Inspect the driven pulley face for wear or damage.
Inspect the movable face bushing for wear or damage.

(1) DRIVEN PULLEY FACE

(2) BUSHING



BEARING REPLACEMENT

Remove the needle bearing.

Remove the outer bearing by first removing the snap ring.

Grease a new outer bearing and drive it in, then install the snap ring.

TOOL:

Bearing driver 07945—GC80000

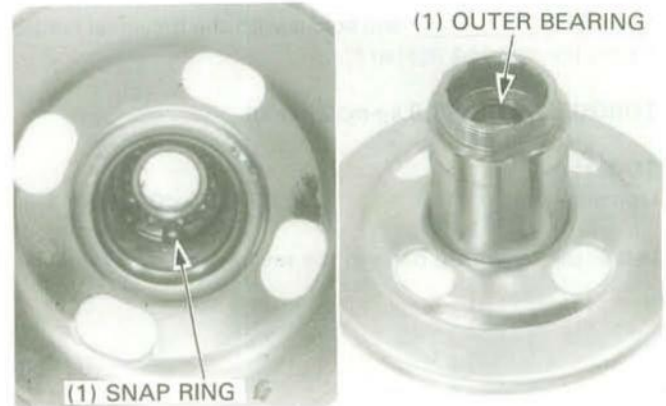
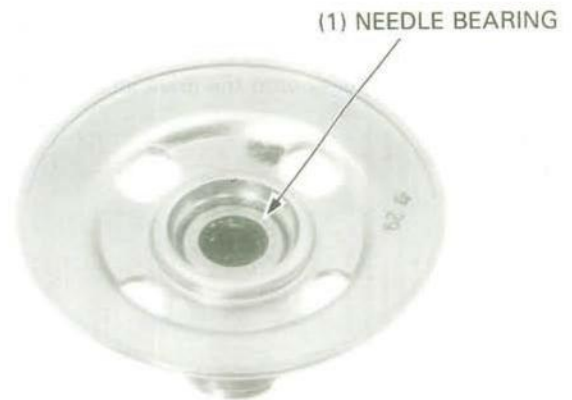
Drive in a new needle bearing.

TOOLS:

Driver 07749—0010000

Attachment, 24 x 26 mm 07746—0010700

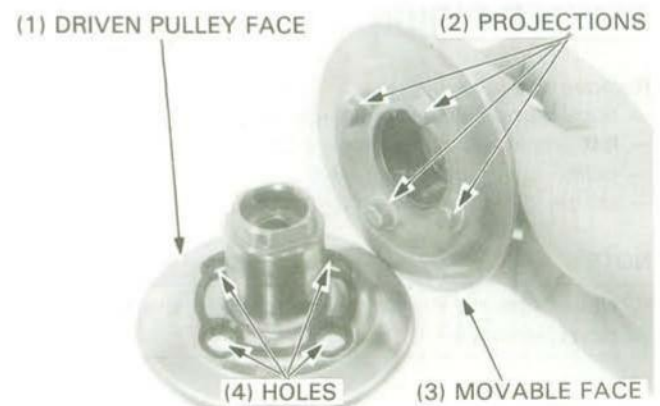
Pilot, 15 mm 07746—0040300



CLUTCH/DRIVEN PULLEY ASSEMBLY

Lubricate the movable face bushing with 3.5—4.0 g (0.12—0.14 oz) of grease.

Assemble the movable face on the driven pulley face assembly by positioning the projections in the holes.



Position the pulley assembly, spring and clutch drive plate assembly in 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 with the lock nut wrench.

TORQUE: 38 N·m (3.8 kg-m, 27 ft-lb)

TOOLS:

Lock nut wrench, 39 x 41 mm 07GMA—KS40100

Clutch spring compressor 07960—KM10000



KICK STARTER/DRIVE AND DRIVEN PULLEYS/CLUTCH

CLUTCH/DRIVEN PULLEY INSTALLATION

Install the clutch/pulley onto the drive shaft.



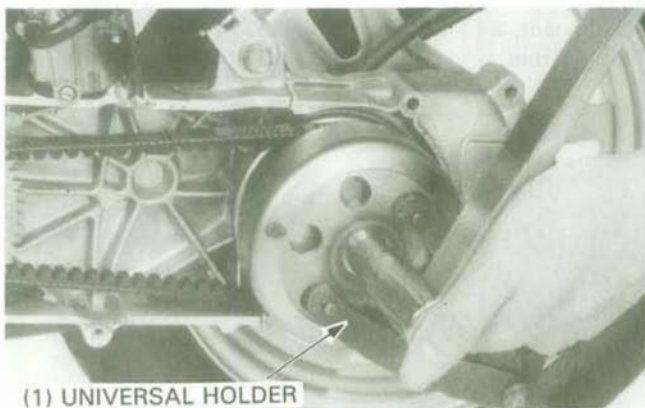
Install the clutch outer and hold it with the universal holder. Install the nut and tighten it.

TORQUE: 38 N·m (3.8 kg-m, 27 ft-lb)

TOOL:

Universal holder 07725-0030000

Install the remaining parts in the reverse order of removal.



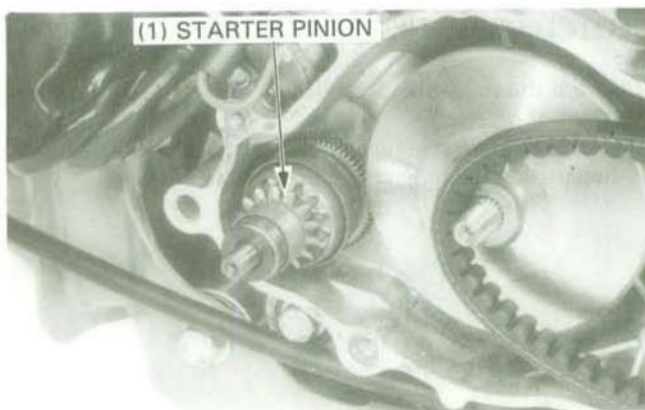
STARTER PINION

Remove the following:

- both frame side covers (page 11-2).
- left crankcase cover (page 8-2).
- pulley driven gear (page 8-6).
- starter pinion.

NOTE

- Never operate the starter motor with the left crankcase cover removed.



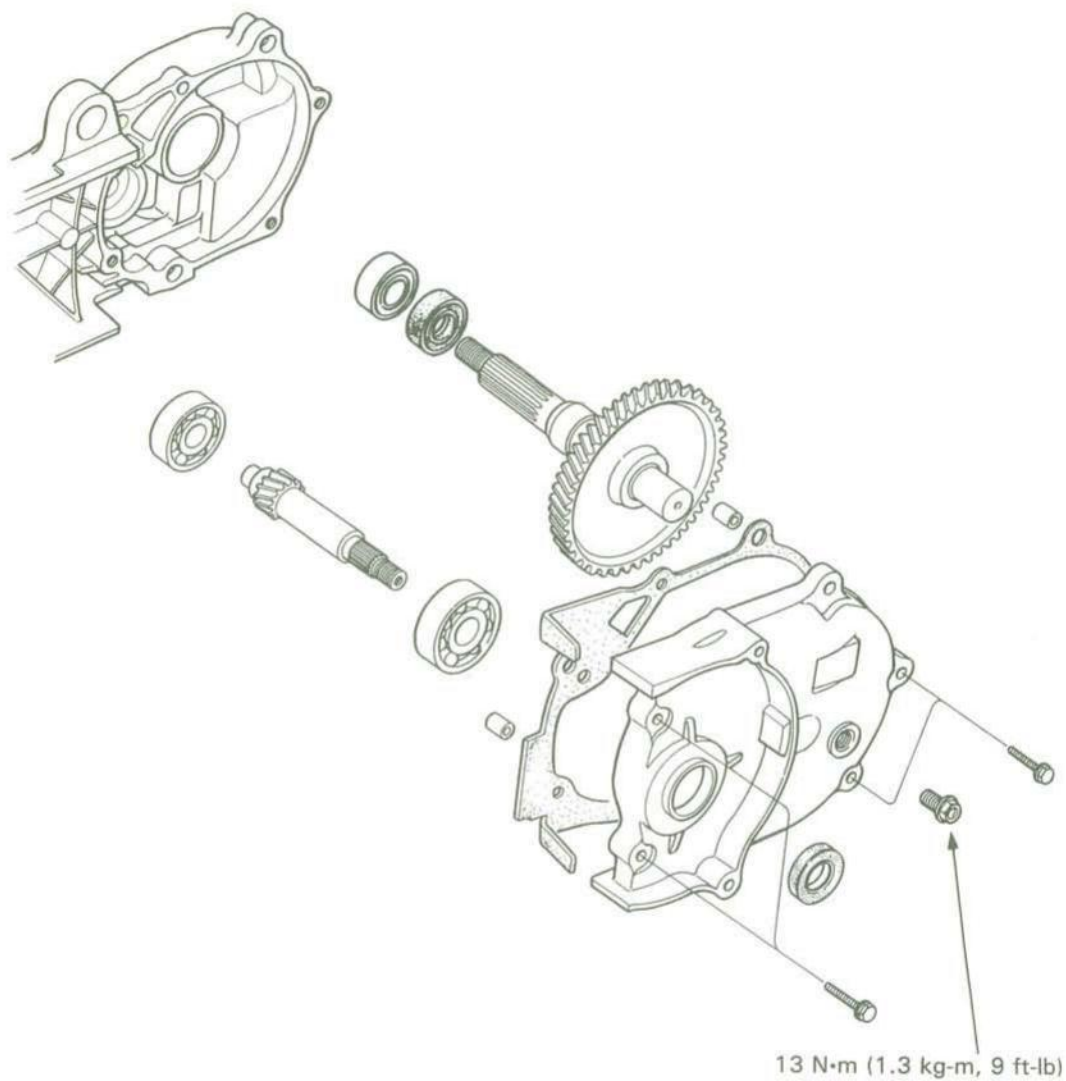
Check the starter pinion gear and sliding surfaces for wear or damage.

Check the starter pinion for smooth operation.

Apply grease to each sliding portion and install the pinion in the reverse order of removal.



MEMO



9. FINAL REDUCTION

SERVICE INFORMATION	9-1	FINAL REDUCTION INSPECTION	9-2
TROUBLESHOOTING	9-1	FINAL REDUCTION ASSEMBLY	9-4
FINAL REDUCTION DISASSEMBLY	9-2		

SERVICE INFORMATION

SPECIFICATIONS

Specified oil	Honda 4-stroke oil SAE 10W-40 or equivalent
Oil quantity	90 cc (3.0 US oz., 2.5 Imp. oz.)

TORQUE VALUE

Oil check bolt	13 N·m (1.3 kg-m, 9 ft-lb)
----------------	----------------------------

TOOLS

Special

Bearing remover set, 12 mm	07936-1660001
— Bearing remover, 12 mm	07936-1660100
— Bearing remover weight	07741-0010201 or 07936-3710200
Driver head	07946-KM40701

Common

Driver	07749-0010000
Attachment, 32 x 35 mm	07746-0010100
Pilot, 12 mm	07746-0040200
Pilot, 15 mm	07746-0040300

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

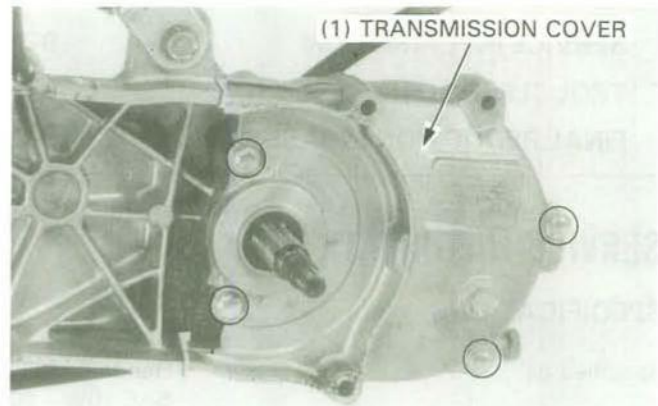
FINAL REDUCTION

FINAL REDUCTION DISASSEMBLY

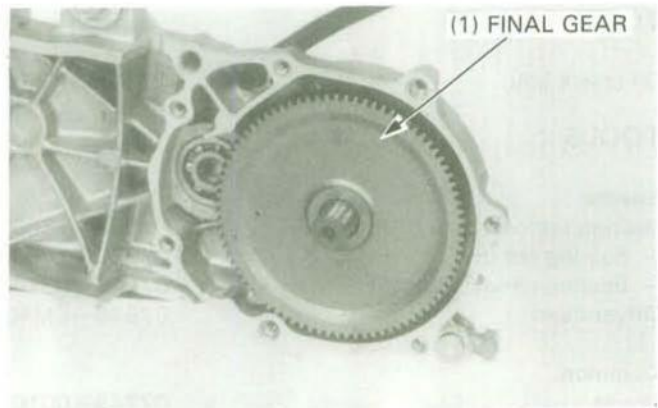
Remove the clutch/driven pulley (page 8-6).
Remove the rear wheel (page 13-2).

Place an oil drain pan under the final reduction case to catch the oil.

Remove the transmission cover bolts and the cover.

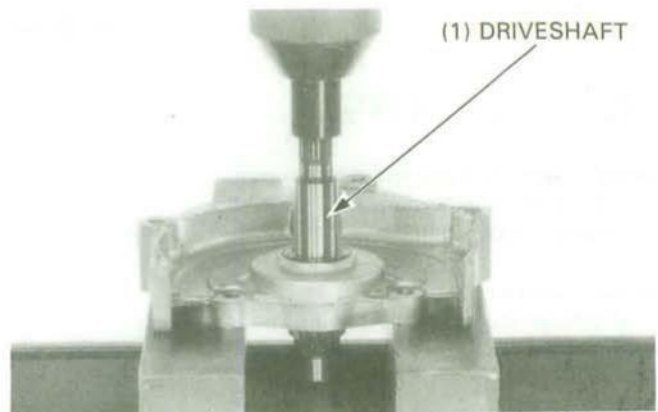


Remove the two dowel pins and the gasket.
Remove the final gear.



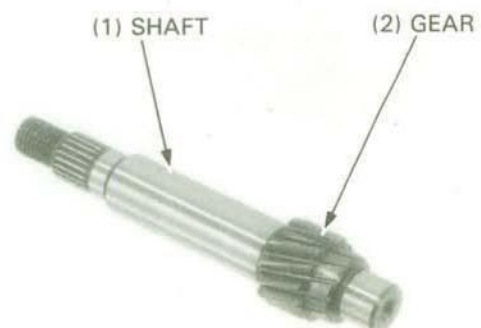
DRIVESHAFT REMOVAL

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

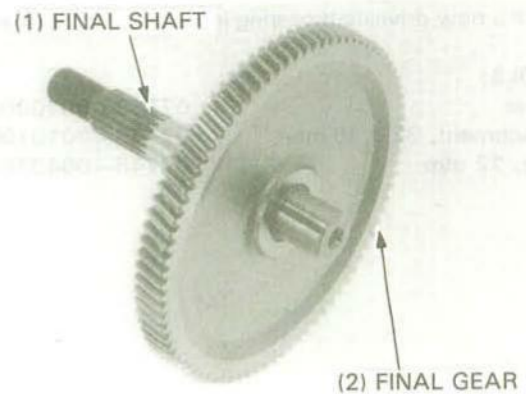


FINAL REDUCTION INSPECTION

Inspect the driveshaft and gear for excessive wear or damage.



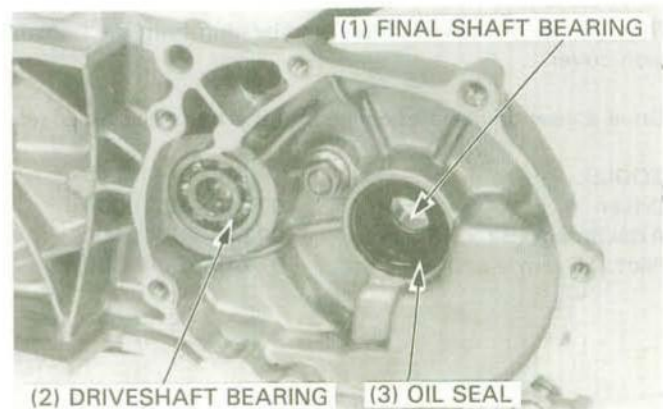
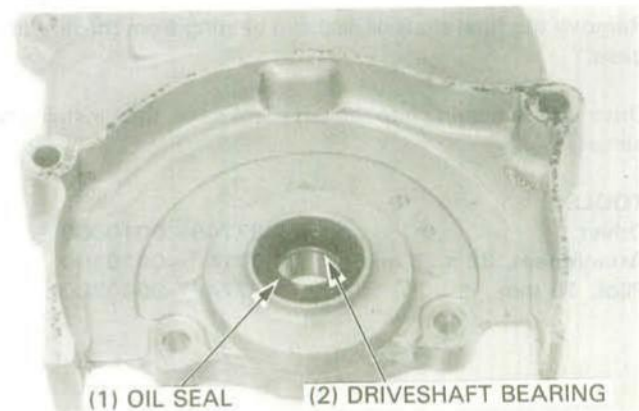
Check the final gear for wear, damage or signs of seizure.



Remove the driveshaft oil seal from the cover.
Inspect the transmission case and cover oil seals and bearings.

Turn the inner race of each bearing with your finger. The bearings should be turn smoothly and quietly. Also check that the bearing outer race has not been spinning in the case or cover.

Discard the bearings if the races do not turn smoothly and quietly, or if they have been spinning in place.

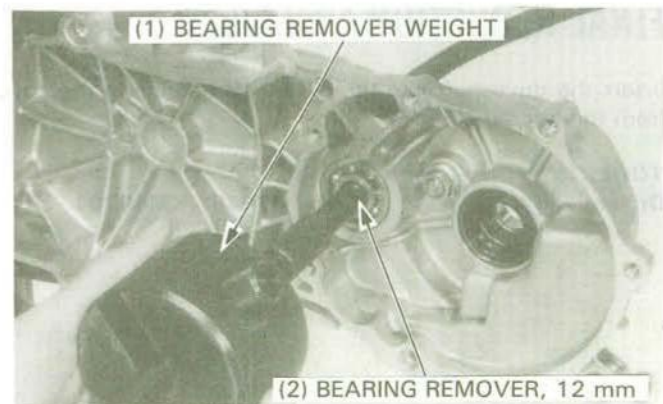


BEARING REPLACEMENT

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

TOOLS:

Bearing remover set, 12 mm	07936-1660001
— Bearing remover, 12 mm	07936-1660100
— Bearing remover weight	07741-0010201 or 07936-3710200

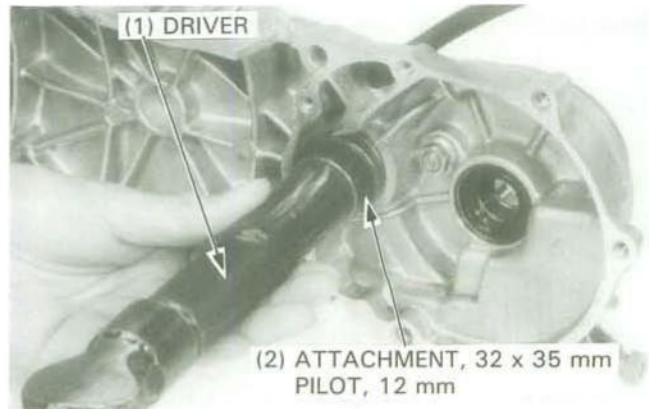


FINAL REDUCTION

Drive a new driveshaft bearing into the left crankcase.

TOOLS:

Driver	07749-0010000
Attachment, 32 x 35 mm	07746-0010100
Pilot, 12 mm	07746-0040200

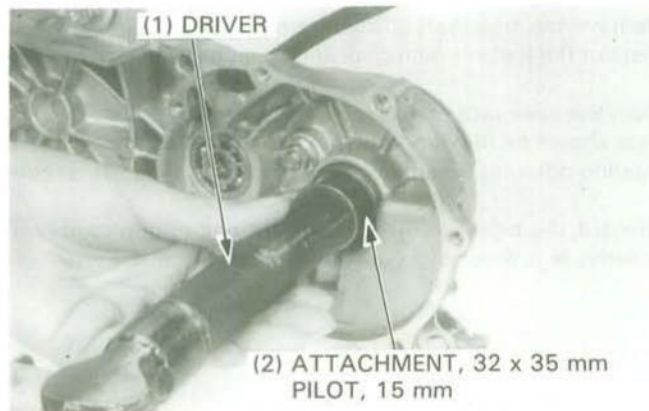


Remove the final shaft oil seal and bearing from the left crankcase.

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

TOOLS:

Driver	07749-0010000
Attachment, 32 x 35 mm	07746-0010100
Pilot, 15 mm	07746-0040300

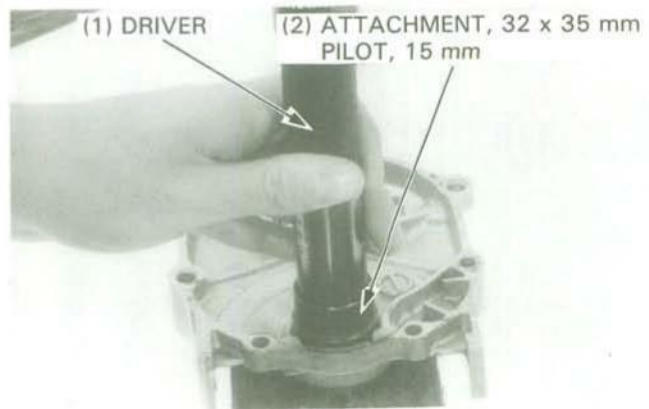


Remove the driveshaft oil seal and bearing from the transmission cover.

Drive a new driveshaft bearing into the transmission cover.

TOOLS:

Driver	07749-0010000
Attachment, 32 x 35 mm	07746-0010100
Pilot, 15 mm	07746-0040300

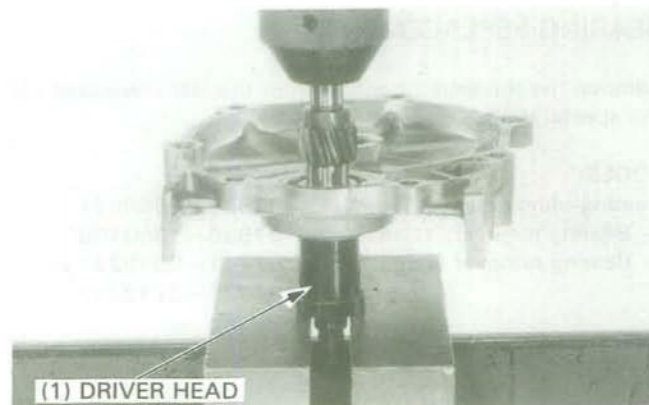


FINAL REDUCTION ASSEMBLY

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

TOOL:

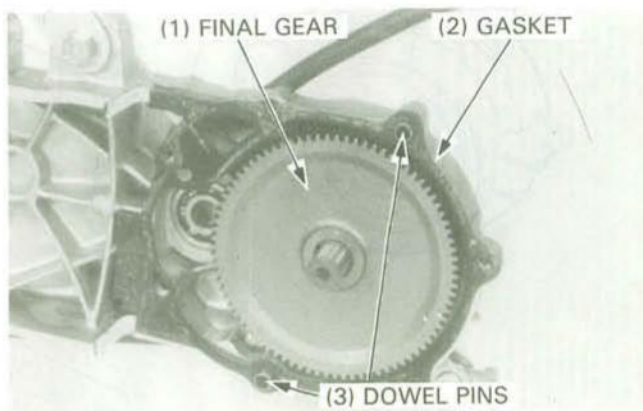
Driver head	07946-KM40701
-------------	---------------



Install a new oil seal.



Install the final shaft and final gear in the case.
Install a new gasket and dowel pins.



Install the following:

- transmission cover.
- clutch/driven pulley (page 8-10).
- drive belt, pulley driven gear and left crankcase cover (page 8-6).
- rear wheel (page 13-2).

Remove the oil check bolt and pour the specified amount of oil through the filler opening.

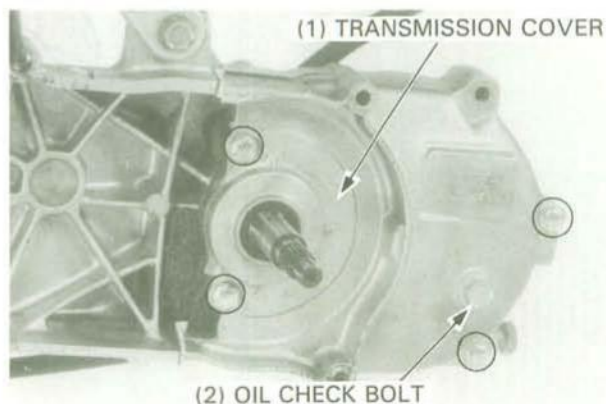
SPECIFIED OIL: HONDA 4-STROKE OIL

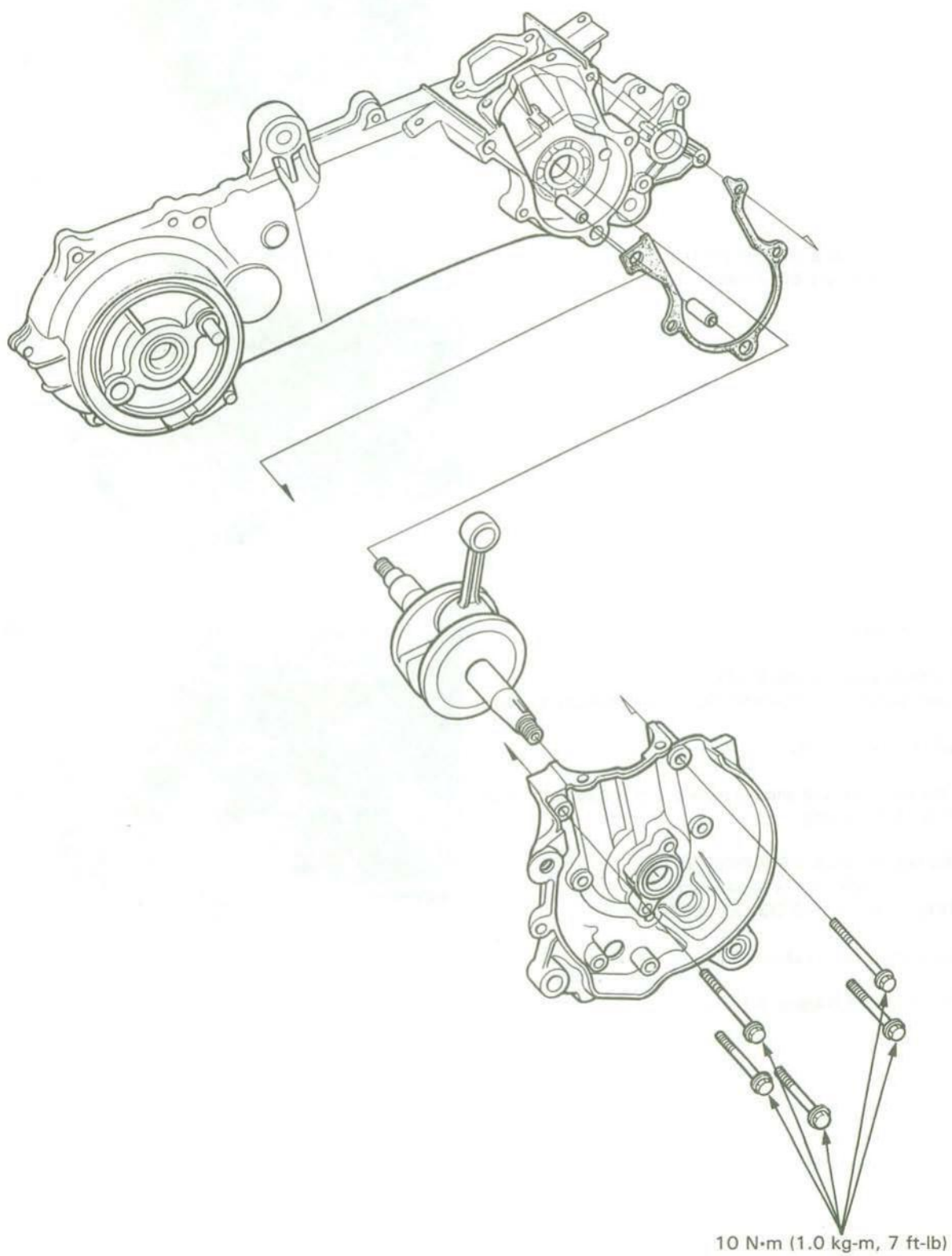
10W-40 or equivalent

QUANTITY: 90 cc (3.0 US oz., 2.5 Imp oz.)

Install and tighten the oil check bolt.

TORQUE: 13 N·m (1.3 kg-m, 9 ft-lb)





10. CRANKCASE/CRANKSHAFT

SERVICE INFORMATION	10-1	CRANKSHAFT INSPECION	10-2
TROUBLESHOOTING	10-1	CRANKSHAFT ASSEMBLY	10-4
CRANKCASE SEPARATION	10-2	CRANKCASE ASSEMBLY	10-5
CRANKSHAFT REMOVAL	10-2		

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)
 - Alternator (Section 7)
 - Cylinder head, cylinder (Section 6)
 - Starter motor (Section 14)
- In addition to the above, remove the following parts when the left crankcase half must be replaced:
 - Rear wheel (Section 13)
 - Final reduction (Section 9)

SPECIFICATIONS

ITEM		STANDARD mm (in)	SERVICE LIMIT mm (in)
Connecting rod big end side clearance		—	0.5 (0.02)
Connecting rod big end radial clearance		—	0.04 (0.0016)
Crankshaft runout	A	—	0.15 (0.006)
	B	—	0.10 (0.004)

TORQUE VALUE

Crankcase bolt 10 N·m (1.0 kg-m, 7 ft-lb)

TOOLS

Special

Universal bearing puller 07631—0010000 or Equivalent commercially available in U.S.A.
Case puller 07935—GK80000
Assembly collar 07965—GM00100
Assembly bolt 07965—GM00300

Common

Attachment, 37 x 40 mm 07746—0010200
Pilot, 17 mm 07746—0040400
Attachment, 42 x 47 mm 07746—0010300
Pilot, 20 mm 07746—0040500
Driver 07749—0010000

TROUBLESHOOTING

Abnormal engine noise

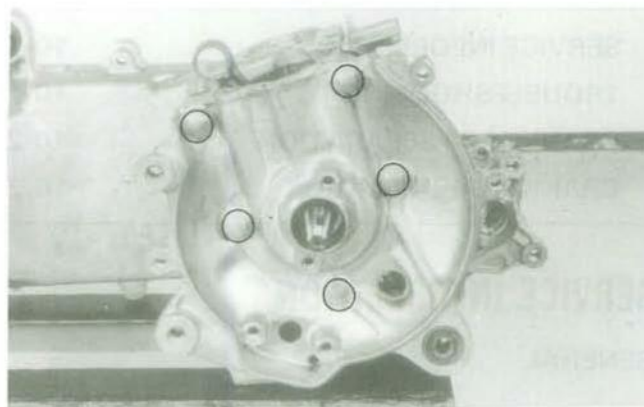
- Worn main journal bearing
- Worn crankpin bearing
- Worn transmission bearing

CRANKCASE/CRANKSHAFT

CRANKCASE SEPARATION

Refer to page 10-1 and remove the parts listed in General Information.

Remove the crankcase attaching bolts.

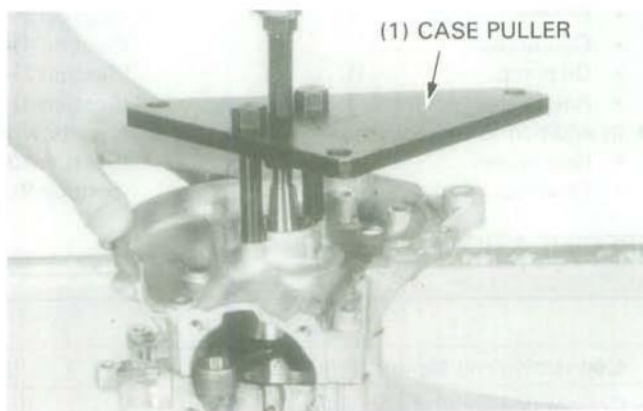


Attach the special tool on the right crankcase as shown. Separate the right crankcase half.

TOOL:

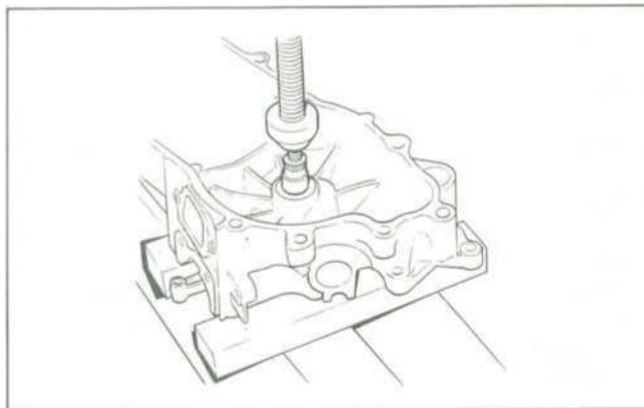
Case puller

07935—GK80000



CRANKSHAFT REMOVAL

Use a hydraulic press or case puller 07935—GK80000 to remove the crankshaft.



CRANKSHAFT INSPECTION

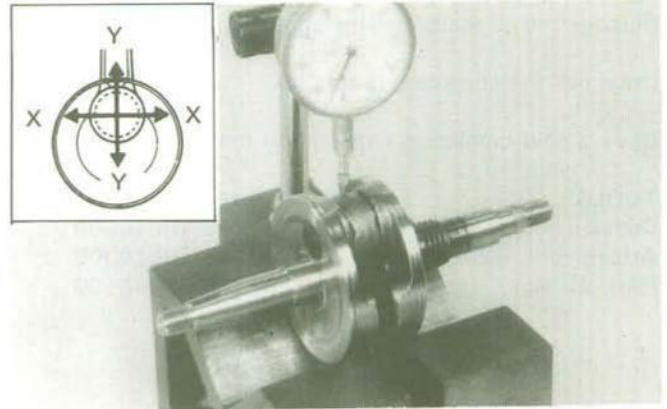
Measure the connecting rod big end side clearance with a feeler gauge.

SERVICE LIMIT: 0.5 mm (0.02 in)



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

SERVICE LIMIT: 0.04 mm (0.0016 in)

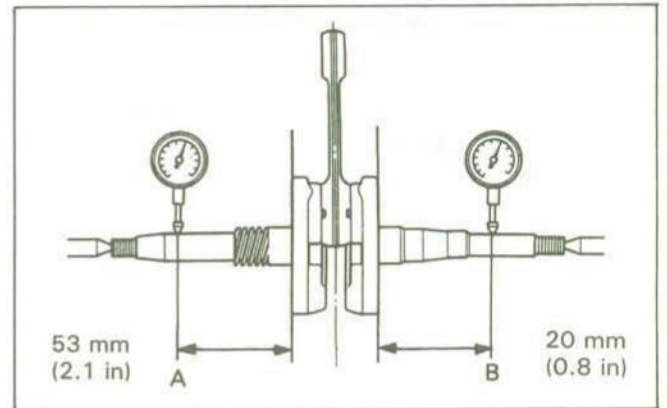


Set the crankshaft on a stand or V-blocks and read runout using a dial gauge.

SERVICE LIMITS:

A: 0.15 mm (0.006 in)

B: 0.10 mm (0.004 in)



BEARING INSPECTION

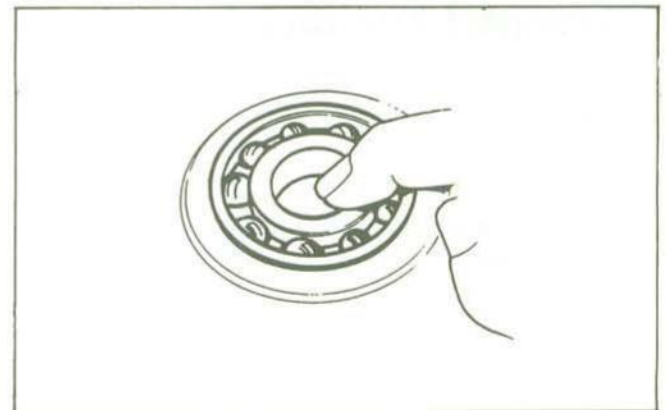
Turn the inner race of each bearing with your finger. The bearings should turn smoothly and quietly. Also check that the bearing outer race has not been spinning in the crankcase.

Discard the bearings if the races do not turn smoothly and quietly, or if they have been spinning in the crankcase.

When the bearing stays on the crankshaft spin the bearing outer and check for smooth and quiet spinning.

NOTE

- Replace crankshaft ball bearings in pairs.



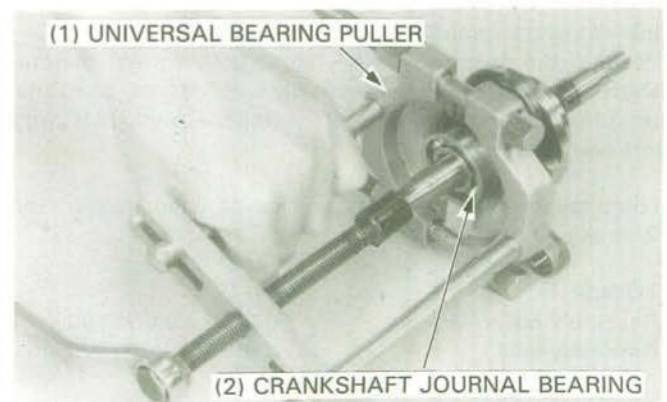
CRANKSHAFT BEARING REPLACEMENT

Remove the crankshaft bearing from the crankshaft, if necessary.

TOOL:

Universal bearing puller

07631-0010000 or
equivalent commercially
available in U.S.A.



CRANKCASE/CRANKSHAFT

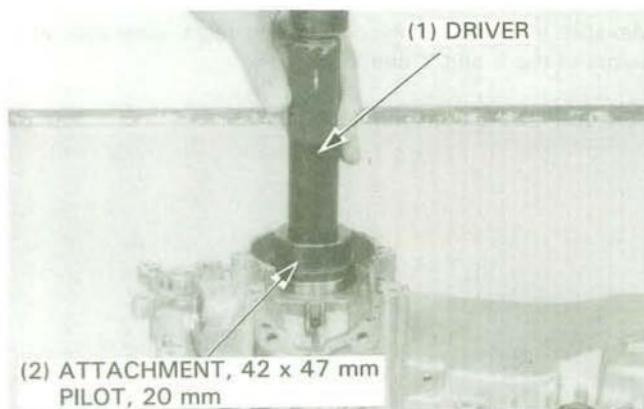
Remove the oil seals from the right and left crankcase.

Drive out the crankcase bearing(s).

Drive a new crankshaft bearing into the left crankcase.

TOOLS:

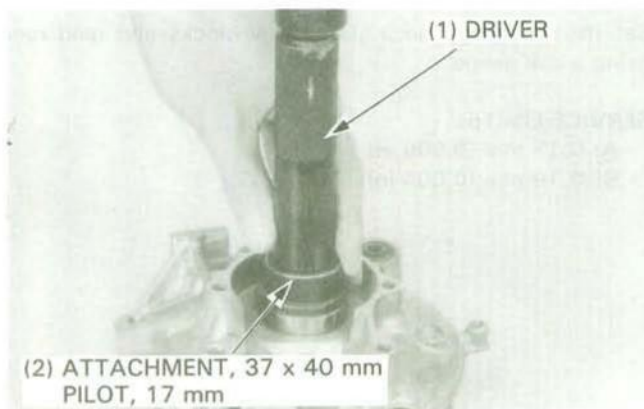
Driver	07749-0010000
Attachment, 42 x 47 mm	07746-0010300
Pilot, 20 mm	07746-0040500



Drive a new crankshaft bearing into the right crankcase.

TOOLS:

Driver	07749-0010000
Attachment, 37 x 40 mm	07746-0010200
Pilot, 17 mm	07746-0040400



CRANKSHAFT ASSEMBLY

Wash the crankshaft in solvent and blow dry with compressed air. Check for cracks or other faults.

Apply clean 2-stroke injector oil to all moving and sliding surfaces.

Remove all gasket material from the crankcase mating surfaces. Dress any roughness or irregularities with an oil stone.



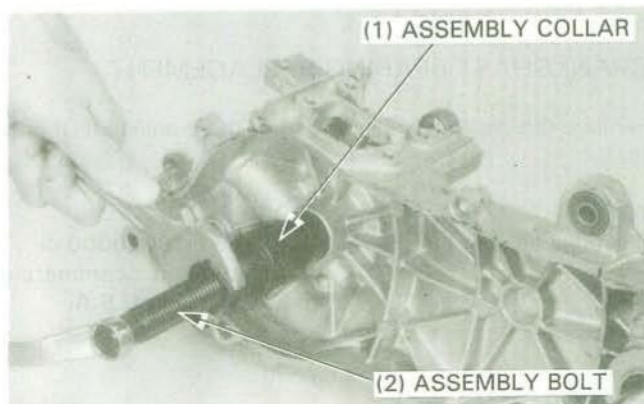
Install the crankshaft into the left crankcase.

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 left crankcase.

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

TOOLS:

Assembly collar	07965-GM00100
Assembly bolt	07965-GM00300

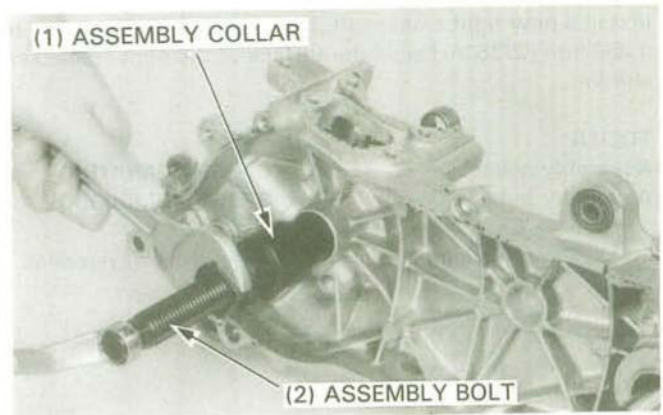


Install a new left crankshaft oil seal using the opposite side of the assembly collar as shown.

TOOLS:

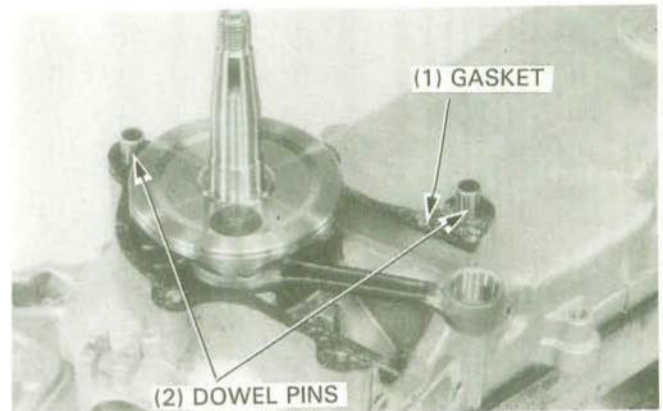
Assembly collar
Assembly bolt

07965—GM00100
07965—GM00300



CRANKCASE ASSEMBLY

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

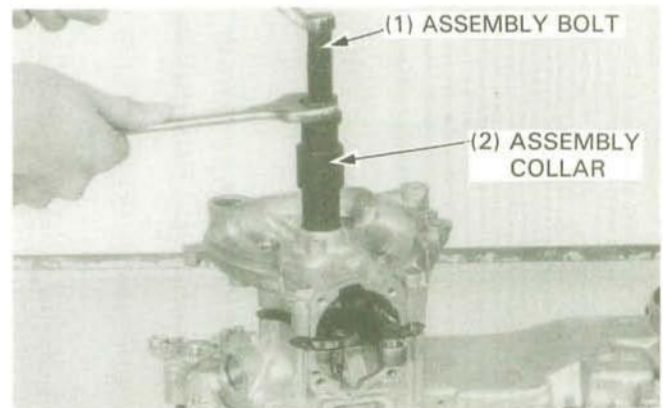


Assemble the crankcase halves; place the collar with the small O.D. against the right crankshaft bearing. Thread the bolt through the collar onto the crankshaft. Hold the bolt and turn the nut clockwise to draw the crankcase halves together.

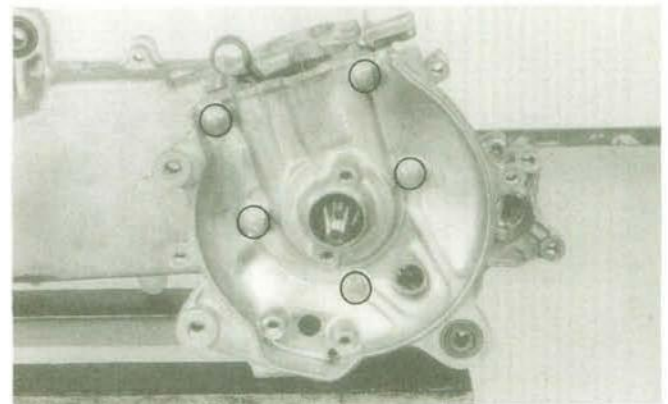
TOOLS:

Assembly collar
Assembly bolt

07965—GM00100
07965—GM00300



Install the crankcase attaching bolts.



CRANKCASE/CRANKSHAFT

Install a new right crankshaft oil seal using the same tool until it is 9 mm (0.35 in) below the surface of the right crankcase as shown.

TOOLS:

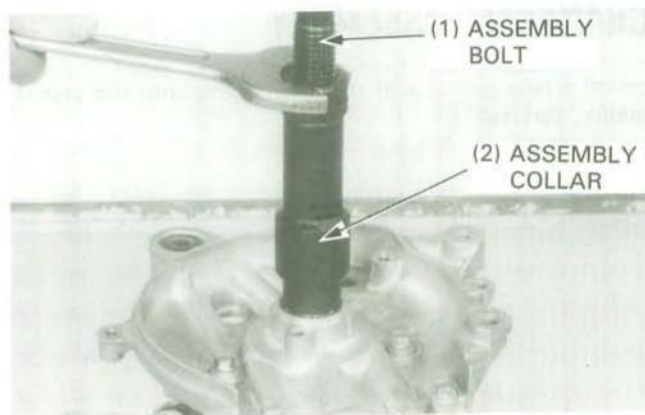
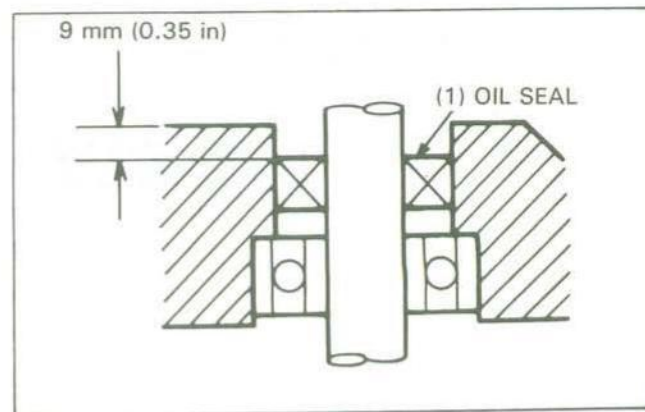
Assembly collar

07965—GM00100

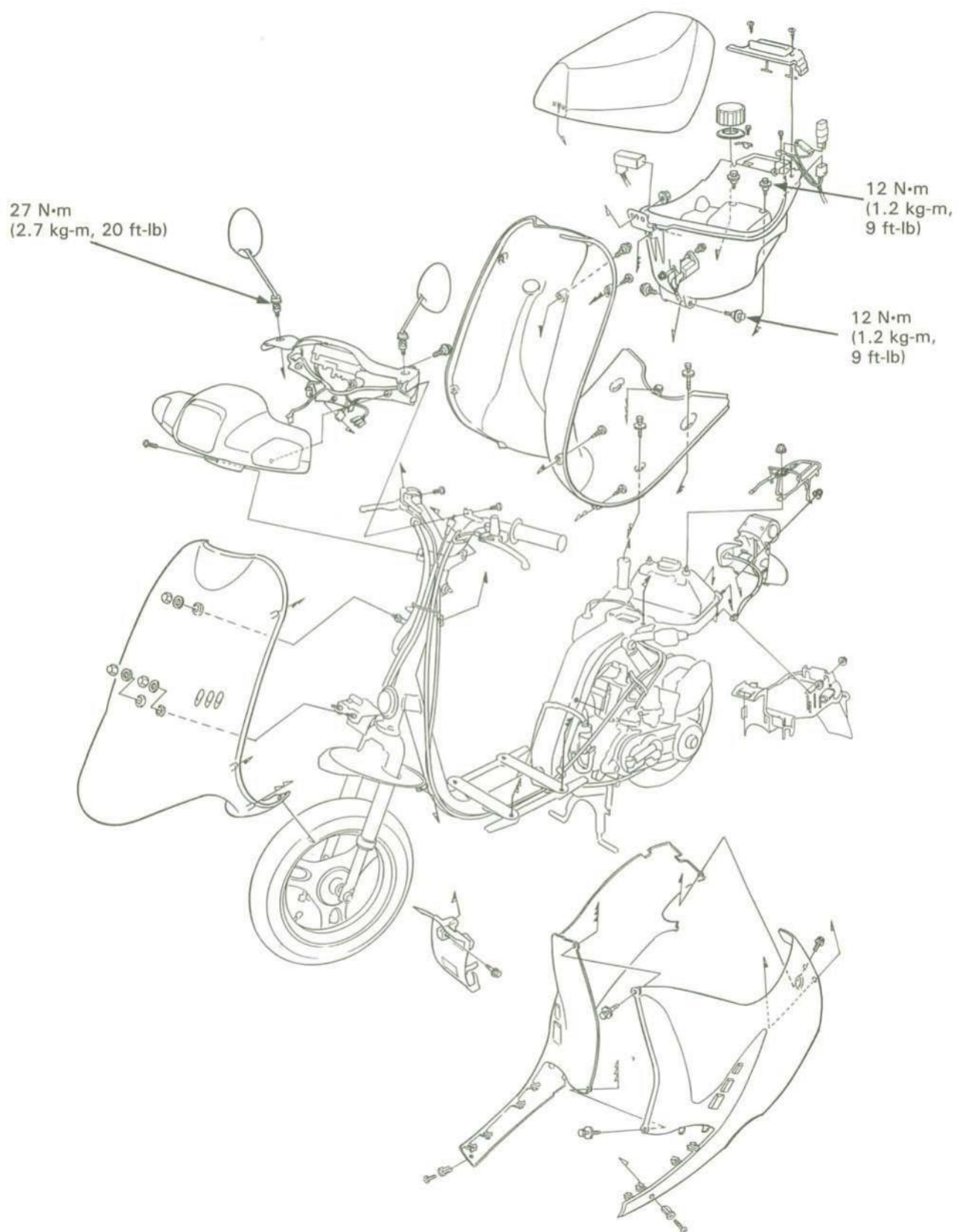
Assembly bolt

07965—GM00300

Install the removed parts in the reverse order of removal.



MEMO



11. FRAME COVERS

SERVICE INFORMATION	11-1	TRUNK	11-4
FRAME SIDE COVERS	11-2	HANDLEBAR COVER	11-4
FRONT COVER	11-3	MUD GUARD	11-5
LEG SHIELD	11-3	REAR FENDER	11-5

SERVICE INFORMATION

GENERAL

- This section covers the removal and installation of the frame covers.
- When installing the covers, align each locking tab properly and be careful not to pinch the wires.

TORQUE VALUES

Mirror assembly lock nut	27 N·m (2.7 kg-m, 20 ft-lb)
Trunk mounting bolt	12 N·m (1.2 kg-m, 9 ft-lb)

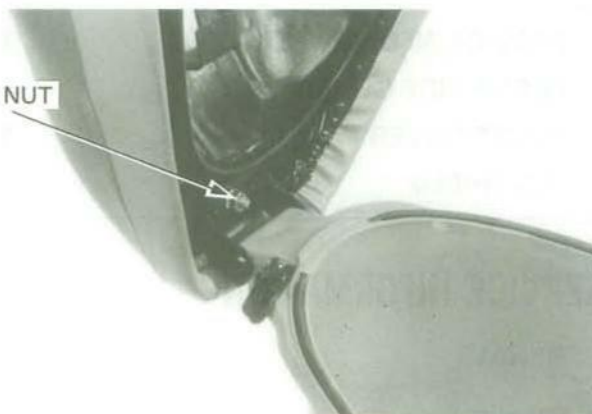
FRAME COVERS

FRAME SIDE COVERS

REMOVAL

Release the seat using the ignition key, then remove the seat by removing the nut.

(1) NUT



Disconnect the taillight wire connector.

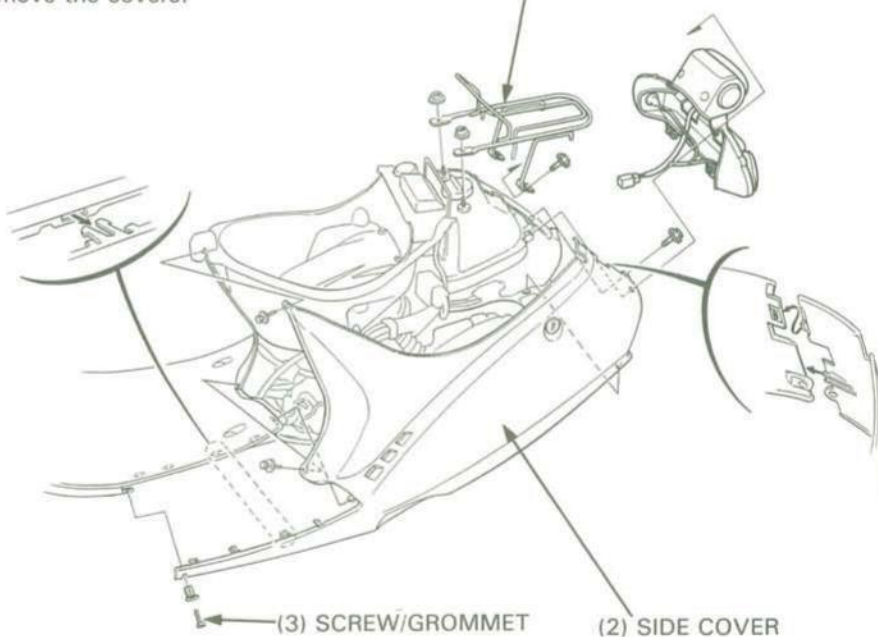
Remove the carrier by removing the two bolts and two nuts.

Remove the taillight by removing the two bolts.

Remove the two screws/washers that join the left and right covers.

Remove the screws/grommets from the frame, carefully separate the cover tabs and remove the covers.

(1) CARRIER



INSTALLATION

Install the right and left frame side covers in the reverse order of removal.

FRONT COVER

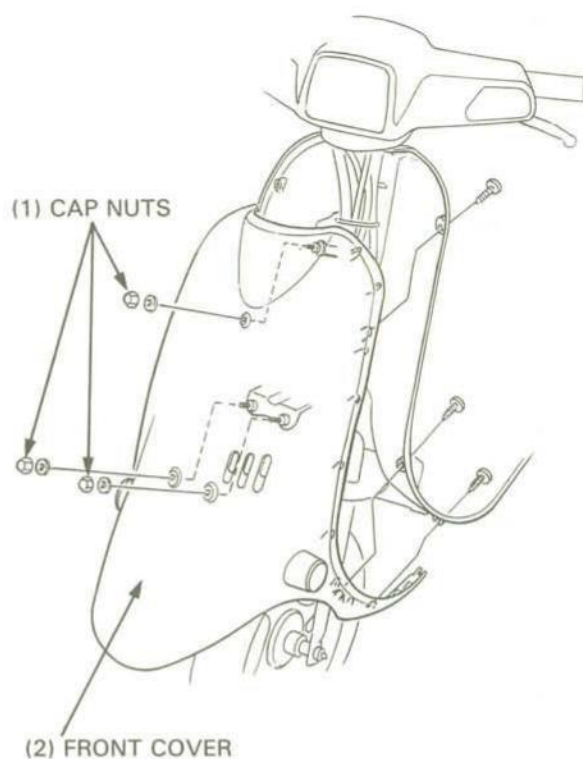
REMOVAL

Remove the six screws securing the leg shield to the front cover.

Remove the three front cover cap nuts and the front cover.

INSTALLATION

Install the front cover in the reverse order of removal.



LEG SHIELD

Remove the frame side covers.

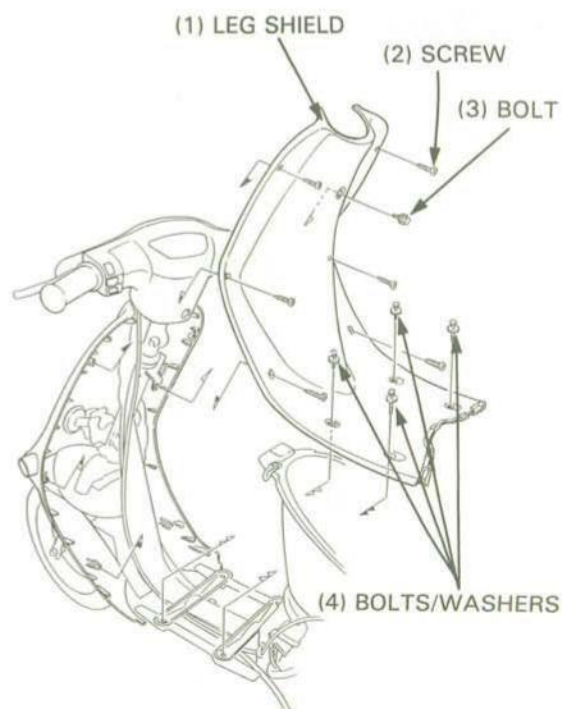
Remove the six screws, five bolts and the leg shield.

CAUTION

- Do not pry the leg shield and front cover mating surface with a screwdriver etc.

INSTALLATION

Install the leg shield in the reverse order of removal.



FRAME COVERS

TRUNK

REMOVAL

Release the seat using the ignition key, then remove the seat by removing the nut.

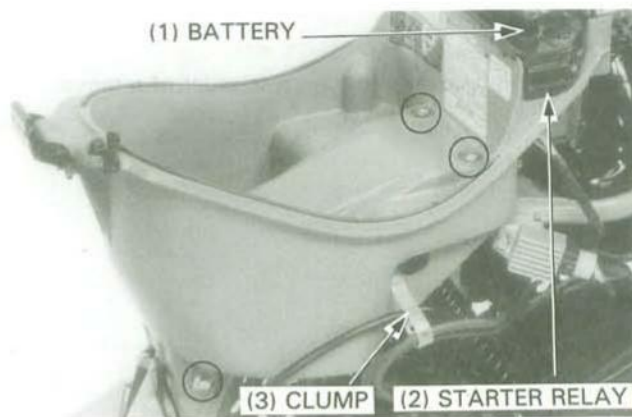
Remove the oil tank cap and rubber seal.
Remove the ignition coil.
Pull out the CDI unit.



Pry open the cable clamp and remove the fuel and vacuum tubes and the throttle cable.

Remove the battery (page 14-3) and the starter relay.

Remove the trunk by removing the four mounting bolts.



INSTALLATION

Installation is the reverse order of removal.

TORQUE:

Trunk mounting bolts: 12 N·m (1.2 kg-m, 9 ft-lb)

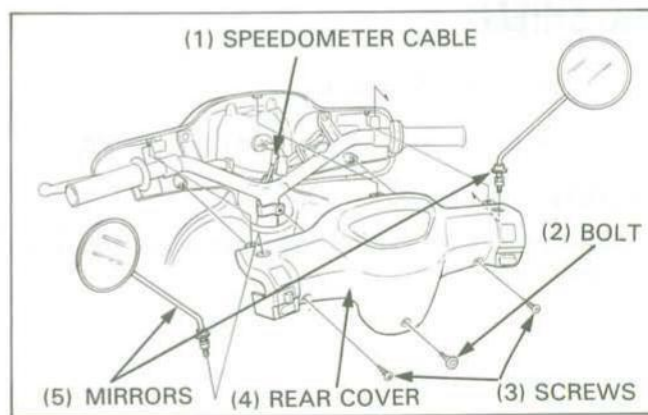
HANDLEBAR COVERS

REMOVAL

Remove the rear view mirrors.

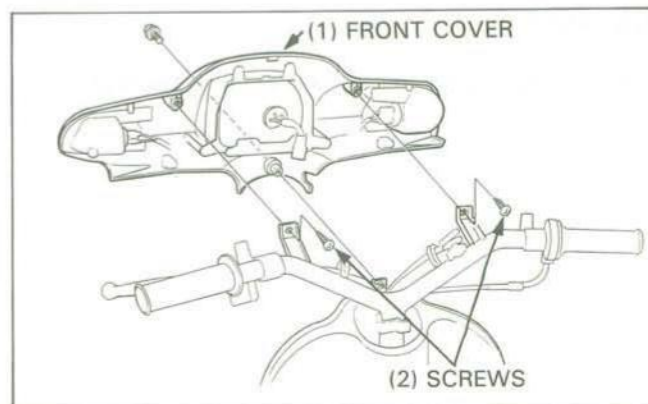
Remove the rear cover by removing two screws and one bolt.

Disconnect the speedometer cable and the handlebar switch connectors.



Remove the two screws.

Slide the front cover forward after disconnecting the headlight and turn signal connectors.



INSTALLATION

Installation is the reverse order of removal.

TORQUE: Mirrors: 27 N·m (2.7 kg-m, 20 ft-lb)

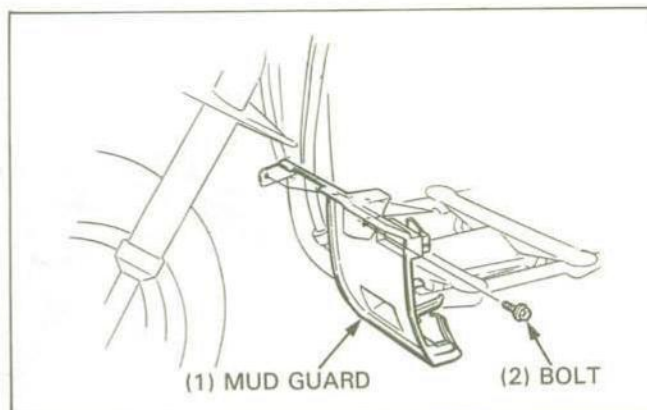
MUD GUARD

REMOVAL

Remove the mud guard by removing the one bolt.

INSTALLATION

Installation is the reverse order of removal.



REAR FENDER

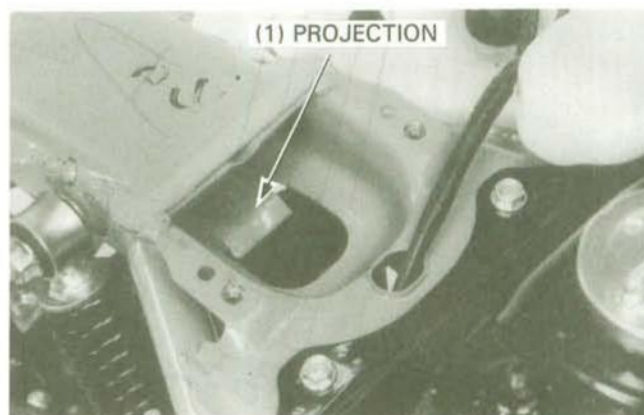
REMOVAL

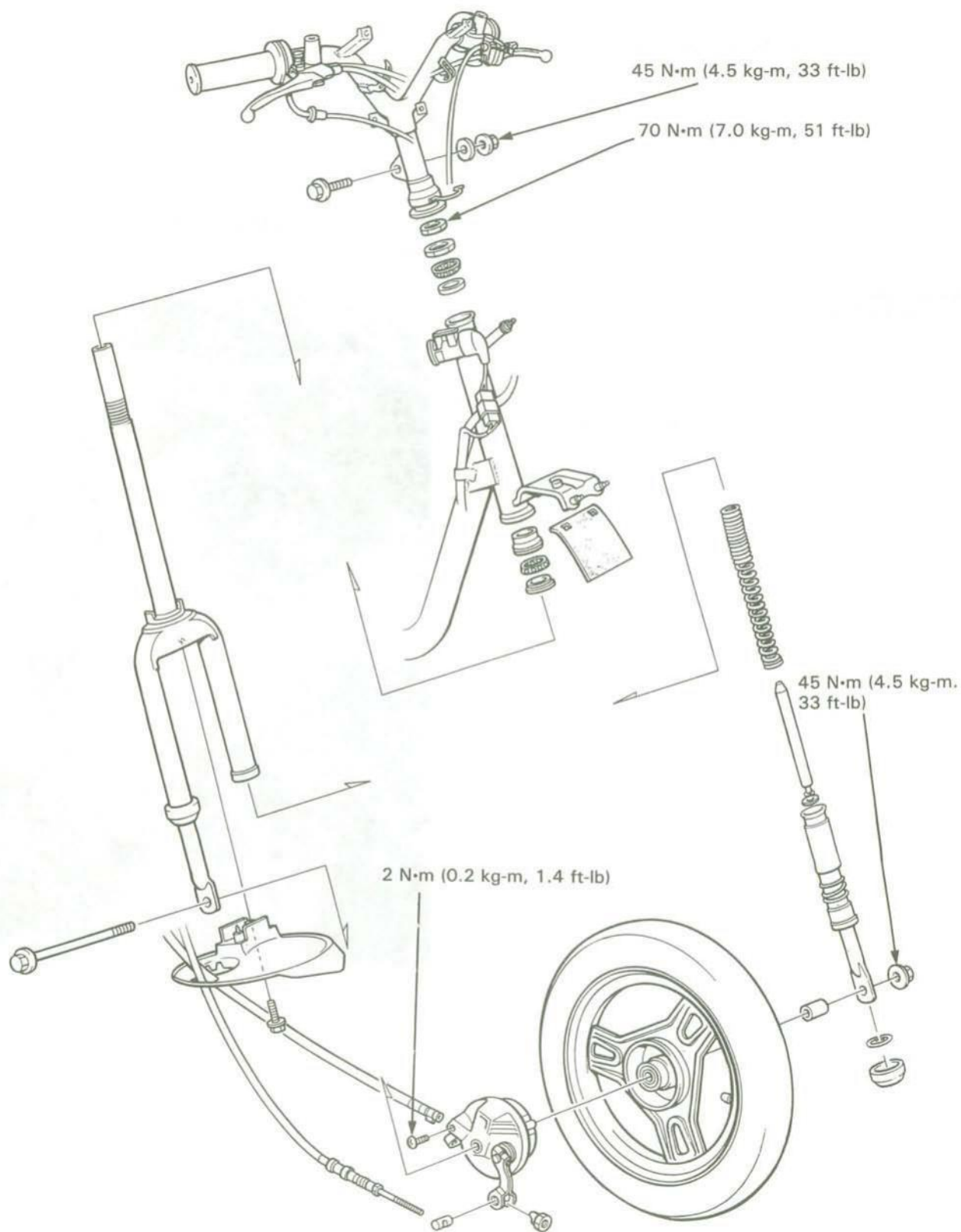
Remove the two fender mounting bolts and separate the fender from the frame projection, then slide the fender down and off.



INSTALLATION

Install the rear fender in the reverse order of removal.





12. STEERING/FRONT WHEEL/BRAKE/SUSPENSION

SERVICE INFORMATION	12-1	FRONT BRAKE	12-7
TROUBLESHOOTING	12-2	FRONT SHOCK ABSORBERS	12-9
HANDLEBAR	12-3	STEERING STEM	12-11
FRONT WHEEL	12-4		

SERVICE INFORMATION

GENERAL

▲ WARNING

- *Inhaled asbestos fibers have been found to cause respiratory disease and cancer. Never use an air hose or dry brush to clean brake assemblies. Use OSHA-approved vacuum cleaner or alternate method approved by OSHA designed to minimize the hazard by airborne asbestos fibers.*

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)
Brake drum I.D.		80.0 (3.15)	80.5 (3.17)
Brake lining thickness		4.0 (0.16)	2.0 (0.08)
Front shock absorber spring free length		172.1 (6.78)	165.4 (6.51)

TORQUE VALUES

Throttle housing bolt	4 N·m (0.4 kg-m, 2.9 ft-lb)
Rear brake lever bracket bolt	4 N·m (0.4 kg-m, 2.9 ft-lb)
Handlebar pinch bolt	45 N·m (4.5 kg-m, 33 ft-lb)
Steering stem lock nut	70 N·m (7.0 kg-m, 51 ft-lb)
Front axle nut	45 N·m (4.5 kg-m, 33 ft-lb)
Speedometer cable set screw	2 N·m (0.2 kg-m, 1.4 ft-lb)
Brake arm bolt	6 N·m (0.6 kg-m, 4.3 ft-lb)

TOOLS

Special

Attachment, 28 x 30 mm	07946—1870100
Lock nut wrench	07916—KM10000
Lock nut wrench, 45 mm	07916—1870101 or equivalent commercially available in U.S.A.
Ball race remover	07946—GA70000
Snap ring pliers	07914—3230001

Common

Pilot, 10 mm	07746—0040100
Driver	07749—0010000
Bearing remover shaft	07746—0050100 or equivalent commercially available in U.S.A.
Bearing remover head, 10 mm	07746—0050200
Attachment, 42 x 47 mm	07746—0010300

TROUBLESHOOTING

Hard steering

- Steering stem nut too tight
- Steering top cone race/nut too tight
- Damaged steering balls and races
- Insufficient tire pressure

Steers to one side or does not track straight

- Bent front fork
- Bent front axle
- Bent spoke plate

Front wheel wobbling

- Bent rim
- Axle not tightened properly
- Bent spoke plate
- Excessive wheel bearing play
- Faulty or unevenly worn tire

Soft suspension

- Weak shock absorber springs

Front suspension noise

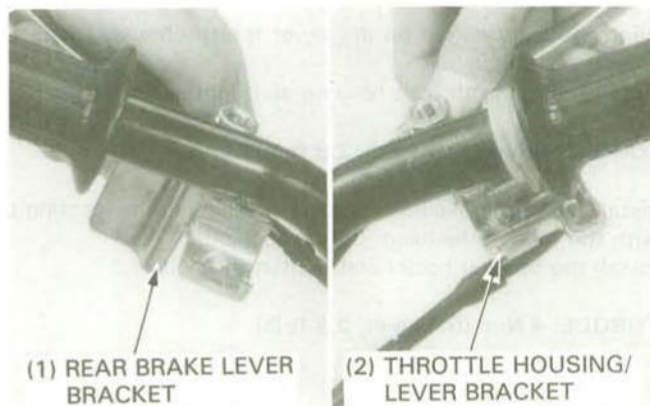
- Shock absorber spring binding
- Loose fork fasteners

HANDLEBAR

REMOVAL

Remove the front cover and handlebar covers (with the speedometer and headlight; Section 11).

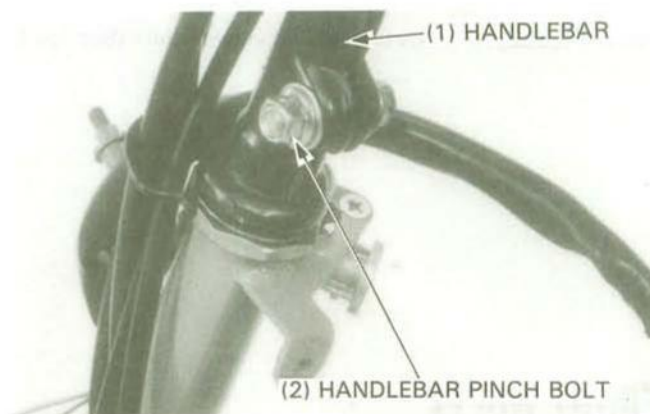
Remove the rear brake lever bracket and throttle housing/lever bracket by removing the mounting bolts. Disconnect the throttle cable from the throttle pipe.



(1) REAR BRAKE LEVER BRACKET

(2) THROTTLE HOUSING/LEVER BRACKET

Remove the handlebar pinch bolt and the handlebar.



(1) HANDLEBAR

(2) HANDLEBAR PINCH BOLT

INSTALLATION

Install the handlebar over the steering stem, aligning the lug on the handlebar with the groove in the stem. Install and tighten the handlebar pinch bolt.

TORQUE: 45 N·m (4.5 kg-m, 33 ft-lb)



(1) LUG

(2) GROOVE

STEERING/FRONT WHEEL/BRAKE/SUSPENSION

Apply grease to the inside of the throttle pipe and the cable end and install the throttle pipe, then connect the throttle cable.

Apply Honda Bond A or Honda Hand Grip Cement (U.S.A. only) to the inside surfaces of the grips and to the clean surface of the left handlebar and throttle pipe. Wait 3—5 minutes and install the grips. Rotate the grips for even application of the adhesive.

NOTE

- Allow the adhesive to dry for an hour before using.



Align the locating pin on the lower throttle housing with the hole in the handlebar.

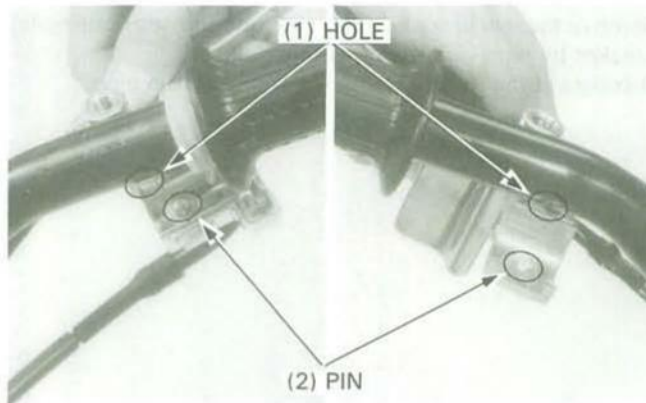
Install the upper throttle housing and tighten the bolt.

TORQUE: 4 N·m (0.4 kg-m, 2.9 ft-lb)

Install the rear brake lever bracket by aligning the locating pin with the hole in the handlebar using clamp.

Install the bracket holder and tighten the bolt.

TORQUE: 4 N·m (0.4 kg-m, 2.9 ft-lb)



Install the handlebar covers and rear view mirrors (Section 11).

FRONT WHEEL

REMOVAL

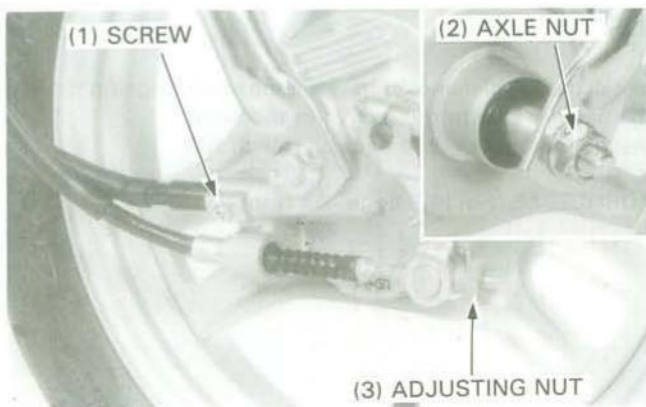
Raise the front wheel off the ground by placing a jack or block under the frame.

Remove the speedometer cable set screw and disconnect the speedometer cable from the brake panel.

Remove the front brake adjusting nut and disconnect the brake cable from the brake arm and panel.

Remove the axle nut, then pull out the axle and remove the front wheel.

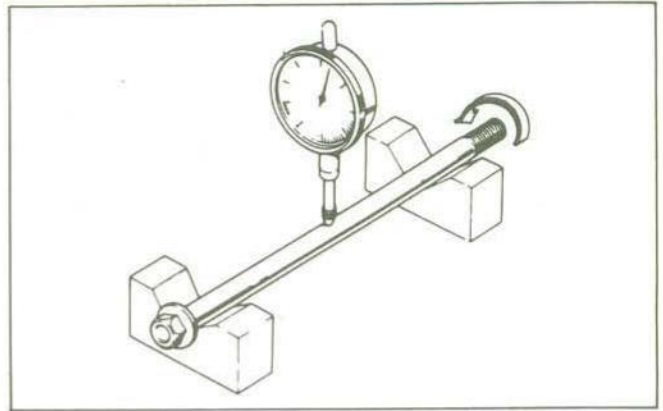
Remove the brake panel.



INSPECTION**Axle**

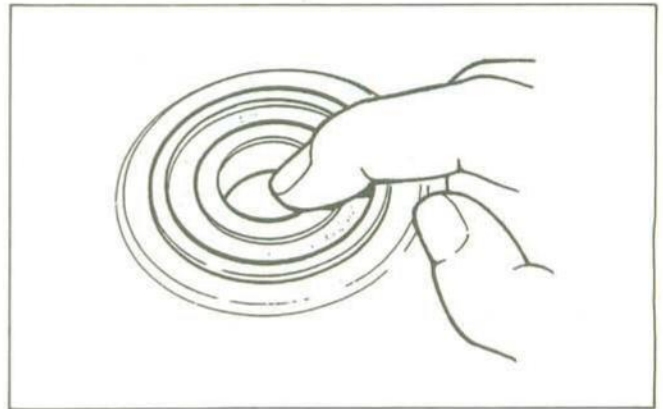
Set the axle in V blocks and measure the runout.

SERVICE LIMIT: 0.2 mm (0.01 in)

**Bearing**

Turn the inner race of the bearing with your finger. The bearing should turn smoothly and quietly. Also check that the bearing outer race fits tightly in the wheel hub.

Discard the bearing if it does not turn smoothly and quietly, or if it is loose in the hub.

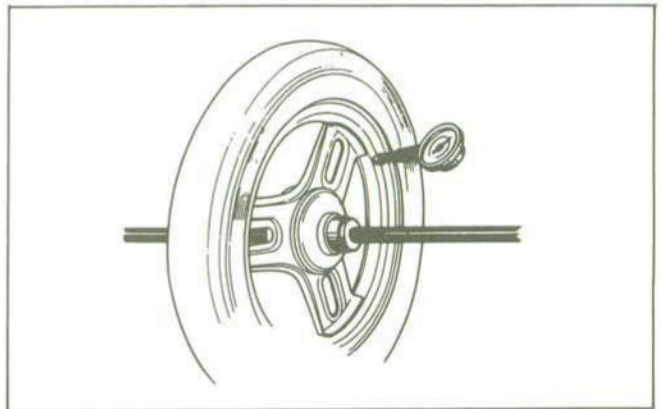
**Wheel rim**

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 indicator.

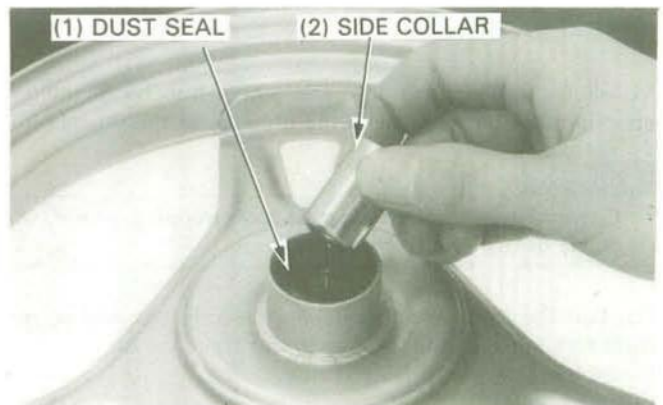
SERVICE LIMITS:

Radial: 2.0 mm (0.08 in)

Axial: 2.0 mm (0.08 in)

**BEARING REPLACEMENT**

Remove the axle side collar and dust seal from the wheel hub.



STEERING/FRONT WHEEL/BRAKE/SUSPENSION

Drive out the wheel bearings and remove the distance collar.

TOOLS:

Bearing remover shaft

07746-0050100 or
equivalent commercially
available in U.S.A.

Bearing remover head, 10 mm

07746-0050200 or
equivalent commercially
available in U.S.A.



Pack all bearing cavities with grease.

Drive in a new right bearing and install the distance collar, then drive in a new left bearing.

NOTE

- Install the bearings with their sealed ends facing out.

TOOLS:

Driver

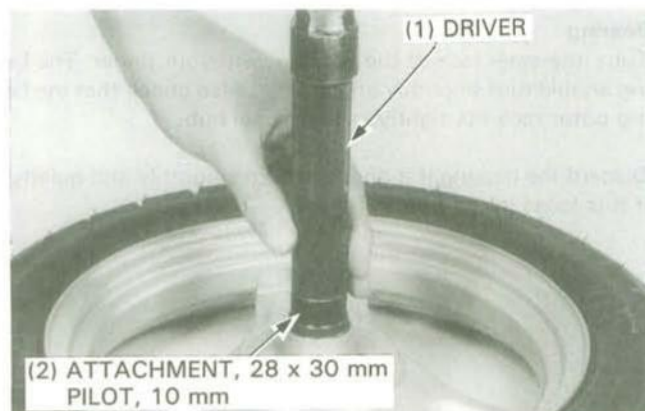
07749-0010000

Attachment, 28 x 30 mm

07946-1870100

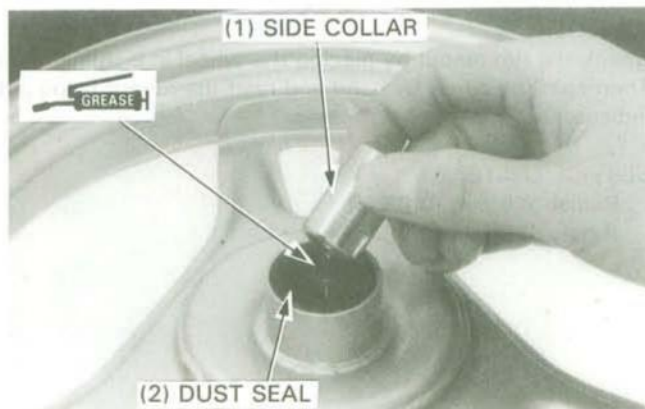
Pilot, 10 mm

07746-0040100



Install a new dust seal.

Apply grease to the inside of the dust seal and install the side collar.



INSTALLATION

Install the brake panel into the wheel hub by aligning the speedometer gear tabs with the grooves of the wheel hub.

⚠ WARNING

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

Position the front wheel between the fork legs and align the right fork leg with the groove in the brake panel. Insert the axle from the right side.



Install and tighten the axle nut.

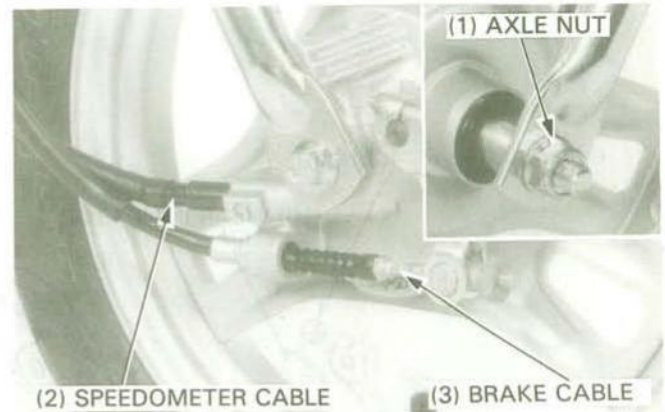
TORQUE: 45 N·m (4.5 kg-m, 33 ft-lb)

Connect the speedometer cable to the brake panel and tighten the set screw.

TORQUE: 2 N·m (0.2 kg-m, 1.4 ft-lb)

Connect the brake cable to the brake panel and brake arm and install the adjusting nut.

Adjust the front brake free play (page 3-5).



FRONT BRAKE

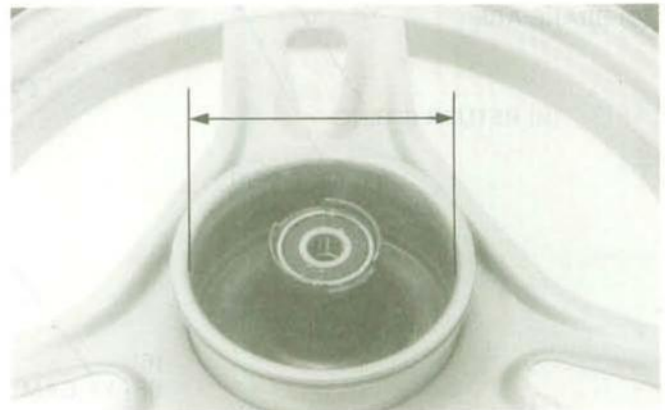
REMOVAL

⚠ WARNING

- Inhaled asbestos fibers have been found to cause respiratory disease and cancer. Never use an air hose or dry brush to clean brake assemblies. Use OSHA-approved vacuum cleaner or alternate method approved by OSHA designed to minimize the hazard by airborne asbestos fibers.*

Remove the front wheel (page 12-4).

Remove the brake panel from the wheel hub.



INSPECTION

Brake drum

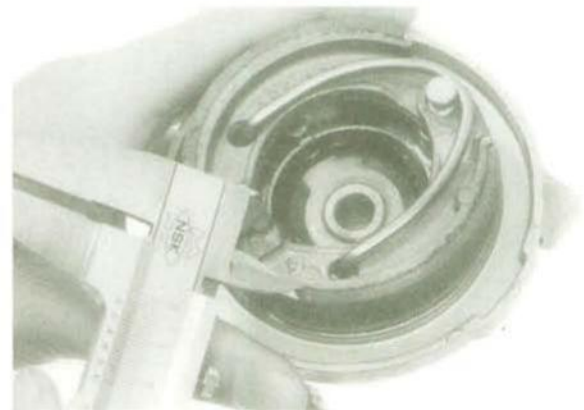
Measure the brake drum I.D.

SERVICE LIMIT: 80.5 mm (3.17 in)

Brake lining

Measure the brake lining thickness.

SERVICE LIMIT: 2.0 mm (0.08 in)

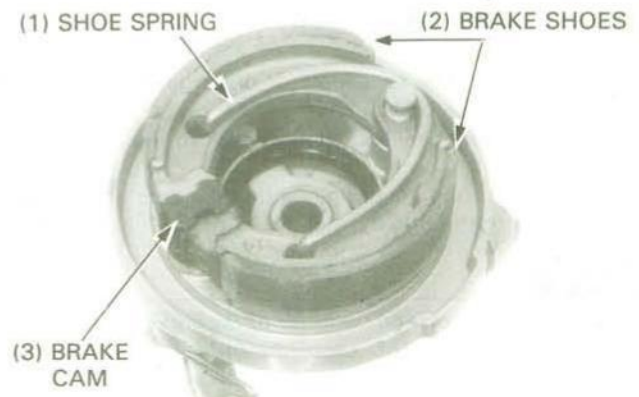


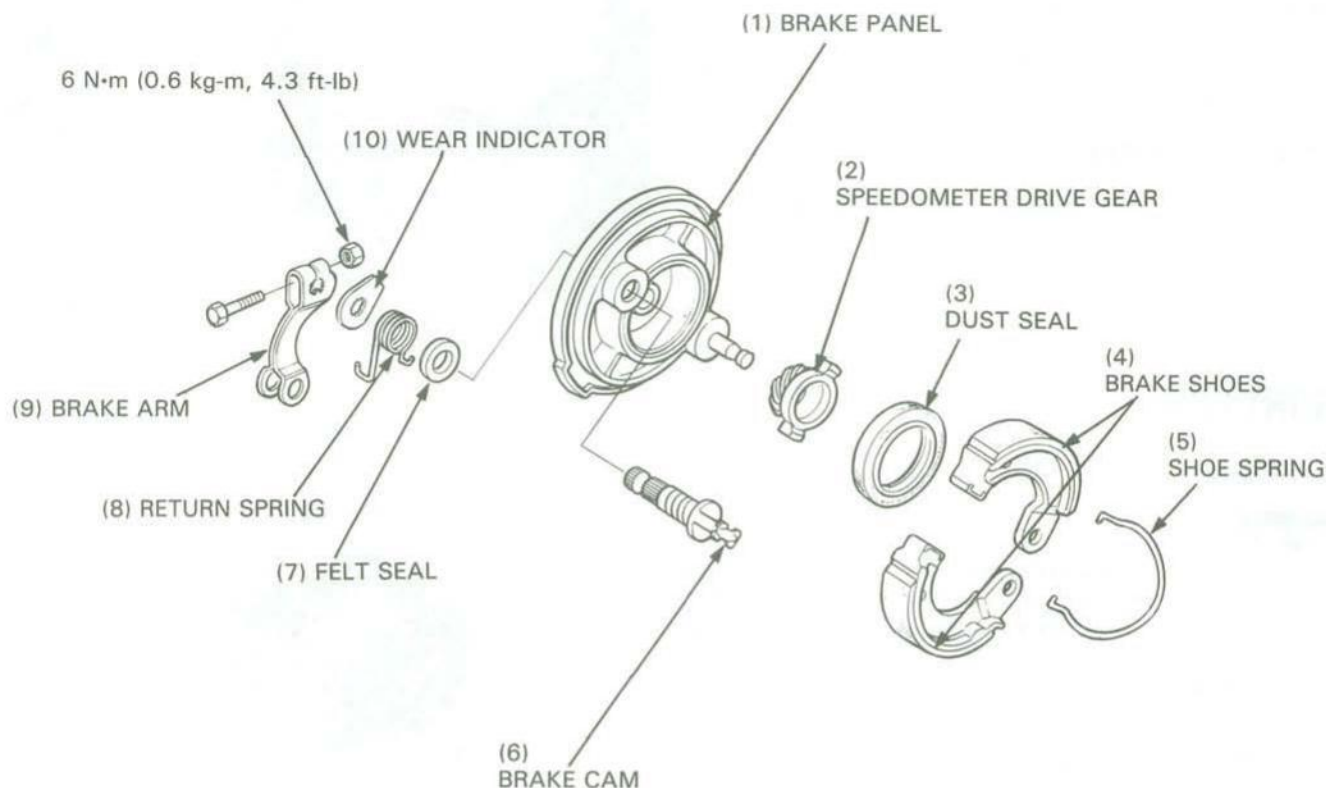
BRAKE PANEL DISASSEMBLY

Turn the brake arm and expand the brake shoes.

Pry the shoe spring off the anchor pin and remove the spring and brake shoes.

Remove the brake arm and cam, dust seal and speedometer drive gear.





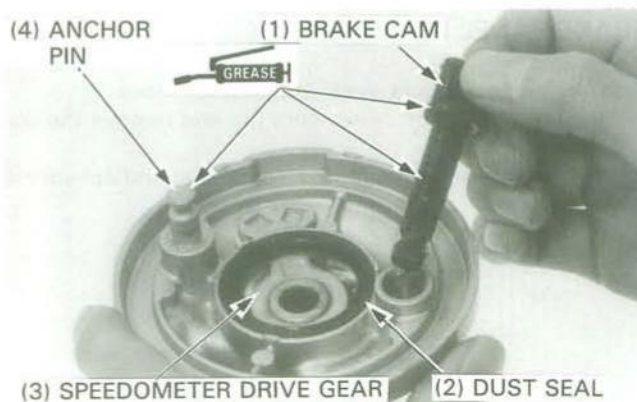
BRAKE PANEL ASSEMBLY

Apply grease to the speedometer drive gear and install the drive gear into the brake panel.
Install a new dust seal and apply grease to the seal lips.

Apply grease to the anchor pin and brake cam and install the brake cam into the brake panel.

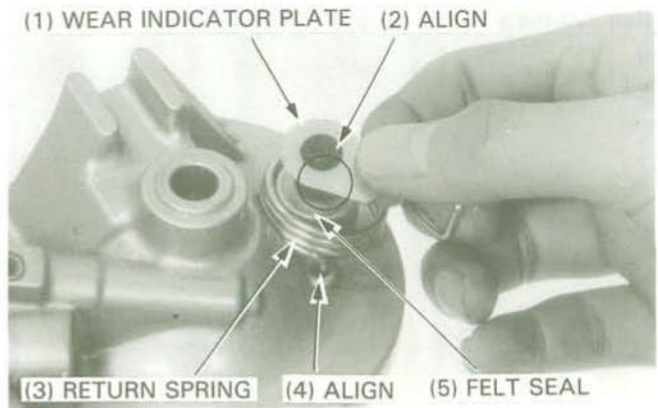
⚠ WARNING

- 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 brake arm return spring aligning its end with the hole in the brake panel.

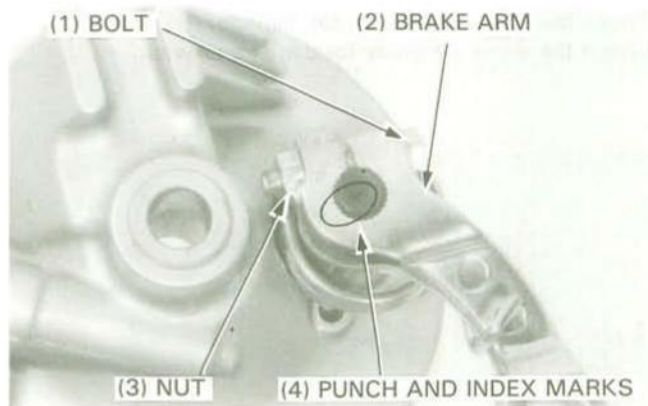
Apply clean oil to the felt seal and install it into the brake panel. Install the wear indicator plate onto the brake cam aligning its wide tooth with the wide groove on the cam.



Install the brake arm onto the brake cam, aligning the punch mark on the arm with the index mark on the cam.

Install and tighten the brake arm bolt and nut.

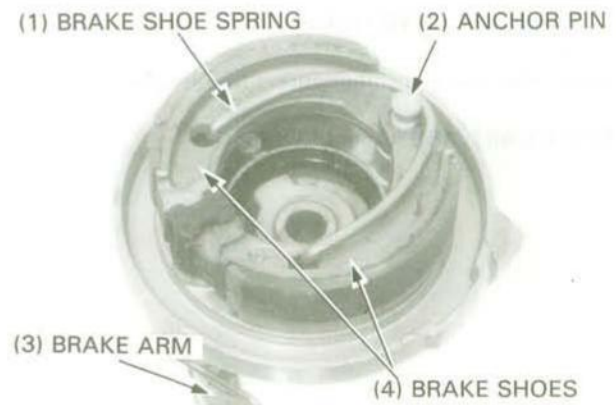
TORQUE: 6 N·m (0.6 kg-m, 4.3 ft-lb)



Install the brake shoes and shoe spring onto the brake panel. Turn the brake arm so that the brake shoes are expanded and press the spring over the anchor pin.

INSTALLATION

Install the brake panel into the wheel hub. Install the front wheel (page 12-7).



FRONT SHOCK ABSORBERS

REMOVAL

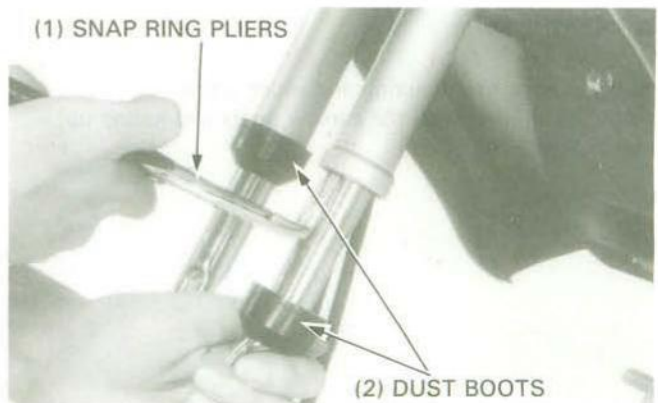
Remove the front wheel (page 12-4).

Slide the dust boots down and remove the snap rings.

TOOL:

Snap ring pliers

07914-3230001

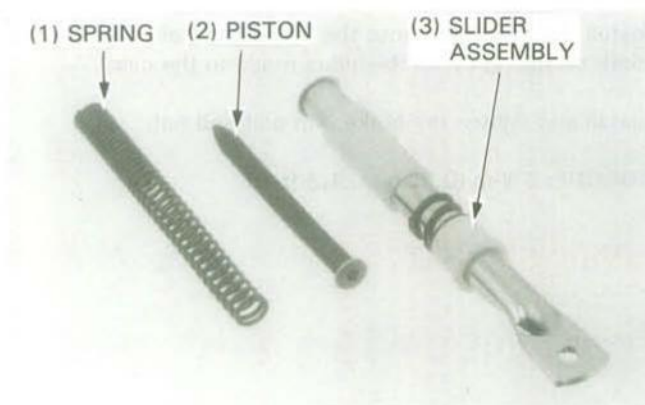


STEERING/FRONT WHEEL/BRAKE/SUSPENSION

Remove the shock slider, spring and piston.



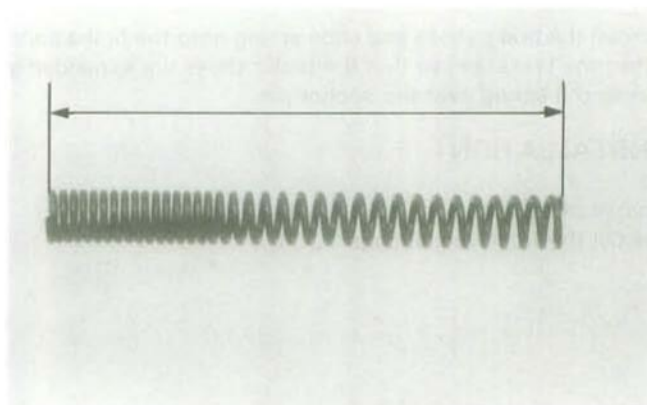
Check the spring and piston for damage.
Check the slider assembly for damage or wear.



SPRING FREE LENGTH INSPECTION

Measure the shock absorber spring free length.

SERVICE LIMIT: 165.4 mm (6.51 in)



ASSEMBLY

Apply grease to the spring and slider guide.
Install the spring with the narrow pitch end facing up.
Install the slider.



Push the slider into the fork leg and install the snap ring.

Slide on the dust boots and install the front wheel.

TOOL:

Snap ring pliers

07914—3230001



(1) SNAP RING PLIERS

STEERING STEM

REMOVAL

Remove the following:

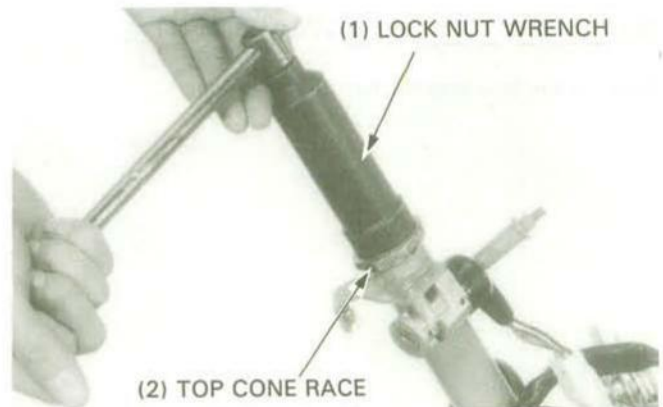
- front wheel (page 12-4)
- handlebar (page 12-3)
- steering stem lock nut

TOOL:

Lock nut wrench

07916—KM10000

Remove the top cone race and the fork.



(1) LOCK NUT WRENCH

(2) TOP CONE RACE

INSPECTION

Check the ball races and steel balls for wear or damage and replace them if necessary.



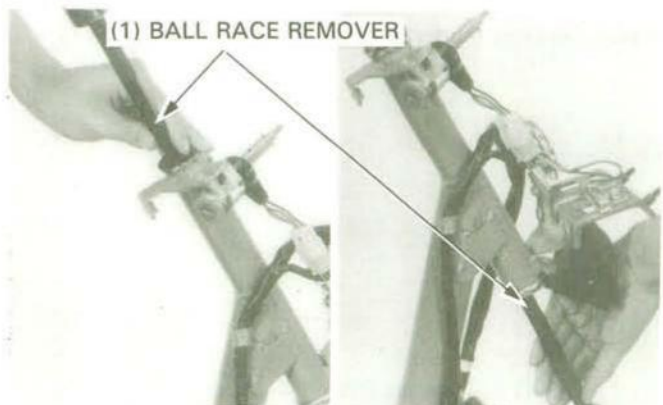
BALL RACE REPLACEMENT

Drive out the ball races using the ball race remover.

TOOL:

Ball race remover

07946—GA70000



(1) BALL RACE REMOVER

STEERING/FRONT WHEEL/BRAKE/SUSPENSION

Drive in new ball races.

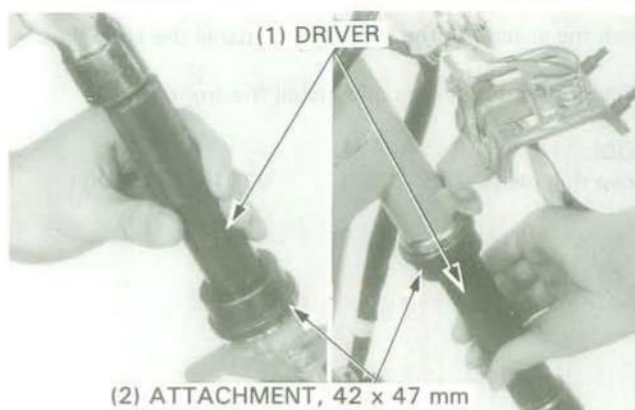
TOOLS:

Driver

07749-0010000

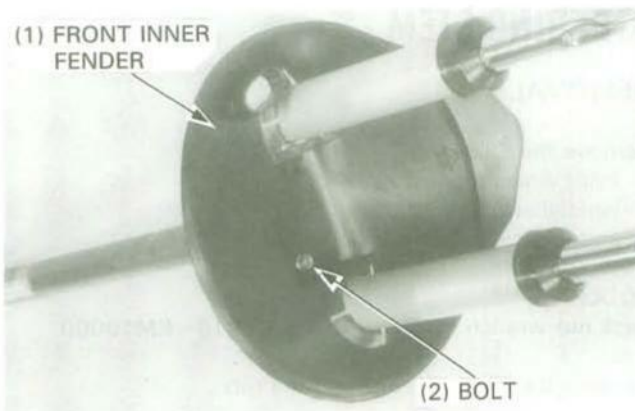
Attachment, 42 x 47 mm

07746-0010300



BOTTOM CONE RACE REPLACEMENT

Remove the bolt and the front inner fender.

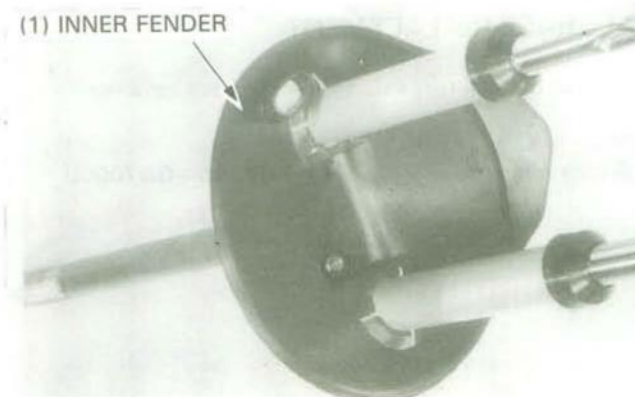


Remove the bottom cone race from the steering stem using a chisel.

Install a new bottom cone race.



Install the inner fender.



INSTALLATION

Apply grease to the steel balls and bearing races.
Install the ball bearings in the top ball race and bottom ball race.

Install the steering stem into the steering head.

Install and hand tighten the top cone race.

Make sure that the steering stem rotates freely without vertical play.

Hold the top cone race and tighten the lock nut.

TORQUE: 70 N·m (7.0 kg-m, 51 ft-lb)

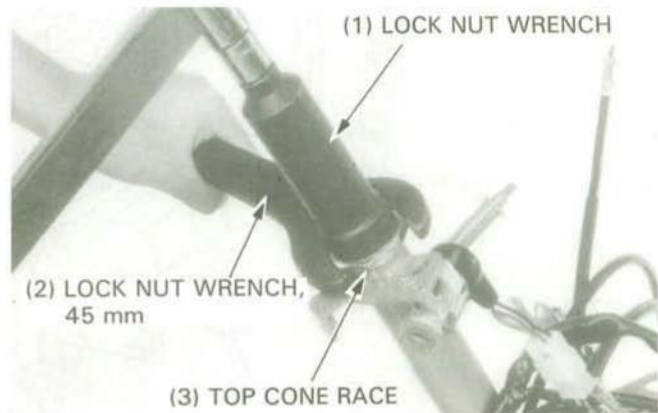
TOOLS:

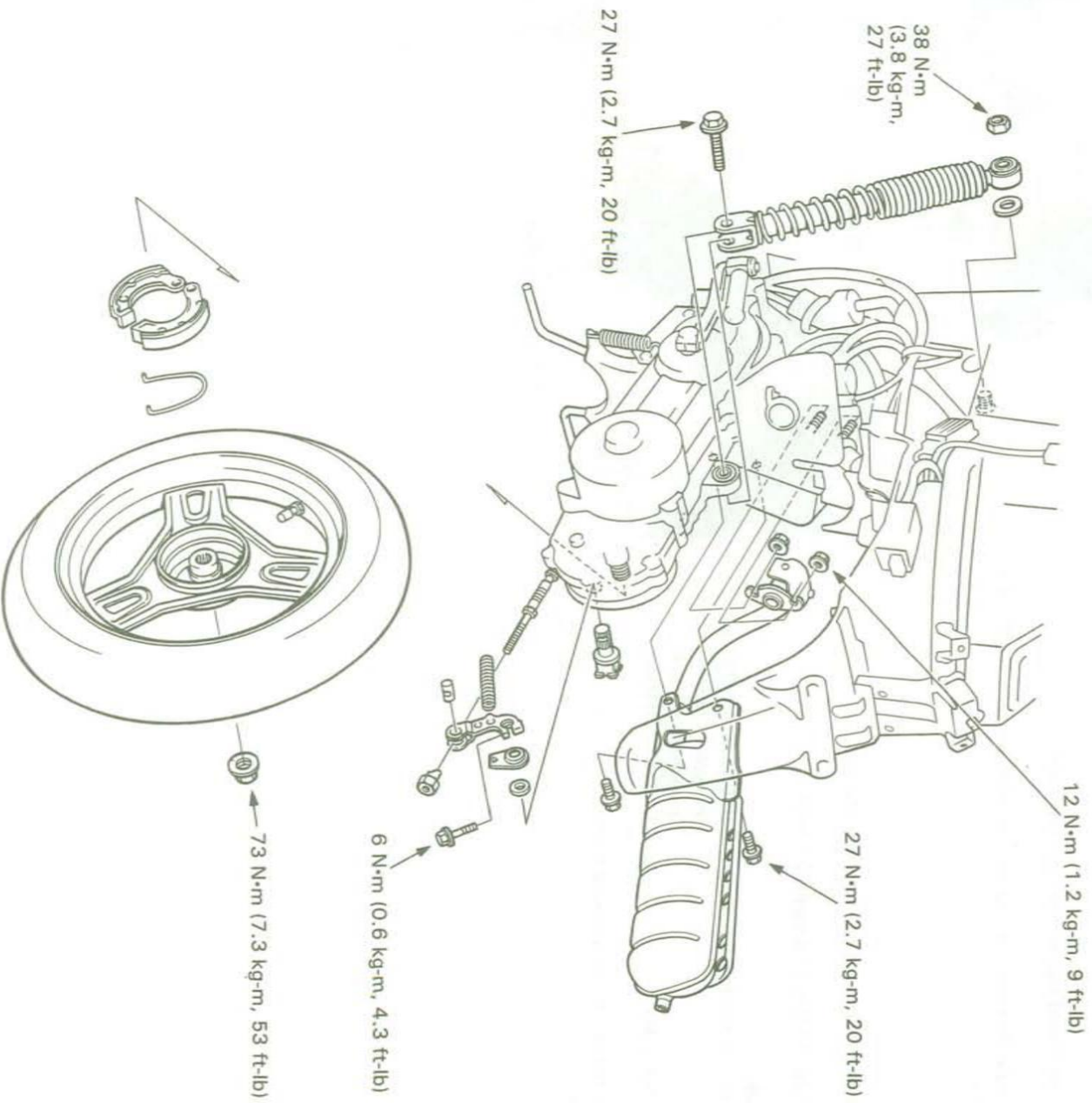
Lock nuts wrench, 45 mm

Lock nut wrench

07916-1870101 or
equivalent commercially
available in U.S.A.
07916-KM10000

Install the remaining removed parts in the reverse order of removal.





13. REAR WHEEL/BRAKE/SUSPENSION

SERVICE INFORMATION	13-1	REAR BRAKE	13-3
TROUBLESHOOTING	13-1	REAR SHOCK ABSORBER	13-5
REAR WHEEL	13-2		

SERVICE INFORMATION

GENERAL

⚠ WARNING

- *Inhaled asbestos fibers have been found to cause respiratory disease and cancer. Never use an air hose or dry brush to clean brake assemblies. Use an OSHA-approved vacuum cleaner or alternate method approved by OSHA designed to minimize the hazard caused by airborne asbestos fibers.*

SPECIFICATIONS

ITEM	STANDARD mm (in)	SERVICE LIMIT mm (in)
Rear wheel rim runout	—	2.0 (0.08)
Rear brake drum I.D.	80 (3.15)	80.5 (3.17)
Rear brake lining thickness	3.5 (0.14)	1.5 (0.06)
Rear shock absorber spring free length	231.3 (9.11)	226.6 (8.92)

TORQUE VALUES

Rear axle nut	73 N·m (7.3 kg-m., 53 ft-lb)
Rear shock absorber upper mount nut	38 N·m (3.8 kg-m, 27 ft-lb)
Rear shock absorber lower mount bolt	27 N·m (2.7 kg-m, 20 ft-lb)
Rear shock absorber damper rod lock nut	20 N·m (2.0 kg-m, 14 ft-lb) Apply locking agent to the nut threads
Brake arm bolt	6 N·m (0.6 kg-m, 4.3 ft-lb)
Exhaust pipe joint nut	12 N·m (1.2 kg-m, 9 ft-lb)
Exhaust muffler mounting bolt	27 N·m (2.7 kg-m, 20 ft-lb)

TOOLS

Special

Rear shock attachment B	07967—GA70200
-------------------------	---------------

Common

Shock absorber compressor	07GME—0010000
---------------------------	---------------

TROUBLESHOOTING

Rear wheel wobbling

- Bent rim
- Faulty tire
- Axle not tightened properly

Poor brake performance

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

Brake squeaks

- Worn brake shoes
- Foreign matter on lining
- Rough brake drum shoe contacting face
- Brake shoes glazed

Soft suspension

- Weak shock absorber spring

Suspension noise

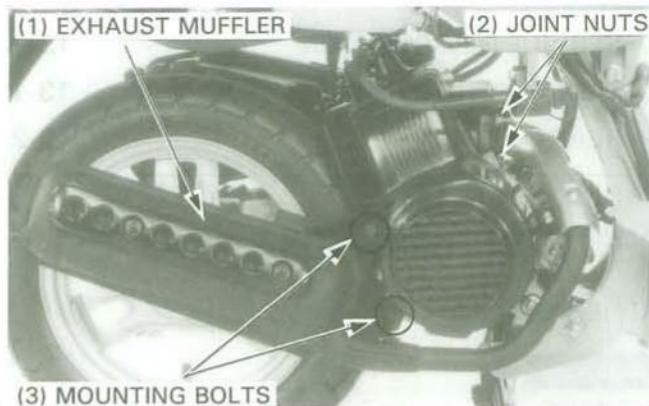
- Shock spring binding
- Damaged stop rubber

REAR WHEEL

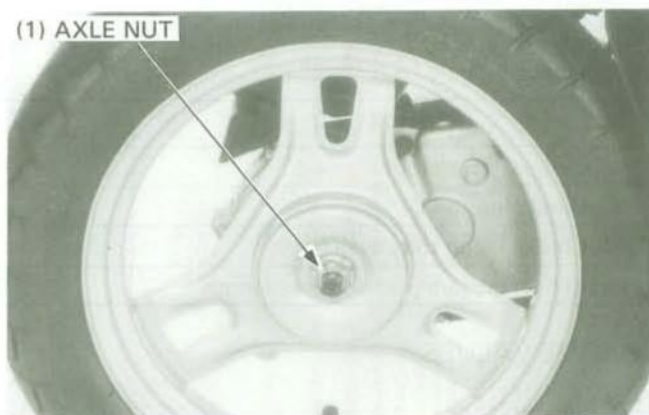
REMOVAL

Remove both frame side covers (page 11-2).

Remove the exhaust muffler by removing the mounting bolts and loosening the joint nuts.



Remove the axle nut and the rear wheel.



WHEEL RIM RUNOUT INSPECTION

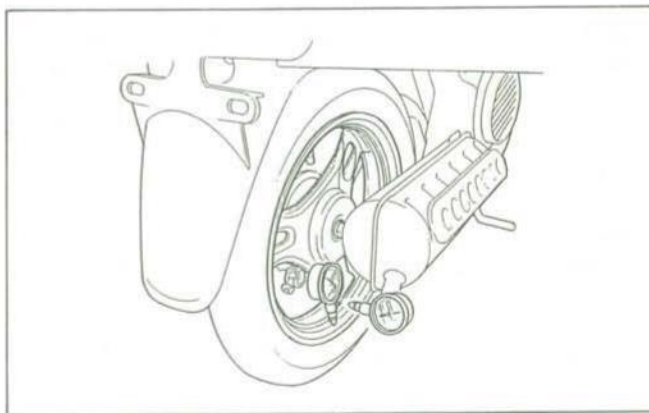
Check the wheel rim for runout using a dial gauge as shown.

SERVICE LIMITS:

Radial: 2.0 mm (0.08 in)

Axial: 2.0 mm (0.08 in)

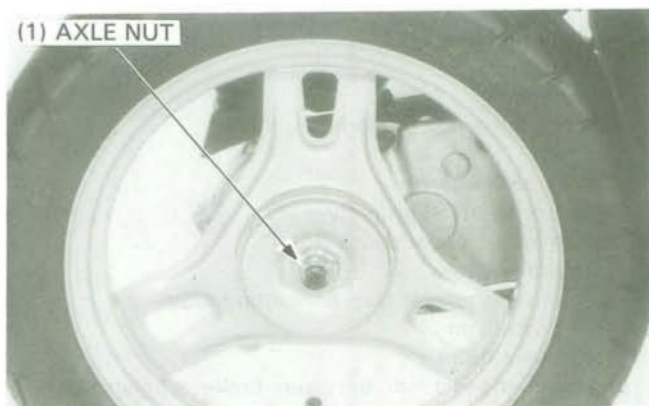
Replace the wheel if runout is beyond the service limit.



INSTALLATION

Install the rear wheel and tighten the axle nut.

TORQUE: 73 N·m (7.3 kg-m, 53 ft-lb)

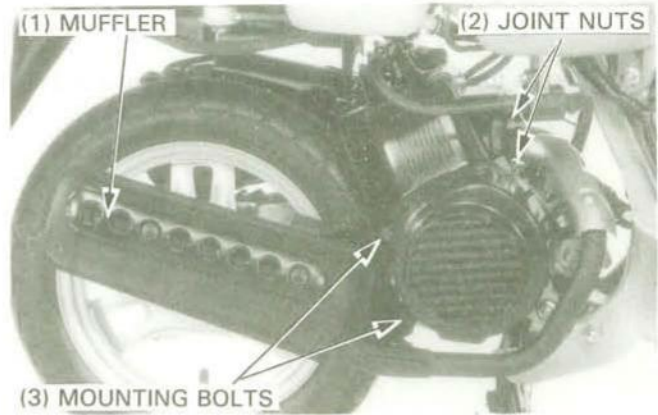


Install the muffler and tighten the mounting bolts and joint nuts.

TORQUE:

Mounting bolt: 27 N·m (2.7 kg-m, 20 ft-lb)
Joint nut: 12 N·m (1.2 kg-m, 9 ft-lb)

Install both frame side covers (page 11-2).



REAR BRAKE

INSPECTION

Brake drum

Remove the rear wheel (page 13-2).
Measure the rear brake drum I.D.

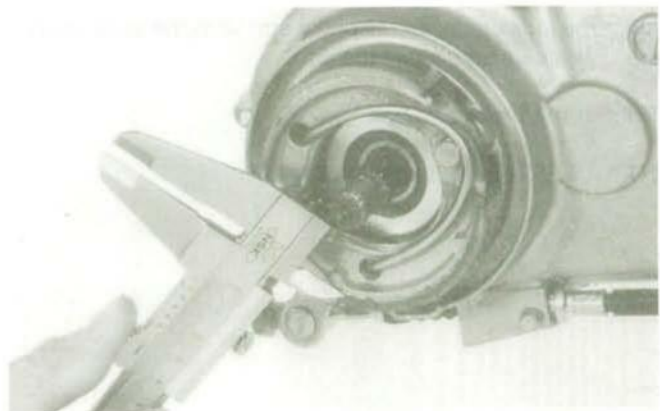
SERVICE LIMIT: 80.5 mm (3.17 in)



Lining thickness

Measure the brake lining thickness.

SERVICE LIMIT: 1.5 mm (0.06 in)



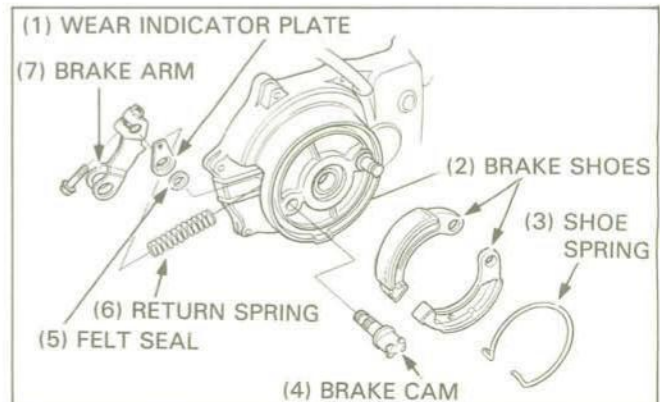
DISASSEMBLY

Remove the brake shoes and spring.

⚠ WARNING

- Inhaled asbestos fibers have been found to cause respiratory disease and cancer. Never use an air hose or dry brush to clean brake assemblies. Use OSHA-approved vacuum cleaner or alternate method approved by OSHA designed to minimize the hazard by airborne asbestos fibers.

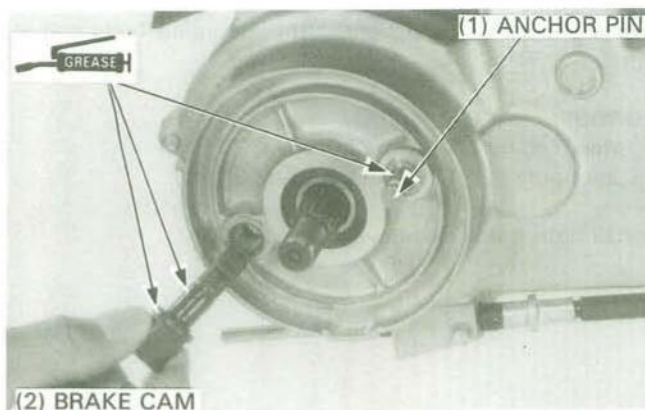
Remove the brake adjusting nut and disconnect the brake cable from the brake arm.
Remove the brake arm bolt, brake arm, wear indicator plate, felt seal, and brake cam.



REAR WHEEL/BRAKE/SUSPENSION

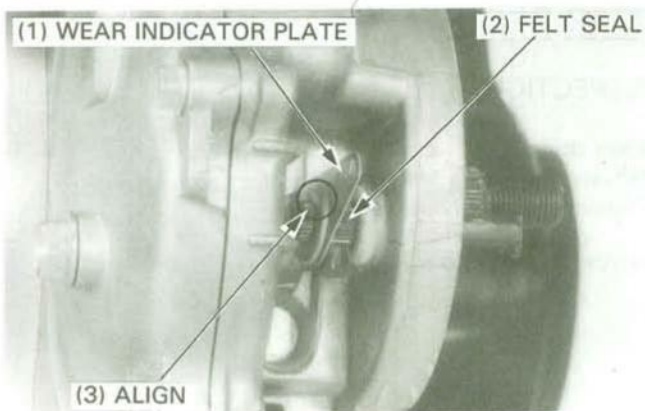
ASSEMBLY

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



Install the felt seal onto the brake cam.

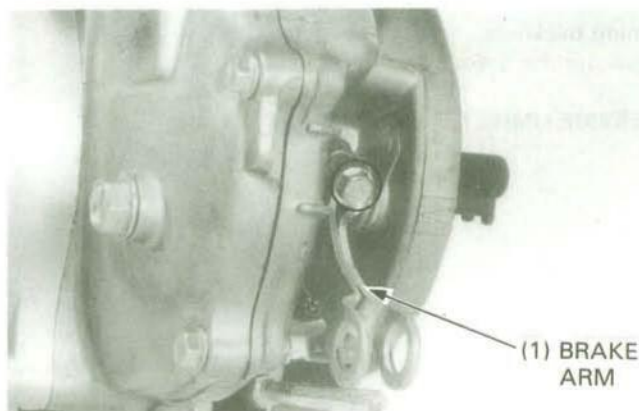
Install the wear indicator plate on the cam aligning its wide tooth with the cam's wide groove.



Align the index mark on the brake arm with the wide groove in the brake cam and install the arm.

Tighten the brake arm bolt.

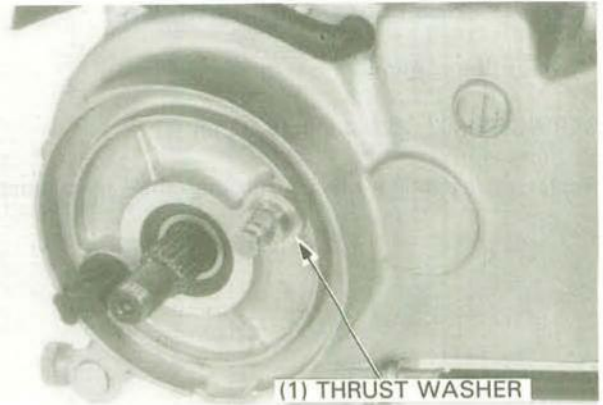
TORQUE: 6 N·m (0.6 kg-m, 4.3 ft-lb)



Install the brake arm return spring.



Install the thrust washer onto the anchor pin.

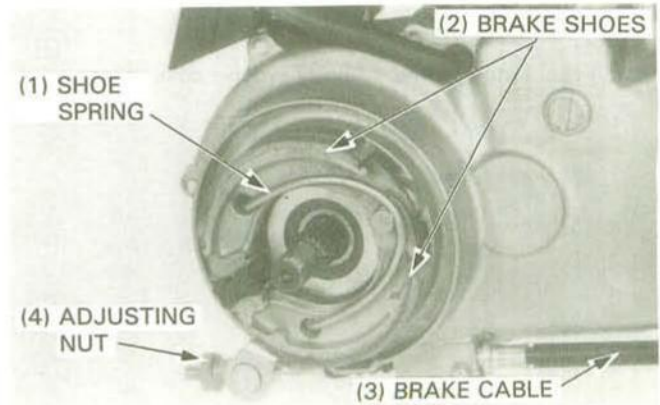


Install the brake shoes and shoe springs.

⚠ WARNING

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

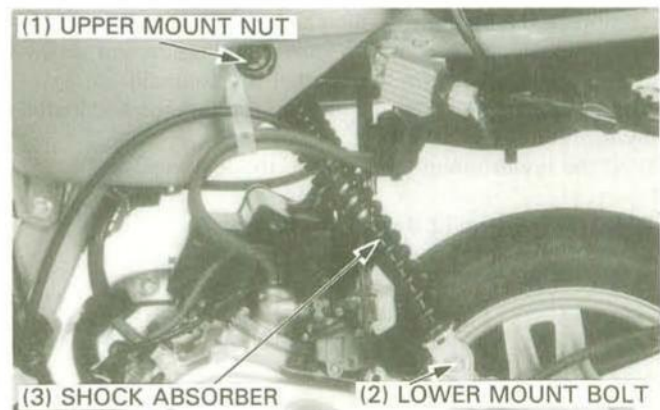
Connect the brake cable to the brake arm and install the adjusting nut.
Install the wheel and adjust the rear brake (page 3-5).



REAR SHOCK ABSORBER

REMOVAL

Remove both frame side covers (page 11-2).
Remove the air cleaner case (page 4-3).
Remove the shock absorber upper mount nut and lower mount bolt and the shock absorber.



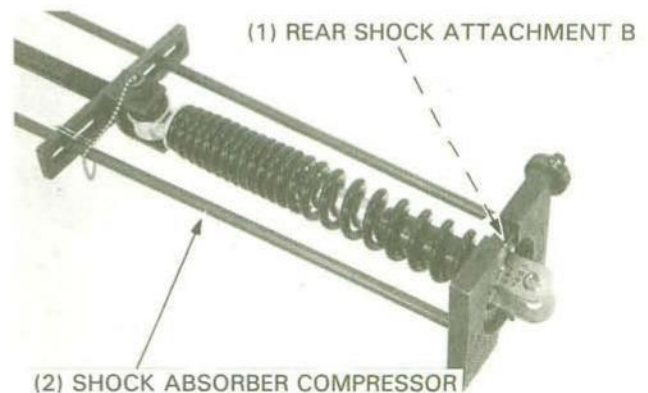
DISASSEMBLY

Compress the shock absorber spring, loosen the lock nut and remove the lower joint.
Remove the shock absorber spring.

TOOL:

Shock absorber compressor
Rear shock attachment B

07GME-0010000
07967-GA70200



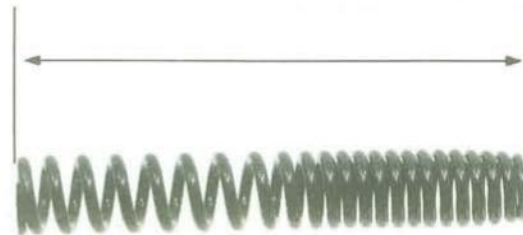
REAR WHEEL/BRAKE/SUSPENSION

SPRING FREE LENGTH INSPECITON

Measure the spring free length.

SERVICE LIMIT: 226.6 mm (8.92 in)

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



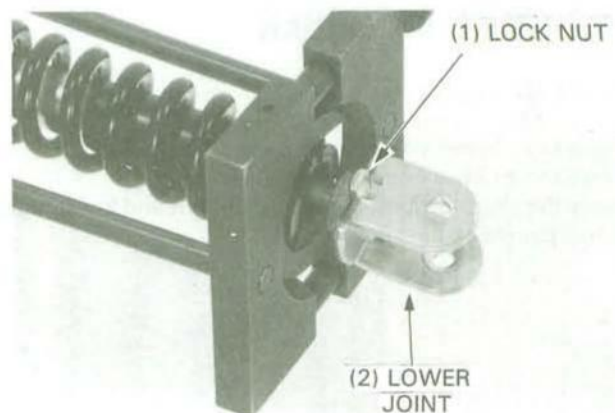
ASSEMBLY

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 mount. Hold the lower mount and tighten the lock nut.

TORQUE: 20 N·m (2.0 kg-m, 14 ft-lb)



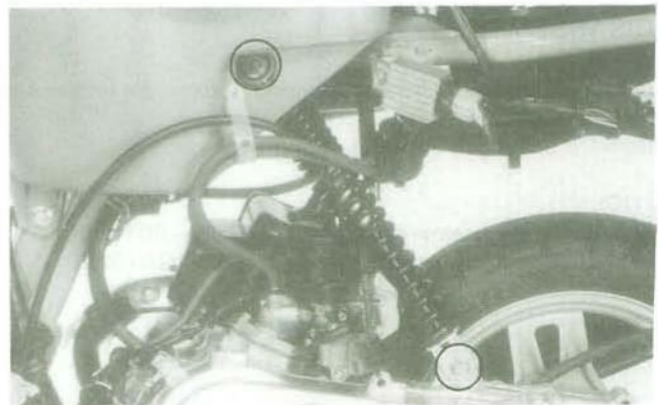
INSTALLATION

Install the rear shock absorber and tighten the upper mount nut and lower mount bolt.

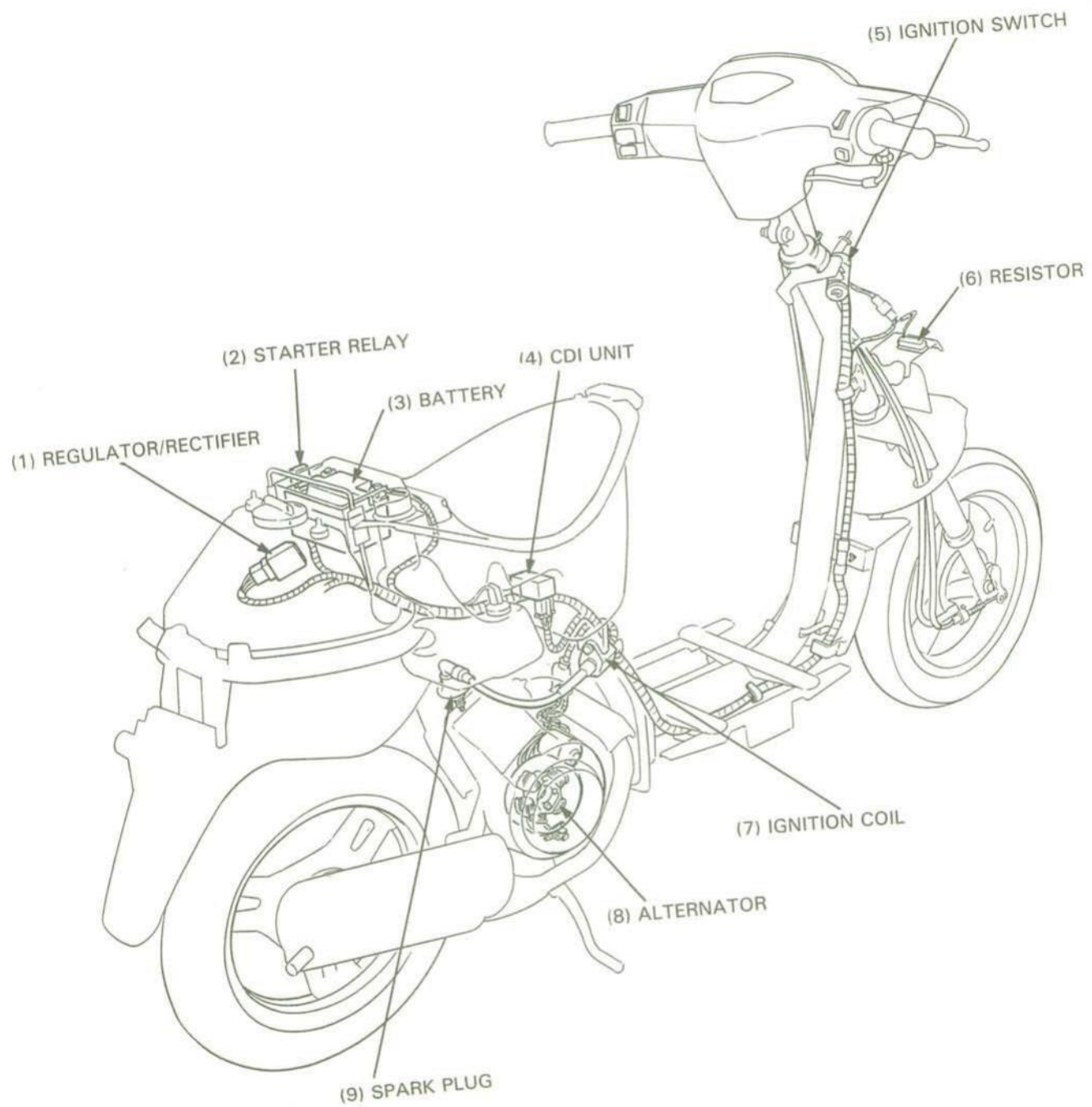
TORQUE:

- Upper mount nut: 38 N·m
(3.8 kg-m, 27 ft-lb)
- Lower mount bolt: 27 N·m
(2.7 kg-m, 20 ft-lb)

Install the air cleaner case (page 4-3).
Install the frame side covers (page 11-2).



MEMO



14. ELECTRICAL EQUIPMENT

SERVICE INFORMATION	14-1	OIL LEVEL SENSOR	14-12
TROUBLESHOOTING	14-2	INSTRUMENT REPLACEMENT	14-13
BATTERY	14-3	IGNITION SWITCH	14-13
CHARGING SYSTEM	14-5	HANDLEBAR SWITCHES	14-14
CDI UNIT SYSTEM INSPECTION	14-8	BRAKE LIGHT SWITCH	14-16
IGNITION COIL	14-8	HORN INSPECTION	14-16
ALTERNATOR	14-9	HEADLIGHT REMOVAL	14-16
IGNITION TIMING INSPECTION	14-9	BULB REPLACEMENT	14-16
STARTER MOTOR	14-10		

SERVICE INFORMATION

GENERAL

⚠ WARNING

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

SPECIFICATIONS

ITEM			STANDARD
Battery	Capacity		12 V 3 AH
	Charging current		Standard: 0.4 A, Maximum: 4.0 A
	Charging time		Standard: 5.0 hours, Maximum: 30 minutes
Alternator	Resistance	Charging coil	White-engine ground: 0.3—0.9 Ω
		Lighting coil	Yellow-engine ground: 0.2—0.8 Ω
		Exciter coil	500—900 Ω
		Pulse generator	50—200 Ω
Regulator/rectifier	Regulated voltage		13.5—15.5 V
Spark plug gap			0.6—0.7 mm (0.024—0.028 in)
Ignition timing			15° ± 2 BTDC/3,000 (rpm)
Ignition coil	Resistance	Primary	0.2—0.3 Ω
		Secondary	with plug cap: 8.2—9.3 kΩ without plug cap: 3.4—4.2 kΩ

TOOLS

Sanwa electrical tester (SP-10D, 07308—0020000) or
Kowa electrical tester (TH-5H) or
Kowa digital multimeter (KS-AHM-32-003, U.S.A. only)
Battery tester BM-210
Christie battery charger MC 1012/2

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
- Faulty engine stop switch

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 remove the two battery case cover screws.



Remove the battery case cover.

Disconnect the negative (–) cable from the battery first, then disconnect the positive (+) cable, and pull out the battery.



TESTING

NOTE

- Use the Honda Battery Tester (BM-210) to test the battery.

Remove the battery.

Securely connect the tester's positive (+) cable first, then connect the negative (–) cable.

NOTE

- For accurate test results, be sure the tester's cables and clamps are in good working condition and that a secure connection can be made at the battery.

Set the temperature switch to "HIGH" or "LOW" depending on the ambient temperature.

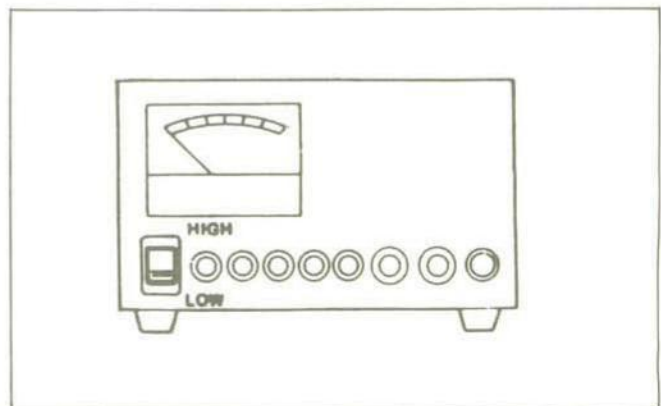
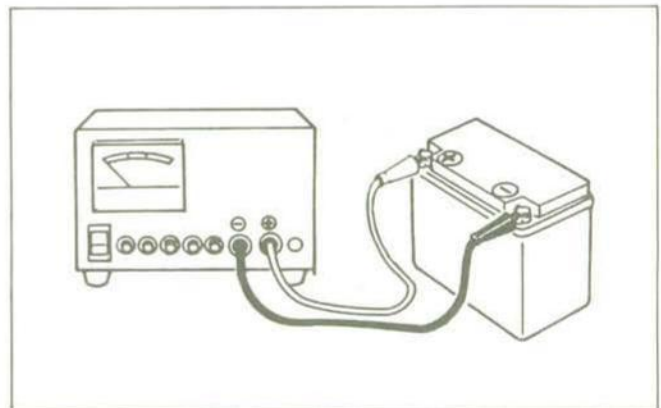
HIGH: 15°C (60°F) or higher

LOW: 15°C (60°F) or lower

Push in the "3.5 Ah–5 Ah" test button for three seconds and read the condition of the battery on the meter.

NOTE

- Be sure to push the correct test button.
For the first check, DO NOT charge the battery before testing.



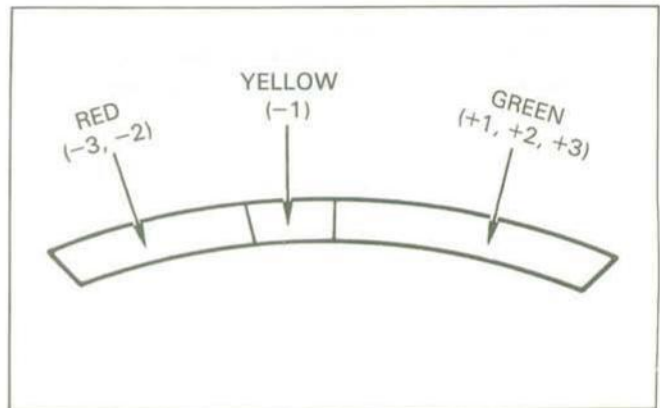
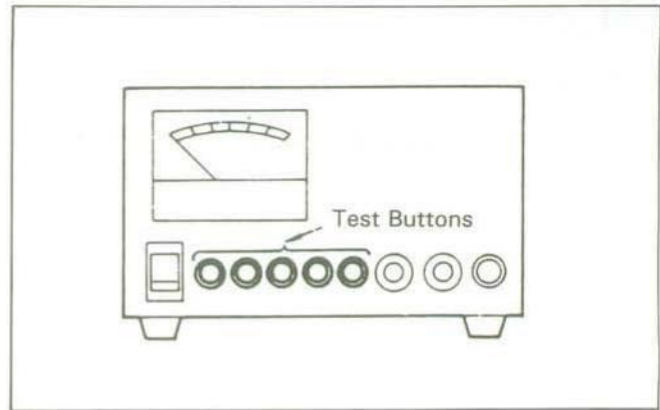
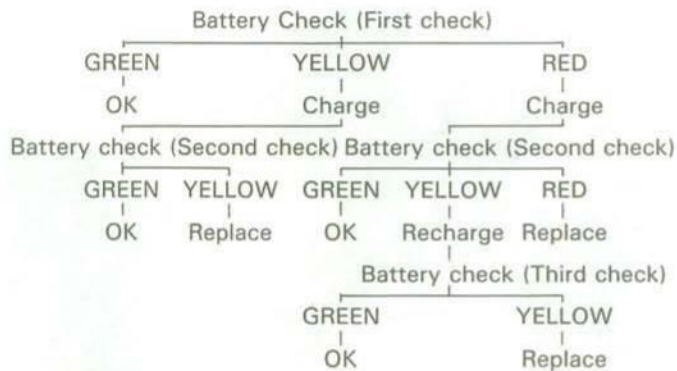
ELECTRICAL EQUIPMENT

CAUTION

- *Tester damage can result from overheating when:*
 - the test button is pushed in for more than three seconds.
 - testing more than one battery and the tester is not allowed to cool for at least one minute between tests.
 - more than ten tests are performed consecutively without allowing at least a 30-minute cool-down period.

The battery is OK if the meter reading registers in the GREEN zone.

If the meter reading registers in the YELLOW or RED zone, charge the battery, and re-test and judge it in accordance with the chart below.



CHARGING

NOTE

- Use the CHRISTIE Battery Charger (MC 1012/2) to charge the battery.

Before operating the charger:

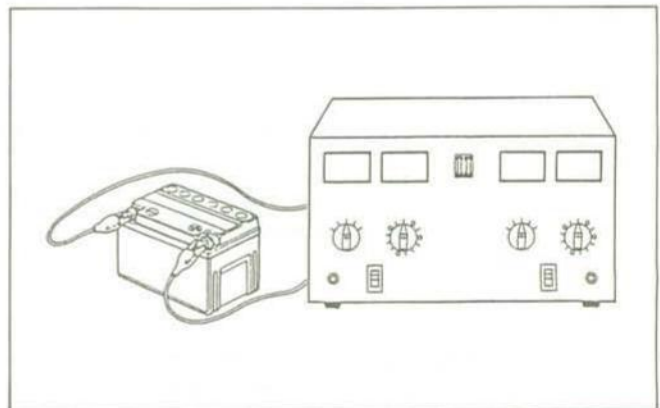
- Be sure the area around the charger is well ventilated and clear of flammable materials, heat, humidity, water and dust.
- Clean the battery terminals and position the battery as far away from the charger as the leads will permit.
- Do not place the battery below the charger; gases from the battery may corrode and damage the charger.
- Do not place the battery on top of the charger. Be sure the air vents are not blocked.

⚠ WARNING

- *During operation, the charger will generate heat. To avoid causing a fire, always clear the work area of flammable materials such as gasoline, brake fluid, electrolyte, or cloth towels.*

Turn the Power Switch to the OFF position.

Set the Battery Amp. Hr. Selector Switch to the "3.5 to 5.0" position.

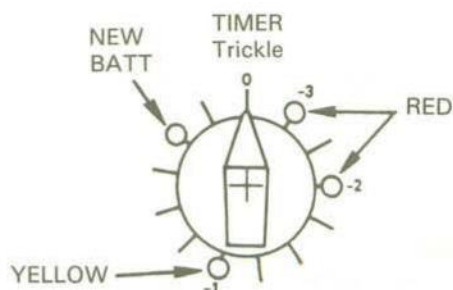


Set the Timer to the position indicated by the Honda Battery Tester: RED-3, RED-2, or YELLOW-1. If you are charging a new battery, set the switch to the NEW BATT position.

Attach the clamps to the battery terminals; RED to Positive, BLACK to Negative.

CAUTION

- Connect the battery cables only when the Power Switch is OFF.



Turn the Power Switch to the ON position.

When the timer reaches the "Trickle" position, the charging cycle is complete. Turn the Power Switch OFF and disconnect the clamps.

NOTE

- The charger will automatically switch to the Trickle mode after the set charging time has elapsed.

Re-test the battery using the Honda Battery Tester and re-charge if necessary using the above steps.

NOTE

- For accurate test results, let the battery cool for at least ten minutes or until gassing subsides after charging.

INSTALLATION

Install the battery into the battery case.

Connect the positive (+) cable first, then connect the negative (-) cable.

Install the case cover and secure it with the screws.

CHARGING SYSTEM

BATTERY LEAK TEST

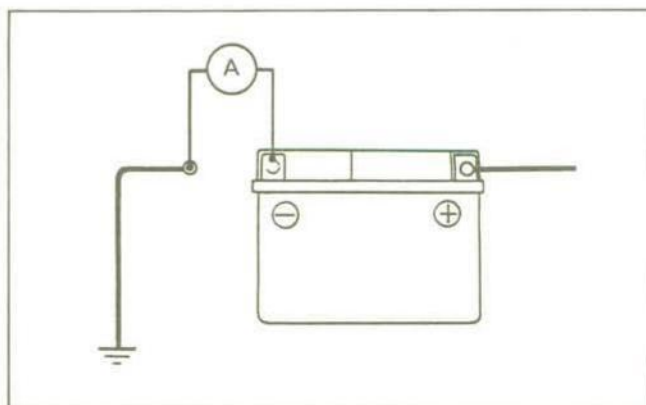
Raise the seat.

Remove the battery case cover and disconnect the negative (-) terminal.

With the ignition switch OFF, connect an ammeter between the battery negative (-) terminal and the negative (-) cable and measure the current.

SERVICE LIMIT: Below 1 mA

If the measurement exceeds the service limit, check the wire harness and ignition switch for short circuit.



ELECTRICAL EQUIPMENT

REGULATED VOLTAGE INSPECITON

NOTE

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

Warm up the engine.

⚠ 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 that may cause loss of consciousness and lead to death.*

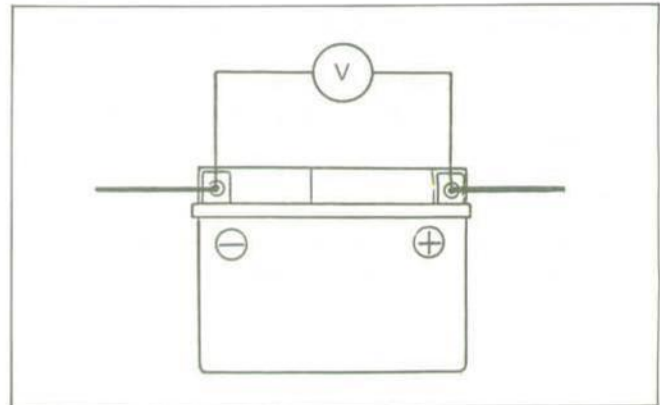
Connect the voltmeter across the battery terminals. Start the engine, gradually increase engine speed and measure the voltage.

NOTE

- Avoid short circuiting to the tester during the test.

STANDARD: 13.5—15.5 V

If the voltage is not within specification check the regulator/rectifier and/or alternator.



ALTERNATOR

Remove both frame side covers (page 11-2).

Disconnect the alternator wire connectors. Measure the resistance between the yellow wire and body ground, and the white wire and body ground.

RESISTANCE:

White wire-body ground: 0.3—0.9 Ω

Yellow wire-body ground: 0.2—0.8 Ω

If the resistance is out of the specifications, replace the stator (page 7-2).



REGULATOR/RECTIFIER

Remove the right side cover (page 11-2).

Disconnect the 4P connector from the regulator/rectifier.



Check the wire harness-side connector according to the following table:

Item	Measure at	Standard
Ground	green—body ground	There should be continuity
Battery	red—green	There should be battery voltage
Charging coil	white—engine ground	0.3—0.9 Ω
Lighting coil	yellow—engine ground	0.2—0.8 Ω

If the above items are OK, check the regulator/rectifier as follows:

-	+	A	B	C	D
A			∞	0.5—10 k	∞
B		∞		∞	5—100 k
C		∞	∞		∞
D		∞	5—100 k	∞	

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 reading.
Use Sanwa Electric Tester (SP-10D, 07308—0020000), Kowa Electric Tester (TH-5H) or Kowa Digital Multi-meter Tester (KS-AHM-32-003, U.S.A. only).

Measuring range:

SANWA ELECTRIC TESTER: x k Ω

KOWA ELECTRIC TESTER: x 100 Ω

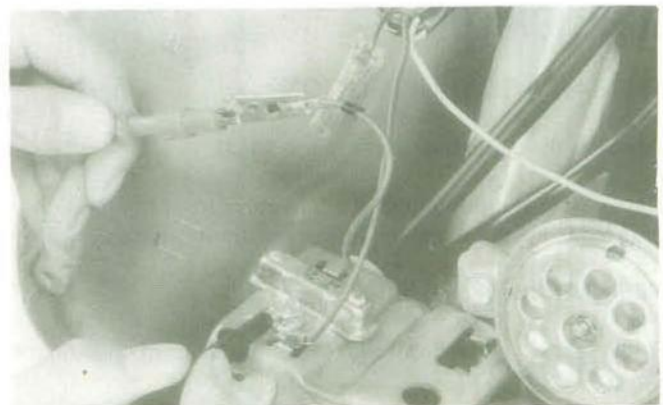
RESISTOR

Measure the resistance between the green/black wire lead and body ground.

RESISTANCE: 4.7—5.3 Ω

NOTE

- A faulty or poorly grounded resistor can be a cause of frequent instrument lamp failure.



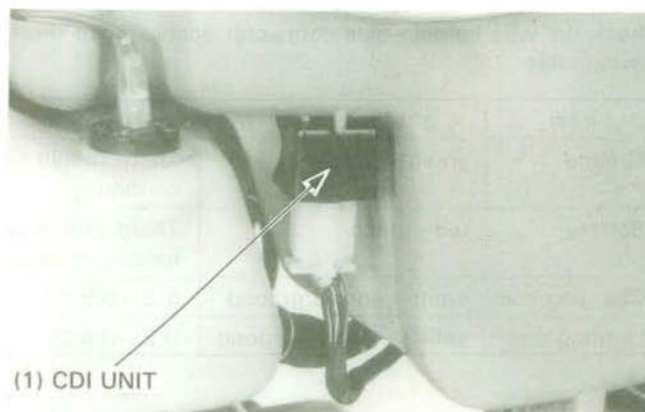
CDI UNIT SYSTEM INSPECTION

Remove the right side cover (page 11-2).

Remove the spark plug and check its condition.

Check the spark plug cap for rust and be sure that it is installed securely.

Check and measure the continuity and resistance in and between the CDI unit harness side-connector terminals.



Item		Measure at	Standard
Ignition coil	Primary	black/yellow—green	0.2—0.3 Ω
	Secondary	green—spark plug cap	8.2—9.3 k Ω
Pulse generator coil		blue/yellow—engine ground	50—200 Ω
Exciter coil		black/red—engine ground	500—900 Ω
Ignition switch		black/white—green	There should be continuity with switch OFF and no continuity with switch ON
Engine stop switch		black/white—green	There should be continuity with switch OFF and no continuity with switch RUN
Ground		green—body ground	There should be continuity

If the above items are OK, replace the CDI unit.

If there is indication of abnormality, inspect the related circuit.

IGNITION COIL

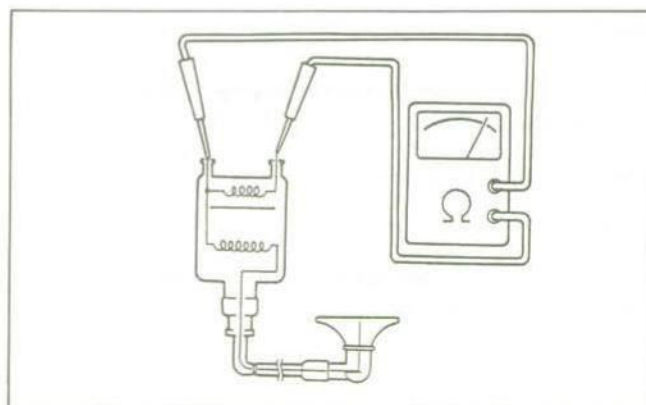
PRIMARY COIL INSPECTION

Remove the right side cover (page 11-2).

Disconnect the primary lead connectors from the ignition coil and measure the resistance between the terminals.

RESISTANCE: 0.2—0.3 Ω

Replace the ignition coil if the resistance is out of specification.



SECONDARY COIL INSPECTION

Remove the spark plug cap from the plug and measure the secondary coil resistance with the cap installed.

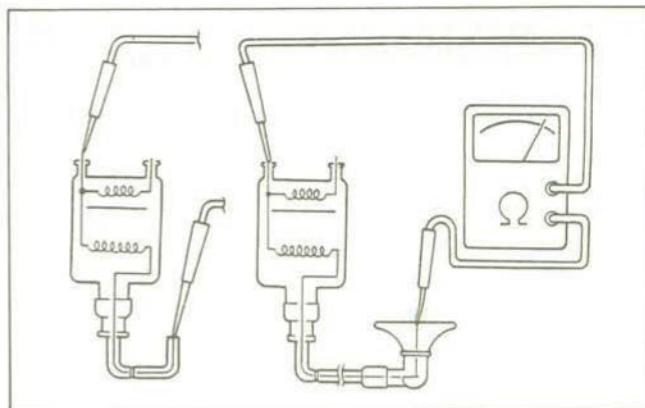
RESISTANCE: 8.2—9.2 k Ω

If the resistance is out of specification, remove the spark plug cap from the wire and measure the secondary coil resistance.

RESISTANCE: 3.4—4.2 k Ω

If the resistance is within specification, replace the spark plug cap.

If the resistance is out of specification, replace the ignition coil.



ALTERNATOR

Remove both frame side covers (page 11-2).

EXCITER COIL INSPECTION

Measure the resistance between the black/red wire and engine ground.

RESISTANCE: 500—900 Ω

If the resistance is out of specification, replace the alternator stator (page 7-2).



PULSE GENERATOR INSPECTION

Measure the resistance between the blue/yellow wire and engine ground.

RESISTANCE: 50—200 Ω

If the resistance is out of specification, replace the pulse generator (page 7-2).



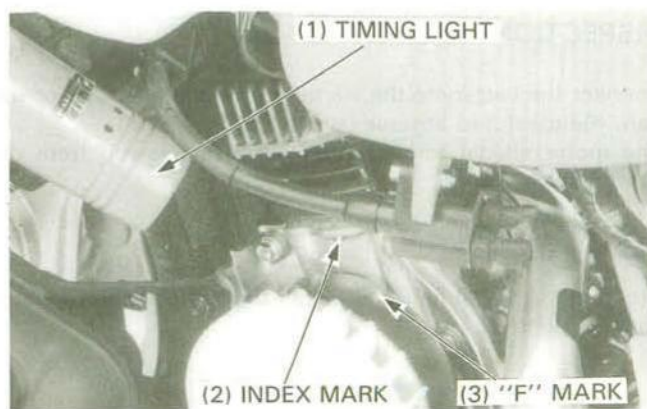
IGNITION TIMING INSPECTION

NOTE

- The Capacitive Discharge Ignition (CDI) system is factory pre-set and does not require adjustment. To inspect the function of the CDI components, ignition timing inspection procedures are given here.

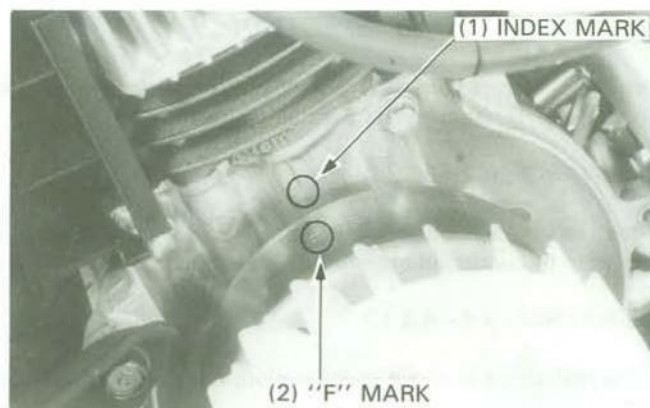
Remove the fan cover (page 7-2).

Connect a tachometer and timing light. Start the engine and allow it to idle. Inspect the ignition timing.



ELECTRICAL EQUIPMENT

Timing is correct, if the "F" mark on the flywheel is aligned with the index mark on the right crankcase at idle.



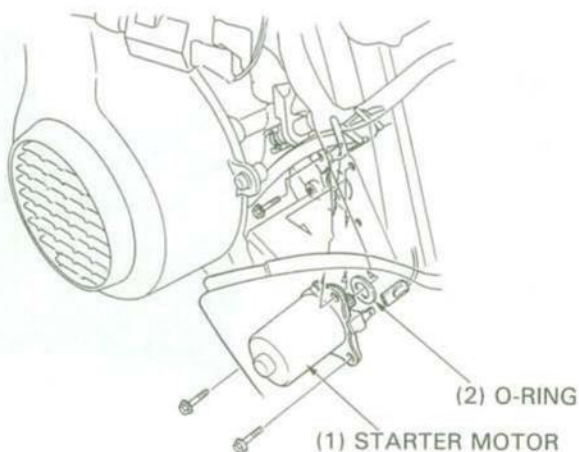
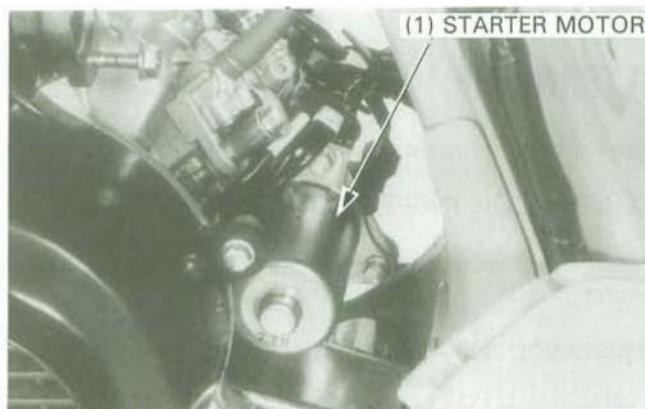
STARTER MOTOR

REMOVAL

Remove the muffler.

Remove the three starter motor mounting bolts and the starter motor.

Disconnect the starter cable connector.



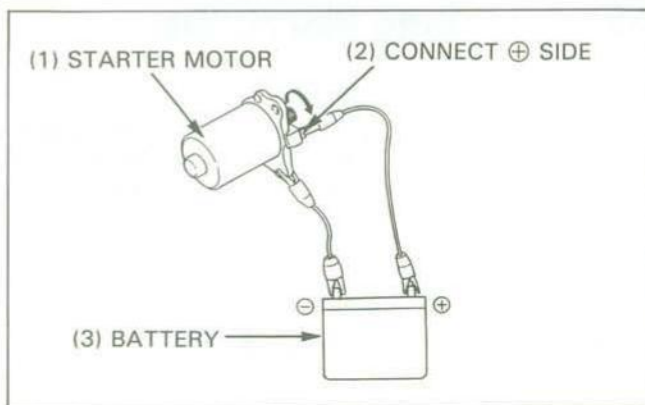
INSPECTION

Connect the battery to the starter motor and check its operation. (Be careful to observe polarity.)

The motor should turn counterclockwise (viewed from the shaft side).

INSTALLATION

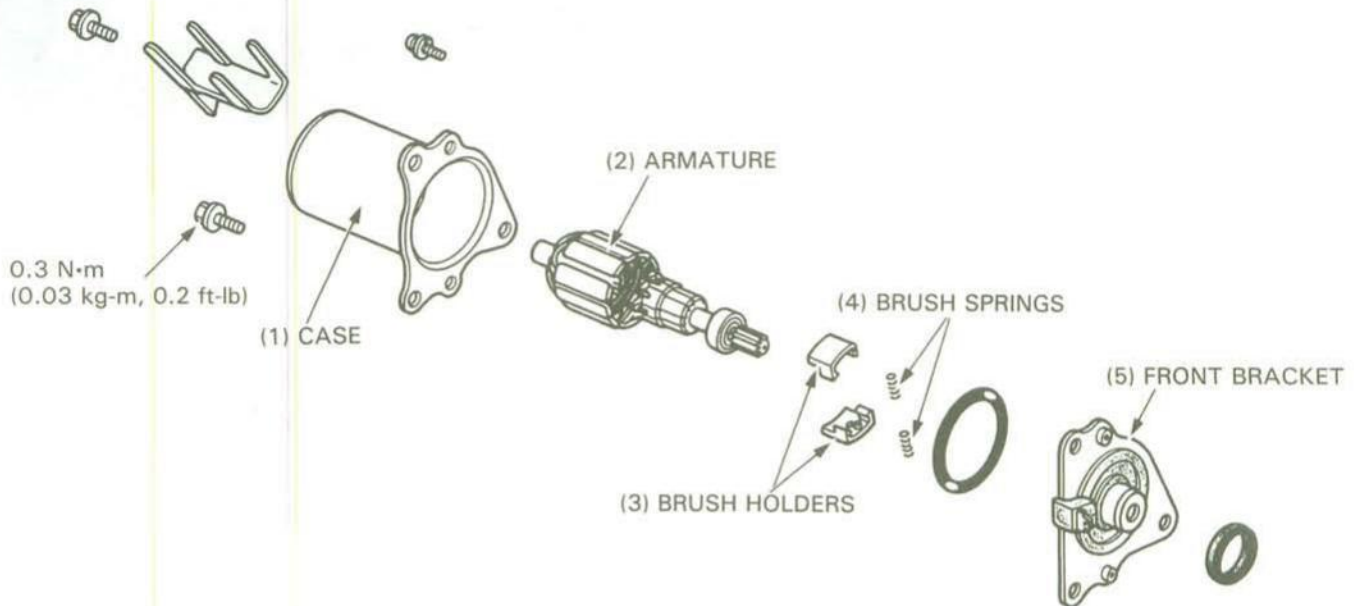
Grease the new O-ring and install the motor in the reverse order of removal.



DISASSEMBLY/ASSEMBLY

Remove the screws and disassemble the starter motor.

Assemble the starter motor in the reverse order of disassembly.



ARMATURE INSPECTION

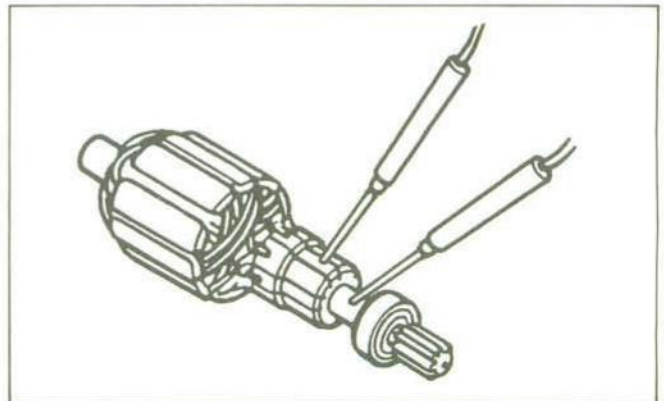
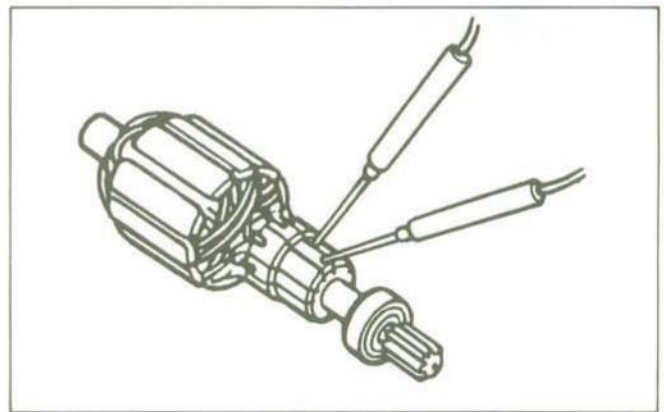
Inspect the commutator bars for discoloration. Bars discolored in pairs indicate grounded armature coils, in which case the starter motor must be replaced.

NOTE

- Do not use emery or sand paper on the commutator.

Check for continuity between pairs of commutator bars; there should be continuity.

Check for continuity between individual commutator bars and the armature shaft; there should be no continuity.



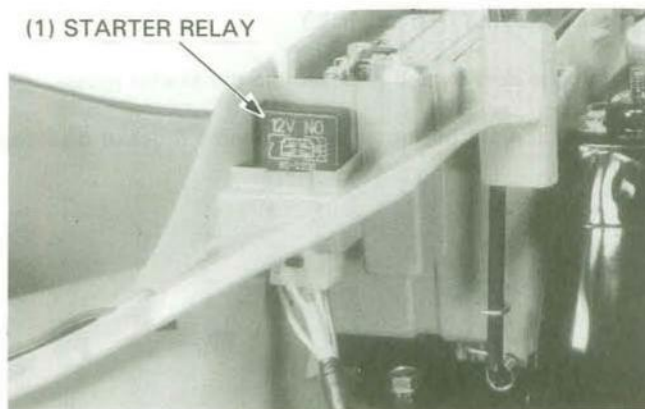
ELECTRICAL EQUIPMENT

STARTER RELAY

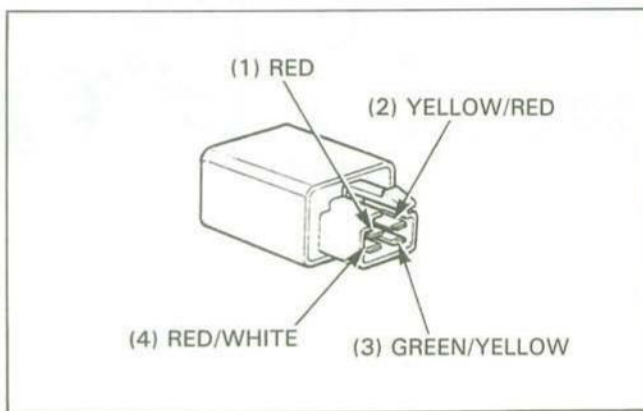
Remove the left frame side cover (page 11-2).
Remove the battery case cover (page 14-3).

Disconnect the starter relay connector and remove the relay.

(1) STARTER RELAY



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



OIL LEVEL SENSOR

INSPECTION

Remove both frame side covers (page 11-2).

Disconnect the wires and remove the sensor.

Check for continuity between the terminals with the float in the upper and lower positions.
There should be continuity with the float lowered and no continuity with the float raised.

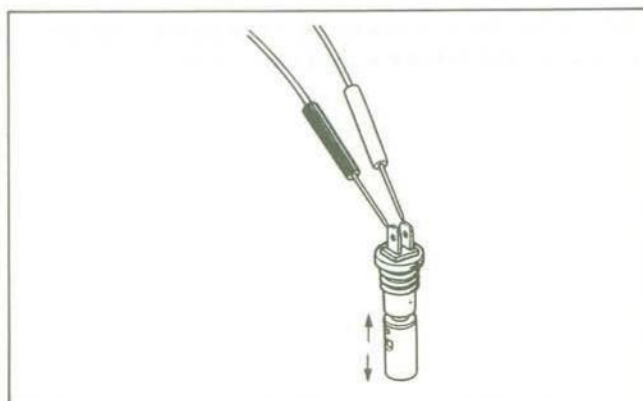
Operate the turn signals to see that the battery circuit is normal, then perform the following inspection:

Connect the wires and turn the ignition switch ON.

Raise and lower the float to make sure that the oil level indicator (LED) goes on and off.

NOTE

- If the indicator fails to go on and off as the float is moved up and down, check for a loose connection and repeat the above procedure.



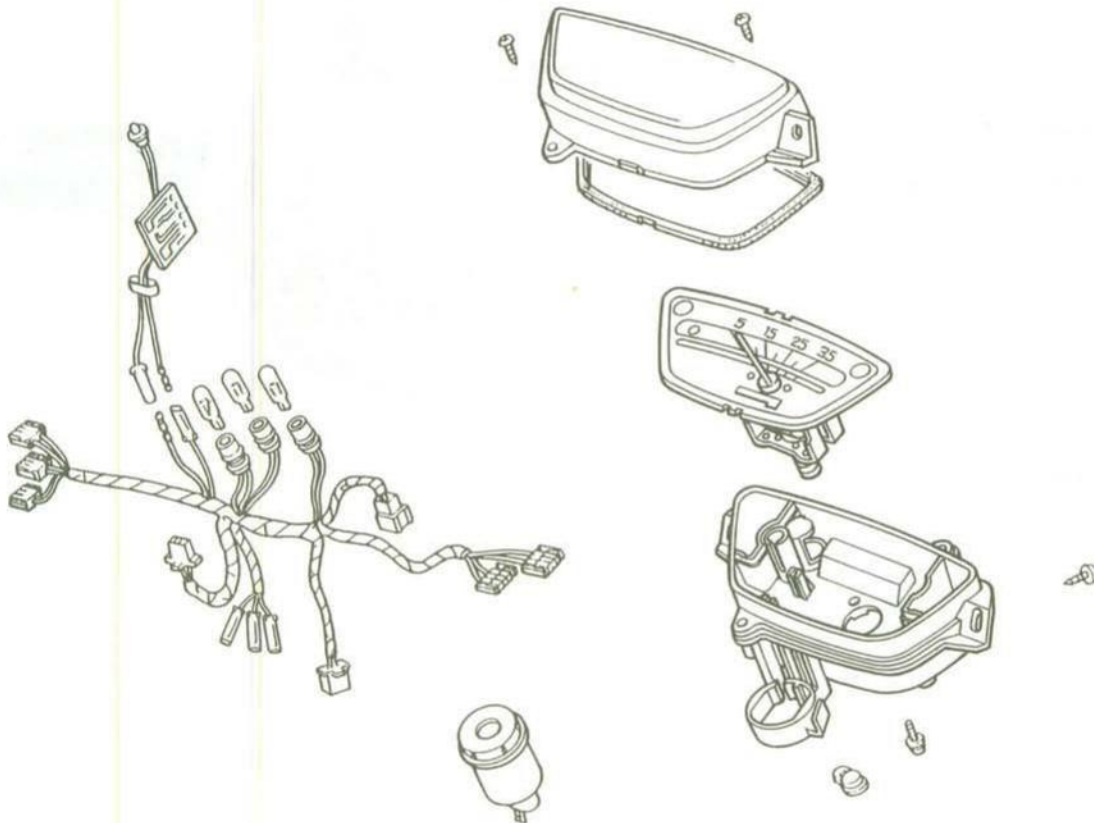
INSTRUMENT REPLACEMENT

Remove the handlebar front cover (page 11-4).

Disconnect the speedometer cable and the handlebar switch wires.

Remove the mounting screws and the speedometer.

Installation is the reverse order of removal.



IGNITION SWITCH

INSPECTION

Remove the front cover (page 11-3).

Disconnect the switch connector and check for continuity between each terminal.

Color	Red	Black/white	Green	Black
	BAT1	IG	E	BAT2
LOCK		○	○	
OFF		○	○	
ON	○			○



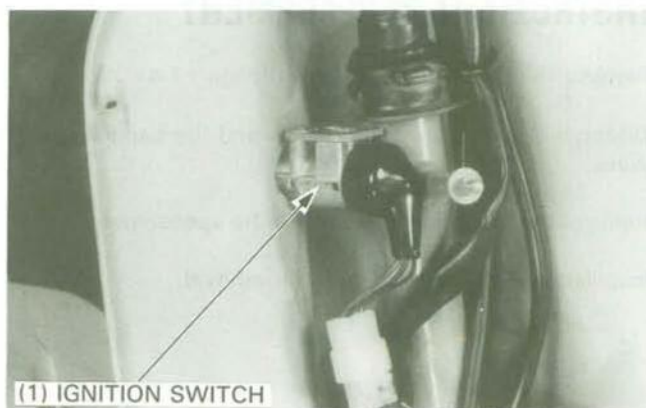
ELECTRICAL EQUIPMENT

REPLACEMENT

Remove the front cover (page 11-3).

Disconnect the ignition switch connector.
Remove the screws and the ignition switch.

Install the ignition switch in the reverse order of removal.



HANDLEBAR SWITCHES

INSPECTION

Remove the front cover (page 11-3).

Disconnect the handlebar switch wires and check for continuity between each terminal.



ENGINE STOP SWITCH

Color	Black/white	Green
	IG	E
OFF	○	○
RUN		

STARTER SWITCH

Color	Yellow/red	Green
	ST	E
FREE		
PUSH	○	○

DIMMER SWITCH

Color	Yellow	Blue	White
	HL	Hi	Lo
Hi	○	○	
(N)	○	○	○
Lo	○		○



TURN SIGNAL SWITCH

Color	Light blue	Orange	Gray
	R	L	WR
L		○	○
N			
R	○		○

HORN SWITCH

Color	Light green	Black
	Ho	BAT
FREE		
PUSH	○	○

If there are any problems, remove the handlebar rear cover (page 11-4) and check the handlebar switch harness for open circuit or loose connection.

If there is no problem, replace the switch.

REPLACEMENT

Remove the handlebar rear cover, (page 11-4).

Disconnect the switch wire connector.

Push the switch out of the rear cover by depressing the tabs.

Installation is the reverse order of removal.

NOTE

- Be sure that the switch tabs are securely seated.

(1) ENGINE STOP SWITCH

(2) STARTER BUTTON

(1) DIMMER SWITCH

(3) TURN SIGNAL SWITCH

(2) HORN BUTTON

BRAKE LIGHT SWITCH /

INSPECTION

Remove the handlebar rear cover (page 11-4).

Disconnect the front brake light switch wire connector.
Check for continuity between the switch terminals while pulling the front brake lever.

Disconnect the rear brake light switch wire connector.
Check for continuity between the switch terminals while pulling the rear brake lever.

Replace the switch if there is no continuity for either test.

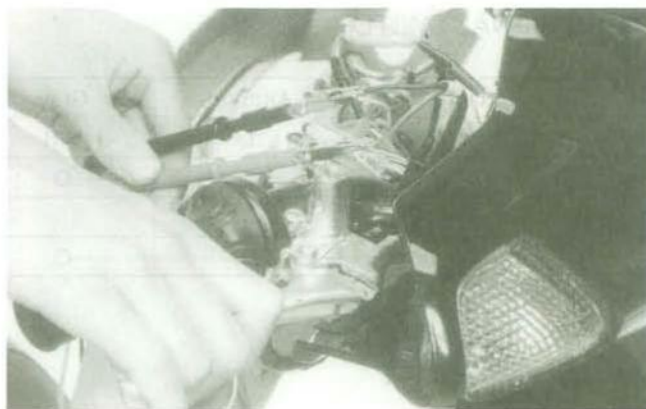
REPLACEMENT

HORN INSPECTION

Remove the front cover (page 11-3).

Disconnect the wire from the horn.
The horn is good if it sounds when 12 V is applied between the horn terminal and ground.

Replace the horn if necessary.



HEADLIGHT REMOVAL

Remove the handlebar rear cover (page 11-4).

Disconnect the headlight wire connector.
Remove four screws and headlight.

Install the headlight in the reverse order of removal.

NOTE

- After installation, adjust the headlight beam.

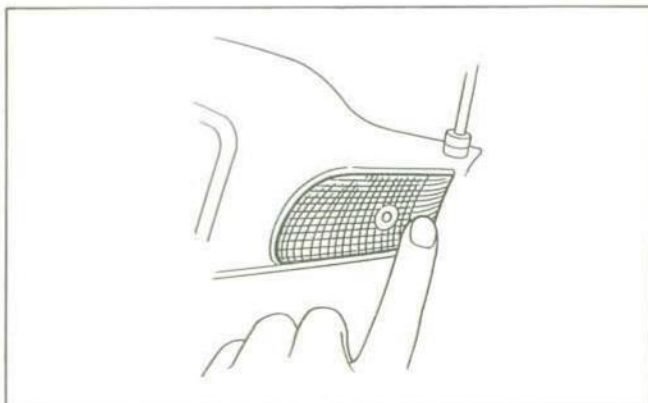


BULB REPLACEMENT

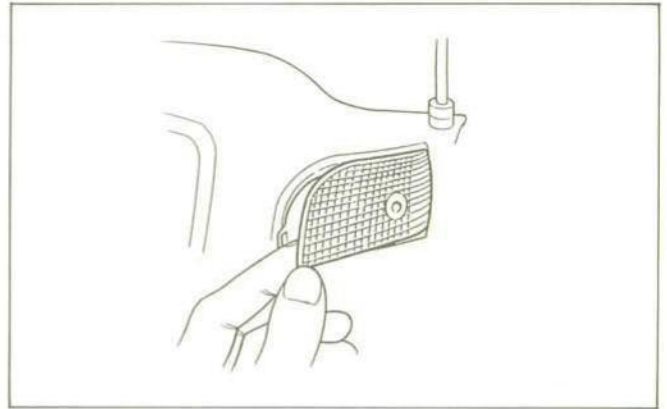
FRONT TURN SIGNALS

Remove the screw.
Push the lens at the corner of the lever side and remove it from the headlight side.

Replace the bulb with a new one.

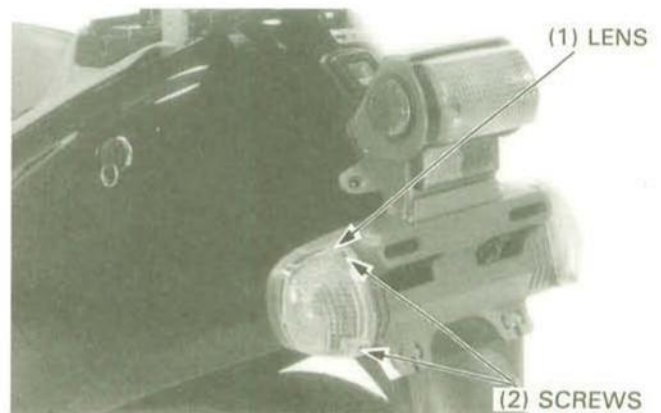


Installation is reverse order of removal.



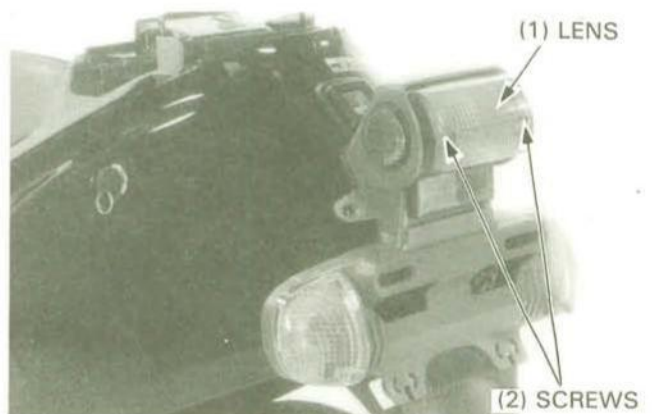
REAR TURN SIGNALS

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



TAIL/BRAKE LIGHT

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



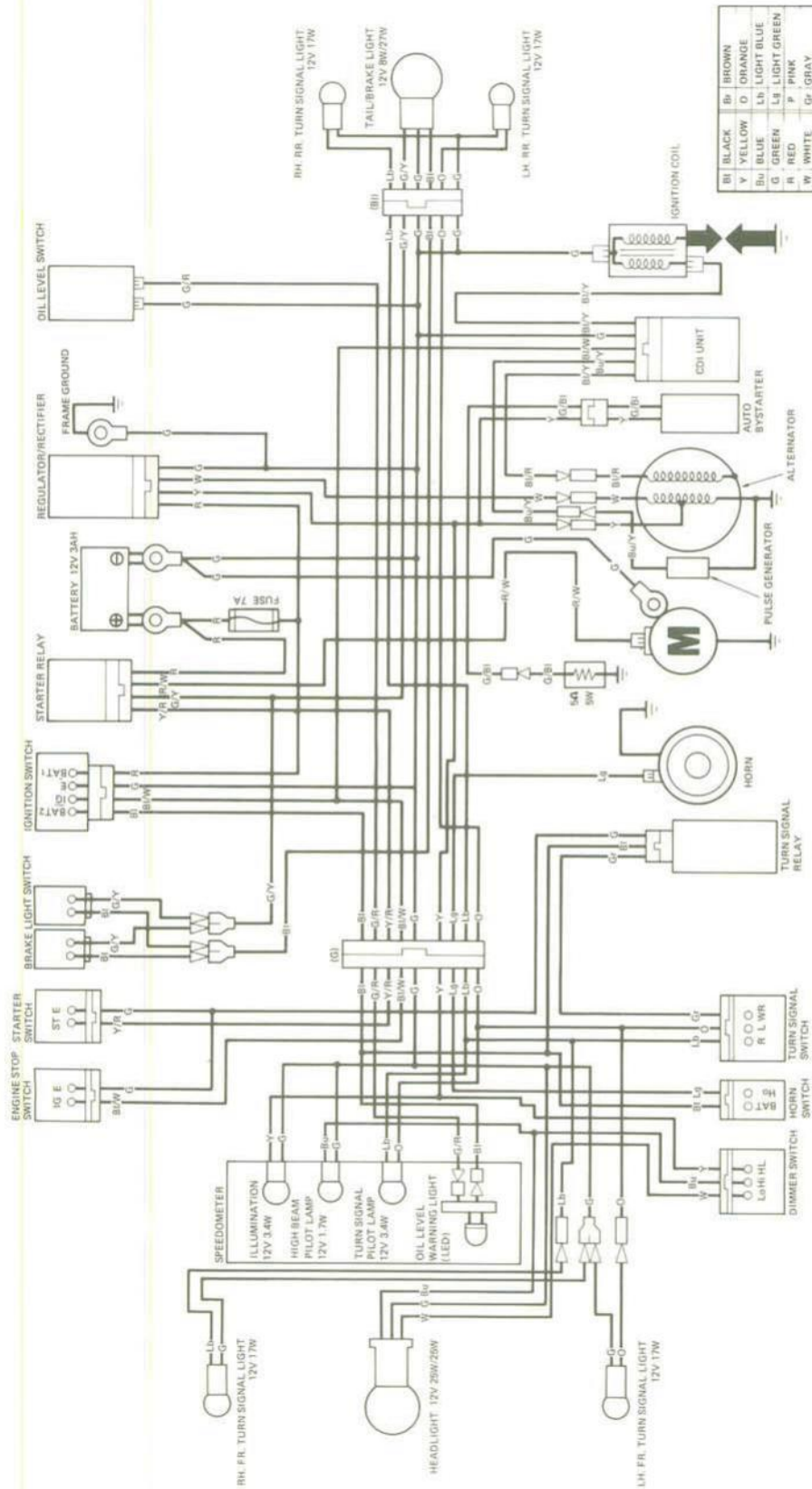
INSTRUMENT BULBS

Remove the handlebar front cover (page 11-4).
Pull the socket out of the instrument case and replace the bulb with a new one.

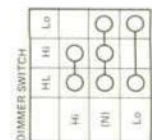
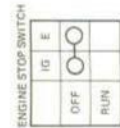
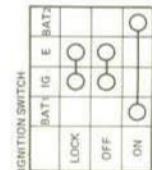
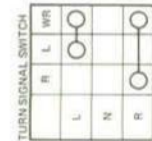
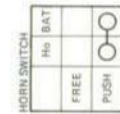


MEMO

15. WIRING DIAGRAM



BL	BLACK	B	BROWN
Y	YELLOW	O	ORANGE
BLU	BLUE	LB	LIGHT BLUE
G	GREEN	LG	LIGHT GREEN
R	RED	P	PINK
W	WHITE	GR	GRAY



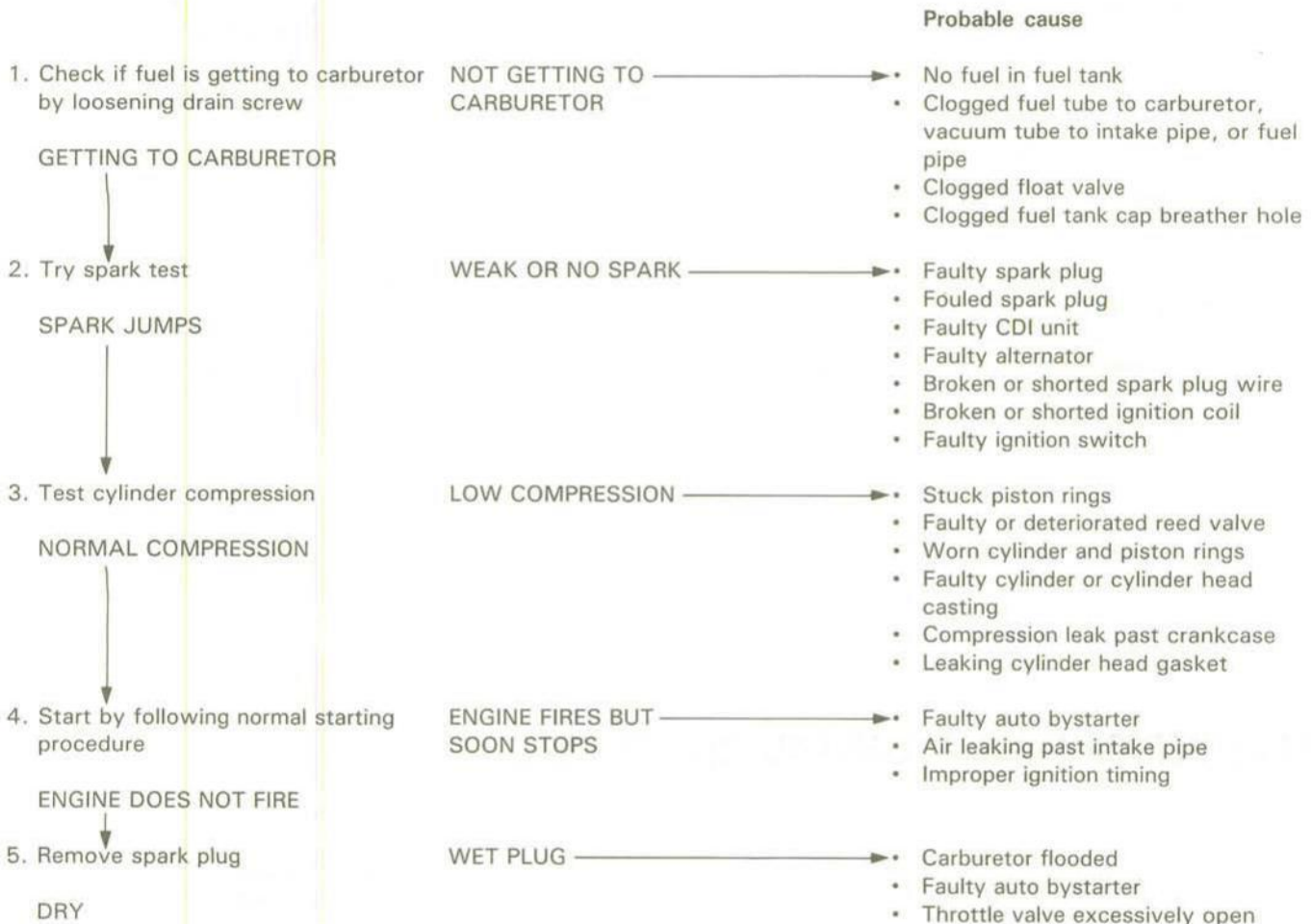
0030Z GS6 6700

MEMO

16. TROUBLESHOOTING

ENGINE DOES NOT START OR IS HARD TO START	16-1	CLUTCH AND DRIVE/DRIVEN PULLEYS	16-3
ENGINE LACKS POWER	16-2	POOR HANDLING	16-4
POOR PERFORMANCE AT LOW AND IDLE SPEEDS	16-2	OIL LEVEL SENSOR	16-5
POOR PERFORMANCE AT HIGH SPEED	16-3	STARTER MOTOR	16-6

ENGINE DOES NOT START OR IS HARD TO START



ENGINE LACKS POWER

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

POOR PERFORMANCE AT LOW AND IDLE SPEEDS

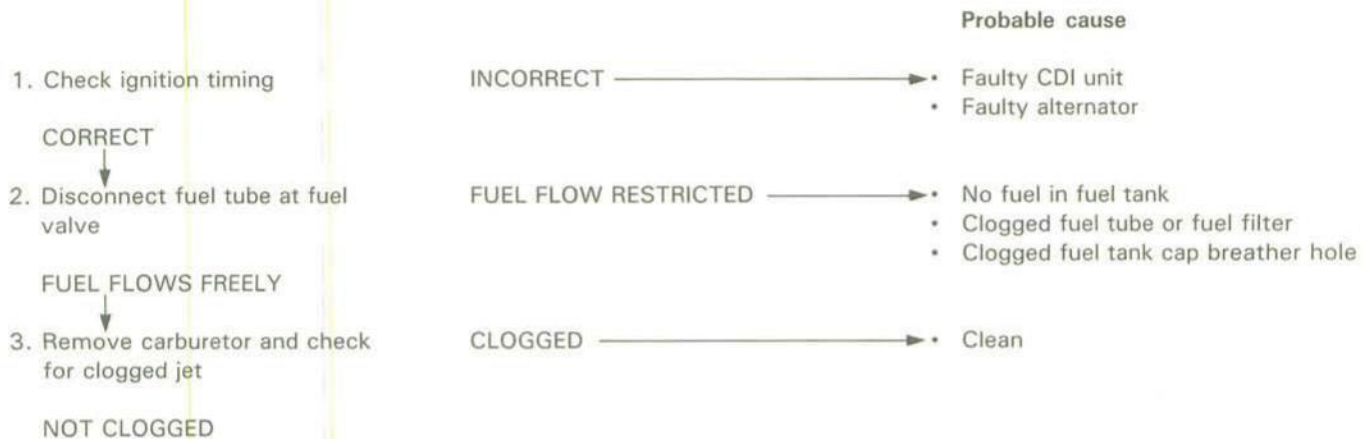
		Probable cause
1. Check ignition timing	INCORRECT	• Faulty CDI unit • Faulty alternator
CORRECT		
↓		
2. Check carburetor air screw for proper adjustment	INCORRECT	• Fuel air mixture too rich (Screw out to correct) • Fuel air mixture too lean (Screw in to correct) • Faulty auto bystarter
CORRECT		
↓		
3. Check if air is leaking past intake pipe	LEAKING	• Deteriorated insulator gasket • Loose carburetor • Deteriorated intake pipe gasket • Deteriorated insulator O-ring
NOT LEAKING		
↓		

- 4 Try spark test
- GOOD SPARK

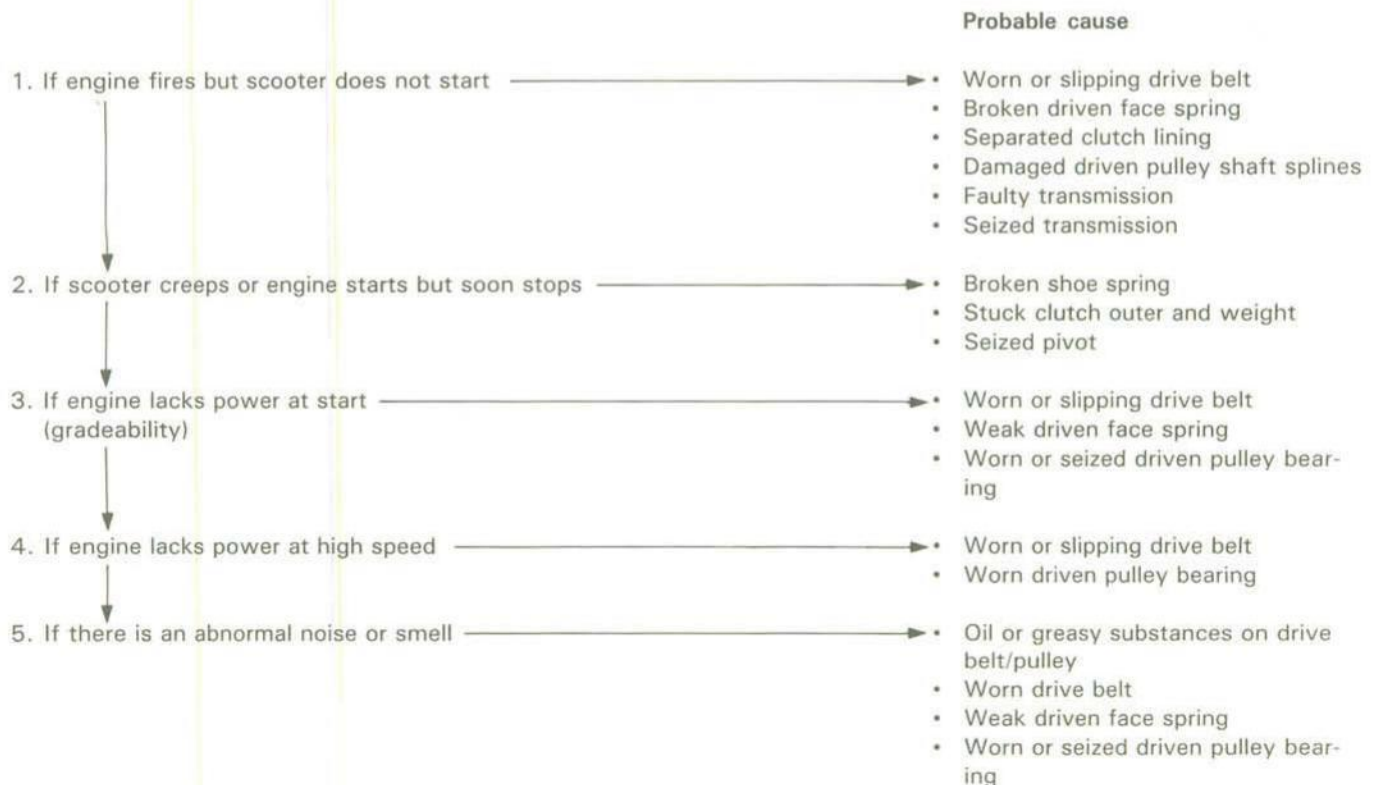
WEAK OR INTERMITTENT
SPARK

- Faulty, carbon or wet fouled spark plug
- Faulty CDI unit
- Faulty alternator
- Faulty ignition coil
- Broken or shorted spark plug wire
- Faulty ignition switch

POOR PERFORMANCE AT HIGH SPEED



CLUTCH AND DRIVE/DRIVEN PULLEYS



POOR HANDLING

LOSS OF CONTROL ————— Check tire pressure

- | | Probable cause |
|--|--|
| 1. If steering is heavy —————→ | • Steering stem nut too tight
• Damaged steering cones or steel balls |
| ↓ | |
| 2. If either wheel is wobbling —————→ | • Excessive wheel bearing play
• Bent rim
• Loose axle nut |
| ↓ | |
| 3. If the scooter pulls to one side —————→ | • Misaligned front and rear wheels
• Bent fork |

POOR FRONT/REAR SUSPENSION PERFORMANCE

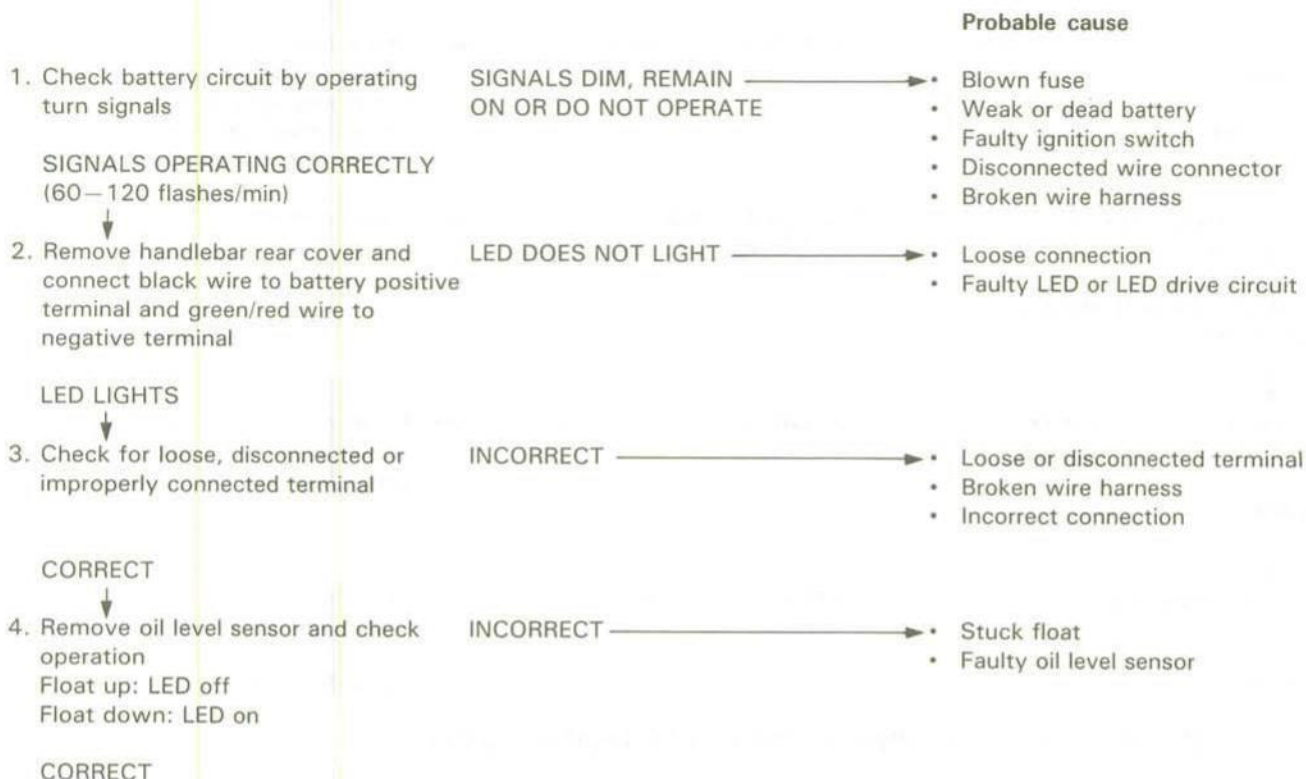
- | | Probable cause |
|-------------------------------------|--|
| 1. If suspension is too soft —————→ | • Weak spring
• Excessive load |
| ↓ | |
| 2. If suspension is too hard —————→ | • Bent fork or shock rod |
| ↓ | |
| 3. If suspension is noisy —————→ | • Slider binding
• Shock spring binding
• Damaged shock damper rubber
• Loose steering stem nut |

POOR BRAKE PERFORMANCE

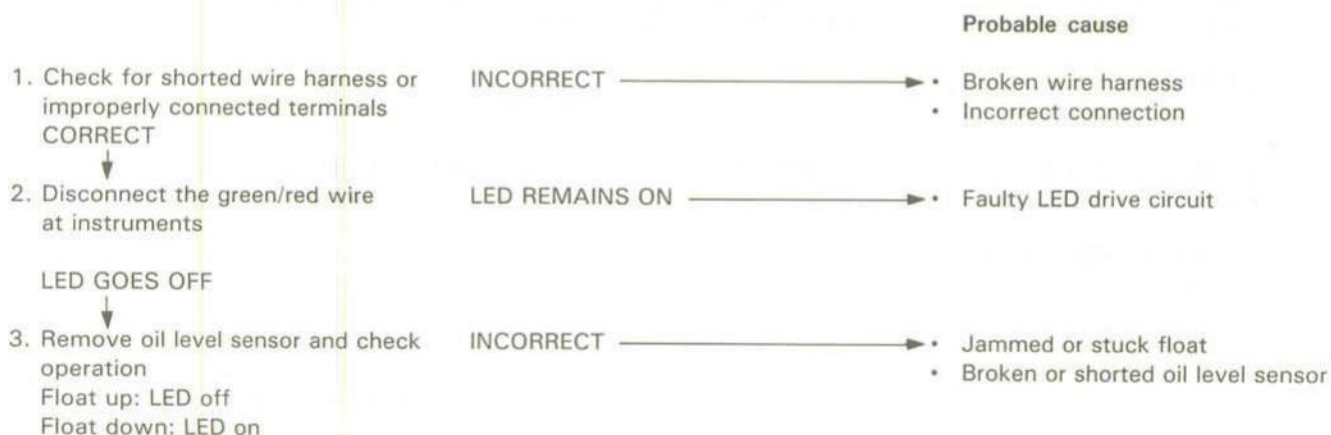
- | | Probable cause |
|---|--|
| 1. If wear indicator arrow aligns with index mark on brake panel —————→ | • Worn brake shoes
• Worn brake cam
• Worn cam contacting face of shoe
• Worn brake drum |
| ↓ | |
| 2. If either brake is squealing —————→ | • Worn brake shoes
• Foreign matter on brake lining
• Rough shoe contact face of brake drum |
| ↓ | |
| 3. If brake performance is poor —————→ | • Misadjusted or stretched brake cable
• Brake shoes partially contacting brake drum
• Mud or water in brake drum
• Brake linings fouled with grease or oil |

OIL LEVEL SENSOR

INDICATOR (LED) DOES NOT LIGHT WHEN IGNITION SWITCH IS TURNED ON OR WHEN THERE'S NO OIL



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



STARTER MOTOR

STARTER MOTOR DOES NOT TURN

		Probable cause
1. Check operation of brake stop light by operating brakes	DID NOT GO ON	• Blown fuse • Weak or dead battery • Faulty stop light switch • Disconnected terminal • Broken 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 operation by depressing starter switch	ABNORMAL	• Poorly contacted starter switch • Broken or shorted starter relay • Loose connector or terminal
NORMAL		
4. Test starter by connecting it to battery	DID NOT TURN	• Worn brushes • Broken or shorted armature windings • Loose terminal
URNS		

STARTER MOTOR TURNS SLUGGISHLY OR FAILS TO CRANK ENGINE

		Probable cause
1. Check battery circuit by operating turn signals	SIGNALS DIM, REMAIN ON, OR DO NOT OPERATE AT ALL	• Dead battery
SIGNALS OPERATE PROPERLY		
2. Connect starter motor across battery terminals	URNS PROPERLY	• Loose connector/terminal • Poorly contacted starter relay
URNS SLOWLY (SPEED DOES NOT CHANGE)		

STARTER WON'T STOP

		Probable cause
1. Turn ignition switch OFF	STOPS	• Pinion stuck out
DOES NOT STOP		• Starter relay shorted or stuck closed

Air Cleaner Case	4-3	Ignition Timing Inspection	14-9
Element	3-3	Instrument Replacement	14-13
Air Screw Adjustment	4-11	Kick Starter/Drive And Driven Pulleys/Clutch	8-1
Alternator	7-1, 7-2, 14-9	Starter	8-2
Auto Bystarter	4-6	Leg Shield	11-3
Fuel Valve Inspection/Maintenance	4-13	Lubrication	2-1
Battery	14-3	Points	2-5
Brake Free Play	3-5	Maintenance	3-1
Light Switch	14-16	Schedule	3-2
Shoe Wear	3-5	Model Identification	1-2
Bulb Replacement	14-16	Mud Guard	11-5
Cable & Harness Routing	1-8	Noise Emission Control Systems (U.S.A. only)	1-11
Carburetor	3-4	Nuts, Bolts, Fasteners	3-6
Assembly	4-9	Oil Level Sensor	14-12
Disassembly	4-8	Lines/Pump Bleeding	2-3
Installation	4-10	Pump	2-2
Removal	4-6	Strainer	2-4
CDI Unit System Inspection	14-8	Tank	2-4
Charging System	14-5	Rear Wheel/Brake/Suspension	13-1
Clutch/Driven Pulley	8-6	Brake	13-3
Compression Test	6-9	Fender	11-5
Crankcase/Crankshaft	10-1	Shock Absorber	13-5
Crankcase Assembly	10-5	Wheel	13-2
Separation	10-2	Reed Valve	4-10
Crankshaft Assembly	10-4	Service Information	
Inspection	10-2	Alternator	7-1
Removal	10-2	Crankcase/Crankshaft	10-1
Cylinder Head/Cylinder/Piston	6-1	Cylinder Head/Cylinder/Piston	6-1
Head	6-2	Electrical Equipment	14-1
Cylinder/Piston	6-4	Engine Removal/Installation	5-1
Drive Belt	8-5	Final Reduction	9-1
Pulley	8-6	Frame Covers	11-1
Electrical Equipment	14-1	Fuel System	4-1
Engine Removal/Installation	5-1	Kick Starter/Drive And Driven Pulleys/	
Installation	5-4	Clutch	8-1
Removal	5-2	Lubrication	2-1
Final Reduction	9-1	Maintenance	3-1
Assembly	9-4	Rear Wheel/Brake/Suspension	13-1
Disassembly	9-2	Steering/Front Wheel/Brake/Suspension	12-1
Inspection	9-2	Service Rules	1-1
Float Level Inspection	4-10	Spark Plug	3-4
Frame Covers	11-1	Specifications	1-3
Side Covers	11-2	Starter Motor	14-10
Front Brake	12-7	Pinion	8-10
Cover	11-3	Steering/Front Wheel/Brake/Suspension	12-1
Shock Absorbers	12-9	Steering Head Bearings	3-7
Wheel	12-4	Stem	12-11
Fuel System	4-1	Suspension Operation	3-6
Line	3-3	Throttle Operation	3-3
Strainer Cleaning	4-13	Valve Installation	4-5
Tank	4-13	Throttle Valve Removal	4-4
General Information	1-1	Tires	3-6
Safety	1-1	Tools	1-7
Handlebar	12-3	Torque Values	1-5
Cover	11-4	Transmission Case	3-7
Switches	14-14	Troubleshooting	
Headlight Aim	3-5	Crankcase/Crankshaft	10-1
Removal	14-16	Cylinder Head/Cylinder/Piston	6-1
High Altitude Adjustment (U.S.A. Only)	4-12	Electrical Equipment	14-2
Horn Inspection	14-16	Final Reduction	9-1
Ignition Coil	14-8	Fuel System	4-2
Switch	14-13		

INDEX

Kick Starter/Drive And Driven Pulleys/	
Clutch	8-1
Lubrication	2-1
Rear Wheel/Brake/Suspension	13-1
Steering/Front Wheel/Brake/Suspension	12-2
Trunk	11-4
Wiring Diagram	15-1