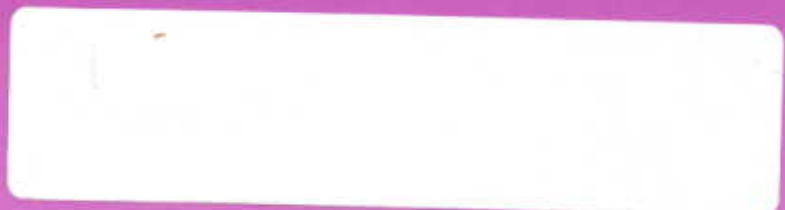


HONDA

SERVICE MANUAL



88-01

SA50/SA50P

ELITE 50 LX/SR/S

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 18 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 19, 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.

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HONDA MOTOR CO., LTD.
Service Publications Office

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1. GENERAL INFORMATION

1

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GENERAL SAFETY

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

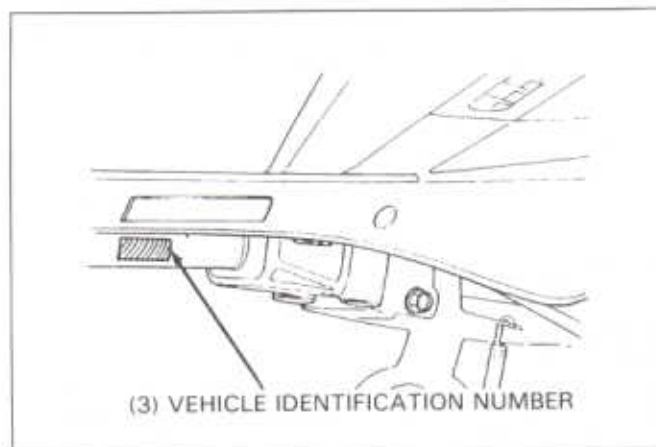
SERVICE RULES

1. Use genuine HONDA or HONDA-recommended parts and lubricants or their equivalents. Parts that do not meet HONDA's design specifications may damage the scooter.
2. Use the special tools designed for this 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 pages 1-7 thru. 1-11, Cable and Harness Routing, and away from sharp edges and areas where they might be pinched between moving parts.

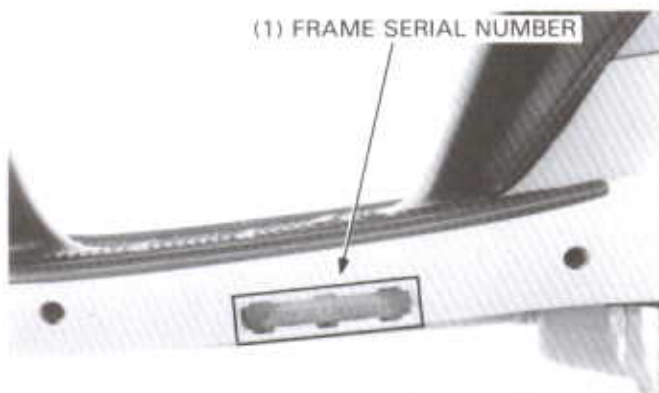
GENERAL INFORMATION

MODEL IDENTIFICATION

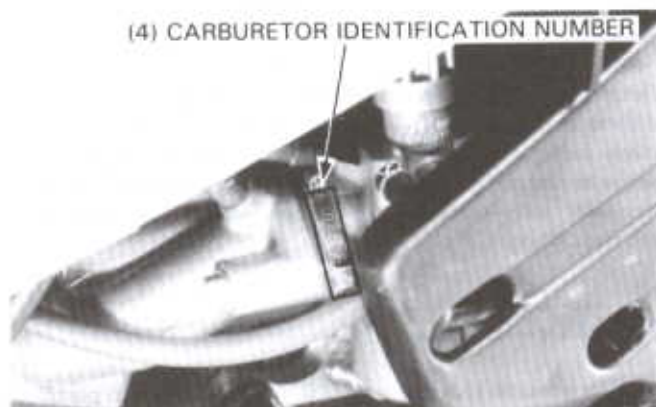
'88 Shown: After '88 similar



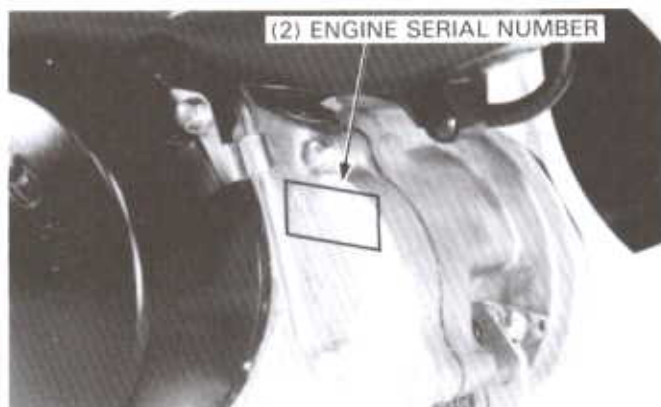
The vehicle identification number is attached to the left side of the frame body.



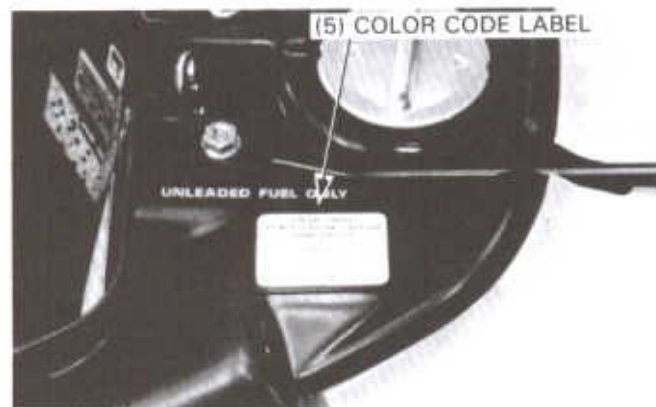
The frame serial number is stamped on the left side of the frame.



The engine serial number is stamped on the left side of the engine case.



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



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

SPECIFICATIONS

ITEM		SPECIFICATIONS	
DIMENSIONS	Overall length	'88-'93 After '93	1,650 mm (65.0 in) 1,655 mm (65.2 in)
	Overall width		650 mm (25.6 in)
	Overall height		1,010 mm (39.8 in)
	Wheelbase	'88-'93 After '93	1,160 mm (45.7 in) 1,170 mm (46.1 in)
	Ground clearance	'88-'93 After '93	100 mm (3.9 in) 105 mm (4.1 in)
	Dry weight	'88-'93 After '93	62.4 kg (138 lb) SA50: 65.0 kg (143 lb) SA50P: 65.2 kg (144 lbs)
FRAME	Type		Under bone
	Front suspension, travel	'88-'93 After '93	Trailing link, 73 mm (2.9 in) Trailing link, 58 mm (2.3 in)
	Rear suspension, travel		Final drive unit/swingarm, 60 mm (2.4 in)
	Maximum weight capacity		91 kg (200 lb)
	Front tire size, pressure	'88-'93 After '93	3.00-10-4PR, 125 kPa (1.25 kg/cm ² , 18 psi) 3.00-10 42J, 125 kPa (1.25 kg/cm ² , 18 psi)
	Rear tire size, pressure	'88-'93 After '93	3.00-10-4PR, 225 kPa (2.25 kg/cm ² , 33 psi) 3.00-10 42J, 225 kPa (2.25 kg/cm ² , 33 psi)
	Front brake		Internal expanding shoe
	Rear brake		Internal expanding shoe
	Fuel tank capacity		4.6 liters (1.22 US gal, 1.01 Imp gal)
	Caster angle		27°
	Trail	'88-'89 '90-'93 After '93	77 mm (3.0 in) 81 mm (3.2 in) 73 mm (2.9 in)
ENGINE	Type		Air cooled 2-stroke
	Cylinder arrangement		Single cylinder inclined 15° from vertical
	Bore and stroke	'88-'93 After '93	41.0 × 37.4 mm (1.61 × 1.47 in) 39.0 × 41.4 mm (1.54 × 1.63 in)
	Displacement		49.4 cm (3.01 cu in)
	Compression ratio	'88-'93 After '93	6.9: 1 7.0: 1
	Transmission oil capacity		90 cc (3.0 US oz, 2.5 Imp oz)
	Oil tank capacity		0.8 liter (0.85 US qt, 0.70 Imp qt)
	Lubrication system		Oil automatically mixed with gasoline
	Port timing Intake open		Reed valve controlled
	close		Reed valve controlled
	Exhaust open	'88-'93 After '93	80° BBDC 79° BBDC
	close	'88-'93 After '93	80° ABDC 79° ABDC
	Scavenge open		56° BBDC
	close		56° ABDC
	Engine dry weight	'88-'93 After '93	14.7 kg (32.4 lb) 16.5 kg (36.4 lb)
CARBURATION	Idle speed		1,800 ± 100 rpm
	Carburetor type		Piston valve
	Identification number	'88-'93 After '93	PA31M SA50: PA35J SA50P: PA35K
	Air screw initial setting	'88-'93 After '93	1-3/8 turns out SA50: 1-7/8 turns out SA50P: 1-3/4 turns out
	Float level		12.2 mm (0.48 in)

GENERAL INFORMATION

Item		Specifications	
DRIVE TRAIN	Clutch type	Dry, automatic centrifugal clutch	
	Primary reduction	V-belt	
	Gear ratio	2.45—0.85: 1	
		SA50P: 2.40—1.15: 1	
	Final reduction	'88—'93	11.097: 1
		After '93	12.115: 1
ELECTRICAL	Ignition system	Condenser capacitive discharge ignition (CDI)	
	Starting system	Electric starter motor and kickstarter	
	Alternator	'88—'93	12V 96W/5,000 rpm
		'94—'00	12V 88W/5,000 rpm
		After '00	12V 100W/5,000 rpm
	Spark plug		NGK
			DENSO
	'88—'93	Standard	BPR6HSA
		For cold climate	BPR4HSA
		For extended high speed riding	BPR8HSA
	After '93	Standard	BR6HSA
		For cold climate	BR4HSA
		For extended high speed riding	BR8HSA
	Spark plug gap		0.6—0.7 mm (0.024—0.028 in)
	Ignition timing "F" mark		17° BTDC at 1,800 ± 100 rpm
	Battery capacity		12V 3AH
	Fuse capacity		10A
LIGHT	Headlight Low/High	'88—'00	12V 25W/25W
		After '00	12V 35W/35W
	Tail/brake light		12V 8W/27W
	Turn signal light		12V 17W × 4
	Speedometer light		12V 1.7W × 2
	High beam indicator		12V 1.7W
	Turn signal indicator		12V 3.4W

TORQUE VALUES

ENGINE

Item	Q'ty	Thread Dia (mm)	Torque N·m (kg-m, ft-lb)	Remarks
Cylinder head bolt	4	6	10 (1.0, 7.2)	NOTE 1
Flywheel nut	1	10	38 (3.8, 27)	'88 thru. '93
	1	10	40 (4.0, 29)	After '93
Clutch outer nut	1	10	38 (3.8, 27)	'88 thru. '93
	1	10	40 (4.0, 29)	After '93
Clutch lock nut	1	28	38 (3.8, 27)	'88 thru. '93
	1	28	55 (5.5, 40)	After '93
Movable drive face seal bolt	3	4	4.5 (0.45, 3.3)	
Drive pulley nut	1	10	38 (3.8, 27)	'88 thru. '93
	1	12	60 (6.0, 43)	After '93
Oil check bolt	1	8	13 (1.3, 9)	NOTE 1
Exhaust pipe joint nut	2	6	12 (1.2, 9)	
Muffler mount bolt	2	8	32 (3.2, 23)	
Spark plug	1	14	14 (1.4, 10)	
Crankcase bolt	6	6	10 (1.0, 7.2)	
Engine mount bolt	1	10	50 (5.0, 36)	
Left crankcase rear cover bolt	5	6	10 (1.0, 7.2)	After '93
Left crankcase front cover bolt	5	6	10 (1.0, 7.2)	

FRAME

Item	Q'ty	Thread Dia (mm)	Torque N·m (kg-m, ft-lb)	Remarks
Steering stem lock nut	1	25.4	9 (0.9, 6.5)	
Steering stem nut	1	25.4	100 (10.0, 72)	
Front axle nut	1	10	45 (4.5, 33)	
Front brake arm bolt	1	5	6 (0.6, 4.3)	
Speedometer attaching screw	1	4	2 (0.2, 1.4)	
Front shock absorber upper mount bolt	2	8	27 (2.7, 20)	
Front shock absorber lower mount nut	2	8	18 (1.8, 13)	
Front shock absorber lower mount bolt	2	8	1 (0.1, 0.7)	
Pivot arm nut	2	8	27 (2.7, 20)	
Front shock absorber damper lock nut	2	8	20 (2.0, 14)	NOTE 2
Rear axle nut	1	14	110 (11.0, 80)	'88 thru. '93
	1	14	120 (12.0, 87)	After '93
Rear brake arm bolt	1	5	5 (0.5, 3.6)	NOTE 1
Rear shock absorber upper mount bolt	1	10	40 (4.0, 29)	
Rear shock absorber lower mount bolt	1	8	25 (2.5, 18)	'88 thru. '93
	1	8	27 (2.7, 20)	After '93
Rear shock absorber damper lock nut	1	8	20 (2.0, 14)	NOTE 2
Auto fuel valve	1	16	23 (2.3, 17)	
Engine bracket bolt	1	10	50 (5.0, 36)	

NOTE 1: Apply oil to the threads and seating (or flange) surface. NOTE 2: Apply locking agent to the threads.

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

STANDARD TORQUE VALUES

Item	Torque Values N·m (kg-m, ft-lb)	Item	Torque Values N·m (kg-m, ft-lb)
5 mm bolt and nut	5 (0.5, 3.5)	5 mm screw	4 (0.4, 3)
6 mm bolt and nut	10 (1.0, 7.2)	6 mm screw	9 (0.9, 7)
		6 mm bolt with 8 mm head	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)

GENERAL INFORMATION

TOOLS SPECIAL

Description	Tool Number	Alternate Tool	Tool Number	Ref. Sec
Vacuum pump (U.S.A. only)	A937X-041-XXXXX	Vacuum pump (U.S.A. only: Included in turbo kit)	ST-AH-260-MC7	
Lock nut wrench, 39 mm	07916-KS40100	39 mm socket		
Clutch spring compressor	07936-KM10000	Clutch spring compressor	07960-KM1000A	
Bearing driver	07945-GC80000			
Bearing remover set, 15 mm	07936-KC10000			
-remover handle	07936-1660100			
-remover weight	07741-0010201	Remover weight	07936-3710200	
Bearing remover set, 12 mm	07936-1660001			
-remover handle	07936-1660100			
-remover weight	07741-0010201	Remover weight	07936-3710200	
Assembly collar	07965-GM00100			
Assembly shaft	07965-GM00300			
* Assembly shaft	07965-1660200			
Case puller	07935-GK80000			
Case puller	07935-KG80000			
Universal bearing puller	07631-0010000			
Thread protector	07931-1870000			
Lock nut wrench	07916-1870000			
Lock nut wrench	07916-KM10000	Equivalent commercially available in U.S.A.		
Attachment, 28×30 mm	07946-1870100	Equivalent commercially available in U.S.A.		
Ball race remover	07946-GA70000			
Shock absorber compressor attachment	07967-GA70101			
Spring attachment	07967-GM90100			
Digital multimeter	M9360-277-91774	Digital multimeter	KS-AHM-32-003	

COMMON

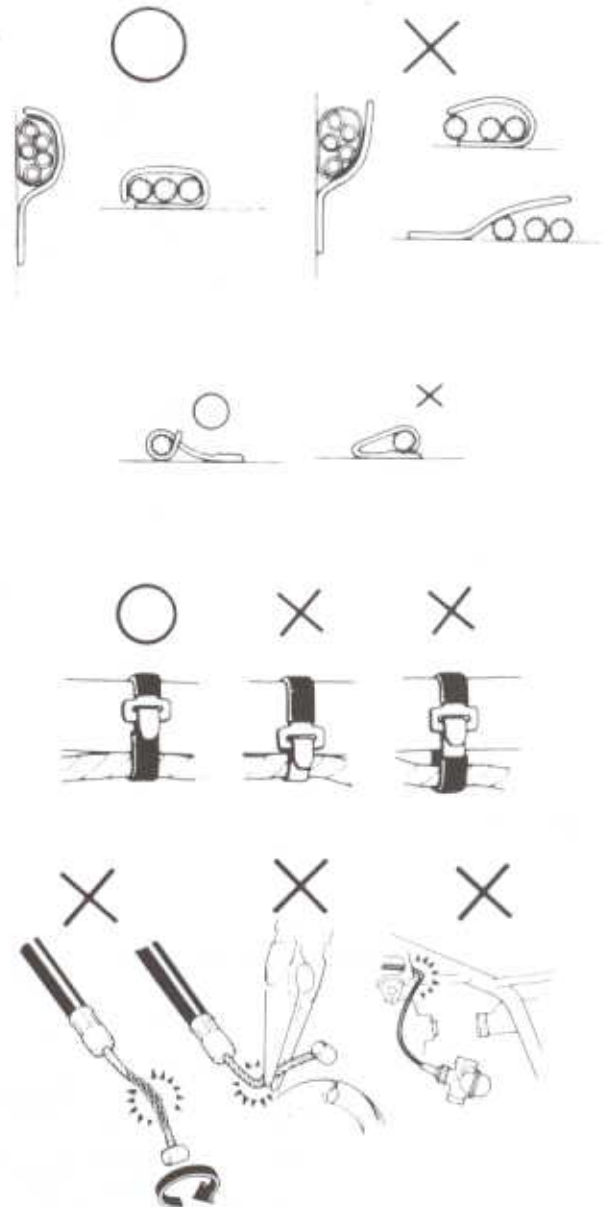
Description	Tool Number	Alternate Tool	Tool Number	Ref. Sec
Float level gauge	07401-0010000			
Universal holder	07725-0030000			
Flywheel puller	07733-0010000	Flywheel puller	07933-0230000	
Attachment, 32×35 mm	07746-0010100			
Attachment, 37×40 mm	07746-0010200			
**Attachment, 42×47 mm	07746-0010300			
*Attachment, 52×55 mm	07746-0010400			
Pilot, 10mm	07746-0040100			
Pilot, 12 mm	07746-0040200			
Piolt, 15 mm	07746-0040300			
Piolt, 17 mm	07746-0040400			
Piolt, 20 mm	07746-0040500			
Bearing driver	07749-0010000			
Bearing remover shaft	07746-0050100	Equivalent commercially available in U.S.A.		
Bearing remover head, 10 mm	07746-0050200			
Shoch absorber compressor	07GME-0010000			
Lock nut wrench, 30×32 mm	07716-0020400			
Extension bar	07716-0020500	Equivalent commercially available in U.S.A.		

*After '93 only **'88 thru. '93 only

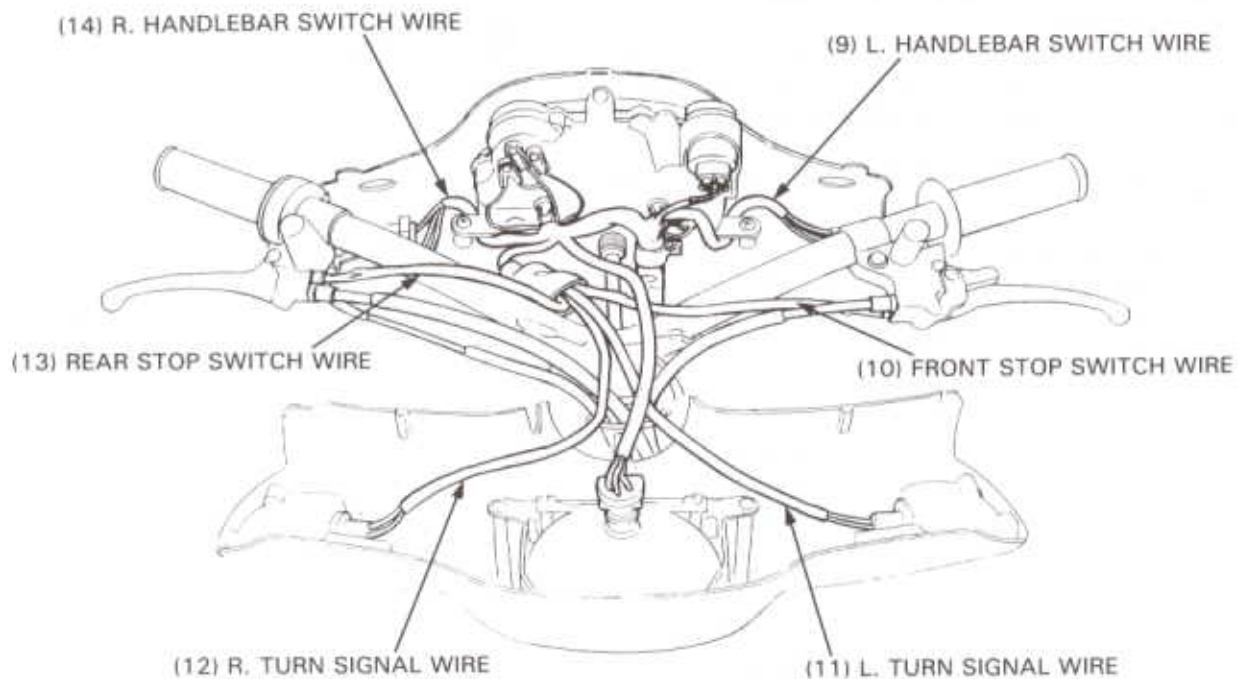
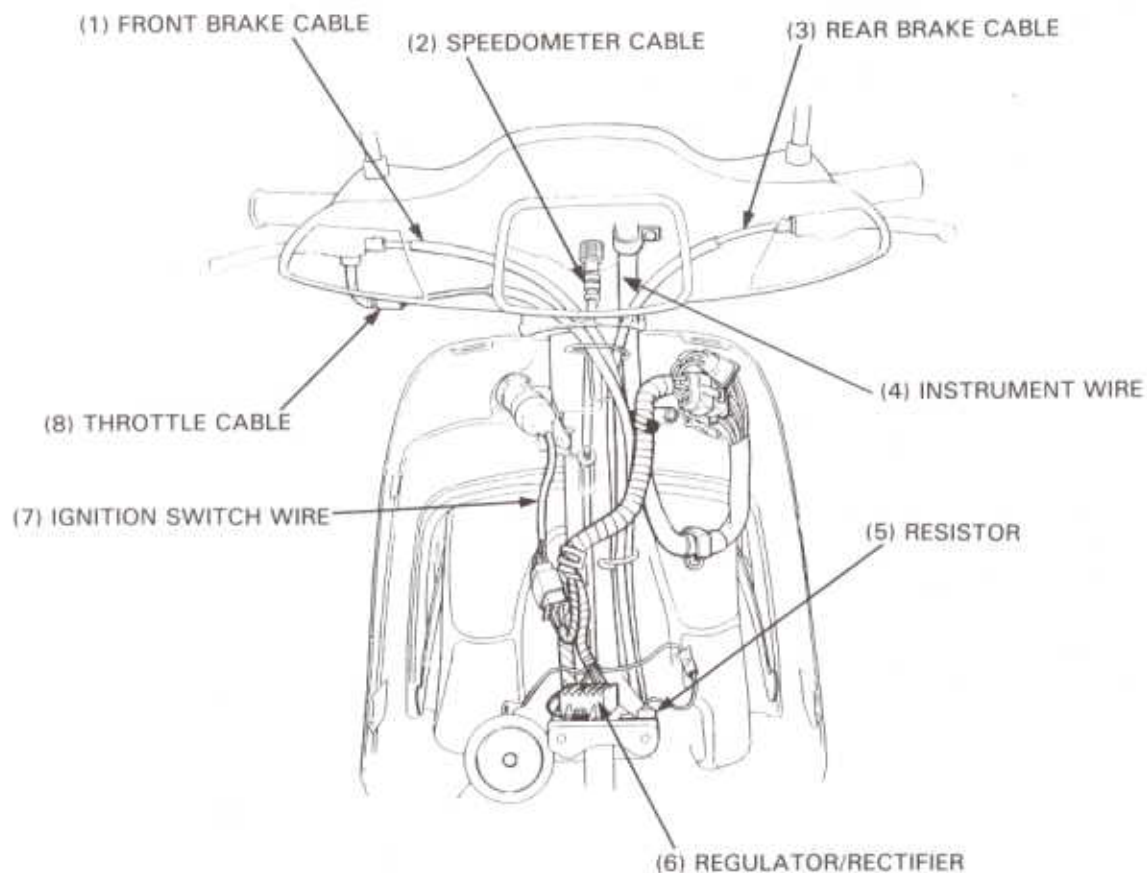
CABLE & HARNESS ROUTING

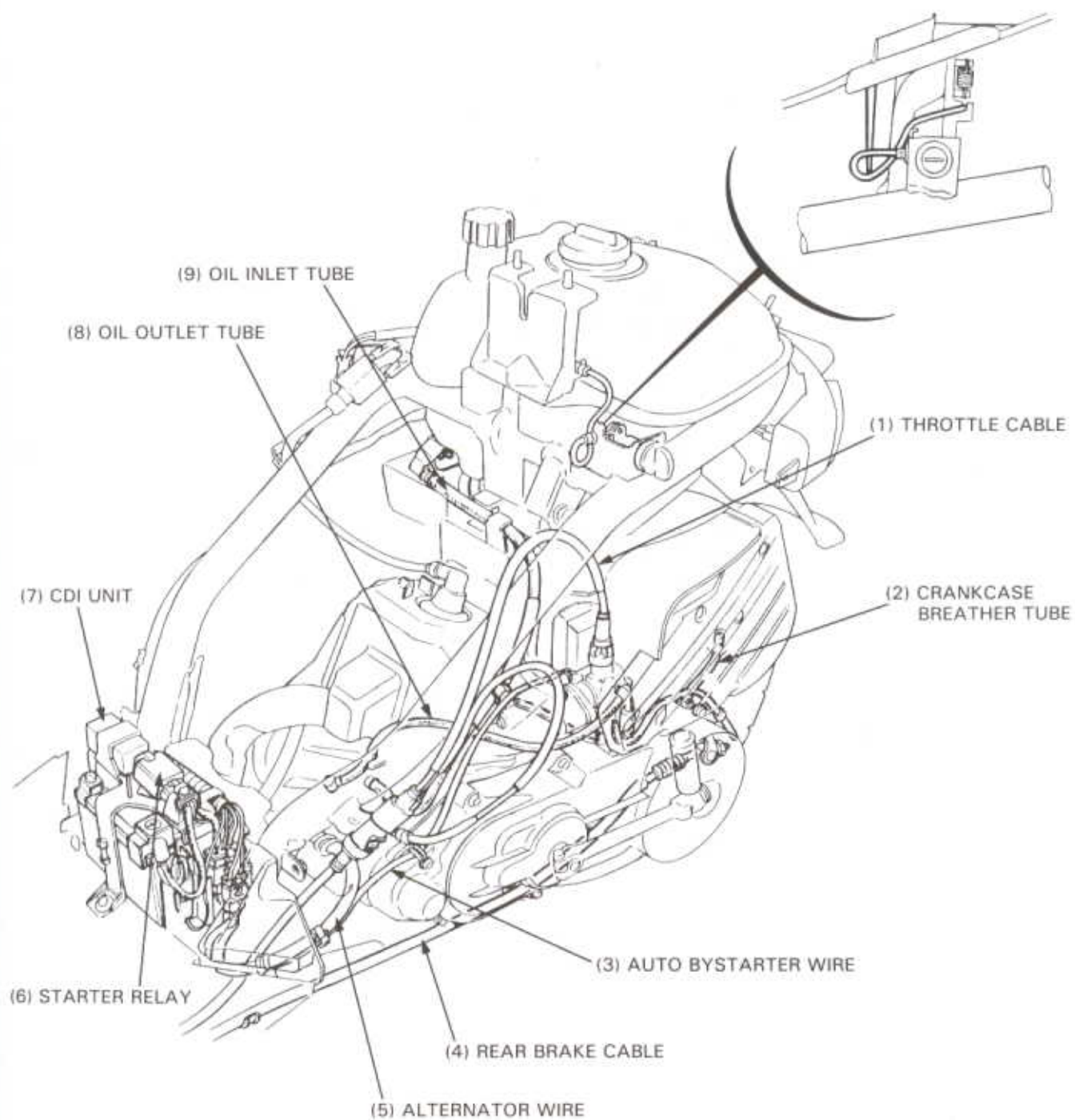
Note the following when routing cables and wire harnesses.

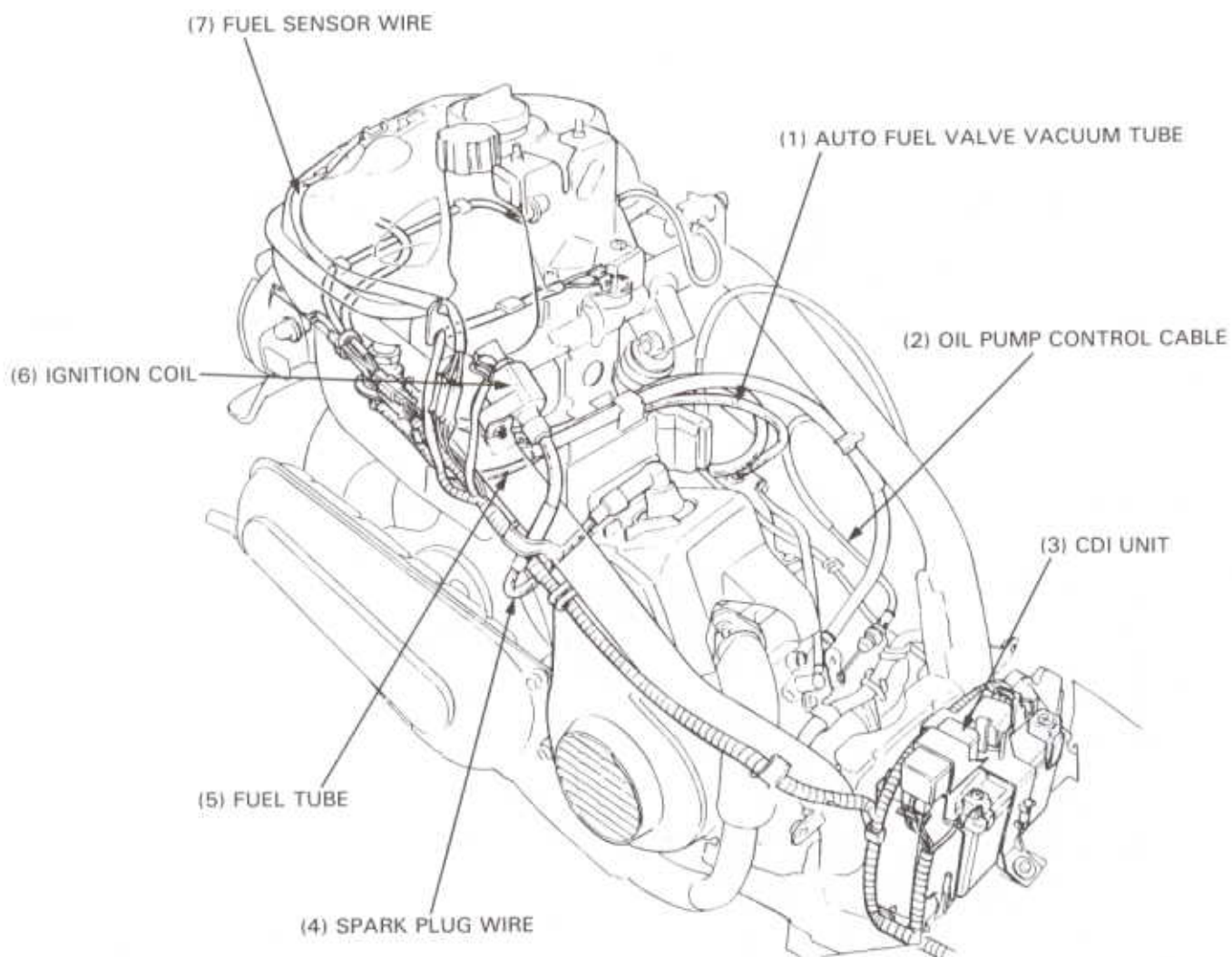
- A loose wire harness or cable can be a safety hazard. After clamping, check each wire to be sure it is secure.
- Do not squeeze wires against a weld or end of a clamp.
- Secure wires and wire harnesses to the frame with their respective wire bands at the designated locations. Tighten the bands so that 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.

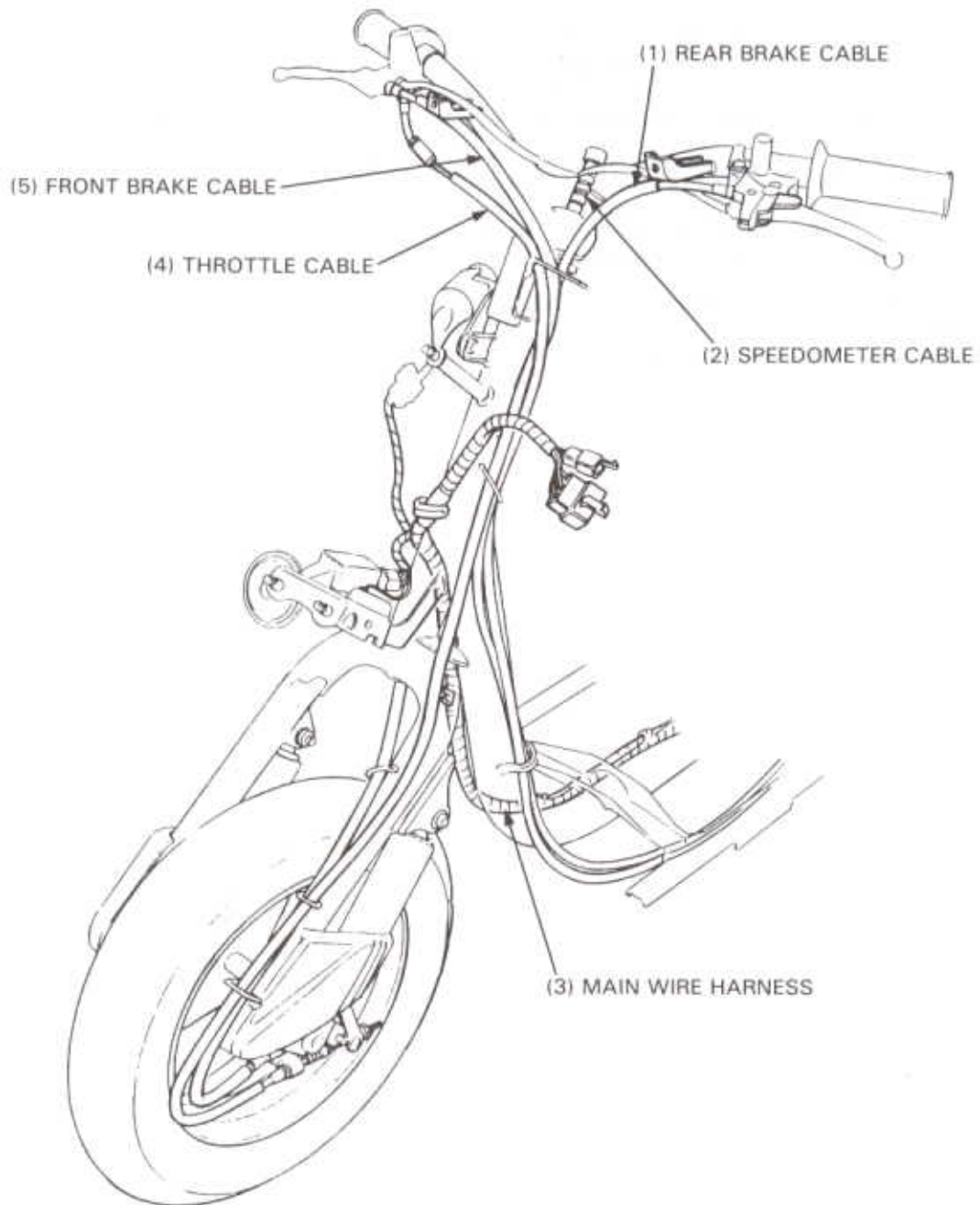


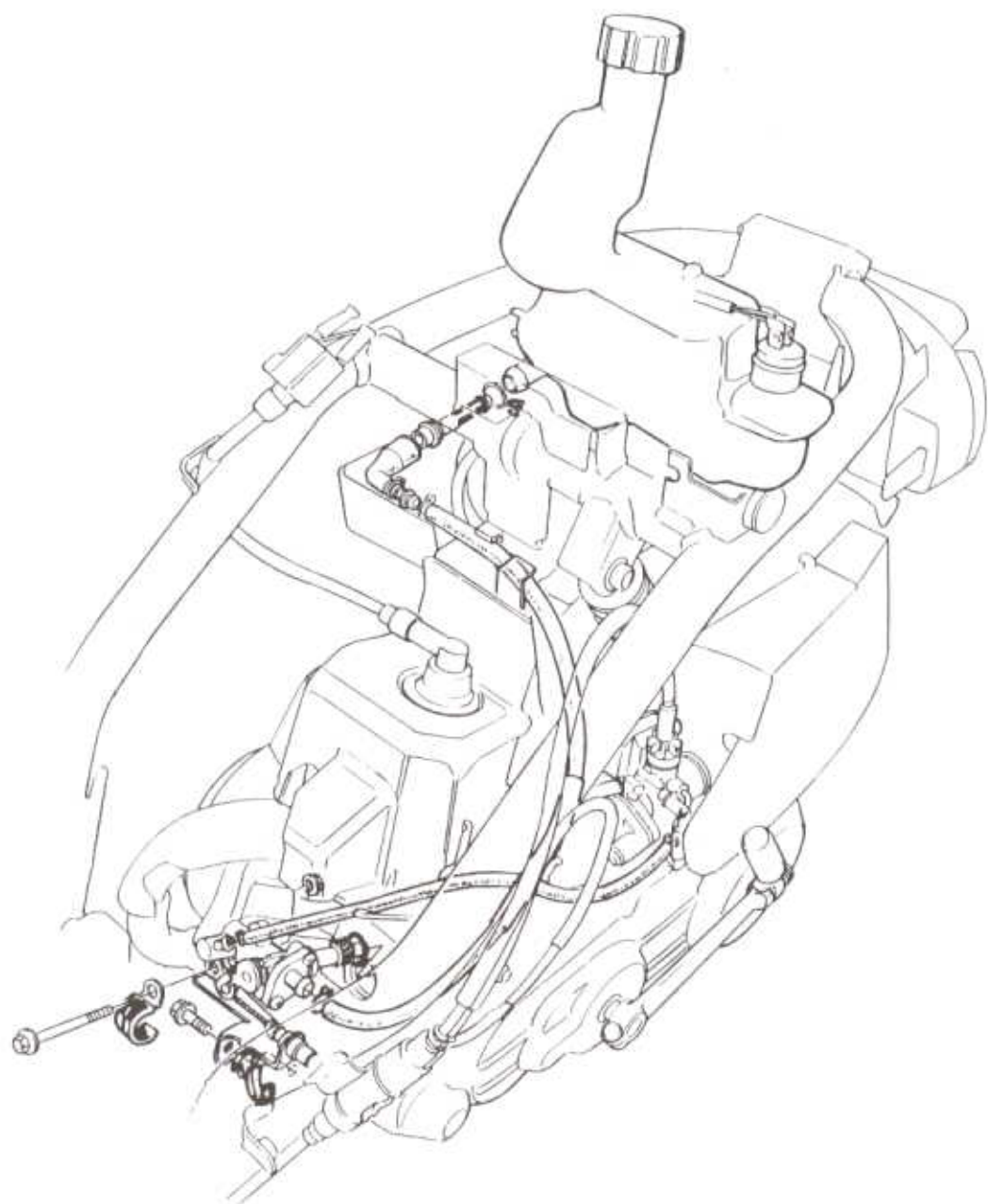
○: CORRECT
×: INCORRECT











2. LUBRICATION

SERVICE INFORMATION	2-1	OIL STRAINER	2-4
TROUBLESHOOTING	2-1	OIL TANK	2-5
OIL PUMP	2-2	LUBRICATION POINTS	2-6
OIL LINES/PUMP BLEEDING	2-3		
OIL PUMP CONTROL CABLE ADJUSTMENT (SA50)	2-4		

SERVICE INFORMATION

GENERAL

- When removing and installing the oil pump, use care not to allow dust or dirt to enter the engine and oil line.
- Do not attempt to disassemble the oil pump.
- Bleed air from the oil pump if there is air in the oil inlet line (from the oil tank to the oil pump) or whenever the oil line has been disconnected.
- Bleed air from the oil outlet line (from the oil pump to the carburetor) whenever the line has been disconnected (page 2-3).
- Use HONDA 2-stroke injector oil or equivalent.

TROUBLESHOOTING

Excessive smoke and/or carbon on spark plug

- Faulty oil pump
- Low quality engine oil
- SA50: Oil pump not properly adjusted (excessive oil)

Overheating

- Faulty oil pump
- Low quality oil
- SA50: Oil pump not properly adjusted (insufficient oil)

Seized piston

- No oil in tank or clogged oil line
- Air in oil lines
- Faulty oil pump
- Clogged oil strainer
- SA50: Oil pump not properly adjusted (insufficient oil)

Oil not flowing out of tank

- Clogged oil tank cap breather hole
- Clogged oil strainer

LUBRICATION

OIL PUMP

REMOVAL

Remove the center trunk (page 11-5).

NOTE

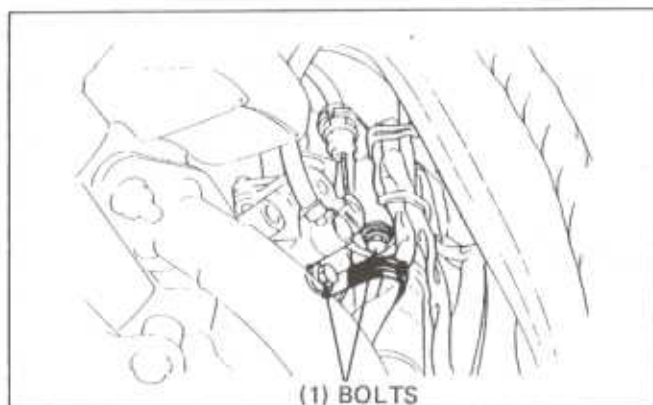
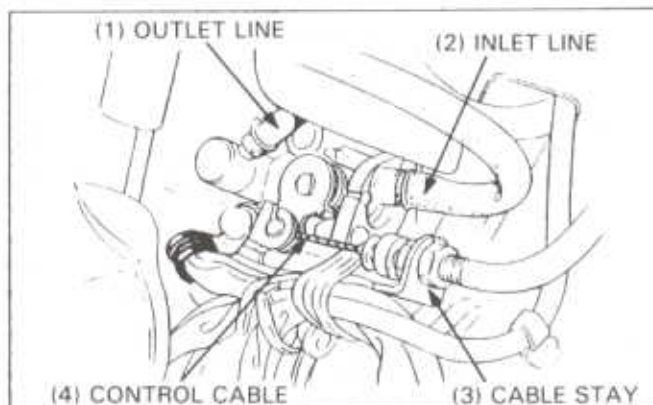
- Before removing the oil pump, clean the oil pump and crankcase.

Except SA50P: Remove the oil control cable from the cable stay and oil pump control lever.

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

Disconnect the alternator wire from the clamp.

Remove the oil pump control cable stay attaching bolts.
Remove the oil pump.



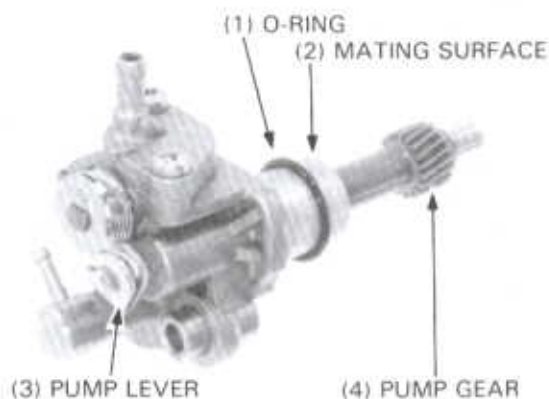
INSPECTION

CAUTION

- Do not disassemble the oil pump.

Inspect for the following:

- Damaged or weak O-ring
- Damage to crankcase mating surface
- Damage to pump body
- Except SA50P: Control lever operation
- Worn or damaged pump gear
- Oil leaks

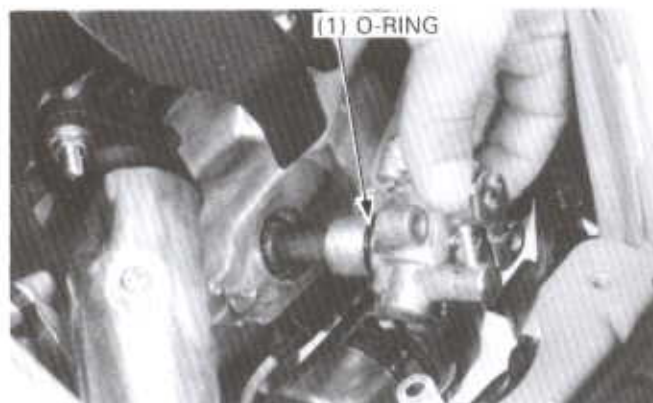


INSTALLATION

Lubricate the O-ring with grease or oil.

Apply molybdenum disulfide grease to the oil pump gear and install the oil pump.

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



Install the oil pump control cable stay and attaching bolts and tighten the attaching bolts securely.
 Connect the oil inlet and outlet lines.
 Connect the oil control cable to the control lever.
 Clamp the alternator wire.

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

—Except SA50P: Adjust the oil control cable (page 2-4)



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

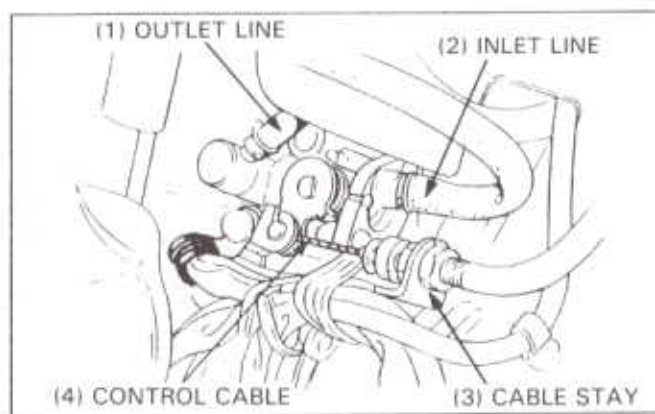
Fill the oil tank with the recommended oil (page 2-1).

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

Fill the oil pump with the recommended oil at the oil pump inlet joint.

Let oil drip from the inlet line to bleed air in the line.

Connect the oil inlet line to the oil pump.

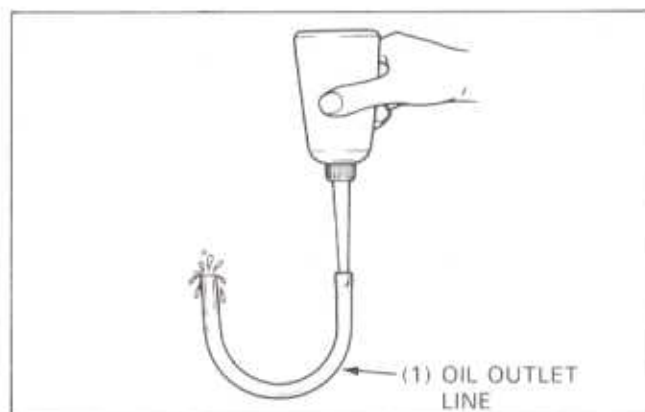


OUTLET LINE

1. Remove the outlet line from the intake pipe and oil pump.
 Fill the outlet line with the recommended oil as shown.
 Install the outlet line to the oil pump.
2. Start the engine and allow it to idle and make sure that oil is forced out from the intake pipe end of the oil outlet line.
 If oil is not forced out within one minute, stop the engine and repeat steps 1 and 2.
 Connect the oil outlet line to the intake pipe.

CAUTION

- Perform this operation in well-ventilated area. Do not rev the engine up.



LUBRICATION

OIL PUMP CONTROL CABLE ADJUSTMENT (SA50)

NOTE

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

Remove the center trunk (page 11-5).

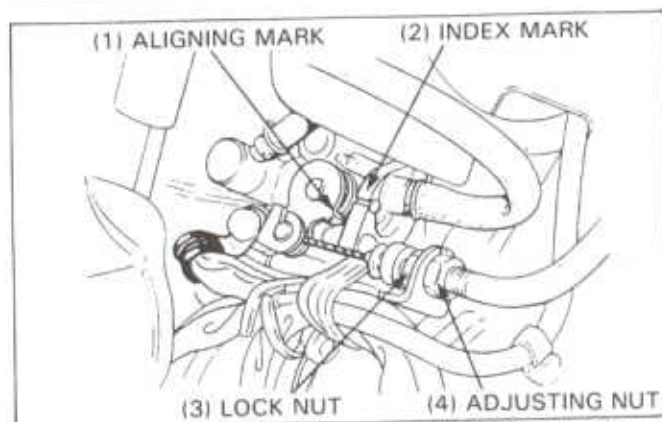
Loosen the oil pump control cable lock nut and open the throttle fully.

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

Adjust if necessary by turning the adjusting nut.

CAUTION

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



OIL STRAINER

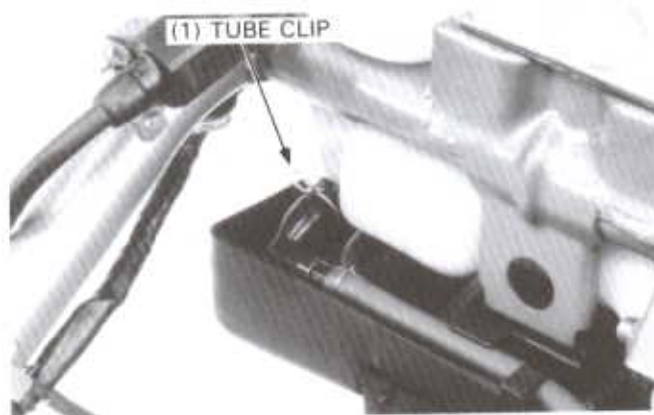
Remove the following:

- both frame rear covers (page 11-3).
- center trunk (page 11-5).

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.

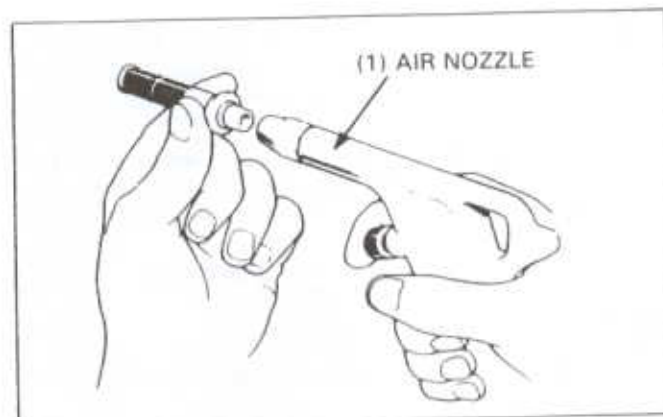


Clean the oil strainer with compressed air.
Install the oil strainer in the reverse of removal.

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 the following:

- both frame rear covers (page 11-3).
- center trunk (page 11-5).
- fuel tank (page 4-12).

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

Remove the oil filler cap.

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

Remove the oil tank.

Clean the interior of the oil tank thoroughly.

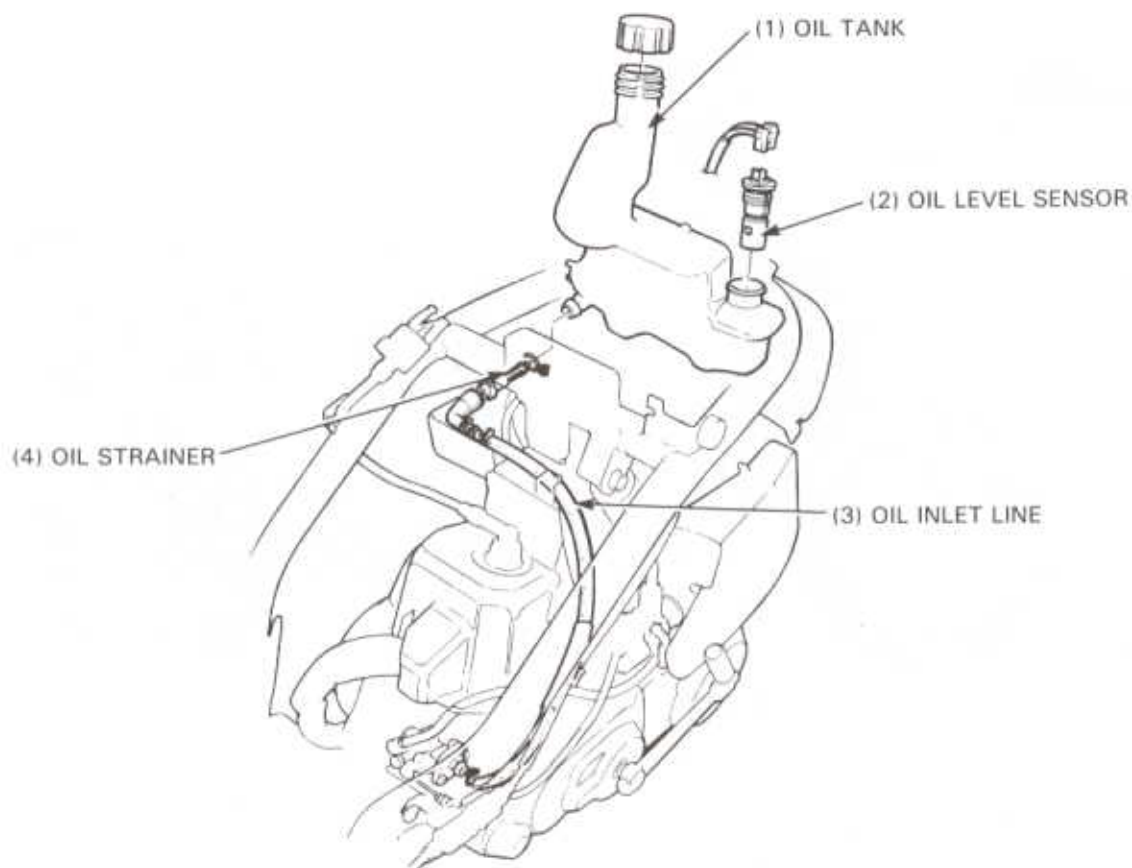
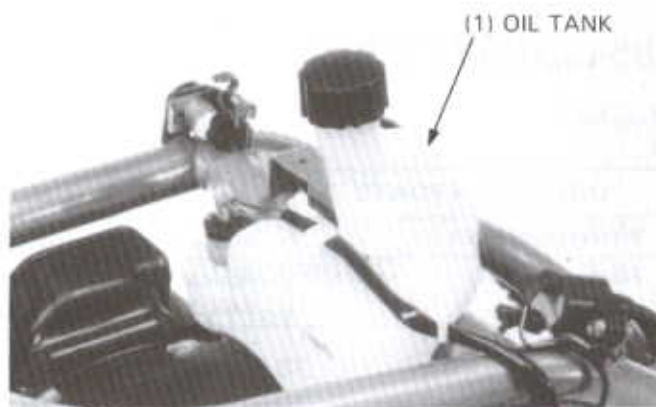
Clean the oil strainer (page 2-4).

INSTALLATION

Install the oil tank in the reverse order of removal.

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

Bleed the oil lines (page 2-3).



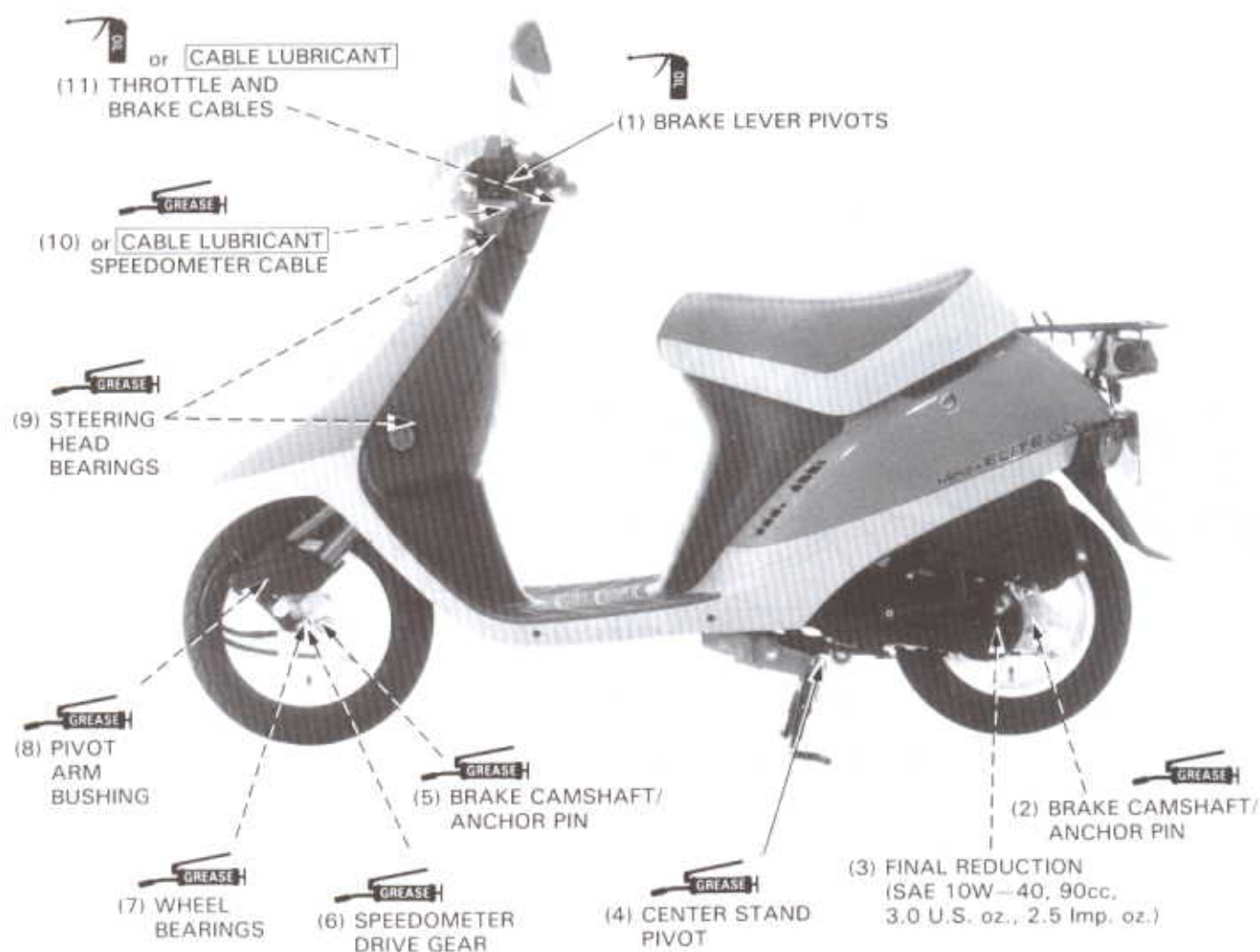
LUBRICATION POINTS

ENGINE

LUBRICATION POINTS	LUBRICANT	REMARKS
Piston/crankshaft	Honda 2-stroke injector oil or equivalent	
Final reduction	Honda 4-stroke oil SAE 10W-40 or equivalent	90cc (3.0 US oz., 2.5 Imp. oz.)
Movable drive face (‘88 thru. ‘93 only) (After ‘93; Do not use lubricant)	Lithium Based Grease Mitsubishi HD-3 Nippon Sekiyu Lipanox Deluxe 3 Idemitsu Coronex 3 or equivalent Sta-Lube HP #3141 Bel-Rey Holy Lube 126 EP #0	10-15g (0.35-0.53 oz.)
Starter gear	General purpose grease	

FRAME

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



3. MAINTENANCE

SERVICE INFORMATION	3-1	BRAKE SYSTEM	3-5
MAINTENANCE SCHEDULE	3-2	HEADLIGHT AIM	3-6
FUEL LINE	3-3	SUSPENSION	3-6
THROTTLE OPERATION	3-3	NUTS, BOLTS, FASTENERS	3-7
AIR CLEANER ELEMENT	3-3	WHEELS/TIRES	3-7
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CARBURETOR IDLE SPEED	3-5	COMPRESSION TEST	3-7
BRAKE SHOE WEAR	3-5	TRANSMISSION CASE	3-8

SERVICE INFORMATION

ITEM			STANDARD	
Spark plug	'88 thru. '93	Standard	NGK BPR6HSA	NIPPONDENSO W20FPR-L
		For cold climate	BPR4HSA	W14FPR-L
		For extended high speed riding	BPR8HSA	W24FPR-L
	After '93	Standard	BR6HSA	W20FR-L
		For cold climate	BR4HSA	W16FR-L
		For extended high speed riding	BR8HSA	W24FR-L
Spark plug gap	0.6—0.7mm (0.024—0.028 in)			
Cylinder compression	800—1,200 kPa (8.0—12.0 kg/cm ² , 114—171 psi)			
Idle speed	1,800 ± 100 rpm			
Brake lever free play	Front	10—20 mm (0.04—0.80 in)		
	Rear	10—20 mm (0.04—0.80 in)		
Tire size	Front	3.00—10—4PR		
	Rear	3.00—10—4PR		
Tire pressure	Front	125 kPa (1.25 kg/cm ² , 18 psi)		
	Rear	225 kPa (2.25 kg/cm ² , 33 psi)		

MAINTENANCE SCHEDULE

I — Inspection and clean, adjust, lubricate or replace if necessary R — Replace C — Clean

ITEM	FREQUENCY	WHICHEVER COMES FIRST	ODOMETER READING (NOTE 1)					
			x1,000 mi	0.6	2.5	5	7.5	Refer to page
			x1,000 km	1	4	8	12	
* 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 2)			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 (3,600 km) C					6-3, 5
* CARBURETOR IDLE SPEED				I	I	I	I	3-5
BRAKE SHOE WEAR					I	I	I	3-5
BRAKE SYSTEM				I	I	I	I	3-5
* BRAKE LIGHT SWITCH					I	I	I	17-3
* HEADLIGHT AIM					I	I	I	3-6
** CLUTCH SHOE WEAR						I		8-9
* SUSPENSION					I	I	I	3-6
* NUTS, BOLTS, FASTENERS				I		I		3-7
** WHEELS/TIRES					I	I	I	3-7, 12-5, 13-2
** STEERING HEAD BEARINGS				I			I	3-7

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

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

NOTES: 1 At higher odometer reading, repeat at the frequency tested in and recommended for this engine.

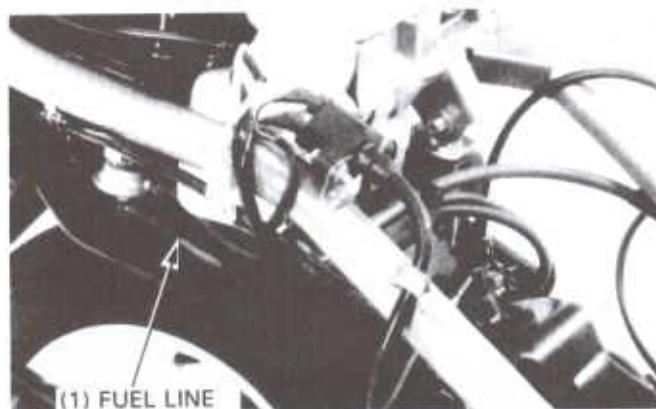
2 Service more frequently when riding in wet or dusty area.

3 HONDA 2 STROKE MOTORCYCLE OIL has been specifically tested in and exhaust system, resulting in loss of power and possible engine damage.

FUEL LINE

Remove both frame rear covers (page 11-3).
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.

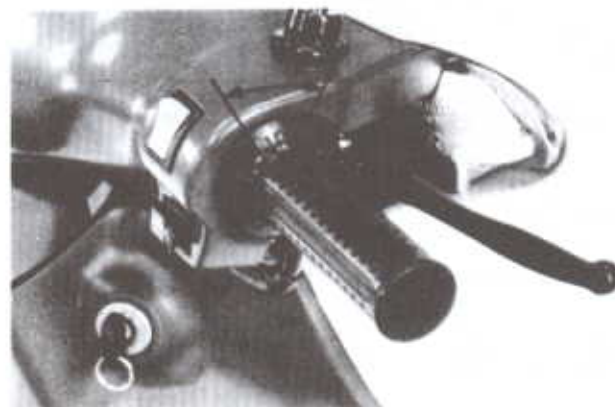


THROTTLE OPERATION

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.

Remove the front and rear handlebar covers (page 11-5).



Disconnect the throttle cable upper end.
Thoroughly lubricate the cable with a commercially available cable lubricant or grease.

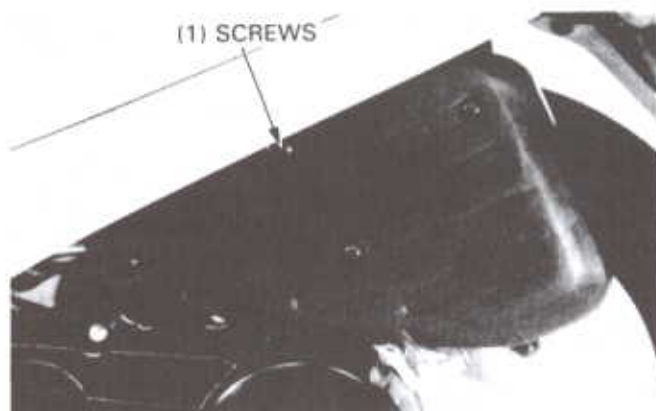
Install the throttle cable in the reverse order of removal.

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

FREE PLAY: 2–6 mm (1/8–1/4 in)

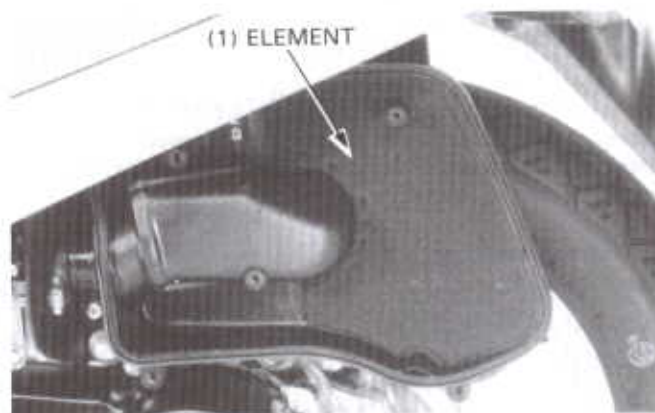
AIR CLEANER ELEMENT

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



MAINTENANCE

Remove the air cleaner element.



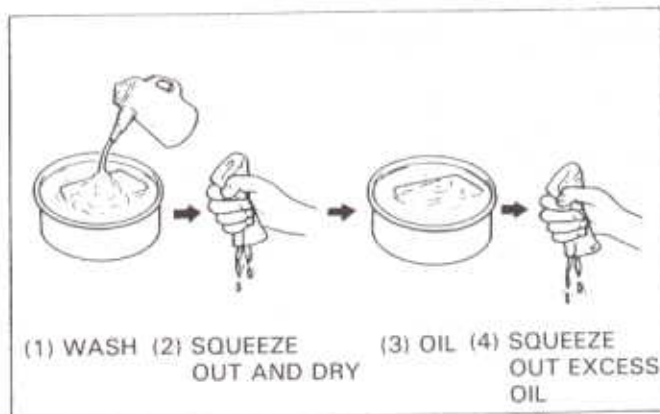
Wash the element in non-flammable or high flash point solvent, squeeze out and allow to dry.

WARNING

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

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

Reinstall the element, and the air cleaner case cover.



SPARK PLUG

RECOMMENDED SPARK PLUGS:

	NGK	ND
Standard	BPR6HSA	W20FPR-L
For cold climate	BPR6HSA	W14EPR-L
For extended high speed riding	BPR8HSA	W24FPR-L

Loosen the screw and open the maintenance lid. Disconnect the spark plug cap and clean any dirt from around the spark plug base.

Remove and discard the spark plug.

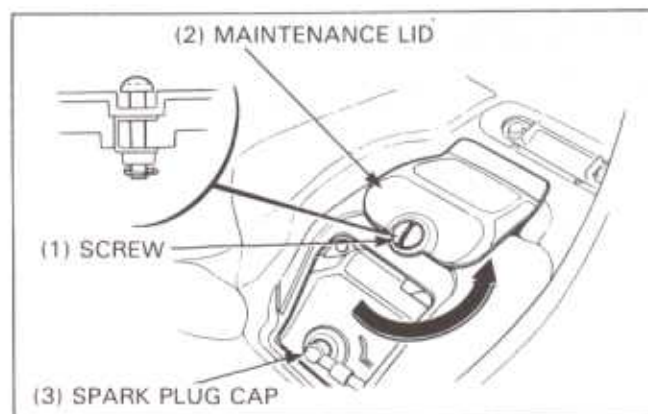
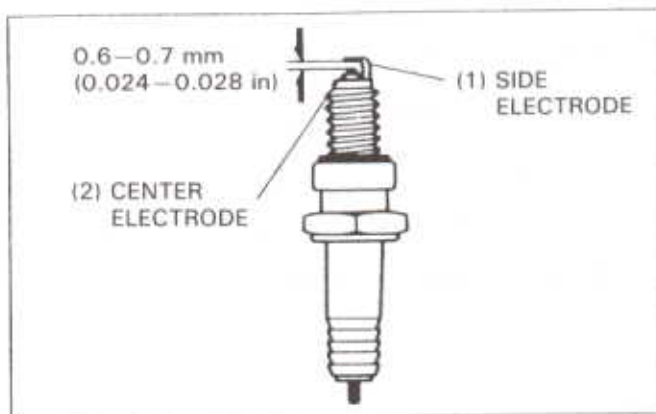
Measure the new spark plug gap using a wire-type feeler gauge.

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.

TORQUE: 14 N·m (1.4 kg-m, 10 ft-lb)

Connect the spark plug cap.



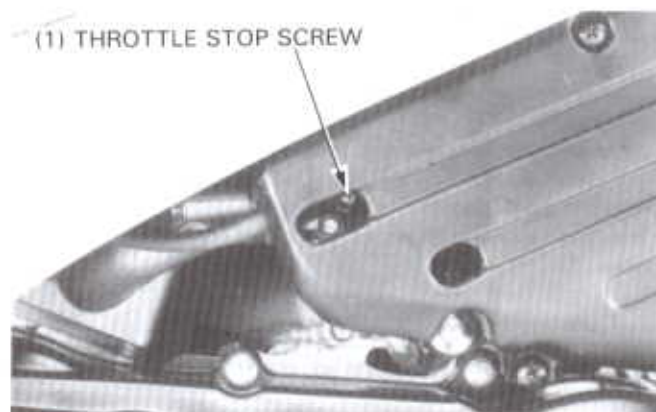
CARBURETOR IDLE SPEED

Place the scooter on firm, level ground.

Warm up the engine and attach an engine tachometer.

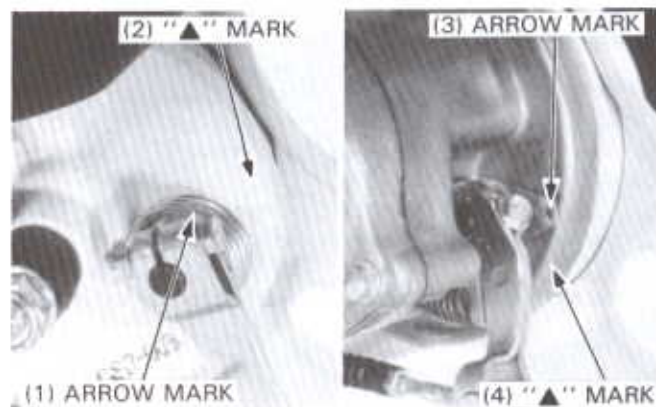
Adjust the idle speed with the throttle stop screw.

IDLE SPEED: 1,800 \pm 100 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 (pages 12-7, 13-3).



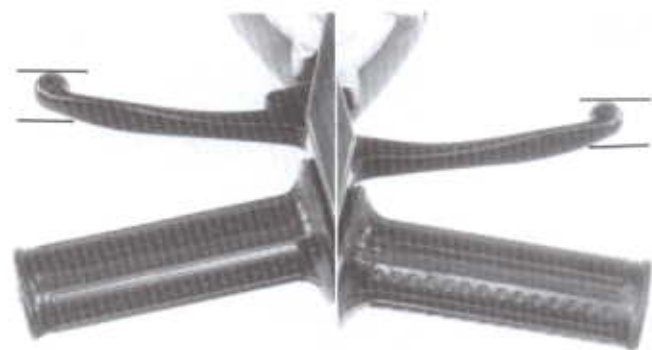
BRAKE SYSTEM

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

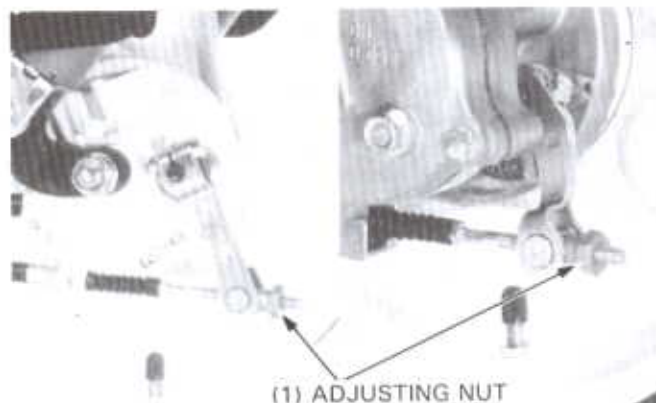
FREE PLAY:

FRONT: 10–20 mm (0.40–0.80 in)

REAR: 10–20 mm (0.40–0.80 in)



If adjustment is necessary, turn the brake adjusting nut.



MAINTENANCE

HEADLIGHT AIM

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

Start the engine and allow it to idle.

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 horizontal adjusting screws.

CAUTION

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



SUSPENSION

FRONT

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

Check the entire fork assembly for signs of damage.

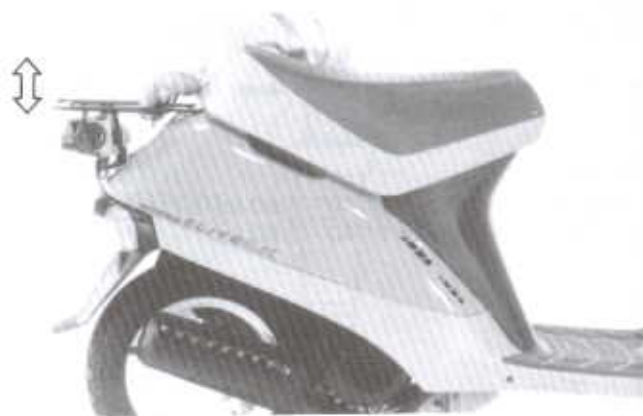
Replace any components which cannot be repaired.

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 its 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.

WHEELS/TIRES

NOTE

- Check the tire pressures when the tires are COLD.

TIRE PRESSURES:

FRONT: 125 kPa (1.25 kg/cm², 18 psi)

REAR: 225 kPa (2.25 kg/cm², 33 psi)

TIRE SIZES:

FRONT: 3.00—10—4PR

REAR: 3.00—10—4PR

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.

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

Check that the handlebar rotates freely.

If the handlebar moves unevenly, binds, or has vertical movement, adjust the steering head bearings by turning the steering head adjusting nut (page 12-14).

COMPRESSION TEST

Raise the seat.

Open the spark plug maintenance lid.

Warm up the engine.

Stop the engine and remove the spark plug.

Insert a compression gauge.

Open the throttle grip fully and operate the starter motor several times.

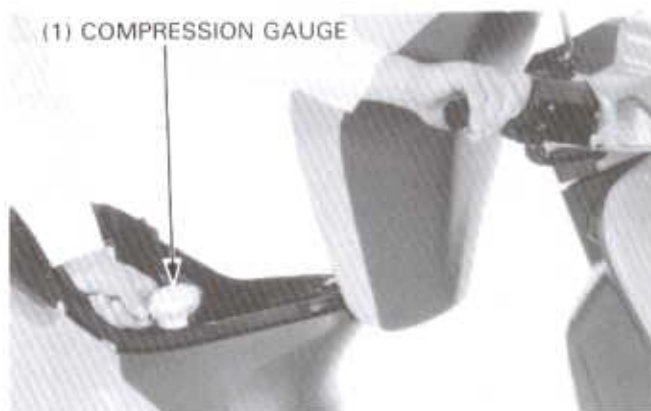
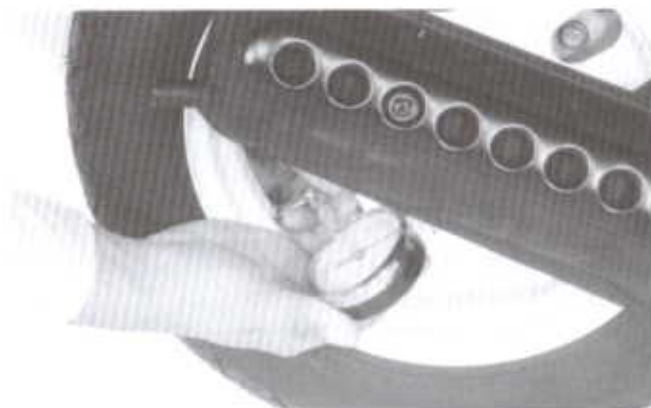
COMPRESSION: 800—1,200 kPa
(8.0—12.0 kg/cm², 114—171 psi)

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.



TRANSMISSION CASE

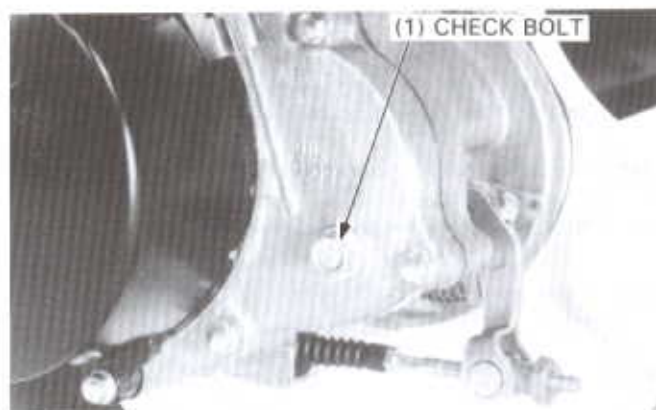
NOTE

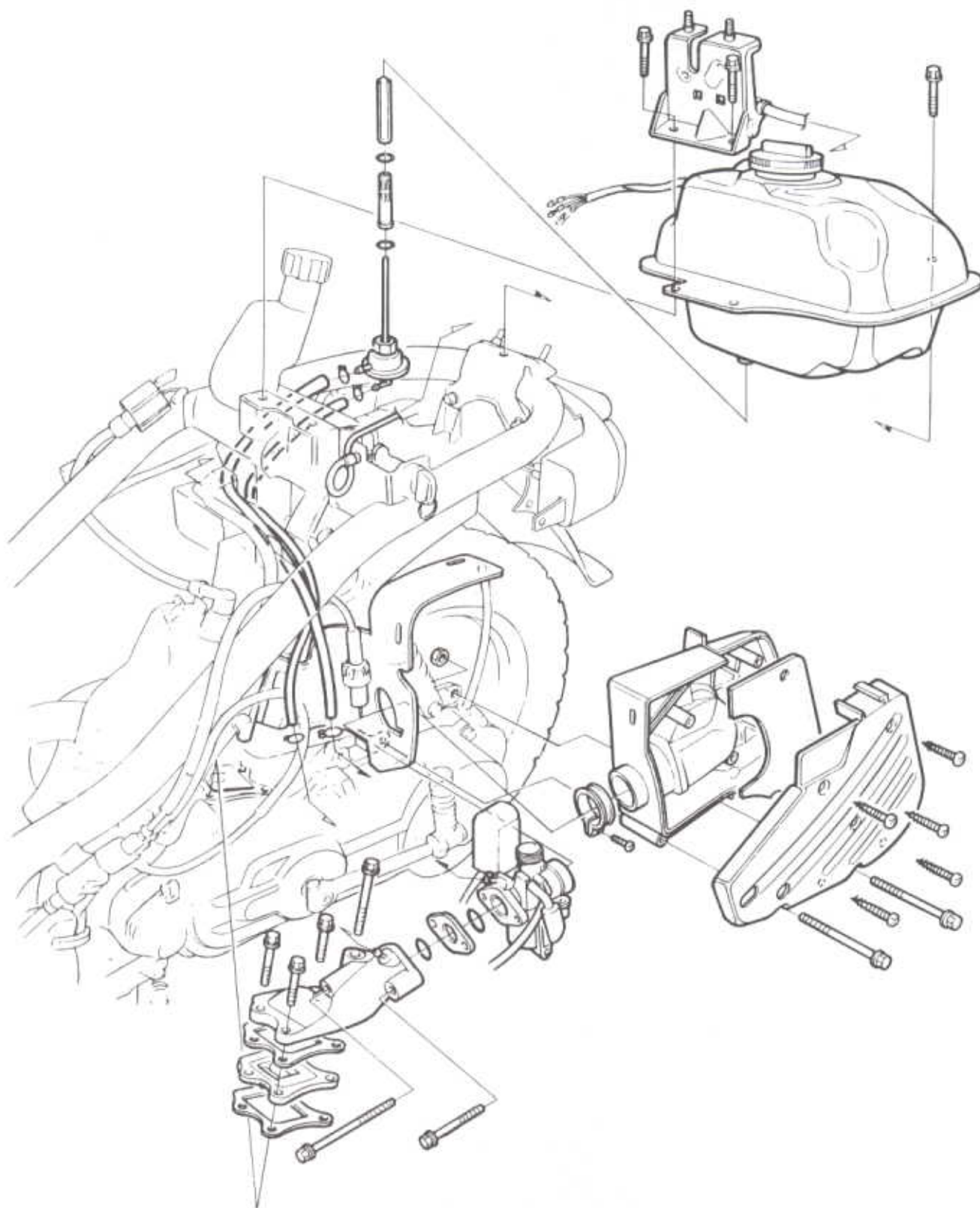
- Place the scooter on firm, level ground and support it with the center stand.

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.

Check the transmission case for oil leakage.





4. FUEL SYSTEM

SERVICE INFORMATION	4-1	THROTTLE VALVE INSTALLATION	4-8
TROUBLESHOOTING	4-2	REED VALVE	4-9
THROTTLE VALVE DISASSEMBLY	4-3	AIR SCREW ADJUSTMENT	4-11
CARBURETOR REMOVAL	4-4	HIGH ALTITUDE ADJUSTMENT (U.S.A. only)	4-11
AUTO BYSTARTER	4-4	AUTO FUEL VALVE INSPECTION/ MAINTENANCE	4-12
FLOAT/FLOAT VALVE/JETS DISASSEMBLY	4-6	FUEL STRAINER CLEANING	4-13
JETS/FLOAT VALVE/FLOAT ASSEMBLY	4-7	FUEL TANK	4-13
FLOAT LEVEL INSPECTION	4-8	AIR CLEANER CASE	4-14
CARBURETOR INSTALLATION	4-8		

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 open flames or sparks in the work area or where gasoline is stored.

CAUTION

- Do not bend or twist control cables. Damaged control cables will not operate smoothly and may stick or bind.
- The fuel tank is equipped with an auto fuel valve that is turned OFF automatically when the engine is stopped.
- Use caution when working with gasoline. Always work in a well-ventilated area and away from sparks or flames.
- When disassembling fuel system parts, note the locations of the O-rings. Replace them with new ones during assembly.
- Bleed air from the oil outlet line whenever it is disconnected.

SPECIFICATIONS

ITEM		SPECIFICATIONS
Identification number	'88-'93	PA31M
	After '93	SA50: PA35J SA50P: PA35K
Type		Piston valve
Venturi diameter		14 mm (0.55 in)
Float level		12.2 mm (0.48 in)
Air screw opening	'88-'93	1-3/8 turns out
	After '93	SA50: 1-7/8 turns out SA50P: 1-3/4 turns out
Idle speed		1,800 ± 100 rpm
Main jet	'88-'93	#88
	After '93	SA50: #78 SA50P: #68
Slow jet		#35
Throttle grip free play		2-6 mm (1/8-1/4 in)
Jet needle		2nd groove

FUEL SYSTEM

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 clogged or blocked
- Fuel strainer clogged
- Fuel line kinked or restricted
- Float valve faulty
- Float level too low
- Air vent tube clogged

Rich mixture

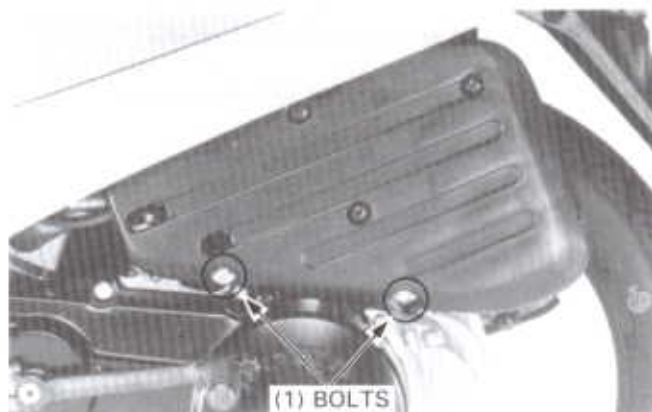
- Disconnected auto bystarter wires
- Faulty float valve
- Float level too high
- Carburetor air jets clogged
- Air cleaner dirty

THROTTLE VALVE DISASSEMBLY

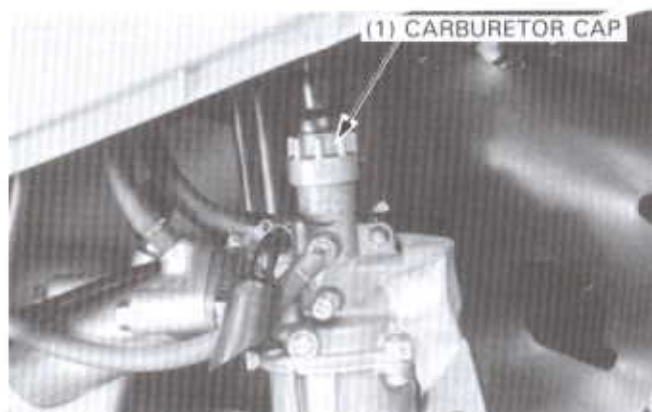
Loosen the air cleaner connecting tube band.

Remove the two air cleaner case mounting bolts.

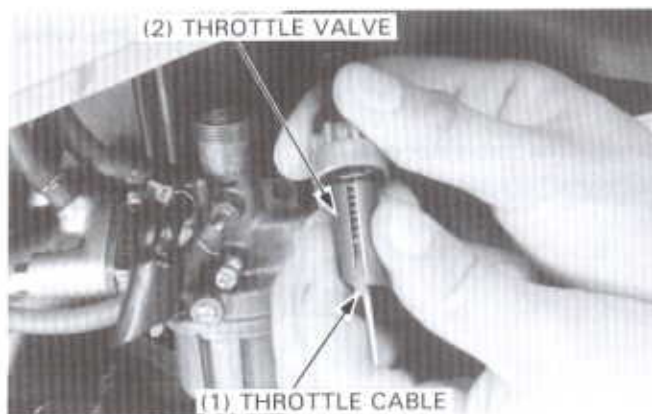
Remove the heat insulator from the air cleaner case, then remove the air cleaner case.



Remove the carburetor cap and pull out the throttle valve.



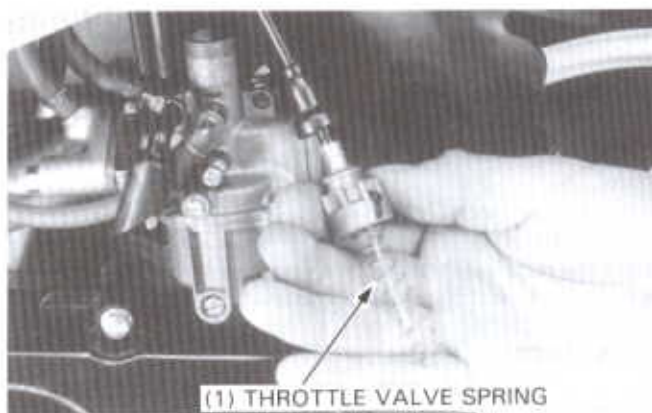
Disconnect the throttle cable from the throttle valve.



Remove the throttle valve spring.

CAUTION

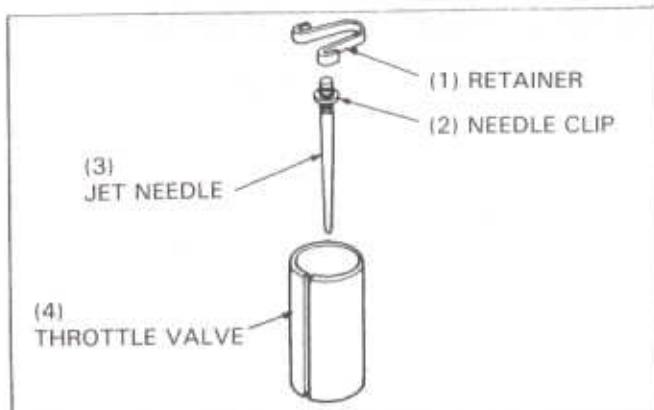
- The carburetor cap is an integral part of the throttle cable assembly. The cap cannot be separated from the assembly without causing damage to the cable.



FUEL SYSTEM

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.



CARBURETOR REMOVAL

Remove the following:

- center cover (page 11-2).
- left side cover (page 11-2).
- left frame rear cover (page 11-3).
- air cleaner case (page 4-13).

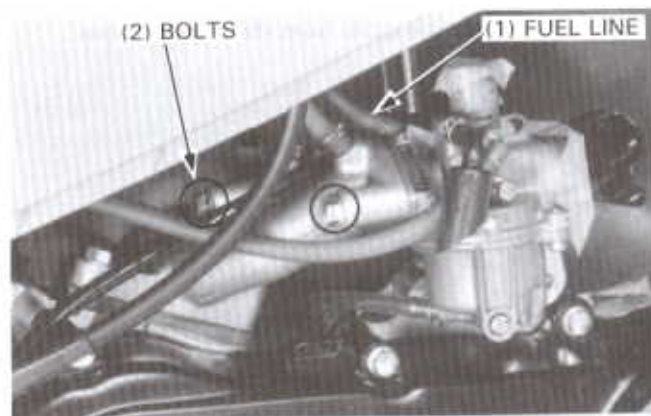
Disconnect the auto bystarter wire connector.



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.



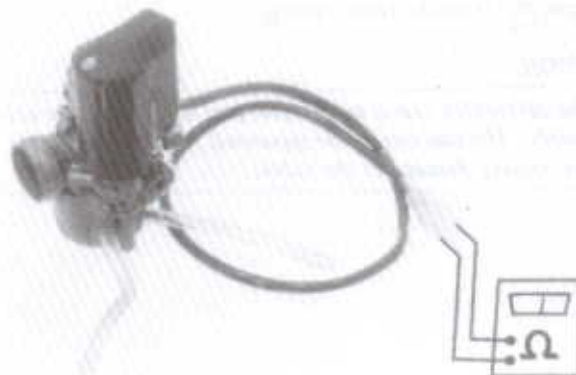
AUTO BYSTARTER

INSPECTION

If the engine has been running, let it 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.

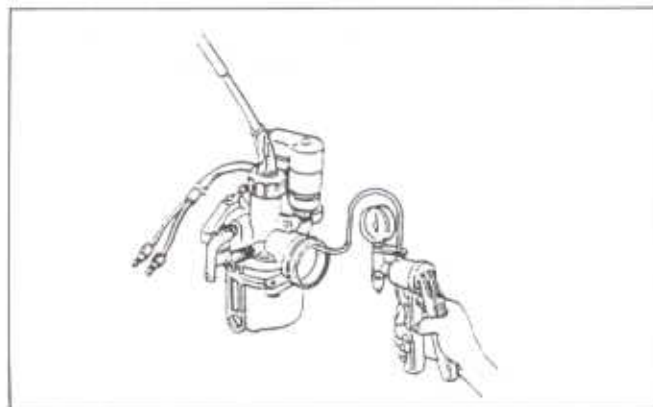
RESISTANCE: 10 Ω max.



Let the carburetor sit for 30 minutes.

Connect a pressure tester to the enrichening circuit and apply pressure to the circuit.

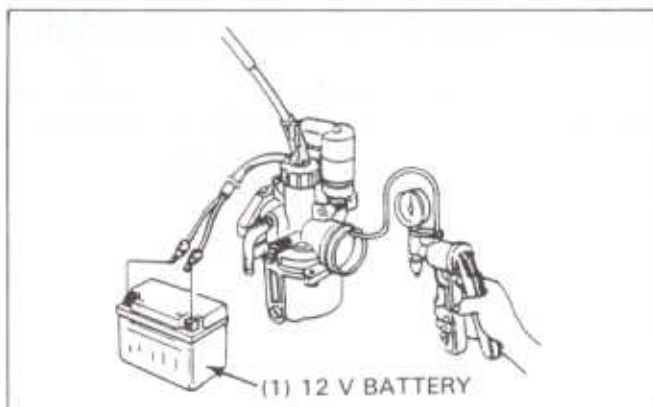
If the passage is blocked, replace the auto bystarter with a new one.



Connect a 12 V battery between the auto bystarter wires and wait five minutes.

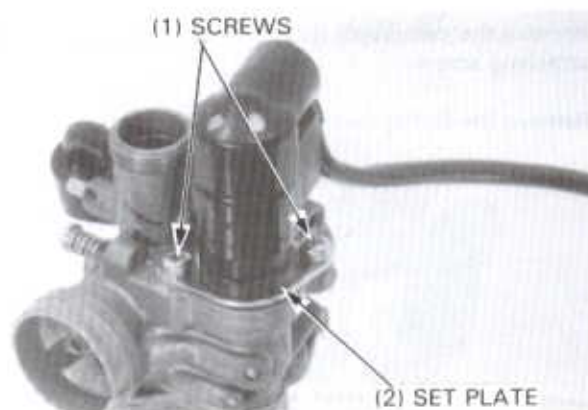
Connect a pressure tester to the fuel enrichening circuit and apply pressure to it.

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



REMOVAL/INSTALLATION

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

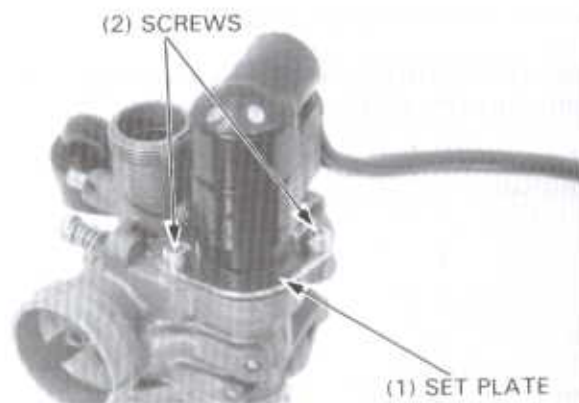


Inspect the auto bystarter valve for wear or damage, and the O-ring for deterioration.



FUEL SYSTEM

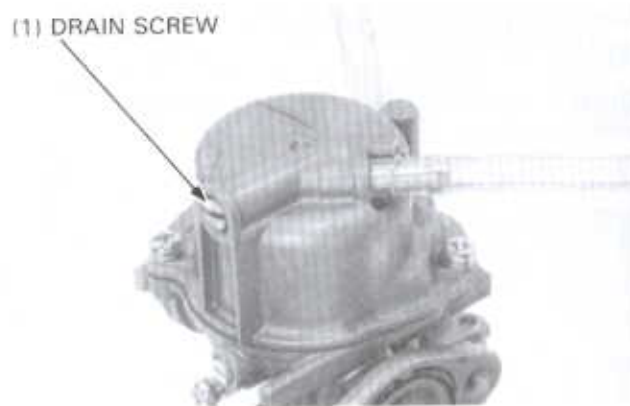
Install the auto bystarter into the carburetor until it is fully seated, and secure it with the set plate and two screws.



FLOAT/FLOAT VALVE/JETS DISASSEMBLY

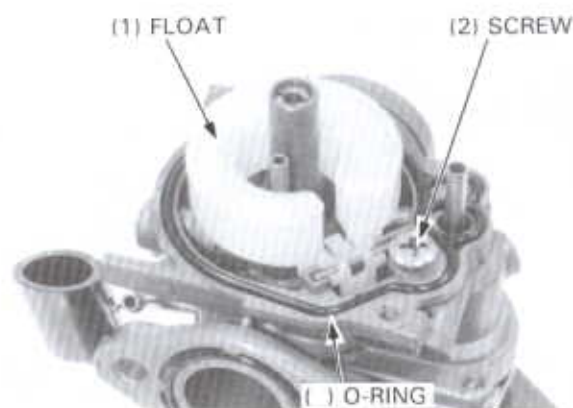
Place a drain pan under the carburetor and loosen the carburetor drain screw to allow fuel to drain into the drain pan.

Remove the float chamber from the carburetor body.



Remove the carburetor float and float valve by removing the attaching screw.

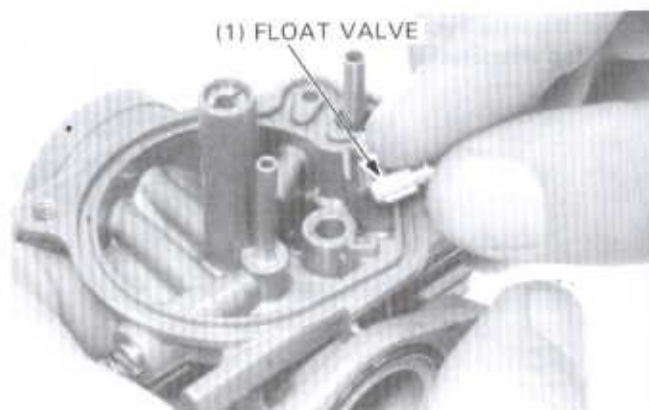
Remove the O-ring from the carburetor body.



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.



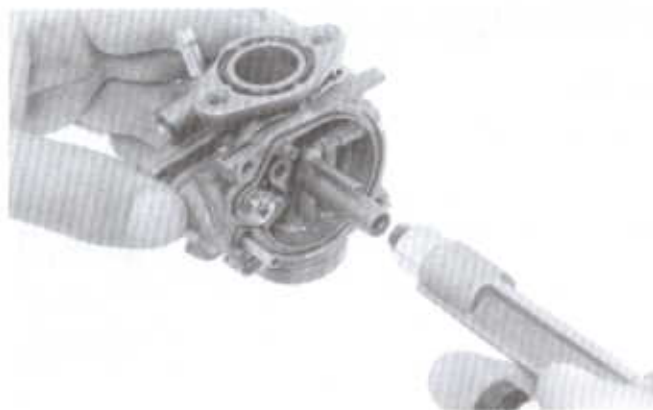
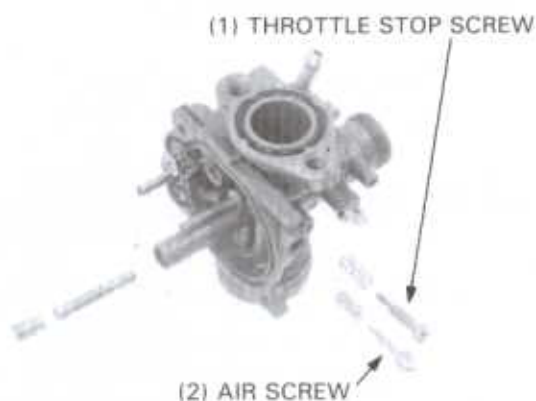
Turn in the throttle stop screw and record the number of turns it takes before it seats lightly.
Repeat this procedure with the air screw.

CAUTION

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

Remove the throttle stop screw and air screw.
Remove the auto-bystarter set plate and the bystarter by removing the two screws.
Check all parts for wear or damage.

Blow open all jets and body openings with compressed air.



JETS/FLOAT VALVE/FLOAT ASSEMBLY

Install the main jet.

Install the air and throttle stop screws to their original positions recorded during disassembly.

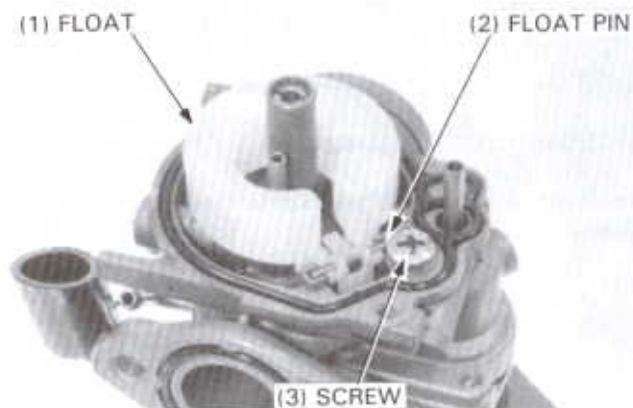


Install the float valve, float and float pin.

Tighten the float screw securely.

Install the O-ring onto the carburetor body groove.

Install the auto bystarter with the set plate and two screws.



FUEL SYSTEM

FLOAT LEVEL INSPECTION

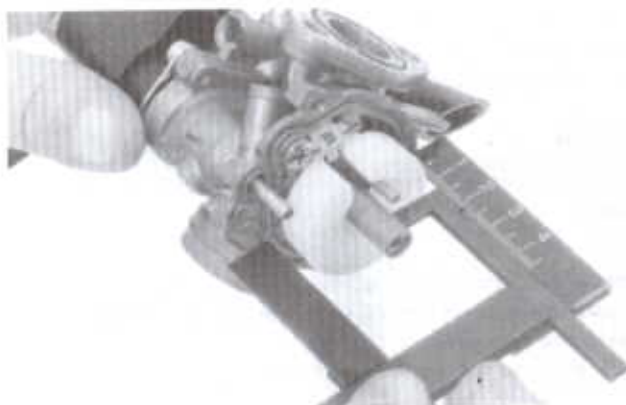
Remove the O-ring from the carburetor body.
Measure the float level with the float lip just contacting the float valve.

FLOAT LEVEL: 12.2 mm (0.48 in)

TOOL:

Float level gauge 07401-0010000

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.



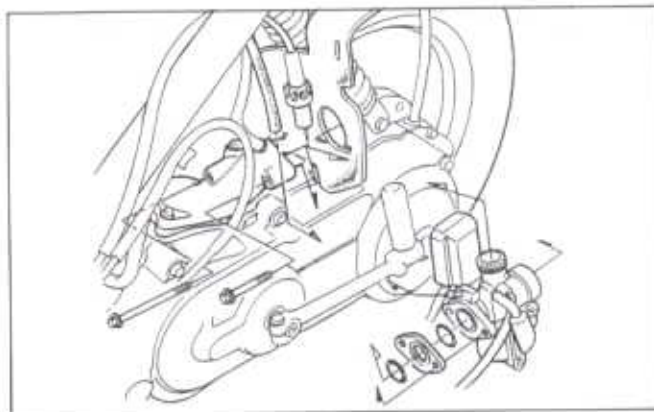
CARBURETOR INSTALLATION

CAUTION

- Do not allow foreign particles to enter the carburetor.

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

Install the carburetor cap (page 4-8).



Connect the fuel line and auto bystarter wires.

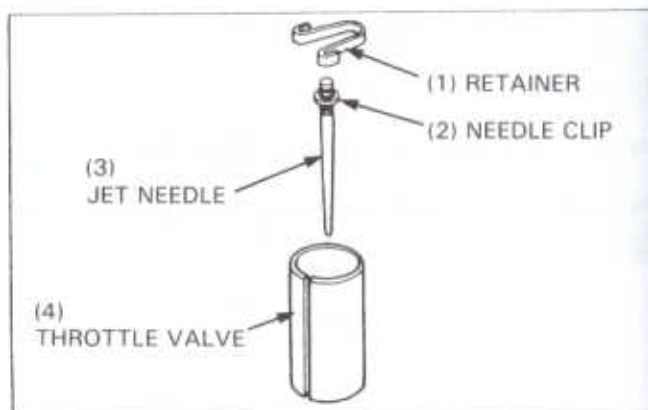


THROTTLE VALVE INSTALLATION

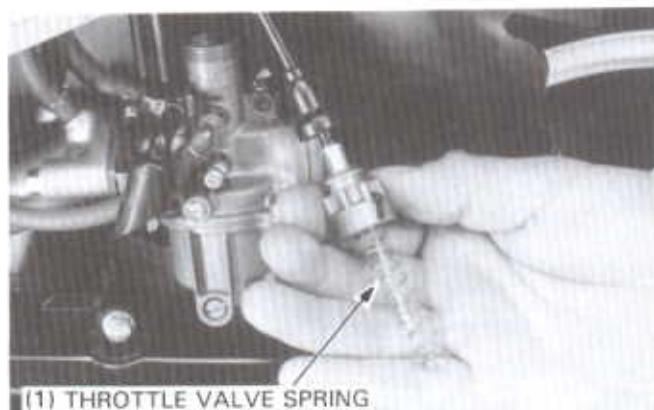
Install the needle clip on the jet needle.

STANDARD SETTING: 2nd groove

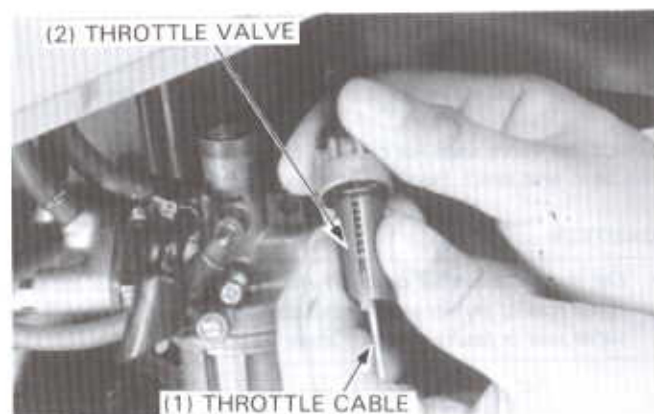
Install the jet needle into the throttle valve and secure with the retainer.



Install the spring on the throttle cable assembly.



Connect the throttle valve to the cable.



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.

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 3-5).

Install the left side cover (page 11-2).



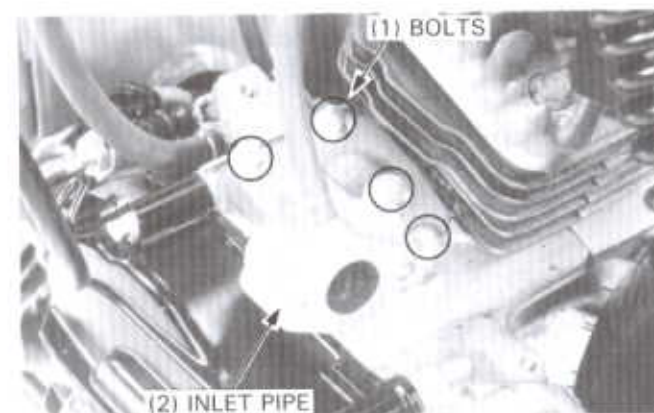
REED VALVE

REMOVAL

Remove the following parts:

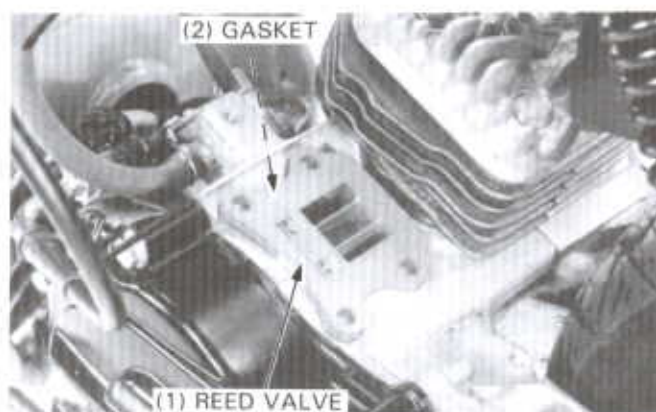
- carburetor (page 4-4).
- cylinder head shroud (page 6-2).
- vacuum tube.

Remove the four inlet pipe mounting bolts, the inlet pipe and gasket.



FUEL SYSTEM

Remove the reed valve and gasket.



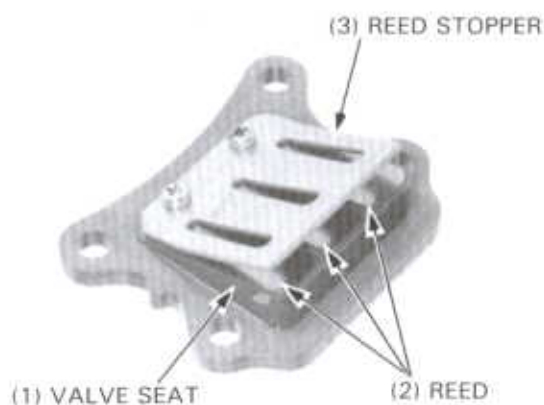
INSPECTION

Check the reed valve for damaged or weak reeds.

Check the valve seat for cracks, damage or clearance between the seat and reed. Replace the valve if necessary.

CAUTION

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



INSTALLATION

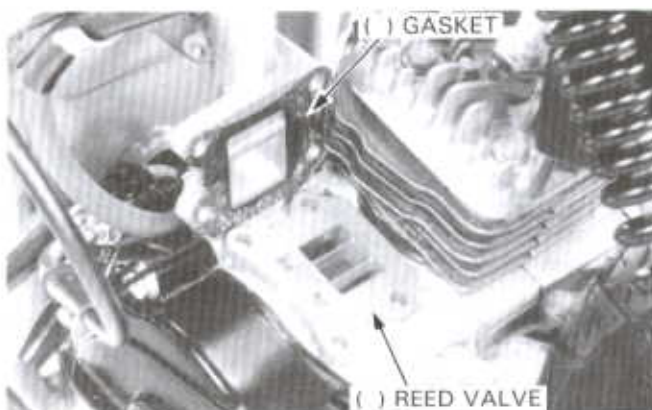
The installation sequence is essentially the reverse order of removal.

NOTE

- Align the tabs on the gasket and reed valve and install the reed valve.



After installation, check for secondary leaks.



AIR SCREW ADJUSTMENT

NOTE

- The engine must be warm for accurate air screw adjustment.

When the engine misses or runs erratically, proceed as follows:

Turn in the air screw until it lightly seats, then turn it out as specified.

CAUTION

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

AIR SCREW INITIAL OPENING: '88-'93: 1-3/8 turns out
 After '93: SA50: 1-7/8 turns out
 SA50P: 1-3/4 turns out

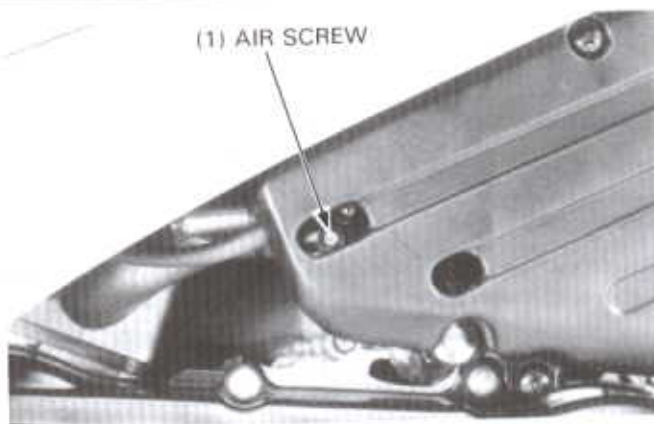
Reset the idle speed with the throttle stop screw.

IDLE SPEED: 1,800 \pm 100 rpm

Make sure that the engine does not miss or run erratically by lightly snapping the throttle grip.

If necessary, turn the air screw 1/4 turn (maximum) in either direction to find the best performance.

If the engine cannot be adjusted within 1/4 turn, refer to Troubleshooting, POOR PERFORMANCE AT LOW AND IDLE SPEEDS (page 19-2).



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 into an approved gasoline container.

WARNING

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

Remove the carburetor (page 4-4).

Remove the float chamber.

Replace the standard main jet with a high altitude main jet.

High altitude main jet: '88-'93: #85
 After '93: SA50: #75
 SA50P: #65

Reinstall the float chamber and install the carburetor (page 4-8).

FUEL SYSTEM

'88-'93:

Turn the air screw out 1/2 turn.
Adjust the idle speed with the throttle stop screw.

IDLE SPEED: 1,800 ± 100 rpm

After '93:

Turn the throttle stop screw in 1/2 turn for SA50 and 3/8 turn for SA50P.

Attach a Vehicle Emission Control Information Update Label onto the as shown.

Refer to Service Bulletin No. SL 132 for information on obtaining the label.

NOTE

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

WARNING

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

When the scooter is to be operated continuously below 1,500 m (5,000 feet), remove the carburetor, replace the main jet with the standard main jet and adjust the idle speed.

Standard main jet: '88-'93: #88

After '93: SA50: #78

SA50P: #68

Remove the Vehicle Emission Control Update Label that is attached to the rear fender (as shown above) after adjusting for low altitude operation.

AUTO FUEL VALVE INSPECTION/MAINTENANCE

1. Disconnect the fuel line from the carburetor and check if fuel is flowing out of the fuel line.

WARNING

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

The fuel valve is normal if fuel ceases to flow out of the line after the fuel valve and fuel line have been drained. Should fuel continue to flow out of the fuel line, perform the following operation:

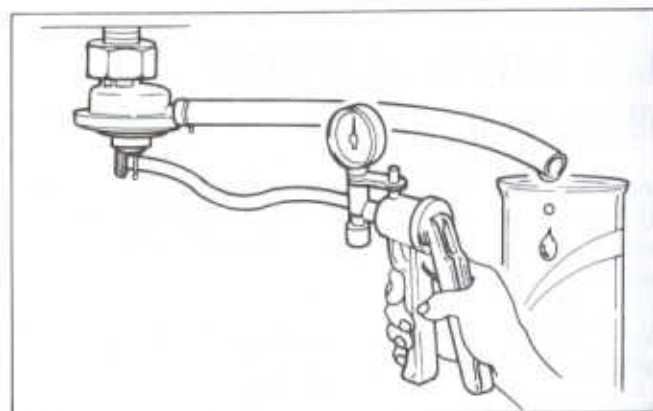
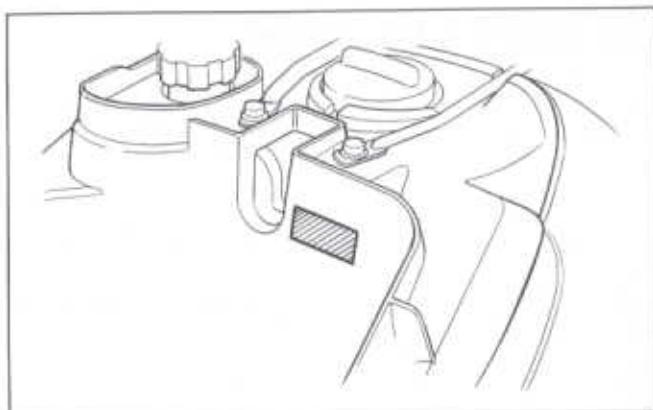
- Clear the vacuum tube of any obstruction.
- Direct a jet of compressed air through the fuel valve from the top.

2. Disconnect the vacuum tube from the intake pipe and apply vacuum to the vacuum tube.

The fuel valve is normal if fuel flows out of the fuel line when vacuum is applied.

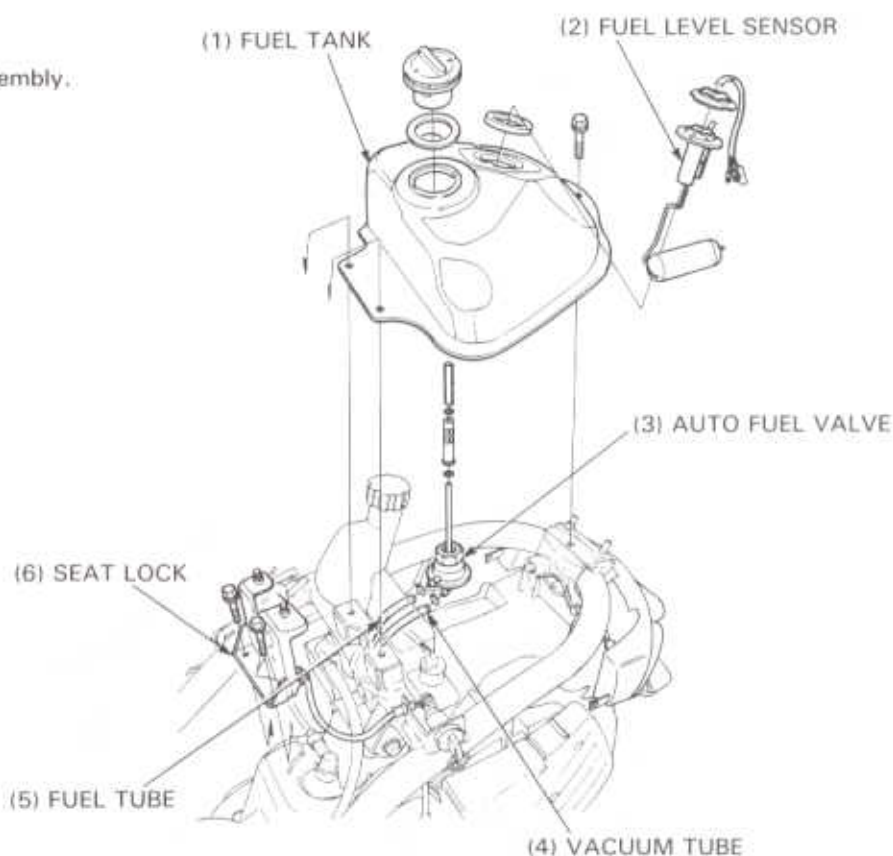
If fuel does not flow out of the fuel line when negative pressure is applied: do the following:

- Clean the vacuum tube with compressed air.
- Clean the 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.



ASSEMBLY

Assembly is the reverse order of disassembly.



INSTALLATION

Installation is essentially the reverse of removal.

NOTE

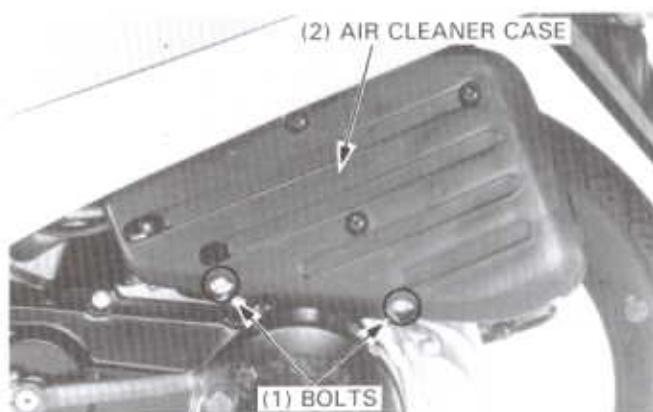
- Align the arrow on the fuel unit retainer with the arrow on the fuel tank.



AIR CLEANER CASE

Remove the left side cover (page 11-2).
Loosen the air cleaner connecting tube band.

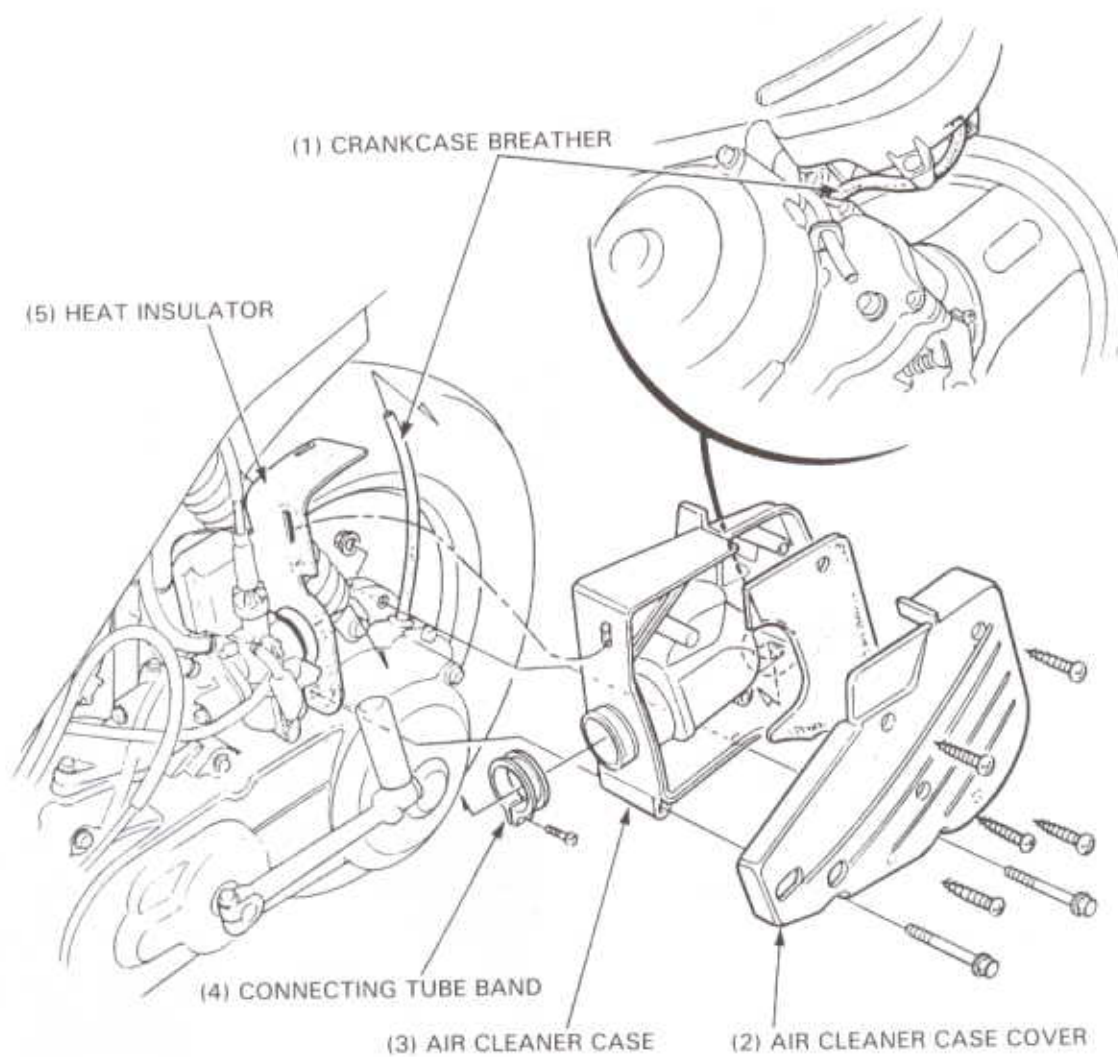
Remove the two air cleaner case mounting bolts.
Remove the heat insulator from the air cleaner case, then remove the air cleaner case.

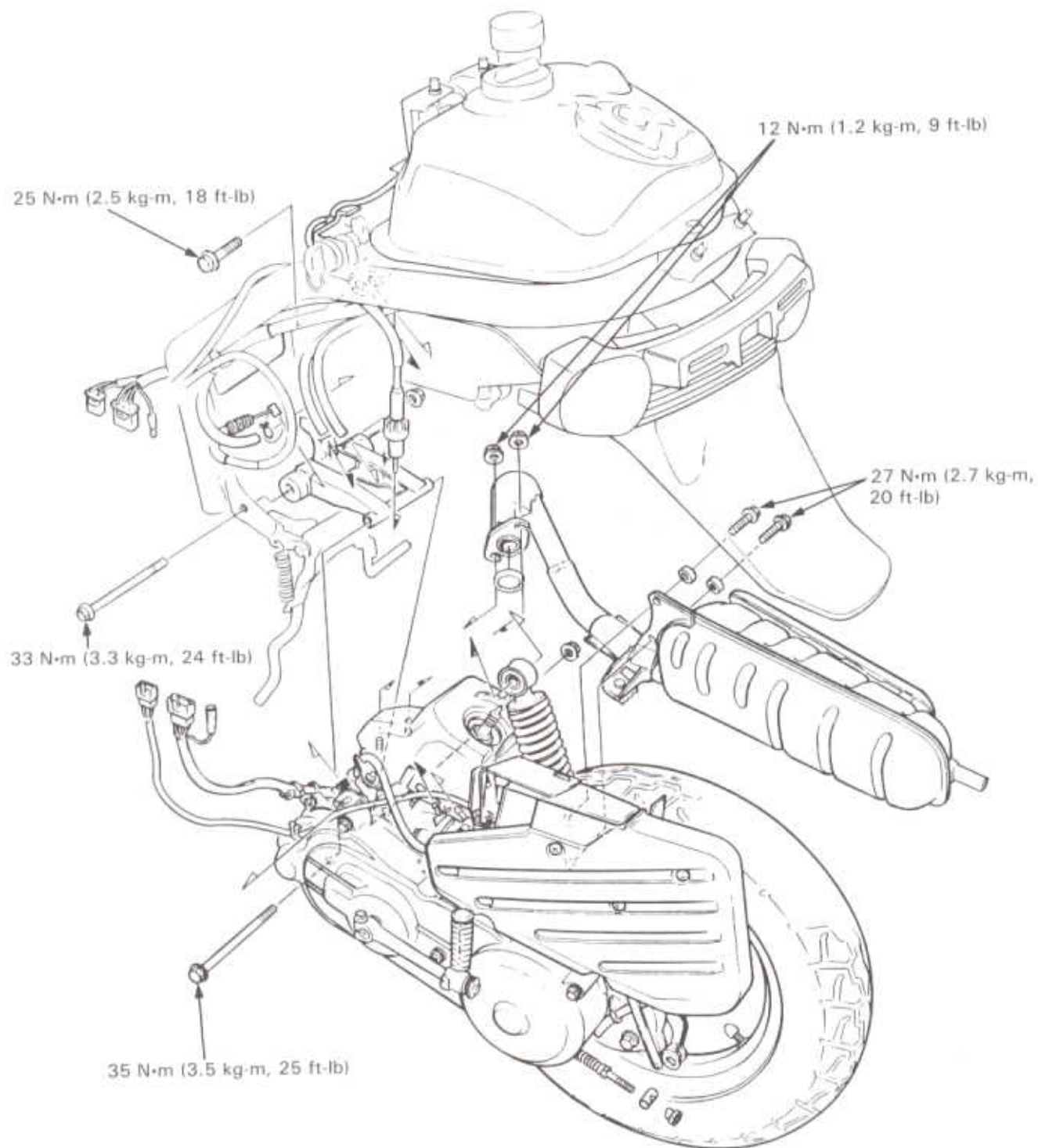


FUEL SYSTEM

INSTALLATION

Installation is the reverse of removal.





5. ENGINE REMOVAL/INSTALLATION

SERVICE INFORMATION ENGINE REMOVAL

5-1 ENGINE INSTALLATION 5-2

5-3

SERVICE INFORMATION

GENERAL

- The engine must be removed to service the crankshaft.

SPECIFICATION

Engine dry weight '88-'93: 14.7 kg (32.4 lb)
 After '93: 16.5 kg (36.4 lb)

TORQUE VALUES

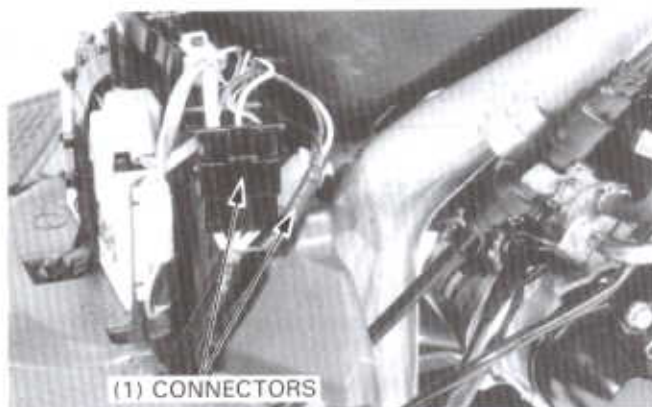
Engine mount bolt	50 N·m (5.0 kg-m, 36 ft-lb)
Engine bracket bolt	50 N·m (5.0 kg-m, 36 ft-lb)
Rear shock absorber upper mount bolt	'88-'93: 25 N·m (2.5 kg-m, 18 ft-lb) After '93: 27 N·m (2.7 kg-m, 20 ft-lb)
Exhaust pipe joint nut	12 N·m (1.2 kg-m, 9 ft-lb)
Muffler mount bolt	32 N·m (3.2 kg-m, 23 ft-lb)

ENGINE REMOVAL

Remove the following:

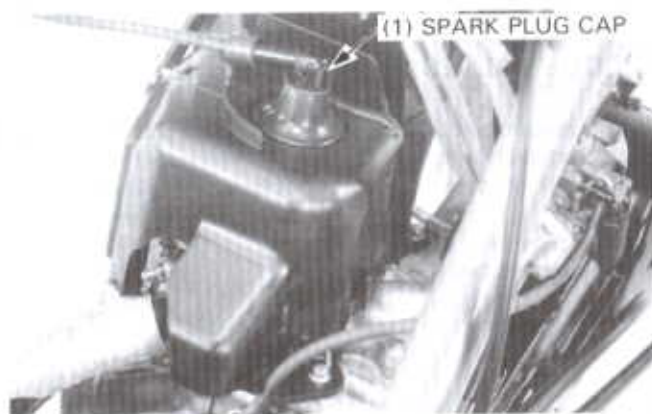
- both frame rear covers (page 11-3).
- center trunk (page 11-5).
- air cleaner case (page 4-13).

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



Remove the exhaust muffler (page 13-2).

Remove the spark plug cap.

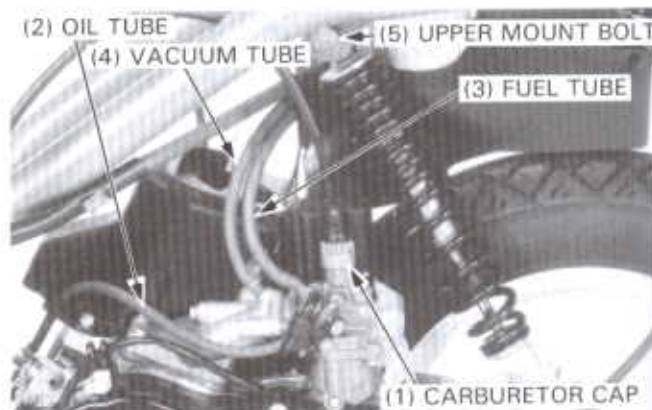


Except SA50P: Remove the oil control cable from the cable stay and oil control lever.

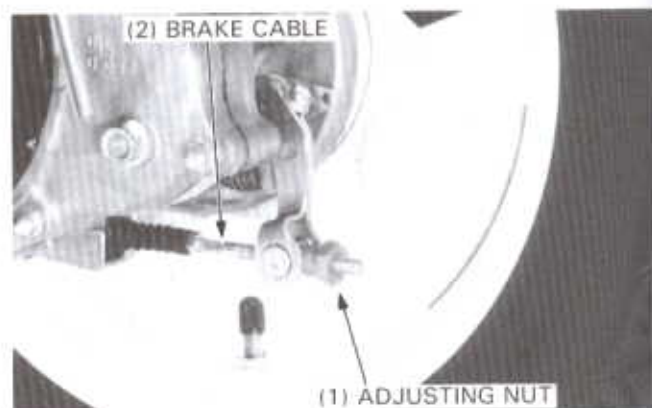
Remove the carburetor cap from the carburetor.

Disconnect the oil, fuel, and vacuum tubes from the carburetor and intake pipe.

Disconnect the rear shock absorber upper mount bolt.

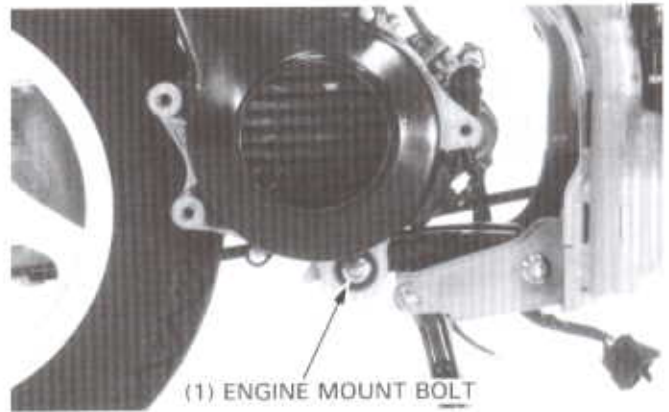


Remove the rear brake adjusting nut, then remove the rear brake cable from the clamp on the left crankcase cover.



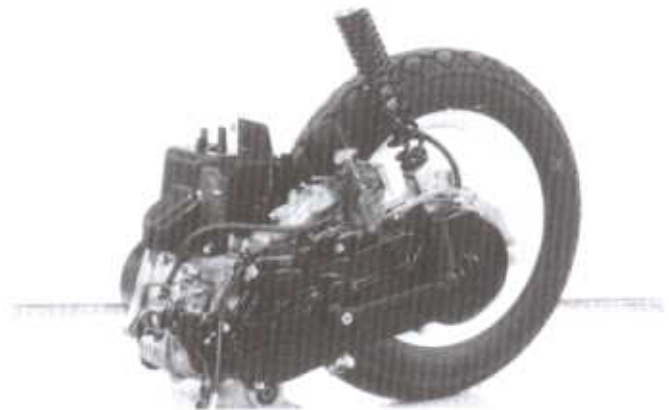
Place a workstand under the engine to support it.

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



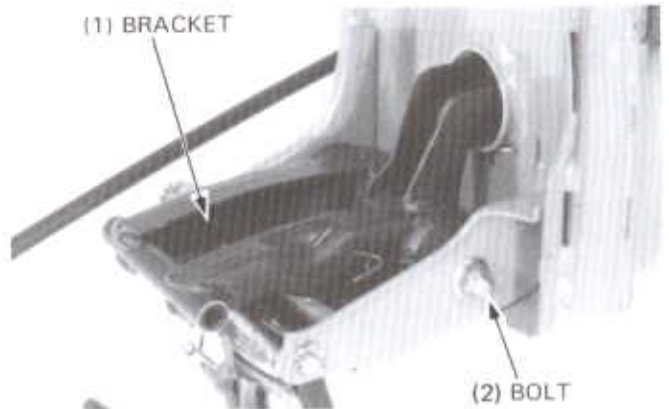
Remove the following parts when the crankcase is to be separated.

- Carburetor (page 4-4).
- Intake pipe and reed valve (page 4-9).
- Oil pump (page 2-2).
- Rear wheel (page 13-2).
- Alternator (page 7-2).
- Starter motor (page 16-2).
- Drive/driven pulleys (page 8-5, 8).
- Cylinder head/cylinder (page 6-2, 4).



ENGINE MOUNTING BRACKET REMOVAL

Remove the engine mounting bracket bolt and remove the bracket.



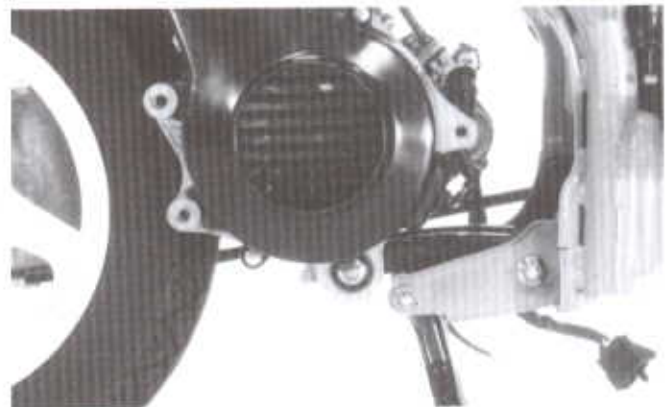
ENGINE INSTALLATION

The installation sequence is essentially the reverse order of removal.

Tighten the following bolt to the specified torque.

TORQUE:

- Engine bracket bolt:
50 N·m (5.0 kg-m, 36 ft-lb)
- Engine mount bolt:
50 N·m (5.0 kg-m, 36 ft-lb)
- Rear shock absorber lower mount bolt:
'88-'93: 25 N·m (2.5 kg-m, 18 ft-lb)
After '93: 27 N·m (2.7 kg-m, 20 ft-lb)
- Exhaust pipe joint nut:
12 N·m (1.2 kg-m, 9 ft-lb)
- Muffler mount bolt:
32 N·m (3.2 kg-m, 23 ft-lb)

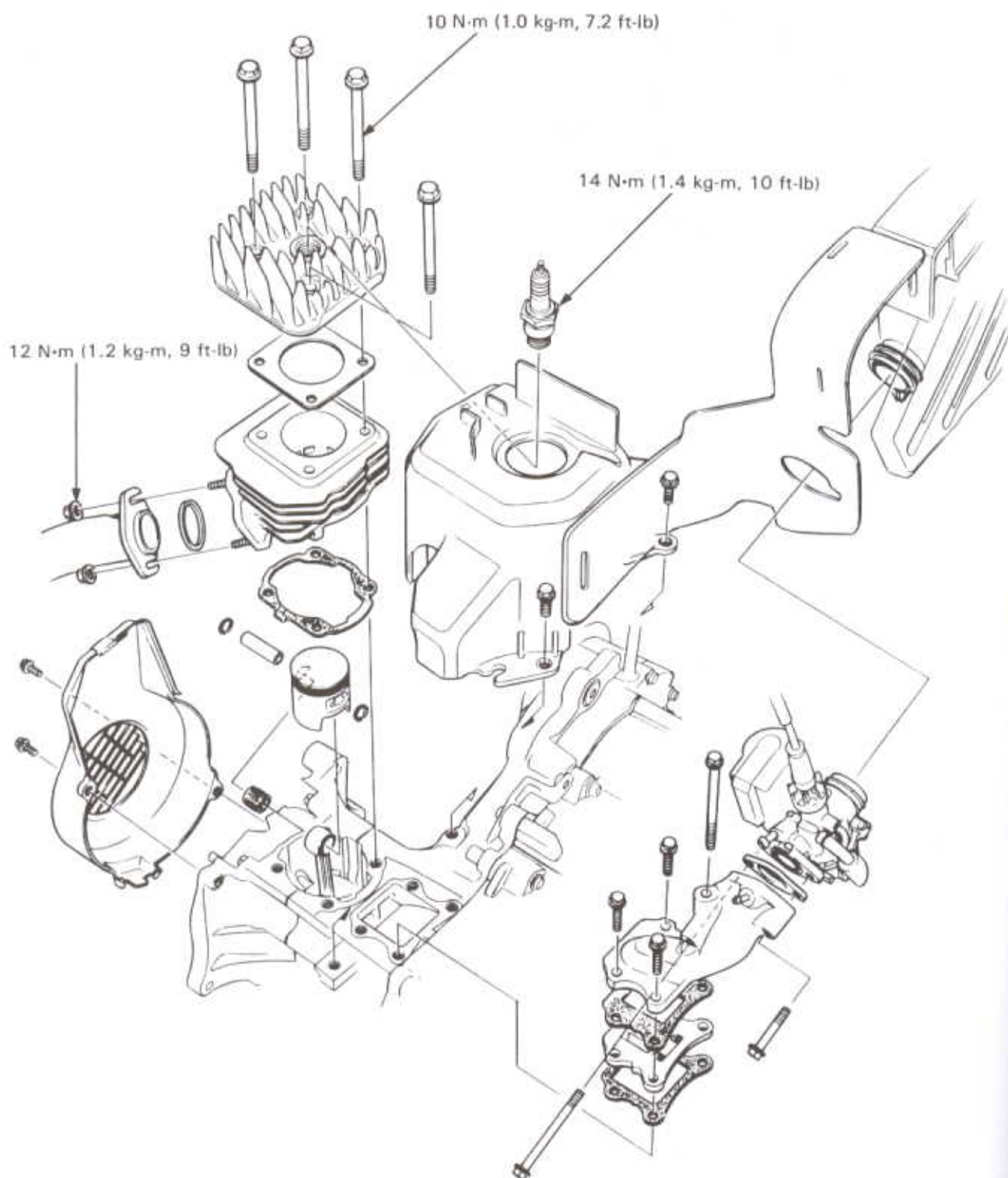


ENGINE REMOVAL/INSTALLATION

Inspect and/or adjust the following:

- Wire and cable routing (page 1-7)
- Rear brake lever free play (page 3-5)
- Oil pump bleeding/priming (page 2-3)
- Except SA50P: Oil control cable (page 2-4)





6. CYLINDER HEAD/CYLINDER/PISTON

SERVICE INFORMATION

TROUBLESHOOTING

6-1 CYLINDER HEAD

6-2 CYLINDER/PISTON

6-3

6-5

SERVICE INFORMATION

GENERAL

- 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

Unit: mm (in)

ITEM				STANDARD	SERVICE LIMIT
Cylinder head warpage				—	0.10 (0.004)
Cylinder	I.D.	A(Mark A)	'88 thru. '93	41.000–41.005 (1.6142–1.6144)	41.05 (1.616)
			After '93	39.000–39.005 (1.5354–1.5356)	39.05 (1.537)
		B(No mark)	'88 thru. '93	41.005–41.010 (1.6144–1.6146)	41.05 (1.616)
			After '93	39.005–39.010 (1.5356–1.5358)	39.05 (1.537)
	Taper			—	0.10 (0.004)
	Out-of-round			—	0.10 (0.004)
	Warpage			—	0.10 (0.004)
Piston, piston ring, and piston pin	Piston O.D.	'88 thru. '93		40.955–40.965 (1.6124–1.6128)	40.900 (1.610)
		After '93	A mark	38.955–38.960 (1.5337–1.5339)	38.90 (1.531)
			B mark	38.965–38.970 (1.5341–1.5342)	38.90 (1.531)
			No mark	38.960–38.965 (1.5339–1.5341)	38.90 (1.531)
	Piston pin hole I.D.		'88 thru. '93	10.002–10.008 (0.3938–0.3940)	10.03 (0.395)
			After '93	12.002–12.008 (0.4725–0.4728)	12.03 (0.474)
	Piston pin O.D.		'88 thru. '93	9.994–10.000 (0.3935–0.3937)	9.98 (0.393)
			After '93	11.994–12.000 (0.4722–0.4724)	11.98 (0.4717)
	Piston-to-piston pin clearance			0.002–0.014 (0.0001–0.0006)	0.03 (0.001)
	Piston ring end gap (top, second)		'88 thru. '93	0.10–0.25 (0.0040–0.0100)	0.50 (0.020)
After '93			0.10–0.25 (0.004–0.010)	0.40 (0.016)	
Connecting rod small end I.D.			'88 thru. '93	14.005–14.015 (0.5514–0.5518)	14.03 (0.552)
			After '93	17.005–17.017 (0.6695–0.6700)	17.03 (0.6705)

TORQUE VALUE

Cylinder head bolt
Exhaust pipe joint nut

10 N·m (1.0 kg·m, 7.2 ft·lb) Apply oil to the threads and flange surface.
12 N·m (1.2 kg·m, 9 ft·lb)

TROUBLESHOOTING

Compression too low, hard starting or poor performance at low speed

- Leaking cylinder head gasket
- Loose spark plug
- Worn, stuck or broken piston rings
- Worn or damaged cylinder and piston
- Faulty reed valve

Compression too high, overheating or knocking

- Excessive carbon build-up in cylinder 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 side cover (page 11-2).
- both frame rear cover (page 11-3).
- center trunk (page 11-5).

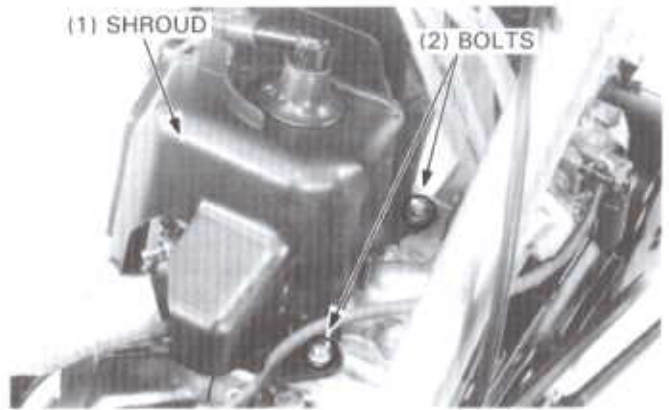
Remove the fan cover by removing the two mounting bolts.



Remove the air cleaner case (page 4-14).

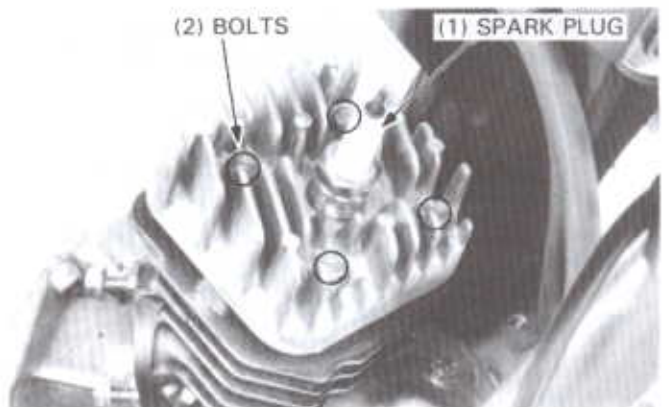
Disconnect the spark plug cap.

Remove the cylinder head shroud by removing the two mounting bolts.



Remove the exhaust muffler (page 13-2).

Remove the spark plug, the cylinder head bolts and the cylinder head.



Remove the cylinder head gasket.



CYLINDER HEAD/CYLINDER/PISTON

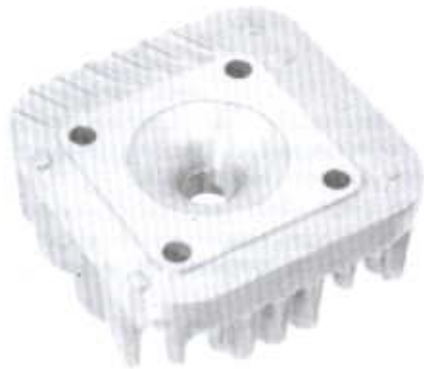
INSPECTION

Remove the carbon deposits from the combustion chamber, and the piston head.

Clean the head gasket surface.

CAUTION

- *Do not damage the combustion chamber wall and gasket surfaces.*



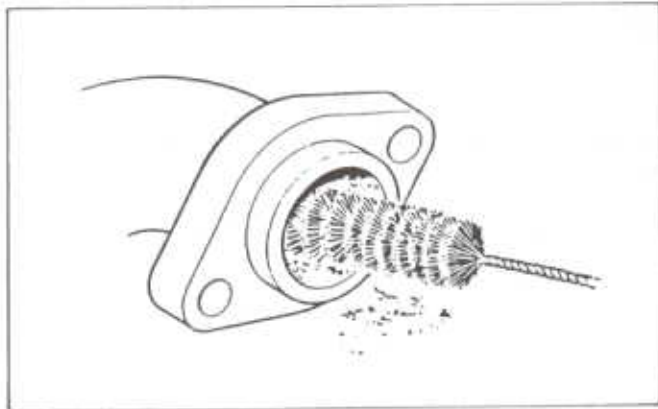
Remove the carbon deposits from the head pipe of the exhaust muffler.

CAUTION

- *Do not scratch or score the head pipe.*

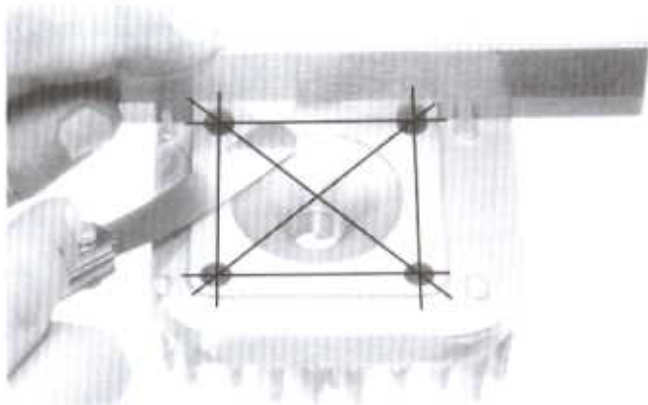
NOTE

- If the engine still has poor performance after decarbonizing, replace the muffler assembly.



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

SERVICE LIMIT: 0.10 mm (0.004 in)



INSTALLATION

Install a new cylinder head gasket.



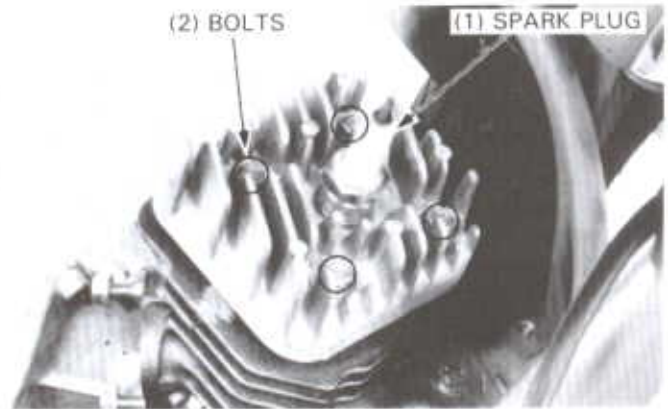
Install the cylinder head on the cylinder.

Apply oil to the cylinder head bolt threads and flange surface.

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

TORQUE: 10 N·m (1.0 kg·m, 7.2 ft·lb)

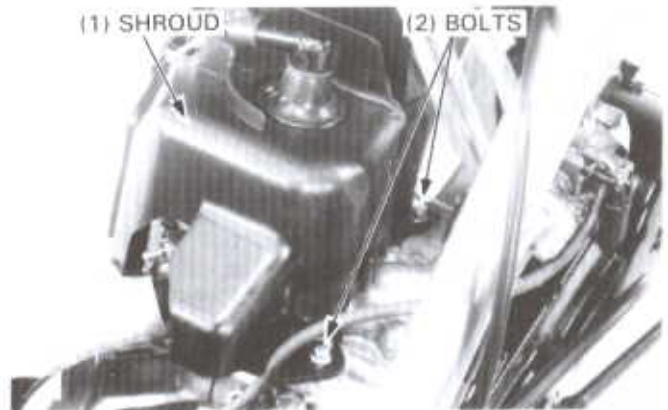
Install the spark plug.



Install the cylinder head shroud and tighten the mounting bolts.

Install the spark plug cap.

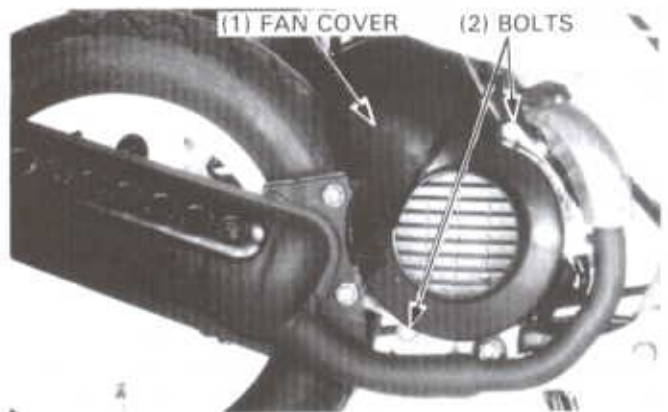
Install the air cleaner case (page 4-14).



Install the fan cover and tighten the mounting bolts.

Install the following parts:

- center trunk (page 11-5).
- both frame rear cover (page 11-3).
- both side covers (page 11-2).
- rear carrier (page 11-6).



CYLINDER/PISTON

CYLINDER REMOVAL

Remove the cylinder head (page 6-3).

Remove the cylinder using care 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.



CYLINDER HEAD/CYLINDER/PISTON

PISTON REMOVAL

Remove the piston pin clip using a pair of needle nose 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 clip fall into the crankcase.



PISTON RING/EXPANDER REMOVAL

Remove the piston rings.

Clean carbon deposits from the piston head and piston ring grooves.

NOTE

- Spread each piston ring and remove it by lifting it up at a point just opposite the gap.
- Do not damage the piston rings by spreading the ends too far.
- Use care not to scratch the piston head or ring grooves.



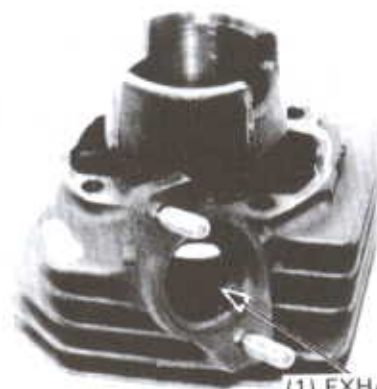
CYLINDER/PISTON INSPECTION

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 wall.



Inspect the cylinder walls for scratches and wear. Measure and record the cylinder I.D. at three levels in both an X and Y axis. Use the maximum reading to determine the amount of cylinder wear.

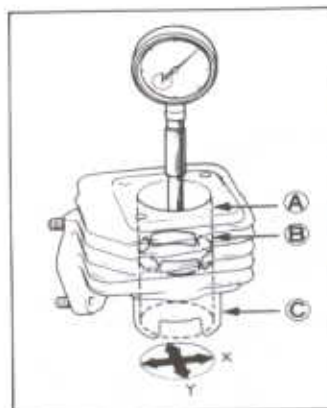
SERVICE LIMIT: 41.050 mm (1.616 in)
After '93: 39.05 mm (1.537 in)

CAUTION

- Some cylinders are marked with the letter "A" in the location shown, and some cylinders are not marked. If the cylinder is replaced, be sure to use the matching replacement parts.

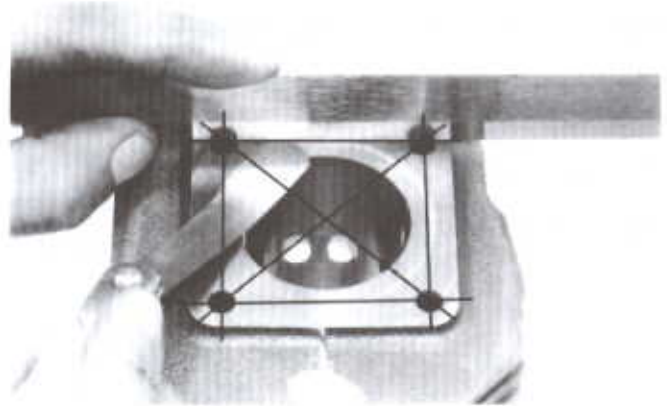
Calculate the piston-to-cylinder clearance.

SERVICE LIMIT: 0.10 mm (0.004 in)



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

SERVICE LIMIT: 0.10 mm (0.004 in)



Measure and record the piston O.D. at a point 4.0 mm (0.16 in)/After '93: 6.5 mm (0.26 in) from the bottom, and 90° to the piston pin hole.

SERVICE LIMIT: 40.900 mm (1.610 in)
After '93: 38.90 mm (1.531 in)

Compare this measurement against the service limit and calculate piston-to-cylinder clearance.



Measure the piston pin hole I.D.

SERVICE LIMIT: 10.03 mm (0.395 in)
After '93: 12.03 mm (0.474 in)

Measure the piston pin O.D.

SERVICE LIMIT: 9.98 mm (0.393 in)
After '93: 11.98 mm (0.4717 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: 0.50 mm (0.0197 in)
After '93: 0.40 mm (0.016 in)



CYLINDER HEAD/CYLINDER/PISTON

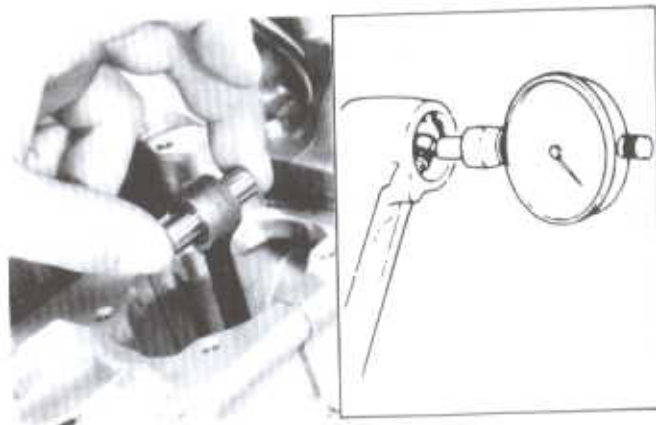
CONNECTING ROD INSPECTION

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 mm (0.552 in)

After '93: 17.03 mm (0.6705 in)



PISTON/CYLINDER INSTALLATION

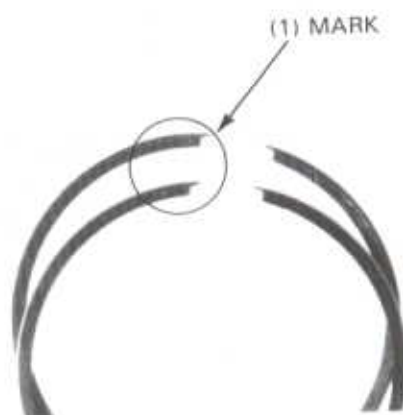
Clean the piston ring grooves.

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

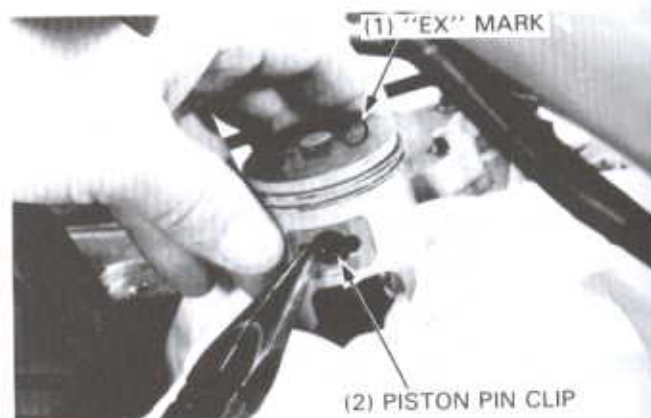
- Locate the piston ring end gap on the pin in the ring groove.



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.



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

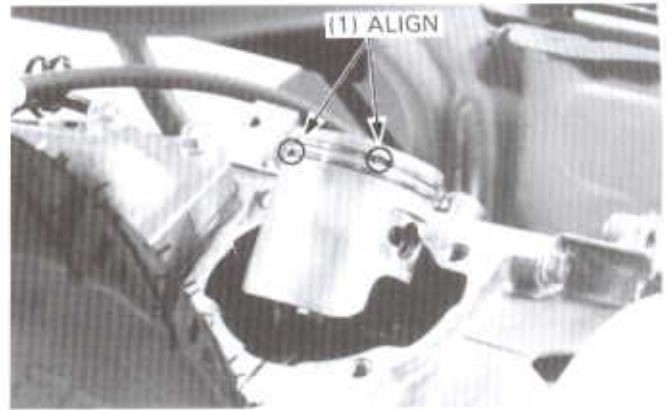


Remove the shop towel from the crankcase.

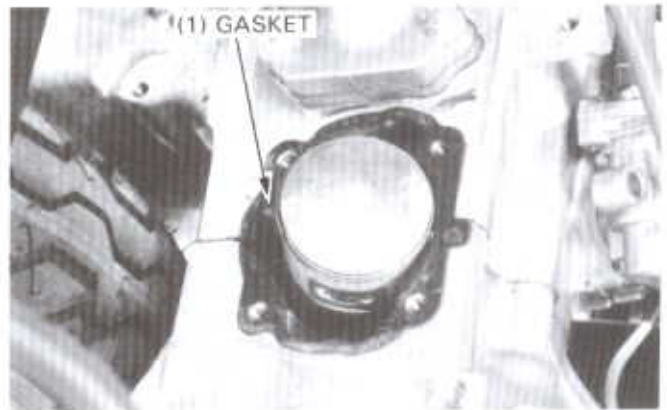
Be sure the ring end gaps are aligned with the piston ring pins in the ring grooves.

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.



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.*

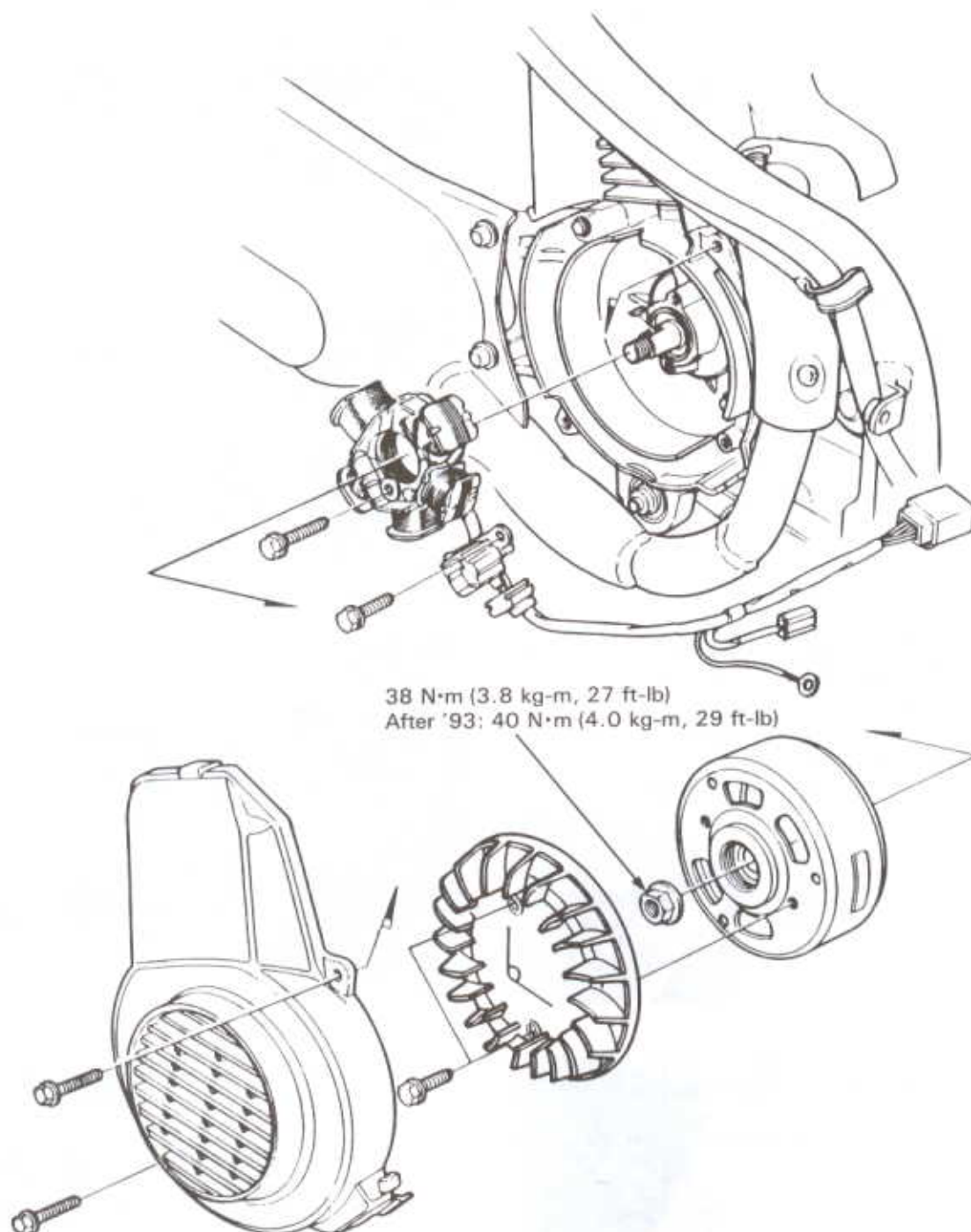


Install the cylinder head (page 6-4).

After assembly is complete, perform a compression test (Section 3).

Check for any abnormal engine noise or air leakage past the cylinder.





SERVICE INFORMATION

GENERAL

This section covers alternator removal only.

- See Sections 14 and 15 for alternator inspection.

TORQUE VALUE

Flywheel nut 38 N·m (3.8 kg-m, 27 ft-lb)
After '93: 40 N·m (4.0 kg-m, 29 ft-lb)

TOOLS

Common

Flywheel puller 07733-0010000 or 07933-0230000
Universal holder 07725-0030000

ALTERNATOR

ALTERNATOR

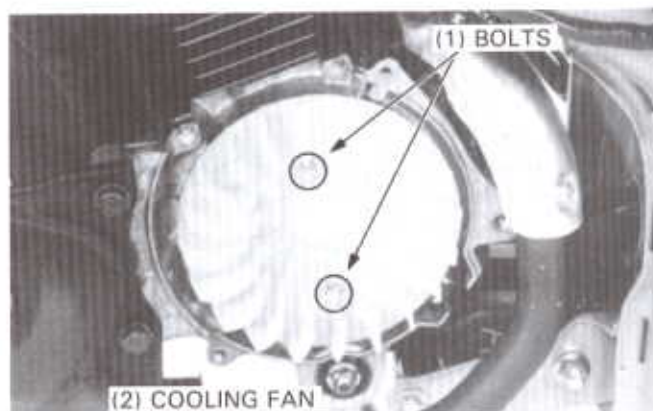
REMOVAL

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

Remove the fan cover by removing the two mounting bolts.



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

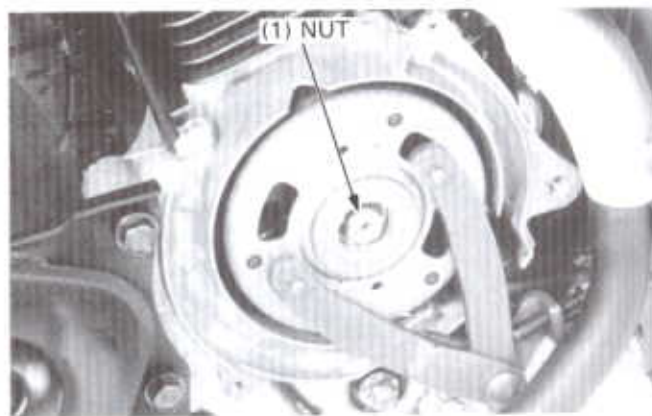


Hold the flywheel with the universal holder and remove the flywheel flange nut.

TOOL:

Universal holder

07725-0030000



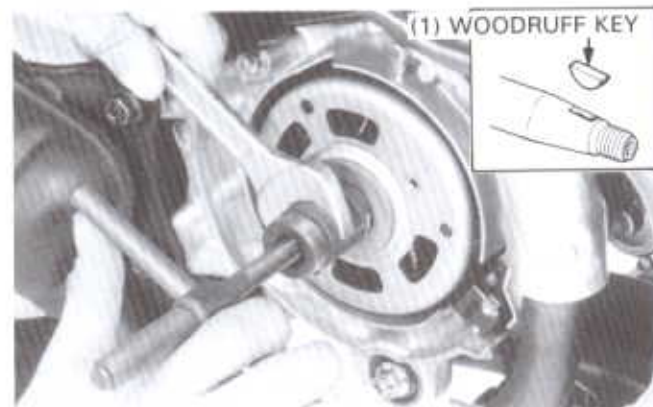
Remove the flywheel with the flywheel puller.

TOOL:

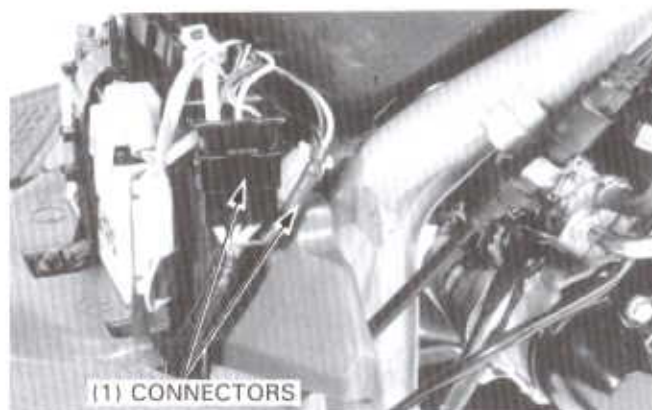
Flywheel puller

07733-0010000

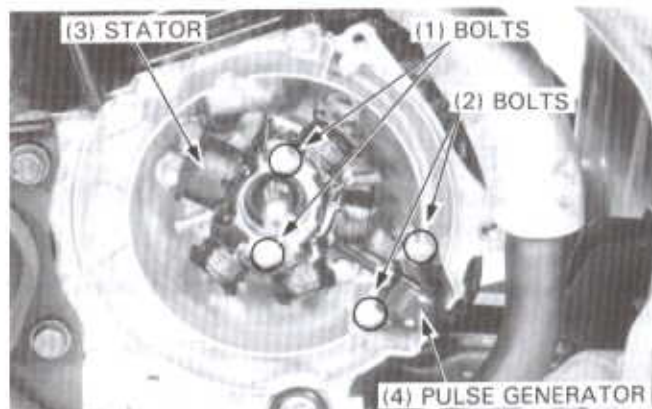
Remove and retain the woodruff key.



Disconnect the alternator wire connectors.
Disconnect the starter and ground wires from the starter motor.



Remove the pulse generator mounting bolts.
Remove the stator mounting bolts, then remove the stator with the pulse generator.

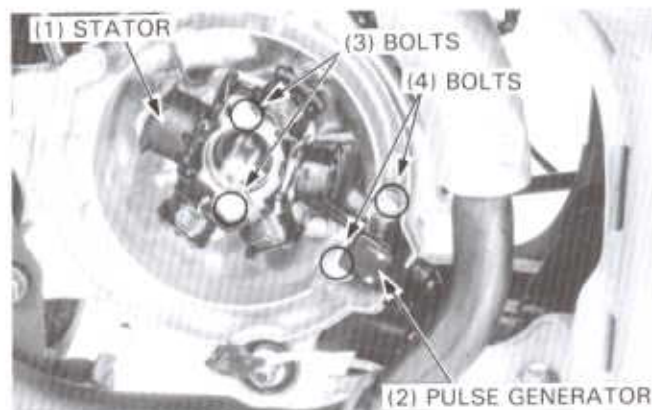


INSTALLATION

Install the alternator wire grommet in the case groove.

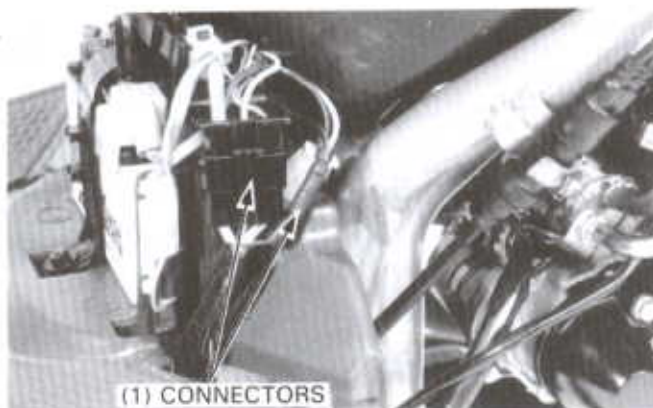


Install the stator and pulse generator and tighten their bolts.



ALTERNATOR

Connect the alternator wire connectors, and the starter and ground wires.



NOTE

- Clean the taper hole in the flywheel.
- Make sure that there are no foreign particles inside the flywheel.

Install the woodruff key onto the crankshaft.
Install the flywheel onto the crankshaft.

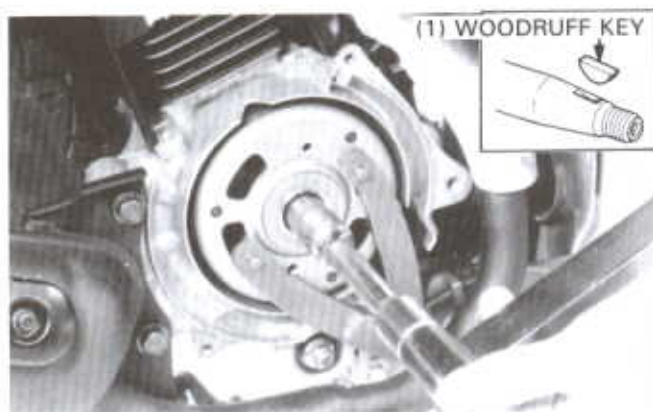
Hold the flywheel with the universal holder and tighten the flywheel flange nut.

TORQUE: 38 N·m (3.8 kg-m, 27 ft-lb)
After '93: 40 N·m (4.0 kg-m, 29 ft-lb)

TOOL:

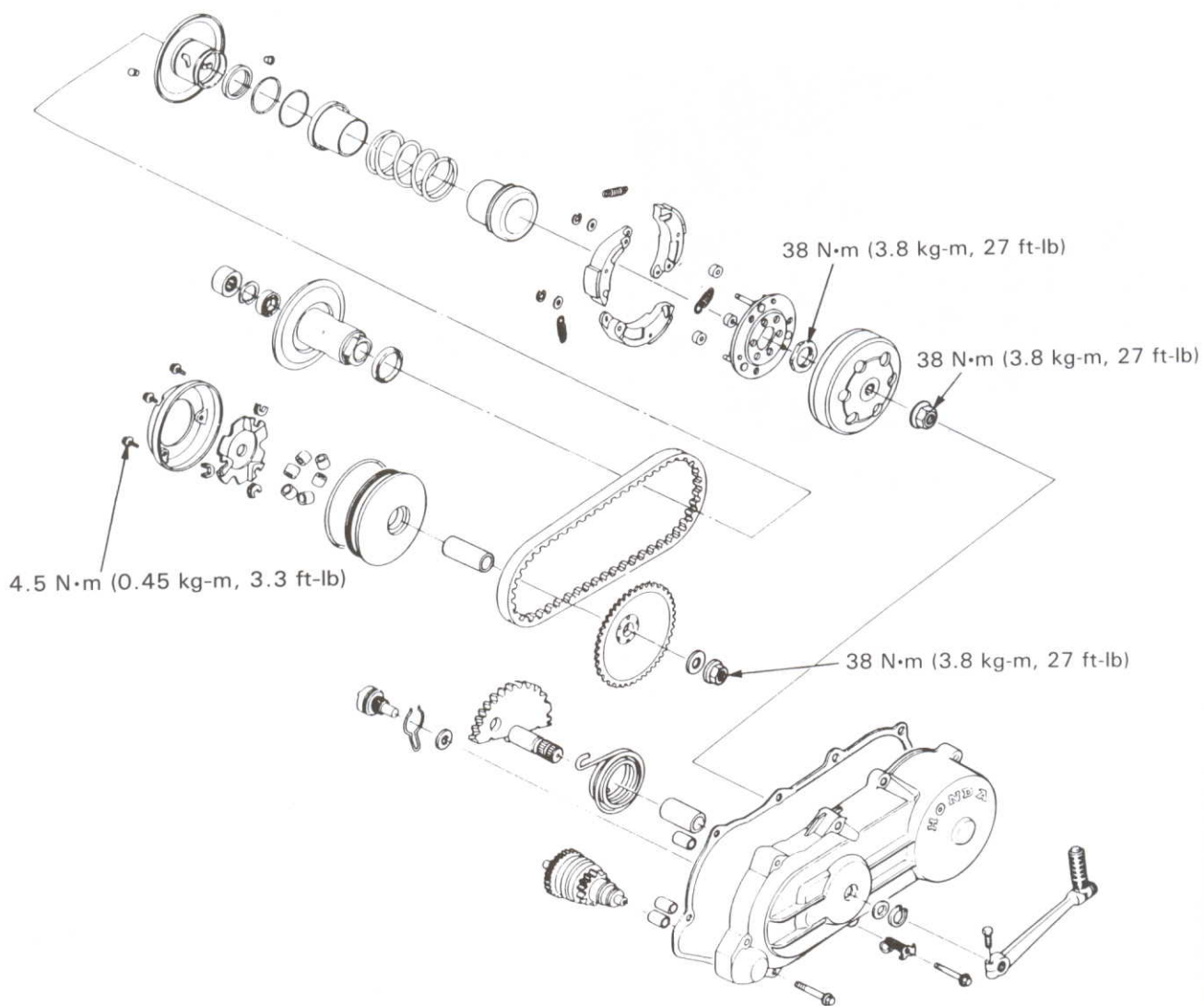
Universal holder

07725-0030000



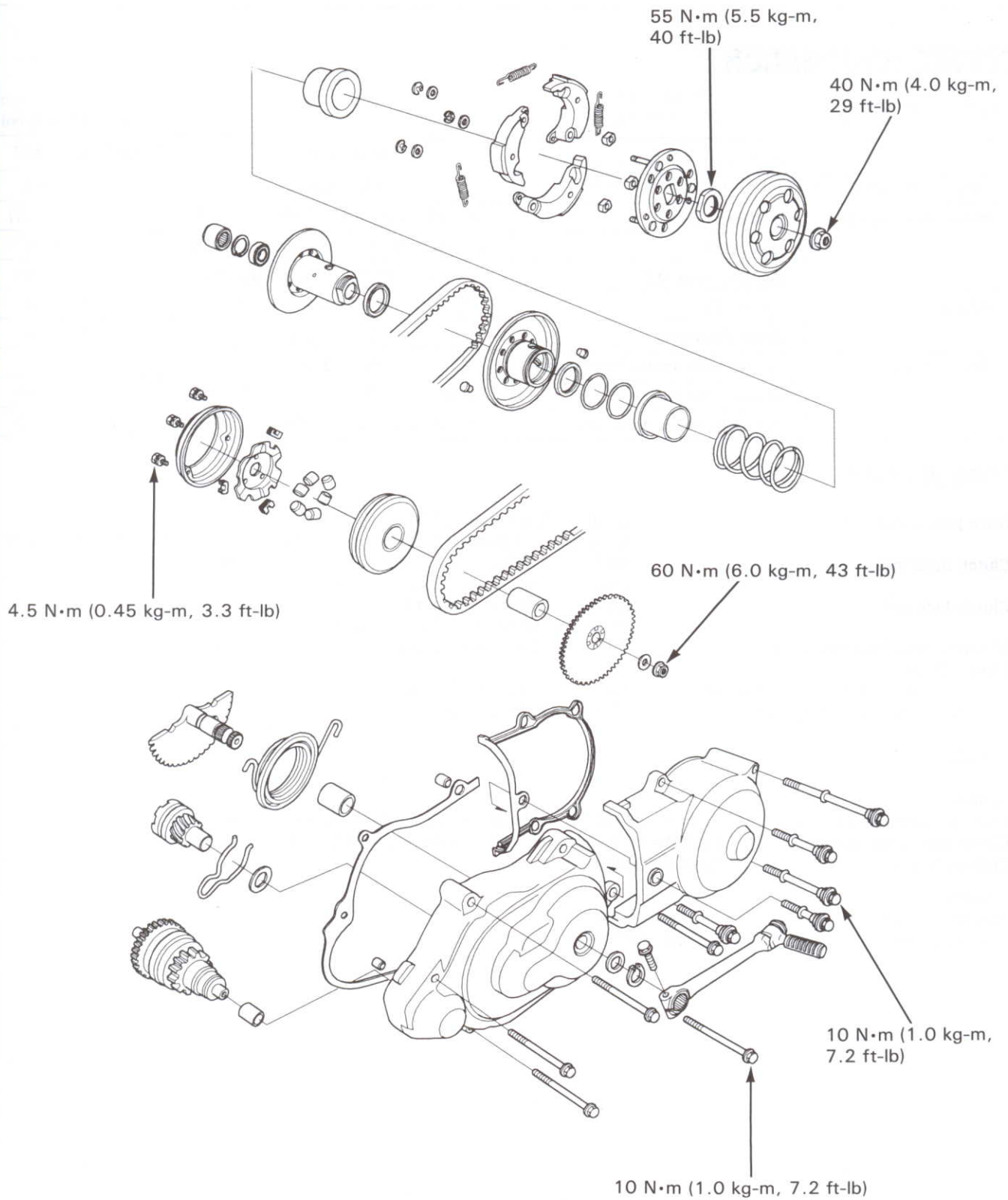
DRIVE AND DRIVEN PULLEYS/KICKSTARTER/CLUTCH

'88 thru. '93



8. DRIVE AND DRIVEN PULLEYS/KICKSTARTER/CLUTCH

After '93



DRIVE AND DRIVEN PULLEYS/KICKSTARTER/CLUTCH

SERVICE INFORMATION	8-2	DRIVE PULLEY	8-8
TROUBLESHOOTING	8-3	CLUTCH/DRIVEN PULLEY	8-11
KICKSTARTER	8-4	STARTER PINION	8-17

SERVICE INFORMATION

SPECIFICATIONS

Unit: mm (in)

ITEM		STANDARD	SERVICE LIMIT
Drive belt width		15.5 (0.61)	15.0 (0.59)
Movable drive face	Bushing I.D.	20.035–20.085 (0.7888–0.7907)	20.60 (0.811)
	Boss O.D.	20.010–20.025 (0.7878–0.7884)	19.98 (0.787)
	Weight roller O.D.	15.92–16.08 (0.627–0.633)	15.40 (0.606)
Clutch	Outer I.D.	107.0–107.2 (4.21–4.22)	107.5 (4.23)
	Shoe thickness	3.0 (0.118)	2.0 (0.08)
Driven pulley	Driven face spring free length	98.1 (3.86)	92.8 (3.65)
	Driven face O.D.	33.965–33.985 (1.3372–1.3380)	33.94 (1.336)
	Movable driven face I.D.	34.000–34.025 (1.3386–1.3396)	34.06 (1.341)

TORQUE VALUES

Drive pulley lock nut	38 N·m (3.8 kg-m, 27 ft-lb)	Apply oil to the threads and seating surface.
	After '93: 60 N·m (6.0 kg-m, 43 ft-lb)	
Clutch outer nut	38 N·m (3.8 kg-m, 27 ft-lb)	
	After '93: N·m (4.0 kg-m, 29 ft-lb)	
Clutch lock nut	38 N·m (3.8 kg-m, 27 ft-lb)	
	After '93: 55 N·m (5.5 kg-m, 40 ft-lb)	
Movable drive face seal bolt	4.5 N·m (0.45 kg-m, 3.3 ft-lb)	
After '93 only		
Left crankcase rear cover special bolt	10 N·m (1.0 kg-m, 7.2 ft-lb)	
Left crankcase front cover bolt	10 N·m (1.0 kg-m, 7.2 ft-lb)	

TOOLS

Special

Lock nut wrench, 39 mm	07916–1870002 or Commercially available 39 mm socket
Clutch spring compressor	07960–KM10000 or 07960–KM1000A (U.S.A. only)
Bearing driver	07945–GC80000

Common

Universal holder	07725–0030000
Bearing driver	07749–0010000

TROUBLESHOOTING

Engine starts, but motor scooter won't move

- Worn drive belt
- Broken ramp plate
- 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
- Worn weight roller
- 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

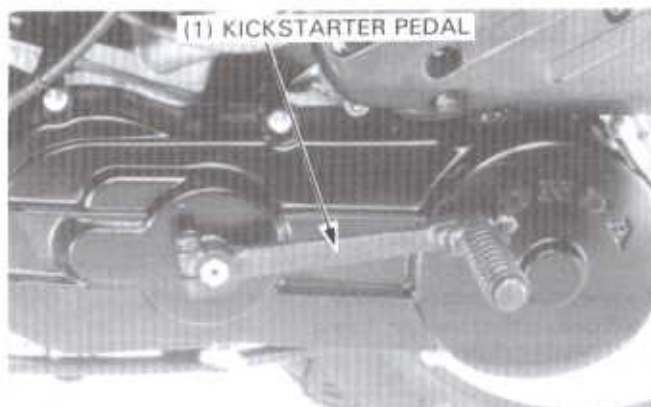
KICKSTARTER

LEFT CRANKCASE COVER REMOVAL

'88 thru. '93:

Remove the following:

- Left side cover (page 11-2).
- Kickstarter pedal.

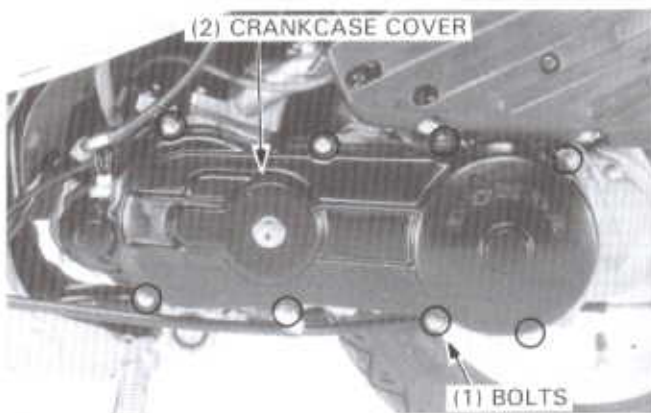


Remove the left crankcase mounting bolts and the cover.

Remove the gasket and dowel pins.

NOTE

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



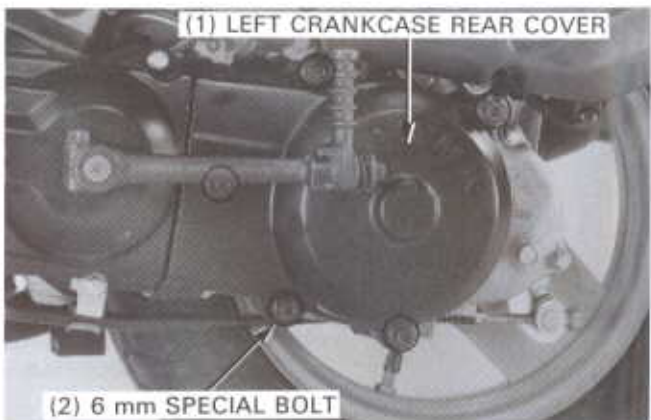
After '93:

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

Remove the five 6 mm special bolts and the left crankcase rear cover.

Remove the rubber gasket from the cover.

Remove the kickstarter pedal.

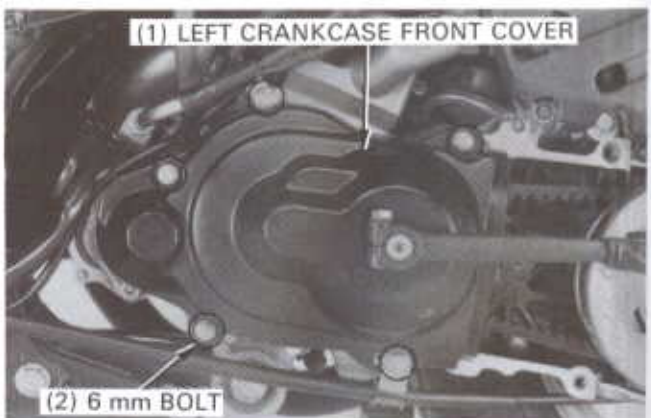


Remove the five 6 mm bolts and the left crankcase front cover.

Remove the gasket and dowel pins.

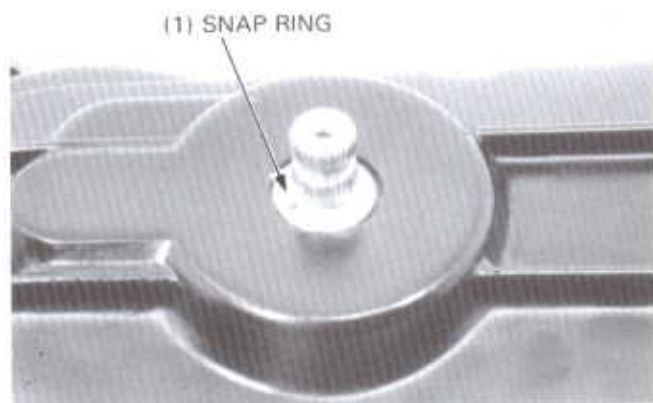
NOTE

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



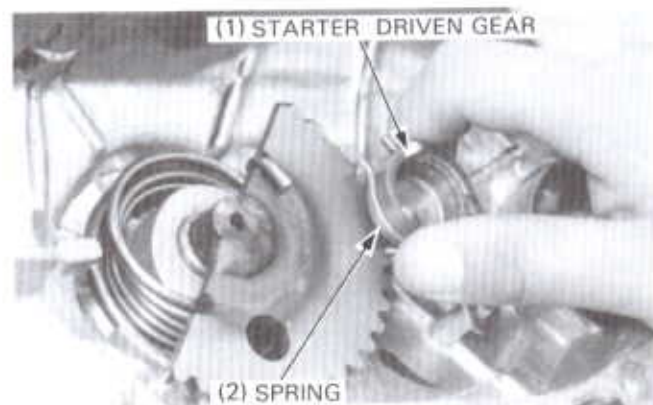
KICKSTARTER REMOVAL

Remove the snap ring and washer from the kickstarter spindle.

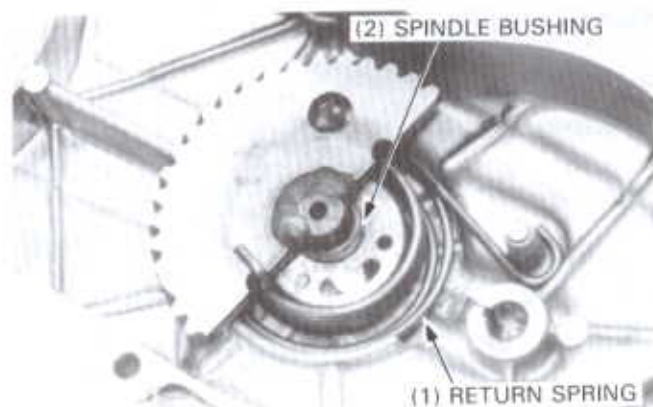


Temporarily install the kickstarter pedal onto the kickstarter spindle.

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

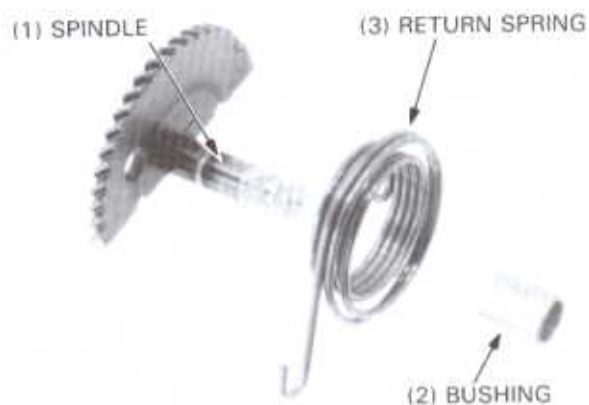


Remove the kickstarter spindle, spindle bushing and return spring from the left crankcase cover.



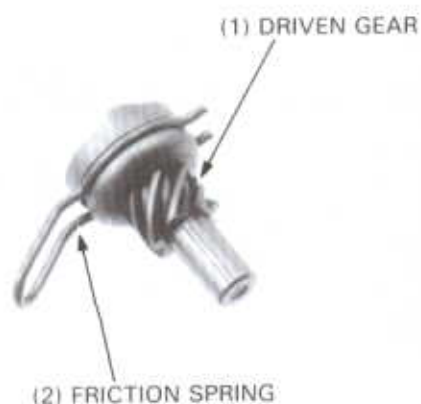
KICKSTARTER INSPECTION

Check the kickstarter spindle, bushing and return spring for wear or damage.

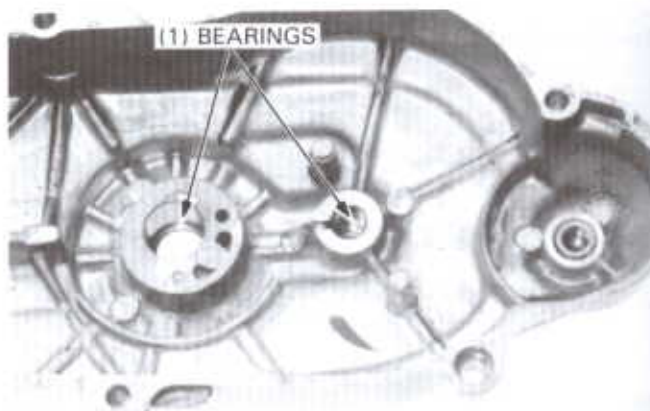


DRIVE AND DRIVEN PULLEYS/KICKSTARTER/CLUTCH

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



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

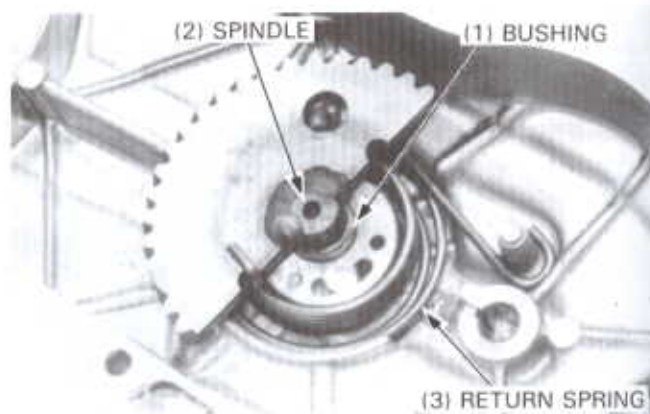


KICKSTARTER INSTALLATION

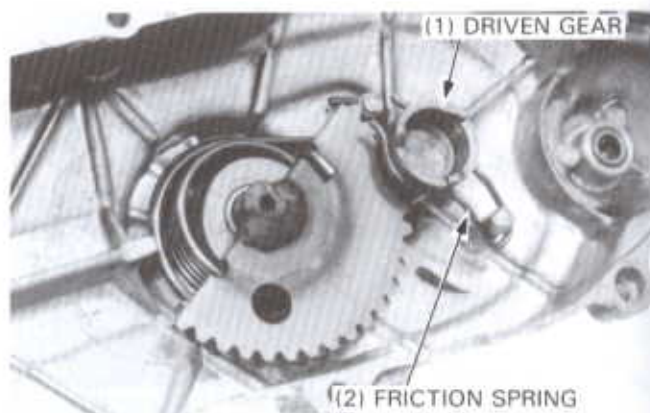
Install the kickstarter bushing, spindle and return spring onto the left crankcase cover.

NOTE

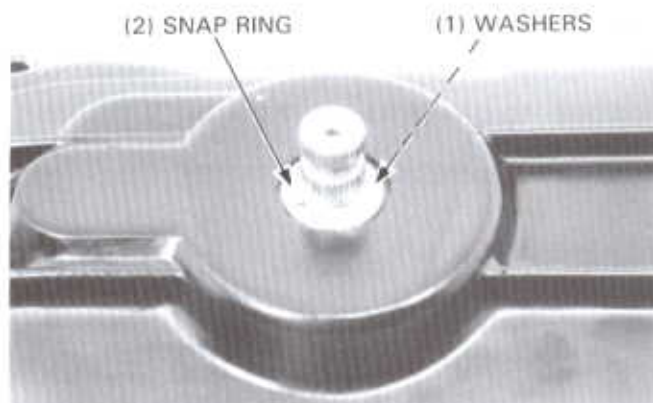
- Push the inner end of the spring out of way with a screwdriver, to ease the installation of the spindle through the spring.



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



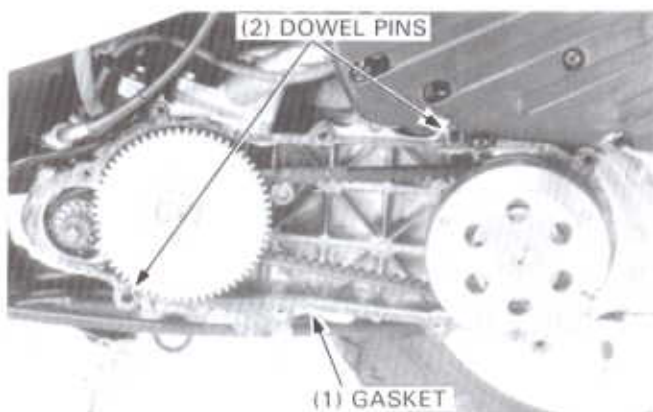
Install the washer and snap ring.



LEFT CRANKCASE COVER INSTALLATION

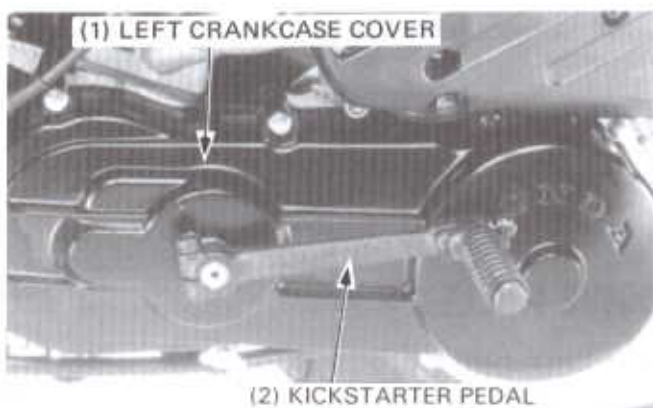
'88 thru. '93:

Install the dowel pins and a new gasket.



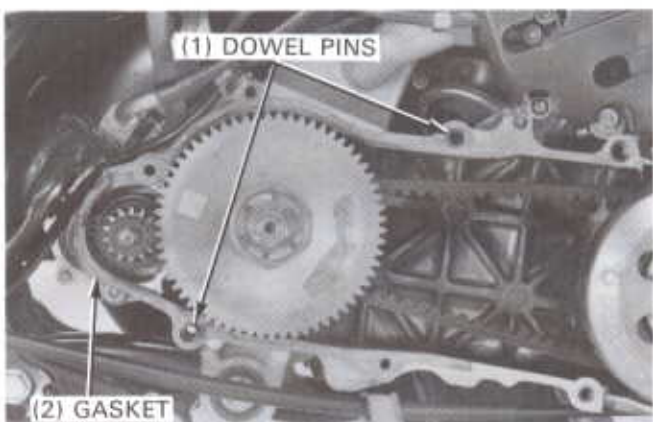
Install the left crankcase cover and tighten the mounting bolts securely.

Install the kickstarter pedal.



After '93

Install the dowel pins and a new gasket.

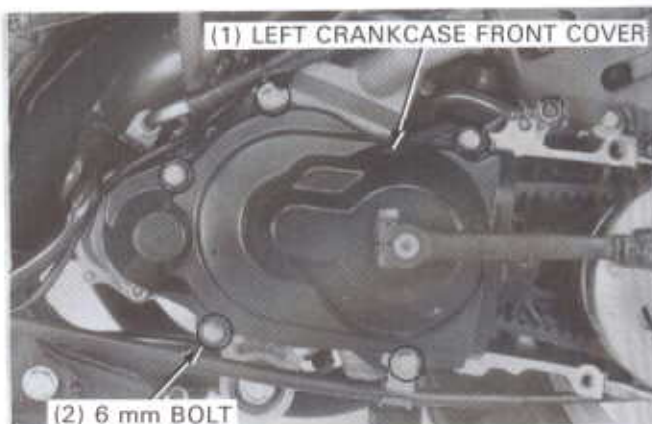


DRIVE AND DRIVEN PULLEYS/KICKSTARTER/CLUTCH

Install the left crankcase front cover and tighten the 6 mm bolts.

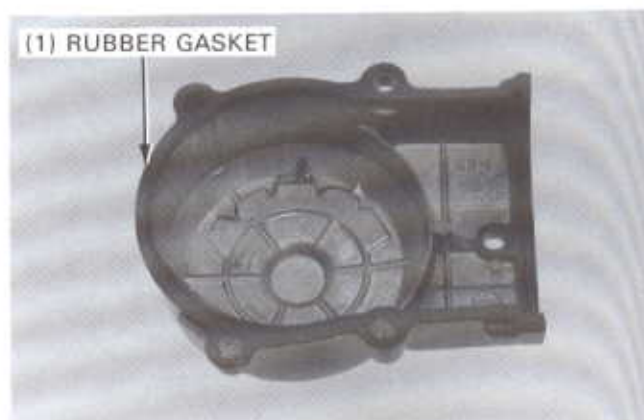
TORQUE: 10 N·m (1.0 kg-m, 7.2 ft-lb)

Install the kickstarter pedal.



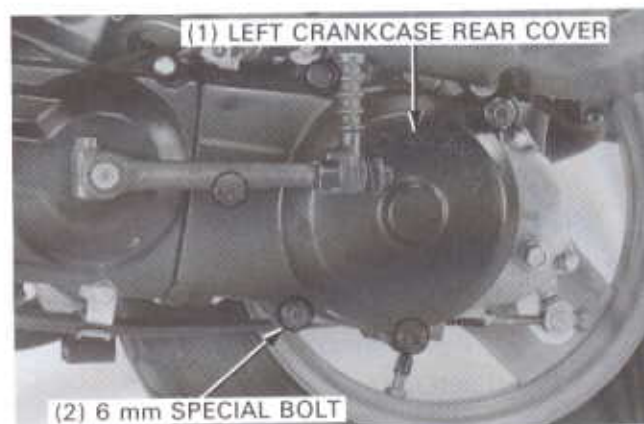
Check the rubber gasket and replace it if it is deteriorated or damaged.

Install the rubber gasket onto the left crankcase rear cover.



Install the left crankcase front cover and tighten the 6 mm special bolts.

TORQUE: 10 N·m (1.0 kg-m, 7.2 ft-lb)



DRIVE PULLEY

MOVABLE DRIVE FACE REMOVAL

'88 thru. '93:

Remove the left crankcase cover (page 8-4).

After '93:

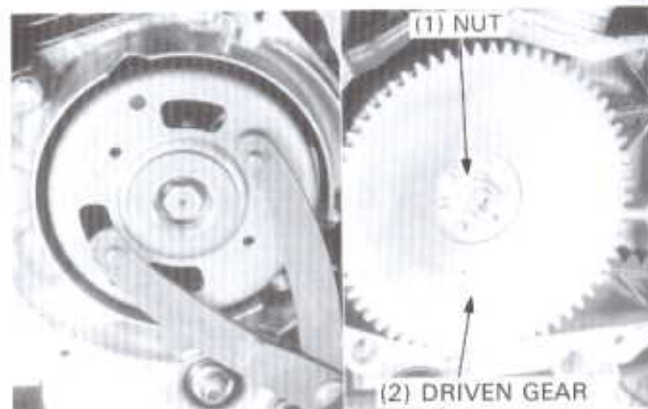
Remove the left crankcase covers (page 8-4).

Remove the fan cover and the fan.

Hold the flywheel with the universal holder.

Remove the nut and washer, then remove the starter driven gear and drive belt.

Remove the drive face.



TOOL:

Universal holder

07725-0030000

DRIVE BELT INSPECTION

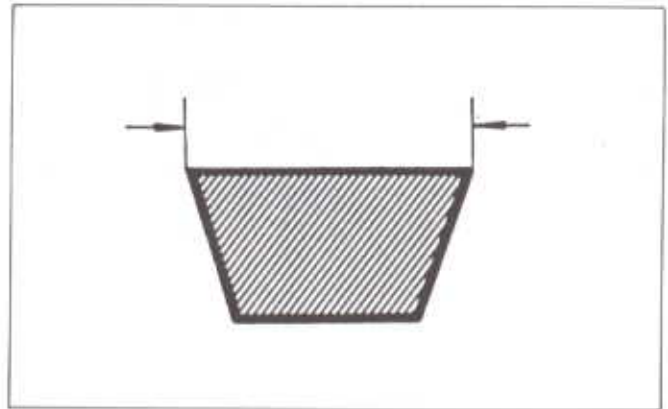
Check the drive belt for cracks, separation or abnormal or excessive wear. Measure the width of the belt at its widest point.

SERVICE LIMIT: 15.0 mm (0.59 in)

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

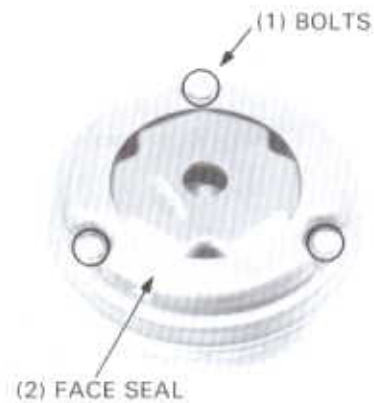
NOTE

- Use only a genuine Honda replacement drive belt.

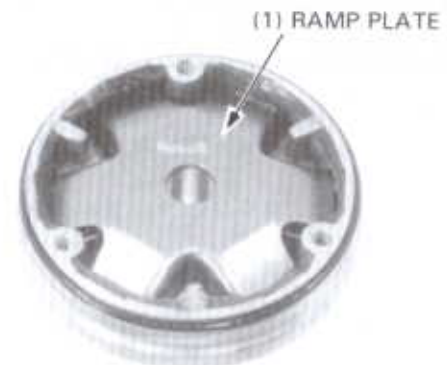


MOVABLE DRIVE FACE DISASSEMBLY

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



Remove the ramp plate.



Remove the weight rollers.



DRIVE AND DRIVEN PULLEYS/KICKSTARTER/CLUTCH

MOVABLE DRIVE FACE INSPECTION

Check each roller for wear or damage.
Measure each roller O.D.

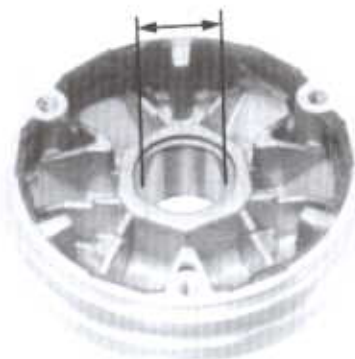
SERVICE LIMIT: 15.40 mm (0.606 in)



Measure the movable drive face bushing I.D.

SERVICE LIMIT: 20.60 mm (0.811 in)

Replace the drive face if the I.D. exceeds the service limit.



Inspect the drive face boss for wear or damage.

Measure the O.D. of the boss at the drive face contacting surface.

SERVICE LIMIT: 19.98 mm (0.787 in)

Replace the boss if the O.D. is less than the service limit.



MOVABLE DRIVE FACE ASSEMBLY

'88 thru. '93:
Lubricate the inside of the drive face with 10–15g (0.35–0.53 oz) of grease, then install the weight rollers.

SPECIFIED GREASE: Lithium Based Grease

Mitsubishi HD-3
Nippon Sekiyu Lipanox Deluxe 3
Idemitsu Coronex 3
Sta-Lube MP #3141
Bel-Ray Moly Lube 126 EP#0

After '93:
Install the weight rollers.

NOTE

• Do not apply grease to the movable drive face and weight rollers.

(1) WEIGHT ROLLER



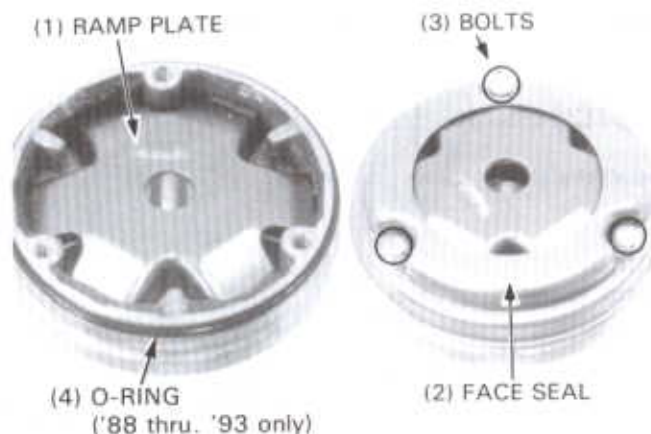
Install the ramp plate and movable face seal.
Tighten the seal bolts to the specified torque.

TORQUE: 4.5 N·m (0.45 kg-m, 3.3 ft-lb)

NOTE

- Make sure that the O-ring is in position. ('88 thru. '93 only)

Install the drive face boss in the movable drive face.



MOVABLE DRIVE FACE INSTALLATION

Install the drive face assembly onto the crankshaft.

Install the drive belt.

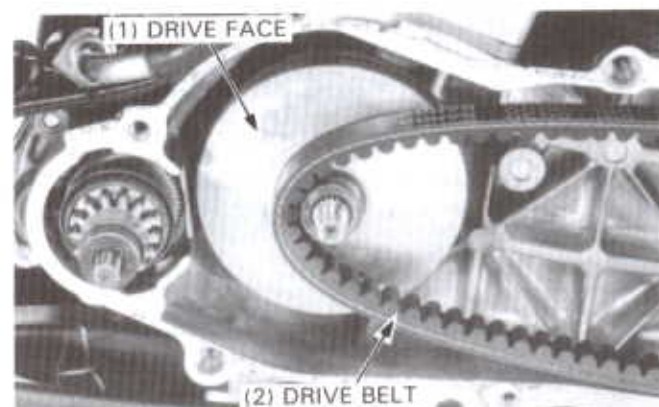
NOTE

- Clean the hole in the movable drive face, drive face boss and crankshaft.

Apply oil to the starter driven gear nut threads and seating surface (After '93 only).

Install the starter driven gear and nut.

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



TORQUE: '88 thru. '93: 38 N·m (3.8 kg-m, 27 ft-lb)
After '93: 60 N·m (6.0 kg-m, 43 ft-lb)

TOOL:

Universal holder 07725-0030000

NOTE

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

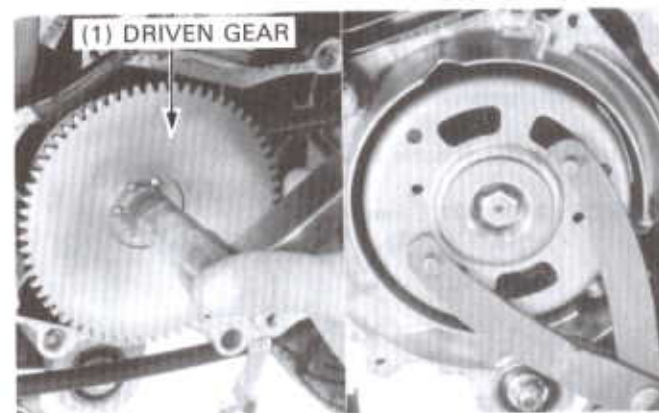
Install the fan and fan cover.

'88 thru. '93:

Install the left crankcase cover (page 8-7).

After '93:

Install the left crankcase covers (page 8-7).



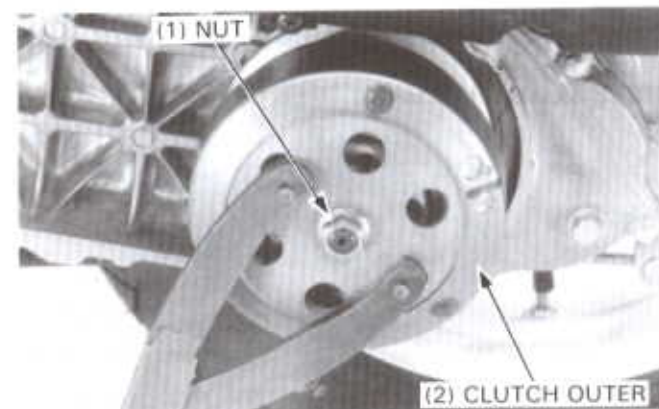
CLUTCH/DRIVEN PULLEY

REMOVAL

Remove the starter driven gear and drive belt (page 8-8).

Hold the clutch outer with the universal holder.

Remove the nut, then remove the clutch outer.



TOOL:

Universal holder 07725-0030000

DRIVE AND DRIVEN PULLEYS/KICKSTARTER/CLUTCH

Remove the driven pulley from the drive shaft.

CLUTCH DISASSEMBLY

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

TOOLS:

Clutch spring compressor

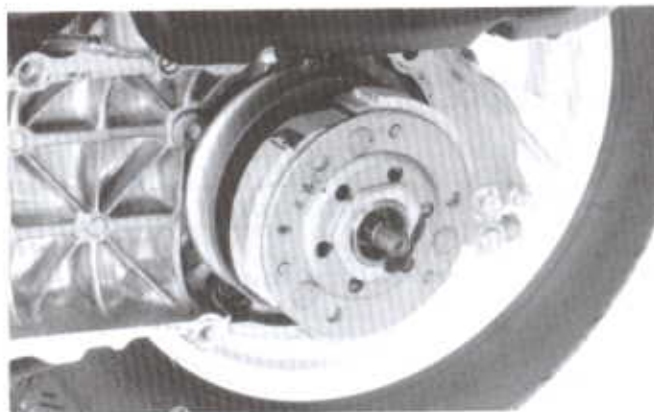
07960-KM10000 or

07960-KM1000A

(U.S.A. only)

Lock nut wrench, 39 mm

07916-1870002 or
equivalent commercially
available in U.S.A.



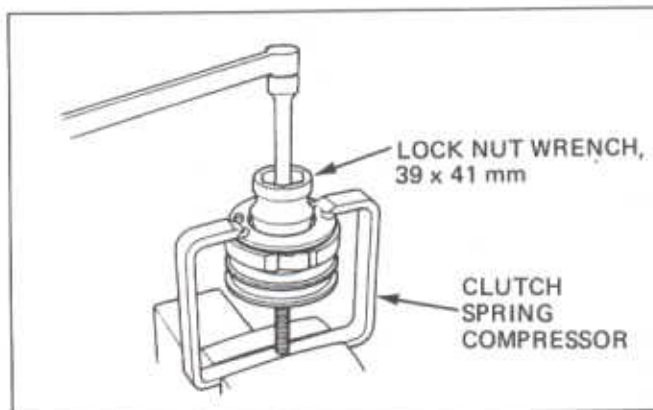
NOTE

- If 07960-KM1000A is used, place the special screws in the holes marked "A".

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

CAUTION

- *Do not overtighten the clutch spring compressor.*



CLUTCH INSPECTION

Inspect the clutch outer for wear or damage.

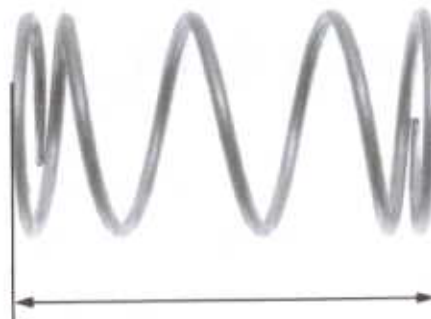
Measure the clutch outer I.D.

SERVICE LIMIT: 107.5 mm (4.23 in)



Measure the driven face spring free length.

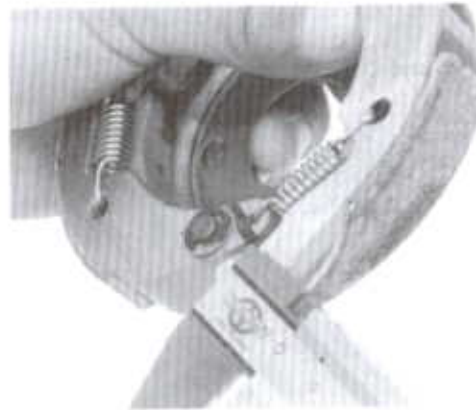
SERVICE LIMIT: 92.8 mm (3.65 in)



Inspect the clutch shoes for wear or damage.

Measure the thickness of each shoe.

SERVICE LIMIT: 2.0 mm (0.08 in)



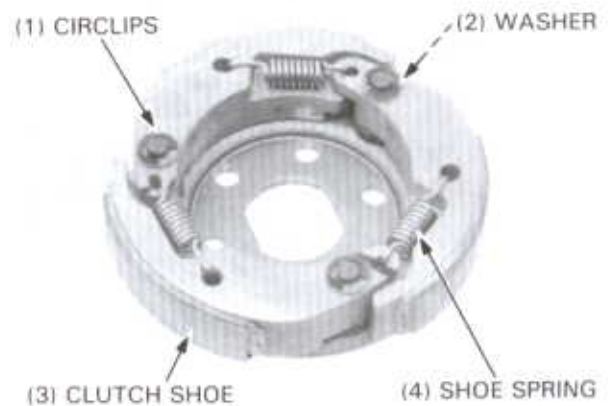
CLUTCH SHOE REPLACEMENT

Remove the circlips and washers.
Remove the clutch shoes and shoe springs.

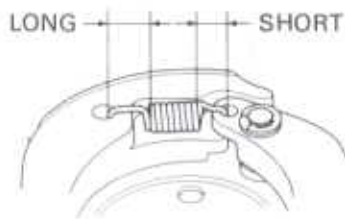
Install the clutch springs on the new clutch shoes.
Apply grease to the pivot shafts.

Check the damper rubbers and replace them if they are damaged.

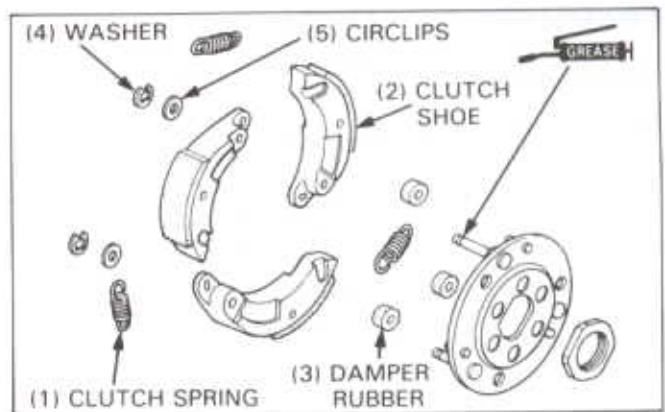
Install the clutch shoes onto the drive plate and secure them with the washers and circlips.



Install the clutch springs on the new clutch shoe as shown below.

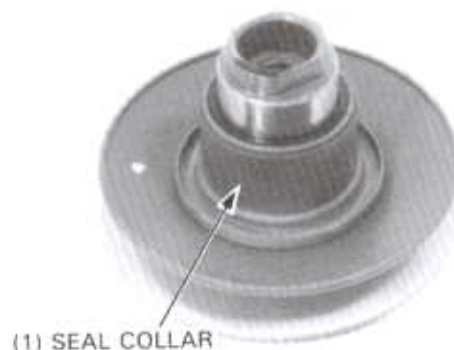


Apply grease to the pivot shaft.
Check the damper rubbers and replace them if they are damaged.
Install the clutch shoes onto the drive plate and secure them with the washers and circlips.



DRIVEN PULLEY DISASSEMBLY

Remove the seal collar.

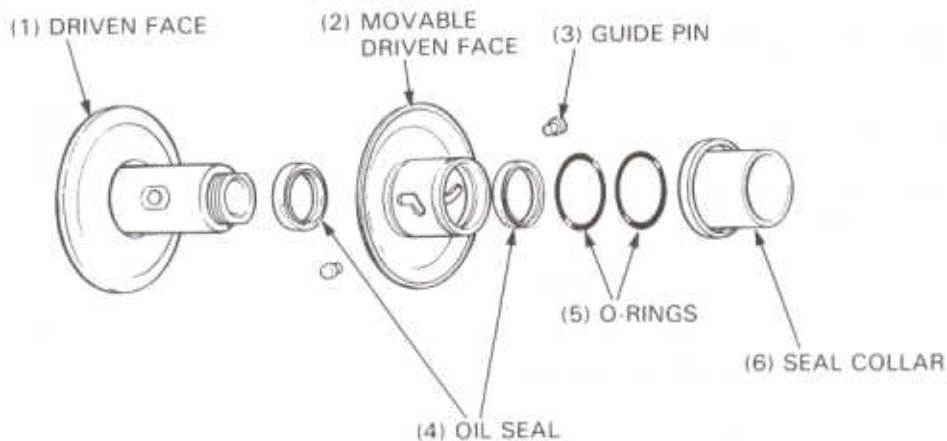


DRIVE AND DRIVEN PULLEYS/KICKSTARTER/CLUTCH

Remove the guide pins, then remove the movable driven face.

Remove the oil seals and O-rings.

(2) O-RINGS



Inspect the driven face assembly for wear or damage.

Measure the driven face O.D. at the point indicated.

SERVICE LIMIT: 33.94 mm (1.336 in)



Inspect the movable driven face for wear or damage.

Measure the movable driven face I.D.

SERVICE LIMIT: 34.06 mm (1.341 in)

Check the guide groove for wear.

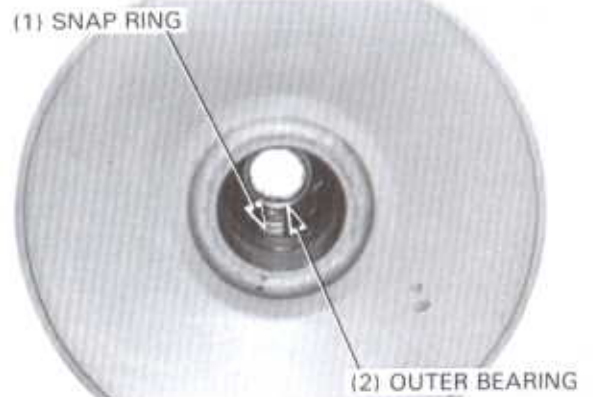
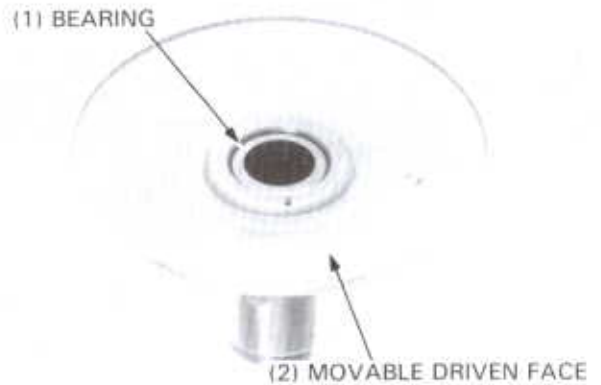


DRIVEN FACE BEARING INSPECTION/ REPLACEMENT

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

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

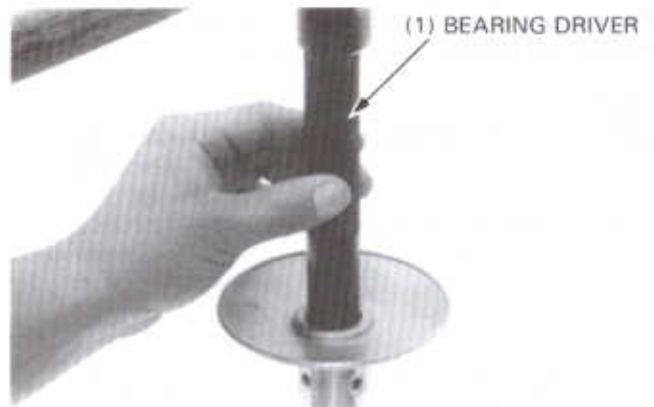
Remove the snap ring, and then the outer bearing.



Drive in a new outer bearing with its sealed side facing down. Install the snap ring.

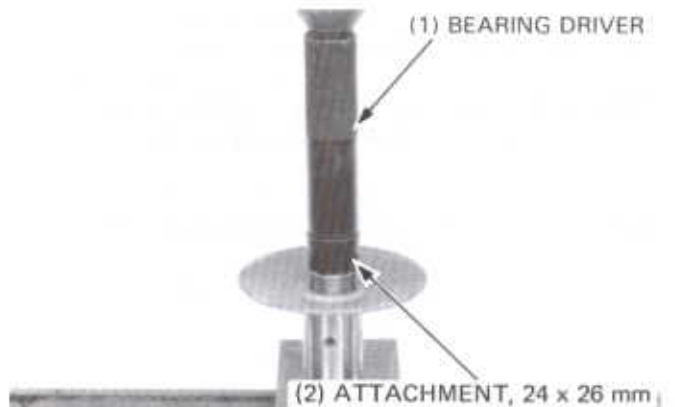
TOOL:
Bearing driver 07945—GC80000

Apply grease to the inside of the driven face.
5.0—5.6g (0.17—0.20 oz)



Drive in the new inner bearing with its marked side facing up.

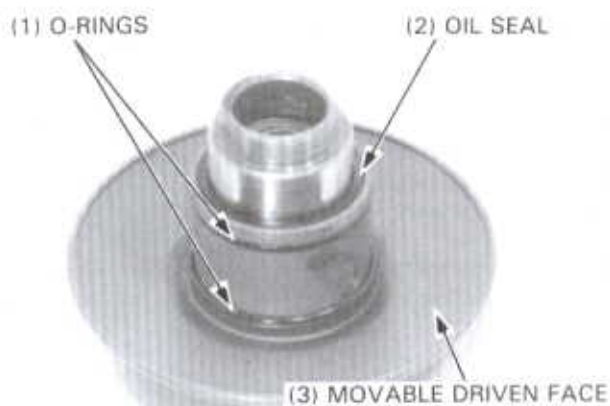
TOOLS:
Bearing driver 07749—0010000
Attachment, 28 x 30 mm 07946—1870100



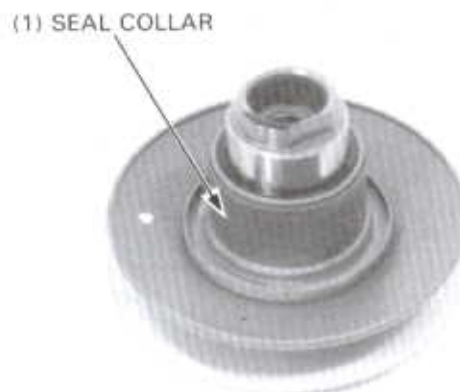
DRIVE AND DRIVEN PULLEYS/KICKSTARTER/CLUTCH

CLUTCH/DRIVEN PULLEY ASSEMBLY

Lubricate the inside of the movable driven face with 3.5–4.0g (0.12–0.14 oz) of grease, then install O-rings and oil seals. Assemble the movable driven face on the driven face assembly, then install the guide pins.



Install the seal collar.



Position the driven face assembly, spring and drive plate assembly in the clutch spring compressor.

TOOLS:

Clutch spring compressor

07946–KM10000 or

07960–KM1000A

(U.S.A. only)

Lock nut wrench, 39 mm

07916–1870002 or
equivalent commercially
available in U.S.A.

NOTE

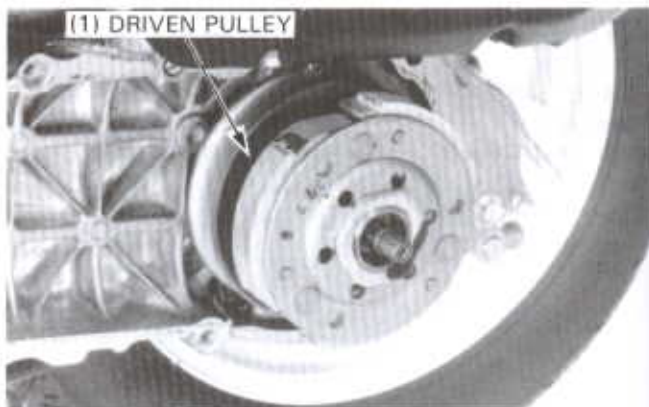
- If 07960–KM1000A is used, be sure the special screws are located in the holes marked "A".

Compress the spring by turning the handle.
Install and tighten the 28 mm special nut.

TORQUE: '88 thru. '93: 38 N·m (3.8 kg·m, 27 ft·lb)
After '93: 55 N·m (5.5 kg·m, 40 ft·lb)

CLUTCH/DRIVEN PULLEY INSTALLATION

Install the driven pulley onto the drive shaft.



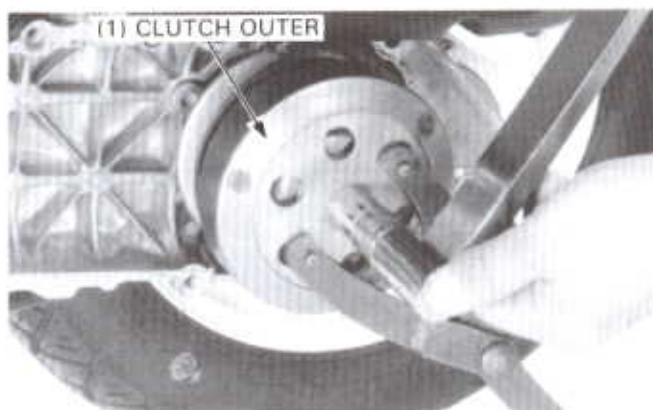
Install the clutch outer and hold it with the universal holder.
Install and tighten the lock nut.

TORQUE: '88 thru. '93: 38 N·m (3.8 kg-m, 27 ft-lb)
After '93: 40 N·m (4.0 kg-m, 29 ft-lb)

TOOL:

Universal holder 07725-0030000

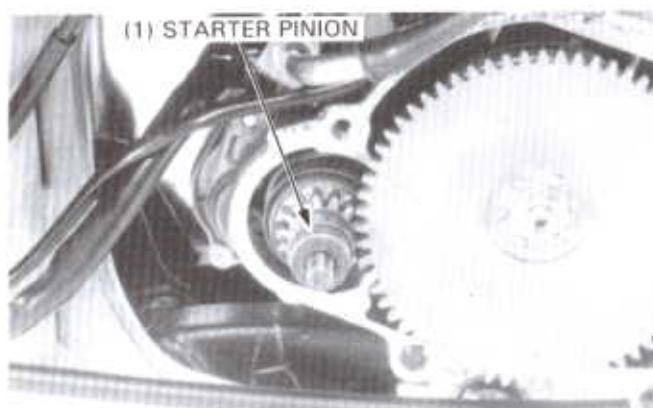
Install the remaining parts in the reverse order of removal.



STARTER PINION

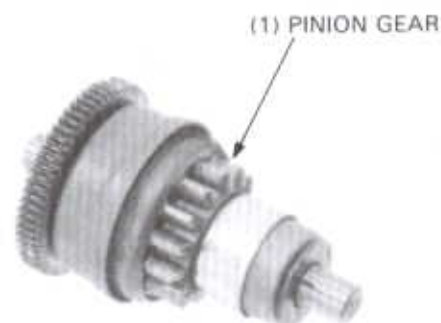
Remove the following parts:

- starter driven gear (page 8-8).
- starter pinion.

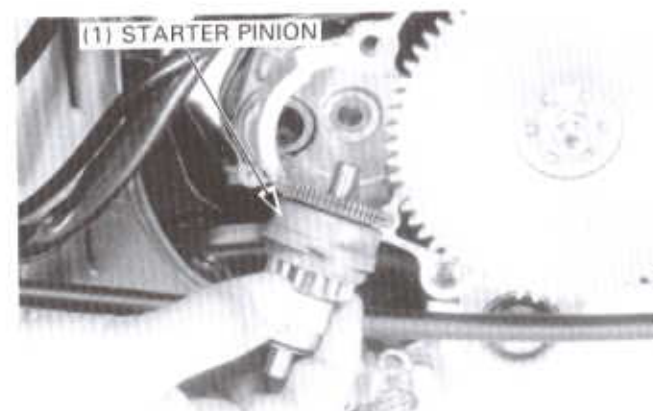


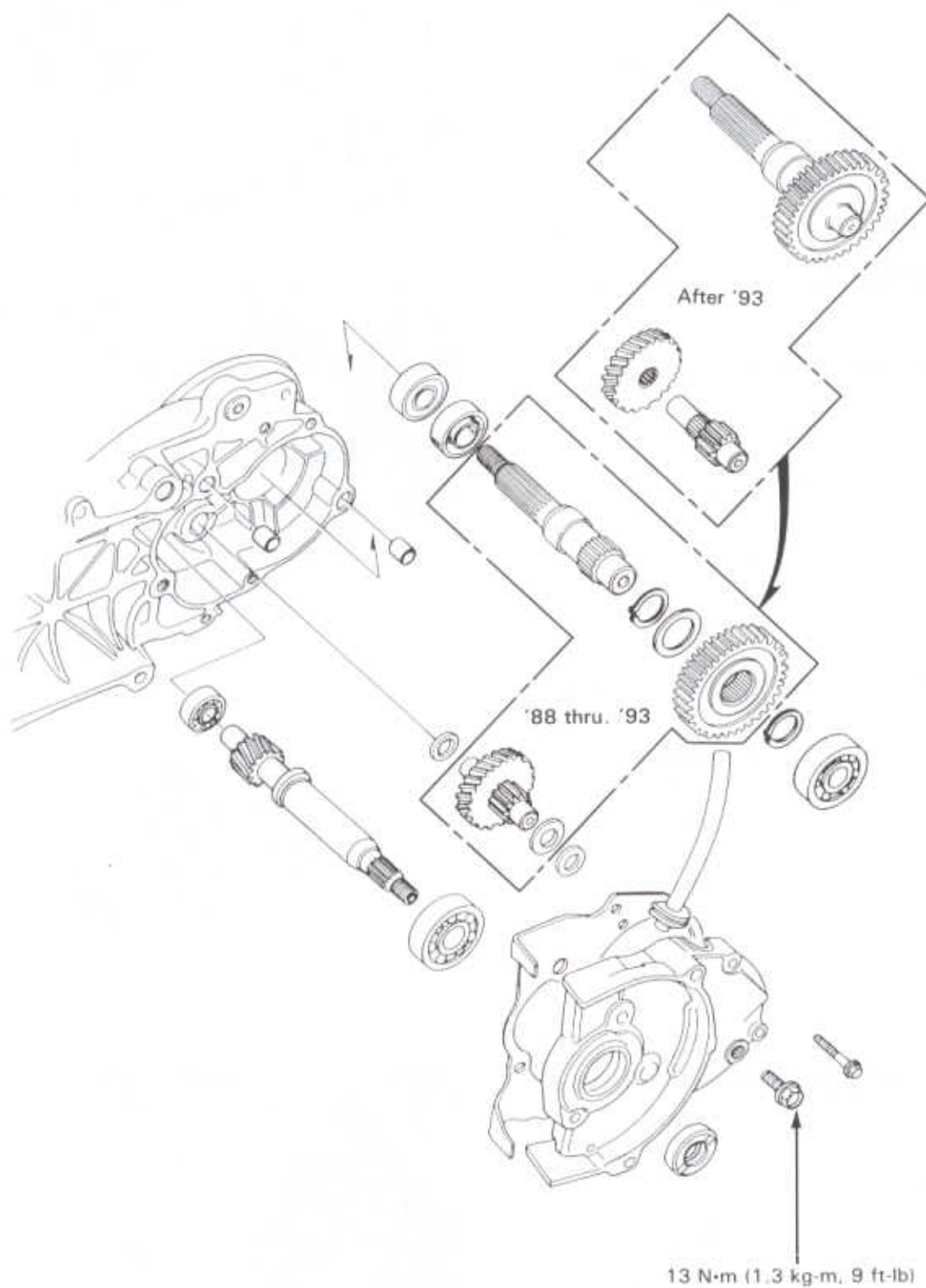
Check the starter pinion gear and sliding surfaces for wear or damage.

Check the starter pinion for smooth operation.



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





9. FINAL REDUCTION

SERVICE INFORMATION	9-1	FINAL REDUCTION INSPECTION	9-2
TROUBLESHOOTING	9-1	FINAL REDUCTION ASSEMBLY	9-5
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.)

TOOLS

Special

Thread protector	07931—1870000
Bearing remover, 15 mm	07936—KC10500
Remover handle	07936—3710100
Bearing remover, 12 mm	07936—1660100
Bearing remover weight	07741—0010201 or 07936—3710200
Assembly collar	07965—GM00100
Assembly shaft	07965—GM00300

Common

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

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

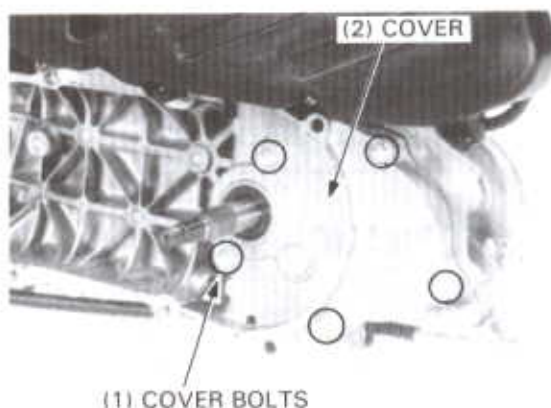
FINAL REDUCTION

FINAL REDUCTION DISASSEMBLY

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

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

Remove the two dowel pins and the gasket.



'88 thru. '93:

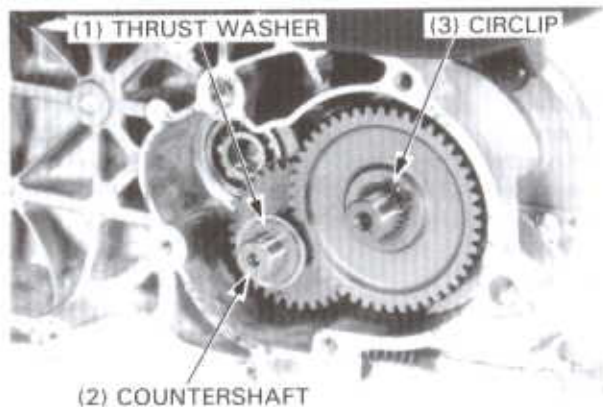
Remove the following:

- the thrust washer from the countershaft and the circlip from the final shaft.
- the final gear, thrust washer and final shaft.
- the countershaft and inner thrust washer.

After '93:

Remove the following:

- the thrust washer from the countershaft.
- the final gear shaft.
- the countershaft, gear and inner thrust washer.



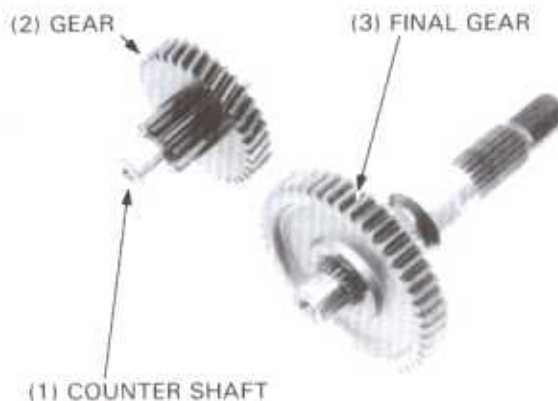
FINAL REDUCTION INSPECTION

Inspect the driveshaft and gear for excessive wear or damage.



Check the countershaft and gear for excessive wear or damage.

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

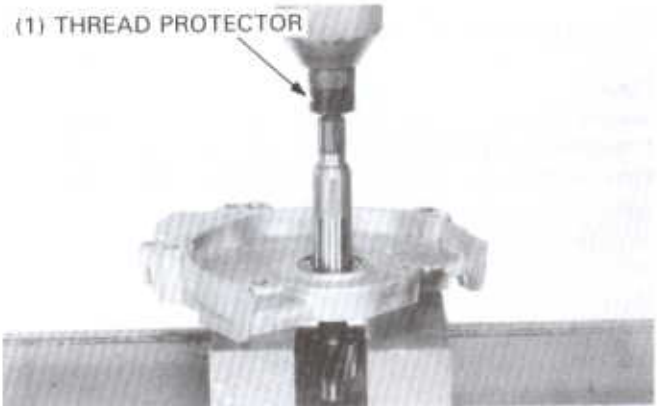


DRIVESHAFT REMOVAL

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

TOOL:

Thread protector 07931-1870000



TRANSMISSION BEARING REPLACEMENT

Inspect the bearings by turning the inner race of each with your finger.
The bearings should turn smoothly and quietly.
Also check that the outer races fit tightly in place.

Remove and discard the bearings if the inner races do not turn smoothly and quietly, or if the outer races have been spinning in place.

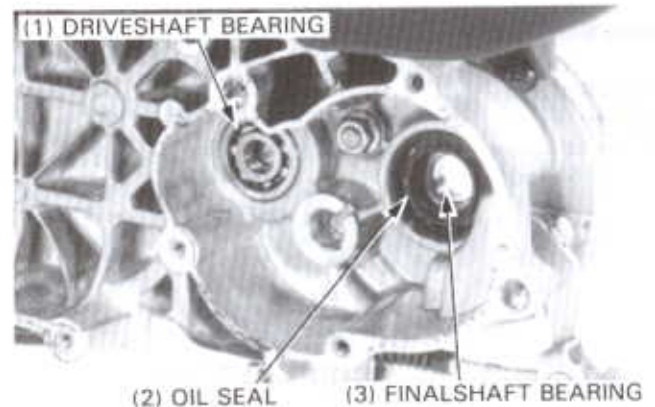
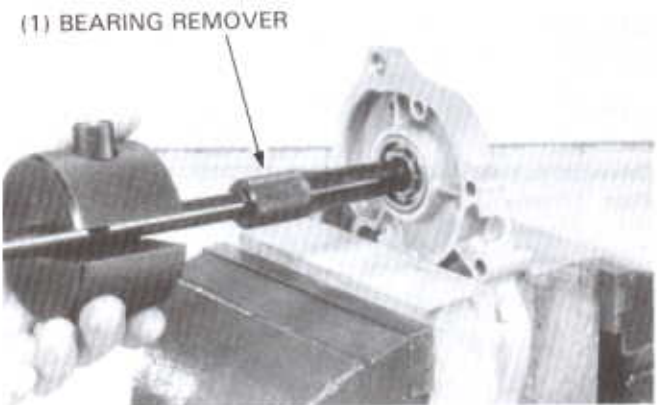
Check the transmission cover final shaft bearing, driveshaft bearing and oil seal for damage.

Remove and discard the bearings.

TOOLS:

Bearing remover, 15 mm 07936-KC10500
Remover weight 07741-0010201 or 07936-3710200

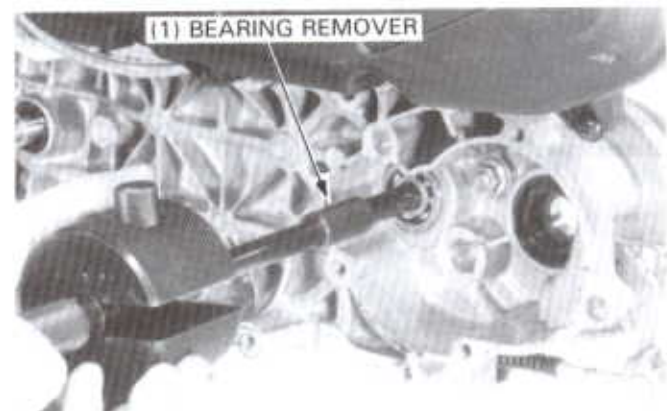
Check the left crankcase driveshaft bearing, oil seal and final shaft bearing for damage.



If necessary, remove the driveshaft bearing from the left crankcase.

TOOLS:

Bearing remover, 12 mm 07936-1660001
Remover weight 07741-0010201 or 07936-3710200

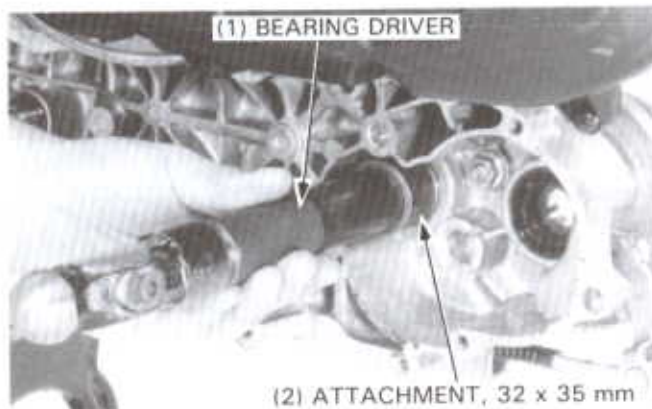


FINAL REDUCTION

Drive a new driveshaft bearing into the left crankcase.

TOOLS:

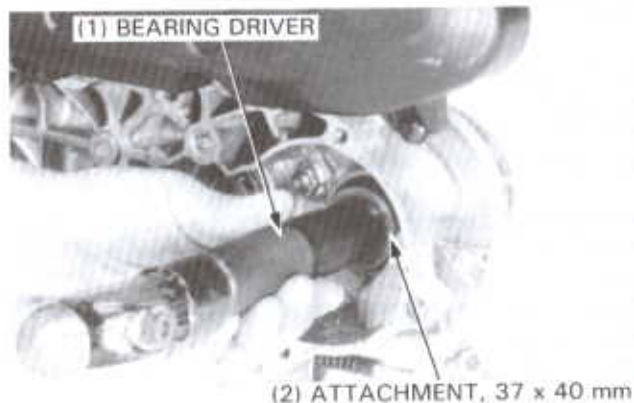
Bearing driver	07749-0010000
Attachment, 32 x 35 mm	07746-0010100
Pilot, 12 mm	07746-0040200



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

TOOLS:

Bearing driver	07749-0010000
Driver attachment, 37 x 40 mm	07746-0010200
Pilot, 17 mm	07746-0040400



Drive a new final shaft bearing into the transmission cover.

TOOLS:

Bearing driver	07749-0010000
Driver attachment, 37 x 40 mm	07746-0010200
Pilot, 15 mm	07746-0040300



Drive a new driveshaft bearing into the transmission cover.

TOOLS:

Bearing driver	07749-0010000
Driver attachment, 37 x 40 mm	07746-0010200
Pilot, 17 mm	07746-0040400



FINAL REDUCTION ASSEMBLY

Insert the driveshaft through the cover bearing from the left side.

TOOLS:

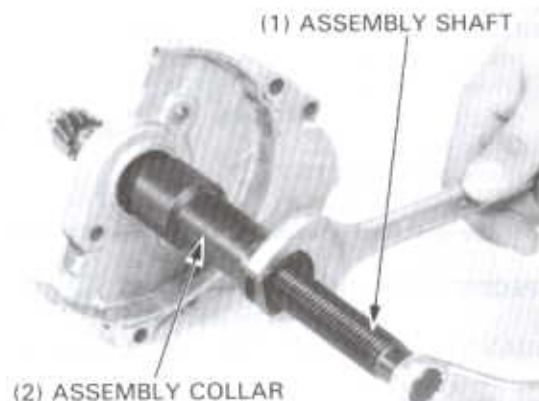
Assembly shaft

07965—GM00300

Assembly collar

07965—GM00100

Install the oil seal.



'88 thru. '93:

Install the inner thrust washer onto the countershaft, then install both into the left crankcase.

Install the final shaft, thrust washer and final gear.

Install the thrust washer onto the countershaft and the circlip onto the final shaft.

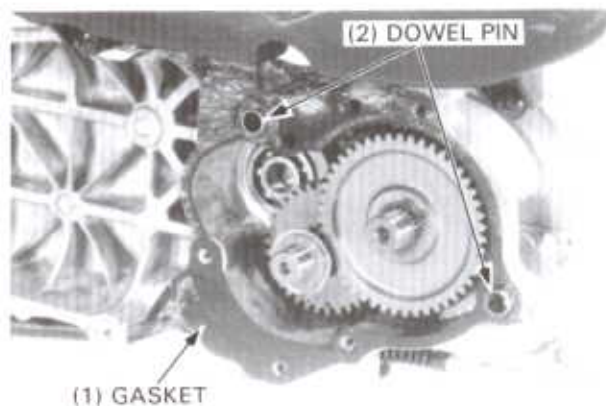
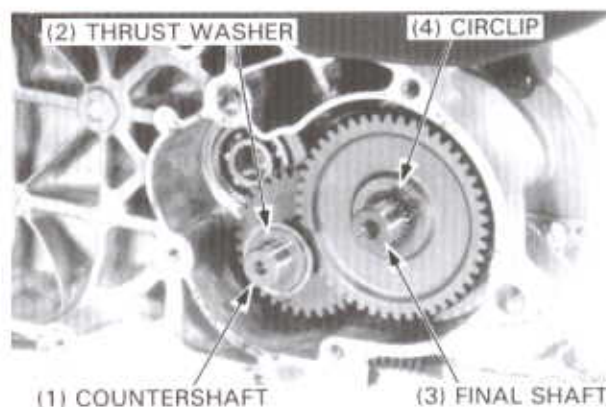
After '93:

Assemble the gear and thrust washer onto the countershaft, then install both into the left crankcase.

Install the final gear shaft.

Install the thrust washer onto the countershaft.

Install a new gasket and dowel pins.



FINAL REDUCTION

Install the following:

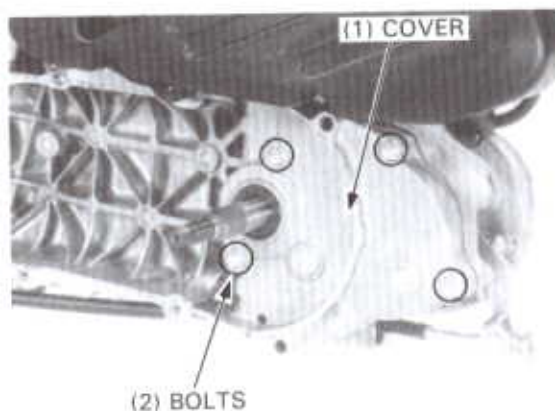
- transmission cover.
- driven pulley/clutch (page 8-12).
- drive pulley, drive belt (page 8-7) and left crankcase cover (page 8-5).
- rear wheel (page 13-2).

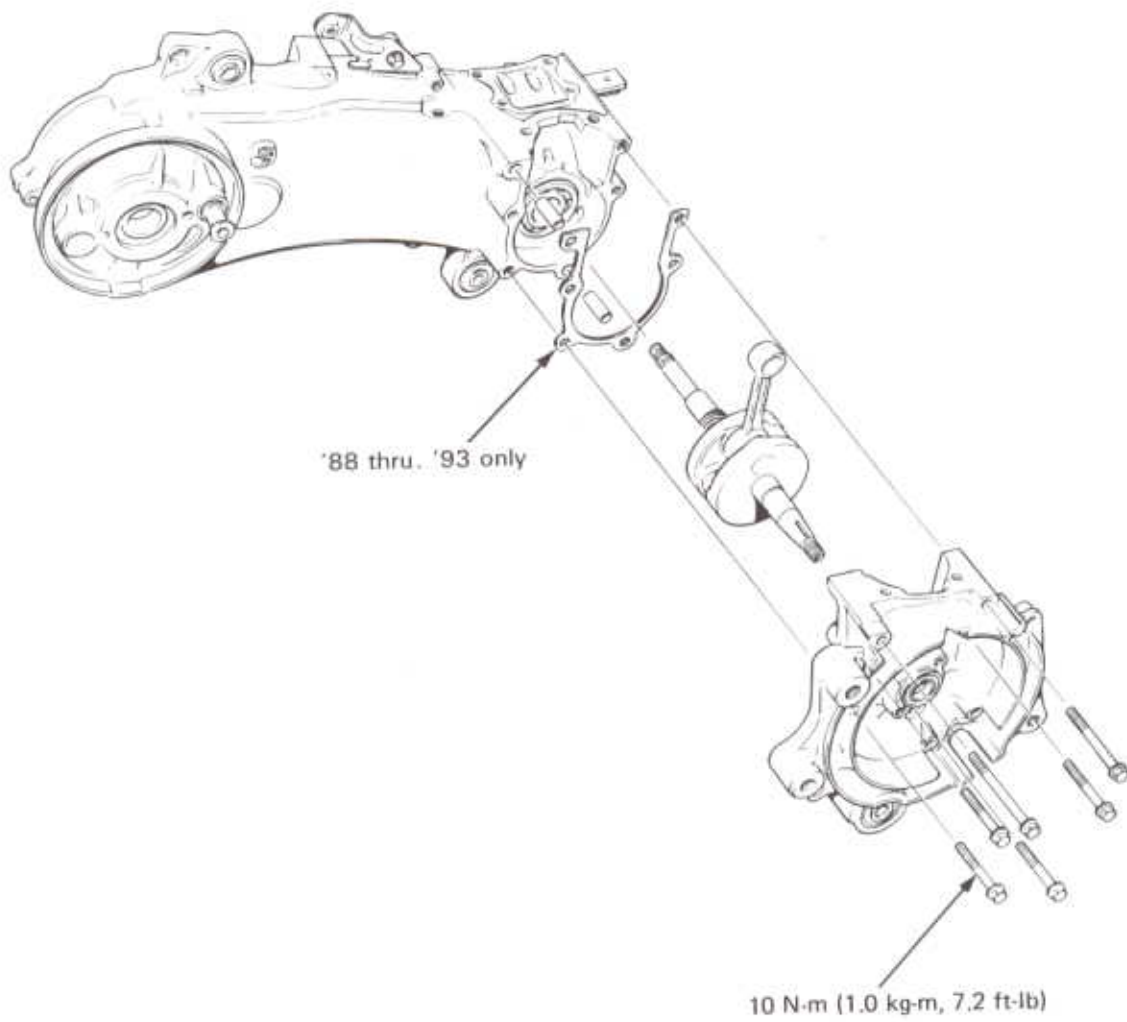
Pour the specified amount of oil through the filler opening.

SPECIFIED OIL: HONDA 4 STROKE OIL
10W-40 or equivalent

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

Start the engine and check for leaks.





10. CRANKCASE/CRANKSHAFT

SERVICE INFORMATION	10-1	CRANKSHAFT BEARINGS	10-3
TROUBLESHOOTING	10-1	CRANKSHAFT ASSEMBLY	10-4
CRANKCASE SEPARATION	10-2	CRANKCASE ASSEMBLY	10-5
CRANKSHAFT	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)
 - Mounting bracket
 - Carburetor (Section 4)
 - Oil pump (Section 2)
 - Reed valve (Section 4)
 - Alternator (Section 7)
 - Cylinder head, cylinder (Section 6)
 - Starter motor (Section 16)
- In addition to the parts above, remove the following parts when the left crankcase half must be removed:
 - Rear wheel (Section 13)
 - Final reduction (Section 9)

SPECIFICATIONS

Unit: mm (in)

ITEM		STANDARD	SERVICE LIMIT
Crankshaft	Connecting rod big end side clearance	—	0.6 (0.02)
	Connecting rod big end radial clearance	—	0.04 (0.002)
	Runout	A	0.15 (0.006)
		B	0.10 (0.004)

TOOLS

Special

Universal bearing puller

07931-0010000
or commercially
available in U.S.A.

Case puller

07935-KG80000

Case puller

07935-GK80000

Assembly collar

07965-GM00100

Assembly shaft

07965-GM00300

Thread protector

07931-1870000

After '93 only:

Assembly shaft

07965-1660200

Common

Bearing driver

07749-0010000

Pilot, 20 mm

07746-0040500

'88 thru. '93 only:

Attachment, 37 x 40 mm

07746-0010200

Attachment, 42 x 47 mm

07746-0010300

Pilot, 17 mm

07746-0040400

After '93 only:

Attachment, 52 x 55 mm

07746-0010400

TORQUE VALUES

Crankcase bolt

10 N-m (1.0 kg-m, 7.2 ft-lb)

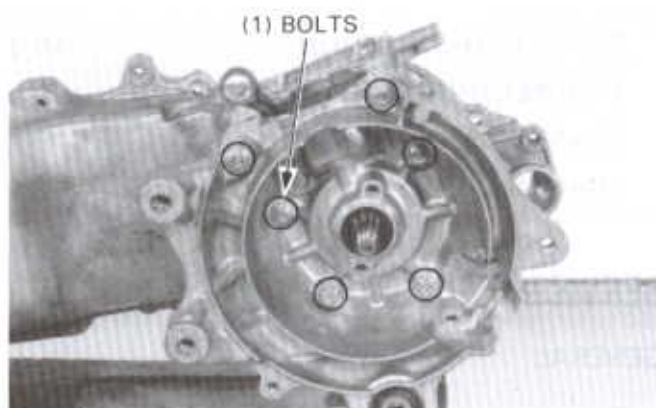
TROUBLESHOOTING

Abnormal engine noise

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

CRANKCASE SEPARATION

Remove the crankcase mounting bolts.



Attach the special tools on the crankcase as shown, separate the right crankcase from the left half.

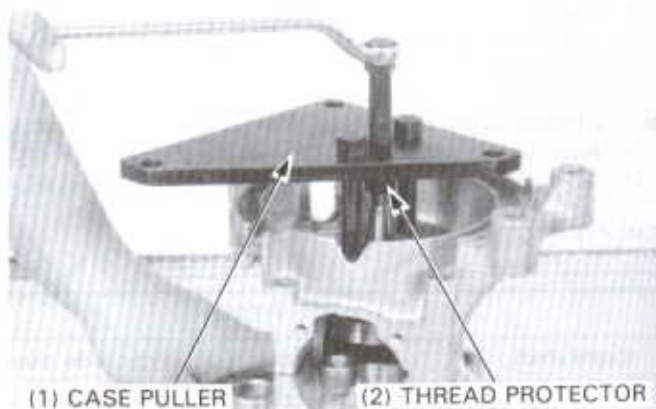
TOOLS:

Case puller

07935—GK80000

Thread protector

07931—1870000



CRANKSHAFT

REMOVAL

Use the hydraulic press or the case puller to remove the crankshaft from the crankcase.

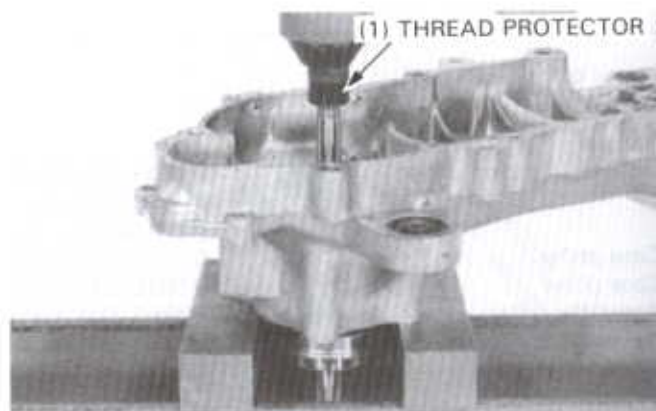
TOOLS:

Case puller

07935—KG80000

Thread protector

07931—1870000



INSPECTION

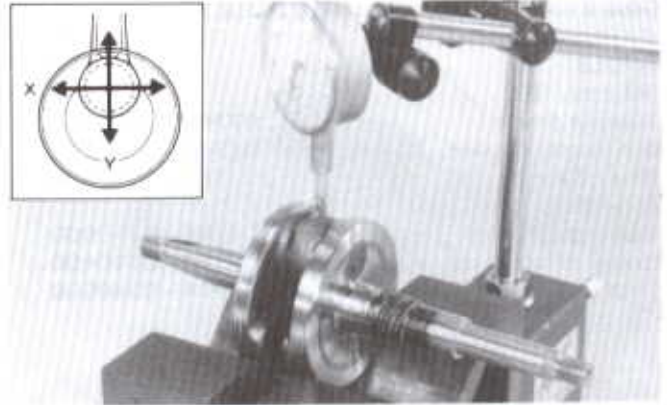
Measure the connecting rod big end side clearance with a feeler gauge.

SERVICE LIMIT: 0.6 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)

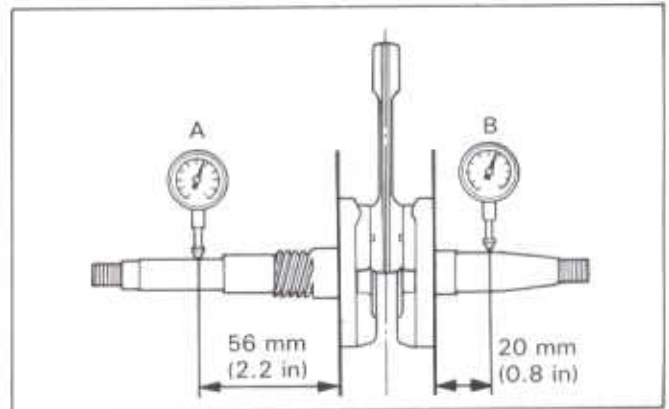


Support the crankshaft on a stand or V-blocks and read runout using a dial gauge.

SERVICE LIMITS:

A: 0.15 mm (0.006 in)

B: 0.10 mm (0.004 in)



CRANKSHAFT BEARINGS

INSPECTION/REPLACEMENT

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

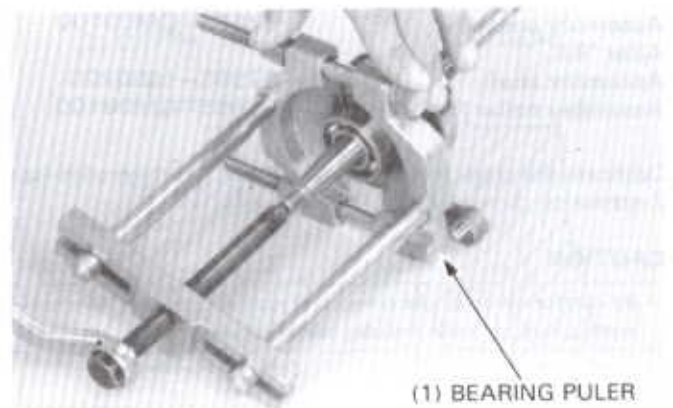
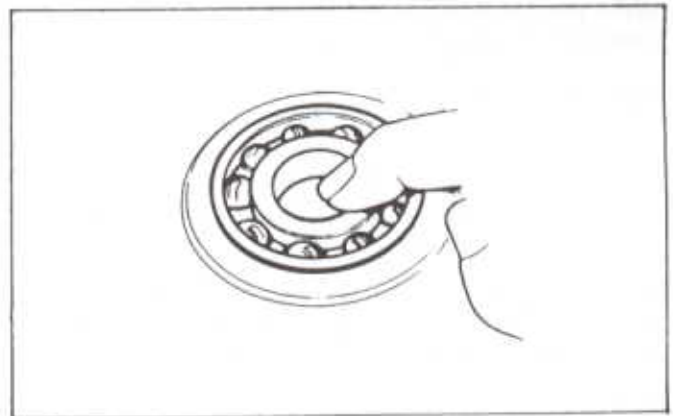
- Replace crankshaft ball bearings in pairs.

If necessary, remove the crankshaft bearing from the crankshaft.

TOOL:

Universal bearing puller

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



CRANKCASE/CRANKSHAFT

Drive a new crankshaft bearing into the left crankcase.

TOOLS:

'88 thru. '93:

Bearing driver 07749-0010000

Driver attachment, 37 x 40 mm 07746-0010200

Pilot, 17 mm 07746-0040400

After '93:

Bearing driver 07749-0010000

Driver attachment, 52 x 55 mm 07746-0010400

Pilot, 20 mm 07746-0040500



Drive a new crankshaft bearing into the right crankcase.

TOOLS:

'88 thru. '93:

Bearing driver 07749-0010000

Driver attachment, 42 x 47 mm 07746-0010300

Pilot, 20 mm 07746-0040500

After '93:

Bearing driver 07749-0010000

Driver attachment, 52 x 55 mm 07746-0010400

Pilot, 20 mm 07746-0040500



CRANKSHAFT ASSEMBLY

Wash the crankcase 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.

Position the assembly collar's small O.D. ('88 thru. '93) or the large O.D. (After '93) against the crankshaft bearing. Thread the assembly bolt onto the crankshaft.

TOOLS:

'88 thru. '93:

Assembly shaft 07965-GM00300

Assembly collar 07965-GM00100

After '93:

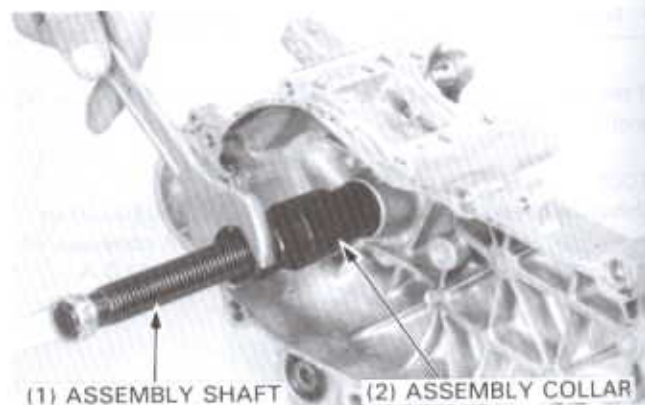
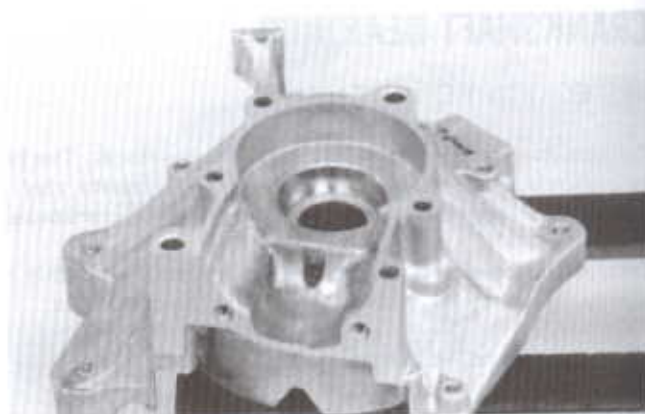
Assembly shaft 07965-1660200

Assembly collar 07965-GM00100

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

CAUTION

- Be careful not to let the connecting rod press against the crankcase mating surface while drawing the crankshaft.



CRANKCASE ASSEMBLY

'88 thru. '93:

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

After '93:

Apply liquid sealant to the crankcase mating surfaces and install the dowel pins.

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 shaft	07965-GM00300
Assembly collar	07965-GM00100

Check that the crankshaft rotates smoothly. If the crankshaft does not rotate smoothly, tap the crankshaft bearing portion of the crankcase with a plastic hammer to correct the crankshaft installation.

Install a new left crankshaft oil seal using the assembly shaft and the large O.D. side of the assembly collar. Install the seal to the following depth.

'88 thru. '93: 2.0 mm (0.08 in)

After '93: 1.0 mm (0.04 in)

TOOLS:

'88 thru. '93:	
Assembly shaft	07965-GM00300
Assembly collar	07965-GM00100
After '93:	
Assembly shaft	07965-1660200
Assembly collar	07965-GM00100

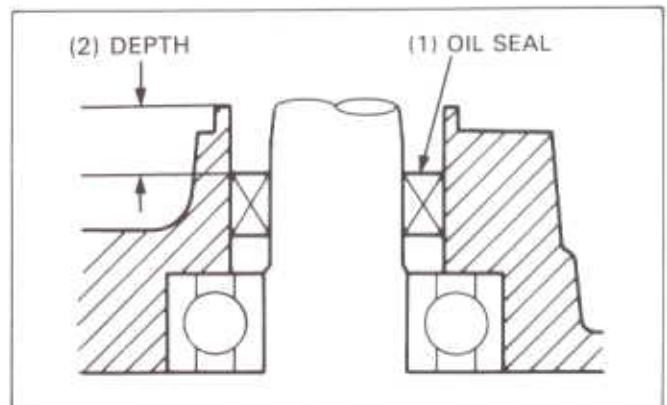
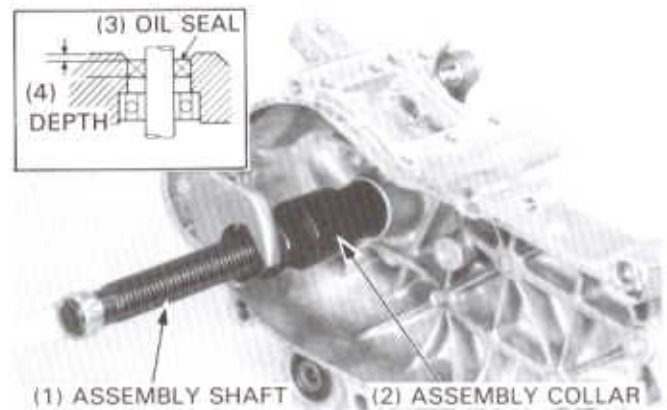
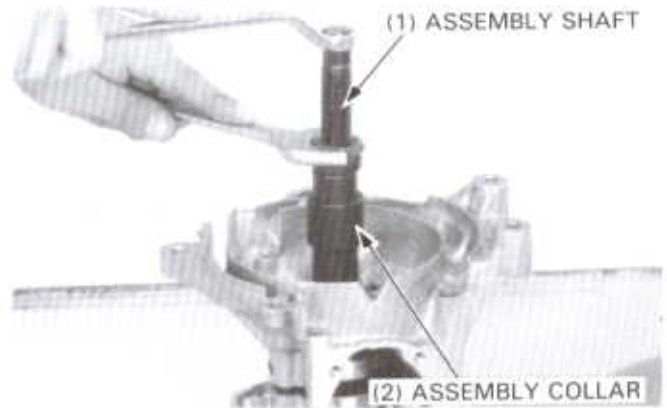
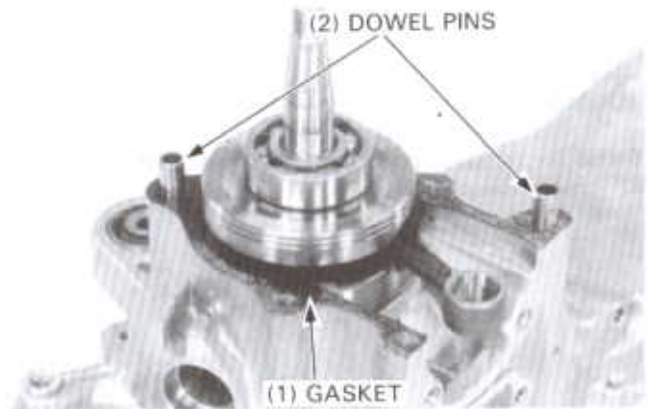
Install a new right crankshaft oil seal using the assembly shaft and collar. Install the seal to the following depth.

'88 thru. '93: 9.0 mm (0.35 in)

After '93: 5.0 mm (0.20 in)

TOOLS:

Assembly shaft	07965-GM00300
Assembly collar	07965-GM00100

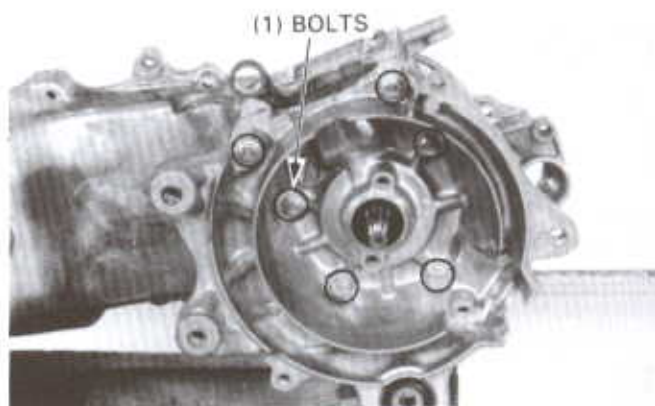


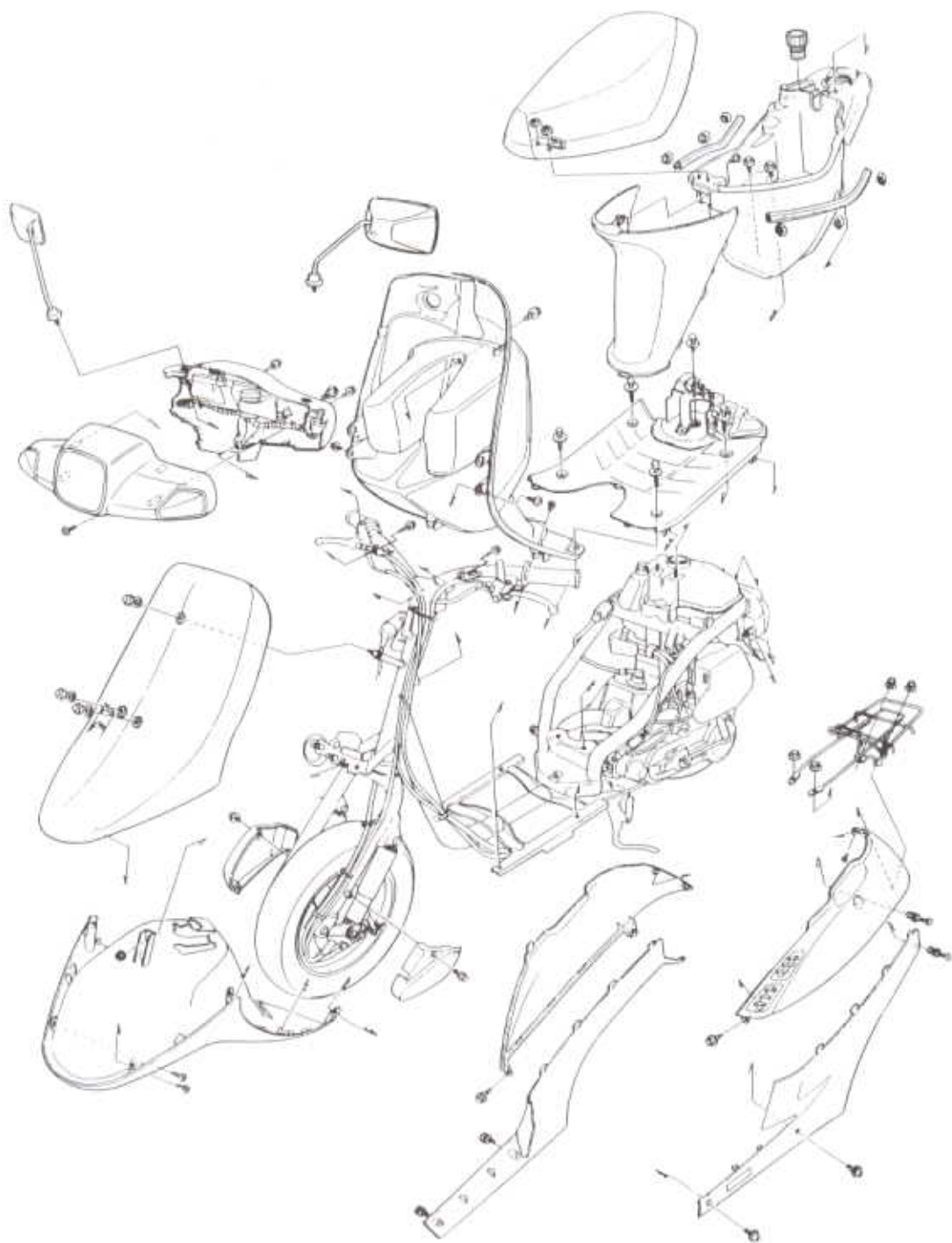
CRANKCASE/CRANKSHAFT

Install and tighten the crankcase attaching bolts in a crisscross pattern, in 2-3 steps.

TORQUE: 10 N·m (1.0 kg-m, 7.2 ft-lb)

Install the removed parts in the reverse order of removal.





11. FRAME COVERS

SERVICE INFORMATION	11-1	FLOOR BOARD/LEG SHIELD	11-4
FRAME CENTER COVER	11-2	HANDLEBAR COVER	11-5
FRAME SIDE COVER	11-2	CENTER TRUNK	11-5
FRAME REAR COVER	11-3	FRONT FENDER	11-6
FRONT COVER	11-4		

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.

FRAME COVERS

FRAME CENTER COVER

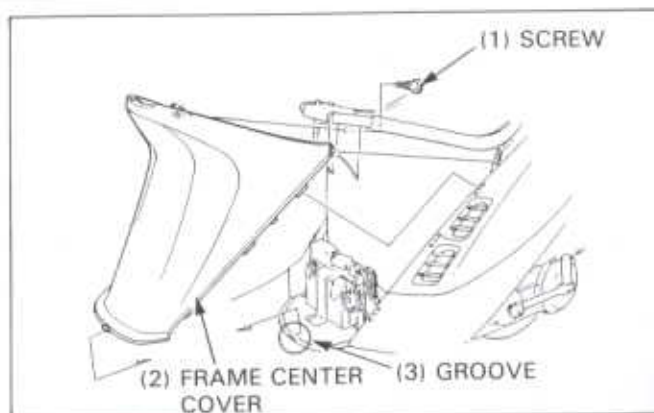
REMOVAL

Raise the seat and remove the frame center cover mounting screw.

Remove the frame center cover by releasing the tabs from the floor board and the frame covers grooves.

INSTALLATION

Installation is the reverse of removal.



FRAME SIDE COVER

REMOVAL

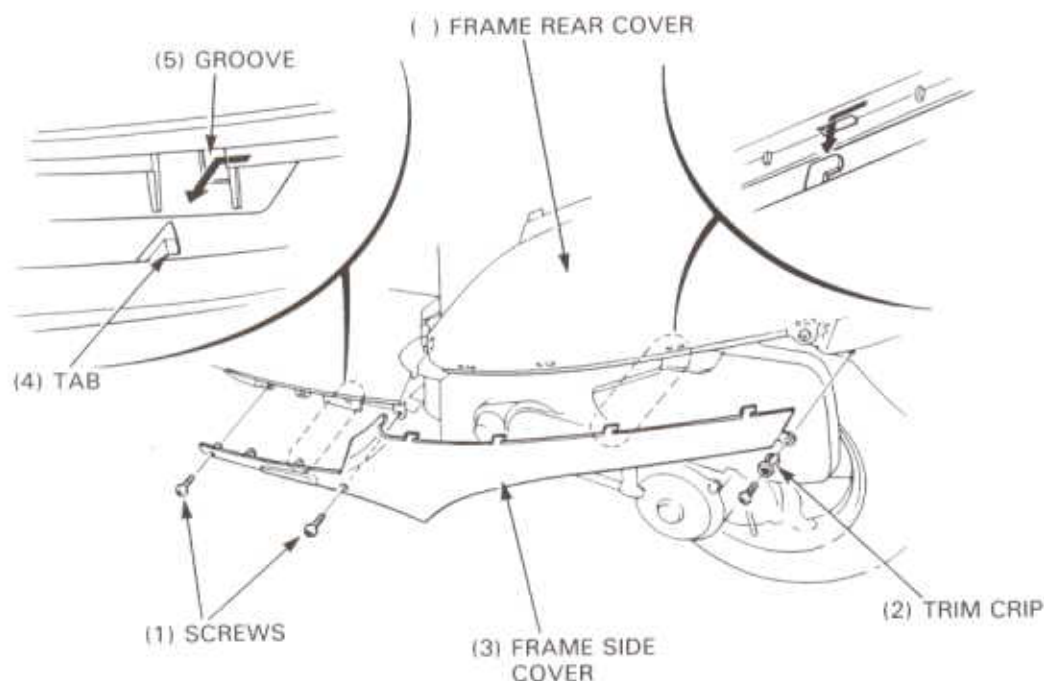
Remove the frame center cover.

Remove the two tapping screws, trim clip screw and the trim clip.

Remove the frame side cover by detaching the tabs from the rear frame cover grooves.

INSTALLATION

Installation is the reverse of removal.



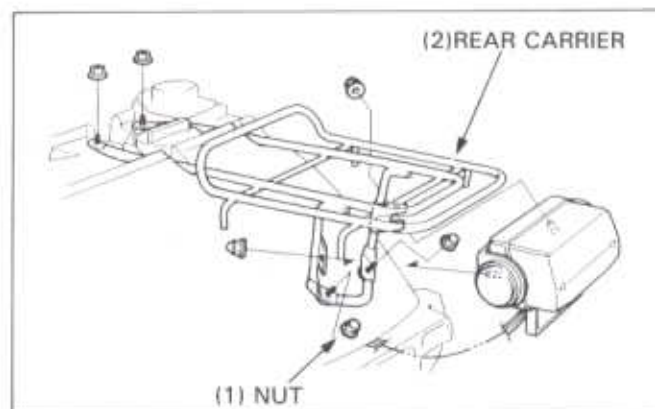
FRAME REAR COVER

REMOVAL

Remove the following:

- frame center cover (page 11-2).
- frame side covers (page 11-2).

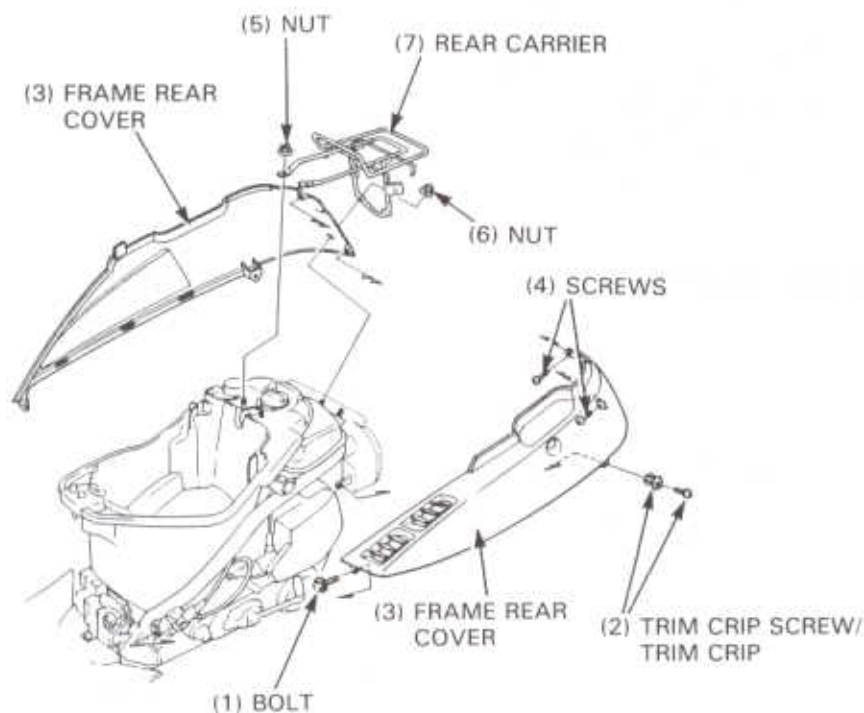
Remove the rear carrier by removing four mounting nuts.



Remove the mounting bolt and the trim clip screw and the trim clip.

Remove the right and left rear cover assembly by detaching the tabs from the grooves.

Separate the right and left frame rear covers by removing the two self tapping screw.



INSTALLATION

Installation is the reverse of removal.

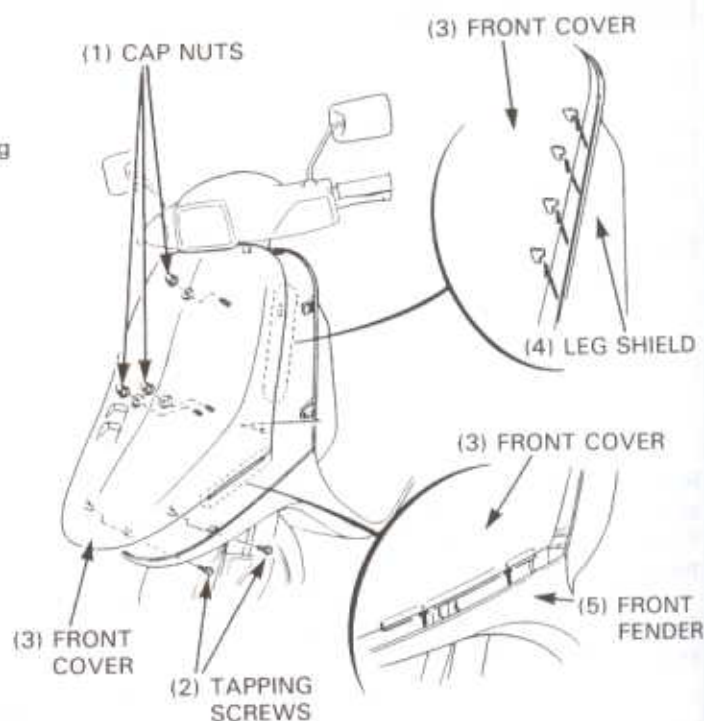
FRONT COVER

REMOVAL

Remove the three front cover cap nuts, the two tapping screws and the front cover.

INSTALLATION

Installation is the reverse of removal.



FLOOR BOARD/LEG SHIELD

Remove the following:

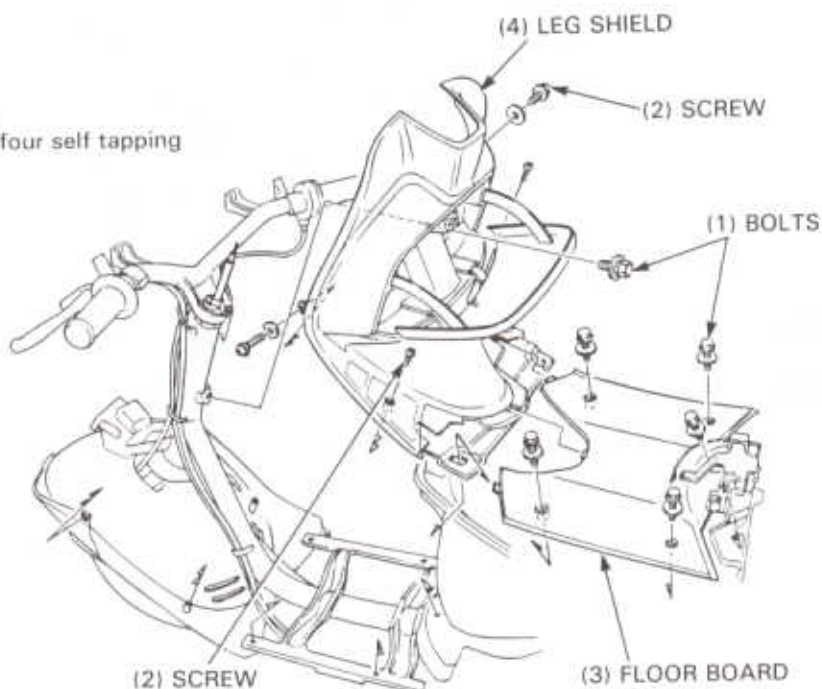
- frame center cover.
- frame side covers.
- battery (page 14-2).

Open the front trunk using the ignition key.

Remove the five floor board mounting bolts. Remove the leg shield mounting bolt and the four self tapping screws.

Remove the leg shield with the floor board. Separate them.

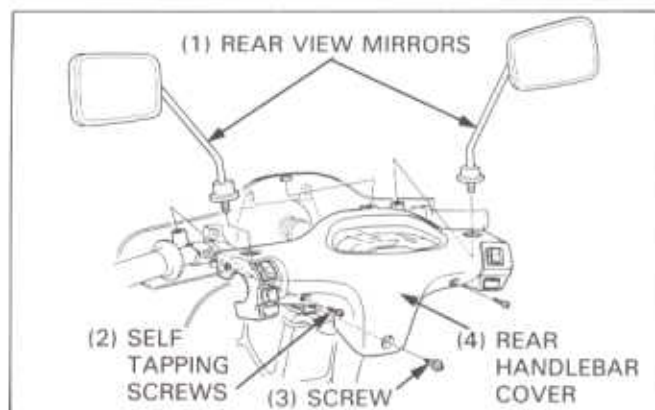
Installation is in the reverse of removal.



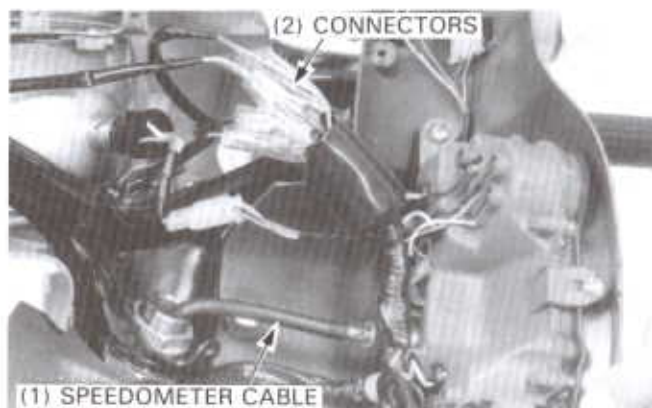
HANDLEBAR COVER

Remove the rear view mirrors.

Remove the two self tapping screws and the screw.
Separate the rear handlebar cover from the front handlebar cover.

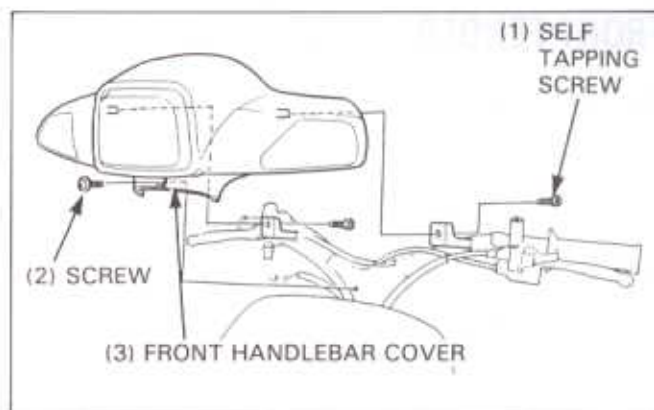


Disconnect the speedometer cable, the handlebar switch wire and the connectors.



Disconnect the headlight and turn signal wires and connectors.

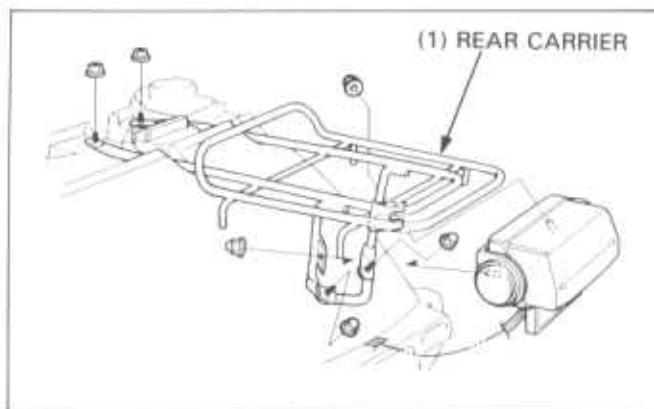
Remove the two self tapping screws, the center mounting screw and the front handlebar cover.



CENTER TRUNK

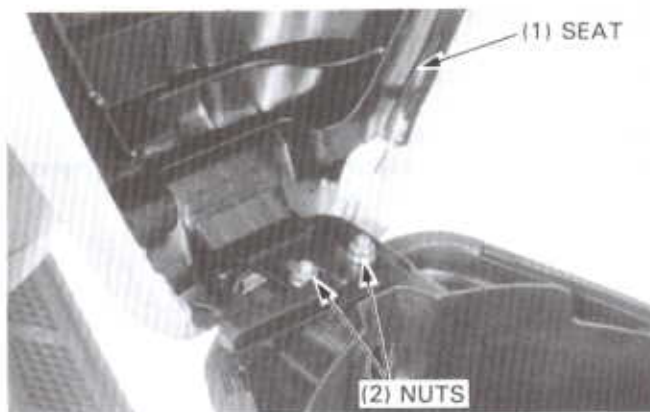
REMOVAL

Remove the frame center cover, and the rear carrier.



FRAME COVERS

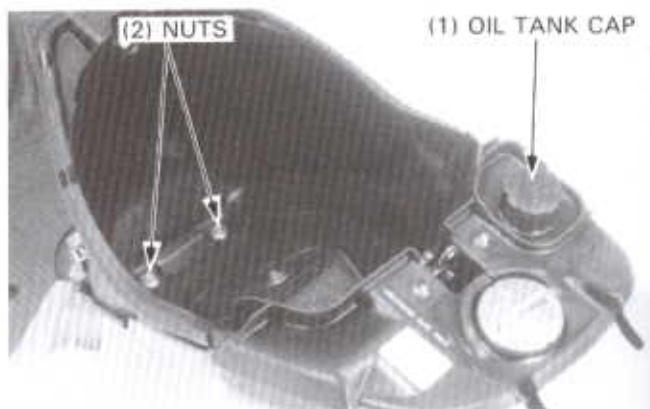
Remove the seat by removing the two mounting nuts.



Remove the oil tank cap and the seal rubber.
Remove the center trunk by removing the two mounting nuts.

INSTALLATION

Installation is the reverse of removal.



FRONT FENDER

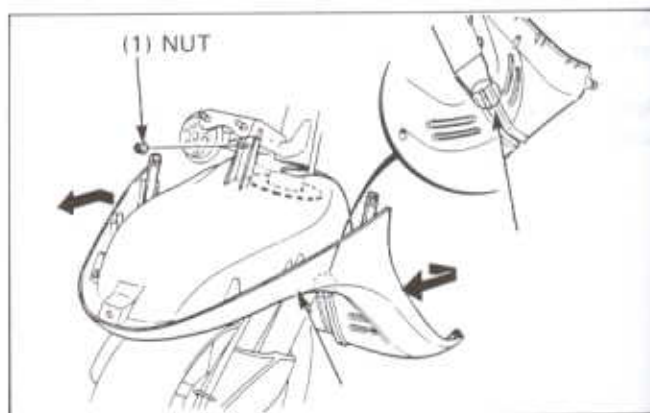
Remove the following:

- front cover.
- frame center cover.
- floor board, leg shield.

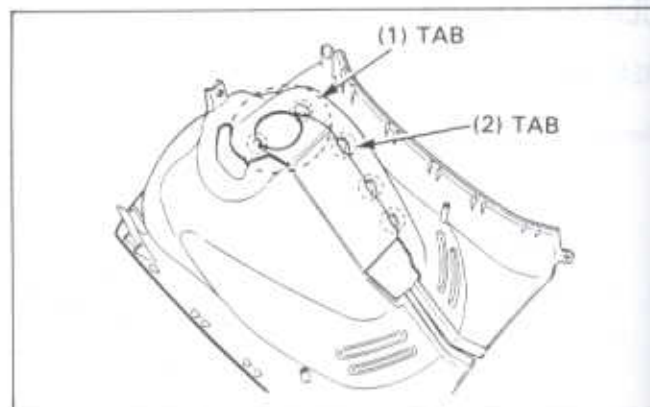
Remove the mounting nut and the front fender.

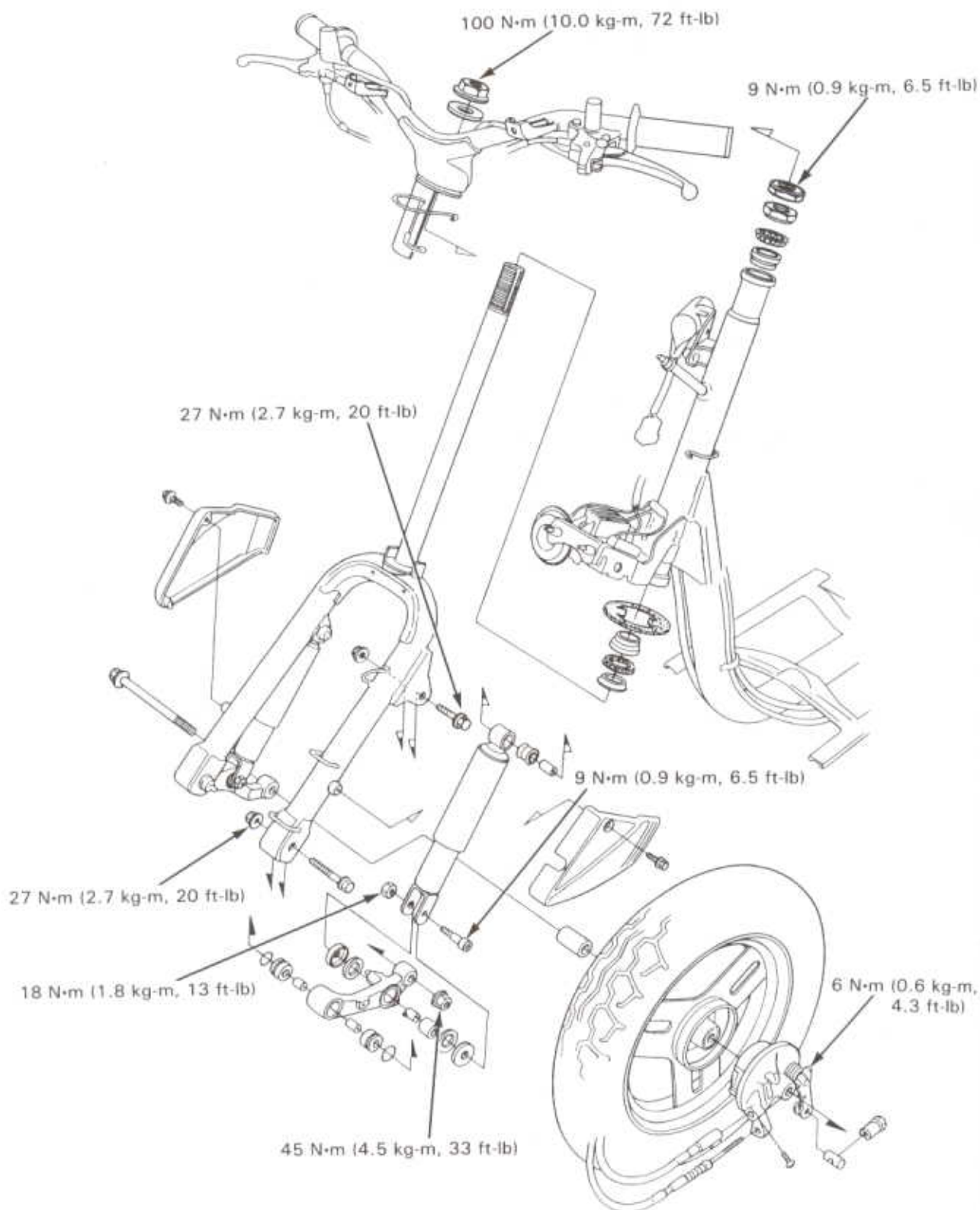
NOTE

- In case that the front fender is connected, cut the fender as shown.



Installation is the reverse of removal.





12. STEERING/FRONT WHEEL/BRAKE/SUSPENSION

SERVICE INFORMATION	12-1	FRONT BRAKE	12-7
TROUBLESHOOTING	12-2	PIVOT ARMS	12-11
HANDLEBAR	12-3	FRONT SHOCK ABSORBERS	12-12
FRONT WHEEL	12-5	STEERING STEM	12-14

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

SPECIFICATIONS

Unit: mm (in)

ITEM			STANDARD	SERVICE LIMIT
Front axle runout			—	0.2 (0.01)
Front wheel rim runout	Radial		—	2.0 (0.08)
	Axial		—	2.0 (0.08)
Front brake	Drum I.D.	'88 thru. '93	80 (3.15)	80.5 (3.17)
		After '93	95 (3.74)	95.5 (3.76)
	Lining thickness		4.0 (0.16)	2.0 (0.08)
Front shock absorber spring free length	'88 thru. '93		172.5 (6.79)	167.3 (6.59)
	After '93		177.5 (6.99)	172.2 (6.78)

TORQUE VALUE

Steering stem nut	100 N·m (10.0 kg-m, 72 ft-lb)
Steering stem rock nut	9 N·m (0.9 kg-m, 6.5 ft-lb)
Front axle nut	45 N·m (4.5 kg-m, 33 ft-lb)
Pivot arm nut	27 N·m (2.7 kg-m, 20 ft-lb)
Shock absorber upper mount bolt	27 N·m (2.7 kg-m, 20 ft-lb)
Shock absorber lower mount nut	18 N·m (1.8 kg-m, 13 ft-lb)
Shock absorber lower mount bolt	9 N·m (0.9 kg-m, 6.5 ft-lb)
Shock absorber damper lock nut	20 N·m (2.0 kg-m, 14 ft-lb)
Brake arm bolt	6 N·m (0.6 kg-m, 4.3 ft-lb)

Apply a locking agent to the nut threads

TOOLS

Special

Attachment	GN HT54
Attachment, 28 x 30 mm	07946—1870100 or equivalent commercially available in U.S.A.
Lock nut wrench A	07916—KM10000 or equivalent commercially available in U.S.A.
Shock absorber compressor attachment	07967—GA70102 or 07967—GA70001
Spring attachment	07967—KM10100
Ball race remover	07946—GA70000
Lock nut wrench B	07916—1870101

STEERING/FRONT WHEEL/BRAKE/SUSPENSION

Common

Pilot, 10 mm	07746-0040100	
Bearing 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	
Shock absorber compressor	07959-3290001	
Lock nut wrench, 30 x 32 mm	07716-0020400	or equivalent commercially available in U.S.A.
Extension bar	07716-0020500	

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 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

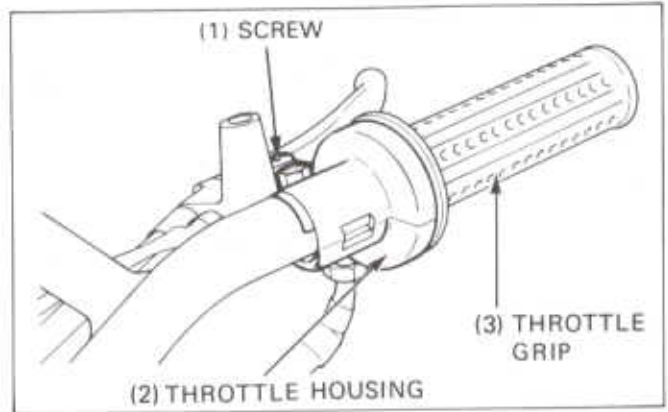
- Shock absorber spring binding
- Loose shock fasteners

HANDLEBAR

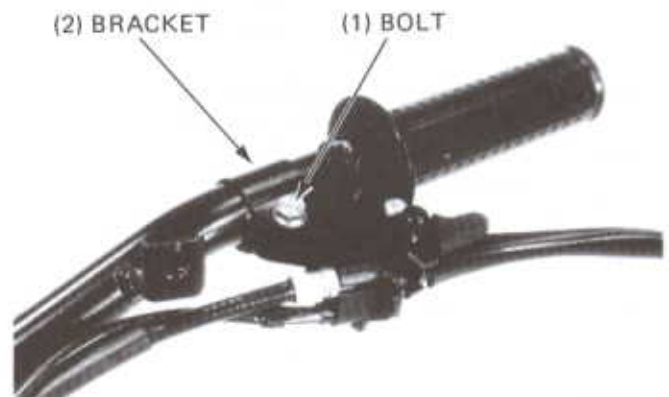
REMOVAL

Remove the handlebar cover (page 11-5).

Remove the throttle housing screw and the throttle grip.



Remove the front and rear brake lever bracket by removing the pivot lock nuts and bolts and disconnecting the brake cables.

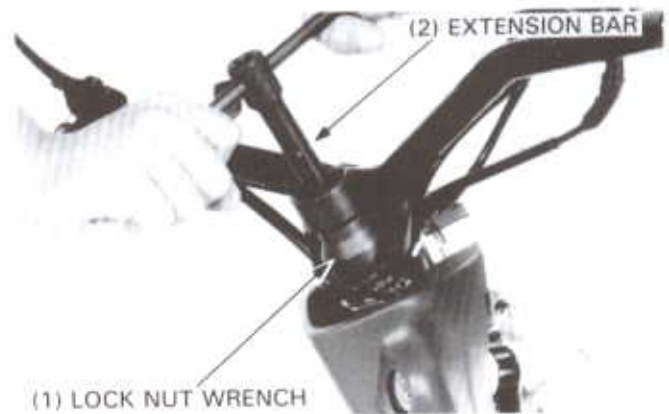


Remove the steering stem nut, plain washer and the handlebar.

TOOLS:

Lock nut wrench 30 x 32 mm
Extension bar

07716-0020400
07716-0020500 or
equivalent commercially
available in U.S.A.



INSTALLATION

Align the tabs on the handlebar with the grooves in the steering stem and install the handlebar.

Install the plain washer and the steering stem nut.



STEERING/FRONT WHEEL/BRAKE/SUSPENSION

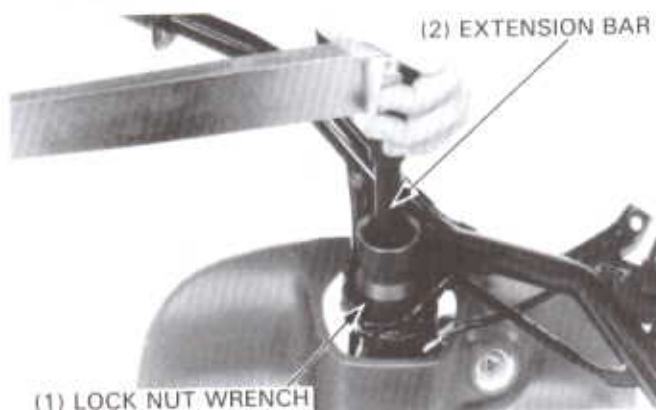
Tighten the steering stem nut.

TORQUE: 100 N·m (10.0 kg-m, 72 ft-lb)

TOOLS:

Lock nut wrench 30 x 32 mm
Extension bar

07716-0020400
07716-0020500 or
equivalent commercially
available in U.S.A.

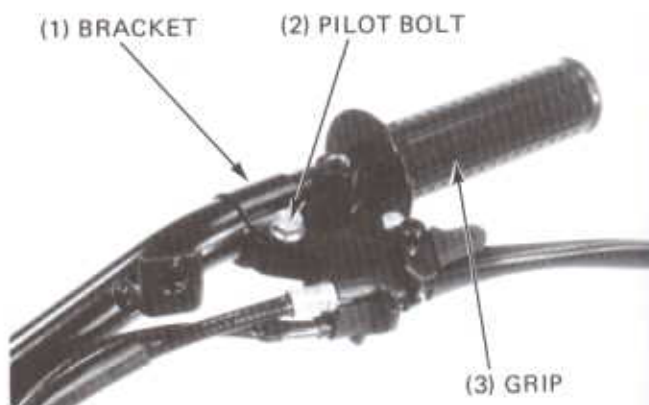


Connect the brake cables to the levers and install the levers on the brackets using the pivot bolts and lock nuts.

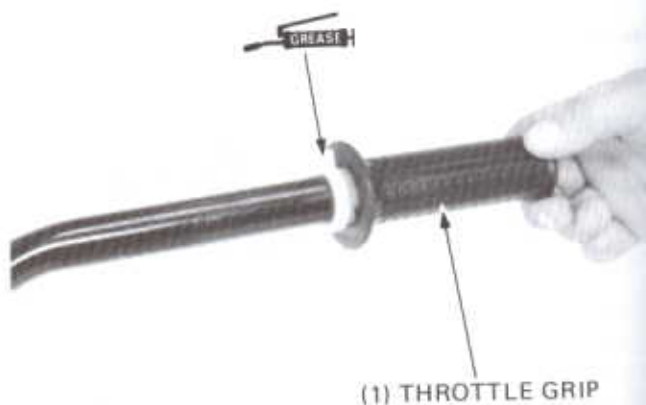
Apply Honda Bond A or Honda Hand Grip Cement (U.S.A. only) to the inside surfaces of the grips and to the clean surface of the left handlebar and throttle pipe. Wait 3-5 minutes and install the grips. Rotate the grips for even application of the adhesive.

NOTE

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

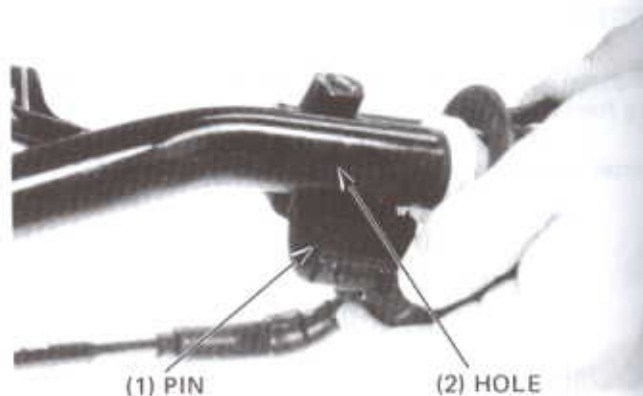


Apply grease to the throttle grip cable end and insert the throttle grip and connect the throttle cable end to the grip.



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

Install the upper throttle housing and tighten the screw.
Install the headlight and instruments (section 17).



FRONT WHEEL

REMOVAL

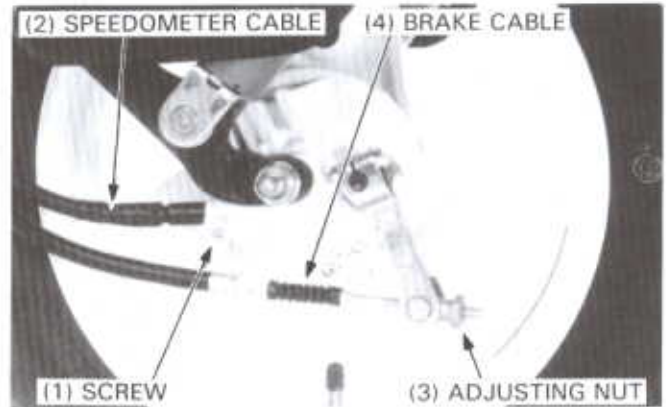
Raise the front wheel off the ground by placing a jack or block under the floor board.

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.

Pull out the axle and remove the front wheel.

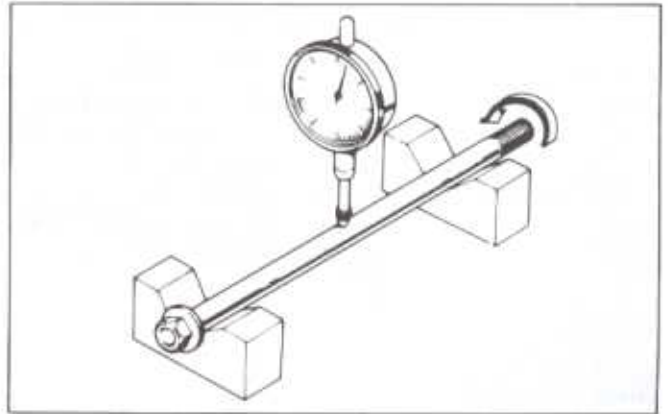


INSPECTION

AXLE

Set the axle in V blocks and measure the runout.

SERVICE LIMIT: 0.2 mm (0.01 in)



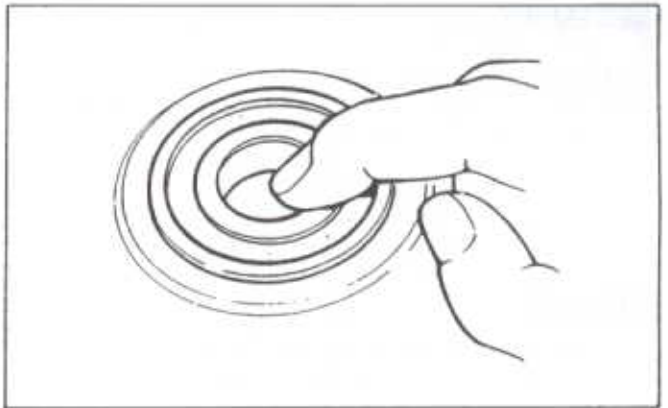
BEARING INSPECTION

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 hub.

Discard the bearings if the races do not turn smoothly and quietly, or if they have been spinning in the crankcase (page 12-6).

NOTE

- Replace wheel bearings in pairs.



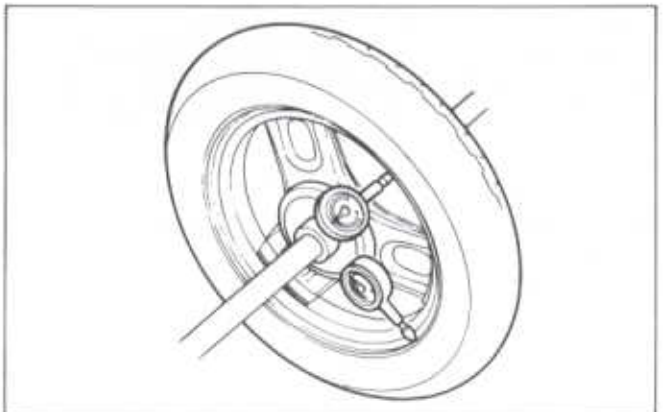
WHEEL RIM

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:

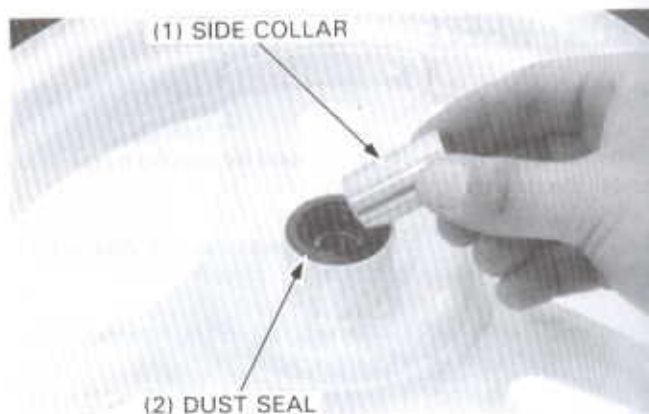
Radial: 2.0 mm (0.08 in)

Axial: 2.0 mm (0.08 in)



DISASSEMBLY

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



Drive out the wheel bearings and remove the distance collar.

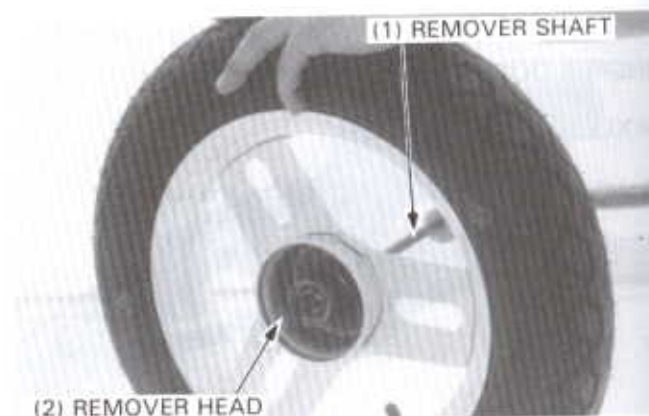
TOOLS:

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.



ASSEMBLY

Pack all bearing cavities with grease.

Drive in a new right bearing and install the distance collar.

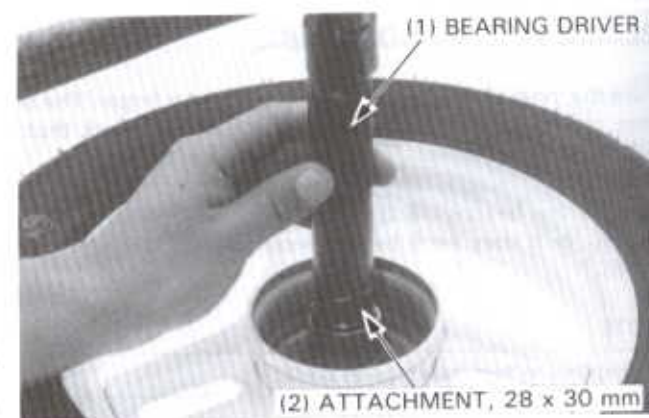
Drive in a new left bearing.

NOTE

- Install the bearings with their sealed ends facing out.

WARNING

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



TOOLS:

Bearing driver

07749-0010000

Driver attachment, 28 x 30 mm

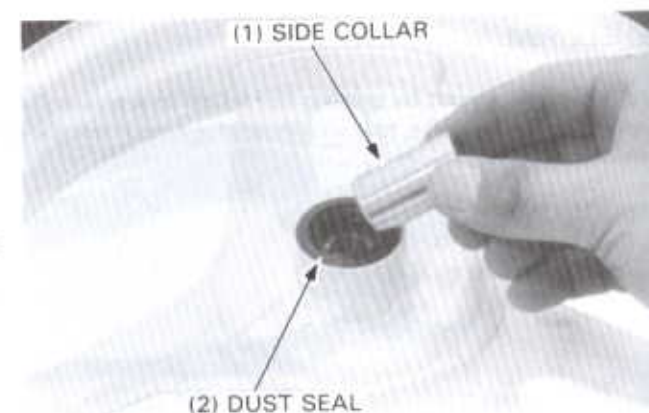
07946-1870100

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.

Position the front wheel between the fork and align the tongue of the left pivot arm with the groove in the brake panel. Insert the axle from the right side.



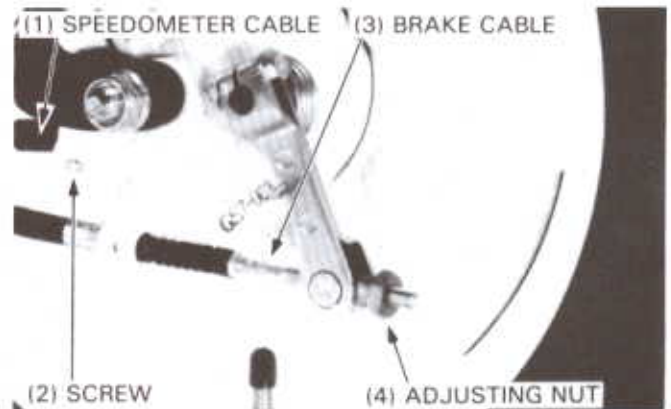
Install and tighten the axle nut.

TORQUE: 45 N·m (4.5 kg-m, 33 ft-lb)

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

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

WARNING

Brake dust may contain asbestos. 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.

REMOVAL

Remove the front wheel (page 12-5).

Remove the brake panel from the wheel hub.

INSPECTION

BRAKE DRUM

Measure the brake drum I.D.

SERVICE LIMIT: '88 thru. '93: 80.5 mm (3.17 in)
After '93: 95.5 mm (3.76 in)

BRAKE LINING

Measure the brake lining thickness.

SERVICE LIMIT: 2.0 mm (0.08 in)



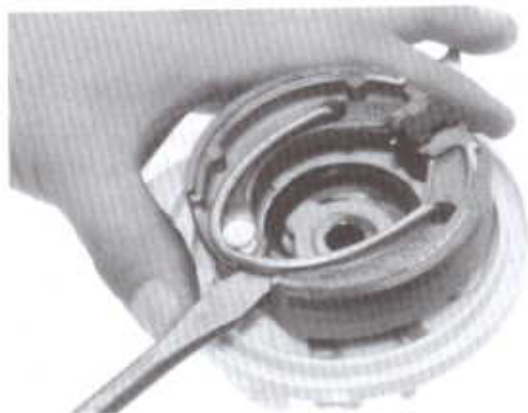
BRAKE PANEL DISASSEMBLY

'88 thru. '93:

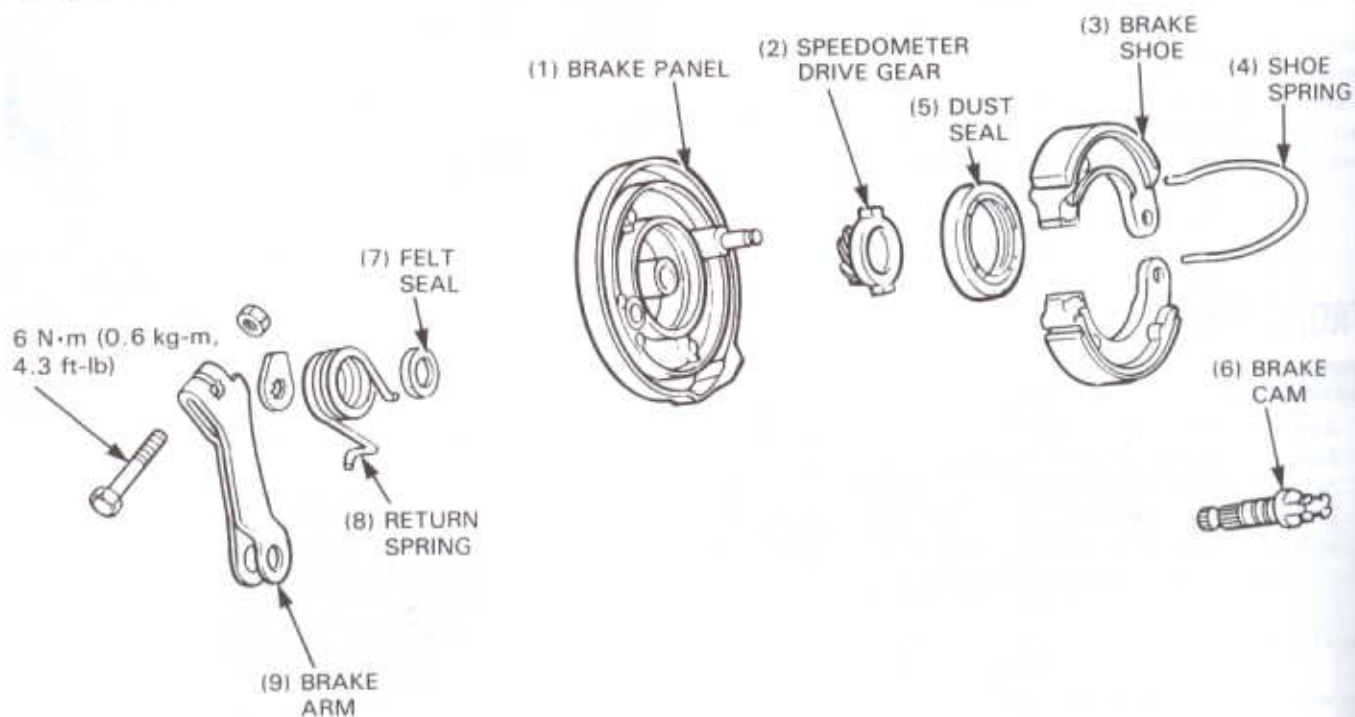
Turn the brake arm and expand the brake shoes.

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

Remove the brake arm, indicator plate, return spring, felt seal, brake cam, dust seal and speedometer drive gear.



'88 thru. '93:



6 N·m (0.6 kg-m,
4.3 ft-lb)

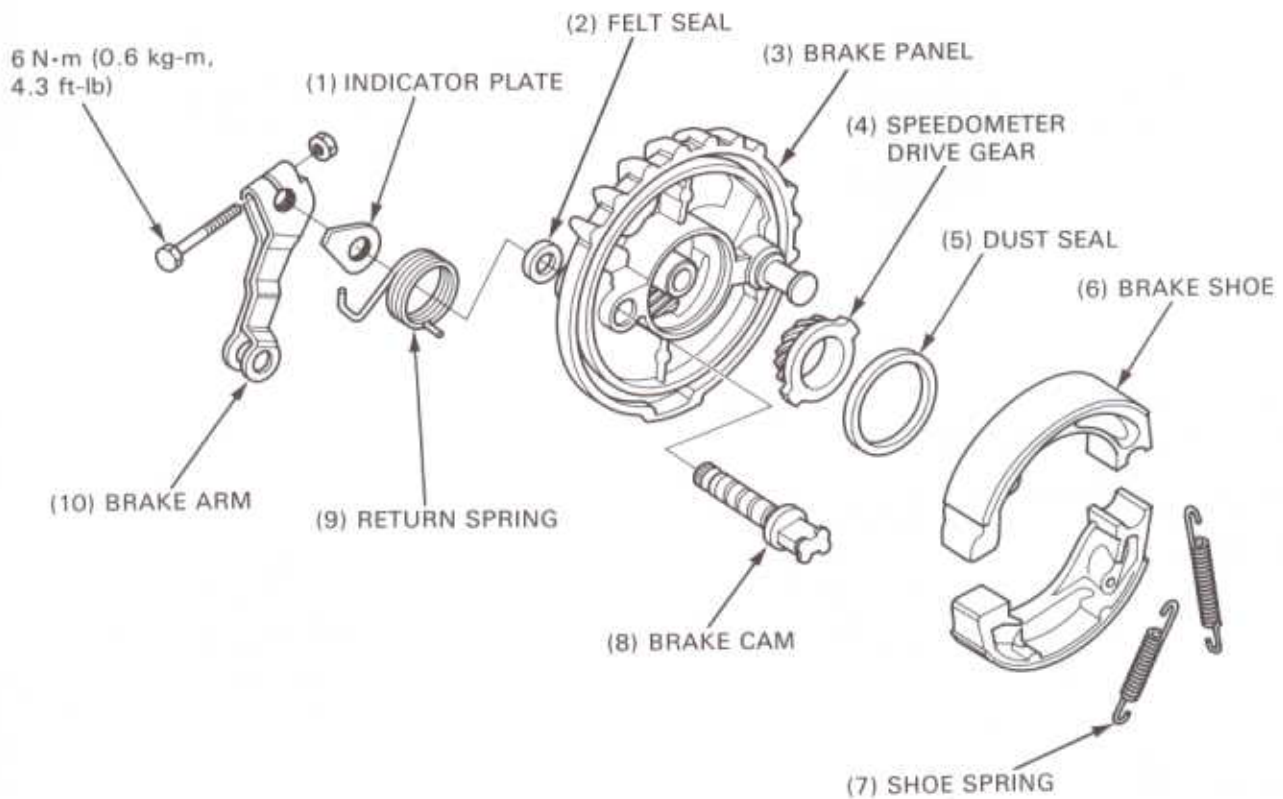
After '93:

Remove the brake shoes and shoe springs from the brake panel.

Remove the brake arm, indicator plate, return spring, felt seal, brake cam, dust seal and speedometer drive gear.



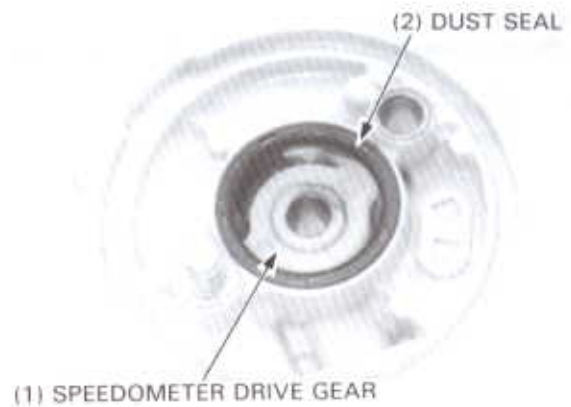
After '93



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.

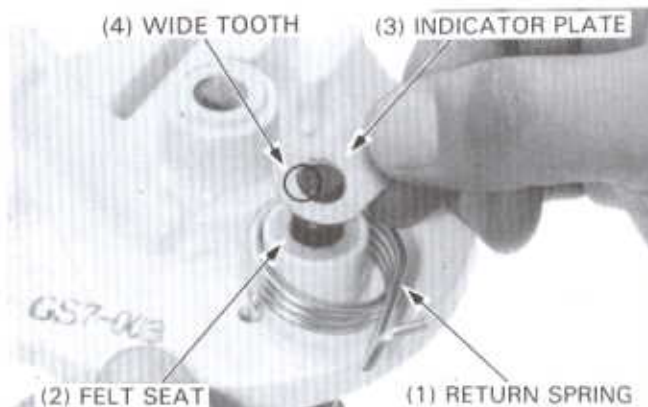


STEERING/FRONT WHEEL/BRAKE/SUSPENSION

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.

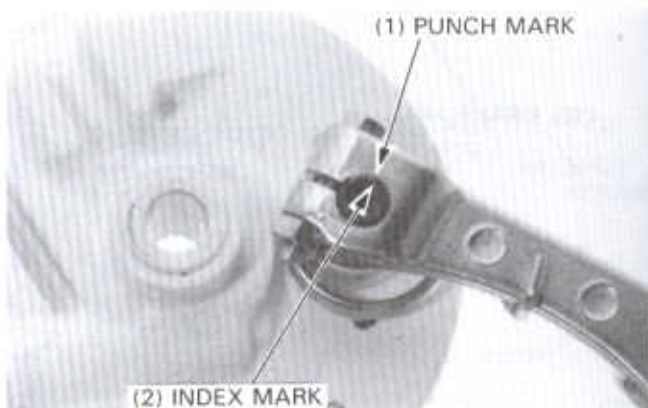
Install the wear indicator plate onto the brake cam aligning its wide tooth with the wide groove on the cam.



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)



'88 thru. '93:

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.



After '93:

Assemble the brake shoes and shoe springs and install them onto the brake panel.

INSTALLATION

Install the brake panel into the wheel hub.

Install the front wheel (page 12-7).

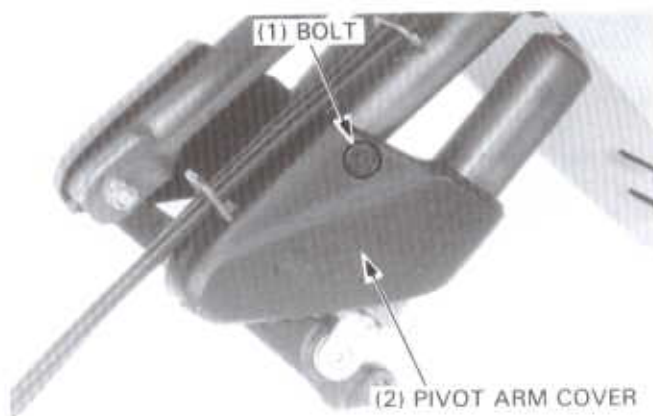


PIVOT ARMS

REMOVAL

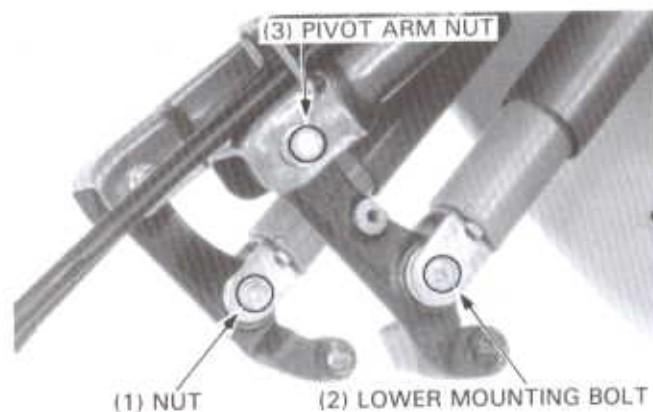
Remove the front wheel (page 12-5).

Remove the pivot arm covers by removing the bolts.



Remove the shock lower mount nuts and bolts.

Remove the pivot arms by removing the pivot arm bolts and nuts.



DISASSEMBLY

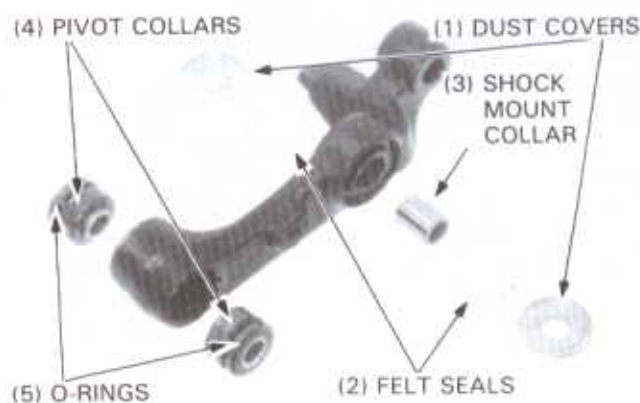
Remove the dust covers, felt seals and shock lower mount collar. Remove the pivot collars and discard the O-rings.

INSPECTION

Check the pivot and shock lower mount collars, the felt seals and the bushing for wear or damage.

ASSEMBLY

Install new O-rings onto the pivot collars, then grease the collars and install them in the pivot arm. Grease and install the shock lower mount collar, then install the felt seals and dust covers.



INSTALLATION

Install the pivot arms, bolts and nuts.
Tighten the nuts.

TORQUE: 27 N·m (2.7 kg-m, 20 ft-lb)

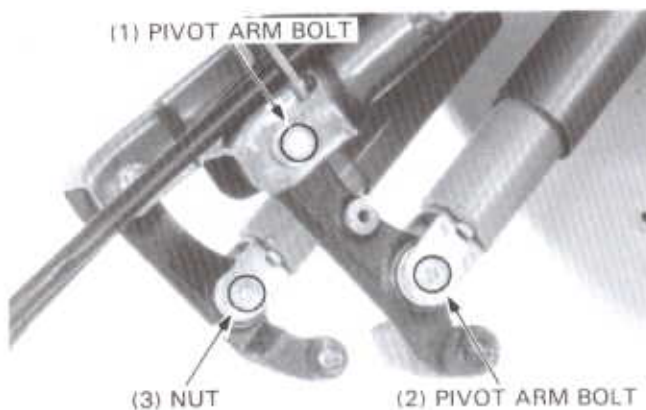
Install and tighten the shock absorber lower mount bolts.

TORQUE: 9 N·m (0.9 kg-m, 6.5 ft-lb)

Tighten the shock absorber lower mount nuts.

TORQUE: 18 N·m (1.8 kg-m, 13 ft-lb)

Install the pivot arm covers and tighten the bolts.



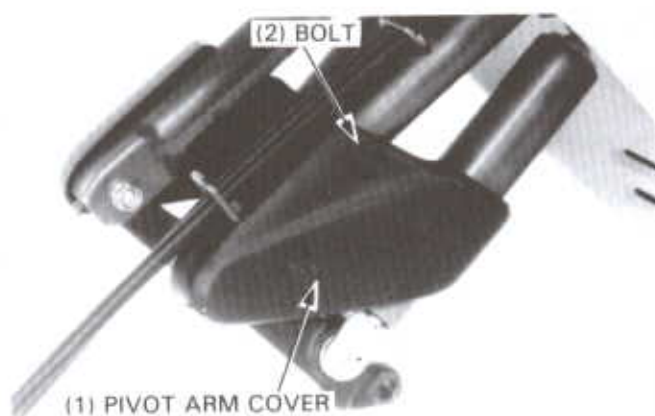
FRONT SHOCK ABSORBERS

REMOVAL

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

Remove the front wheel (page 12-5).

Remove the pivot arm cover by removing the bolt.



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



DISASSEMBLY

Compress the shock absorber, loosen the lock nut and remove the lower mount and lock nut.

TOOLS:

Shock absorber compressor

— compressor screw

Compressor attachment

Spring attachment

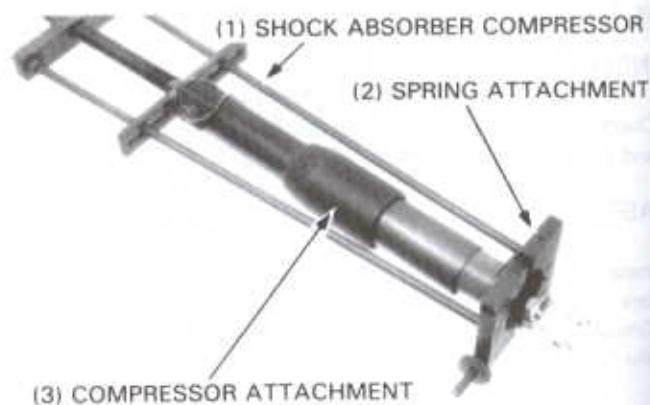
07GME-0010000

07GME-0010700

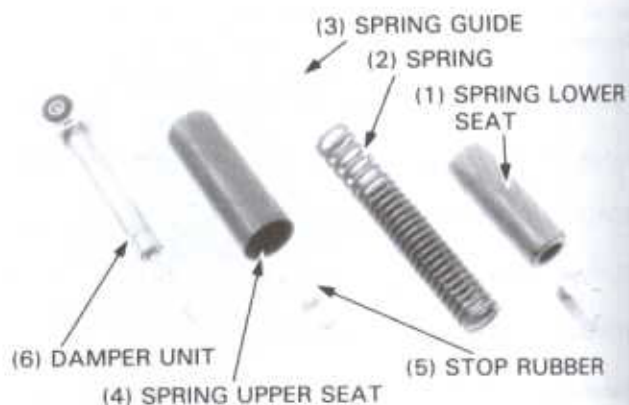
07967-GA70102

or 07967-GA70001

07967-KM10100



Remove the spring lower seat, spring, spring guide, spring upper seat and stop rubber from the damper unit.

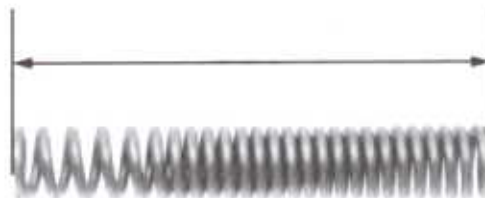


SPRING FREE LENGTH INSPECTION

Measure the shock absorber spring free length.

SERVICE LIMIT: '88 thru. '93: 167.3 mm (6.59 in)
After '93: 172.2 mm (6.78 in)

Place the upper spring seat, spring guide, spring, lower spring seat and stop rubber onto the damper unit.



ASSEMBLY

Install the spring with the tightly wound coils facing down. Apply a locking agent to the lock nut threads and install the nut.

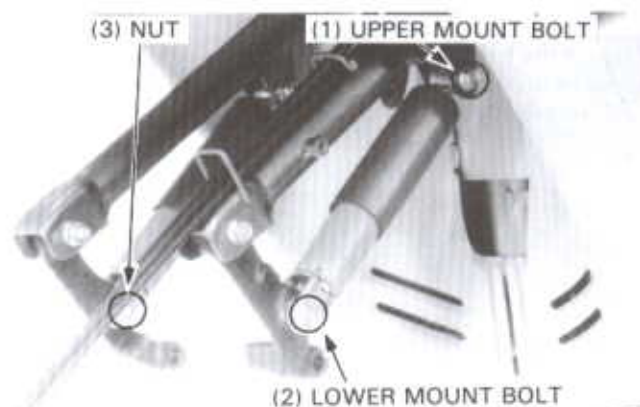
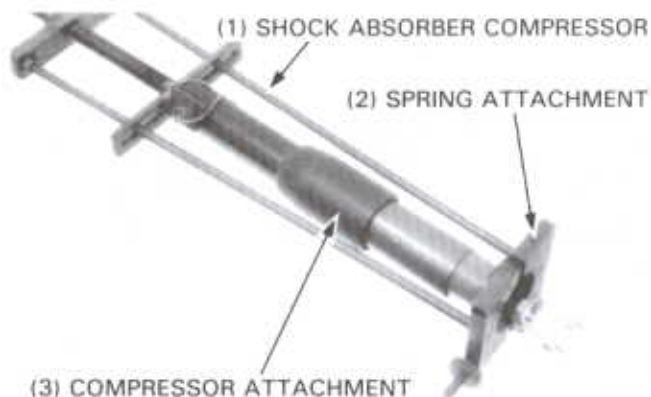
Apply a locking agent to the damper rod threads and screw the lower mount on. Hold the lower mount in a vise and tighten the lock nut securely.

TORQUE: 20 N·m (2.0 kg-m, 14 ft-lb)

TOOLS:

Shock absorber compressor	07GME-0010000
— compressor screw	07GME-0010700
Compressor attachment	07967-GA70102 or 07967-GA70001
Spring attachment	07967-KM10100

Check that the lock nut is seated against the rod's bottom thread.



INSTALLATION

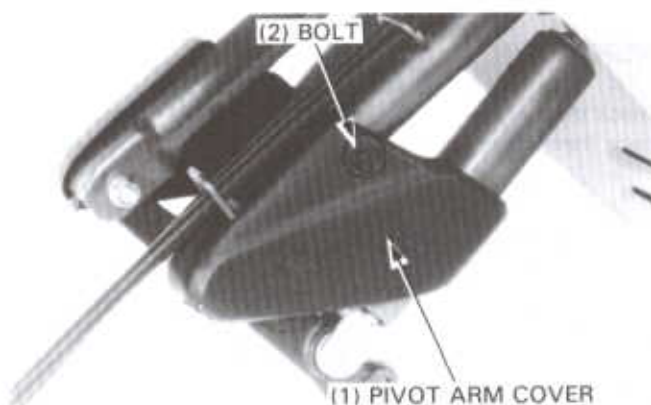
Install the shock absorbers and tighten the upper mount bolts.

TORQUE: 27 N·m (2.7 kg-m, 20 ft-lb)

Tighten the lower mount bolts and nuts.

TORQUE: Bolt 9 N·m (0.9 kg-m, 6.5 ft-lb)
Nut 18 N·m (1.8 kg-m, 13 ft-lb)

Install the pivot arm cover and tighten the bolt.
Install the front wheel (page 12-7).



STEERING STEM

REMOVAL

Remove the following:

- leg shield (page 11-4).
- front fender (page 11-6).
- speedometer and brake cable.
- front wheel (page 12-5).
- handlebar (page 12-3).

Remove the steering stem lock nut.

TOOLS:

Lock nut wrench A

07916-KM10000

Lock nut wrench B

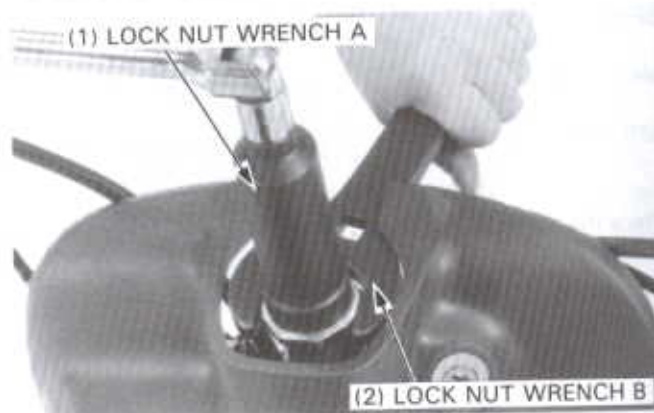
07916-1870101

Remove the top cone race and steel balls.

NOTE

- Be careful not to loose any of the steel balls.

Pull the steering stem out of the steering head.



(1) TOP CONE RACE



Remove the following:

- shock absorbers (page 12-12).
- pivot arms (page 12-11).

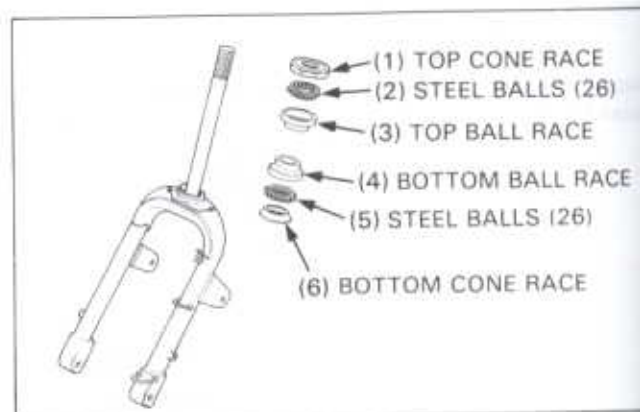


(2) PIVOT ARMS

(1) SHOCK ABSORBERS

INSPECTION

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



STEERING HEAD/BALL RACE REPLACEMENT

Remove the top and bottom ball races from the steering head.

TOOL:

Ball race remover

07946—GA70000



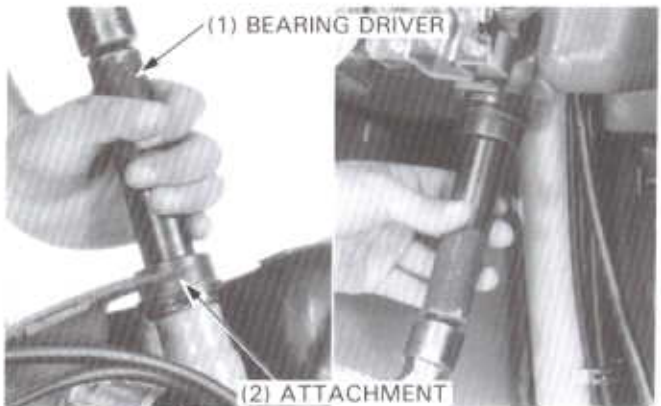
Drive in new top and bottom ball races.

TOOLS:

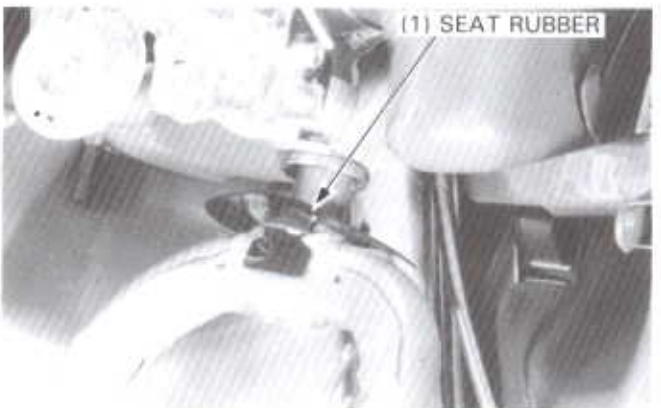
Bearing driver

07749—0010000

Driver attachment, 42 x 47 mm 07746—0010300

**INSTALLATION**

Grease the top and bottom ball races and install the steel balls. Install the inner seat rubber into the steering stem and insert the steering stem into the steering head.



Install the top cone race fully and hand-tighten it.

Then back it off 1/8 turn.

Rotate the steering stem lock to lock several times to seat the bearings.

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



STEERING/FRONT WHEEL/BRAKE/SUSPENSION

Hold the top cone race and tighten the steering stem lock nut.

TORQUE: 9 N·m (0.9 kg-m, 6.5 ft-lb)

TOOLS:

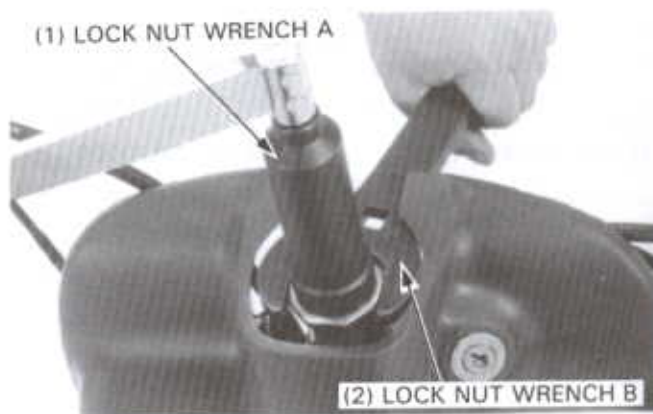
Lock nut wrench A

07916-KM10000

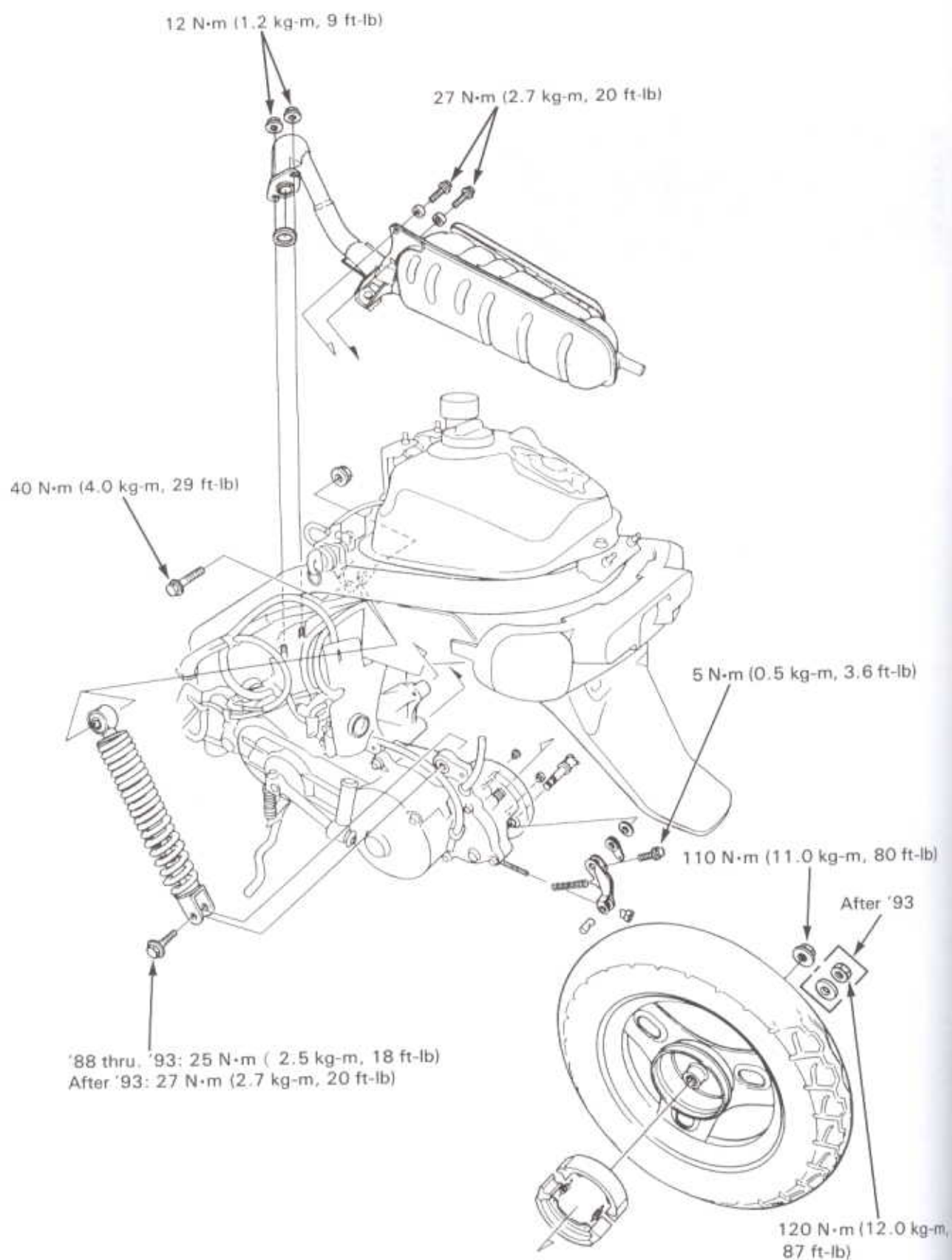
Lock nut wrench B

07916-1870101

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



REAR WHEEL/BRAKE/SUSPENSION



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

SPECIFICATIONS

Unit: mm (in)

ITEM		STANDARD	SERVICE LIMIT
Rear wheel rim runout	Radial	—	2.0 (0.08)
	Axial	—	2.0 (0.08)
Rear brake	Drum I.D.	95.0 (3.74)	95.5 (3.76)
	Lining thickness	4.0 (0.16)	2.0 (0.08)
Rear shock absorber spring free length	'88 thru. '93	208.0 (8.19)	203.1 (8.00)
	After '93	218.0 (8.58)	211.5 (8.33)

TORQUE VALUES

Rear axle nut	'88 thru. '93: 110 N·m (11.0 kg-m, 80 ft-lb) After '93: 120 N·m (12.0 kg-m, 87 ft-lb)	Apply oil to the threads and seating surface.
Shock absorber upper mount bolt	40 N·m (4.0 kg-m, 29 ft-lb)	
Shock absorber lower mount bolt	'88 thru. '93: 25 N·m (2.5 kg-m, 18 ft-lb) After '93: 27 N·m (2.7 kg-m, 20 ft-lb)	
Shock absorber damper lock nut	20 N·m (2.0 kg-m, 14 ft-lb)	Apply a locking agent to the nut threads
Brake arm bolt	5 N·m (0.5 kg-m, 3.6 ft-lb)	
Exhaust pipe joint nut	12 N·m (1.2 kg-m, 9 ft-lb)	
Muffler mount bolt	27 N·m (2.7 kg-m, 20 ft-lb)	

TOOLS

Special

Shock absorber compressor attachment	07967-GA70102 (Not available in U.S.A.) or 07967-GA70001
Spring attachment	07967-GM90100

Common

Shock absorber compressor	07GME-0010000
—Compressor screw	07GME-0010700

TROUBLESHOOTING

Rear wheel wobbling

- Bent rim
- Faulty tire
- Axle not tightened properly

Soft suspension

- Weak shock absorber spring

Suspension noise

- Shock spring binding
- Damaged stop rubber

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 serrations

Brake squeaks

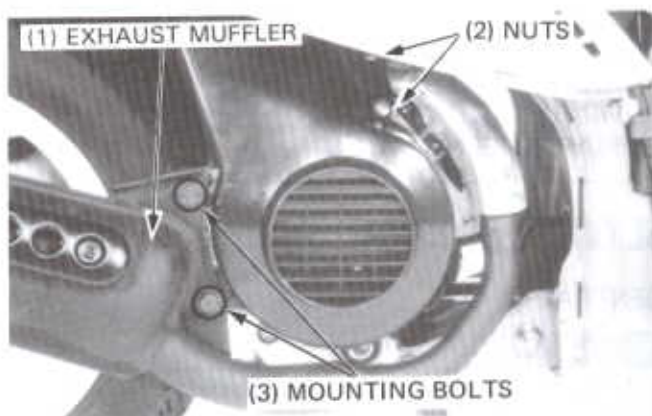
- Worn brake shoes
- Foreign matter on lining
- Rough brake drum shoe contacting face
- Brake shoes glazed

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.

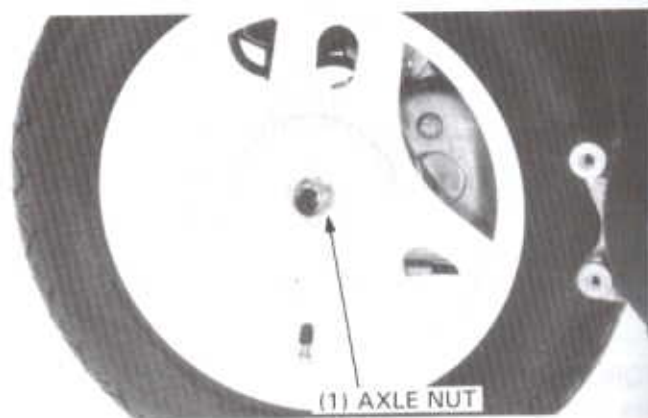


'88 thru. '93:

Remove the axle nut, and the rear wheel.

After '93:

Remove the axle nut, washer, and the rear wheel.



INSPECTION

WHEEL RIM RUNOUT

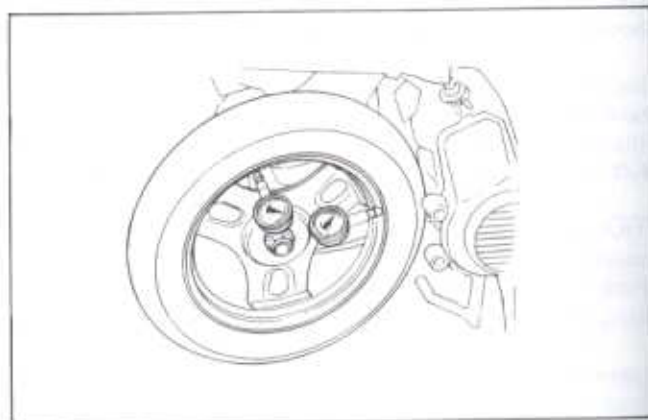
Check the wheel rim for runout using a dial gauge as shown.

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

'88 thru. '93:

Install the rear wheel and tighten the axle nut.

TORQUE: 110 N·m (11.0 kg-m, 80 ft-lb)

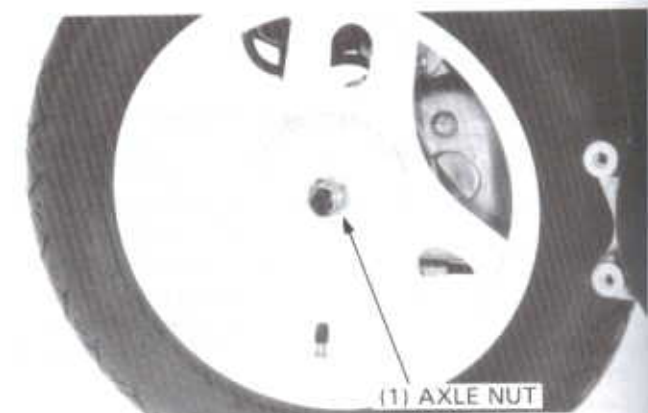
After '93:

Install the rear wheel and washer.

Apply oil to the rear axle nut threads and seating surface.

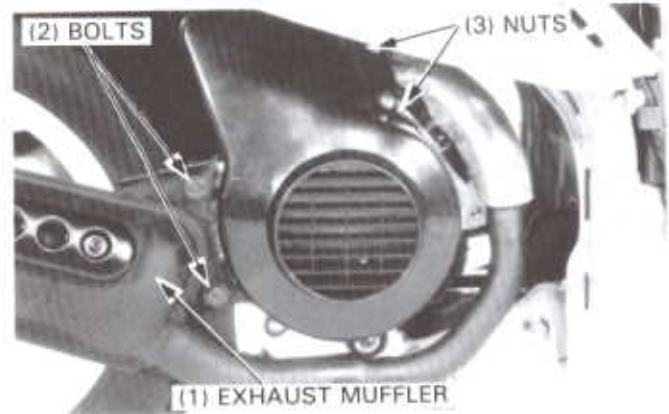
Install and tighten the rear axle nut.

TORQUE: 120 N·m (12.0 kg-m, 87 ft-lb)



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

Install both frame rear covers (page 11-3).



REAR BRAKE

WARNING

- Brake dust may contain asbestos. 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.

INSPECTION

BRAKE DRUM

Remove the rear wheel (page 13-2).

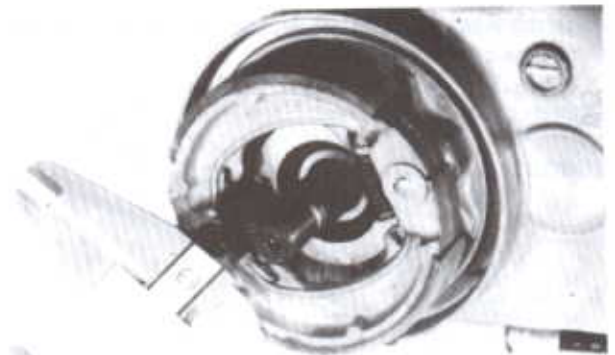
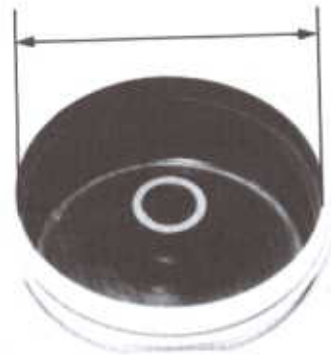
Measure the rear brake drum I.D.

SERVICE LIMIT: 95.5 mm (3.76 in)

LINING THICKNESS

Measure the brake lining thickness.

SERVICE LIMIT: 2.0 mm (0.08 in)



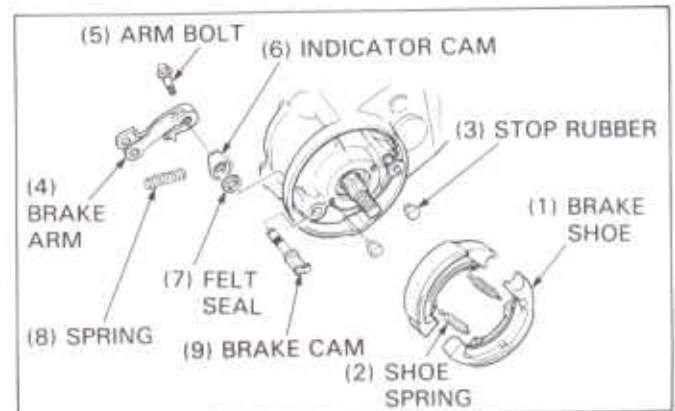
DISASSEMBLY

Remove the brake shoes, shoe springs and stop rubbers.

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

Remove the following:

- brake arm bolt and arm
- wear indicator plate and arm
- brake cam

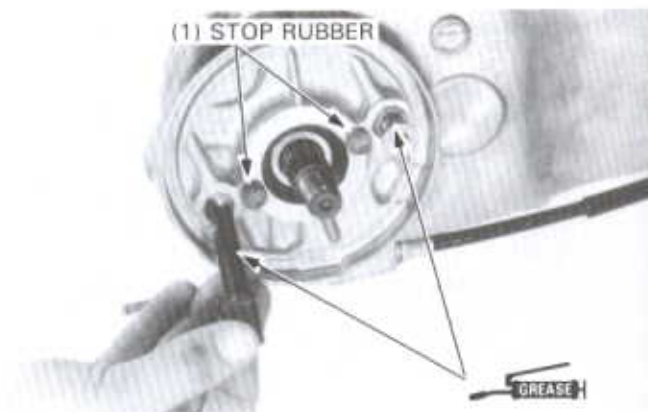


REAR WHEEL/BRAKE/SUSPENSION

ASSEMBLY

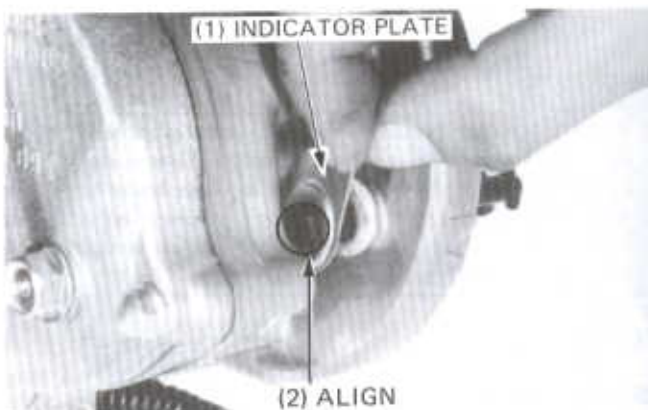
Apply grease to the anchor pin and brake cam and install the cam.

Install the two brake shoe spring stop rubbers.



Install the felt seal onto the brake cam.

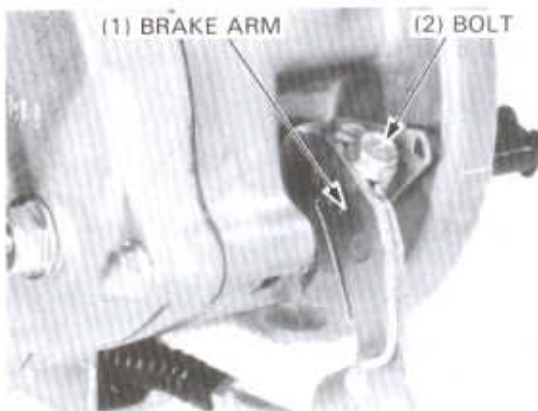
Install the wear indicator plate on the cam aligning its wide tooth with the cam's wide groove.



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: 5 N·m (0.5 kg-m, 3.6 ft-lb)



Install the brake arm return spring.



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 the following:

- left frame rear covers (page 11-3).
- air cleaner case (page 4-13).
- shock absorber upper mount nut and lower mount bolt and the shock absorber.



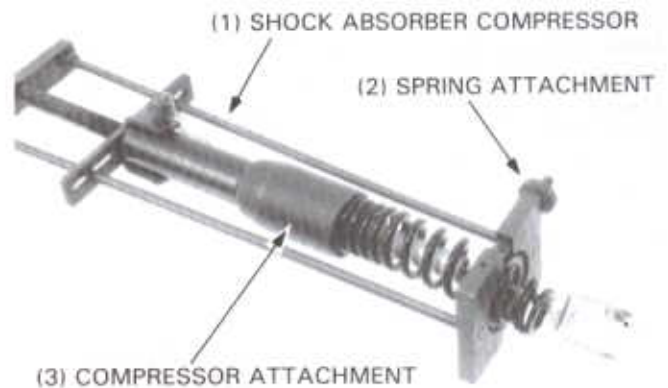
DISASSEMBLY

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

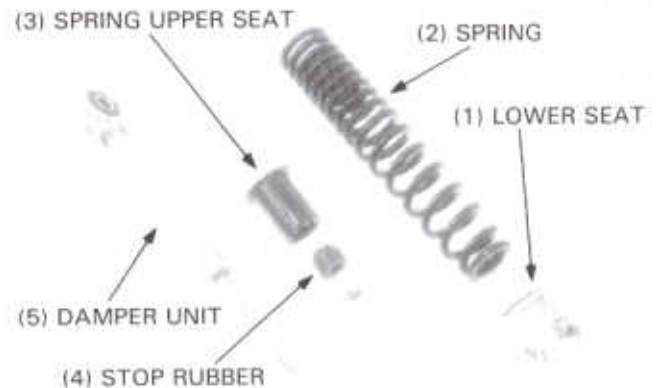
Remove the rear shock absorber spring.

TOOLS:

Shock absorber compressor	07959-3290001
Compressor attachment	07967-GA70101
	not available in U.S.A. or
	07967-GA70001
Spring attachment	07967-KM10100



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



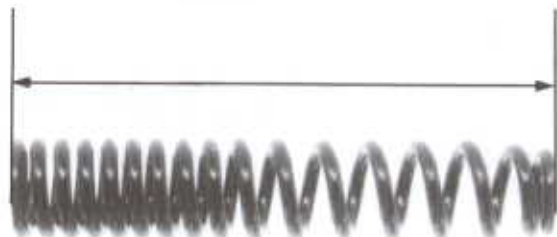
REAR WHEEL/BRAKE/SUSPENSION

SPRING FREE LENGTH INSPECTION

Measure the spring free length.

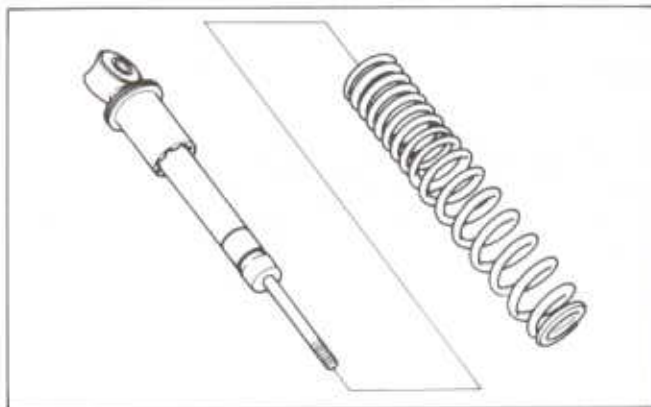
SERVICE LIMIT: '88-'93: 203.1 mm (8.00 in)
After '93: 211.5 mm (8.33 in)

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 to the specified torque.

TORQUE: 20 N·m (2.0 kg-m, 14 ft-lb)

TOOLS:

Shock absorber compressor

— compressor screw

Compressor attachment

07GME-0010000

07GME-0010700

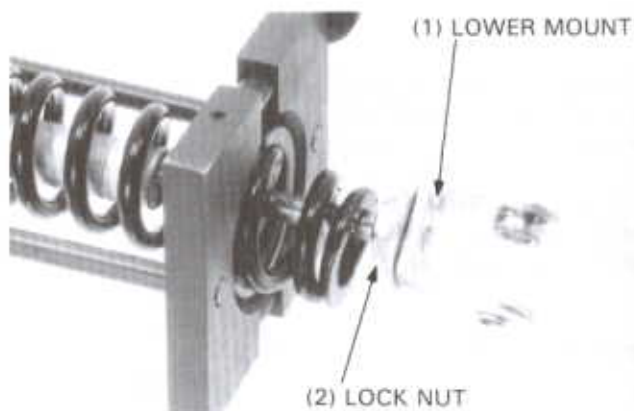
07967-GA70102

not available in U.S.A. or

07967-GA70001

07967-GM90100

Spring attachment



INSTALLATION

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

TORQUE:

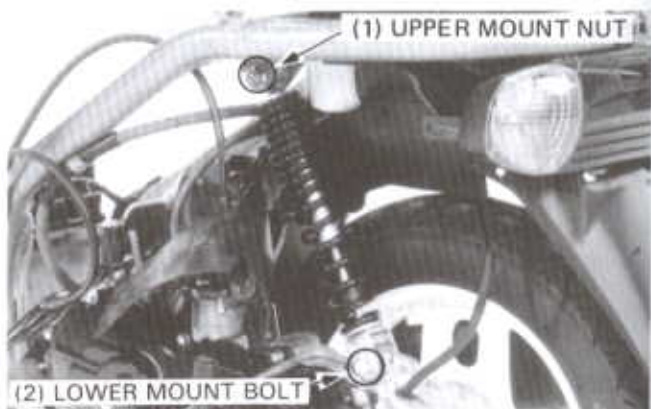
Upper mount nut: 40 N·m (4.0 kg-m, 29 ft-lb)

Lower mount bolt: '88 thru. '93: 25 N·m (2.5 kg-m, 18 ft-lb)

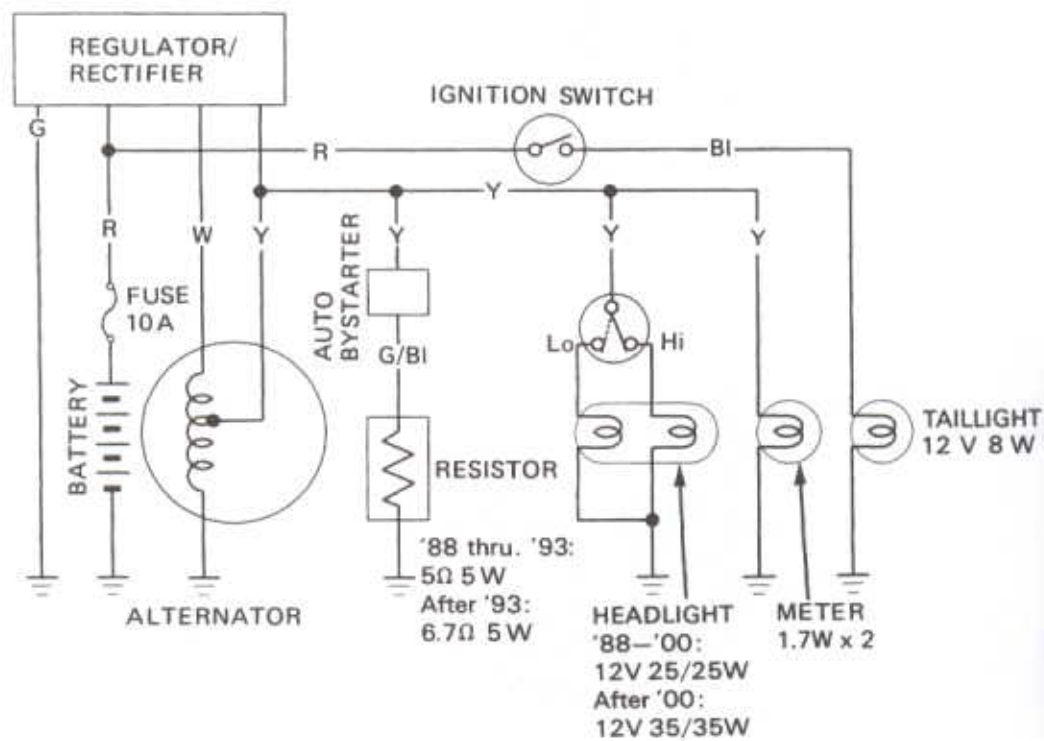
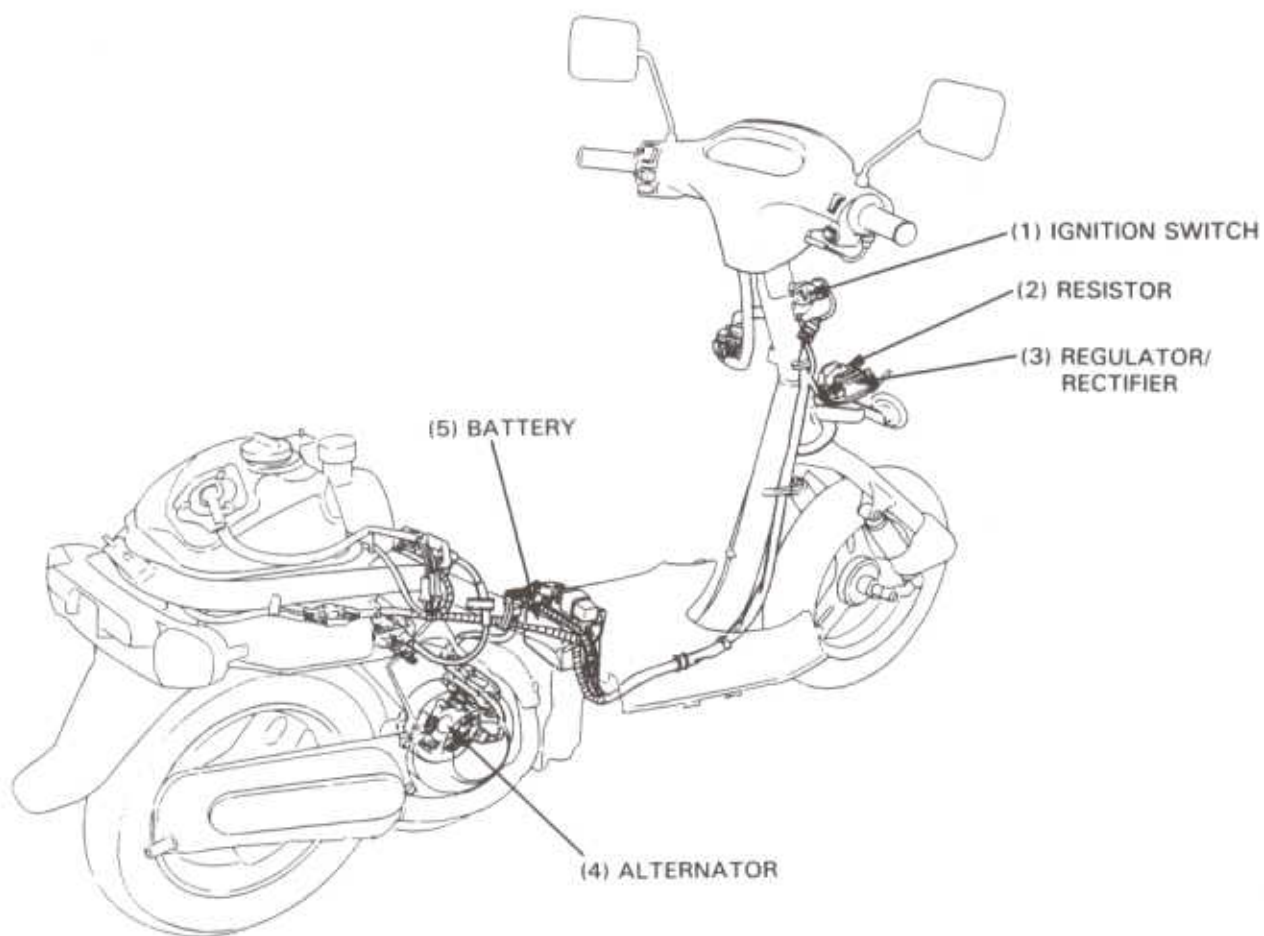
After '93: 27 N·m (2.7 kg-m, 20 ft-lb)

Install the air cleaner case (page 4-14).

Install the frame rear covers (page 11-3).



BATTERY/CHARGING SYSTEM



14. BATTERY/CHARGING SYSTEM

SERVICE INFORMATION	14-1	REGULATOR/RECTIFIER	14-7
TROUBLESHOOTING	14-2	ALTERNATOR	14-8
BATTERY	14-3	RESISTOR	14-8
CHARGING SYSTEM	14-6		

SERVICE INFORMATION

GENERAL

WARNING

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

- Refer to Service Letter #48 and Operation Manual for the Honda Battery Tester and the Christie Battery Charger for:
 - Preparation of new batteries
 - Battery testing
 - Battery charging
- The following color codes are used throughout the electrical sections.

Bu = Blue	G = Green	Lg = Light Green	R = Red
Bl = Black	Gr = Gray	O = Orange	W = White
Br = Brown	Lb = Light Blue	P = Pink	Y = Yellow
- 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.
- 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.
- When inspecting the charging system, check the system components and lines step-by-step according to the troubleshooting on next page.
- All charging system components can be tested on the scooter.
- Alternator removal is given in Section 7.

14

SPECIFICATIONS

ITEM			STANDARD
Battery	Capacity		12 V 3 AH
	Charging current	'88-'89	Standard: 0.3 A, Maximum: 3.0 A
		After '89	Standard: 0.4 A, Maximum: 4.0 A
	Charging time		Standard: 5.0 hours, Maximum: 30 Minutes
Regulator/rectifier	Regulated voltage		13.5—15.0 V/5,000 rpm
Alternator stator coil	Lighting coil		0.1—0.8 Ω (20°C/68°F)
	Charging coil		0.2—0.9 Ω (20°C/68°F)
Resistor	'88 thru. '93		5 Ω (20°C/68°F)
	After '93		6.7 Ω (20°C/68°F)

TOOLS

Digital multimeter	KS—AHM—32—003 (U.S.A. only)	Christie battery charger	MC1012/2 (U.S.A. only)
Circuit tester (SANWA)	07308—0020001	Honda battery tester	07GMJ—0010000 (U.S.A. only)
or			
Circuit tester (KOWA)	TH—5H		

BATTERY

REMOVAL

Remove the center cover (page 11-2).
Disconnect the negative cable from the battery first, then remove the positive terminal.
Remove the battery holder bolt and the battery.

INSTALLATION

Installation is the reverse of removal.

NOTE

- Connect the positive terminal first.
- Route the battery cables properly.

INSPECTION

Measure the battery voltage using a digital voltmeter.
Fully charged: 13.0–13.2 V at 20°C/68°F
Undercharged: Below 12.3 V at 20°C/68°F
If the battery is undercharged, perform a leak test (page 14-3) before recharging.

CHARGING

Connect the charger positive (+) terminal to the battery positive (+) terminal and the charger negative (–) terminal to the battery negative (–) terminal.

WARNING

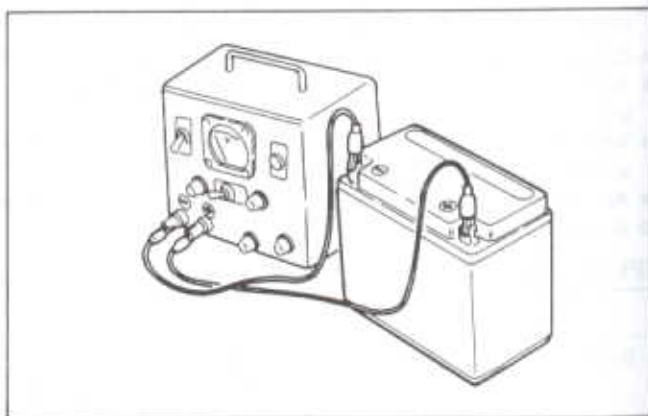
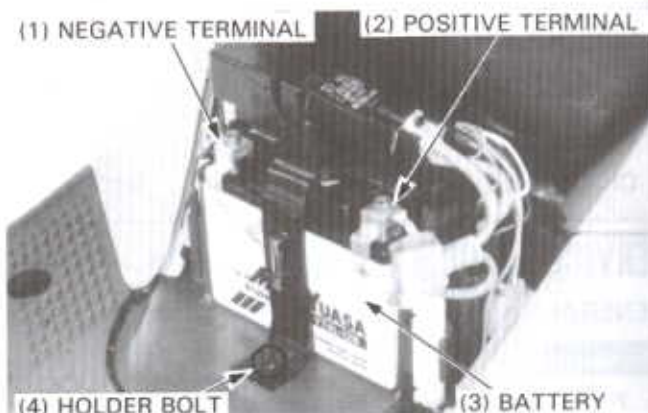
- Keep flames and sparks away from the charging battery.
- Turn power ON/OFF at the charger, not at the battery terminals. Controlling power at the battery might cause sparks and explosion.

CAUTION

- Be sure to charge the battery with the correct current and for the time listed on the top of the battery.
- Quick charging should only be done in an emergency; slow charging is preferred.
- Wait for 30 minutes after charging, and check the voltage.

Charging current	Standard	0.3 A
	Maximum	3.0 A
Charging time	Standard	5.0 hours
	Minimum	30 minutes
Voltage at (20°C/68°F)		12.3 V min.

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



CHARGING SYSTEM

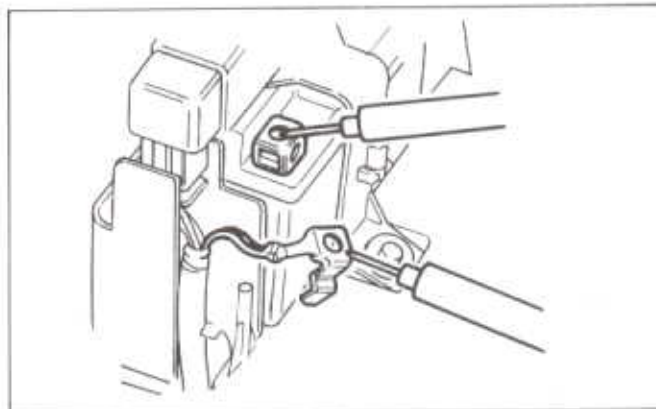
Leak test

If the battery tested undercharged, disconnect the negative (-) cable from the battery and connect the voltmeter between the battery terminal and the ground cable.

There should be no voltage with the ignition switch OFF.

If there is voltage, check for damaged wire harnesses and/or loose connectors.

Test the ignition switch (Section 17).



REGULATED OUTPUT INSPECTION

NOTE

- Be sure that the battery is fully charged before performing this test.

Warm-up the engine to operating temperature. Stop the engine and remove the center cover (page 11-2). Connect the voltmeter across the battery terminals.

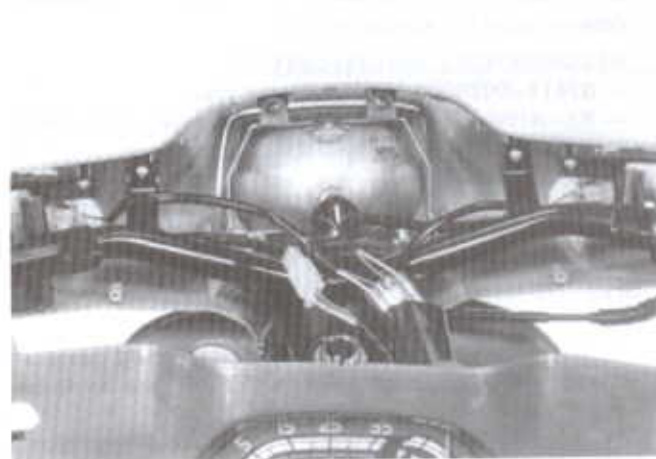
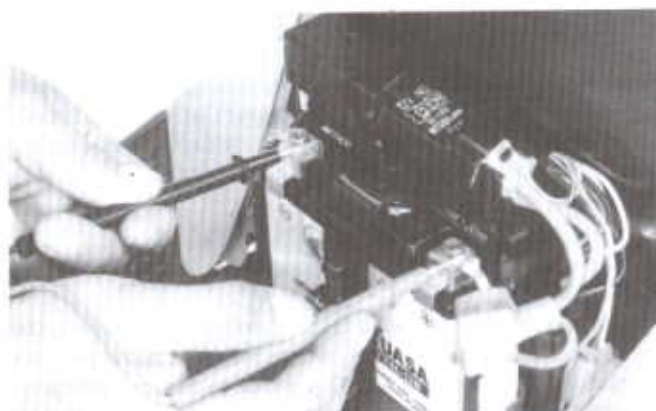
NOTE

- Avoid short circuiting to the tester during the test.

Start the engine, and gradually increase the engine speed; check that the output voltage is regulated within the range specified.

REGULATED VOLTAGE: 13.5–15.0 V/5,000 rpm

If the voltage moves outside the range at any speed, stop the engine and test the regulator/rectifier (page 14-4).



LIGHTING VOLTAGE INSPECTION

Warm-up the engine to operating temperature. Stop the engine remove handlebar rear cover (page 11-5). Connect the voltmeter across the headlight wires; positive probe to blue and negative probe to green. Start the engine and raise the engine speed gradually, check to see if the voltage is regulated with AC range.

NOTE

- Hold the headlight securely to avoid damaging.

REGULATED VOLTAGE: 12.1–13.6 V

If the measurements are out of specification, stop the engine and check the regulator/rectifier.

REGULATOR/RECTIFIER

Remove the front cover (page 11-4).

Disconnect the 4P connector from the regulator/rectifier.

Check the charging system components at the connector terminals.

Item	Measure at:	Standard value
Battery wire	Red (+) – Green (–)	Battery voltage
Charging coil	White – Green	0.3 – 0.9 Ω
Lighting coil	Yellow – Green	0.2 – 0.8 Ω
Resistor	Green/black – Ground	5 Ω

If any of the readings are out of range, inspect the individual component.

Provided that all components of the charging system are normal and there are no loose connections at the regulator/rectifier connector, inspect the regulator/rectifier unit by measuring the resistance between the terminals.

NOTE

- The resistance values will be incorrect if the probes touch your fingers.
- Use one of the following recommended multitesters. Using another manufacture's equipment may not allow you to obtain the specified values. This is due to the characteristic of semiconductors, which have different resistance values depending on the applied voltage.

RECOMMENDED MULTITESTERS:

- 07411–0020000 (KOWA Digital type)
- KS–AHM–32–003 (KOWA Digital type; U.S.A. only)
- 07308–00200001 (SANWA Analogue type)
- TH–5H (KOWA Analogue type)

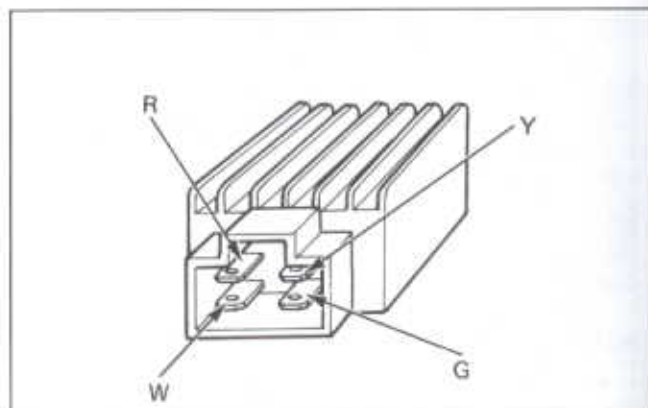
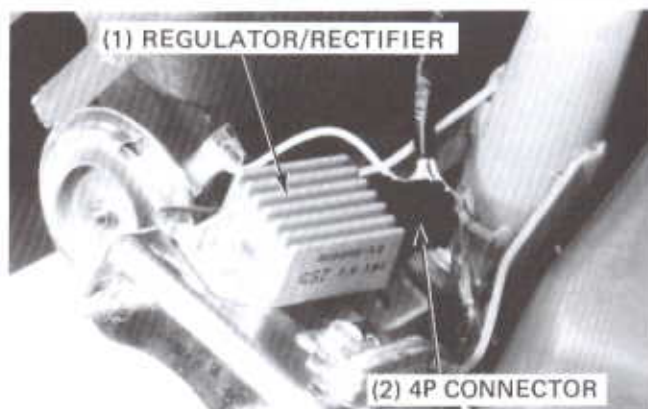
- Select the following range.

Sanwa: k Ω

Kowa: X 100 Ω

- An old battery stored in the multitester could cause inaccurate readings. Check the battery if the multimeter resisters incorrectly.
- When using the KOWA multitester, remember that all readings should be multiplied by 100.

Replace the regulator/rectifier unit if any one of the resistance values is abnormal.



Unit: k Ω

+Probe	(W)	(Y)	(R)	(G)
–Probe				
(W)		∞	3~50	∞
(Y)	∞		∞	5 k ~ 100 k
(R)	∞	∞		∞
(G)	∞	5~100	∞	

ALTERNATOR INSPECTION

Stator charging coil

Remove the center cover (page 11-2).

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

Disconnect the alternator and starter motor 6P-Black connector.

Measure the resistance between the white and green terminals.

STANDARD: 0.2—1.0 Ω at 20°C (68°F)

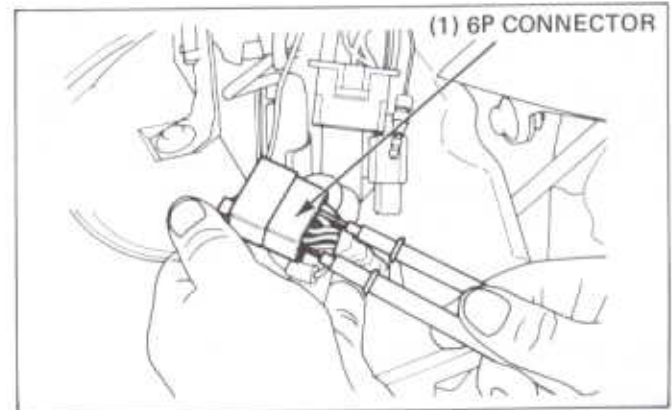
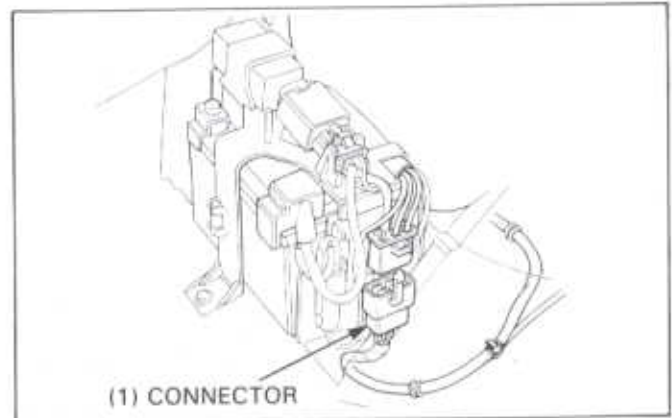
Replace the stator coil if the resistance is not within the specified range (see Section 7).

Stator charging coil

Measure the resistance between the yellow and green terminals.

STANDARD: 0.1—0.8 Ω at 20°C (68°F)

Replace the stator coil if the resistance is not within the specified range (see Section 7).



RESISTOR

INSPECTION

Remove the front cover (page 11-4).

Disconnect the green/black wire connector.

Measure the resistance of the resistor between the green/black wire and ground.

STANDARD: 5 Ω at 20°C (68°F)

Remove and replace the resistor if necessary.



CHARGING SYSTEM

LEAK TEST

Turn the ignition switch off and disconnect the ground \ominus wire from the battery.

Connect the ammeter \oplus probe to the ground wire and the ammeter \ominus probe to the battery \ominus terminal.

With the ignition switch off, check for current leakage.

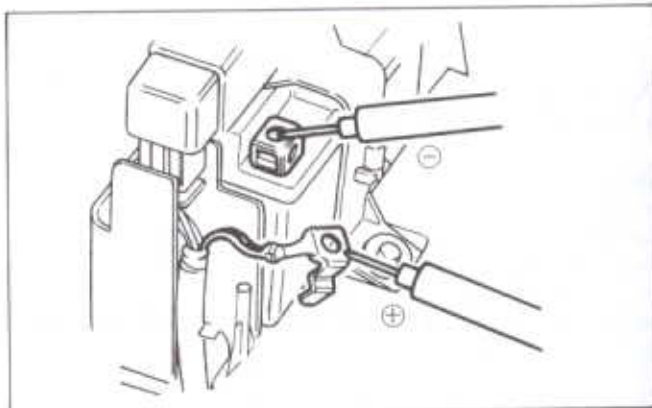
NOTE

- When measuring current using a tester, set it to a high range, and then bring the range down to an appropriate level. Current flow larger than the range selected may blow out the fuse in the tester.
- While measuring current, do not turn the ignition on. A sudden surge of current may blow out the fuse in the tester.

Specified Current Leakage: 1 mA max.

If current leakage exceeds the specified value, a shorted circuit is likely.

Locate the short by disconnecting connections one by one and measuring the current.



REGULATED OUTPUT INSPECTION

NOTE

- Be sure that the battery is fully charged before performing this test.

Warm-up the engine to operating temperature.

Stop the engine and remove the center cover (page 11-2).

Connect the voltmeter across the battery terminals.

NOTE

- Avoid short circuiting to the tester during the test.

Start the engine, and gradually increase the engine speed; check that the output voltage is regulated within the range specified.

REGULATED VOLTAGE: 14.0 – 15.0 V/5,000 rpm

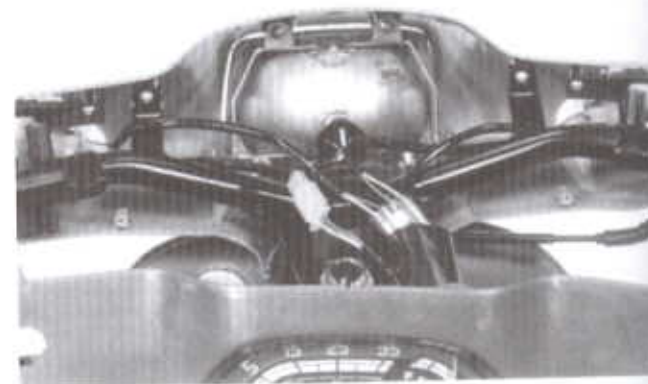
If the voltage moves outside the range at any speed, stop the engine and test the regulator/rectifier (page 14-4).

LIGHTING VOLTAGE INSPECTION

Warm-up the engine to operating temperature.

Stop the engine remove handlebar rear cover (page 11-5).

Connect the voltmeter across the headlight wires; positive probe to blue and negative probe to green.



Start the engine and raise the engine speed gradually, check to see if the voltage is regulated with AC range.

NOTE

- Hold the headlight securely to avoid damaging.

REGULATED VOLTAGE: 12.6 – 13.6 V

If the measurements are out of specification, stop the engine and check the regulator/rectifier.

REGULATOR/RECTIFIER

Remove the front cover (page 11-4).

Disconnect the 4P connector from the regulator/rectifier.

Check the charging system components at the connector terminals.

Item	Measure at:	Standard value
Battery wire	Red (+) – Green (–)	Battery voltage
Charging coil	White – Green	0.2–0.9 Ω
Lighting coil	Yellow – Green	0.1–0.8 Ω
Resistor	Green/black – Ground	'88 thru. '93: 5 Ω After '93: 6.7 Ω

If any of the readings are out of range, inspect the individual component.

Provided that all components of the charging system are normal and there are no loose connections at the regulator/rectifier connector, inspect the regulator/rectifier unit by measuring the resistance between the terminals.

NOTE

- The resistance values will be incorrect if the probes touch your fingers.
- Use one of the following recommended multimeters. Using another manufacture's equipment may not allow you to obtain the specified values. This is due to the characteristic of semiconductors, which have different resistance values depending on the applied voltage.

RECOMMENDED MULTIMETERS:

- KS-AHM-32-003 (KOWA Digital type; U.S.A. only)
- 07308-00200001 (SANWA Analogue type)
- TH-5H (KOWA Analogue type)

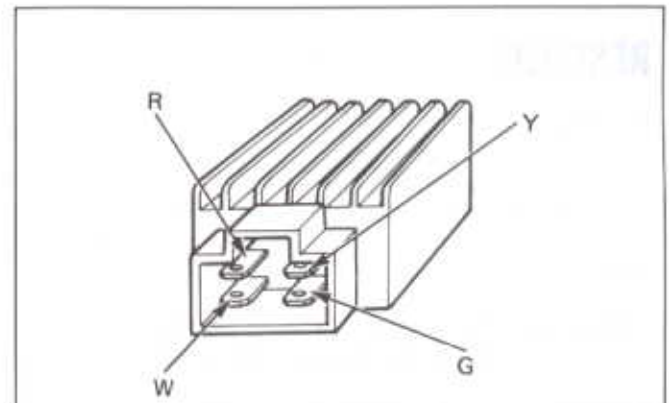
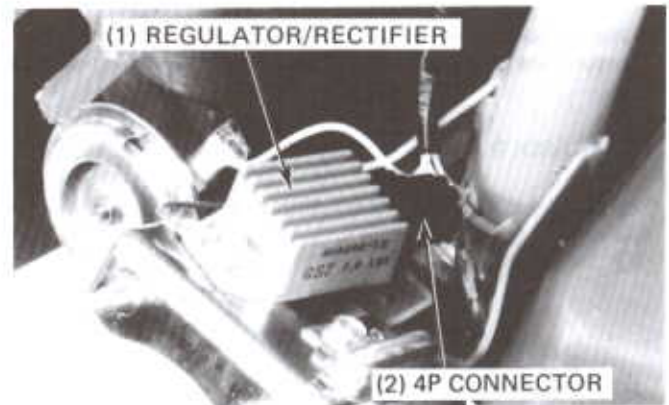
- Select the following range.

Sanwa: k Ω

Kowa: X 100 Ω

- An old battery stored in the multimeter could cause inaccurate readings. Check the battery if the multimeter resistors incorrectly.
- When using the KOWA multimeter, remember that all readings should be multiplied by 100.

Replace the regulator/rectifier unit if any one of the resistance values is abnormal.



Unit: k Ω

+Probe	(W)	(Y)	(R)	(G)
–Probe				
(W)		∞	3~50	∞
(Y)	∞		∞	5 k ~ 100 k
(R)	∞	∞		∞
(G)	∞	5~100	∞	

ALTERNATOR INSPECTION

Stator charging coil

Remove the center cover (page 11-2).

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

Disconnect the alternator and starter motor 6P-Black connector.

Measure the resistance between the white and green terminals.

STANDARD: 0.2–0.9 Ω at 20°C (68°F)

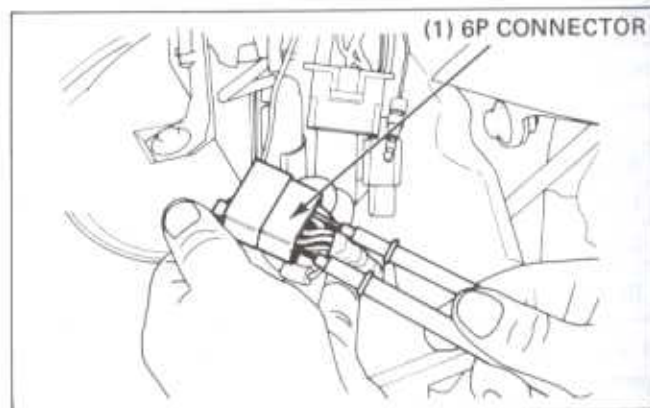
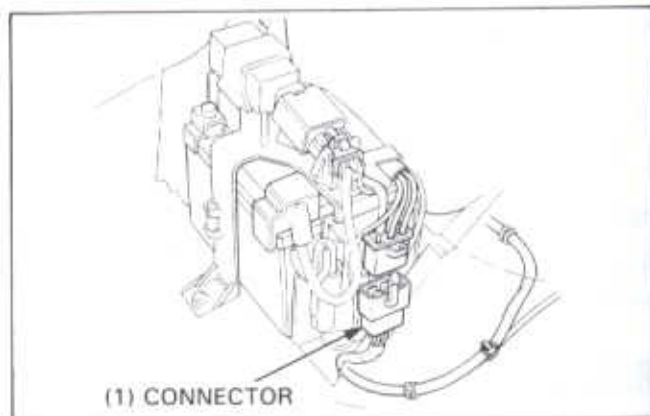
Replace the stator coil if the resistance is not within the specified range (see Section 7).

Stator lighting coil

Measure the resistance between the yellow and green terminals.

STANDARD: 0.1–0.8 Ω at 20°C (68°F)

Replace the stator coil if the resistance is not within the specified range (see Section 7).



RESISTOR

INSPECTION

Remove the front cover (page 11-4).

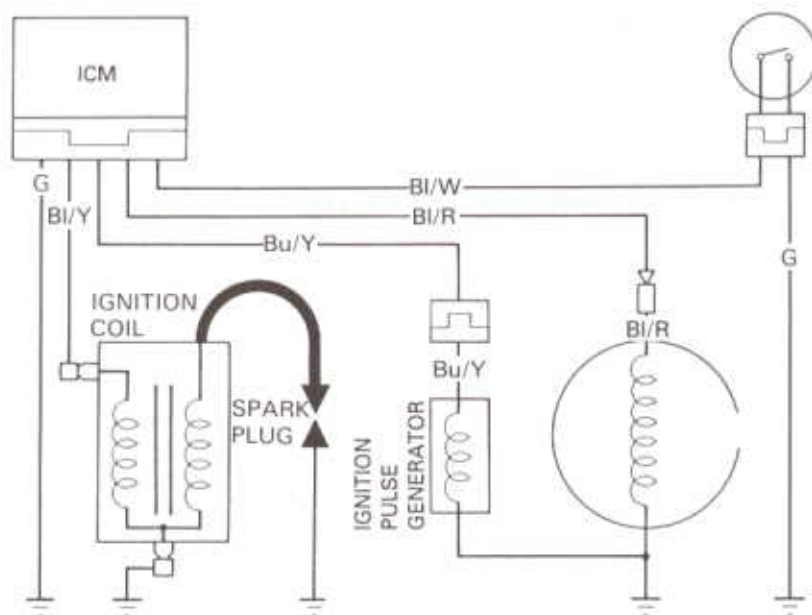
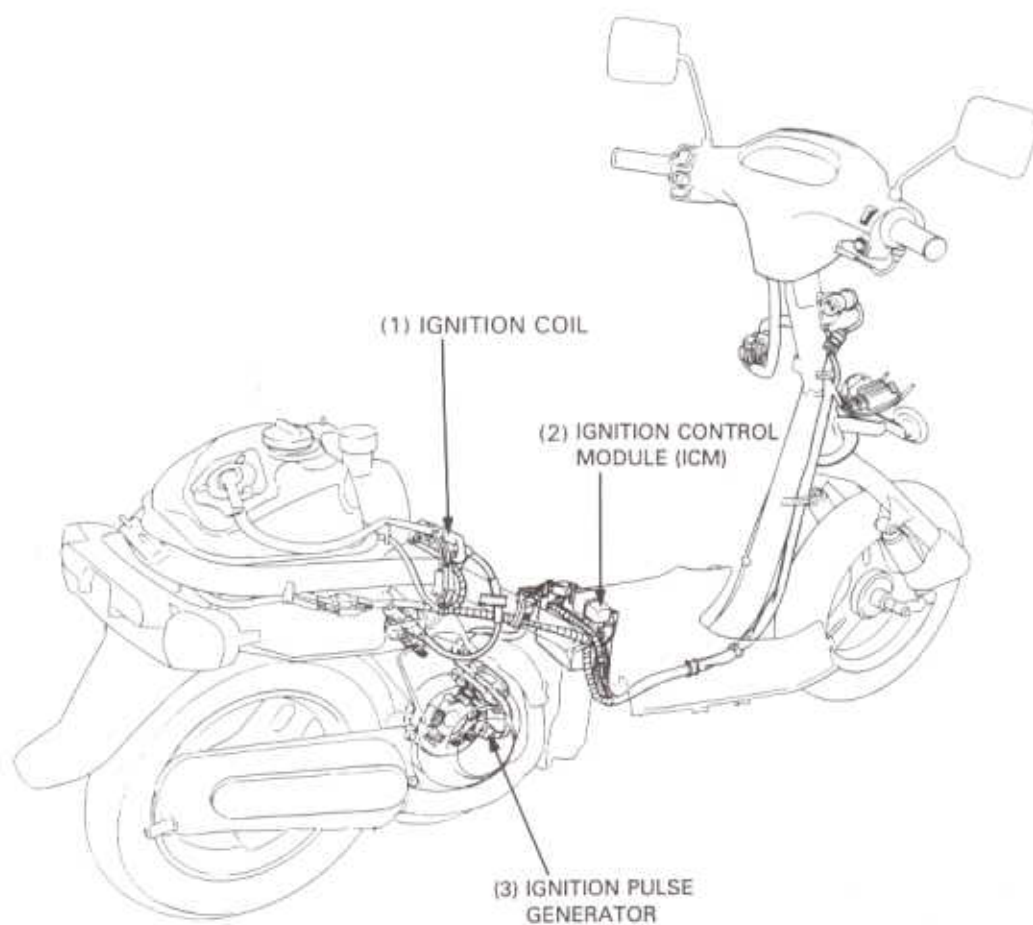
Disconnect the green/black wire connector.

Measure the resistance of the resistor between the green/black wire and ground.

STANDARD: '88–'93 5 Ω at 20°C (68°F)
After '93: 6.7 Ω at 20°C (68°F)

Remove and replace the resistor if necessary.





15. IGNITION SYSTEM

SERVICE INFORMATION	15-1	ALTERNATOR EXCITER COIL	15-4
TROUBLESHOOTING	15-2	IGNITION PULSE GENERATOR (IPG)	15-4
IGNITION TIMING INSPECTION	15-3	IGNITION CONTROL MODULE (ICM)	15-5
IGNITION COIL	15-3		

SERVICE INFORMATION

- Be sure the battery is fully charged before diagnosing the ignition system.
- Ignition timing cannot be adjusted. If the timing is incorrect, inspect the Ignition Control Module (ICM) and alternator and replace any faulty parts.

SPECIFICATION

ITEM			STANDARD	
Spark plug			NGK	NIPPONDENSO
	'88—'93	Standard	BPR6HSA	W20FPR-L
		For cold climate	BPR4HSA	W14FPR-L
		For extended high speed riding	BPR8HSA	W24FPR-L
	After '93	Standard	BR6HSA	W20FR-L
		For cold climate	BR4HSA	W16FR-L
For extended high speed riding		BR8HSA	W24FR-L	
Spark plug gap			0.6—0.7 mm (0.024—0.028 in)	
Ignition coil resistance	Primary coil	'88—'89	0.1—0.2 Ω (20°C/68°F)	
		'90—'93	0.1—0.3 Ω (20°C/68°F)	
		After '93	0.1—0.4 Ω (20°C/68°F)	
	Secondary coil (with spark plug cap)	'88—'89	7.4—11.0 k Ω (20°C/68°F)	
		'90—'93	6.4—11.0 k Ω (20°C/68°F)	
		After '93	5.0—11.0 k Ω (20°C/68°F)	
	Secondary coil (without spark plug cap)	'88—'89	3.7—4.5 k Ω (20°C/68°F)	
		'90—'93	2.7—4.5 k Ω (20°C/68°F)	
		After '93	2.2—4.0 k Ω (20°C/68°F)	
Ignition timing			17° BTDC/1,800 rpm	
Ignition pulse generator resistance			50—200 Ω (20°C/68°F)	
Alternator exciter coil resistance		'88—'93	500—900 Ω (20°C/68°F)	
		After '93	400—800 Ω (20°C/68°F)	

TOOL

Sanwa electrical tester
Kowa electrical tester
Digital multimeter

07308-0020000, or
TH-5H
KS-AHM-32-003 (USA only)

TROUBLESHOOTING

No spark at plug

- Faulty spark plug
- Poorly connected, broken or shorted wire
 - Between alternator and Ignition Control Module (ICM)
 - Between ICM and ignition coil
 - Between ICM and ignition switch
 - Between ignition coil and spark plug
- Faulty ignition switch
- Faulty ignition coil
- Faulty ICM
- Faulty alternator

Engine starts but runs poorly

- Ignition primary circuit
 - Faulty ignition coil
 - Loose or bare wire or connector
 - Poorly connected ignition switch
- Ignition secondary circuit
 - Faulty ignition coil
 - Faulty spark plug
 - Faulty spark plug wire
 - Poorly insulated plug cap
- Improper ignition timing
 - Faulty alternator
 - Stator not installed properly
 - Faulty ICM

IGNITION TIMING INSPECTION

NOTE

- The CDI ignition timing is not adjustable. If the timing is not correct, check the Ignition Control Module (ICM) and alternator and replace any faulty parts.

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

Check the ignition timing with a timing light.
Timing is correct if the index mark aligns with the "F" mark at 1,800 rpm.

IGNITION TIMING: 17° BTDC at 1,800 ± 100 rpm

IGNITION COIL

Remove the frame rear cover (page 11-3).

Disconnect the ignition coil primary wires from the ignition coil.

Measure the primary coil resistance between the terminals.

STANDARD: '88-'89: 0.1–0.2 Ω (20°C/68°F)
'90-'93: 0.1–0.3 Ω (20°C/68°F)
After '93: 0.1–0.4 Ω (20°C/68°F)

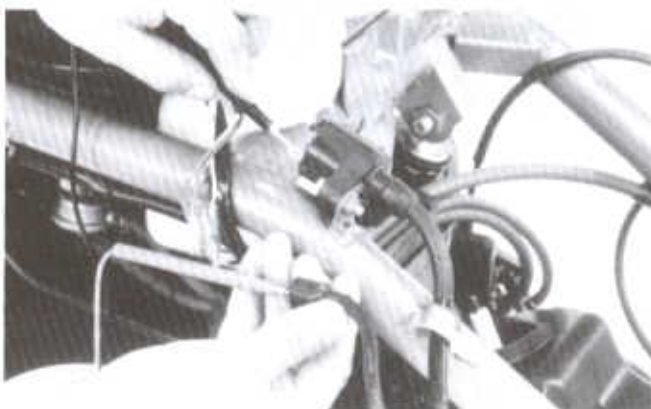
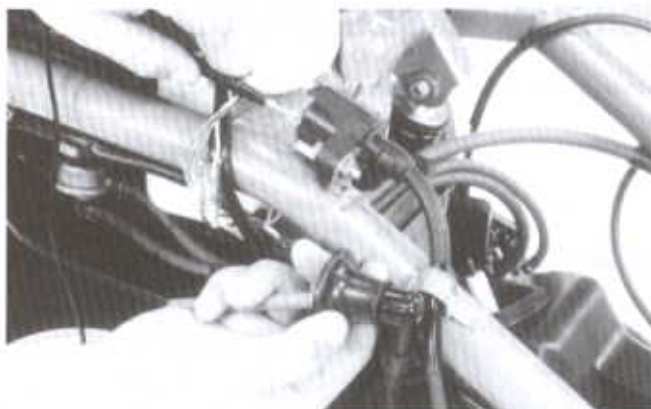
Disconnect the spark plug cap from the plug and measure the secondary coil resistance between the plug cap and the primary coil ground terminal (green).

STANDARD: '88-'89: 7.4–11.0 k Ω (20°C/68°F)
'90-'93: 6.4–11.0 k Ω (20°C/68°F)
After '93: 5.0–11.0 k Ω (20°C/68°F)

If the resistance is not within the standard, unscrew the spark plug cap from the spark plug wire and measure the secondary coil resistance without the spark plug cap.

STANDARD: '88-'89: 3.7–4.5 k Ω (20°C/68°F)
'90-'93: 2.7–4.5 k Ω (20°C/68°F)
After '93: 2.2–4.0 k Ω (20°C/68°F)

- If the resistance is within the standard, replace the plug cap and re-test.
- If the resistance is not within the standard, replace the ignition coil and re-test.



ALTERNATOR EXCITER COIL

Remove the center cover and the right side cover (Section 11).

Disconnect the alternator 6P-black connector and black/red wire connector.

Measure the resistance between the black/red wire terminal and the green terminal in the 6P-black connector on the engine side.

STANDARD: '88-'93: 500–900 Ω (20°C/68°F)
After '93: 400–800 Ω (20°C/68°F)

- If the resistance is not within the standard, replace the alternator and re-test.
- If the resistance is within the standard, check the wiring between the Ignition Control Module (ICM) and alternator connector for an open or short circuit, or loose connection. Repair or replace as necessary and re-test.



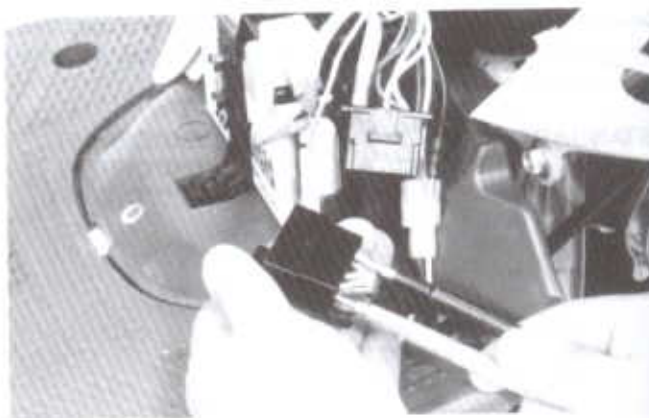
IGNITION PULSE GENERATOR (IPG)

Remove the center cover and the right side cover (Section 11).

Disconnect the alternator 6P-black wire connector and measure the resistance between the blue/yellow terminal and the green terminal on the engine side.

STANDARD: 50–200 Ω at 20°C (68°F)

- If the resistance is not within the standard, replace the alternator and re-test.
- If the resistance is within the standard, check the wiring between the Ignition Control Module (ICM) and alternator coupler for an open or short circuit or a loose connection. Repair or replace as necessary and re-test.



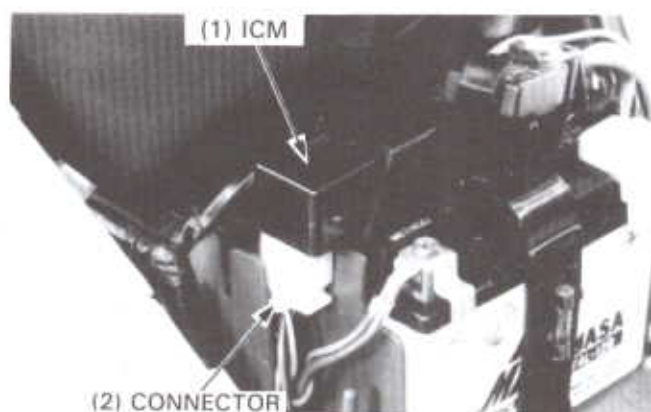
IGNITION CONTROL MODULE (ICM)

SYSTEM INSPECTION

Remove the center cover (page 11-2).

Disconnect the ICM connector and check them for loose contact or corroded terminals.

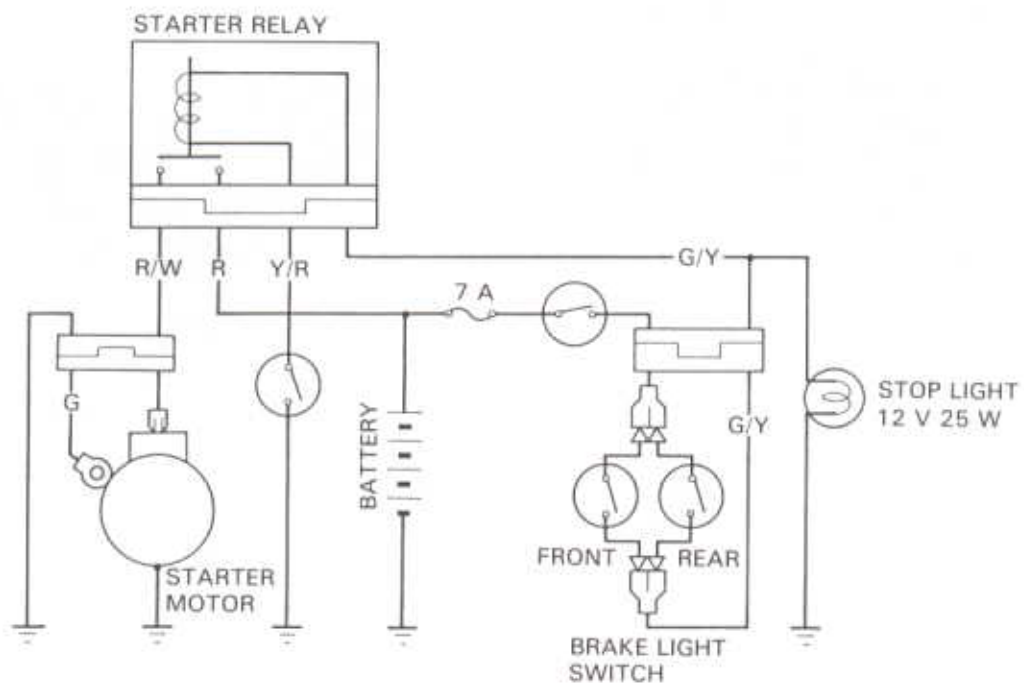
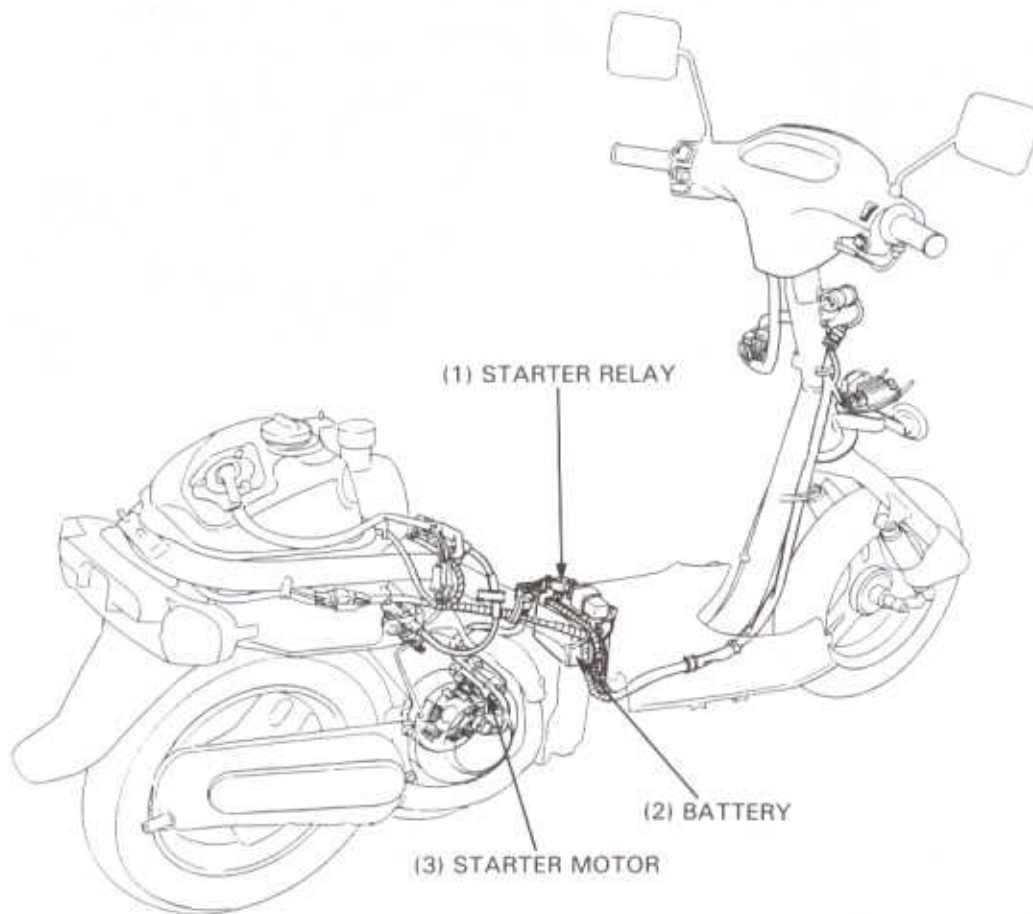
Measure the resistance, continuity and voltage between connector terminals of the wire harness side on the following chart.



Item	Terminals		Standard result
Ignition switch	Black/white—Green		There is no continuity with switch ON.
Exciter coil	Black/red—Green	'88—'93	500—900 Ω (20°C/68°F)
		After '93	400—800 Ω (20°C/68°F)
Ignition Pulse Generator (IPG)	Blue/yellow—Green		50—200 Ω (20°C/68°F)
Ignition coil primary coil	Black/yellow—Green	'88—'89	0.1—0.2 Ω (20°C/68°F)
		'90—'93	0.1—0.3 Ω (20°C/68°F)
		After '93	0.1—0.4 Ω (20°C/68°F)
Ignition coil secondary coil (with spark plug cap)	Spark plug cap—Green	'88—'89	7.4—11.0 k Ω (20°C/68°F)
		'90—'93	6.4—11.0 k Ω (20°C/68°F)
		After '93	5.0—11.0 k Ω (20°C/68°F)
Ignition coil secondary coil (without spark plug cap)	High tension cord terminal—Green	'88—'89	3.7—4.5 k Ω (20°C/68°F)
		'90—'93	2.7—4.5 k Ω (20°C/68°F)
		After '93	2.2—4.0 k Ω (20°C/68°F)

If any reading is abnormal, check the faulty item.
If all tests are satisfactory, replace the ICM.





16. ELECTRIC STARTER

SERVICE INFORMATION	16-1	STARTER RELAY	16-2
TROUBLESHOOTING	16-1	STARTER MOTOR	16-2

SERVICE INFORMATION

- The starter motor can be removed without removing the engine.

TROUBLESHOOTING

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
- Faulty wiring or loose connection
- Foreign matter stuck in starter or starter gear

Engine does not crank-starter rotates

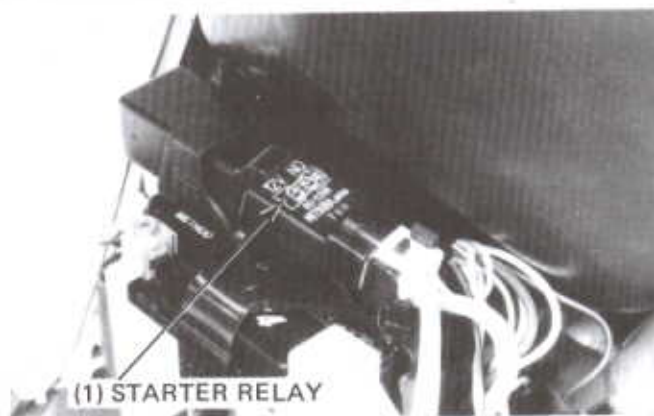
- Faulty starter pinion
- Reverse rotation of starter
- Weak battery

ELECTRIC STARTER

STARTER RELAY

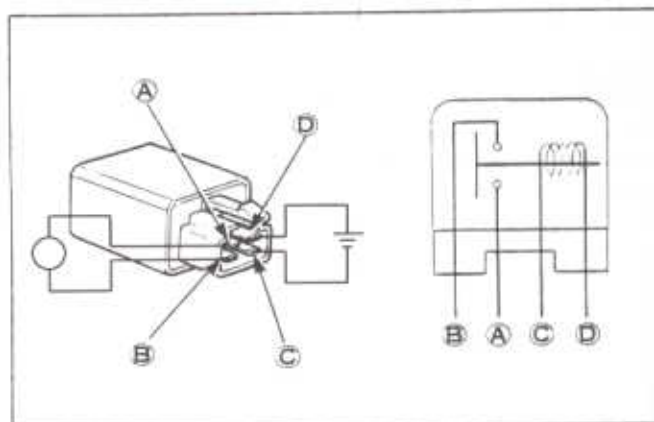
Remove the center cover and the right side cover (Section 11).

Disconnect the starter relay connector and remove the relay.



There should be continuity between the A and B terminals only when the positive probe of a 12 V battery is attached to the D terminal and the negative probe is attached to the C terminal as shown.

Replace the relay if there is no continuity.



STARTER MOTOR

REMOVAL

WARNING

- Perform this operation while the engine and exhaust muffler are COLD.

Remove the center cover (page 11-2).

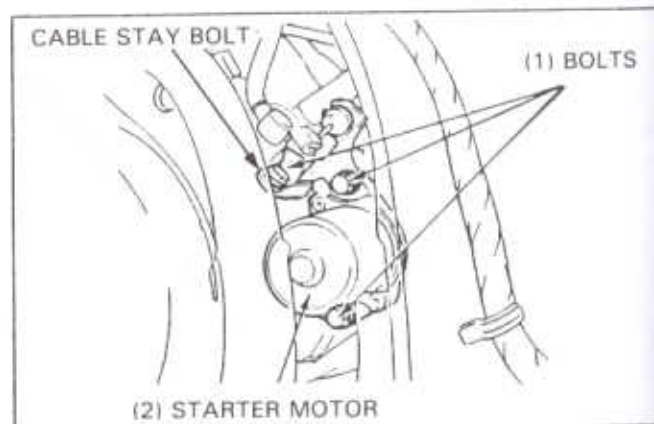
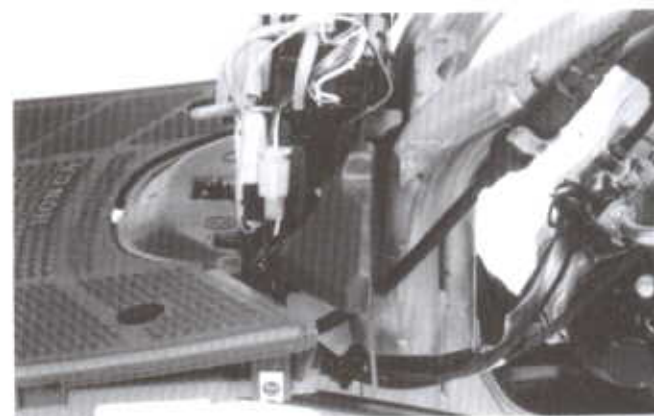
Disconnect the negative cable from the battery.

Remove the center trunk (page 11-5).

Remove the starter wire and the two motor mounting bolts. Loosen the oil pump control cable stay mounting bolt and remove the starter motor.

NOTE

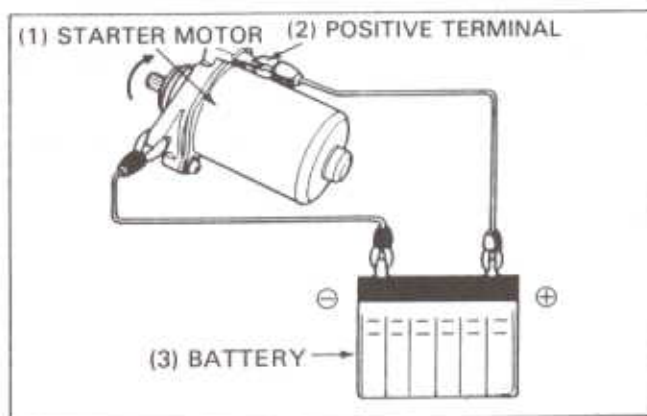
- The ground wire is secured by the lower bolt.



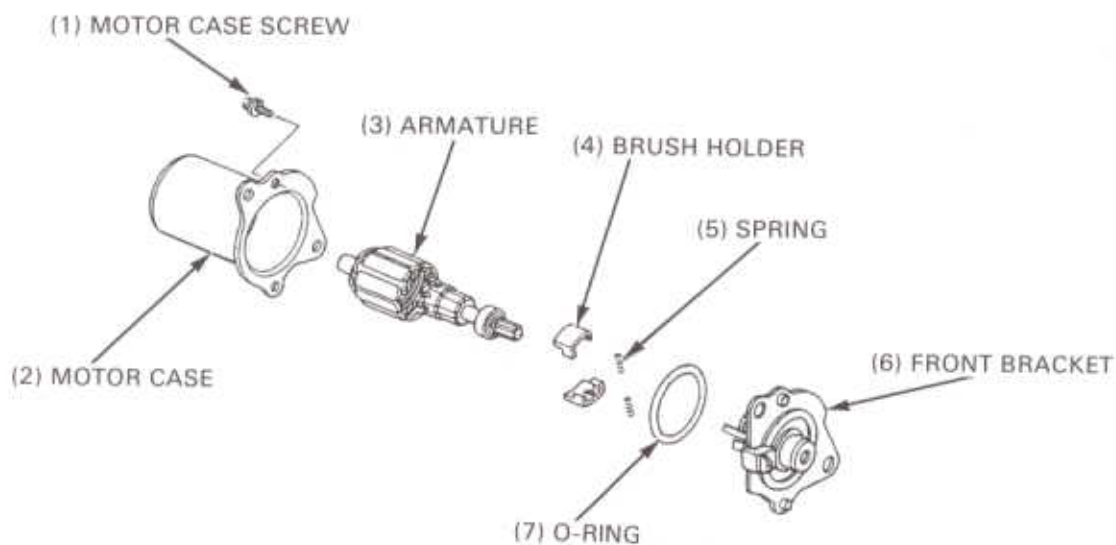
Remove the O-ring from the starter motor.



Connect the battery to the starter motor and check its operation. (Be careful to observe polarity.)
The motor should turn clockwise (viewed from the shaft side).



DISASSEMBLY/ASSEMBLY (After '93 only)



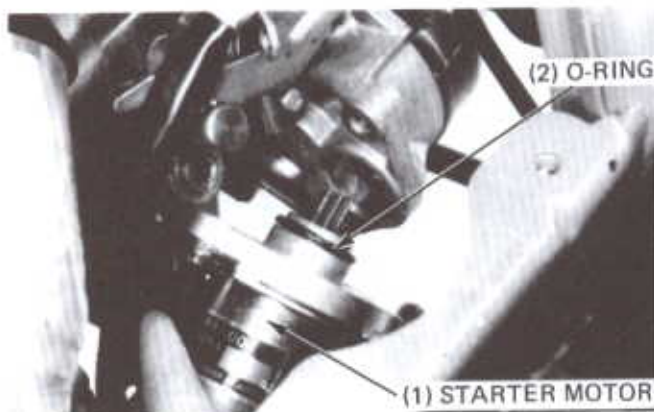
ELECTRIC STARTER

INSTALLATION

Install the O-ring onto the starter motor and apply grease to the O-ring.

Apply molybdenum disulfide grease to the starter motor pinion gear.

Connect the starter wire to the starter motor terminal.

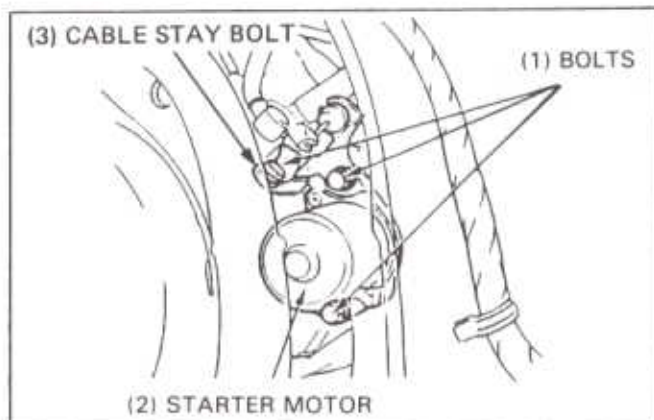


Install the starter motor and tighten the two mounting bolts.

NOTE

- Secure the ground wire with the lower mounting bolt.

Tighten the oil control cable stay mounting bolt.



Install the side cover and the center trunk (Section 11).

17. LIGHT/METER/SWITCHES

SERVICE INFORMATION	17-1	FUEL LEVEL SENSOR	17-4
HANDLEBAR SWITCHES	17-2	HEADLIGHT REPLACEMENT	17-5
HORN	17-3	BULB REPLACEMENT	17-5
OIL LEVEL SENSOR	17-3	INSTRUMENTS	17-6

SERVICE INFORMATION

GENERAL

- Some wires have different colored bands around them near the connector. These are connected to other wires which correspond to the band color.
- All plastic plugs have locking tabs that must be released before disconnecting, and must be aligned when reconnecting.
- The following color codes are used throughout this section and on the wiring diagram.

Bu = Blue	G = Green	O = Orange	W = White
Bl = Black	Gr = Gray	P = Pink	Y = Yellow
Br = Brown	Lg = Light Green	R = Red	Lb = Light Blue
- To isolate an electrical failure, check the continuity of the electrical path through the part. A continuity check can usually be made without removing the part from the motorcycle. Simply disconnect the wires and connect a continuity tester or volt-ohmmeter to the terminals or connections.
- A continuity tester is useful when checking to find out whether or not there is an electrical connection between the two points. An ohmmeter is needed to measure the resistance of a circuit, such as when there is a specific coil resistance involved, or when checking for high resistance caused by corroded connections.

HANDLEBAR SWITCHES

Remove the front cover (page 11-4).

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

IGNITION SWITCH

COLOR	BLACK	BLACK/ WHITE	GREEN	RED
	BAT	IG	E	BA1
LOCK		○—○	○	
OFF		○—○	○	
ON	○			○

DIMMER SWITCH

COLOR	YELLOW	BLUE	WHITE
	HL	Hi	Lo
Lo	○—○		○
(N)	○—○		○
Hi	○—○	○	

TURN SIGNAL SWITCH

COLOR	GREY	LIGHT BLUE	ORANGE
	W	R	L
R	○—○	○	
N			
L	○—○		○

HORN BUTTON

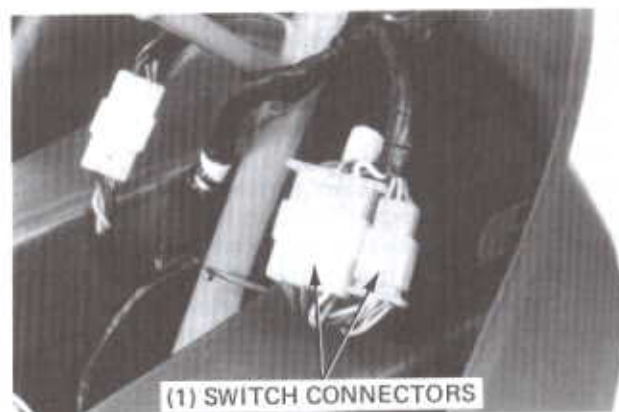
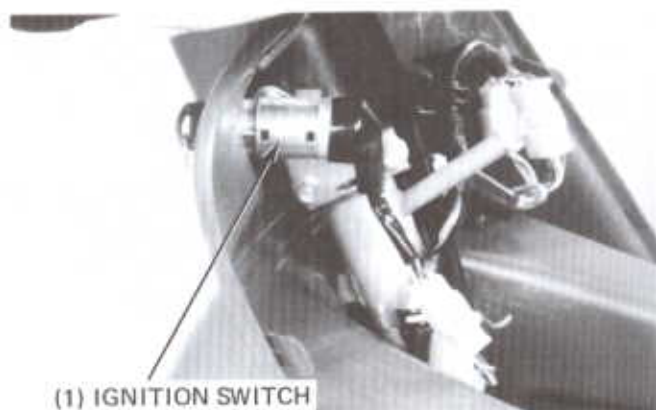
COLOR	LIGHT GREEN	BLACK
	Ho	BAT2
FREE		
PUSH	○—○	○

ENGINE STOP SWITCH

COLOR	BLACK/WHITE	GREEN
	IG	E
OFF	○—○	○
RUN		

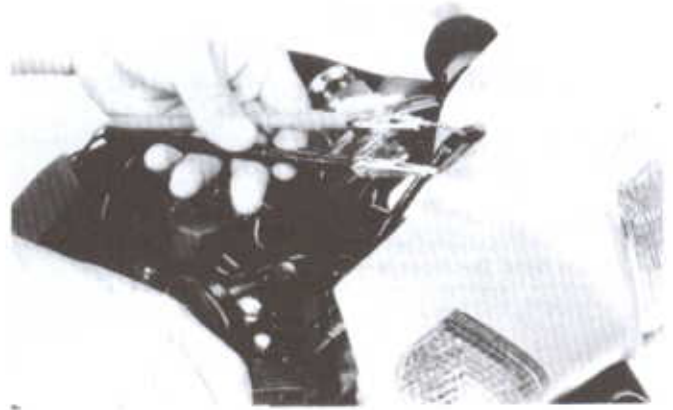
STARTER BUTTON

COLOR	YELLOW/RED	GREEN
	ST	E
FREE		
PUSH	○—○	○



FRONT/REAR BRAKE LIGHT SWITCH

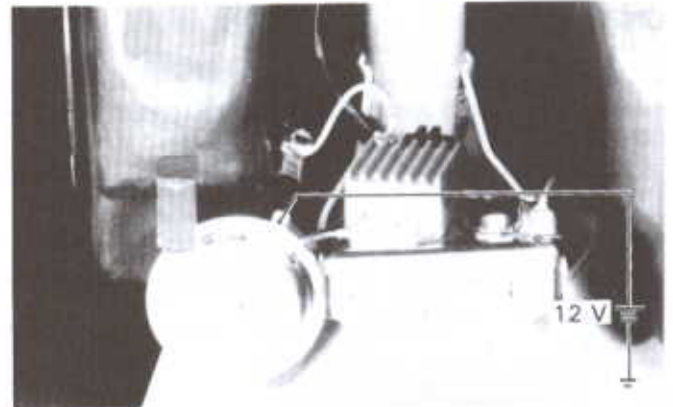
The switch is normal if there is continuity when the brake lever is applied.



HORN

The horn is good if it sounds when 12 V is applied across the terminals.

Replace if necessary.

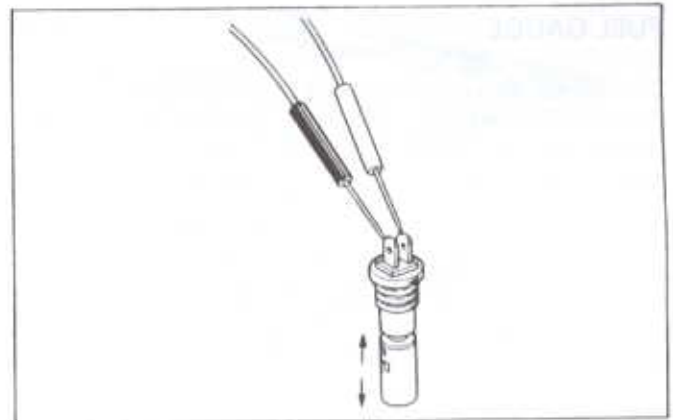


OIL LEVEL SENSOR

Remove the fuel tank (page 4-12).
Disconnect the wires and remove the sensor.

Check the continuity between the terminals with the float in the upper and lower positions.

There should continuity with the float in the lower position and no continuity with the float raised.



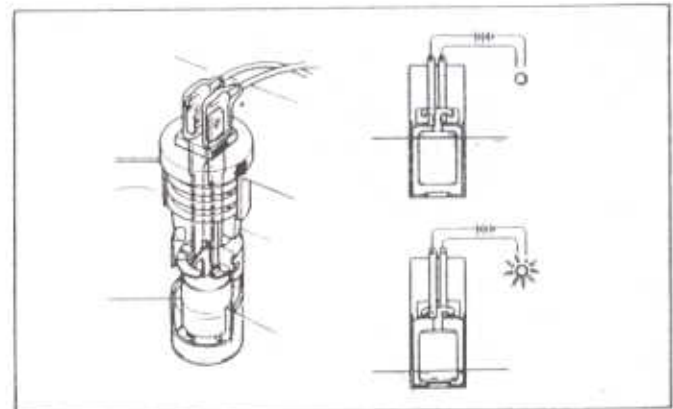
Operate the turn signals to see that the battery circuit is normal, then perform the following inspection:

Connect the sensor wires and turn the ignition switch ON.

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

NOTE

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



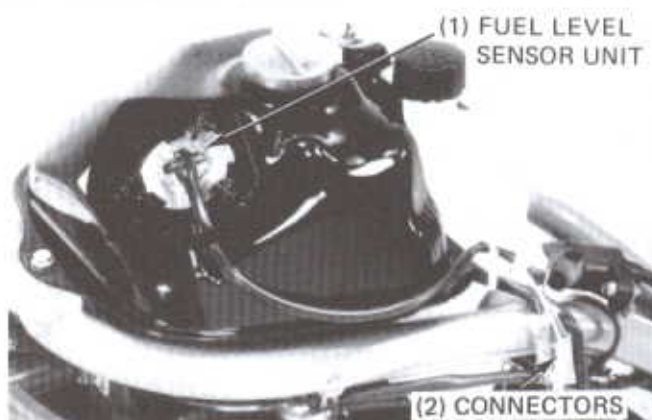
FUEL LEVEL SENSOR

FUEL LEVEL SENSOR REMOVAL/INSTALLATION

Disconnect the connectors and remove the unit from the fuel tank.

CAUTION

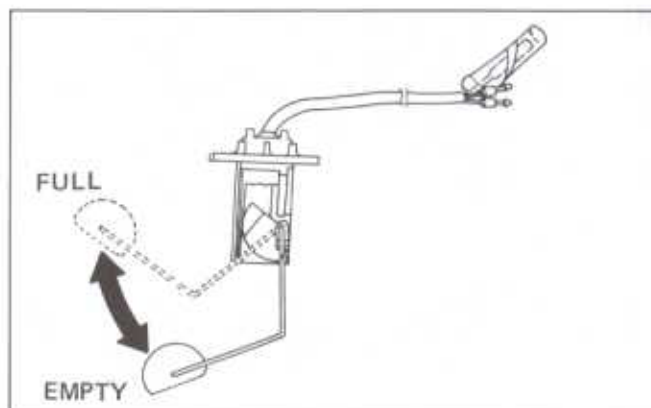
- Do not bend the float arm.



UNIT INSPECTION

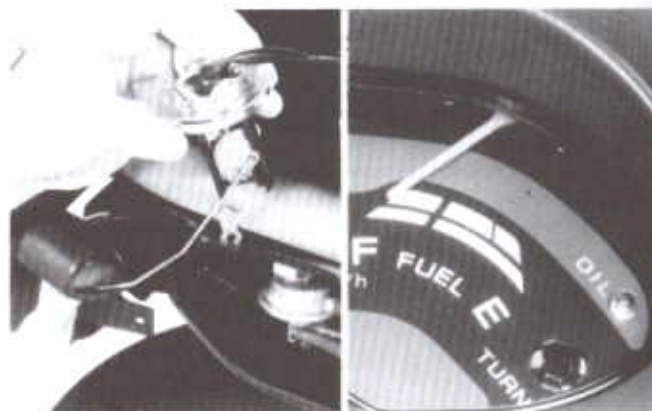
Move the float with your hand and measure the resistances between the terminals with the float at the UPPER (FULL) and LOWER (EMPTY) positions.

	FULL	EMPTY
Green and Yellow/White	30–45 Ω	500–850 Ω
Green and Blue/White	400–700 Ω	100–200 Ω
Yellow/White and Blue/White	450–750 Ω	450–750 Ω

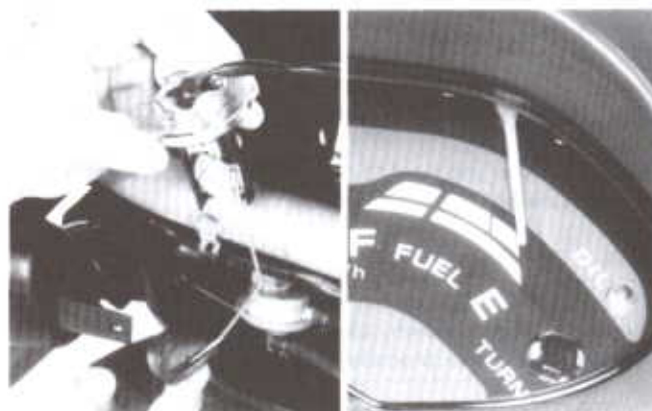


FUEL GAUGE

Connect the wire connectors and turn the ignition switch ON. Before performing the following test, operate the turn signals to determine that the battery circuit is normal. If the signals flash normally, the battery circuit is normal.

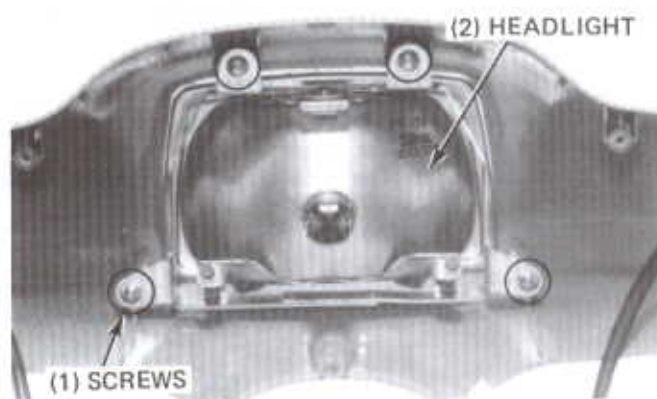


Check that the gauge needle correctly indicates FULL and EMPTY by moving the float up and down.



HEADLIGHT REPLACEMENT

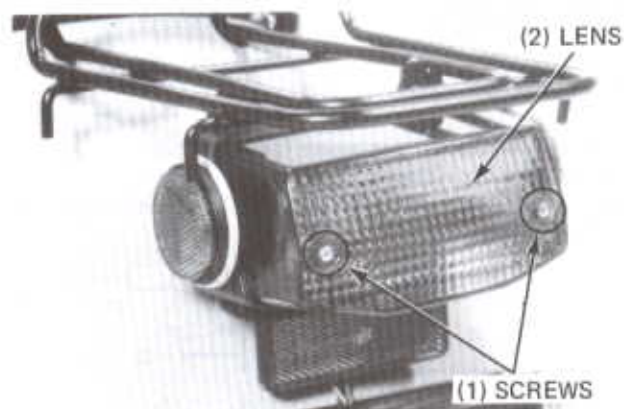
Remove the handlebar rear cover (page 11-5).
Disconnect the headlight coupler.
Remove the headlight by removing the four mounting screws.
Installation is the reverse of removal.



BULB REPLACEMENT

TAIL/BRAKE LIGHT

Remove the two screws and the taillight lens.



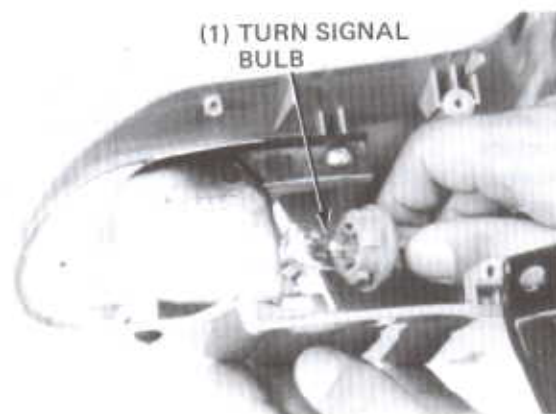
Replace the tail/brake light bulb with a new one.



TURN SIGNAL LIGHT

Remove the screw and the lens.

Replace the turn signal light bulb with a new one.



INSTRUMENT BULB

NOTE

- If the instrument bulbs burn out frequently, check the charging system resistor (page 14-4). A faulty or poorly grounded resistor can be a cause of frequent instrument lamp failure.

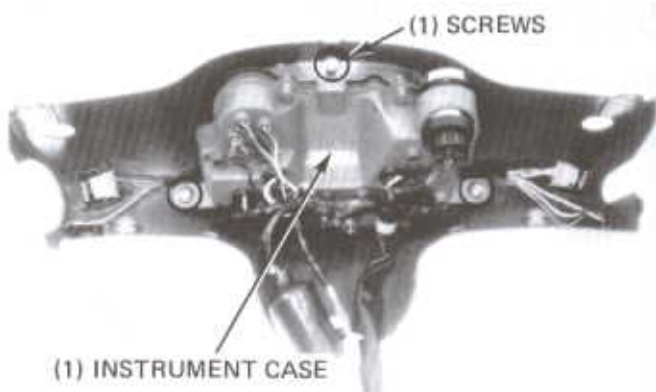
Remove the handlebar rear cover (page 11-5).
Pull out the bulb socket and replace the bulb with a new one.



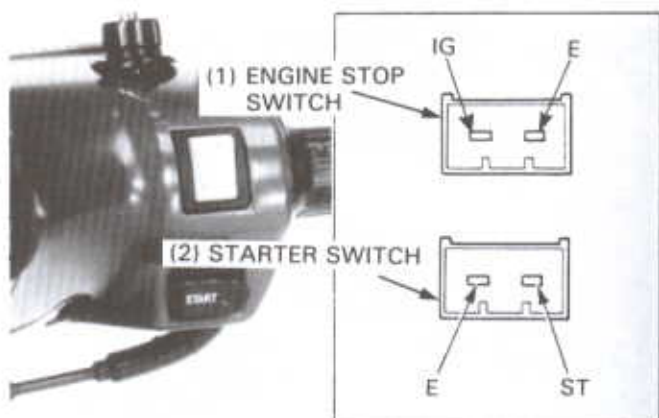
INSTRUMENTS

REMOVAL

Remove the handlebar rear cover (page 11-5).
Disconnect the instrument connectors.
Remove the three screws to separate the instrument case from the rear cover.



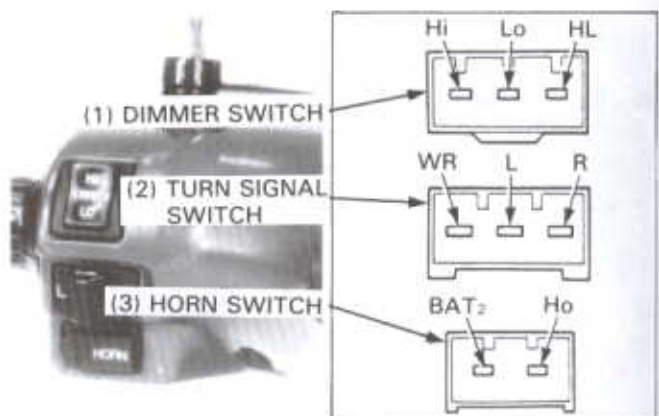
Push each of the switch tabs and remove the switch.

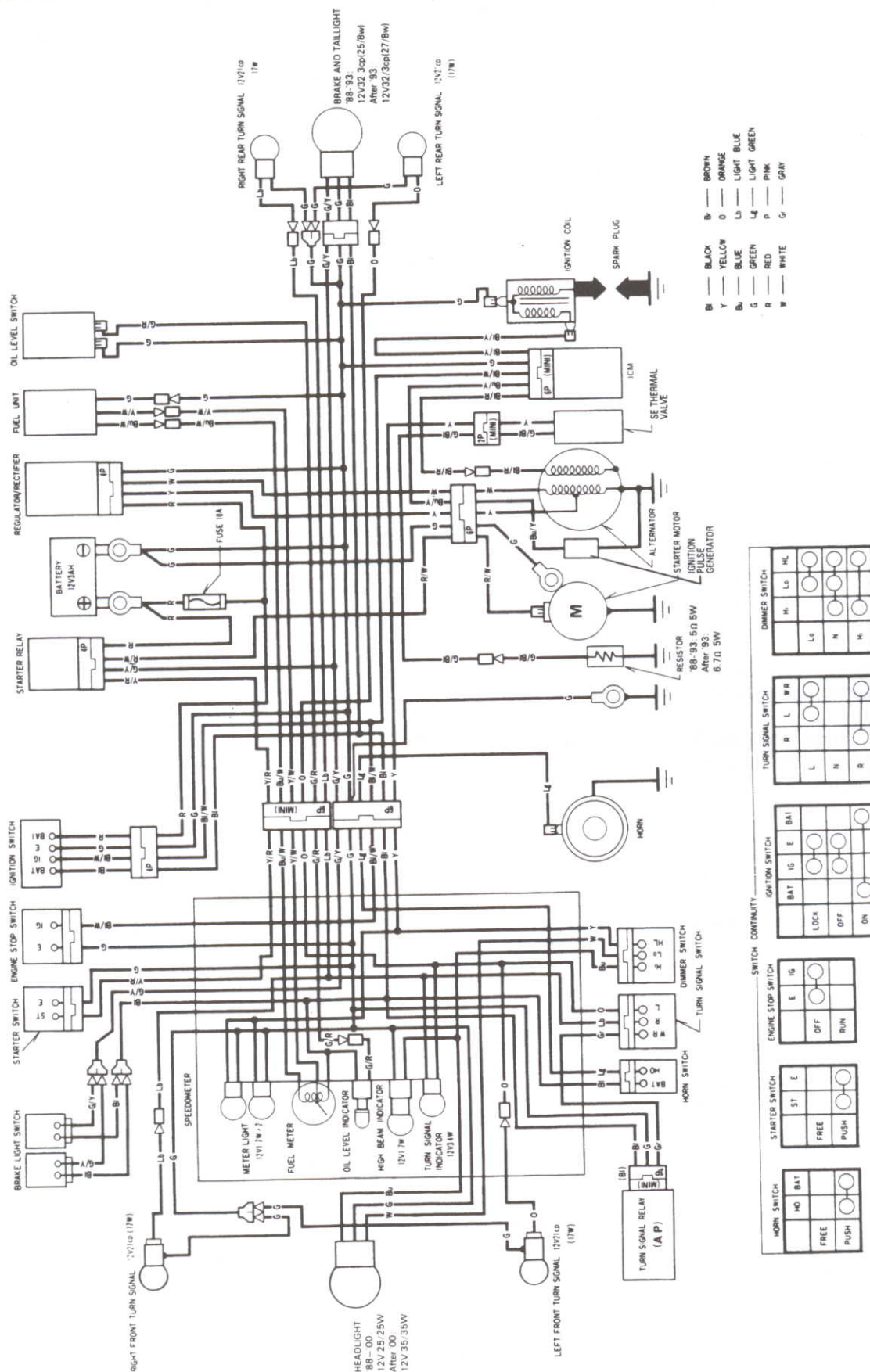


DISASSEMBLY

Remove the three screws and the lens from the case.
Disassemble the instruments by removing the screws and bulb sockets.
Assemble the instruments and the case in the reverse order of removal.

Install the rear handlebar cover.

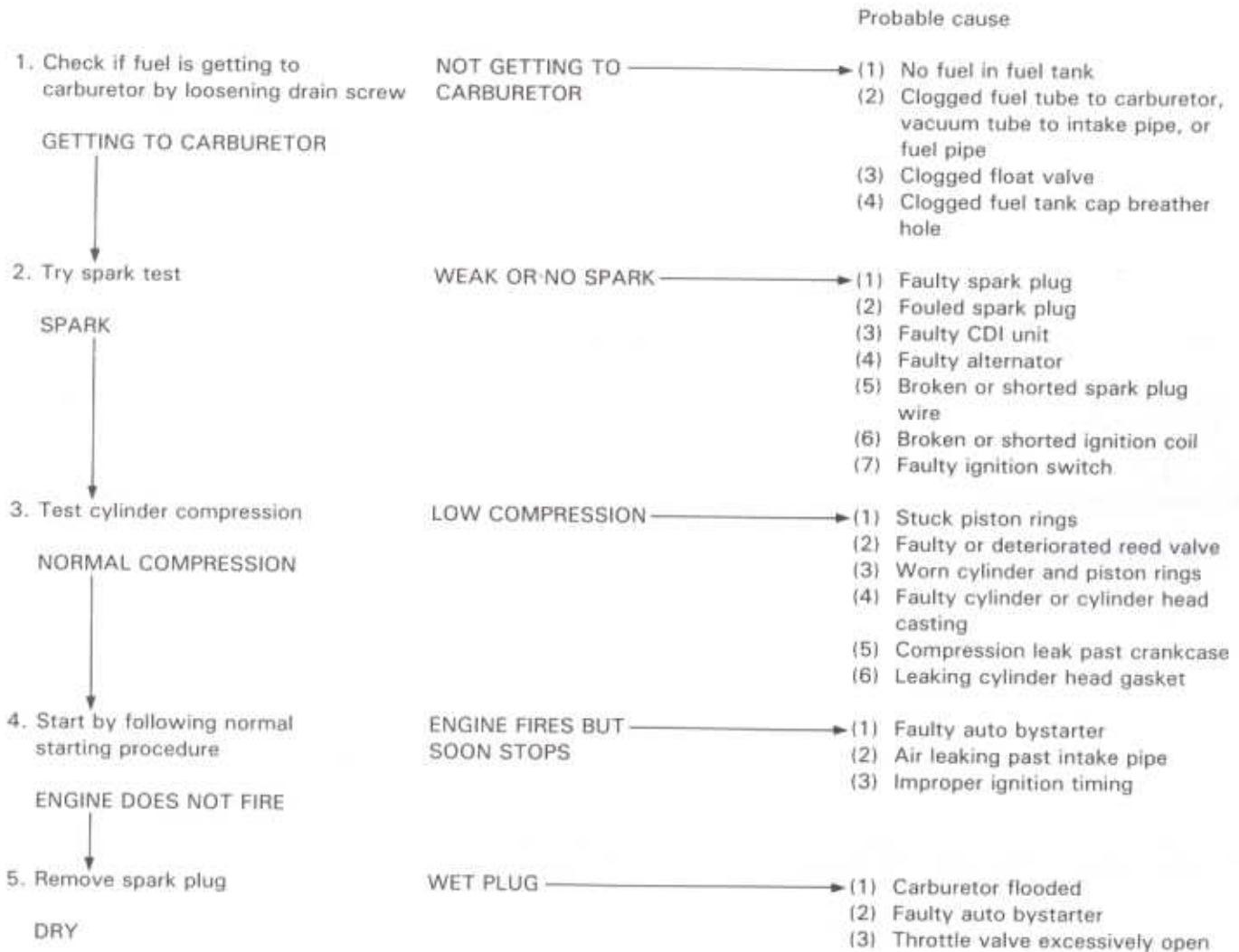




19. TROUBLESHOOTING

ENGINE DOES NOT START OR IS HARD TO START	19-1	CLUTCH AND DRIVE/DRIVEN PULLEYS	19-3
ENGINE LACKS POWER	19-2	POOR HANDLING	19-4
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POOR PERFORMANCE AT HIGH SPEED	19-3	FUEL GAUGE	19-6
		STARTER MOTOR	19-7

ENGINE DOES NOT START OR IS HARD TO START



ENGINE LACKS POWER

1. Lightly accelerate engine

ENGINE SPEED INCREASES



2. Check ignition timing

CORRECT



3. Test cylinder compression

NORMAL



4. Check carburetor for clogging

NOT CLOGGED



5. Remove spark plug

NOT FOULED OR
DISCOLORED



6. Check if engine overheats

NOT OVERHEATED



7. Try rapid acceleration or run at high speed

ENGINE DOES NOT KNOCK

ENGINE SPEED DOES NOT
INCREASE SUFFICIENTLY

Probable cause

- (1) Clogged air cleaner
- (2) Restricted fuel flow
- (3) Clogged fuel tank cap breather hole
- (4) Clogged muffler

INCORRECT

- (1) Faulty CDI unit
- (2) Faulty alternator

TOO LOW

- (1) Worn cylinder or piston rings
- (2) Blown cylinder head gasket
- (3) Flaws in cylinder or cylinder head
- (4) Faulty or deteriorated reed valve

CLOGGED

- Carburetor not serviced frequently enough

FOULED OR DISCOLORED

- (1) Plug not serviced frequently enough
- (2) Use of plug with improper heat range

OVERHEATED

- (1) Worn cylinder or piston
- (2) Fuel-air mixture too lean
- (3) Use of improper grade of fuel
- (4) Excessive carbon build-up in combustion chamber
- (5) Ignition timing too advanced

ENGINE KNOCKS

- (1) Excessive carbon build-up in combustion chamber
- (2) Use of improper grade of fuel
- (3) Clutch slipping
- (4) Fuel-air mixture too lean

POOR PERFORMANCE AT LOW AND IDLE SPEEDS

1. Check ignition timing

CORRECT



2. Check carburetor air screw for proper adjustment

CORRECT



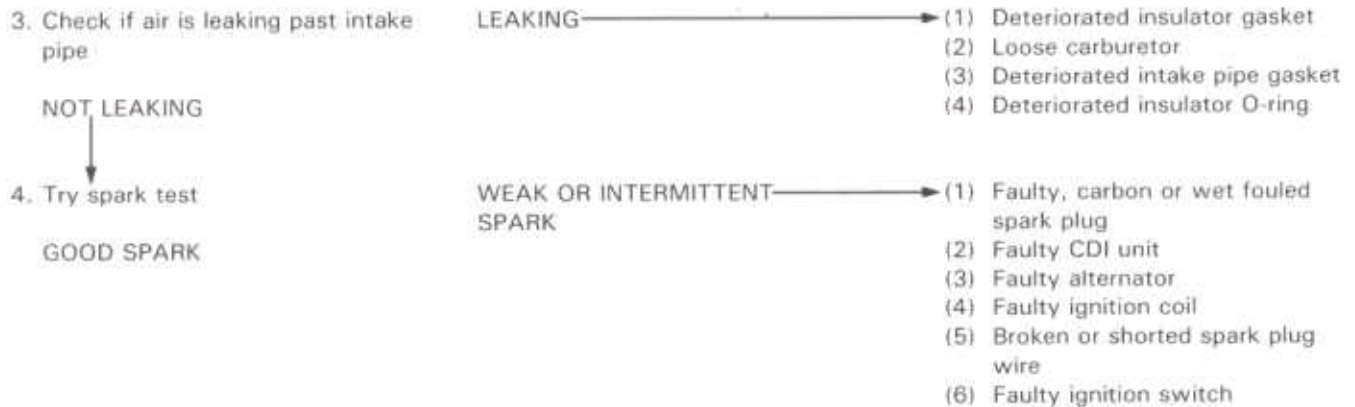
INCORRECT

Probable cause

- (1) Faulty CDI unit
- (2) Faulty alternator

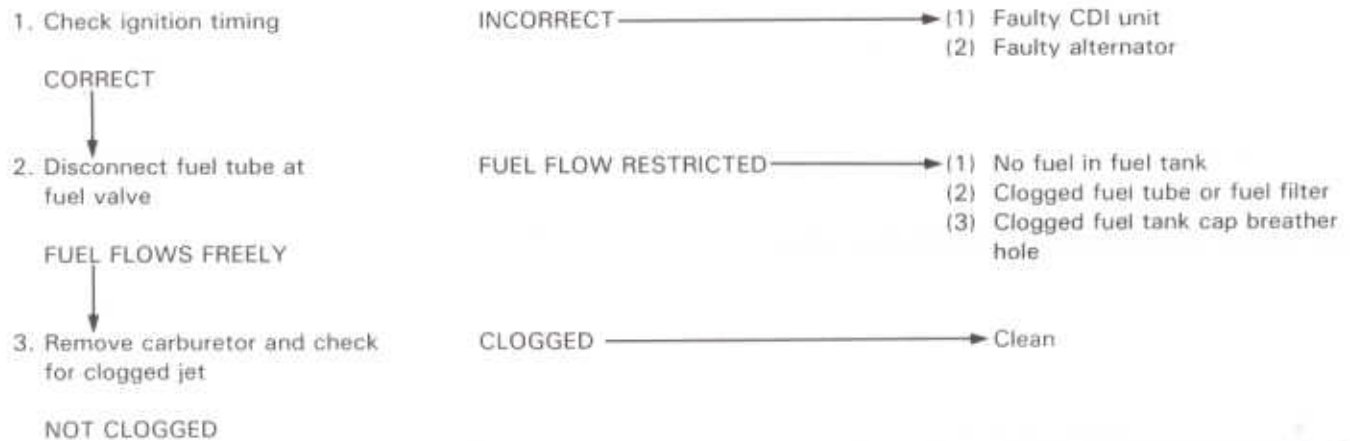
INCORRECT

- (1) Fuel air mixture too rich (Screw out to correct)
- (2) Fuel air mixture too lean (Screw in to correct)
- (3) Faulty auto bystarter



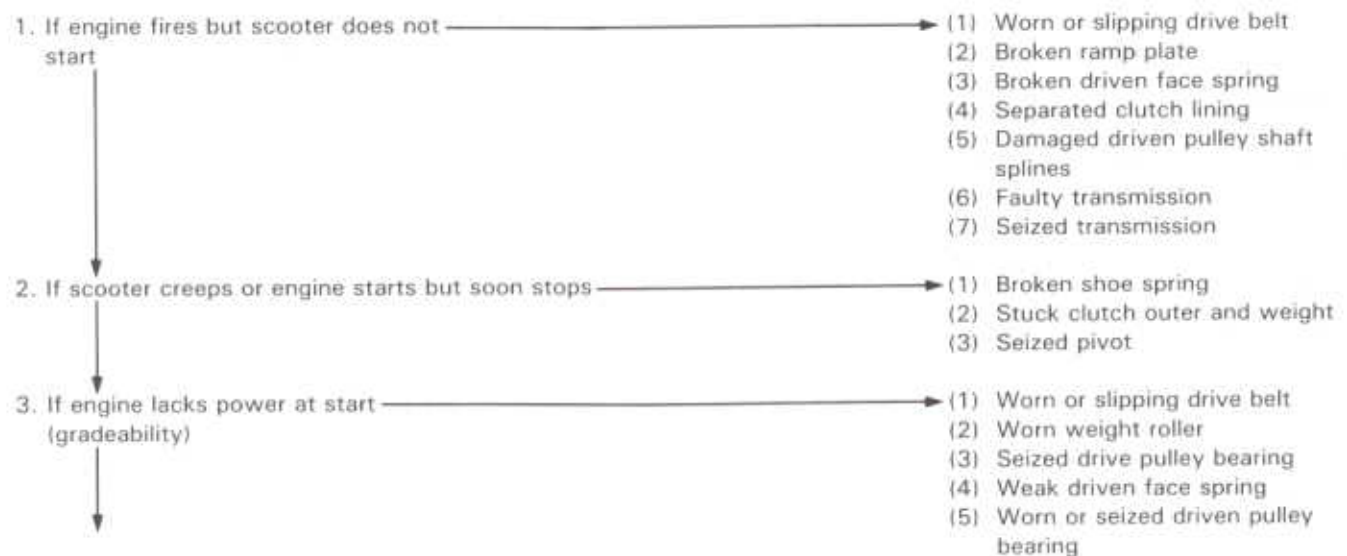
POOR PERFORMANCE AT HIGH SPEED

Probable cause



CLUTCH AND DRIVE/DRIVEN PULLEYS

Probable cause



TROUBLESHOOTING

4. If engine lacks power at high speed —————> (1) Worn or slipping drive belt
(2) Worn weight roller
(3) Worn driven pulley bearing
- ↓
5. If there is an abnormal noise or smell —————> (1) Oil or greasy substances on drive belt/pulley
(2) Worn drive belt
(3) Weak driven face spring
(4) Worn or seized driven pulley bearing

POOR HANDLING

LOSS OF CONTROL ————— Check tire pressure

Probable cause

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

POOR FRONT/REAR SUSPENSION PERFORMANCE

Probable cause

1. If suspension is too soft —————> (1) Weak spring
(2) Excessive load
- ↓
2. If suspension is too hard —————> Bent fork or shock rod
- ↓
3. If suspension is noisy —————> (1) Slider binding
(2) Shock spring binding
(3) Damaged shock stop rubber
(4) Loose steering stem nut

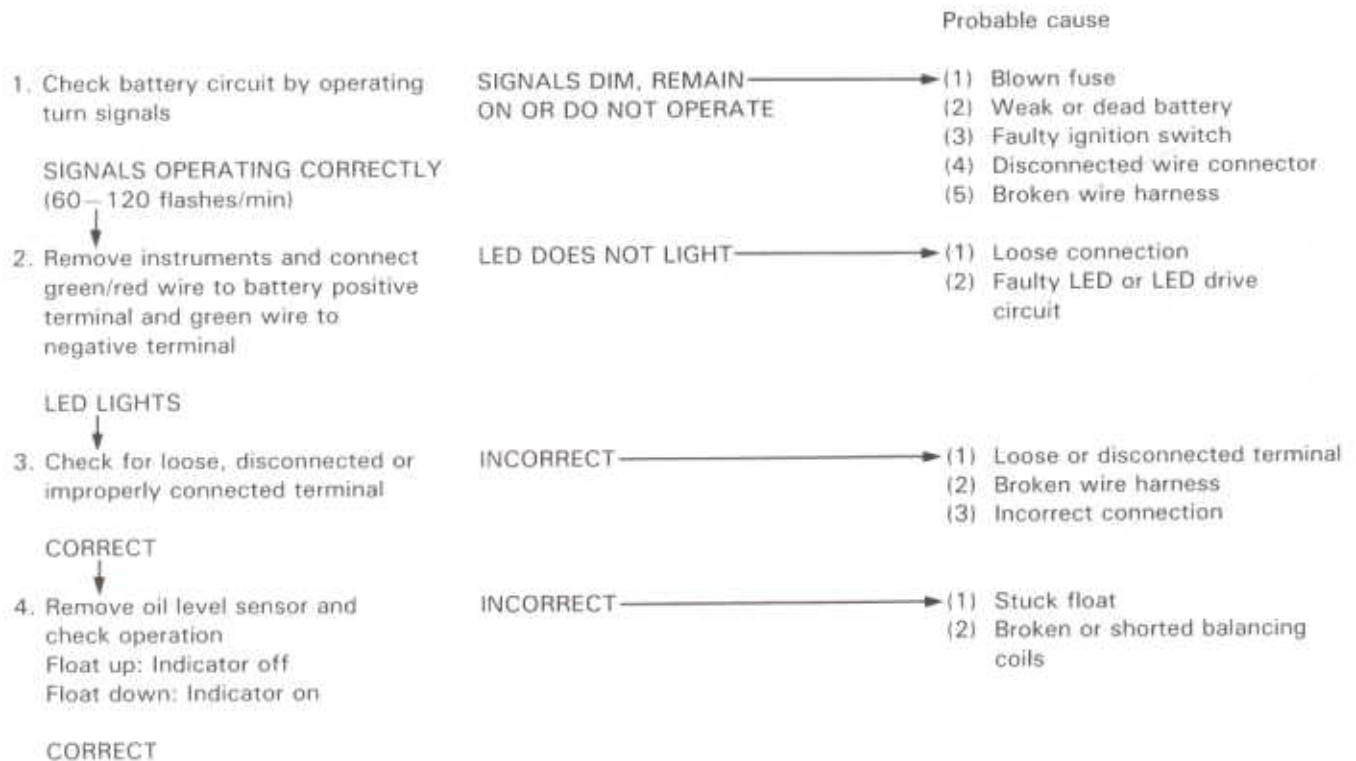
POOR BRAKE PERFORMANCE

Probable cause

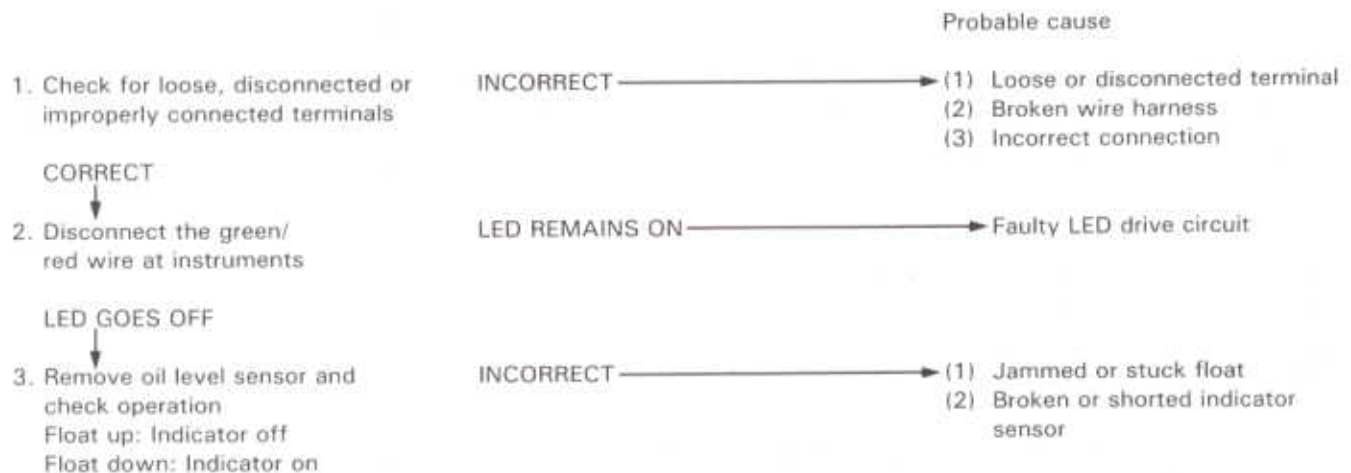
1. If wear indicator arrow aligns with index mark on brake panel —————> (1) Worn brake shoes
(2) Worn brake cam
(3) Worn cam contacting face of shoe
(4) Worn brake drum
- ↓
2. If either brake is squealing —————> (1) Worn brake shoes
(2) Foreign matter on brake lining
(3) Rough brake drum shoe contact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

OIL LEVEL SENSOR

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

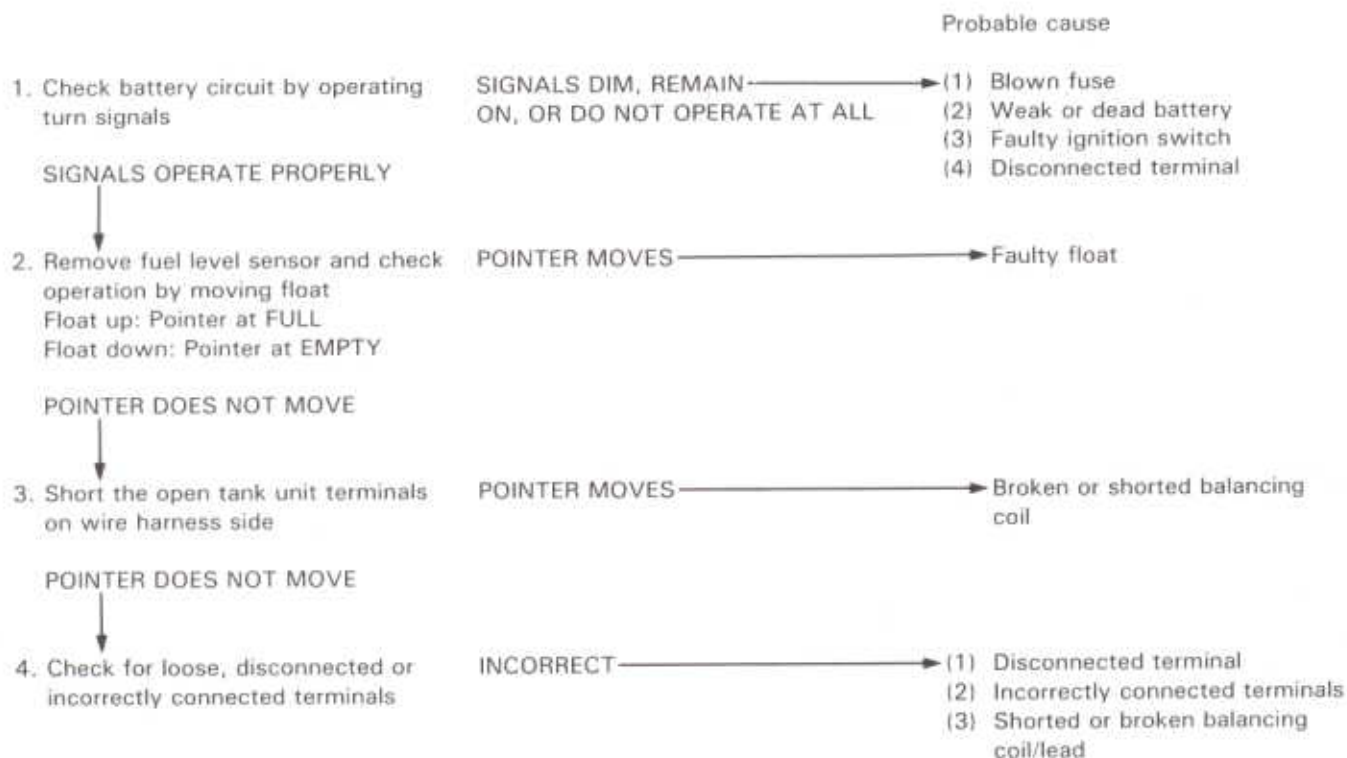


INDICATOR LAMP REMAINS ON WITH SUFFICIENT OIL IN OIL TANK (IGNITION SWITCH ON)

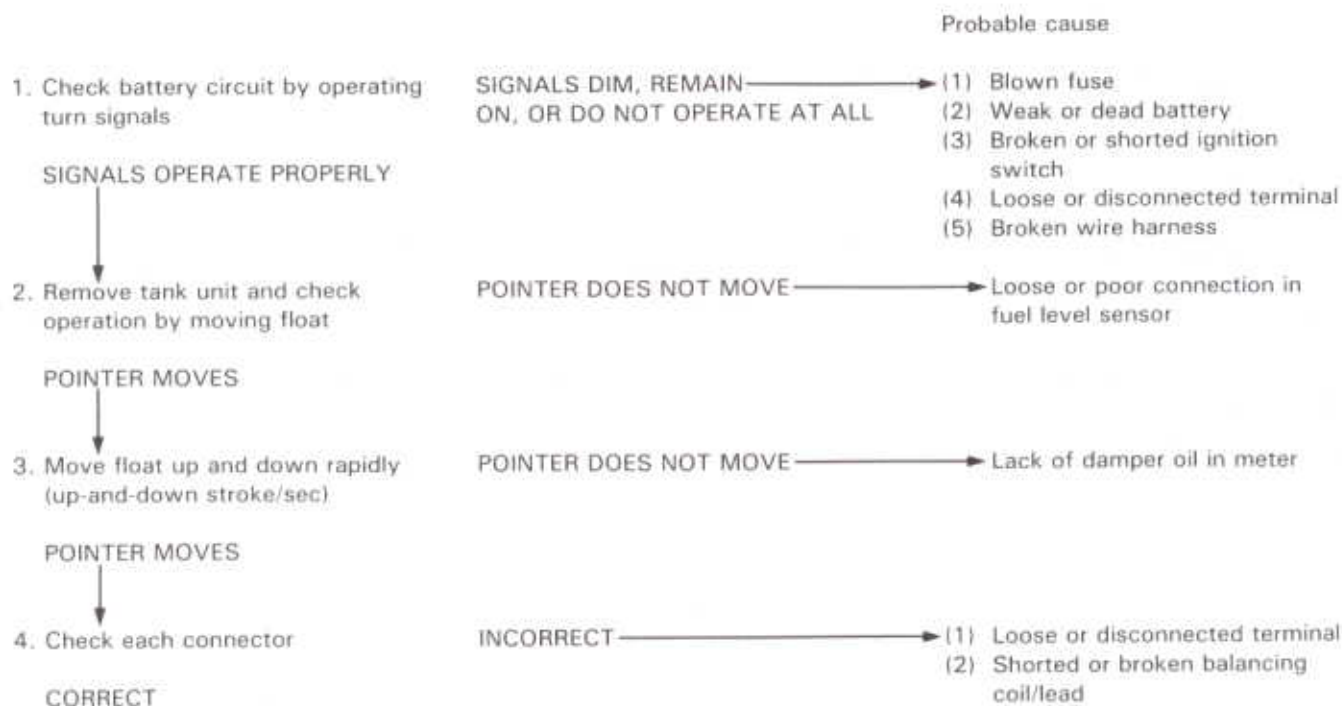


FUEL GAUGE

POINTER DOES NOT REGISTER CORRECTLY (IGNITION SWITCH ON)

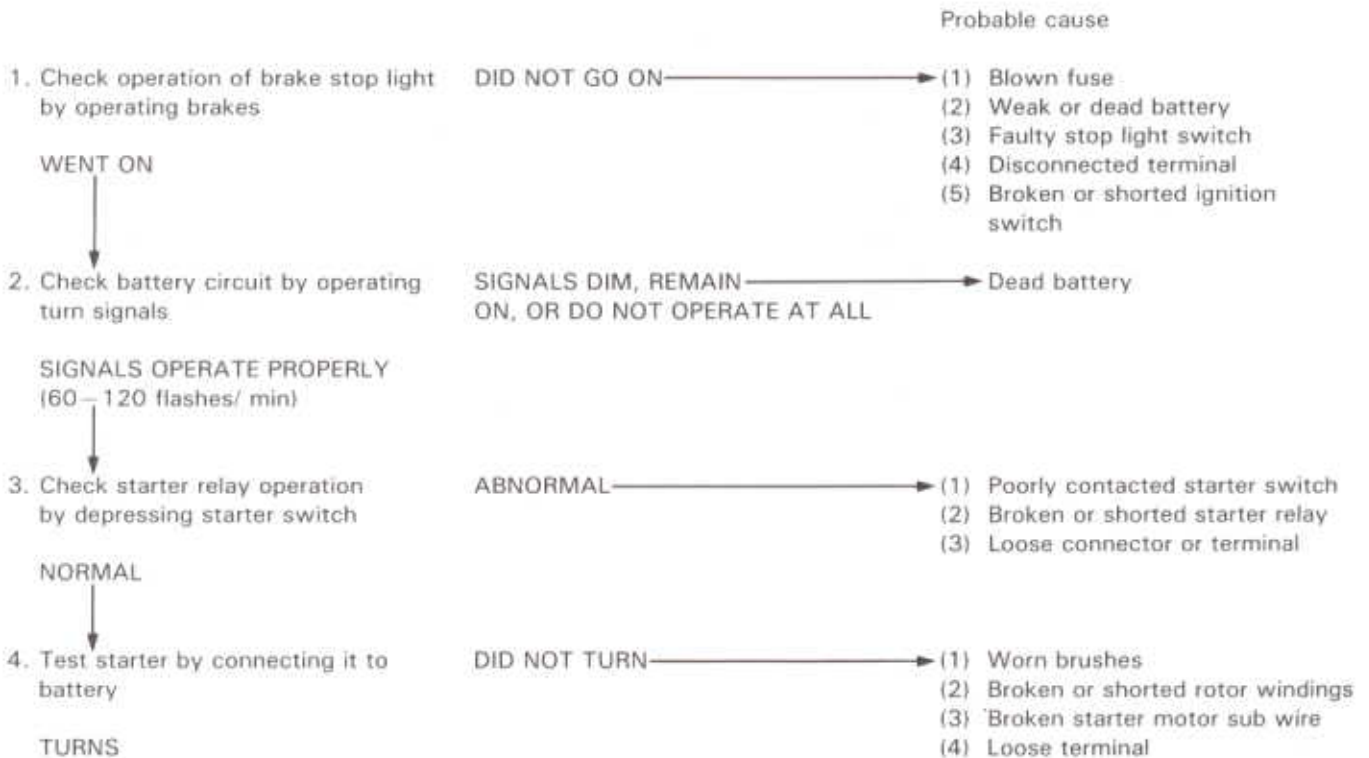


POINTER FLUCTUATES OR SWINGS VIOLENTLY (IGNITION SWITCH ON)

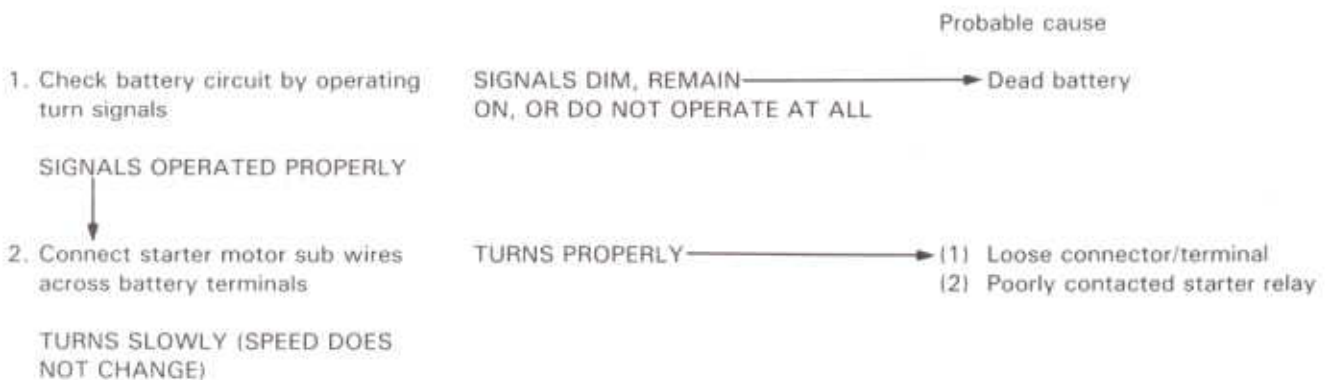


STARTER MOTOR

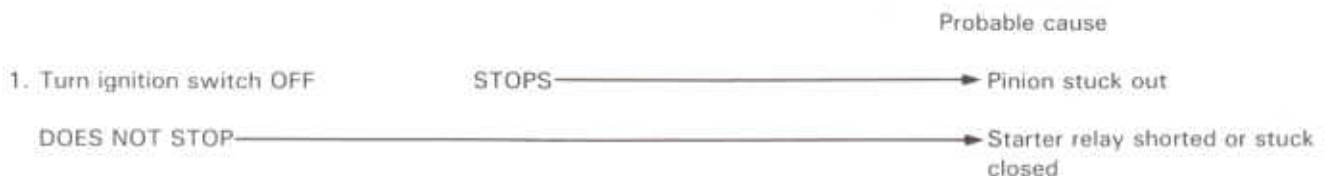
STARTER MOTOR DOES NOT TURN



STARTER MOTOR TURNS SLUGGISHLY OR FAILS TO CRANK ENGINE



STARTER WON'T STOP



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