

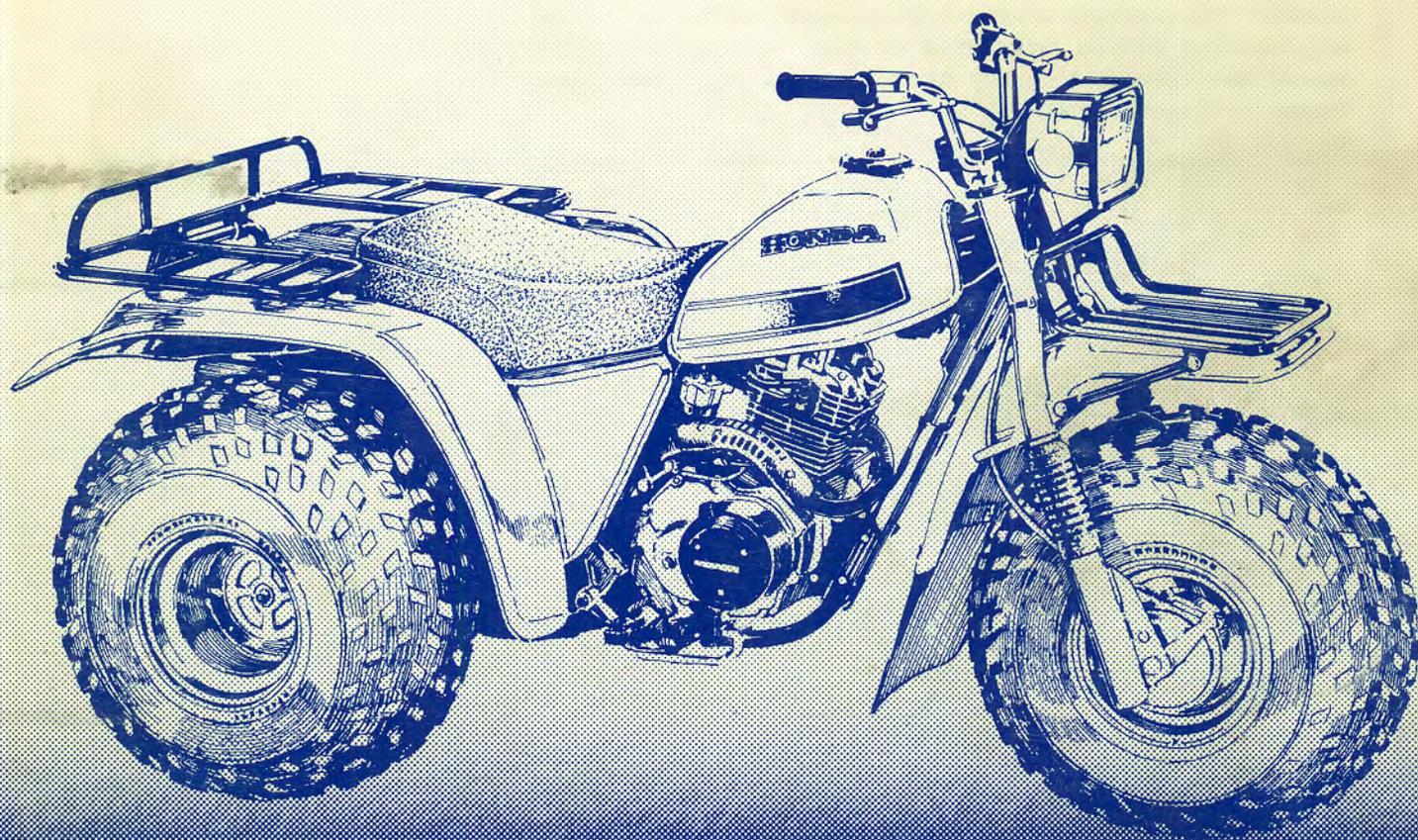
Official

HONDA

SHOP MANUAL

ATC BIG RED

ATC 200E



'82 ~ '83

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HOW TO USE THI MANUAL

Sections 1 through 3 apply to the whole motorcycle, while sections 4 through 18 describe parts of the motorcycle, grouped according to location.

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

Most sections start with an assembly or system illustration and all the required specifications, torque values, general instructions, tools and troubleshooting for the section. The subsequent pages give detailed procedures.

If you don't know the source of the trouble, see section 19 TROUBLESHOOTING.

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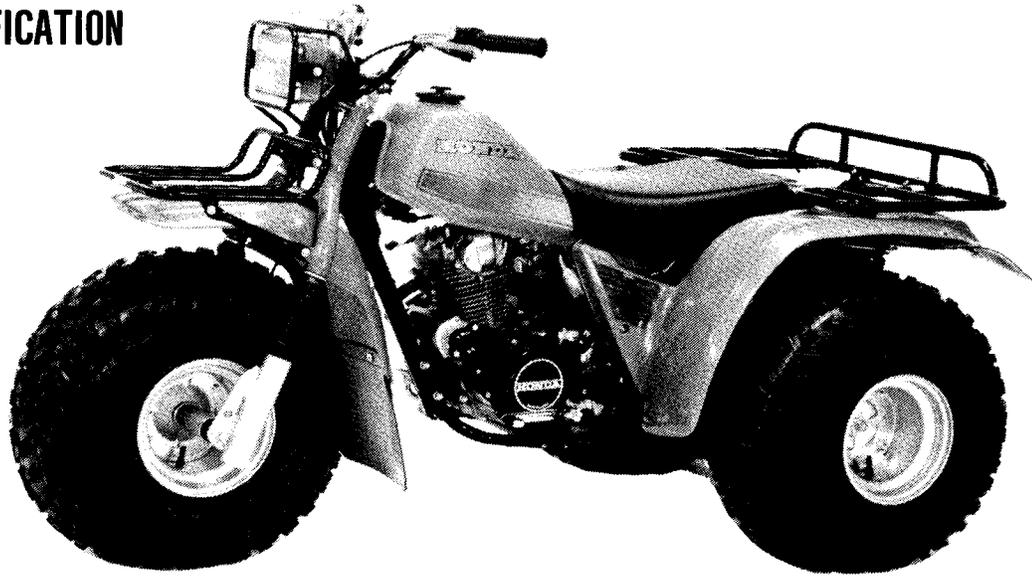
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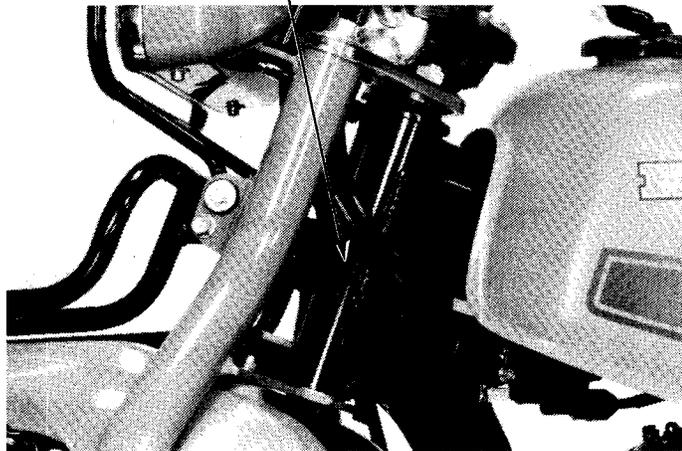
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MODEL IDENTIFICATION

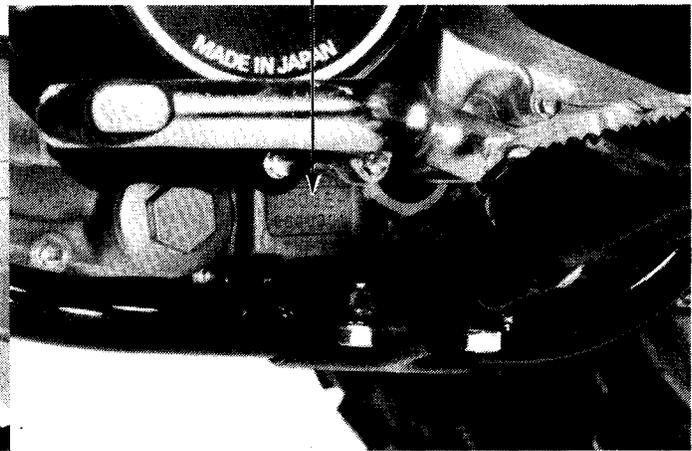


FRAME SERIAL NUMBER



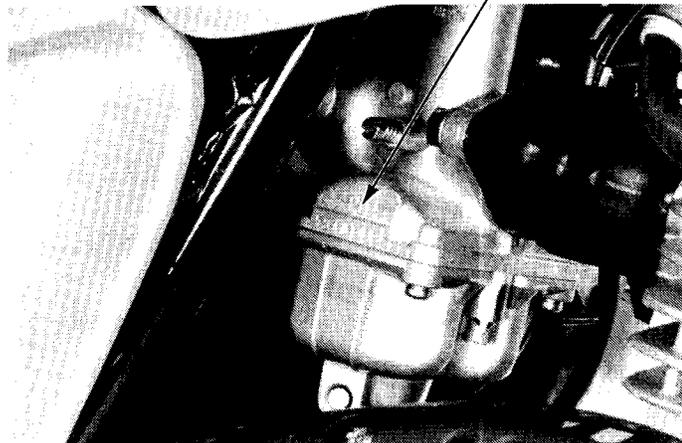
The frame serial number is stamped on the steering head left side.

ENGINE SERIAL NUMBER



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

CARBURETOR IDENTIFICATION NUMBER



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



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

WARNING

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

SERVICE RULES

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



<p>DRIVE TRAIN</p>	<p>Clutch Transmission Primary reduction Gear ratio I (Posi-torque gear ratio) II III IV V Final reduction Gearshift pattern Drive chain</p>	<p>Wet multi-plate, semi-automatic 5-speed constant mesh 3.333 : 1 2.769 : 1 (3.821) 1.722 : 1 (2.374) 1.273 : 1 (1.757) 1.000 : 1 (1.380) 0.815 : 1 (1.125) 4.273 : 1 Left foot operated return system,N-1-2-3-4-5 520, 90 Links</p>
<p>ELECTRICAL</p>	<p>Ignition Ignition timing Initial Full advance Capacity Alternator Battery Spark plug Spark plug gap Headlight Tail</p>	<p>CDI 10° ±2 BTDC at idle 30° ±2 BTDC at 3,350 rpm 70W/5,000 rpm 12V-14 AH DR8ES-L (NGK) X24ESR-U (ND) 0.6-0.7 mm (0.024-0.028 in) 12V 45W/45W 12V 5W</p>



TORQUE VALUES

ENGINE

Item	Q'ty	Thread Size (mm)	Torque		
			N·m	kg-m	ft-lb
Cylinder head bolts	4	8×1.25	28-30	2.8-3.0	20-22
Clutch lock nut	1	16×1.0	50-60	5.0-6.0	36-43
Centrifugal clutch lock nut	1	22×1.25	105-115	10.5-11.5	76-83
Clutch adjuster lock nut	1	8×1.25	19-25	1.9-2.5	14-18
Alternator fly wheel nut	1	8×1.25	40-50	4.0-5.0	29-36
Valve adjuster cover	2	36×1.5	10-14	1.0-1.4	7-10
Oil filler cap	1	36×1.5	9-15	0.9-1.5	7-11
Spark plug	1	12×1.25	12-19	1.2-1.9	9-14
Cam sprocket bolts	2	6×1.0	8-12	0.8-1.2	6-9
Oil filter rotor cover bolts	3	6×1.0	10-14	1.0-1.4	7-10
Clutch lifter stopper bolt	1	8×1.25	18-25	1.8-2.5	13-18
Gearshift drum stopper arm bolt	1	6×1.0	10-14	1.0-1.4	7-10
Pulse generator screws	2	5×0.8	4-7	0.4-0.7	2.9-5.1
Pulse cover screws	2	5×0.8	4-7	0.4-0.7	2.9-5.1
Valve adjuster lock nuts	2	6×0.75	15-18	1.5-1.8	11-13
Gearshift stopper plate bolts	1	6×1.0	8-12	0.8-1.2	6-9
Clutch bolts	4	6×1.0	10-14	1.0-1.4	7-10
Recoil starter driven pulley	3	6×1.0	8-12	0.8-1.2	6-9
Cam chain tensioner adjuster bolt	1	16×1.0	15-22	1.5-2.2	11-16
Cam chain tensioner check bolt	1	6×1.0	8-10	0.8-1.0	6-7
Decompressor lever pivot bolt	1	6×1.0	5-7	0.5-0.7	3.6-5.1
Right crankcase protector screws	3	Self tapping screw	3-7	0.3-0.7	2.2-5.1

FRAME

Item	Q'ty	Thread Size (mm)	Torque		
			N·m	kg-m	ft-lb
Handlebar upper holder bolt	4	6×1.0	8-12	0.8-1.2	6-9
Handlebar lower holder nut	2	10×1.25	40-48	4.0-4.8	29-35
Fork top bridge bolt	2	12×1.25	50-70	5.0-7.0	36-51
Steering stem nut	1	22×1.0	50-70	5.0-7.0	36-51
Front axle nut	1	14×1.5	60-80	6.0-8.0	43-58
Front hub nut	4	8×1.25	20-25	2.0-2.5	14-18
Front brake drum bolt	3	8×1.25	20-25	2.0-2.5	14-18
Damper holder nut	5	8×1.25	21-27	2.1-2.7	15-20
Rear brake drum nut (INNER)	1	32×1.0	35-45	3.5-4.5	25-33
(OUTER)			120-140	12-14	87-101
Rear hub nut	8	8×1.25	20-25	2.0-2.5	14-18
Rear axle nut	2	14×1.5	60-80	6.0-8.0	43-58
Bearing holder bolt	4	12×1.25	50-70	5.0-7.0	36-51
Front fork mounting bolts	2	10×1.25	30-40	3.0-4.0	22-29



Item	Q'ty	Thread Size (mm)	Torque		
			N·m	kg·m	ft·lb
Front engine hanger nut	2	10×1.25	40-48	4.0-4.8	29-35
Front engine hanger nut	2	8×1.25	23-27	2.3-2.7	17-20
Rear engine hanger nut upper	1	10×1.25	40-48	4.0-4.8	29-35
Upper engine hanger nut	1	8×1.25	20-25	2.0-2.5	14-18
Carburetor nut	2	6×1.0	6-9	0.6-0.9	4.3-6.5
Gearshift pedal	1	6×1.0	8-12	0.8-1.2	5.7-8.7
Foot peg bolt	8	8×1.25	20-25	2.0-2.5	14-18
Engine mount upper plate	3	10×1.25	40-48	4.0-4.8	29-35
Engine mount lower plate	1	10×1.25	45-53	4.5-5.3	33-38
Drive chain slider nuts	2	6×1.0	6-9	0.6-0.9	4.3-6.6

Torque specifications listed above are for the most important tightening points. If a torque specification is not listed, follow the standards given below.

STANDARD TORQUE VALUES

Item	Torque N·m (kg·m,ft·lb)	Item	Torque N·m (kg·m,ft·lb)
5 mm bolt,nut	4.5-6 (0.45-0.6,3.3-4.3)	5 mm screw	3.5-5 (0.35-0.5,2.5-3.6)
6 mm bolt,nut	8-12 (0.8-1.2,5.8-8.7)	6 mm screw	7-11 (0.7-1.1, 5-8)
8 mm bolt,nut	18-25 (1.8-2.5, 13-18)	6 mm flange bolt,nut	10-14 (1.0-1.4,7.2-10)
10 mm bolt,nut	30-40 (3.0-4.0, 22-29)	8 mm flange bolt,nut	24-30 (2.4-3.0, 17-22)
12 mm bolt,nut	50-60 (5.0-6.0, 36-43)	10mm flange bolt,nut	30-40 (3.0-4.0, 22-29)



TOOLS

SPECIAL

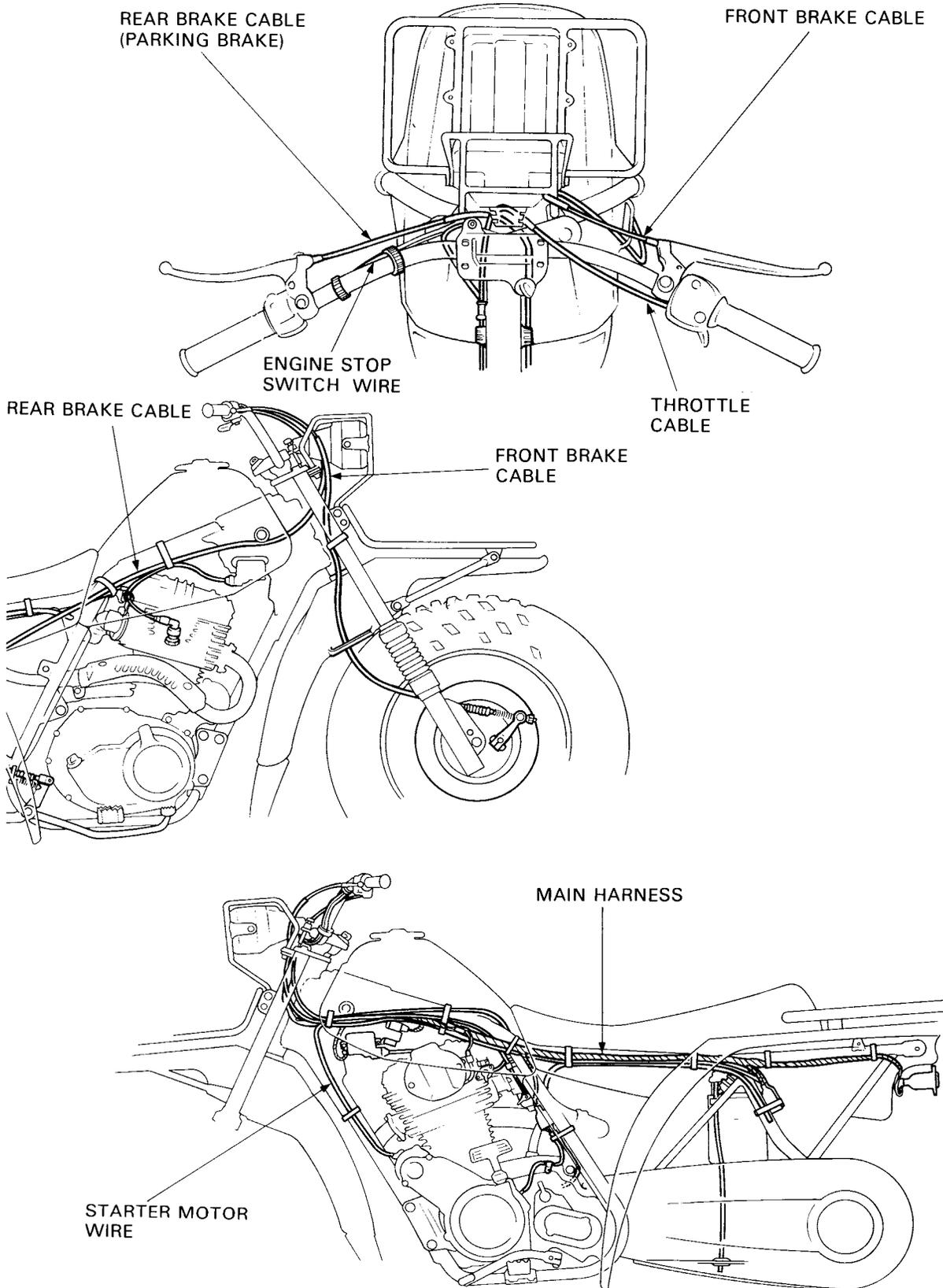
Description	Tool No.	Interchangeability
Valve guide reamer 5.48mm	07984-0980000	
Flywheel holder	07925-9580001	Not available in U.S.A.
Clutch center holder	07923-9580000	Not available in U.S.A.
30 mm lock nut wrench	07907-6890100	Equivalent Commercially Available in U.S.A.
Ball race remover	07944-1150001	M9360-277-91774 (U.S.A.)
Tire disassembling Tool	07772-0010000	} M987X-350-XXX (Available in U.S.A. only)
Lever	07772-0010100	
Weight	07772-0010200	} Not available in U.S.A.
Lock nut 41 mm spanner	07916-9580100	
Lock nut 41 mm wrench	07916-9580200	
Left crank holder	07925-9580100	Primary shaft holder 07902-4220000
Digital Multi-tester	KS-AHM-32-003	U.S.A. only

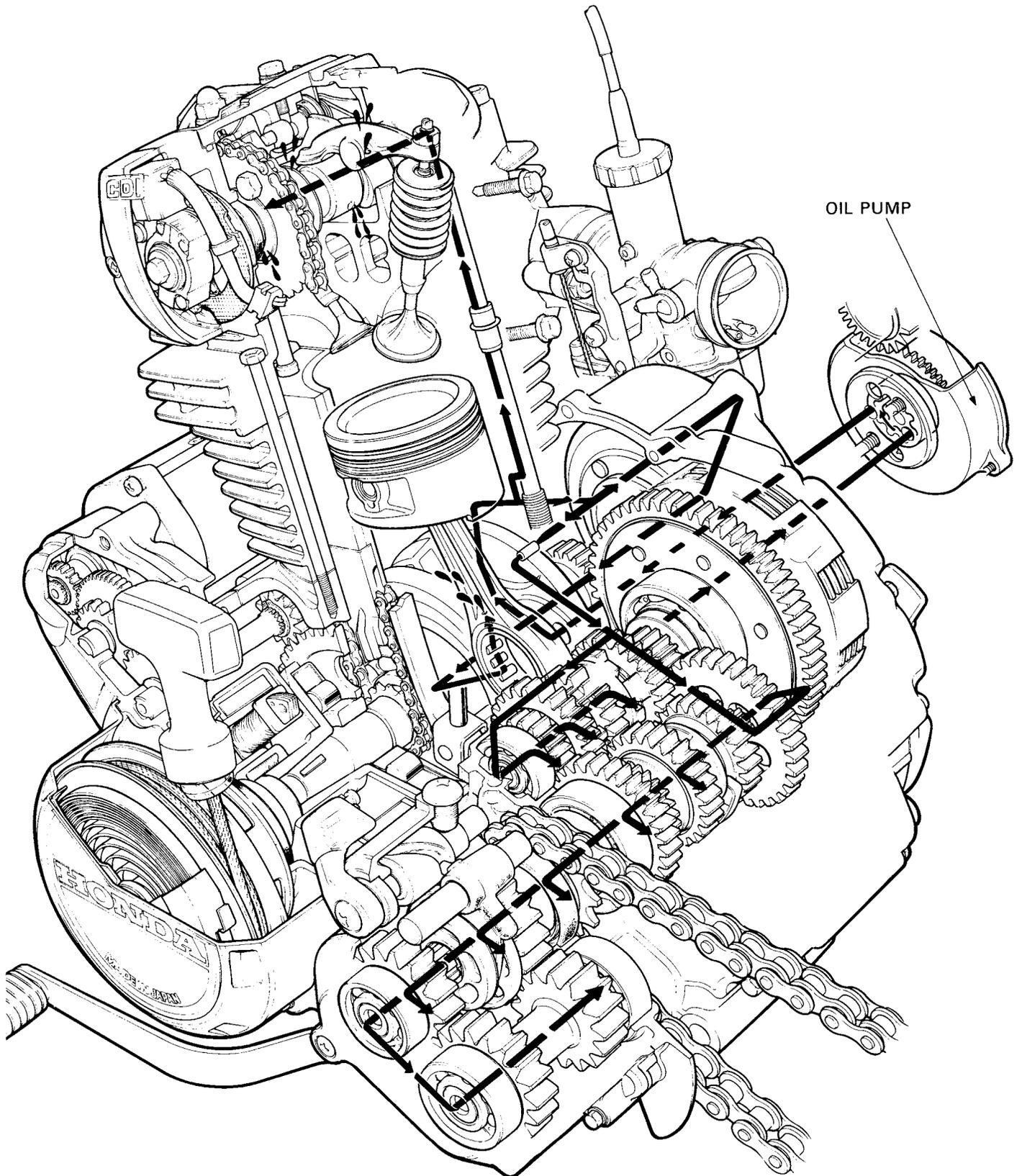
COMMON

Description	Tool No.	Interchangeability
Float level gauge	07401-0010000	M9361-412-099788 (Available in U.S.A.)
Pin spanner	07702-0010000	07902-0010000
Valve adjusting wrench 10×12 mm	07708-0030200	} 07908-3230000
Valve adjuster A	07708-0030300	
Lock nut wrench 20×24 mm	07716-0020100	07916-3710000
Extension bar	07716-0020500	
Flywheel puller	07733-0010000	07933-2000000
Valve guide remover 5.5 mm	07742-0010100	07942-3290100
Valve guide driver B	07742-0020200	07942-3290200
Bearing driver outer 37×40 mm	07746-0010200	} 07946-3000100
Driver pilot 17mm	07746-0040400	
Driver handle outer A	07749-0010000	} 07949-6110000, 07949-2860000, 07949-3000000
Driver Pilot 15 mm	07746-0040300	
Bearing driver outer 42×47 mm	07746-0010300	} 07946-2860100, 07946-9350200
Driver pilot 35 mm	07746-0040800	
Bearing driver inner 20 mm	07746-0020400	
Driver handle inner B	07746-0020100	07945-5040100, 07945-8340100
Bearing driver outer 62×68 mm	07746-0010500	07947-6340400
Shock absorber compressor	07959-3290001	
Valve spring compressor	07757-0010000	07957-3290001
Inner handle C	07746-0030100	
Driver inner 30 mm	07746-0030300	
Driver pilot 30 mm	07746-0040700	
Bearing driver outer 32×35 mm	07746-0010100	
Driver pilot 12mm	07746-0040200	
Driver pilot 20mm	07746-0040500	
Driver outer 52×55 mm	07746-0010400	
Handle outer A	07749-0010000	07949-6110000, 07949-2860000



CABLE & HARNESS ROUTING







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SERVICE INFORMATION

GENERAL

- This section describes how to inspect and replace the engine oil and clean the oil filter screen.
- Section 8 shows how to service the oil pump.

SPECIFICATIONS

Oil capacity 1.5 liter (1.59 US qt, 1.32 Imp qt) at disassembly
1.3 liter (1.37 US qt, 1.14 Imp qt) at draining

Engine oil recommendation

Use HONDA 4-STROKE OIL or equivalent.
API SERVICE CLASSIFICATION: SE or SF
Viscosity: SAW 10W-40

TORQUE VALUES

Oil filter screen cap 9-15 N·m (0.9-1.5 kg-m, 6.5-10.8 ft-lb)
Oil filter rotor cover bolt 10-14 N·m (1.0-1.4 kg-m, 7.2-10.1 ft-lb)

TROUBLESHOOTING

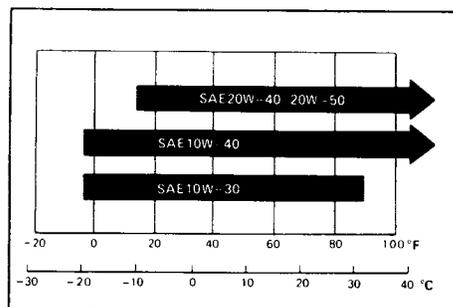
Oil level too low

1. Normal oil consumption
2. External oil leaks
3. Worn piston rings

Oil consumption

1. Oil not changed often enough
2. Faulty head gasket

OIL VISCOSITY



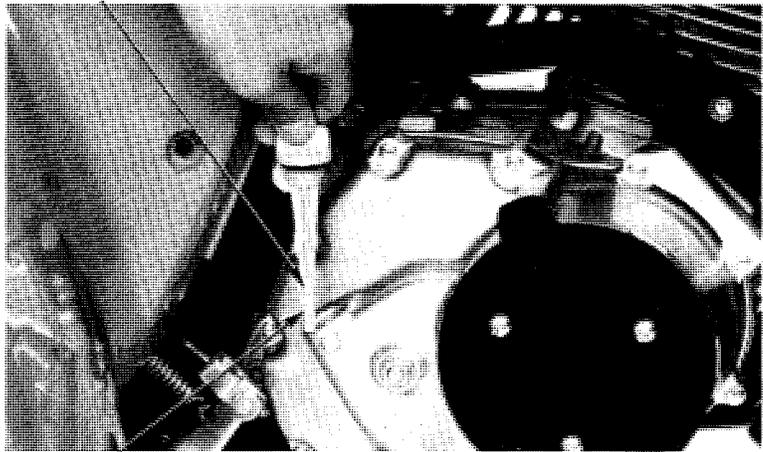


LUBRICATION

ENGINE OIL LEVEL CHECK

Place the ATC on level ground.
Check the oil level with the oil cap/dipstick.
Do not screw in the cap when making this check.
If the oil level is below the lower level mark on the dipstick, fill to the upper level mark with the recommended oil (Page 2-1).

UPPER LEVEL



LOWER LEVEL

ENGINE OIL CHANGE AND OIL FILTER SCREEN CLEANING

NOTE

- Drain the oil with the engine warm.
- The oil filter screen and spring will come out when the oil filter screen cap is removed.

Remove the oil filler cap and oil filter screen cap.
Operate the recoil starter several times to completely drain any residual oil.
Clean the oil filter screen.

Make sure that the oil filter screen, sealing rubber, screen cap and O-ring are in good condition.

Install the oil filter screen, spring and screen cap.

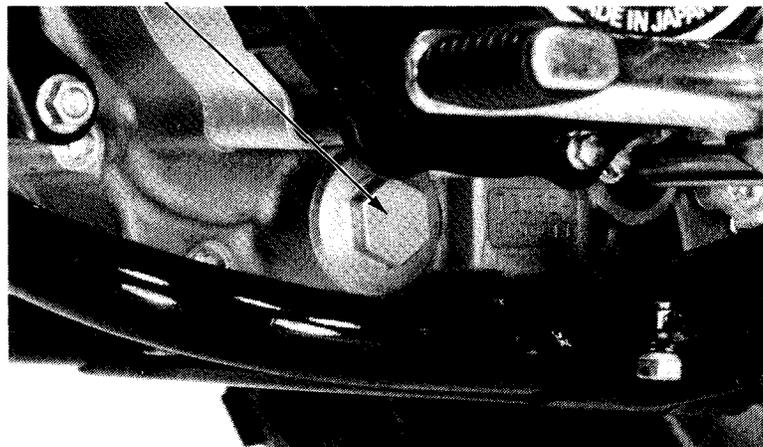
**TORQUE: 9-15 N·m (0.9-1.5 kg-m,
6.5-10.8 ft-lb)**

Fill the crankcase with the recommended grade oil (Page 2-1).

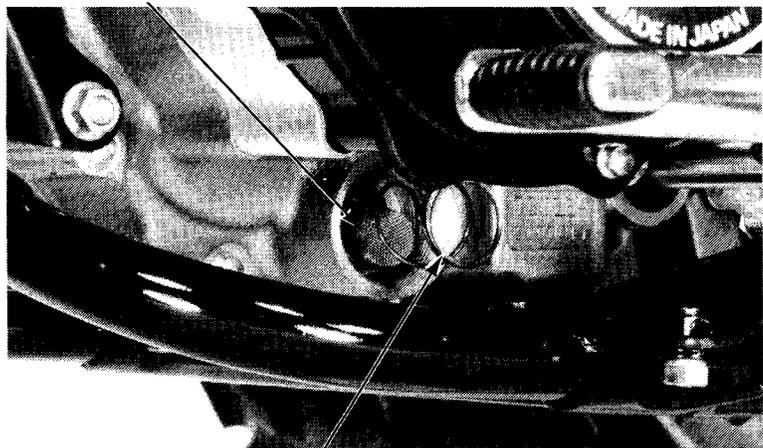
ENGINE OIL CAPACITY:
1.3 liters (1.37 US qt, 1.14 Imp qt)
after draining

Install the oil filter cap.
Start the engine and let it idle for 2-3 minutes.
Stop the engine.
With the ATC on level ground, make sure that the oil level is at the upper level mark.
Be sure there are no oil leaks.

OIL SCREEN CAP BOLT



OIL FILTER SCREEN



SPRING



OIL FILTER ROTOR CLEANING

NOTE

Clean the oil filter rotor before adding oil.

Remove the right crankcase cover (Page 8-3).

Remove the oil filter rotor cover and clean the inside of the rotor cover and rotor.

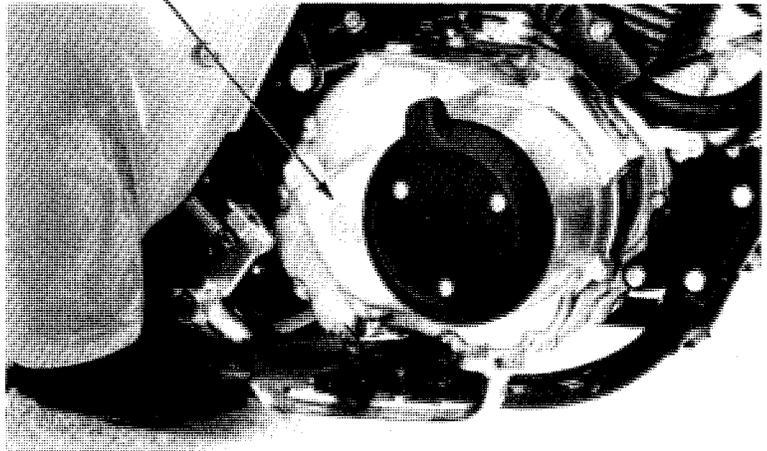
Install the oil filter rotor cover (Page 8-10).

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

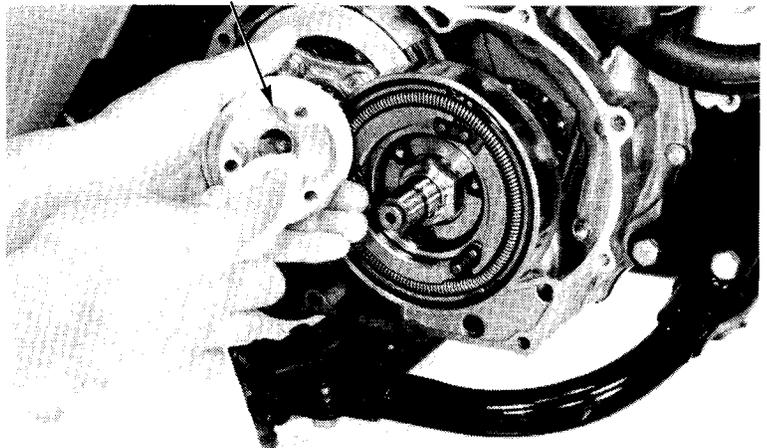
Install the right crankcase cover (Page 8-21).

Fill the engine with recommended grade oil (Page 2-1 and 2-2).

RIGHT CRANKCASE COVER



OIL FILTER ROTOR COVER

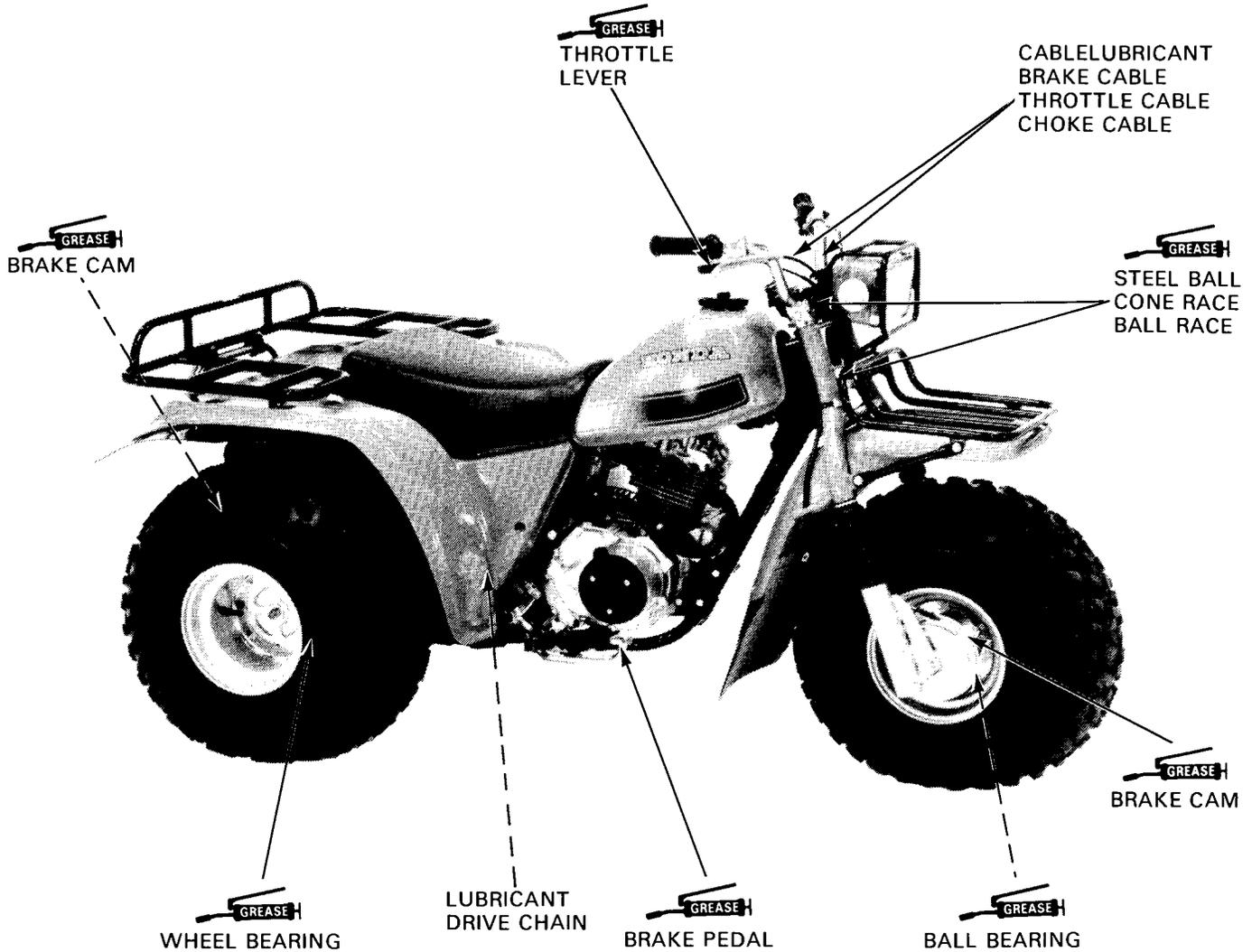




LUBRICATION

LUBRICATION POINTS

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





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SERVICE INFORMATION

SPECIFICATIONS

<ENGINE>

Ignition timing:

Initial 10° ± 2° BTDC at idle
Full advance 30° ± 2° BTDC at 3,350 rpm

Spark plug:

Spark plug gap 0.6—0.7 mm (0.024—0.028 in)

Recommended spark plugs:

DR8ES-L (NGK)
X24ESR-U (ND)

Valve clearance (cold)

Intake 0.05 mm (0.002 in)
Exhaust 0.05 mm (0.002 in)

Throttle lever free play

5—10 mm (3/16—3/8 in)

Idle speed

1,400 ± 100 rpm

Cylinder compression

11.0 ± 1.0 kg/cm² (156 psi)



MAINTENANCE

<CHASSIS>

Front brake lever free play	15–20 mm (5/8–3/4 in)
Rear brake pedal free play	15–20 mm (5/8–3/4 in)
Rear brake lever (parking brake) lever free play	15–20 mm (5/8–3/4 in)
Drive chain free play	10–20 mm (3/8–3/4 in)
Drive chain length (45 pins) :	
Standard	698.5 mm (27.50 in)
Service limit	715 mm (28.1 in)
Front/rear rim size	9.2×9.0
Front/rear tire size	25×12–9.0
Front/rear tire pressure	2.2 psi (0.15 kg/cm ² , 15 kpa)
Front/rear tire circumference	
Standard	1.920 mm (75.6 in)

TORQUE VALUES

Spark plug	12–19 N·m (1.2–1.9 kg-m, 9–14 ft-lb)
Valve adjuster cover	10–14 N·m (1.0–1.4 kg-m, 7–14 ft-lb)
Cam chain tensioner adjusting bolt	15–22 N·m (1.5–2.2 kg-m, 11–16 ft-lb)
Rear axle bearing holder bolt	50–70 N·m (5.0–7.0 kg-m, 36–51 ft-lb)
Clutch adjuster lock nut	19–25 N·m (1.9–2.5 kg-m, 14–18 ft-lb)
Valve adjuster lock nut	15–18 N·m (1.5–1.8 kg-m, 11–13 ft-lb)



MAINTENANCE SCHEDULE

Perform the PRE-RIDE INSPECTION in the Owner's Manual at every maintenance period.

REGULAR MAINTENANCE SCHEDULE

I : Inspect, Clean, Adjust, Lubricate or Replace if Necessary.

C: Clean

R: Replace

A: Adjust

	ITEM	INITIAL SERVICE PERIOD (First week of operation)	REGULAR SERVICE PERIOD (Every 30 operating days)
	ENGINE OIL (NOTE 1,2)	R	R
*	ENGINE OIL FILTER SCREEN	C	C
	OIL FILTER ROTOR		C
	AIR CLEANER ELEMENT (NOTE 2)		
	SPARK PLUG		I
	BATTERY		I
*	VALVE CLEARANCE	I	I
*	CAM CHAIN TENSION	A	A
*	CARBURETOR	I	I
	FUEL LINE		I (EVERY YEAR)
*	FUEL STRAINER		C (EVERY YEAR)
	THROTTLE OPERATION	I	I
	DRIVE CHAIN	I	I
*	BRAKE SHOES		I (EVERY YEAR)
	BRAKE CONTROL LINKAGE	I	I
*	CLUTCH	A	A
*	SPARK ARRESTER		C
	ALL NUTS, BOLTS, FASTENERS	I	I
	LIGHTING EQUIPMENT	I	I
	TIRES	I	I
*	STEERING HEAD BEARING		A (EVERY YEAR)

- NOTES: 1. Replace every 30 operating days or every 3 months, whichever occurs first.
2. Service more frequently when riding in dusty areas.

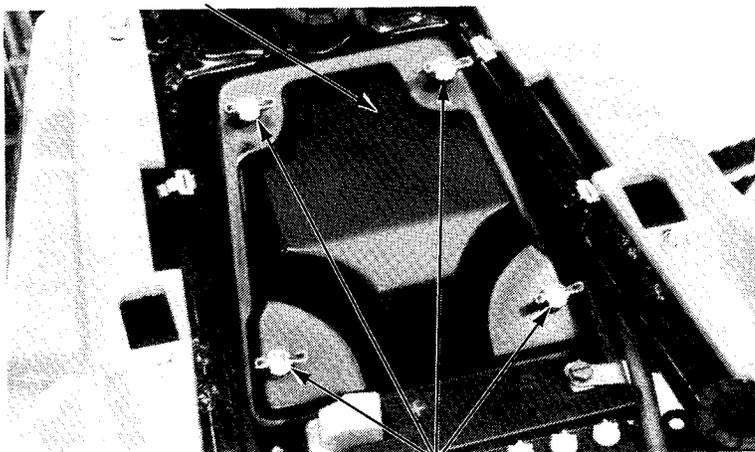


MAINTENANCE

AIR CLEANER

Remove the seat by pulling the seat lever.
Remove the four wing bolts attaching the air cleaner case cover.
Remove the air cleaner case cover.
Remove the air cleaner element assembly from air cleaner case.

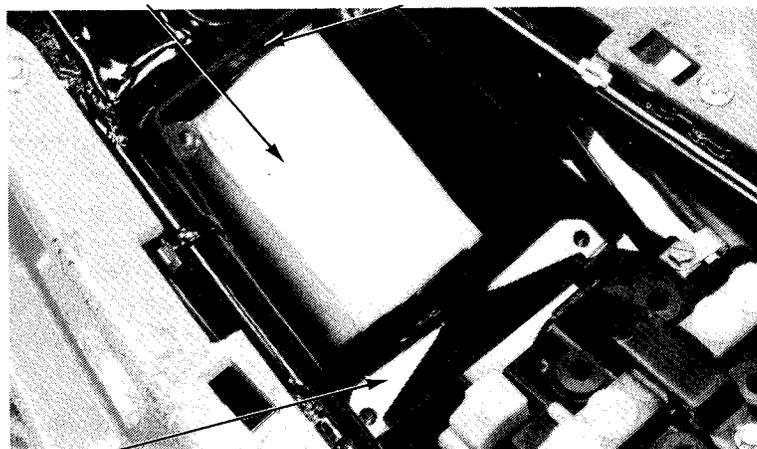
AIR CLEANER CASE COVER



WING BOLTS

Remove the bracket from the element holder.
Remove the air cleaner element from the element holder.

AIR CLEANER ELEMENT TUBE BAND



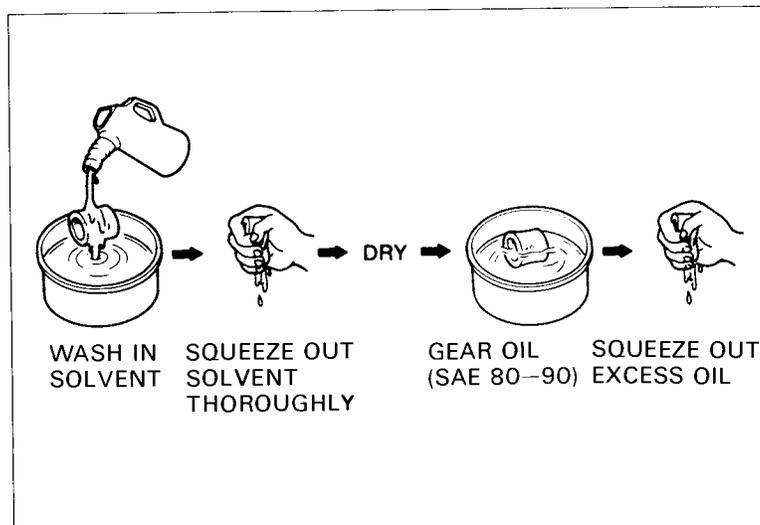
BRACKET

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

Soak the element in gear oil (SAE 80-90) and squeeze out excess.
Place the element onto the element holder.

Install the bracket onto the element holder.
Install the air cleaner case cover by using four wing bolts.
Install the seat.

Install the element assy into the air cleaner case.





SPARK PLUG

Disconnect the spark plug cap and remove the spark plug.

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

SPARK PLUG GAP:

0.6–0.7 mm (0.024–0.028 in)

RECOMMENDED REPLACEMENT PLUG:

DR8ES-L (NGK)
X24ESR-U (ND)

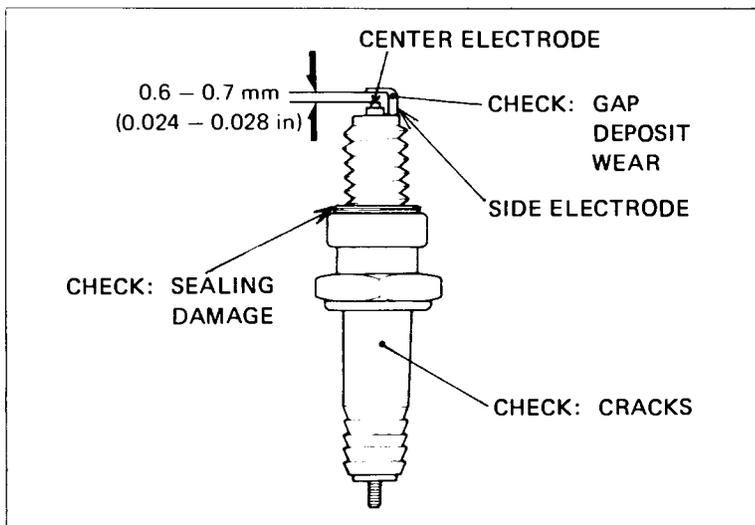
Check the sealing washer and replace with a new one if damaged.

With the sealing washer attached, thread the spark plug in by hand to prevent cross-threading.

Tighten the spark plug to the specified torque.

**TORQUE: 12–19 N·m (1.2–1.9 kg·m,
9–14 ft·lb)**

Connect the spark plug cap.



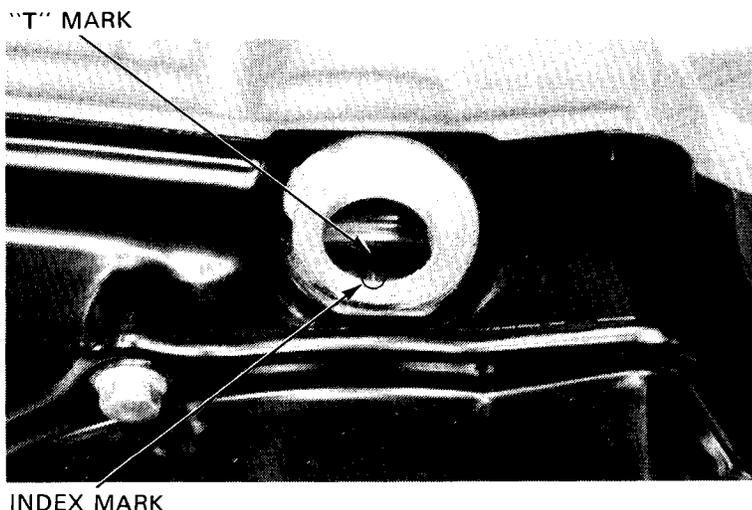
VALVE CLEARANCE

NOTE

- Inspect and adjust valve clearance while the engine is cold (below 35°C/95°F).
- Make sure the decompressor valve lifter has free play.

Remove the timing mark hole cap.
Remove the valve adjuster covers.

Rotate the crankshaft by using the recoil starter and align the "T" mark on the rotor with the index mark. The piston must be at TDC of the compression stroke.





MAINTENANCE

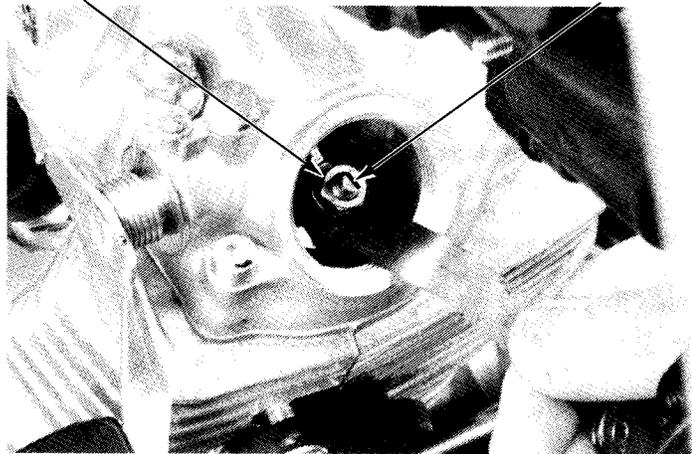
Inspect the intake and exhaust valve clearances by inserting the feeler gauge between the adjusting screw and valve stem.

VALVE CLEARANCES:

- Intake: 0.05 mm (0.002 in)
- Exhaust: 0.05 mm (0.002 in)

LOCK NUT

ADJUSTING SCREW



Adjust by loosening the lock nut and turning the adjusting screw until there is a slight drag on the feeler gauge.

Hold the adjusting screw and tighten the lock nut.

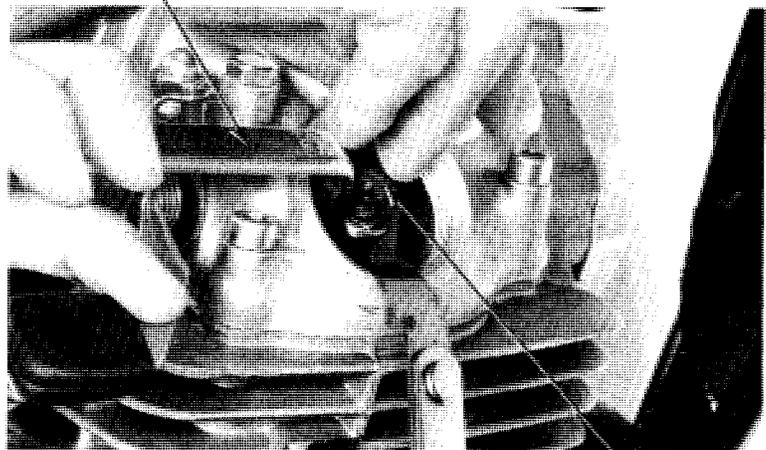
TORQUE: 15–18 N·m (1.5–1.8 kg-m, 11–13 ft-lb)

Recheck the valve clearance install the valve adjuster covers.

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

Install the timing hole cap.

VALVE ADJUSTING WRENCH (10×12 mm)



VALVE ADJUSTER A

FUEL STRAINER

Disconnect the fuel tube.
Drain fuel from the fuel tank.

WARNING

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

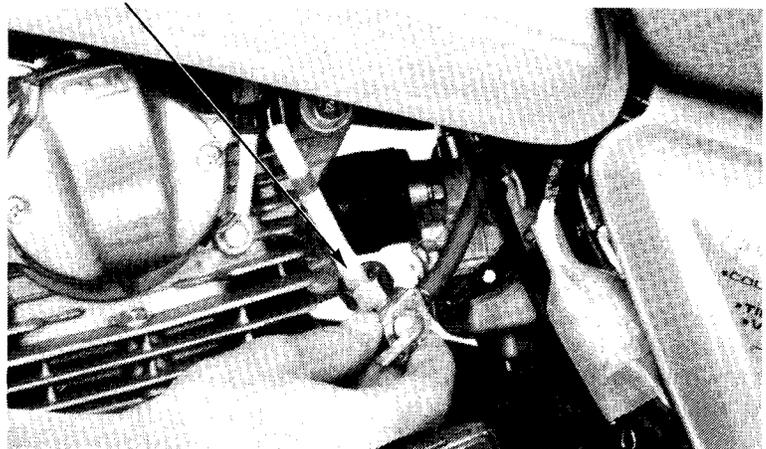
Remove the fuel valve by loosening the valve nut.

Remove the fuel strainer and wash it in clean non-flammable or high flash point solvent.

Install the strainer and valve and attach the fuel line.

Fill the fuel tank and turn the fuel valve "ON" and check for leaks.

FUEL STRAINER





THROTTLE OPERATION

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

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

Disconnect the throttle cable at the upper end.
Thoroughly lubricate the cable and pivot point with a commercially available cable lubricant to prevent premature wear.

Install the throttle cable in the reverse order of removal.

Make sure the throttle lever free play is 5–10 mm (3/16–1/8 in) at the tip of the throttle lever.

Adjust as follows:

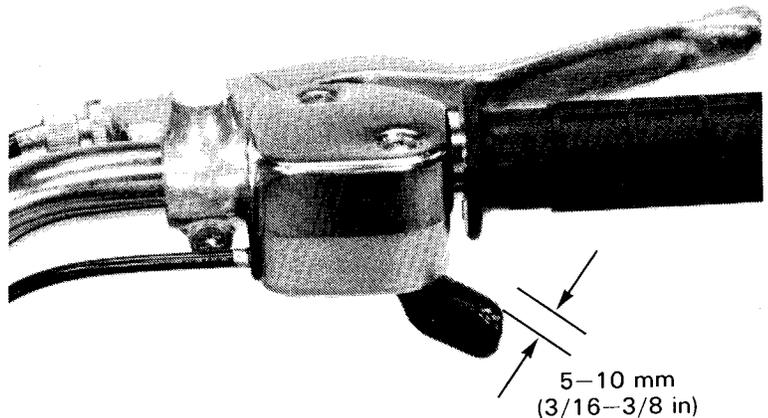
Remove the fuel tank.

Slide the rubber cap off the adjuster on the carburetor cap.

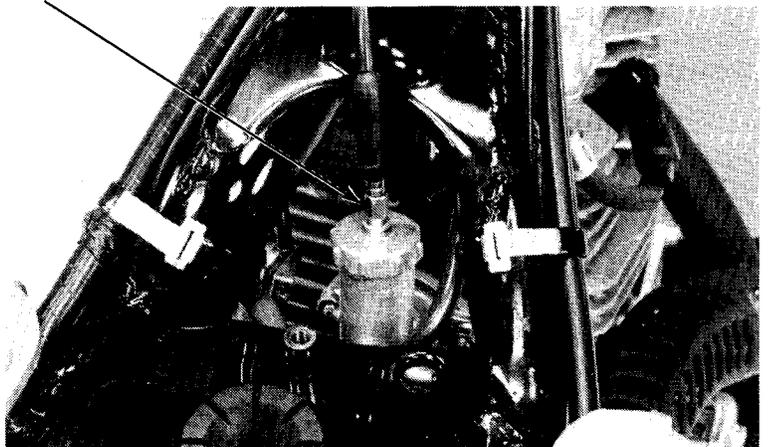
Adjust the throttle lever free play by turning the adjuster on the carburetor.

Install the adjuster rubber cap securely.

Install the fuel tank.



ADJUSTER



CAM CHAIN TENSION

Start the engine and allow it to idle.
Remove the rubber cap and loosen the cam chain tensioner adjusting bolt.

When the cam chain tensioner adjusting bolt is loosened, the tensioner will automatically position itself to provide the correct tension.

Retighten the adjusting bolt and install the rubber cap.

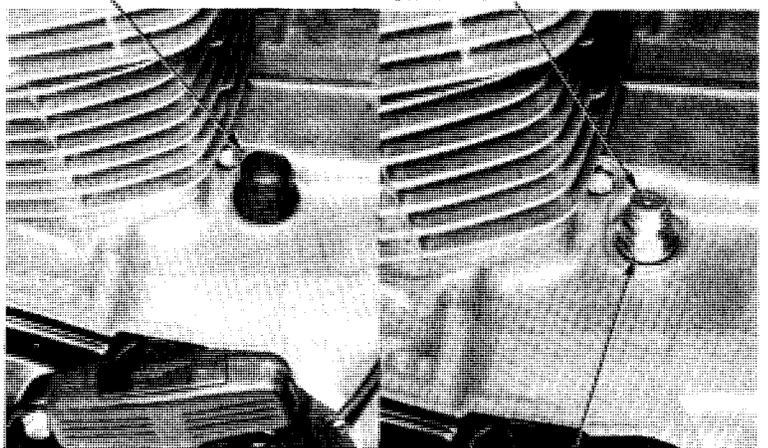
**TORQUE: 15–22 N·m (1.5–2.2 kg·m,
11–16 ft·lb)**

NOTE

Do not attempt to loosen the 6mm bolt while adjusting.

RUBBER CAP

6MM BOLT



ADJUSTING BOLT



MAINTENANCE

CARBURETOR IDLE SPEED

NOTE

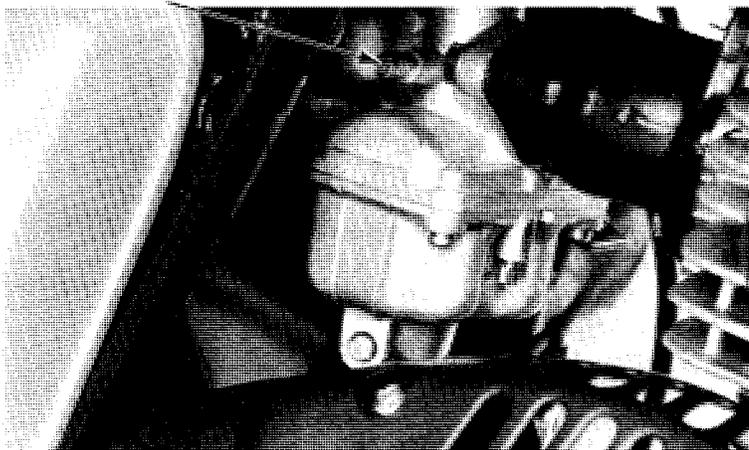
- Inspect and adjust the idle speed after all other maintenance items have been performed and are within specifications.
- The engine must be warm for accurate idle speed inspection and adjustment.

Warm up the engine for about ten minutes.

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

IDLE SPEED: 1,400 ± 100 rpm

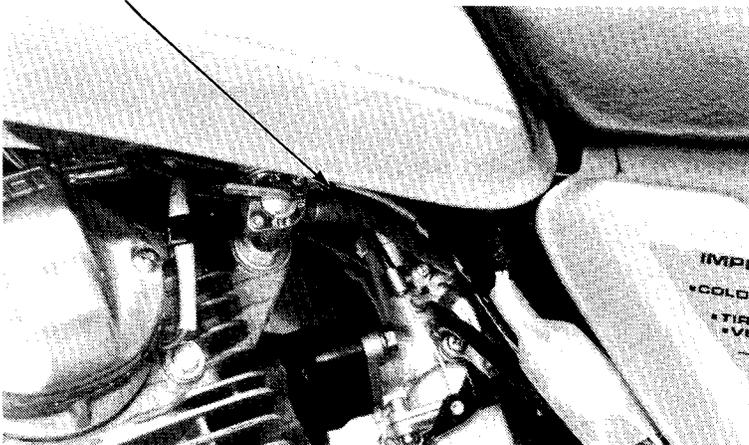
THROTTLE STOP SCREW



FUEL LINE

Replace any parts which show signs of deterioration, damage or leaks.

FUEL LINE



IGNITION TIMING

NOTE

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

Remove the timing hole cap.
 Connect a tachometer and timing light.
 Start the engine and allow it to idle.

IDLE SPEED: 1,400 ± 100 rpm

Inspect the ignition timing.
 Timing is correct, if the "F" mark on the generator rotor is aligned with the index mark on the left crankcase cover at idle.





CYLINDER COMPRESSION

Warm up the engine.
Stop the engine and remove the spark plug.
Insert a compression gauge.

Pull the choke knob all the way and fully open the throttle.
Push the starter button until the compression gauge reading stops rising.

NOTE

Watch for compression leaking at the gauge connection.

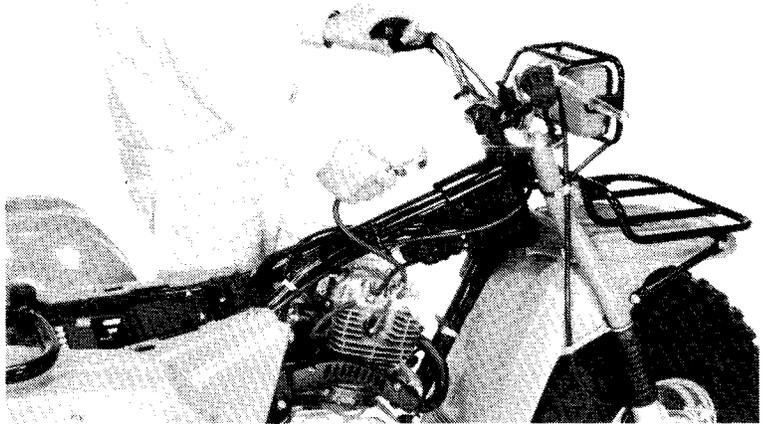
COMPRESSION: 11.0 ± 1.0 kg/cm² (159 ± 14 psi)

Low compression can be caused by:

- Improper valve adjustment
- Valve leakage
- Cylinder head gasket leaking
- Worn piston ring or cylinder

High compression can be caused by:

- Carbon deposits in combustion chamber or on piston crown.
- The maximum reading is usually reached with in 4–7 seconds.



DRIVE CHAIN

Stop the engine and shift the transmission into neutral.

Remove the drive chain inspection hole cap.

Check the amount of chain free play through the inspection hole.

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





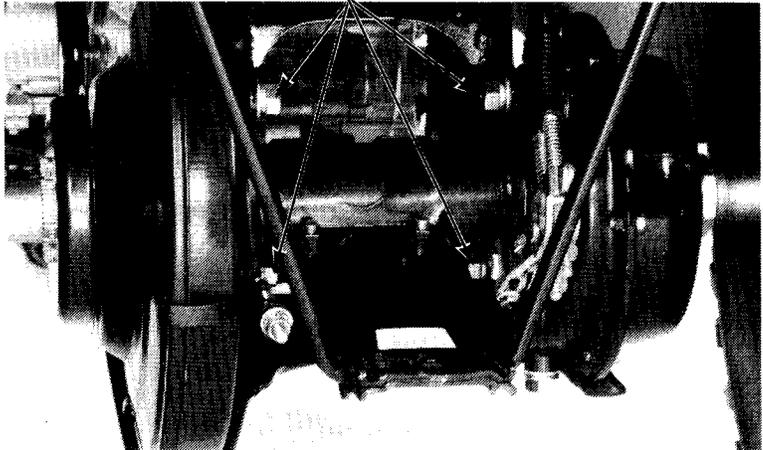
Adjust as follows:

Loosen the rear axle bearing holder bolts.
Turn the adjusting nut to obtain the specified free play.

Tighten the rear axle bearing holder bolts.

Check the rear wheels for free rotation.
Adjust the rear brake (Page).

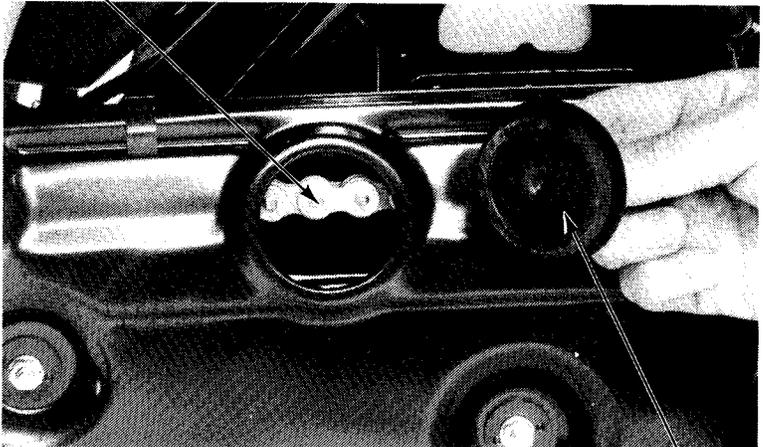
REAR WHEEL BEARING HOLDER BOLTS



Lubricate the drive chain with SAE 80 or 90 gear oil lubricant through the inspection hole.

Install the inspection hole cap.

DRIVE CHAIN



HOLE CAP

When the drive chain becomes extremely dirty, it should be removed and cleaned prior to lubrication.

Remove the left axle nut cotter pin and removing the axle nut (Page 13-3).

Remove the left rear wheel and the frame skid plate (Page 13-4).

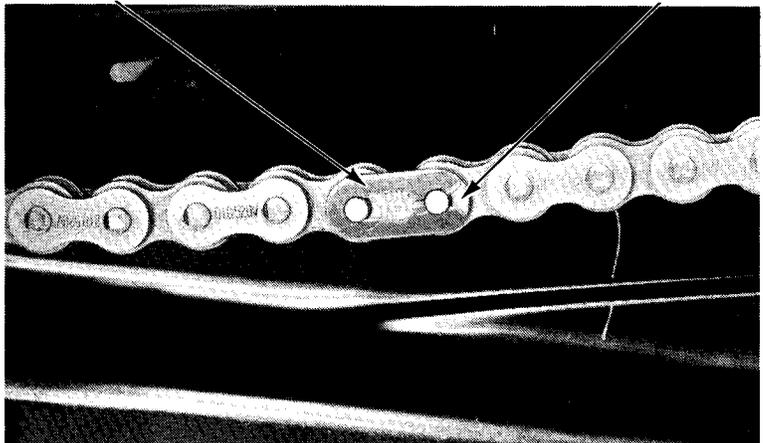
Remove the sealed cover and chain case clips (Page 13-4).

Remove the drive chain cover (Page 13-4).

Remove the retainer clip and master link and drive chain.

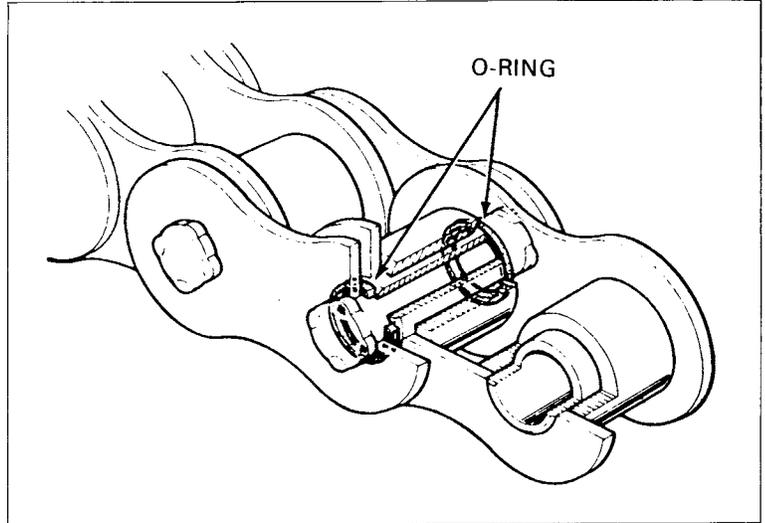
RETAINING CLIP

MASTER LINK





The drive chain is equipped with grease-retaining O-rings inside the chain to improve its service life. However, special precautions must be taken when adjusting, lubricating, washing and replacing the chain.



Clean the drive chain with kerosene and wipe dry.

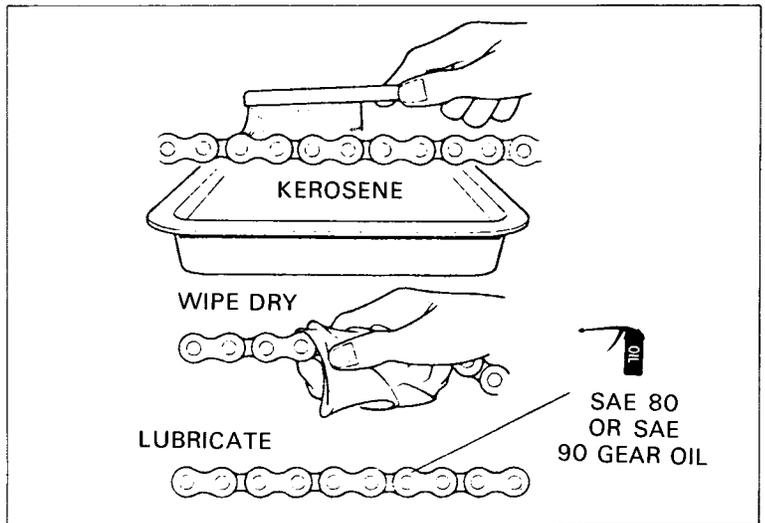
CAUTION:

Do not use a steam cleaner, high pressure washers or solvents as these will damage the O-rings.

Lubricate the drive chain with SAE 80 or 90 gear oil.

CAUTION:

Use aerosol chain lubricants unless they are specifically for O-ring equipped chains. Other aerosol lubricants may contain solvents which could damage the O-rings.

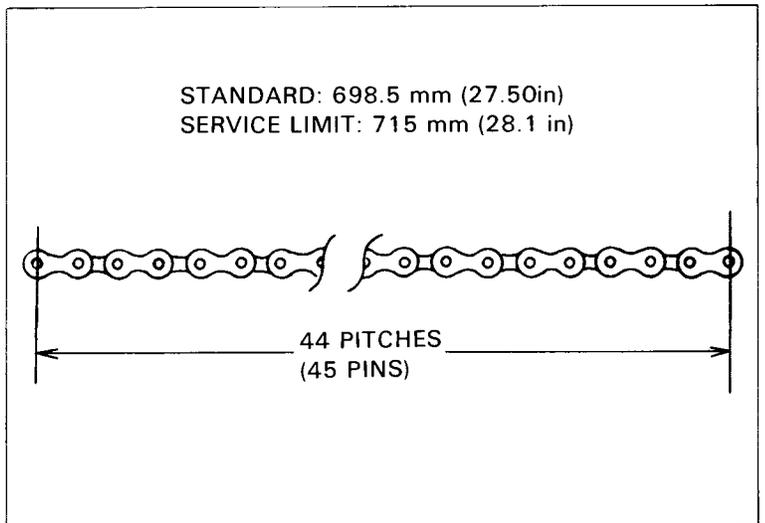


Inspect the driverchain and O-rings for possible wear or damage. Replace the chain, if it is worn excessively or damaged.

Measure the drive chain length with the chain held so that all links are straight.

45 PINS LENGTH:

STANDARD: 698.5 mm (27.50 in)
SERVICE LIMIT: 715 mm (28.1 in)





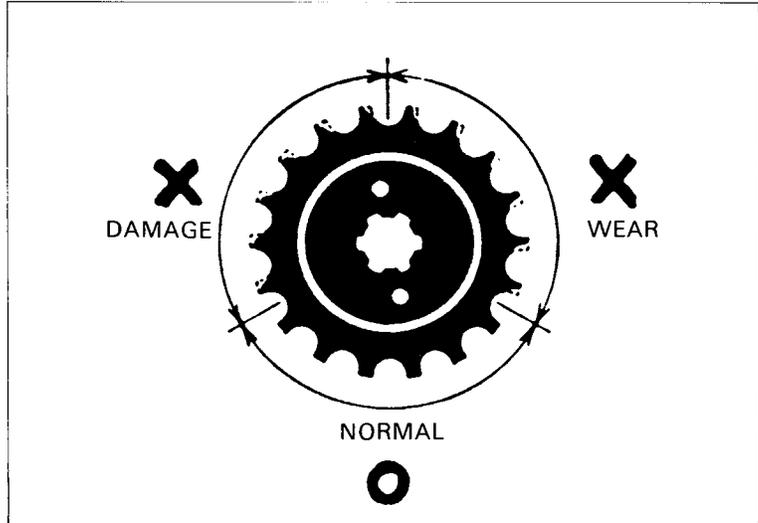
MAINTENANCE

Inspect the sprocket teeth for excessive wear or damage. Replace if necessary.

NOTE

Never install a new drive chain on worn sprockets or a worn chain on new sprockets. Both chain and sprockets must be in good condition, or the new replacement chain or sprockets will wear rapidly.

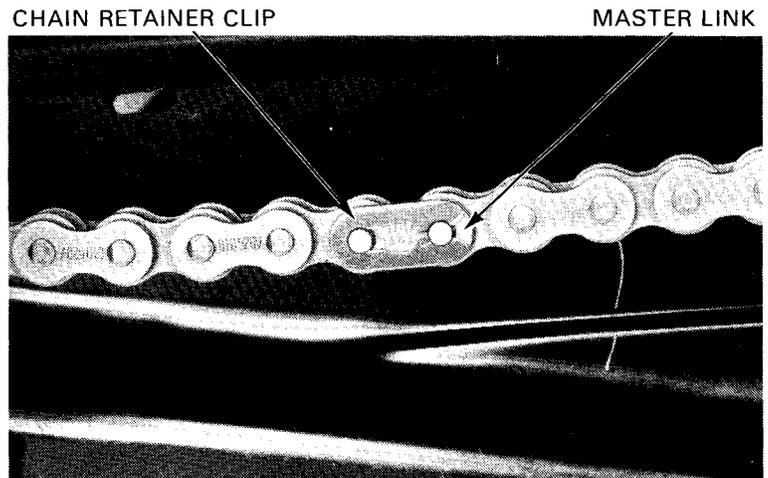
To remove the drive sprocket, remove the left crankcase cover and subtransmission.



Install the drive chain in the reverse order of removal noting the chain clip direction (Page 13-4).

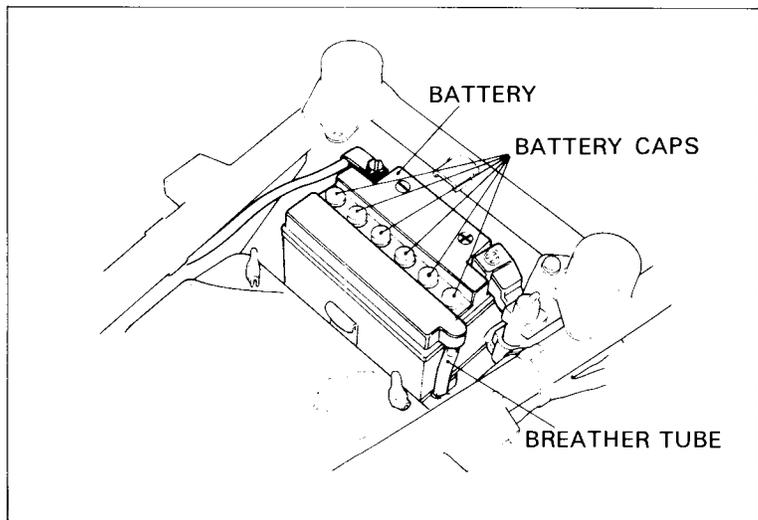
CAUTION:

- Do not assemble the drive chain without the four O-rings.
- Be sure that there is no space between the master link and chain retaining clip.



BATTERY

Remove the seat by pulling the seat lever.
Remove the battery holder by loosening the wing bolts.
Disconnect the negative (-) terminal first, then the positive (+) terminal.
Remove the battery.





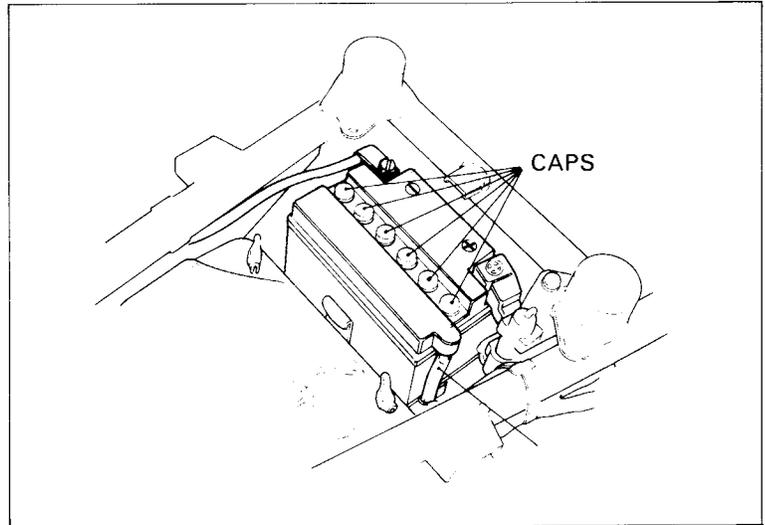
Inspect the battery fluid level.
When the fluid level nears the lower level, refill with distilled water to the upper level.

NOTE

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

WARNING

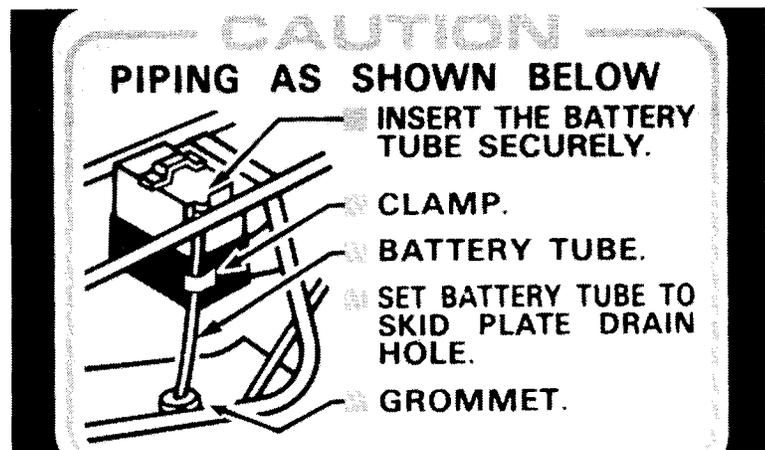
- The battery electrolyte contains sulfuric acid. Protect your eyes, skin and clothing. In case of contact flush thoroughly with water and contact a doctor if electrolyte gets in your eyes.
- Batteries produce explosive gases. Keep sparks, flames and cigarettes away.



CAUTION:

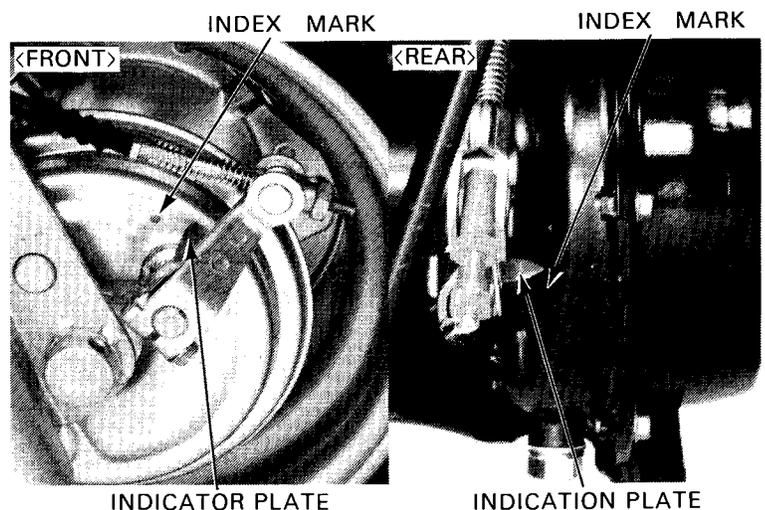
The battery breather tube must be routed as shown on the label attached on the tool box. Do not bend or twist the breather tube. A bent or kinked breather tube may pressurize the battery and damage its case and causing electrolyte leakage.

Replace the battery if sulphation forms or sediments (paste) accumulate on the bottom.



BRAKE SHOES

Replace the brake shoes if the indicator plate aligns with the brake panel index mark when the front brake lever, rear brake lever or pedal is applied.





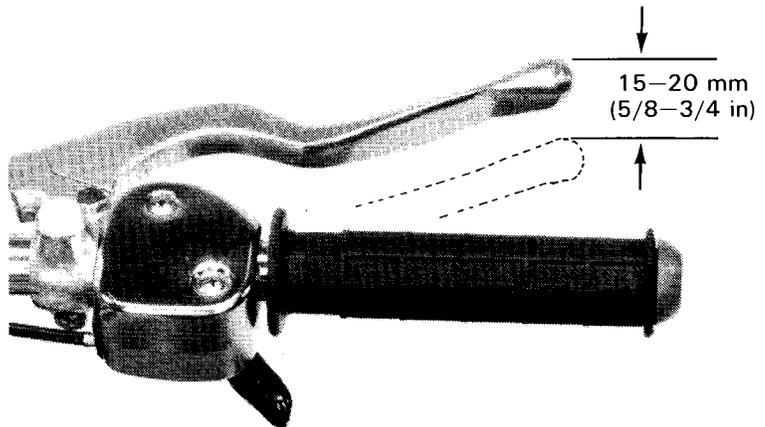
MAINTENANCE

FRONT BRAKE

Check the cable and brake lever for loose connections, excessive play, or other damage. Replace or repair if necessary.

Disconnect the brake cable at the upper end. Thoroughly lubricate the cable and pivot point with a commercially available cable lubricant to prevent premature wear.

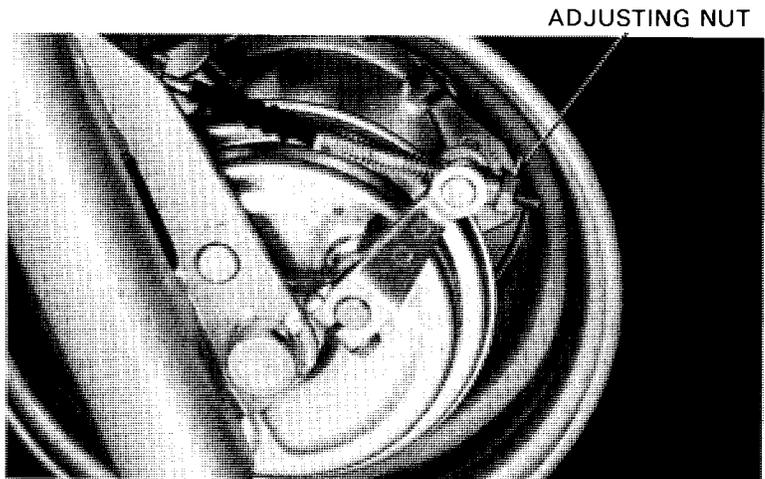
Install the brake cable.
Make sure brake lever free play is 15–20 mm (5/8–3/4 in) at the brake lever tip.



Adjust free play by turning the adjusting nut.

NOTE

Make sure the cut-out of the adjusting nut is seated on the brake arm pin.



REAR BRAKE

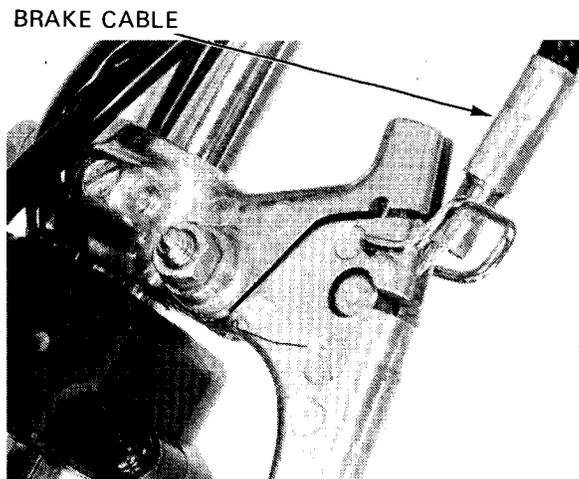
Check the cable, brake lever and brake pedal for loose connections, excessive play, or other damage.

Replace or repair if necessary.

Disconnect the brake cables at the brake lever or pedal ends.

Thoroughly lubricate the cables and their pivot point with a commercially available cable lubricant to prevent premature wear.

Install the cables.

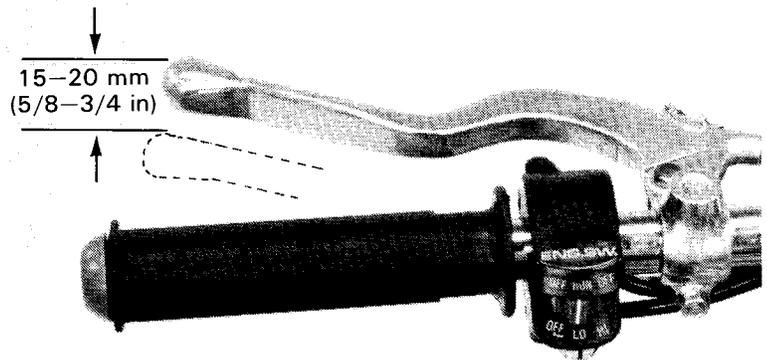




Measure the brake pedal free play at the end of the brake pedal.

BRAKE PEDAL FREE PLAY:

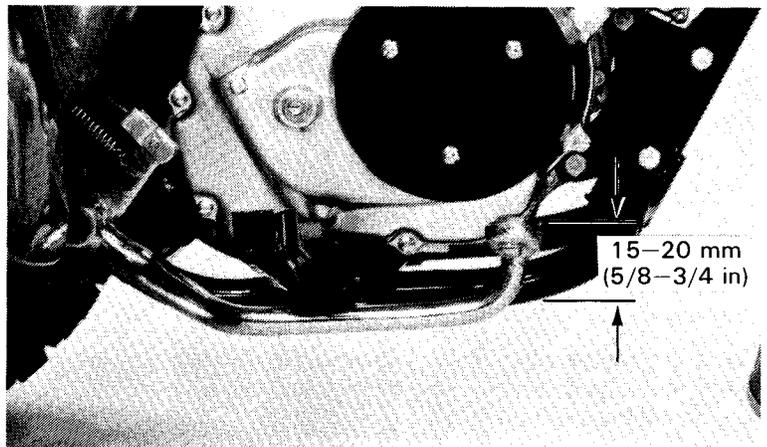
15–20 mm (5/8–3/4 in)



Measure the rear brake lever (parking brake) free play at the end of the brake lever.

REAR BRAKE LEVER FREE PLAY:

15–20 mm (5/8–3/4 in)



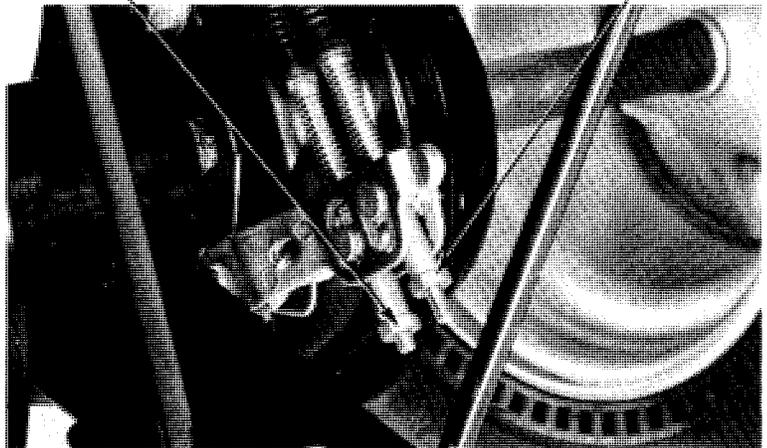
Adjust the lever and pedal free play by turning the adjusters at the lower end of the cables.

NOTE

Make sure the cut-out of each adjuster is seated on the brake arm pin.

LEVER ADJUSTER

PEDAL ADJUSTER





MAINTENANCE

CLUTCH

Stop the engine.

Loosen the clutch adjusting screw lock nut.

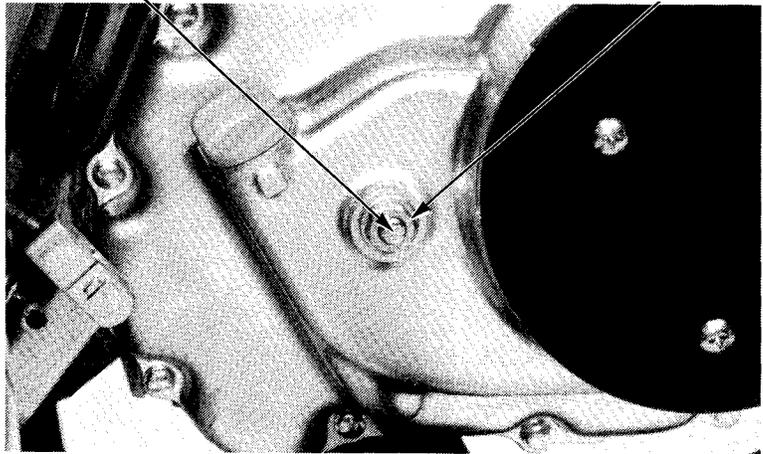
Slowly turn the adjusting screw counterclockwise until resistance is felt.

Then turn the adjusting screw clockwise 1/4 turn, and tighten the lock nut.

After adjustment, start the engine and check for proper clutch operation.

ADJUSTING SCREW

LOCK NUT



SPARK ARRESTER CLEANING

WARNING

- Do not remove and install the spark arrester while the exhaust pipe is hot.
- Perform this operation in a well-ventilated area, free from fire hazard.
- Use adequate eye protection.

Remove the spark arrester bolts.

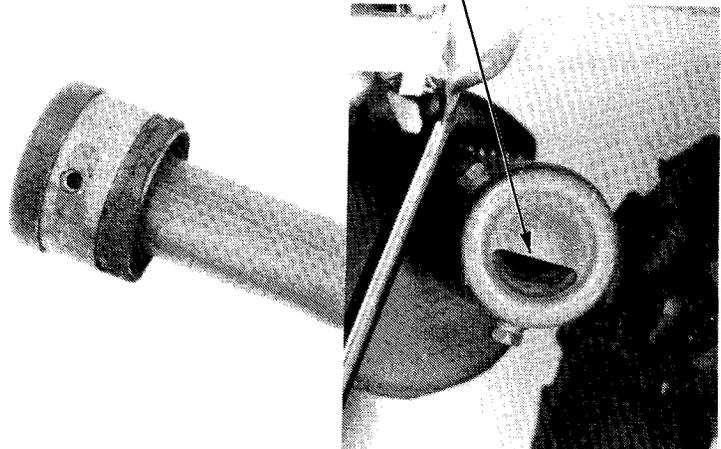
Remove the spark arrester.

Remove any arrester accumulated carbon.

Start the engine and remove accumulated carbon from the exhaust system by momentarily revving up the engine several times.

Stop the engine and reinstall the spark arrester.

SPARK ARRESTER



NUT, BOLTS, FASTENERS

Tighten bolts, nuts and fasteners at regular intervals shown in the maintenance Schedule (Page 3-3).

Check that all chassis nuts and bolts are tightened to their correct torque values (Page 1-4). Check that all cotter pins and safety clips are in place.



LIGHTING EQUIPMENT

Apply the parking brake lever.
Start the engine.

Check the headlight and taillight by operating the lighting switch.

Position	Function
OFF	Head lights are OFF.
LO	Headlight low beam and taillight should be ON.
HI	Headlight high beam and taillight should be ON.

If the light do not work properly, check the bulbs and refer to page 18-3 to test the switch if necessary.

TIRES

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

NOTE

Tire pressure should be checked when the tires are COLD.

Check the tire pressure.

TIRE PRESSURES:

Recommended pressure:

2.2 psi (0.15-kg/cm², 15 kpa)

Minimum pressure: 1.7 psi (0.12 kg/cm², 12 kpa)

STANDARD TIRE CIRCUMFERENCE:

1,920 mm (75.6 in)

Maximum pressure:

3.6 psi (0.25 kg/cm², 25 kpa)

STEERING HEAD BEARINGS

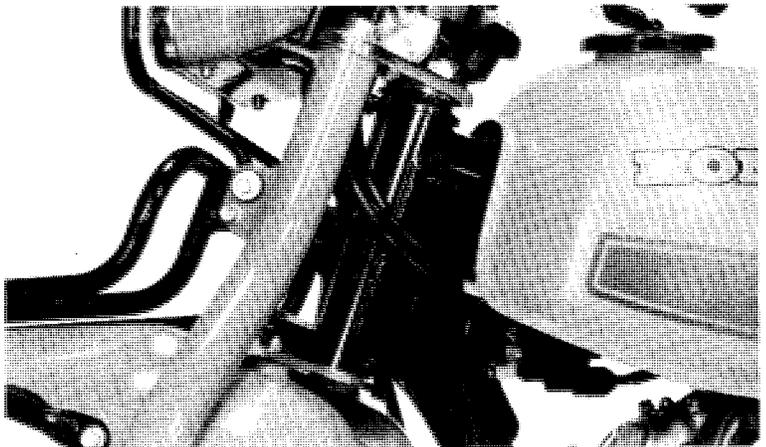
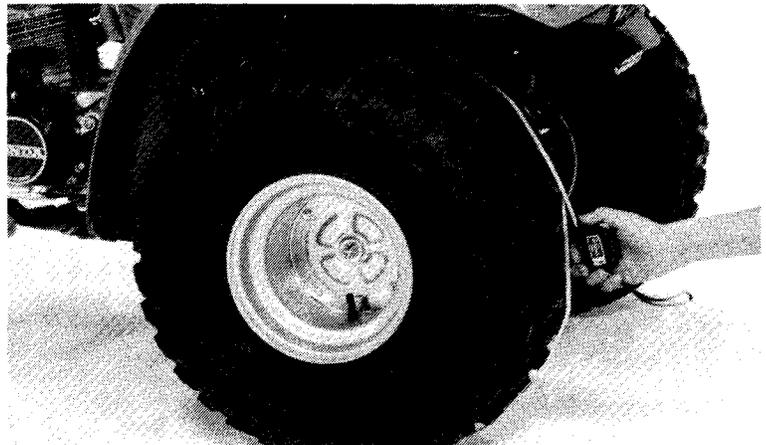
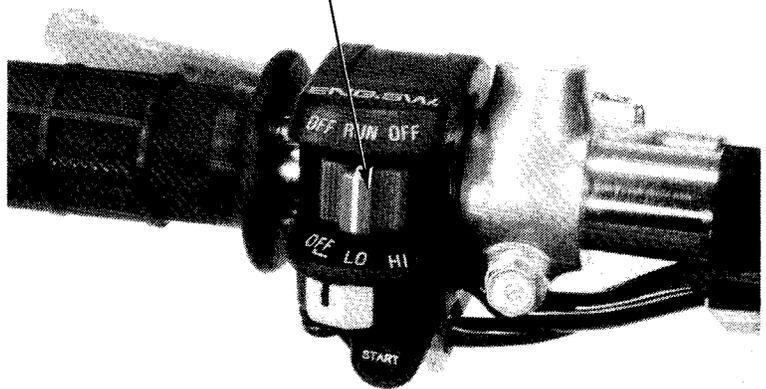
NOTE

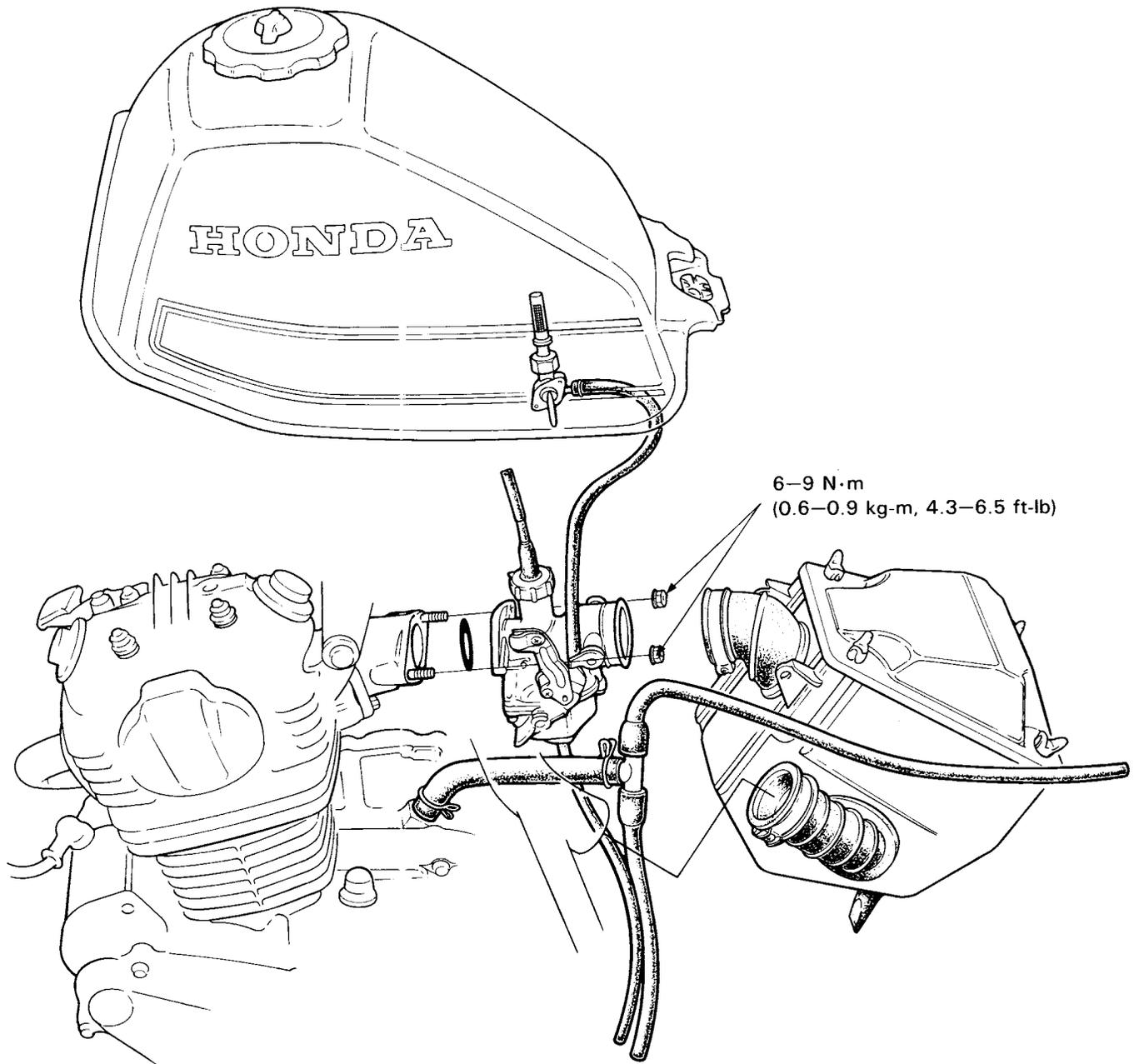
Make sure the cables do not interfere with the rotation of the handlebar.

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

If the handlebar moves unevenly, binds or has vertical movement, adjust the steering head bearing by turning the steering head adjusting nut with a pin spanner (Page 12-20).

LIGHTING SWITCH







SERVICE INFORMATION	4-1
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CRANKCASE BREATHER	4-6
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THROTTLE VALVE DISASSEMBLY	4-8
FLOAT,FLOAT VALVE AND JETS	4-8
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THROTTLE VALVE ASSEMBLY	4-10
CARBURETOR INSTALLATION	4-10
PILOT SCREW ADJUSTMENT	4-11
HIGH ALTITUDE ADJUSTMENT	4-11

SERVICE INFORMATION

GENERAL

- Use caution when working with gasoline. Always work in a well ventilated area away from sparks or flames.
- When disassembling fuel system parts, note the locations of the O-ring. Replace them during reassembly.
- The carburetor float bowl has a drain screw that can be loosened to drain gasoline.

SPECIFICATIONS

Fuel tank capacity	13.0 liter (3.4 US gal, 2.8 Imp.gal)
Fuel reserve capacity	1.0 liter (0.26 US gal, 0.22 Imp.gal)

Carburetor

Identification mark	PD55A
Type	Piston valve
Venturi dia	22 mm (0.9 in)
Float level	14 mm (0.55 in)
Pilot screw opening	1 $\frac{3}{8}$ turns out
Idle speed	1,400 \pm 100 rpm
Main jet	#95
Throttle lever free play	5-10 mm (3/16-3/8 in)
Jet Needle	3rd

TOOL

Common	
Float level gauge: 07401-0010000	M9361-412-099708 (Available in U.S.A.)



TROUBLESHOOTING

Engine cranks but won't start.

1. No fuel in tank.
2. No fuel to cylinder.
3. Too much fuel getting to cylinder.
4. No spark at plug (ignition malfunction).
5. Air cleaner clogged.

Engine idles roughly, stalls, or runs poorly

1. Idle speed incorrect.
2. Ignition malfunction.
3. Rich mixture.
4. Lean mixture.
5. Air cleaner dirty.
6. Insulator leaks.

Lean mixture

1. Carburetor fuel jet clogged.
2. Fuel cap vent blocked.
3. Fuel filter clogged.
4. Fuel line kinked or restricted.
5. Float valve faulty.
6. Float level too low.

Rich mixture:

1. Carburetor choke stuck closed.
2. Float valve faulty.
3. Float level too high.
4. Carburetor air jet clogged.
5. Air cleaner dirty.



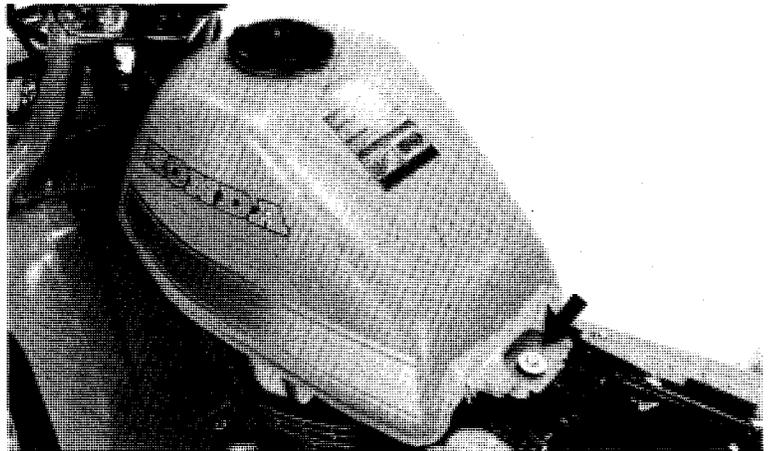
FUEL TANK

Remove the seat.
Turn the fuel valve OFF, and disconnect the fuel line remove the fuel tank.

WARNING

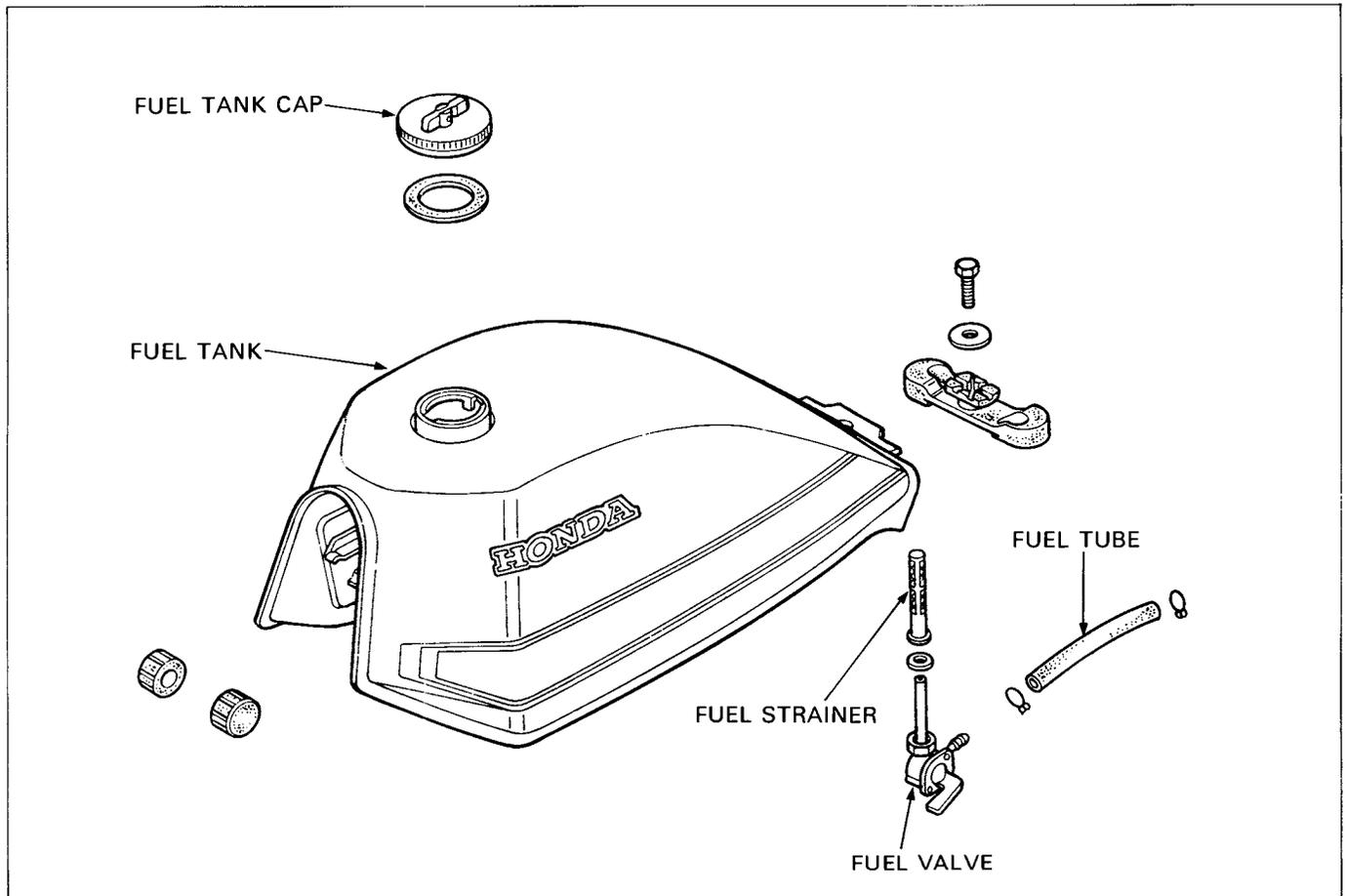
Keep gasoline away from flames or sparks. Wipe up spilled gasoline at once.

Use a drain pan and check that fuel flows freely out of the fuel valve. If flow is restricted, clean the fuel strainer (Page 3-6).
Install the fuel tank. connect the fuel tube.
Install the seat.



NOTE

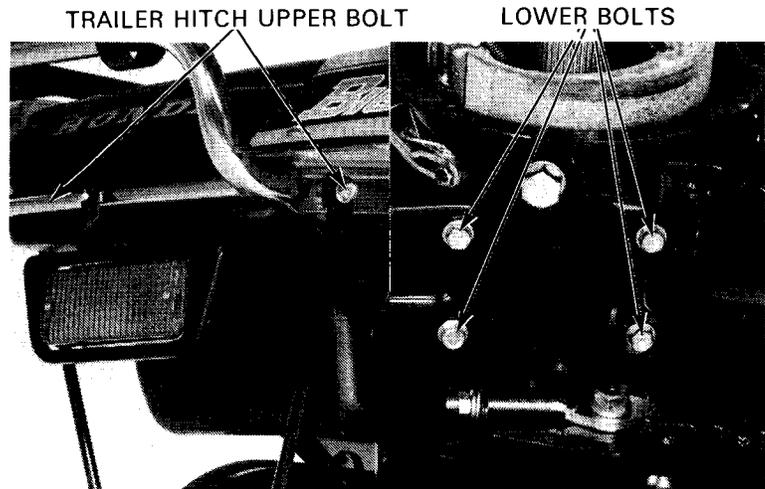
- Be sure the front fuel tank brackets are on the rubber cushions.
- After assembly, make sure there are no fuel leaks.
- Do not overtighten the fuel valve lock nut.



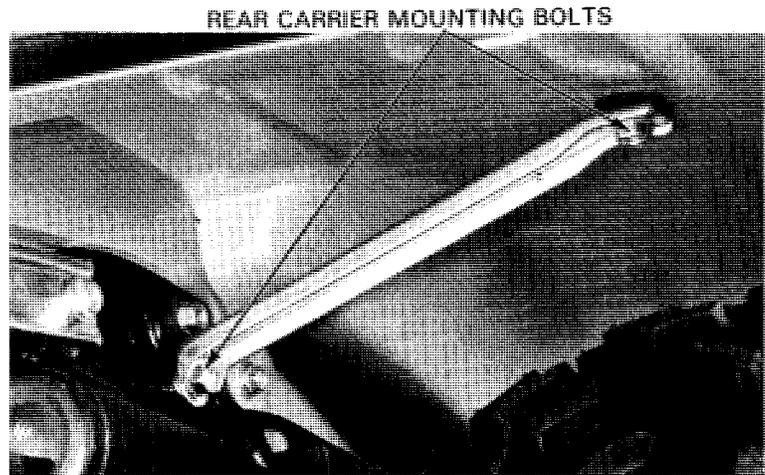


AIR CLEANER CASE

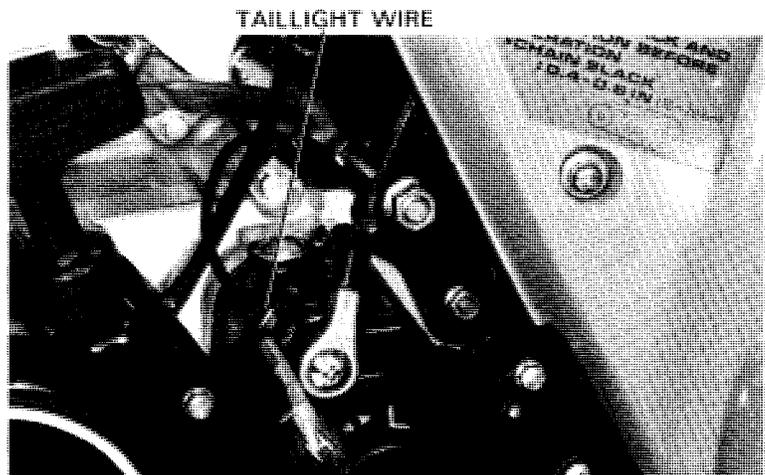
Remove the seat and trailer hitch.



Remove the rear carrier mounting bolts and rear carrier.

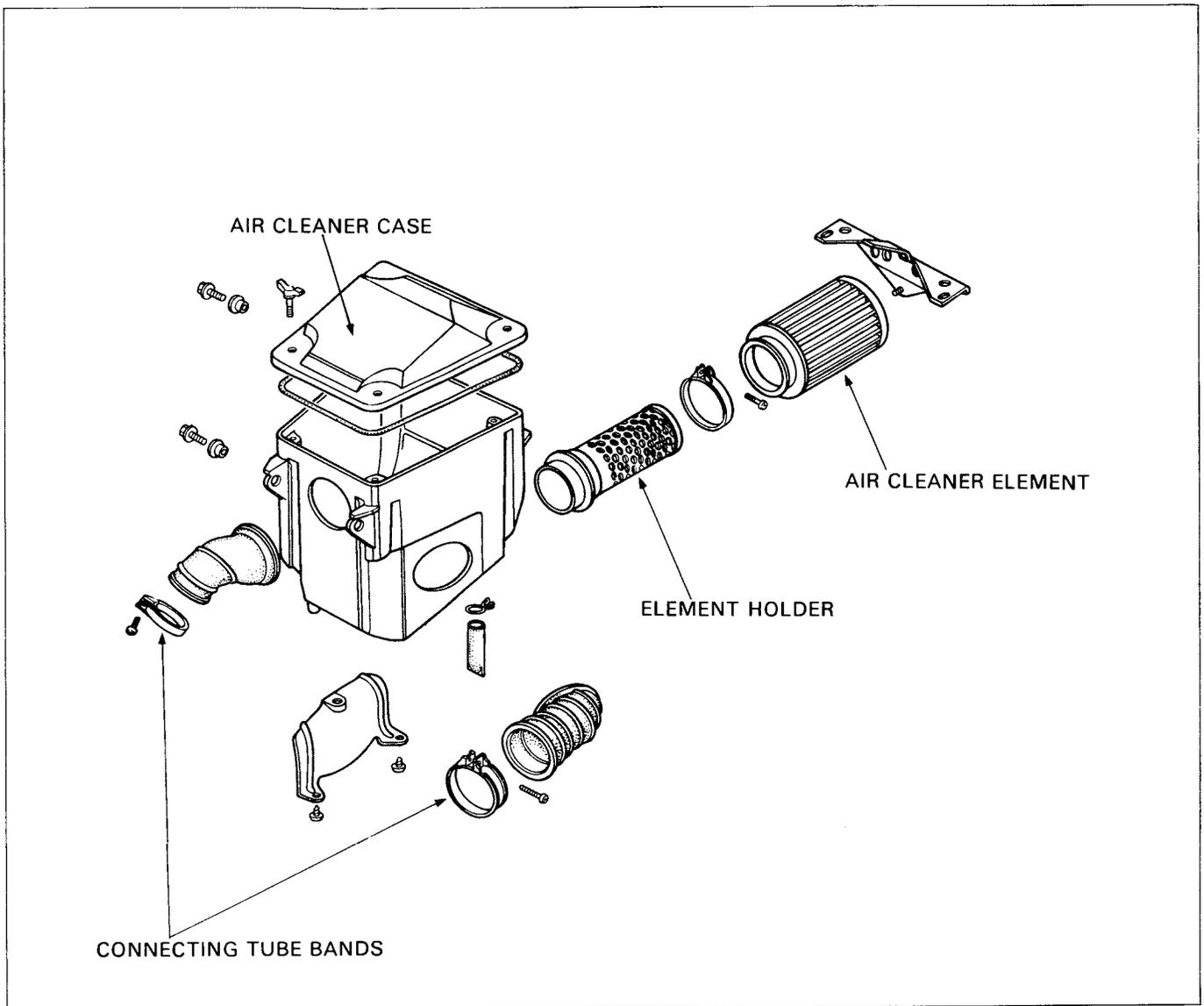


Disconnect the taillight wires.
Remove the right and left rear fenders.





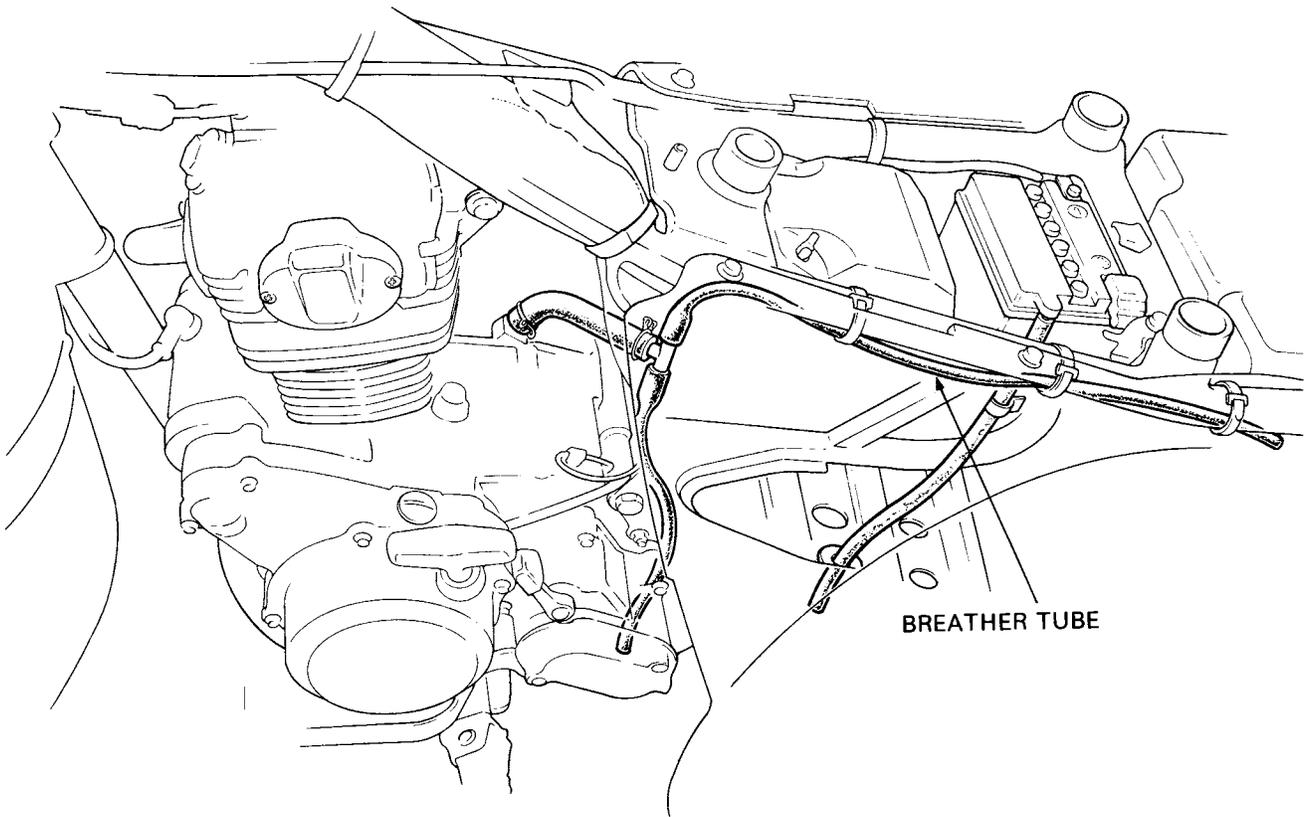
- Loose the connecting tube bands.
- Remove the bolts, and remove the air cleaner case.
- Remove the wing bolts and air cleaner cover.
- Remove the element assy from air cleaner. case.
- Remove the element from element holder.
- For the air cleaner element service, refer to page.





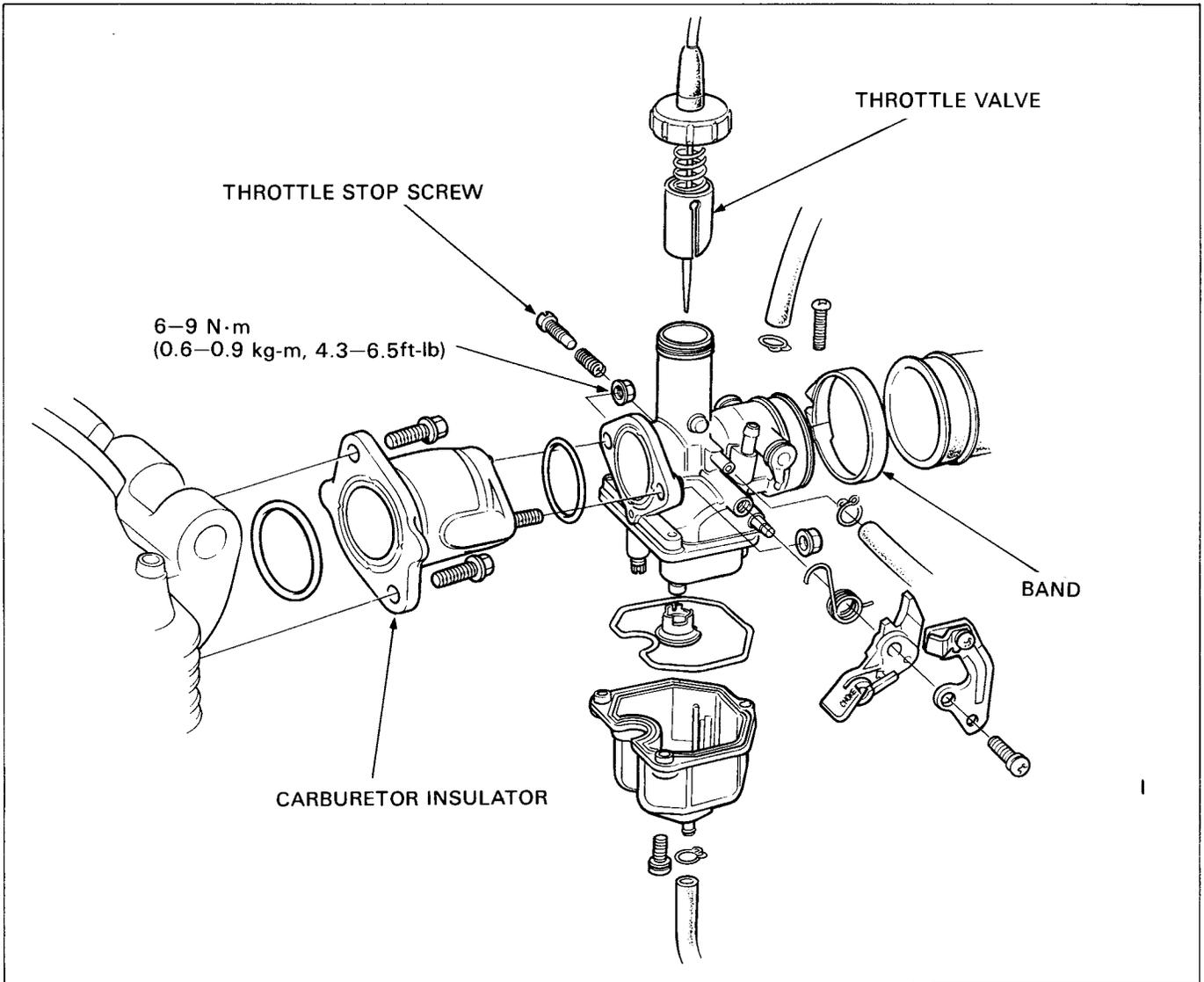
CRANKCASE BREATER

Route the crankcase breather tube as shown.



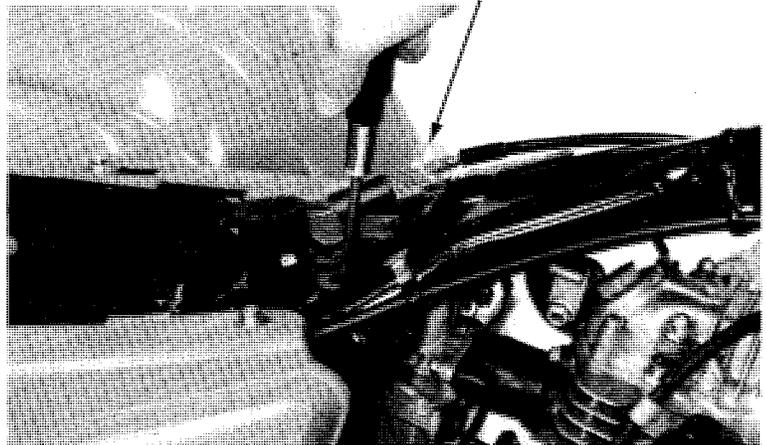


CARBURETOR REMOVAL



- Remove the seat.
- Turn the fuel valve OFF and disconnect the fuel line.
- Remove the fuel tank.
- Loosen the carburetor drain screw and drain the gasoline.
- Unscrew the carburetor top and pull the throttle valve out.
- Loosen the screw sewing the carburetor band with a screw driver through the hole in the frame. Remove the carburetor mounting nuts and carburetor.

CARBURETOR TOP





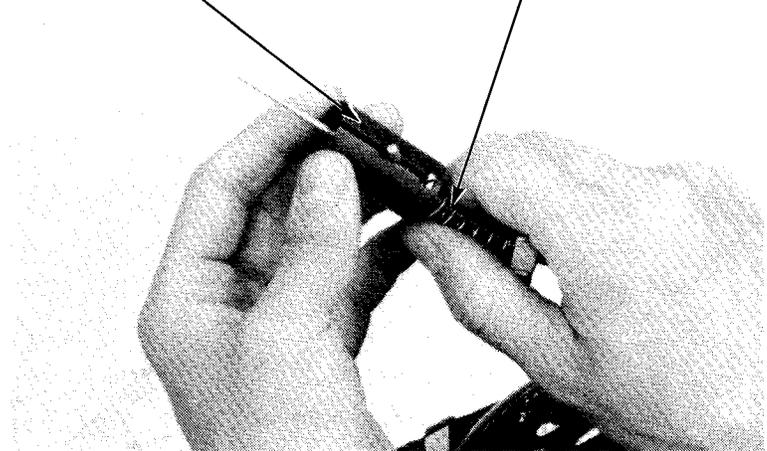
FUEL SYSTEM

THROTTLE VALVE DISASSEMBLY

Remove the throttle cable from the throttle valve while compressing the throttle valve spring.

THROTTLE VALVE

THROTTLE CABLE



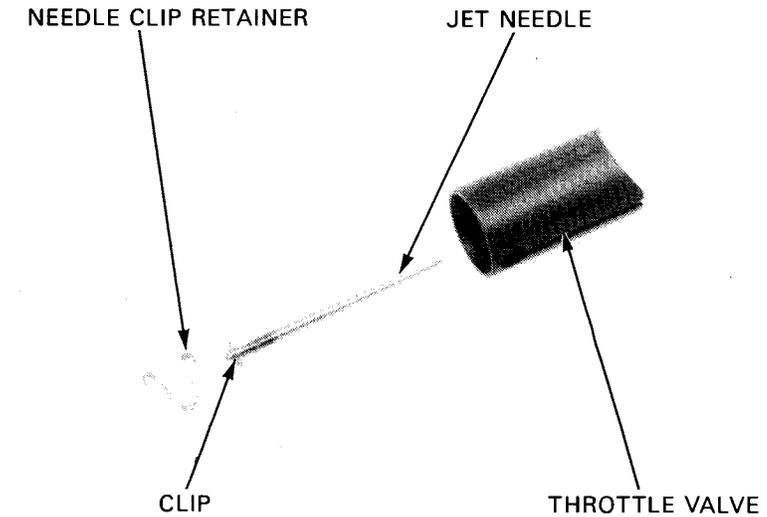
Remove the needle clip retainer jet needle and needle clip.
Inspect the throttle valve and jet needle surface for dirt, scratches or wear.

NEEDLE CLIP RETAINER

JET NEEDLE

CLIP

THROTTLE VALVE



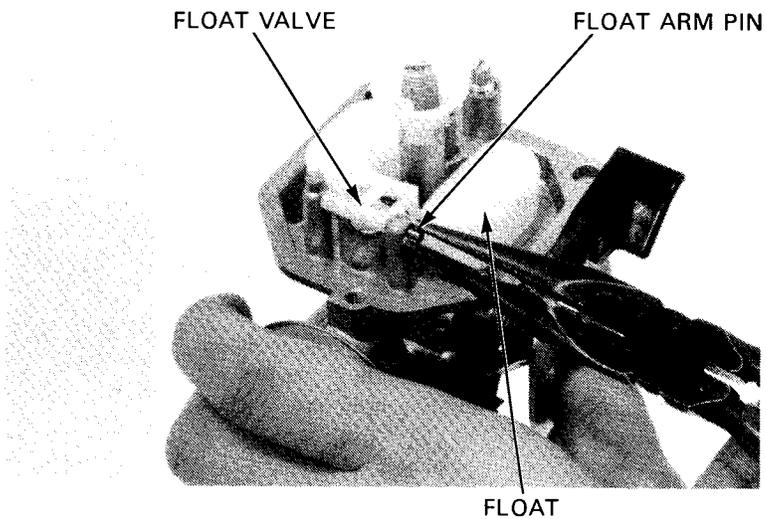
FLOAT, FLOAT VALVE AND JETS

Remove the float chamber body.
Remove the float arm pin with pliers.
Remove the float and float valve.

FLOAT VALVE

FLOAT ARM PIN

FLOAT





Inspect the float valve and seat for wear or damage. Replace them as a set if wear or damage can be seen.

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

Before removing the pilot screw, record the number of turns in before the screw seats lightly. The pilot screw can then be returned to its original position, during reassembly without performing pilot screw adjustment.

Remove the pilot screw.

Blow open all jets and body openings with compressed air.

Inspect the pilot screw, needle jet, needle jet holder and main jet. Check each part for wear or damage.

Replace any parts that show wear or damage.

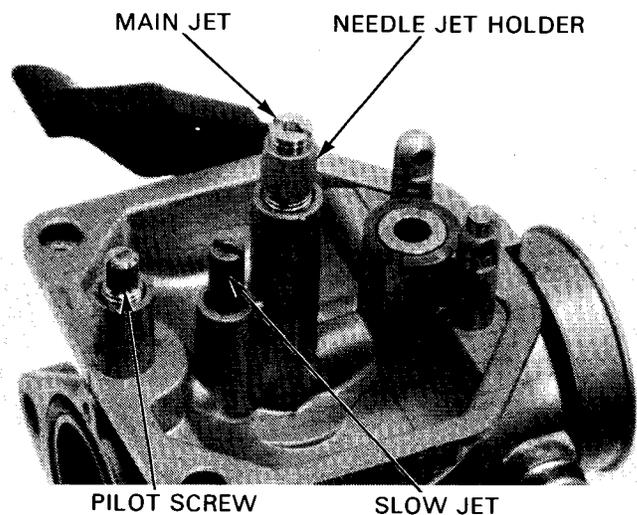
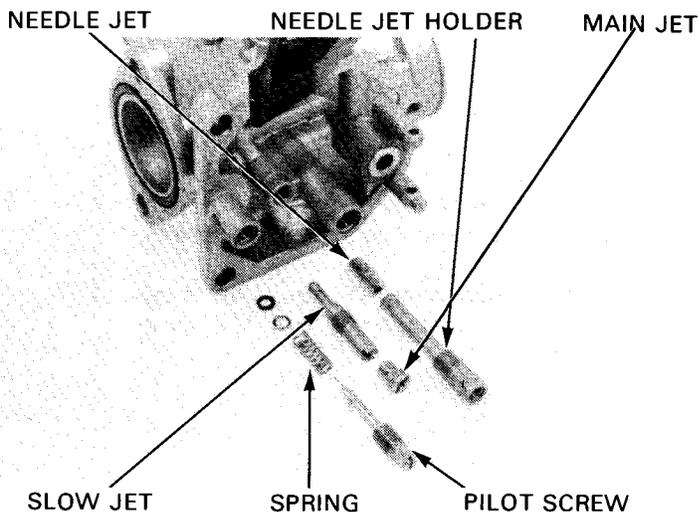
CARBURETOR ASSEMBLY

Carburetor assembly is essentially the reverse order of disassembly.

NOTE

- Use new O-rings whenever the carburetor is reassembled.
- Handle all jets and needles with care. They can easily be scored or scratched.
- Set the pilot screw to the position recorded during disassembly.

WEAR OR DAMAGE





FUEL SYSTEM

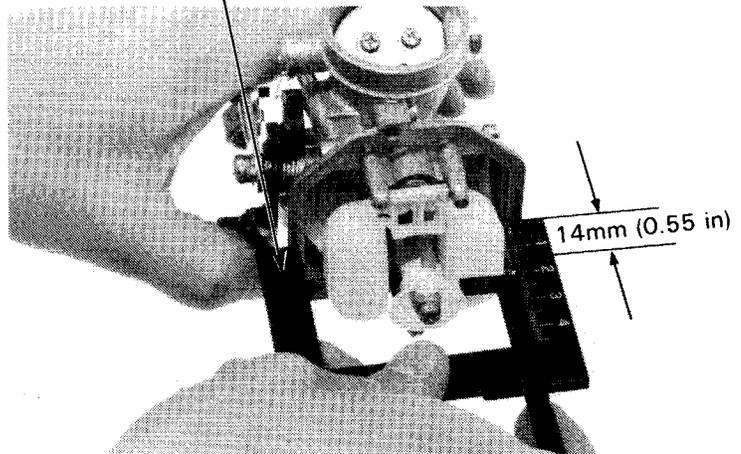
FLOAT LEVEL ADJUSTMENT

Measure the float level with a float level gauge as shown.

FLOAT LEVEL: 14mm (0.55 in)

To adjust the float level, bend the float arm carefully until the float tip just contacts the float valve.

FLOAT LEVEL GAUGE



THROTTLE VALVE ASSEMBLY

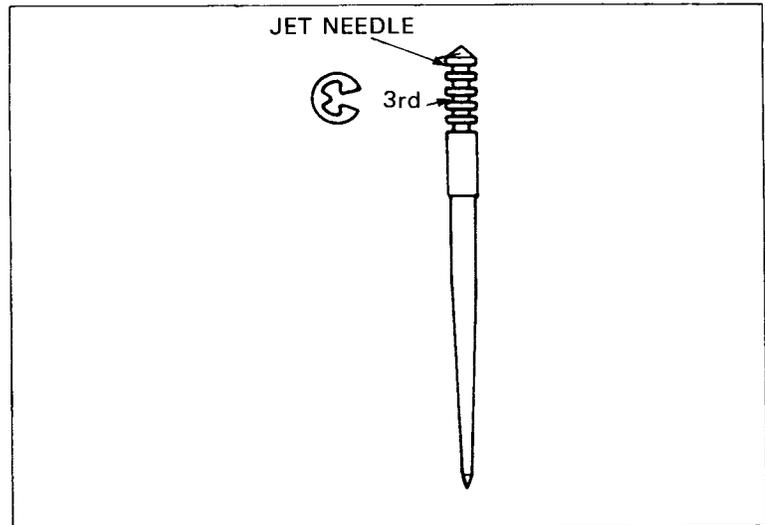
Install the needle clip on the jet needle.

STANDARD SETTING: 3rd groove

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

Install the throttle cable and spring into the throttle valve.

Install the throttle valve into the carburetor body aligning the groove on the valve with the pin in the carburetor.

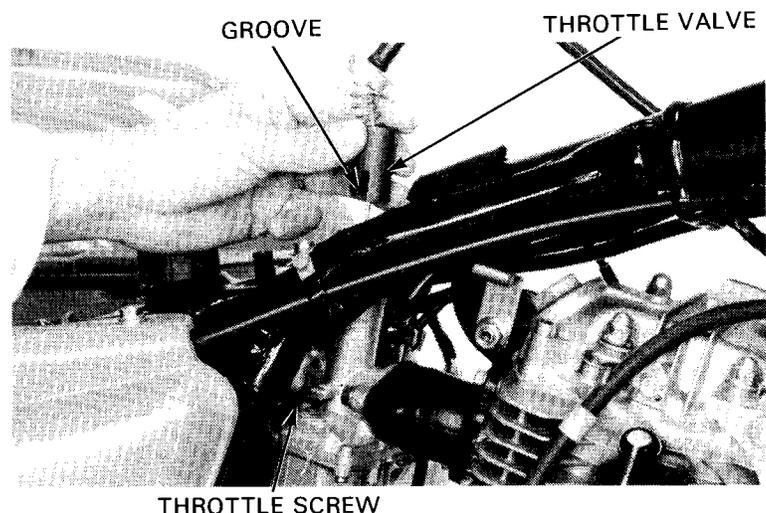


CARBURETOR INSTALLATION

Carburetor installation is essentially the reverse of removal.

NOTE

- After installing the carburetor, perform the following adjustments:
Throttle lever free play (Page 3-7).
Carburetor pilot screw adjustment (Page 4-10) if the carburetor was overhauled.





PILOT SCREW ADJUSTMENT

NOTE

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

CAUTION:

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

Turn the pilot screw clockwise until it seats lightly and back it out 1 1/8.

This is an initial setting prior to the final pilot screw adjustment.

Warm the engine up to operating temperature.

Stop the engine and connect a tachometer.

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

IDLE SPEED: 1,400 ± 100 rpm

Turn the pilot screw clockwise slowly until the engine stops, and then back it out 1 turn. Start the engine and readjust the idle speed with the throttle stop screw, if necessary.

HIGH ALTITUDE ADJUSTMENT

The carburetor must be adjusted for high altitude riding (above 6,000 ft/1,800 m).

STANDARD SETTING : 6,000 ft (1,800 m) max.

HIGH ALTITUDE SETTING:

5,000 ft (1,500 m) min.

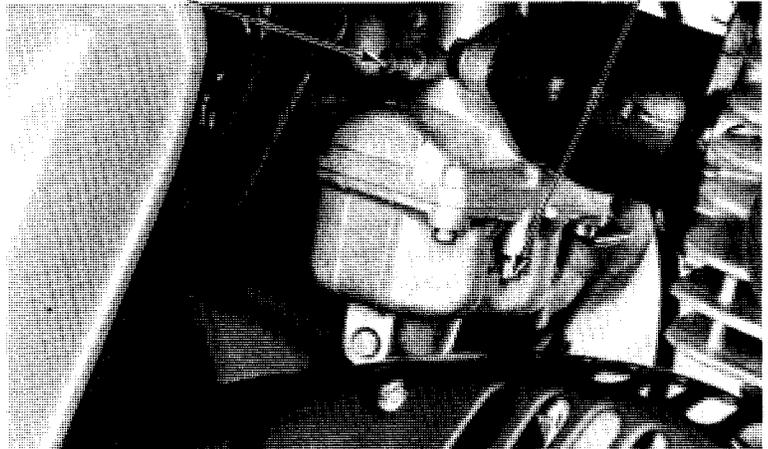
High altitude carburetor adjustment is performed as follows:

Remove and disassemble the carburetor (Page 4-5 and 4-6).

Replace the standard main jet with the high altitude type (#90).

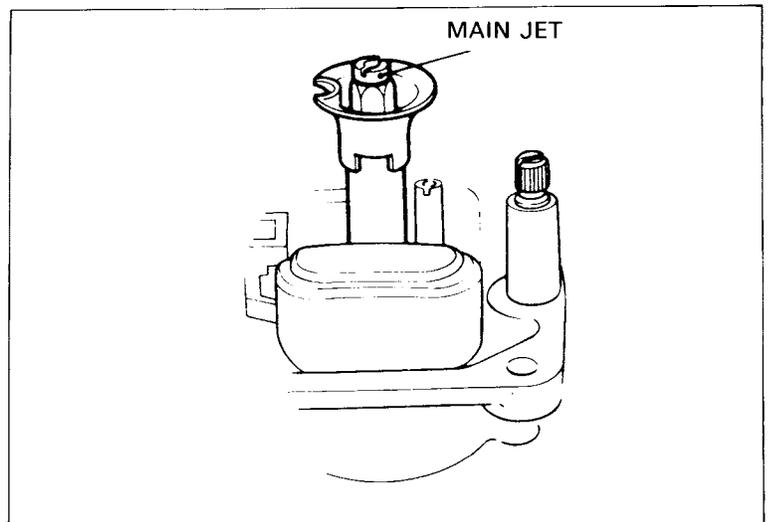
THROTTLE STOP SCREW

PILOT SCREW



SPECIFICATIONS

	Below 6,000ft(1,800m)	Above 5,000ft(1,500m)
Main jet	No.95	No.90
Pilot screw opening	Factory preset	Factory preset
Jet needle	3rd groove	2nd groove





FUEL SYSTEM

Remove the throttle valve and remove the jet needle (Page 4-7).

Change the jet needle clip position from the 3rd groove (standard) to the 2nd groove.

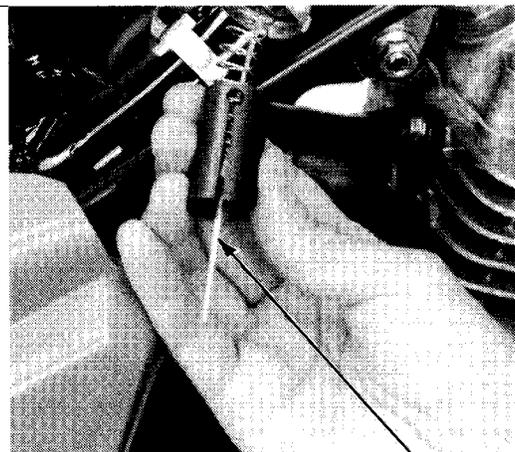
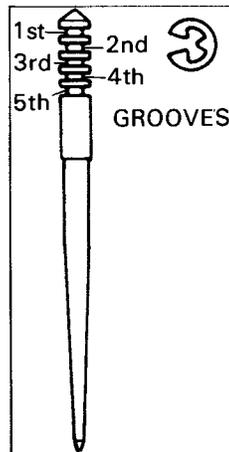
Install the jet needle and install the throttle valve.

Assemble and install the carburetor.

Start the engine and adjust the idle speed at high altitude to ensure proper high altitude operation.

CAUTION:

Sustained operation below 5,000 feet (1,500 m) with the high altitude settings may cause engine overheating and engine damage. Install the # 95 main jet, return the jet needle clip position to the 3rd groove. When riding below 5,000 feet (1,500 m).

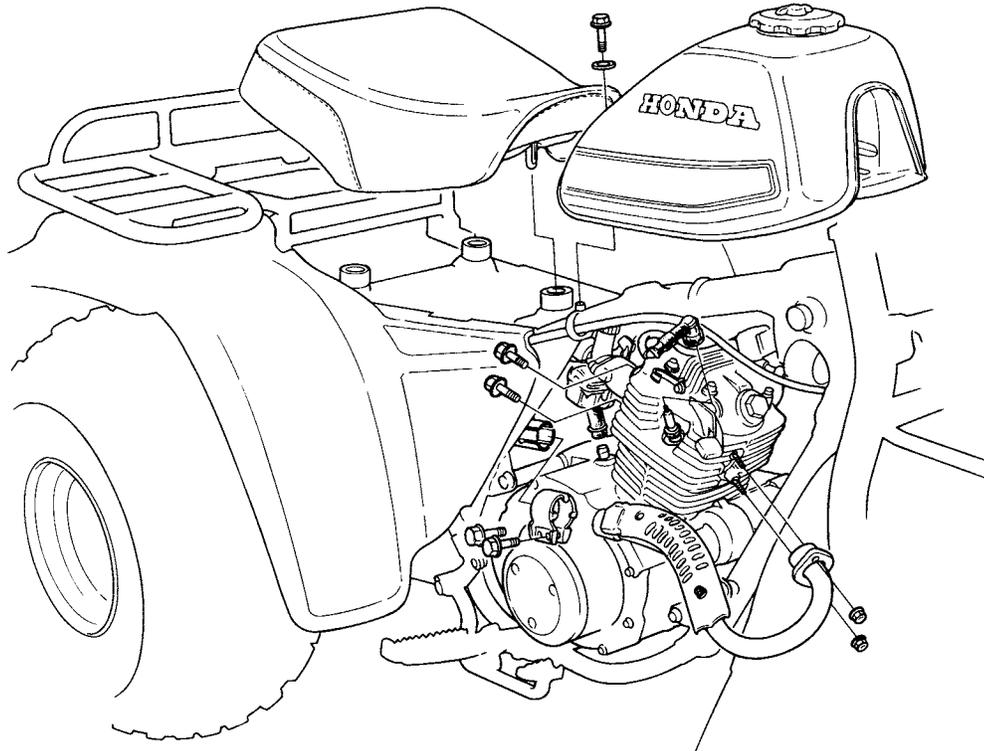


JET NEEDLE

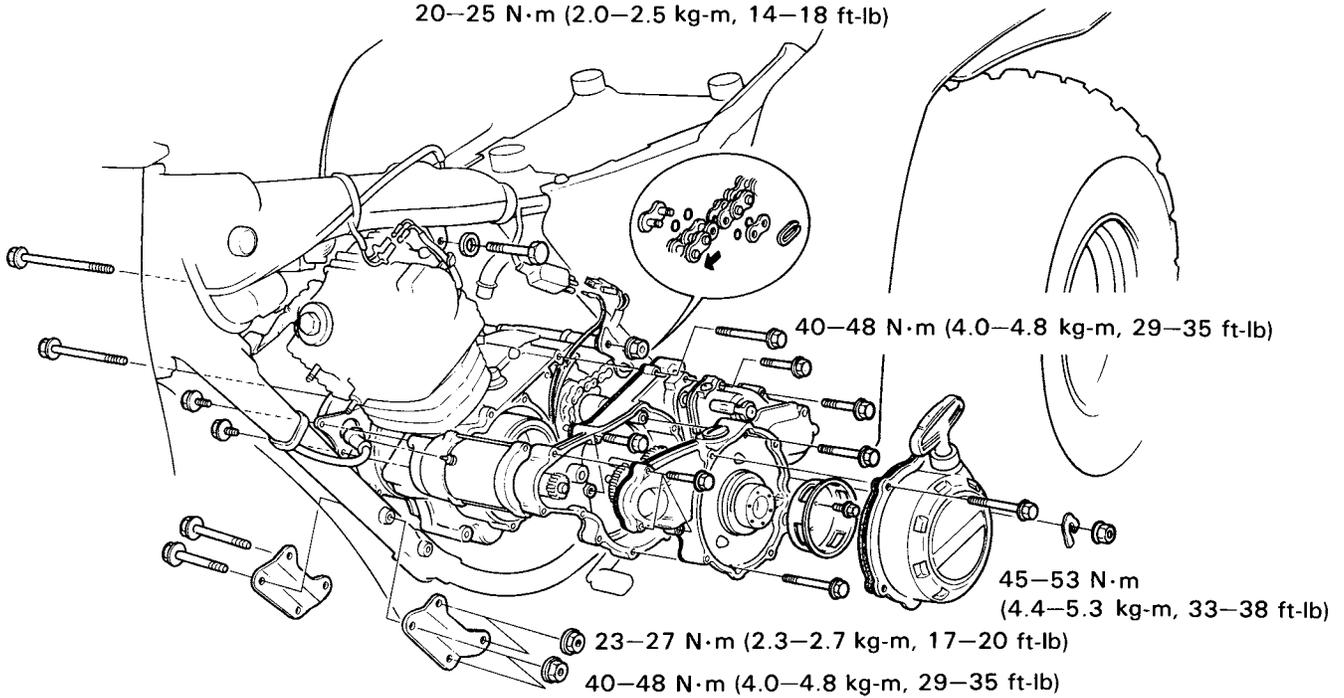


MEMO





20–25 N·m (2.0–2.5 kg-m, 14–18 ft-lb)





SERVICE INFORMATION	5-1
ENGINE REMOVAL	5-2
ENGINE INSTALLATION	5-5

SERVICE INFORMATION

GENERAL INSTRUCTIONS

This section covers removal and installation of the engine.

Operations requiring engine removal:

- Cylinder head Section 6
- Cylinder and piston Section 7
- Crankshaft, transmission Section 10

Upon reassembly, make sure that no exhaust gas leaks past the exhaust pipe connection.

SPECIFICATIONS

Engine dry weight	38.6 kg (85.0 lbs)
Engine oil capacity	1.5 lit (1.59 US qt, 1.32 Imp qt) after disassembly 1.3 lit (1.37 US gal, 1.14 Imp gal) after draining

TORQUE VALUES

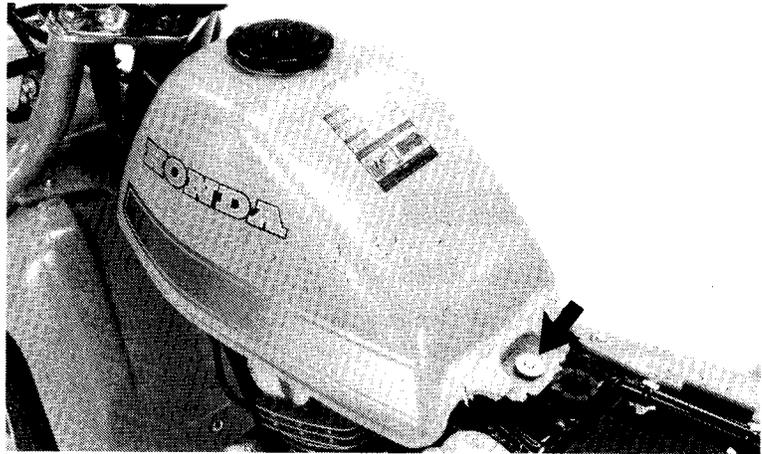
Upper engine hanger nut	20-25 N·m (2.0-2.5 kg-m, 14-18 ft-lb)
Front engine hanger 8 mm nut	23-27 N·m (2.3-2.7 kg-m, 17-20 ft-lb)
10 mm nut	40-48 N·m (4.0-4.8 kg-m, 29-35 ft-lb)
LOWER 10 mm nut	45-53 N·m (4.5-5.3 kg-m, 33-38 ft-lb)
Rear engine hanger nut upper 10 mm	40-48 N·m (4.0-4.8 kg-m, 29-35 ft-lb)
Carburetor mounting nut	6- 9 N·m (0.6-0.9 kg-m, 4- 7 ft-lb)
Rear axle bearing holder bolt	50-70 N·m (5.0-7.0 kg-m, 36-51 ft-lb)



ENGINE REMOVAL/INSTALLATION

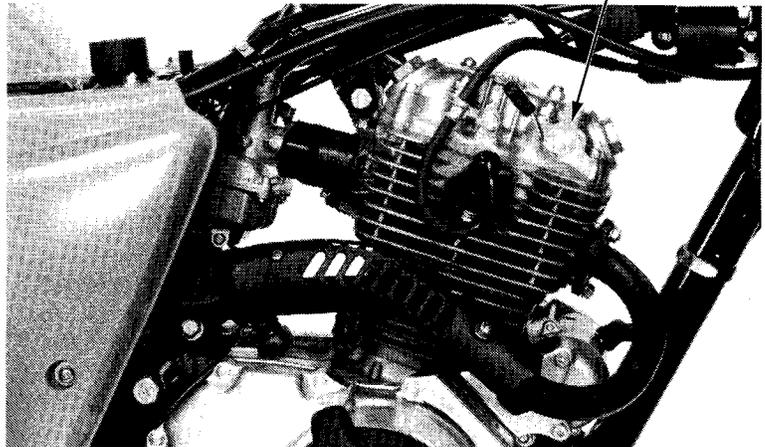
ENGINE REMOVAL

Drain the oil from the engine.
Remove the seat.
Turn the fuel valve OFF, disconnect the fuel tube and remove the fuel tank (Page 4-3).
Shift the transmission to neutral.



Disconnect the spark plug cap.
Remove the exhaust pipe.

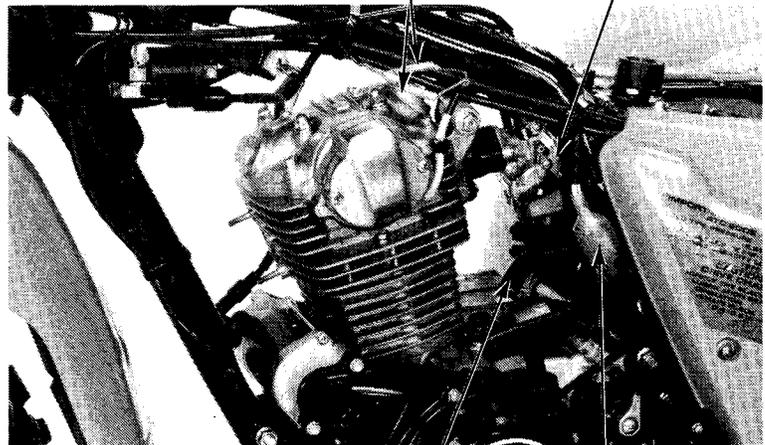
SPARK PLUG CAP



Disconnect the crank case breather tube from the crankcase.
Disconnect the alternator coupler and pulse wires and starter cable.
Remove the carburetor (Page 4-6).
Remove the gearshift pedal.

PULSE WIRES

CARBURETOR



BREATHER TUBE

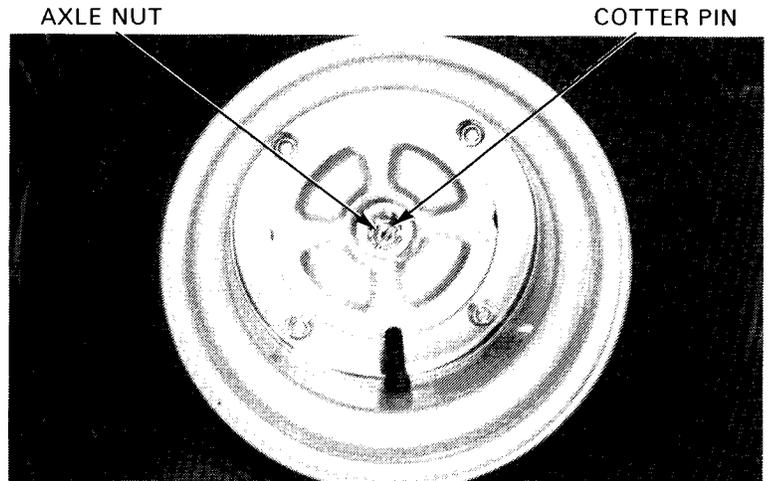
ALTERNATOR WIRES

CAUTION:

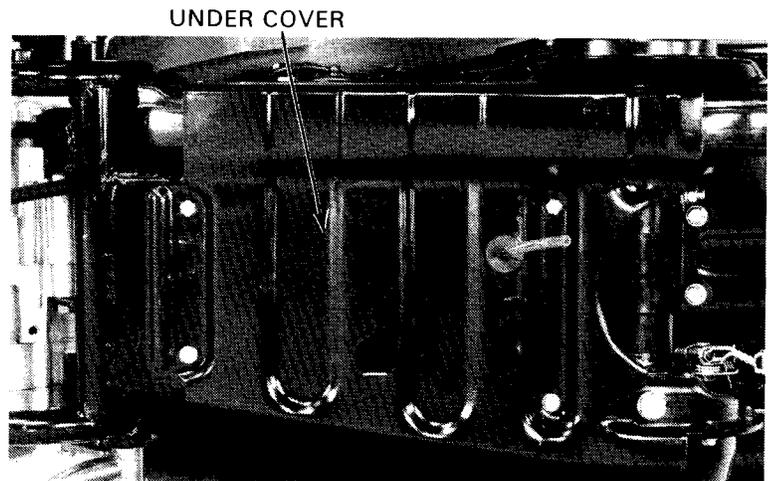
Remove the battery negative cable when remove engine.



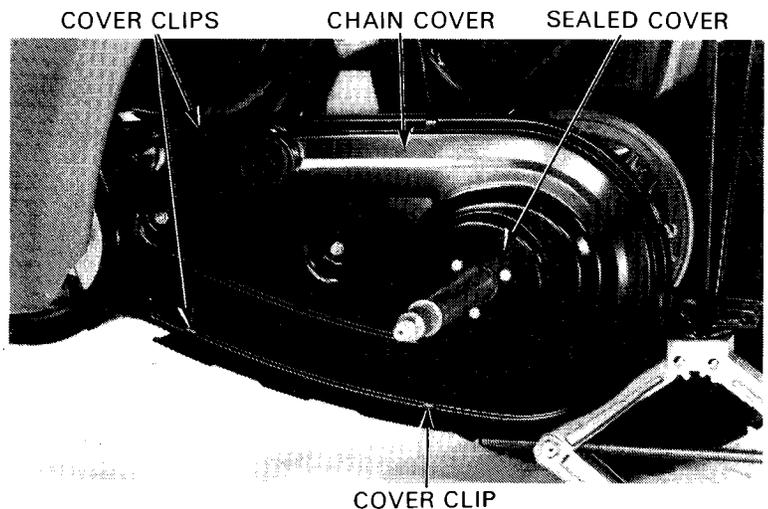
Remove the cotter pin from the left axle nut.
Remove the left rear wheel axle nut and wheel.



Remove the frame under cover by removing four bolts.



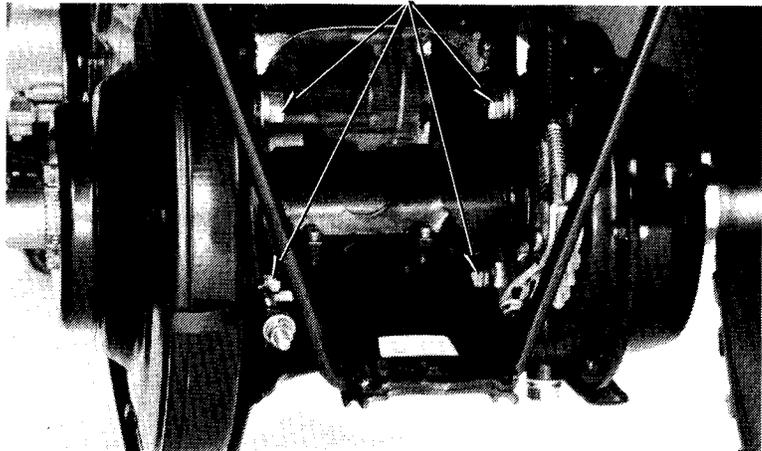
Remove the sealed cover on the drive chain cover by removing three bolts.
Pull off the chain cover clips.
Remove the bolts attaching to the frame.
Remove the drive chain cover.





Loosen the rear wheel bearing holder attaching bolt and drive chain adjusting nuts.

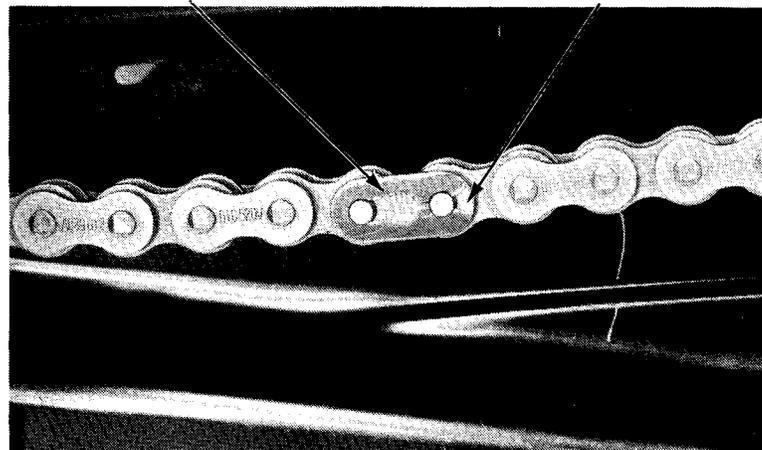
REAR WHEEL BEARING HOLDER



Remove the chain master link and drive chain.

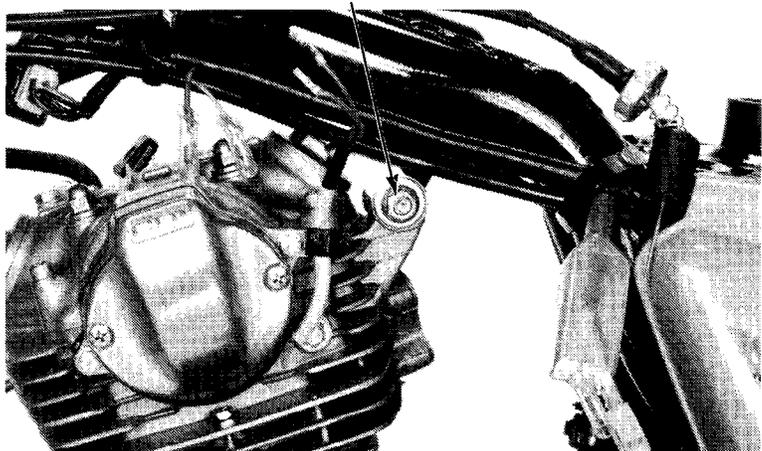
MASTER LINK

DRIVE CHAIN



Remove the upper engine hanger bolt.

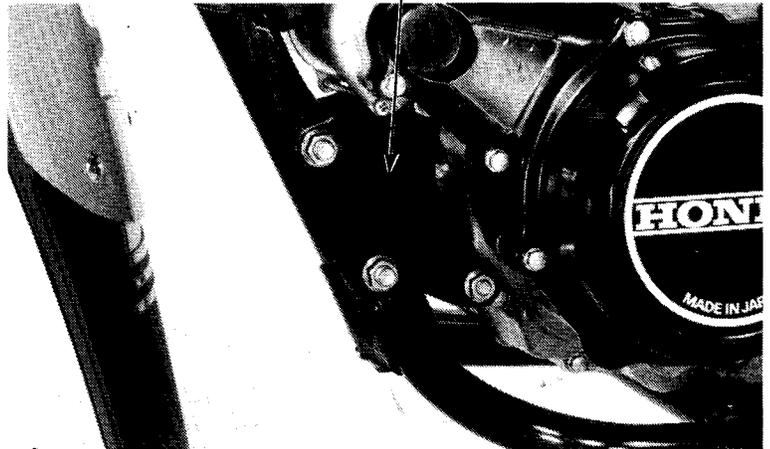
UPPER ENGINE HANGER BOLT





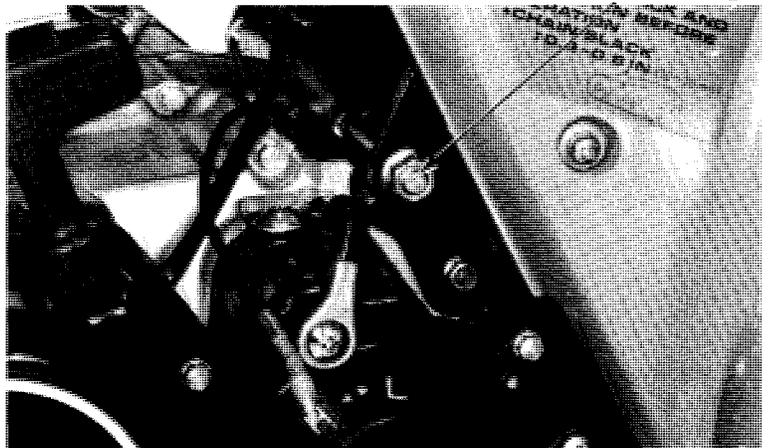
Remove the front engine hanger bolt and plates.

FRONT ENGINE HANGER PLATE



Remove the rear engine hanger bolts.
Remove the engine from the left side of the frame.

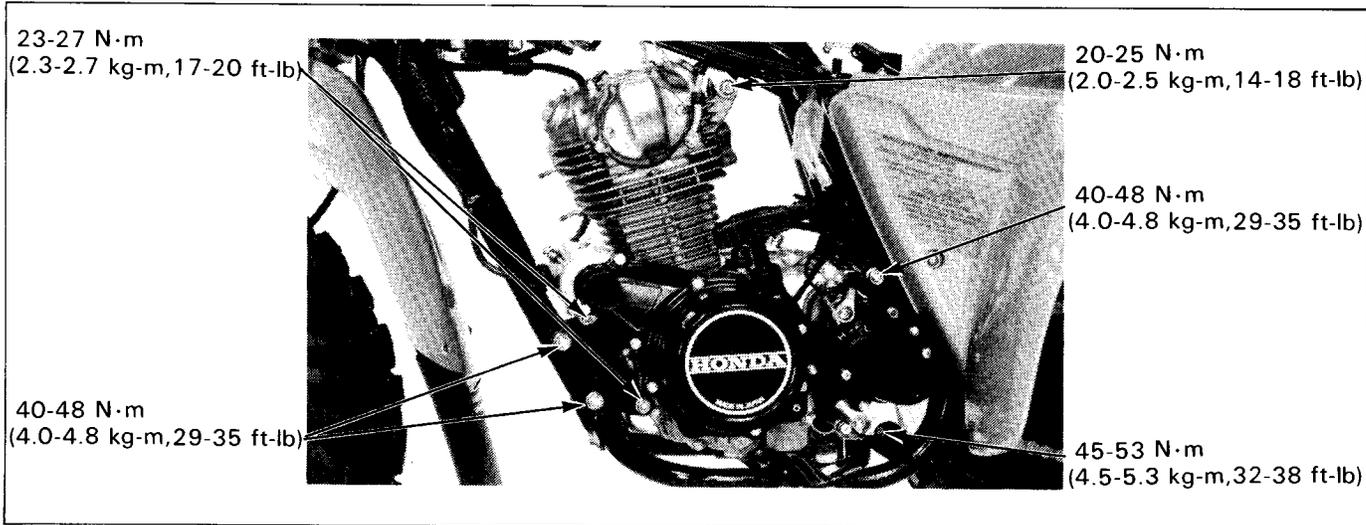
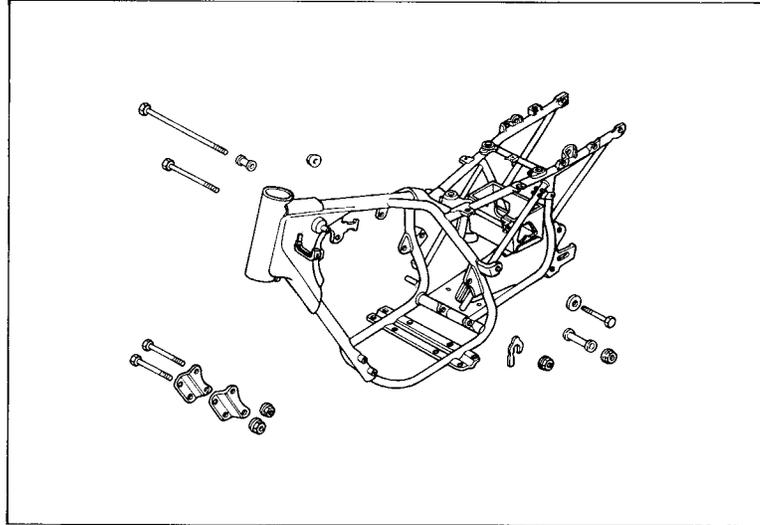
REAR ENGINE HANGER BOLT





ENGINE REMOVAL/INSTALLATION

Install the engine using the correct bolts in their proper positions.
Tighten the engine hanger bolts to specified torque values after they are installed loosely.
Install the drive chain and cover.
Install the frame under cover and left rear wheel.



Install the shift pedal.
Install the carburetor.
Route and connect the alternator and pulse generator wires.
Connect the crankcase breather.

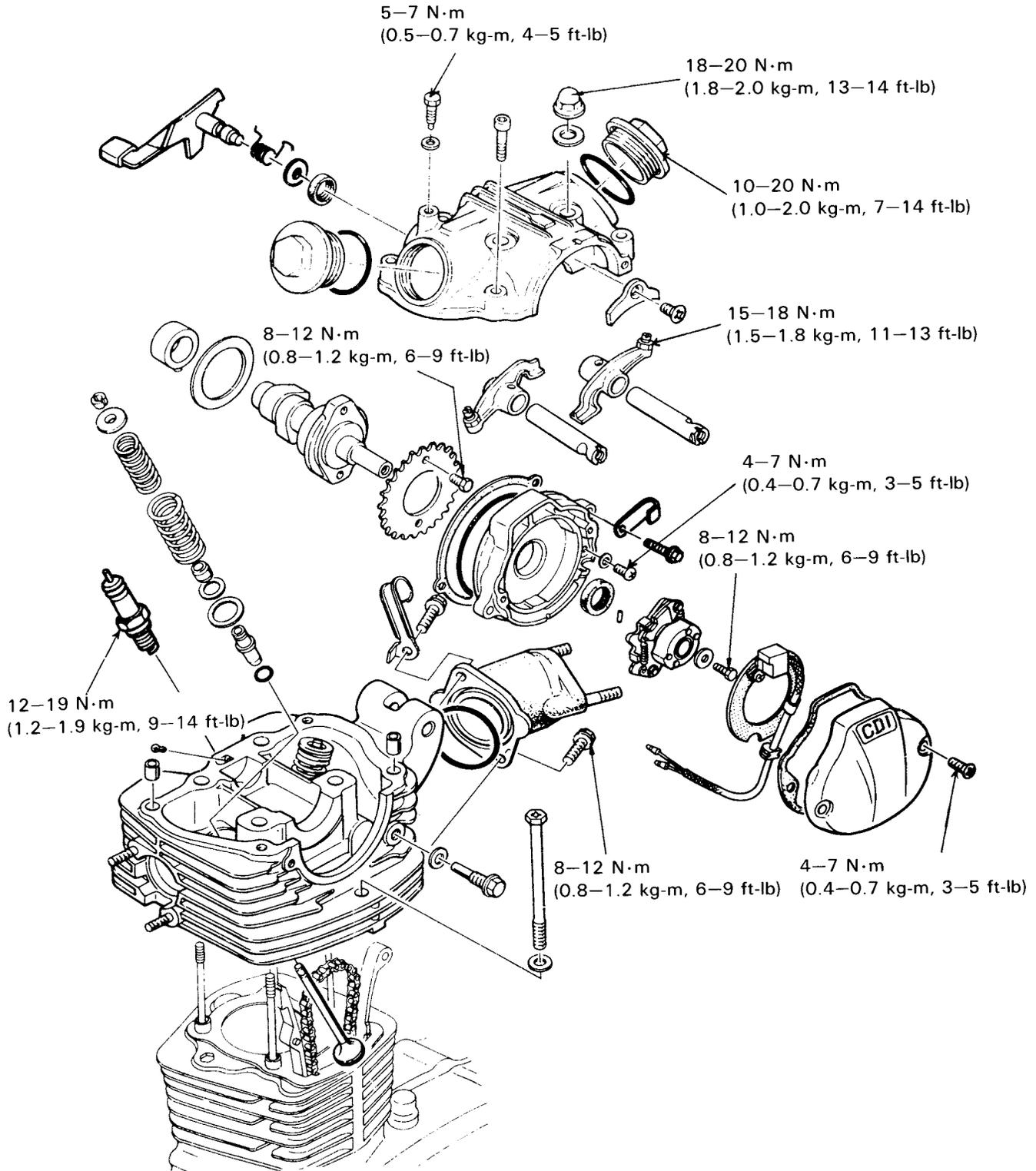
NOTE

- After installing the engine, perform the following inspections and adjustments:
- Engine oil level (Page 2-2)
 - Throttle lever free play (Page 3-7)
 - Drive chain slack (Page 3-9)
 - Check that exhaust gas is not leaking past the exhaust pipe connection
 - Check the electrical equipment performance.



MEMO







SERVICE INFORMATION	6-1	CYLINDER HEAD DISASSEMBLY	6-8
TROUBLESHOOTING	6-2	VALVE SEAT INSPECTION/REFACING	6-11
CAMSHAFT REMOVAL	6-3	CYLINDER HEAD ASSEMBLY	6-13
CYLINDER HEAD COVER REMOVAL	6-5	CYLINDER HEAD INSTALLATION	6-14
CYLINDER HEAD REMOVAL	6-7	CAMSHAFT INSTALLATION	6-17

SERVICE INFORMATION

GENERAL

- This Section covers cylinder head, valves, camshaft and rocker arms maintenance.
- The engine must be removed from the frame to service the cylinder head and valves. (To remove the cylinder head cover or the rocker arms, engine removal is not required)
- Camshaft lubrication oil is fed to the cylinder head through an oil control orifice in the engine case. Be sure this orifice is not clogged and that the O-rings and dowel pins are in place before installing the cylinder head.
- Before assembly, apply molybdenum disulfide grease to the camshaft bearings to provide initial lubrication.
- Pour clean engine oil into the oil pockets in the cylinder head during assembly to lubricate the cam shaft lobes.

SPECIFICATIONS

ITEM			STANDARD	SERVICE LIMIT
Cylinder compression			11.0±1.0 kg/cm ² (159±14 psi)	—————
Camshaft	Cam lift	IN	31.379 mm (1.2354 in)	31.199 mm (1.2283 in)
		EX	30.978 mm (1.2196 in)	30.798 mm (1.2125 in)
	Journal OD	R	19.967–19.980 mm (0.7861–0.7866 in)	19.90 mm (0.783 in)
		L	33.957–33.970 mm (1.3370–1.3376 in)	33.90 mm (1.335 in)
Cylinder head	Bearing ID	L	33.980–34.075 mm (1.3378–1.3415 in)	34.05 mm (1.3405)
	Warpage		—————	0.10 mm (0.0039 in)
Camshaft bushing		ID	20.005–20.026 mm (0.7876–0.7884 in)	20.05 mm (0.789 in)
Rocker arm		ID	12.000–12.018 mm (0.4724–0.4730 in)	12.05 mm (0.474 in)
Rocker arm shaft		OD	11.977–11.995 mm (0.4715–0.4722 in)	11.93 mm (0.470 in)
Rocker arm-to-shaft clearance			0.005–0.041 mm (0.0002–0.0016 in)	0.08 mm (0.003 in)
Valve spring	Free length	Inner	39.4 mm (1.55 in)	35.5 mm (1.40 in)
		Outer	45.5 mm (1.79 in)	41.0 mm (1.61 in)
	Preload	Inner	83.0±0.6 kg/33.7 mm (18.3±1.3 lb /1.33 in)	—————
		Outer	21.0±1.5 kg/38.4 mm (46.3±3.3 lb /1.51 in)	—————
Valve, valve guide	Stem OD	IN	5.450–5.465 mm (0.2146–0.2152 in)	5.42 mm (0.213 in)
		EX	5.430–5.445 mm (0.2138–0.2144 in)	5.40 mm (0.213 in)
	Guide ID	IN	5.475–5.485 mm (0.2156–0.2159 in)	5.50 mm (0.217 in)
		EX	5.475–5.485 mm (0.2156–0.2159 in)	5.50 mm (0.217 in)
	Stem-to-guide clearance	IN	0.010–0.035 mm (0.0004–0.0014 in)	0.12 mm (0.005 in)
		EX	0.030–0.055 mm (0.0012–0.002 in)	0.14 mm (0.006 in)
Valve face width			1.7 mm (0.07 in)	2.0 mm (0.08 in)
Valve seat width			1.2 mm (0.05 in)	1.5 mm (0.06 in)



CYLINDER HEAD/VALVES

TORQUE VALUES

Cylinder head	28–30 N.m (2.8–3.0 kg-m, 20–22 ft-lb)
Cam sprocket	8–12 N.m (0.8–1.2 kg-m, 6– 9 ft-lb)
Carburetor insulator	8–12 N.m (0.8–1.2 kg-m, 6– 9 ft-lb)
Pulse rotor	8–12 N.m (0.8–1.2 kg-m, 6– 9 ft-lb)
Decompressor pivot bolt	5– 7 N.m (0.5–0.7 kg-m, 4– 5 ft-lb)
Valve adjuster cover	10–14 N.m (1.0–1.4 kg-m, 7–10 ft-lb)
Spark plug	12–19 N.m (1.2–1.9 kg-m, 9–14 ft-lb)
Pulse cover screw	4– 7 N.m (0.4–0.7 kg-m, 3– 5 ft-lb)
Pulse generator screw	4– 7 N.m (0.4–0.7 kg-m, 3– 5 ft-lb)
Valve adjuster lock nut	15–18 N.m (1.5–1.8 kg-m, 10–13 ft-lb)

TOOLS

Special	
Valve Guide Reamer 5.48 mm	07984–0980000
Common	
Valve Guide Driver B	07742–0020200 or 07942–3290200
Valve Guide Remover 5.5 mm	07742–0010100 or 07942–3290100
Valve Spring Compressor	07757–0010000 or 07957–3290001

TROUBLESHOOTING

Engine top-end problems usually affect engine performance. These problems can be diagnosed by a compression test, or by tracing engine noises to the top-end with a sounding rod or stethoscope.

Low compression

1. Valves:
 - Incorrect valve adjustment.
 - Burned or bent valve.
 - Incorrect valve timing.
 - Weak valve spring.
2. Cylinder head:
 - Leaking or damaged head gasket.
 - Warped or cracked cylinder head.
3. Cylinder and piston (Section 7).
4. Faulty decompressor lever.

High compression

- Excessive carbon build-up on piston crown or on combustion chamber.

Excessive noise

1. Incorrect valve adjustment.
2. Sticking valve or broken valve spring.
3. Damaged or worn rocker arm or camshaft.
4. Worn or damaged cam chain.
5. Worn or damaged cam chain tensioner.
6. Worn cam sprocket teeth.

Poor idling

1. Compression too low.
2. Faulty decompressor lever.

Hard starting

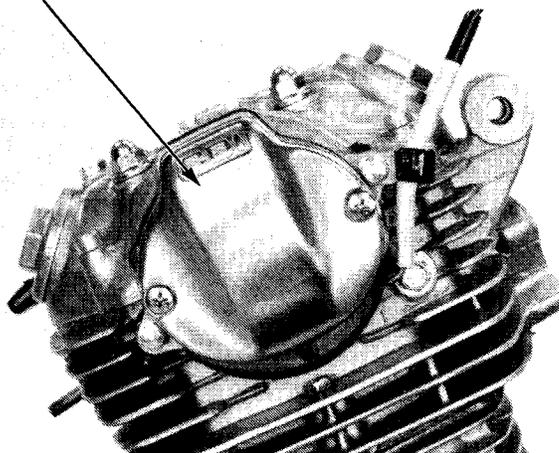
- Faulty decompressor lever.



CAMSHAFT REMOVAL

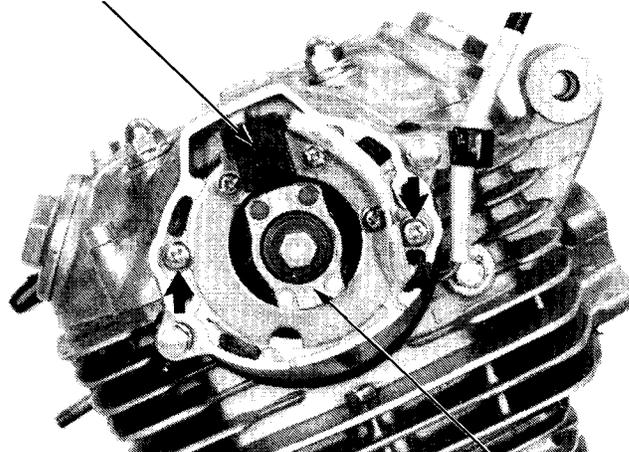
Remove the pulse cover.

PULSE COVER



Remove the pulse generator screws, and remove the pulse generator.
Remove the pulse rotor.

PULSE GENERATOR

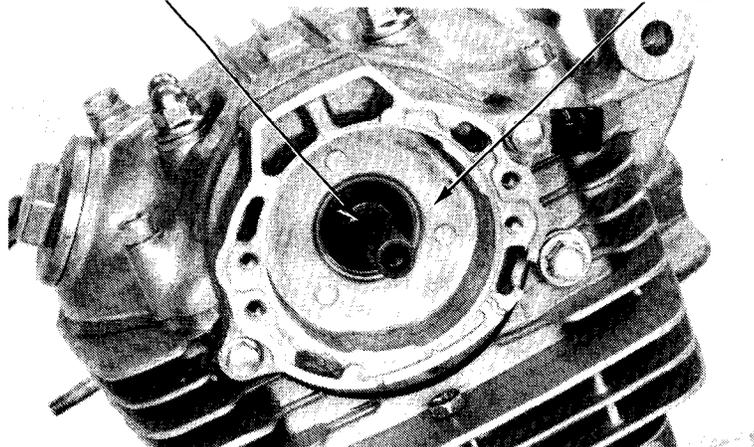


PULSE ROTOR

Remove the dowel pin.
Remove the pulse base.

DOWEL PIN

PULSE BASE

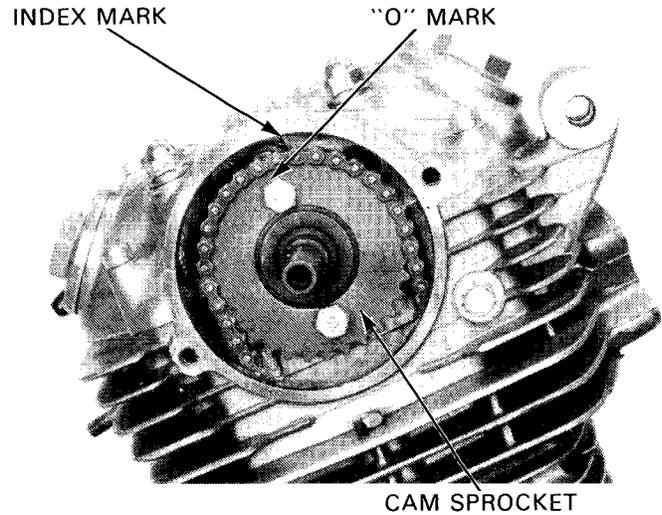




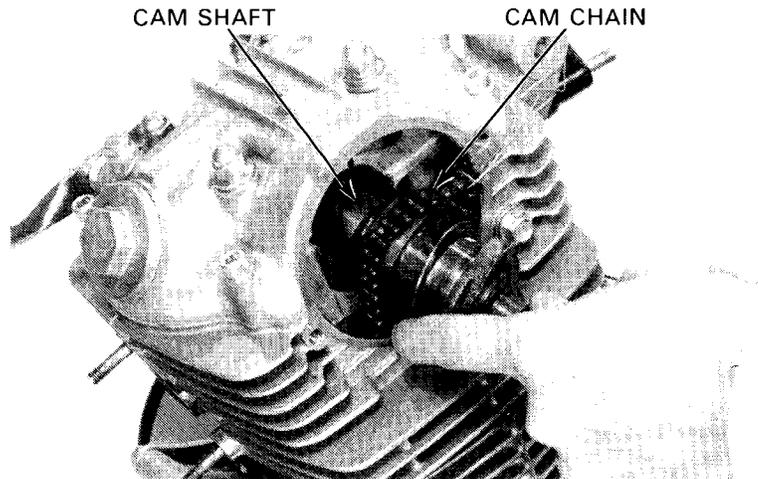
CYLINDER HEAD/VALVES

Remove the timing mark hole cap.
Turn the crankshaft with the recoil starter until the cam sprocket "O" mark and cylinder head index mark align.

Remove the cam sprocket bolts and cam sprocket.



Remove the camshaft.
Suspend the cam chain with a piece of wire to prevent it from falling into the crankcase.



CAMSHAFT INSPECTION

Measure the camshaft O. D. with a micrometer.

STANDARD:

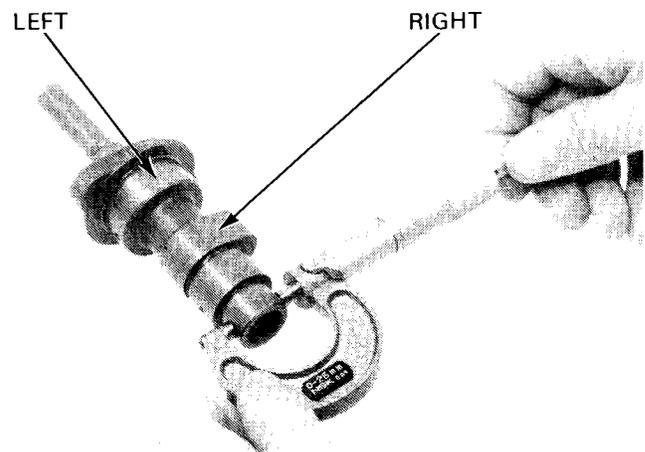
R: 19.967–19.980 mm (0.7861–0.7866 in)

L: 33.957–33.970 mm (1.3370–1.3376 in)

SERVICE LIMITS:

R: 19.90 mm (0.784 in)

L: 33.90 mm (1.335 in)





Using a micrometer, measure the height of each cam lobe height and inspect it for wear or damage.

STANDARD:

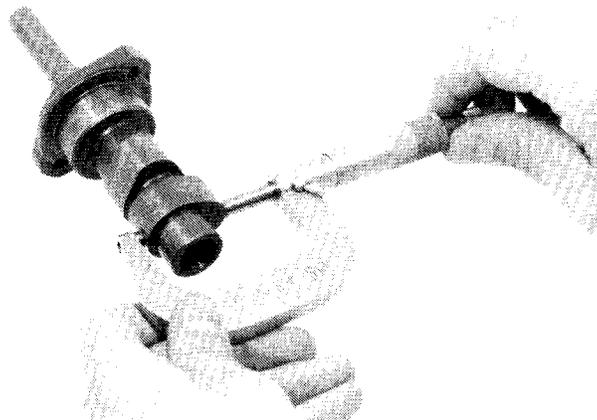
INTAKE: 31.379 mm (1.2354 in)

EXHAUST: 30.978 mm (1.2196 in)

SERVICE LIMIT:

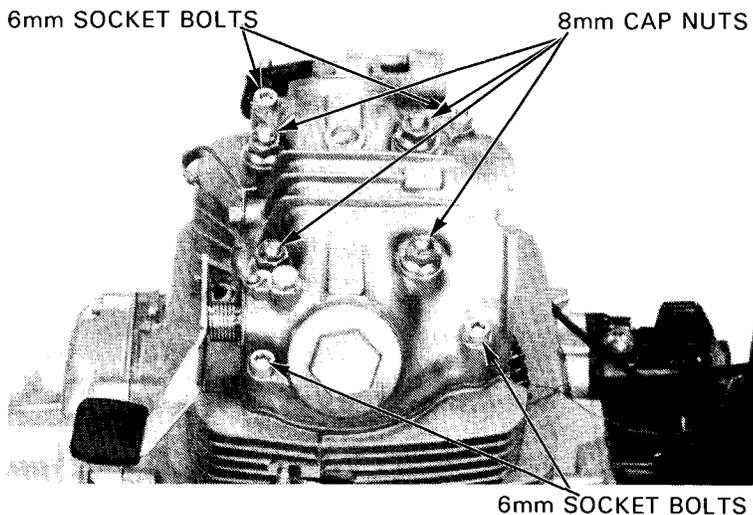
INTAKE: 31.199 mm (1.2283 in)

EXHAUST: 30.798 mm (1.2125 in)

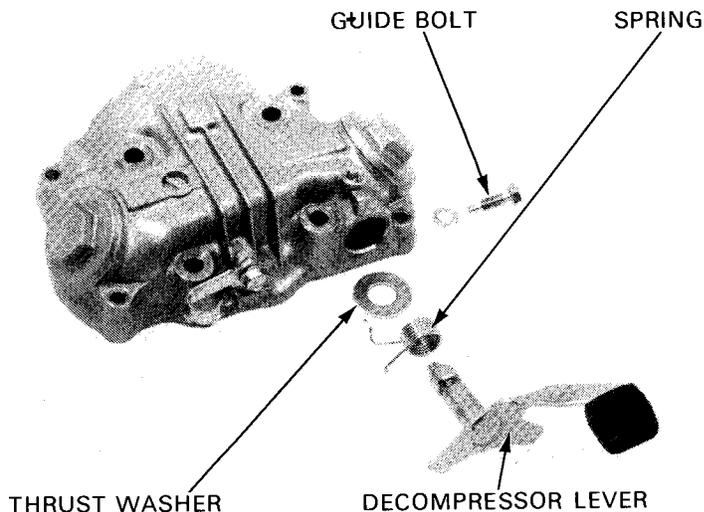


CYLINDER HEAD COVER REMOVAL

Remove the engine from the frame (Page 5-2).
Remove the 6 mm socket bolts and 8 mm cap nuts.
Remove the cylinder head cover and remove the camshaft bushing.

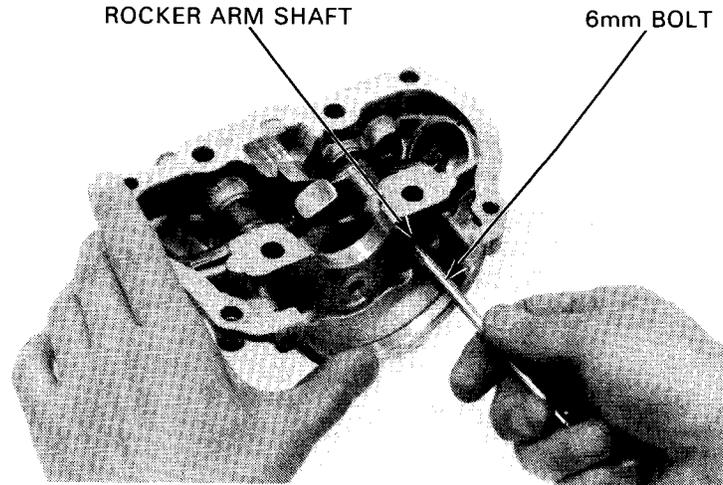


Remove the decompressor lever and spring by removing the decompressor lever guide bolt.





Remove the rocker arm shaft set plate.
Screw a 6 mm bolt into the rocker arm shaft threaded end. Pull on the bolt to remove the shafts and rocker arms.



ROCKER ARM INSPECTION

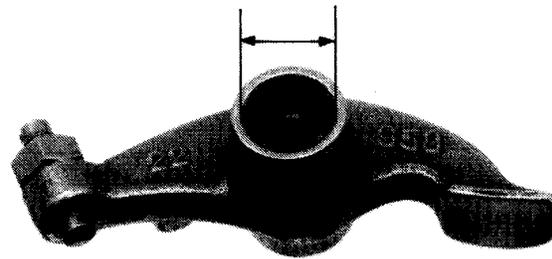
Inspect the rocker arms for damage, wear or clogged oil holes.

NOTE

If any rocker arms require servicing or replacement, inspect the cam lobes for scoring, chipping or flat spots.

Measure the I. D. of each rocker arm.

- STANDARD:**
12.000–12.018 mm (0.4724–0.4730 in)
- SERVICE LIMIT:**
12.05 mm (0.474 in)



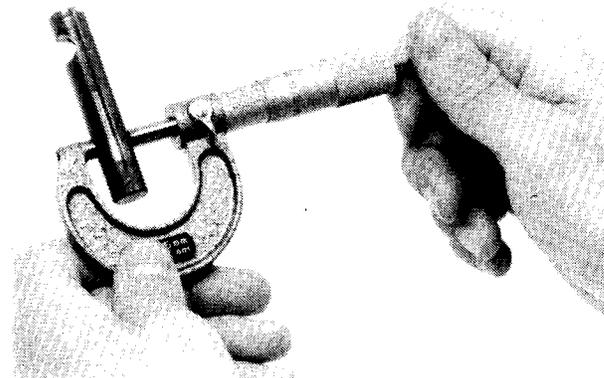
ROCKER ARM SHAFT INSPECTION

Inspect the rocker arm shafts for wear or damage.
Measure the O.D. with a micrometer.

Calculate the roker arm-to-shaft clearance.

SERVICE LIMIT:

- STANDARD:**
11.977–11.995 mm (0.4715–0.4722 in)
- SERVICE LIMIT:**
11.93 mm (0.470 in)





CAMSHAFT BEARING INSPECTION

Install the cylinder head cover with 8 mm nuts.

Measure the camshaft bearing I.D.

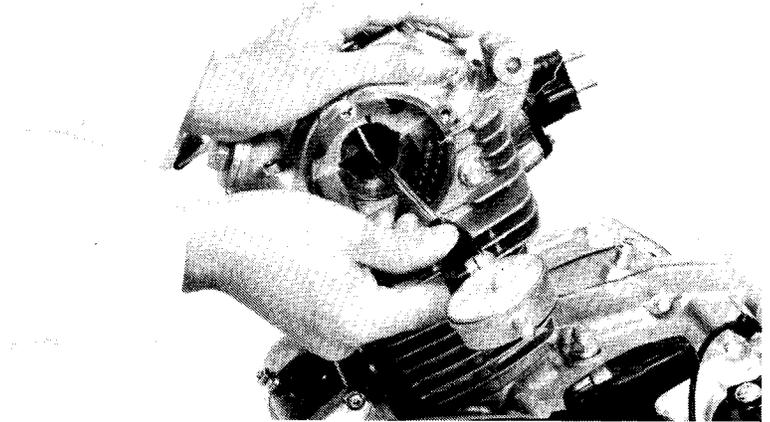
Calculate the camshaft-to-bearing clearance.

STANDARD:

33.980–34.075 mm (1.3378–1.3415 in)

SERVICE LIMIT:

34.05 mm (1.3405 in)



CAMSHAFT BUSHING INSPECTION

Measure the camshaft bushing I.D.

STANDARD:

20.005–20.026 mm (0.7876–0.7884 in)

SERVICE LIMIT:

20.05 mm (0.789 in)

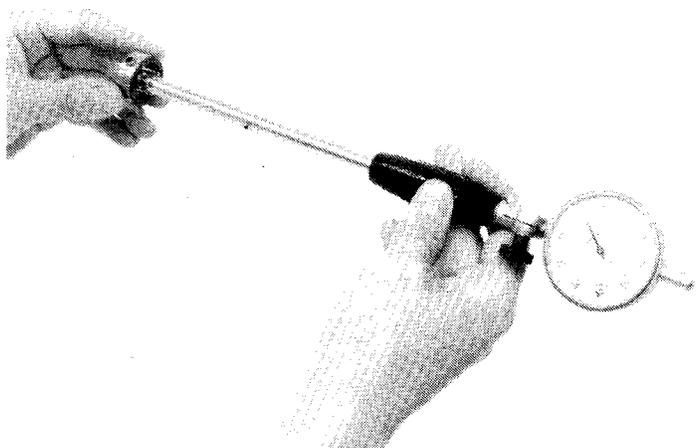
Calculate the camshaft bushing-to-camshaft clearance.

STANDARD:

0.005–0.041 mm (0.0002–0.0016 in)

SERVICE LIMIT:

0.08 mm (0.003 in)



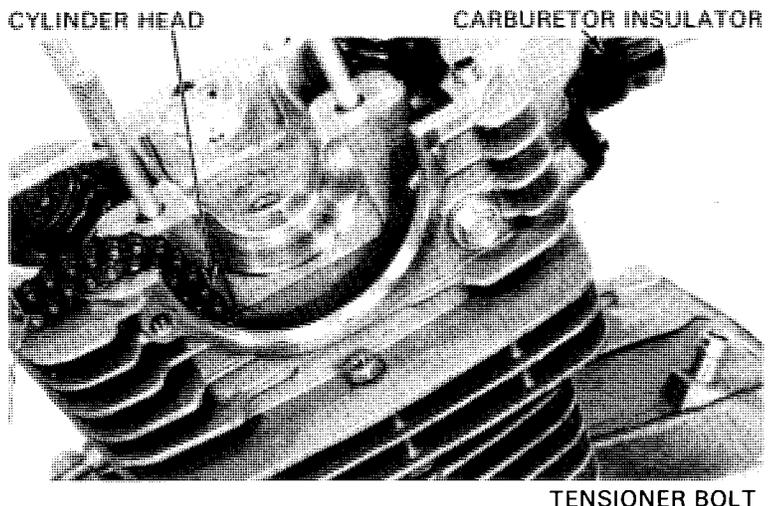
CYLINDER HEAD REMOVAL

Remove the cylinder head cover (Page 6–5) carburetor insulator.

Remove the cam chain tensioner bolt cylinder head bolts and cylinder head.

NOTE:

To prevent the cam chain from dropping into the crankcase, the cam chain should be held by a piece of wire.



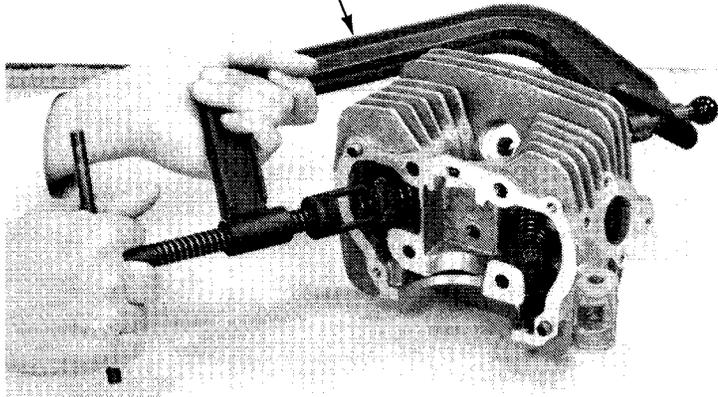


CYLINDER HEAD/VALVES

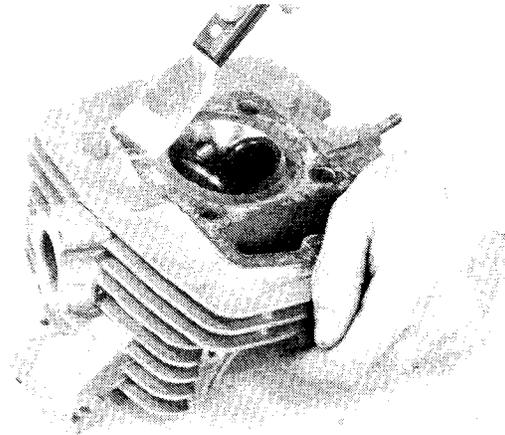
CYLINDER HEAD DISASSEMBLY

Remove the valve cotters, spring retainers and valve springs with a valve spring compressor.

VALVE SPRING COMPRESSOR



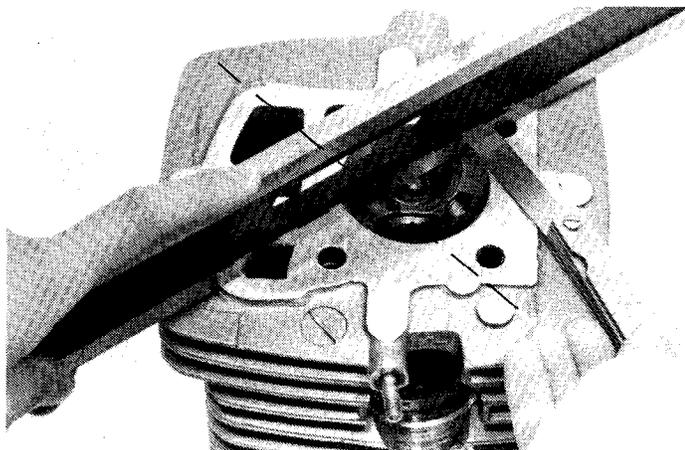
Remove carbon deposits from the combustion chamber.
Clean off any gasket material from the cylinder head surface.



CYLINDER HEAD INSPECTION

Check the spark plug hole and valve area for cracks.
Check the cylinder head diagonally for warpage with a straight edge and feeler gauge.

SERVICE LIMIT:
0.10 mm (0.0039 in)





VALVE SPRING INSPECTION

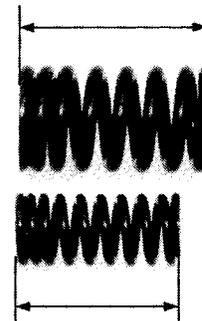
Measure the free length of the inner and outer valve springs.

STANDARD:

INNER: 39.4mm(1.55in)
OUTER: 45.5mm(1.79in)

SERVICE LIMITS:

INNER: 35.5mm(1.40in)
OUTER: 41.0mm(1.61in)



VALVE/VALVE GUIDE INSPECTION

Inspect each valve for trueness, burning, scratches or abnormal stem wear.

Check the valve movement in the guide.

Measure and record each valve stem O.D.

STANDARD:

INTAKE: 5.450—5.465mm(0.2146—0.2152in)
EXHAUST: 5.430—5.445mm(0.2138—0.2144in)

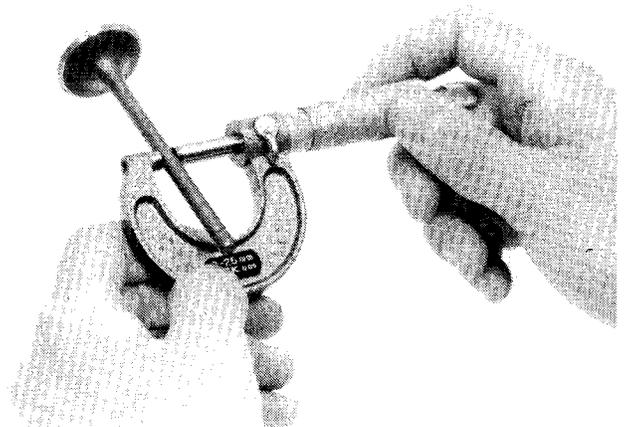
SERVICE LIMITS:

INTAKE: 5.42mm(0.213in)
EXHAUST: 5.40mm(0.213in)

Ream the guides to remove any carbon build up before checking the valve guide I.D.

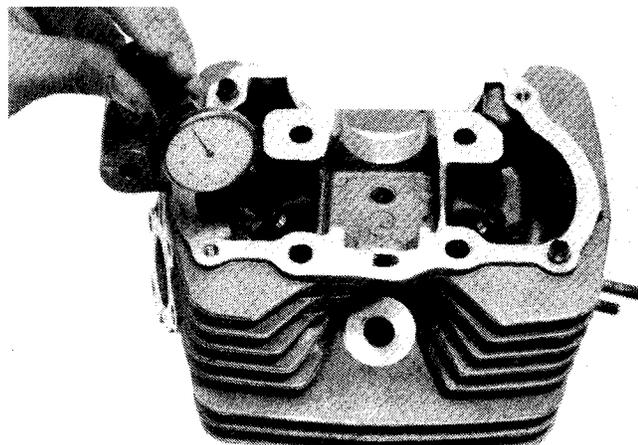
Calculate the stem-to-guide clearance.

Measure and record the valve guide I.D.



NOTE

- If the stem-to-guide clearance exceeds the service limit, determine if a new guide with standard dimensions would bring the clearance within tolerance. If so, replace guides as necessary and ream to fit.
- If the valve guide is replaced, the valve seat must be refaced.





CYLINDER HEAD/VALVES

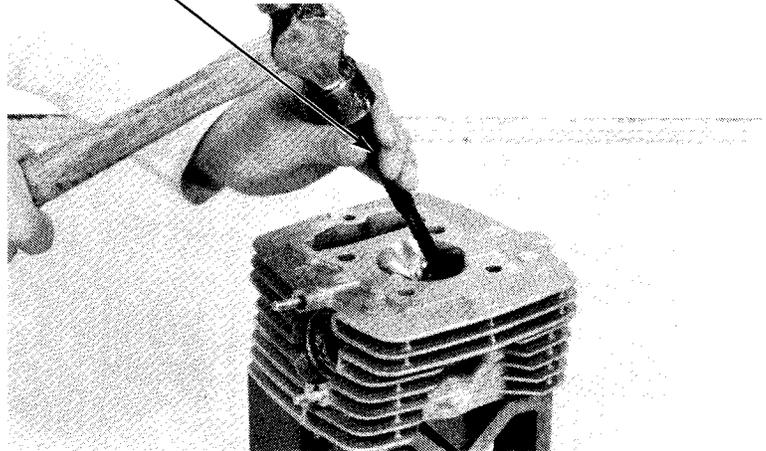
VALVE GUIDE REPLACEMENT

Support the cylinder head and drive out the guide from the valve port side with a valve guide remover.

NOTE

When driving out the guide, be careful not to damage the head.

VALVE GUIDE REMOVER

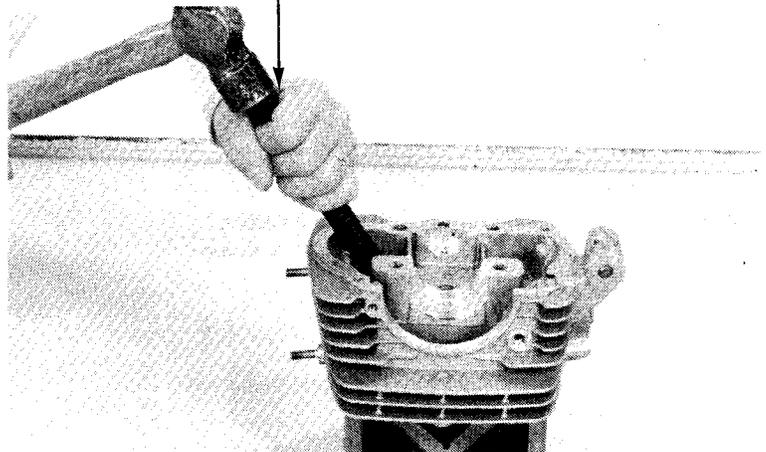


Install an O-ring on the new valve guide. Drive in the guide from the top of the head.

NOTE

Inspect the valve guide for damage.

VALVE GUIDE DRIVER



Ream the new valve guide after installation.

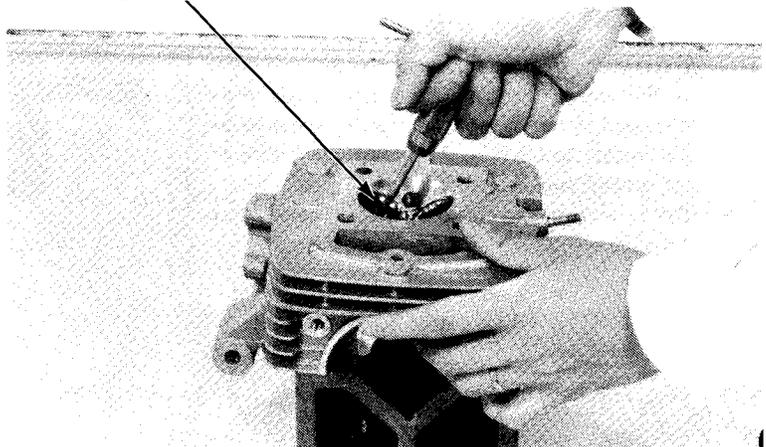
NOTE

- Use cutting oil on the reamer during this operation.
- Rotate the reamer when inserting and removing it.

Clean the cylinder head thoroughly to remove any metal particles.

Reface the valve seat

VALVE GUIDE REAMER





VALVE SEAT INSPECTION/ REFACING

Clean all intake and exhaust valves thoroughly to remove carbon deposits.

Apply a light coating of Prussian Blue to each valve seat. Lap each valve and seat using a rubber hose or other hand-lapping tool.

Remove and inspect each valve.

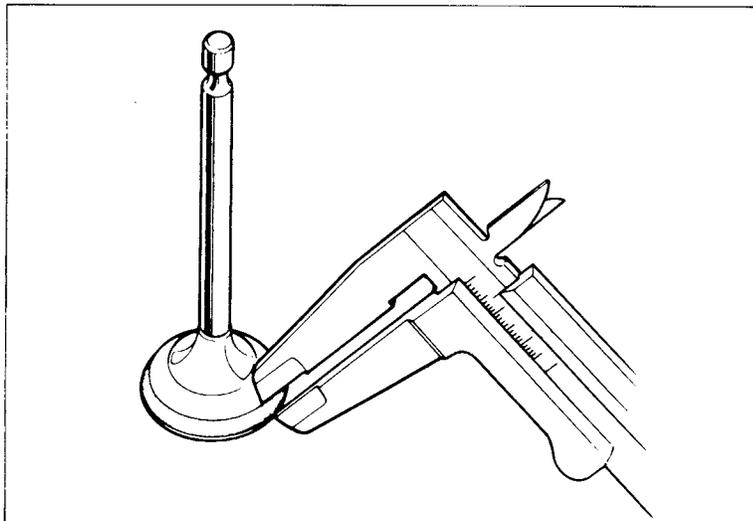
Measure the width of the valve face.

STANDARD: 1.7mm(0.07in)

SERVICE LIMIT: 2.0mm(0.08in)

CAUTION:

The valve cannot be ground. If the valve face is burned or badly worn or if it contacts the seat unevenly, replace the valve.

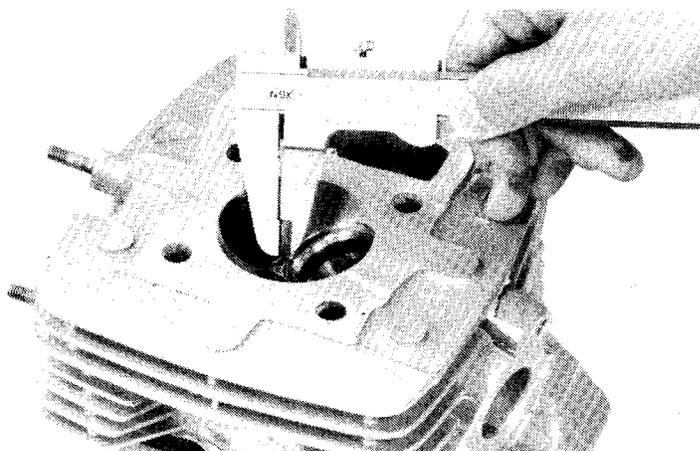


Inspect each valve seat.

If the seat is too wide, too narrow, or has low spots, the seat must be refinished to seal properly.

STANDARD: 1.2mm(0.05in)

SERVICE LIMIT: 1.5mm(0.06in)

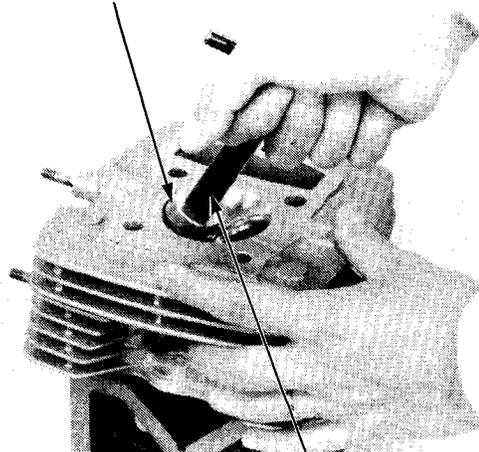


VALVE SEAT GRINDING

HONDA VALVE SEAT CUTTERS, grinder or equivalent valve seat refacing equipment are recommended to correct a worn valve seat.

Follow the instructions supplied with the Valve Seat Refacing Equipment.

VALVE SEAT CUTTER



CUTTER HOLDER



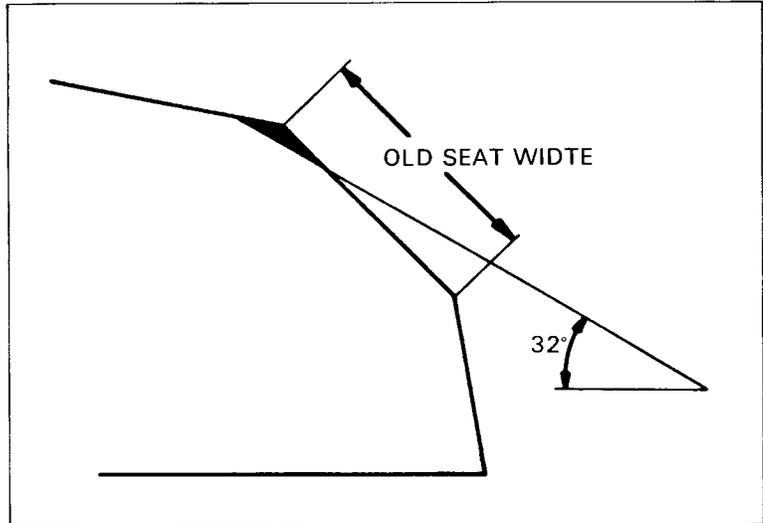
CYLINDER HEAD/VALVES

Use a 45 degree cutter to remove any roughness or irregularities from the seat.

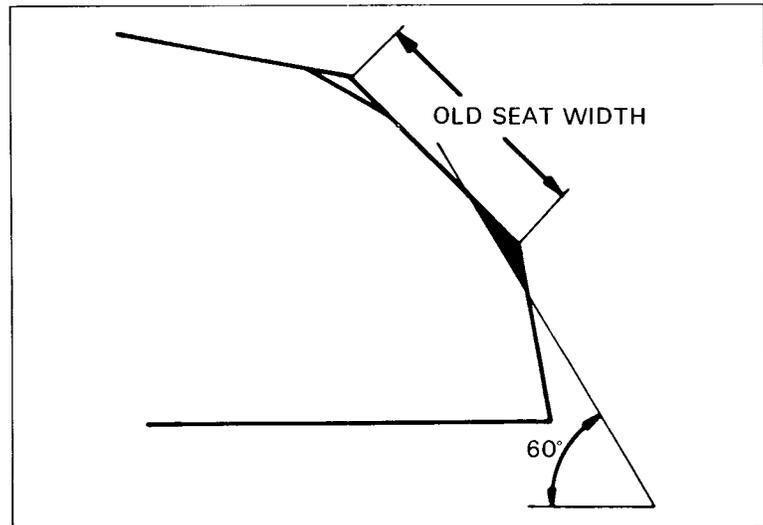
NOTE

Reface the seat with a 45 degree cutter when the valve guide is replaced.

Use a 32 degree cutter to remove 1/4 of the existing valve seat material.



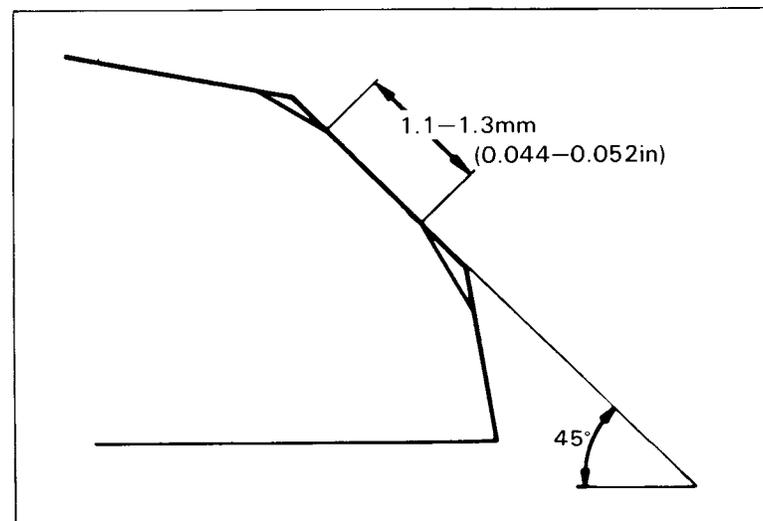
Use a 60 degree cutter to remove the lower 1/4 of the old seat. Remove the cutter and inspect the area you have just cut.



Install a 45 degree finish cutter and cut the seat to the proper width.

NOTE

Make sure that all pitting and irregularities are removed. Refinish if necessary.





Apply a thin coating of Prussian Blue to the valve seat.

Press the valve through the valve guide and onto the seat without rotating it to make a clear pattern.

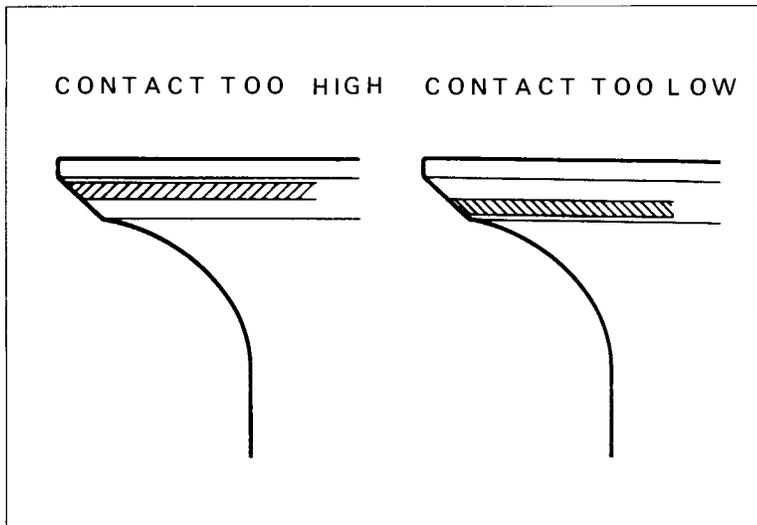
NOTE

The location of the valve seat in relation to the valve face is very important for good sealing.

If the contact area is too high on the valve, the seat must be lowered using a 32 degree flat cutter.

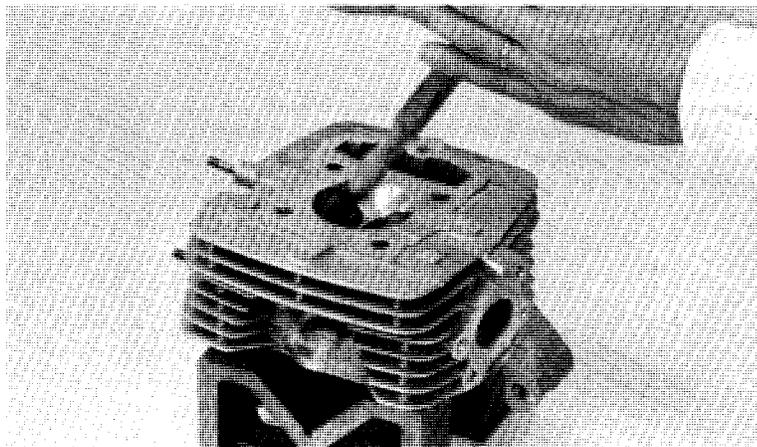
If the contact area is too low on the valve, the seat must be raised using a 60 degree inner cutter.

Refinish the seat to specifications using a 45 degree seat cutter.



After cutting the seat, apply lapping compound to the valve face and lap the valve using light pressure.

After lapping, wash all residual compound off the cylinder head and valve.

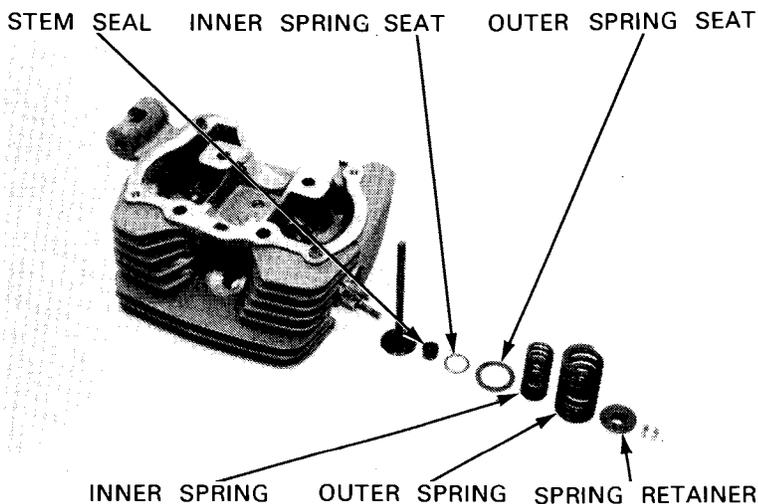


CYLINDER HEAD ASSEMBLY

Install new valve stem seals.

Lubricate each valve stem with oil and insert the valves into the valve guides.

Install the valve spring seats and valve springs with the tightly wound coils facing the cylinder head.



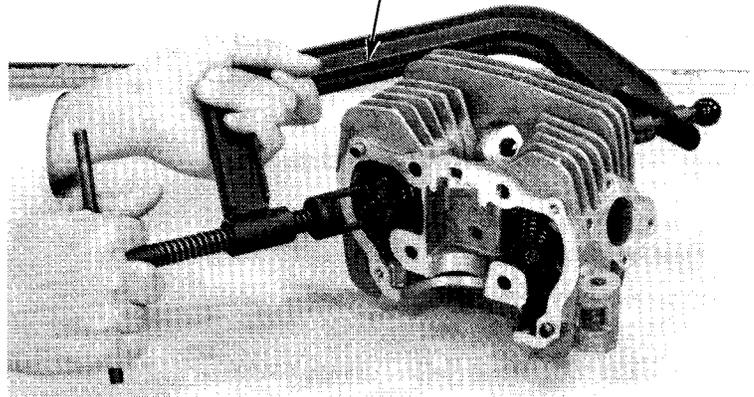


Install the valve spring retainers and install the valve cotters.

CAUTION:

To prevent loss of tension, do not compress the valve spring more than necessary.

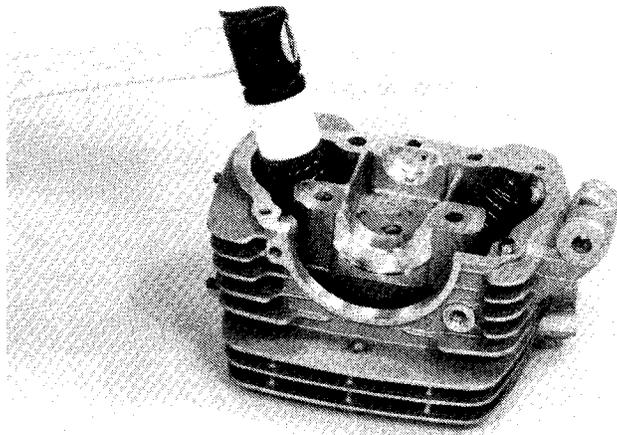
VALVE SPRING COMPRESSOR



Tap the valve stems gently with a plastic hammer to firmly seat the cotters.

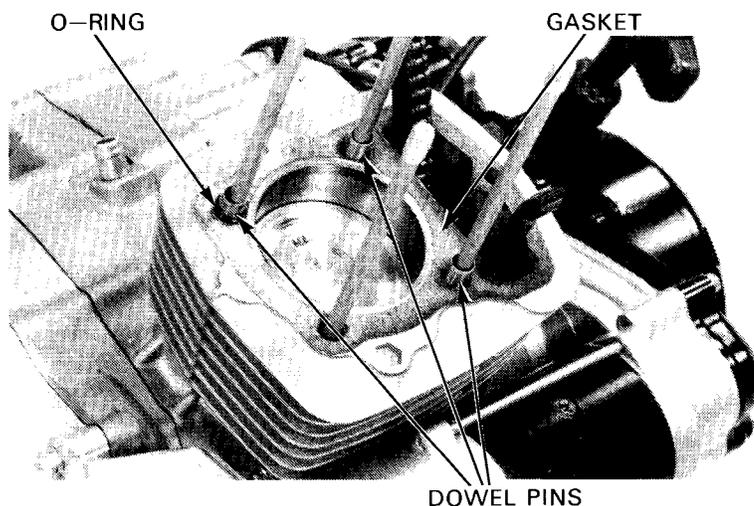
CAUTION:

Support the cylinder head above the work bench surface to prevent possible valve damage.



CYLINDER HEAD INSTALLATION

Clean off any gasket material from the cylinder surface.
Install the O-rings, dowel pins and a new gasket.



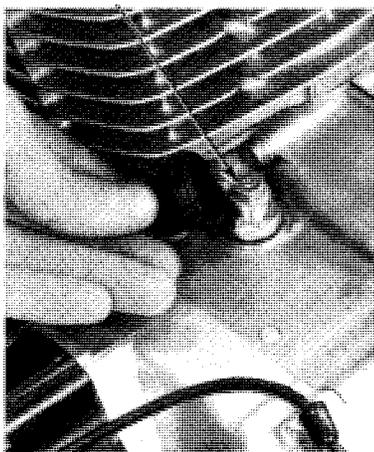


Remove the cam chain tensioner adjusting bolt rubber cap.

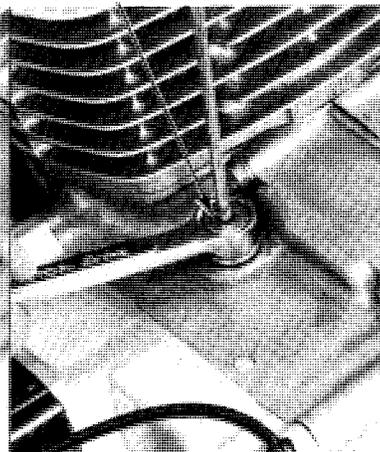
Remove the check bolt and loosen the tensioner adjusting bolt.

Push the tensioner down with a screwdriver, as shown, while tightening the adjusting bolt. Install the check bolt and rubber cap.

CHECK BOLT



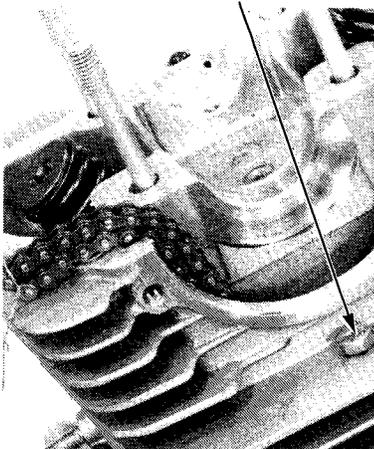
ADJUSTING BOLT



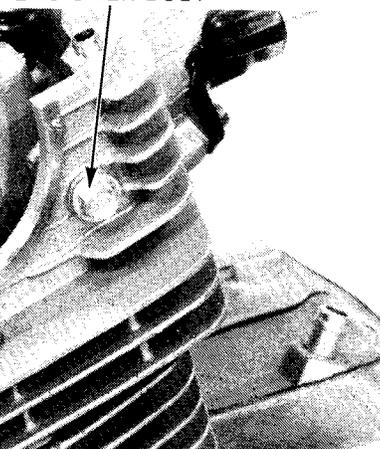
Install the cylinder head.

Install the cylinder head bolts and cam chain tensioner bolt.

CYLINDER HEAD BOLT



TENSIONER BOLT



Install the dowel pins and camshaft bushings.

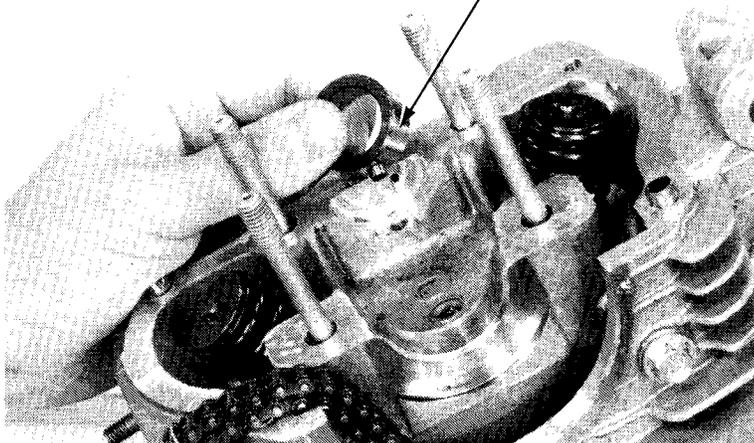
NOTE

Align the camshaft bushing dowel pin with the cutout in the cylinder head.

Install the oil hole plug and dowel pins.

Pour oil into the cylinder head oil pockets so the cam lobes will be lubricated.

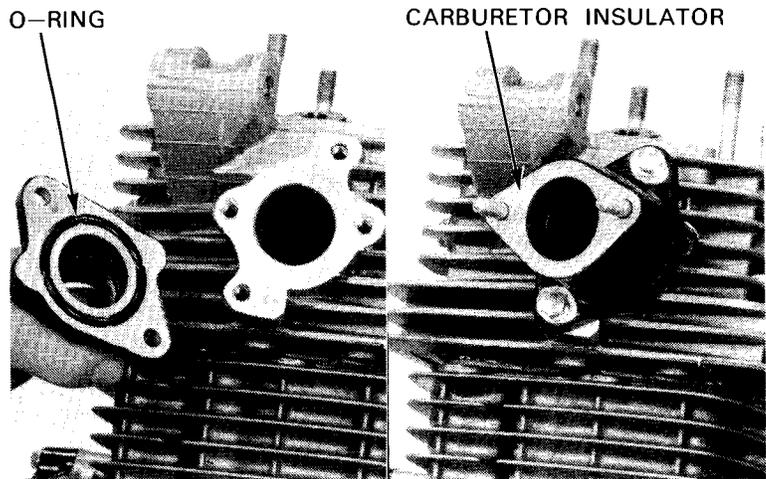
CAMSHAFT BUSHING





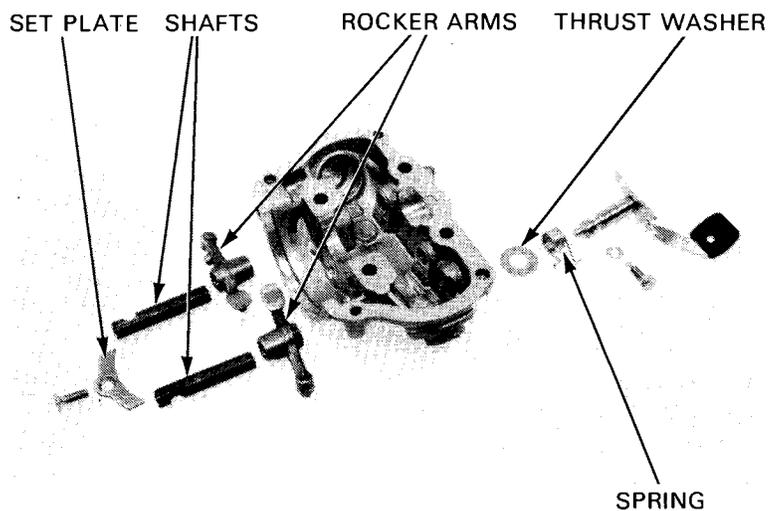
CYLINDER HEAD/VALVES

Install the carburetor insulator making sure that the O-ring is properly seated.



Install the rocker arms and rocker arm shafts in the cylinder head cover.
Install the set plate and tighten the set plate screw.
Install the decompressor lever.
Tighten the decompressor lever pivot bolt.

TORQUE: 5-7N·m(0.5-0.7kg·m, 3.6-5.1ft·lb)

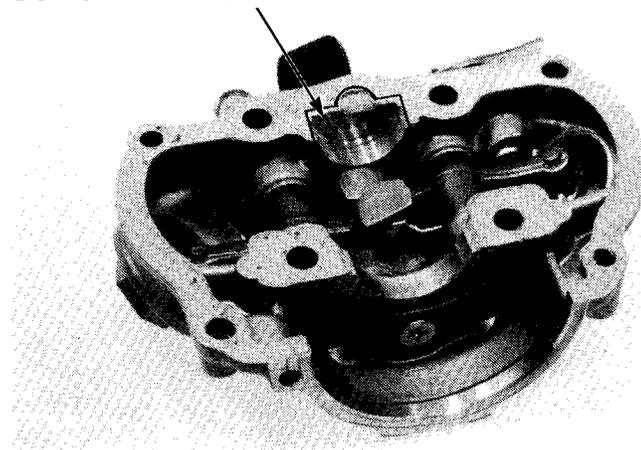


Loosen the valve adjusting screws.
Apply liquid sealant to the cylinder head cover mating surface.

NOTE

Keep sealant away from the camshaft bearing surfaces.

DO NOT APPLY SEALANT THIS AREA





Coat the camshaft bearing and bushing with molybdenum disulfide grease.

Install the cylinder head cover.

Install and tighten the 8 mm cap nuts.

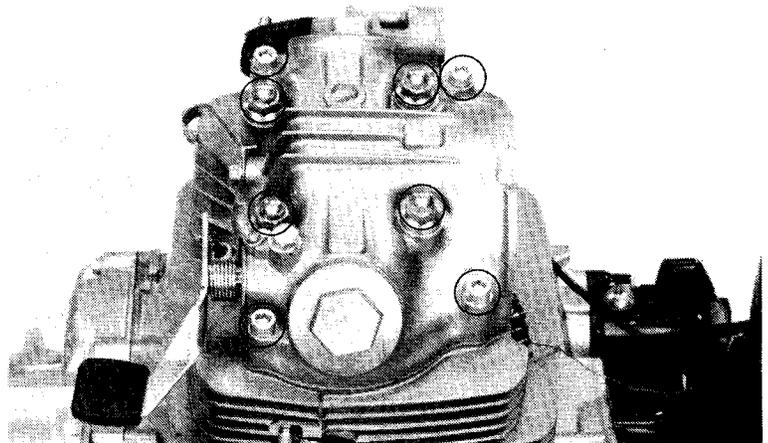
TORQUE: 18–25N·m(1.8–2.5kg-m, 13–18 ft-lb)

Install and tighten the 6 mm socket bolts.

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

NOTE

Tighten the 8 mm cap nuts and 6 mm bolts in a crisscross pattern in 2–3 steps.

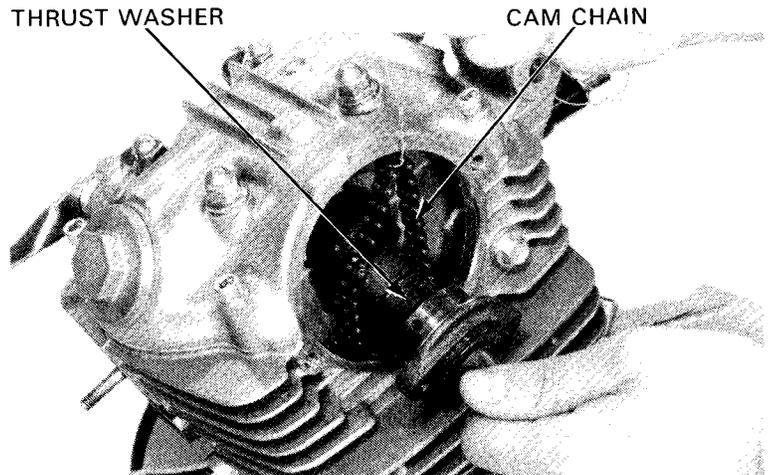


CAMSHAFT INSTALLATION

Coat the camshaft journals with molybdenum disulfide grease.

Place the thrust washer onto the camshaft.

Place the camshaft through the cam chain and into the cylinder head.

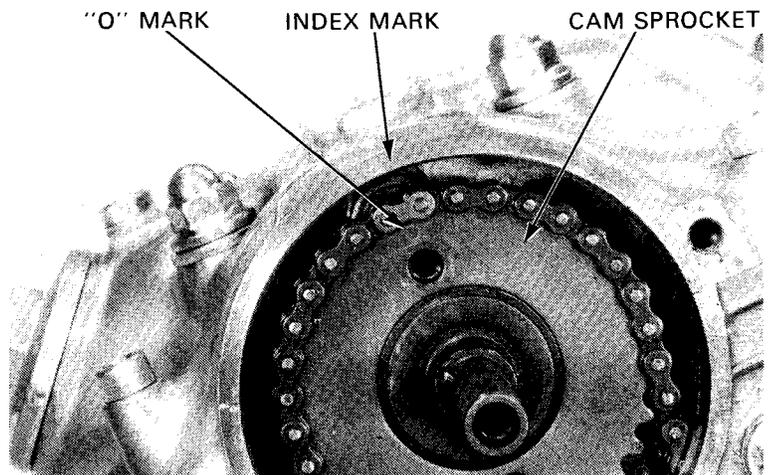


Turn the crankshaft counterclockwise and align the "T" and index marks.

Install the cam sprocket. Align the timing mark "O" on the cam sprocket with the index mark on the cylinder head cover.

Tighten the cam sprocket bolts.

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



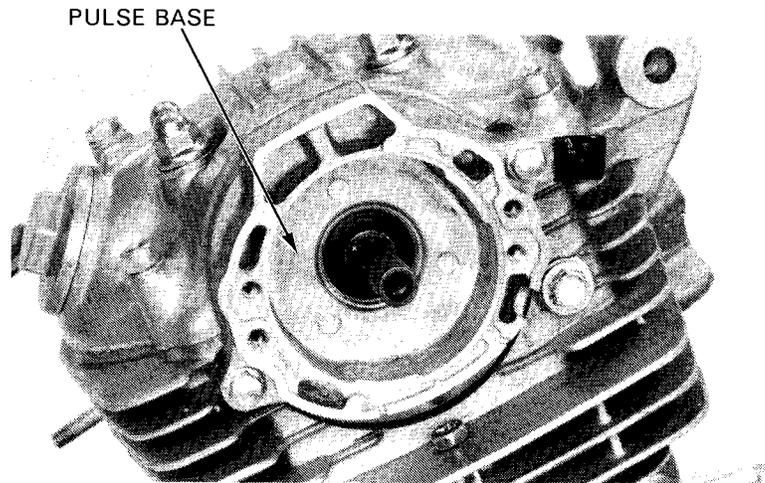


CYLINDER HEAD/VALVES

Install the pulse base.

NOTE

Do not turn the oil seal lip inside out.



PULSE ROTOR ASSEMBLY

Align the punch mark on the rotor with the index mark on the sprk advancer and assemble.

PUNCH MARK

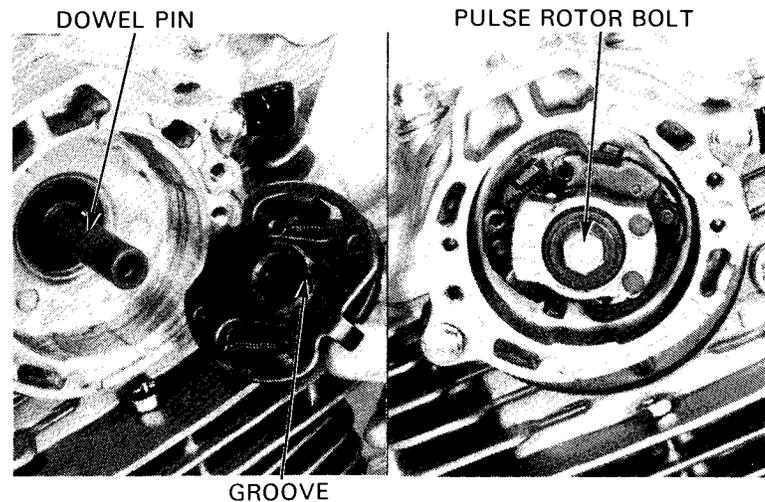


Install the dowel pins and pulse rotor/advancer assembly.

NOTE

Align the dowel pin with the advancer groove.

Tighten the pulse rotor bolt.





Install the pulse generator.

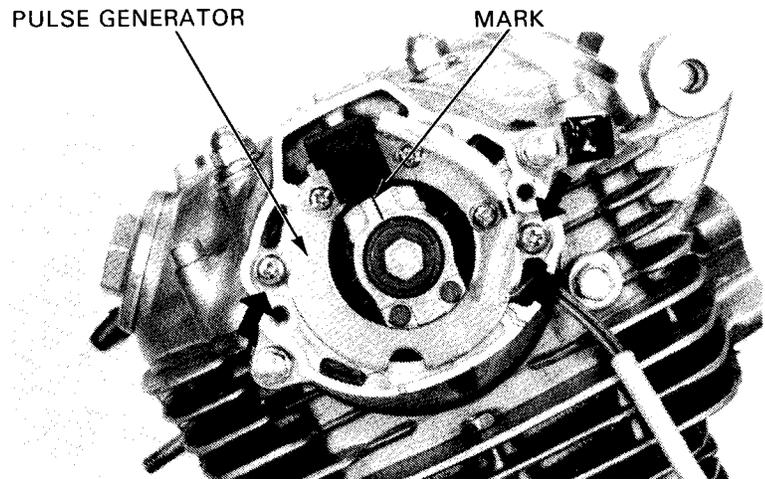
Turn the crankshaft counterclockwise and align the "F" mark with the crankcase cover index mark.

Align the pulse rotor and pulse generator index marks.

Adjust the pulse rotor and generator air gap to 0.4–0.65 mm (0.015–0.025 in)

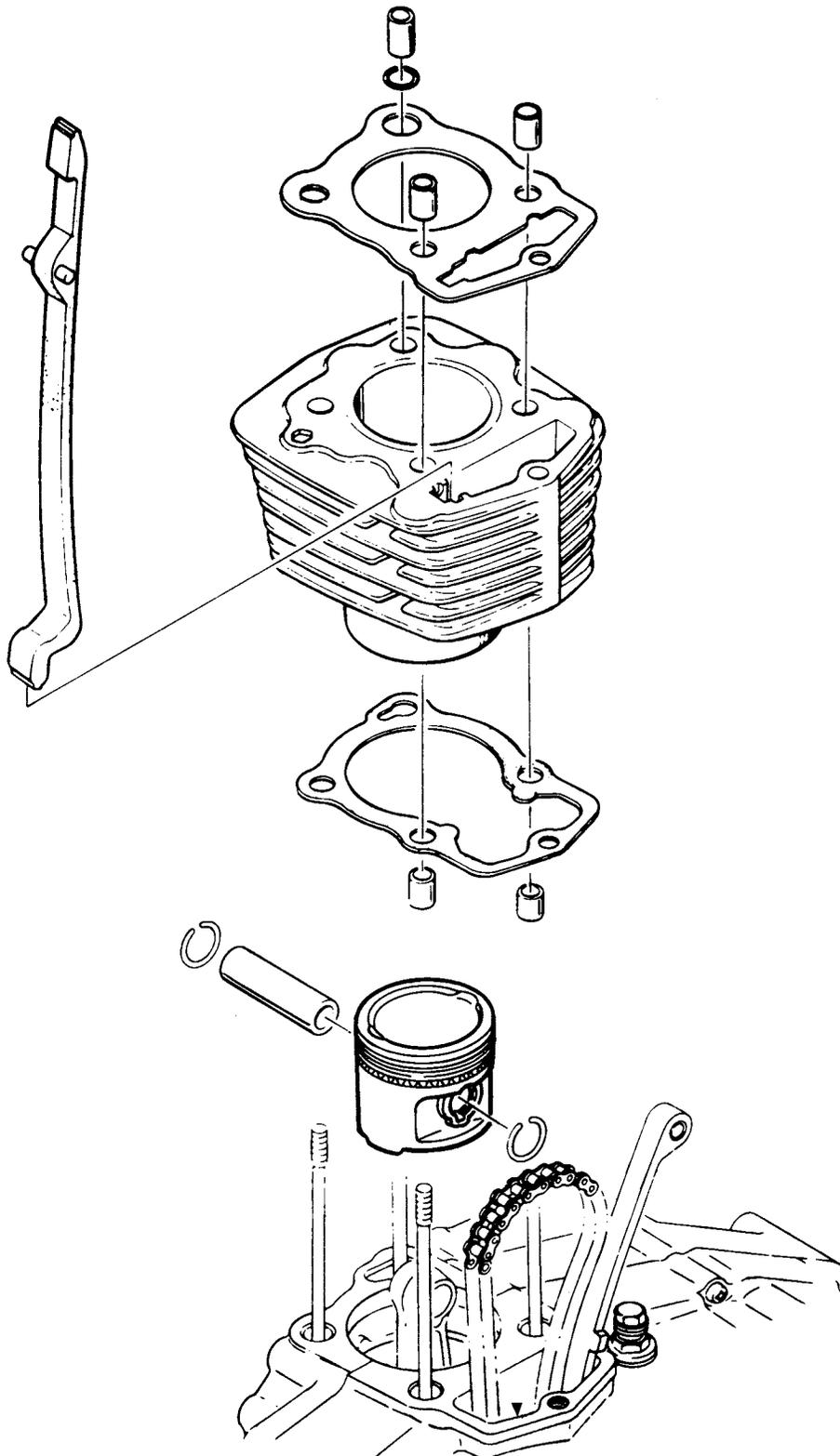
Install the pulse generator cover.

Pour fresh oil into the oil pockets in the cylinder head so that the cam lobes are submerged.



Do the following after installing the pulse generator cover.

- Adjust valve clearance (Page 3–5).
- Adjust cam chain tension (Page 3–7).
- Inspect ignition timing (Page 3–8).
- Test cylinder compression (Page 3–9).





SERVICE INFORMATION	7-1
TROUBLESHOOTING	7-1
CYLINDER REMOVAL	7-2
PISTON REMOVAL	7-3
PISTON INSTALLATION	7-6
CYLINDER INSTALLATION	7-6

SERVICE INFORMATION

GENERAL

- Camshaft lubrication oil is fed to the cylinder head through an orifice in the cylinder and crankcase. Be sure this orifice is not clogged and that the O-rings and dowel pins are in place before installing the cylinder head.

SPECIFICATIONS

ITEM		STANDARD	SERVICE LIMIT	
Cylinder	I.D.	65.00–65.01 mm (2.559–2.560 in)	65.10 mm (2.5629 in)	
	Taper	—————	0.10 mm (0.0039 in)	
	Out of round	—————	0.10 mm (0.0039 in)	
	Warpage across top	—————	0.10 mm (0.0039 in)	
Piston, piston pin, piston rings.	Piston O.D.	64.955–64.985 mm (2.5573–2.5585 in)	64.90 mm (2.5551 in)	
	Piston pin bore	15.002–15.008 mm (0.5906–0.5909 in)	15.04 mm (0.592 in)	
	Piston pin O.D.	14.994–15.000 mm (0.5903–0.5906 in)	14.96 mm (0.589 in)	
	Piston-to-pin clearance	0.002–0.014 mm (0.0001–0.0006 in)	0.02 mm (0.001 in)	
	Piston ring-to-ring groove clearance	TOP	0.015–0.050 mm (0.00059–0.00197 in)	0.09 mm (0.0035 in)
		SEC	0.015–0.045 mm (0.0006–0.0018 in)	0.09 mm (0.004 in)
	Piston ring end gap	TOP/SECOND	0.20–0.40 mm (0.008–0.016 in)	0.50 mm (0.02 in)
OIL		0.30–0.90 mm (0.012–0.035 in)	—————	
Cylinder-to-piston clearance		0.015–0.055 mm (0.0006–0.0022 in)	0.10 mm (0.004 in)	

TROUBLESHOOTING

Low or unstable compression

1. Worn cylinder or piston rings.
2. Faulty decompressor lever out of adjustment.

Excessive smoke

1. Worn cylinder, piston, or piston rings.
2. Improper installation of piston rings.
3. Scored or scratched piston or cylinder wall.

Overheating

1. Excessive carbon build-up on piston or combustion chamber wall.

Knocking or abnormal noise

1. Worn piston and cylinder.
2. Excessive carbon build-up.



CYLINDER/PISTON

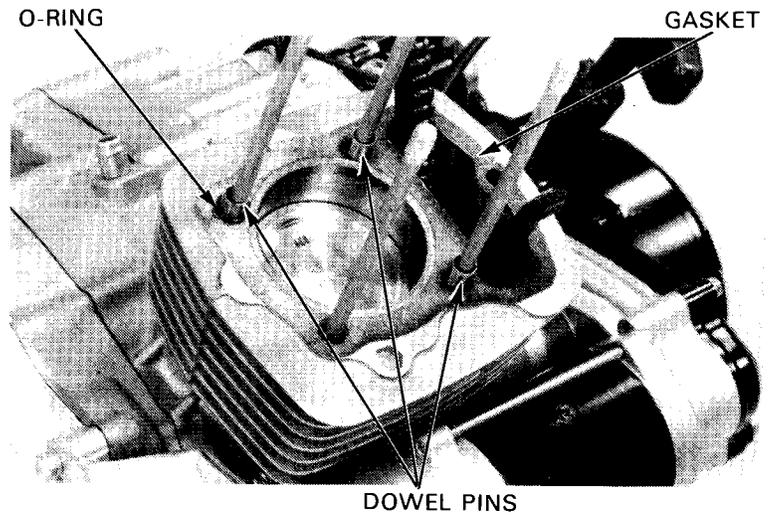
CYLINDER REMOVAL

Remove the cylinder head (Section 6).
Remove the gasket, dowel pins and O-ring.
Remove the cam chain guide.

NOTE

Keep the cam chain from falling into the crankcase when removing the cylinder.

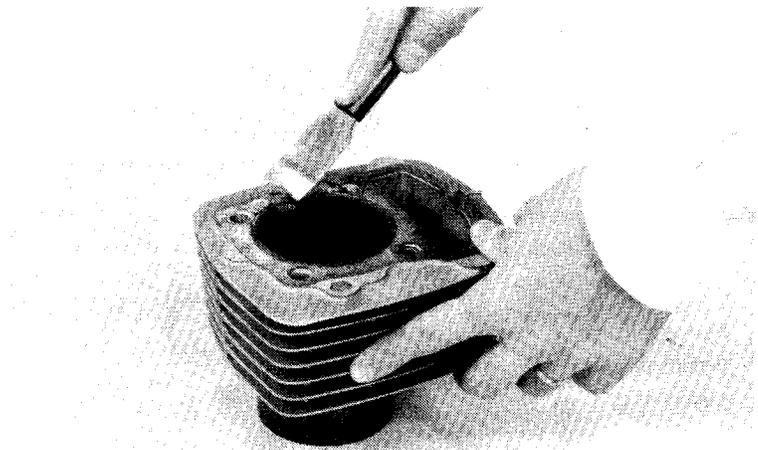
Remove the cylinder.
Remove the gasket and dowel pins.



Clean off any gasket material from the cylinder surface.

NOTE

Be careful not to remove any metal from the gasket surface.



CYLINDER INSPECTION

Inspect the cylinder bore for wear or damage.
Measure the cylinder I.D.

STANDARD:

65.0–65.01 mm (2.5591–2.5944 in)

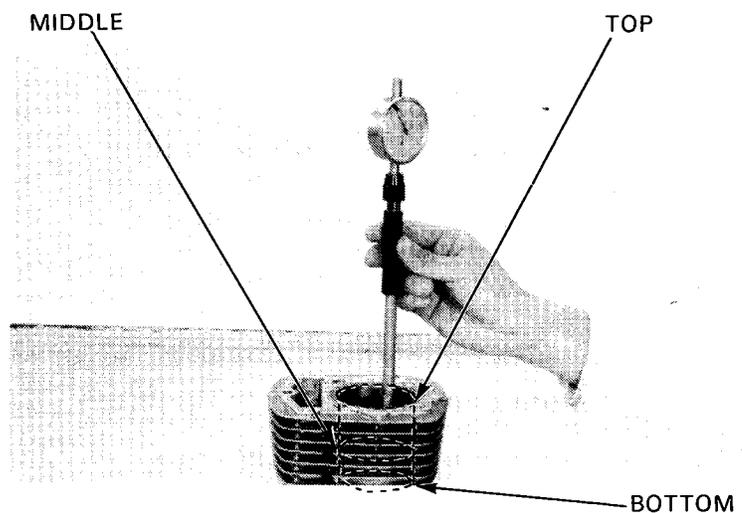
Check for cylinder I.D. at X and Y axis at three locations.

Calculate the taper and out of round.

SERVICE LIMIT: 65.10 mm (2.569 in)

Taper: 0.10 mm (0.0039 in)

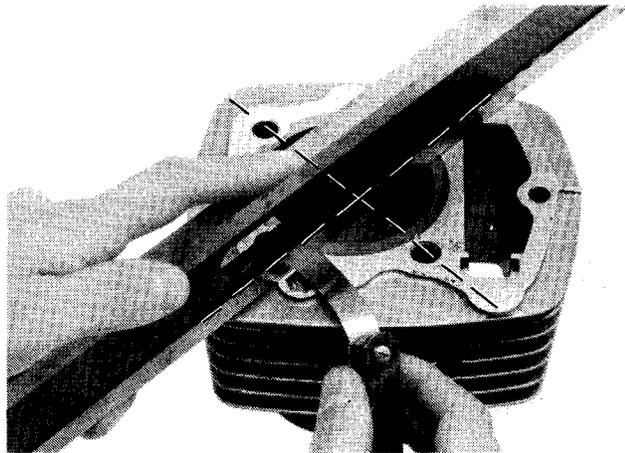
Out of round: 0.10 mm (0.0039 in)





Inspect the top of the cylinder for warpage.

SERVICE LIMIT: 0.10 mm (0.0039 in)



PISTON REMOVAL

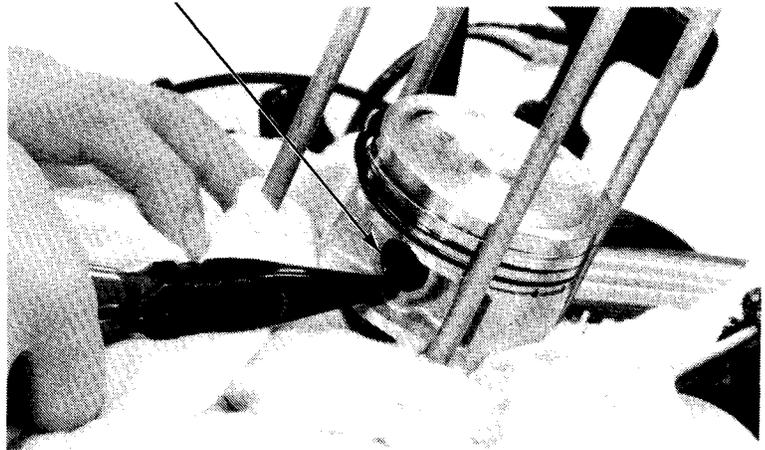
Remove the piston pin clip with pliers.

NOTE

Do not let the clips fall into the crankcase.

Press the piston pin out of the piston and remove the piston.

PISTON PIN CLIP



PISTON/PISTON RING INSPECTION

Measure the piston ring-to-groove clearance.

Remove the piston rings.

NOTE

Do not damage the piston rings during removal.

Inspect the piston for wear or damage.

STANDARD:

TOP: 0.015–0.050 mm (0.00059–0.00197 in)

SECOND: 0.015–0.045 mm (0.0006–0.0018 in)

SERVICE LIMIT:

TOP: 0.09 mm (0.0035 in)

SECOND: 0.09 mm (0.0035 in)





CYLINDER/PISTON

Insert each piston ring into the cylinder and measure the ring end gap.

STANDARD:

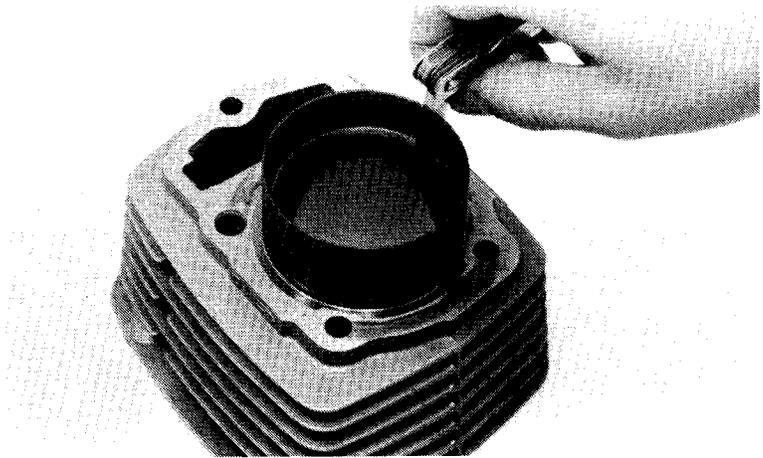
TOP/SECOND:

0.20–0.40 mm (0.008–0.016 in)

OIL: 0.30–0.90 mm (0.012–0.035 in)

SERVICE LIMIT:

TOP/SECOND: 0.50 mm (0.020 in)



Measure the piston diameter at the skirt.

NOTE

Measure the piston diameter 10 mm from the bottom and 90° to the piston pin hole.

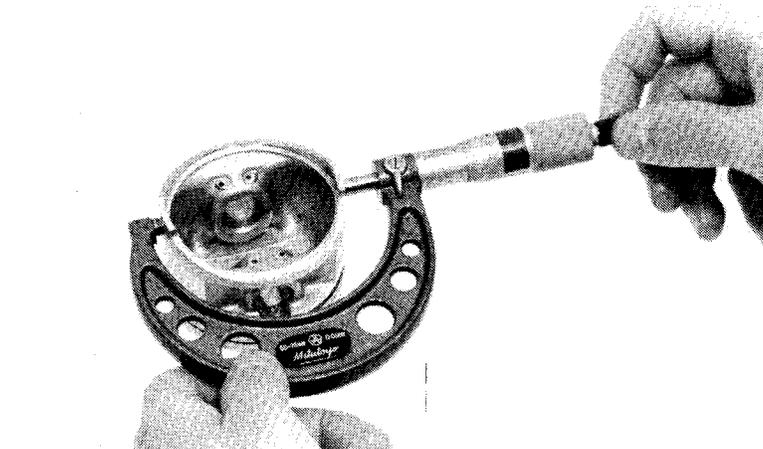
Calculate the piston-to-cylinder clearance.

STANDARD:

64.955–64.985 mm (2.5573–2.5585 in)

Refer to page 7-2 for cylinder bore inspection.

SERVICE LIMIT: 64.90 mm (2.551 in)

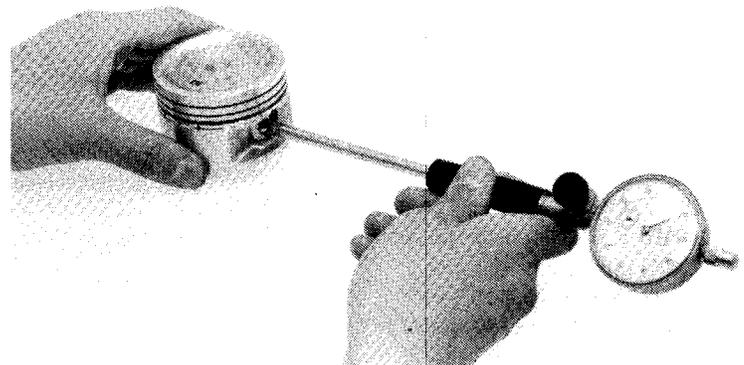


Measure the piston pin hole I.D.

STANDARD:

15.002–15.008 mm (0.5906–0.5909 in)

SERVICE LIMIT: 15.04 mm (0.592 in)





Measure the piston O.D.

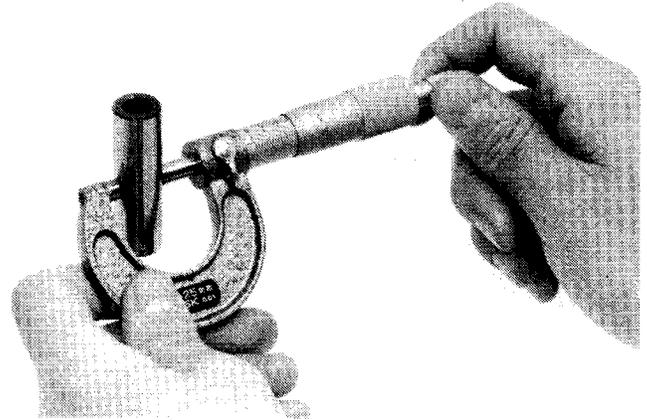
Calculate the piston-to piston pin clearance.

STANDARD:

14.994–15.000 mm (0.5903–0.5906 in)

SERVICE LIMIT:

14.96 mm (0.589 in)



PISTON RING INSTALLATION

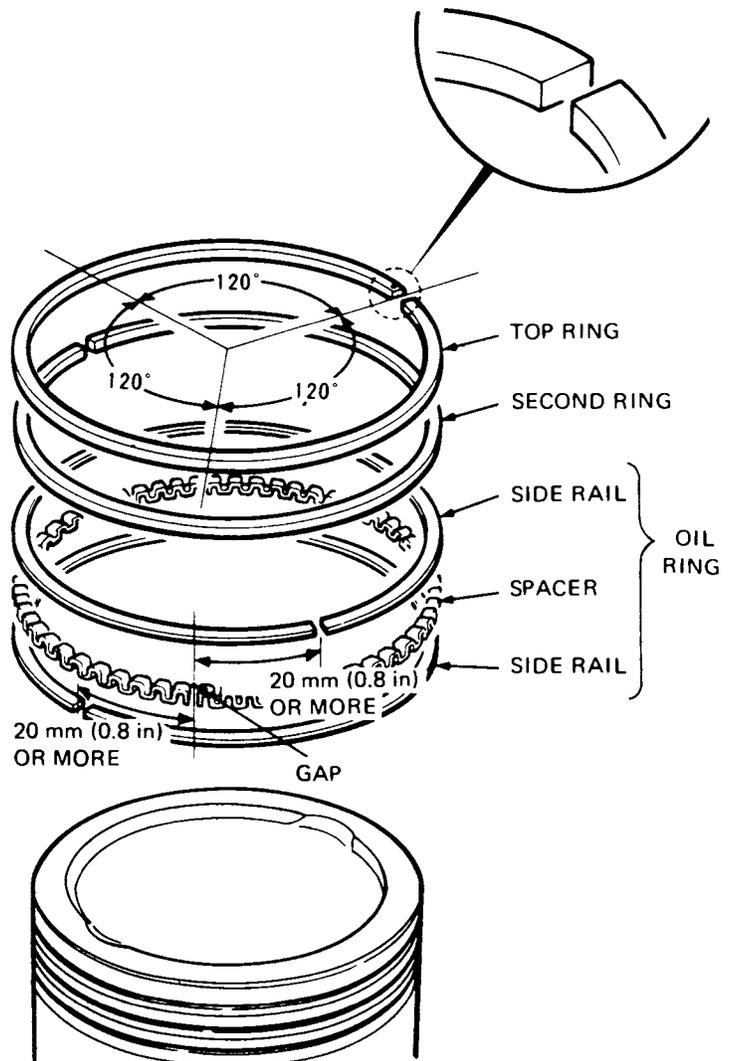
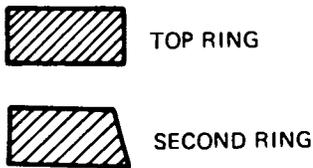
Clean the piston ring grooves thoroughly.
Install the piston rings.

NOTE

- Avoid piston and piston ring damage during installation.
- Install the piston rings with the marking facing up.
- Do not mix the top and second rings.

Space the piston ring end gaps 120 degrees apart.
Do not align the gaps in the oil rings (side rails).

After installation, the rings should be free to rotate
in the ring grooves.





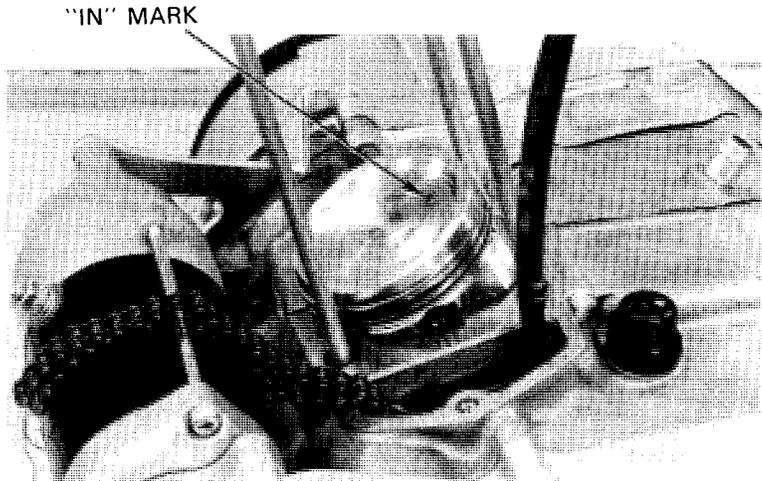
CYLINDER/PISTON

PISTON INSTALLATION

Install the piston and piston pin, using new piston pin clips.

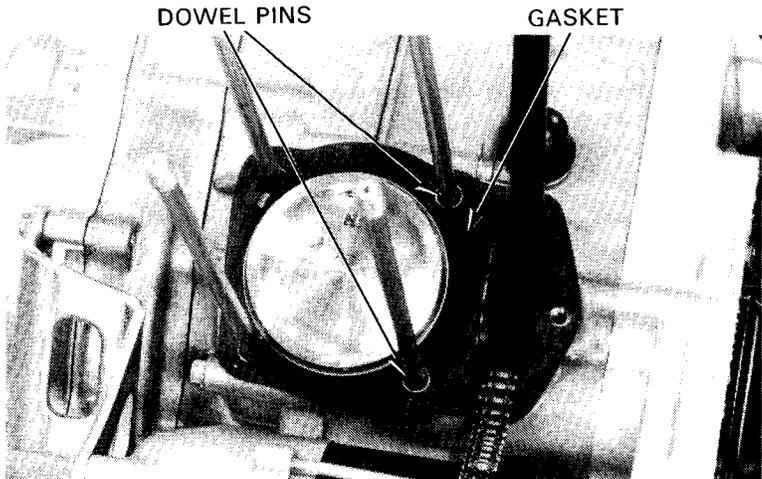
NOTE

- Position the piston "IN" mark on the intake valve side.
- Do not align the piston pin clip end gap with the piston cutout.
- Do not let the clip fall into the crankcase.



CYLINDER INSTALLATION

Install the gasket and dowel pins.



Coat the cylinder bore and piston rings with engine oil and install the cylinder.

NOTE

- Avoid piston ring damage during installation.
- Do not let the cam chain fall into the crankcase.

Install the cam chain guide.
 Install a new gasket, the dowel pins and a new O-ring.
 Install the cylinder head (Page 6-7).

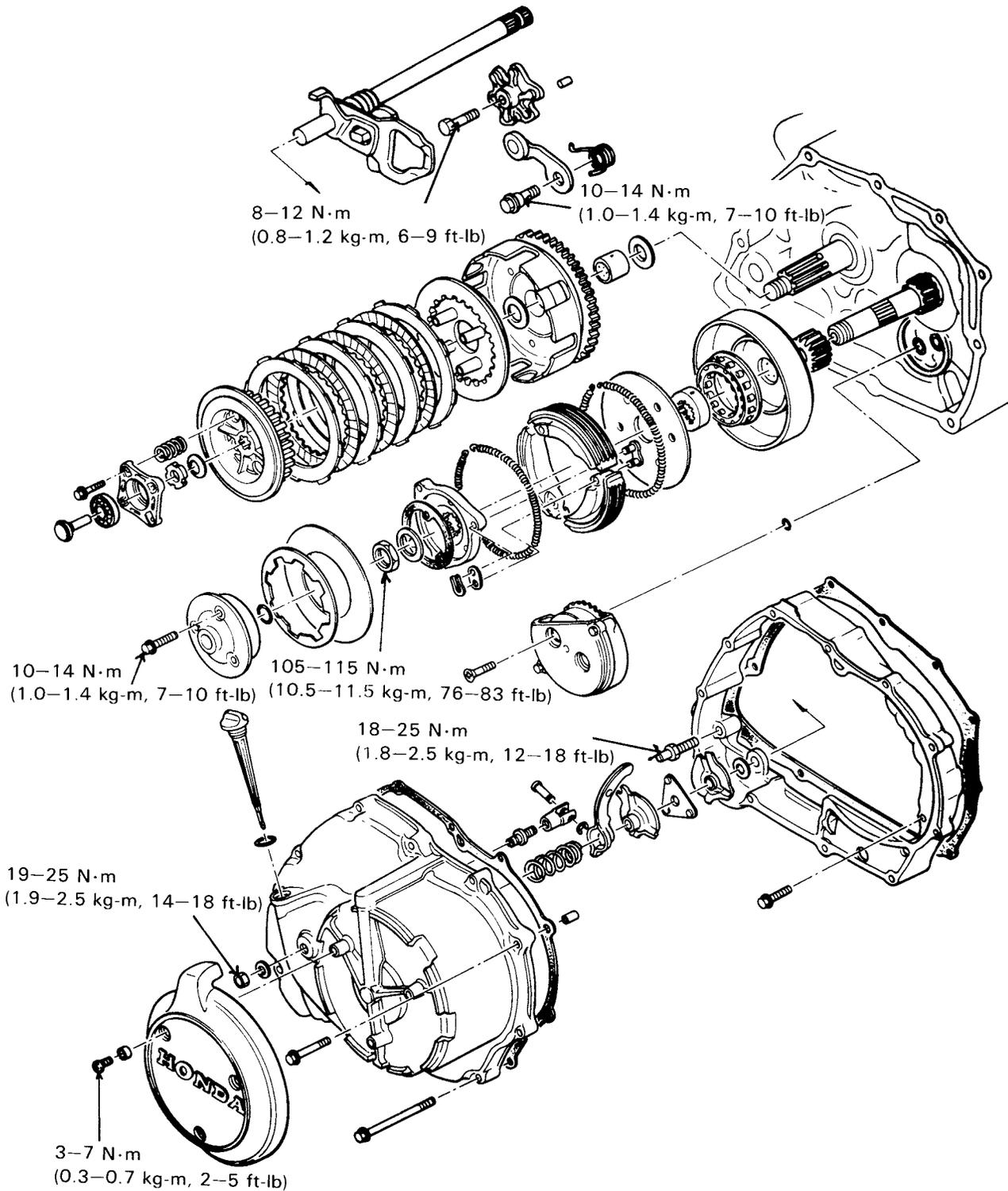




HONDA
ATC200E

MEMO







SERVICE INFORMATION	8-1	MANUAL CLUTCH	8-11
TROUBLESHOOTING	8-2	OIL PUMP	8-15
RIGHT CRANKCASE COVER REMOVAL	8-3	GEARSHIFT LINKAGE	8-18
CENTRIFUGAL CLUTCH	8-5	RIGHT CRANKCASE COVER INSTALLATION	8-21

SERVICE INFORMATION

GENERAL

- This section covers removal and installation of the centrifugal clutch, manual clutch, oil pump and gearshift linkage.
- The clutches, oil pump and gearshift linkage can be serviced with the engine installed in the frame.

SPECIFICATIONS

ITEM		STANDARD		SERVICE LIMIT
Manual clutch	Spring free length	25.7 mm	(1.01 in)	25.0 mm (0.98 in)
	Spring preload	37.5 kg	(86.67 lb)	—————
	Disc thickness	2.9–3.0 mm	(0.11–0.12 in)	2.6 mm (0.10 in)
	Disc warpage	—————	—————	0.20 mm (0.008 in)
	Plate warpage	—————	—————	0.20 mm (0.008 in)
Centrifugal clutch	Drum I.D.	116mm	(4.57 in)	116.3 mm(4.58 in)
	Weight thickness	4.3 mm	(0.17 in)	4.1 mm (0.16 in)
	Spring free length	267.5 mm	(10.53 in)	282 mm (11.1 in)
	Spring preload	12.3–13.7 kg	(27.1–30.20 lb)	—————
	Clutch outer guide	20.000–20.021 mm	(0.7874–0.7882 in)	20.05 mm(0.789 in)
Oil pump	Rotor-to-cover clearance	0.15–0.20 mm	(0.006–0.008 in)	0.25 mm (0.010 in)
	Rotor tip clearance	0.15 mm	(0.006 in)	0.20 mm (0.008 in)
	Rotor-to-body clearance	0.30–0.36 mm	(0.012–0.014 in)	0.40 mm (0.016 in)

TORQUE VALUES

Oil filter rotor cover bolts	10–14 N·m	(1.0–1.4 kg-m, 7–10 ft-lb)
Manual clutch lock nut	50–60 N·m	(5.0–6.0 kg-m, 36–43 ft-lb)
Centrifugal clutch lock nut	105–115 N·m	(10.5–11.5 kg-m, 76–83 ft-lb)
Clutch adjusting screw lock nut	19–25 N·m	(1.9–2.5 kg-m, 14–18 ft-lb)
Clutch lifter stopper bolt	18–25 N·m	(1.8–2.5 kg-m, 13–18 ft-lb)
Gearshift drum stopper arm bolt	10–14 N·m	(1.0–1.4 kg-m, 7–10 ft-lb)
Gearshift drum stopper plate bolt	8–12 N·m	(0.8–1.2 kg-m, 6–9 ft-lb)
Foot peg bolt	20–25 N·m	(2.0–2.5 kg-m, 14–18 ft-lb)

TOOLS

Special

Flywheel Holder	07925–9580001	Not available in U.S.A.
30 mm Lock Nut Wrench	07907–6890100	Equivalent commercially available in U.S.A.
Clutch Center Holder	07923–9580000	Not available in U.S.A.

Common

Lock Nut Wrench 20×24 mm	07716–0020100 or 07916–3710000
Extension Bar	07716–0020500



CLUTCH/OIL PUMP

TROUBLESHOOTING

Faulty clutch operation can usually be corrected by adjusting the clutch.

Clutch slips when accelerating

1. Faulty clutch lifter.
2. Discs worn.
3. Spring weak.

Clutch will not disengage

1. Faulty clutch lifter.
2. Plates warped.

Motorcycle creeps with clutch disengaged

1. Faulty centrifugal clutch.
2. Plates warped.

Clutch operation feels rough

1. Outer drum slots rough.

Hard to shift

1. Stopper plate damaged.
2. Incorrect clutch adjustment.
3. Faulty clutch lifter.

Gearshift pedal will not return

1. Weak or broken shift return spring.
2. Shift spindle binding with case.

Transmission jumps out of gears

1. Weak or broken stopper spring.

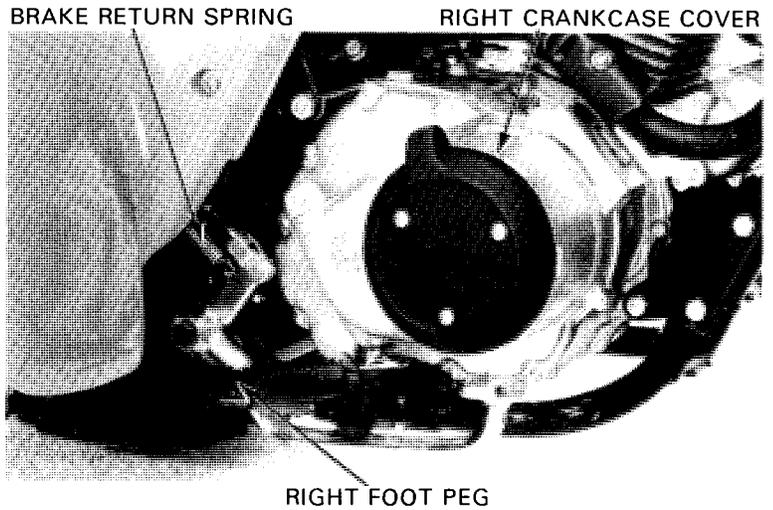
Low oil pressure

1. Faulty oil pump.
2. Oil pump drive gear broken.



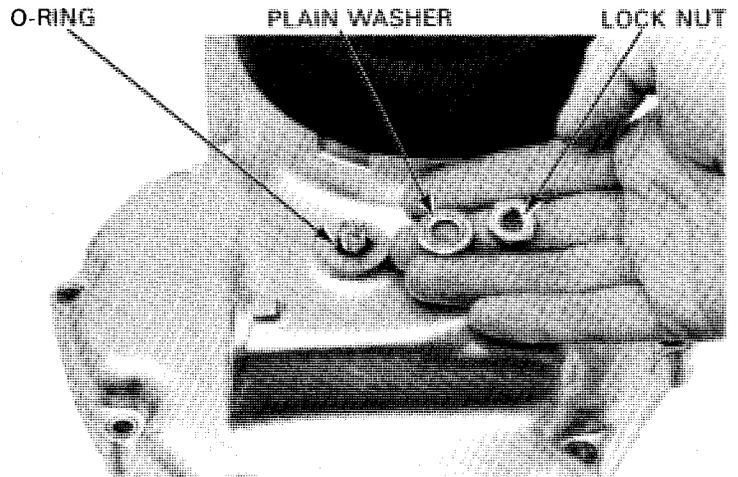
RIGHT CRANKCASE COVER REMOVAL

- Drain the oil from the engine.
- Remove the right foot peg.
- Remove the right crankcase cover bolts and cover.
- Remove the gasket and dowel pins.



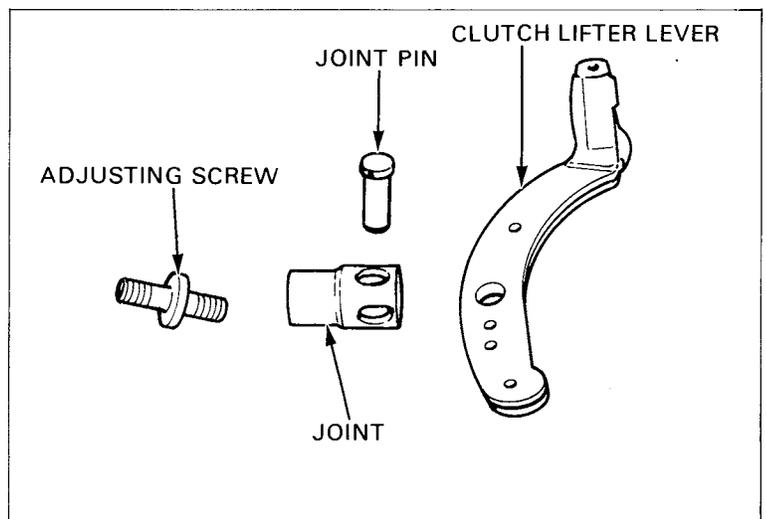
CLUTCH LIFTER DISASSEMBLY

- Remove the clutch adjusting screw lock nut, washer and O-ring.
- Remove the clutch lifter lever and spring.



- Remove the clutch adjusting screw.
- Remove the circlip and disassemble the clutch lifter lever.

Check the disassembled parts for damage or wear replace the parts if necessary.



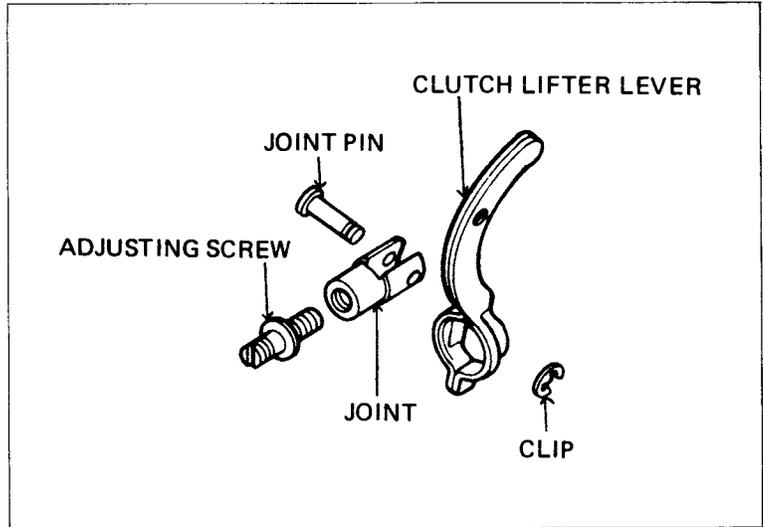


CLUTCH/OIL PUMP

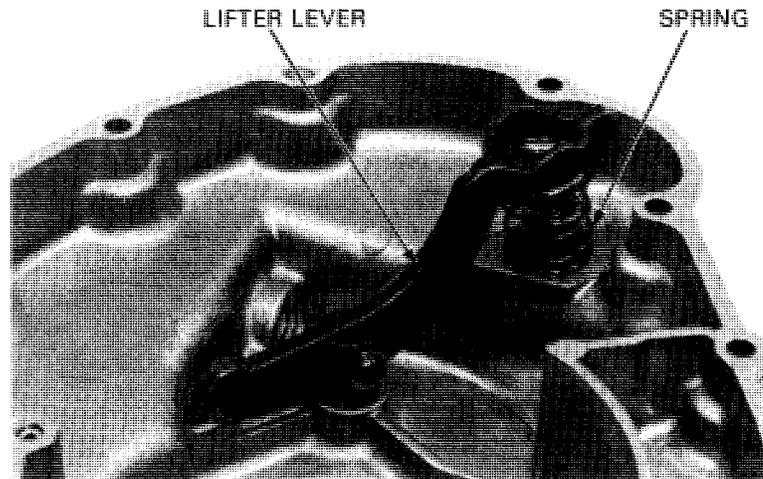
CLUTCH LIFTER ASSEMBLY

Install the joint and joint pin on the lifter lever.

Install the circlip and screw in the clutch adjusting screw.



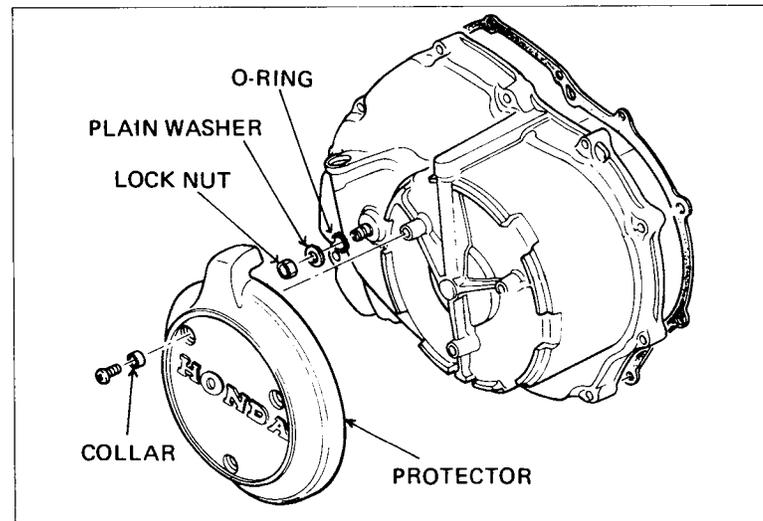
Install the spring and clutch lifter lever onto the right crankcase cover.



Slip the O-ring onto the clutch adjusting screw.

Install the lock nut and install the right crankcase cover protector.

Install the right crankcase cover (Page 8-21).



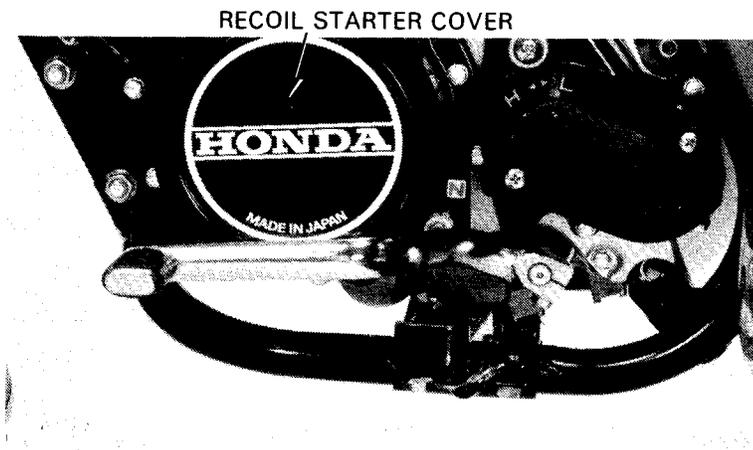


CENTRIFUGAL CLUTCH

REMOVAL

Remove the recoil starter from the left crankcase cover (Page 9-2).

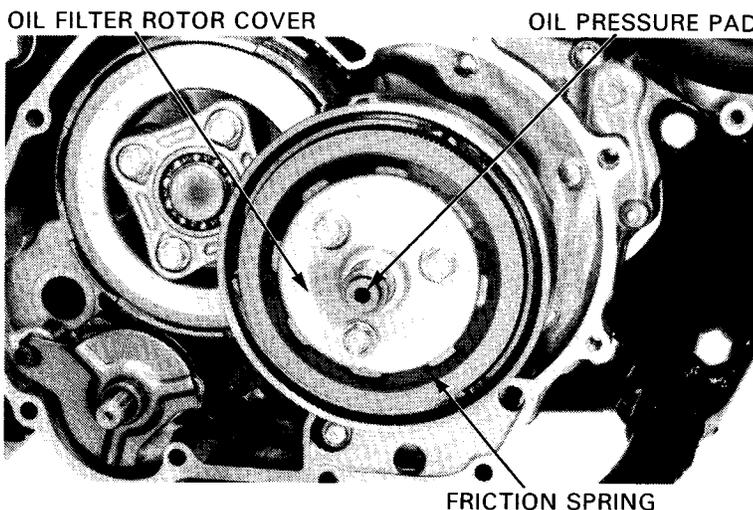
Install a ROTOR HOLDER or screwdriver to prevent the crankshaft from turning.



Remove the oil filter rotor cover, slide friction, spring, plain washer and O-ring.

CAUTION:

Be careful not to damage the oil pressure pad.

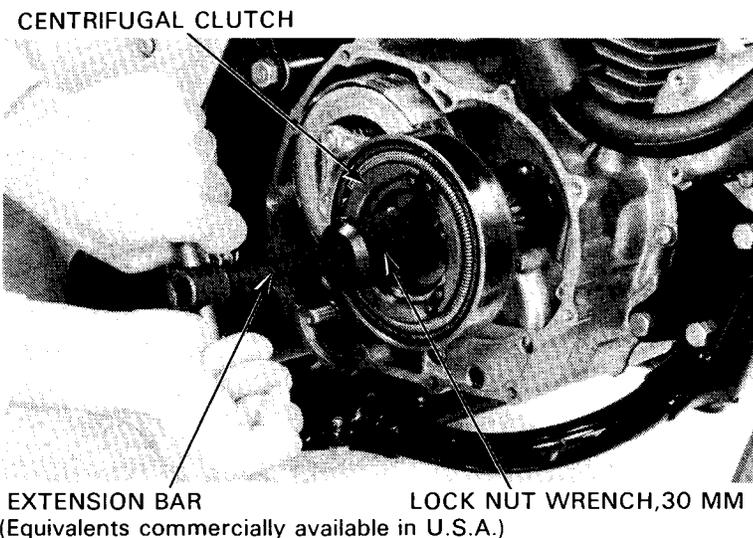


Remove the lock nut by turning it clockwise.

NOTE

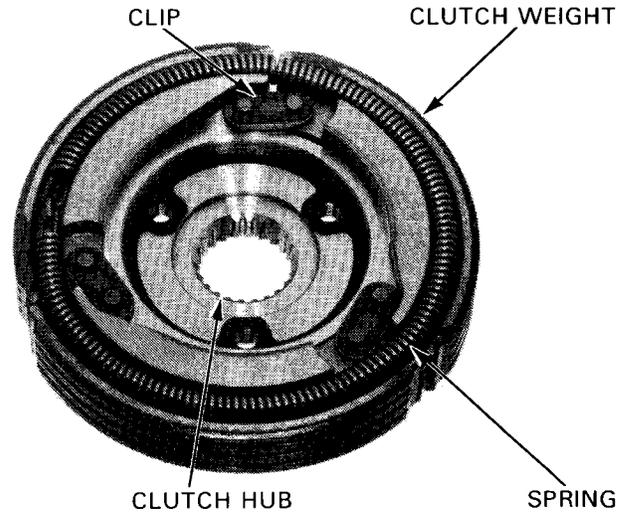
The lock nut has left hand threads.

Remove the centrifugal clutch weights.





Remove the springs.
Remove the clips and centrifugal clutch weight.

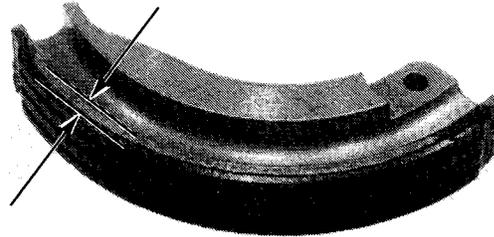


WEIGHT INSPECTION

Measure the weight lining thickness.
Measure the link joint hole I.D.

STANDARD: 4.3 mm (0.17 in)

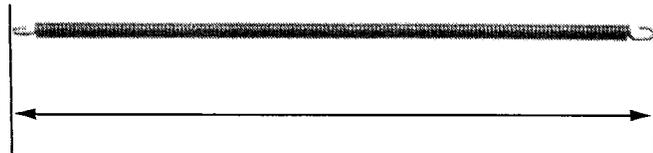
SERVICE LIMIT: 4.1 mm (0.16 in)



Measure the weight spring free length.

STANDARD: 267.5 mm (10.53 in)

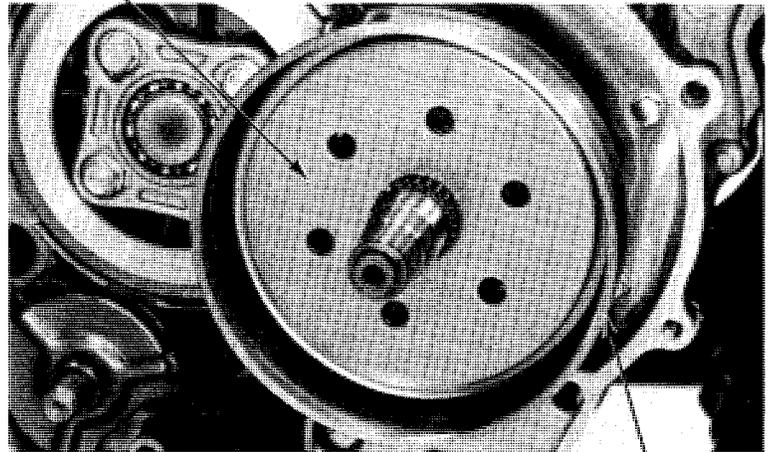
SERVICE LIMIT: 282 mm (11.1 in)





Remove the clutch plate.
Align the clutch outer cutout with the drive gear
and remove the clutch drum.

CLUTCH PLATE

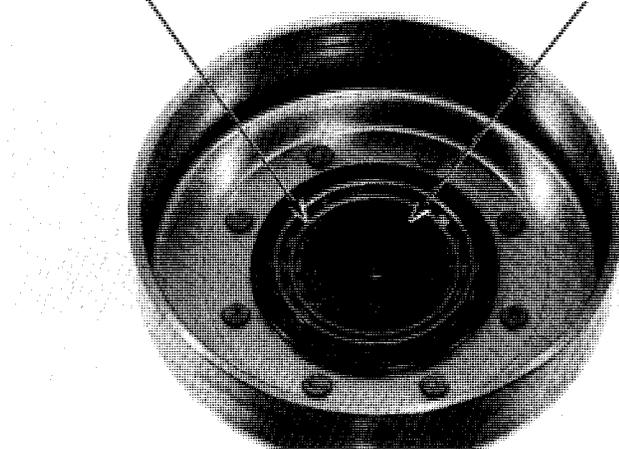


CLUTCH DRUM

Remove the one-way clutch center and sprag.

ONE-WAY CLUTCH SPRING

ONE-WAY CLUTCH CENTER

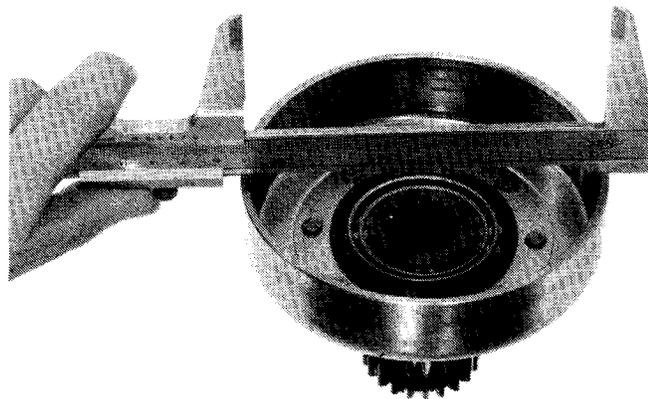


CLUTCH DRUM INSPECTION

Check the inside of the centrifugal clutch drum for
scratches or excessive wear.
Replace if necessary.
Measure the I.D. of the clutch drum.

STANDARD: 116 mm (4.57 in)

SERVICE LIMIT: 116.3 mm (4.58 in)



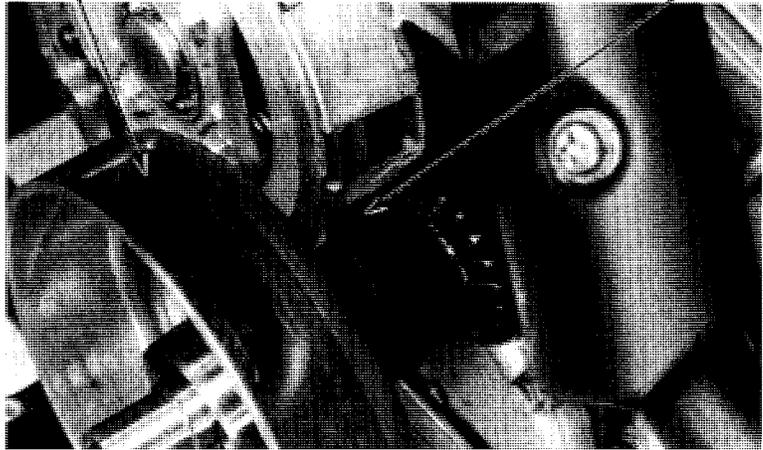


INSTALLATION

Install the clutch centrifugal clutch drum, aligning the clutch outer cutout with the drive gear.

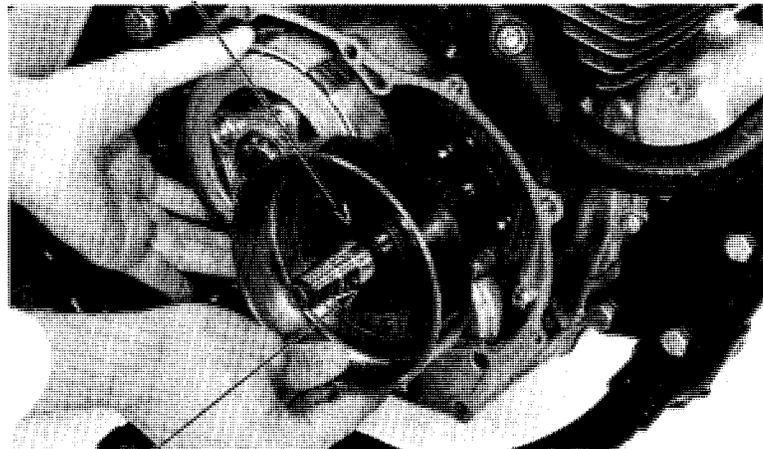
CLUTCH DRUM

CUT OUT



Install the one-way clutch sprag.
Install the one-way clutch center by turning it counterclockwise.
Install clutch plate B.

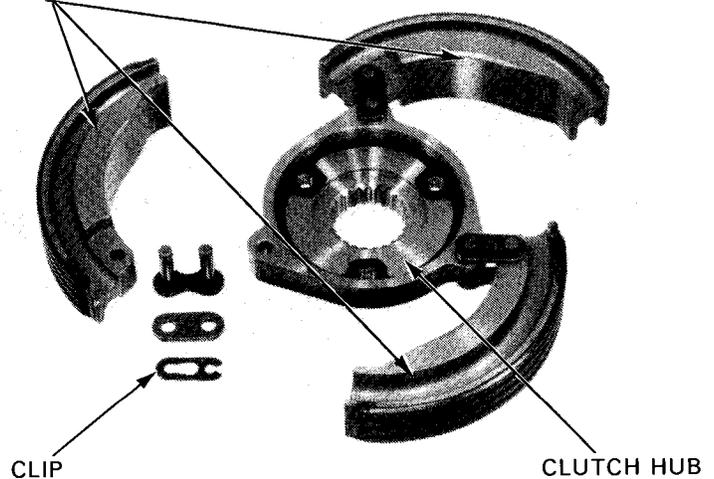
ONE-WAY CLUTCH SPRAG



CLUTCH CENTER

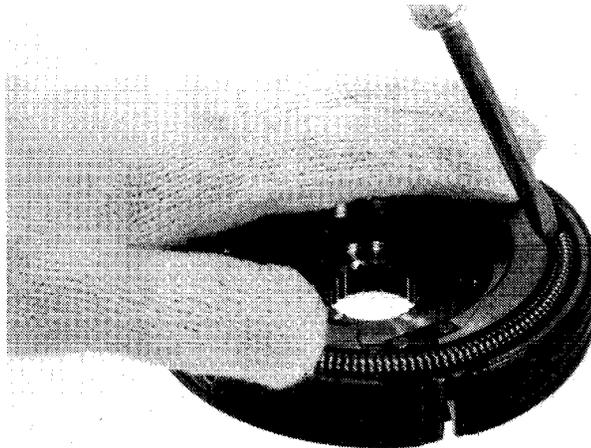
Attach the centrifugal clutch weights to the clutch hub with the links and clips.

CLUTCH WEIGHT

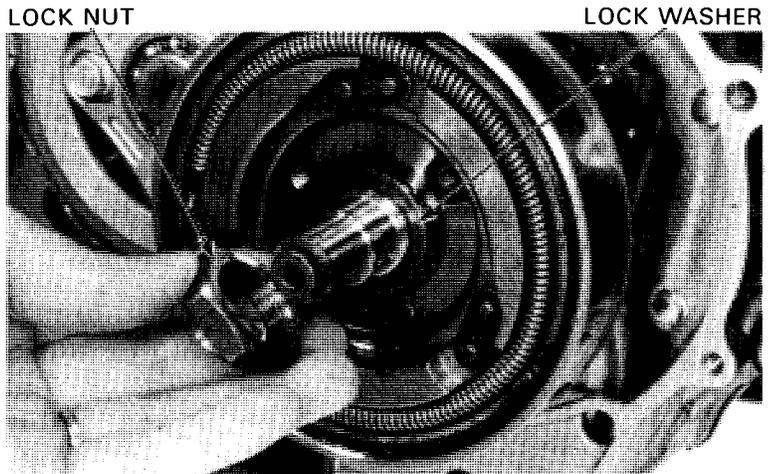




Install the centrifugal clutch springs, using a screwdriver.



Install the centrifugal clutch weight assembly onto the clutch drum.
Install the lock washer and lock nut.

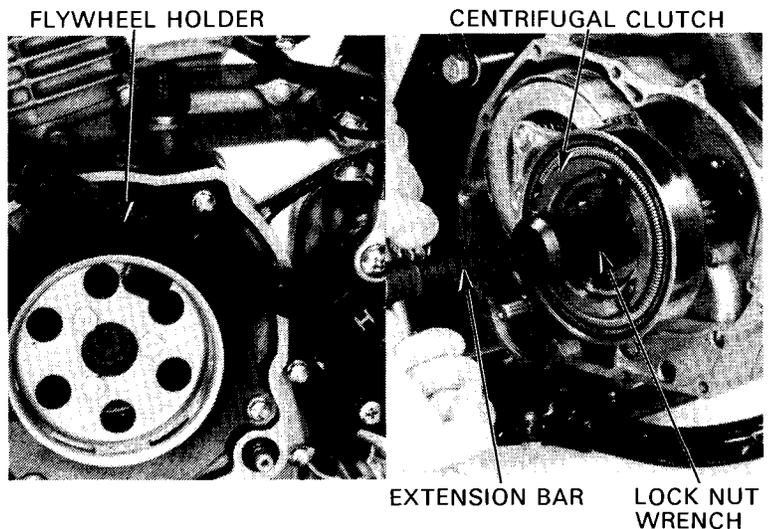


Install the flywheel holder or screwdriver (Page 8-5).
Turn the lock nut counterclockwise to tighten it.

**TORQUE: 105–115 N·m (10.5–11.5 kg·m,
76–83 ft·lb)**

NOTE

The lock nut has left hand threads.

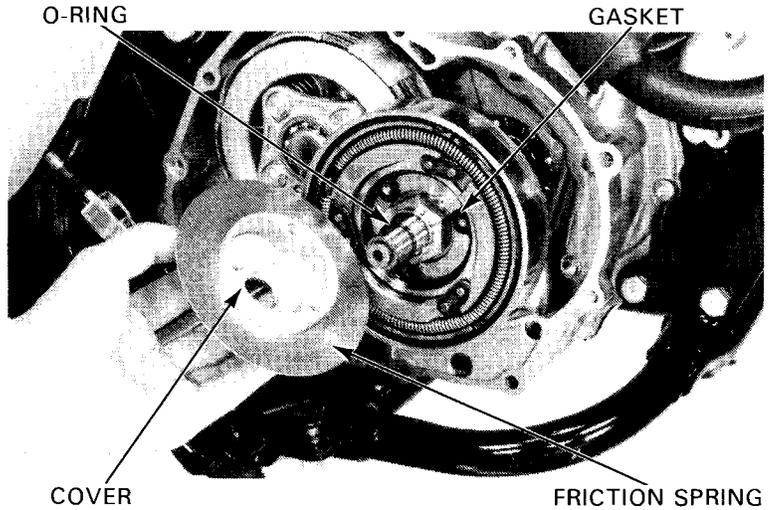




CLUTCH/OIL PUMP

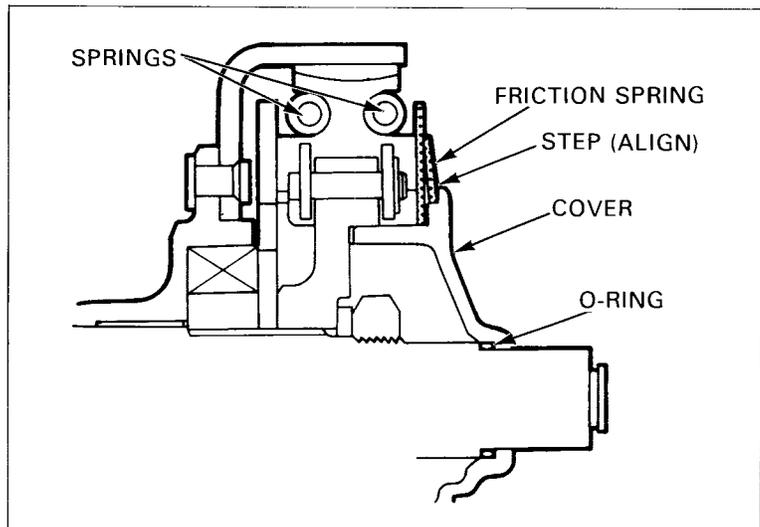
Place the oil filter rotor cover gasket onto the clutch hub.

Slip a new O-ring onto the crankshaft.
Install the thrust washer, side friction spring and oil filter rotor cover.



NOTE

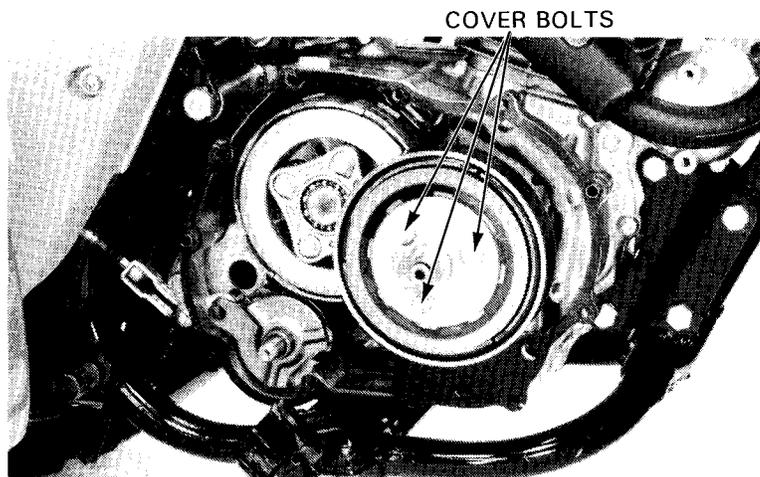
Align the teeth of the friction spring with step on the cover.



Tighten the cover bolts.

**TORQUE: 10–14 N·m (1.0–2.0 kg·m,
7–10 ft·lb)**

Remove the Flywheel Holder.
Install the cooling fan, starter pulley and recoil
starter (Page 9–4).
Install the neutral indicator (Page 9–6).





MANUAL CLUTCH

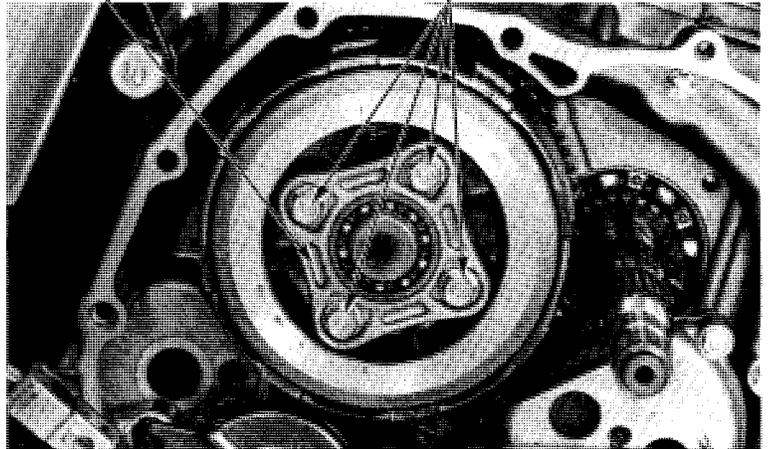
REMOVAL

Remove the following

- clutch cover.
- centrifugal clutch (Page 8-5).
- clutch bolts.
- lifter plate.
- clutch springs.

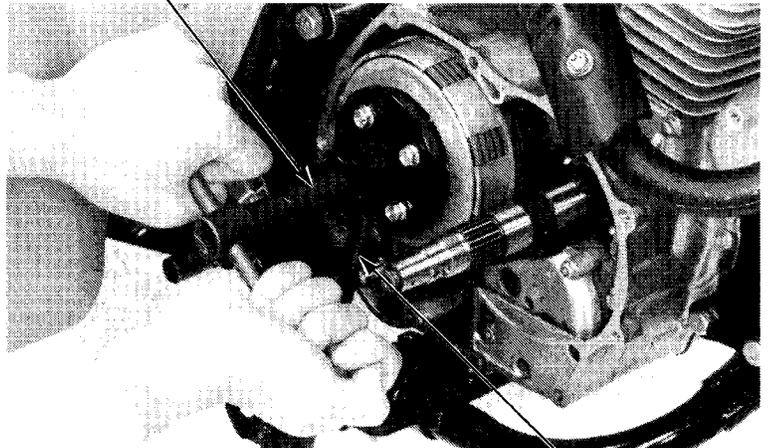
LIFTER PLATE

CLUTCH BOLTS



Install a CLUTCH CENTER HOLDER as shown, and remove the clutch lock nut.

LOCK NUT WRENCH

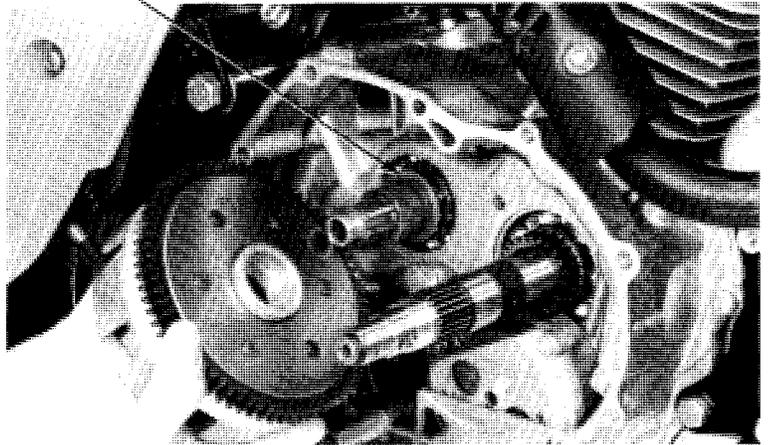


CLUTCH CENTER HOLDER

Remove the clutch center, discs, plates, pressure plate and thrust washer.

Remove the clutch outer, clutch outer guide and thrust washer.

THRUST WASHER





INSPECTION

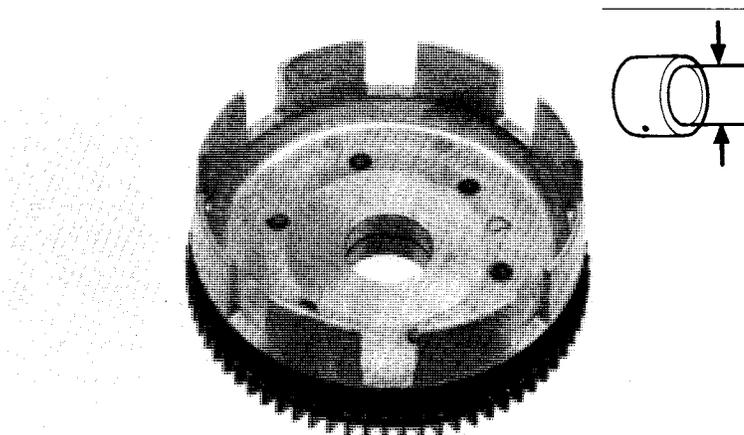
Check the slots of the clutch outer for nicks, cuts or indentations made by the clutch discs. Replace if necessary.

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

STANDARD:

20.000–20.021 mm (0.7874–0.7882 in)

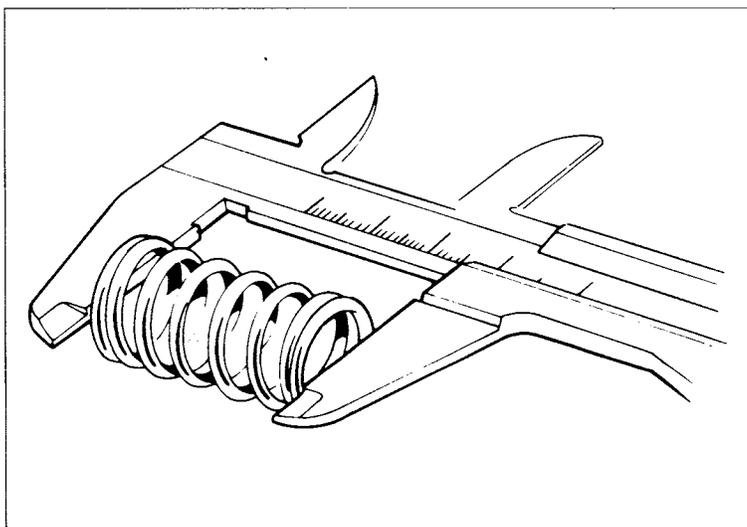
SERVICE LIMIT: 20.05 mm (0.789 in)



Measure the spring free length.

STANDARD: 25.7 mm (1.01 in)

SERVICE LIMIT: 25.0 mm (0.98 in)

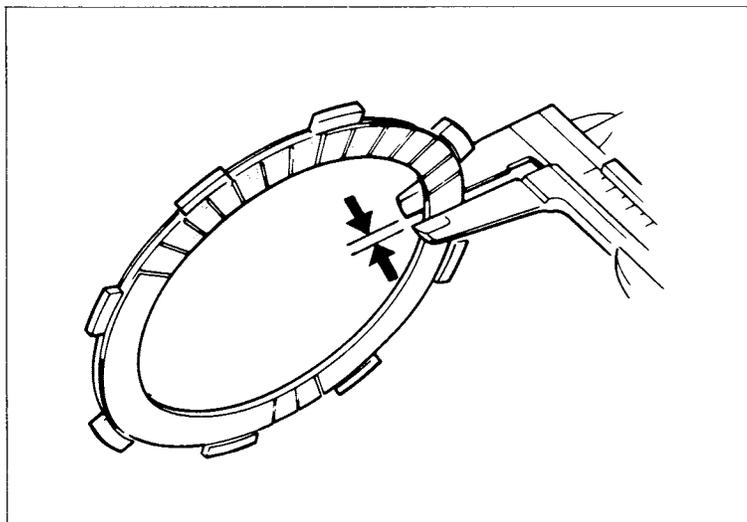


Replace the clutch discs if they show signs of scoring or discoloration.

Measure the disc thickness.

STANDARD: 2.9–3.0 mm (0.11–0.12 in)

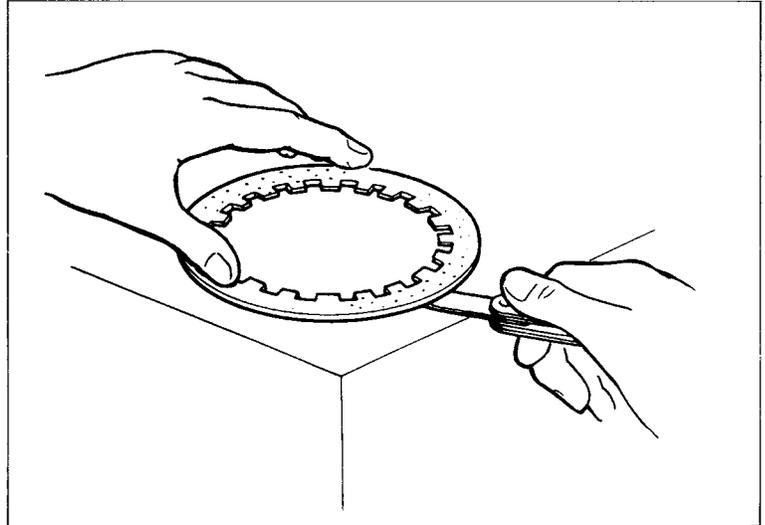
SERVICE LIMIT: 2.6 mm (0.10 in)





Check for plate and disc warpage on a surface plate using a feeler gauge.

SERVICE LIMIT: 0.20 mm (0.008 in)

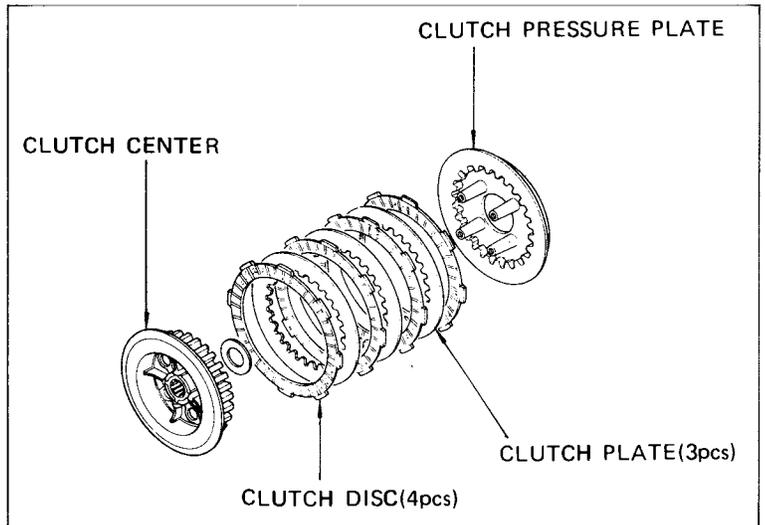


INSTALLATION

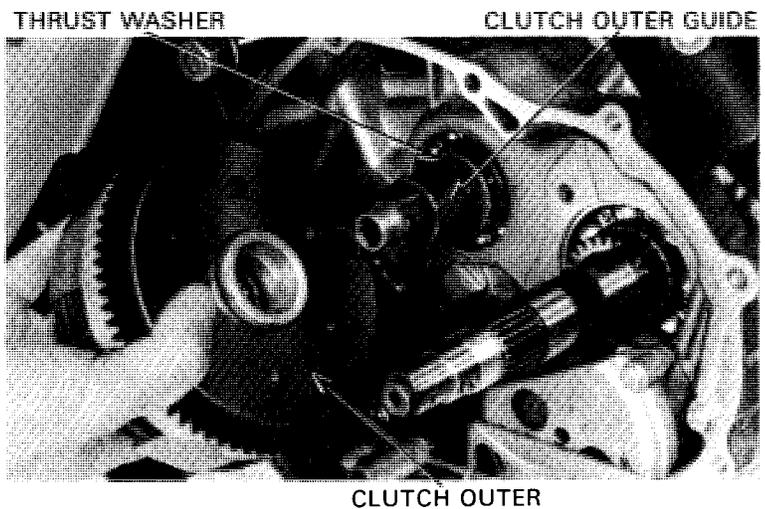
Assemble the clutch pressure plate, discs, plate and clutch center.

NOTE

- Stack the discs and plates alternately.
- Coat new clutch discs with engine oil.



Install the thrust washer, clutch outer guide, and clutch outer.

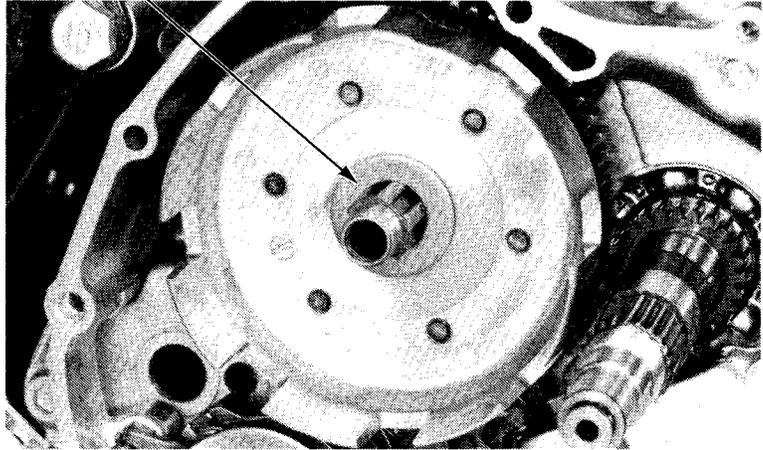




CLUTCH/OIL PUMP

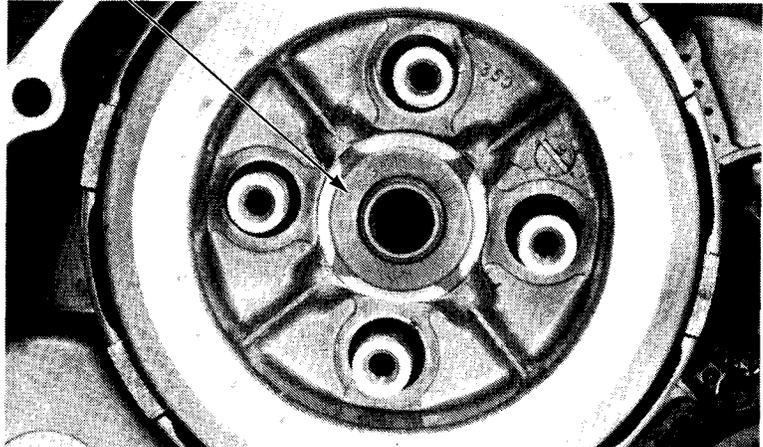
Install the thrust washer and clutch assembly.

THRUST WASHER



Install the lock washer with the "OUTSIDE" facing out.

LOCK WASHER



Install the clutch center holder with the clutch bolts.

Tighten the lock nut.

TORQUE:

50–60 N·m (5.0–6.0 kg-m, 36–43 ft-lb)

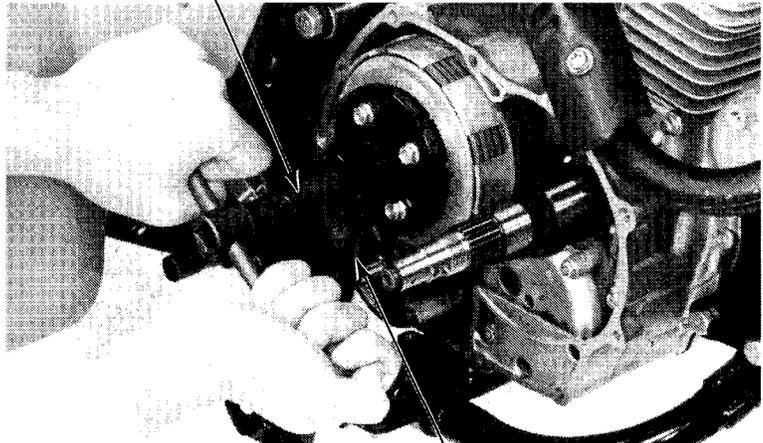
Install the clutch spring and lifter plate.

Tighten the clutch bolts.

Install the bearing and push rod.

Install the centrifugal clutch (Page 5–8).

LOCK NUT WRENCH 20×24 mm



CLUTCH CENTER HOLDER (Not available in U.S.A.)



OIL PUMP

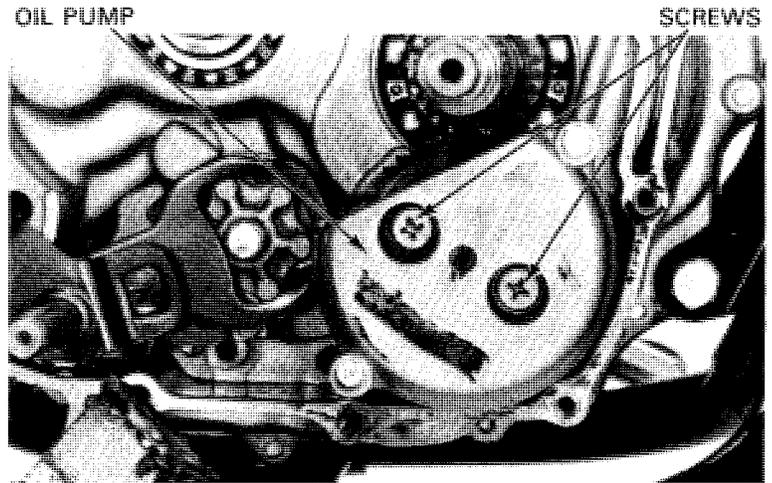
REMOVAL

Remove the centrifugal clutch (Page 8-5).
Remove the clutch (Page 8-11).

Remove the clutch lifter cam, ball retainer and clutch lifter (Page 8-11).

Remove the right crankcase spacer (Page 8-11).

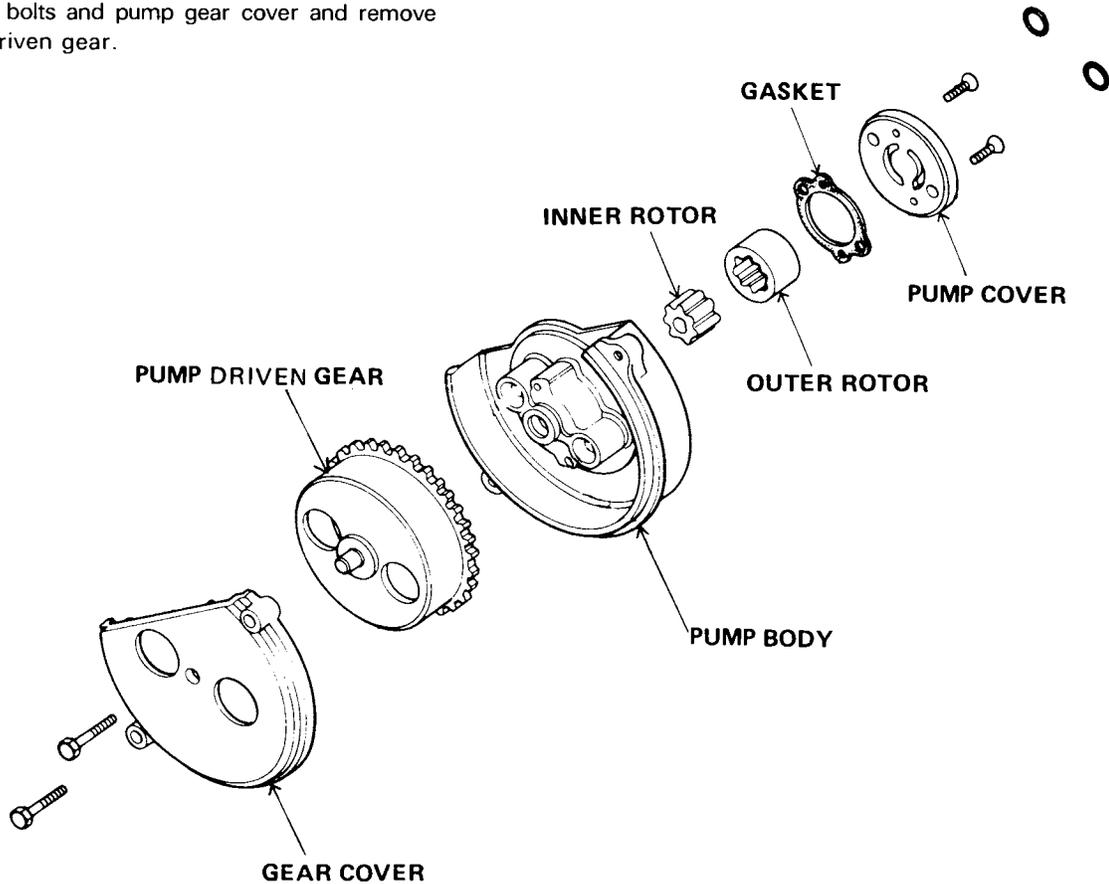
Align the oil pump setting screws with the gear cover holes and remove the oil pump setting screws.



DISASSEMBLY

Remove the oil pump cover and gasket.
Remove the oil pump inner and outer rotors.

Remove the bolts and pump gear cover and remove the pump driven gear.





CLUTCH/OIL PUMP

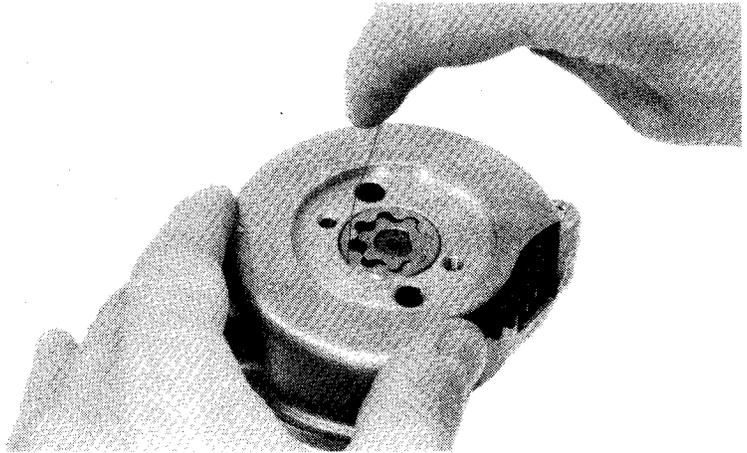
OIL PUMP INSPECTION

Measure the pump body to rotor clearance.

STANDARD:

0.30–0.36 mm (0.012–0.014 in)

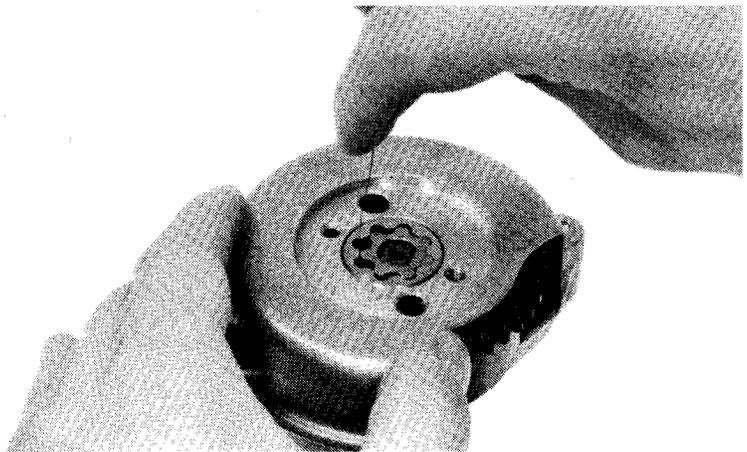
SERVICE LIMIT: 0.40 mm (0.016 in)



Measure the pump tip clearance.

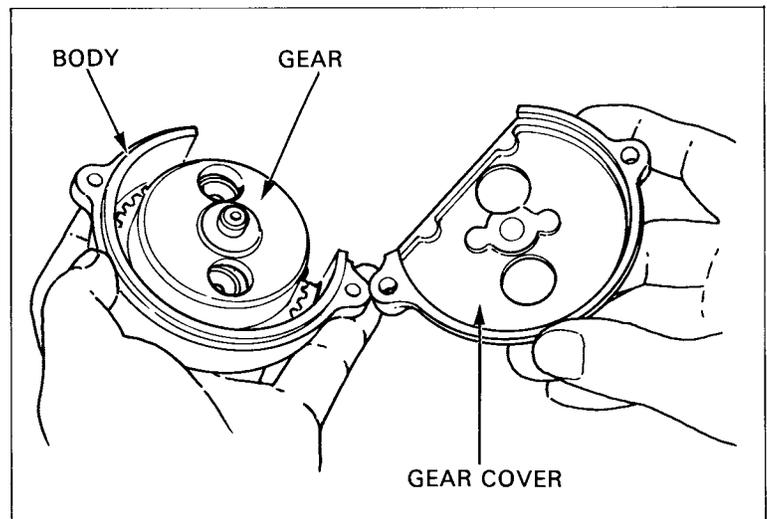
STANDARD: 0.15 mm (0.006 in)

SERVICE LIMIT: 0.20 mm (0.008 in)



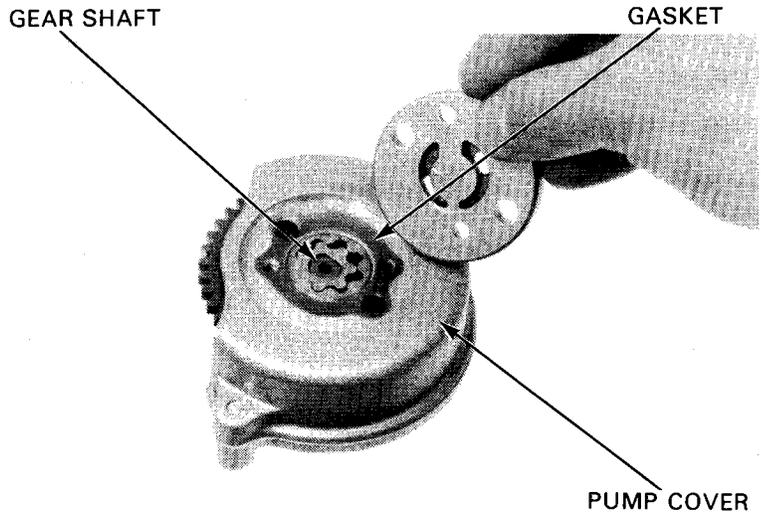
ASSEMBLY

Install the pump gear and gear cover onto the oil pump body.

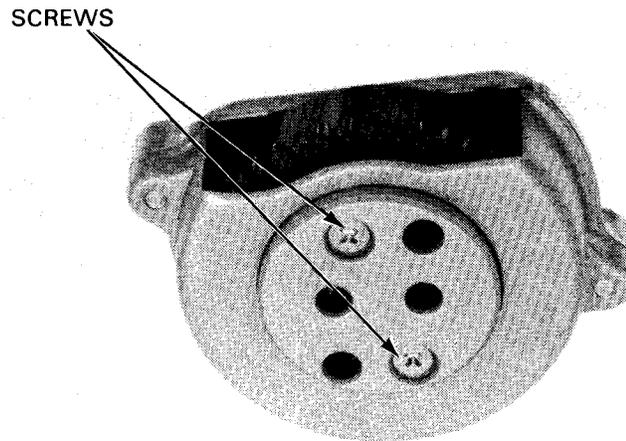




Install the inner and outer rotors.
Install the gasket and install the pump cover by aligning the cover center with the gear shaft.



Tighten the screws.
Check the operation of the pump by rotating the pump gear by hand.



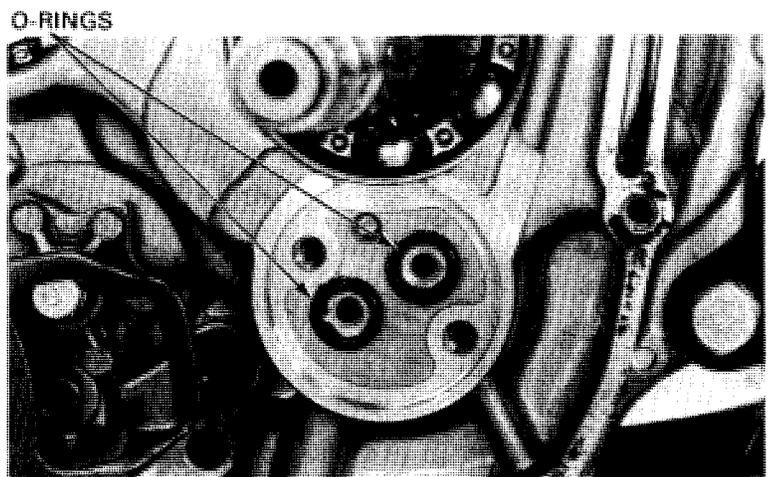
INSTALLATION

Install the O-rings and install the pump.

NOTE

Make sure that the O-rings remain in place when installing the pump.

Install the oil pump assembly.





CLUTCH/OIL PUMP

GEARSHIFT LINKAGE

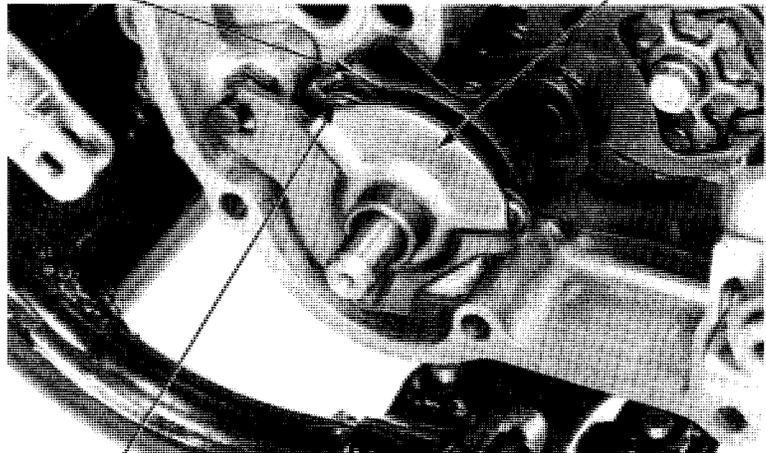
DISASSEMBLY

Remove the following:

- right crank case.
- manual clutch and centrifugal clutch.
- clutch lifter cam.
- ball retainer and clutch lifter.

CLUTCH LIFTER

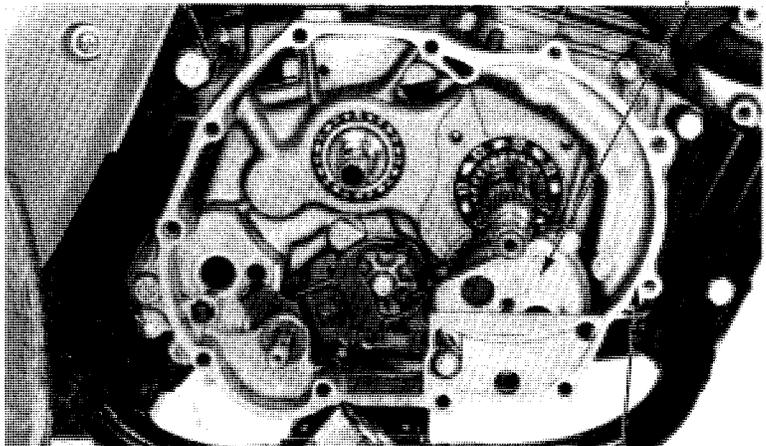
CLUTCH LIFTER CAM



BALL RETAINER

Remove the right crankcase spacer and oil pump (Page 5-11).
Remove the gasket and dowel pins.

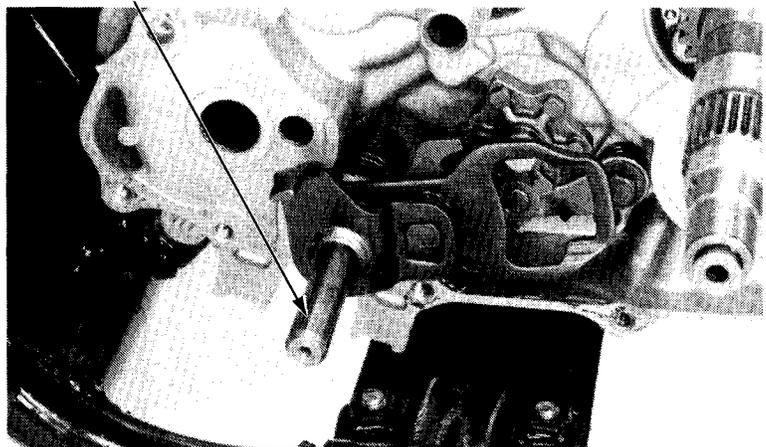
OIL PUMP



RIGHT CRANKCASE SPACER

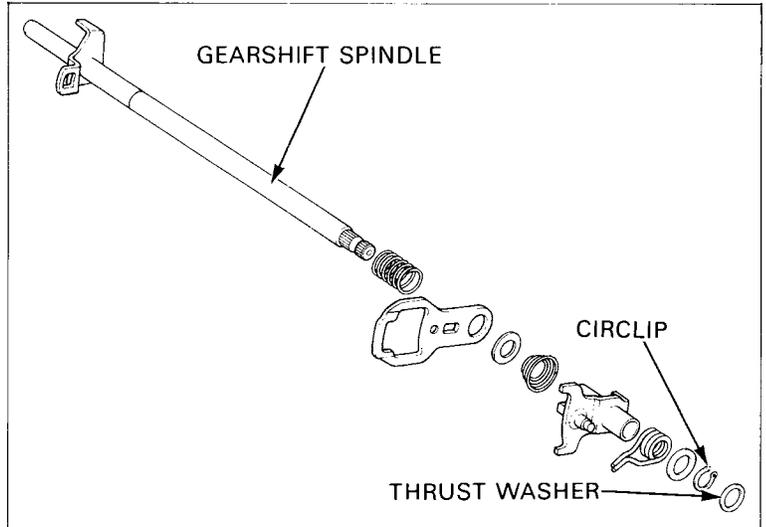
Pull the gearshift spindle out.

GEARSHIFT SPINDLE

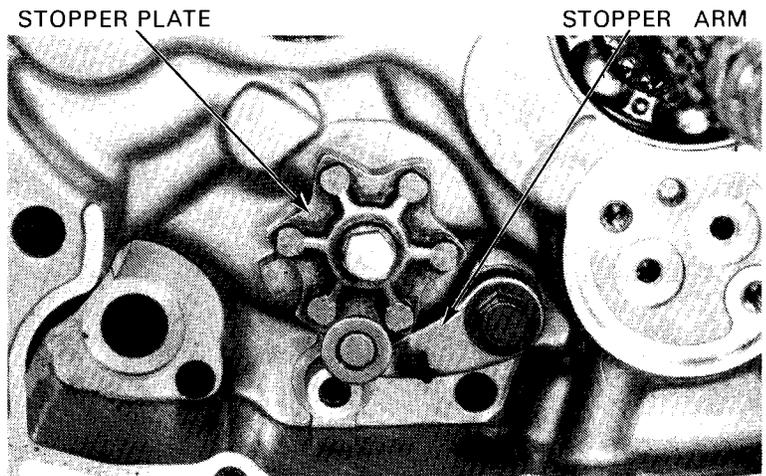




Remove the thrust washer, circlip and disassemble the gearshift spindle.



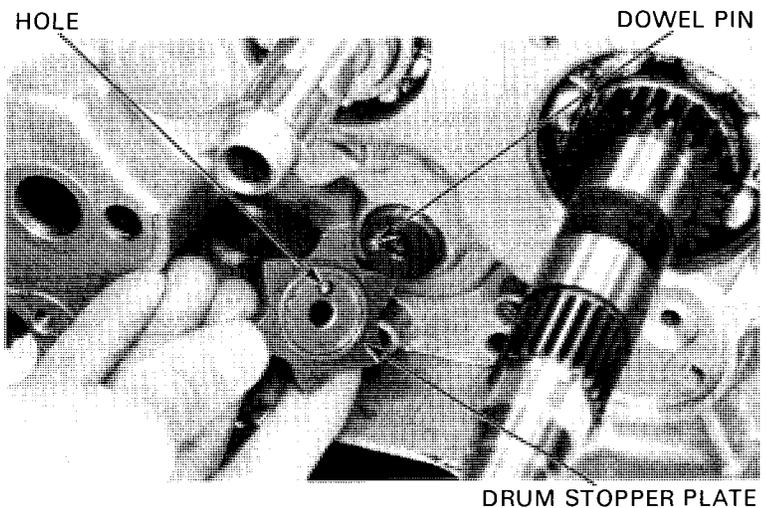
Remove the drum stopper plate and drum stopper arm.



ASSEMBLY

Install the drum stopper plate by aligning the hole and dowel pin.

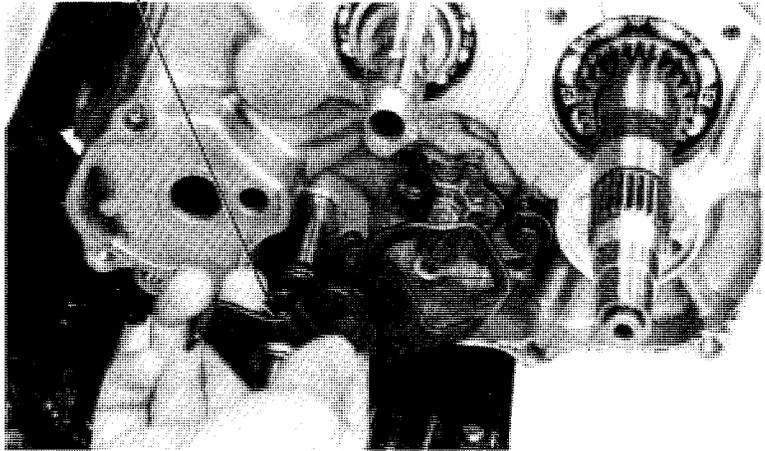
Install the stopper arm.





- Assemble the gearshift spindle.
- Install the gearshift spindle assembly.
- Install the oil pump (Page 8-15).

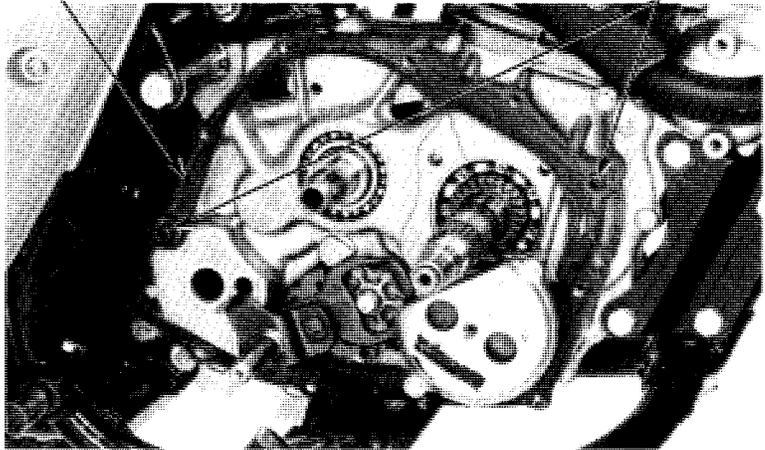
GEARSHIFT SPINDLE



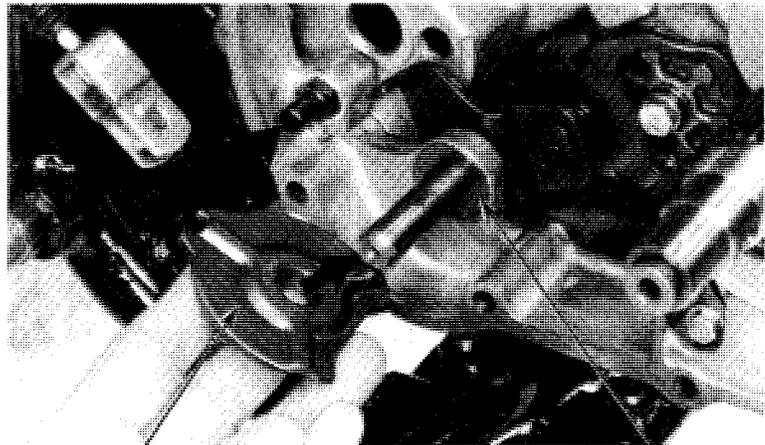
- Install the dowel pins and gasket.
- Install the right crankcase spacer.

GASKET

DOWEL PINS



- Install the thrust washer.
- Install the clutch lifter by aligning the boss with the cut-out of the clutch lifter.



CLUTCH LIFTER

THRUST WASHER



Install the ball retainer.

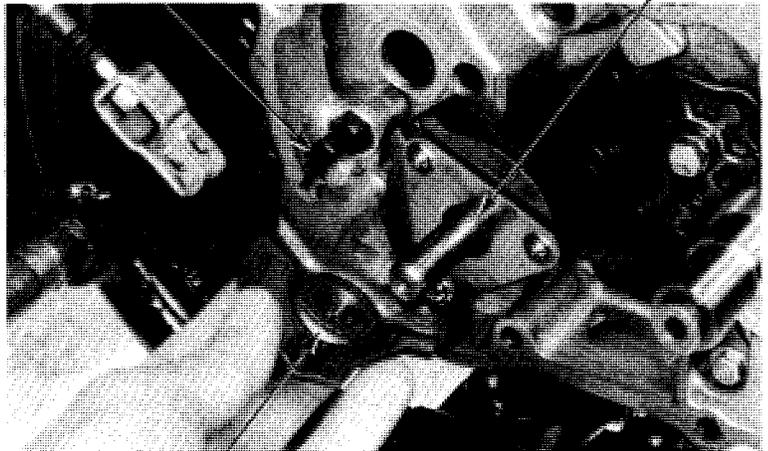
Install the clutch lifter cam by aligning the cut-out of the cam with the lifter cam stopper bolt on the crankcase spacer.

Install the manual clutch (Page 8-13).

Install the centrifugal clutch (Page 8-8).

STOPPER BOLT

BALL RETAINER



CLUTCH LIFTER CAM

RIGHT CRANKCASE COVER INSTALLATION

Install the following:

- dowel pins and gasket.
- right crankcase cover and foot peg.

Adjust the clutch (Page 3-16).

Fill the engine with the recommended oil (Page 2-1).

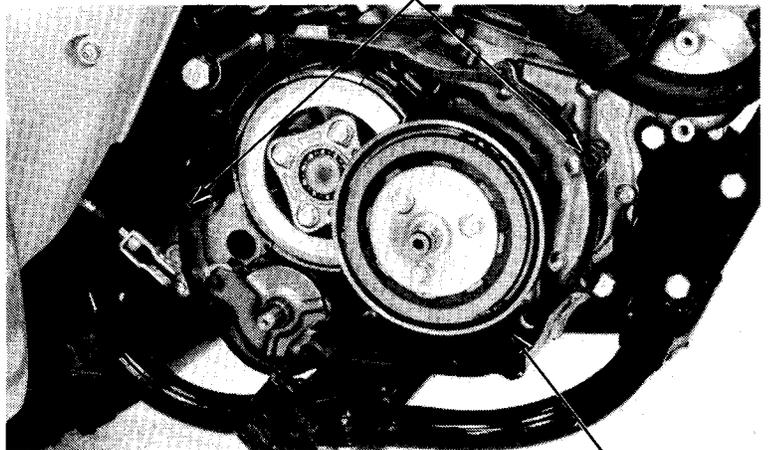
Connect the rear brake cable and install the brake pedal return spring.

Adjust the rear brake pedal (Page 3-14).

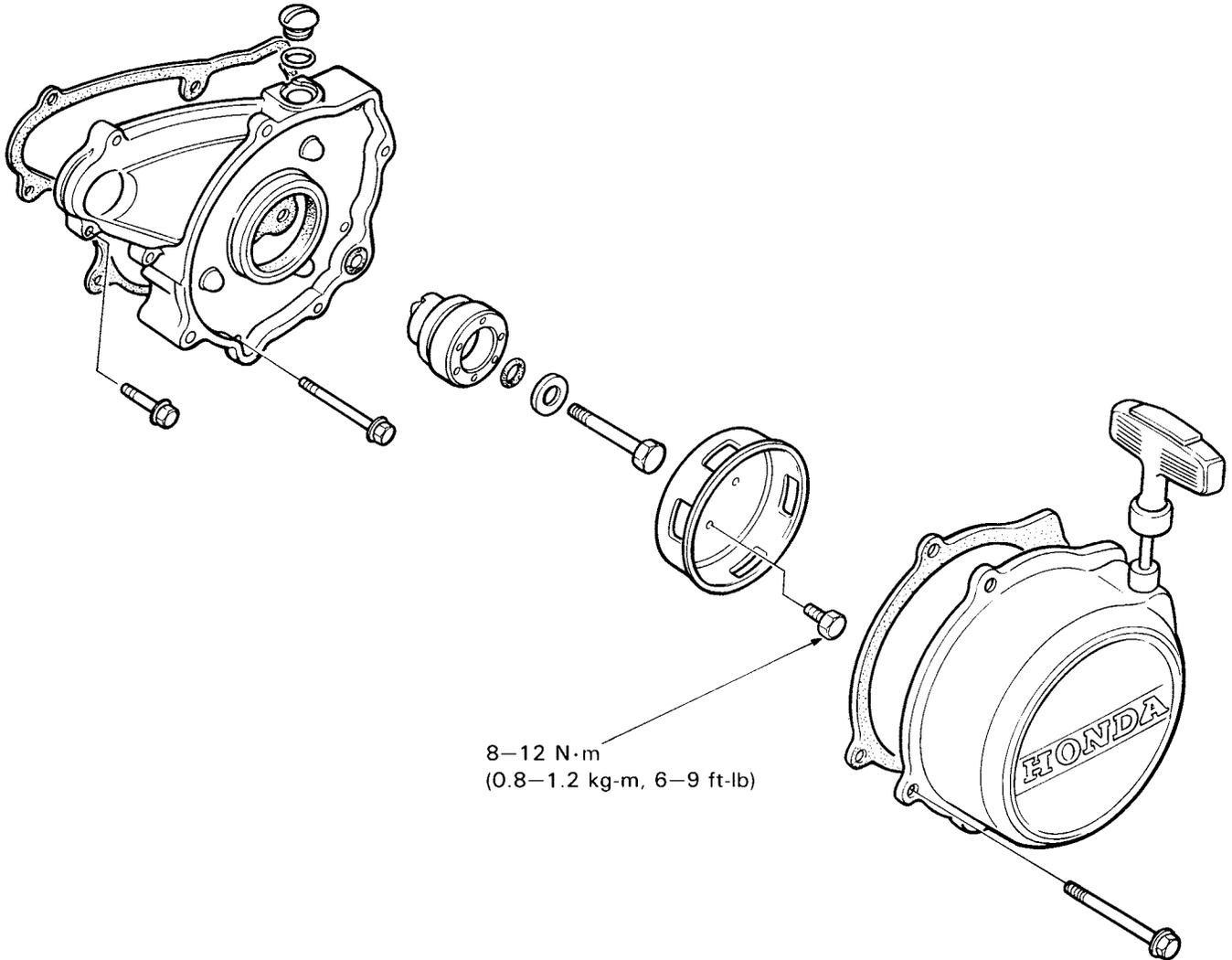
Start the engine and check the clutch for smooth operation.

Be sure there are no oil leaks.

DOWEL PINS



GASKET





SERVICE INFORMATION	9-1
TROUBLESHOOTING	9-1
RECOIL STARTER REMOVAL/DISASSEMBLY	9-2
RECOIL STARTER ASSEMBLY/INSTALLATION	9-4

SERVICE INFORMATION

GENERAL

This section covers removal and installation of the recoil starter.

TROUBLESHOOTING

Engine does not turn when operating recoil starter

1. Faulty starter ratchet
2. Faulty driven pulley
3. Faulty drive pulley

Starter rope does not recoil

1. Faulty recoil spring

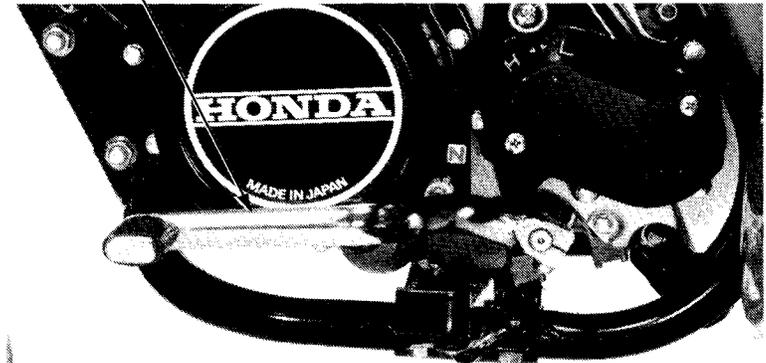


RECOIL STARTER

REMOVAL/DISASSEMBLY

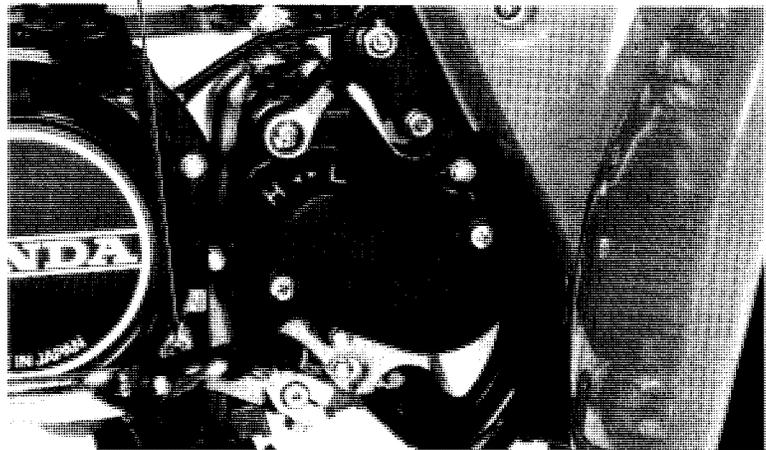
Shift the transmission into the neutral.
Remove the gearshift pedal.

GEAR SHIFT PEDAL



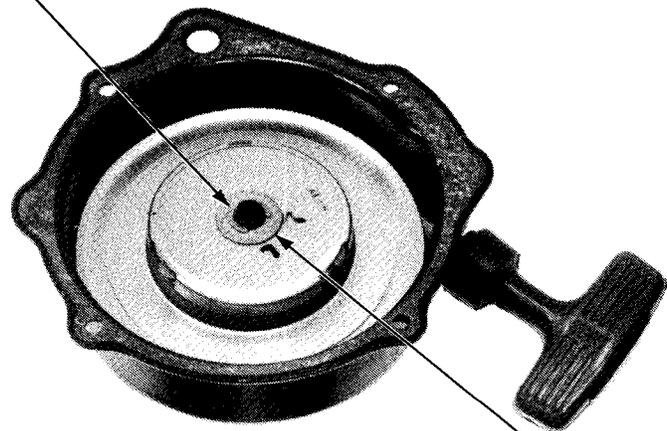
Remove the neutral indicator.
Remove the recoil starter bolts.

NEUTRAL INDICATOR



Remove the circlip.
Remove the thrust washer and ratchet cover.

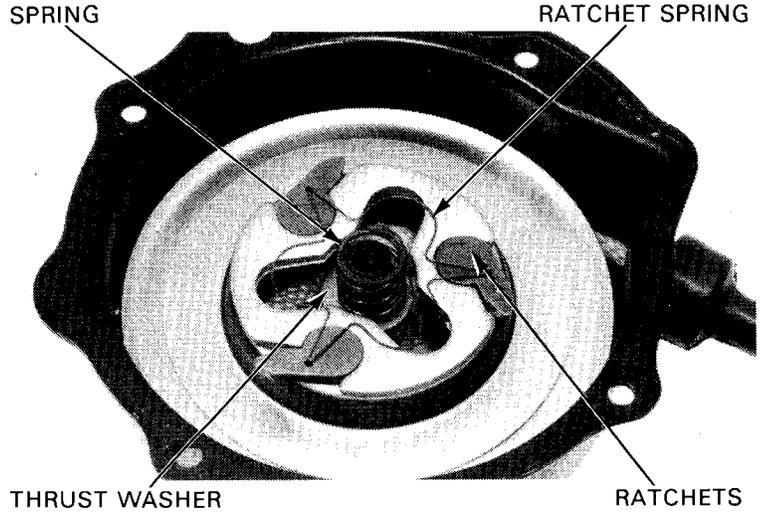
CIRCLIP



THRUST WASHER



Remove the ratchets and ratchet springs.
Remove the spring and thrust washer.

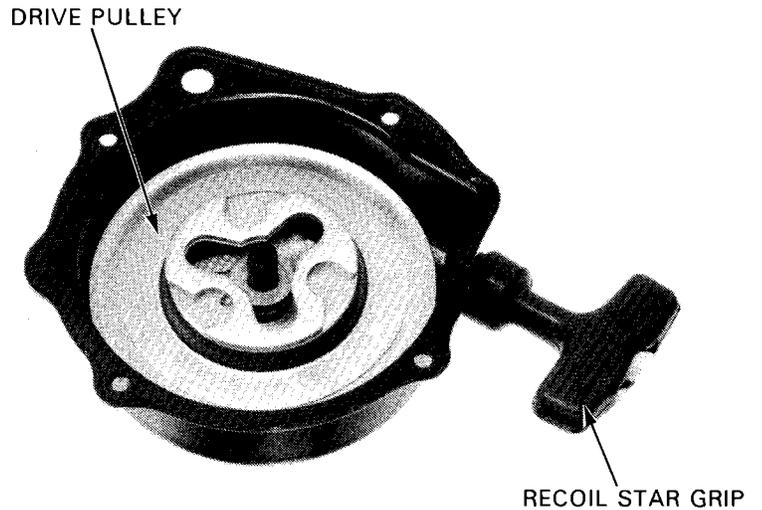


Remove the starter grip and release the starter rope slowly.

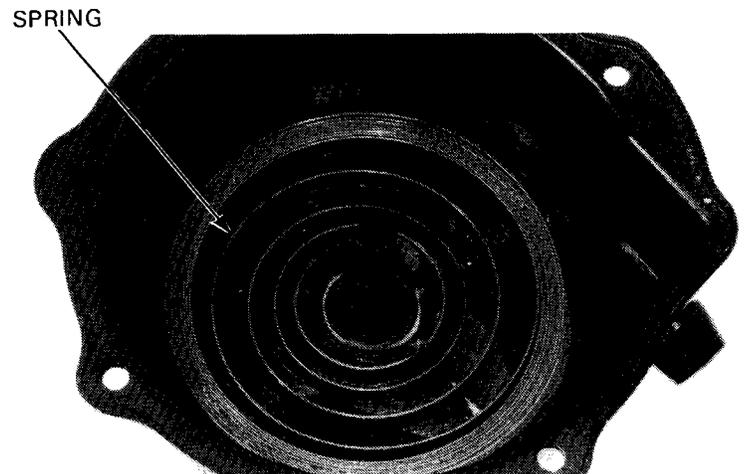
Remove the starter drive pulley by turning the pulley counterclockwise.

CAUTION:

Wear eye protection and use care when removing the drive pulley and starter spring. The spring can pop out of the housing if care is not used.



Check the recoil starter spring for breakage.
Remove the starter spring, if necessary.



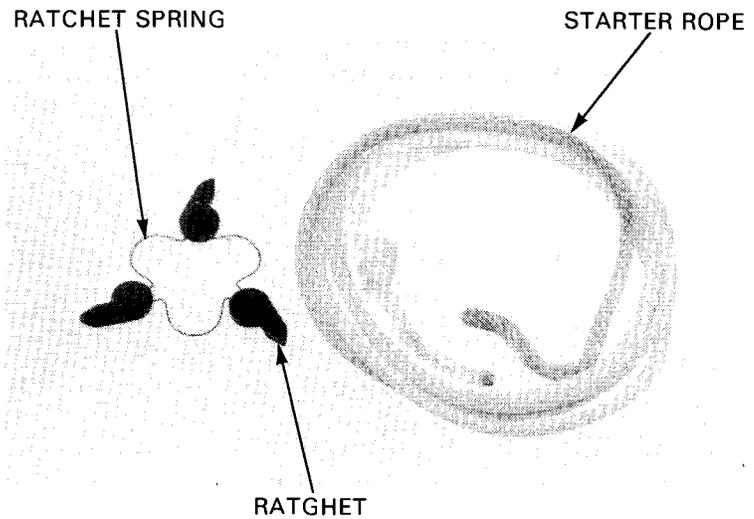


RECOIL STARTER

INSPECTION

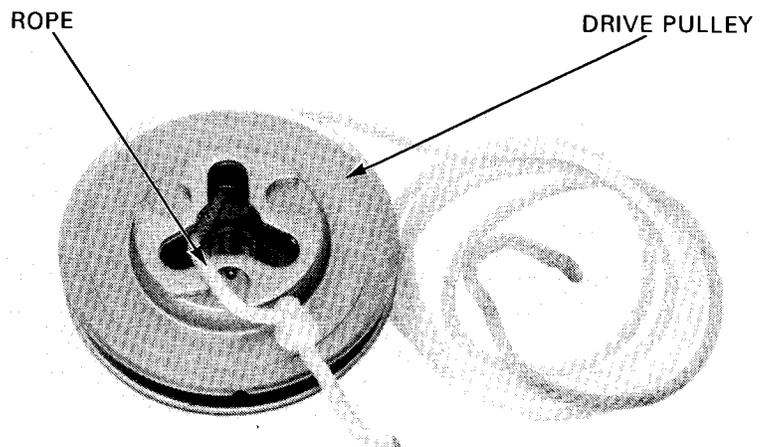
Check the starter rope and ratchet for wear or damage.

Check the ratchet spring for damage.
Replace any damaged parts.

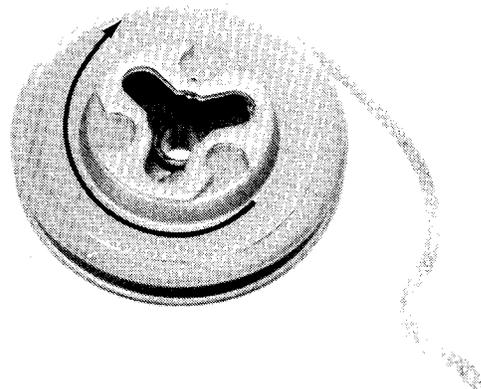


ASSEMBLY/INSTALLATION

Knot the end of the rope and route the rope through the hole on the drive pulley as shown.



Wrap the rope around the starter pulley in a clockwise direction as viewed from the ratchet side as shown.

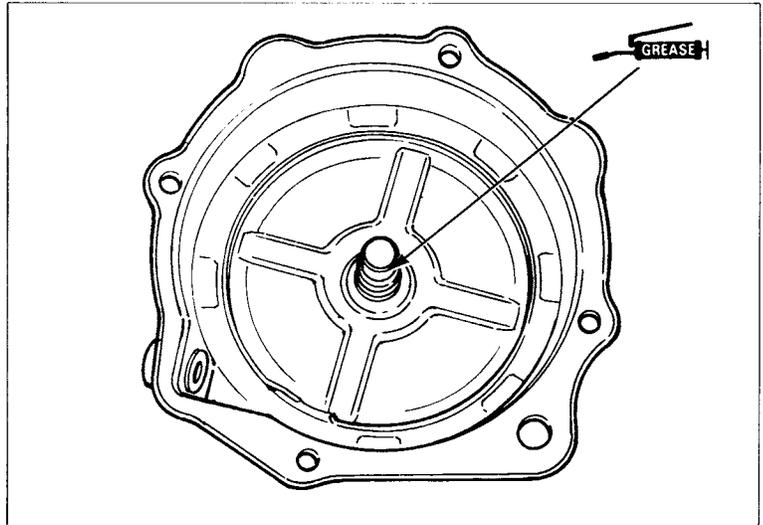




Apply grease to the pulley shaft.
Install the spring by hooking the end to the starter housing hook.

CAUTION

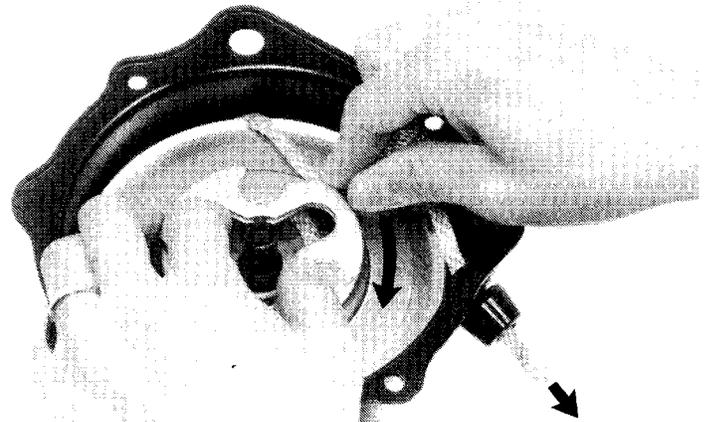
Wear eye protection and use care when installing the drive pulley and starter spring. The spring can pop out of the housing if care is not used.



Install the starter pulley by turning it clockwise to align the spring end with the starter pulley boss.

Route the starter rope through the pulley cut-out. Preload the starter spring by turning the pulley 2 turns clockwise.

Route the rope end through the starter housing hole and install the grip.

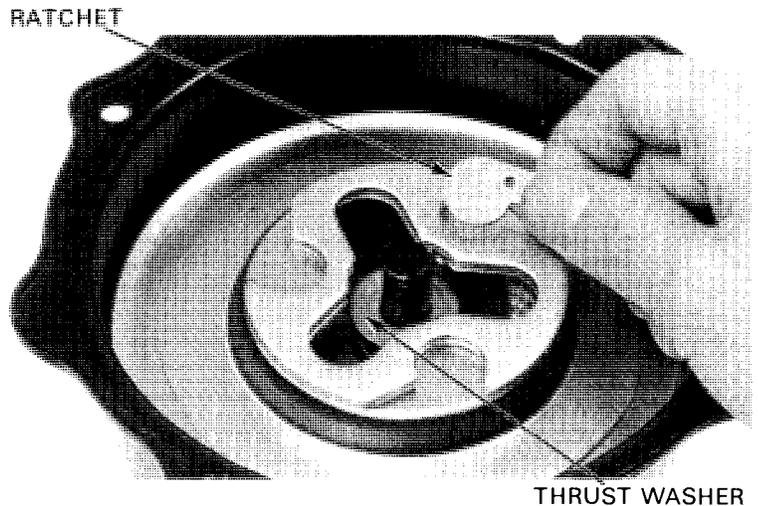


Apply grease to the ratchets.
Install the ratchets and ratchet springs.

Coat the thrust washer with grease and install it.

Install the spring.
Install the ratchet cover, thrust washer and circlip.

Check recoil starter operation by pulling the starter grip.





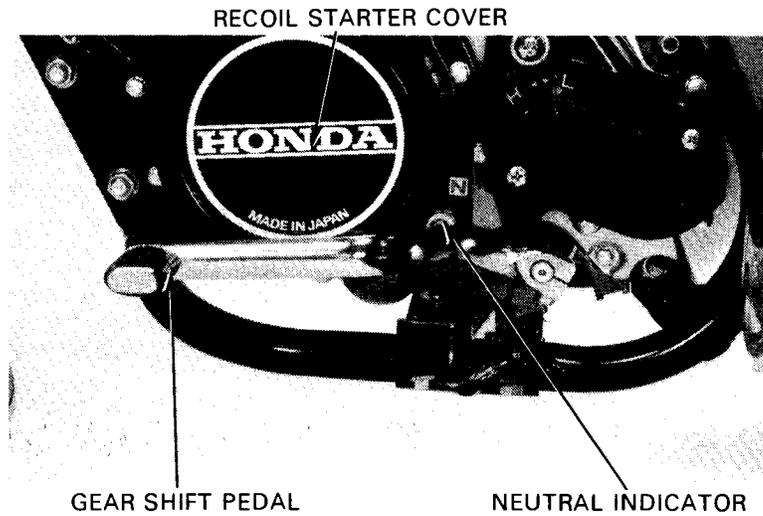
RECOIL STARTER

Install the recoil starter.

Install the neutral indicator by aligning the indicator boss with the recoil starter housing "N" mark.

Install the circlip and the gearshift pedal.

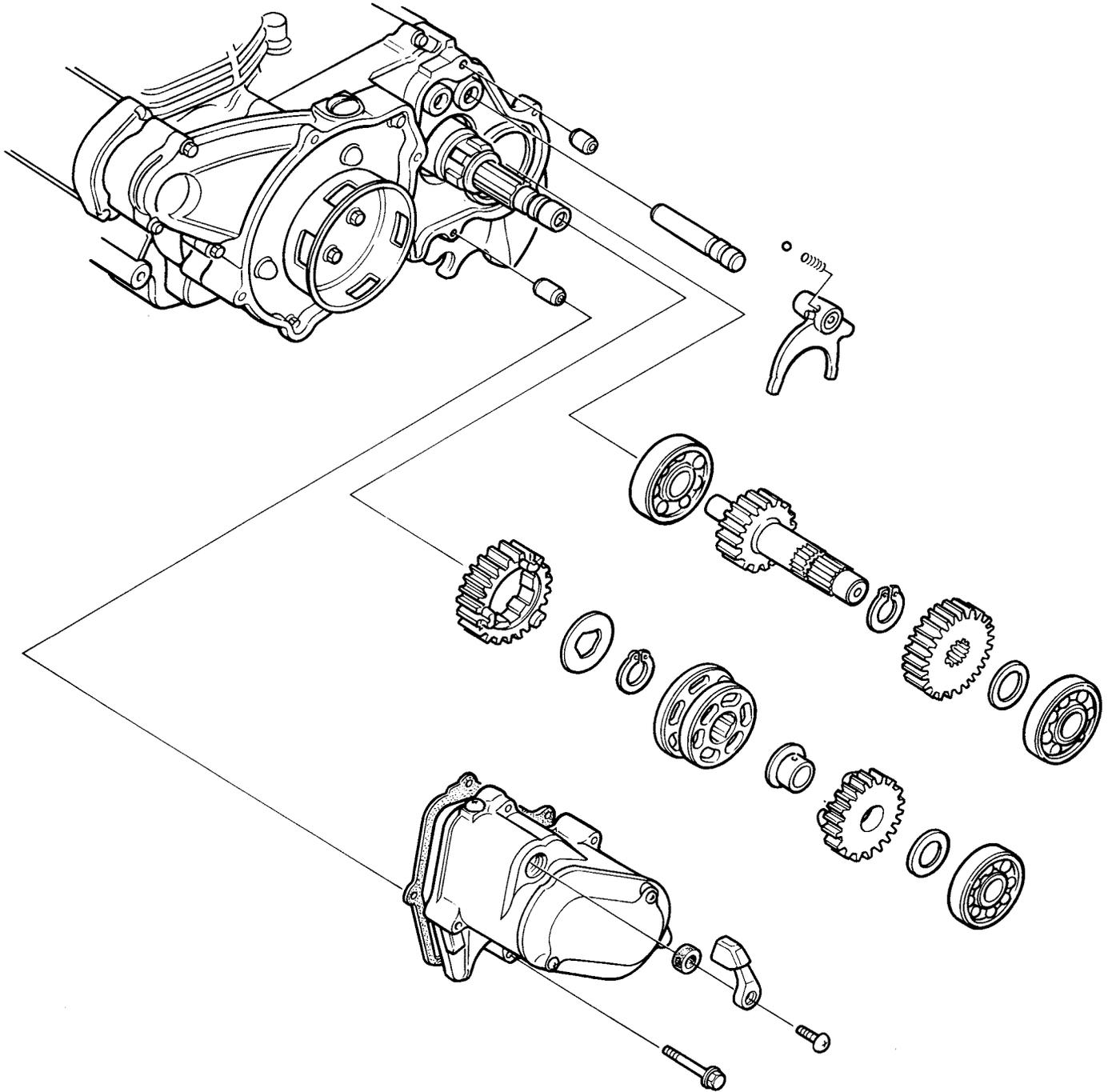
Check that the indicator aligns with the "N" mark when the transmission is in neutral.





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SERVICE INFORMATION	10-1
TROUBLESHOOTING	10-1
SUBTRANSMISSION REMOVAL	10-2
SUBTRANSMISSION INSTALLATION	10-4

SERVICE INFORMATION

GENERAL

- This section cover removal and installation of the subtransmission.

SPECIFICATIONS

ITEM		STANDARD	SERVICE LIMIT
SUB TRANSMISSIO LOW DRIVE GEAR BUSH	O.D.	18.960-18.993 mm (0.7465-0.7478 in)	18.930 mm (0.7453 in)
	I.D.	16.492-16.525 mm (0.6493-0.6506 in)	16.555 mm (0.6518 in)

TROUBLESHOOTING

Gear noisy

- Worn subtransmission gear.

Hard to shift

1. Shift fork bent or damage.
2. Shift fork shaft bent.

Jumps out of gear

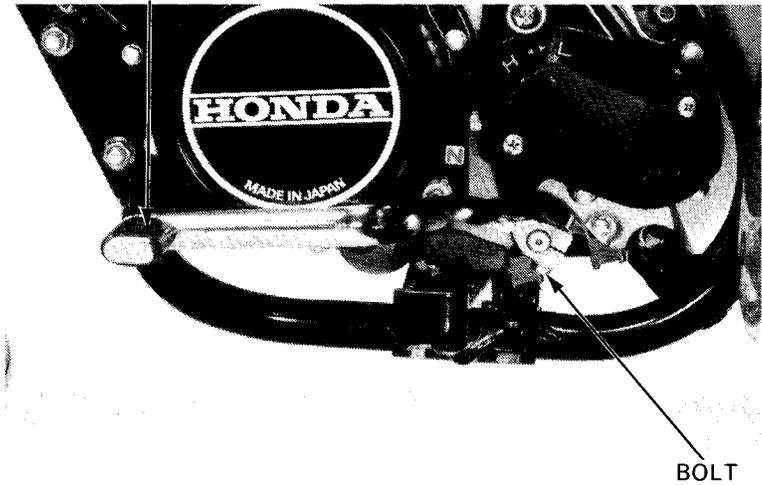
1. Shift fork bent or damaged.
2. Shift fork shaft bent.
3. Gear engagement dogs or slots worn.



REMOVAL

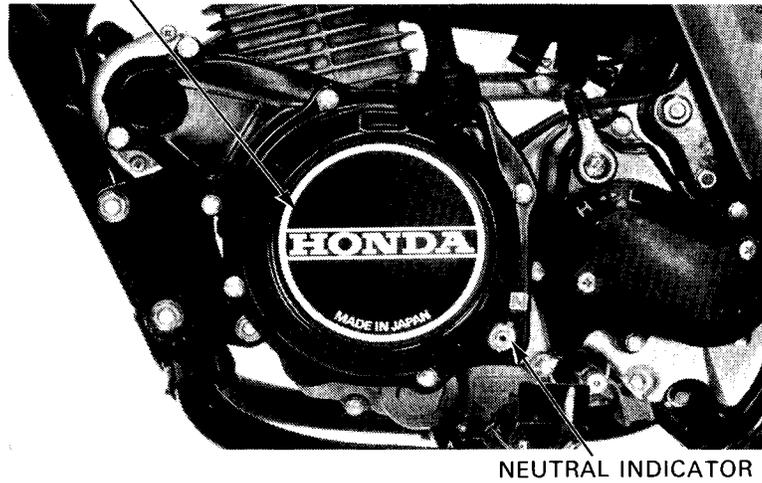
Remove the bolt and remove the gear shift pedal.

GEAR SHIFT PEDAL



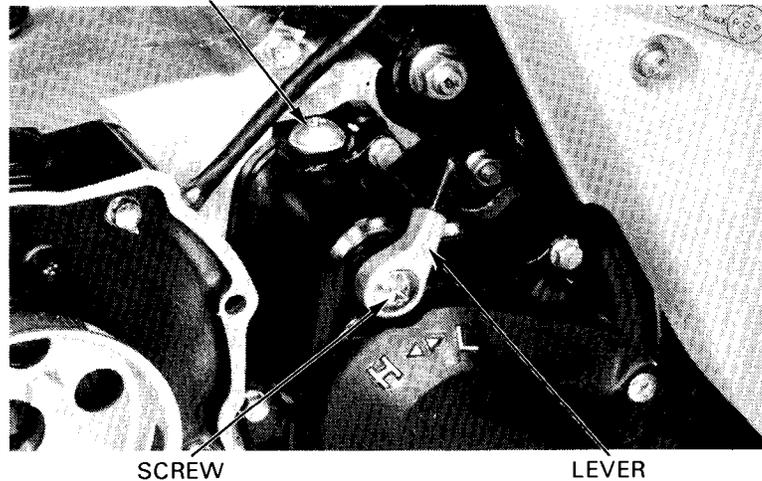
Remove the neutral indicator by removing a retainer clip.
Remove the recoil starter.

RECOIL STARTER



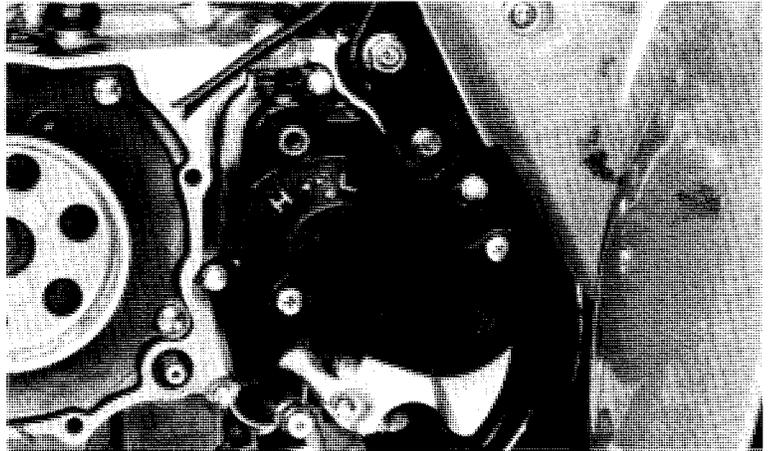
Remove the subtransmission setting screw and sealing washer.
Remove the subtransmission lever by removing the lever screw.

SUBTRANSMISSION SETTING SCREW

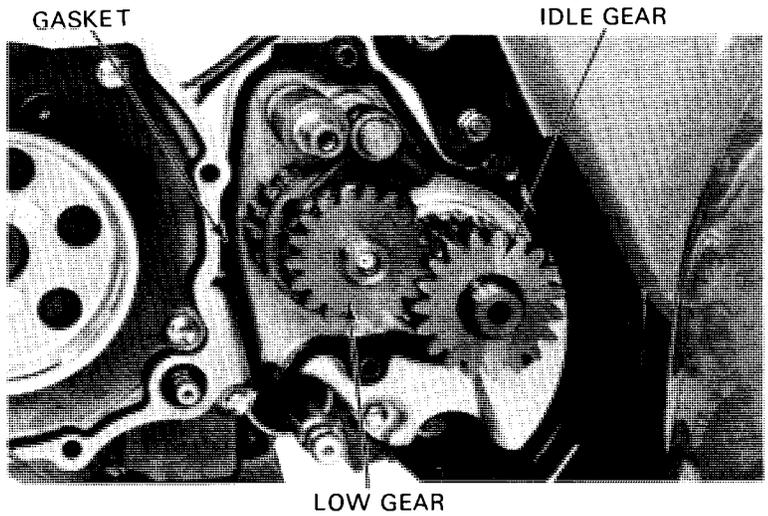




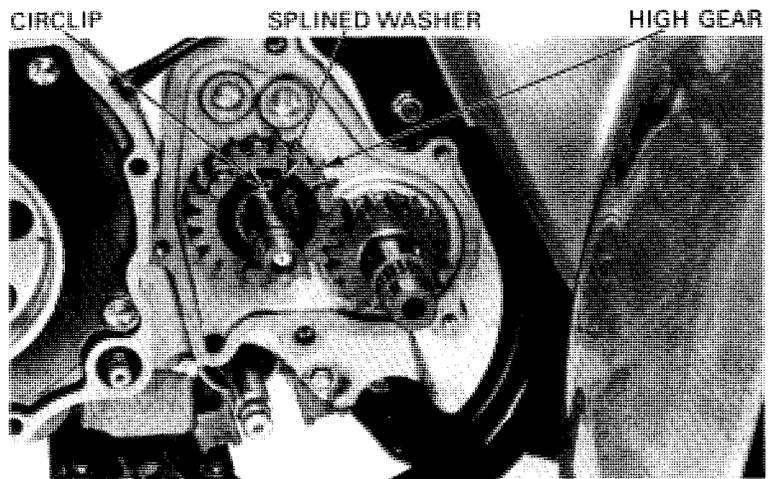
Remove the pin.
Remove the subtransmission by removing the five cover bolts.



Remove the washer, low gear, shift fork and shift draw.
Remove the washer and idle gear.



Remove the circlip, splined washer and high gear.



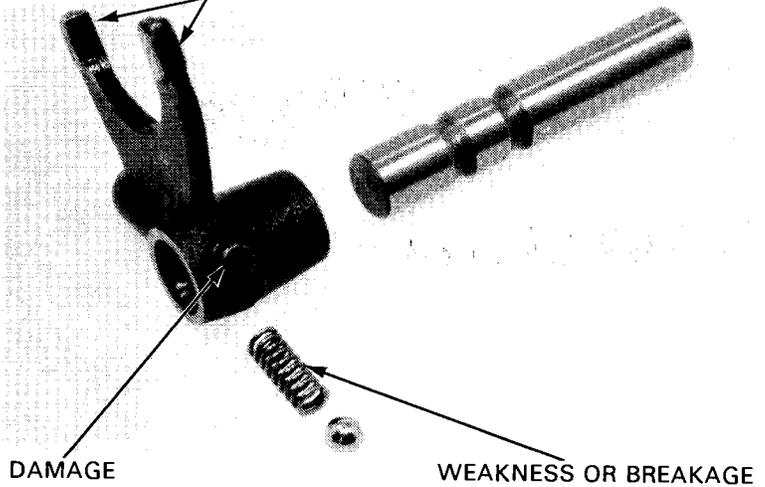


INSPECTION

Check the shift fork for damage. Inspect the spring for weakness or breakage.

Check the low and high gears for excessive wear.

CHECK FOR: DAMAGE



Measure the sub-transmission low drive gear bush I.D. and O.D.

If wear exceeds the service limits, replace the sub-transmission low drive gear bushing.

STANDARD:

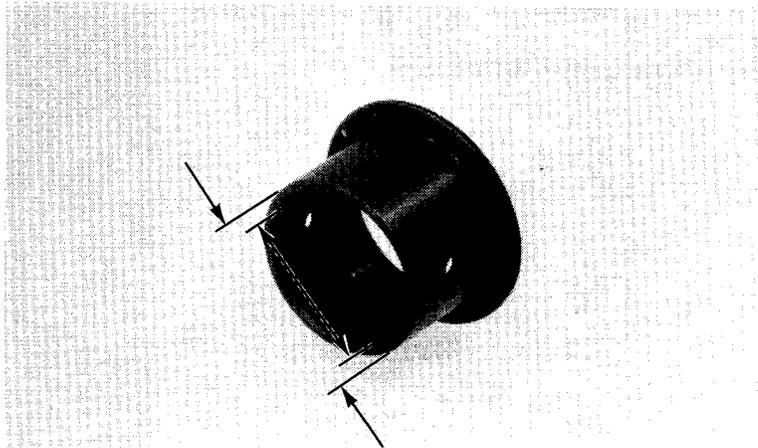
O.D.: 18.960—18.993mm(0.7465—0.7478 in)

I.D.: 16.492—16.525mm(0.6493—0.6506 in)

SERVICE LIMITS:

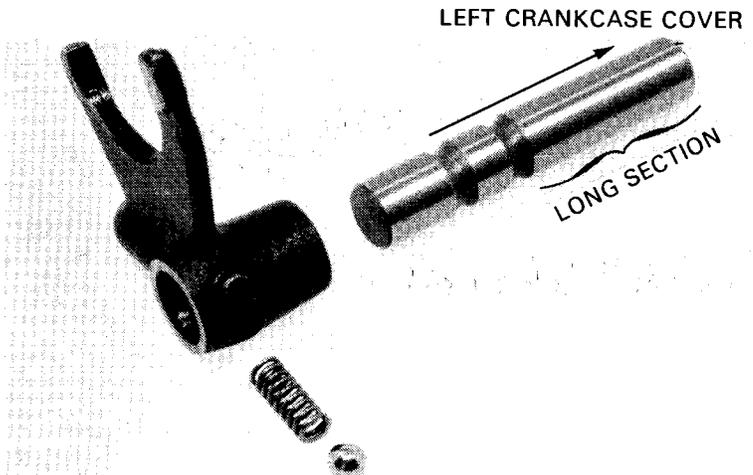
O.D.: 18.930mm(0.7453 in)

I.D.: 16.555mm(0.6518 in)



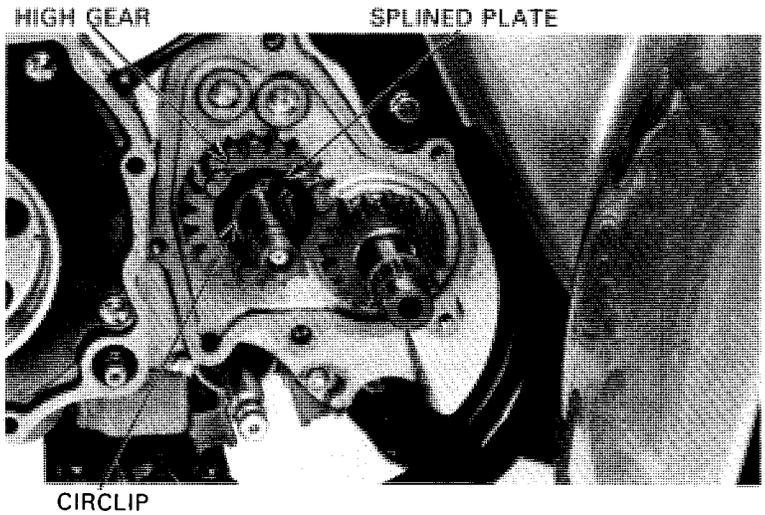
INSTALLATION

Place the shift shaft into the fork so the long section will go towards the left crankcase cover when installed.





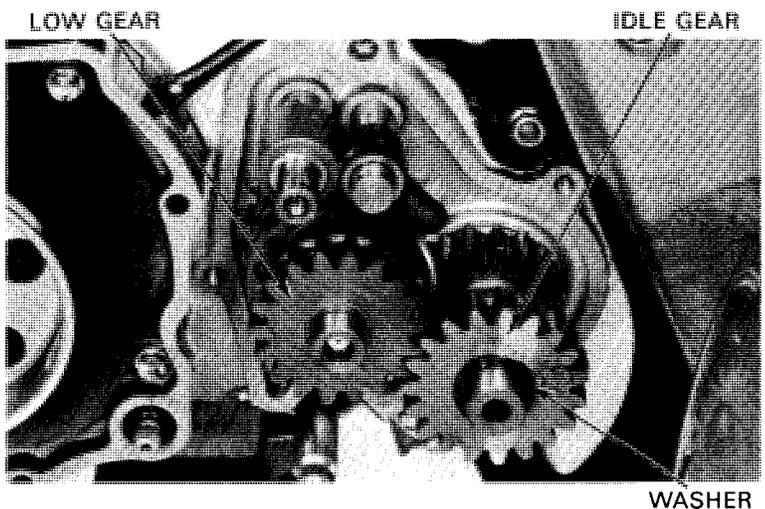
Install the high gear and splined plate through the shaft.
Install the circlip.



Place the shift fork into the slider and shift drum.
Install the shift fork, shift drum and slider.



Install the low gear onto the drive shaft and install the plain washer.
Install the idle gear onto the idle shaft and install the plain washer.

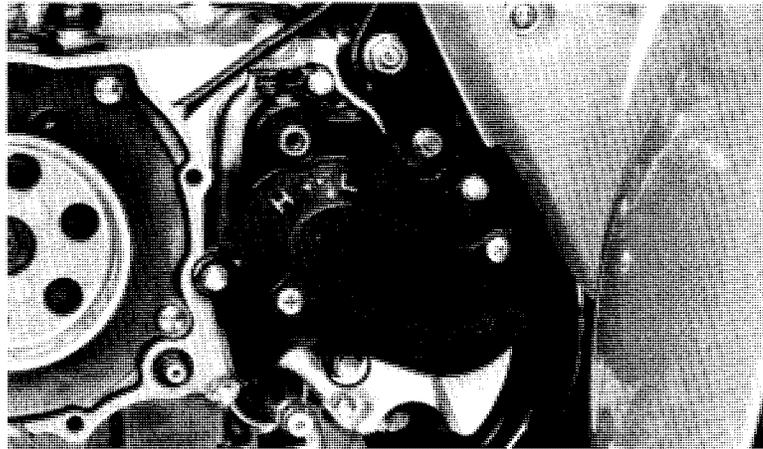




Install the sub-transmission cover and tighten the bolts.

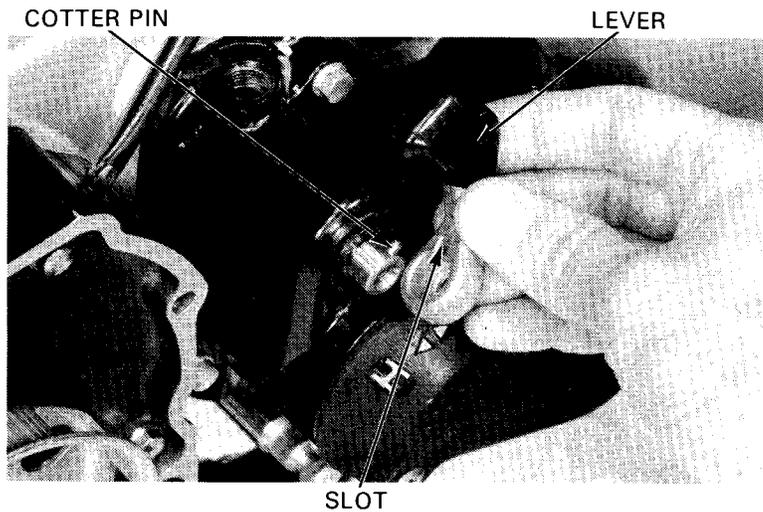
TORQUE:

8–10 N·m (0.8–1.0 kg-m, 5.8–7.2 ft-lb)



Install the cotter pin to the gear shift shaft, and align the cotter pin with the slot in the sub-transmission lever.

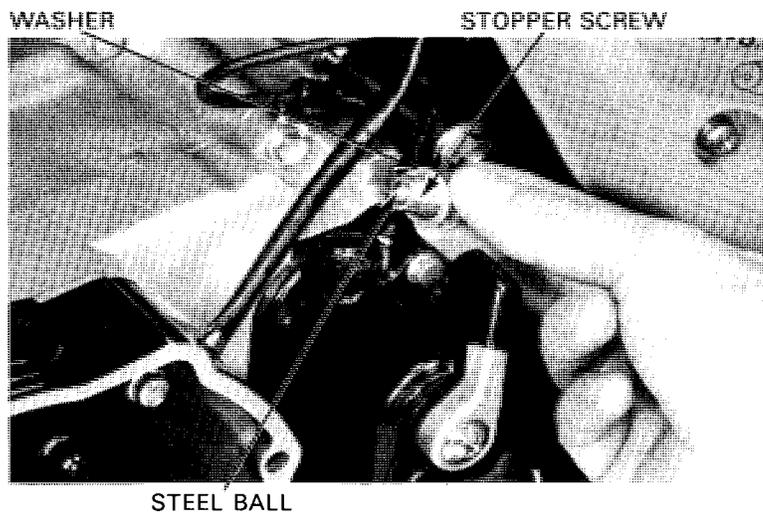
Install the sub-transmission lever.



Install the shaft stopper screw.

NOTE

- Make sure there is a washer on the stopper screw.
- Apply grease to the steel ball when installing the shaft stopper screw.

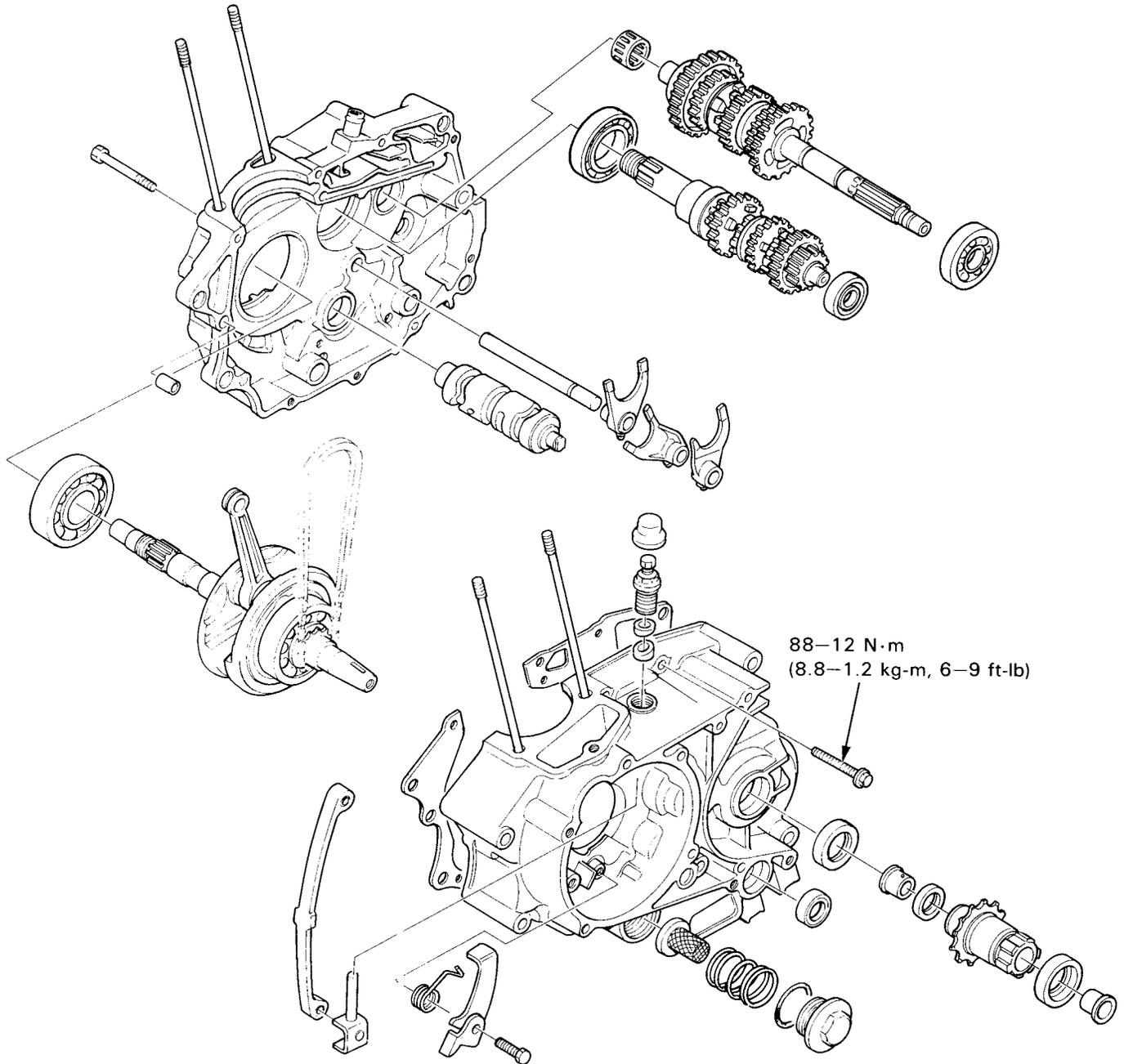




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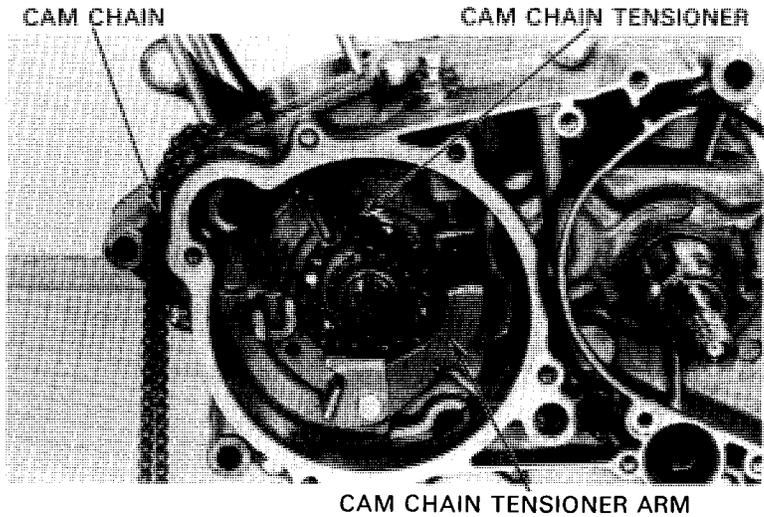


CRANKCASE SEPARATION

Remove the cam chain tensioner adjusting bolt.

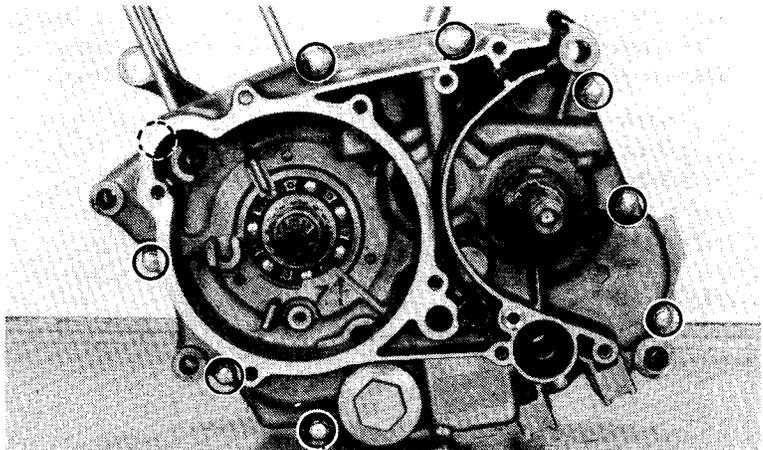
Remove the cam chain tensioner arm.

Remove the cam chain tensioner and cam chain.



Remove the neutral switch contact assembly.

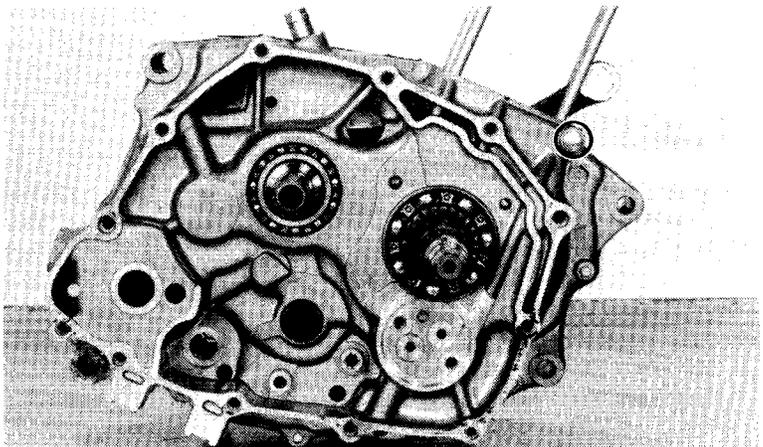
Remove the left crankcase 6 mm bolts.



Set the engine on the left crankcase and remove the 6 mm bolt.

Separate the crankcase.

Remove the gasket and dowel pins.



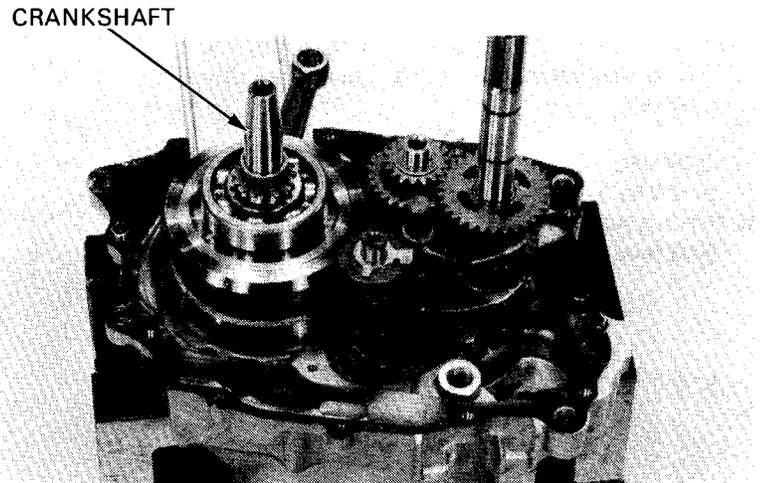


CRANKSHAFT REMOVAL

Remove the crankcase.

CAUTION:

- *Be careful to damage the oil pressure pad.*

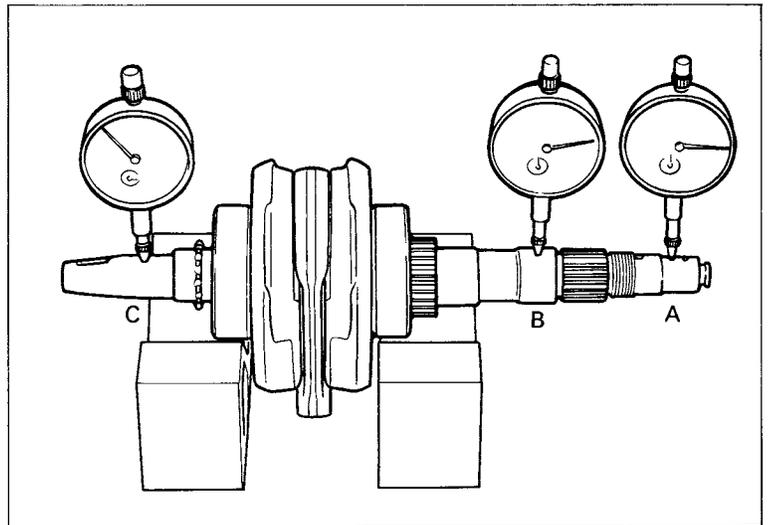


CRANKSHAFT INSPECTION

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

SERVICE LIMITS:

- A** : 0.12 mm (0.0047 in)
- B,C**: 0.08 mm (0.0031 in)



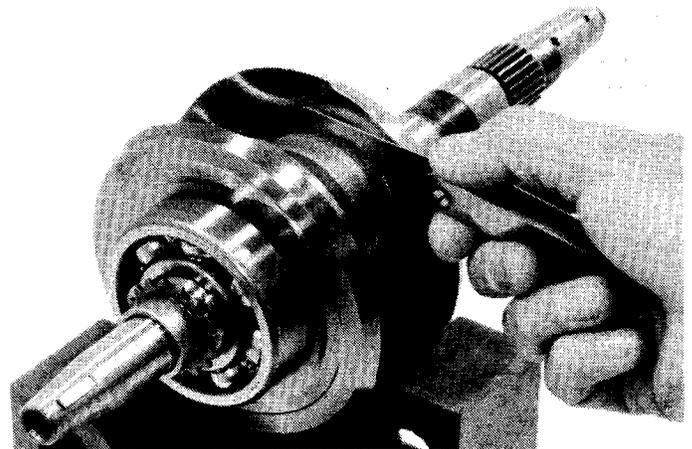
Measure the side clearance at the connecting rod big end with a feeler gauge.

STANDARD:

- 0.05–0.30 mm (0.002–0.012 in)

SERVICE LIMIT:

- 0.80 mm (0.032 in)

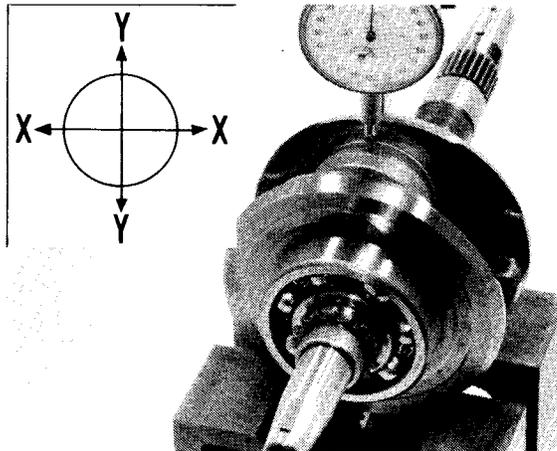




TRANSMISSION/CRANKSHAFT

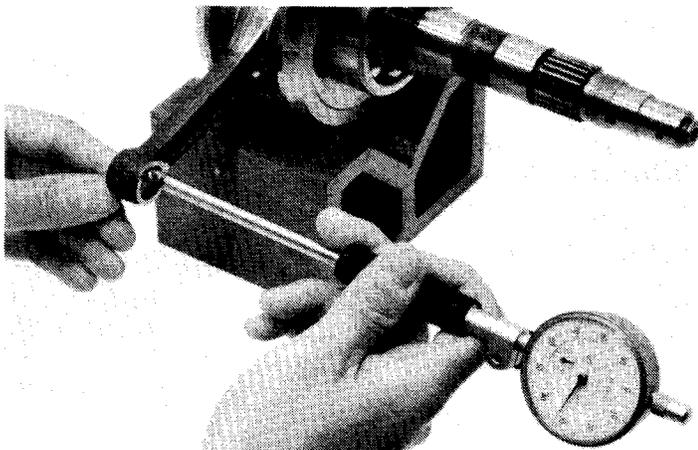
Measure the radial clearance at the connecting rod big end, at two points in the direction indicated by the arrows.

STANDARD:
0–0.008 mm (0–0.0003 in)
SERVICE LIMIT:
0.05 mm (0.002 in)



Measure the connecting rod small end I.D.

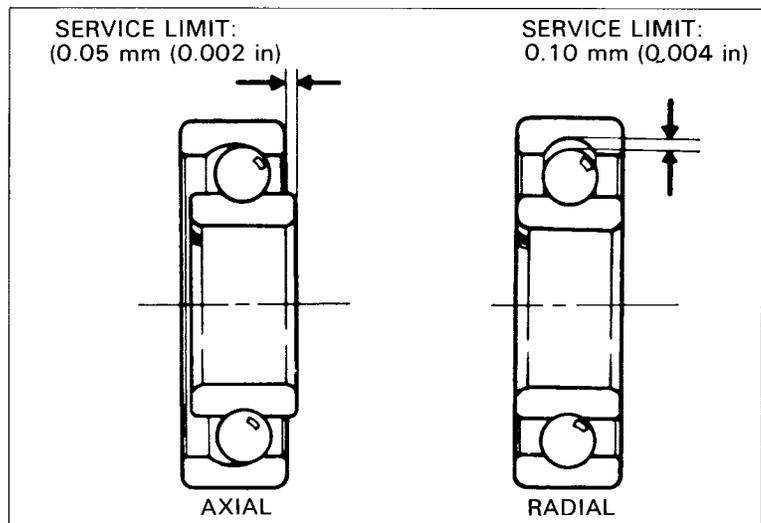
STANDARD:
15.010–15.028 mm (0.5909–0.5917 in)
SERVICE LIMIT: 15.06 mm (0.593 in)



CRANKSHAFT BEARING INSPECTION

Spin the crankcase bearings by hand and check for play.

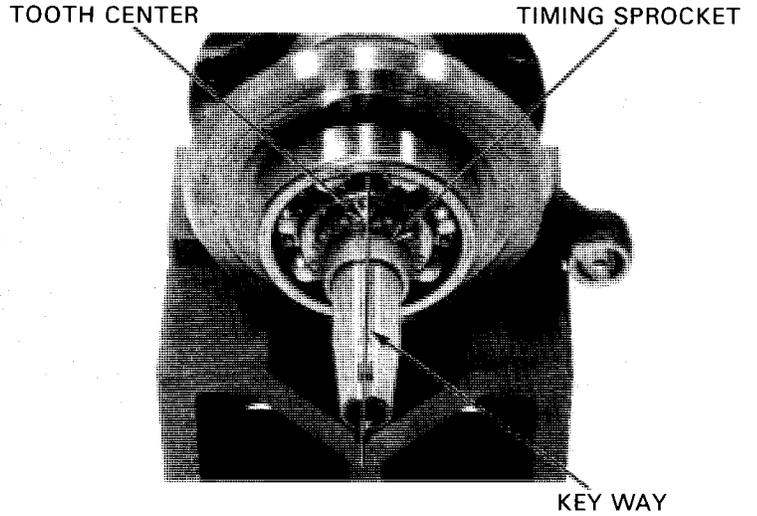
The bearings must be replaced if they are noisy or have excessive play.





**TIMING SPROCKET
INSTALLATION**

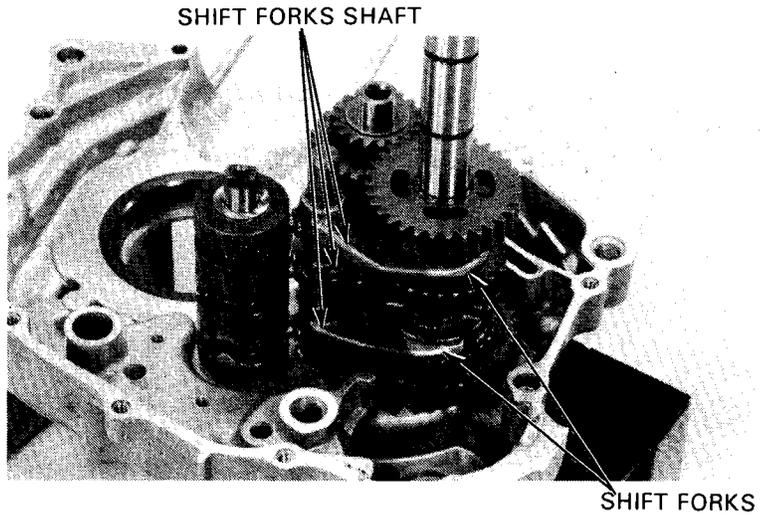
Install the sprocket, aligning any tooth center with the keyway center in the crankshaft.



TRANSMISSION DISASSEMBLY

Remove the shift fork shaft and remove the shift forks.

Remove the shift drum.



INSPECTION

Check the shift fork for wear, bending or damage.

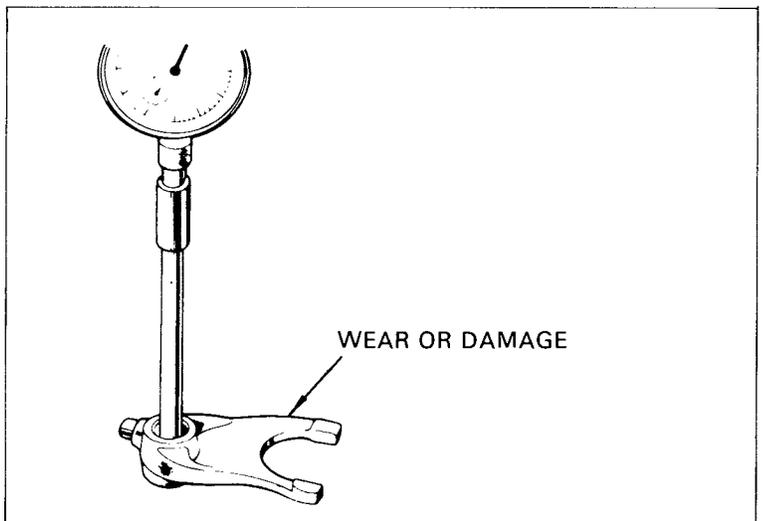
Measure the I.D.

STANDARD:

12.000—12.018 mm (0.472—0.473 in)

SERVICE LIMIT:

12.04 mm (0.474 in)



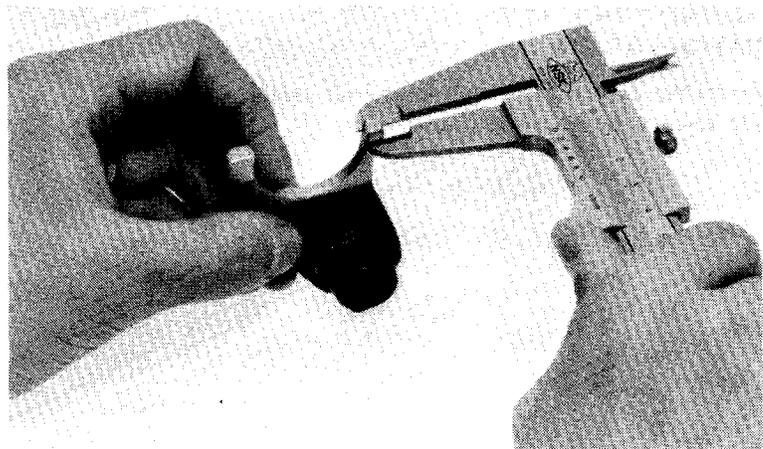


Measure the shift fork claw thickness.

STANDARD:

4.93–5.00 mm (0.194–0.197 in)

SERVICE LIMIT: 4.50 mm (0.177 in)

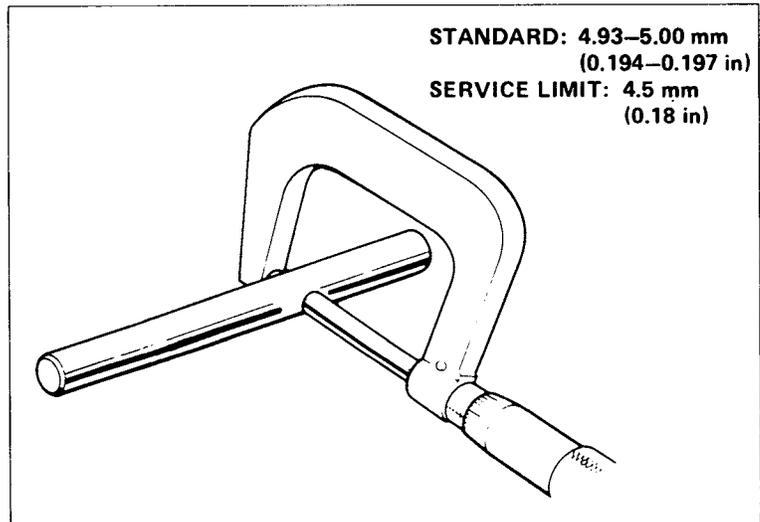


Measure the shift fork shaft O.D.

STANDARD:

11.976–11.994 mm (0.4715–0.4722 in)

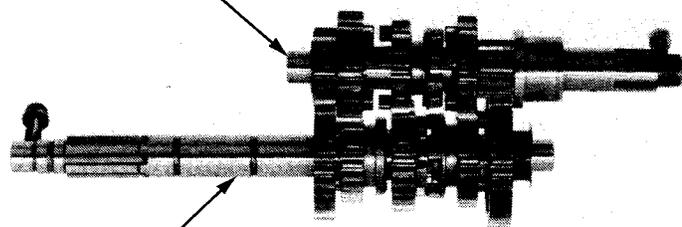
SERVICE LIMIT: 11.96 mm (0.471 in)



Remove the transmission gears.

Inspect each gear for wear or damage and replace if necessary.

COUNTERSHAFT



MAINSHAFT



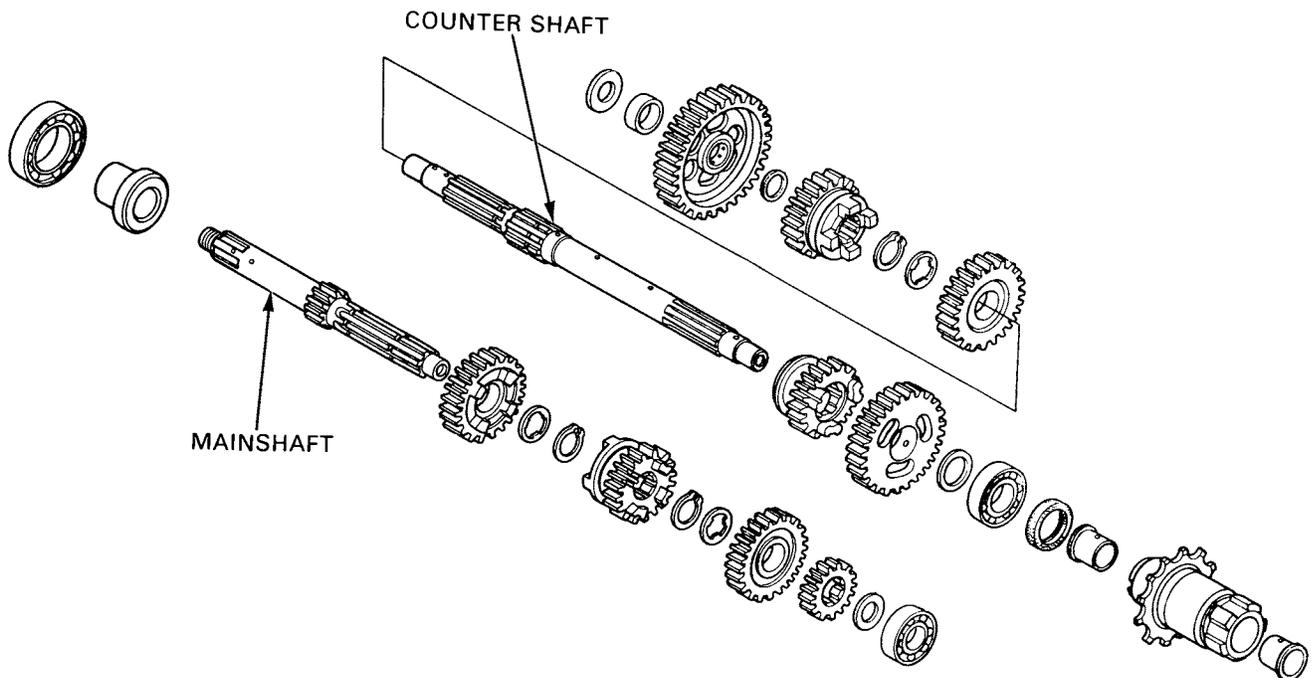
TRANSMISSION ASSEMBLY

Coat all parts with oil.

Assemble the transmission shaft and gears noting the locations of the thrust washers and snap rings.

NOTE

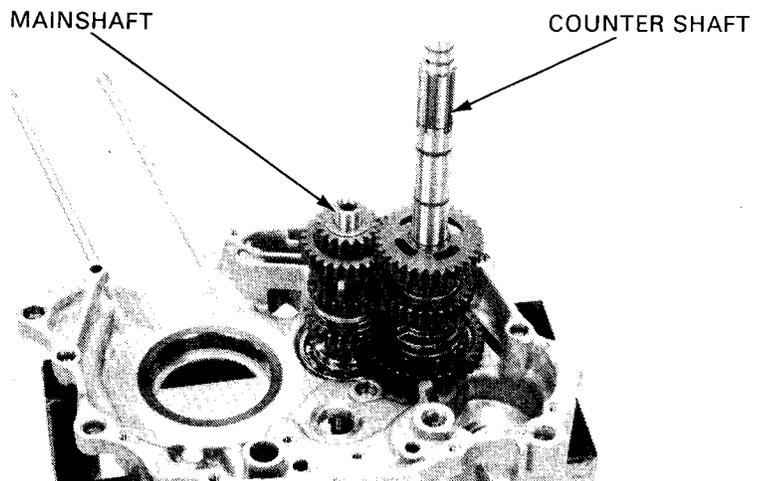
Make sure the snap rings are seated properly.



Install the mainshaft and countershaft assemblies in the right crankcase.

NOTE

Make sure the thrust washer stays in place during this operation.



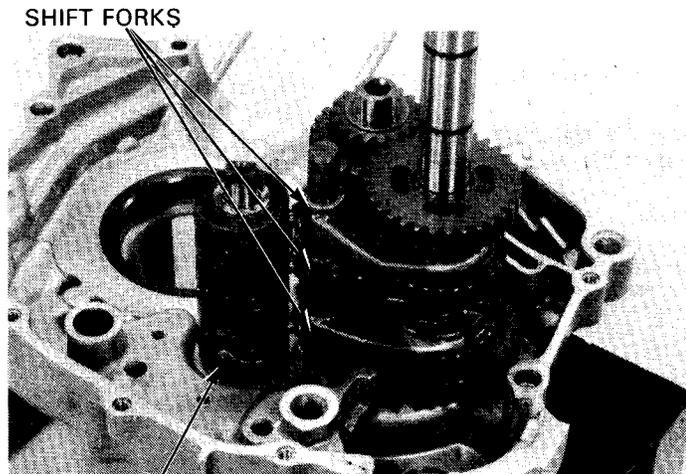


TRANSMISSION/CRANKSHAFT

Install the shift drum and shift forks.

Install the fork guide shaft.

Rotate the mainshaft by hand to be sure gears rotate freely.



SHIFT DRUM

CRANKCASE ASSEMBLY

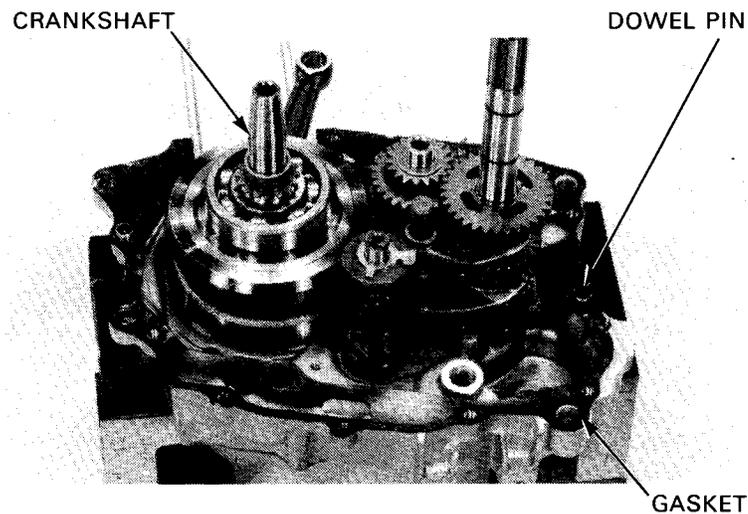
Install the crankshaft.

Install the gasket and dowel pins.

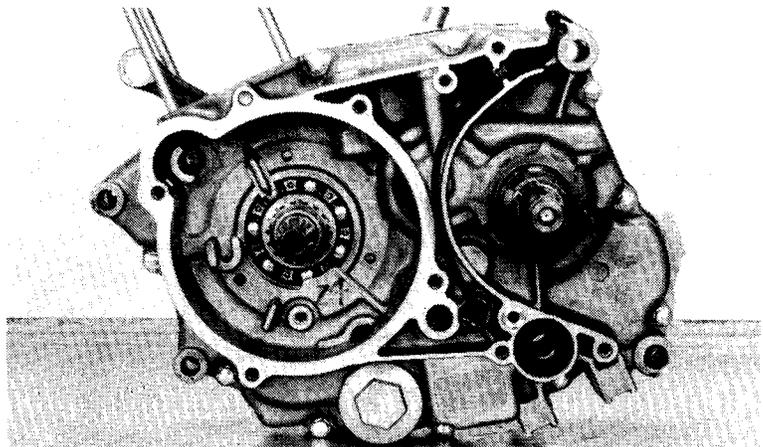
Install the left crankcase onto the right crankcase.

NOTE

Make sure that the gasket stays in place.



Tighten the left crankcase 6 mm bolts in a cross pattern.





Install the cam chain tensioner and tensioner rod.

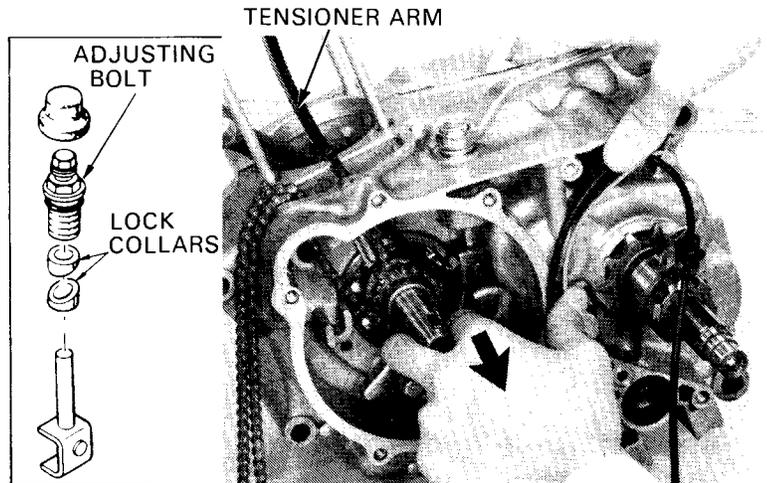
Install the cam chain and tensioner arm.

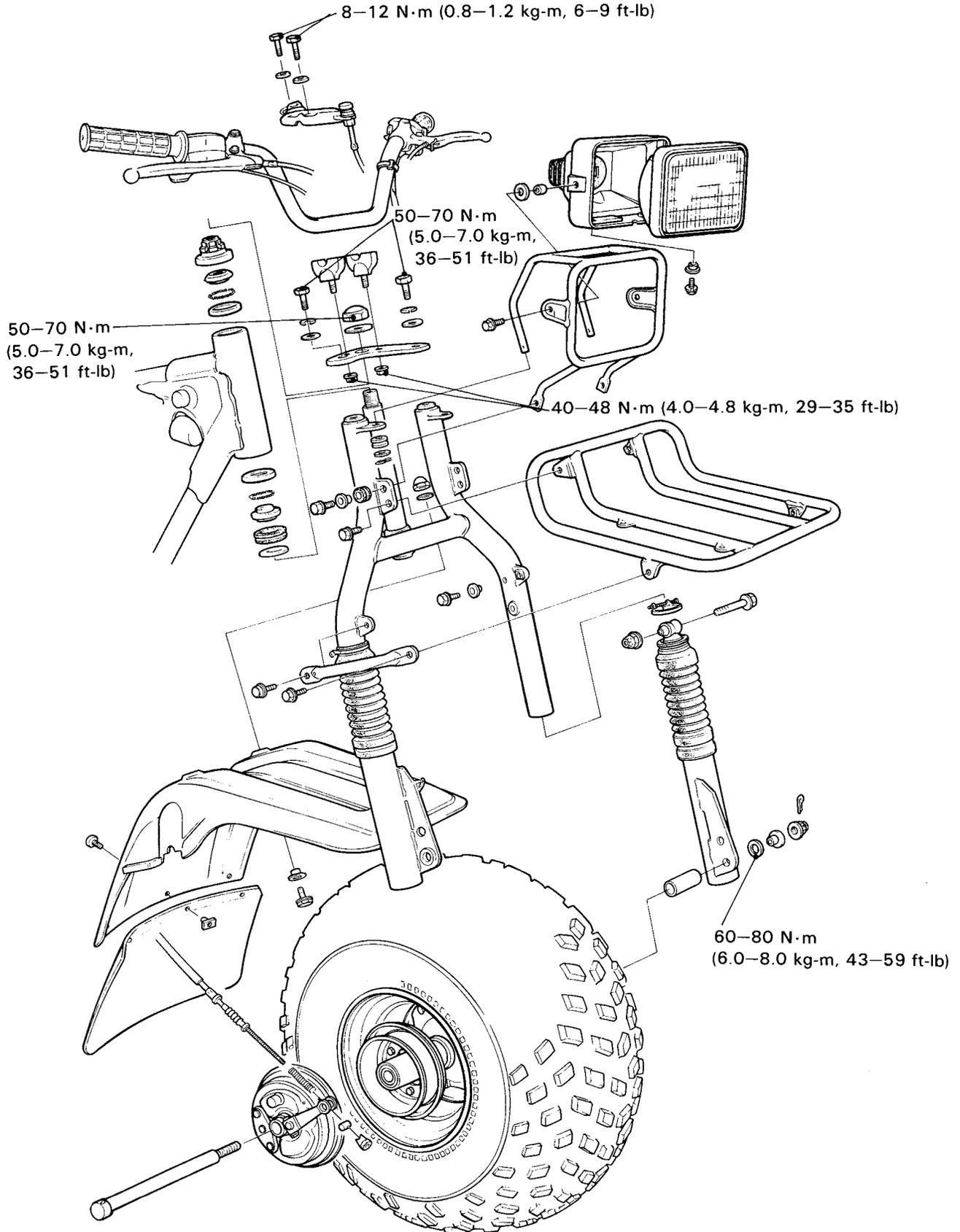
Install the tensioner lock collar.

With the tensioner arm held down all the way, tighten the adjusting bolt.

NOTE

Note the tensioner lock collar direction.







SERVICE INFORMATION	12-1
TROUBLESHOOTING	12-2
HEADLIGHT	12-3
HANDLEBAR	12-4
FRONT WHEEL	12-7
FRONT BRAKE	12-14
STEERING STEM	12-16
FRONT FORK	12-20

SERVICE INFORMATION

GENERAL

- This section covers maintenance of the front wheel, front fork, front brake and steering system.
- A jack or other support is required to support the ATC.

SPECIFICATIONS

ITEM		STANDARD	SERVICE LIMIT
Front axle runout		_____	0.5 mm (0.02 in)
Front brake drum I.D.		110 mm (4.3 in)	111 mm (4.4 in)
Front brake lining thickness		4 mm (0.2 in)	2 mm (0.1 in)
Front wheel bearing play	Radial	_____	0.05 mm (0.002 in)
	Axial	_____	0.10 mm (0.004 in)
Front fork spring free length	Spring A	287.2–281.6 mm (11.307–11.087 in)	278.7 mm (10.97 in)
	Spring B	40.1–39.3 mm (1.579–1.547 in)	38.9 mm (1.5 in)

TORQUE VALUES

Handlebar upper holder bolt	6 mm	8–12 N·m (0.8–1.2 kg-m, 6–9 ft-lb)
Handlebar lower holder nut	10 mm	40–48 N·m (4.0–4.8 kg-m, 29–35 ft-lb)
Fork top bridge bolt	12 mm	50–70 N·m (5.0–7.0 kg-m, 36–51 ft-lb)
Steering stem nut	22 mm	50–70 N·m (5.0–7.0 kg-m, 36–51 ft-lb)
Front axle nut	14 mm	60–80 N·m (6.0–8.0 kg-m, 43–59 ft-lb)
Front wheel hub nut	8 mm	20–25 N·m (2.0–2.5 kg-m, 14–18 ft-lb)
Front brake drum bolt	8 mm	25–25 N·m (2.0–2.5 kg-m, 14–18 ft-lb)
Front fork cap nut		15–25 N·m (1.5–2.5 kg-m, 11–18 ft-lb)
Front fork mounting bolt/nut	10 mm	30–40 N·m (3.0–4.0 kg-m, 22–29 ft-lb)



TOOLS

Special

Ball Race Remover	07944-1150001 or M9346-277-91774 (U.S.A. only)
Tire disassembling tool	07772-0010000
Lever	07772-0010100 } M987X-350-XXX
Weight	07772-0010200 } (Available in U.S.A)

Common

Bearing Driver Handle Outer A	07749-0010000 or 07949-6110000 or 07949-2860000 or 07949-3000000
Bearing Driver Outer 37×40 mm	07746-0010200
Driver Pilot 15 mm	07746-0040300
Bearing Driver Outer 42×47 mm	07746-0010300 or 07949-6110000
Shock absorber compressor	07959-3290001
Pin Spanner	07702-0010000 or 07902-0010000

TROUBLESHOOTING

Hard steering

1. Steering stem nut too tight.
2. Faulty steering stem bearings.
3. Damaged steering stem ball race or cone race.
4. Insufficient tire pressure.

Steers to one side or does not track stright

1. Bent front forks.
2. Bent front axle, wheel installed incorrectly.

Front wheel wobbling

1. Bent rim.
2. Worn front wheel bearing.
3. Faulty tire.
4. Axle not tightened properly.

Improper brake performance

1. Incorrect adjustment of lever.
2. Brake shoes worn.
3. Brake shoes contaminated.
4. Brake cam worn.
5. Brake drum worn.
6. Brake arm serrations improperly engaged.
7. Cam contacting area of shoes worn.

Soft suspension

1. Weak fork spring.

Front suspension noise

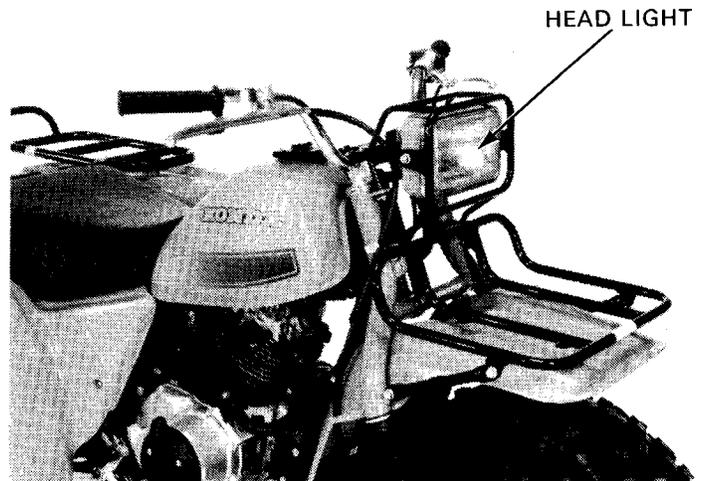
1. Loosen fork fasteners.



HEADLIGHT

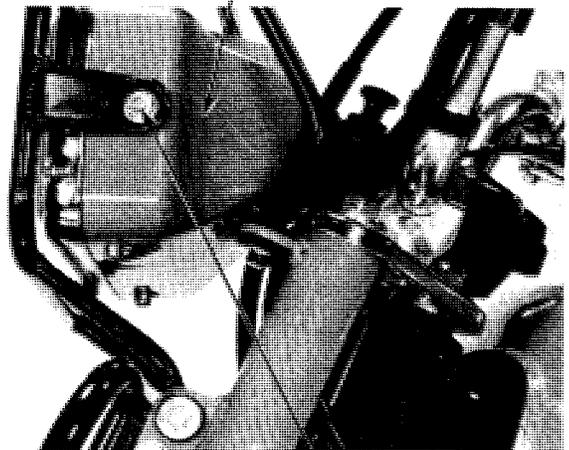
CASE REMOVAL

Remove the headlight and disconnect the wire connectors.



Remove the headlight mounting BOLTS.
Remove the headlight case.

HEADLIGHT CASE



HEADLIGHT MOUNTING BOLTS

CASE WITH HEADLIGHT BRACKET

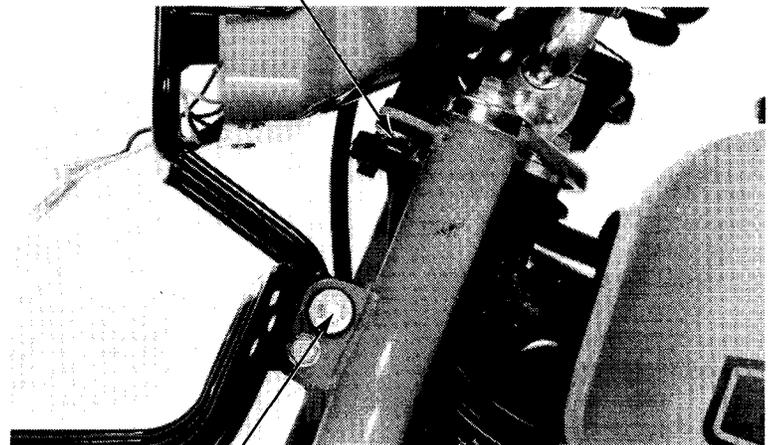
Remove the headlight and disconnect the wire connectors.

Remove the headlight bracket bolts and collar.
Remove the lock pins and plain washers.

CASE INSTALLATION

Install the headlight case bracket with the bolts, lock pins and plain washers.
Install the headlight case.
Connect the wires color-to-color.
Install the headlight.

LOCK PIN AND WASHER



BOLTS



HANDLEBAR

REMOVAL

Remove the headlight and disconnect the wires for the ignition and headlight switches.

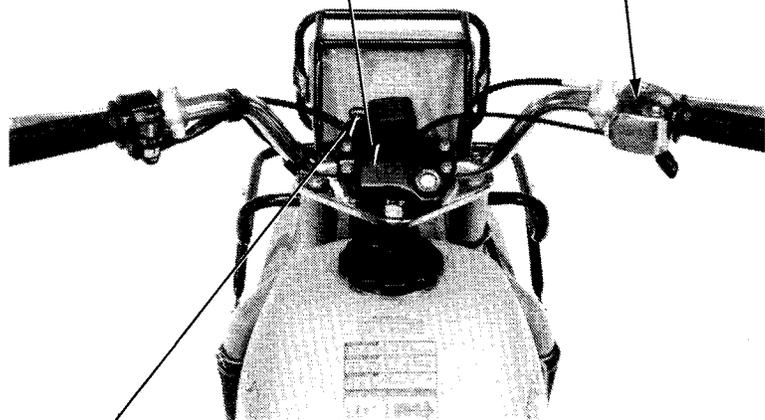
Remove the wire bands.
Remove the throttle lever housing.

Disconnect the front and rear brake cables at the brake levers.

Remove the handlebar holders, and handlebar.

HANDLEBAR UPPER HOLDER

THROTTLE LEVER HOUSING



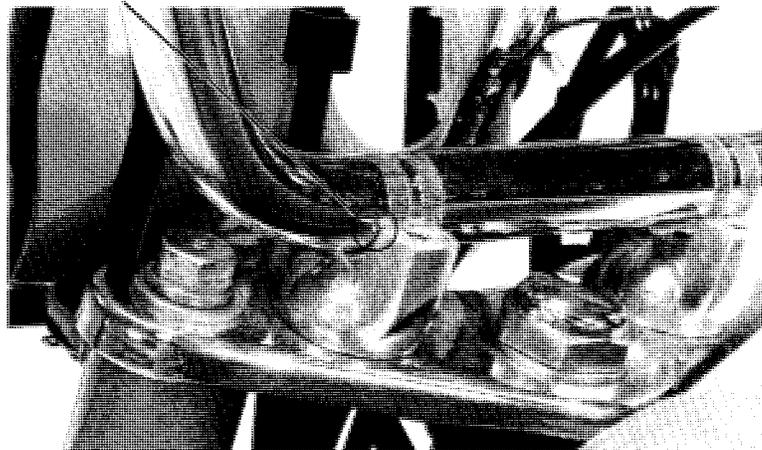
CHOKE

INSTALLATION

Place the handlebar on the handlebar lower holders.

Align the handlebar punch marks with the top of the handlebar lower holders.

PUNCH MARK



Install the handlebar upper holders on the handlebar.

Tighten the forward bolts first, then tighten the rear bolts.

TORQUE:

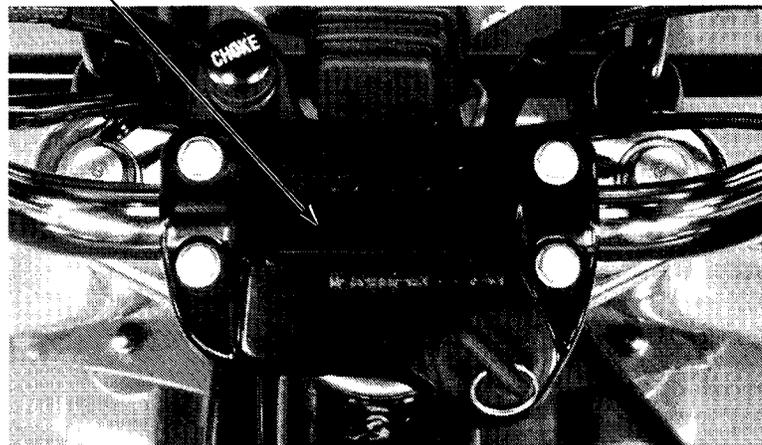
8–12 N·m (0.8–1.2 kg·m, 6–9 ft·lb)

Connect the ignition switch and headlight switch wires color-to-color.
Install the headlight.

Connect the brake cables.
Install the throttle lever housing.

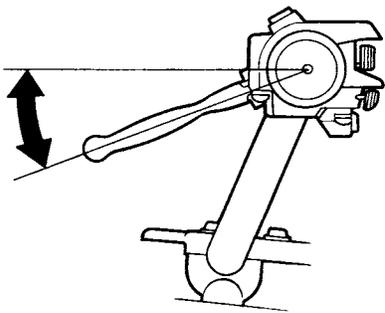
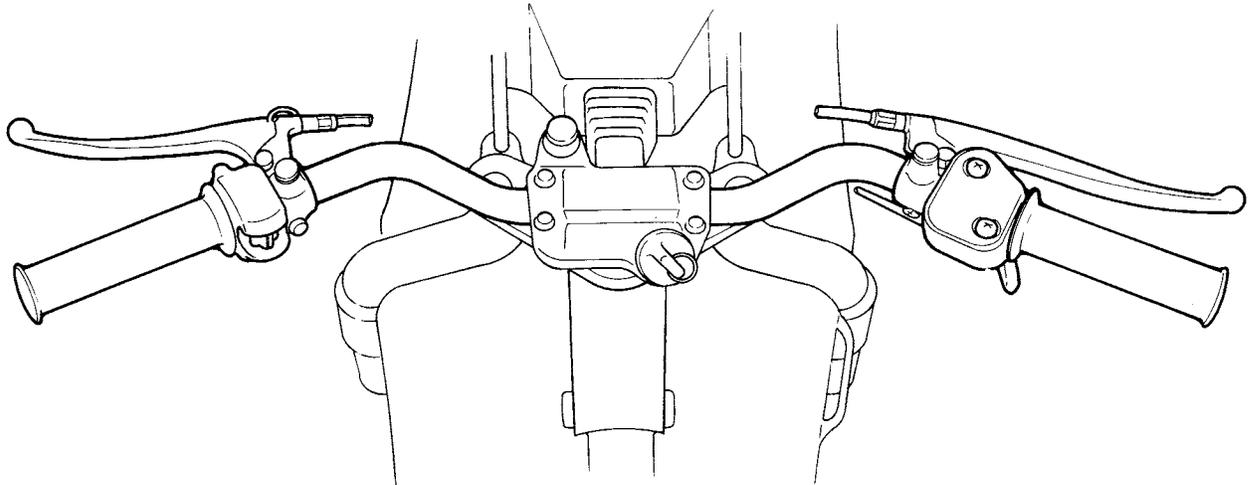
Install the choke lever and cable.

UPPER HOLDER

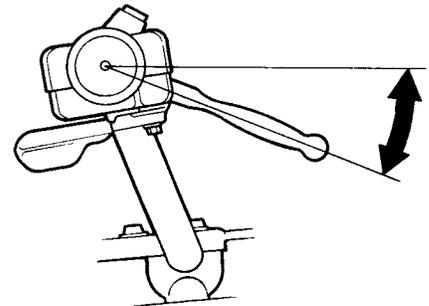




Install the throttle lever housing as shown.
Tighten the front screw first.

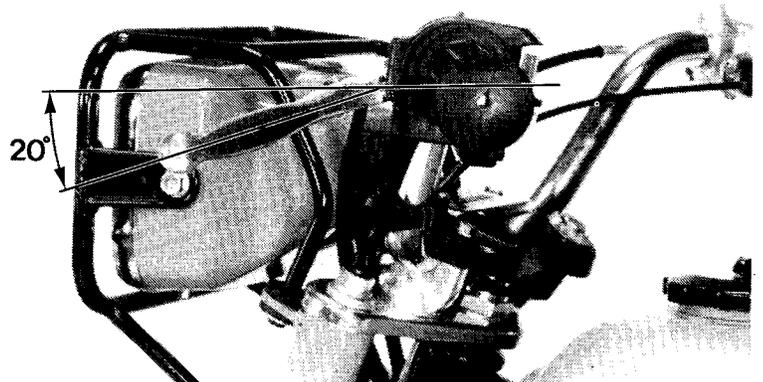


LEFT SIDE VIEW



RIGHT SIDE VIEW

Install the front and rear bracket levers at the angle shown.

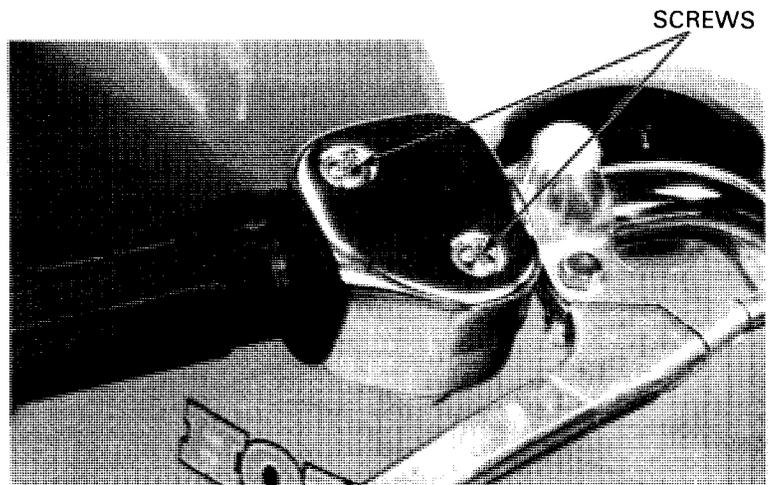




FRONT WHEEL/BRAKE/STEERING

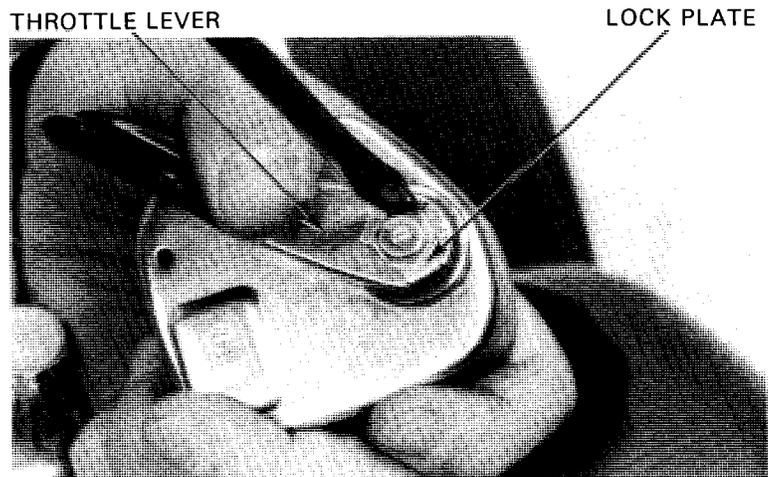
THROTTLE LEVER DISASSEMBLY

Remove the screws and throttle lever cover.



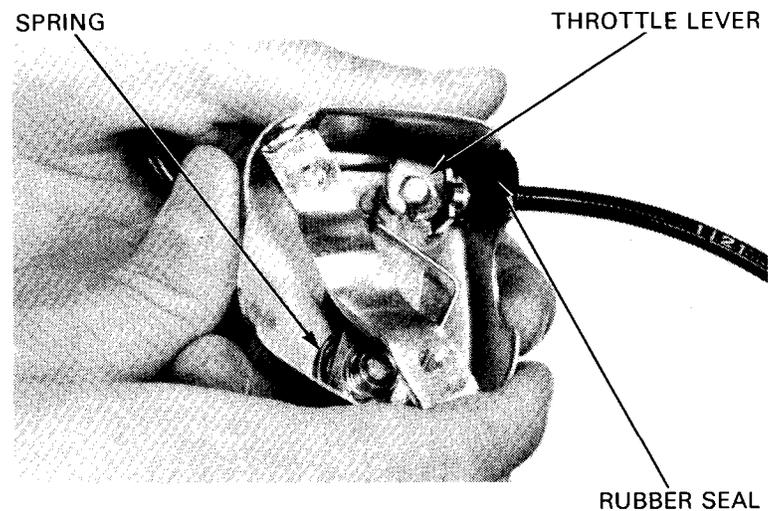
Raise the tab of the lock plate and remove the bolt.

Remove the throttle lever and spring.
Disconnect the throttle cable.



THROTTLE LEVER ASSEMBLY

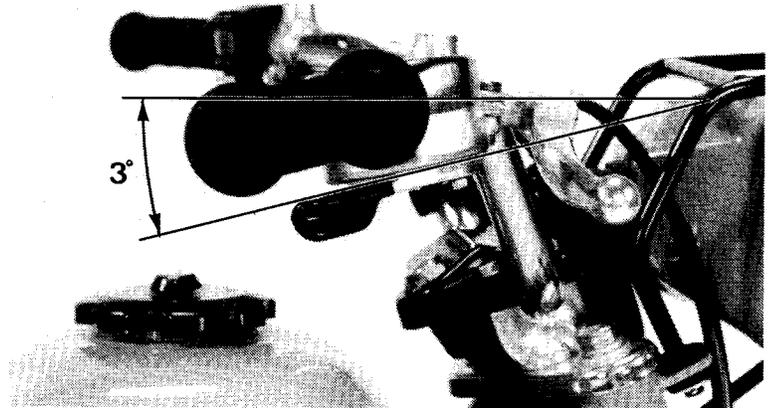
Install the throttle lever, spring, and rubber seal.





Install the lock plate.
Screw in the pivot bolt and check the lever for smooth operation.

Bed the tabs of the lock plate.
Install the throttle lever cover onto the handlebar with 3° below horizontal as shown.



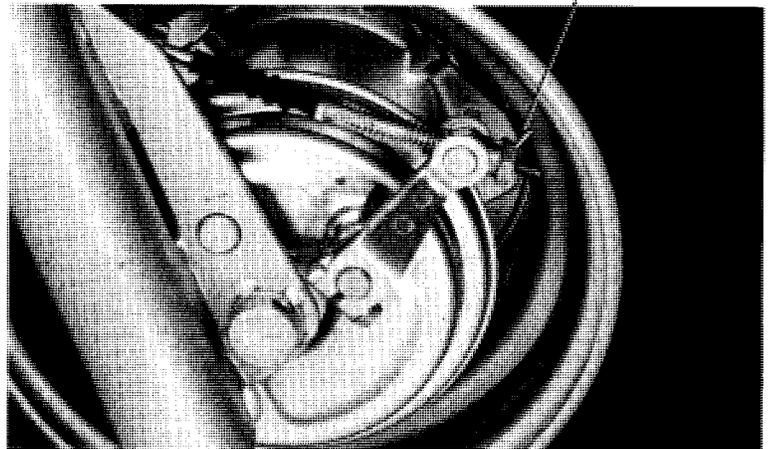
FRONT WHEEL

REMOVAL

Raise the front wheel off the ground by placing a block or work stand under the engine.

Remove the front brake adjusting nut and disconnect the front brake cable.

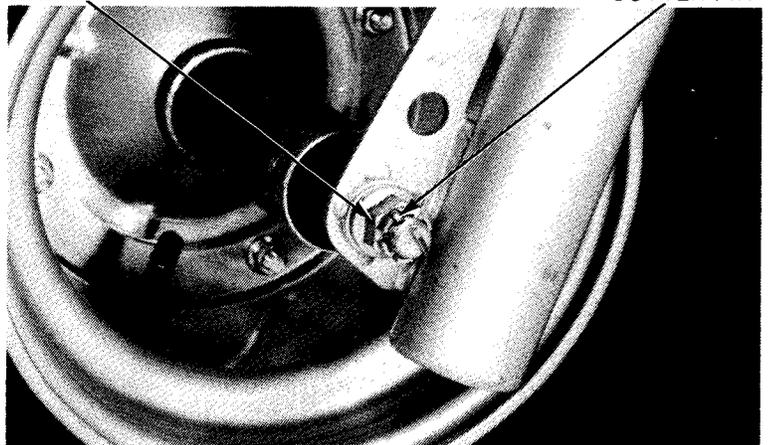
FRONT BRAKE ADJUSTING NUT



Remove the cotter pin and axle nut.
Remove the front axle and collar.
Remove the wheel.

AXLE NUT

COTTER PIN



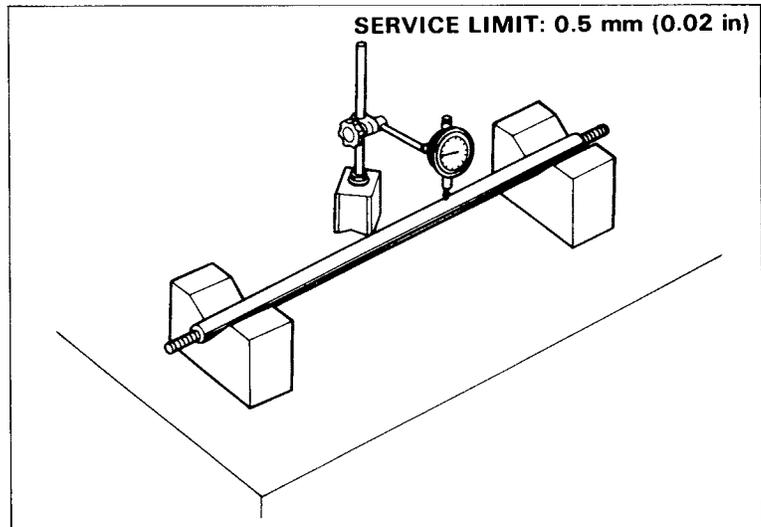


FRONT WHEEL/BRAKE/STEERING

INSPECTION FRONT AXLE

Set the axle in V-blocks, rotate and measure the runout.

Actual runout is 1/2 of TIR (Total Indicator Reading).



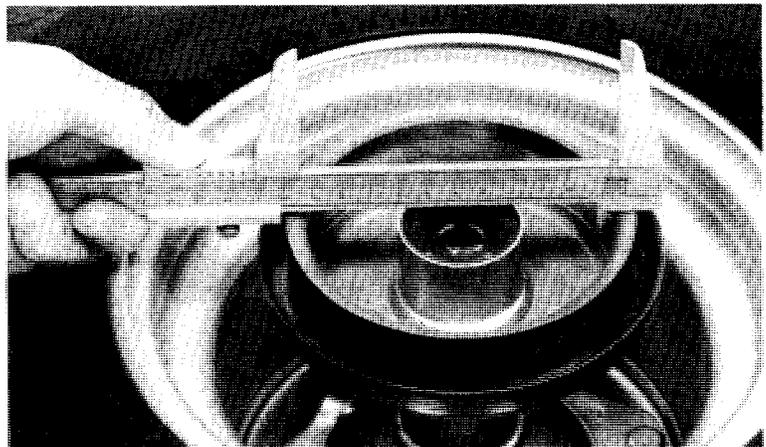
BRAKE DRUM

Remove the brake panel assembly and measure the brake drum I.D.

STANDARD: 110 mm (4.3 in)

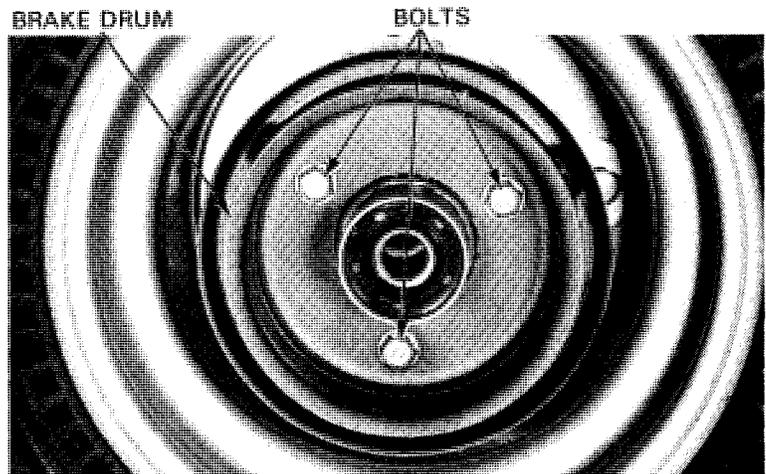
SERVICE LIMIT: 111 mm (4.4 in)

Refer to page 12-14 for brake lining inspection.



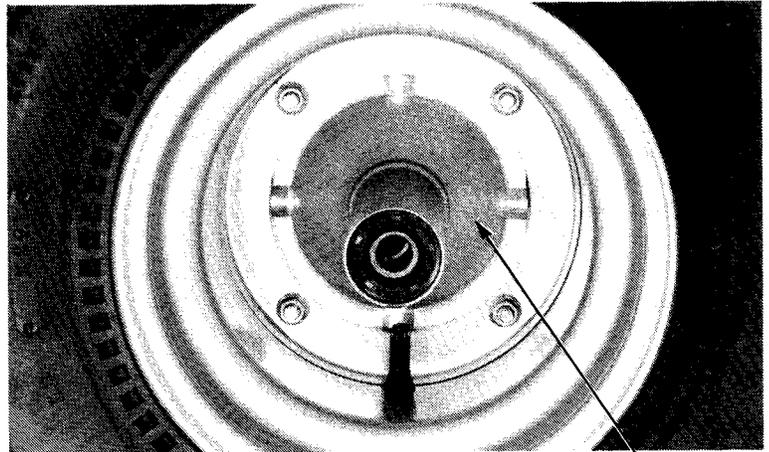
FRONT WHEEL DISASSEMBLY

Remove the brake drum bolts and brake drum.



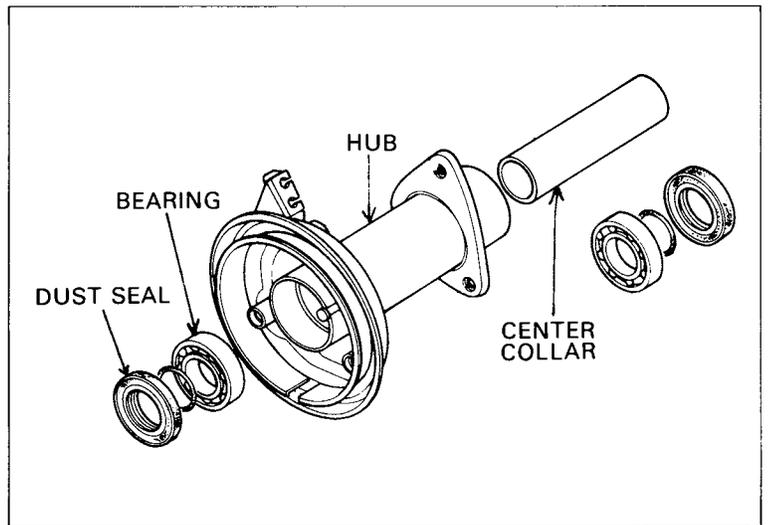


Remove the front wheel hub nuts and hub.



FRONT WHEEL HUB

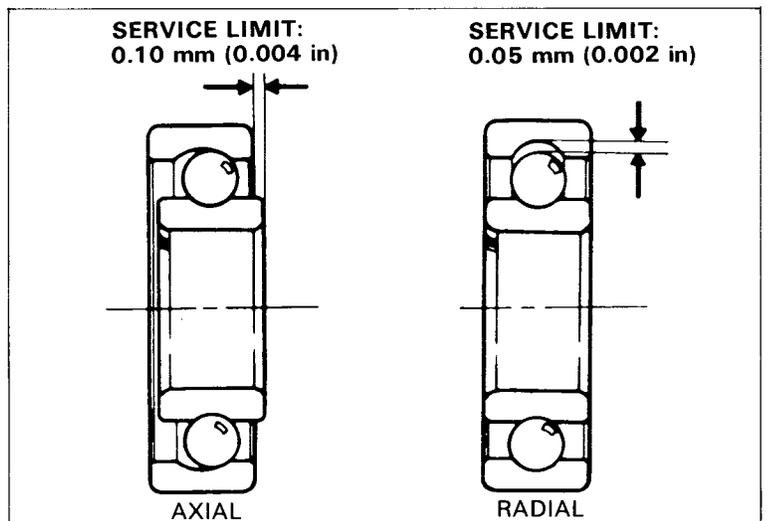
Remove the dust seals.
Drive the bearings and center collar out.



BEARING INSPECTION

Check the wheel bearings by placing the wheel between V-blocks and spinning the wheel by hand.

Replace the bearings with new ones if they are noisy or have excessive play.



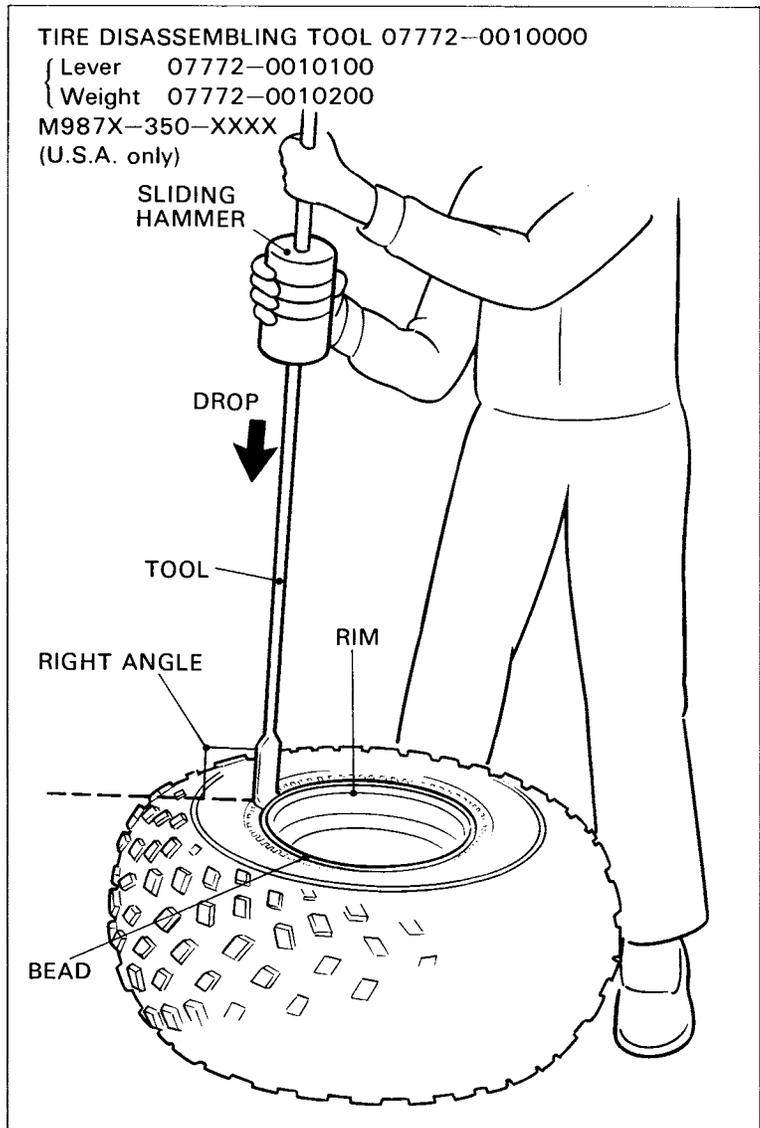


TIRE REMOVAL

Deflate the tire.
Break both tire beads loose.

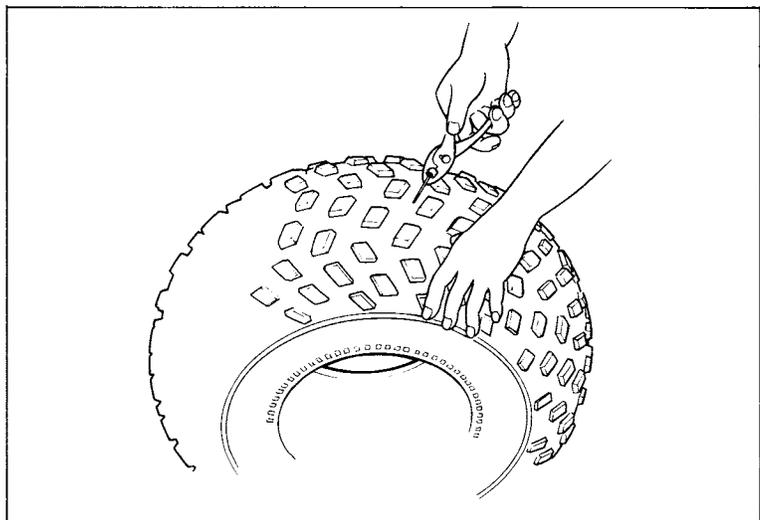
NOTE

- Do not use tire irons to break the bead away from the rim flange; this could damage the rim seal and cause an air leak.
- If it is difficult to break the beads if rust or has formed on the rim, apply a soap and water solution or tire mounting lubricant to the rim periphery.



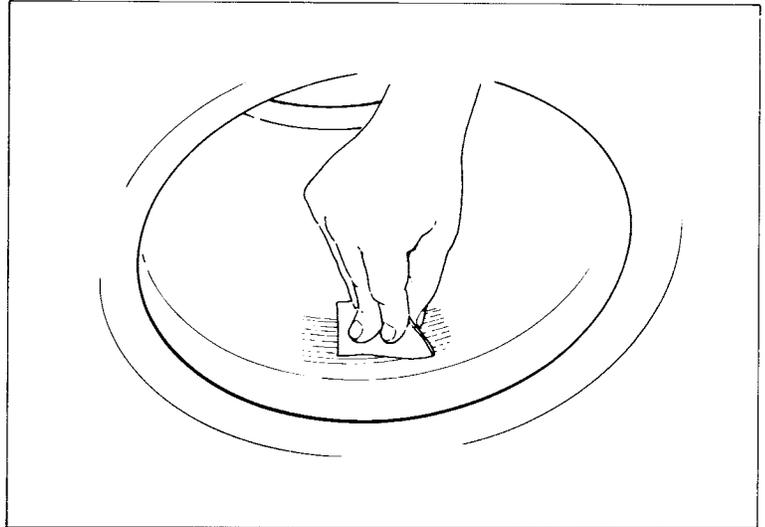
TIRE REPAIR (WITH COLD PATCH)

Check the tire tread for puncturing objects.
Chalk mark the punctured area and remove the puncturing object.





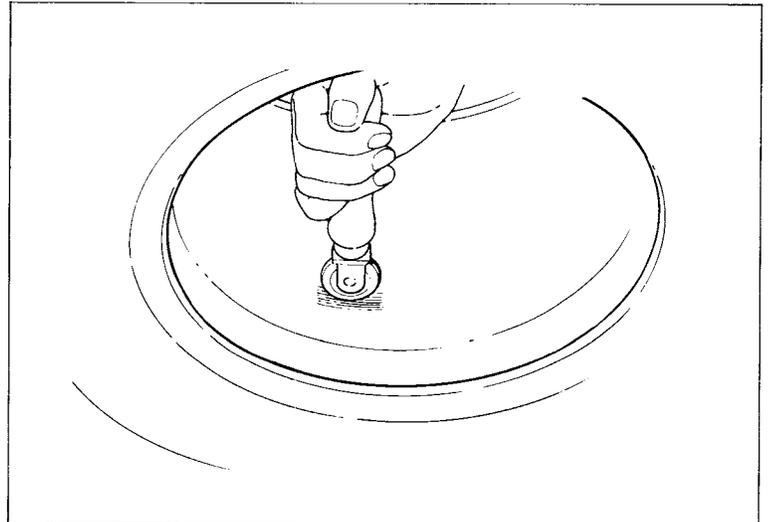
Clean and roughen the punctured area with a tire rubber cleaner or a wire brush. Clean the area with non-flammable solvent.



Apply rubber cement around the torn area and allow it to dry. Remove the lining from the patch and center it over the injury. Press the patch against the injury using a special roller.

NOTE

- Allow cement to dry until tacky before applying patch.
- Do not touch cement surface with dirty or greasy hands.



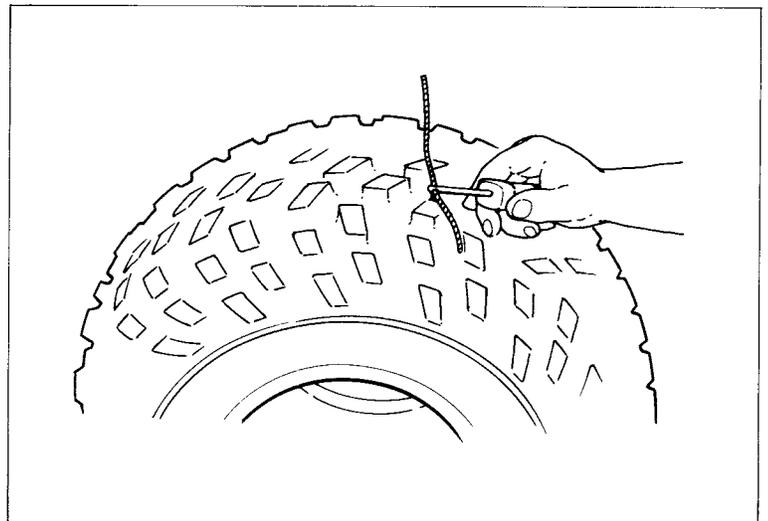
TIRE REPAIR (WITH RUBBER PLUG)

NOTE

This method is an emergency repair only. Replace the plug at the first opportunity with a cold patch.

Remove the puncturing object.
Insert a rubber plug through the eye of an inserting needle.

Apply patching cement to the plug.



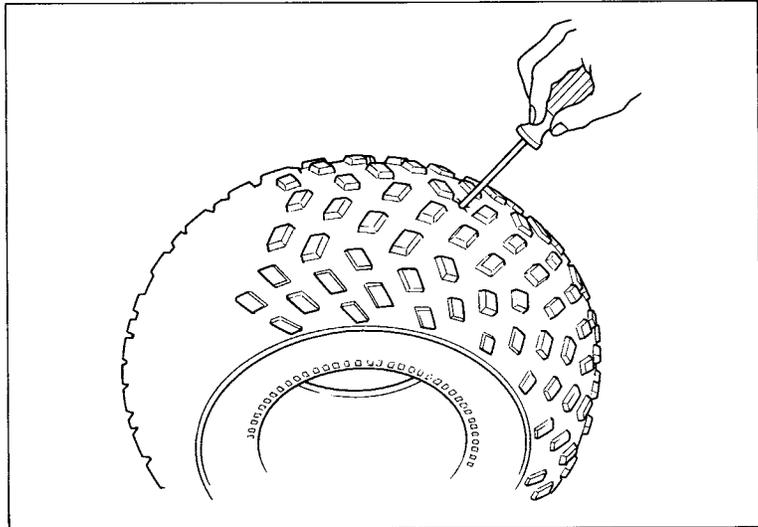


FRONT WHEEL/BRAKE/STEERING

Center the needle on the plug and insert until the plug is all the way in the tire.
Twist the needle several times.

Pull the needle straight out so that the plug is about 10 mm (3/8 in) above the tread surface.
Trim the plug 2 mm (1/16 in) above the surface.

Repeat the above procedure if the puncture is large.



TIRE ASSEMBLY

Clean the rim bead seat and flanges.
Apply clean water to the rim flanges, bead seat and base.

Inflate the tire to seat the tire bead.

NOTE

Use tire mounting lubricant or a soap and water solution to help seat the tire bead.

Deflate the tire. Wait 1 hour and inflate the tire to the specified pressure.

TIRE PRESSURE: 2.2 psi (0.15 kg/cm², 15 kPa)

Min. Pressure: 1.7 psi (0.12 kg/cm², 12 kPa)

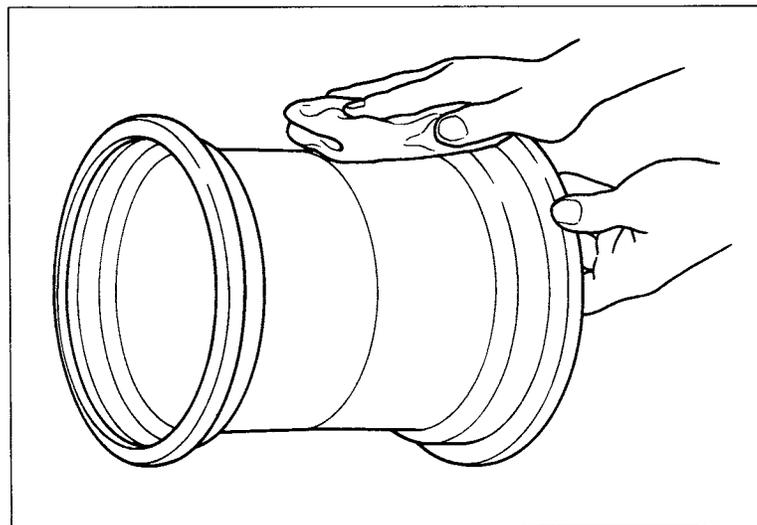
Max. Pressure: 3.6 psi (0.25 kg/cm², 25 kPa)

Measure the tire circumference.

STANDARD TIRE CIRCUMFERENCE:

1.920 mm (75.6 in)

Check for air leaks and install the valve cap.





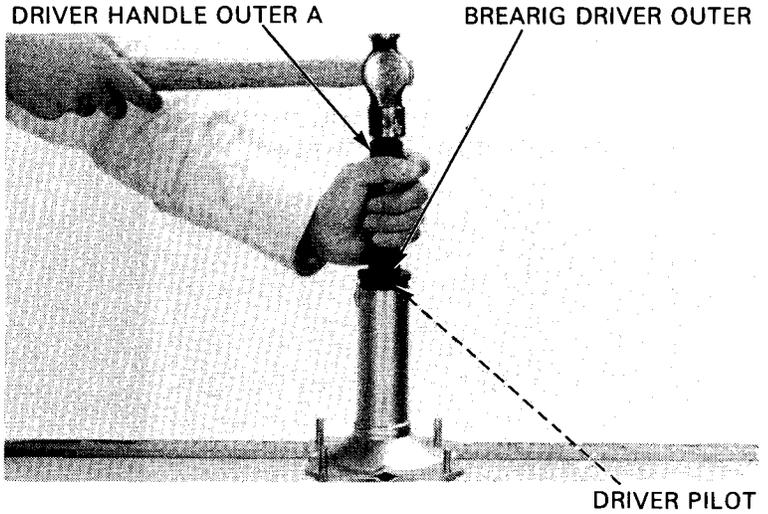
FRONT WHEEL ASSEMBLY

Pack all front wheel bearing cavities with grease.

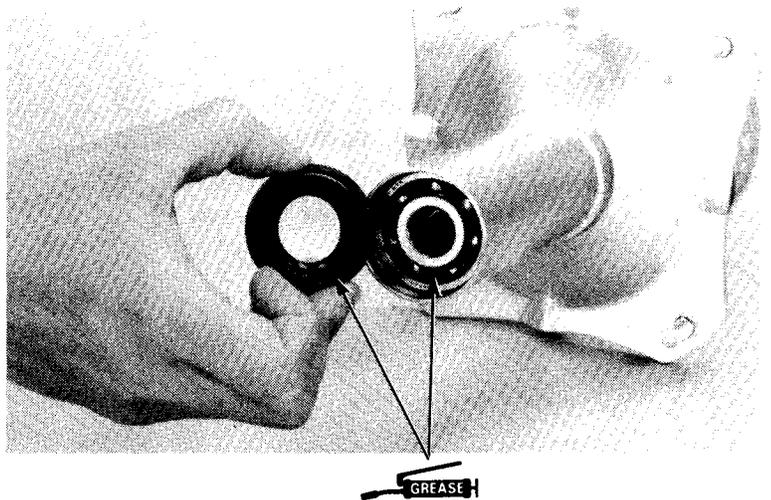
Drive in the left bearing squarely until it seats. Install the center collar and drive in the right bearing, securely until it seat.

NOTE

Do not allow the bearings to tilt while driving them in.



Apply grease to the inside of the dust seal.



Install the front wheel hub and tighten the hub nuts.

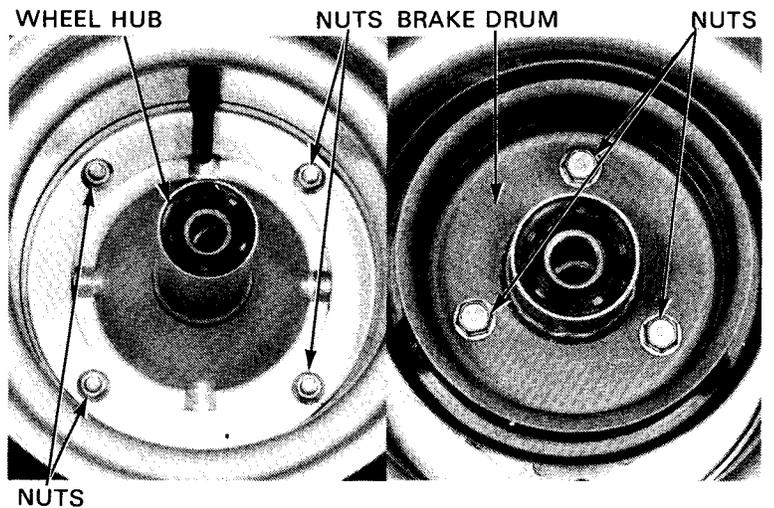
TORQUE:

20–25 N·m (2.0–2.5 kg-m, 14–18 ft-lb)

Install the brake drum.

TORQUE:

20–25 N·m (2.0–2.5 kg-m, 14–18 ft-lb)

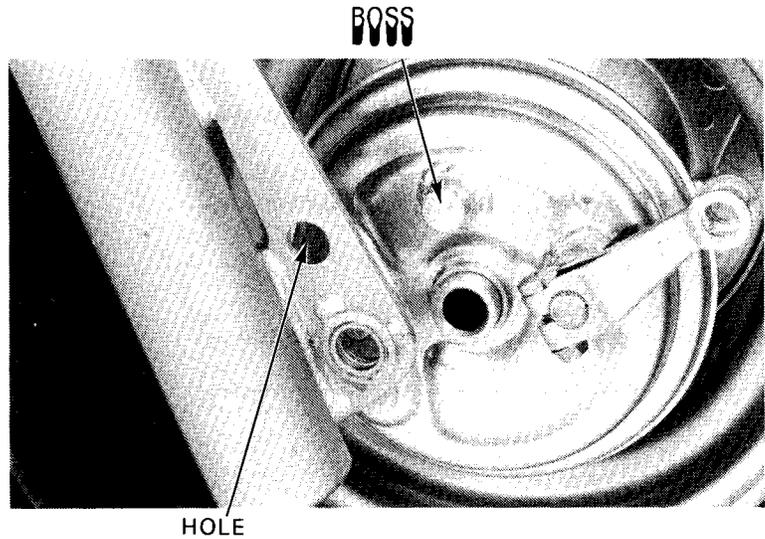




FRONT WHEEL/BRAKE/STEERING

INSTALLATION

Install the front brake panel.
Install the front wheel between the forks and insert the boss on the brake panel into the hole in the right fork.



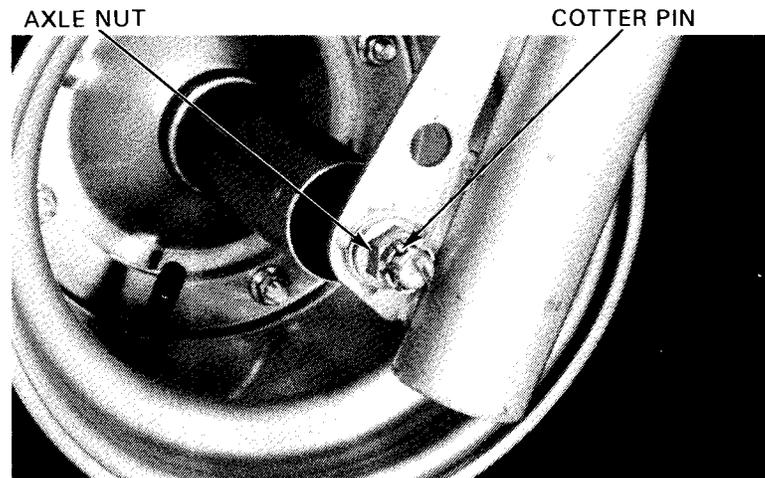
Install the collar and insert the axle from right side.

Tighten the axle nut.

TORQUE:

60–80 N·m (6.0–8.0 kg-m, 43–59 ft-lb)

Install the new cotter pin and bend the ends securely.
Connect the front brake cable and adjust the front brake lever free play.



FRONT BRAKE

REMOVAL

Remove the front wheel (Page 12–7).
Remove the brake panel from the wheel.

BRAKE LINING INSPECTION

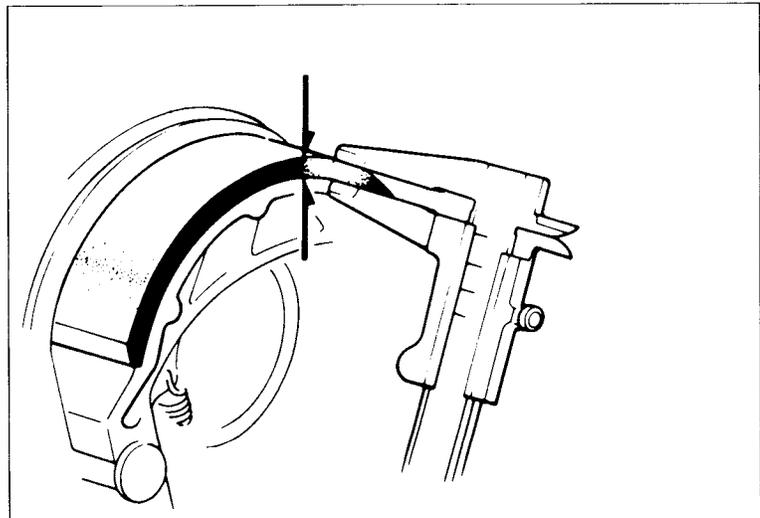
Measure the brake lining thickness.

STANDARD: 4mm (0.2 in)

SERVICE LIMIT: 2 mm (0.1 in)

Replace the brake lining if they are thinner than the service limit.

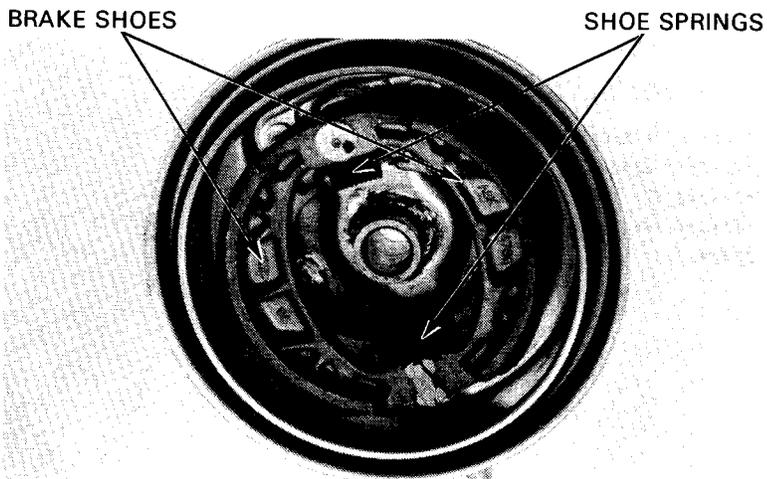
Refer to page 12–8 for brake drum.





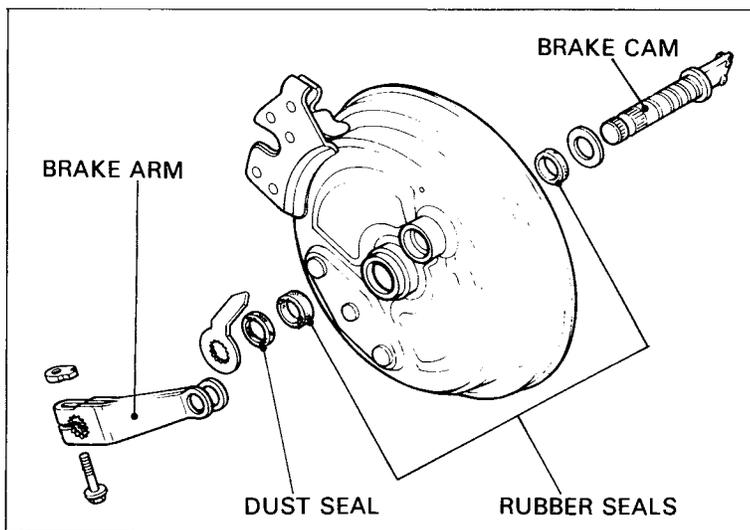
BRAKE PANEL DISASSEMBLY

Expand and remove the brake shoes by hand.



Remove the brake arm bolt brake arm and indicator plate.

Remove the brake cam and thrust washer, rubber seals and dust seal.



BRAKE PANEL ASSEMBLY

Install new rubber and dust seals.

Apply grease to the brake camshaft.

WARNING

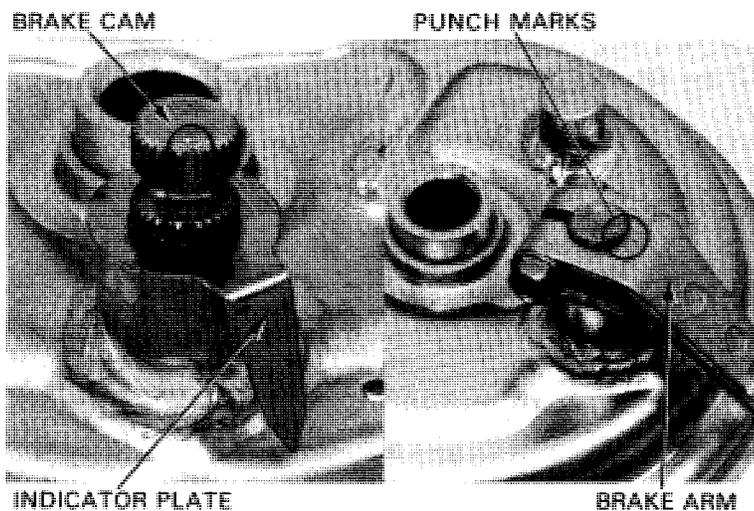
- *A contaminated brake lining reduces stopping power.*
- *Keep grease off the linings. Wipe excess grease off the cam.*

Install the brake can and thrust washer.

Install the brake arm and indicator.

NOTE

Align the brake cam and brake arm punch marks.

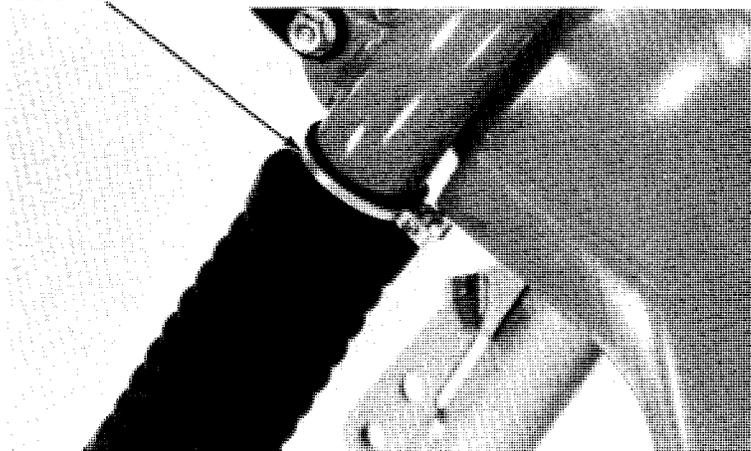




**FRONT FORK
DISASSEMBLY**

Place a support block under the engine to raise the front wheel off the ground.
Remove the front wheel (Page 12-7).
Remove the boot clamp and slide the rubber boot down.

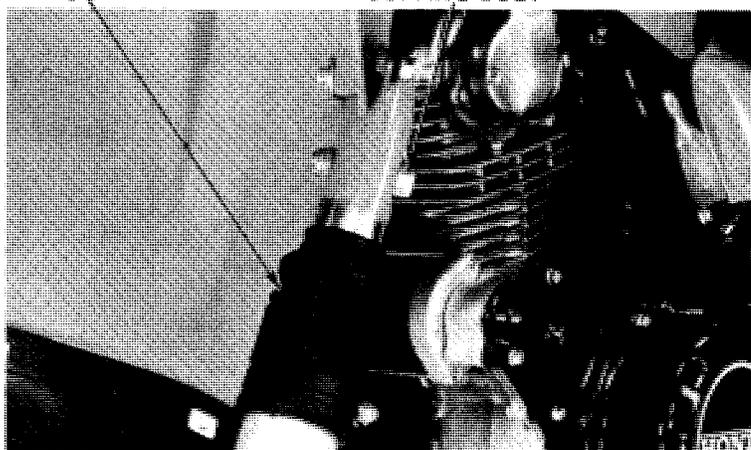
BOOT CLAMP



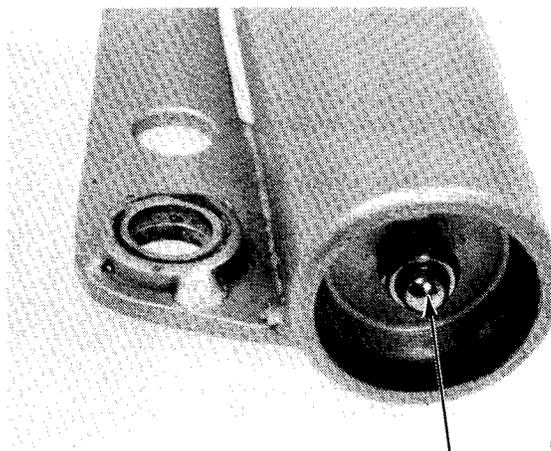
Remove the front fork setting bolt and remove the front fork.

BOOT

SETTING BOLT



Remove the fork tube setting cap nut.
Remove the damper from the fork slider.



CAP NUT

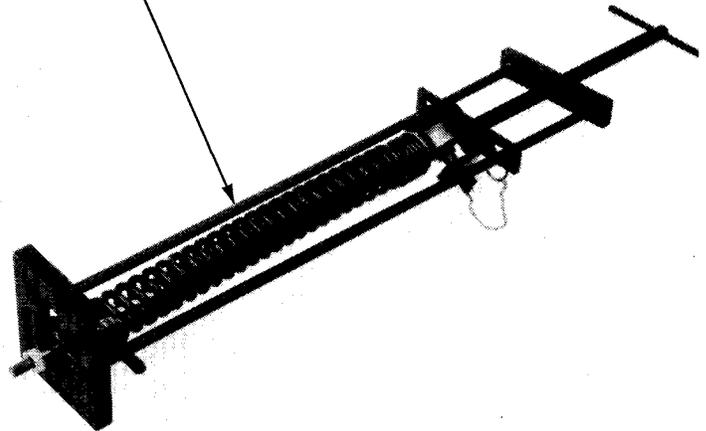


Compress the damper with the spring compressor.

CAUTION:

Be careful that the lower end of the damper dose not slip out of the compressor.

SHOCK ABSORBER COMPRESSOR

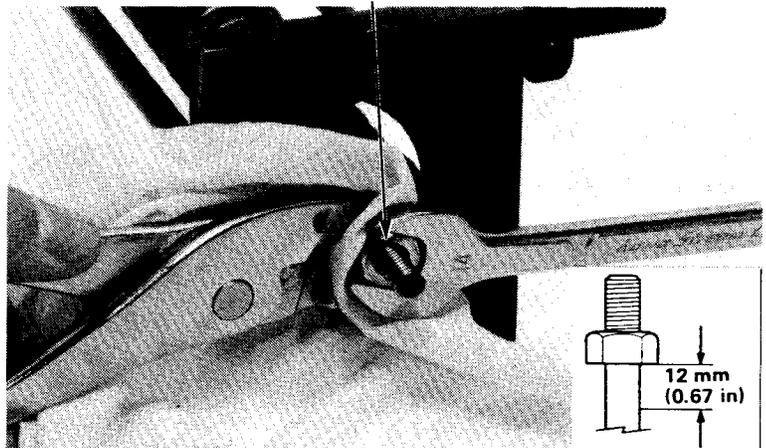


Slip the rubber down, and hold the damper rod with pliers and a shop towel.
Remove the damper lock nut.

CAUTION:

Hold the damper rod only in the area shown.

LOCK NUT



INSPECTION

Inspect spring A and B for damage.
Measure the spring free length.

STANDARD:

Spring A:
287.2–281.6 mm (11.307–11.087 in)

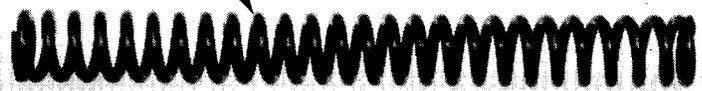
Spring B:
40.1–39.3 mm (1.579–1.547 in)

SERVICE LIMITE:

Spring A: 278.7 mm (10.97 in)

Spring B: 38.9 mm (1.5 in)

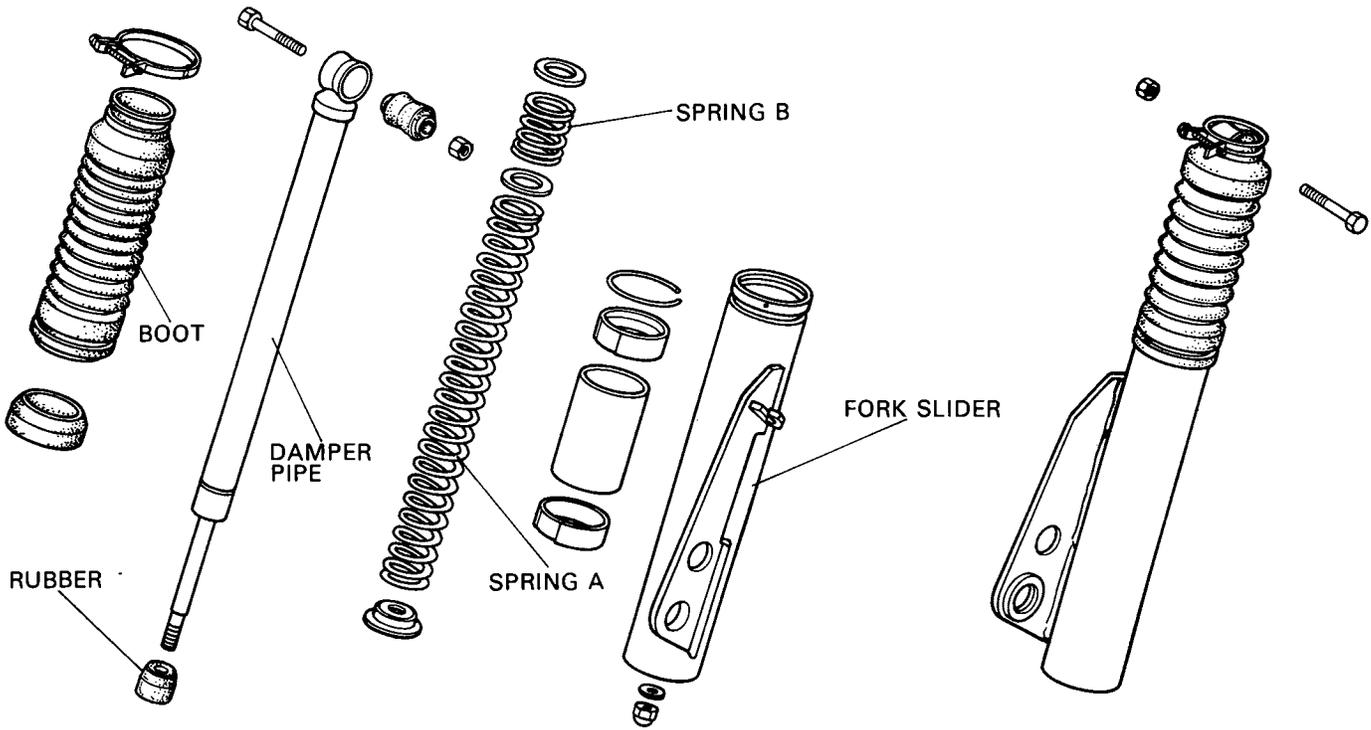
SPRING A



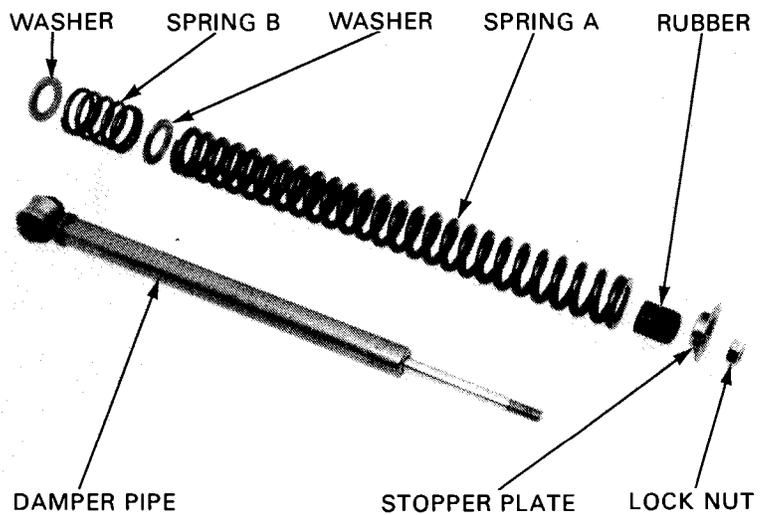
SPRING B



INSTALLATION



Install a washer, spring B, the other washer, spring A and stopper plate using the spring compressor.
Tighten the lock nut securely.

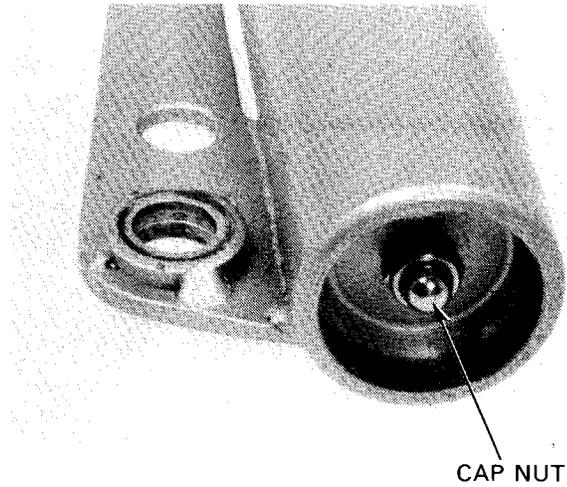




Install the damper into the slider and tighten the cap nut.

TORQUE:

12–25 N·m (1.2–2.5 kg-m, 9–18 ft-lb)



Install the front fork slider and damper into the front fork.

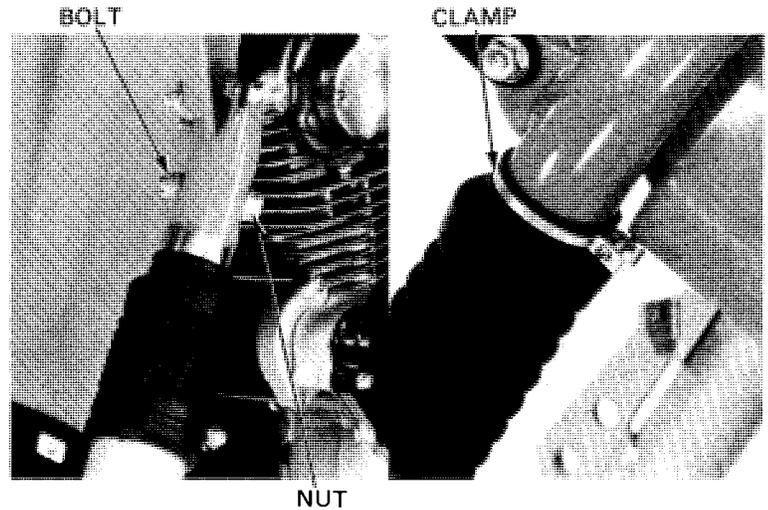
Insert the mounting bolt through the front fork and the top of the damper.

Tighten the bolt and nut.

TORQUE:

30–40 N·m (3–4 kg-m, 22–29 ft-lb)

Pull the boat up and tighten the clamp screw.



Install the front wheel (Page 12–14).

After installing front wheel, check the front brake lever free play (Page 3–14).

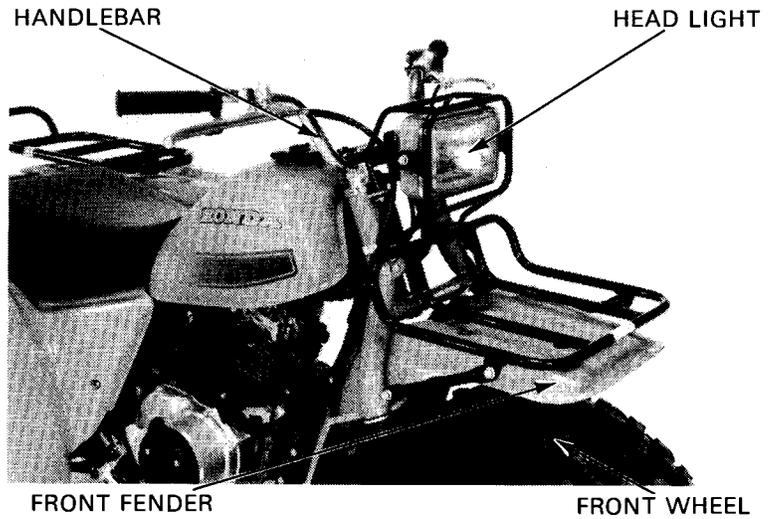


STEERING STEM

FORK BRIDGE REMOVAL

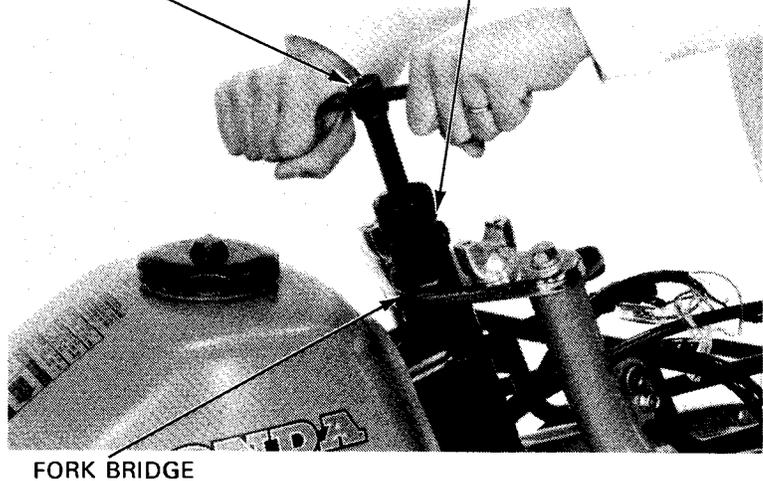
Remove the following:

- headlight and headlight case bracket (Page 12-3).
- handlebar (Page 12-4).
- front wheel (Page 12-7).
- front fender.



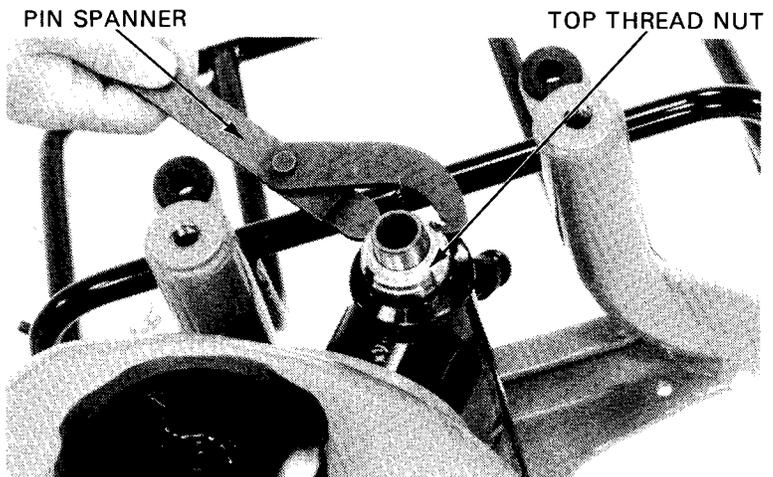
Remove the steering stem nut and fork bridge bolts.
Remove the fork bridge.

EXTENSION BAR AND LOCK NUT WRENCH 30×32 mm



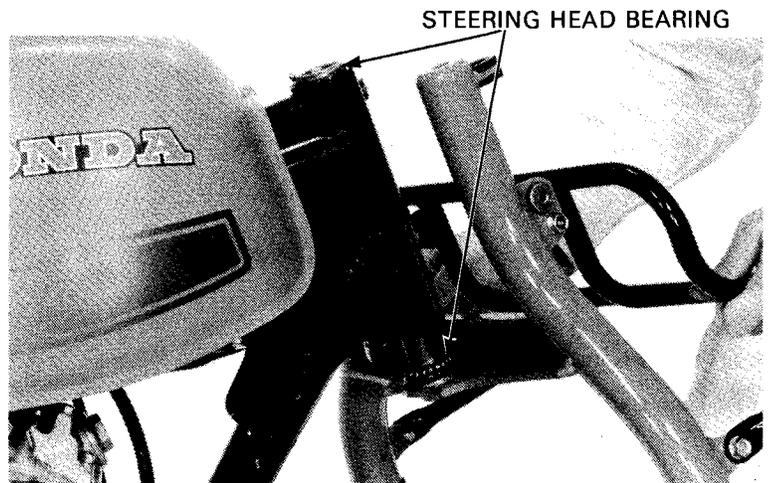
FRONT FORK REMOVAL

Remove the steering top thread nut.





Remove the front fork and bearings being careful not to drop the ball bearings.



Check the ball race, for wear or damage and replace if necessary.

BALL RACE REMOVER



STEERING STEM INSTALLATION

If the races were removed, drive them in with a ball race driver.

DRIVER HANDLE OUTER A and BEARING DRIVER OUTER 37×40 mm





FRONT WHEEL/BRAKE/STEERING

Apply grease to the upper and bottom ball races and install the steel balls and the races.

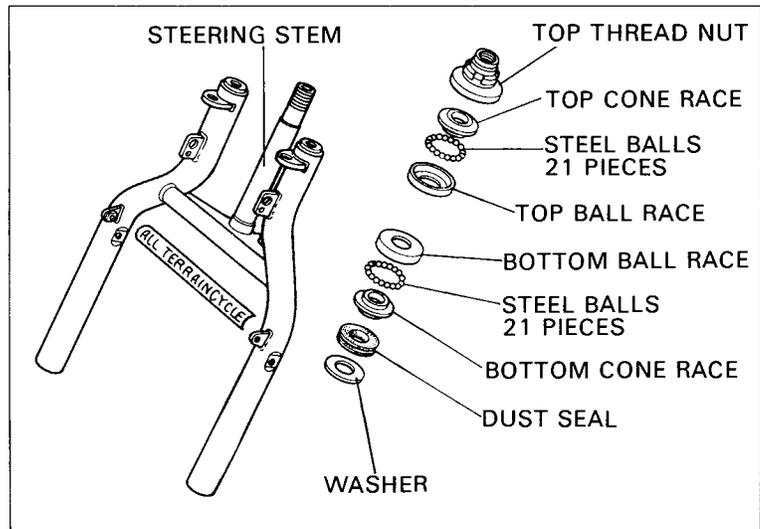
NOTE

21 steel balls are used for both the upper and lower races.

Install the washer, dust seal and bottom race and steel balls onto the steering stem.

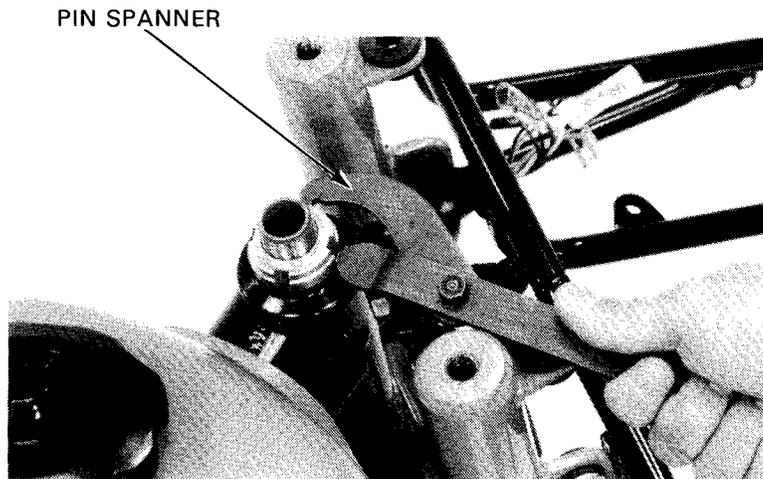
Slide the steering stem through the steering head from the bottom.

Install the top race and steel balls.
Thread on the top thread nut.



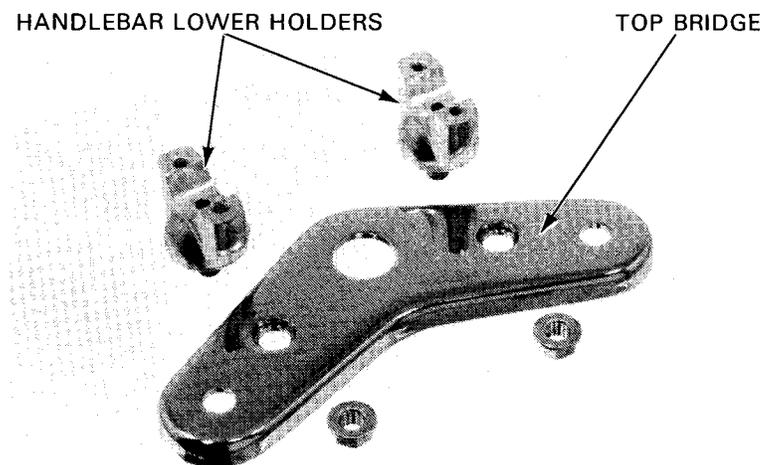
Tighten the top thread nut until snug against the top ball race and back off about 1/8 turn.

Check that the stem rotates freely without axial play.



FORK BRIDGE INSTALLATION

Attach the handlebar lower holders loosely to the top bridge.





Install the fork bridge and tighten the steering stem nut.

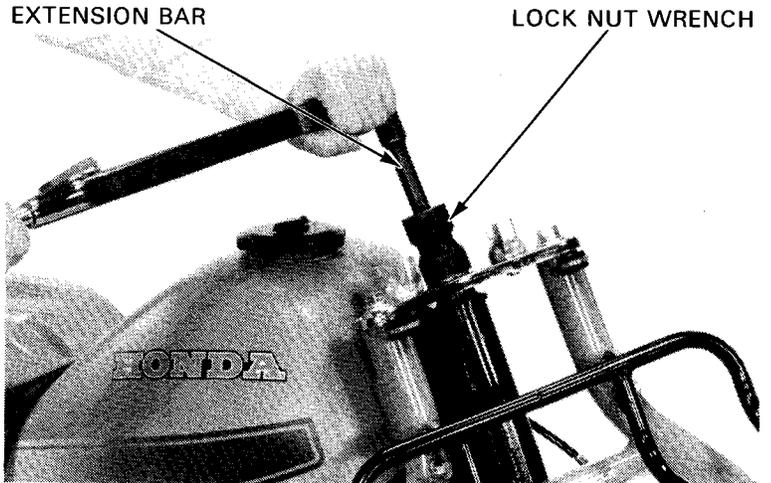
TORQUE:

50–70 N·m (5.0–7.0 kg-m, 36–51 ft-lb)

Tighten the fork bolts.

TORQUE:

50–70 N·m (5.0–7.0 kg-m, 36–51 ft-lb)

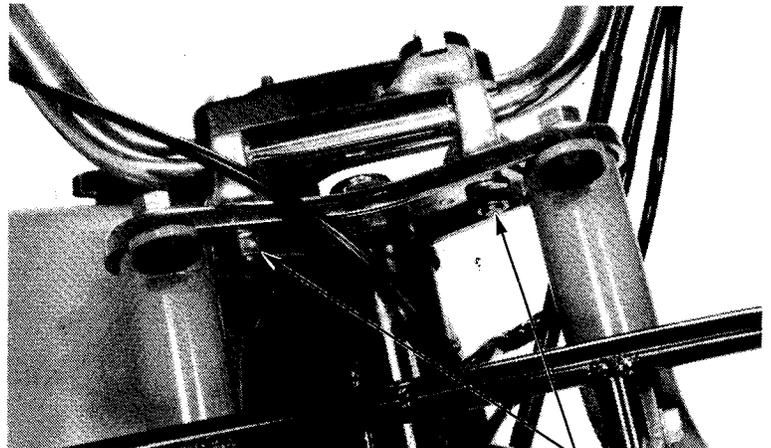


Install the handlebar handlebar.
Tighten the handlebar lower holder nuts.

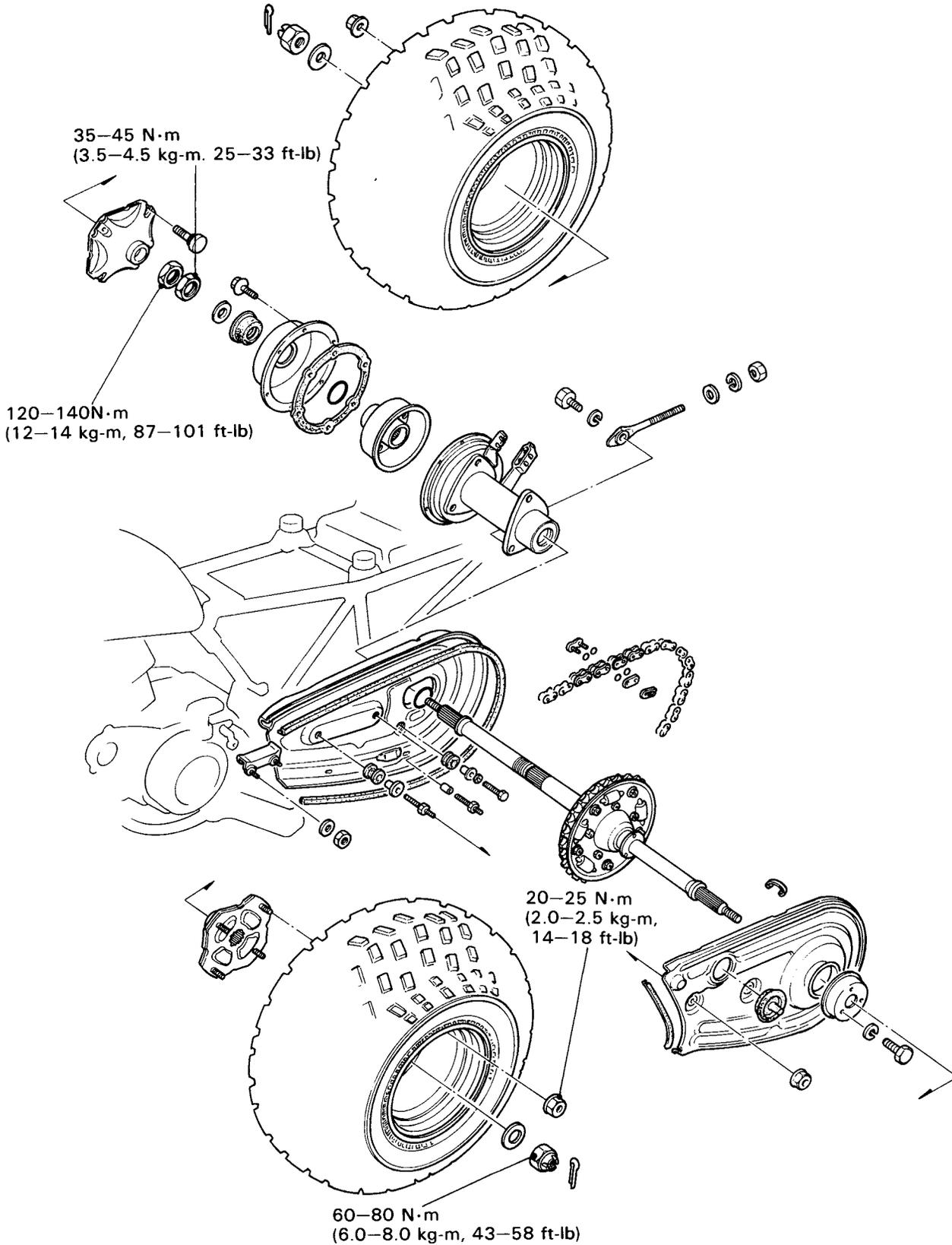
TORQUE:

40–48 N·m (4.0–4.8 kg-m, 29–35 ft-lb)

Install the front fender.
Install the headlight case bracket, case and headlight.



LOWER HANDLEBAR HOLDER





SERVICE INFORMATION	13-1
TROUBLESHOOTING	13-2
REAR WHEEL	13-3
REAR AXLE/FINAL DRIVEN SPROCKET	13-3
REAR AXLE BEARING HOLDER/REAR BRAKE	13-7

SERVICE INFORMATION

GENERAL

- This section covers maintenance of the rear wheel and drive mechanism.
- A jack or block is required to support the ATC.

SPECIFICATIONS

ITEM		STANDARD	SERVICE LIMIT
Rear axle runout		—————	3.0 mm (0.12 in)
Rear brake drum I.D.		140 mm (5.5 in)	141 mm (5.6 in)
Rear brake lining thickness		4 mm (0.2 in)	2 mm (0.1 in)
Rear wheel bearing play	Radial	—————	0.05 mm (0.002 in)
	Axial	—————	0.10 mm (0.004 in)

TORQUE VALUE

Damper holder nut		21–27 m·N (2.1–2.7 kg-m, 15–20 ft-lb)
Rear brake drum nut	INNER NUT	35–45 N·m (3.5–4.5 kg-m, 25–33 ft-lb)
	OUTER NUT	120–140 N·m (12–14 kg-m, 87–101 ft-lb)
Rear wheel hub nut		20–25 N·m (2.0–2.5 kg-m, 14–18 ft-lb)
Rear axle bearing holder bolt		50–70 N·m (5.0–7.0 kg-m, 36–51 ft-lb)
Drive chain slider nut		6–9 N·m (0.6–0.9 kg-m, 4–7 ft-lb)
Rear axle nut		60–80 N·m (6.0–8.0 kg-m, 43–59 ft-lb)
Rear brake drum cover		8–12 N·m (0.8–1.2 kg-m, 6–9 ft-lb)

TOOLS

SPECIAL

Lock nut 41 mm spanner	07916–9580100	} Not available in U.S.A.
Lock nut 41mm wrench	07916–9580200	

Common

Bearing Driver Outer 62×68 mm	07746–0010500	} (Not available in U.S.A.)
Drive Handle Outer A	07749–0010000	
Driver Pilot 35 mm	07746–0040800	



TROUBLESHOOTING

Wobble or vibration in motorcycle

1. Bent rim.
2. Loose wheel bearing.
3. Faulty rear axle bearing holder.
4. Faulty tire.
5. Axle not tightened properly.

Poor brake performance

1. Improper brake adjustment.
2. Worn brake shoes.
3. Brake linings oily, greasy or dirty.
4. Worn brake cam.
5. Worn brake drum.
6. Brake arm serrations improperly engaged.
7. Brake shoes worn at cam contact area.

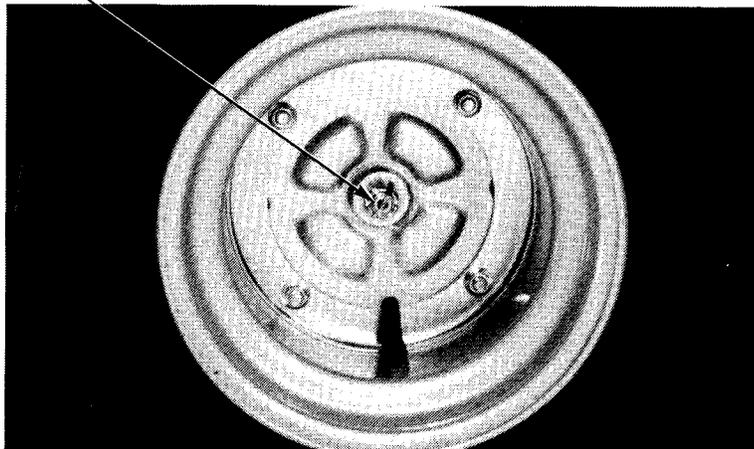


REAR WHEEL

REMOVAL

Raise the rear wheels off the ground with a jack or block under the engine.
Remove the cotter pin and axle nut.
Remove the rear wheels.

AXLE NUT



INSTALLATION

Install the rear wheel with the tire valve facing out.
Install the rear wheel rim plates and tighten the nuts.
Tighten the rear axle nuts.

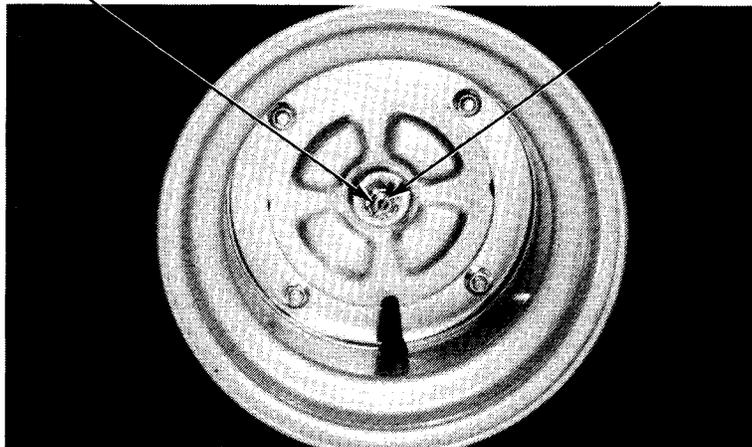
TORQUE:

60–80 N·m (6.0–8.0 kg·m, 43–59 ft·lb)

Install new cotter pins and bend the ends.

AXLE NUT

COTTER PIN



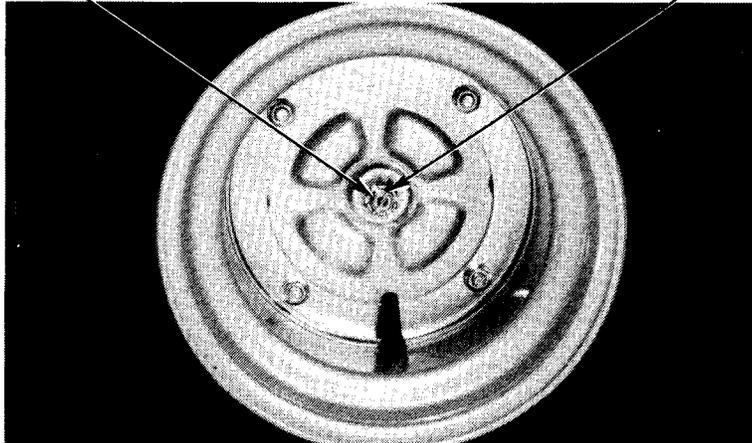
REAR AXLE/FINAL DRIVEN SPROCKET

REAR AXLE REMOVAL

Raise the rear wheels off the ground.
Remove the rear wheels (Page 13–3).

AXLE NUT

COTTER PIN

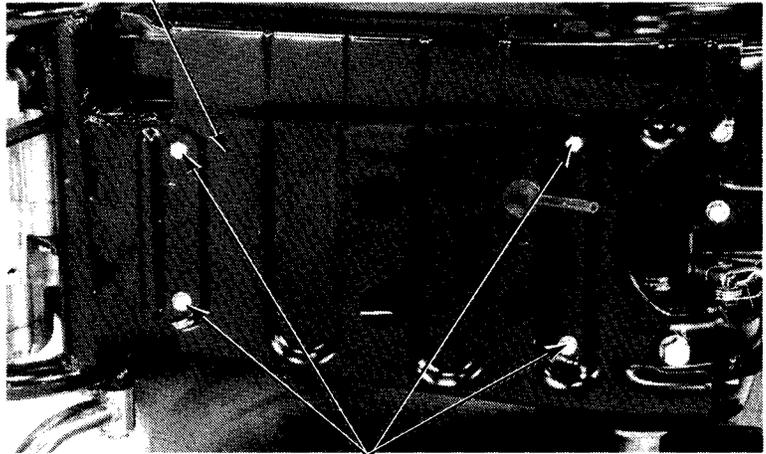




REAR WHEEL/BRAKE/DRIVE MECHANISM

Remove the four bolts.
Remove the skid plate.

SKID PLATE

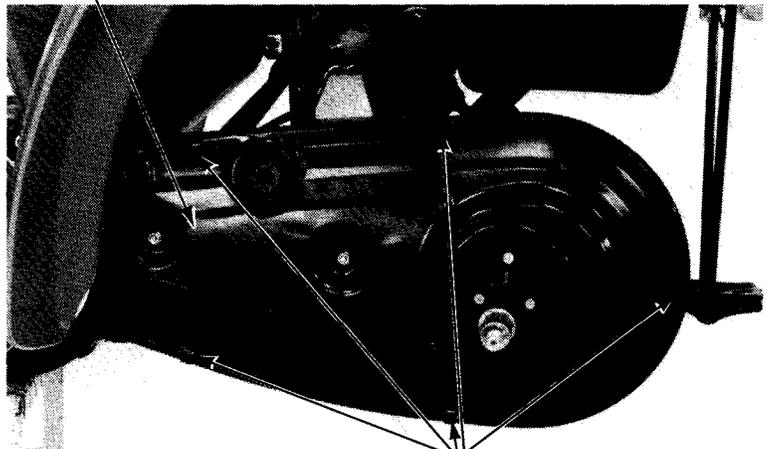


BOLT

Remove the sealed cover by removing three bolts.
Pull off the chain cover clips and remove the drive chain cover.

CHAIN COVER

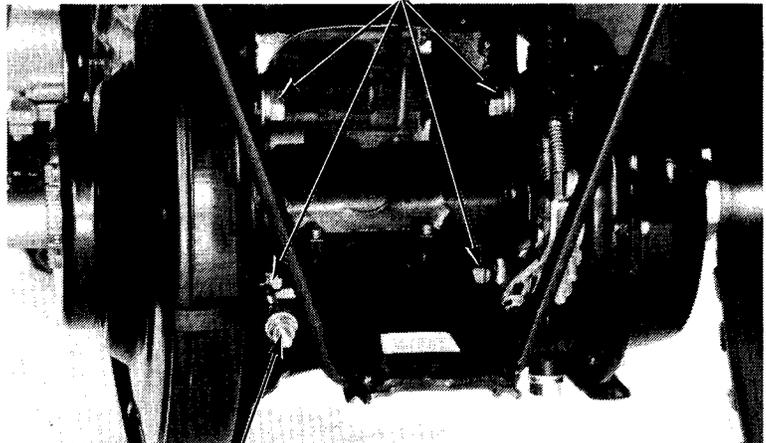
SEALED COVER



COVER CLIPS

Loosen the bearing holder bolts and drive chain adjuster.

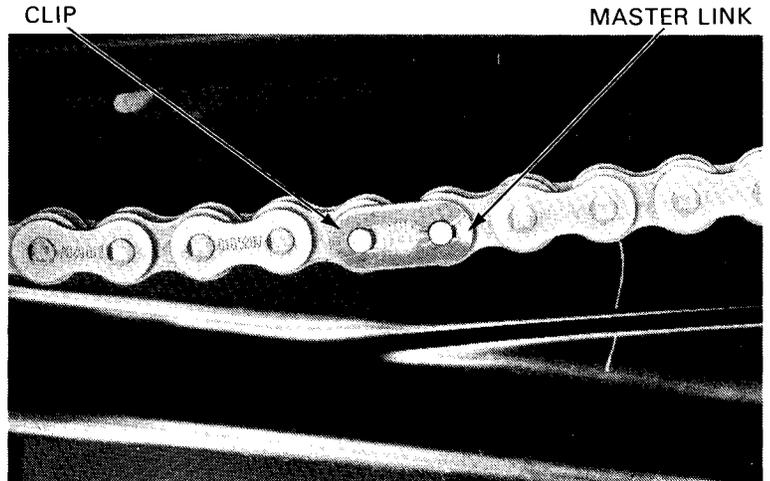
BEARING HOLDER BOLTS



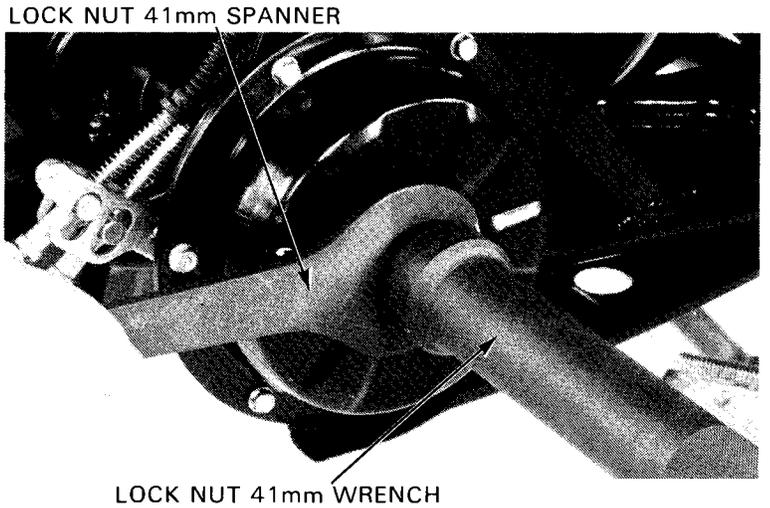
CHAIN ADJUSTER



Remove the chain clip.
Remove the master link and drive chain.

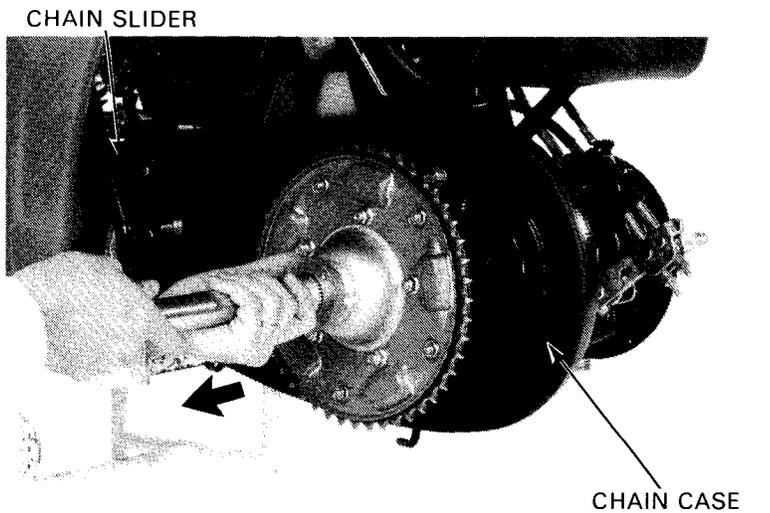


Remove the brake drum nuts by using the special tool (Not available in U.S.A.)



Remove the brake drum by removing the bolts from the bearing holder.

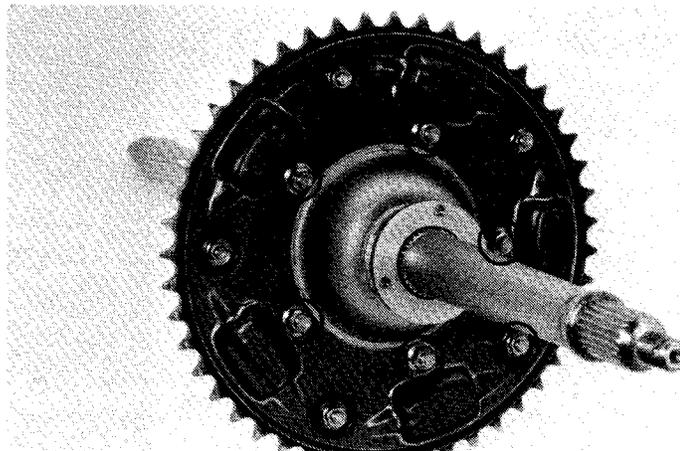
Pull the axle nut of the frame.
Remove the chain case and chain slider.



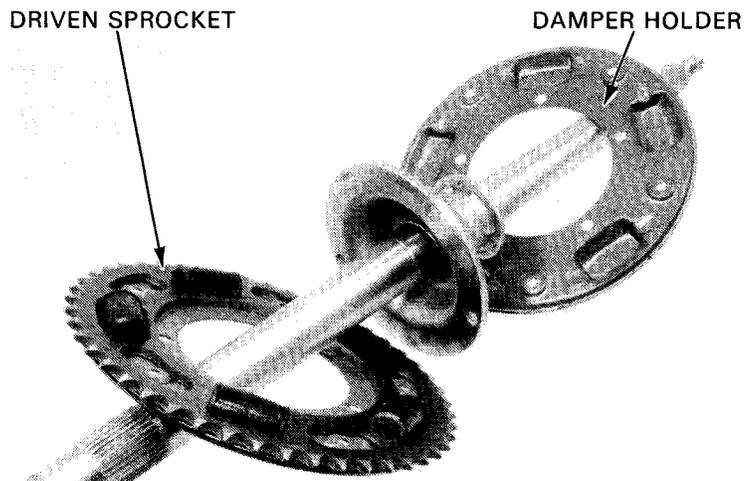


REAR WHEEL/BRAKE/DRIVE MECHANISM

Remove the driven flange bolts.



Remove the damper holder bolts and nuts.
Remove the damper holder and damper rubber from the driven sprocket.



FINAL DRIVEN SPROCKET INSPECTION

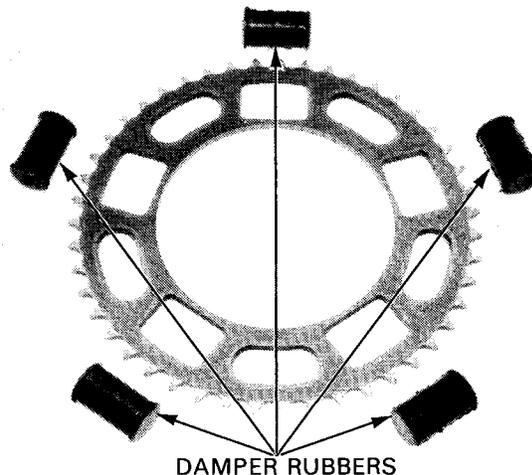
Check the damper rubbers for damage. Replace if necessary.

Check the condition of the final driven sprocket teeth.

Replace the sprocket if it is worn or damaged.

NOTE

- If the driven sprocket is worn or damaged, the drive chain and the drive sprocket must be inspected.
- Never install a new drive chain on worn sprocket or a worn chain on new sprockets. Both chain and sprocket must be in good condition or the replacement chain or sprockets will wear rapidly.



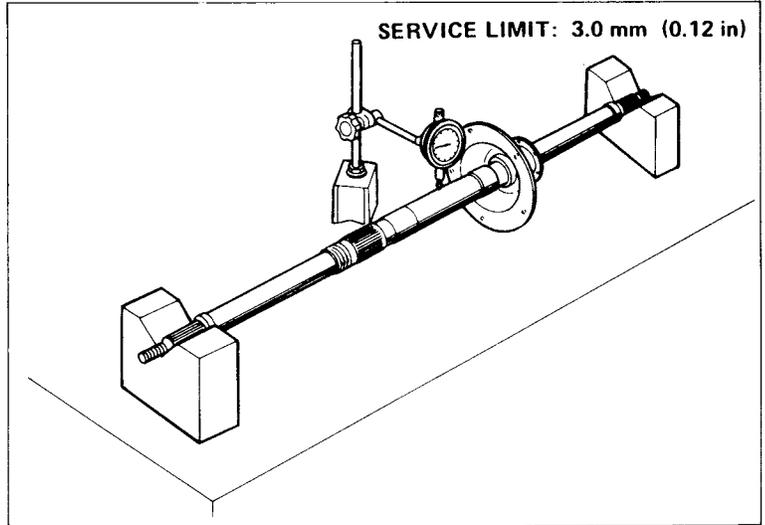


AXLE INSPECTION

Place the rear axle in V-blocks and measure the runout.

The actual runout is 1/2 of the Total Indicator Reading.

SERVICE LIMIT: 3.0 mm (0.12 in)

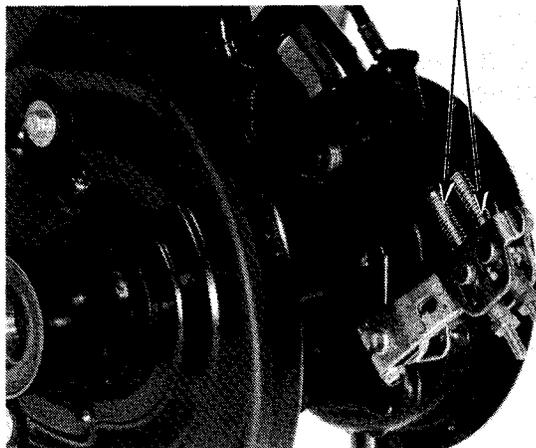


**REAR AXLE BEARING HOLDER/
REAR BRAKE**

**REAR WHEEL BEARING HOLDER
REMOVAL**

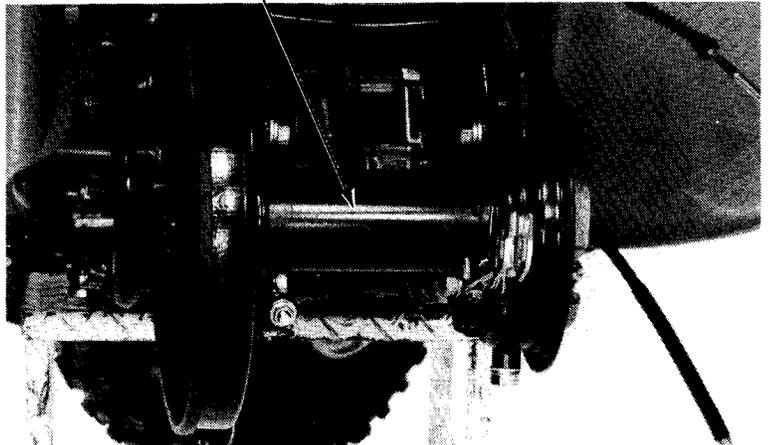
Disconnect the rear brake cables from the rear brake arm.

REAR BRAKE CABLES



Remove the trailer hitch.
Remove the rear wheel bearing holder bolts and holder.

REAR WHEEL BEARING HOLDER





REAR WHEEL/BRAKE/DRIVE MECHANISM

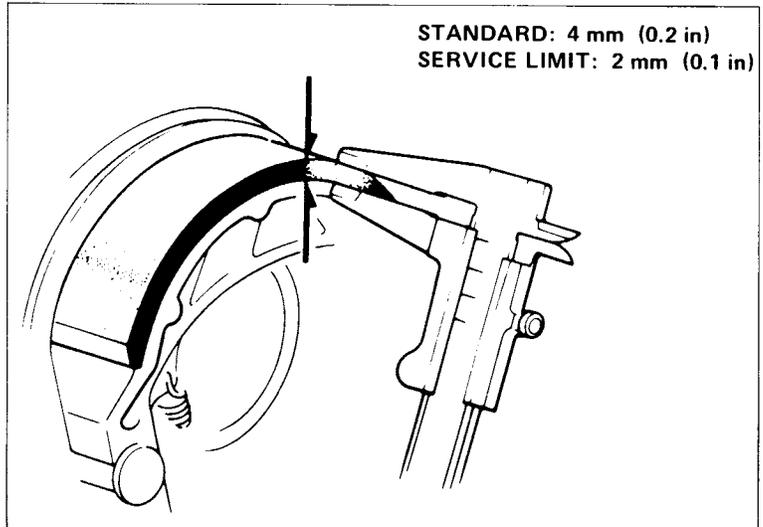
BRAKE LINING INSPECTION

Measure the brake lining thickness.

STANDARD: 4 mm (0.2 in)

SERVICE LIMIT: 2 mm (0.1 in)

Replace the brake lining if it is thinner than the service limit.

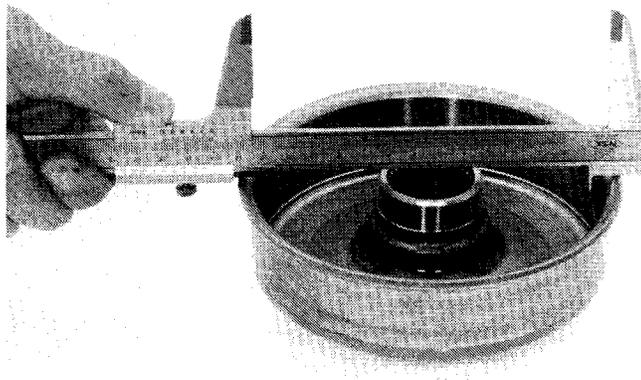


REAR BRAKE DRUM INSPECTION

Measure the brake drum I.D.

STANDARD: 140 mm (5.5 in)

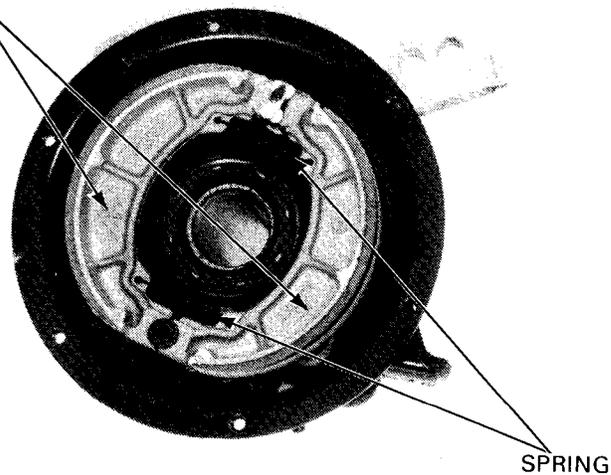
SERVICE LIMIT: 141 mm (5.6 in)



REAR BRAKE DISASSEMBLY

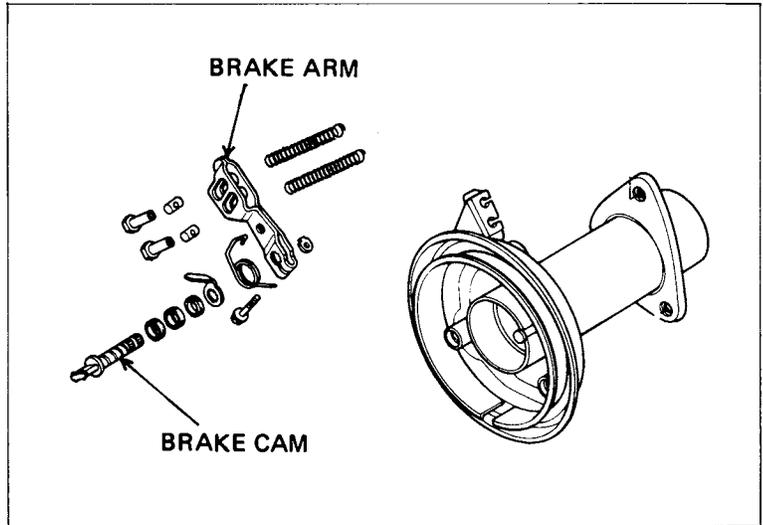
Expand and remove the brake shoes by hand.

BRAKE SHOES



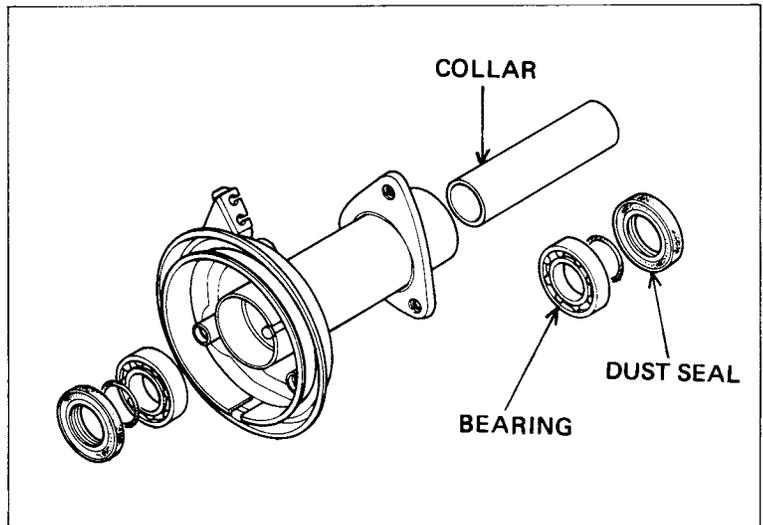


Remove the brake arm bolt and brake arm.
Remove the return spring, indicator plate and brake cam.



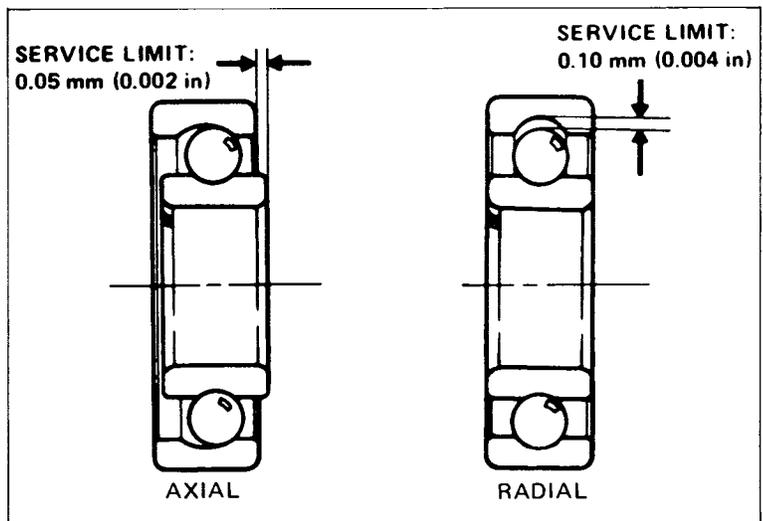
**REAR WHEEL BEARING HOLDER
DISASSEMBLY**

Remove the dust seals and O-rings.
Drive out the bearings and center collar.



REAR WHEEL BEARING INSPECTION

Check the rear wheel bearings. Replace the bearings if they are noisy or have excessive play.





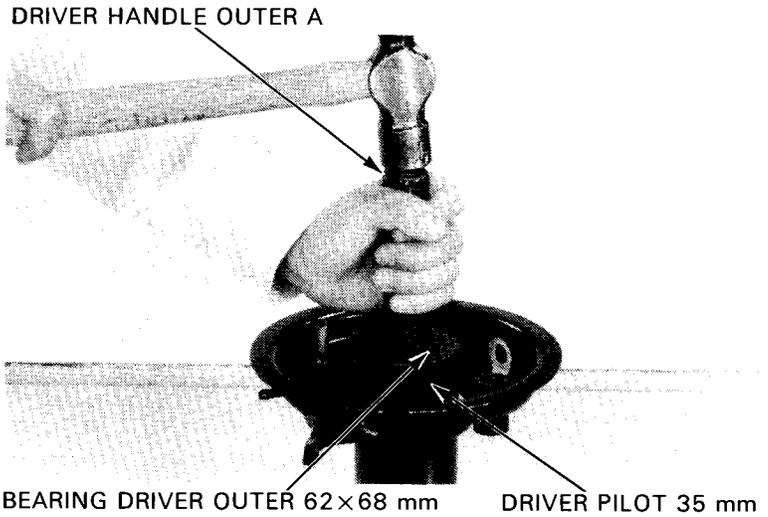
**REAR WHEEL BEARING
HOLDER ASSEMBLY**

Pack the bearing cavities with grease.
Drive the right bearing squarely into the bearing holder until it seats.

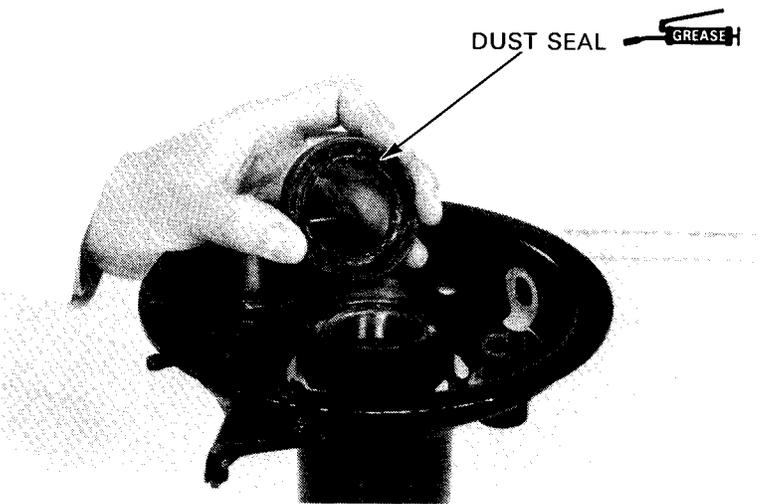
Install the center collar and drive the left bearing in squarely until it seats.

NOTE

- Install the bearings with marks facing out.



Coat the dust seal lips with grease and install the dust seals.



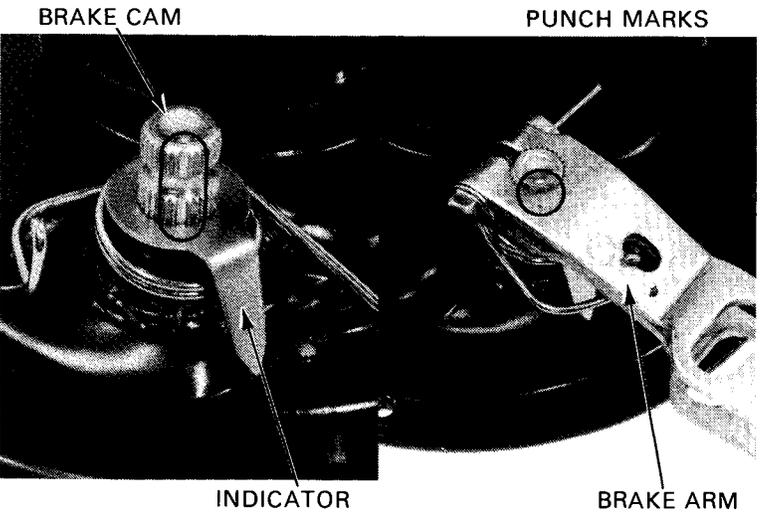
Apply grease to the brake cam's shaft.
Install the dust seal and wear indicator plate.
Install the brake arm on the brake cam, aligning the punch marks.
Tighten the brake arm bolt.

Install the brake shoes on the brake panel.

WARNING

- Contaminated brake linings reduce stopping power.
- Keep grease off the linings. Wipe excess grease off the cam.

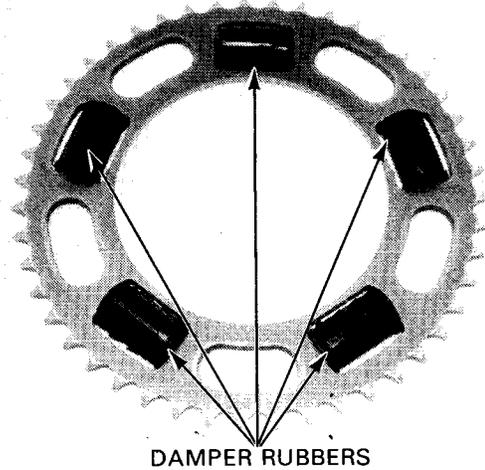
Install the rear bearing holder and drive chain adjuster.
Tighten the rear wheel hub attaching bolts loosely.





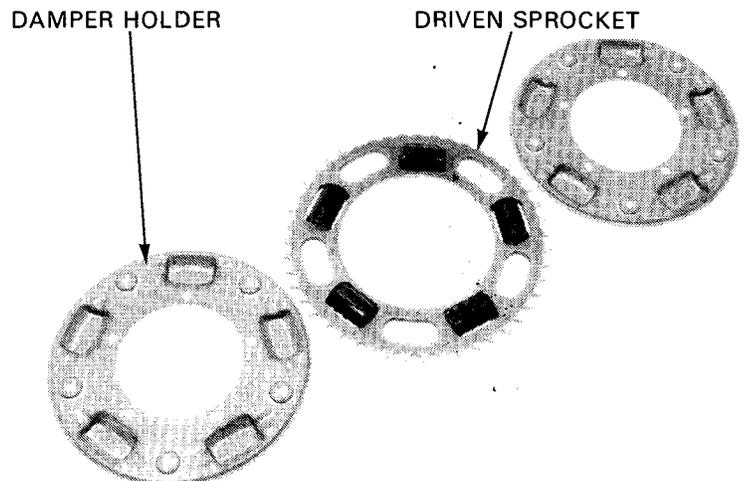
FINAL DRIVEN FLANGE ASSEMBLY

Install the damper rubbers onto the driven sprocket.



Apply grease to the final driven sprocket.
Install the damper holders and tighten the holder bolts to 21–27 N·m (2.1–2.7 kg-m, 15–20 ft-lb) torque.

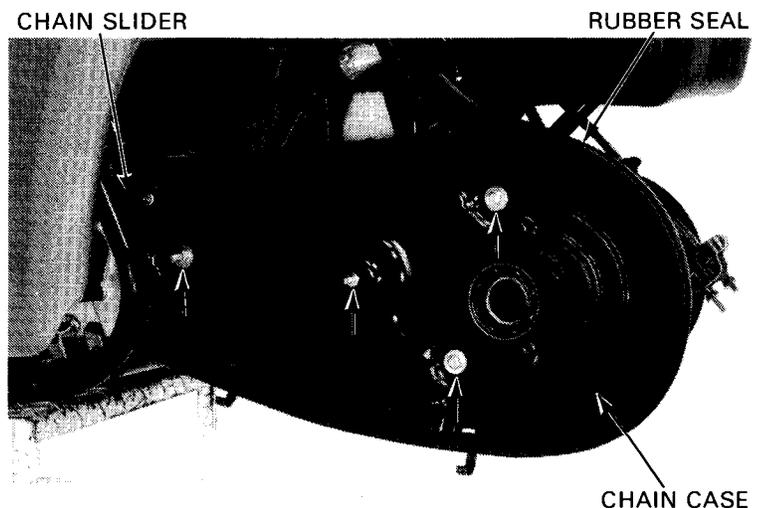
Install the final driven flange onto the rear axle.



REAR AXLE INSTALLATION

Make sure the chain case rubber seal is in good condition.

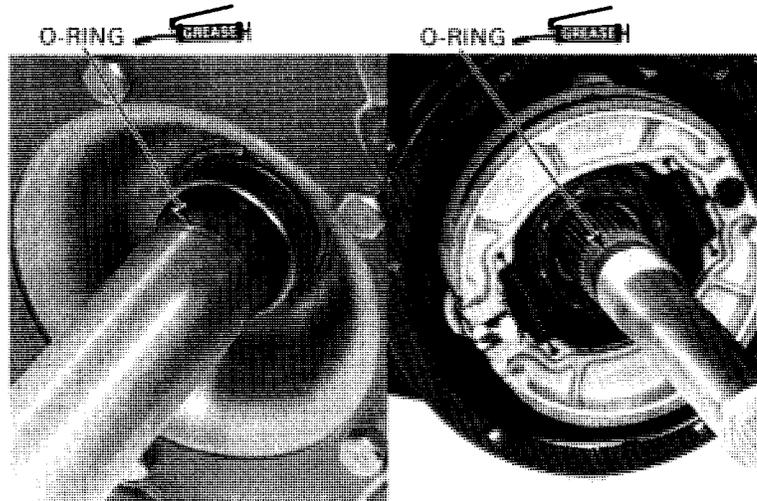
Install the rubber seal onto the chain case.
Install the chain case and chain slider.





Coat the O-rings with grease.
Install the O-ring onto the axle.
Install the rear axle from the left side.

Install the other O-ring onto the axle.
Install the rear brake drum.
Screw the rear brake drum nuts on by hand.



Tighten the brake drum inner nut.

TORQUE:

35–45 N·m (3.5–4.5 kg-m, 25–33 ft-lb)

Apply LOCKTITE® or equivalent to the shaft threads.

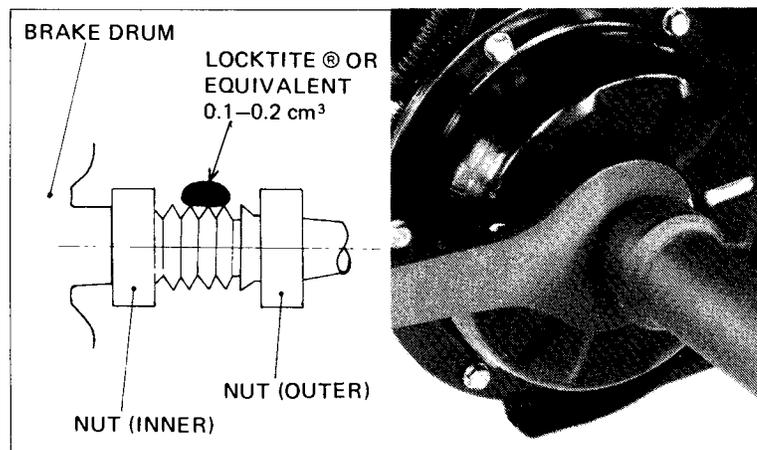
Tighten the brake drum outer nut.

TORQUE:

120–140 N·m (1.2–1.4 kg-m, 87–101 ft-lb)

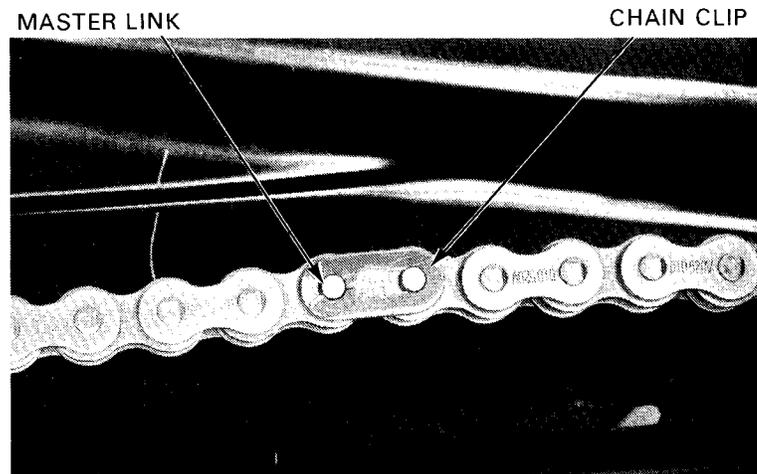
NOTE

Wipe grease off the shaft before applying LOCKTITE® or equivalent.



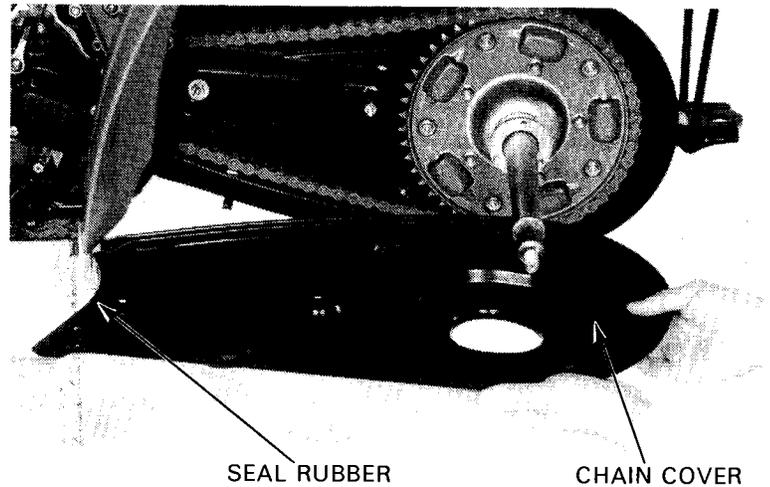
Install and connect the drive chain with the master link.

Install the master link clip in the direction shown.





Adjust the drive chain.
Tighten the bearing holder attaching bolts.
Install the chain cover rubber seal and chain cover.
Install the skid plate.

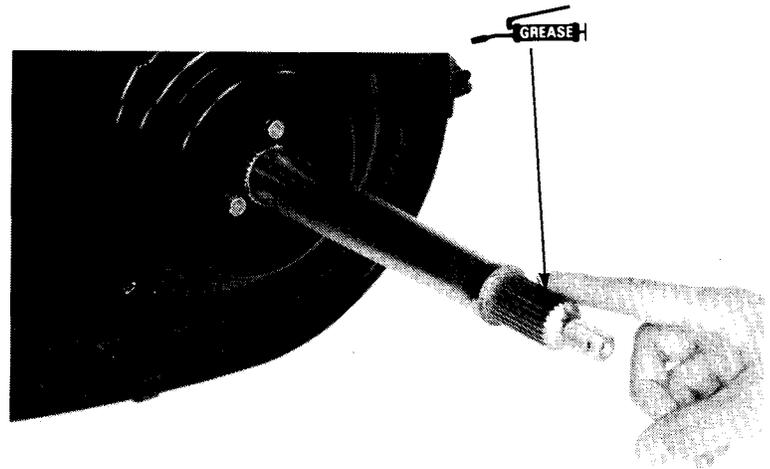


Coat the axle with grease.
Install the rear wheel hubs and tighten the rear axle nuts.

TORQUE:

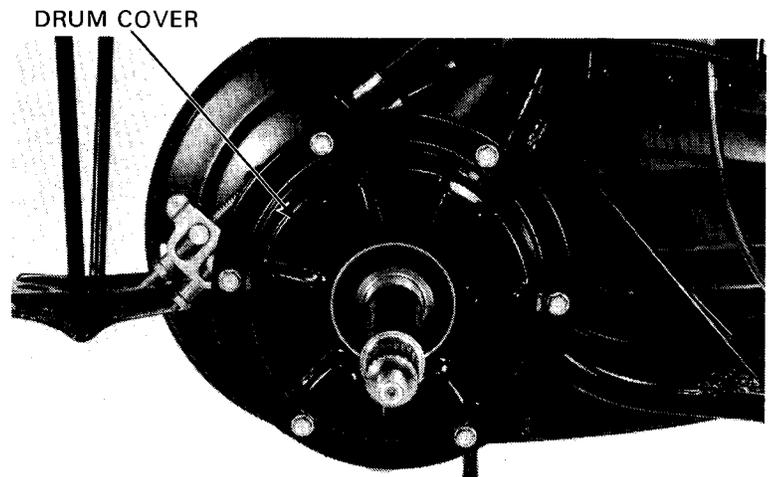
60–80 N·m (6.0–8.0 kg·m, 43–59 ft·lb)

Install the cotter pins and bend the ends.
Connect the rear brake cables and adjust the rear brake (Page 3–14).



**BRAKE DRUM COVER
REMOVAL**

Place a support block under the engine to raise the rear wheel off the ground.
Remove the right rear wheel and hub (Page 13–3)
Remove the axle nuts (Page 13–3).
Remove the drum cover bolts, cover and drum.
Separate the cover and drum.

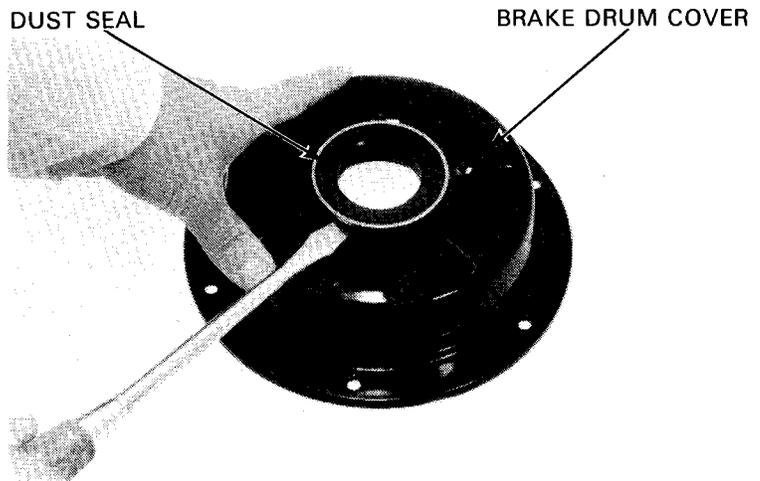




INSPECTION

Remove the dust seal.

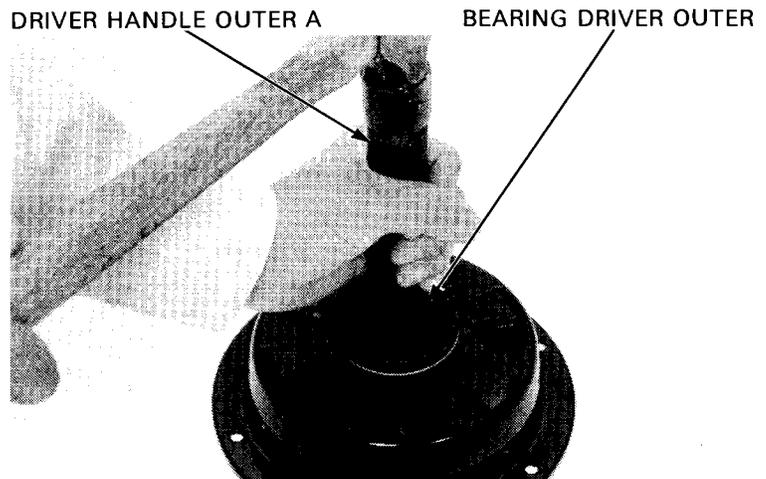
Check the brake drum cover gasket and dust seal for damage replace if necessary.



ASSEMBLY

Lubricate the inside of the dust seal with grease.

Drive the dust seal squarely into the brake drum cover.



Install the gasket on the cover and reinstall the cover.

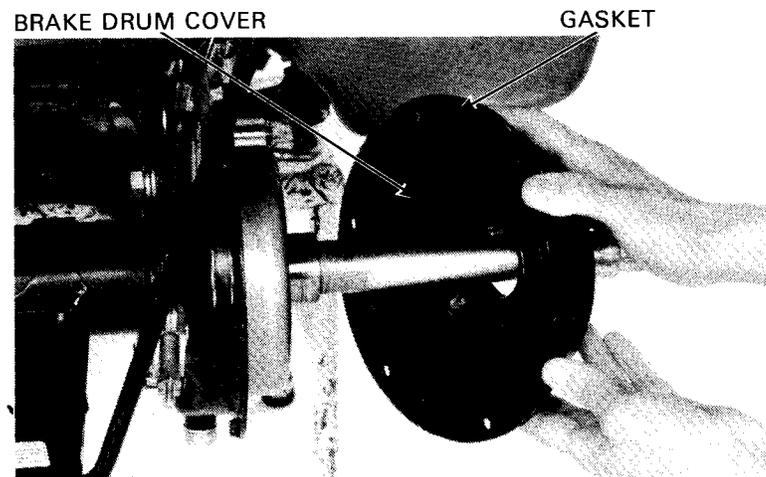
Tighten the bolts in two or more steps in a criss-cross pattern.

TORQUE:

8–12 N·m (0.8–1.2 kg·m, 6–9 ft·lb)

Install the brake drum nuts (Page 13–13).

Install the rear wheel (Page 13–14).





HONDA
ATC200E

MEMO

14. FRONT CARRIER/REAR CARRIER•REAR FENDER/TRAILER HITCH



HONDA
ATC200E

FRONT CARRIER	14-0
REAR CARRIER•REAR FENDER•TRAILER HITCH	14-1
EXHAUST PIPE	14-2

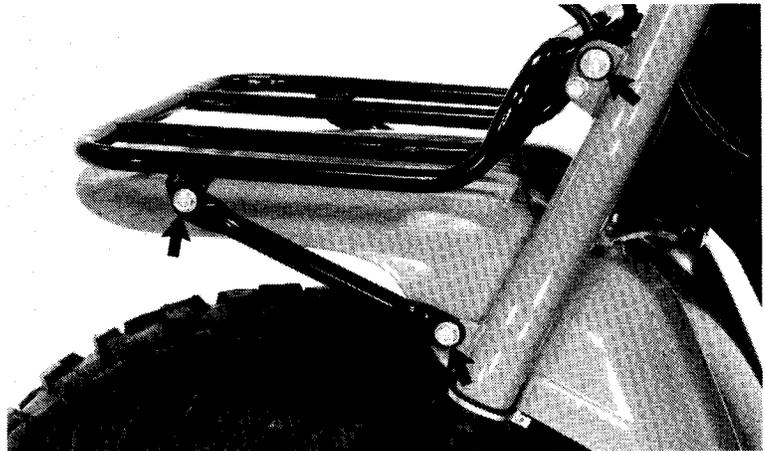
FRONT CARRIER

REMOVAL

Remove the six front carrier mounting bolts and remove the front carrier.

INSTALLATION

Install the front carrier with the mounting bolts.





REAR CARRIER•REAR FENDAR•TRAILER HITCH

REMOVAL

Remove the following:

- seat.
- trailer hitch.
- rear carrier.
- rear fender.

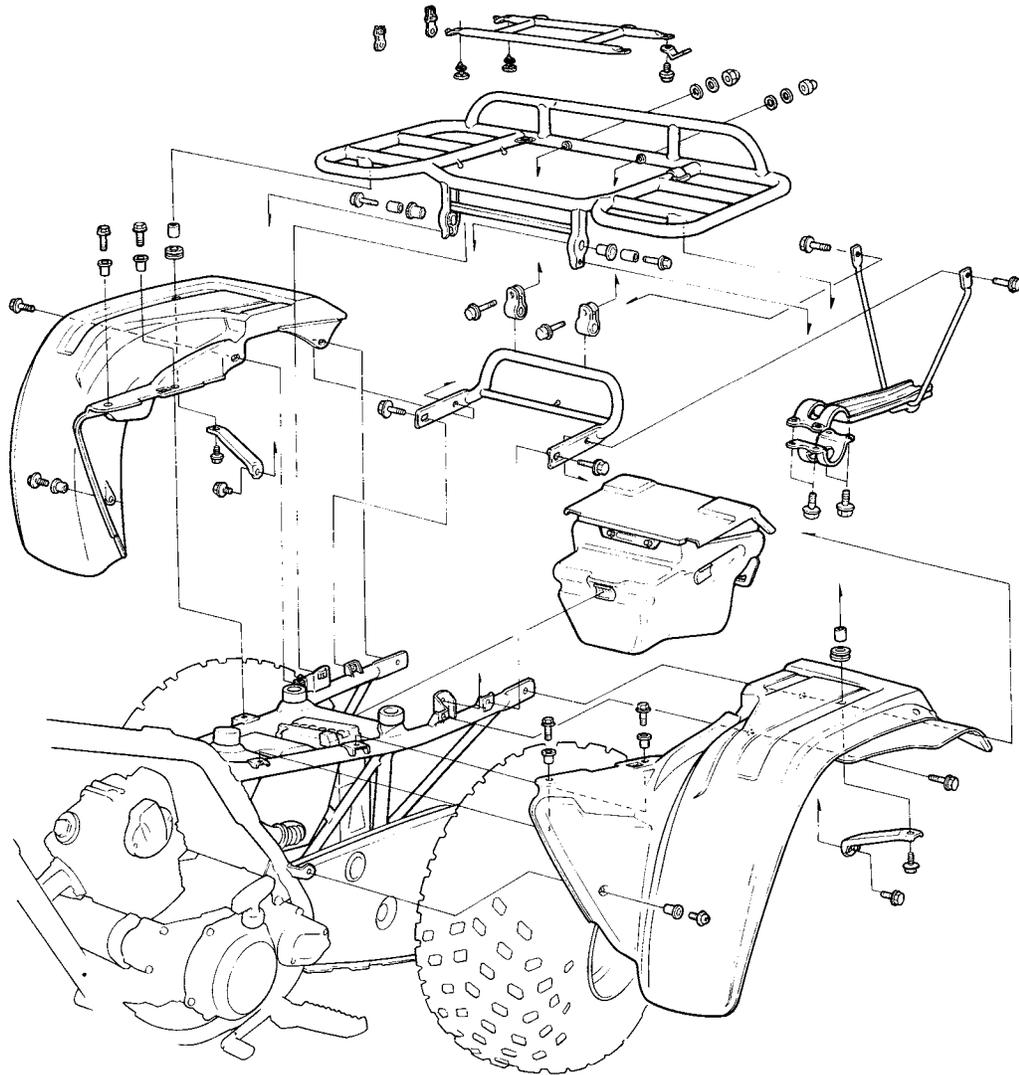
NOTE

Be careful not to mix the mounting hardware.

INSTALLATION

Install the parts removed in the reverse order:

- rear fender.
- rear carrier.
- trailer hitch.
- seat.





EXHAUST PIPE

Refer to Page 3-16 for spark arrester cleaning.

WARNING

Do not service the exhaust pipe or muffler while they are hot.

EXHAUST PIPE REMOVAL

Remove the seat.

Remove the trailer hitch and right rear fender.

Loosen the exhaust pipe band.

Remove the exhaust pipe joint nuts and exhaust pipe.

Remove the muffler mounting bolts and muffler.

NOTE

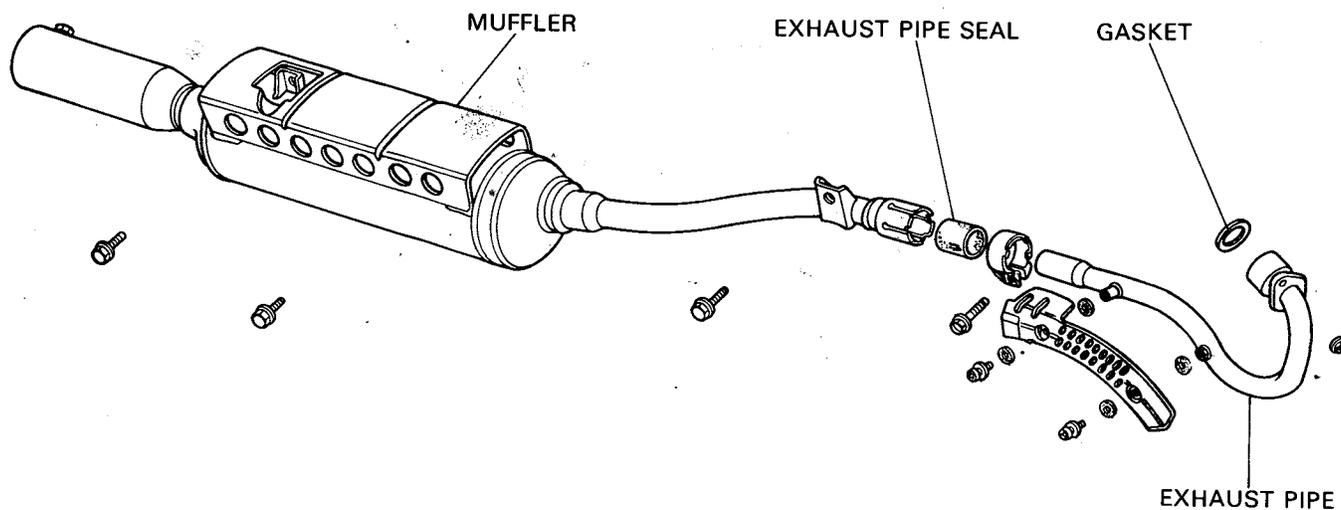
Check the gasket and pipe seal for wear.
Replace with a new one if necessary.

EXHAUST PIPE INSTALLATION

The installation sequence is essentially the reverse of removal.

NOTE

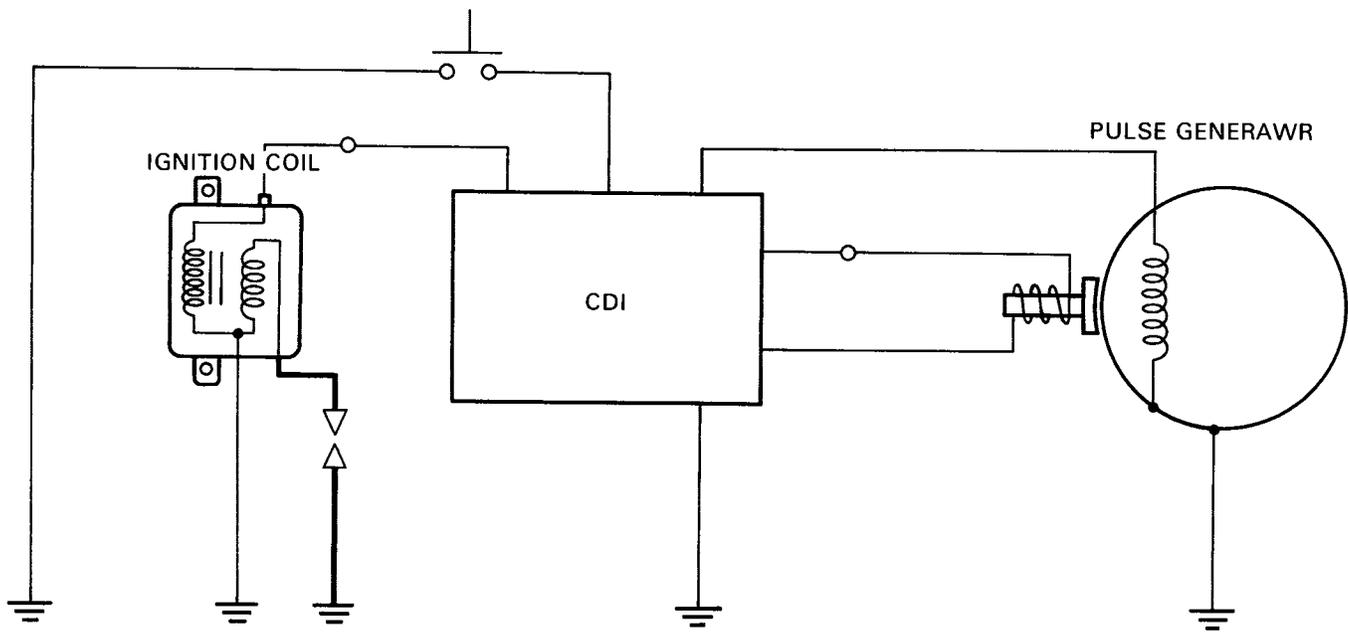
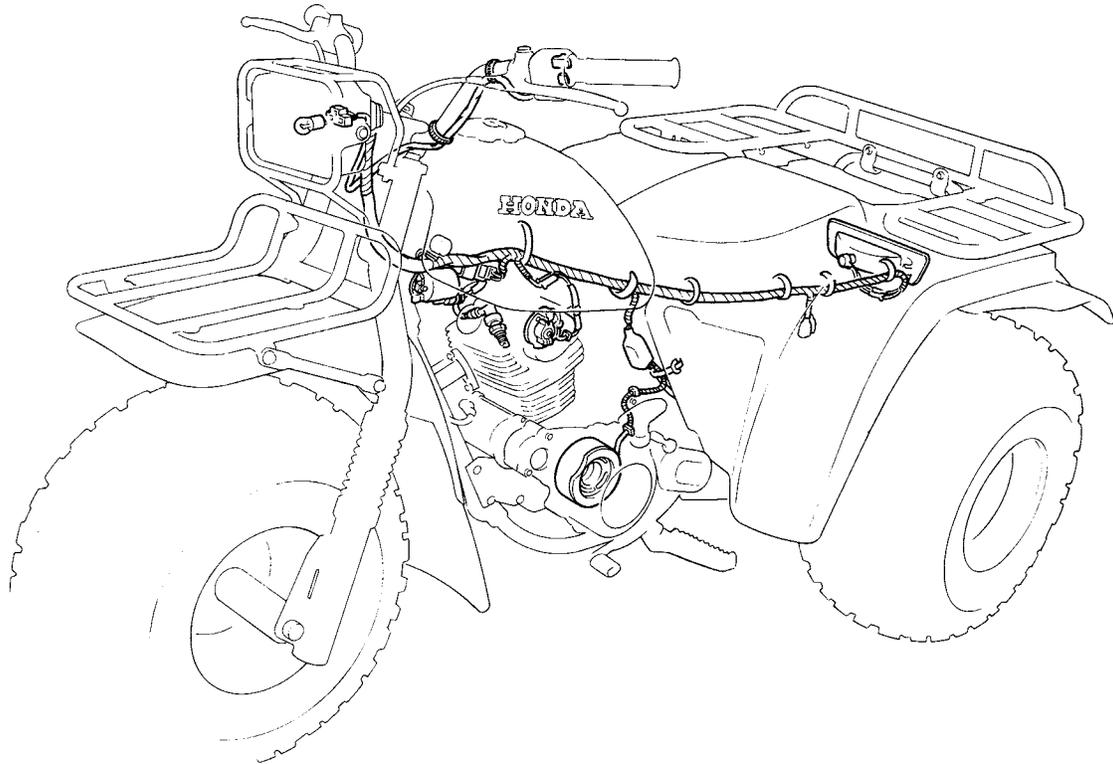
After installing, make sure that there are no exhaust leaks.





HONDA
ATC200E

MEMO





SERVICE INFORMATION	15-1
TROUBLE SHOOTING	15-1
IGNITION COIL	15-2
A.C. GENERATOR	15-2
C.D.I. UNIT	15-3

SERVICE INFORMATION

GENERAL

- Ignition timing does not normally need to be adjusted since the CDI (Capacitive Discharge Ignition) unit is factory pre-set.
- For spark plug inspection, refer to Page.
- For pulse generator removal, see Page.

SPECIFICATIONS

Spark plug	DR8ES-L (NGK) X24ESR-U (ND)
Spark plug gap	0.6-0.7 mm (0.024-0.028 in)
Ignition timing:	
- Initial	10° ± 2° BTDC/1,400 ± 100 rpm
- Advance start	1,950 ± 150 rpm
- Full advance	30° ± 2° BTDC/3,350 ± 150 rpm
- A.C. generator	2.4 A (above) at 2,000 rpm 5.0 A (above) at 10,000 rpm } (at 14 V)

TOOL

Digital multi-tester. KS-AHM-32-003 (U.S.A. only)

TROUBLESHOOTING

Engine starts but stops

1. No spark at plug.
2. Improper ignition timing.
3. Faulty spark plug.

No spark at plug

1. Engine stop switch "OFF".
2. Poorly connected, broken or shorted wires.
 - Between A.C. generator and CDI unit.
 - Between CDI unit and engine stop switch.
 - Between CDI unit and ignition coil.
 - Between ignition coil and spark plug.
 - Between pulse generator and CDI unit.
3. Faulty ignition coil.
4. Faulty CDI unit.
5. Faulty pulse generator.
6. Faulty A.C. generator.

Engine starts but runs poorly

1. Ignition primary circuit.
 - Faulty ignition coil.
 - Loose or bare wire.
 - Faulty A.C. generator.
2. Ignition secondary circuit.
 - Faulty plug.
 - Faulty CDI unit.
 - Faulty pulse generator.
 - Faulty high tension wire.
3. Improper ignition timing.
 - Faulty advancer rotor.
 - Faulty pulse generator.
 - Faulty CDI unit.

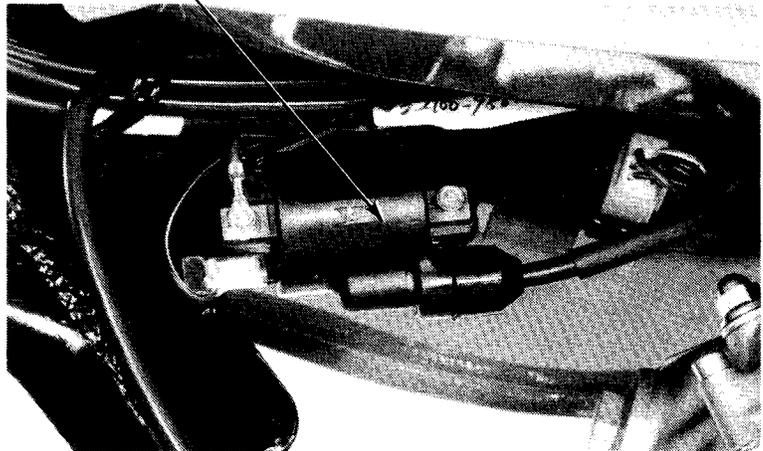


IGNITION COIL

REMOVAL

Remove the spark plug cap from the spark plug. Disconnect the ignition coil primary wire and remove the ignition coil.

IGNITION COIL



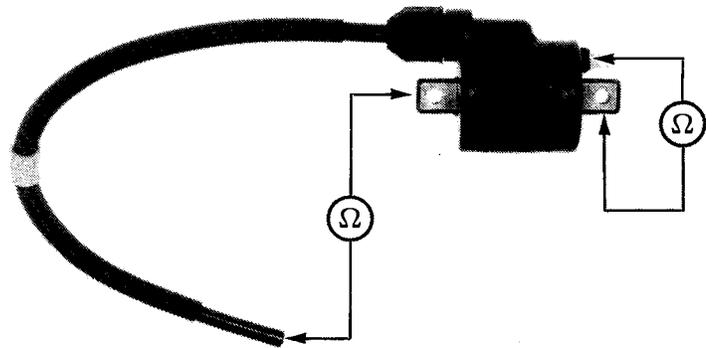
INSPECTION

Check the resistances between the leads of the primary and secondary coils:

- Primary coil : 0.2—0.4 Ω
- Second coil : 3.6—4.4 Ω

INSTALLATION

Install the ignition coil and connect the primary wire. Connect the spark plug cap.



A.C. GENERATOR

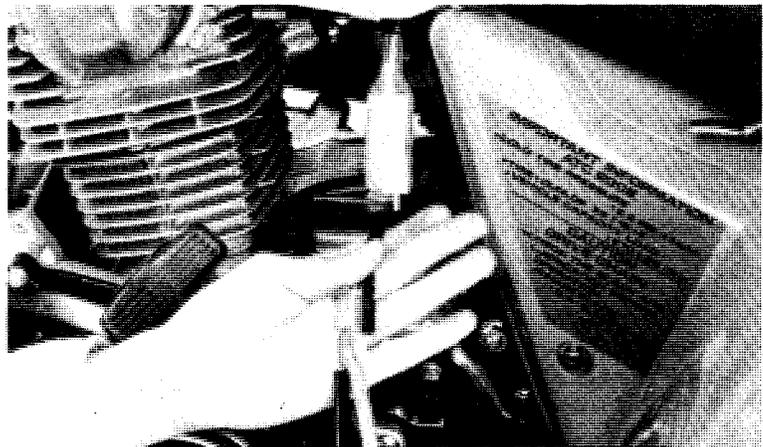
Disconnect the A.C. generator wire coupler and test as follows.

NOTE

It is not necessary to remove the starter coil to make this test.

CHARGE COIL

The charge coil is correct if there is continuity between the terminals in the coupler.

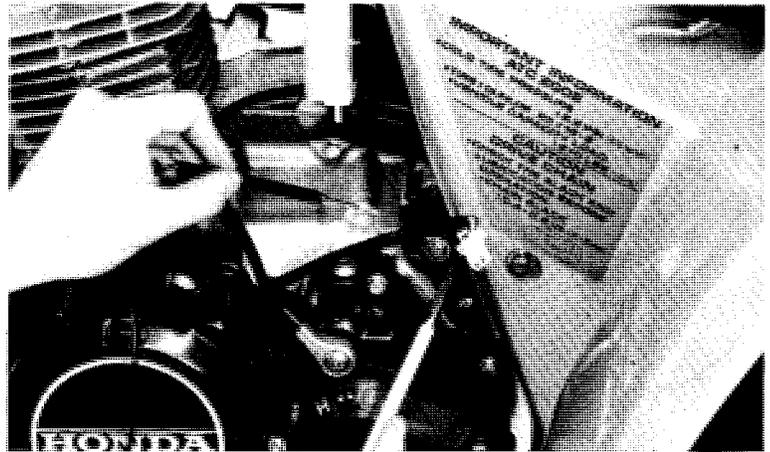




EXCITER COIL

The exciter coil is in operating condition if there is continuity between the black wire with red tube and ground.

RESISTANCE: 100—400 Ω



CDI UNIT

REMOVAL

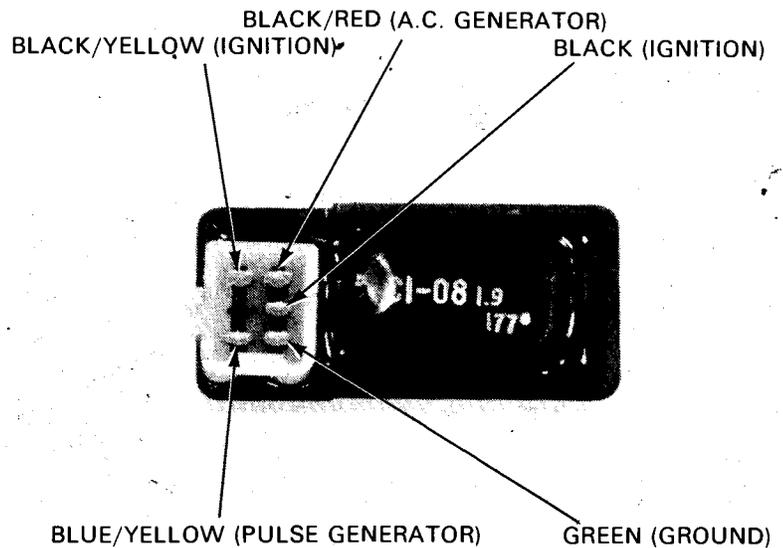
Disconnect the wire coupler and remove the CDI unit.

INSPECTION

Replace the CDI unit if the readings are not within the limits shown in the table.

NOTE

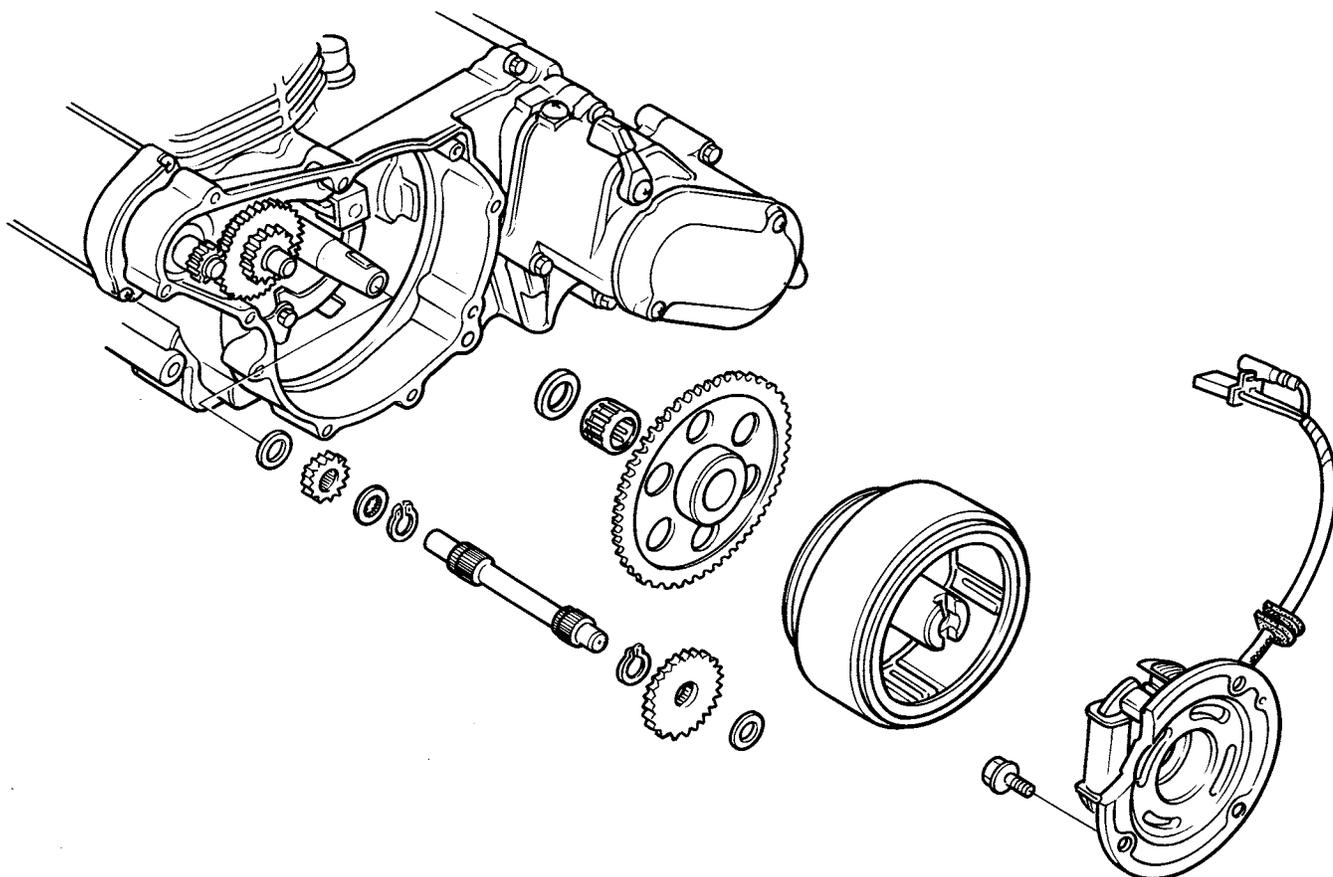
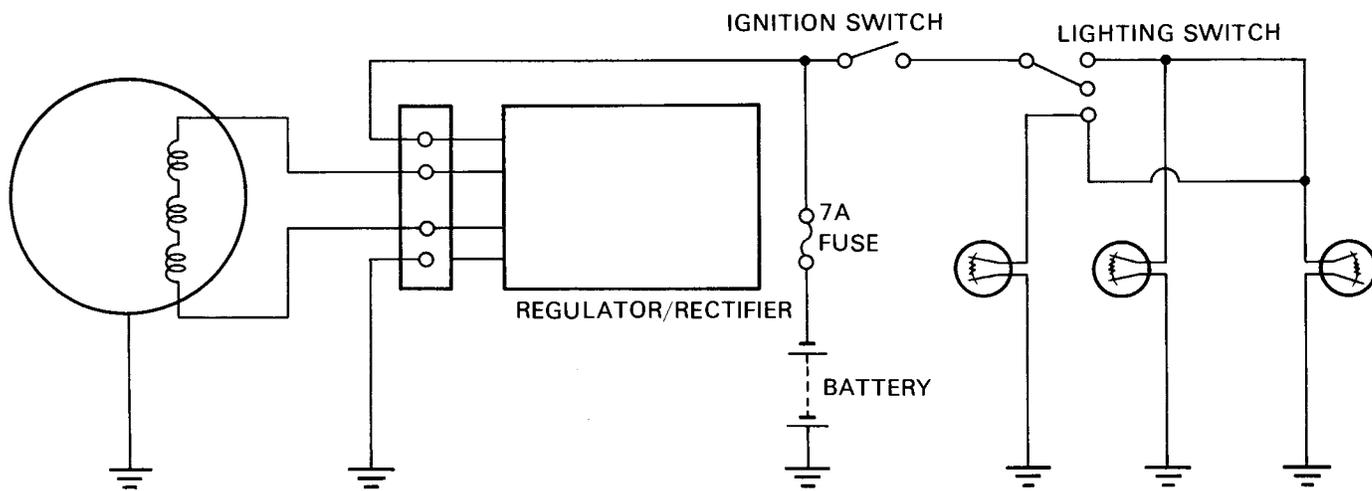
- The CDI unit is fully transistorized. For accurate testing, it is necessary to use a specified electrical tester. Use of an improper tester may give false readings.
- Use a SANWA ELECTRIC TESTER (P/N 7308-0020000) or a KOWA DIGITAL MULTI-METER (KS-AHM-32-003). U.S.A. only.



Set the tester on the R \times K Ω

Unit:K Ω

(-)	(+)	BLACK (D)	GREEN (B)	BLACK/RED	BLUE/YELLOW	BLACK/YELLOW
BLACK (D)			∞	∞	∞	∞
GREEN (B)		0.2-60		0.1-2.0	∞	∞
BLACK/RED		0.1-20	∞		∞	∞
BLUE/YELLOW		0.5-200	1-5	0.5-100		∞
BLACK/YELLOW		∞	∞	∞	∞	





SERVICE INFORMATION	16-1
TROUBLESHOOTING	16-2
BATTERY	16-3
CHARGING SYSTEM	16-4
A.C. GENERATOR REMOVAL/INSTALLATION	16-5

SERVICE INFORMATION

GENERAL

- Battery fluid level should be checked regularly. Fill with distilled water when necessary.
- Quick charge a battery, only in an emergency. Slow-charging is preferred.
- Remove the battery from the motorcycle for charging. If the battery must be charged on the motorcycle, disconnect the battery cables.

WARNING

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

- All charging system components can be tested on the motorcycle.

SPECIFICATIONS

Battery	Capacity	12V-14 ampere-hours
	Specific gravity	1,270-1,290 (20°C, 68°F)
	Charging rate	1.4 amperes maximum
A.C. generator	Capacity	NIGHT: 45 amperes minimum/5,000 rpm (14 volts)
Voltage regulator		Transistorized non-adjustable regulator

TORQUE VALUE

TOOL

Special

Fly wheel Puller

07933-200000 (Not available in U.S.A. use 07902-4220000)

Left crankshaft holder

07925-958000



TROUBLESHOOTING

No Power – Key Turned On:

1. Dead battery
 - Low fluid level.
 - Low specific gravity.
 - Charging system failure.
2. Disconnected battery cable.
3. Main fuse burned out.
4. Faulty ignition switch.

Low Power – Key Turned On:

1. Weak battery.
 - Low fluid level.
 - Low specific gravity.
 - Charging system failure.
2. Loose battery connection.

Low Power – Engine Running:

1. Battery undercharged.
 - Low fluid level.
 - One or more dead cells.
2. Charging system failure.
3. Loose connection or short circuit in lighting system.

Intermittent Power:

1. Loose battery connection.
2. Loose charging system connection.
3. Loose starting system connection.

Charging System Failure:

1. Loose, broken, or shorted wire or connection.
2. Faulty voltage regulator.
3. Faulty alternator.

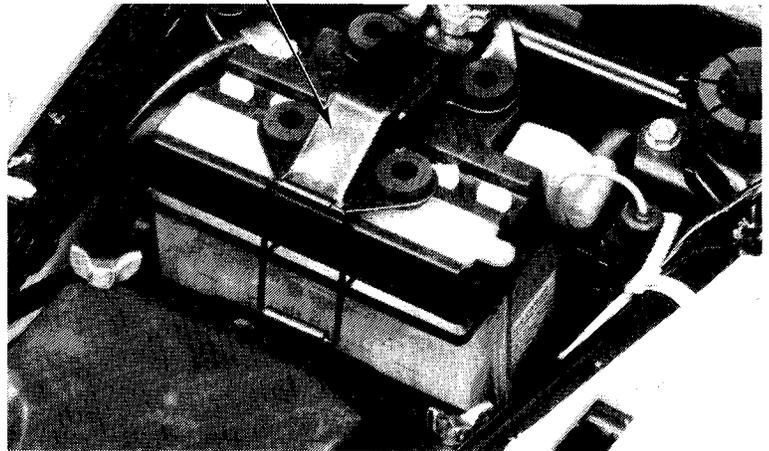


BATTERY

REMOVAL

- Remove the seat.
- Remove the battery holder.
- Disconnect the ground cable at the battery.
- Disconnect the positive cable at the battery.
- Remove the battery.

BATTERY HOLDER



TESTING SPECIFIC GRAVITY

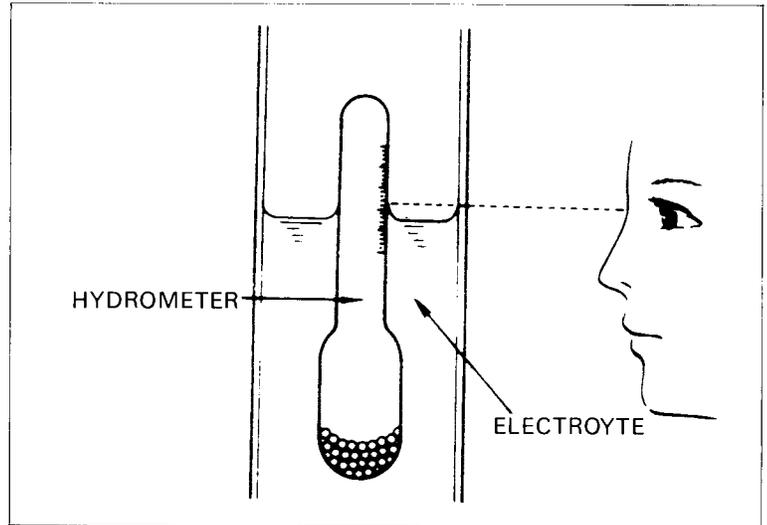
Test each cell with a hydrometer.

SPECIFIC GRAVITY: 1.270–1.290 (20°C, 68°F)

1.270–1.290	Fully charged
Below 1.260	Undercharged

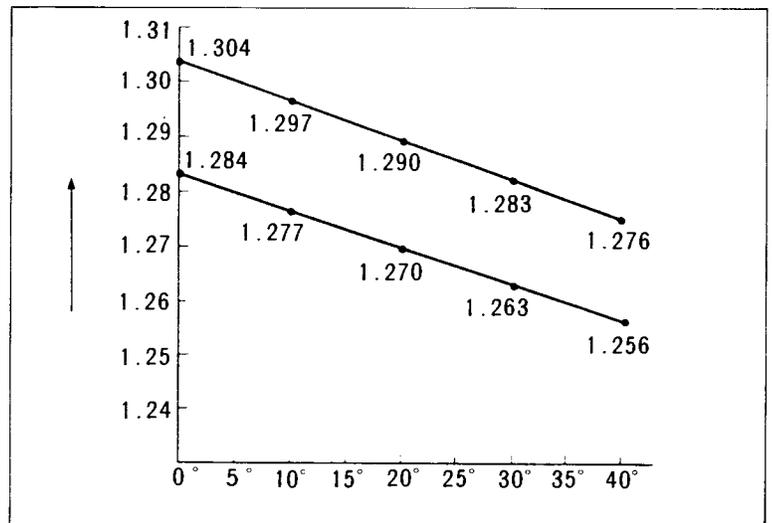
NOTE

- The battery must be recharged if the specific gravity is below 1.230.
- The specific gravity varies with the temperature as shown in the accompanying able.
- Replace the battery if sulfation is evident or if the space below the cell plates is filled with sediment.



WARNING

*The battery contains sulfuric acid. Avoid contact with skin, eyes, or clothing.
Antidote: Flush with water and get prompt medical attention.*





BATTERY/CHARGING SYSTEM

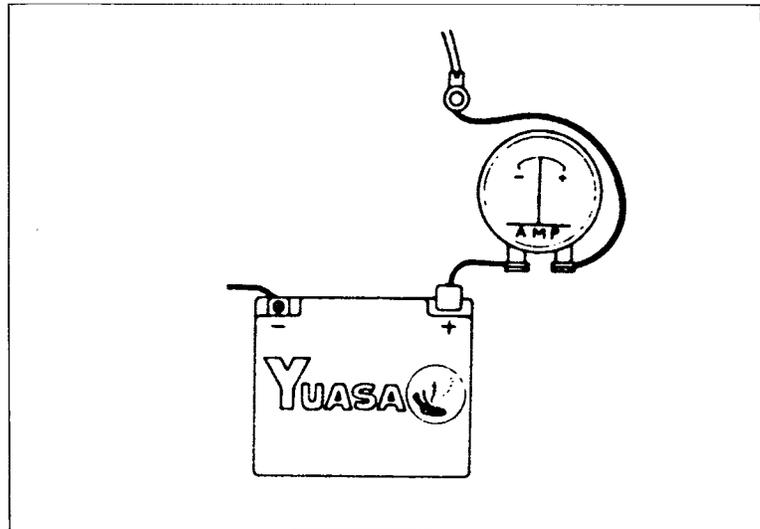
CHARGING

Connect the charger positive (+) cable to the battery positive (+) terminal.

Connect the charger negative (-) cable to the battery negative (-) terminal.

Charging current: 1.4 amperes max.

Charging: Charge the battery until specific gravity is 1.270–1.290 at 20°C (68°F).



WARNING

- Before charging a battery, remove the cap from each cell.
- Keep flames and sparks away from a charging battery.
- Turn power ON/OFF at the charger, not at the battery terminals.
- Discontinue charging if the electrolyte temperature exceeds 45°C (113°F).

CAUTION:

- Quick-charging should only be done in an emergency; slow-charging is preferred.
- Route the breather tube as shown on the battery caution label.

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

CHARGING SYSTEM

CHARGING OUTPUT TEST

NOTE

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

Warm up the engine before reading.

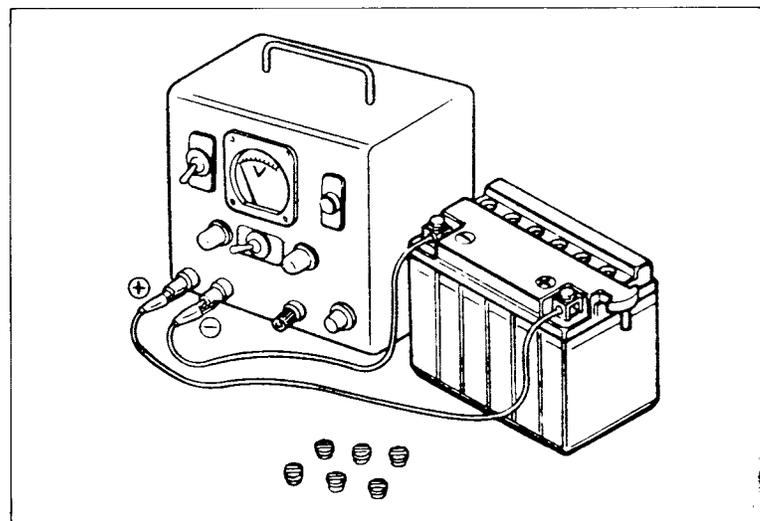
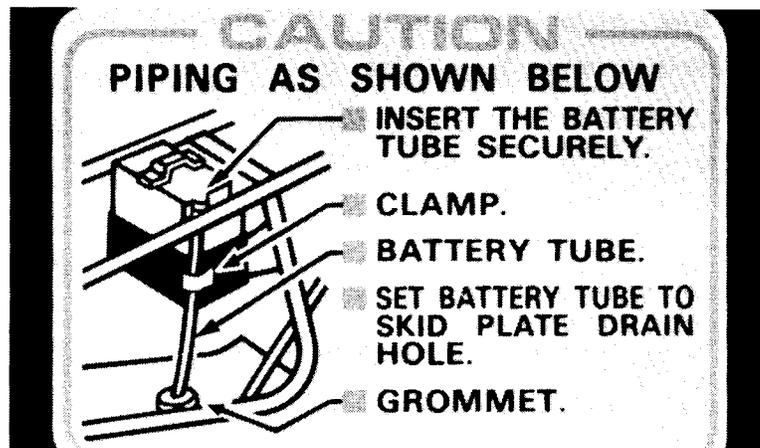
Remove the seat.

Disconnect the battery positive cable.

Connect a voltmeter and ammeter as shown.

Start the engine.

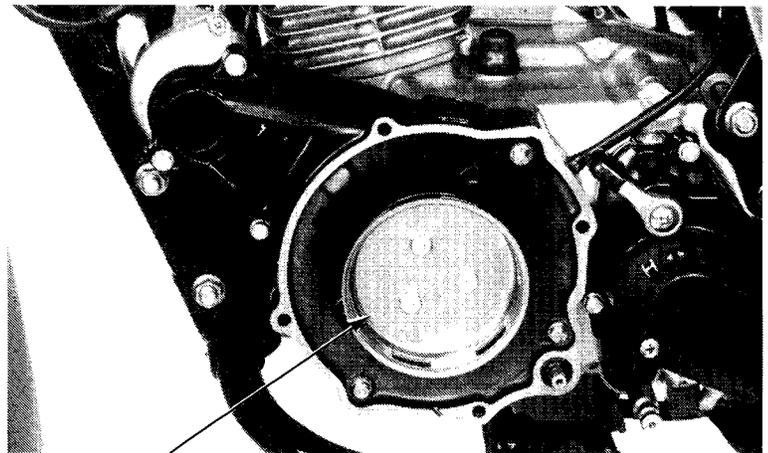
Turn the headlight high beam on.





A.C. GENERATOR REMOVAL

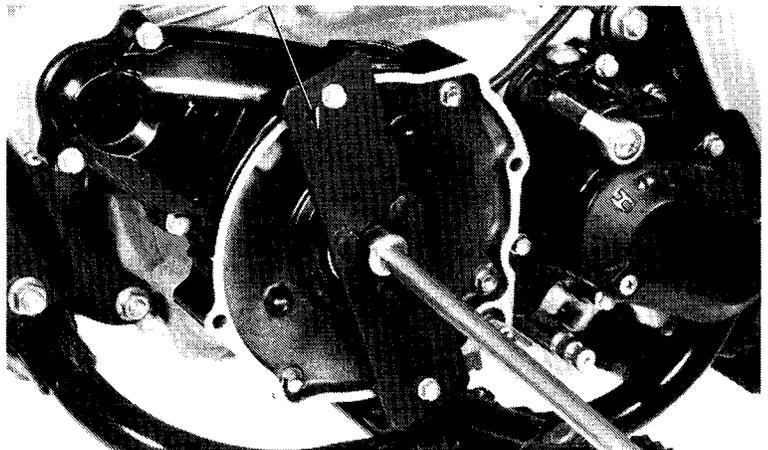
Drain the oil from the crankcase.
Remove the alternator coupler.
Remove the recoil starter (Page 13-3).



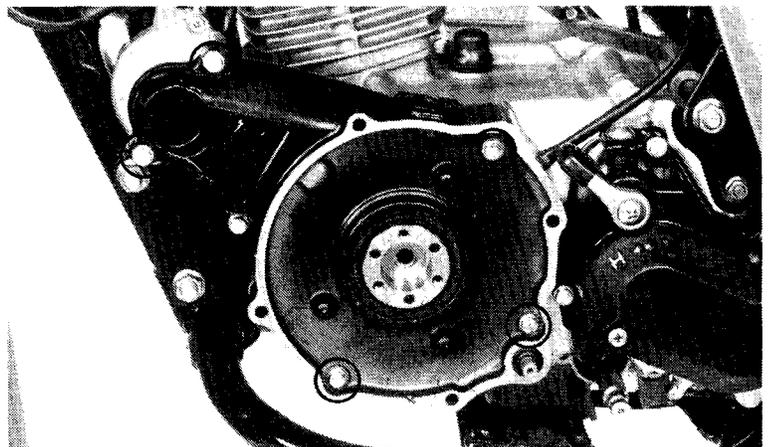
RECOIL PULLEY

Install the left crank holder to prevent the rotor from turning.
Remove the alternator rotor bolt with the Fly wheel puller.

LEFT CRANK HOLDER (Not available in U.S.A)



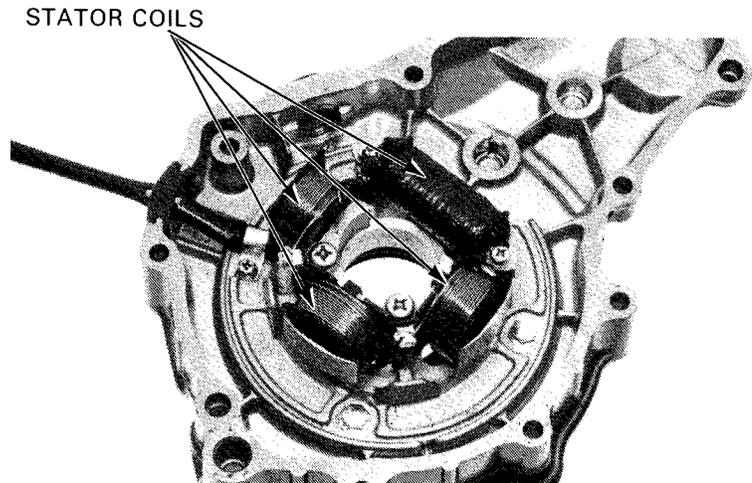
Remove the left crankcase cover.



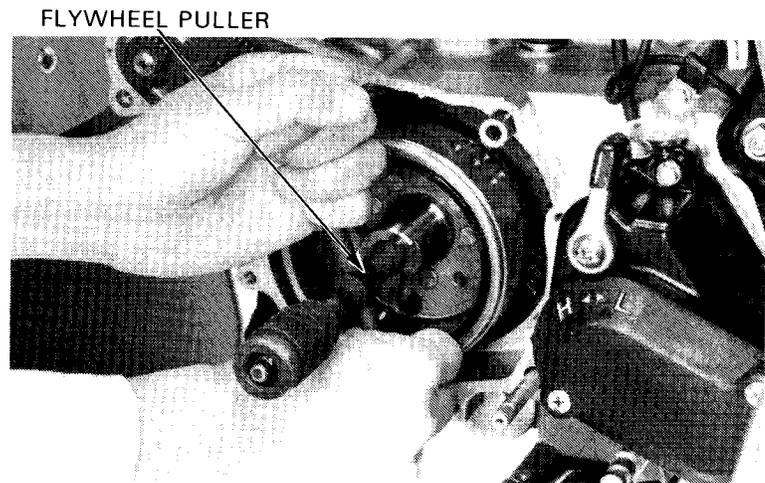


BATTERY/CHARGING SYSTEM

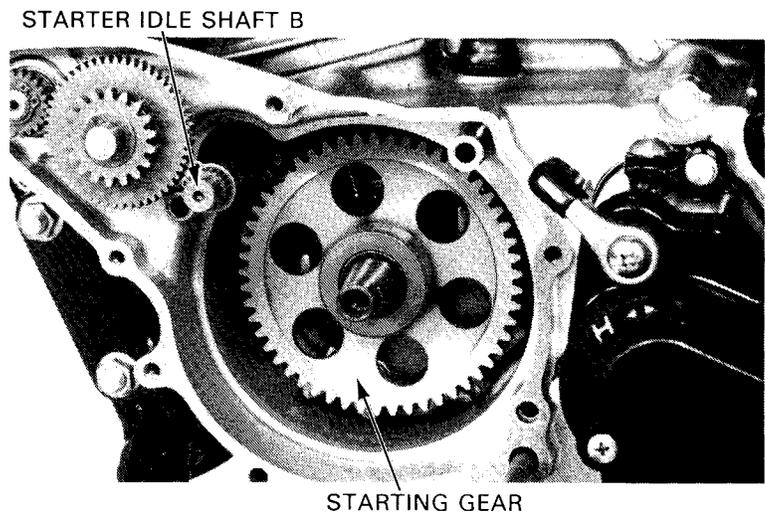
Remove the stator coils from the left crankcase cover.



Remove the flywheel with the puller.



Remove the thrust washer, starter idle B and cir clip.
Remove the starter driven gear and taper bearing.

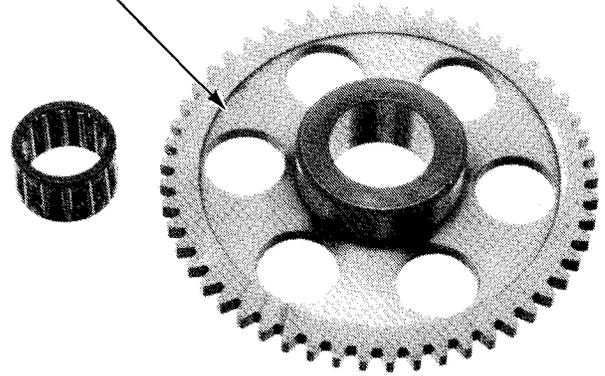




INSPECTION

Check the starter driven gear for wear and damage.
Check the taper bearings for damage and replace if necessary.

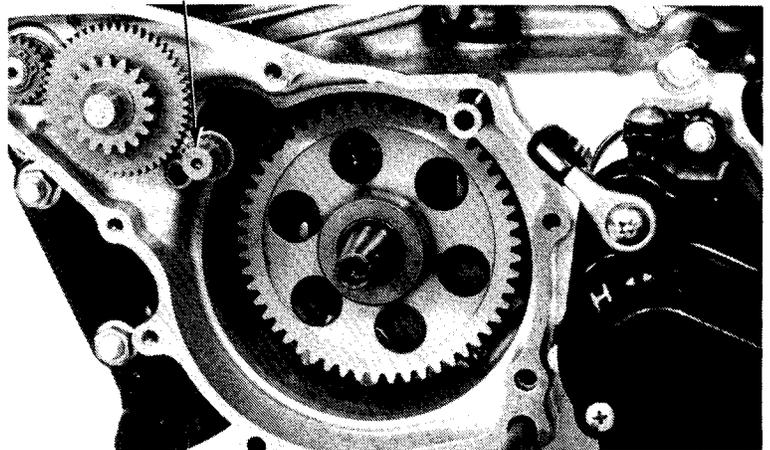
STARTING DRIVEN GEAR



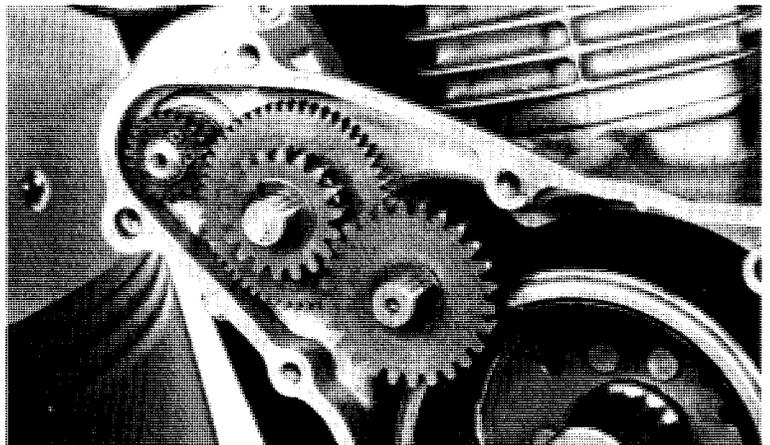
A.C. GENERATOR INSTALLATION

Install the starter idle shaft B with the circlip, thrust spline plate, idle gear C and washer.

CIR CLIP



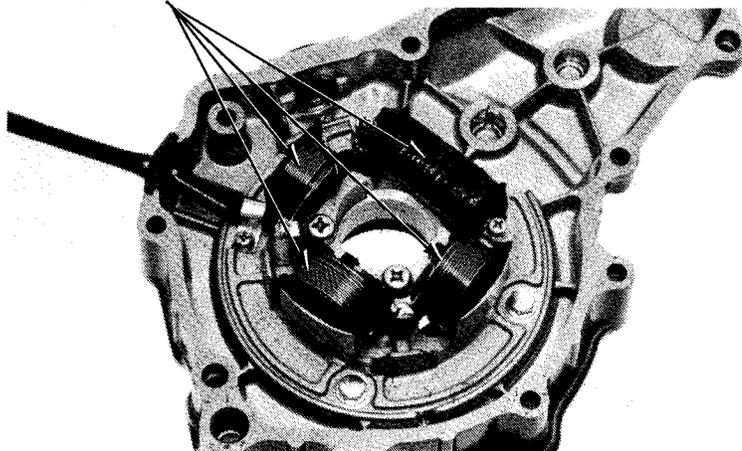
Install the taper bearing and starter driven gear.
Install the alternator rotor.





Install the starter coil onto the left crankcase cover as shown.

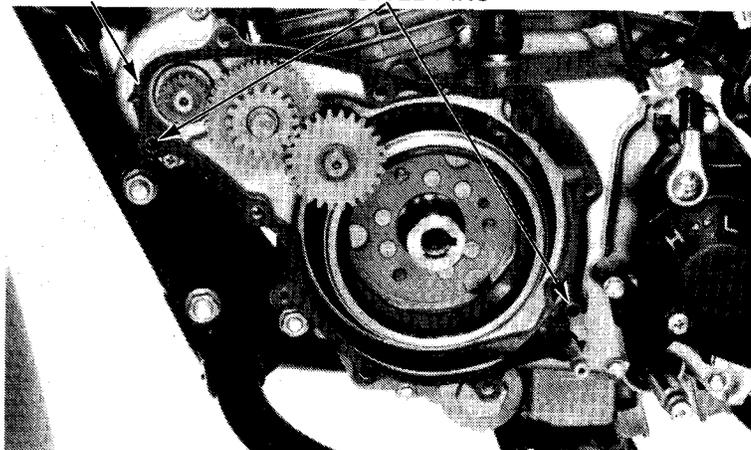
STATOR COILS



Install the dowel pins and gasket.
Install the left crankcase cover.

GASKET

DOWEL PINS



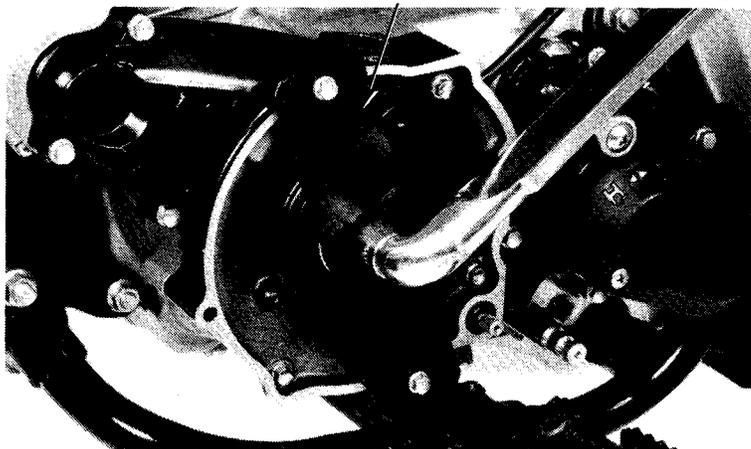
Install the left crank holder to prevent the rotor from moving.
Install the alternator bolt and tighten it.

TORQUE:

40–50 N·m (4.0–5.0 kg-m, 29–36 ft-lb)

Install the recoil starter.

LEFT CRANK HOLDER (Not available in U.S.A)





SERVICE INFORMATION	17-1
TROUBLESHOOTING	17-1
STARTER MOTOR REMOVAL	17-2
STARTER MOTOR INSTALLATION	17-5

SERVICE INFORMATION

GENERAL

- The starter motor can be removed with the engine in the frame.

SPECIFICATIONS

		STANDARD	SERVICE LIMIT
Starter motor	Brush spring tension	0.560–0.680 kg (1.23–1.50 lb)	0.450 (1.0 lb)
	Brush length	12–13 mm (0.47–0.51 in)	5 mm (0.20 in)

TROUBLESHOOTING

Starter Motor Will Not Turn

1. Dead battery.
2. Faulty ignition switch.
3. Faulty starter switch.
4. Faulty neutral switch.
5. Faulty starter relay switch.
6. Loose or disconnected wire or cable.
7. Neutral diode open.
8. Faulty clutch switch.

Starter Motor Turns Engine Slowly

1. Low battery.
2. Excessive resistance in circuit.
3. Binding in starter motor.

Starter Motor Turns, But Engine Does Not Turn

1. Faulty starter clutch.
2. Faulty starter motor gears.
3. Faulty starter motor or idle gear.

Starter Motor and Engine Turn, But Engine Does Not Start

1. Faulty ignition system.
2. Engine problems.
3. Faulty engine stop switch.

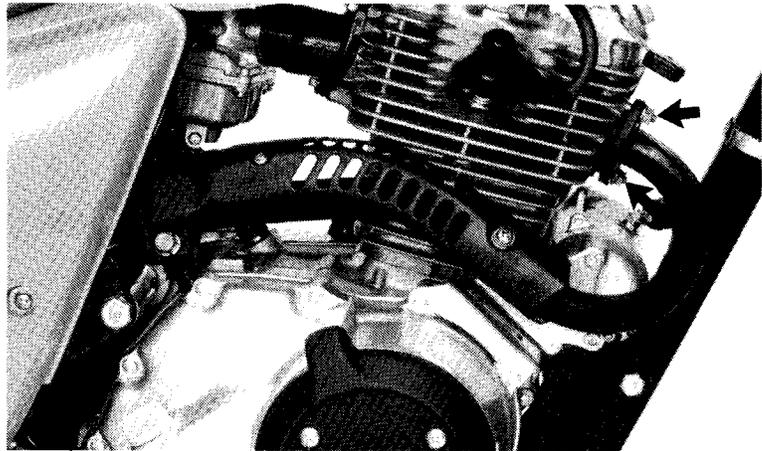


REMOVAL

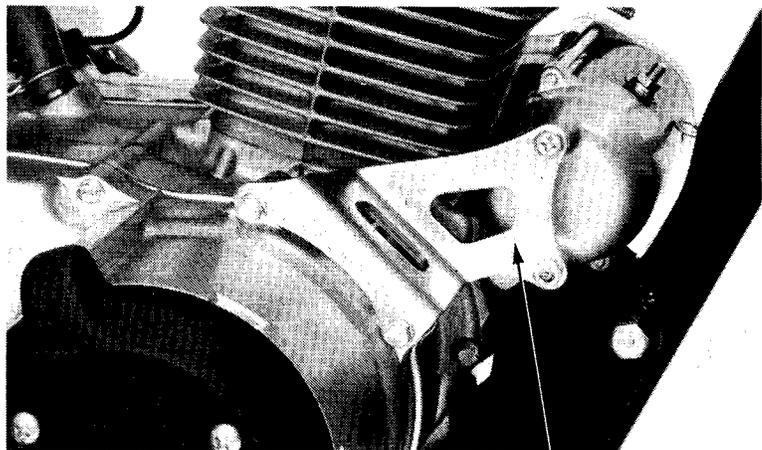
WARNING

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

Remove the exhaust pipe.
Disconnect the starter cable.

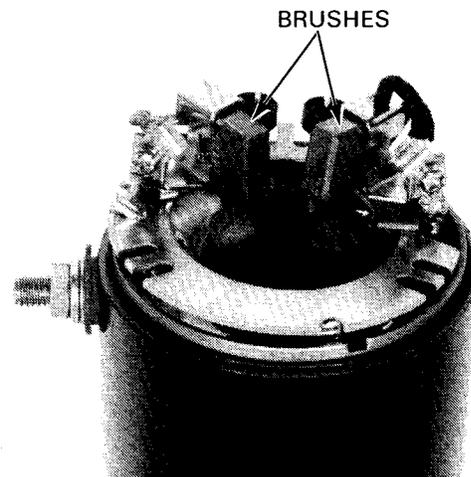


Remove the two bolts attaching the starter motor bracket to the right crankcase cover.
Remove the starter motor mounting screws.
Remove the starter motor.



STARTER MOTOR BRACKET

Loosen the brush terminal screws and remove the brushes from the holder plate.

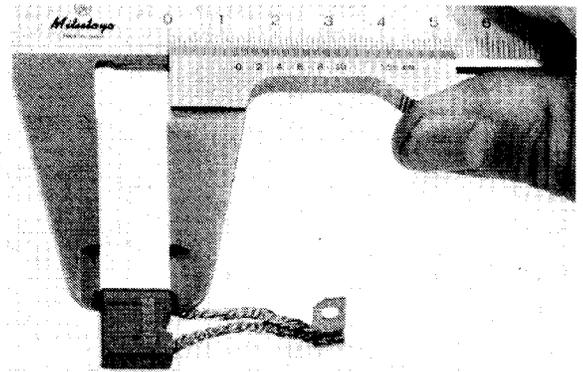




INSPECTION

Measure the length of the carbon brushes.

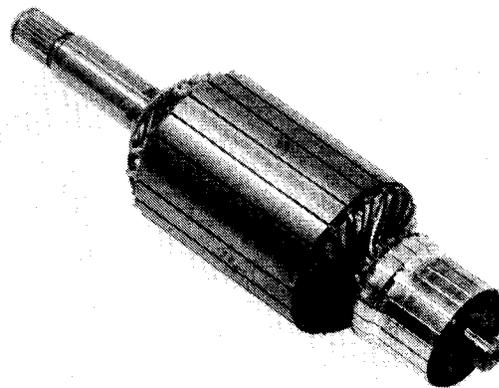
SERVICE LIMIT: 5.0 mm (0.20 in)



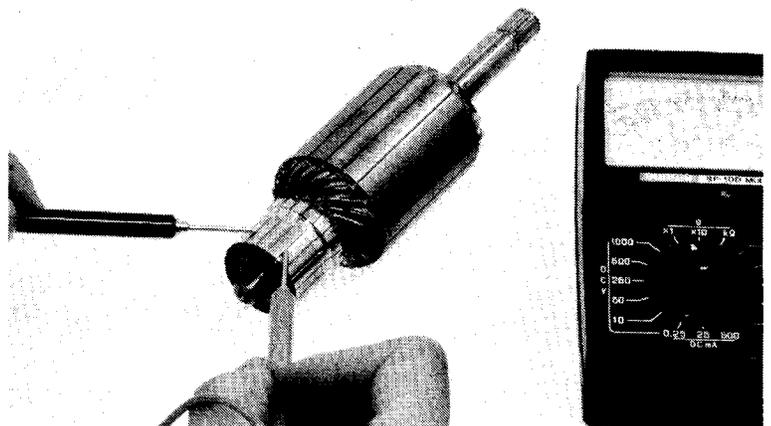
Inspect the commutator bars for discoloration. If two or more bars are discolored, replace the commutator.

NOTE

Do not use emery or sand paper on the commutator.

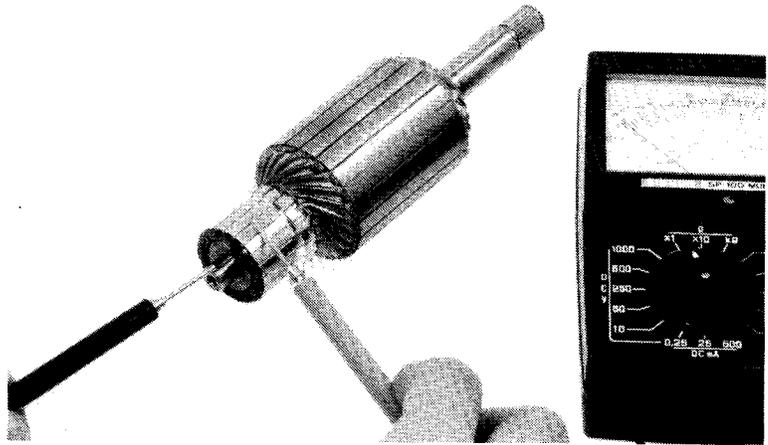


There should be continuity between the separate commutators.





There may be no continuity between commutators and the shaft.



Check for continuity from the cable terminal to the motor case and from the cable terminal to the brush wire.

Cable terminal to motor case: No continuity
Cable terminal to brush wire: Continuity





INSTALLATION

Install the starter motor.
Install the starter bracket.

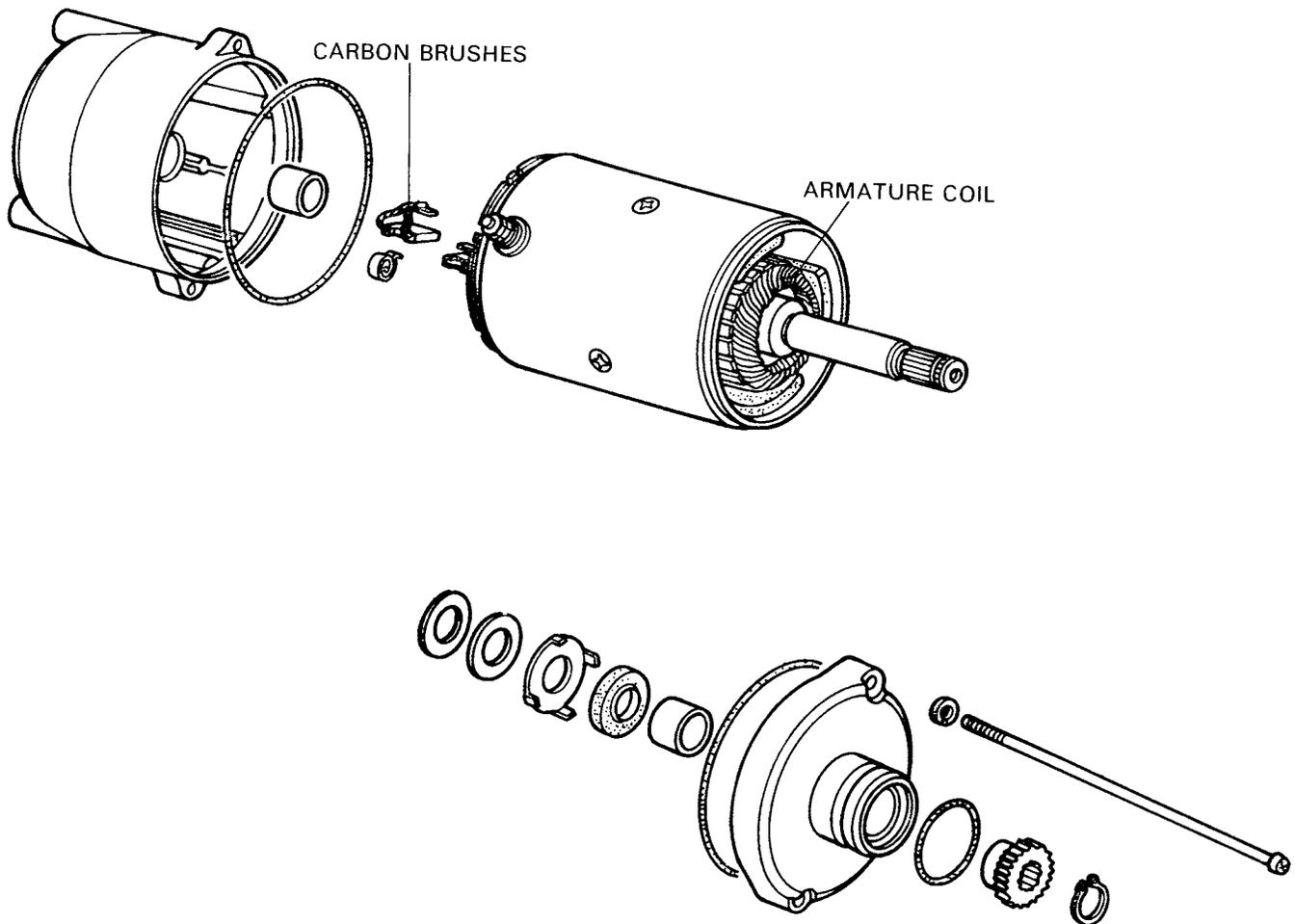
TORQUE:

8–12 N·m (0.8–1.2 kg-m, 5.8–8.7 ft-lb)

Install the mounting screws and connect the starter cable.

Install the left crankcase cover and the recoil starter.

Connect the battery.





HONDA
ATC200E

MEMO



SERVICE INFORMATION	18-1
TROUBLESHOOTING	18-1
HEADLIGHT	18-2
TAILLIGHT	18-2
LIGHT/DIMMER SWITCH	18-3
ENGINE STOP SWITCH	18-3
IGNITION SWITCH	18-4
STARTER SWITCH	18-4

SERVICE INFORMATION

GENERAL

A continuity check can usually be made without removing the part from the ATC by simply disconnecting the wires and connecting a continuity tester or voltmeter to the terminals.

SPECIFICATIONS

Headlight	12V 45/45W
Taillight	12V 5W

TROUBLESHOOTING

Light does not come on when light switch is turned on (Engine is running)

1. Bulb burned out.
2. Faulty switch.
3. Wiring to that component has open circuit.

Headlight beams do not shift when hi-lo switch is operated

1. Faulty dimmer switch.
2. Bulb burned out.
3. Wiring to that component has open circuit.



HEADLIGHT

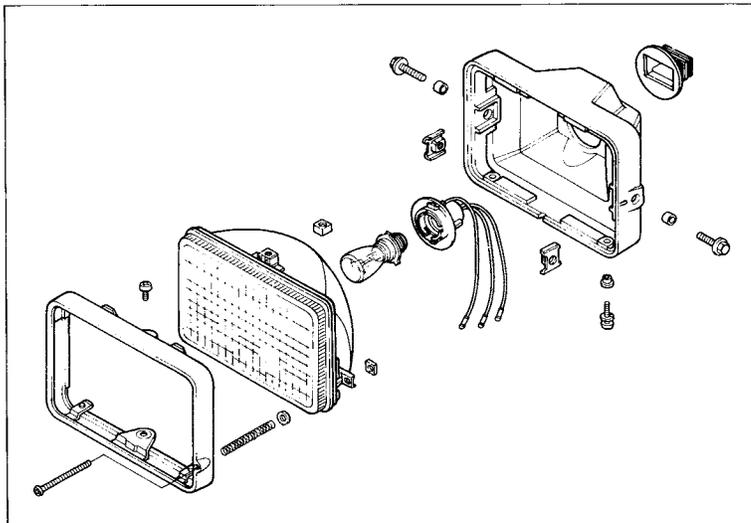
HEADLIGHT DISASSEMBLY

Remove the headlight mounting screws and disconnect the wires.

Remove and disassemble the headlight.

HEADLIGHT ASSEMBLY

Assemble the headlight in the reverse order of disassembly.



TAIL LIGHT

TAIL LIGHT DISASSEMBLY

Pull the carrier box lid up.

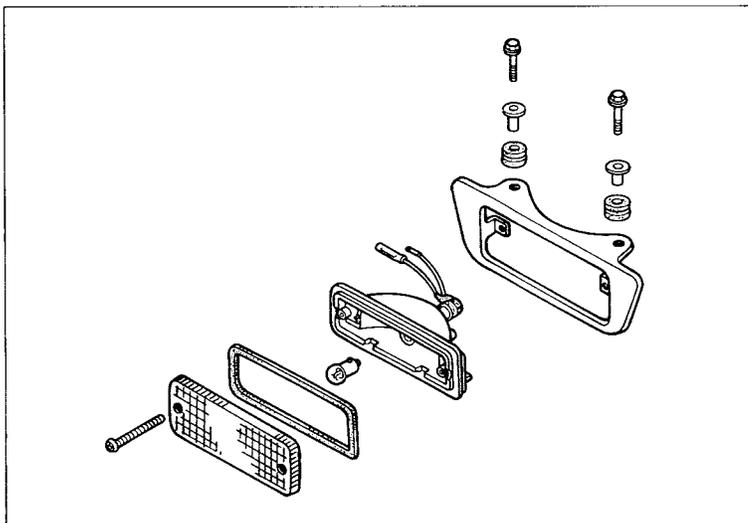
Remove the bolt and tail light with the bracket.

Remove the lens screws.

Remove the tail light bulb.

TAIL LIGHT ASSEMBLY

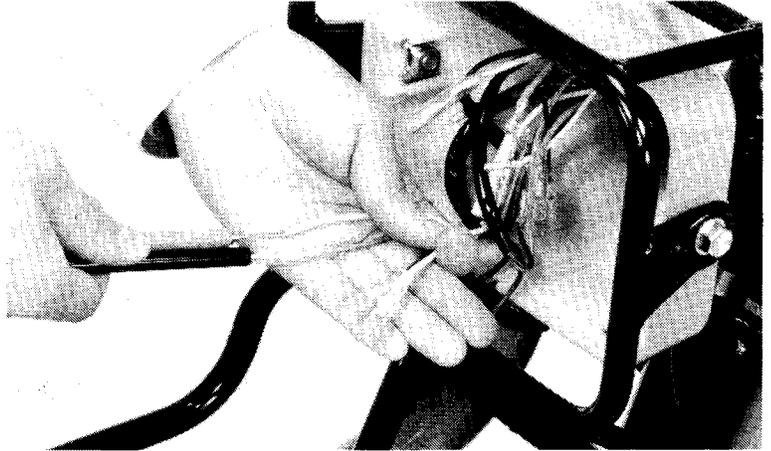
Assemble the tail light in the reverse order of disassembly.





LIGHT/DIMMER SWITCH

Remove the headlight (Page 18-2).
Check the switch for continuity between the terminals shown in the table for each switch position.



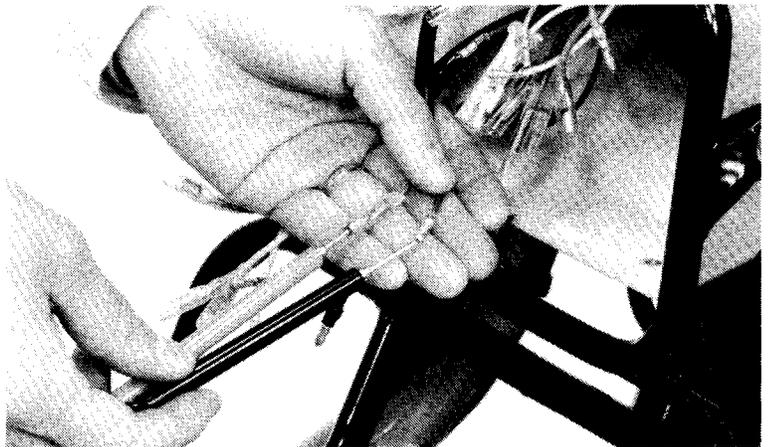
LIGHT SWITCH	BROWN	YELLOW	WHITE	BLUE
OFF				
LOW	○	○	○	
(N)	○	○	○	○
HIGH	○	○		○

The switch is normal if there is continuity between the circuits marked "O-O".

ENGINE STOP SWITCH

Remove the headlight (Page. 18-2).
Check the switch for continuity between the Black and Green terminals with the switch "OFF".
The switch is normal if there is continuity between the terminals.

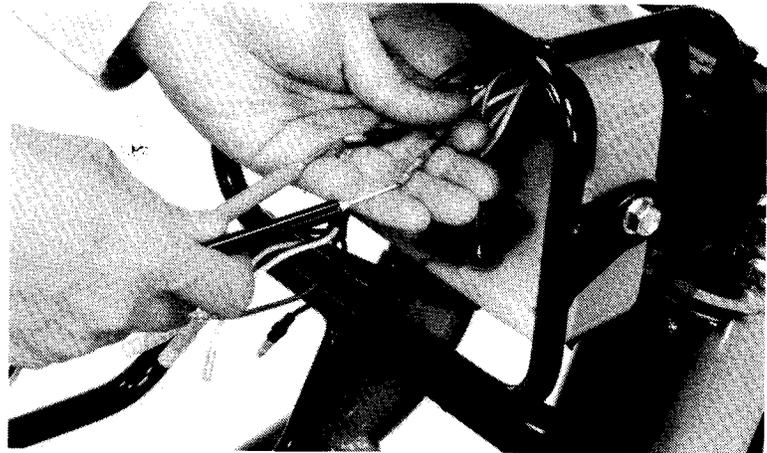
	BLACK	GREEN
OFF	○	○
RUN		





IGNITION SWITCH

Remove the headlight (Page. 18-2).
Check the switch for continuity between the Black and green wires with the switch "OFF", or red and yellow/red with the switch "ON".

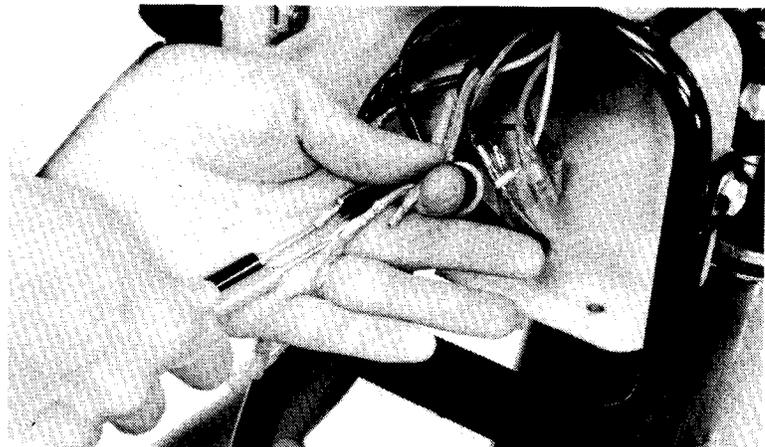


	IG	E	BAT	HO
OFF	○	○		
ON			○	○
COLOR	BI	G	R	Y/R

STARTER SWITCH

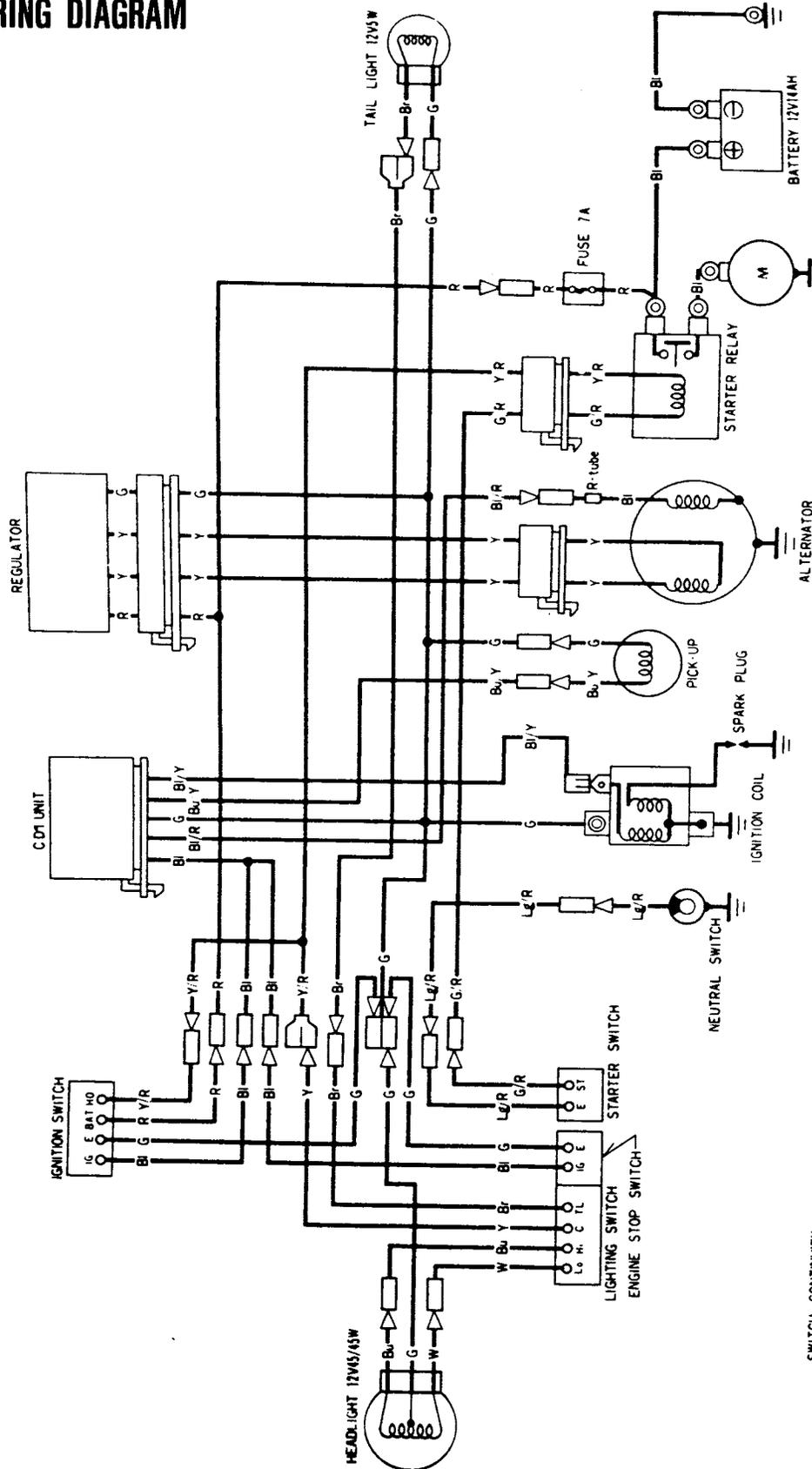
Remove the headlight (Page. 18-2).
Check the switch for continuity between the green/red and light green/red wires while pushing the starter button.

	ST	E
RELEASED		
PUSHED	○	○
COLOR	G/R	Lg/R





WIRING DIAGRAM



STARTING MOTOR

BI	BLACK	Br	BROWN
Y	YELLOW	O	ORANGE
Bu	BLUE	Lb	LIGHT BLUE
G	GREEN	Lg	LIGHT GREEN
R	RED	P	PINK
W	WHITE	Gr	GRAY

STARTER SWITCH

ST	E		
FREE			
PUSH			
COLOR	G	R	Lg/R

ENGINE STOP SWITCH

IG	E		
OFF			
RUN			
COLOR	BI		G

LIGHTING SWITCH

TL	C	Lc	Hl	
OFF				
Lo				
(N)				
Hi				
COLOR	Br	Y	W	Bu

IGNITION SWITCH

IG	E	BAT	HO	
OFF				
ON				
COLOR	BI	G	R	Y/R

SWITCH CONTINUITY

0030Z-958-6800

19. TROUBLESHOOTING



HONDA
ATC200E

ENGINE DOES NOT START OR IS HARD TO START	19-0
ENGINE LACKS POWER	19-1
POOR PERFORMANCE AT LOW AND IDLE SPEEDS	19-2
POOR PERFORMANCE AT HIGH SPEEDS	19-3
POOR HANDLING	19-3

ENGINE DOES NOT START OR IS HARD TO START

Probable Cause

1. Check if fuel is getting to carburetor.

NOT GETTING TO CARBURETOR

- (1) No fuel in fuel tank.
- (2) Clogged fuel tube or fuel filter.
- (3) Clogged float valve.
- (4) Clogged fuel tank cap breather tube.

GETTING TO CARBURETOR

2. Try spark test.

WEAK OR NO SPARK

- (1) Faulty spark plug.
- (2) Fouled spark plug.
- (3) Faulty CDI unit.
- (4) Broken or shorted high tension wire.
- (5) Faulty A.C. generator.
- (6) Broken or shorted ignition coil.
- (7) Faulty pulse generator.
- (8) Poorly connected, broken or shorted wires.
- (9) Pulse generator rotor gap incorrect.
- (10) Faulty ignition switch

GOOD SPARK

3. Test cylinder compression.

LOW COMPRESSION

- (1) Low battery charge.
- (2) Valve clearance too small.
- (3) Valve stuck open.
- (4) Worn cylinder and piston rings.
- (5) Damaged cylinder head gasket.
- (6) Seized valve.
- (7) Improper valve timing.

COMPRESSION NORMAL

4. Start by following normal starting procedure.

ENGINE FIRES BUT SOON STOPS

- (1) Choke excessively open.
- (2) Carburetor pilot screw excessively closed.
- (3) Air leaking past carburetor insulator.
- (4) Improper ignition timing (CDI unit or pulse generator faulty).

ENGINE DOES NOT FIRE

5. Remove spark plug.

WET PLUG

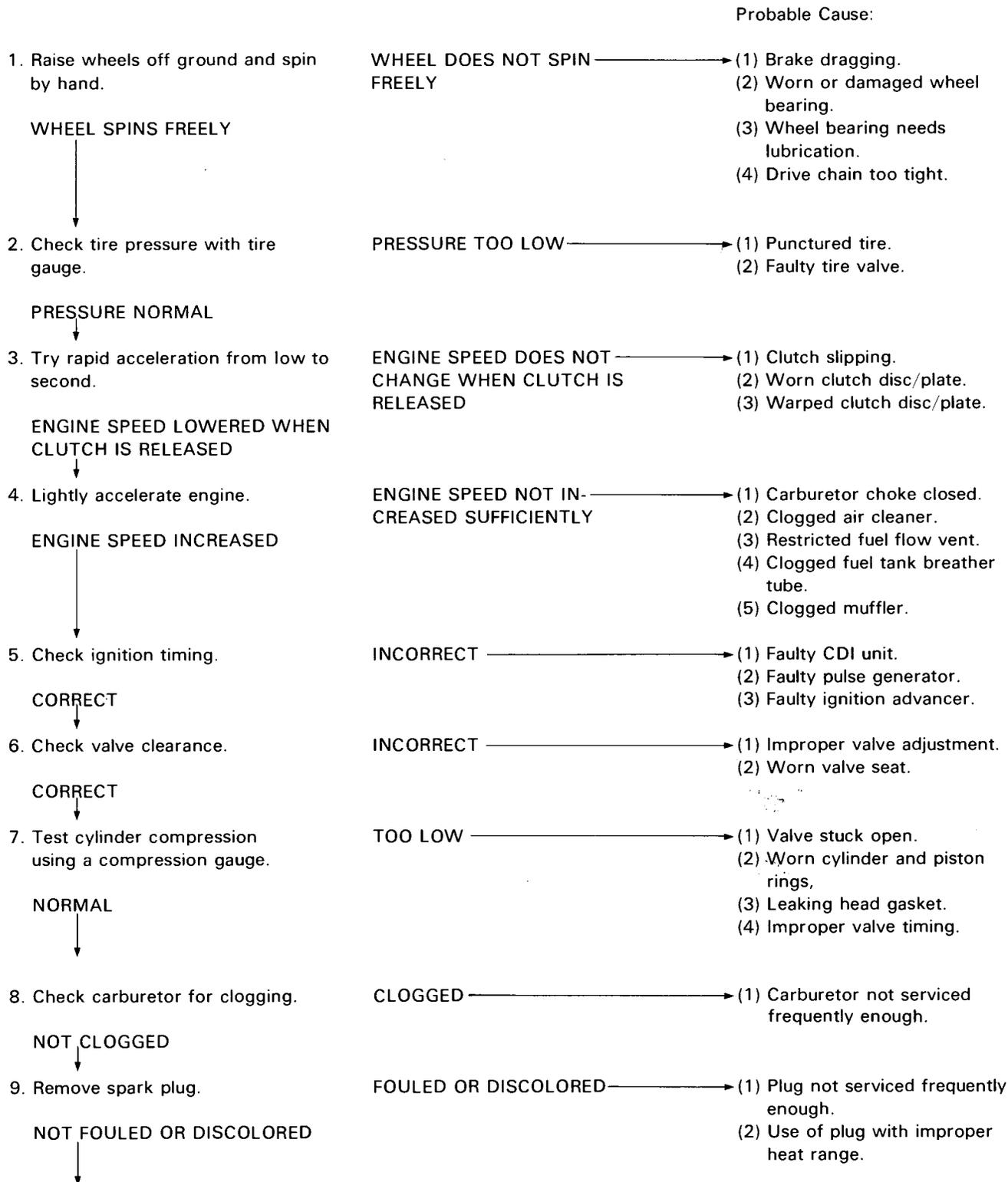
- (1) Carburetor flooded.
- (2) Carburetor choke excessively closed.
- (3) Throttle valve excessively open.
- (4) Air cleaner dirty.

DRY

6. Start with choke applied.



ENGINE LACKS POWER





10. Remove oil level gauge and check oil level.

CORRECT



11. Remove cylinder head cover and inspect lubrication.

VALVE TRAIN LUBRICATED PROPERLY



12. Check if engine overheats.

NOT OVERHEATED



13. Accelerate or run at high speed.

ENGINE DOES NOT KNOCK

OIL LEVEL INCORRECT



- (1) Oil level too high.
- (2) Oil level too low.
- (3) Contaminated oil.

VALVE TRAIN NOT LUBRICATED PROPERLY



- (1) Clogged oil passage.
- (2) Clogged oil control orifice.

OVERHEATED



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

ENGINE KNOCKS



- (1) Worn piston and cylinder.
- (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 (Faulty CDI unit or advancer).

POOR PERFORMANCE AT LOW AND IDLE SPEEDS

Probable Cause:

1. Check ignition timing and valve clearance.

CORRECT



2. Check carburetor pilot screw adjustment.

CORRECT



3. Check if air is leaking past carburetor insulator.

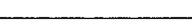
NOT LEAKING



4. Try spark test.

GOOD SPARK

INCORRECT



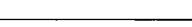
- (1) Improper valve clearance.
- (2) Improper ignition timing (Faulty CDI unit or spark advancer).

INCORRECT



- (1) Fuel-air mixture too lean.
- (2) Fuel-air mixture too rich.

LEAKING



- (1) Deteriorated insulator O-ring.
- (2) Loose carburetor.

WEAK OR INTERMITTENT SPARK



- (1) Faulty, carbon or wet fouled spark plug.
- (2) Faulty CDI unit.
- (3) A.C. generator faulty.
- (4) Faulty ignition coil.
- (5) Faulty pulse advancer.



POOR PERFORMANCE AT HIGH SPEEDS

Probable Cause:

- | | | |
|-------------------------------------------------------------------------------------------------------------|-------------------------------|----------------------------------------------------------------------------------------------------------------------------------|
| <p>1. Check ignition timing and valve clearance.</p> <p style="text-align: center;">CORRECT
↓</p> | <p>INCORRECT →</p> | <p>(1) Improper valve clearance.
(2) Faulty CDI unit.
(3) Faulty pulse generator.
(4) Faulty advancer.</p> |
| <p>2. Disconnect fuel tube at carburetor.</p> <p style="text-align: center;">FUEL FLOWS FREELY
↓</p> | <p>FUEL FLOW RESTRICTED →</p> | <p>(1) Lack of fuel in tank.
(2) Clogged fuel line.
(3) Clogged fuel tank breather tube.
(4) Clogged fuel valve.</p> |
| <p>3. Remove carburetor and check for clogged jet.</p> <p style="text-align: center;">NOT CLOGGED
↓</p> | <p>CLOGGED →</p> | <p>Clean.</p> |
| <p>4. Check valve timing.</p> <p style="text-align: center;">CORRECT
↓</p> | <p>INCORRECT →</p> | <p>Cam sprocket not installed properly.</p> |
| <p>5. Check valve spring tension.</p> <p style="text-align: center;">NOT WEAKENED</p> | <p>WEAK →</p> | <p>Faulty spring.</p> |

POOR HANDLING

Check tire pressure

Probable Cause:

- | | | |
|-----------------------------------------------|----------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>1. If steering is heavy.</p> | <p>→</p> | <p>(1) Steering head adjuster too tight.
(2) Damaged steering cones or steel balls.</p> |
| <p>2. If either wheel is wobbling.</p> | <p>→</p> | <p>(1) Excessive wheel bearing play.
(2) Bent rim.
(3) Improperly installed wheel hub.
(4) Distorted frame.
(5) Improper drive chain tension or adjustment.</p> |
| <p>3. If the motorcycle pulls to one side</p> | <p>→</p> | <p>(1) Misaligned shock absorber.
(2) Front and rear wheels not aligned.
(3) Bent front fork.</p> |



HONDA
ATC200E

MEMO



INTRODUCTION

This Honda Shop Manual Addendum contains Service information for the 1983 ATC 200E.

Refer to the base Shop Manual for service procedures and data not included in this addendum.

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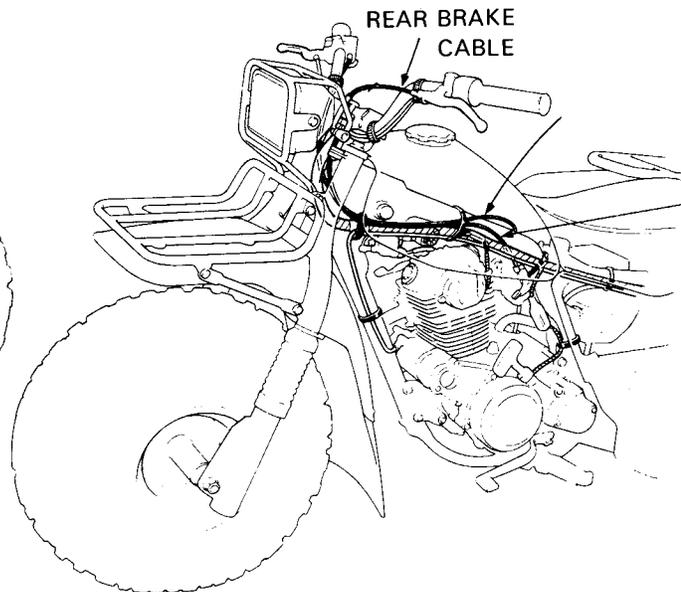
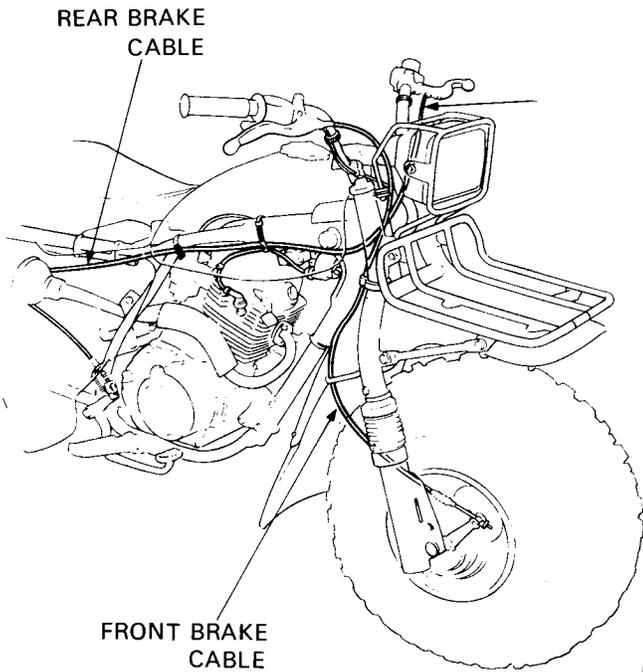
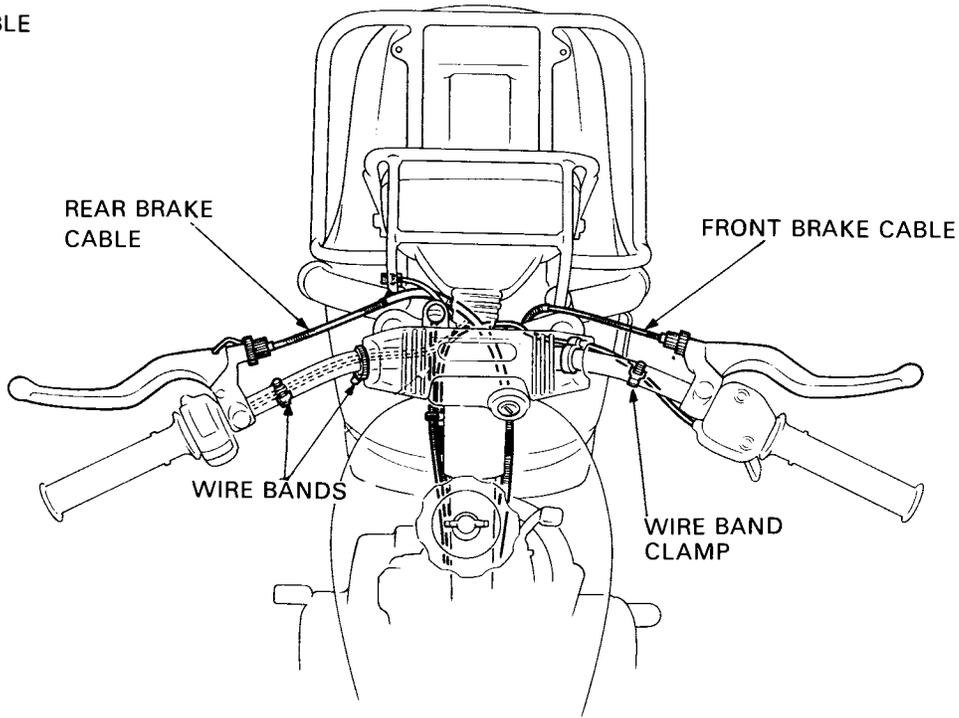
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GENERAL INFORMATION

REAR BRAKE CABLE





HONDA

ATC200E

Maintenance Schedule

Perform the PRE-RIDE INSPECTION in the Owner's Manual at each scheduled maintenance period.

REGULAR MAINTENANCE SCHEDULE

I : Inspect, Clean, Adjust, Lubricate or Replace if Necessary.

C : Clean

R : Replace

A : Adjust

L : Lubricate

			INITIAL SERVICE PERIOD (First week of operation)	REGULAR SERVICE PERIOD (Every 30 operating days)
	ENGINE OIL	NOTE 1, 2	R	R
*	ENGINE OIL FILTER SCREEN		C	C
*	ENGINE OIL FILTER ROTOR			C
	AIR CLEANER ELEMENT	NOTE 2		I
	SPARK PLUG			I
	BATTERY		I	I
*	VALVE CLEARANCE		I	I
*	CAM CHAIN TENSIONER		A	A
*	CARBURETOR		I	I
	FUEL LINE		I : (EVERY YEAR)	
*	FUEL STRAINER		C : (EVERY YEAR)	
	THROTTLE OPERATION		I	I
	DRIVE CHAIN		I	I
*	BRAKE SHOES		I : (EVERY YEAR)	
	BRAKE CONTROL LINKAGE		I	I
*	CLUTCH		A	A
*	SPARK ARRESTER			C
	ALL NUTS, BOLTS, FASTENERS		I	I
	LIGHTING EQUIPMENT		I	I
	TIRES		I	I
*	STEERING HEAD BEARING		A : (EVERY YEAR)	

NOTES : 1. Replace every 30 operating days or every 3 months, whichever occurs first.

2. Service more frequently when riding in dusty areas.



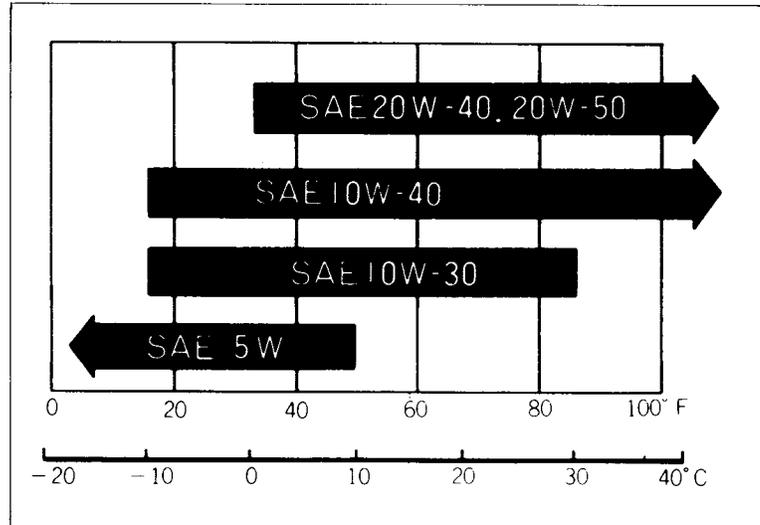
2. LUBRICATION

Engine oil Viscosity :

Use Honda 4-stroke oil or equivalent.

Viscosity : 10 W-40 SAE SE or SF.

Other viscosities shown in the chart may be used for the temperature ranges indicated.



3. 12 V DC POWER SUPPLY

GENERAL

- The direct current receptacle is equipped to provide 12V DC power at a maximum of 60 watts (5 Amps).
- Accessories may be connected to the receptacle by using the plug that is located on the left side of the headlight.

WARNING

- Never use a fuse with a different rating than specified. Serious damage to the electrical system or a fire could result.

CAUTION :

- Do not reverse positive and negative accessory leads when attaching them to the plug.
- The switch of the accessory and the ignition switch of ATC should be OFF when the accessory is being plugged in.
- Do not use AC powered accessories.
- Keep electrical leads insulated and away from hot engine parts and sharp edges.

TROUBLESHOOTING

No DC power.

1. Check plug connection.
2. Blown fuse.
3. Check battery condition.
4. Loose or broken wire/connections.
5. Check ignition switch.



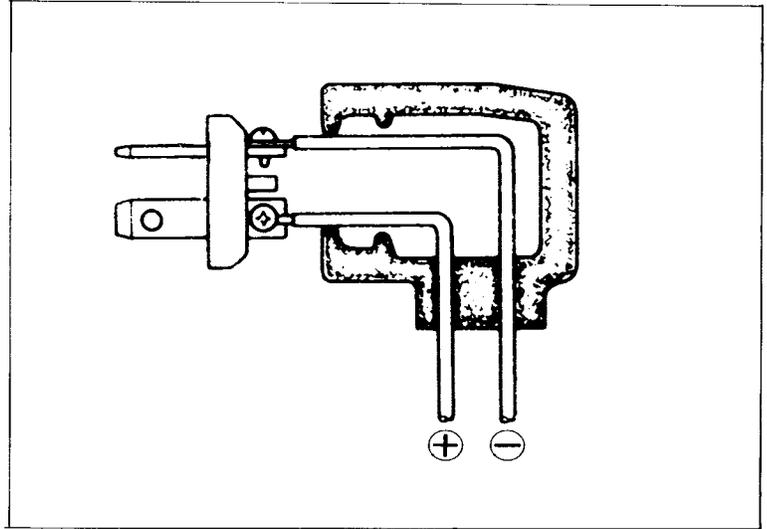
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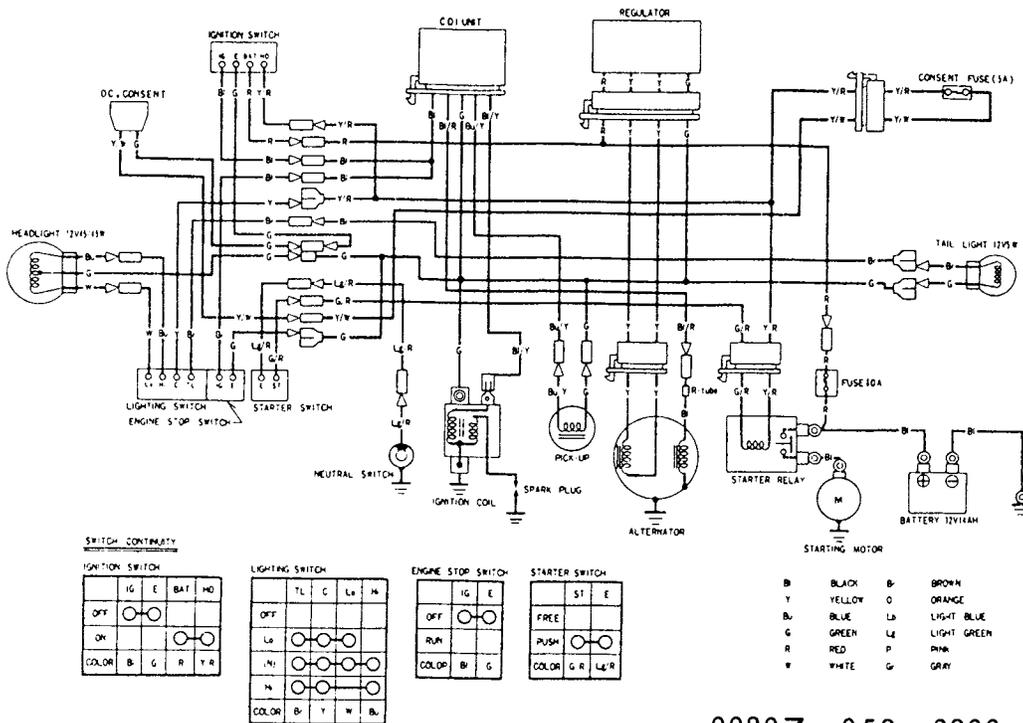
INSTALLATION

Install the accessory leads to the plug; making sure to connect the positive and negative leads to the corresponding plug terminals.

RECOMMENDED WIRE; AWG18—AWG20



4. WIRING DIAGRAM



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