



INTRODUCTION

This addendum contains information for the 1981 CB900F. Refer to the base Shop Manual for service procedures and data not included in this manual.

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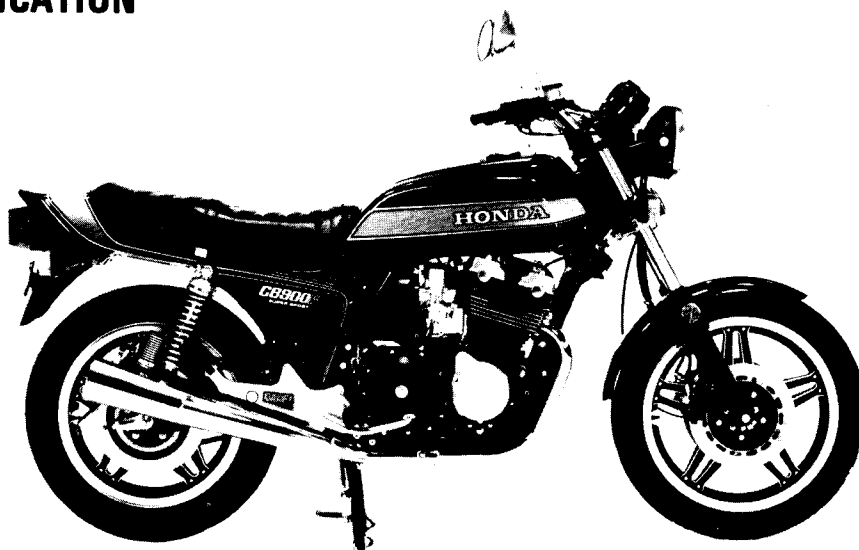
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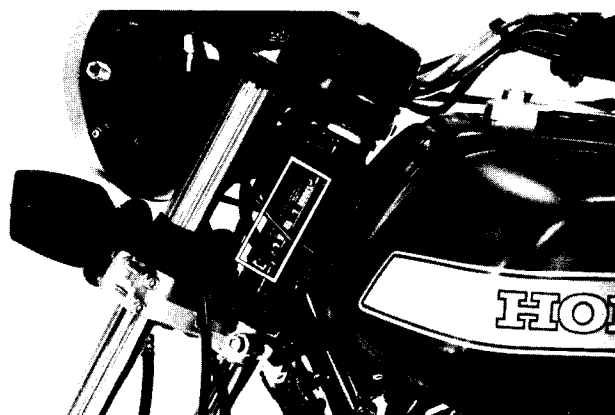
MODEL IDENTIFICATION



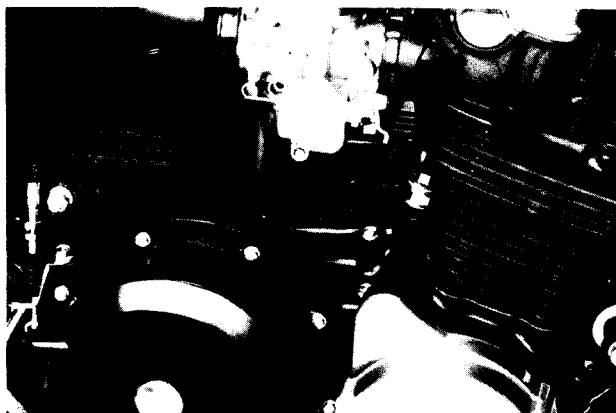
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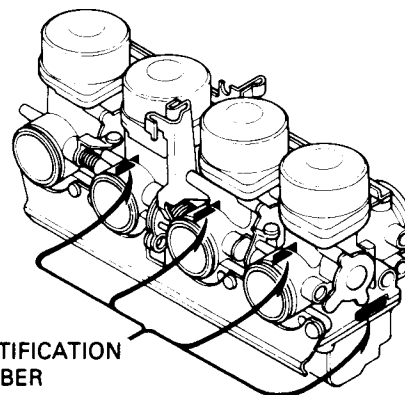
The frame serial number is stamped on the steering head right side.



The vehicle identification number (VIN) is on the steering head left side.



The engine serial number is stamped on top of the right crankcase.



IDENTIFICATION
NUMBER

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

**1. GENERAL INFORMATION**
SPECIFICATIONS

Item		
DIMENSIONS	Overall length	2,195 mm (86.4 in)
	Overall width	850 mm (33.5 in)
	Overall height	1,145 mm (45.1 in)
	Wheelbase	1,515 mm (59.6 in)
	Seat height	815 mm (32.1 in)
	Foot peg height	350 mm (13.8 in)
	Ground clearance	150 mm (5.9 in)
	Dry weight	242 kg (533 lb)
	Curb weight	263 kg (580 lb)
FRAME	Type	Double cradle
	Front suspension, travel	Telescopic air forks 160 mm (6.3 in)
	Rear suspension, travel	Swing arm/Shock absorber 110 mm (4.3 in)
	Gross vehicle weight rating	451 kg (995 lb)
	Vehicle capacity load	188 kg (415 lb)
Cold tire pressures	Up to 90 kg (200 lbs) load	Front Rear
	Up to vehicle capacity load	Front Rear
		2.25 kg/cm ² (32 psi) 2.25 kg/cm ² (32 psi) 2.25 kg/cm ² (32 psi) 2.8 kg/cm ² (40 psi)
	Front brake, lining swept area	Double disc brake 952 cm ² (147.6 sq in)
	Rear brake, lining swept area	Single disc brake 516 cm ² (80.0 sq in)
	Fuel capacity	20 liters (5.3 US gal, 4.4 Imp gal)
	Fuel reserve capacity	2.5 liters (0.7 US gal, 0.6 Imp gal)
	Caster angle	62°30'
	Trail	110 mm (4.3 in)
	Front fork oil capacity	345 cc (12.3 ozs)
ENGINE	Type	Air cooled 4-stroke
	Cylinder arrangement	Vertical in-line four
	Bore and stroke	64.5 x 69.0 mm (2.54 x 2.72 in)
	Displacement	902 cm ³ (55.0 cu in)
	Compression ratio	8.8:1
	Valve train	Chain driven DOHC 4 Valves per cylinder
	Maximum horsepower	89 BHP/9,000 rpm
	Maximum torque	7.8 kg-m (56.4 ft-lb)/7,500 rpm
	Oil capacity	4.5 liters (4.8 US qt, 4.0 Imp qt) after disassembly 3.5 liters (3.7 US qt, 3.0 Imp qt) after draining
	Lubrication system	Wet sump
	Air filtration	Paper
	Cylinder compression	12.0 ± 2.0 kg/cm ² (170 ± 28 psi)
	Intake valve	Opens 10° (BTDC) at 1 mm lift, 63° (BTDC) at 0 lift Closes 35° (ABDC) at 1 mm lift, 98° (ABDC) at 0 lift
	Exhaust valve	Opens 40° (BBDC) at 1 mm lift, 93° (BBDC) at 0 lift Closes 5° (ATDC) at 1 mm lift, 70° (ATDC) at 0 lift
	Valve clearance (Cold)	IN: } EX: } 0.06 – 0.13 mm (0.002 – 0.005 in)
	Engine weight	92 kg (203 lb)
	Idle speed	1,000 ± 100 rpm



Item					
CARBURETION	Carburetor type	VB, 32 mm (1.26 in) venturi bore			
	Identification number Pilot screw initial setting Float level	See page 4-17, Initial opening 2 1/2 15.5 mm (0.16 in)			
DRIVE TRAIN	Clutch	Wet, multi-plate			
	Transmission	5-speed constant-mesh			
	Primary reduction	1.000/2.041			
	Final reduction	2.588			
	Gear ratio I	2.533			
	Gear ratio II	1.789			
	Gear ratio III	1.391			
	Gear ratio IV	1.160			
	Gear ratio V	1.000			
	Gearshift pattern Drive chain	Left foot operated return system, 1-N-2-3-4-5 D.I.D. 50ZL or RK 50LO			
ELECTRICAL	Ignition	Transistorized			
	Ignition timing "F-1" mark	10° BTDC at idle			
	Full advance	38.5° BTDC at 3,100 rpm			
	Starting system	Starting motor			
	Generator	Three phase A.C. generator 260W/5,000 rpm			
	Battery capacity	12V-14AH			
Spark plug []: Canada model	For cold climate below 5° C (41° F)		Standard		
	NGK	ND	NGK	ND	
	D8EA [DR8ES-L]	X24ES-U [X24ESR-U]	D9EA [DR8ES]	X27ES-U [X27ESR-U]	
Spark plug gap	0.6 – 0.7 mm (0.024 – 0.028 in)				
Firing order	1-2-4-3				
Fuse/Main fuse	10A/30A				
LIGHTS	Headlight (high/low beam)	60/55W H4 BULB (Phillips 12342/99 or equivalent)			
	Tail/stoplight	8/27W	3/32 cp	SAE NO. 1157	
	Front turn signal/running light	23/8W	32/3 cp	SAE NO. 1034	
	Rear turn signal	23W	32 cp	SAE NO. 1073	
	Speedometer light	3.4W	2 cp	SAE NO. 57	
	Tachometer light	3.4W	2 cp	SAE NO. 57	
	Neutral indicator	3.4W	2 cp	SAE NO. 57	
	Turn signal indicator	3.4W	2 cp	SAE NO. 57	
	High beam indicator	3.4W	2 cp	SAE NO. 57	

**TORQUE VALUES**

● ENGINE

Item	Qty	Thread Dia (mm)	Torque N·m (kg·m, ft·lb)	Remarks
Cylinder head cover	8	6	8-12 (0.8-1.2, 6-9)	Apply engine oil to threads and underside of nuts Apply engine oil to threads and underside of bolts Apply liquid sealant Apply LOCTITE® 271 to the threads
Cam holder	24	6	12-16 (1.2-1.6, 9-12)	
Cylinder head	12	10	36-40 (3.6-4.0, 26-29)	
Cam sprocket	4	7	18-20 (1.8-2.0, 13-15)	
Spark plug	4		12-19 (1.2-1.9, 9-14)	
Crankcase		8	21-25 (2.1-2.5, 15-18)	
A.C. generator	1	12	80-100 (8.0-10.0, 58-72)	
Primary shaft	1	12	80-100 (8.0-10.0, 58-72)	
Mainshaft	1	16	38-42 (3.8-4.2, 28-30)	
Drive sprocket	1	10	45-55 (4.5-5.5, 33-40)	
Connecting rod nut	8		32 (3.2, 23)	
Oil filter center bolt	1		28-32 (2.8-3.2, 20-23)	
Oil pressure switch	1		15-20 (1.5-2.0, 11-14)	
Neutral switch	1		16-20 (1.6-2.0, 12-14)	
Oil drain plug	1	14	35-40 (3.5-4.0, 25-29)	
Oil hose	2	10	21-25 (2.1-2.5, 15-18)	
Spark advancer	1	8	33-37 (3.3-3.7, 24-27)	
Starting clutch	3	8	26-30 (2.6-3.0, 19-22)	

● CHASSIS

Item	Qty	Thread Dia (mm)	Torque N·m (kg·m, ft·lb)	Remarks
Steering stem nut	1	24	80-120 (8.0-12.0, 58-87)	
Steering top thread nut	1	26	14-16 (1.4-1.6, 10-12)	
Handlebar holder	4	8	18-25 (1.8-2.5, 13-18)	
Front fork bridge	2	7	9-13 (0.9-1.3, 7-9)	
Front fork cap bolt	2	31	15-30 (1.5-3.0, 11-22)	
Steering stem pinch bolts	2	10	45-55 (4.5-5.5, 33-40)	
Front axle holder	4	10	30-40 (3.0-4.0, 22-29)	
Front axle nut	1	12	55-65 (5.5-6.5, 40-47)	
Front fork socket bolt	2	8	15-25 (1.5-2.5, 11-18)	
Front fork drain bolt	2	6	6-9 (0.6-0.9, 4.3-7)	
Front fork hose joint (R)	1	10	15-20 (1.5-2.0, 11-14)	
Front fork hose joint (L)	1	8	4-7 (0.4-0.7, 2.9-5.1)	
Front fork hose connector	1	8	4-7 (0.4-0.7, 2.9-5.1)	
Front fork air valve	1	8	4-7 (0.4-0.7, 2.9-5.1)	



Item	Qty	Thread Dia (mm)	Torque N·m (kg-m, ft-lb)	Remarks
Front/rear brake disc	5	8	27-33 (2.7-3.3, 20-24)	UBS
Brake caliper carrier	2	10	30-40 (3.0-4.0, 22-29)	
Caliper bolt	1	8	22-25 (2.2-2.5, 16-18)	
Caliper pivot bolt	1	10	25-30 (2.5-3.0, 18-22)	
Rear axle nut	1	18	80-100 (8.0-10.0, 58-72)	UBS
Final driven sprocket	4	12	80-100 (8.0-10.0, 58-72)	
Swing arm pivot nut	1	14	60-70 (6.0-7.0, 43-51)	
Rear brake torque link	1	8	18-25 (1.8-2.5, 13-18)	
Rear shock absorber	4	10	30-40 (3.0-4.0, 22-29)	
Engine hanger bolt	3	10	35-45 (3.5-4.5, 25-33)	
	2	10	40-50 (4.0-5.0, 29-36)	

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

● STANDARD TORQUE VALUES

Item	Torque N·m (kg-m, ft-lb)	Item	Torque N·m (kg-m, ft-lb)
5 mm bolt and nut	4-6 (0.4-0.6, 3-4)	5 mm screw	3-5 (0.3-0.5, 3-4)
6 mm bolt and nut	8-12 (0.8-1.2, 6-9)	6 mm screw	7-11 (0.7-1.1, 5-8)
8 mm bolt and nut	18-25 (1.8-2.5, 13-18)	6 mm flange bolt and nut	10-14 (1.0-1.4, 7-10)
10 mm bolt and nut	35-40 (3.5-4.0, 22-29)	8 mm flange bolt and nut	20-30 (2.0-3.0, 14-22)
12 mm bolt and nut	50-60 (5.0-6.0, 36-43)	10 mm flange bolt and nut	30-40 (3.0-4.0, 22-29)



TOOLS

• SPECIAL

Tool Name	Tool No.	Qty	Ref. Page
Vacuum gauge set	07404-0020000	1	3-10
Oil pressure gauge	07506-3000000	1	2-5
Oil pressure gauge attachment	07510-4220100	1	2-4
Primary gear holder	07924-4250000	1	8-5, 8-6
Rotor puller	07933-4250000	1	18-6
Bearing race remover	07953-4250002	1	15-24
Carburetor adjusting wrench	07908-4220100	1	3-11
Carburetor pilot screw wrench	07908-4220201	1	3-17
Snap ring pliers	07914-3230001	1	17-8, 17-15
Steering stem socket	07916-3710100	1	14-25
6 mm hex wrench	07917-3230000	1	14-16, 14-19
Bearing race remover	07946-3710500	1	14-24
Steering stem driver	07946-3710600	1	14-23
Bearing driver attachment	07946-3710700	1	14-24
Piston base	07958-3000000	2	7-8
Valve decompressor	-	1	25-16
Valve lifter holder	-	1	25-16
Valve guide reamer 5.5 mm	07984-2000000	1	6-14, 6-15
Piston ring compressor	07954-4220000	2	7-8
Valve lifter bore protector	07999-4220000	1	6-11
Socket bit 10 mm	07917-3710000	1	8-6
Clutch adjusting wrench	07908-3230000	1	3-18
Valve seat cutter, 24.5 mm	07780-0010100	1	} 6-16
Valve seat cutter, 27.5 mm	07780-0010200	1	
Valve seat flat cutter, 28 mm	07780-0012100	1	
Valve seat flat cutter, 30 mm	07780-0012200	1	
Valve seat interior cutter, 30 mm	07780-0014000	1	
Valve seat cutter holder, 5.5 mm	07781-0010100	1	
Bearing driver	07946-6340000	1	14-24
Clutch center holder	07923-3710000	1	8-3, 8-8
Swingarm bearing driver	07936-4250100	1	25-48
Needle bearing driver attachment	07946-4250100	1	25-48
Driver handle	07949-6110000	1	25-48
Fork seal driver	07947-4630100	1	25-37



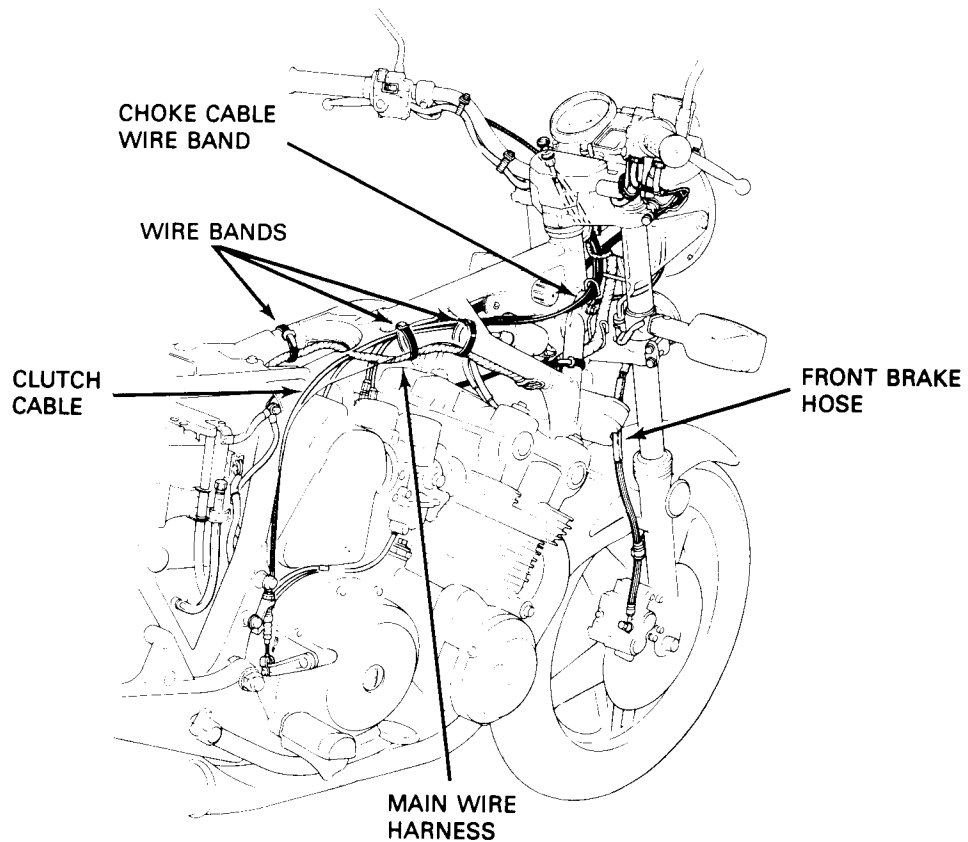
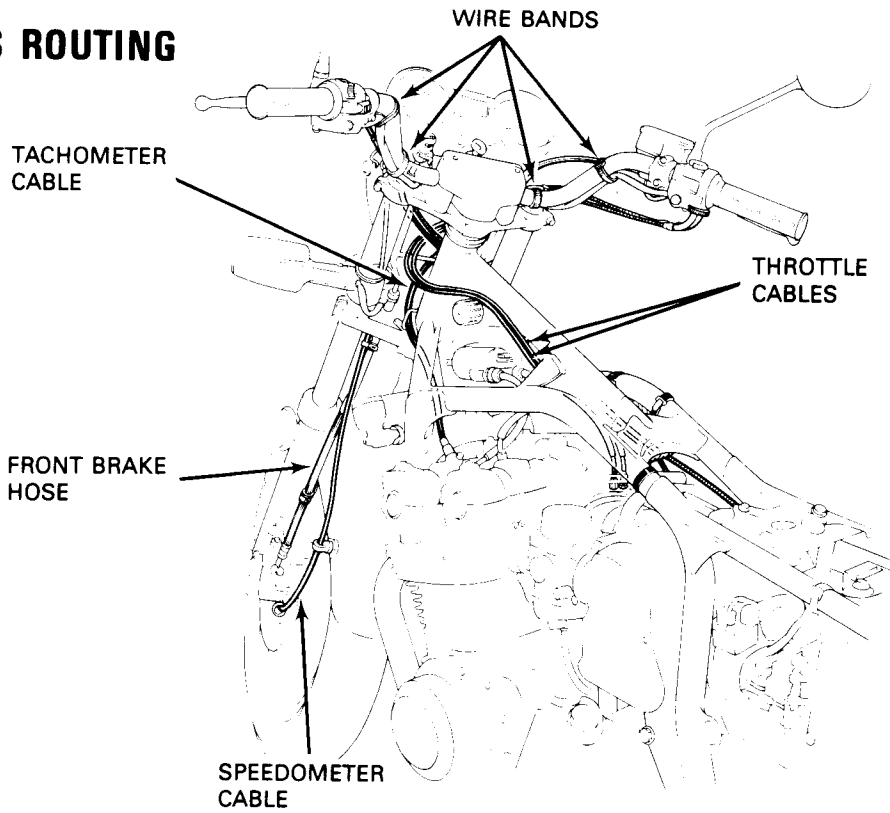
TOOLS

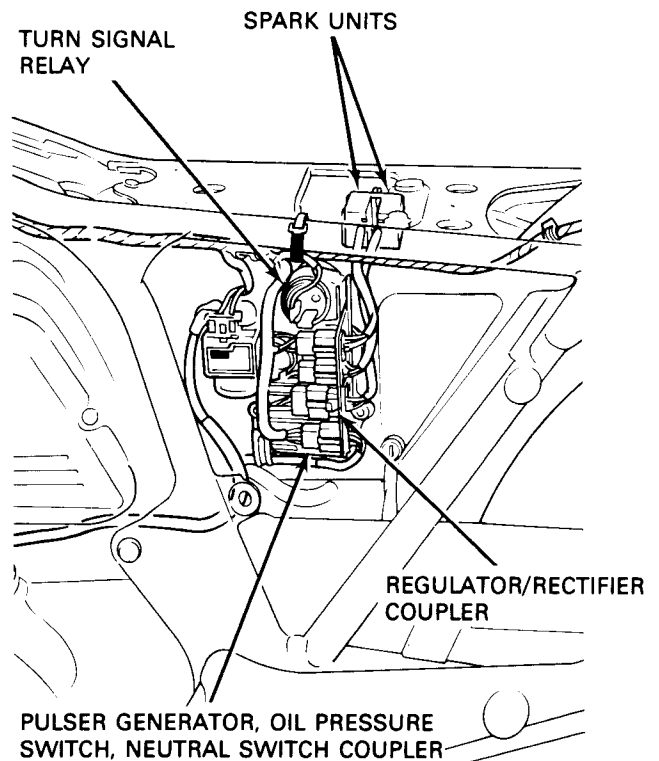
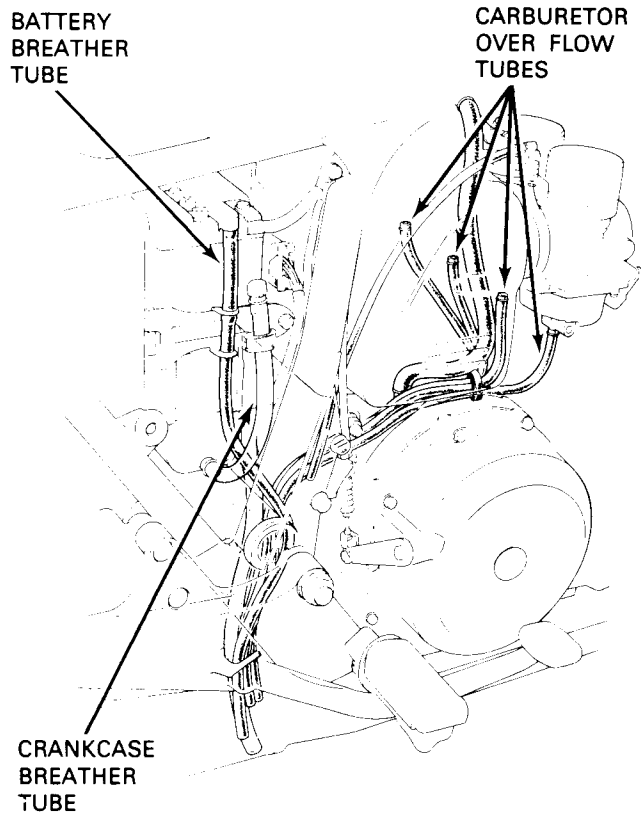
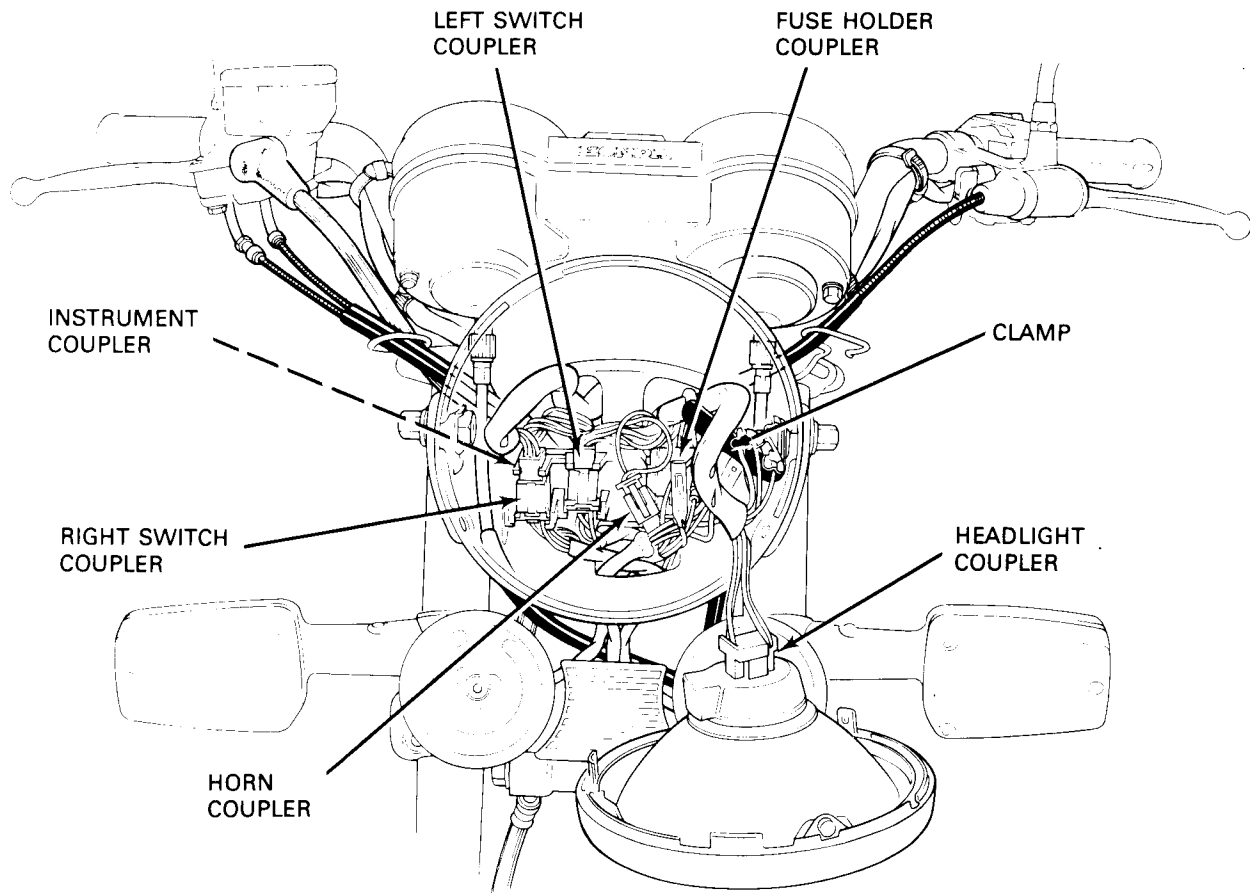
● COMMON

Tool Name	Part No.	Qty	Alternate Tool	Part No.	Ref. Page
Float level gauge	07401-0010000	1			4-8
Retainer wrench A	07710-0010100	1	Bearing retainer wrench	07910-2830000	25-38
Retainer wrench B	07710-0010200	1	Bearing retainer wrench	07920-3230101 or 07920-3600000	14-11, 14-13
Retainer wrench body	07710-0010401	1			14-11, 14-13, 15-3
Lock nut wrench 20 x 24 mm	07716-0020100	1			8-3, 8-8
Extension bar	07716-0020500	1			8-3, 8-8
Valve guide remover 5.5 mm	07742-0010100	1	Valve guide driver	07942-3290100	6-15
Valve guide driver B	07742-0020200	1	Valve guide driver	07942-3290200	6-15
Bearing driver outer 42 x 47 mm	07746-0010300	1	Bearing driver	07945-3330100	25-43, 14-13
Bearing driver outer 52 x 55 mm	07746-0010400	1	Bearing driver	07946-9370100 or 07946-3290000	2-11, 15-6
Bearing driver outer 62 x 68 mm	07746-0010500	1	Bearing driver	07946-3600000	25-43
Bearing driver handle outer A	07749-0010000	1	Driver handle attachment	07949-6110000	25-43, 14-13
Bearing driver handle outer B	07746-0020100	1	Bearing driver	07945-3230201	13-12, 13-13
Bearing driver handle outer C	07746-0030100	1			
Bearing driver inner 25 mm	07746-0030200	1	Bearing driver	07945-3710200	12-8
Valve spring compressor	07757-0010000	1	Valve spring compressor	07957-3290001	6-11
Driver pilot 15 mm	07746-0040300	1			14-13
Driver pilot 20 mm	07746-0040400	1			25-43
Driver pilot 25 mm	07746-0040600	1	Bearing driver	07946-3600000	25-43
Shock absorber compressor	07959-3290001	1			25-44



CABLE & HARNESS ROUTING







MAINTENANCE SCHEDULE

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

I : INSPECT AND CLEAN, ADJUST, LUBRICATE, OR REPLACE IF NECESSARY.

C: CLEAN

R: REPLACE

A: ADJUST

L: LUBRICATE

ITEM	FREQUENCY	WHICHEVER COMES FIRST ↓	ODOMETER READING (NOTE 3)							Refer to Page
			600 mi (1,000 km)	4,000 mi (6,400 km)	8,000 mi (12,800 km)	12,000 mi (19,200 km)	16,000 mi (25,600 km)	20,000 mi (32,000 km)	24,000 mi (38,400 km)	
EMISSION RELATED ITEMS	* FUEL LINES			I	I	I	I	I	I	3-3
	* THROTTLE OPERATION		I	I	I	I	I	I	I	3-3
	* CARBURETOR-CHOKE			I	I	I	I	I	I	3-4
	AIR CLEANER	NOTE 1		C	R	C	R	C	R	3-4
	CRANKCASE BREATHER	NOTE 2		C	C	C	C	C	C	3-5
	SPARK PLUGS			R	R	R	R	R	R	3-5
	* VALVE CLEARANCE		I	I	I	I	I	I	I	25-15
	ENGINE OIL	YEAR		R	R	R	R	R	R	2-3
	ENGINE OIL FILTER	YEAR		R	R	R	R	R	R	2-3
	* CAM CHAIN TENSION			A	A	A	A	A	A	25-18
	* CARBURETOR-SYNCHRONIZE			I	I	I	I	I	I	3-10
	* CARBURETOR-IDLE SPEED			I	I	I	I	I	I	3-11
NON-EMISSION RELATED ITEMS	DRIVE CHAIN		I, L EVERY 300 mi (500 km)							25-18
	BATTERY	MONTH	I	I	I	I	I	I	I	3-14
	BRAKE FLUID	MONTH I 2 YEARS* R	I	I	I	*R	I	I	*R	3-14
	BRAKE PAD WEAR			I	I	I	I	I	I	25-20
	BRAKE SYSTEM		I	I	I	I	I	I	I	3-15
	* BRAKE LIGHT SWITCH		I	I	I	I	I	I	I	3-16
	* HEADLIGHT AIM		I	I	I	I	I	I	I	3-16
	CLUTCH		I	I	I	I	I	I	I	3-17
	SIDE STAND			I	I	I	I	I	I	3-18
	* SUSPENSION		I	I	I	I	I	I	I	3-19
* NUTS, BOLTS, FASTENERS		I	I	I	I	I	I	I	3-20	
** WHEELS		I	I	I	I	I	I	I	3-20	
** STEERING HEAD BEARINGS		I		I		I		I	3-21	

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

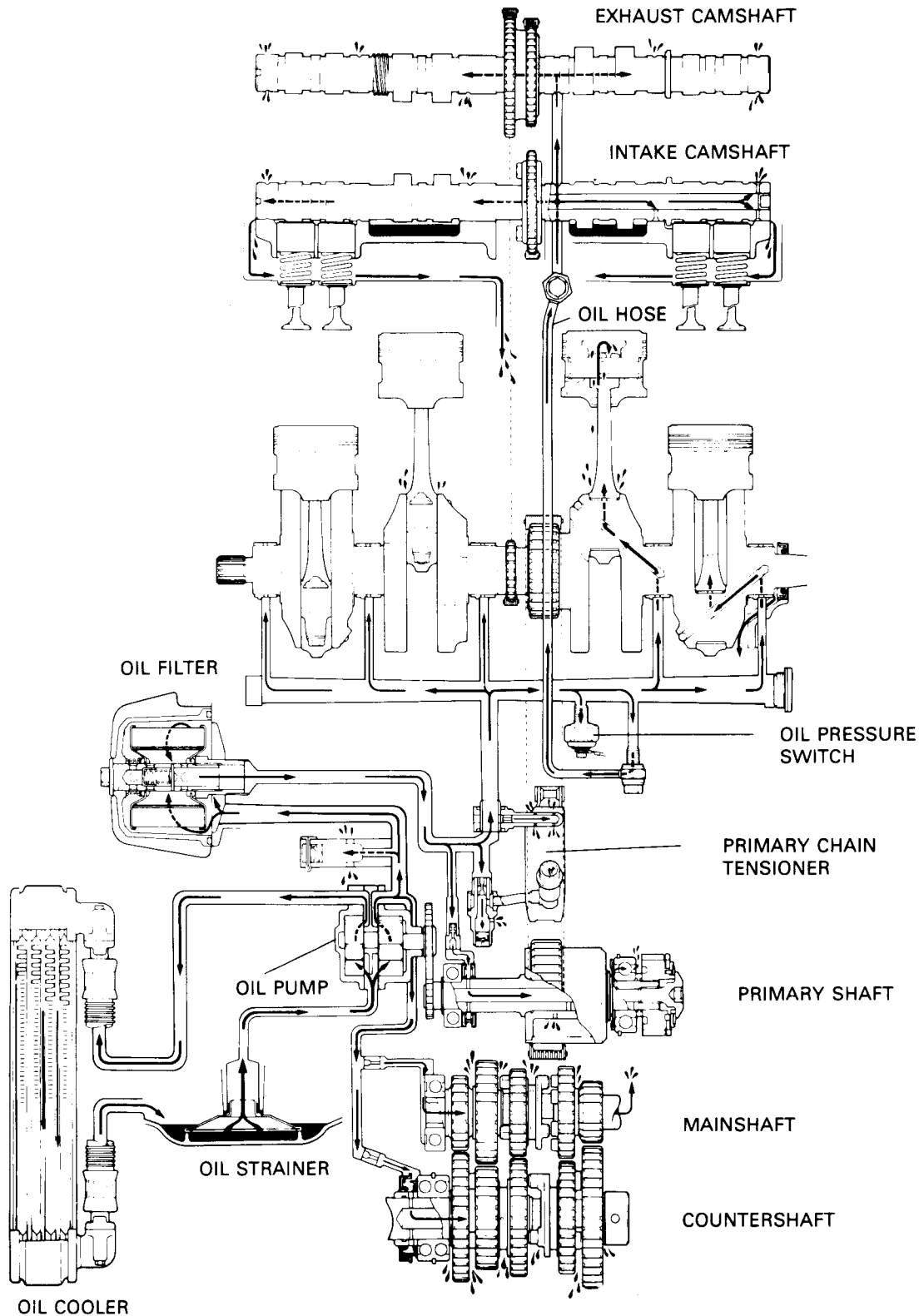
**IN THE INTEREST OF SAFETY, WE RECOMMEND THESE ITEMS BE SERVICED ONLY BY AN AUTHORIZED HONDA DEALER.

- NOTES:
- SERVICE MORE FREQUENTLY WHEN RIDING IN DUSTY AREAS.
 - SERVICE MORE FREQUENTLY WHEN RIDING IN RAIN OR AT FULL THROTTLE (U.S.A. ONLY).
 - FOR HIGHER ODOMETER READINGS, REPEAT AT THE FREQUENCY INTERVAL ESTABLISHED HERE.



2. LUBRICATION

ENGINE LUBRICATION DIAGRAM





OIL PUMP

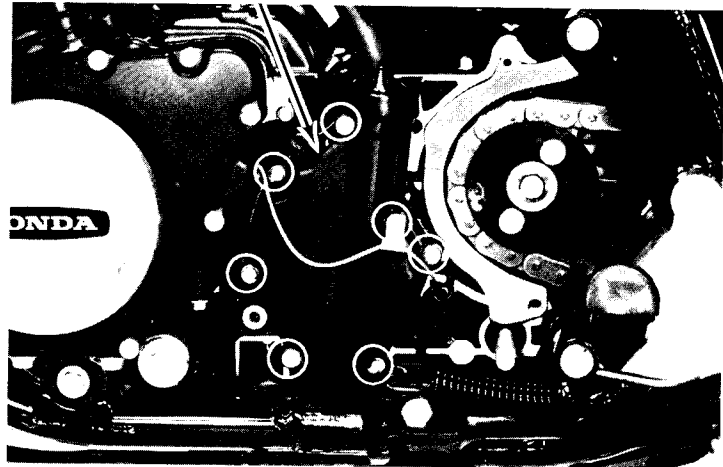
REMOVAL

NOTE

The oil pump can be removed with the engine mounted in the frame.

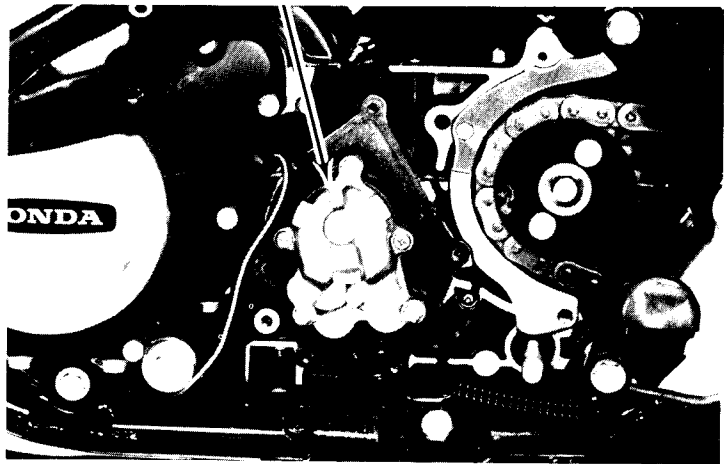
- Drain the engine oil.
- Remove the gearshift pedal.
- Remove the left crankcase rear cover.
- Remove the oil pump cover.

OIL PUMP COVER



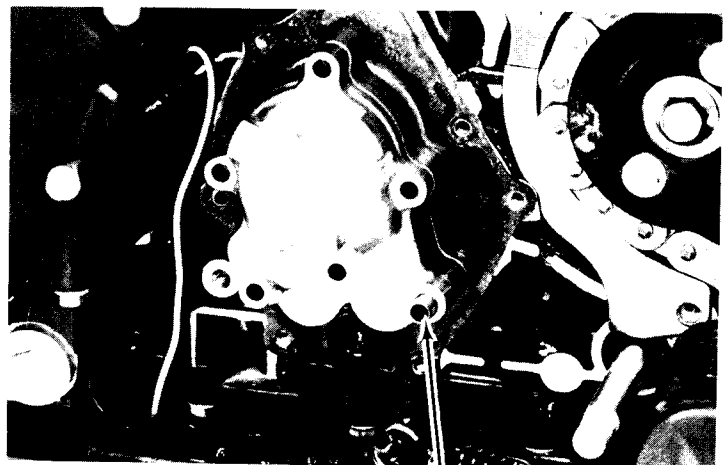
- Remove the oil pump.
- Refer to pages 2-6 and 2-7 for disassembly and inspection.

OIL PUMP



INSTALLATION

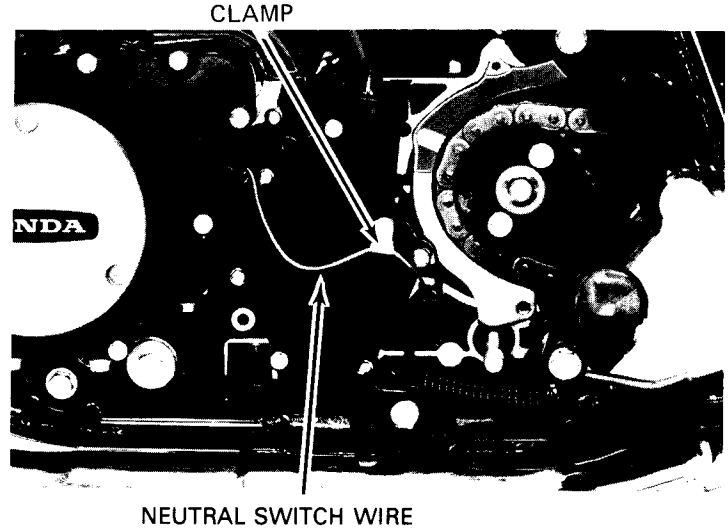
- Install a new gasket
- Engage the oil pump drive and driven gears.
- Install the dowel pin.
- Tighten the oil pump mounting bolts.



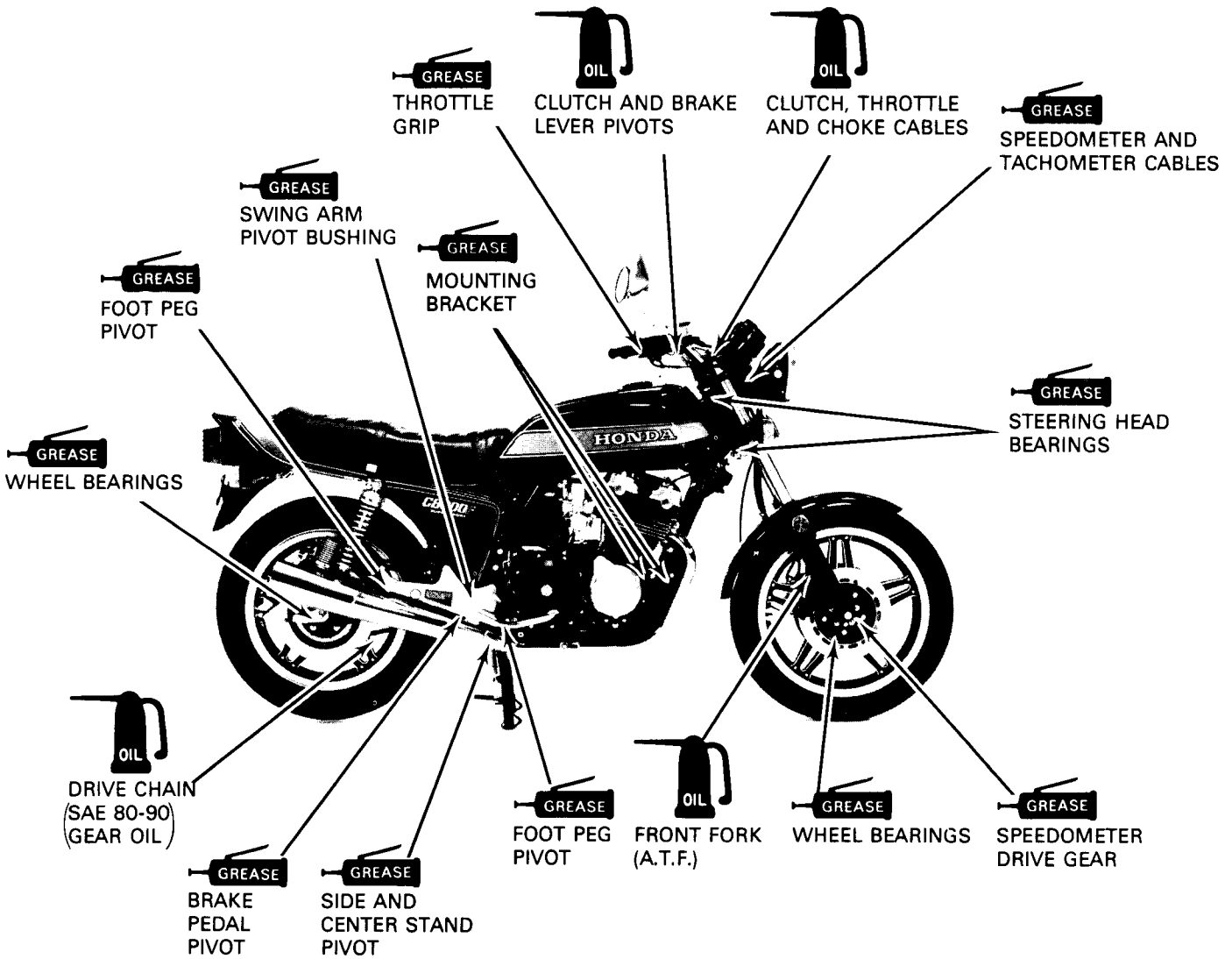
DOWEL PIN



Install the oil pump cover.
Tighten the oil pump cover bolts.
Route the neutral switch wire as shown.
Install the left crankcase rear cover and gearshift pedal.



LUBRICATION POINTS





3. INSPECTION AND ADJUSTMENT VALVE CLEARANCE

NOTE

- Inspect and adjust valve clearance while the engine is cold. (Below 35° C, 95° F).
- Lean the motorcycle right and left to drain residual oil from the cylinder head.

Remove the frame right and left side covers and seat.
 Turn the fuel valve OFF and remove the fuel tube and fuel tank.
 Remove the tachometer cable.
 Remove the spark plug caps.
 Remove the cylinder head cover bolts and cylinder head cover.

INSPECTION

Measure intake and exhaust valve clearances by inserting a feeler gauge between the camshaft and valve lifter shim.

VALVE CLEARANCE:

0.06– 0.13 mm (0.002– 0.005 in)

Rotate the crankshaft clockwise (from the right side) and align the index mark on the exhaust camshaft right end with the front cylinder head mating surface.

Check and record the valve clearance of the :

No. 1 EX. and No. 3 EX.

Rotate the camshaft 90° clockwise (via the crankshaft 180°) and check the :

No. 1 IN. and No. 3 IN.

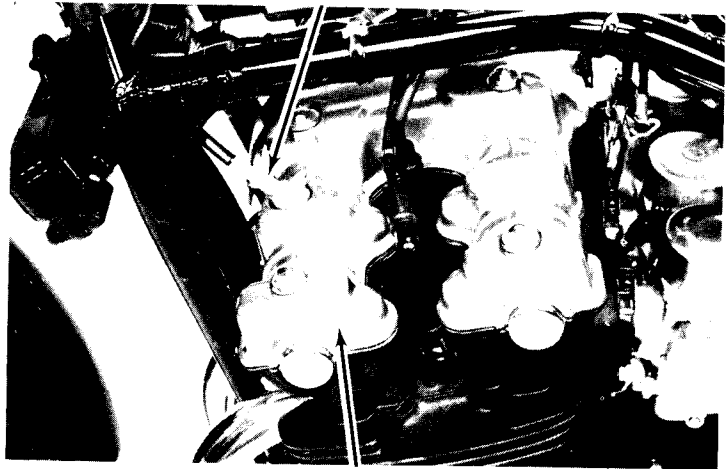
Rotate the camshaft 90° clockwise and check the:

No. 2 EX. and No. 4 EX.

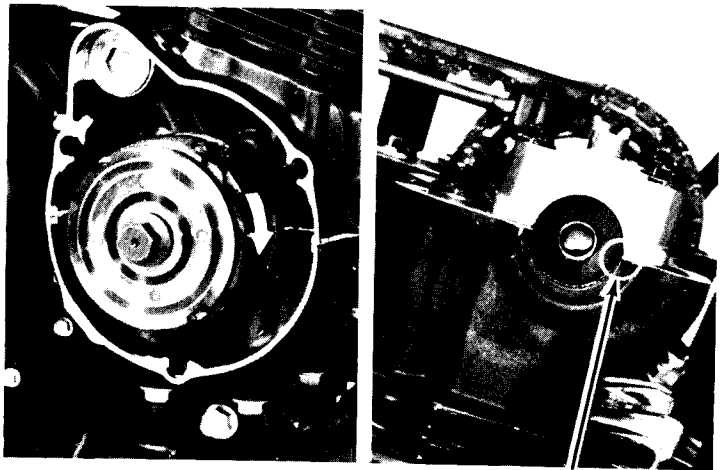
Rotate the camshaft 90° clockwise and check the:

No. 2 IN. and No. 4 IN.

TACHOMETER CABLE

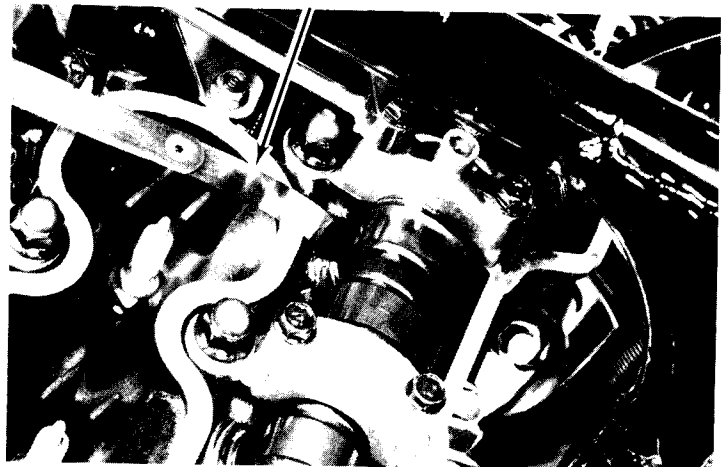


CYLINDER HEAD COVER



INDEX MARK

FEELER GAUGE





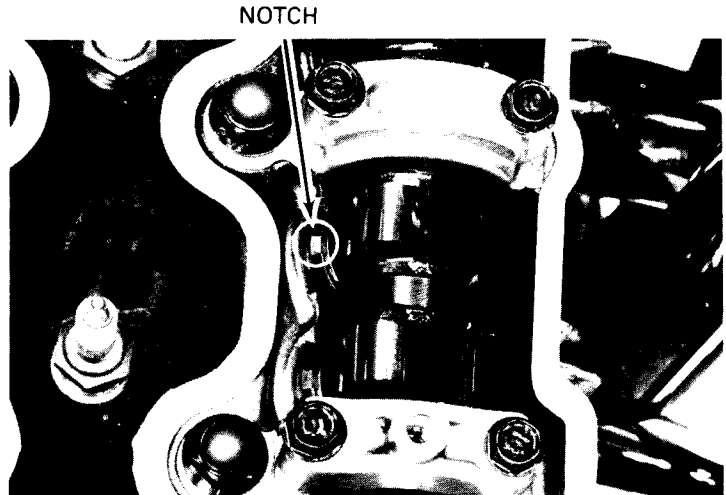
ADJUSTMENT

NOTE

- Adjustment shims are available in 0.05 mm increments, from 2.30 to 3.50 mm.
- The No. 2 EX. shim must be removed from the front.

Select a replacement shim to achieve the specified valve clearance, using the following procedures.

Rotate the valve lifter until the notch is facing the spark plug.

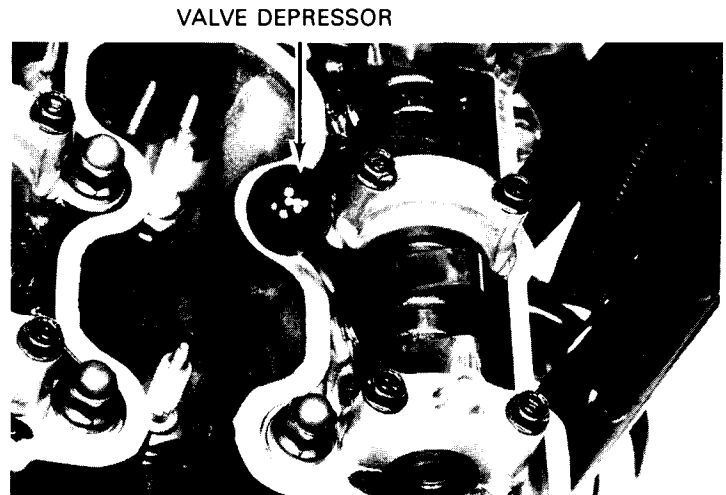


Rotate the crankshaft so that the cam lobe faces away from the valve lifter.

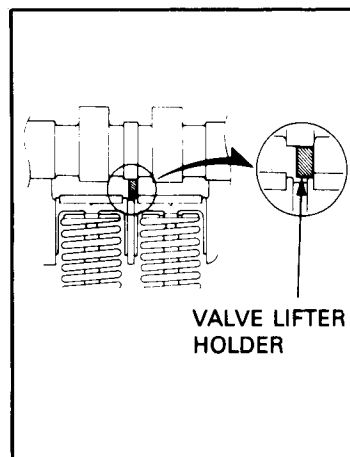
Insert the Valve Depressor between the cam and shim.

CAUTION:

Use the Depressor as a wedge, not as a pry bar, or the lifter and camshaft will be damaged.



Position the end of the valve lifter holder under the camshaft so it rests on the edge of the depressed lifter and contacts the side of the adjacent lifter. Do not let the lifter holder contact the shim or you will not be able to remove it.



VALVE LIFTER HOLDER



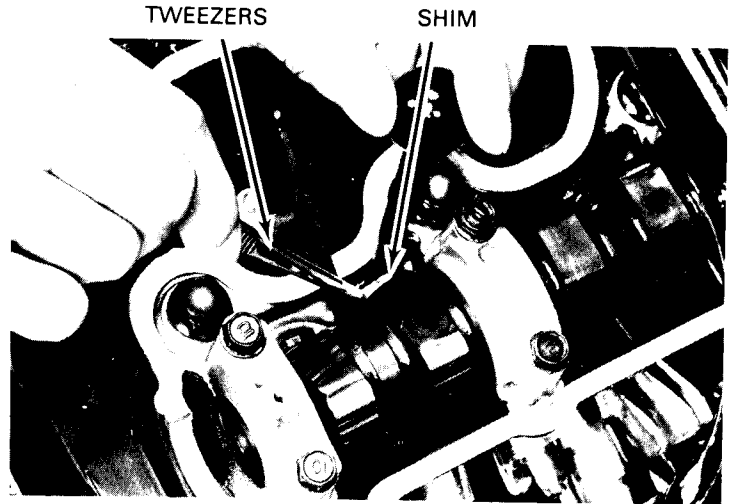
Pull out the VALVE DEPRESSOR and remove the shim with tweezers or a magnet.

NOTE

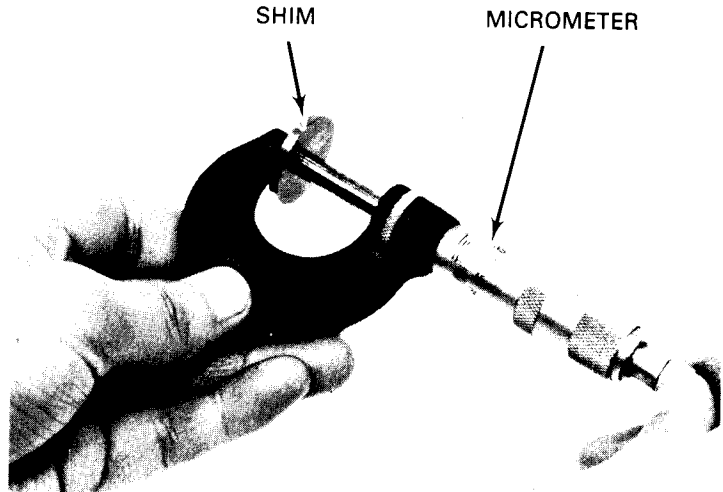
If more clearance is needed to remove the shim, reinsert the valve depressor and invert the valve lifter holder. Pull out the valve depressor and remove the shim.

CAUTION:

If the valve lifter holder is inverted, don't let it damage the cylinder head cover mating surface.



Measure the thickness of the removed shim with a micrometer.
Select a replacement shim using the chart on page 3-9.
Insert the replacement shim.



To remove the Valve Lifter Holder, reinstall the Valve Depressor. First remove the Holder and then remove the depressor.
Rotate the crankshaft 2-3 revolutions to fully seat the replacement shims and recheck the valve clearance.



CAM CHAIN TENSION

NOTE

Adjust cam chain tension while the engine is cold.

Remove the A.C. generator cover.

Loosen the front cam chain tensioner lock nut and bolt.

Tighten the bolt while rotating the crankshaft clockwise.

Tighten the lock nut.

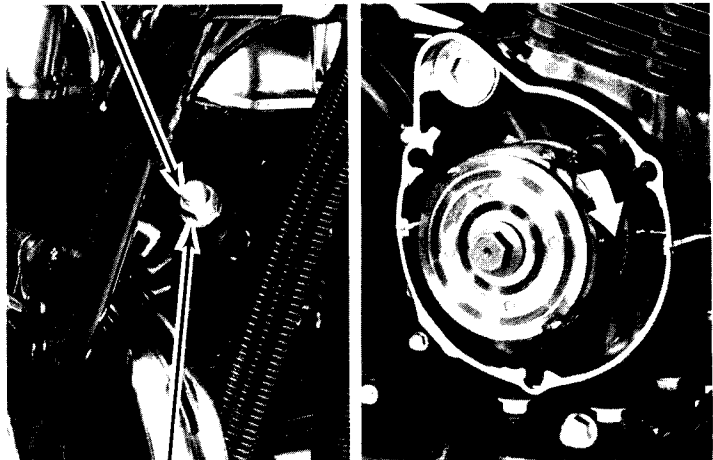
Loosen both top and bottom lock nuts on the rear cam chain tensioner.

Tighten the lock nuts while rotating the crankshaft clockwise.

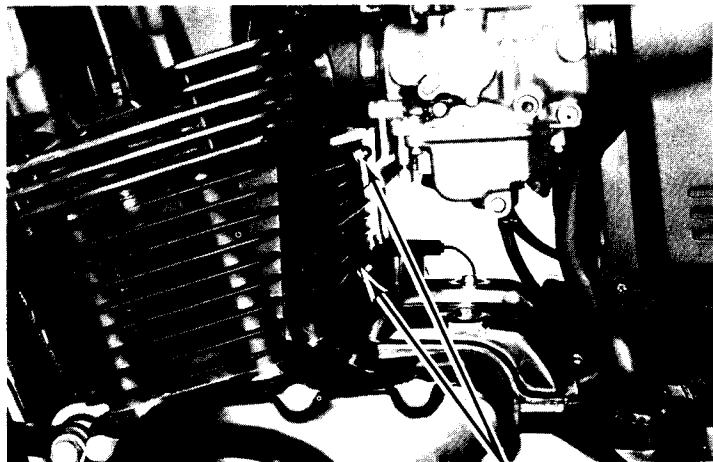
When the tensioner front lock bolt and rear lock nuts are loosened, the tensioners will provide the correct tension.

Tighten the lock nuts.

FRONT LOCK BOLT



FRONT LOCK NUT



REAR LOCK NUTS

DRIVE CHAIN

Turn the engine off, place the motorcycle on its center stand and shift the transmission into neutral. Check slack in the lower drive chain run midway between the sprockets.

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

CAUTION:

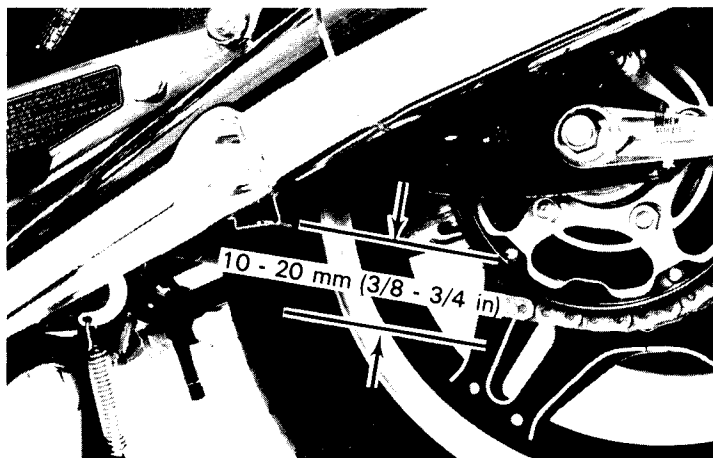
Excessive chain slack, 40 mm (1 1/2 in) or more, may damage the frame.

Adjust as follows:

Remove the cotter pin from the rear axle nut, and loosen the nut.

Loosen the lock nuts on both adjusting bolts.

Turn both adjusting bolts an equal number of turns until the correct drive chain slack is obtained.





CAUTION:

Make sure the chain adjuster index marks align with the corresponding scale graduation on both sides of the swingarm.

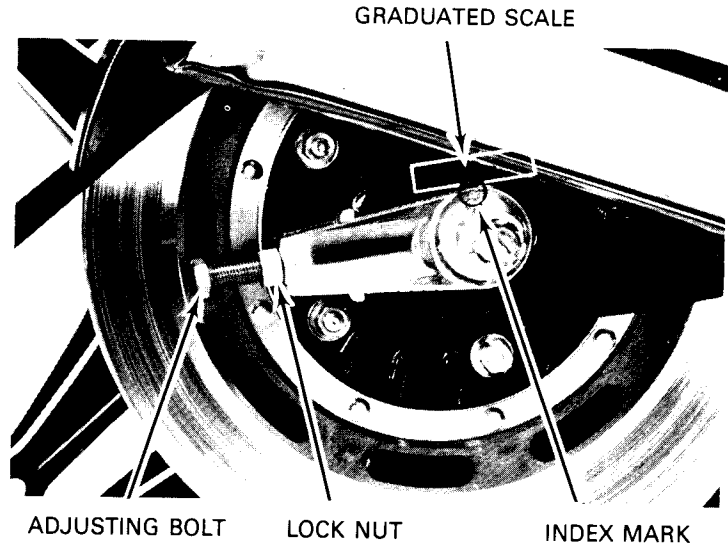
Tighten the adjusting bolt lock nuts.

Tighten the rear axle nut and install a new cotter pin.

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

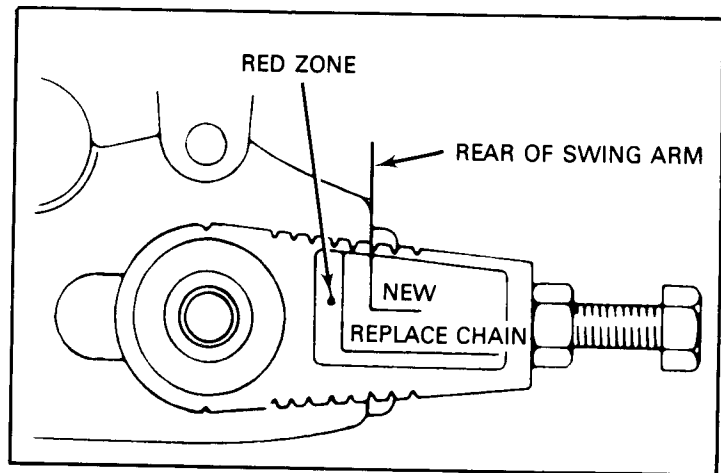
Recheck chain slack and free wheel rotation.

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



Check the chain wear label. If the red zone on the label aligns with the rear of the swingarm after the chain has been adjusted to 10-20 mm (3/8-3/4 in) slack, the chain must be replaced.

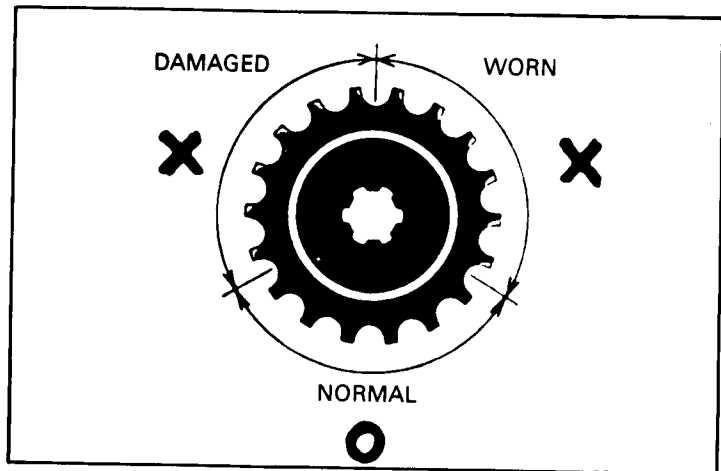
REPLACEMENT CHAIN: D.I.D. 50ZL or
RK 50L0



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

NOTE

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





BRAKE PAD WEAR

Check the brake pads for wear by looking through the slot pointed to by the cast arrow on the caliper assembly.

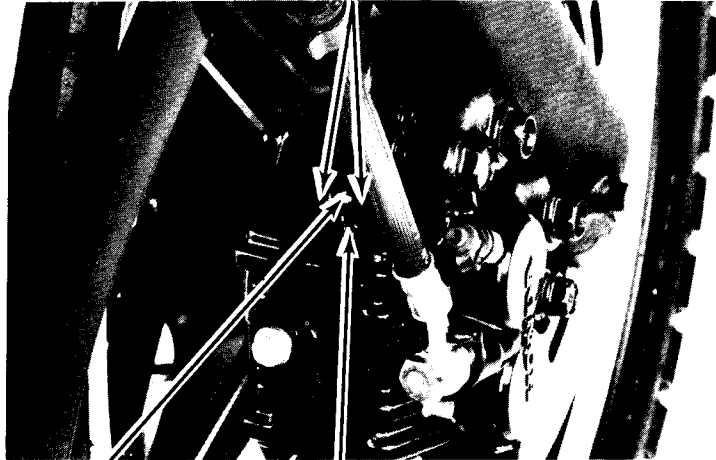
Replace the brake pads if the pads are worn to the wear line. (Refer to page 25-49).

CAUTION:

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

BRAKE PADS

(FRONT)



BRAKE DISC

ARROW

BRAKE DISC

(REAR)



ARROW

BRAKE PADS



4. ENGINE REMOVAL/INSTALLATION

GENERAL INFORMATION

The following parts or components can be serviced with the engine installed in the frame:

- Clutch
- Gearshift linkage
- Camshaft
- A.C. generator
- Starter motor
- Carburetor

SPECIFICATIONS

Engine dry weight	92 kg (203 lb)
Oil capacity	4.5 lit (4.7 US qt) at engine assembly 3.5 lit (3.7 US qt) at change

TORQUE VALUES

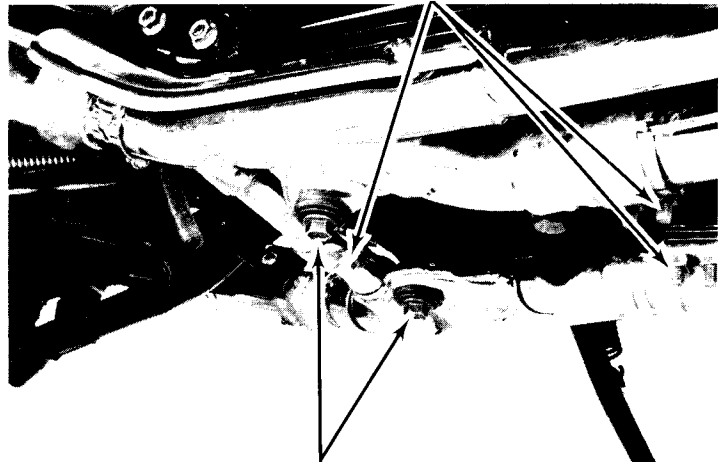
Engine mounting bolt	
10 mm bolt (1)	35–45 N·m (3.5–4.5 kg-m, 25–33 ft-lb)
10 mm bolt (2)	40–50 N·m (4.0–5.0 kg-m, 29–36 ft-lb)
Rear axle nut	80–100 N·m (8.0–10.0 kg-m, 58–72 ft-lb)
Swingarm pivot nut	60–70 N·m (6.0–7.0 kg-m, 43–51 ft-lb)
Rear brake master cylinder mounting bolt	30–40 N·m (3.0–4.0 kg-m, 22–29 ft-lb)
Exhaust pipe flange nuts	30–35 N·m (3.0–3.5 kg-m, 22–25 ft-lb)
Exhaust pipe oil pan mount bolts	50–52 N·m (5.0–5.2 kg-m, 36–37 ft-lb)
Rear muffler mounting bolts	35–45 N·m (3.5–4.5 kg-m, 25–33 ft-lb)
Exhaust pipe connecting band bolts	20–24 N·m (2.0–2.4 kg-m, 14–17 ft-lb)



ENGINE REMOVAL

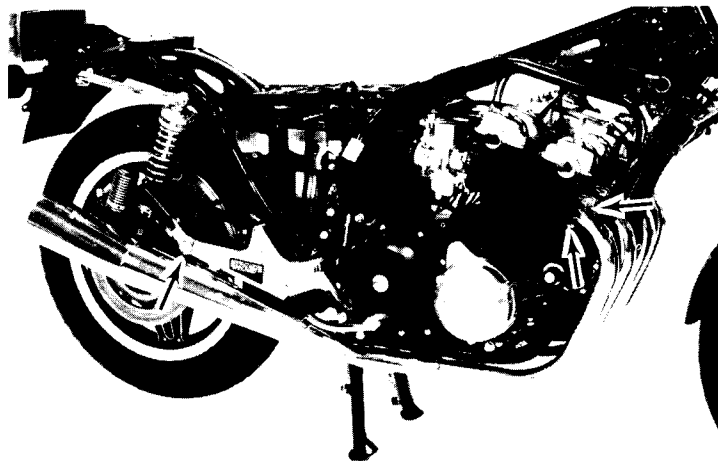
Place the motorcycle on its center stand.
 Drain the engine oil.
 Remove the seat and fuel tank.
 Remove the left and right side covers.
 Remove the exhaust pipe-to-oil-pan mounting bolts.
 Loosen the exhaust pipe connecting band bolts.

CONNECTING BAND BOLTS



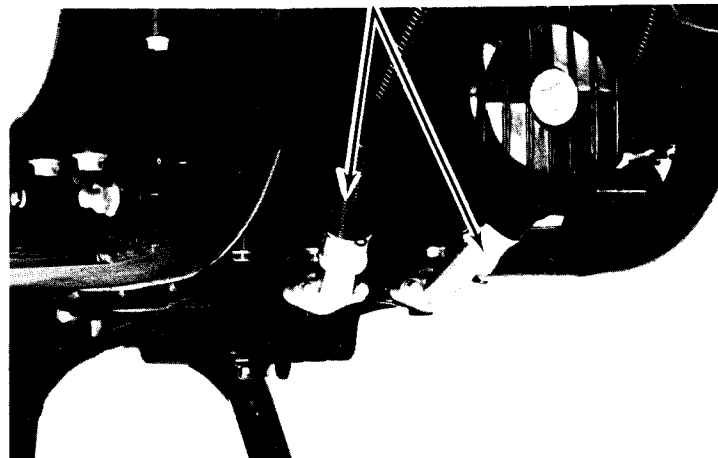
EXHAUST-TO-OIL-PAN BOLTS

Remove the exhaust pipe flange nuts.
 Remove the muffler rear mounting bolts and remove the exhaust system.



OIL COOLER HOSES

Disconnect the oil cooler hoses from the engine.





Disconnect the ground cable from the battery and frame.

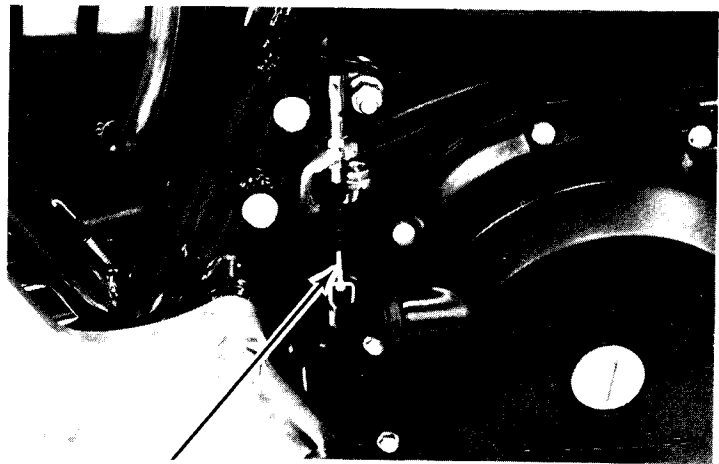
Disconnect the A.C. generator coupler.

GROUND CABLE



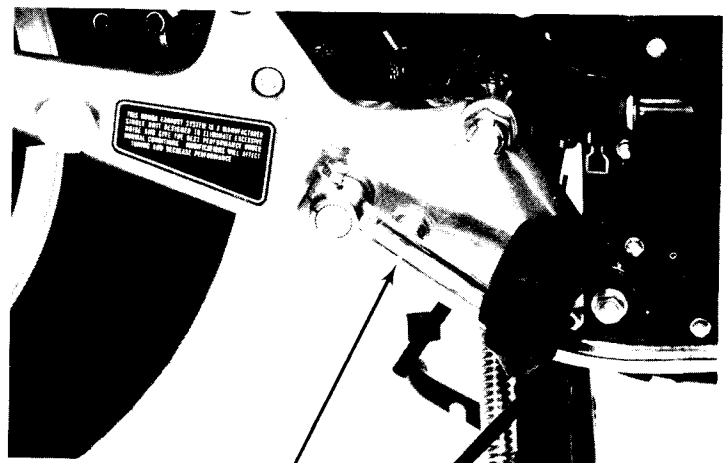
A.C. GENERATOR COUPLER

Disconnect the clutch cable at its lower end.



CLUTCH CABLE

Remove the brake pedal.

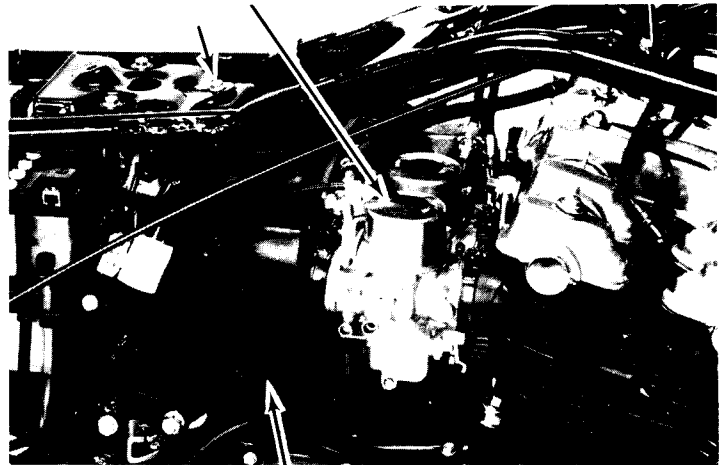


BRAKE PEDAL



Remove the air cleaner assembly and carburetors.

CARBURETOR



AIR CLEANER

Disconnect the tachometer cable and spark plug caps.

TACHOMETER CABLE



STARTER CABLE

Disconnect the starter motor cable and pulser generator coupler.



PULSER GENERATOR COUPLER



Loosen the drive chain adjusting bolt lock nuts and bolts.
Remove the cotter pin and loosen the rear axle nut.
Push the adjusters down and push the rear wheel forward.

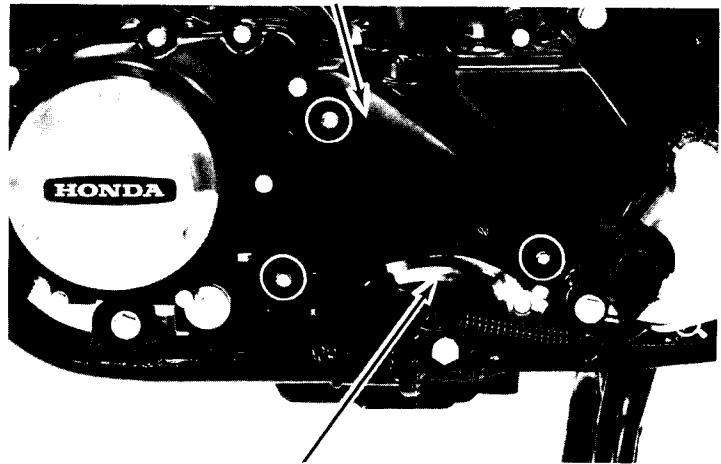
REAR AXLE NUT



ADJUSTING BOLT LOCK NUT

Remove the gearshift pedal.
Remove the drive sprocket cover.

DRIVE SPROCKET COVER

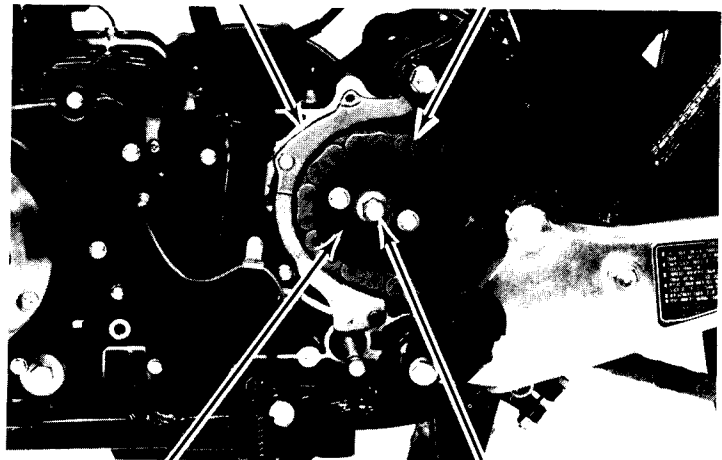


GEAR SHIFT PEDAL

Remove the drive chain guide plate.
Remove the sprocket damper mounting bolts, damper plate and damper rubber.
Remove the sprocket attaching bolt and sprocket.

DRIVE CHAIN GUIDE PLATE

DRIVE CHAIN



DAMPER PLATE

SPROCKET ATTACHING BOLT



Remove the rear brake master cylinder mounting socket bolts.

Remove the brake pedal bracket mounting bolt and swingarm pivot bolt.

Place a jack under the engine.

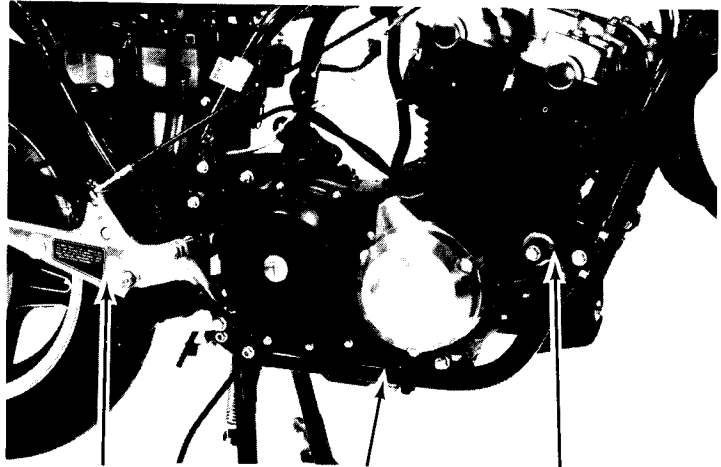
Remove the right and left front engine mounting brackets.

Remove the lower front and rear engine mounting bolts. Note the position of the outer damper plates.

Remove the rear engine mounting bolt.

Remove the lower right frame tube.

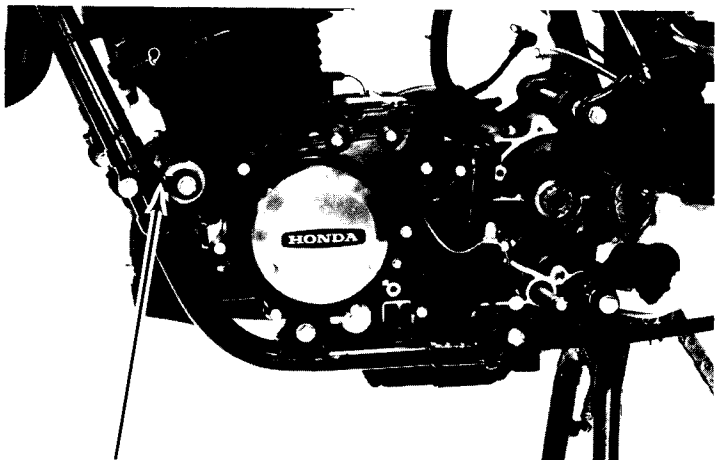
Remove the engine from the right side.



BRAKE PEDAL
BRACKET

LOWER RIGHT
FRAME TUBE

RIGHT FRONT
ENGINE MOUNTING
BRACKET



LEFT FRONT ENGINE
MOUNTING BRACKET

ENGINE INSTALLATION

Check the engine mounting rubbers for damage and replace if necessary.



MOUNTING RUBBERS



Install the engine into the frame. Installation is essentially the reverse order of removal with these exceptions:

Position the lower front and rear engine mount outer damper plates as noted during removal. They must be positioned correctly for low vibration levels.

TORQUE:

Engine hanger bolts:

10 mm bolt (1): 35–45 N·m
(3.5–4.5 kg-m, 25–33 ft-lb)

10 mm bolt (2): 40–50 N·m
(4.0–5.0 kg-m, 29–36 ft-lb)

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

Swingarm pivot: 60–70 N·m
(6.0–7.0 kg-m, 43–51 ft-lb)

Master cylinder bolt: 30–40 N·m
(3.0–4.0 kg-m, 22–25 ft-lb)

Check the drive sprocket o-ring and rubber damper for damage and replace if necessary. Then install the drive sprocket as shown.

Assemble exhaust system keeping 120 mm (4 3/4 in) between the right and left oil pan mounting holes.

Install the exhaust system loosely.

Tighten the following in the order listed:

– exhaust to cylinder head flange nuts.

TORQUE: 30–35 N·m
(3.0–3.5 kg-m, 22–25 ft-lb)

– exhaust pipe to oil pan mounting bolts.

TORQUE: 50–52 N·m
(5.0–5.2 kg-m, 36–37 ft-lb)

– rear muffler mounting bolts.

TORQUE: 35–45 N·m
(3.5–4.5 kg-m, 25–38 ft-lb)

– no. 2 and no. 3 exhaust pipe connecting band bolts.

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

Route all wires and cables properly (page 25-9).

Fill the crankcase to the proper level with the recommended oil (page 2-1).

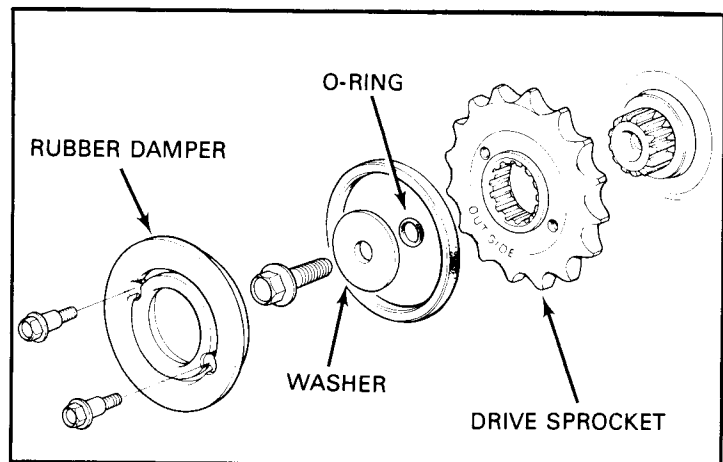
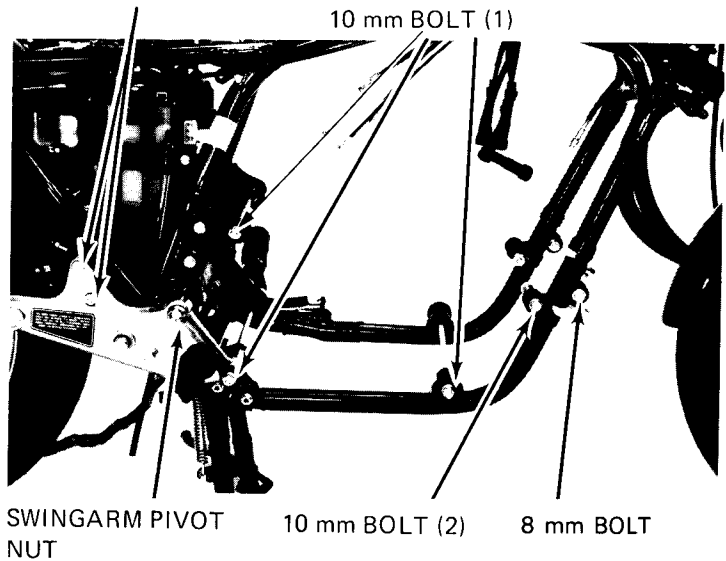
Perform the following inspections and adjustments:

Throttle operation (page 3-3).

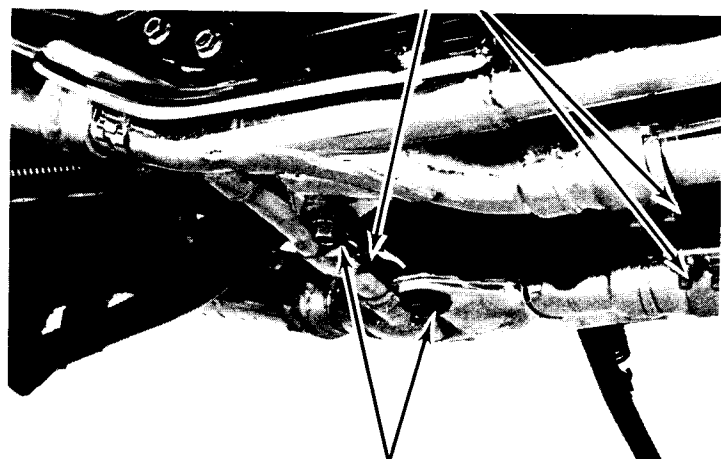
Clutch (page 3-17).

Drive chain (page 25-18).

MASTER CYLINDER BOLTS



CONNECTING BAND BOLTS

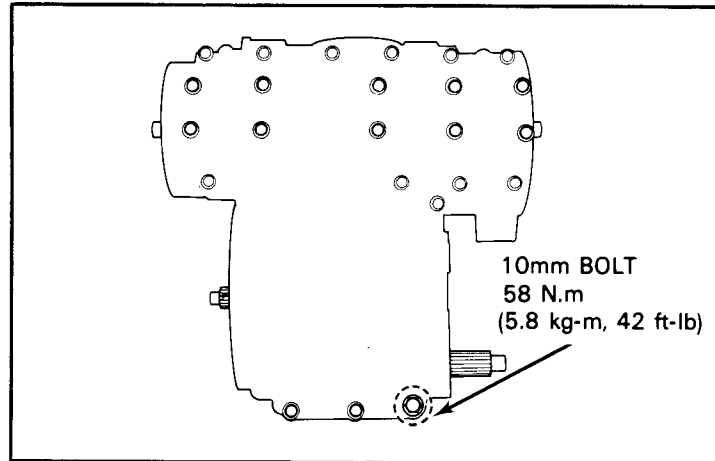




5. CRANKCASE ASSEMBLY

Assemble the crankcase halves, aligning the shift fork claws with the gears.

Apply engine oil to the 10 mm bolt and tighten all bolts in the sequence shown on page 11-4. Tighten the 10 mm bolt to 58 N·m (5.8 kg-m, 42 ft-lb).



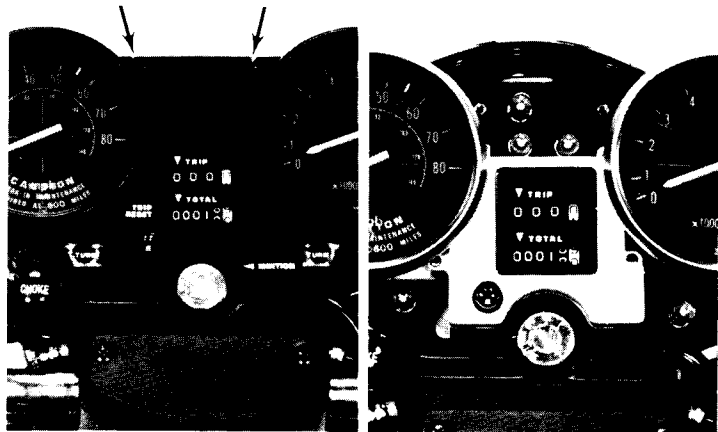
6. FRONT WHEEL/SUSPENSION INSTRUMENTS

INDICATOR LIGHT BULB REPLACEMENT

Remove the indicator light panel screws and panel.

Replace the bulb.

If a replacement bulb does not light, check the wiring for a short, open circuit, or loose connection.



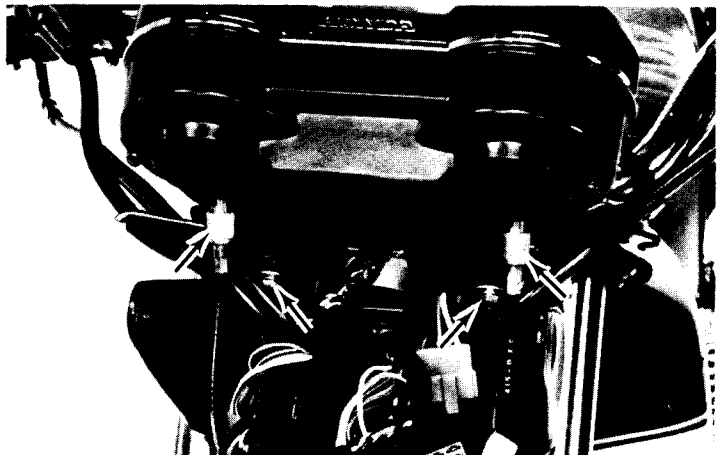
REMOVAL

Remove the headlight (14-3).

Disconnect the speedometer and tachometer cables from the instruments.

Remove the instrument mounting nuts.

Remove the instruments.





METER BULB REPLACEMENT

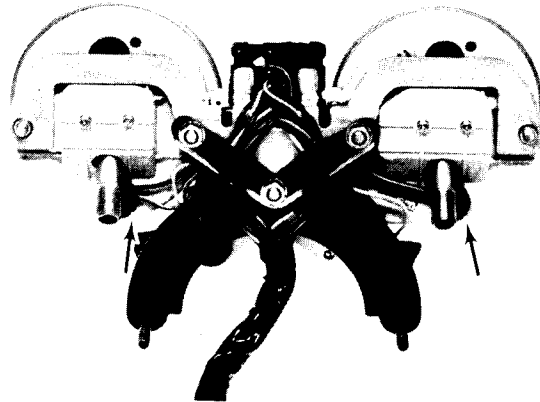
Remove the indicator light panel.
Remove the instruments' lower cover nuts and lower cover.

CAUTION:

Do not leave the instruments upside down or oil will leak onto the lens.



Replace the bulb.
After installing a new bulb, check for continuity. If the bulb does not light, inspect the wiring for an open or short circuit.
Lubricate the speedometer and tachometer cables before reconnecting.



INSTALLATION

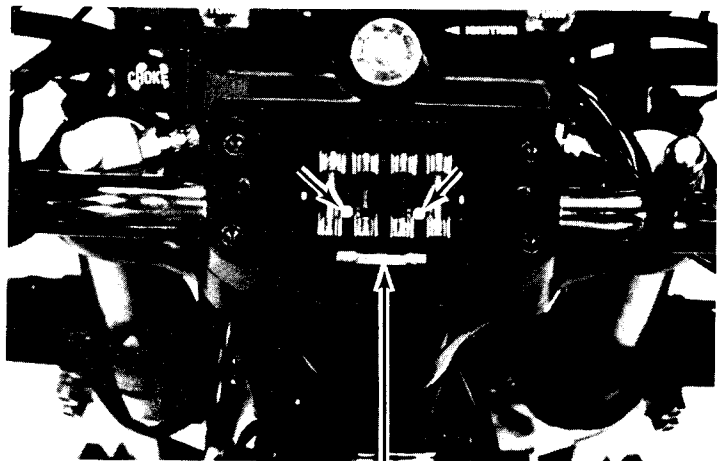
Install the instruments in the reverse order of removal.

FUSE HOLDER REPLACEMENT

Remove the fuse cover.
Unscrew the screws holding the fuse holder.
Remove the headlight. (page 14-3)
Disconnect the wire connector.
Remove the fuse holder.

NOTE

Before removing the fuse holder, tie a string to the holder wires. This string can be used as a draw cord when installing a new holder.



FUSE HOLDER



FRONT WHEEL

REMOVAL

Remove the speedometer cable set screw and the speedometer cable.

Remove the left caliper assembly from the fork leg by removing the mounting bolts.

CAUTION:

Support the caliper assembly so it does not hang by the hose.

Remove the left and right axle holders. Jack up the engine until the forks clear the front axle and remove the front wheel.

NOTE

Do not operate the front brake lever after removing the front wheel. To do so will cause difficulty in fitting the brake disc between the brake pads.

INSTALLATION

Position the wheel between the fork legs. Lower the engine so the fork legs rest on the top of the axle.

CAUTION:

When installing the wheel, fit the right brake disc carefully between the brake pads to avoid damaging the pads.

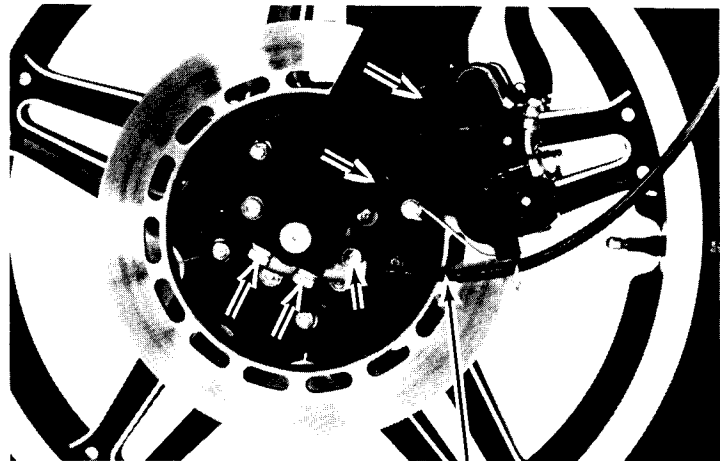
Position the tang on the speedometer gear box against the lug on the left fork leg.

Install the axle holders with the "↑" mark forward. Tighten the forward axle holder nuts lightly.

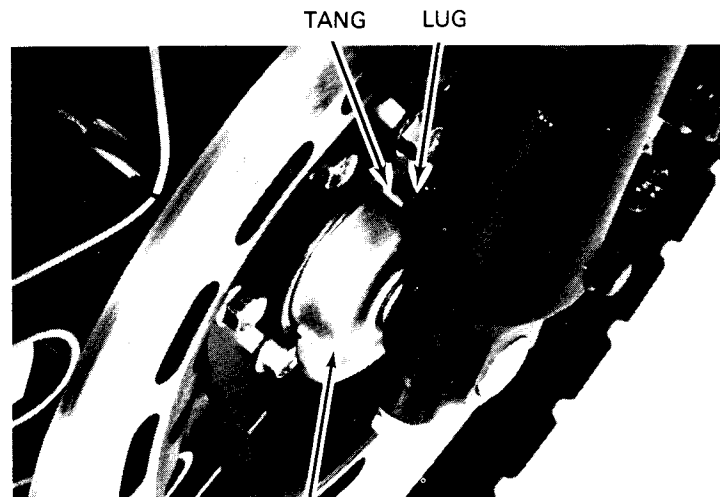
Fit the left caliper over the disc and tighten the mounting bolts.

TORQUE: 30–40 N·m
(3.0–4.0 kg·m, 22–29 ft·lb)

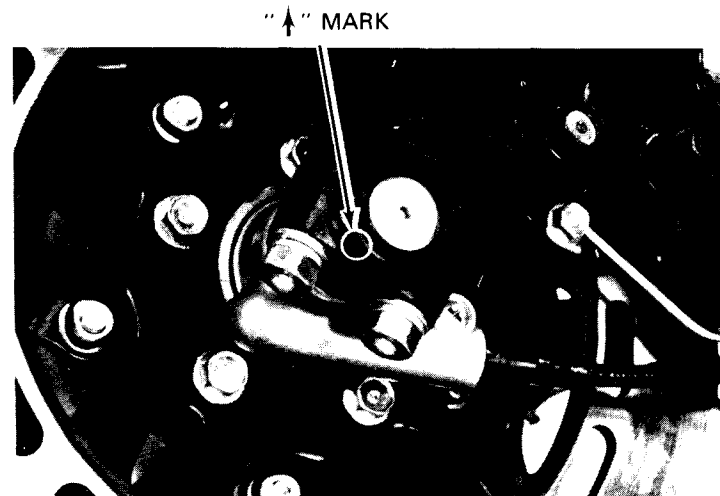
Tighten the right axle holder nuts starting with the forward nut.



SPEEDOMETER CABLE



SPEEDOMETER GEAR BOX



"↑" MARK



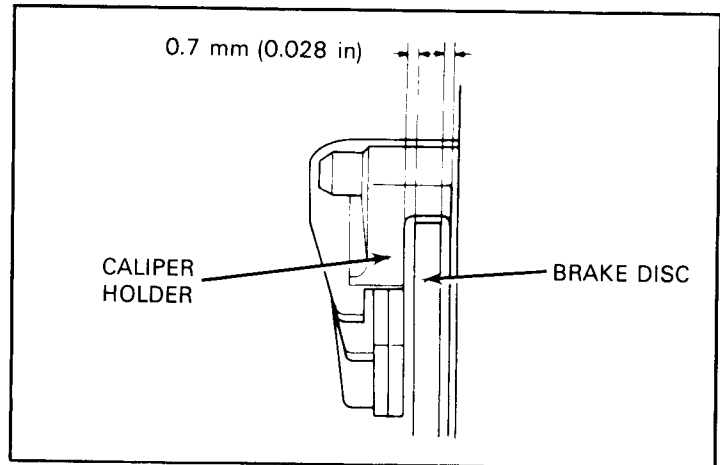
Measure the clearance between each surface of the left brake disc and the left caliper holder with a 0.7 mm (0.028 in) feeler gauge. If gauge inserts easily, tighten the forward axle nut to the specified torque, then tighten the rear nut.

If the feeler gauge cannot be inserted easily, pull the left fork out or push in until the gauge can be inserted.

After installing the wheel, apply the brake several times then recheck both discs for caliper holder to disc clearance.

WARNING

Failure to provide adequate disc to caliper holder clearance may damage the brake disc and impair brake efficiency.



FRONT FORK

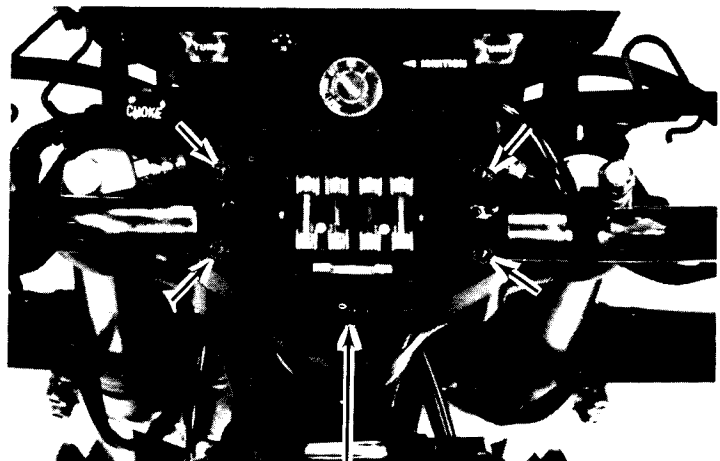
SPECIFICATIONS

	STANDARD	SERVICE LIMIT
Fork spring free length	532.2 mm (20.95 in)	521 mm (20.51 in)
Front fork tube O.D.	38.950~38.975 mm (1.533~1.534 in)	38.900 mm (1.531 in)
Front fork fluid capacity	345 ± 2.5 cc (11.66 ± 0.085 oz)	—
Front fork air pressure	90 ± 10 kPa (0.9 ± 0.1 kg/cm ² , 12.8 ± 1.42 psi)	—

SPECIAL TOOLS: FORK SEAL DRIVER 07947-4630100

REMOVAL

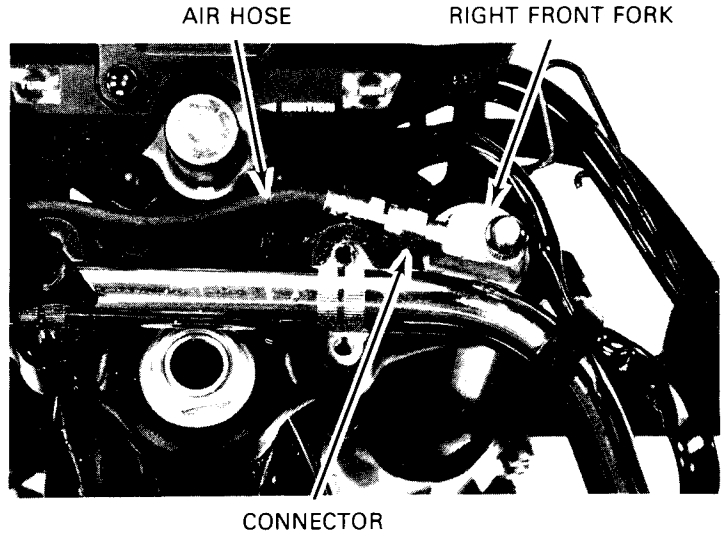
Remove the handlebar upper holder.



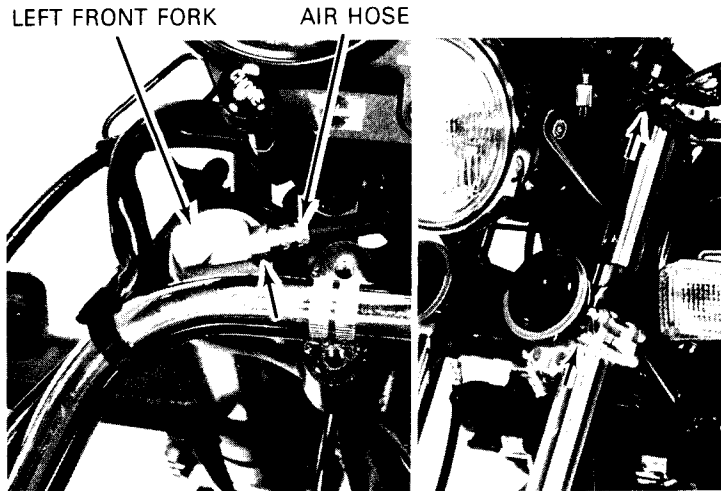
UPPER HOLDER



Disconnect the air hose and remove the connector from the right front fork.

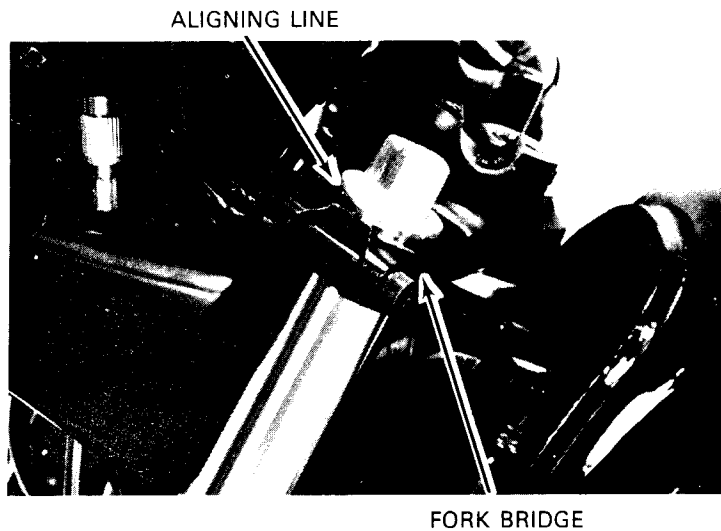


Disconnect the air hose from the left front fork. Remove the front wheel (page 25-30). Remove the right brake caliper. Remove the front fender. Loosen the fork upper and lower pinch bolts and remove the front fork tubes.



INSTALLATION

Install the front fork so the aligning line on the top of the fork tube is even with the fork bridge.

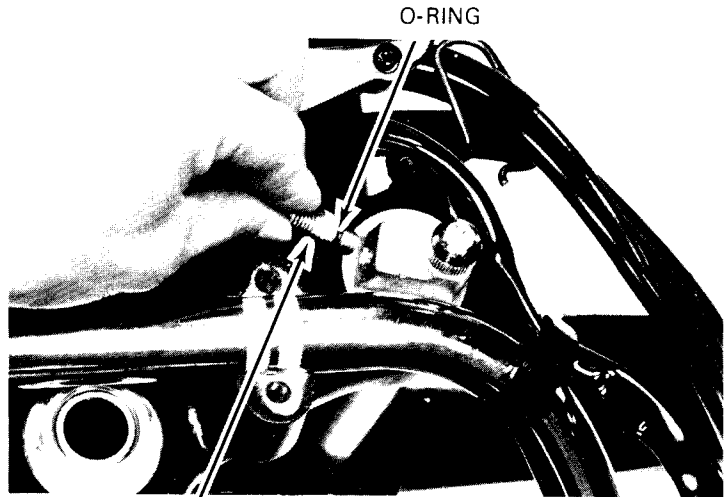




Apply grease to a new O-ring and place it on the air hose connector.

Install the connector into the right front fork cap and tighten it.

TORQUE: 4–7 N·m
(0.4–0.7 kg·m, 2.9–5.1 ft·lb)

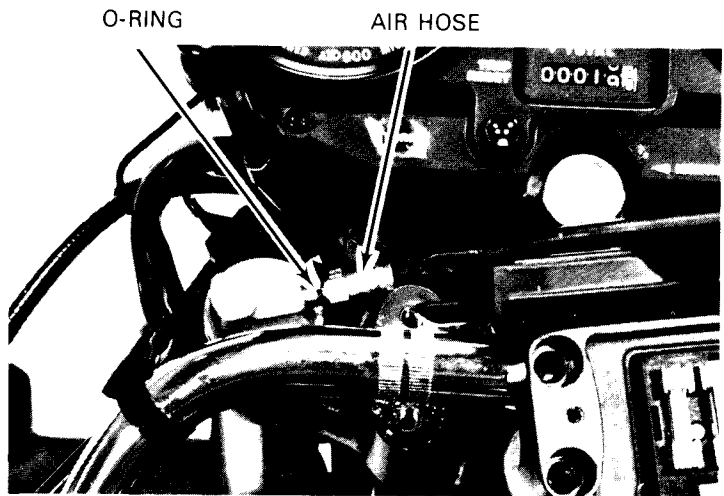


AIR HOSE CONNECTOR

Apply grease to a new O-ring and place it on the end of the air hose.

Connect the air hose to the left front fork cap.

TORQUE: 4–7 N·m
(0.4–0.7 kg·m, 2.9–5.1 ft·lb)



Connect the air hose to the connector in the right fork cap and tighten it.

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

Install the removed parts in the reverse order of removal.

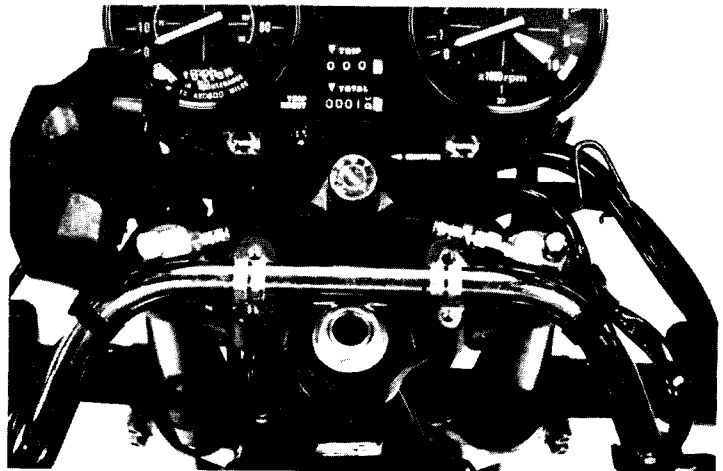
Fill the fork tubes with air to 0.8 - 1.1 kg/cm² (11 - 16 psi).

CAUTION:

- Use only a hand operated air pump to fill the fork tubes. Do not use compressed air.
- Maximum pressure is 3 kg/cm² (43 psi). Do not exceed this or fork tube component damage may occur.

With the front brake applied, pump the front forks up and down several times.

Place the motorcycle on its center stand. Check the air pressure and adjust if necessary.



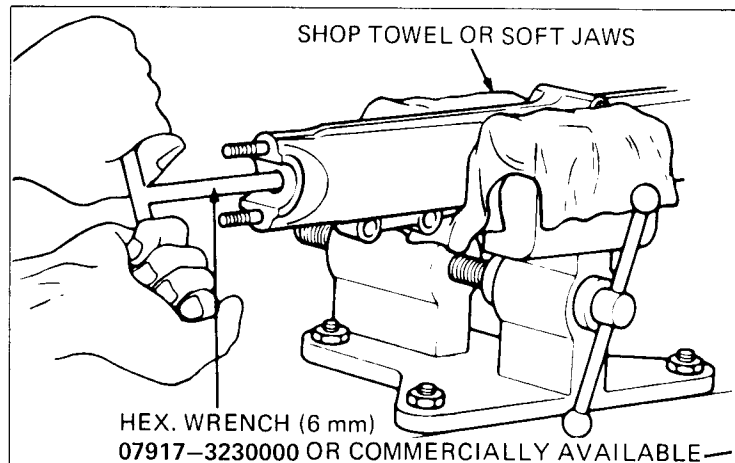


SEPARATION

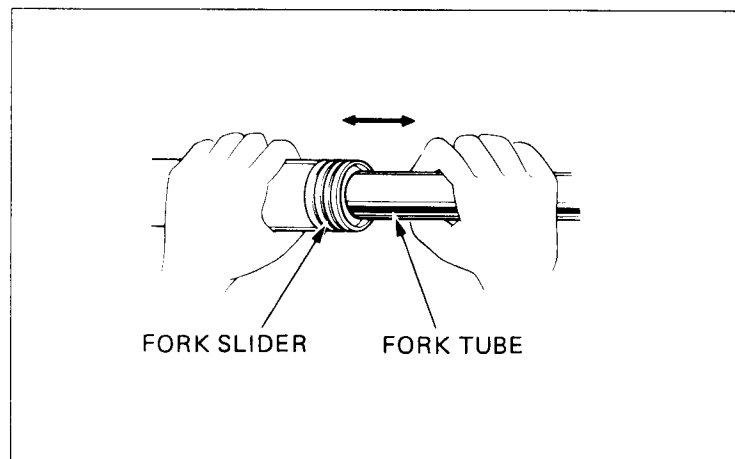
Remove the front fork (see page 25-31).
 Hold the fork slider in a vise with soft jaws or a shop towel.
 Remove the socket bolt with a hex wrench and pump the remaining ATF out through the socket bolt hole.

CAUTION:

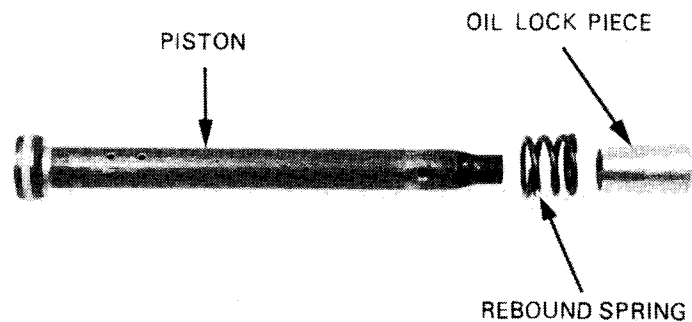
Do not distort the slider in the vise.



Pull the fork tube out until resistance from the slider bushing is felt. Then move it in and out, tapping the bushing lightly until the fork tube separates from the slider. The slider bushing will be forced out by the fork tube bushing.
 Remove the slider bushing from the fork tube.



Remove the piston and rebound spring from the fork tube.
 Remove the oil lock piece from inside the slider.





INSPECTION

Check the fork spring free lengths and replace the springs if shorter than the service limit.

	Spring
Standard	532.2 mm (20.95 in)
Service limit	521 mm (20.51 in)

SPRING



Check the fork tubes, fork sliders, bushings and pistons for score marks, scratches, excessive or abnormal wear, replacing those which can not be reused.

Measure the outside diameter of the fork tube.

FORK TUBE O. D. SERVICE LIMIT:
38.9 mm (1.531 in)

Visually inspect the slider and fork tube bushings.

Replace if there are excessive scores or scratches, or if the teflon coating is worn so that copper appears over more than 3/4 of the total surface.

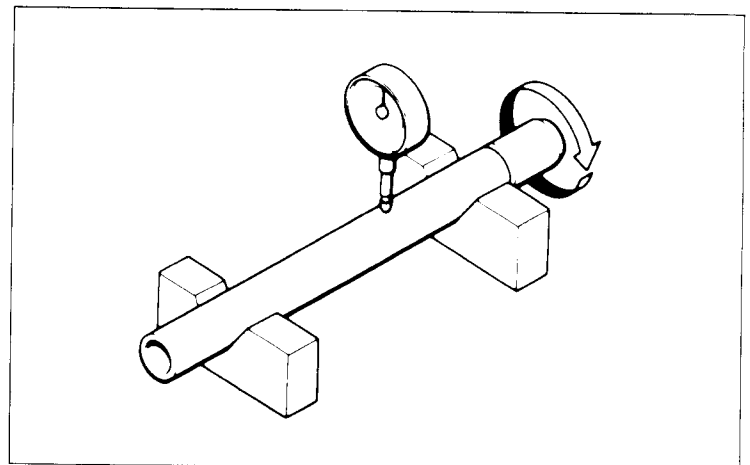
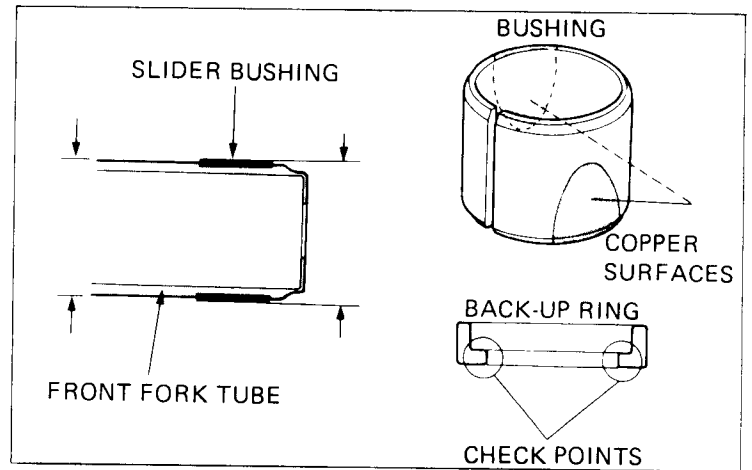
Check the back-up ring at the points shown.

Replace if there is any distortion at the points.

Set the fork tube in V blocks and read the runout. Take 1/2 TIR to determine the actual runout.

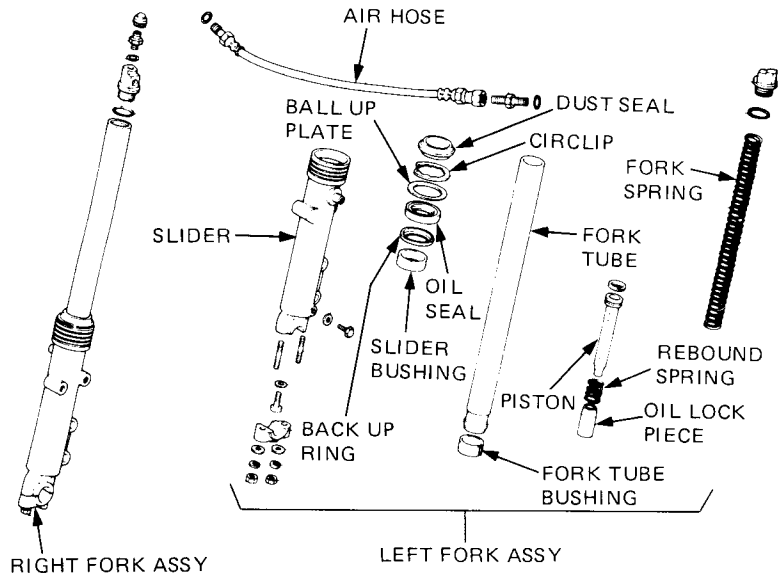
RUN OUT SERVICE LIMIT:
0.2 mm (0.008 in)

Inspect the fork tube, slider and piston ring for excessive wear and replace if necessary.

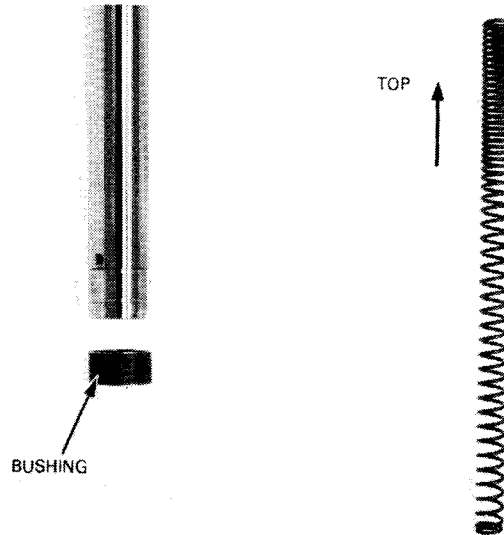




FRONT FORK ASSEMBLY/
INSTALLATION
ASSEMBLY



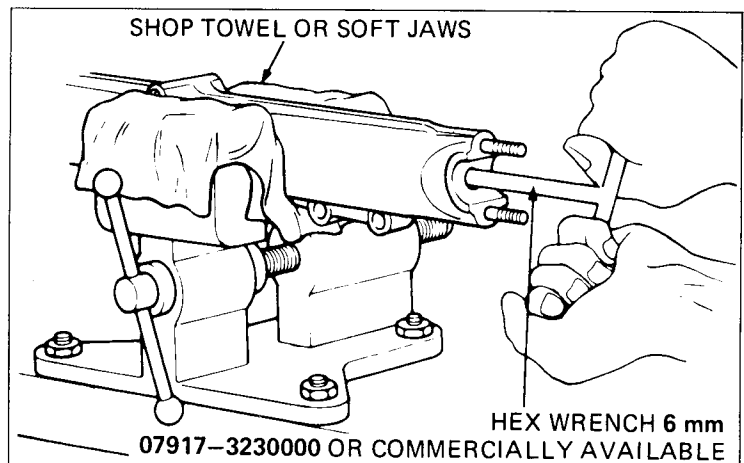
Clean all disassembled parts.
Install the bushing onto the inner tube.
Install the rebound spring and piston into the fork tube.
Place the oil lock piece into the slider and insert the fork tube.
Install the fork spring with the narrow coil toward the top. Install the fork tube cap loosely.



Apply a locking agent to the socket bolt and thread it into the piston. Tighten with a Hex Wrench.

CAUTION:

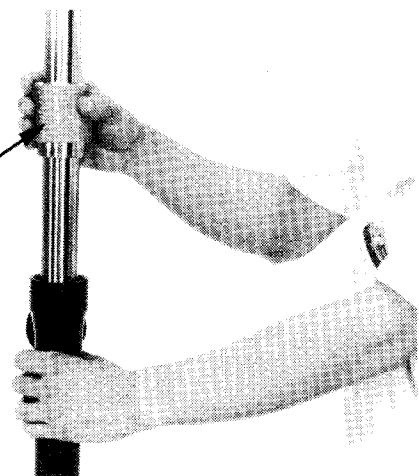
Do not distort the slider in the vise.





Place the slider bushing over the fork tube and rest it on the slider. Put the back-up ring and an old bushing or equivalent tool on top. Drive the bushing into place with the seal driver. Remove the old bushing.

FORK SEAL DRIVER
07947-4630100



Coat a new oil seal with ATF and install it with the seal markings facing up. Drive the seal in with the seal driver.

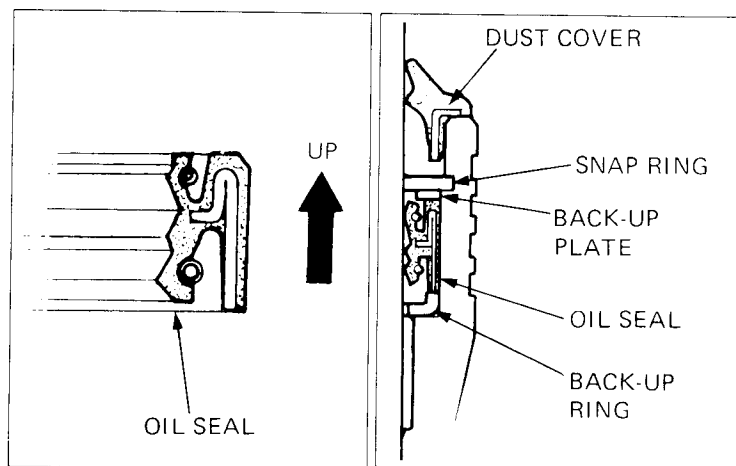
NOTE

If additional seal depth is needed, install the back-up plate and repeat driving the seal in.

Install the back-up plate, snap ring and dust cover.

NOTE

Install the snap ring with its radiused edge facing down.



Remove the fork tube cap and pour the specified amount of ATF into the fork tube.

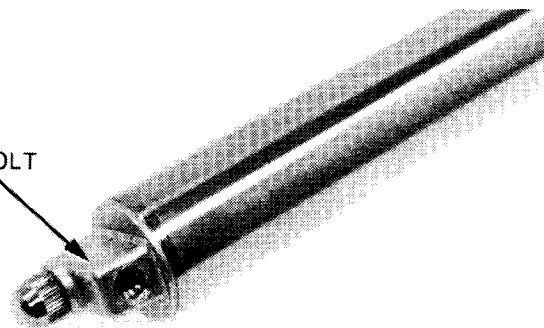
OIL CAPACITY: 345 cc (11.66 oz)

Install and torque the fork tube cap bolt.

TORQUE: 15-30 N·m
(1.5-3.0 kg-cm, 11-22 ft-lb)

Install the front fork (see page 25-32).

CAP BOLT





7. REAR WHEEL/SUSPENSION

SERVICE INFORMATION

GENERAL INSTRUCTIONS

- The rear wheel uses a tubeless tire. For tubeless tire repairs, refer to the TUBELESS TIRE MANUAL.
- Do not remove rivets, nuts and pins from the rim, spoke plate and hub.
- Never ride on the rim or try to bend the rim.
- Avoid damaging the aluminum alloy rim.

TOOLS

Common

Bearing driver handle A	07749-0010000
Bearing driver outer 62 x 68 mm	07746-0010500
Bearing driver outer 52 x 55 mm	07746-0010400
Bearing driver pilot 20 mm	07746-0040500
Bearing driver pilot 25 mm	07746-0040600
Rear shock absorber compressor	07959-3290001
Retainer wrench body	07710-0010400
Retainer wrench A	07710-0010100

TORQUE VALUES

Rear brake disc	27–33 N·m (2.7–3.3 kg-m, 20–24 ft-lb)
Driven sprocket	80–100 N·m (8.0–10.0 kg-m, 58–72 ft-lb)
Rear axle nut	80–100 N·m (8.0–10.0 kg-m, 58–72 ft-lb)
Rear shock absorber	30–40 N·m (3.0–4.0 kg-m, 22–29 ft-lb)
Swing arm pivot nut	60–70 N·m (6.0–7.0 kg-m, 43–51 ft-lb)
Brake torque link	18–25 N·m (1.8–2.5 kg-m, 13–18 ft-lb)

SPECIFICATIONS

	Standard	Service Limit
Axle runout	—	0.2 mm (0.008 in)
Rear wheel runout	Radial	2.0 mm (0.08 in)
	Axial	2.0 mm (0.08 in)
Shock absorber spring free length	238.0 mm (9.37 in)	233.0 mm (9.17 in)
Swing arm bushing	I.D.	21.500 - 21.552 mm (0.8465 - 0.8485 in)
Swing arm collar	O.D.	21.427 - 21.460 mm (0.8436 - 0.8449 in)

TROUBLESHOOTING

Oscillation

1. Bent rim
2. Loose wheel bearings
3. Loose or bent spokes
4. Faulty tire
5. Loose axle
6. Tire pressure incorrect
7. Swingarm bearing worn

Soft suspension

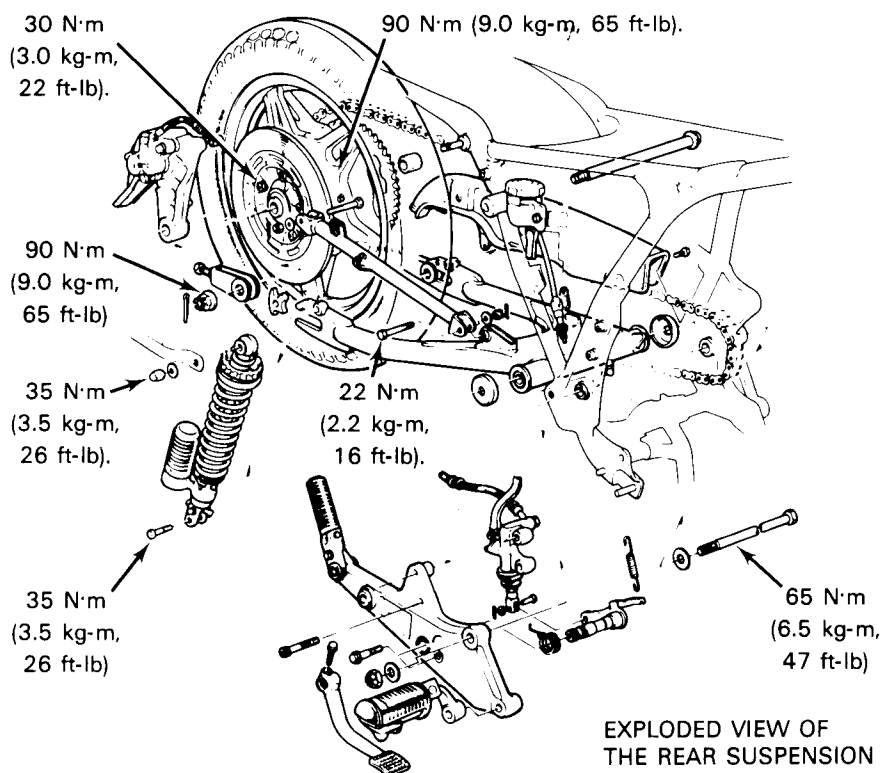
1. Weak springs
2. Shock absorber improperly adjusted

Hard suspension

1. Shock absorber improperly adjusted
2. Bent shock absorber

Suspension noise

1. Shock case binding
2. Loose fasteners



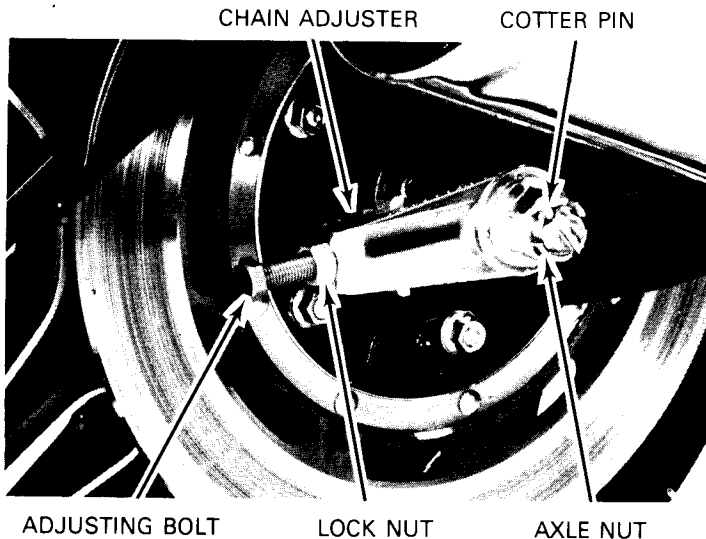
EXPLODED VIEW OF
THE REAR SUSPENSION



REAR WHEEL

REMOVAL

Place the motorcycle on its center stand.
Loosen the drive chain adjusting bolt lock nuts and adjusting bolts.
Remove the cotter pin from the end of the rear axle and loosen the rear axle nut.

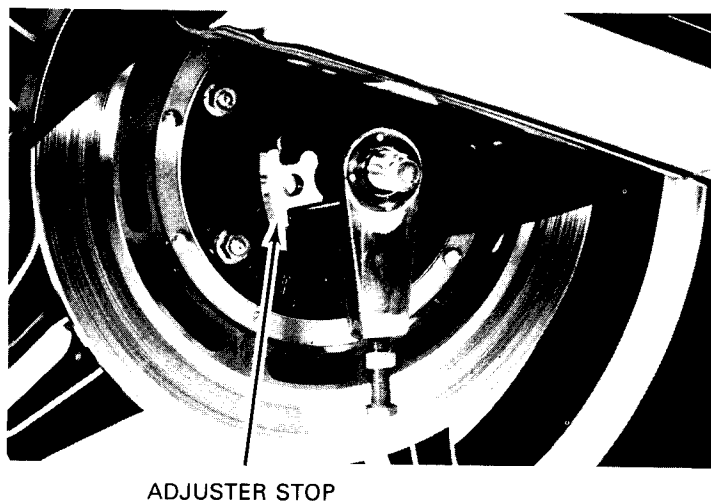


Pull the adjusters down and remove the adjuster stops.
Push the wheel forward and remove the drive chain from the sprocket.
Pull the wheel out of the swingarm.

NOTE

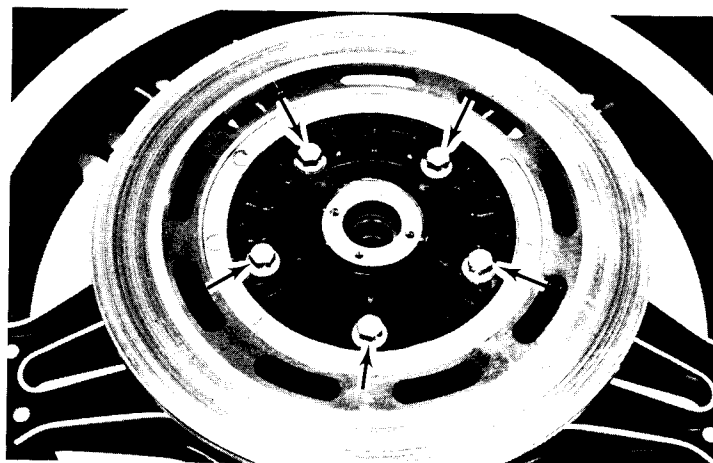
Do not operate the rear brake pedal after removing the rear wheel. To do so will cause difficulty in refitting the brake disc between the brake pads.

Remove the rear axle.



DISASSEMBLY

Remove the rear disc nuts and the disc.



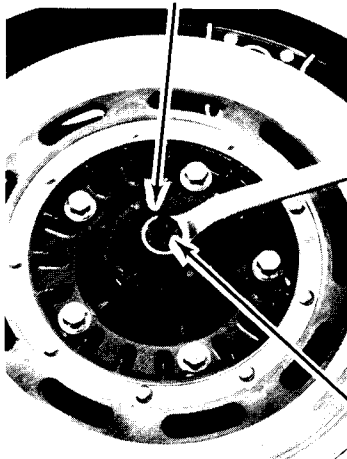


Loosen the driven sprocket nuts.
 Remove the driven flange from the wheel hub.
 Remove the driven sprocket.



Remove the bearing retainers.

RETAINER WRENCH A
 07710-0010100



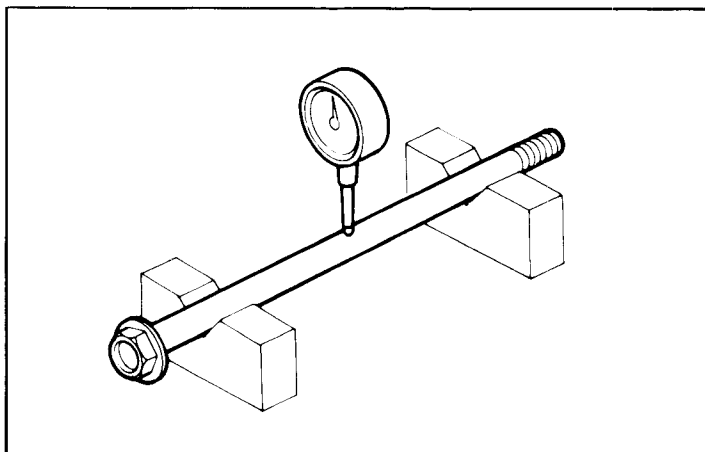
RETAINER WRENCH BODY
 07710-0010401

INSPECTION

AXLE

Set the axle in V blocks and read the axle runout.
 The actual axle runout is 1/2 of the total indicator reading.

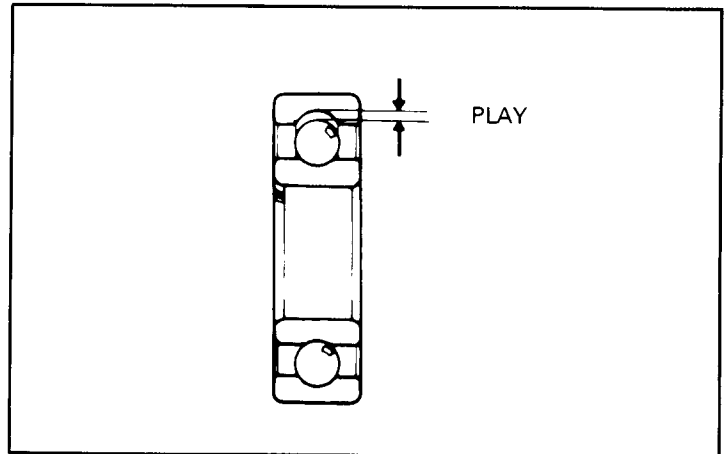
SERVICE LIMIT: 0.2 mm (0.008 in)





REAR WHEEL BEARING

Check the wheel bearing play by rotating the wheel by hand. Replace the bearings with new ones if they are noisy or have excessive play.



REAR WHEEL RIM RUNOUT

Check the rim for runout by placing the wheel in a truing stand. Spin the wheel slowly, and read the runout using a dial indicator.

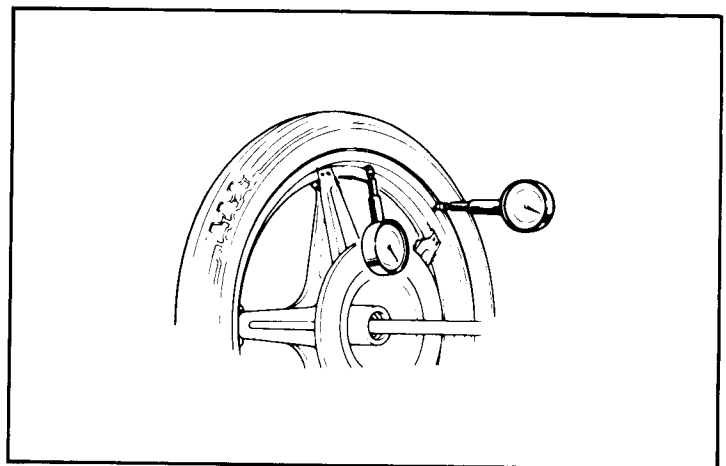
SERVICE LIMITS:

RADIAL RUNOUT: 2.0 mm (0.08 in)

AXIAL RUNOUT: 2.0 mm (0.08 in)

NOTE

The COMSTAR WHEEL cannot be serviced and must be replaced if the above limits are exceeded.

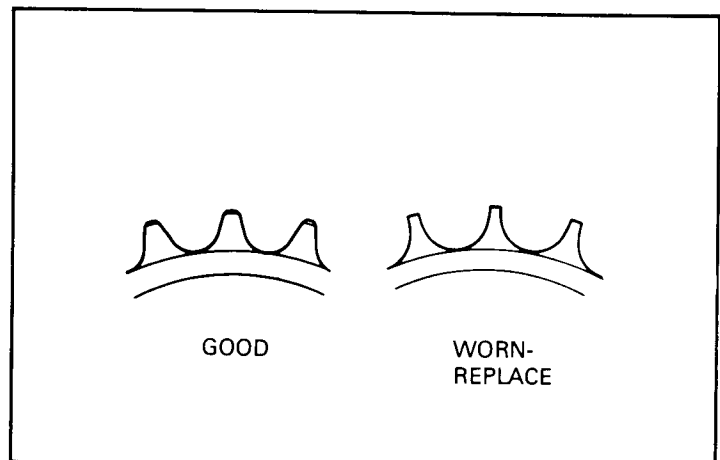


FINAL DRIVEN SPROCKET

Check the condition of the final driven sprocket teeth. Replace the sprocket if worn or distorted.

NOTE

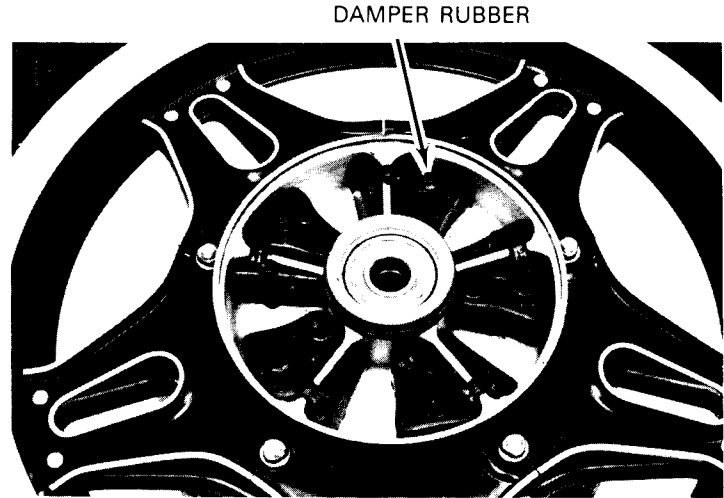
If the final driven sprocket requires replacement, inspect the drive chain and drive sprocket.





DAMPER RUBBERS

Replace the damper rubbers if they are damaged or deteriorated.



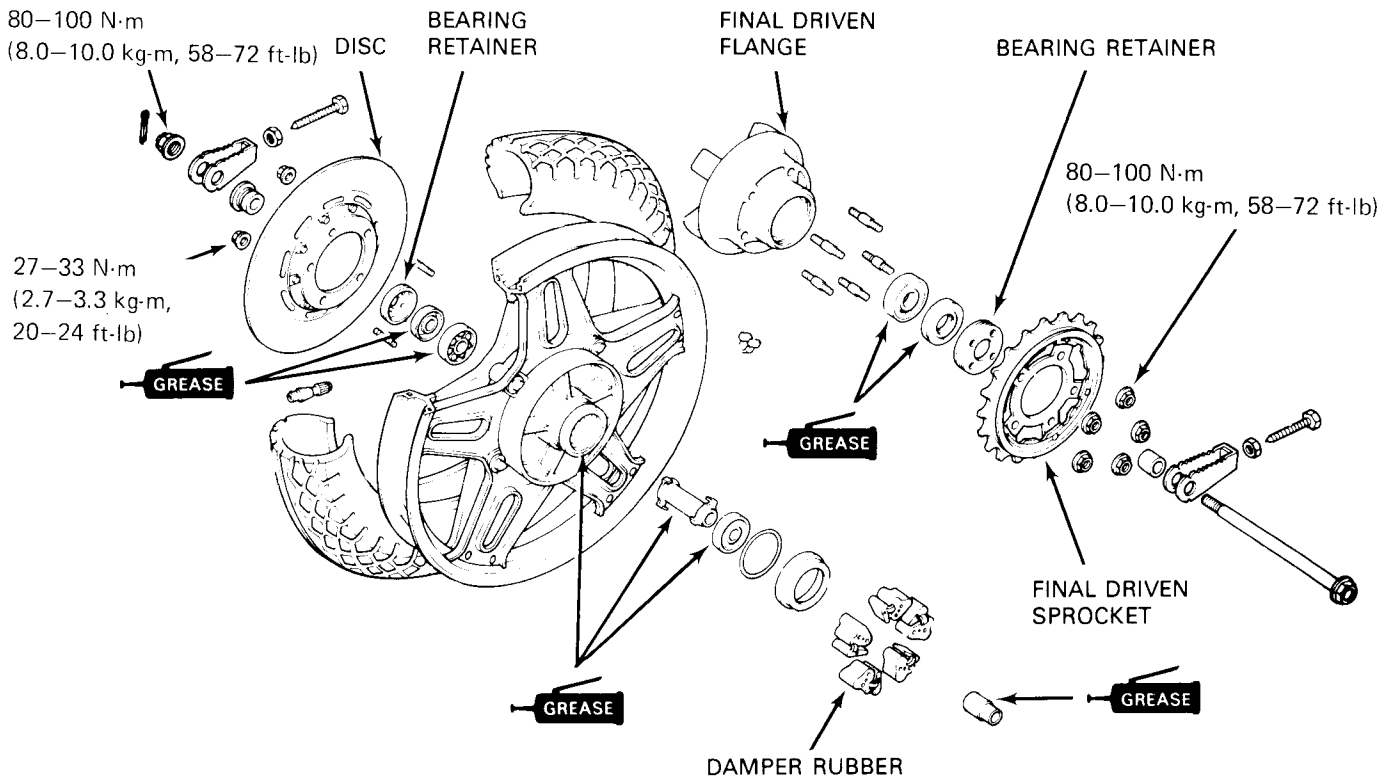
ASSEMBLY

NOTE

The rear wheel uses a tubeless tire. For tubeless tire repairs, refer to TUBELESS TIRE MANUAL.

WARNING

Do not get grease on the brake disc or stopping power will be reduced.

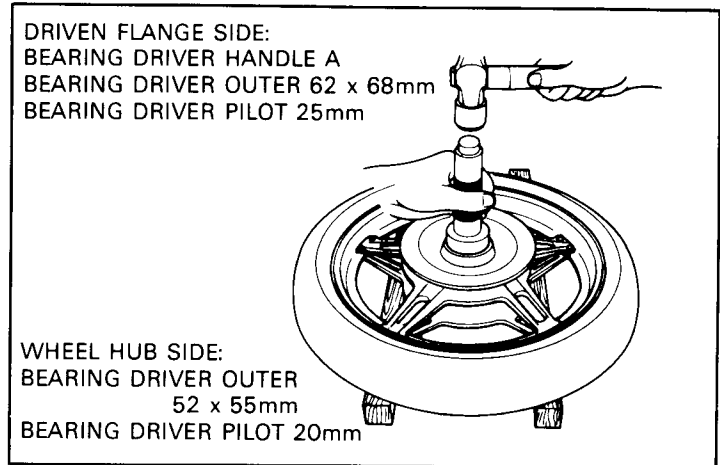




Pack all bearing cavities with grease.
Press the distance collar into place from the left side.
Drive the right ball bearing in first, then the left ball bearing.

CAUTION:

Drive the bearings in squarely with the sealed end facing out, making sure they are fully seated.



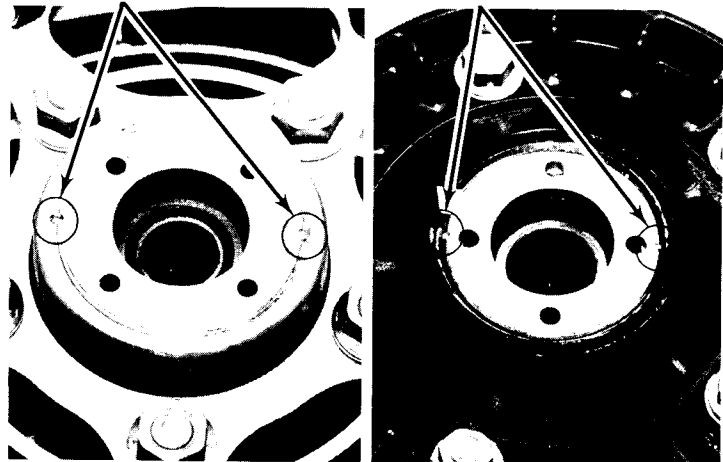
Install the bearing retainers with the same tools used to remove them. Then stake the retainers to the hub.

NOTE

Check the condition of the bearing retainer. If the threads are damaged, the retainer should be replaced.

STAKE IN 2 PLACES

STAKE IN 2 PLACES



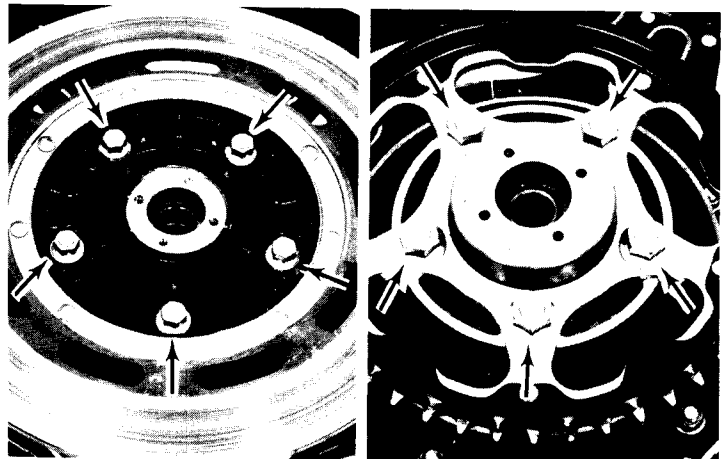
Install the rear brake disc.

TORQUE: 27–33 N·m
(2.7–3.3 kg·m, 20–24 ft·lb)

Clean the brake disc with a high quality degreasing agent.

Install the final driven sprocket.

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





INSTALLATION

Install the rear wheel in the reverse order of removal.

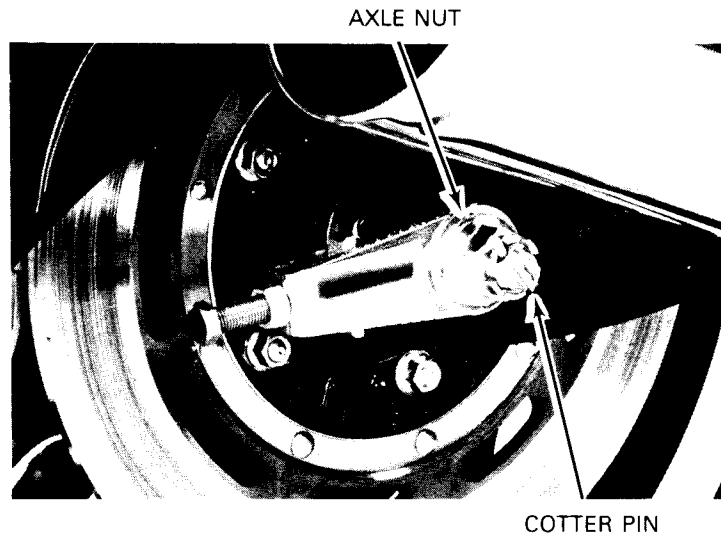
NOTE

- When installing the wheel, carefully fit the brake disc between the brake pads.
- After installing the wheel, apply the brake several times. Then check that the wheel rotates freely. Recheck wheel installation if the brake drags or if the wheel does not rotate freely.

Use a new cotter pin for securing the axle nut.

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

Adjust the drive chain slack (page 25-20).



AXLE NUT

COTTER PIN

SHOCK ABSORBER

REMOVAL

Remove the side grip and shock absorber lower mounting bolt.

Remove the shock absorber.



SIDE GRIP

DISASSEMBLY

Compress the spring with the shock absorber compressor just enough to remove the rebound damping adjuster.

Remove the compressor, spring seat, case, spring and adjuster.



REBOUND DAMPING ADJUSTER

SHOCK ABSORBER COMPRESSOR

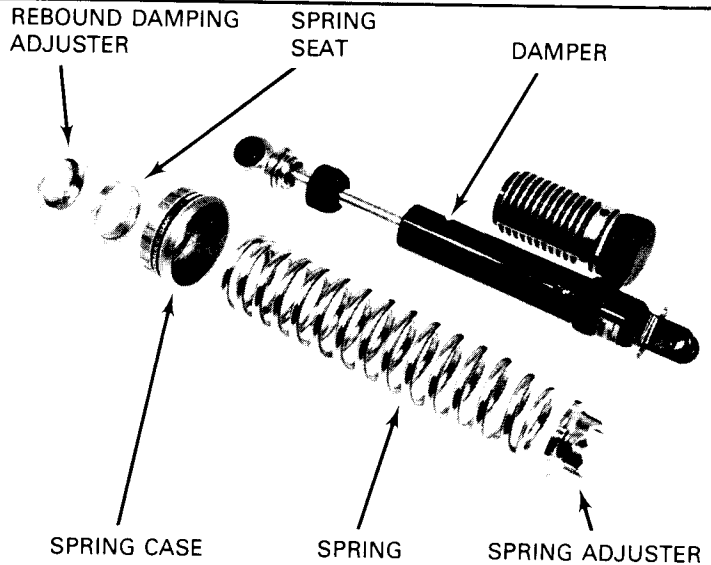


NOTE

Do not try to disassemble the shock absorber further.

WARNING

- Before discarding the shock absorber release the air pressure by removing the reservoir cap and depressing the valve core.
- Do not place the shock absorber near extreme heat or it will explode.

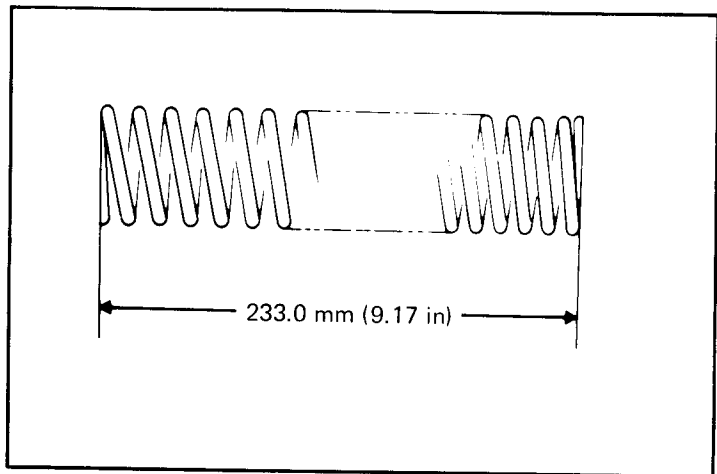


INSPECTION

Check the shock absorber spring free length and replace the spring if shorter than the service limit.

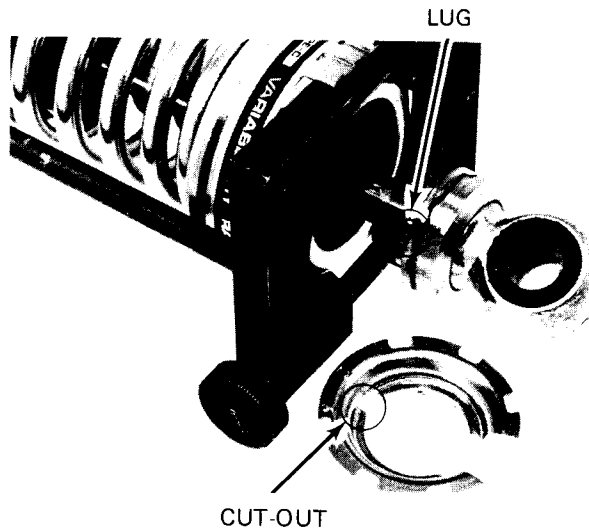
SERVICE LIMIT: 233.0 mm (9.17 in)

Inspect the shock absorber damper for damage or oil leaks. Replace the damper if it is damaged or leaking.



ASSEMBLY

- Install the spring adjuster over the damper.
- Install the shock absorber spring over the spring adjuster and damper with the narrow coils toward the top.
- Install the spring case and seat.
- Install the rebound damping adjuster with the spring compressor, aligning the lug on the upper eye with the cutout in the adjuster.





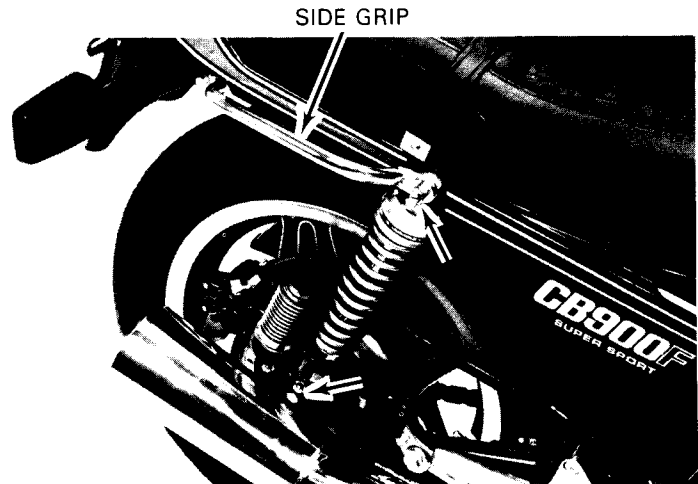
INSTALLATION

Install the shock absorber and lower mounting bolt.

Install the side grip and upper mounting nut.

Tighten the mounting bolt and nut.

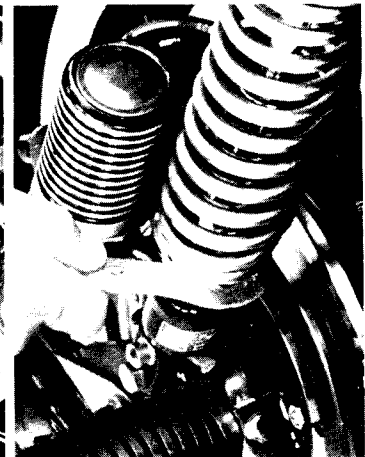
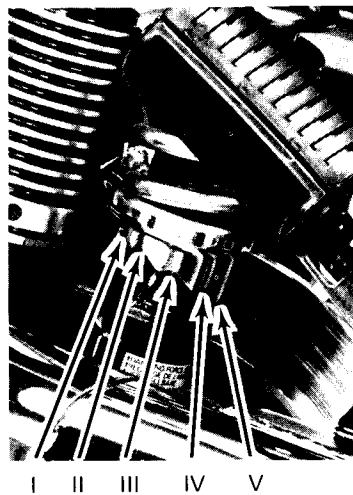
TORQUE: 30–40 N·m
 (3.0–4.0 kg·m, 22–29 ft·lb)



The adjustable VHD shock absorber has three adjustments to provide the desired ride with various rider/cargo weights.

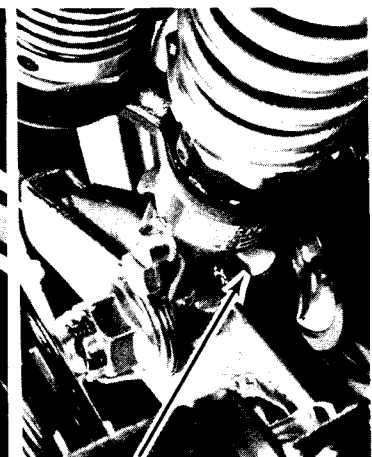
The spring adjuster adjusts spring preload. The rebound damping adjuster and compression damping adjuster adjust damping.

Adjust spring preload first, using the hook spanner to rotate the spring adjuster. Position I is for light loads and position II to V progressively increase preload for heavier loads.



ADJUSTING SPRING PRELOAD

ADJUSTER (TENSION)



ADJUSTER LEVEL
 (COMPRESSION)

Rotate the rebound damping adjuster with the hook spanner to select one of the three positions. Move the compression damping adjuster lever to position "1" or "2".

For both adjusters, damping force increases as you select a higher number.

Be sure to adjust both shock absorbers equally.



RECOMMENDED DAMPING ADJUSTER POSITIONS:

Rebound Damping Adjuster (2)	Compression Damping Adjuster (3)	Conditions	
		Riders/Load	Riding Conditions
1	1	One	Around town
2	1	One	Highways or winding roads
3	1	One	Rough or uneven roads
1	2	One/Two	Around town
2	2	One/Two or carrying load	Highways or winding roads
3	2	One/Two or carrying load	Rough or uneven roads

SWINGARM

REMOVAL

Remove the rear wheel (page 25-39).
Disconnect the rear brake torque rod from the swingarm.

NOTE

To prevent damage to the caliper or brake hose, support caliper with a piece of wire to the frame. Do not allow the caliper to hang by the brake hose.

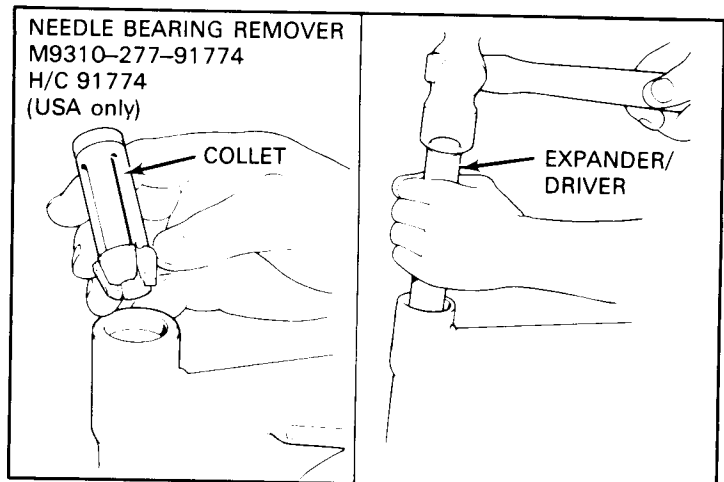
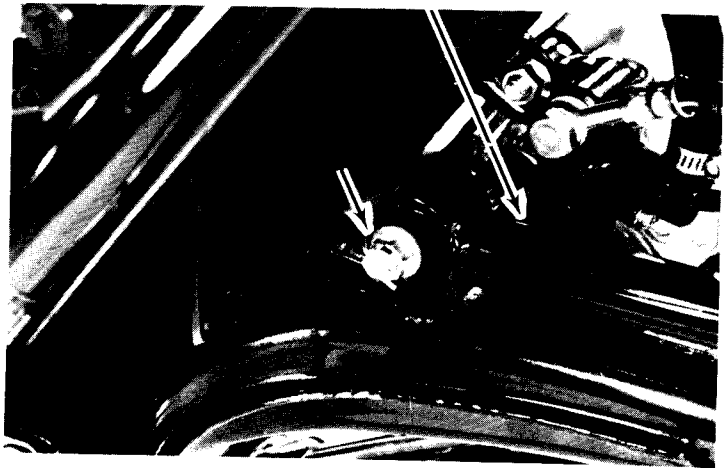
Remove the rear shock absorber lower mounting bolts.

Remove the swingarm pivot bolt and remove the swingarm.

DISASSEMBLY

Remove the dust covers.
Remove the collar.
Remove the bearings and thrust bushings with the two piece bearing remover.
Insert the collet into the bearing. Then insert the expander/driver into the collet from the other end of the swingarm and drive out the bearing.

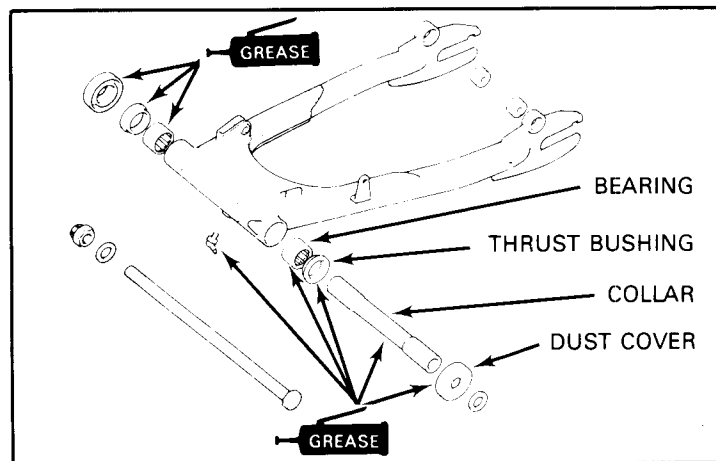
REAR BRAKE TORQUE ROD





INSPECTION

Inspect the collar and bearings.
 Replace them if they have score marks, scratches,
 excessive or abnormal wear.



ASSEMBLY

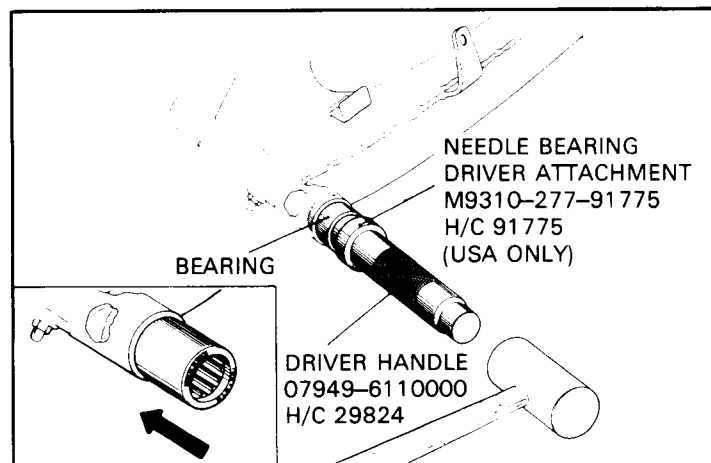
Clean the bearings thoroughly, then lubricate
 them with grease.

Carefully drive the bearings into the swingarm
 with the special tool. Drive the thrust bushings
 into the swingarm with the same special tool.

NOTE

Install the bearings with the markings
 facing out.

Lubricate with grease after installation.
 Install the collar.



INSTALLATION

Place the drive chain over the swingarm.
 Tighten the swingarm pivot bolt.

TORQUE: 60–70 N·m
 (6.0–7.0 kg-m, 43–51 ft-lb)

Install and tighten the rear shock absorber
 lower mounting bolts.

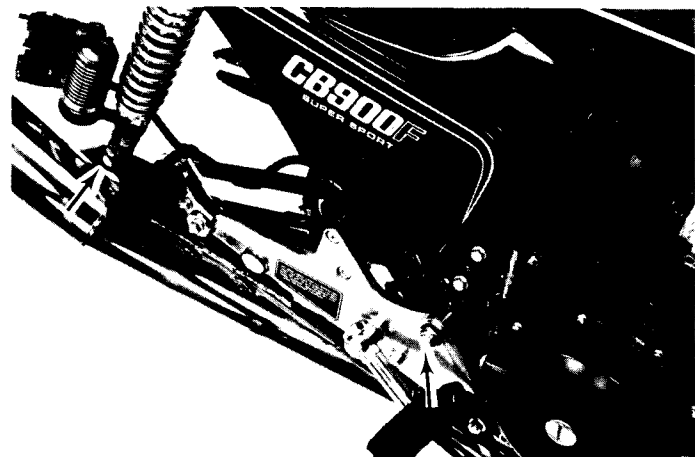
TORQUE: 30–40 N·m
 (3.0–4.0 kg-m, 22–29 ft-lb)

Connect the rear brake torque rod to the
 swingarm and tighten the nut.

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

Secure the torque rod nut with a new cotter
 pin.

Install the rear wheel (page 25-46).





8. HYDRAULIC BRAKE BRAKE PAD

FRONT PAD REPLACEMENT

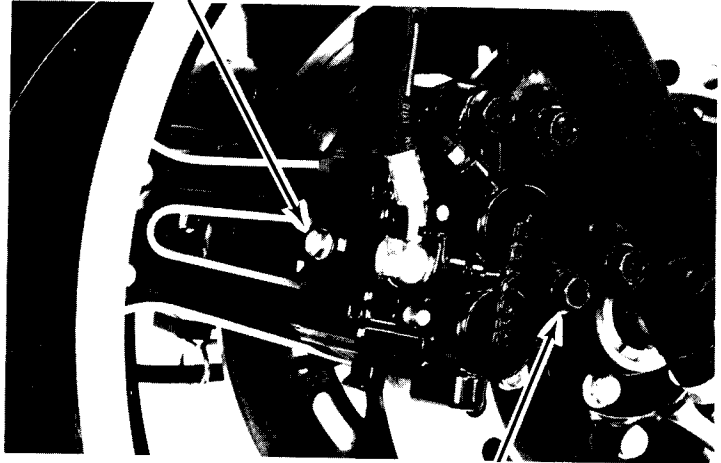
NOTE

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

Remove the pad pin retainer bolt and the caliper bolt.

Pivot the caliper up out of the way.

PAD PIN RETAINER BOLT

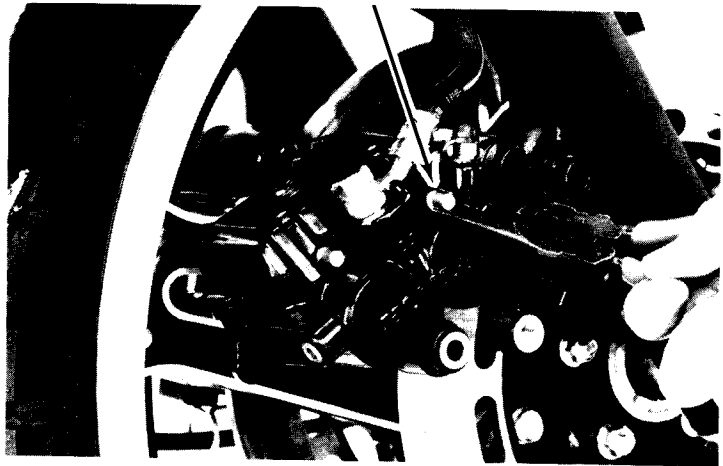


CALIPER BOLT

Remove the pad pin retainer and pull the pad pins out of the caliper.

Remove the brake pads.

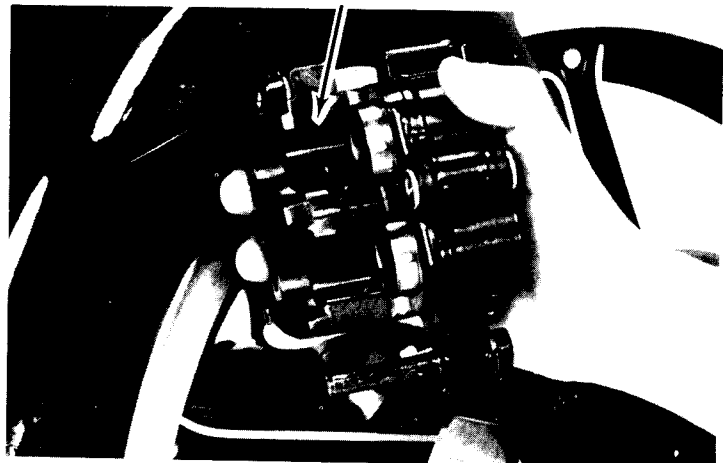
PAD PIN



Position the anti-rattle spring in the caliper as shown.

Push the caliper pistons in all the way.

ANTI-RATTLE SPRING

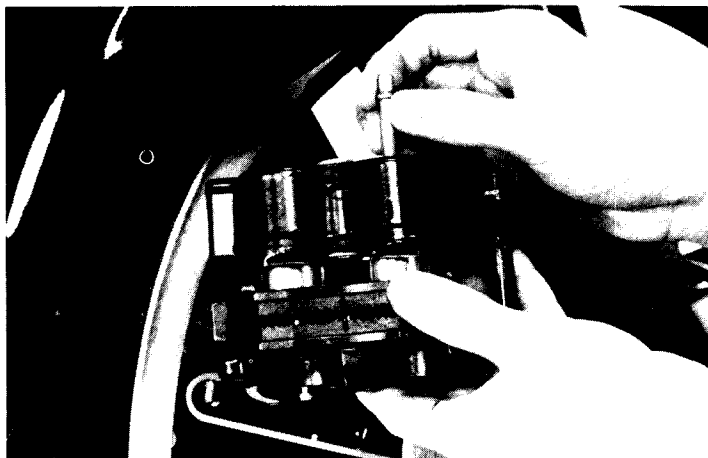




Install the new pads in the caliper.
 Install the pad pins.

NOTE

Install one pad pin first then install the other pin by pushing the pads against the caliper to depress the anti-rattle spring.

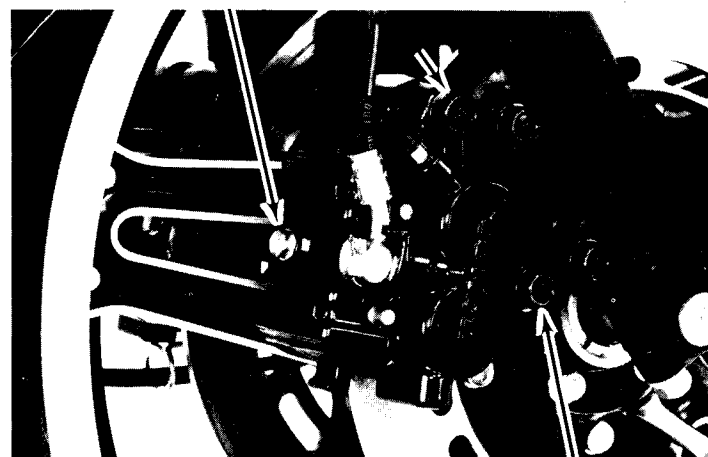

PAD PIN RETAINER

Place the pad pin retainer over the pad pins. Push the retainer down to secure the pins.


RETAINER BOLT

Install the pad pin retainer bolt.
 Pivot the caliper down so the brake disc is positioned between the pads, making sure not to damage the pads.
 Install the caliper bolt and tighten it.

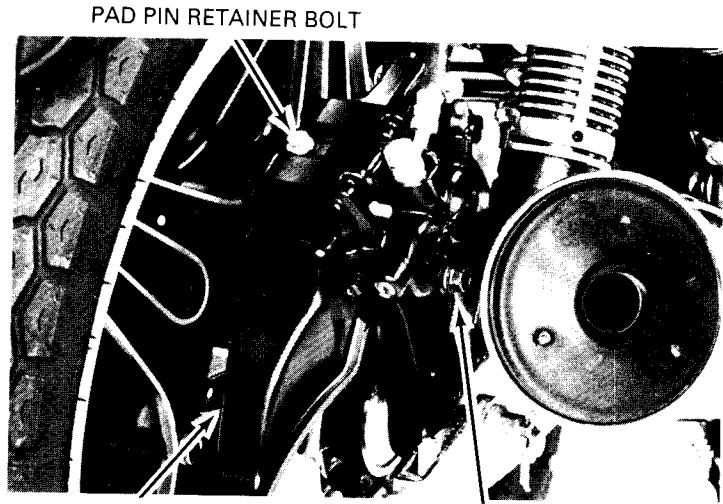
TORQUE: 22–25 N·m
 (2.2–2.5 kg·m, 16–18 ft·lb)


CALIPER BOLT



REAR PAD REPLACEMENT

Remove the brake disc dust cover.
Replace the rear brake pads using the same method as for the front brake pad replacement (page 25-49).



BRAKE DISC DUST COVER

CALIPER BOLT

PAD PIN RETAINER BOLT

BRAKE CALIPER

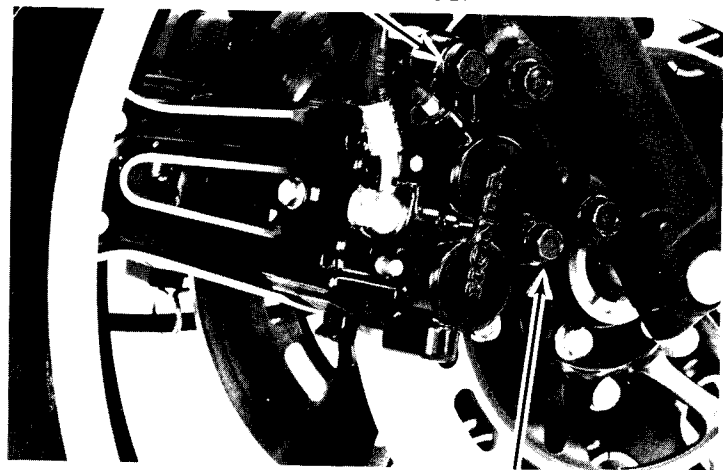
FRONT BRAKE CALIPER REMOVAL

Place a clean container under the caliper and disconnect the brake hose from the caliper.

CAUTION:

Avoid spilling brake fluid on painted surfaces.

Remove the caliper bracket bolt and caliper pivot bolt.
Remove the caliper.



CALIPER BRACKET BOLT

CALIPER PIVOT BOLT

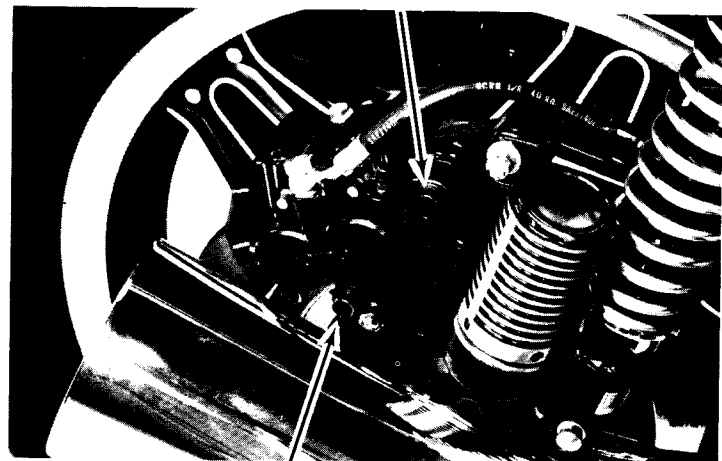
REAR BRAKE CALIPER REMOVAL

Remove the right rear shock absorber lower mounting bolt and move the shock absorber forward enough to remove the caliper pivot bolt. Place a clean container under the caliper and disconnect the brake hose from the caliper.

CAUTION:

Avoid spilling brake fluid on painted surfaces to prevent paint damage.

Remove the caliper and pivot bolts, and remove the caliper.



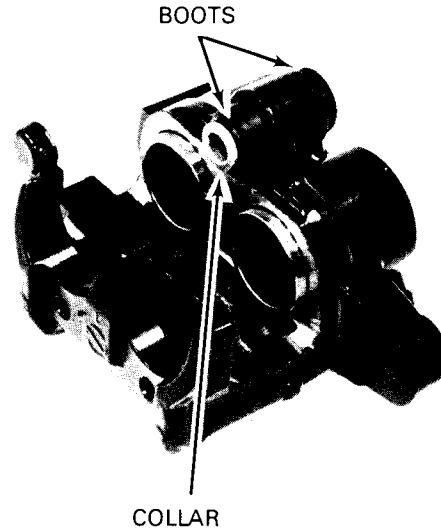
CALIPER BOLT

CALIPER PIVOT BOLT



CALIPER DISASSEMBLY

Remove the pads and anti-rattle spring.
 Remove the caliper pivot collar and boots.



Position the caliper with the piston down and apply small squirts of air pressure to the fluid inlet.

WARNING

Do not use high pressure air or bring the nozzle too close to the inlet.

NOTE

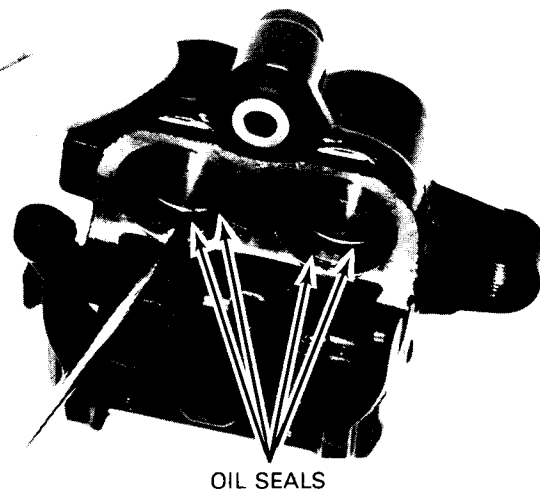
Place a shop towel over the pistons to prevent the pistons from becoming projectiles.

Examine the pistons and cylinders for scoring, scratches or other damage and replace if necessary.

Push the oil seals in and then lift them out.
 Clean the oil seal grooves with brake fluid.

CAUTION:

Do not damage the piston sliding surfaces.





CALIPER PISTON O.D. INSPECTION

Check the piston for scoring, scratches or other faults. Measure the piston diameter with a micrometer.

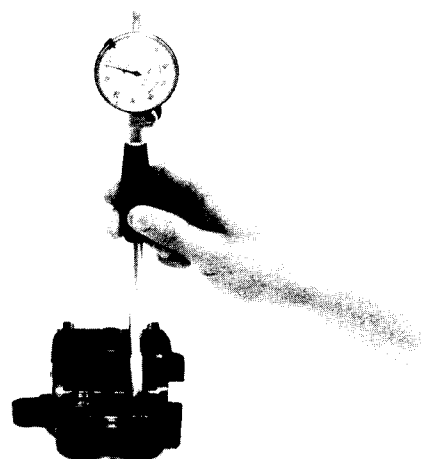
SERVICE LIMIT: FRONT: 30.14 mm (1.187 in)
REAR: 26.91 mm (1.059 in)



CALIPER CYLINDER I.D. INSPECTION

Check the caliper cylinder for scoring, scratches or other faults. Measure the caliper cylinder bore.

SERVICE LIMIT: FRONT: 30.29 mm (1.193 in)
REAR: 27.06 mm (1.065 in)



CALIPER ASSEMBLY

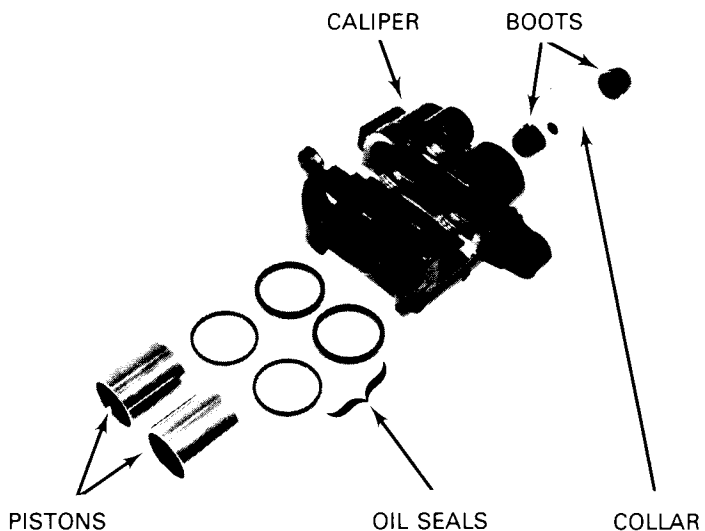
The oil seals must be replaced with new ones whenever they are removed.

Coat the oil seals with silicon grease or brake fluid before assembly.

Install the pistons with the dished ends toward the pads.

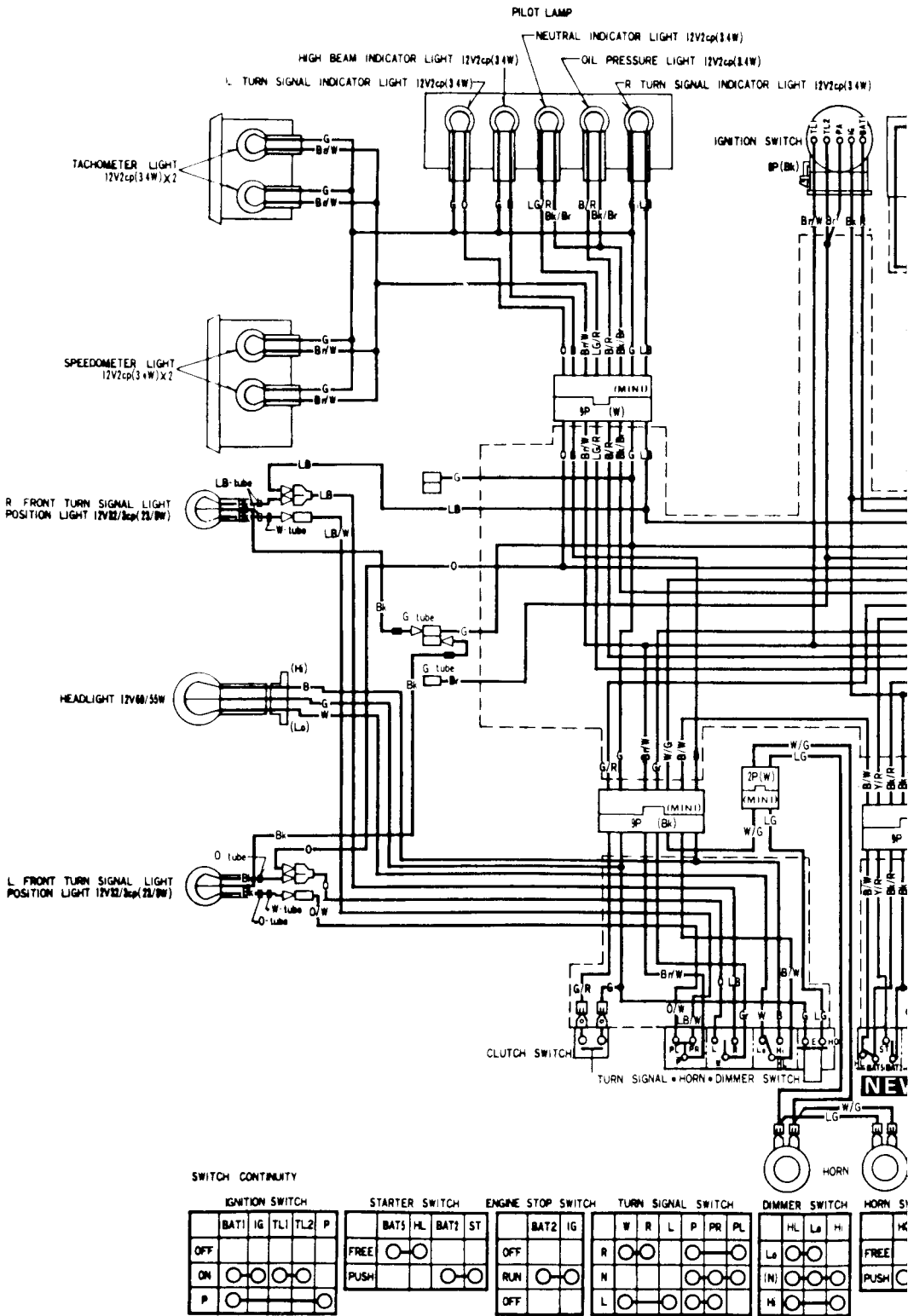
Install the boots and collar making sure that the boots are seated in the collar and caliper grooves properly.

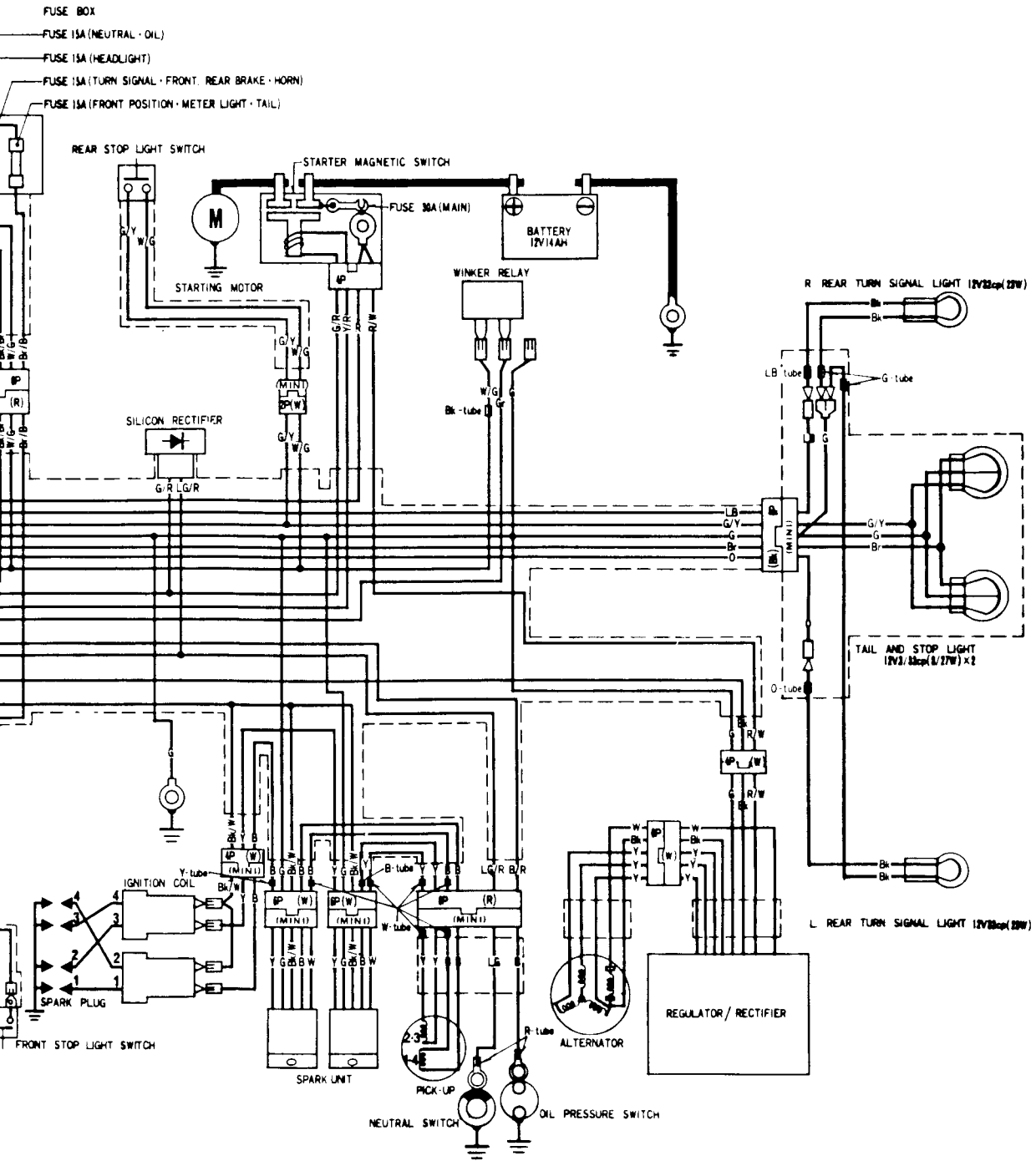
Install the anti-rattle spring and pads.





9. WIRING DIAGRAM





Br	Brown	Y	Yellow
Bk	Black	B	Blue
W	White	Gr	Grey
LG	Light Green	LB	Light Blue
R	Red	O	Orange
G	Green	P	Pink

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Install the caliper pivot bolt.

TORQUE: 25–30 N·m

(2.5–3.0 kg-m, 18–22 ft-lb)

Install the caliper bolt.

TORQUE: 22–25 N·m

(2.2–2.5 kg-m, 16–18 ft-lb)

Connect the brake hose.

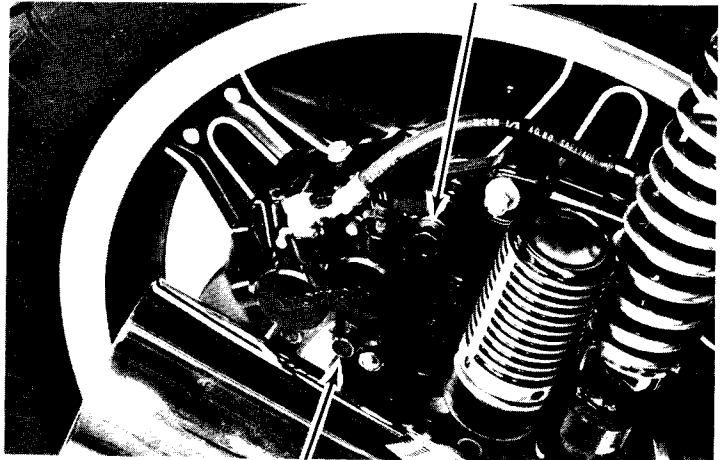
Fill the brake fluid reservoir and bleed the rear brake system (page 17-4).

Install the right rear shock absorber lower mounting bolt.

TORQUE: 30–40 N·m

(3.0–4.0 kg-m, 22–29 ft-lb)

CALIPER PIVOT BOLT



CALIPER BOLT

REAR MASTER CYLINDER

REMOVAL

Remove the right side cover.

Place a clean drain pan under the master cylinder and disconnect the brake hoses from the master cylinder.

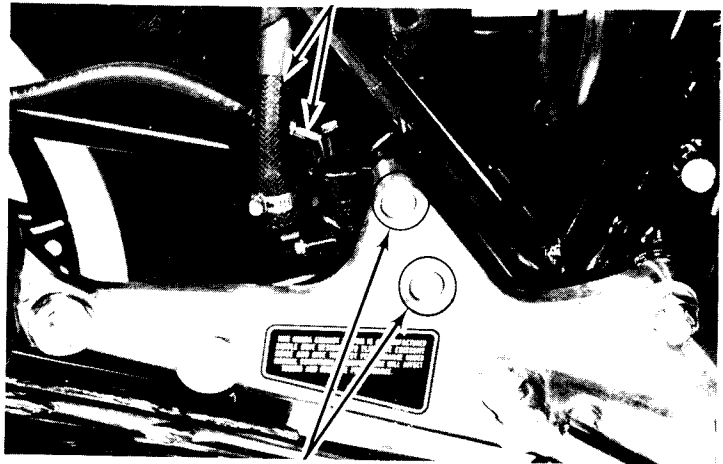
CAUTION:

Avoid spilling brake fluid on painted surfaces to prevent paint damage.

Remove the cotter pin and pull out the joint pin connecting the master cylinder push rod end and rear brake pedal shaft.

Remove the socket screws and the master cylinder.

BRAKE HOSES



SOCKET SCREWS

INSTALLATION

Install the master cylinder and tighten the socket screws.

TORQUE: 30–40 N·m

(3.0–4.0 kg-m, 22–29 ft-lb)

Connect the push rod end and brake pedal shaft with the joint pin. Secure the joint pin with a new cotter pin.

Connect the brake hoses to the master cylinder. Fill the brake fluid reservoir and bleed the rear brake system (page 17-4).

Install the right side cover.



COTTER PIN AND JOINT PIN



BRAKE PEDAL SHAFT

REMOVAL

Remove the brake pedal.

Remove the cotter pin and joint pin, and then disconnect the pedal shaft from the master cylinder push rod end.

Unhook the brake light switch spring and brake return spring.

Remove the right foot peg holder.

Remove the brake pedal shaft from the foot peg holder.



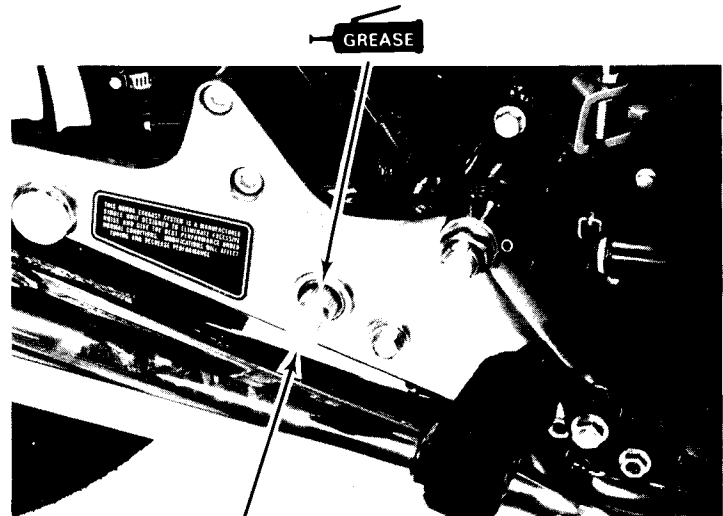
COTTER PIN AND JOINT PIN

BRAKE PEDAL

INSTALLATION

Apply grease to the brake pedal shaft and install it in the foot peg holder.

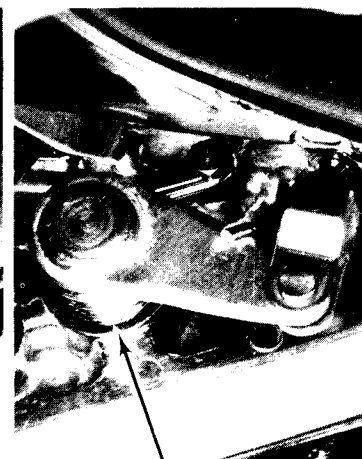
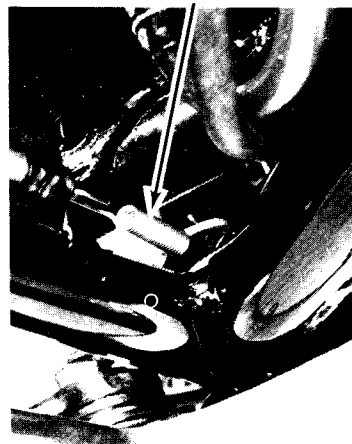
Install the foot peg holder.



BRAKE PEDAL SHAFT

BRAKELIGHT SWITCH SPRING

Hook the brakelight switch spring and return spring as shown.



RETURN SPRING



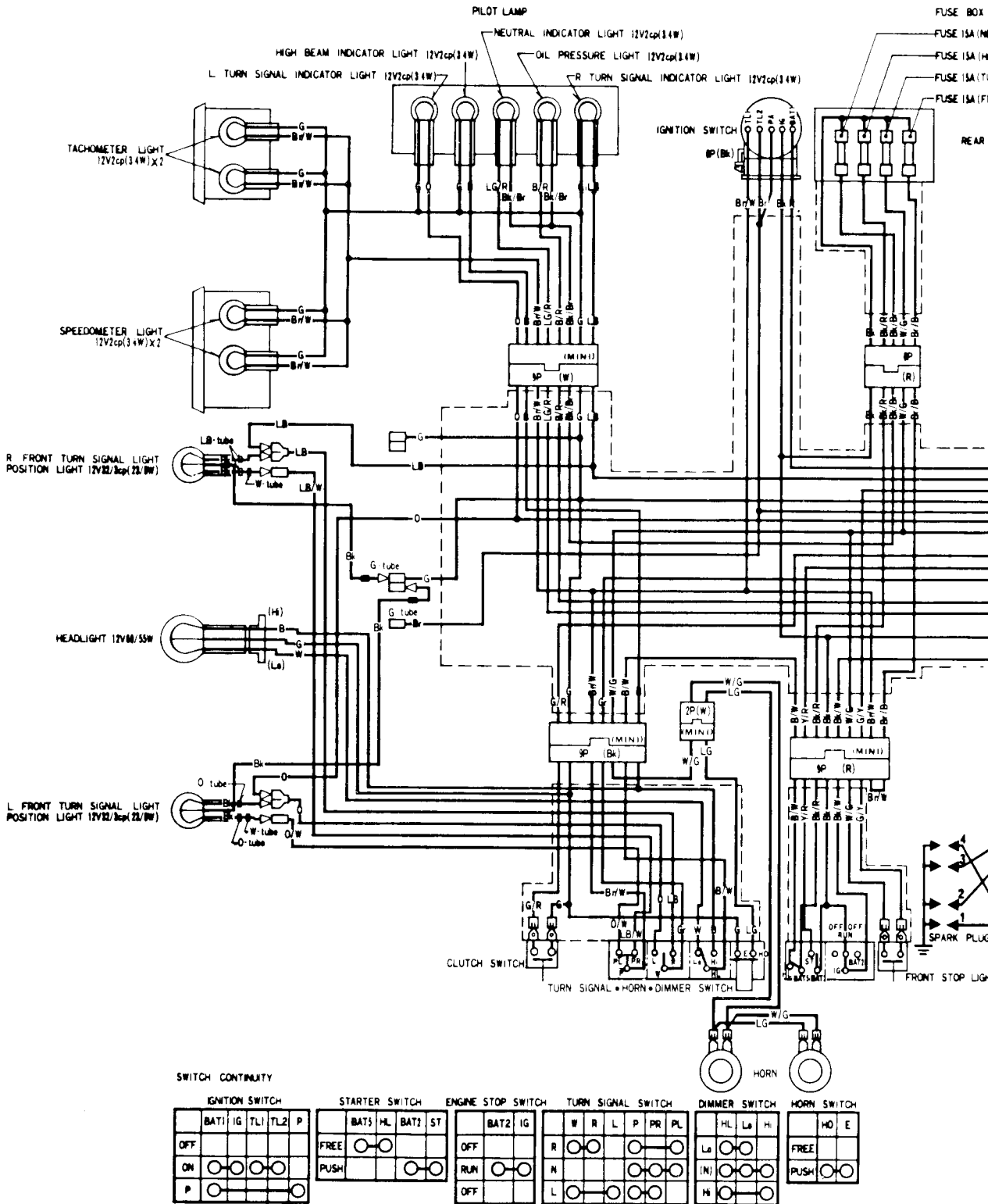
Connect the pedal shaft to the master cylinder push rod end and install the joint pin.
Secure the joint pin with a new cotter pin.
Install the brake pedal aligning the punch marks of the pedal and shaft.

PUNCH MARKS



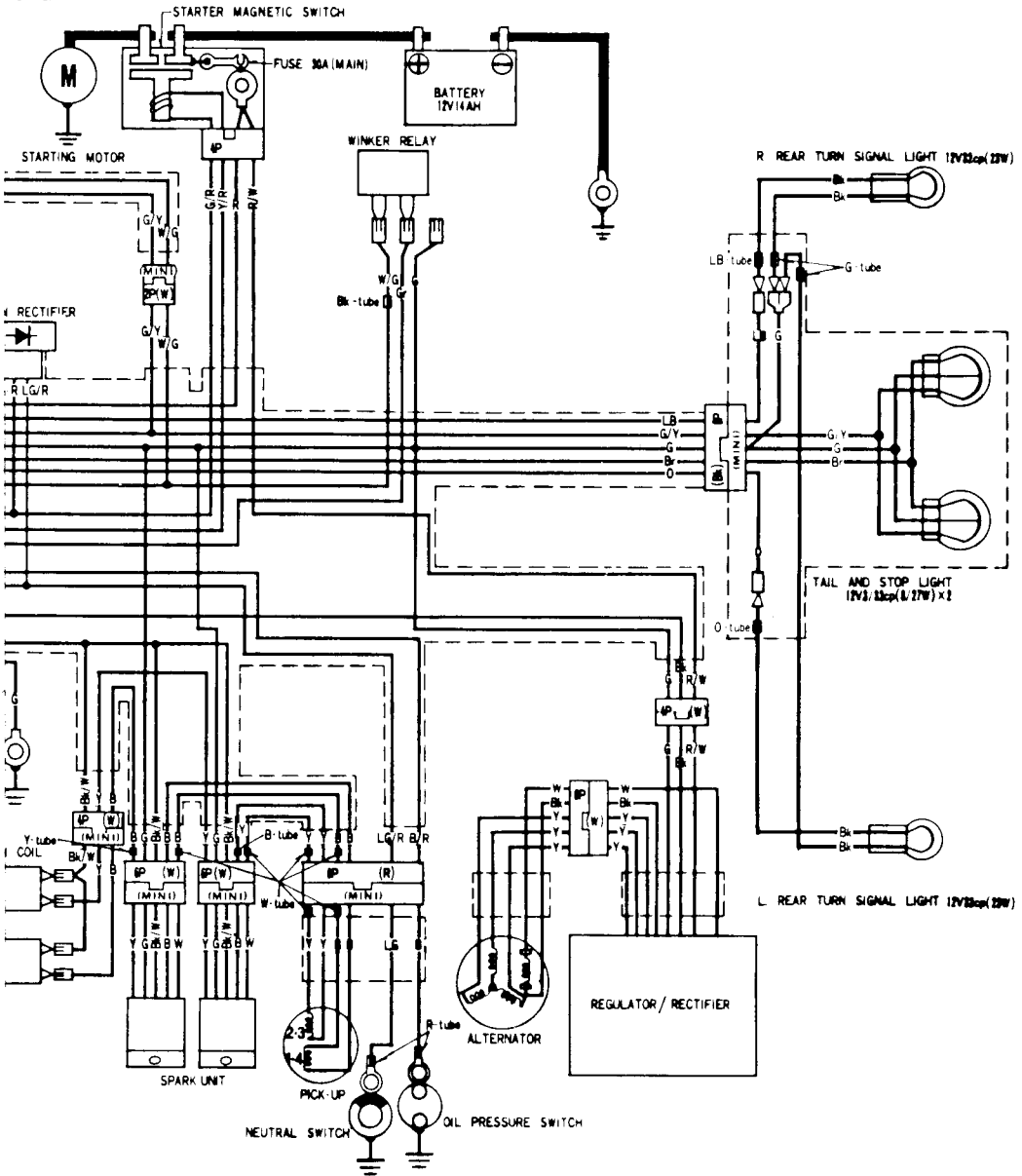


9. WIRING DIAGRAM



FRONT REAR BRAKE HORN
IGNITION METER LIGHT TAIL

SWITCH



Br	Brown	Y	Yellow
Bk	Black	B	Blue
W	White	Gr	Grey
LG	Light Green	LB	Light Blue
R	Red	O	Orange
G	Green	P	Pink

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