MB50/MT50

IMPORTANT SAFETY NOTICE

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

CAUTION *Indicates a possibility of equipment damage if instructions are not followed.*

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

MEMO

HONDA MB50•MT50

HOW TO USE THIS MANUAL

This shop manual describes the technical features and servicing procedures for the HONDA MB50/MT50 based on the MB50.

Section 1 through 3 apply to the whole motorcycles, while section 4 through 14 describe parts of the motorcycles, 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, torques, general information, tools and troubleshooting for the section. The subsequent pages give detailed procedures for the section.

Throughout the manual, the following abbreviations are used to identity individual models.

MB50F [Full Speed]	
SW	Switzerland
ED	Europe

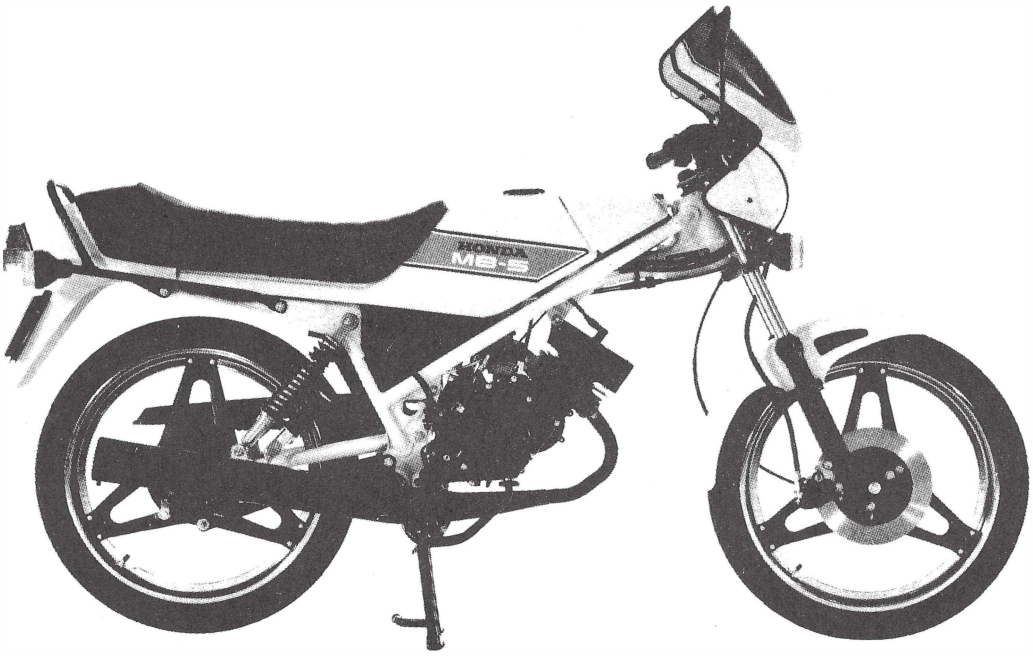
MT50F [Full Speed]	
SW	Switzerland
ED	Europe

MB50S [Limited Speed]	
B	Belgium
E	U. K.
G	Germanu
N	Norway
S	Sweden

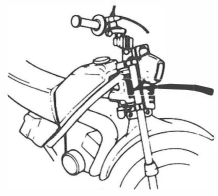
MT50S [Limited Speed]	
B	Belgium
E	U. K.
G	Germany

If you don't know what the source of the trouble is, go to section 15, TROUBLESHOOTING.

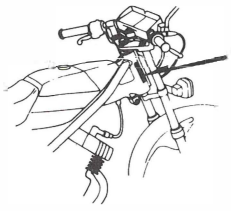
CONTENTS



(1) Photo: MB50F–ED type

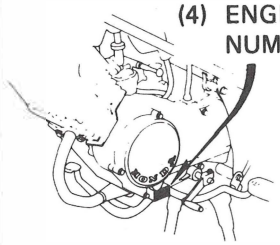


(2) FRAME SERIAL NUMBER



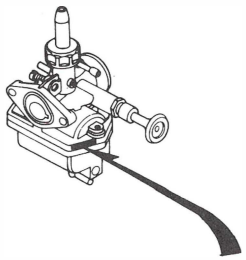
(2) FRAME SERIAL NUMBER

(3)
The frame serial number is stamped on the steering head.



(4) ENGINE SERIAL NUMBER

(5)
The engine serial number is stamped on the crankcase.



(6) CARBURETOR IDENTIFICATION NUMBER

(7)
The carburetor identification number is on the carburetor.

HONDA MB50•MT50 1. GENERAL INFORMATION

GENERAL SAFETY

WARNING

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

WARNING

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

WARNING

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

WARNING

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

SERVICE RULES

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

SPECIFICATIONS

[MB50]

Dimensions	Overall length	E, G, N, ED: 1,880 mm (74.0 in); B: 1,890 mm (74.4 in) S: 1,960 mm (77.2 in)
	Overall width	655 mm (25.8 in)
	Overall height	1,160 mm (45.7 in)
	Wheelbase	E, G, N, SW: 1,225 mm (48.8 in); B, S: 1,215 mm (47.8 in); ED: 1,220 mm (48.0 in)
	Ground clearance	160 mm (6.3 in)
	Dry weight	SW, ED: 78 kg (172 lb); B, E, G, N, S: 82 kg (179 lb)
Frame	Type	Cross line backbone frame
	Front suspension and travel	Telescopic fork, 125 mm (4.92 in)
	Rear suspension and travel	Swingarm, 90 mm (3.54 in)
	Front tire type	2.50–18–4PR. Rib pattern
	Front tire pressure	175 kPa (1.75 kg/cm², 24 psi)
	Rear tire type	2.50–18–6PR. Block pattern
	Rear tire pressure	B, E, G, ED: 225/280 kPa (2.25/2.8 kg/cm², 32/40 psi) N, S, SW: 225 kPa (2.25 kg/cm², 32 psi)
	Front brake	Single disc
	Rear brake	Internal expanding shoe
	Fuel capacity	9.0 lit. (2.4 US gal, 2.0 Imp gal)
	Fuel reserve capacity	2.0 lit. (0.5 US gal, 0.4 Imp gal)
	Caster angle	65°
	Trail length	70 mm (2.76 in)
	Front fork oil capacity	75 cm³ (2.54 US ozs, 2.11 Imp ozs)
Engine	Type	Air cooled 2-stroke engine
	Cylinder arrangement	Single cylinder 40° inclined from vertical
	Bore x stroke	39.0 x 41.4 mm (1.535 x 1.630 in)
	Displacement	49 cm³ (2.98 cu. in)
	Compression ratio	SW, ED: 7.6:1; B, E, G, N, S: 6.4:1
	Oil capacity	Transmission: 1.0 lit. (1.1 US qt, 0.9 Imp qt) Oil tank: 1.1 lit. (1.2 US qt, 1.0 Imp qt)
	Lubrication system	Forced and wet sump
	Air filtration	Oiled polyurethane foam
	Idle speed	SW, ED: 1400 min⁻¹ (rpm); B, E, G, N, S: 1300 min⁻¹ (rpm)
Drive Train	Clutch	Wet multiplate
	Transmission	SW, ED: 6-speed constant mesh B, E, G, N: 5-speed constant mesh; S: 4-speed constant mesh
	Primary reduction ratio	4.117
	Gear ratio I	SW, ED: 3.166 B, E, G, N, S: 3.083
	II	SW, ED: 2.062 B, E, G, N, S: 1.882
	III	SW, ED: 1.500 B, E, G, N, S: 1.400
	IV	SW, ED: 1.173 B, E, G, N, S: 1.130
	V	SW, ED: 1.000 B, E, G, N: 0.960
	VI	SW, ED: 0.884
	Final reduction ratio	SW, ED: 3.076 (40T/13T); G, N: 3.750 (45T/12T); B: 3.916 (47T/12T)
	Gearshift pattern	Left foot operated return system
Electrical	Ignition system	C. D. I.
	Ignition timing "F" mark	19° ± 3° BTDC at 3000 min⁻¹ (rpm)
	Full retard	10° ± 5° at 9000 min⁻¹ (rpm)
	Starting system	Primary kick starter
	Alternator	E, N, SW, ED: 0.074 kw/5000 min⁻¹ (rpm); B, G, S: 0.066 kw/5000 min⁻¹ (rpm)
	Battery capacity	6V 4AH
	Spark plug	SW, ED: NGK–BR8HS (BR9HS, BR7HS), ND-W24FSR (W27FSR, W22FSR) B, E, G, N, S: NGK–BR7HS (BR8HS, BR6HS), ND–W22FSR (W24FSR, W20FSR)
	Spark plug gap	0.6–0.7 mm (0.024–0.028 in)

[MT50]

Dimensions	Overall length	E, ED: 1,905 mm (75.0 in); B, G: 1,945 mm (76.6 in); SW: 1,940 mm (76.4 in)
	Overall width	780 mm (30.7 in)
	Overall height	1,055 mm (41.5 in)
	Wheelbase	1,240 mm (48.8 in)
	Ground clearance	B, G, SW, ED: 220 mm (8.7 in); E: 290 mm (11.4 in)
	Dry weight	SW, ED: 79 kg (174 lb); E: 81 kg (179 lb); B, G: 82 kg (181 lb)
Frame	Type	Cross line backbone frame
	Front suspension and travel	Telescopic fork, 135 mm (5.3 1 in)
	Rear suspension and travel	Swingarm, 125 mm (4.92 in)
	Front tire type	2.50–19–4PR, Block pattern
	Front tire pressure	150 kPa (1.5 kg/cm², 21 psi)
	Rear tire type	3.00–16–6PR, Block pattern
	Rear tire pressure	B, E, G, ED: 150/280 kPa (1.5/2.8 kg/cm², 21/40 psi)
	Front brake	SW: 150 kPa (1.5 kg/cm², 21 psi)
	Front brake	Internal expanding shoe
	Rear brake	Internal expanding shoe
	Fuel capacity	6.8 lit. (0.0 US gal, 1.5 Imp gal)
	Fuel reserve capacity	1.0 lit. (0.3 US gal, 0.2 Imp gal)
	Caster angle	27°30′
	Trail length	90 mm (3.54 in)
	Front fork oil capacity	85 cm³ (2.9 US ozs, 2.4 Imp ozs)
Engine	Type	Air cooled 2-stroke engine
	Cylinder arrangement	Single cylinder 40° inclined from vertical
	Bore and stroke	39.0 x 41.4 mm (1.535 x 1.630 in)
	Displacement	49 cm³ (2.98 cu. in)
	Compression ratio	SW, ED: 7.6:1; B, E, G: 6.4:1
	Oil capacity	Transmission: 1.0 lit. (1.1 US qt, 0.9 Imp qt) Oil tank: 1.5 lit. (1.6 US qt, 1.3 Imp qt)
	Lubrication system	Forced and wet sump
	Air filtration	Oiled polyurethane foam
	Idle speed	SW, ED: 1400 min⁻¹ (rpm); B, E, G: 1300 min⁻¹ (rpm)
Drive train	Clutch	Wet multiplate
	Transmission	5-speed constant meth
	Primary reduction ratio	4.117
	Gear ratio I	3.083
	II	1.882
	III	1.400
	IV	1.130
	V	0.960
	Final reduction ratio	SW, ED: 3.230 (42T/13T); B: 3.615 (47T/13T); E, G: 3.461 (45T/13T)
	Gearshift pattern	Left foot operated return system
Electrical	Ignition system	C. D. I.
	Ignition timing "F" mark	19° ± 3° BTDC at 3000 min⁻¹ (rpm)
	Full retard	10° ± 5° at 9000 min⁻¹ (rpm)
	Starting system	Primary kick starter
	Alternator	SW, ED: 0.074 kw/5000 min⁻¹ (rpm); B, E, G: 0.066 kw/5000 min⁻¹ (rpm)
	Battery capacity	6V 4AH
	Spark plug	SW, ED: NGK–BR8HS (BR9HS, BR7HS); ND–W24FSR (W27FSR, W22FSR) B, E, G: NGK–BR7HS (BR8HS, BR6HS); ND–W22FSR ,W24FSR, W20FSR)
	Spark plug gap	0.6–0.7 mm (0.024–0.028 in)

TORQUE VALUES

ENGINE

No.	ITEM	THREAD DIA. mm	TORQUE VALUES		
			N·m	kg-m	ft-lb
1	Cylinder head	8	1.8–2.2	18–22	13–16
2	Flywheel	12	50–60	5.0–6.0	36–43
3	Primary drive gear	12	45–55	4.5–5.5	33–40

FRAME [MB50]

No.	ITEM	THREAD DIA. mm	TORQUE VALUES		
			N·m	kg-m	ft-lb
1	Steering stem nut	22	60–90	6.0–9.0	43–65
2	Front fork bottom bridge pinch bolt	8	20–30	2.0–3.0	14–22
3	Front axle	12	35–50	3.5–5.0	25–36
4	Engine hanger bolt	10	30–40	3.0–4.0	22–29
5	Rear axle	12	55–65	5.5–6.5	40–47
6	Final driven sprocket	10	55–65	5.5–6.5	40–47
7	Rear brake torque link	8	18–25	1.8–2.5	13–18
8	Rear shock absorber (upper and lower)	10	30–40	3.0–4.0	22–29
9	Foot peg	10	25–35	2.5–3.5	18–25
10	Change pedal and kick arm	6	8–12	0.8–1.2	6–9
11	Swing arm pivot bolt	12	55–65	5.5–6.5	40–47

FRAME [MT50]

No.	ITEM	THREAD DIA. mm	TORQUE VALUES		
			N·m	kg-m	ft-lb
1	Steering stem nut	22	60–90	6.0–9.0	43–65
2	Fork top bridge	7	9–13	0.9–1.3	7–9
3	Handlebar upper holder	6	8–12	0.8–1.2	6–9
4	Front fork bottom bridge pinch bolt	8	20–30	2.0–3.0	14–22
5	Front axle	12	55–65	5.5–6.5	40–47
6	Front axle nut	12	55–65	5.5–6.5	40–47
7	Engine hanger bolt	10	30–40	3.0–4.0	22–29
8	Rear axle	12	55–65	5.5–6.5	40–47
9	Final driven sprocket	10	55–65	5.5–6.5	40–47
10	Rear brake torque link	8	18–25	1.8–2.5	13–18
11	Rear shock absorber (upper and lower)	10	30–40	3.0–4.0	22–29
12	Right foot peg	10	30–40	3.0–4.0	22–29
13	Left foot peg	12	55–65	5.5–6.5	40–47
		8	20–30	2.0–3.0	14–22
14	Change pedal and kick arm	6	8–12	0.8–1.2	6–9
15	Swing arm pivot bolt	12	55–65	5.5–6.5	40–47
16	Side stand pivot bolt	10	8–12	0.8–1.2	6–9
17	Side stand lock nut	10	30–40	3.0–4.0	22–29
18	Rear shock absorber lock nut	9	20–35	2.0–3.5	14–25
19	Spoke nipple	—	2–4.5	0.2–0.45	1.4–3.3

STANDARD TORQUE VALUES

Item	Torque Value N·m (kg-m) (ft-lb)			Item	Torque Value N·m (kg-m) (ft-lb)		
5 mm bolt and nut	4.5–6.0	(0.45–0.6)	(3–4)	5 mm screw	3.5–5.0	(0.35–0.5)	(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	30–40	(3.0–4.0)	(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)

SPECIAL TOOLS/COMMON TOOLS

SPECIAL TOOLS

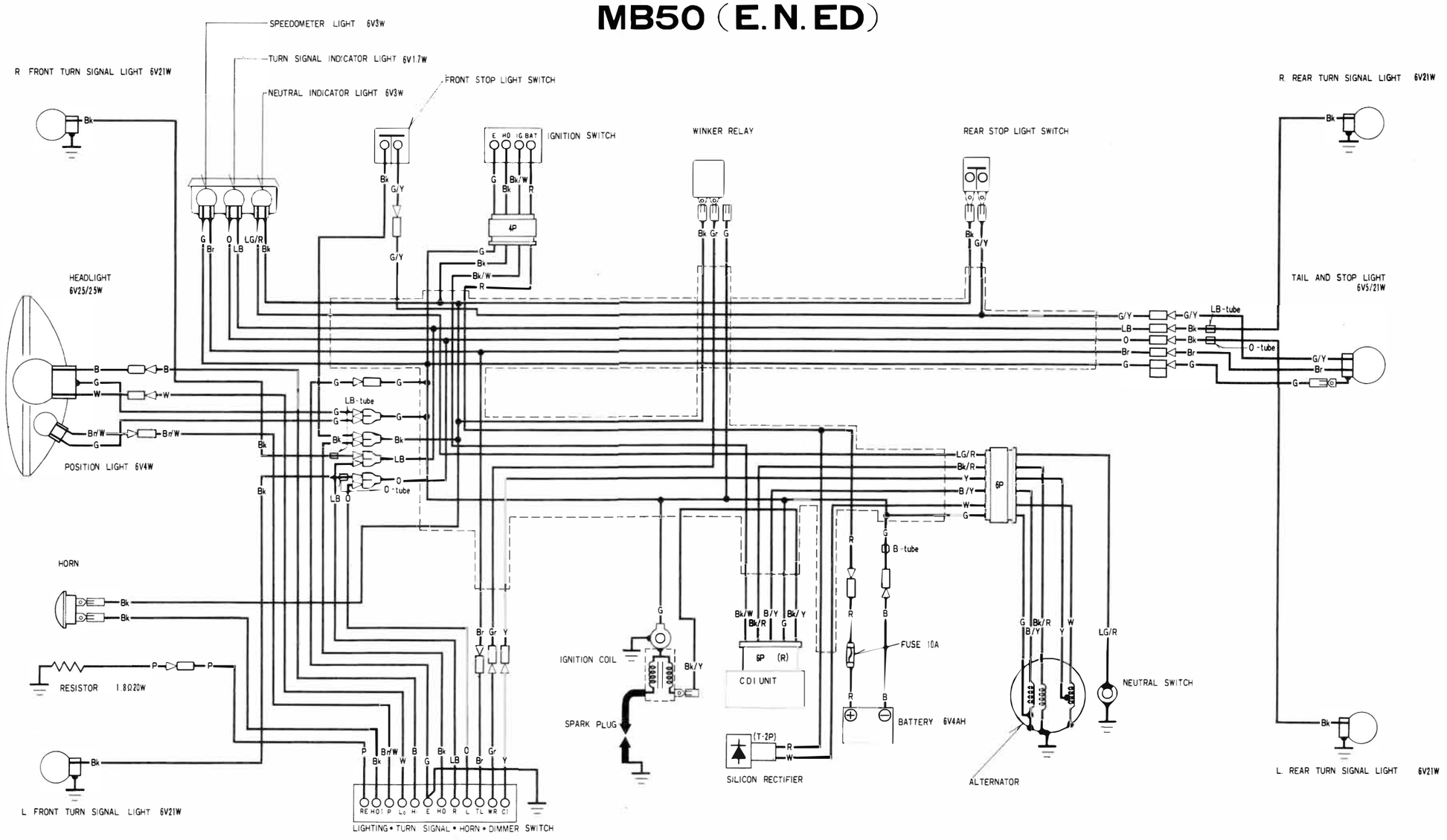
Tool Name	Part No.	Remarks	Ref. Page
Snap ring pliers (internal)	07914–3230001	Master cylinder snap ring (MB50)	11–9
Hollow set wrench	07917–3230000	Front fork (lower)	10–22
Ball race driver	07944–1150001	Stem bearing removal	10–28
Crankcase disassembler	07965–1660000	Right/left crankcase separation/assembly	9–3

COMMON TOOLS

Tool Name	Part No.	Appropriation List (Common tool – Special Tool)	
Folat level gauge	07401–0010000		
Pin spanner	07702–0010000	Pin spanner (36 mm)	07902–0010000
Lock nut wrench socket (30 x 32 mm)	07716–0020400		
Extension bar, handle	07716–0020500		
Universal holder	07725–0010101	Flywheel holder	07922–2950000
Flywheel puller	07733–0010000		
Bearing driver outer (37 x 40 mm)	07746–0010200	Bearing driver	07946–3640000
Bearing driver pilot (12 mm)	07746–0040200		
Bearing driver outer (42 x 47 mm)	07746–0010300	Bearing driver	07945–3330100
		Ball race driver attachment	07946–4300200
Bearing driver pilot (17 mm)	07746–0040400		
Bearing driver outer (52 x 55 mm)	07746–0010400		
Bearing driver pilot (20 mm)	07746–0040500		
Bearing inner holder B	07746–0020100	Bearing driver	07945–3230201
Bearing inner holder C	07746–0030100		
Bearing inner driver (25 mm)	07746–0030200		
Front fork oil seal driver body	07747–0010100	Fork seal driver	07947–1180001
Frnot fork oil seal attachment (B)	07747–0010300		
Bearing driver handle (A)	07749–0010000	Driver handle attachment	07949–6110000
Rear shock absorber compressor	07959–3290001		

WIRING DIAGRAM

MB50 (E.N.ED)



IGNITION SWITCH CONTINUITY

	IG	E	HO	BAT
OFF	○	○		
ON			○	○

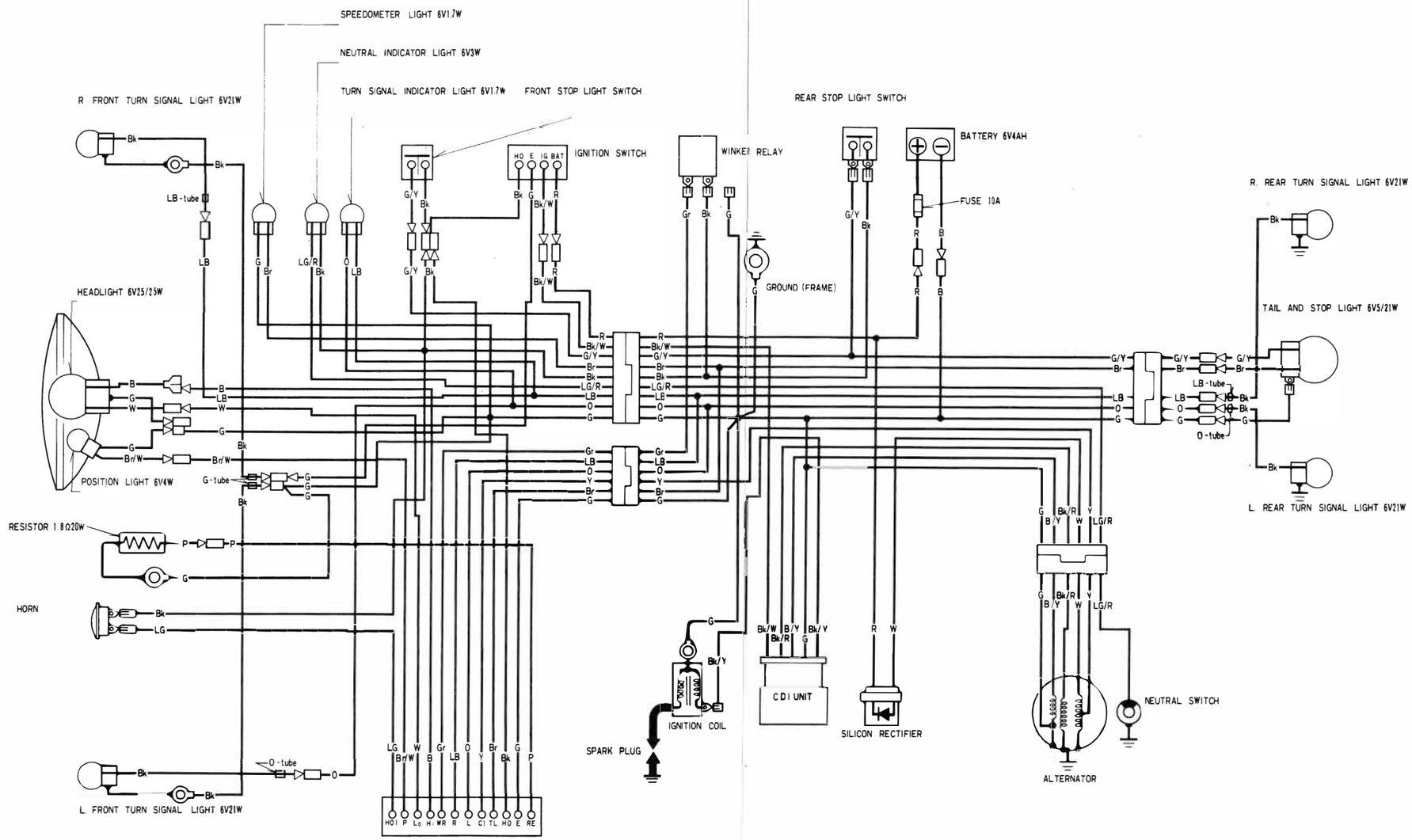
LIGHTING • TURN SIGNAL • HORN • DIMMER SWITCH CONTINUITY

	(HL)	CI	RE	TL	HO	P		HI	(HL)	LO		R	WR	L		HOI	E
OFF		○	○				HI	○			R	○			OFF		
P		○	○	○	○	○	NI	○	○	○	N				ON	○	○
H	○	○	○				LO		○	○	L		○	○			

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

① 0030Z-166-6001

MT50 (E.ED)



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

IGNITION SWITCH CONTINUITY

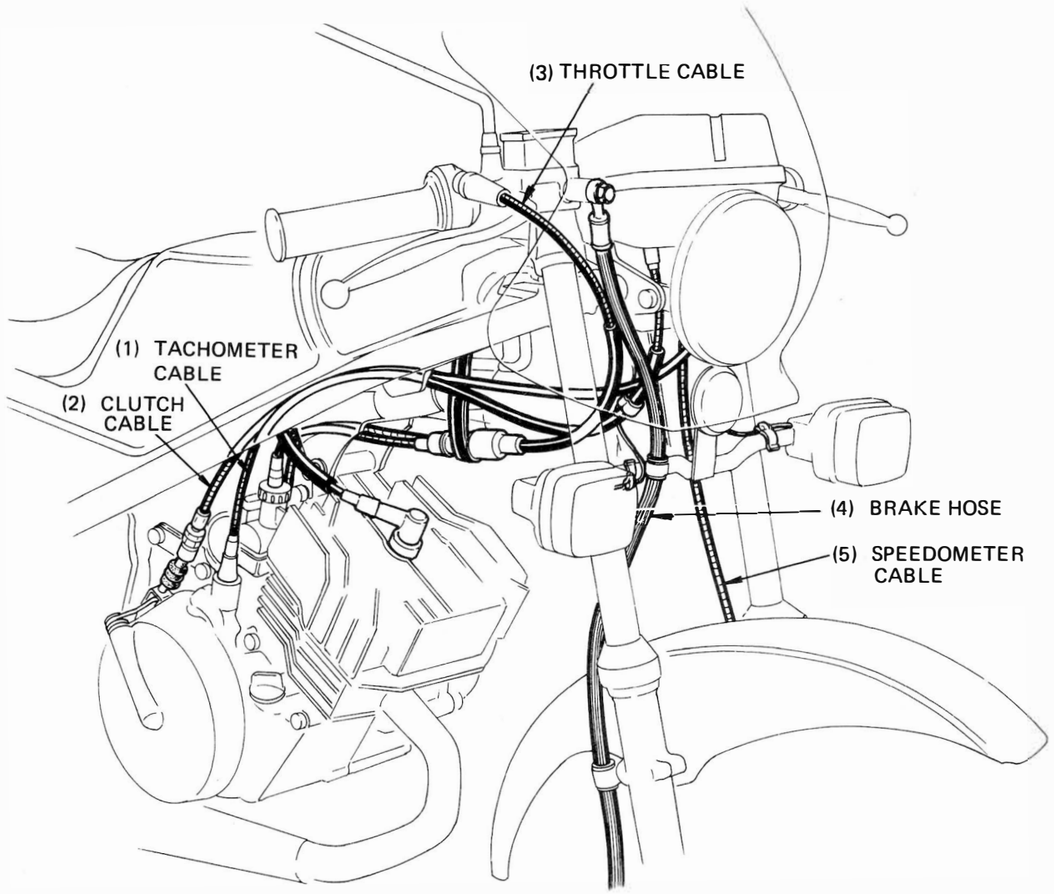
	IG	E	HO	BAT
OFF	○—○			
ON			○—○	○—○

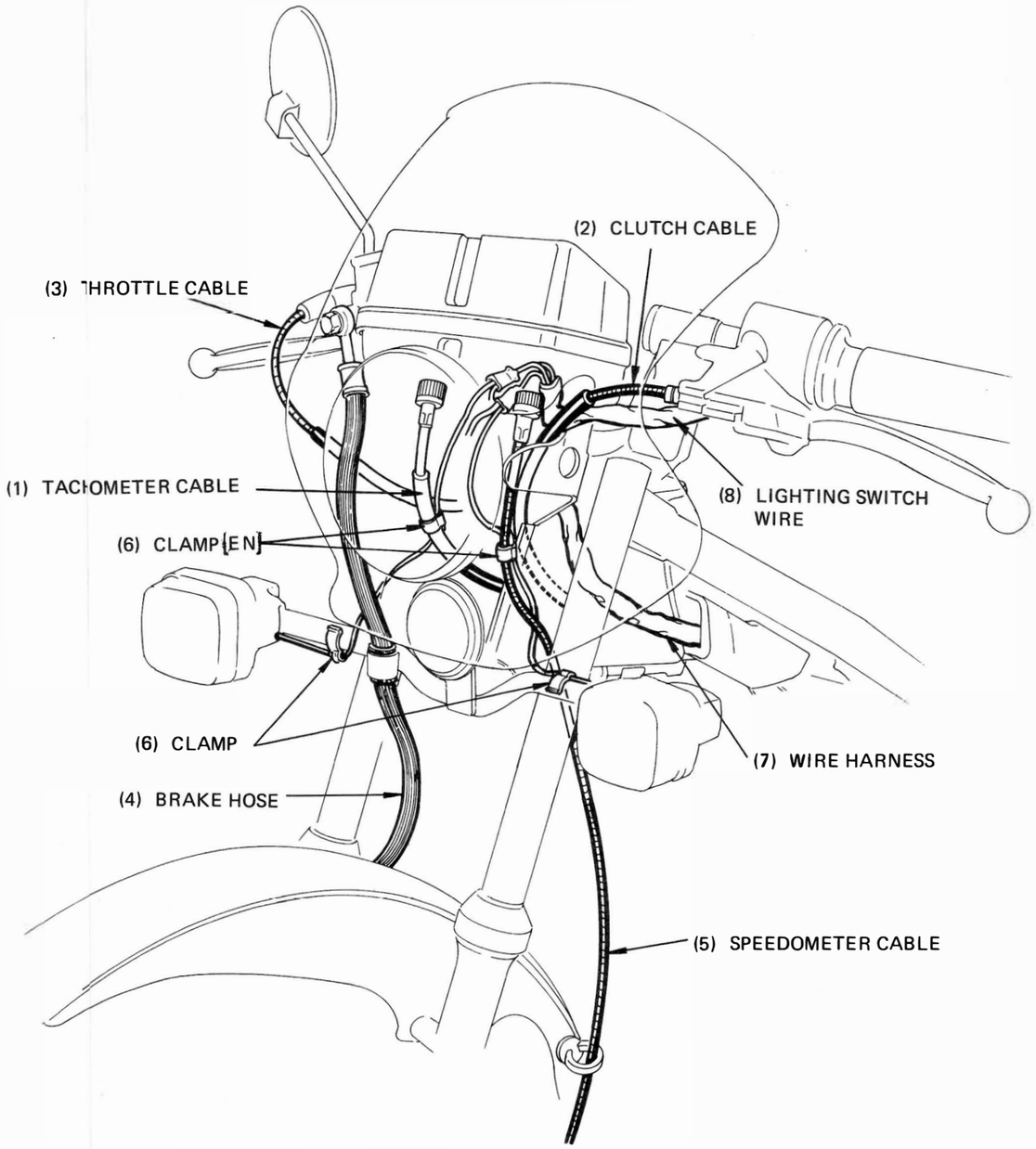
LIGHTING • TURN SIGNAL • HORN • DIMMER SWITCH CONTINUITY

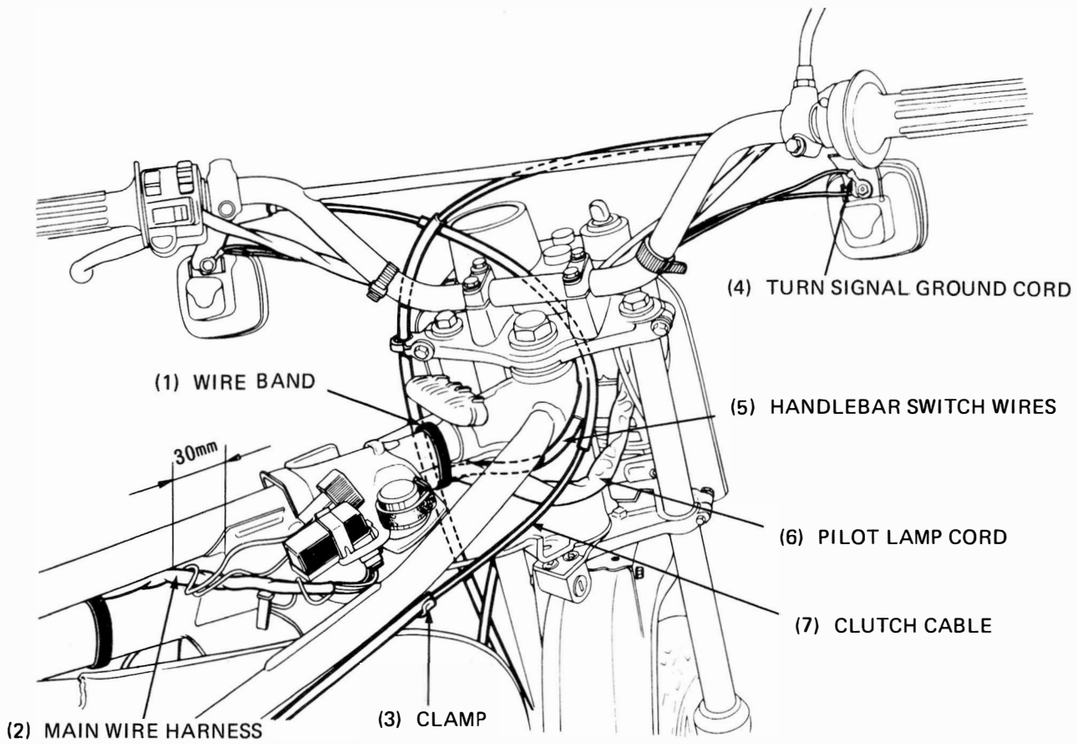
	HL	CI	RE	TL	HO	P		Hi	HL	Lo		R	WR	L		HOI	E
OFF		○—○					Hi	○—○			R	○—○			OFF		
P		○—○—○		○—○			(N)	(○—○—○)			N				ON	○—○	
H	○—○—○						Lo		○—○		L		○—○				

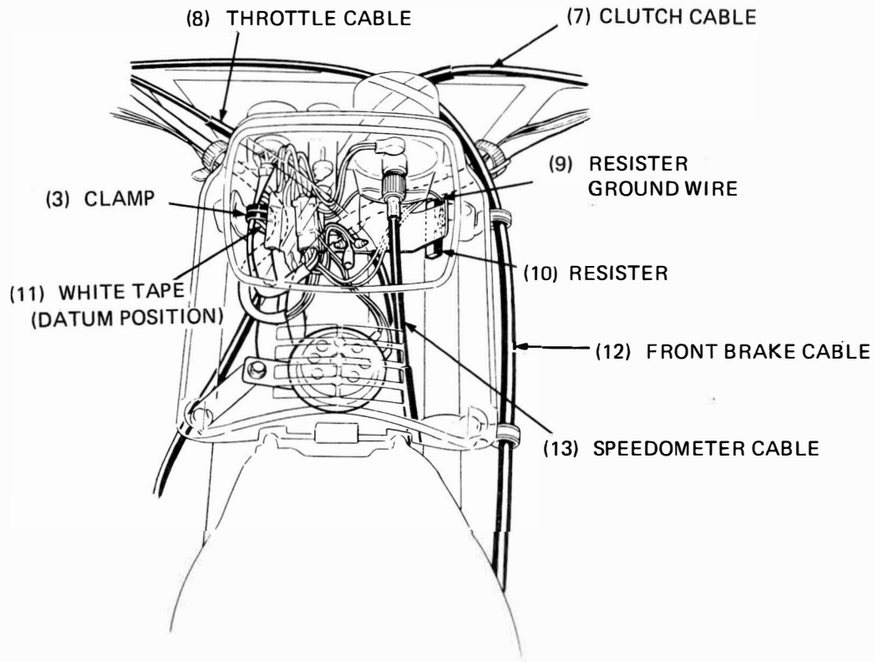
① 0030Z-167-6004

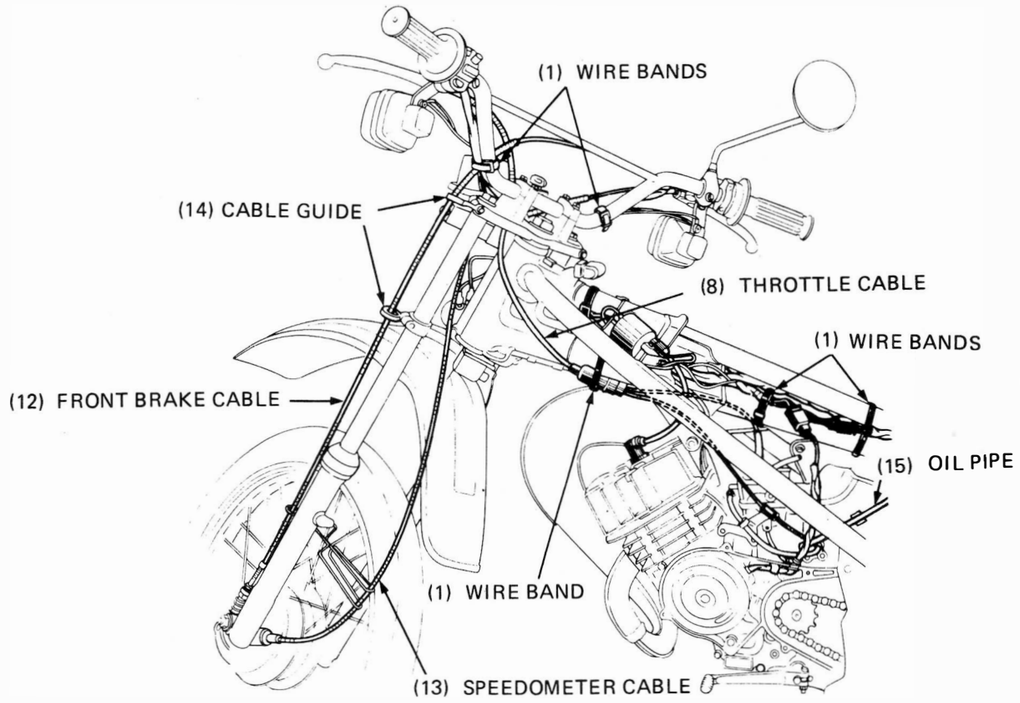
CABLE & HARNESS ROUTING






(4) TURN SIGNAL GROUND CORD
(1) WIRE BAND
30mm
(5) HANDLEBAR SWITCH WIRES
(6) PILOT LAMP CORD
(7) CLUTCH CABLE
(2) MAIN WIRE HARNESS
(3) CLAMP


(8) THROTTLE CABLE
(7) CLUTCH CABLE
(9) RESISTER GROUND WIRE
(3) CLAMP
(10) RESISTER
(11) WHITE TAPE (DATUM POSITION)
(12) FRONT BRAKE CABLE
(13) SPEEDOMETER CABLE


(1) WIRE BANDS
(14) CABLE GUIDE
(8) THROTTLE CABLE
(1) WIRE BANDS
(12) FRONT BRAKE CABLE
(15) OIL PIPE
(1) WIRE BAND
(13) SPEEDOMETER CABLE

MAINTENANCE SCHEDULE

	(1)	(2)			
	500 km (300 mi.)	3000 km (1800 mi.)	6000 km (3600 mi.)	9000 km (5400 mi.)	
3	R			R	2–3
4	C,A	R	★ C, A		3–4
5		C	25)		3–2
*6	I		I		3–5
*7	I	I			3–5
**8	I	I			3–6
*9			I		4–5
10	I		I		3–3
11	I, L	★ I, L			3–8
12			I		2–9
13	I		I		3–7
14	I		I		3–8
**15	I	I			10–14
16	I	I			3–9
*17	I		I		12–11
**18				I	2–9
19	I	I			3–2
*20	I	I			14–9
*21	I	I			1–4
**22			C		——
**23			C		6–5
**24				C	13–4

This maintenance schedule is based upon average riding conditions. Machines subjected to severe use, or ridden in unusually dusty areas, require more frequent servicing.

1) INITIAL SERVICE PERIOD
2) REGULAR SERVICE PERIOD
3) TRANSMISSION OIL
4) SPARK PLUG
5) AIR FILTER ELEMENT
6) CARBURETOR
7) THROTTLE OPERATION
8) OIL PUMP
9) FUEL LINES
10) CLUTCH
11) DRIVE CHAIN
12) SIDE STAND [MT50]
13) BRAKE SHOES [MB50, MT50] /PADS [MB50]
14) BRAKE CONTROL LINKAGE
15) WHEELS [MB50] /WHEEL RIMS AND SPOKES [MT50]
16) TIRES
17) FRONT AND REAR SUSPENSION
18) STEERING HEAD BEARINGS
19) BATTERY
20) LIGHTING EQUIPMENT
21) ALL NUTS, BOLTS, AND OTHER FASTENERS
22) CYLINDER PISTON DECARBONIZE
23) CYLINDER EX. PORT DECARBONIZE
24) MUFFLER DECARBONIZE
25) Service more frequently if operated in dusty areas.

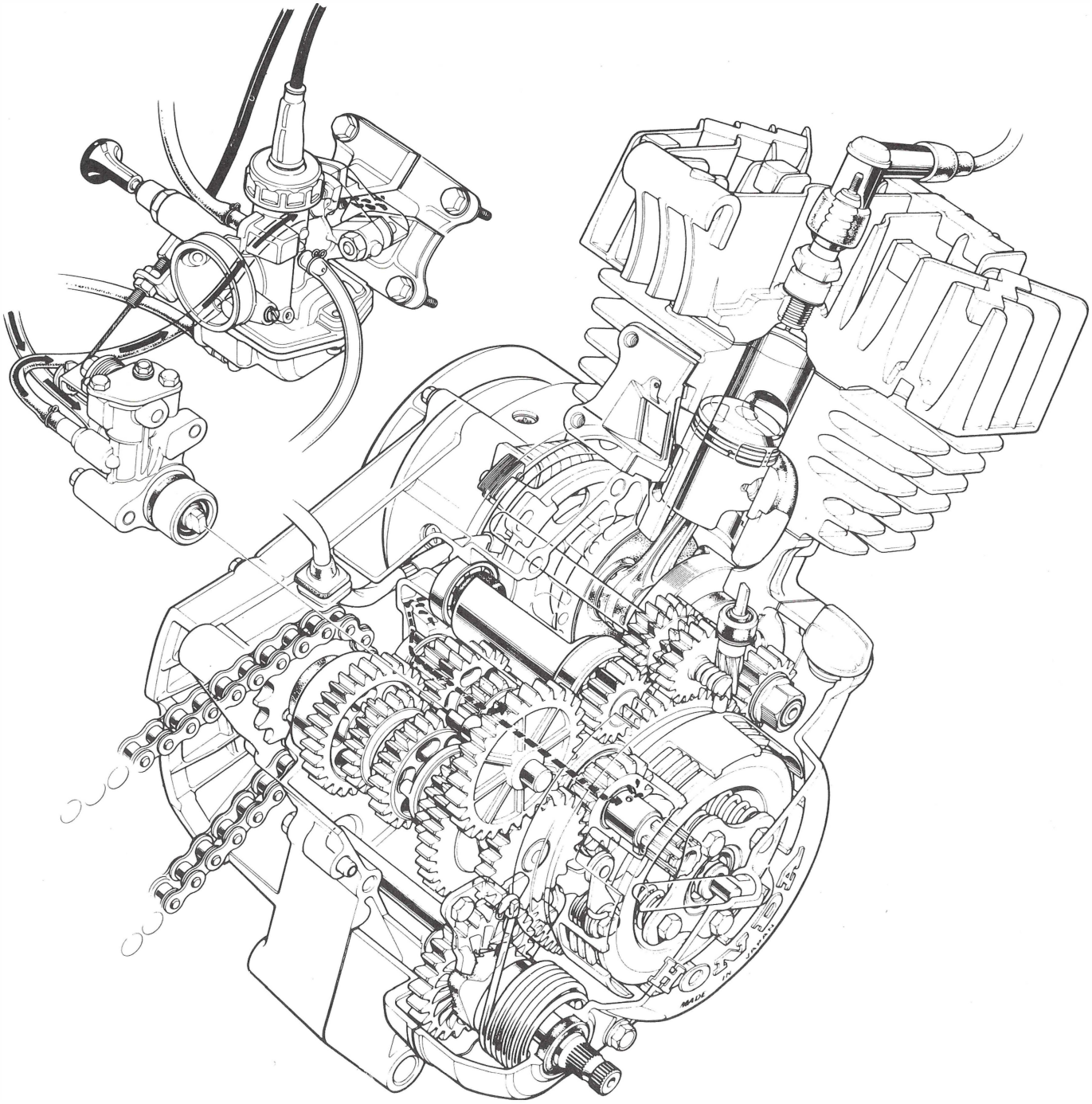
** IN THE INTEREST OF SAFETY, WE RECOMMEND THESE ITEMS BE SERVICED ONLY BY AN AUTHORIZED HONDA DEALER .

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

★ Every 1,000 km (600 mi.)

I — Inspect, clean, adjust, lubricate or replace if necessary.
R — Replace
C — Clean
L — Lubricate
A — Adjust

LUBRICATION OIL FLOW



Engine oil

Transmission oil

2. LUBRICATION

SERVICE INFORMATION

GENERAL INSTRUCTIONS

- Use utmost care when removing and installing the oil pump not to allow dust and dirt from entering inside the engine.
- Do not attempt to disassemble the oil pump.
- Bleed air from the oil pump if there is air in the oil pipe from the oil tank to the oil pump or if the oil pipe is disconnected.
- Bleed air from the oil pass tube (from the oil pump to the inlet pipe) if the tube is disconnected.

SPECIFICATIONS

Specified oil	HONDA ULTRA "2" SUPER or 2-stroke injector oil for motorcycle

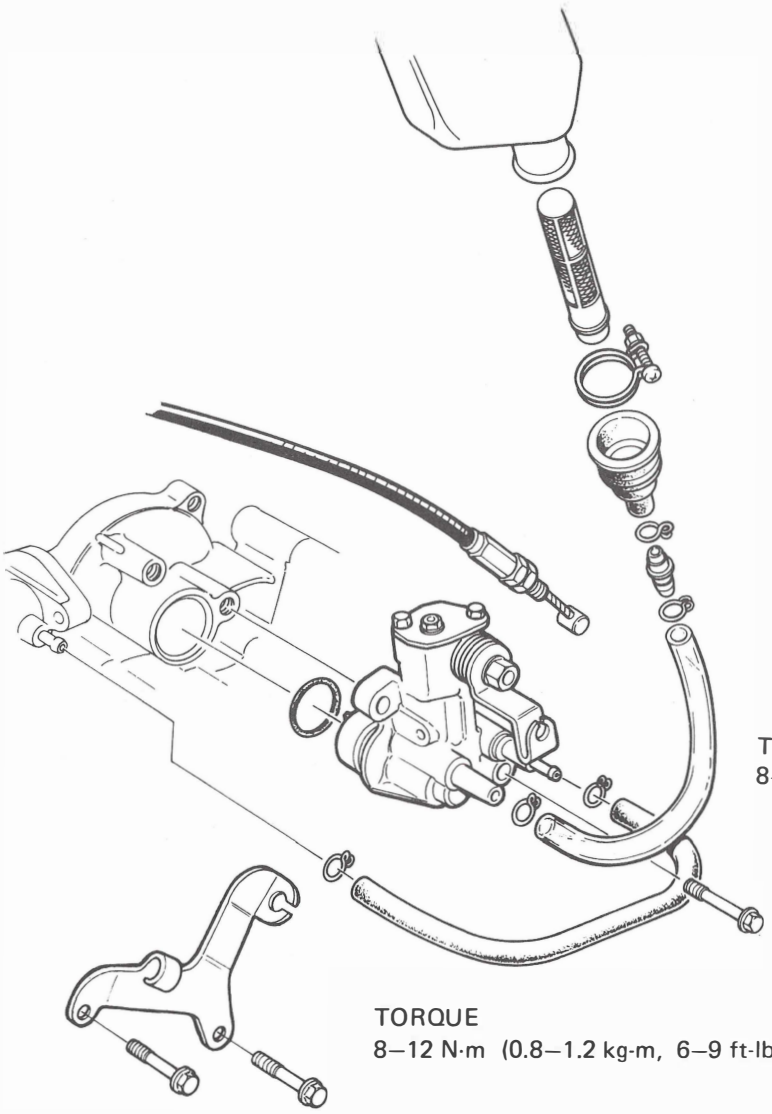
TROUBLESHOOTING

Excessive smoke/ excessive carbon buildup in plug
1. Pump not properly synchronized (excessive oil)
2. Low quality of engine oil

Overheat
1. Oil pump not synchronized properly (insufficient oil)
2. Low quality of engine oil

Seized or burnt piston
1. No oil in tank or clogged oil pipe
2. Pump not properly synchronized (insufficient oil)
3. Air in oil pipe
4. Defective oil pump

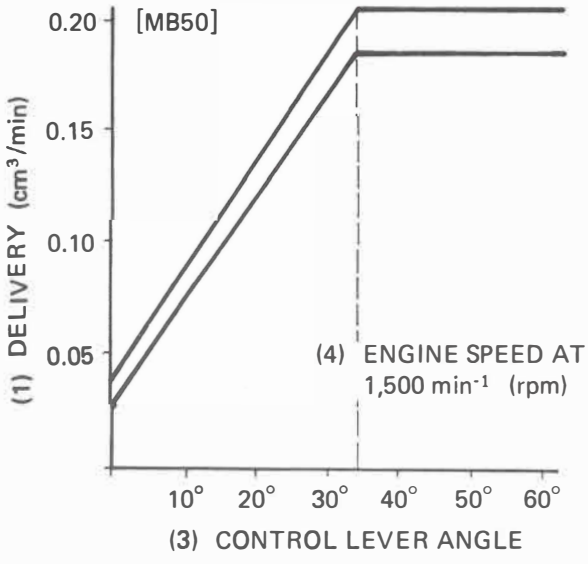
Oil not flowing out from tank
1. Clogged oil tank cap breather hole
2. Clogged oil tank filter screen

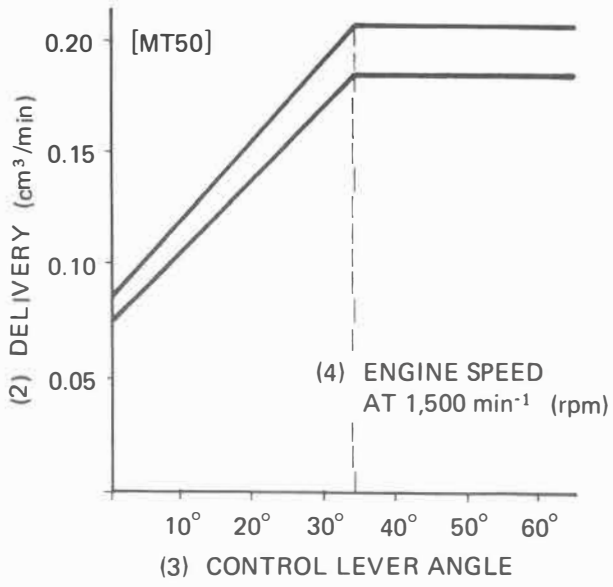


TORQUE
8–12 N·m (0.8–1.2 kg-m, 6–9 ft-lb)

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

(1) PUMP PERFORMANCE CURVES





TRANSMISSION OIL

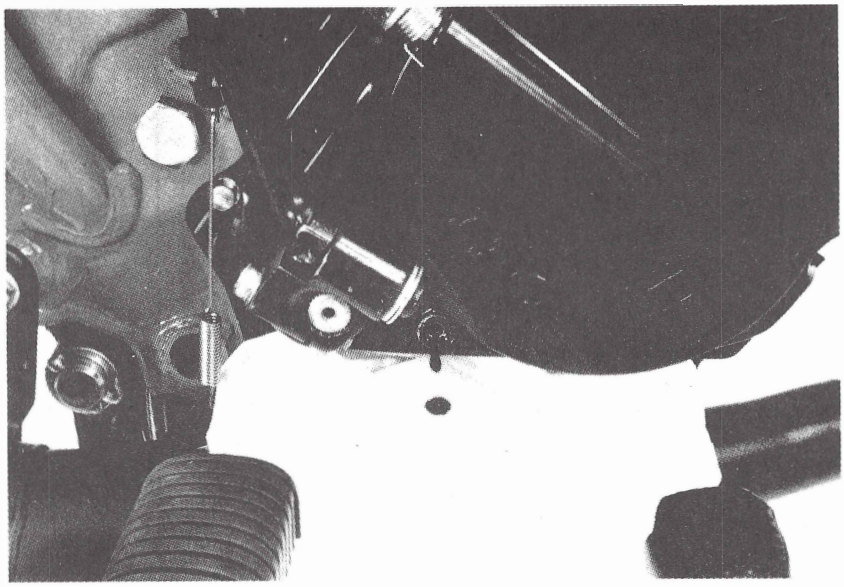
OIL LEVEL CHECK

NOTE

- Support the motorcycle upright on level ground.
- Before checking the oil level, run the engine and allow to idle for a few minutes.

Stop the engine and remove the oil level check bolt from the right crankcase cover.

Small amount of oil should flow out of the oil level bolt hole.



OIL CHANGE

NOTE

Before draining the oil, warm the engine to normal operating temperature.

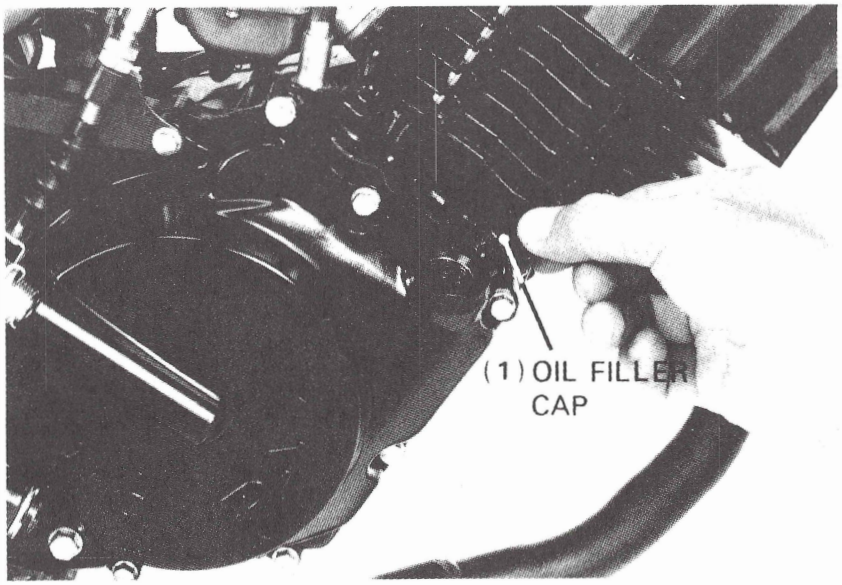
Remove the oil filler cap.
Remove the oil drain plug and drain the oil.

Reinstall the drain plug.

TORQUE: 20–25 N·m (2.0–2.5 kg-m, 14–18 ft-lb)

CAUTION

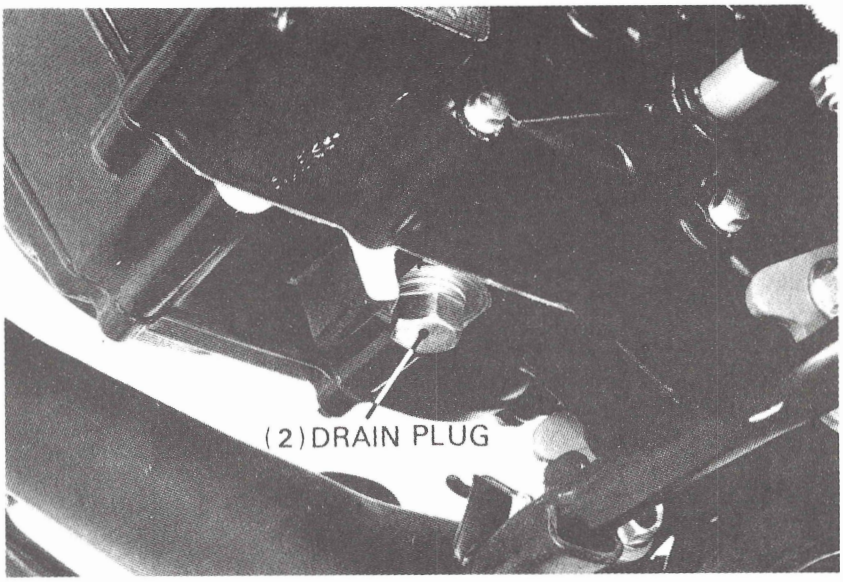
Make sure that the sealing washer on the drain plug is in good condition.



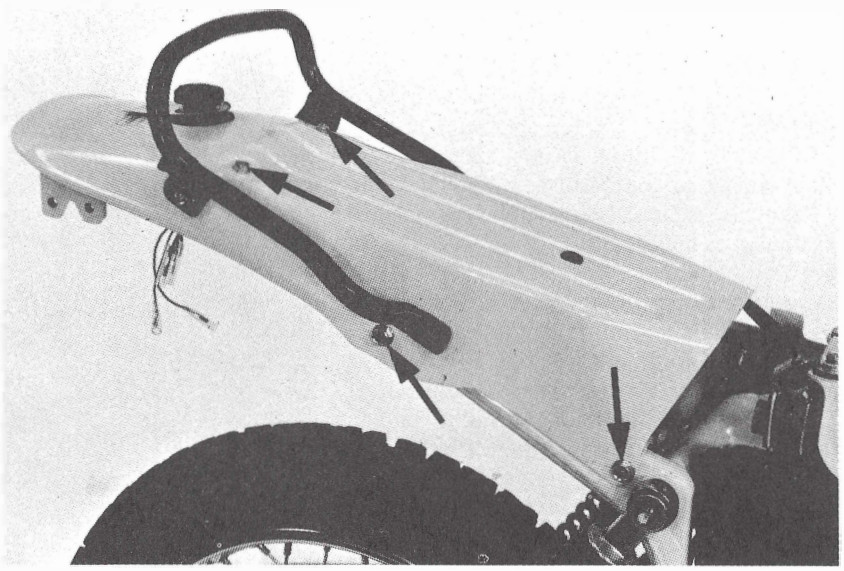
Refill the engine up to the proper level.

OIL CAPACITY: 1.0 ltr (0.9 ltr at change)
SPECIFIED OIL: 10W–40 or equivalent

Start the engine and check for leaks. Stop the engine and recheck the oil level (Page 3–5).



OIL TANK REMOVAL/ INSTALLATION



[MB50]

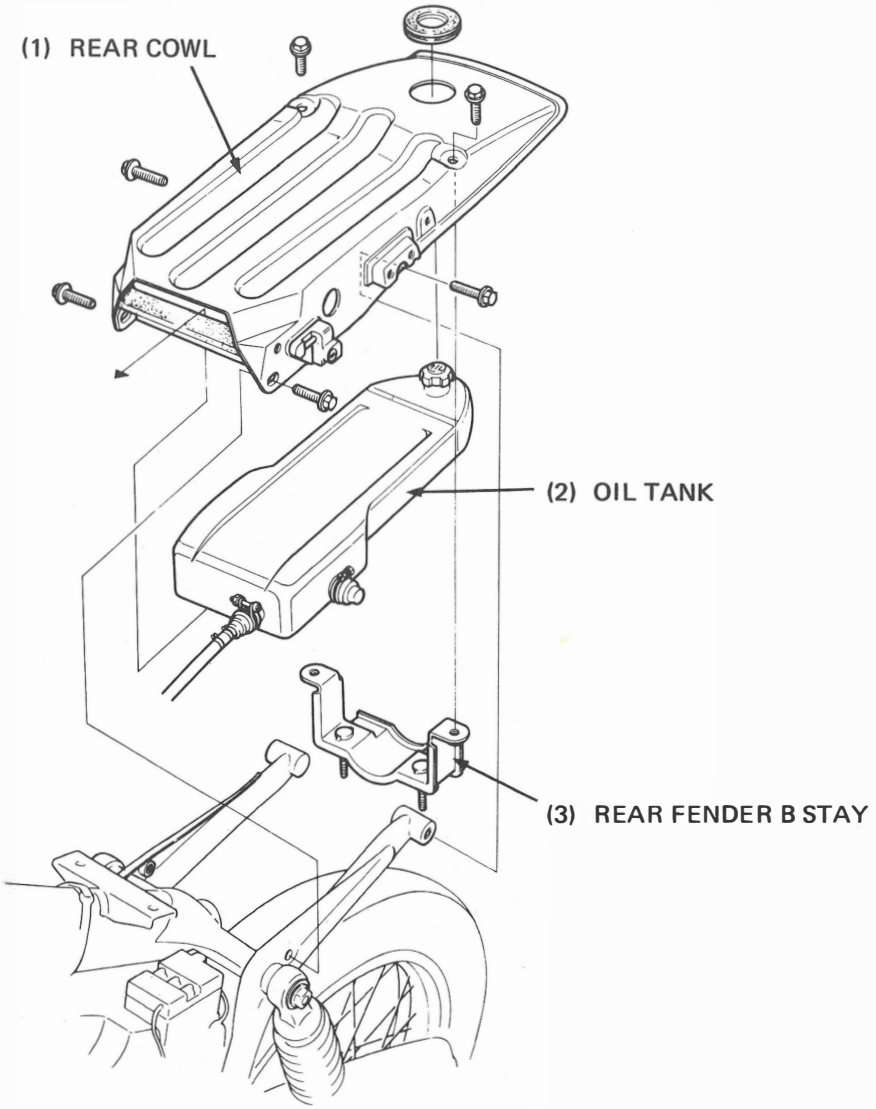
Remove the seat.
Remove the fuel tank (Page 4–3).
Remove the oil tank.
Clean the strainer

[MT50]

Remove the seat and exhaust muffler.
Remove the rear fender B.
Remove the taillight and rear fender A.

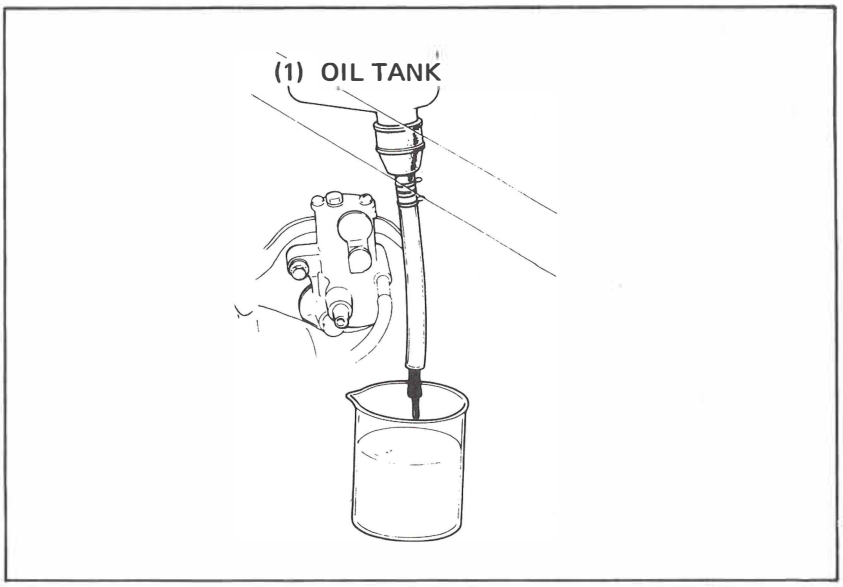
Remove the rear fender B stay.
Disconnect the oil pipe from the oil pump.
Disconnect the wire harness at back of the rear cowl.

Remove the four bolts and remove the oil tank and rear cowel.
Clean the oil strainer (Page 2–5).



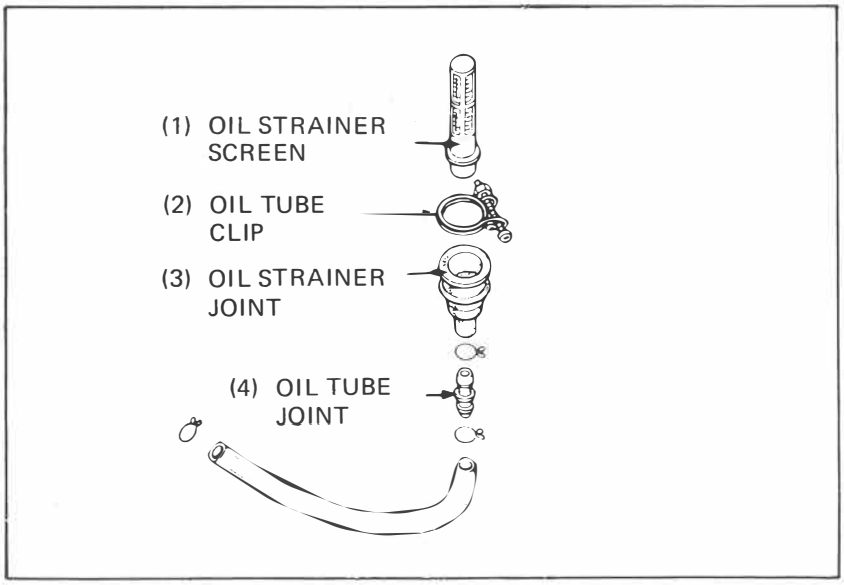
OIL STRAINER CLEANING

Disconnect the oil pipe at the oil pump and allow the oil to drain into a clean strainer.



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

Remove the oil strainer screen.



Clean the oil strainer screen with compressed air.

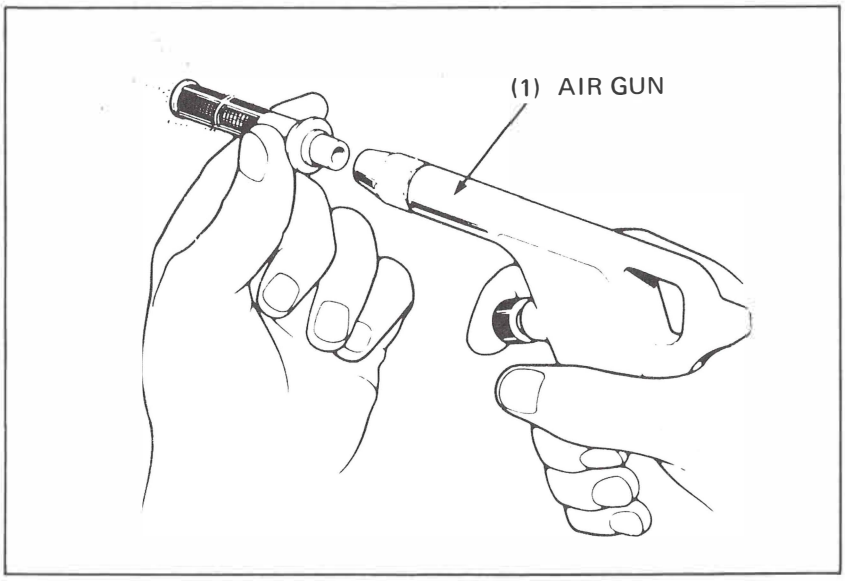
Installation of the oil strainer is the reverse order of removal.

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

Bleed air from the oil pump and oil pipe (Page 2–8).

CAUTION

- *Connect the oil pipe securely.*
- *Check for leaks.*

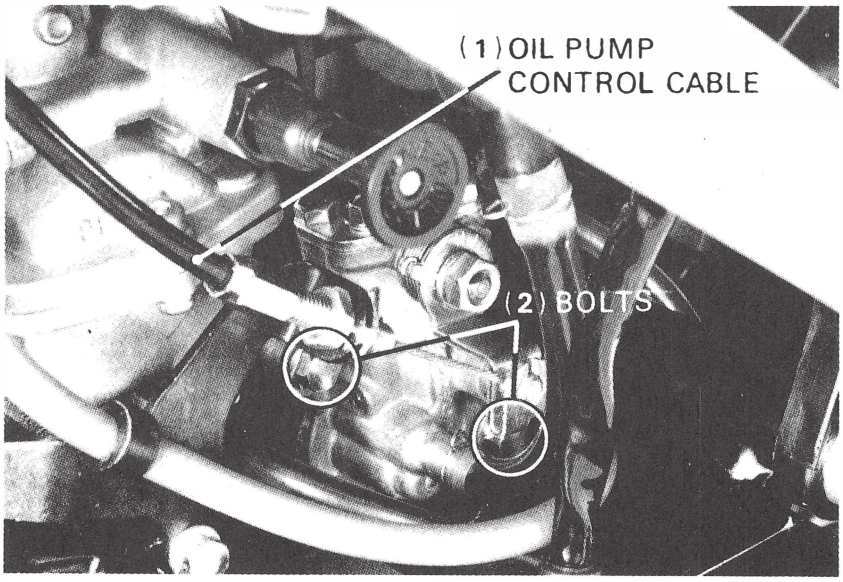


OIL PUMP REMOVAL

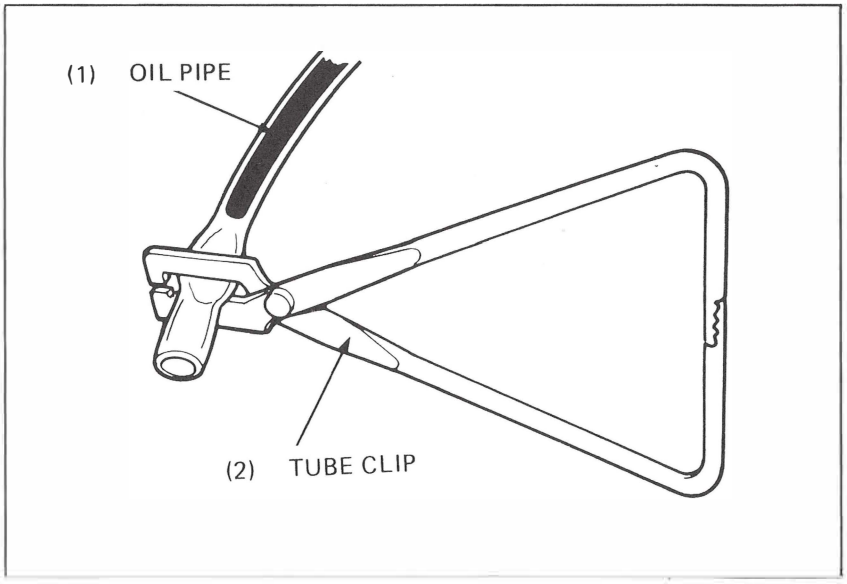
NOTE

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

Disconnect the oil pump control cable.
Remove the two bolts attaching the oil pump and remove the oil pump.



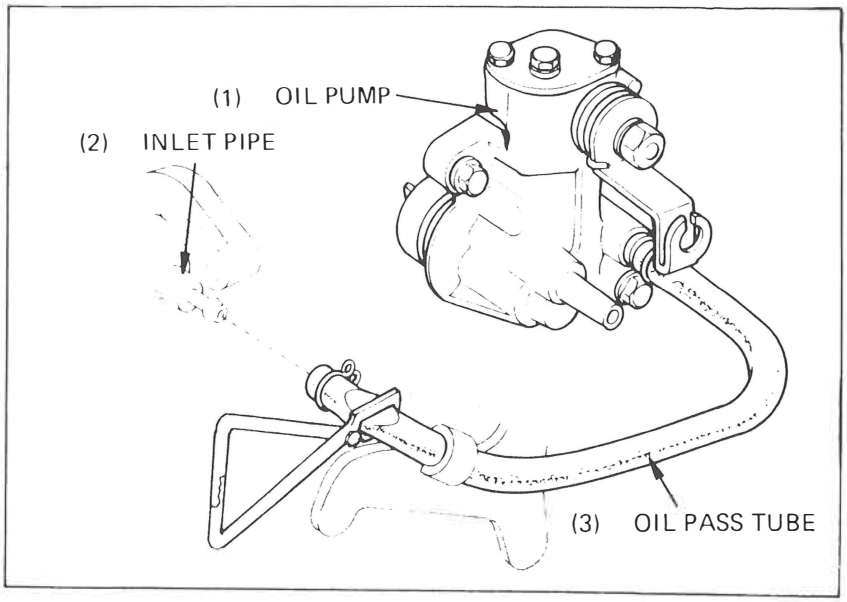
Disconnect the oil pipe from the oil pump, and pinch the end of the oil pipe to prevent oil from flowing out.



Disconnect the oil pass tube from the inlet pipe.

NOTE

Use care not to allow oil to flow out of the oil pass tube.

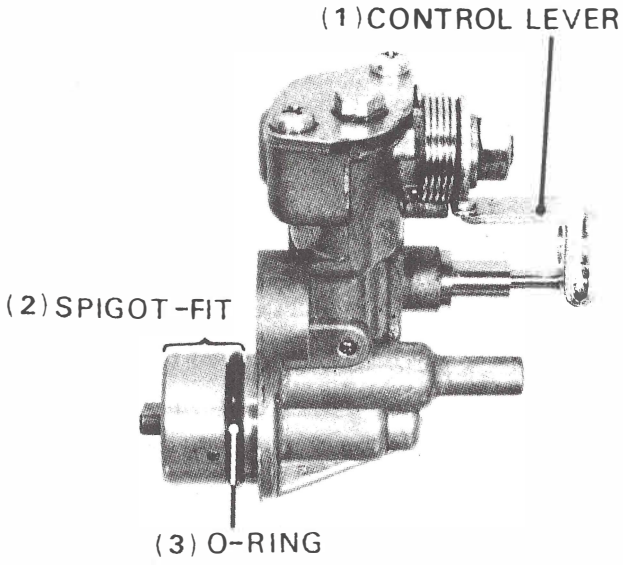


OIL PUMP INSPECTION

Remove the oil pump and inspect the following items:

- Damaged or weakened O-rings
- Damage to crankcase mating face
- Damage to pump body
- Improper oil control lever

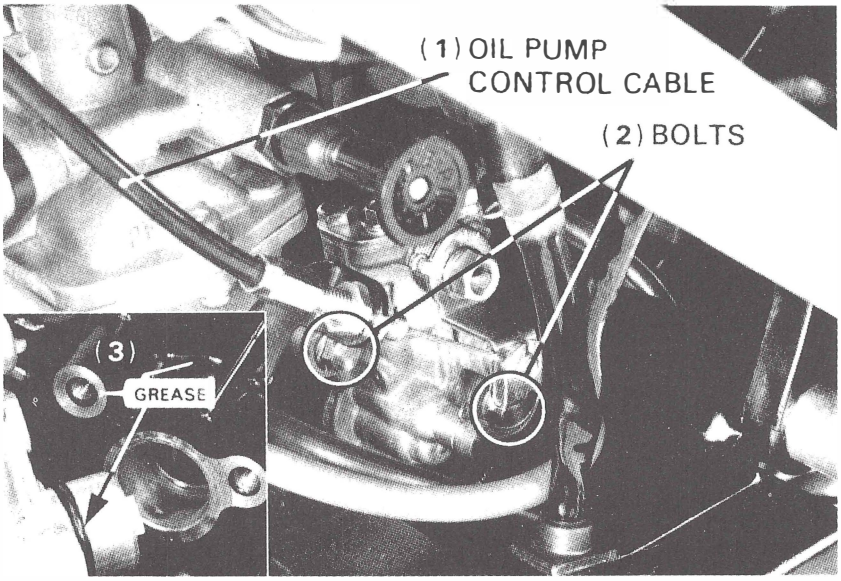
CAUTION
Do not disassemble the oil pump.



OIL PUMP INSTALLATION

Install the oil pump to the crankcase aligning the groove in the pump drive shaft with the lug on the oil pump.

NOTE
- Lubricate the O-ring with clean grease before installation.
- Make sure that the oil pump is inserted into the crankcase properly.



Tighten the oil pump attaching bolts securely.
Reconnect the oil pump control cable.
Reinstall the oil pipe and oil pass tube.

NOTE
Perform the following inspections and adjustments:
- Control cable adjustment 3–6)
- Oil pump air bleeding (Page 2–8).
- Oil pass tube air bleeding (Page 2–8)
- Oil leaks

OIL PUMP BLEEDING

NOTE

- Bleed air from the oil lines as it will block or restrict oil flow, resulting in severe engine damage.
- Bleed air from the oil pipe and oil pump first, then bleed air from the oil pass tube.

OIL PIPE/OIL PUMP

NOTE

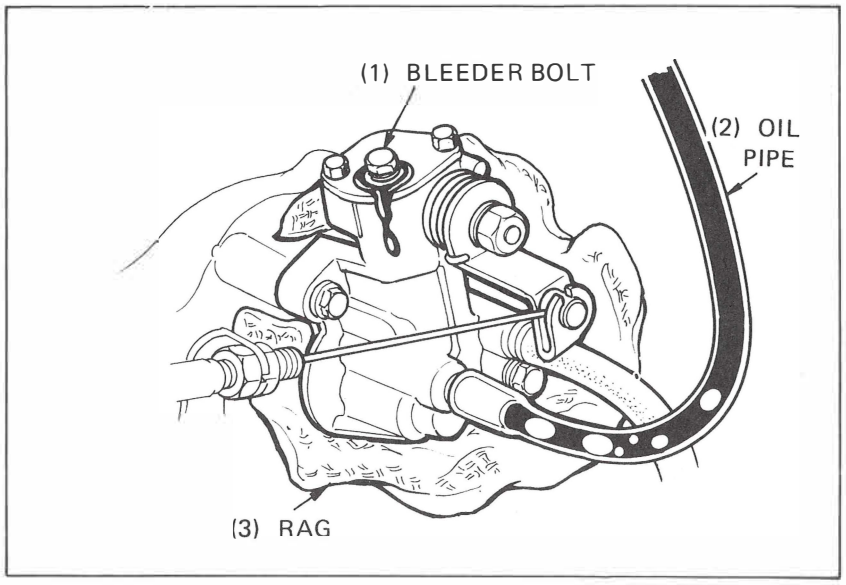
Bleed air from the oil pipe and oil pump when the oil pipe is disconnected or there is air in the oil pipe.

Stop the engine.
Fill the oil tank with engine oil.
Place rag around the oil pump as shown.

Unscrew the bleeder bolt at top of the oil pump.
Tighten the bleeder bolt when the oil is free of air bubbles.

NOTE

Bleed air from the oil pass tube after bleeding the oil pipe and oil pump.



OIL PASS TUBE

NOTE

Bleed air from the oil pass tube when the tube is disconnected or there is air in the oil pipe and oil pump.

Make sure that there is fuel in the fuel tank (25–50 part fuel and 1 part lubricant).

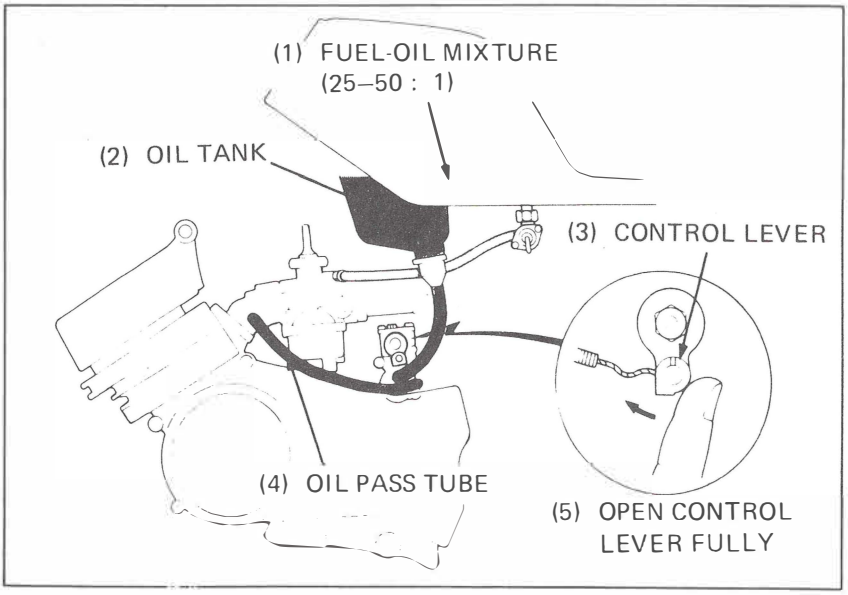
Start the engine and run for about 10 minutes with the oil pump control lever in the fully open position so as to force air out of the oil pass tube with the oil.

WARNING

Perform this operation in a well ventilated area.

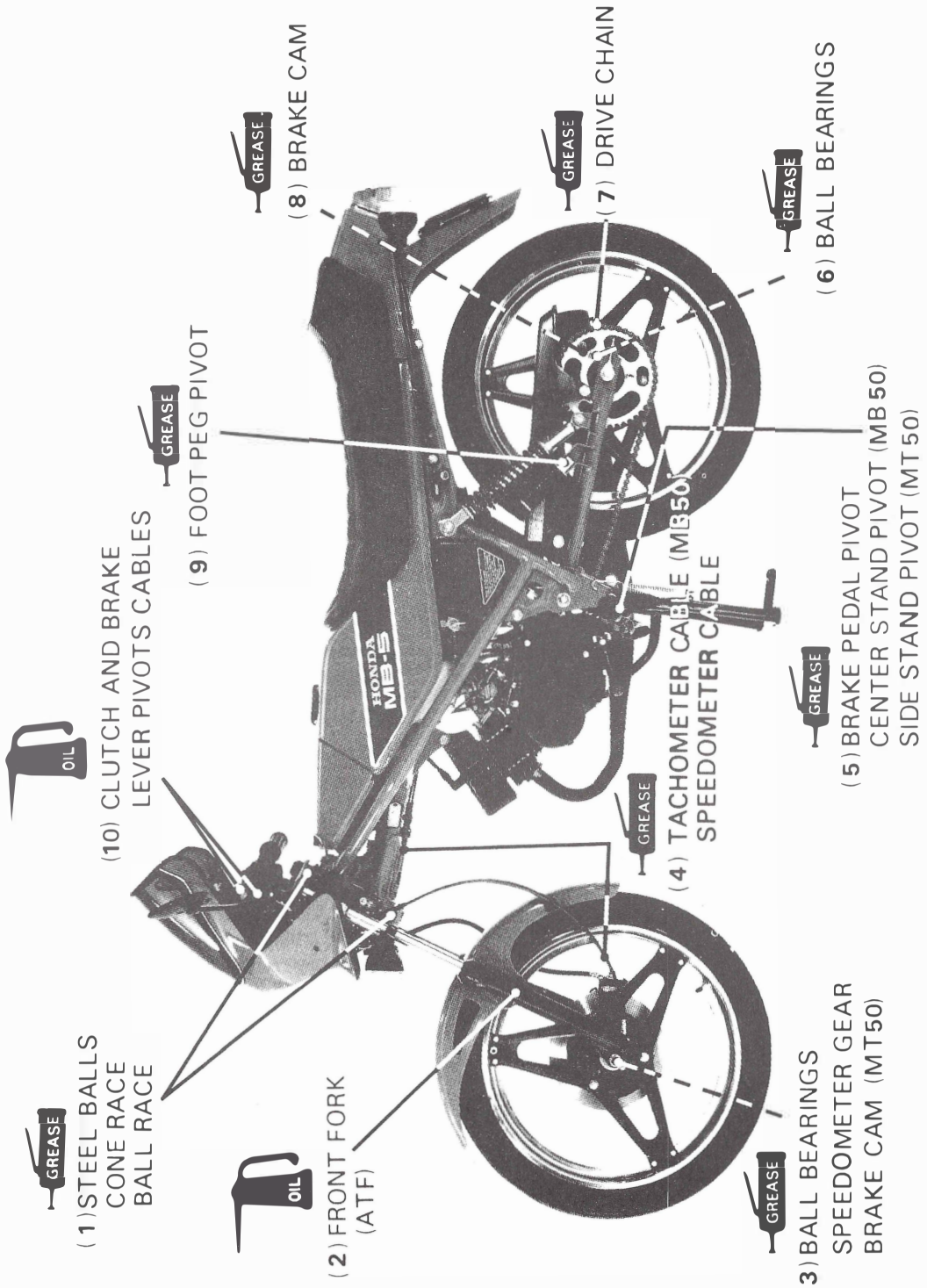
CAUTION

- *Use the recommended engine oil.*
- *Do not race the engine.*



LUBRICATION POINTS

Use the general purpose grease when not specified here.
Apply oil or grease to the other sliding surfaces and cables not shown here.



MEMO

SERVICE INFORMATION

GENERAL INFORMATION

For Maintenance Schedule, refer to Section 1.

SPECIFICATIONS

[ENGINE]

Clutch lever free play	10–20 mm (3/8–3/4 in)
Spark plug gap	0.6–0.7 mm (0.024–0.028 in)
Spark plug type	See Section 1
Cylinder compression	130 kPa (13.0 kg/cm², 185 psi)
Throttle grip free play	2–6 mm (0.08–0.24 in)

[CHASSIS]

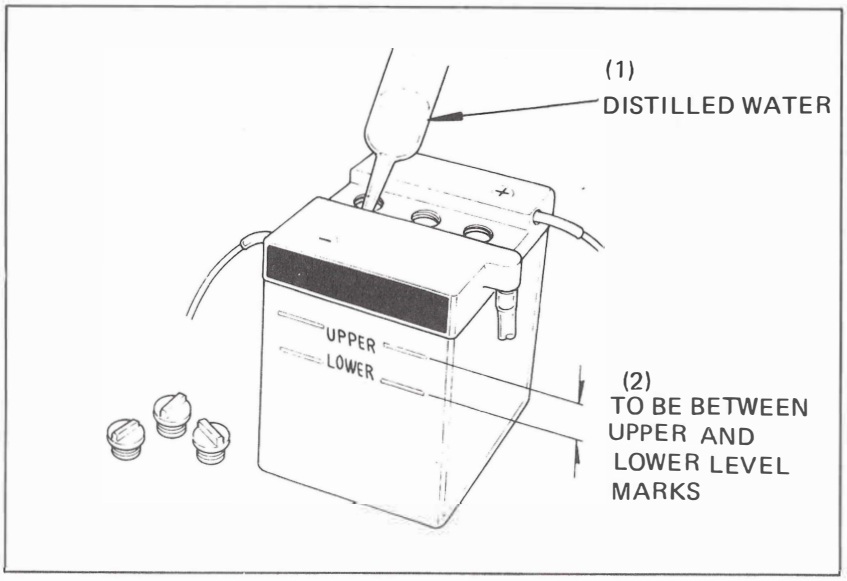
Front brake lever free play **[MT50]**		10–20 mm (3/8–3/4 in)
Rear brake pedal free play		20–30 mm (3/4–1- 1/4 in)
Drive chain slack		10–20 mm (3/8–3/4 in)
Tire pressure **[Rider only]**		
MB50	Front	175 kPa (1.75 kg/cm², 25 psi)
	Rear	225 kPa (2.25 kg/cm², 32 psi)
MT50	Front	150 kPa (1.5 kg/cm², 21 psi)
	Rear	150 kPa (1.5 kg/cm², 21 psi)
Tire pressure		
MB50	Front	2.50–18–4PR
	Rear	2.50–18–6PR
MT50	Front	2.50–19–4PR
	Rear	3.00–16–6PR

BATTERY

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

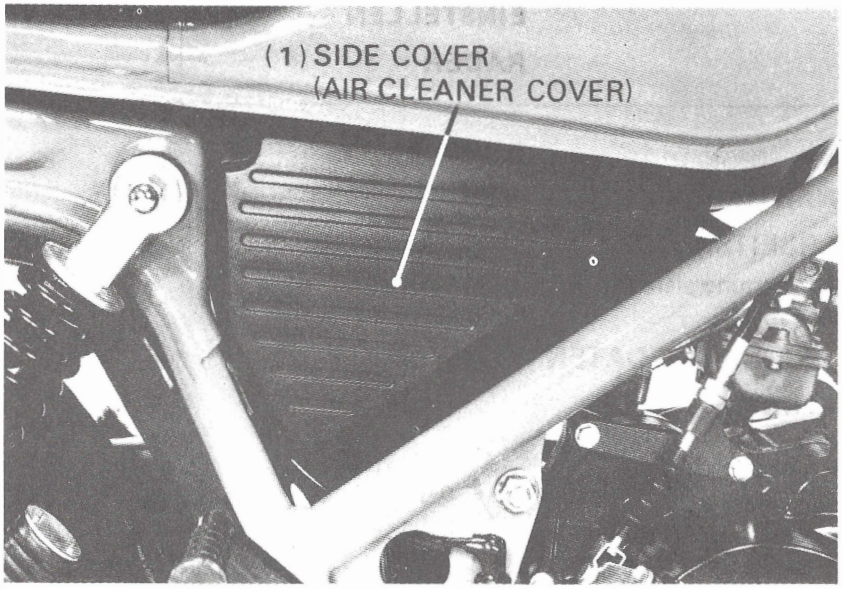
Check the specific gravity of the battery electrolyte in each cell (Page 14–3).

Recharge the battery (Page 14–4).

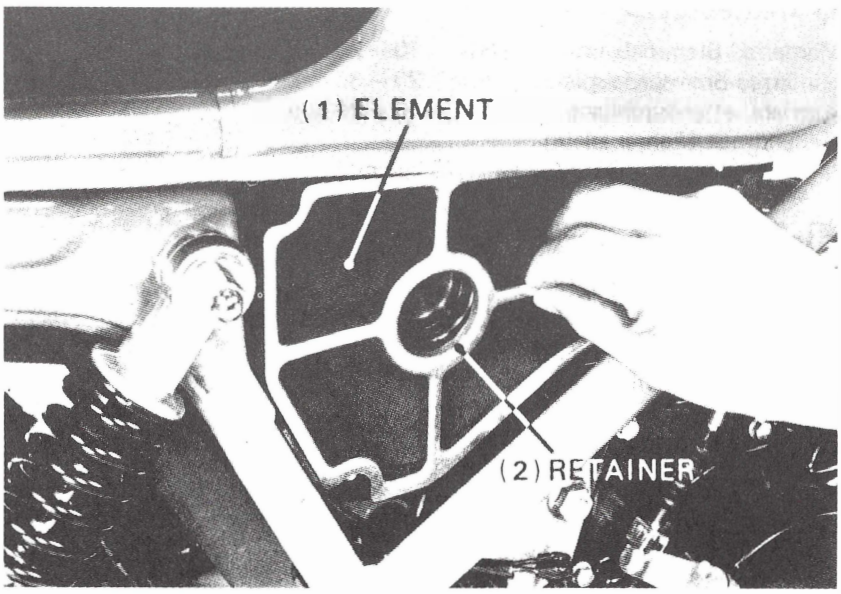


AIR CLEANER CLEANING

Remove the screws attaching the side cover and remove the side cover (air cleaner cover).



Remove the retainer and take out the air cleaner element.

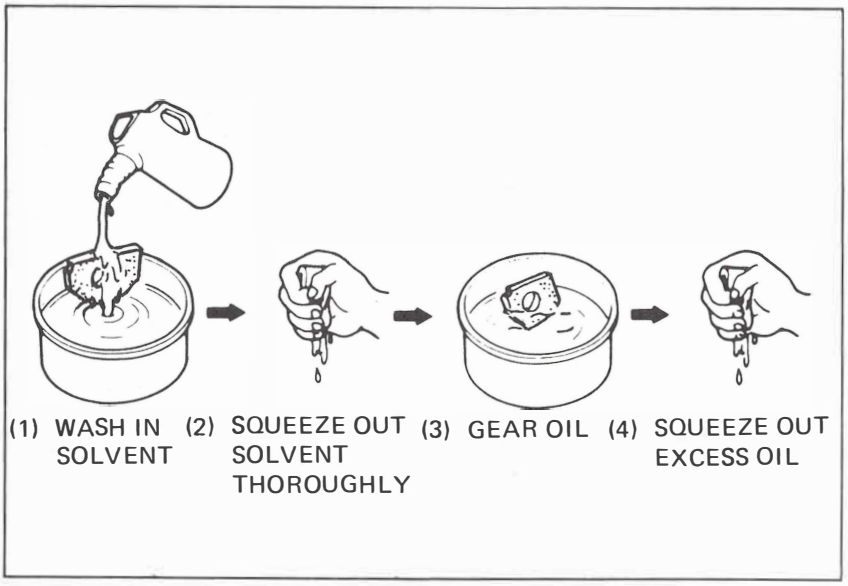


Wash the element in non-flammable or high flash point solvent and allow to dry.

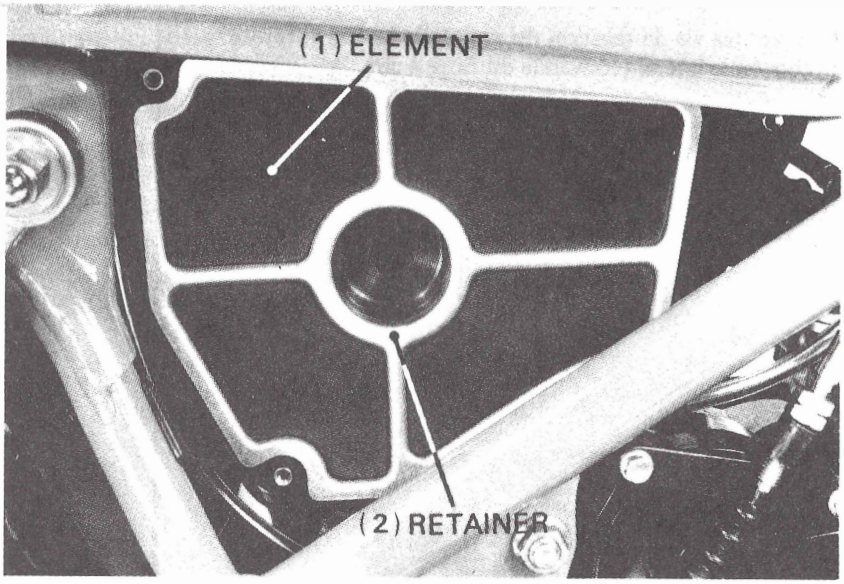
NOTE

Do not wash the element in gasoline or vegetable oil.

Soak the element in clean Honda Ultra "S" oil or gear oil (SAE 80–90) and squeeze out excess.



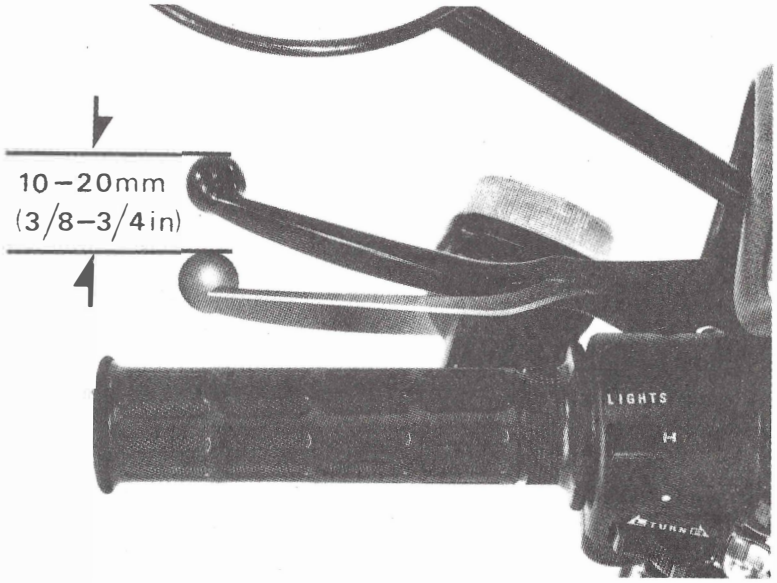
Install the element in the air cleaner case and secure with the retainer.



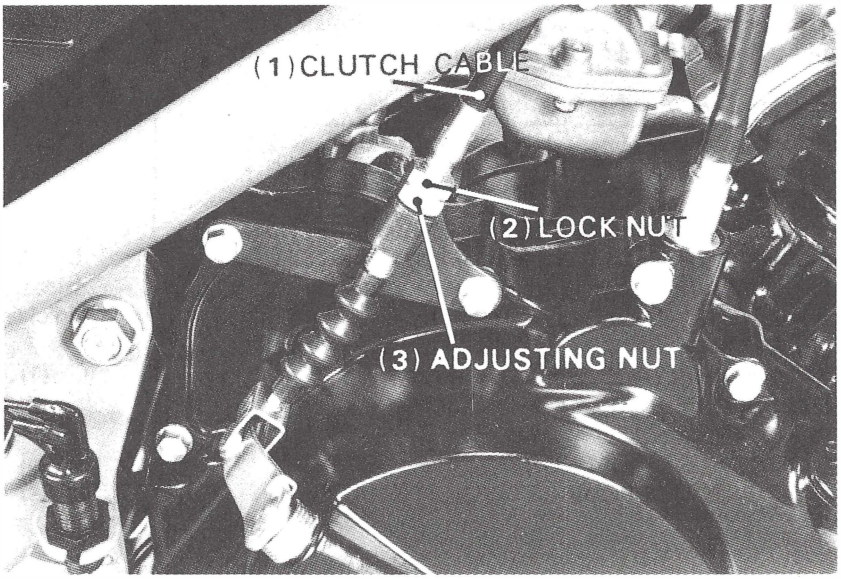
CLUTCH ADJUSTMENT

Measure the clutch lever free play.

FREE PLAY: 10–20 mm (3/8–3/4 in)



Adjust free play by loosening the lock nut and turning the adjuster until the free play is 10–20 mm (3/8–3/4 in).

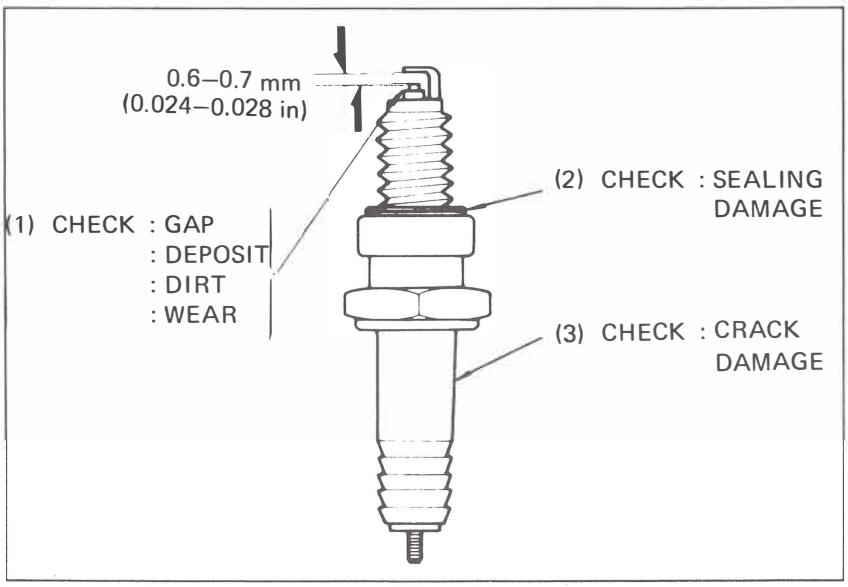


SPARK PLUG

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 is there is apparent wear or if the insulator is cracked or chipped. If the spark plug deposits can be removed by sand blasting, the spark plug can be reused. Inspect the gap with a feeler gauge and adjust by bending the side electrode only.

Spark plug type: See Section 1.



COMPRESSION TEST

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

Open the choke and throttle grip fully and operate the starter pedal several times.

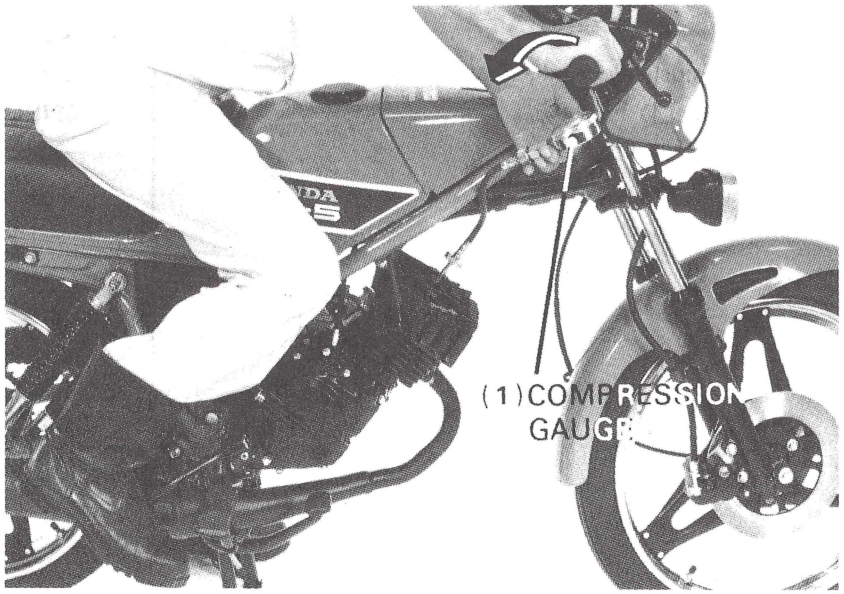
COMPRESSION: 130 kPa (13.0 kg/cm², 185 psi)

Low compression can be caused by:

- Blown cylinder head gasket
- Worn piston rings
- Worn cylinder

High compression can be caused by:

- Carbon deposits in combustion chamber or on piston head

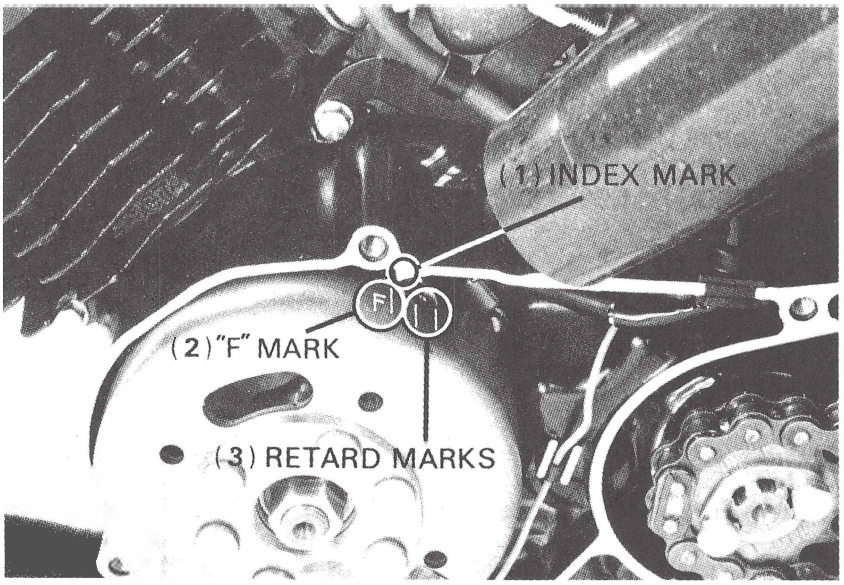


IGNITION TIMING

NOTE

The C. D. I. ignition timing is not adjustable. If the ignition timing is incorrect, check the C. D. I. unit and A. C. generator and replace any defective parts.

Check the ignition timing using Honda Service Tester P/N 07308–007000 or 07308–0010000.

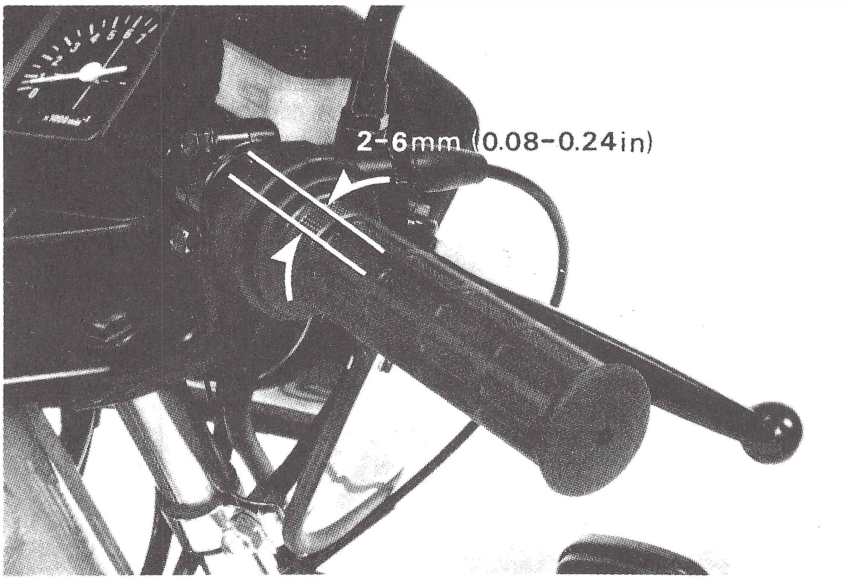


IGNITION TIMING ADJUSTMENT

Remove the left crankcase cover.
Timing is correct if the index mark aligns with the "F" mark at 3,000 min^{-1} (rpm).

IGNITION TIMING: 19 ± 3° BTDC/3,000 min^{-1} (rpm)

Also check that the index mark is between the retard marks at 8,500–9,500 min^{-1} (rpm).



CARBURETOR ADJUSTMENT

THROTTLE CABLE ADJUSTMENT

Measure the throttle grip free play.

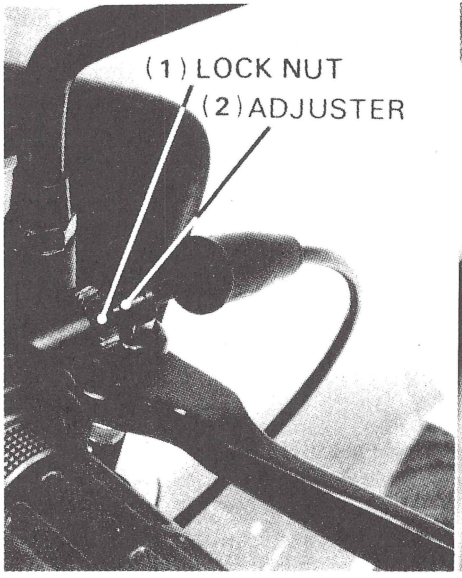
FREE PLAY: 2–6 mm (0.08–0.24 in)

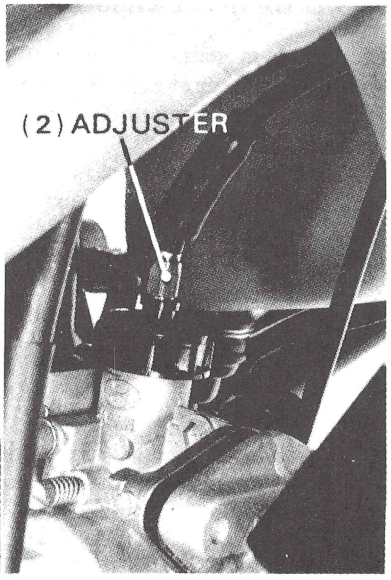
Adjustments are made by loosening the lock nut and turning the throttle grip free play adjuster.

Replace the throttle cable with a new one if the above procedure is no longer effective.

CAUTION

After adjusting the throttle grip free play, the oil pump control cable must also be adjusted.





IDLE SPEED ADJUSTMENT

NOTE

The engine must be warm for accurate idle adjustment.

Attach an engine tachometer.

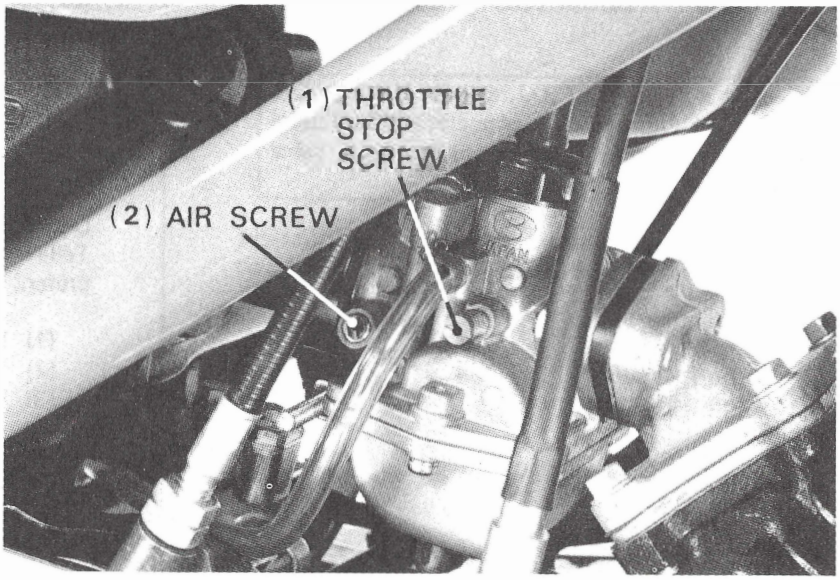
Turn the throttle stop screw to obtain the specified idle speed (Page 4–1).

When the engine misses or runs erratic proceed as follows:

Screw in the air screw until lightly seats, then turn it out as specified (Page 4–1).
Reset idle speed with the throttle stop screw.

Turn the air screw to find the highest idle speed.
Reset idle speed with the throttle stop screw.

Make sure that the engine does not miss or run erratic. If necessary, repeat the above steps.

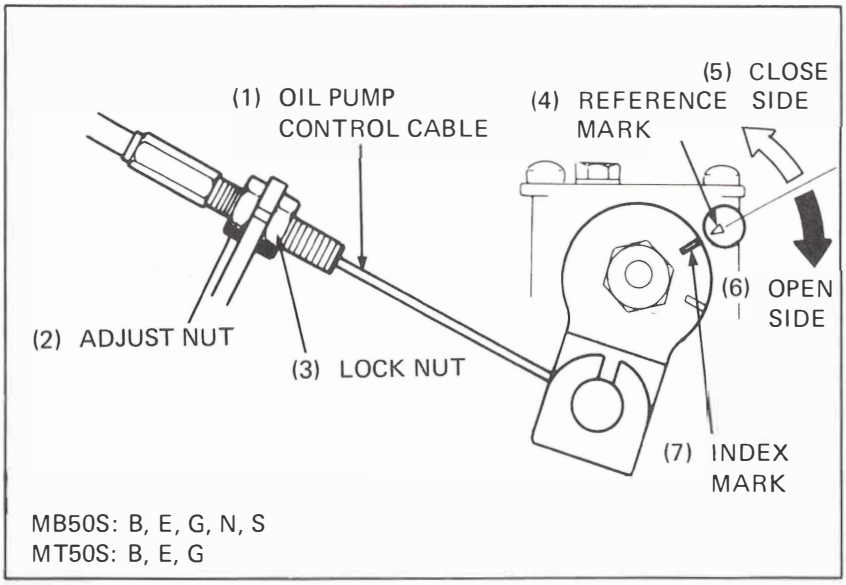


OIL PUMP CONTROL CABLE ADJUSTMENT

NOTE

The oil pump control cable should be adjusted after the throttle grip free play has been adjusted.

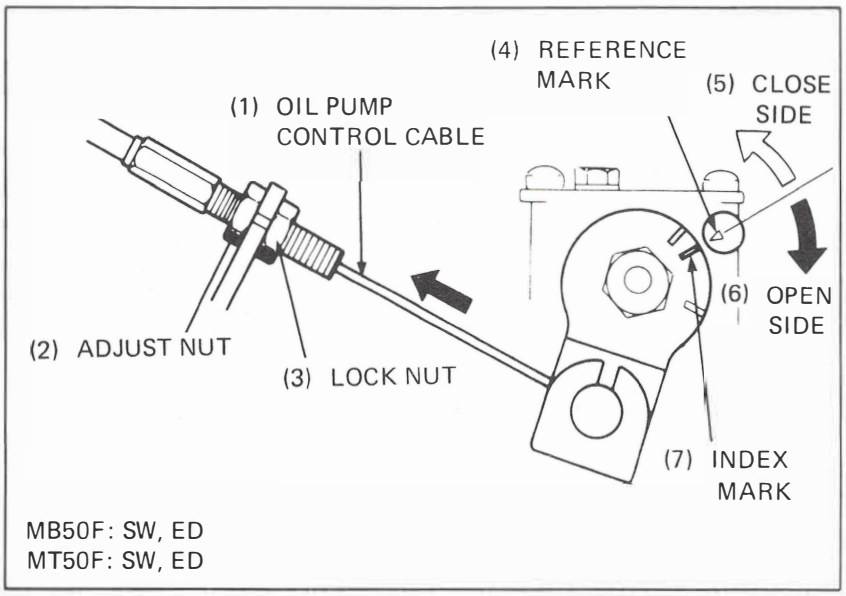
Loosen the lock nut. With the throttle fully open, align the index mark on the pump body with the reference mark on the control lever by turning the adjusting nut. Tighten the lock nut.



MB50S: B, E, G, N, S
MT50S: B, E, G

CAUTION

The index mark on the control lever must not be out of line with the reference mark on the pump body toward the CLOSE side. Failure to do so reduces the pump delivery, resulting in serious engine damage. When adjusting the index marrk, it may be out of line with the reference mark toward the OPEN region within 1 mm (0.04 in).



MB50F: SW, ED
MT50F: SW, ED

Excessive white smoke or hard starting: Pump control lever excessively open
Burnt piston: Pump control lever not opened properly

BRAKE

BRAKE FLUID INSPECTION [MB50]

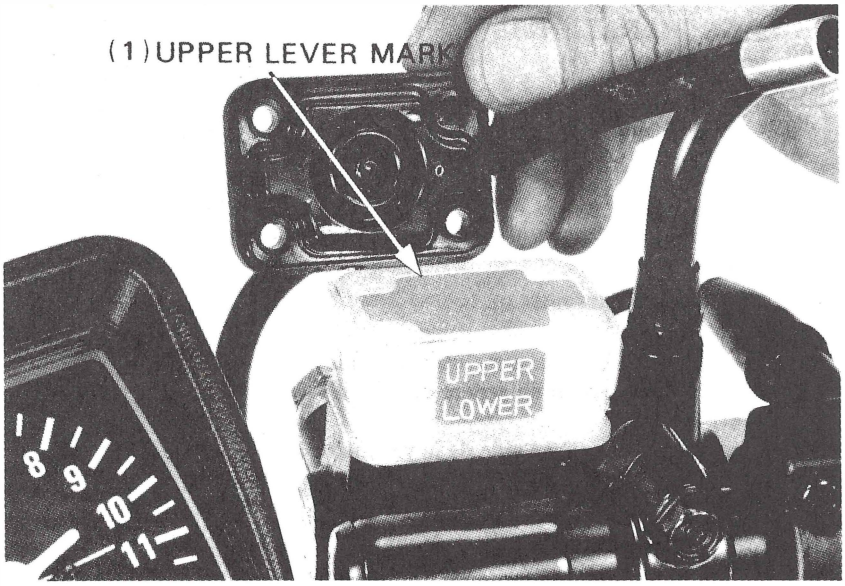
Check that the brake fluid reservoir is filled to the level mark on the reservoir.

If the level is lower than the level mark, fill the reservoir with **J1703 BRAKE FLUID** up to the level mark.

Check the entire system for leaks, if the level is low.

CAUTION

Do not mix different brands of fluid in the reservoir. Stay with one fluid as they are not compatible.
Do not remove the cap until the handlebar has been turned full left so that the reservoir is level.



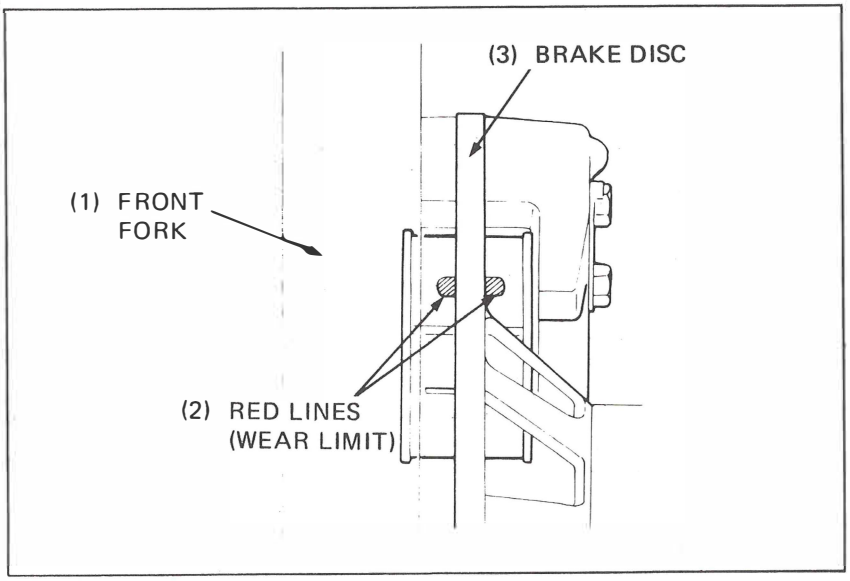
BRAKE PAD WEAR [MB50]

Remove the cap from the caliper and check for brake pad wear.

SERVICE LIMIT: Replace the brake pads if the red line on the top of the pads reaches the edge of the brake disc (Page 11–3).

NOTE

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

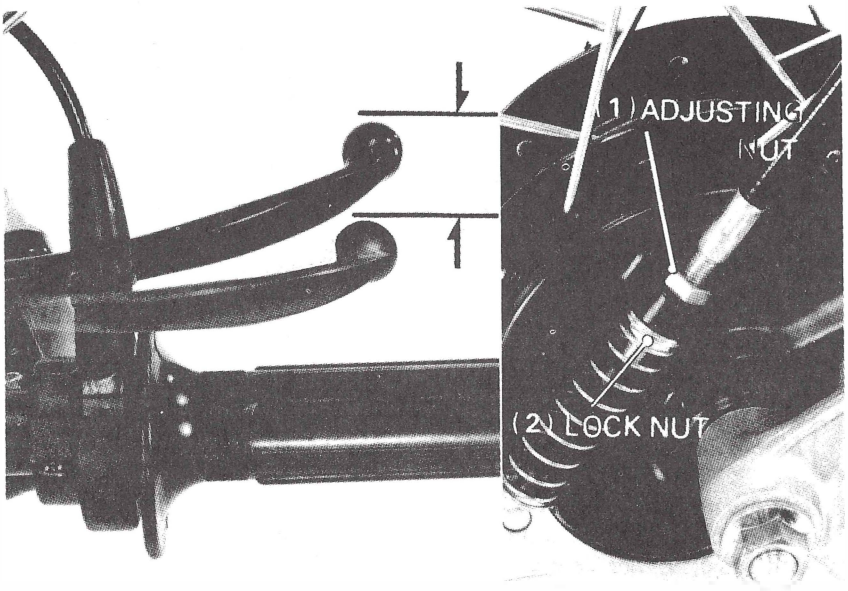


FRONT BRAKE LEVER FREE PLAY [MT50]

Measure the brake lever free play.

FREE PLAY: 10–20 mm (3/8–3/4 in)

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

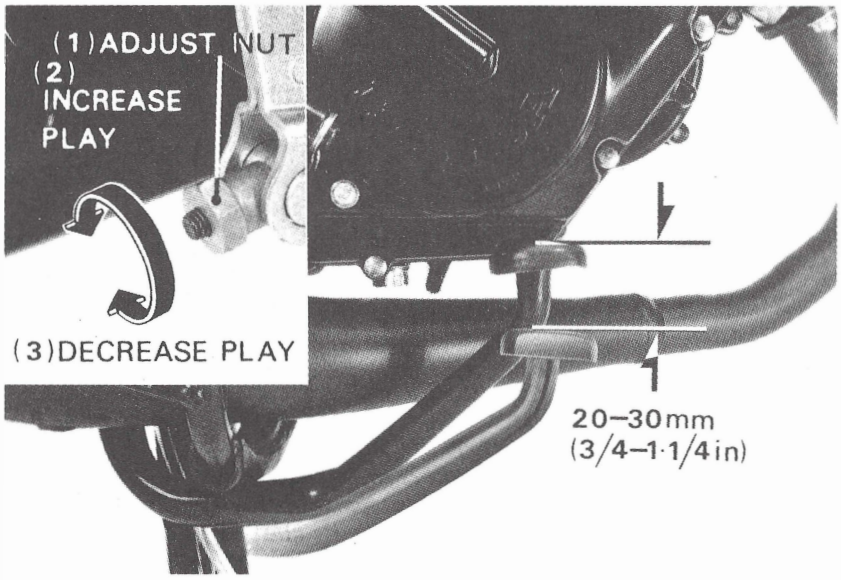


REAR BRAKE PEDAL PLAY

Measure the brake pedal free play.

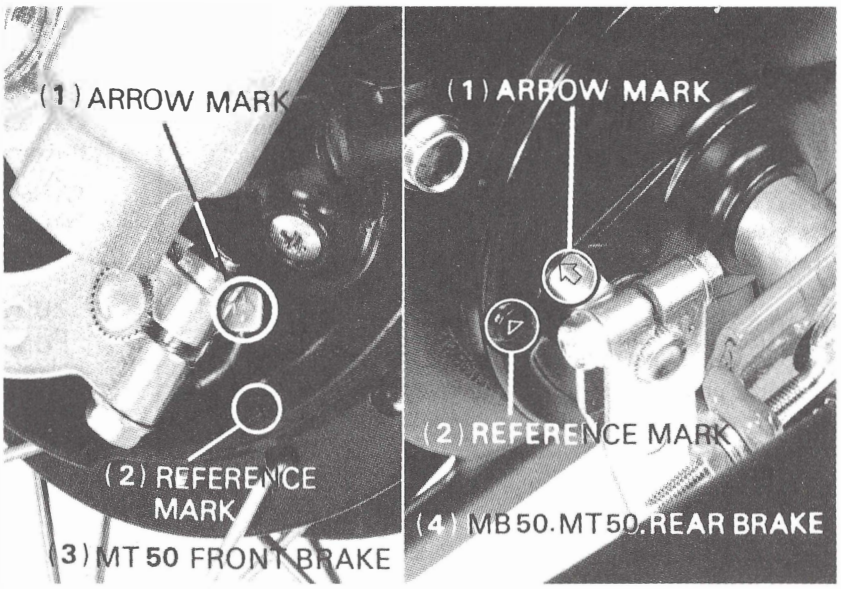
FREE PLAY: 20–30 mm (3/4–1-1/4 in)

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



BRAKE SHOE INSPECTION

Replace the brake shoes if the arrow on the brake arm aligns with the reference mark " △ " on full application of the rear brake (Page 12–7).



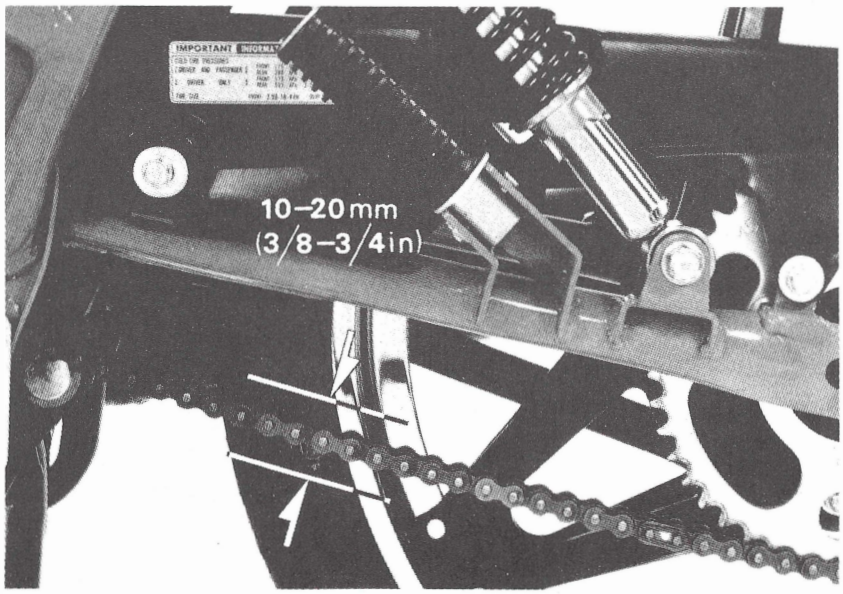
DRIVE CHAIN

DRIVE CHAIN INSPECTION

Shift the transmission into neutral.

Measure the drive chain slack between the sprockets.

CHAIN SLACK: 10–20 mm (3/8–3/4 in)



DRIVE CHAIN ADJUSTMENT

To adjust the drive chain tension, remove the cotter pin from the rear axle nut, and loosen the nut.

Tighten both adjusting nuts.

WARNING

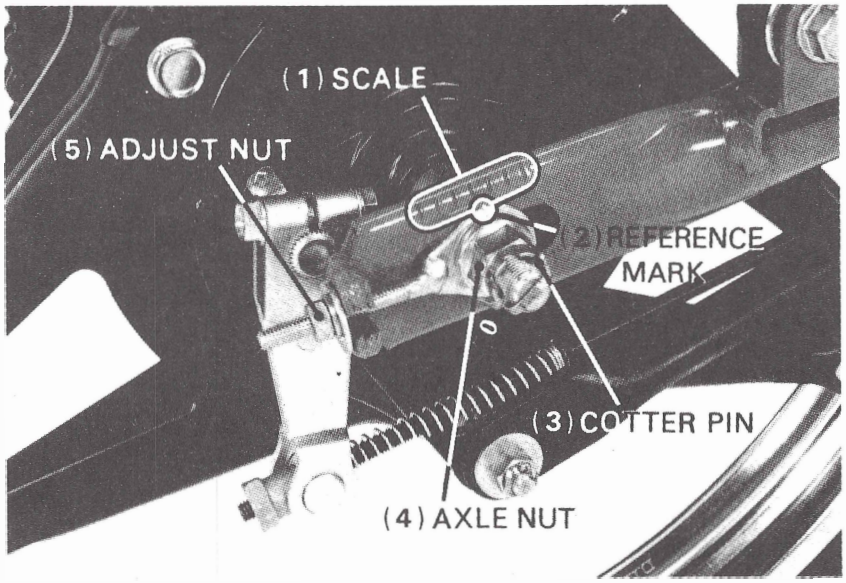
Be sure that the index mark aligns with the same graduation on the scale on both sides. Tighten the axle nut and install a new cotter pin.

TORQUE: 55–65 N·m (5.5–6.5 kg-m, 40–47 ft-lb)

Retighten both adjusting nuts.

WARNING

Check the rear brake pedal play after the drive chain tesnion has been adjusted.

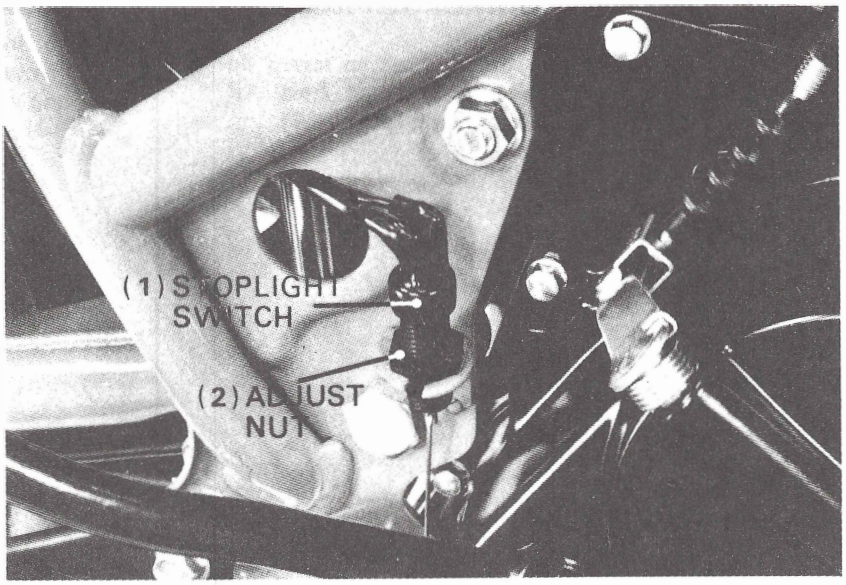


REAR STOPLIGHT SWITCH ADJUSTMENT

NOTE

The rear stoplight switch should be adjusted after the rear brake pedal free play has been adjusted.

Adjust the stoplight switch so that the stoplight will come on when the brake pedal is depressed to a point where the brake just starts to engage. Adjust by turning the switch adjusting nut.



WHEEL

Check the tire pressure.

NOTE

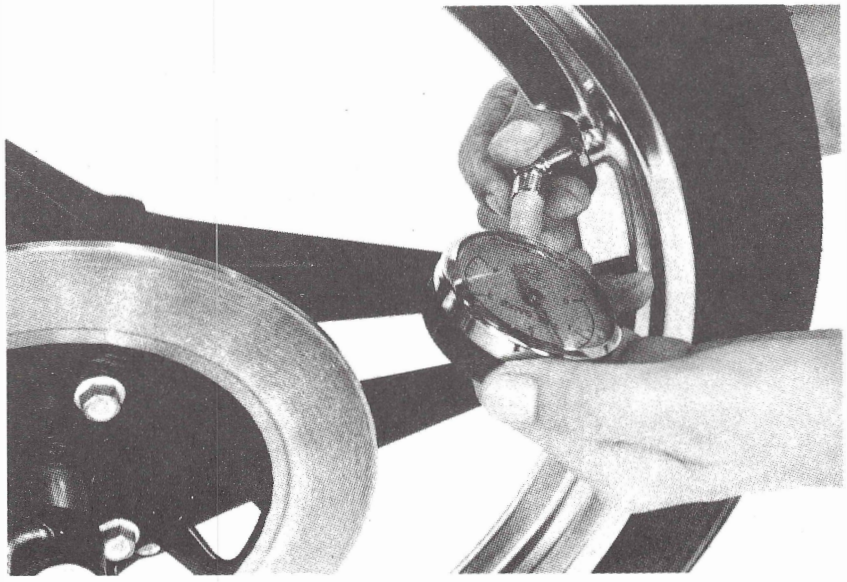
Tire pressure should be checked when the tires are COLD.

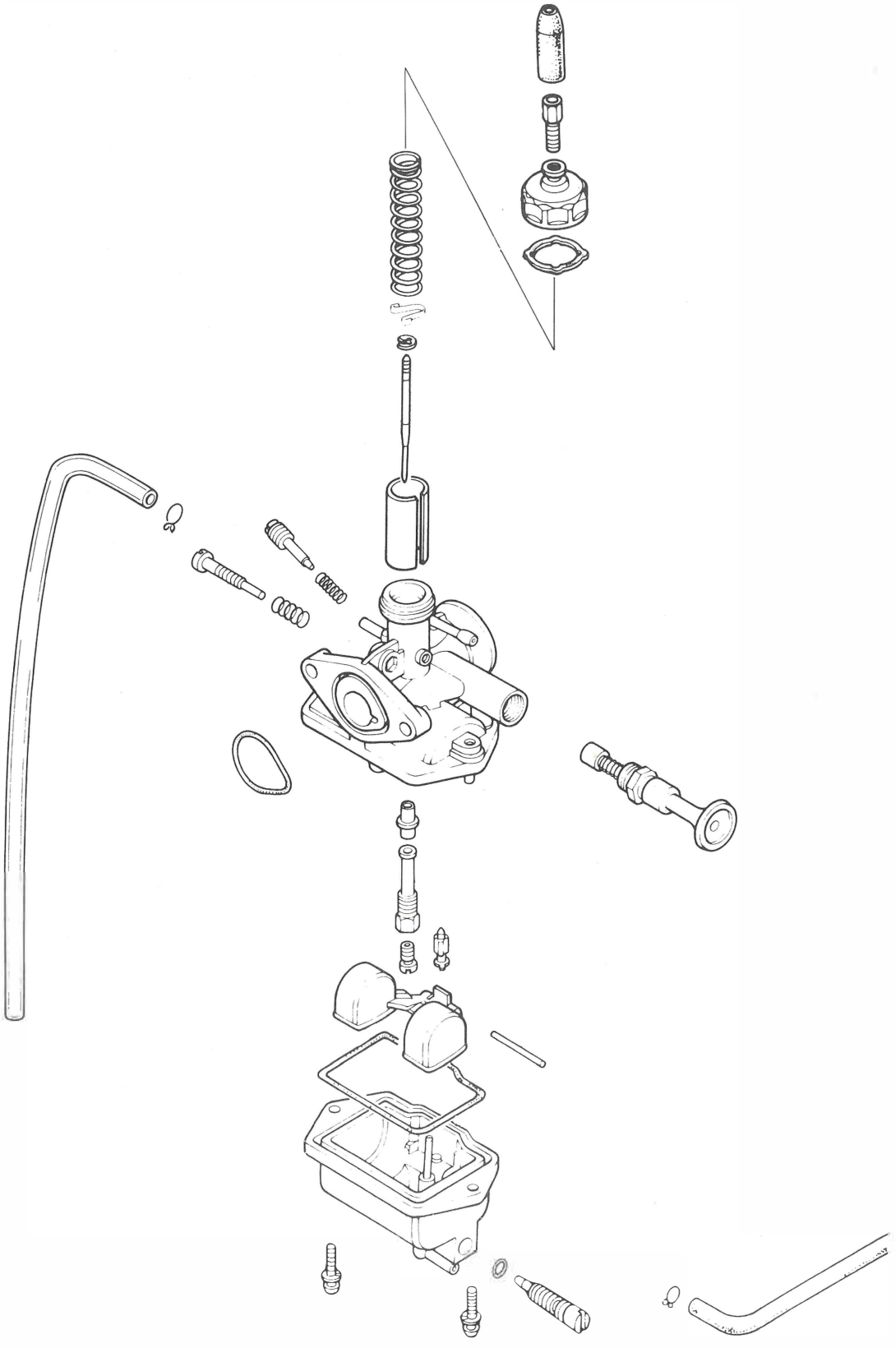
TIRE PRESSURE (RIDER ONLY):

MB50: Front: 175 kPa (1.75 kg/cm², 25 psi)
Rear: 225 kPa (2.25 kg/cm², 32 psi)
MT50: Front: 150 kPa (1.5 kg/cm², 21 psi)
Rear: 150 kPa (1.5 kg/cm², 21 psi)

TIRE SIZES:

MB50: Front: 2.50–18–4PR
Rear: 2.50–18–6PR
MT50: Front: 2.50–19–4PR
Rear: 3.00–16–6PR





4. FUEL SYSTEM

SERVICE INFORMATION

GENERAL INSTRUCTIONS

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

SPECIAL TOOLS

Common Tool

Float Level Gauge	07401–0010000

SPECIFICATIONS

MB50 / TYPE	SW, ED	B, G	E, N	S
Venturi dia.	16 mm (0.63 in)	13 mm (0.51 in)	←	←
Setting mark	PF15A	PF05A	PF05C	PF05G
Float level	13.5 mm (0.53 in)	←	←	←
Air screw opening	1-3/4 turns out	1-1/2 turns out	1-3/4 turns out	1-3/4 turns out
Idle speed	1400 min^{-1} (rpm)	1300 min^{-1} (rpm)	1300 min^{-1} (rpm)	1300 min^{-1} (rpm)
Throttle grip free play	2–6 mm (0.08–0.24 in)	←	←	←

MT50 / TYPE	SW, ED	B, G	E
Venturi dia.	16 mm (0.63 in)	13 mm (0.51 in)	←
Setting mark	PF15C	PF05B	PF05D
Float level	13.5 mm (0.53 in)	←	←
Air screw opening	1-1/2 turns out	←	2 turns out
Idle speed	1400 min^{-1} (rpm)	1300 min^{-1} (rpm)	1300 min^{-1} (rpm)
Throttle grip free play	2–6 mm (0.08–0.24 in)	←	←

TROUBLESHOOTING

Engine cranks but won't start
1. No fuel in tank
2. No fuel to carburetor
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. Low compression
4. Rich mixture
5. Lean mixture
6. Air cleaner clogged
7. Air leaking into inlet pipe
8. Fuel contaminated

Lean mixture
1. Carburetor fuel jets clogged
2. Fuel cap vent clogged or blocked
3. Fuel filter clogged
4. Fuel line kinked or restricted
5. Float valve faulty
6. Float level too low
7. Air vent tube clogged

Rich mixture
1. Choke stuck closed
2. Faulty float valve
3. Float level too high
4. Carburetor air jets clogged

FUEL TANK

REMOVAL

[MB50]

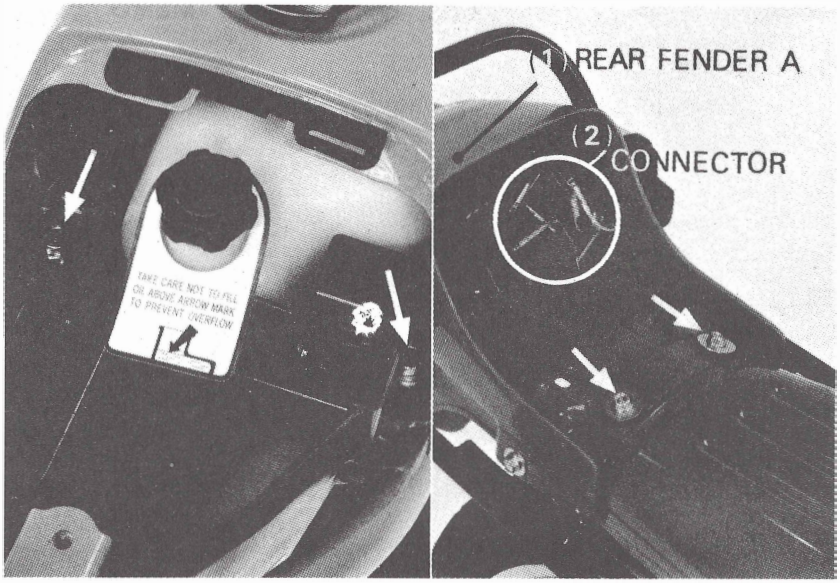
WARNING

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

Remove the seat.
Remove the rear fender A.

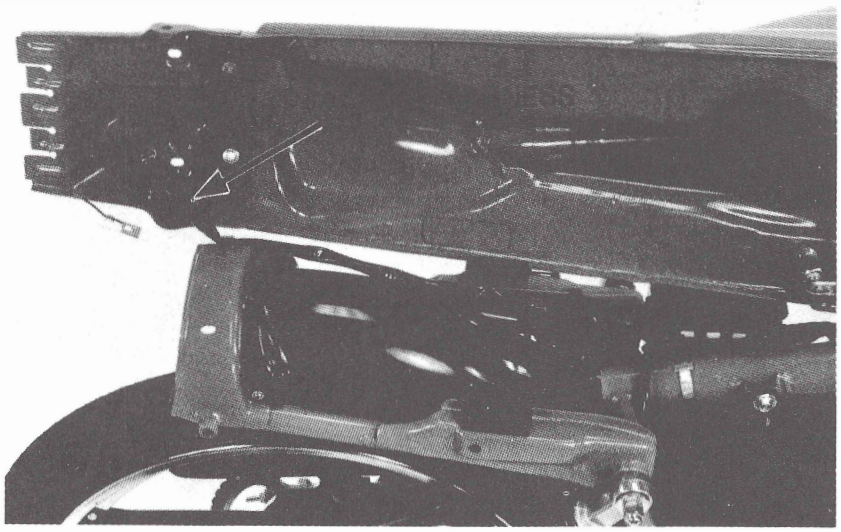
Pull the taillight lamp connectors down out of the hole in the fuel tank.

Remove the fuel tank cover.
Turn the fuel cock to "OFF" and disconnect the fuel line.



Remove the fuel tank mounting bolts.
Free the wire harness from the wire clamps.

Remove the fuel tank.
Clean the fuel filter screen. (Page 4–5).

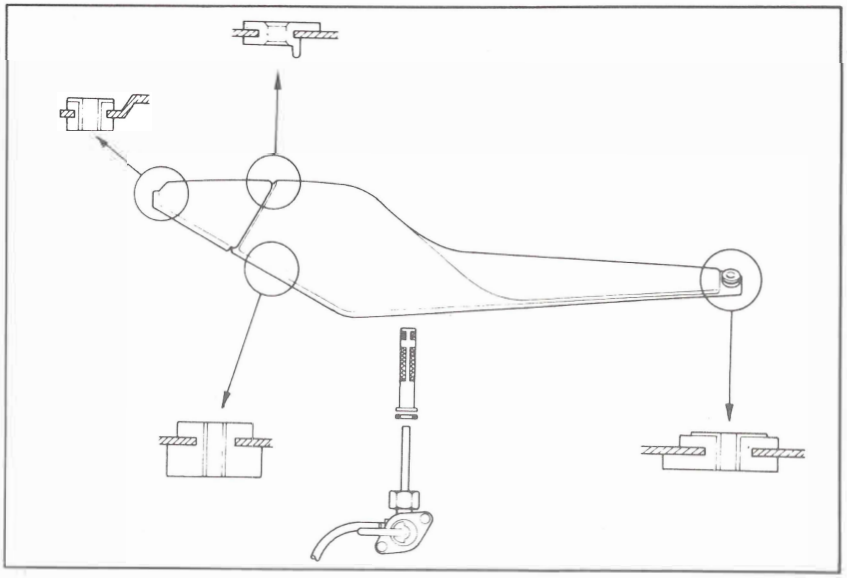


CAUTION

Observe the following when installing the fuel filter screen:

- *Do not overtighten the fuel cock lock nut.*
- *Clamp the wire harness with the wire clamps where shown.*
- *Check for leaks.*

Install the fuel tank mount rubbers as shown.
Tighten the fuel tank mount bolts by shifting a wrench from one bolt to another in two or more steps.



[MT50]

WARNING

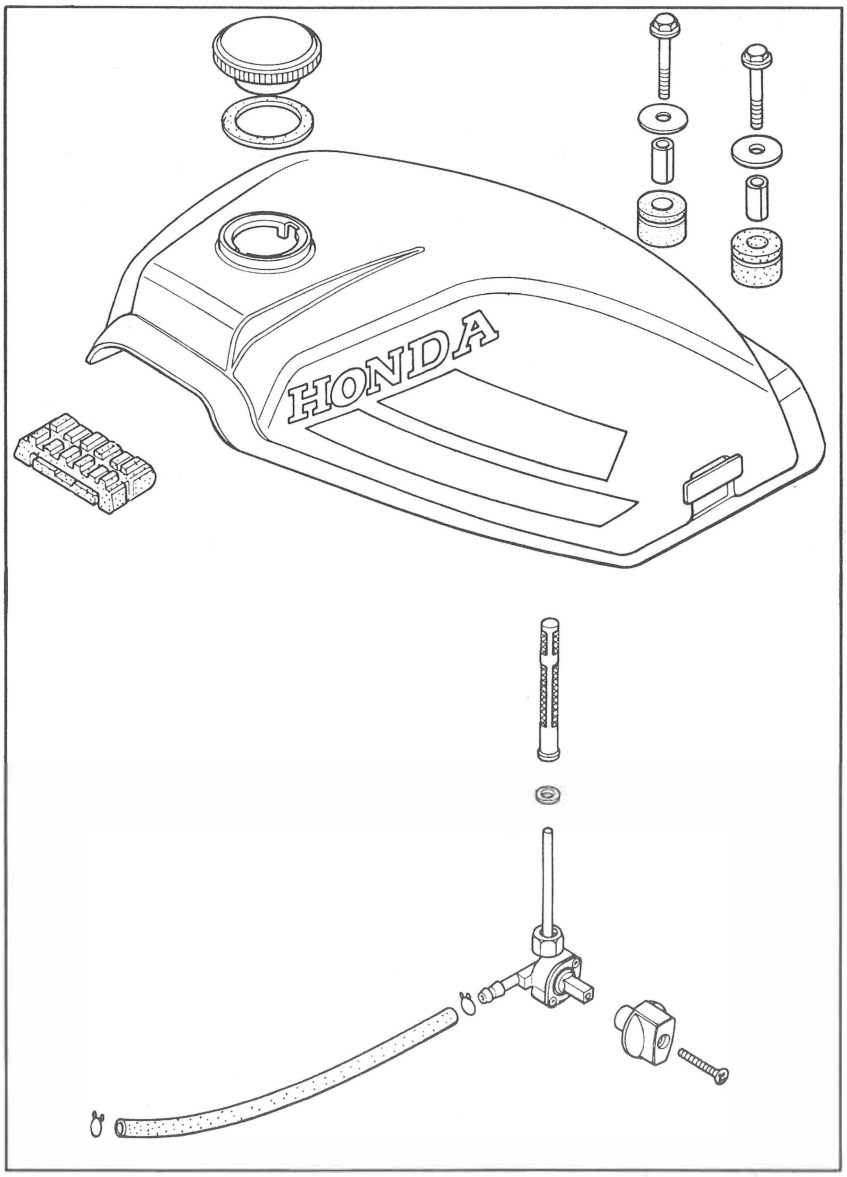
Keep gasoline away from flames or sparks. Wipe up spilled gasoline at once.

Turn the fuel cock to "OFF"
Remove the side covers.

Remove the seat.
Disconnect the fule line.

Remove the fuel tank mount bolts and remove the fuel tank.

Clean the fuel filter screen (Page 4–5).



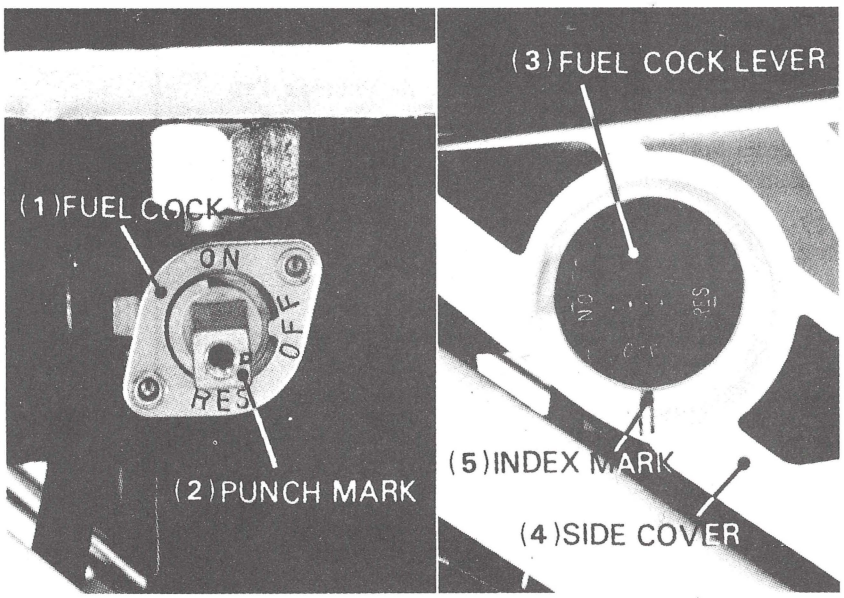
CAUTION

Observe the following when installing the fuel tank:

- *Do not overtighten the fuel cock lock nut.*
- *Check for leaks.*

Align the punch mark on the fuel cock with the "OFF" position.

Install the fuel cock lever aligning the index mark with the "OFF" mark on the fuel cock lever.



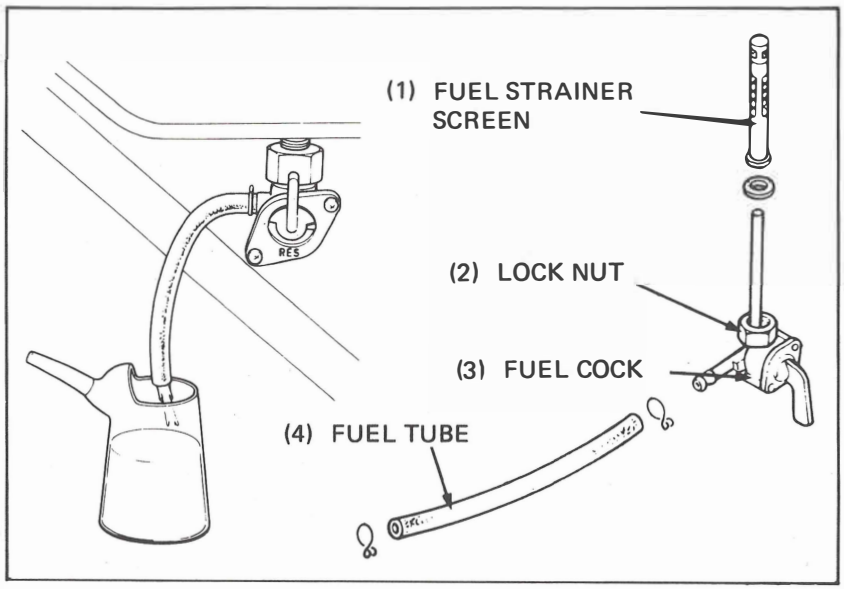
FUEL STRAINER CLEANING

WARNING

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

Disconnect the fuel line at the carburetor and drain fuel from the fuel tank into a clean container.

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

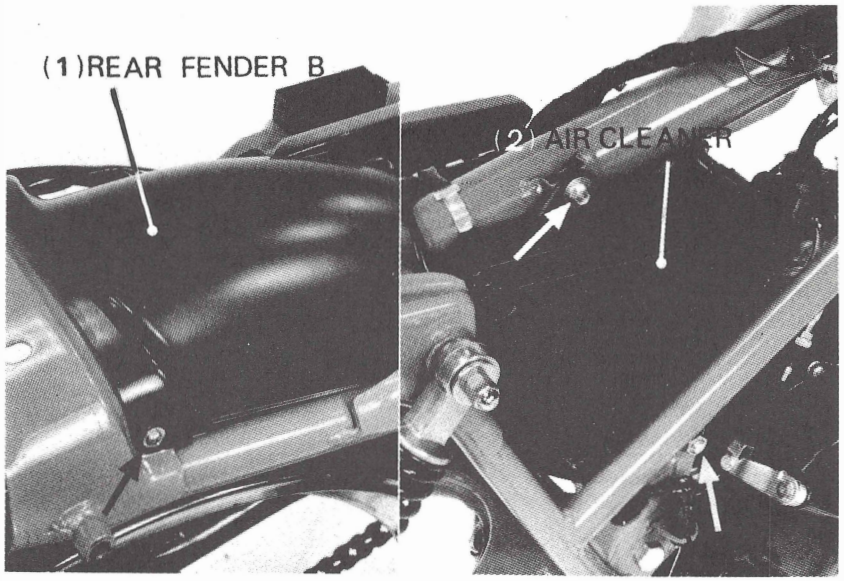


AIR CLEANER

Remove the seat.
Remove the fuel tank (Page 4–3, 4–4).

NOTE

The air cleaner case can be removed by removing the attaching bolts when the engine is off the motorcycle.

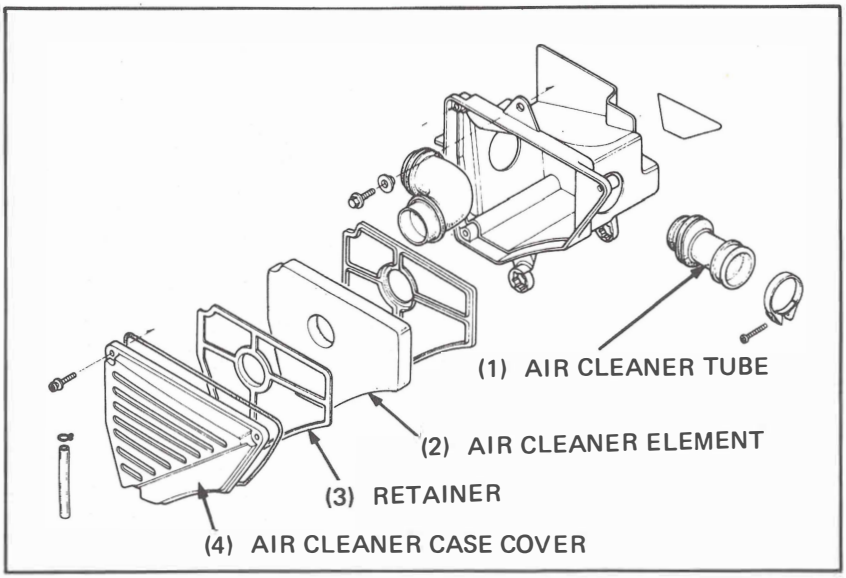


Remove the air cleaner case cover.
Remove the carburetor tube band.

Remove the rear engine hanger bolt and collar.

Remove the right and left screws and washers attaching the rear fender B and remove the rear fender B toward the wheel (MB50).
Remove the rear wheel (Page 12–3).
Remove the bolt attaching air cleaner case to the frame and remove the case toward the wheel.

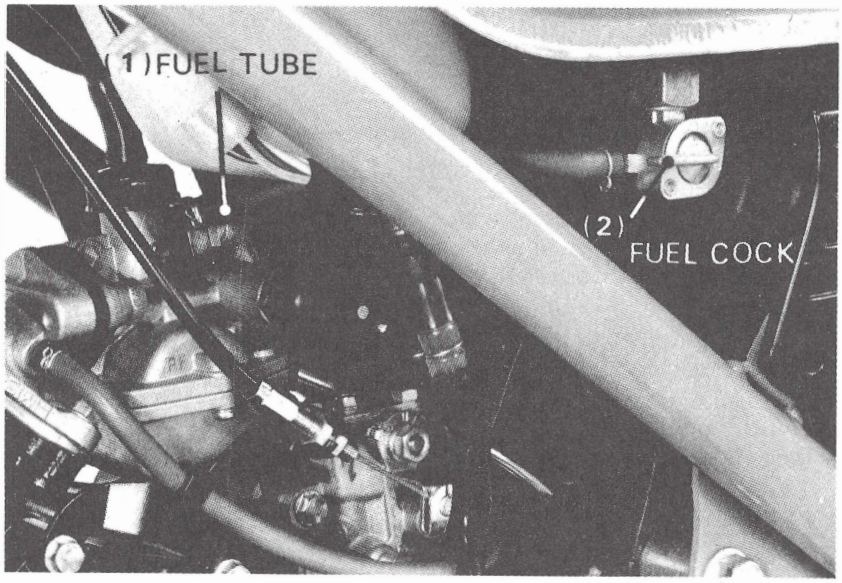
Clean the air cleaner element (Page 3–2).



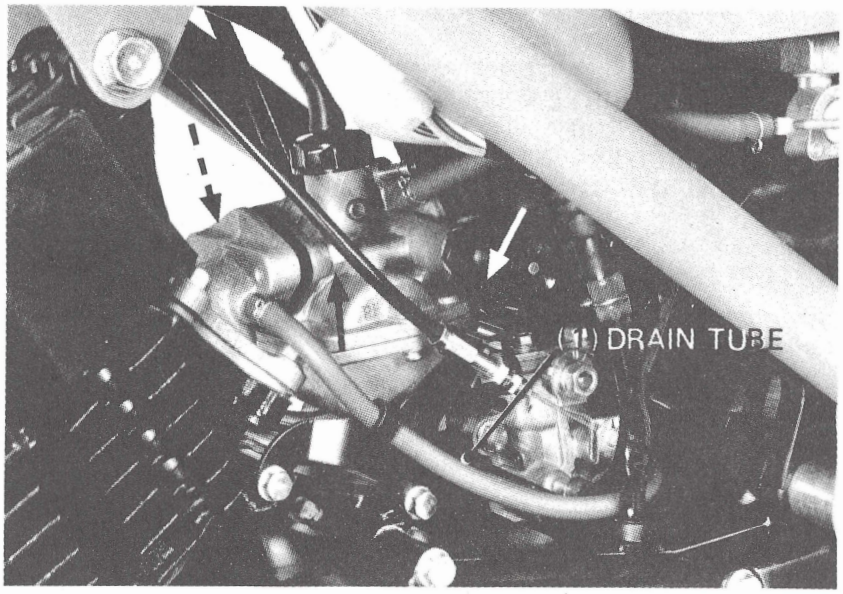
CARBURETOR REMOVAL

Clean the carburetor and its surrounding area thoroughly.
Turn the fuel valve "OFF" and drain fuel from the tank through the drain tube.

Disconnect the fuel line.
Disconnect the drain tube



Loosen the tube band.
Remove the nuts attaching the carburetor to the engine inlet pipe.

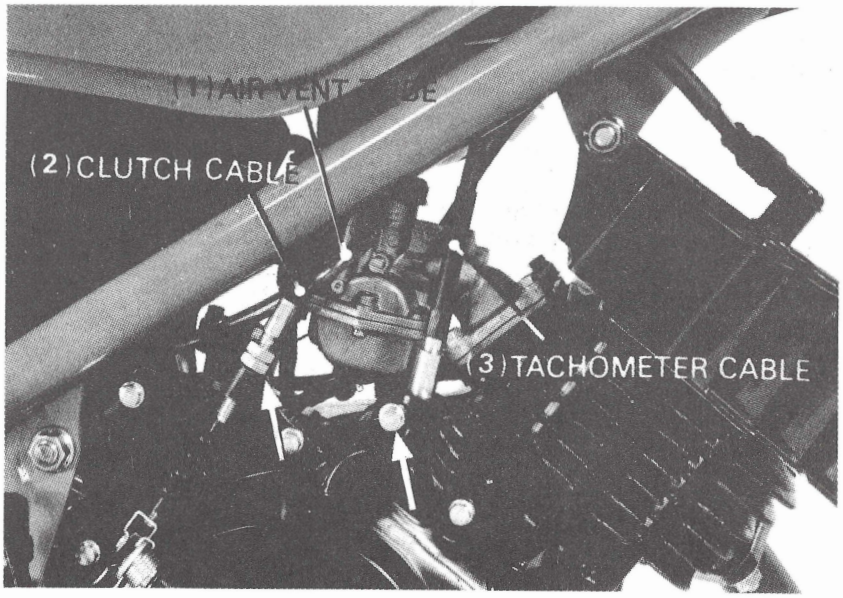


Disconnect the clutch cable.
Disconnect the tachometer cable (MB50).

Disconnect the air vent tube.
Remove the carburetor from the engine.

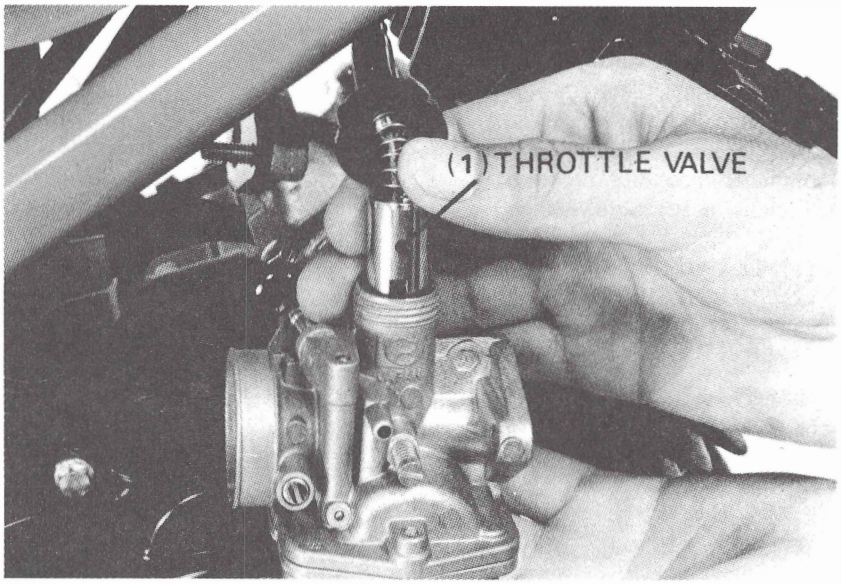
NOTE

Do not let air-borne dust and dirt from entering the carburetor and cylinder.

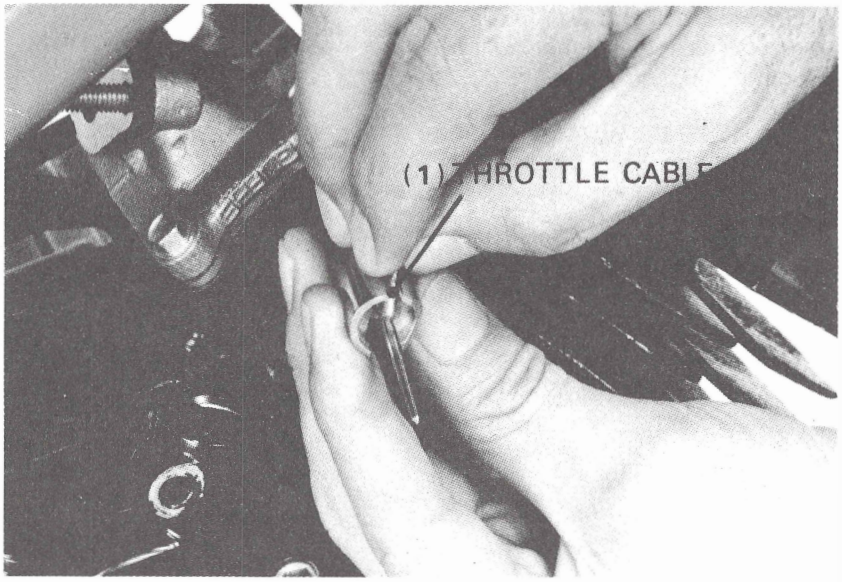


THROTTLE VALVE DISASSEMBLY

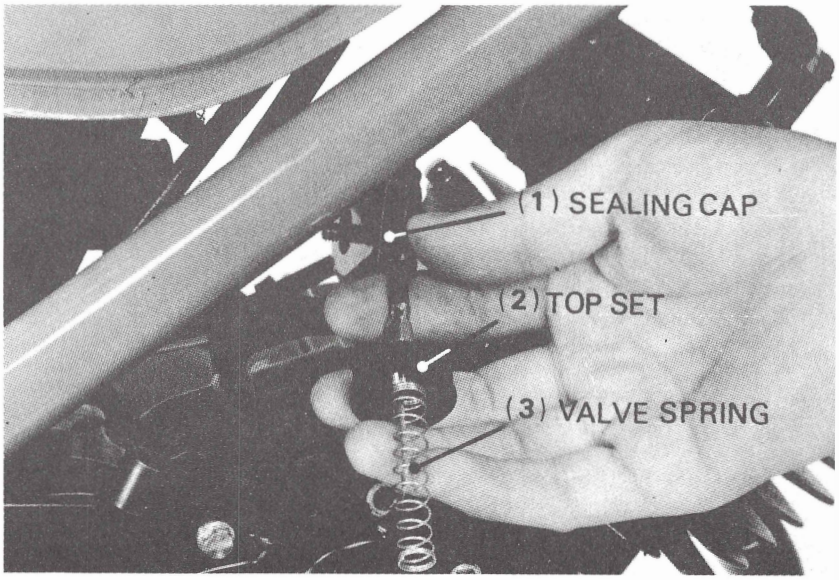
Remove the carburetor top and pull out the throttle valve.



Disconnect the throttle cable from the throttle valve.

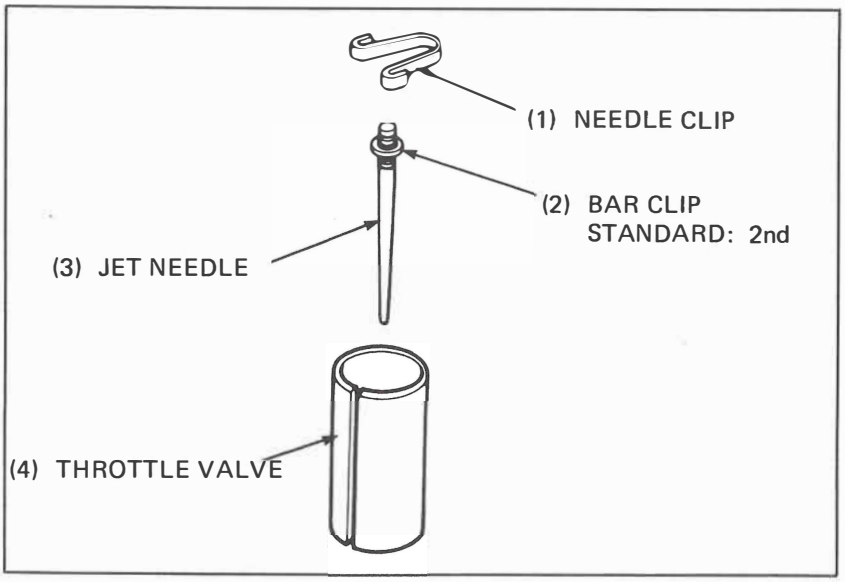


Remove the return spring, carburetor top and sealing cap.



Pry off the needle clip and remove the jet needle.

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



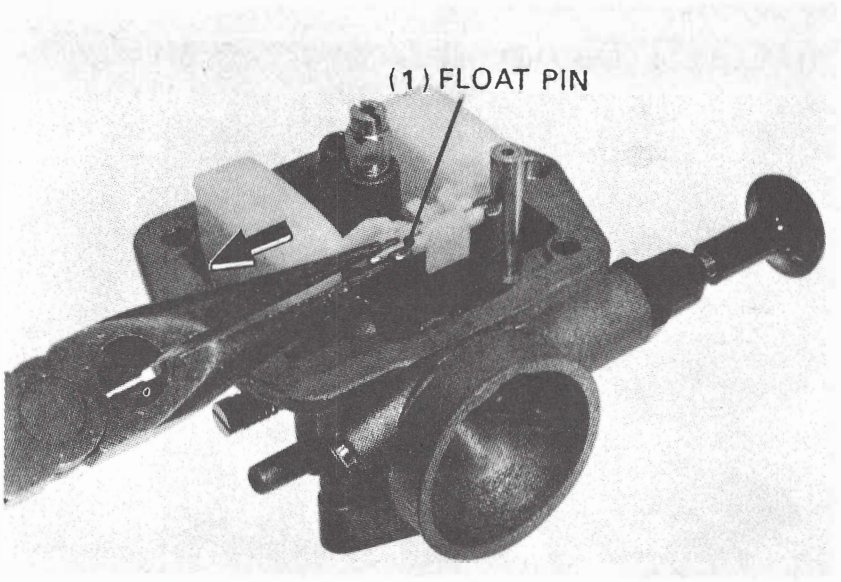
FLOAT/FLOAT VALVE/JETS DISASSEMBLY

Remove the float chamber and pull the float pin off the chamber.

CAUTION

Remove the float pin in the arrow direction.

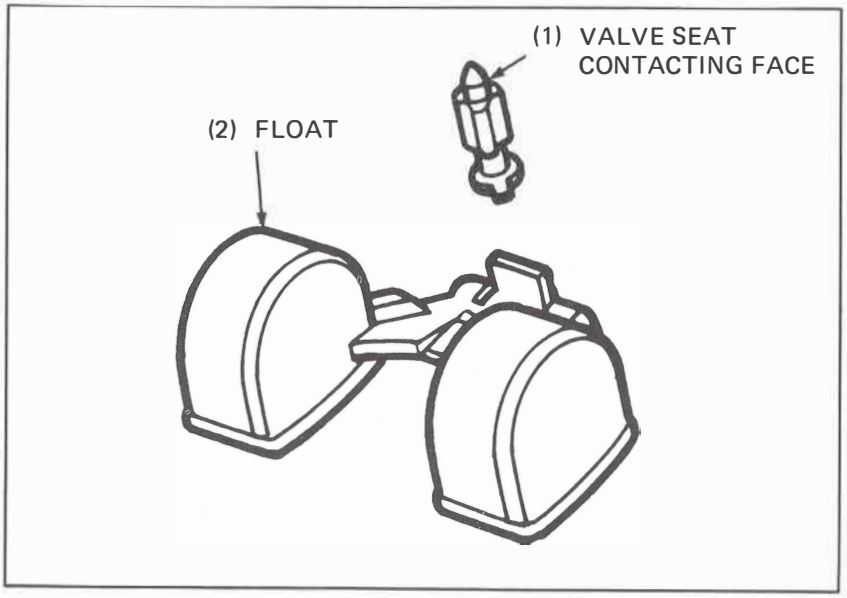
Remove the carburetor float and float valve.



FLOAT/FLOAT VALVE INSPECTION

Check the valve seat for wear or damage.

Check the float for deformation or presence of fuel.



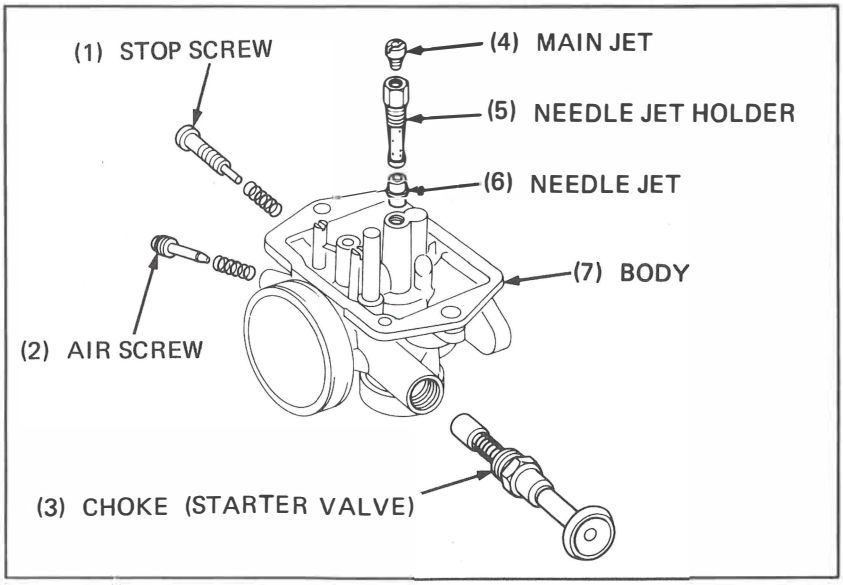
Remove the main jet, needle jet holder and needle jet.

Remove the stop screw and air screw.

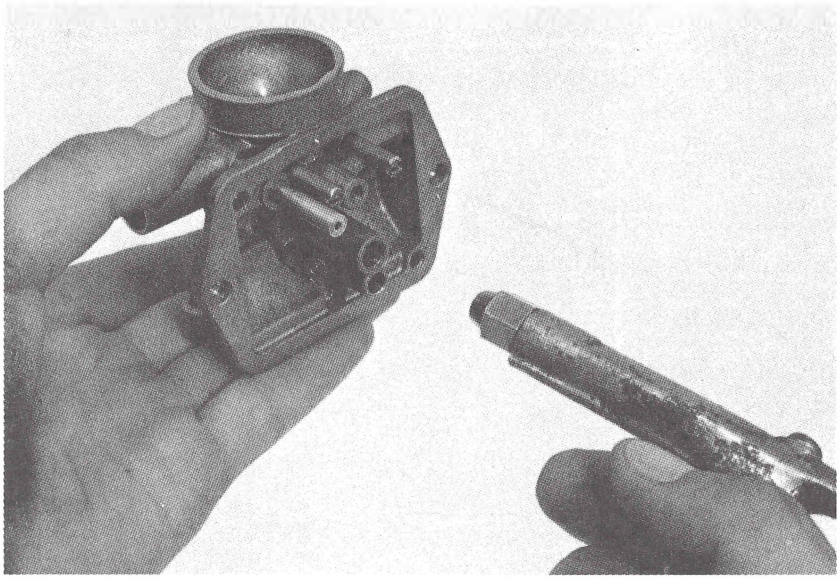
NOTE

Before removing the screws, record the number of rotations until it rests lightly, so it can be returned to its original position.

Remove the choke (starter) valve.

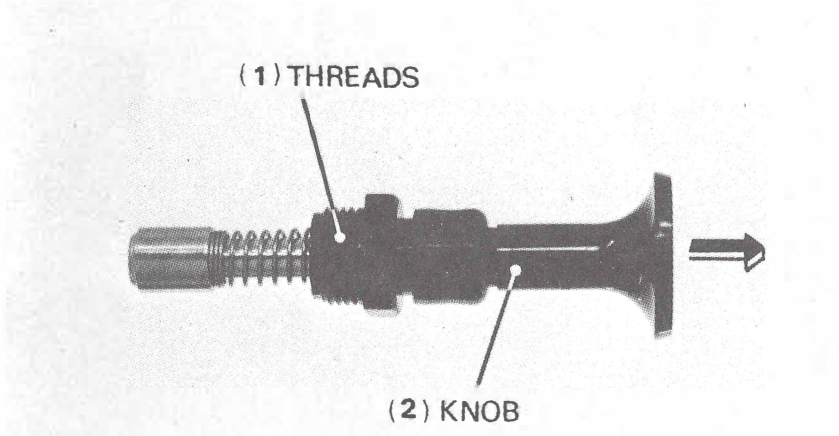


Blow open all jets and body opening with compressed air.



Check each part for wear or damage.
Inspect the choke (starter) valve.

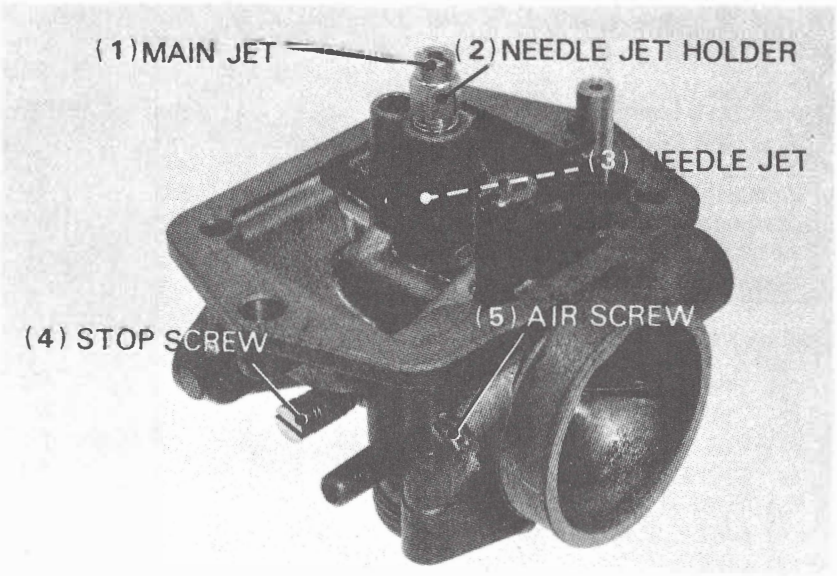
The knob should be held securely when pulled out fully.



JETS/FLOAT/VALVE/FLOAT ASSEMLY

Install the needle jet, needle jet holder and main jet.

Install the air and stop screws by turning them into their original positions.



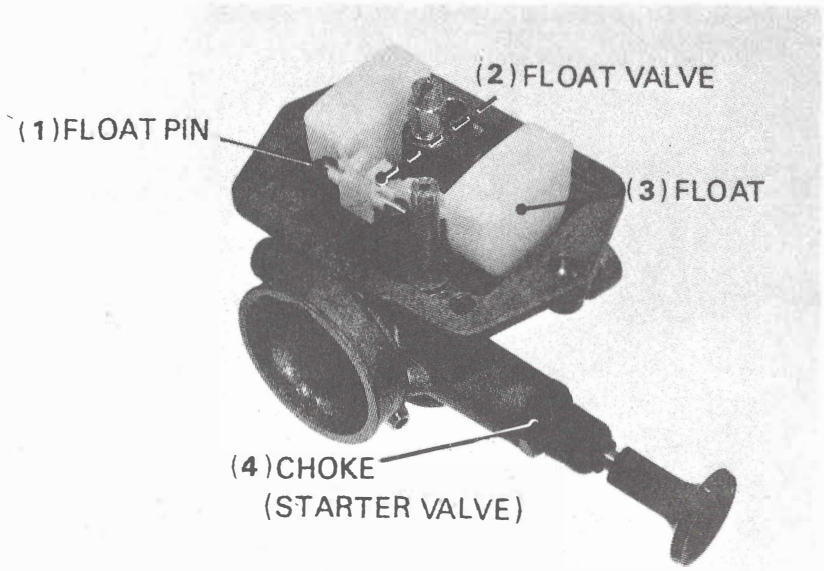
Install the choke (starter) valve.

Install the float valve, float and float pin.

CAUTION

Insert the float pin in the arrow direction.

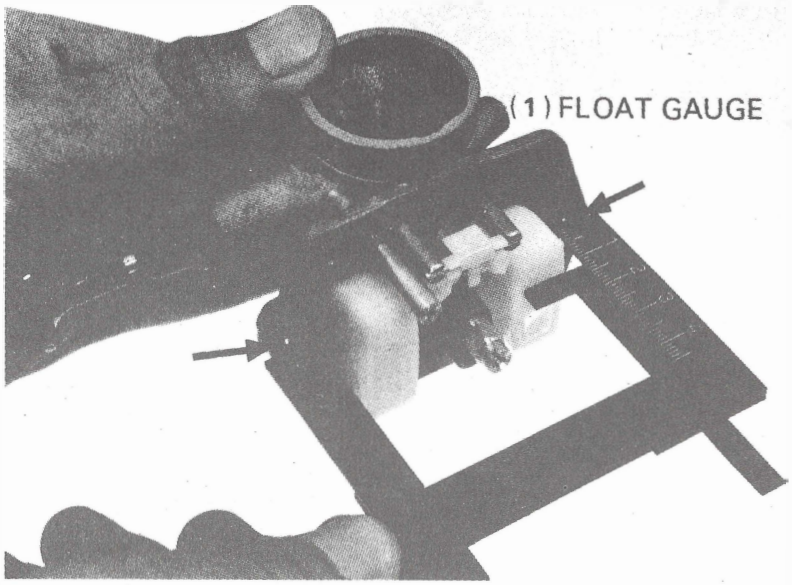
Check the float for operation. Install the float chamber.



FLOAT LEVEL ADJUSTMENT

Measure the float level at the float chamber mating face as shown by an arrow with the float gauge (Page 4–1).

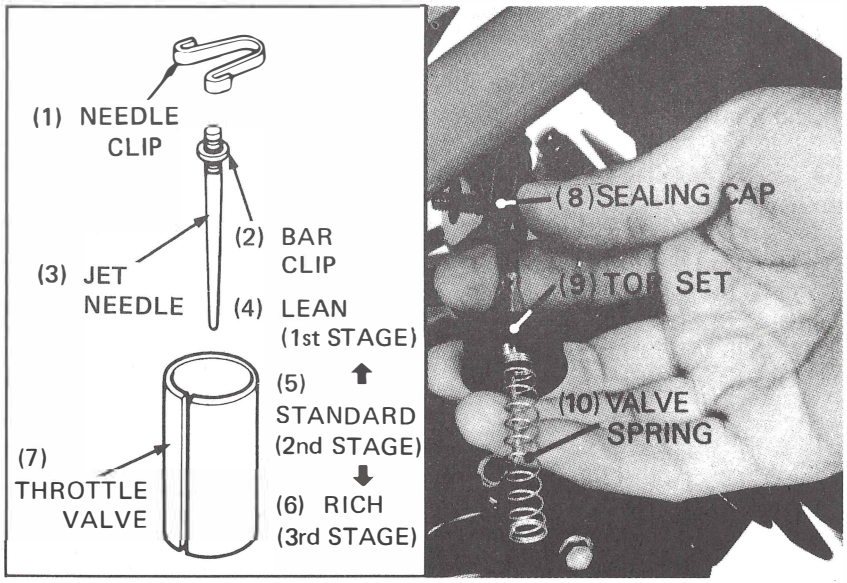
Float Level: **See Page 4–1.**



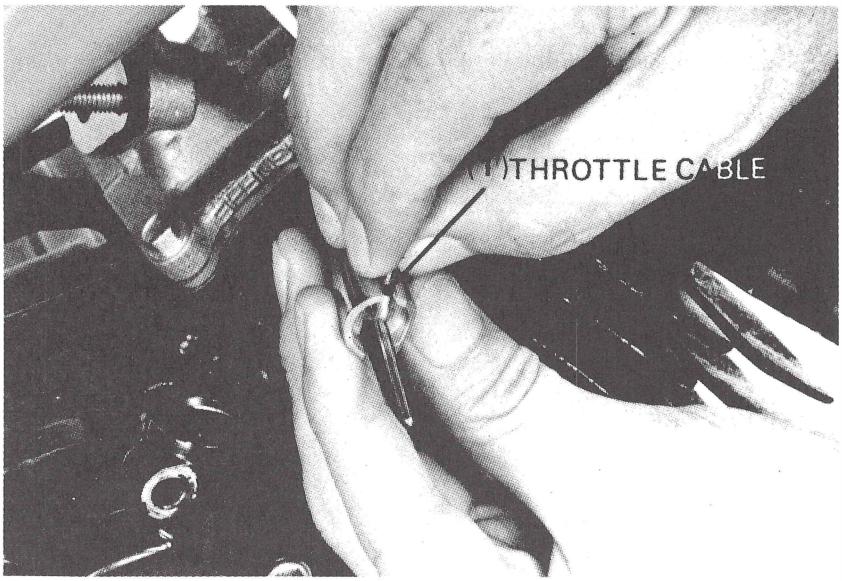
THROTTLE VALVE/CABLE INSTALLATION

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

Install the sealing cap, carburetor top and return spring.



Connect the throttle cable to the throttle valve.

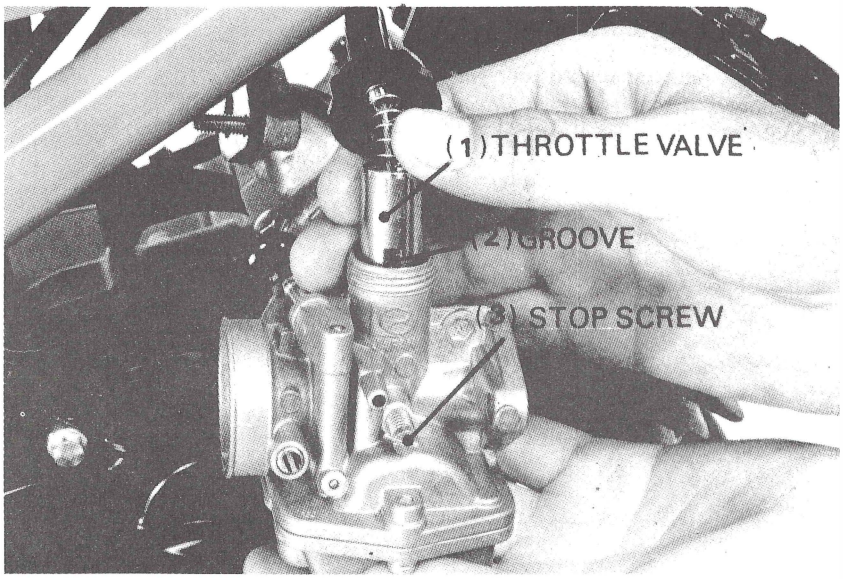


Slide the throttle valve into the carburetor body.

NOTE

Align the groove in the valve with screw on the carburetor body.

Tighten the carburetor top.

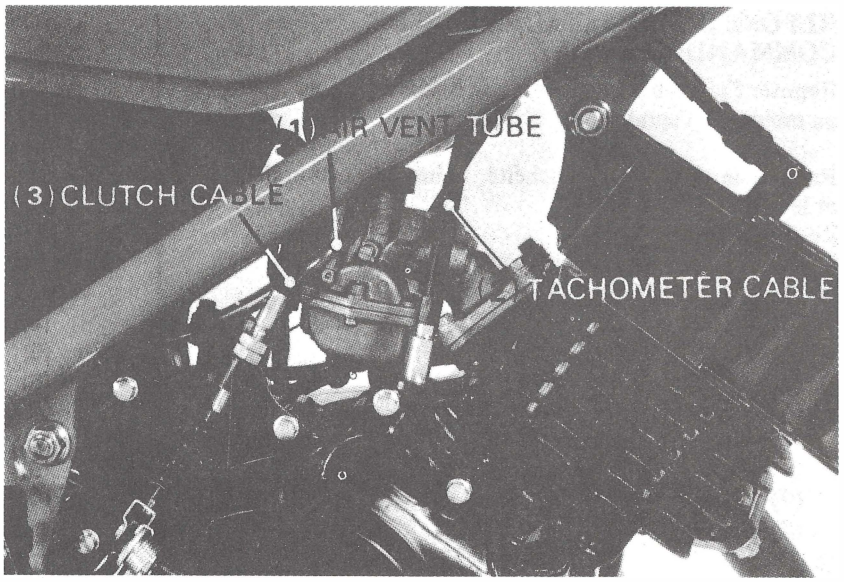


CARBURETOR INSTALLATION

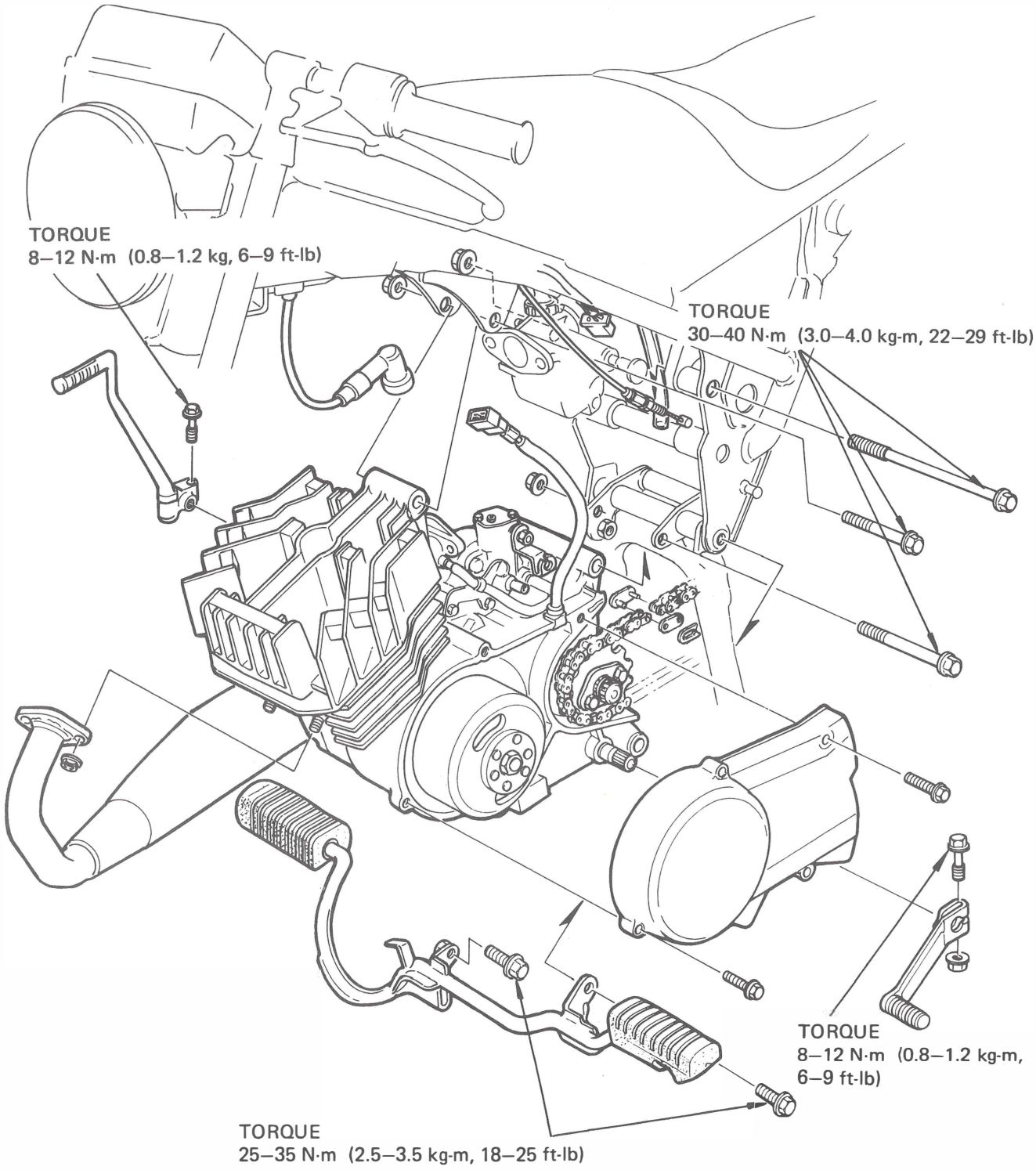
Carburetor installation is essentially the reverse order of removal.

Perform the following after installing the carburetor:

Clutch lever free play adjustment (Page 3–3)
Carburetor adjustment (Page 3–5)
Oil pump control cable adjustment (Page 3–6)



MEMO


TORQUE
8–12 N·m (0.8–1.2 kg, 6–9 ft-lb)
TORQUE
30–40 N·m (3.0–4.0 kg-m, 22–29 ft-lb)
TORQUE
8–12 N·m (0.8–1.2 kg-m,
6–9 ft-lb)
TORQUE
25–35 N·m (2.5–3.5 kg-m, 18–25 ft-lb)

[MB50]

5. ENGINE REMOVAL/ INSTALLATION

SERVICE INFORMATION

GENERAL INSTRUCTIONS

Parts requiring engine removal for servicing:

- Crankshaft
- Transmission
- Shift drum and shift fork
- Balancer weight

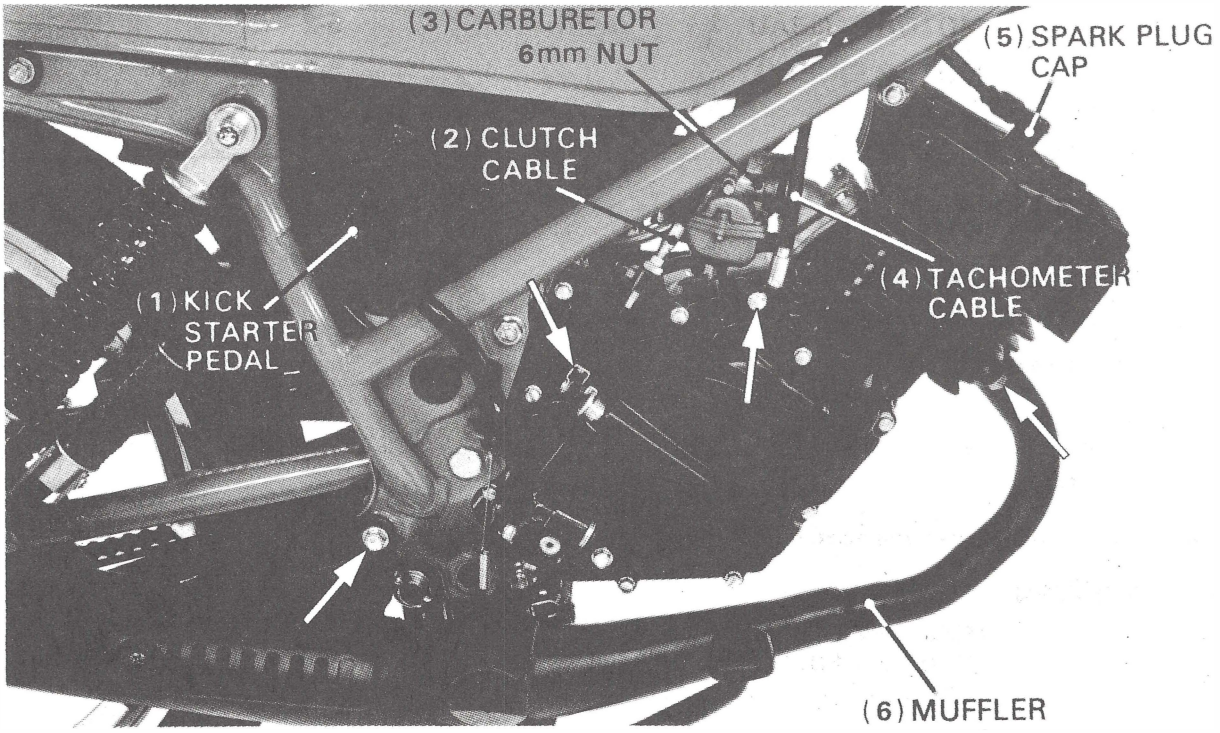
To separate the right crankcase cover from the crankcase, it is necessary to drain the transmission and remove the engine.

SPECIFICATIONS

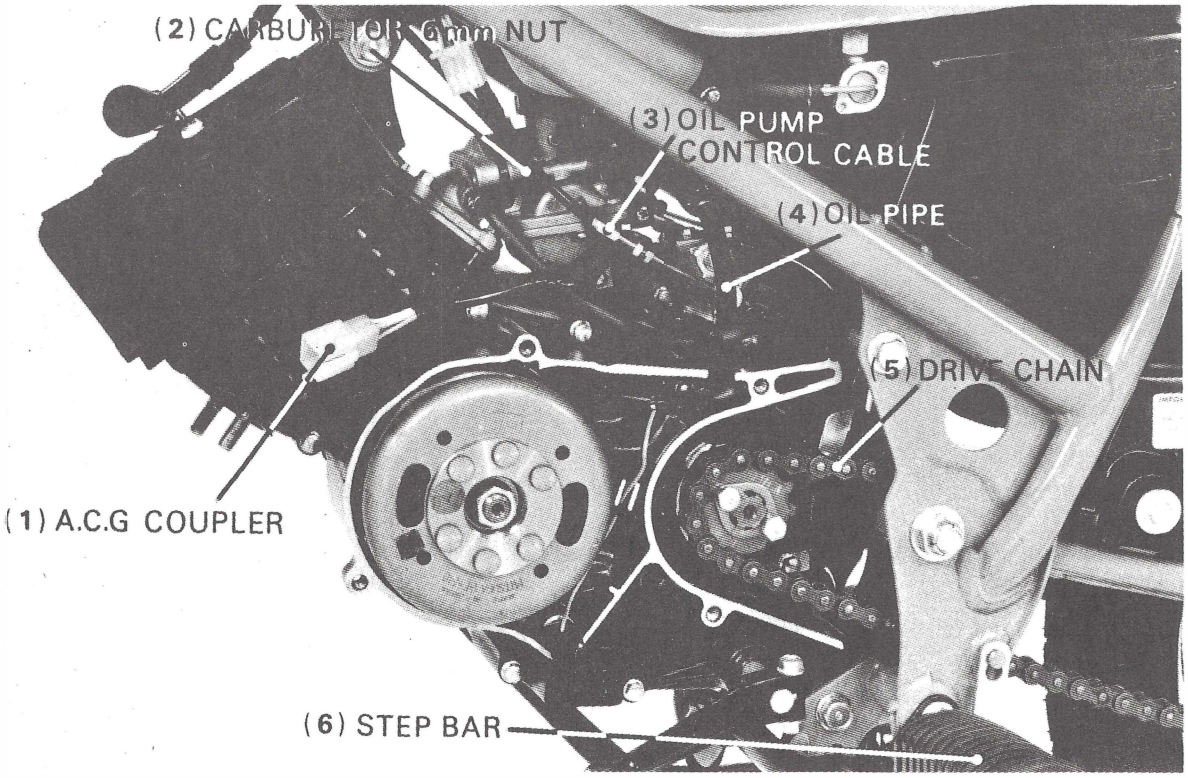
Engine weight	MB50 – SW, ED:	17.5 kg (38.6 lb)	MB50 – B, E, G, N, S:	18.5 kg (40.8 lb)
	MT50 – SW, ED:	17.5 kg (38.6 lb)	MT50 – B, E, G:	18.5 kg (40.8 lb)
Transmission oil	HONDA ULTRA (10W–40) or equivalent			
Transmission oil capacity	1.0 liter (at disassembly)			
	0.9 liter (at replacement)			

ENGINE REMOVAL

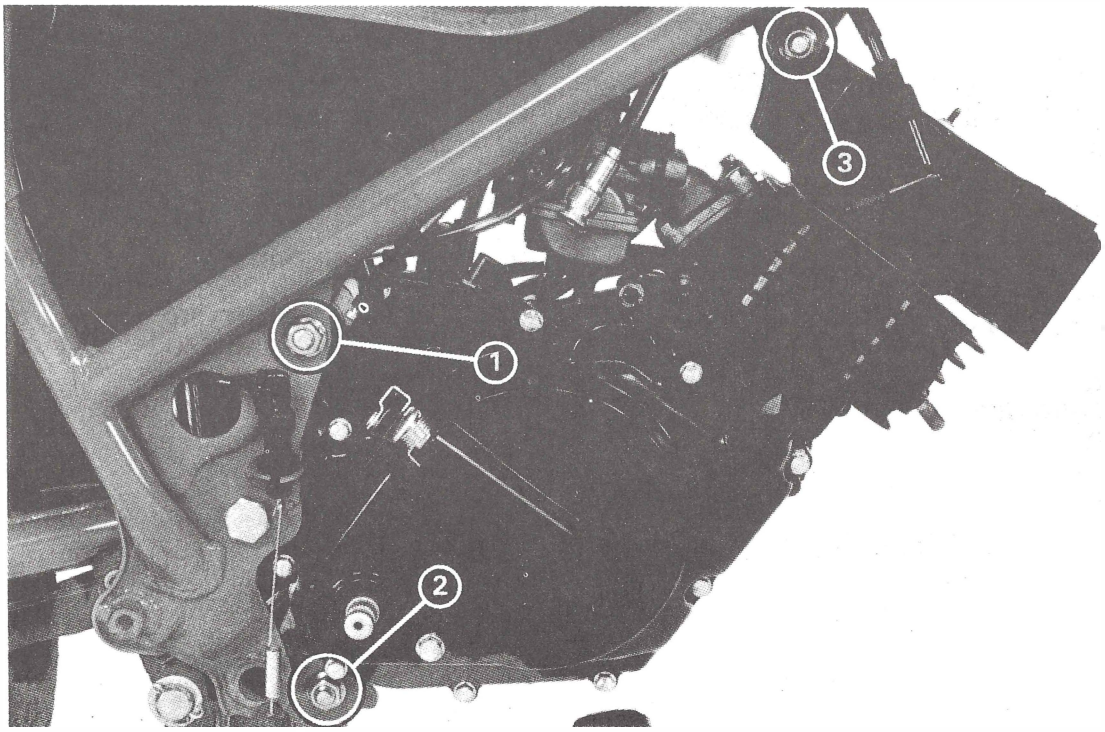
· Remove parts from the right side.



· Remove parts from the left side.

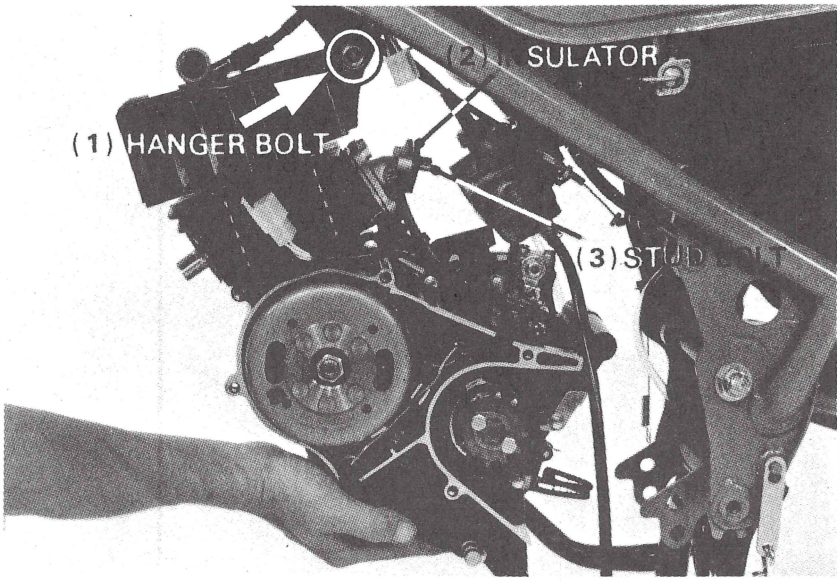


Place a padded block under the engine and remove the engine hanger bolts (1), (2) and (3).



ENGINE INSTALLATION

Installation of the engine is essentially the reverse order of removal.
Support the engine on the frame by first inserting the hanger bolt (3) through the cylinder head and frame bracket. Then support the bottom of the engine by inserting the bolt (2) through the engine block and frame bracket, aligning the studs on the engine with the holes in the air inlet pipe.



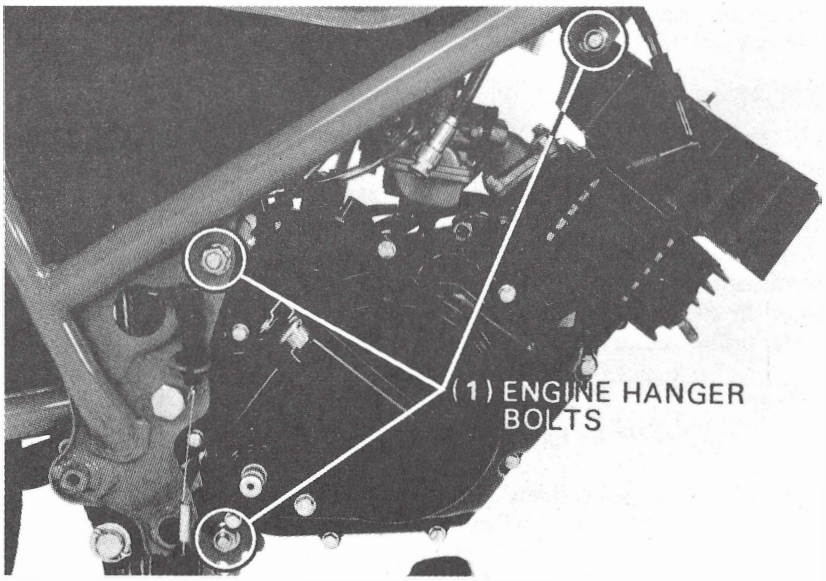
NOTE

- Do not forget to install the carburetor insulator.
- Do not damage the carburetor and oil pump while installing the engine.
- Do not pinch the pipes between the engine and frame.

Tighten the three engine hanger bolts to specified torque.

Tighten the three engine hanger bolts to specified torque.

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

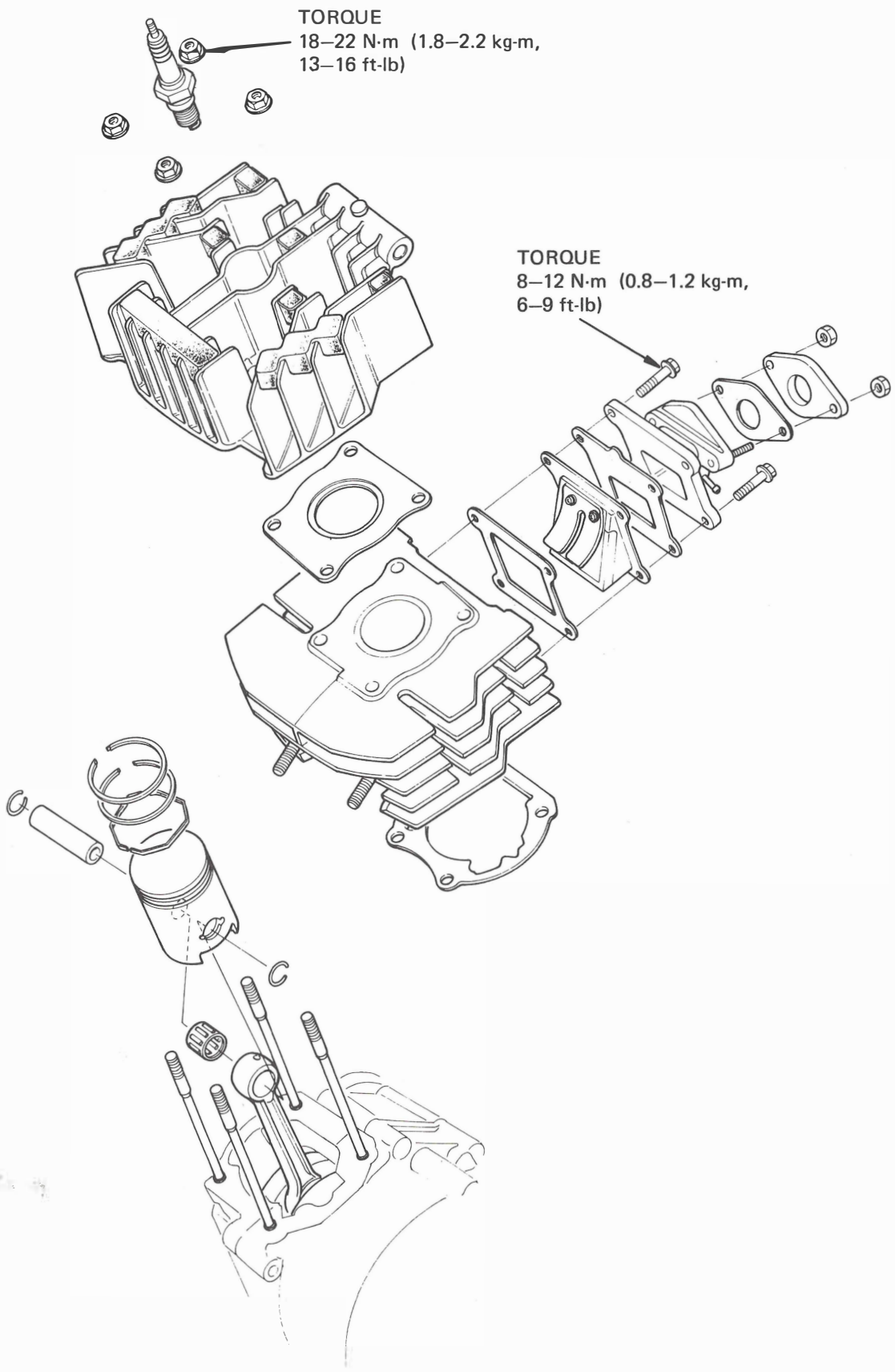


Install all removed parts (Page 5–2).

Perform the following inspections and adjustments:

- Fill the transmission with the recommended oil (Page 2–3).
- Check the locations of the cables and pipes (Page 1–28)
- Bleed air from the oil pump (Page 2–8).
- Adjust the oil pump control cable (Page 3–6)
- Adjust the clutch lever free play (Page 3–3)
- Adjust the drive chain tension (Page 3–8)

MEMO


TORQUE
18–22 N·m (1.8–2.2 kg-m,
13–16 ft-lb)
TORQUE
8–12 N·m (0.8–1.2 kg-m,
6–9 ft-lb)

6. CYLINDER HEAD/CYLINDER/PISTON

SERVCE INFORMATION

GENERAL INSTRUCTIONS

All cylinder head maintenance and inspection can be accomplished with the engine installed.
Before disassembling the engine, clean the engine thoroughly so as not to allow dirt and dust from falling into the cylinder and crankcase.
Remove all traces of gasket material from the mating surfaces of the cylinder head, cylinder and crankcase.
Use caution when servicing the cylinder and piston to prevent damage to them.
Before assembling, apply clean engine oil to all sliding surfaces of parts.

SPECIFICATIONS

ITEM	STANDARD mm (in)		SERVICE LIMIT mm (in)	
Cylinder head warpage			0.10	(0.004)
Cylinder bore	39.000–39.020	(1.5354–1.5362)	39.070	(1.5382)
Piston O. D. (10 mm (3/8 in) from piston skirt)	38.955–38.970	(1.533 7–1.5343)	38.920	(1.5323)
Cylinder-to-piston clearance	0.030–0.060	(0.0012–0.0024)	0.100	(0.0039)
Piston pin bore	12.002–12.008	(0.4725–0.4728)	12.030	(0.4736)
Piston pin O. D.	11.994–12.000	(0.4722–0.4724)	11.980	(0.4717)
Piston-to-piston pin clearance	0.002–0.014	(0.0001–0.0006)	0.040	(0.0016)
Piston ring end gap (top/second)	0.1–0.25	(0.004–0.010)	0.35	(0.014)
Connecting rod small end I. D.	17.005–17.017	(0.6695–0.6700)	17.030	(0.6705)

TROUBLESHOOTING

Compression too low, hard starting or poor performance at low speed
1. Blown cylinder head gasket
2. Loose spark plug
3. Worn, stuck or broken piston rings
4. Worn or damaged cylinder and piston
5. Faulty reed valve

Compression too high, overheat or knocking
1. Excessive carbon buildup in cylinder head or on piston top

Abnormal noise—piston
1. Worn cylinder and piston
2. Worn piston pin or piston pin hole
3. Worn connecting rod small end bearing

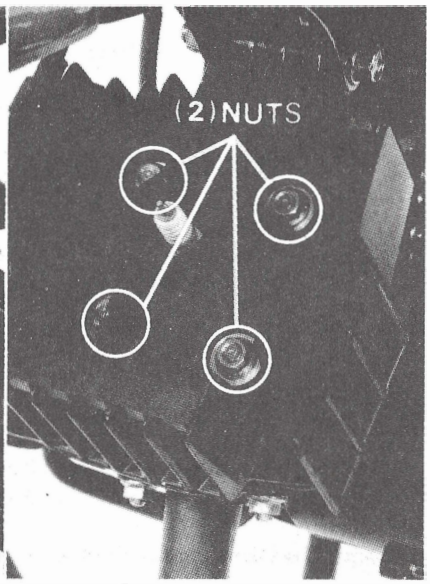
Abnormal noise—piston rings
1. Worn, stuck or broken piston rings
2. Worn or damaged cylinder

CYLINDER HEAD

CYLINDER HEAD REMOVAL

Remove the cylinder head hanger bolt.

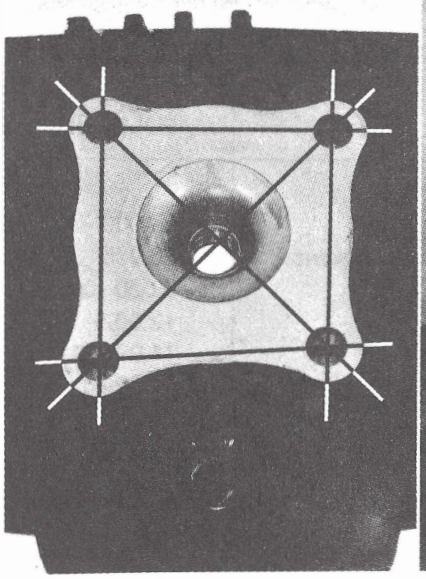
Remove the four flange nuts attaching the cylinder head to the cylinder.

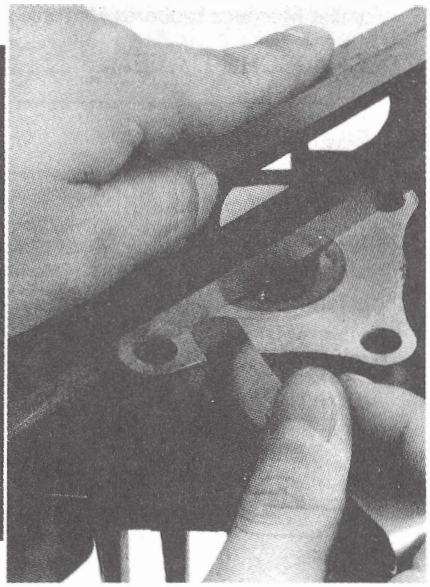


CYLINDER HEAD INSPECTION

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

SERVICE LIMIT: 0.10 mm (0.004 in)





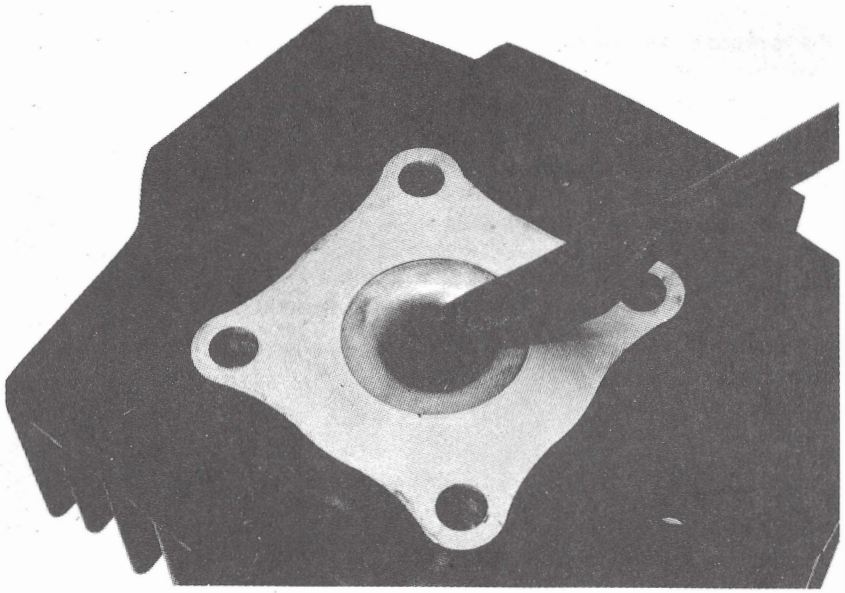
CYLINDER HEAD DECARBONIZING

Remove the carbon deposits from the combustion chamber.

Clean the head gasket surface of any gasket material.

NOTE

Avoid damaging the gasket surfaces.

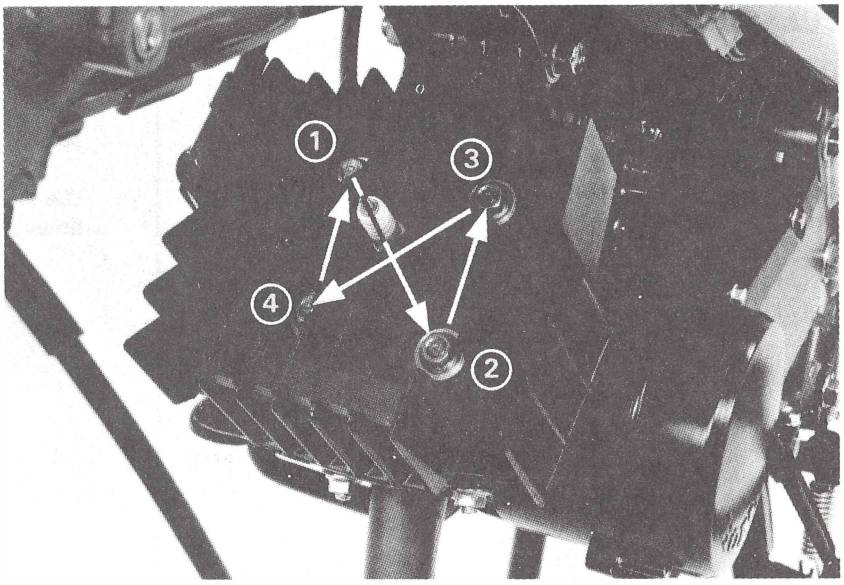


CYLINDER HEAD INSTALLATION

Install the cylinder head using a new cylinder head gasket.

Install the four flange nuts and tighten to the specified torque in the sequence shown.

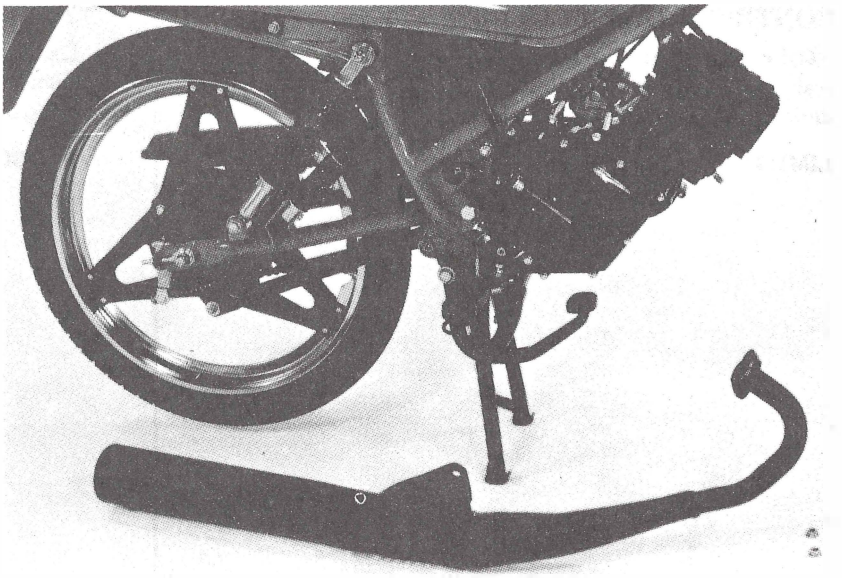
TORQUE: 18–22 N·m (1.8–2.2 kg-m, 13–16 ft-lb)



CYLINDER/PISTON

CYLINDER REMOVAL

Remove the exhaust muffler.

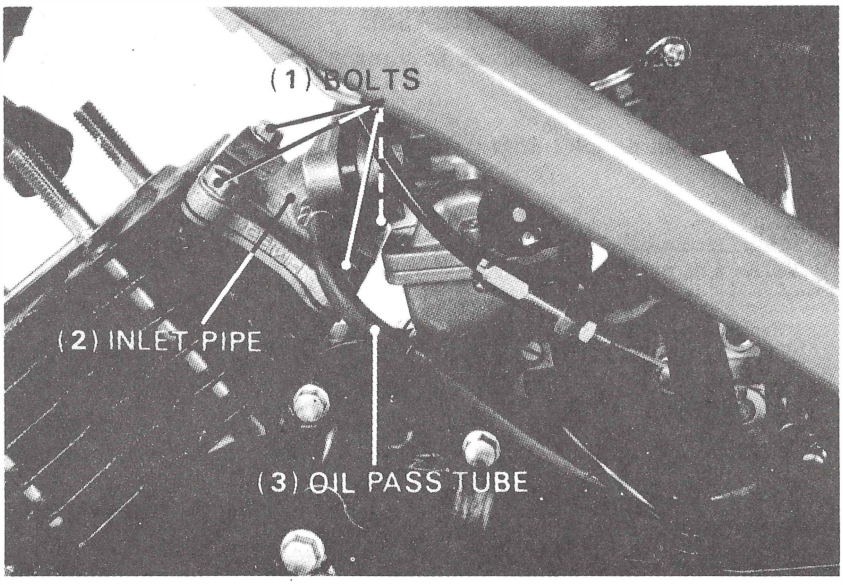


Remove the cylinder head (Page 6–2).

Remove the four flange bolts attaching the inlet pipe to the cylinder.

NOTE

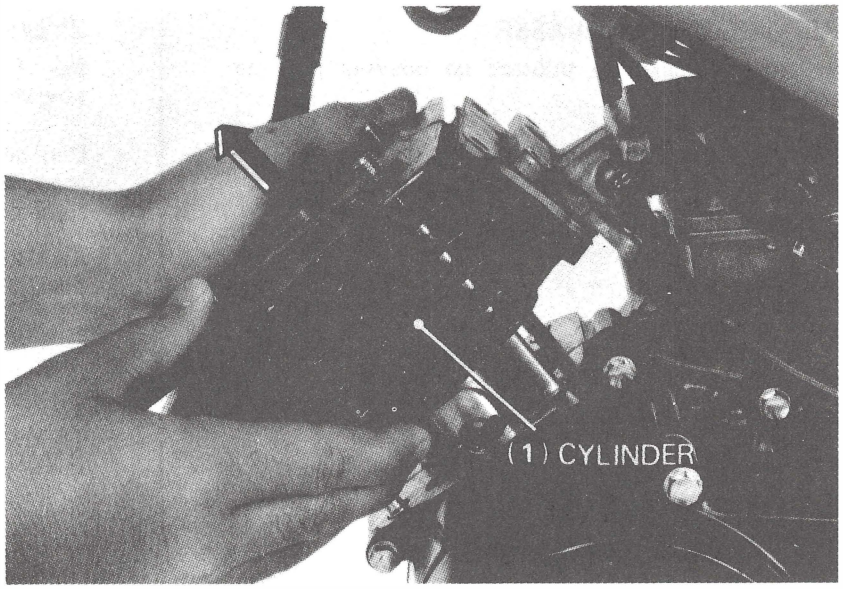
Do not remove the oil pass tube or locate the end of the tube lower than the oil pump. Bleed air from the oil pass tube when it is disconnected or the end is located lower than the oil pump.



Remove the cylinder.

CAUTION

Do not pry or strike the cylinder or cooling fins.

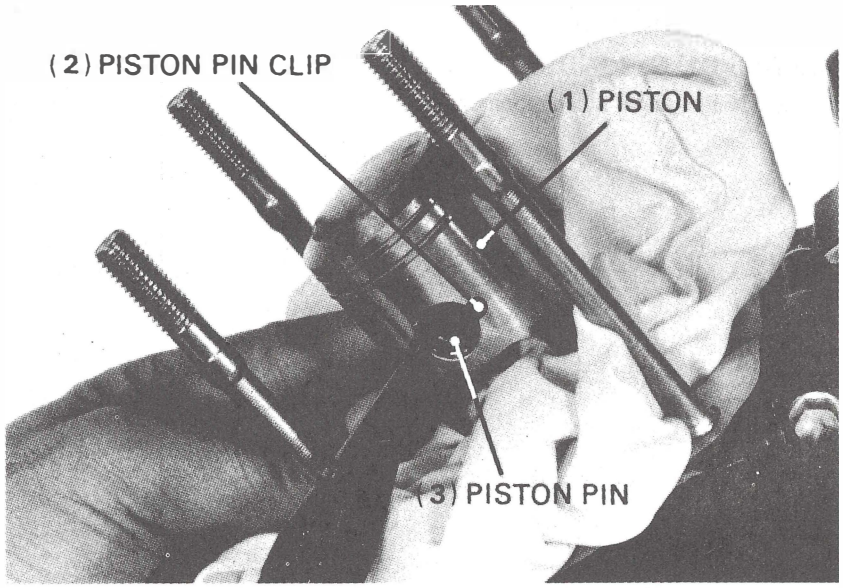


PISTON REMOVAL

Remove the piston pin clip using a pair of pliers. Press the piston pin free of the piston.

NOTE

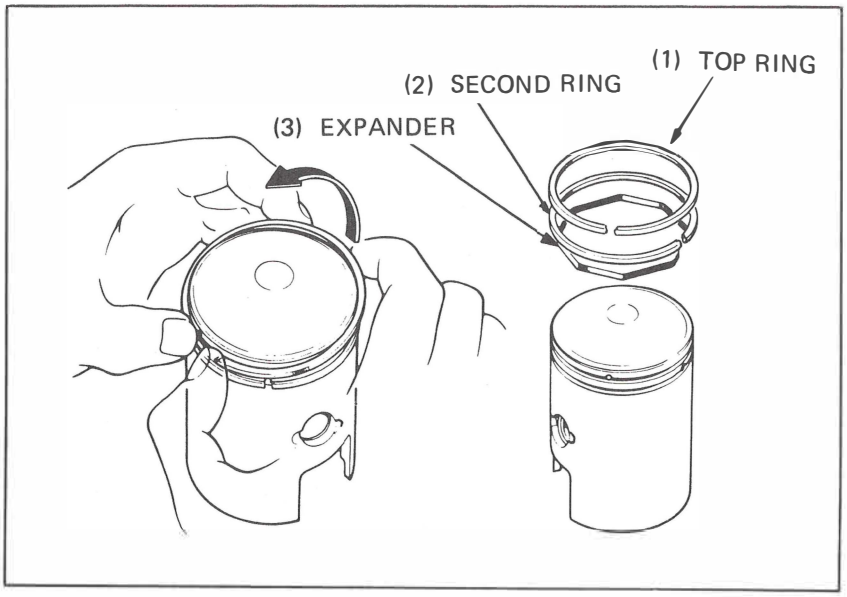
Do not damage or scratch the piston.
Do not apply force in the piston pin direction.
Do not let the clip fall into the crankcase.



PISTON RING/EXPANDER REMOVAL

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

Remove the expander.



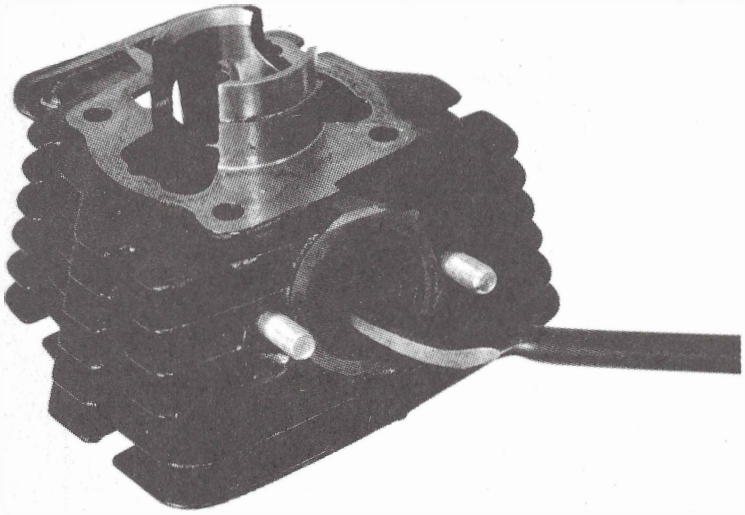
CYLINDER/PISTON INSPECTION

Check the cylinder and piston for wear or damage.

Clean carbon deposits from the exhaust port area.

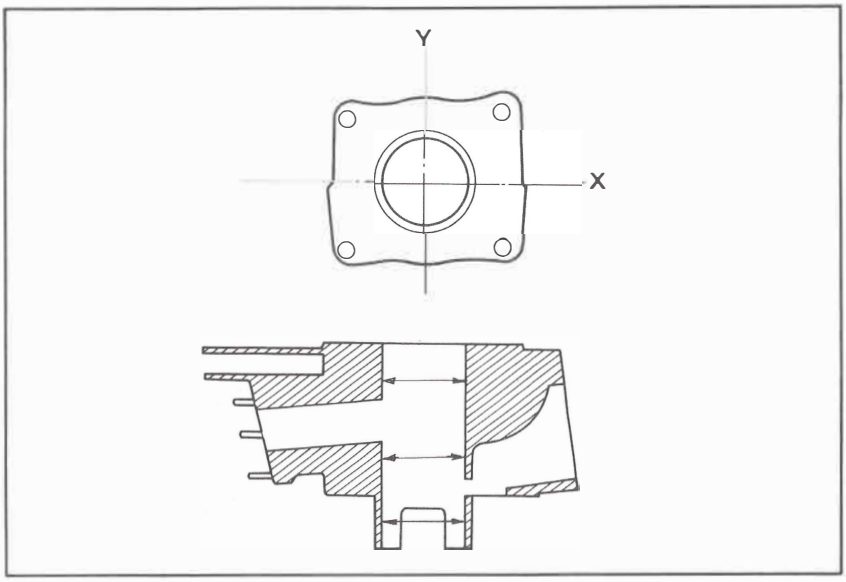
CAUTION

Do not damage the cylinder.



Inspect the cylinder bores for wears at three levels in X and Y directions. Take the minimum figure measured to determine the cylinder wear. Avoid the port area.

SERVICE LIMIT: 39.070 mm (1.5382 in)

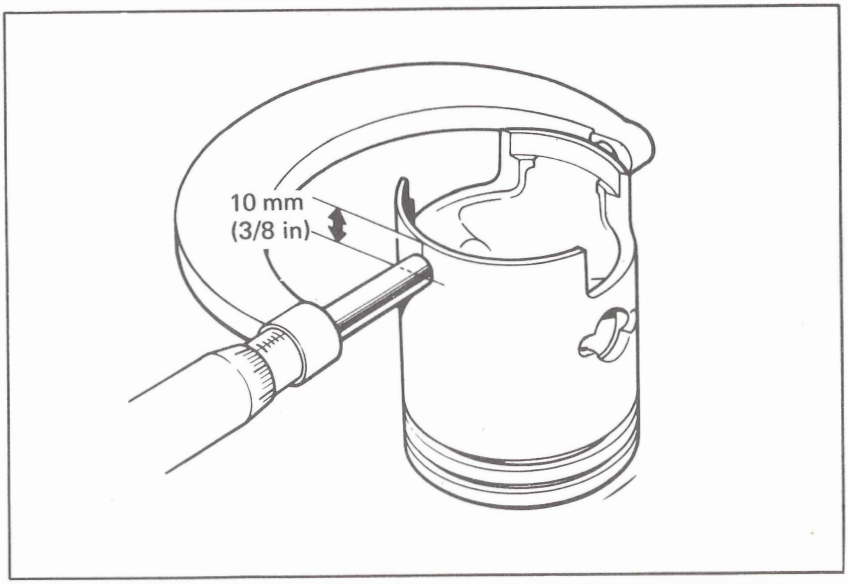


Measure the O. D. of the piston at a point 10 mm (3/8 in) from the end of the skirt.

SERVICE LIMIT: 38.920 mm (1.5323 in)

Calculate the piston-to-cylinder clearance.

SERVICE LIMIT: 0.100 mm (0.0039 in)



Measure the I. D. of the piston pin bore.

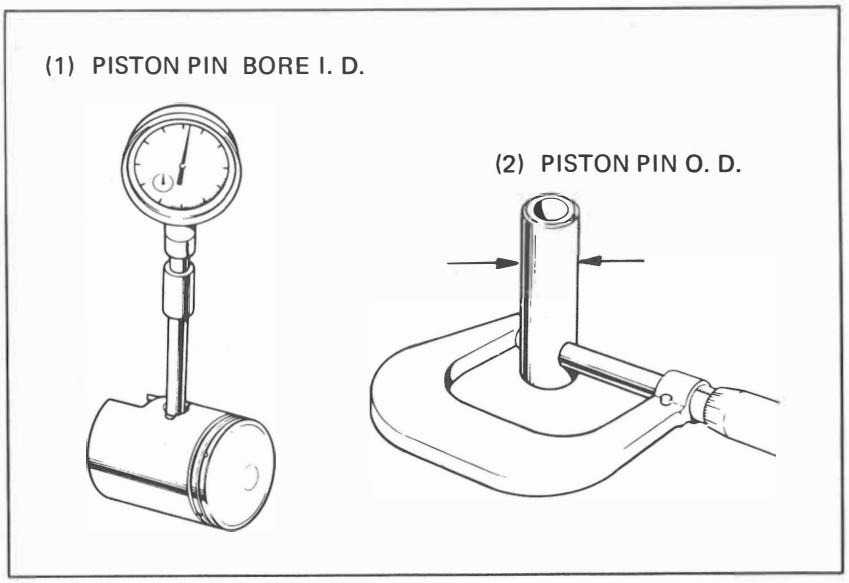
SERVICE LIMIT: 12.030 mm (0.4736 in)

Measure the O. D. of the piston pin.

SERVICE LIMIT: 11.980 mm (0.4717 in)

Calculate the piston pin-to-piston clearance.

SERVICE LIMIT: 0.040 mm (0.0016 in)



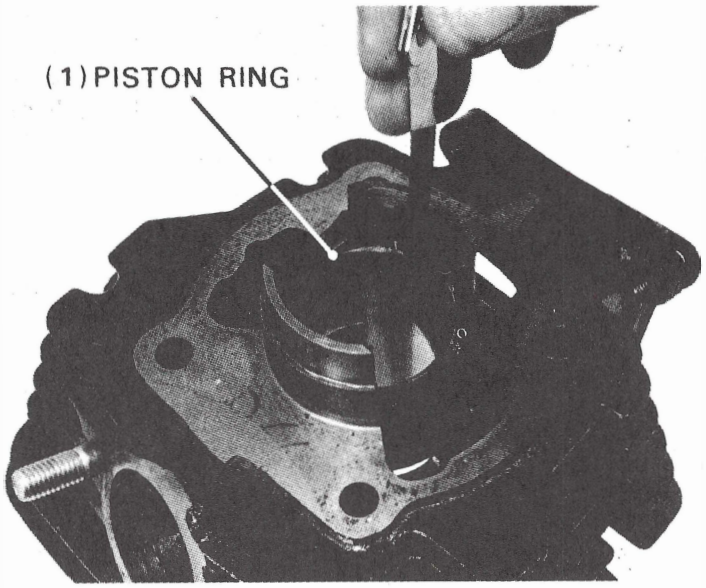
PISTON RING INSPECTION

Measure each piston ring end gap.

SERVICE LIMITS:
TOP: 0.35 mm (0.014 in)
SECOND: 0.35 mm (0.014 in)

NOTE

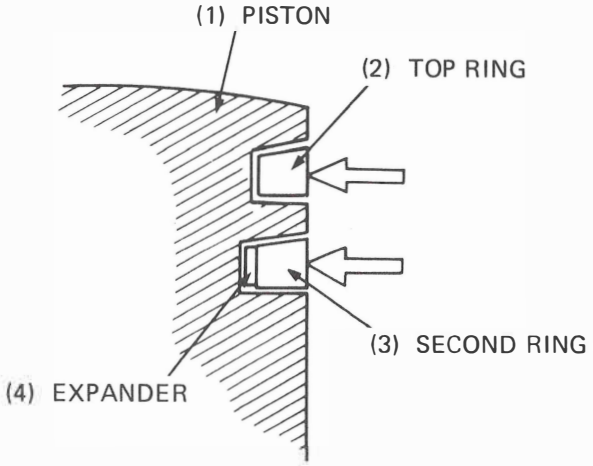
Set each piston ring squarely into the cylinder from the bottom using the piston and measure the end gap.



Install the expander in the second groove of the piston. Install the top and second rings (Page 6–7).

NOTE

Press each psiton ring into place at several points to make sure that it is flush with the piston surface.
If not, clean carbon deposits from the ring groove. They should be free enough to be rotated in the ring lands.

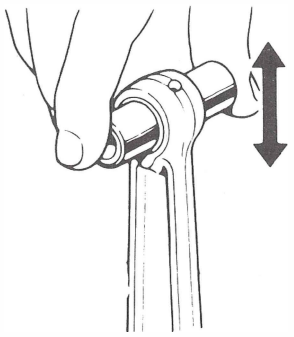


CONNECTING ROD INSPECTION

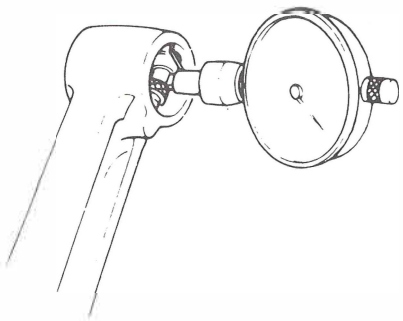
Install the bearing and piston pin in the connecting rod small end and check for excessive play.

Measure the connecting rod small end I. D.

SERVICE LIMIT: 17.030 mm (0.6705 in)



(1) PLAY



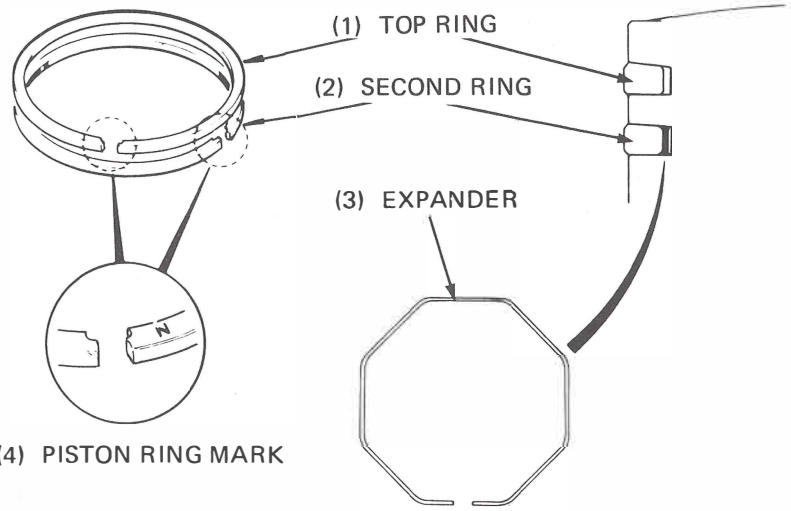
(2) I. D.

PISTON/CYLINDER INSTALLATION

Install the expander and piston rings.

NOTE

- Install the rings with the marking facing up.
- The top and second rings are interchangeable with each other.
- Do not mix different brands of rings in an engine. Do not replace one without replacing another.



Install the connecting rod small end bearing, piston and piston pin.

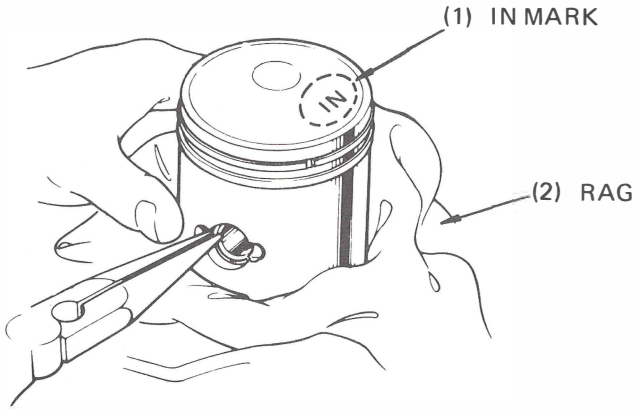
NOTE

Install the piston with the "IN" marking facing the inlet side.
Dip the small end bearing and piston pin in clean engine oil before installation.

Install the piston pin clips.

NOTE

Do not let the clip fall into the crankcase.

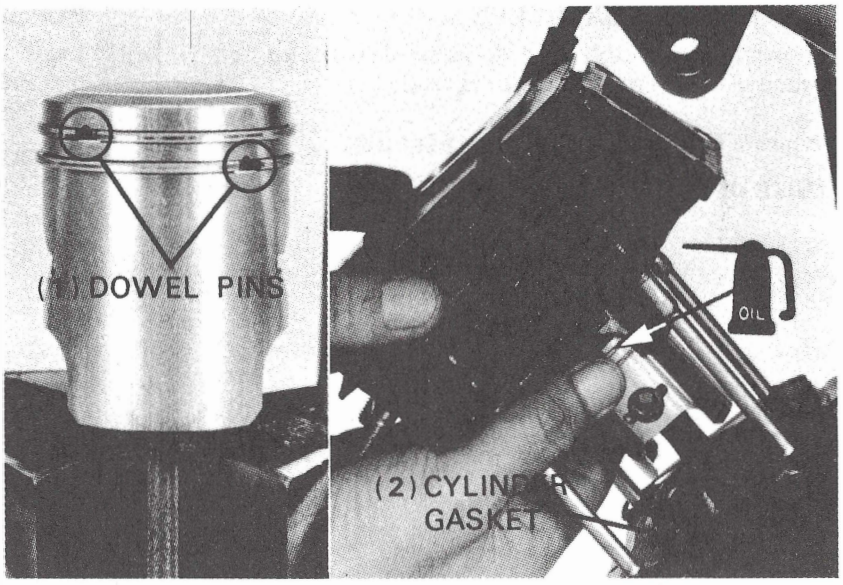


Align each ring end gap with the dowel pin in the ring land.
Place the cylinder gasket on the crankcase.

Lubricate the piston with engine oil and install the cylinder over the piston while compressing the piston rings.

NOTE

Do not damage the piston.



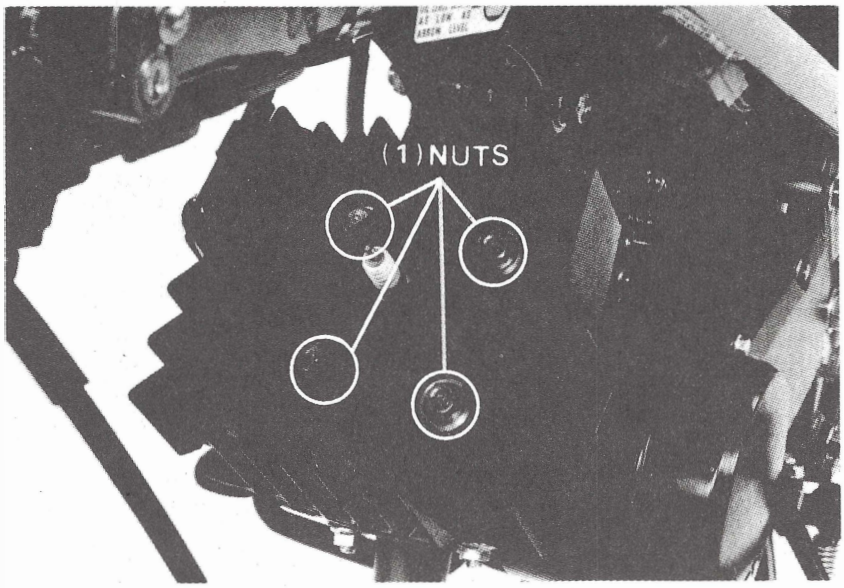
Install the cylinder head on the cylinder with the gasket in between (Page 6–3).

Install the reed valve and inlet pipe.
Install the exhaust muffler.

Install the cylinder head hanger bolts.

Perform the following inspections and operation:

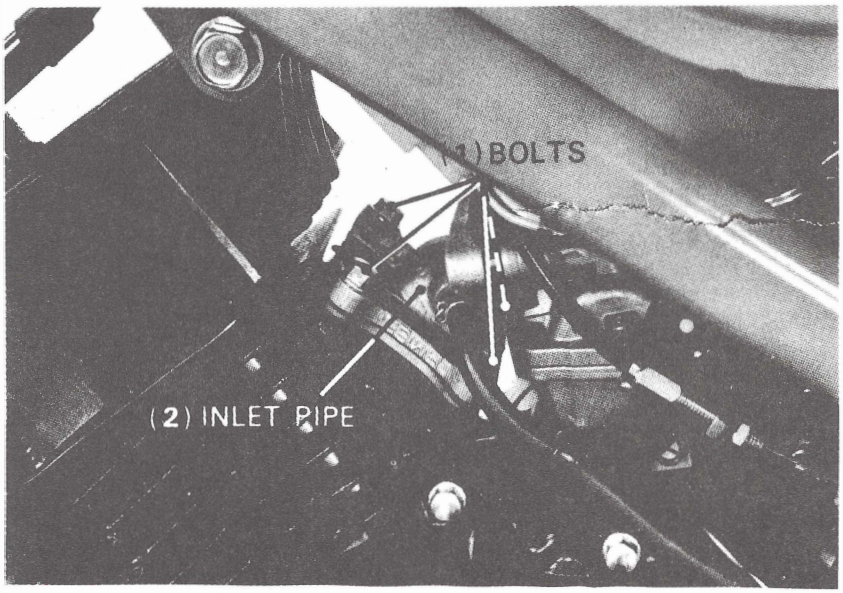
Cylinder compression (Page 3–4); compression leaks
Engine noise
Secondary air leaks
Air bleeding from oil pass tube (Page 2–8)



REED VALVE

REED VALVE REMOVAL

Remove the inlet pipe (Page 6–3).
Remove the reed valve.

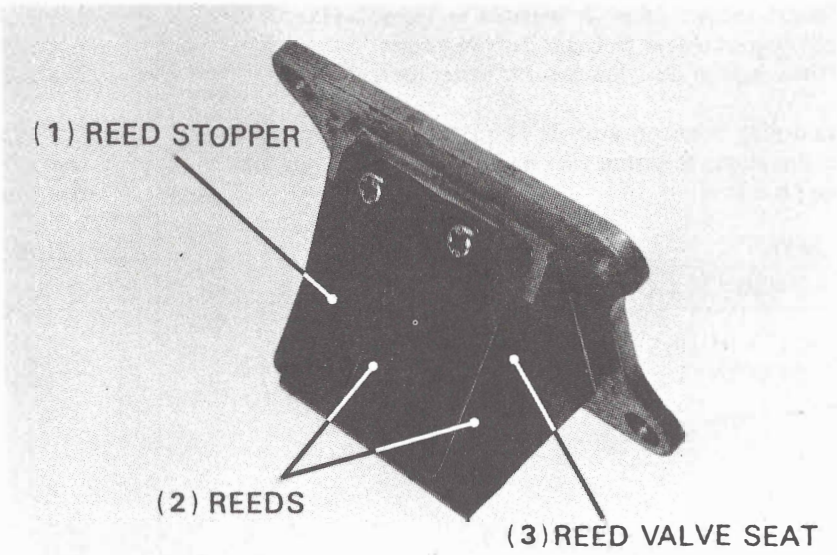


REED VALVE INSPECTION

Check the reed for damage or fatigue and replace if necessary. Replace the valve with a new one if the seat rubber is cracked or damaged, or if there is clearance between the reed and seat.

CAUTION

Do not disassemble or bend the reed stopper as this may cause improper engine performance. The reed valve must not be disassembled. If any of the stopper, reed and seat is defective, replace all as a unit.



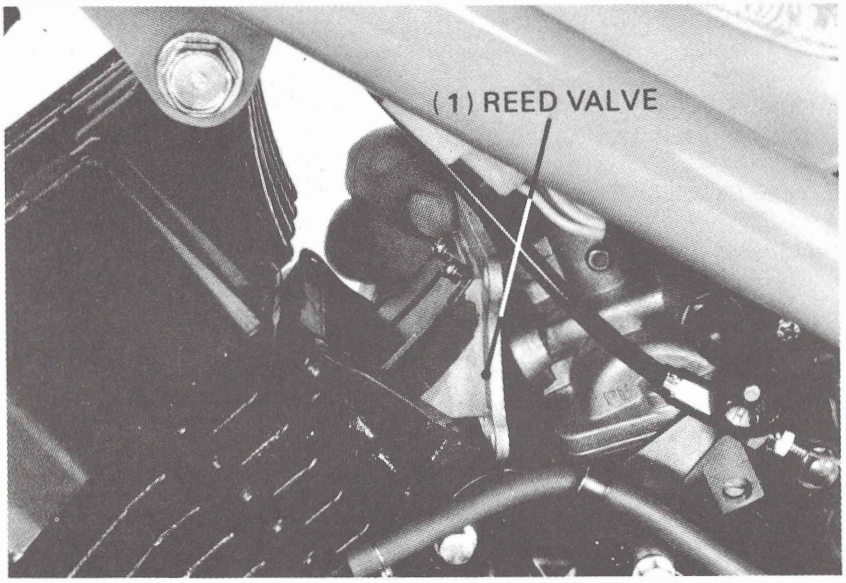
REED VALVE INSTALLATION

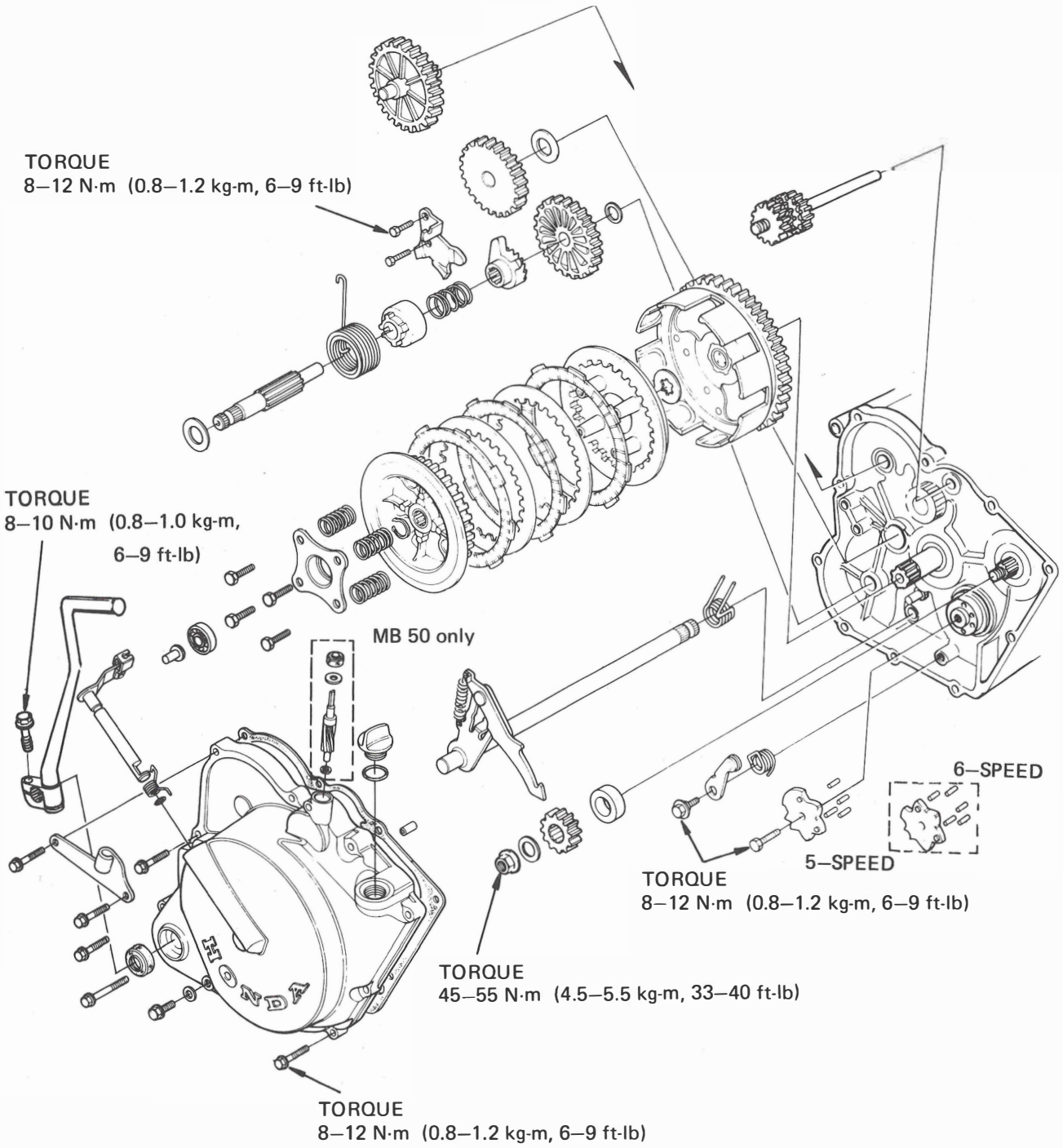
Installation of the reed valve is essentially the reverse order of removal.

CAUTION

Bleed air from the oil pass tube (Page 2–9).

After installation, check for secondary air leaks.




TORQUE
8–12 N·m (0.8–1.2 kg-m, 6–9 ft-lb)
TORQUE
8–10 N·m (0.8–1.0 kg-m,
6–9 ft-lb)
MB 50 only
6–SPEED
5–SPEED
TORQUE
8–12 N·m (0.8–1.2 kg-m, 6–9 ft-lb)
TORQUE
45–55 N·m (4.5–5.5 kg-m, 33–40 ft-lb)
TORQUE
8–12 N·m (0.8–1.2 kg-m, 6–9 ft-lb)

7. CLUTCH/KICK STARTER/ SHIFT LINKAGE

SERVICE INFORMATION

GENERAL INSTRUCTIONS

- All clutch and kick starter maintenance and inspections can be accomplished with the engine installed.
- Make balancer timing adjustment when the clutch outer and primary drive gear are removed.
- Use the UNIVERSAL HOLDER to remove and install the primary drive gear.
- Remove all gasket materials from the mating faces of the cases.
- Do not allow dust and dirt from entering into the cylinder and crankcase.
- Avoid damaging or scratching the case mating surfaces.
- Before inspecting, clean all removed parts in solvent; dip the parts in clean transmission oil before then can be installed.

SPECIAL TOOLS

Common Tool
Universal Holder 07725–0010101

SPECIFICATIONS

ITEM	STANDARD mm (in)	SERVICE LIMIT mm (in)
Clutch spring free length/preload	30.2/19–21 kg (1.19/41.9–46.3 lb)	28.5/17 kg (1.12/37.5 lb)
Clutch disc thickness	2.9–3.0 (0.114–0.118)	2.5 (0.098)
Clutch plate warpage	———	0.2 (0.008)
Clutch outer I. D.	17.000–17.018 (0.6693–0.6700)	17.060 (0.6717)
Kick starter spindle O. D.	11.966–11.984 (0.4711–0.4718)	11.950 (0.4704)
Kick starter pinion I. D.	12.016–12.034 (0.4731–0.4738)	12.070 (0.4752)
Kick starter idler gear Countershaft O. D.	15.000–15.018 (0.5906–0.5913)	14.940 (0.5882)
Gear I. D.	15.032–15.050 (0.5918–0.5925)	15.100 (0.5945)
Oil pump driven gear shaft O. D.	9.965–9.987 (0.3923–0.3932)	9.930 (0.3909)
Balancer idler gear shaft O. D.	9.972–9.987 (0.3926–0.3932)	9.930 (0.3909)

TROUBLESHOOTING

Clutch slips when accelerating
1. No free play
2. Discs worn
3. Springs weak

Clutch operation feels rough
1. Outer drum slots rough

Abnormal engine vibration
1. Balancer out of time

Motorcycle creeps with clutch disengaged
1. Too much free play
2. Plates warped

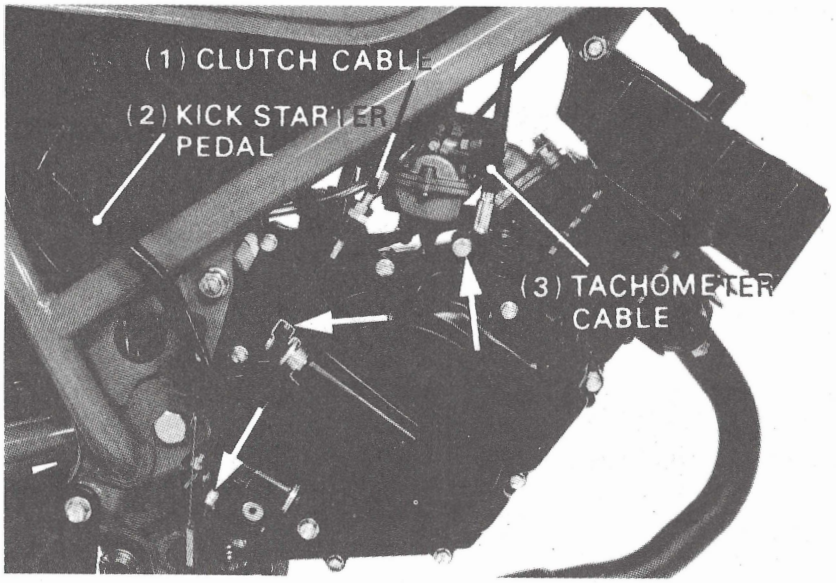
Excessive lever pressure
1. Clutch cable kinked, damaged or dirty
2. Lifter mechanism damaged
3. Clutch cable not routed properly

RIGHT CRANKCASE COVER

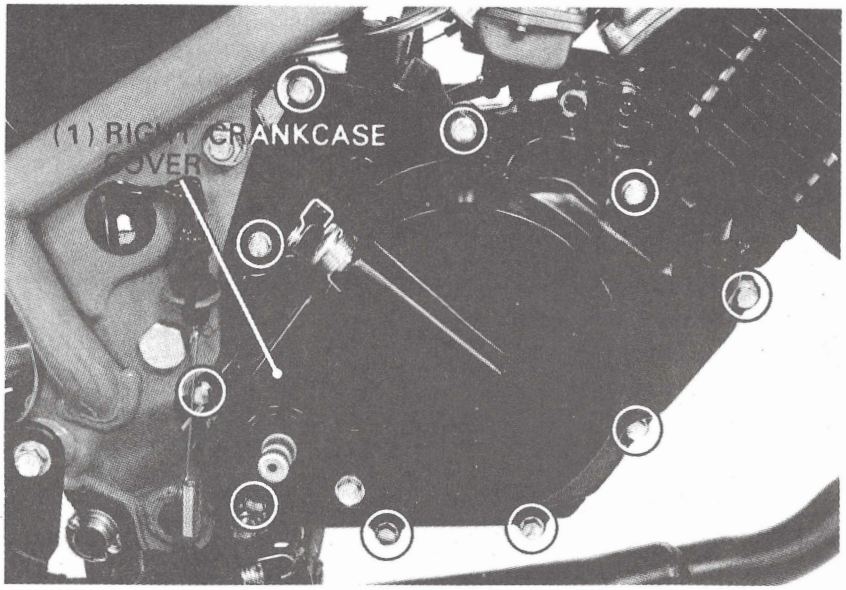
RIGHT CRANKCASE COVER REMOVAL

Drain oil from the transmission.
Remove the kick starter pedal.

Disconnect the clutch cable from the clutch arm.
Disconnect the tachometer cable (MB50).



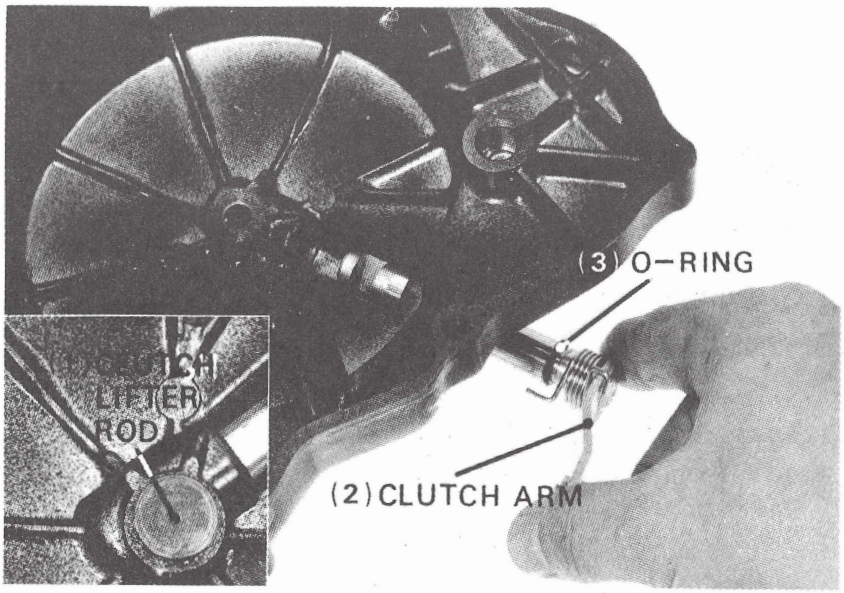
Remove the bolts attahcing the right crankcase cover, and remove the right crankcase cover.



RIGHT CRANKCASE COVER DISASSEMBLY

Remove the clutch lifter rod , then remove the clutch arm.

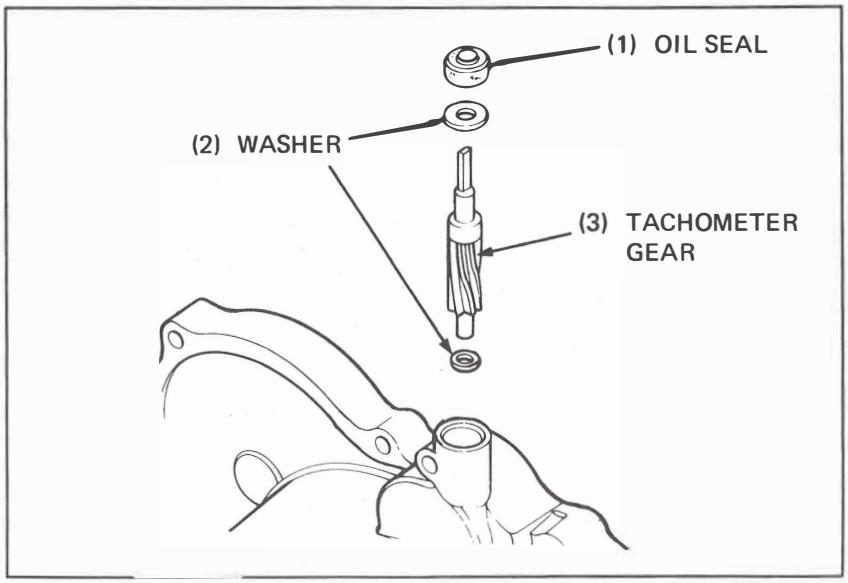
Check the O-ring for damage, fatigue or other defects. Check the clutch arm for bending.



Remove the tachometer gear (MB50).

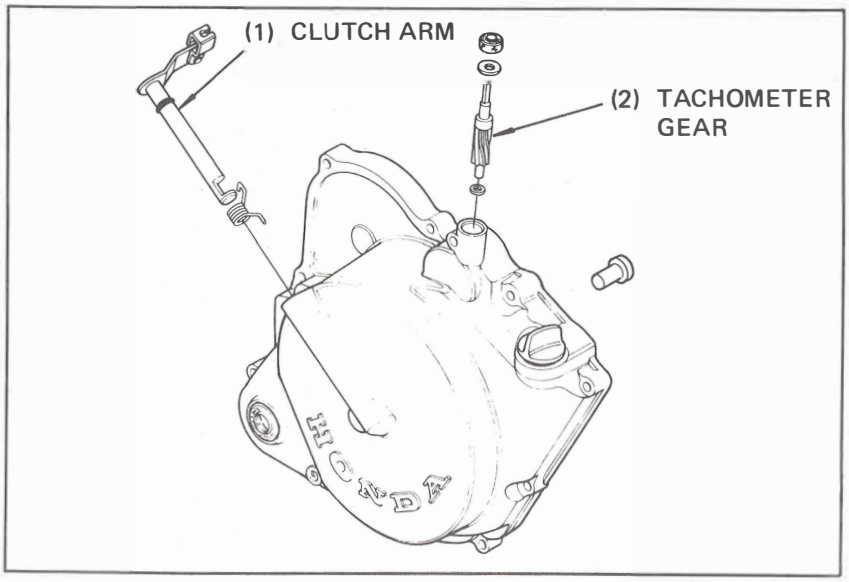
NOTE

Do not forget to install the washer.

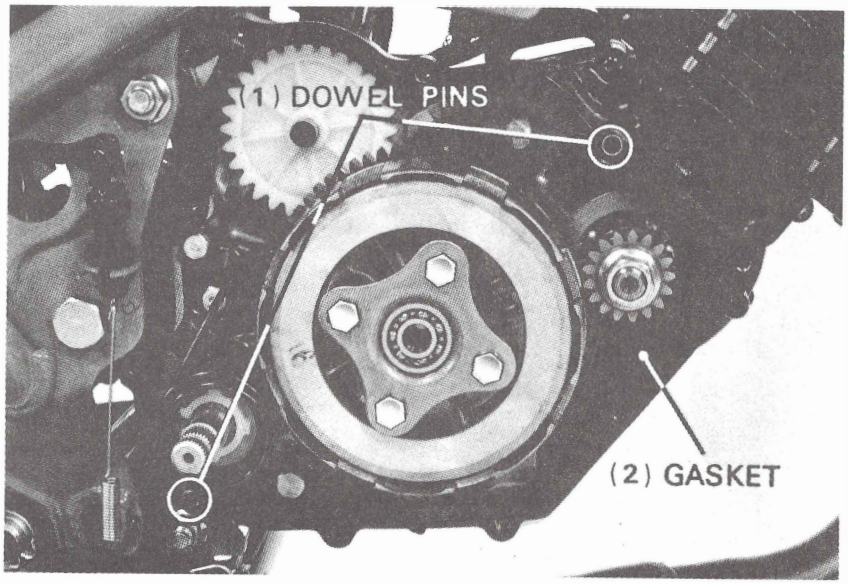


RIGHT CRANKCASE COVER INSTALLATION

Install the clutch arm and clutch lifter rod. Install the tachometer gear on the right crankcase cover (MB50).



Install the dowel pins and gasket on the crankcase.

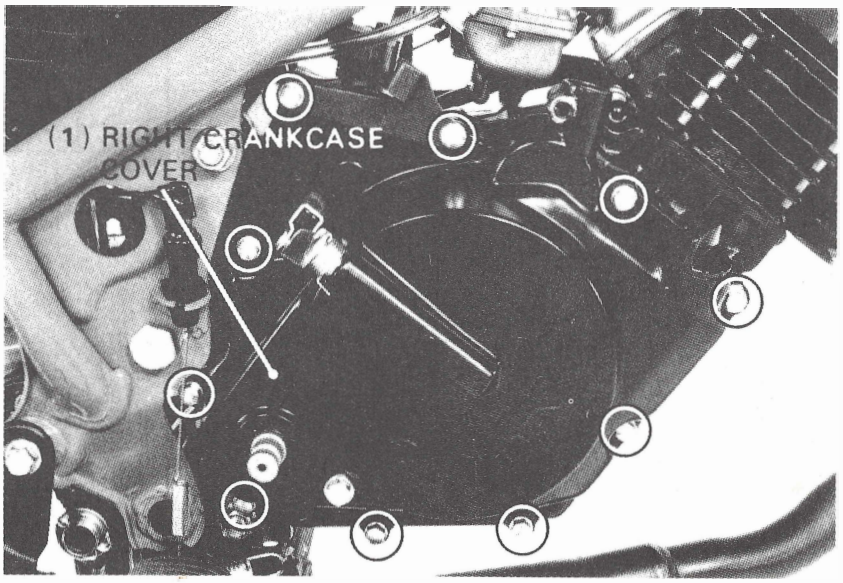


Install the right crankcase cover on the crankcase.

Install the clutch cable bracket and tighten with the flange bolt.

NOTE

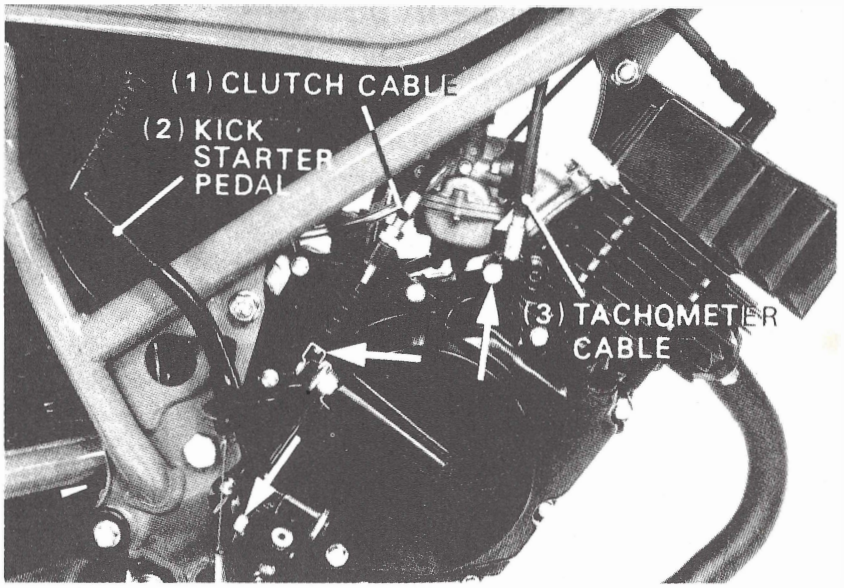
Tighten the bolts in criss-cross pattern and in two or three steps.



Connect the tachometer and clutch cables. Install the kick starter pedal.

Fill the transmission with recommended oil (Page 2–3).

Adjust the clutch lever free play (Page 3–3).

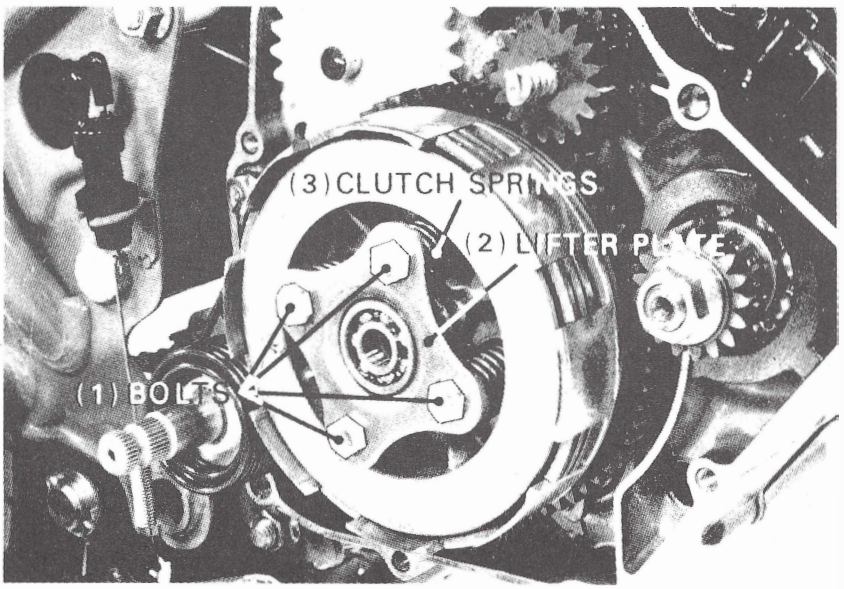


CLUTCH/IDLER GEAR

CLUTCH REMOVAL

Remove the right crankcase cover (Page 7–2).

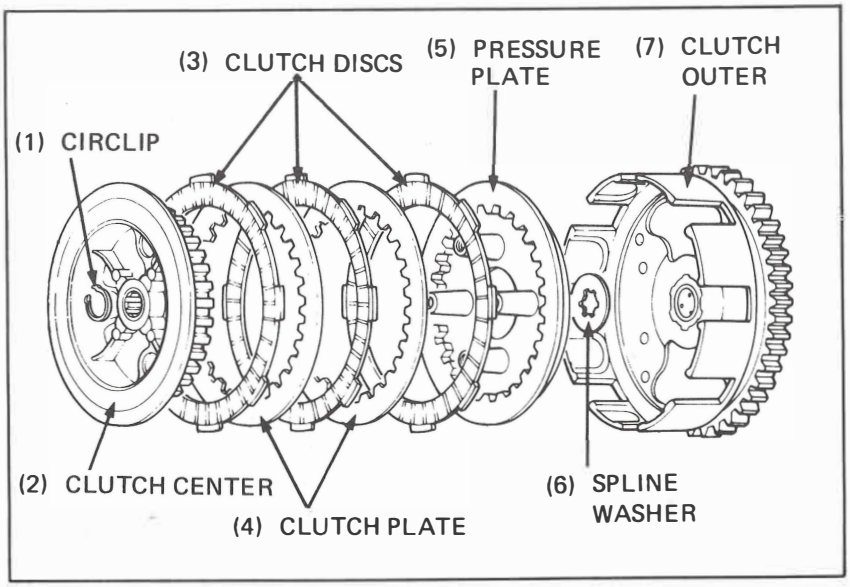
Remove the clutch lifter plate and clutch springs by removing the bolts.



Remove the circlip.

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

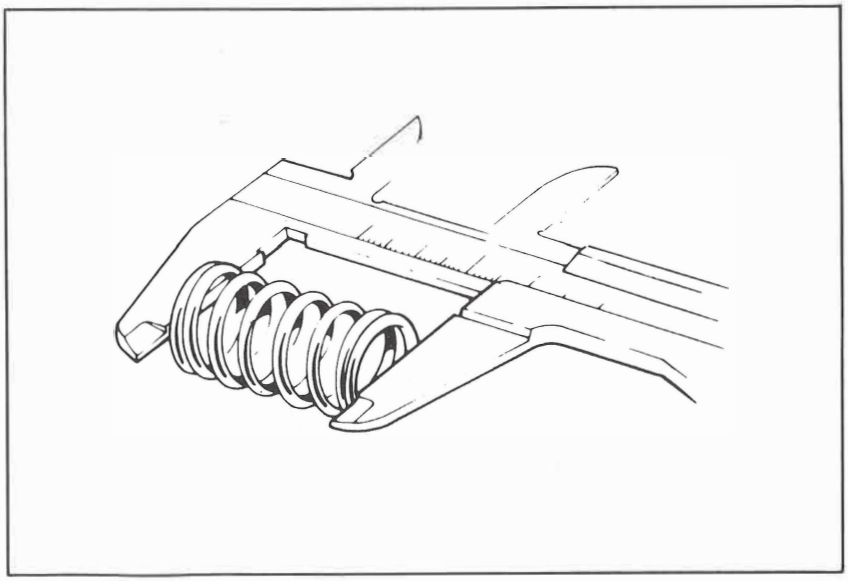
Remove the spline washer and remove the clutch outer.



CLUTCH SPRING INSPECTION

Measure each clutch spring free length.

SERVICE LIMIT: 28.5 mm (1.12 in)

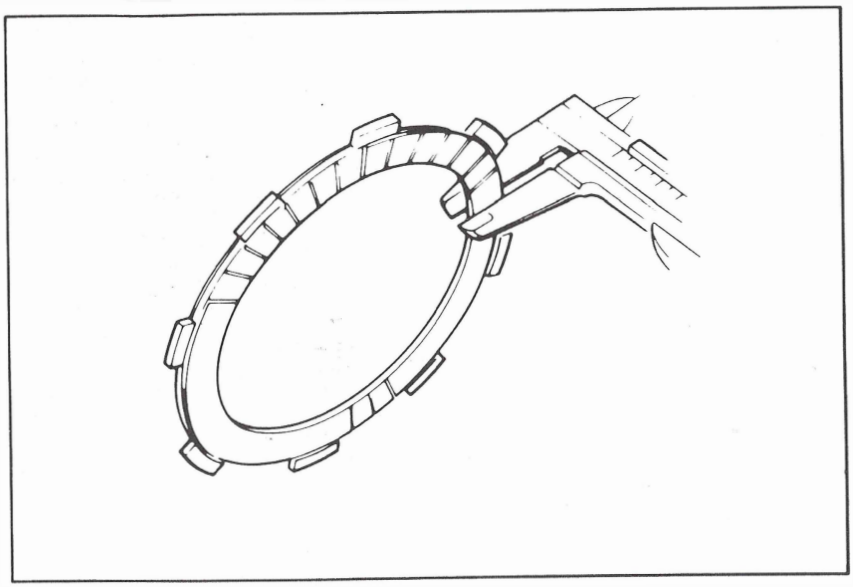


CLUTCH DISC INSPECTION

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

Measure each clutch disc thickness.

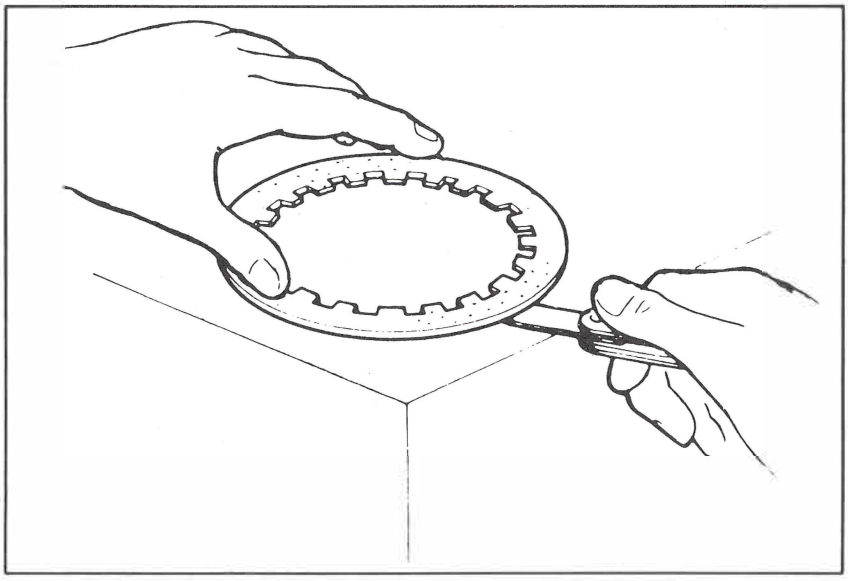
SERVICE LIMIT: 2.5 mm (0.098 in)



CLUTCH PLATE INSPECTION

Check for plate warpage on a surface plate, using a feeler gauge.

SERVICE LIMIT: 0.2 mm (0.008 in)

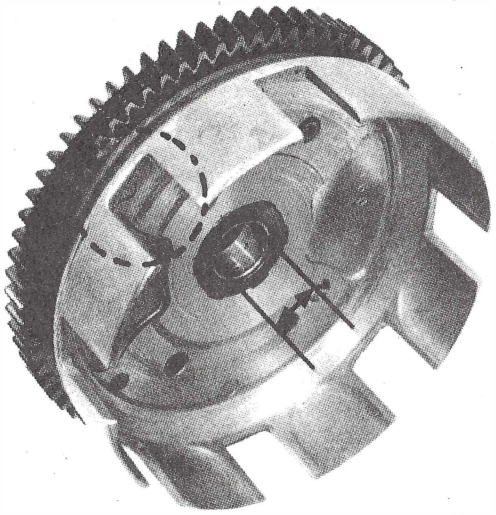


CLUTCH OUTER INSPECTION

Check the slots in the outer drum for nicks, cuts or indentations made by the friction discs.

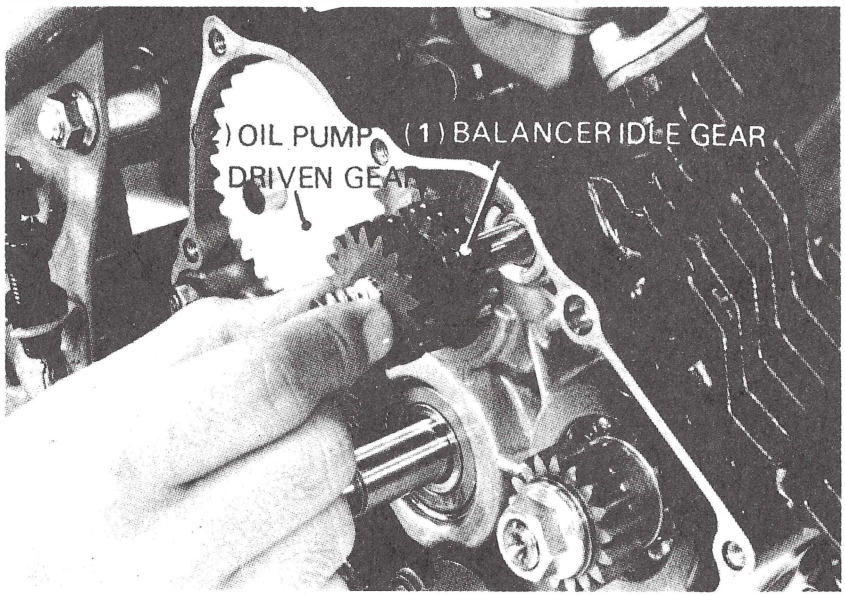
Measure the clutch outer I. D.

SERVICE LIMIT: 17.060 mm (0.6717 in)



BALANCER IDLER GEAR/OIL PUMP DRIVEN GEAR REMOVAL

Remove the clutch, then remove the balncer idler gear and oil pump driven gear.



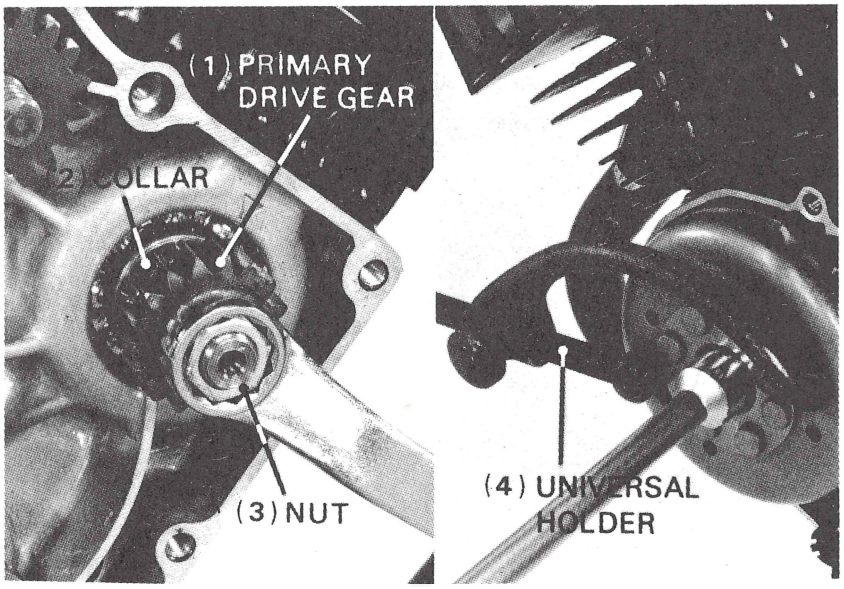
PRIMARY DRIVE GEAR REMOVAL

Remove the left crankcase cover.

Hold the flywheel with the UNIVERSAL HOLDER and remove the 12 mm nut, drive gear, and collar.

NOTE

Use the UNIVERSAL HOLDER to prevent the crankshaft from being turned during operation.



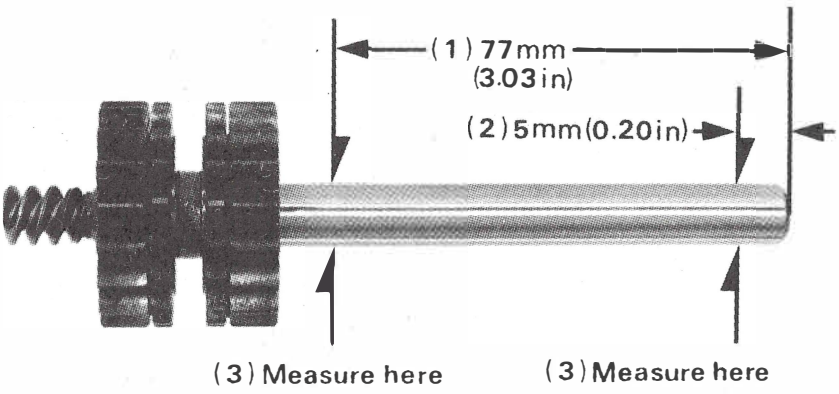
BALANCER IDLER GEAR INSPECTION

Check the balancer idle gear for wear or damage.

Check the idler gear shaft for bending, wear or damage.

Measure the balancer idler gear shaft O. D. at two places.

SERVICE LIMIT: 9.930 mm (0.3909 in)



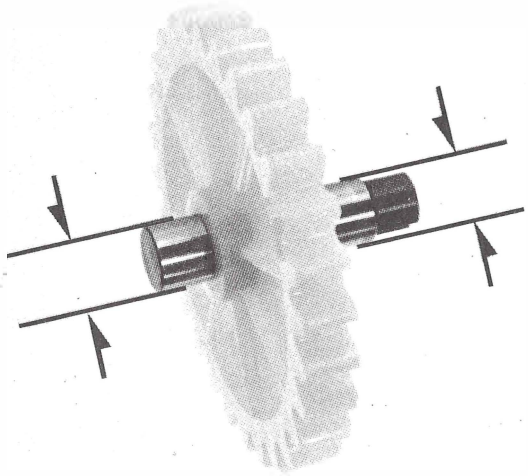
Check the oil pump driven gear for wear or damage.

Check the oil pump driven gear shaft for cracks or other defects.

Replace the shaft and gear with new ones if cracked.

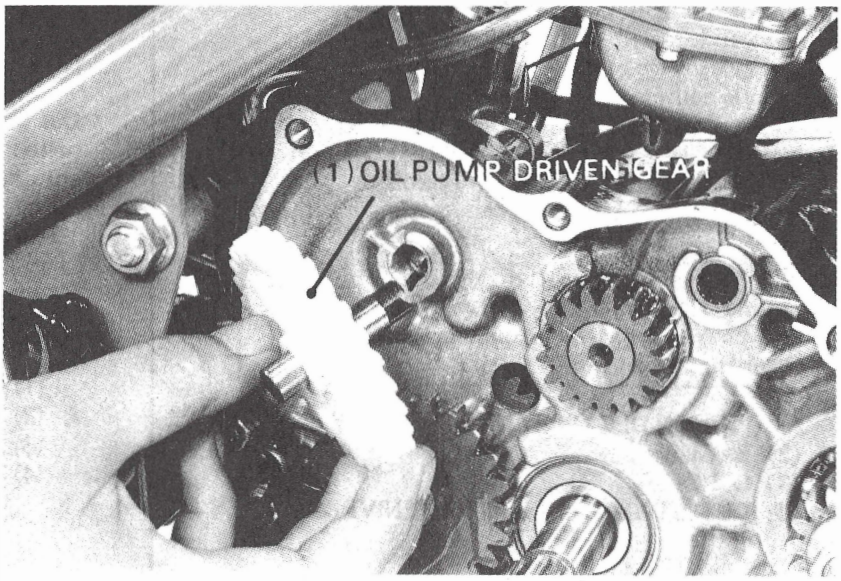
Measure the oil pump driven gear shaft O. D.

SERVICE LIMIT: 9.930 mm (0.3909 in)



OIL PUMP DRIVEN GEAR INSTALLATION

Install the oil pump driven gear aligning the slot in the gear shaft with the blade in the pump.

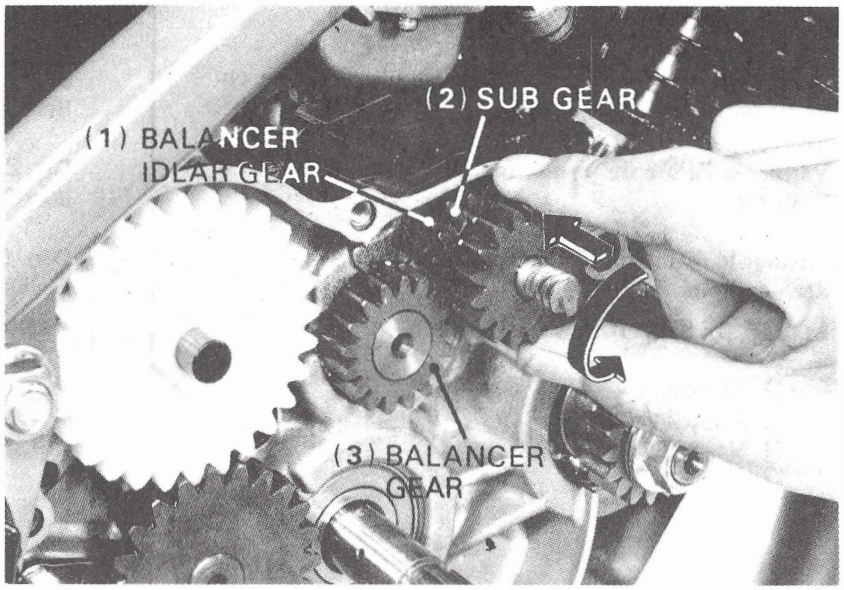


BALANCER IDLER GEAR INSTALLATION

Install the balancer idle gear in the crankcase.

CAUTION

Install the idler gear until the sub gear engages the balancer gear by rotating the gear by hand.



PRIMARY DRIVE GEAR INSTALLATION

Install the collar on the crankshaft, then install the primary drive gear.

NOTE

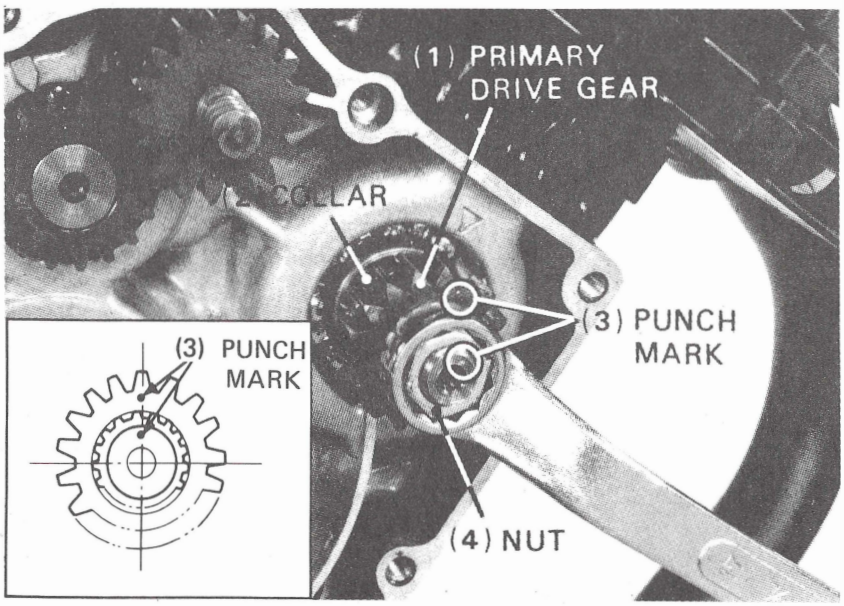
Align the punch mark on the end of the crankshaft with the punch mark on the gear.

Install the washer and 12 mm nut on the end of the crankshaft . Hold the flywheel with the UNIVERSAL HOLDER and tighten the 12 mm nut to the specified torque.

TORQUE: 45–55 N·m (4.5–5.5 kg-m, 33–40 ft-lb)

CAUTION

When tightening the 12 mm nut, hold the flywheel with the UNIVERSAL HOLDER to prevent turning of the crankshaft.

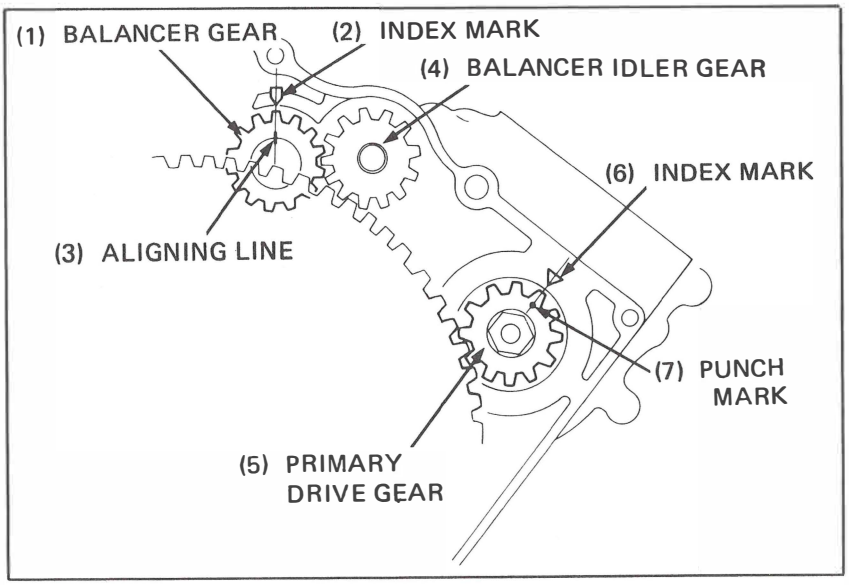


CLUTCH INSTALLATION/ BALANCER TIMING

BALANCER TIMING

[1] Align the punch mark on the primary drive gear with the index mark on the crankcase.

[2] Algin the aligning line on the balancer gear with the index mark on the crankcase.

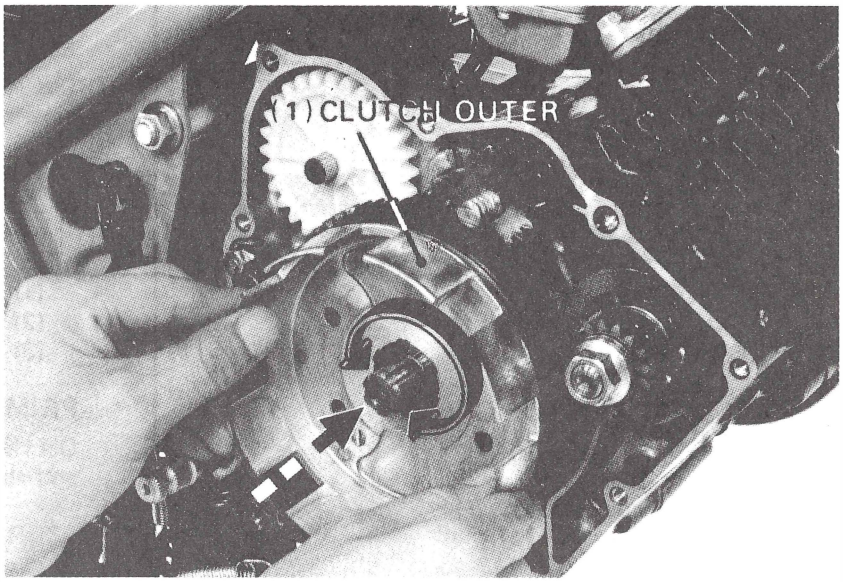


CAUTION

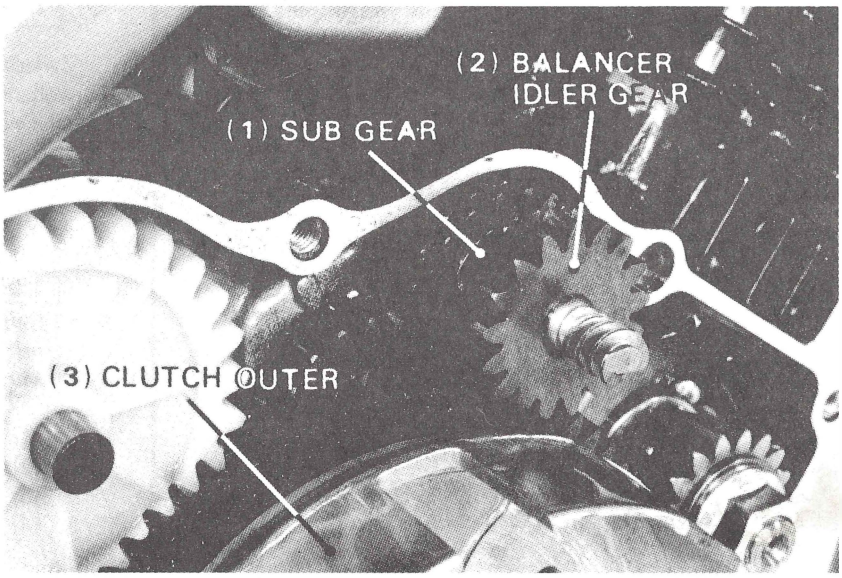
Make sure that the aligning line on the balancer gear is in line with the mating line on the shaft.

Install the clutch outer without disturbing the setups [1] and [2].

Rotate the clutch outer right or left until the gear engages the sub gear, then push it in the crankcase.



Make sure that the sub gear engages the clutch outer gear properly.

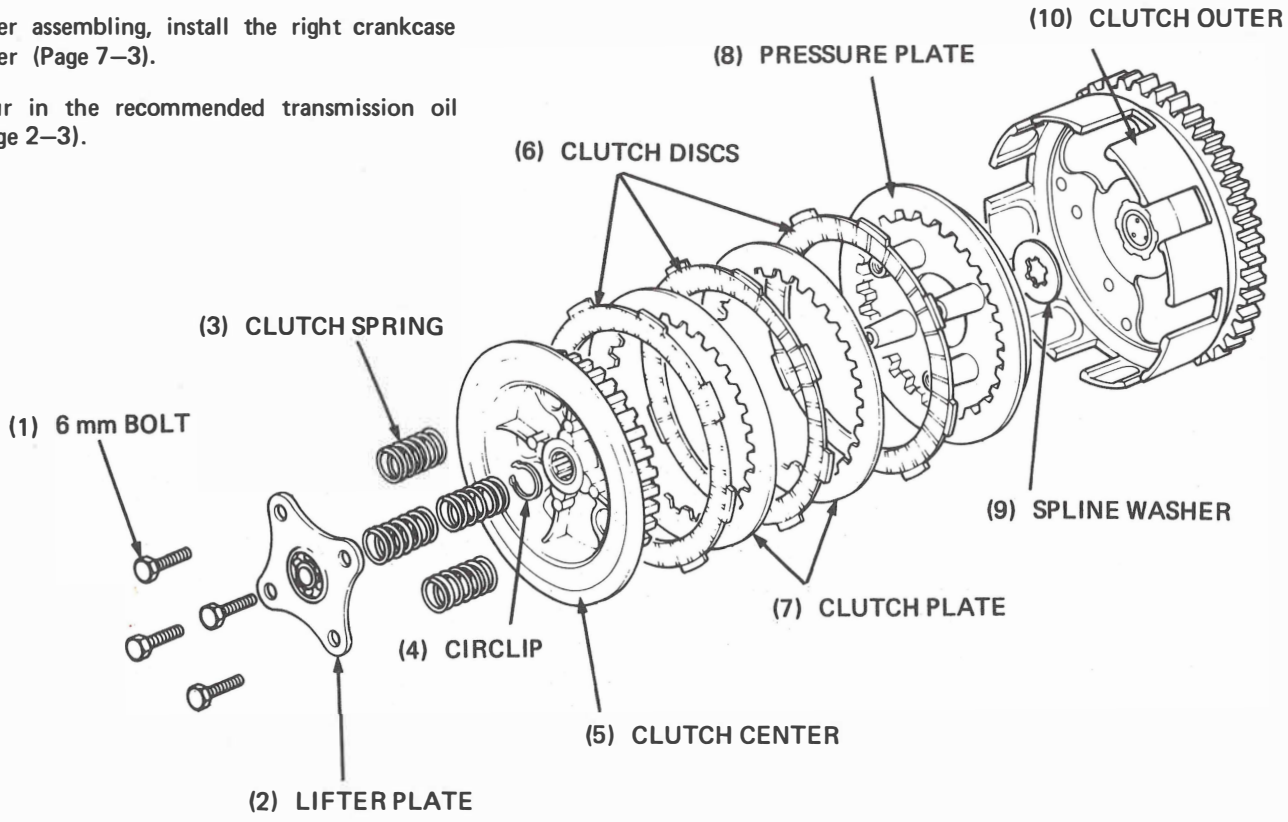


Install the following parts in the clutch outer:

Spline washer.
Pressure plate
Clutch discs and clutch plate
Clutch center
Circlip
Clutch springs
Clutch lifter plate
6 mm bolts

After assembling, install the right crankcase cover (Page 7–3).

Pour in the recommended transmission oil (Page 2–3).



KICK STARTER

KICK STARTER SPINDLE REMOVAL

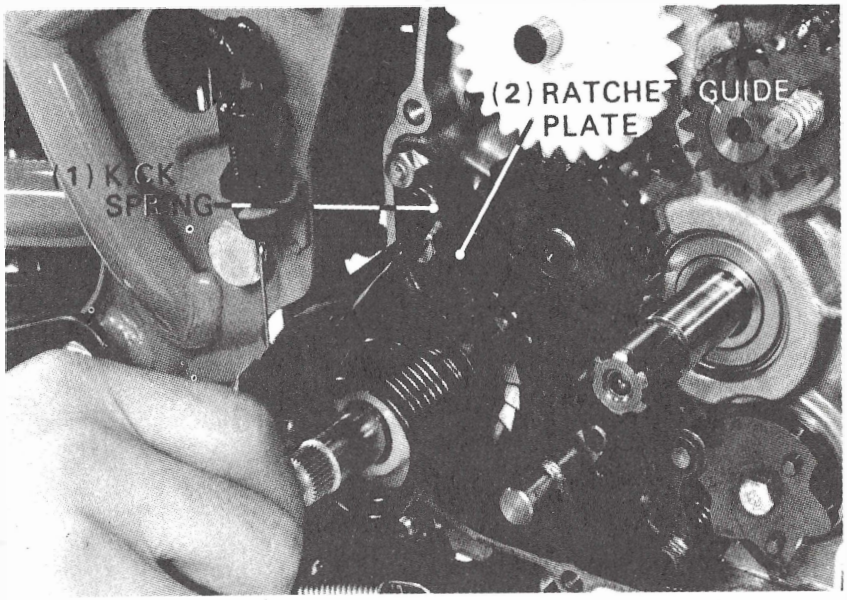
Remove the right crankcase cover (Page 7–2).

Remove the clutch assembly (Page 7–4).

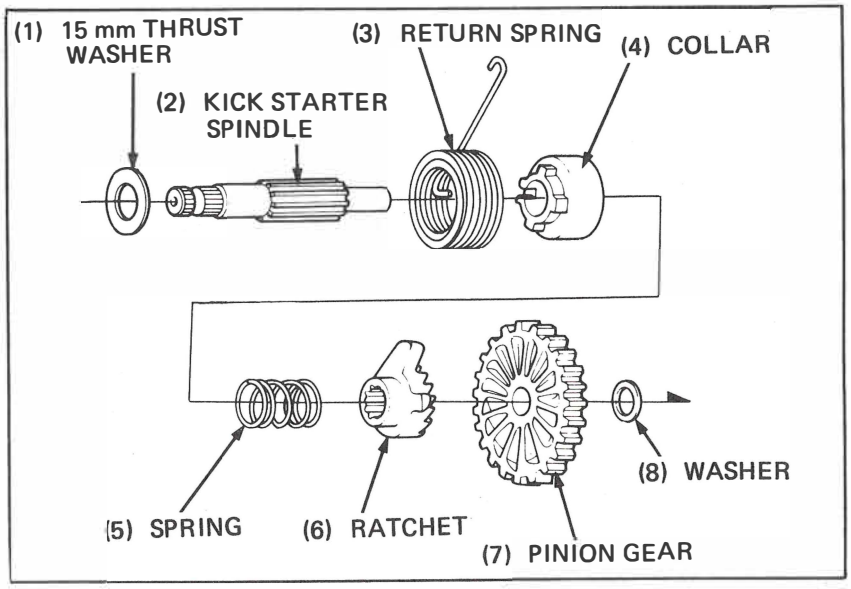
NOTE

It is not necessary to remove the clutch to remove the kick starter spindle.

Remove the kick return spring from the ratchet guide plate, then remove the kick starter spindle.



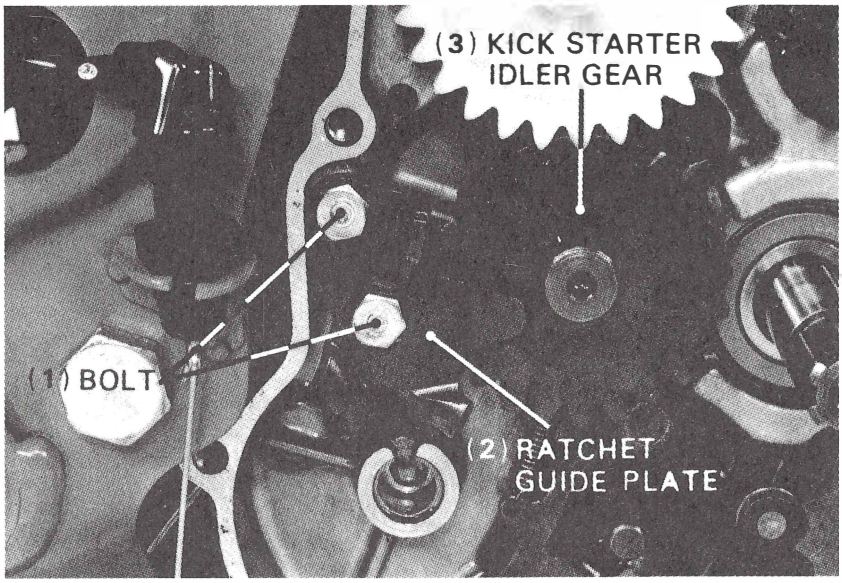
Disassemble the kick starter.



KICK STARTER IDLER GEAR REMOVAL

Remove the two attaching bolts and remove the ratchet guide plate.

Remove the kick starter idler gear and 15 mm thrust washer.



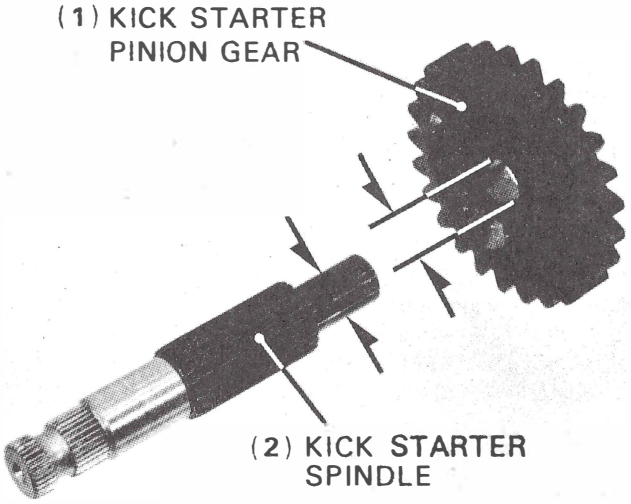
KICK STARTER INSPECTION

Measure the kick starter spindle O. D.

SERVICE LIMIT: 11.950 mm (0.4704 in)

Measure the kick pinion gear I. D.

SERVICE LIMIT: 12.070 mm (0.4752 in)



KICK STARTER IDLER GEAR INSPECTION

Measure the kick idler gear I. D.

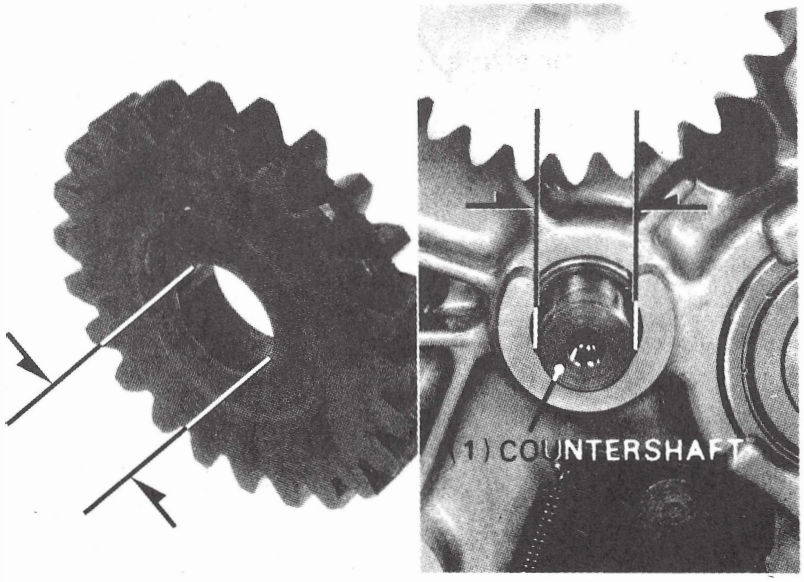
SERVICE LIMIT: 15.100 mm (0.5945 in)

Measure the countershaft O. D.

SERVICE LIMIT: 14.940 mm (0.5882 in)

Calculate the clearance between the gear and shaft.

SERVICE LIMIT: 0.100 mm (0.0039 in)



KICK STARTER INSTALLATION

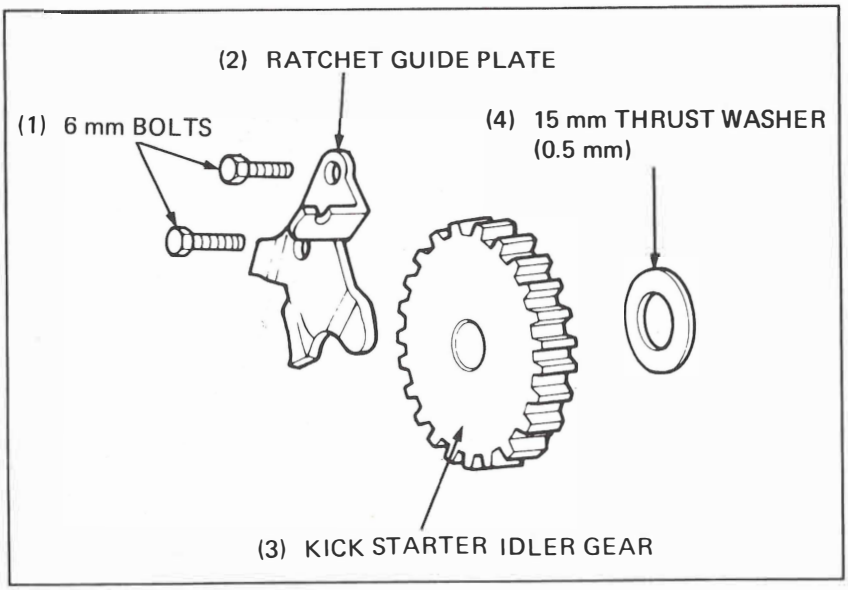
Install the 15 mm thrust washer and kick starter idler gear ratchet guide plate.

Tighten the ratchet guide plate with the two bolts. Tighten to the specified torque.

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

CAUTION

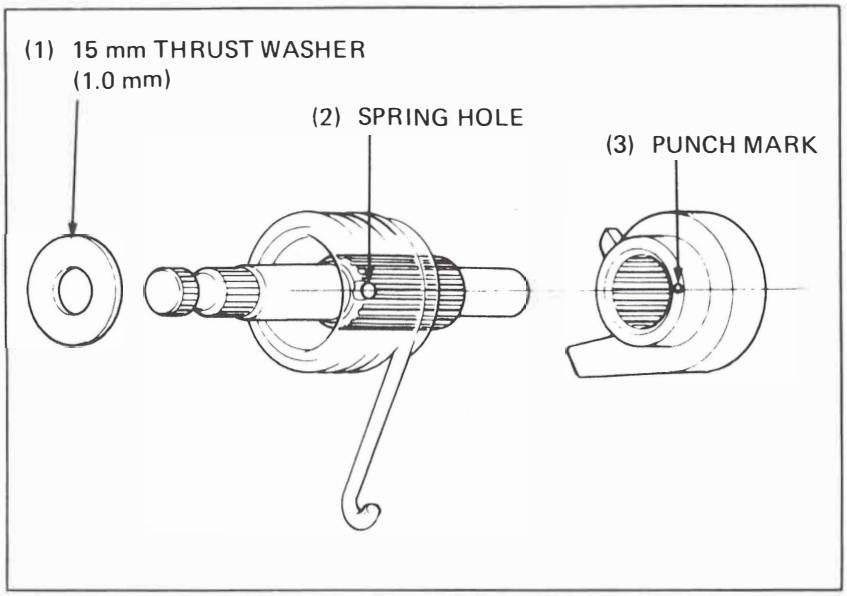
Do not mix the 15 mm thrust washer (0.5 mm) and kick spindle 15 mm thrust washer (1.0 mm).



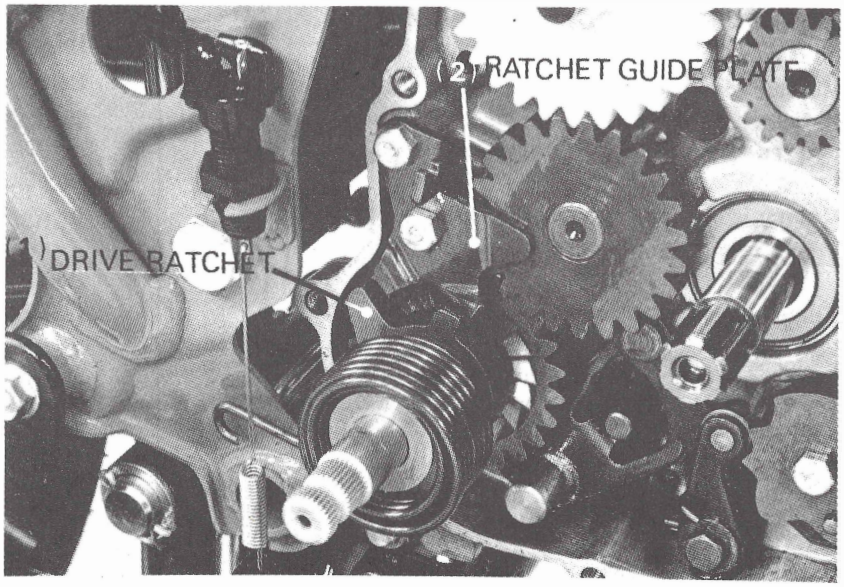
Install the kick starter in the reverse order of disassembly.

CAUTION

- *Slide the ratchet over the kick starter spindle with the punch mark on the ratchet aligned with the spring hole in the spindle.*
- *Do not confuse the 15 mm washer (1.0 mm) with the 0.5 mm washer.*



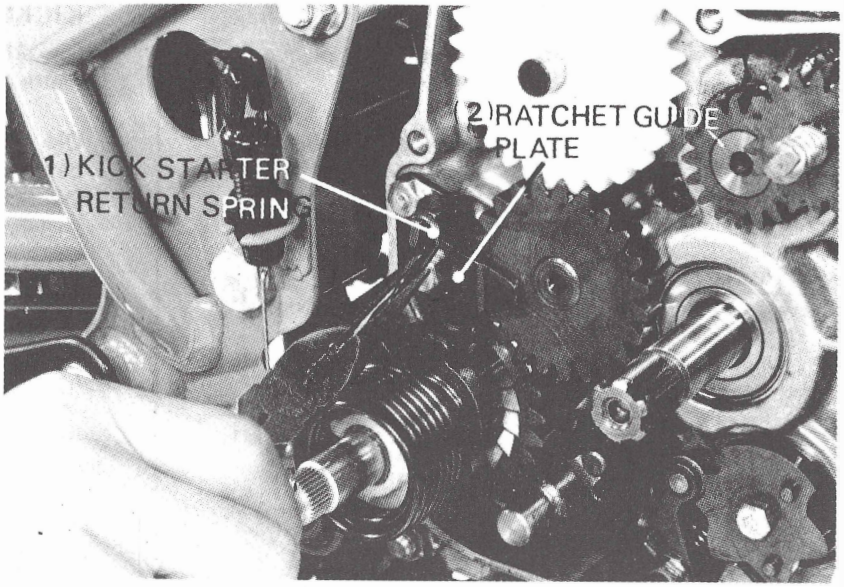
Install the kick starter in the crankcase with the drive ratchet resting against the guide plate stopper as shown.



Install the kick return spring.
With the balancer properly timed, install the clutch (Page 7–9).

Install the right crankcase cover (Page 7–3).
Fill the transmission with the recommended oil up to the proper level (Page 2–3).

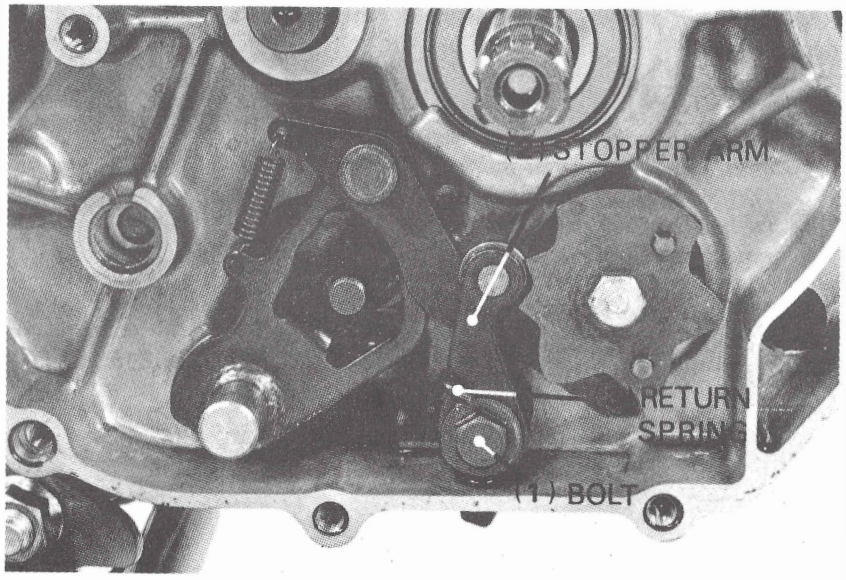
Check the operation of the kick starter.



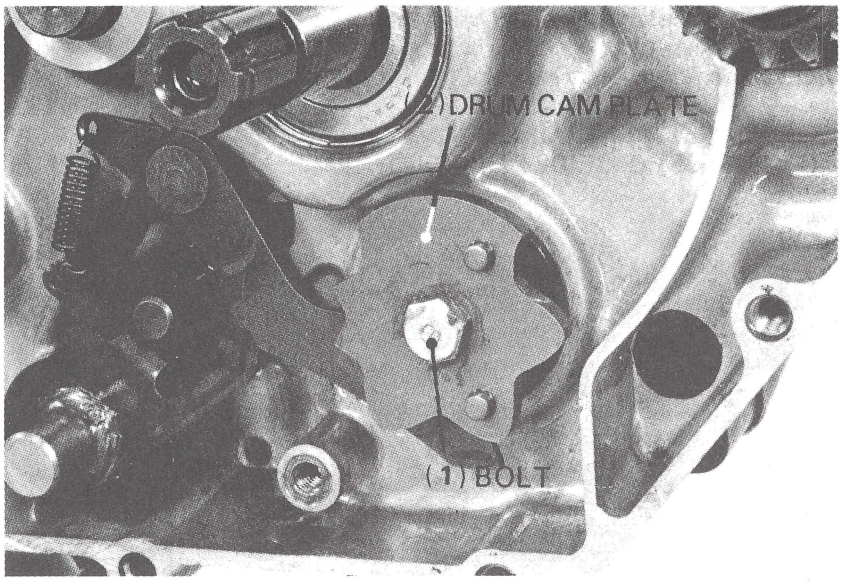
SHIFT LINKAGE

SHIFT LINKAGE REMOVAL

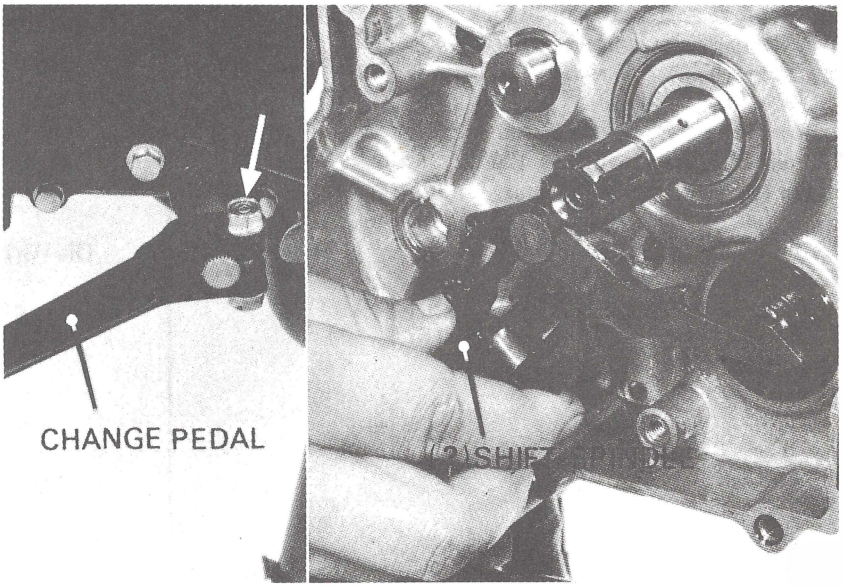
Remove the clutch (Page 7–4).
Remove the kick starter idle gear (Page 7–12).
Remove the bolt attaching the clutch stopper arm and remove the stopper arm and spring.



Remove the bolt attaching the drum cam plate and remove the plate and roller pins.



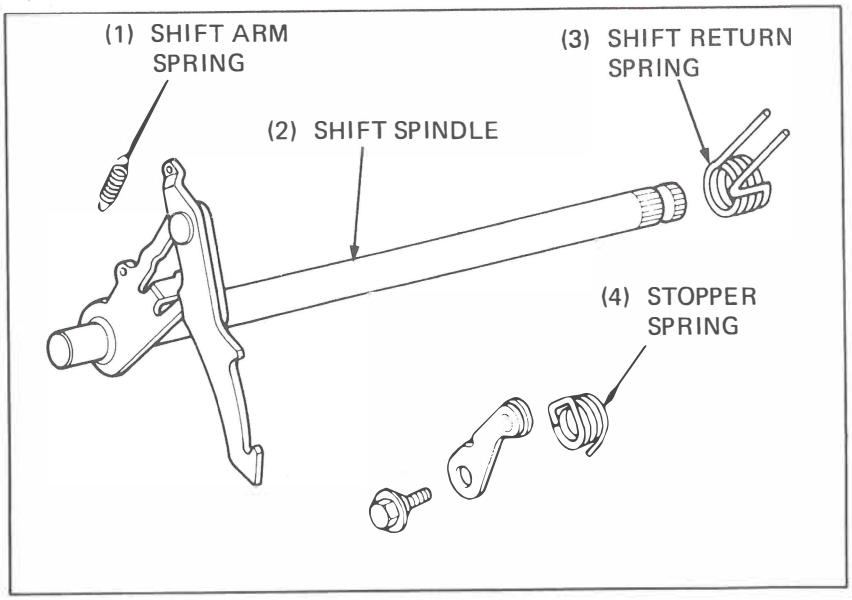
Remove the change pedal and withdraw the shift spindle.



SHIFT LINKAGE INSPECTION

Perform the following operations:

- Check the shift arm spring for weakness.
- Check the shift return spring for weakness.
- Check the stopper spring for weakness.
- Check the shift spindle for wear or bending.

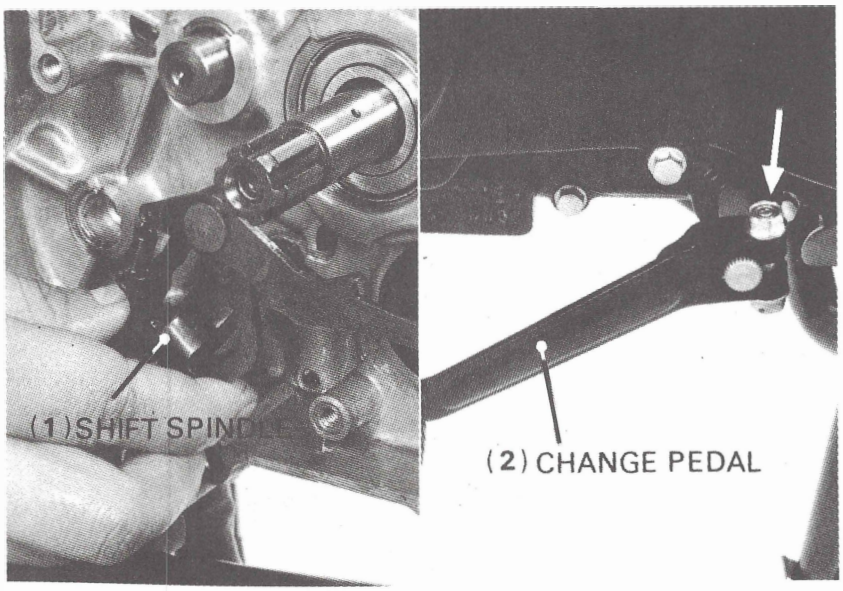


SHIFT LINKAGE INSTALLATION

Installation of the shift linkage is the reverse order of removal.

Install the shift spindle and change pedal. Tighten the change pedal bolt to the specified torque.

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



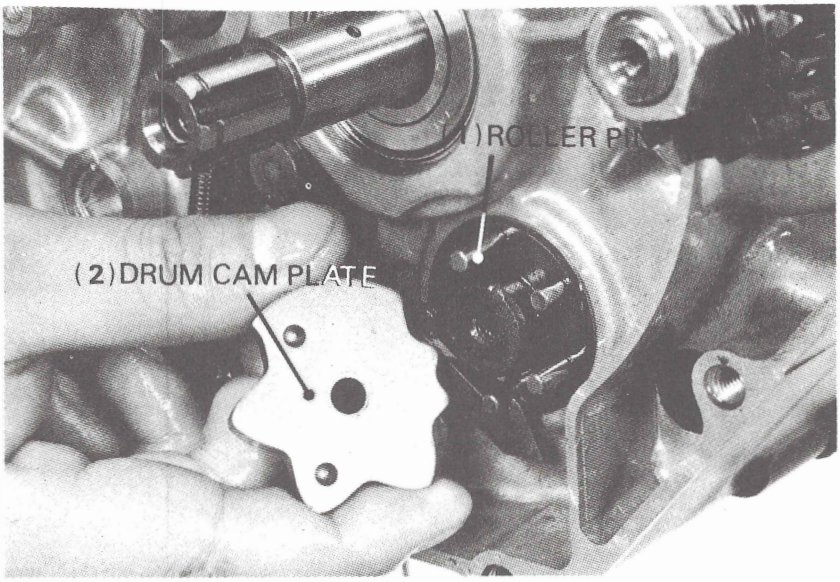
Insert the roller pins into holes in the shift drum.

NOTE

Five roller pins for 6-speed transmission
Four roller pins for 5-speed transmission
Three roller pins for 4-speed transmission.

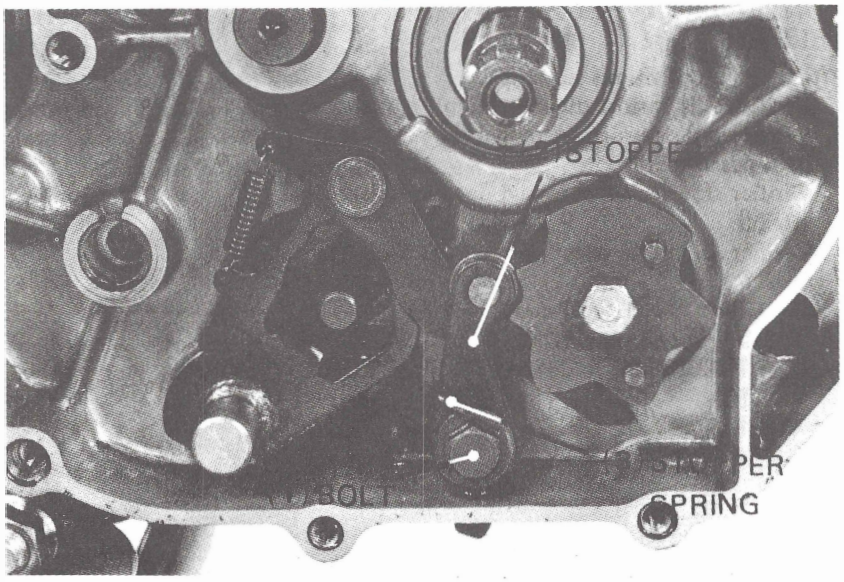
Position the drum cam plate on the pins with the concaves in the plate with the higher pins. Apply locking agent to the bolt threads and undersides of the bolts and install the plate with the bolts. Tighten the bolts to the specified torque.

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



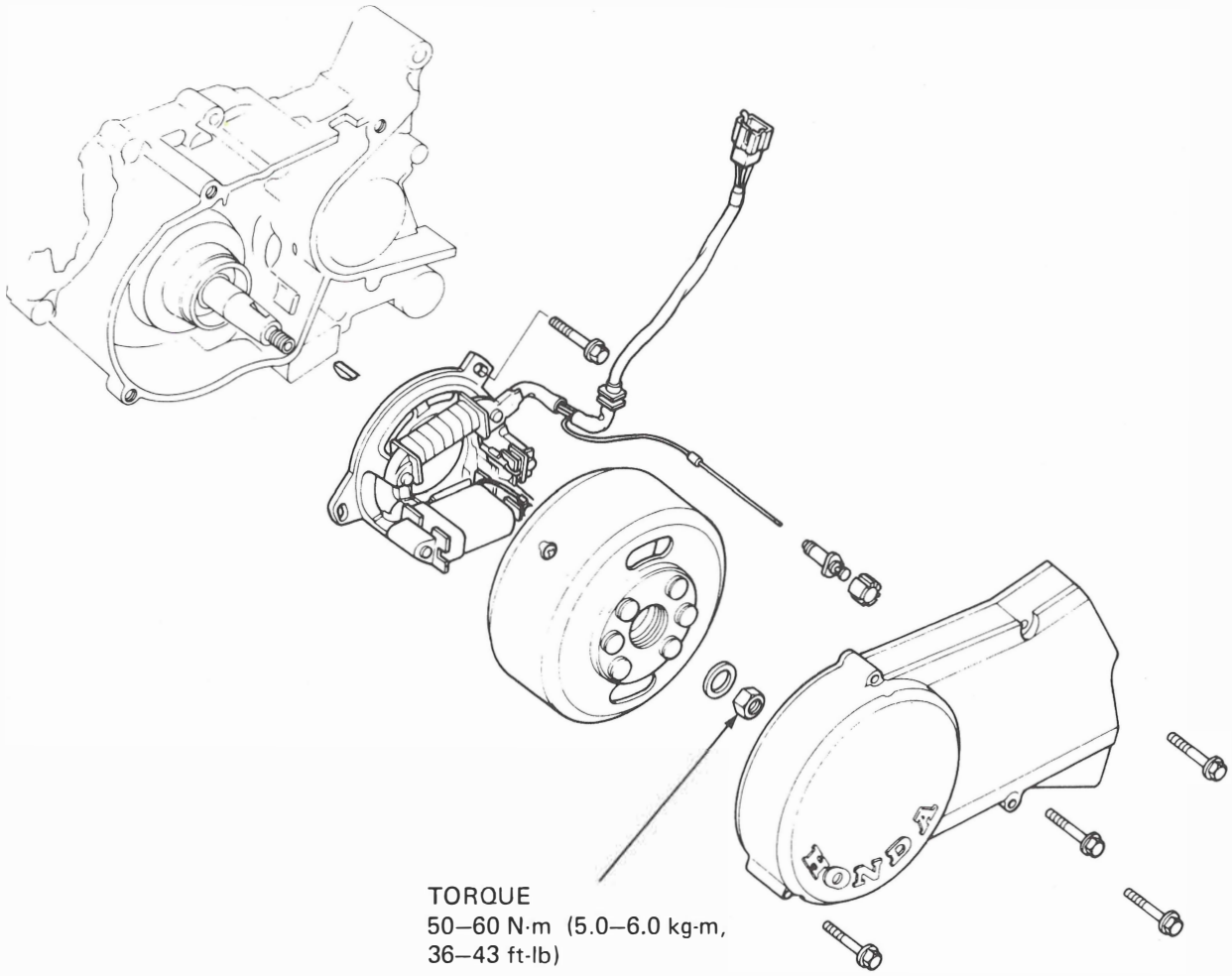
Install the stopper arm and stopper spring in the crankcase and tighten the attaching bolt to the specified torque.

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



Check the operation of the shift linkage. With the balancer properly timed, install the clutch (Page 7–9).

Install the right crankcase cover (Page 7–3). Fill the transmission with the recommended oil up to the proper level (Page 2–3).



TORQUE
50–60 N·m (5.0–6.0 kg-m,
36–43 ft-lb)

8. A.C.GENERATOR

SERVICE INFORMATION

GENERAL INSTRUCTIONS

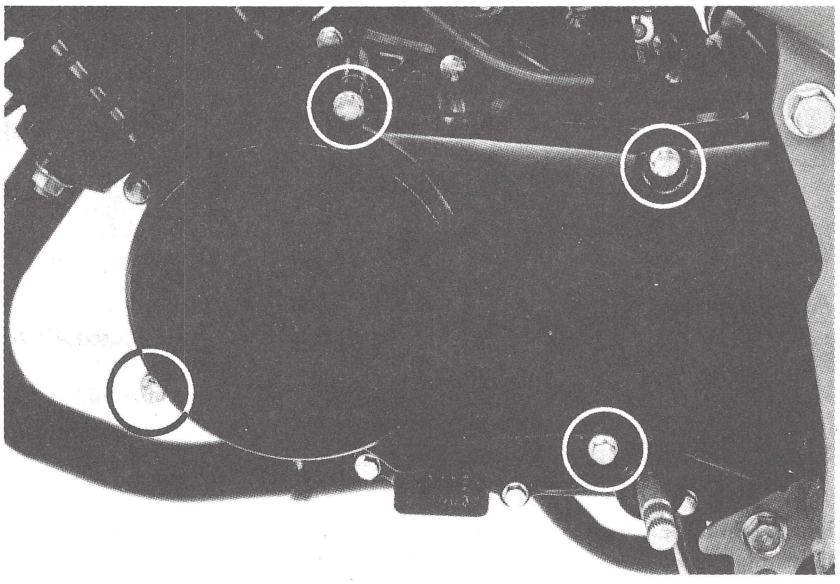
- The A. C. generator can be serviced without removing it from the motorcycle. Do not remove the pulser from the stator base.
- For A. C. generator inspection, refer to Section 14.

SPECIAL TOOLS

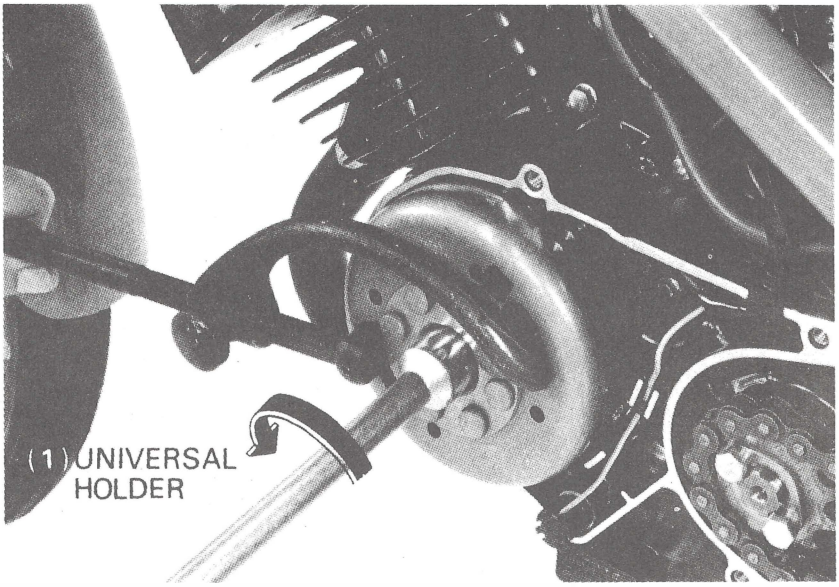
Common Tools	
Universal Holder	07725–0010101
Flywheel Puller	07733–0010000

A.C.GENERATOR REMOVAL

Remove the flange bolts and remove the left crankcase cover.



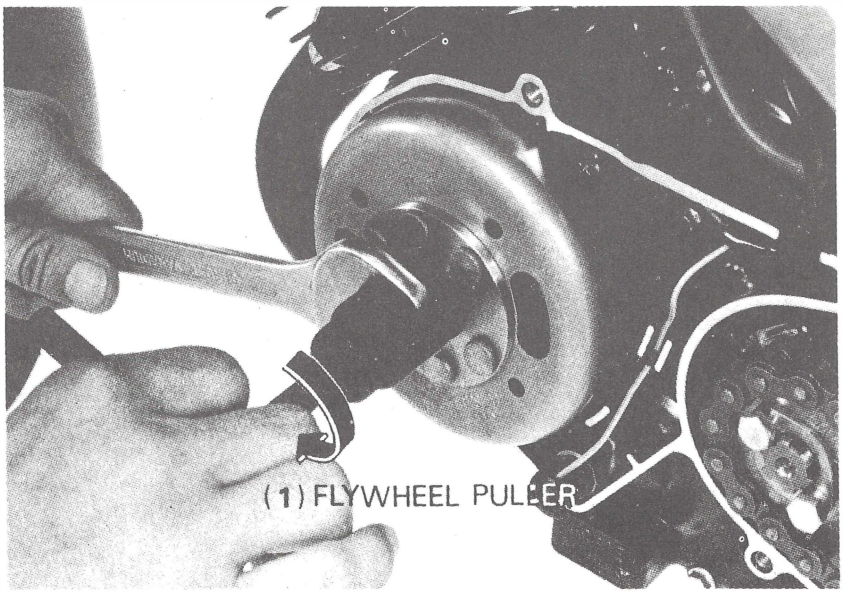
Remove the 12 mm nut attaching the flywheel.



Remove the flywheel.

NOTE

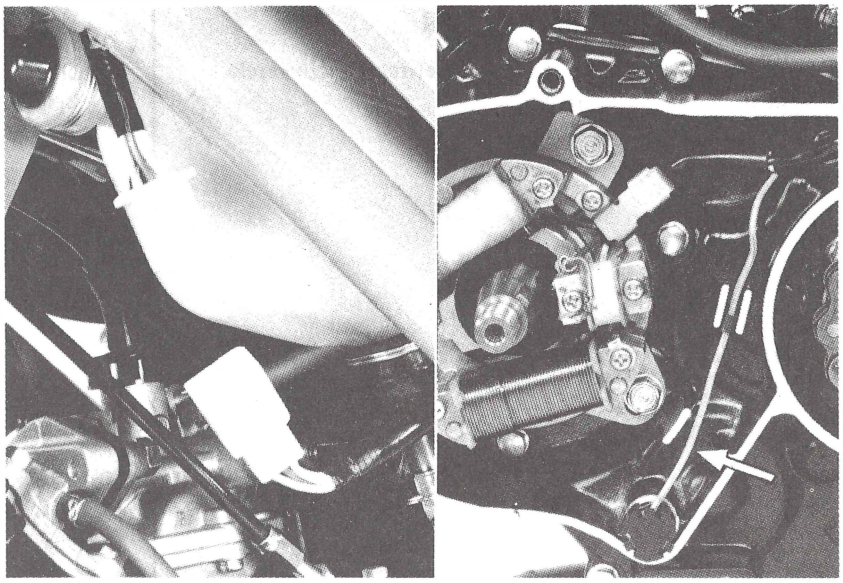
Keep the woodruff key in a parts rack so it is not scattered and lost.



Disconnect the A. C. generator wire coupler and neutral switch wires.

NOTE

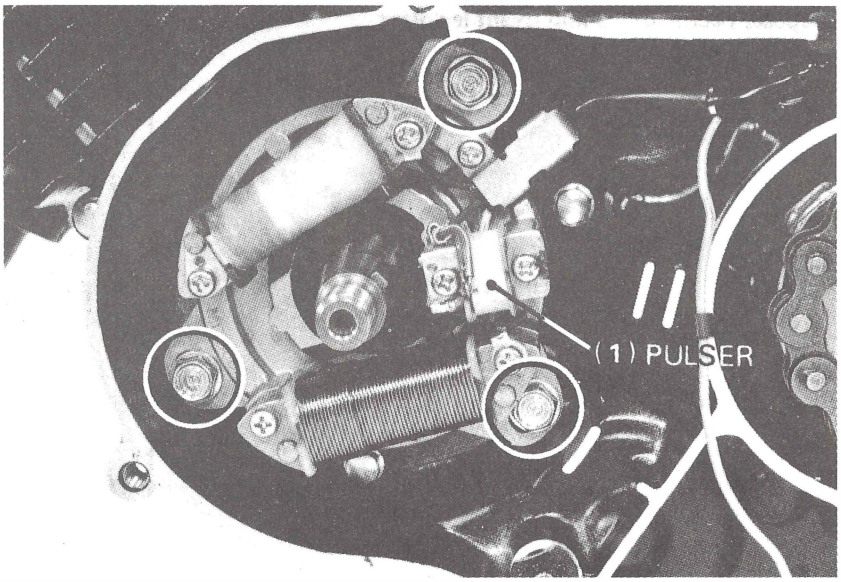
Do not remove the neutral switch. Oil will flow out when the switch is removed.



Remove the A. C. generator stator.

CAUTION

- *Do not separate the pulser from the stator base.*
- *Keep the coils in a parts rack to prevent damaged coil.*



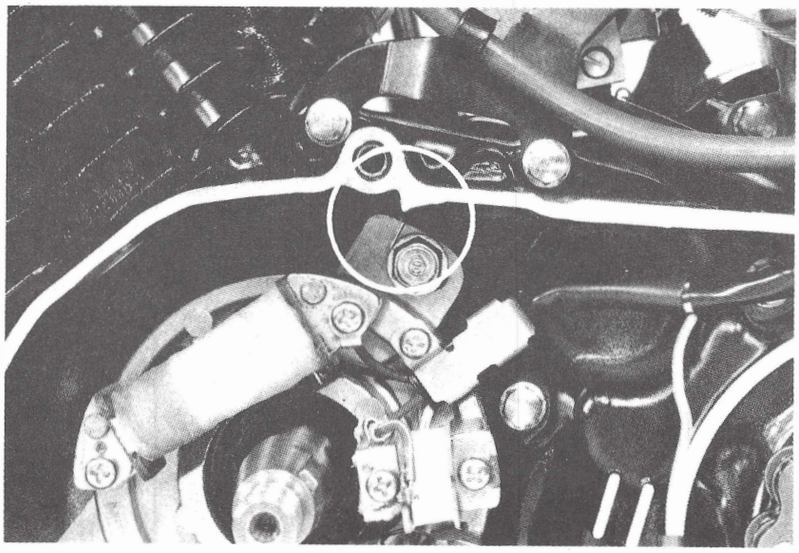
For A. C. generator inspection, refer to pages 13–6 and 13–9.

A.C.GENERATOR INSTALLATION

Install the stator.

NOTE

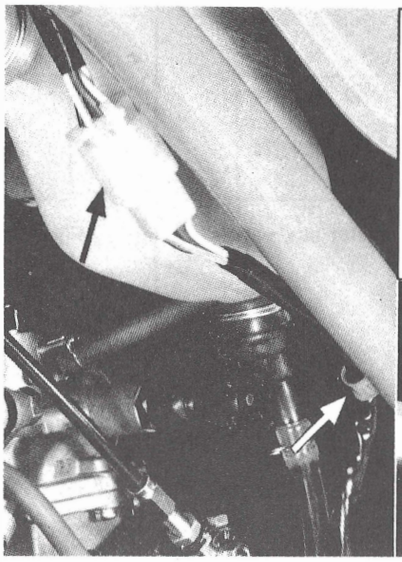
Install the stator with the aligning line aligned with the index mark on the crankcase.

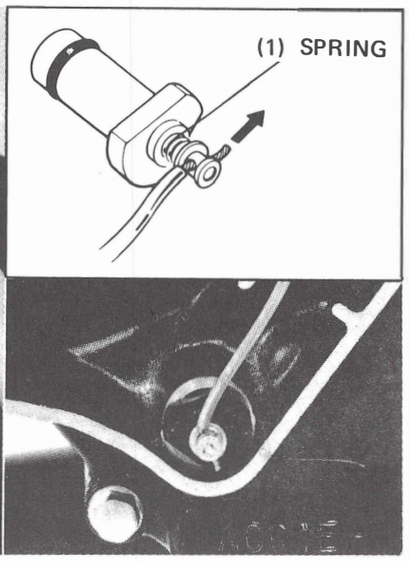


Connect the A. C. generator coupler and neutral switch wires.

NOTE

Secure the A. C. generator wires to the frame.
Press down on the terminal to install the neutral switch wire.



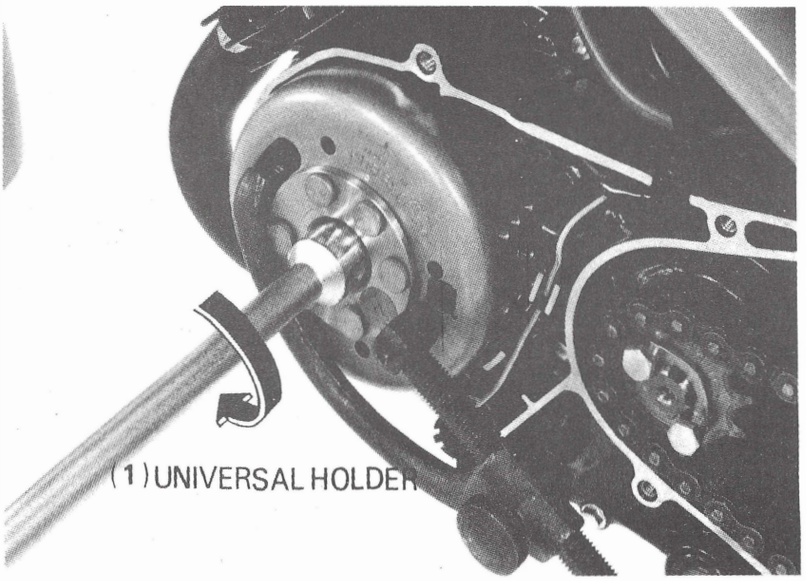


Install the woodruff key in the crankshaft keyway, then install the flywheel on the crankshaft.

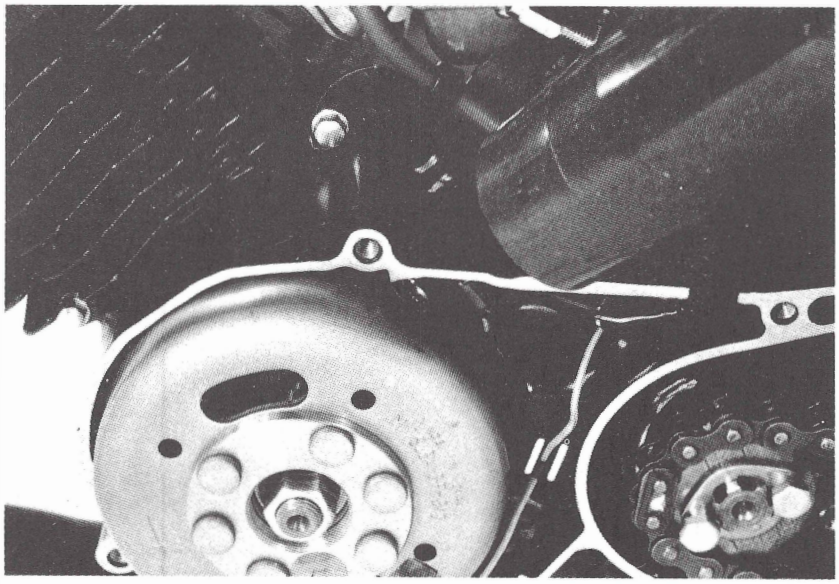
NOTE

- Check that there are no foregin materials inside the flywheel before installation.
- Clean the taper hole in the flywheel of burrs and other defects and repair if necessary.

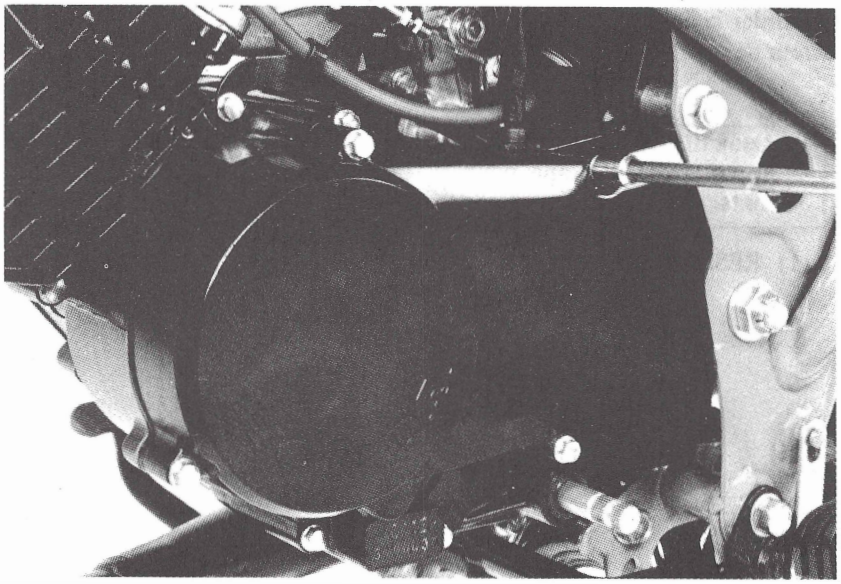
TORQUE: 50–60 N·m (5.0–6.0 kg-m, 36–43 ft-lb)



After installing the flywheel, start the engine and inspect the ignition timing (Page 3–7)

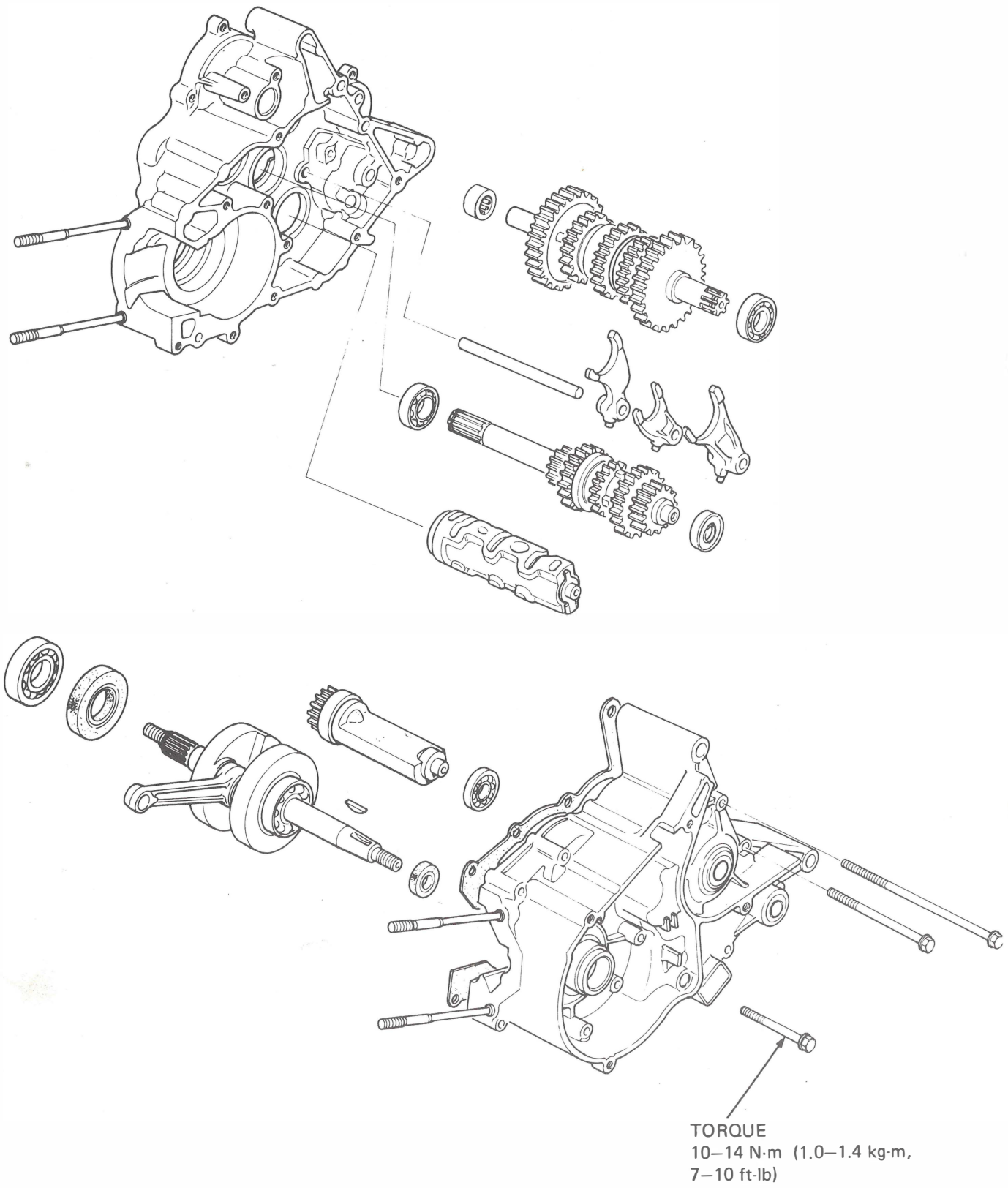


Install the left crankcase.



NOTE

- Make sure that the A. C. generator and neutral switch wires are not interferring with the flywheel.
- Do not pinch the wires between the left crankcase cover and case.


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

SERVICE INFORMATION

GENERAL INSTRUCTIONS

This section includes transmission and crankshaft repairs which require crankcase separation. Refer to the following topics for removal of the engine and other parts which must be removed before separating the crankcase:

Oil pump removal	**Page 4–3**
Engine removal	**Page 5–2, 5–3**
Cylinder head/cylinder removal	**Page 6–2, 6–3**
Clutch removal	**Page 7–4**
Kick starter spindle removal	**Page 7–10**
Shift spindle removal	**Page 7–13**
A. C. generator removal	**Page 8–2**

SPECIAL TOOLS

Special Tool	
Crankcase Dis/Assembly Tool	07965–1660000
Common Tools	
Bearing Driver Outer 42 x 47 mm	07746–0010300
Bearing Driver Pilot 17 mm	07746–0040400
Bearing Driver Outer 52 x 55 mm	07746–0010400
Bearing Driver Pilot 20 mm	07746–0040500
Bearing Inner Holder (B)	07746–0020100

SPECIFICATIONS

ITEM		STANDARD mm (in)		SERVICE LIMIT mm (in)	
Shift fork I. D.		10.000–10.018	(0.3937–0.3944)	10.05	(0.3957)
Shift fork end thickness		4.93–5.00	(0.194–0.197)	4.50	(0.1772)
Shift fork shaft O. D.		9.972–9.987	(0.3926–0.3932)	9.95	(0.3917)
Gearshift drum O. D.	At 13 mm	12.934–12.984	(0.5092–0.5112)	12.85	(0.5059)
	At 36 mm	35.950–35.975	(1.4154–1.4163)	35.90	(1.4134)
Gear I. D.	M4 gear	17.016–17.034	(0.6699–0.6706)	17.10	(0.6732)
	M5 , M6 gear	17.016–17.034	(0.6699–0.6706)	17.10	(0.6732)
	C1 gear	16.522–16.543	(0.6505–0.6513)	16.60	(0.6535)
	C2 gear	19.520–19.541	(0.7685–0.7693)	19.60	(0.7717)
	C3 gear	19.020–19.041	(0.7488–0.7496)	19.10	(0.7520)
Main shaft O. D.		16.966–16.984	(0.6680–0.6687)	16.93	(0.6665)
Countershaft O. D.	At 16.5 mm	16.466–16.484	(0.6483–0.6490)	16.44	(0.6472)
	At 19 mm	18.959–18.980	(0.7464–0.7472)	18.93	(0.7453)
	At 19.5 mm	19.459–19.480	(0.7661–0.7669)	19.43	(0.7650)
Connecting rod big end side clearance		0.15–0.55	(0.006–0.022)	0.85	(0.033)
Connecting rod big end radial play				0.05	(0.002)
Crankshaft runout at journals				0.10	(0.004)

TROUBLESHOOTING

Engine noise
1. Main journal bearing worn
2. Crankpin bearing worn
3. Transmission bearing worn

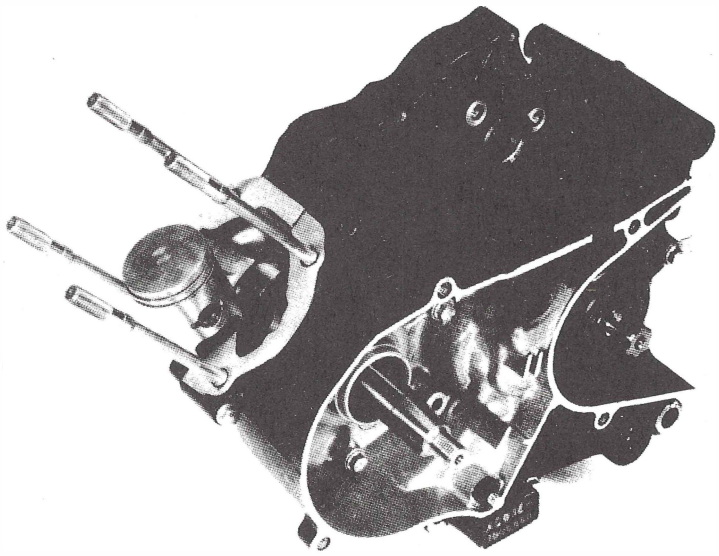
Jumps out of gear
1. Gear dogs worn
2. Shift forks bent
3. Shift shaft bent
4. Shift drum stopper damaged

Hard shifting
1. Incorrect clutch adjustment
2. Shift forks bent
3. Shift shaft bent
4. Shift spindle pawl bent or damaged
5. Shift drum cam slot damaged

CRANKCASE SEPARATION

Perform the following operations:

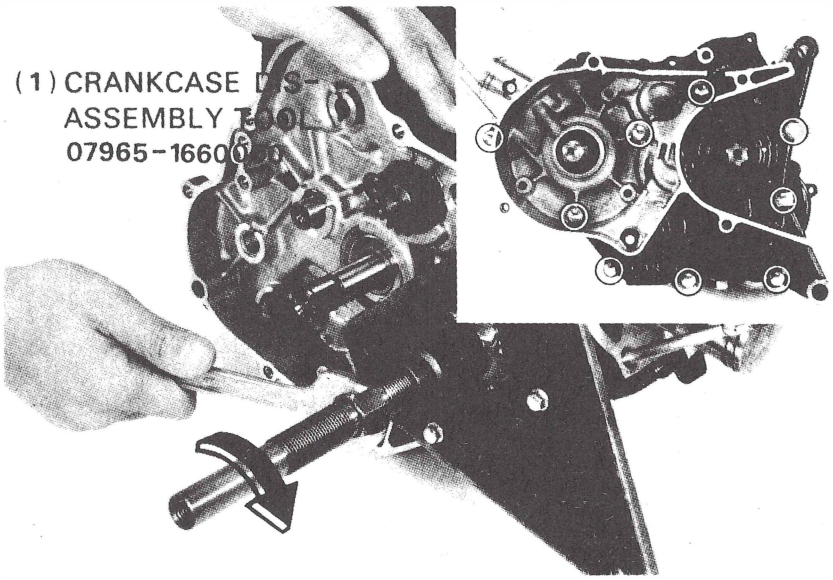
Oil pump removal	(Page 2–6)
Engine removal	(Page 5–2)
Cylinder head/cylinder removal	(Page 6–2)
Clutch removal	(Page 7–4)
Kick starter spindle removal	(Page 7–10)
Shift spindle removal	(Page 7–13)
A. C. generator removal	(Page 8–2)



Remove the crankcase attaching bolts.
Set up the special tool on the right crankcase.
Remove the right crankcase.

NOTE

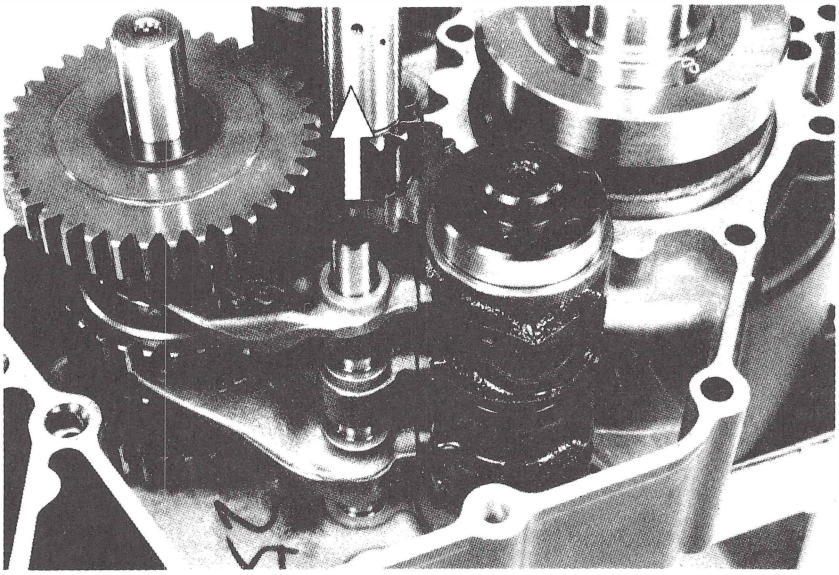
Separate the right and left crankcases from each other while tapping them around with a soft hammer. Do not pry apart with the end of a screwdriver.



TRANSMISSION REMOVAL

GEARSHIFT FORK/SHIFT DRUM

Remove the shift fork shaft from the left crankcase. Remove the shift drum and shift forks.

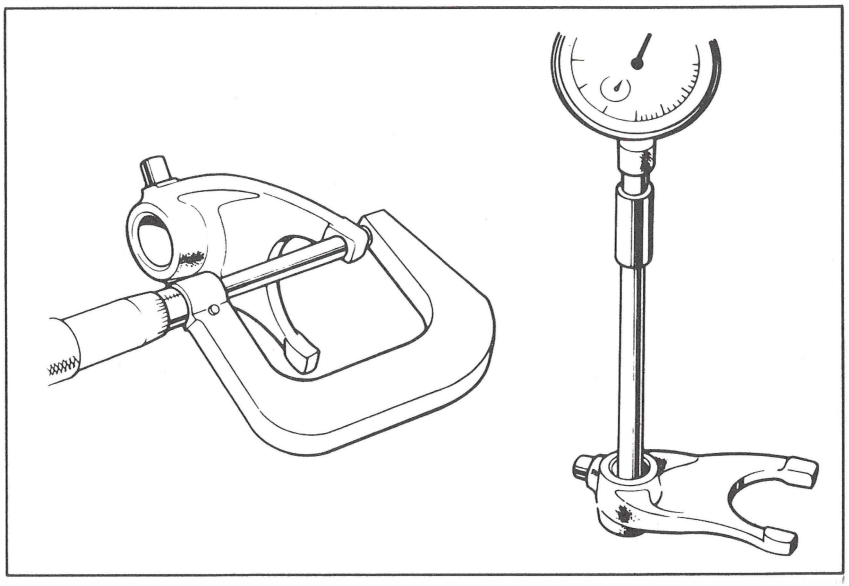


SHIFT FORK/SHIFT FORK SHAFT/ SHIFT DRUM INSPECTION

Check each shift fork for wear, bending or any other defects. Measure the I. D. and shift claw thickness.

SERVICE LIMITS:

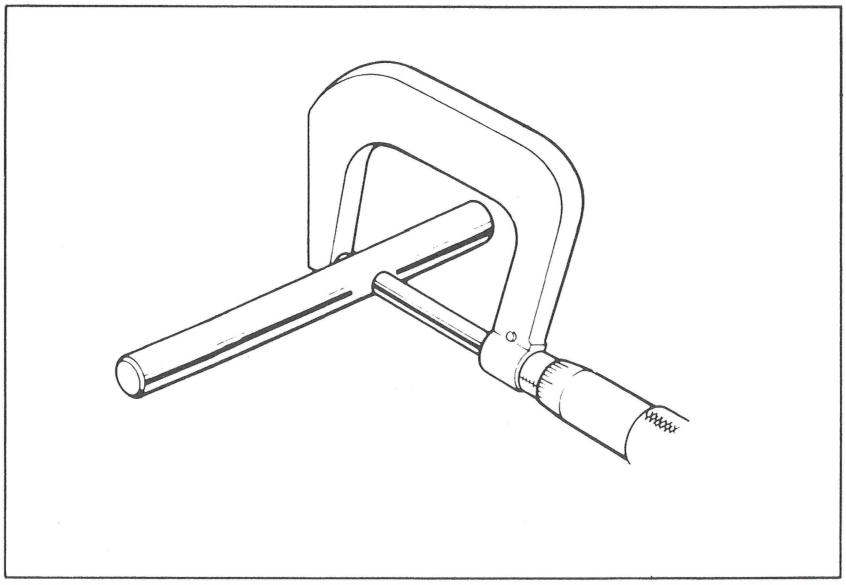
Claw thickness: 4.50 mm (0.1772 in)
I. D.: 10.05 mm (0.3957 in)



Check the shift fork shaft for wear, damage or bending.

Measure the O.D.

SERVICE LIMIT: 9.95 mm (0.3917 in)

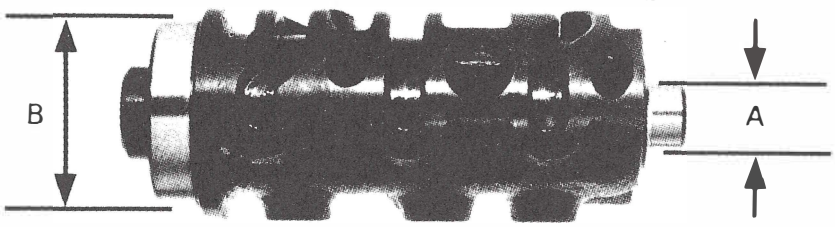


Inspect the shift drum grooves and replace the drum if they are damaged or show excessive wear.

Measure the shift drum O. D.

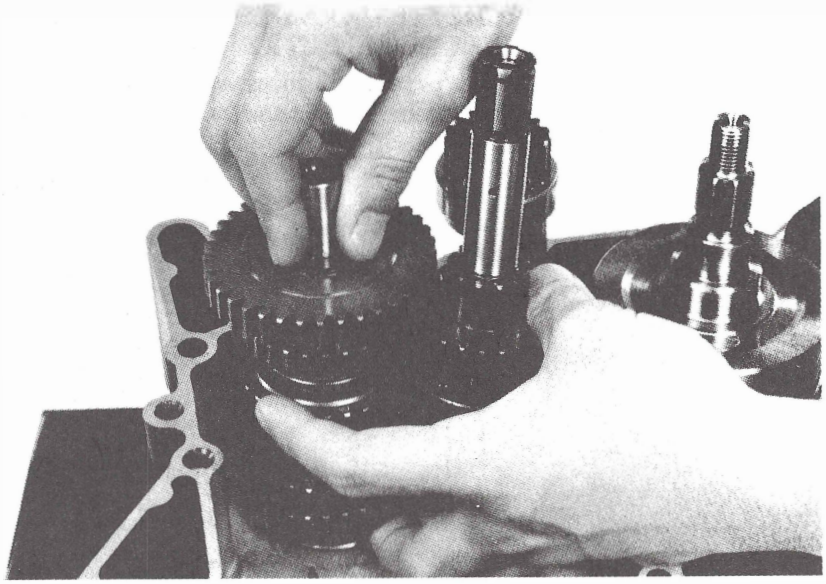
SERVICE LIMITS:

A: 12.85 mm (0.5059 in)
B: 35.90 mm (1.4134 in)



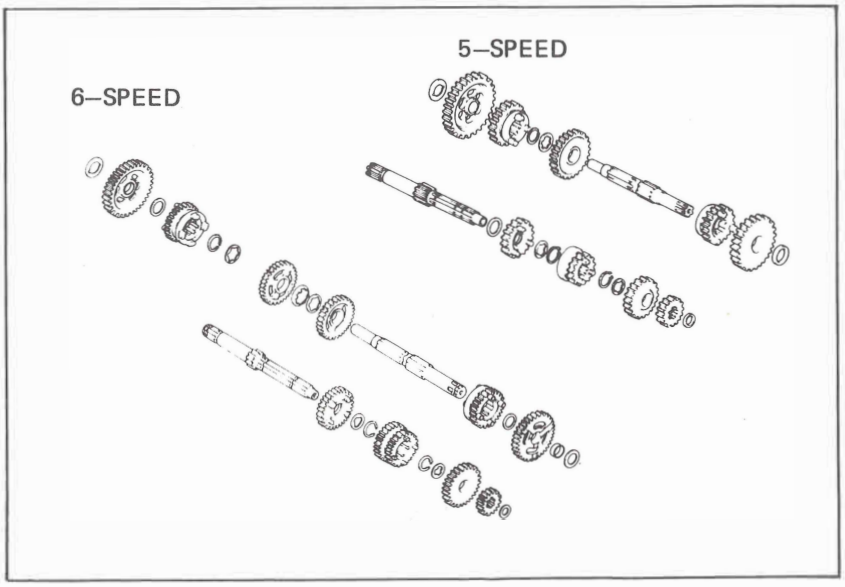
TRANSMISSION REMOVAL

Remove the transmission from the left crankcase.



TRANSMISSION INSPECTION

Inspect each gear for wear or damage.

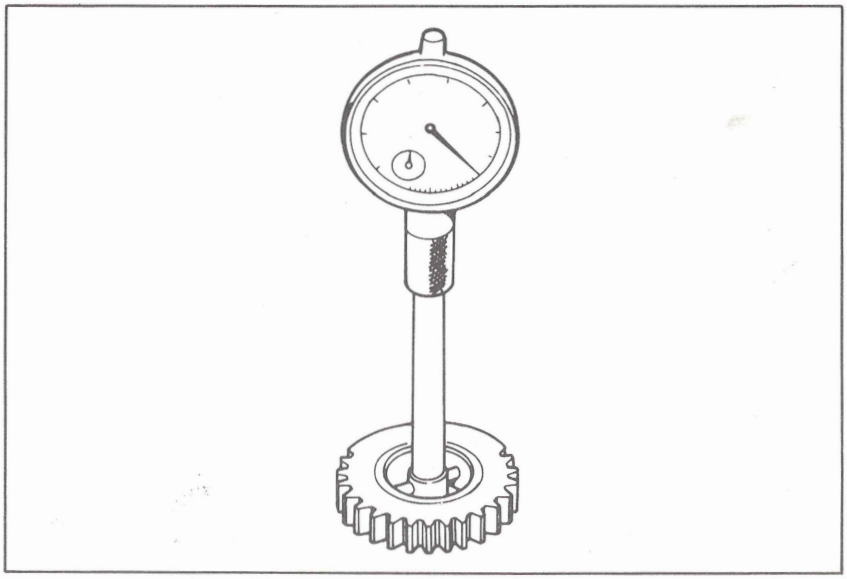


GEAR INSPECTION

Inspect each gear I.D.

SERVICE LIMITS:

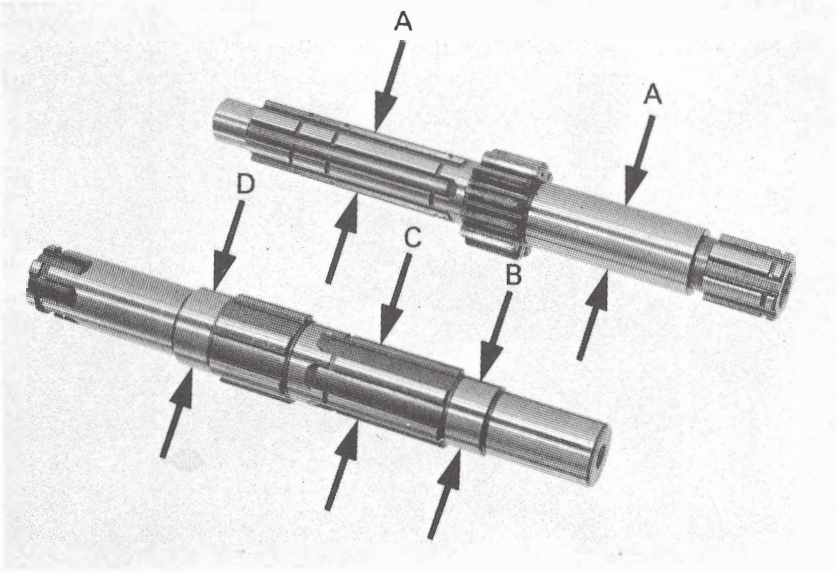
M4, M5, M6 gears	:	17.10 mm (0.6732 in)
C1 gear	:	16.60 mm (0.6535 in)
C2 gear	:	19.60 mm (0.7717 in)
C3 gear	:	19.10 mm (0.7520 in)



Measure the O. D. of the mainshaft and countershaft.

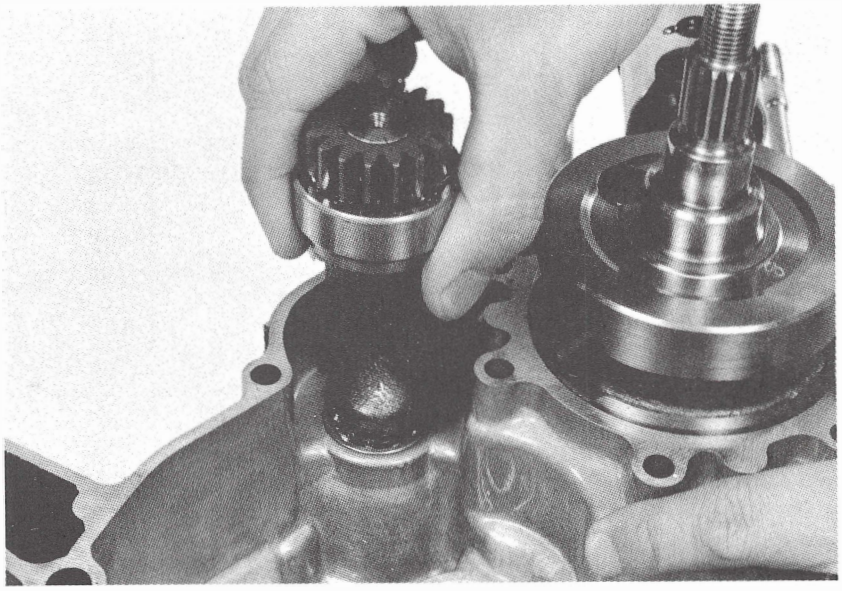
SERVICE LIMITS:

A: 16.93 mm (0.6665 in)
B: 16.44 mm (0.6472 in)
C: 18.93 mm (0.7453 in)
D: 19.43 mm (0.7650 in)

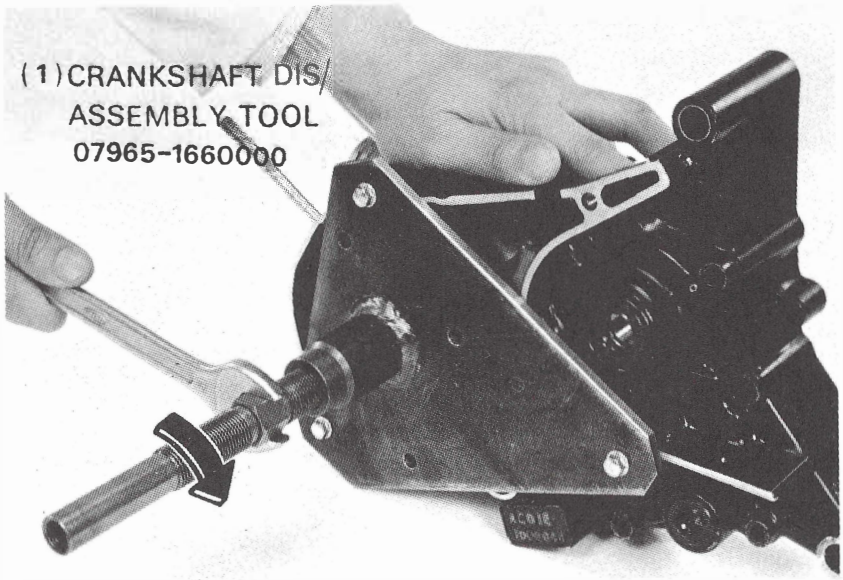


CRANKSHAFT REMOVAL

Remove the balancer weight.



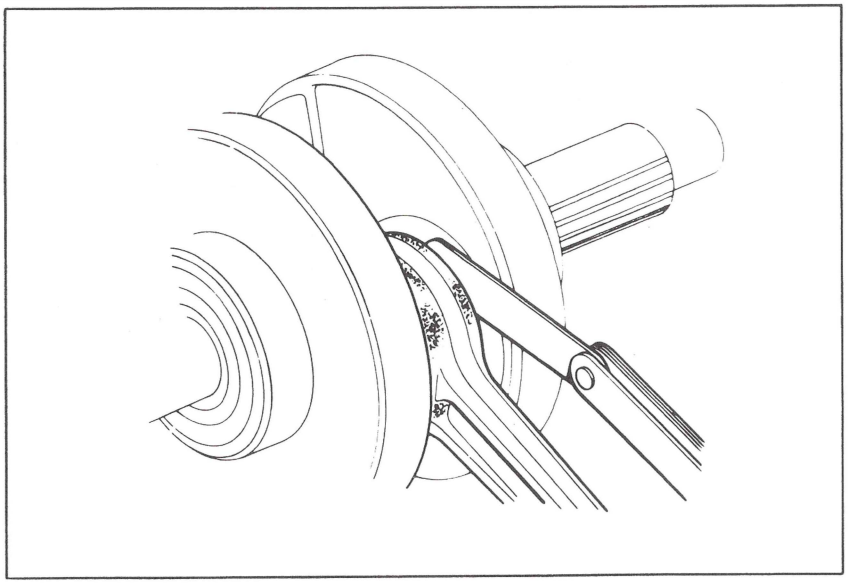
Remove the crankshaft from the left crankcase.



CRANKSHAFT INSPECTION

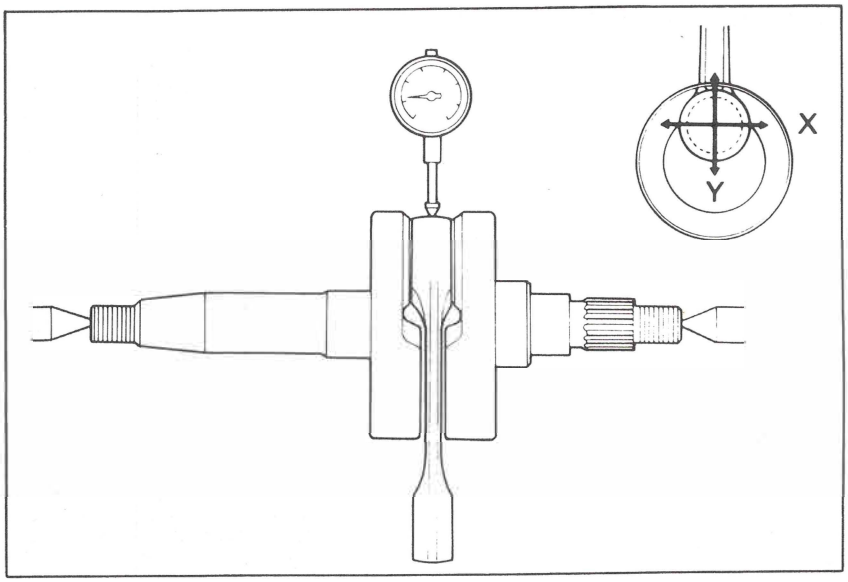
Measure the connecting rod big end side clearance with a feeler gauge.

SERVICE LIMIT: 0.85 mm (0.033 in)



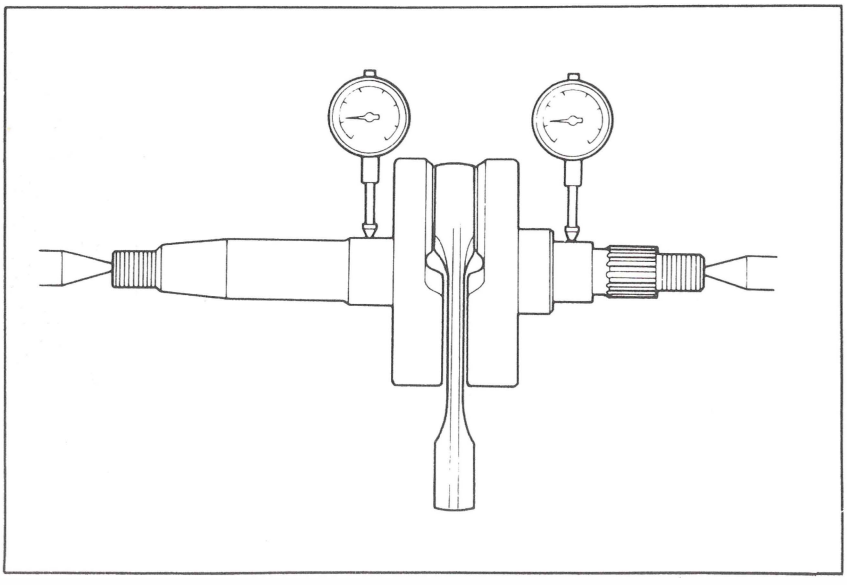
Measure the connecting rod big end radial clearance at two points in the X and Y directions.

SERVICE LIMIT: 0.05 mm (0.002 in)

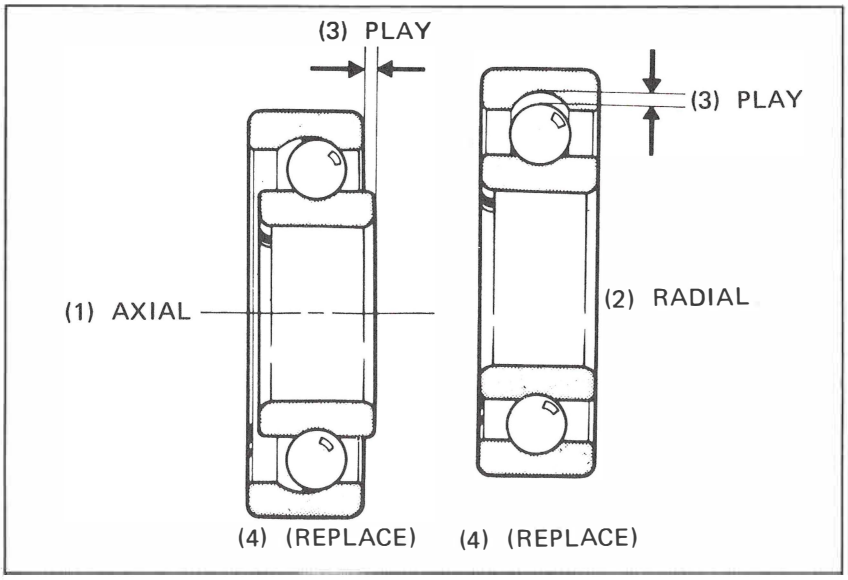


Set the crankshaft on a stand or V-blocks and read runout using a dial gauge.

SERVICE LIMIT: 0.10 mm (0.004 in)



Spin the crankshaft bearing by hand and check for play. The bearing must be replaced if it is noisy or has excessive play.

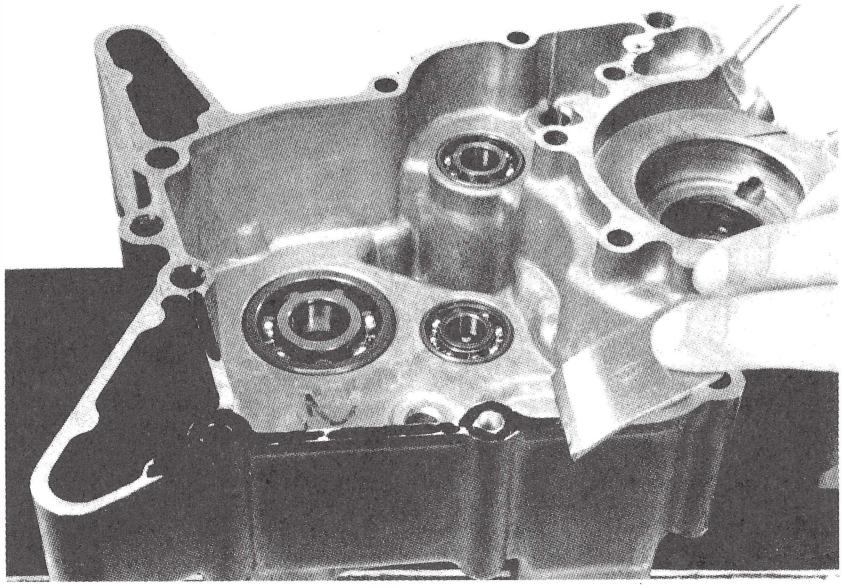


CRANKSHAFT ASSEMBLY

Wash the right and left crankcases in solvent and blow dry with a compressed air. Check for cracks or other defects.

NOTE

- Apply clean engine oil to all moving and sliding surfaces except those in the crank chamber.
- Remove all traces of gasket material from the gasket surfaces. Remove roughness or irregularities, if any, using an oil stone.



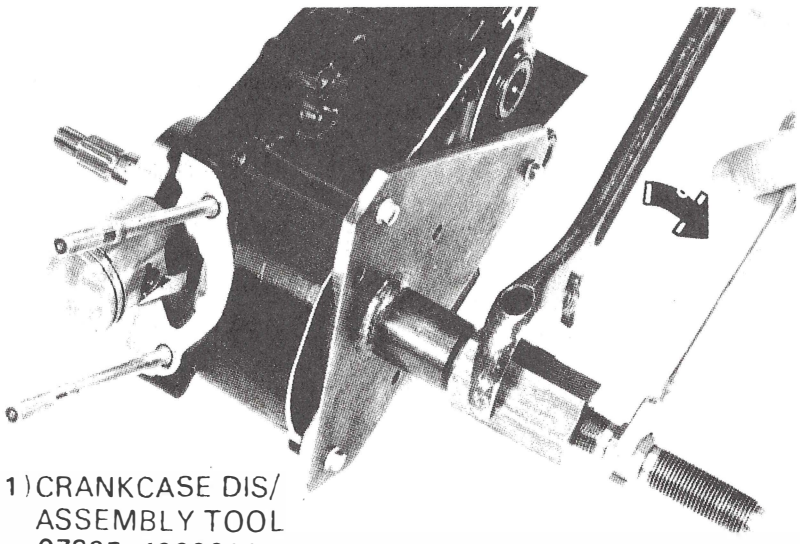
Install the crankshaft in the left crankcase.

NOTE

- Apply clean 2-cycle engine oil to the journal and crankpin bearings.
- Coat the sealing lips of each oil seal with grease.

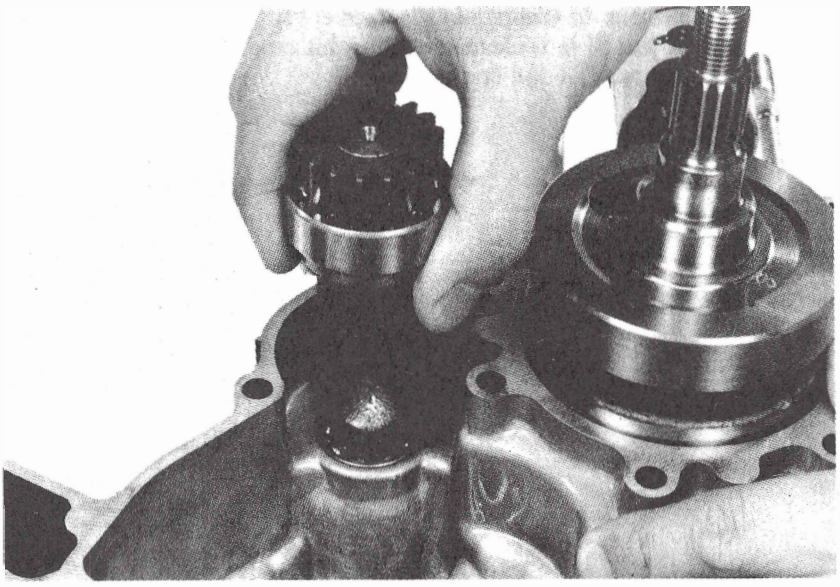
CAUTION

Tighten the base plate against the crankcase after installing a forcing bolt to install the crankshaft.



(1) CRANKCASE DIS/ ASSEMBLY TOOL
07965-1660000

Install the balancer weight.

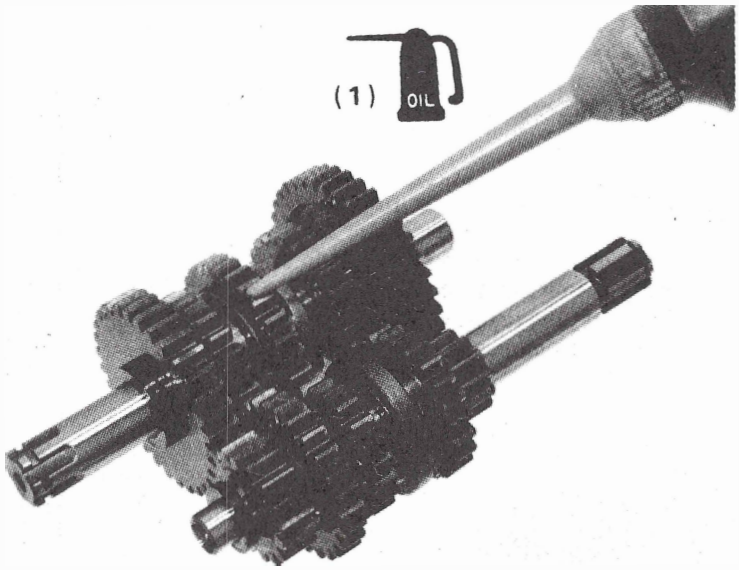


TRANSMISSION INSTALLATION

Install the gears on the mainshaft and countershaft.

NOTE

Apply oil to the gears before installation. Make sure the gears rotate freely.



Install the countershaft and mainshaft in the left crankcase.

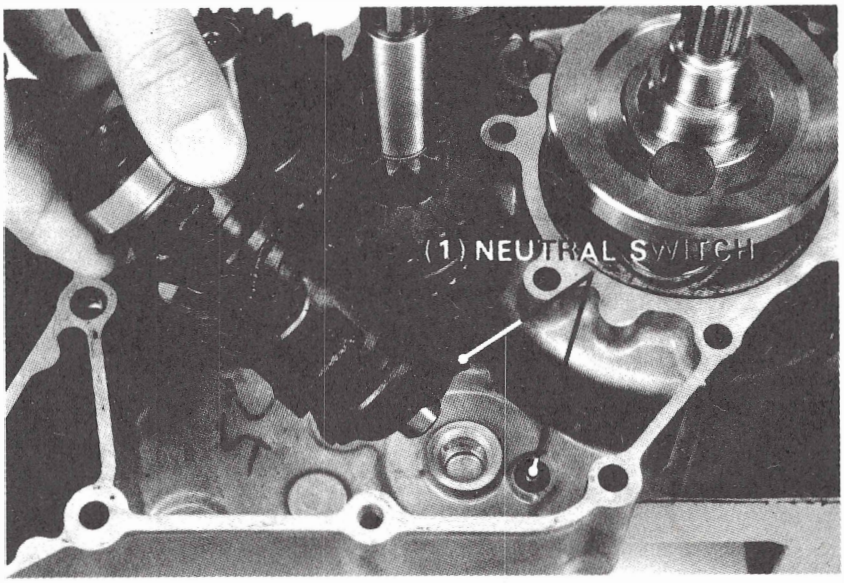
NOTE

Install the counershaft oil seal after the right and left crankcases have been assembled.

Install the shift drum.

NOTE

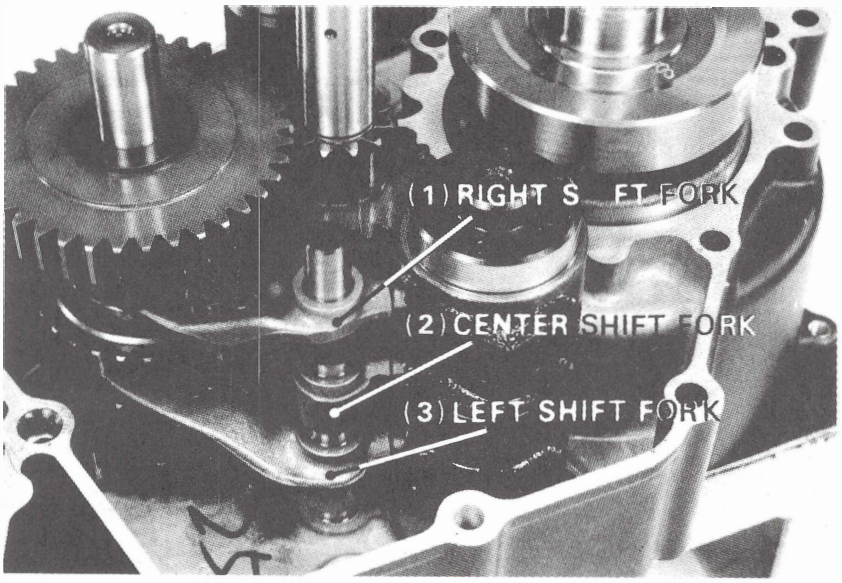
Align the neutral switch rotor with the neutral switch.



Install the shift drum and shift forks. Slide the shift fork shaft through the shift forks.

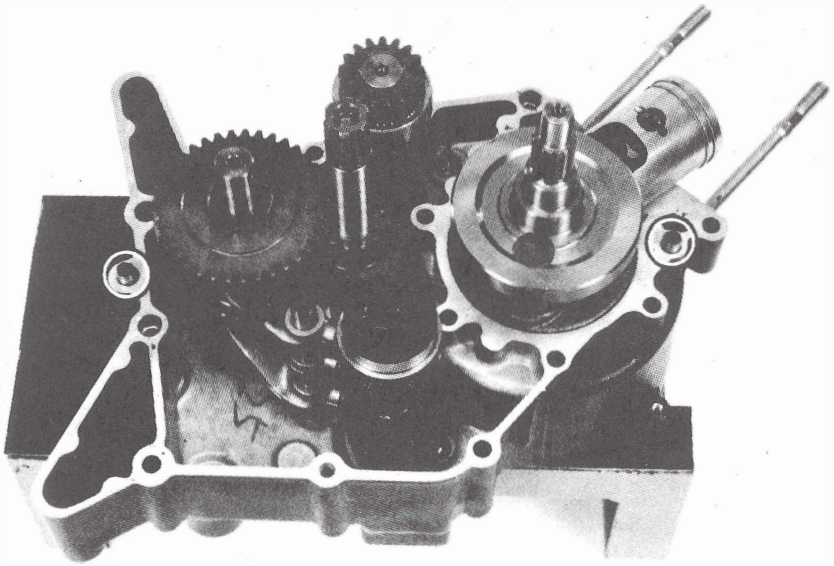
NOTE

- Install the shift forks properly.
- With the transmission in neutral, rotate each shaft to see if it rotates freely.



CRANKCASE ASSEMBLY

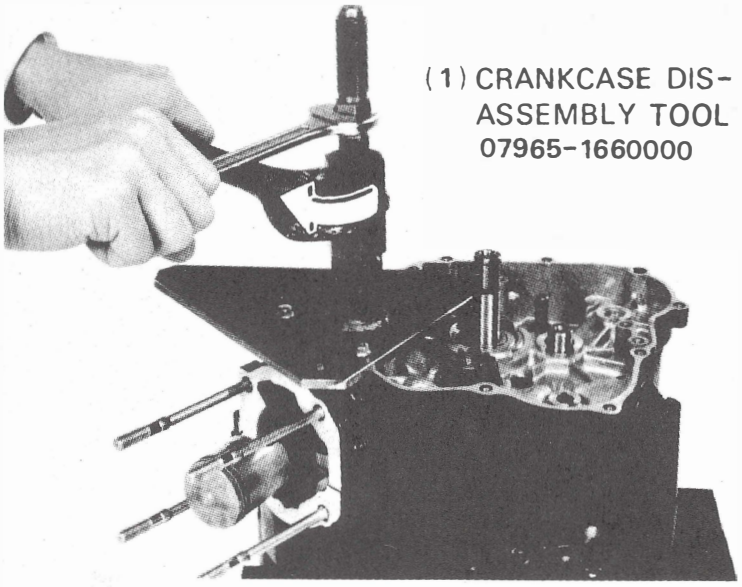
Place a new gasket on the crankcase and insert the dowel pins. Place the right crankcase over the left crankcase.



Assemble the right and left crankcases.

NOTE

Assemble the right and left crankcases while lightly tapping them around with a plastic hammer.

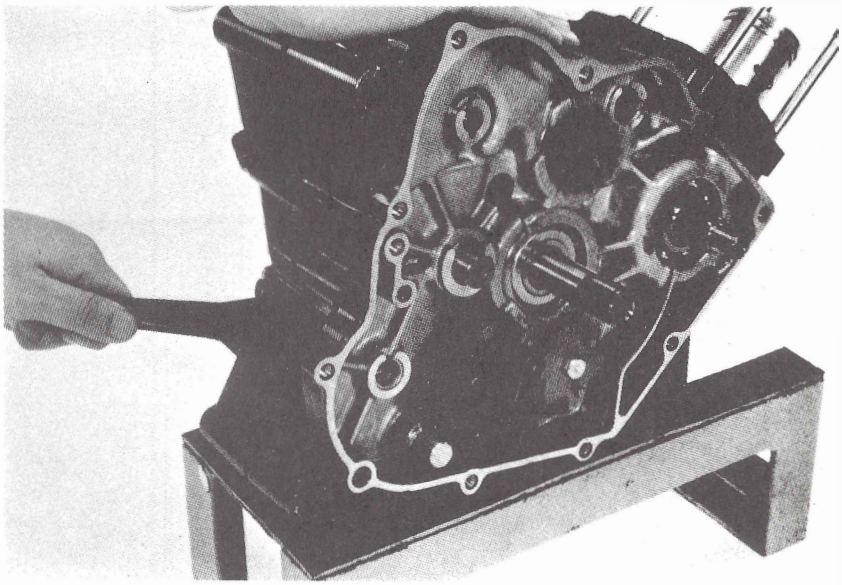


(1) CRANKCASE DISASSEMBLY TOOL
07965-1660000

Install the shift plate, shift spindle and shift arm. Check for smooth shifting.

NOTE

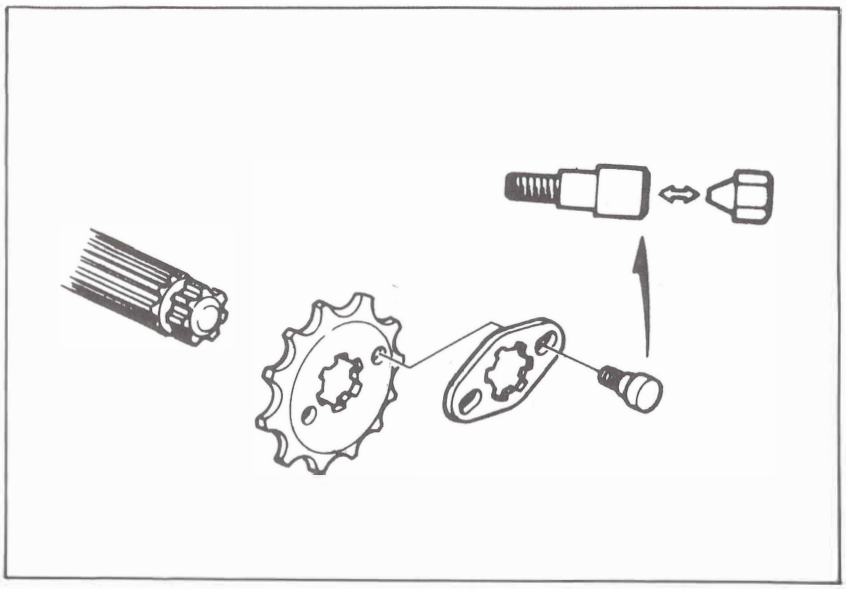
Rotate the countershaft by hand to see if the transmission shifts smoothly.



DRIVE SPROCKET INSTALLATION [G]

Install the drive sprocket with the fixing plate and bolts.

Tighten the fixing bolts until their hex heads break off.



MEMO

10. FRONT WHEEL/BRAKE(DRUM BRAKE)/SUSPENSION/STEERING

SERVICE INFORMATION

SPECIAL TOOLS

Special Tools	
Hollow Set Wrench (6 mm)	07917–3230000
Ball Race Driver	07944–1150001
Common Tools	
Pin Spanner	07702–0010000
Lock Nut Wrench Socket (30 x 32 mm)	07716–0020400
Extension Bar and Handle	07716–0020500
Driver Handle (A)	07749–0010000
Bearing Driver Outer (42 x 47 mm)	07746–0010300
Bearing Driver Pilot (12 mm)	07746–0040200
Front Fork Oil Seal Driver Body	07747–0010100
Front Fork Oil Seal Attachment (B)	07747–0010300
Bearing Inner Holder (C)	07746–0030100
Bearing Inner Driver (25 mm)	07746–0030200

SPECIFICATIONS

Front fork oil capacity: [MB50] 72.5–77.5 cm^3 (2.5–2.6 US oz, 2.0–2.2 Imp oz)
[MT50] 83.0–88.0 cm^3 (2.8–3.0 US oz, 2.3–2.5 Imp oz)

ITEM	STANDARD mm (in)	SERVICE LIMIT mm (in)
Front axle shaft bend	———	0.2 (0.008)
Front wheel rim runout Radial	———	2.0 (0.08)
Axial	———	2.0 (0.08)
Front brake drum I. D. [MT50]	110.0 (4.33)	111.0 (4.37)
Front brake lining thickness [MT50]	4.0 (0.16)	2.0 (0.08)
Front shock absorber spring free length [MB50]	475 (18.70)	465 (18.31)
Front shock absorber spring free length [MT50]	534.2 (21.03)	523.5 (20.61)
Front fork pipe bend	———	0.2 (0.008)

TROBLESHOOTING

Hard steering
1. Insufficient tire pressure
2. Steering adjustment nut too tight
3. Damaged steering stem bearings
4. Damaged steering ball races or cone races

Steers to one side or does not track straight
1. Unevenly adjusted right and left shock absorbers
2. Bent front forks
3. Bent front axle; wheel installed incorrectly

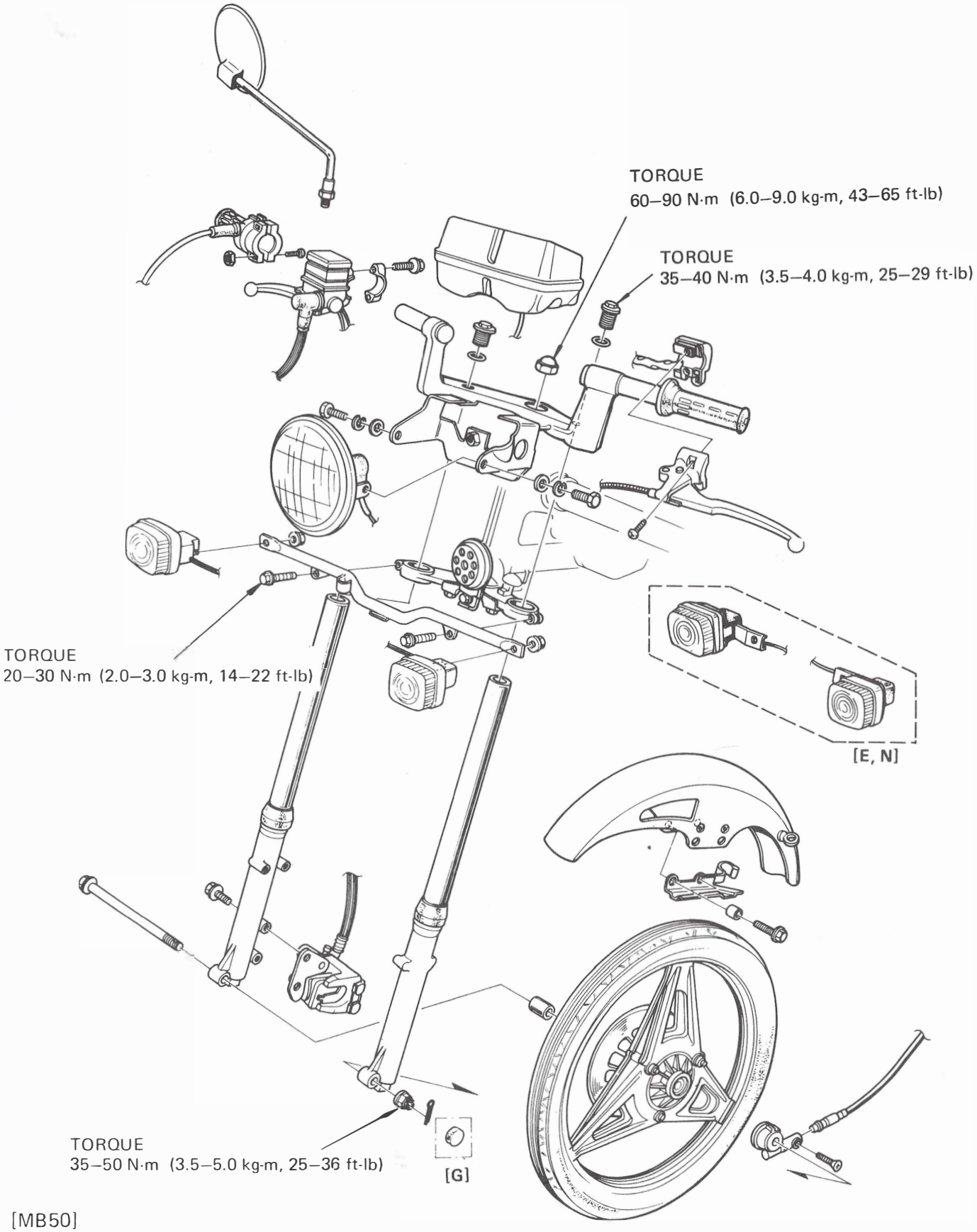
Front wheel wobbling
1. Axle not tightened properly
2. Distorted rim
3. Worn front wheel bearing
4. Distorted spoke
5. Faulty tire

Soft suspension
1. Weak fork spring
2. Insufficient fluid in front forks

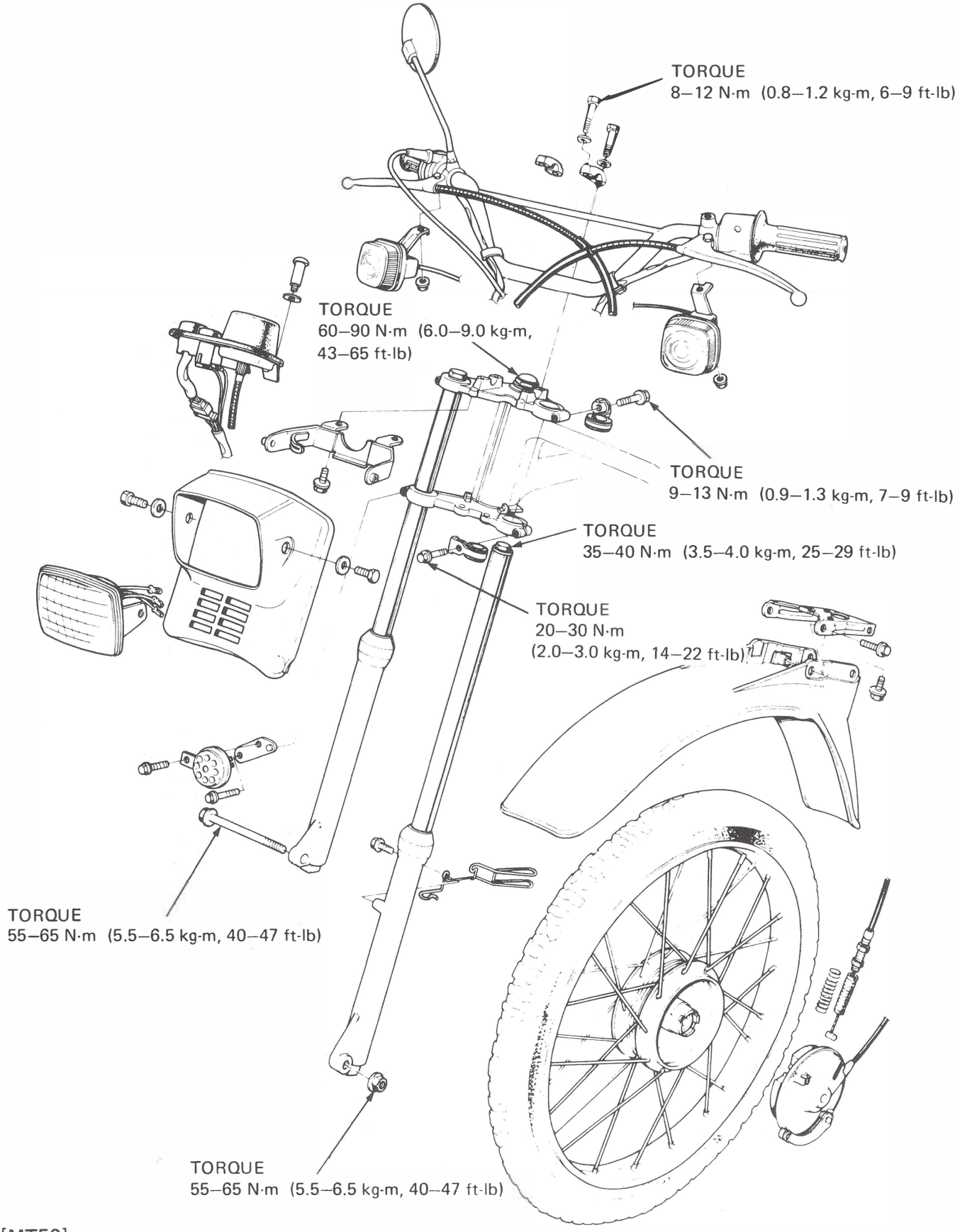
Hard suspension
1. Incorrect fluid weight in front forks

Front suspension noise
1. Slider binding
2. Loose front fork fasteners
3. Insufficient fluid in forks

Poor brake performance [MT50]
1. Brake not adjusted properly
2. Worn brake shoes
3. Contaminated brake shoes
4. Worn brake drum
5. Incorrectly installed brake arm
6. Worn brake shoes at cam contacting area
7. Worn brake cam


TORQUE
60–90 N·m (6.0–9.0 kg-m, 43–65 ft-lb)
TORQUE
35–40 N·m (3.5–4.0 kg-m, 25–29 ft-lb)
TORQUE
20–30 N·m (2.0–3.0 kg-m, 14–22 ft-lb)
[E, N]
TORQUE
35–50 N·m (3.5–5.0 kg-m, 25–36 ft-lb)
[G]

[MB50]


TORQUE
8–12 N·m (0.8–1.2 kg-m, 6–9 ft-lb)
TORQUE
60–90 N·m (6.0–9.0 kg-m,
43–65 ft-lb)
TORQUE
9–13 N·m (0.9–1.3 kg-m, 7–9 ft-lb)
TORQUE
35–40 N·m (3.5–4.0 kg-m, 25–29 ft-lb)
TORQUE
20–30 N·m
(2.0–3.0 kg-m, 14–22 ft-lb)
TORQUE
55–65 N·m (5.5–6.5 kg-m, 40–47 ft-lb)
TORQUE
55–65 N·m (5.5–6.5 kg-m, 40–47 ft-lb)

[MT50]

FAIRING [MB50]

WINDSHIELD REPLACEMENT

WARNING

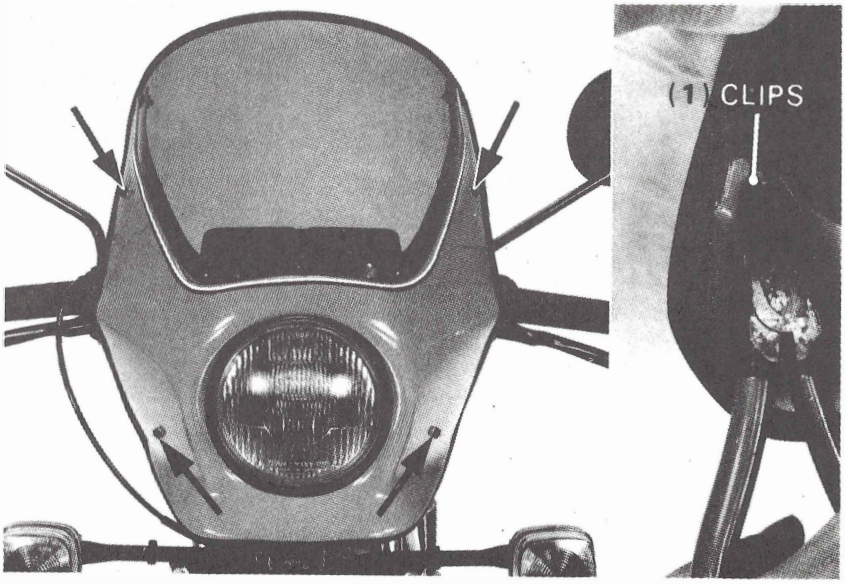
Replace the windshield if it is cracked or damaged.

Hold the fairing by hand and remove the right and left screws.
Remove the fairing.

Place the fairing on a work bench through a clean rag.
Cut off the clips (PLALOCK ®) using a cutter.

NOTE

Do not reuse the clips.



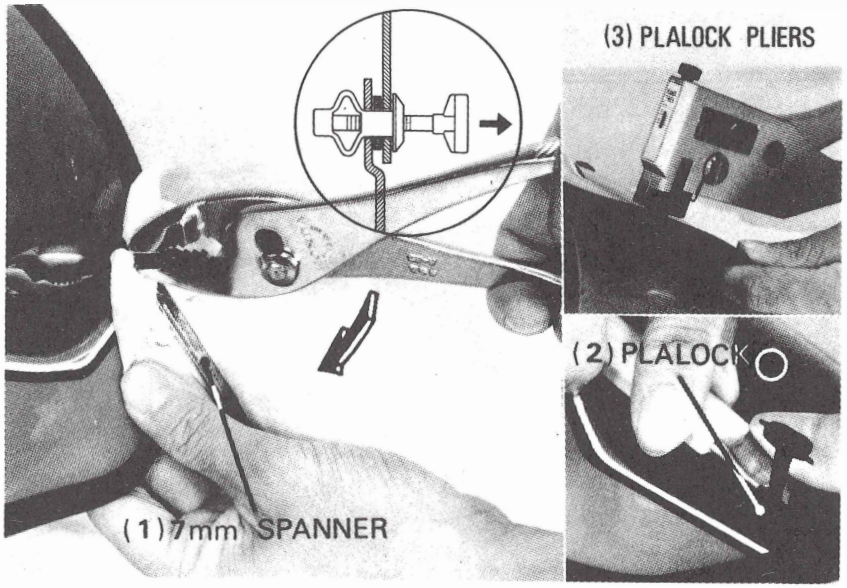
Position O-rings over holes in the fairing and place a new windshield over the fairing.

Hold the PLALOCK ® with the PLALOCK ®PLIERS available for the purpose. If the PLALOCK ® PLIERS are not immediately available, proceed as follows:

Insert the PLALOCK ® through the holes from the outside.

Wrap the jaws of a 7 mm spanner and place the jaws over the PLALOCK ® flange.

Pry the PLALOCK ® stem out by tilting pliers on the handle of the spanner as shown.



CAUTION

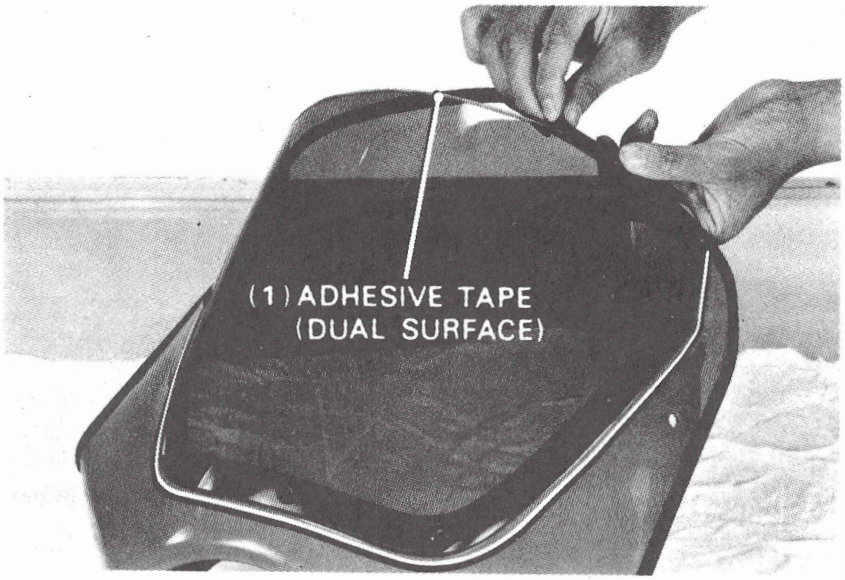
Do not pull the stem out excessively until the stopper is collapsed.

Trim the stem flush with the flange surface with a cutter.

WARNING

Make sure that the end of the stem is not pointed.

Attach adhesive tape (dual surface) over the edge of the windshield all the way around, then install the rubber molding.



FAIRING INSTALLATION

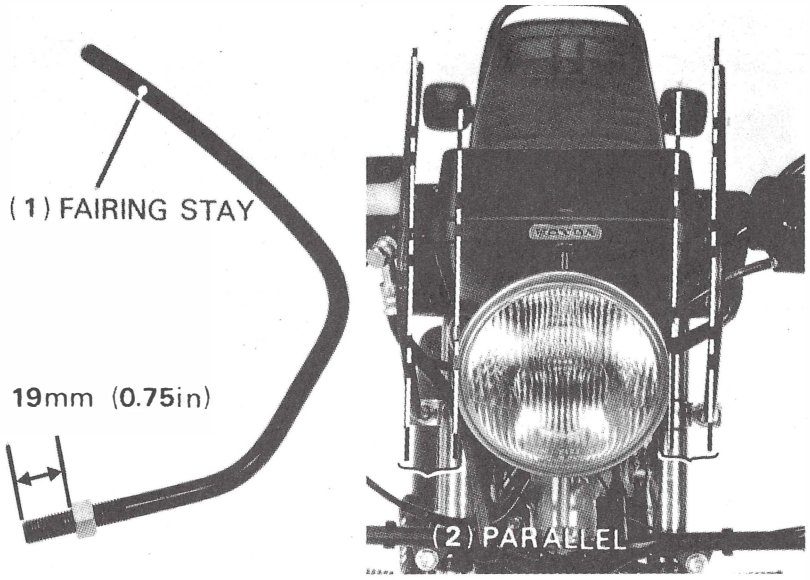
Run the nut on the fairing stay 19 mm (0.75 in) from the end.

NOTE

Do not turn the nut when installing the fairing.

Position the fairing stay band on the fork leg so that the upper edge of the stay band is 65 mm (2.56 in) from the end of the fork top bridge. Make sure that the rubber band is installed under the band.

Install the stay with a cap nut. Tighten securely.

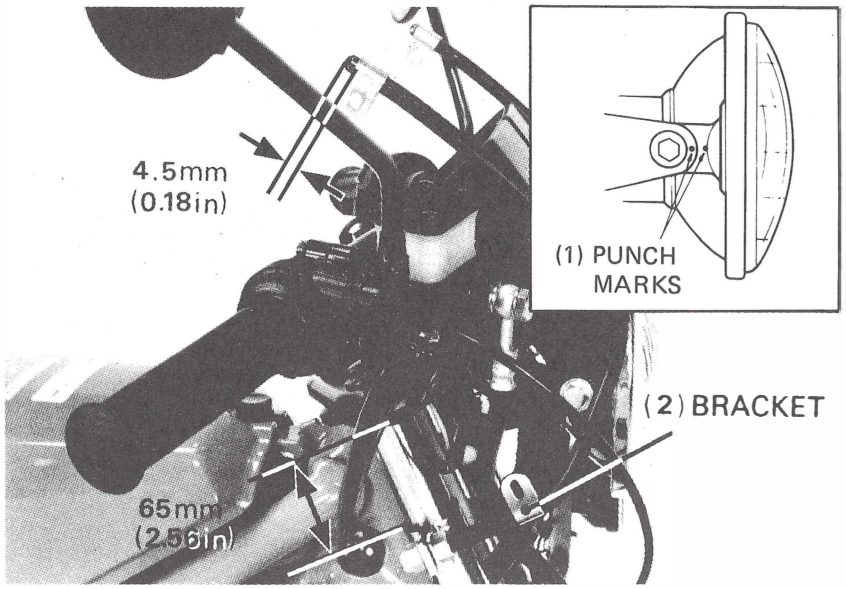


NOTE

Install the stays so that they are parallel with the fork legs.

Check that the punch marks on the headlight case are aligned with the punch marks on the headlight case brackets.

Install the brackets on the stays.

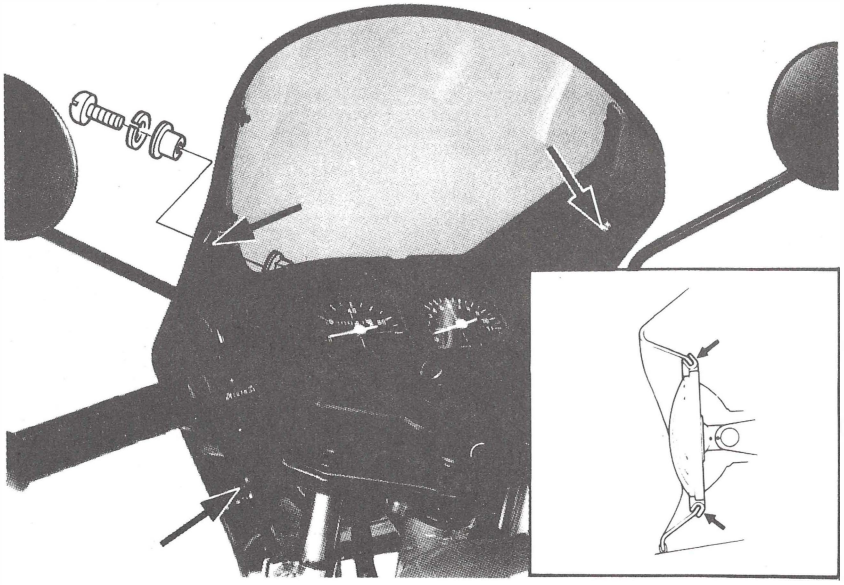


Align the fairing with the headlight, then position the upper bracket on the stay 4.5 mm (0.18 in) from the end. Attach the fairing to the upper bracket.

NOTE

- Make sure that the there is no clearance between the fairing and top of the headlight.
- Follow the above instructions to install the fairing properly.

Attach the lower brackets to the fairing.

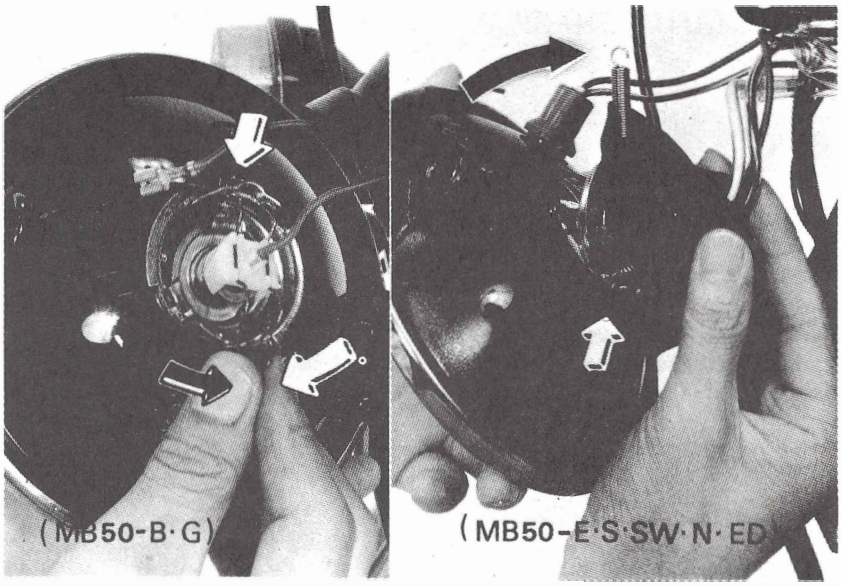


HEADLIGHT

HEADLIGHT BULB REPLACEMENT

[MB50]

Remove the headlight and take out the bulb socket.

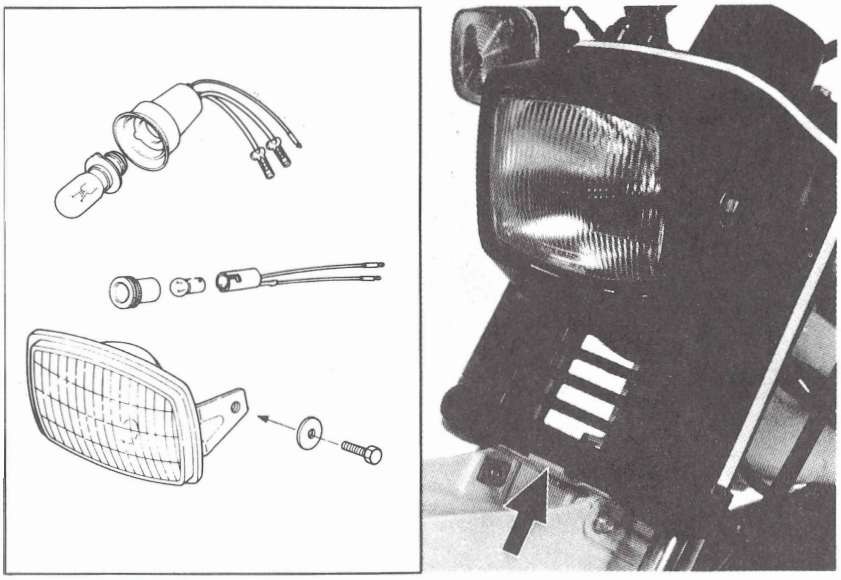


[MT50]

Remove the headlight.

NOTE

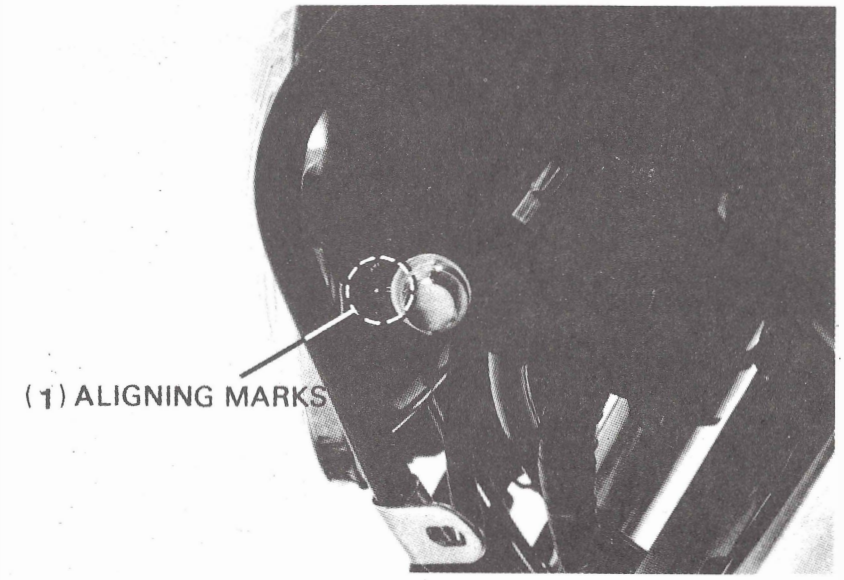
When installing the headlight, hook the lower edge with the retainer.



HEADLIGHT INSTALLATION

Connect the wires to the the wire harness color-to-color.

Align the punch marks on the headlight case with the punch marks on the headlight brackets, then install the headlight using the headlight mount bolts.



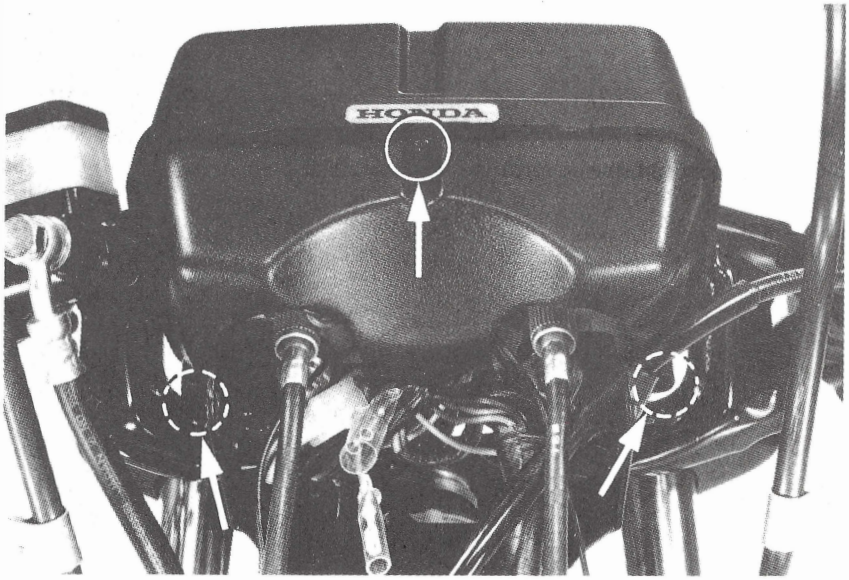
INSTRUMENTS

[MB50]

METER CASE REMOVAL

Remove the headlight.

Unscrew the three screws attaching the upper and lower meter cases together.



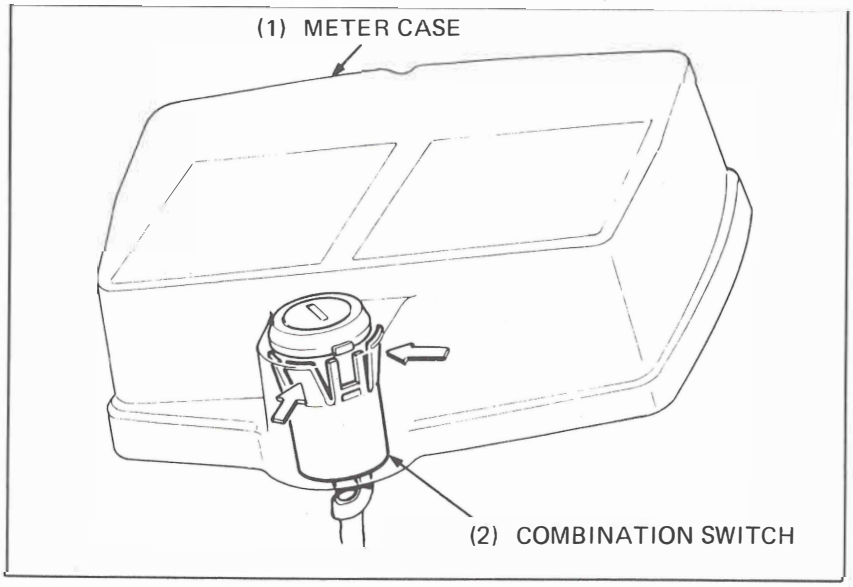
COMBINATION SWITCH REPLACEMENT

Remove the meter case.
Disconnect the combination switch wire coupler.

Pull the switch straight up while holding the switch from the back.

NOTE

Avoid damaging the meter case when removing the switch.



INDICATOR LAMP/METER REPLACEMENT

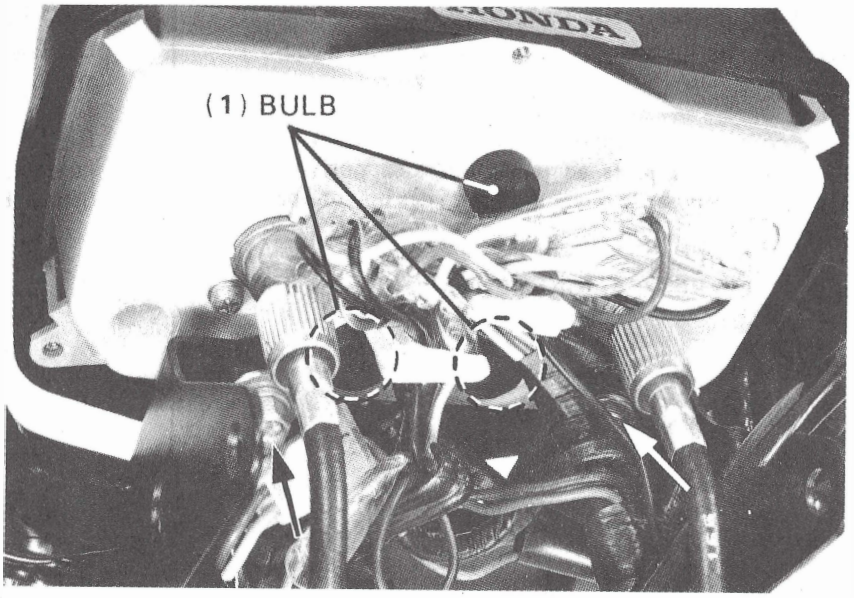
[MB50]

Remove the headlight and meter case.
To replace the meter, disconnect the meter cable.

NOTE

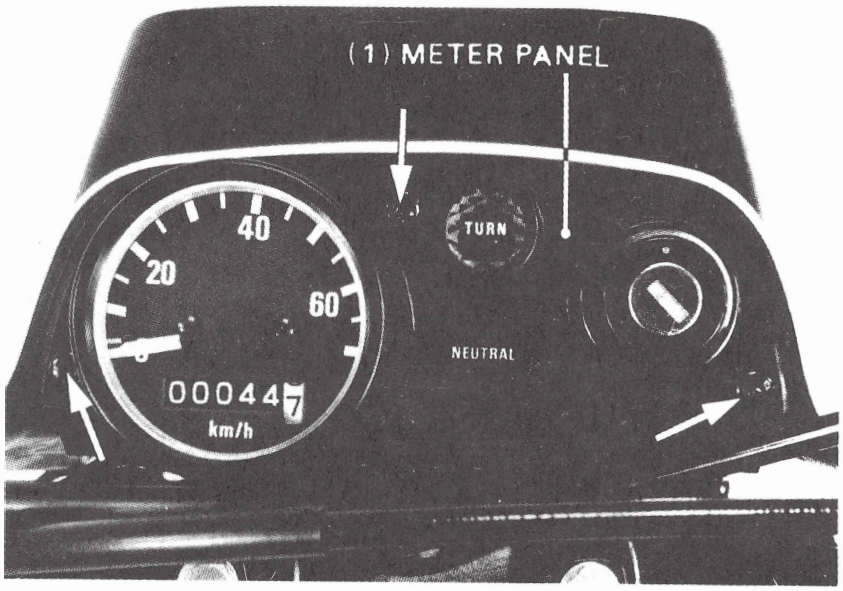
After removing the meter, observe the following:

- Do not touch the meter dial.
- Do not touch the meter spring.
- Do not place the meter upside down.



[MT50]

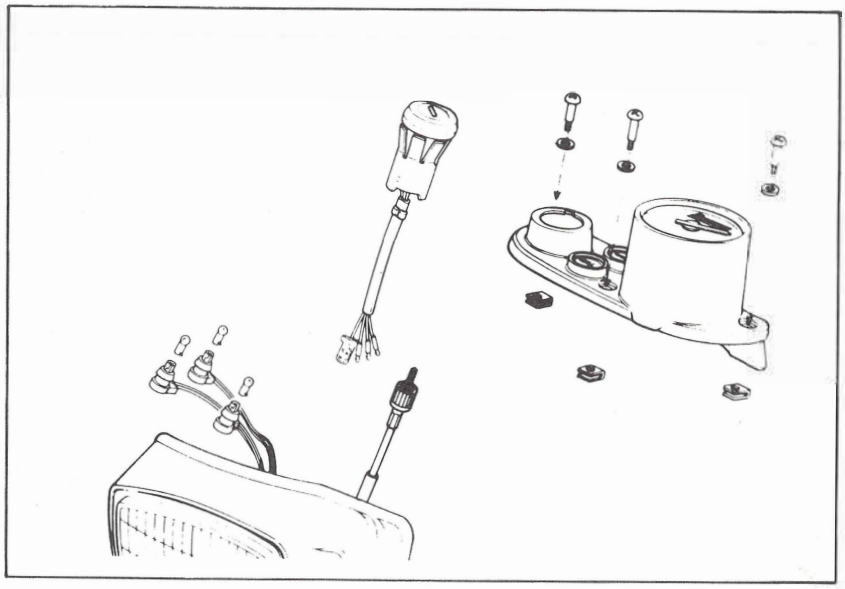
Remove the three screws and lift up the meter panel.



Remove the socket and replace the bulb.

NOTE

Do not leave the meter upside down.



STEERING HANDLEBAR

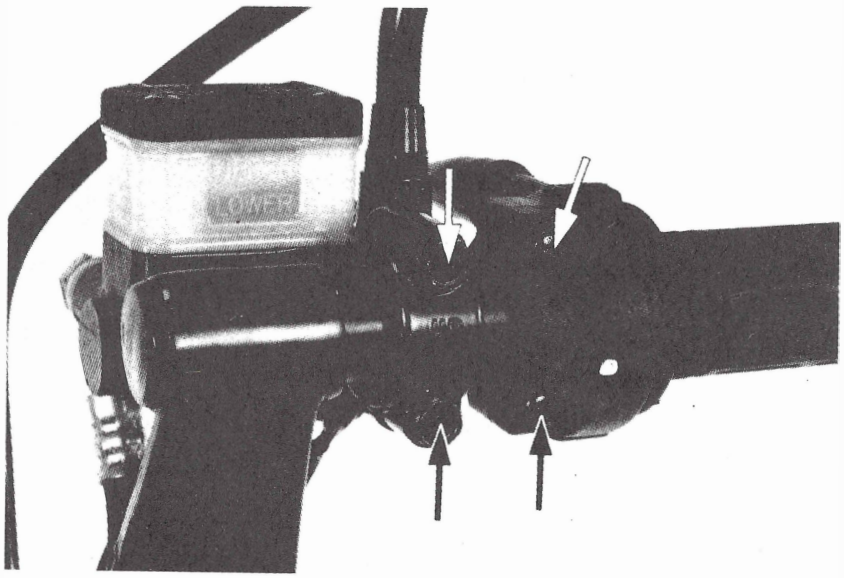
HANDLEBAR REMOVAL

[MB50]

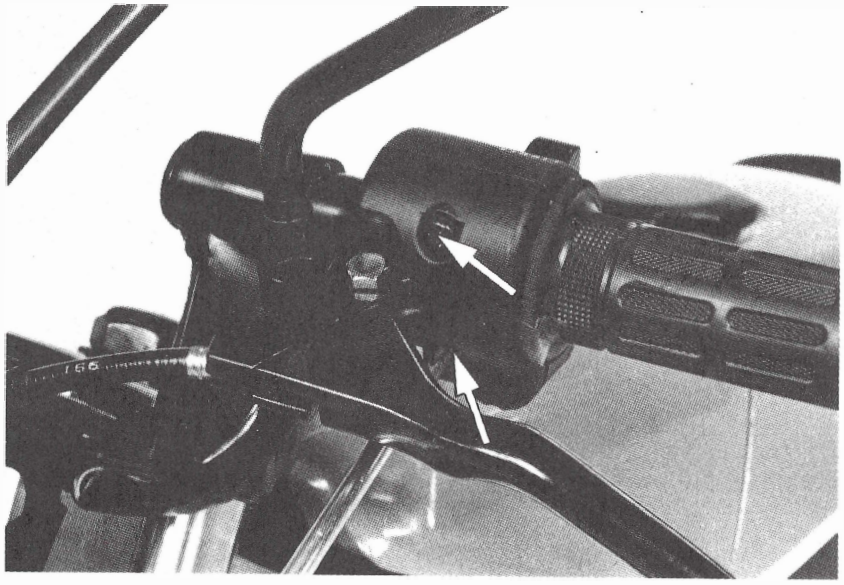
Remove the headlight.
Remove the meter cluster.

Remove the two bolts attaching the front brake master cylinder holder to the master cylinder. Remove the master cylinder.

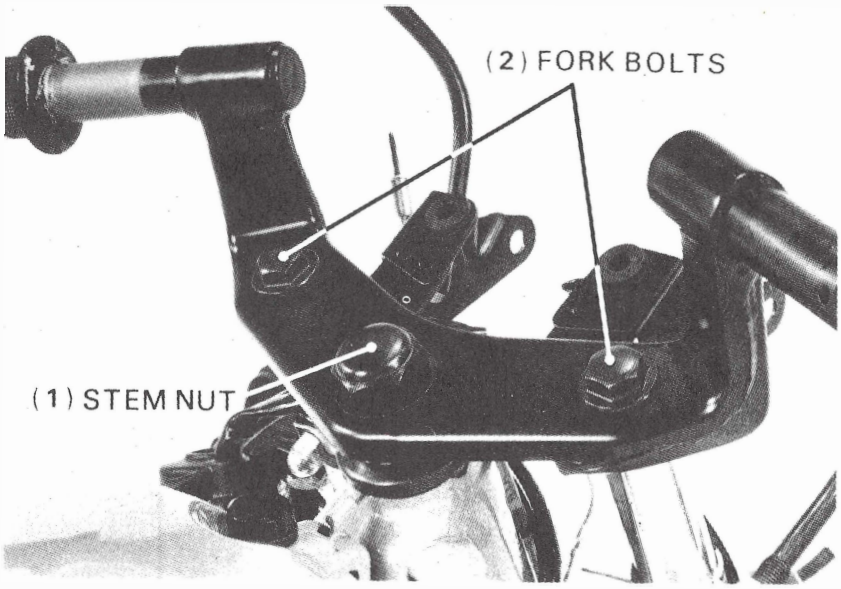
Remove the two screws attaching the throttle grip housing. Remove the housing together with the throttle grip.



Unscrew the switch and remove the turn signal and dimmer switches.



Remove the steering stem nut.
Remove the two fork bolts.



[MT50]

Remove the rear view mirrors and wire harness bands.

Remove the turn signal.
Disconnect the front brake cable from the brake lever.

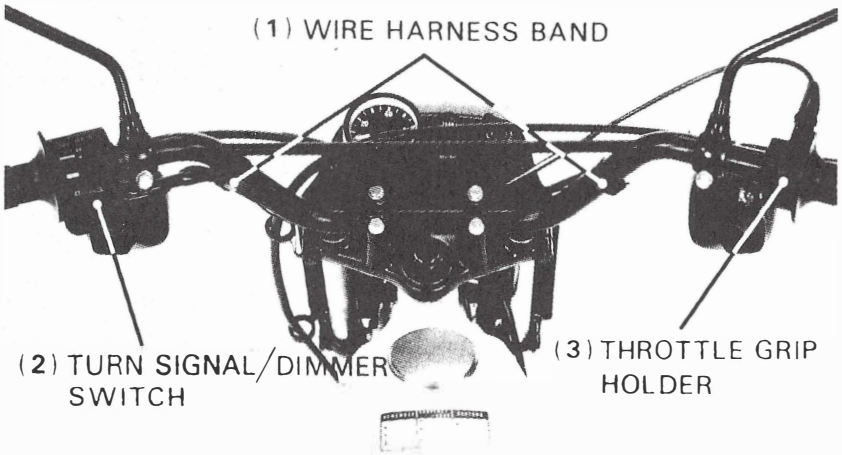
Disconnect the clutch cable from the clutch lever.

Remove the screws and remove the throttle grip and holder as an assembly.

Remove the turn signal/dimmer switch by removing the attaching screws.

Disconnect the front brakelight switch wires at the connectors.

Remove the front brake lever bracket.
Remove the handlebar upper holders and handlebar.



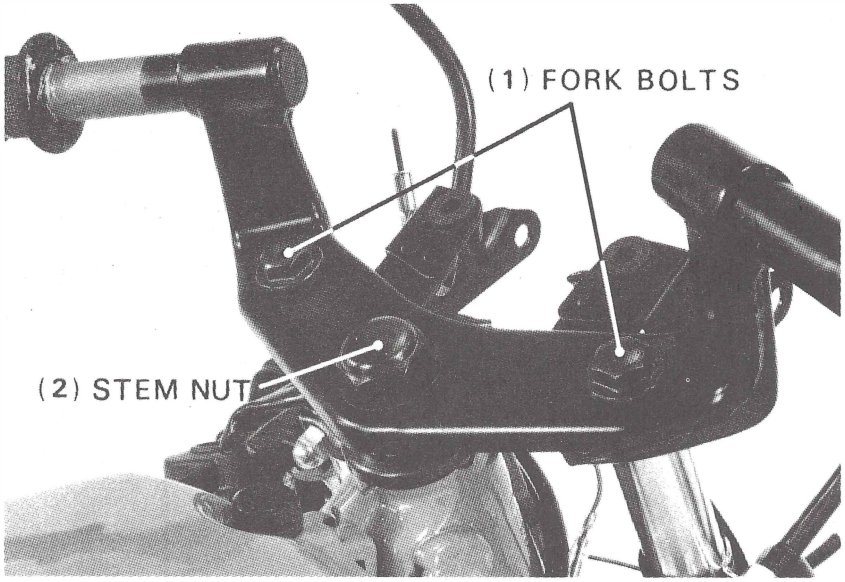
HANDLEBAR INSTALLATION [MB50]

Install the steering handlebar.

Install and tighten the steering stem nut and fork bolts to the specified torques.

TORQUES:

Stem nut: **60–90 N·m (6.0–9.0 kg-m, 43–65 ft-lb)**
Fork bolt: **60–80 N·m (6.0–8.0 kg-m, 43–56 ft-lb)**



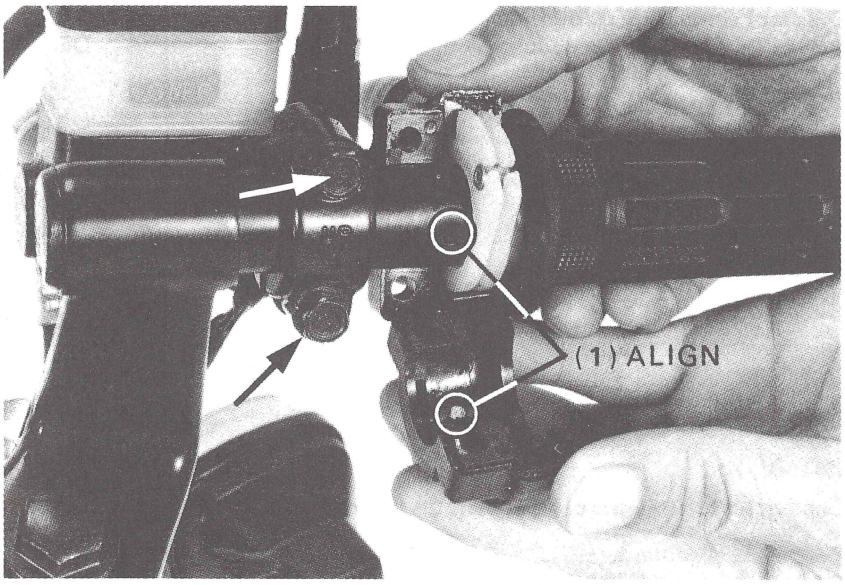
Install the brake master cylinder holder with the marking " △ " up and punch mark on the handlebar in line with the split in the holder and master cylinder.

Tighten the upper bolt first, then tighten the lower bolt.

Install the throttle housing holder aligning the dowel with the hole in the handlebar.

NOTE

Coat the sliding surface of the throttle grip with grease.



Install the turn signal and dimmer switch assembly with the dowel aligned with the hole in the handlebar.

Perform the following inspections after installing the handlebar:

- Front brake lever free play
- Clutch lever free play
- Throttle grip free play
- Operation of electrical components

[MT50]

Install the handlebar.

NOTE

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

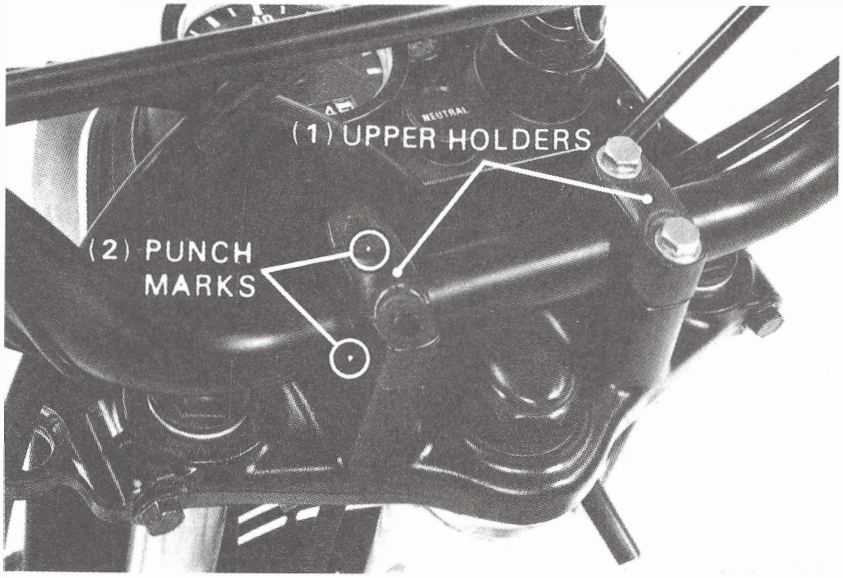
Install the handlebar upper holders.

NOTE

Install the holders with the punch marks forward.

Tighten the forward bolts to the specified torque first, then tighten the rear bolts to the same torque.

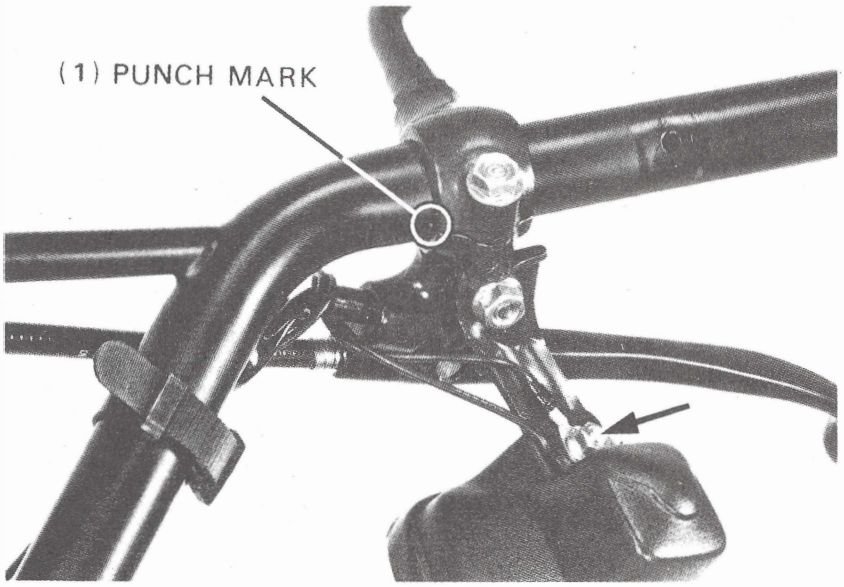
TORQUE: 8–12 N·m (0.8–1.2 kg-m, 6–9 ft-lb)



Install the front brake lever bracket.

NOTE

Align the punch mark on the handlebar with the split in the bracket.



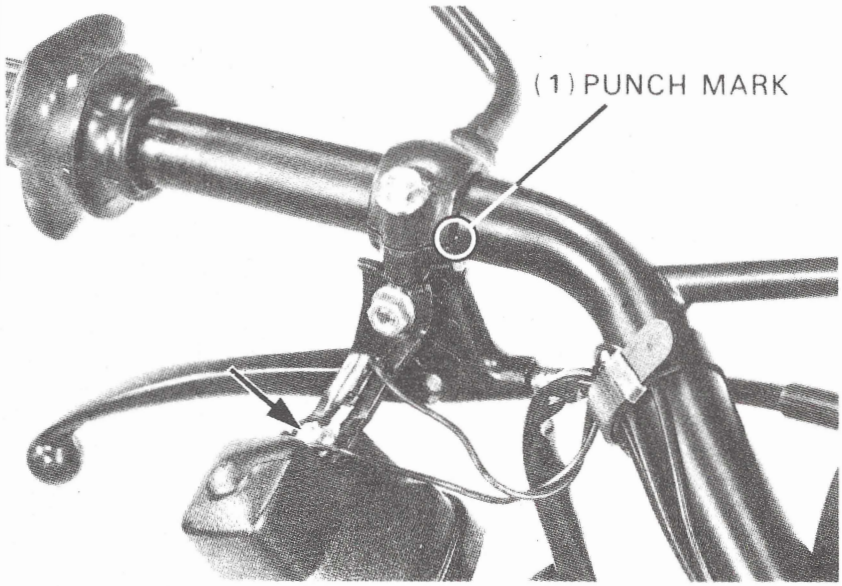
Connect the front brake switch wires.
Connect the front brake cable.

Install the right turn signal and connect the signal wires to the wire harness color-to-color.

Install the clutch lever bracket.

NOTE

Align the punch mark on the handlebar with the split in the bracket.



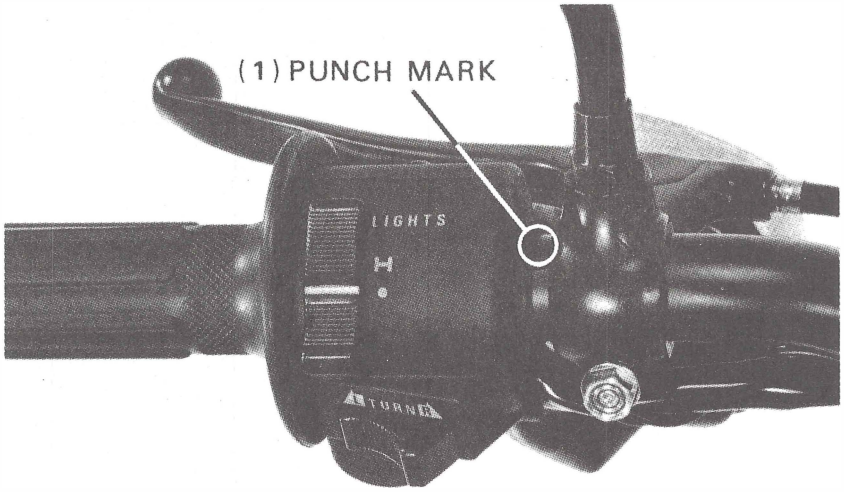
Slide the left grip onto the handlebar.
Connect the clutch cable.

Install the left turn signal and connect the signal wires to the wire harness color-to-color.

Install the turn signal/dimmer switch.

NOTE

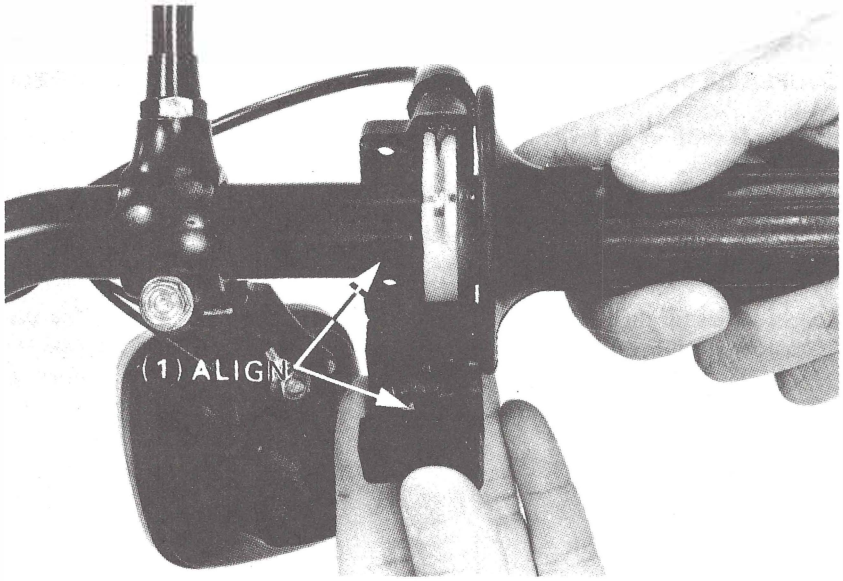
Align the split in the switch housing with the punch mark on the handlebar.



Install the throttle grip and holders on the handlebar aligning the dowel and dowel hole in the holders.

CAUTION

Before installing the grip, apply grease to the throttle grip area of the handlebar.



Perform the following inspection and adjustment operations:

- Front brake lever free play
- Clutch lever free play
- Throttle grip free play
- Operation of electrical components

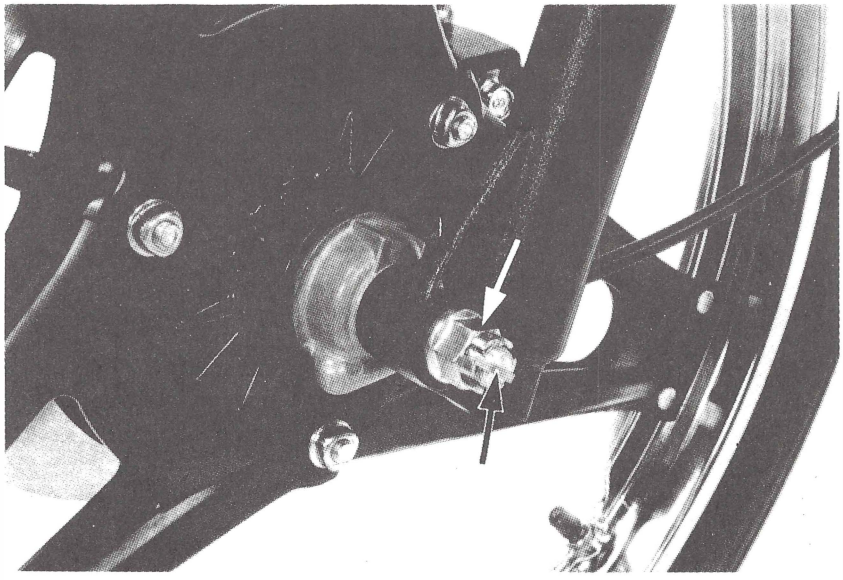
FRONT WHEEL

FRONT WHEEL REMOVAL

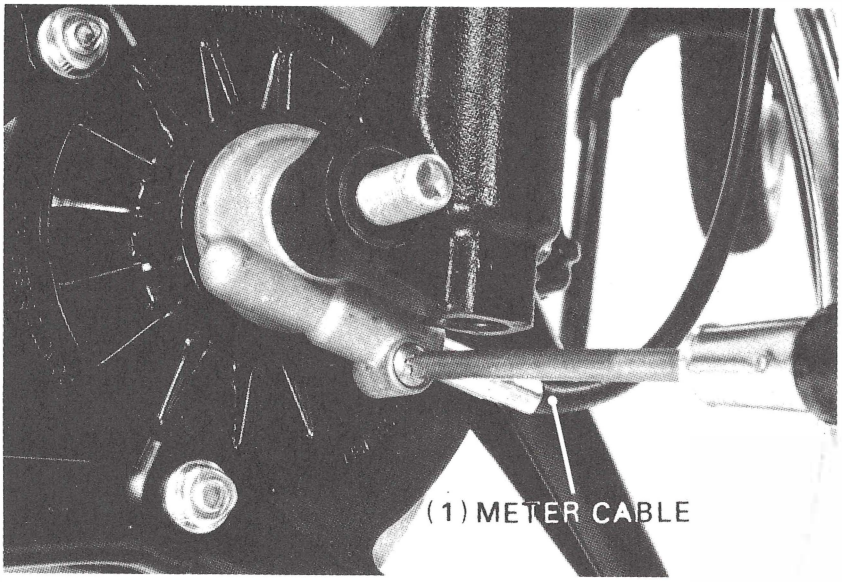
[MB50]

Remove the rubber cap (G).
Remove the cotter pin and the axle nut.

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



Disconnect the meter cable.
Remove the axle shaft and front wheel.



[MT50]

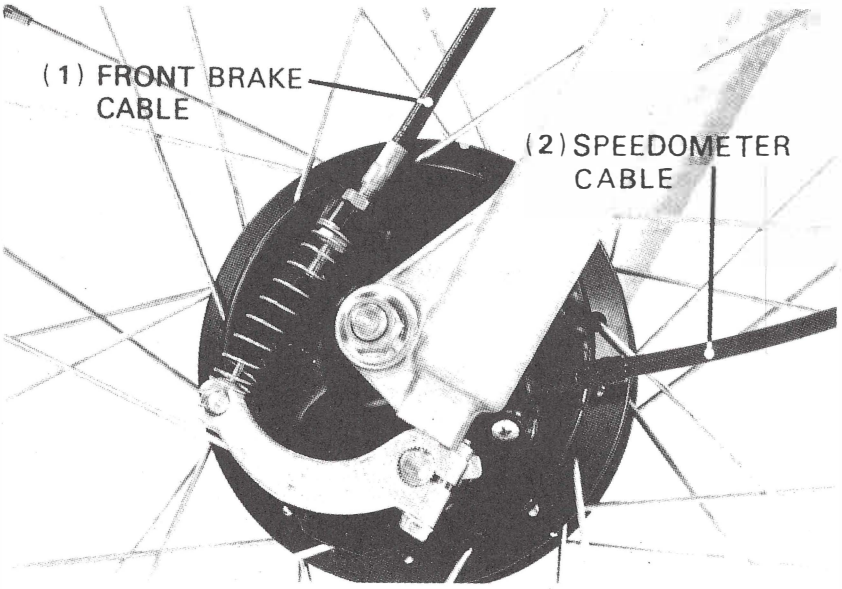
Disconnect the brake cable and speedometer cable.

Remove the axle nut.
Raise the front wheel off the ground by placing a padded block under the engine.

Remove the axle shaft and front wheel.

NOTE

The axle shaft is screwed in the left front fork leg.

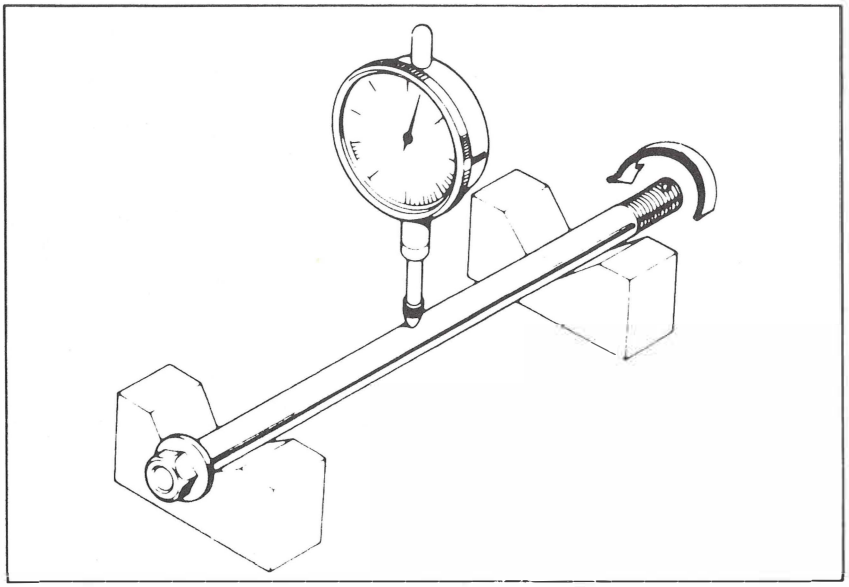


AXLE INSPECTION

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

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

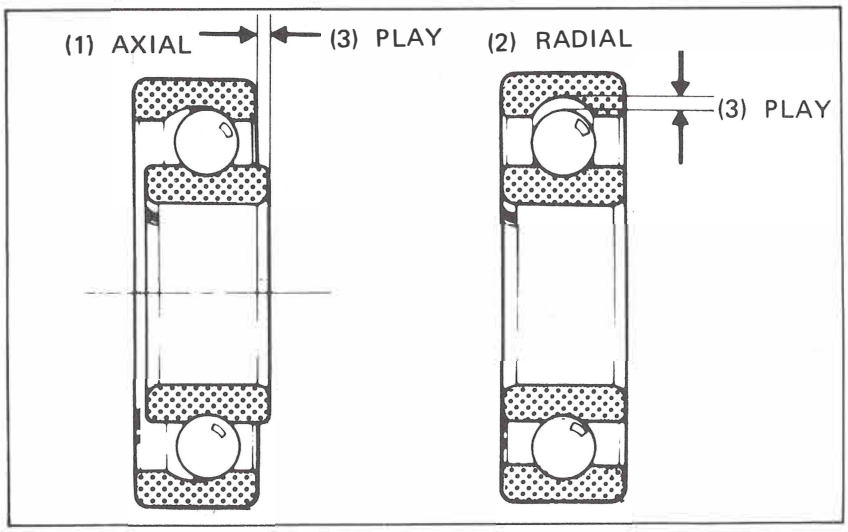
SERVICE LIMIT: 0.2 mm (0.008 in)



WHEEL BEARING INSPECTION

Check the wheel bearing by placing the wheel on a trueing stand and spinning the wheel by hand.

Replace the bearing with a new one if it is noisy or shows excessive play.



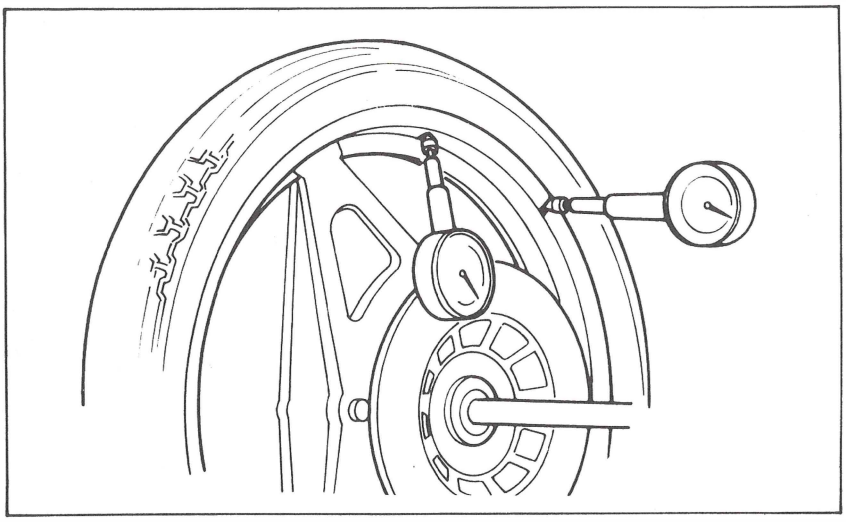
WHEEL RIM RUNOUT

Check the wheel rim for runout by placing the wheel in a trueing stand. Spin the wheel by hand and read the rim runout using a dial indicator gauge.

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

NOTE

Do not attempt to repair the spoke plate. (MB50)

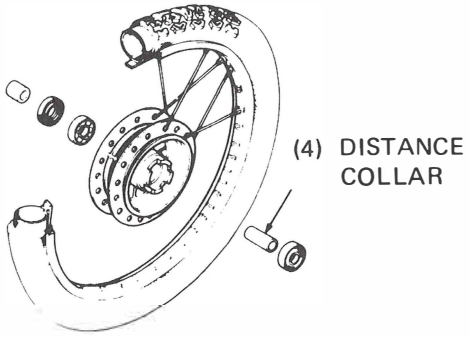


FRONT WHEEL DISASSEMBLY

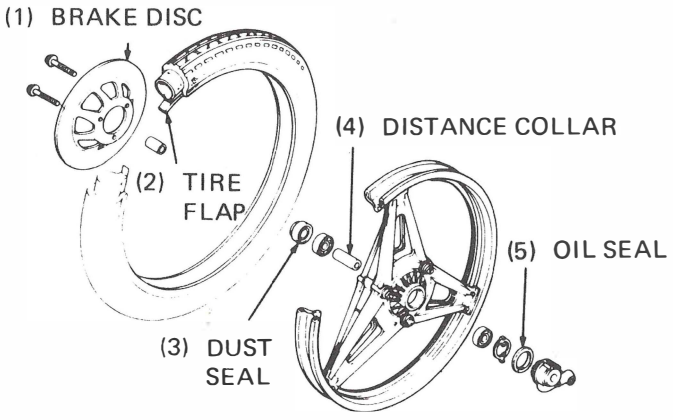
Remove the dust seal, bearing and distance collar.

NOTE

Do not forget to install the tire flap when replacing the tire or tube.



[MT50]



[MB50]

FRONT WHEEL ASSEMBLY

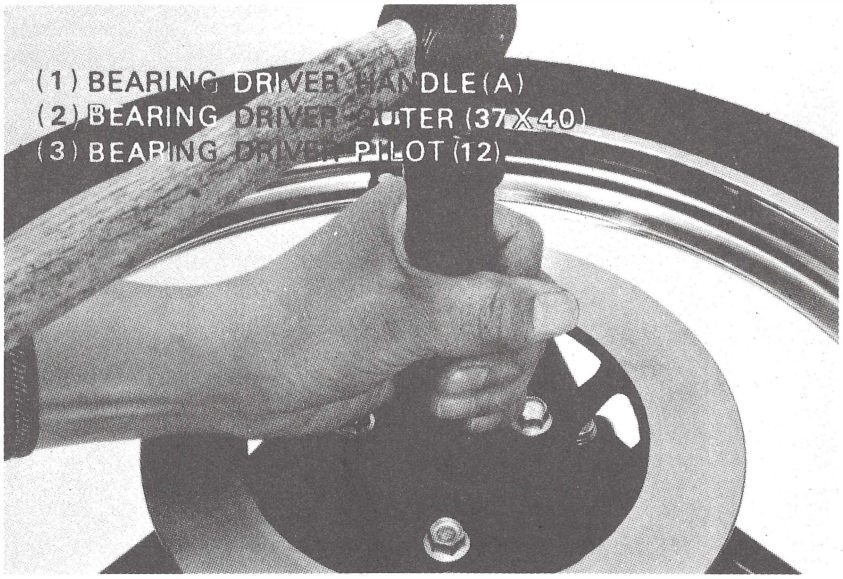
[MB50]

Pack all bearing cavities with grease.
Drive in the right bearing.

Install the distance collar.
Drive in the left bearing.

NOTE

- Do not allow the bearing to tilt while driving.
- Install the bearing with the sealed end facing the outside.



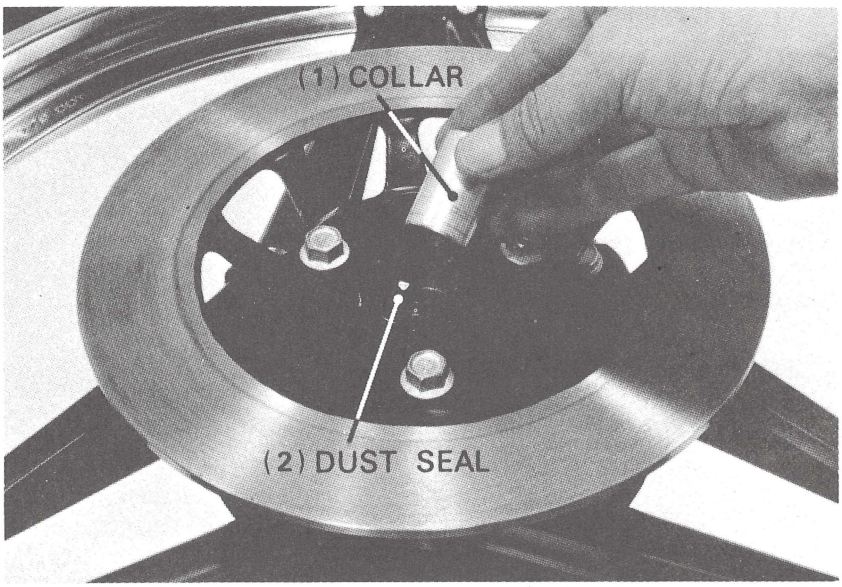
Install the brake disc.

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

Apply grease to the inside of the dust seal.
Install the dust seal and distance collar in the right wheel hub.

WARNING

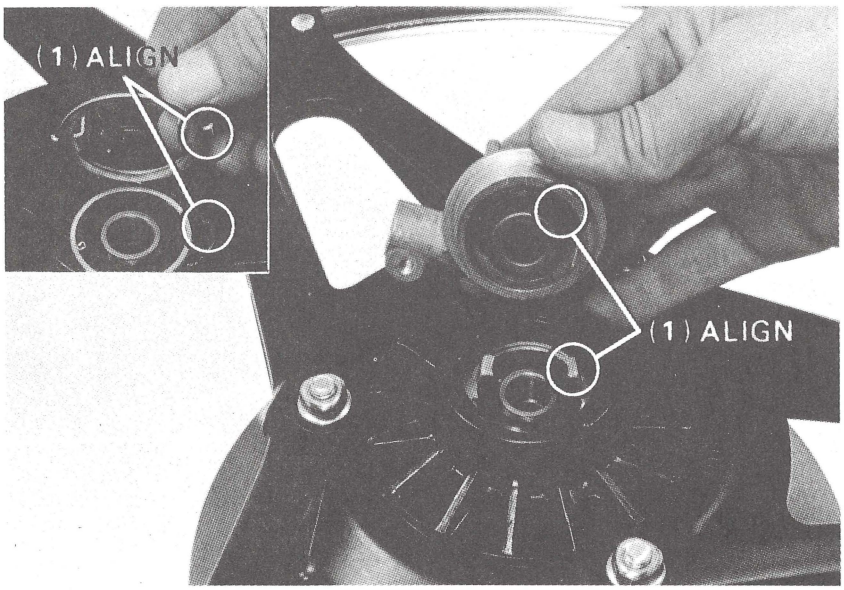
Wipe off the excess grease.



Install the gearbox retainer, aligning the tabs with the grooves in the hub.
Apply grease to the inside of the dust seal and install.

Apply grease to the speedometer gear box and hub retainer.

Install the speedometer gearbox, aligning the tabs on the gearbox with the grooves in the retainer.



[MT50]

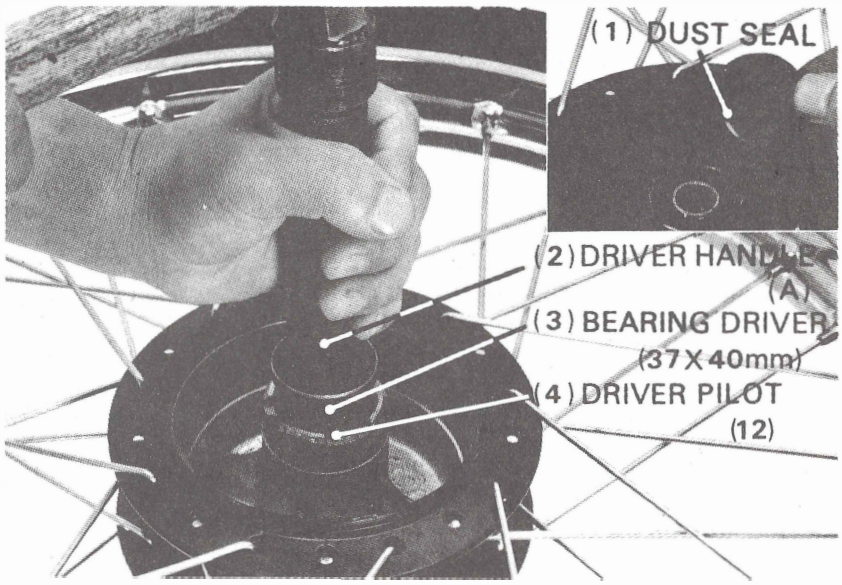
Pack all bearing cavities with grease.
Drive in the left wheel bearing.

Install the distance collar.
Drive in the right wheel bearing.

CAUTION

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

Coat the inside of the dust seal with grease.



FRONT WHEEL INSTALLATION

[MB50]

Position the front wheel between the fork legs and insert the axle from the right side.

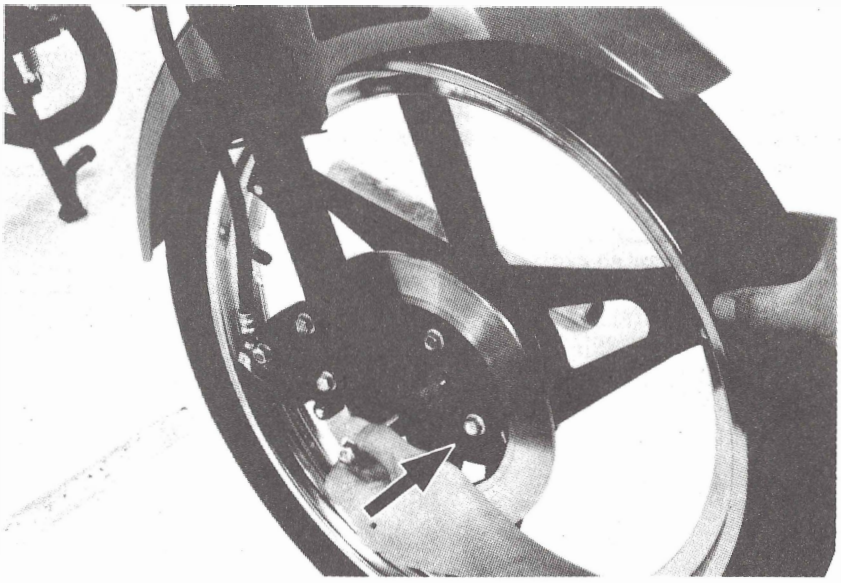
Connect the speedometer cable to the speedometer gearbox.

Install the axle nut and tighten to the specified torque.

TORQUE: 35–50 N·m (3.5–5.0 kg-m, 25–36 ft-lb)

NOTE

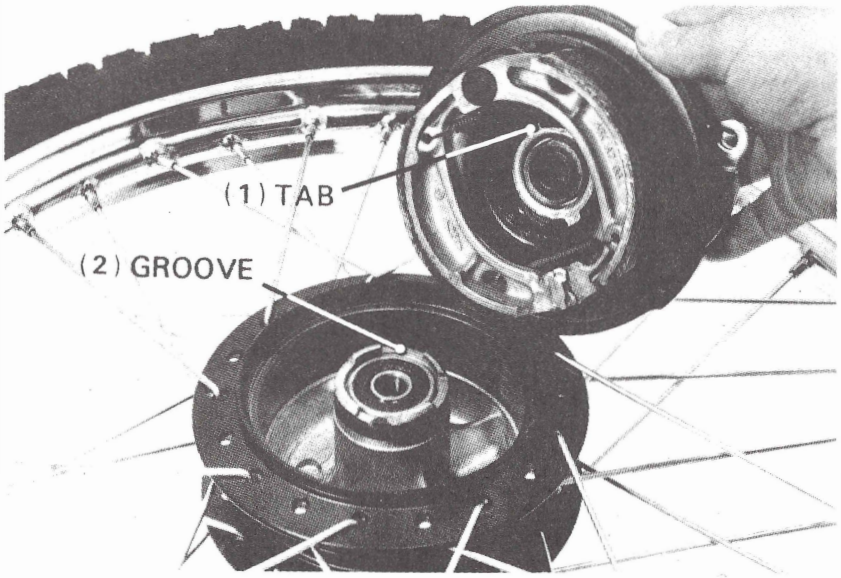
Tighten the axle nut with the speedometer gearbox in contact with the stopper on the front fork.



Install a new cotter pin and spread the ends.
Install the rubber caps.

[MT50]

Align the tabs of the speedometer gear with the grooves in the wheel hub.



Install the front wheel and brake panel.

CAUTION

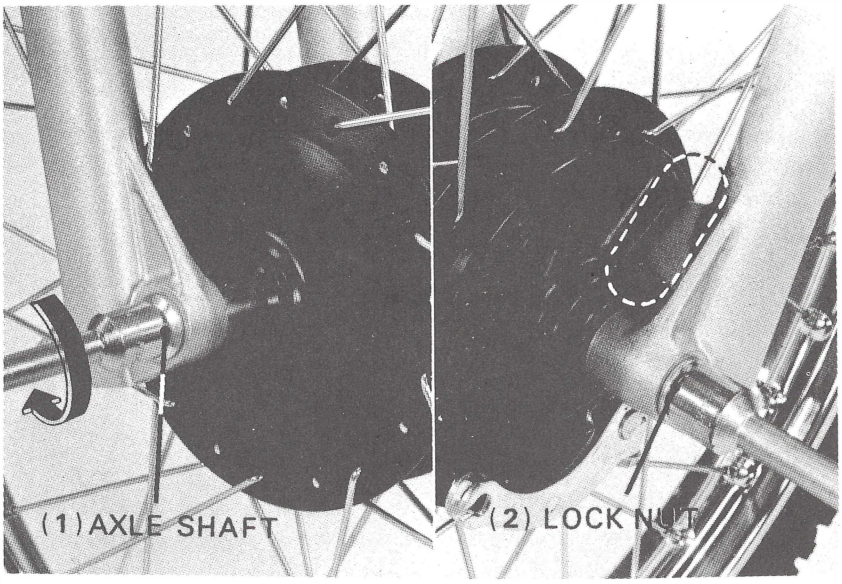
Align the tongue on the front fork with the groove in the brake panel.

Insert the front axle from the right side, and screw it into the left fork leg.

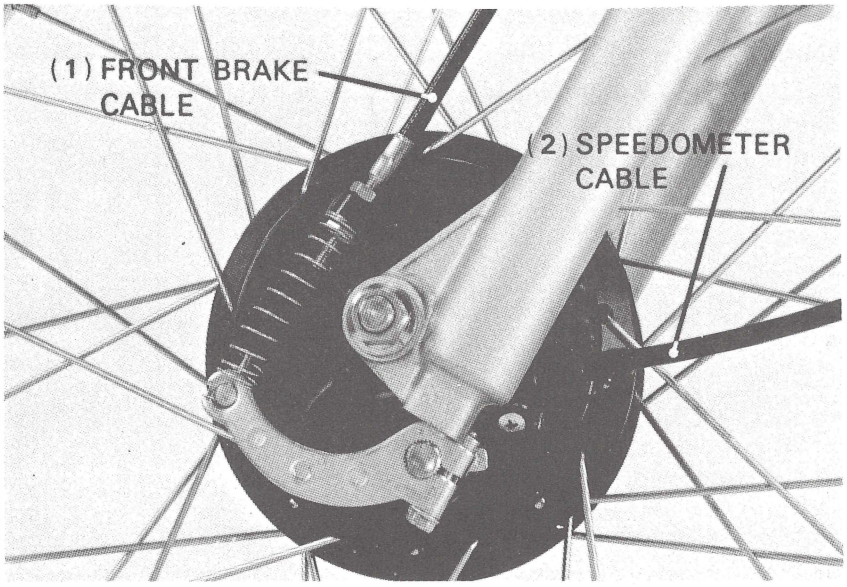
TORQUE: 55–65 N·m (5.5–6.5 kg-m, 40–47 ft-lb)

Tighten the axle nut to the specified torque.

TORQUE: 55–65 N·m (5.5–6.5 kg-m, 40–47 ft-lb)



Connect the speedometer cable.
Connect the brake cable.
Adjust brake lever free play.

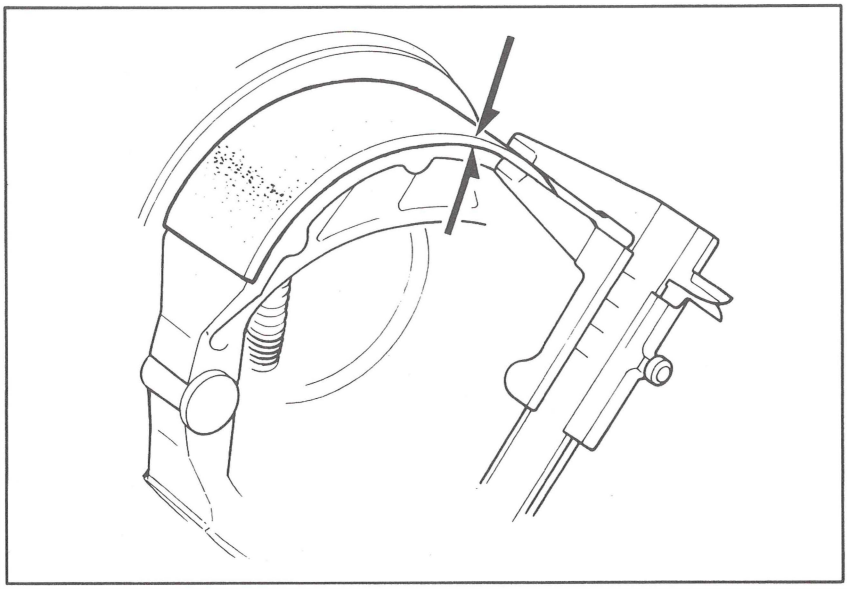


FRONT BRAKE (MT50)

BRAKE LINING INSPECTION

Measure the front brake lining thickness.

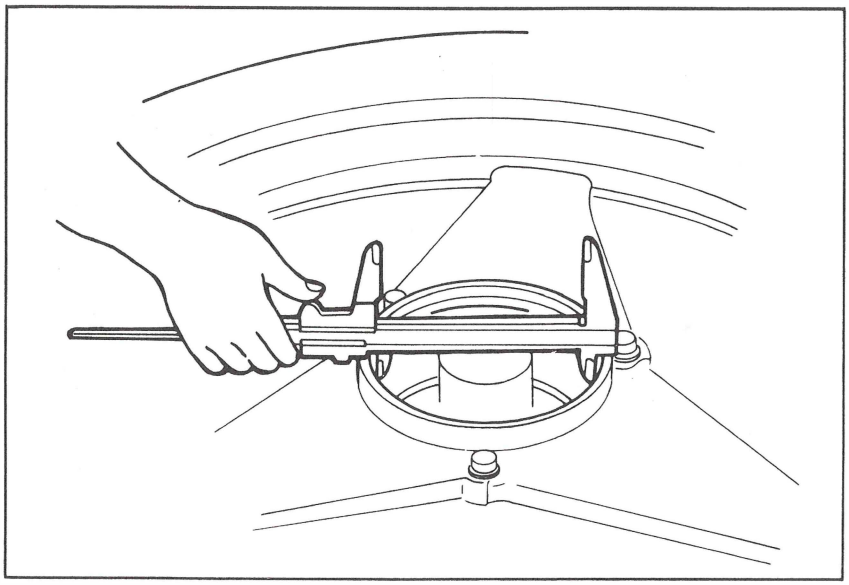
SERVICE LIMIT: 2.0 mm (0.08 in)



BRAKE DRUM INSPECTION

Measure the front brake drum I. D.

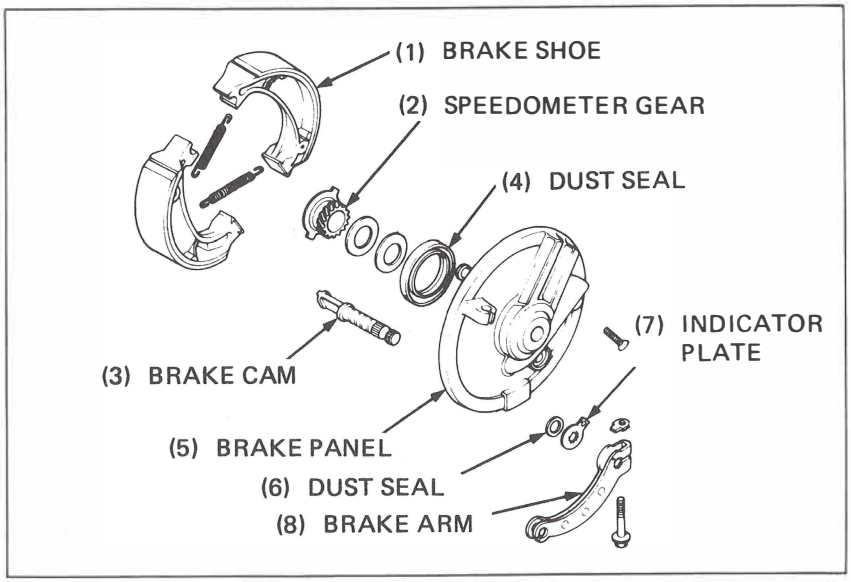
SERVICE LIMIT: 111.0 mm (4.37 in)



BRAKE PANEL DISASSEMBLY

Remove the braek shoes and brake shoe springs.

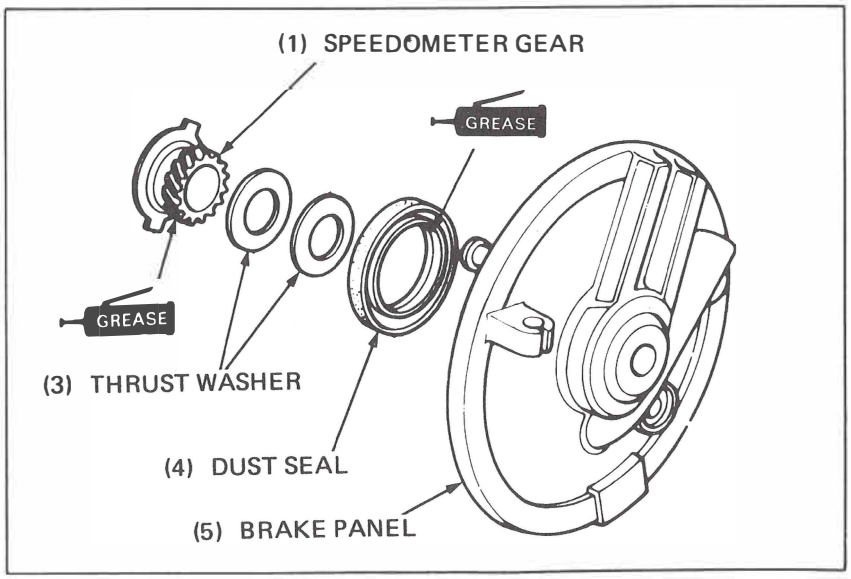
Remove the speedometer gear and dust seal.
Remove the brake cam and brake arm.



BRAKE PANEL ASSEMBLY

Install the dust seal.
Install the thrust washers.

Coat the speedometer gear with grease and install.



Coat the sliding surface of the brake cam with grease and install.
Install the dust seal and wear indicator plate.

NOTE
Align the flat on the plate with the flat on the brake cam.

Install the brake arm.

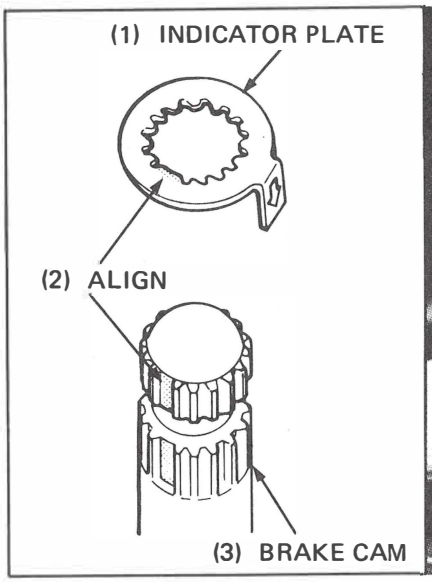
NOTE
Align the punch mark on the cam with the punch mark on the brake arm.

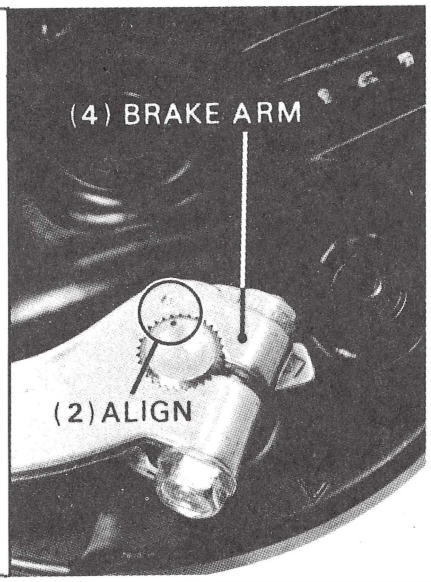
Tighten the brake arm pinch bolt to specified torque.

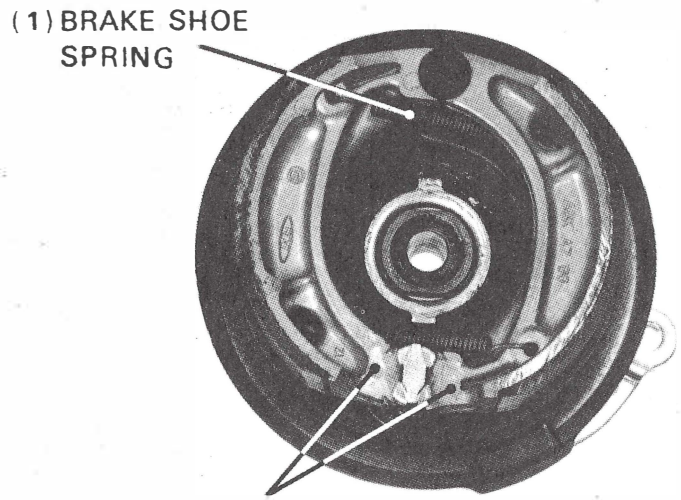
TORQUE: 8–12 N·m (0.8–1.2 kg-m, 6–9 ft-lb)

Install the brake shoes.

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





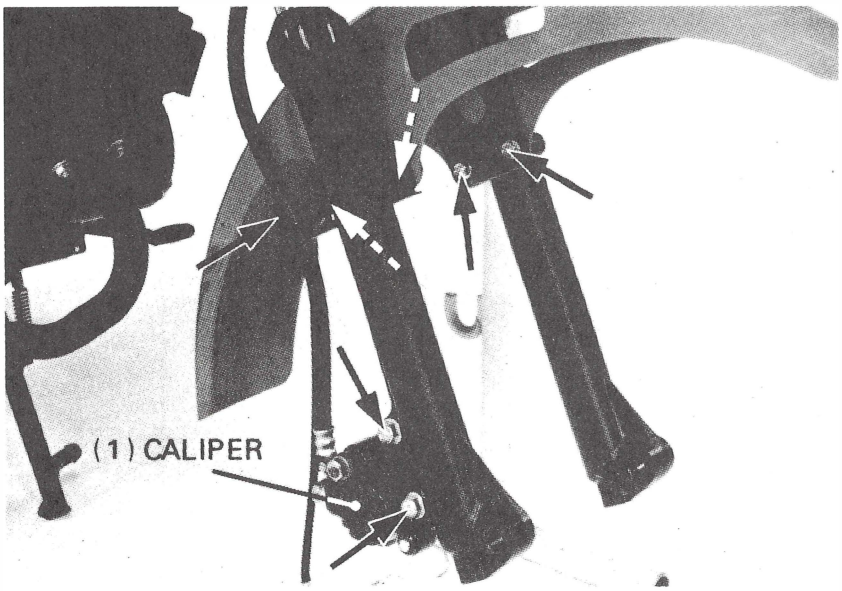


FRONT FORK

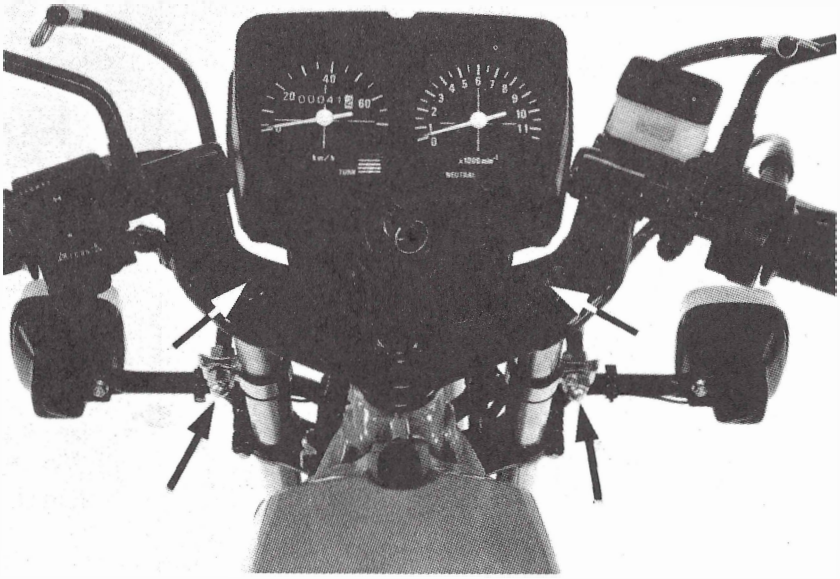
FRONT FORK REMOVAL [MB50]

Remove the front wheel (Page 11–7).
Remove the brake caliper.
Remove the front fender.

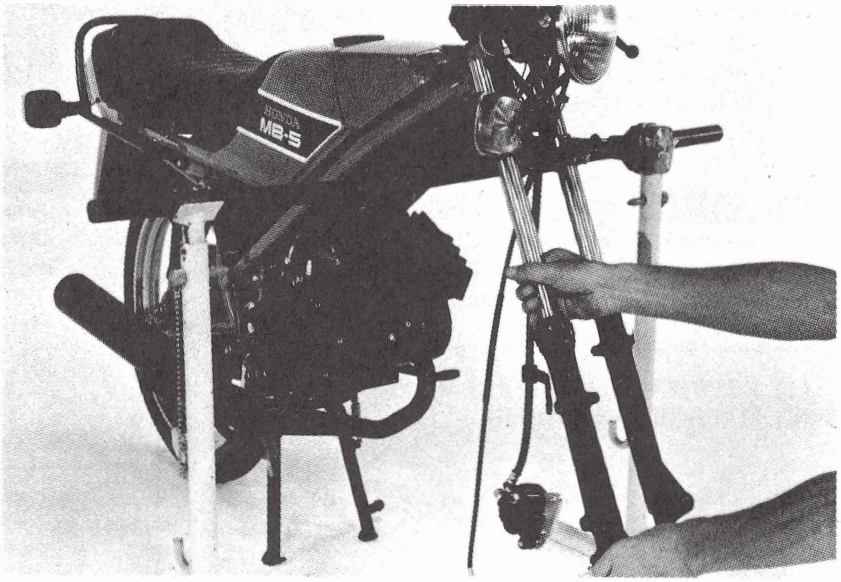
NOTE
Do not loosen the brake hose unless it is absolutely necessary.



Remove the fairing stays.
Remove the fork bolts.



Loosen the fork bottom bridge pinch bolts.
Remove the front fork.



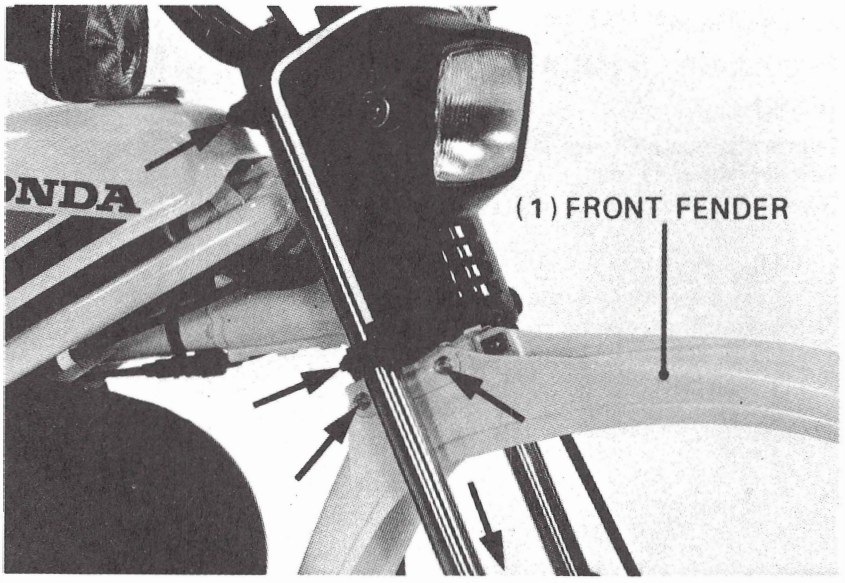
[MT50]

Remove the front wheel. (Page 10–14)
Remove the front fender.

Remove the headlight and headlight case.

Loosen the front fork top bridge pinch bolts.
Loosen the front fork bottom bridge pinch bolts.

Remove the front forks.

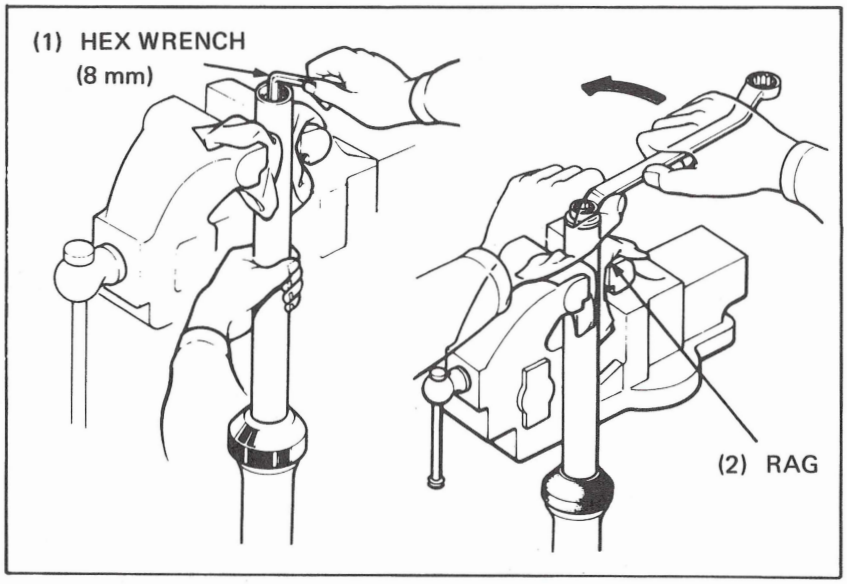


FRONT FORK DISASSEMBLY

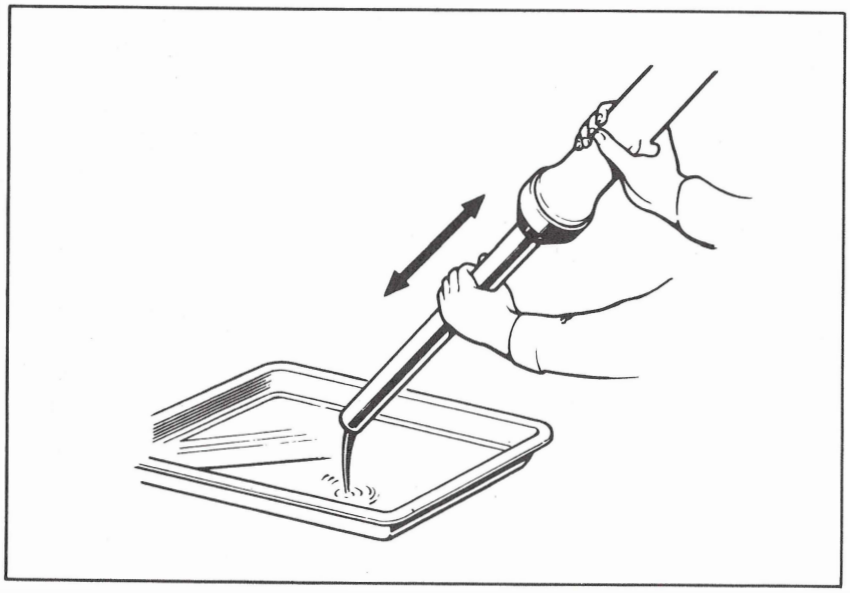
Loosen the cushion spring inner bolt. (MB50)
Loosen the fork bolt. (MT50)

NOTE

- Hold the fork tube in a vice with rag or soft jaws avoiding the sliding surface as shown.
- The spring will pop out when the bolt is removed. (MT50)



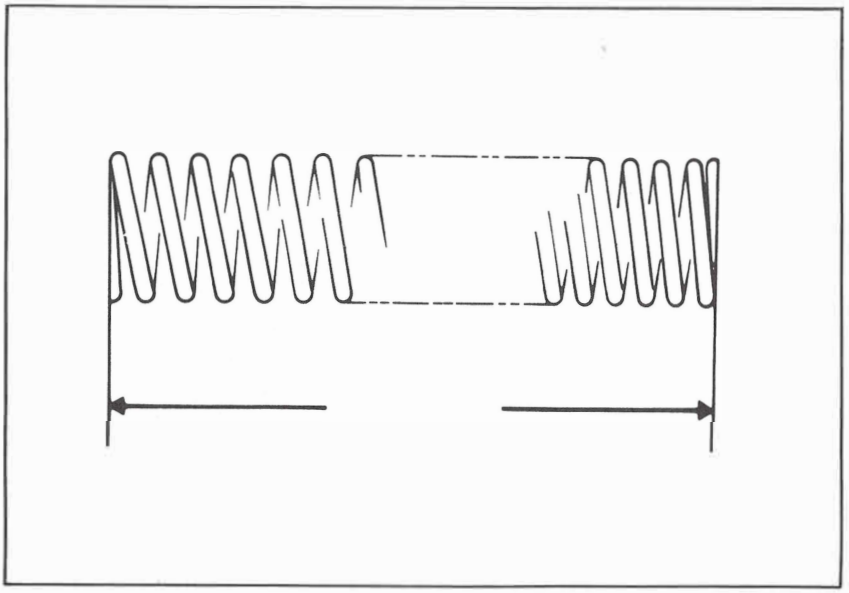
Drain the ATF (Automatic Transmission Fluid) from the fork by pumping it up and down slowly.



FORK SPRING INSPECTION

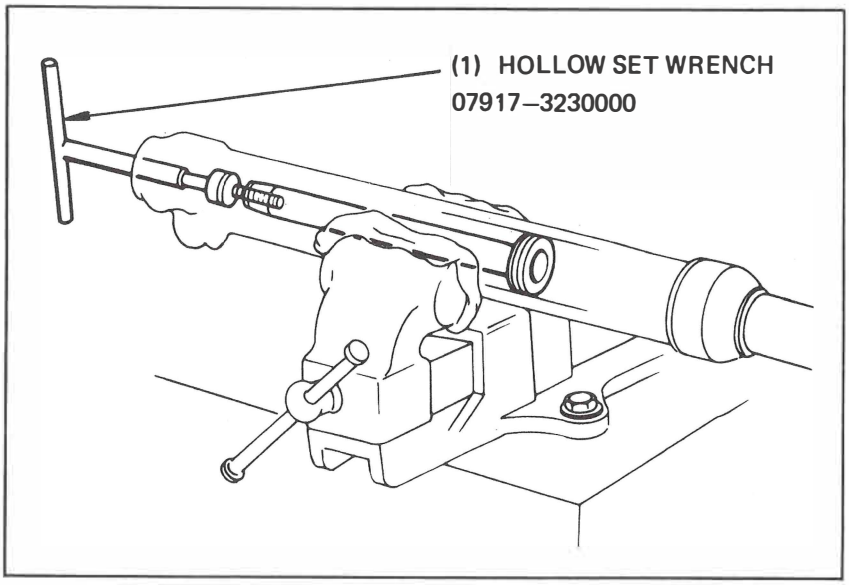
Measure the fork spring free length.

SERVICE LIMITS:
MB50: 465.0 mm (18.31 in)
MT50: 523.5 mm (20.61 in)



Remove the socket bolt.
Remove the fork pipe and seat pipe.

CAUTION
Do not distort the bottom case in a vice.

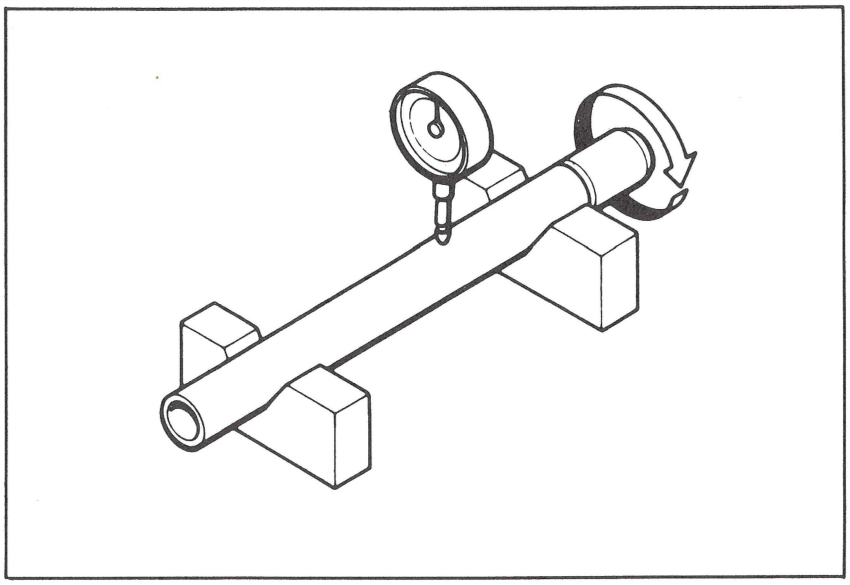


FORK TUBE RUNOUT

Place the fork tube in V blocks and read the runout.

Take 1/2 of TIR (Total Indicator Reading) to determine the actual wear.

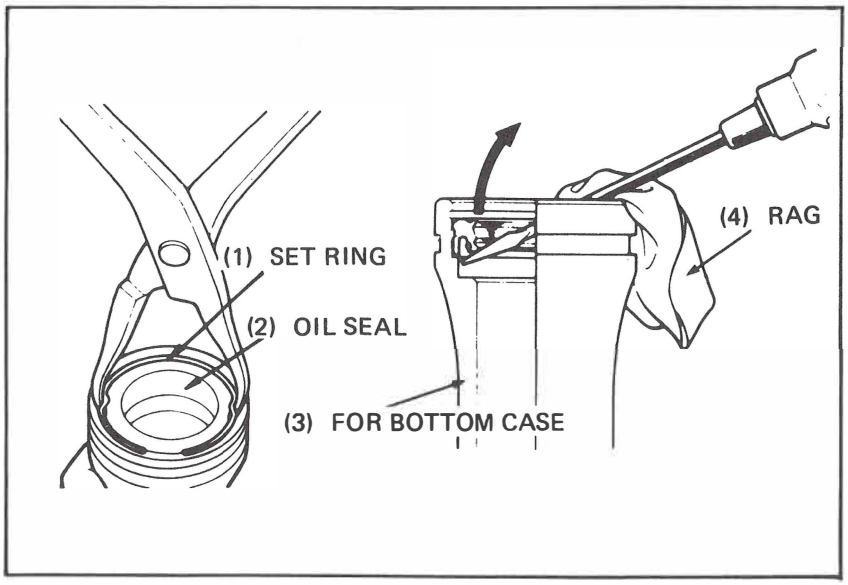
SERVICE LIMIT: 0.2 mm (0.008 in)



Remove the snap ring with the snap ring pliers.

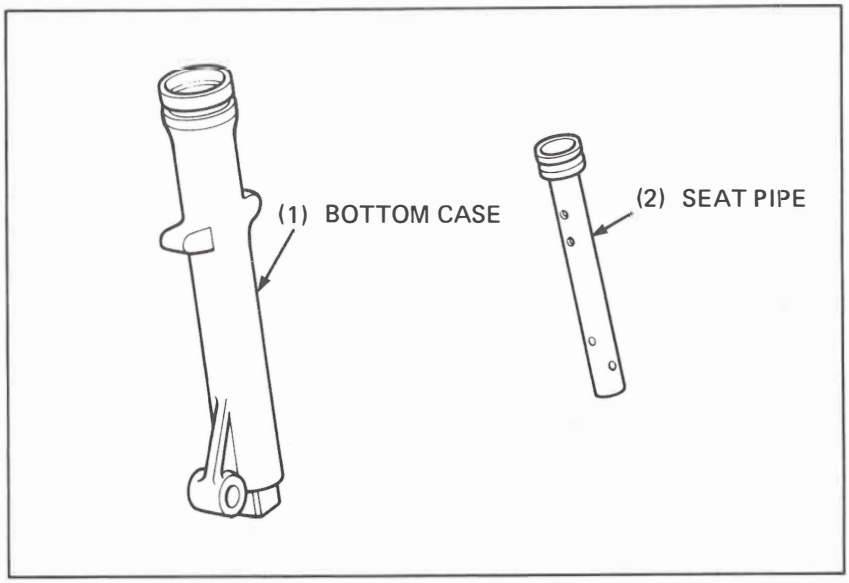
Remove the dust seal using the dull end of a screwdriver as shown.

NOTE
Avoid damaging the inner and outer surfaces of the fork slider when removing the snap ring and dust seal.



BOTTOM CASE/SEAT PIPE INSPECTION

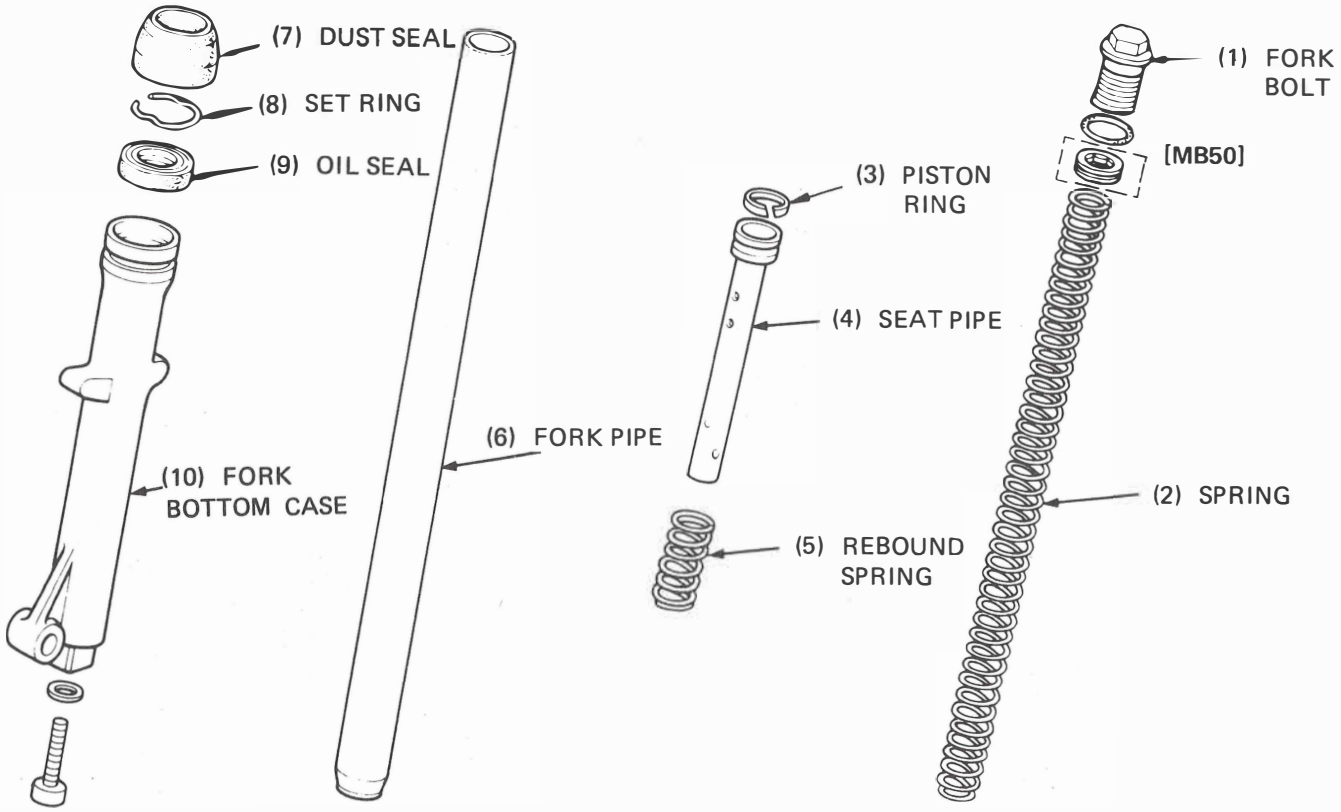
Check the bottom case for score marks, scratches or abnormal wear.



FRONT FORK ASSEMBLY

NOTE

Wash all removed parts in solvent and wipe them off thoroughly before assembly.



Install the piston ring on the seat pipe.

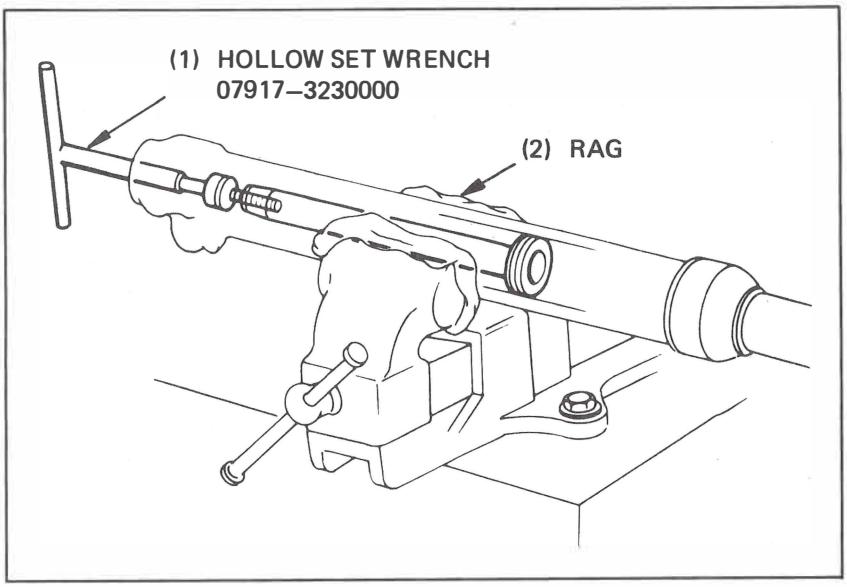
Install the fork pipe, rebound spring and seat pipe.

Apply locking agent to the socket bolt threads and underside of the bolt.

NOTE

- To tighten the socket bolt, it may be necessary to install the fokr spring and tighten the fork bolt provisionally.
- Do not distort the bottom case in a vice.

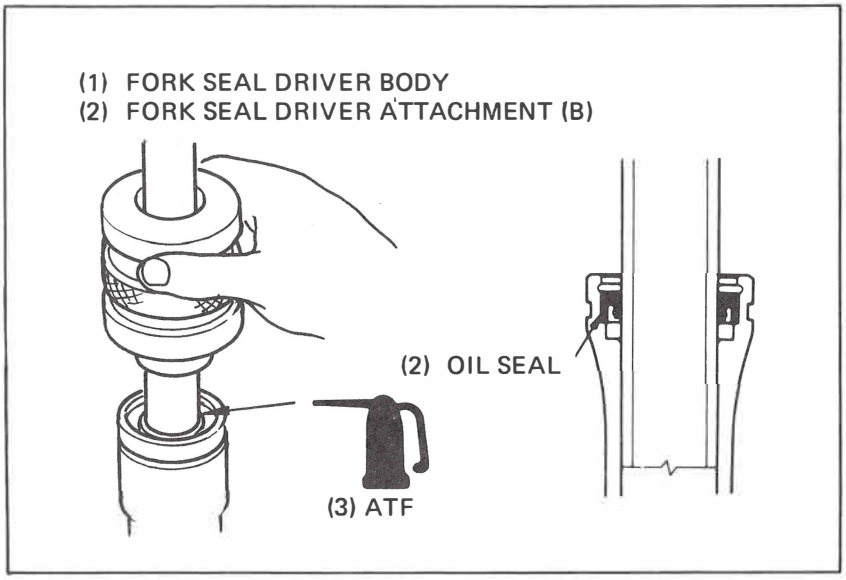
TORQUE: 8–12 N·m (0.8–1.2 kg-m, 6–9 ft-lb)



Install the oil seal into the top of the fork slider.

NOTE

Apply ATF to the dust seal and drive it in with the fork seal driver.
The fork seal is seated when the groove in the slider is seen at top of the seal.



Install the snap ring and dust seal.

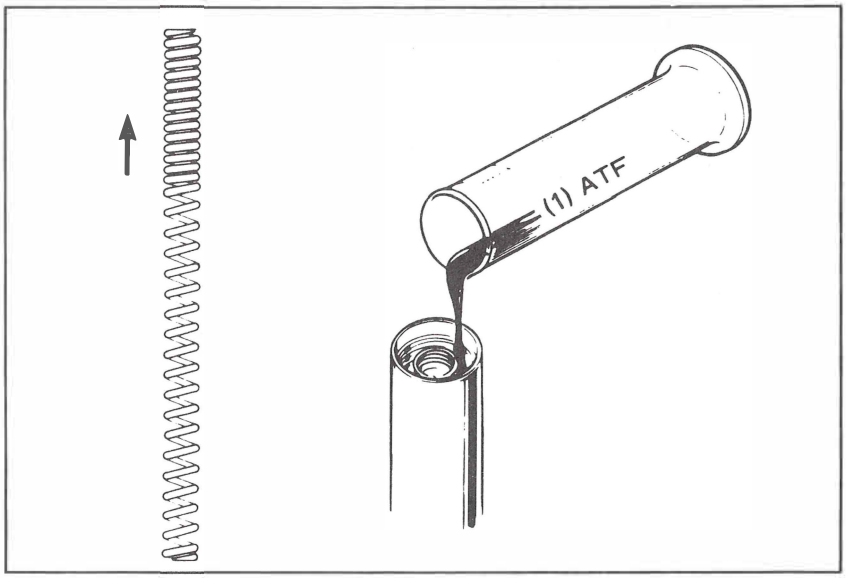
Fill the forks with the specified amount of ATF.

SPECIFIED FLUID:
HONDA ATF or equivalent
CAPACITIES:
MB50: 72.5–77.5 cm³ (2.5–2.6 US oz, 2.0–2.2 Imp oz)
MT50: 83.0–88.0 cm³ (2.8–3.0 US oz, 2.3–2.5 Imp oz)

Install the fork spring.

NOTE

Install the spring with the narrow pitch end facing up.



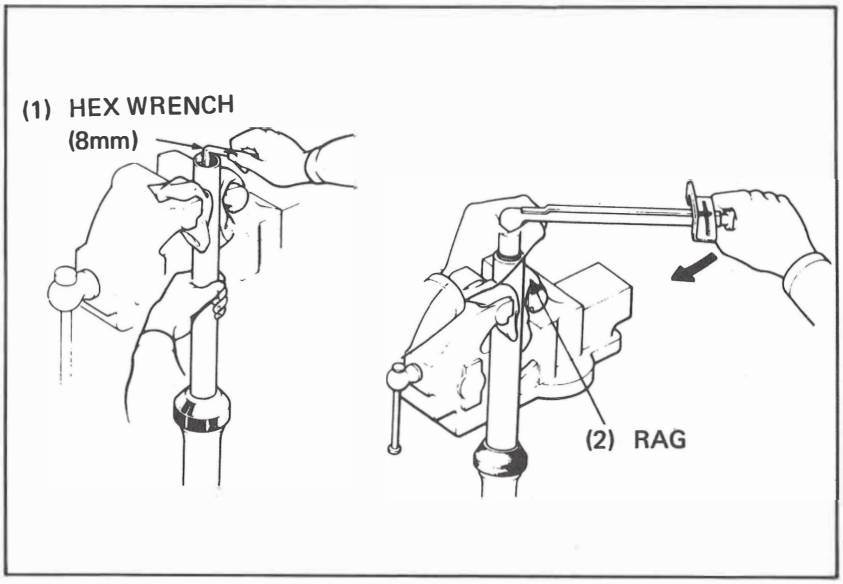
Tighten the inner bolt. (MB50)

Tighten the fork bolt. (MT50)

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

NOTE

Hold the fork tube in a vice, avoiding the sliding surface.

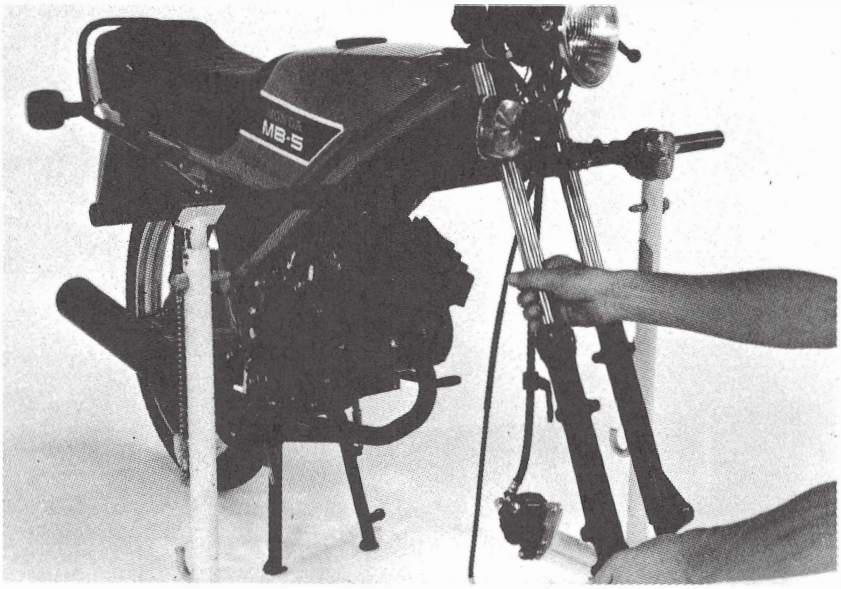


FRONT FORK INSTALLATION

[MB50]

Install the fork tubes in the fork top and bottom bridges while rotating them by hand.

Ensure that each tube bears against the fork top bridge.



Tighten the right and left fork pinch bolts to the specified torque.

TORQUE:
20–30 N·m (2.0–3.0 kg-m, 14–22 ft-lb)

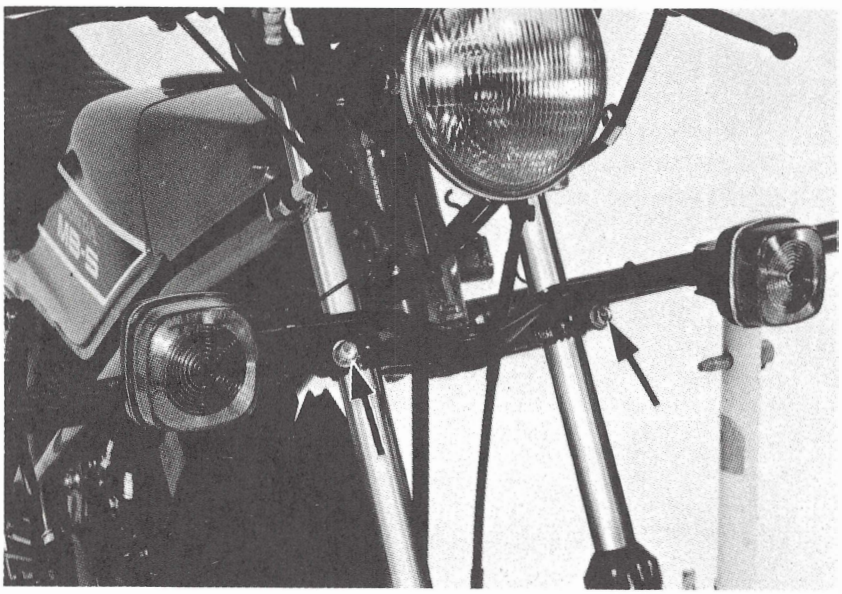
Tighten the front fork bolts at the bottom bridge.

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

NOTE

Install the turn signals so the beams will be horizontal.

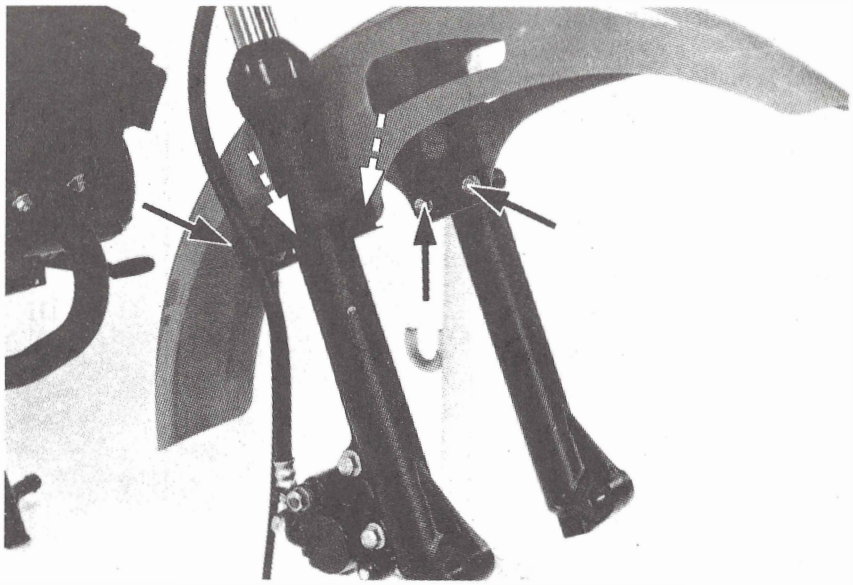
Install the fairing stays.



Install the fender.
Install the brake caliper.

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

Install the front wheel.

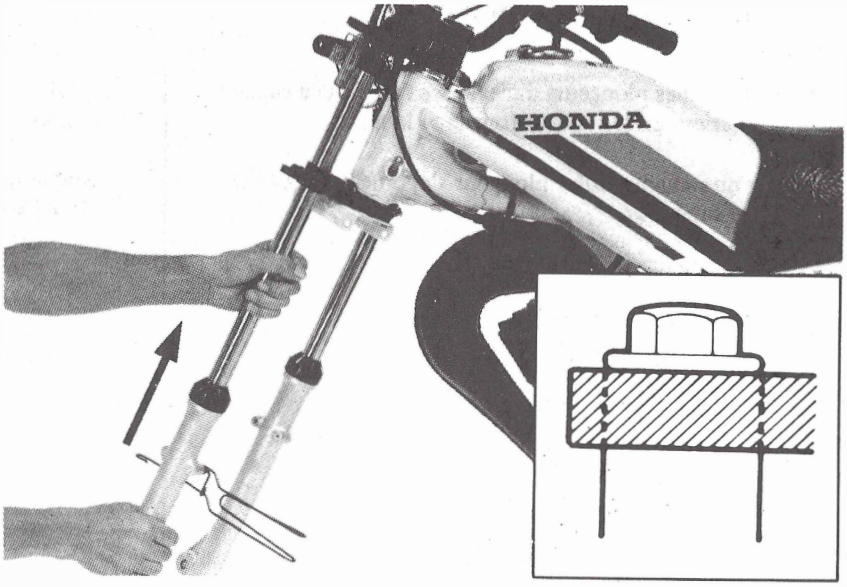


[MT50]

Install the fork tubes in the fork top and bottom bridges.

NOTE

Ensure that the top of each tube is in line with the top of the fork top bridge.



Position the front brake cable guides on the fork top and bottom bridges and install the fork top bridge pinch bolts.

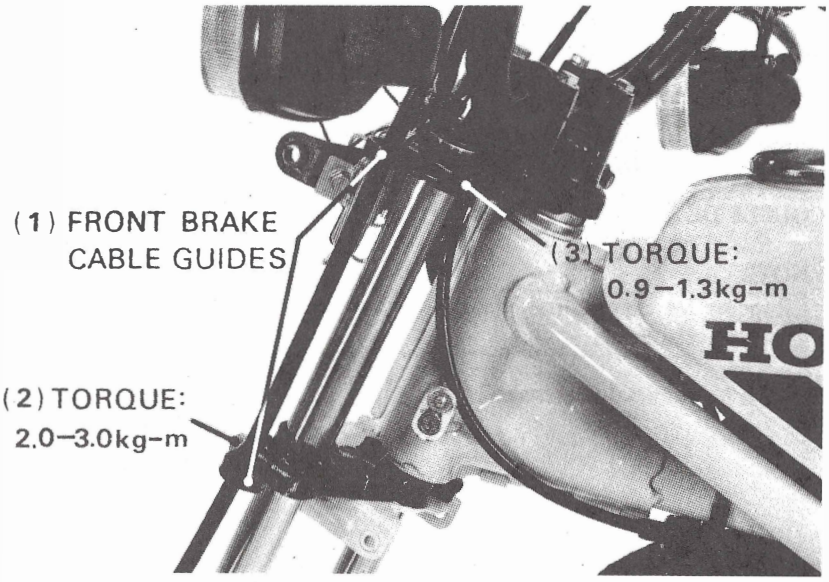
Tighten the bolts to the specified torque.

TORQUE: 9–13 N·m (0.9–1.3 kg-m, 7–9 ft-lb)

Install the fork bottom bridge pinch bolts and tighten to the specified torque.

TORQUE: 20–30 N·m (2.0–3.0 kg-m, 14–22 ft-lb)

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



FORK TOP BRIDGE REMOVAL

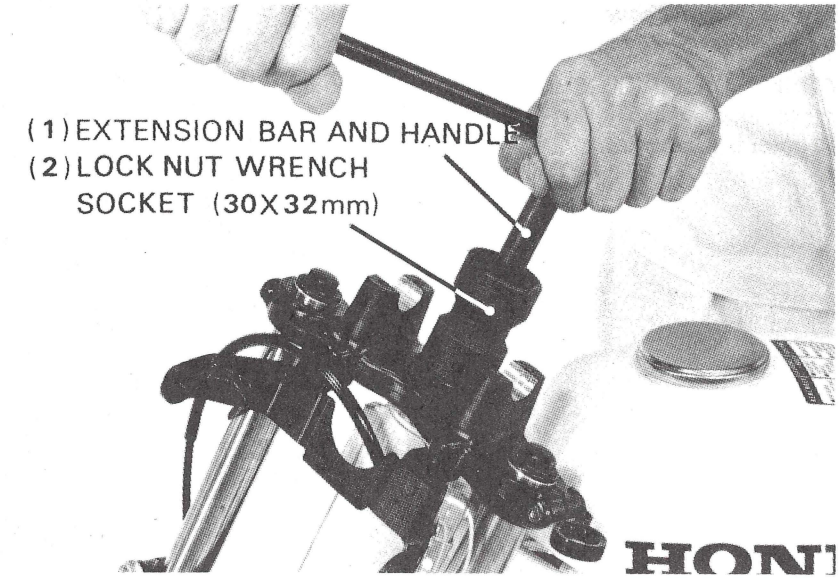
[MT50]

Remove the headlight and headlight case.
Remove the speedometer.

Remove the handlebar.
Remove the front wheel.

Remove the front fender.
Loosen the front fork bolts.

Remove the steering stem nut.
Remove the fork top bridge.



STEERING STEM

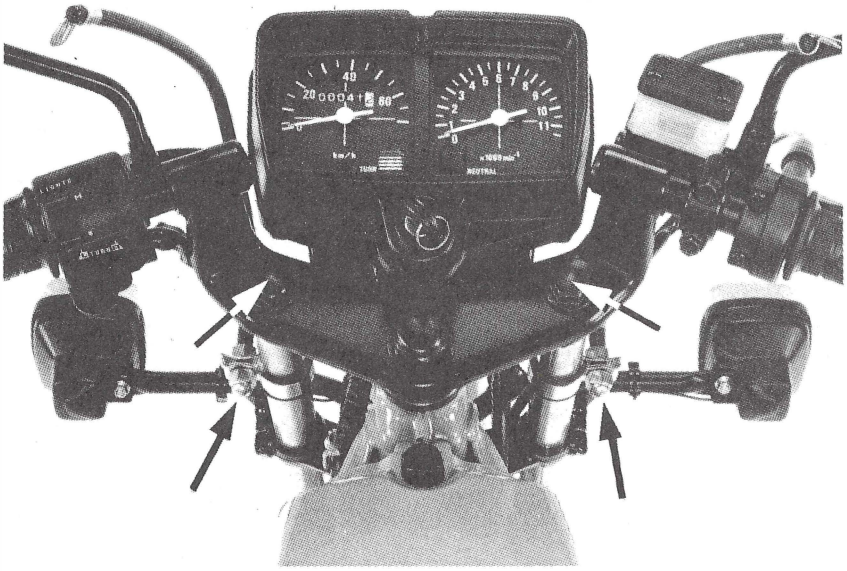
STEERING STEM REMOVAL

Remove the headlight (Page 10–6).
Remove the instruments.

Remove the horn.
Remove the front wheel and front fender (Page 10–12).

Remove the handlebar (MB50) (Page 10–8)
Remove the fork top bridge.

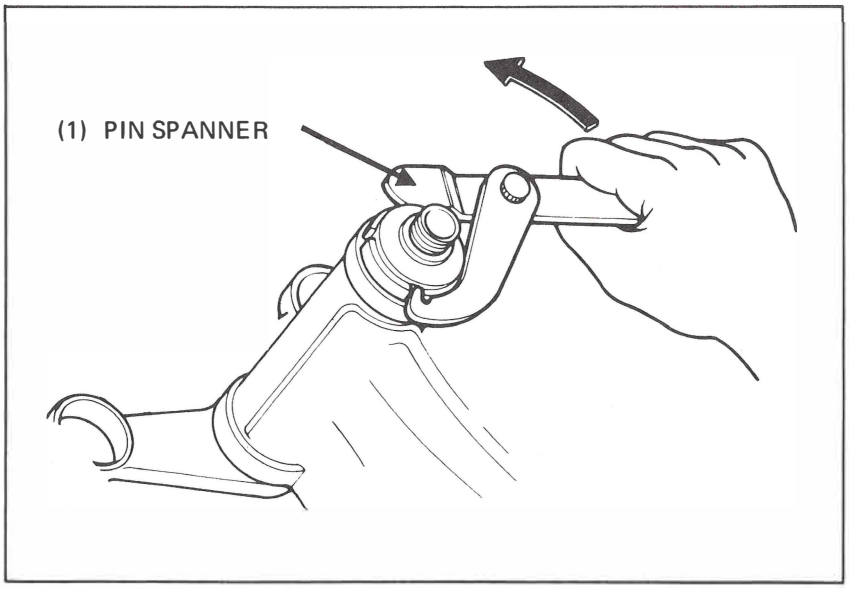
Remove the front fork (Page 10-19).

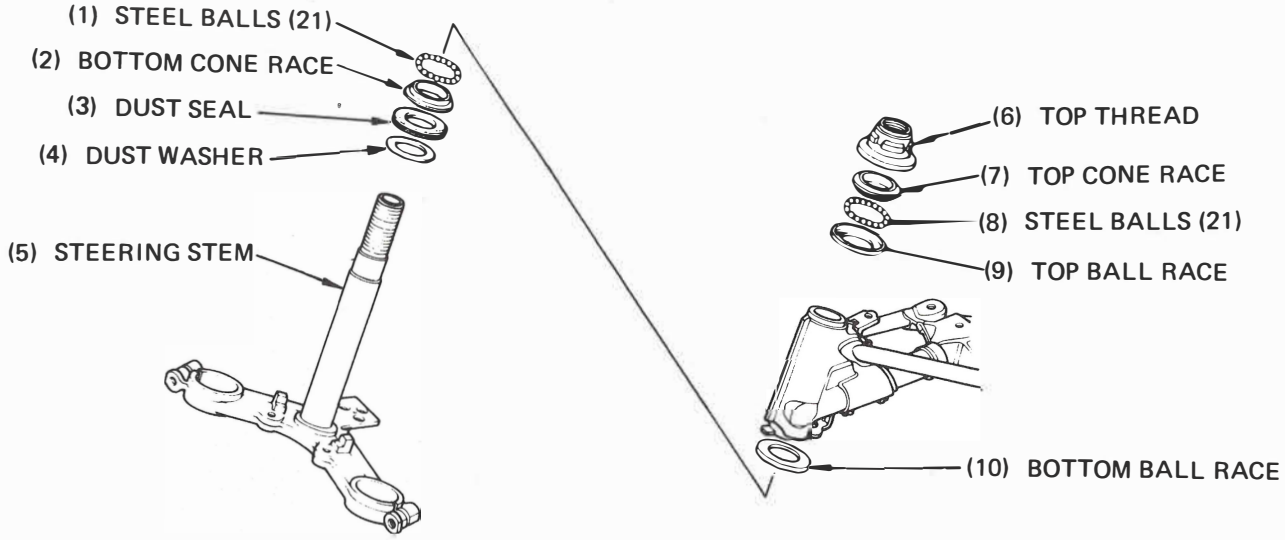


Remove the steering head top thread nut.
Remove the steering stem.

NOTE

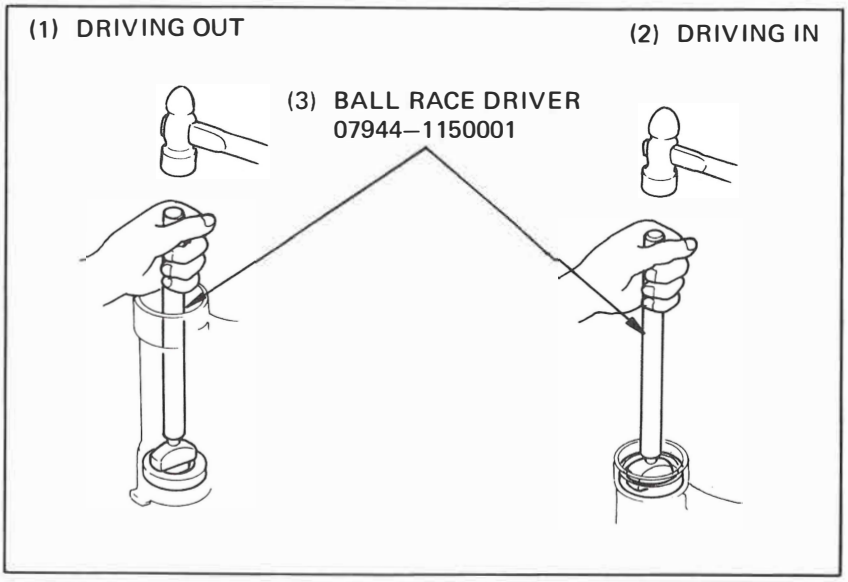
Do not allow the steel balls to fall.





BALL RACE DISASSEMBLY/ ASSEMBLY

Use the special tool "BALL RACE DRIVER" to disassemble and reassemble the ball races.

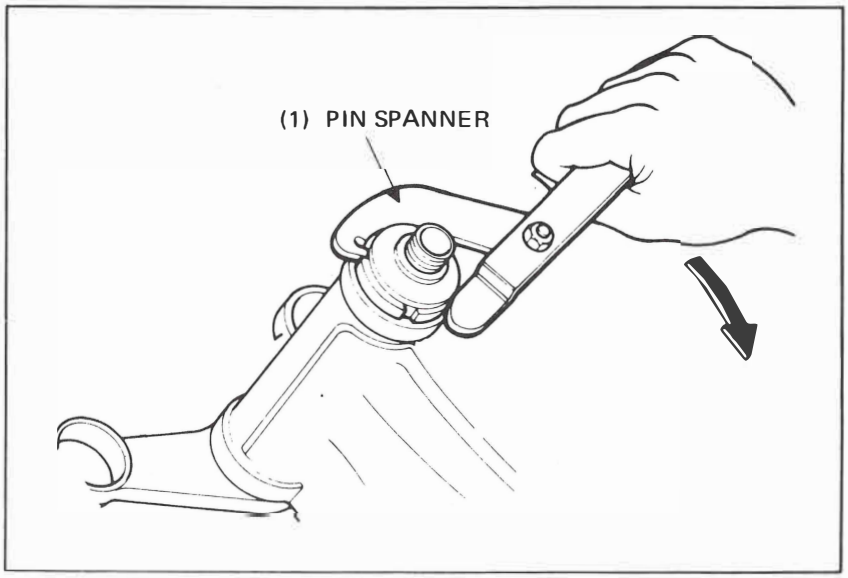


STEERING STEM INSTALLATION

Install the washer and dust seal.
Grease the ball race, steel balls and cone race.
Install the steering stem.

Install the steering head top thread nut in the frame neck and tighten it until snug against the stop cone race, then back it out 1/8 turn.

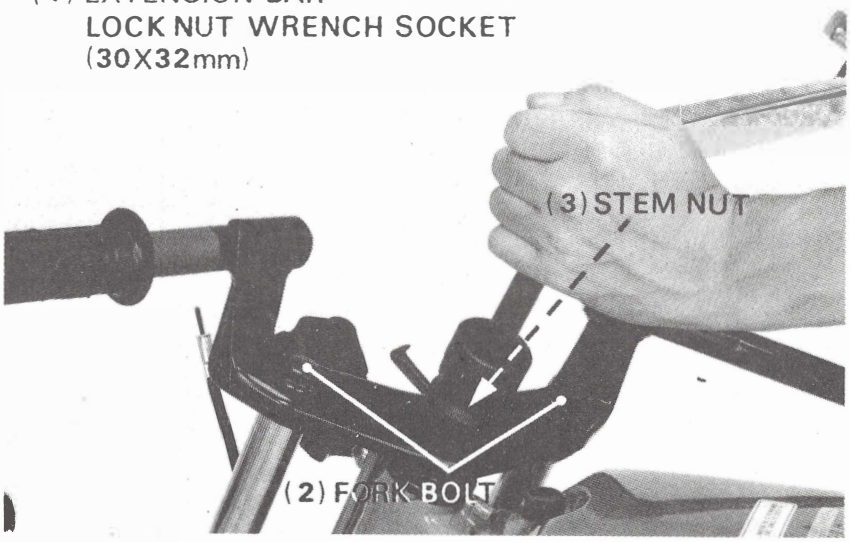
Make sure that there is no vertical movement and the stem rotates freely.



Loosely install the front fork legs by screwing in the fork bolts (MB50).
Install the steering stem nut on the handlebar and torque the bottom bridge bolts and fork bolts (MB50).

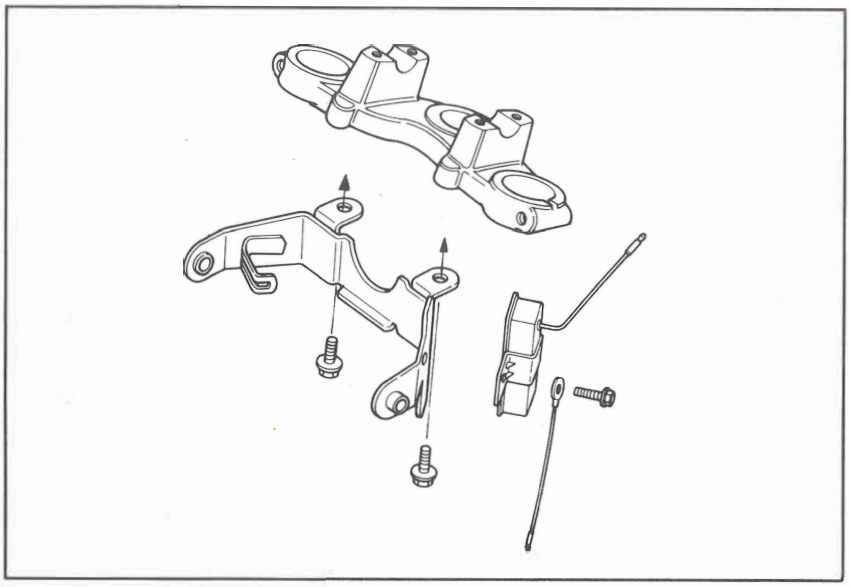
TORQUES:
Stem nut
60–90 N·m (6.0–9.0 kg-m, 43–65 ft-lb)
Fork bolt
60–80 N·m (6.0–8.0 kg-m, 43–56 ft-lb)
Bottom bridge
20–30 N·m (2.0–3.0 kg-m, 14–22 ft-lb)

(1) EXTENSION BAR
LOCK NUT WRENCH SOCKET
(30X32mm)



FORK TOP BRIDGE INSTALLATION
[MT50]

Loosely attach the front fork.
Install the headlight case bracket and resister on the fork top bridge.



Install the fork top bridge.
Tighten the steering stem nut.

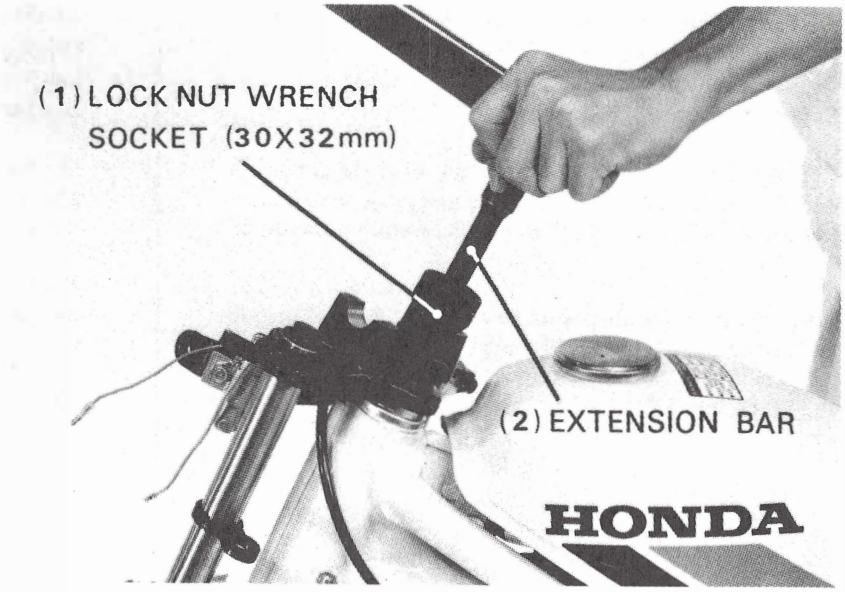
TORQUE: 60–90 N·m (6.0–9.0 kg-m, 43–65 ft-lb)

Install the front fork.
Install the front wheel and front fender.

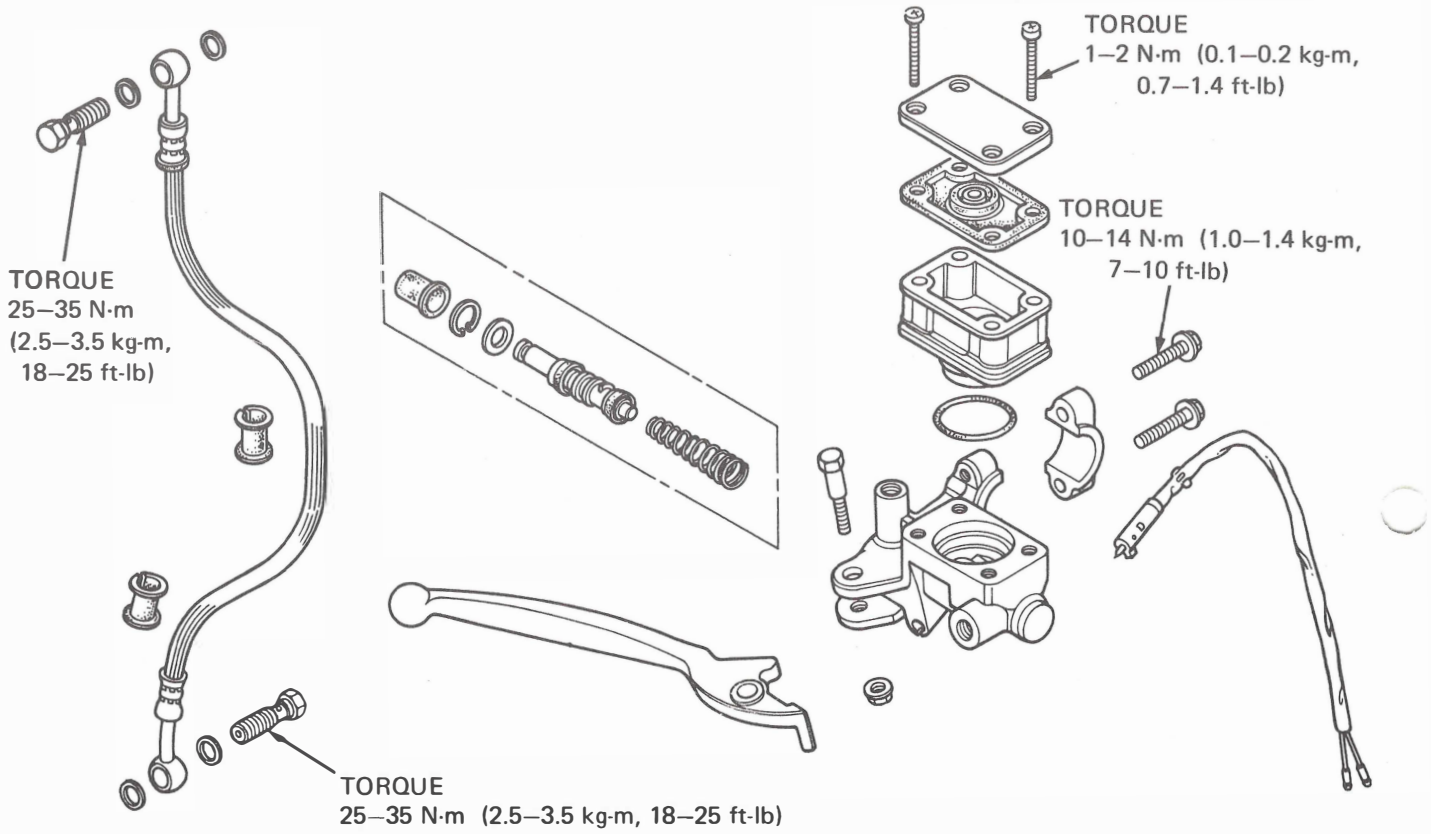
Install the handlebar.
Install the speedometer and headlight case.

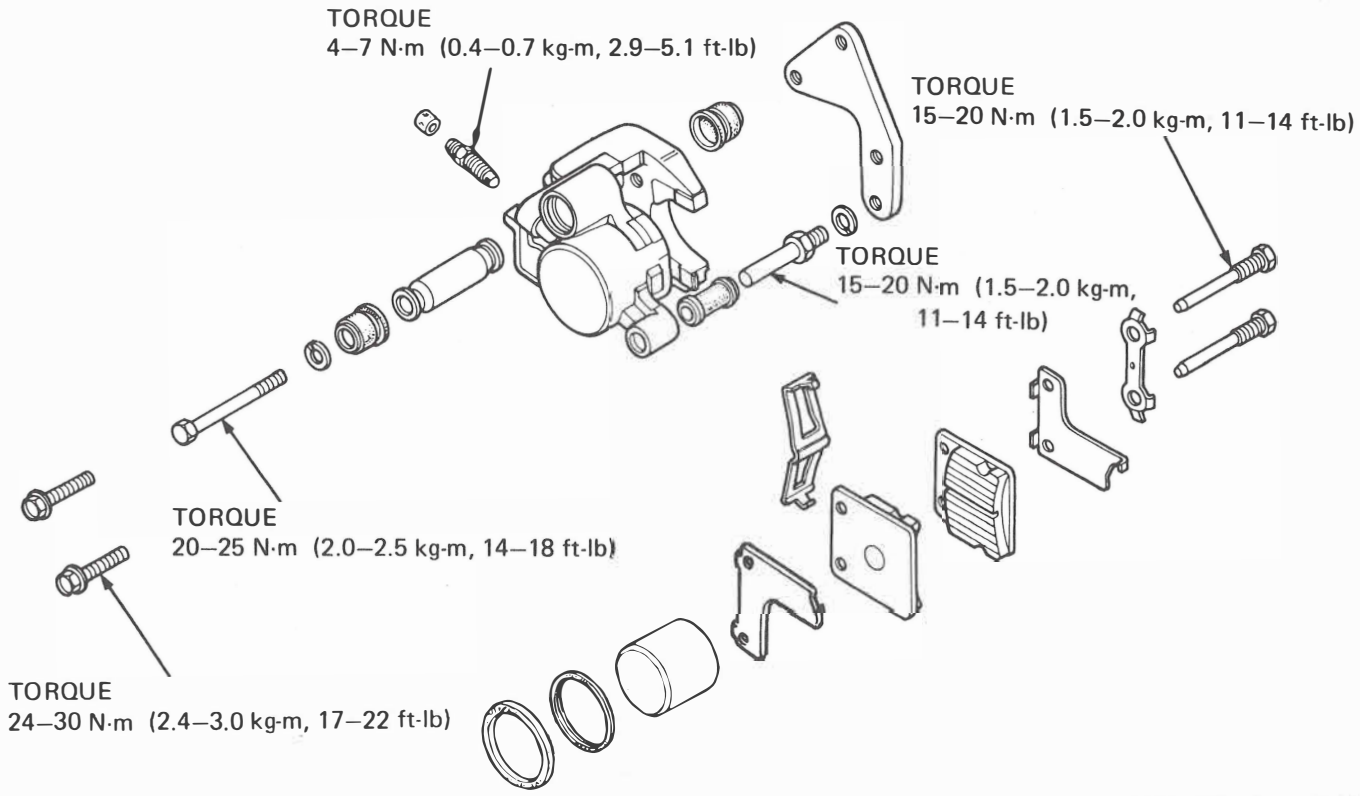
Check that all wires and cables are routed properly.

Install the headlight.



MEMO


TORQUE
1–2 N·m (0.1–0.2 kg-m,
0.7–1.4 ft-lb)
TORQUE
10–14 N·m (1.0–1.4 kg-m,
7–10 ft-lb)
TORQUE
25–35 N·m
(2.5–3.5 kg-m,
18–25 ft-lb)
TORQUE
25–35 N·m (2.5–3.5 kg-m, 18–25 ft-lb)


TORQUE
4–7 N·m (0.4–0.7 kg-m, 2.9–5.1 ft-lb)
TORQUE
15–20 N·m (1.5–2.0 kg-m, 11–14 ft-lb)
TORQUE
15–20 N·m (1.5–2.0 kg-m,
11–14 ft-lb)
TORQUE
20–25 N·m (2.0–2.5 kg-m, 14–18 ft-lb)
TORQUE
24–30 N·m (2.4–3.0 kg-m, 17–22 ft-lb)

11. BRAKE MECHANISM(FRONT DISC BRAKE)

SERVICE INFORMATION

GENERAL INSTRUCTIONS

- The front brake pads can be replaced without disconnecting the brake hose. Once the hydraulic system has been opened, or if the brake feels spongy, the system must be bled.
- The brake caliper should be disassembled before the master cylinder is disassembled.
- Do not allow foreign material to enter the system when filling the reservoir.
- Avoid spilling brake fluid on painted surfaces or instrument lenses, as severe damage will result.

SPECIAL TOOLS

Special Tool Snap Ring Pliers	07914–3230001

SPECIFICATIONS

ITEM	STANDARD mm (in)		SERVICE LIMIT mm (in)	
Disc thickness	3.8–4.2	(0.150–0.165)	3.0	(0.118)
Disc runout	0–0.15	(0–0.006)	0.3	(0.012)
Master cylinder I. D.	12.700–12.743	(0.5000–0.5017)	12.755	(0.5022)
Master piston O. D.	12.657–12.684	(0.4983–0.4994)	12.640	(0.4976)
Caliper cylinder I. D.	30.230–30.280	(1.1902–1.1921)	30.290	(1.1925)
Caliper piston O. D.	30.148–30.198	(1.1869–1.1889)	30.140	(1.1866)

TROUBLESHOOTING

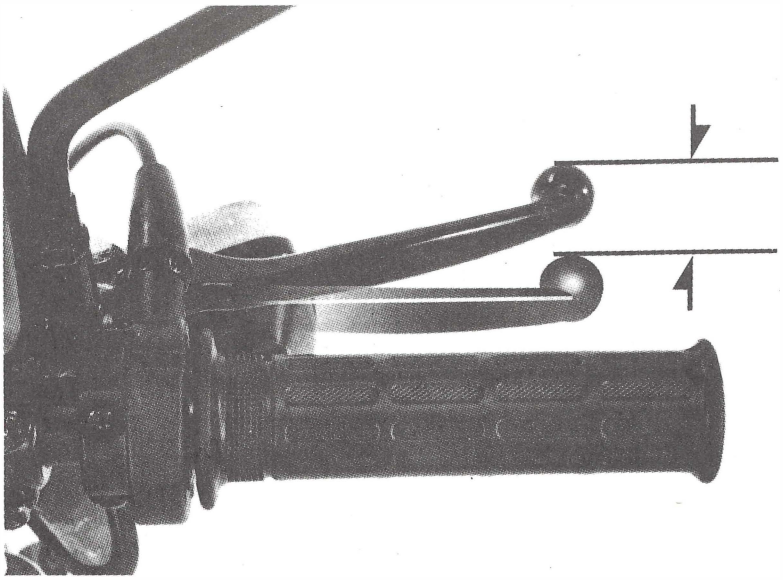
Poor brake performance

1. Air bubbles in hydraulic system
2. Worn brake pads
3. Pads fouled or glazed
4. Hydraulic system leaking

BRAKE FLUID/AIR BLEEDING

Check the front brake lever free play. If the play is excessive, check the brake pad for wear and bleed air from the brake hydraulic system.

FREE PLAY: 10–20 mm (3/8–4/5 in)



Remove the fairing.

Remove the cap from the reservoir by removing the attaching screws. Remove the diaphragm.

CAUTION

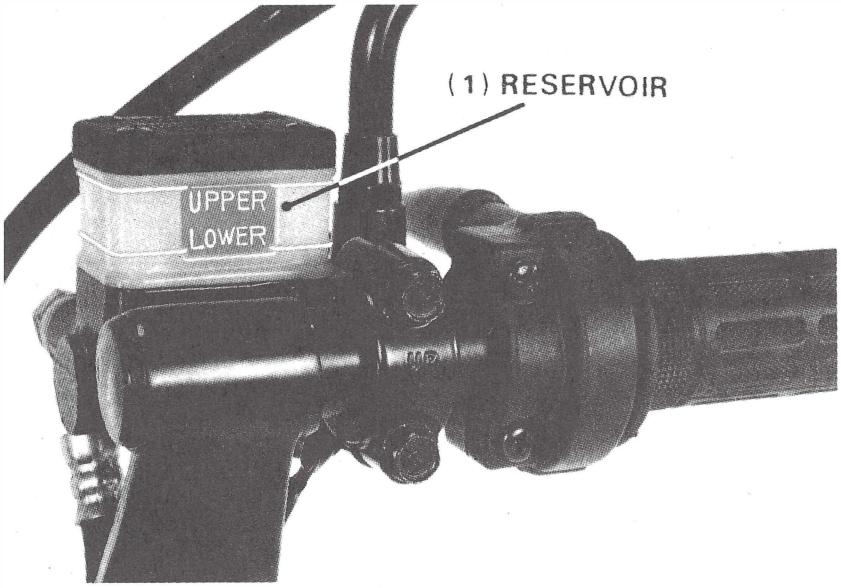
Avoid spilling fluid on painted surfaces, plastic lenses or rubber parts as it can cause damage to them.

Fill the brake fluid reservoir up to the UPPER LEVEL mark

CAUTION

Do not mix different brands of fluid since they are not compatible.

SPECIFIED BRAKE FLUID:
DISC BRAKE FLUID J1703

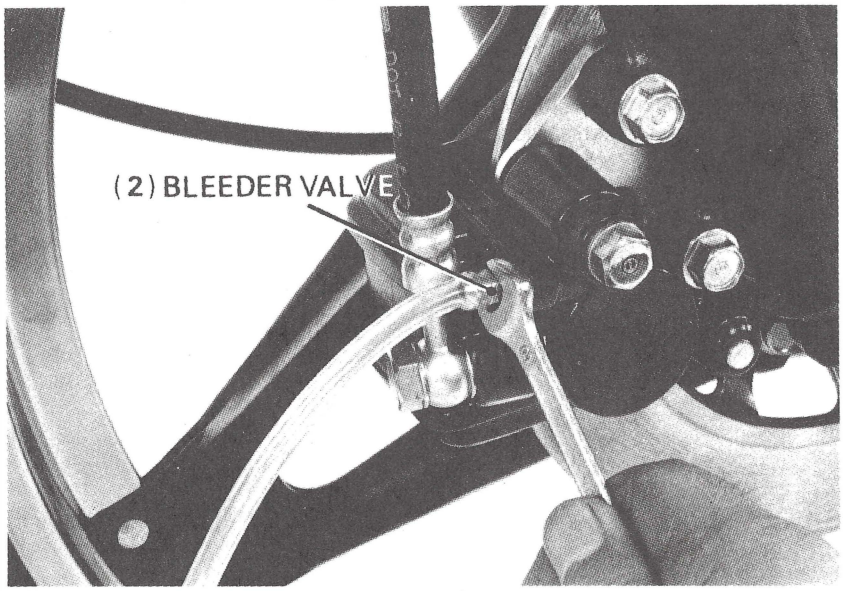


Connect an extension tube to the bleeder valve with the open end submerged in a glass jar.

With the brake lever pulled all the way back to the handlebar grip, turn the bleeder valve about 1/2 rotation out, then retighten.

NOTE

Do not release the brake lever until the bleeder valve has been closed.



Release the brake lever gradually and wait several seconds after it reaches the end of its travel.

Repeat the above steps until there are no air bubbles in the fluid flowing out of the bleeder valve.

NOTE

- Keep the reservoir filled while bleeding the system.
- Do not reuse brake fluid.

Close the bleeder valve.

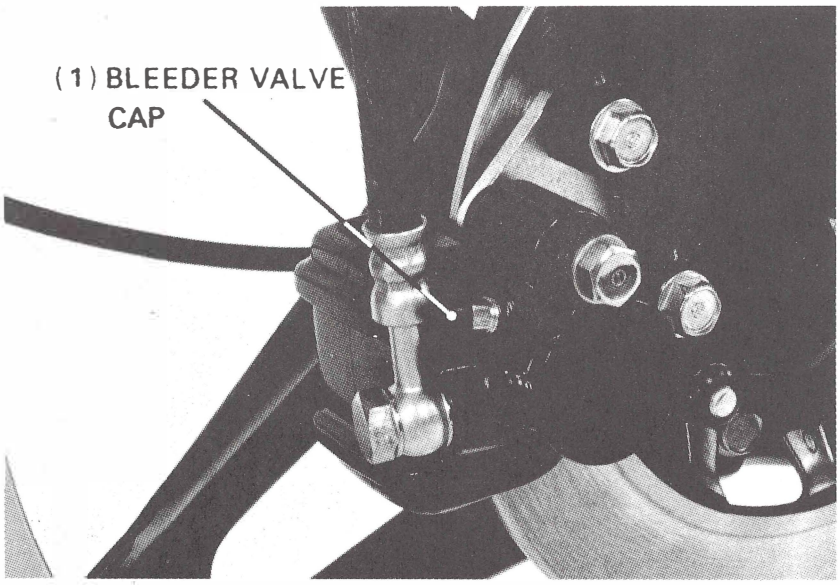
TORQUE: 4–7 N·m (0.4–0.7 kg-m, 2.9–5.1 ft-lb)

Fill the reservoir up to the UPPER FLUID LEVEL.

Check the entire system for leaks by operating the lever.

WARNING

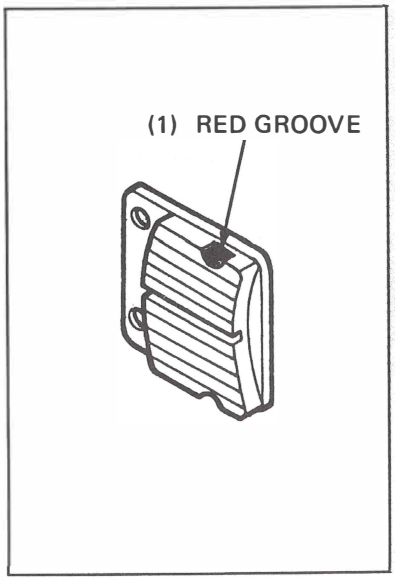
A contaminated brake disc or pads reduces stopping power. Replace contaminated pads, and clean a contaminated disc with a good quality degreasing agent.

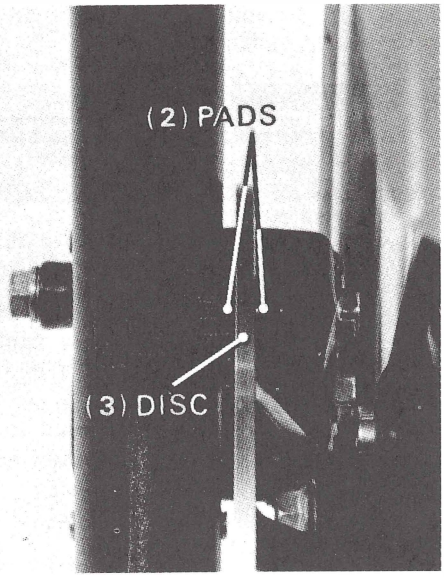


BRAKE PAD/DISC

BRAKE PAD INSPECTION

The front brake pads require replacement if the red groove in the sides of the pads reaches the edges of the brake disc.





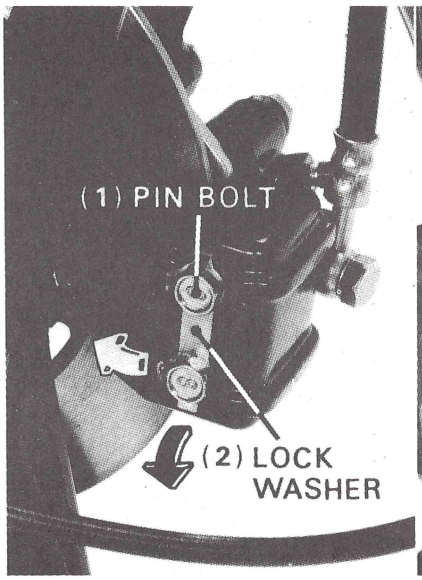
BRAKE PAD REPLACEMENT

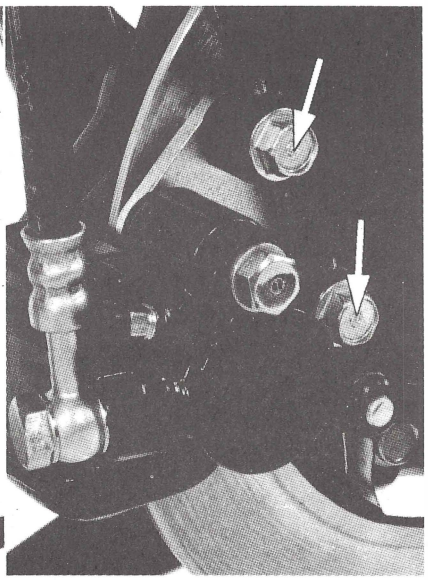
NOTE

Do not disconnect the brake hose when replacing the brake pads.

Straighten the tabs of the lock washer and loosen the pin bolts.

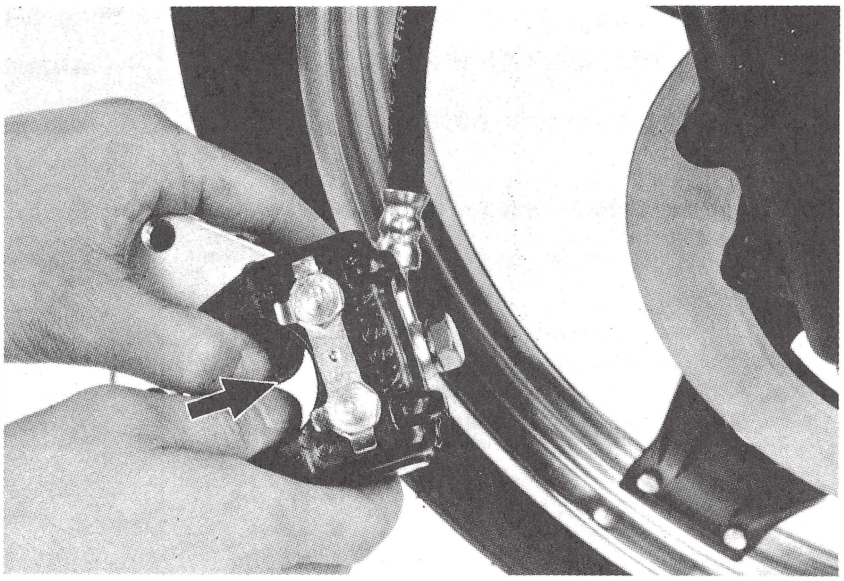
Remove the two caliper bolts and remove the caliper from the fork leg.





Push the piston all the way in to allow installation of new brake pads.

Remove the two pin bolts, then the brake pads and shims.

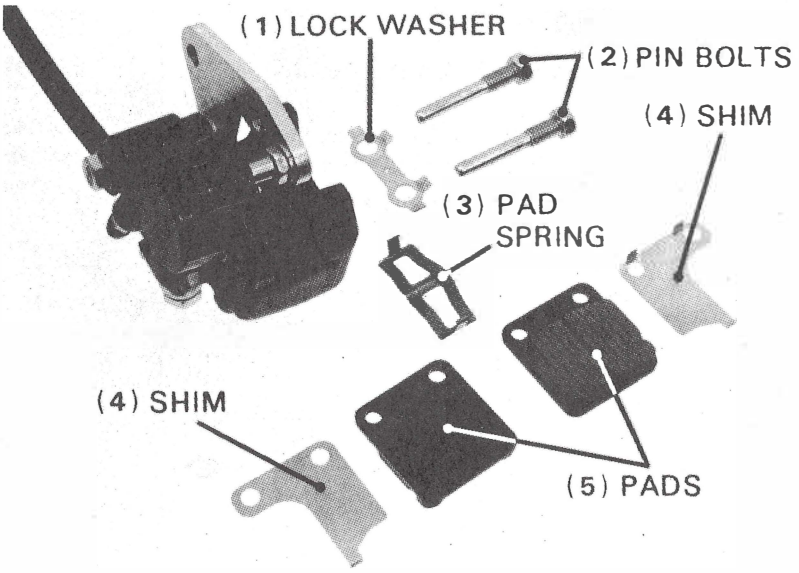


Clean the brake caliper.

Install the shims, brake pads, pad spring and lock washer and loosely install the pin bolts.

CAUTION

- *Do not reuse old lock washer.*
- *Replace both pads as a set. Do not replace one without replacing another.*
- *Install the shim on the back of the pad.*



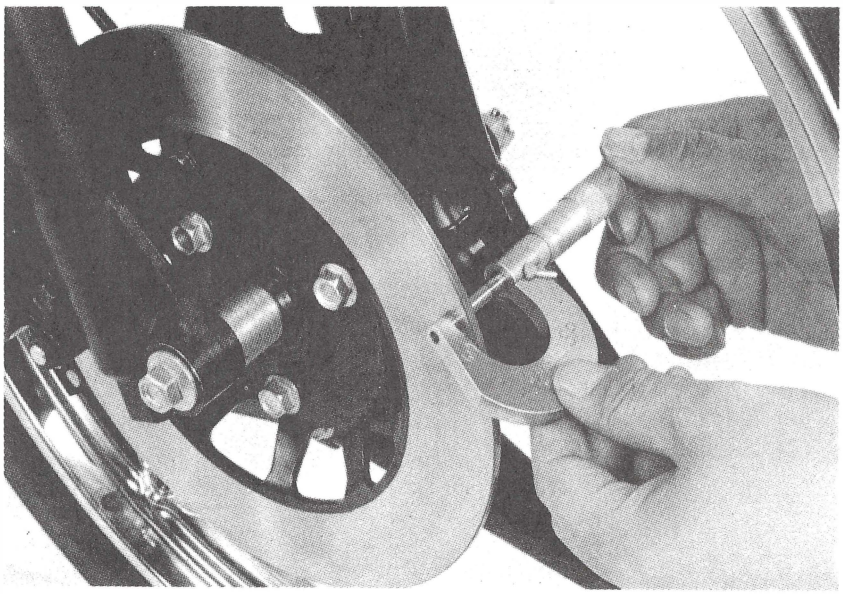
Ensure that the pin bolts are inserted through the holes in the brake pads.

Install the caliper on the fork leg.

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

Tighten the pin bolts to the specified torque and bend the tabs of the lock washer against the side of each bolt.

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



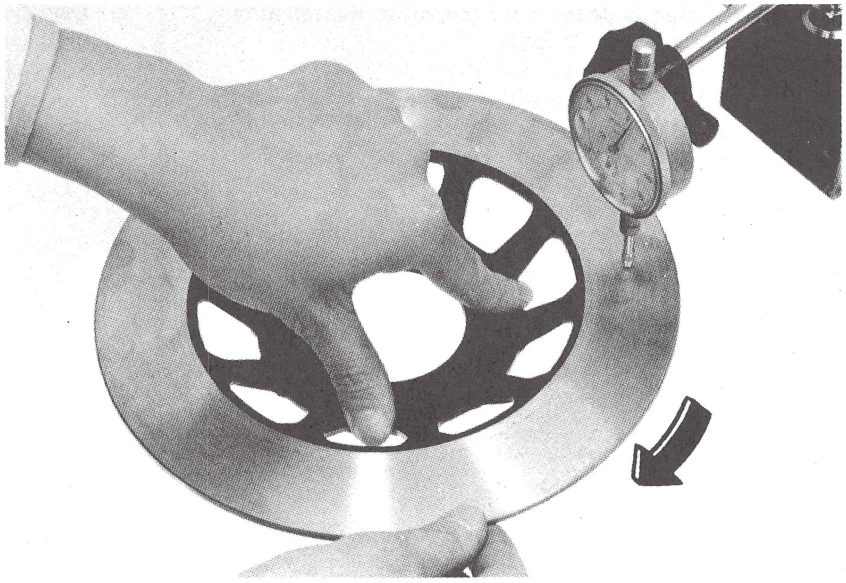
BRAKE DISC INSPECTION

Measure the brake disc thickness.

SERVICE LIMIT: 3.0 mm (0.118 in)

Measure the brake disc warpage.

SERVICE LIMIT: 0.3 mm (0.012 in)

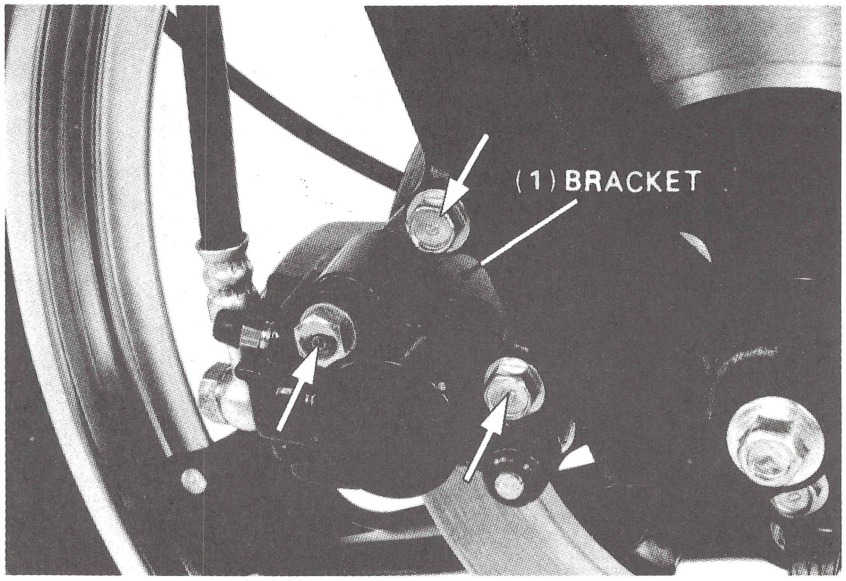


BRAKE CALIPER

BRAKE CALIPER REMOVAL

Straighten the tabs of the lock washer and loosen the pin bolts.
Loosen the caliper bracket bolts.

Remove the two bolts attaching the caliper and remove the caliper from the fork leg.
Remove the bracket from the caliper.



BRAKE CALIPER DISASSEMBLY

Remove the pad, shim and spring by removing the pin bolts.

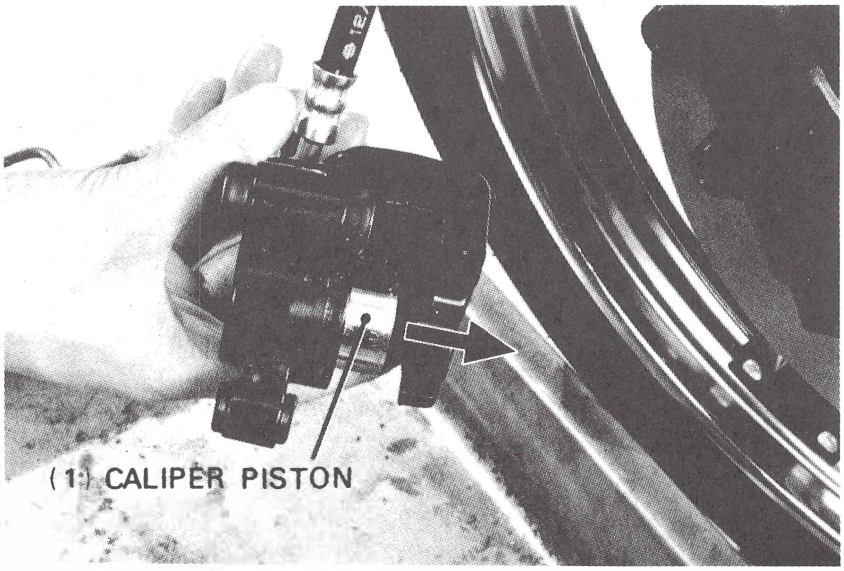
Operate the brake lever to force the piston out from the cylinder.

NOTE

- Place an oil pan under the caliper to receive brake fluid drained.
- Avoid spilling brake fluid on painted surfaces, plastic lenses or rubber parts.

Disconnect the brake hose from the caliper.

If the piston is seized in the caliper, observe the following steps.

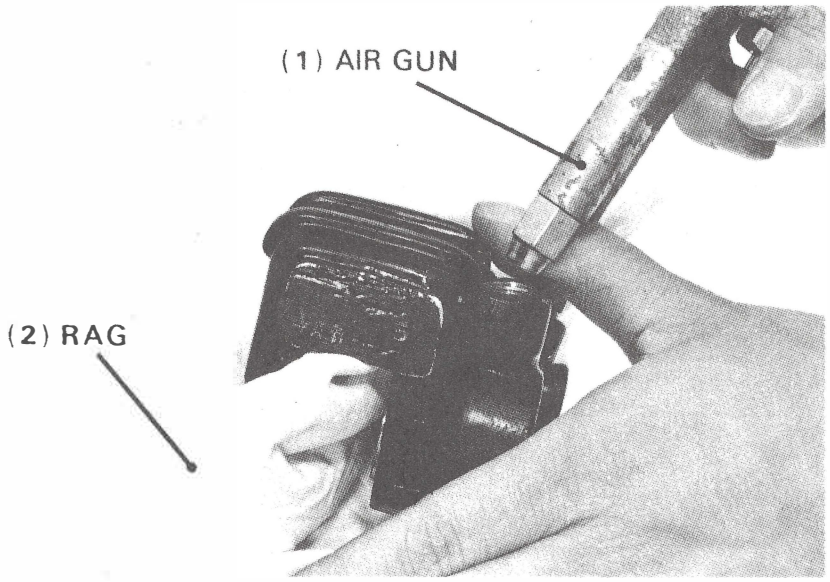


Disconnect the brake hose from the caliper.

Place a shop towel or rag over the piston to prevent the piston and brake fluid from coming out, and apply a small amount of air pressure to the fluid inlet.

WARNING

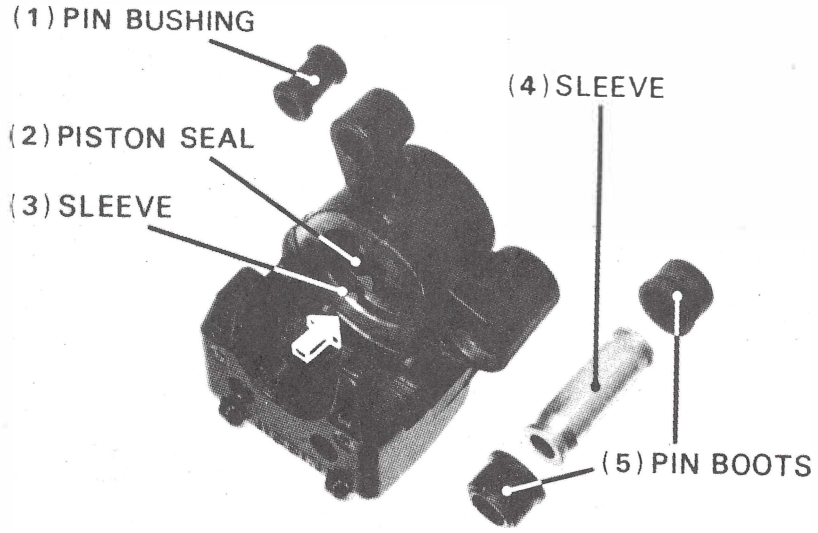
Do not use high pressure air or bring the nozzle too close to the inlet.



Remove the sleeve.
Remove the pin bushing and pin boots.

Lift out the piston and dust seals by first pushing them in into the cylinder as shown.

Clean the caliper grooves with brake fluid.
Replace the piston and dust seals with new ones.

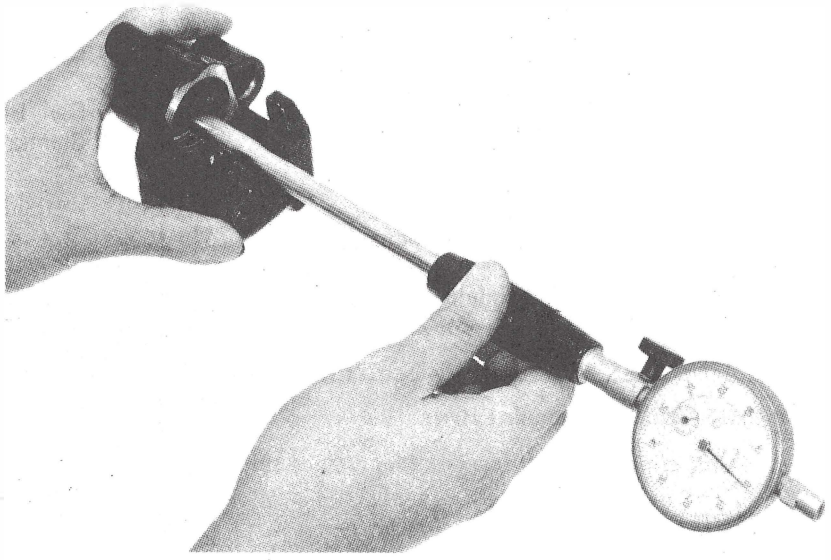


CALIPER CYLINDER INSPECTION

Check the caliper cylinder for scoring, scratches or other defects.

Measure the caliper cylinder I. D.

SERVICE LIMIT: 30.290 mm (1.1925 in)

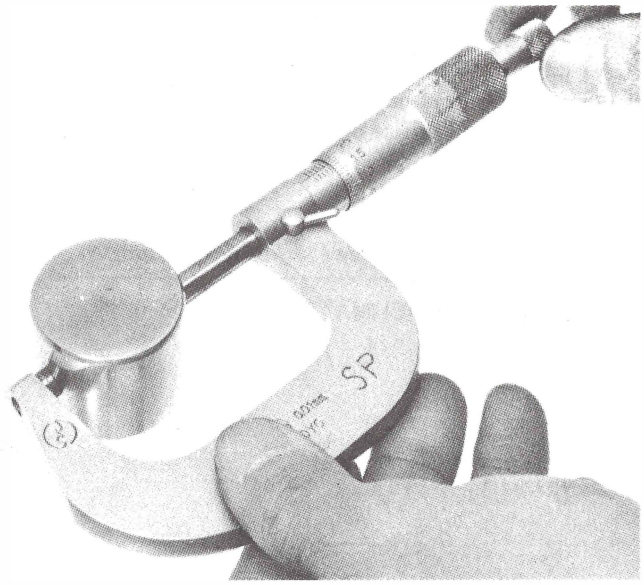


CALIPER PISTON INSPECTION

Check the piston for scoring, scratches or other defects.

Measure the caliper piston O. D.

SERVICE LIMIT: 30.140 mm (1.1866 in)



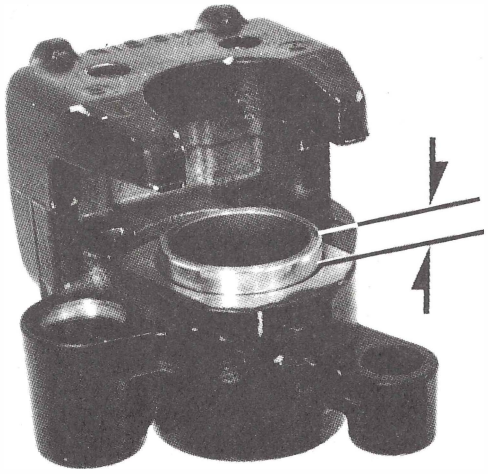
BRAKE CALIPER ASSEMBLY

Wash all the removed parts. Coat the piston and dust seals with silicon grease.

Lubricate the inside diameter of the caliper cylinder with brake fluid and install the piston with the concaved end on the brake pad side.

NOTE

Install the piston with the end 3–5 mm (1/8–1/5 in) projecting above the caliper.



Install the brake hose and seal washer.

TORQUE:
25–35 N·m (2.5–3.5 kg-m, 18–25 ft-lb)

Wipe excess brake fluid off the caliper with a clean cloth.

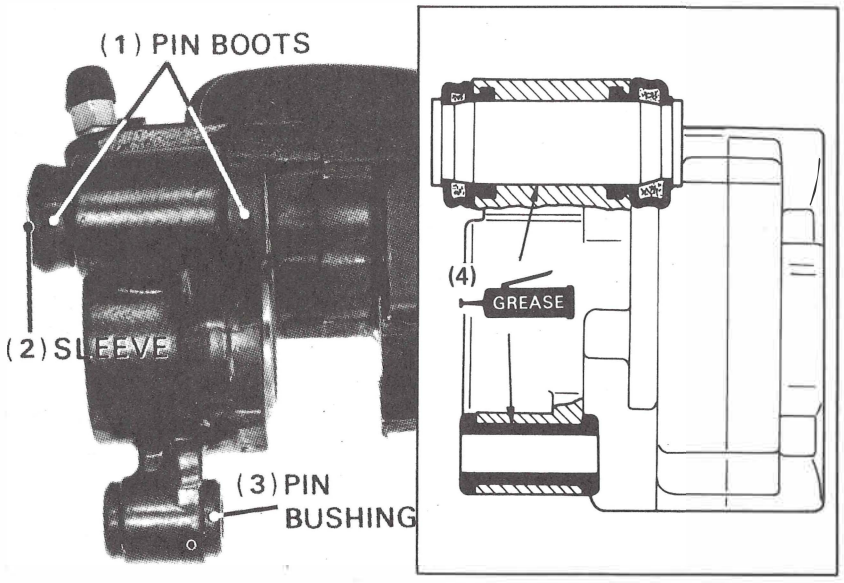
Lubricate the insdie of the pin boot with silicon grease and install the bushing in the caliper.

Apply silicon grease to the sleeve contacting face of the caliper and install a pin boot in the caliper.

Install the sleeve, then the pin boolts on the sleeve.

NOTE

Make sure that the pin boots are installed in the caliper and sleeve properly.



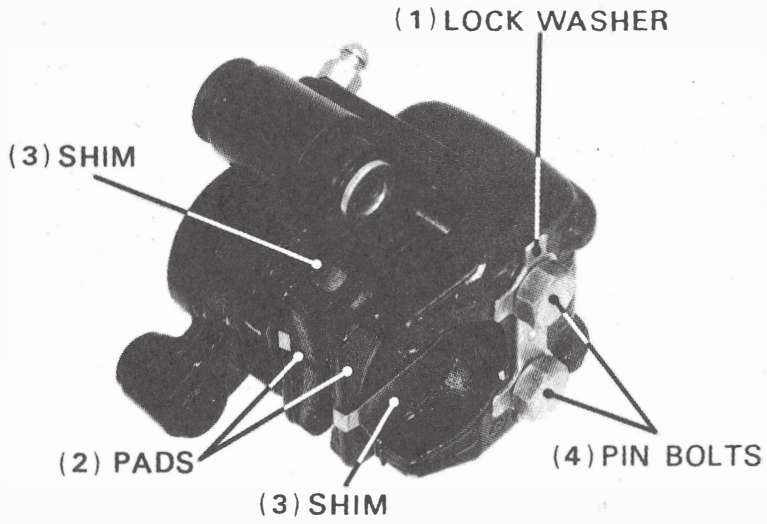
Install the pad spring, pads and shims with the pin bolts.

NOTE

If the brake pad is dirty, clean with a sand paper.

Loosen install the pin bolts.

Make sure that the pin bolts are inserted through the holes in the brake pad and shim.



BRAKE CALIPER INSTALLATION

Install the bracket to the caliper.
Install and tightenthe caliper to the front fork to the specified torque.

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

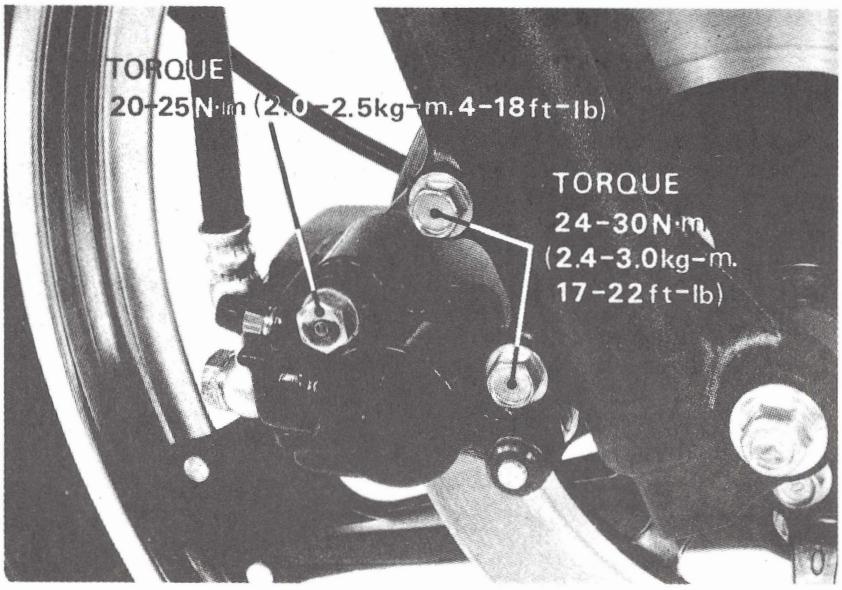
Tighten the bracket bolts to the specified torque.

TORQUE: 20–25 N·m (2.0–2.5 kg-m, 14–18 ft-lb)

Tighten the pin bolts and secure with the lock washer.

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

After the front brake has been installed, bleed air from the system (Page 11–2).



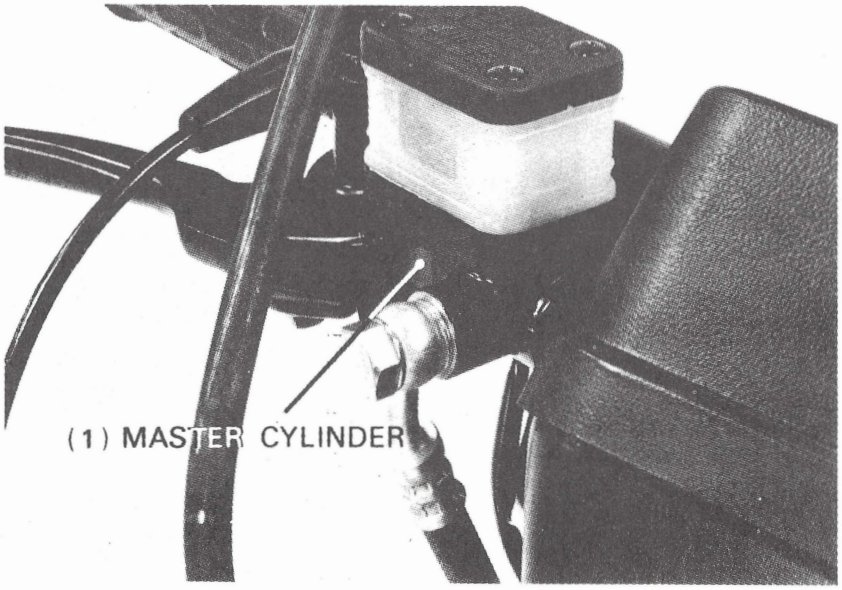
BRAKE MASTER CYLINDER

MASTER CYLINDER REMOVAL

Drain brake fluid from the bleeder valve by operating the brake lever.

Remove the brake lever, front stoplight switch, rear view mirror and brake hose.

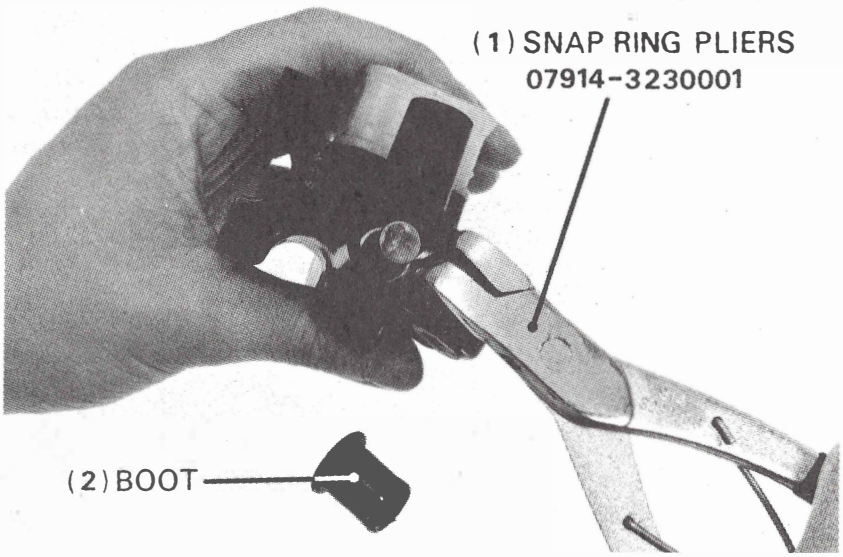
Remove the master cylinder from the handle-bar.



MASTER CYLINDER DISASSEMBLY

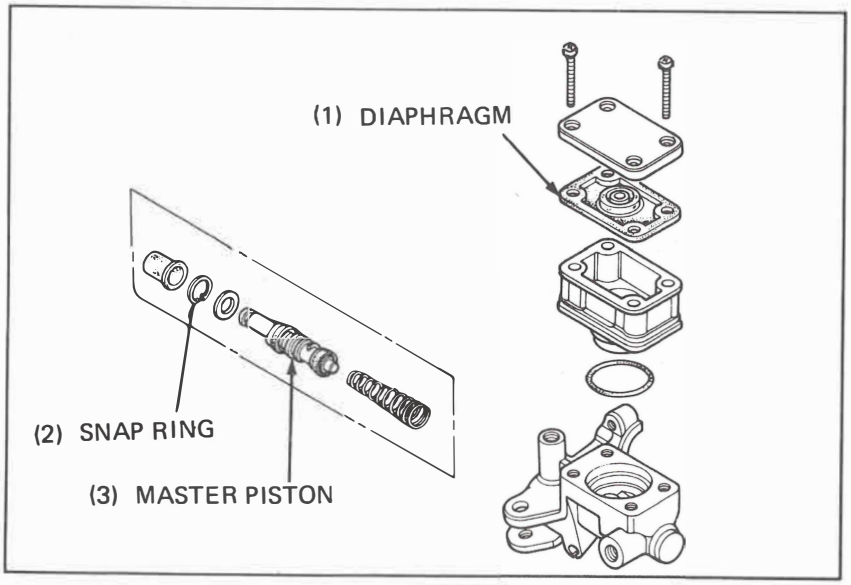
Remove the reservoir cap and diaphragm.
Remove the boot.
Remove the snap ring.

Remove the stopper plate, master cylinder piston and spring.



Remove the reservoir from the master cylinder.

Clean the master cylinder and reservoir in brake fluid.

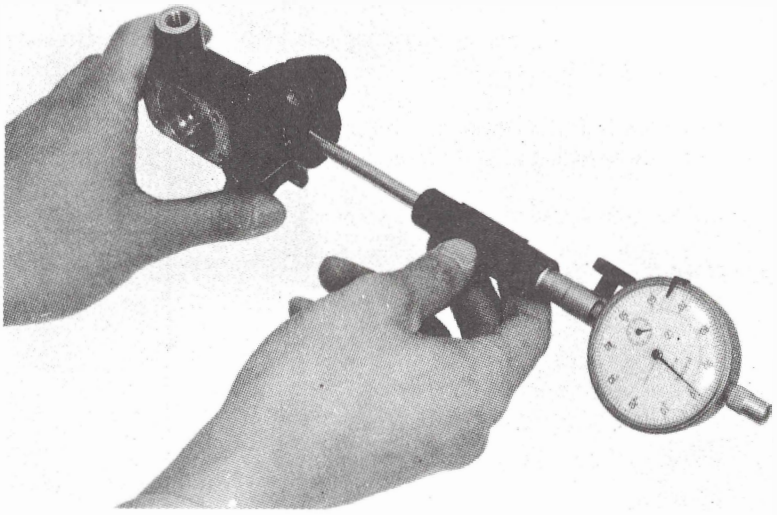


MASTER CYLINDER INSPECTION

Check the master cylinder for score marks, scratches or other defects.

Measure the master cylinder I. D.

SERVICE LIMIT: 12.755 mm (0.5022 in)

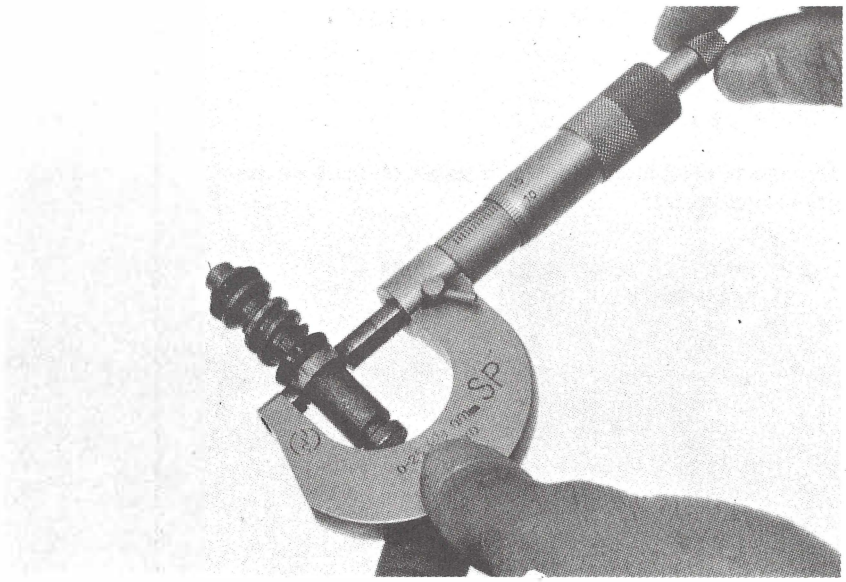


MASTER PISTON INSPECTION

Check the master piston for score marks, scratches or other defects.

Measure the master piston O. D.

SERVICE LIMIT: 12.640 mm (0.4976 in)



MASTER CYLINDER ASSEMBLY

Install the O-ring in the groove in the reservoir.

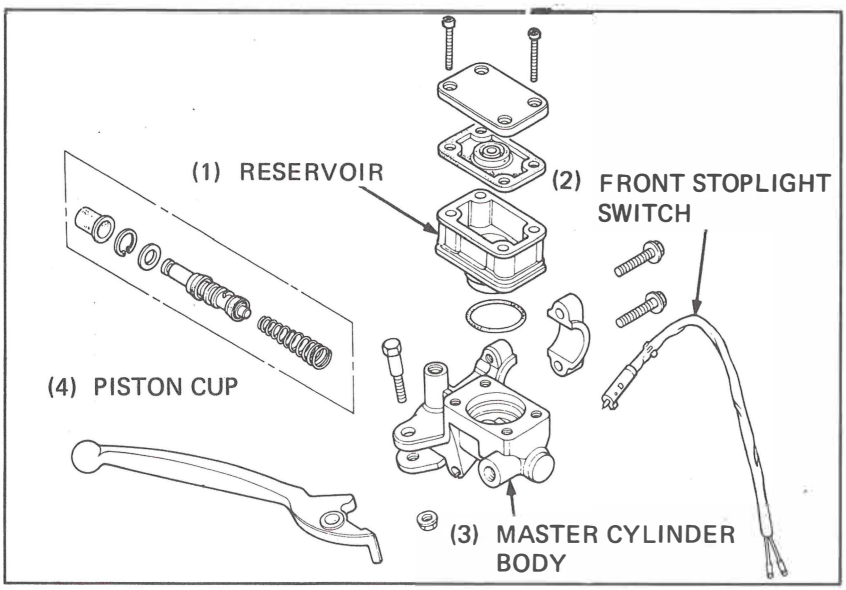
Clean the mating faces of the master cylinder body and reservoir and coat the surfaces with a small amount of adhesive (THREE-BOND No. 1211 or equivalent).

Apply silicon grease to the piston cup and pour a small amount of brake fluid into the cylinder.

SNAP RING PLIERS
07914–3230000

NOTE

- Replace the master piston and spring as a set. Do not replace one without replacing the other.
- Check that the snap ring is seated in the groove properly.



Install the front stoplight switch.

MASTER CYLINDER INSTALLATION

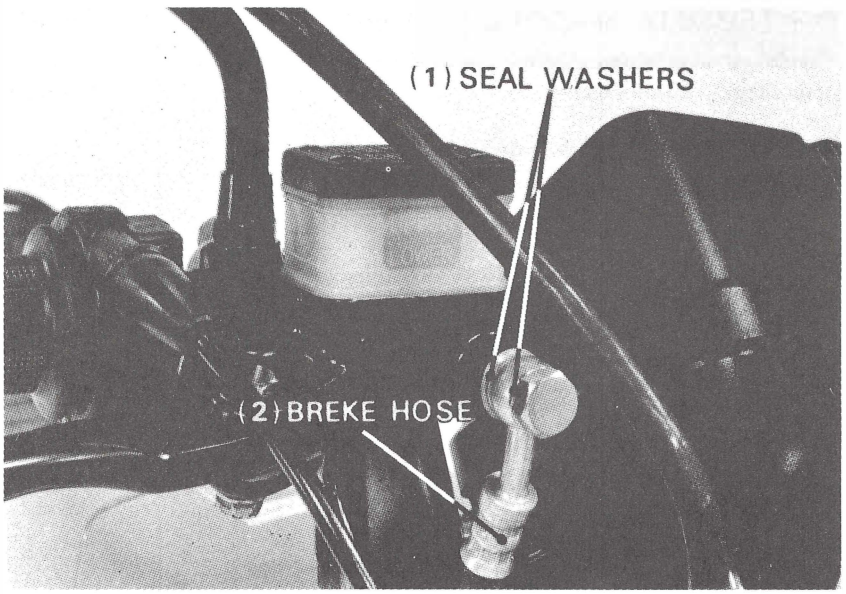
Install the master cylinder on the handlebar.

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

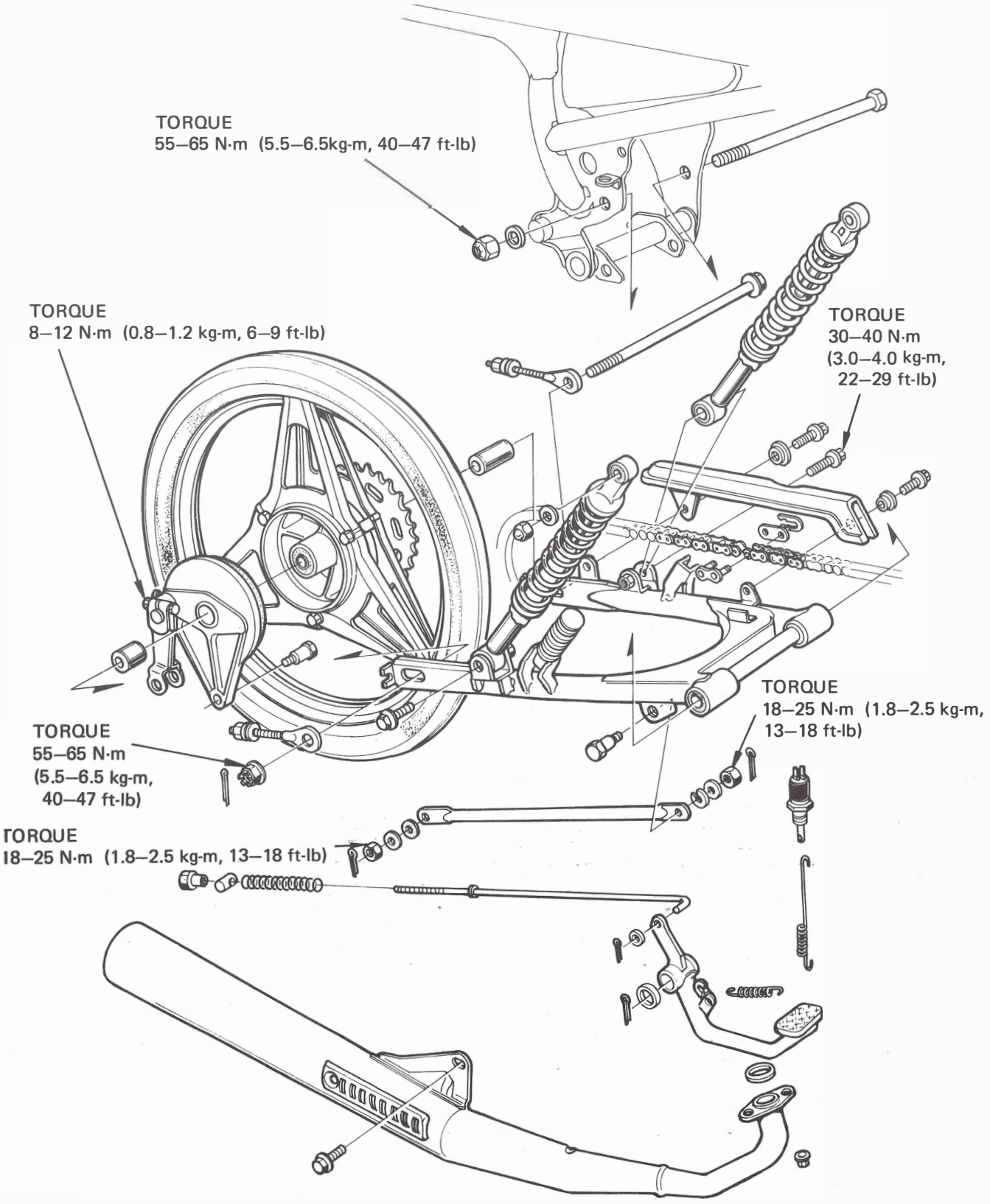
Install the brake hose and seal washer.

TORQUE:
25–35 N·m (2.5–3.5 kg-m, 18–25 ft-lb)

After the front brake has been installed, bleed air from the brake hydraulic system (Page 11–2).



MEMO


TORQUE
55–65 N·m (5.5–6.5kg-m, 40–47 ft-lb)
TORQUE
8–12 N·m (0.8–1.2 kg-m, 6–9 ft-lb)
TORQUE
30–40 N·m
(3.0–4.0 kg-m,
22–29 ft-lb)
TORQUE
18–25 N·m (1.8–2.5 kg-m,
13–18 ft-lb)
TORQUE
55–65 N·m
(5.5–6.5 kg-m,
40–47 ft-lb)
TORQUE
18–25 N·m (1.8–2.5 kg-m, 13–18 ft-lb)

[MB50]

12. REAR WHEEL/BRAKE/ SUSPENSION

SERVICE INFORMATION

SPECIAL TOOLS

Common Tools

Rear Shock Absorber Disassembly Tool	07959–3290001
Bearing Driver Outer (42 x 47 mm)	07746–0010300
Bearing Driver Handle (A)	07749–0010000
Bearing Driver Pilot (17)	07746–0040400

SPECIFICATIONS

ITEM		STANDARD mm (in)		SERVICE LIMIT mm (in)	
Axle runout		———		0.2	(0.008)
Rear wheel rim runout	Radial	———		2.0	(0.08)
	Axial	———		2.0	(0.08)
Rear brake drum I. D.		110.0	(4.33)	111.0	(4.37)
Rear brake lining thickness		4.0	(0.16)	2.0	(0.08)
Rear shock absorber spring free length (MB50)		179.7	(7.07)	176.1	(6.93)
Rear shock absorber spring free length (MT50)		206.5	(8.13)	202.4	(7.97)

TROUBLESHOOTING

Wobble or vibration
1. Distorted rim
2. Loose wheel bearing
3. Distorted spoke
4. Faulty tire
5. Loose axle
6. Worn swing arm bushing
7. Loose swing arm pivot bolt

Soft suspension
1. Weak spring
2. Shock absorbers improperly adjusted

Hard suspension
1. Shock absorbers improperly adjusted

Suspension noise
1. Chock case binding
2. Loose fasteners

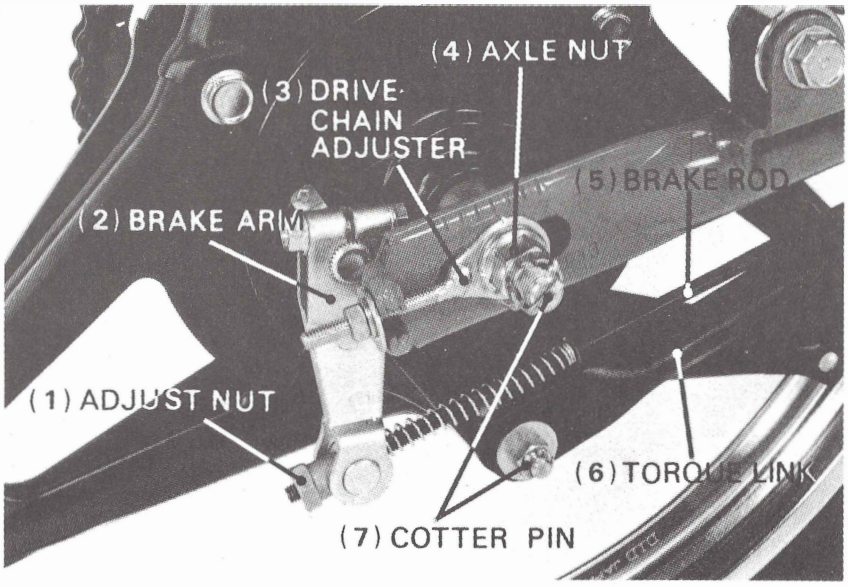
Poor brake performance
1. Brake not adjusted properly
2. Worn brake linings
3. Contaminated brake linings
4. Worn brake cam
5. Worn brake drum
6. Brake arm not properly installed
7. Worn brake shoes at cam contacting faces

REAR WHEEL

REAR WHEEL REMOVAL

Remove the brake rod.
Remove the cotter pin and disconnect the torque link.
Remove the rubber cover (G).
Remove the cotter pin and axle nut.
Loosen the lock nut and chain adjuster.

Withdraw the axle and remove the rear wheel.

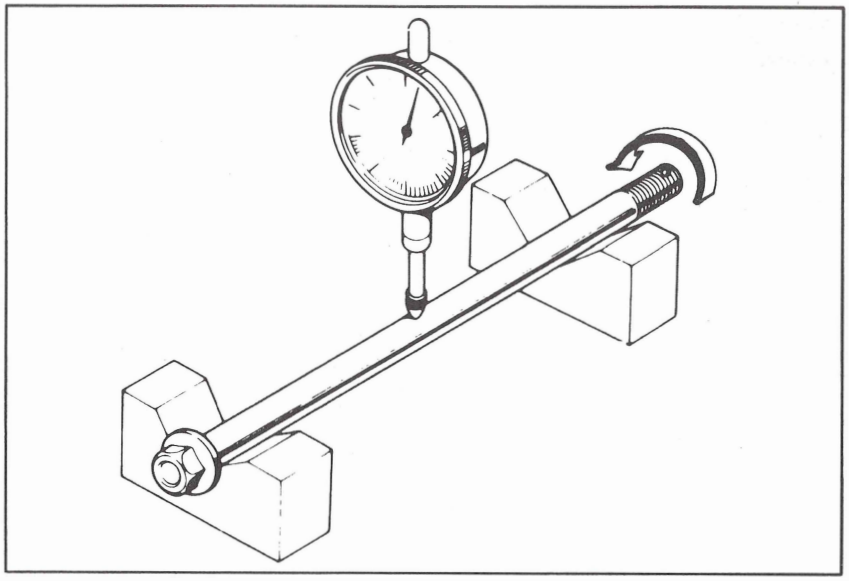


AXLE SHAFT BEND INSPECTION

Set the axle in V blocks and read the axle bend.

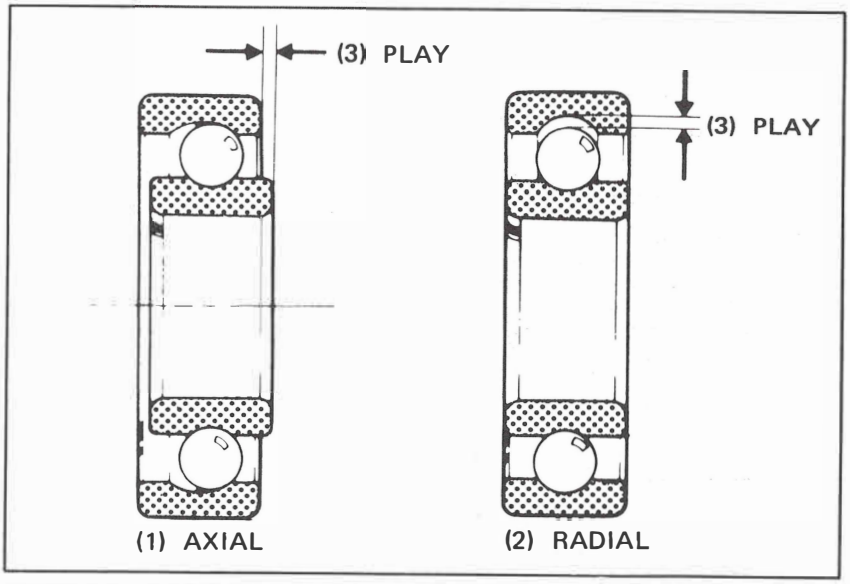
The actual axle bend is 1/2 of TIR (total indicator reading).

SERVICE LIMIT: 0.2 mm (0.008 in)



REAR WHEEL BEARING PLAY INSPECTION

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 INSPECTION

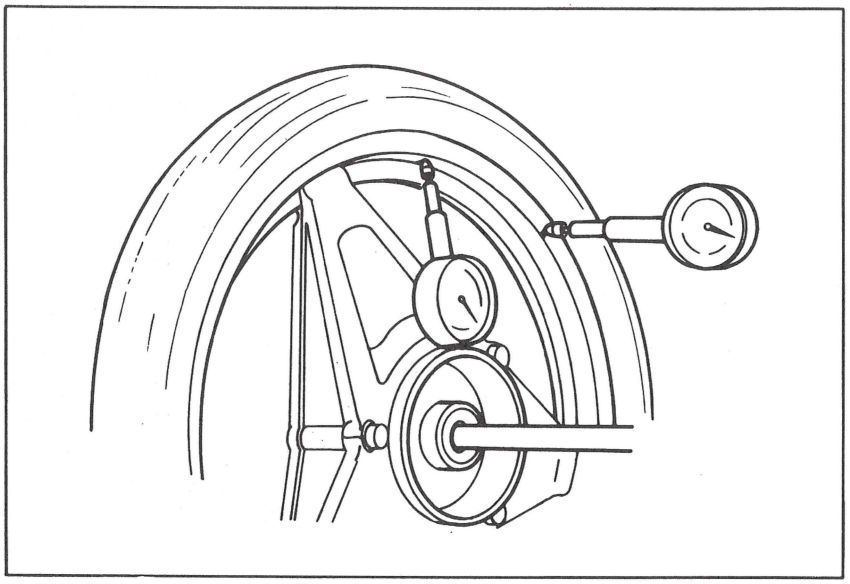
Check the rim for runout by placing the wheel in a truing stand. Spin the wheel by hand and read the runout using a dial indicator gauge.

SERVICE LIMITS:

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

NOTE

Do not attempt to repair the spoke plate (MB50).

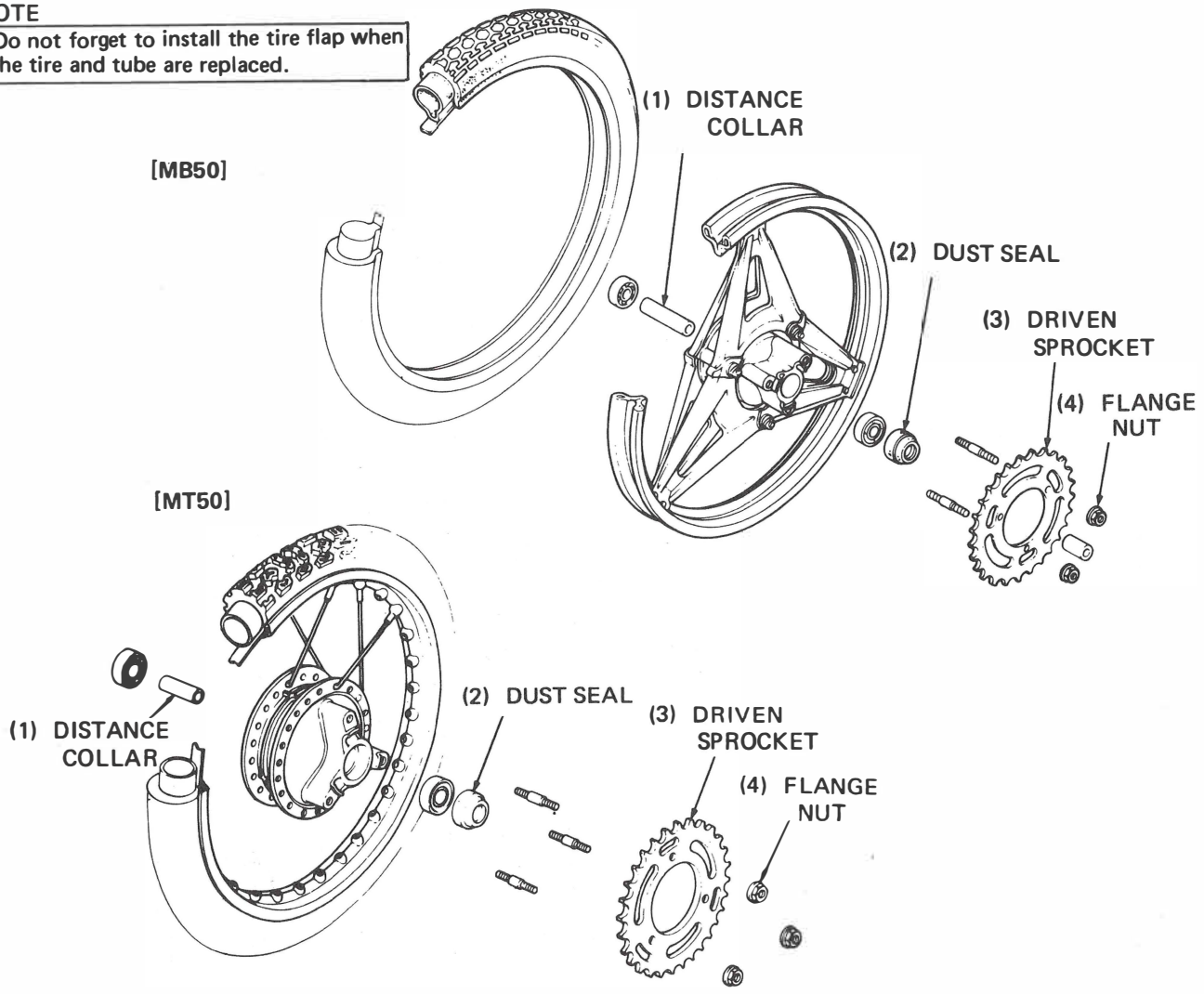


REAR WHEEL DISASSEMBLY

Remove the dust seal, bearing and distance collar.

NOTE

Do not forget to install the tire flap when the tire and tube are replaced.

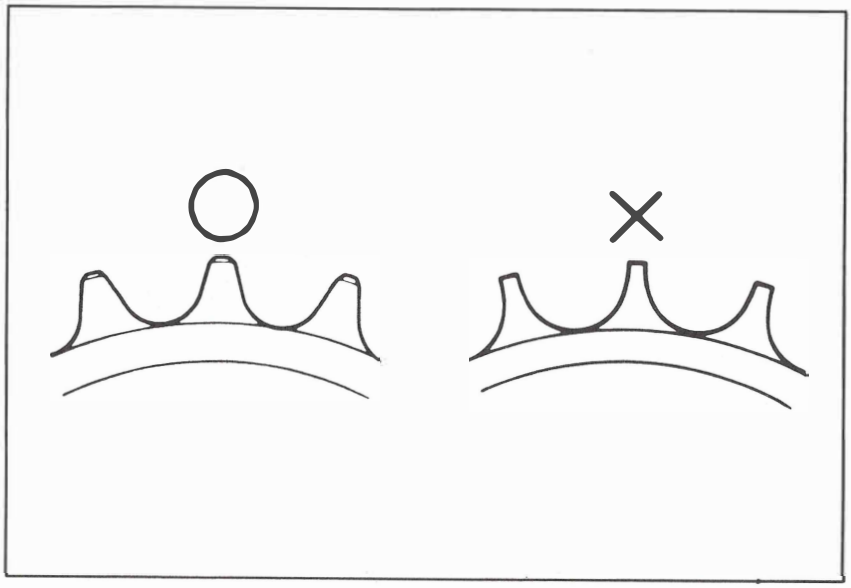


FINAL DRIVEN SPROCKET INSPECTION

Check the final driven sprocket for worn or damaged gear teeth.

NOTE

The drive chain and drive sprocket must also be inspected if the driven sprocket is worn or distorted.



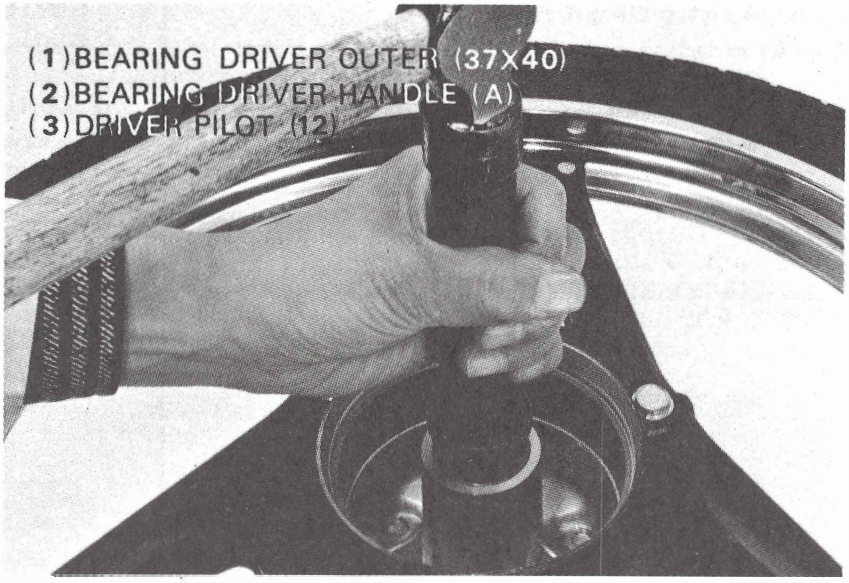
REAR WHEEL BEARING INSTALLATION

Pack all bearing cavities with grease.
Drive in the left bearing.
Insert the distance collar.

Drive in the right bearing.
Coat the inside of the dust seal with grease and install.

NOTE

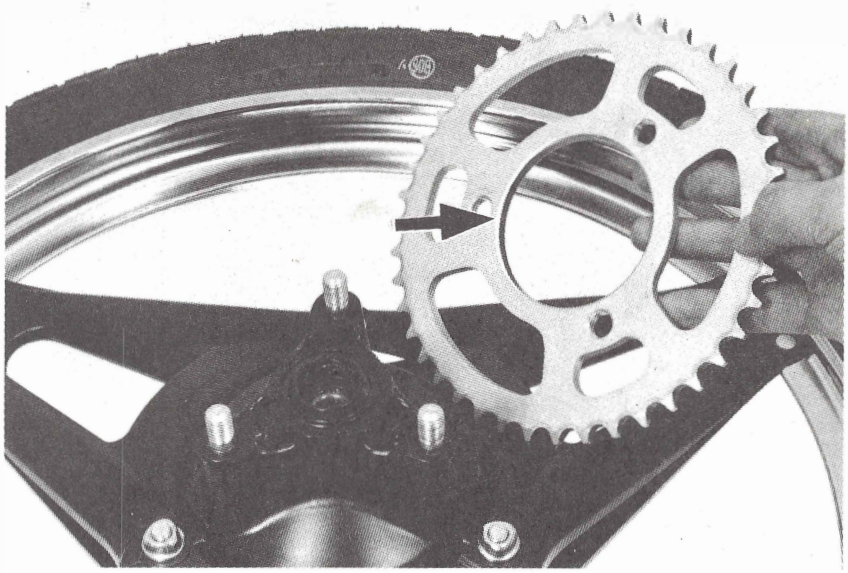
- Drive in the bearings squarely.
- Install the bearings with the sealed end facing outside.



FINAL DRIVEN SPROCKET INSTALLATION

Install the final driven sprocket with the chamfered end on the brake drum side.

TORQUE: 55–65 N·m (5.5–6.5 kg-m, 40–47 ft-lb)

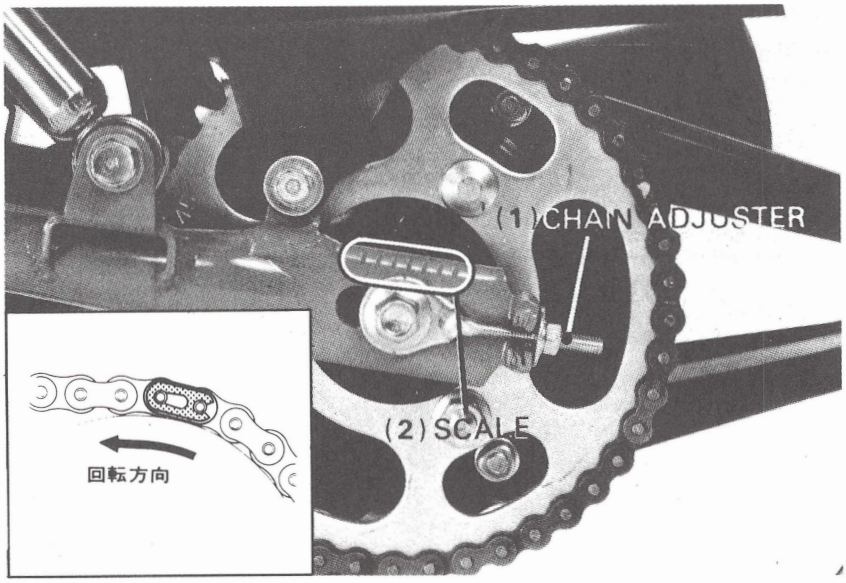


REAR WHEEL INSTALLATION

Install the rear wheel and axle shaft.
Install the drive chain.

CAUTION

Note the direction of the retaining clip.



Install the brake rod and brake torque link.

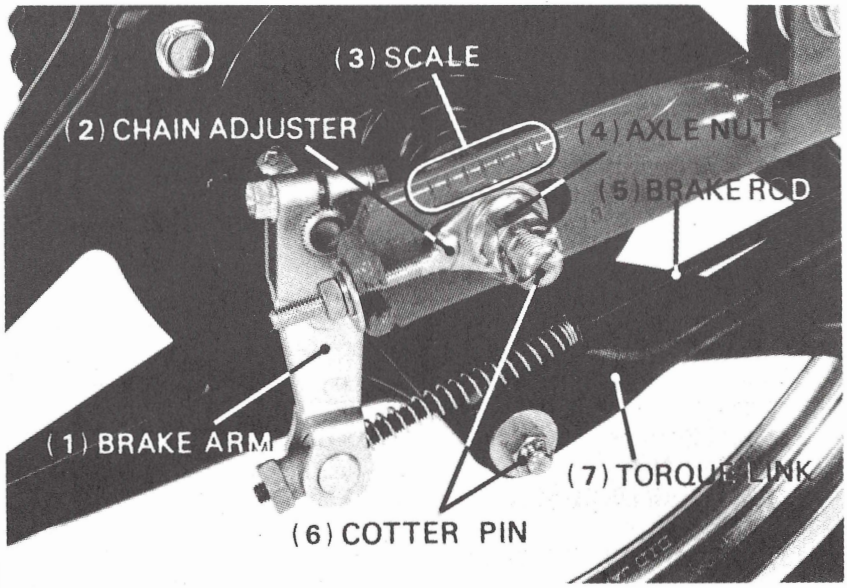
TORQUE: 18–25 N·m (1.8–2.5 kg-m, 13–18 ft-lb)

Adjust the drive chain tension (Page 3–10).

CHAIN SLACK: 10–20 mm (3/8–4/5 in)

CAUTION

Rotate the adjusters so that the index marks are aligned with the same scale number on both sides.



Torque the axle nut.

TORQUE: 55–65 N·m (5.5–6.5 kg-m, 0–47 ft-lb)

Install new cotter pin.

NOTE

Spread the ends of the cotter pin as shown.

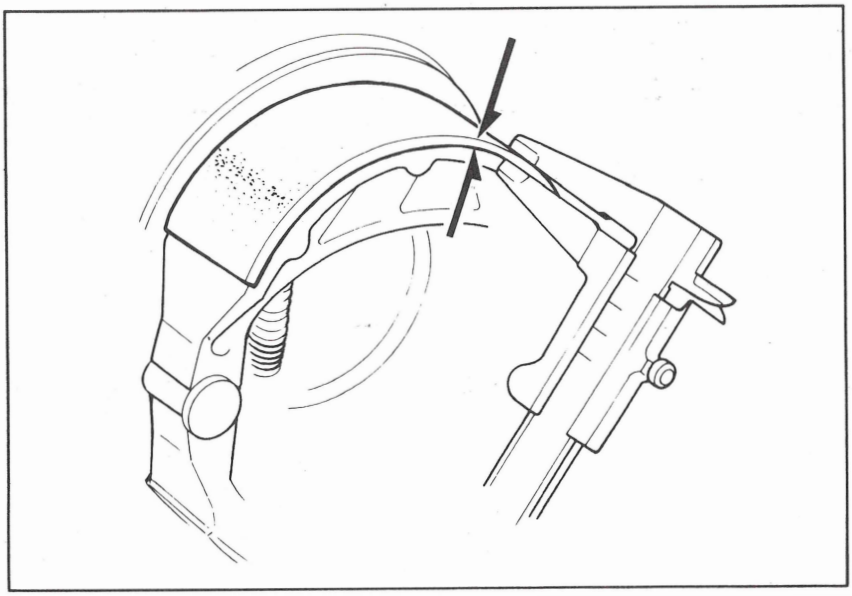
Lubricate the drive chain.

REAR BRAKE

REAR BRAKE LINING THICKNESS

Measure the brake lining thickness.

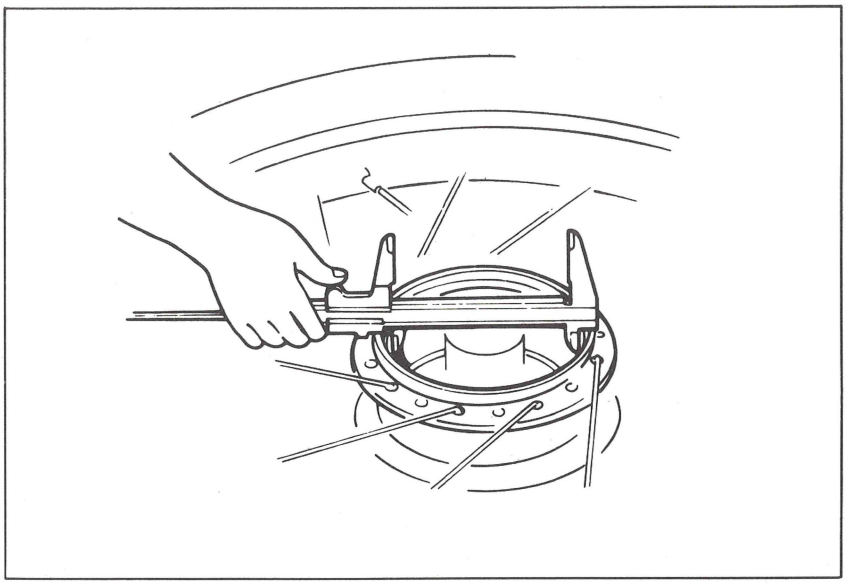
SERVICE LIMIT: 2.0 mm (0.08 in)



REAR BRAKE DRUM INSPECTION

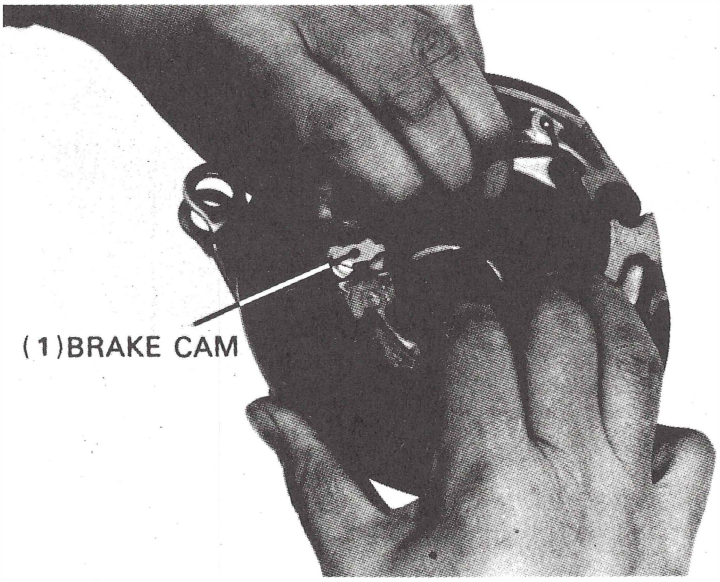
Measure the rear brake drum I. D.

SERVICE LIMIT: 111 mm (4.37 in)



REAR BRAKE SHOE REPLACEMENT

Remove the brake shoes.
Replace the brake shoes with new ones.

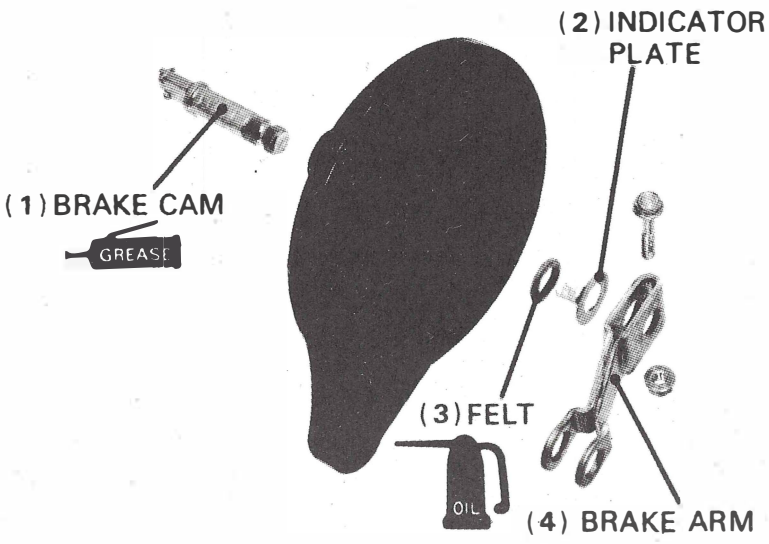


BRAKE CAM INSPECTION

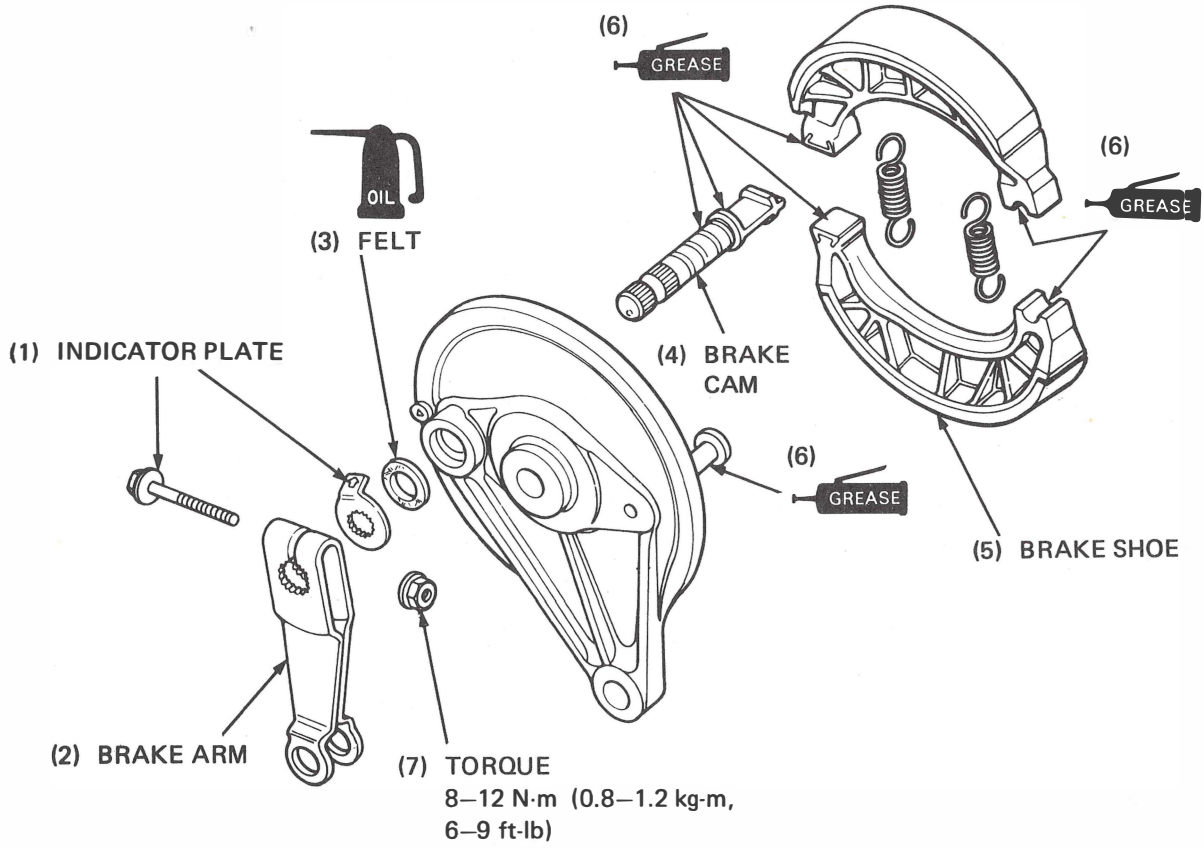
Remove the brake arm.
Remove the indicator plate.

Remove the brake cam.
Remove the felt ring.

Clean the shoe contacting faces of the brake cam.



BRAKE PANEL INSTALLATION



Install the felt ring and wear indicator plate.

NOTE

Align the flat on the cam with the flat on the wear indicator plate.

Install the brake arm.

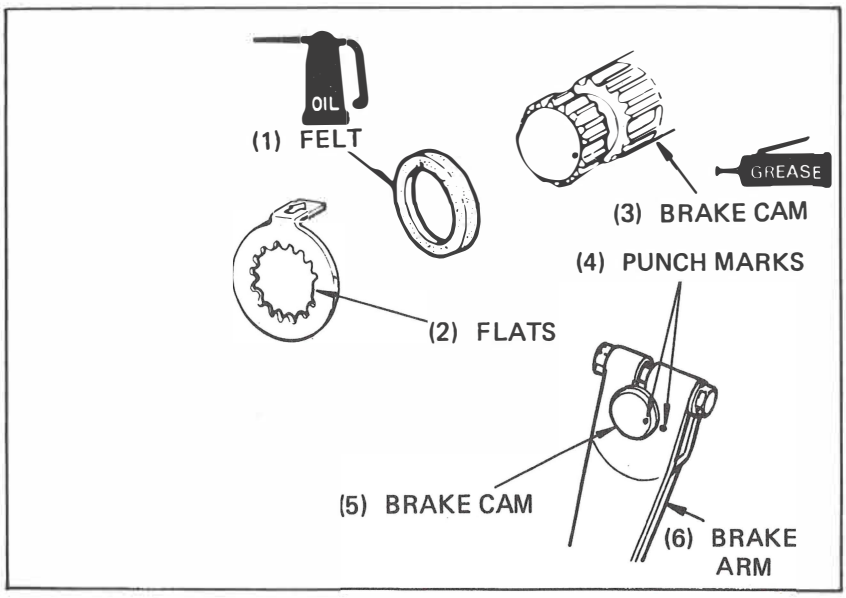
NOTE

Align the punch mark on the brake cam with the punch mark on the brake arm.

Tighten the brake arm bolt to the specified torque.

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

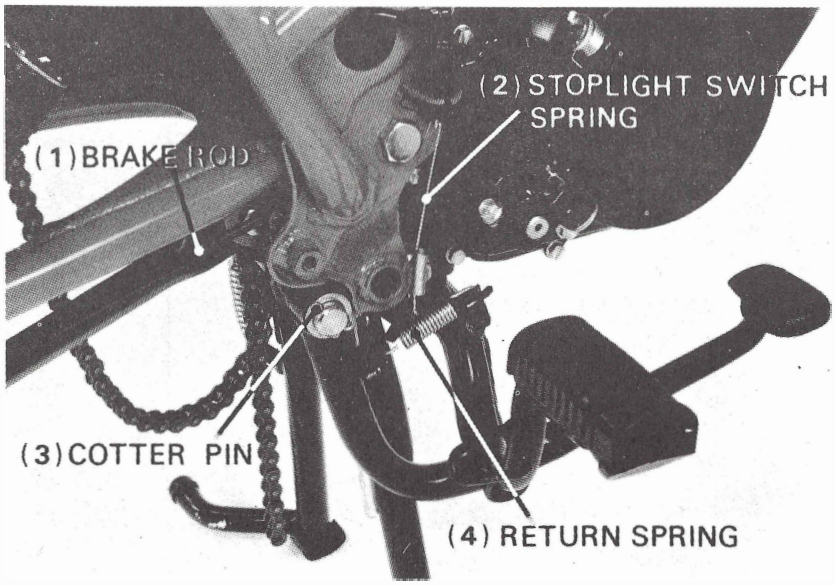
Install the brake panel on the rear wheel.



BRAKE PEDAL REMOVAL

Remove the brake rod.
Remove the brakelight switch spring.

Remove the return spring.
Remove the cotter pin, then remove the brake pedal.

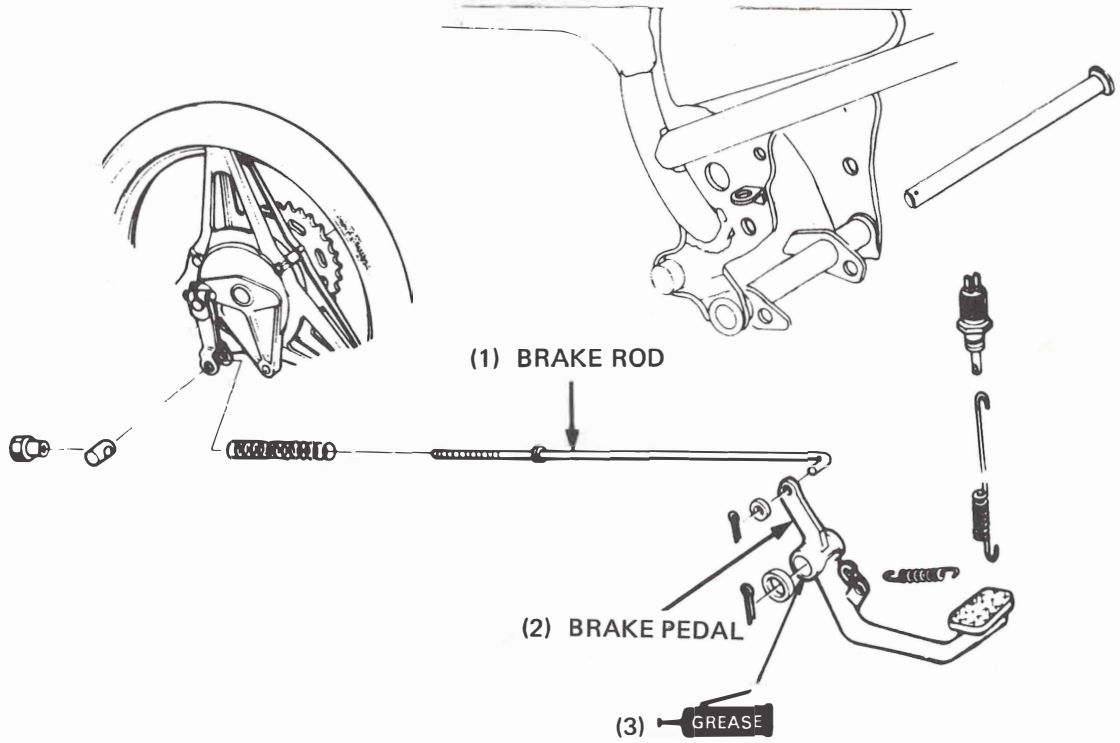


Assembly of the brake pedal is essentially the reverse order of removal.

CAUTION

Before installing the brake pedal, apply grease to the sliding surface.

Adjust the brake pedal free play (Page 3–8).



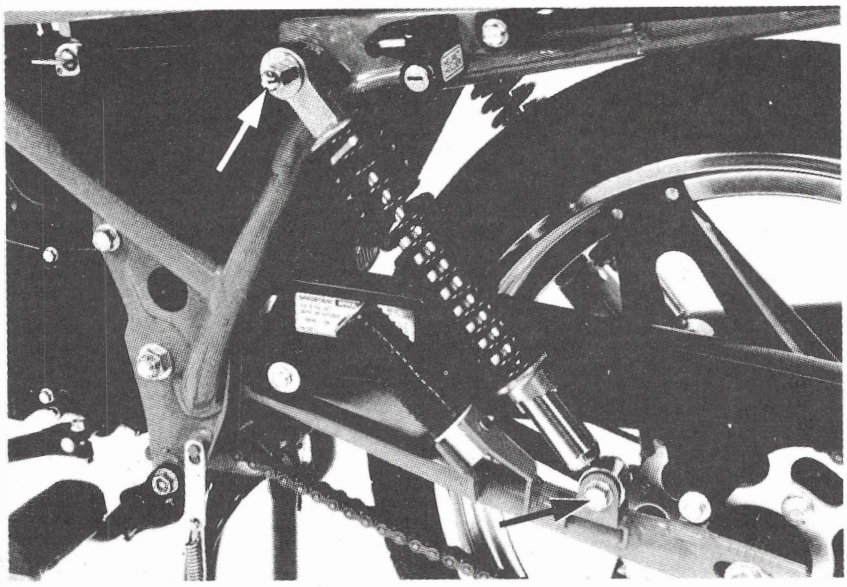
REAR SHOCK ABSORBER

REAR SHOCK ABSORBER REMOVAL

NOTE

Before removing the shock absorbers, rotate the adjuster to the weakest position.

Remove the right and left rear shock absorbers.

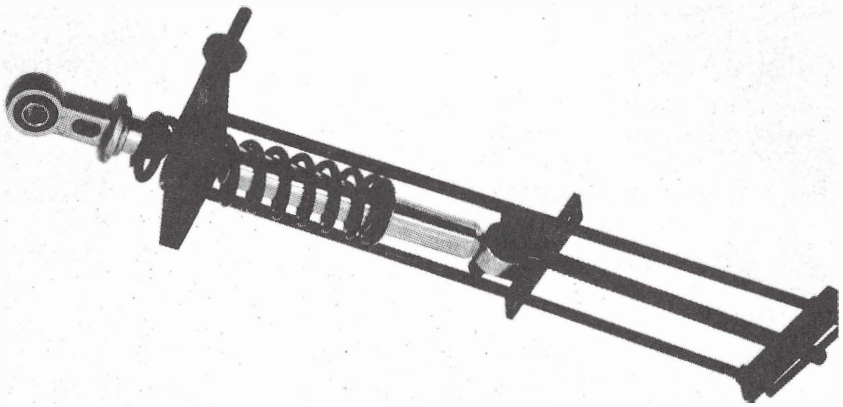


REAR SHOCK ABSORBER DISASSEMBLY

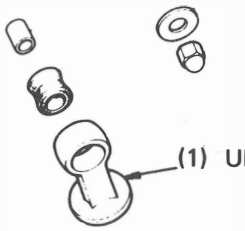
NOTE

Before disassembling the shock absorbers, rotate the adjuster to the weakest position.

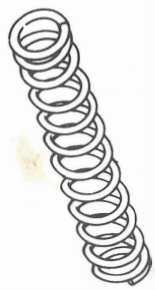
Remove the upper joint.



(1) REAR CUSHION COMPRESSOR

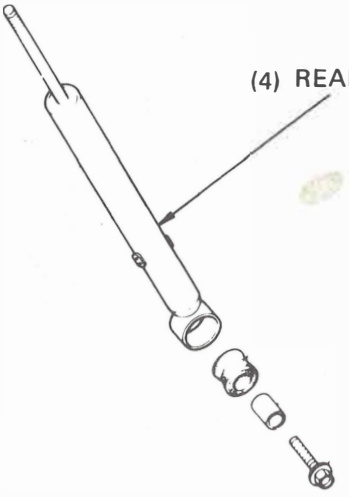


(1) UPPER JOINT



(2) LOCK NUT

(3) ADJUSTER

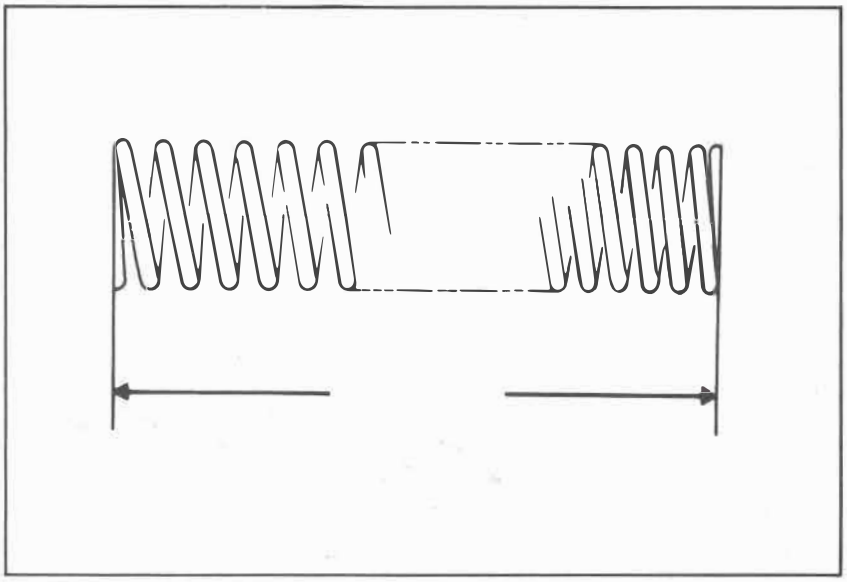


(4) REAR DUMPER

REAR SHOCK ABSORBER SPRING FREE LENGTH

Measure the spring free length.

SERVICE LIMIT:
[MB50] : 176.1 mm (6.93 in)
[MT50] : 202.4 mm (7.97 in)

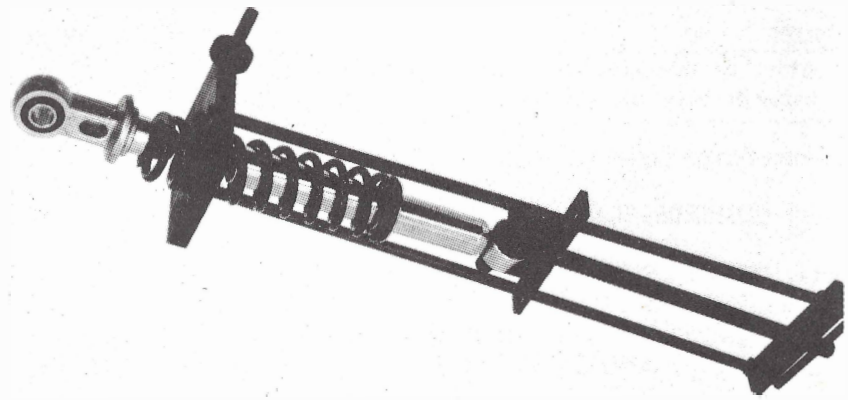


REAR SHOCK ABSORBER ASSEMBLY

NOTE

Apply locking agent to the lock nut threads.

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



(1) REAR CUSHION COMPRESSOR

REAR SHOCK ABSORBER INSTALLATION

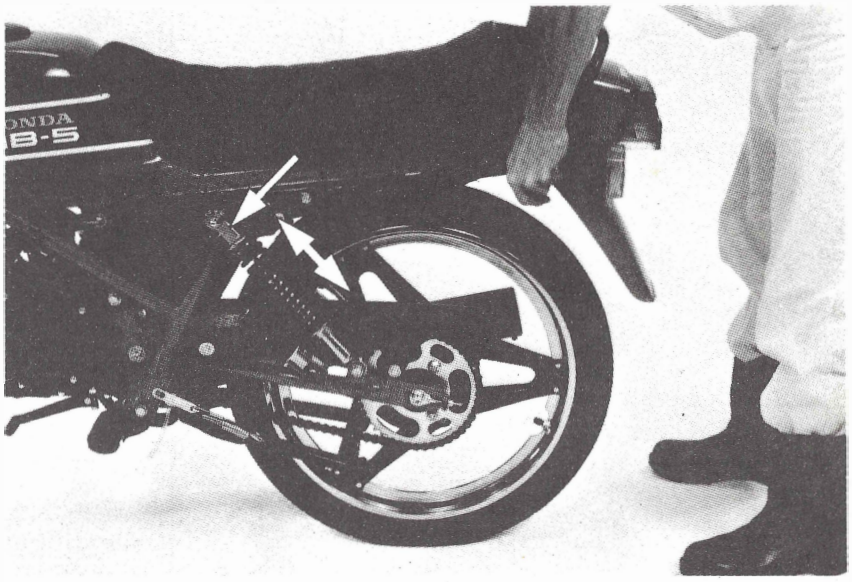
Install the right and left rear shock absorbers.

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

Check the operation of the shock absorbers by pressing down on the end of the frame several time by hand.

NOTE

Install the joints with the cutout end facing inside.

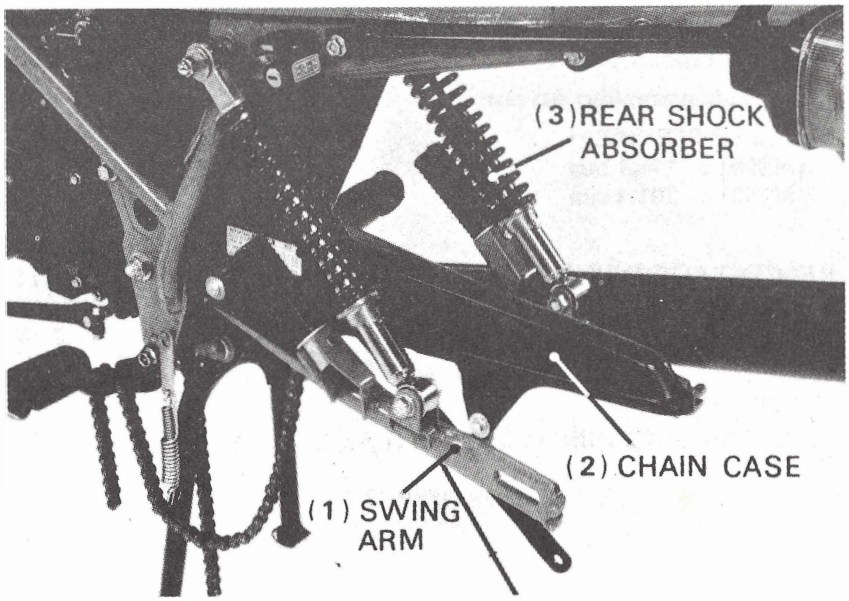


SWING ARM

SWING ARM REMOVAL

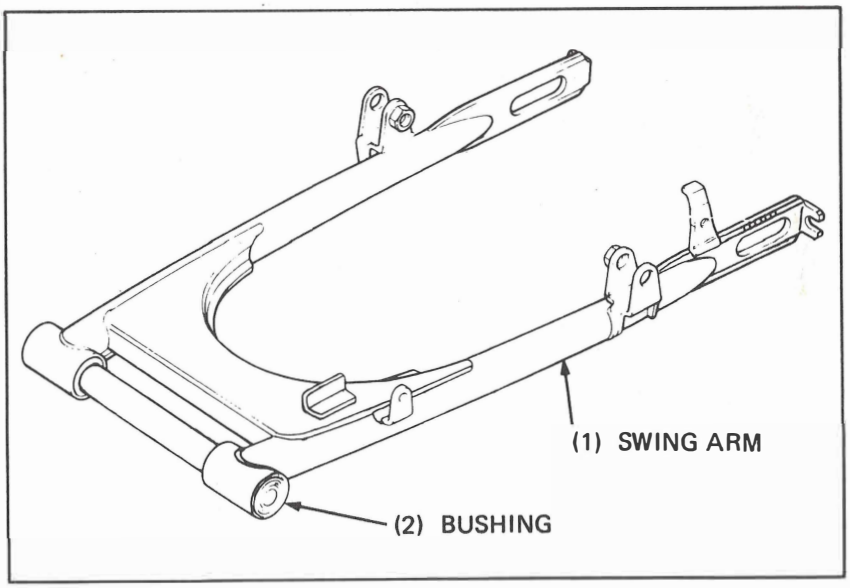
Remove the rear wheel (Page 12–3).
Remove the rear shock absorbers.

Remove the chain cover.
Remove the swing arm.



SWING ARM INSPECTION

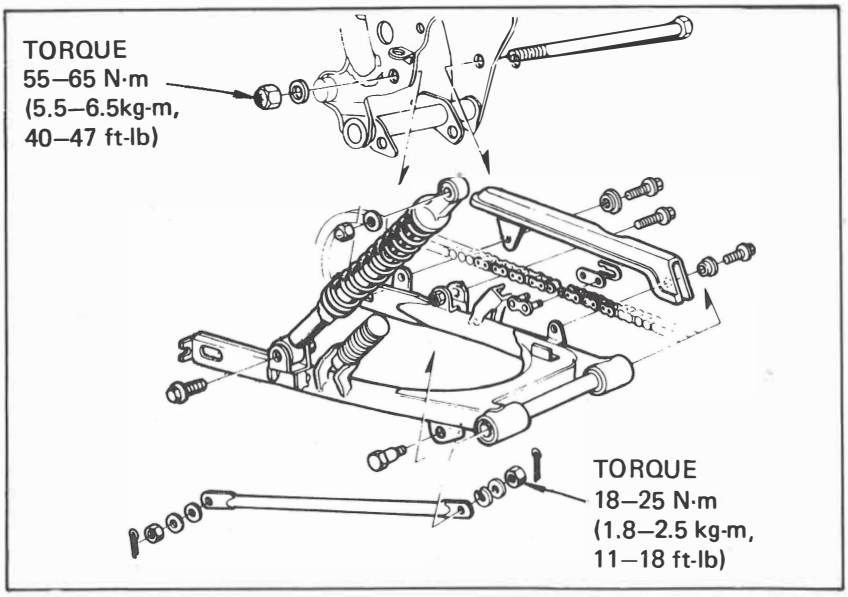
Check the swing arm for cracks or damage.
Check the bushings for damage or other defects.



SWING ARM INSTALLATION

Install the torque link on the swing arm.
Install the swing arm.

Install the rear wheel (Page 12–6).
Install the exhaust muffler.



13. SEAT/REAR FENDER/ MUFFLER

SERVICE INFORMATION

GENERAL INSTRUCTION

Service the muffler when it is cold.

TROUBLESHOOTING

Engine idles roughly or runs poorly
1. Clogged muffler

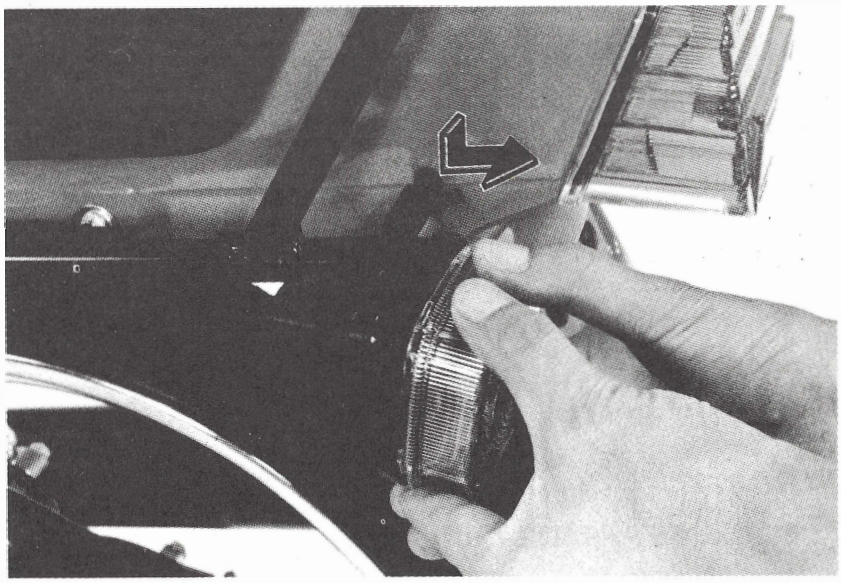
Engine noise
1. Damaged muffler gasket
2. Loose muffler

TURN SIGNAL LAMP

To remove the lens, pull it down with both hands as shown.

WARNING

Do not pry with a screwdriver to prevent a damaged lens.

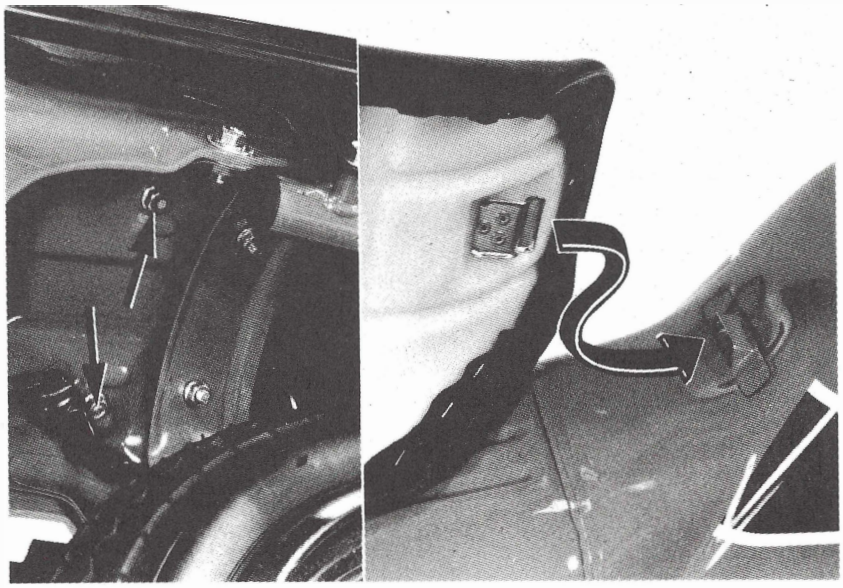


SEAT

[MB 50]

Remove the two nuts holding the seat to the frame mount to remove it.

To install the seat, insert the forward prong under recess in the fuel tank.



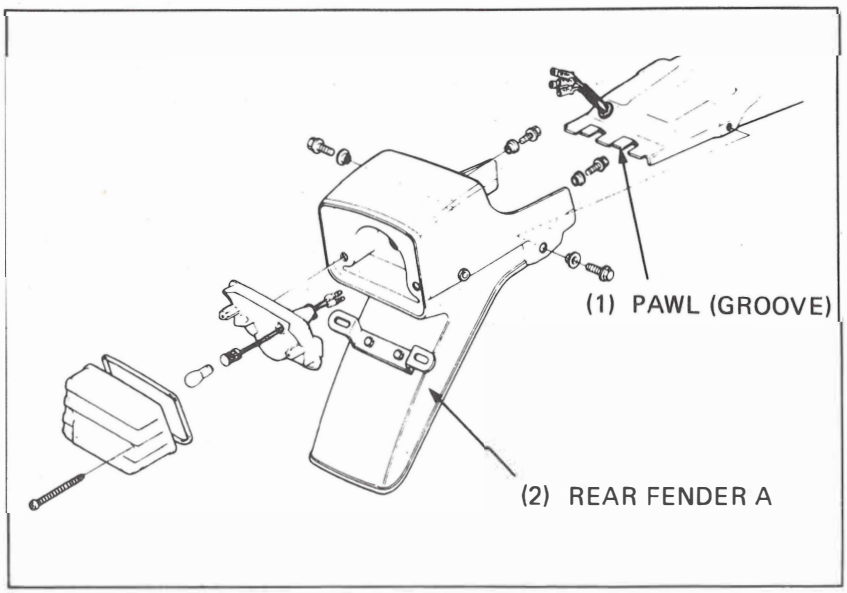
TAILLIGHT/REAR FENDER A [MB50]

Remove the seat.

Remove the taillight and rear fender A.

NOTE

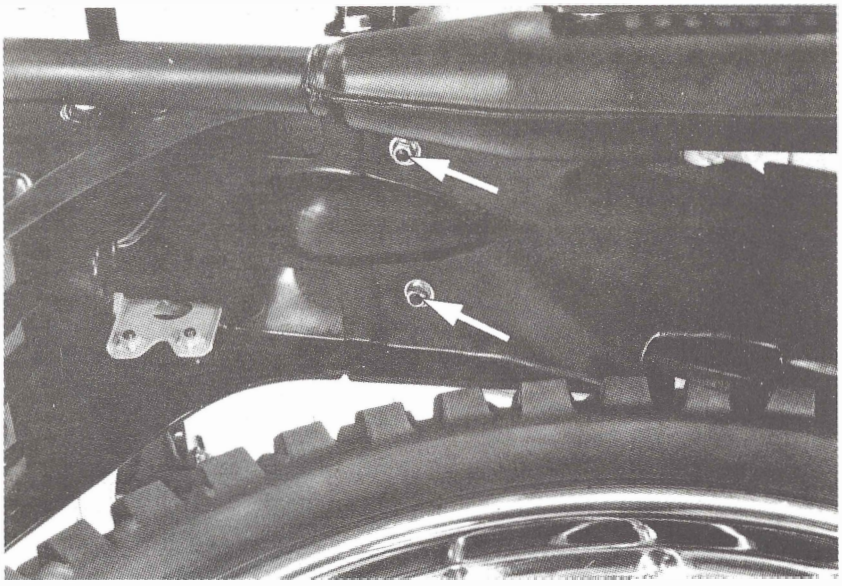
Insert the forward edges of the fender A into slots in the fuel tank.



REAR FENDER B

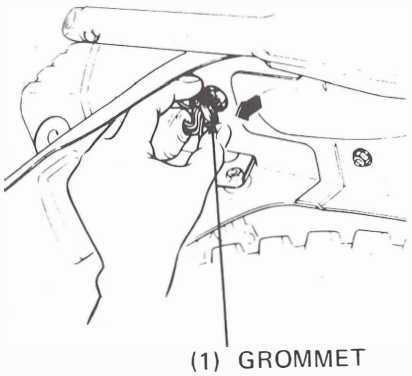
[MT 50]

Remove the nuts attaching the rear fender B and remove the fender B.



TAILLIGHT/REAR FENDER A [MT50]

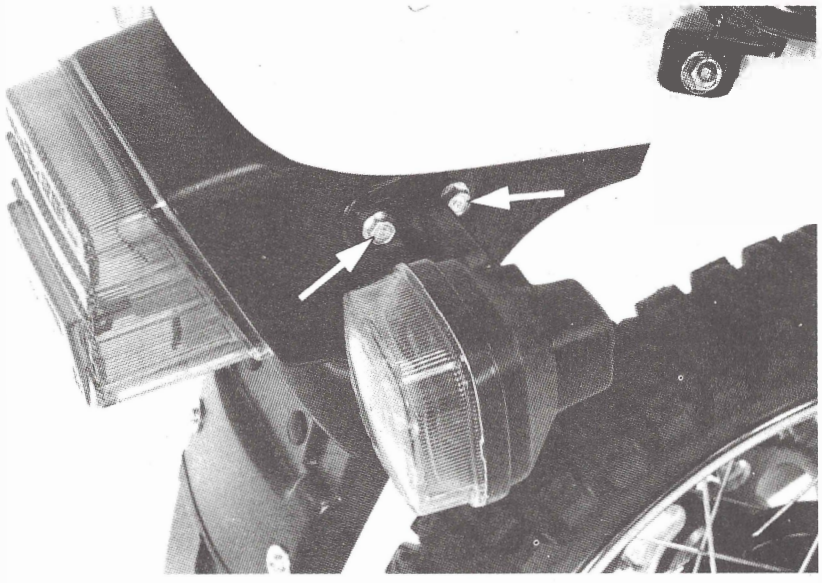
Remove the grommet and disconnect the taillight wires at the connectors.
Remove the rear fender B.



(1) GROMMET

Remove the right and left turn signal mounts, and remove the rear fender A.

Rear cowel removal/installation (Page 2–4).



MUFFLER

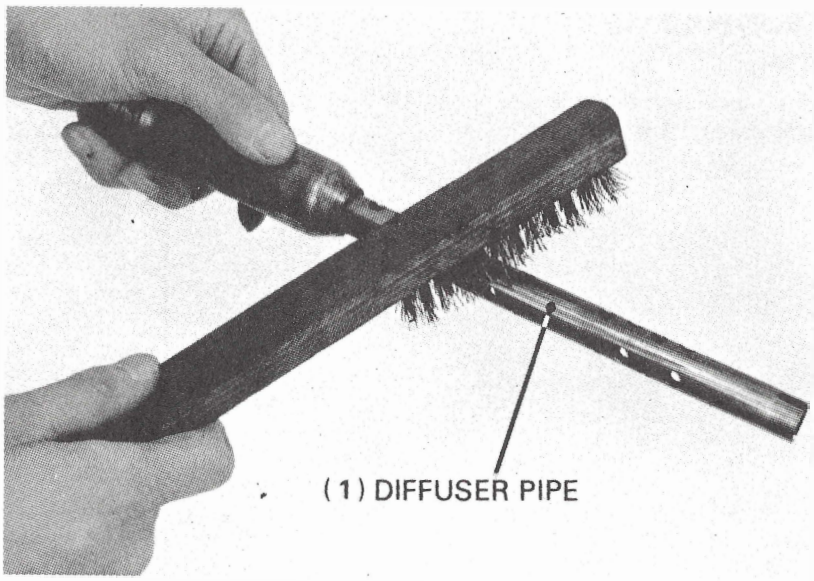
[MB 50]

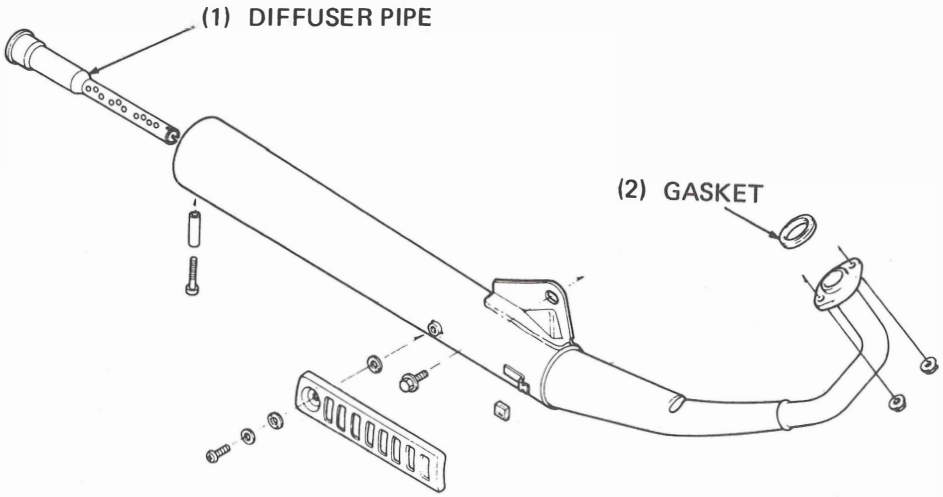
To remove carbon from the muffler, remove the diffuser pipe from the muffler and clean with a bristle wire brush.

Remove carbon from inside the muffler.

CAUTION

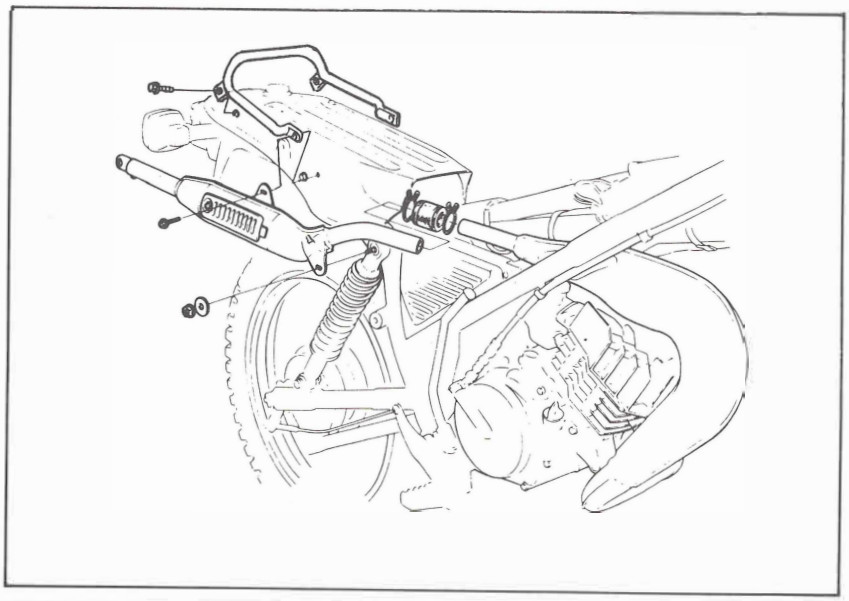
Do not heat or clean with solvent in an attempt to remove carbon from the muffler.





[MT 50]

Separate the exhaust pipe from the muffler and remove carbon from the muffler.



14. BATTERY/CHARGING SYSTEM/ IGNITION SYSTEM/SWITCHES/HORN

SERVICE INFORMATION

GENERAL INSTRUCTIONS

- Battery fluid level should be checked regularly. Fill with distilled water as necessary.
- Quick charge the 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. Do not smoke or have flames near a charging battery. The gas produced by a battery is very flammable and can explode.
- C. D. I. ignition timing is not adjustable. If the timing is incorrect, inspect the C. D. I. unit and A. C. generator and replace any defective parts.

SPECIFICATIONS

Battery Charging System

Battery	Capacity	6V 4AH
	Specific gravity	1.260–1.280/20° C (68°F)
	Charging rate	0.4 amperes maximum
A. C. generator	[MB50F][MT50F]	
	Charging rpm	1,500 min^{-1} (rpm) max. (Day) 2,000 min^{-1} (rpm) max. (Night)
	Capacity	1.8 amperes min./4,000 min^{-1} (rpm) (8.7V) (Day) 3.3 amperes max./8,000 min^{-1} (rpm) (9.2V) (Day) 1.5 amperes min./4,000 min^{-1} (rpm) (8.7V) (Night) 2.9 amperes max./8,000 min^{-1} (rpm) (8.8V) (Night)
	[MB50S][MT50S]	
	Charging rpm	1,200 min^{-1} (rpm) max. (Day) 1,800 min^{-1} (rpm) max. (Night)
	Capacity	1.3 amperes min./4,000 min^{-1} (rpm) (8.7V) (Day) 2.6 amperes max./8,000 min^{-1} (rpm) (9.2V) (Day) 1.0 amperes min./4,000 min^{-1} (rpm) (8.7V) (Night) 2.2 amperes max./8,000 min^{-1} (rpm) (8.8V) (Night)

Ignition System

Spark plug

MB50–SW, ED MT50–SW, ED	NGK: BR8HS (BR9HS, BR7HS) ND: W24FSR (W27FSR, W22FSR)		MB50–B, E, G MT50–B, E, G	NGK: BR7HS (BR8HS, BR6HS) ND: W22FSR (W24FSR, W20FSR)	

Spark plug gap		0.6–0.7 mm (0.024–0.027)
Ignition timing	3000 min^{-1} (rpm)	19 ± 3° BTDC
	Full retard	10 ± 5°/9000 min^{-1} (rpm)
	Initial speed (retard)	5000–7000 min^{-1} (rpm)
Ignition coil	3–point spark test	6 mm (0.24 in) min.

TROUBLESHOOTING

CHARGING SYSTEM

No power
1. Dead battery
   - Low fluid level
   - Battery sulfation
   - Internally shorted battery
   - Charging system failure
2. Disconnected battery cable
3. Main fuse burned out
4. Faulty ignition switch

Low power
1. Weak battery
2. Loose battery connection
3. Charging system failure

Intermittent power
1. Loose battery
2. Loose charging system connection
3. Loose connection or short circuit in lighting system

Charging system failure
1. Loose, broken, or shorted wire or connection
2. Faulty silicon rectifier
3. Faulty A. C. generator

IGNITION SYSTEM

No spark at plug
1. Faulty spark plug
2. Poorly connected, broken or shorted wires
   - Between A. C. generator and C. D. I. unit
   - Between C. D. I. unit and ignition coil
   - Between C. D. I. unit and ignition switch
   - Between ignition coil and spark plug
3. Faulty ignition switch
4. Faulty ignition coil
5. Faulty C. D. I. unit
6. Faulty A. C. generator

Engine starts but runs poorly
1. Ignition primary circuit
   - Faulty ignition coil
   - Loose or bare wire or connector
   - Poorly contacted ignition switch
2. Ignition secondary circuit
   - Faulty ignition coil
   - Faulty spark plug
   - Faulty high tension cord
   - Faulty plug cap
3. Improper ignition timing
   - Faulty A. C. generator
   - Stator not installed properly
   - Faulty C. D. I. unit

BATTERY

REMOVAL

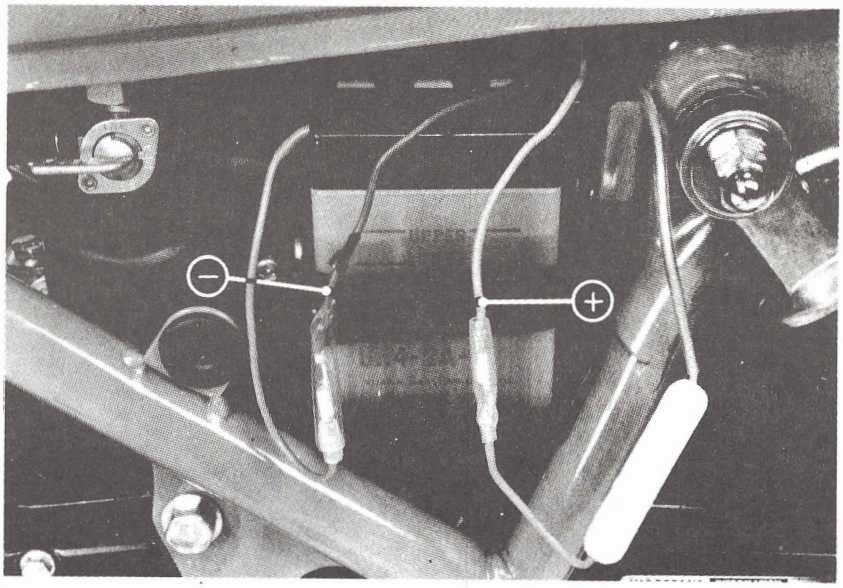
Remove the side cover.
Disconnect the ground cable at the connector.

Disconnect the positive cable at the connector.
Remove the battery holder.

Remove the battery.

NOTE

Installation of the battery is essentially the reverse order of removal.



SPECIFIC GRAVITY TEST

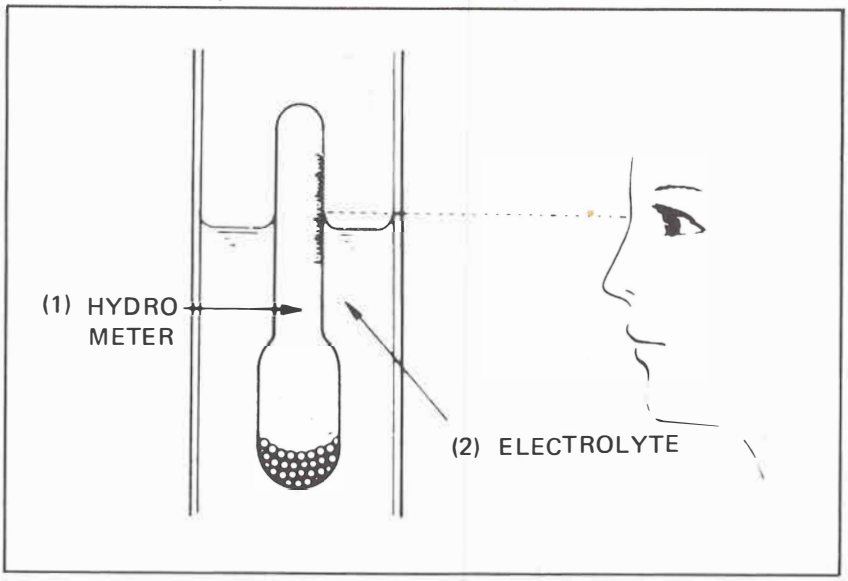
Test each cell by drawing electrolyte into a hydrometer.

SPECIFIC GRAVITY (20°C, 68°F)

1.260–1.280 : Fully charged
1.220 or below : Undercharged

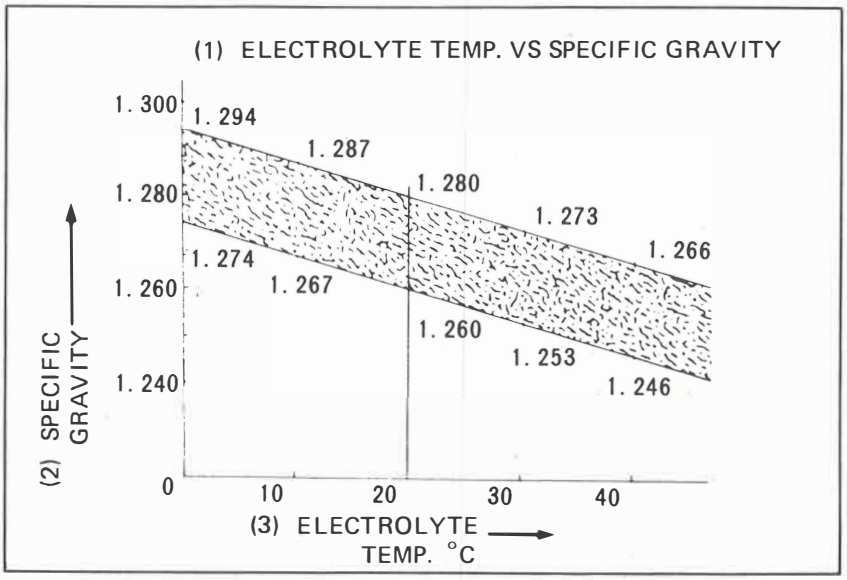
NOTE

- The battery must be recharged if the specific gravity is below 1.220.
- The specific gravity varies with the temperature as shown. (Specific gravity changes by 0.007 for every 10°C).
- Replace the battery if sulfation is evident.
- The battery must be replaced if there is paste on the bottom of the cell.



WARNING

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



BATTERY CHARGING

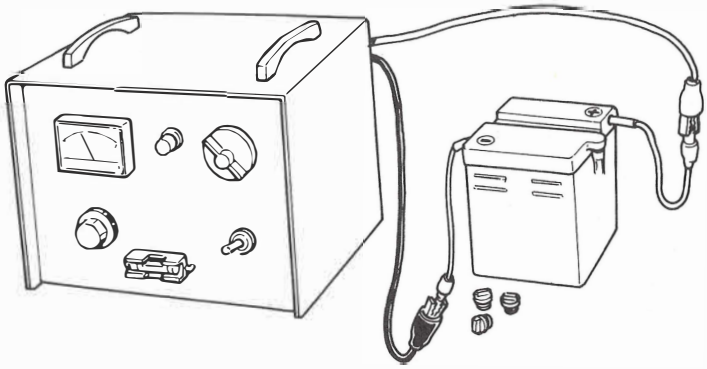
Hookup instructions:

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

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

Charging current:

0.2 amperes maximum



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 (117° F).***

CAUTION

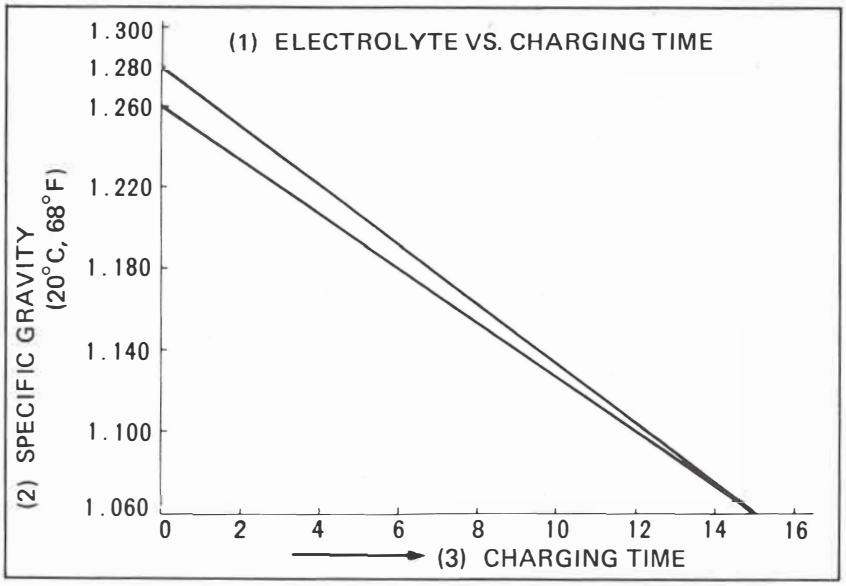
Quick charging should only be done in an emergency, slow charging is preferred.

Charging hours:

3–15

Charging:

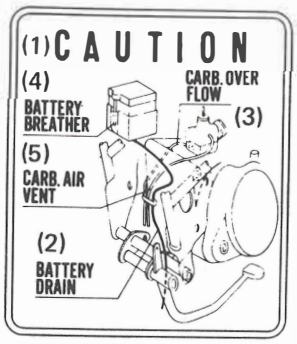
Charge the battery until specific gravity is 1.260–1.280 at 20°C, 68°F.



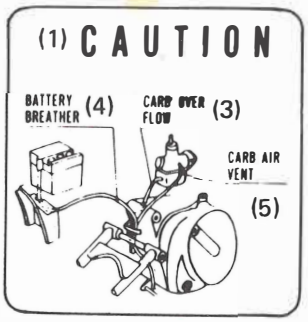
CAUTION

Route the breather and drain tubes as shown on the battery caution label.

[MB50]

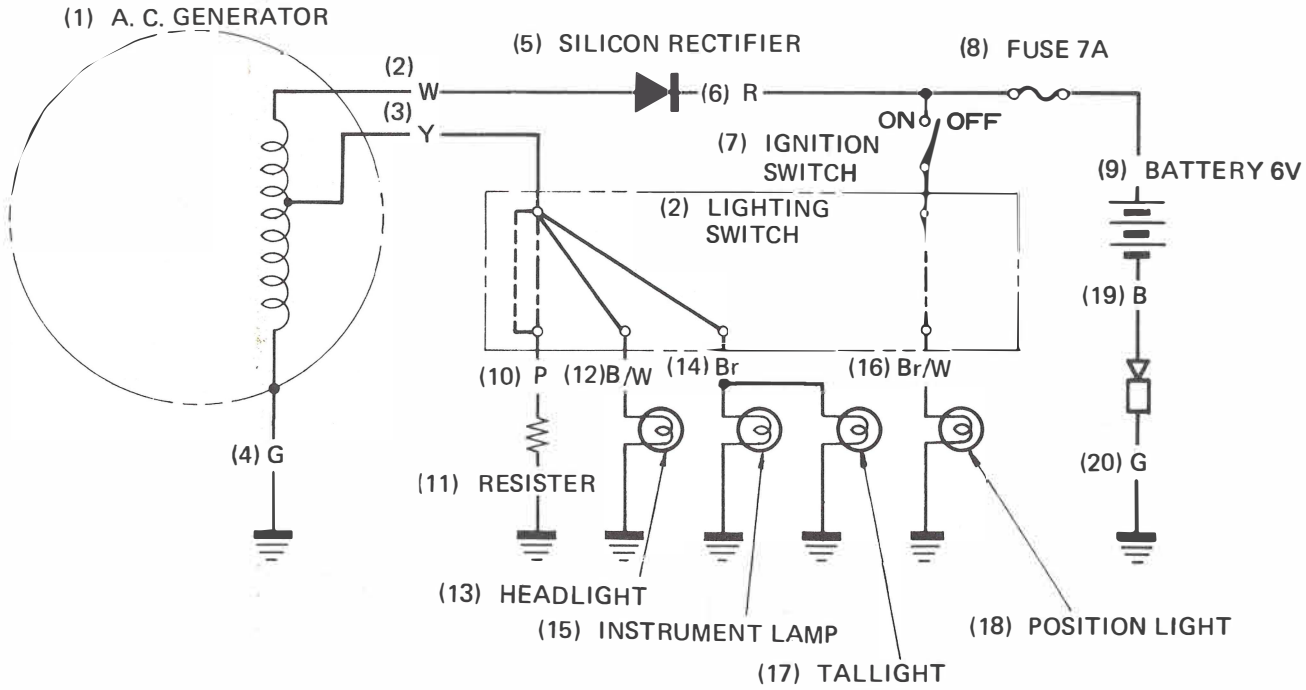


[MT50]



CHARGING SYSTEM

CHARGING CIRCUIT



(22)

Lighting switch circuits:

————	OFF	(Day time)
—·—·—	P	(Twilite) [E, N, SW, ED]
————	H	(Night)

(2) WHITE
(3) YELLOW
(4) GREEN
(6) RED
(10) PINK
(12) BLUE AND WHITE
(14) BROWN
(16) BROWN AND WHITE
(19) BLUE
(20) GREEN

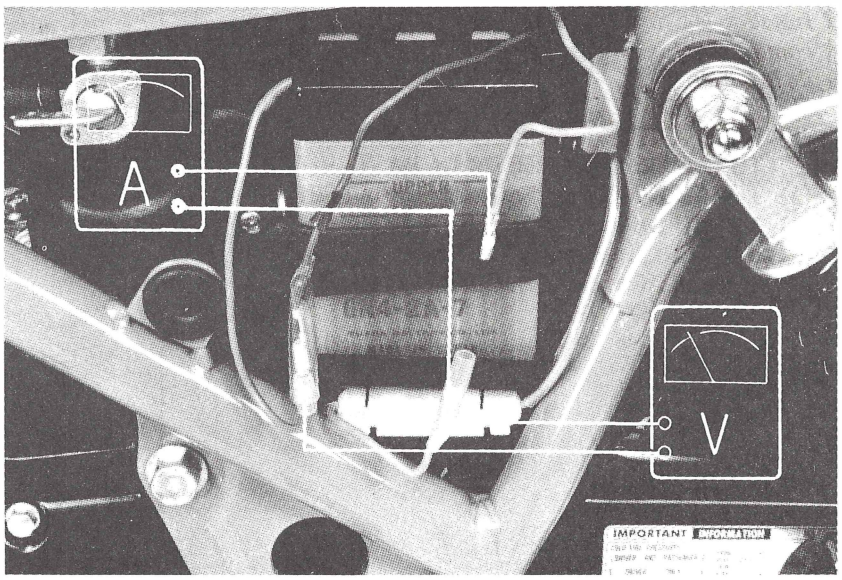
PERFORMANCE TEST

Warm up the engine before taking readings.

NOTE

Use a fully charged battery to check the charging system output.

Connect an ammeter and voltmeter as shown. Start the engine and take readings.



CHARGING CAPACITY

Refer to Page 14–1.

A. C. GENERATOR INSPECTION

NOTE

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

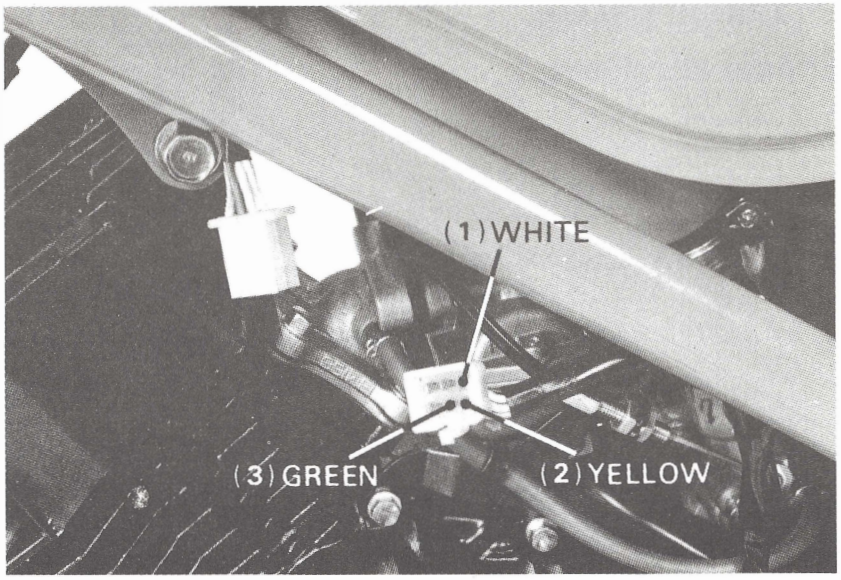
Disconnect the stator coupler.
Check the resistances between the terminals with an ohmmeter.

Yellow – Green: 0.1–1.0 Ω
White – Green: 0.3–1.5 Ω

A. C. generator removal (Page 8–2, 8–4)

NOTE

Replace the stator coil and flywheel as a set.



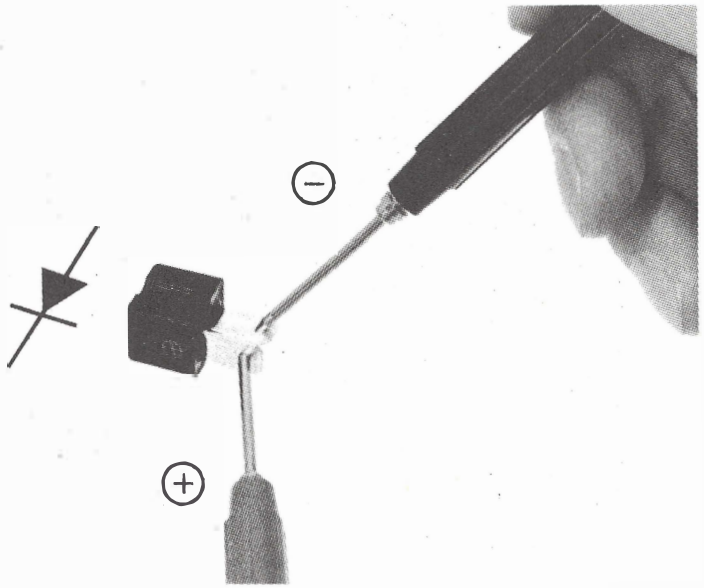
SILICON RECTIFIER INSPECTION

Check for continuity with an ohmmeter.

The rectifier is normal if there is continuity only in the direction shown.

WARNING

Do not use high voltage source such as insulation resistance tester since it may damage the rectifier and give you a shock.



RESISTER INSPECTION

Check the resistance between the lead and ground.

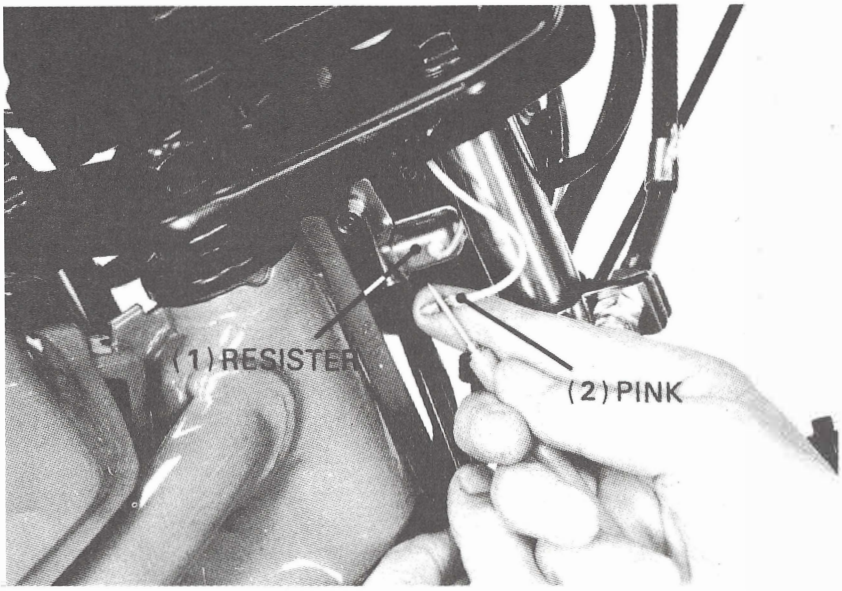
Resistance:

MB50–E, N, SW, ED:
MT50–E, SW, ED: } **1.8 Ω**

MB50–B, G, S:
MT50–B, G: } **3 Ω**

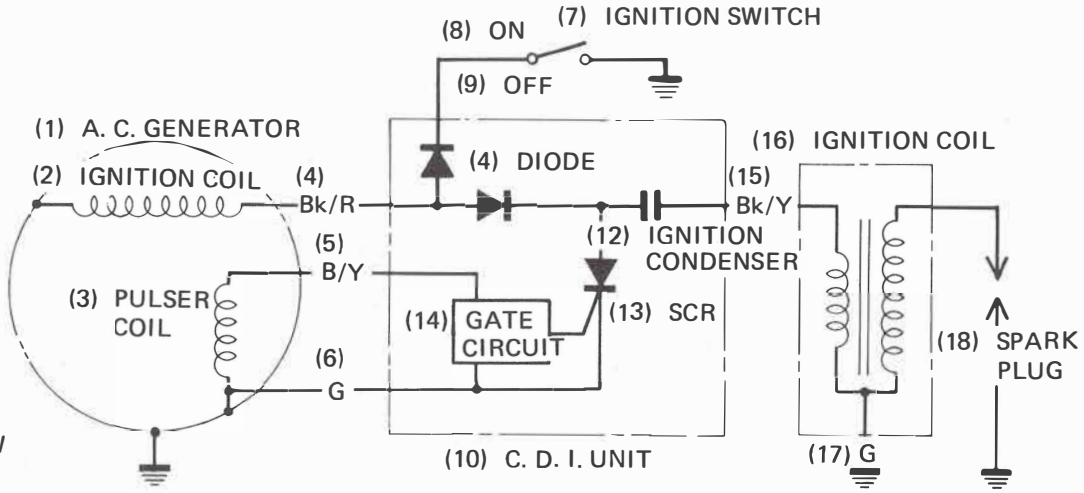
NOTE

Faulty or poorly grounded resister can cause a blown meter lamp.



IGNITION SYSTEM

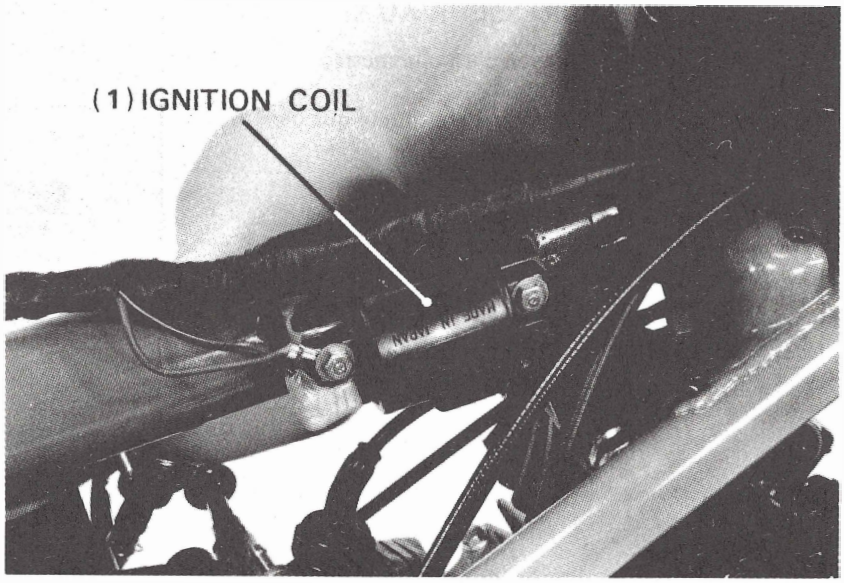
IGNITION CIRCUITS



(4) BLACK AND RED
(5) BLUE AND YELLOW
(6) GREEN
(15) BLACK AND YELLOW
(17) GREEN

SPARK PLUG

For spark plug gap inspection and adjustment procedure. (Page 3–4)



IGNITION COIL

<Removal>

Remove the fuel tank.
Disconnect the wire leads.
Remove the ignition coil.

Remove the spark plug cap from the spark plug by rotating it by hand.

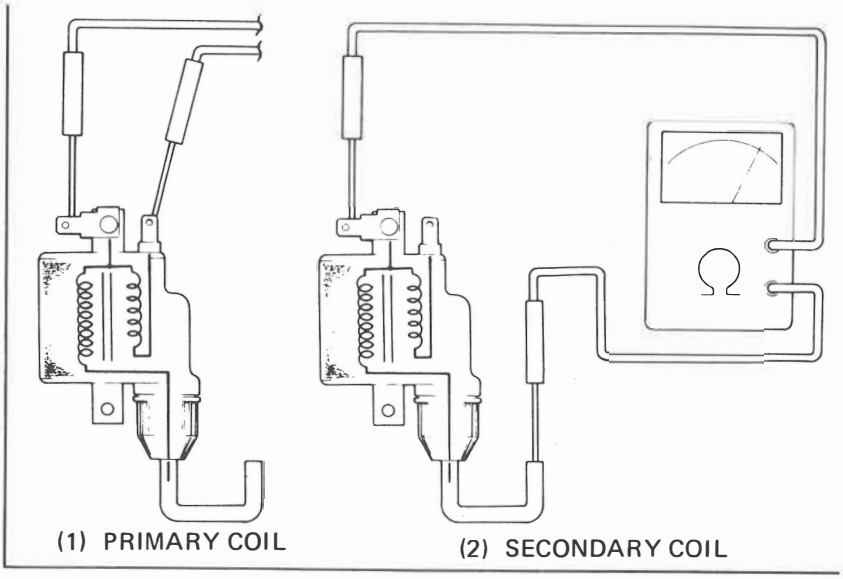
<Continuity test>

Measure the resistances of the primary and secondary coils.

NOTE

This test is for reference purpose only. To determine if the ignition coils are functioning properly, it is necessary to perform the 3–point spark test as described on the next page.

Resistances:
Primary coil: 0.2–0.3 Ω
Secondary coil: 3.4–4.2 kΩ



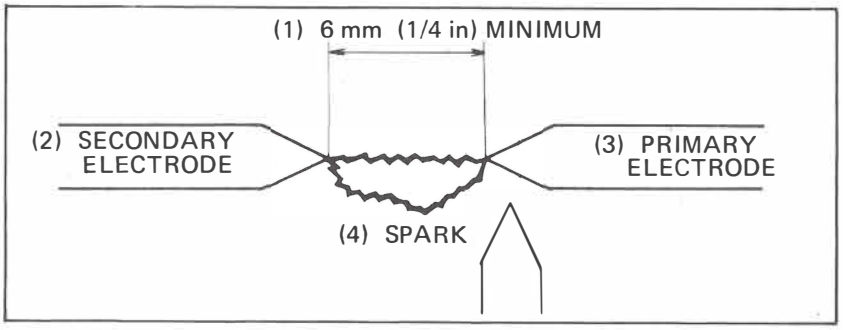
<Performance test>

Perform the 3–point spark test with a service tester.

SERVICE LIMIT: 6 mm (1/4 in)

NOTE

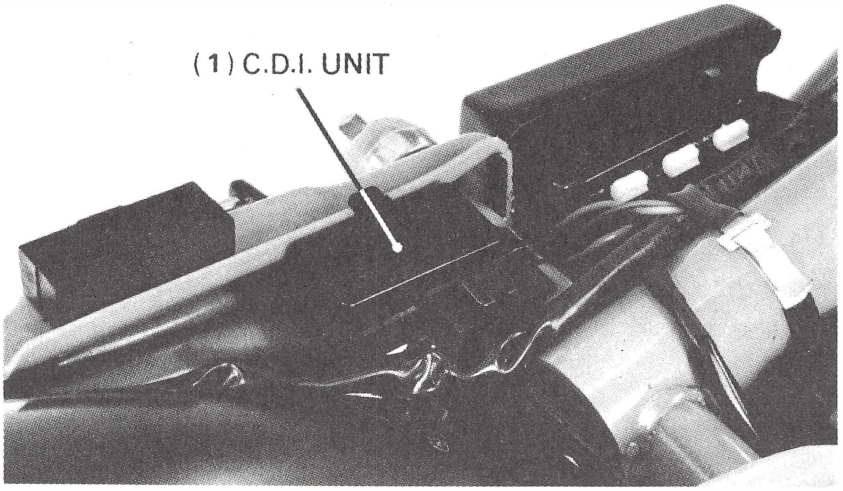
Follow the tester manufacturer's instructions.



C. D. I. UNIT

<Removal>

Remove the fuel tank.
Disconnect the coupler.
Remove the C. D. I. unit.



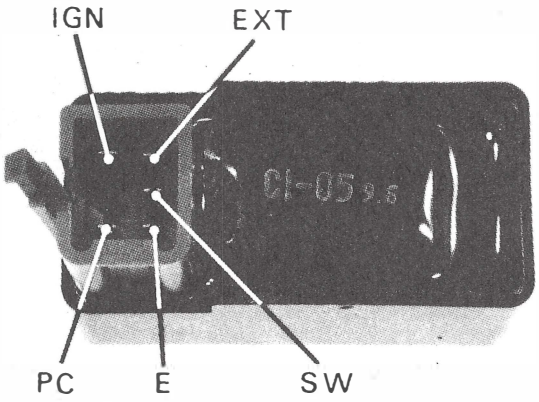
<Inspection>

Measure the resistances between the terminals. Replace the C. D. I. unit with a new one if the readings do not fall within the limits shown in the table.

NOTE

- The C. D. I. is fully transistorized.
- For accurate testing, it is necessary to use a specified electric tester. Use of an improper tester or measurements in improper range may give a false readings.
- Use SANWA ELECTRIC TESTER (P/N 07308–0020000) or KOWA ELECTRIC TESTER (TH–5H).
  In the table, "Needle swings then returns" indicates that there is a charging current in the condenser for the first time. The needle will then remain unless the condenser is discharged.

Measuring ranges:
SANWA: x kΩ
KOWA: x 100 Ω



(1) Unit: k Ω

(2) Tester (+) / (3) Tester (–)	SW	EXT	PC	E	IGN
SW		∞	∞	∞	∞
EXT	0.1–5		∞	∞	Needle swings, then returns
PC	0.5–200	0.5–50		0.5–10	∞
E	0.2–10	0.1–5	∞		∞
IGN	∞	∞	∞	∞	

A. C. GENERATOR INSPECTION

NOTE

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

Disconnect the stator coupler.
Measure the resistances between the terminals.

Black/red – Green: 50–300 Ω
Blue/yellow – Green: 10–100 Ω

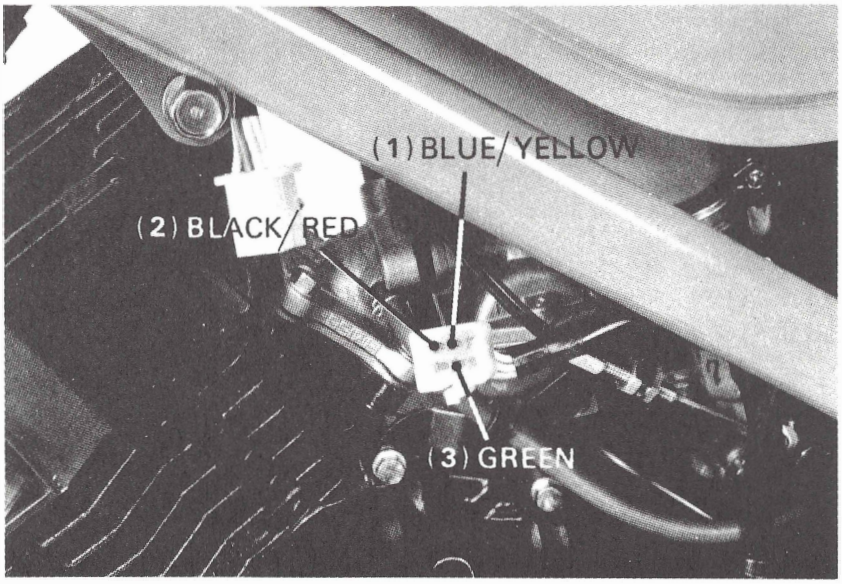
NOTE

Take readings in x 1 Ω range.

A. C. generator removal (Page 8–2, 8–4)

NOTE

Replace the stator coil and flywheel as a set.

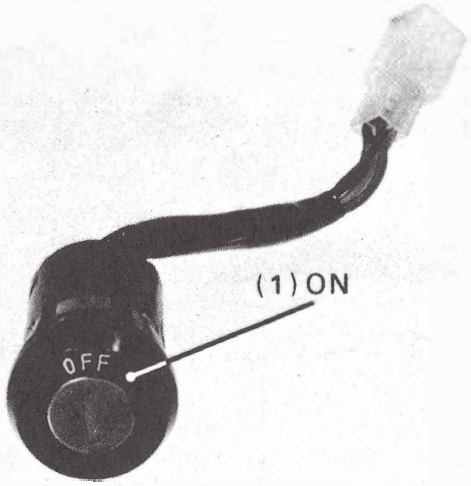


SWITCHES/HORN

Check for continuity between terminals (O–O).

IGNITION SWITCH

COLOR	Bk/W	G	Bk	R
	IG	E	HO	BAT
OFF	O	O		
ON			O	O



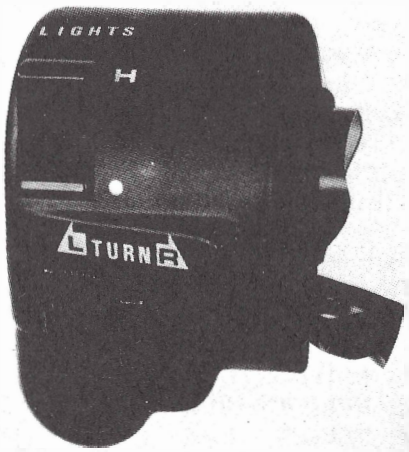
LIGHTING/DIMMER SWITCH

[MB50–E, N, SW, ED]

[MT50–E, SW, ED]

COLOR	–	Y	P	Br	Bk	Br/W
	(HL)	CI	RE	TL	HO	P
OFF		O	O			
P		O	O	O	O	O
H	O	O		O		

COLOR	B	–	W
	Hi	(HL)	Lo
Hi	O	O	
(IN)	O	O	O
Lo		O	O



(G)

[MB50–B, G]

[MT50–B]

[ ]: MB50–S]

COLOR	Br	Y	P	Br
	HL	C1	RE	(HL)
OFF		O	O	
H	O	O		O

COLOR	B	–	W
	Hi	(HL)	Lo
Hi	O	O	
(IN)	O	O	O
Lo		O	O

TURN SIGNAL SWITCH

COLOR	LB	Gr	L
	R	WR	L
R	O	O	
N			
L		O	O

(G)

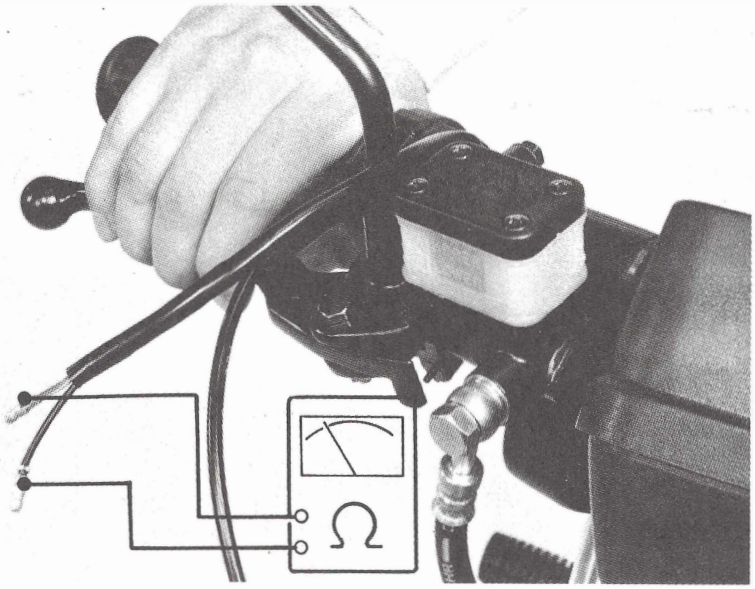
HORN SWITCH

[Except G type]

COLOR	Bk	G
	HO1	E
ON (PUSH)	O	O
OFF (FREE)		

FRONT BRAKE STOPLIGHT SWITCH

Check the front brake stop switch for continuity with the front brake applied.

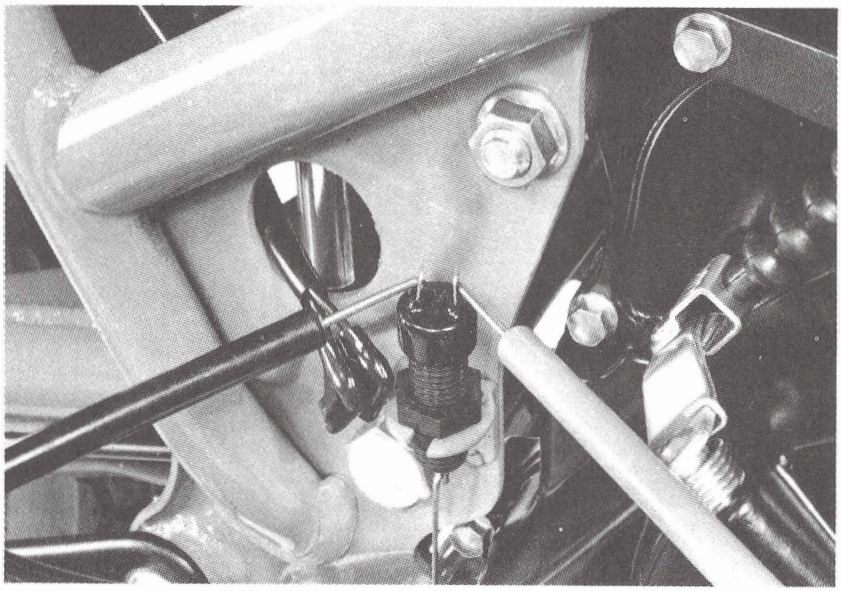


REAR BRAKE STOPLIGHT SWITCH

Check the rear brake stop switch for continuity with the switch rod pulled out.

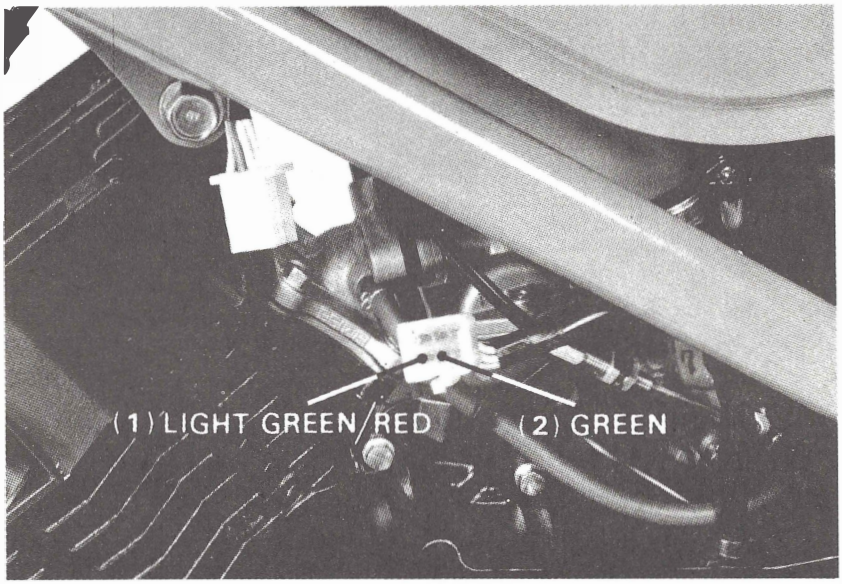
NOTE

Adjust the switch so that the brake light comes on when the brake just starts to take hold.
To adjust, turn the adjusting nut.



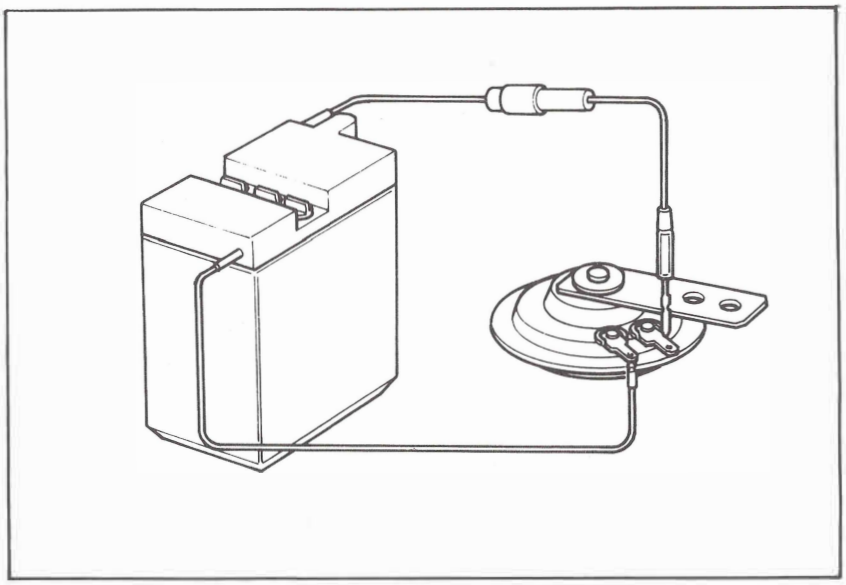
NEUTRAL SWITCH

Check the neutral switch for continuity with the transmission in neutral.



HORN

Connect a fully charged 6V battery to test the horn.



15. TROUBLESHOOTING

HONDA MB50•MT50

ENGINE DOES NOT START OR HARD TO START

CHECK		PROBABLE CAUSE
1. Check if fuel is reaching carburetor	FUEL NOT REACHING CARBURETOR →	(1) No fuel in fuel tank (2) Clogged fuel pipe from tank to carburetor (3) Clogged float valve in carburetor (4) Breather hole in fuel tank cap clogged
FUEL REACHING CARBURETOR ↓		
2. Remove spark plug and try spark test	SPARKS ARE WEAK OR DO NOT JUMP AT ALL →	(1) Faulty spark plug (2) Fouled spark plug (3) Fouled C. D. I. unit (4) Broken or shorted high tension cord (5) Broken or shorted ignition coil (6) Faulty main switch
SPARK JUMPS ↓		
3. Test cylinder compression by operating kick pedal	LOSS OF COMPRESSION →	(1) Piston rings stuck in ring lands (2) Flaw in casting (3) Compression leak past crankcase (4) Faulty or clogged reed valve (5) Worn cylinder and piston rings (6) Blown cylinder head gasket
COMPRESSION IS NORMAL ↓		
4. Start by following normal starting procedure	ENGINE FIRES BUT STOPS SOON →	(1) Excessively open choke (2) Choke stuck closed (3) Air leaking past manifold (4) Ignition timing out of proper adjustment
ENGINE DOES NOT FIRE ↓		
5. Remove spark plug	WET →	(1) Carburetor overflooded (2) Carburetor choke excessively closed (3) Throttle valve excessively opened
DRY ↓		
6. Restart with choke applied		

ENGINE LACKS POWER

CHECK		PROBABLE CAUSE
1. Raise wheel off ground WHEEL SPINS FREELY	WHEEL DOES NOT SPIN FREELY →	(1) Brake dragging (2) Worn or damaged wheel bearing (3) Wheel bearing not lubricated properly (4) Drive chain too tight
2. Check tire pressure with tire gauge TIRE PRESSURE IS NORMAL	TIRE PRESSURE IS TOO LOW →	(1) Punctured tire (2) Faulty tire valve
3. Try rapid acceleration from low to high ENGINE SPEED LOWERED WHEN CLUTCH IS RELEASED	ENGINE SPEED NOT CHANGED WHEN CLUTCH IS RELEASED →	(1) Clutch slipping (2) Worn clutch disc (3) Clutch disc warped
4. Lightly accelerate engine ENGINE SPEED INCREASED	ENGINE SPEED NOT INCREASED SUFFICIENTLY →	(1) Carburetor choke closed (2) Restricted fuel flow (3) Air cleaner clogged (4) Clogged fuel tank breather (5) Clogged muffler
5. Check ignition timing using timing light IGNITION TIMING IS CORRECT	IGNITION TIMING IS INCORRECT →	(1) Improper ignition timing
6. Test cylinder compression by operating kick pedal using compression gauge COMPRESSION IS NORMAL	COMPRESSION IS LOW →	(1) Worn cylinder and piston rings (2) Blown cylinder head gasket (3) Flaws in compression parts (4) Faulty or deteriorated reed valve
7. Check for clogged carburetor CARBURETOR IS NOT CLOGGED	CARBURETOR IS CLOGGED →	(1) Damaged fuel strainer (2) Carburetor not serviced frequently enough
8. Remove spark plug PLUG IS NOT FOULED OR DISCOLORED	PLUG IS FOULED OR DISCOLORED →	(1) Plug fouled (2) Use of plug with improper heat range

CHECK		PROBABLE CAUSE
9. Check oil level. Also check oil for contamination	LEVEL IS TOO LOW OR TOO HIGH →	(1) Transmission oil level too high, resulting in lack of power (2) Transmission oil level too low (3) No engine oil in oil tank (4) Oil deteriorated or contaminated
CRANKCASE IS FILLED TO PROPER LEVEL		
10. Check if engine overheats	ENGINE OVERHEATS →	(1) Improperly adjusted oil pump (2) Excessive carbon build-up in combustion chamber (3) Use of improper quality fuel (4) Mixture too lean (5) Clutch slipping
ENGINE IS NOT OVERHEATED		
11. Accelerate or run at high speed	ENGINE KNOCKS →	(1) Worn piston rings and cylinder (2) Fuel air mixture too lean (3) Excessive carbon build-up in combustion chamber (4) Ignition timing too early
ENGINE DOES NOT KNOCK		

POOR PERFORMANCE AT LOW AND IDLE SPEEDS

CHECK		PROBABLE CAUSE
1. Check ignition timing	INCORRECT →	(1) Fouled C. D. I. unit (2) Fouled A. C. gemerator
NORMAL		
2. Check carburetor air screw adjustment	INCORRECT →	(1) Fuel air mixture too lean (To correct, screw in) (2) Fuel air mixture too rich (To correct, screw out)
NORMAL		
3. Air is leaking past carburetor packing	LEAKING →	(1) Deteriorated insulator O-ring (2) Loose carburetor (3) Deteriorated carburetor packing
NOT LEAKING		
4. Remove spark plug and try spark test	WEAK OR INTERMITTENT SPARK →	(1) Defective, or carbon or wet fouled spark plug (2) Faulty A. C. generator (3) Faulty ignition coil (4) Faulty C. D. I. unit
GOOD SPARKS		

POOR PERFORMANCE AT HIGH SPEED

CHECK		PROBABLE CAUSE
1. Check ignition timing	IMPROPER →	(1) Faulty A. C. generator (2) Faulty C. D. I. unit
PROPER ↓		
2. Disconnect fuel tube at carburetor	FUEL FLOW IS RESTRICTED →	(1) Lack of fuel in tank (2) Clogged fuel tank cap breather hole (3) Clogged fuel line (4) Clogged fuel valve
FUEL FLOWS OUT FREELY ↓		
3. Remove carburetor and check	CLOGGED →	(1) Damaged fuel strainer
NOT CLOGGED		

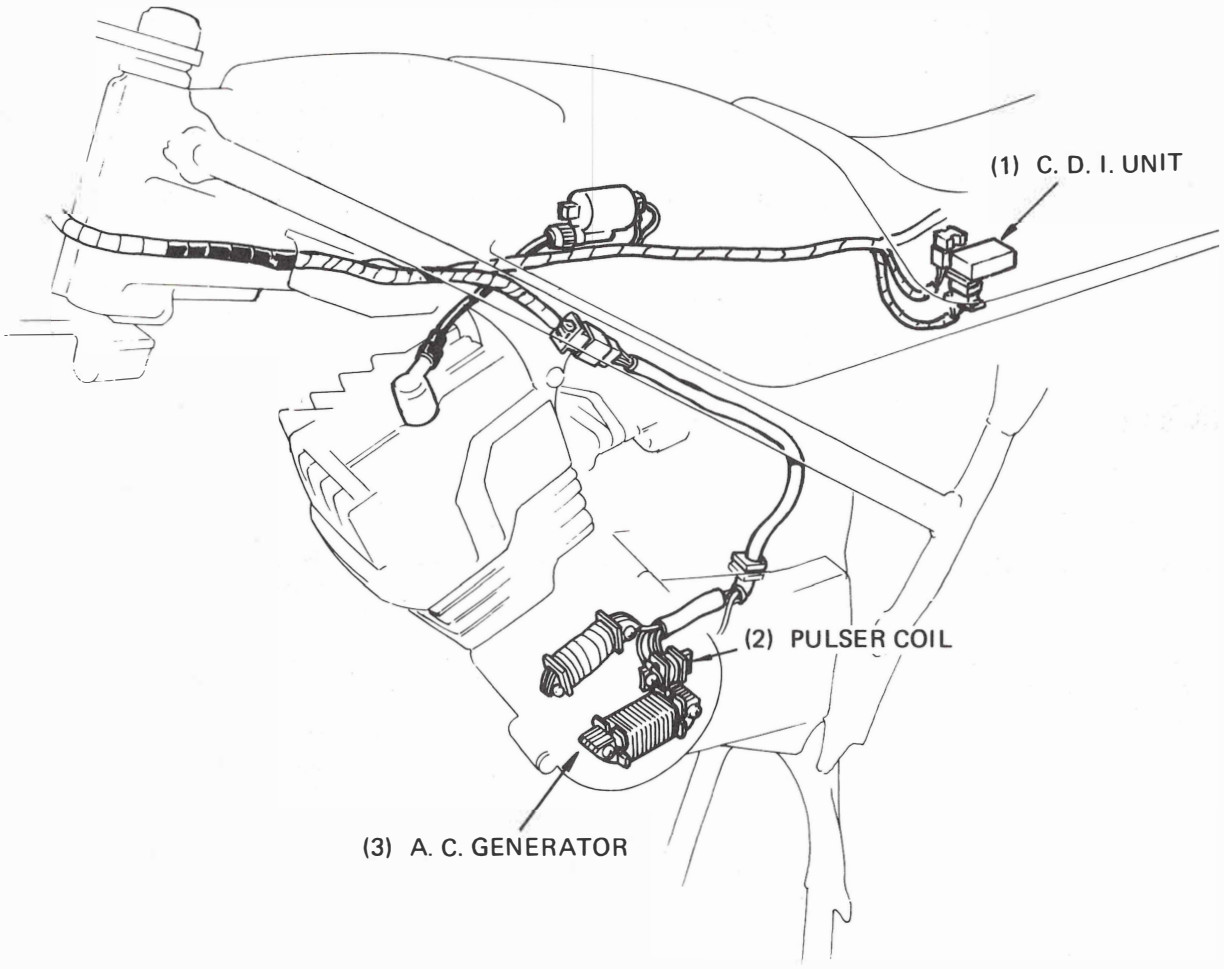
POOR HANDLING → Check tire pressure

	PROBABLE CAUSE
1. Steering heavy →	(1) Steering cone races excessively tightened (2) Damaged steering steel balls
2. Front or rear wheel is excessively wobbling →	(1) Excessive play in wheel bearing (2) Distorted rim (3) Improperly installed wheel hub (4) Rear fork pivot bushing excessively worn (5) Distorted frame (6) Improper drive chain adjustment
3. Pulled to one side →	(1) Unbalanced shock absorbers (right and left/front and rear) (2) Front and rear wheels not aligned (3) Bent front fork (4) Bent rear fork

16. TECHNICAL FEATURES

C D I (Capacitive Discharge Ignition) SYSTEM

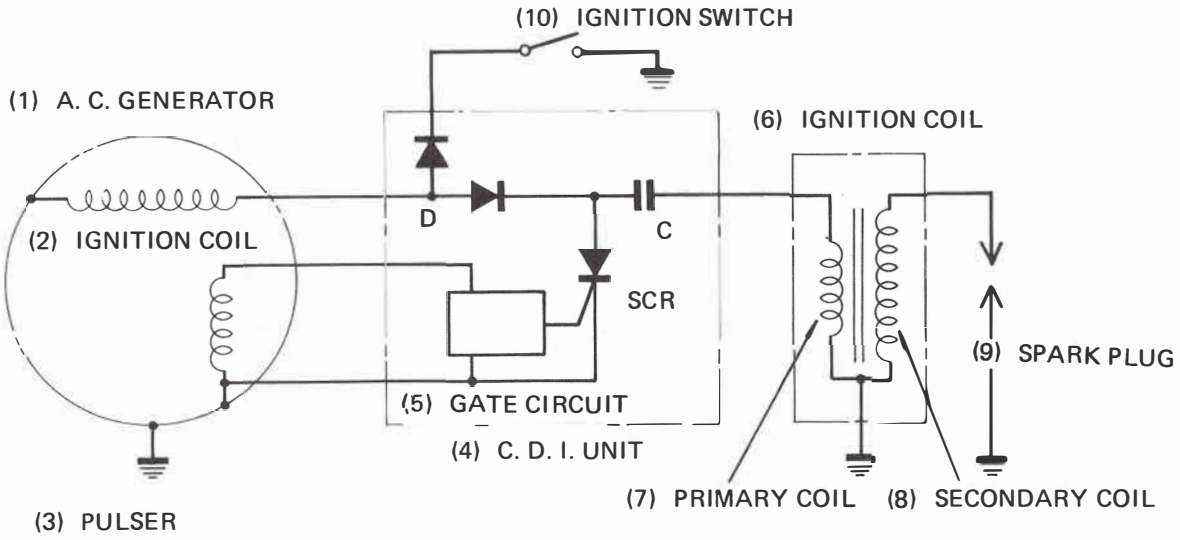
The C. D. I. electronic ignition system is designed to provide a powerful spark, especially at high rpm, with no scheduled maintenance.



FEATURES

1. There are no contact points to require attention.
2. The C. D. I. can develop more voltage potential at the spark plug than conventional systems and is more resistant to spark plug fouling.
3. Working on A. C, the secondary voltage is more stable, regardless of battery condition.
4. The electronic spark retarder is free from all troubles normally associated with mechanical governors, insuring long, trouble-free life.
5. The overall design eliminates initial and periodic adjustments and maintenance services.

C. D I. (CAPACITIVE DISCHARGE IGNITION) SYSTEM

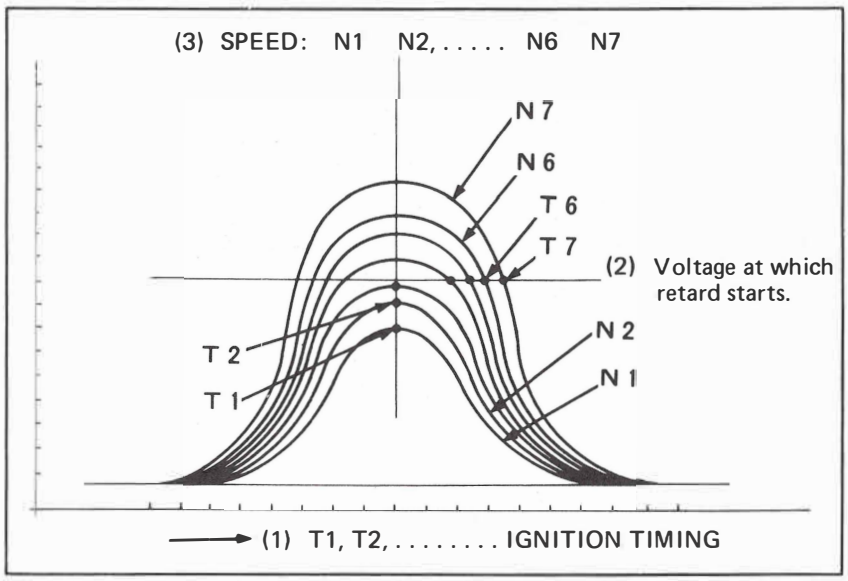


RETARD

1. As the AC generator rotor turns, current is induced in the AC generator (AC generating coil). This current is rectified as it passes through the diode D and is stored in the condenser C. During this process, the SCR is kept OFF.
2 An electric pulse is generated by the pulser when the pickup reaches the point where ignition must start. This is due to the changes in flux. The pulse is applied to the SCR through the gate circuit. As this happens, SCR turns ON which in turn discharges the energy stored in the condenser through the primary coil. Sufficient potential is then developed at the spark plug to ignite air-fuel mixture in the combustion chamber.

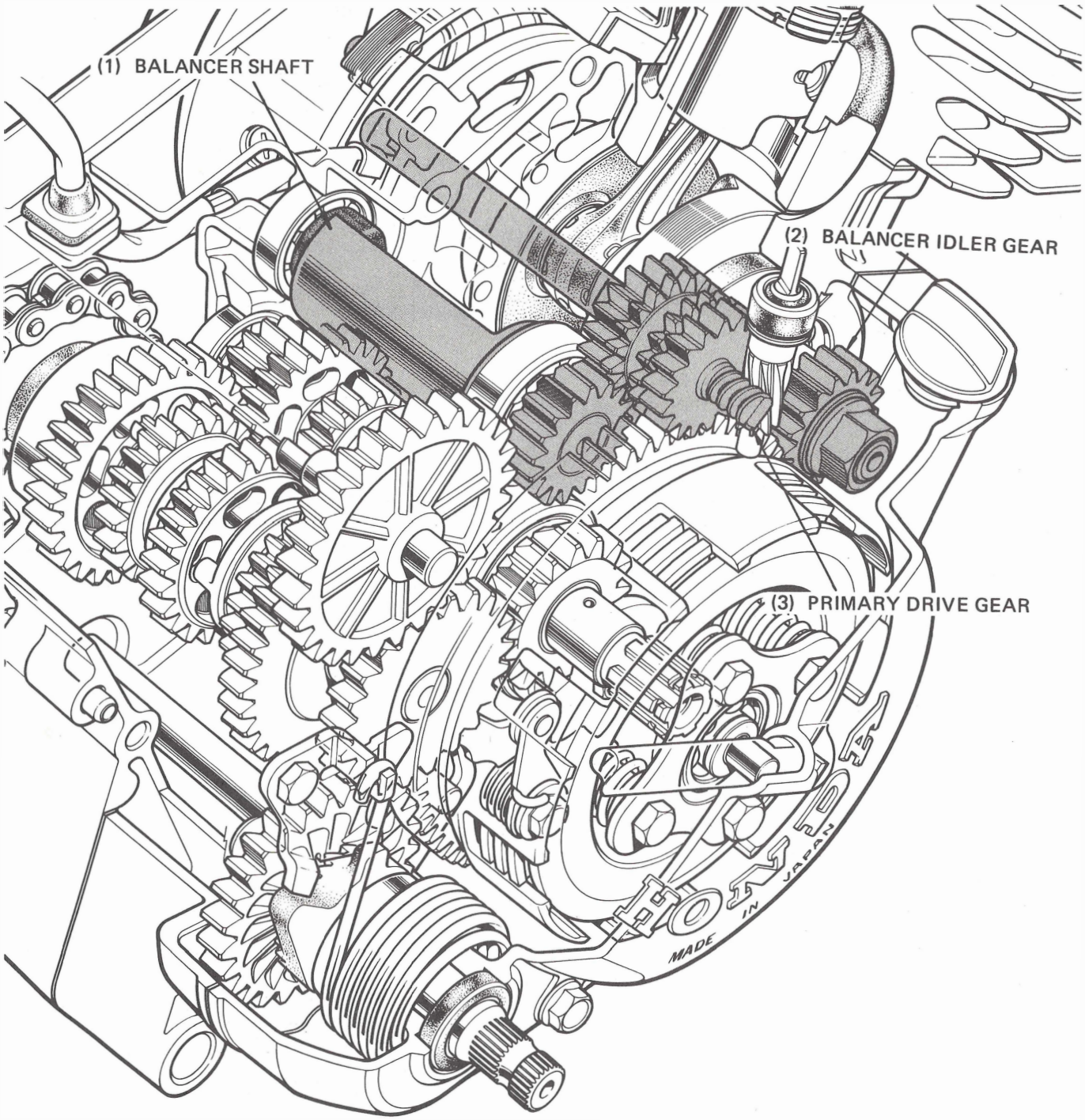
RETARD OPERATION

In the C. D. I. ignition, timing retard depends on the buildup time of voltage on the pulser which varies with the speed of the engine. The gate circuit causes the timing to retard as shown in the sketch shown on the right.

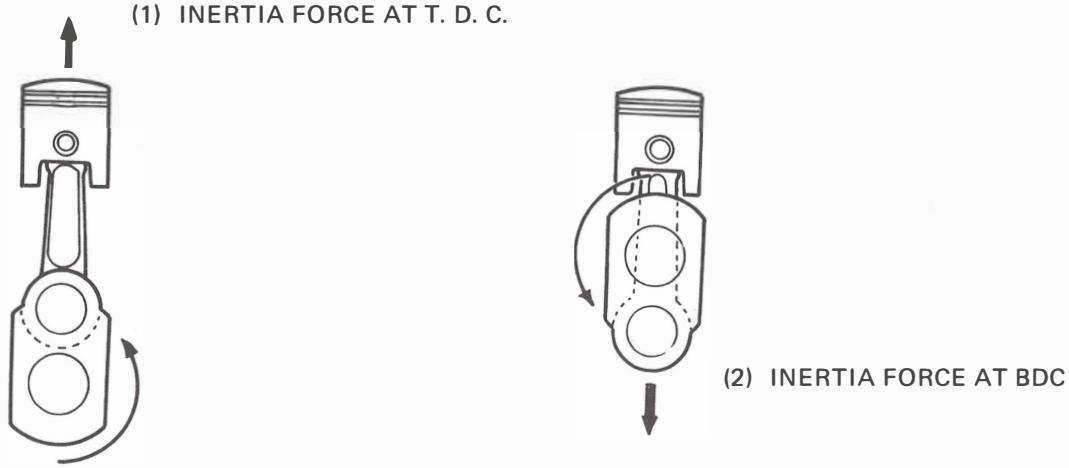


BALANCER

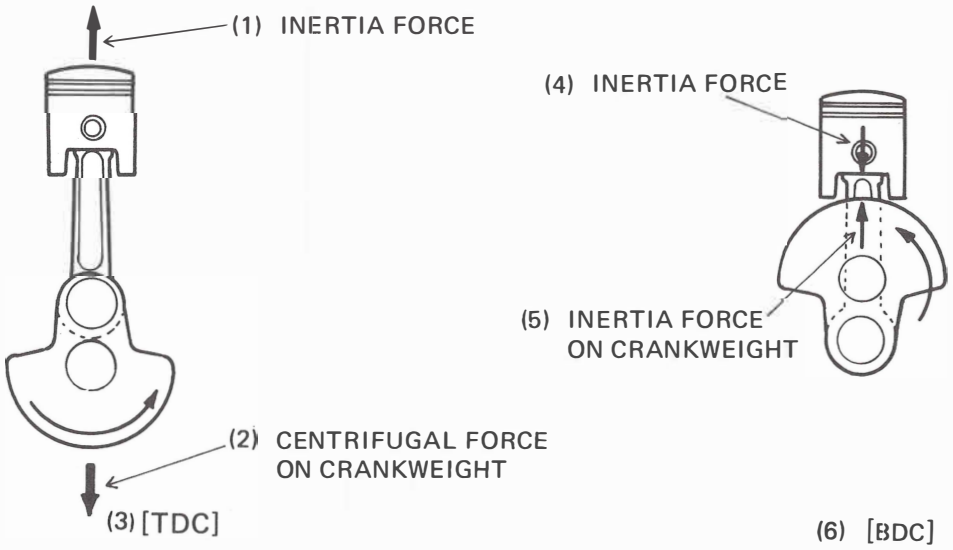
The motorcycle uses a single-shaft primary balancer to counteract large inertia inherent in the single-cylinder 2-cycle engine.



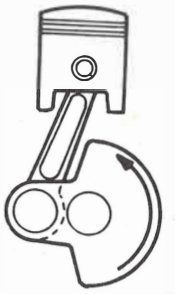
OPERATING PRINCIPLE OF BALANCER



The source of vibration in a reciprocating engine is the "inertia" force created by the rotating or reciprocating masses such as the piston and connecting rod.

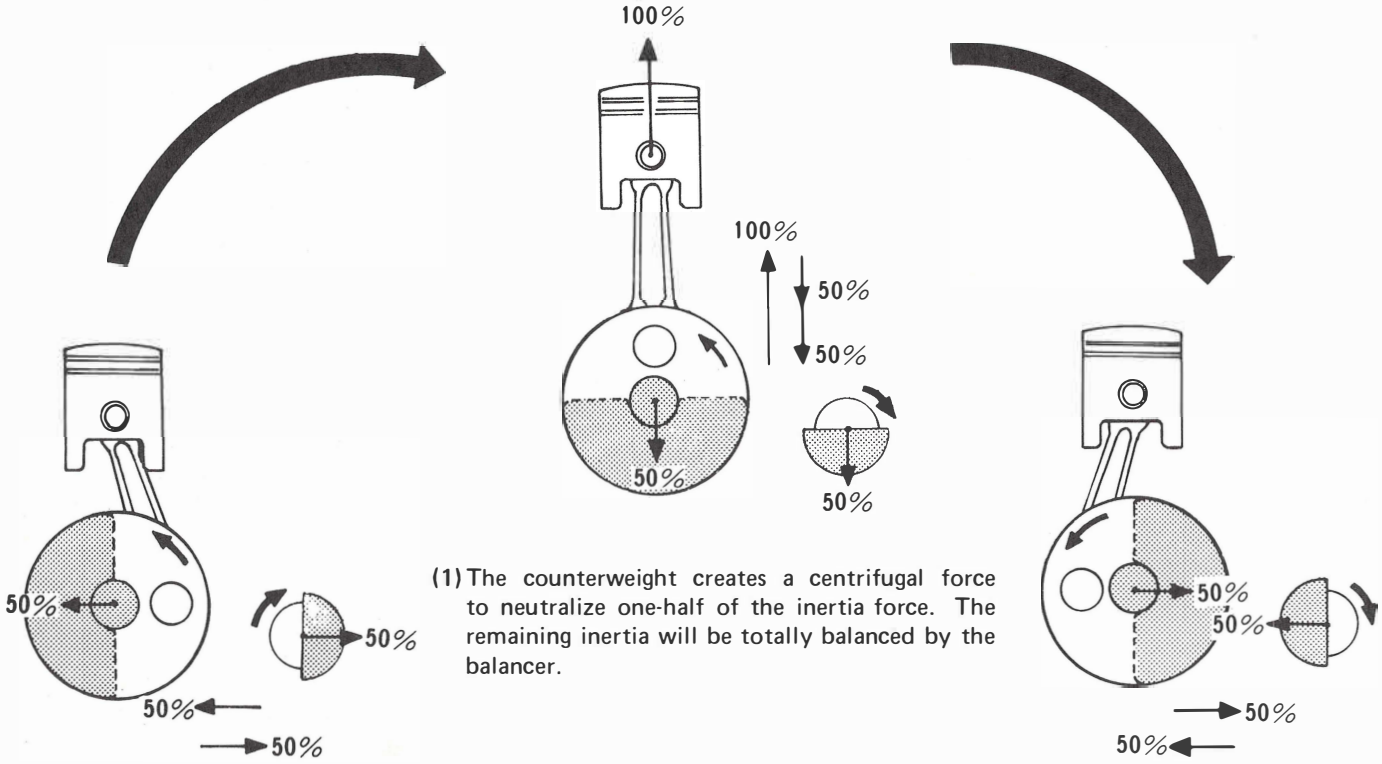


Inertia force created by the rotating mass is in general canceled by counterweights. Their use will reduce vibration caused by the primary inertia force which occurs once every crankshaft revolution. (Hereinafter, inertia force refers to this primary force).



(1) INERTIA FORCE AT TDC

Although the counterweights will balance the inertia force at T. D. C. and B. D. C., they will create a corresponding horizontal imbalance of their own at 90° BTDC and 90° ATDC due to centrifugal force. The balancer is designed to counteract this force including the inertia force created by the reciprocating masses.



(1) The counterweight creates a centrifugal force to neutralize one-half of the inertia force. The remaining inertia will be totally balanced by the balancer.

(2) The inertia force is balanced by the counterweight. However, the centrifugal force acting on the counterweight is still present. The centrifugal force on the balancer cancels this remaining force.

(3) The centrifugal force on the counterweight neutralizes one-half of the downward inertia force. The balancer counteracts the remainder.

(4) The centrifugal force on the counterweight is balanced by the balancer.

MEMO

MEMO

NEW MOTORCYCLE COMMON TOOL LIST

The cometitive price, excellent design and longevity features add new dimensions to the Honda Common Service Tools for motorcycles——efficiency and versatility to save many hours of on the-job service and repair time. This table has been prepaired to provide a quick reference to the application of each service tool included in the table.

1. Information included in the Model Column is based on the base model at the time of approval for printing. For those other than the base model, refer to the instructions for the base model.
2. Tools may serve as part of other tools as a set. Find the tool you want on this table, then make sure that it is the correct tool for the part being serviced.
3. For detailed procedures, refer to the Common Service Tool Manual or applicable Shop Manual.
4. The table is subject to changes at any time without notice.

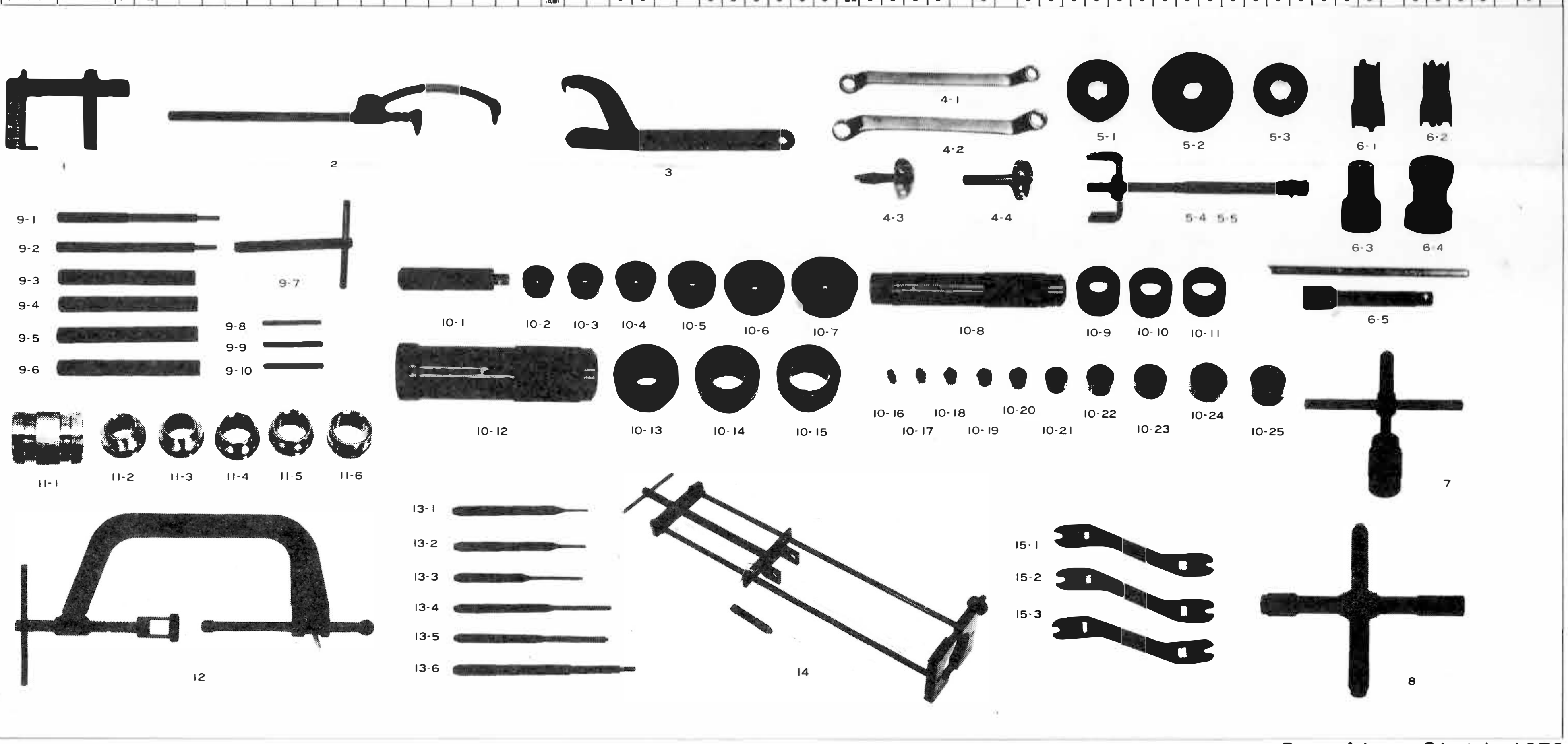
Abbreviations: FW: Front Wheel RW: Rear Wheel

APPLICABLE MODEL (columns 1–31)

Ref No	TOOL NAME (Size MM)		TOOL NUMBER	Photo No.	Weight (gr)	1 C50 CD50 CL50 SS50 SS50M C50M	2 PC50 PS50 PC50K1 PS50K1	3 Z50A Z50M Z50AK2 ~ Z50AK8	4 QA50	5 ST50 CT50	6 MR50	7 CR50 TL50	8 PA50	9 CY50	10 C70 C70M CL70 SL70 C65 CS65 CL65 CD65 CD70 CD70M	11 ST70 CT70 CT70M	12 XL70	13 ATC70	14 CT70H	15 XR75A	16 NS90	17 C90 CM90 C100	18 CS90 CD90 CL90 SL90	19 ST90	20 ATC90K3	21 CB100 CL100 SL100 CB125S CL125S	22 XL100 XL125	23 CS110	24 CG110 CG125	25 CB125 ~ K5 CL125 ~ K5	26 MT125	27 CB125S	28 CB125N	29 CR125	30 CT125	31 CR125 M2 ~ M4
	NEW COMMON TOOL KIT		07700-0010001																																	
1	GAUGE, FLOAT LEVEL		07401-0010000	1	85	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
2	HOLDER, UNIVERSAL		07725-0010101	2	450	●	●	●	●	●	●	●	●	●	●	●	●	●		●		●	●			●		●	●	●	●	●	●	●	●	●
3	SPANNER, PIN		07702-0010000	3	215	●	●	●		●	●	●			●	●	●	●	●		●	●	●	●		●	●		●	●	●	●		●	●	●
4	WRENCH SET, TAPPET ADJUSTING (07708-0030000)	Wrench 8×9	07707-0030100	4-1	80	●		●		●		●		●	●	●	●	●	●	●	●	●	●	●	●	●				●		●				
		Wrench 10×12	07708-0030200	4-2	55																					●	●		●		●		●	●	●	●
		Adjusting (A)	07708-0030300	4-3	50																										●		●	●		●
		Adjusting B	07708-0030400	4-4	50	●		●		●		●		●	●	●	●	●	●	●	●	●	●	●	●	●	●		●	●		●			●	
5	WRENCH SET, RETAINER (07710-0010002)	Retainer A	07710-0010100	5-1	185																															
		Retainer B	07710-0010200	5-2	410																											● FW	● RW	●		
		Retainer C	07710-0010300	5-3	270																															
		Body A	07710-0010401	5-4	425																											●	●	●		
		Body B	07710-0010501	5-5	425																															
6	WRENCH SET, LOCK NUT (07716-0020002)	Nut 20-24	07716-0020100	6-1	105	●	●	●		●					●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●		●	●		●	
		Nut 26-30	07716-0020202	6-2	145			●							● (C70·C70M)							●	●								●		●			
		Nut 17×27	07716-0020300	6-3	185																															
		Nut 38-37	07716-0020400	6-4	245									●																						
		Extention, Handle & Bar	07716-0020500	6-5	430	●	●	●		●				●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●		●	
7	PULLER, FLYWHEEL & ROTOR		07733-0010000	7	365	●	●	●	●	●	●	●		●	●	●		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●			●	
8	PULLER, ROTOR		07733-0020001	8	565																												●			
9	DRIVER IN OUT SET, VALVE GUIDE (07742-0010000)	Remover 5.5	07742-0010100	9-1	120	●	●	●		●		●		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●		●			●	
		Remover 6.6	07742-0010200	9-2	140																															
		Driver (A)	07742-0020100	9-3	250												●	●						●				●								
		Driver (B)	07742-0020200	9-4	250	●	●	●		●		●		●	●	●			●	●	●	●	●		●	●	●		●	●		●			●	
		Driver (C)	07742-0020300	9-5	250		● (PC50K1)																													
		Driver (D)	07742-0020400	9-6	250																															
		Cutter, Valve Guide	07742-0030100	9-7	170	●	●	●		●		●		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●		●			●	
		Pilot 5.5	07742-0030200	9-8	15	●	●	●		●		●		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●		●			●	
		Pilot 6.6	07742-0030300	9-9	20																															
		Pilot 7.8	07742-0030400	9-10	10																															
10	DRIVER SET, BEARING (07746-0010001)	Handle (A)	07749-0010000	10-1	575			●	●	●	●	●		●		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
		Outer 32-35	07746-0010100	10-2	110			●	●		●	●						●		●	●			●	●		●		●	●					●	
		Outer 37-40	07746-0010200	10-3	150					●		●		●		●	●	●	●	●		●	●	●			●	●			●		●	●	●	●
		Outer 42-47	07746-0010300	10-4	205							●								●			●	●	●		●	●	●	●		●	●	●	●	●
		Outer 52-55	07746-0010400	10-5	320													●								●	●		●		●		●	●	●	●
		Outer 62-68	07746-0010500	10-6	475																●				●			●			●		●	●		●
		Outer 72-75	07746-0010600	10-7	630																															
		Handle (B) 22	07746-0020100	10-8	505	●	●	●	●		●	●			●		●	●	●	●					●				●	●		●				
		Inner 15	07746-0020200	10-9	100																															
		Inner 17	07746-0020300	10-10	95		●		●		●						●																			
		Inner 20	07746-0020400	10-11	90	●		●				●			●		●	●	●						●					●		●				
		Handle (C) 40	07746-0030100	10-12	850									●									●	●	●	●		●							●	
		Inner 25	07746-0030200	10-13	330									●									●	●	●			●								
		Inner 30	07746-0030300	10-14	275																					●										
		Inner 35	07746-0030400	10-15	205																															
		Pilot 10	07746-0040100	10-16	10						●	●																								
		Pilot 12	07746-0040200	10-17	15			●	●	●	●	●		●		●	●		●	●		●	●	●			●	●	●		●		●	●	●	●
		Pilot 15	07746-0040300	10-18	20													●			●			●	●	●	●		●	●	●	●	●	●	●	●
		Pilot 17	07746-0040400	10-19	30						●	●					●	●	●	●		●	●		●											
		Pilot 20	07746-0040500	10-20	40																		●	●	●		●	●	●		●		●	●	●	●
		Pilot 22	07746-0041000	10-21	50																										●		●	●		●
		Pilot 25	07746-0040600	10-22	70							●						●		●								●			●		●	●		●
		Pilot 30	07746-0040700	10-23	100																						●	●	●						●	
		Pilot 35	07746-0040800	10-24	130																●				●											
		Pilot 40	07746-0040900	10-25	180																															
11	DRIVER SET, FRONT FORK OIL SEAL (07747-0010000)	Body	07747-0010100	11-1	900	● (C50·SS50)				●	●	●		●	●	●	●			●			●	●		●	●	●	●	●	●	●	●	●	●	●
		A.T.T. (A)	07747-0010200	11-2	200	● (C50·SS50)					●																									
		A.T.T. (B)	07747-0010300	11-3	175					●		●		●	●	●	●			●			●	●		● (100CC)	●	●								
		A.T.T. (C)	07747-0010400	11-4	170																					● (125CC)	●			●	●	●	●		●	
		A.T.T. (D)	07747-0010500	11-5	170																															
		A.T.T. (E)	07747-0010600	11-6	140																													●		●
12	COMPRESSOR, VALVE SPRING		07757-0010000	12	1,400	●		●	●	●		●		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●		●			●	
13	DRIVER SET, PIN (07744-0010000)	Pin 2.5	07744-0010100	13-1	35																															
		Pin 3.0	07744-0010200	13-2	35																															
		Pin 3.5	07744-0010300	13-3	30																															
		Pin 5.0	07744-0010400	13-4	40					●						●																				
		Pin 6.0	07744-0010500	13-5	45																															
		Pin 8.0	07744-0010600	13-6	90																															
14	DIS/ASSEMBLY TOOL, REAR CUSHION		07959-3290001	14	1,400	●	●			●		●		●	●	●	●		●	●		●	●	●		●	●	●	●	●	●	●		●	●	●
15	SPANNER SET NIPPLE (07701-0020000)	(A) 4.1×4.5	07701-0020100	15-1	20	●	●			● (CT50)			●																							
		(B) 4.5×5.1	07701-0020200	15-2	75							●			●		●			●		●	●			●	●	●	●						●	● FW
		(C) 5.8×6.1	07701-0020300	15-3	75																		● (CL90)			●	●			●	●	●	●	●	●	● RW

APPLICABLE MODEL (columns 32–62)

TOOL NUMBER	32 XL125S	33 CB125	34 CD175 ~ K6 CB175 ~ K6 CL175 ~ K6	35 XL175	36 MR175	37 CM185T	38 C200 CT200	39 CB200 CL200	40 CB250 ~ K3 CL250 ~ K3 SL250 CB350 ~ K4 CL350 ~ K4 SL350 ~ K4	41 XL250 XL350	42 CB250N	43 MT250	44 TL250	45 MR250	46 CB250G5 CB360G CL360 CJ250T CJ360T	47 XL250S	48 CB250T CB400T CB400A	49 CB350F	50 CB400F	51 CB450 ~ K5 CL450 ~ K5	52 CB500	53 CB550 CB550F	54 CB500T	55 CB650	56 CB750 ~ K7	57 CB750F	58 CB750A	59 CB750K	60 CB900F	61 GL1000	62 CBX1000
07700-0010001																															
07401-0010000	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
07725-0010101	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●		●	●			●	●	●	●			●		●
07702-0010000	●	●	●	●	●	●	●	●	●	●		●	●	●	●	●	●		●	●	●	●	●	●	●	●	●			●	
07707-0030100			●			●	●	●		● (XL250)			●			●		●	●												
07708-0030200	●			●	●					●	●	●		●	●		●				●	●			●	●	●			●	
07708-0030300	●			●	●					●	●	●		●	●		●				●	●			●	●	●			●	
07708-0030400			●			●	●	●		● (XL250)			●			●		●	●												
07710-0010100									● RW	●	● RW	● RW		●	●	● RW		● RW	● RW	● FW			● RW	● RW	● RW	● RW	● RW	● RW	●	●	●
07710-0010200					●			●	● FW				● RW		●			● FW	● FW	● FW	● FW RW	● FW RW	● FW	● FW	● FW	● FW	● FW	● FW	●	●	
07710-0010300																								● RW	● RW		● RW	● RW			●
07710-0010401					●			●	●	●	●	●	●	●	●	●		●	●	● FW	●	●	● FW	●	● FW RW	● FW RW	●	●	●	●	●
07710-0010501																				● RW			● RW		● RW	● RW					
07716-0020100	●		●	●				●	●	●			●		●				●	●			●		●	●		●	●	●	
07716-0020202					●		●										●							●							●
07716-0020300											●	●		●																	
07716-0020400						●										●	●											●	●		
07716-0020500	●		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●		●	●			●	●	●	●		●	●	●	●
07733-0010000	●			●	●		●																								
07733-0020001			●			●		●	●	●		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●				
07742-0010100	●		●			●		●		●			●			●	● IN	●	●		●	●		●				●	●		●
07742-0010200				●					●						●		● EX			●			●		●	●	●			●	
07742-0020100								●															●								
07742-0020200	●									●			●					●	●	●	●	●		●				●	●		
07742-0020300			●																						●						
07742-0020400									●																						
07742-0030100	●		●	●		●		●	●	●			●		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
07742-0030200	●		●			●		●		●			●			●	● IN	●	●		●	●		●				●	●		●
07742-0030300																	● EX								●	●	●			●	
07742-0030400				●					●						●					●			●								
07749-0010000	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
07746-0010100		●				●					●					●															●
07746-0010200	●	●			●		●				●	●	●	●		●															●
07746-0010300	●	●	●	●	●	●		●	●	●		●	●	●	●	●	●	●	●	●		●	●	●	●	●	●	●	●	●	●
07746-0010400		●			●	●			●	●	●	●		●	●		●	●	●	●	●	●	●		●	●	●	●	●	●	●
07746-0010500					●						●									●	●	●	●	●	●	●	●	●	●		●
07746-0010600											●	●		●																	
07746-0020100			●	●		●										●					●	●		●		●	●	●	●		
07746-0020200																															
07746-0020300				●																											
07746-0020400			●																							●	●	●	●		
07746-0030100			●	●					●	●			●		●	●		●	●	●		●	●	●	●	●		●	●	●	●
07746-0030200			●	●					●	●			●		●	●		●	●	●		●	●	●	●	●		●	●	●	●
07746-0030300				●					●	●			●		●			●					●			●					●
07746-0030400																														●	
07746-0040100																															
07746-0040200					●		●						●													●					
07746-0040300	●	●	●	●	●	●		●	●	●	●	●	●	●	●	●	●	●	●	●		●	●	●	●		●	●	●	●	●
07746-0040400	●	●	●	●			●	●	●		●	●		●	●	●	●	●	●												
07746-0040500		●			●	●			●	●	●	●		●	●		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
07746-0041000					●							●												●							
07746-0040600					●						●	●		●					●	●	●	●	●	●	●	●	●	●	●		●
07746-0040700											●	●		●													●				
07746-0040800						●																									
07746-0040900																															
07747-0010100	●	●	●	●	●	●		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
07747-0010200																															
07747-0010300	●																														
07747-0010400			●	●	●	●		●																							
07747-0010500													●		●		●	●	●												
07747-0010600		●							●	●	●	●		●		●				●	●	●	●	●	●	●	●	●	●	●	●
07757-0010000	●		●	●		●	●	●	●	●			●		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
07744-0010100																											●				
07744-0010200																															●
07744-0010300																															
07744-0010400																															
07744-0010500																															
07744-0010600																															
07959-3290001	●		●	●		●	●	●	●	●		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
07701-0020100																															
07701-0020200	● FW				●		●																								
07701-0020300	● RW	●	●	●		●		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●		●	●	●	●		●	



Date of Issue: 31, July 1979