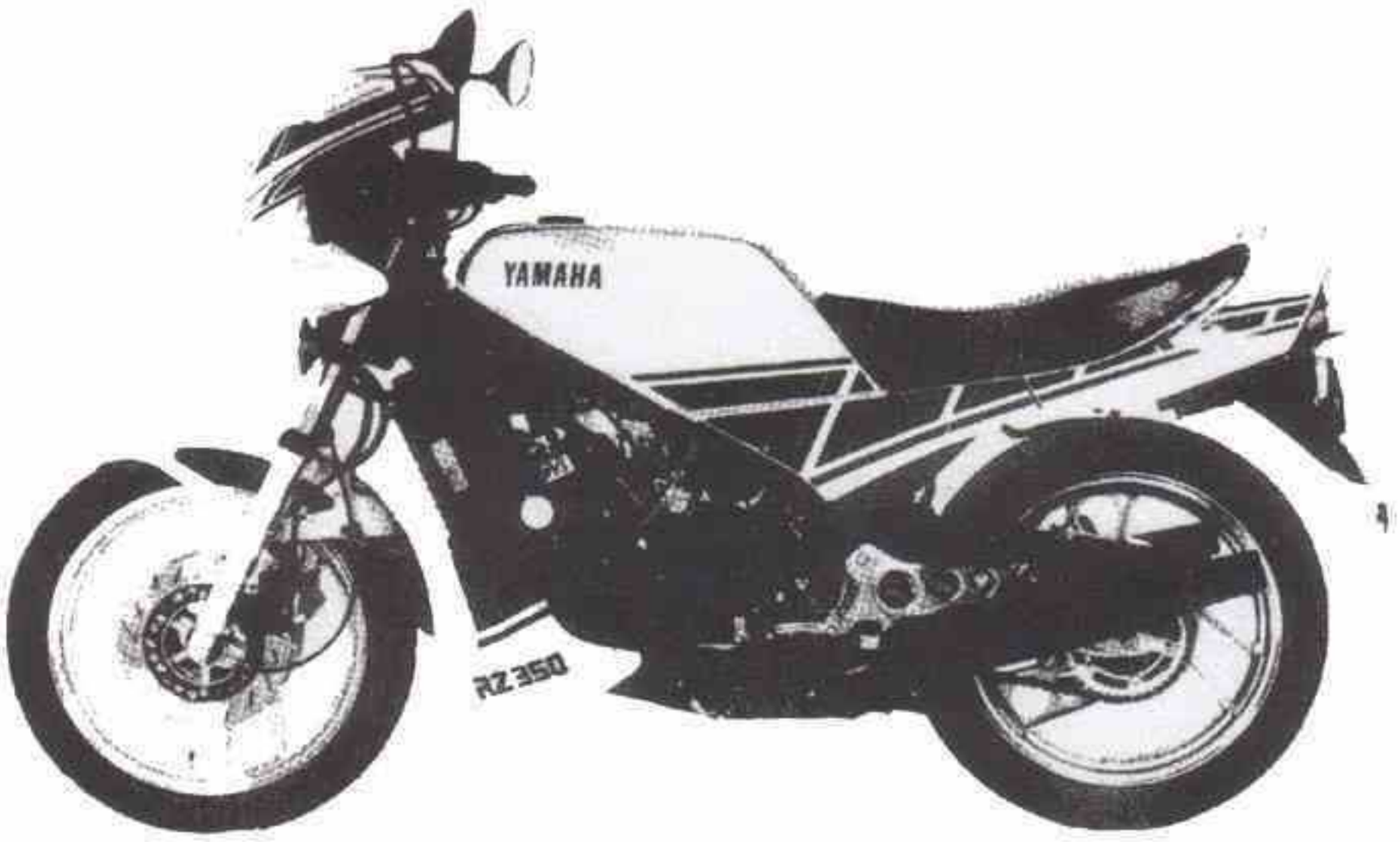
YAMAHA RZ350 L-LC

GENUINE YAMAHA

Service Manual



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GENERAL INFORMATION

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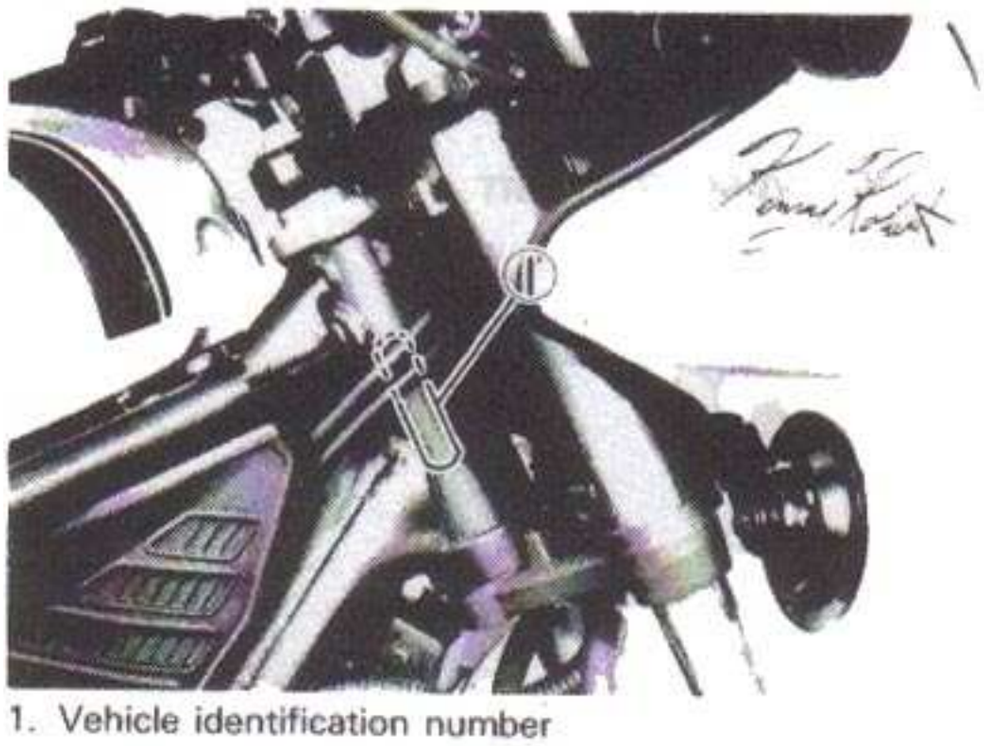
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CHAPTER 1
GENERAL INFORMATION

MOTORCYCLE IDENTIFICATION

Vehicle Identification Number

The vehicle identification number is on the right side of the steering head pipe.



1. Vehicle identification number

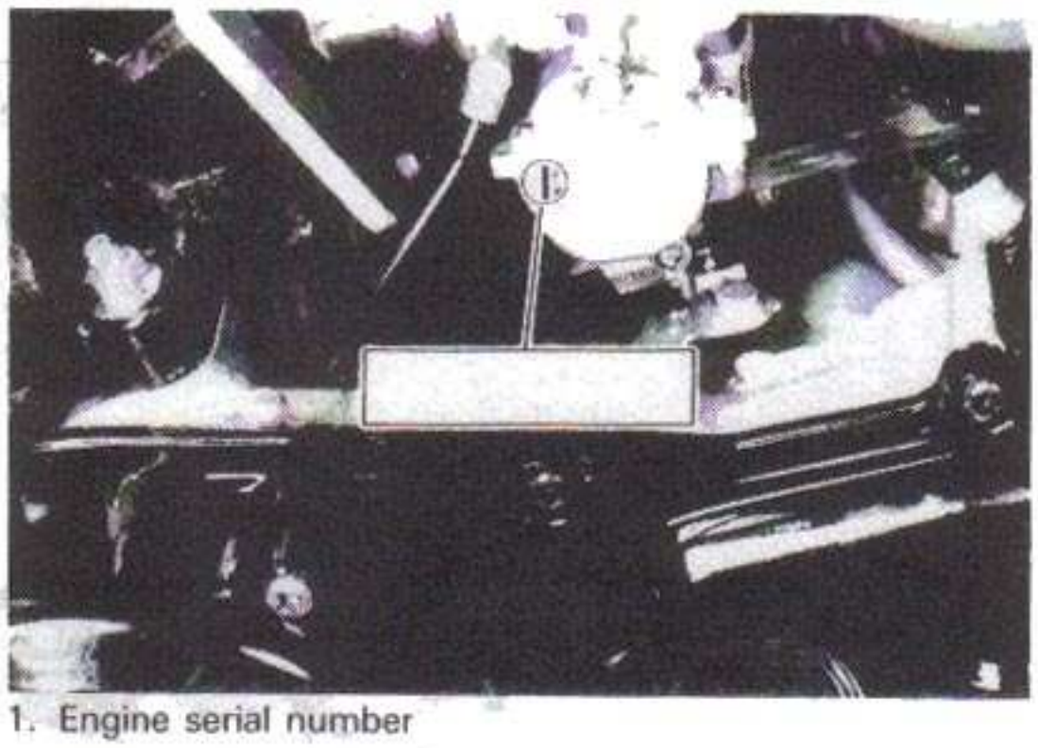
Vehicle Identification Number
JYA48H00*EA000101

Engine Serial Number

The engine serial number is stamped into the left side of the engine.

NOTE:

The first three digits of these numbers are for model identification; the remaining digits are the unit production number.



1. Engine serial number

Starting Serial Number
RZ350L 48H-000101

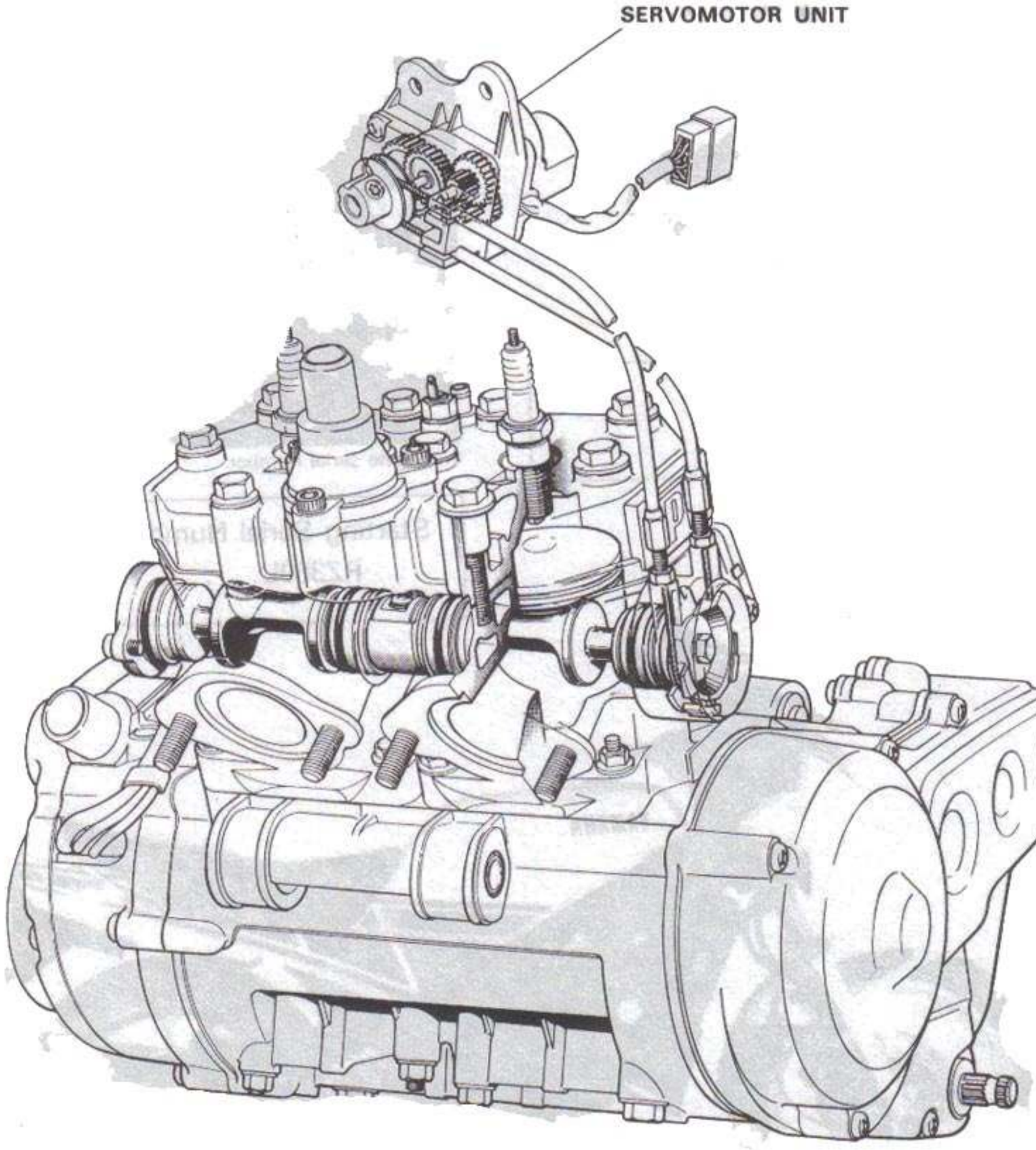


NOTE:

Designs and specifications are subject to change without notice.

MAJOR FEATURES

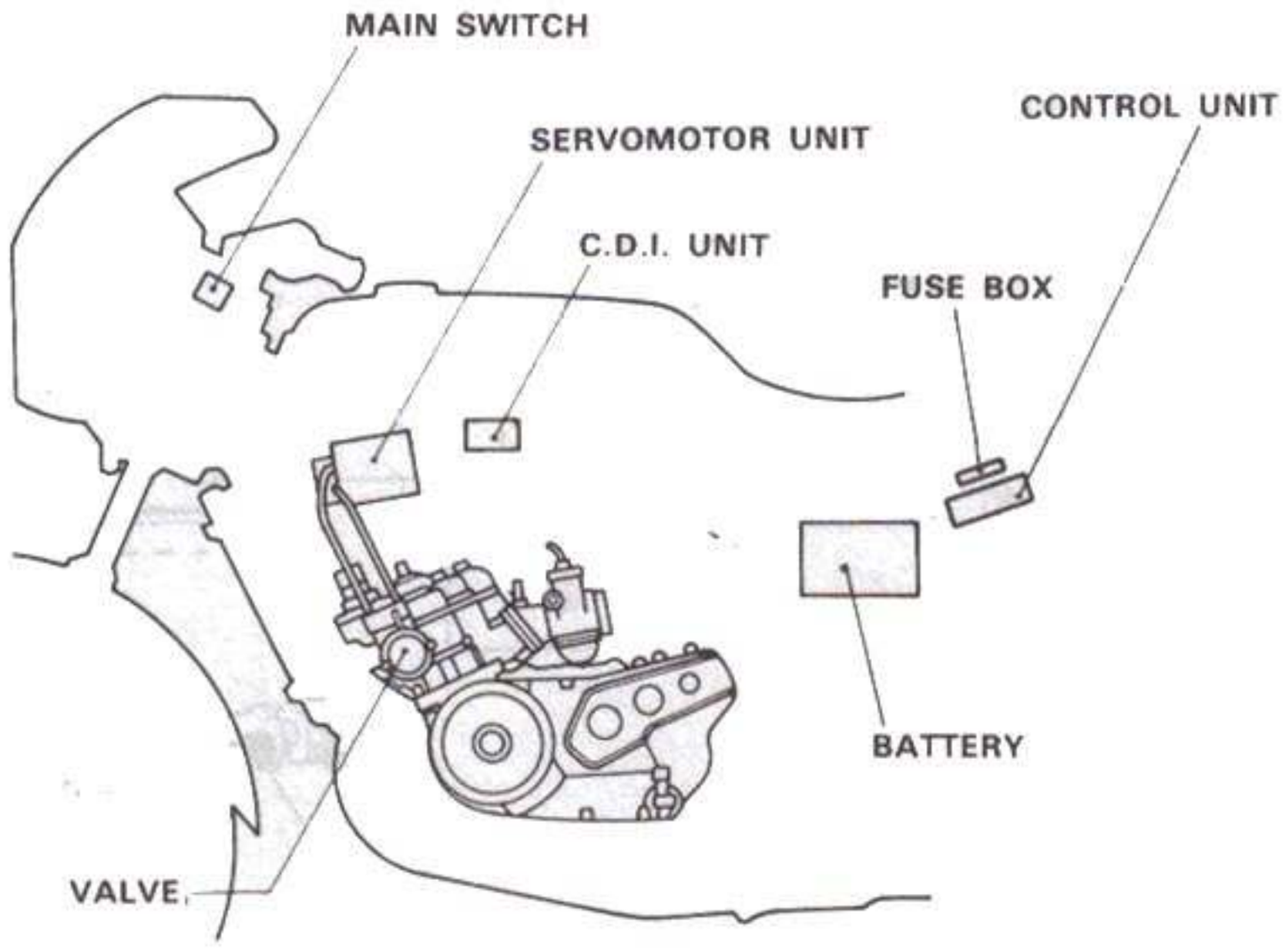
Y.P.V.S.
(Yamaha Power Valve System)

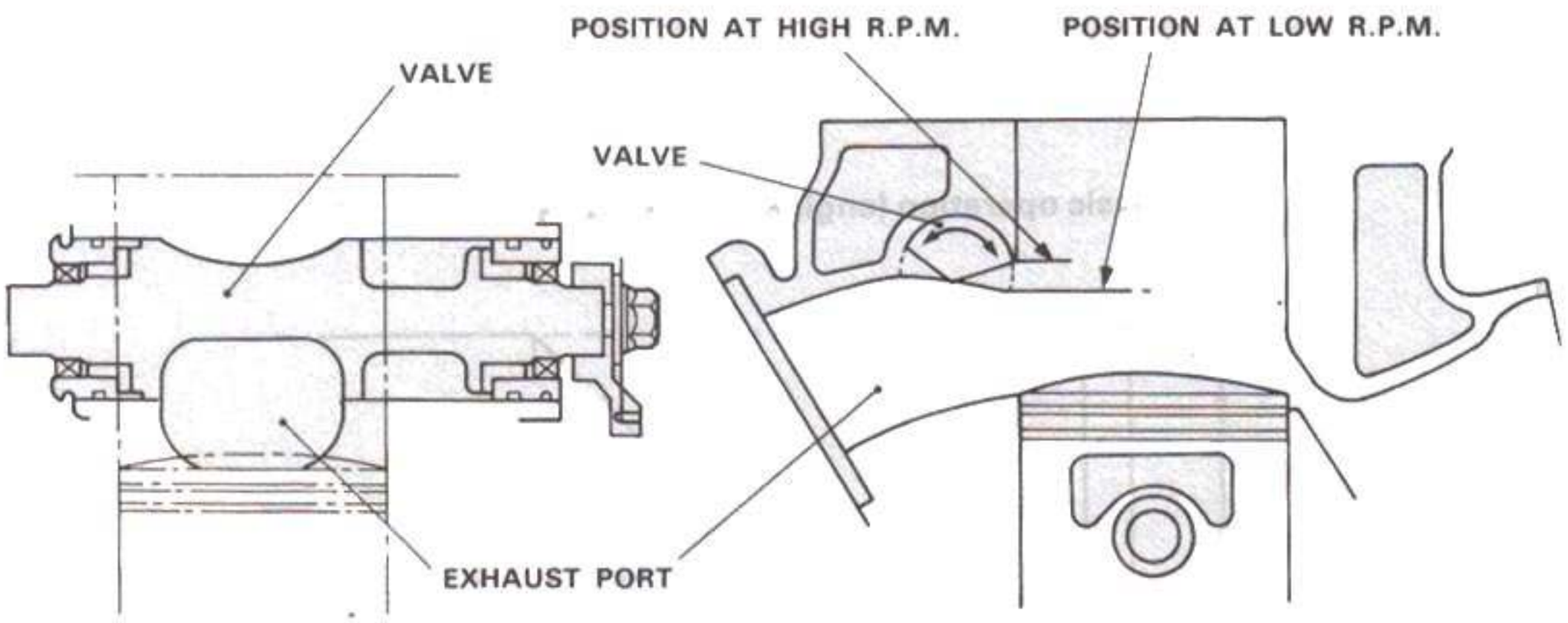


Features:

Newly designed YPVS is equipped on this model in order to obtain better engine performance all the way from the bottom end to the top. An electronic servomotor drives the YPVS valve fitted in the exhaust port in the cylinder.

The electronic servomotor operates according to the engine r.p.m. using the micro computer and it provides greater torque for rotating the valves. Thus, accurate operation can be ensured.

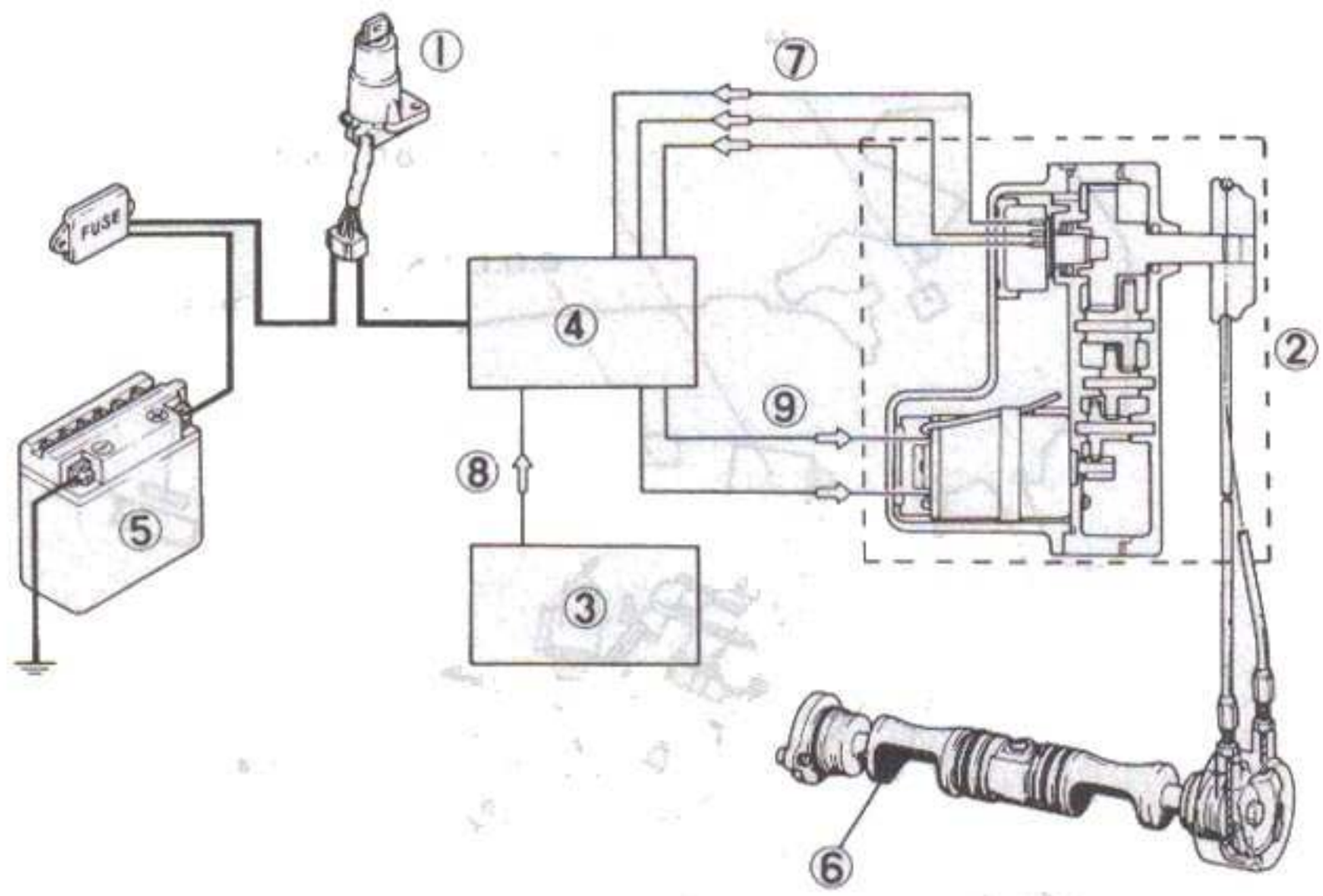




Operation:

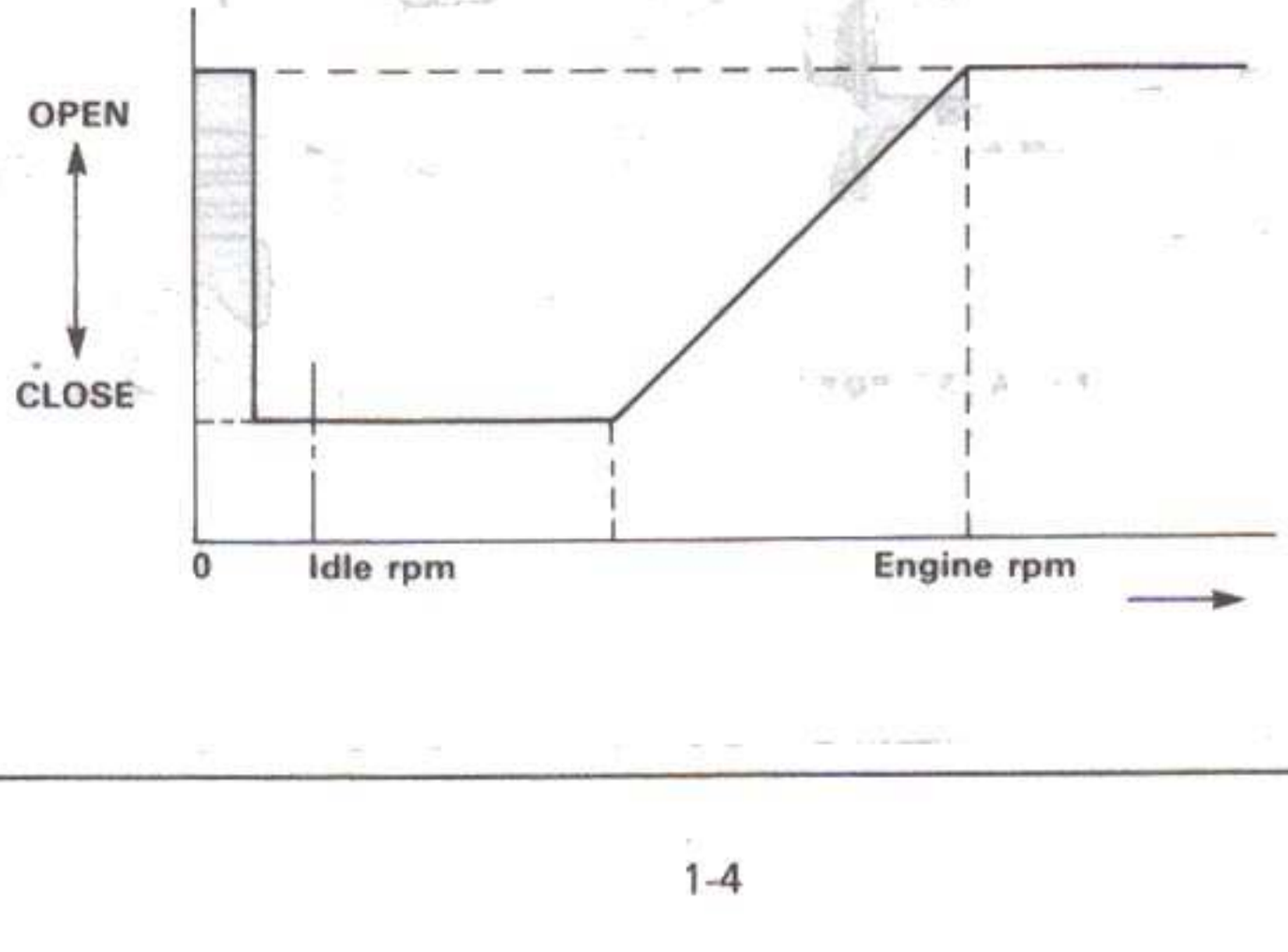
YPVS valves are driven by the DC servomotor which is controlled by the micro computer (control unit).

Control unit senses the engine rpm by the ignition pulses from the C.D.I. unit and also senses the YPVS valve angle by the position of the potentiometer equipped in the servomotor unit. The control unit is so programed that it compares the two signals and drives the servomotor to cause the YPVS valves to form appropriate angles for any engine rpm.

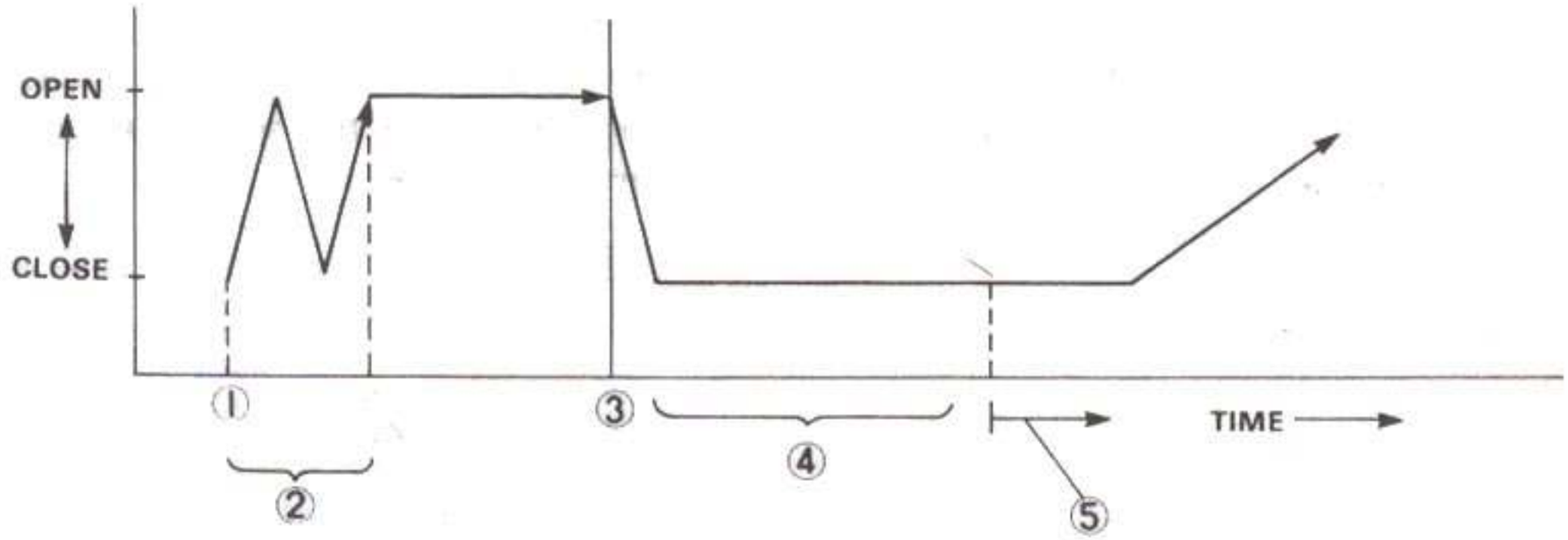


1. Main switch
2. Servomotor unit
3. C.D.I. unit
4. Control unit
5. Battery
6. Valve
7. Valve angle information
8. R.P.M. information
9. Motor drive

Basic operation (engine rpm vs. valve opening rate)



YPVS operation (time vs. valve opening rate)



1. Switch on
2. Self cleaning
3. Engine starting
4. Idling
5. Increasing engine rpm

Self cleaning mechanism

In order to make sure of smooth valve operation, the valves rotate one cycle whenever the main switch is turned on. This operation is programed in the micro computer.

NOTE:

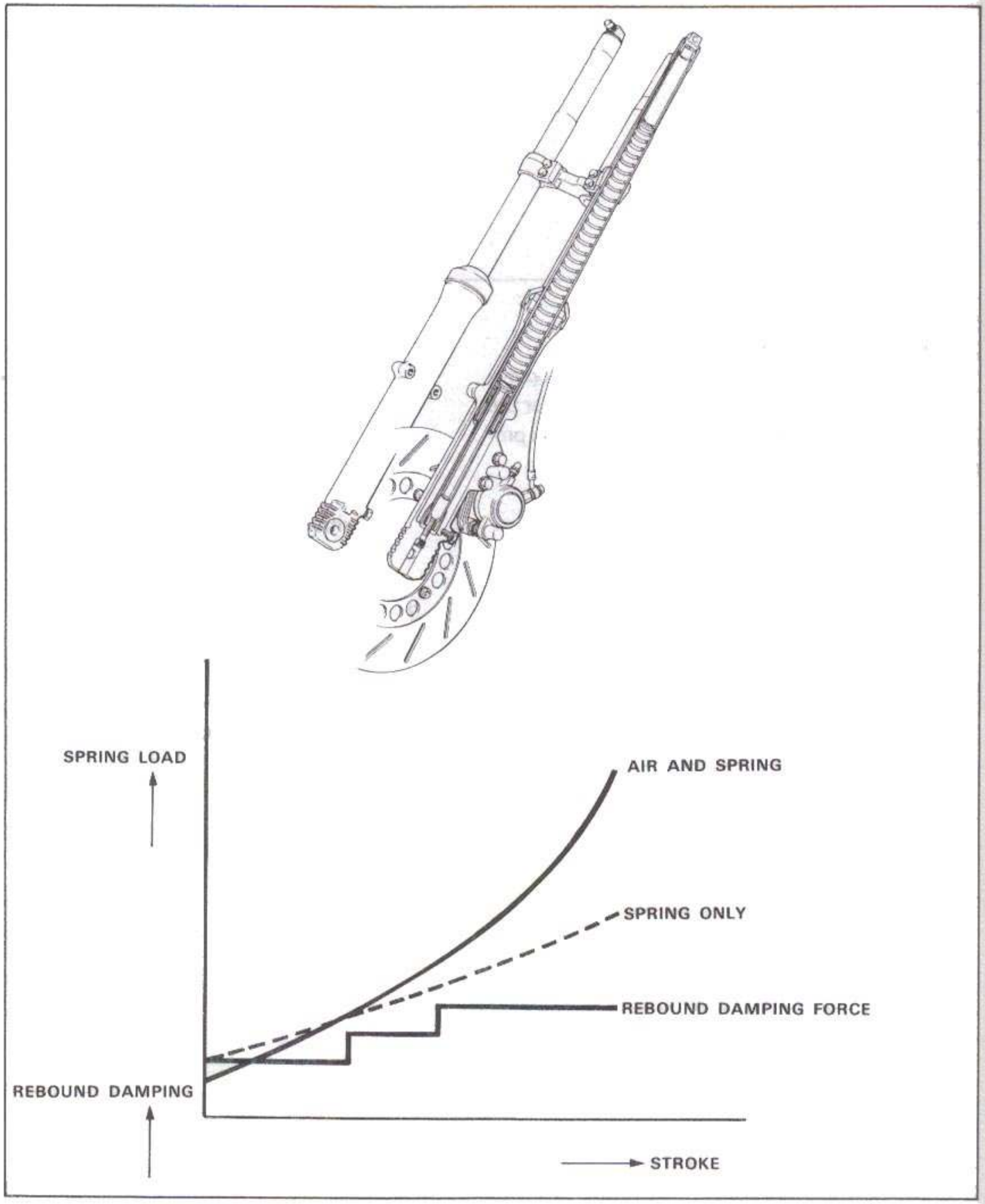
1. If the main switch is turned off to stop the engine, the valve will remain at the closed position.
2. If the engine stalls while the main switch is on, the valve will return to the open position because the servomotor is kept operating even after the engine is stopped.
3. If the main switch is turned on and off without the engine being started, the valve will remain at the open position because the power supply to the servomotor is cut off while the valves are at the open position.

Front Fork (Air Assisted Fork with Variable Damper)

Description:

A soft spring and damper are required of the suspension for comfortable riding, while a harder spring and damper are required for high speed stability.

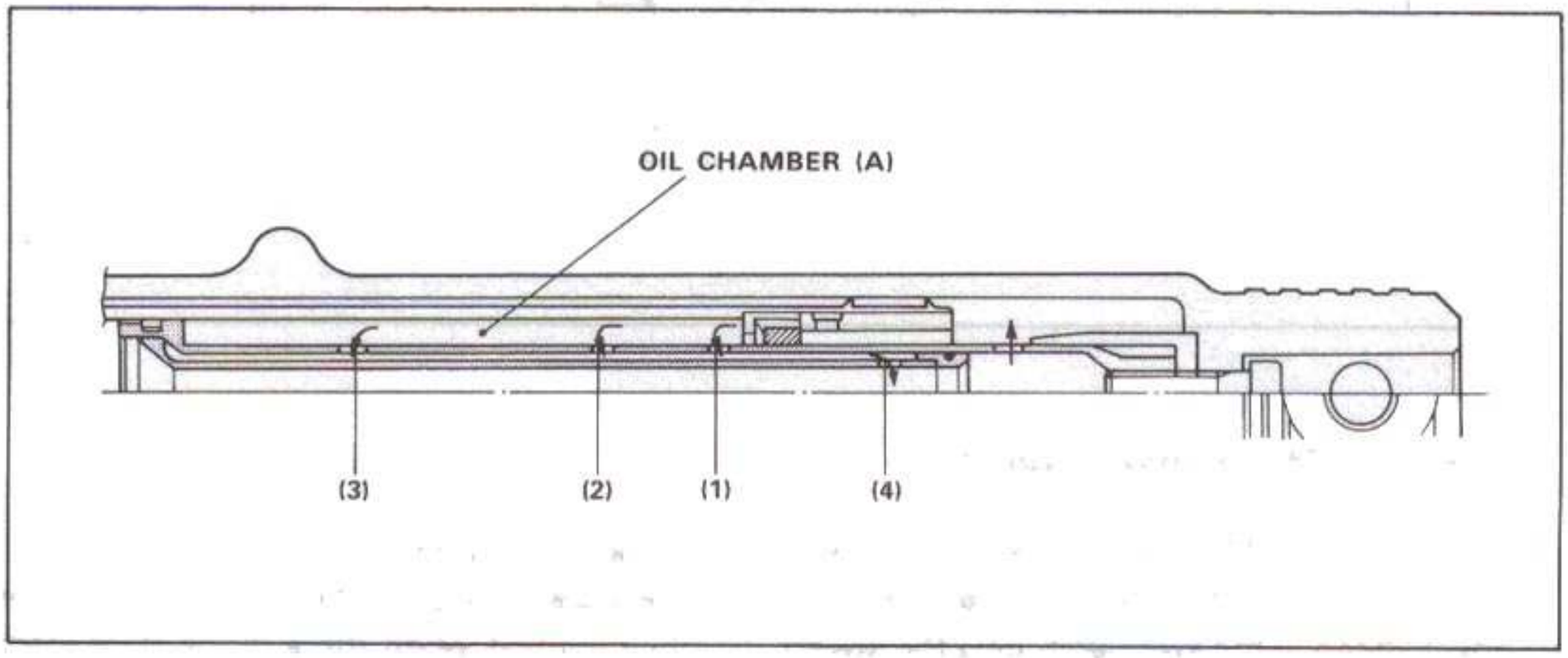
In order to satisfy both high speed stability and riding comfort, the RZ350L are equipped with the variable damper in combination with the air assisted front fork which has a progressive spring characteristic.



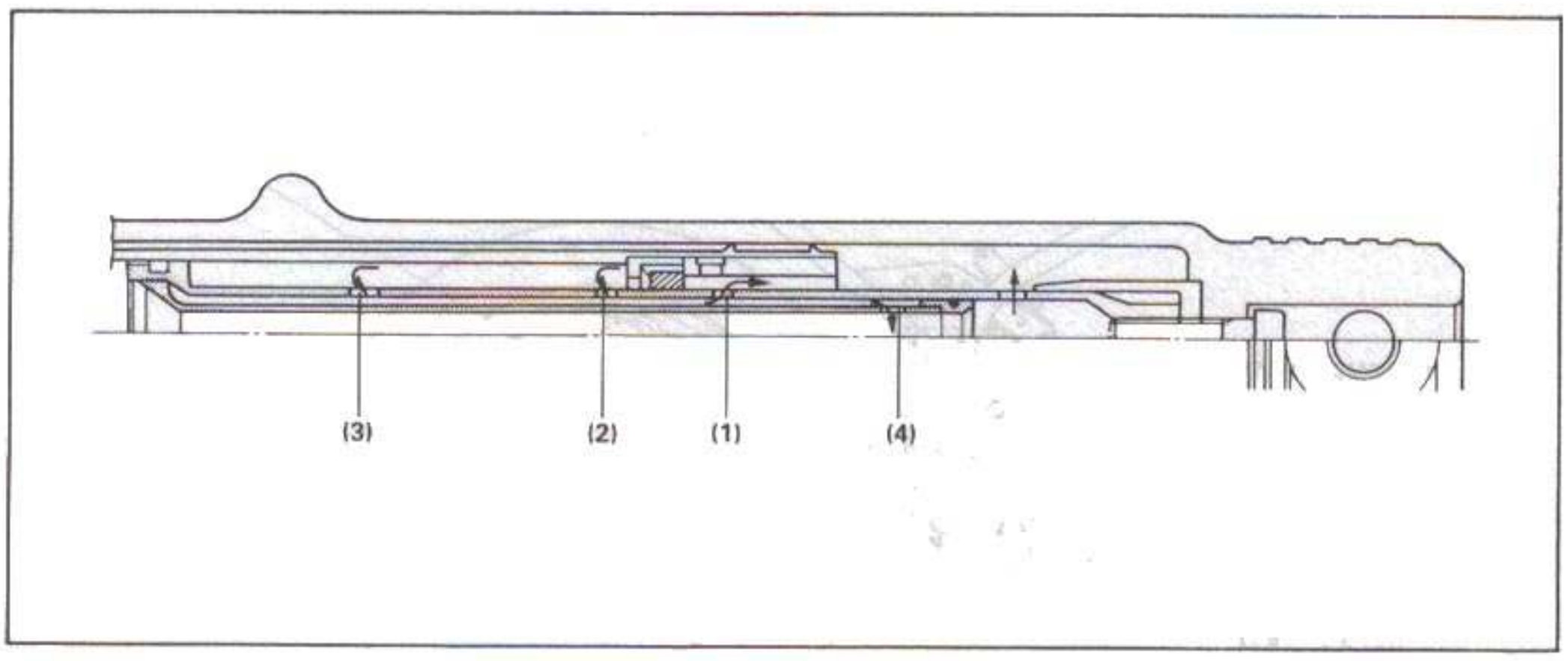
Operation of variable damper:

Variable damper is effective on rebound stroke of the front fork. Oil in the oil chamber (A) is pushed out through the small orifice during the rebound stroke; thus, the damping force is created due to the restriction of oil flow.
On this model, the complete cylinder is of double tubing construction and the oil flows out through the space between two tubes. There are four orifices provided in the complete cylinder and number of orifices which restricts the oil flow is changed according to the wheel travel.

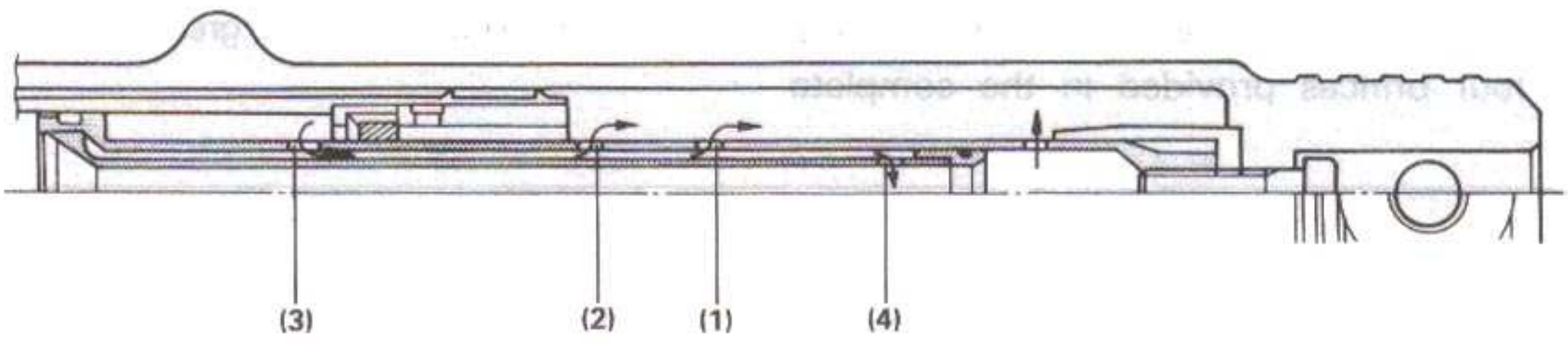
1. The first stage of the rebound stroke
   While the valve travels from the front fork bottom position to the orifice (1), oil flow is restricted by the orifice (4); thus, the damping force is the greatest at this stage.



2. The second stage of the rebound stroke
   While the valve travels from the orifice (1) to the orifice (2), oil flow is restricted by the orifice (4) and (1); thus, the damping force is smaller than the first stage.

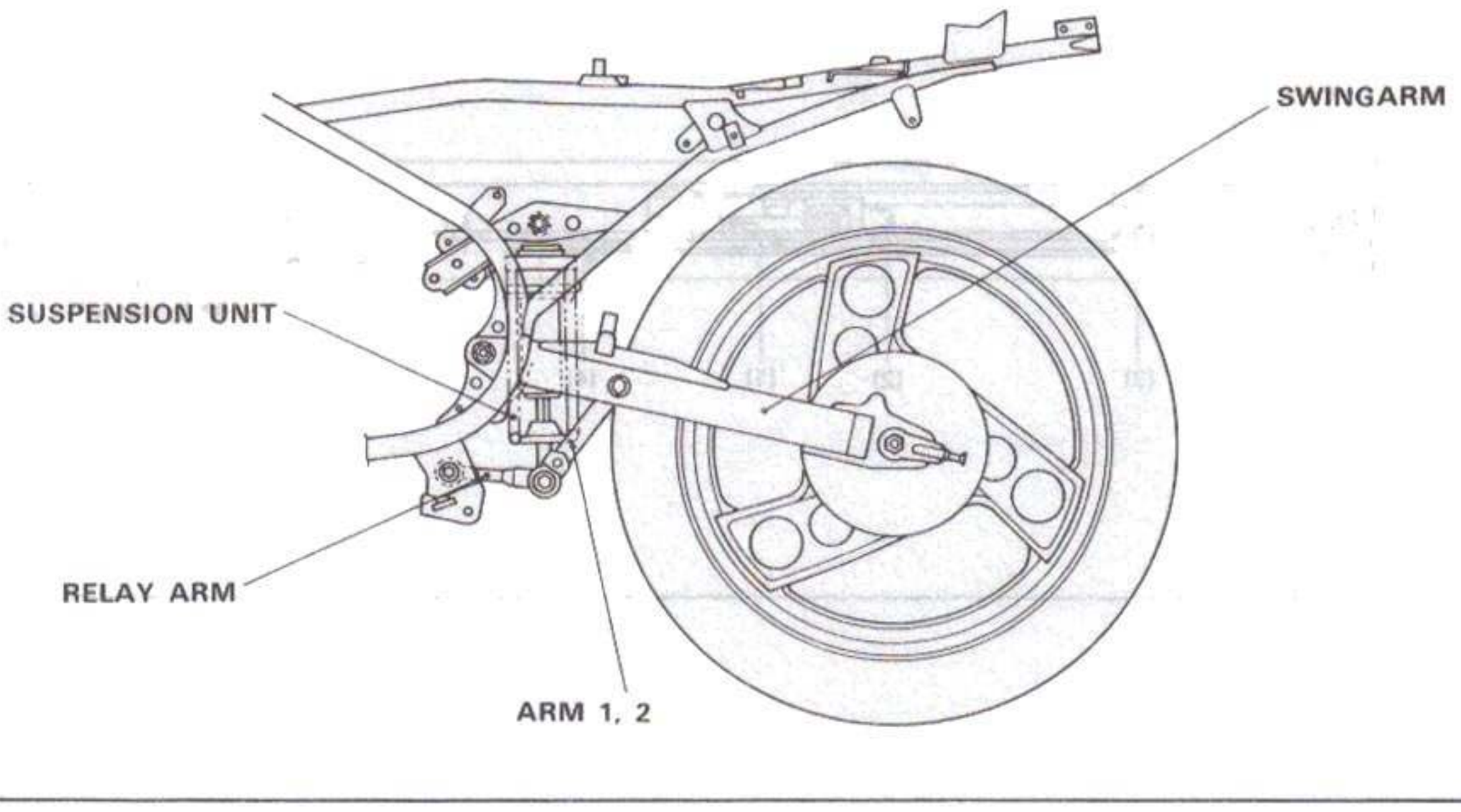


3. The last stage of the rebound stroke
While the valve travels from the orifice (2) to the orifice (3), oil flow is restricted by the orifice (4), (1) and (2); thus, the damping force is smaller than the second stage.



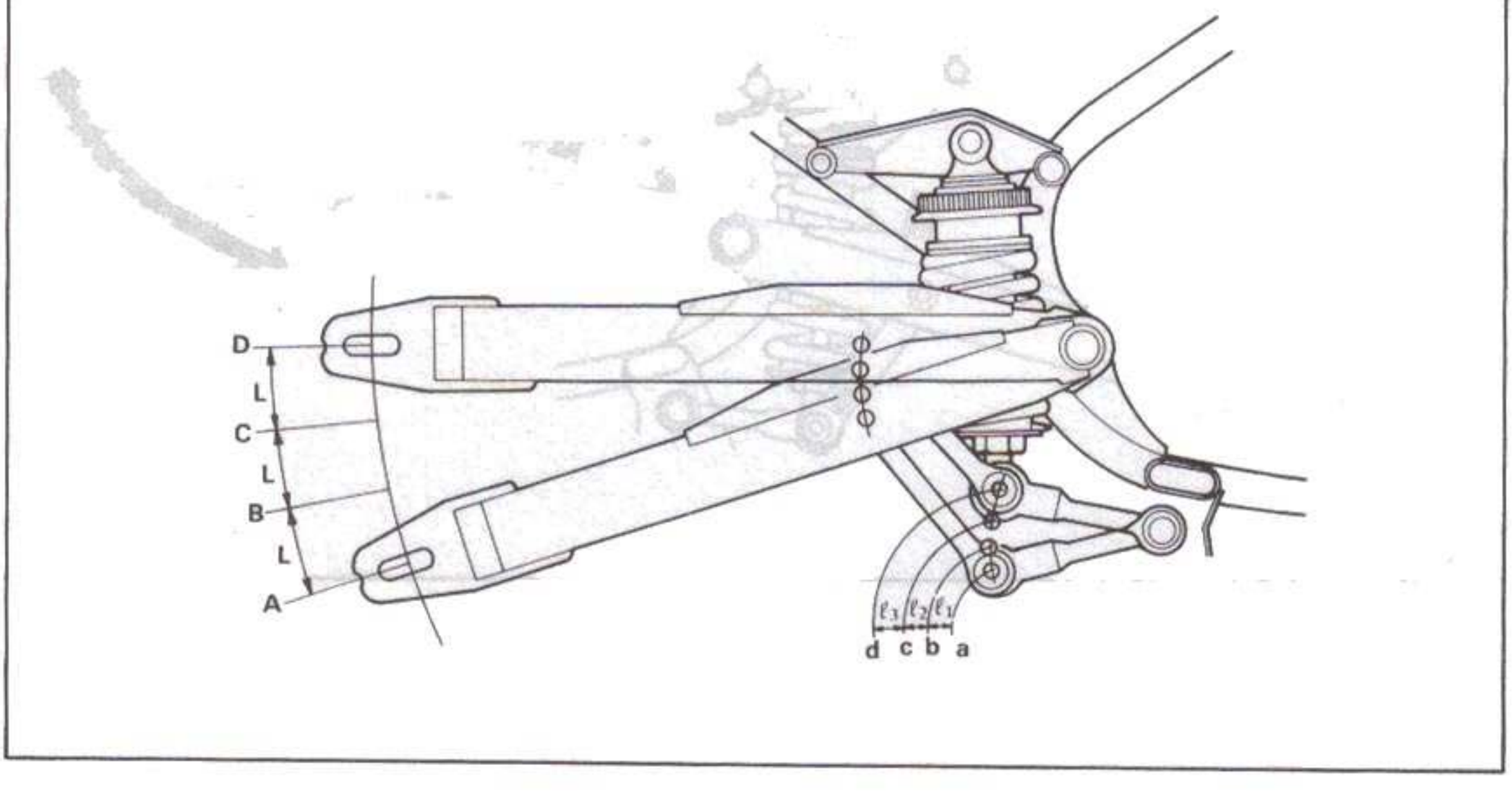
Link Type Monocross Suspension
Features:

New link type Monocross suspension, with the gas/oil shock absorber mounted low down ahead of the swingarm, gets the lowest possible center of gravity by centralizing the weight mass and also carrying it low down in the motorcycle. This offers progressively the more resistance and stronger damping, the more it is compressed. At the other end of the scale, spring reaction and damping are at their lightest when there is the least loading on the suspension, while short air-assisted telescopic forks look after the front suspension very effectively.



Operation:

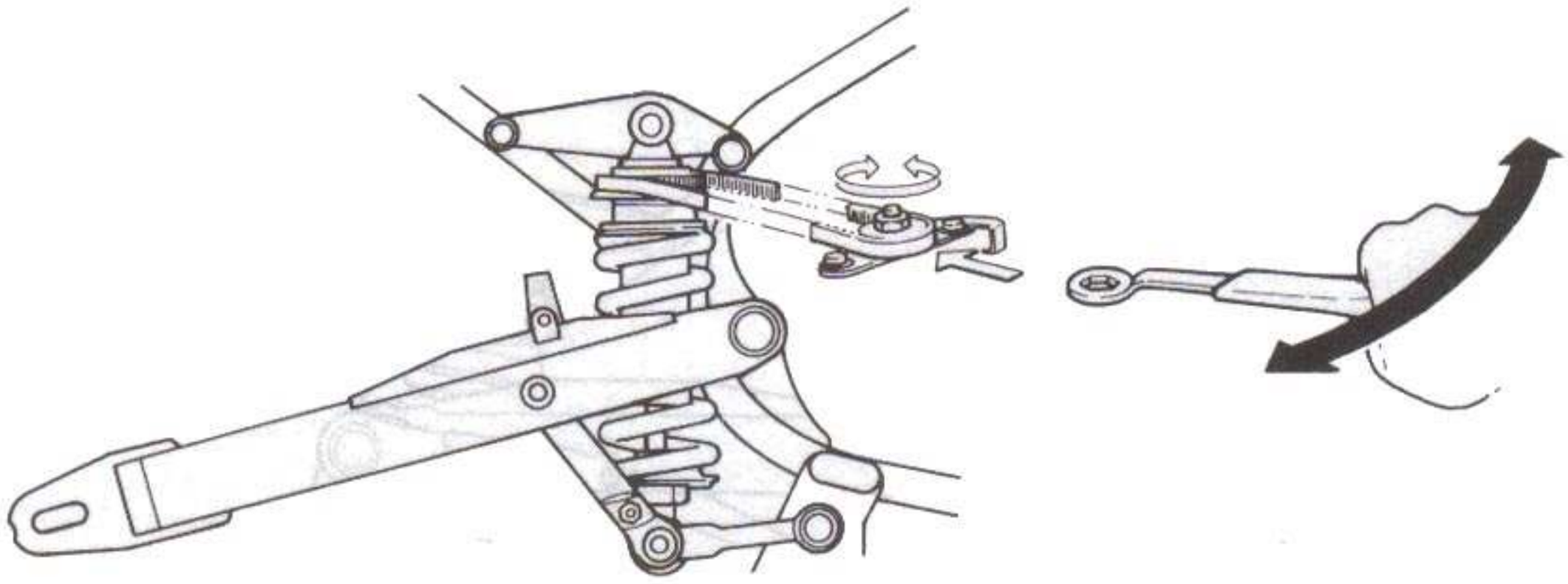
The monocross suspension is pivoted to the point at which the relay arm is supported, and its pivoted end moves in a circular arm. Therefore, even when the amount of the wheel stroke remains the same, the amount of the suspension stroke changes at a rising rate depending on the wheel position. The relay arm amplifies the movement of arm 1, as the wheel strokes more. Therefore, even when the wheel strokes at the same speed, the suspension piston rod speed changes depending on the wheel position, and damping force itself also changes at a rising rate.



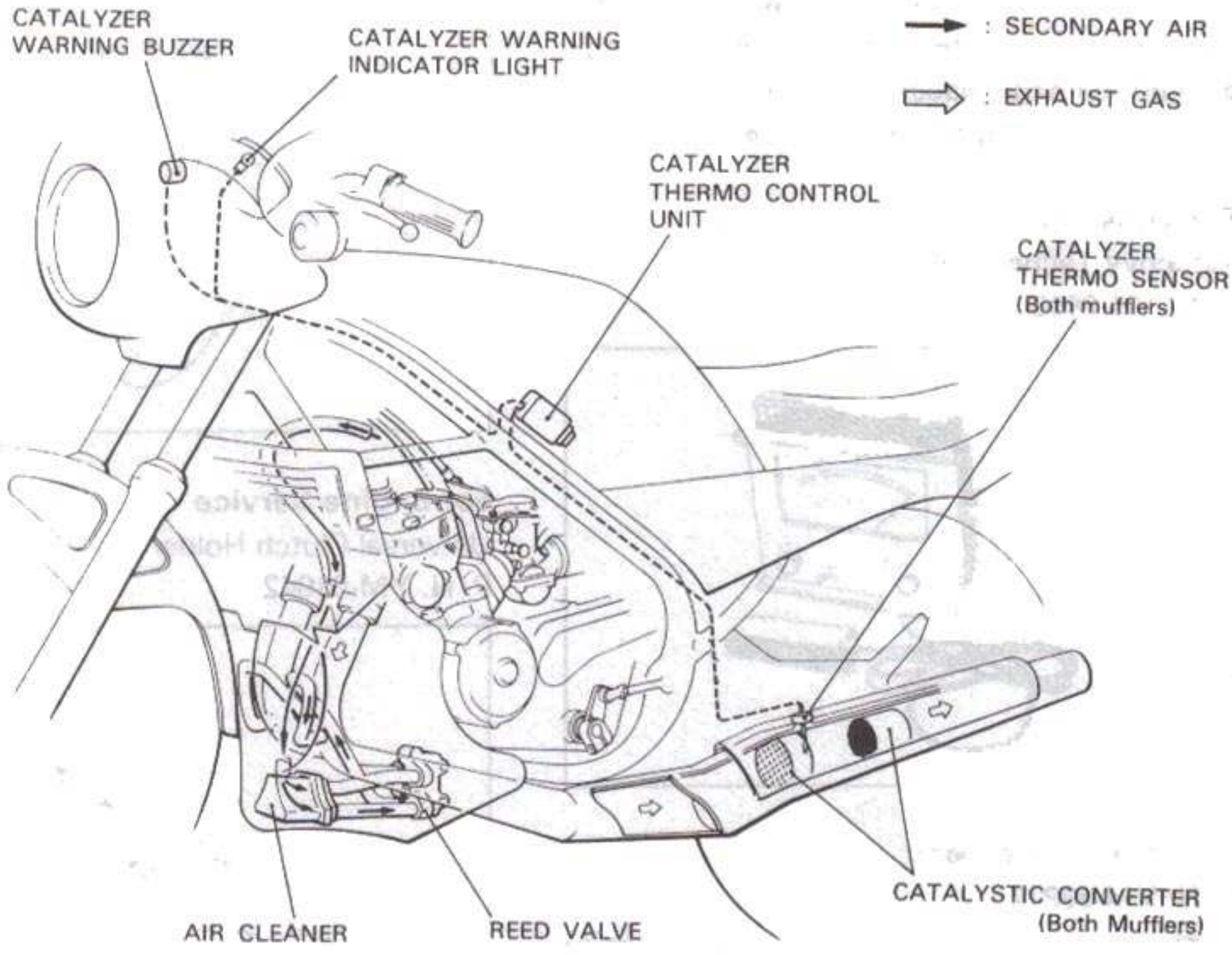
The figure shows that the suspension unit stroke changes from a to d, while the wheel strokes from A (stretched to a maximum) to D (contracted to a maximum).
The displacement of the wheel form A to B, B to C, and C to D, is fixed at L, but the displacement of the unit increases from ℓ_1 to ℓ_2 and to ℓ_3. Therefore, both spring load and damping force change at a rising rate.

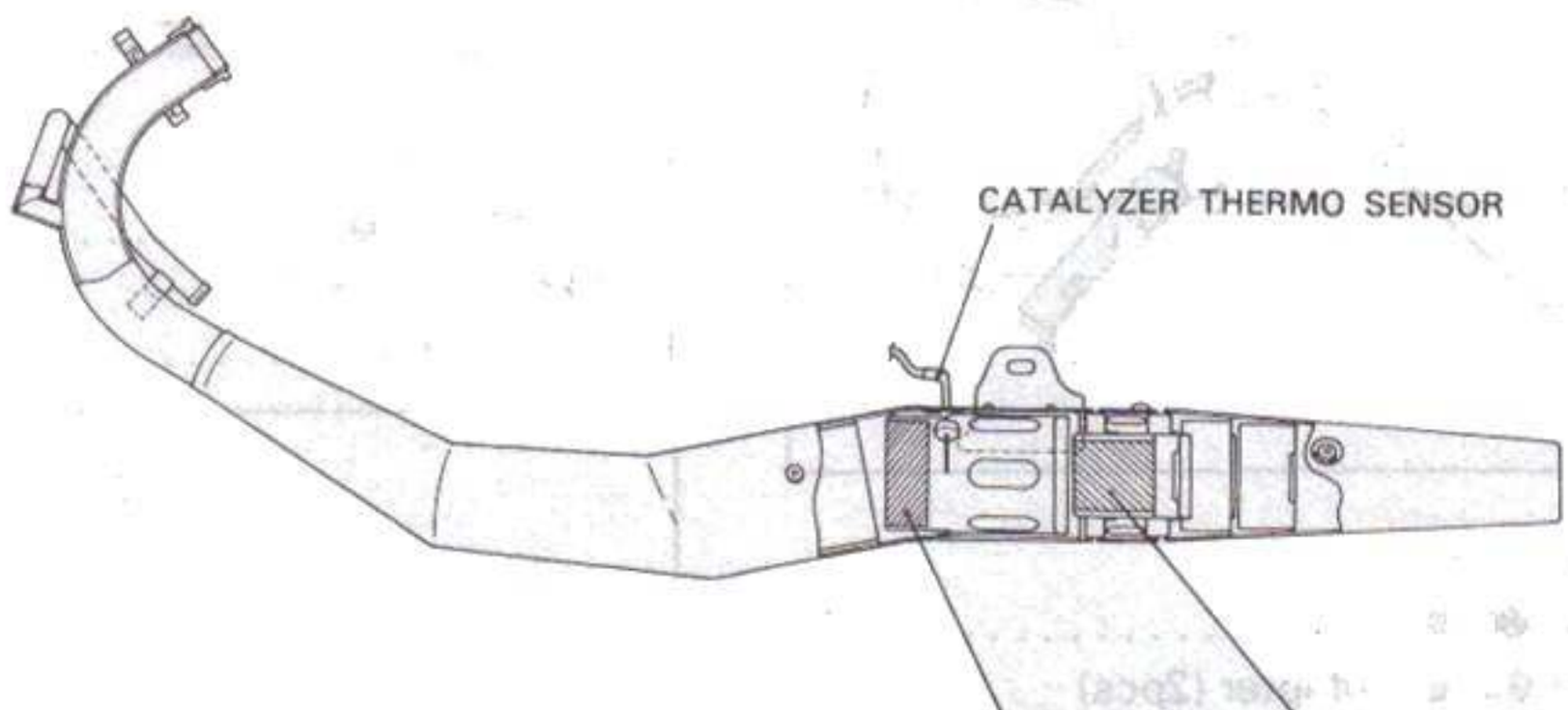
Spring preload adjustment:

Spring preload can be adjusted using a ring spanner and extension handle in the tool kit equipped on the motorcycle. The adjuster is located inside the right-hand side cover. The spring preload adjuster ring is driven by the cogged belt. The standard preload set position is "2" from the softest position at the factory.



Catalyzer (Catalytic converter)





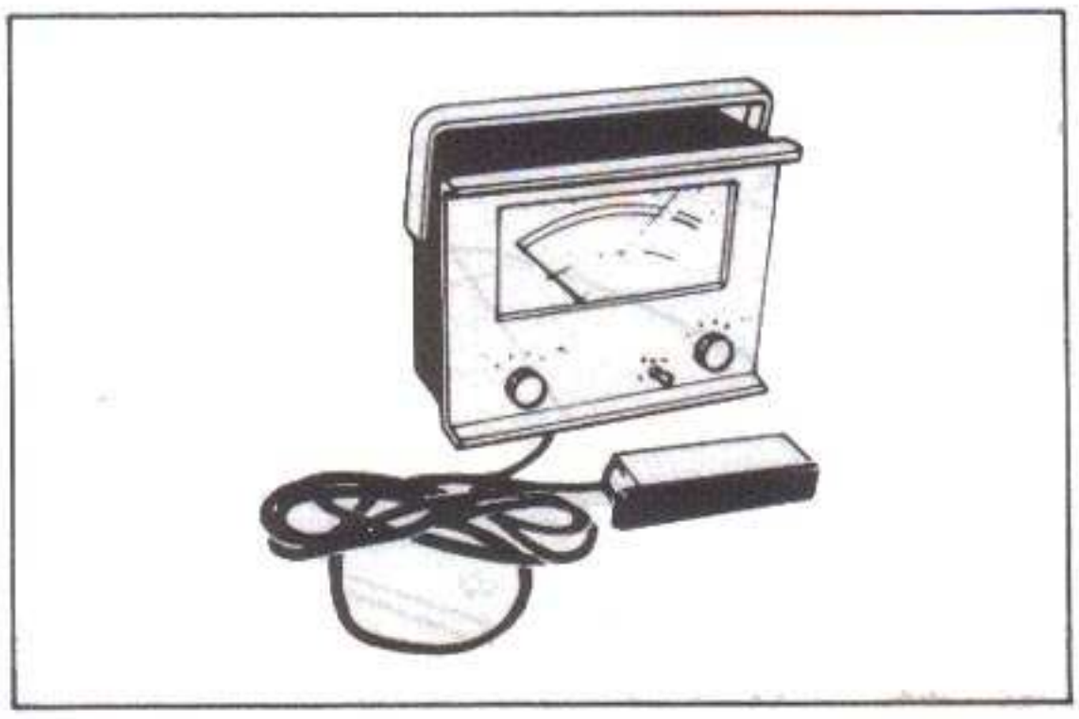
	CONVERTER 1	CONVERTER 2
HC Cleaning Rate	50% or more	75% or more
CO Cleaning Rate	80% or more	96% or more
Converter Mesh	Big hole	Small hole

SPECIAL TOOLS

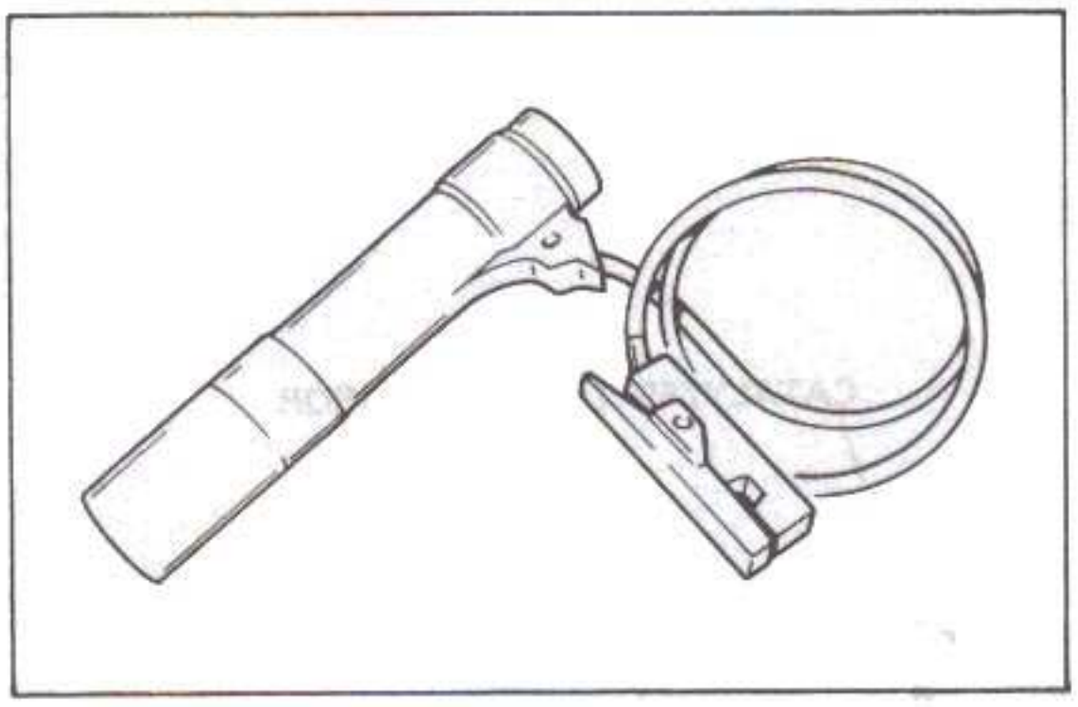
The proper special tools are necessary for complete and accurate tune-up and assembly. Using the correct special tool will help prevent damage caused by the use of improper tools or improvised techniques.

For Tune-Up

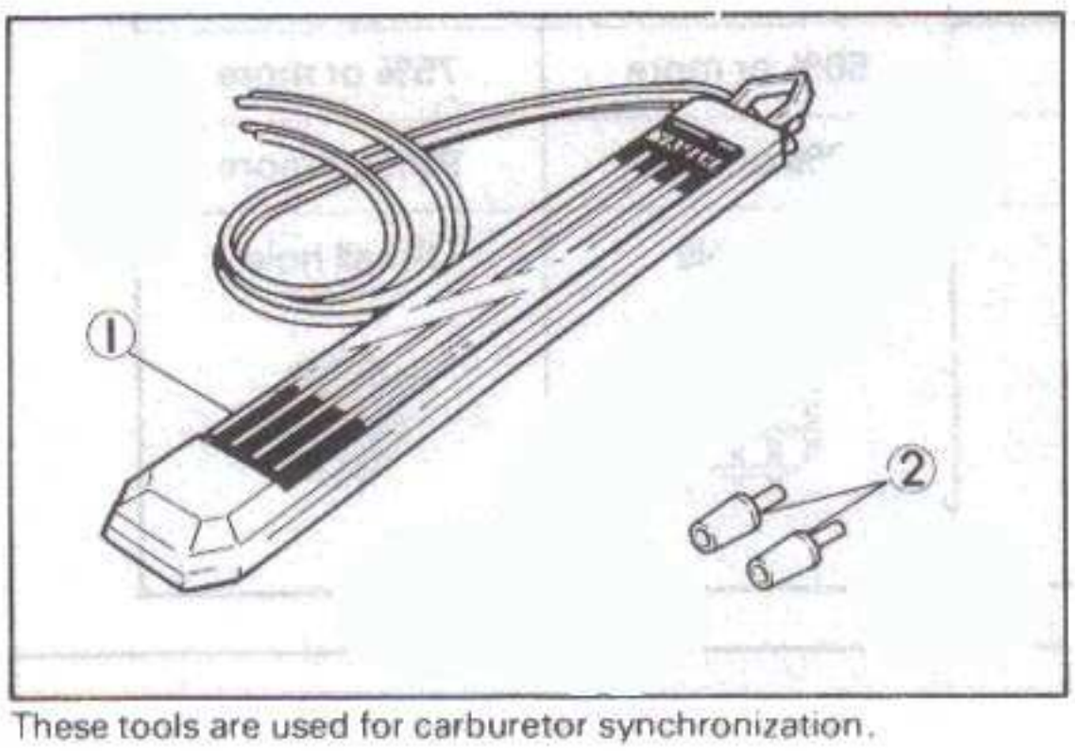
Inductive Tachometer
P/N. YU-08036



Inductive Timing Light
P/N. YM-33277

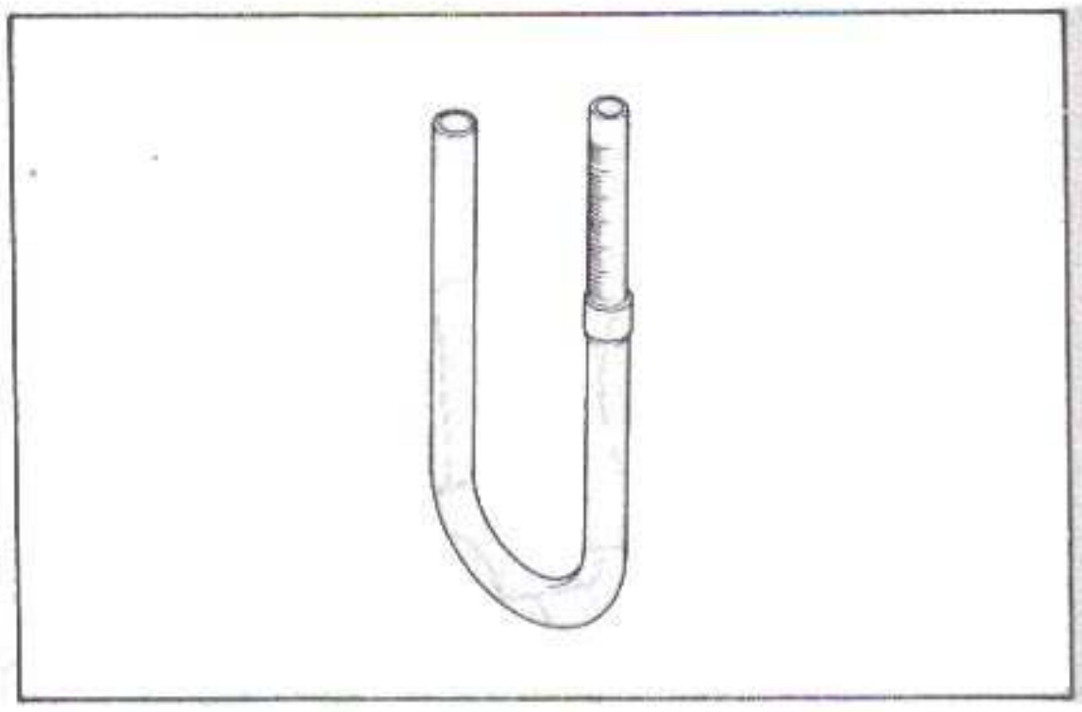


Vacuum Gauge
P/N. YU-08030 ..... ①
Vacauum Gauge Adapter (2pcs)
P/N. YM-33973 ..... ②



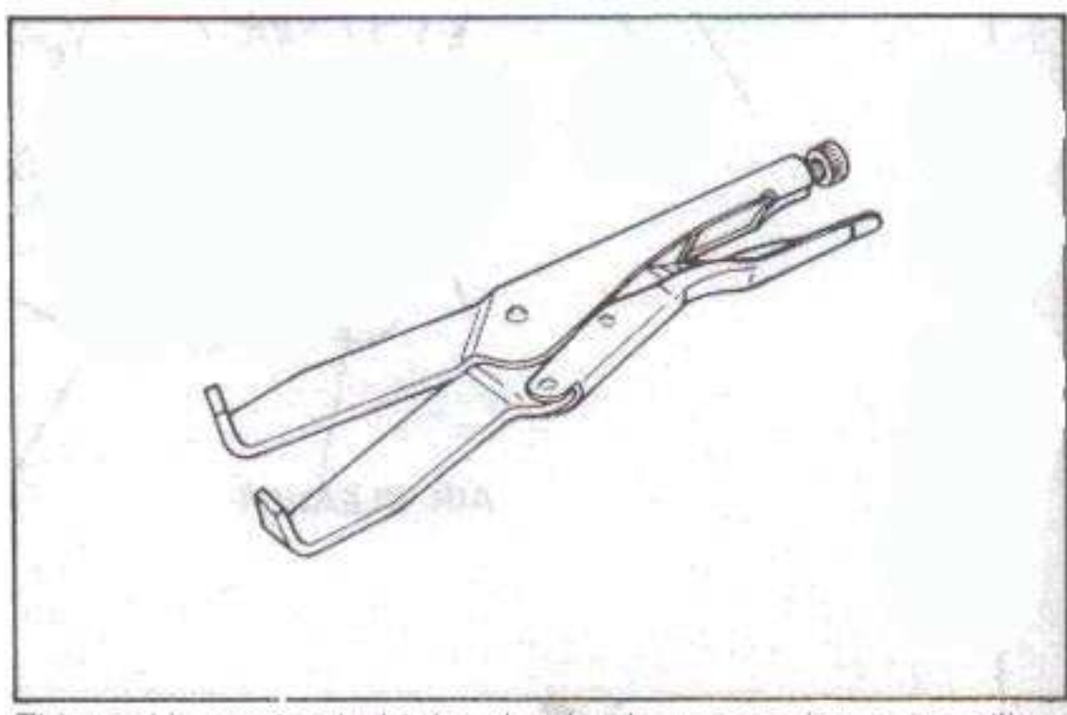
These tools are used for carburetor synchronization.

Fuel Level Gauge
P/N. YM-01312



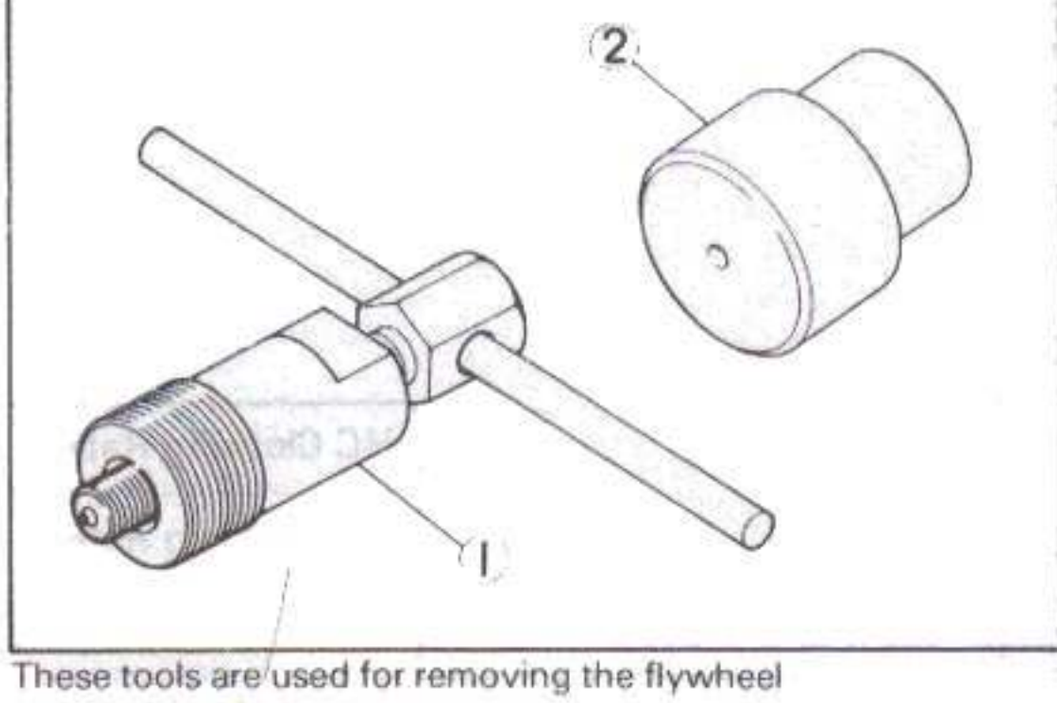
For Engine Service

Universal Clutch Holder
P/N. YM-91042



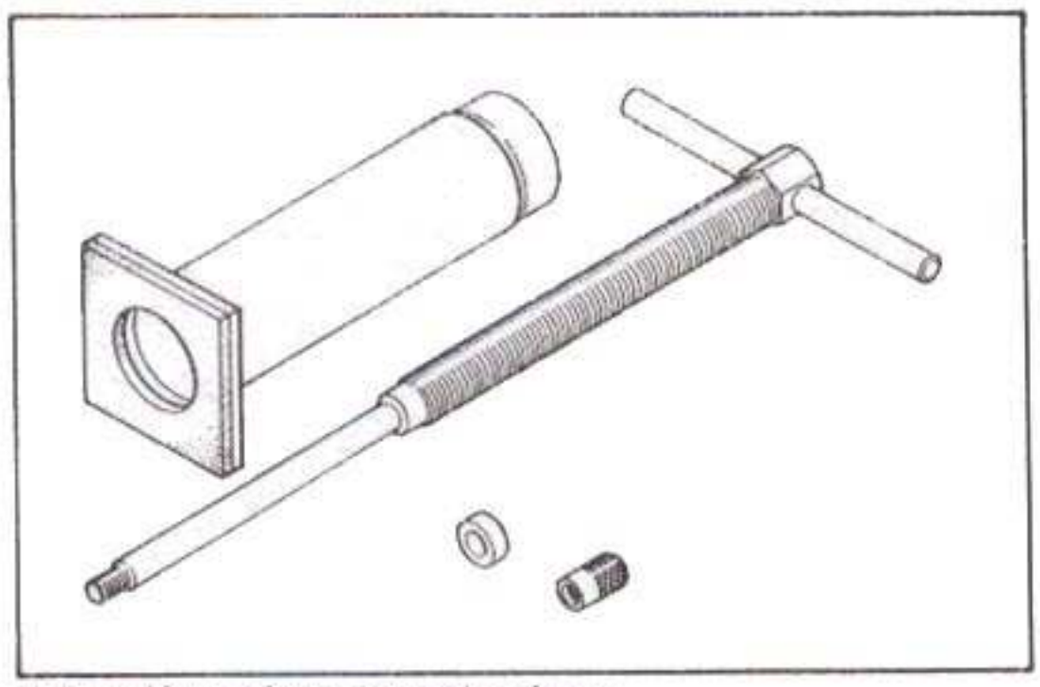
This tool is used to hold the clutch when removing or installing the clutch boss locknut.

Flywheel Puller
P/N. YM-01189 ..... ①
Crankshaft Protector
P/N. YM-1382 ..... ②



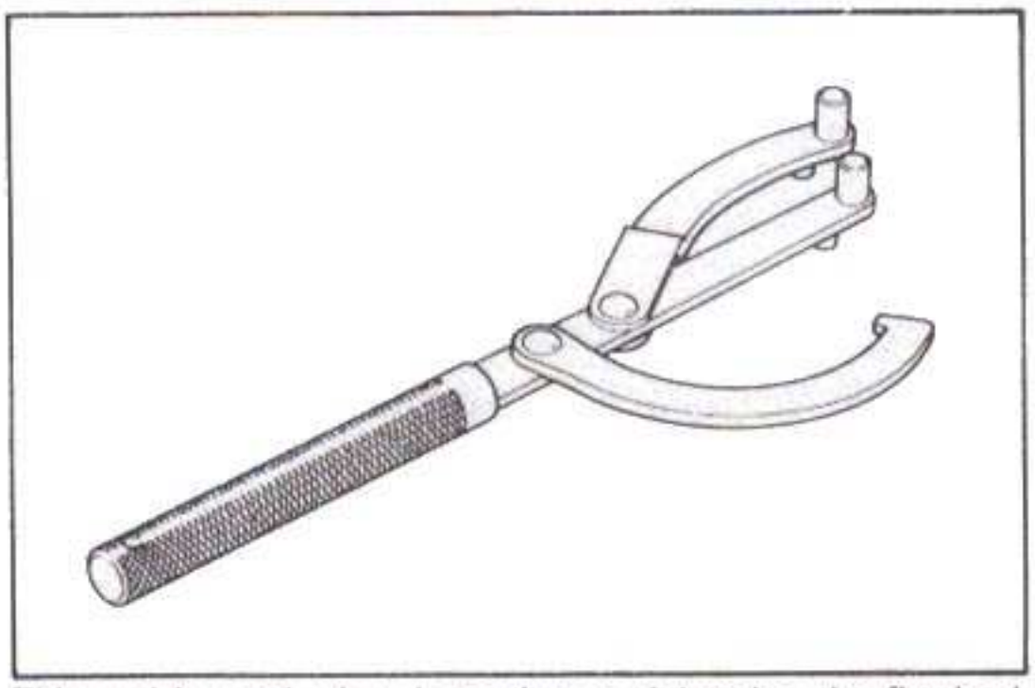
These tools are used for removing the flywheel

Piston Pin Puller
P/N. YU-01304



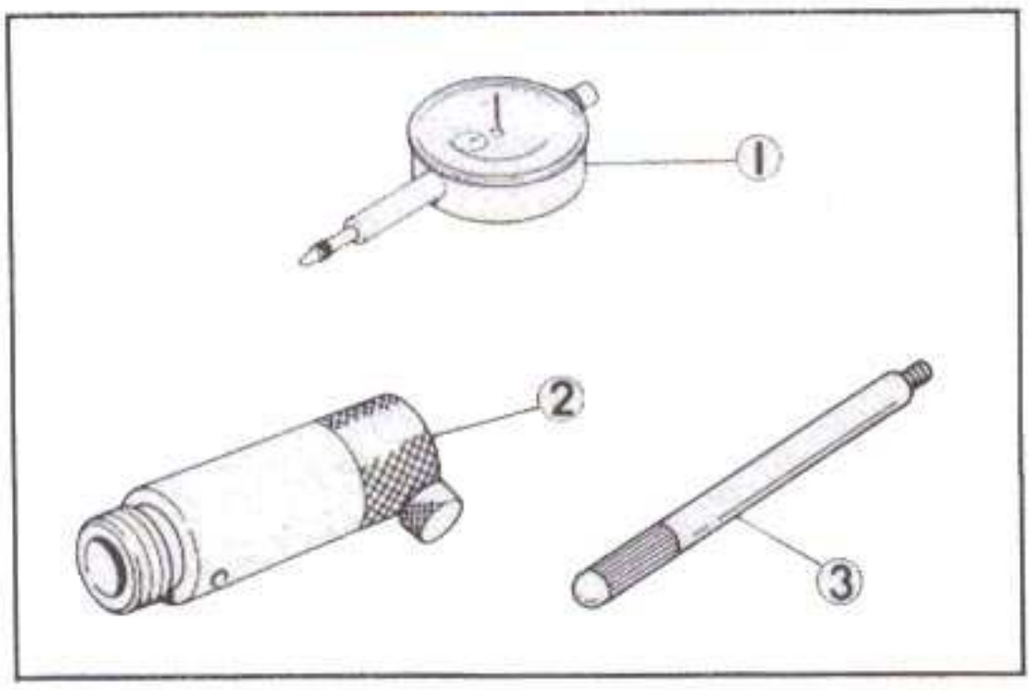
This tool is used to remove the piston.

Universal Magneto & Rotor Holder
P/N. YU-01235



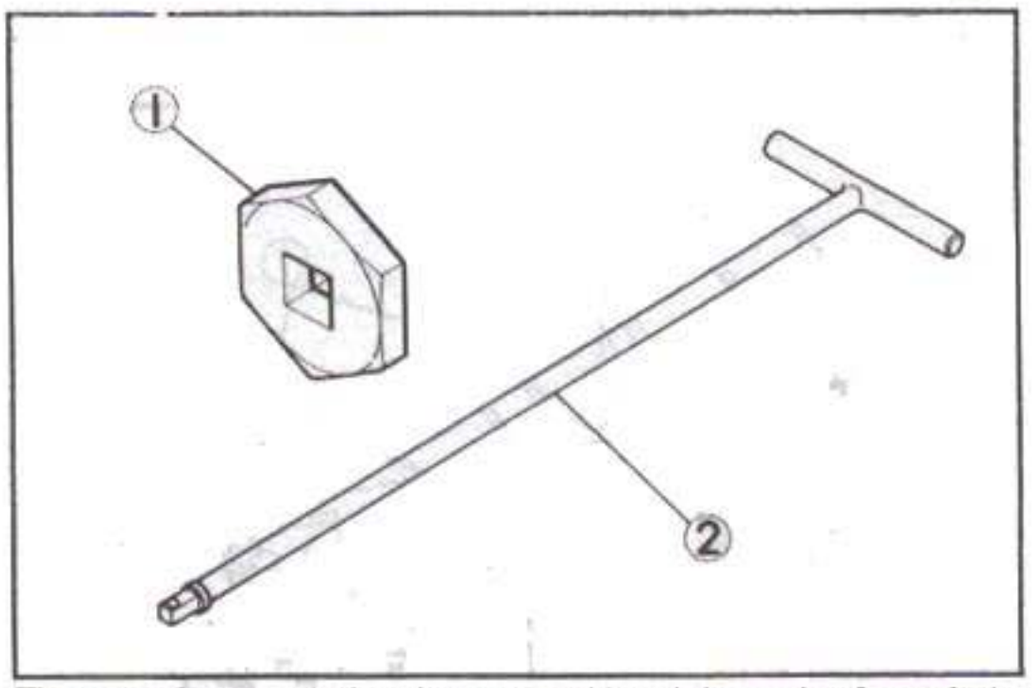
This tool is used when loosening or tightening the flywheel magneto securing bolt.

Dial Gauge ..... ①
P/N. YU-03097
Dial Gauge Stand ..... ②
P/N. YU-01256-1
Dial Gauge Extension ..... ③
P/N. YU-01256-2



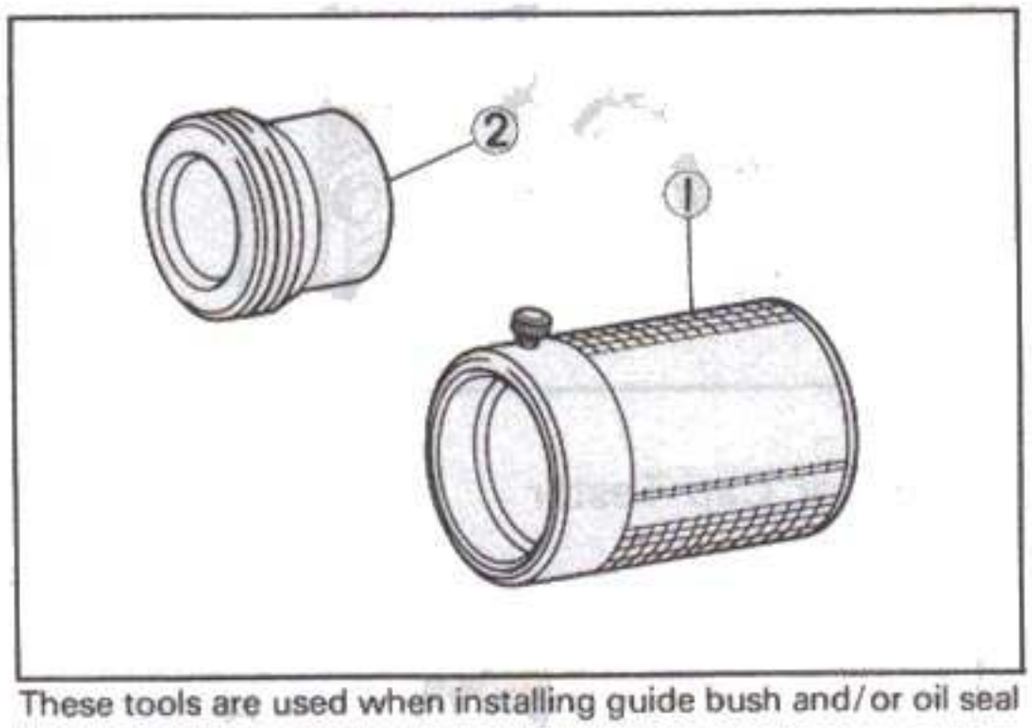
For Chassis Service

Front-fork-cylinder Holder (22 mm (0.87 in))
P/N. YM-33298 ..... ①
T-handle
P/N. YM-01326 ..... ②



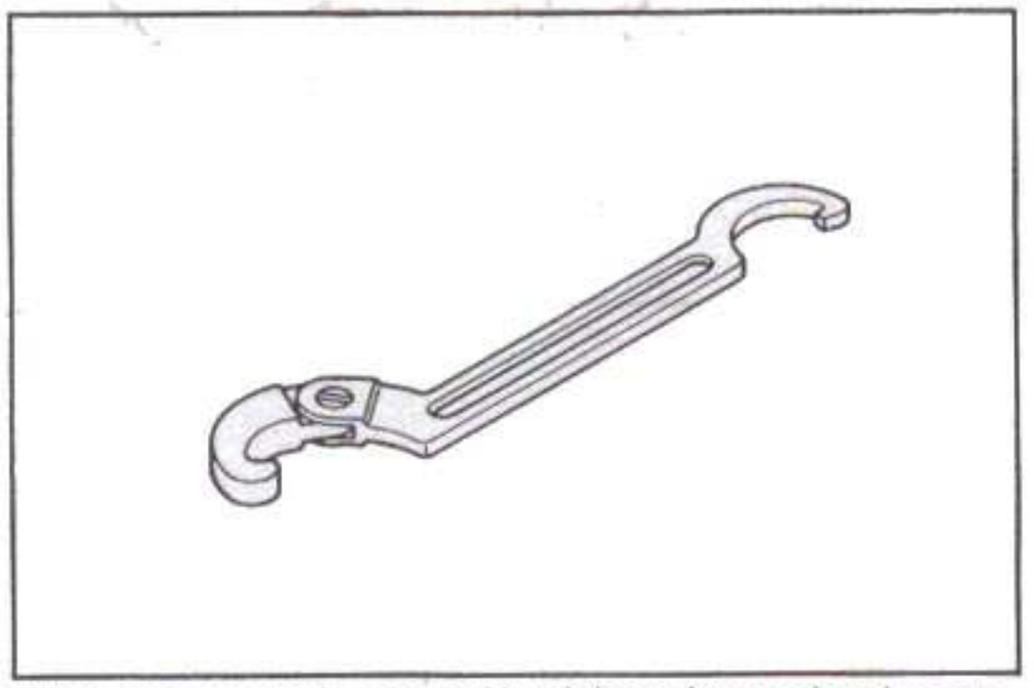
These tools are used to loosen and/or tighten the front-fork-cylinder bolt.

Fork Seal Driver Hammer ..... ①
P/N. YM-33963
For Seal Adapter (35 mm) ..... ②
P/N. YM-01369



These tools are used when installing guide bush and/or oil seal into the outer fork tube.

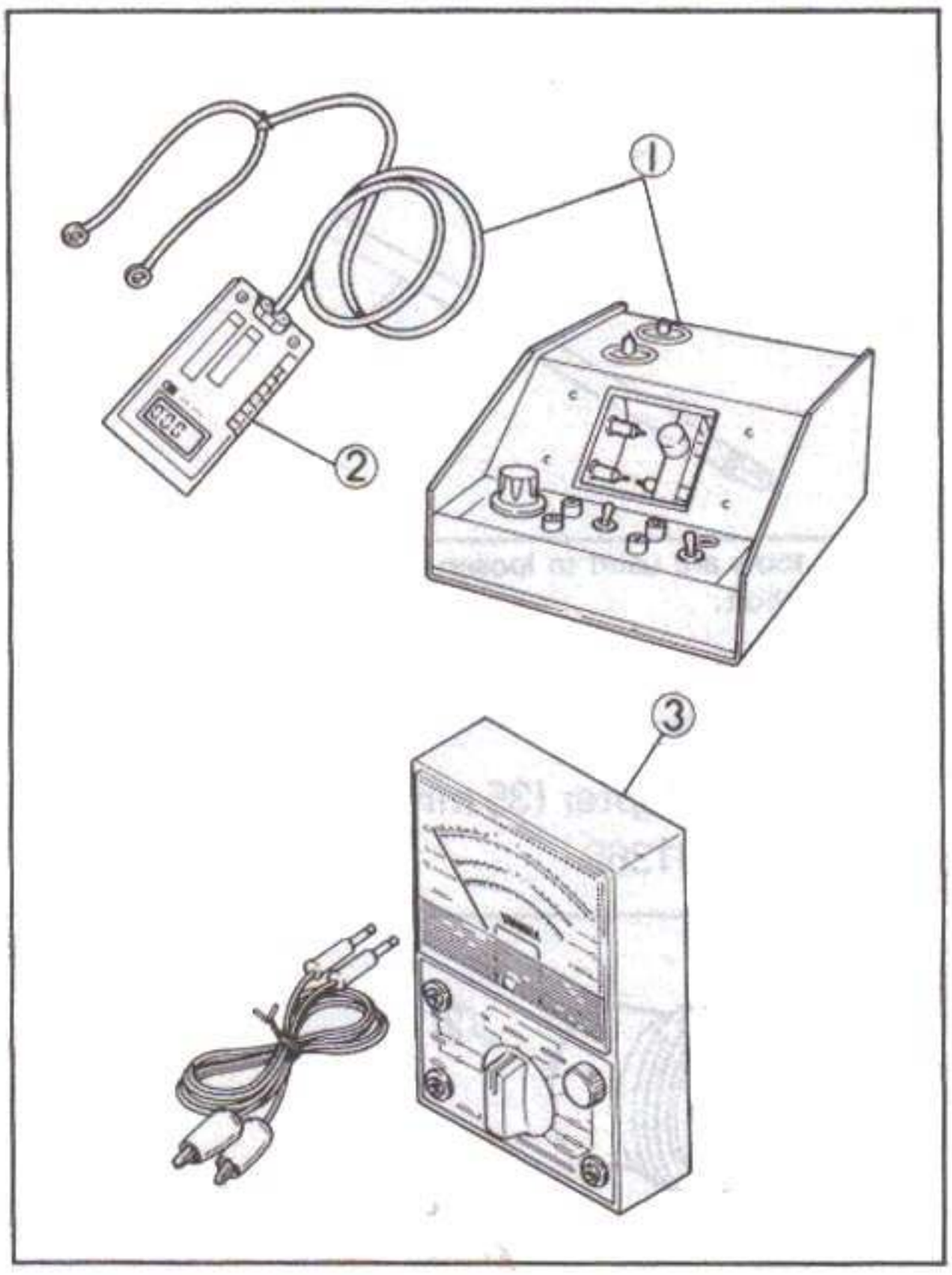
Ring Nut Wrench
P/N. YU-01268



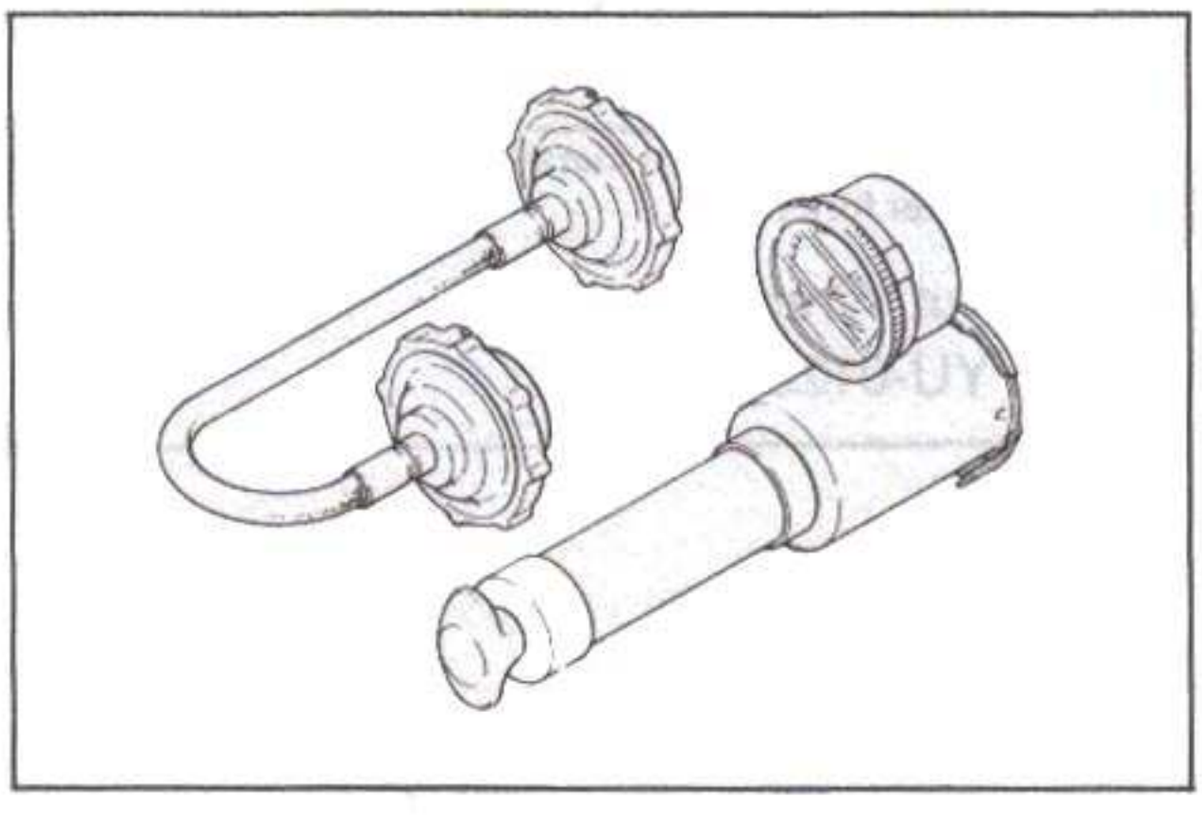
This tool is used to loosen and/or tighten the steering ring nut.

For Electrical Componets

Electro Tester Set
P/N. YU-33260 ..... ①
Pocket Tester
P/N. YU-33263 ..... ②
or P/N. YU-03112 ..... ③



Radiator Cap Tester



CHAPTER 2
PERIODIC INSPECTIONS AND ADJUSTMENTS

INTRODUCTION

This chapter includes all information necessary to perform recommended inspections and adjustments. These preventive maintenance procedures, if followed, will ensure more reliable vehicle operation and a longer service life. The need for costly overhaul work will be greatly reduced. This information applies to vehicles already in service and to new vehicles that are being prepared for sale. All service technicians should be familiar with this entire chapter.

MAINTENANCE INTERVALS CHARTS

Proper periodic maintenance is important. Especially important are the maintenance services related to emissions control. These controls not only function to ensure cleaner air but are also vital to proper engine operation and maximum performance. In the following maintenance tables, the services related to emissions control are grouped separately.

PERIODIC MAINTENANCE EMISSION CONTROL SYSTEM

NO.	ITEM	REMARKS	INITIAL	ODOMETER READING				
			1,000 km or 1 month (600 mi)	**1 7,000 km or 7 months (4,400 mi)	**2 13,000 km or 13 months (8,200 mi)	19,000 km or 19 months (12,000 mi)	25,000 km or 25 months (15,800 mi)	31,000 km or 31 months (19,600 mi)
1.	Spark plug	Check condition. Adjust gap and clean. Replace at 13,000 km (or 13 months) and thereafter every 12,000 km (or 12 months).		○	Replace	○	Replace	○
2	Fuel line	Check fuel hose and vacuum pipe damage. Replace if necessary.		○	○	○	○	○
3.	Exhaust system	Check for leakage. Retighten if necessary. Replace gasket(s) if necessary.		○	○	○	○	○
4.	Carburetor synchronization	Adjust synchronization of carburetors.		○	○	○	○	○
5.	Idle speed	Check and adjust engine idle speed. Adjust cable free play.		○	○	○	○	○

NOTE:

For farther odometer reading, repeat the above maintenance at the period established; **1: Every 6,000 km (3,800 mi) **2: Every 12,000 km (7,600 mi), intervals.

ANTICIPATED MAINTENANCE

The maintenance items in this table are set apart from the regular periodic maintenance items because of their anticipated need for irregular service intervals. The service interval is dependent upon variable factors such as the severity of use, operating conditions, etc. Therefore, perform this maintenance when the described symptoms warrant it.

No.	ITEM	REMARKS
1	Spark plug	If any spark plug failure is noticed replace it. Symptoms indicating spark plug failure are anticipated to occur around 6,000 km (3,800 mi).
2	Decarbonization	If heavy power loss is evident, decarbonize the cylinder hed, piston head, and exhaust system. Carbon builb-up is anticipated to occur around 5,000 ~ 10,000 km (3,000 ~ 6,000 mi).
3	Piston	If the piston rattles, the vehicle becomes hard to start, appears to be lacking power, or becomes inoperative, repair as follows: replace the piston and piston rings, clean, hone, or replace the cylinder. These symptoms are anticipated to occur mainly below 500 km (300 mi).

GENERAL MAINTENANCE/LUBRICATION

Unit: km (mi)

NO.	ITEM	REMARKS	TYPE	INITIAL	ODOMETER READINGS				
				1,000 km or 1 month (600 mi)	**1 7,000 km or 7 months (4,400 mi)	**2 13,000 km or 13 months (8,200 mi)	**3 19,000 km or 19 months (12,000 mi)	**4 25,000 km or 25 months (15,800 mi)	31,000 km or 31 months (19,600 mi)
1	Transmission oil	Warm-up engine before draining.	Yamalube 4-cycle oil or SAE 10W30 type SE motor oil or "GL" gear oil	○	Check	○	Check	○	Check
2	Autolube pump	Check and adjust minimum pump stroke.	–		○	○	○	○	○
3	Air filter	Wet type filter must be washed and damped with oil. Replace if damaged.	Yamalube 2-cycle oil or equivalent		○	○	○	○	○
4	Cooling system	Check hose for cracks or damage. Replace if necessary.	–		○	○	○	○	○
5	Brake system	Adjust free play. Replace pads if necessary.	–		○	○	○	○	○
6	Clutch	Adjust free play.	–		○	○	○	○	○
7	Drive Chain	Check chain condition. Adjust and lubricate chain thoroughly.	SAE 30W – 50W motor oil	Every 500 km (300 mi)					

Unit: km (mi)

NO.	ITEM	REMARKS	TYPE	INITIAL	ODOMETER READINGS				
				1,000 km or 1 month (600 mi)	**1 7,000 km or 7 months (4,400 mi)	**2 13,000 km or 13 months (8,200 mi)	**3 19,000 km or 19 months (12,000 mi)	**4 25,000 km or 25 months (15,800 mi)	31,000 km or 31 months (19,600 mi)
8	Control and meter cable	Apply chain lube thoroughly.	Yamaha chain and cable lube or SAE 10W30 motor oil	○	○	○	○	○	○
9	Rear arm pivot shaft	Apply until new grease shows.	Lithium soap base grease.			○		○	
10	Rear suspension link pivots	Apply grease lightly.	Lithium soap base grease.				Repack		
11	Brake/Clutch pivot shaft	Apply chain lube lightly.	Yamaha chain and cable lube or SAE 10W30 motor oil.		○	○	○	○	○
12	Brake pedal and change pedal shaft	Lubricate Apply chain lube lightly.	Yamaha chain and cable lube or SAE 10W30 motor oil.		○	○	○	○	○
13	Center/Sidestand pivots and kick crank boss	Check operation and lubricate. Apply chain lube lightly.	Yamaha chain and cable lube or SAE 10W30 motor oil.		○	○	○	○	○
14	Front fork oil	Check operation and leakage.			○	○	○	○	○
15	Steering bearings	Check bearing assembly for looseness. Moderately repack every 24,000 km (15,200 mi).	Medium weight wheel bearing grease.		○	○	○	Repack	○
16	Wheel bearings	Check bearings for smooth rotation.			○	○	○	○	○
17	Secondary air filter	Wet type filter must be washed and damped with oil. Replace if necessary.	Yamalube 2-cycle oil or equivalent.			○		○	
18	Battery	Check specific gravity and breather pipe for proper operation.	—		○	○	○	○	○
19	Sidestand switch	Check and clean or replace if necessary.	—	○	○	○	○	○	○

NOTE:

For farther odometer reading, repeat the above maintenance at the period established; **1: Every 6,000 km (3,800 mi) **2: Every 12,000 km (7,600 mi), **3: Every 18,000 km (11,400 mi) and **4: Every 24,000 km (15,200 mi) intervals.

Spark Plug

1. Check electrode condition and wear, insulator color, and electrode gap.
2. Clean the spark plug with spark plug cleaner if necessary. Use a wire gauge to adjust the plug gap to the specification.
3. If the electrode becomes too worn, replace the spark plug.
4. When installing the plug, always clean the gasket surface, wipe off any grime that might be present on the surface of the spark plug, and torque the spark plug properly.

Standard spark plug:
BR8ES (NGK)
Spark plug gap:
0.7 ~ 0.8 mm (0.028 ~ 0.031 in)
Spark plug tightening torque:
20 Nm (2.0 m·kg, 14 ft·lb)

CAUTION:

For a long high-speed ride, change the spark plug to the following high-speed type; otherwise, the engine will be damaged.

For high speed riding:
BR9ES (NGK)

Crankcase Ventilation System

Check the ventilation pipe from the crankcase to the air cleaner body for cracks or damage; replace if necessary.

Fuel Line

Check the fuel hoses and vacuum lines for cracks or damage; replace if necessary.

Exhaust System

1. Retighten the exhaust pipe flange nuts and muffler clamp bolts.

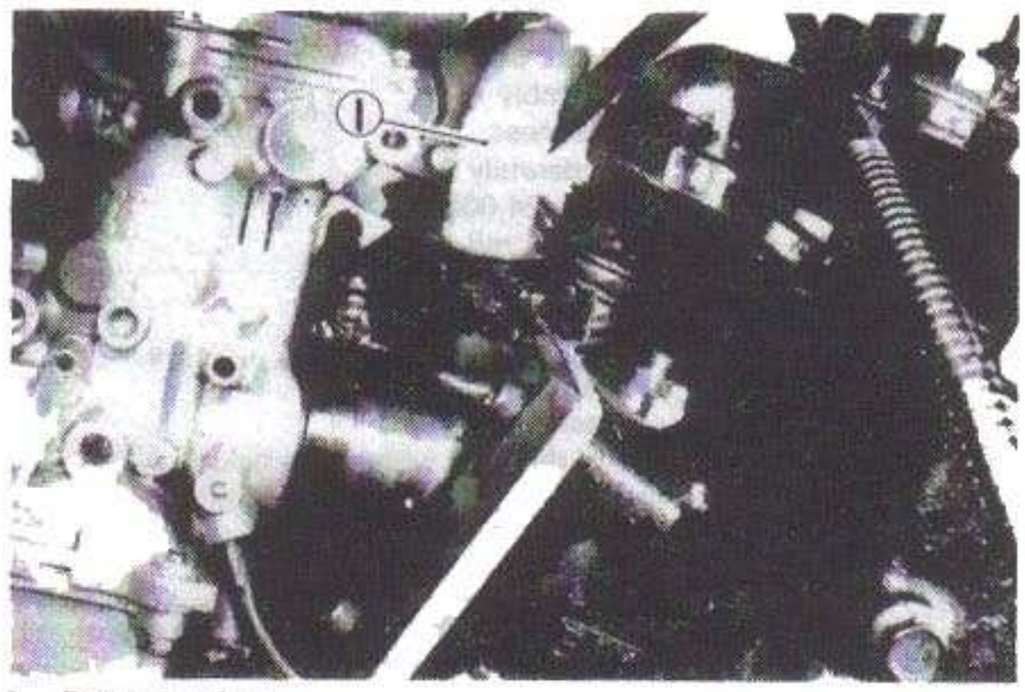
TIGHTENING TORQUE:
Exhaust pipe flange nut:
18 Nm (1.8 m·kg, 13 ft·lb)
Muffler securing bot:
64 Nm (6.4 m·kg, 46 ft·lb)

2. Replace the exhaust pipe gasket(s) if necessary.

Carburetor Synchronization

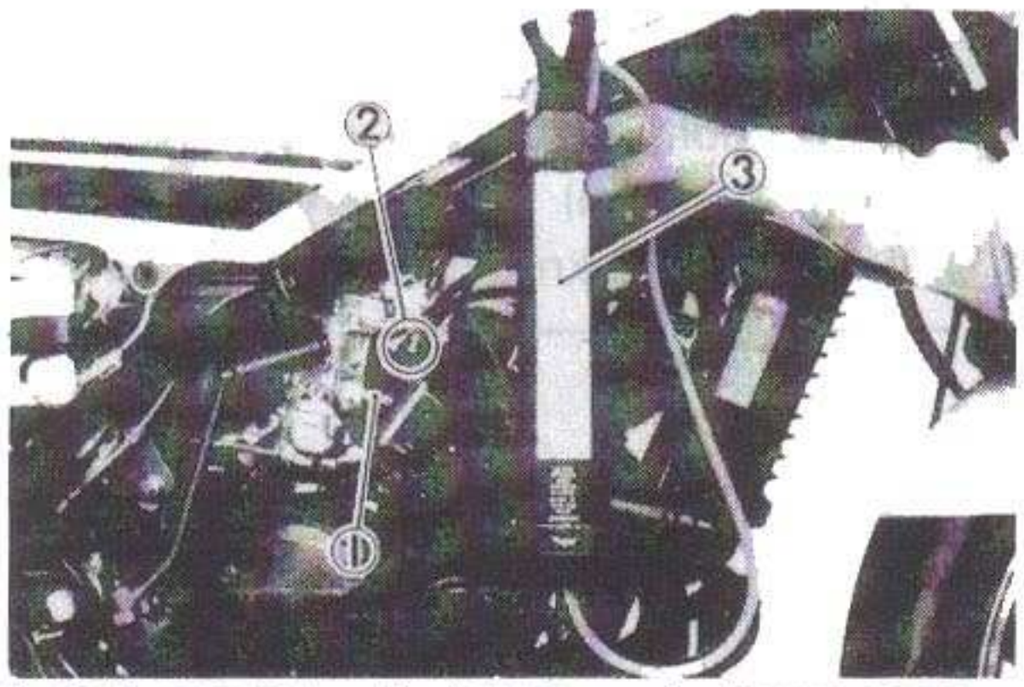
Carburetors must be adjusted to open and close simultaneously. Adjust as follows:

1. Remove the carburetor balance pipe from the carburetor joints.



1. Balance pipe

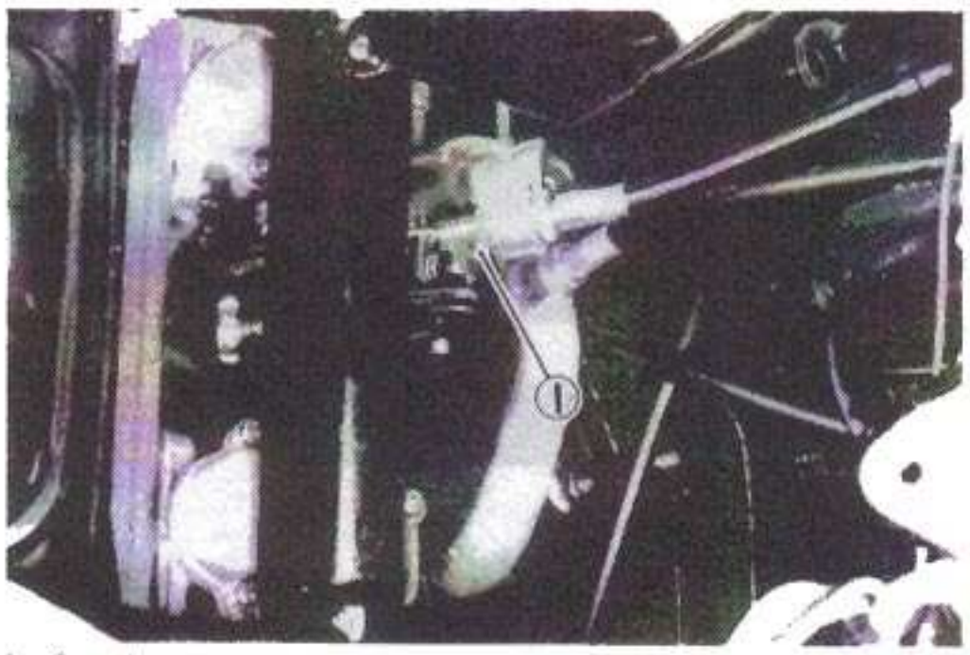
2. Connect the vacuum gauge lines to the carburetor joints; use Vacuum Gauge Adapters (P/N. YM-33973).



1. Carburetor joint 2. Adapter 3. Vacuum gauge

3. Start the engine, and let it warm up.
4. Read the vacuum gauge. The readings for each carburetor should be the same. If not, adjust the synchronizing screw until the readings are the same.

Vacuum pressure at idle speed:
12 kPa (90 mmHg, 3.5 inHg)



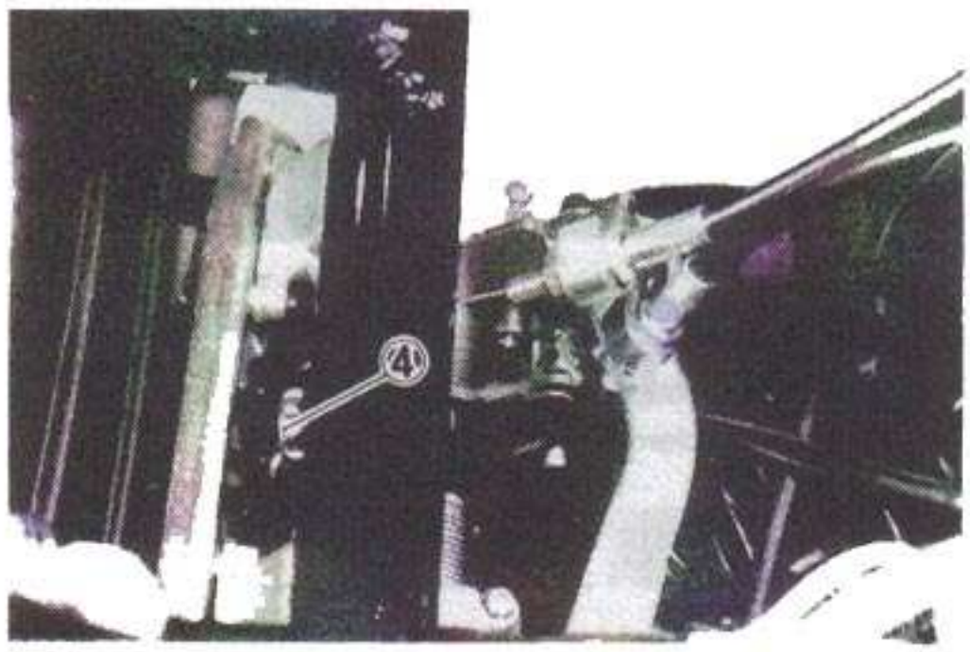
1. Synchronizing screw

5. Reassemble the motorcycle.

Idle Speed

1. Start the engine, and warm it up for a few minutes.
2. Set the engine idle speed to the specified level by adjusting the throttle stop screw. Turning the throttle stop screw in (clockwise) increases the engine speed; turning it out (counterclockwise) decreases the engine speed. Use the tachometer for checking and adjusting the engine speed.

Engine Idle: 1,200 ± 50 r/min



1. Throttle stop screw

WARNING:

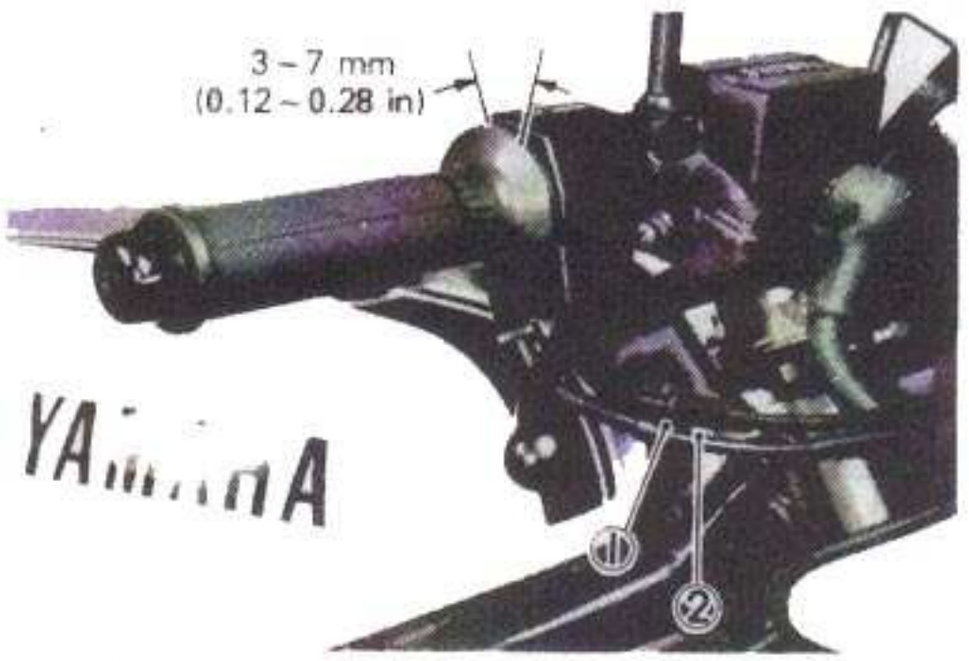
The pilot screw setting is adjusted for maximum performance at the factory with special equipment. DO NOT attempt to change this setting. If all other engine systems are functioning correctly, any changes will decrease performance and cause increased exhaust emissions.

Throttle Cable Adjustment

NOTE:

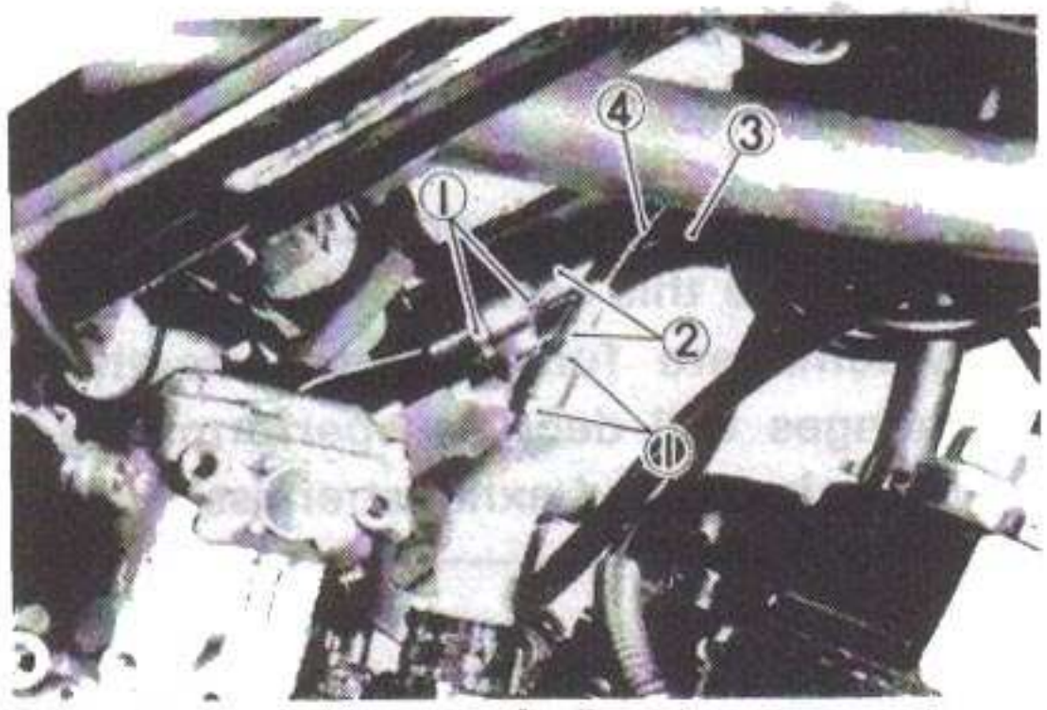
Before adjusting throttle cable free play, the engine idling speed should be adjusted.

The throttle grip should have a play of 3 ~ 7 mm (0.12 ~ 0.28 in) in the turning direction at the grip flange. If the play is not this range, take the following steps for adjustment:



1. Locknut 2. Adjuster

1. Loosen the locknut and turn the adjuster to make the necessary free play.
   If the play is still incorrect, take the following steps.
2. Loosen the adjuster locknut on the carburetor side of throttle cable 1, and turn the adjuster in or out so the play is correct. After the adjustment, tighten the locknut.
3. If the play is still incorrect after the adjuster is loosened 5 mm (0.20 in), make an adjustment with the adjuster on the throttle cable 2.

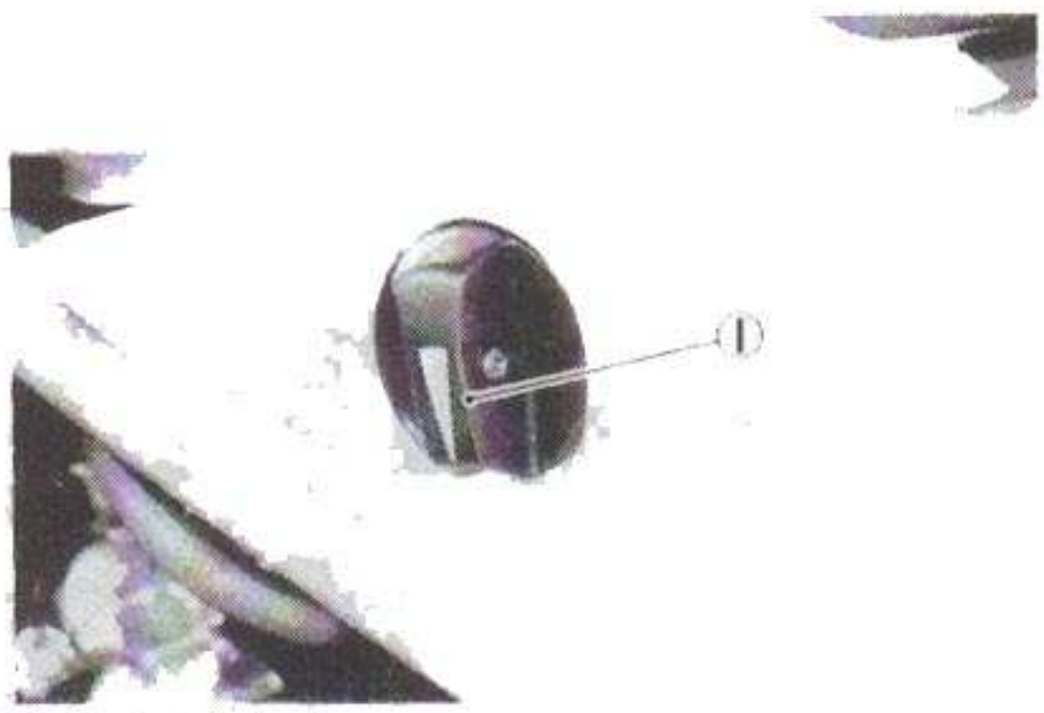


1. Locknut
2. Adjuster
3. Throttle cable 1
4. throttle cable 2

Air Filter

Air Filter Element Removal

1. Remove the seat and both side covers.
2. Turn the fuel cock knob to "ON" position.

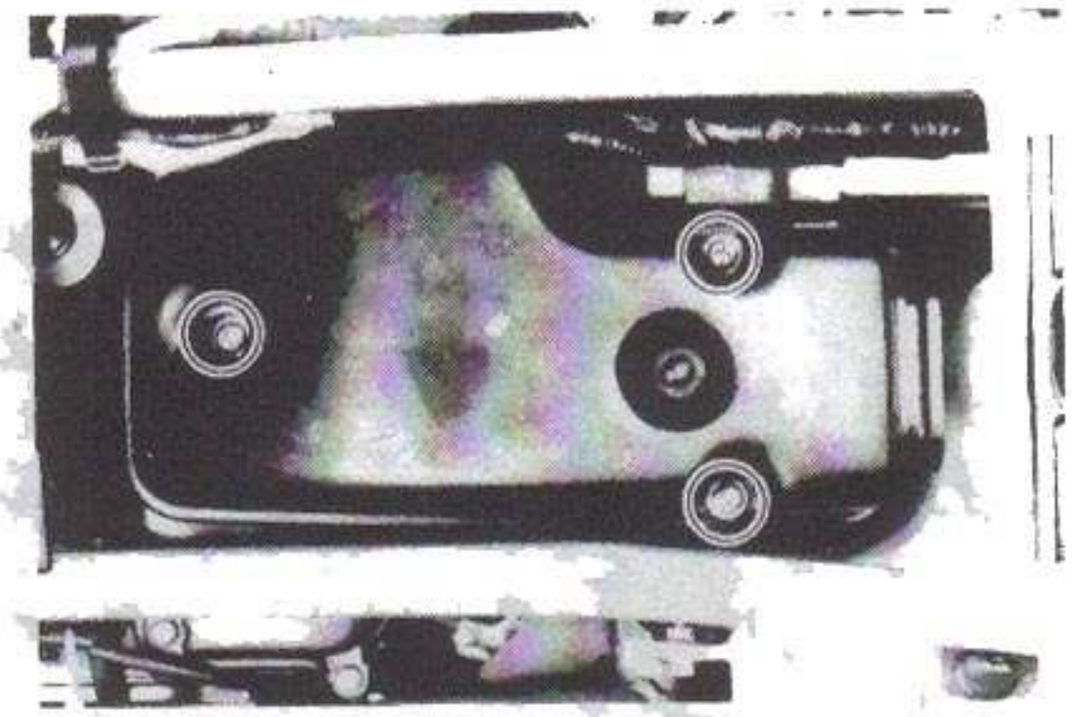


1. Fuel cock knob

3. Disconnect the fuel and vacuum hoses, then remove the tank.

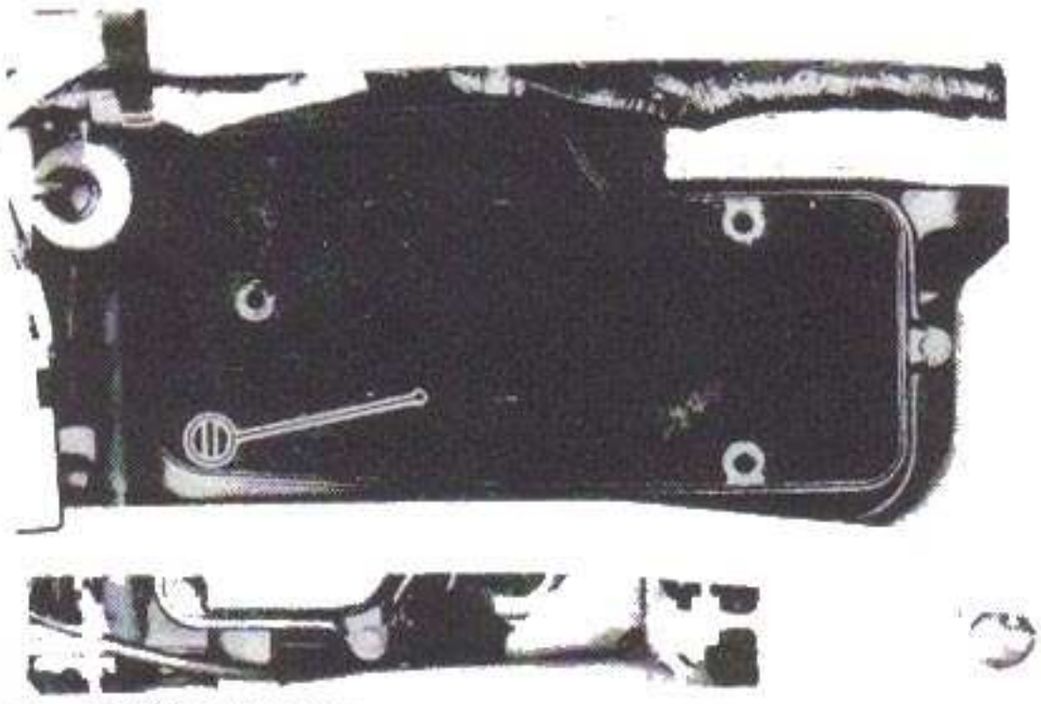


4. Remove the air filter case cover by removing the panhead screws. Pull out the element.



Cleaning

1. Clean the element with solvent. After cleaning, remove the remaining solvent by squeezing the foam rubber. Then apply Yamaha 2-stroke engine oil or equivalent to the entire surface and squeeze out the excess oil. The foam rubber should be wet but not dripping.
2. The air filter element should be cleaned once per 6 months or every 6,000 km (4,000 mi).
   It should be cleaned more often if the machine is operated extremely in dusty areas.
3. When installing the filter element, make sure the seal is fitted to the filter case sealing surfaces.



1. Air filter element

CAUTION:

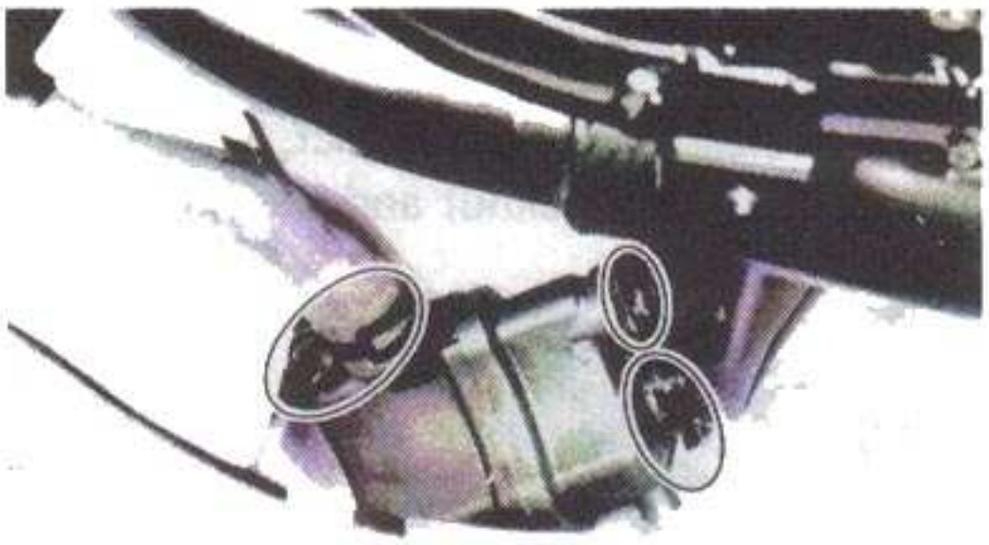
Never operate the engine with the air filter element removed. This will allow unfiltered air to enter, causing rapid wear and possible engine damage. Additionally, operation without the filter element will affect carburetor tuning with subsequent poor performance and possible engine overheating.

Secondary Air Filter

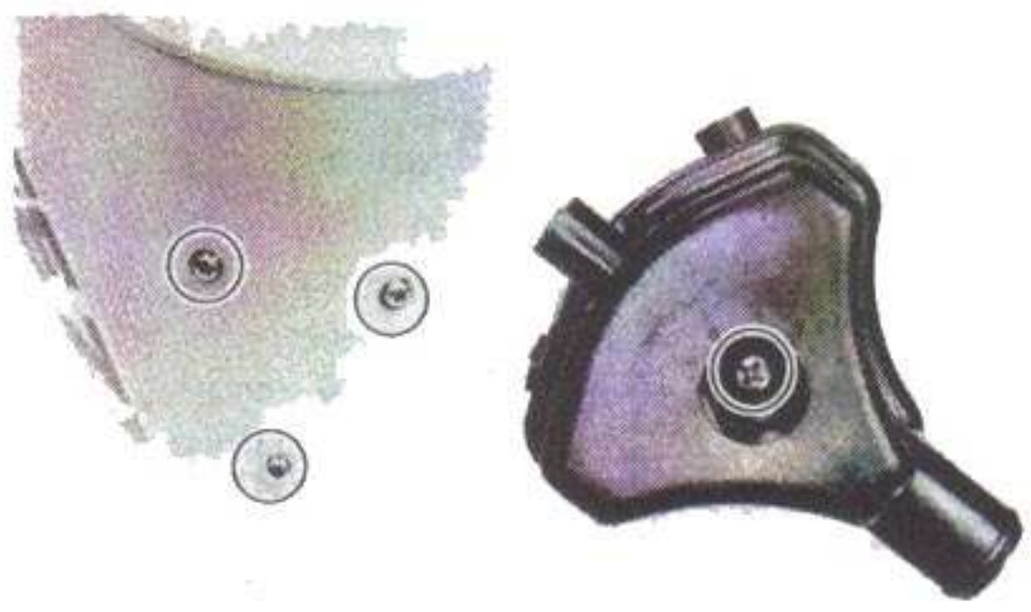
1. Remove the four(4) screws securing the lower cowl.



2. Disconnect the secondary air hoses.



3. Remove the lower cowling.
4. Remove the secondary air filter assembly from the lower cowling and remove the air filter case cover.



5. Remove the air filter element from its case, and clean it with solvent. After cleaning, remove the remaining solvent by squeezing the element.
6. Apply Yamalube 2-stroke engine oil to the entire surface of the filter and squeeze out the excess oil. The element should be wet but not dripping.
7. When installing the air filter element in its case, be sure its sealing surface matches the sealing surface of the case so there is no air leak.
8. The air filter element should be cleaned at the specified intervals. It should be cleaned more often if the motorcycle is operated in dusty or wet areas.
9. To install the lower cowl, reverse the removal procedure.

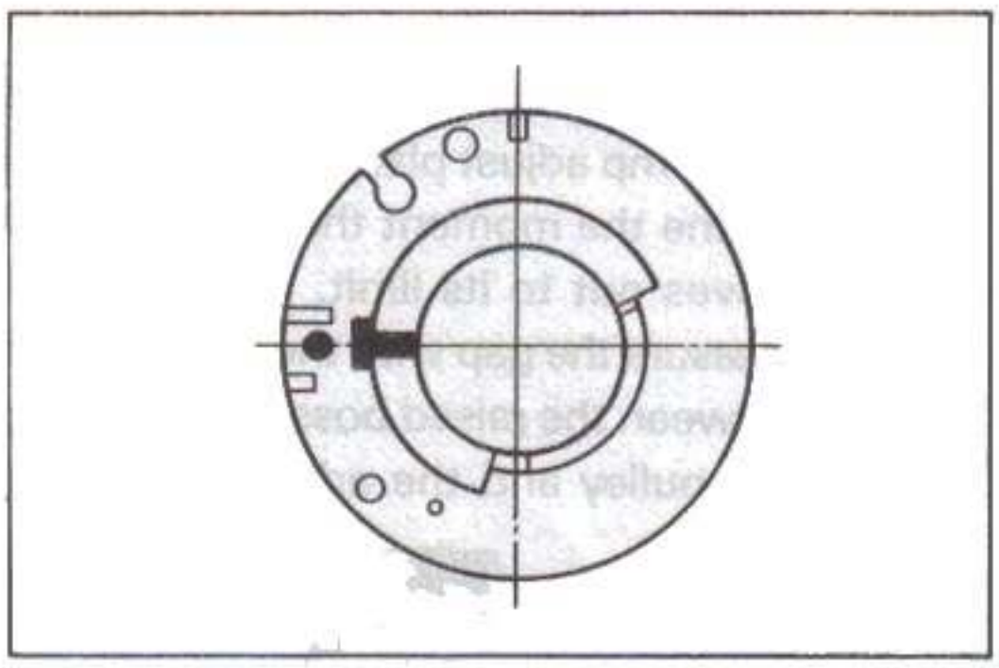
Autolube Pump

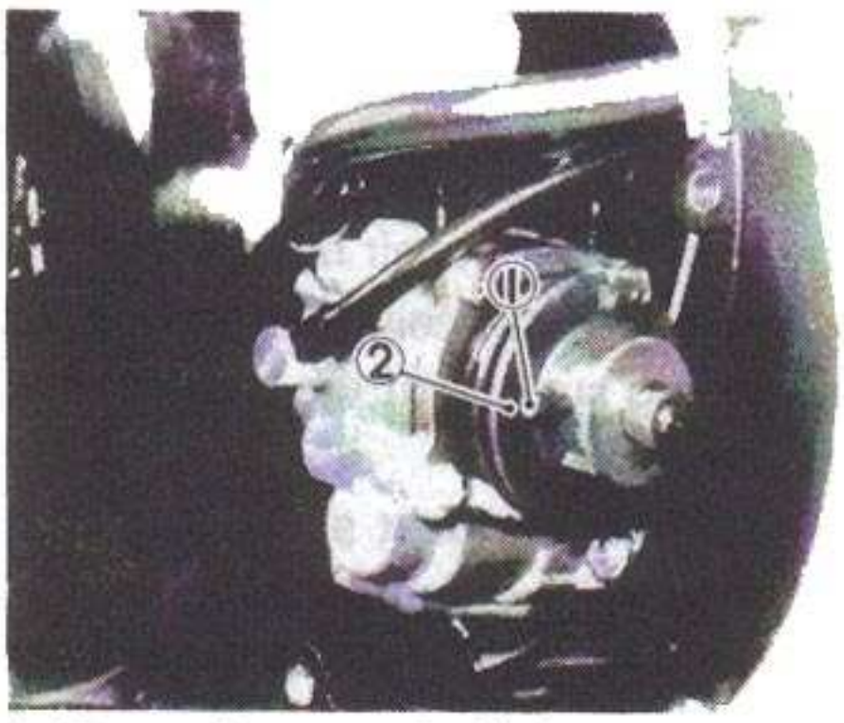
Cable Adjustment

NOTE:

Before adjusting Autolube cable always set carburetors synchronization and throttle cable free play first. (Refer to page 2-5.)

1. Remove Autolube pump cover.
2. Rotate the throttle grip slightly until the slack is removed from all cables. Hold this position.
3. Check to see that Autolube pump plunger pin is aligned with the mark (o) on the Autolube pump pulley.





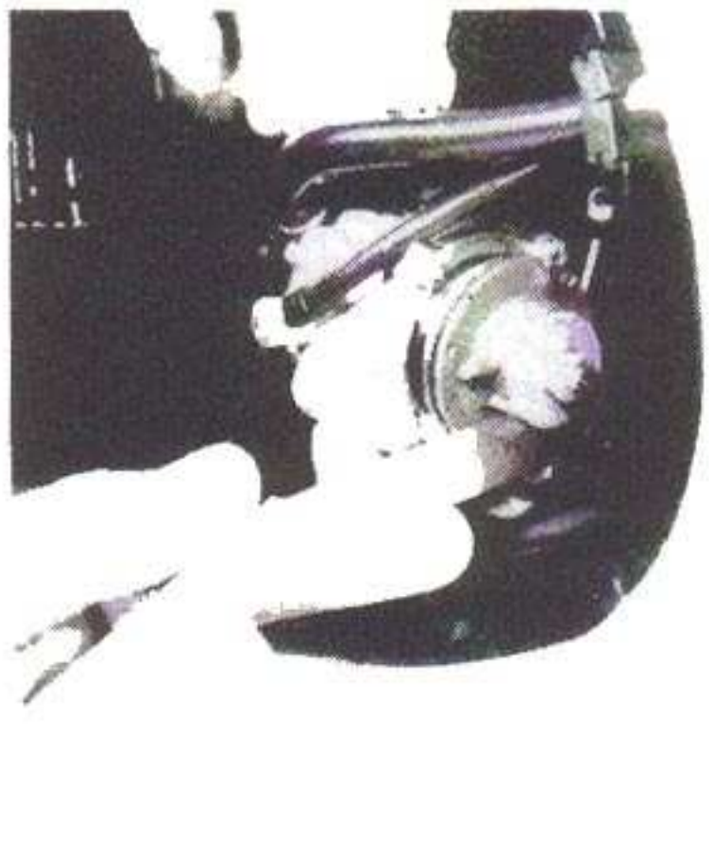
1. Plunger pin 2. Mark

4. If the mark and pin are not in alignment, loosen the cable length adjuster locknut and adjust the cable length until alignment is achieved.



1. Adjuster 2. Locknut

5. Tighten adjuster locknut.
   Minimum Pump Stroke Check And Adjustment Procedure
   a. While running the engine at idle, observe the pump adjust plate carefully. Stop the engine the moment that the adjust plate moves out to its limit.
   b. Measure the gap with the thickness gauge between the raised boss on the pump adjust pulley and the adjust plate.



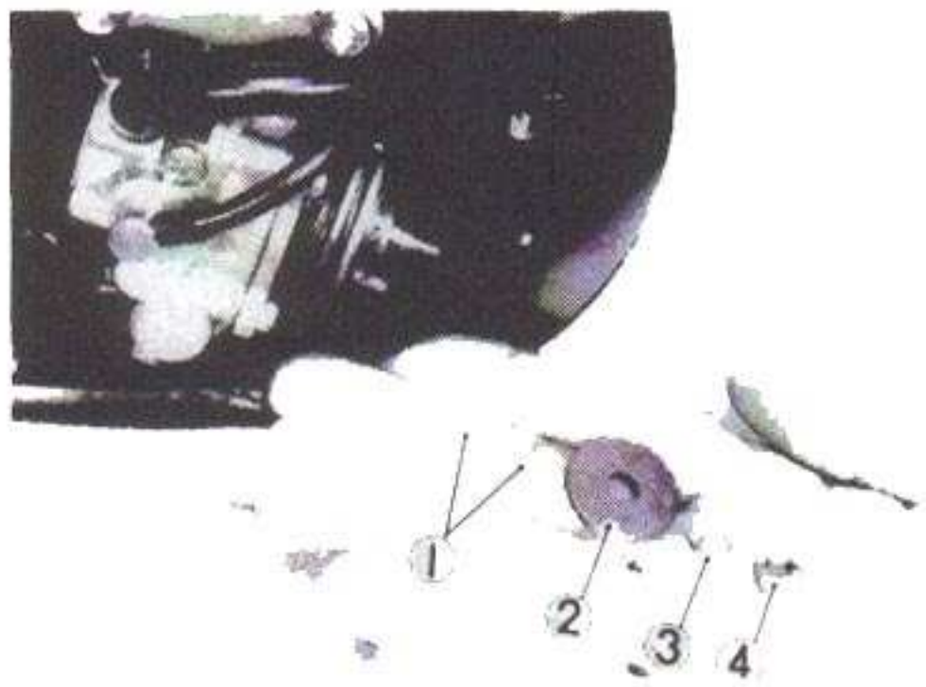
c. Repeat steps "a" and "b" above a few times. When the gap measured is the largest, the pump stroke is considered to be at a minimum.

NOTE:

When inserting the thickness gauge between the adjust plate and the adjust pulley, be careful so that neither the plate nor the pulley is moved. In other words, do not force the thickness gauge into the gap.

Minimum pump stroke:
0.10 ~ 0.15 mm (0.004 ~ 0.006 in)

d. If clearance is not correct, remove the adjust plate locknut and the adjust plate.



1. Adjusting shim 3. Washer
2. Adjust plate 4. Locknut

e. Remove or add an adjust shim as required. Tighten the locknut and remeasure gap.

Bleeding The Pump

The Autolube pump and delivery lines must be bled on the following occasions:

- Whenever the oil tank has run dry.
- Whenever any portion of the Autolube system is disconnected.

1. Bleeding the pump case and/or oil hose
   a. Remove the pump cover and remove the bleed screw.

CHAPTER 2.
PERIODIC INSPECTION AND ADJUSTMENT

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PER10DIC MAINTENANCE EMISSION CONTROL SYSTEM 2-1

ANTICIPATED MAINTENANCE 2-2

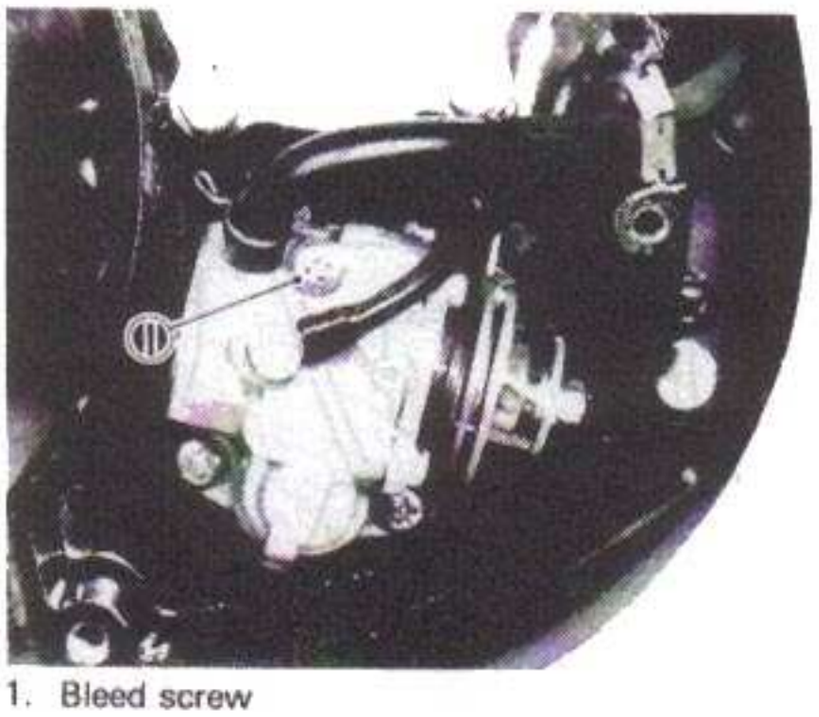
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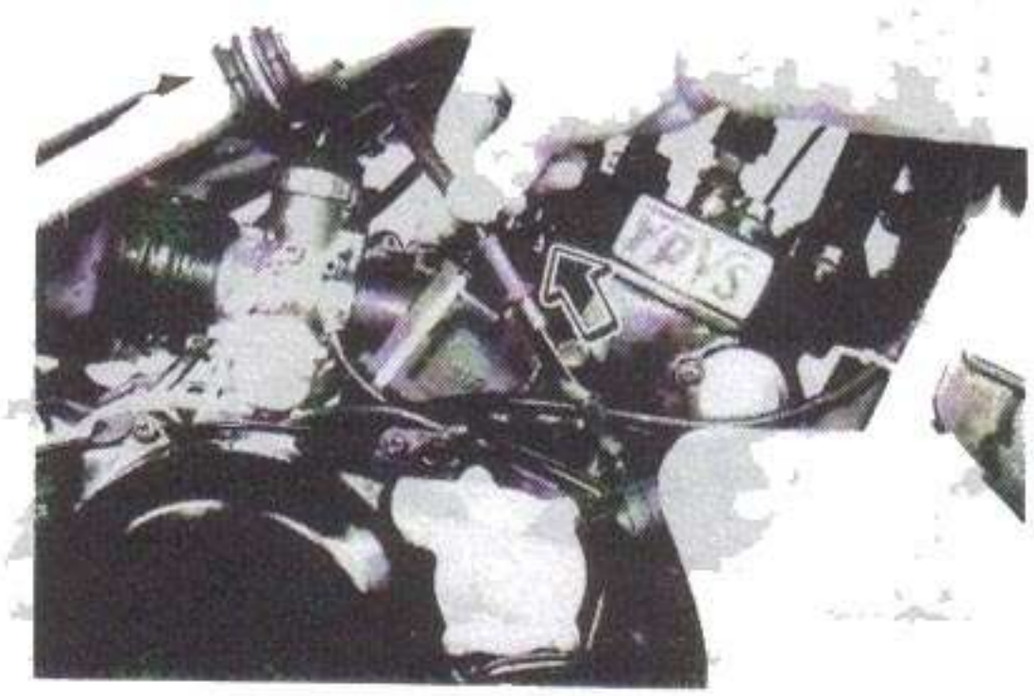
1. Bleed screw

b. Keep the oil running out until air bubbles disappear.
c. When air bubbles are expelled completely, tighten the bleed screw and install the pump cover.

NOTE:

Check the bleed screw gasket and hoses. If damaged, replace with a new one.

2. Bleeding the pump distributor and/or delivery hose.
a. Start the engine.
b. Pull the pump wire all the way out to set the pump stroke to a maximum.



NOTE:

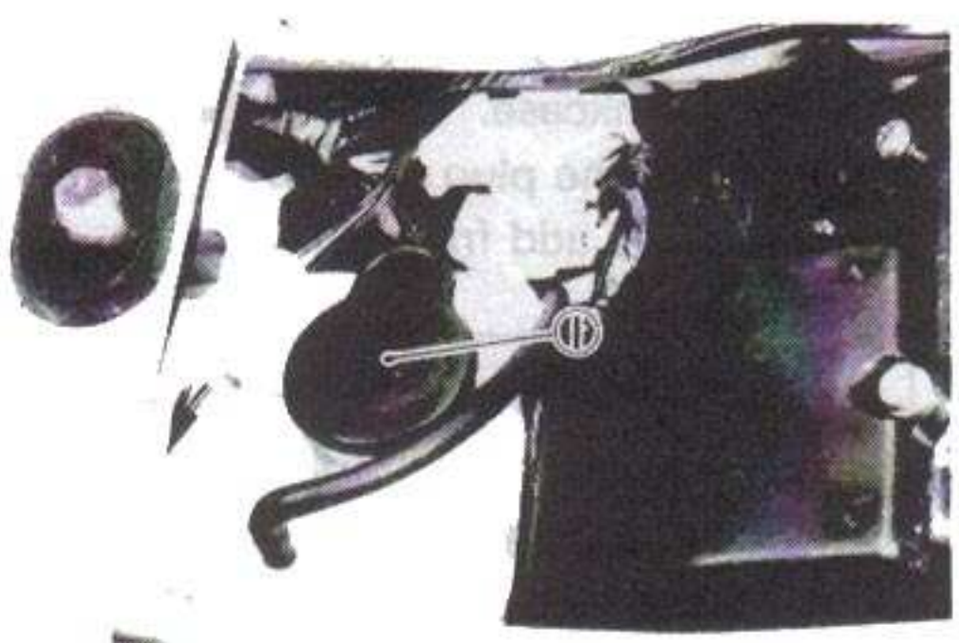
It is difficult to bleed the distributor completely with the pump stroke at a minimum, and therefore the pump stroke should be set to a maximum.

c. Keep the engine running at about 2,000 r/min for two minutes or so, and both distributor and delivery pipe can be completely bled.

Engine and Transmission Oil

Engine Oil

Recommended oil:
Yamalube 2-cycle oil or 2-stroke engine oil with "BIA certificated for service TC-W"
Oil tank capacity:
1.6 L (1.41 Imp qt, 1.69 US qt)



1. Oil tank filter cap

Transmission Oil

1. To check level, start the engine and let it run for several minutes to warm and distribute oil. With the engine stopped, unscrew the dipstick and clean. Set it on the case threads in a level position. Remove and check level.

NOTE:

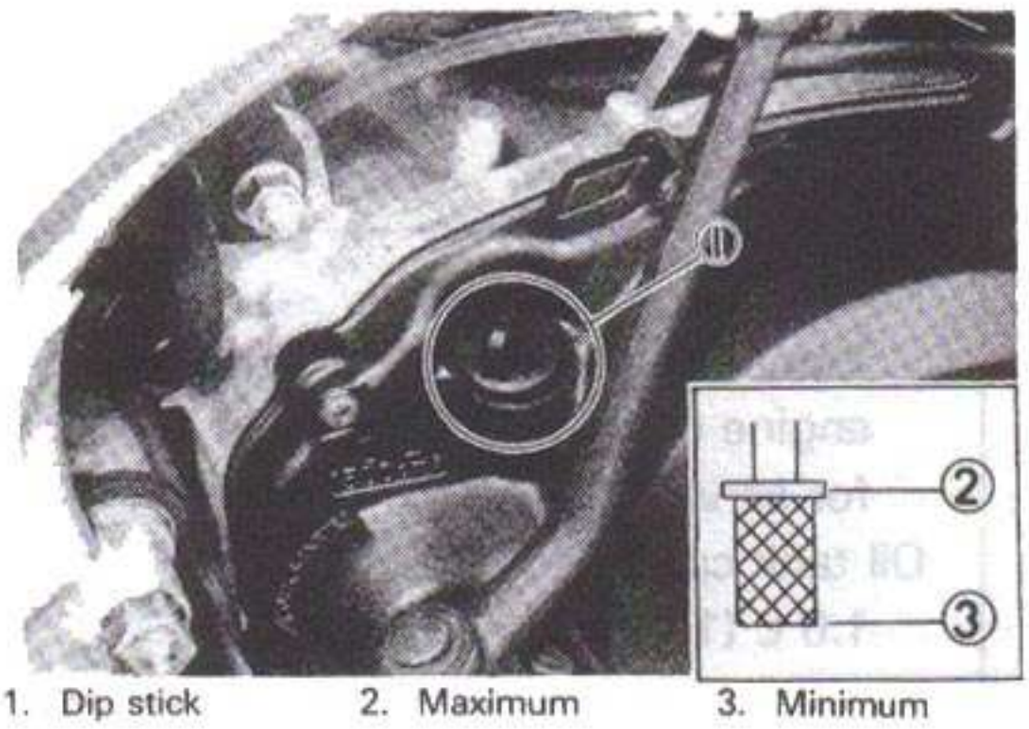
Be sure the motorcycle is level and on both wheels.

2. The stick has Minimum and Maximum marks. The oil level should be between the two. Top off as requried.

Recommended oil:
Yamalube 4-cycle oil or
SAE 10W30 type SE motor oil or
"GL" gear oil

NOTE:

Recommended oil classification; API Service "SE" "SF" type or equivalent (eg-"SF-SE", "SF-SE-CC", "SF-SE-SD" etc.).



1. Dip stick 2. Maximum 3. Minimum

3. A drain plug is located on the bottom of the crankcase. With the engine warm, remove the plug and drain oil. Re-install plug and add fresh oil.

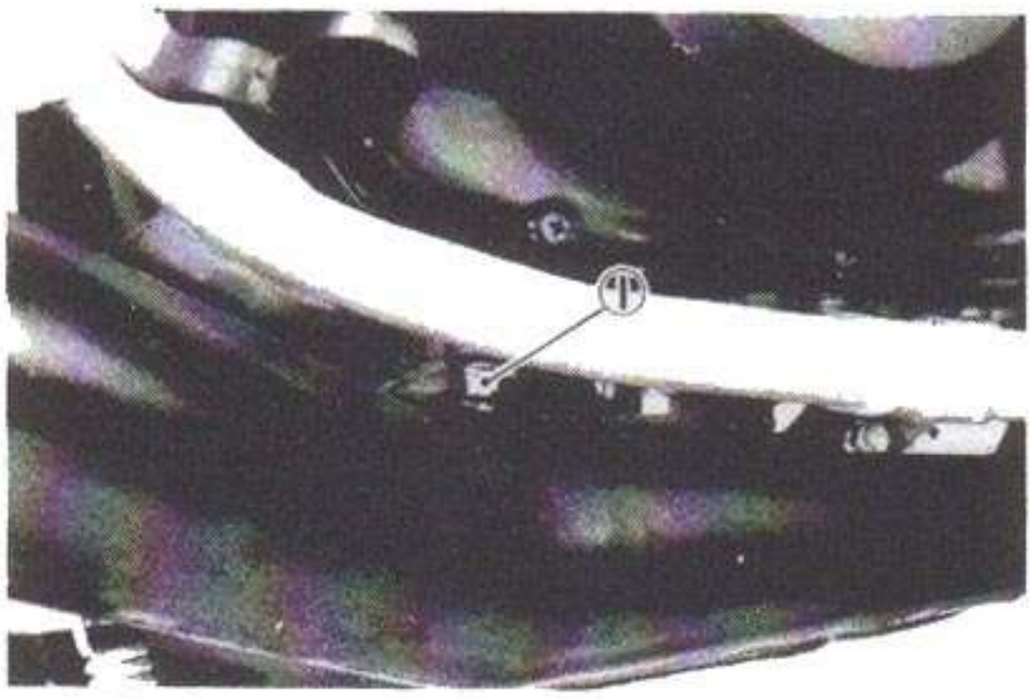
Transmission drain plug torque: 20 Nm (2.0 m·kg, 14 ft·lb)
Transmission oil Capacity: Total amount: 1.7 L (1.5 Imp qt, 1,8 US qt) Periodic: 1.5 L (1.3 Imp qt, 1.6 US qt)

CAUTION:

Under no circumstances should any additives be included with the transmission oil. This oil also lubricates and cools the clutch. Additives may cause clutch slippage.

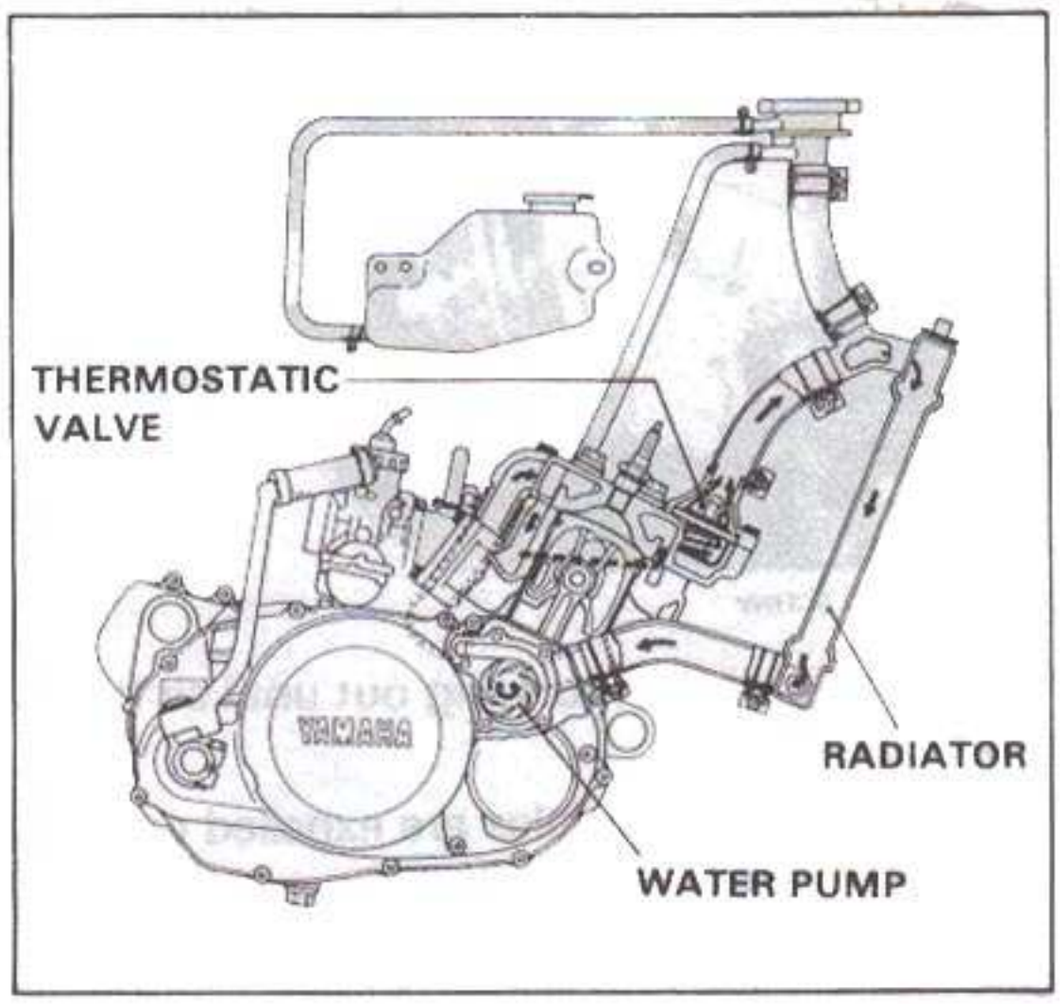
NOTE:

Transmission oil should be replaced several times during the break-in period.

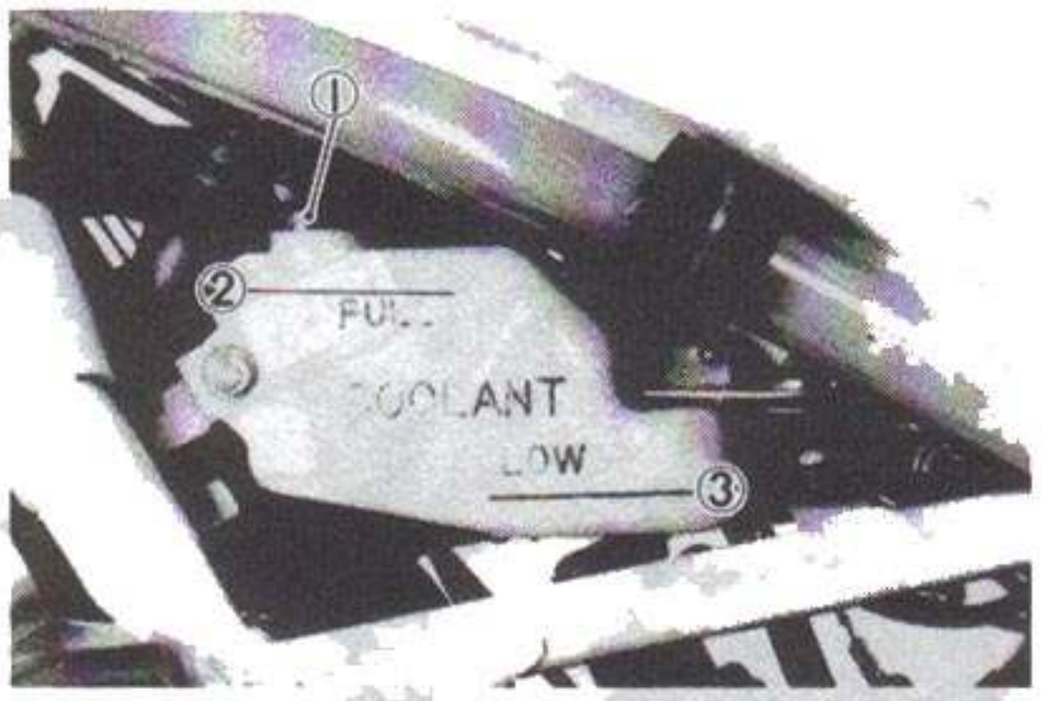


1. Drain plug

Coolant Level



Check the coolant level in the reservoir tank when the engine is cold. The coolant level is satisfactory if it is between the FULL and LOW level on the tank. The coolant level will vary with engine temperature. However, if the level is on or below the LOW level, add the tap water (soft water) until FULL level. Change the coolant every two years. (See page 4-2 for more detail.)



1. Coolant reservoir tank cap 2. Full level 3. Low level

Reservoir tank capacity: Total: 215 cm^3 (0.19 Imp qt, 0.23 US qt) From LOW to FULL level: 185 cm^3 (0.16 Imp qt, 0.20 US qt)

Handling Notes of Coolant

The coolant is harmful so it should be handled with special care.

- When coolant splashes to your eye
  Thoroughly wash your eye with water and see your doctor.
- When coolant splashes to your clothes
  Quickly wash it away with water and then with soap.
- When coolant is swallowed
  Quickly make him vomit and take him to a doctor.

WARNING:

Do not remove the radiator cap and drain bolts when the engine is hot.

CAUTION:

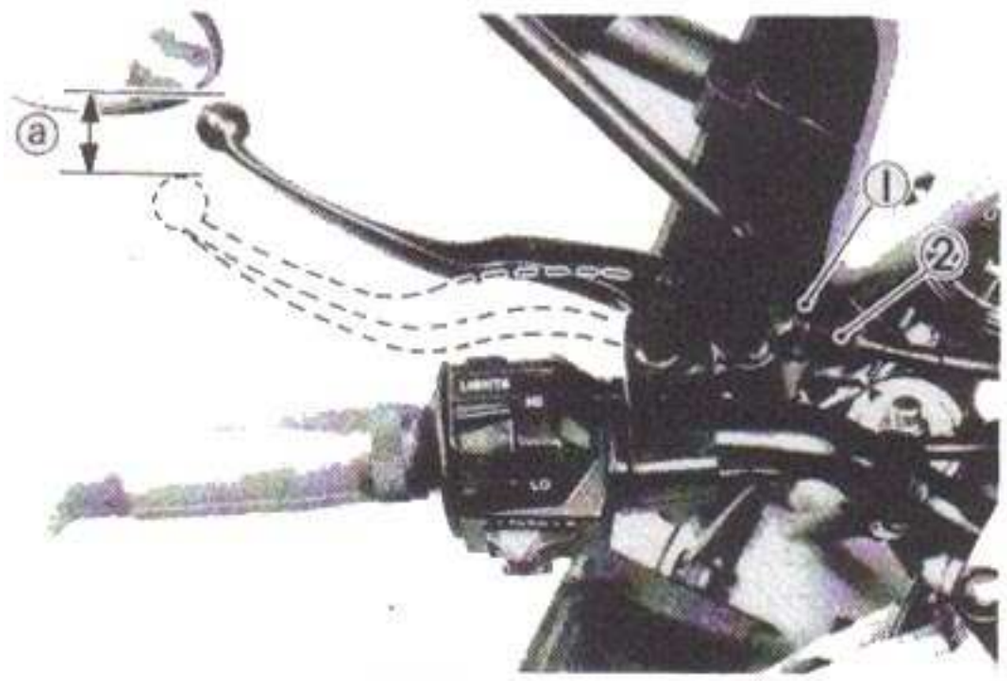
Hard water or salt water is harmful to the engine.
You may use boiled water or distilled water, if you can't get soft water.

Clutch Adjustment

Free Play Adjustment

The clutch should be adjusted to suit rider preference within a 10 ~ 15 mm (0.4 ~ 0.6 in) free play at the lever end.

1. Loosen the handlebar lever adjuster locknut.
2. Turn the cable length adjuster either in or out until proper lever free play is achieved.



1. Locknut 2. Adjuster a. 10 – 15 mm (0.4 ~ 0.6 in)

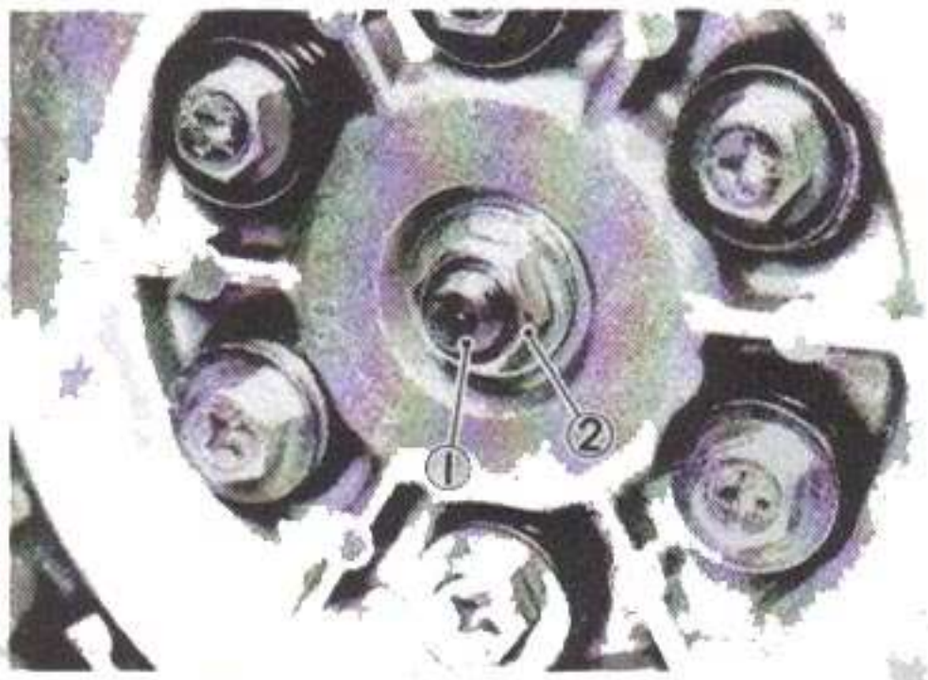
3. Tighten the locknut.

NOTE:

The above procedure provides for maximum cable free play to allow for proper clutch actuating mechanism adjustment.

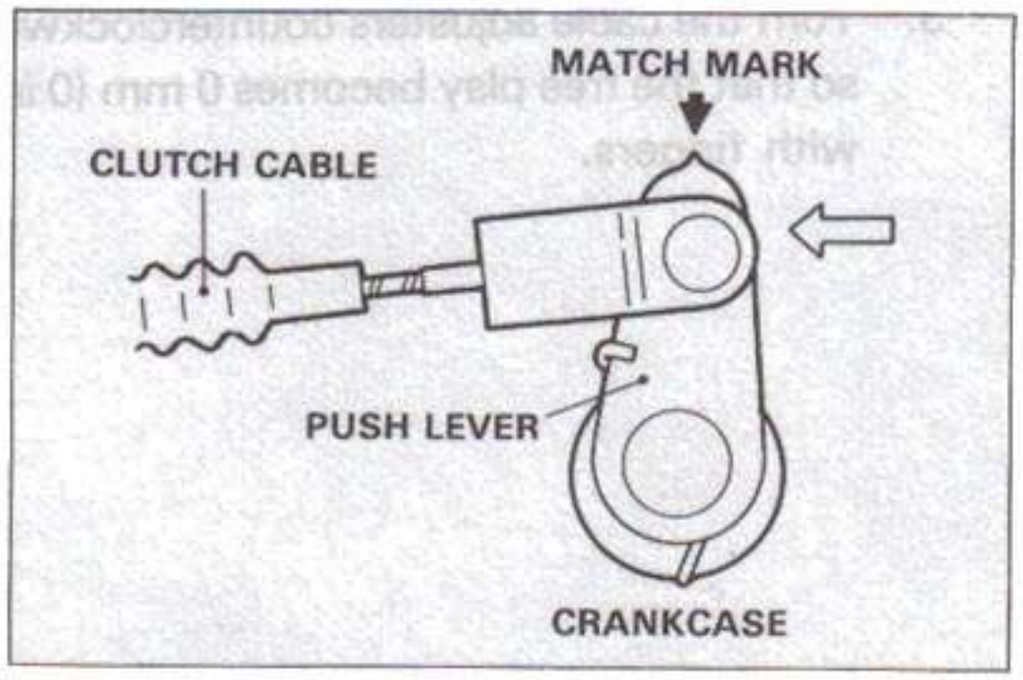
Mechanism Adjustment

1. Fully loosen the cable in-line length adjuster locknut and screw in the adjuster until tight.
2. Turn the handlebar lever adjuster in.
3. Remove the oil pump cover and oil pump cable.
4. Drain the transmission oil and coolant completely.
5. Remove the pipe joint and disconnect the radiator hose.
6. Remove the kick crank, and remove the right-side crankcase cover.
7. Loosen the adjusting screw locknut on the pressure plate.



1. Adjusting screw 2. Locknut

8. Move the push lever toward the front with your finger until it stops. With the push lever in this position, turn the adjusting screw to align the mark on the end of the push lever with the mark (protuberance) on the crankcase.



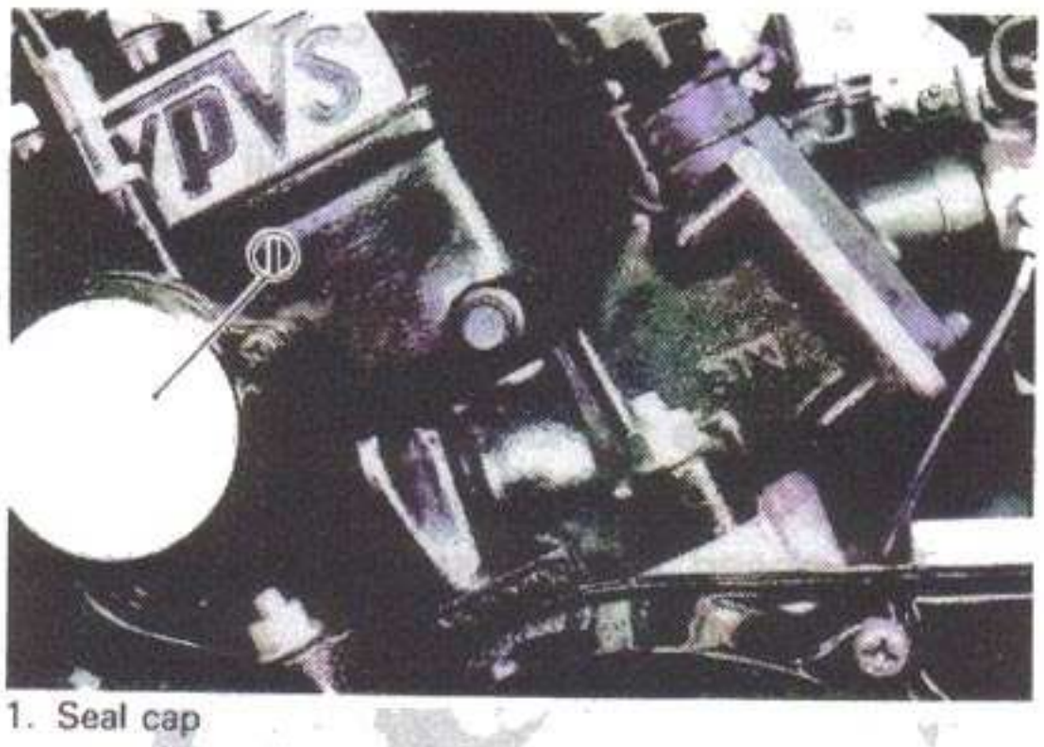
9. Tighten the locknut to specification.

TIGHTENING TORQUE:
8 Nm (0.8 m·kg, 5.8 ft·lb)



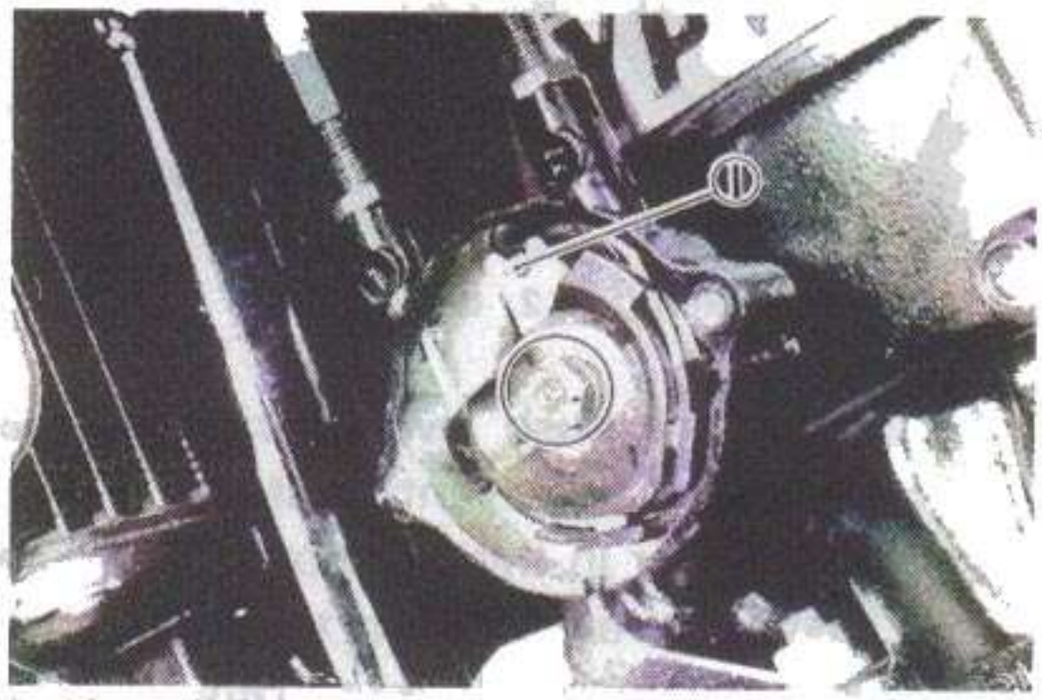
Y.P.V.S. Cable Adjustment

1. Remove the seal cap.



1. Seal cap

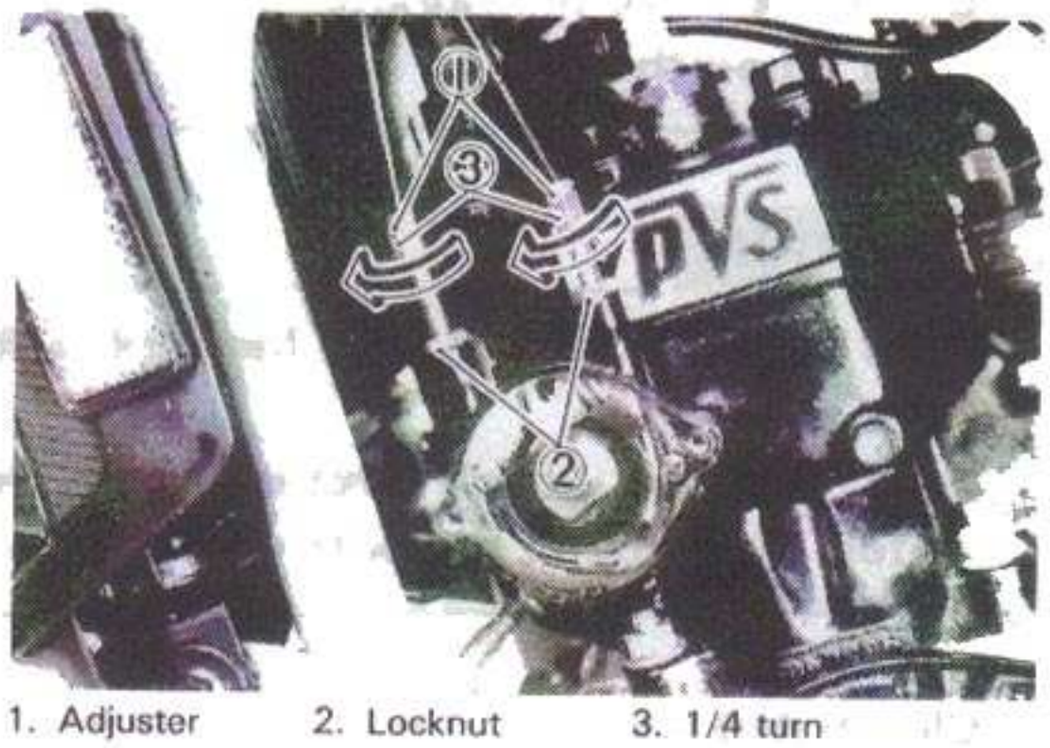
2. Insert the 4 mm (0.16 in) pin through the aligning indent in the pulley and into the hole in the valve cover in order to steady as well as adjust the valve.



1. ϕ4 mm (0.016 in) pin

3. Turn the cable adjusters counterclockwise so that the free play becomes 0 mm (0 in), with fingers.

4. Turn the cable adjuster 1/4 turn clockwise and lock it. Remove the pin.



1. Adjuster 2. Locknut 3. 1/4 turn

5. Turn on the main switch and inspect that the aligning marks are aligned. If not aligned, repeat adjustment procedure till aligned.
6. Install the seal cap.

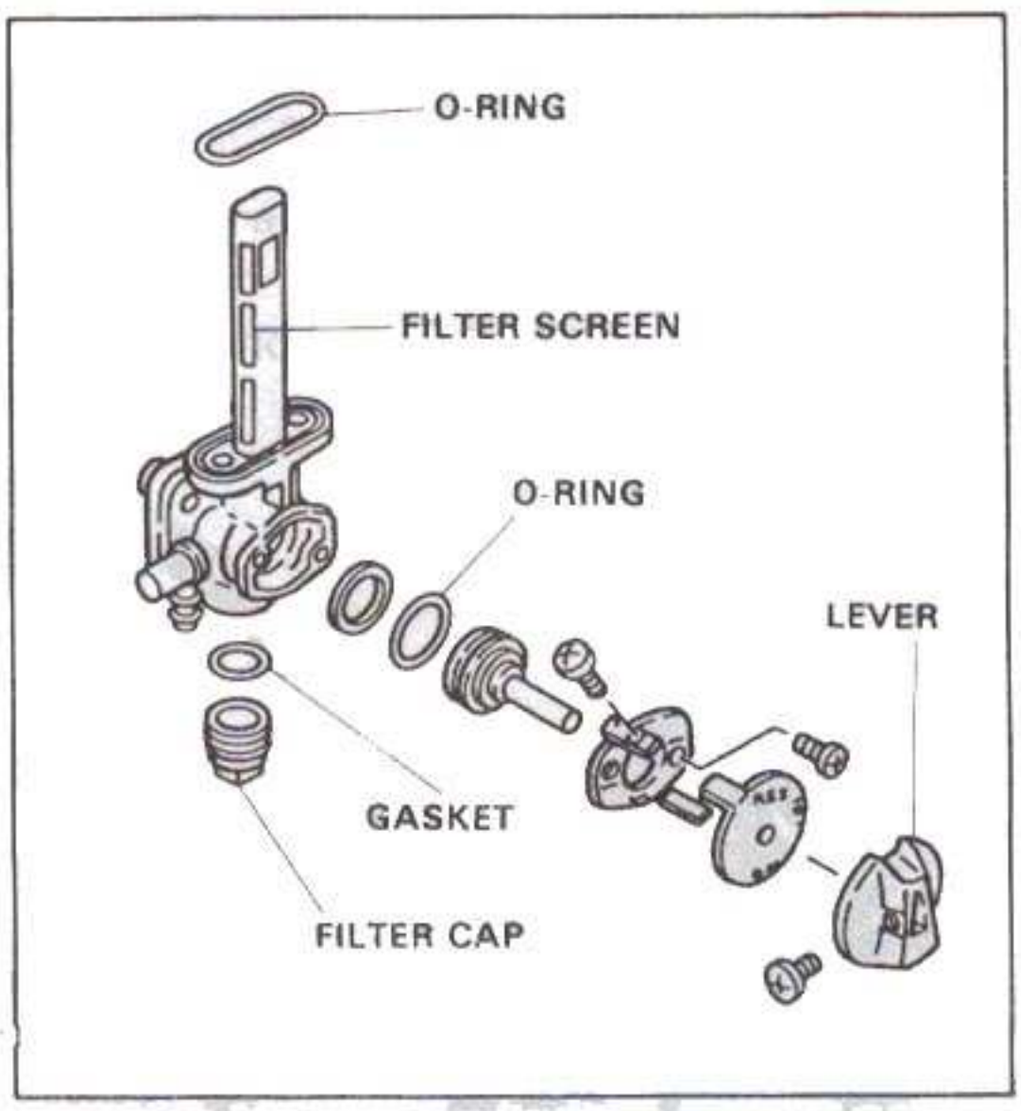
Fuel Cock

Clean Fuel Filter Screen.

1. Drain the fuel from the fuel tank.
2. Remove the Phillips head screws on fuel cock and remove the fuel cock assembly.
3. Clean the screen and cap.

NOTE:

If screen is damaged, replace its assembly.

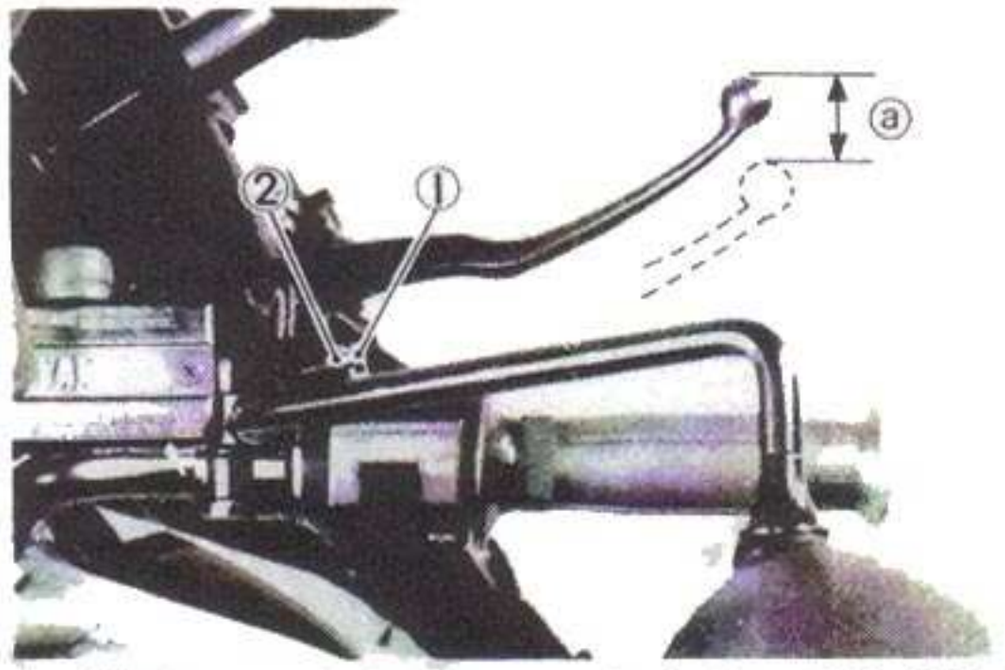


CAUTION:

The use of leaded-gasoline will give unrepairable damage to the catalyzer. So the muffler assemblies must be replaced.

Front Brake Adjustment

1. Loosen the adjuster locknut on the brake lever.
2. Turn the adjuster so that the brake lever movement at the lever end is 5~8 mm (0.2~0.3 in) before the adjuster contacts the master cylinder piston.
3. After adjusting, tighten the locknut.



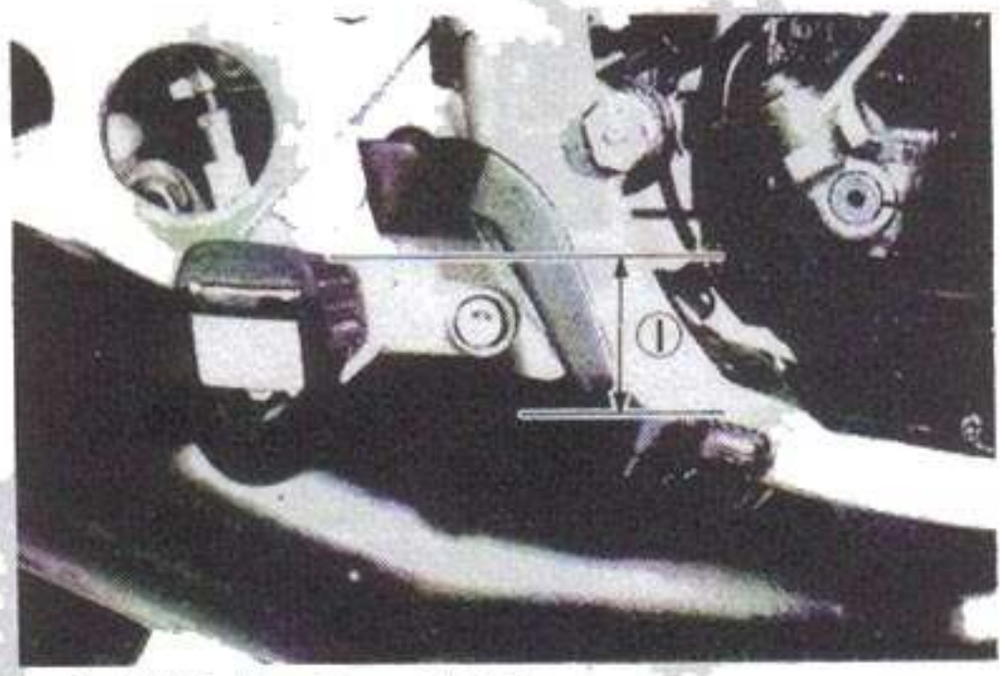
1. Adjuster 2. Locknut 3. 5~8 mm (0.2~0.3 in)

CAUTION:

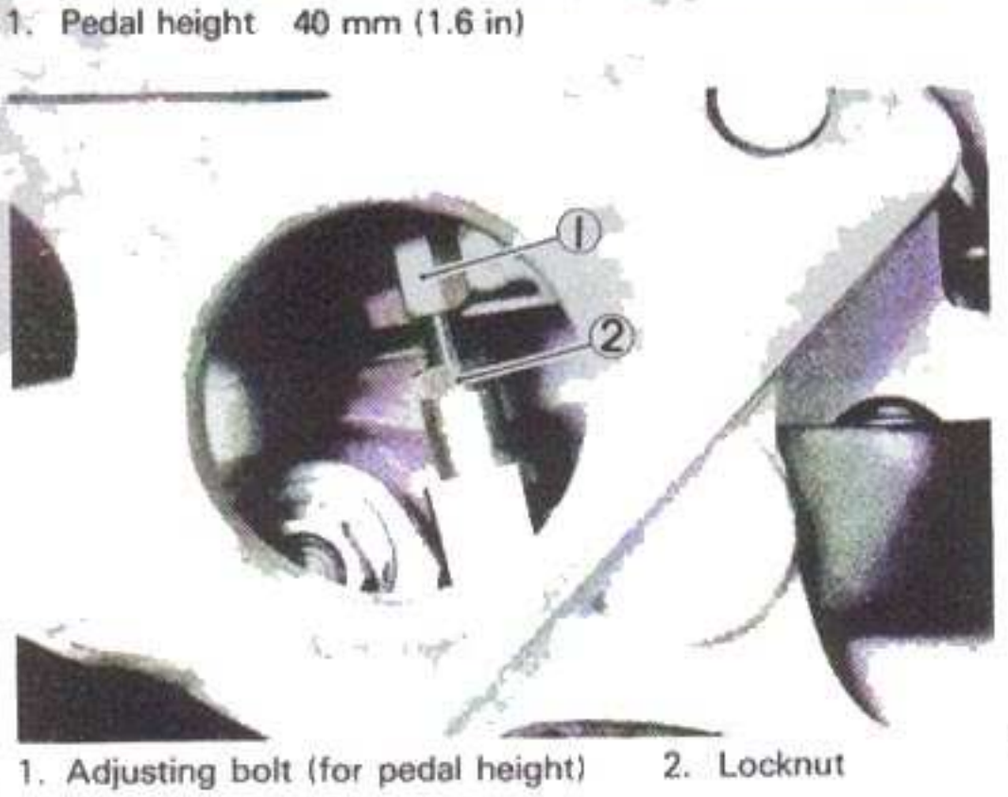
Proper lever free play is essential to avoid excessive brake drag.

Rear Brake Adjustment

1. Loosen the adjuster locknut (for pedal height).
2. By turning the adjuster bolt clockwise or counterclockwise, adjust the brake pedal position so that its top end is approximately 40 mm (1.6 in) below the footrest top end.
3. Secure the adjuster locknut.



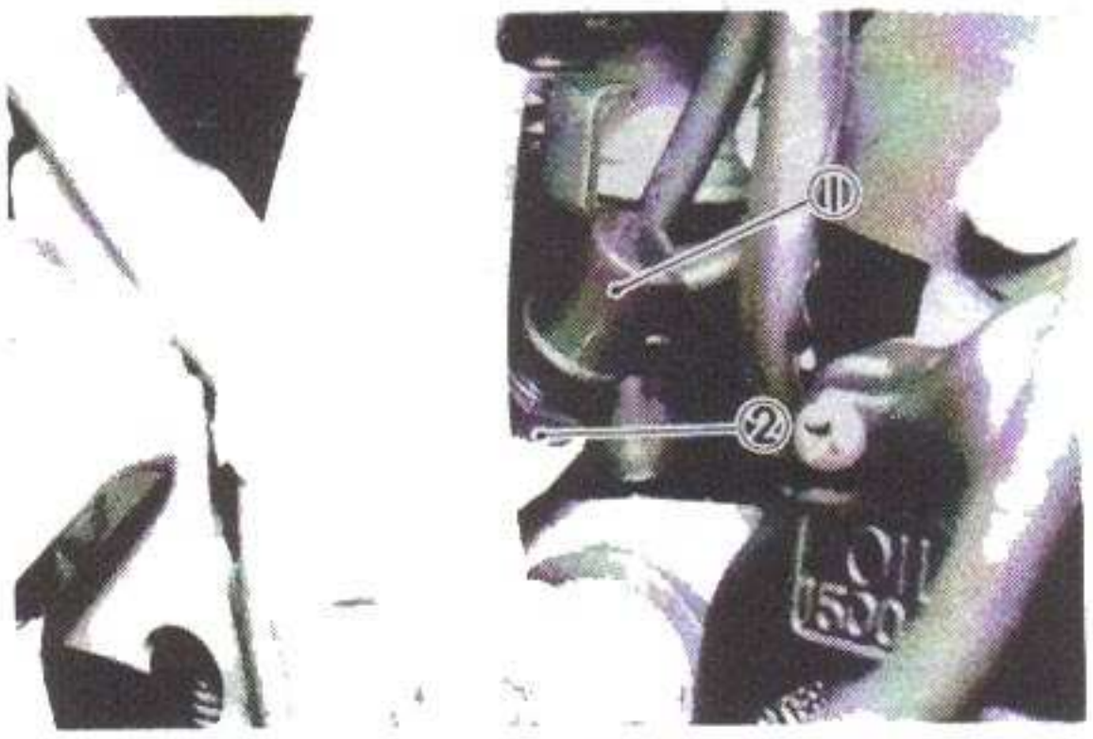
1. Pedal height 40 mm (1.6 in)



1. Adjusting bolt (for pedal height) 2. Locknut

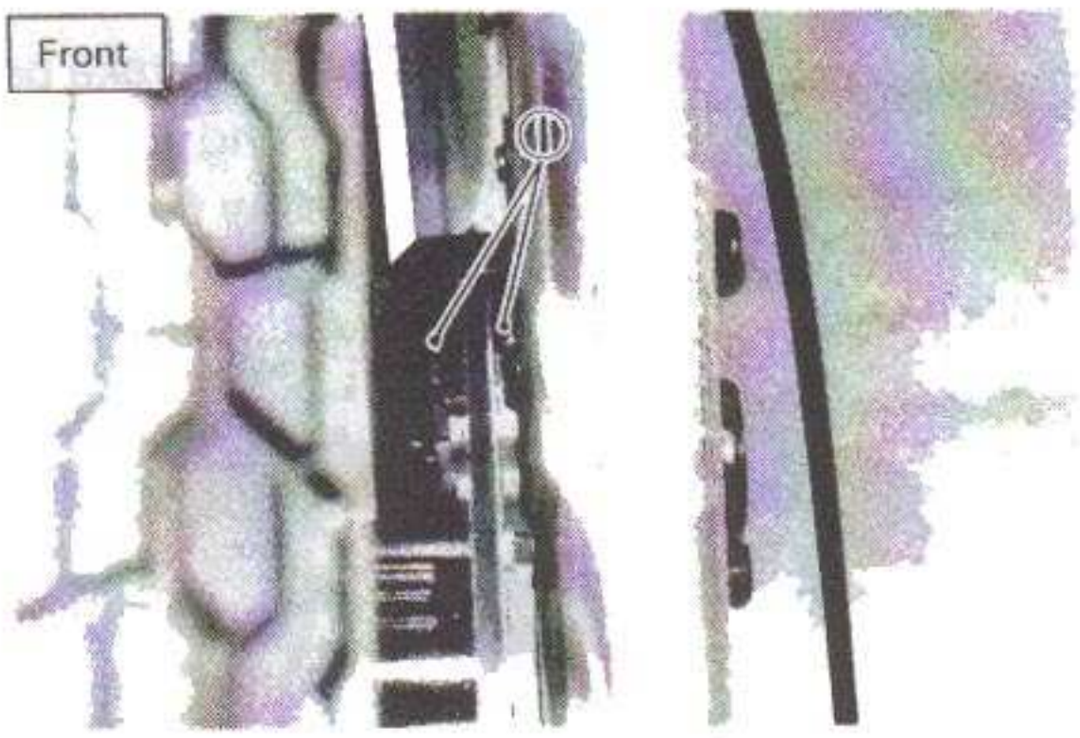
Brake Light Switch Adjustment

The brake light switch is operated by movement of the brake pedal. To adjust, hold the switch body so it does not rotate and turn the adjuster. Proper adjustment is achieved when the brake light illuminates slightly before the brake starts to take effect.



1. Main body
2. Adjusting nut

Checking the Disc Pads





1. Wear indicator

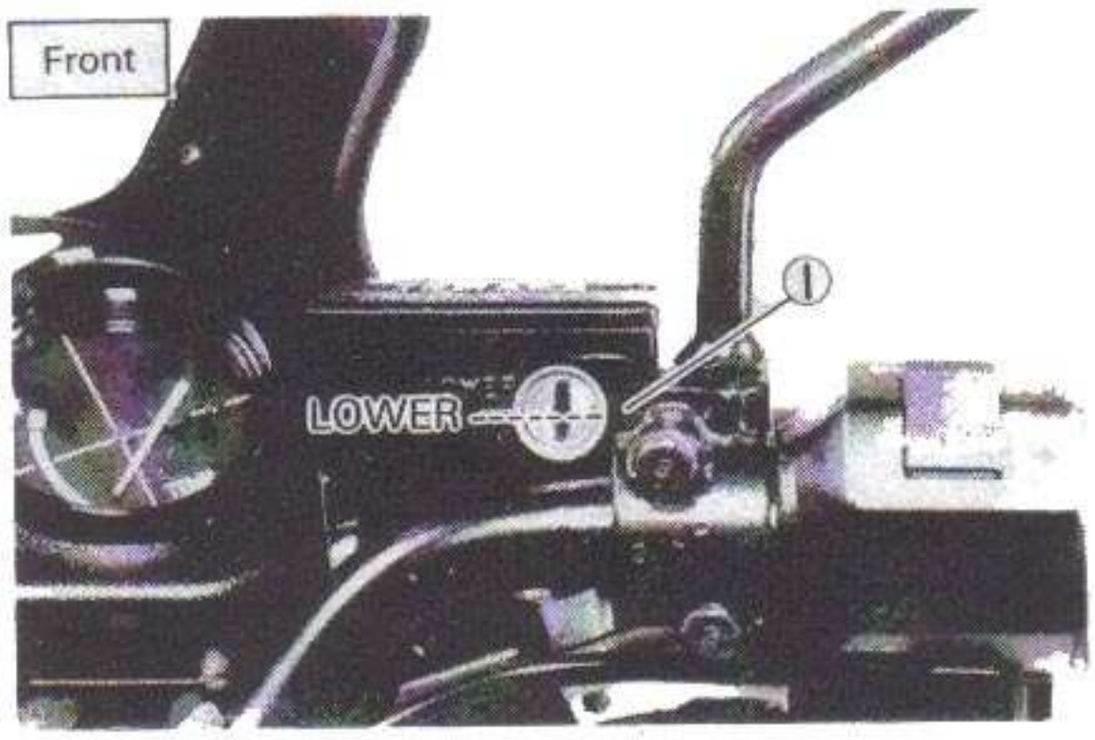
Checking the Brake Fluid Level

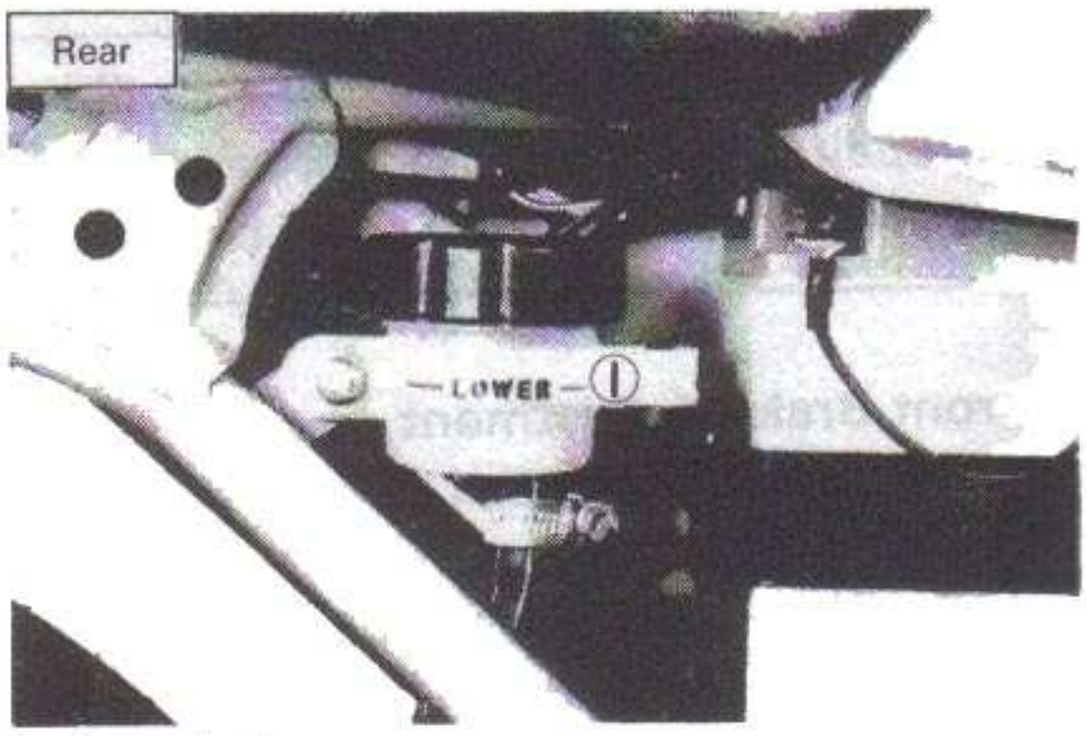
Insufficient brake fluid may allow air to enter the brake system, possibly causing the brake to become ineffective. Check the brake fluid level and replenish when necessary and observe these precautions.

1. Use only the designated quality brake fluid; otherwise, the rubber seals may deteriorate, causing leakage and poor brake performance.

Recommended brake fluids:
DOT #3

2. Refill with the same type and brand of brake fluid; mixing fluids may result in a harmful chemical reaction and lead to poor performance.





1. Lower level

3. Be careful that water or other contamination does not enter the master cylinder when refilling. Water will significantly lower the boiling point and may result in vapor lock.

4. Brake fluid may erode painted surfaces or plastaic parts. Always clean up spilled fluid immediately.

Tires

To ensure maximum performance, long service, and safe operation, note the following:

1. Tire air pressure
   Always check and adjust the tire pressures before operating the motorcycle.

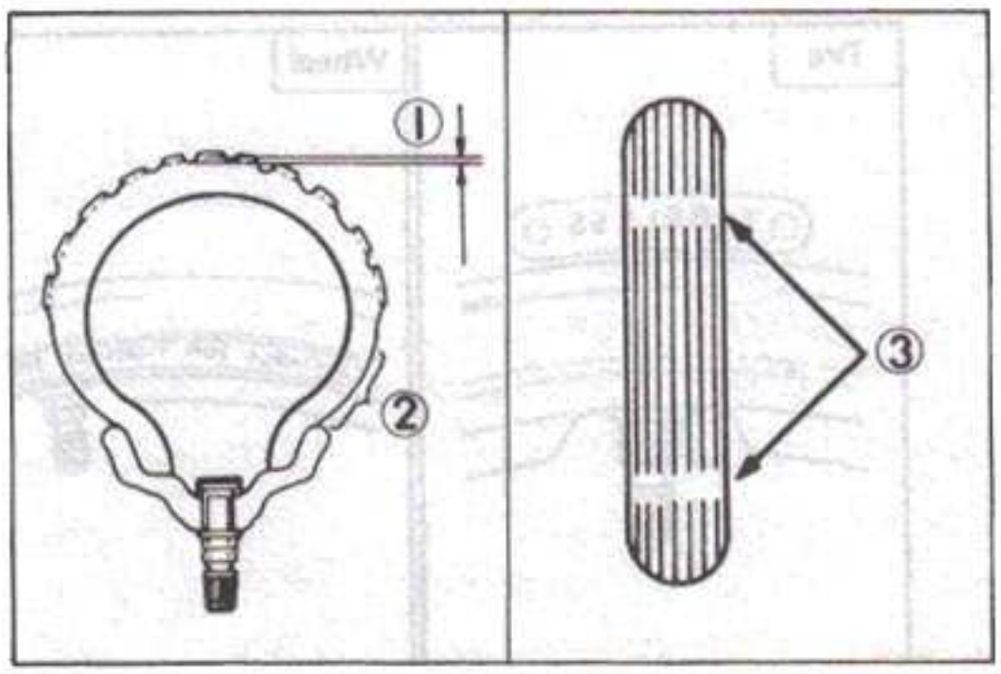
WARNING:

Tire inflation pressure should be checked and adjusted when the temperature of the tire equals the ambient air temperature. Tire inflation pressure must be adjusted according to total weight of cargo, rider, passenger, and accessories (fairing, saddlebags, etc. if approved for this model), and vehicle speed.

Basic weight: With oil and full fuel tank	168 kg (370 lb)	
Maximum load*	207 kg (456 lb)	
Cold tire pressure	Front	Rear
Up to 90 kg (198 lb) load*	177 kPa (1.8 kg/cm², 26 psi)	196 kPa (2.0 kg/cm², 28 psi)
90 kg (198 lb) ~ Maximum load*	226 kPa (2.3 kg/cm², 32 psi)	275 kPa (2.8 kg/cm², 40 psi)
High speed riding	196 kPa (2.0 kg/cm², 28 psi)	226 kPa (2.3 kg/cm², 32 psi)

* Load is the total weight of cargo, rider, passenger, and accessories.

2. Tire inspection
   Always check the tires before operating the motorcycle. If a tire tread shows crosswise lines (minimum tread depth), if the tire has a nail or glass fragments in it, or if the side wall is cracked, replace the tire.





1. Tread depth 2. Side wall 3. Wear indicator

Tubeless Tires and Cast Wheels

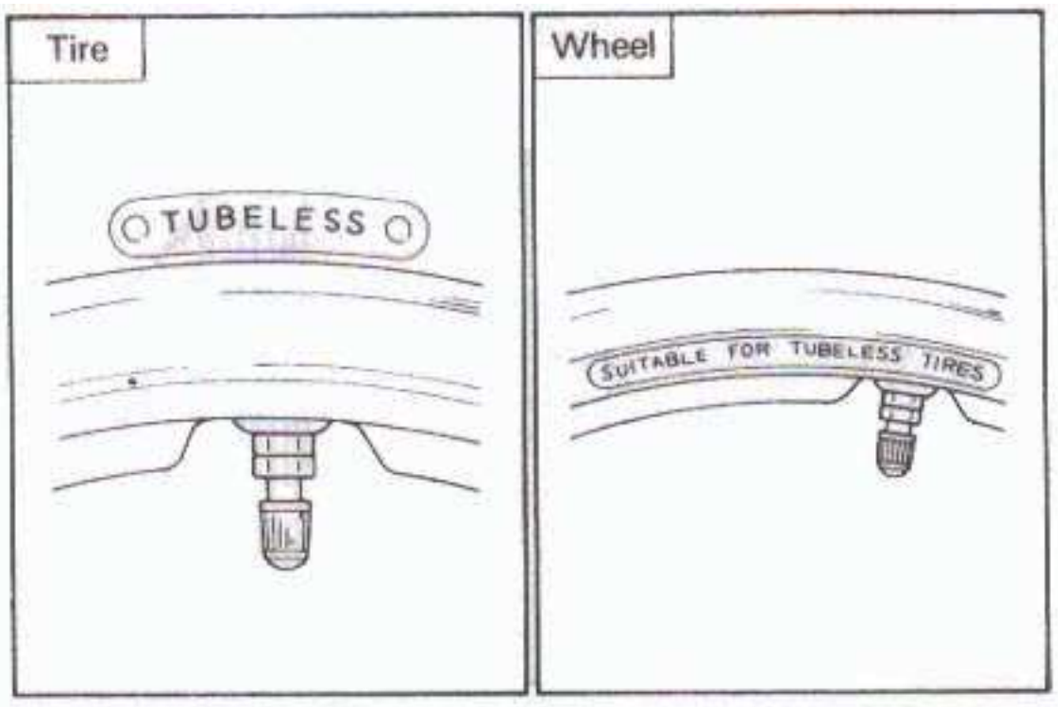
This motorcycle is equipped with cast wheels designed for either tube or tubeless tires. Tubeless tires are installed as standard equipments.

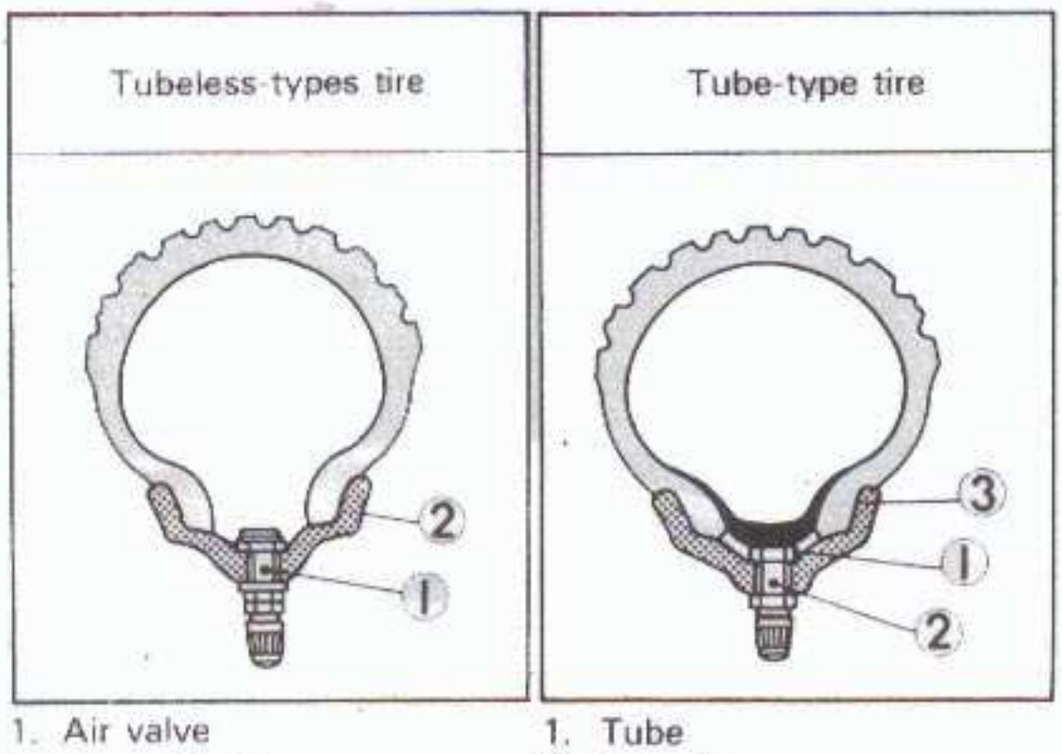
WARNING:

Do not attempt to use tubeless tires on a wheel designed for use only with tube-type tires. Tire failure and personal injury may result from sudden deflation.

Tube-type Wheel
→ Tube-type tires only
Tubeless-type Wheel
→ Tube-type or tubeless tires

	Standard tire
Front tire size	90/90-18 51H
Rear tire size	110/80-18 58H
Minimum tire tread depth (front and rear)	1.0 mm (0.04 in)





1. Air valve
2. Cast wheel (Tubeless wheel)

1. Tube
2. Air valve
3. Cast wheel

WARNING:

When using tube-type tires, be sure to install the proper tube also.

To ensure maximum performance, long service, and safe operation, note the following:

1. Always inspect the wheels before a ride. Place the motorcycle on its centerstand and check for cracks, bends, or warpage of the wheels. Do not attempt even small repairs to the wheel. If a wheel is deformed or cracked, it must be replaced.
2. Tires and wheels should be balanced whenever either one is changed or replaced. Failure to have a wheel balanced can result in poor performance, adverse handling characteristics, and shortened tire life.
3. After installing a tire, ride conservatively to allow the tire to seat itself on the rim properly. Failure to allow proper seating may cause tire failure resulting in damage to the motorcycle and injury to the rider.
4. After repairing or replacing a tire, check to be sure the valve stem locknut is securely fastened. If not, torque it as specified.

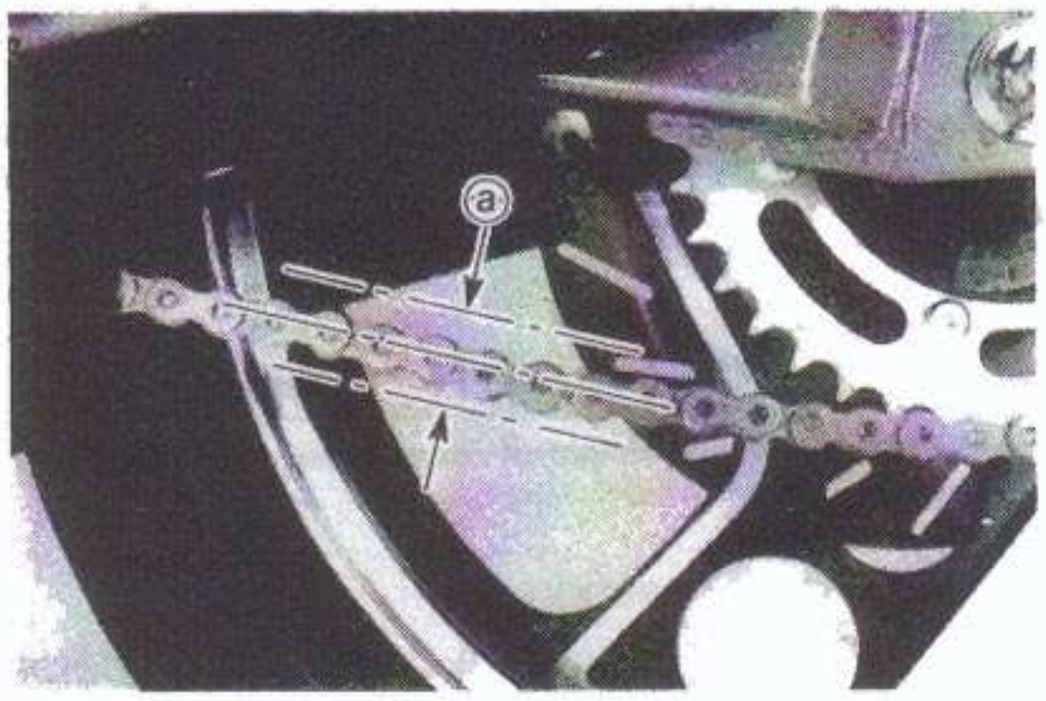
TIGHTENING TORQUE:
1.5 Nm (0.15 m·kg, 1.1 ft·lb)

Drive Chain Tension Check

NOTE:

Before checking and/or adjusting, rotate rear wheel through several revolutions and check drive chain slack several times to find the tightest point. Adjust drive chain slack with rear wheel in this "tight chain" position.

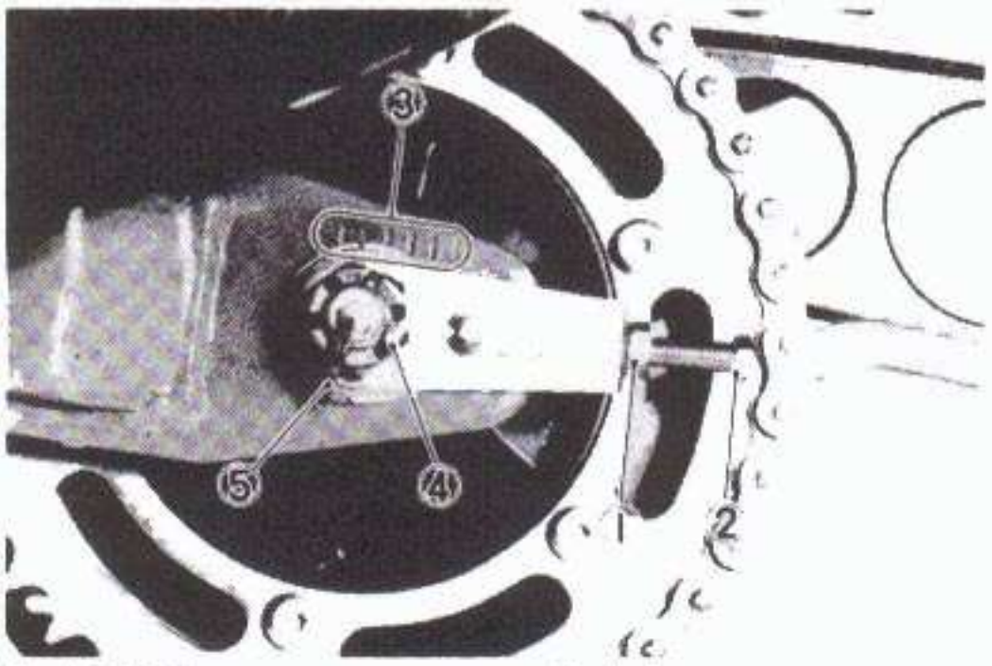
Inspect the drive chain with the centerstand put up. Check the drive chain slack at the position as shown. The normal vertical deflection is approximately 30~40 mm (1.2~1.6 in). If the deflection exceeds 40 mm (1.6 in) adjust the chain slack.



a. 30~40 mm (1.2~1.6 in)

Drive Chain Tension Adjustment

1. Loosen the rear brake adjuster.
2. Remove the cotter pin of the rear wheel axle nut with pliers.

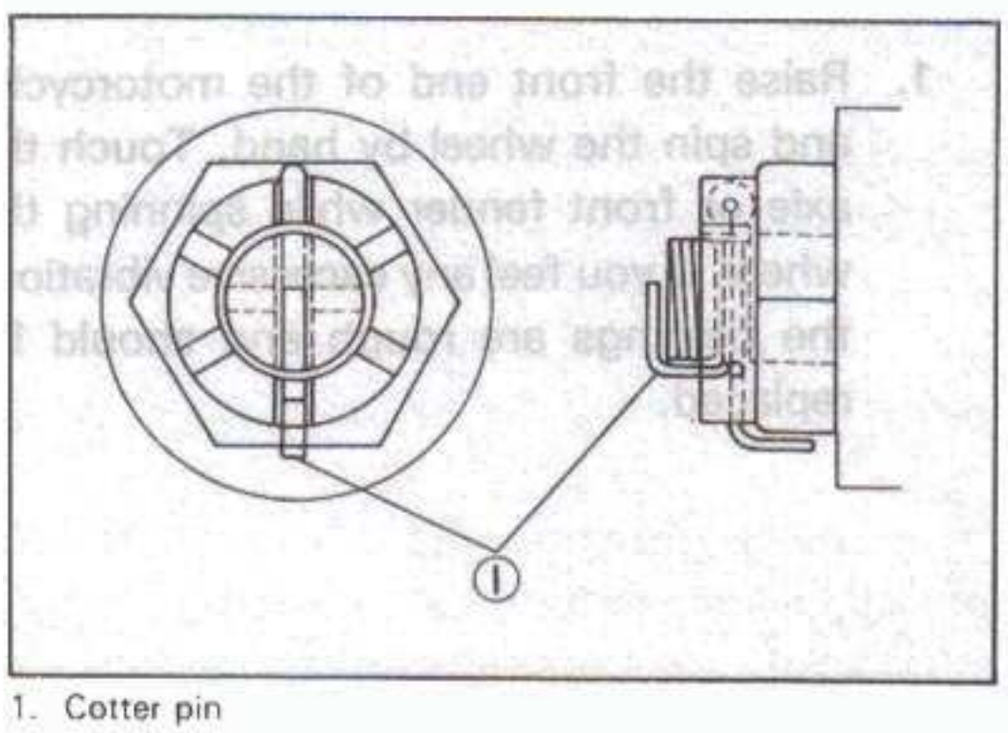


1. Locknut
2. Adjusting bolt
3. Marks for alignment
4. Axle nut
5. Cotter pin

3. Loosen the rear wheel axle nut.
4. Loosen the locknuts on each side. To tighten chain, turn the chain puller adjuster clockwise. To loosen chain, turn the adjuster counterclockwise and push wheel forward. Turn each bolt exactly the same amount to maintain correct axle alignemt.
   (There are marks on each side of the rear arm and on each chain puller; use them to check for proper alignment.)
5. After adjusting, be sure to tighten the locknuts, rear wheel axle nut.

Rear axle securing nut torque:
105 Nm (10.5 m·kg, 75 ft·lb)

6. Insert a new cotter pin into the rear wheel axle nut and bend the end of the cotter pin as shown in the illustration (if the nut notch and the cotter pin hole do not match, loosen the nut slightly to match).



1. Cotter pin

7. In the final step, adjust the play in the brake pedal.

CAUTION:

Excessive chain slack will overload the engine and other vital parts; keep the tension within the specified limits. Also, replace the rear axle cotter pin with a new one.

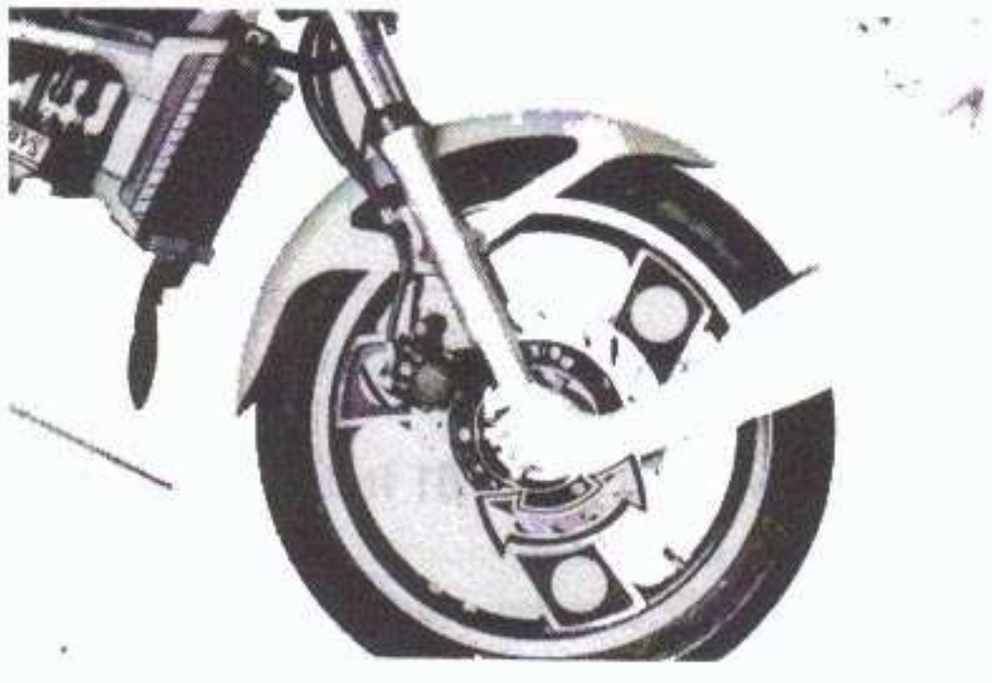
Drive Chain Lubrication

The chain consists of many parts which work against each other. If the chain is not maintained properly, it will wear out rapidly, therefore, especially necessary when riding in dusty conditions.
This motorcycle has a drive chain with small rubber O-rings between the chain plates. Steam cleaning, high-pressure washes, and certain solvent can damage these O-rings. Use only kerosene to clean the drive chain. Wipe it dry, and thoroughly lubricate it with SAE 30~50W motor oil. Do not use any other lubricatns on the drive chain. They may contain solvents that could damage the O-rings.

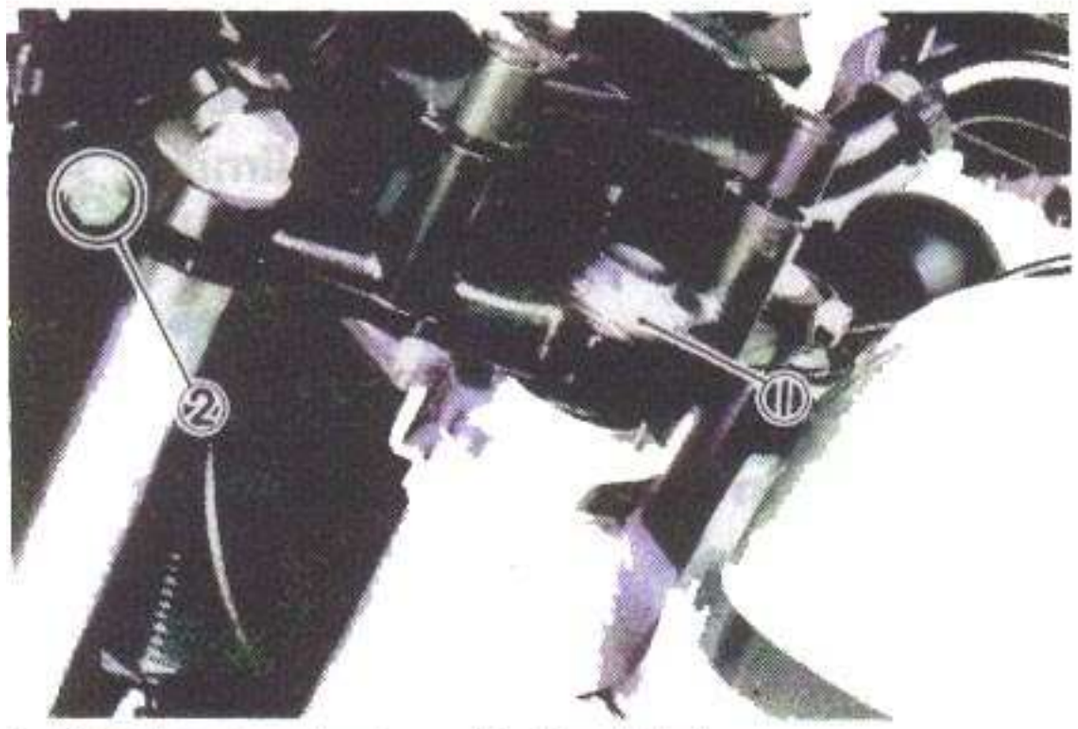
Steering Head Adjustment

The steering assembly should be checked periodically for looseness.

1. Place motorcycle on the centerstand and grasp bottom of forks.
   And raise front end of motorcycle so that there is no weight on front wheel.
2. Gently rock fork assembly backward and forward, checking for looseness in the steering assembly bearings.

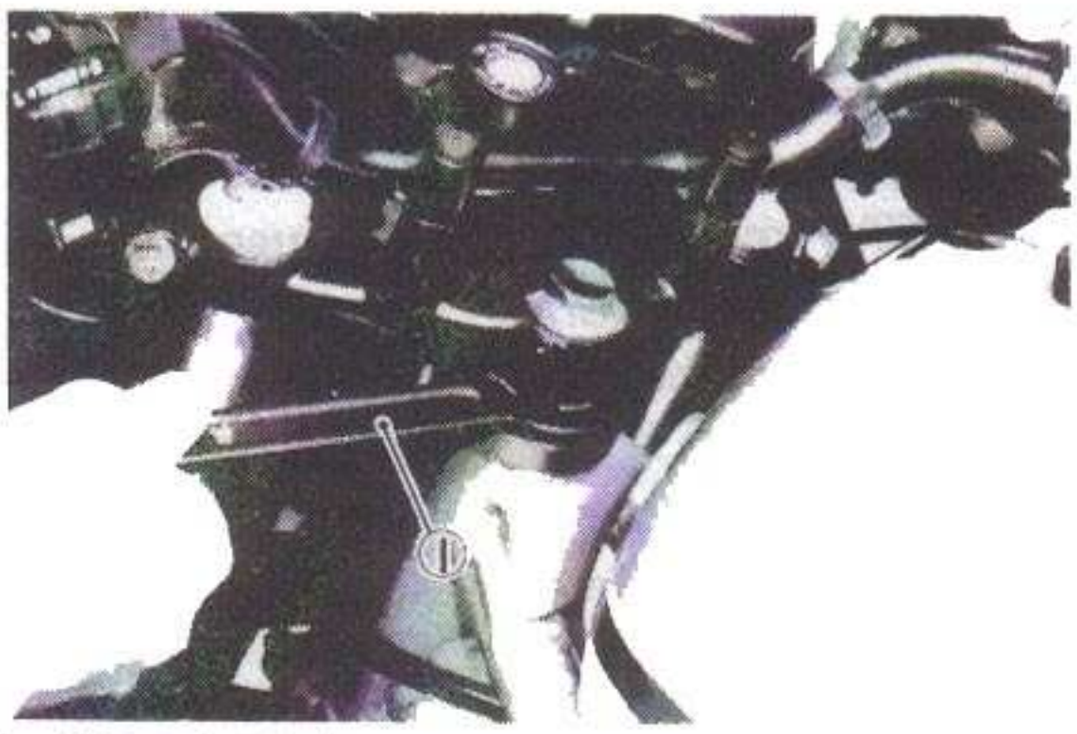


3. If steering head needs adjustment, loosen steering stem bolt and pinch bolts.



1. Steering stem bolt 2. Pinch bolt

4. Using ring nut wrench, tighten ring nut until steering head is tight without binding when forks are turned.



1. Ring nut wrench

NOTE:

Excessive tightening of this nut will cause rapid wear of ball bearings and races. Recheck for looseness and freedom of movement.

5. Tighten steering stem bolt and pinch bolts to specification.

TIGHTENING TORQUE:
Steering stem bolt:
85 Nm (8.5 m·kg, 61 ft·lb)
Pinch bolt:
20 Nm (2.0 m·kg, 14 ft·lb)

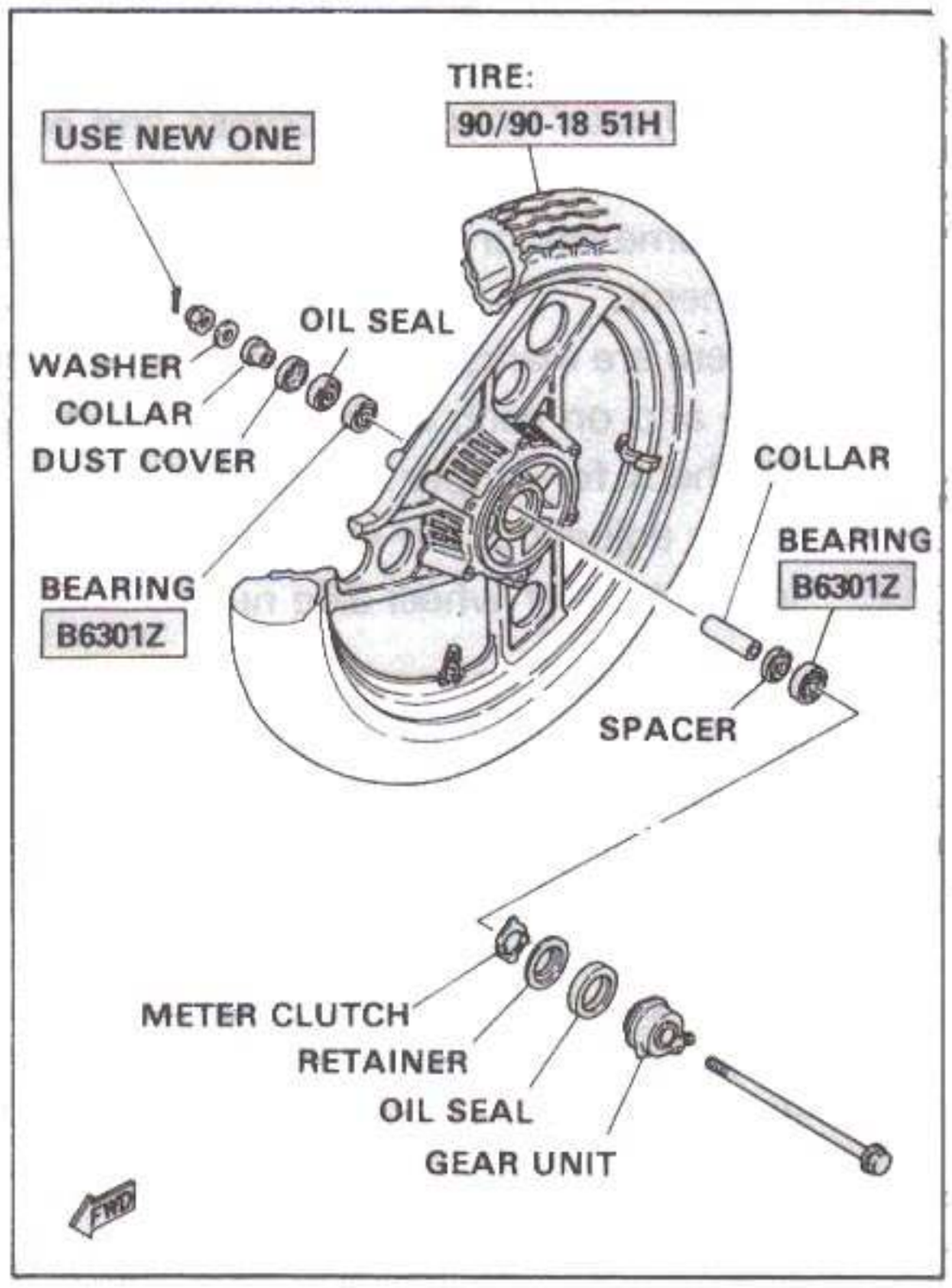
NOTE:

After completing steering adjustment, make certain forks pivot from stop to stop without binding. If binding is noticed, repeat adjustment.

Wheel Bearings

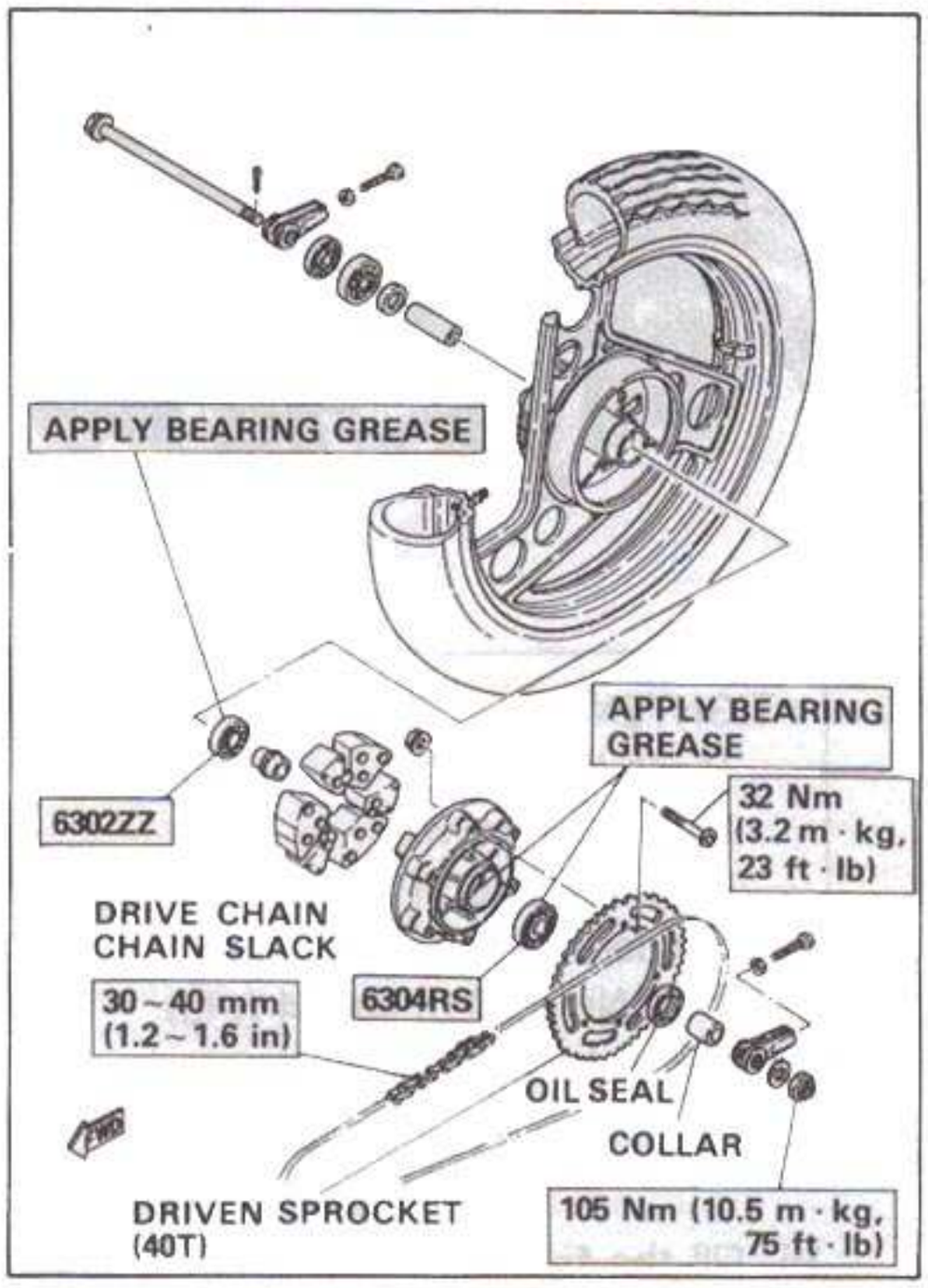
If a rolling rumble is noticed and increases with increasing wheel speed (not engine or transmission speed), the wheel bearings may be worn. Check the wheel bearings for both the front and rear wheels.

Front Wheel



1. Raise the front end of the motorcycle, and spin the wheel by hand. Touch the axle or front fender while spinning the wheel. If you feel any excessive vibration, the bearings are rough and should be replaced.

Rear Wheel



Remove the rear wheel, and check the bearing movement with your finger. Replace the bearings if they are rough or worn.

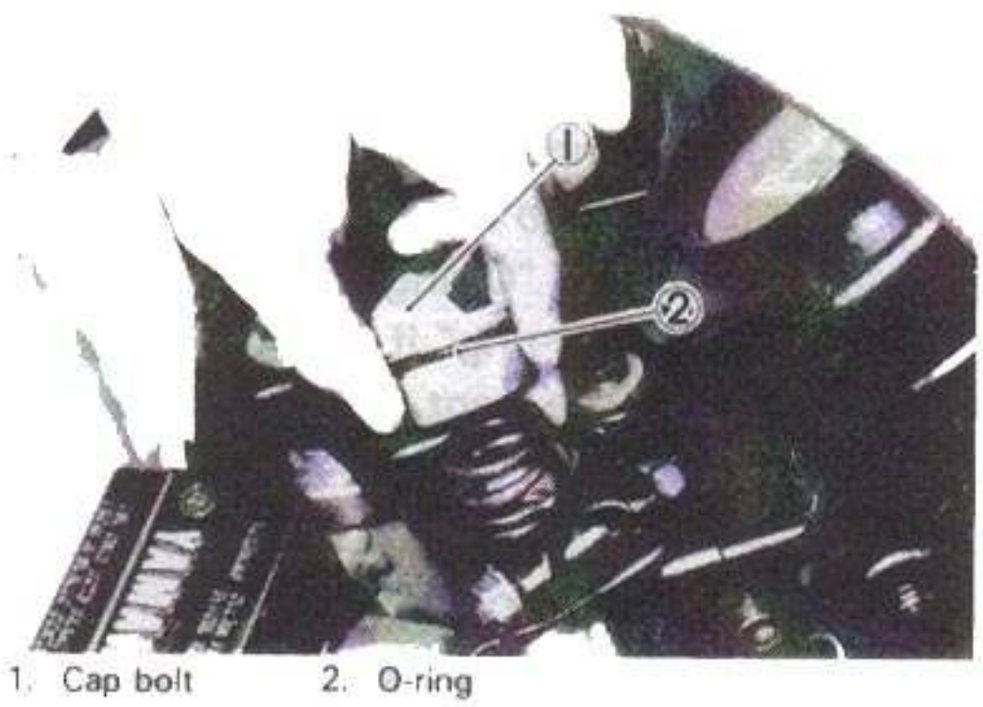
Front Fork Oil Change

WARNING:

1. Fork oil leakage can cause loss of stability and safe handling. Have any problem corrected before operating the motorcycle.
2. Securely support the motorcycle so there is no danger of it falling over.

1. Raise the motorcycle or remove the front wheel so that there is no weight on the front end of the motorcycle.
2. Remove the handlebars.
3. Remove the air valve caps from each fork.
4. Keep the valve open by pressing it for several seconds so that the air can be let out of the inner tube.
5. Loosen the pinch bolts and remove the cap bolt from each inner tube.


1. Pinch bolt


1. Cap bolt 2. O-ring

6. Place an open container under each drain hole. Remove the drain bolt from each outer tube.


1. Drain bolt

WARNING:

Do not allow oil to contact the disc brake components. If any oil should contact the brake components it must be removed before the motorcycle is operated. Oil will cause diminished braking capacity and will damage the rubber componets of the brake assembly.

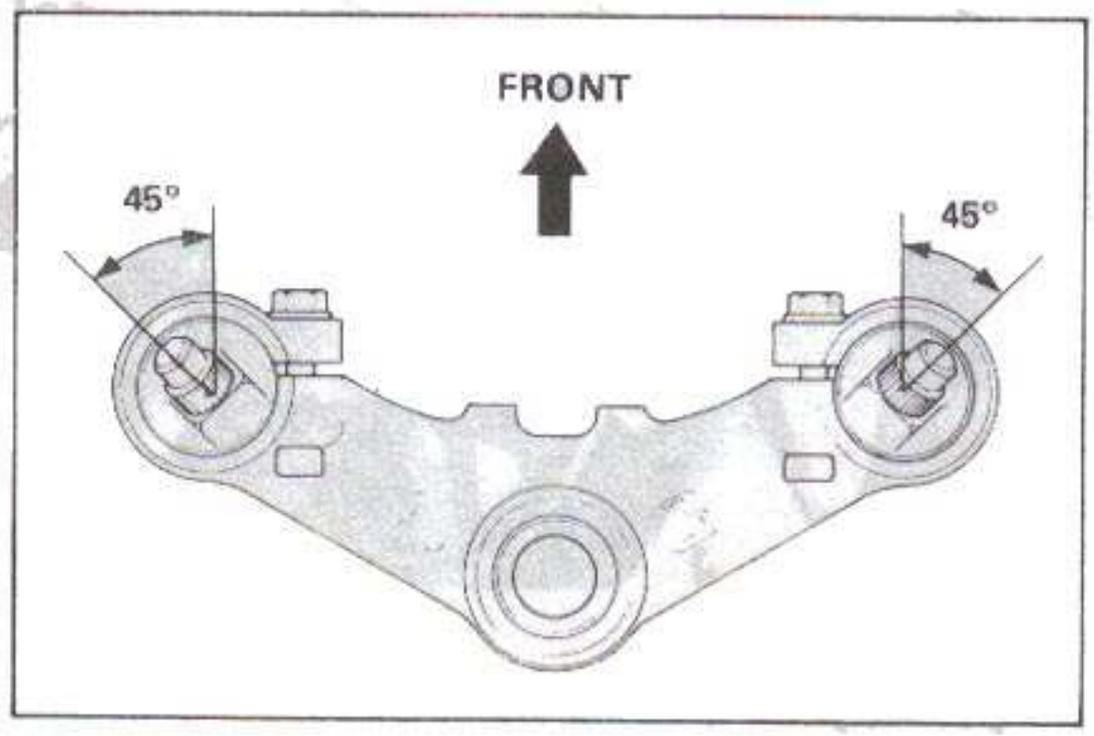
7. When most of the oil has drained, slowly raise and lower the outer tubes to pump out the remaining oil.
8. Inspect the drain bolt gasket. Replace if damaged. Reinstall the drain bolt.
9. Pour the specified amount of oil into the fork inner tube.

Front fork oil (each fork):
253 cm^3 (8.91 Imp oz, 8.55 US oz)
Yamaha Fork Oil 10wt or equivalent

10. After filling, slowly pump the forks up and down to distribute the oil.
11. Inspect the "O-ring" on the cap bolt. Replace "O-ring" if damaged.
12. Tighten the front fork cap bolts.

TIGHTENING TORQUE:
23 Nm (2.3 m·kg, 17 ft·lb)

13. If the air valve does not face towards the front, loosen the pinch bolts on the under bracket and reset the forks in the following procedure:



a. Level the top of the inner fork tube with the top of the steering crown.
b. Face the air valve towards the front as shown above.

14. Tighten the pinch bolts and install the handlebars. Torque the bolts to specification.



TIGHTENING TORQUE:
Pinch bolt:
(Steering crown)
20 Nm (2.0 m·kg, 14 ft·lb)
(Under bracket)
20 Nm (2.0 m·kg, 14 ft·lb)
Handlebar holder:
20 Nm (2.0 m·kg, 14 ft·lb)

15. Fill the fork with air using a manual air pump or other pressurized air supply. Refer to "Recommended Combinations" on page 2-21 for proper air pressure adjusting.

Maximum air pressure:
118 kPa (1.2 kg/cm^2, 17.1 psi)
Do not exceed this amount.

Front Fork Adjustment

1. Elevate the front wheel by placing the motorcycle on the centerstand.

NOTE:

When checking and adjusting the air pressure, there should be no weight on the front end of the motorcycle.

2. Remove the air valve caps from each fork.
3. Using the air gauge, check and adjust the air pressure.
   If the air pressure is increased, the suspension becomes stiffer and if decreased, if becomes softer.



1. Air check gauge

To increase:
Use a manual air pump or other pressurized air supply.
To decrease:
Release the air by pushing the valve pin.

Standard air pressure:
39.2 kPa (0.4 kg/cm^2, 5.7 psi)
Maximum air pressure:
118 kPa (1.2 kg/cm^2, 17.1 psi)
Minimum air pressure: Zero

CAUTION:

Never exceed the maximum pressure, or oil seal damage may occur.

WARNING:

The difference between both the left and right tubes should be 9.81 kPa (0.1 kg/cm^2, 1.4 psi) or less.

4. Install the air valve caps securely.

Rear Shock Absorber Adjustment

The spring pre-load of the rear shock absorber can be adjusted to suit rider preference, weight and the course conditions.
When springing feels excessive and too hard:

- Decrease the spring pre-load for softer ride.

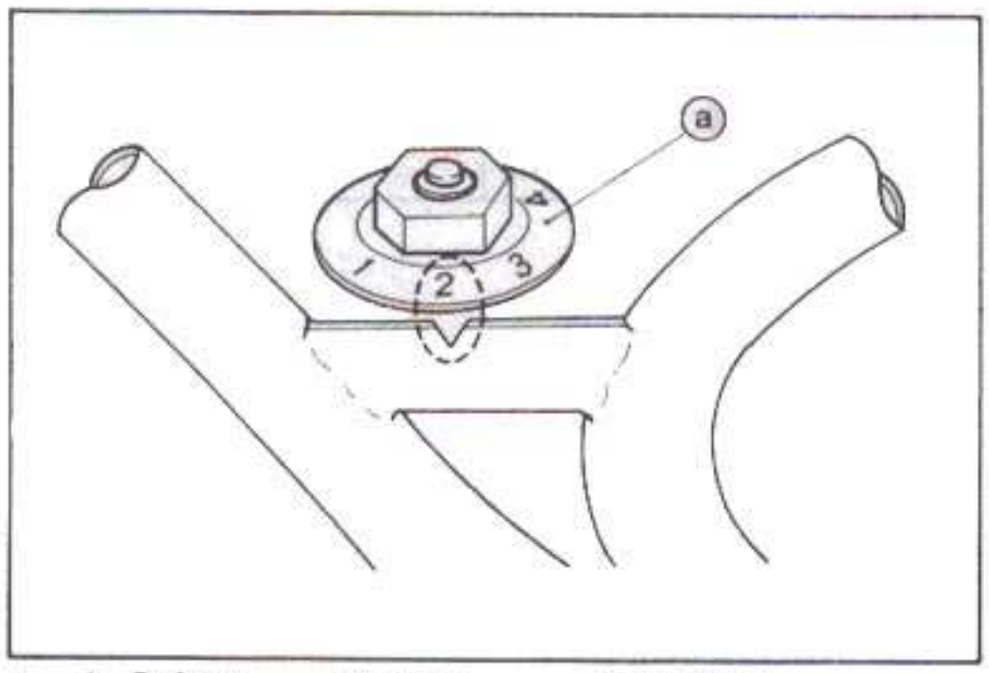
When bottoming feels exceesive and too soft:

- Increase the spring pre-load.
  1. Remove the right side cover.
  2. To increase pre-load, turn adjuster clockwise. To decrease pre-load, turn adjuster counterclockwise.

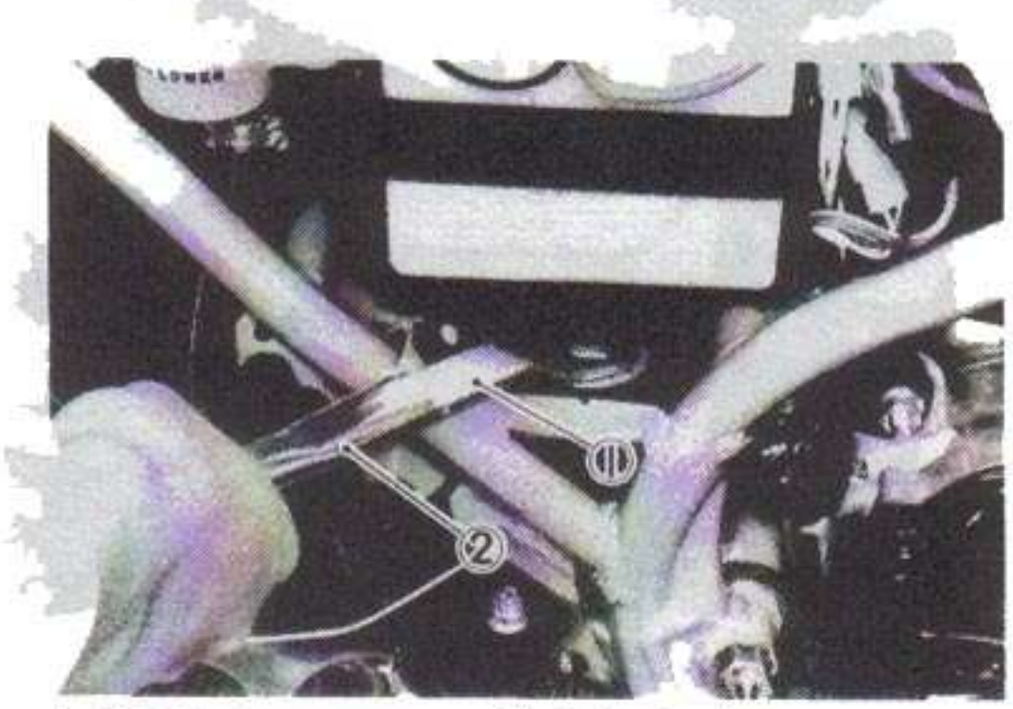
	Hard			STD	Soft
Adjusting Position	5	4	3	2	1

NOTE:

When adjusting, use the special ring spanner and extention bar which are included in the owner's tool kit.



a 1: Softest 2: STD 5: Hardest



1. Special ring spanner 2. Extension bar

3. Install the right side cover.

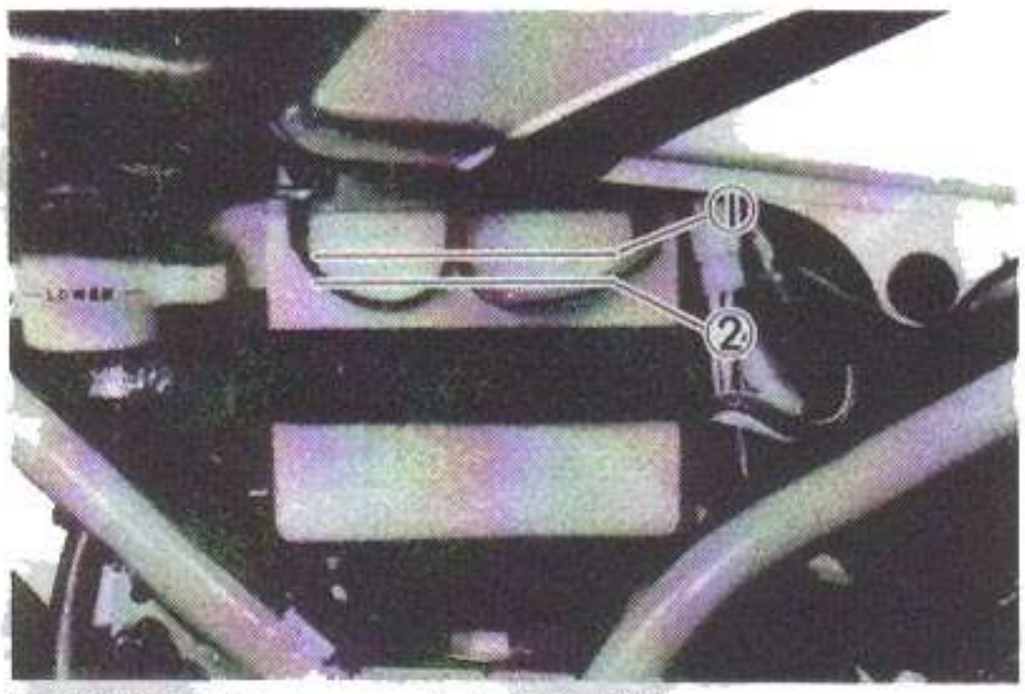
Recommended Combination (Front Fork and Rear Shock Absorber)
Recommended combinations of the front fork and the rear shock absorber. Use this table as a guide to nut specific riding conditions and machine load.

	Front fork	Rear shock absorber	Loading condition			
	Air pressure	Spring seat	Solo rider	With accessory equipment	With passenger	With accessory equipment and passenger
1.	39.2 kPa (0.4 kg/cm², 5.7 psi)	1 or 2	○			
2.	58.8 kPa (0.6 kg/cm², 8.5 psi)	3		○		
3.	78.5 kPa (0.8 kg/cm², 11.4 psi)	4			○	
4.	98.1 kPa (1.0 kg/cm², 14.2 psi)	5				○

ELECTRICAL

Battery

1. The fluid level should be between the upper and lower level marks. Use only distilled water if refilling is necessary.

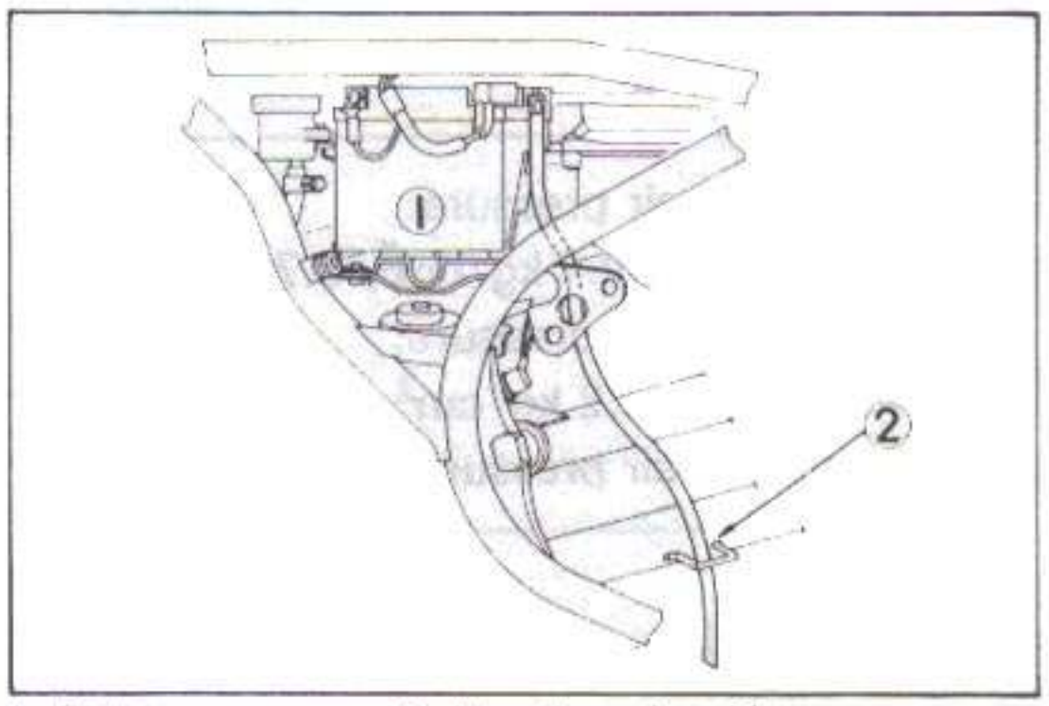


1. Upper level 2. Lower level

CAUTION:

Normal tap water contains minerals which are harmful to a battery; therefore, refill only with distilled water.

2. Always make sure the connections are correct when installing the battery. Make sure the breather pipe is properly connected, properly routed, and is not damaged or obstructed.



1. Battery 2. Pass through guide

CAUTION:

The battery must be charged before using to ensure maximum performance. Failure to charge the battery properly before first use or a low electrolyte level will cause premature failure of the battery. Charging current: 0.55 amps/10 hrs. or until the specific gravity reaches 1,260 at 20°C (68°F)

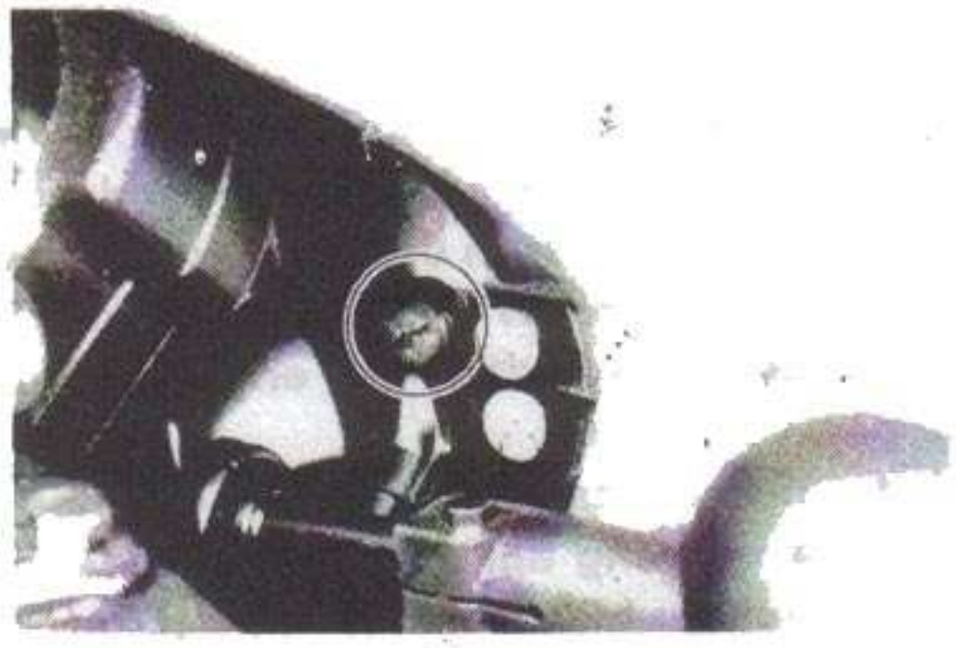
WARNING:

Battery electrolyte is poisonous and dangerous, causing severe burns, etc. It contains sulfuric acid. Avoid contact with skin, eyes, or clothing.
Antidote: EXTERNAL - Flush with water. INTERNAL - Drink large quantities of water or milk. Follow with milk of magnesia, beaten egg, or vegetable oil. Call physician immediately.
Eyes: Flush with water for 15 minutes and get prompt medical attention. Batteries produce explosive gases. Keep sparks, flame, cigarettes, etc. away. Ventilate when charging or using in closed space. Always shield eyes when working near batteries.
KEEP OUT OF REACH OF CHILDREN

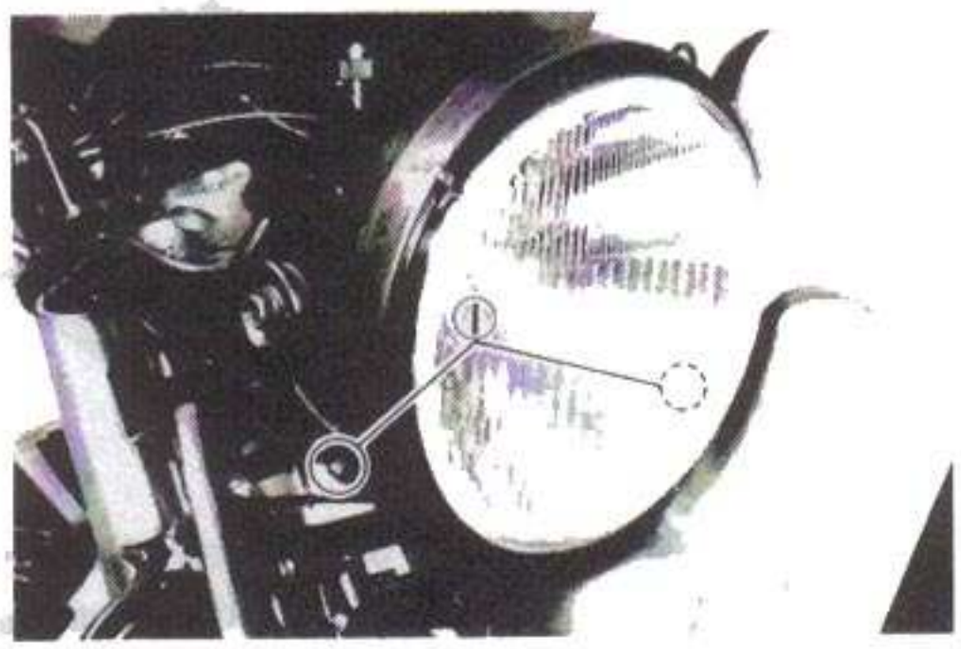
Headlight

Headlight Bulb Replacement

1. Remove the cowling and headlight rim cover.

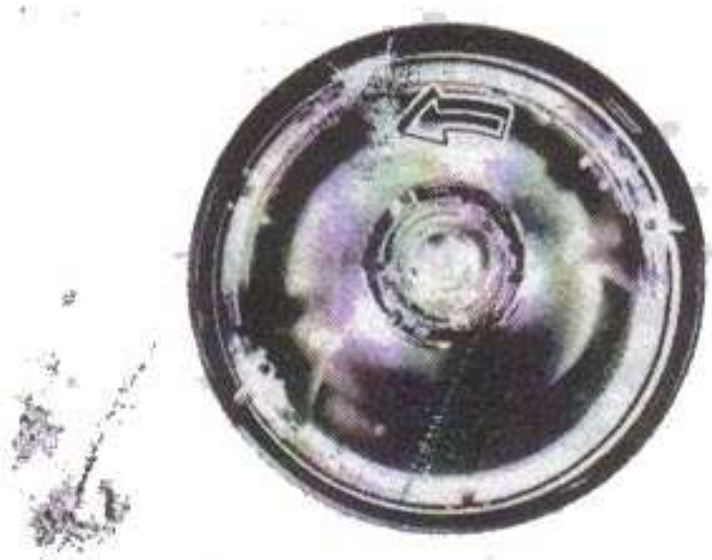


2. Remove the 2 screws holding the light unit assembly to the headlight body.



1. Holding screw

3. Disconnect the lead wires, and remove the light unit assembly.
4. Turn the bulb holder counterclockwise and remove the defective bulb.



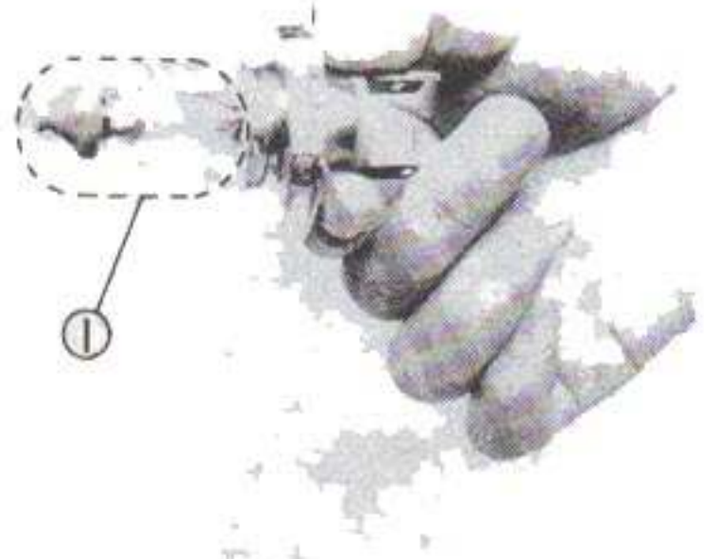
WARNING:

Keep flammable products or your hands away from the bulb while it is on, it will be hot. Do not touch the bulb untl it cools down.

5. Slip a new bulb into position and secure it in place with the bulb holder.

CAUTION:

Avoid touching the glass part of the bulb. Keep it free from oil; otherwise, the transparency of the glass, life of the bulb, and illuminous flux will be adversely affected. If oil gets on the bulb, throughly clean it with a cloth moistened with alcohol or lacquer thinner.

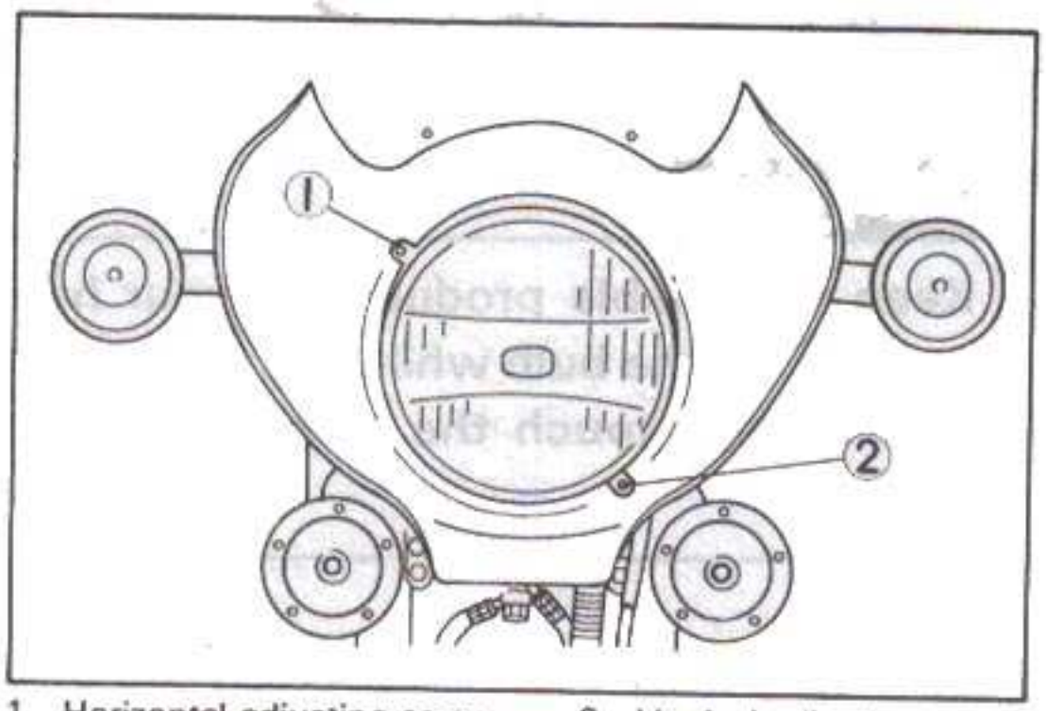


1. Don't touch

6. Reinstall the light unit assembly to the headlight body. Adjust the headlight beam if necessary.
7. Reinstall the headlight rim cover and cowling.

Headlight Beam Adjustment

1. Horizontal adjustment:
   To adjust the beam to the left, turn the adjusting screw clockwise.
   To adjust the beam to the right, turn the screw counterclockwise.
2. Vertical adjustment:
   To raise the beam, turn the adjusting screw clockwise.
   To lower the beam, turn the screw counterclockwise.

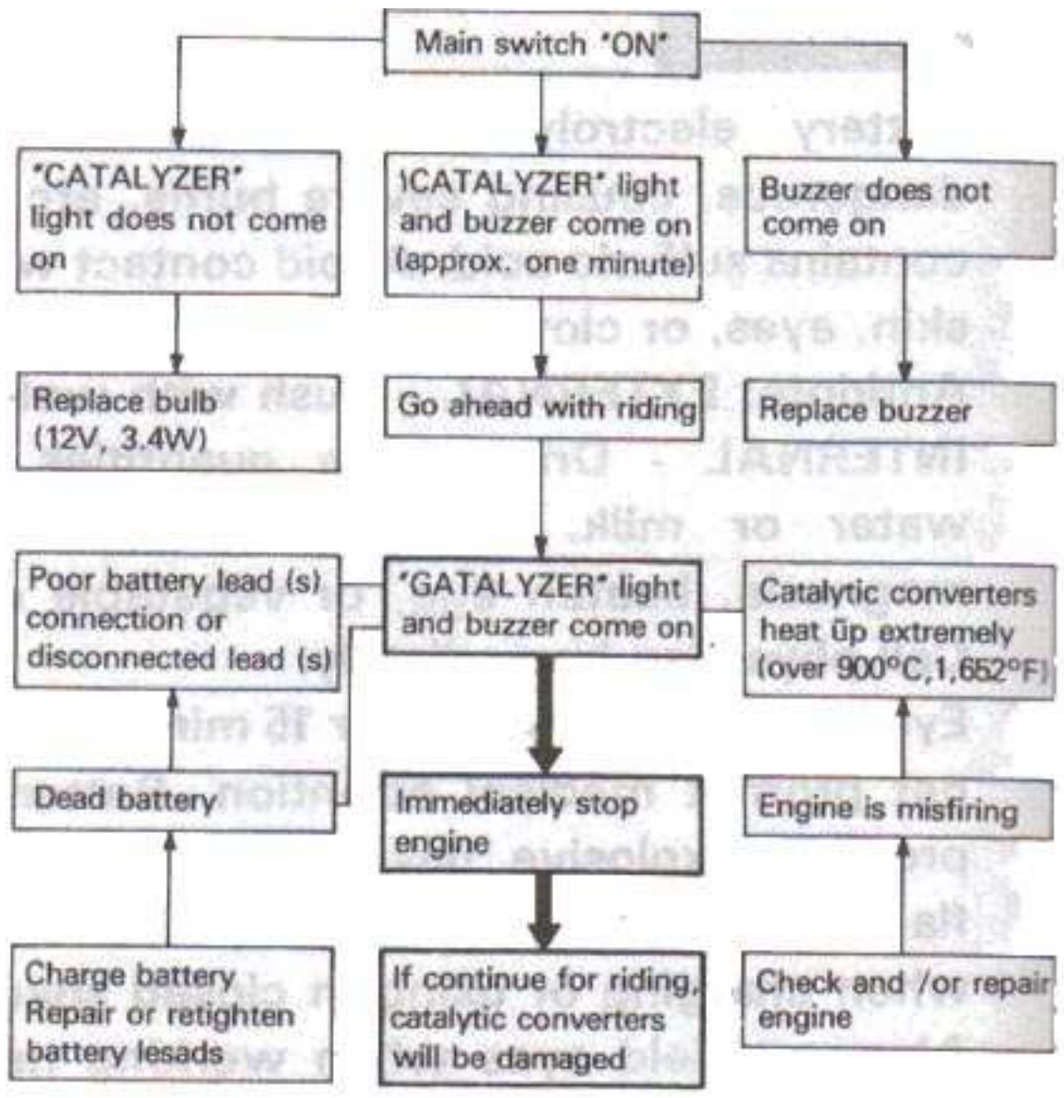


1. Horizontal adjusting screw 2. Vertical adjusting screw

Catalyzer (Catalytic Converter)

This motorcycle is equipped with catalytic converters in both mufflers.

The "CATALYZER" warning indicator light(red) and buzzer come on when the main switch turned "ON" (about one minute) or when the catalytic converter heats up extremely (about 900°C, 1,652°F). This light and buzzer circuit can be checked by the following procedure.



WARNING:

The temperature of the mufflers during and directly after engine operation is extremely high.

- **Never park this motorcycle in an area where a fire hazard such as grass or rags may exist.**
- **Make sure the mufflers have cooled down before adjusting or lubricating the drive chain or checking the tires.**
- **Do not allow the engine to idle for very long after the engine is fully warmed up.**
- **If the catalytic converter overheats, a warning light will come on and a buzzer will sound. If this occurs, immediately stop the motorcycle in a safe area, shut off the engine, let it cool off, and then restart.**

Catalyzer (Catalytic Converter) Inspection

This catalytic converter can be checked by the following procedure.

Check the exhaust smoke by test riding

↓

Heavy smoke (white color) comes out

↓

Remove the muffler(s)

↓

Shake the muffler(s) and check for an abnormal noise in the muffler(s)

↓

*Check and repair the engine misfiring

↓

Install the New muffler(s).

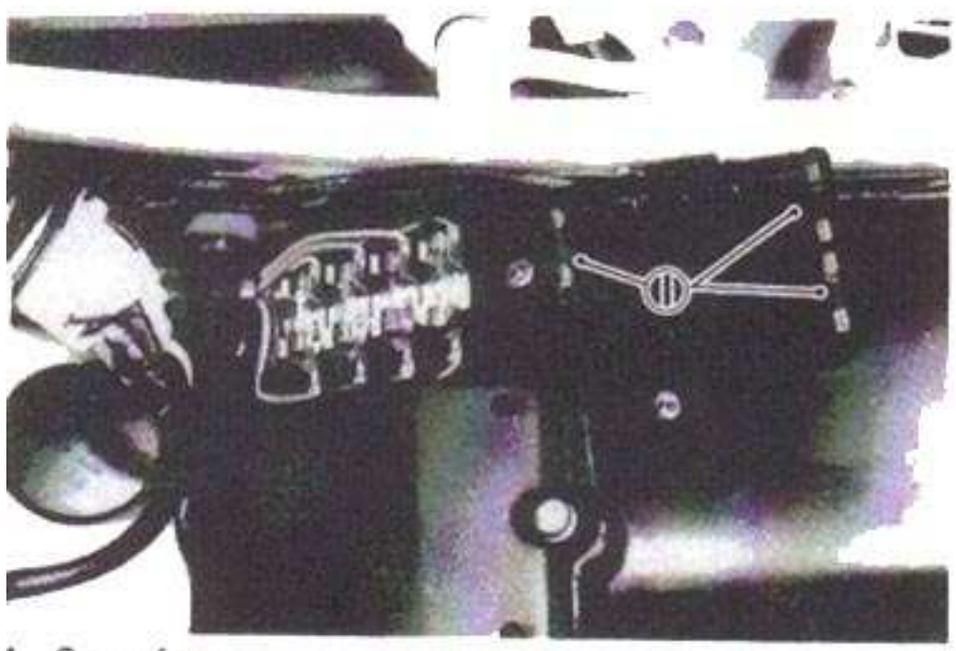
*If, for instance, the left-hand cylinder should be mulfunctioning, be sure to check both left-and right-hand mufflers.

WARNING:

Do not use fuses of a higher amperage rating than those recommended. Substitution on a fuse of improper rating can cause extensive electrical system damage and a possible fire.

Fuse

1. The fuse block is located under the seat.



1. Spare fuse

2. If any fuse is blown, turn off the ignition switch and the switch in the circuit in question; install a new fuse of proper amperage. Turn on the switches, and see if the electrical device operates. If the fuse immediately blows again, check the circuit in question (refer to Chapter 7, "ELECTRICAL").

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ENGINE OVERHAULING

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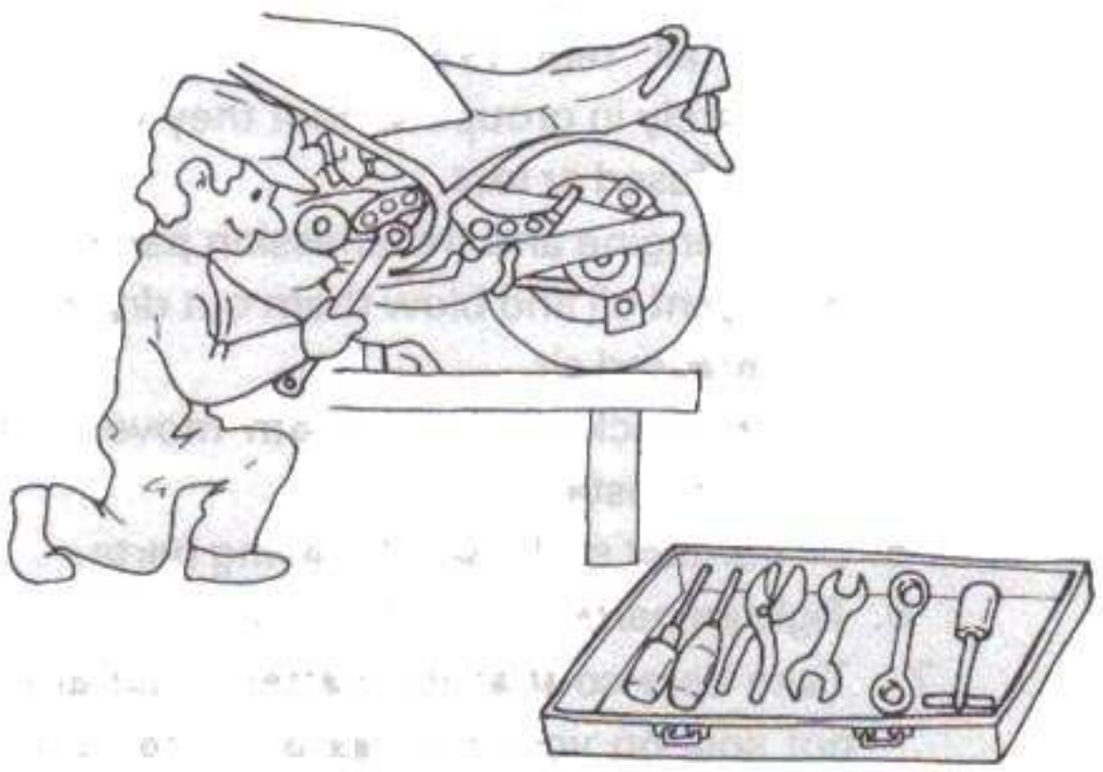
CHAPTER 3.
ENGINE OVERHAULING

NOTES ON MAINTENANCE

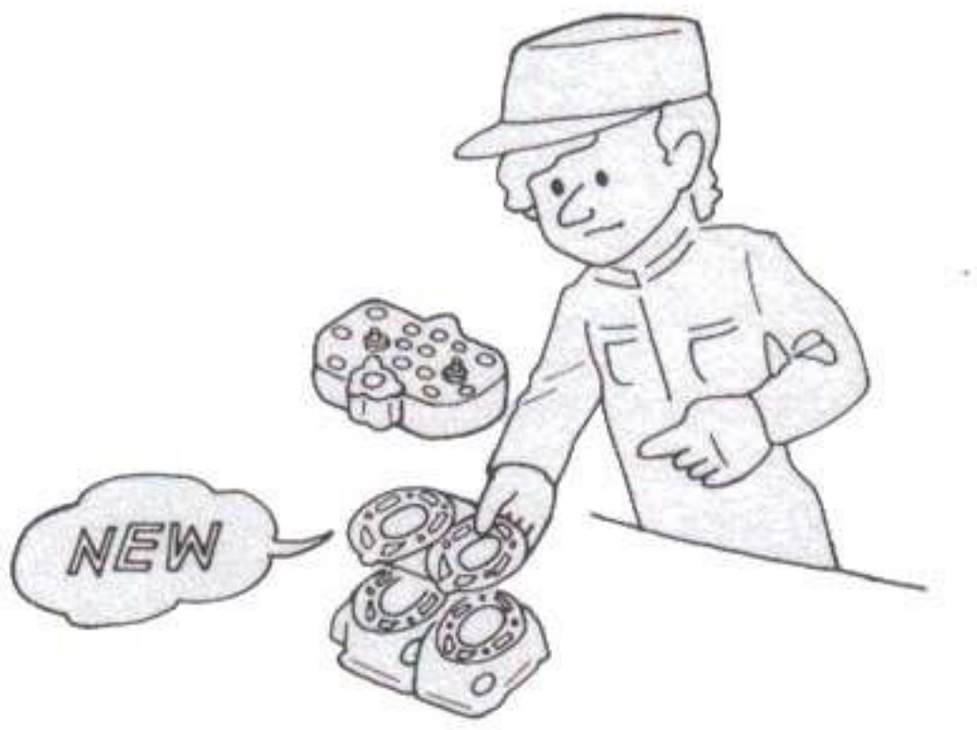
1. Thoroughly clean the frame and engine of dirt and dust in order to prevent them from entering the inside of the engine.
2. Keep off fire.



3. When special tools are required, be sure to use them so that damage to motorcycle parts can be avoided.
   Always use the right tools and instruments for the right purposes. (Avoid using an open-end wrench as much as possible, in place of a box or socket wrench.)



4. Always use a new gasket (packing), O-ring, cotter pin, circlip, lock washer, etc. for repairs.
   Also use genuine Yamaha parts, oil and grease, or those recommended by Yamaha. Avoid using other brands.



5. During service, take special care so that you don't get injured or burnt from the engine, exhaust pipe or muffler.



6. Notes on disassembly and reassembly
   a. Place all removed parts neatly and separately in groups so that they will not be confused or lost.
   b. Wash engine and transmission parts in a detergent oil and blow them out dry with compressed air.
   c. While checking the smooth movement of parts, install them.
   d. Oil contact surfaces of moving parts.
   e. Tighten parts to specification.
7. Take care so that the battery fluid does not spill on your clothes or motorcycle.





ENGINE REMOVAL

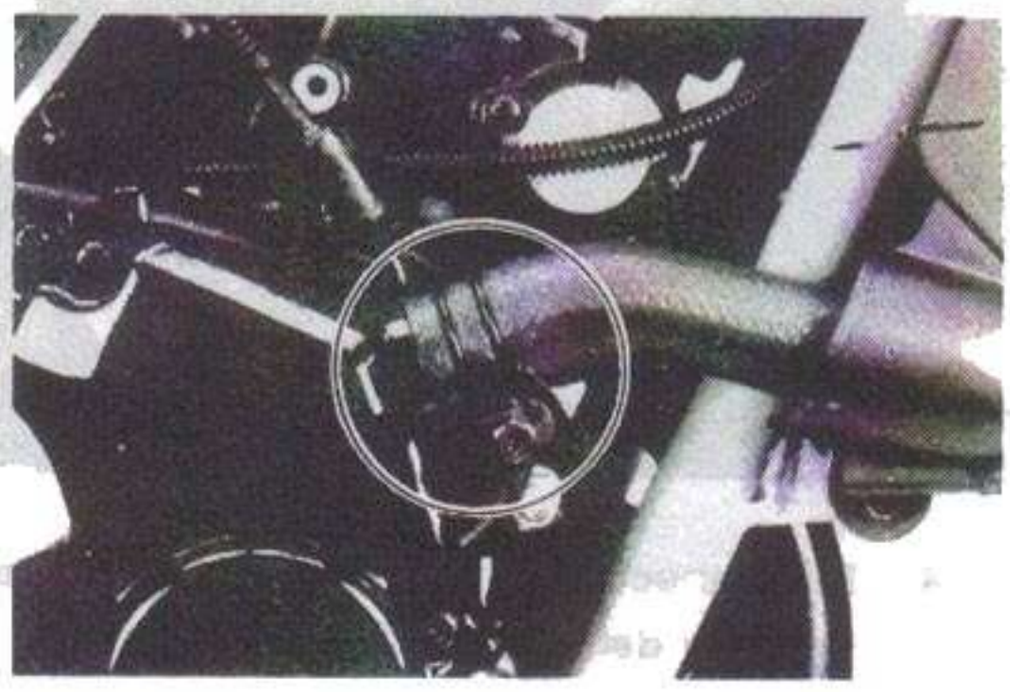
NOTE:

It is not necessary to remove the engine in order to remove the cylinder head, cylinder, pistons, or clutch.

Preparation for Removal

1. Place the motorcycle on its center stand. Start the engine and allow it to warm up. Stop the engine and drain the transmission oil.
2. Remove the left and right side covers.
3. Drain off the coolant from the cooling system. (See cooling system section, paragraph "Coolant drain".)
   Disconnect the radiator hoses (1), (3), and bypass hose from the engine.





Fuel Tank

1. Turn the fuel cock to the "ON" position.
2. Disconnect the fuel and vacuum hoses.
3. Remove the bolt holding rear of fuel tank.
4. Lift up the rear of tank and slide back. Remove the tank.

NOTE:

Be careful not to lose rubber dampers at front of tank.

Lower Cowl

1. Remove the lower cowl.

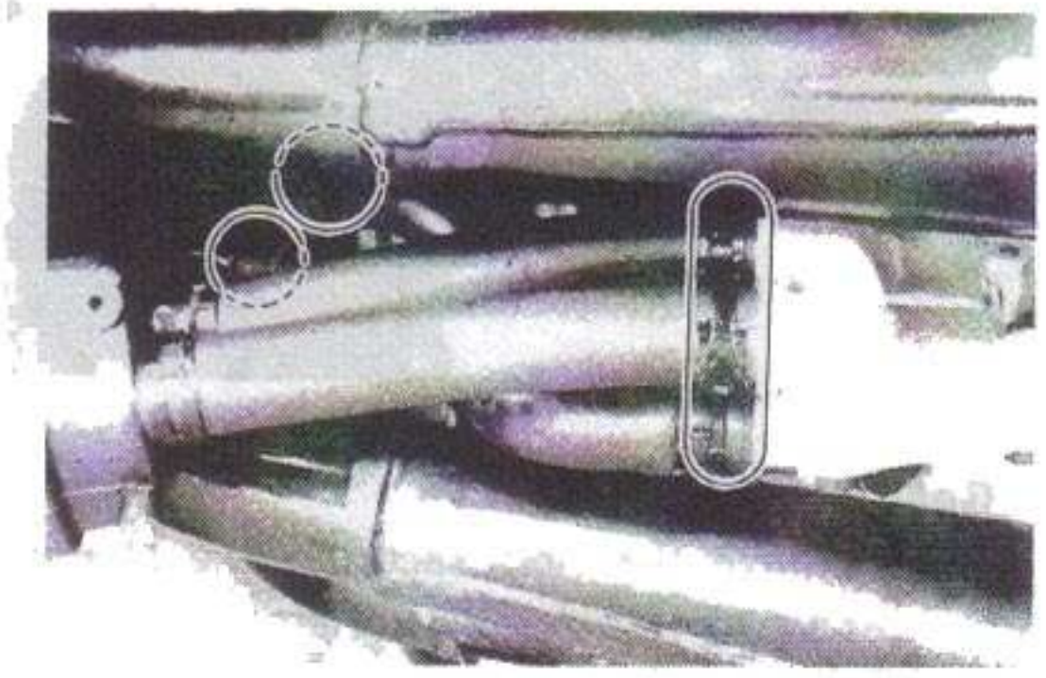


Exhaust

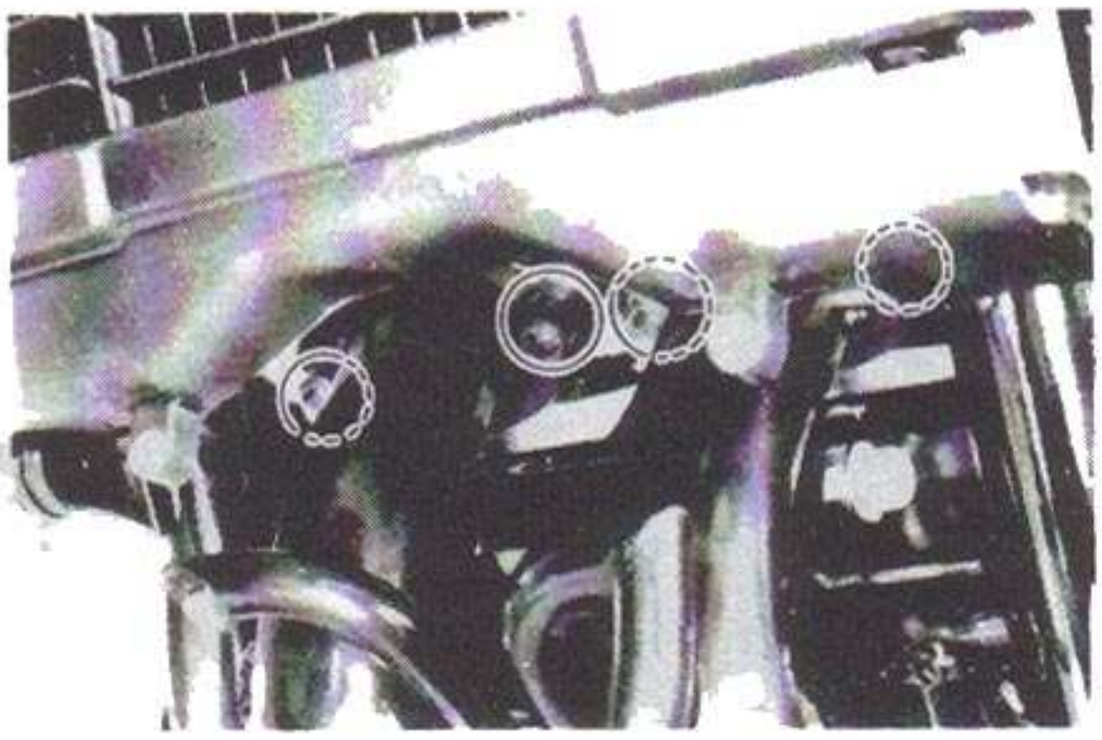
1. Disconnect the catalyzer thermo sensor leads.



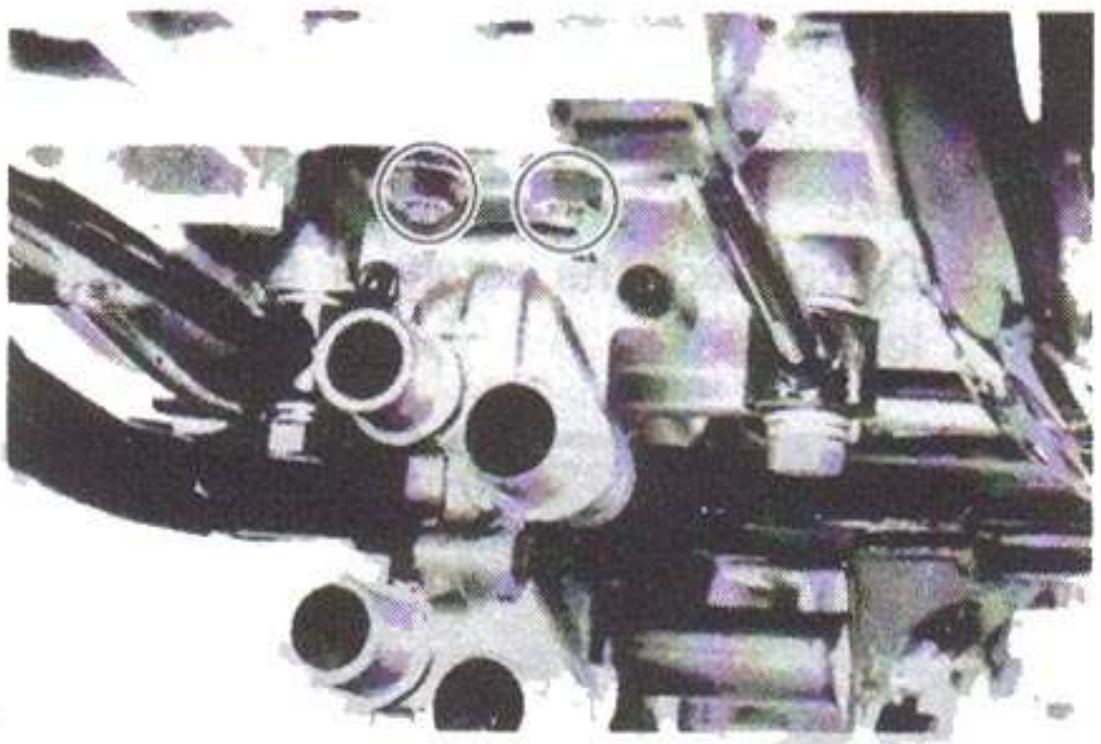
2. Note the catalyzer hoses connections diagram and disconnect the hoses.



3. Remove the nuts holding exhaust pipe to the cylinder and footrest bracket.
4. Remove the exhaust pipe assemblies.

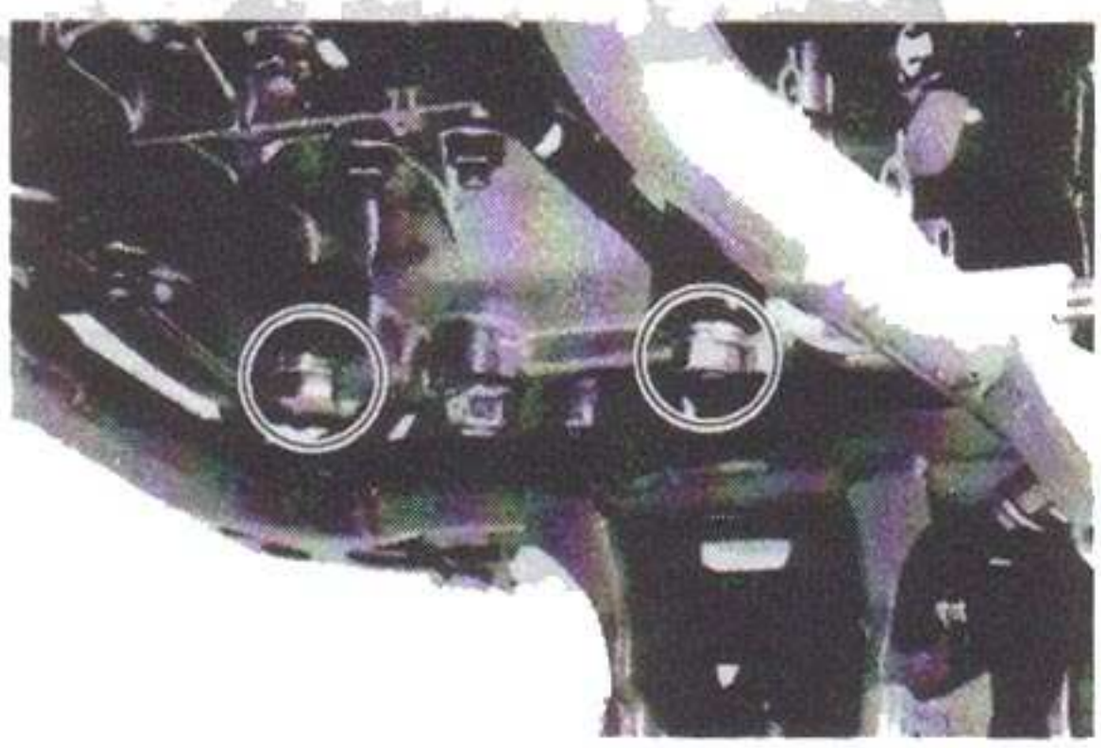


5. Remove the reed valve assembly.



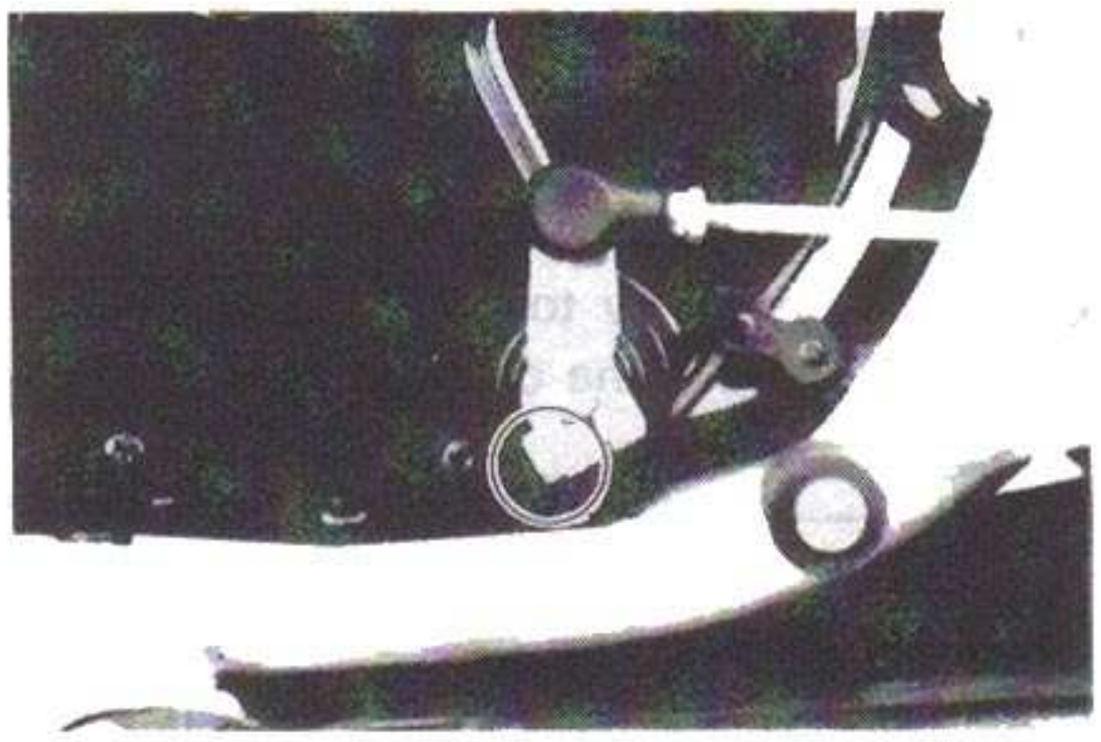
Tension Rod

1. Remove the bolts securing the engine tension rods to the engine.



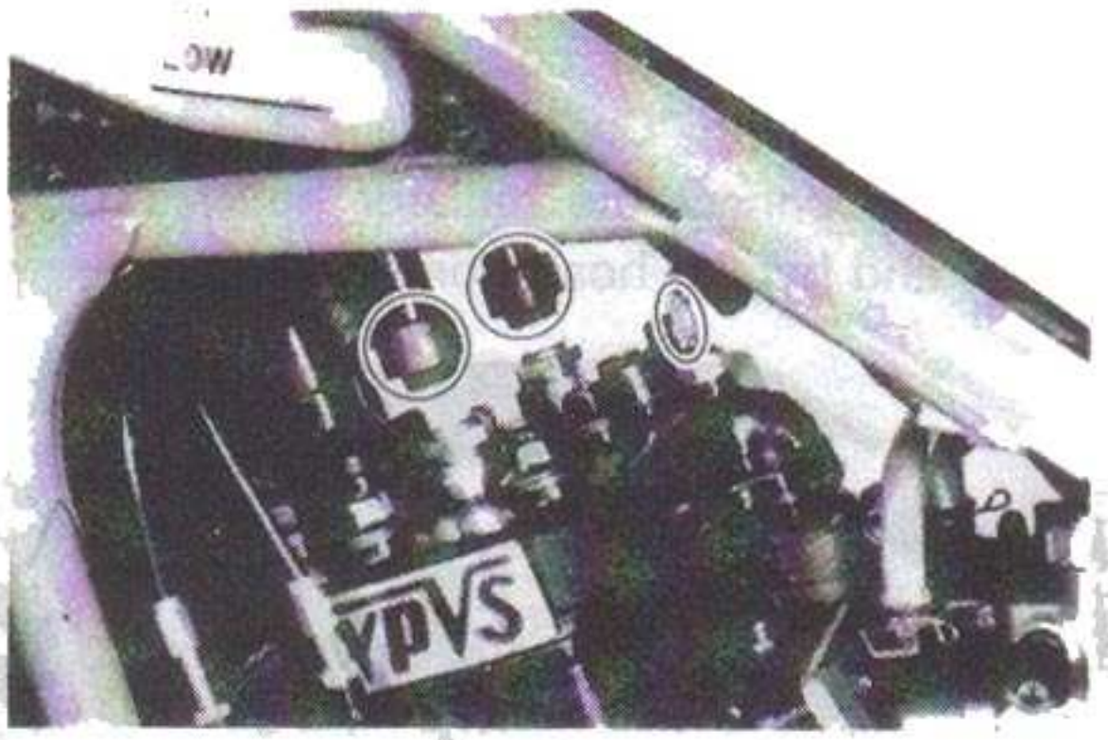
Gear Change Pedal

1. Remove the bolt securing the change pedal to the kick axle. Remove the link rod from the axle.

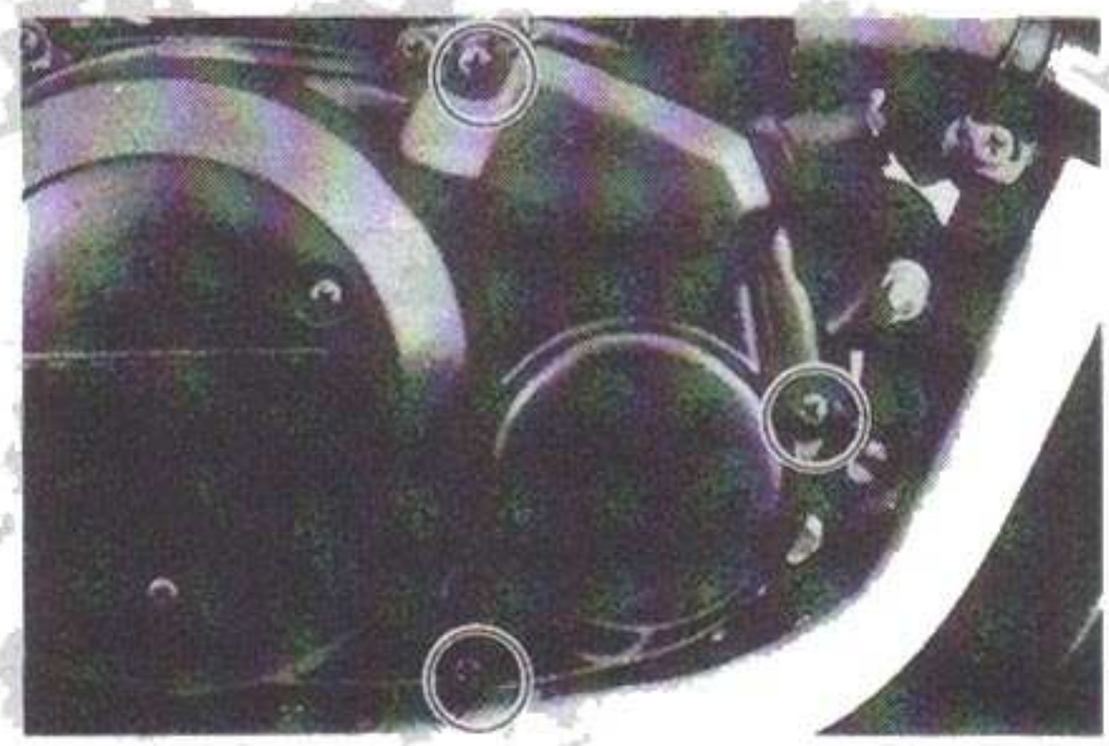


Wiring and Cables

1. Disconnect the spark plug caps.
2. Disconnect the thermo sensor lead.



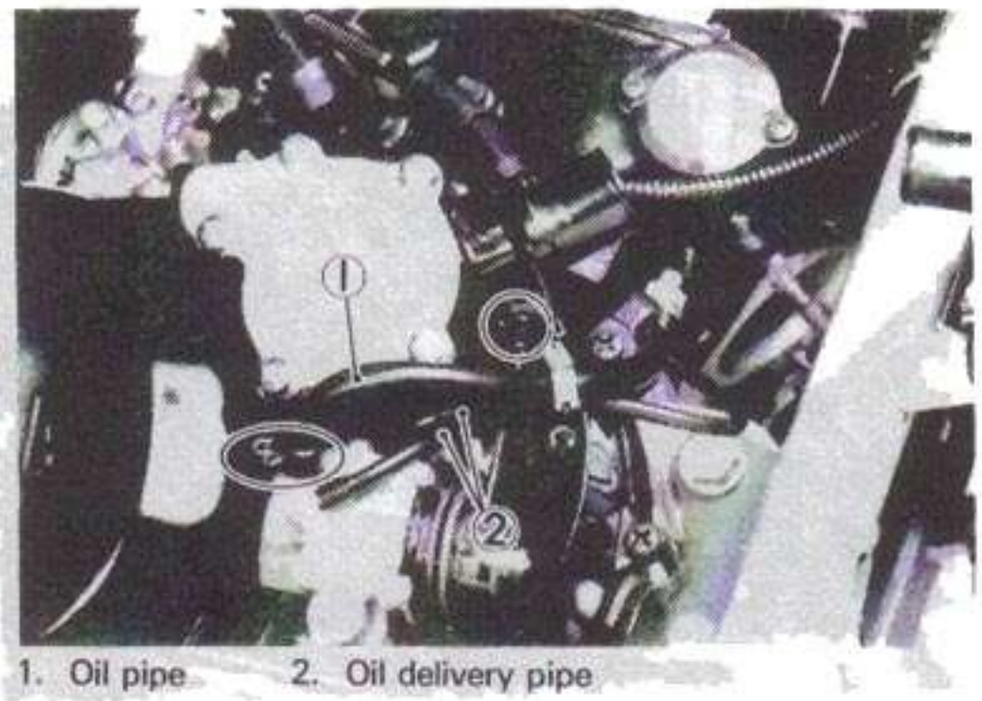
3. Remove the oil pump cover.



4. Disconnect the oil hose at oil pump. Remove delivery hoses at carburetors.

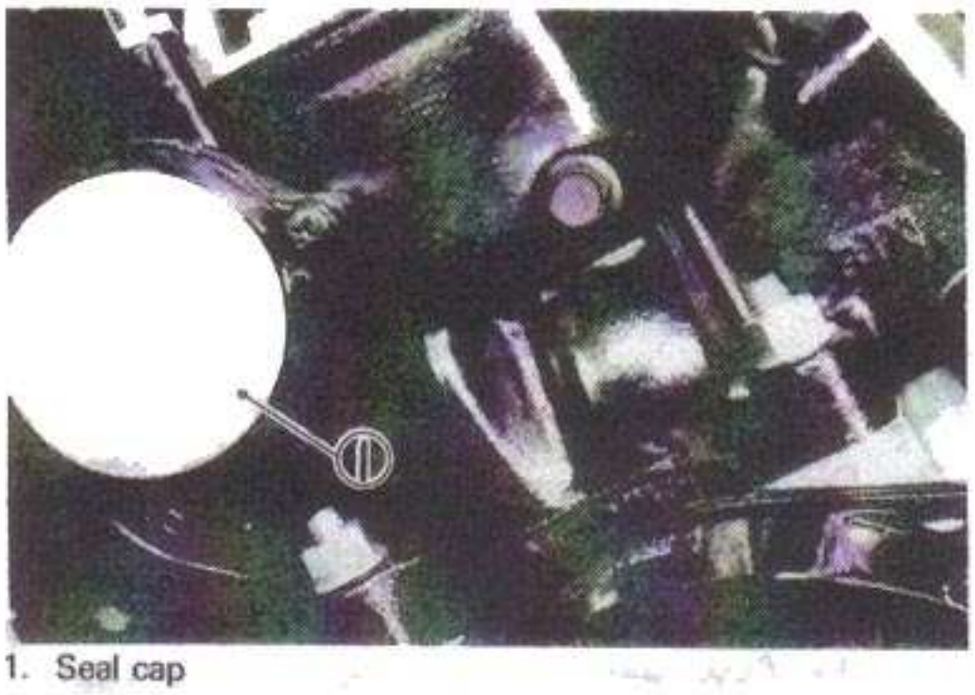
NOTE:

Plug the oil pipe so oil will not run out of oil tank.

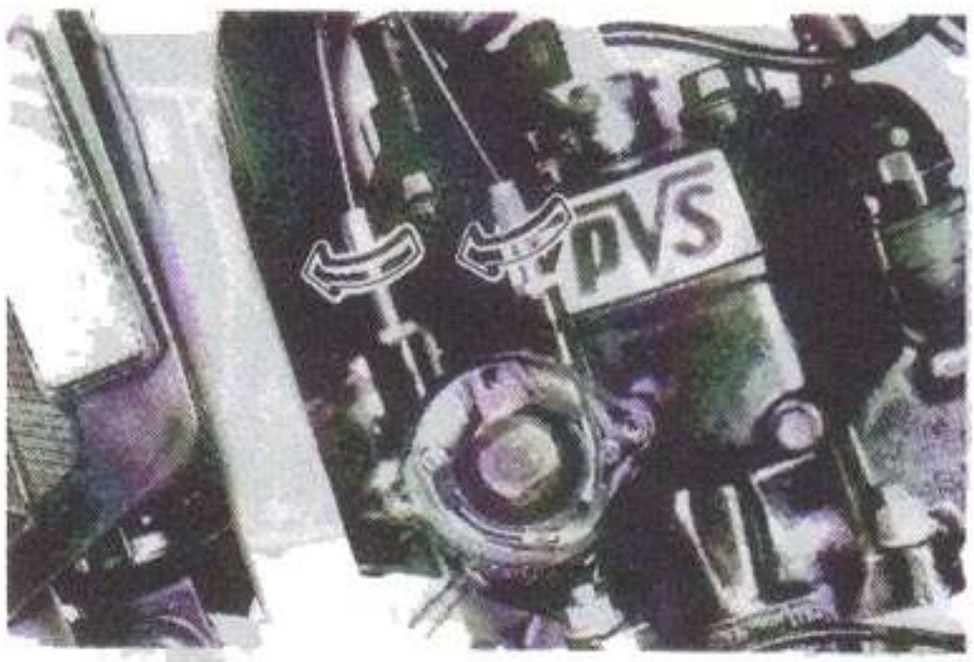


1. Oil pipe 2. Oil delivery pipe

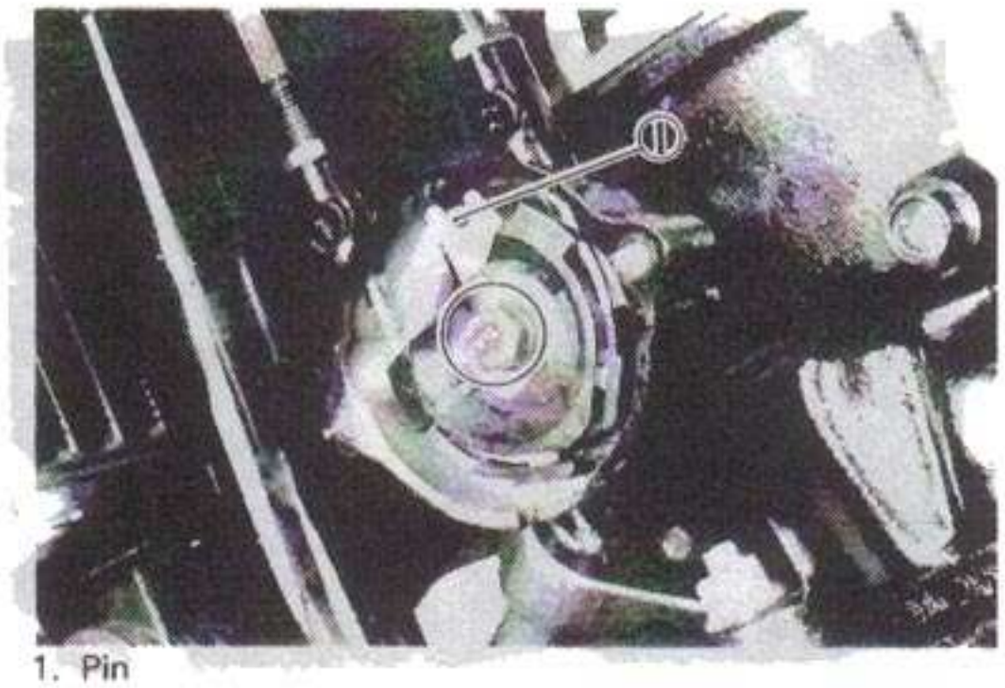
5. Rotate the pump pulley to full throttle position and disconnect the return spring end and cable end from the pulley seat.
6. Remove the cable clip and remove the pump cable.
7. Remove the power valve seal cap and turn cable adjusters clockwise.



1. Seal cap

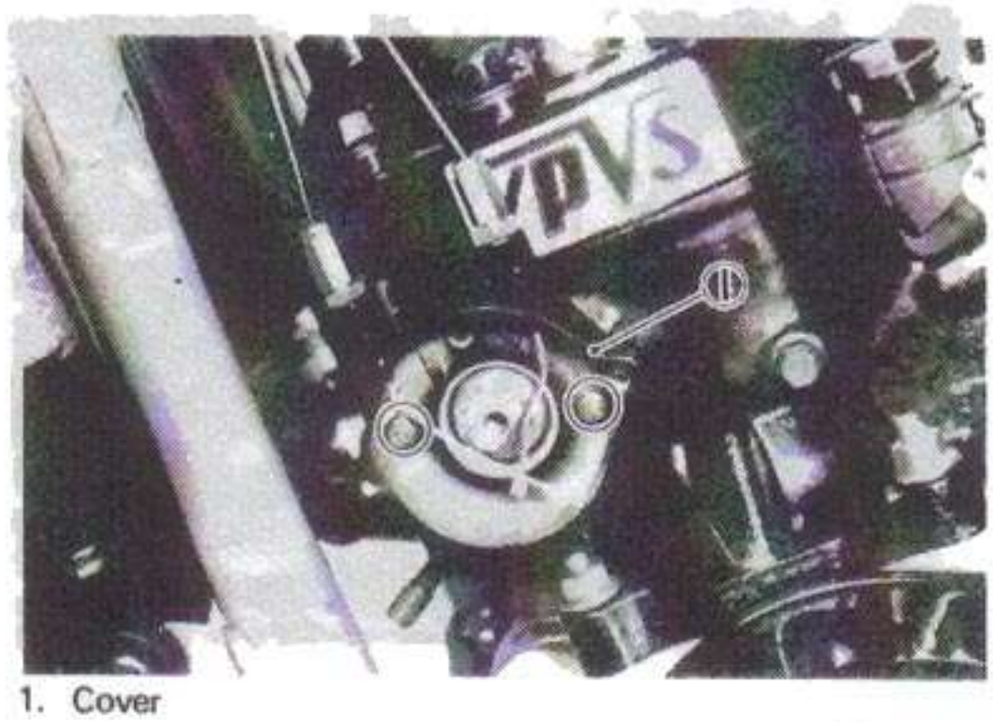


8. Install a special size of pin (4mm (0.16 in)) through the aligning indent in the pulley and into the hole in the valve cover.
   Remove the pulley securing bolt and disconnect the YPVS cables.



1. Pin

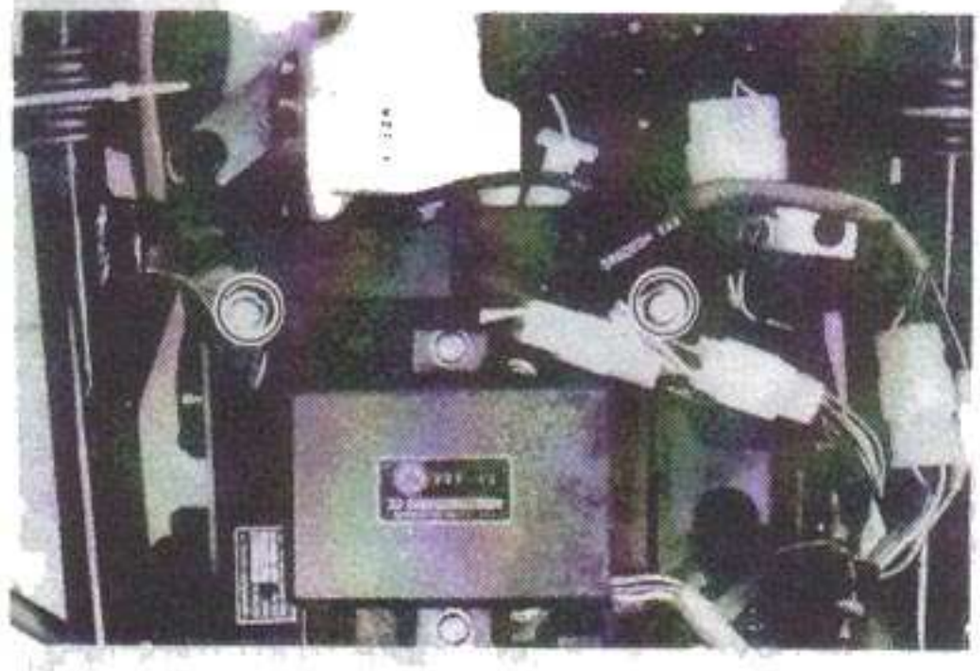
9. Remove the power valve cover together with the cables.



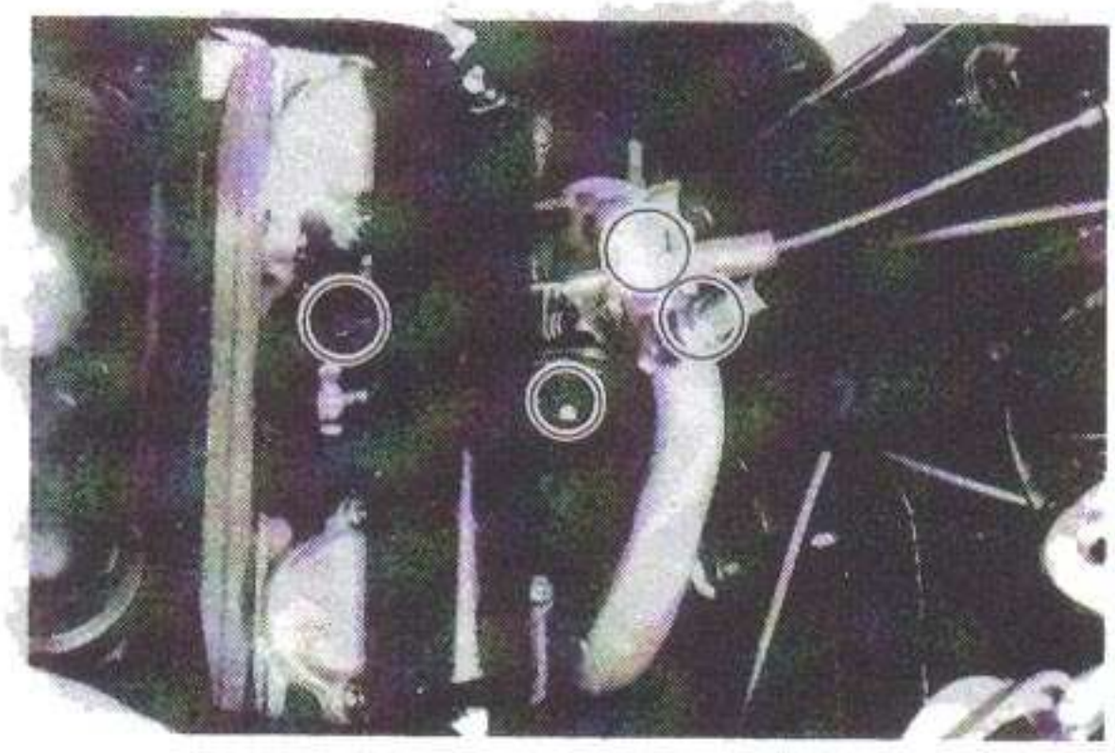
1. Cover

Carburetor

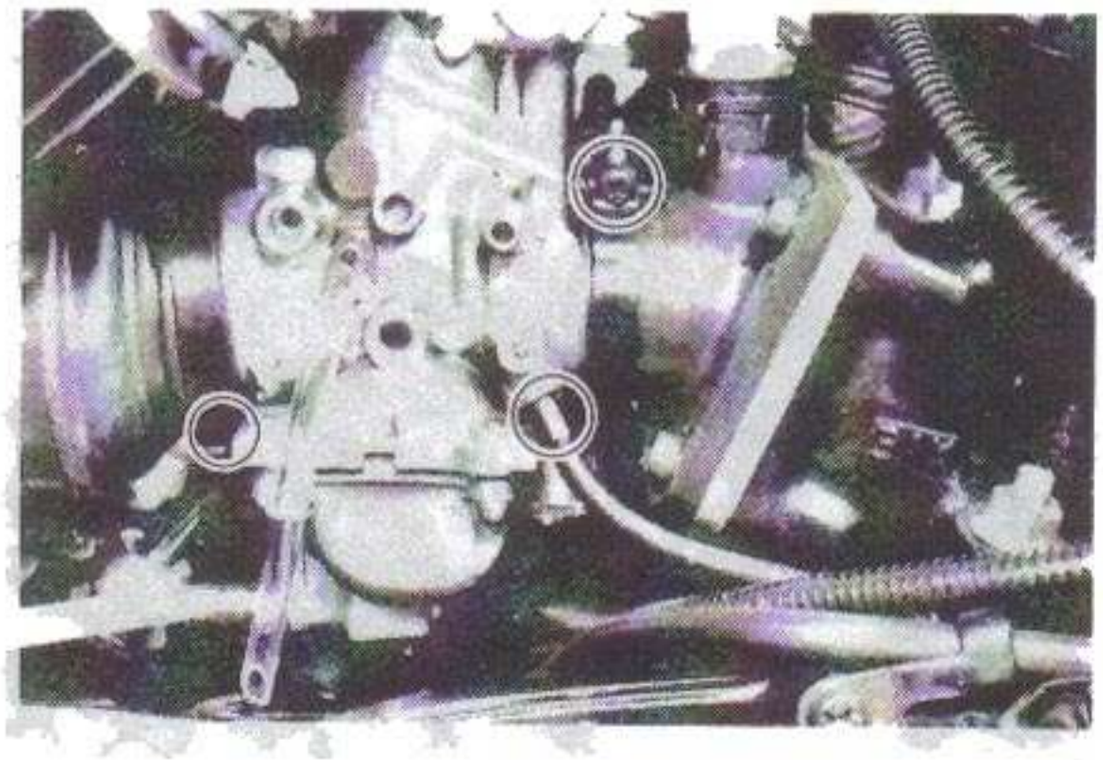
1. Remove the over flow hoses from the carburetors.
2. Remove the CDI-unit-board.



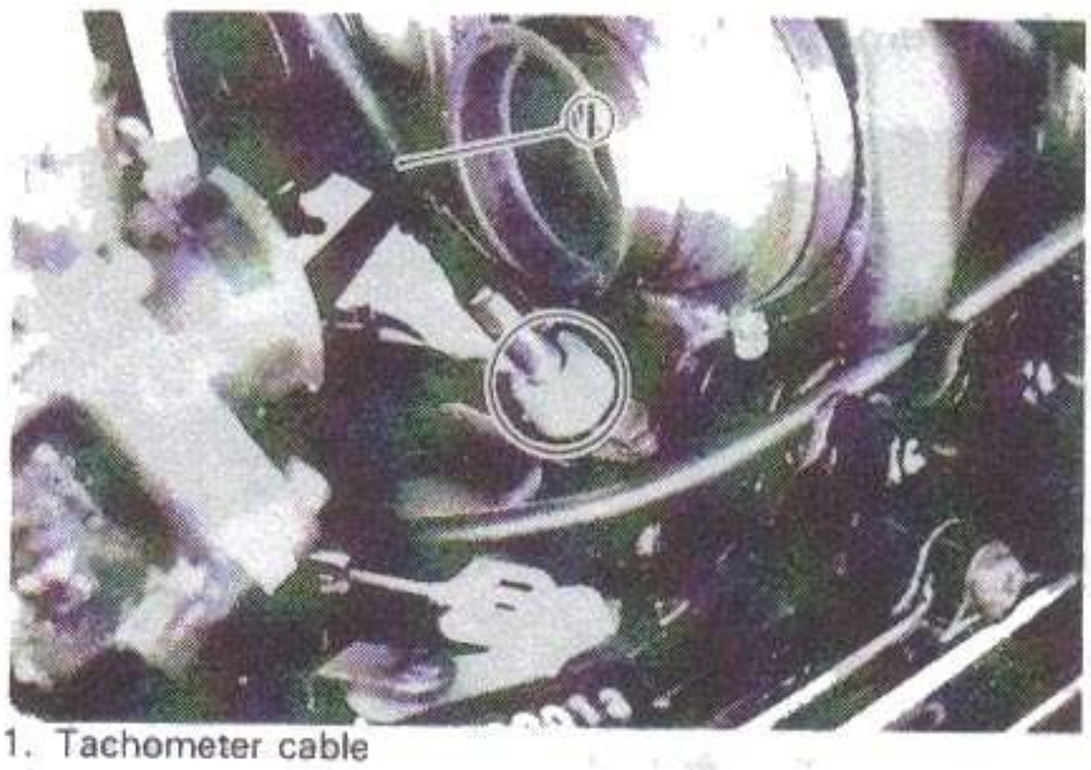
3. Disconnect the carburetor throttle cables.



4. Loosen the carburetor clamps and disconnect the delivery pipes.

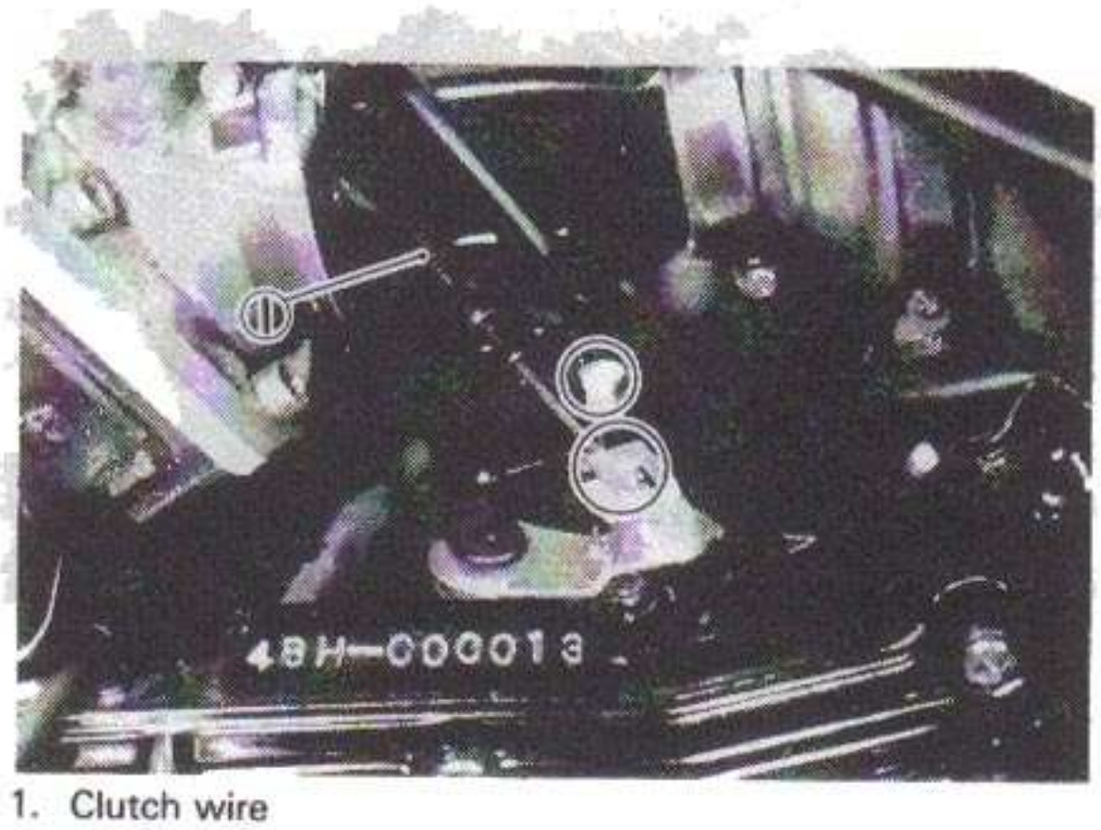


5. Push the air cleaner joint off the carburetor inlet and carefully remove the carburetors.
6. Remove the tachometer cable.



1. Tachometer cable

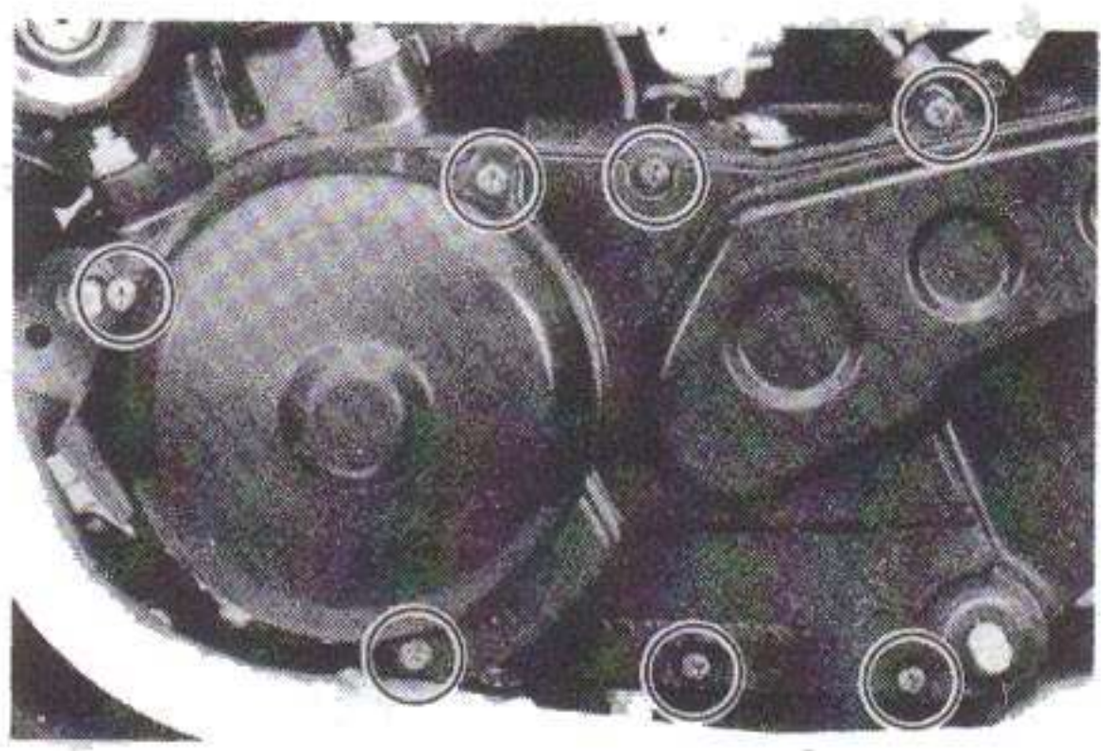
7. Remove the clutch cable from handlebar first, then from the clutch push lever.



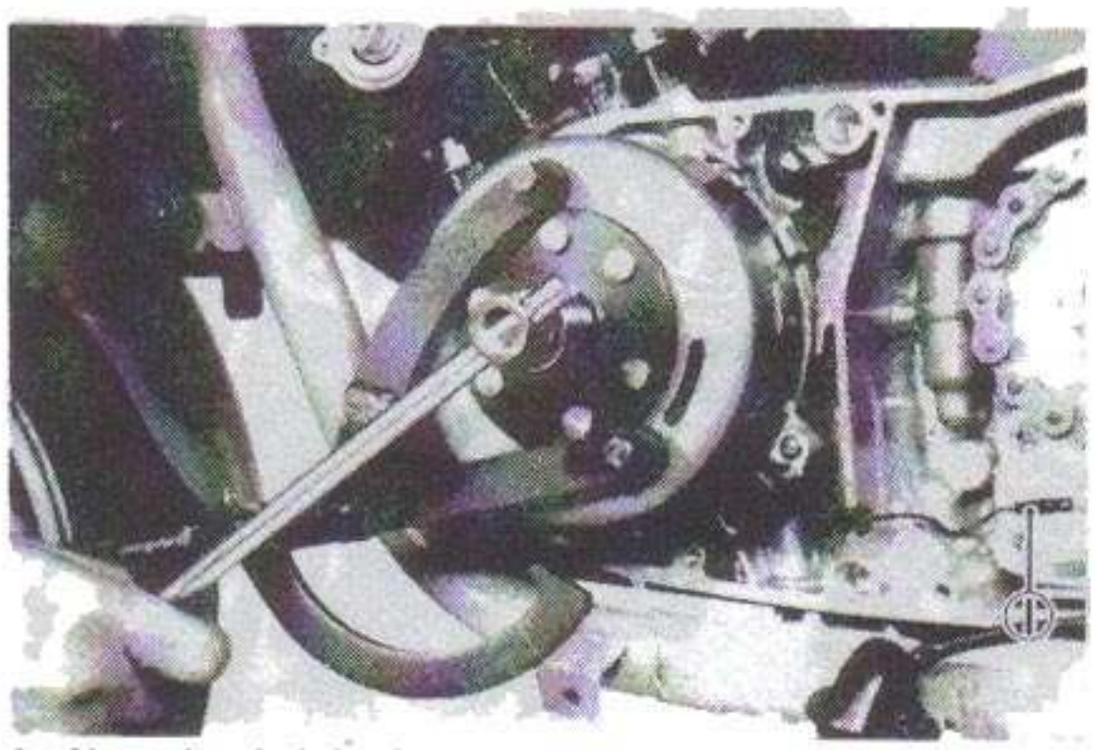
1. Clutch wire

AC Generator

1. Remove the crankcase cover.

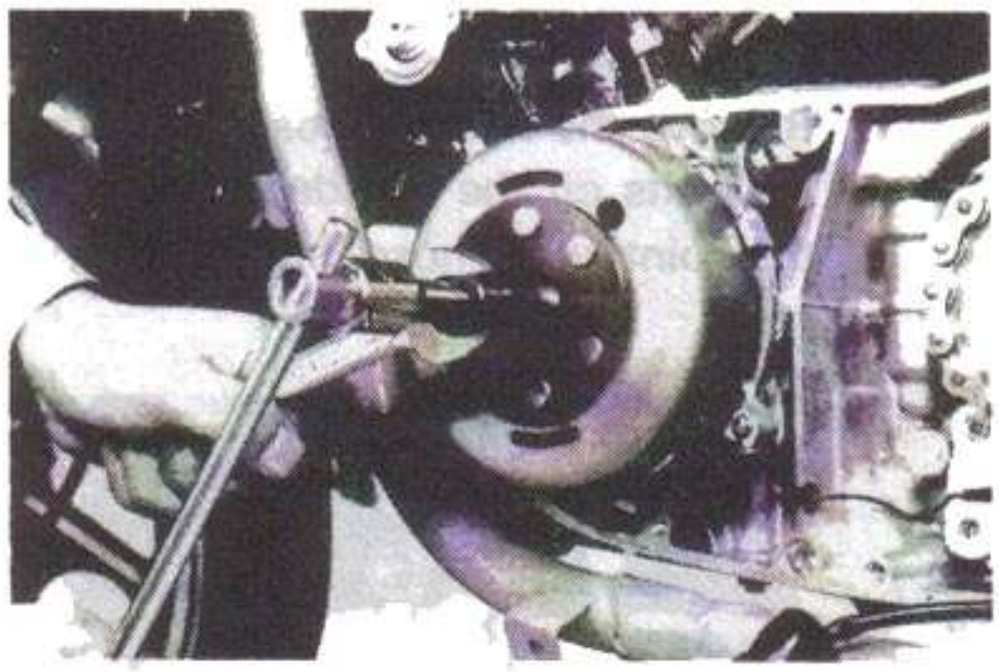


2. Disconnect the flywheel magneto connector and neutral switch lead.
3. Remove the flywheel securing nut using the flywheel holding tool (special tool).



1. Neutral switch lead

4. Remove the flywheel using flywheel puller (special tool).



5. Remove the stator assembly.

NOTE:

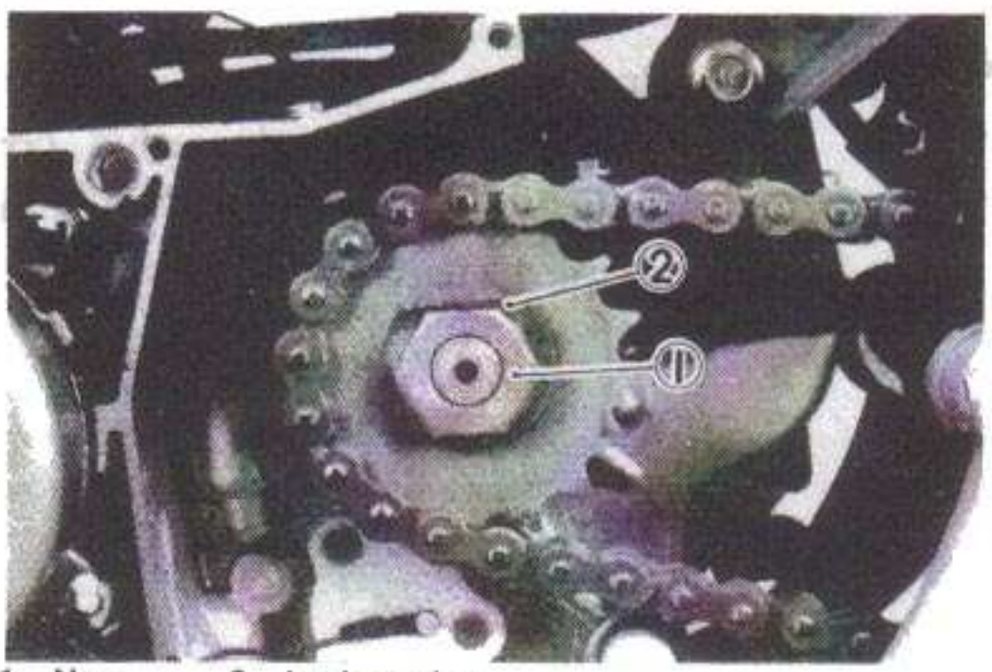
Remove the grommet from the crankcase and pass the coupler through the hole in the crankcase.



6. Remove the woodruff key.

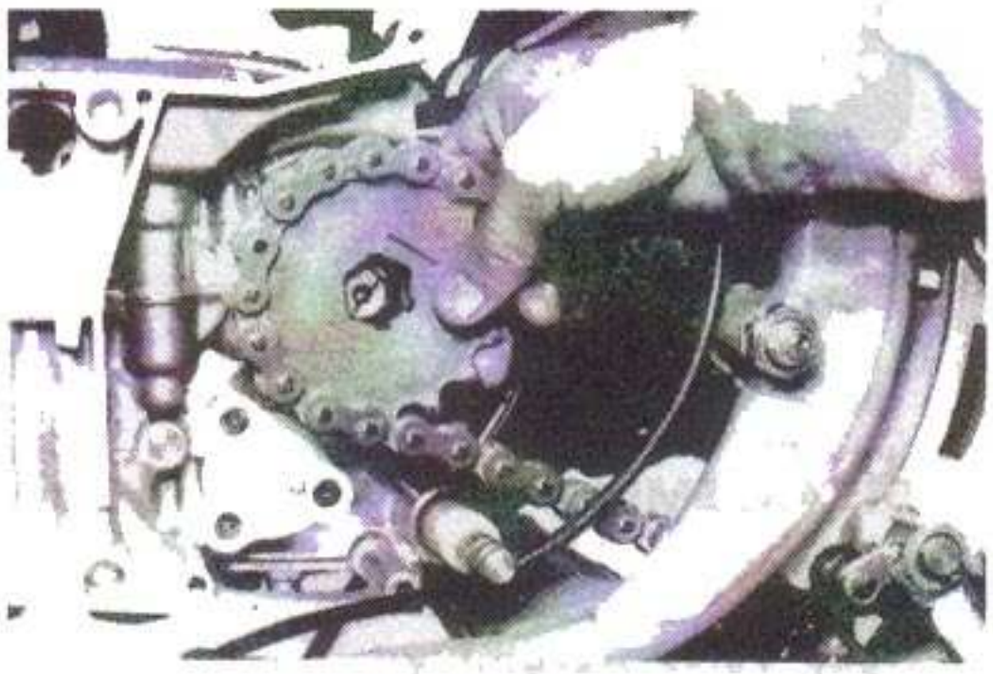
Drive Chain and Drive Sprocket

1. Flatten the lock tab.



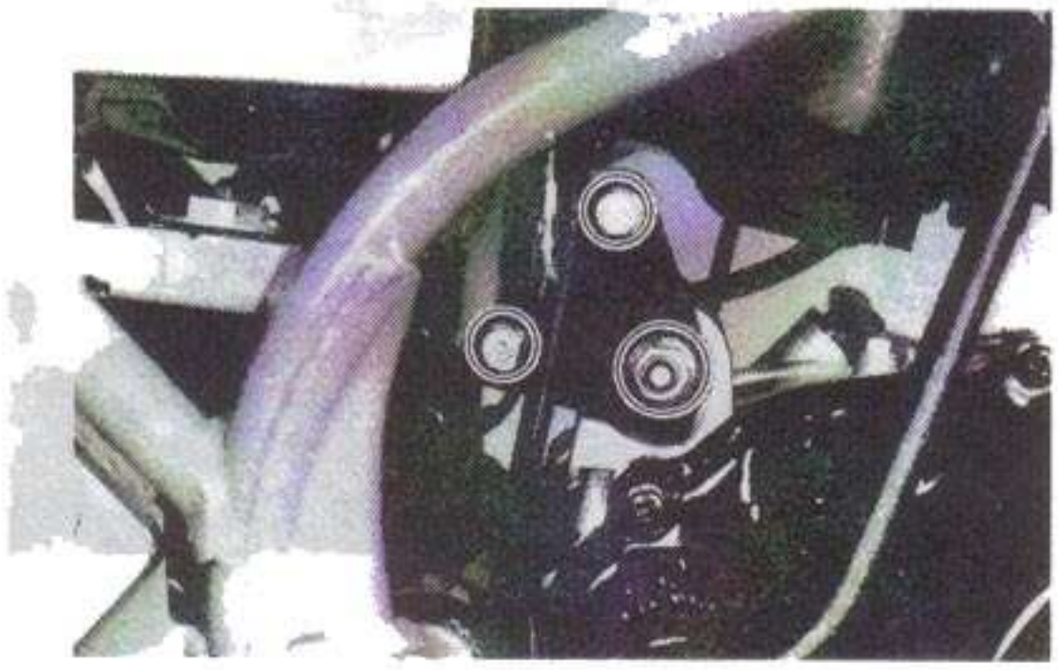
1. Nut 2. Lock washer

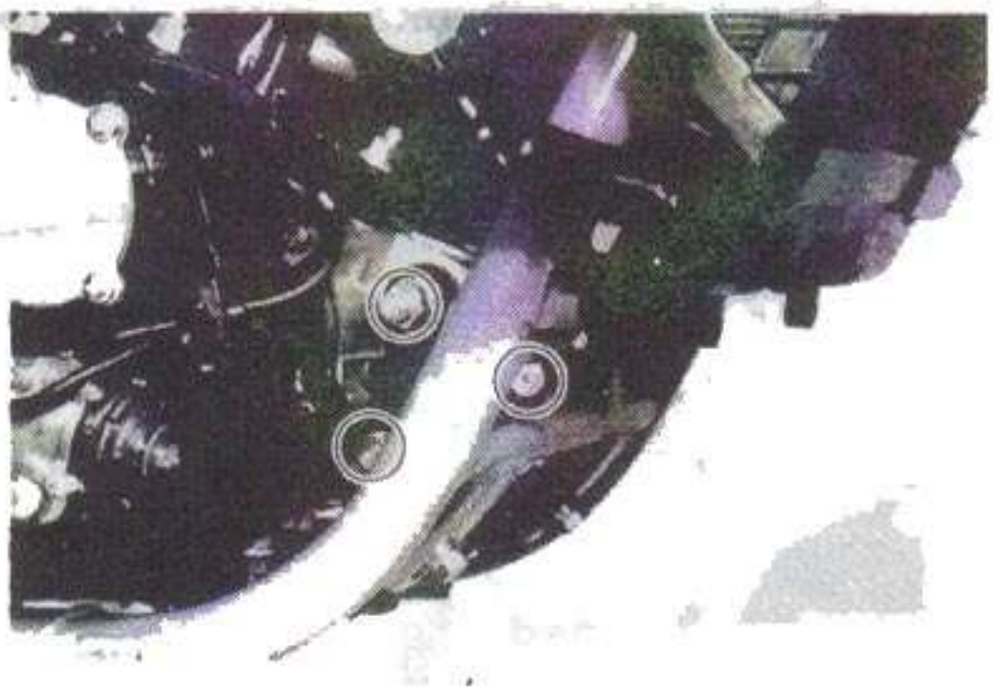
2. Loosen the drive sprocket securing nut, while applying the rear brake and put the transmission into the first gear.
3. Pull out the drive sprocket with the chain.



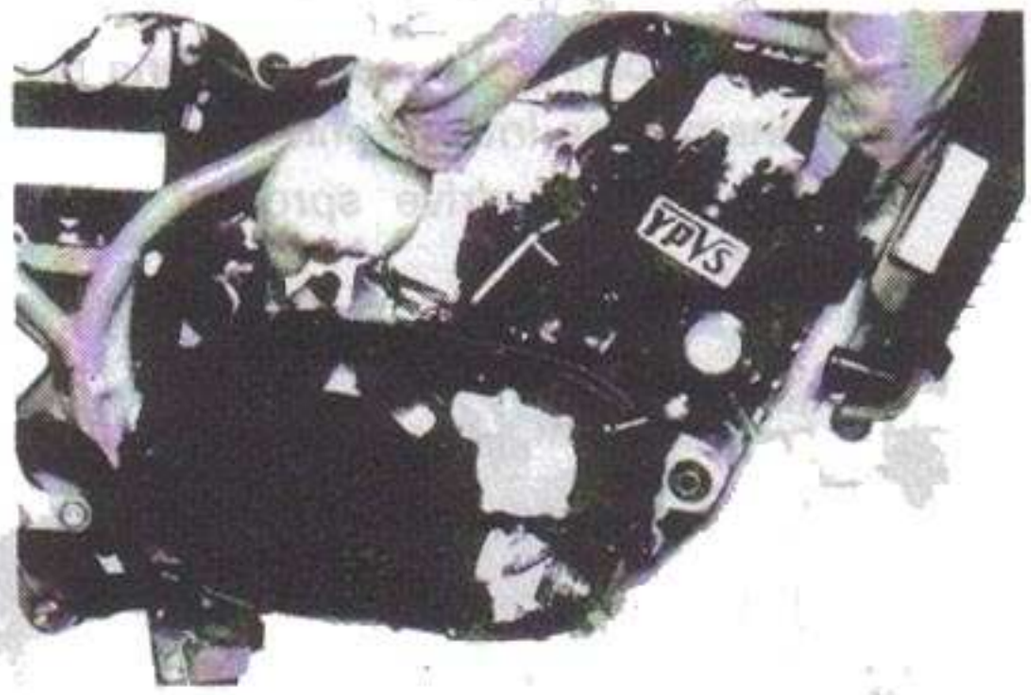
Removal

1. Remove the engine mounting bolts and mounting brackets.





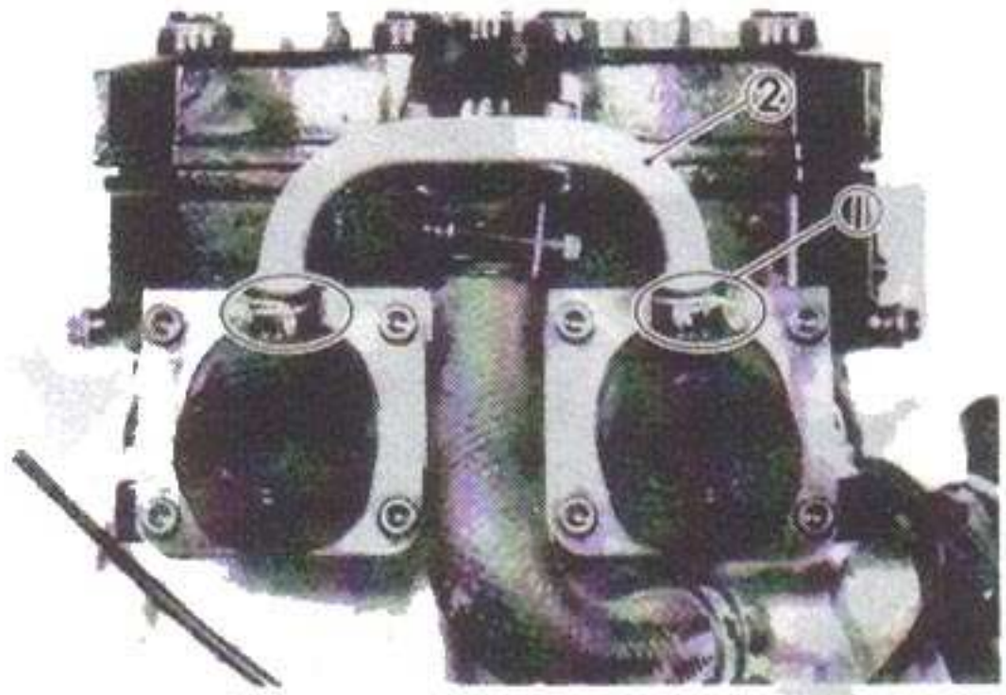
2. Remove the engine from the right side of the frame.



DISASSEMBLY

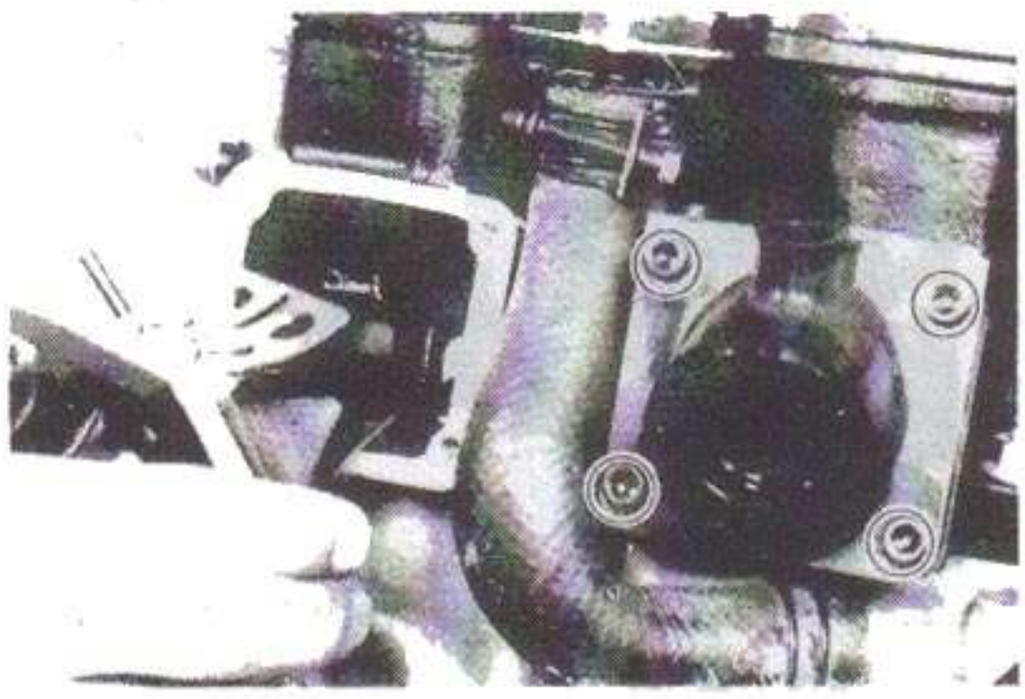
Reed Valve Assembly

1. Remove the clips and joint pipe from the carburetor joints.



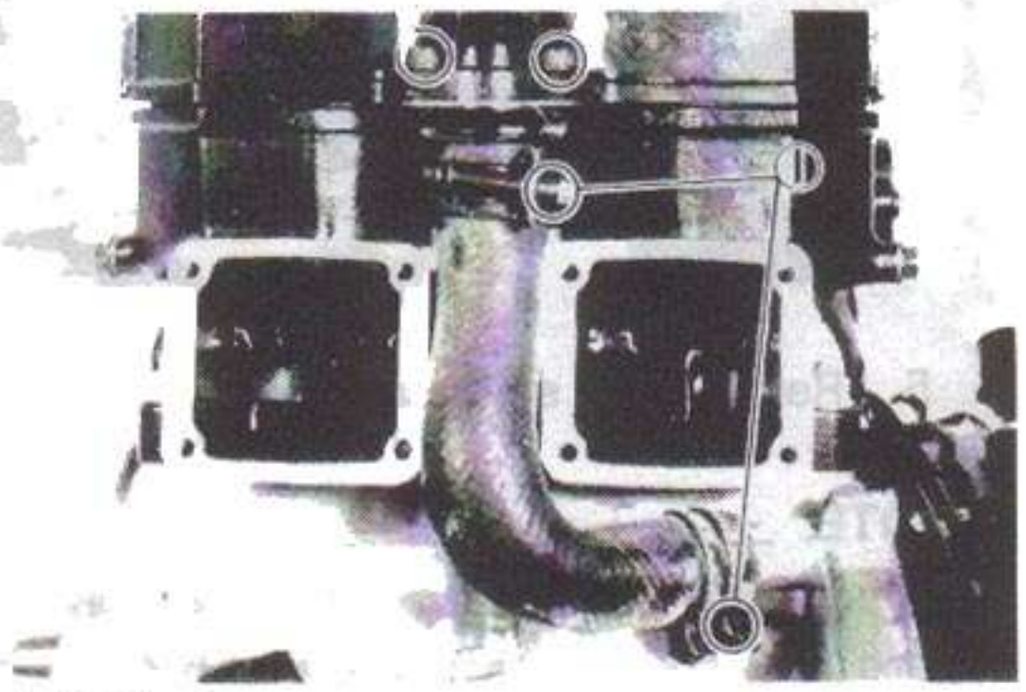
1. Clip 2. Joint pipe

2. Remove the reed valve assembly securing bolts, carburetor joints, and reed valve assemblies.



Radiator Hose

1. Remove the radiator hose joint 1 securing bolts on the cylinder head. Remove the joint with hose from the cylinder head.

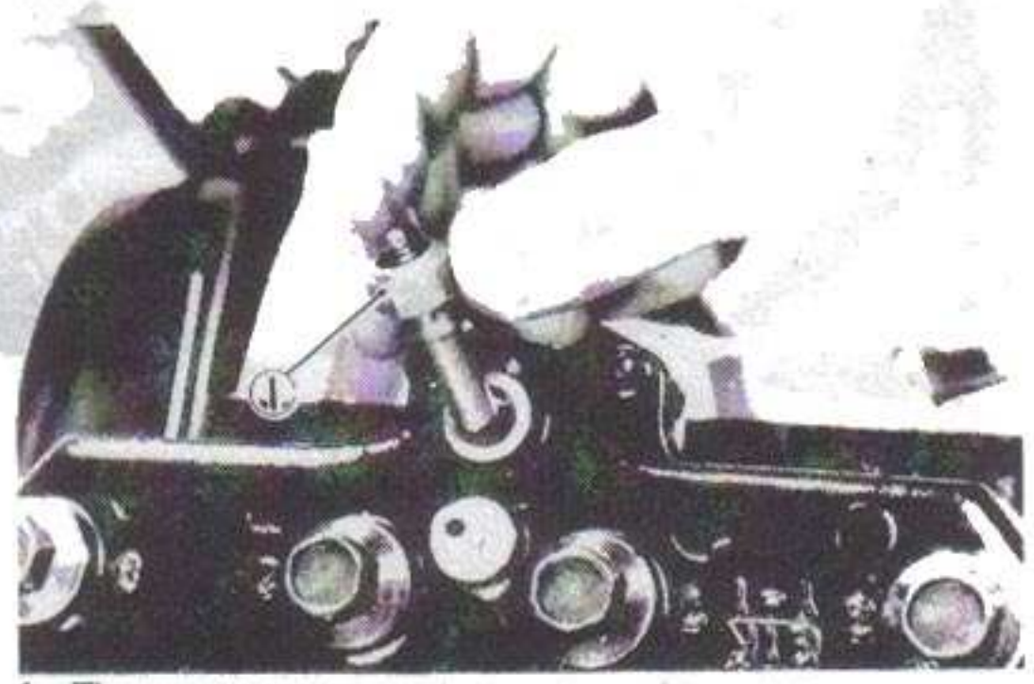


1. Band

2. Loosen the hose bands and remove the hose.

Thermo sensor

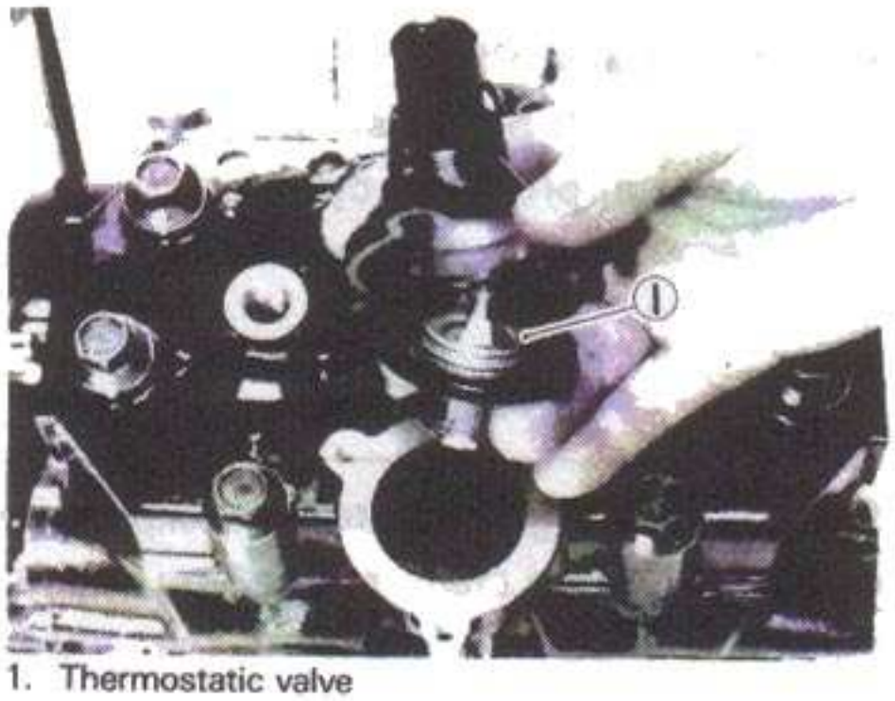
1. Remove the thermo sensor and washer from the cylinder head.



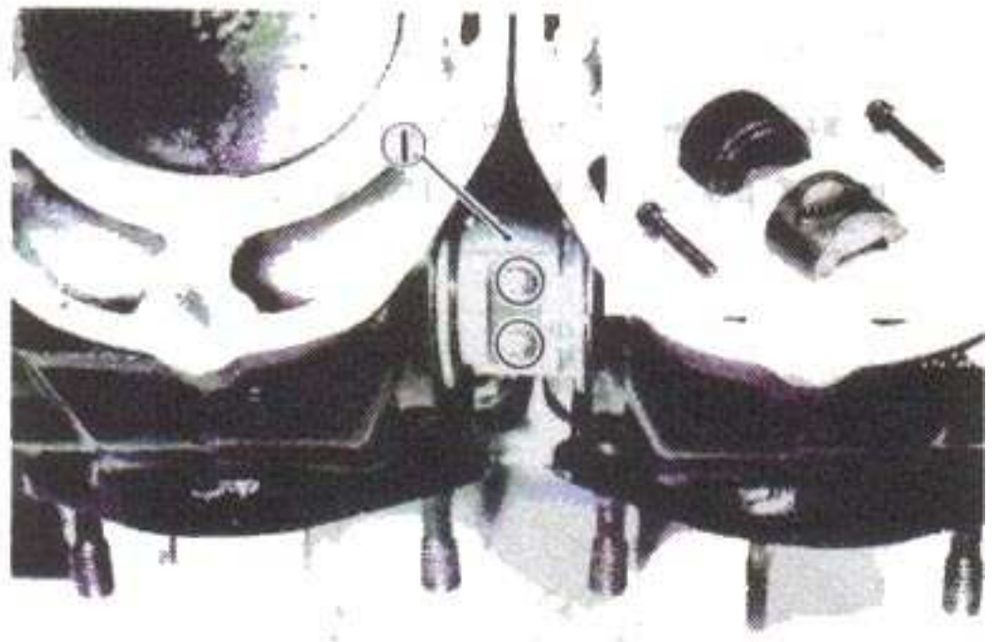
1. Thermo sensor

Thermostatic Valve

1. Remove the thermostatic valve cover securing bolts. Remove the cover and thermostatic valve.



1. Thermostatic valve



1. Joint

Cylinder Head

1. Remove the cylinder head securing bolts and cylinder head.

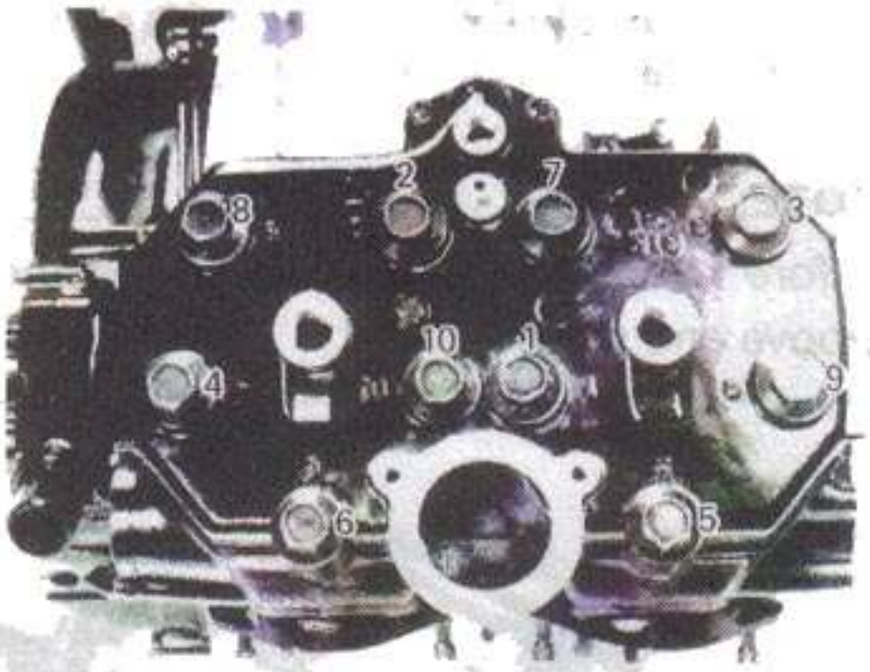
NOTE:

a. Loosen the spark plugs before loosening cylinder head.
b. The cylinder head bolts should be loosened starting from No. 10. Loosen them 1/2 turn each time, and remove.



Power Valve

1. Remove the thrust plate.





1. Thrust plate

2. Place the cylinder head in an inverted position and drain the coolant.
3. Remove the cylinder head gaskets.

Cylinder

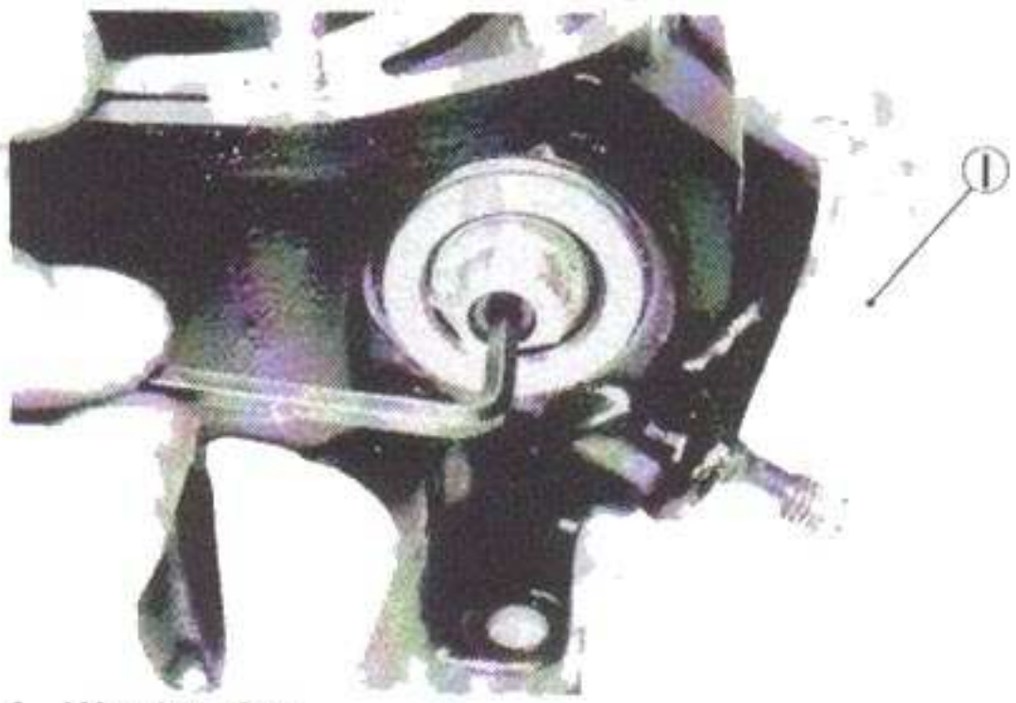
1. Remove the joint which is connecting left and right power valves.
2. Remove the cylinders and base gaskets.
3. Place the cylinders in an inverted position to drain the coolant.

2. Remove the bolt which is securing the two halves of power valves while holding the power valve end with the plier.



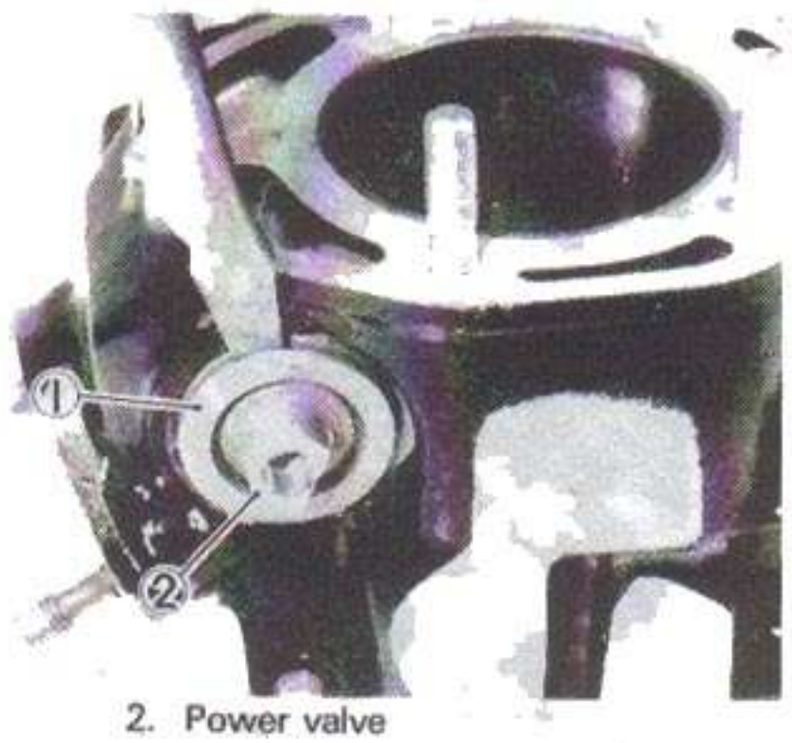
NOTE:

If stiff, use a wooden piece through the exhaust port to steady the valve.



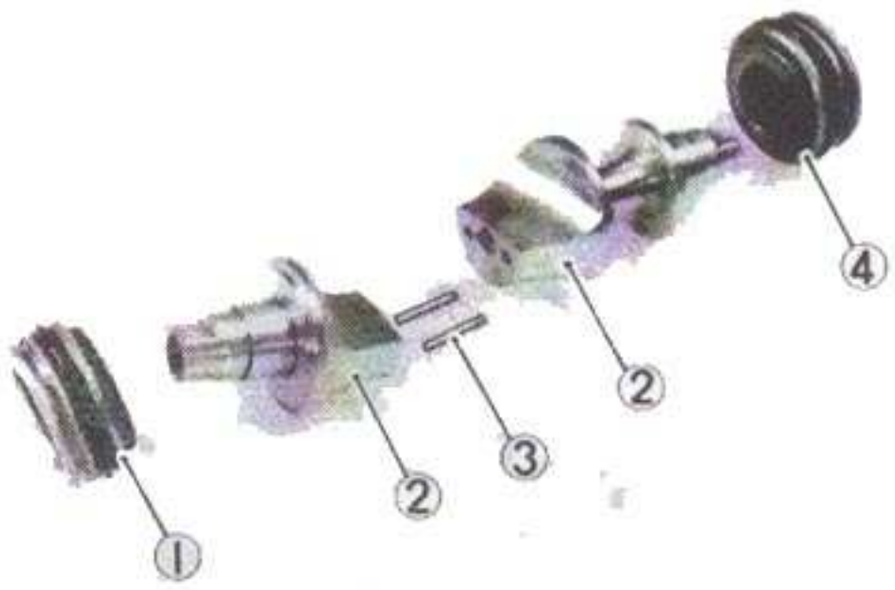
1. Wooden piece

3. Pry out the power valve holder and half power valve, using the flat head screw driver.



1. Holder 1
2. Power valve

4. Remove the knock pin(s) if remained.
5. Then pry out the remained half power valve.



1. Holder 1
2. Power valve
3. Knock pin
4. Holder 2

Piston Pin and Piston

1. Mark each piston so it can be reinstalled in the appropriate cylinder.
2. Remove the piston pin clip from the piston.

NOTE:

Before removing the piston pin clip, cover the crankcase with a clean rag so you will not accidentally drop the clip into the crankcase.



3. Push the piston pin from opposite side, then pull it out as shown.

NOTE:

Before removing the piston pin, deburr clip groove and pin hole area.



Kick Crank

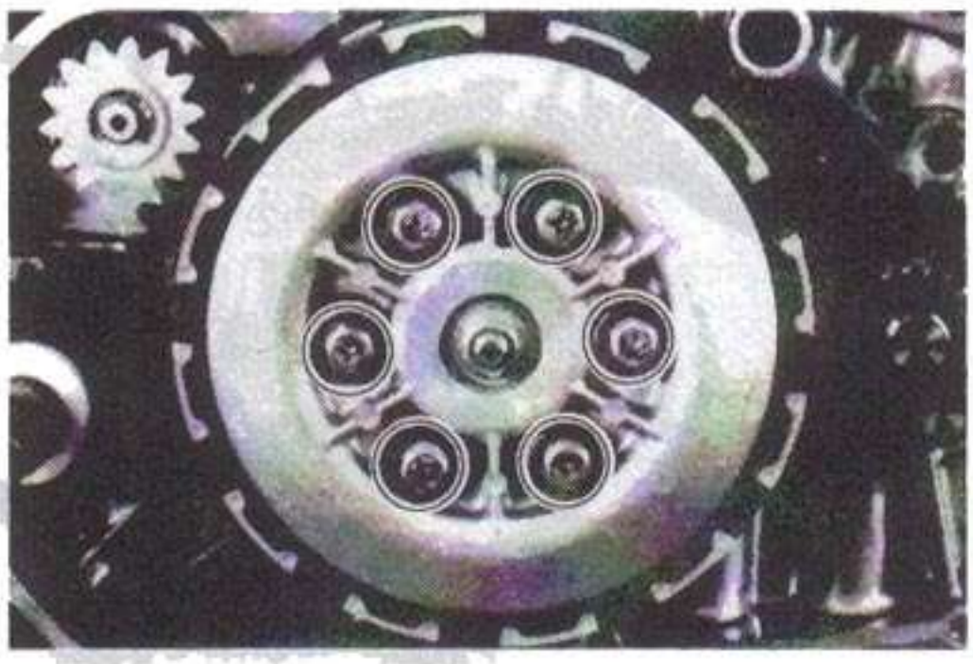
1. Remove the kick crank securing bolt and kick crank.

Crankcase Cover, Right

1. Remove the right-side crankcase cover holding screws and cover.

NOTE:

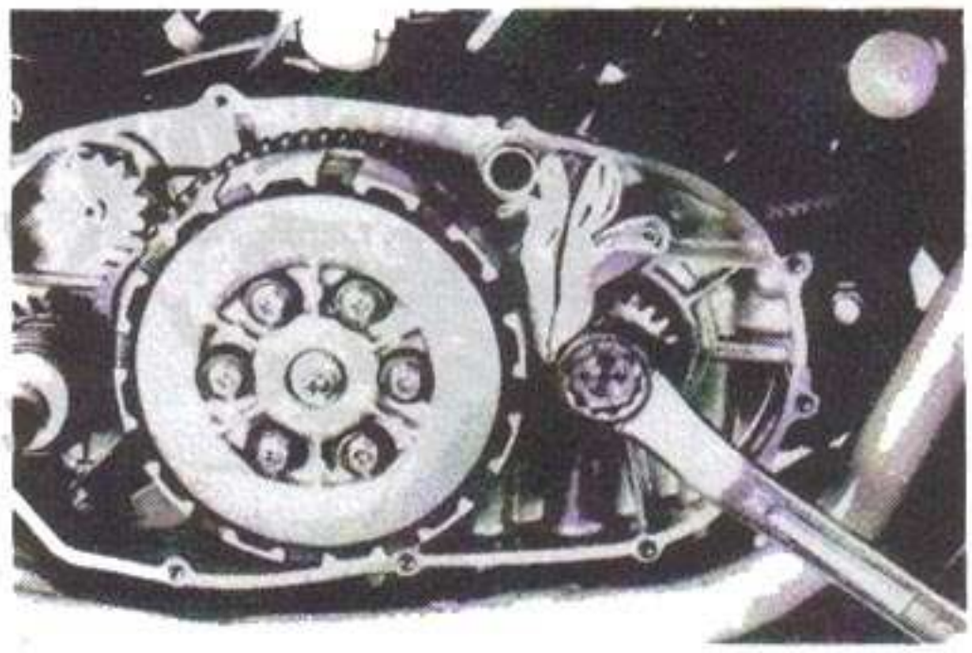
The crankcase cover can be removed without removing the Autolube pump and water pump.





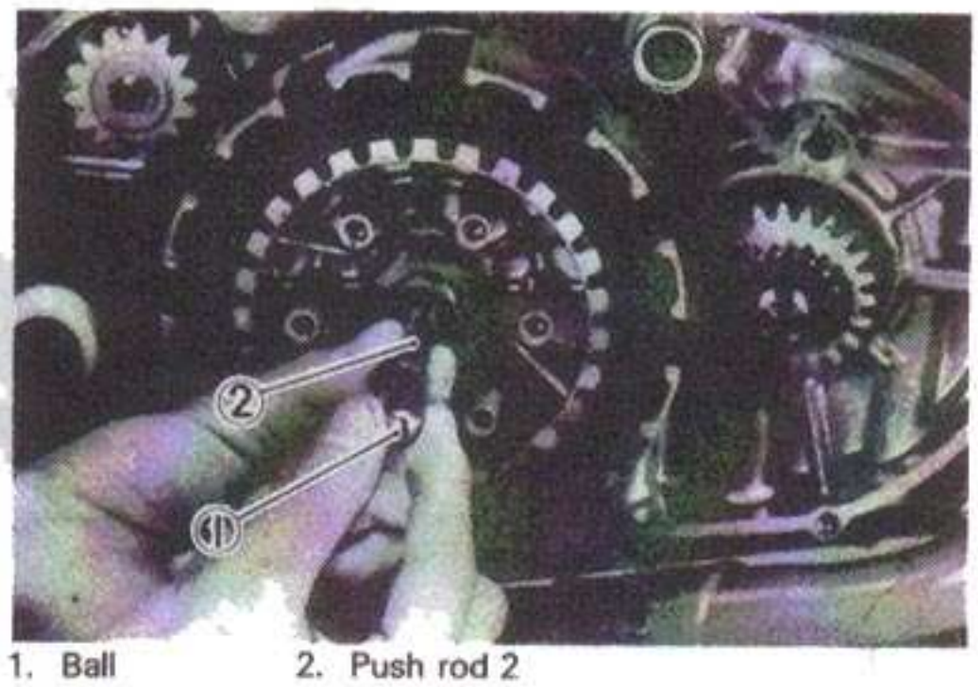
Clutch Assembly and Primary Drive Gear

1. Place a small piece of rolled rag or a small piece of lead between the primary gears, and remove the primary gears securing nut and washer.



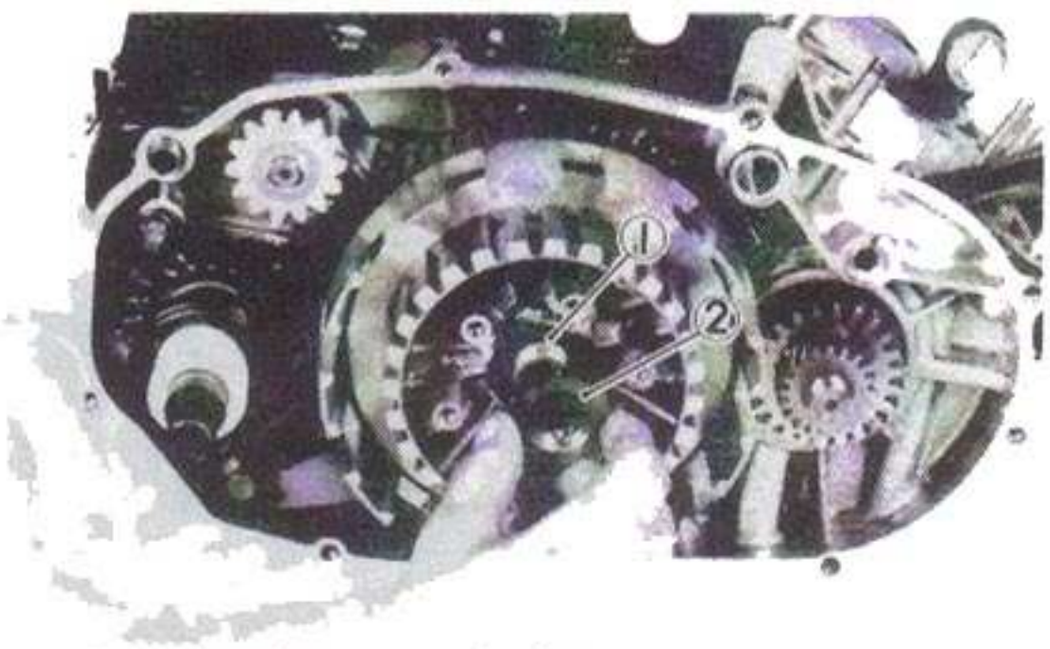
2. Remove the clutch springs (6) then remove the clutch pressure plate, friction plates, and clutch plates.

3. Remove the ball and push rod 2 from the transmission main shaft.



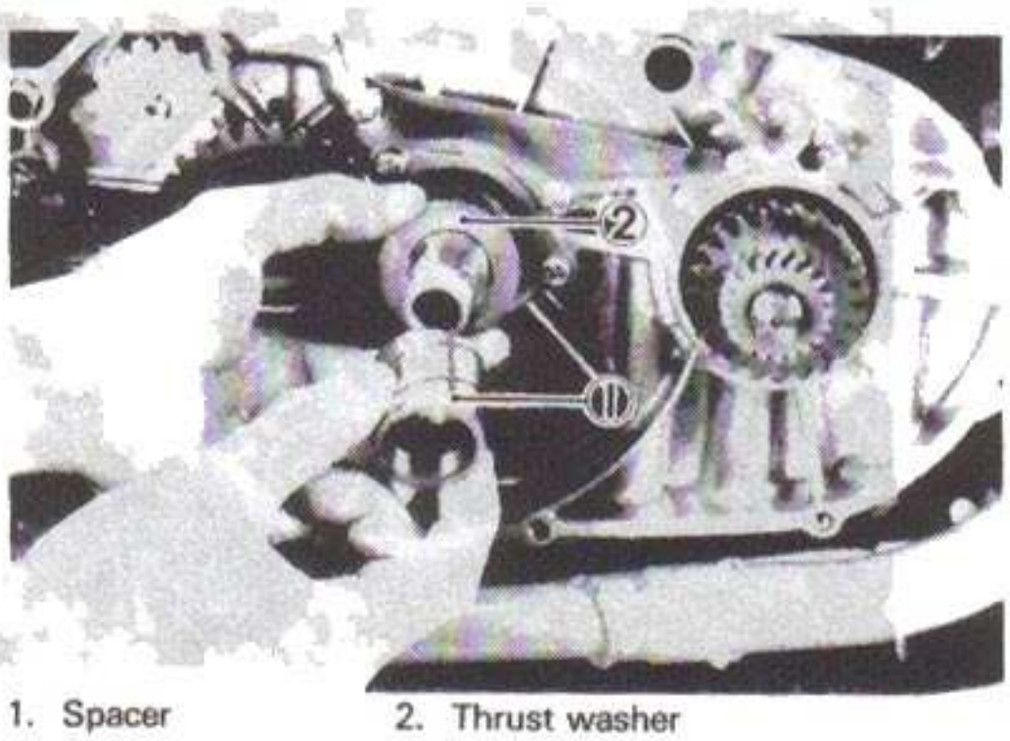
1. Ball 2. Push rod 2

4. Flatten the lock tab on the clutch boss securing nut. Remove the nut and lock washer; use the clutch hub holder.



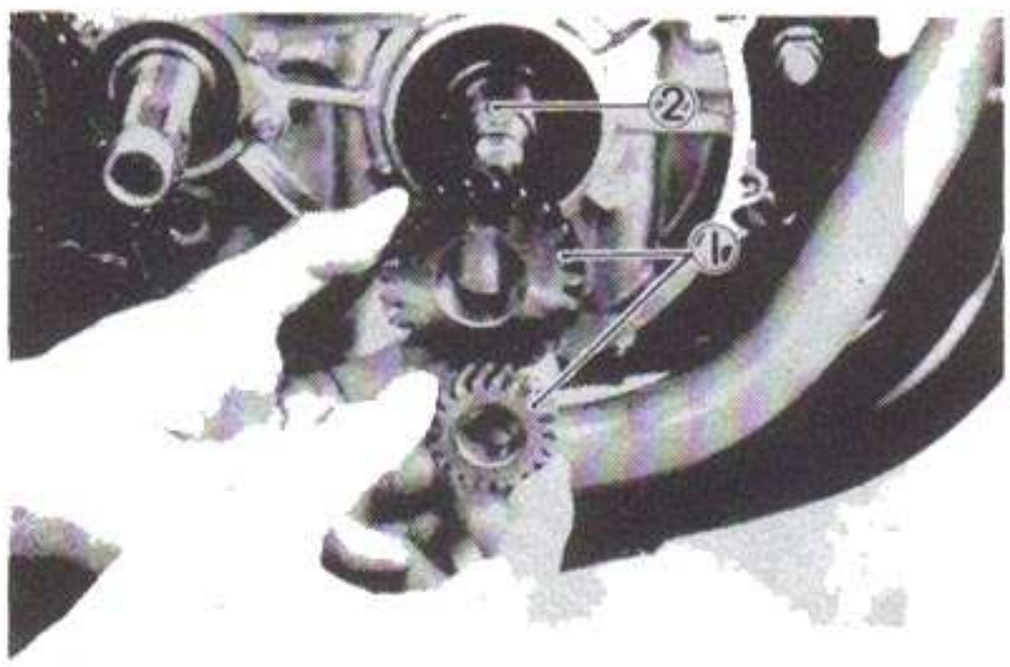
1. Lock washer 2. Nut

5. Remove the clutch boss, thrust washer, clutch housing, spacer, and thrust washer.



1. Spacer
2. Thrust washer

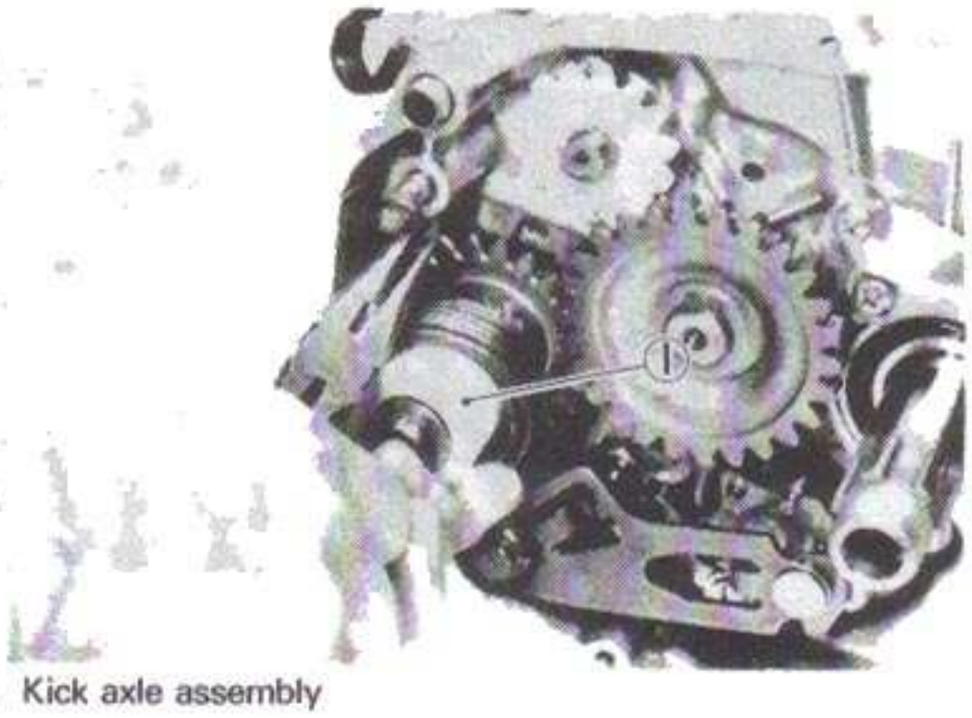
6. Remove the primary drive gears and key from the crankshaft.



1. Primary drive gears
2. Key

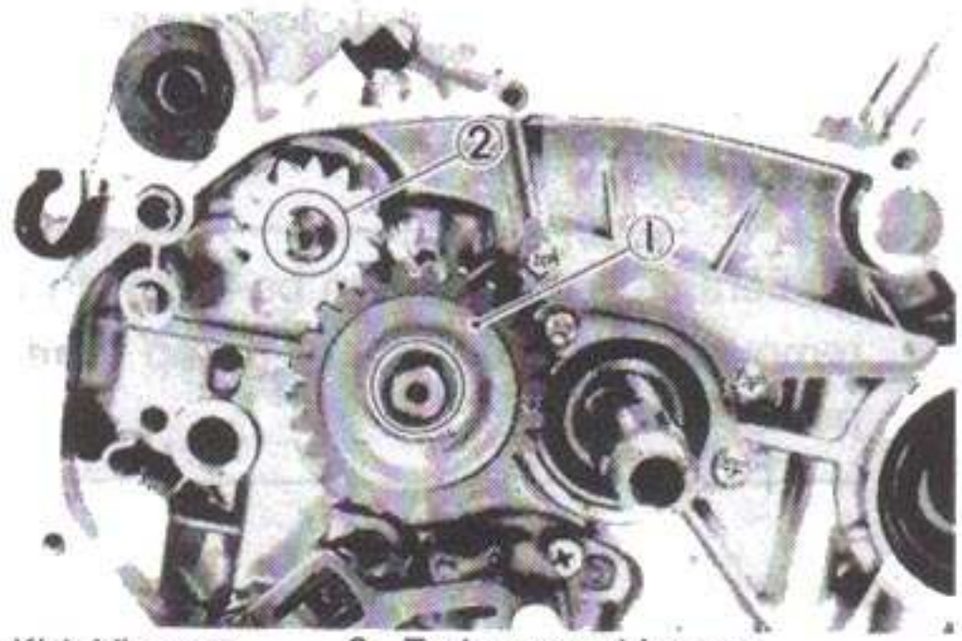
Kick Axle Assembly

1. Remove the kick axle assembly.

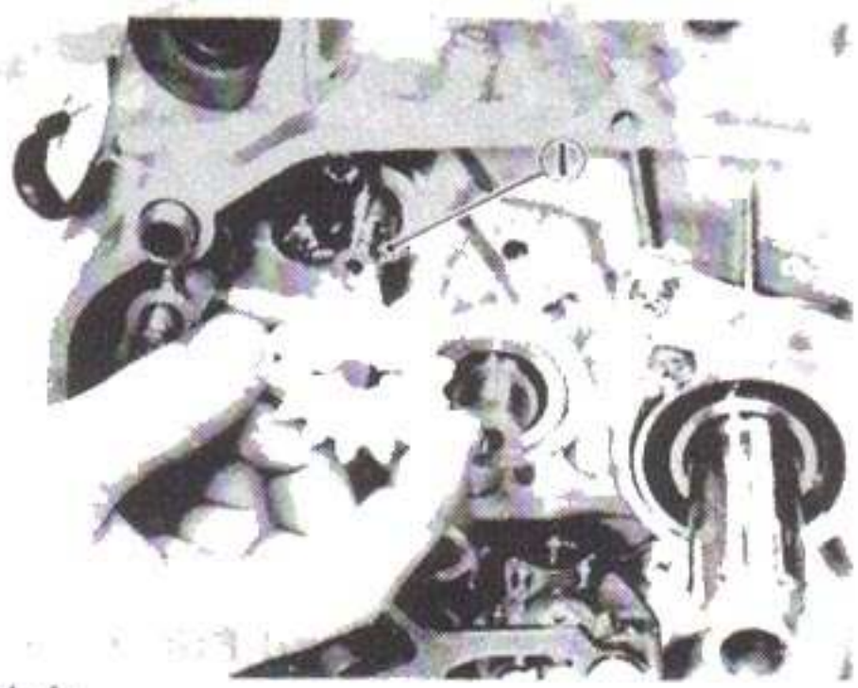


1. Kick axle assembly

2. Remove the circlips, and remove the kick idle gear, tachometer drive gear and dowel pin.



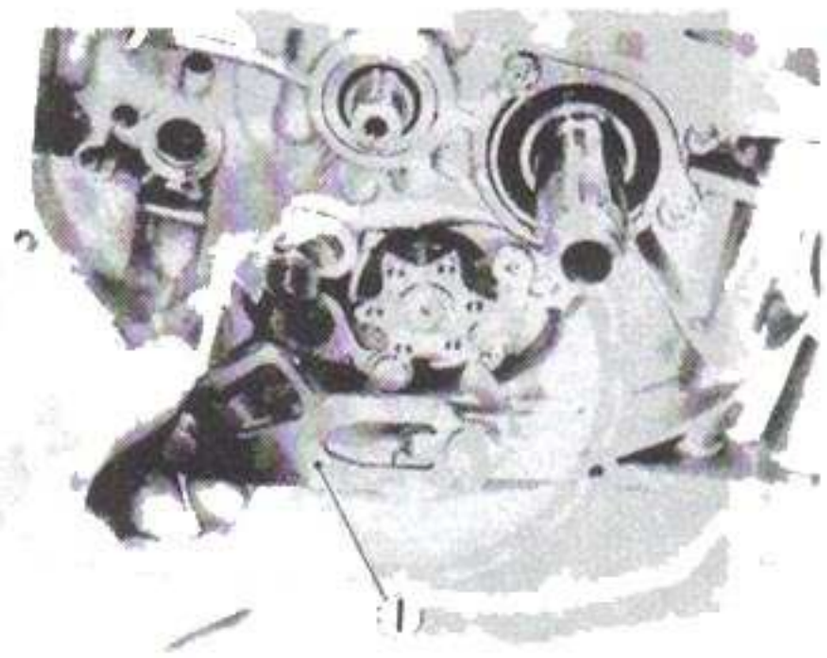
1. Kick idle gear
2. Tachometer drive gear



1. Dowel pin

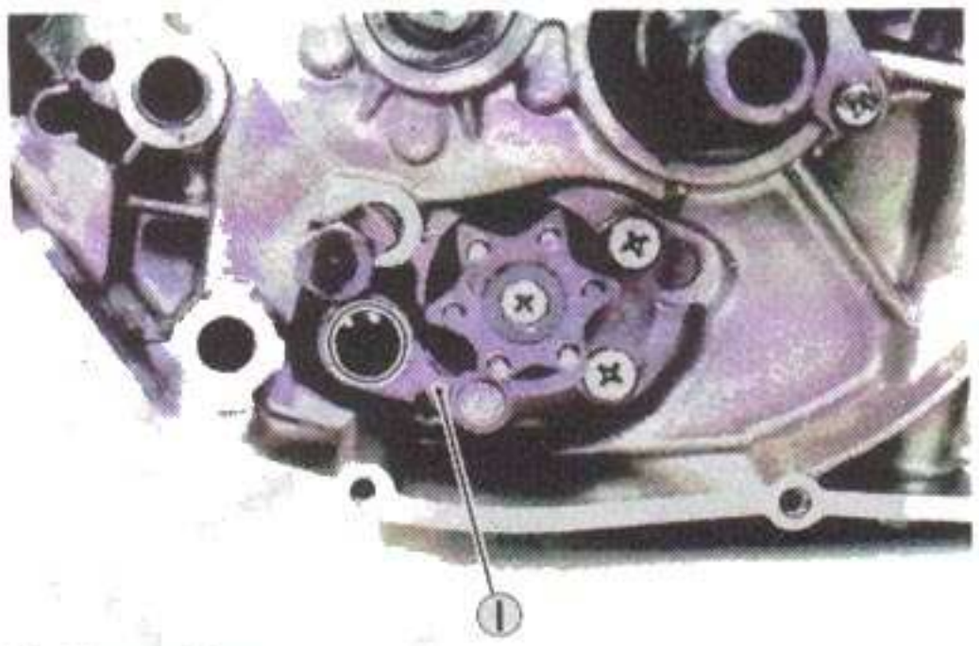
Change Shaft Assembly

1. Pull out the change lever assembly.



1. Change lever assembly

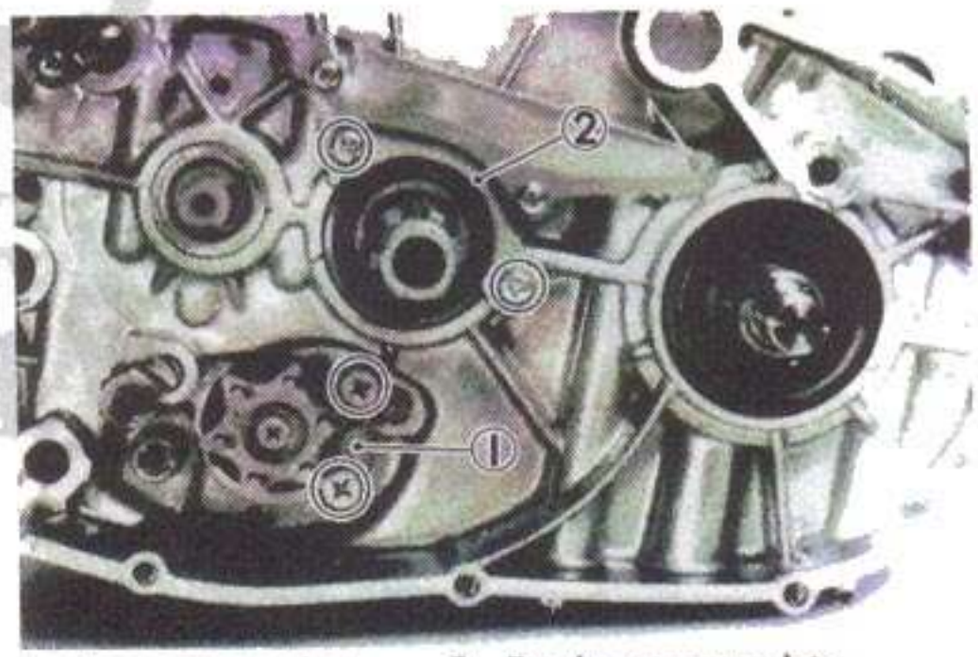
2. Remove the flange bolt, stopper lever, and spring.



1. Stopper lever

Cam Stopper and Bearing Stopper Plates

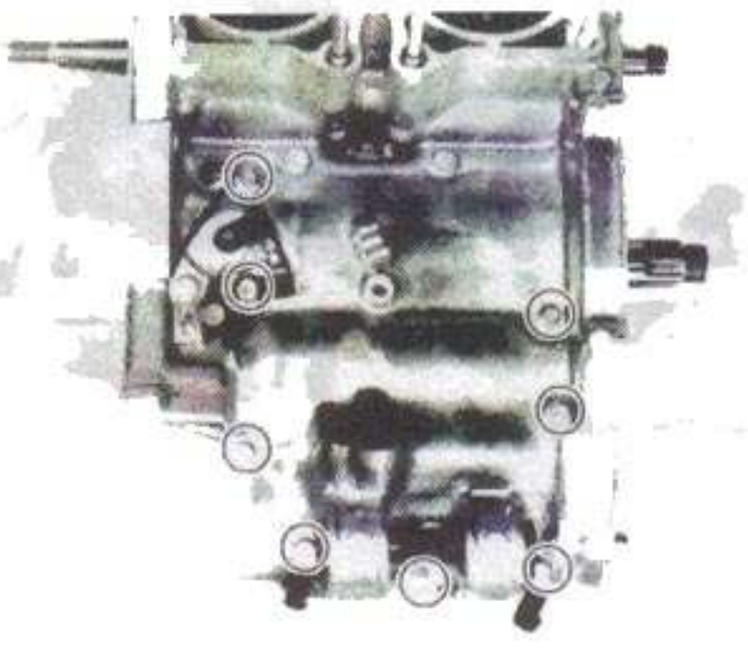
Remove the stopper plate securing screws and remove the plates.

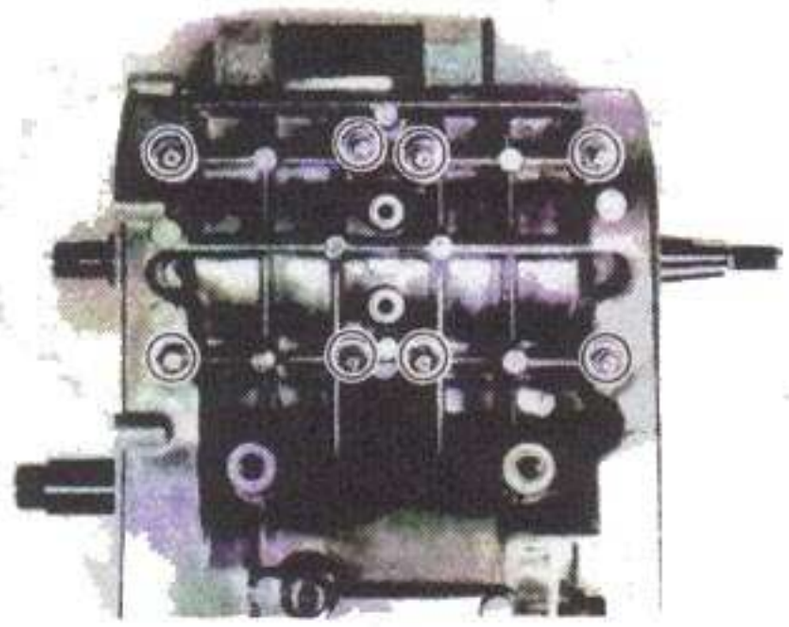


1. Cam stopper plate
2. Bearing stopper plate

Crankcase

1. Remove the crankcase holding bolts. Each bolt position is numbered on the crankcase. Start with the highest number for disassembly. Loosen each bolt 1/4 turn and proceed to the next.



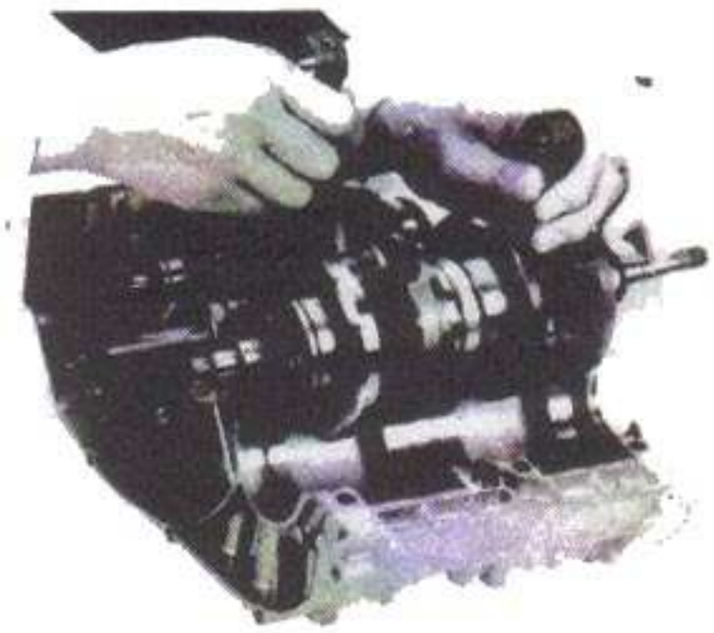


2. Split the crankcase by lightly striking the front and rear parts of the upper crankcase.



Crankshaft

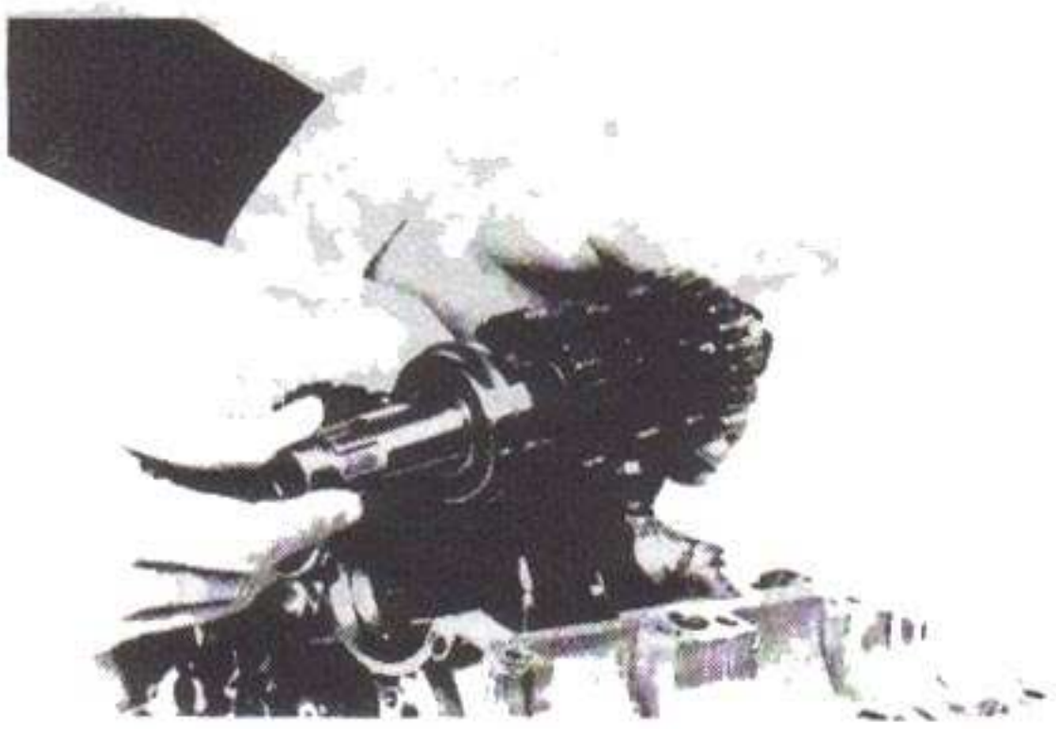
1. Remove the crankshaft by striking the shaft with hands.



2. Remove the circlips.

Transmission

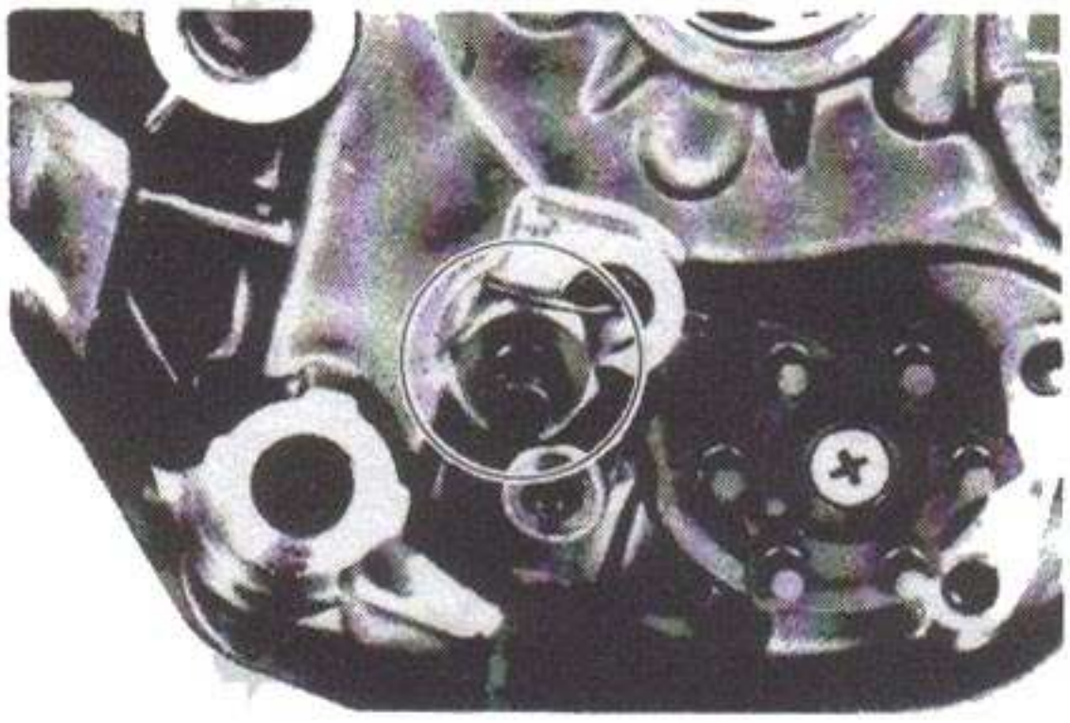
1. Remove the transmission by tapping it with the soft-faced hammer or the hands.



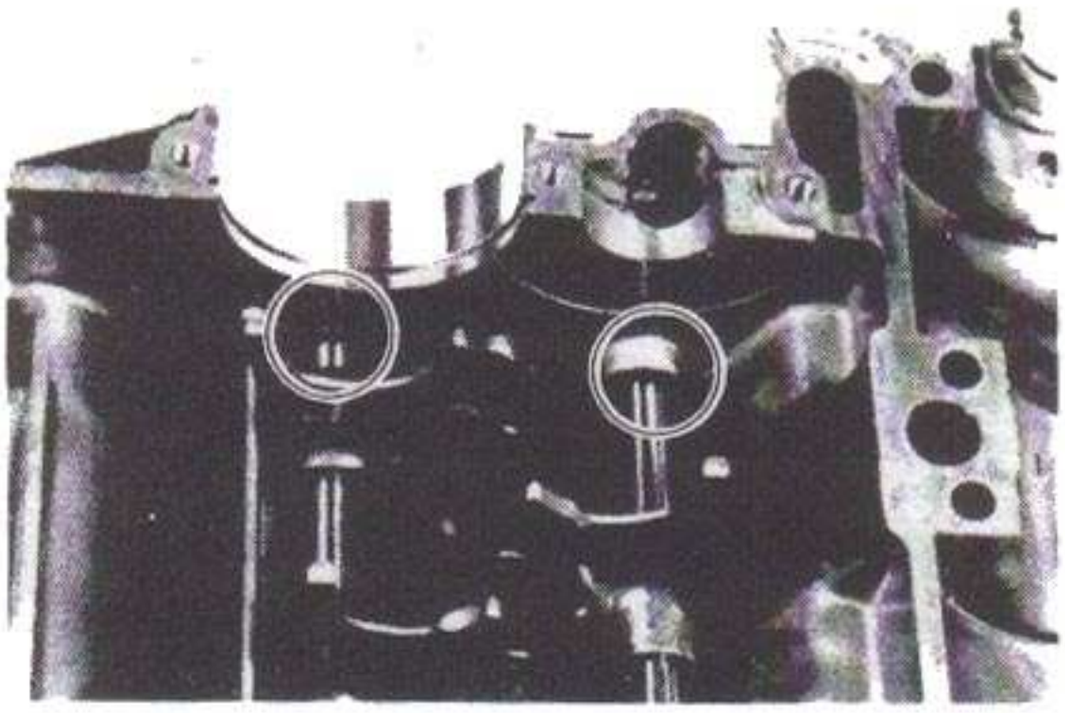
2. Remove the circlips.

Shift Cam, Guide Bars, and Shift Forks

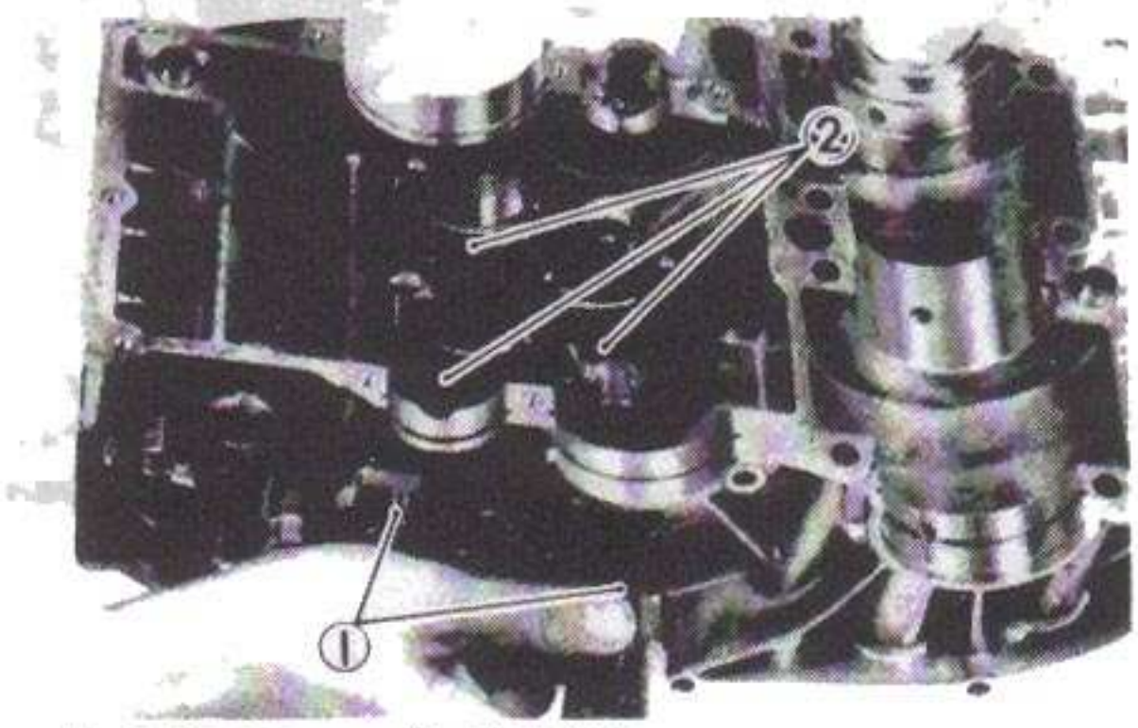
1. Flatten the lock tab on the change-shift-lever-adjusting-nut. Remove the adjusting screw.



2. Remove the circlips.



3. Remove the guide bars and shift forks.



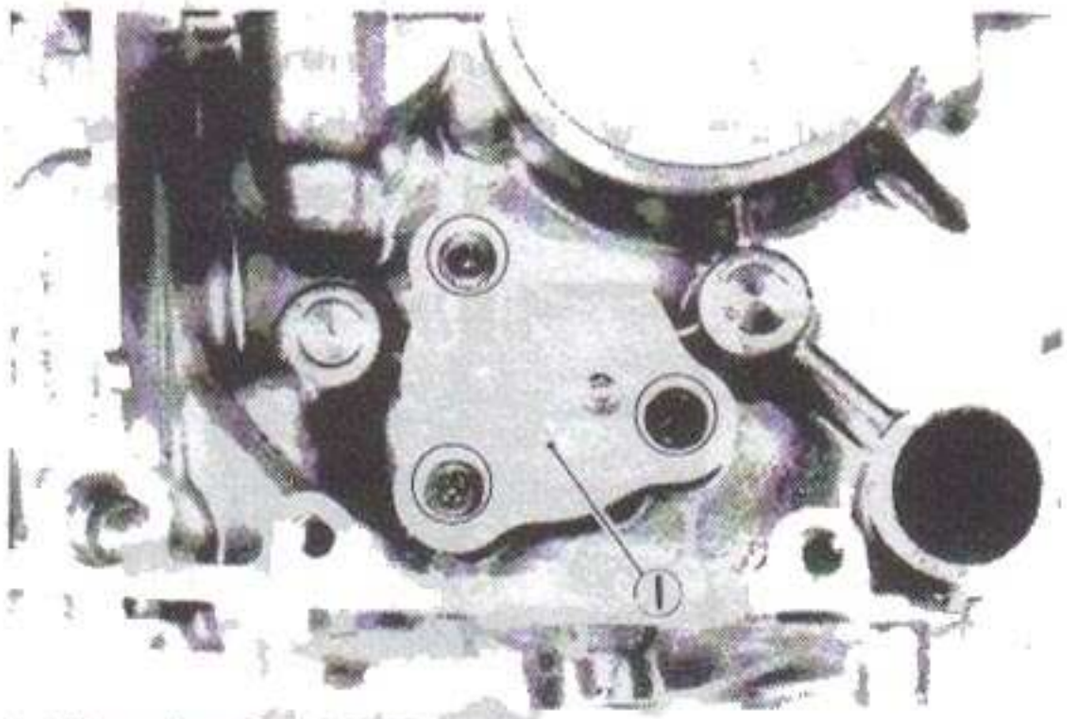
1. Guide bar 2. Shift fork

4. Remove the shift cam.



Neutral Switch

1. Remove the neutral switch holding screws and remove the neutral switch assembly.



1. Neutral switch

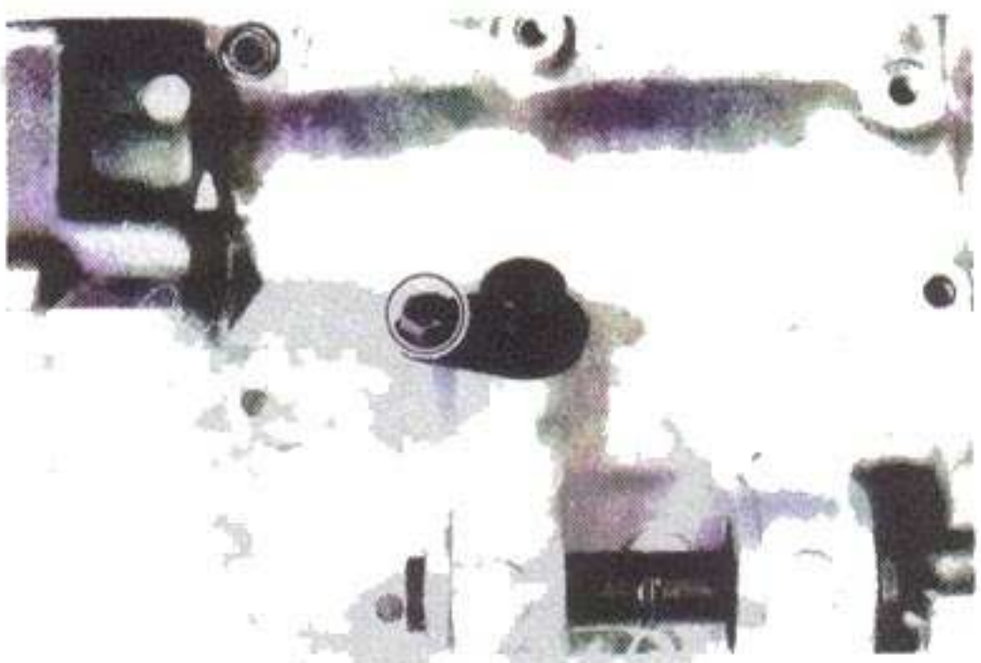
Clutch Push Lever

1. Remove the clutch push lever securing bolt from the crankcase.
2. Pull out clutch push lever.

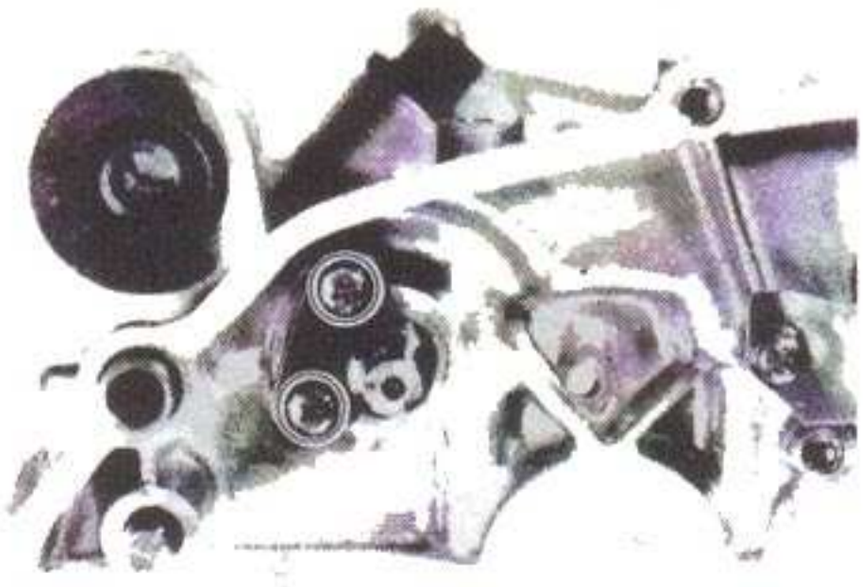


Tachometer Gears and Hose Joint 2

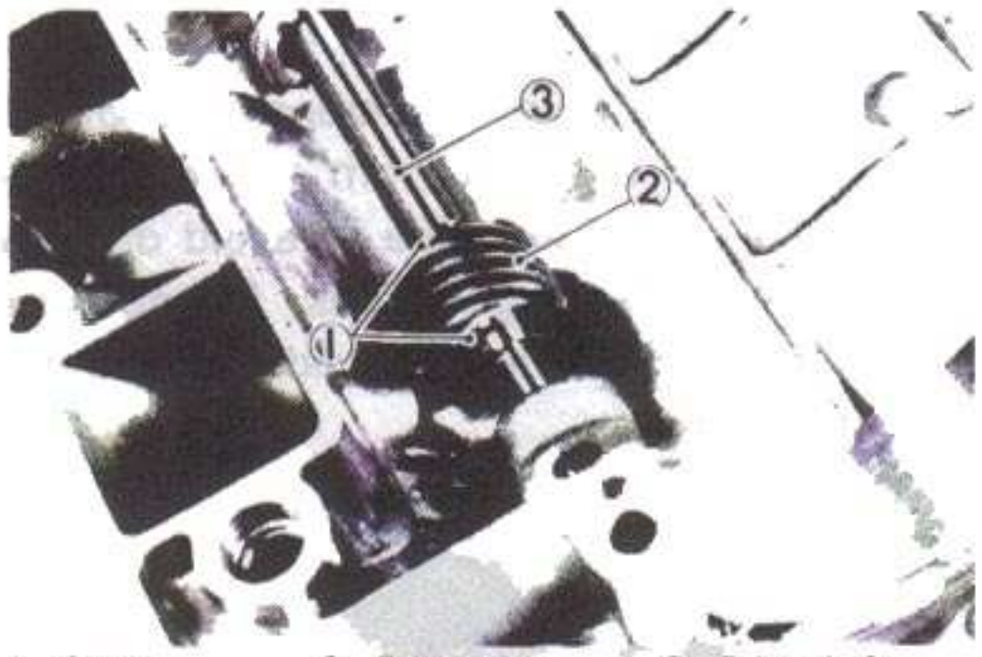
1. Remove the tachometer-driven-gear-housing securing bolt. Remove the housing and driven gear.



2. Remove the tachometer drive shaft stopper plate.

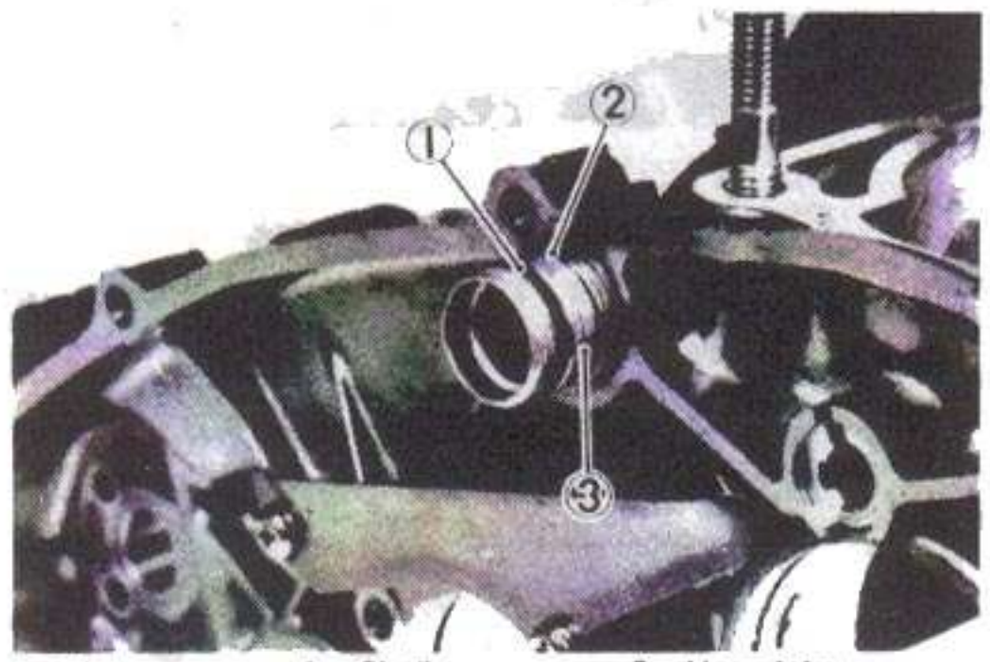


3. Remove the circlips from the drive shaft. Remove the drive shaft and drive gear.



1. Circlip 2. Drive gear 3. Drive shaft

4. Remove the O-ring and circlip from the radiator-hose-joint pipe and remove the joint from the crankcase.



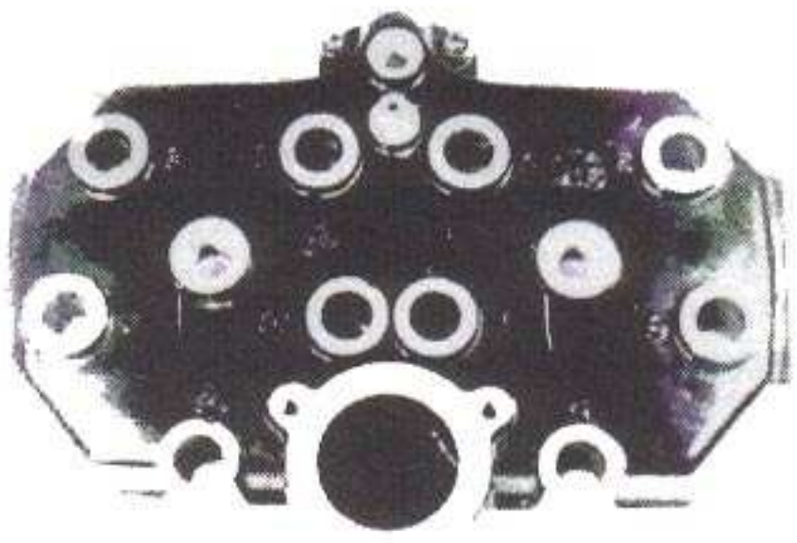
1. O-ring 2. Circlip 3. Hose joint

Cylinder Head

1. Using a rounded scraper, remove the carbon deposits from the combustion chamber. Take care to avoid damaging the spark plug threads. Do not use a sharp instrument. Avoid scratching the aluminum.

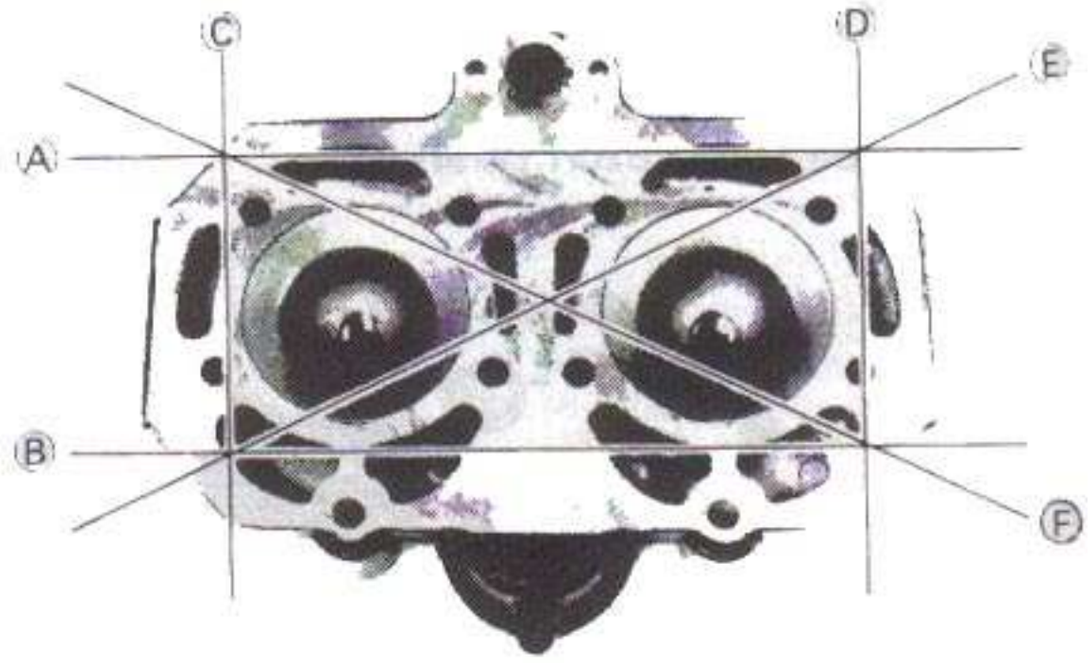


2. Check for a crust of minerals and rust in the cylinder head water jacket, and remove if necessary.



3. Using a straight edge and a thickness gauge, check the warpage of sealing surface of the cylinder head. Measurements should be made at six positions, A to F.

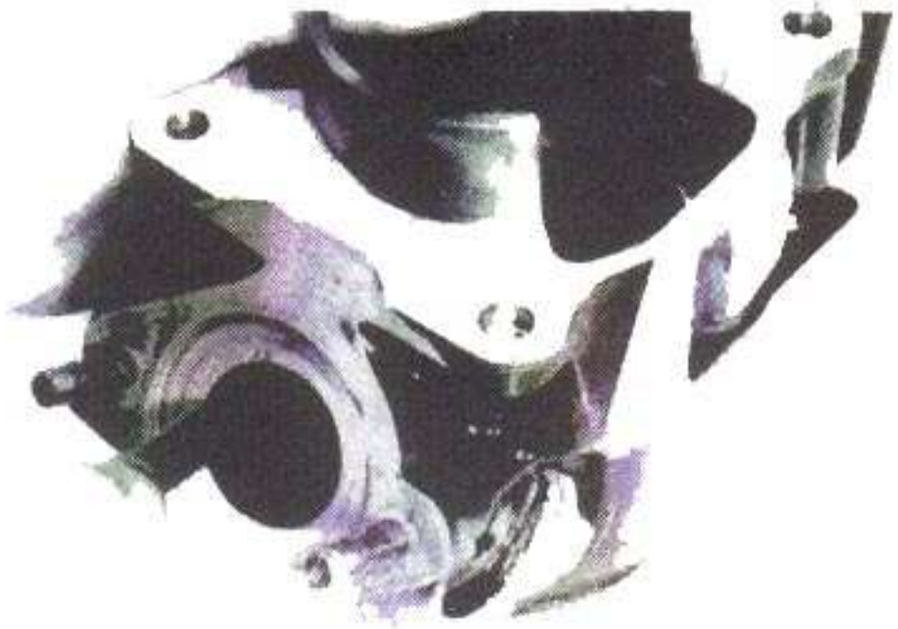
Warpage limit: 0.03mm (0.0012 in)

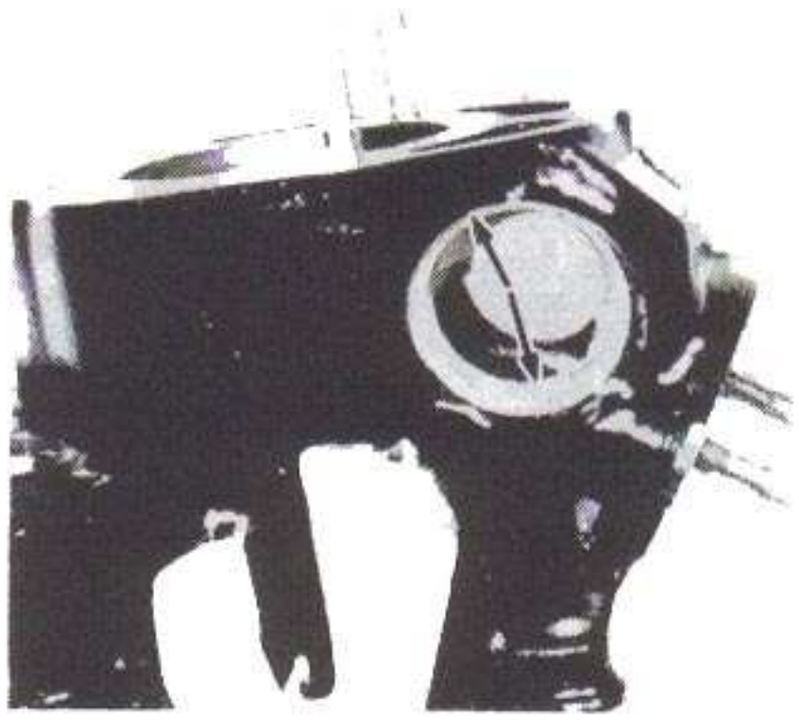


4. Correct by re-surfacing as follows:
   Place the 400 ~ 600 grit wet sandpaper on the surface plate and re-surface head using a figure-eight sanding pattern. Rotate the cylinder head several times to avoid removing too much material from one side.

Cylinder

1. Remove any deposits from the cylinder exhaust port and hole of the power valve.

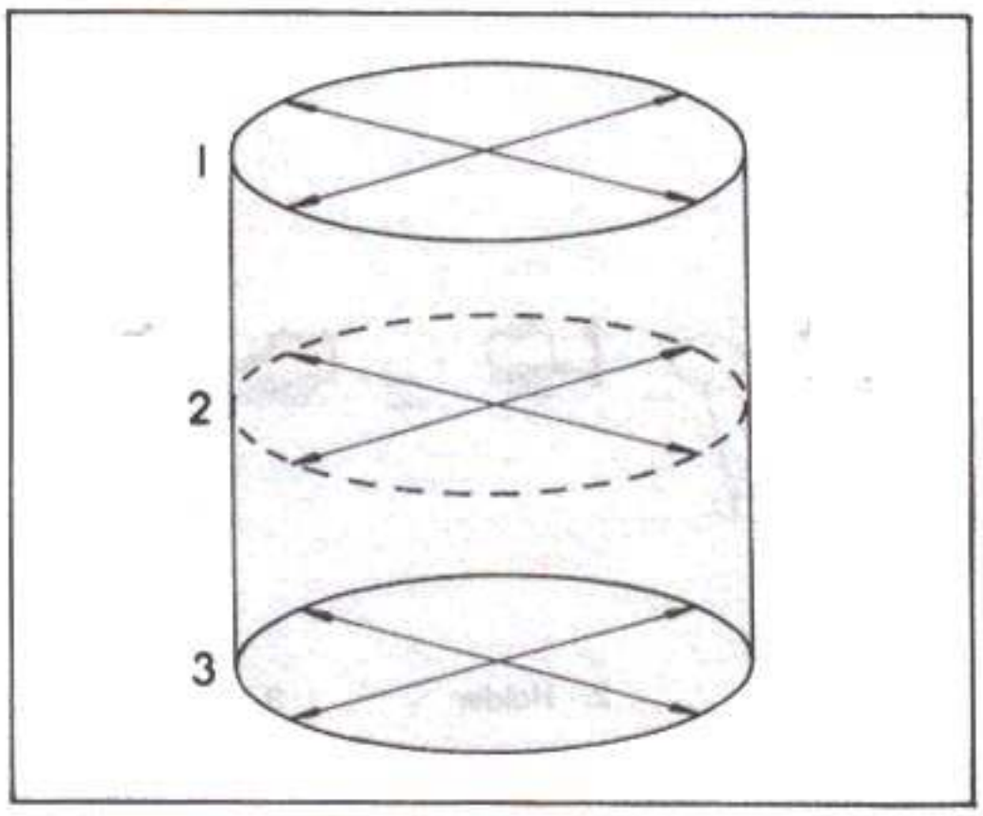


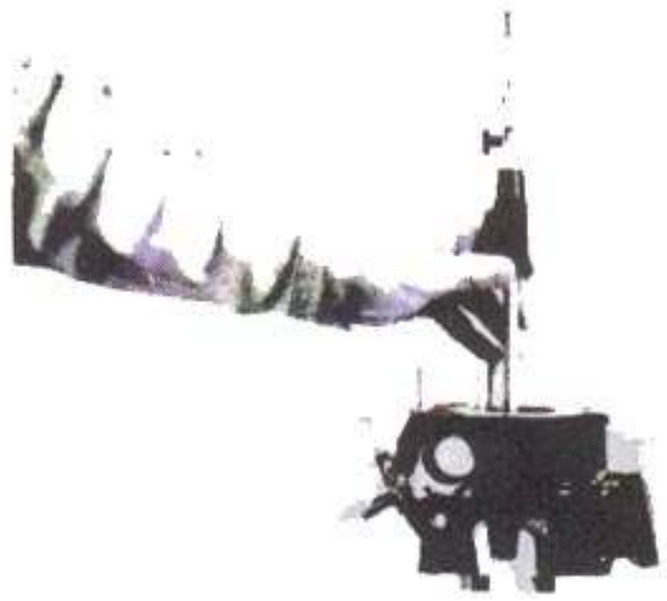


2. Check for a crust of minerals and rust in the cylinder water jacket, and remove if necessary.



3. Visually check the cylinder walls for scratches. If vertical scratches are evident, the cylinder wall should be rebored or the cylinder should be replaced.
4. Using a cylinder gauge set to standard bore size, measure the cylinder. Measure the front-to-rear and side-to-side at top, center and bottom just above the exhaust port. Take minimum and maximum measurements. If over tolerance and not correctable by honing, rebore to next over-size.





Cylinder bore	
Standard	Wear limit
64.00 mm (2.5197 in) ~ 64.02 mm (2.5205 in)	64.10 mm (2.5236 in)

Maximum allowable taper:
0.05 mm (0.002 in)

Maximum allowable out-of-round:
0.01 mm (0.0004 in)

Piston oversize:
64.25 mm (2.530 in)
64.50 mm (2.539 in)

Power Valve

1. Remove the carbon deposits from the exhaust port surface.
2. Remove the score marks and lacquer deposits from the curved surface, especially cleaning the groove.



1. Cleaning groove

3. Inspect the O-rings, holders, and oil seals. If damaged or worn, replace it.



1. O-ring 2. Holder 3. Oil seal



Piston

1. Remove the carbon deposits from the piston head.



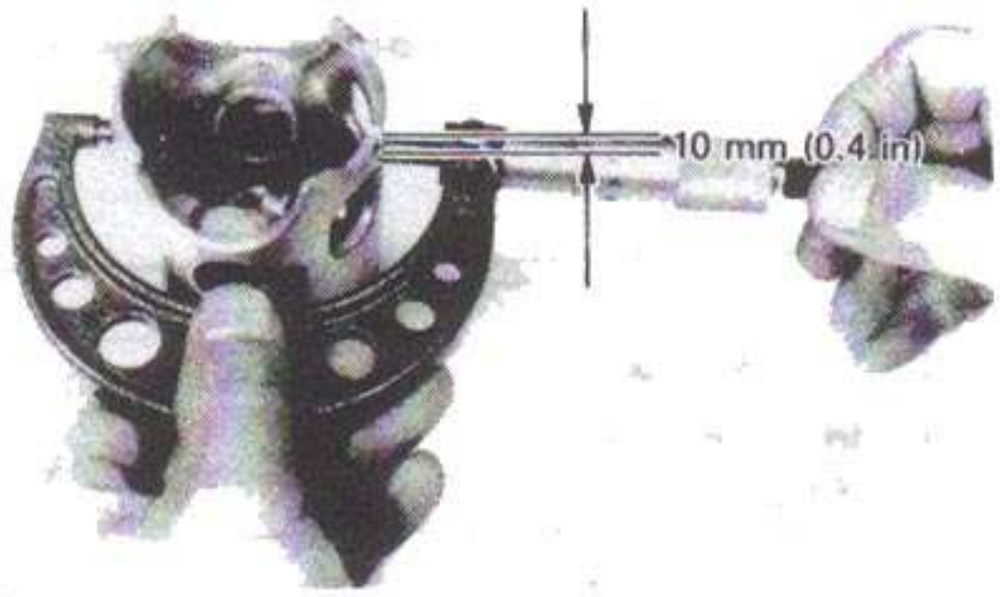
2. Carefully remove the carbon deposits from the ring grooves with folded end of ring.



3. Remove the score marks and lacquer deposits from the sides of piston using a 600 ~ 800 grit wet sandpaper. Sand in a crisscross pattern. Do not sand excessively.

Piston Clearance

1. Measure the outside diameter of the piston at the piston skirt.
   Measurement should be made at a point 10 mm (0.4 in) above the bottom edge of the piston. Place the Micrometer at right angles to the piston pin.



2. Determine the piston clearance as follows:

   Minimum Bore Measurement
   − Maximum piston measurement
   = Piston clearance

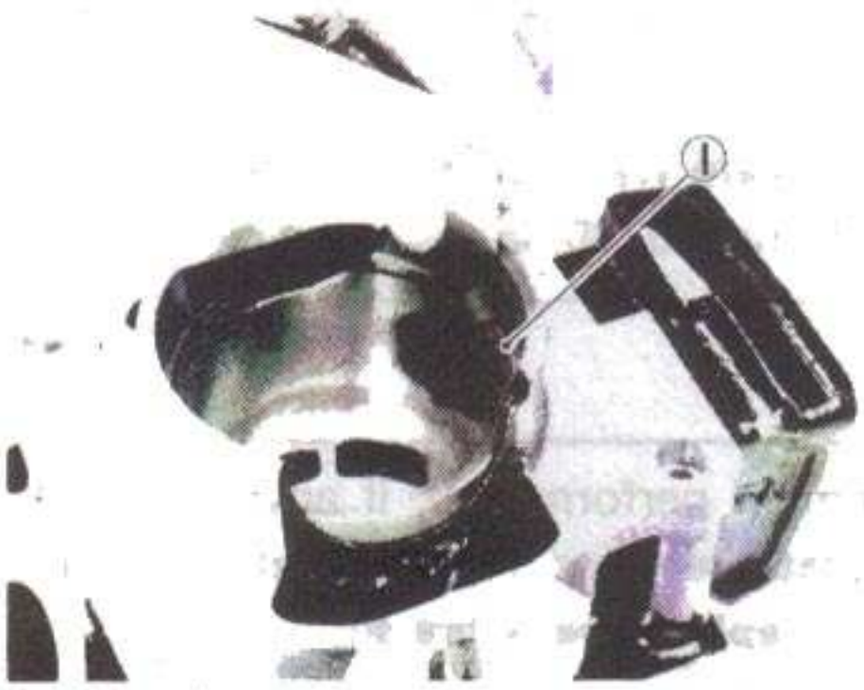
   EXAMPLE:
   64.08 mm (2.5228 in)
   − 64.02 mm (2.5205 in)
   = 0.06 mm (0.0024 in)

Piston clearance
0.060 ~ 0.065 mm (0.0024 ~ 0.0026 in)

Piston Rings

1. Insert each ring into cylinder. Push down approximately 20 mm (0.79 in) using the piston crown to position ring at right angles to bore. Measure the installed end gap. If beyond tolerance, replace the ring as a set.

Ring end gap installed		
	Minimum	Maximum
Top	0.30 mm (0.012 in)	0.45 mm (0.018 in)
Second	0.35 mm (0.014 in)	0.50 mm (0.020 in)



1. Ring end gap

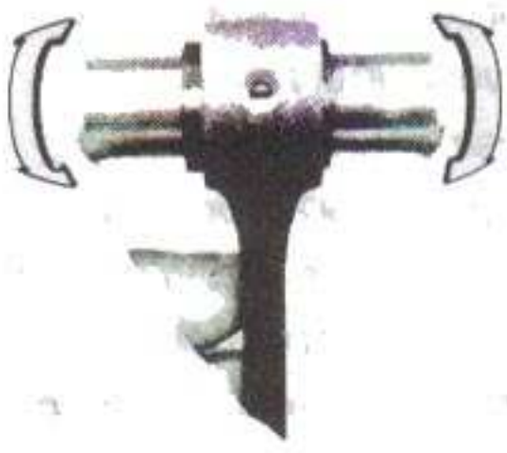
2. With ring installed in the groove, insert the Feeler Gauge between the ring side and groove. If beyond tolerance, replace the ring and/or piston as required.

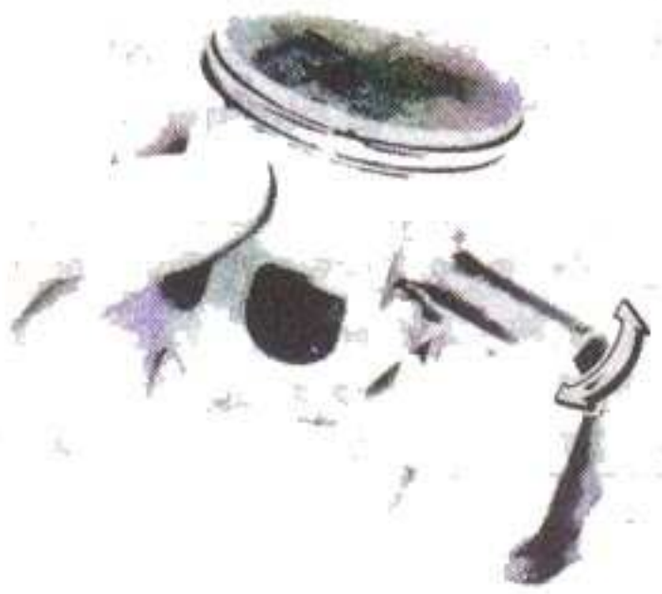
Ring side clearance		
	Minimum	Maximum
Top	0.02 mm (0.0008 in)	0.06 mm (0.0024 in)
Second	0.03 mm (0.0012 in)	0.07 mm (0.0028 in)



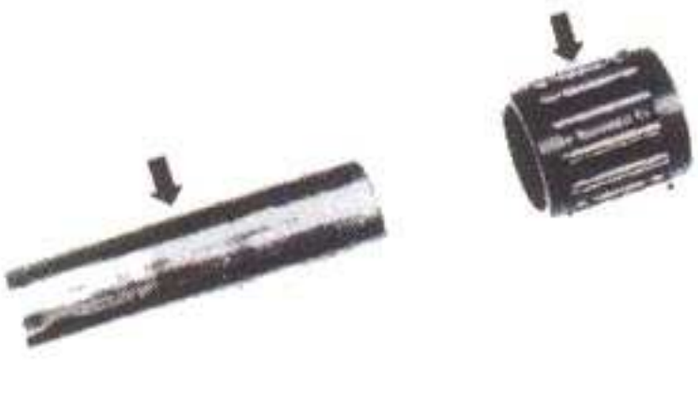
Piston Pin and Bearing

1. Apply a light film of oil to the pin and bearing surfaces. Inspect the connecting rod small end for wear and play. There should be no noticeable vertical play. If play exists, check the connecting rod small end for wear. Replace pin, connecting rod and/or bearing, as required.
2. The piston pin should have no noticeable free play in the piston. If the piston pin is loose, replace the pin and/or piston.





3. Check the pin and bearing for signs of heat discoloration. If excessive (indentation on pin, etc.), replace the pin and bearing as a set.



Autolube Pump

1. Troubleshooting and Repair

a. Wear or an internal malfunction may cause the pump output to vary from the factory setting. This situation is, however, extremely rare. If improper output is suspected, inspect the following:
   1) Obstructions in the delivery line to the pump or from pump to the carburetors.
   2) Worn or damaged pump body seal or crankcase cover seal.
   3) Missing or improperly installed check ball or spring.
   4) Improperly installed or routed oil delivery line(s).
   5) Loose fitting(s) allowing air to enter the pump and/or engine.

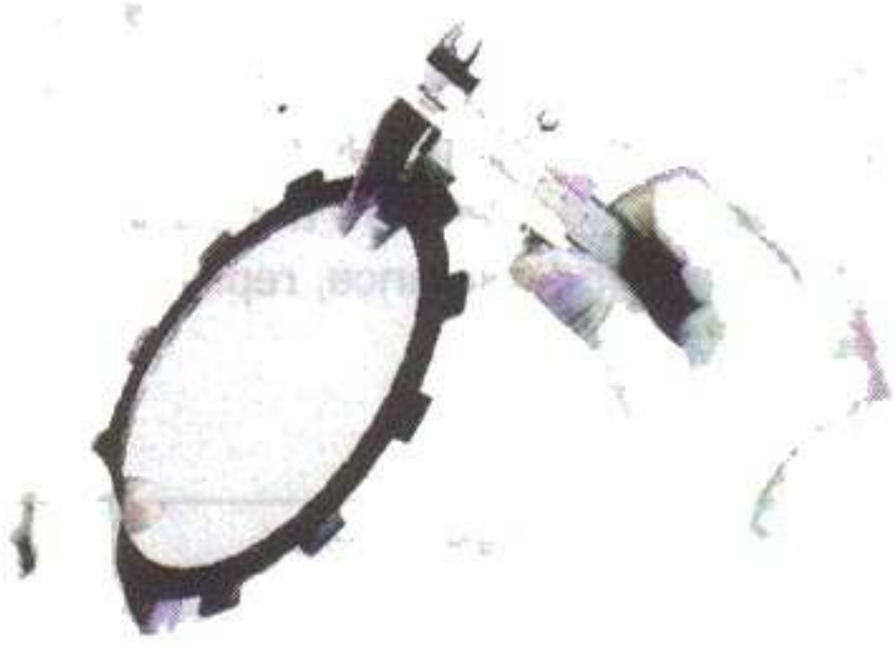
b. If all inspections show no obvious problems and improper output is still suspected, connect a delivery line from the pump to a container graduated in cubic centimeters (cm^3). Keep the delivery line short.
   Rotate the pump bleed wheel while counting the pump plunger strokes.

	Maximum throttle	Minimum throttle
Pump output at 200 strokes	2.58 ~ 2.85 cm^3 (2.27 ~ 2.51 Imp qt, 2.73 ~ 3.01 US qt)	0.12 ~ 0.19 cm^3 (0.11 ~ 0.17 Imp qt, 0.13 ~ 0.20 US qt)

Clutch

1. Measure the friction plates at three or four points. If their minimum thickness is out of specification, replace the plates.

	New	Wear limit
Friction plate thickness	3.0 mm (0.118 in)	2.7 mm (0.106 in)

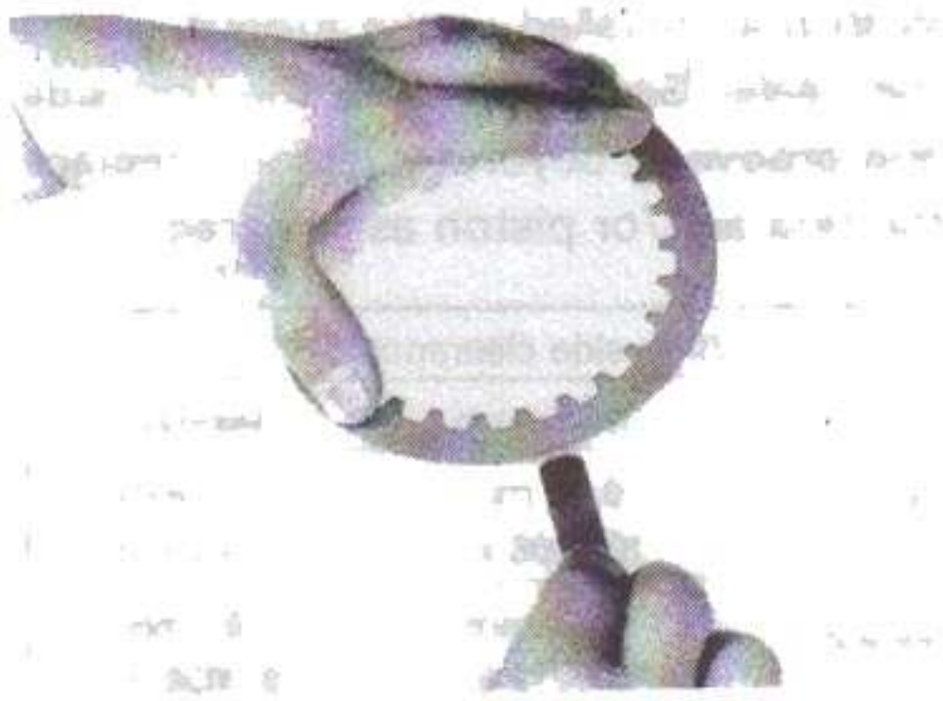


2. Check each clutch plate for signs of heat damage and warpage. Place on Surface Plate (plate glass is acceptable) and use Feeler Gauge. If warpage exceeds tolerance, replace the plates.

Clutch plate warpage allowance:
0.05 mm (0.002 in)

NOTE:

For optimum performance, if any friction or clutch plate requires replacement, it is advisable to replace the entire set.



3. Measure each clutch spring. If beyond tolerance, replace the springs.

	New	Limit
Clutch spring free length	36.4 mm (1.43 in)	34.4 mm (1.35 in)

NOTE:

For optimum clutch operation it is advisable to replace the clutch springs as a set if one or more are faulty.



4. Roll the push rod 2 across a surface plate. If rod is bent, replace it.



Bending limit: 0.2 mm (0.008 in)

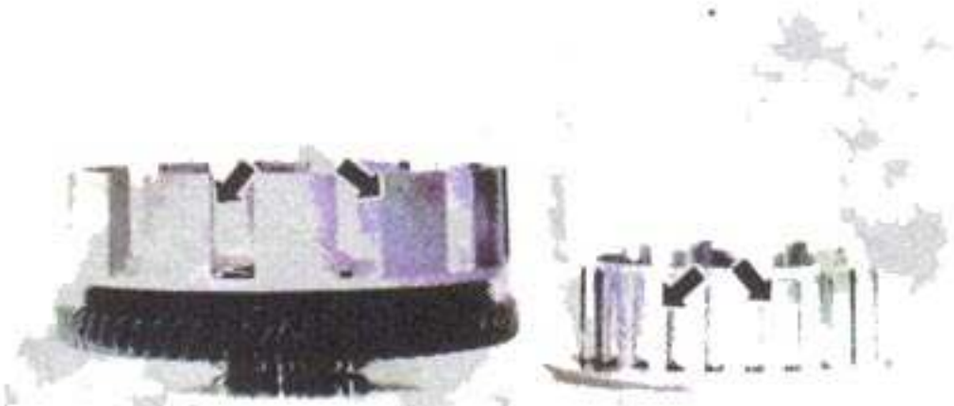
5. Check the cushion rings for fatigue or breakage. If any one is fatigued or broken, replace all cushion rings.



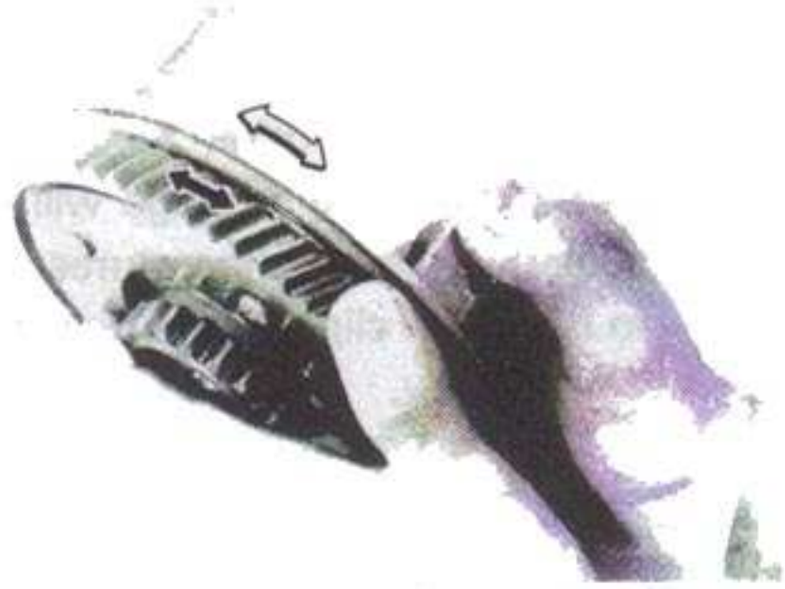
6. Check dogs on the driven gear (clutch housing) and clutch boss.
   Look for cracks and signs of galling on edges. If damage is moderate, deburr. If severe, replace them.

NOTE:

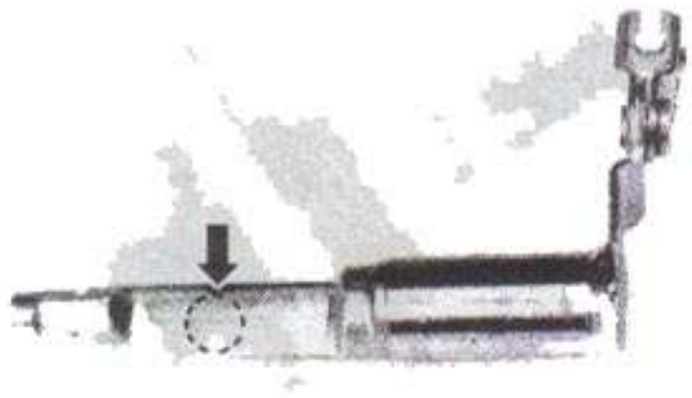
Galling on either the friction plate dogs of the clutch housing or clutch plate splines of the clutch boss will cause erratic clutch operation.



7. Check splines on clutch boss for signs of galling. If damage moderate, deburr. If severe, replace it.
8. Check the clutch housing for circumferential play by hand. If excess play exists, replace it.

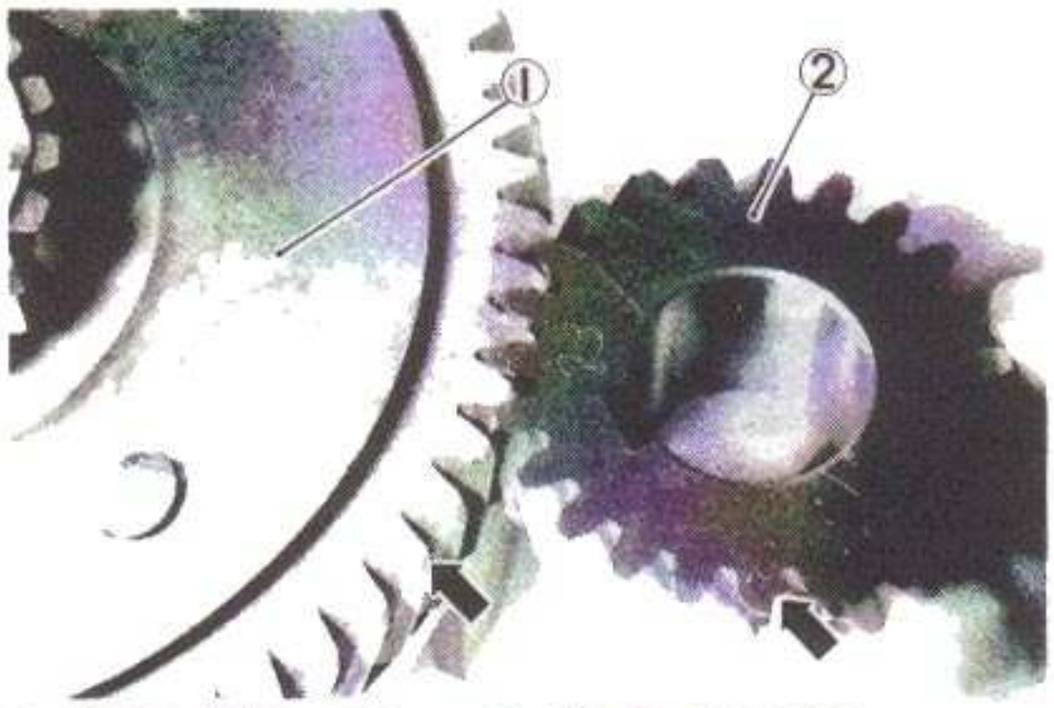


9. Inspect the clutch push lever. If excessively worn, repair using 300~400 grit sandpaper or replace.



Primary Drive

1. Check the drive gear and driven gear for obvious signs of wear or damage from material within the primary case.
2. If the primary drive is excessively noisy during operation, replace both the drive and driven gears.

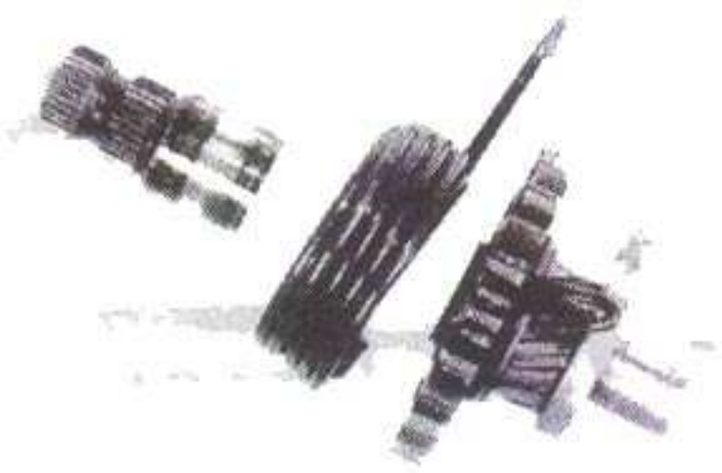


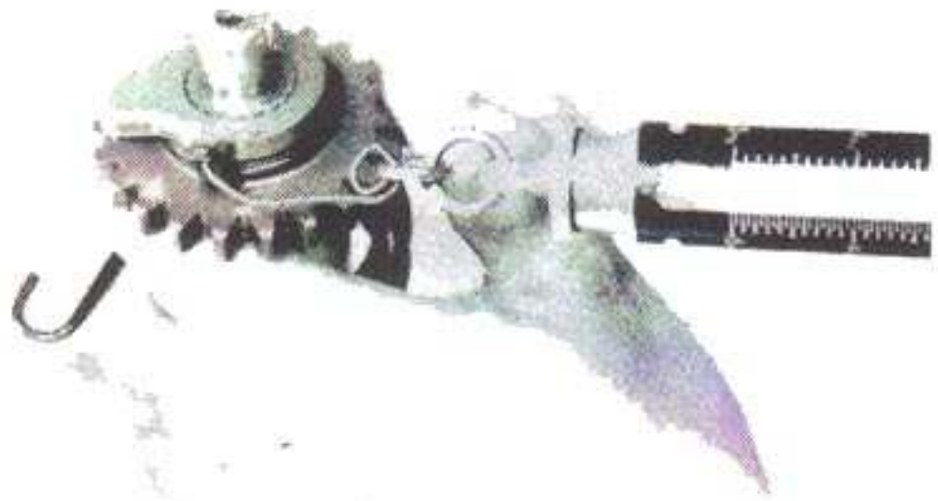
1. Primary driven gear 2. Primary drive gear

Kick Starter

1. Check the clip for damage and wear, and determine whether or not, it should be replaced.
2. The pressure of the kick clip is 1.0 kg (2.2 lb). If above pressure is too strong, spring wear and kick starter slipping will result. On the other hand, if it is too weak, the same slippage will occur particularly at low temperatures. Do not try to bend the clip and replace the kick slip if necessary.

Standard tension: (Min. ~ Max.) 0.8 ~ 1.3 kg (1.76 ~ 2.90 lb)





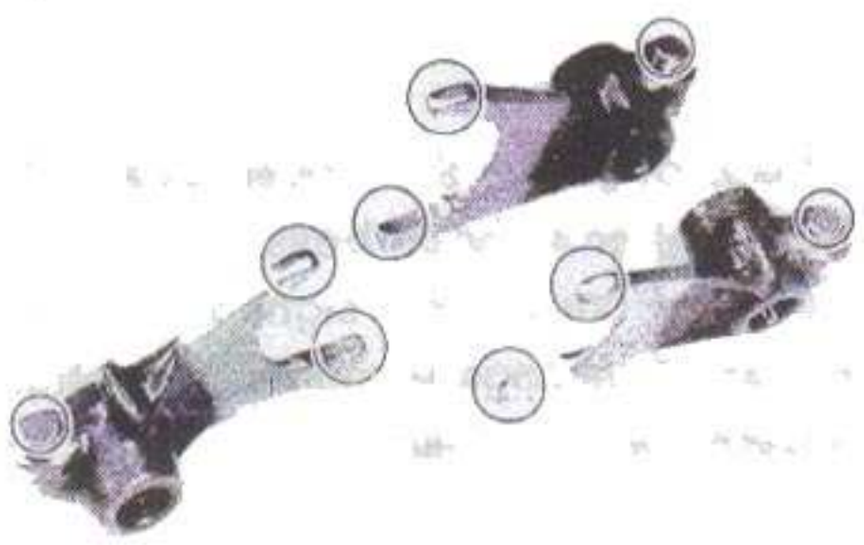
Shifter

1. Inspect the shift return spring. A broken or worn spring will impair the return action of the shifting mechanism. Replace it if necessary.
2. Inspect the change shaft assembly for bending of shaft, worn or bent splines, and broken or worn shift arm spring. A bent shaft will cause hard shifting. Replace it if necessary.



Transmission

1. Inspect each shift fork for signs of galling on gear contact surfaces. Check for bending. Make sure each fork slides freely on its guide bar.
   Replace the fork(s) if necessary.



2. Roll the guide bars across a surface plate. If any bar is bent, replace.

Guide bar bending limit:
0.2 mm (0.008 in)



3. Check the shift cam grooves for signs of wear or damage. If any profile has excessive wear and/or any damage, replace cam.



4. Check the cam followers on each shift fork for wear. Check the ends that ride in the grooves in the shift cam. If they are worn or damaged, replace shift forks and shift cam as a set.
5. Check the transmission shafts using a centering device and dial gauge. If any shaft is bent, replace.
6. Carefully inspect each gear. Look for signs of obvious heat damage (blue discoloration). Check the gear teeth for signs of pitting, galling, or other extreme wear. Replace as required.



7. Check to see that each gear moves freely on its shaft.

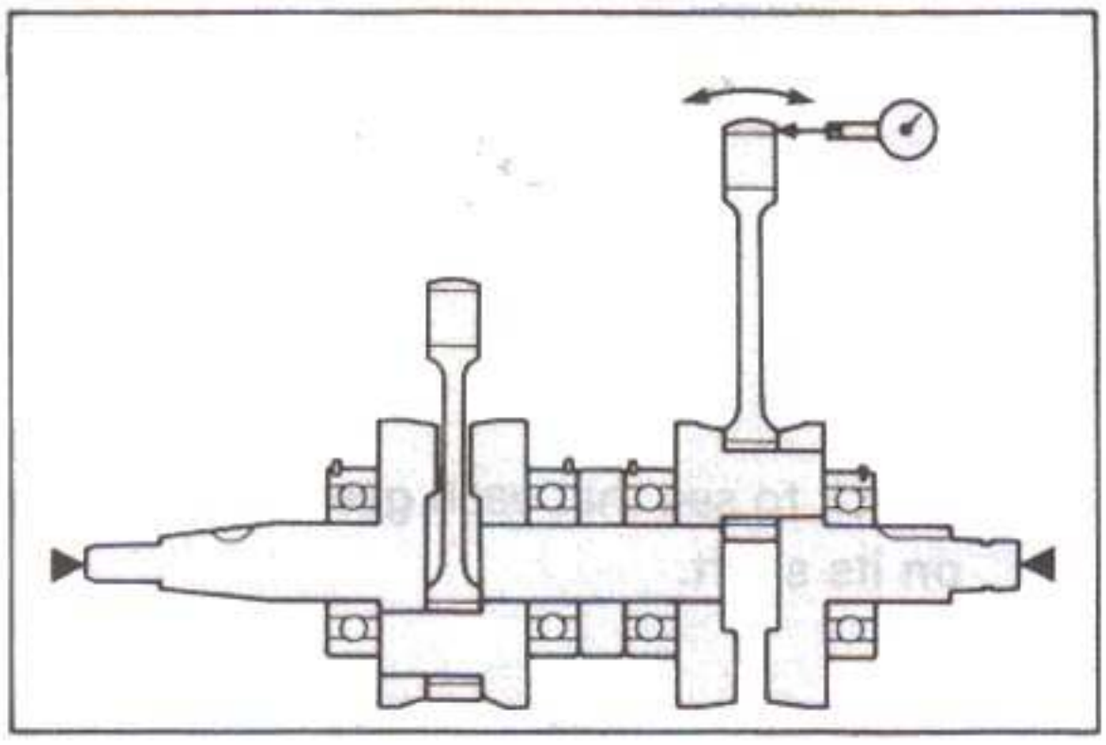


8. Check to see that all washers and clips are properly installed and undamaged. Replace the bent or loose clips and bent washers.
9. Check to see that each gear properly engages its counterpart on the shaft. Check the mating dogs for rounded edges, cracks, or missing portions. Replace as required.

Crankshaft

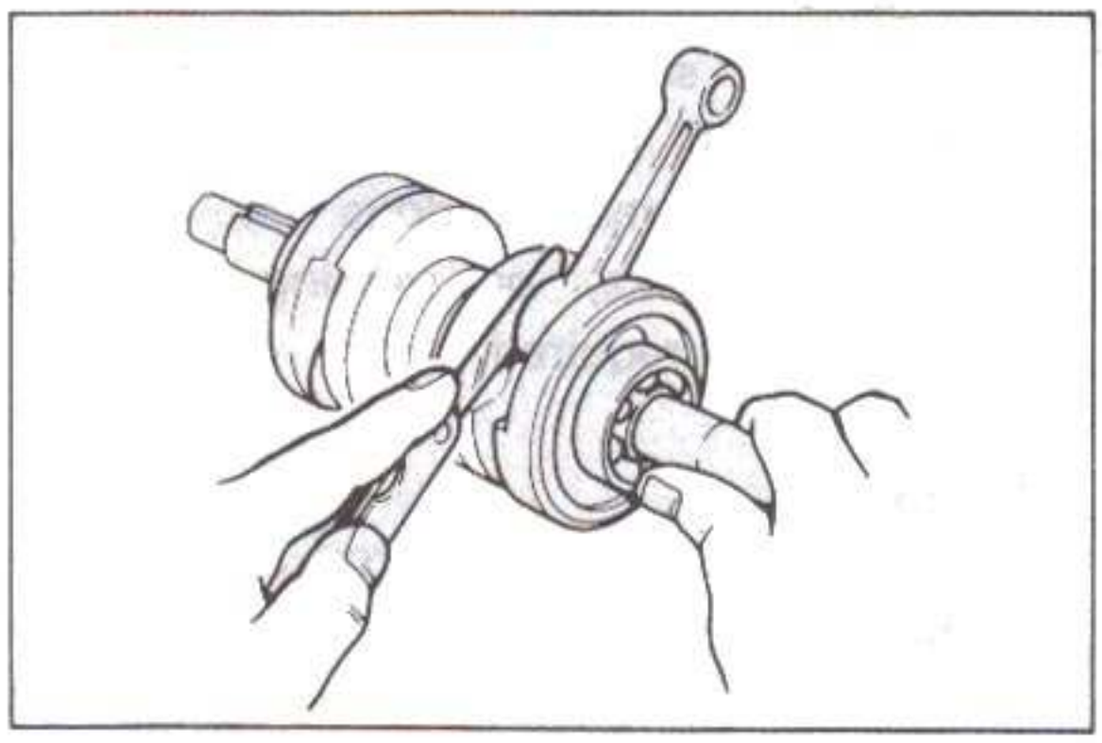
1. Check the connecting rod axial play at small end (to determine the amount of wear of crank pin and bearing at big end).
   If the small end play exceeds tolerance, disassemble the crankshaft, check the connecting rod, crank pin, and big end bearing.
   Replace the defective parts. Play after reassembly should be within specification.

Small end free play	
Minimum	Maximum
0.36 mm (0.014 in)	0.98 mm (0.039 in)



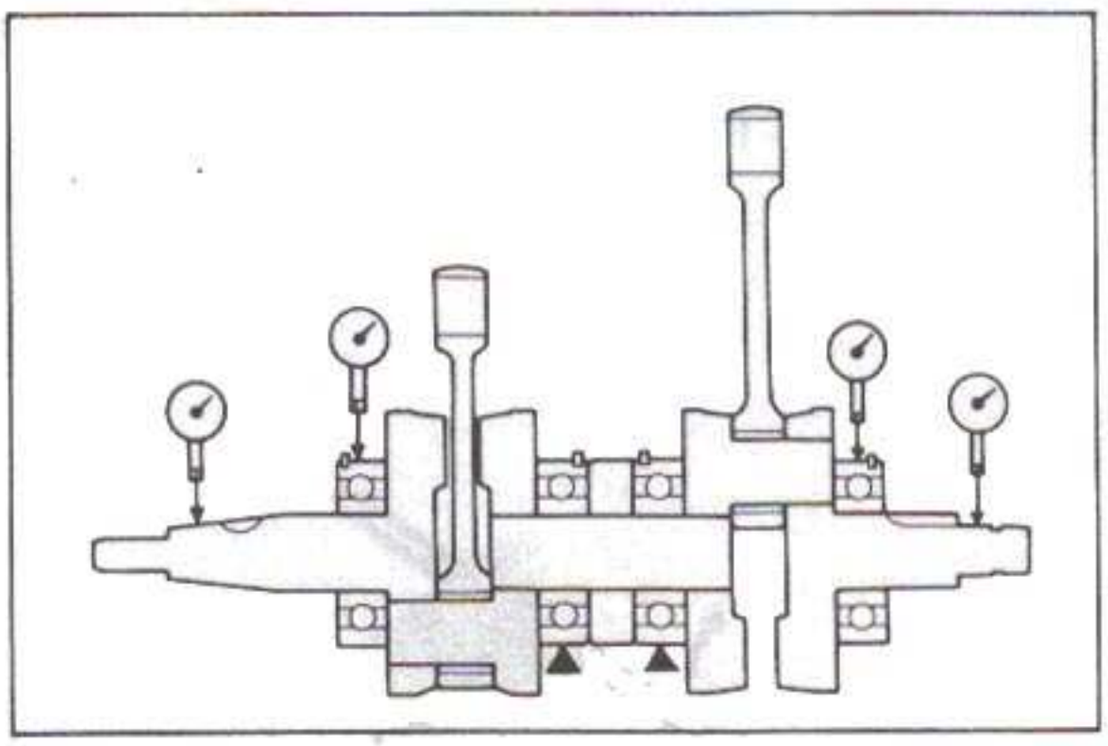
2. Check the connecting rod side clearance at big end.
   If axial play exceeds tolerance, disassemble the crankshaft and replace any worn parts. Big end axial play should be within specification.

Rod side clearance	
Minimum	Maximum
0.25 mm (0.01 in)	0.75 mm (0.03 in)



3. Check the crankshaft assembly runout (misalignment of crankshaft parts).
   The Dial gauge readings should be within specification.
   Correct any misalignment by tapping the flywheel with a brass hammer and/or by using a wedge.

Deflection tolerance	0.05 mm (0.002 in)



Neutral Switch

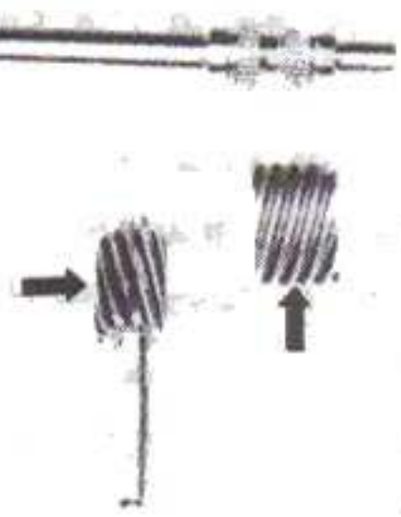
1. Check the O-ring, replace if damaged.
2. Check the neutral point for wear. Replace as required.



1. O-ring
2. Neutral point

Tachometer Gear

1. Check the driven and drive gears for any signs of galling. Replace as required.



2. Check the O-ring fitted on the stopper plate. If damaged, replace it.



1. O-ring

Bearings and Oil Seals

1. After cleaning and lubricating the bearings, rotate outer race with a finger. If rough spots are noticed, replace the bearing.



2. Check the oil seal lips for damage and wear. Replace as required.



3. Installation
   Install the bearing(s) and oil seal(s) with their manufacturer's marks or numbers facing outward. (In other words, the stamped letters must be on the exposed view side.) When installing the bearing(s) or oil seal(s), apply a light coating of lightweight lithium base grease to balls and seal lip(s).



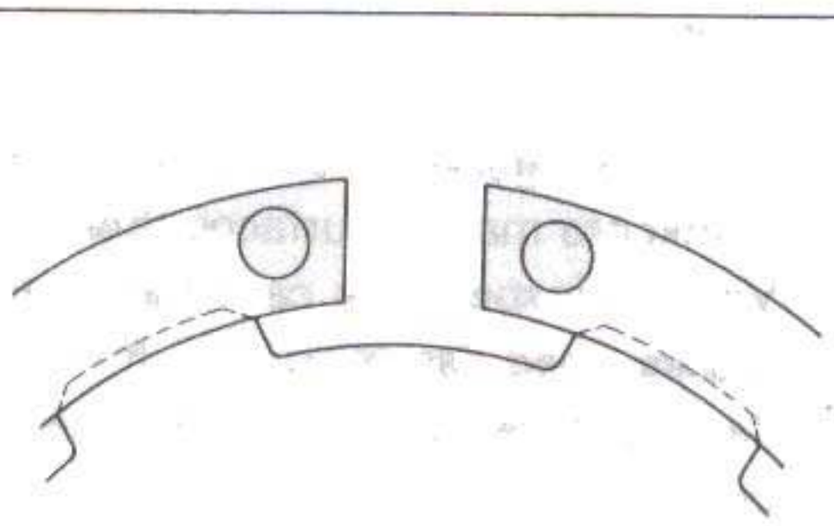
Crankcase

1. Thoroughly wash the case halves in a mild solvent.
2. Clean all gasket mating surfaces and crankcase mating surfaces thoroughly.
3. Visually inspect the case halves for any cracks, road damaged, etc. If cracked or damaged, replace the crankcase assembly.
4. Check all fittings not previously removed for signs of loosening or damage.
5. Check the oil delivery passages in transfer ports for signs of blockage.

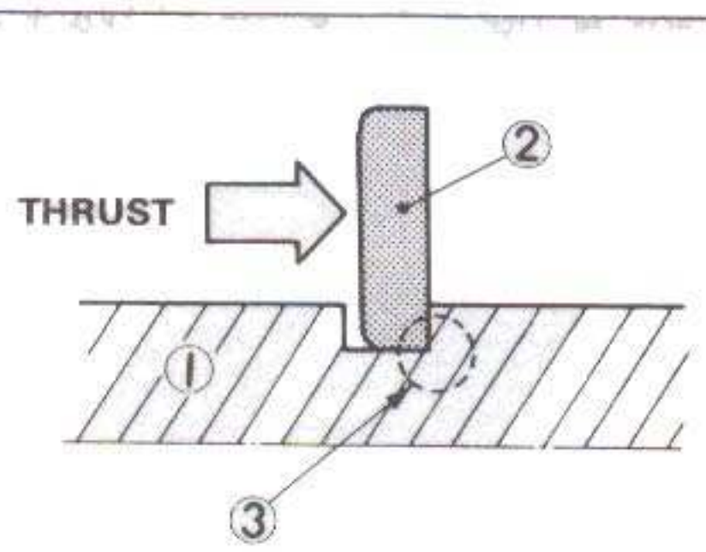
ENGINE ASSEMBLY AND ADJUSTMENT

Important Informations

1. Gasket and seal
   All gaskets and seals should be replaced when the engine is overhauled. All gasket surfaces and oil seal lips must be cleaned.
2. Lubricate oil to all mating engine and transmission parts and bearings during assembly.
3. Circlip
   All circlips should be inspected carefully before assembly. Always replace the piston pin clips after one use. Replace distorted circlips.
   When installing a circlip, make sure that the sharp edged corner is positioned opposite to the thrust it receives. See the sectional view below.



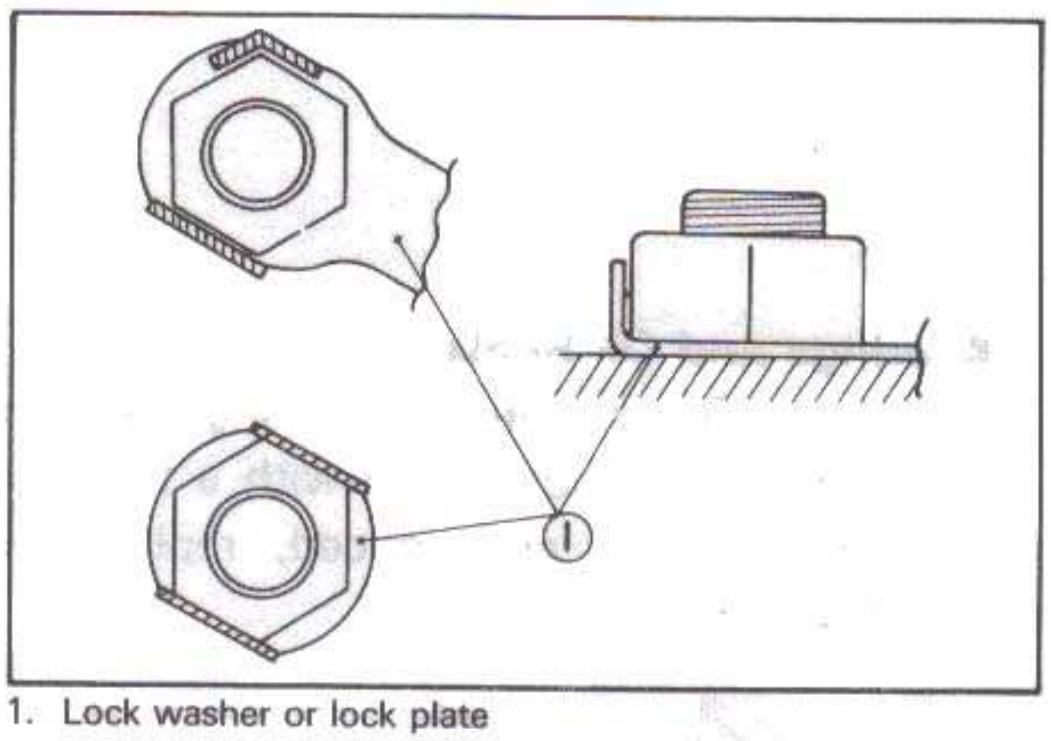
* Position the circlip end gap in the spline.



* Install the circlip so that the round edge is on the gear side.

1. Shaft 2. Circlip 3. Edge

4. Lock washer/plate and cotter pin
   All lock washers/plates and cotter pins must be replaced when they are removed. Lock washer/plate tab(s) should be bent over along the bolt or nut flat(s) after tightening the bolt or nut properly (see illustration).



1. Lock washer or lock plate

Cotter pins should be replaced after one use.

Engine Lubrication Chart

When assembling the engine, apply oil and grease to the following points:

ENGINE LUBRICATION CHART



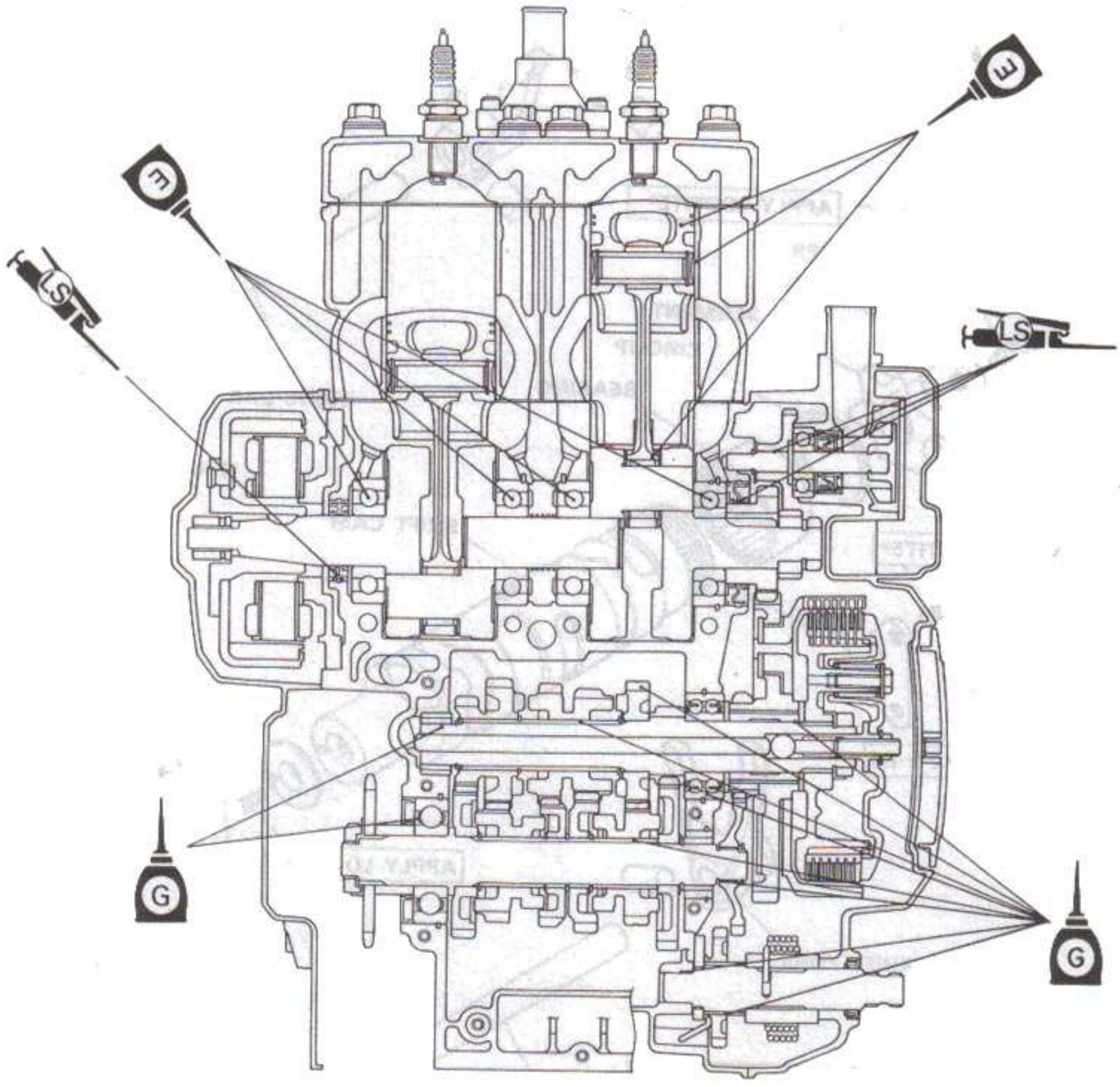
Apply lightweight lithium-soap base grease



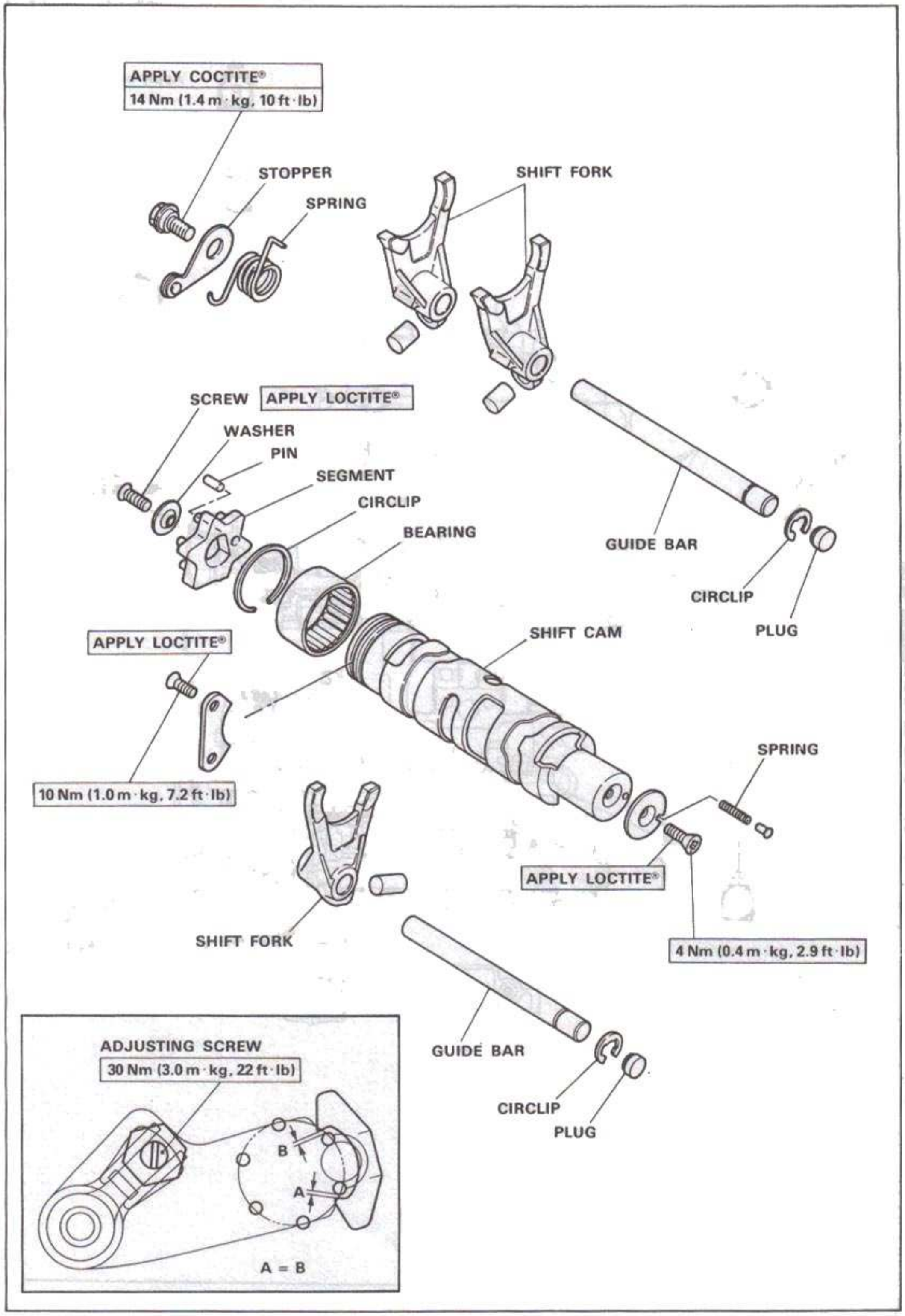
Apply engine oil



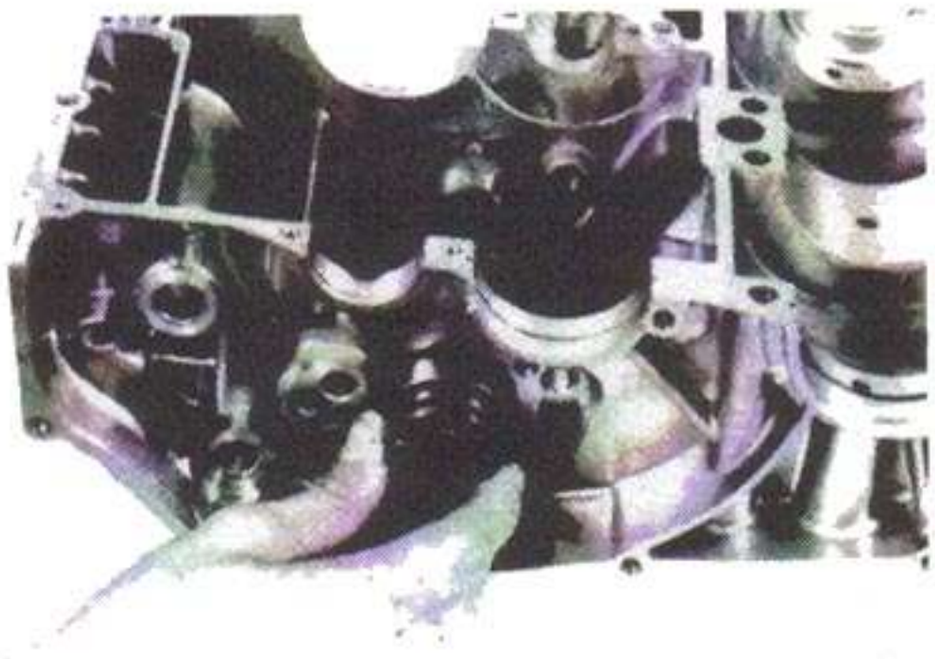
Apply gear oil



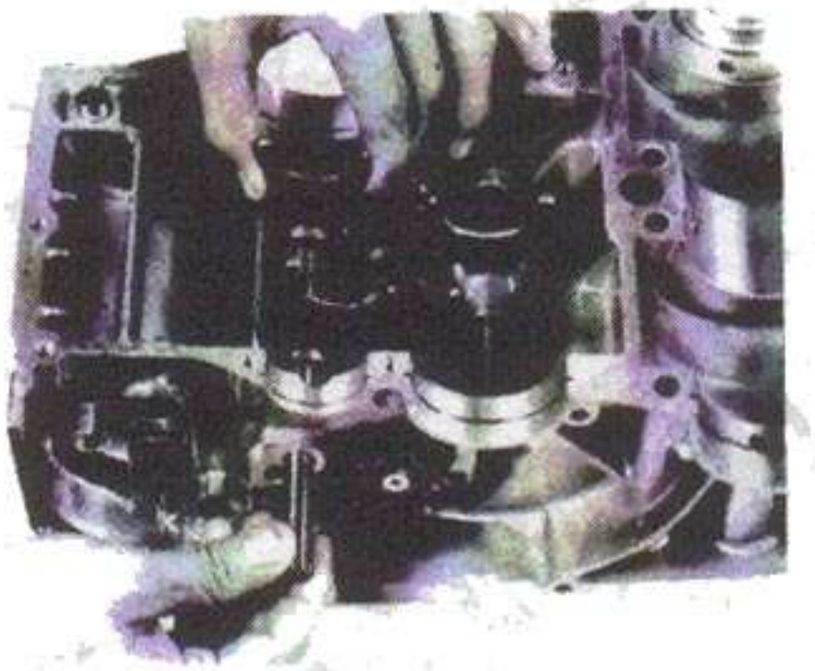
Shift Cam, Guide Bar, and Shift Fork



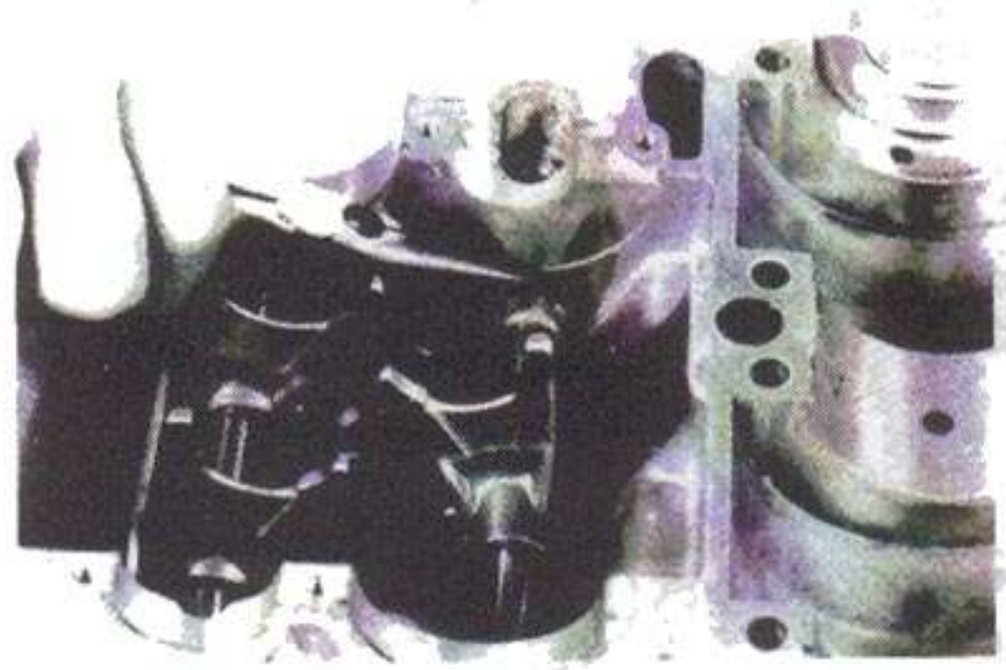
1. Install the shift cam into the lower crankcase.

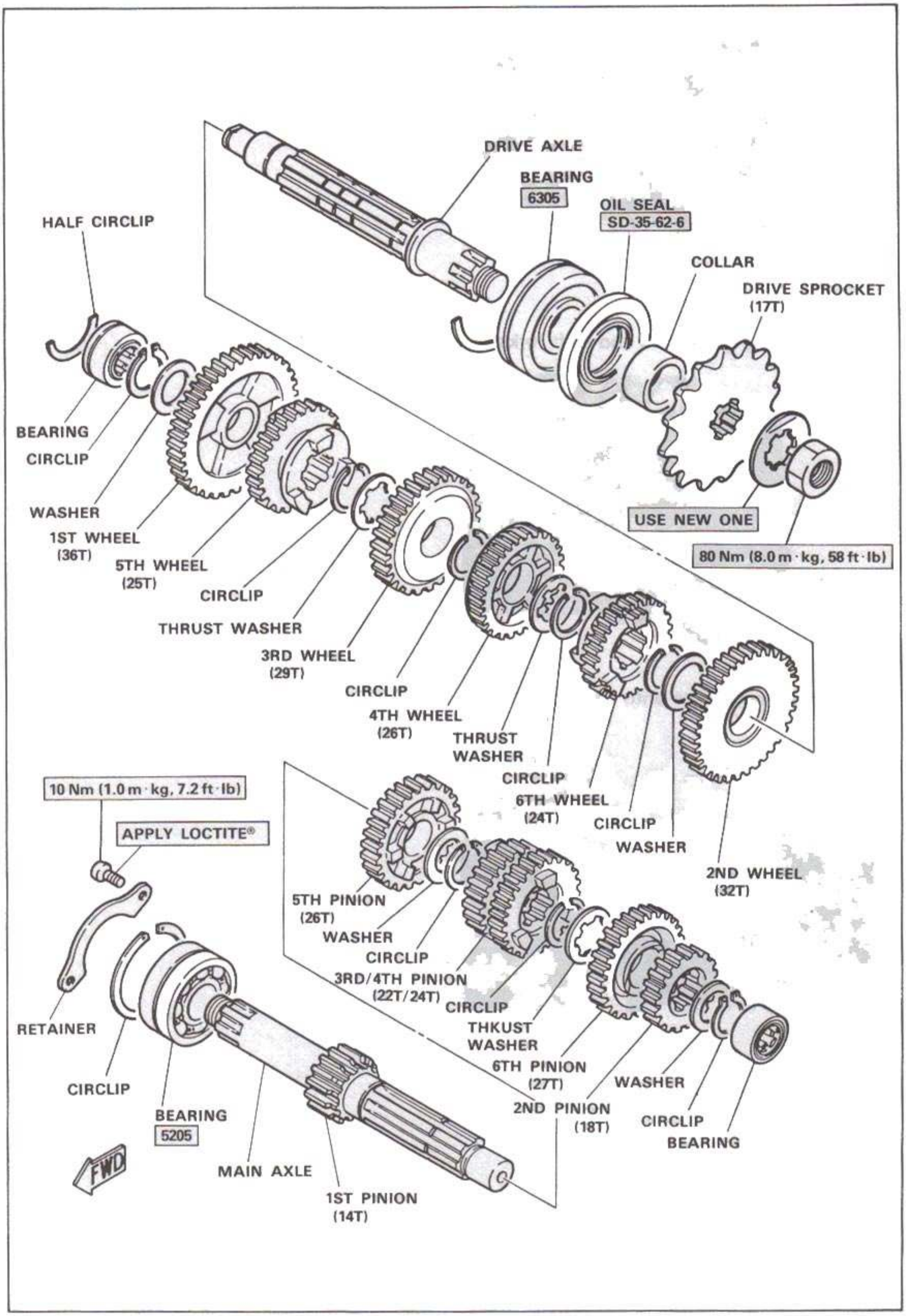


2. Install the guide bars and shift forks.

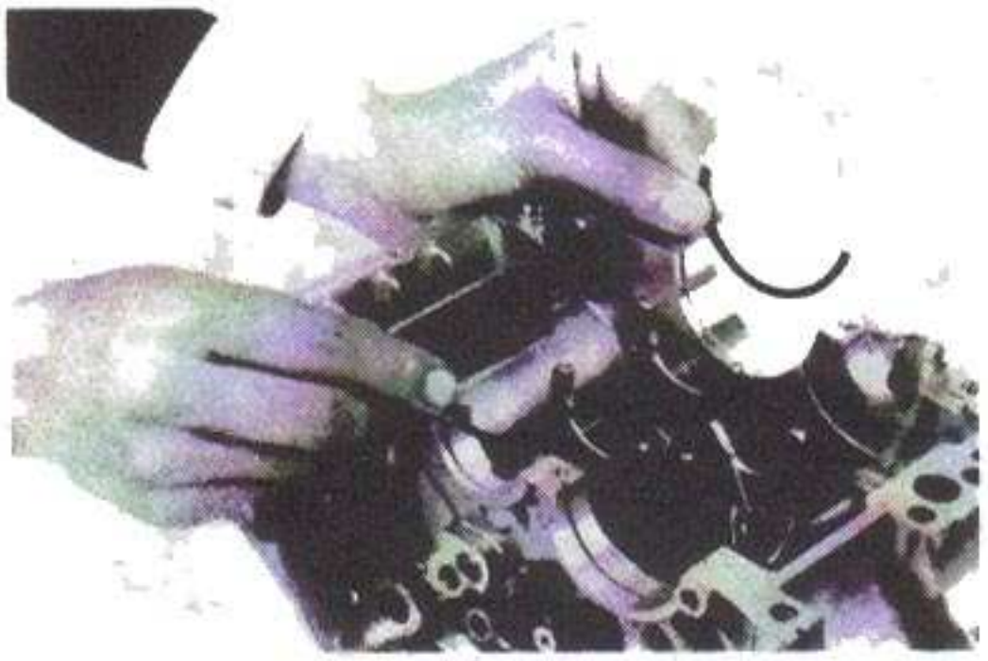


3. Install the circlips onto the guide bars.




DRIVE AXLE
BEARING
6305
OIL SEAL
SD-35-62-6
HALF CIRCLIP
COLLAR
DRIVE SPROCKET
(17T)
BEARING
CIRCLIP
WASHER
1ST WHEEL
(36T)
5TH WHEEL
(25T)
CIRCLIP
THRUST WASHER
3RD WHEEL
(29T)
CIRCLIP
4TH WHEEL
(26T)
THRUST
WASHER
CIRCLIP
6TH WHEEL
(24T)
CIRCLIP
WASHER
2ND WHEEL
(32T)
USE NEW ONE
80 Nm (8.0 m · kg, 58 ft · lb)
10 Nm (1.0 m · kg, 7.2 ft · lb)
APPLY LOCTITE®
5TH PINION
(26T)
WASHER
CIRCLIP
3RD/4TH PINION
(22T/24T)
CIRCLIP
THKUST
WASHER
RETAINER
6TH PINION
(27T)
WASHER
CIRCLIP
2ND PINION
(18T)
CIRCLIP
BEARING
BEARING
5205
FWD
MAIN AXLE
1ST PINION
(14T)

1. Install the circlips onto the crankcase.



2. Install the transmission sub-assemblies.



NOTE:

* Be sure the bearing circlips are fitted to the bearings and circlips have been positioned in the circlips grooves.
* The transmission installation is easier if shift cam is rotated to the neutral position.

3. Install the shift cam stopper plate. Apply LOCTITE® to the stopper plate securing screws and tighten the screws to specification.

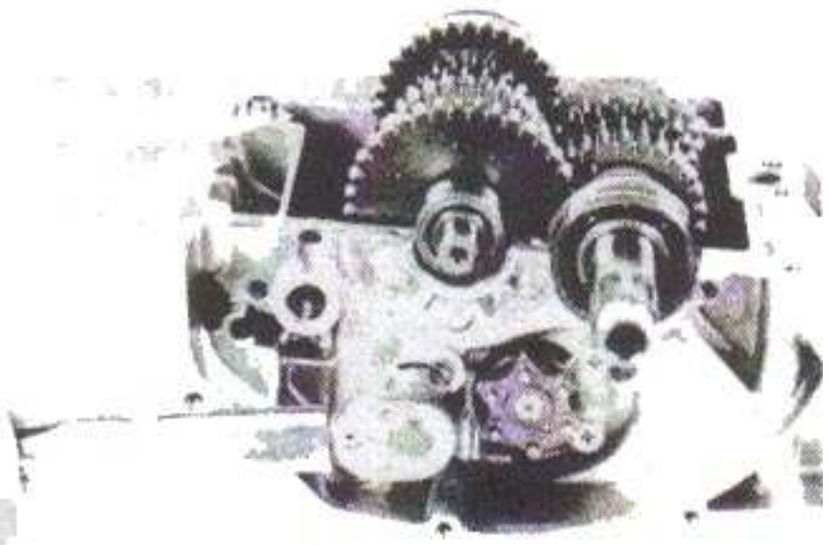
TIGHTENING TORQUE:
10 Nm (1.0 m · kg, 7.2 ft · lb)



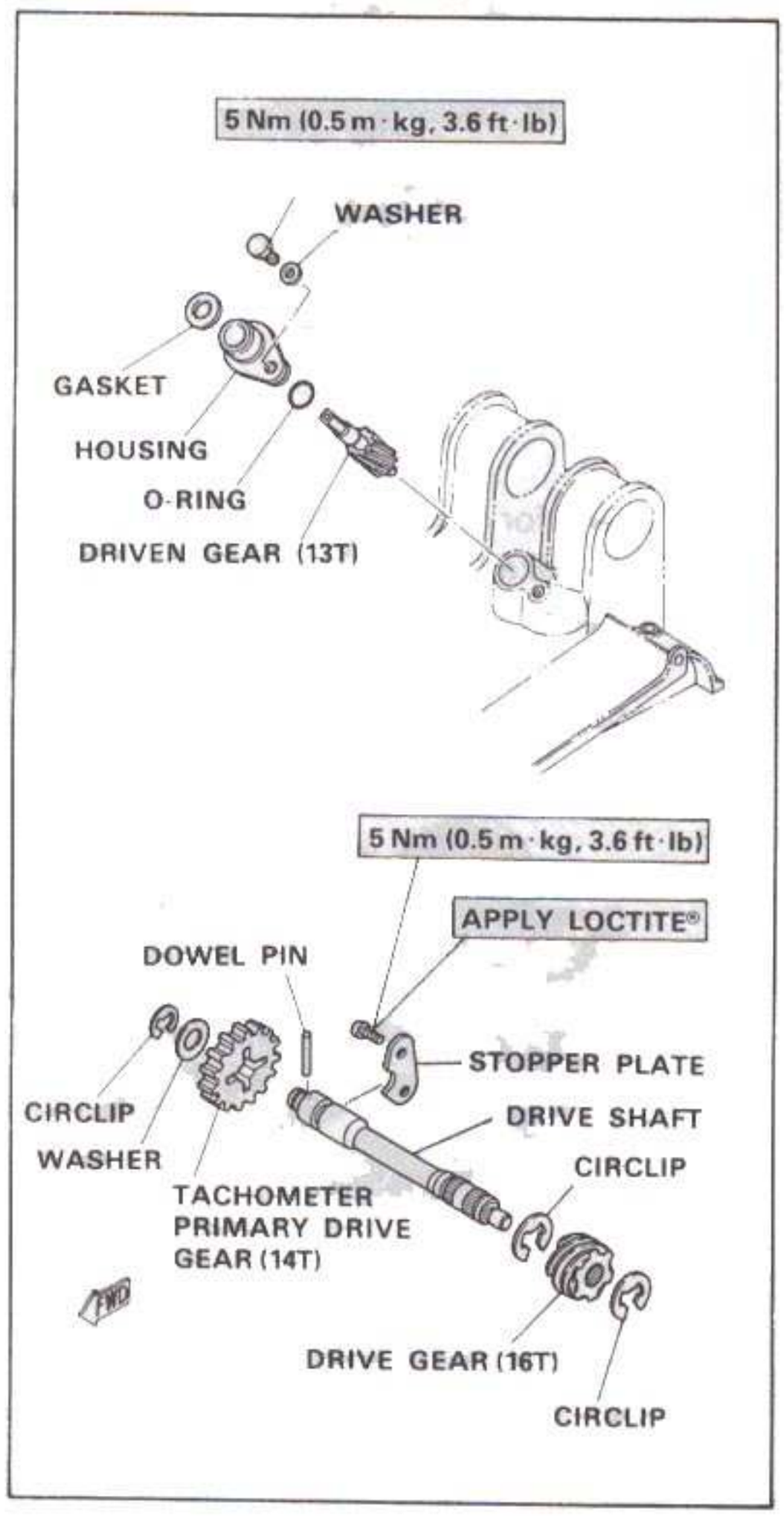
4. Check for correct transmission operation and make certain that all loose shims are in place. At the same time check for complete engagement of all engaging dogs into the appropriate gear slots.



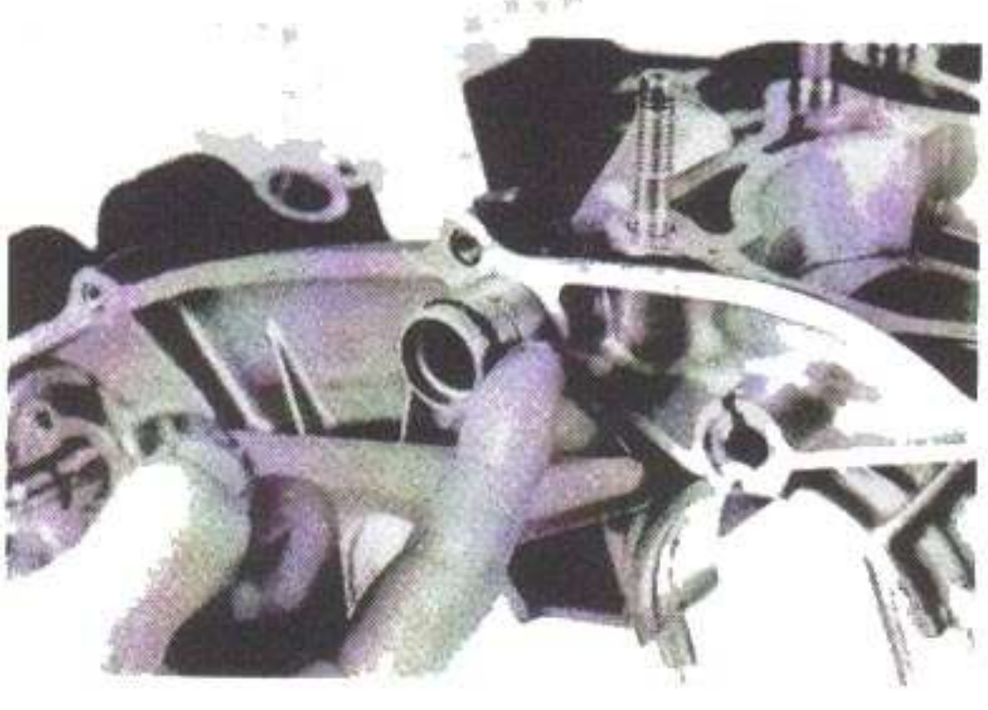
5. Install the shift-lever-adjusting screw and nut with a new lock washer. Finger-tighten the screw and nut.



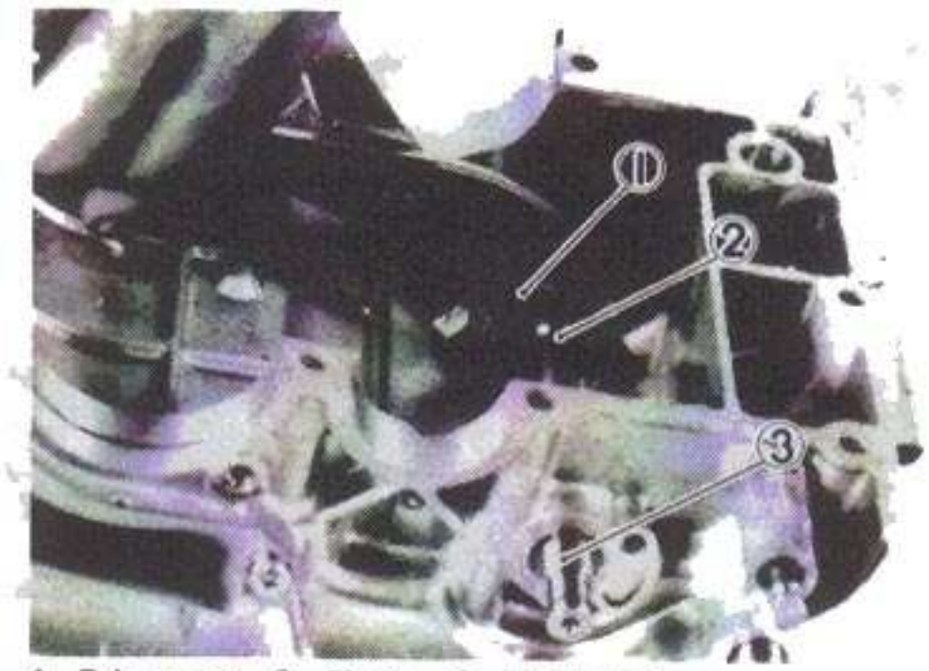
Hose Joint 2 and Tachometer Gears



1. Install the radiator hose joint 2 into the crankcase. Install the new circlip and O-ring onto the joint 2. Apply grease to the O-ring.



2. Install the drive shaft, drive gear, and circlip.



1. Drive gear 2. Circlip 3. Drive shaft

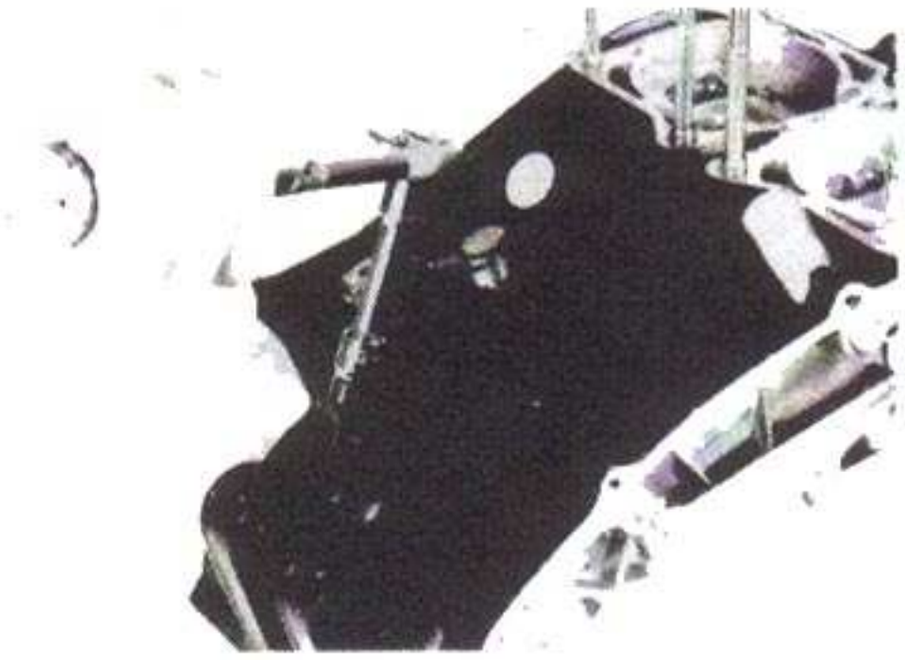
3. Install the drive shaft stopper plate. Apply LOCTITE® to the stopper plate securing screws and torque the screws to specification.

TIGHTENING TORQUE:
5 Nm (0.5 m · kg, 3.6 ft · lb)



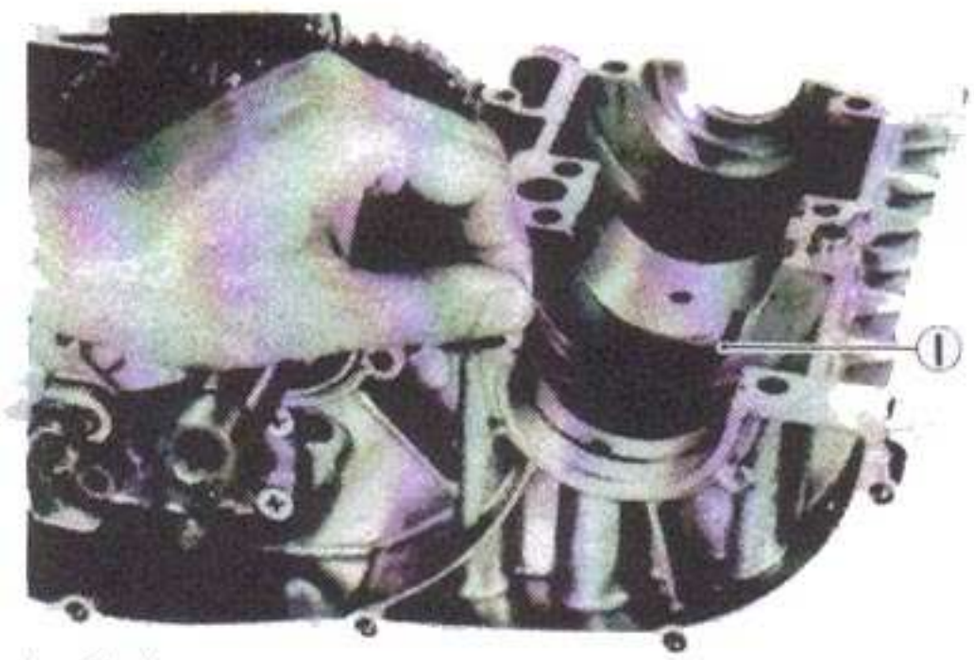
4. Install the driven gear into the crankcase. Apply grease to the O-ring, and install the O-ring, gear housing, and housing securing bolts. Torque the bolts to specification.

TIGHTENING TORQUE:
5 Nm (0.5 m · kg, 3.6 ft · lb)



Crankshaft Installation

1. Install the circlip half into the lower crankcase (on the clutch side).

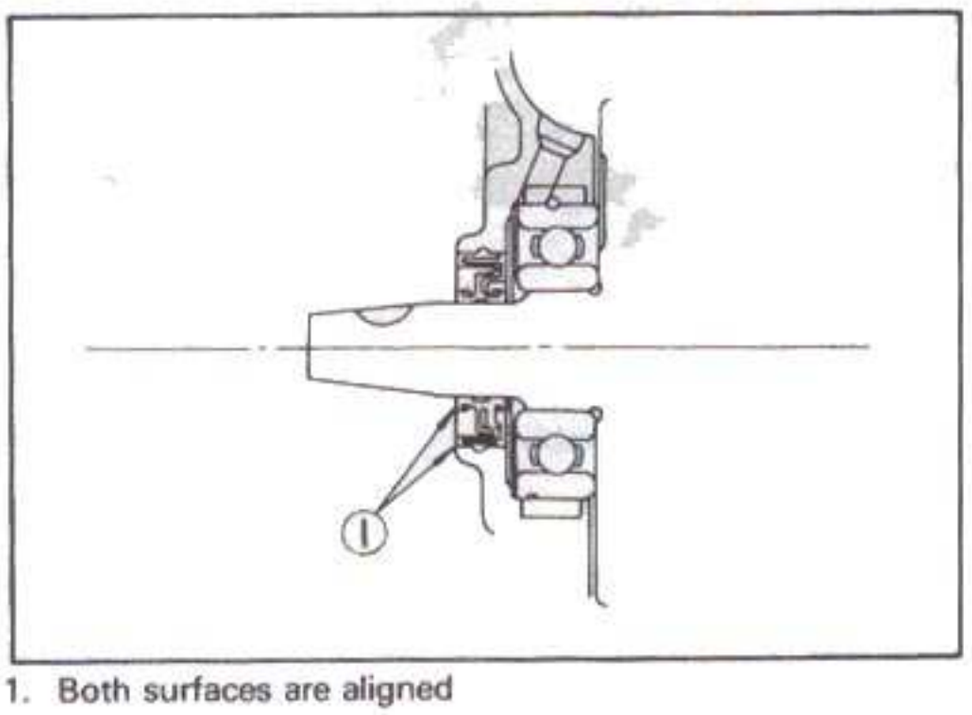


1. Circlip

2. Install the crank assembly on the lower crankcase.
3. Install the crankshaft oil seals.
   a. Oil seal (L)-generator side.
      Install the oil seal onto the crankcase boss so that the seal will be even with the boss end surface.

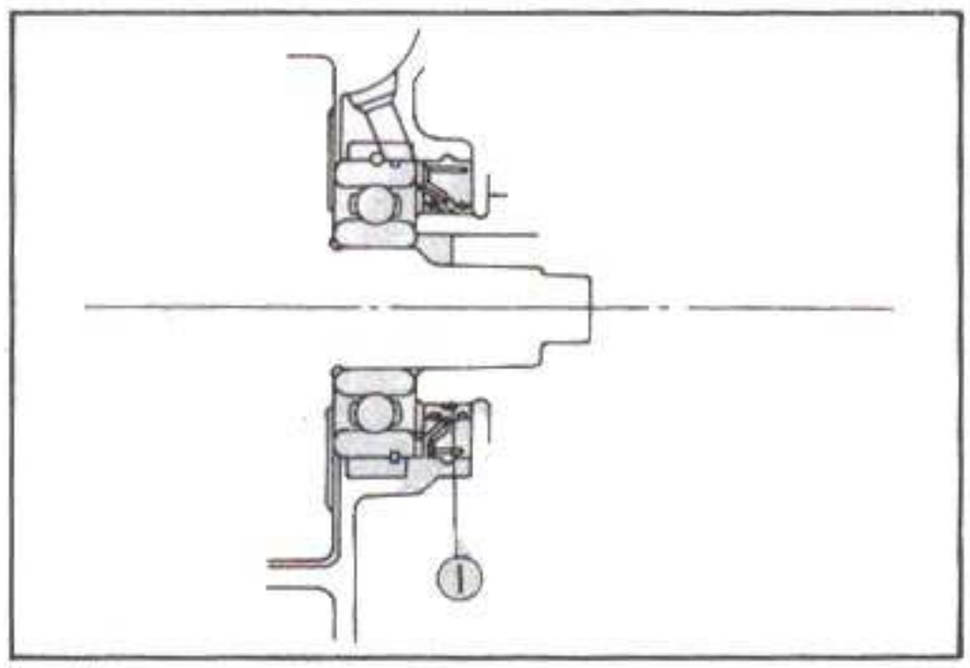
NOTE:

In this case, the oil seal will not touch the bearing.



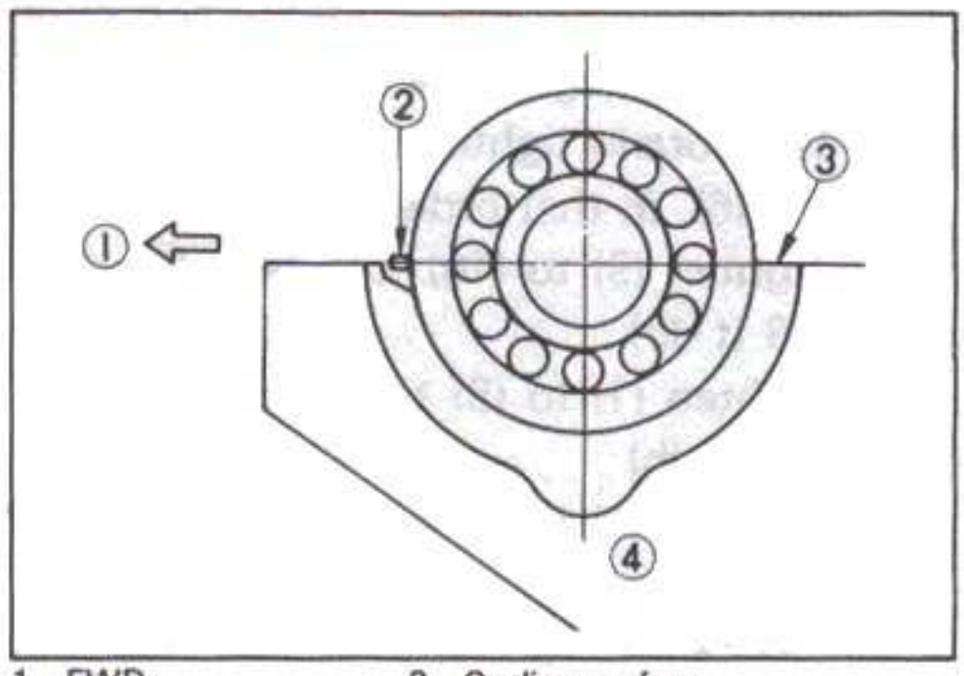
1. Both surfaces are aligned

   b. Oil seal(R)-clutch side
      The lip on the side of oil seal should connect the outer race of the bearing.

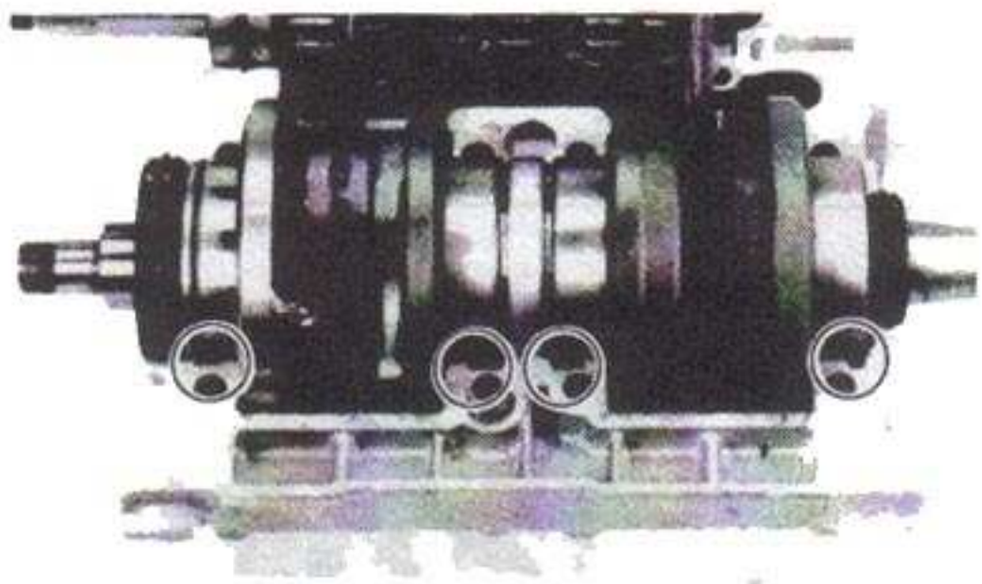


1. Lip

4. Install the crankshaft assembly, align the bearing dowel pin with the pin slot in the crankcase lower half.

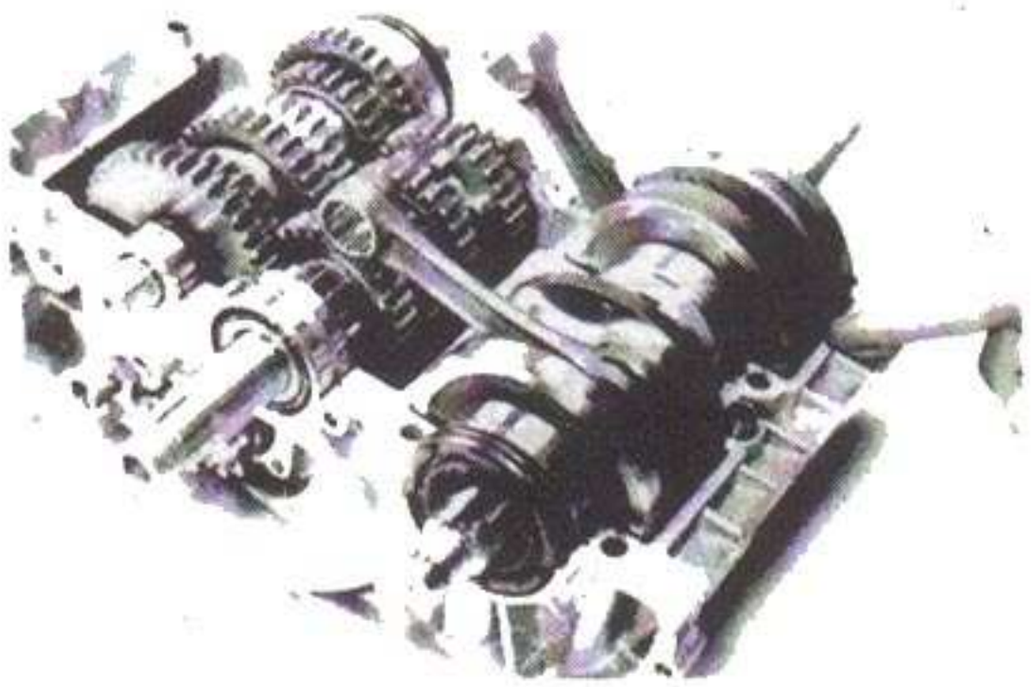


1. FWD
2. Dowel pin
3. Sealing surface
4. Lower case



Crankcase

1. Apply YAMABOND #4 to the mating surfaces of both case halves.

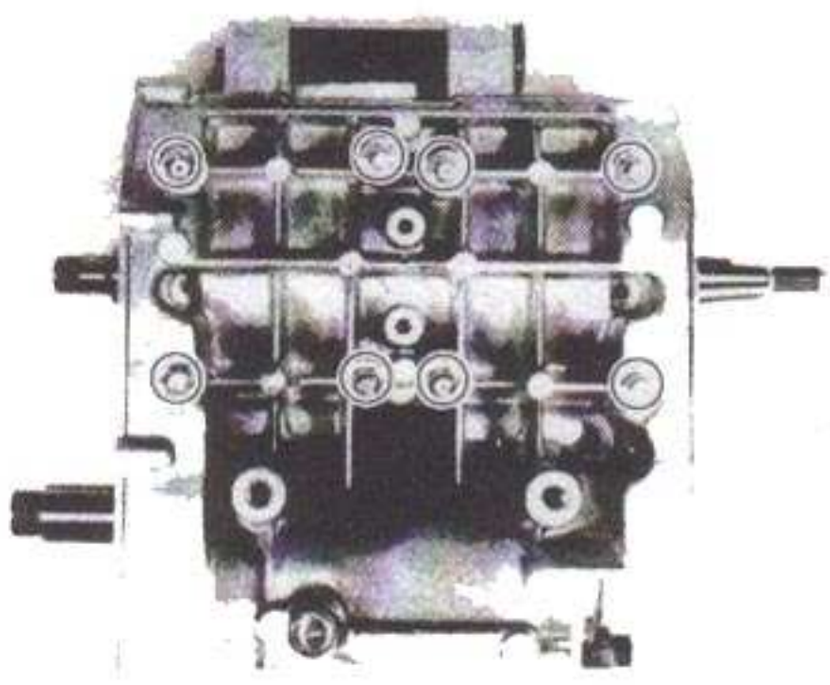


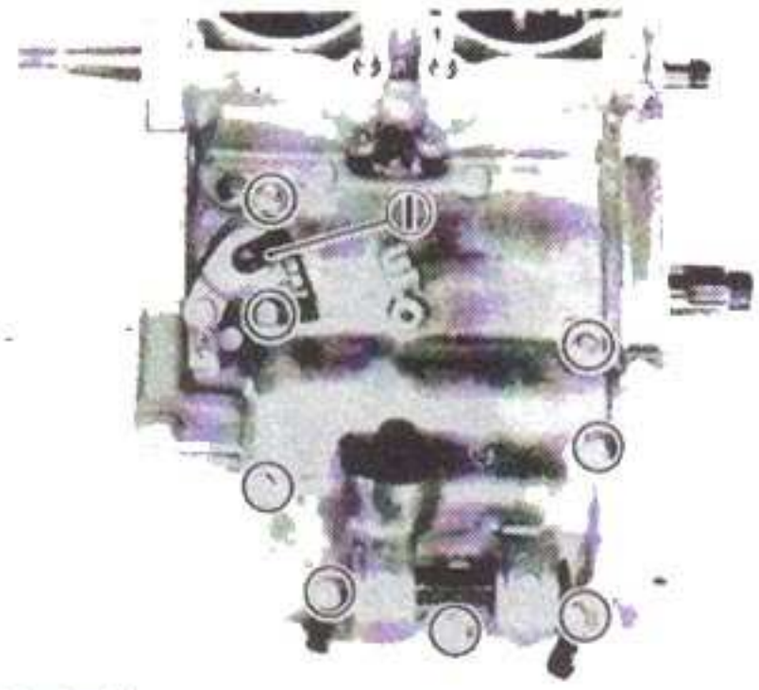
2. Set the crankcase half onto lower case half. Install the crankcase holding bolts and nuts.
   Tighten the crankcase bolts and nuts in the following sequence:

a. Temporarily tighten (1) to (8) and next (9) to (16), in that order.
b. Tighten (9) to (16) to 5 Nm (0.5 m · kg, 3.6 ft · lb)
c. Tighten (1) to (8) to 10 Nm (1.0 m · kg, 7.2 ft · lb)
d. Tighten (1) to (8) to 25 Nm (2.5 m · kg, 18 ft · lb)
e. Tighten (9) to (16) to 10 Nm (1.0 m · kg, 7.2 ft · lb)

NOTE:

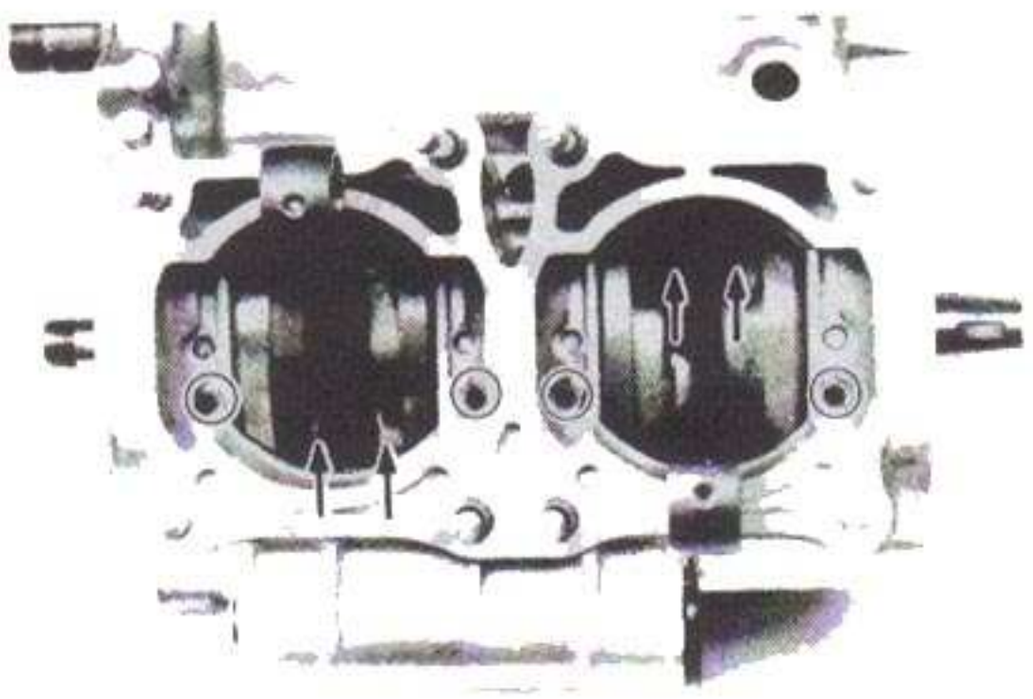
Be sure to secure the clutch cable holder together.



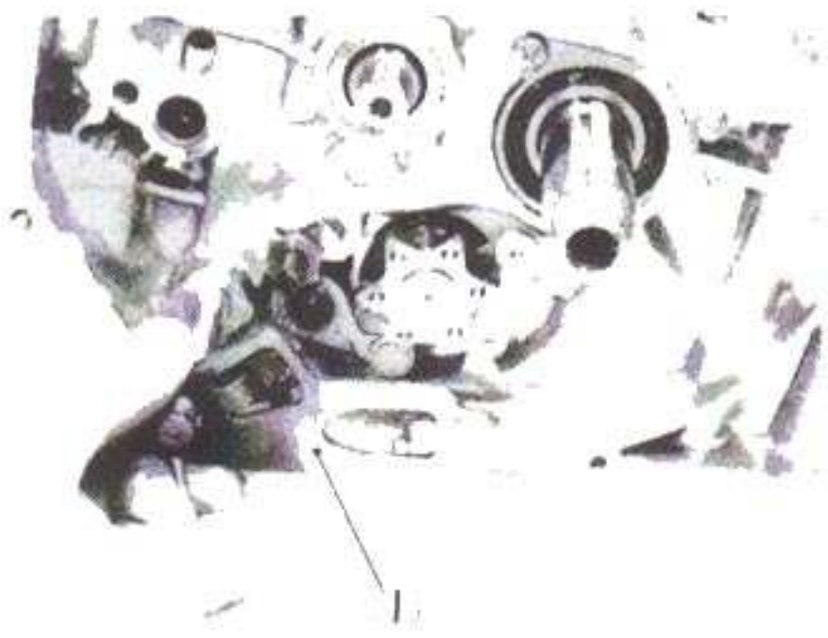


1. Cable holder

3. After reassembly, apply a liberal coating of the Yamalube 2-stroke oil or equivalent to the crank pin and bearing and crankshaft bearing oil delivery hole.

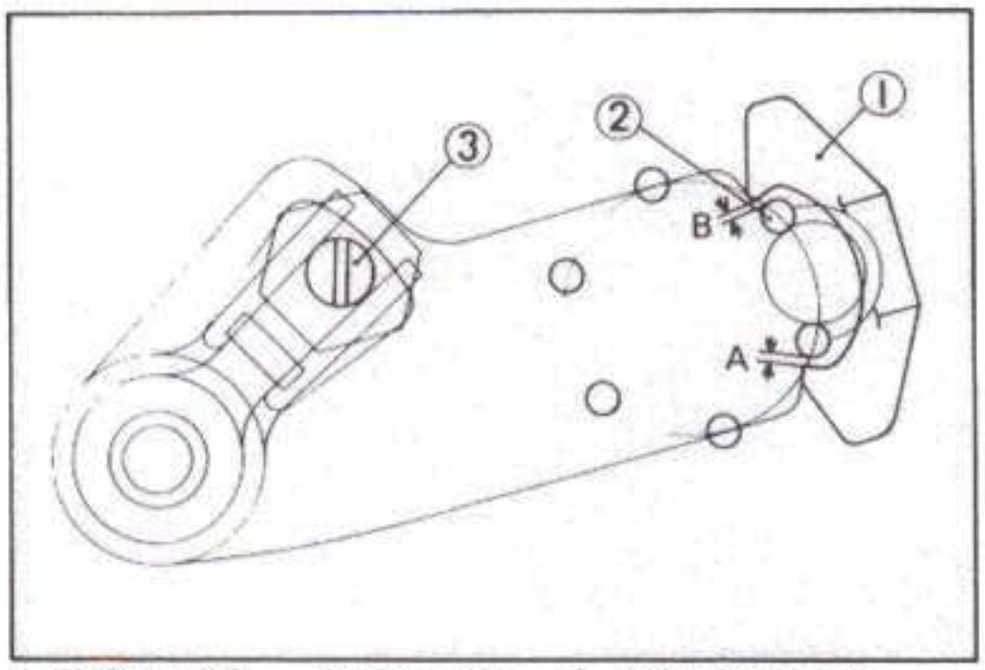


4. Check the crankshaft and transmission for proper operation and freedom of movement.
5. Install the change lever assembly.
6. Engage the shift return spring with its home position and install the stopper lever.



1. Change lever assembly

7. In each gear, check for proper centering. Check that A and B distances are even as illustrated.



1. Shift lever 2 2. Segment 3. Adjusting screw

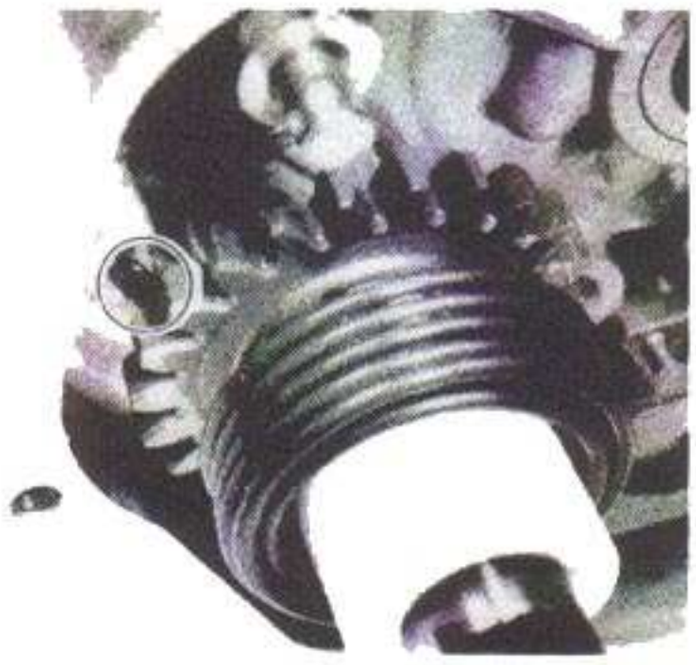
If not, adjust as follows:

a. Bend the lock washer tab and loosen the locknut.
b. Turn the adjusting screw until distance A and B are equal.
c. Tighten the locknut.

8. Install the change pedal, push down, then up. There should be no free play. If free play is evident, the shift return spring is fatigued, replace spring.

Kick Starter Assembly

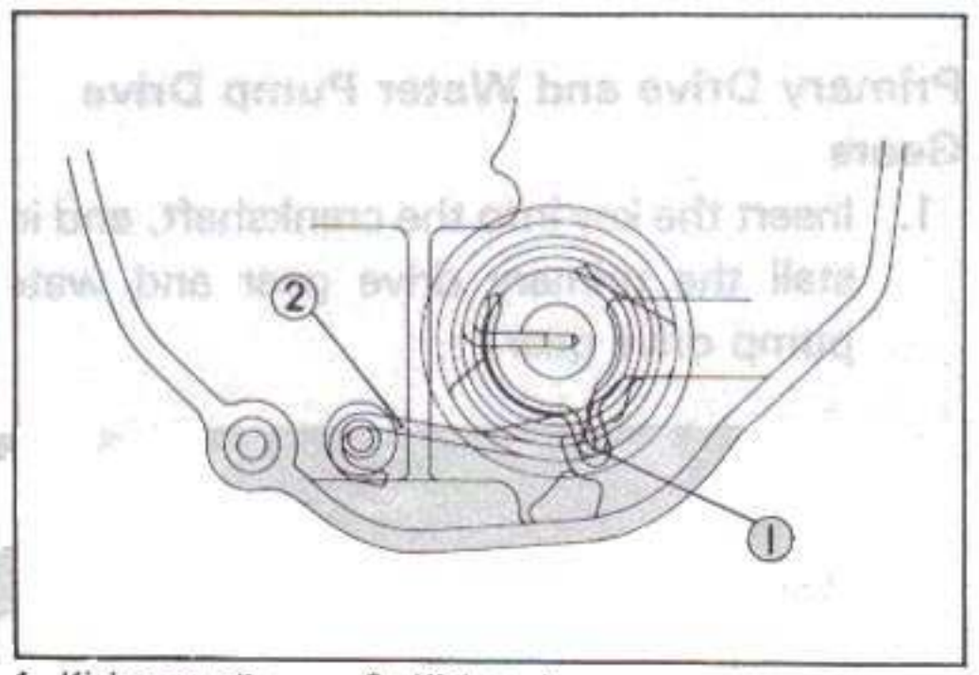
1. Set the kick gear clip into the groove of the crankcase.



2. Rotate the kick spring clockwise and hook it on the kick spring stopper.

NOTE:

Make sure that kick gear clip is stopped at projection of the crankcase.

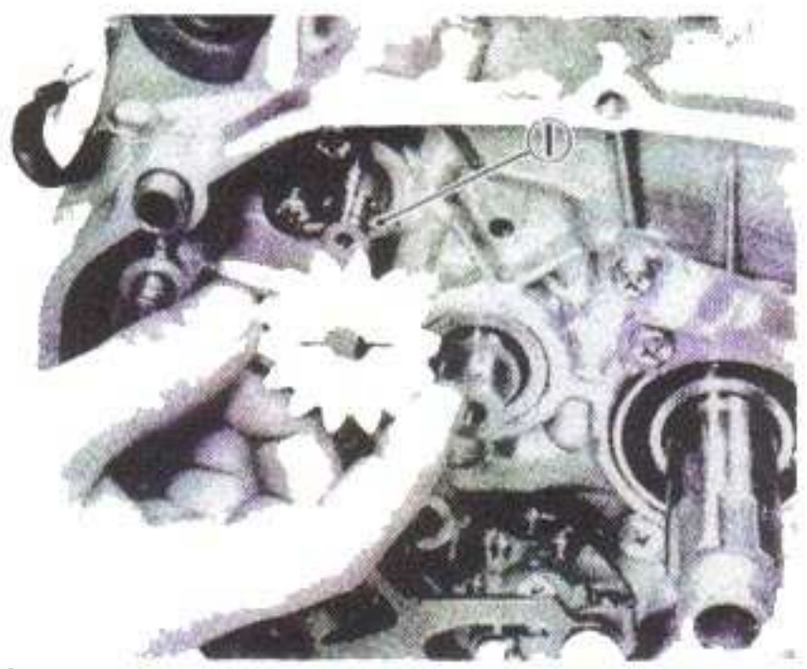


1. Kick gear clip 2. Kick spring

3. Check whether the kick starter acts correctly and whether it returns to its home position.

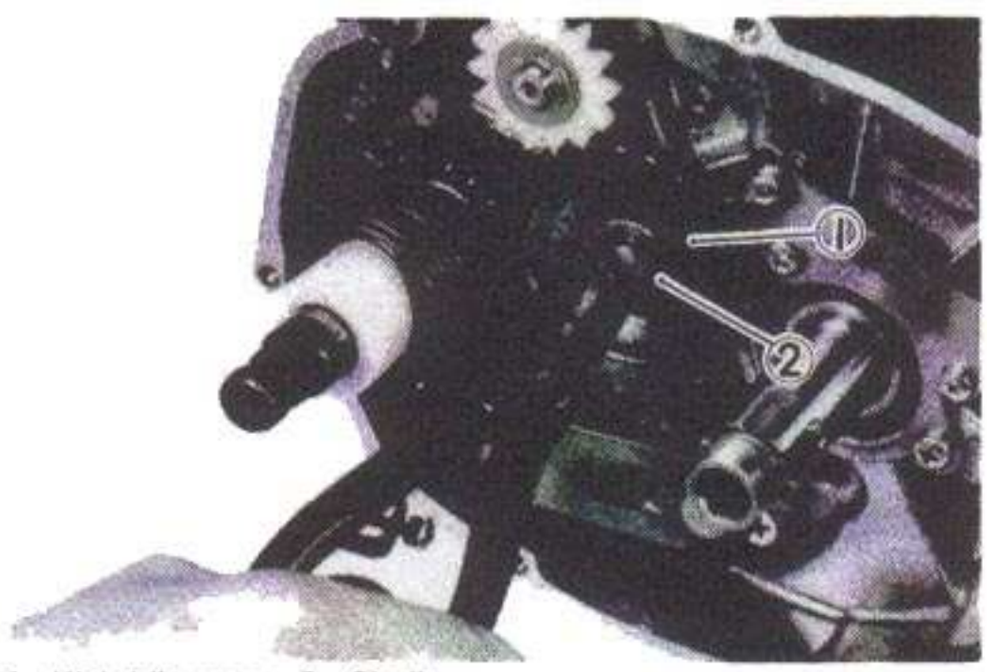
Kick Idle and Tachometer Primary Drive Gears

1. Insert the dowel pin into the drive shaft, and install the tachometer primary drive gear and circlip.



1. Dowel pin

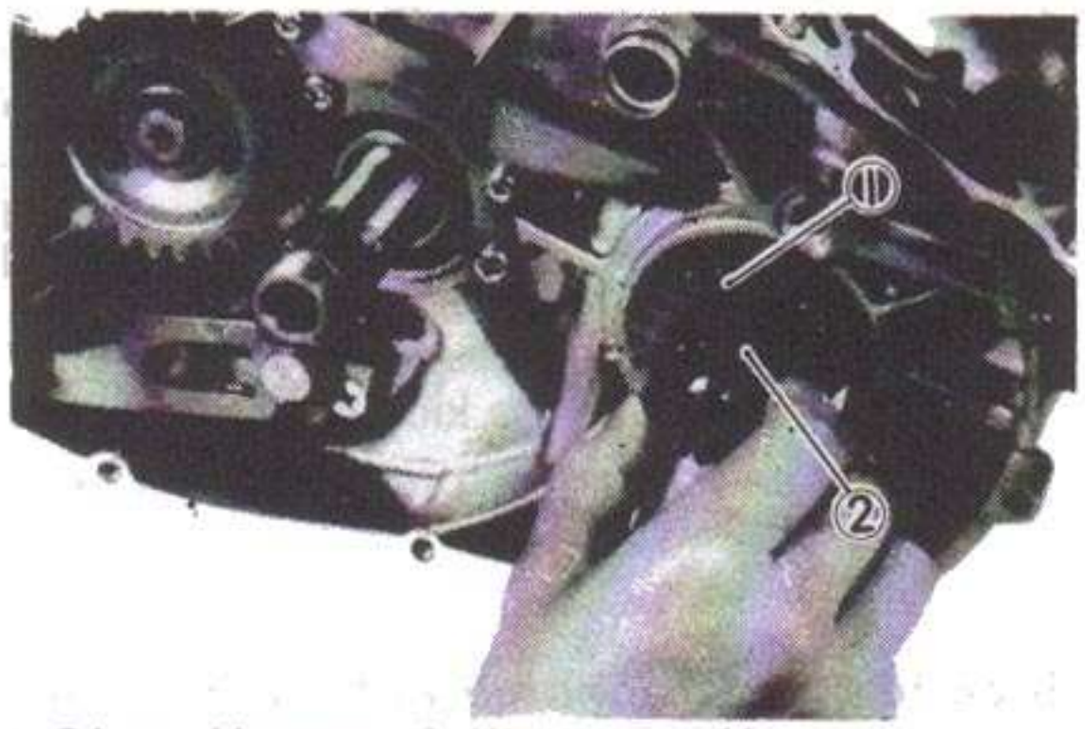
2. Install the kick idle gear and circlip.



1. Kick idle gear 2. Circlip

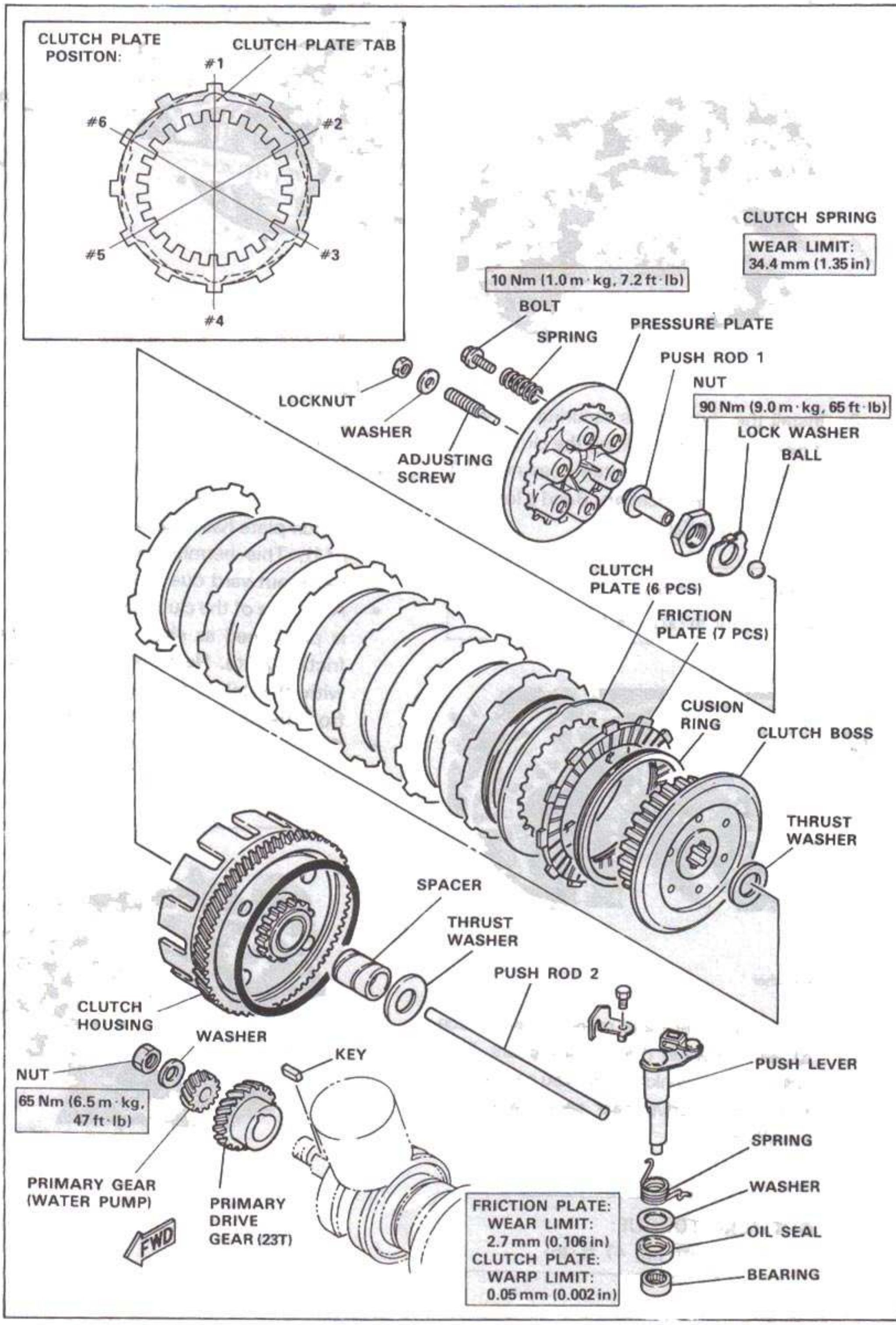
Primary Drive and Water Pump Drive Gears

1. Insert the key into the crankshaft, and install the primary drive gear and water pump drive gear.

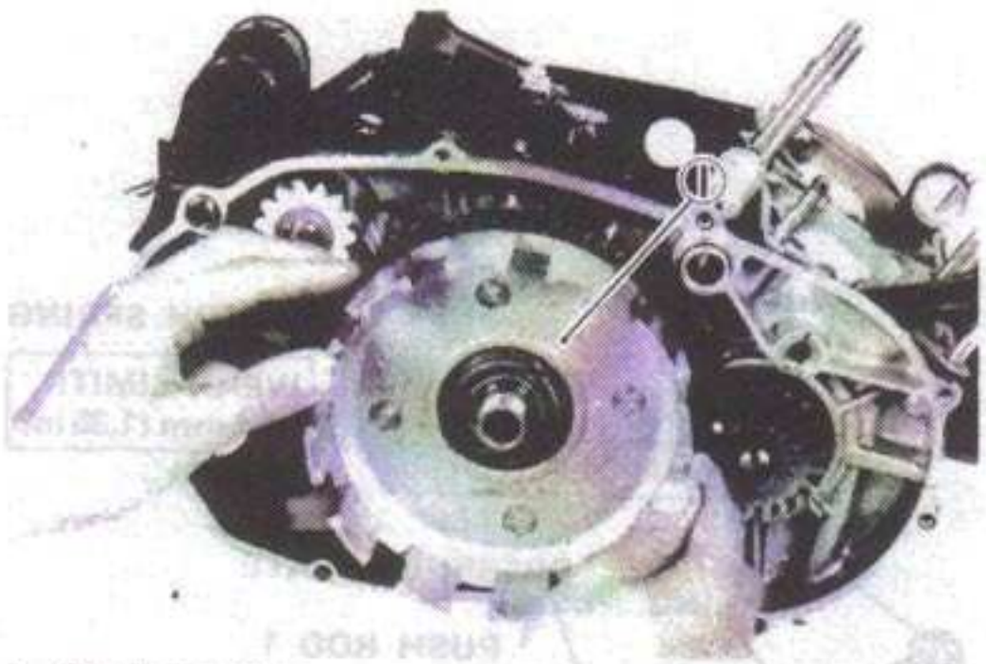


1. Primary drive gear 2. Water pump drive gear

2. Install the drive gears securing nut with a new lock washer. Finger-tighten the securing nut.


CLUTCH PLATE POSITON:
CLUTCH PLATE TAB
#1
#2
#3
#4
#5
#6
CLUTCH SPRING
WEAR LIMIT: 34.4 mm (1.35 in)
10 Nm (1.0 m · kg, 7.2 ft · lb)
BOLT
SPRING
PRESSURE PLATE
PUSH ROD 1
NUT
90 Nm (9.0 m · kg, 65 ft · lb)
LOCK WASHER
BALL
LOCKNUT
WASHER
ADJUSTING SCREW
CLUTCH PLATE (6 PCS)
FRICTION PLATE (7 PCS)
CUSION RING
CLUTCH BOSS
THRUST WASHER
SPACER
THRUST WASHER
PUSH ROD 2
CLUTCH HOUSING
WASHER
NUT
65 Nm (6.5 m · kg, 47 ft · lb)
KEY
PUSH LEVER
SPRING
WASHER
OIL SEAL
BEARING
PRIMARY GEAR (WATER PUMP)
PRIMARY DRIVE GEAR (23T)
FWD
FRICTION PLATE: WEAR LIMIT: 2.7 mm (0.106 in)
CLUTCH PLATE: WARP LIMIT: 0.05 mm (0.002 in)

1. Install the thrust washer, spacer, clutch housing, thrust washer, and clutch boss onto the crankshaft in that order.



1. Clutch housing

2. Install the clutch boss securing nut with a new lock washer. Using the clutch hub holder, tighten the clutch boss nut and torque it to specification. Bend a lock tab against a nut flat.

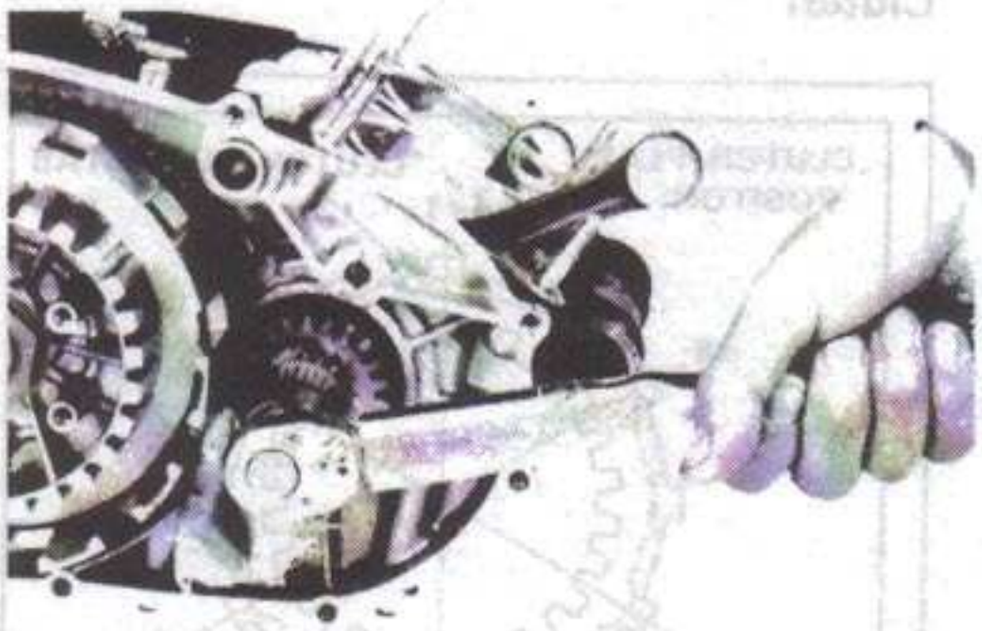
TIGHTENING TORQUE:
90 Nm (9.0 m · kg, 65 ft · lb)



1. Lock washer 2. Nut

3. Place a small piece of rolled rag or a piece of lead between the primary gears. This will hold the crankshaft so you can tighten the primary drive gear securing nut to specification.

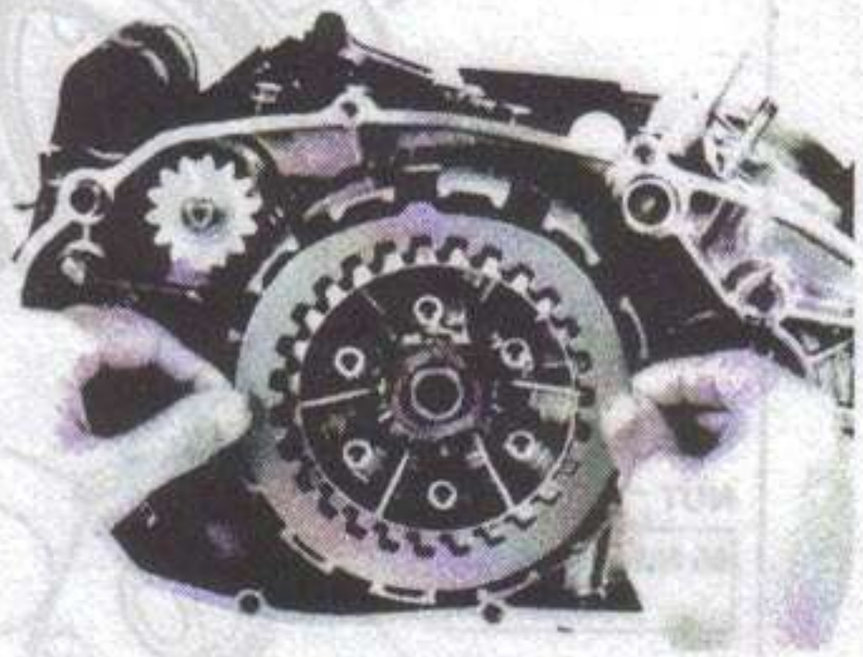
TIGHTENING TORQUE:
65 Nm (6.5 m · kg, 47 ft · lb)

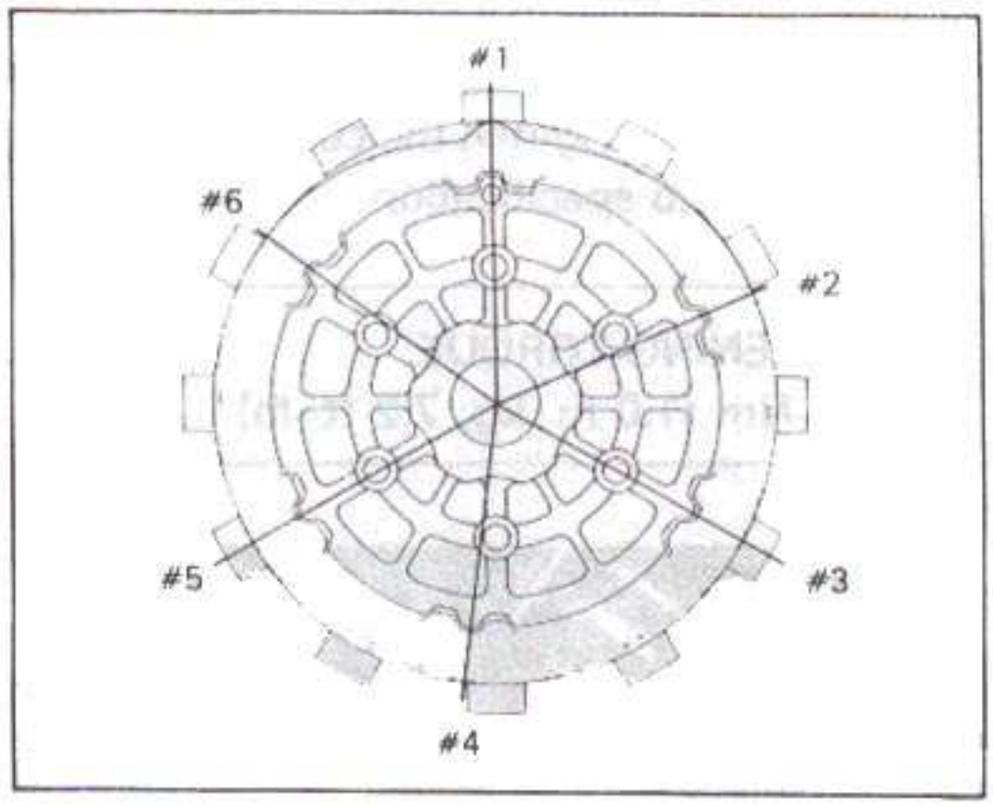


4. Install the clutch plates, friction plates, and cushion rings.

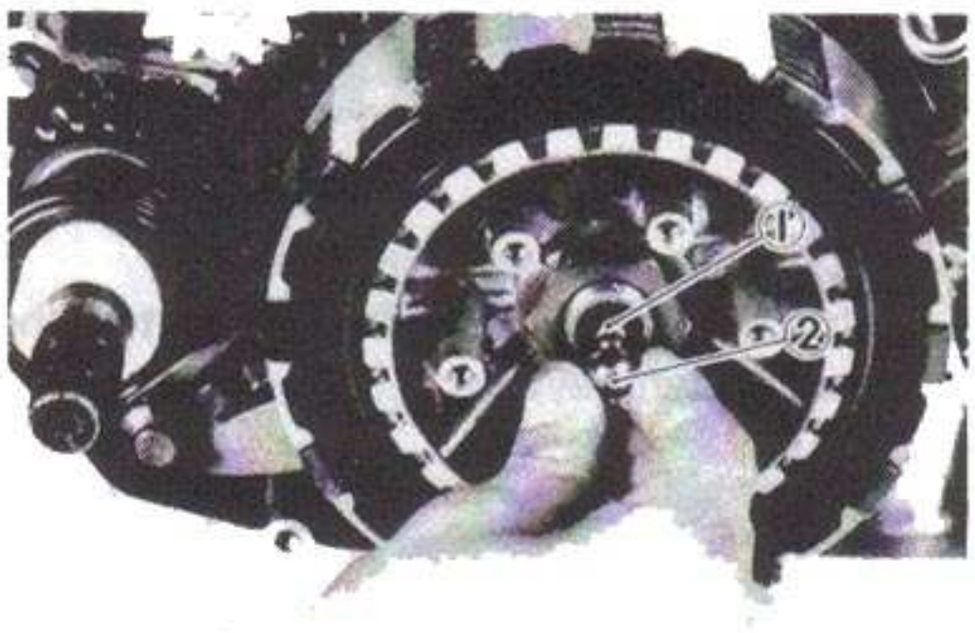
NOTE:

- Check whether cushion rings are in place and not twisted.
- In order to reduce noise caused by the clutch plates and clutch boss, each clutch plate has a tab at part of the edge (#1). This permits the clutch plate to move outward due to centrifugal force.
- Aiign one of the clutch plate tab so that it is positioned as shown at #2. Install a friction plate. Next install a clutch plate with the tab offset approximately 60° from the previous clutch plate tab.
- Continue this procedure in a clockwise direction until all clutch plates are installed.





5. Install the push rod #2 and ball into the main axle.



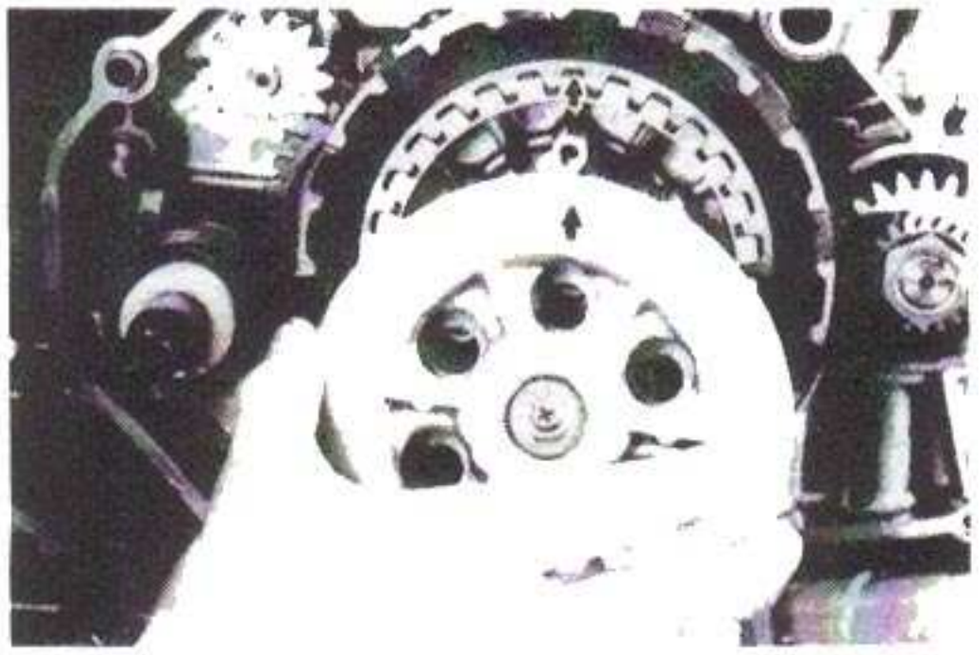
1. Push rod #2 2. Ball

6. Install the clutch pressure plate and clutch springs. Tighten the clutch spring holding screws to specification.

NOTE:

Align the arrow marks on the clutch pressure plate and clutch boss.

TIGHTENING TORQUE:
10 Nm (1.0 m · kg, 7.2 ft · lb)

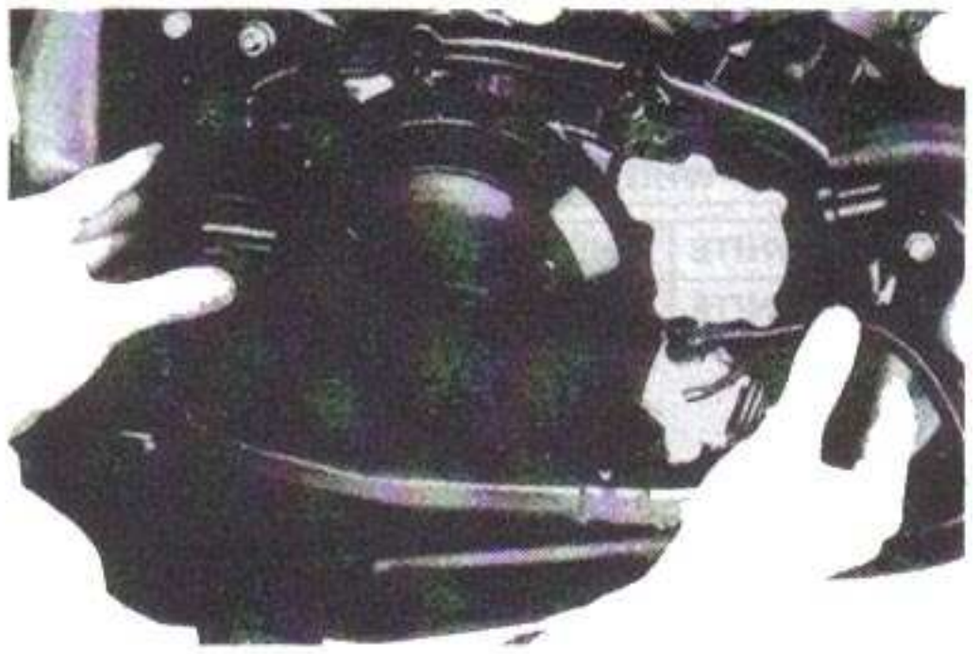


7. Adjust the clutch free play. (See page 2-11)

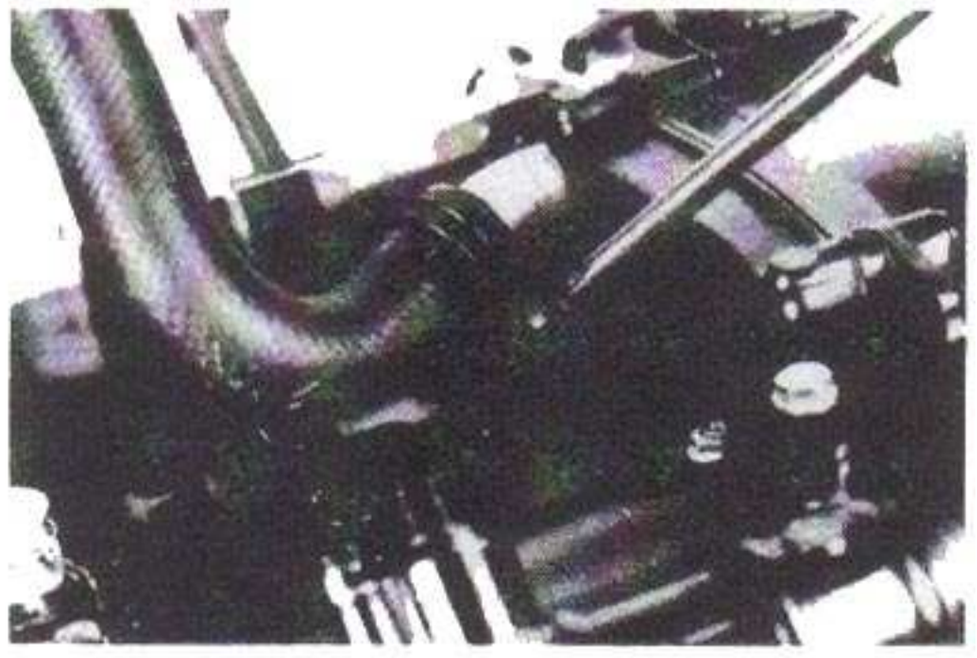
Right Crankcase Cover

1. Insert the dowel pins into the crankcase, and install the crankcase cover with a new gasket. Torque the screws to specification.

TIGHTENING TORQUE:
10 Nm (1.0 m · kg, 7.2 ft · lb)



2. Connect the radiator hose. Tighten the hose band securely.



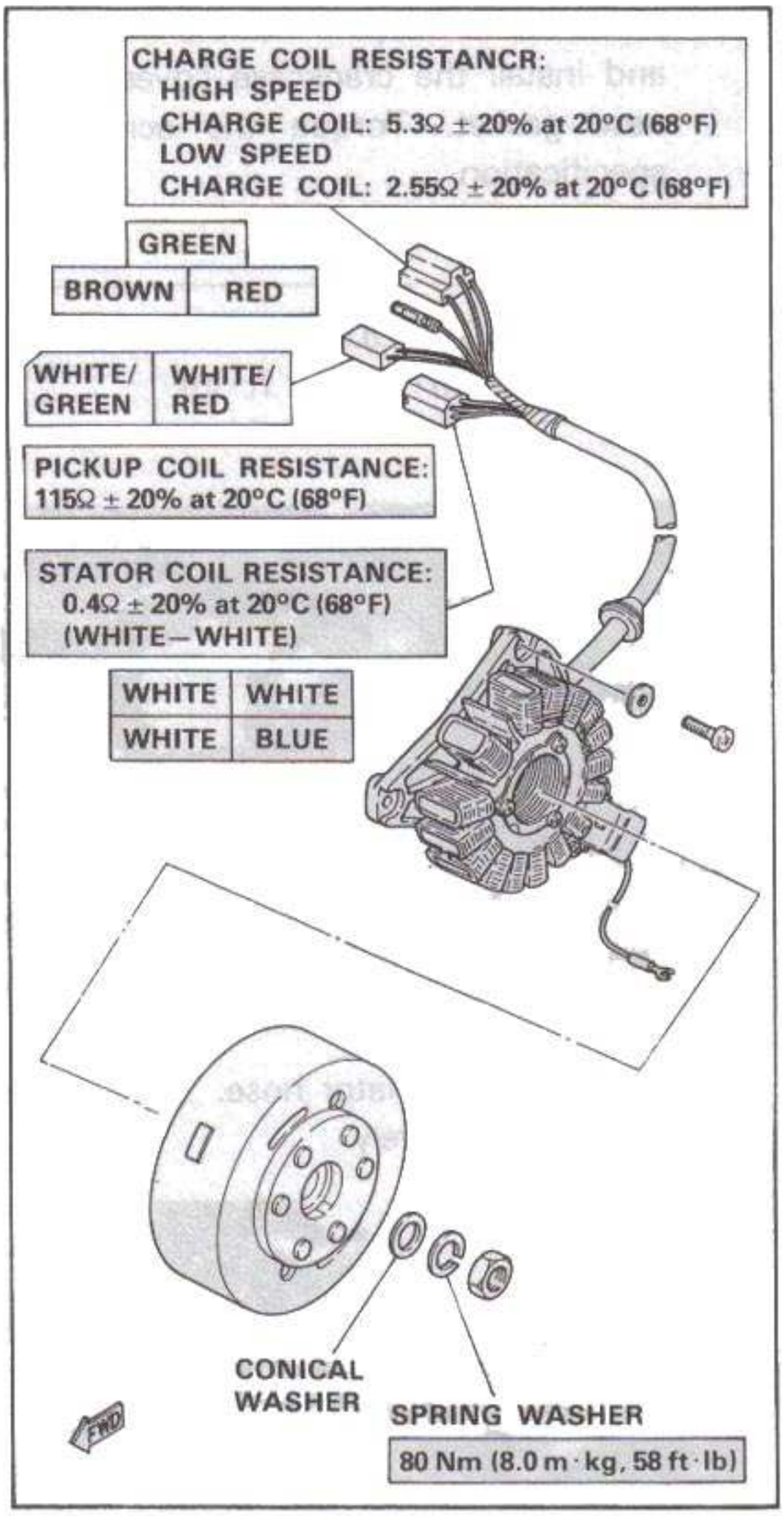
3. Install the kick crank assembly onto the kick axle.

NOTE:

Install the kick crank so that it does not contact the crankcase cover.

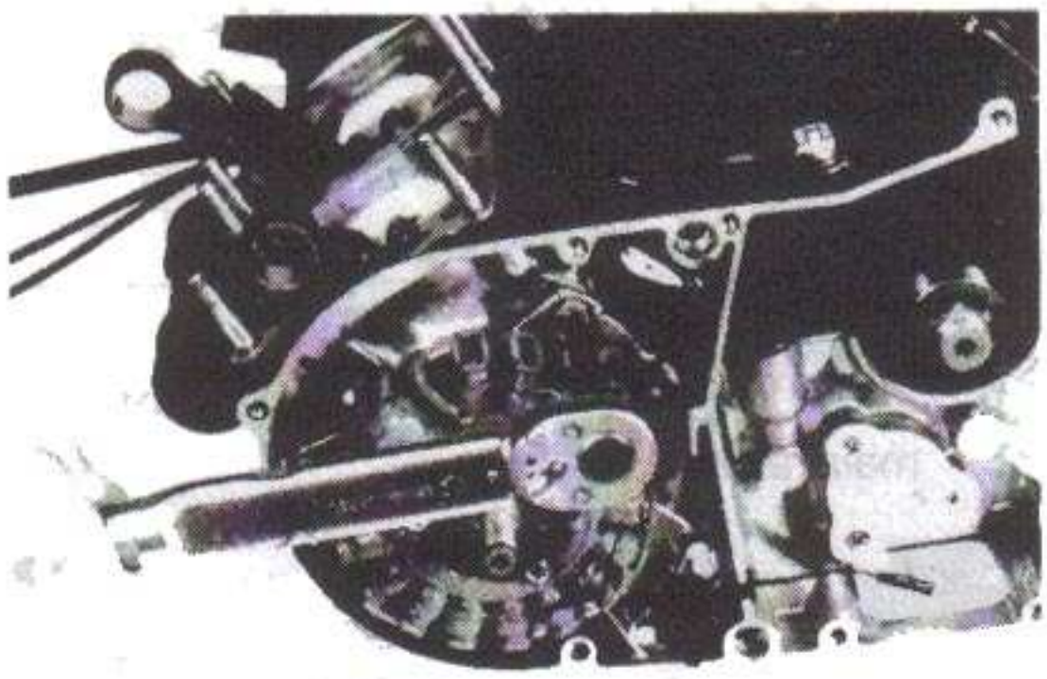
TIGHTENING TORQUE:
25 Nm (2.5 m · kg, 18 ft · lb)

Stator Coil and Flywheel

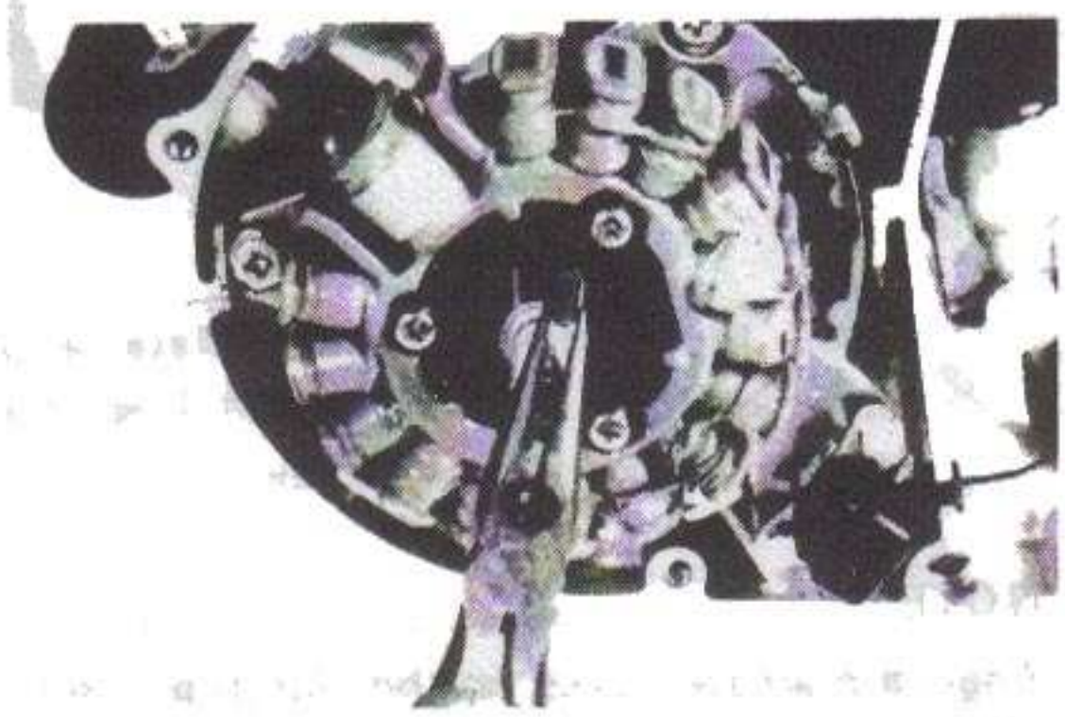


1. Install the stator coil onto the left crankcase. Tighten the coil base securing screws to specification.

TIGHTENING TORQUE:
10 Nm (1.0 m · kg, 7.2 ft · lb)



2. Connect the neutral switch lead.
3. Install the woodruff key into the crankshaft keyway.



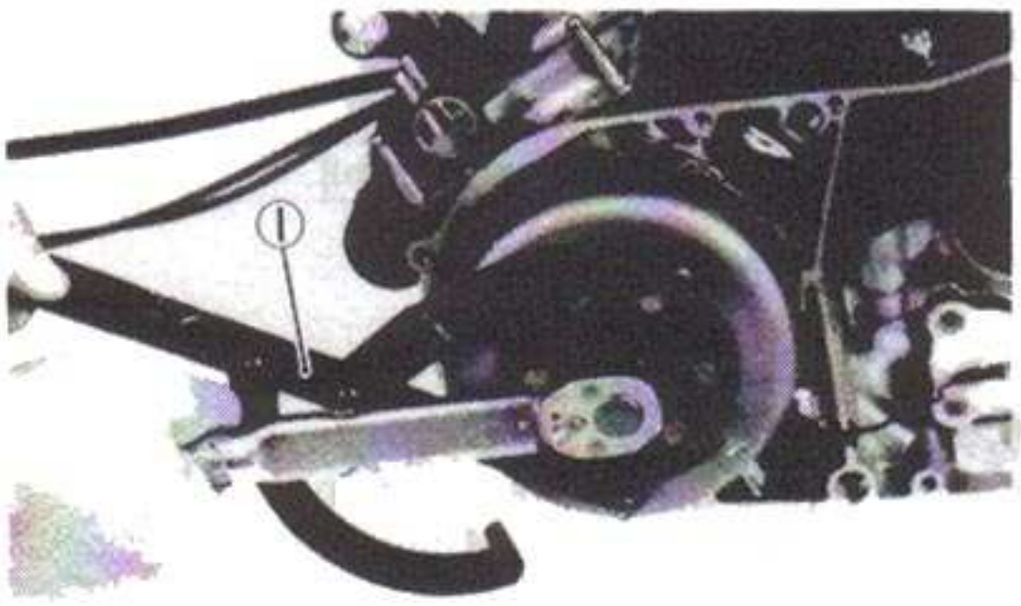
4. Install the flywheel assembly onto the crankshaft. The key in the crankshaft should engage the keyway in the flywheel.

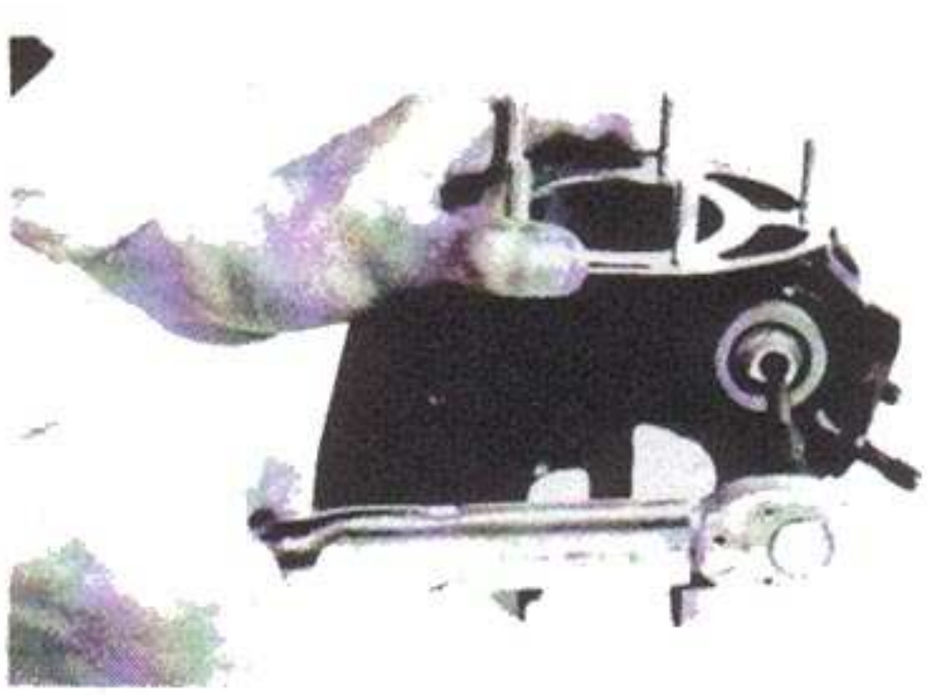
CAUTION:

Be sure to remove any oil and/or grease from the tapered portion of the crankshaft and flywheel with a thinner.

5. Install the conical washer, spring washer, and nut. Tighten the nut to specification; use the rotor holding tool.

TIGHTENING TORQUE:
80 Nm (8.0 m · kg, 58 ft · lb)



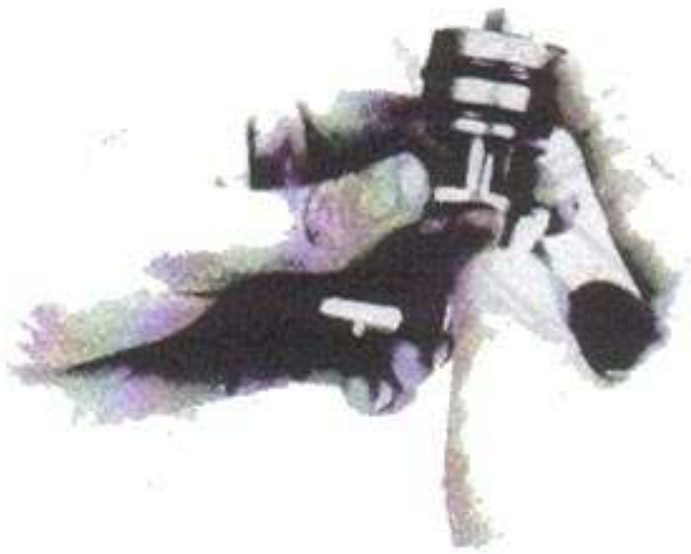


1. Rotor holding tool

Power Valve

For reassembly, reverse the removal procedure. Take care of following precautions:

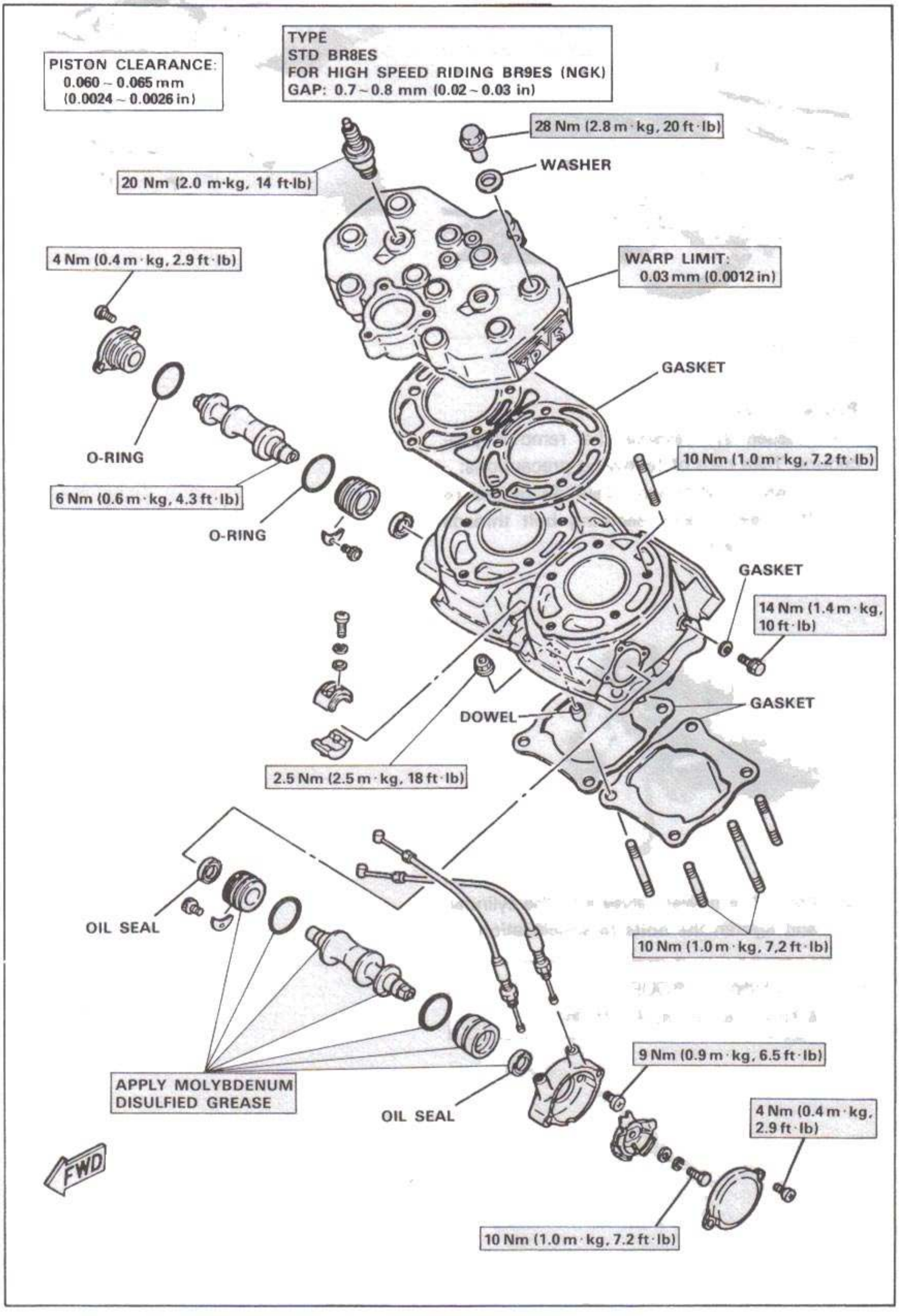
1. Apply molybdenum disulfide grease to the power valve securing bolt threads and holders.



2. Install the power valves into the cylinder and tighten the bolts to specification.

TIGHTENING TORQUE:
6 Nm (0.6 m · kg, 4.3 ft · lb)

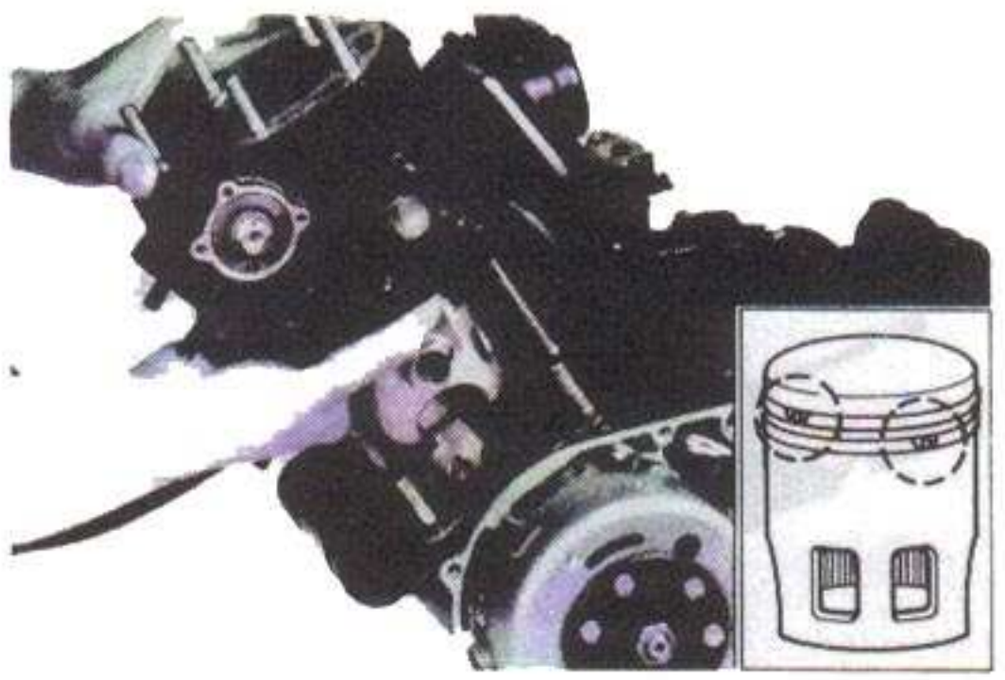
Piston, Cylinder, and Cylinder Head

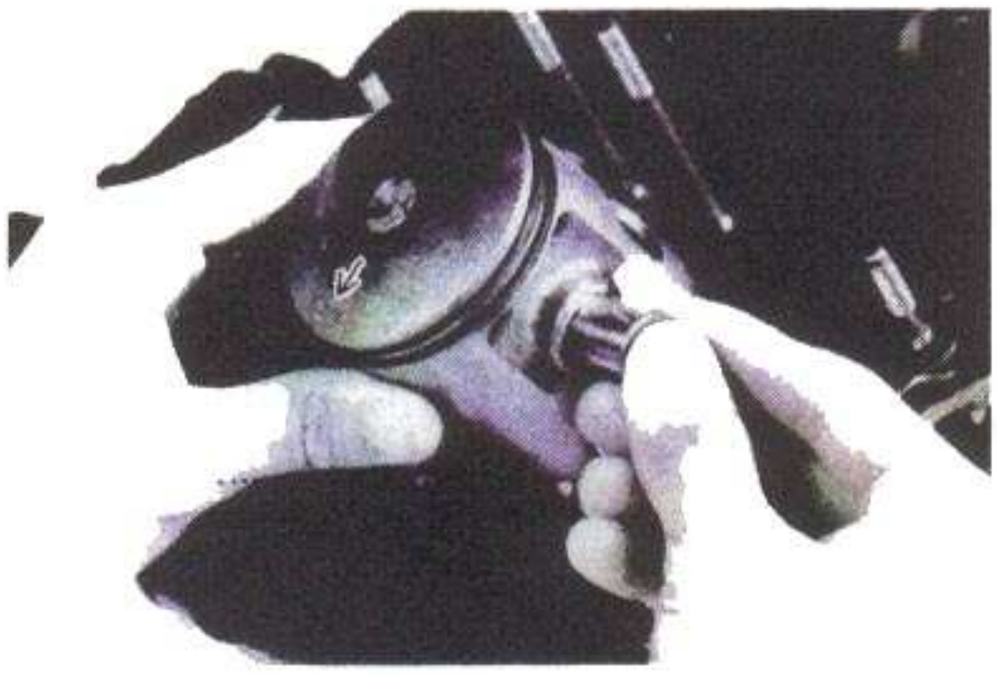


1. During reassembly, coat the piston ring grooves, piston skirt areas, piston pin, and bearing with Yamalube 2-stroke oil.
2. Install the piston onto the connecting rod. Note the following points.

NOTE:

Take care during installation to avoid damaging the piston skirts against the crankcase as the cylinder is installed. Be sure the arrow stamped on the piston head points forward. Also make sure that the left piston (already marked during removal) is fitted to the left-hand connecting rod. This guarantees that all previous clearances remain unchanged unless new parts are installed or cylinder work is done.





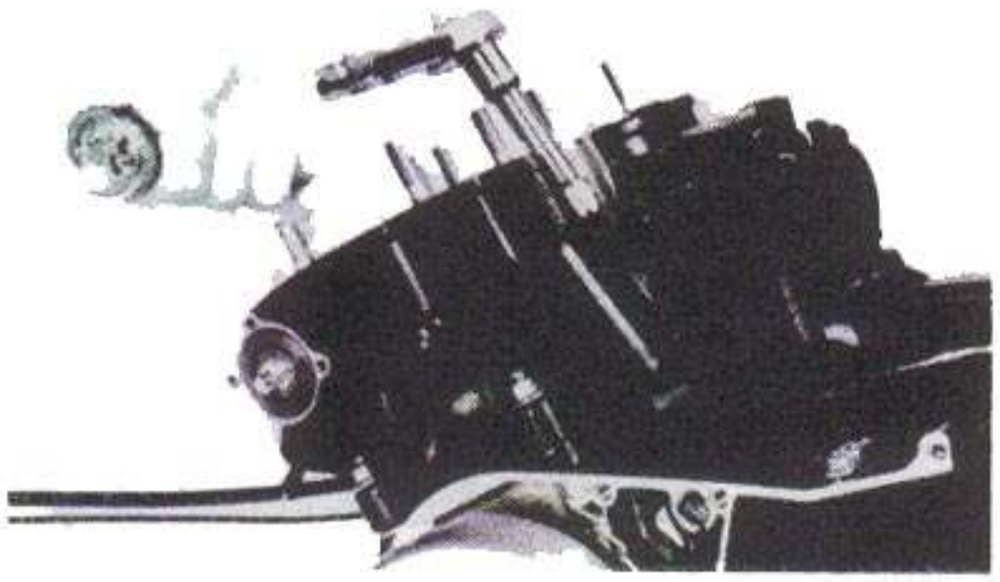
3. Install the new piston pin clips and make sure they are fully seated in their grooves.
4. Install the new cylinder base gaskets onto the crankcase.
5. Install the cylinder with one hand while compressing piston rings with the other hand.

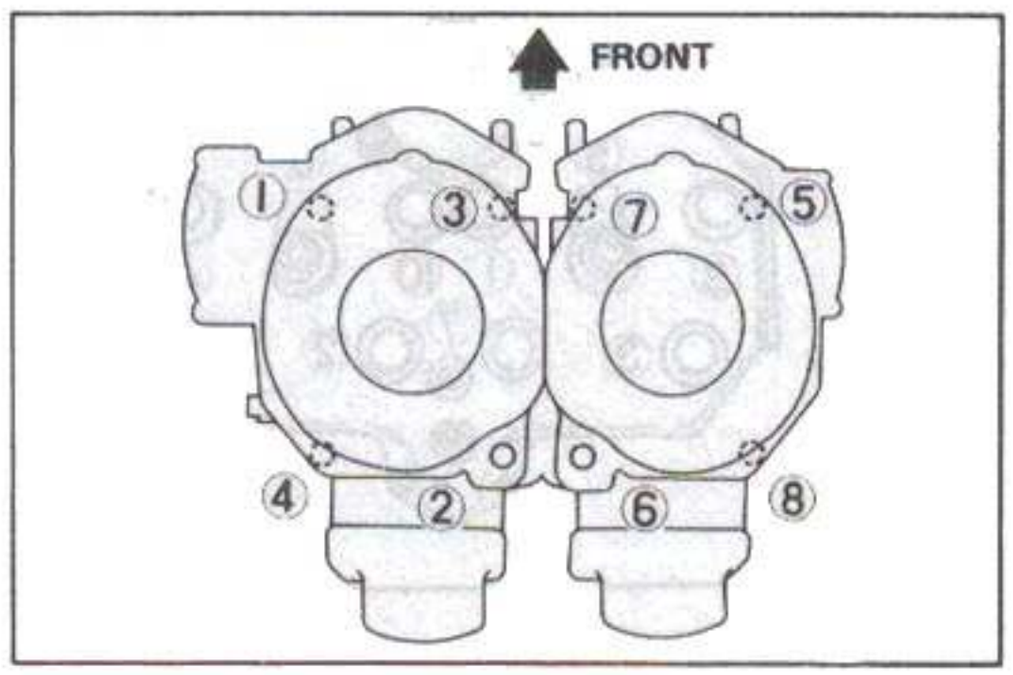
NOTE:

Make sure the rings are properly positioned.

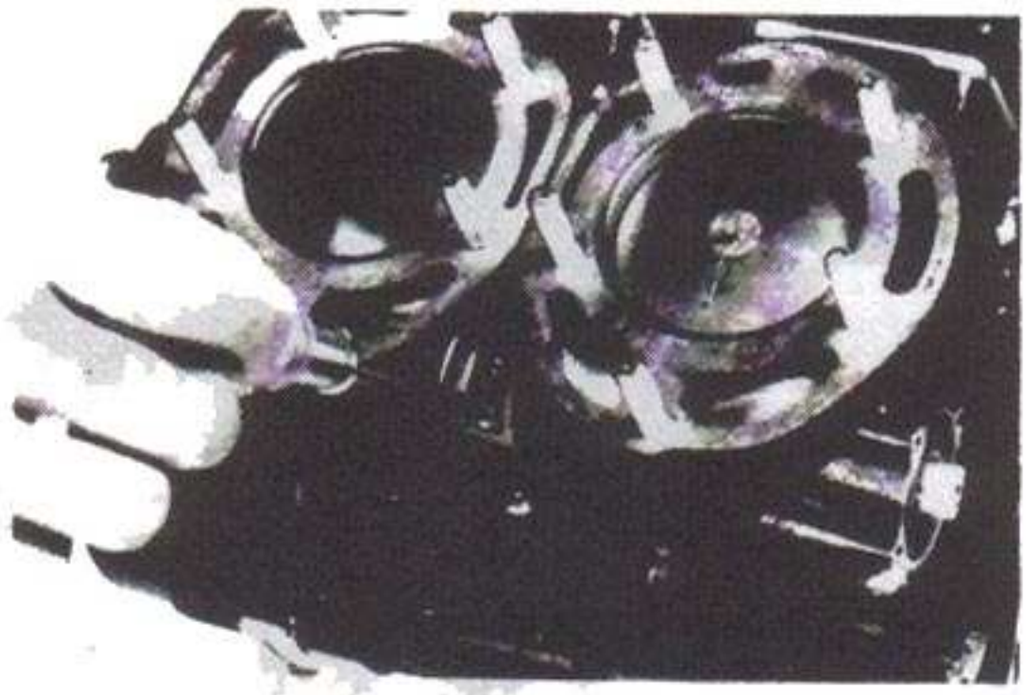
6. Install the cylinder securing nuts. Tighten them all evenly, then torque to specification in sequence shown below.

TIGHTENING TORQUE:
25 Nm (2.5 m · kg, 18 ft · lb)



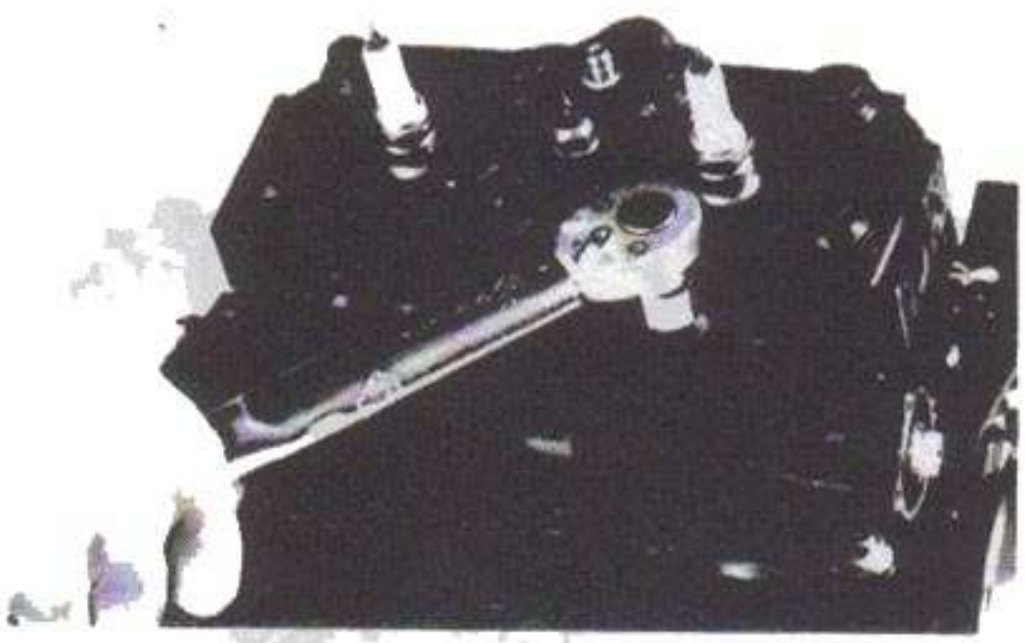


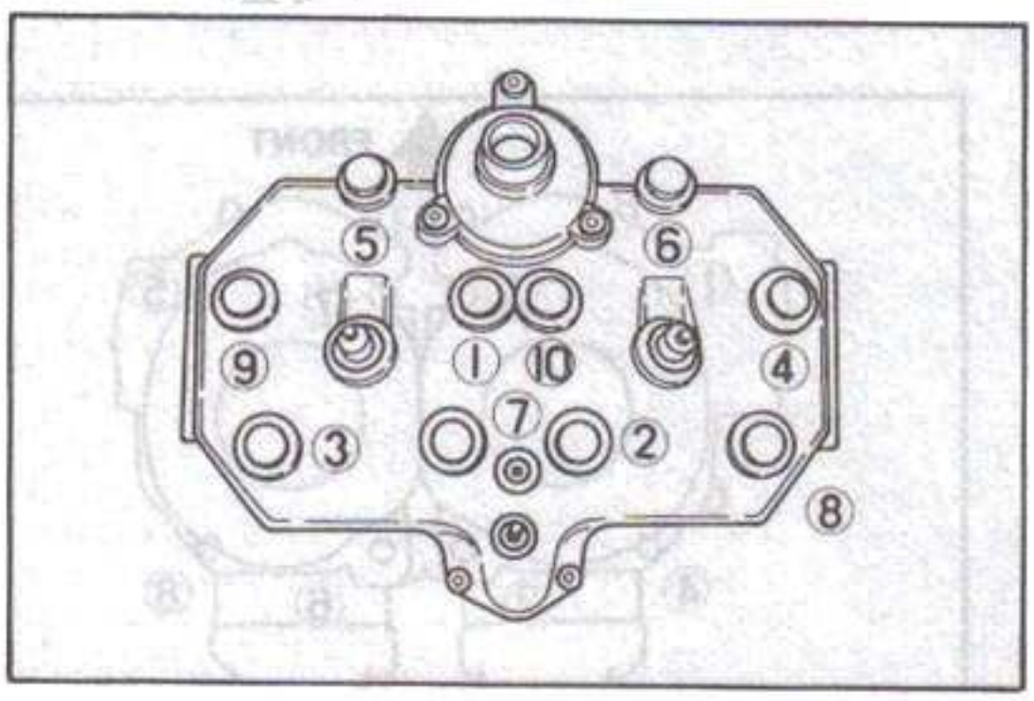
7. Install the power valve joint. Tighten the screws securely.



8. Install the cylinder head with a new gasket. Tighten the cylinder head bolts evenly, then tighten them in sequence shown below.

TIGHTENING TORQUE:
28 Nm (2.8 m · kg, 20 ft · lb)



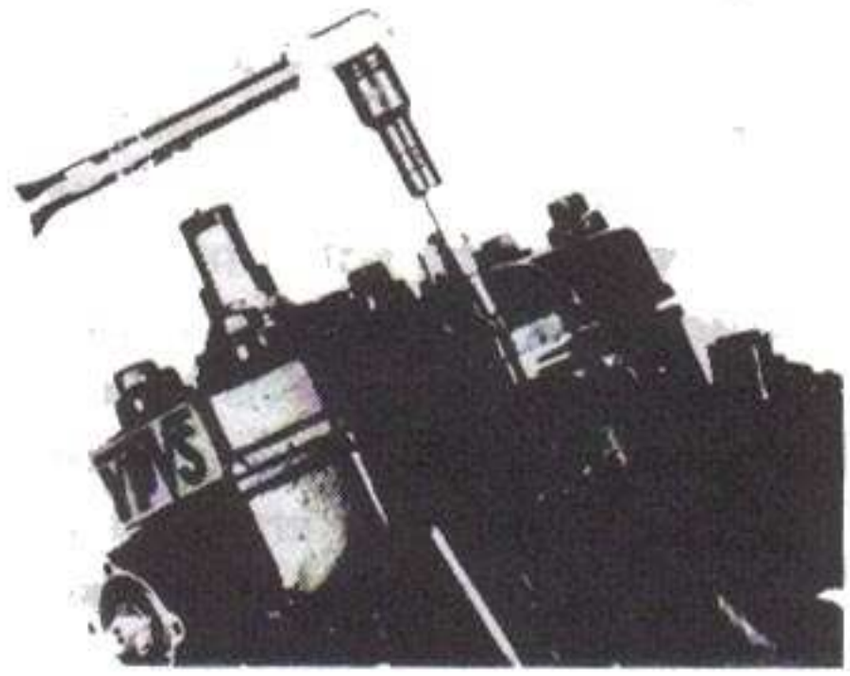


9. Install the thermostatic valve and cover with a new gasket. Torque the bolts to specification.

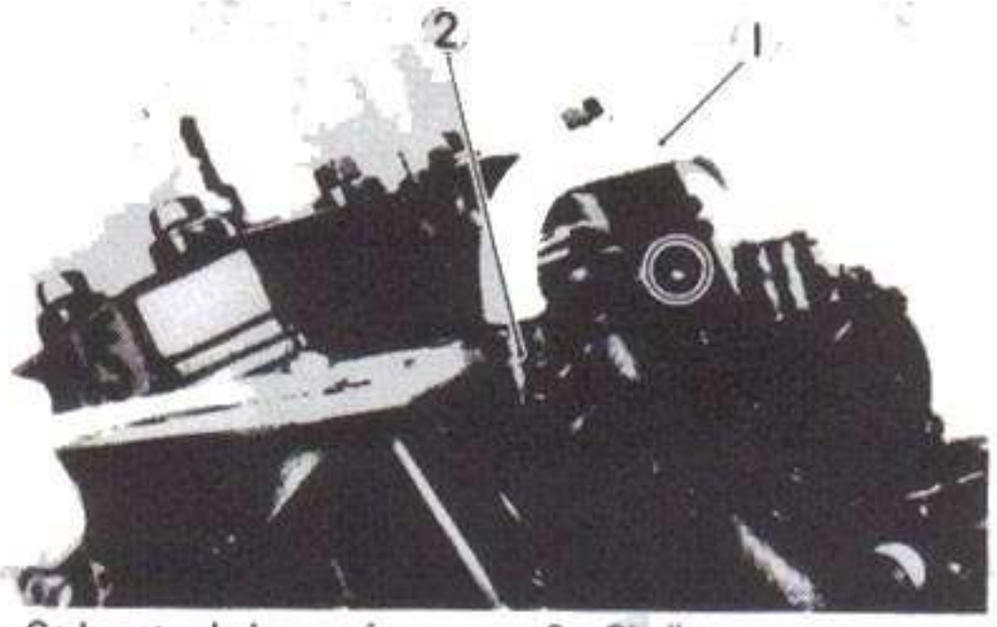
TIGHTENING TORQUE:
12 Nm (1.2 m · kg, 8.7 ft · lb)

10. Install the radiator hose joint with a new gasket. Torque the bolts to specification.

TIGHTENING TORQUE:
12 Nm (1.2 m · kg, 8.7 ft · lb)



11. Connect the carburetor balance pipe and radiator hose.



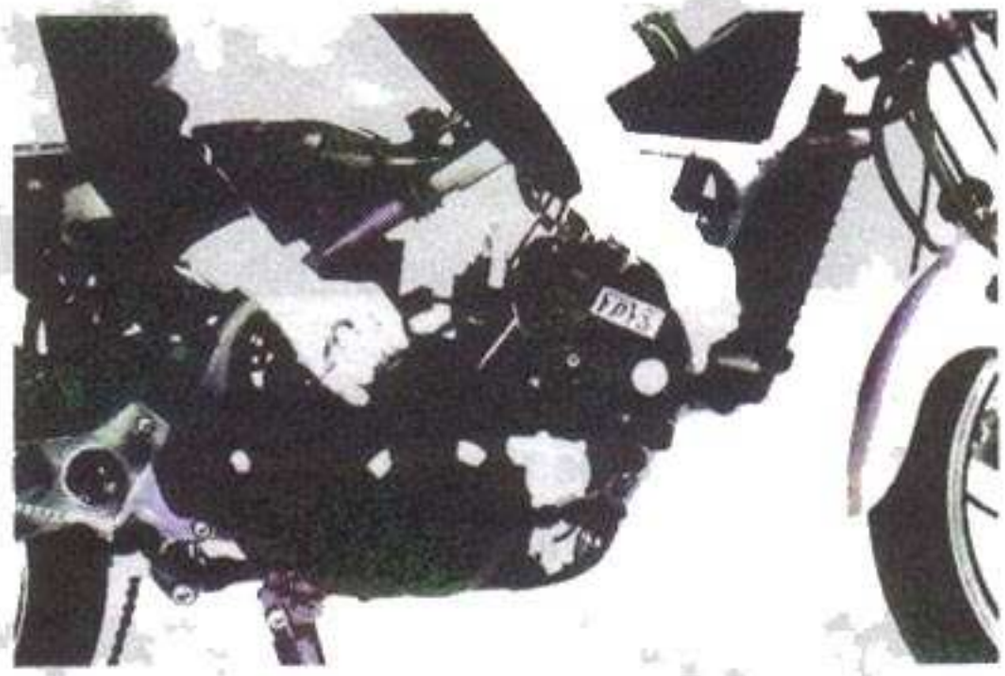
1. Carburetor balance pipe 2. Circlip

12. Install the thermo sensor with a new washer and torque the sensor to specification.

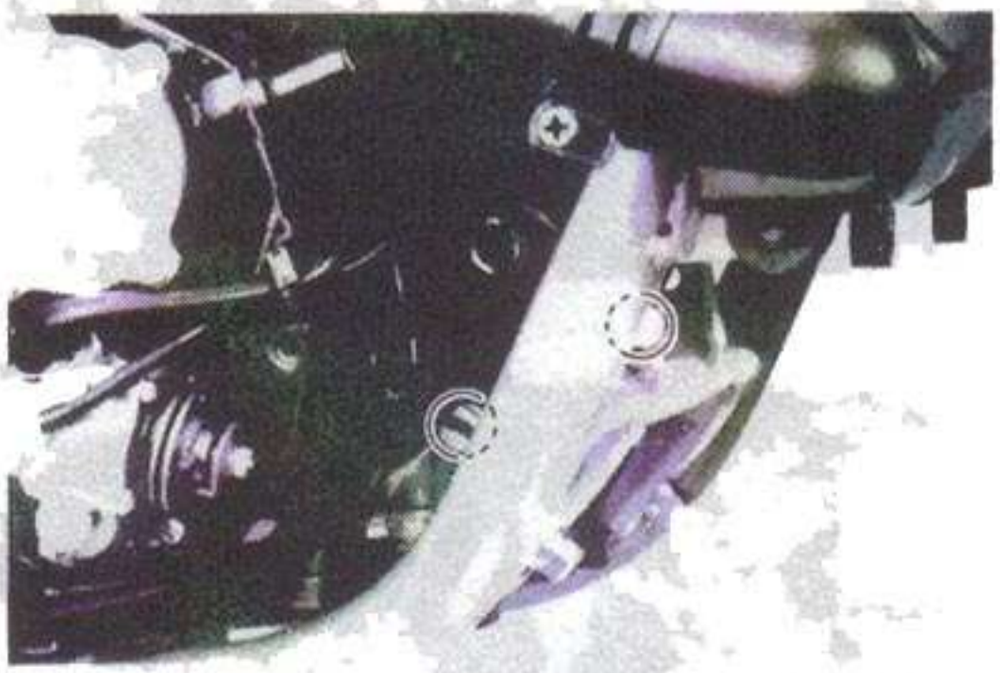
TIGHTENING TURQUE:
12 Nm (1.2 m · kg, 8.7 ft · lb)

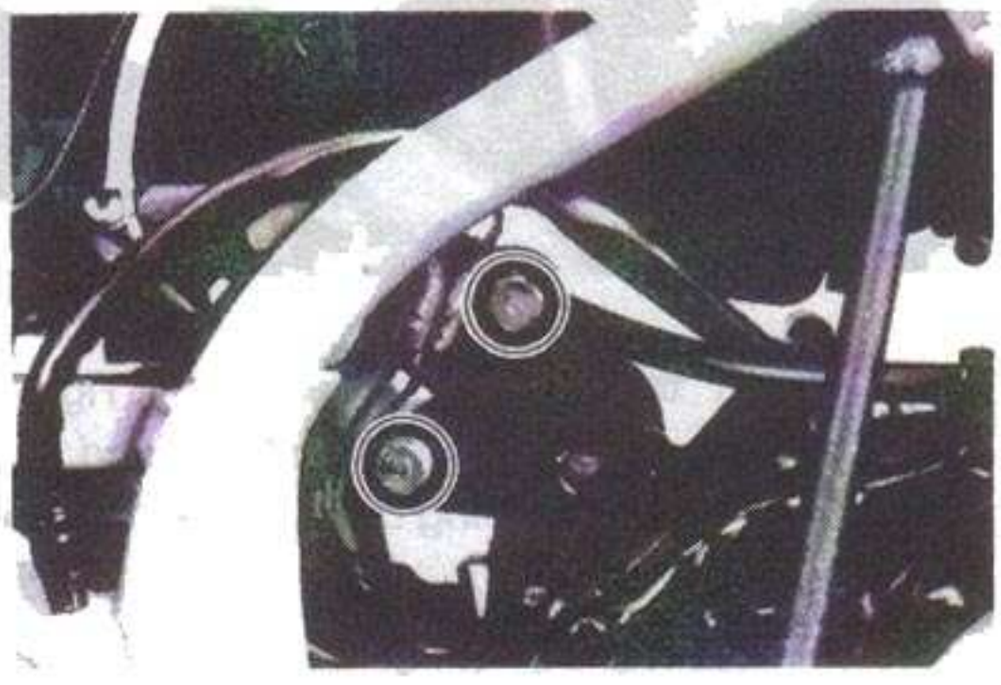
Mounting the Engine

1. Place the engine on a block or other suitable engine stand, and install the engine on the frame. It is easier if you approach the engine from the right-hand side.



2. Install the front and rear engine brackets, and finger-tighten the bracket securing bolts.

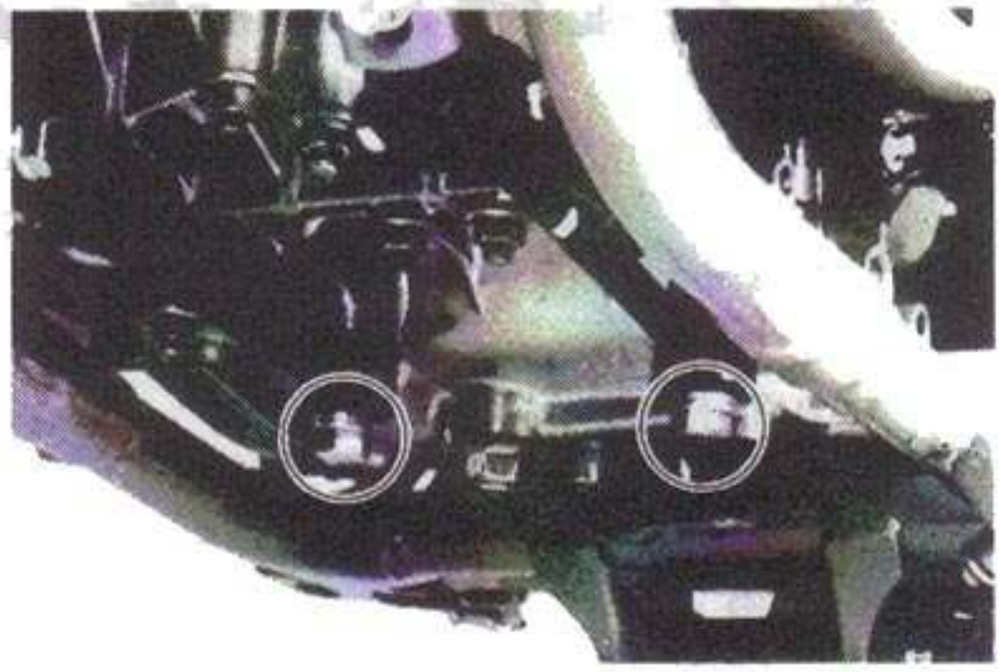




3. Install the front and rear engine mount bolts, and finger-tighten the mount bolts.



4. Install the engine tension rods securing bolts, finger-tighten the bolts.



5. Tighten the engine brackets securing bolts to specification.

TIGHTENING TORQUE:
26 Nm (2.6 m · kg, 19 ft · lb)

6. Tighten the engine tension rods securing bolts to specification.

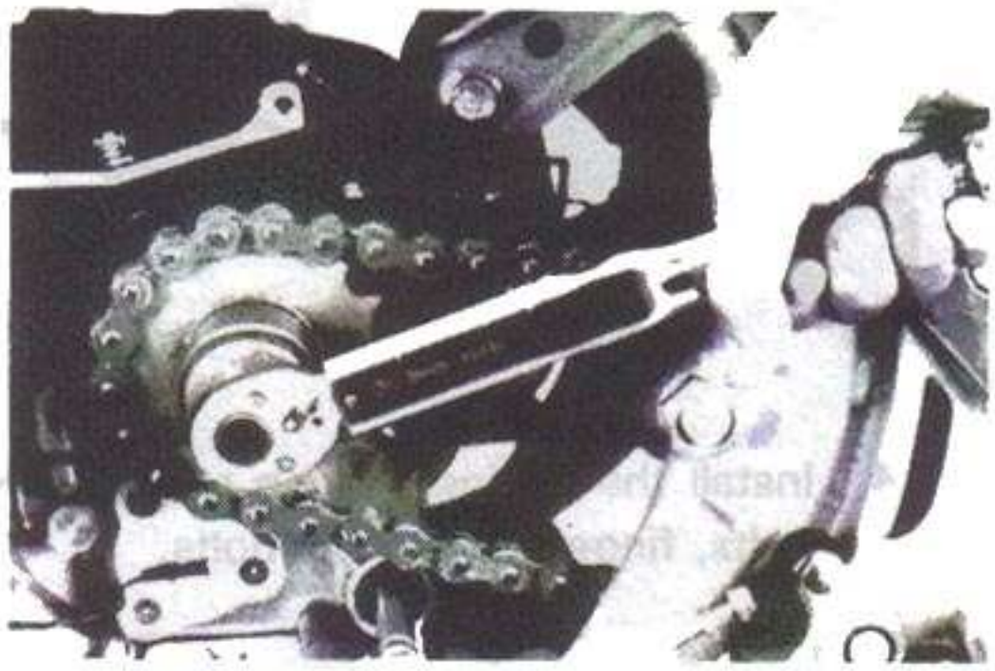
TIGHTENING TORQUE:
25 Nm (2.5 m · kg, 18 ft · lb)

7. Tighten the engine mounting bolts to specification.

TIGHTENING TORQUE:
64 Nm (6.4 m · kg, 46 ft · lb)

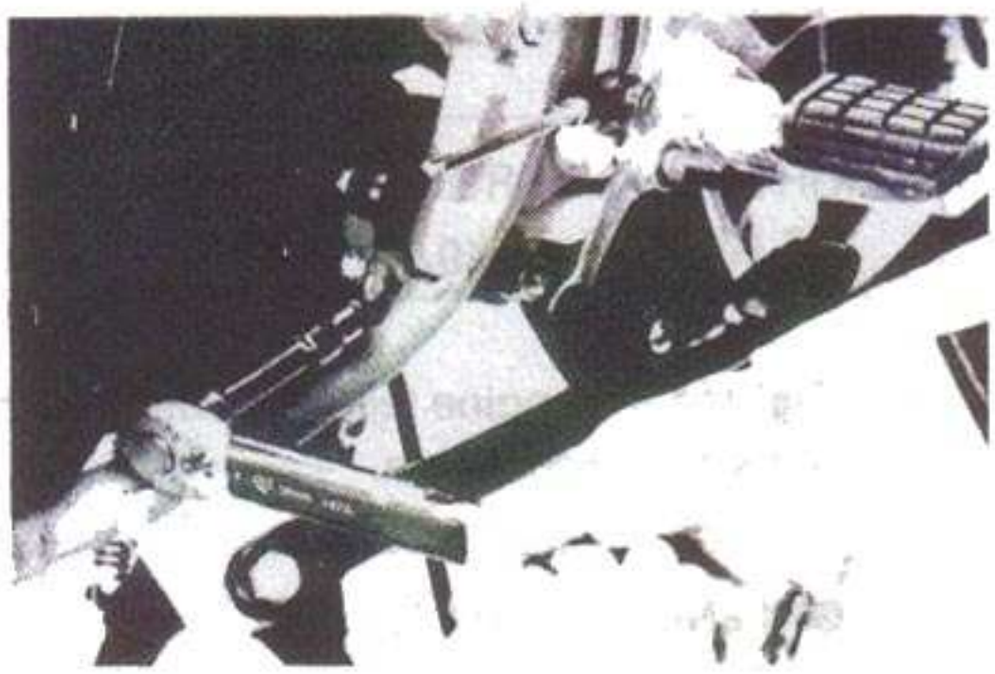
8. Install the drive sprocket and drive chain with a new lock washer. Torque the nut to specification, then bend the lock washer tab against a nut flat.

TIGHTENING TORQUE:
80 Nm (8.0 m · kg, 58 ft · lb)



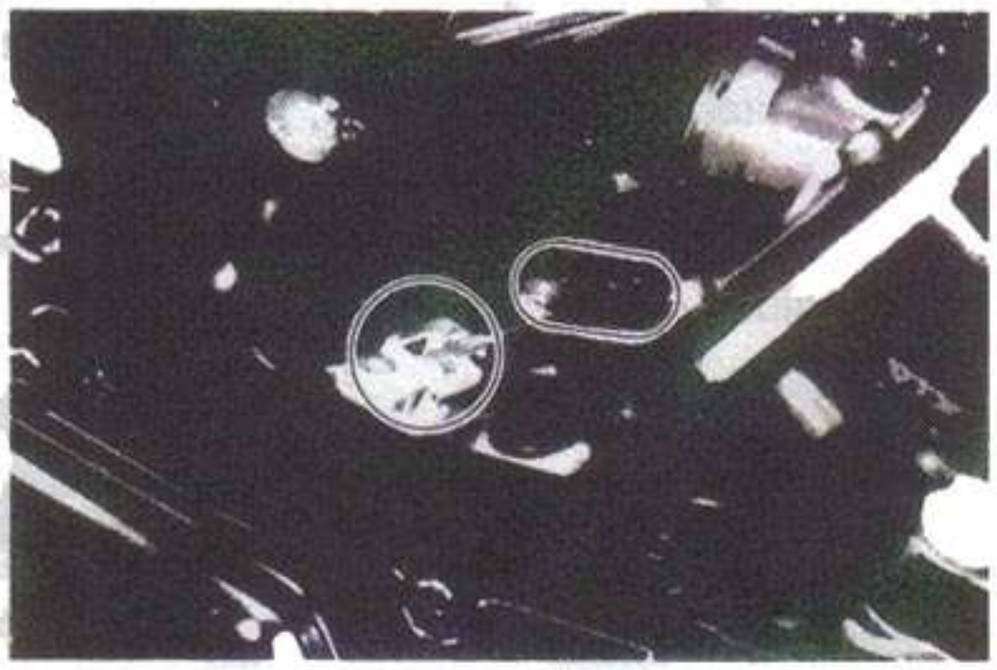
9. Install the left crankcase cover and change-pedal-shift arm. Torque the bolts to specification.

TIGHTENING TORQUE:
Crankcase cover:
7 Nm (0.7 m · kg, 5.1 ft · lb)
Shift arm:
15 Nm (1.5 m · kg, 11 ft · lb)

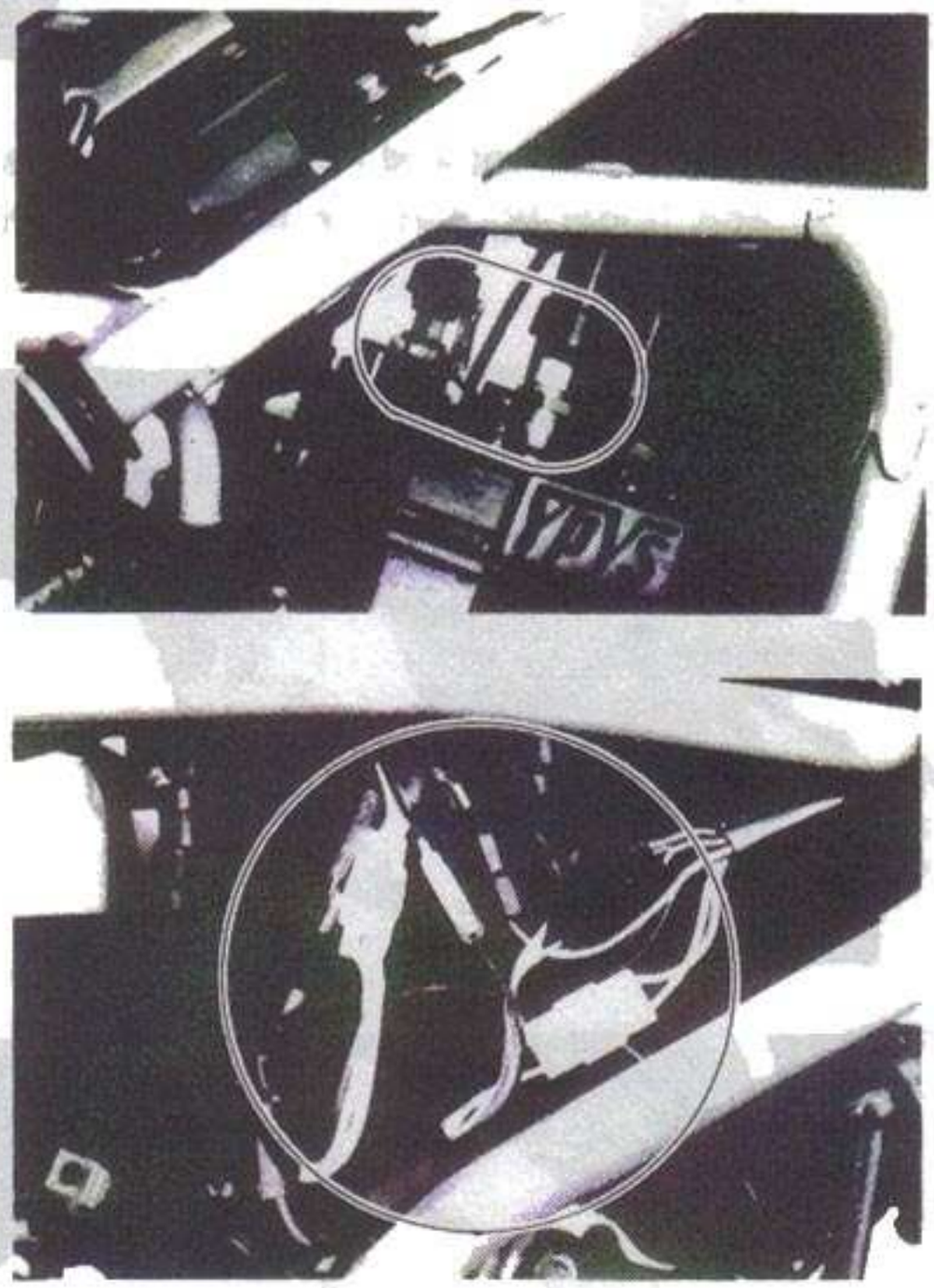


10. Connect the clutch cable and install the clutch cable clamp. Torque the clamp securing bolt to specification.

TIGHTENING TORQUE:
10 Nm (1.0 m · kg, 7.2 ft · lb)



11. Connect the tachometer cable.
12. Connect the thermo sensor, spark plug, and CDI magneto leads.

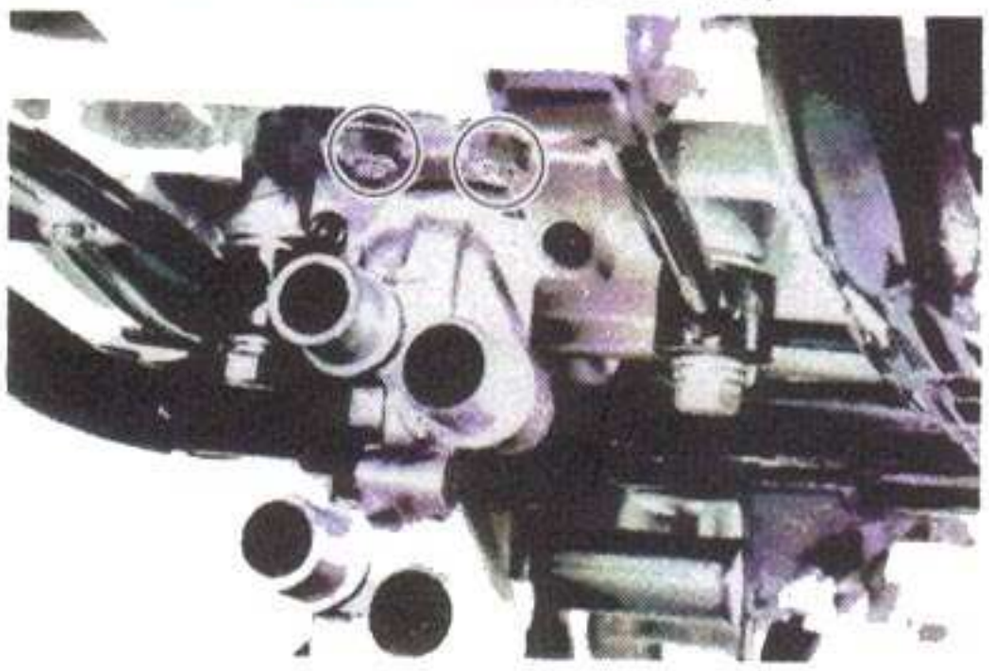


13. Install the muffler assemblies. Tighten the exhaust pipe securing bolts and muffler bracket securing bolts to specification.

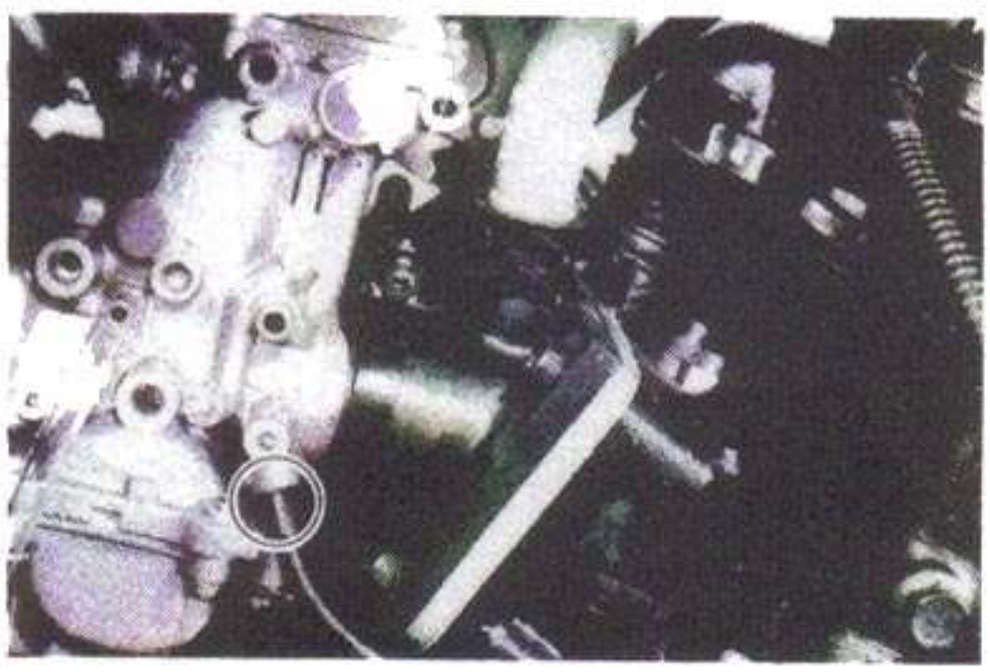
TIGHTENING TORQUE:
Exhaust pipe:
18 Nm (1.8 m · kg, 13 ft · lb)
Muffler bracket:
64 Nm (6.4 m · kg, 46 ft · lb)



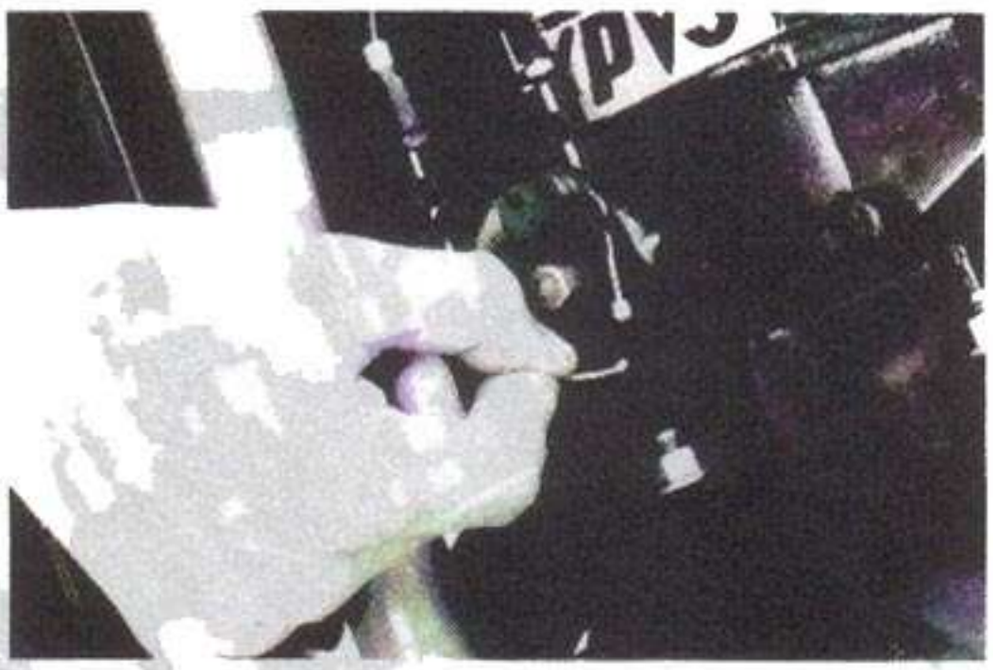
14. Install the reed valve assembly.



15. Connect the catalyzer-thermo-sensor leads.
16. Install the carburetors and connect throttle cable.
17. Connect oil derivery pipes.



18. Connect the YPVS cables and adjust the cables. See Chapter 2 for cable adjustment. Install the YPVS seal cap.



19. Connect the oil pipe to the oil tank.
20. Connect the Autolube pump cable. Adjust the Autolube cable, refer to Chapter 2 for adjustment.

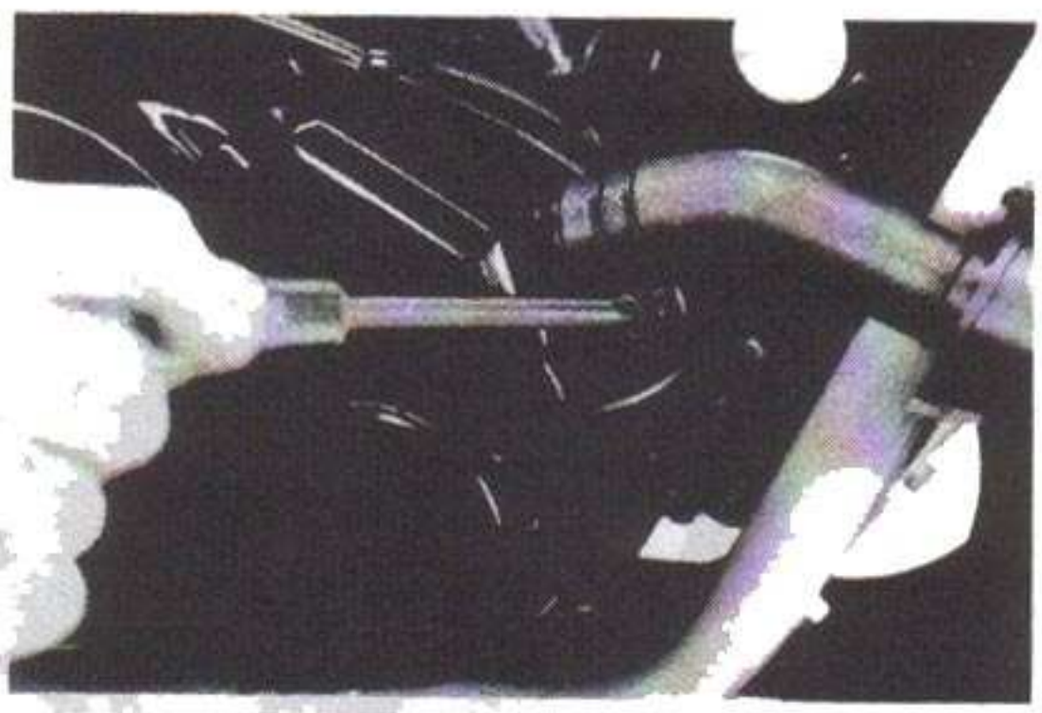


21. Install the oil pump cover.
22. Add transmission oil.

Recommended oil:
Yamalube 4-cycle oil or SAE 10W30 type SE motor oil or "GL" gear oil
Oil capacity:
1.7 L (1.5 Imp qt, 1.8 US qt)

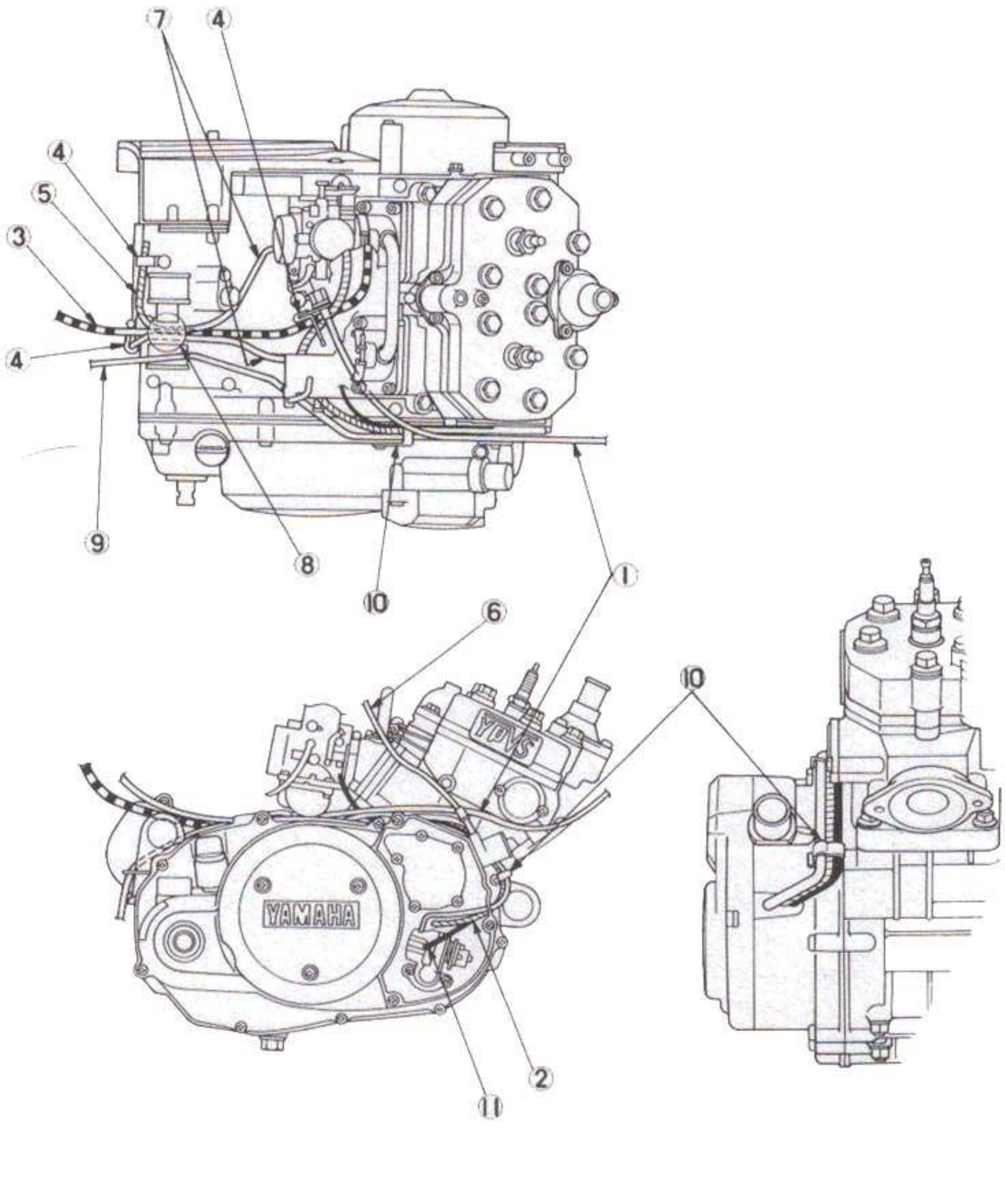
23. Connect the battery leads. Connect the positive (+) lead first.
24. Connect the radiator hoses.





25. Fill the coolant into the radiator and reservoir tank.
26. Install the fuel tank, seat, and side covers.
27. Install the lower cowl.

Cable/Lead/Hose Routing



1. Clutch cable
2. Hose (oil pump to left-side carburetor)
3. Flywheel megneto lead (over the spacer damper)
4. Clamp
5. Hose (Crankcase ventilation hose)
6. Oil pump cable
7. Carburetor overflow hose
8. Overflow hose (under the spacer damper)
9. Oil hose (To oil tank)
10. Clamp (Clamp to the crankcase cover right)
11. Hose (Oil pump to right-side carburetor)

CHAPTER 4.
COOLING SYSTEM

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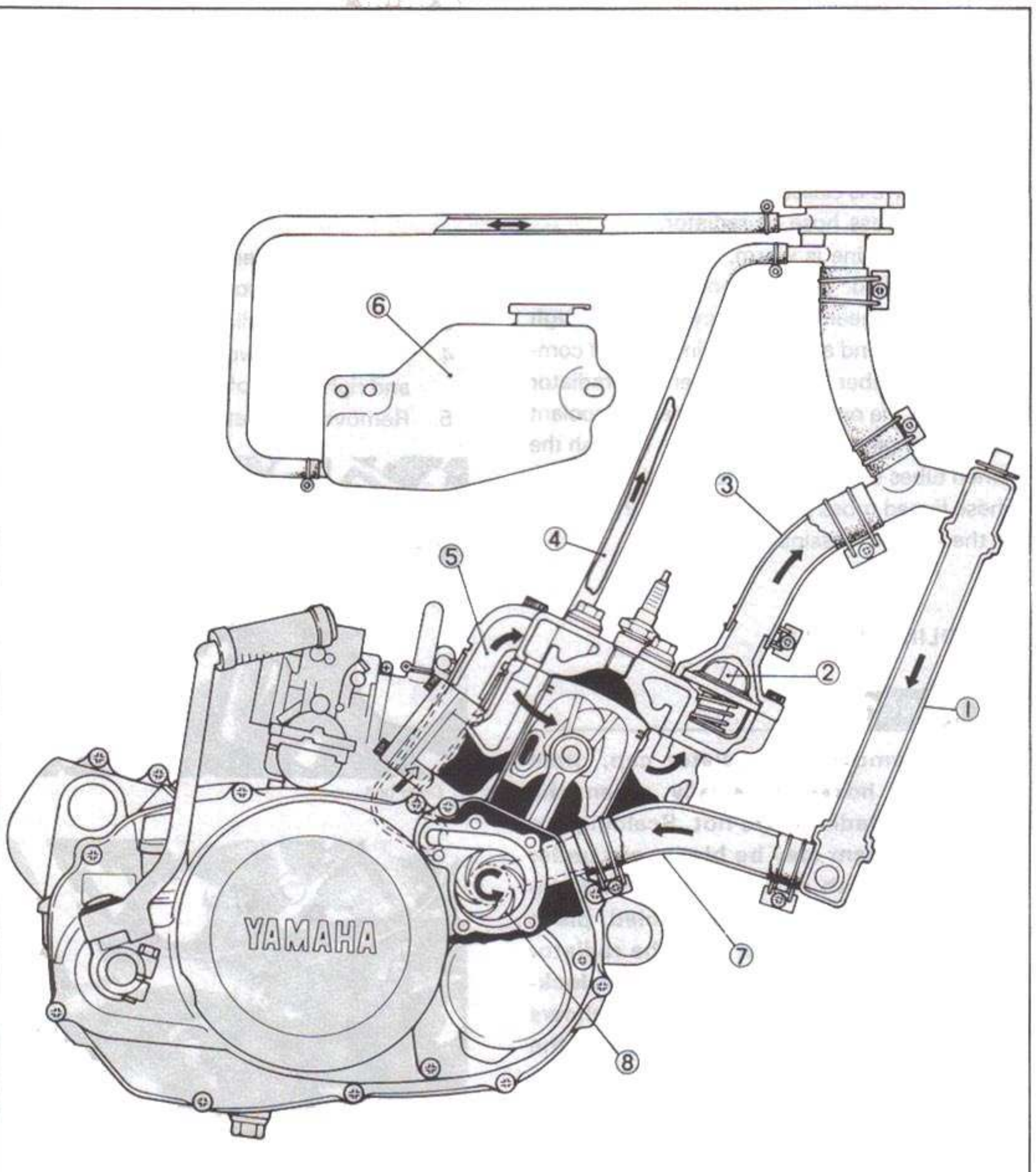
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CHAPTER 4.
COOLING SYSTEM



1. Radiator
2. Thermostatic valve
3. Outlet hose
4. Bypass hose
5. Joint hose
6. Reservoir tank
7. Inlet hose
8. Water pump

OPERATION

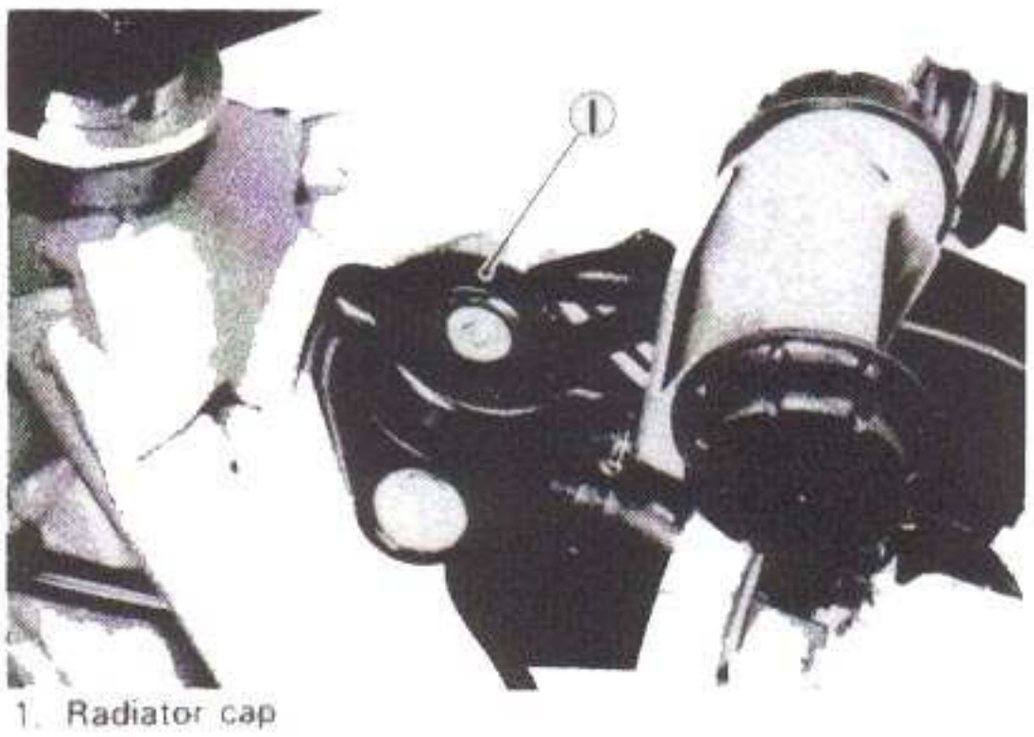
The coolant is circulated by an impeller type pump mounted on the right side crankcase and driven by a gear. The coolant is drawn by the pump from the bottom tank of the radiator, through the inlet hose and discharged into the cylinder-head and cylinder through the joint hose. When the engine is cold, the thermostatic valve is closed. So, the coolant passes through bypass hose to radiator.

When the engine is warm, the thermostatic valve is opened. So, the coolant passes from the cylinder-head to the cylinder through coolantways and after circulating around combustion chamber jacketing enters the radiator upper tank via outlet hose. The heated coolant from the engine then passes down through the finned tubes to the bottom tank of the radiator. These finned tubes present a large surface area to the air and dessipate the heat.

HANDLING NOTES

WARNING:

Do not remove the radiator cap, drain bolts and hoses especially when the engine and radiator are hot. Scalding hot fluid and steam may be blown out under pressure, which could cause serious injury. When the engine has cooled, place a thick rag like a towel over the radiator cap, slowly rotate the cap counterclockwise to the detent. This procedure allows any residual pressure to escape. When the hissing sound has stopped, press down on the cap while turning counterclockwise and remove it.



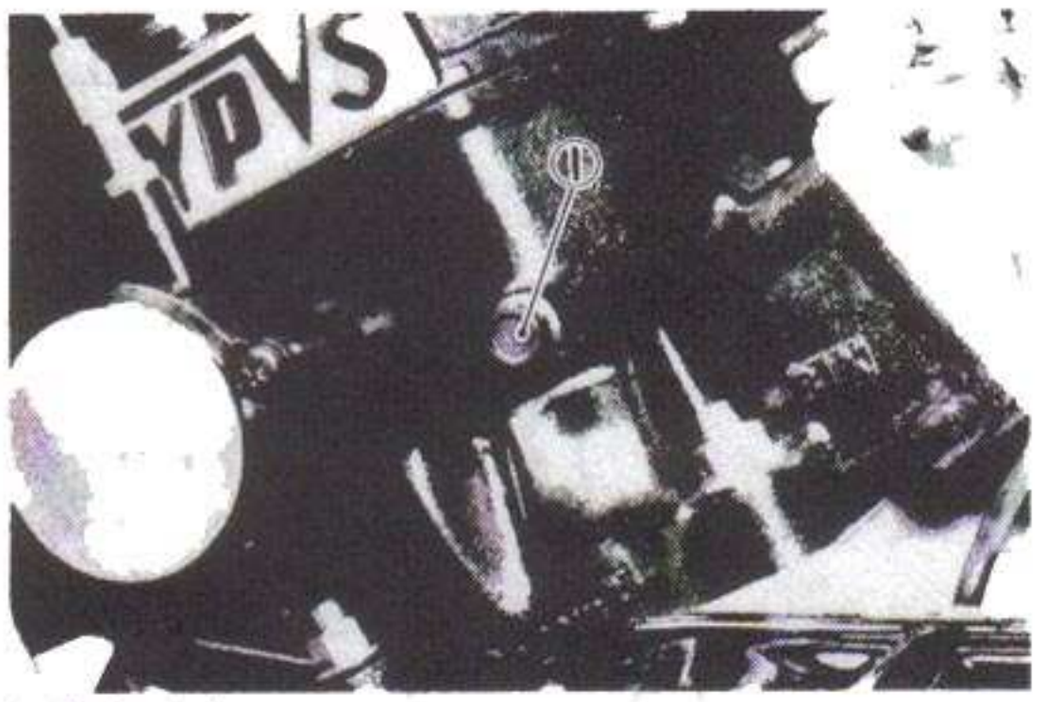
1. Radiator cap

COOLANT REPLACEMENT

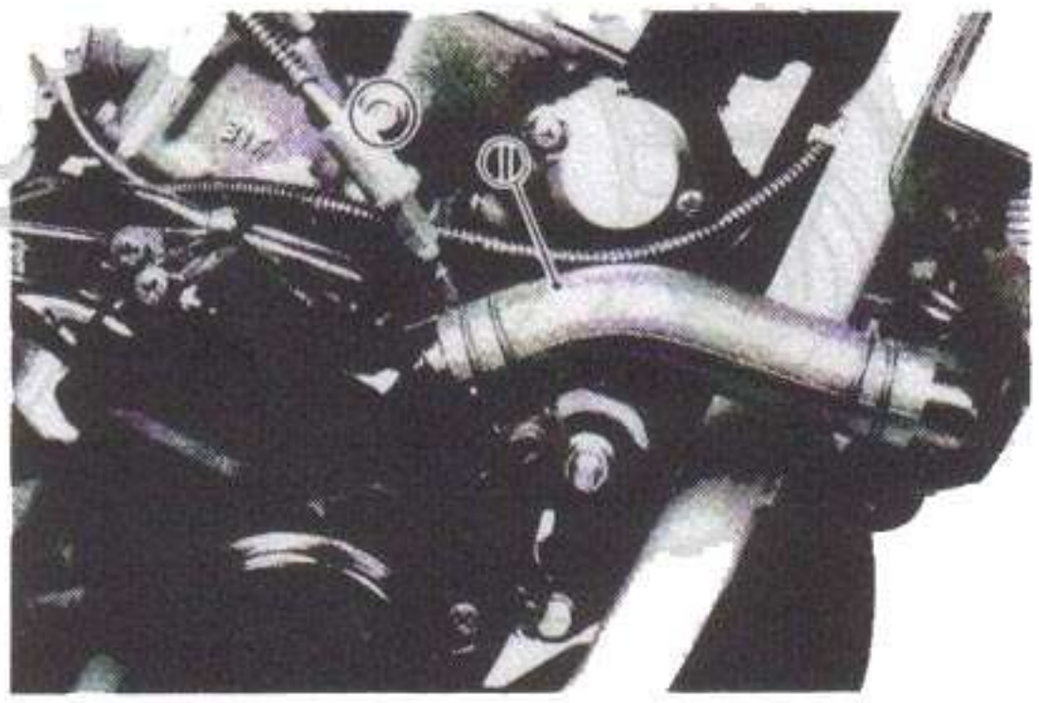
CAUTION:

Replace the coolant every two years. Before replacing, remove the radiator cap and check the color of the coolant and mineral deposits in the radiator. Flush the coolant system, as required.

1. Remove fuel tank and lower cowl.
2. Place an open container under the engine.
3. Remove the radiator tank cap.
4. Remove the two drain bolts at the left and right sides of the cylinder.
5. Remove the inlet hose at the crankcase.



1. Drain bolt



1. Inlet hose

6. Drain the coolant completely. Throughly flush the cooling system with clean tap water.

CAUTION:

Take care so that the coolant does not splash to painted surfaces. If splashes, wash it away with water.

7. Retighten the drain bolts and install the inlet hose.
   If the drain bolt gaskets are damaged, replace them.

TIGHTENING TORQUE:
14 Nm (1.4 m · kg, 10 ft · lb)

8. Pour the recommended coolant into the radiator. Then fill with clean tap water (soft water) until the radiator is full.

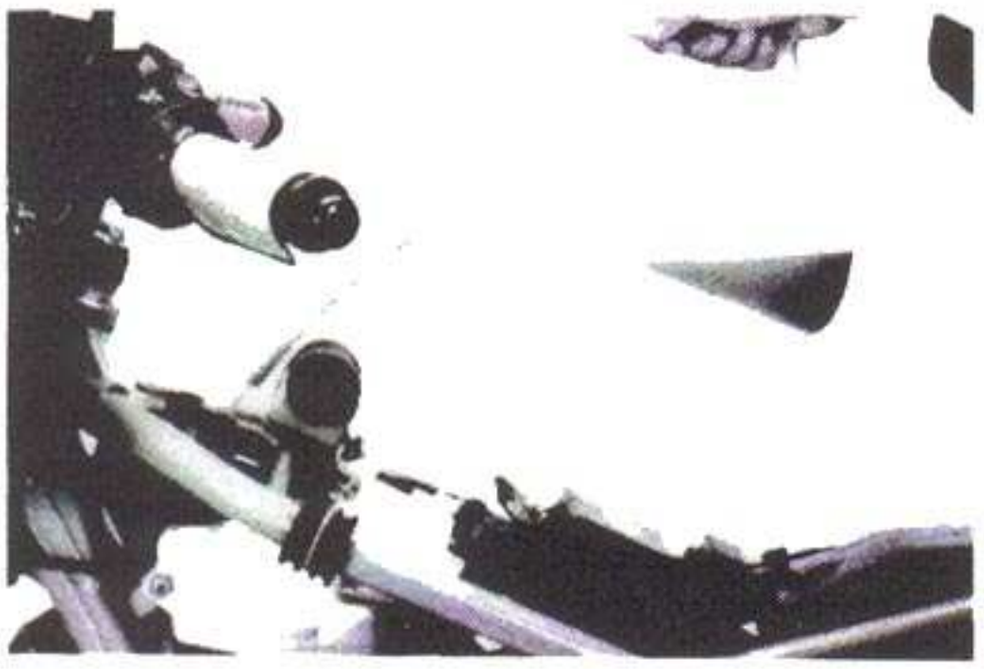
Recommended coolant:
High quality ethylene glycol anti-freeze containing corrosion for aluminum engine inhibitors
Coolant and water mixed ratio:
1 : 1
Total amount:
1,500 cm^3 (1.32 Imp qt, 1.59 US qt)
Reservoir tank capacity:
215 cm^3 (0.19 Imp qt, 0.23 US qt)
From LOW to FULL level:
185 cm^3 (0.16 Imp qt, 0.20 US qt)

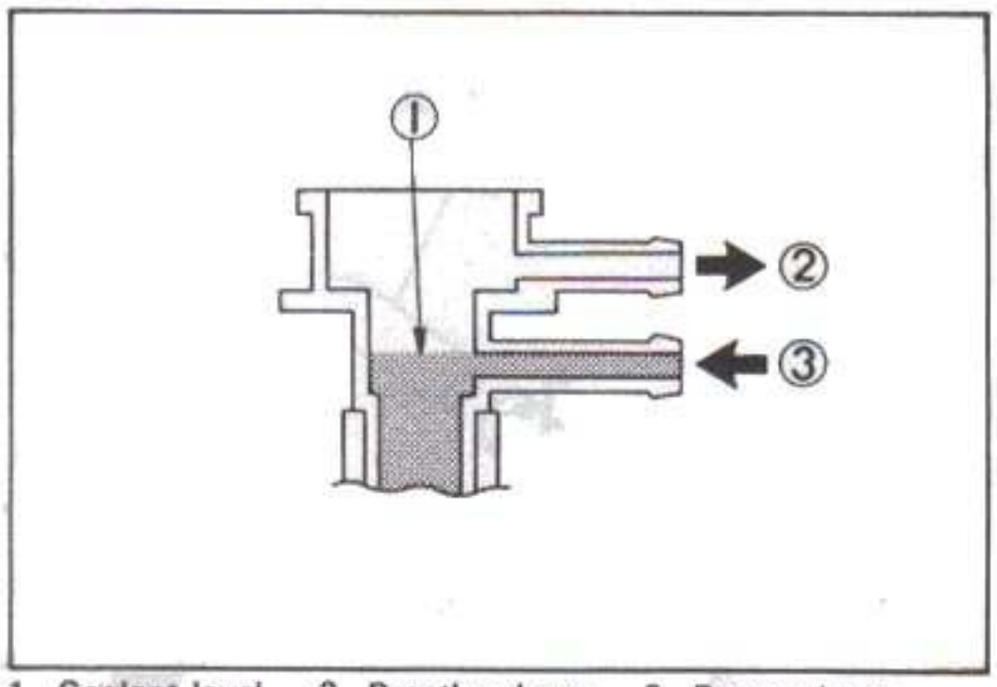
CAUTION:

Hard water or salt water is harmful to the engine parts. You may use boiled water or distilled water, if you can't get soft water.

CAUTION:

Do not mix more than one type of ethylen glycol antifreeze containing corrosion for aluminum engine inhabitors.





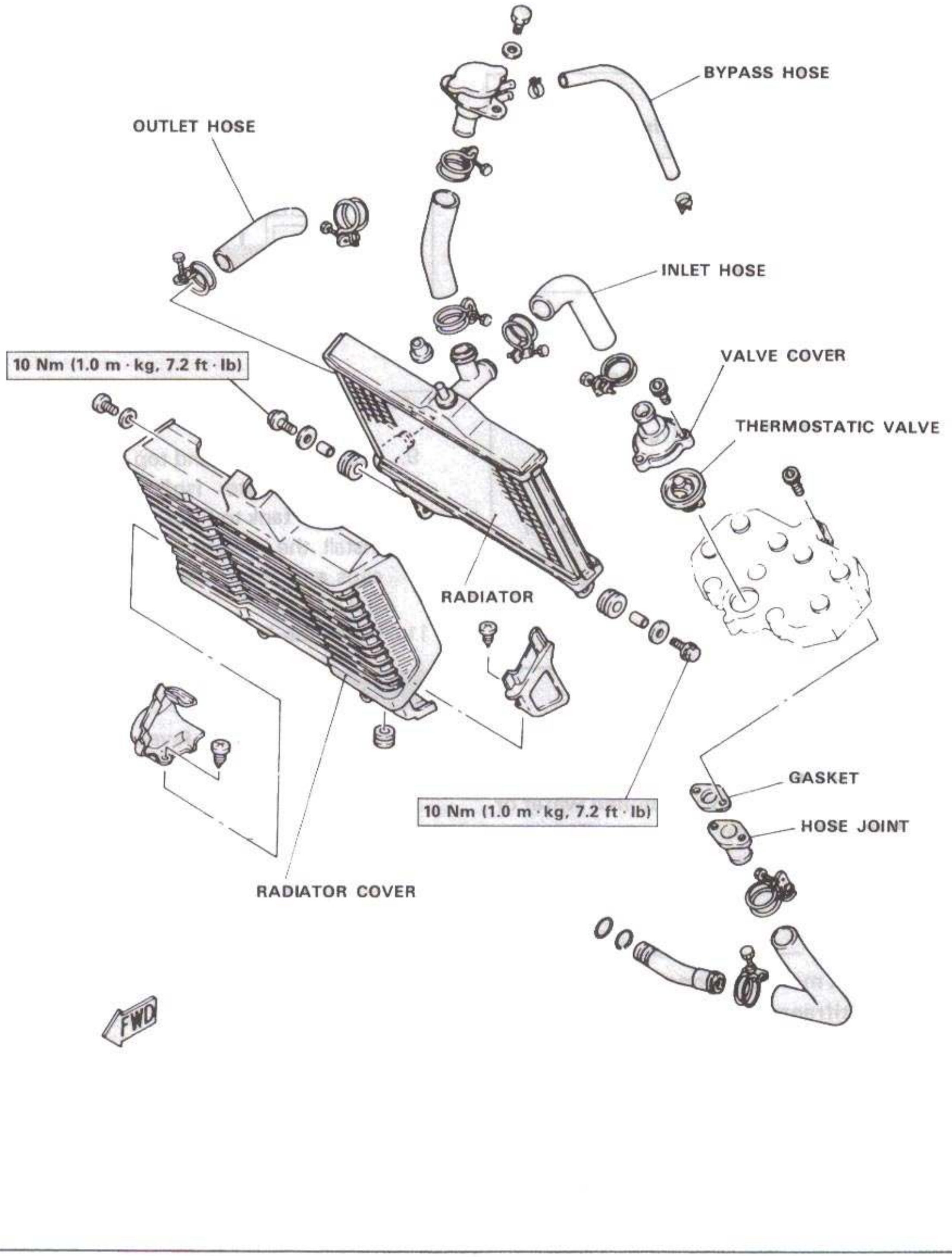
1. Coolant level 2. Breather hose 3. Bypass hose

9. Start the engine and top up the radiator with tap water (soft water). Fill the reservoir tank to FULL level.
10. Install the radiator and reservoir tank caps and check the drain bolts are not leaking.
11. Install the fuel tank.

CAUTION:

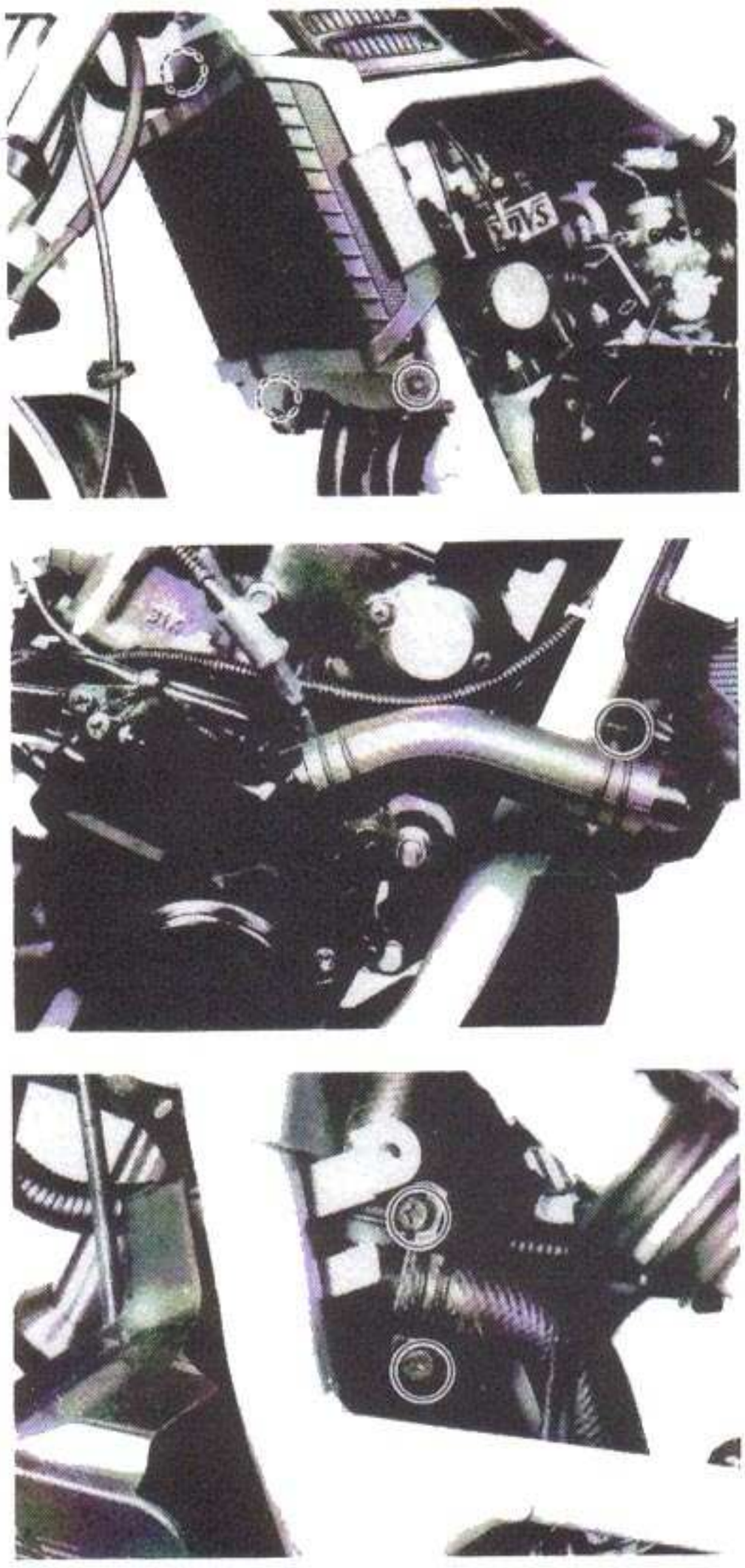
Always check coolant level, and check for coolant leakage before starting engine.

RADIATOR


BYPASS HOSE
OUTLET HOSE
INLET HOSE
10 Nm (1.0 m · kg, 7.2 ft · lb)
VALVE COVER
THERMOSTATIC VALVE
RADIATOR
10 Nm (1.0 m · kg, 7.2 ft · lb)
GASKET
HOSE JOINT
RADIATOR COVER
FWD

Removal

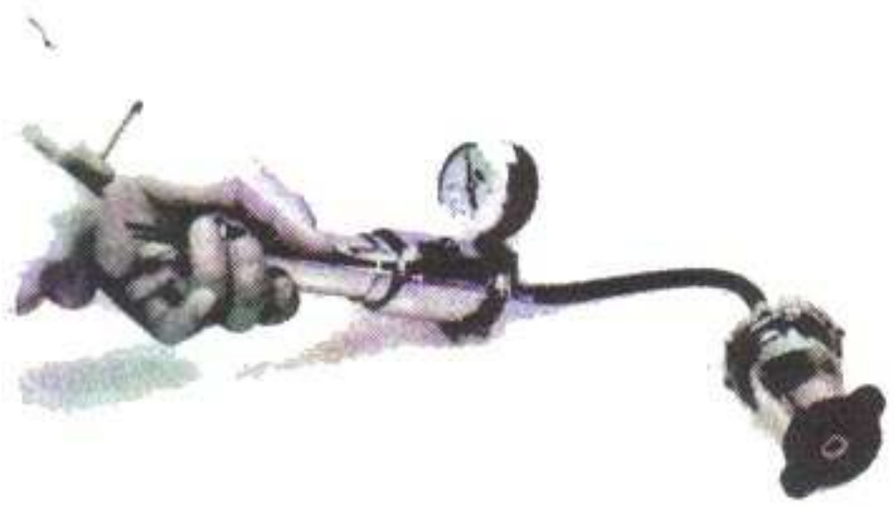
1. Remove the under cowl and radiator cover.
2. Drain off the coolant.
3. Remove the coolant hoses.
4. Remove the radiator.



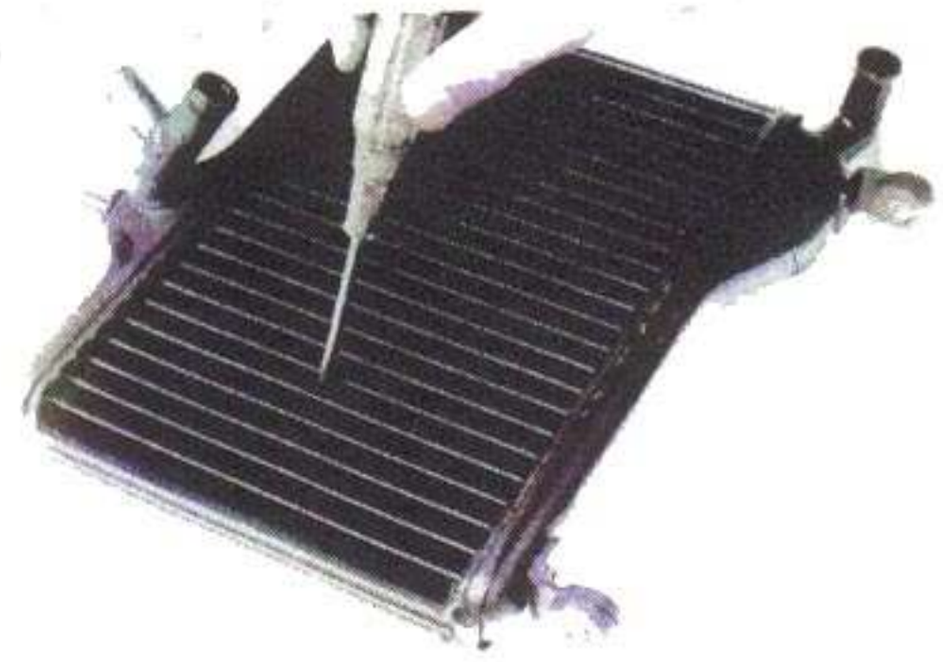
Inspection

1. Using the cap tester, check the pressure valve operation.
   Measuring with a tester, apply the specified pressure for 10 seconds, and make sure there is no pressure drop. If the pressure drops, replace the radiator cap.

Valve opening pressure:
88.3 kPa (0.9 kg/cm^2, 12.8 psi)



2. Check the radiator core for clogged or flattened fins. If more than 20% of the radiator core area is flattened, repair or replace the radiator core.
   If the radiator is clogged, clean it by blowing it from its rear (engine side) with compressed air.



3. Check the coolant hoses for cracks and damage. Replace as required.



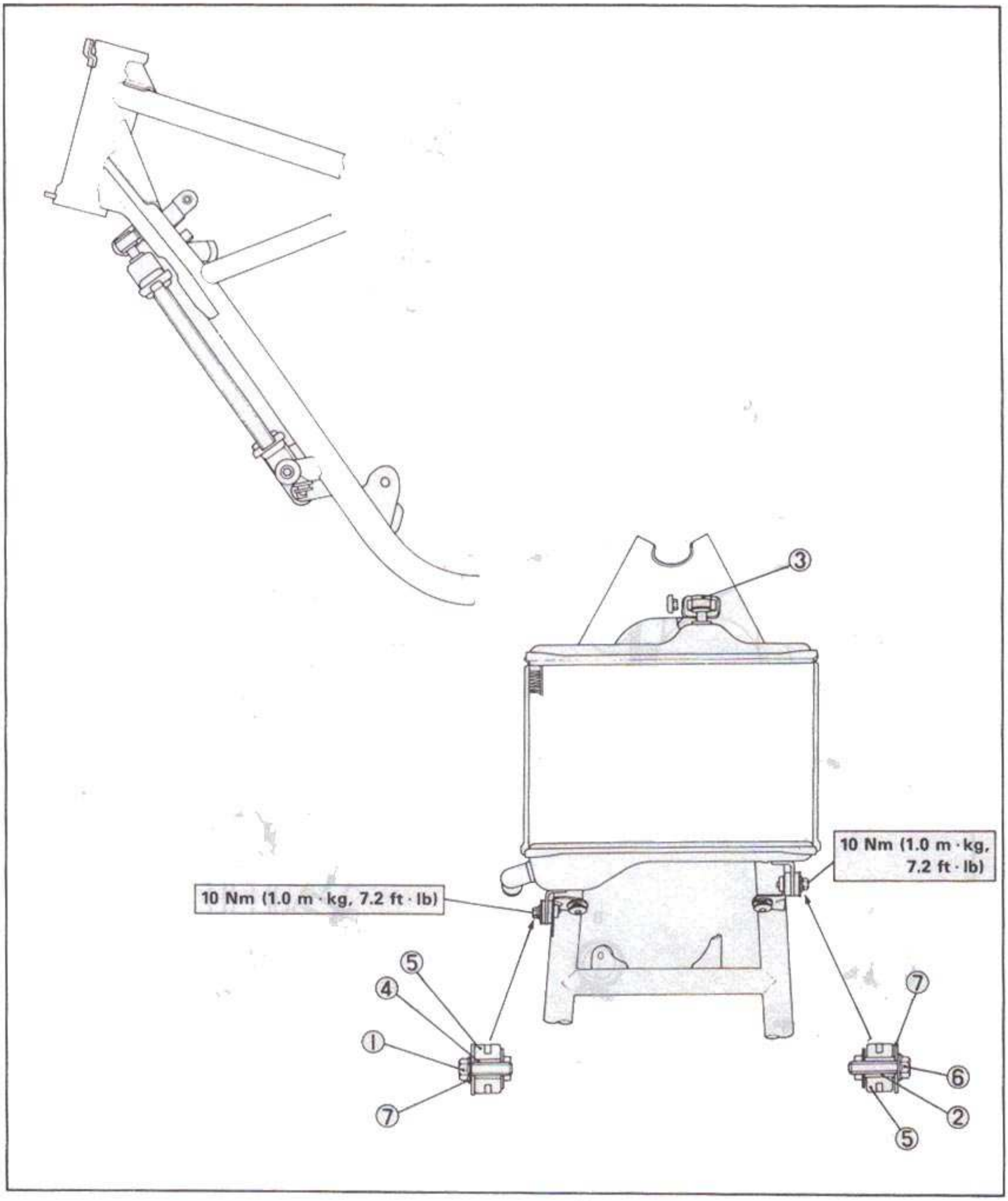
Installation

1. Install the radiator and coolant hoses. Reverse the removal procedure.
2. Fill with the coolant.
3. Inspect the cooling system for leaks. Attach the cap tester to the radiator and pump it to the specified pressure. If the pressure gauge drops, inspect all hoses, fittings and radiator for an external leak. If leakage is found, repair or replace defective parts.

Pressure:
98.1 kPa (1.0 kg/cm^2, 14.2 psi)

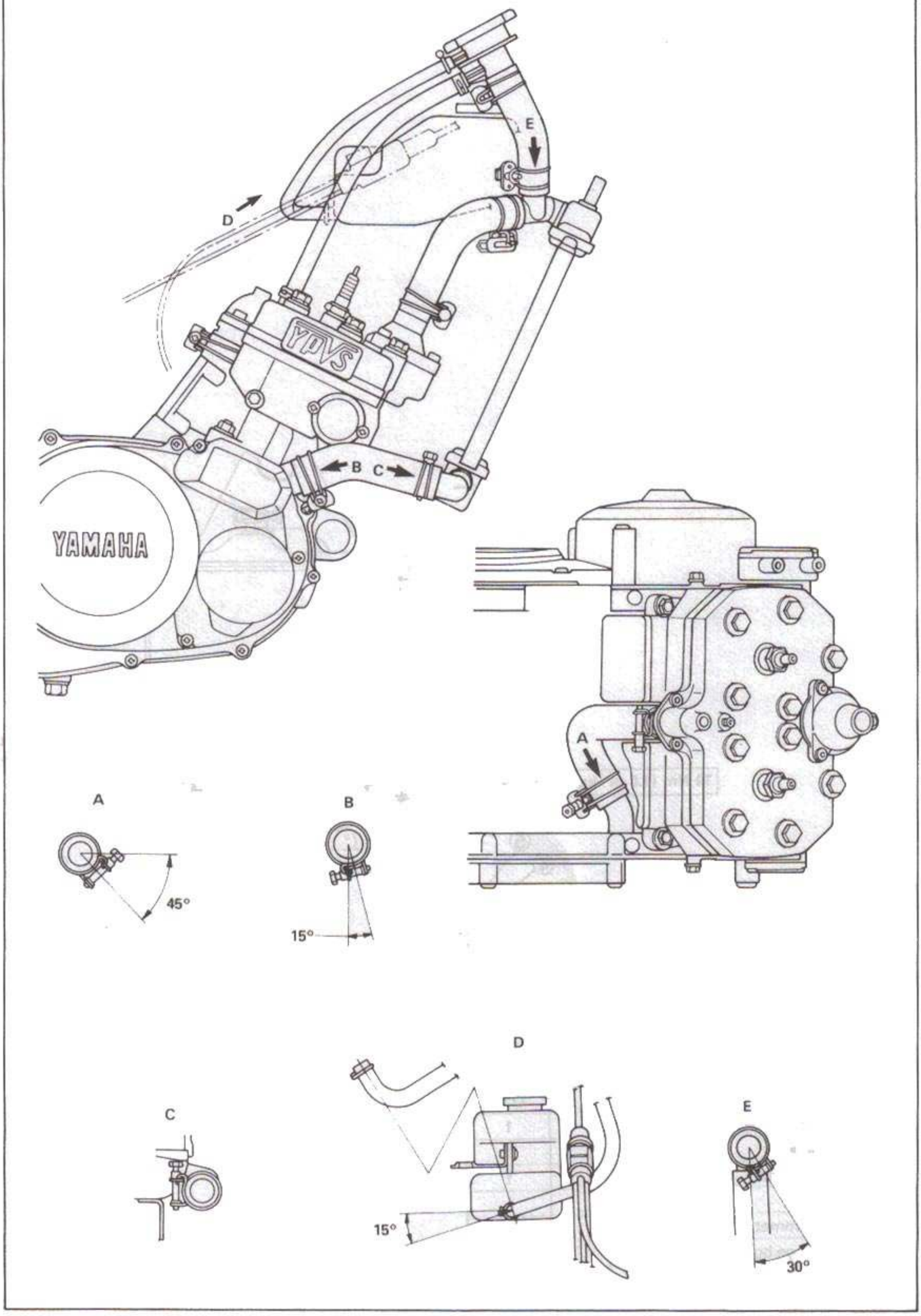


RADIATOR MOUNTING

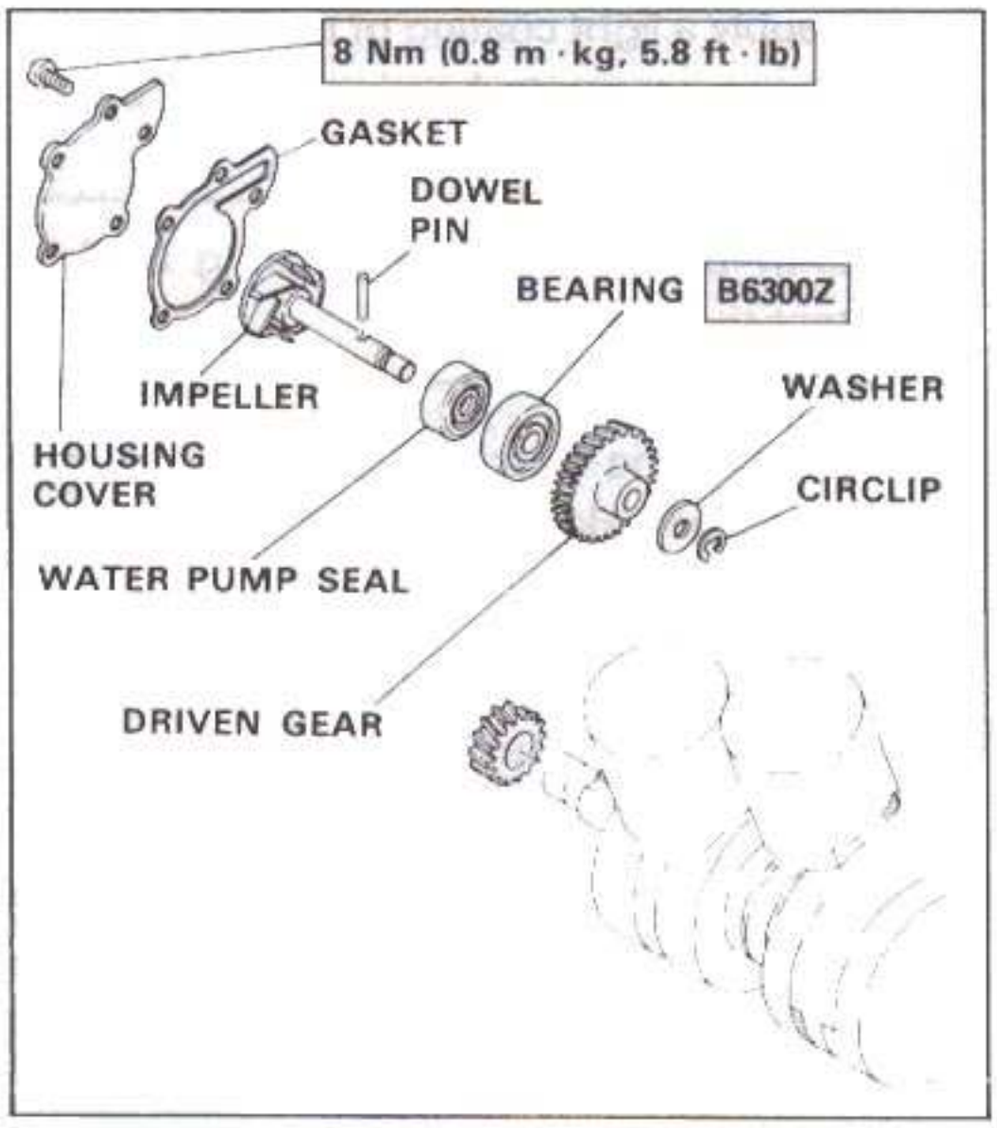


No.	Part name	Q'ty
1	Flange bolt	1
2	Collar	1
3	Grommet	1
4	Collar	1
5	Grommet	2
6	Flange bolt	1
7	Plate washer	2

HOSE BAND



WATER PUMP



Removal

NOTE:

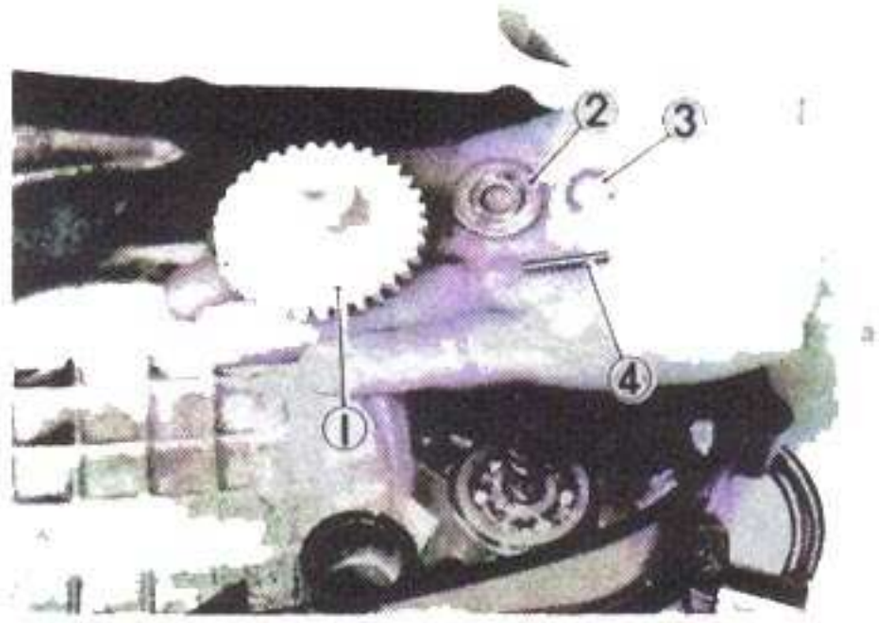
It is necessary to remove the water pump, unless there is no abnormarity such as excessive change in coolant temperature and/or level, discoloration of coolant, or milky transmission oil.

1. Drain off the coolant completely.
2. Drain off the transmission oil.
3. Remove the oil pump cover and crankcase cover right.

CAUTION:

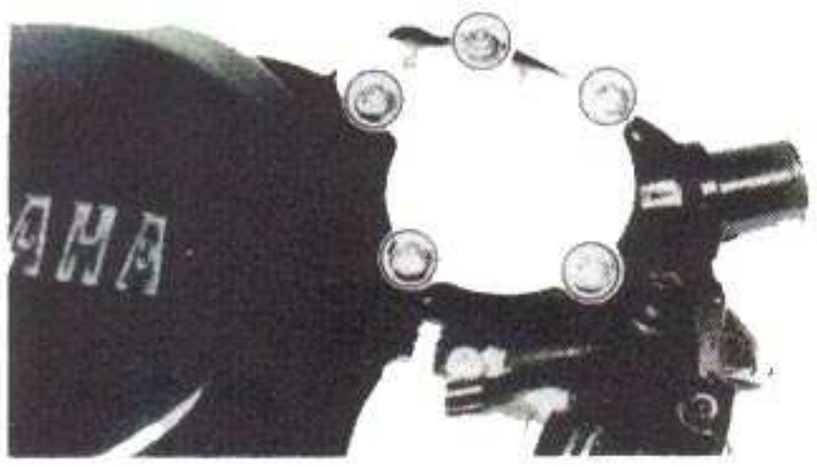
Drain the coolant out of the water pump while taking care so that it does not splashes to the Autolube pump.

4. Remove the circlip and plate washer.
5. Remove the water pump driven gear and dowel pin from the shaft.



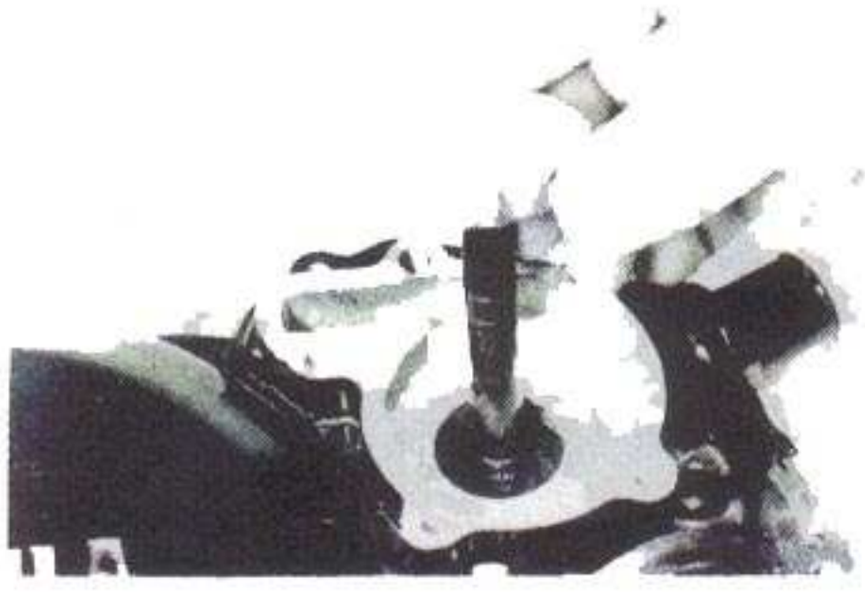
1. Driven gear 2. Washer 3. Circlip 4. Dowel pin

6. Remove the panhead screws securing the housing cover, and remove the cover and gasket.



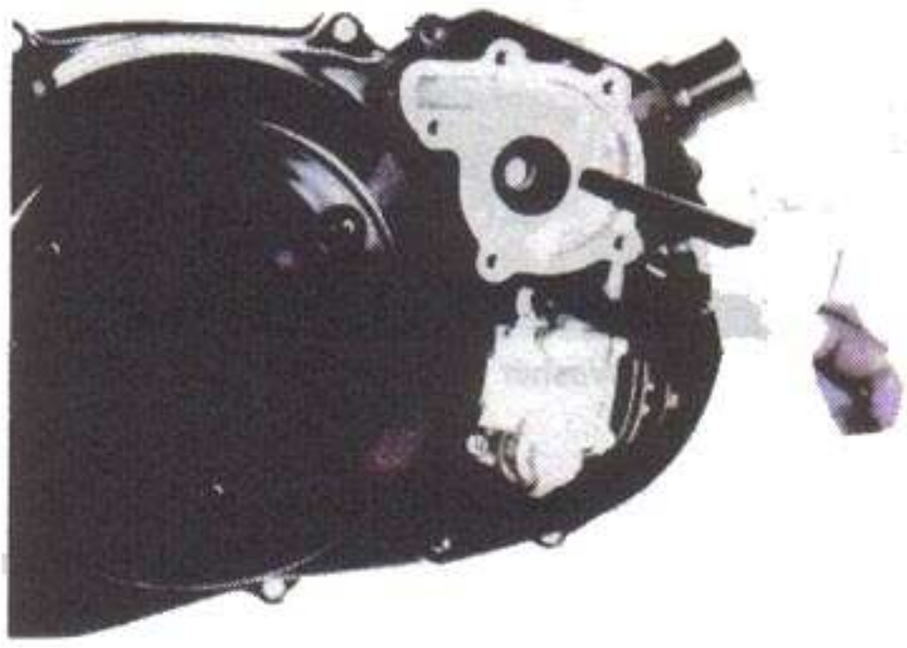


7. Pull out the impeller shaft assembly.



Inspection

1. Remove the deposits from the impeller and water pump housing.

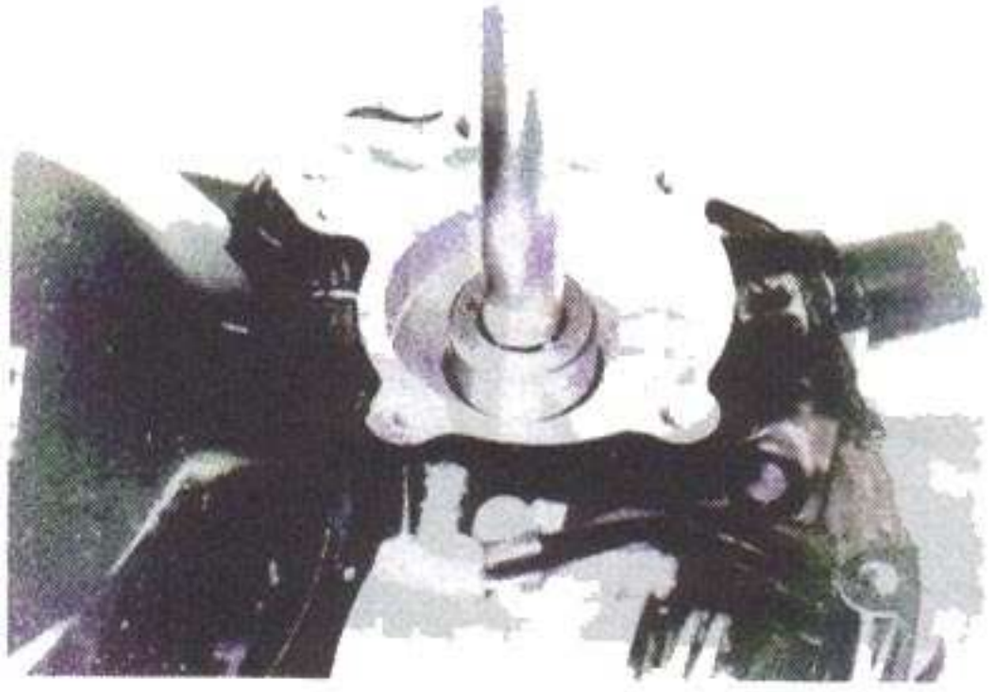


2. Check the impeller for cracks and damage. Replace if necessary.
3. Check the impeller shaft for wear. Replace it as required.



4. Check the oil seal and bearing for damage and wear. If damaged or worn excessively, replace the oil seal.
5. Replace the bearing in the following manner:

a. Remove both bearing and oil seal from the case by tapping them toward the oil seal side.



b. When installing the bearing or oil seal, apply a light coating of lightweight lithium base grease to bearing and oil seal lips.

NOTE:

Press-fit the oil seal and bearing until they contact the bottom.

c. Install the bearing with their manufacturer's marks or numbers facing outward.

NOTE:

Install the oil seal, with the "WATER SIDE" mark is on the inside.



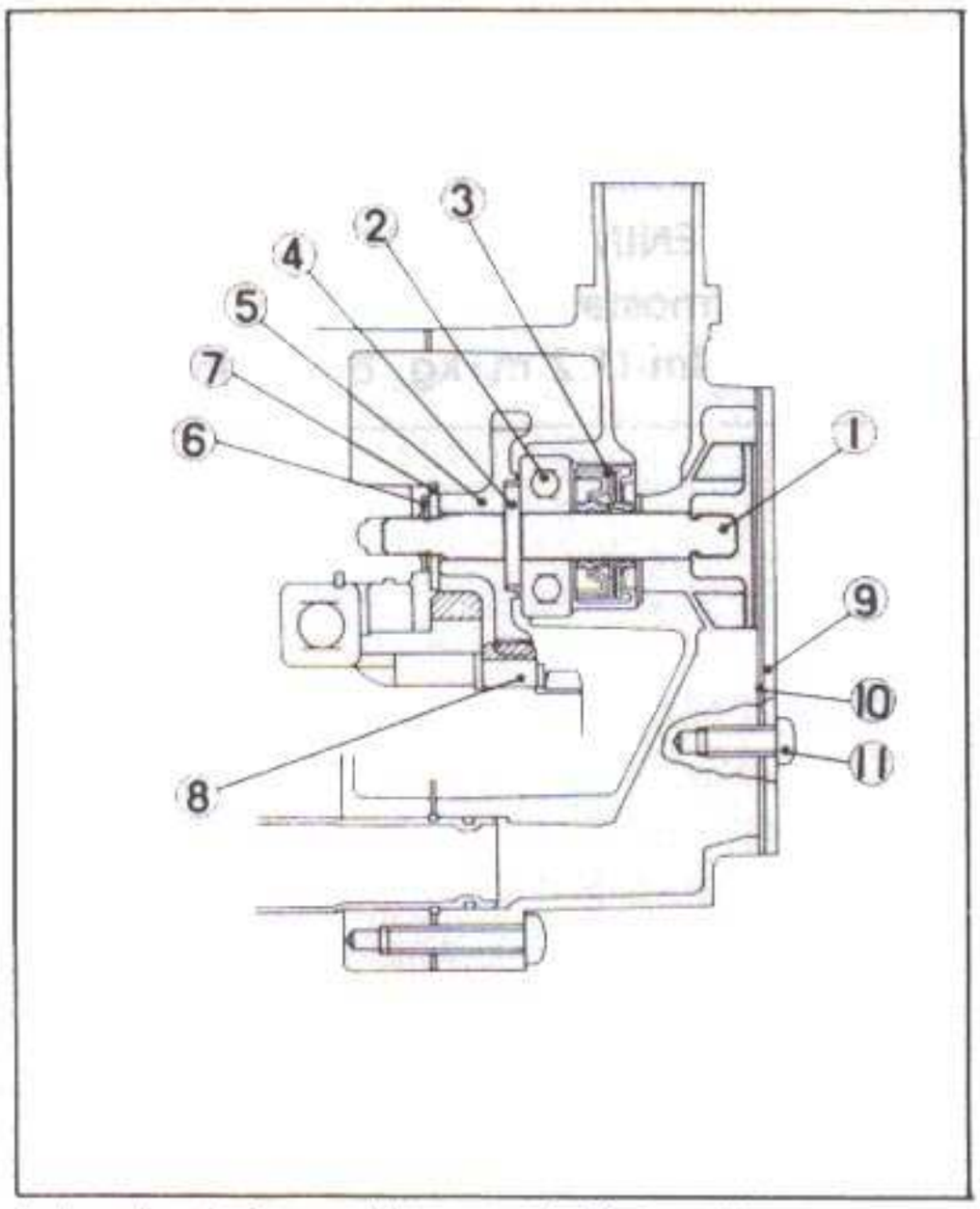
Installation

For installation, reverse the removal procedure while taking care of the following points:

1. When installing the impeller shaft, apply a grease to impeller shaft. And install the shaft while turning it.

NOTE:

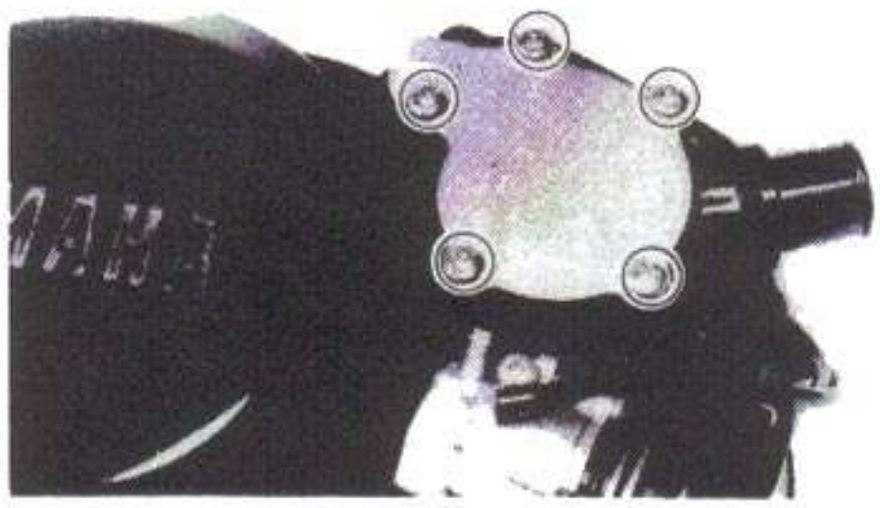
Take care so that the oil seal lip is not damaged or the spring does not slip off its position.



1. Impeller shaft assembly
2. Bearing
3. Oil seal
4. Dowel pin
5. Driven gear
6. Circlip
7. Plate washer
8. Drive gear
9. Housing cover
10. Housing cover gasket
11. Panhead screw

2. Install the housing cover with a new gasket. Tighten the housing cover securing screws to specification.

TIGHTENING TORQUE:
8 Nm (0.8 m · kg, 5.8 ft · lb)



CAUTION:

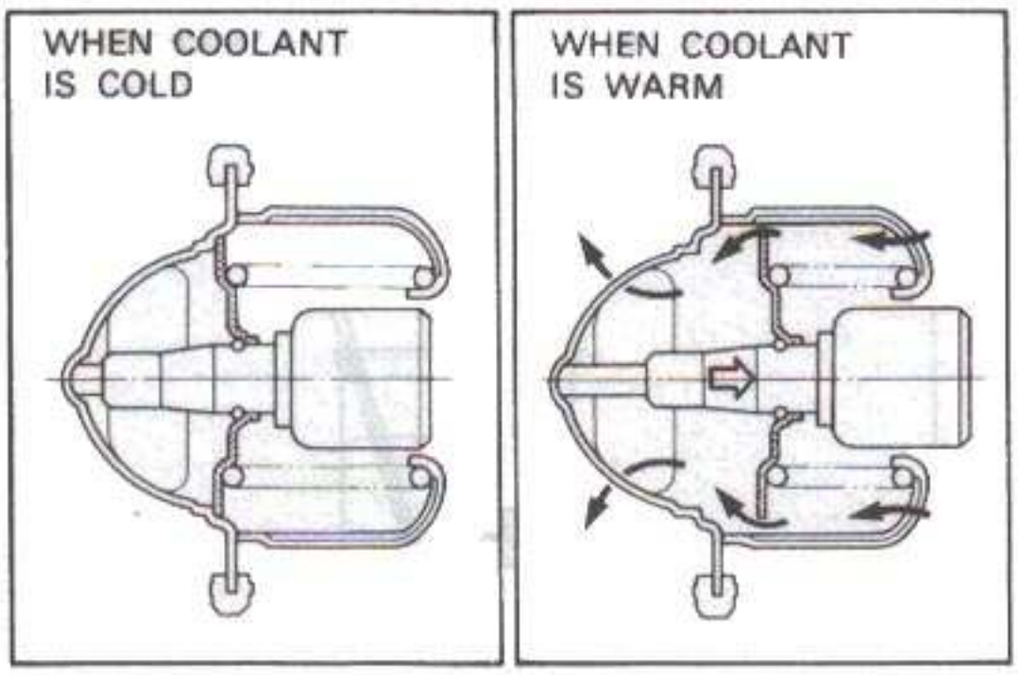
After warming up the engine, proceed as follows:

1. **Retighten the housing cover screws to specification.**
2. **Check for coolant leakage, particularly leakage into the transmission case.**

3. When installing the crankcase cover, grease the radiator joint O-ring.

THERMOSTATIC VALVE





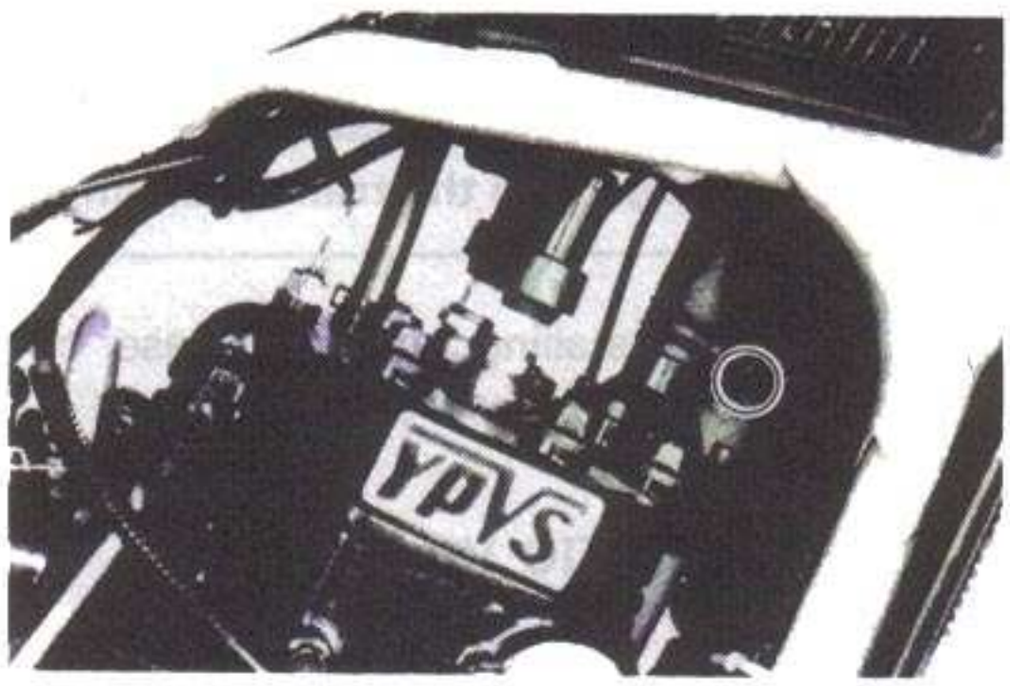
Operation

The thermostatic valve automatically opens and closes the cooling circuit to regulate the coolant flow depending on the coolant temperature. When the coolant is cold, the thermostatic valve is closed. Therefore the coolant does not flow into the radiator.

When the coolant is warm, the thermostatic valve is opened. Therefore the coolant flows into the radiator where it is cooled. After cooling, the water pump, by which it is pumped into the engine cylinder water jackets.

Removal

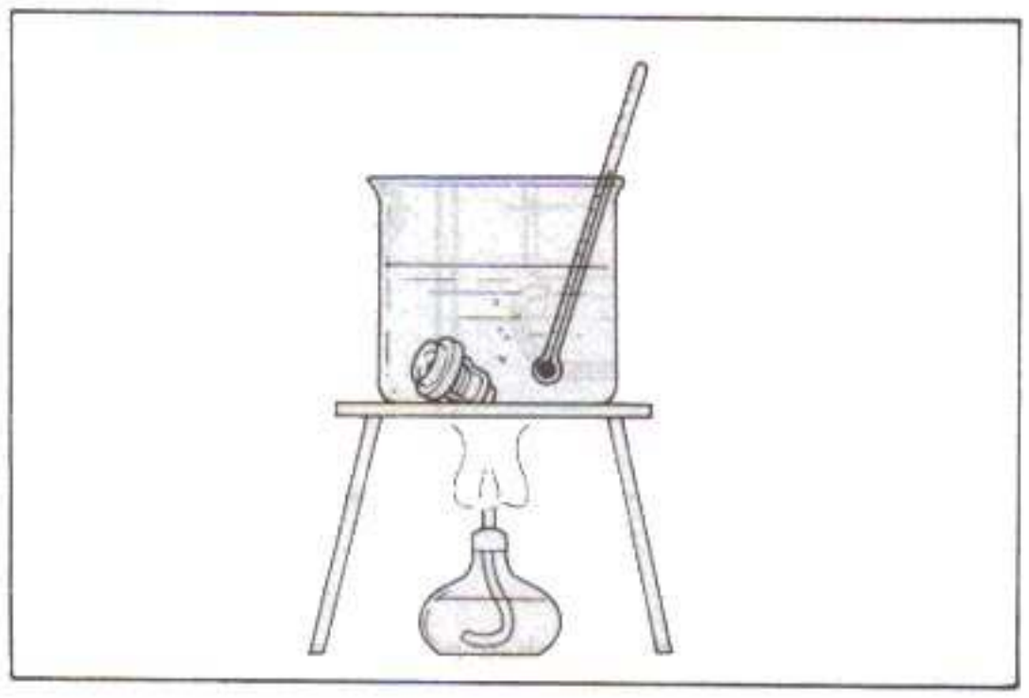
1. Drain off the coolant.
2. Disconnect the outlet hose from the thermostatic valve cover.

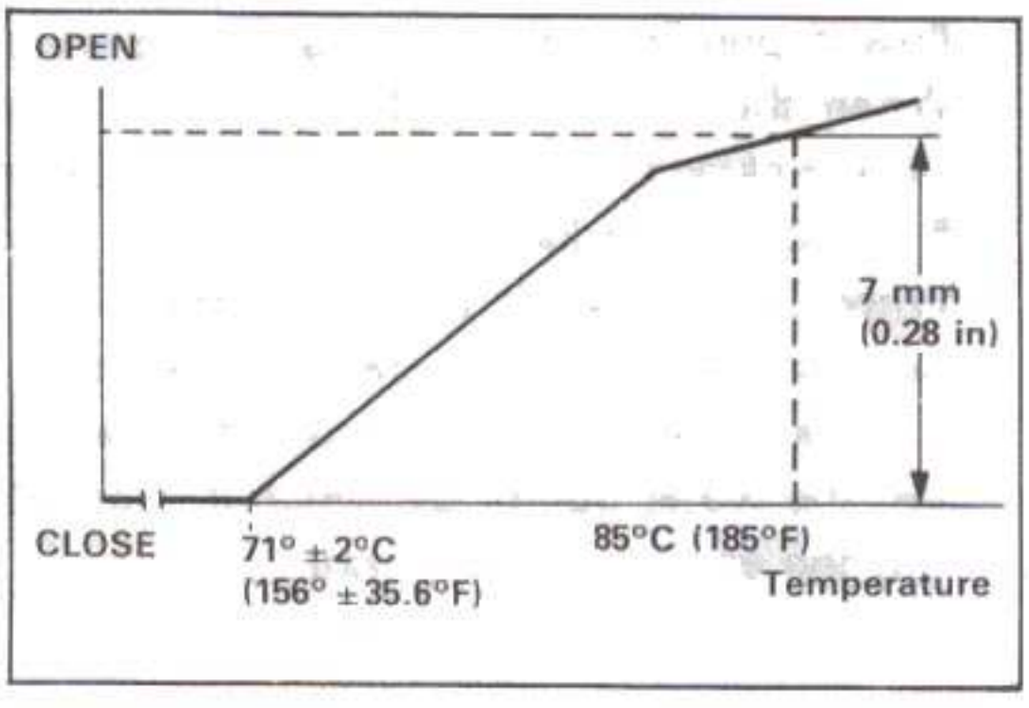


3. Remove the cover and thermostatic valve.

Inspection

1. Inspect the valve seat for scratches or other damage. Replace the thermostatic valve if scratched or damaged.
2. Immerse the thermostatic valve in the water as shown. While heating the water, check the thermostatic valve movement at each temperature as tabulated. If the thermostatic valve does not move or is out of specification, it should be replaced.





3. For installing the thermostatic valve, reverse the removal procedure.

TIGHTENING TORQUE:
Thermostatic valve cover:
12 Nm (1.2 m · kg, 8.7 ft · lb)

CHAPTER 5.
CARBURETION

CARBURETOR 5-1

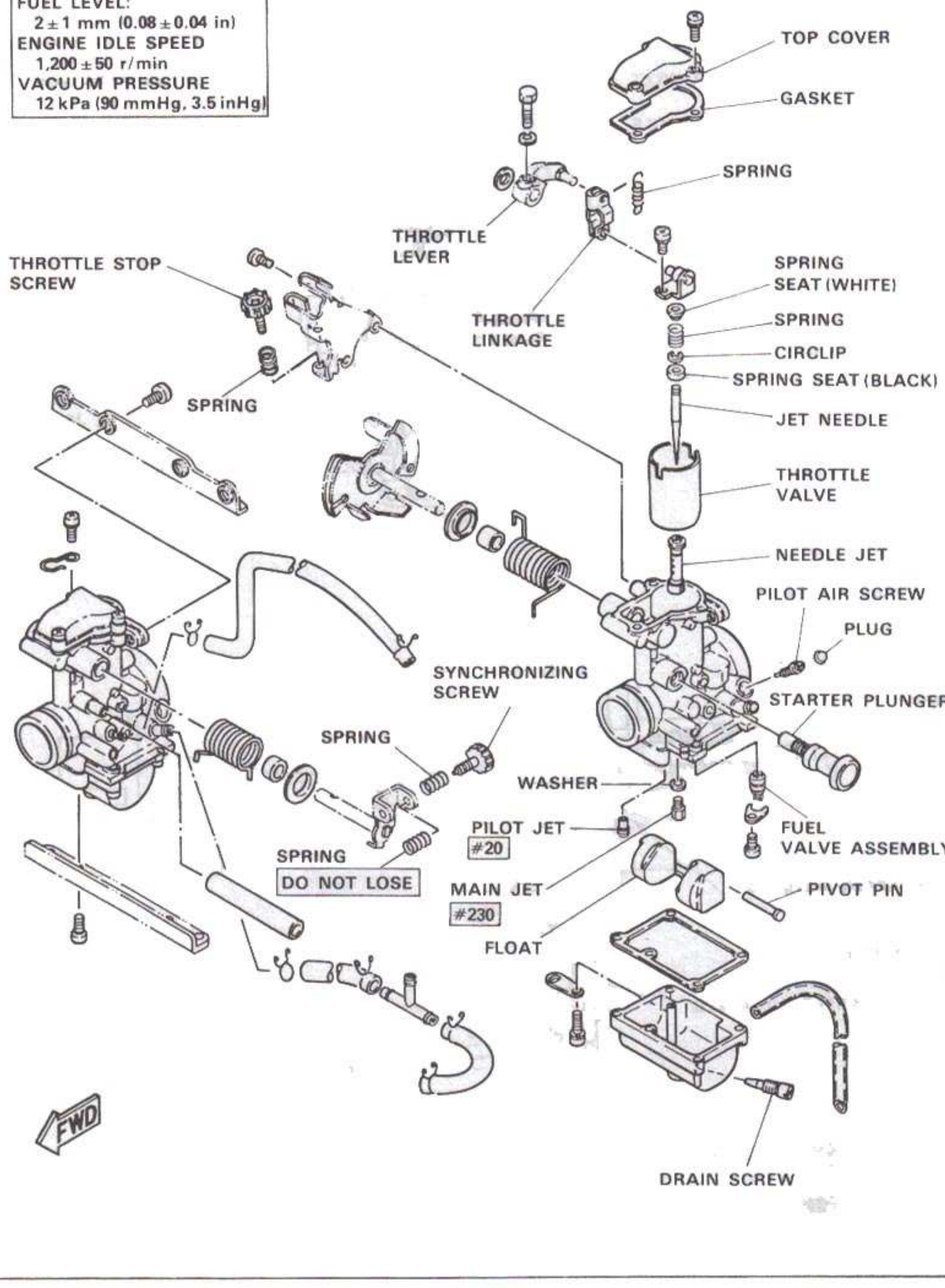
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Adjustment 5-6

REED VALVE ASSEMBLY 5-7
Inspection 5-8

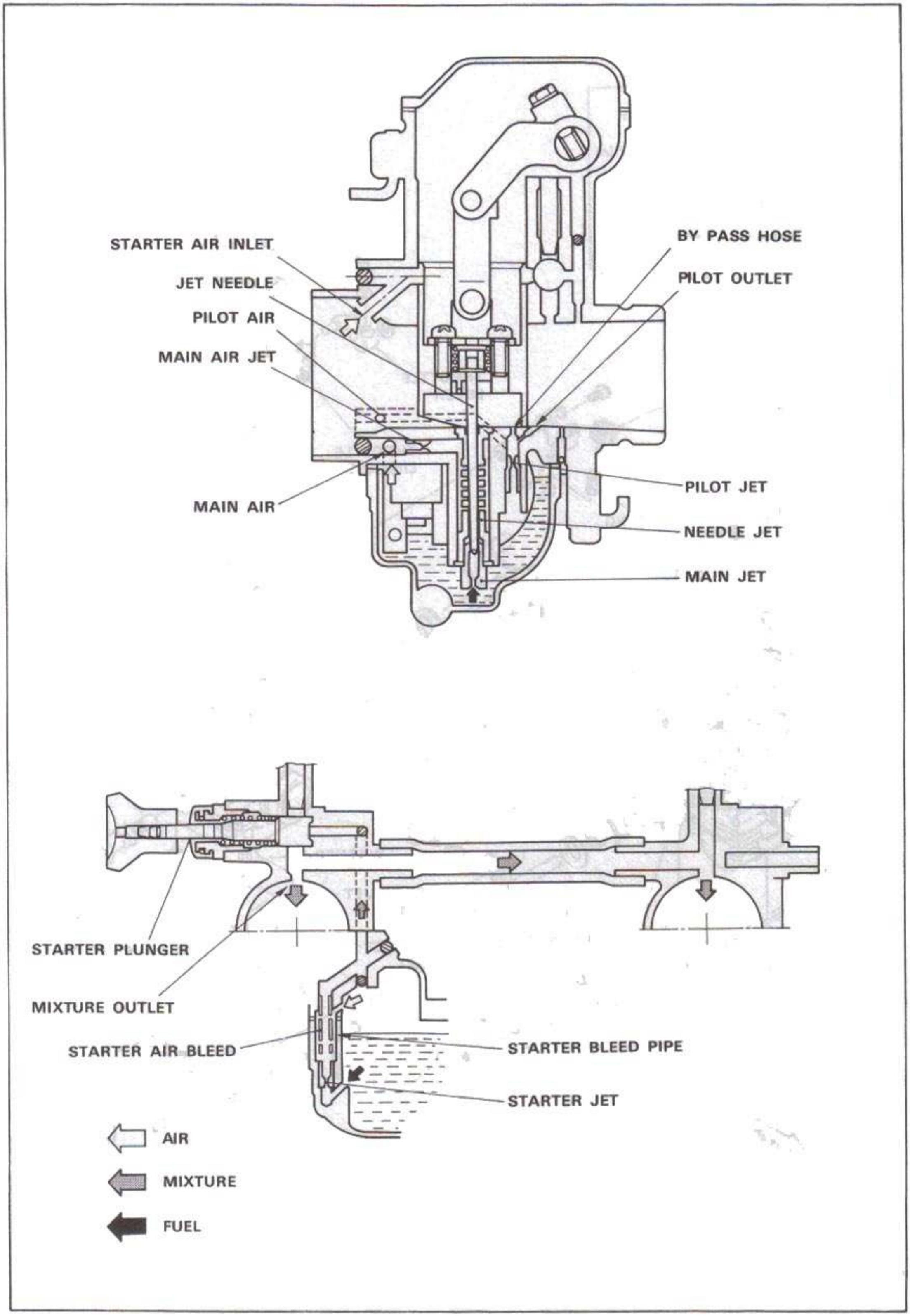
CHAPTER 5.
CARBURETION

CARBURETOR

FUEL TYPE:
UNLEADED FUEL ONLY
FLOAT HEIGHT:
21 ± 0.5 mm (0.83 ± 0.02 in)
FUEL LEVEL:
2 ± 1 mm (0.08 ± 0.04 in)
ENGINE IDLE SPEED
1,200 ± 50 r/min
VACUUM PRESSURE
12 kPa (90 mmHg, 3.5 inHg)



SECTIONAL VIEW



Specifications

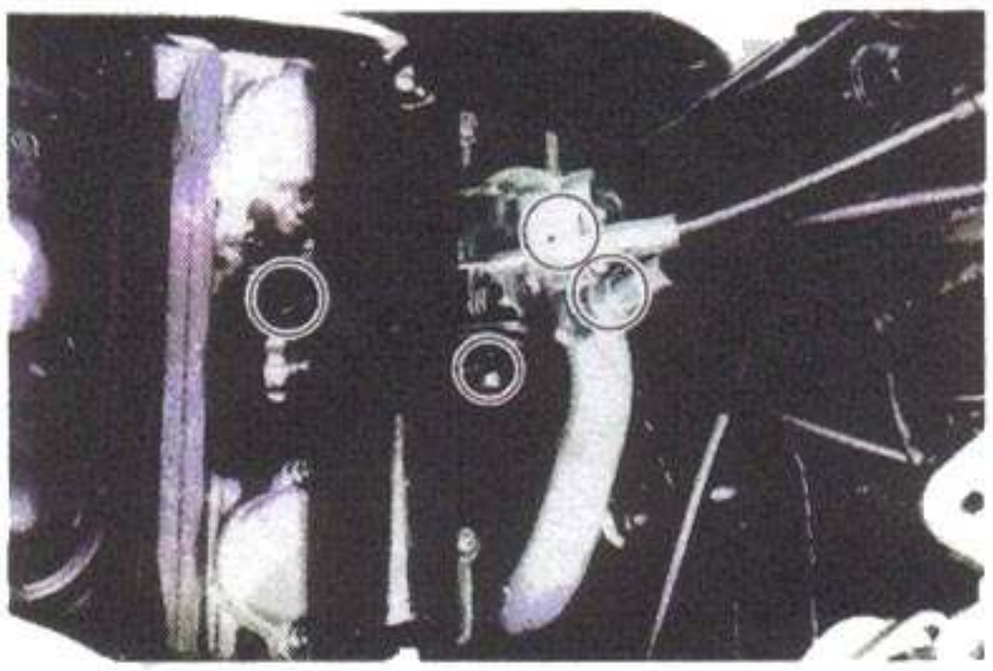
Main jet (M.J.)	#230
Main air jet (M.A.J.)	#85
Pilot jet	#20
Jet needle (J.N.)	5CK1-1
Pilot screw	Preset
Float valve seat	ϕ2.8
Engine idle speed	1,200 ± 50 r/min.

WARNUNG:

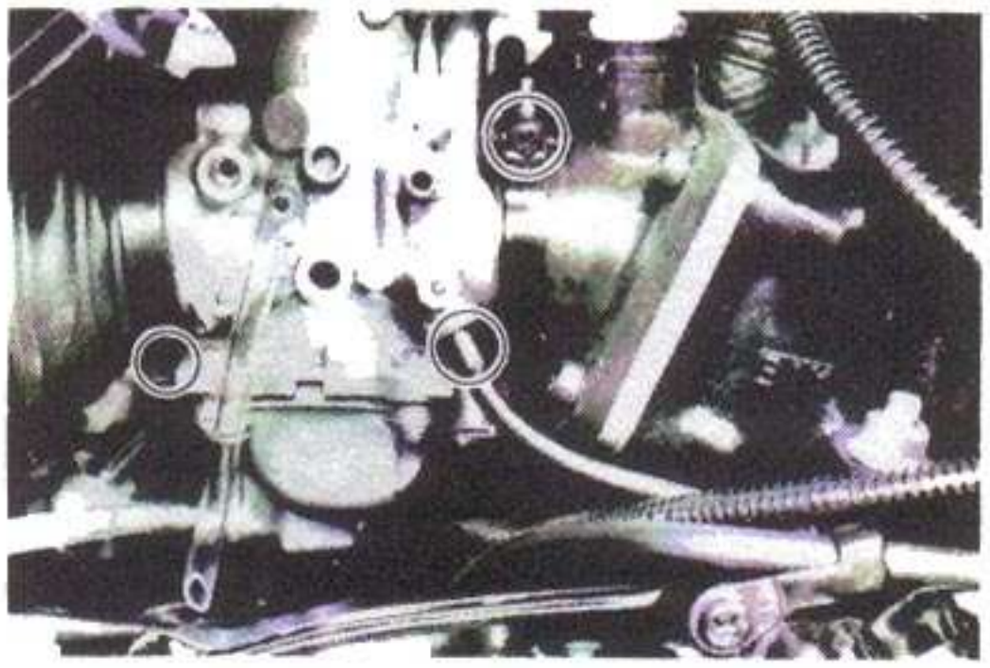
The pilot air screw settings are adjusted for maximum performance at the factory with special equipment. DO NOT attempt to change these settings. If all other engine systems are functioning correctly, any changes will decrease performance and cause increased exhaust emissions.

Removal

1. Remove the side covers.
2. Turn the fuel cock to "ON" and disconnect the fuel and vacuum hoses.
3. Remove the fuel tank.
4. Remove the CDI-unit-board securing screws, and disconnect the throttle cable from the carburetor.



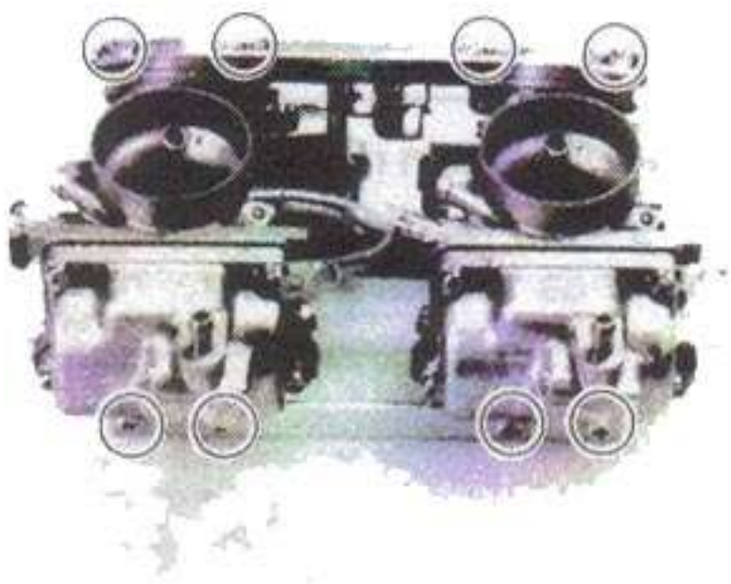
5. Loosen the four carburetor clamps and disconnect the oil delivery hoses.



6. Remove the carburetors.

Disassembly

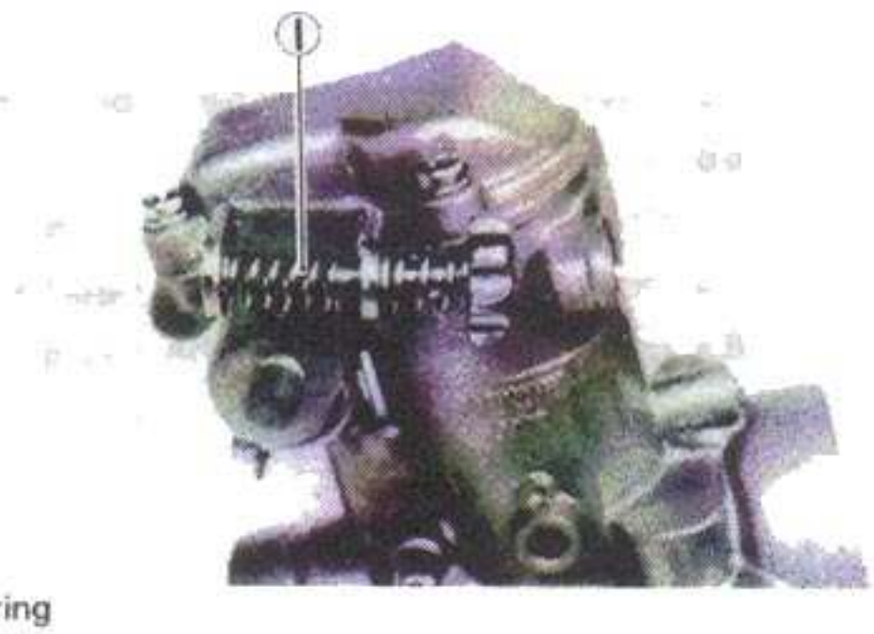
1. Remove the upper and lower brackets.



2. Separate the left and right carburetors.

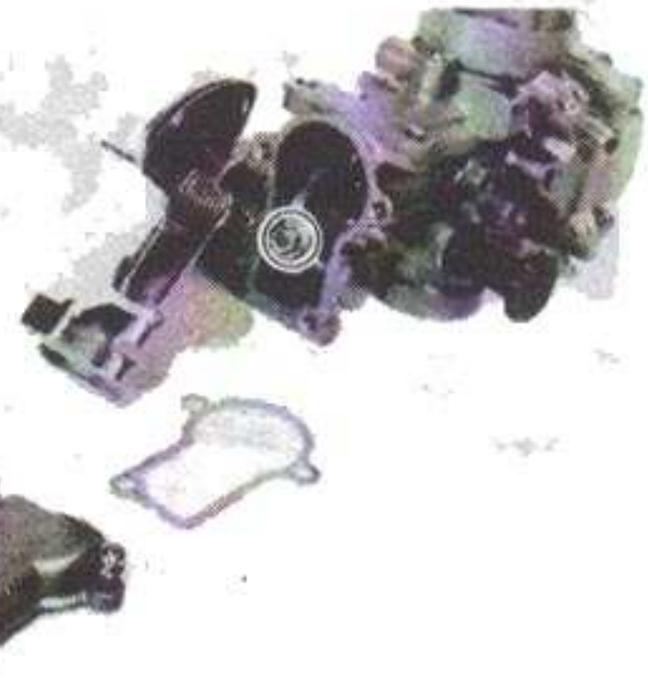
NOTE:

When you separate the carburetors, the small spring may fall out. This spring is connecting both the throttle levers. Do not lose this spring.



1. Spring

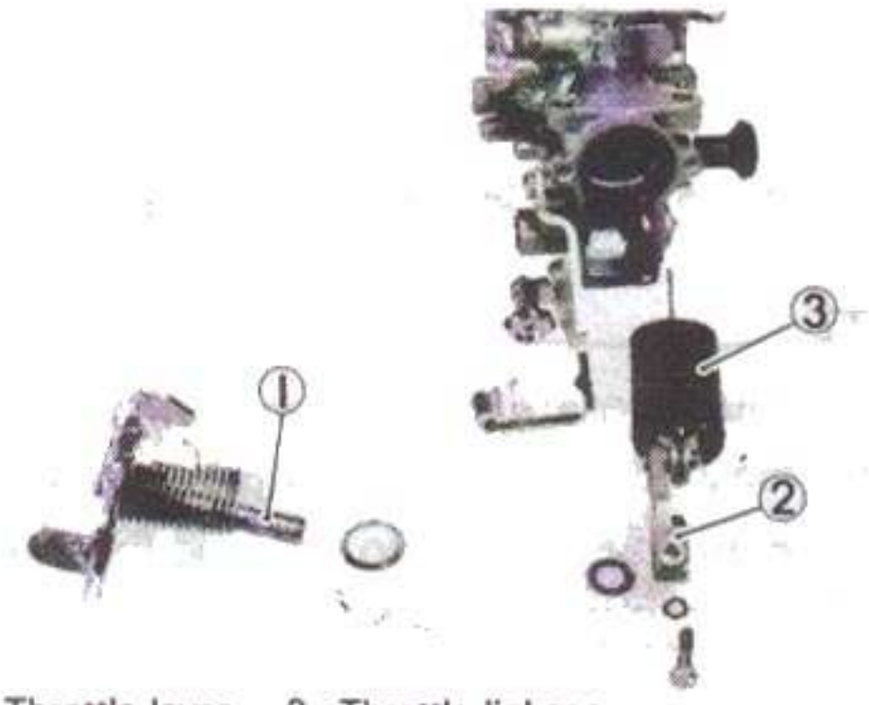
3. Remove the top cover, and remove the cover gasket and throttle lever securing bolt.



4. Pull out the throttle lever, and remove the throttle linkage and throttle valve assembly.

NOTE:

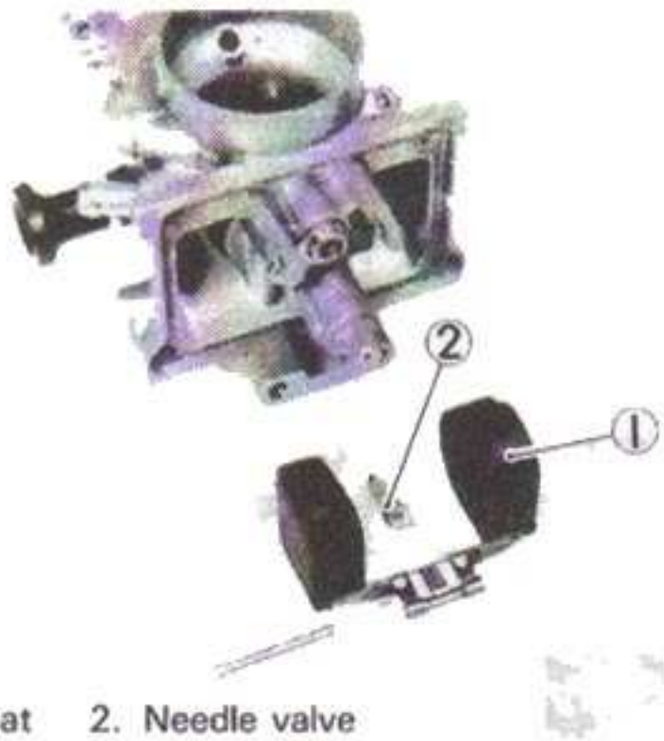
Pay attention when removing the throttle lever securing bolt, holding the return spring with one hand as they will turn.



1. Throttle lever 2. Throttle linkage
3. Throttle valve assembly

5. Remove the float chamber from the main body.

6. Gently tap the float pivot pin, and remove the float pivot pin, float, and needle valve. Be careful not to close the needle valve which is under the float arm.

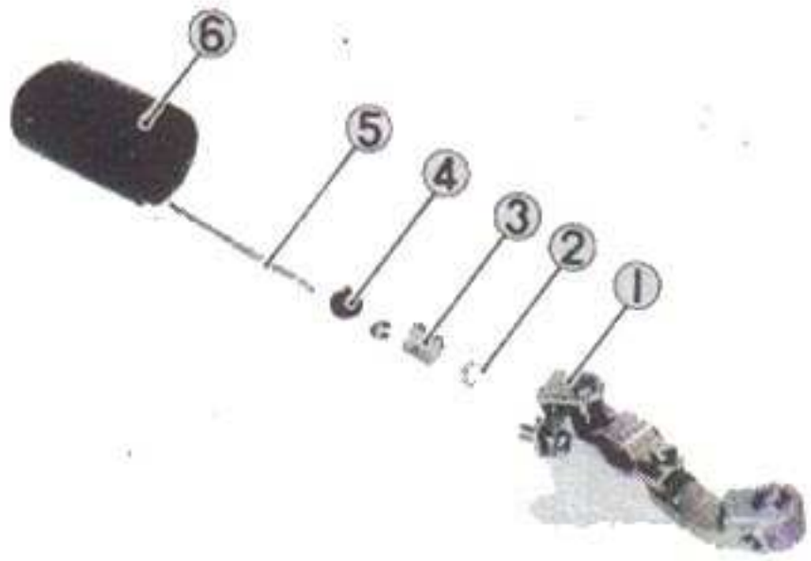


1. Float 2. Needle valve

7. Remove the main jet, washer, pilot jet, needle jet, and needle valve seat.



8. Remove the jet needle securing screws, and remove the holder plate, spring seats, spring, and jet needle from the throttle valve.



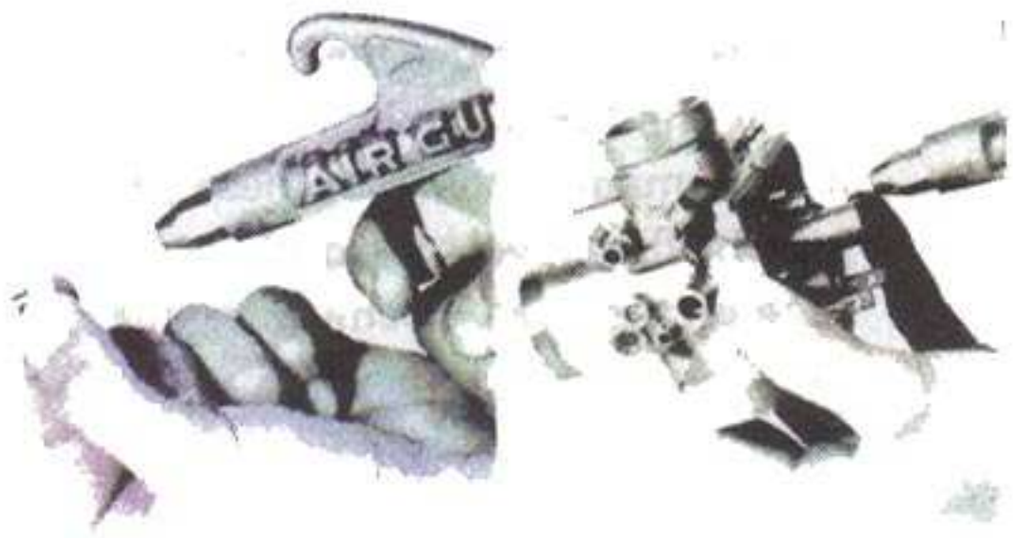
1. Holder plate 2. Spring seat (WHITE) 3. Spring
4. Spring seat (BLACK) 5. Jet needle 6. Throttle valve

Assembly

To assemble the carburetors, reverse the removal procedure. Pay close attention to the installation of the jet needle.

Inspection

1. Examine the carburetor body and fuel passages. If they are contaminated, wash the carburetor in a petroleumbased solvent. Do not use any caustic carburetor cleaning solutions. Blow out all passages and jets with compressed air.



2. Examine the condition of the floats. If the floats are damaged, they should be replaced.



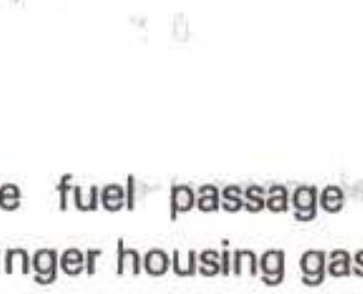
3. Inspect the float needle valve for wear or contamination. Replace the float needle valve and valve seat as a set.
4. Check the O-rings on the valve seat for damage. Replace them if damaged.



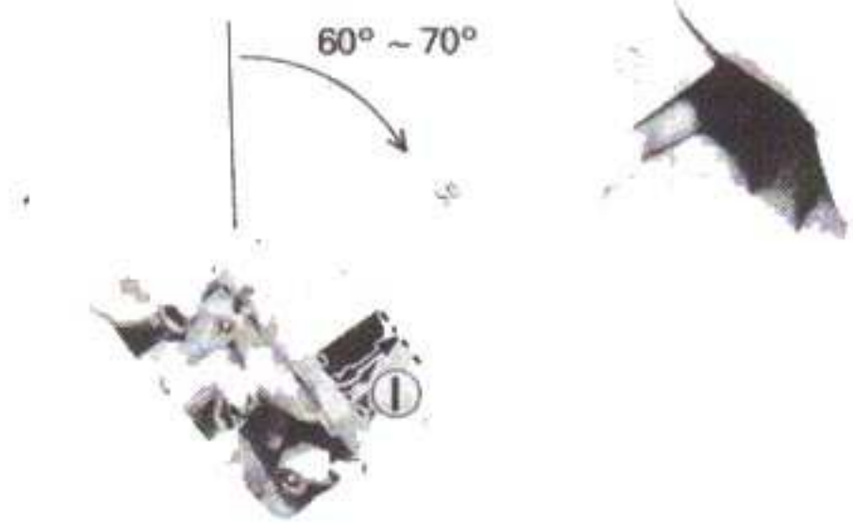
5. Inspect the jet needle for bends or wear. If the needle is bent or severely worn, replace it.
6. Inspect the throttle valve for scratches. If vertical scratches are evident, replace the throttle valve.



7. Check the fuel passage housing and starter plunger housing gaskets for damage. Replace the gasket(s) if damaged.
8. Inspect the starter plunger. If it is worn or damaged, replace it.



9. Float level inspection
Hold the carburetor in an upside down position. Incline the carburetor at 60° ~ 70° (so that the end of the float valve does not hang down of float weight), and measure the distance from the mating surface of the float chamber (gasket removed) and carburetor to the top of the float.



1. Float level

NOTE:

The float should be just resting on, but not depressing, the spring loaded inlet needle.

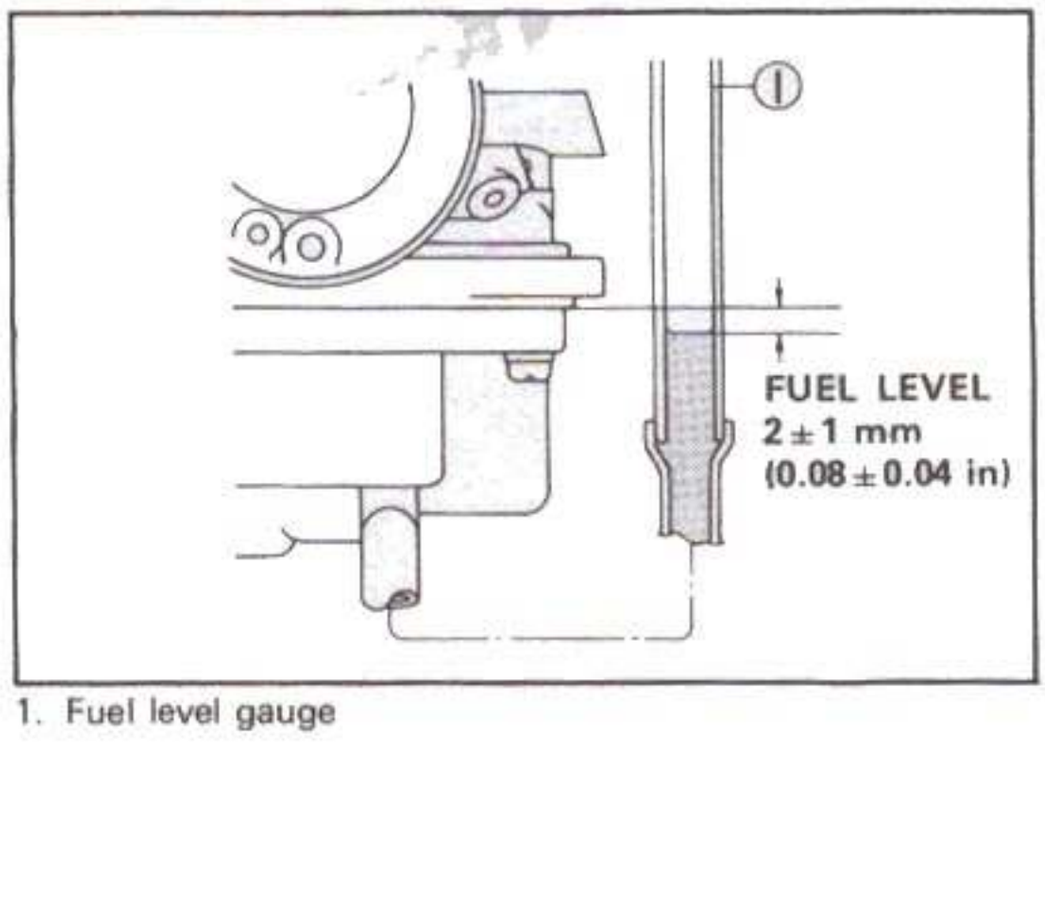
Float level:
21.0 ± 0.5 mm (0.83 ± 0.02 in)

10. Fuel level inspection

NOTE:

Before checking the fuel level, place the motorcycle on a level surface.

a. Place the motorcycle on the centerstand. Connect the fuel level gauge to the float bowl nozzle on the carburetor.



1. Fuel level gauge

b. As shown, hold the fuel level gauge vertically, and loosen the left or right carburetor drain screw.
c. Set the fuel cock to "PRI".
d. Check the fuel level. It should be within the specified range.

Fuel level:
2 ± 1 mm (0.08 ± 0.04 in)

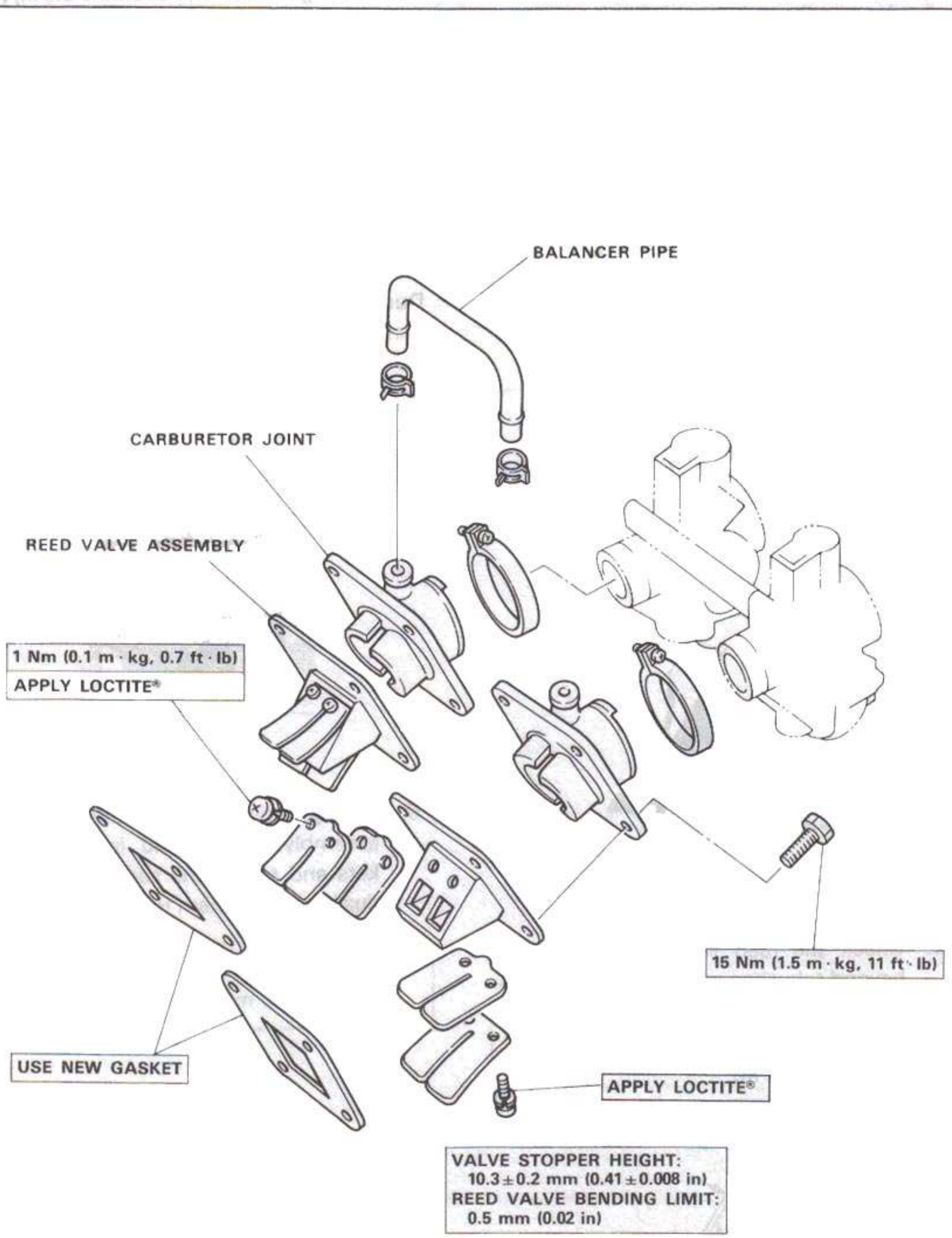
Adjustment

1. If the float level fuel level is not within specification, remove the carburetors, and check the fuel valve and float assembly. If no damage is found in these parts, adjust the float level by slightly bending the tang on the float. Recheck the fuel level.

1. Tang

2. Repeat the procedure for the other carburetor.

REED VALVE ASSEMBLY



VALVE STOPPER HEIGHT:
10.3 ± 0.2 mm (0.41 ± 0.008 in)
REED VALVE BENDING LIMIT:
0.5 mm (0.02 in)

Inspection

1. Inspect the carburetor joints for crack and damage. If cracked or damaged, replace them.
2. Inspect the reed petals for signs of fatigue cracks. The reed petals should fit flush or nearly flush against neoprene seats. If in doubt as to sealing ability, apply suction to the carburetor side of assembly. Leakage should be slight to moderate.
3. Check the valve stopper clearance. If beyond tolerance, adjust the stopper or replace as required.

Valve stopper height:
10.3 ± 0.2 mm (0.41 ± 0.008 in)

If it is 0.3 mm (0.012 in) more specified, replace the valve stopper.



4. Check the reed valve for bending. If beyond tolerance, replace the reed valve.

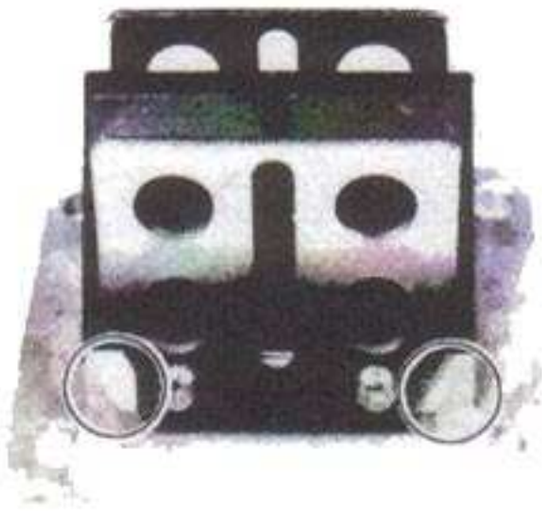
Reed valve bending limit:
0.5 mm (0.02 in)

5. During reassembly, clean the block, reed, and stopper plate thoroughly. Apply LOCTITE® to the threads of screws. Tighten each screw gradually to avoid warping.

TIGHTENING TORQUE:
1 Nm (0.1 m · kg, 0.7 ft · lb)

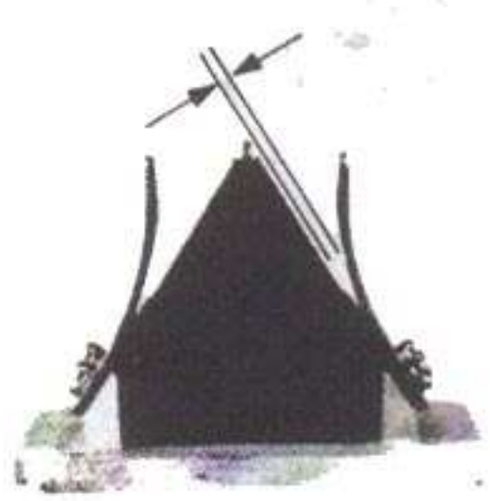
NOTE:

During reassembly, note the cut in the lower corner of the reed and stopper plate. Use as aid to direction of reed installation.



6. During reassembly of the reed valve assembly and manifold, install new gaskets and torque the securing bolts gradually and in pattern to the proper torque.

TIGHTENING TORQUE:
15 Nm (1.5 m · kg, 11 ft · lb)



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CHASSIS

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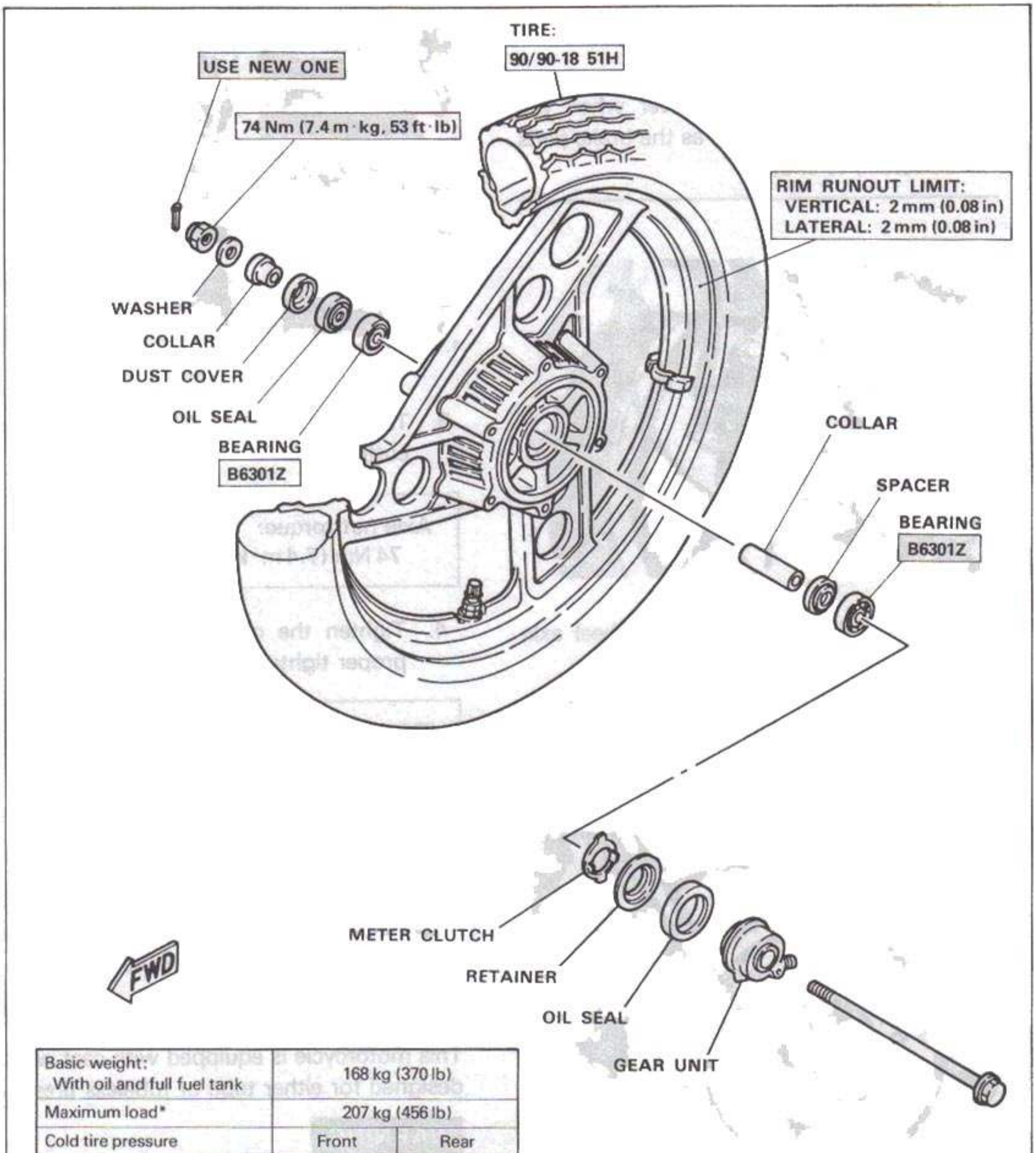
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CHAPTER 6.
CHASSIS

FRONT WHEEL



Basic weight: With oil and full fuel tank	168 kg (370 lb)	
Maximum load*	207 kg (456 lb)	
Cold tire pressure	Front	Rear
Up to 90 kg (198 lb)	177 kPa (1.8 kg/cm², 26 psi)	196 kPa (2.0 kg/cm², 28 psi)
90 kg (198 lb) load ~ Maximum load*	226 kPa (2.3 kg/cm², 32 psi)	275 kPa (2.8 kg/cm², 40 psi)
High speed riding	196 kPa (2.0 kg/cm², 28 psi)	226 kPa (2.3 kg/cm², 32 psi)

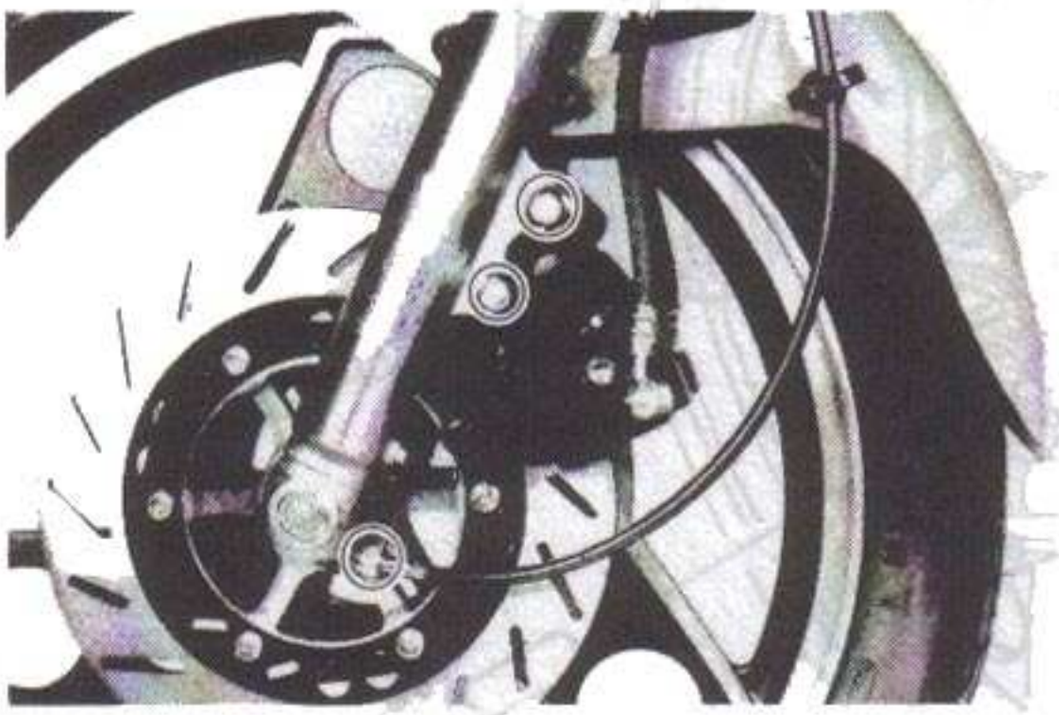
*Load is the total weight of cargo, rider, passenger and accessories.

Front Wheel Removal

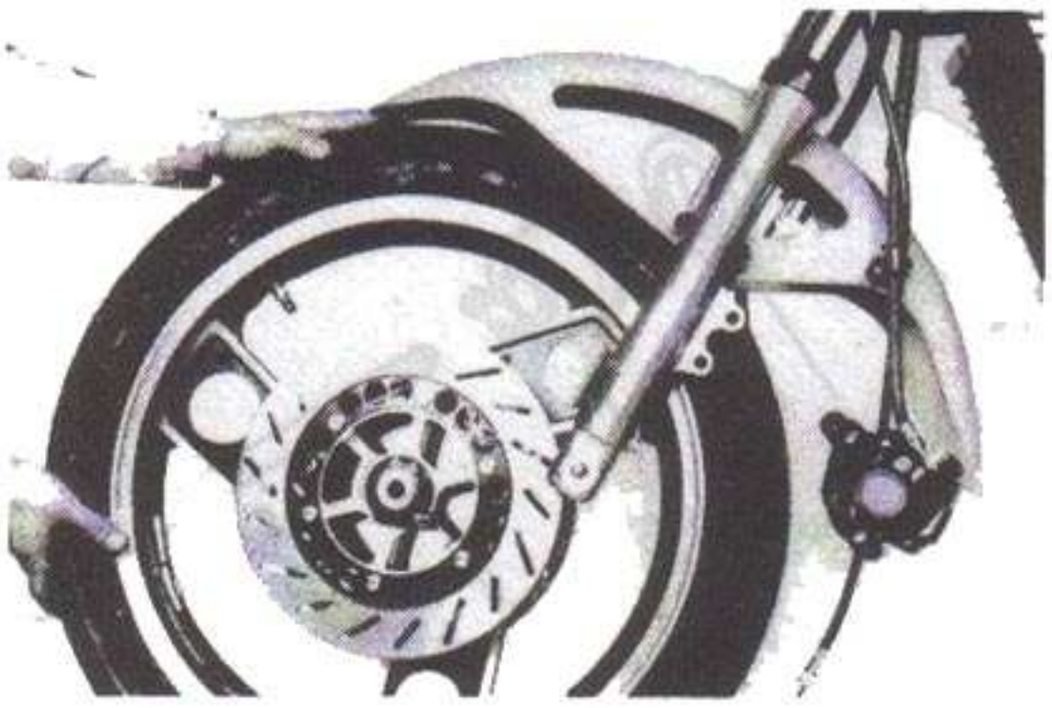
1. Place the motorcycle on the center stand. Remove the speedometer cable.
2. Remove the one side brake caliper assembly.

NOTE:

Do not depress the brake lever when the wheel is off the motorcycle as the brake pads will be forced to shut.



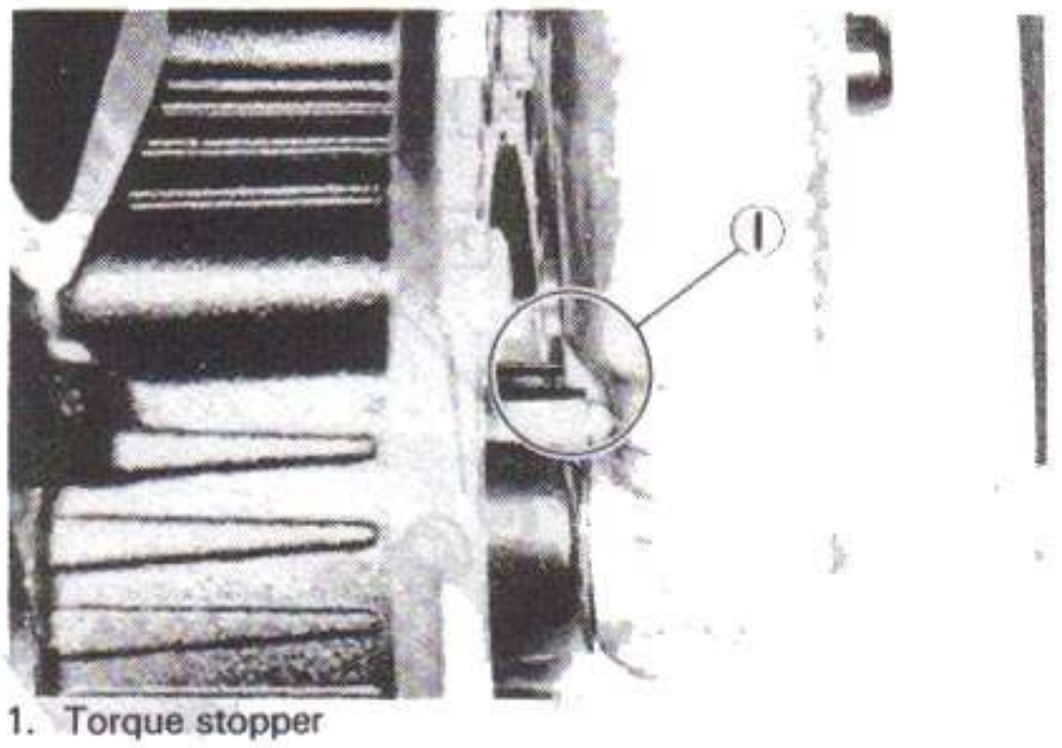
3. Remove the cotter pin and wheel axle nut.
4. Remove the axle shaft. In this case, make sure the motorcycle is properly supported.
5. Remove the front wheel.



Installing Front Wheel

When installing the front wheel, reverse the removal procedure taking care of the following points:

1. Lightly grease the lips of the front wheel oil seals and gear teeth of the speedometer drive and driven gears. Use a light-weight lithium base grease.
2. Check for proper engagement of the boss on the outer fork tube with the locating slot on the speedometer gear unit housing.



1. Torque stopper

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

Axle nut torque:
74 Nm (7.4 m · kg, 53.0 ft · lb)

4. Tighten the caliper holding bolts with proper tightening torque.

TIGHTENING TORQUE:
35 Nm (3.5 m · kg, 25 ft · lb)

Front Axle

Remove any corrosion from the axle with an emery cloth. Place the axle on a surface plate and check for bends. If bent, replace.

Front Wheel Inspection

This motorcycle is equipped with cast wheels designed for either tube or tubeless tires.

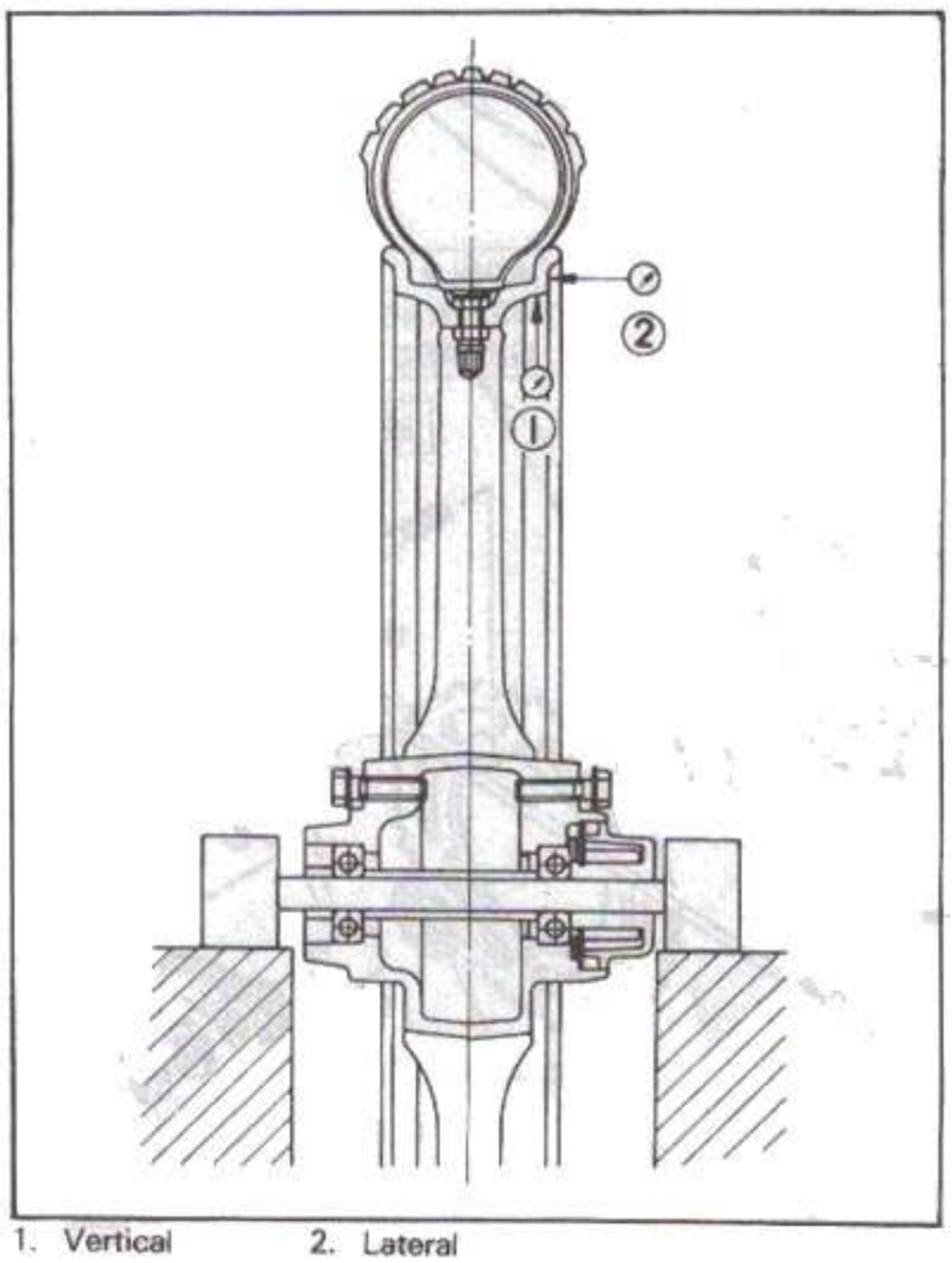
WARNING:

Do not attempt to use tubeless tires on a wheel designed for use only with tube-type tires. Tire failure and personal injury may result from sudden deflation.

Tube-type Wheel → Tube-type Tires Only
Tubeless-type wheel → Tube-type or tubeless tires

1. Check for cracks, bends or warpage of wheels. If a wheel is deformed or cracked, it must be replaced.
2. Check wheel run-out.
   If deflection exceeds tolerance, check wheel bearings or replace a wheel as required.

Rim run-out limits:
Vertical: 2.0 mm (0.08 in)
Lateral: 2.0 mm (0.08 in)



1. Vertical 2. Lateral

3. Check the wheel balance. Rotate the wheel lightly several times and observe resting position. If the wheel is not statically balanced, it will come to reset at the same position each time. Install an appropriate balance weight at lightest position (at top).

NOTE:
The wheel should be balanced with the brake discs installed.

4. After installing a tire, ride conservatively to allow the tire to seat itself on the rim properly. Failure to allow proper seating may cause tire failure resulting in damage to the motorcycle and injury to the rider.
5. After repairing or replacing a tire, check to be sure the valve stem locknut is securely fastened. If not, torque it as specified.

Replacing Wheel Bearings

If the bearings allow play in the wheel hub or if the wheel does not turn smoothly, replace the bearings as follows:

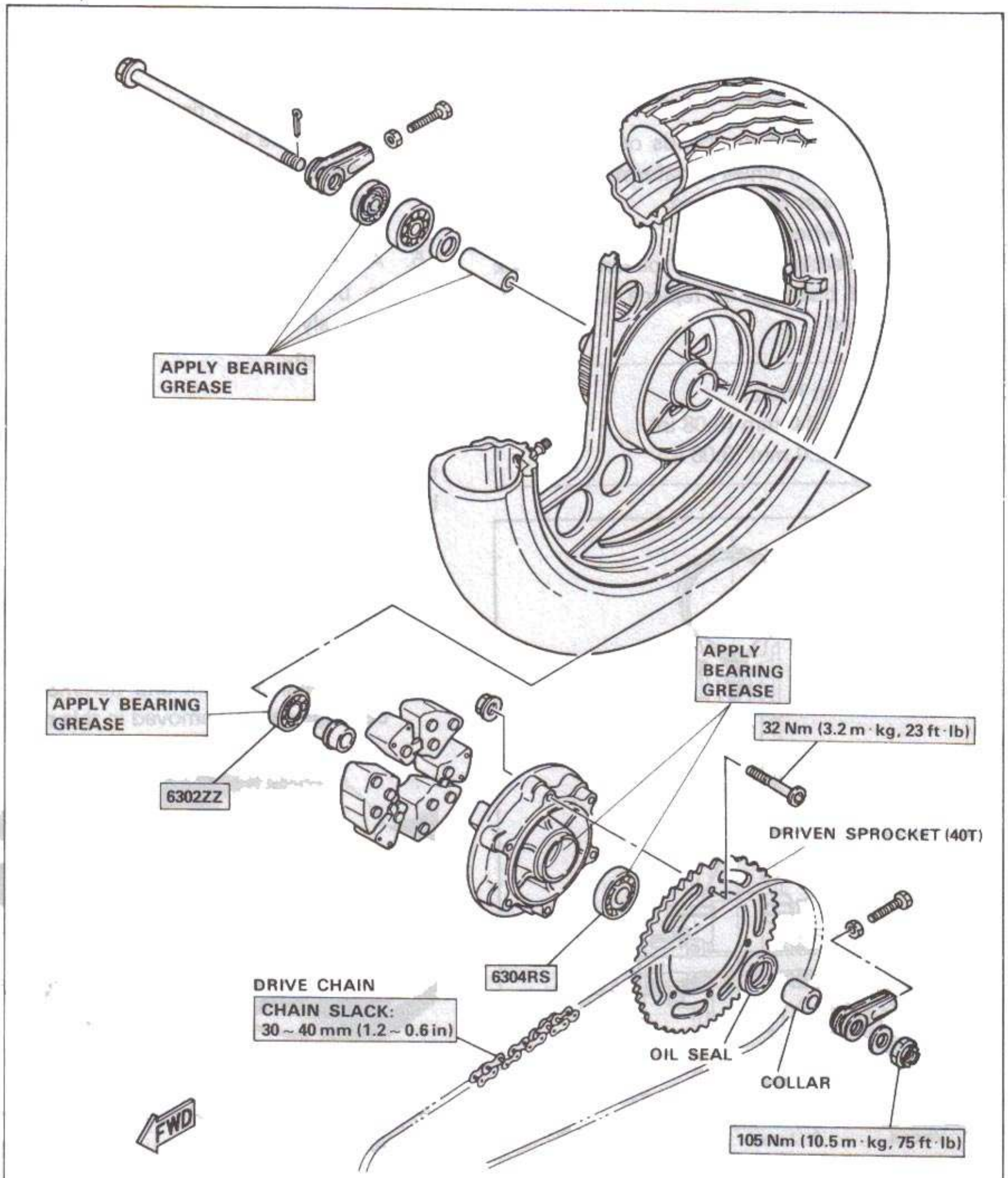
1. First clean the outside of the wheel hub.
2. Drive the bearing out by pushing the spacer aside (the collar "floats" between the bearings) and tapping around the perimeter of the bearing inner race with a soft metal drift pin and hammer. Both bearings can be removed in this manner.

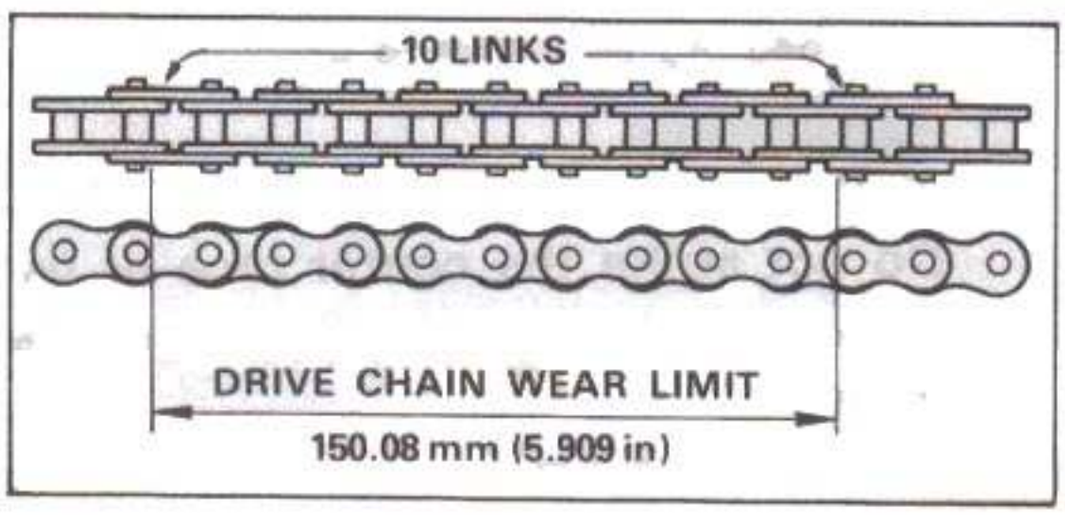


3. To install the wheel bearing, reverse the above sequence. Be sure to grease the bearing before installation. Use a socket that matches the outside race of the bearing as a tool to drive in the bearing.

CAUTION:
Do not strike the center race or balls of the bearing. Contact should be made only with the outer race.

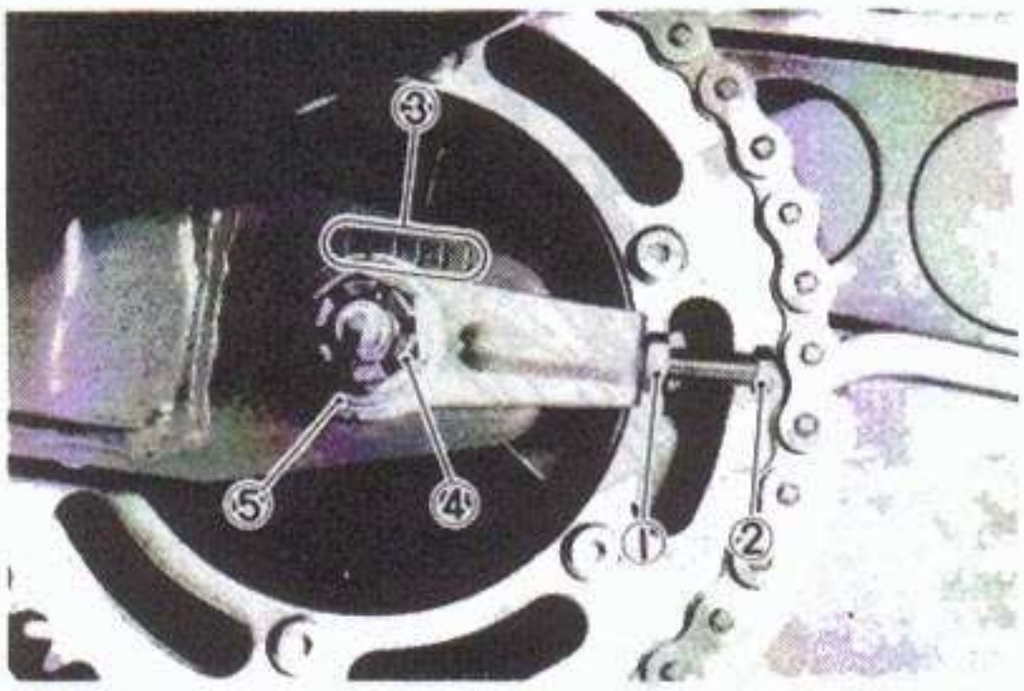
REAR WHEEL


APPLY BEARING GREASE
APPLY BEARING GREASE
APPLY BEARING GREASE
32 Nm (3.2 m · kg, 23 ft · lb)
6302ZZ
DRIVEN SPROCKET (40T)
6304RS
DRIVE CHAIN
CHAIN SLACK:
30 ~ 40 mm (1.2 ~ 0.6 in)
OIL SEAL
COLLAR
105 Nm (10.5 m · kg, 75 ft · lb)
FWD


10 LINKS
DRIVE CHAIN WEAR LIMIT
150.08 mm (5.909 in)

Rear Wheel Removal

1. Loosen the locknuts of the right and left chain pullers and loosen the adjust bolts.
2. Remove the cotter pin from the wheel axle and remove the rear wheel axle nut.
3. Put the chain off the sprocket.
4. The rear wheel assembly, the collar, the chain puller(s), etc., can be removed from the motorcycle by pulling the wheel axle.



1. Locknut
2. Adjusting bolt
3. Marks for alignment
4. Axle nut
5. Cotter pin

NOTE:

Do not depress the brake pedal when the wheel is off the motorcycle as the brake pads will be forced to shut.

Installing Rear Wheel

When installing the rear wheel, reverse the removal procedure taking care of following points:

1. Lightly grease the lip of the rear wheel oil seals.
2. Make sure the rear wheel axle nut is properly torqued.

TIGHTENING TORQUE:
105 Nm (10.5 m · kg, 75 ft · lb)

3. Adjust the drive chain slack.

Chain slack:
30 ~ 40 mm (1.2 ~ 1.6 in)

4. Adjust the brake pedal and brake light switch.

5. Always use a new cotter pin on the axle nut. Old pins should be discarded.

Rear Axle

See the front wheel section, paragraph "Front Axle".

Replacing Wheel Bearings

See the front wheel section, paragraph "Replacing Wheel Bearings".

Rear Wheel Inspection

See the front wheel section, paragraph "Front Wheel Inspection".

DISC BRAKE

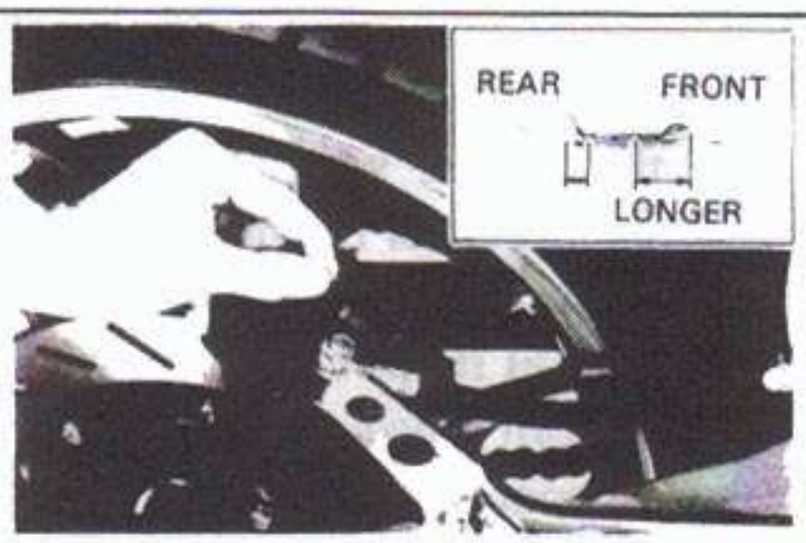
CAUTION:

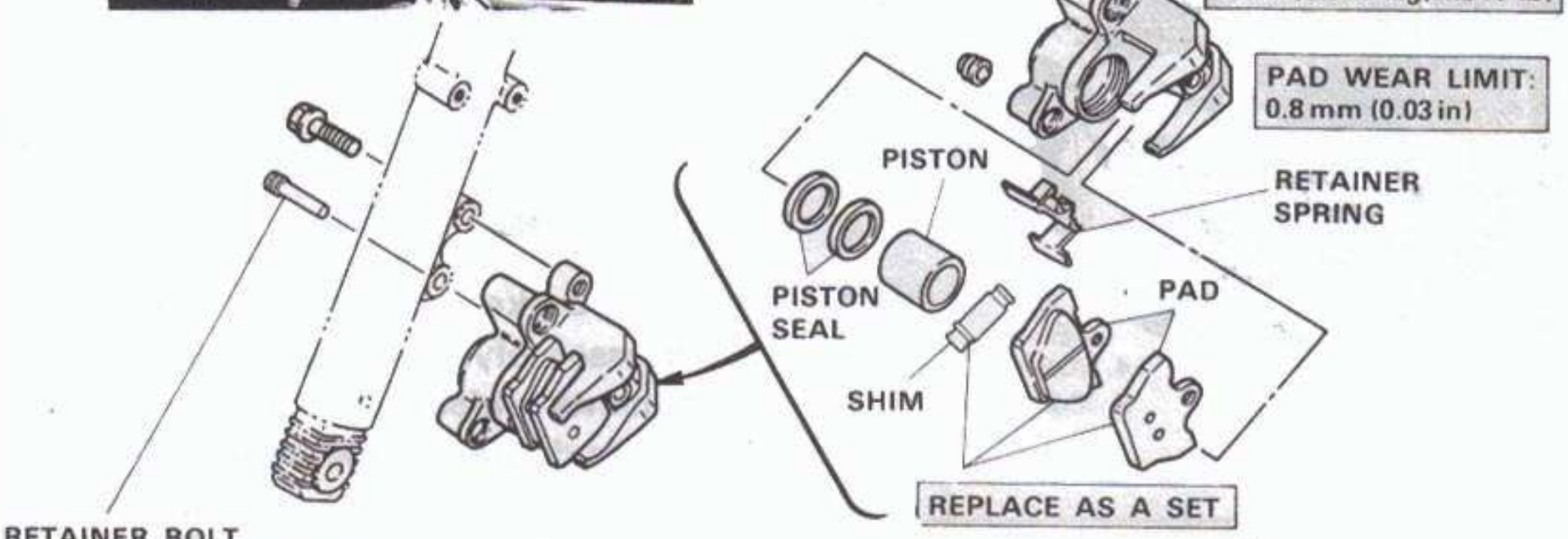
Disc brake components rarely require disassembly. Do not disassemble components unless absolutely necessary. If any hydraulic connection in the system is opened, the entire system should be disassembled, drained, cleaned and then properly filled and bled upon reassembly. Do not use solvents on brake internal components. Solvents will cause seals to swell and distort. Use only clean brake fluid for cleaning. Use care with brake fulid. Brake fluid is injurious to eyes and will damage painted surfaces.

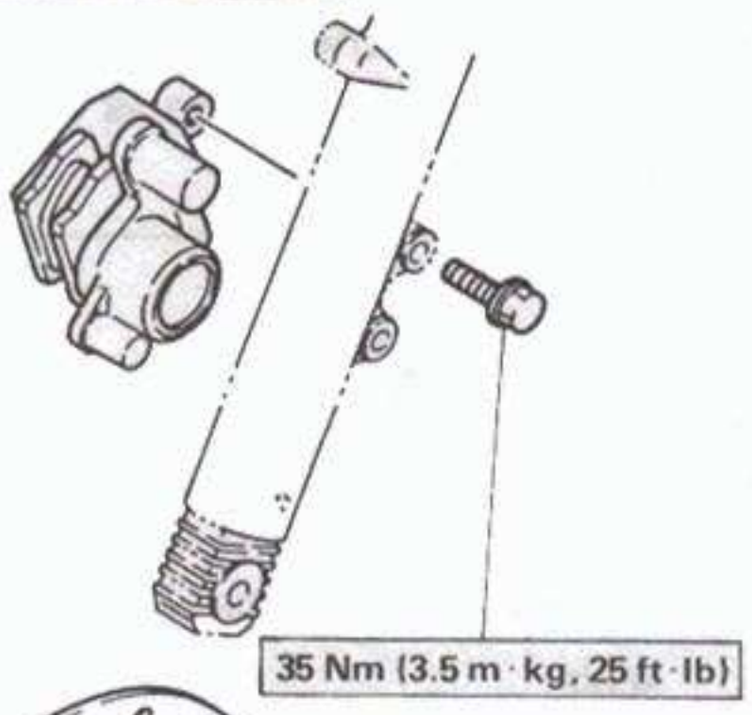
Caliper Pad Replacement

NOTE:

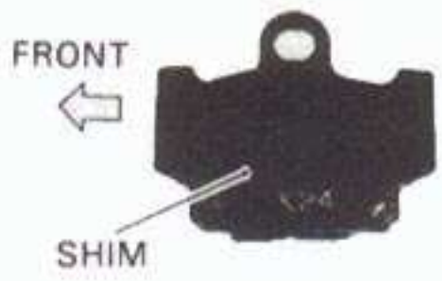
Install the pad spring with its longer tangs in the disc rotation direction.







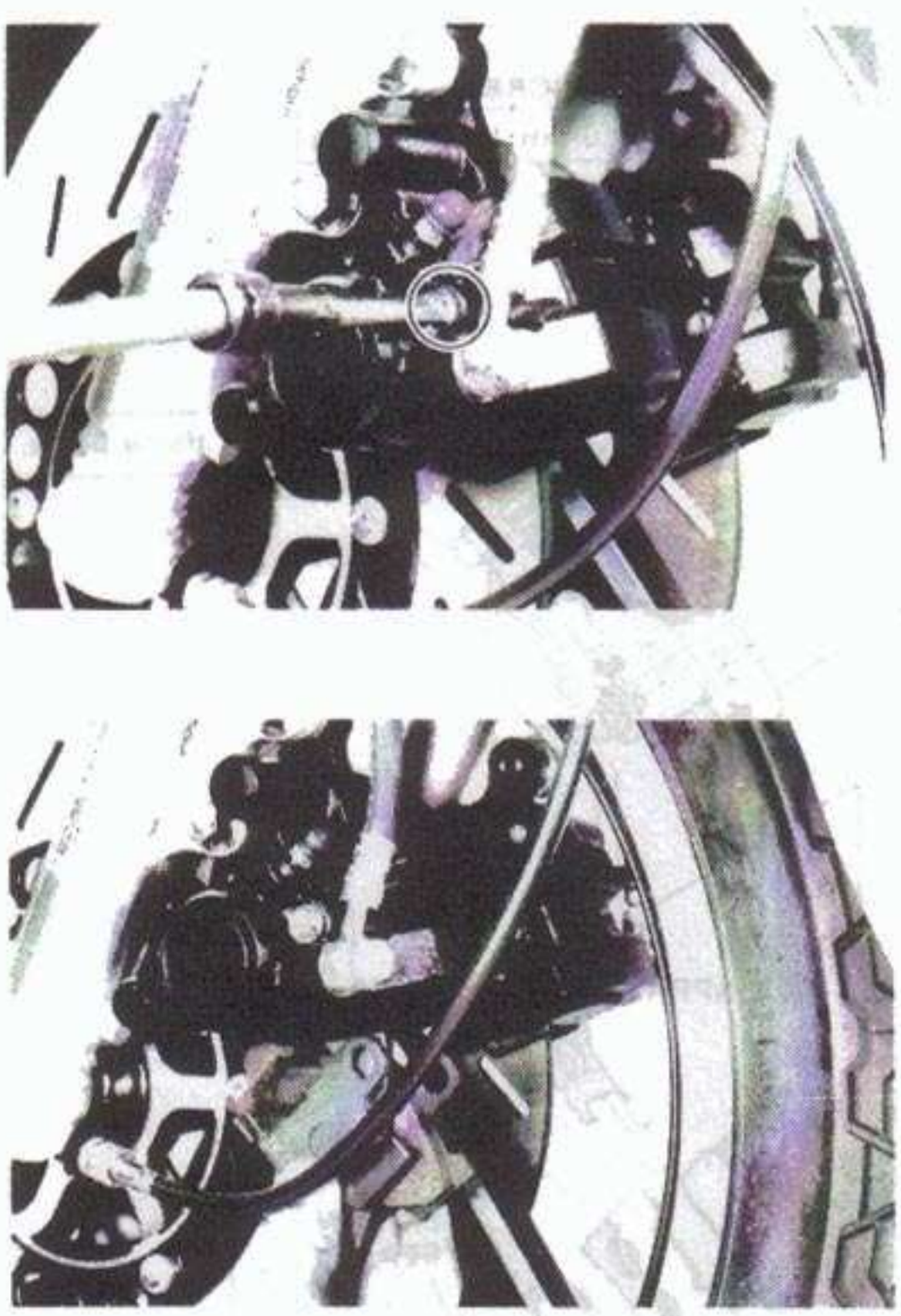
PAD SHIM INSTALLATION:



It is not necessary to disassemble the brake calipers and brake fluid hoses to replace the brake pads.

Front

1. Remove the pad retaining bolt and pads.



2. Install the new brake pads, retaining spring, and shims.

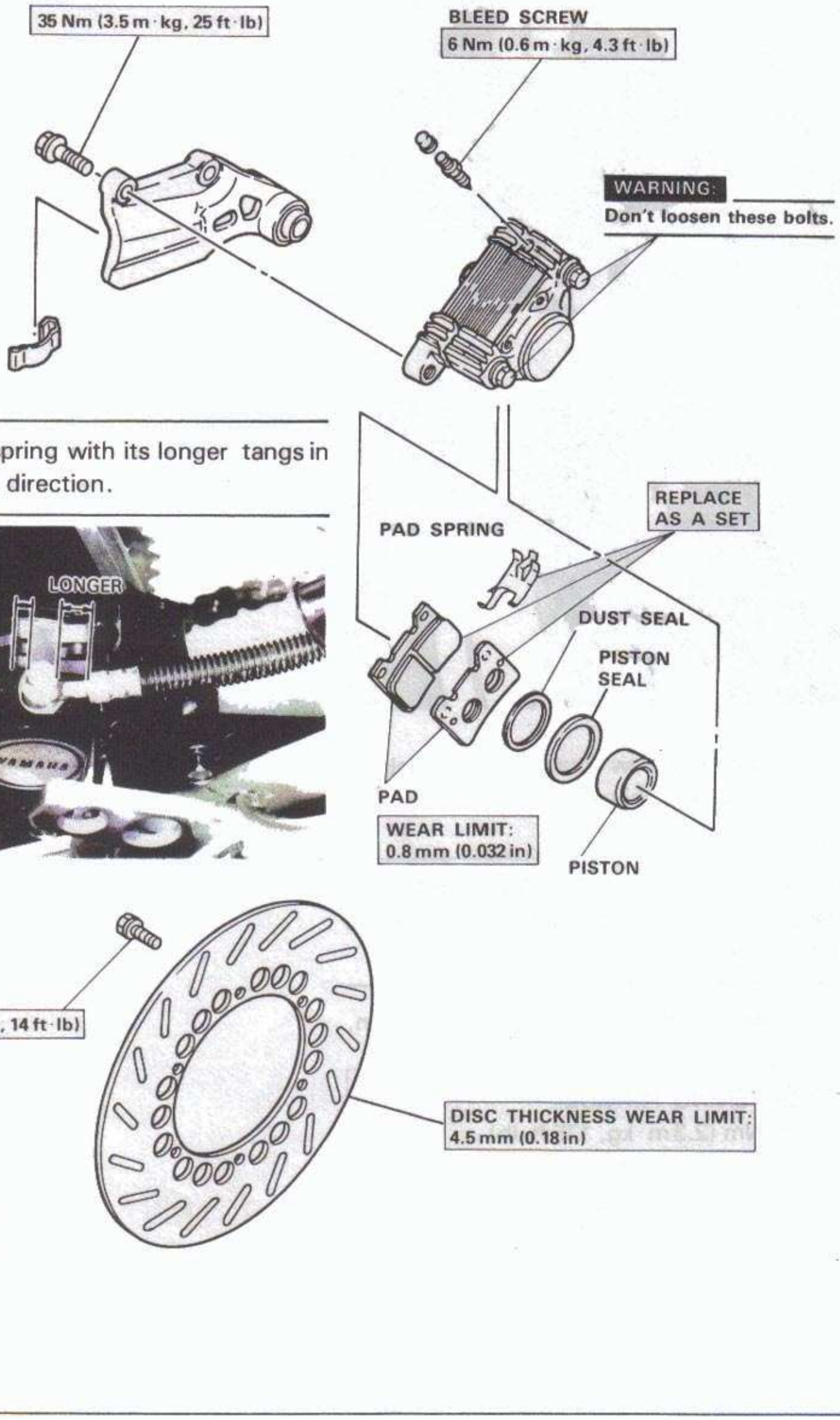
NOTE:

The shim has a tab. When fitting this shim, make the shim tab in the direction of the disc plate rotation.

3. Install the retainer bolts to specification.

TIGHTENING TORQUE:
23 Nm (2.3 m · kg, 175 ft · lb)

REAR BRAKE


35 Nm (3.5 m · kg, 25 ft · lb)
BLEED SCREW
6 Nm (0.6 m · kg, 4.3 ft · lb)
WARNING:
Don't loosen these bolts.
NOTE:
Install the pad spring with its longer tangs in the disc rotation direction.
LONGER
PAD SPRING
REPLACE AS A SET
DUST SEAL
PISTON SEAL
PAD
WEAR LIMIT: 0.8 mm (0.032 in)
PISTON
BRAKE FLUIDE: DOT #3
20 Nm (2.0 m · kg, 14 ft · lb)
DISC THICKNESS WEAR LIMIT: 4.5 mm (0.18 in)
FWD

1. Remove the pad cover and two circlips.



1. Cover 2. Circlip

2. Pull out two retaining pins and pad spring, then remove the pads.



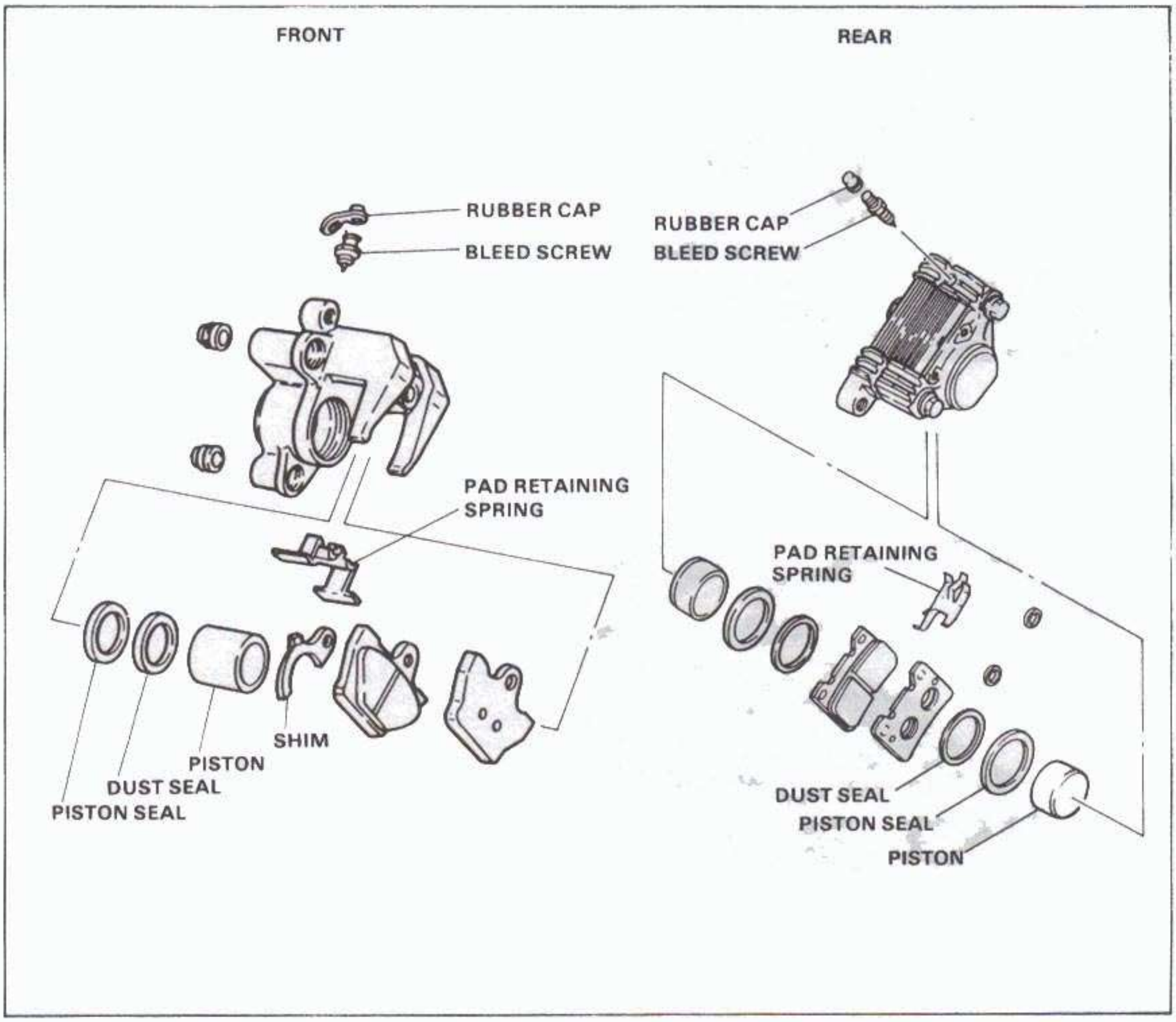
3. Install the new brake pads.
   Reverse the removal procedure.

NOTE:

* Install the pad spring with its longer tangs in the disc rotation direction.



Caliper Disassembly

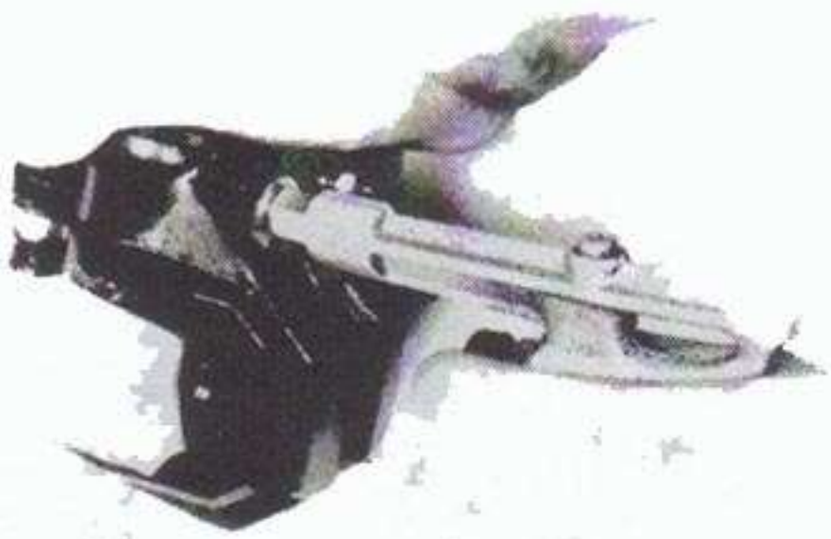


Front

1. Disconnect the brake hoses from the calipers. Allow the caliper assembly to drain into a container.
2. Place the open hose end into the container and pump the old fluid out of the master cylinder.
3. Remove the brake caliper retaining bolt, pin, spring, and pads as in Caliper Pad Replacement Procedure.
4. Carefully force the piston out of the caliper cylinder with compressed air. Never try to pry out the piston.

WARNING:

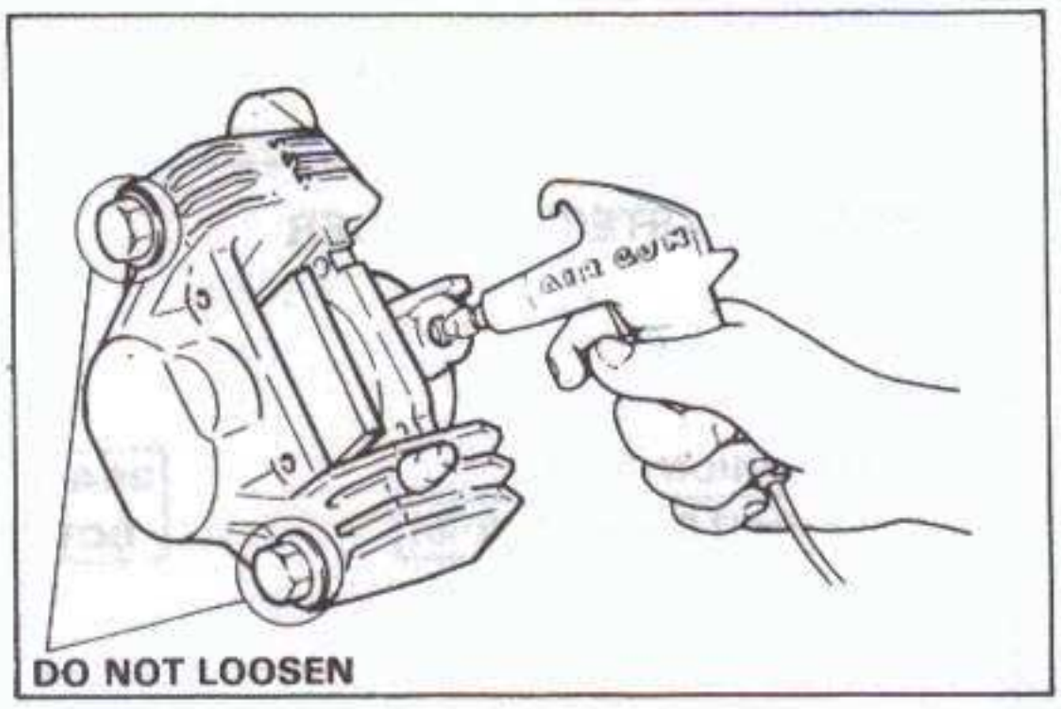
Cover the piston with a rag. Use care so that piston does not cause injury as it is expelled from the cylinder.



5. Remove the dust and piston seals.

Rear

1. Remove the pads as described in the Caliper Pad Replacement Procedure.
2. Remove the caliper securing bolts from the fork regs.
3. Disconnect the brake hose from the caliper. Allow fluid in the caliper assembly to drain into a container.
4. Place the open hose end into the container and pump the old fluid out carefully.
5. Insert the special tool (see below) into the caliper to hold the right piston.

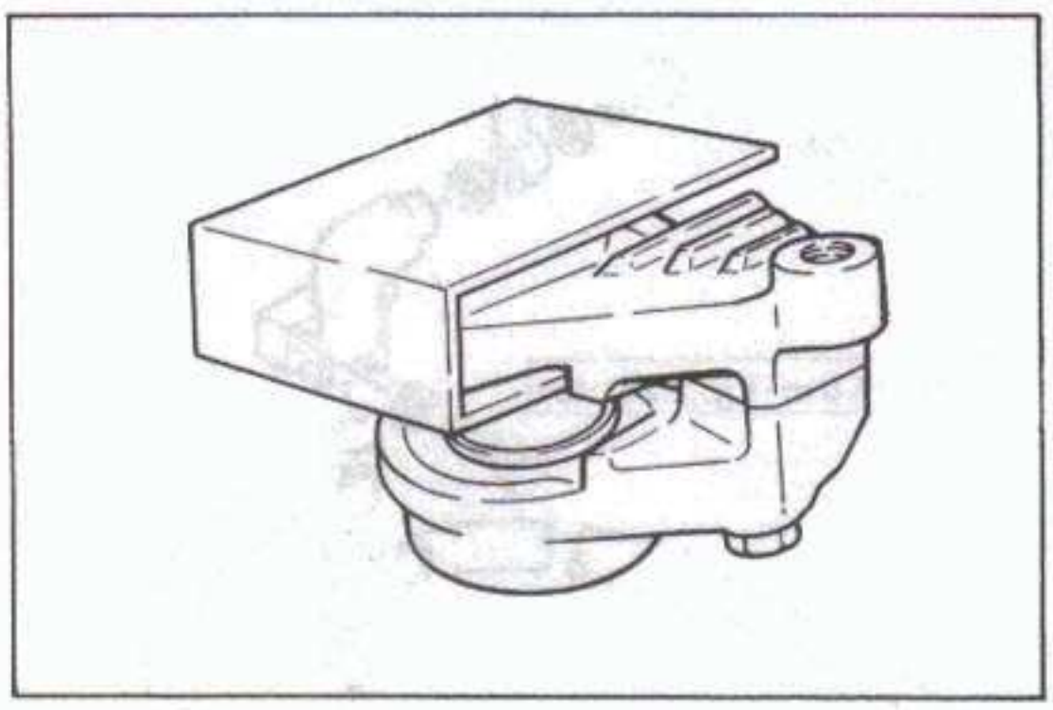


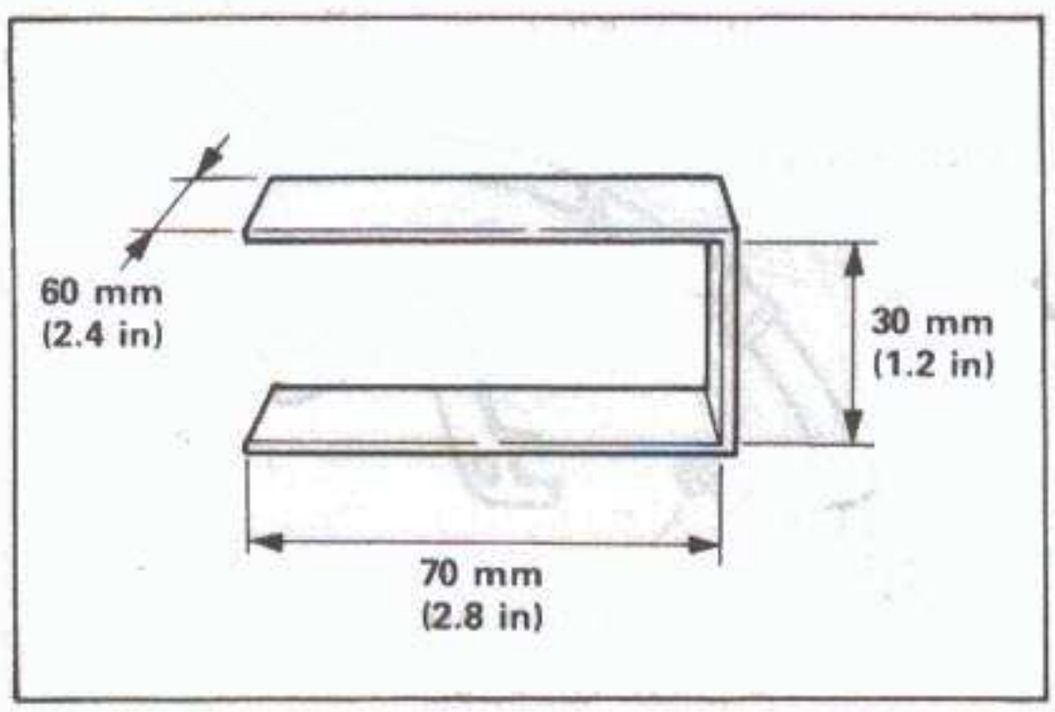
WARNING:

Never loosen the bridge bolts of the caliper halves.

NOTE:

Illustrated tool is not available, but can be constructed for the piston seals and/or piston disassembly and assembly.





6. By blowing compressed air into the tube joint opening, force out left piston.

NOTE:

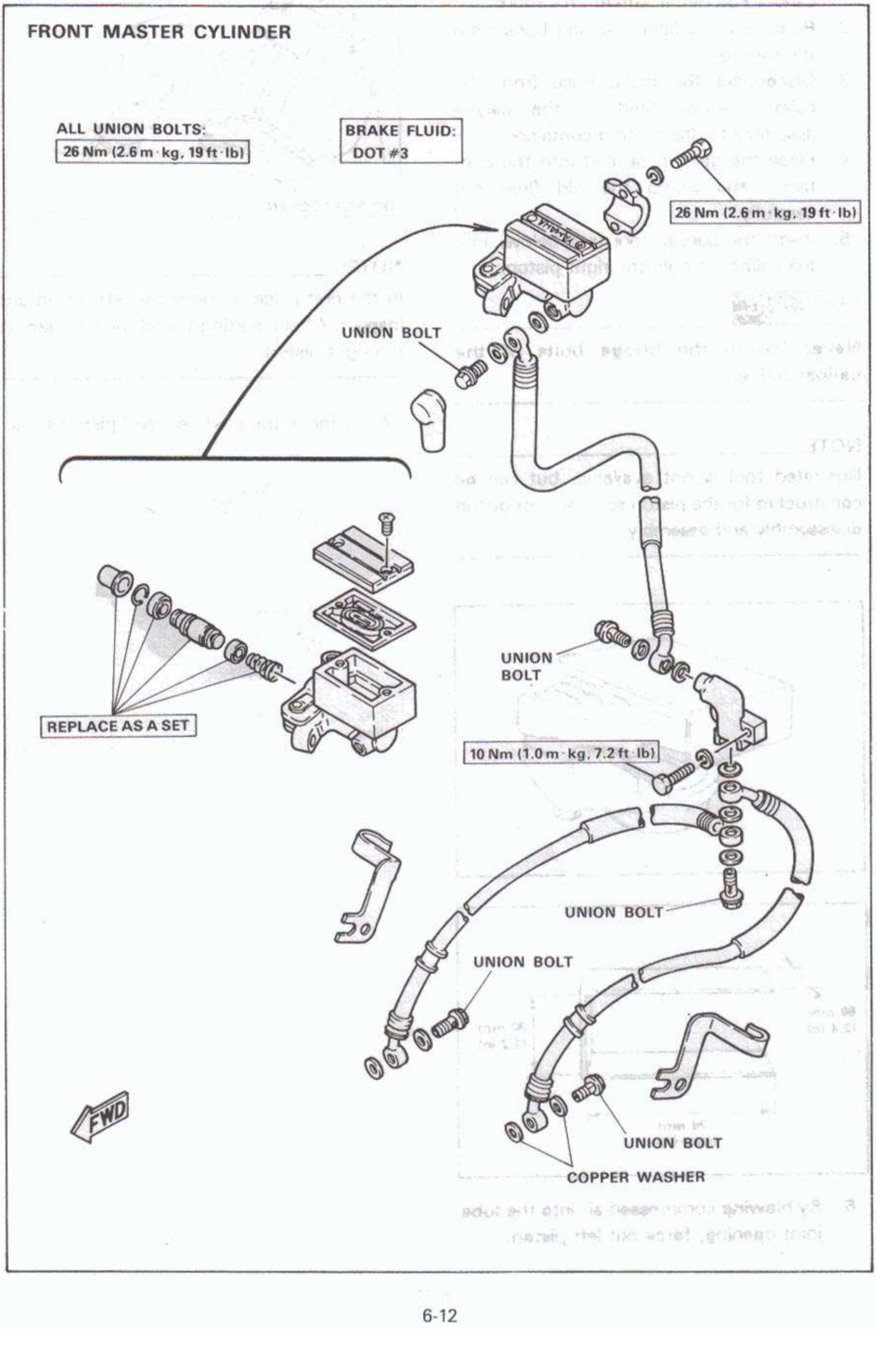
In the first place, remove the left piston and inspect. After inserting the left piston, remove the right piston.

7. Remove the dust seal and piston seals.



1. Seal

Master Cylinder Disassembly

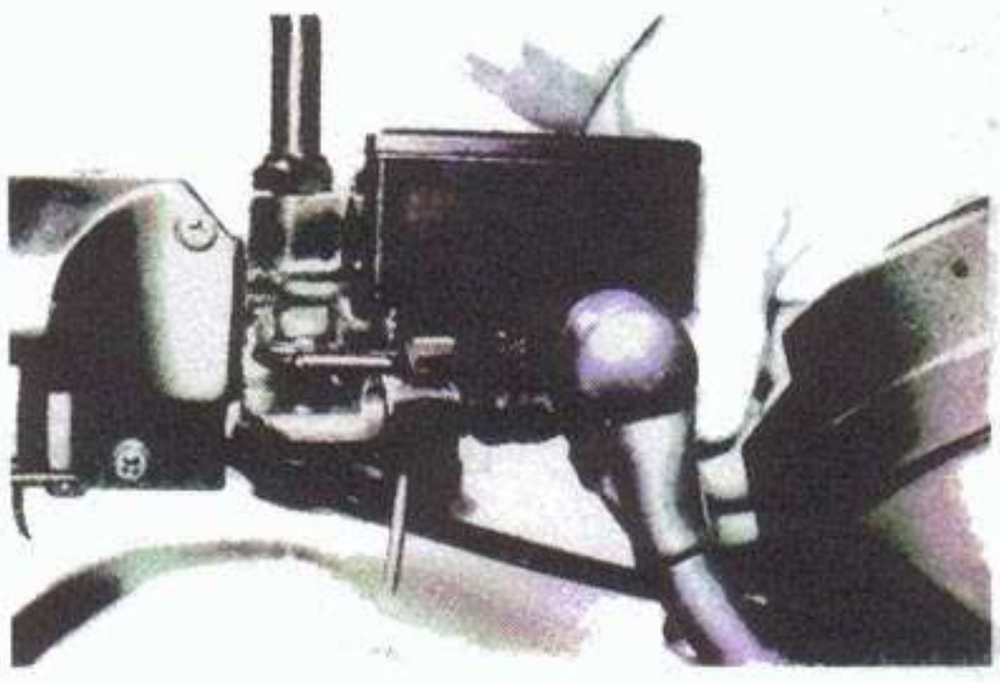


Front

1. Remove the brake lever and spring.



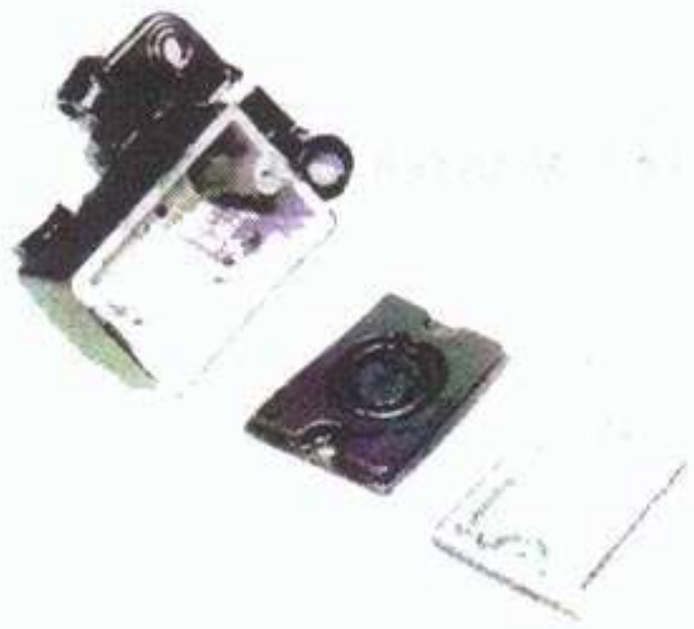
2. Remove the brake light switch.



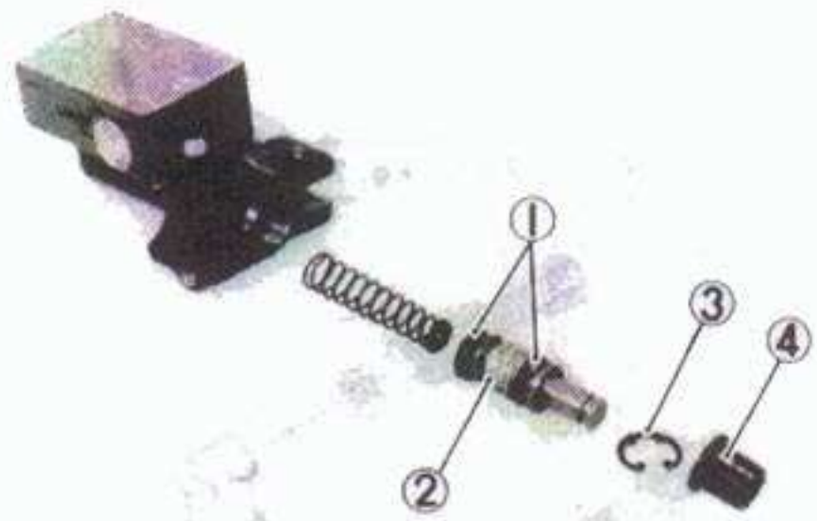
3. Remove the master cylinder dust boot.
4. Remove the brake hose.



5. Remove the master cylinder from the handlebar. Remove the cap and drain the remaining fluid.

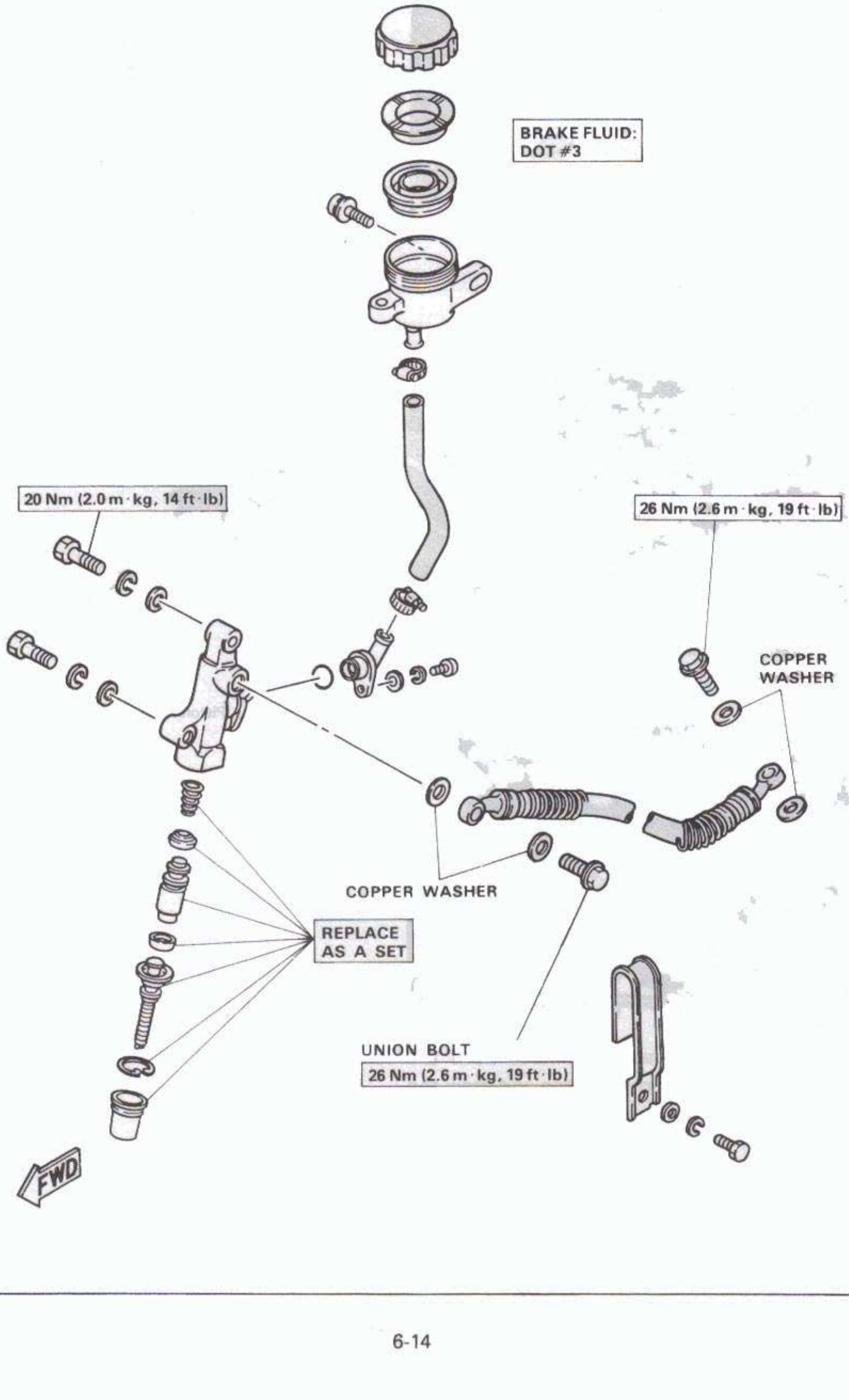


6. Remove the master cylinder dust boot.
7. Remove the snap ring.
8. Remove the master cylinder cup assembly. Note that the cylinder cups are installed with the larger diameter (lips) inserted first.

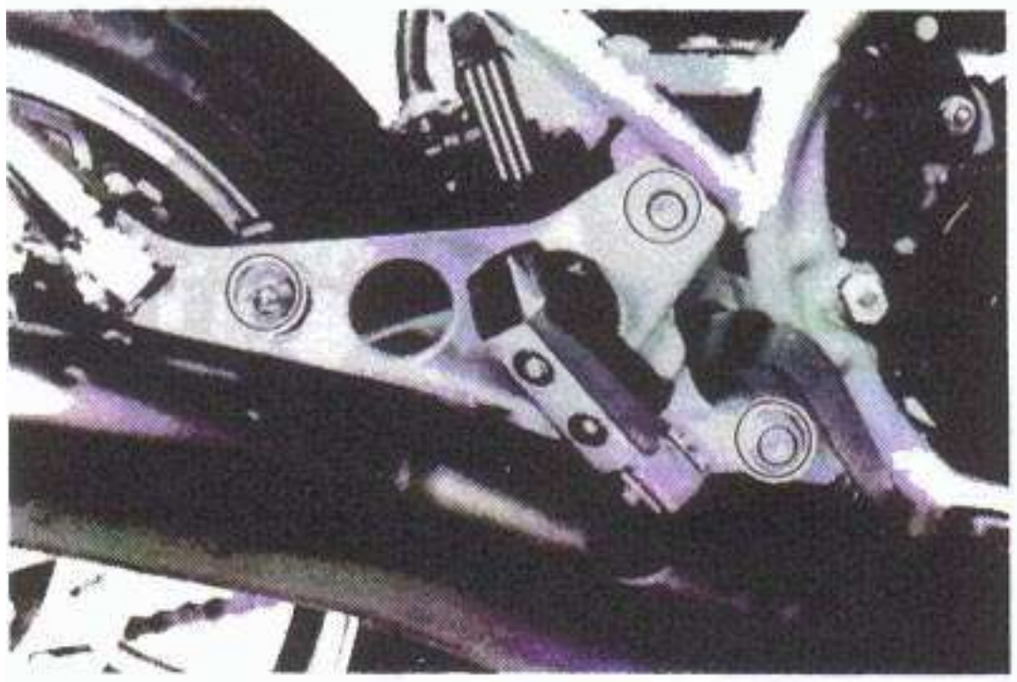


1. Cup 2. Piston 3. Snap ring 4. Dust boot

REAR MASTER CYLINDER



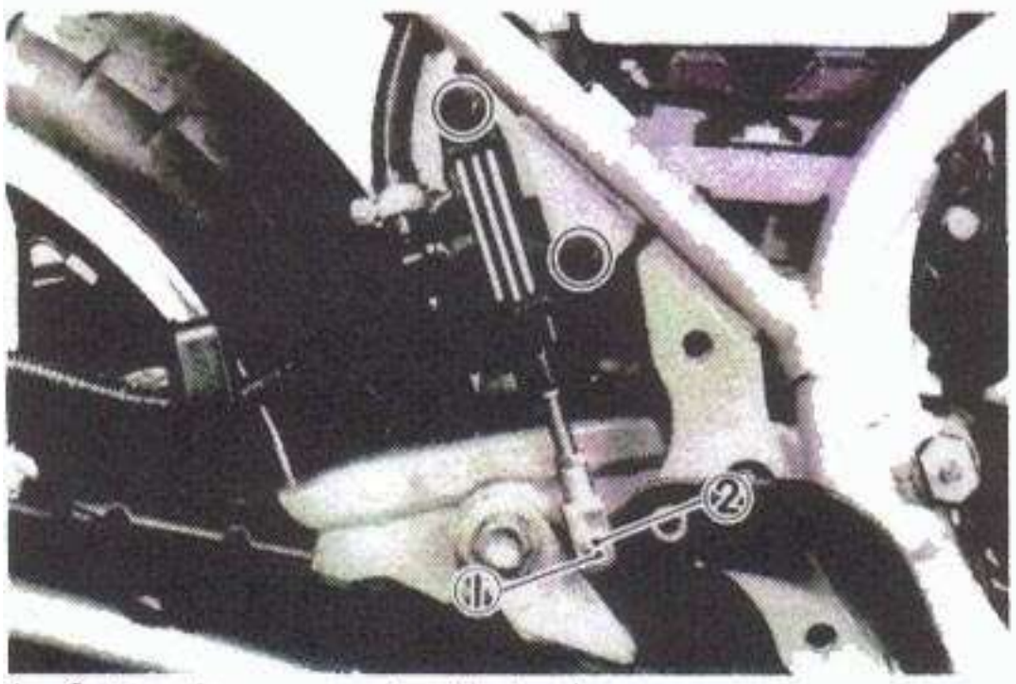
1. Remove the right muffler bracket.





1. Cup 2. Piston 3. Snap ring 4. Dust boot

2. Remove the cotter pin and clevis pin.
3. Remove the bolts securing the master cylinder to the frame.



1. Cotter pin 2. Clevis pin

4. Remove the brake hoses and drain the fluid into the container.

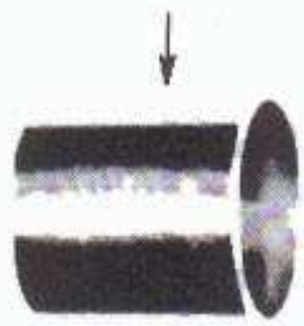


5. Remove the dust boot and the snap ring.
6. Remove the master cylinder cup assembly.

Brake Inspection and Repair

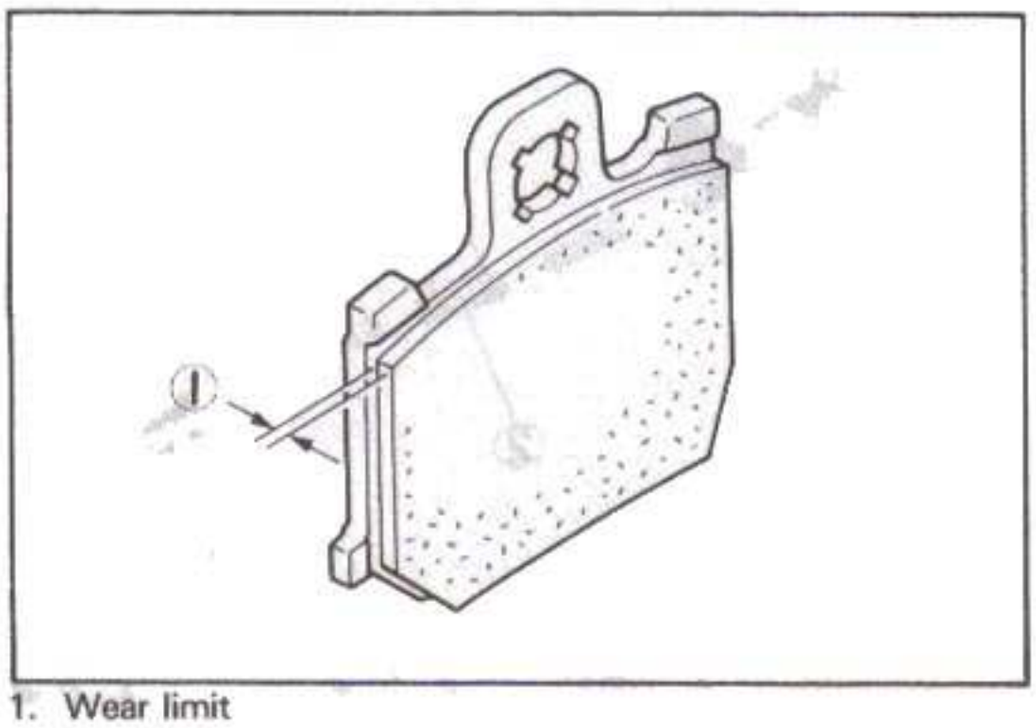
Recommended Brake Component Replacement Schedule:	
Brake pads	As required
Piston seal, dust seal	Every two years
Brake hoses	Every four years
Brake fluid	Replace only when brakes are disassembled.

1. Replace the caliper piston if it is scratched.



2. Replace any brake pad if that is worn beyond limits. Replace the brake pads as a set.

Wear limits: 0.8 mm (0.032 in)



1. Wear limit

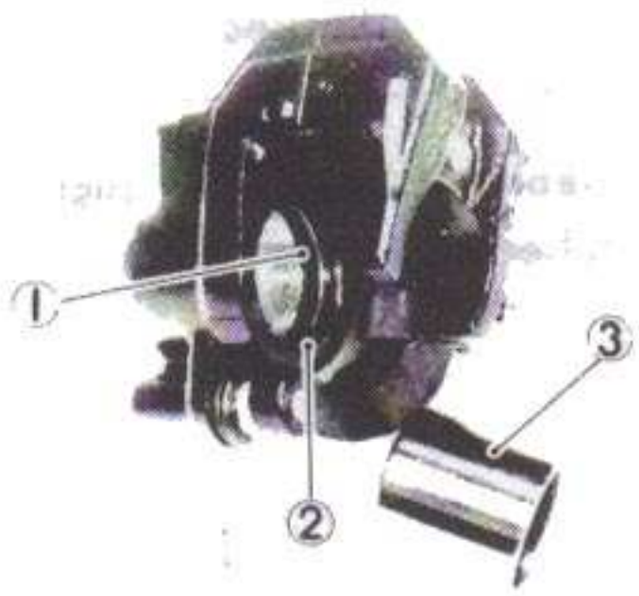


See Caliper Pad Replacement procedure for the parts to be replaced when the pads are replaced.

3. Replace the piston and dust seals if damaged.

Maximum deflection:
0.5 mm (0.02 in)
Minimum disc thickness:
4.5 mm (0.18 in)

Replace the seals every two years.



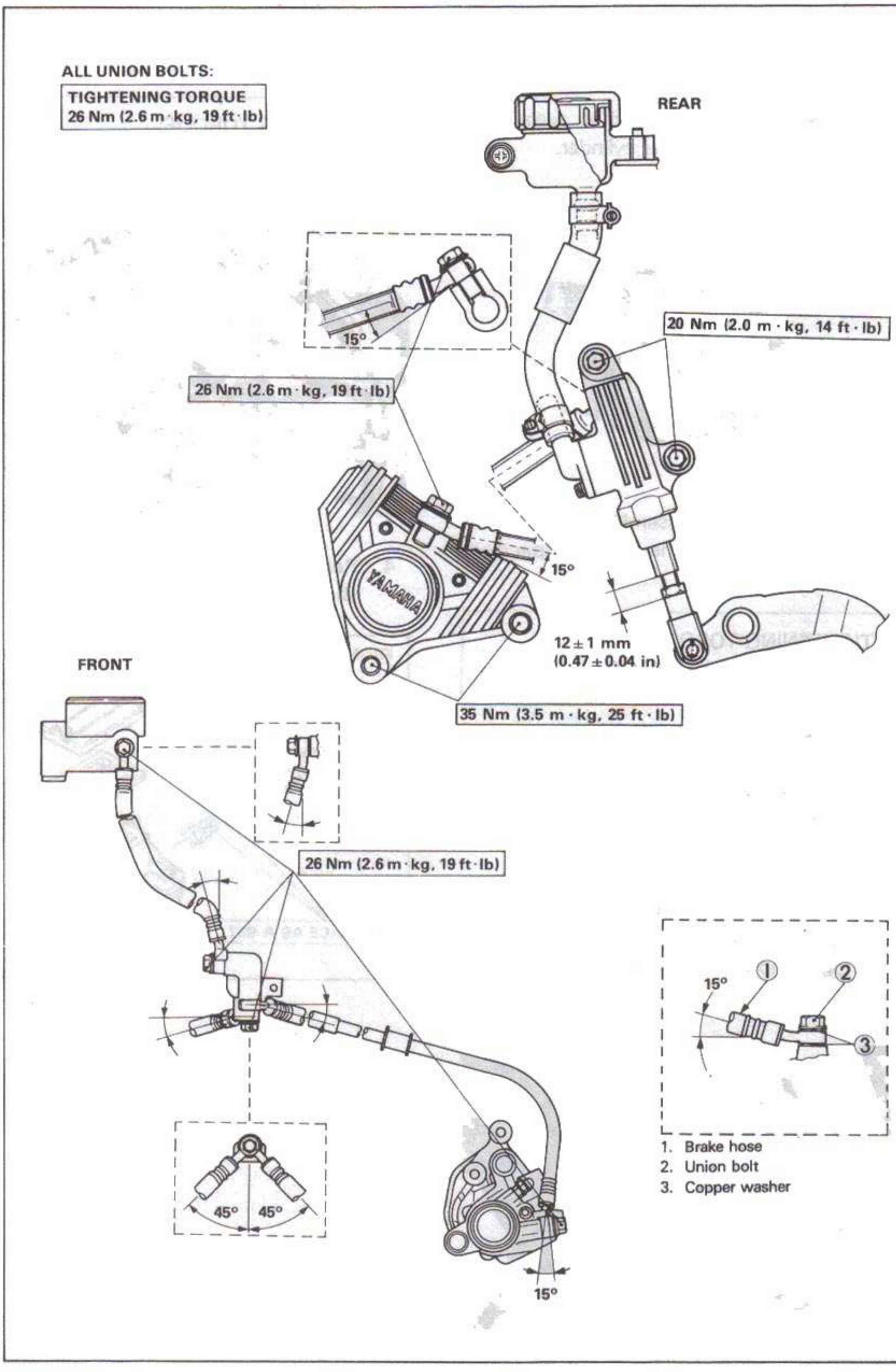
1. Piston seal 2. Dust seal 3. Piston

4. Inspect the master cylinder body. Replace if damaged. Clean all passages with new brake fluid.
5. Inspect the brake hoses.

Replace every four years or if cracked, frayed or damaged.

6. Check for wear and deflection of the disc.
If the disc is worn beyond minimum thickness or deflection exceeds specified amount, replace the disc.

Brake Assembly



1. Brake hose
2. Union bolt
3. Copper washer

1. Caliper reassembly
   All internal parts should be cleaned in new brake fluid only. Internal parts should be lubricated with the brake fluid when installed.

a. Install the piston and dust seals, and piston into the caliper cylinder.



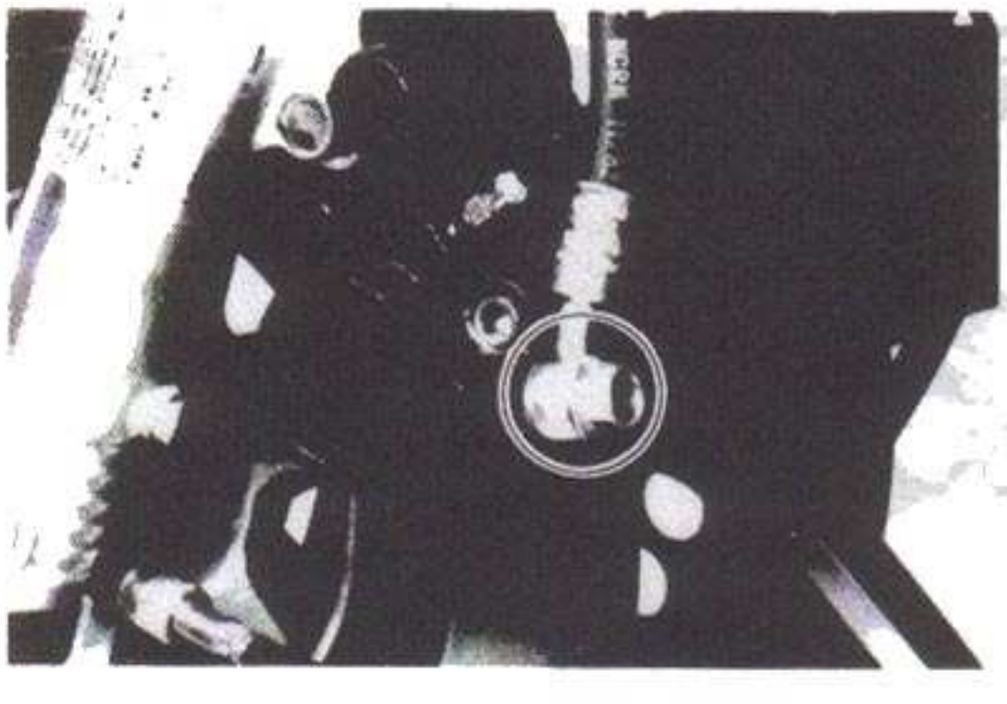
b. Place the caliper assembly onto the front fork leg. Torque the bolts to specification.

TIGHTENING TORQUE:
35 Nm (3.5 m · kg, 25 ft · lb)

c. Install the brake pads. Reverse the removal procedure.

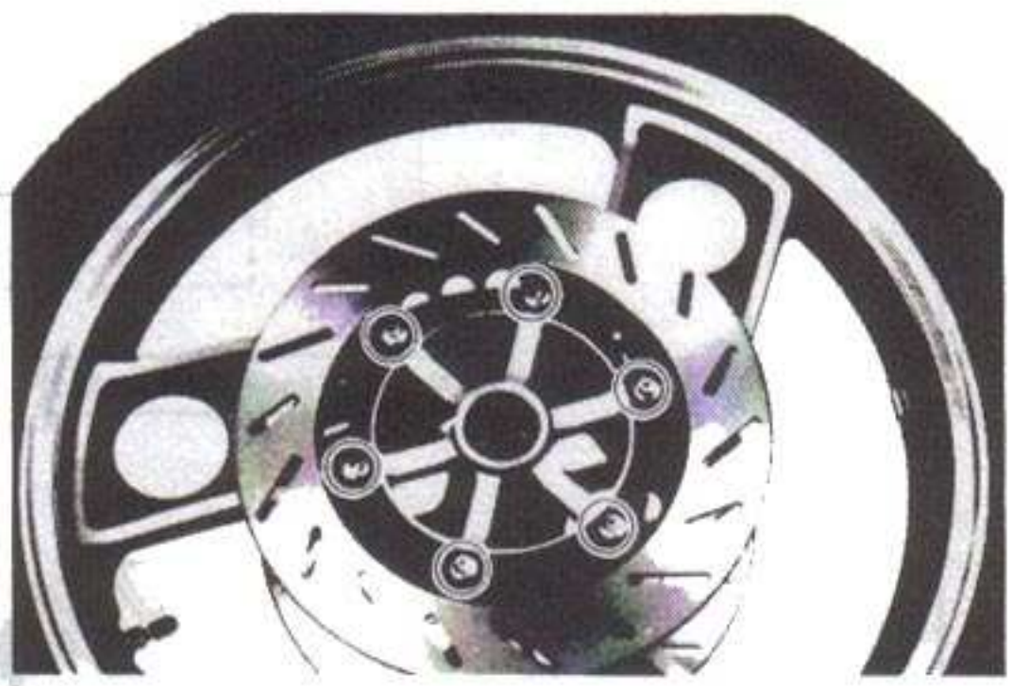
2. Connect the brake hoses with the union bolts. Tighten the union bolts to specification.

TIGHTENING TORQUE:
All union bolts:
26 Nm (2.6 m · kg, 19 ft · lb)

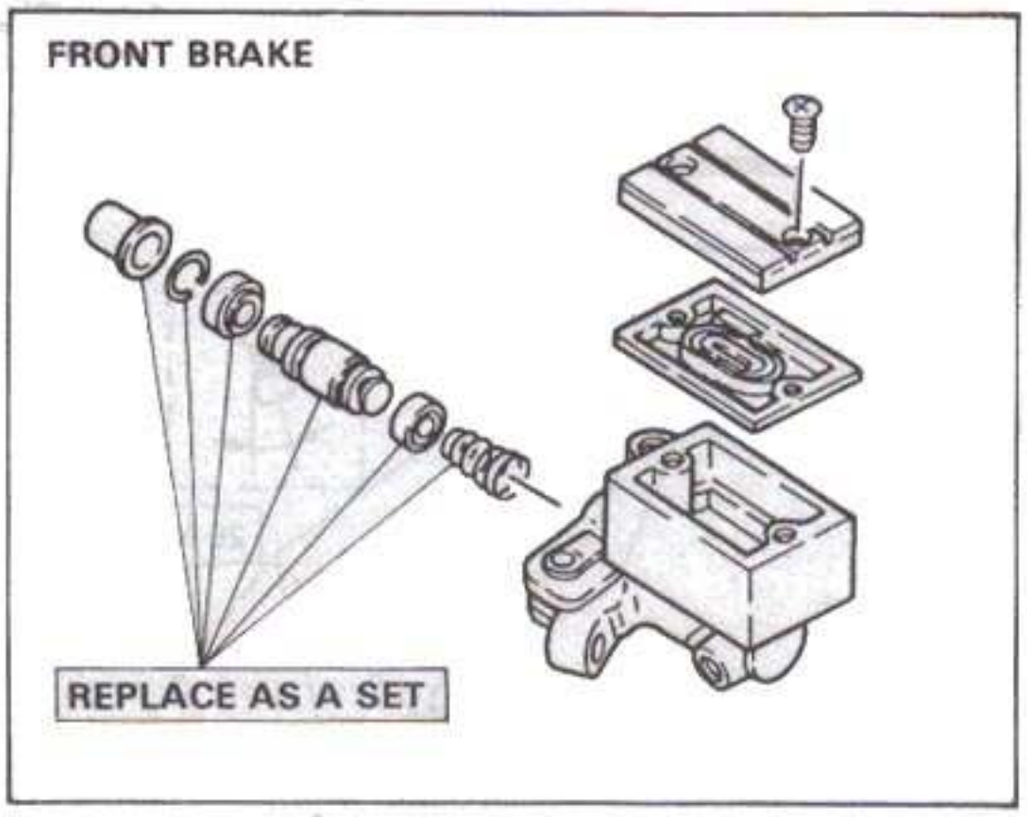


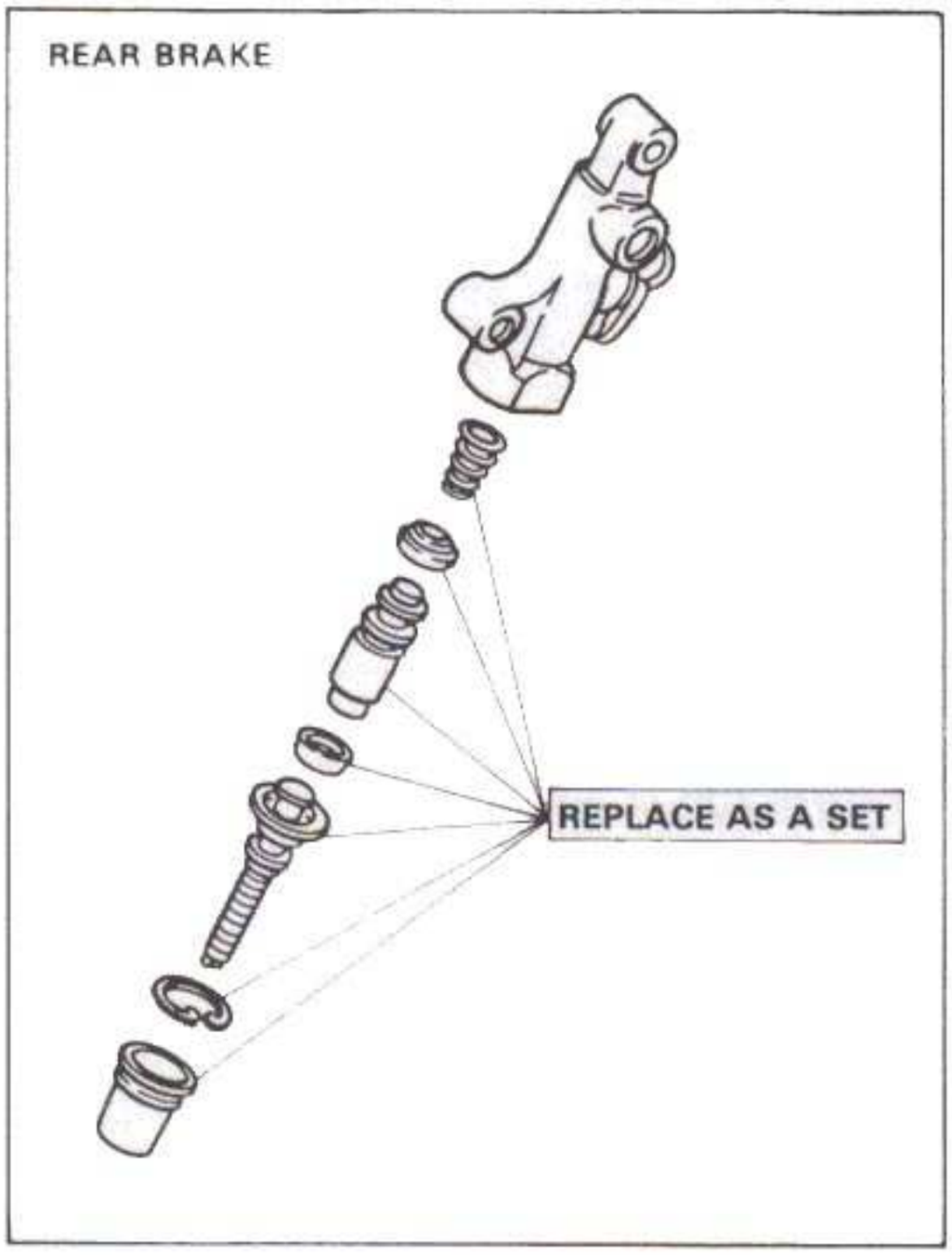
3. Brake disc assembly
   If the brake disc has been removed from the hub or is loose, tighten the bolts to specification.

TIGHTENING TORQUE:
20 Nm (2.0 m · kg, 14 ft · lb)



4. Reassemble the master cylinder as shown in the illustration.

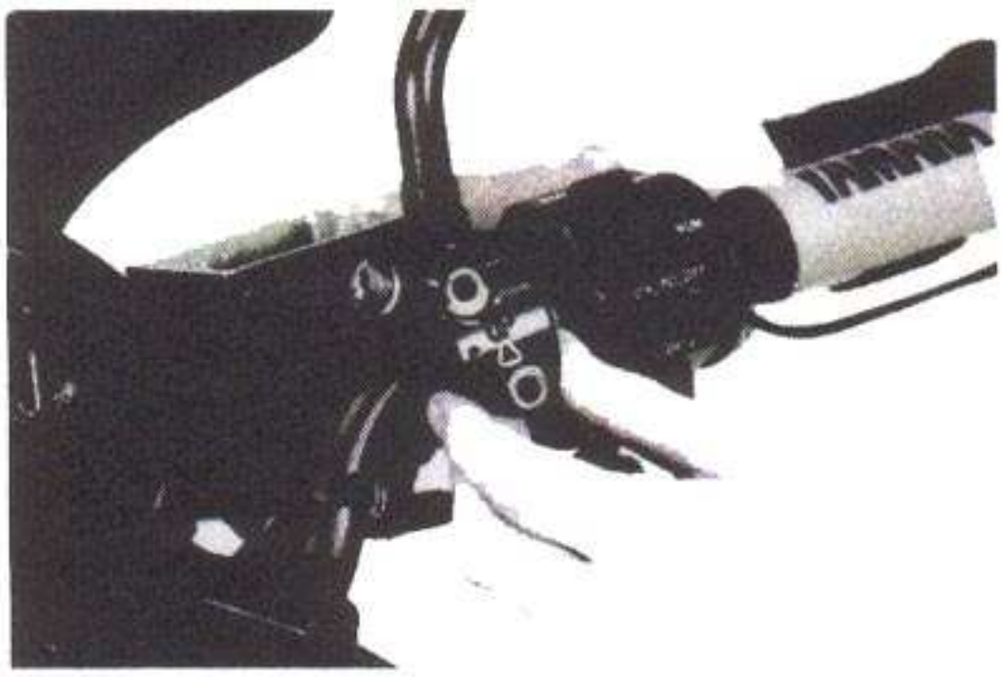




5. Install the front brake master cylinder onto the handlebar.

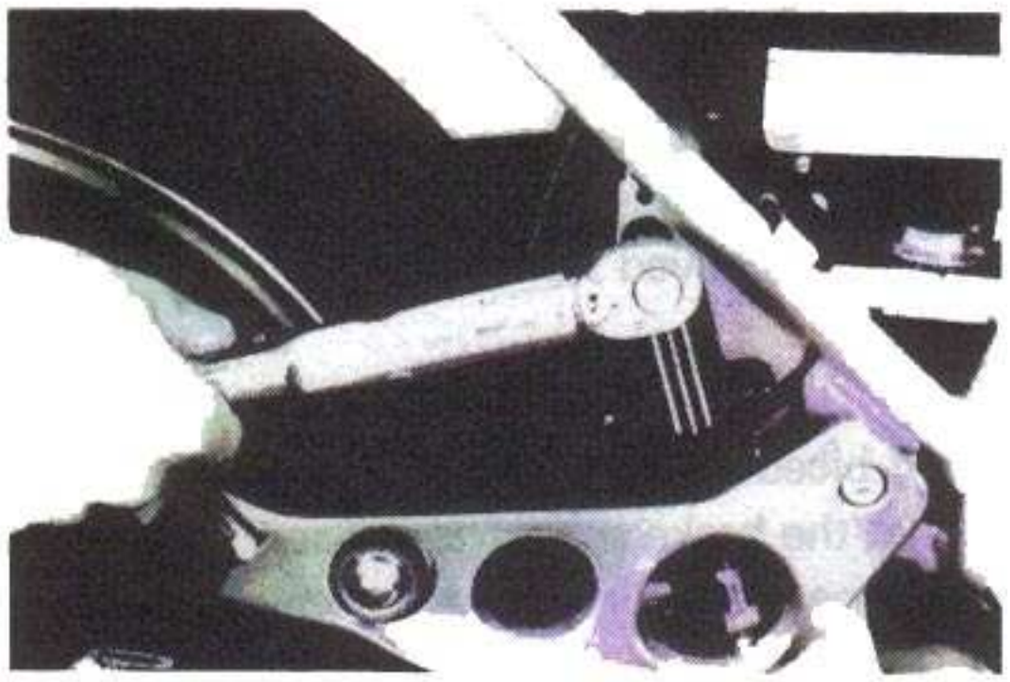
NOTE: _____
The "UP" mark on the master cylinder brake, should be installed upward.

TIGHTENING TORQUE:
26 Nm (2.6 m · kg, 19 ft · lb)



6. Install the rear brake master cylinder onto the frame.

TIGHTENING TORQUE:
20 Nm (2.0 m · kg, 14 ft · lb)



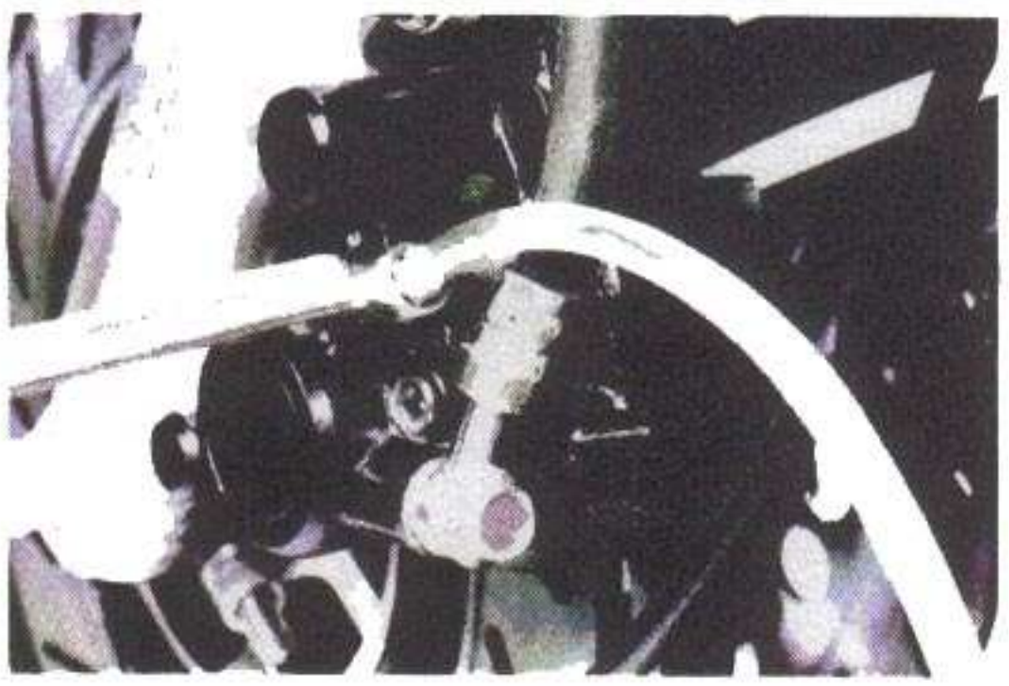
Air Bleeding

CAUTION: _____

If the brake system is disassembled or if any brake hose has been loosened or removed, the brake system must be bled to remove air from the brake fluid. If the brake fluid level is very low or brake operation is incorrect, bleed the brake system.

---

1. Add proper brake fluid to the reservoir. Install the diaphragm, being careful not to spill or overflow the reservoir.
2. Connect the clear plastic tube tightly to the caliper bleed screw. Put the end of the tube into a container.



3. Slowly apply the brake lever (pedal) several times. Pull in lever (Tread the brake pedal). Hold the lever (pedal) in "on" position. Loosen the bleed screw. Allow the lever (pedal) to travel slowly toward its limit. When the limit is reached, tighten the bleed screw.
4. Continue step (3) until all air bubbles are removed from system.

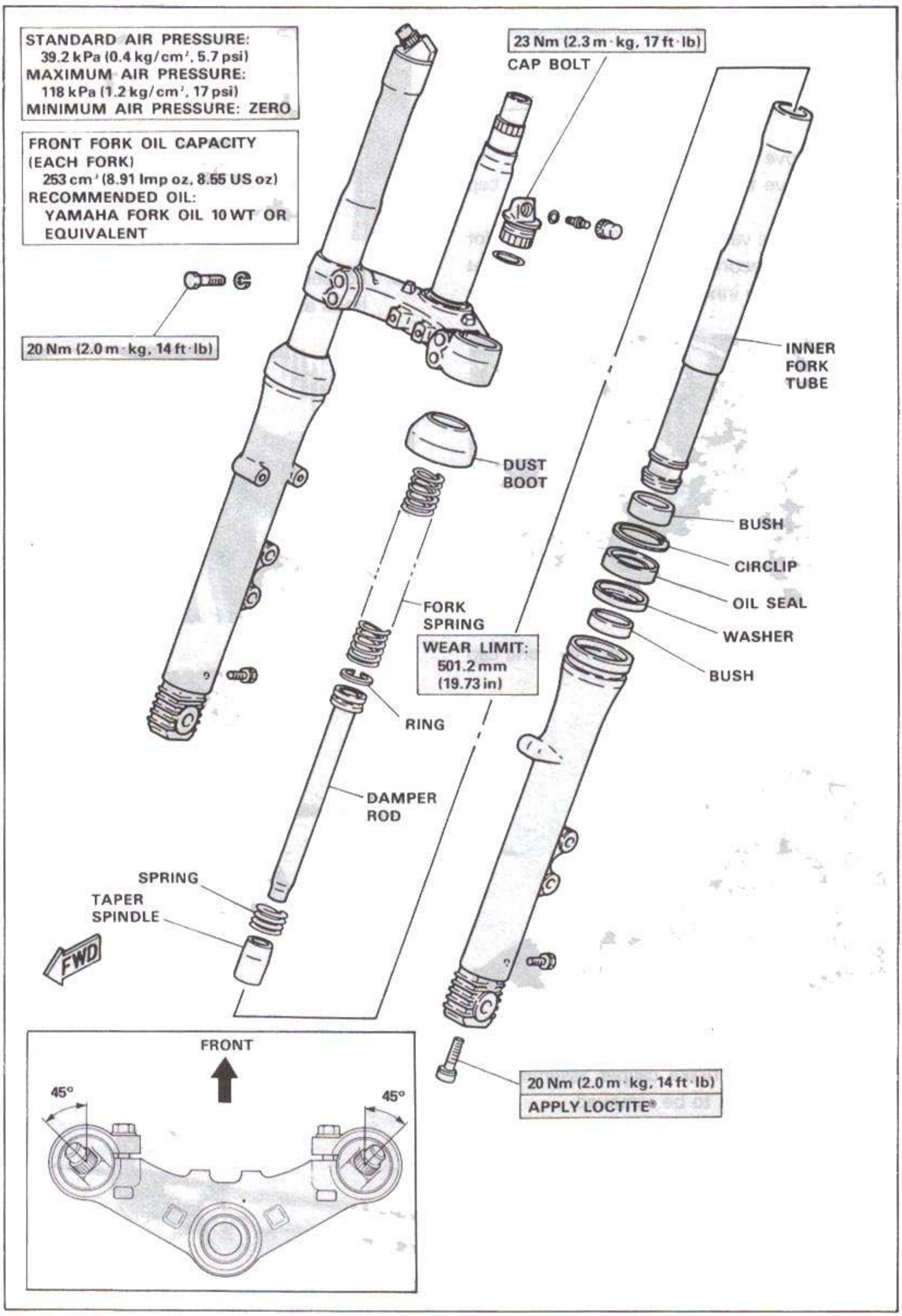
NOTE:

If bleeding is difficult, it may be necessary to let the brake system stabilize for a few hours. Repeat bleeding procedure.

Bleed screw tightening torque:
6 Nm (0.6 m · kg, 4.5 ft · lb)

5. Add brake fluid (DOT #3) to the level line on the reservoir.

FRONT FORK

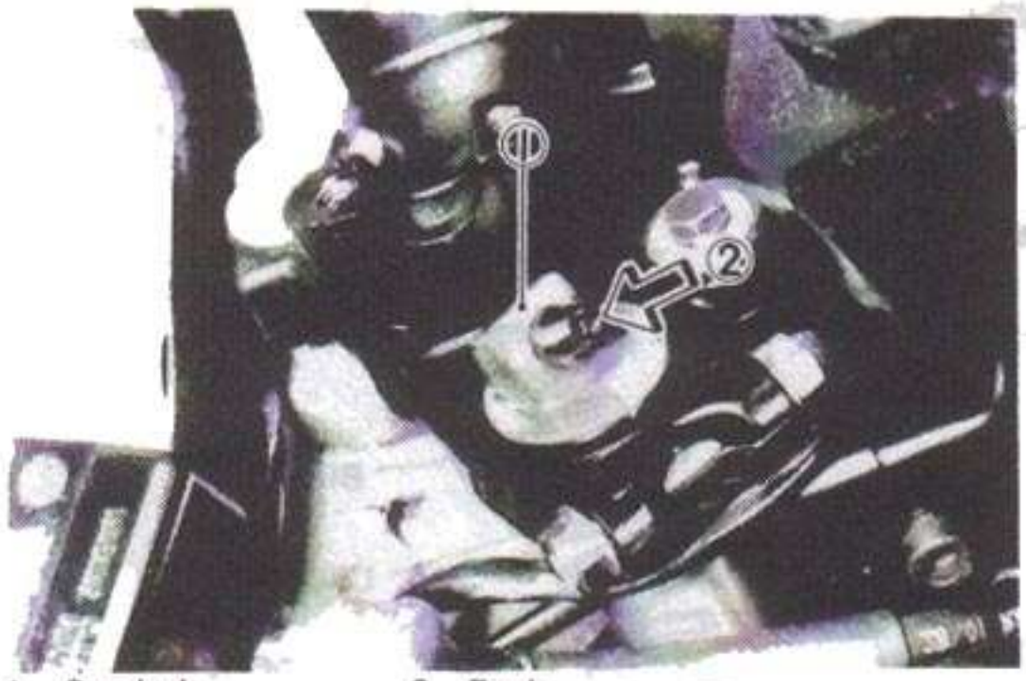

STANDARD AIR PRESSURE:
39.2 kPa (0.4 kg/cm², 5.7 psi)
MAXIMUM AIR PRESSURE:
118 kPa (1.2 kg/cm², 17 psi)
MINIMUM AIR PRESSURE: ZERO
FRONT FORK OIL CAPACITY
(EACH FORK)
253 cm³ (8.91 Imp oz, 8.55 US oz)
RECOMMENDED OIL:
YAMAHA FORK OIL 10 WT OR
EQUIVALENT
23 Nm (2.3 m · kg, 17 ft · lb)
CAP BOLT
20 Nm (2.0 m · kg, 14 ft · lb)
INNER
FORK
TUBE
DUST
BOOT
BUSH
CIRCLIP
OIL SEAL
WASHER
BUSH
FORK
SPRING
WEAR LIMIT:
501.2 mm
(19.73 in)
RING
DAMPER
ROD
SPRING
TAPER
SPINDLE
FWD
FRONT
45°
45°
20 Nm (2.0 m · kg, 14 ft · lb)
APPLY LOCTITE®

Removal

WARNING:

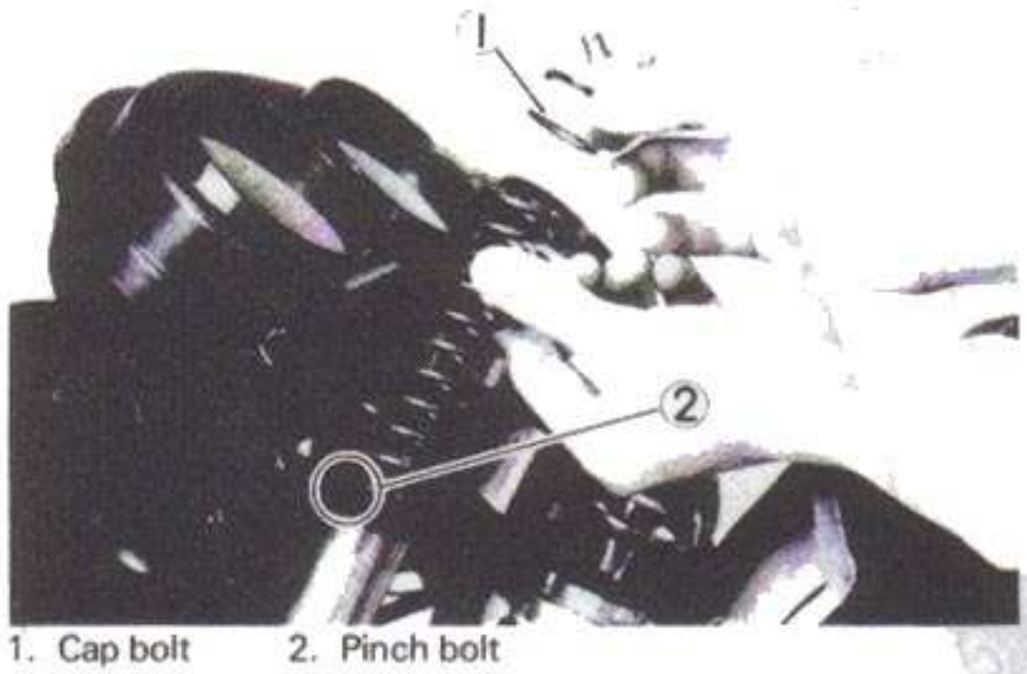
Securely support the motorcycle so there is no danger of it falling over.

1. Remove the cowling.
2. Remove the air valve cap from the cap bolt.
3. Keep the valve open while pressing it for several seconds so that the air can be let out of the inner tube.



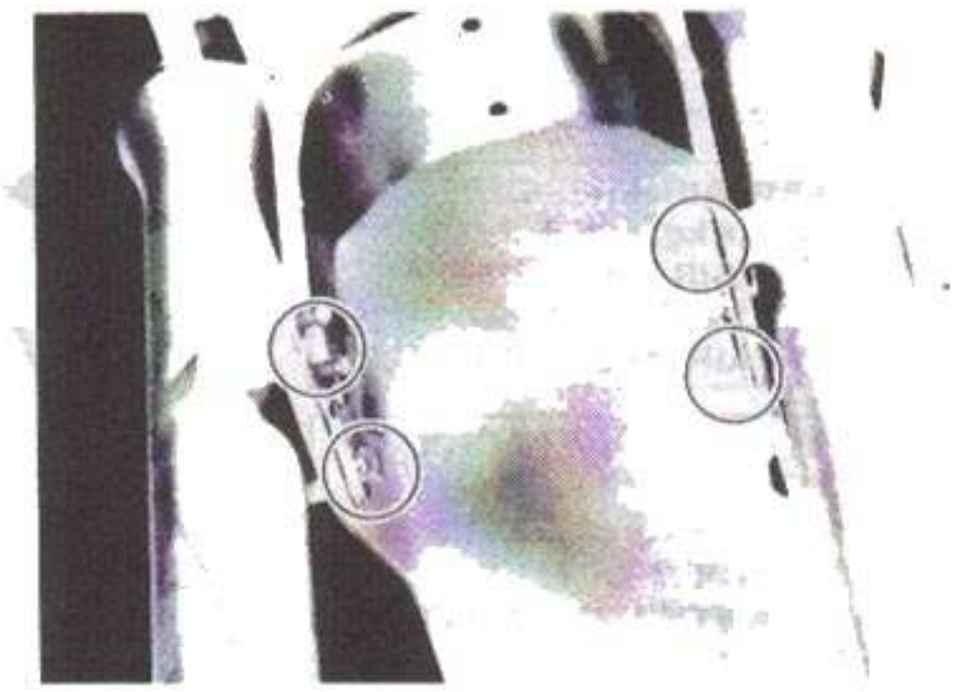
1. Cap bolt 2. Push

4. Loosen the front fork pinch bolt and cap bolt.

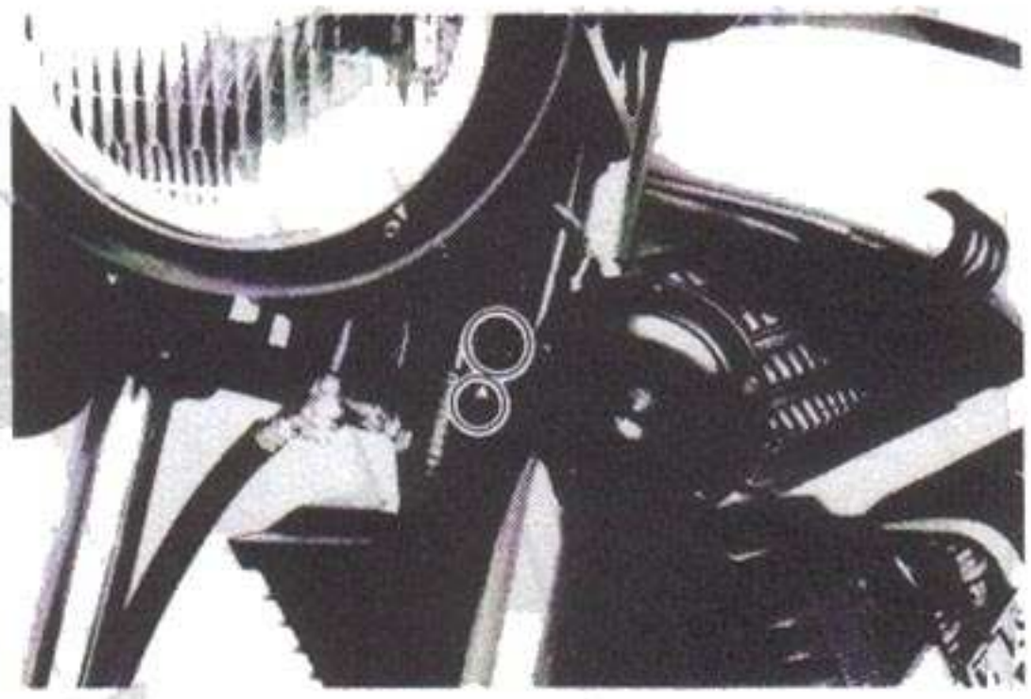


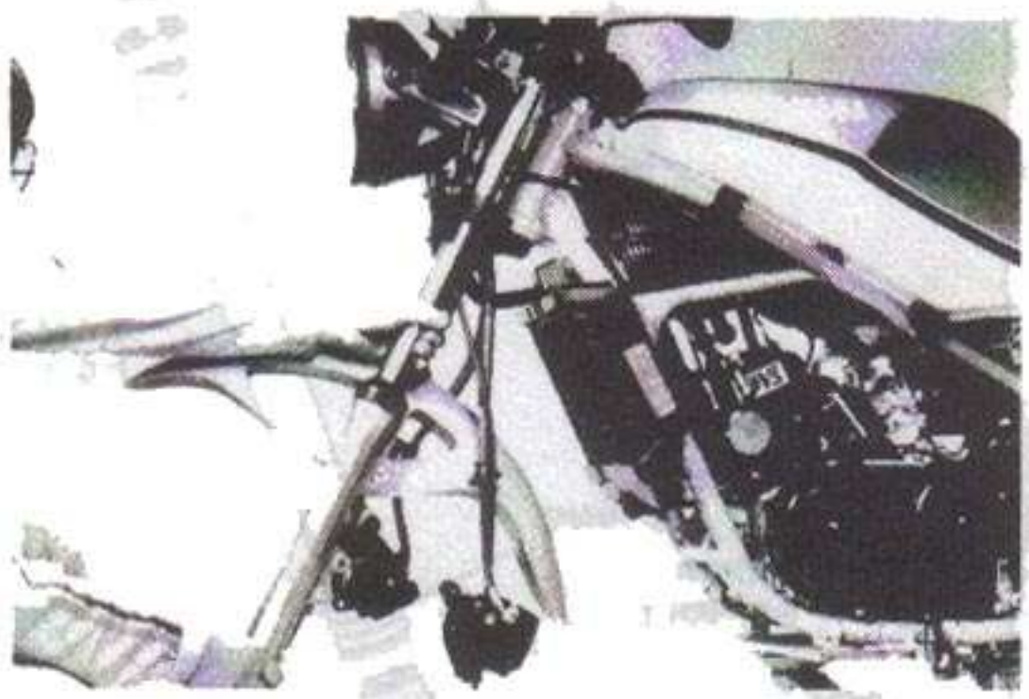
1. Cap bolt 2. Pinch bolt

5. Disconnect the speedometer cable.
6. Remove the brake caliper assembly for the front fork to be removed.
7. Remove the front wheel and the bolts securing the fender to the fork.
8. Remove the front fender:



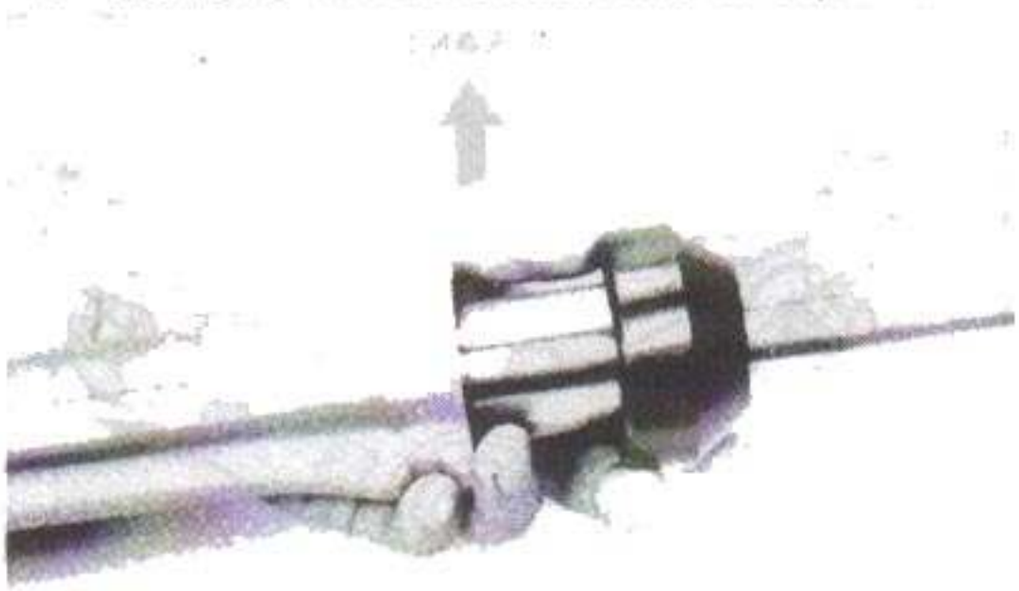
9. Loosen the two under bracket pinch bolts and remove the fork.





Disassembly

1. Remove the dust seal and circlip.





2. The oil seal in the fork leg must be removed hydraulically. Fill the fork completely with fork oil and reinstall the cap bolt.

CAUTION:

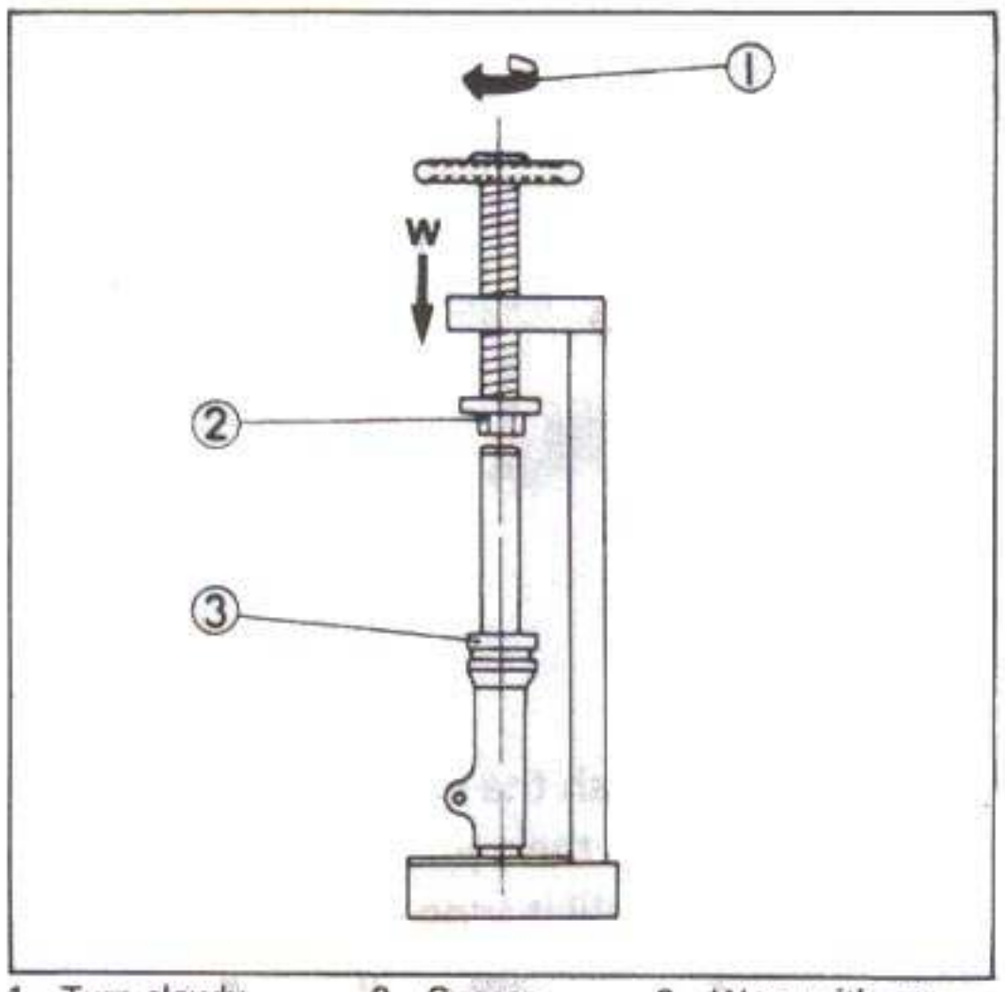
Use care so that no air remains in the inner tube.



3. Place the spacer on the top of the cap bolt, and place the fork leg in a hand press as illustrated.

WARNING:

If the inner tube is abruptly contracted or air enters the inner tube, the oil may spurt out or the oil seal may spring out. Never touch the inner tube during disassembling operation. Also wrap the oil seal with a rag for safety.



1. Turn slowly 2. Spacer 3. Wrap with rag

4. Remove the cap bolt, and drain the oil into a drain pan; pump the fork to remove the oil.
5. Remove the oil seal and oil seal washer. Discard the oil seal, as the seal must always be replaced whenever the fork is disassembled.

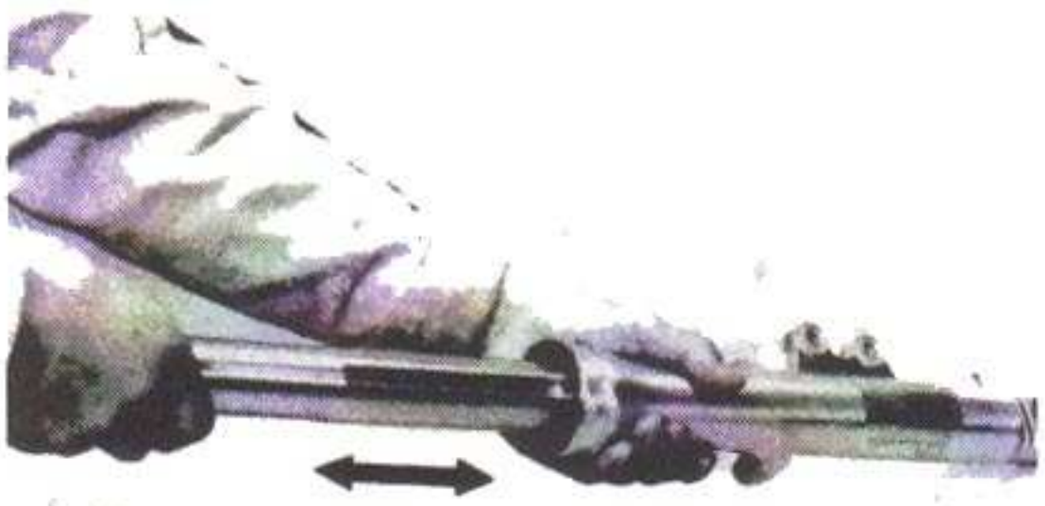


1. Oil seal 2. Oil seal washer

6. Clamp the axle leg in a vise, and push the inner tube all the way into the outer tube.
7. Use the damper rod holding tool to remove the holding bolt from the bottom of the outer tube.



8. Slowly push the inner tube into the outer tube, and then pull the inner tube back quickly until it tops out. The slide bush 1 will be dislodged from the outer tube after doing this several times.



CAUTION:

Avoid bottoming the inner tube in the outer tube. The taper spindle could be damaged.

Inspection

1. Examine the inner tube for scratches and straightness. If the tube is scratched severely or bent, it should be replaced.

WARNING:

Do not attempt to straighten a inner tube, since this may weaken the part dangerously.

2. Inspect the slide bushes. If damaged or excessively worn, replace them.
3. Inspect the outer surface of the fork seal seat in the outer fork tube. If this surface is damaged, replace the outer fork tube. If it is not damaged, replace the fork seal.
4. Check the outer tube for dents. If any dent causes the inner tube to "hang up" during operation, the outer tube should be replaced.
5. Check the free length of the springs.

Fork spring free length limit:
501.2 mm (19.73 in)

6. Check the O-ring on the cap bolt. If damaged, replace the O-ring.

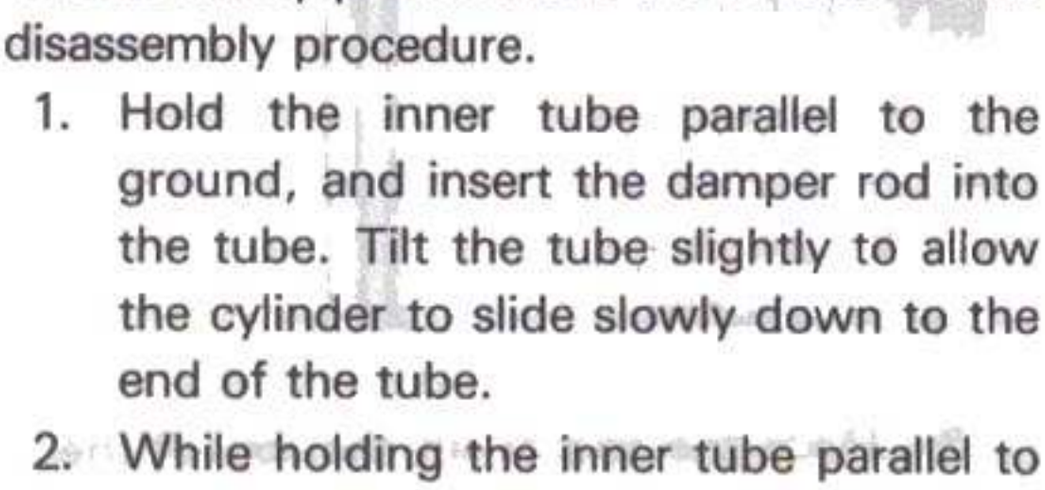


1. O-ring

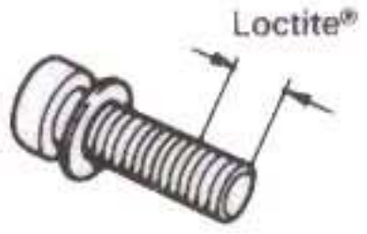
Reassembly

The assembly procedure is the reverse of the disassembly procedure.

1. Hold the inner tube parallel to the ground, and insert the damper rod into the tube. Tilt the tube slightly to allow the cylinder to slide slowly down to the end of the tube.
2. While holding the inner tube parallel to the ground, install the tapered spindle on the damping cylinder and install the outer tube on the inner tube.

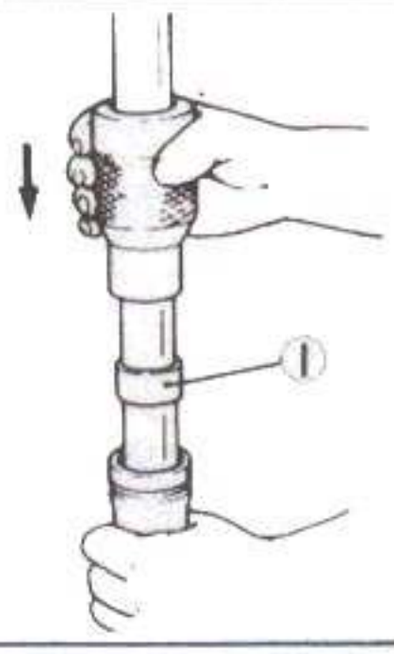


3. Apply Loctite® to the threads of the holding bolt, and reinstall the bolt. Using the damping-cylinder holding tool, torque the holding bolt to specification.



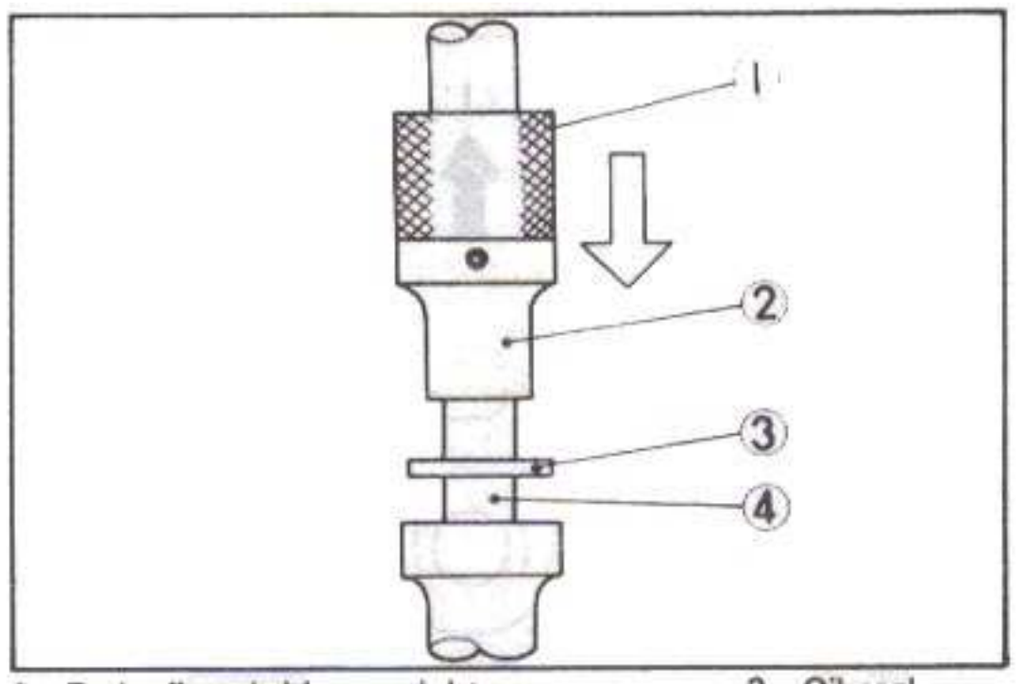
TIGHTENING TORQUE:
20 Nm (2.0 m · kg, 14 ft · lb)

4. Install the bush; using the special tools.



1. Top Bush

5. Install a new seal washer, making sure the beveled edge faces upward.
6. Install a new oil seal in the top of the outer tube with the special tools. (see illustration.)



1. Fork oil seal driver weight (P/N YM-33963)
2. Fork oil seal driver attachment (P/N YM-01369)
3. Oil seal
4. Inner tube

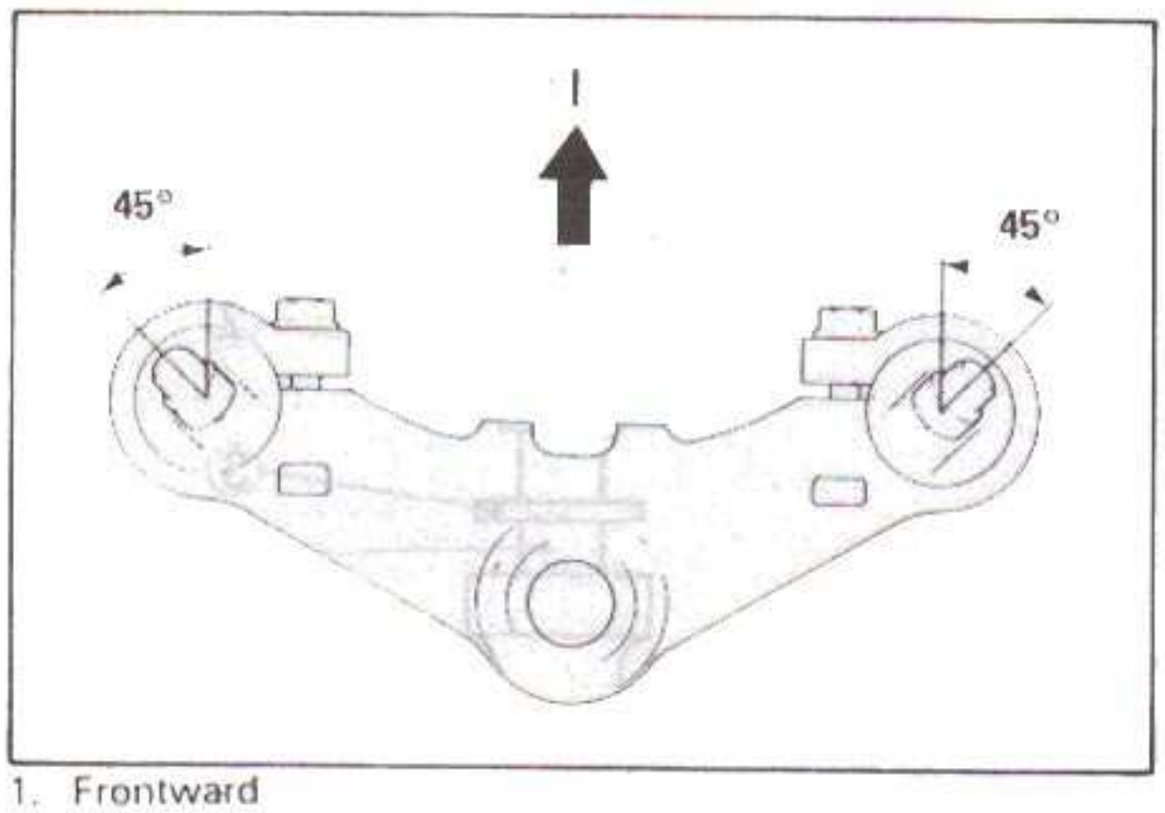
7. Pour the specified amount of recommended fork oil into the inner tube.

Fork oil capacity:
253 cm^3 (8.91 Imp oz, 8.55 US oz)
Fork oil level:
120 mm (4.72 in)
(From top of inner tube fully compressed without spring.)
Recommended oil:
Yamaha Fork Oil 10W or equivalent

8. After filling, slowly pump the inner tubes up and down to distribute the oil.
9. Install the spring and cap bolt.
10. Install the fork assembly into the under bracket, and torque the pinch bolts and cap bolt to specification.

TIGHTENING TORQUE:
Steering crown:
20 Nm (2.0 m · kg, 14 ft · lb)
Under bracket
20 Nm (2.0 m · kg, 14 ft · lb)
Cap bolt:
23 Nm (2.3 m · kg, 17 ft · lb)

11. If the air valve does not face towards the illustration, loosen the pinch bolts and reset the forks in the following procedure:
    a. Level the top of the inner fork tube with the top of the steering crown.
    b. Face the air valve towards the front as shown.



1. Frontward

12. Tighten the front fork pinch bolts and install the handlebars.

TIGHTENING TORQUE:
Pinch bolt:
20 Nm (2.0 m · kg, 14 ft · lb)
Handlebar installation bolt:
20 Nm (2.0 m · kg, 14 ft · lb)

13. Reinstall the front wheel, taking care to compress the forks several times before tightening the axle pinch bolts; this will center the fork legs properly on the axle.

TIGHTENING TORQUE:
Front fender:
20 Nm (2.0 m · kg, 14 ft · lb)
Front axle:
74 Nm (7.4 m · kg, 53 ft · lb)
Caliper assembly:
35 Nm (3.5 m · kg, 25 ft · lb)

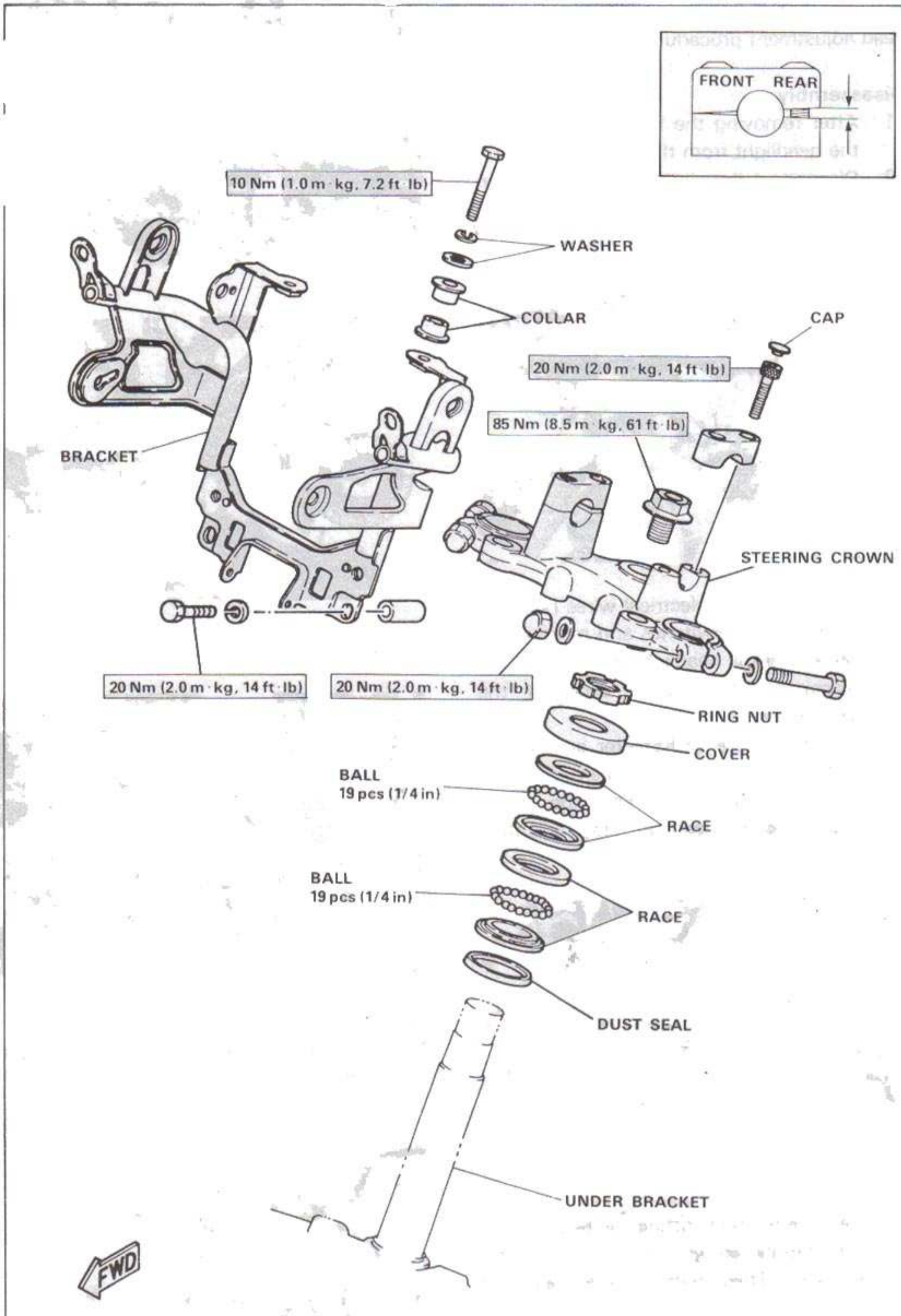
WARNING:

Always use a new cotter pin on the axle nut.

14. Fill the fork with air using an air pump or pressurized air supply. Refer to "Front fork and rear shock absorber adjustment" for proper air pressure adjusitng.

Maximum air pressure:
118 kPa (1.2 kg/cm², 17 psi)
Do not exceed this amount.

STEERING HEAD

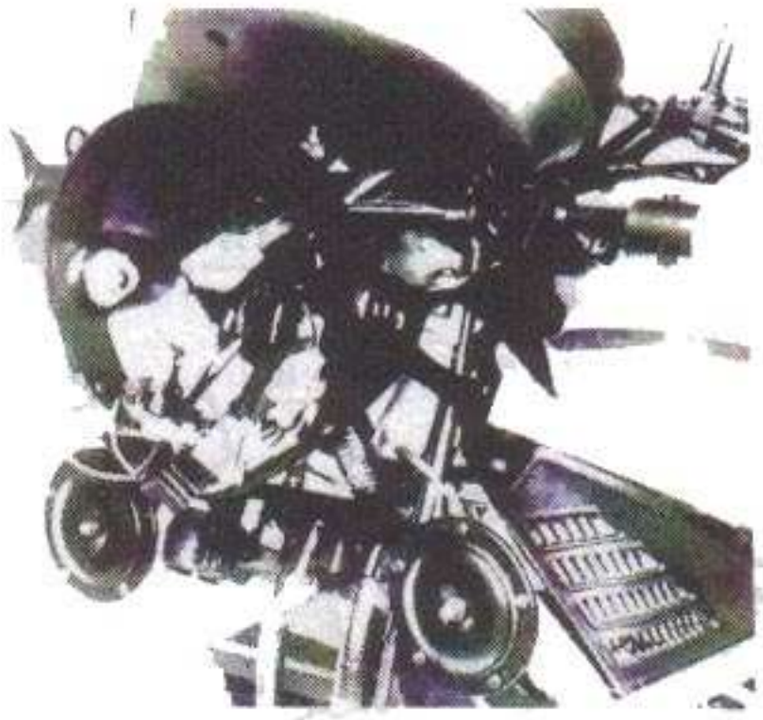


Adjustment

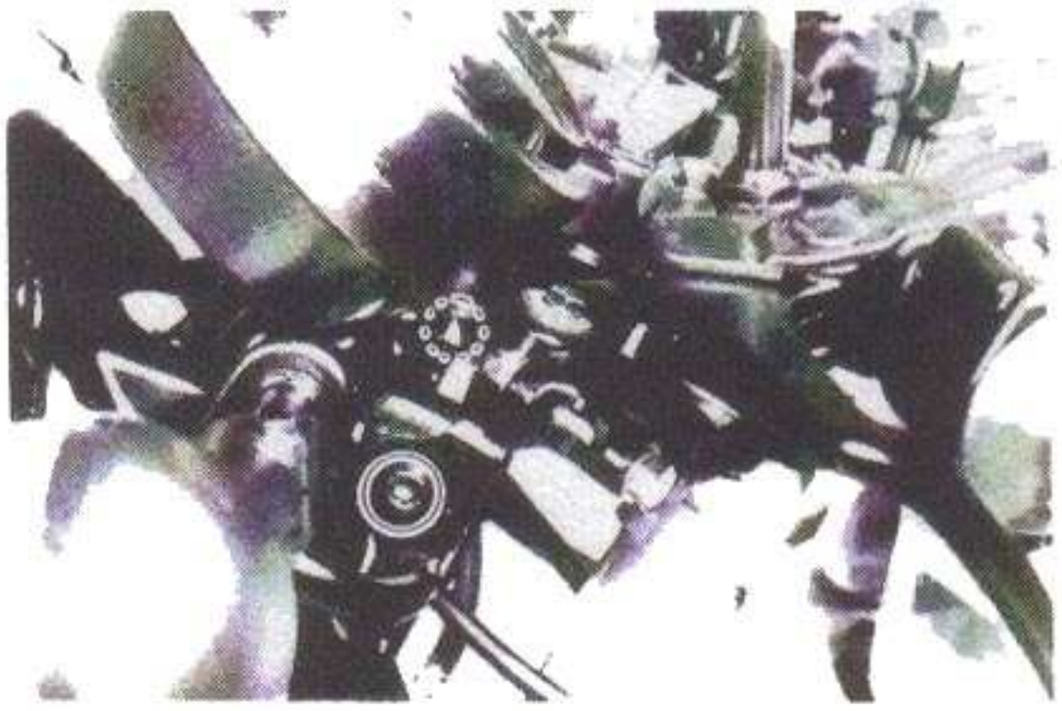
Refer to Chapter 2 (see page 2-17) for steering head adjustment procedure.

Disassembly

1. After removing the front forks, remove the headlight from the headlight body.
2. Disconnect the electrical wires between the headlight body and main wiring harness in the headlight body.

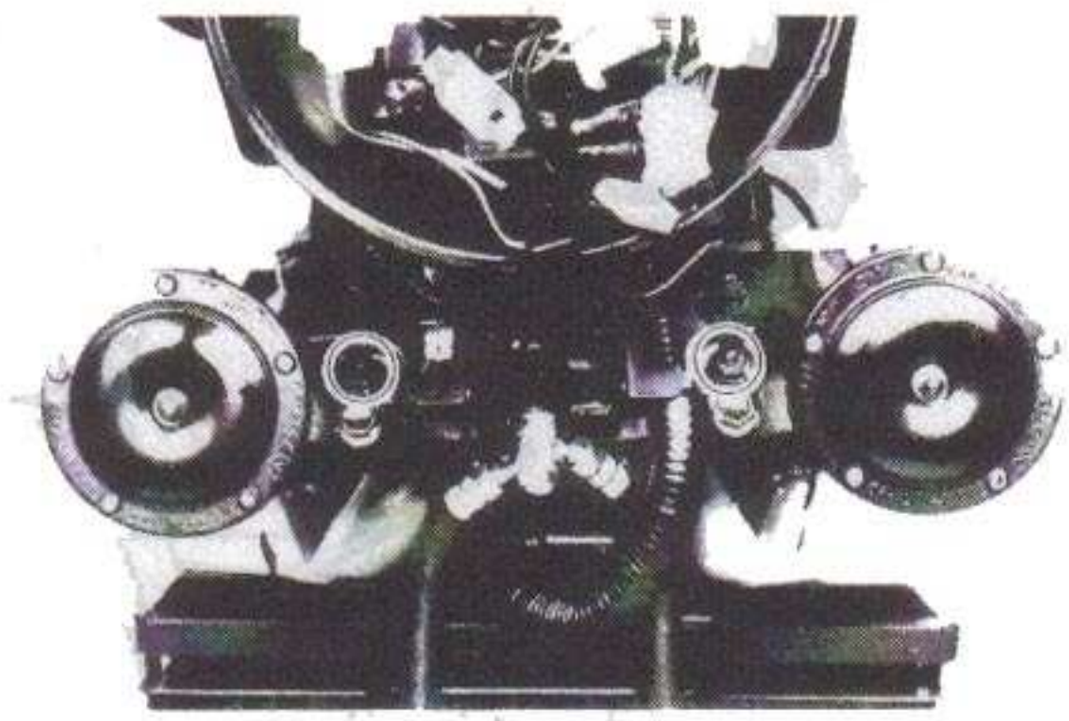


3. Disconnect any electrical wires between the handlebar switches and main wiring harness in the headlight body.
4. Disconnect the clutch cable at the handlebars.
5. Disconnect the tachometer and speed-meter cables at the instruments.
6. Remove the bolts fitting the meter bracket to the headlight stay, and then remove the meter assembly.

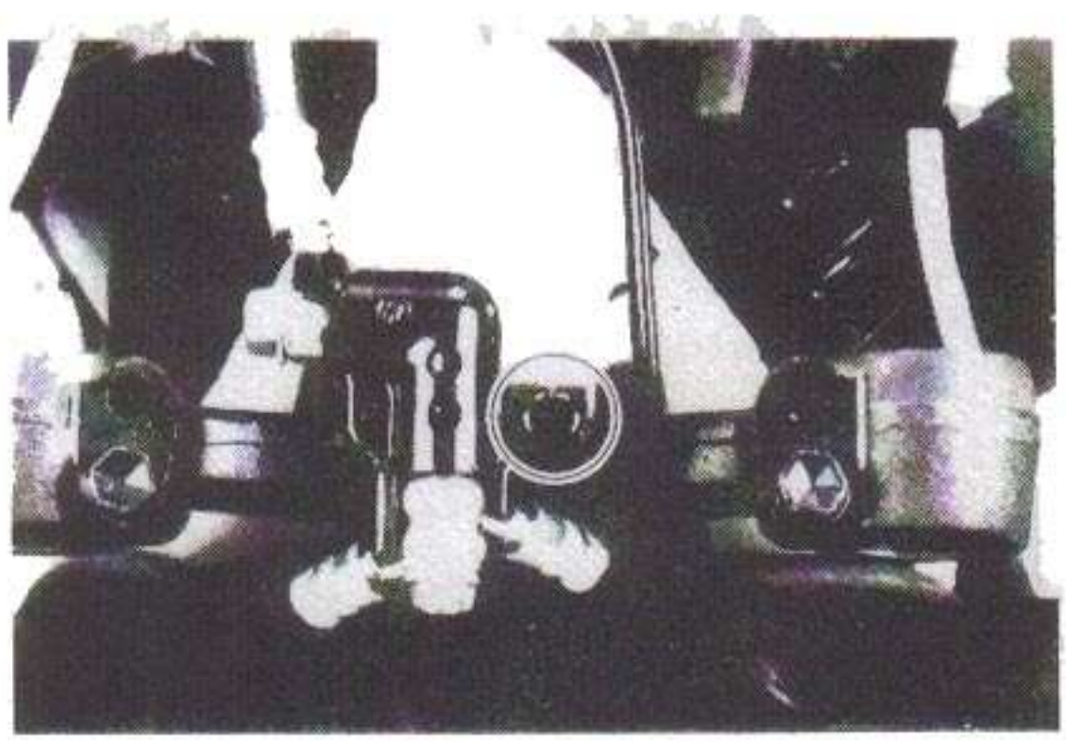


7. Remove the bolts fitting the headlight to the handle crown and to the under bracket. Then remove the headlight body.

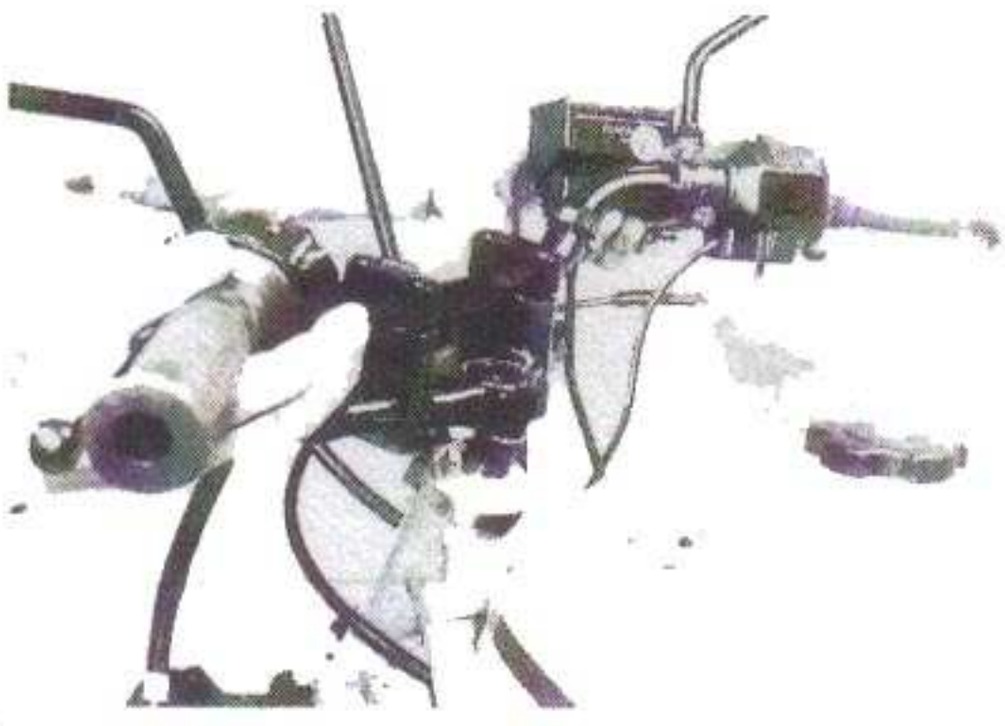




8. Remove the brake hose joint.



9. Remove the steering stem bolt.
10. Remove the steering crown (upper bracket).



11. Remove the steering ring nut with the ring nut wrench.

CAUTION:

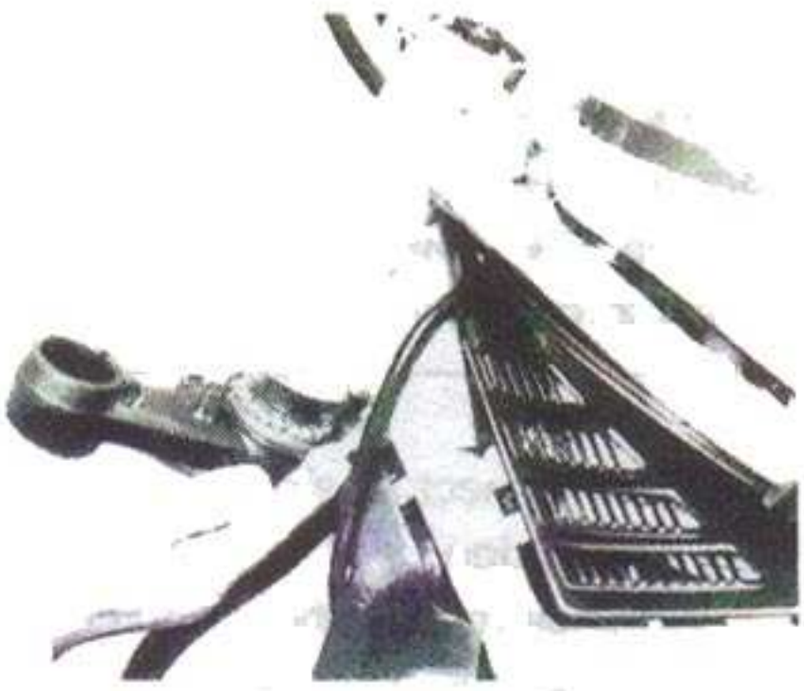
Support the "under bracket" so that the loose bearings will not fall out.



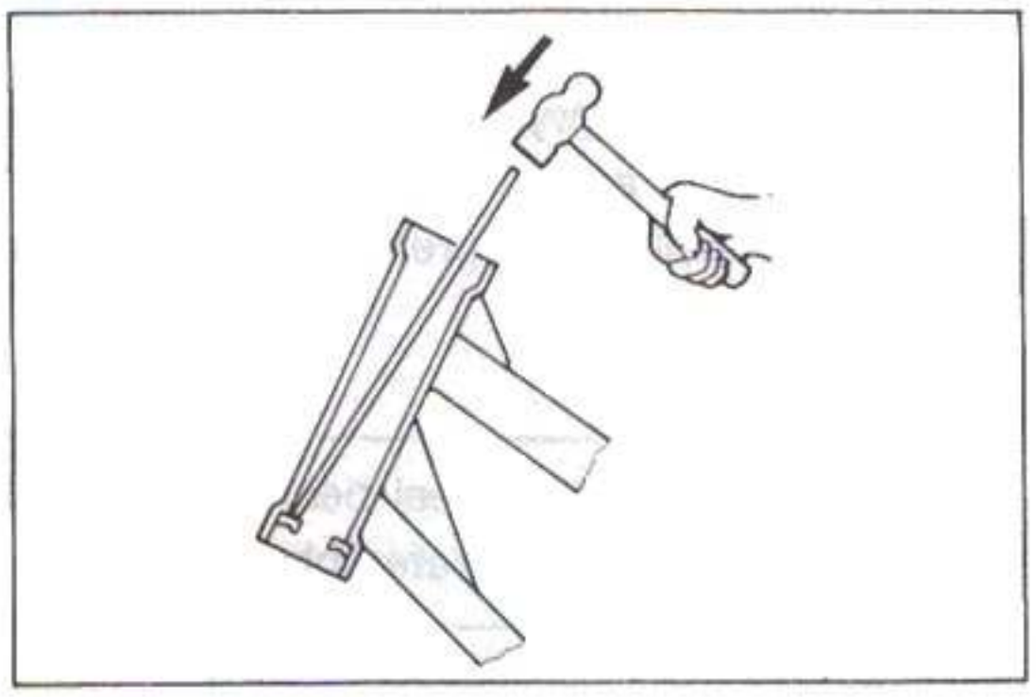
1. Ring nut wrench

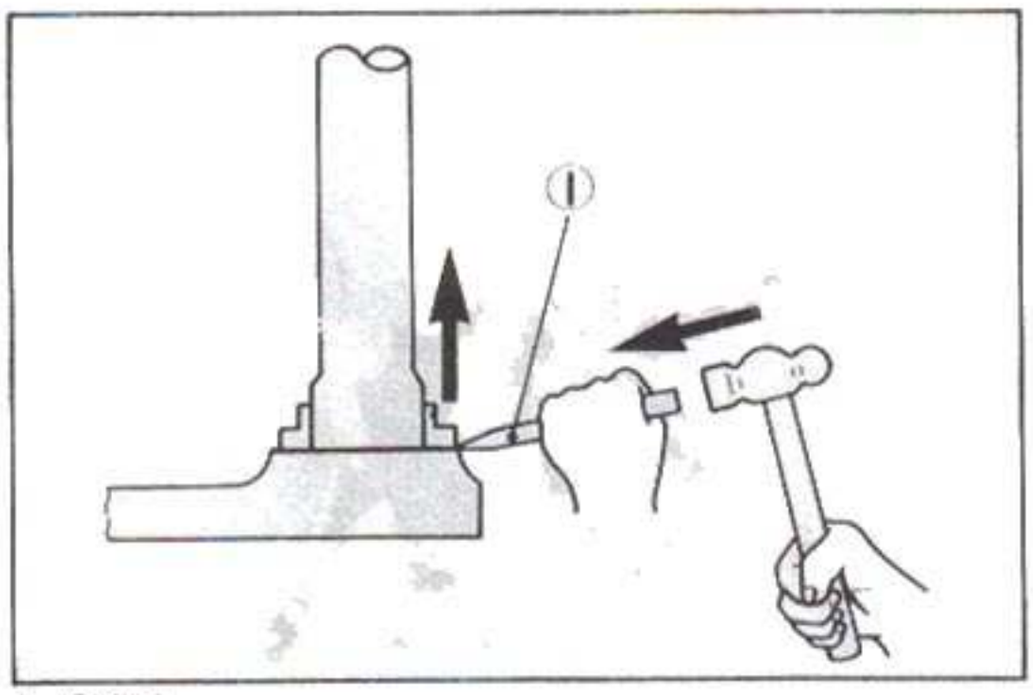
12. While supporting the under bracket, remove the bearing cover and bearing race.
13. Remove the under bracket and bearing balls.

Ball quantity/size: 19/1/4 in (upper and lower)



14. Remove the races from the head pipe using long rod and hammer as shown. Work the race out gradually by tapping lightly around its backside diameter.
15. Remove the bearing race from the lower bracket by tapping around its backside diameter with a chisel and hammer.
16. Remove the dust seal.





1. Chisel

Inspection

1. Examine all the balls for pits or partial flatness. If any one is found defective, the entire set (including both races) should be replaced. If either race is pitted, shows rust spots, or is damaged in any way, replace both races and balls as a set.
2. Examine the dust seal and replace if damaged.

Installation

1. If the pressed-in races have been removed, replace with new races
2. Grease the lower ball race of the bottom assembly and arrange the balls around it. Then apply more grease.



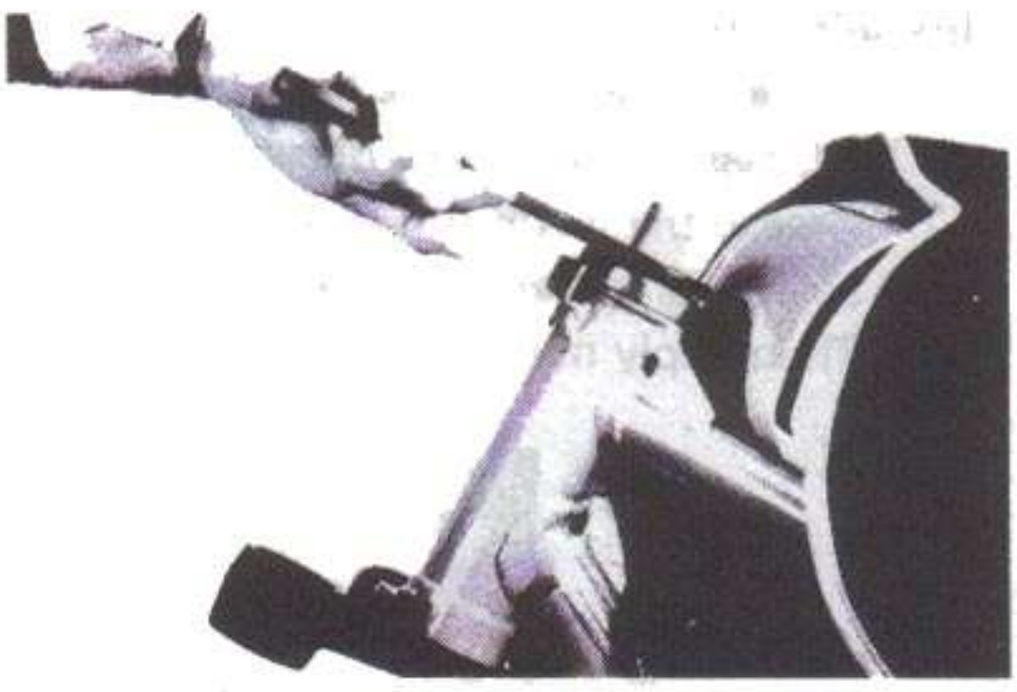
3. Grease the lower ball race in the head pipe and arrange the balls around it. Then apply more grease and set the top race into place.

NOTE:

Use medium-weight wheel bearing grease of quality manufacturer, preferably waterproof.



4. Carefully slip the under bracket stem up into the steering head. Hold the top bearing assembly in place so the stem does not knock any balls out of position.
5. Set the upper bearing cover on and install the ring nut. Tighten the ring nut so all free play is taken up, but so the bracket can still pivot freely from lock to lock. Recheck for free play after the entire fork unit has been installed.

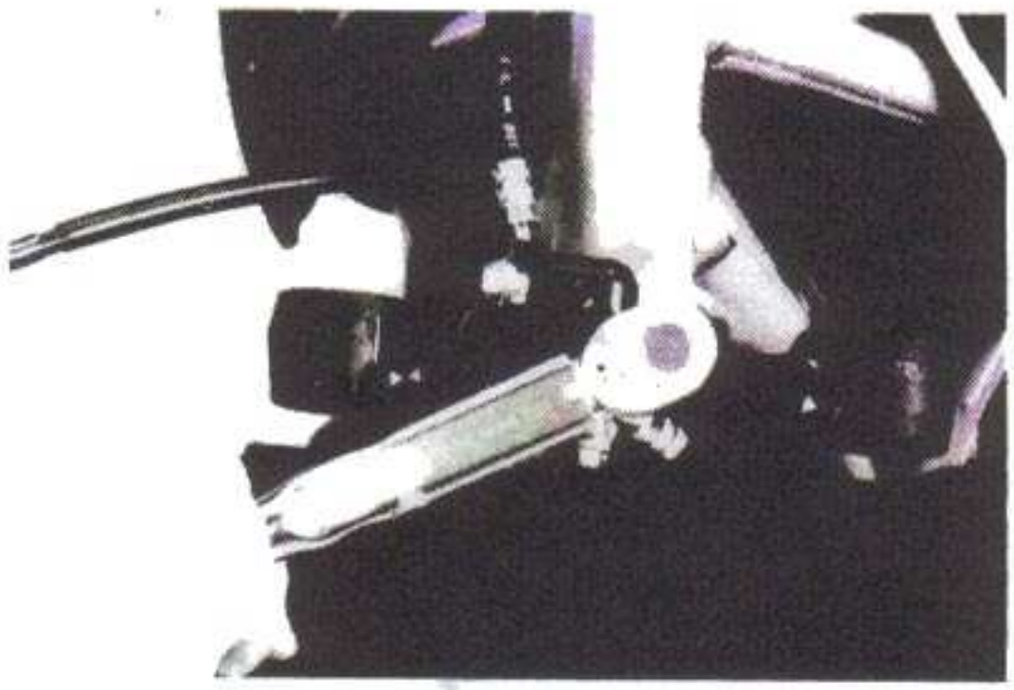


6. Install the steering crown. Tighten steering stem bolt. Torque the bolt to specification.

TIGHTENING TORQUE:
85 Nm (8.5 m · kg, 61 ft · lb)

7. Install the brake hose joint.

TIGHTENING TORQUE:
10 Nm (1.0 m · kg, 7.2 ft · lb)



8. Install the meter and headlight assembly.
9. Install the front fork assembly.

TIGHTENING TORQUE:
Pinch bolt torque:
Steering crown
20 Nm (2.0 m · kg, 14 ft · lb)
Under bracket
20 Nm (2.0 m · kg, 14 ft · lb)

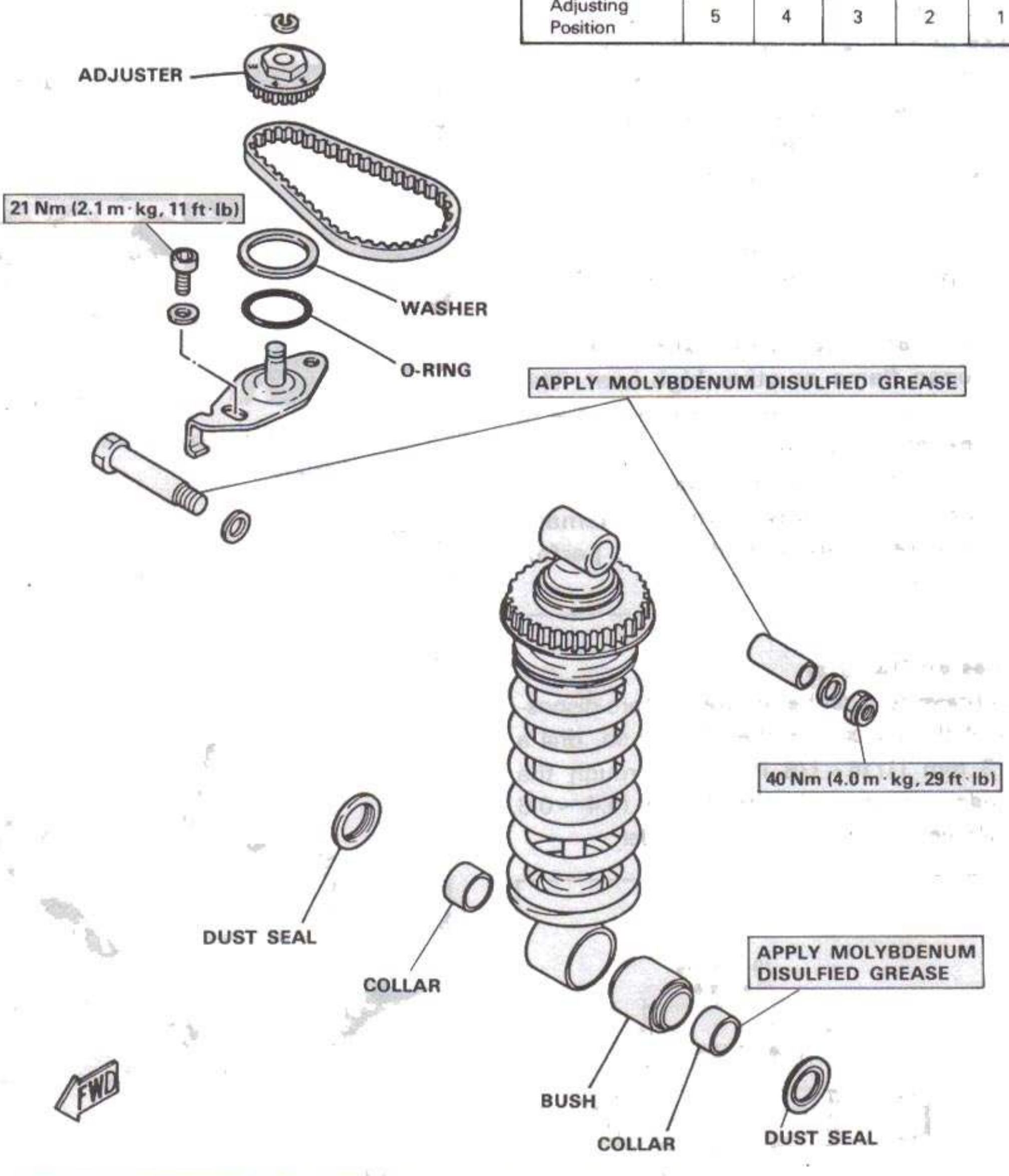
NOTE:

Make certain that the tops of the fork tubes are adjusted to the same level. If necessary, loosen the upper and under bracket pinch bolts and adjust.

10. Reconnect all electrical wiring and check operation.
11. Install the headlight and check operation.
12. Install the front wheel.
13. Reconnect the speedometer and tachometer cables.
14. Reconnect the clutch and throttle cables and check operation and adjustment.

MONOCROSS SUSPENSION

	Hard			STD	Soft
Adjusting Position	5	4	3	2	1



	Front fork	Rear shock absorber	Loading condition			
	Air pressure	Spring seat	Solo rider	With passenger	With accessories and equipment	With accessories, equipment, and passenger
1.	39.2 kPa (0.4 kg/cm², 5.7 psi)	1 or 2	○			
2.	58.8 kPa (0.6 kg/cm², 8.5 psi)	3		○		
3.	78.5 kPa (0.8 kg/cm², 11.4 psi)	4			○	
4.	98.1 kPa (1.0 kg/cm², 14.2 psi)	5				○

Handling Notes

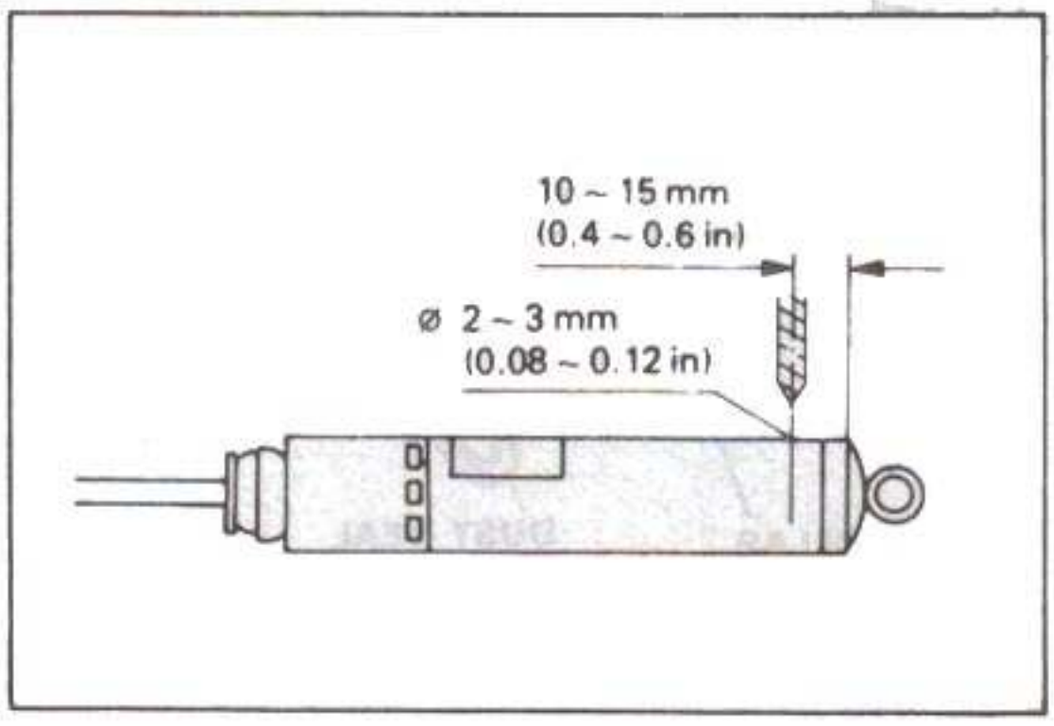
WARNING:

This shock absorber contains highly compressed nitrogen gas.
Read and understand the following information before handling the shock absorber. The manufacturer cannot be held responsible for property damage or personal injury that may result from improper handling.

1. **Do not tamper with or attempt to open the cylinder assembly. Injury may result.**
2. **Do not subject shock absorber to an open flame or other high heat. This may cause the unit to explode due to excessive gas pressure.**
3. **Do not deform or damage the cylinder in any way. Cylinder damage will result in poor damping performance.**

Notes on Disposal

Gas pressure must be released before disposing of the shock absorber. To do so, drill a 2~3 mm (1/16~1/8 in) hole through the cylinder wall at a point 10~15 mm (0.4 ~0.6 in) above the bottom of the cylinder.

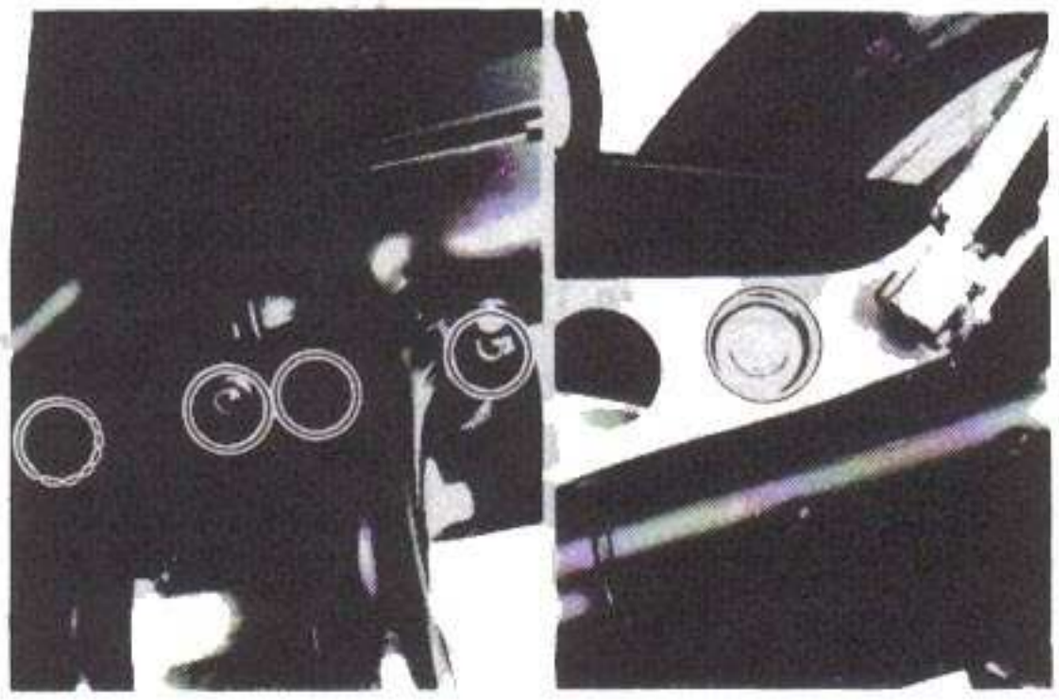


CAUTION:

Always wear the proper eye protection to prevent eye damage from escaping gas and/or metal chips.

Removal

1. Place the motorcycle on the centerstand.
2. Remove the seat and both side covers.
3. Disconnect the catalyzer thermo- sensor leads and exhaust mufflers.

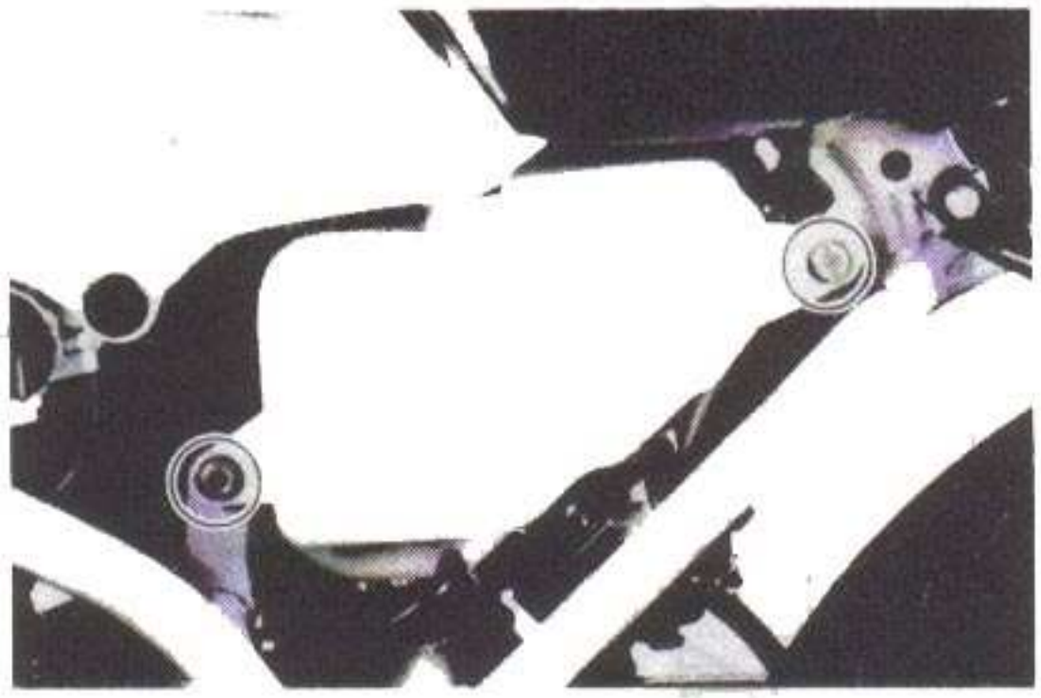


4. Disconnect the battery leads and remove the battery.

NOTE:

Disconnect the negative lead first.

5. Remove the engine oil tank from the frame.



6. Adjust the preload position at softest position "1".

NOTE:

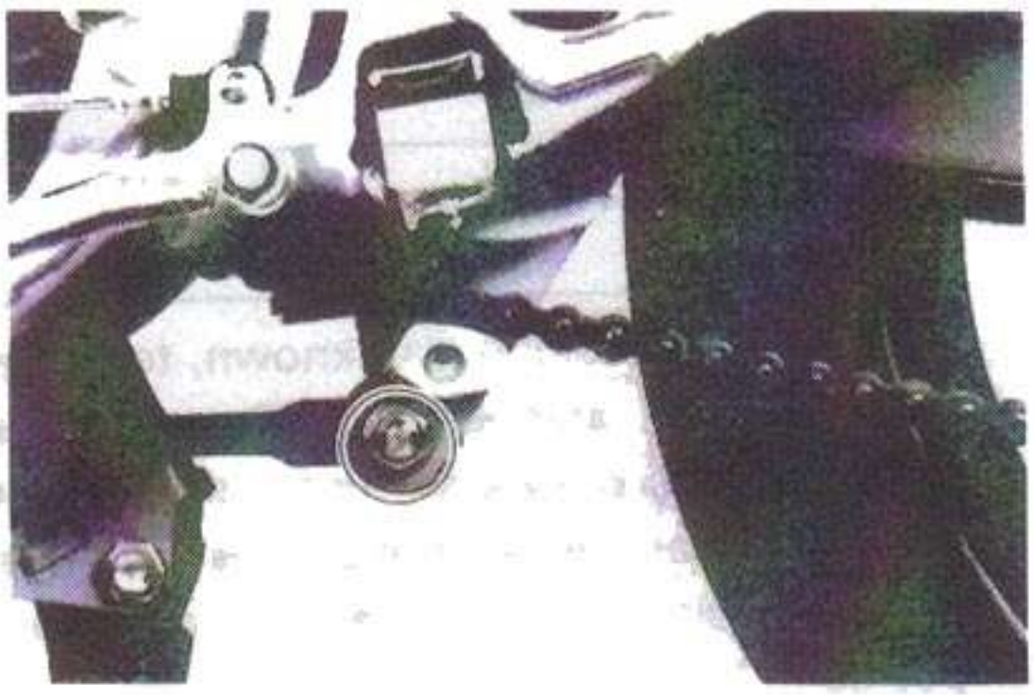
When adjusting, use the specialing spanner and extention bar which are included in the owner's tool kit.



7. Loosen the belt tensioner so that the belt is free from the adjuster.



8. Remove the rear shock absorber lower pivot shaft.

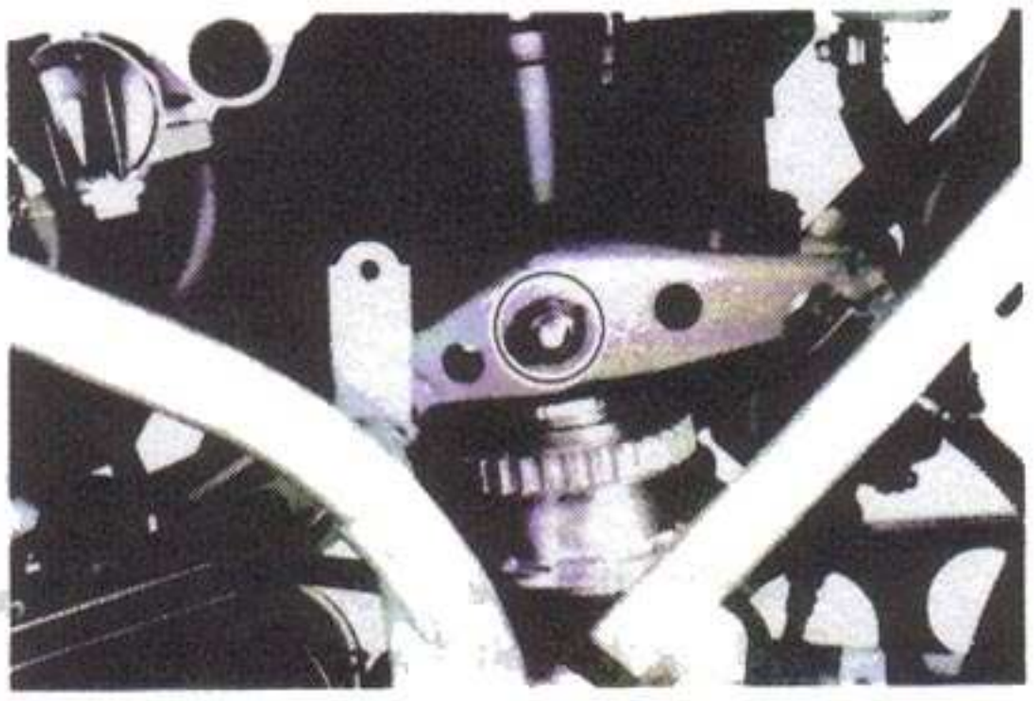


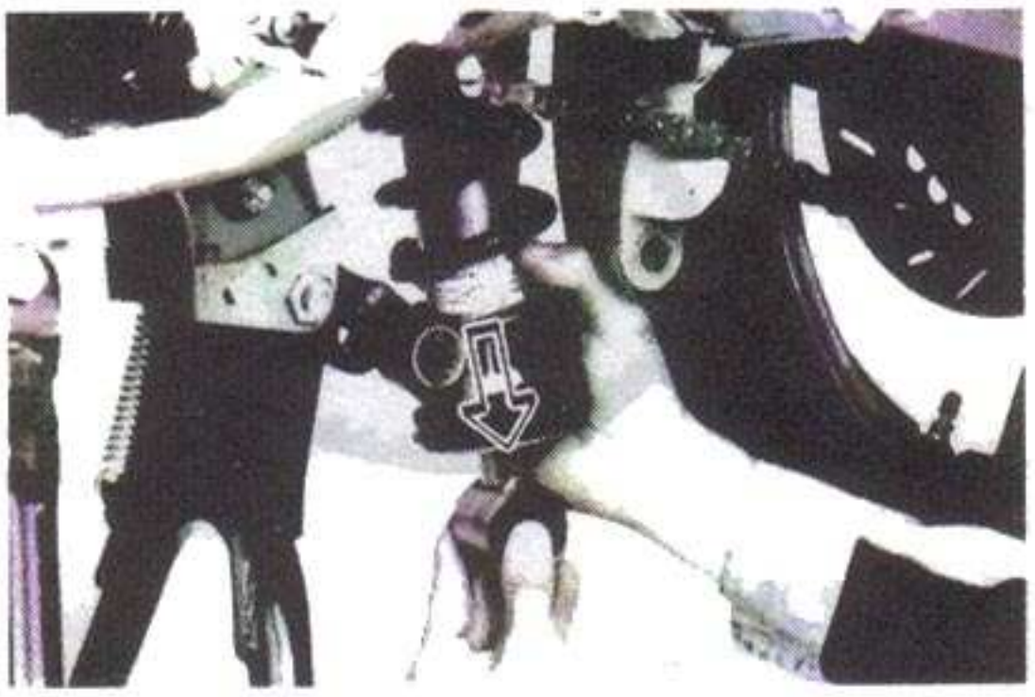
9. Remove the collar.



1. Collar

10. Remove the rear shock absorber upper pivot shaft and remove the rear shock absorber assembly.





Inspection

1. Visually inspect the shock absorber for oil leaks. If you notice any signs of an oil leaks, replace the entire shock absorber.



2. Inspect the lower pivot shaft collar for wear or damage. If the collar is worn or damaged, replace it.

[redacted]

TIGHTENING TORQUE:
Upper:
40 Nm (4.0 m · kg, 29 ft · lb)
Lower:
65 Nm (6.5 m · kg, 47 ft · lb)

* Torque the muffler securing bolts.

TIGHTENING TORQUE:
Exhaust pipe:
18 Nm (1.8 m · kg, 13 ft · lb)
Muffler bracket:
64 Nm (6.4 m · kg, 46 ft · lb)

3. Inspect the belt for crack or wear. Replace the belt if worn or cracked.



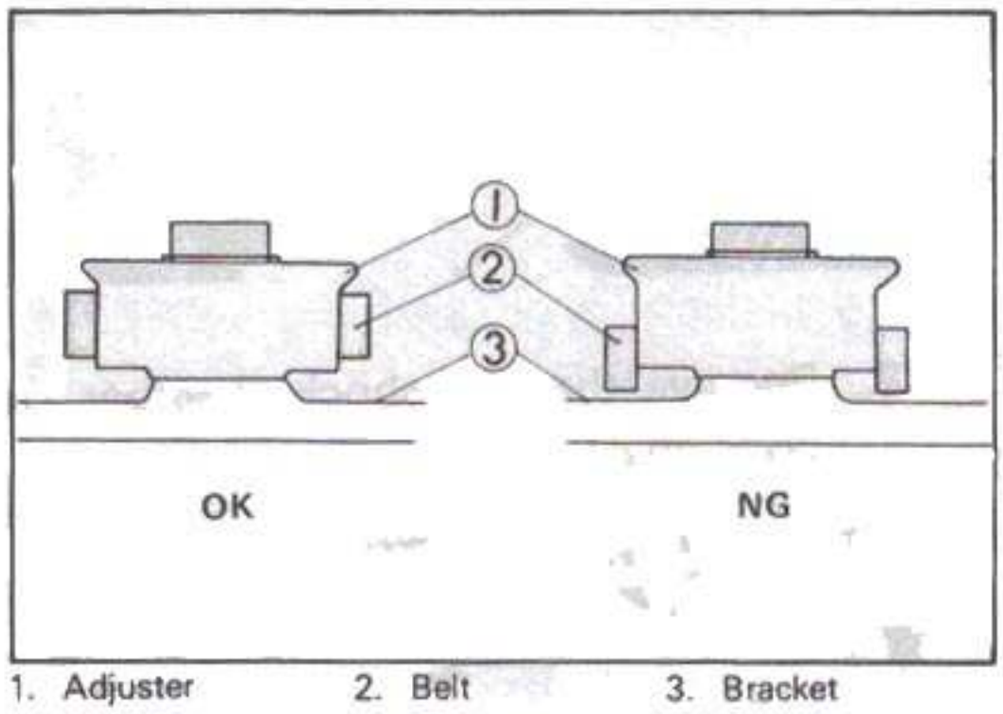
Installation

1. To install the shock absorber in the motorcycle, reverse the removal procedure. Note the following points.
   * Apply molybdenum disulfied grease to the pivot shafts, collars, and dust seals.



* Torque the pivot shaft to specification.

2. Make sure the adjuster is at the "1" position as where the belt was removed and the belt is at the position as illustrated.

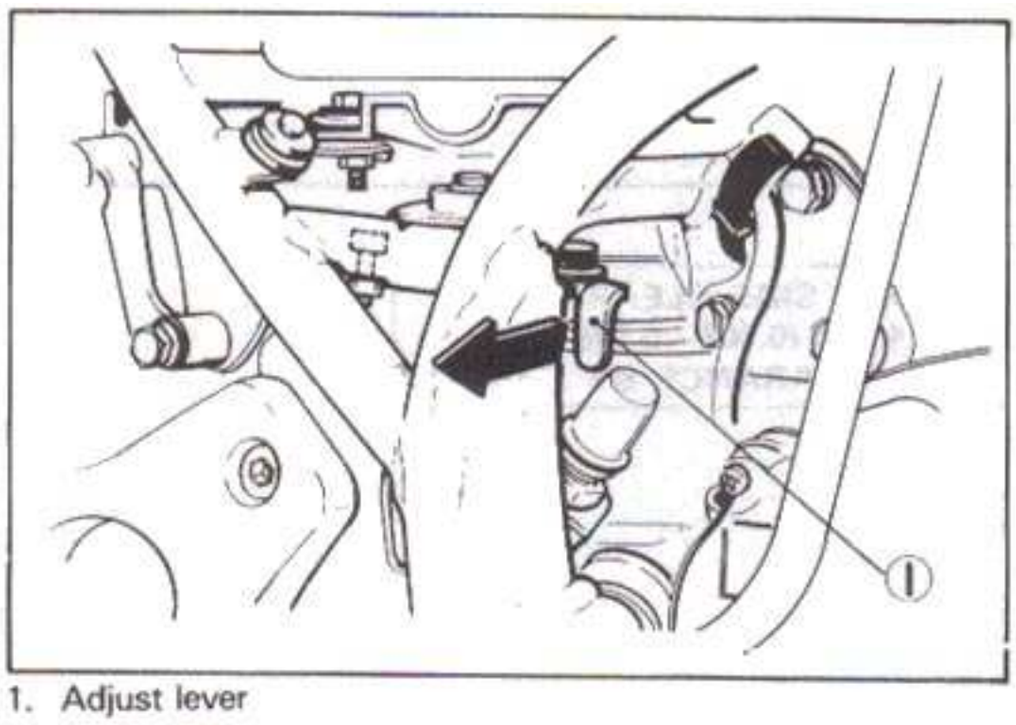


1. Adjuster 2. Belt 3. Bracket

NOTE:

If the preload position is unknown, temporarily set the belt and adjuster. Rotate the adjuster counterclockwise until the adjuster stops so that the suspension is set at the softest position "1". Reset the adjuster to position "1".

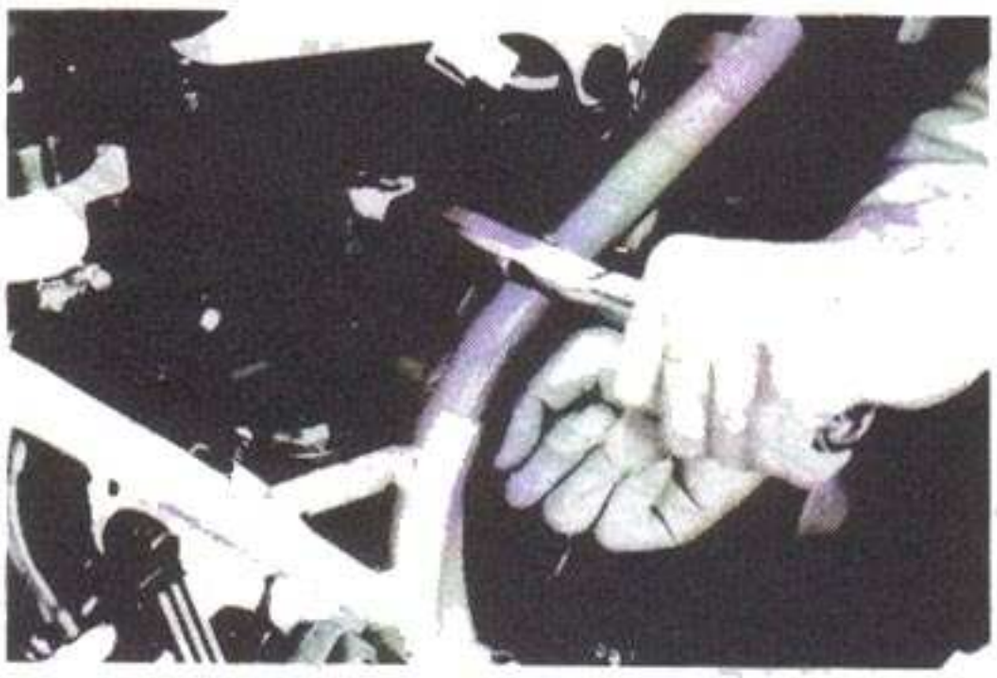
3. Tighten the adjuster securing screw while pulling the adjust lever with your finger (approximately 10 kg (22.05 lb)).



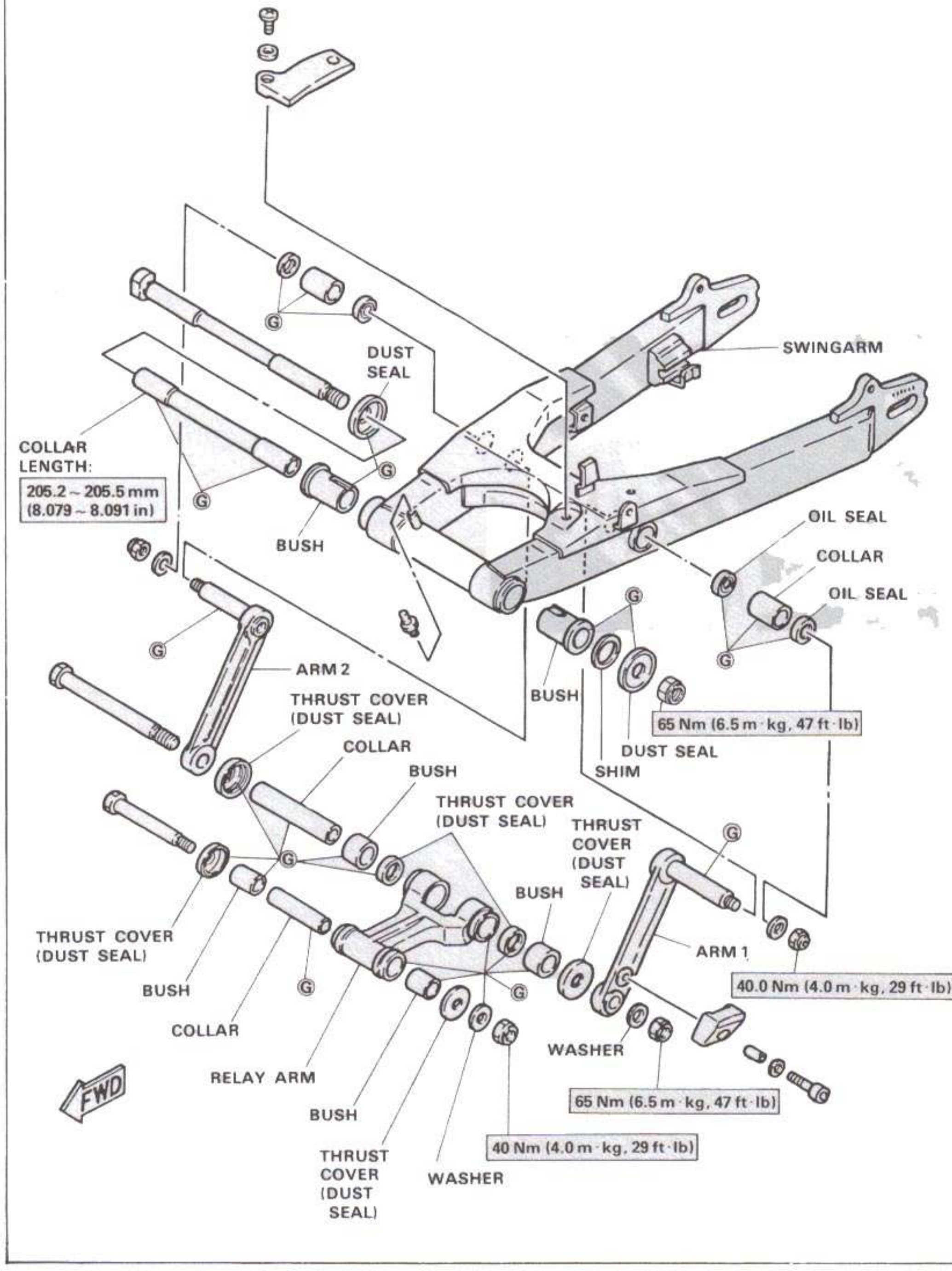
1. Adjust lever

4. Tighten the adjuster securing bolts to specification.

TIGHTENING TORQUE:
21 Nm (2.1 m·kg, 15 ft·lb)

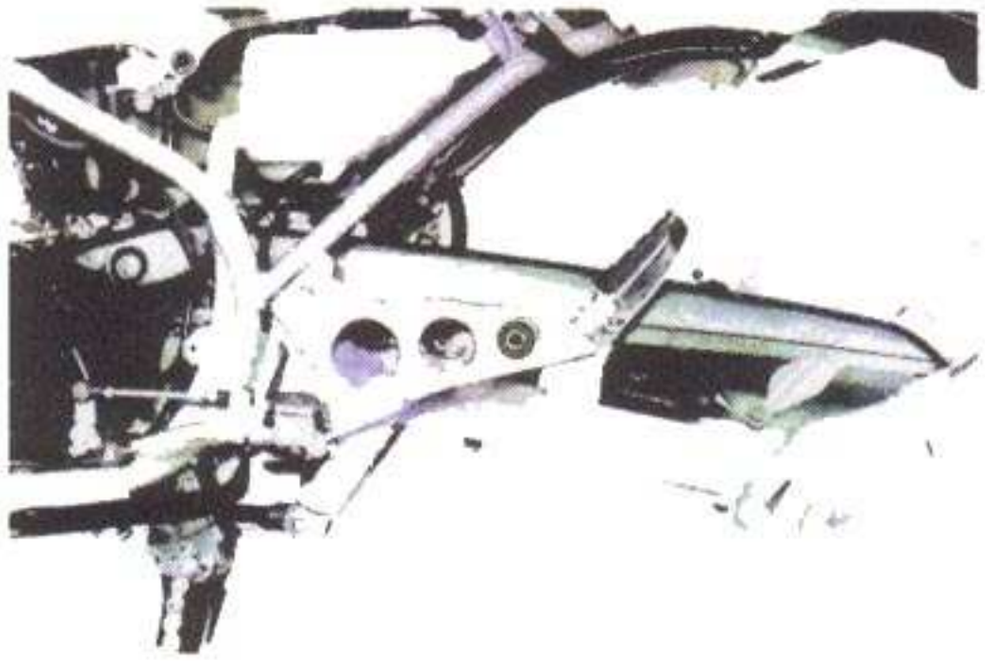


SWINGARM


Ⓖ = APPLY MOLYBENUM DISULFIED GREASE
SWINGARM SIDE CLEARANCE: 0.2 – 0.4 mm (0.008 – 0.016 in) ADJUST CLEARANCE BY SHIM (S)
DUST SEAL
SWINGARM
COLLAR LENGTH: 205.2 – 205.5 mm (8.079 – 8.091 in)
OIL SEAL
BUSH
COLLAR
OIL SEAL
ARM 2
BUSH
65 Nm (6.5 m · kg, 47 ft · lb)
THRUST COVER (DUST SEAL)
COLLAR
DUST SEAL
SHIM
BUSH
THRUST COVER (DUST SEAL)
THRUST COVER (DUST SEAL)
THRUST COVER (DUST SEAL)
BUSH
ARM 1
BUSH
40.0 Nm (4.0 m · kg, 29 ft · lb)
COLLAR
RELAY ARM
WASHER
65 Nm (6.5 m · kg, 47 ft · lb)
FWD
BUSH
40 Nm (4.0 m · kg, 29 ft · lb)
THRUST COVER (DUST SEAL)
WASHER

Inspection

1. With the rear wheel and shock absorber removed, grasp the ends of the swingarm and move from right to left to check for free play.

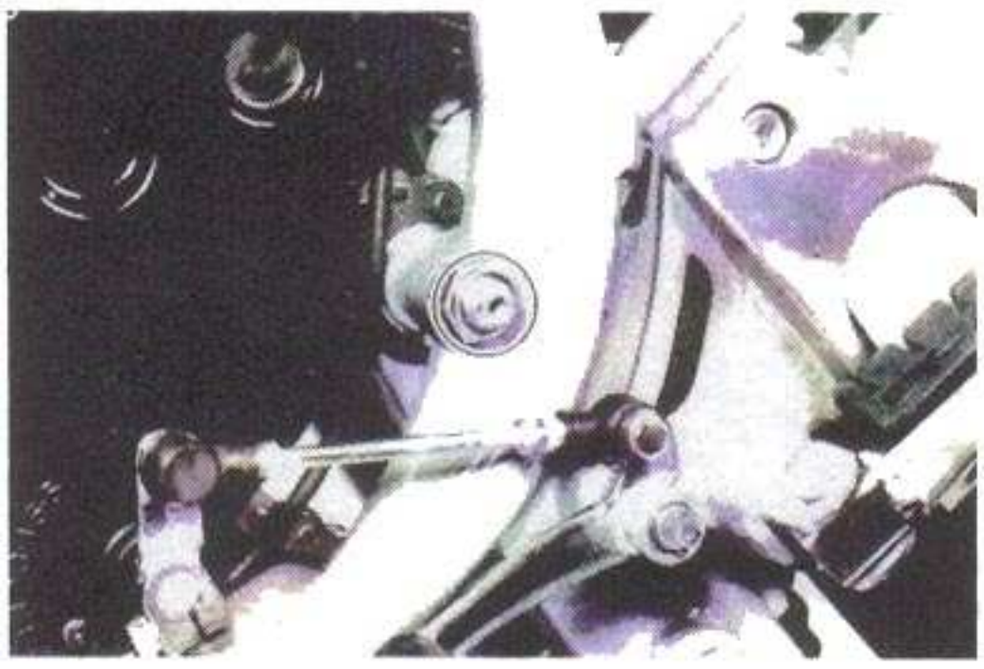


Swingarm free play: 1 mm (0.04 in)

2. If the free play is excessive, remove the swingarm and inspect the bushes or side clearance. If damaged or worn, replace it.
3. After disassembly, inspect the thrust covers, bushes, oil seals and collars. If damaged or worn, replace it.

Removal

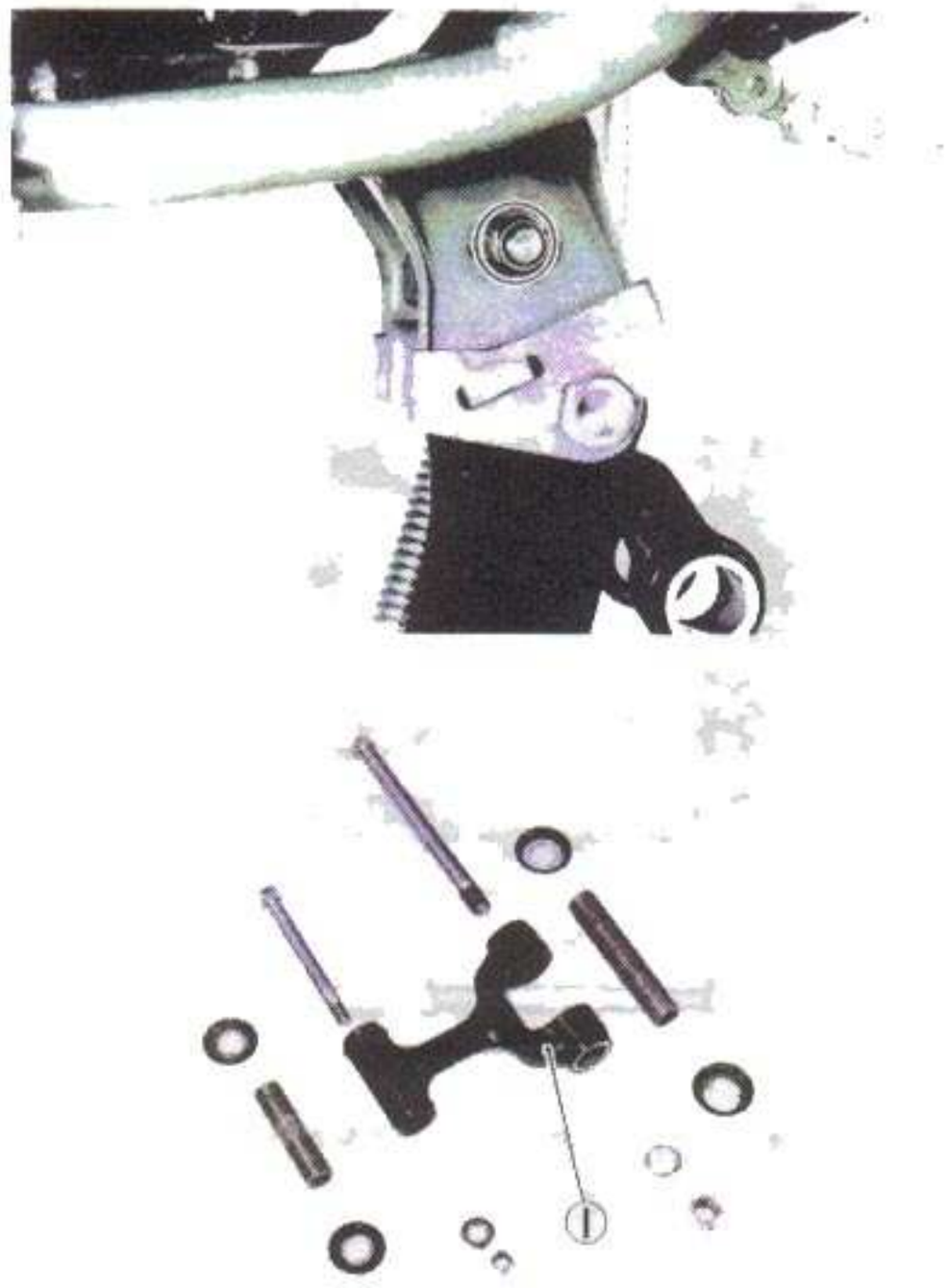
1. Remove the pivot shaft nut and tap out the pivot shaft with a long aluminum or brass rod.



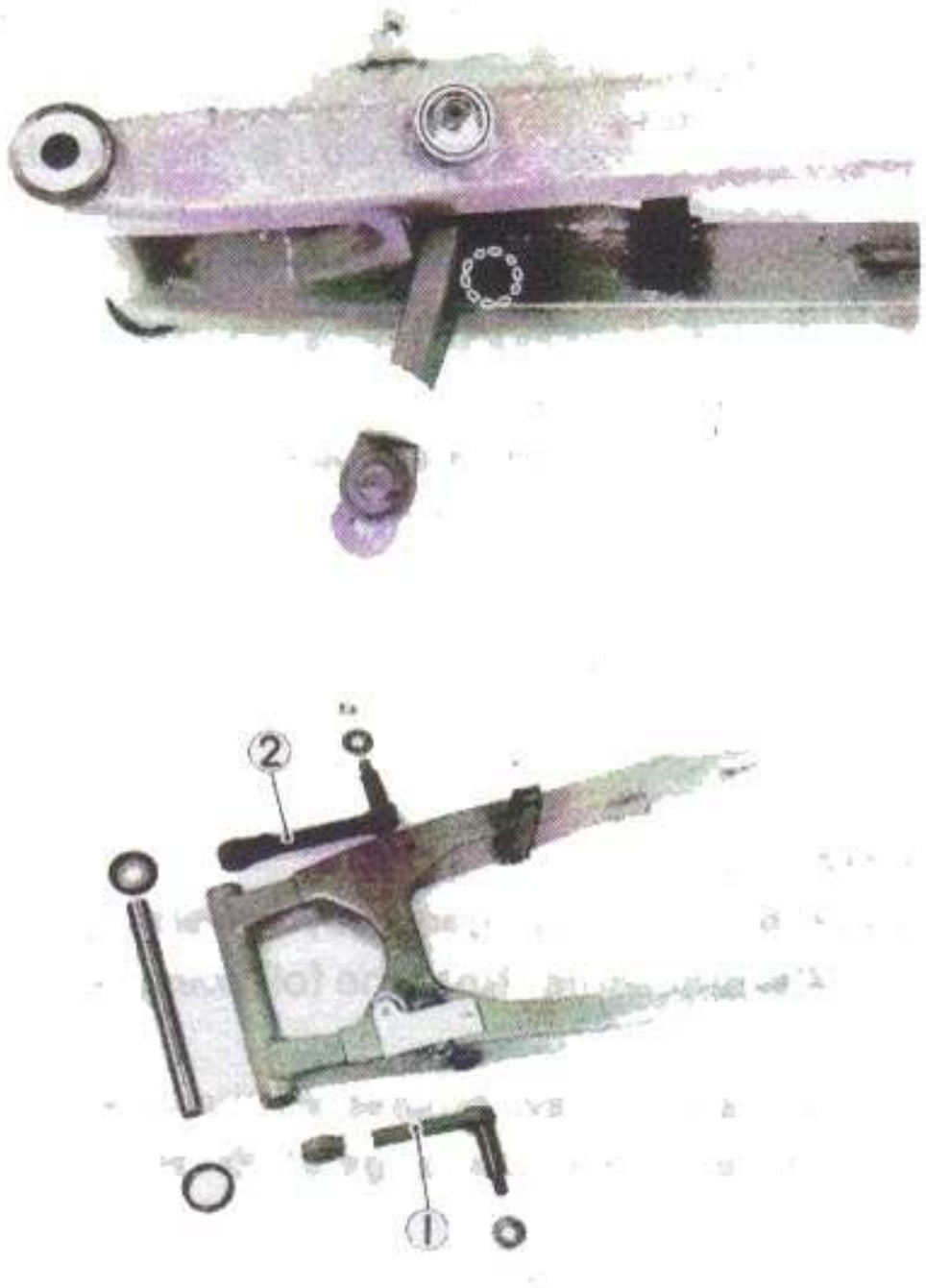
NOTE:

Carefully remove the arm while noting the location of spacing washers and shims. They must be reinstalled in the same positions.

2. Remove the arm 1, 2 and relay arm.
3. Tap out the old bushes from each side of the pivot using a long rod.



1. Relay arm

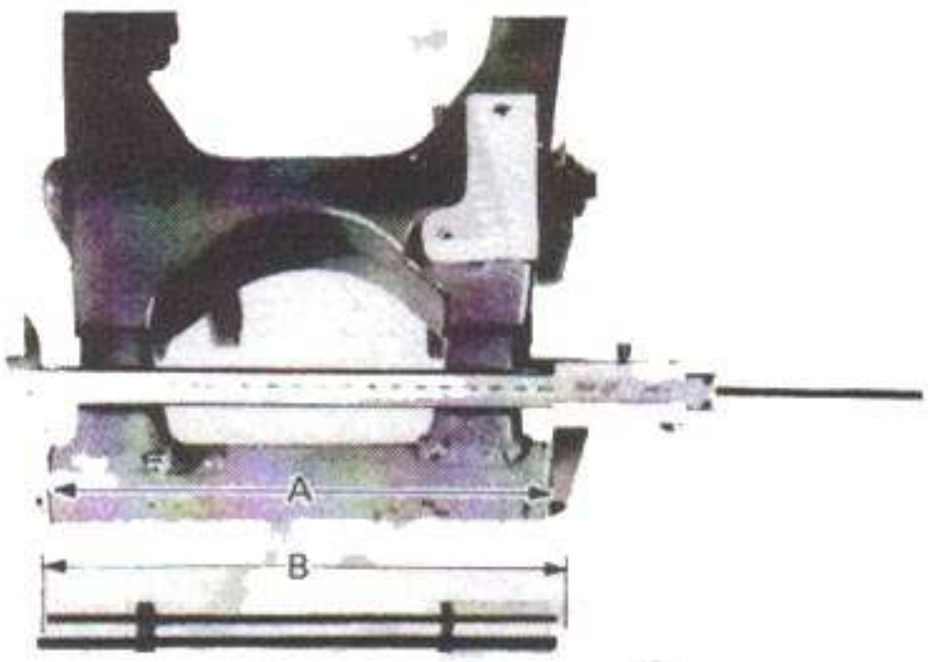


1. Arm 1 2. Arm 2

Slide Clearance

1. Measure the length A and B as shown.
   A = Swingarm length
   B = Collar length

Collar standard length:
205.2 - 205.5 mm (8.0787 - 8.0905 in)



2. Calculate the side clearance C by using the formula given below.
   C = B-A

Swingarm side clearance:
0.2 - 0.4 mm (0.0079 - 0.0157 in)

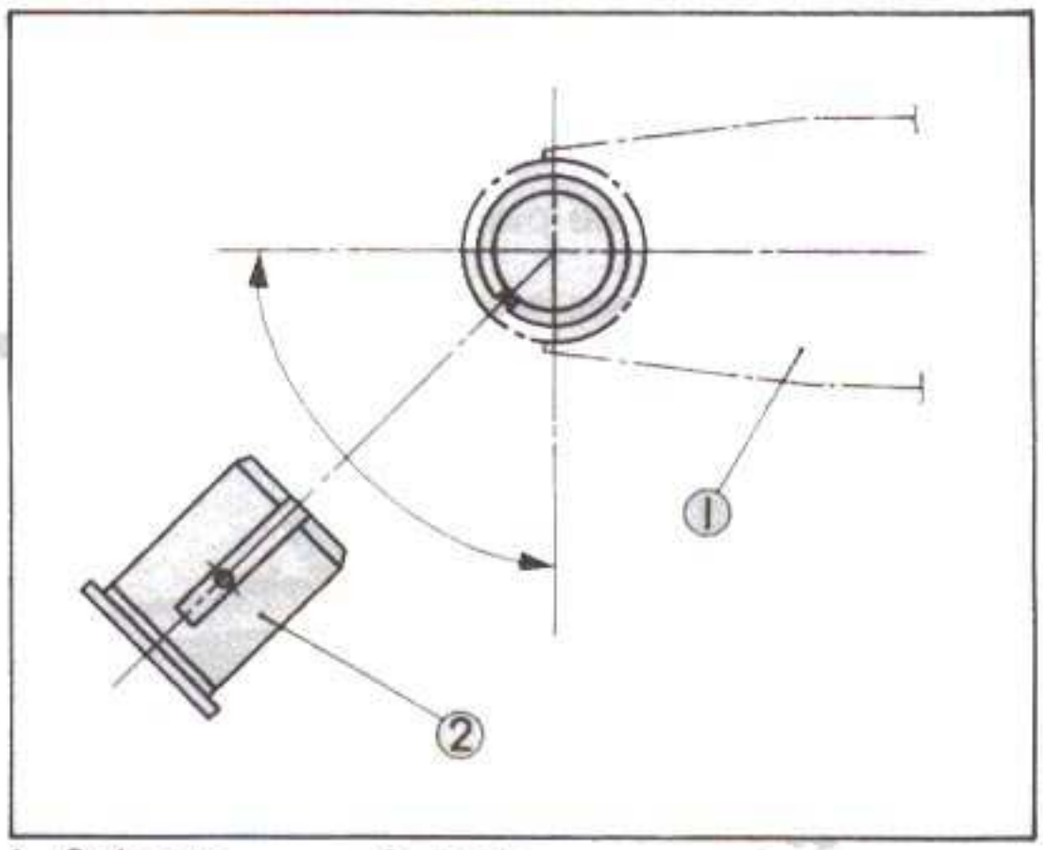
3. If the side clearance is not within specification, adjust it by means of shims.
   If even numbers of shims are used, install it on both the sides same numbers. Odd numbers of shims are used, install on the left side one more than the right side.

Shim thickness: 0.3 mm (0.012 in)

Assembly

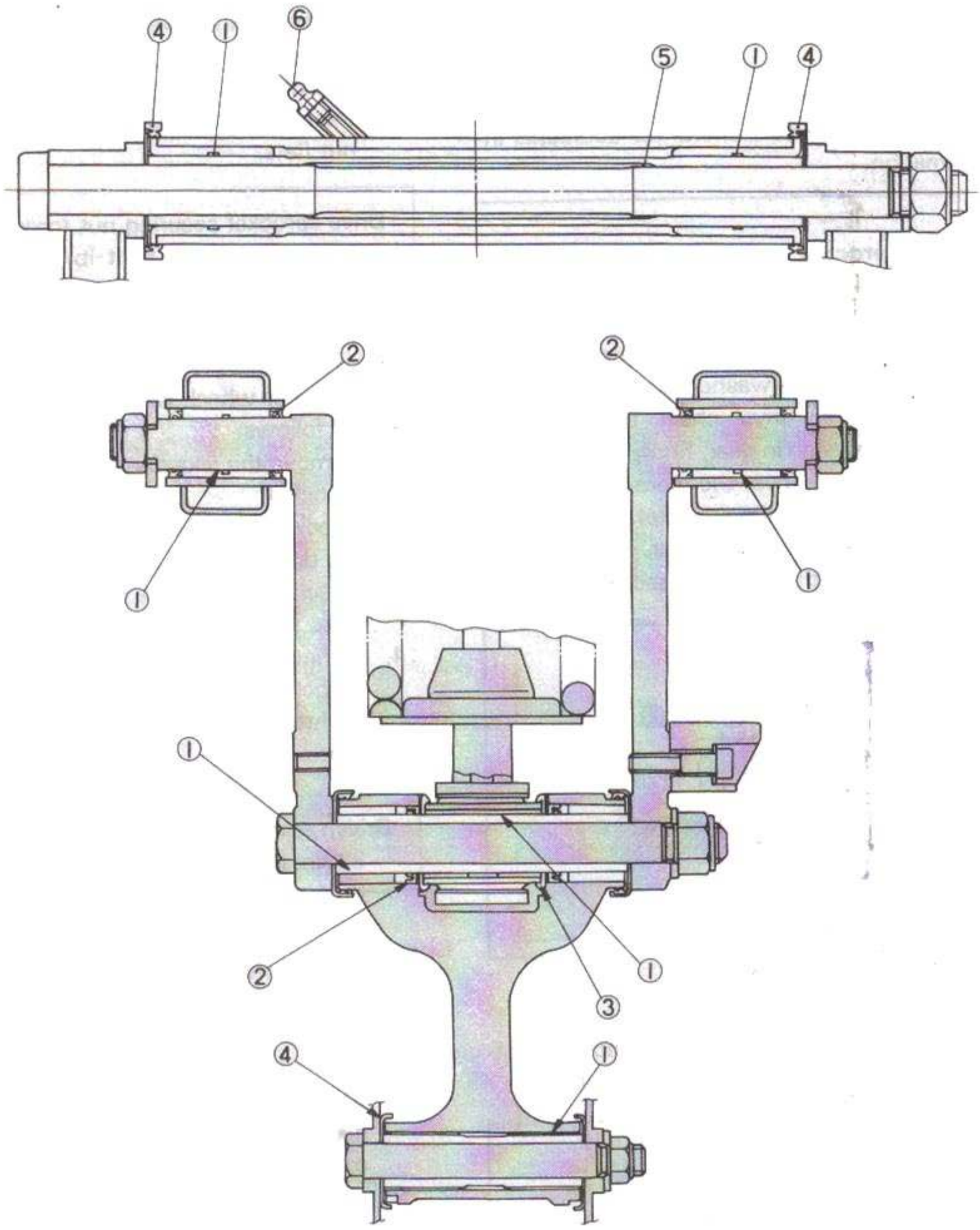
Assemble the swingarm by reversing the removal procedure. Note the following points.

* Install the new bushes so the groove in the bush is in the range of 90° as shown.



1. Swingarm 2. Bush

2. Apply a grease to the swingarm, arm 1, 2 and relay arm as shown.



1. Bush:
   Coat the all inside surface of the bushes with a grease.
2. Oil seal:
   Fill the lip portion of the oil seals with a grease.
3. Dust cover:
   Coat the inside and outside surface of the dust seals with a grease.
4. Thrust cover:
   Fill the inside of the thrust cover with a grease.
5. Pivot shaft:
   Coat the outside surface of the shaft with a grease.
6. Grease nipple:
   Using a grease gun lubricate the swingarm pivot point.

DRIVE CHAIN AND SPROCKETS

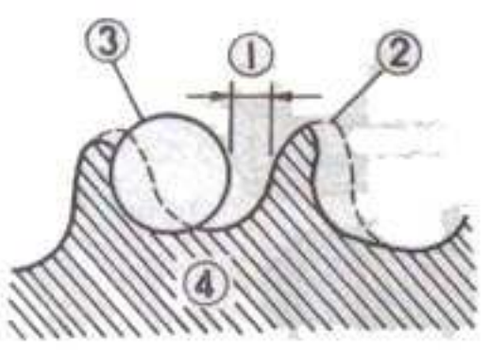
NOTE:

Please refer to the Maintenance intervals and Lubrication intervals charts for additional information.

Drive Sprocket

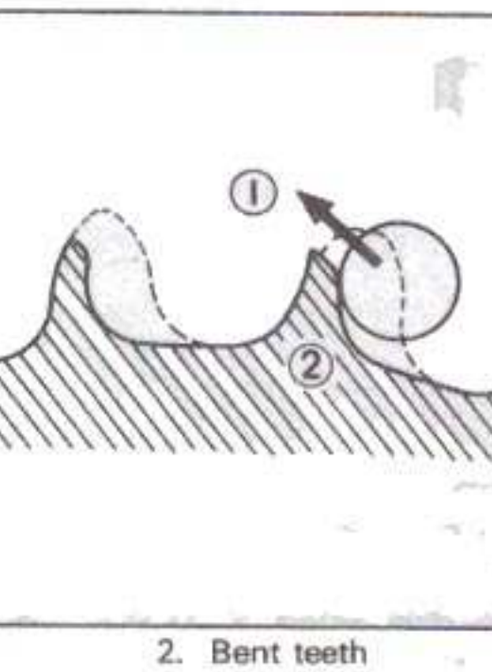
With the left crankcase cover removed, proceed as follows:

1. Using a blunt chisel, flatten the drive sprocket lock washer tab.
2. With the drive chain in place and transmission in gear, firmly apply the rear brake. Remove the sprocket securing nut. Remove the sprocket.
3. Check the sprocket wear. Replace if the tooth width has decreased as shown.



1. 1/4 tooth
2. Correct
3. Roller
4. Sprocket

4. Replace if the tooth wear shows a pattern resembling that in the illustration.



1. Slip off
2. Bent teeth

5. During reassembly, make sure the lock washer splines are properly engaged on the drive shaft splines. Tighten the securing nut to specified torque. Bend the lock washer tab against the securing nut flats.

Drive sprocket securing nut torque:
80 Nm (8.0 m · kg, 58 ft · lb)

Driven Sprocket

With the rear wheel assembly removed, proceed as follows:

1. Remove the securing bolts. Remove the sprocket.
2. Check sprocket wear per procedures for the drive sprocket.
3. Check the sprocket to see that it runs true. If bent, replace.
4. During reassembly, make sure that the sprocket and sprocket seat are clean. Tighten the securing bolts in a crisscross pattern.

Driven sprocket securing bolt torque:
32 Nm (3.2 m · kg, 23 ft · lb)

Chain Inspection

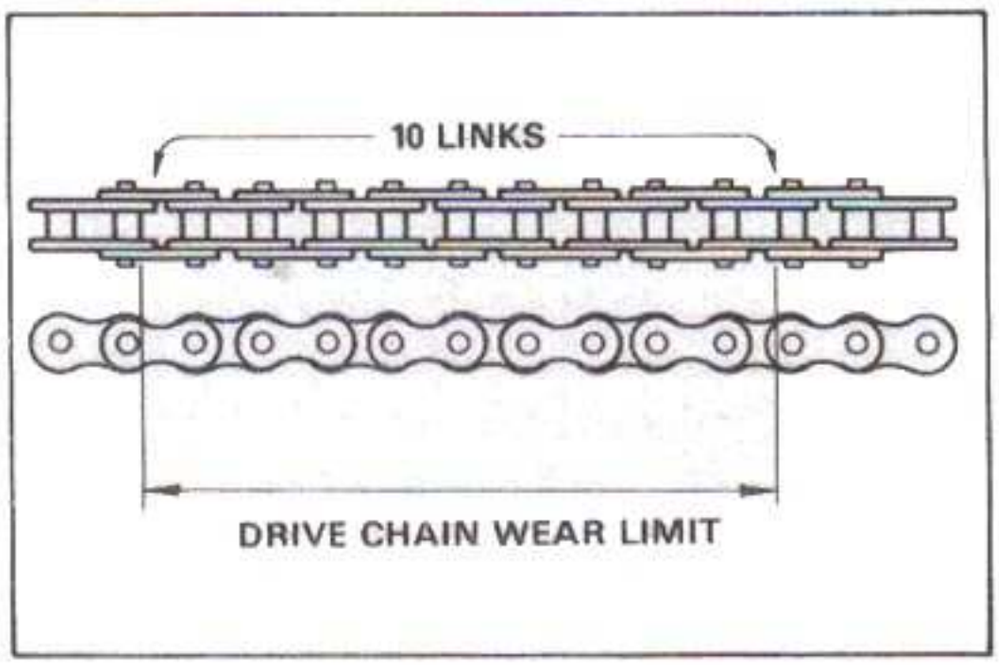
Inspect the sprockets and drive chain conditions in case of abnormal noise or vibration even after adjusting the drive chain slack.

1. Check the O-ring in the drive chain side plates for damage or missing. If damaged or any is missing, replace with a new chain.
2. Check the rollers and side plates for damage and wear. If damaged or worn, replace with a new chain.
3. If the chain is in good condition, check the drive and driven sprockets teeth for wear and damage.

CAUTION:

If the sprockets are in good condition, then the internal damage is considered on the drive chain, replace it with a new one.

4. Measure the drive chain length (10 links) as shown. If the chain length is out of specification, replace it.



Drive Chain Wear Limit (10 Links):
150.08 mm (5.909 in)

Drive Chain Lubrication

The chain consists of many parts which work against each other. If the chain is not maintained properly, it will wear out rapidly, therefore, especially necessary when riding in dusty conditions.

This motorcycle has a drive chain with small rubber O-rings between the chain plates. Steam cleaning, high-pressure washes, and certain solvent can damage these O-rings. Use only kerosene to clean the drive chain. Wipe it dry, and thoroughly lubricate it with SAE30 ~ 50W motor oil. Do not use any other lubricants on the drive chain. They may contain solvents that could damage the O-rings.

CABLES AND FITTINGS

Cable Maintenance

WARNING:

- **Cable routing is very important, for details of the cable routing, see the CABLE ROUTING diagrams at the end of the manual. Improperly routed, assembled or adjusted cables may render the motorcycle unsafe for operation.**
- **Damage to the outer housing of the various cables may cause corrosion and interfere with the movement of the cable. An unsafe condition may result so replace such cables as soon as possible.**

NOTE:

See the Maintenance and Lubrication intervals charts for the additional information. The cable maintenance is primarily concerned with preventing deterioration through the rust and weathering and providing for the proper lubrication to allow the cable to move freely within its housing. Cable removal is straightforward and uncomplicated. Removal will not be discussed within this section. For details, see the individual maintenance section for which the cable is an integral part.

1. Remove the cable.
2. Check for free movement of the cable within its housing. If movement is obstructed, check for fraying or kinking of the cable strands. If damage is evident, replace the cable assembly.
3. To lubricate cable, hold in vertical position. Apply a lubricant to uppermost end of the cable. Leave in vertical position until the lubricant appears at bottom. Allow excess to drain and re-install.

Recommended lubricant:
Yamaha Chain and Cable Lube or
SAE 10W30 motor oil

Throttle Maintenance

1. Remove the screws from throttle housing assembly and separate the two halves of the housing.
2. Disconnect the cable end from the throttle grip assembly and remove the grip assembly.
3. Wash all parts in a mild solvent and check the contact surfaces for burrs or other damage. (Also clean and inspect the right-hand end of the handlebar.)
4. Lubricate the contact surfaces with light coat of a lithium soap base grease and reassemble.

NOTE:

Tighten the housing screws evenly to maintain an even gap between the two halves.

5. Check for smooth throttle operation and quick spring return when released and make certain that the housing does not rotate on the handlebar.

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ELECTRICAL

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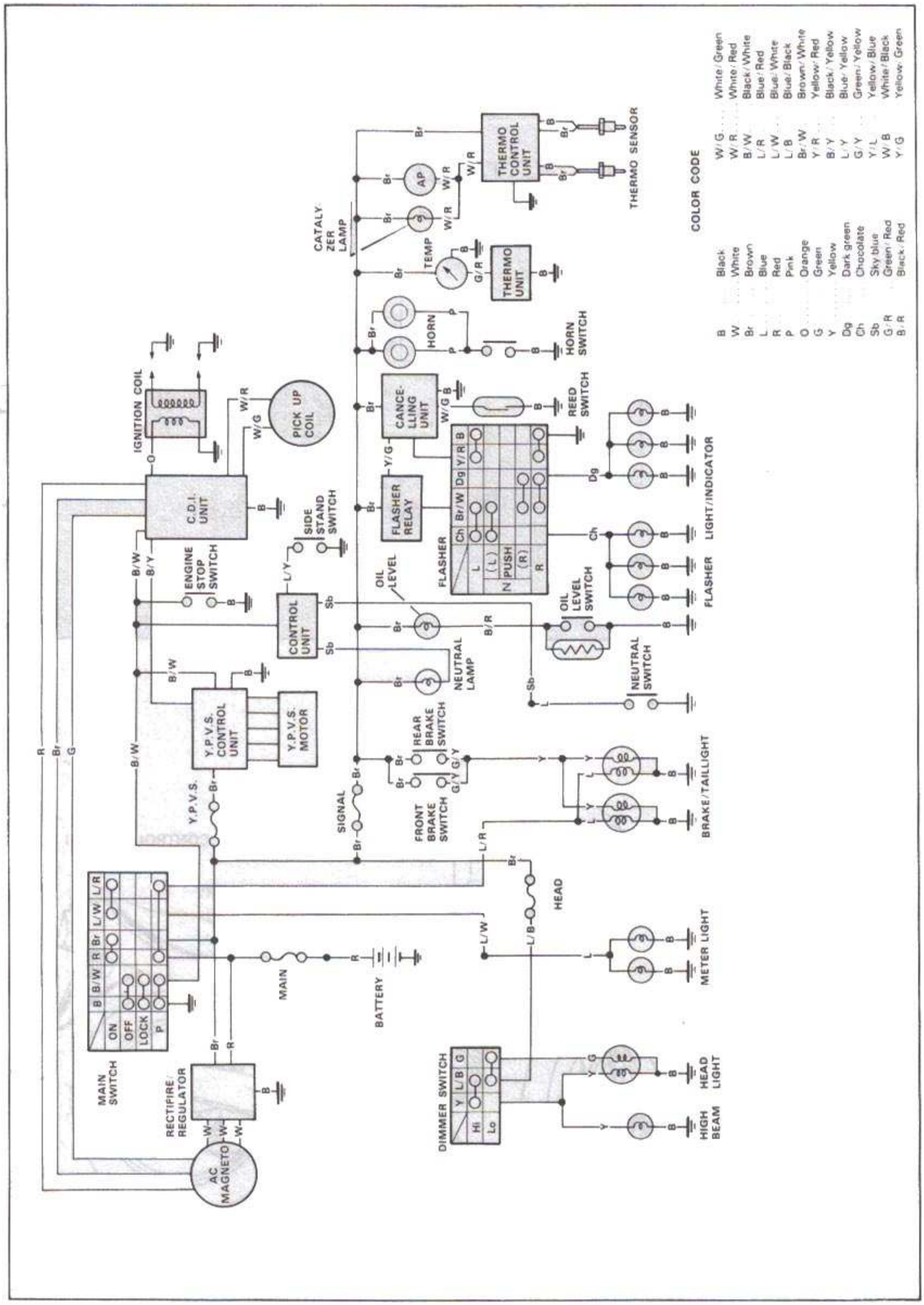
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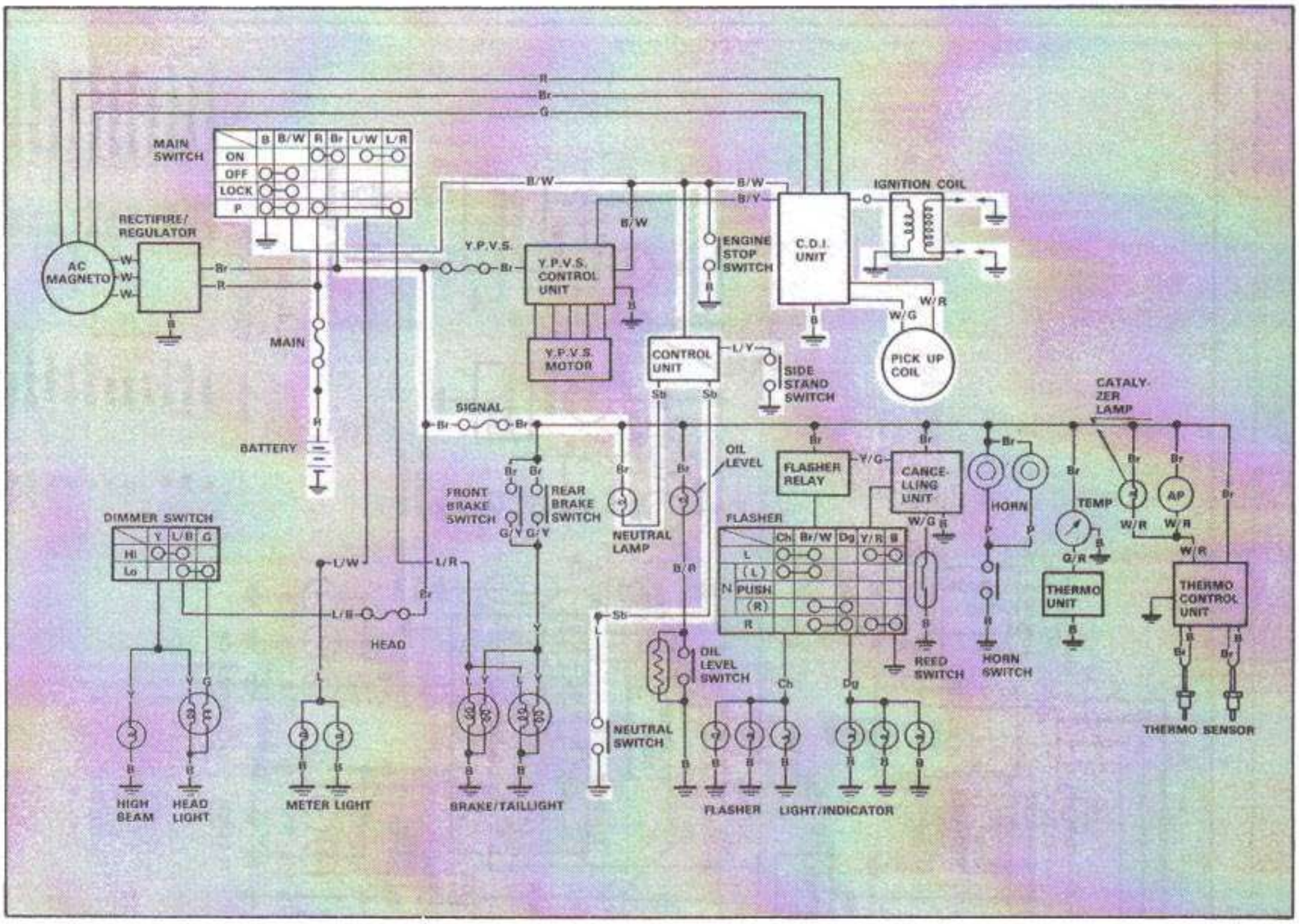
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- Switches 7-24

ELECTRICAL

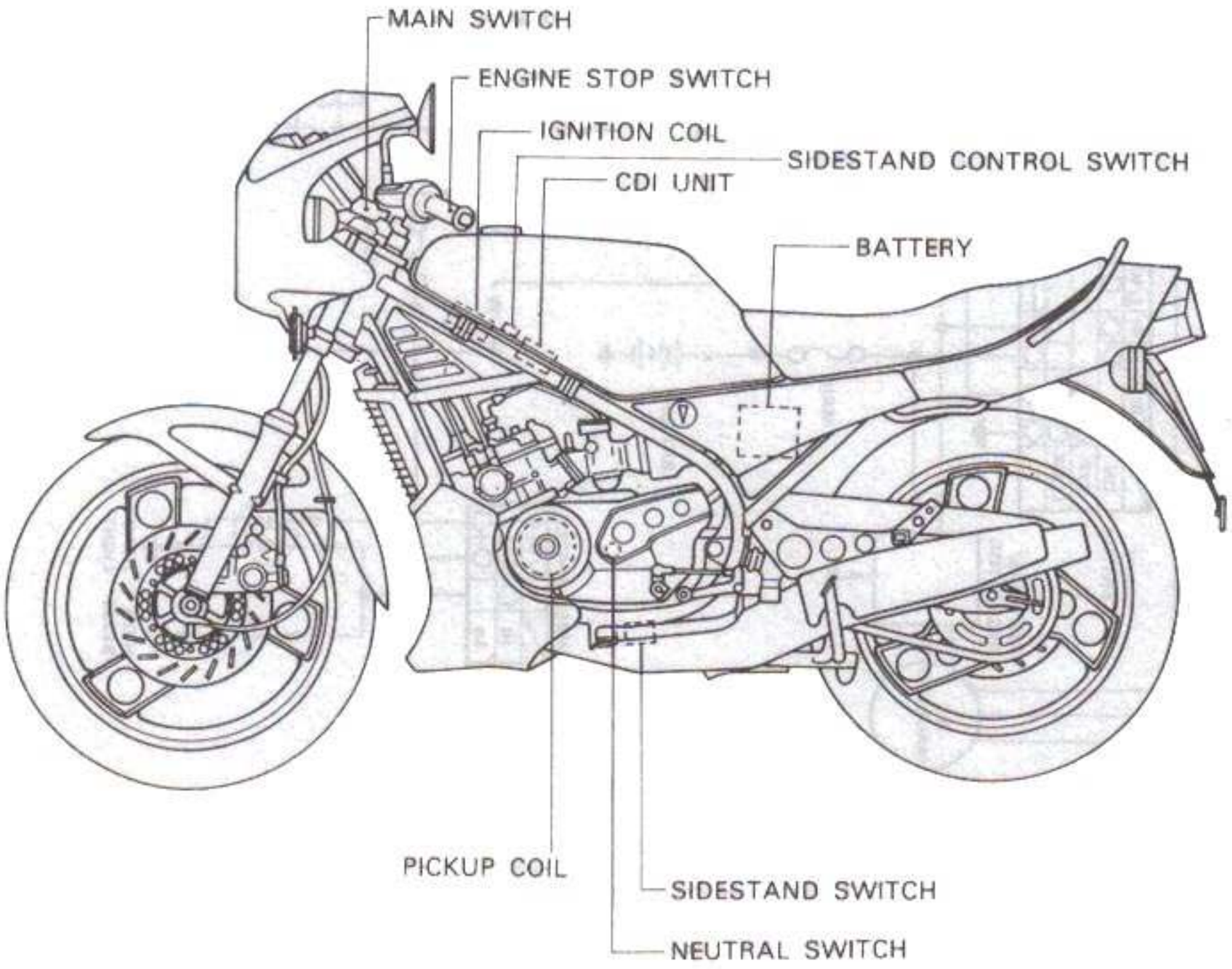
RZ350L WIRING DIAGRAM



IGNITION AND STARTING SYSTEM

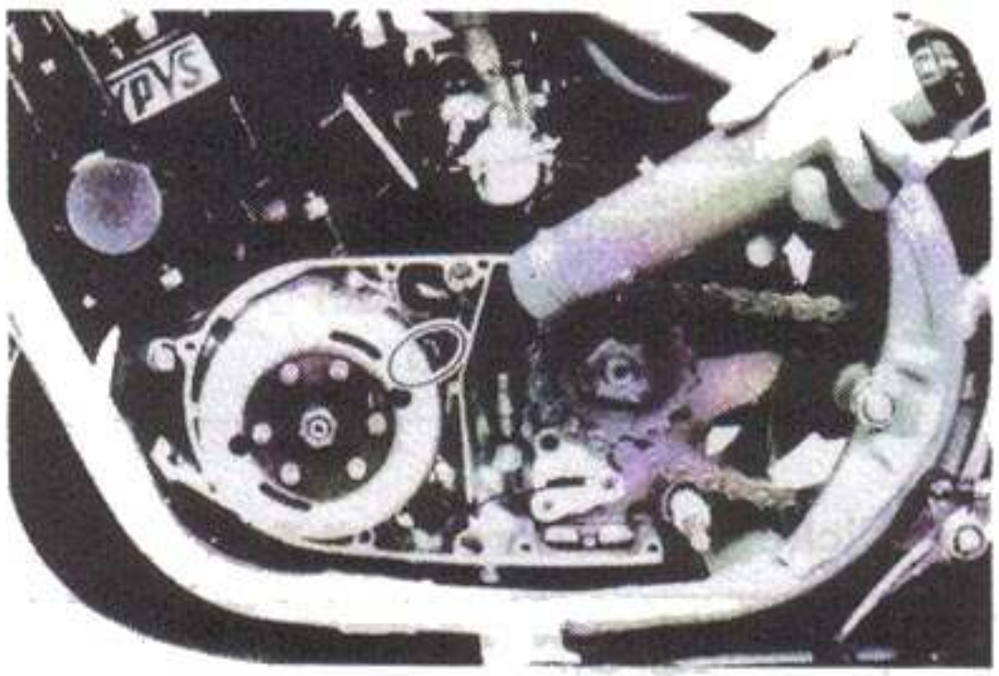


This circuit diagram shows the ignition and starting circuit in the wiring diagram.



Ignition Timing

1. Check the ignition timing
   Ignition timing is checked with a timing light by observing the position of the mark on the flywheel magneto base and the mark on the flywheel.



a. Remove the side crankcase cover (left).
b. Connect the timing light to the spark plug lead wire.
c. Start the engine and keep it running at the specified speed.

Ignition timing
17° at 1,200 r/min

d. The index projection on the crankcase must be between the two marks, for firing on the flywheel.

NOTE:

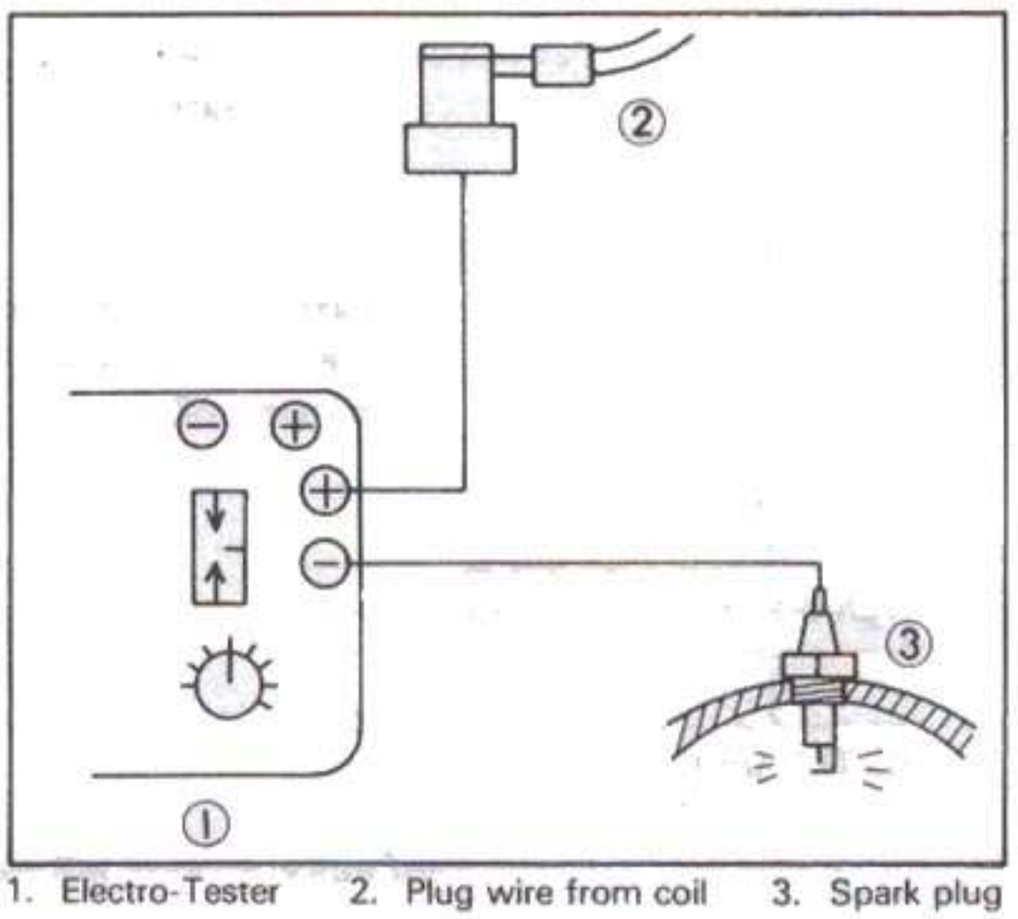
Ignition timing is not adjustable.

Spark Gap Test

The entire ignition system can be checked for misfire and weak spark using the Electro Tester. If the ignition system will fire across a sufficient gap, the ignition system can be considered good. If not, proceed with individual component tests until the problem is found.

1. Warm up the engine thoroughly so that the all electrical components are at operating temperature.
2. Stop the engine and connect the tester as shown.
3. Start the engine and increase spark gap until misfire occurs. (Test at various rpm's between idle and red line.)

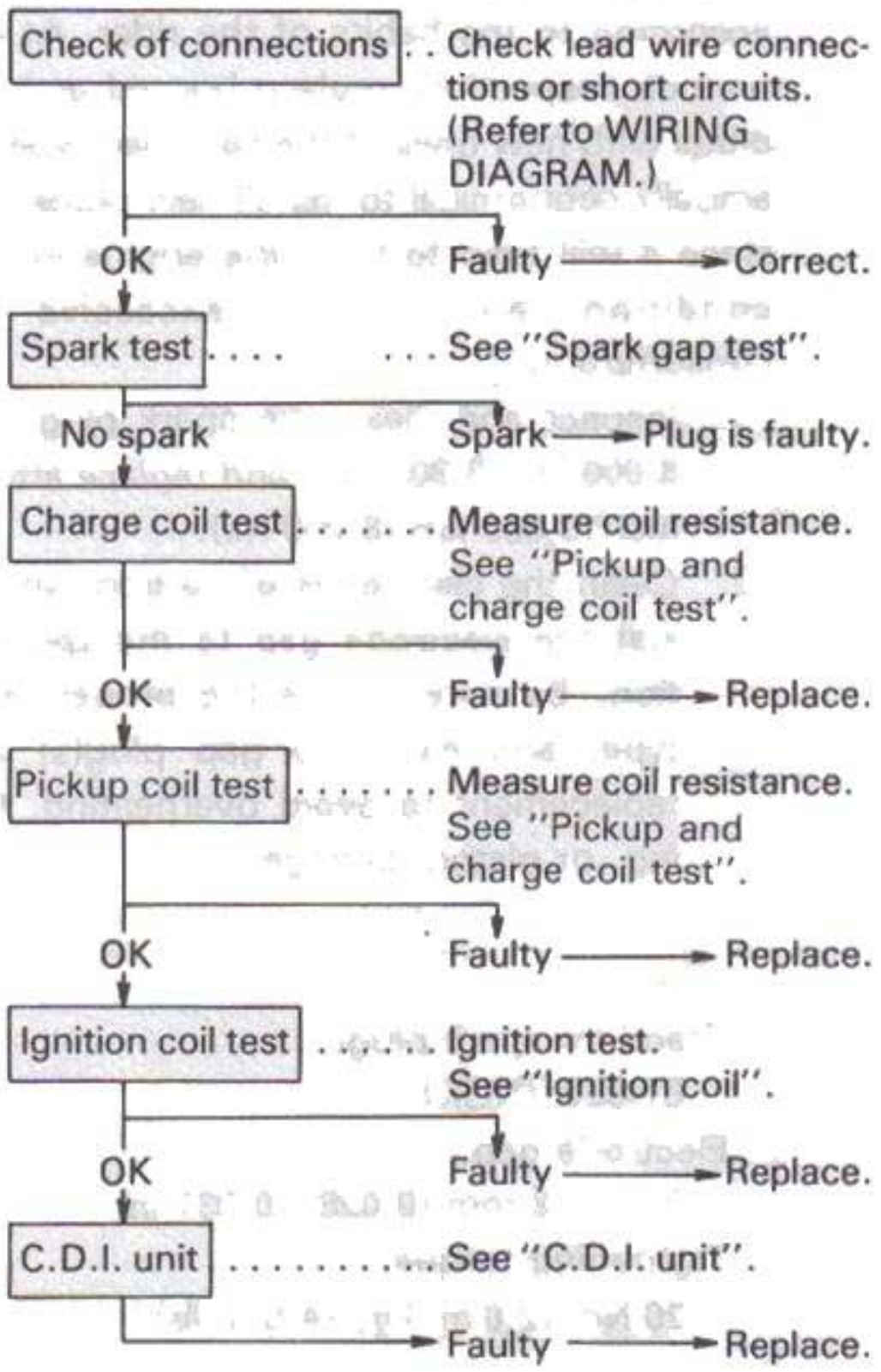
Minimum spark gap: ;6 mm (0.24 in)



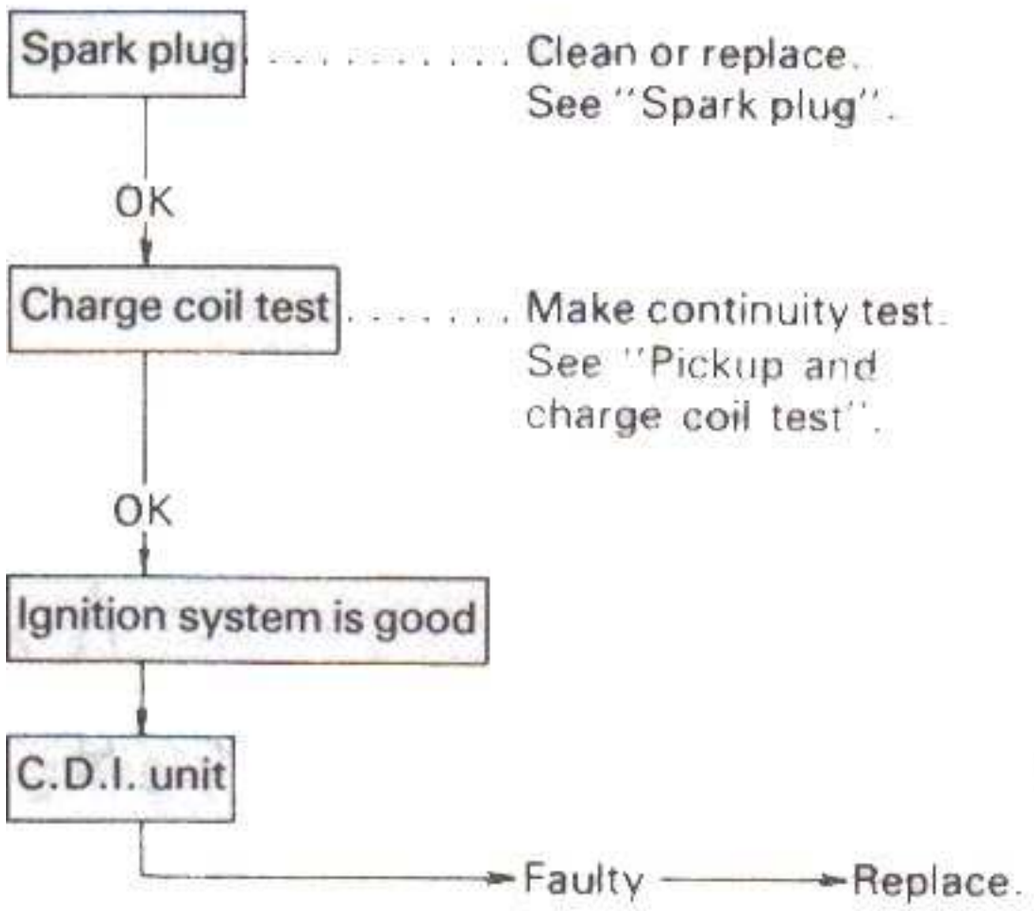
1. Electro-Tester 2. Plug wire from coil 3. Spark plug

4. If the ignition system should become inoperative, the following troubleshooting aids will be useful.

a. No spark is produced or weak



b. The engine starts but will not pick up speed.



Spark Plug

The life of a spark plug and its discoloring vary according to the habits of the rider. At each periodic inspection, replace burned or fouled plugs with new ones of the specified type. It is actually economical to install new plugs often since it will tend to keep the engine in good condition and prevent excessive fuel consumption.

1. Inspect and clean the spark plug every 6,000 km (3,800 mi), and replace after initial 13,000 km (8,200 mi).
2. Clean the electrodes of carbon, and adjust the electrode gap to the specification. Be sure to use the proper reach, type, and electrode gap plug(s) as a replacement to avoid overheating, fouling, or piston damage.

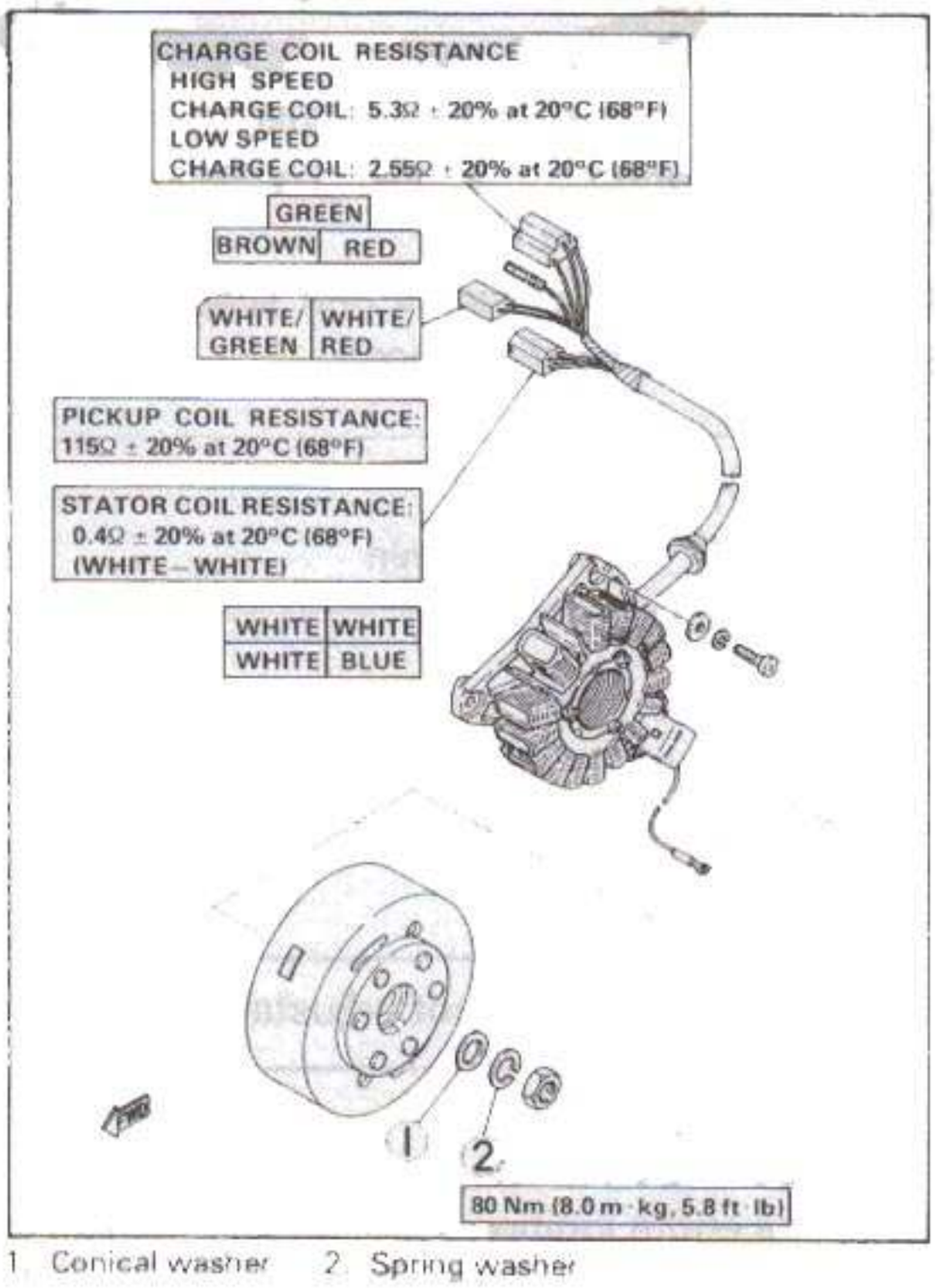
Standard spark plug:
BR8ES (NGK)
Electrode gap:
0.7 ~ 0.8 mm (0.028 ~ 0.031 in)
Tightening torque:
20 Nm (2.0 m · kg, 14.5 ft · lb)

CAUTION:

For a long high-speed, ride, change the spark plug to the following high-speed type; otherwise, the engine will be damaged.

Recommended spark plug
(For high speed ride)
BR9ES (NGK)

Pickup and Source Coil Test

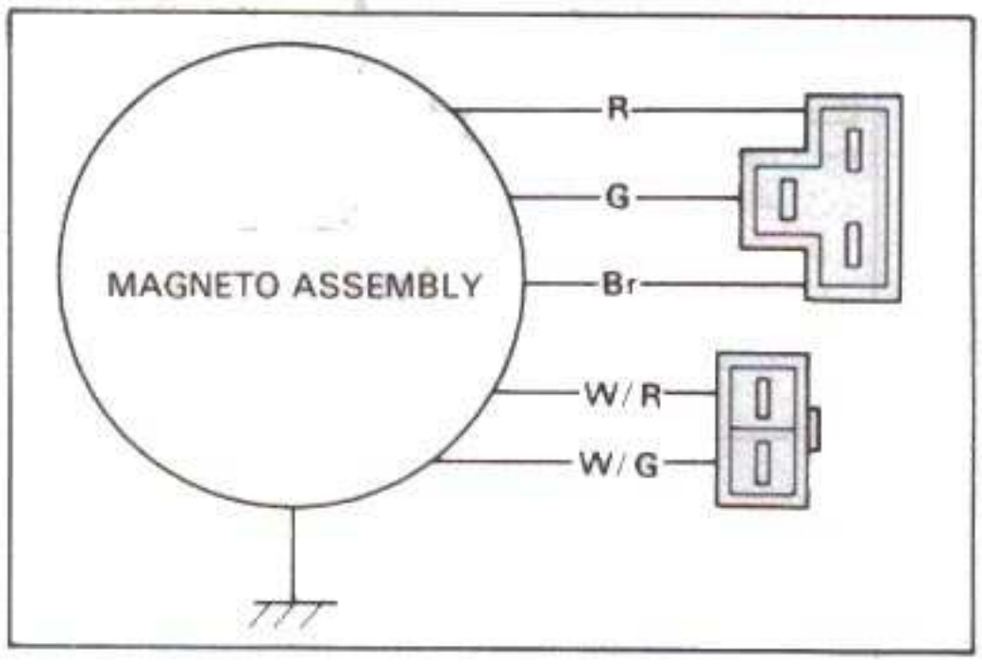


1. Conical washer 2. Spring washer

Check the resistance between terminals. If the resistance is out of specification, coil is broken. Check the coil connection. If the coil connections are good, then the coil is broken inside and replace the C.D.I. magneto aassembly.

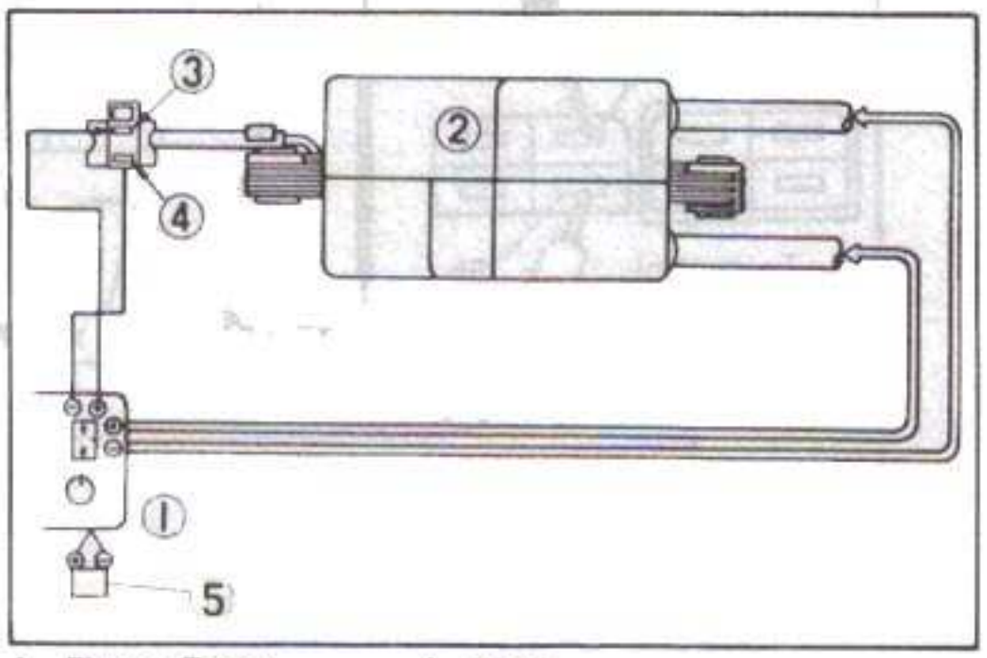
Source coil resistance:
R-Br (High speed)
5.3Ω ± 20% / 20°C (68°F)
Br-G (Low speed)
225Ω ± 20% / 20°C (68°F)

Pickup coil resistance
W/R-W/G
115Ω ± 20%/20°C (68°F)



Ignition Coil

1. Coil spark gap test
   a. Remove the fuel tank, and disconnect the ignition coil from wire harness and spark plug.
   b. Connect the Electro Tester as shown.



1. Electro Tester
2. Ignition coil
3. Orange
4. Black
5. Battery

   c. Connect the fully charged battery to tester.
   d. Turn on the spark gap switch and increase gap until misfire occurs.

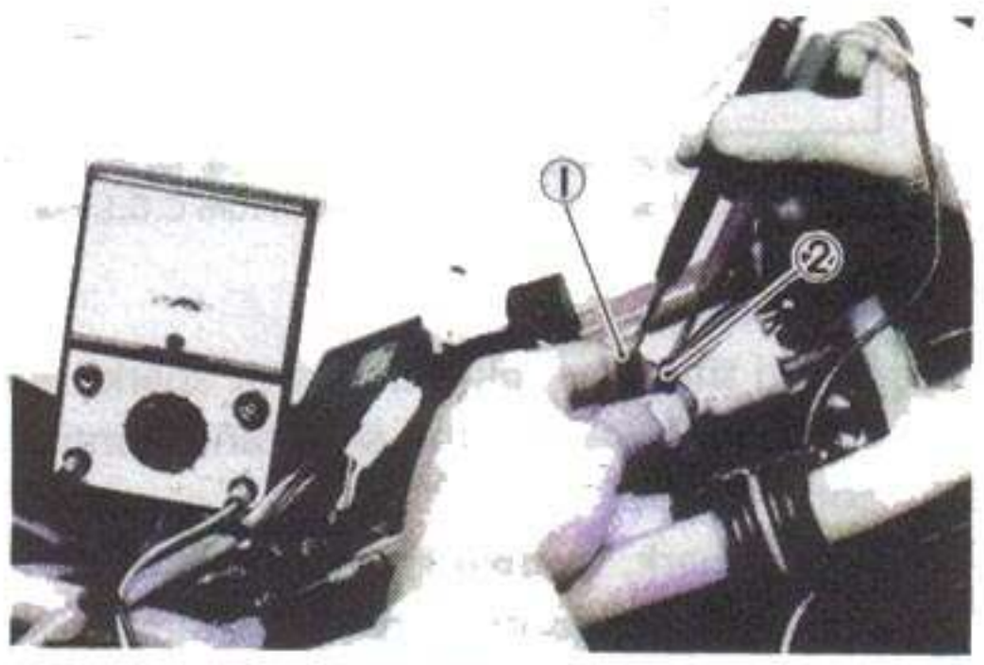
Minimum spark gap: 6 mm (0.24 in)

2. Coil resistance tests
   Use a pocket tester or equivalent ohmmeter to determine the resistance and continuity of the primary and secondary coil windings.

Standard value
Primary coil resistance:
Black-Orange
0.33Ω ± 10% at 20°C (68°F)
Secondary coil resistance:
High tension lead(L)-
High tension Lead(R)
3.5kΩ ± 20% at 20°C (68°F)



Primary coil resistance check



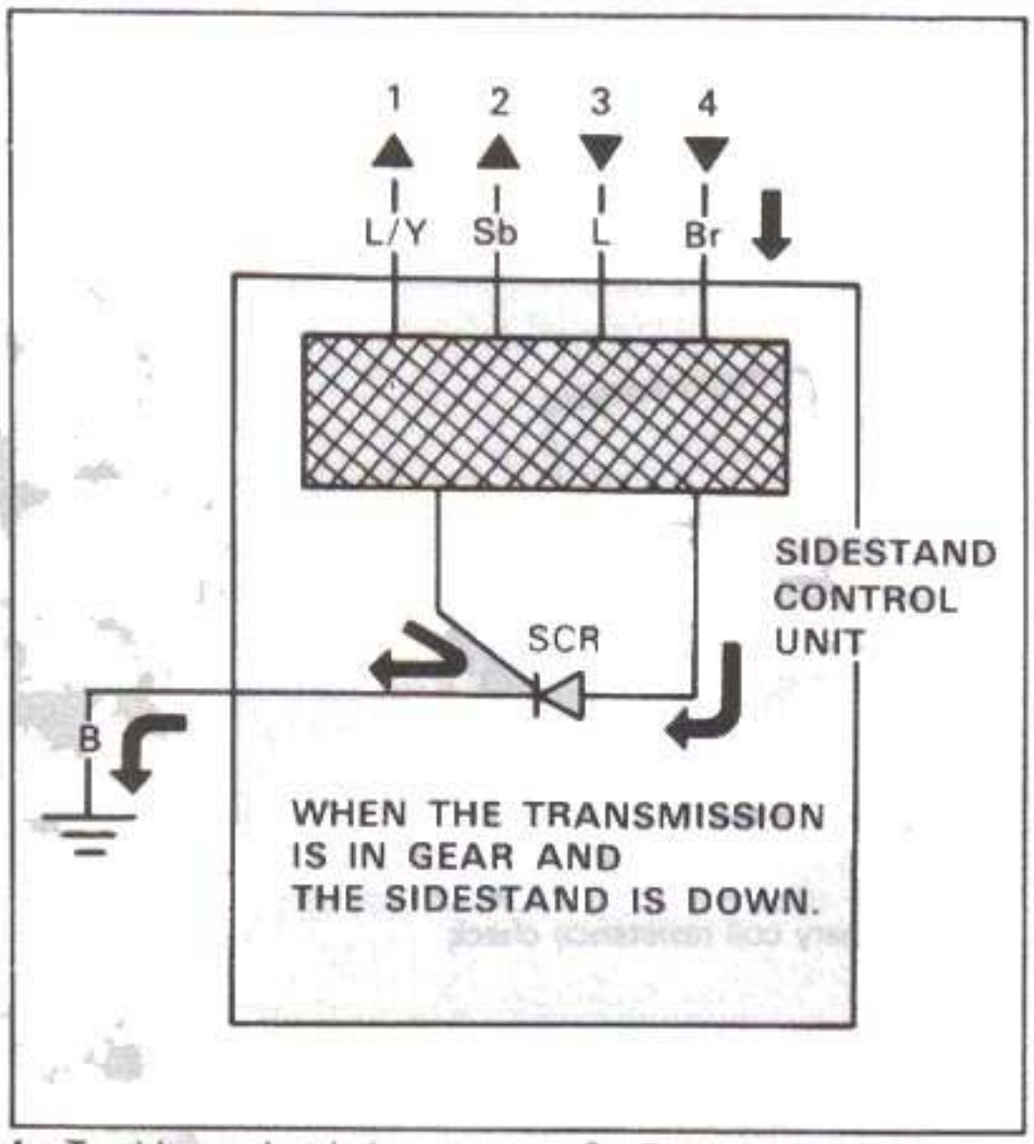
Secondary coil resistance check
1. High tension lead (L)
2. High tension lead (R)

Sidestand Control Unit

The starting circuit on this model consists of the sidestand control unit, neutral switch, and the sidestand switch. If the engine stop switch and the main switch are both on, the engine can be started only if:

a. The transmission is in neutral (the neutral switch is on).
   or
b. The sidestand is up (the sidestand switch is on the neutral switch is off).

The sidestand control unit prevents the engine from starting when neither of these conditions has been met. When one or both of the above conditions have been met, the engine can be started. The motorcycle can be ridden, however, only when the sidestand is up.



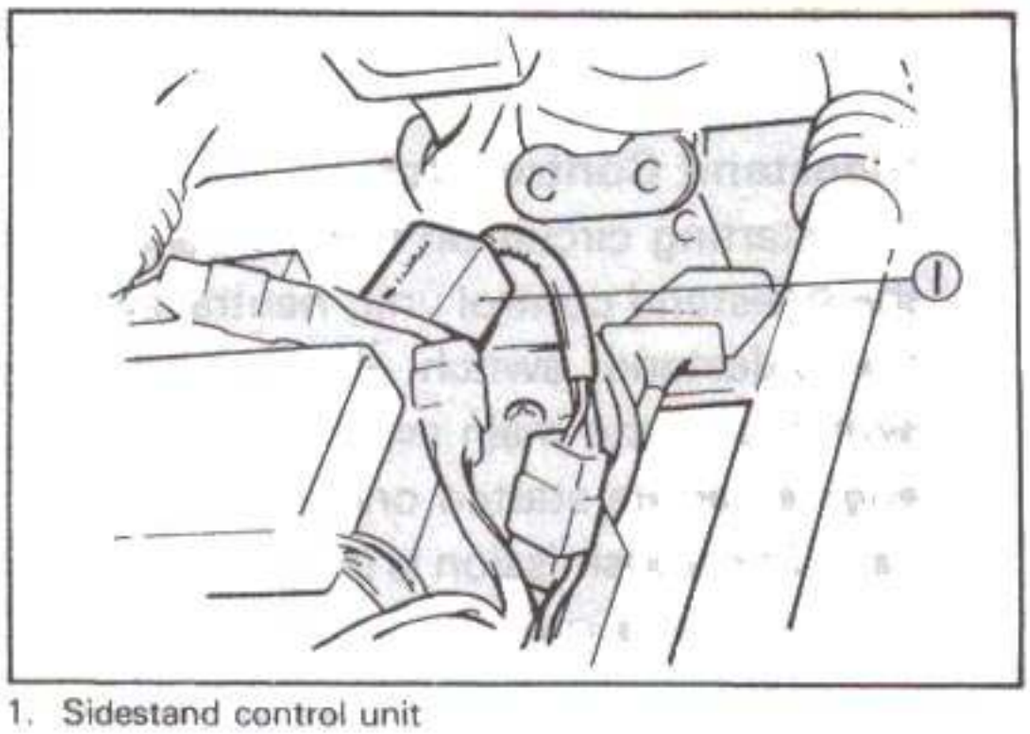
1. To sidestand switch
2. To neutral switch
3. From neutral light
4. From C.D.I. magneto

Troubleshooting

When the spark plug does not spark, remove the brown lead at the sidestand control unit connector.

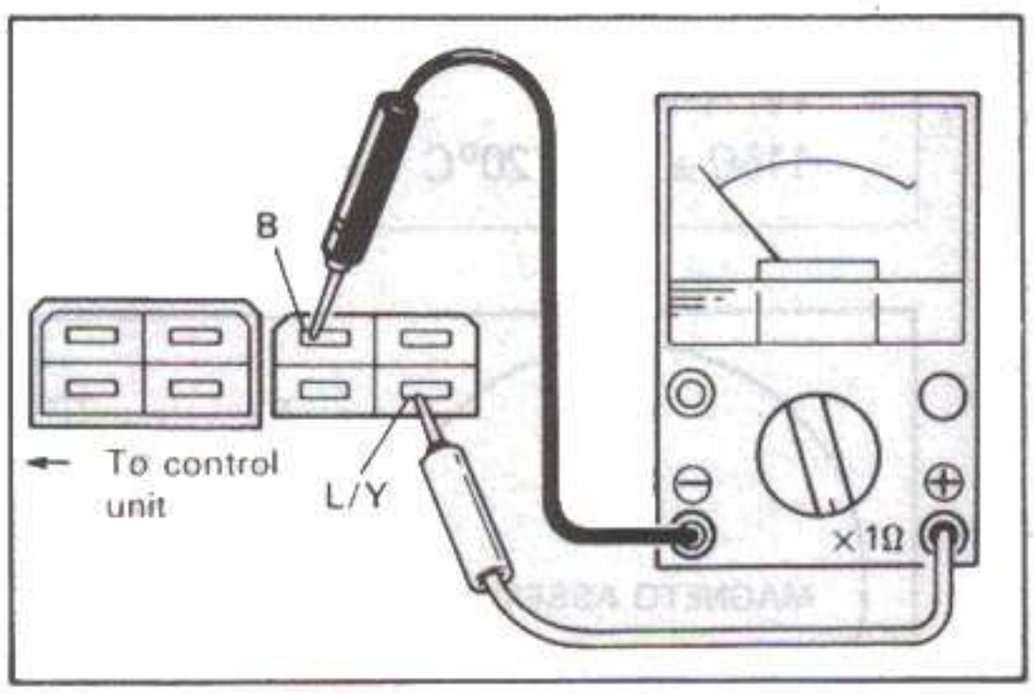
If not spark, trouble is another part.

If sparks, the control unit, sidestand switch or neutral switch is broken.



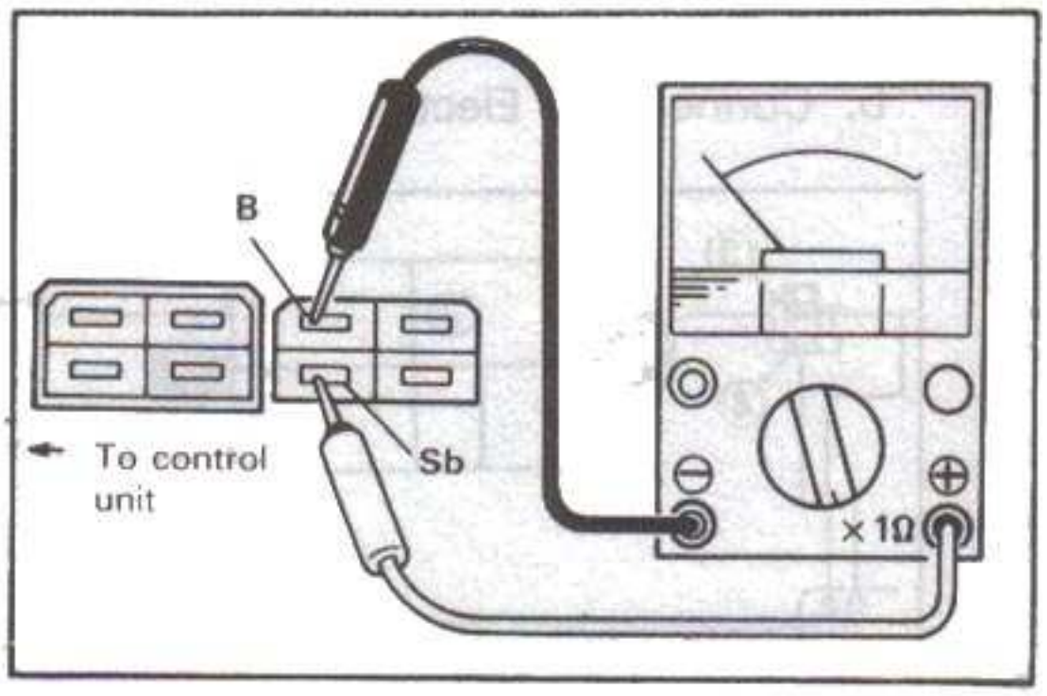
1. Sidestand control unit

1. Sidestand switch:
   Disconnect the control unit connector, and check the sidestand switch with pocket tester.



	L/Y–B
Up	○
Down	∞

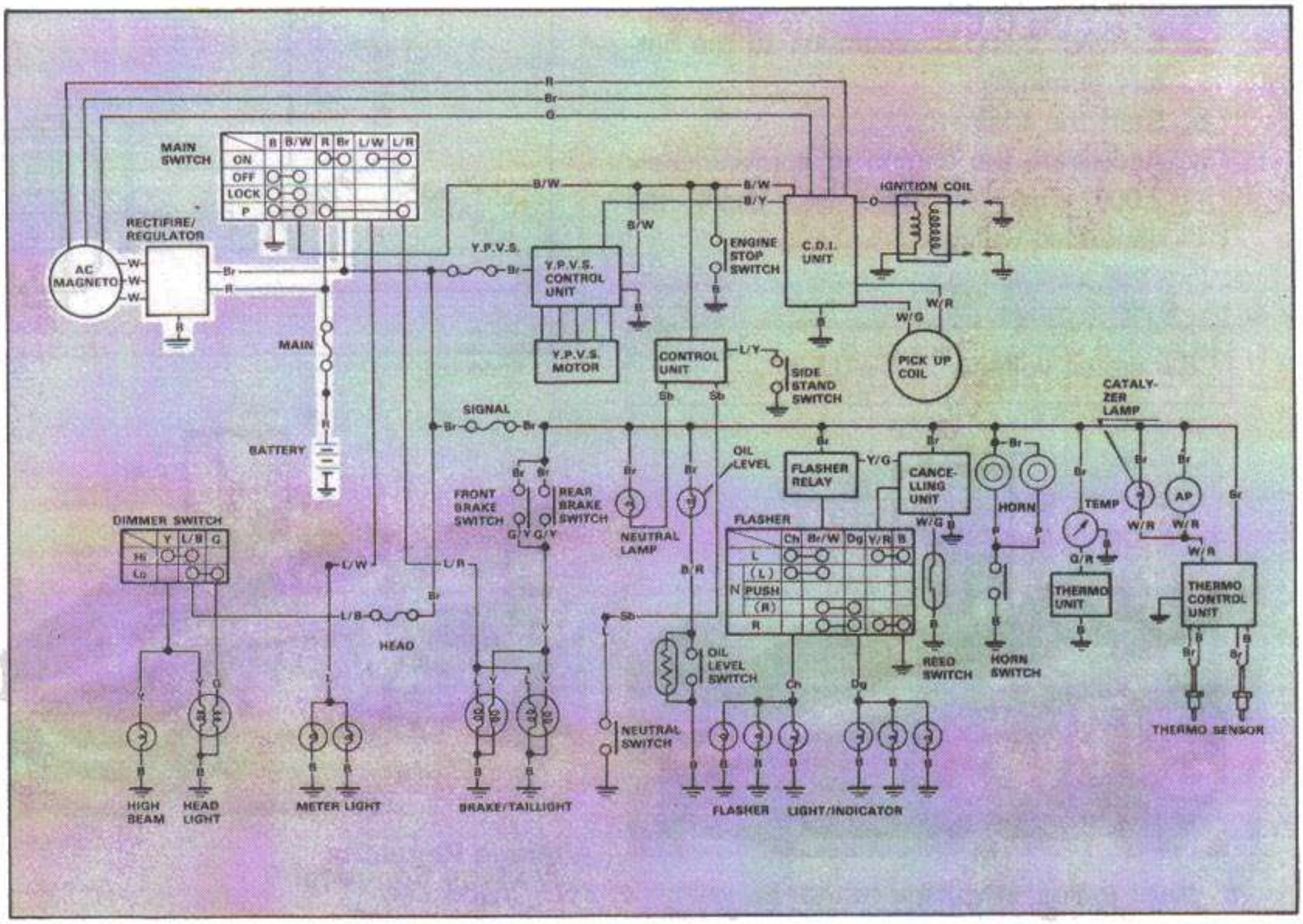
2. Neutral switch
   Check the neutral switch with pocket tester.



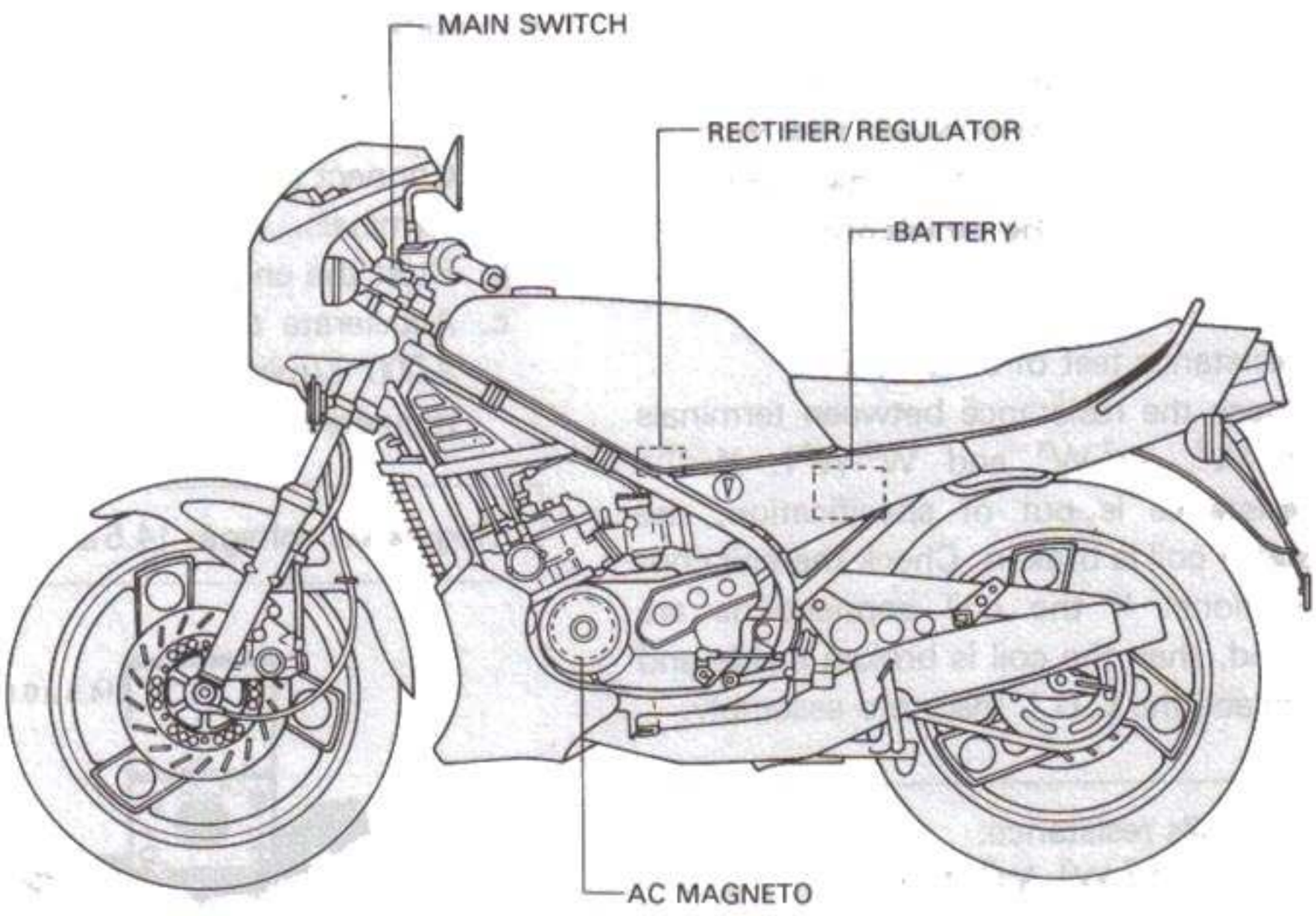
	Sb–B
Neutral	○
In gear	∞

3. Control unit
   If the sidestand switch and neutral switch are both in good condition, the control unit is broken.
   Replace the control unit.

CHARGING SYSTEM



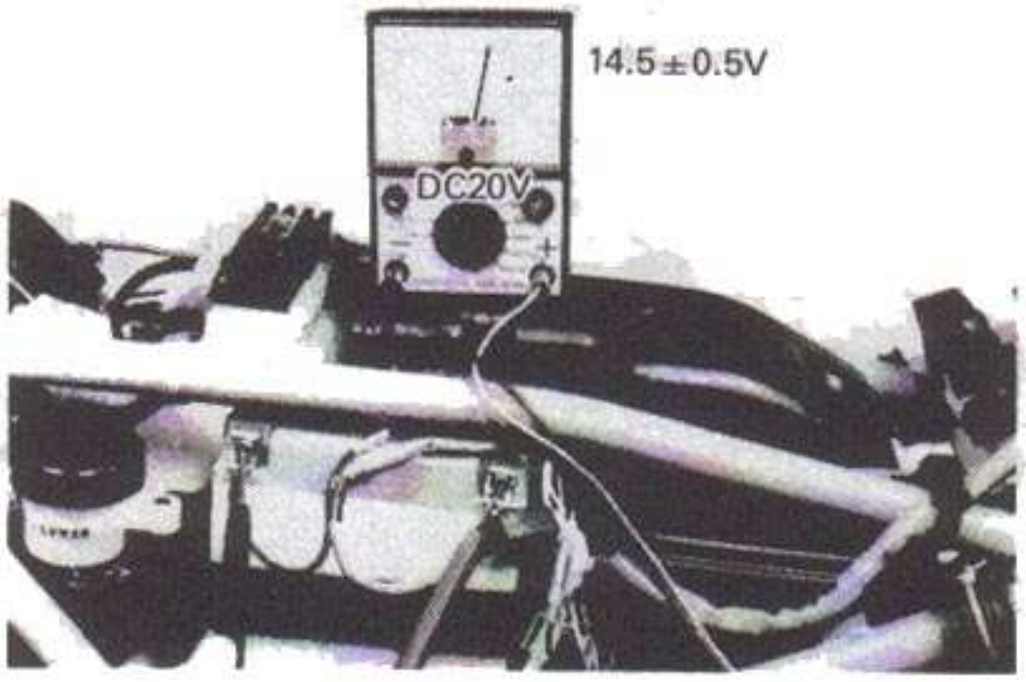
This circuit diagram shows the charging circuit in the wiring diagram.



A.C. Generator

1. Checking method
   a. Connect the D.C. voltmeter to the battery terminals.
   b. Start the engine.
   c. Accelerate the engine to approximately 2,000 r/min or more and check the generated voltage.

Generated voltage: 14.5 ± 0.5 V



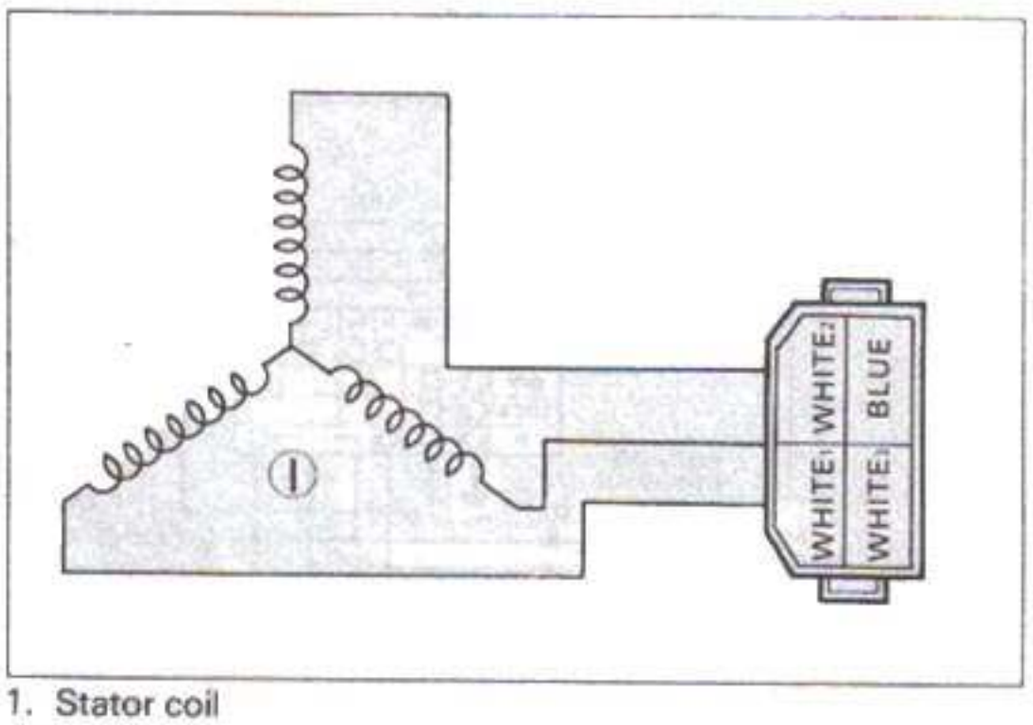
d. If the indicated voltage cannot be reached then perform the tests in step 2.

CAUTION:

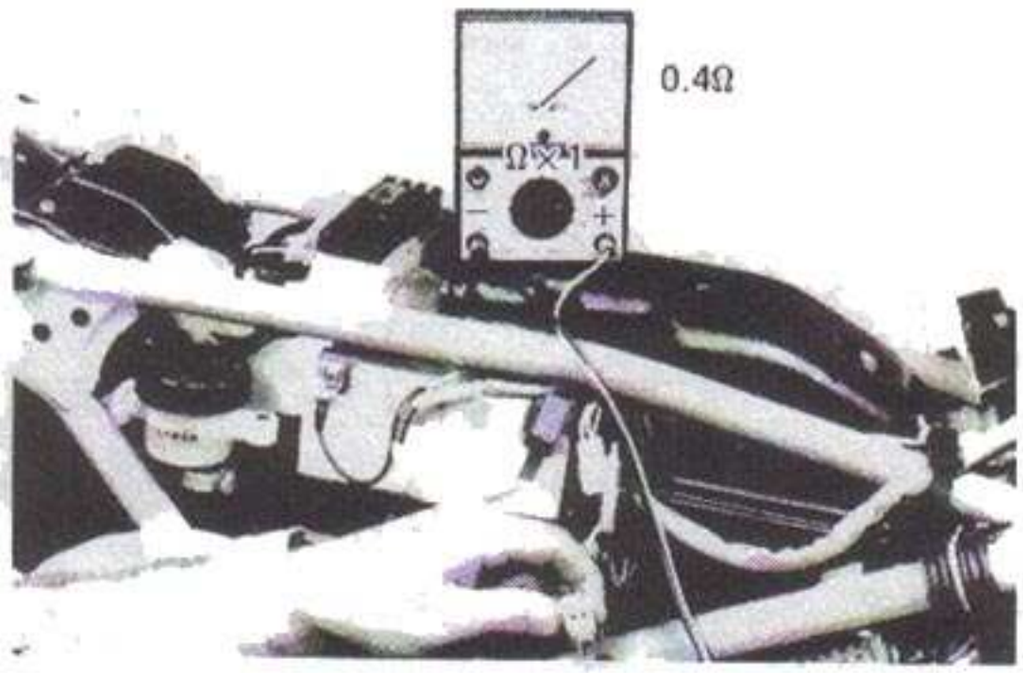
Never disconnect the wires from the battery while the generator is in operation. If the battery is disconnected, the voltage across the generator terminals will increase, damaging the semiconductors.

2. Resistance test of stator coil
   Check the resistance between terminals W^1-W^2, W^2-W^3 and W^3-$W^1$1. If the resistance is out of specification, the stator coil is broken. Check the coil connections. If the coil connections are good, then the coil is broken inside and replace the C.D.I. magneto assembly.

Stator coils resistance: W^1-W^2, W^2-W^3, W^3-W^1 (White-White) 0.4Ω ± 20% at 20°C (68°F)



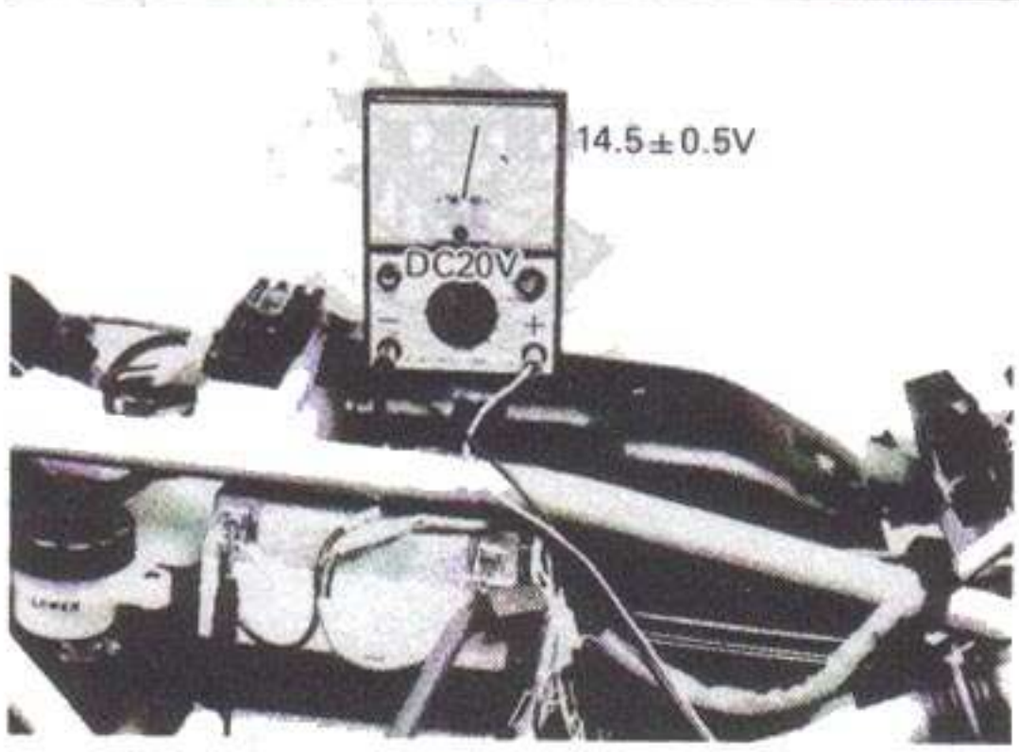
1. Stator coil



Voltage Regulator

1. Inspection
   Since the regulator is sealed with a resin, it is impossible to replace any of the inner parts. If the regulator is found to the defective, it must be replaced with a new one.
2. Checking method
   a. Connect the D.C. volmeter to the battery terminals.
   b. Start the engine.
   c. Accelerate the engine to approximately 2,000 r/min or more and check the regulated voltage.

Regulated voltage: 14.5 ± 0.5 V



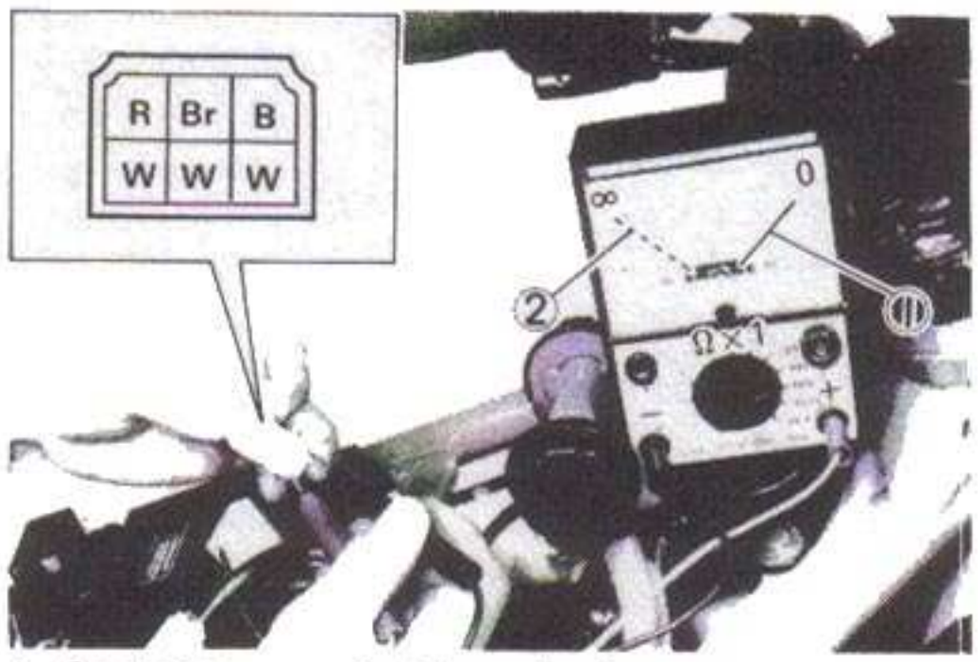
d. If the voltage is off, check the battery, generator, and rectifier. If the generator, rectifier, and battery are good, then the NU regulator is broken and it should be replaced.

NOTE:

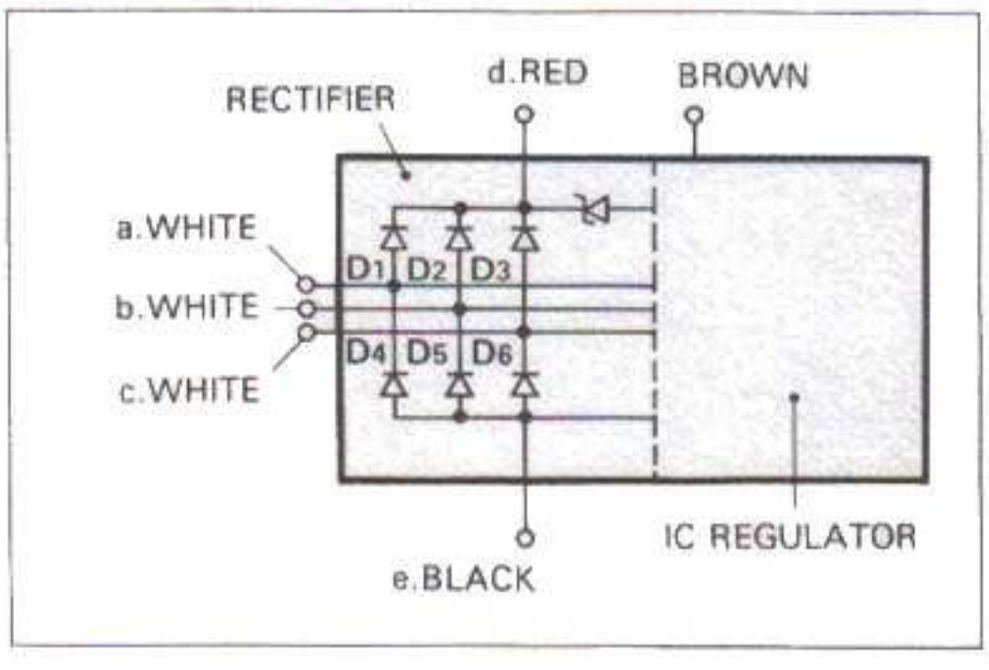
1) Never disconnect the wires from the battery while the generator is in operation. If the battery is disconnected, the voltage across the generator terminals will increase, damaging the semiconductors.
2) When checking the regulator being installed on a motocycle, the battery should not be removed, and it should be fully charged.
3) Never use a high voltage insulation ohmmeter such as a megaohmmeter for such a test. If high voltage is applied to the regulator terminals, the regulator will be damaged.

Checking Silicon Rectifier

1. Check the silicon rectifier as specified using the ohmmeter.



1. Continuity 2. Disconntinuity



Checking element	Pocket tester connecting point (+) (red)	Pocket tester connecting point (−) (black)	Good	Replace (element shorted)	Replace (element opened)
D_1	d	a	○	○	×
	a	d	×	○	×
D_2	d	b	○	○	×
	b	d	×	○	×
D_3	d	c	○	○	×
	c	d	×	○	×
D_4	a	e	○	○	×
	e	a	×	○	×
D_5	b	e	○	○	×
	e	b	×	○	×
D_6	c	e	○	○	×
	e	c	×	○	×

○: Continuity
×: Discontinuity (∞)

2. Even if the one of elements is broken, replace rectifier/regulator assembly.

CAUTION:

The silicon rectifier can be damaged if subject to overcharging. Special care should be taken to avoid a short circuit and/or incorrect connectin of the positive and negative leads at the battery. Never connect the rectifier directly to the battery to make a continuity check.

BATTERY

Checking

1. If the battery sulfation (white accumulations) occurs on the plates dùe to lack of the battery electrolyte, the battery should be replaced.
2. If the bottoms of the cells are filled with the corrosive material falling off the plates, the battery should be replaced.
3. If the battery shows the following defects, it should be replaced:

a. The voltage will not rise to a specific value even after many hours of charging.
b. No gassing occurs in the any cell.
c. The battery requires a charging voltage of more than regulating voltage in order to supply a current of 0.55 A for 10 hours.

WARNING:

Battery fluid is poisonous and dangerous, causing severe burns, etc. Contains sulfuric acid. Avoid contact with skin, eyes or clothing.
Antidote: EXTERNAL-FLUSH with sater. INTERNAL-Drink large quantities of water or milk. Follow with milk of magnesia, beaten egg or vagetable oil. Call physician immeidately.
Eyes: Flush with water for 15 minutes and get prompt medical attention. Batteries produce explosive gases. Keep sparks, flame, cigarettes, etc., away. Ventilate when charging or using in enclosed space. Aways shield eyes when working near batteries.
KEEP OUT OF REACH OF CHILDREN.

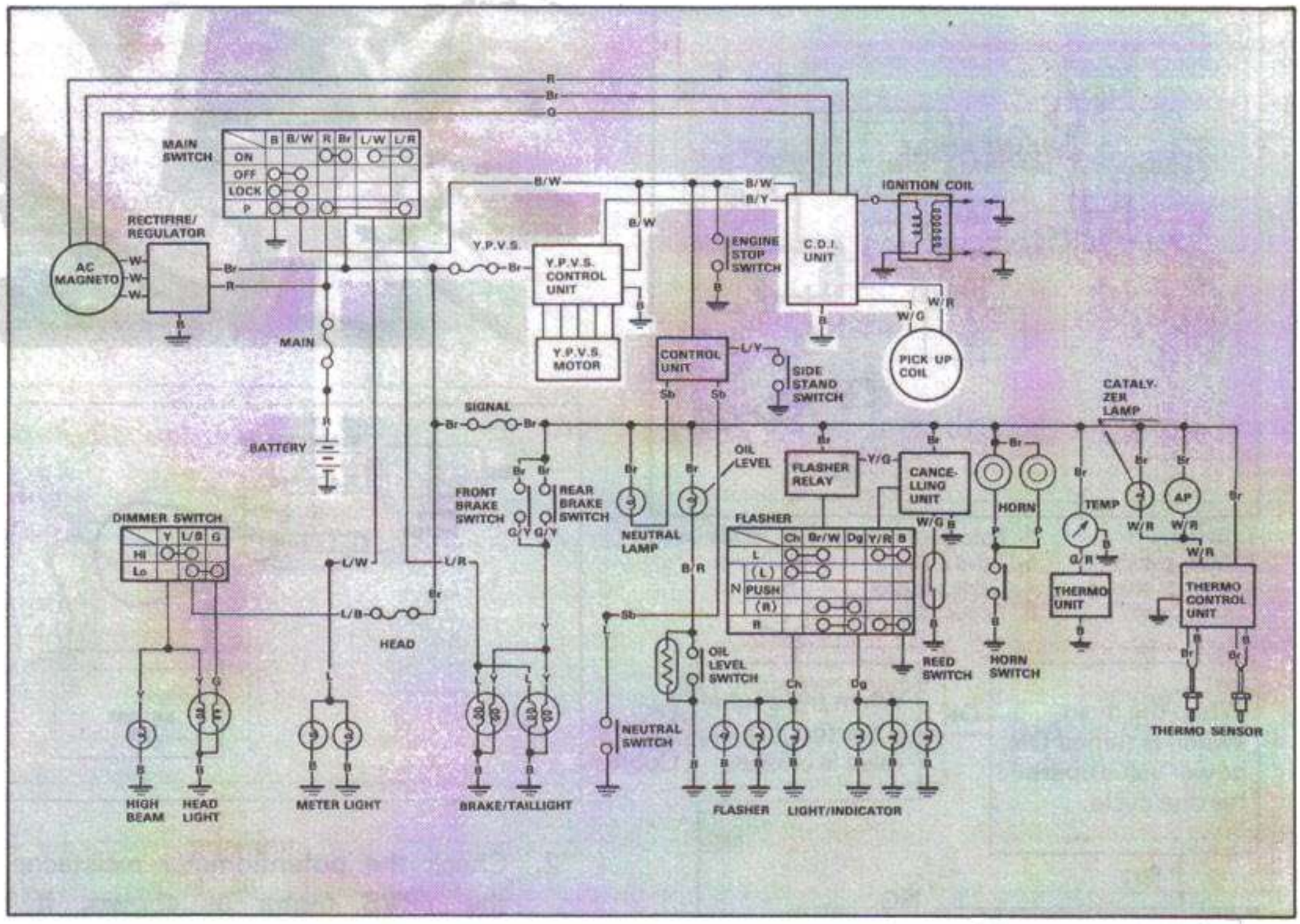
Service Life

The service life of a battery is usually 2 to 3 years, but lack of care as described below will shorten the life of the battery.

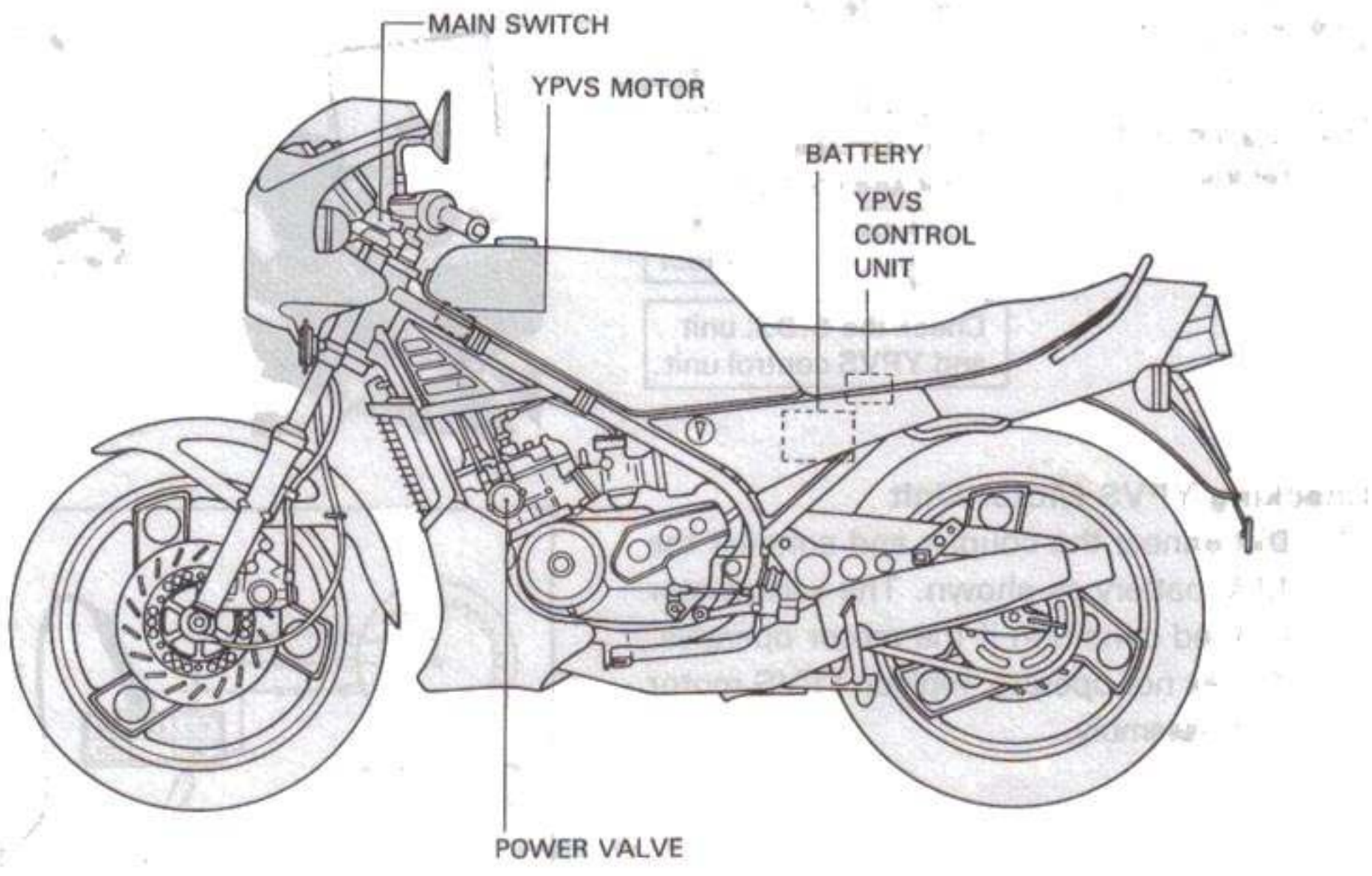
1. Negligence in keeping the battery topped up with a distilled water.
2. The battery being left discharged.
3. Over-charging with a heavy charge.
4. Freezing.
5. Filling with water of sulfuric acid containing impurities.
6. Improper charging voltage/current on the new battery.

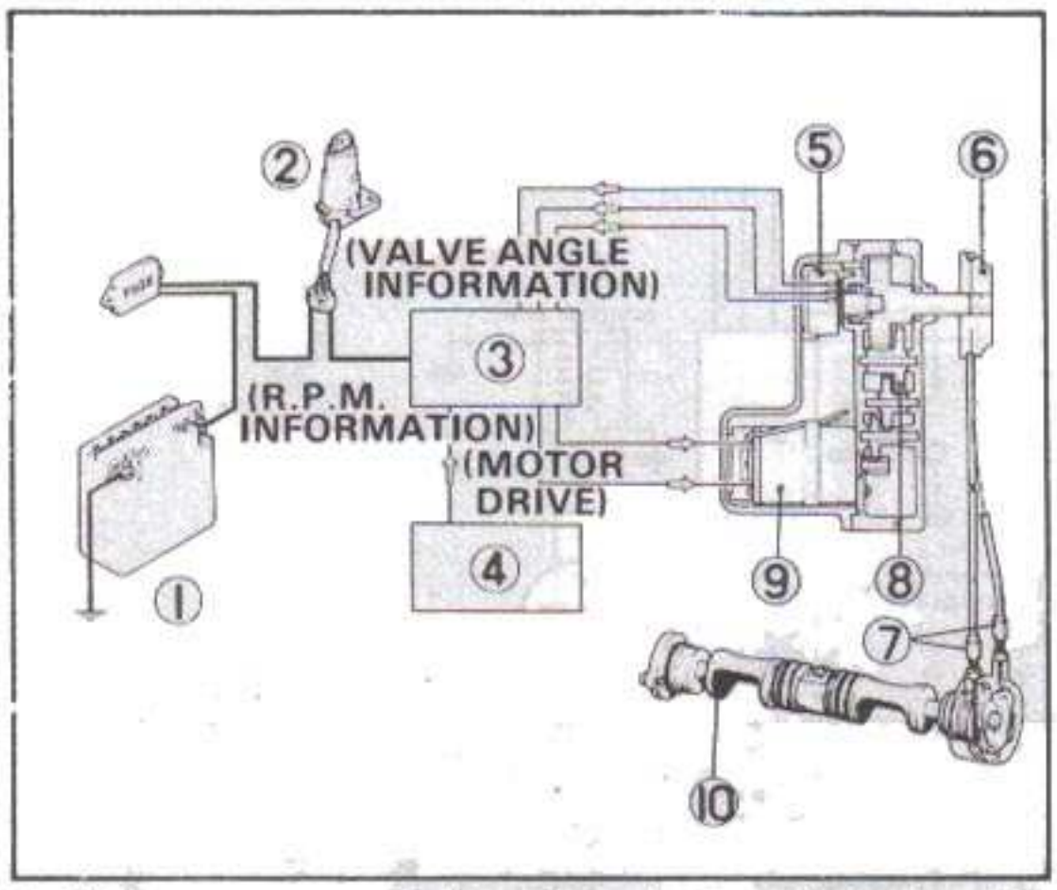
Battery	12V, 5.5AH
Electrolyte	Specific gravity: 1.260 Quantity: 480 cc
Initial charging current	0.55A/25 hours (new battery)
Recharging current	0.55/10 hours (or until specific gravity reaches 1.26)
Refill fluid	Distilled water (to maximum level line)
Refill period	Check once per month (or more often, as required)

YPVS SYSTEM

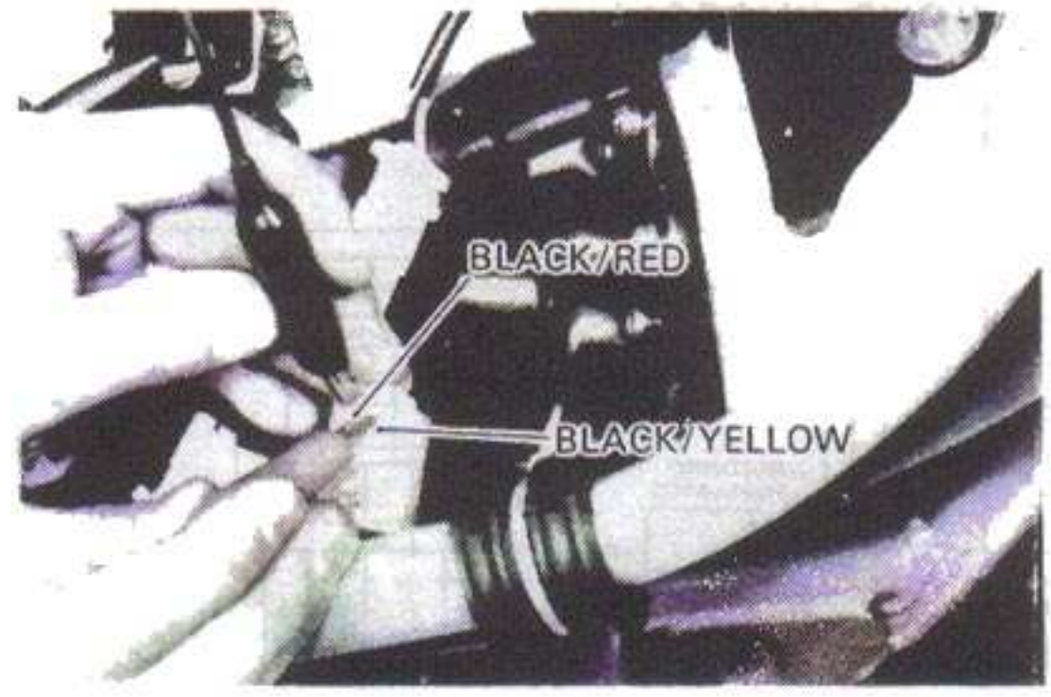


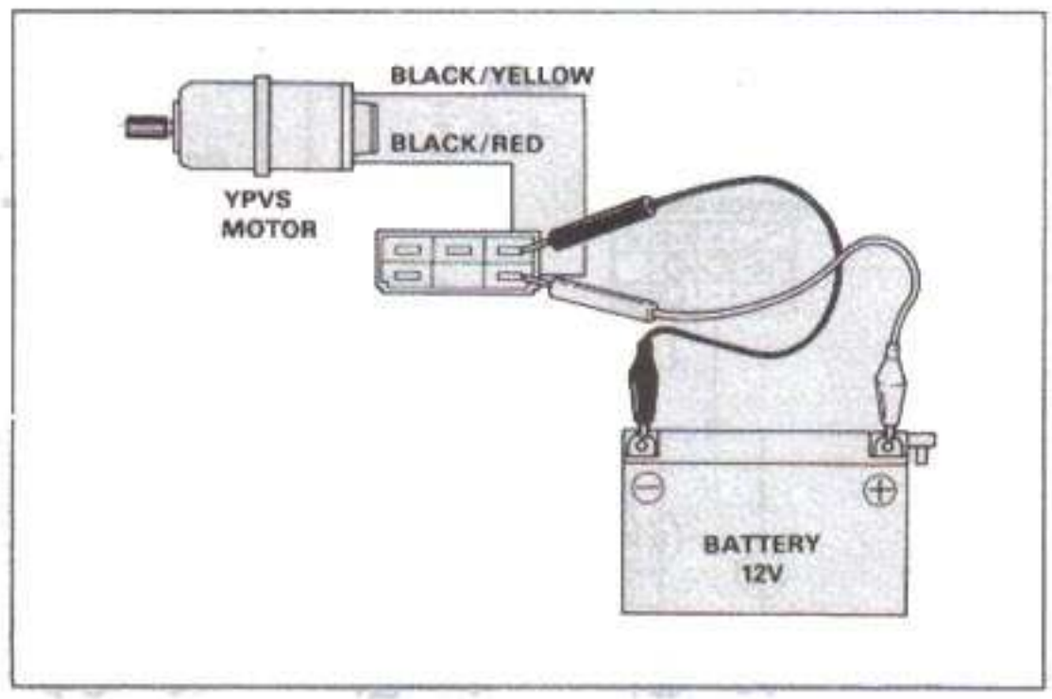
This circuit diagram shows the YPVS circuit in the wiring diagram.

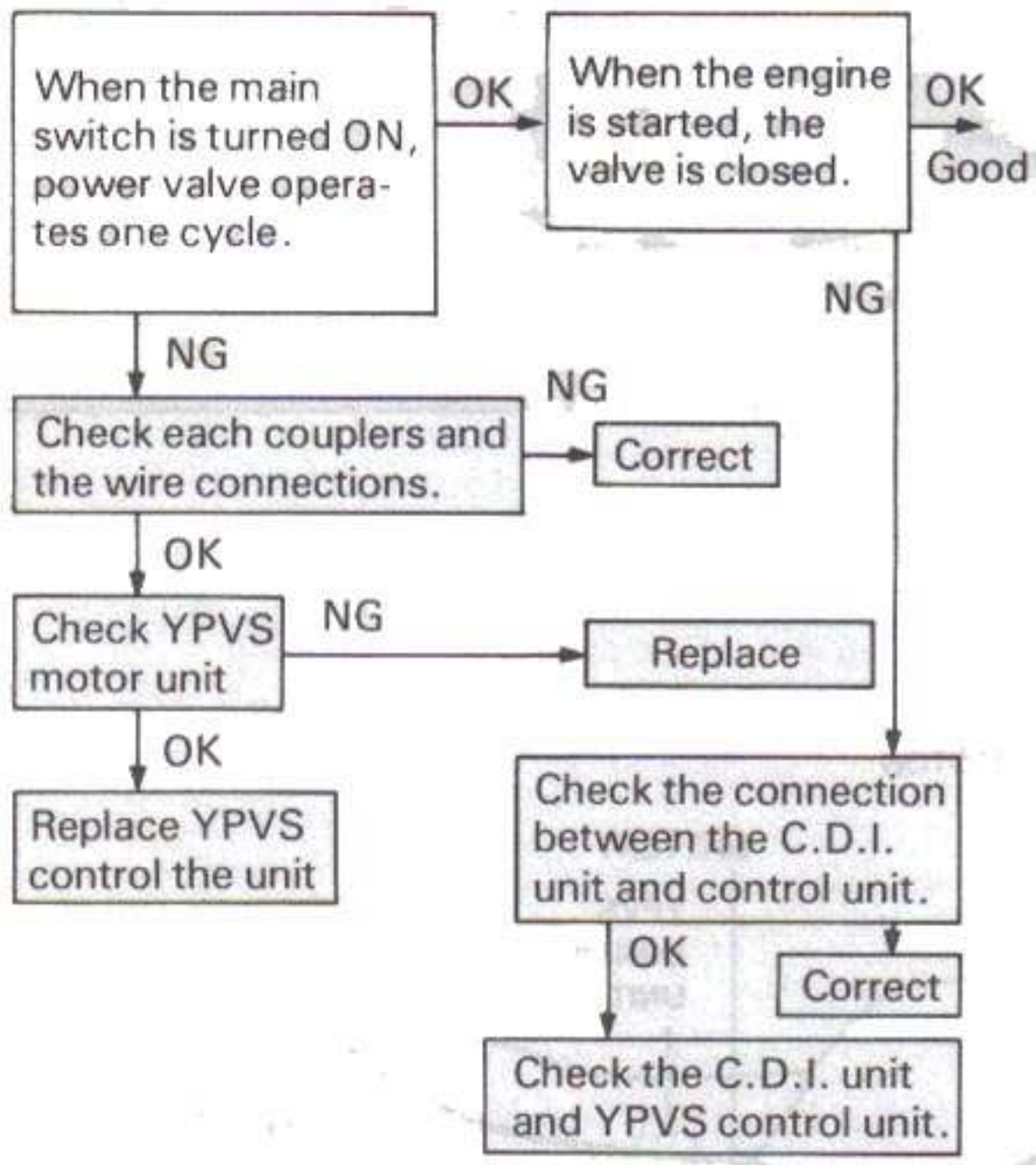




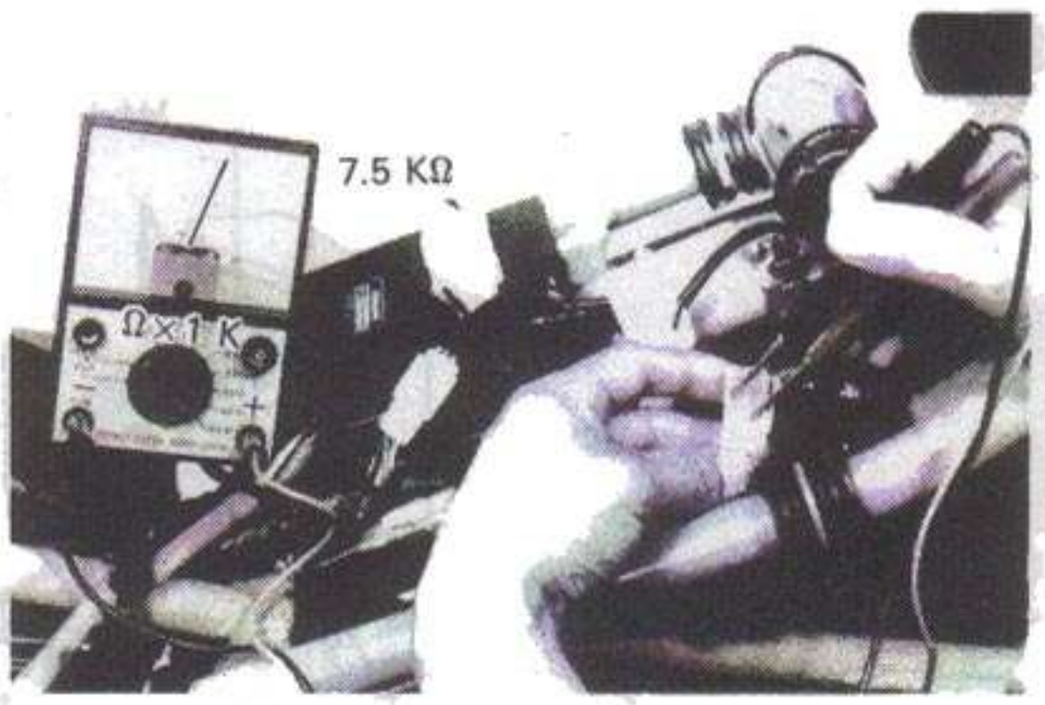
1. Battery
2. Main switch
3. Control unit
4. C.D.I. unit
5. Potentio meter
6. Drive pulley
7. Cable adjuster
8. Reduction gear
9. Motor cable
10. Valve





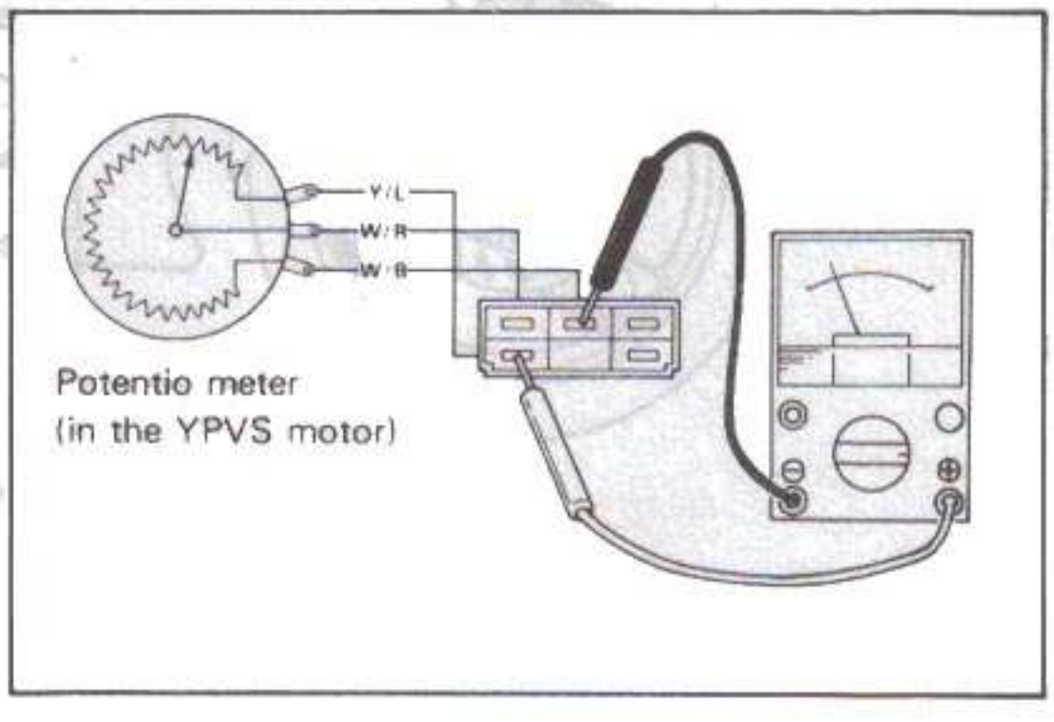


2. Check the potentiometer resistacne in the YPVS motor as shown. If the resistance is out of specification, replace the YPVS motor unit assembly.



Checking YPVS Motor Unit

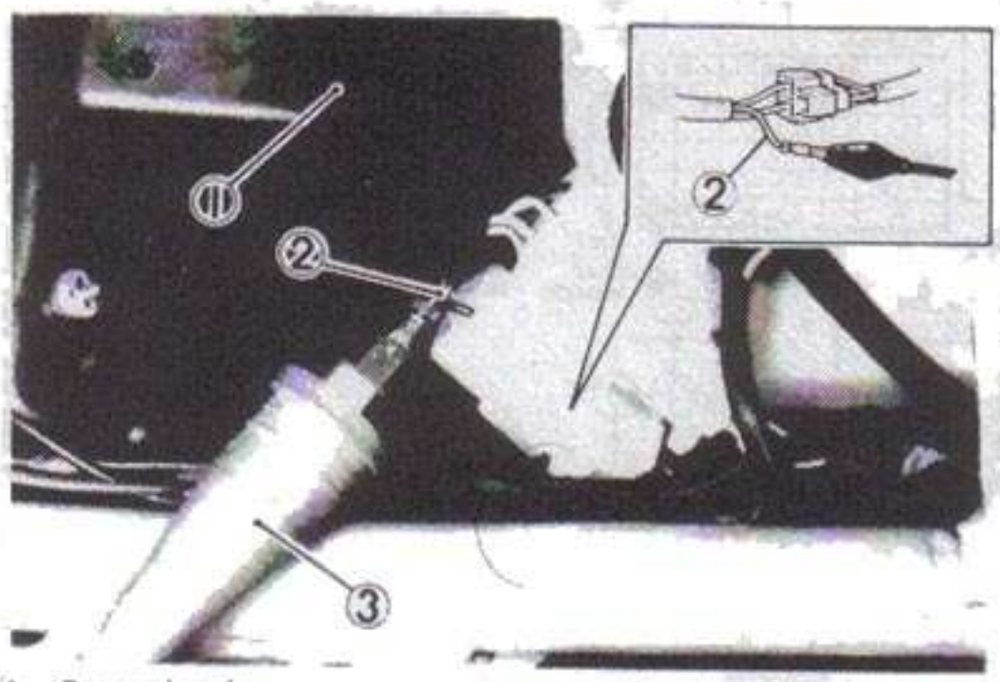
1. Disconnect the coupler and connect the 12 V battery as shown. The servomotor is good condition if the motor operates. If does not operate, replace YPVS motor unit assembly.



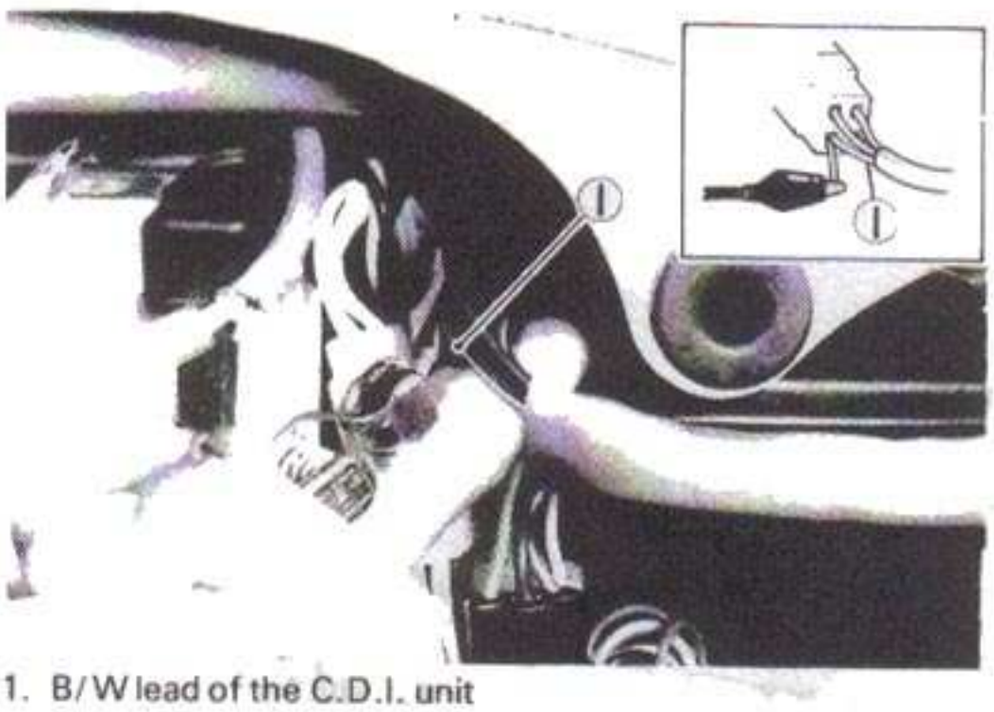
Potentio meter resistance:
(Y/L-W/B)
7.5 kΩ ± 30% at 20°C (68°F)
(Y/L-W/R) + (W/R-W/B)
7.5 kΩ ± 30% at 20°C (68°F)

Checking YPVS Control Unit

1. Disconnect the control unit coupler, and remove B/W lead. Connect the Coupler.
2. Connect the B/W lead of the control unit with B/W lead of the C.D.I. unit using jump wire, as shown.



1. Control unit
2. B/W lead of the control unit
3. Jump lead



1. B/W lead of the C.D.I. unit

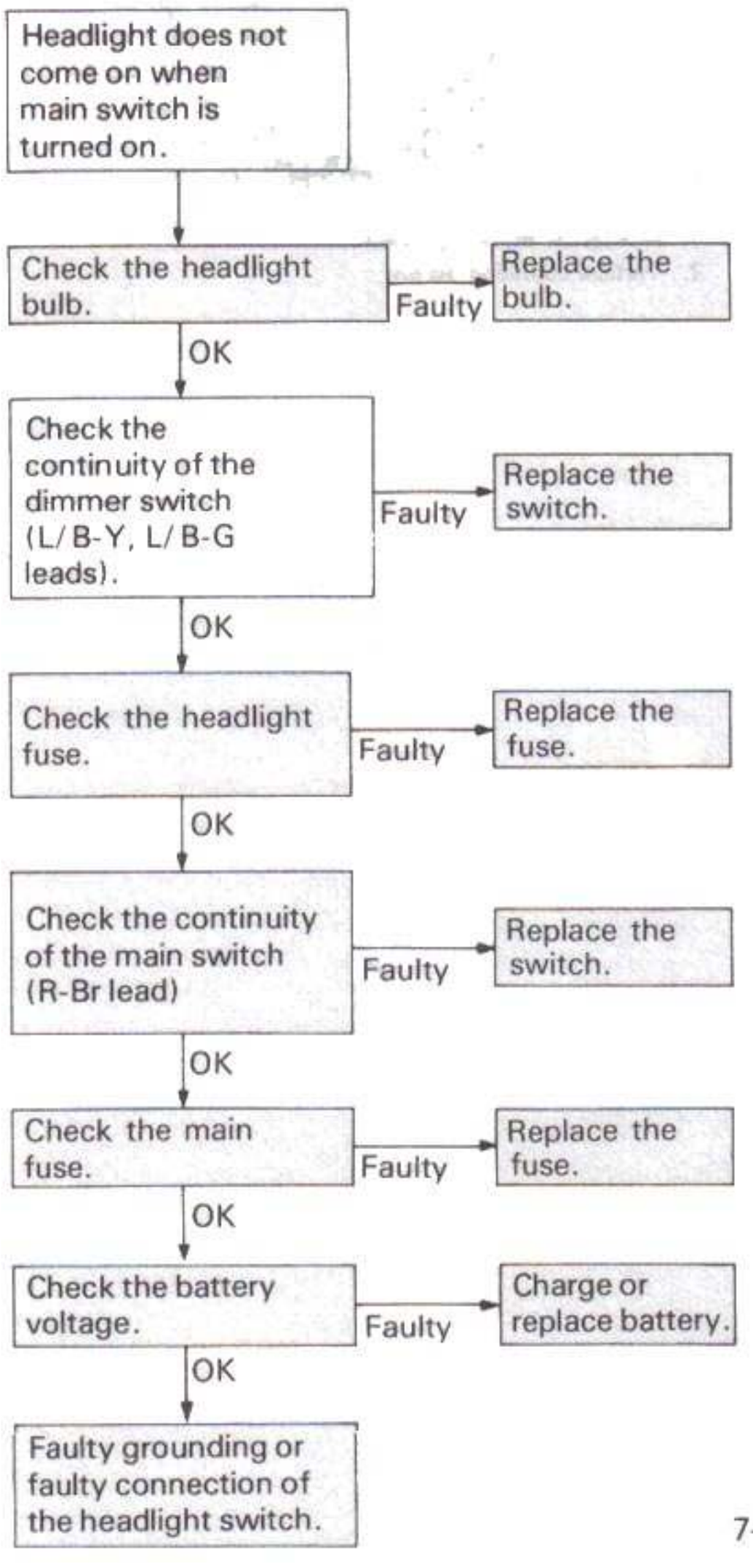
3. Start the engine and increase rpm to nearly 7,000 r/min.
4. If the valve operate correctly, the control unit is in good condition. The B/Y lead of the C.D.I. unit may be broken.
5. If does not operate, the control unit is broken.

Lighting Tests and Checks

The battery provides power for operation of the headlight, taillight, and meter lights. If none of the above operates, always check the battery voltage before proceeding further. Low battery voltage indicates either a faulty battery, low battery water, or a defective charging system. See page 7-7 "CHARGING SYSTEM" for checks of the battery and charging system. Also check the fuse condition. Replace any "open" fuses. There are individual fuses for various circuits (see the complete Wiring Diagram).

NOTE:

Check the headlight bulb first before performing the following check.



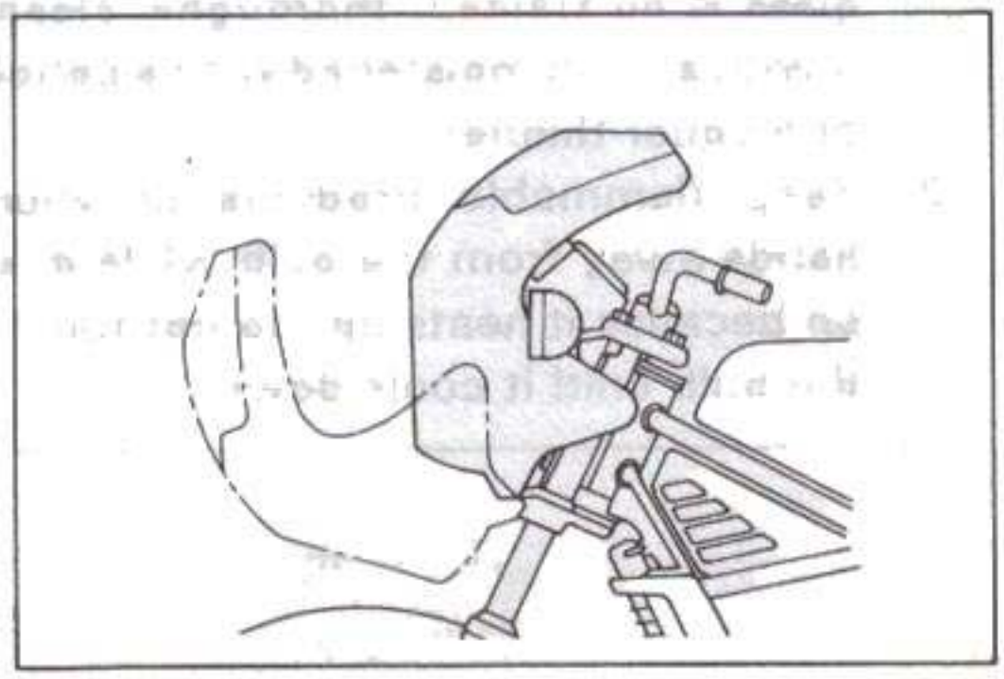
1. Taillight does not work:
   a. Check the bulb.
   b. Check for 12V on the blue lead.
   c. Check for ground on the black lead to the tail/brake light.

Headlight

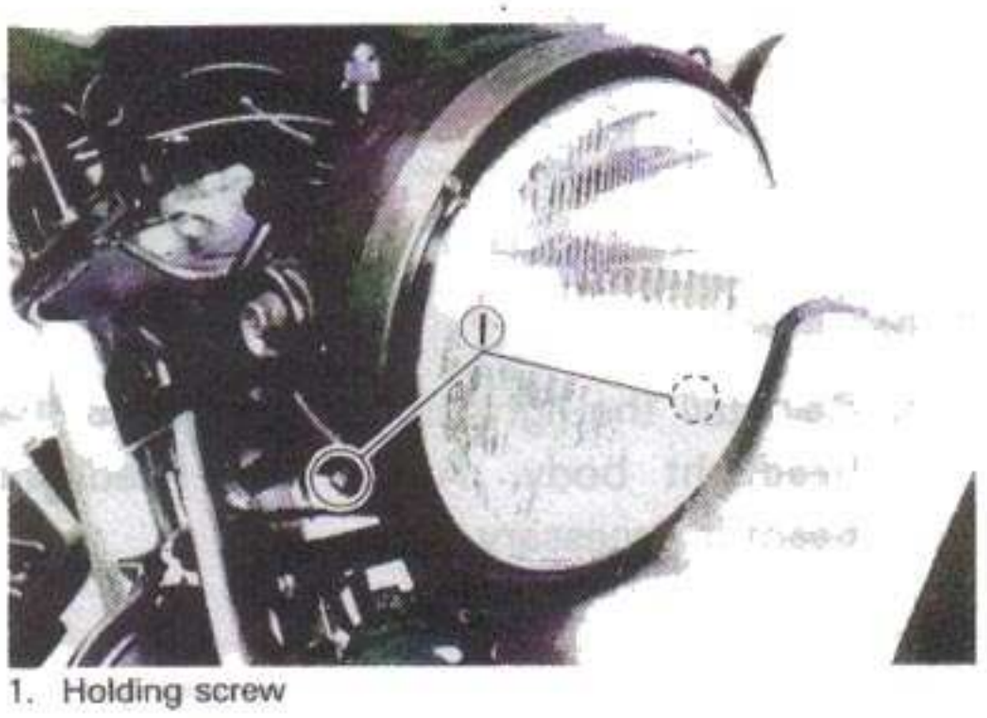
This motorcycle is equipped with a quartz bulb headlight. If the headlight bulb burns out, replace the bulb as follows.

1. Headlight bulb replacement
   a. Remove the screws and tilt down the cowling. Remove the screws and tilt down the cowling.





b. Remove the 2 screws holding the light unit assembly to the headlight body.



1. Holding screw

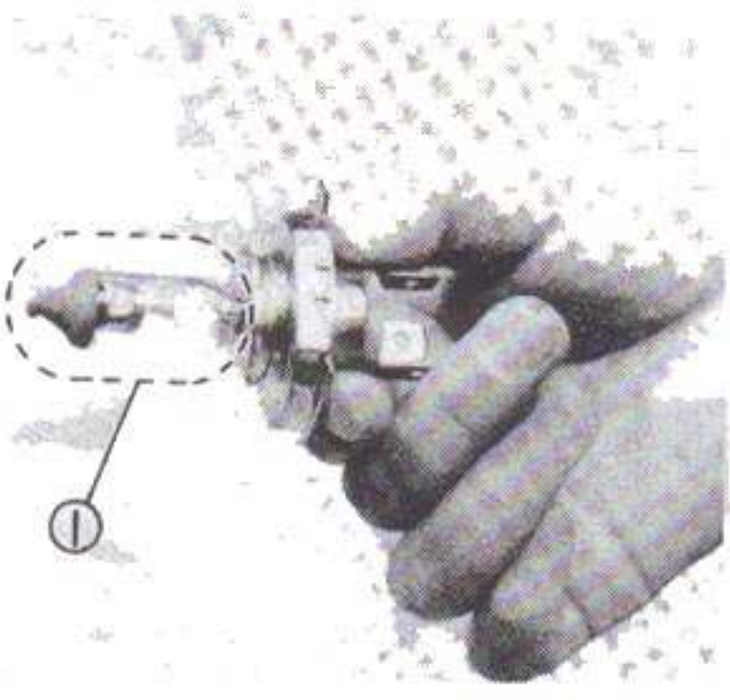
c. Disconnect the lead wires and remove the light unit assembly.
d. Turn the bulb holder counterclockwise and remove the defective bulb.



e. slip a new bulb into the position and secure it with the bulb holder.

CAUTION:

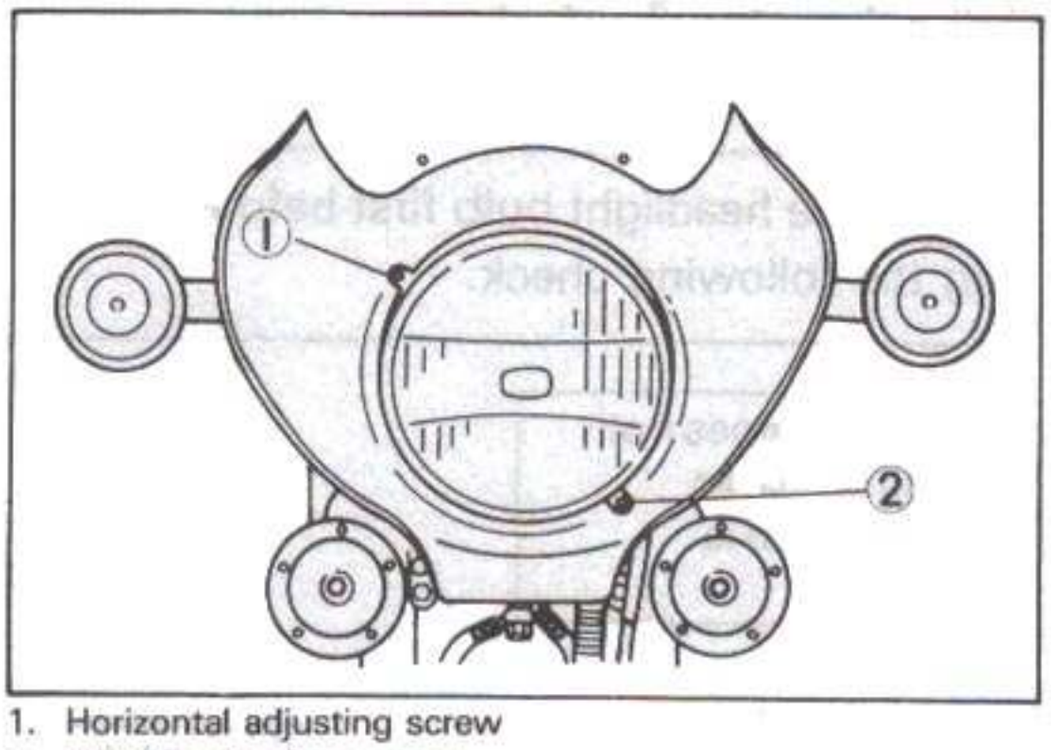
1. **Avoid touching the glass part of the bulb. Also keep it free from oil stains; otherwise, the transparency, of the glass, life of the bulb and illuminous flux will be adversely affected. If the glass is oil stained, thoroughly clean it with a cloth moistened with alcohol or lacquer thinner.**
2. **Keep flammable products or your hands away from the bulb while it is on because it heats up. do not touch the bulb unitl it cools down.**



1. Don't touch

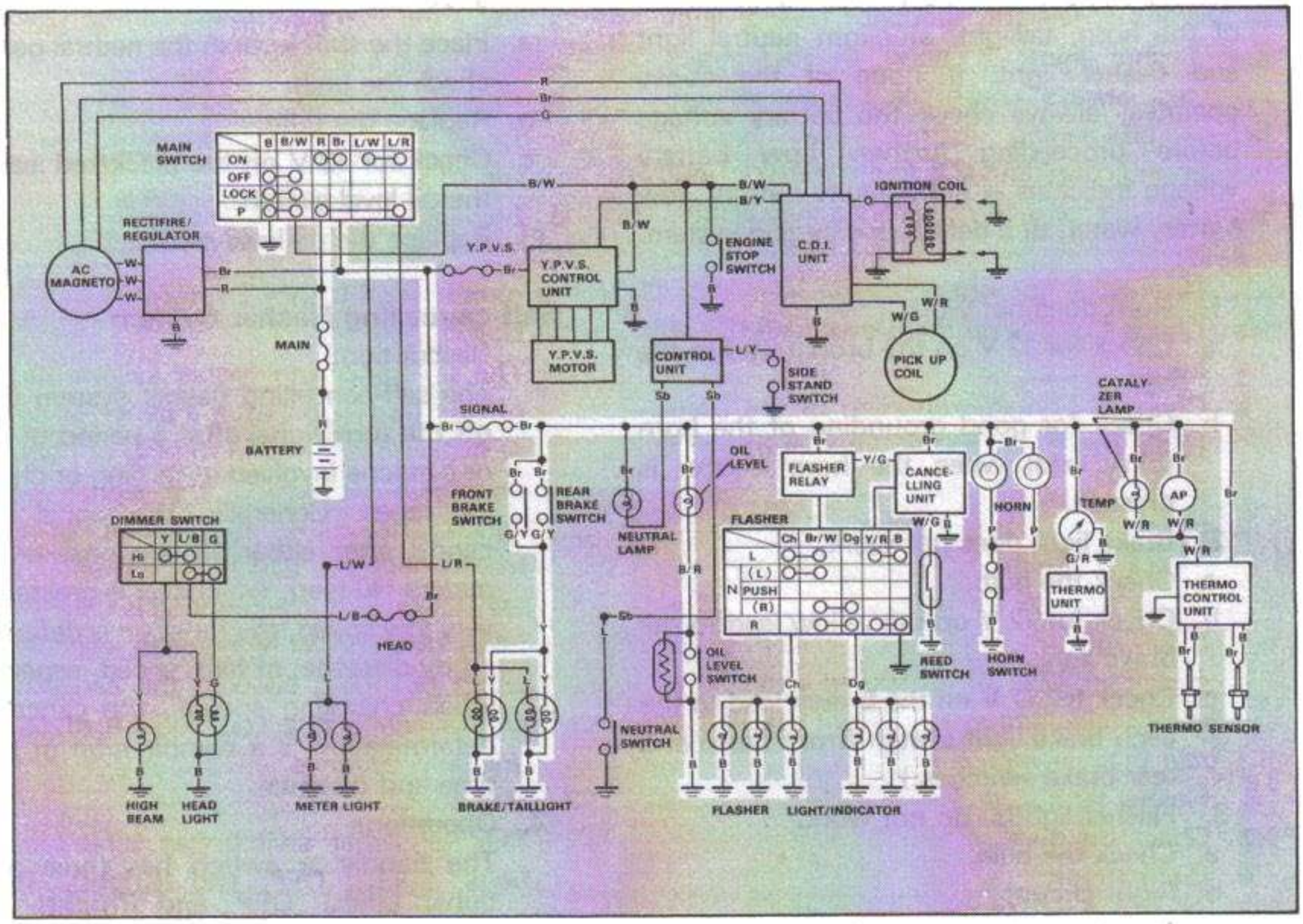
f. Reinstall the light unit assembly to the headlight body. Adjust the headlight beam if necessary.

2. Headlight beam adjustment
a. Horizontal adjustment
To adjust the beam to the left, turn the adjusting screw clockwise.
To adjust the beamn to the right, turn the screw counterclockwise.
b. Vertical adjustment:
To adjust the beam to the upper, turn the adjusting screw clockwise.
To adjust the beam to the lower, turn the adjusting screw counterclockwise.

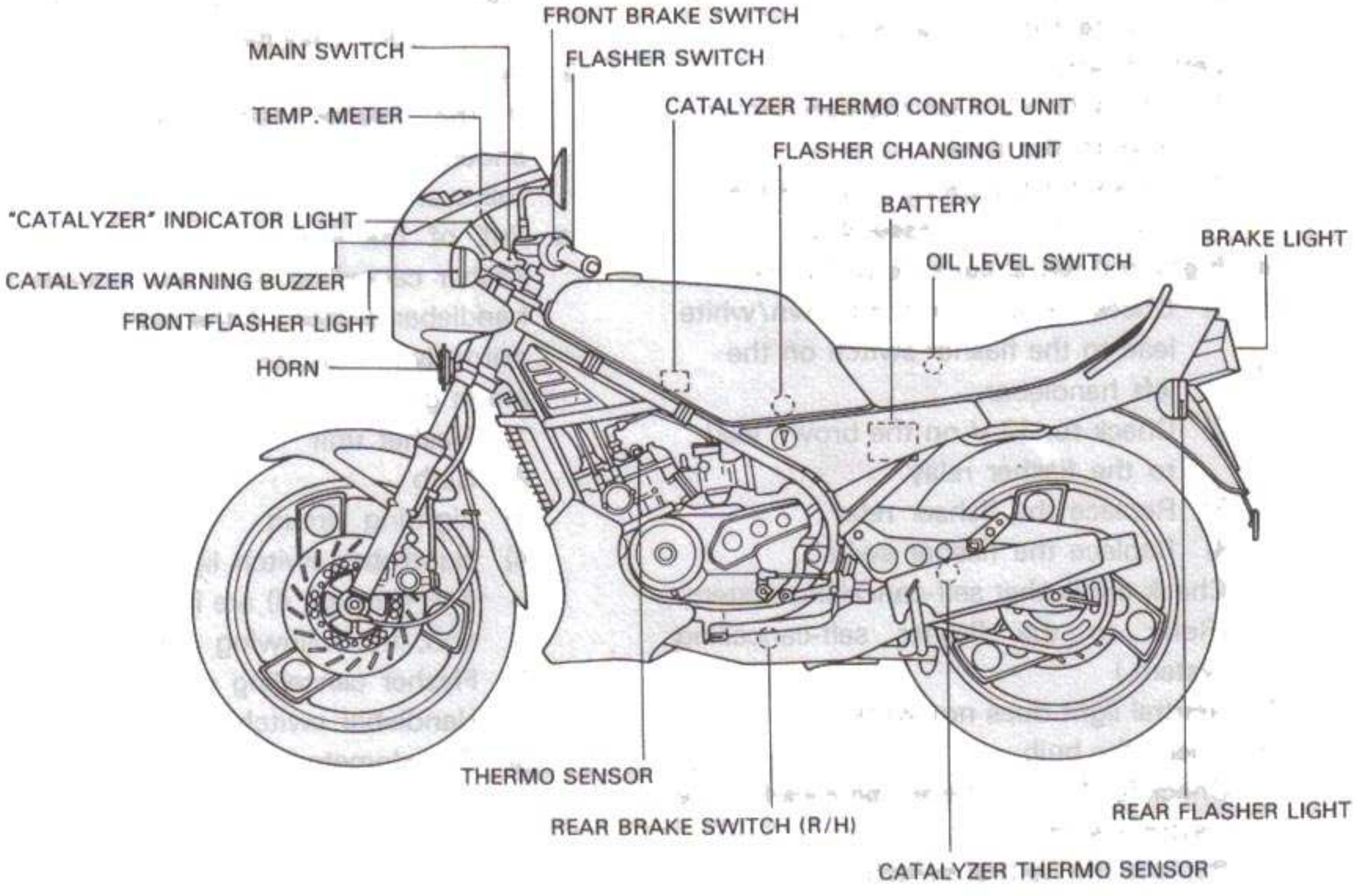


1. Horizontal adjusting screw
2. Vertical adjusting screw

SIGNAL SYSTEM



This circuit diagram shows only the signal circuit in the wiring diagram.



Lighting Tests and Checks

The battery provides power for the operation of the horn, taillight, stoplight neutral light and flasher light. If none of the above operates, always check the battery voltage before proceeding further. Low battery voltage indicates either a faulty battery, low battery water, or a defective charging system.

1. Horn does not work.
a. Check for 12 V on the brown lead to the horn.
b. Check for good grounding of the horn (pink lead) when the horn button is pressed.
2. Brake light does not work.
a. Check the bulb.
b. Check for 12 V on the yellow lead to the brake light.
c. Check for 12 V on the brown lead to the each brake light switch (front brake and rear brake switches.)
3. Flasher light(s) do not work.
a. Check the bulb.
b. Right circuit:
1) Check for 12 V on the dark green lead to the light.
2) Check for the ground on the black lead to the light assembly.
c. Left circuit:
1) Check for 12 V on the dark brown lead to the light.
2) Check for the ground on the black lead to the light assembly.
d. Right and left circuits do not work:
1) Check for 12 V on the brown/white lead to the flasher switch on the left handlebar.
2) Check for 12 V on the brown lead to the flasher relay.
3) Replace the flahser relay.
4) Replace the flasher switch.
e. Check the flasher self-cancelling system. (Refer to the flasher self-cancelling system.)
4. Neutral light does not work.
a. Check the bulb.
b. Check for 12 V on the sky blue lead to the neutral switch.
c. Replace the neutral switch.
5. Oil warning indicator light does not work.
a. Place the shift lever in the neutral gear to check the bulb.
b. Replace the bulb.
c. Check for 12 V on the black/red lead to the oil level switch.
d. Replace the oil level switch.

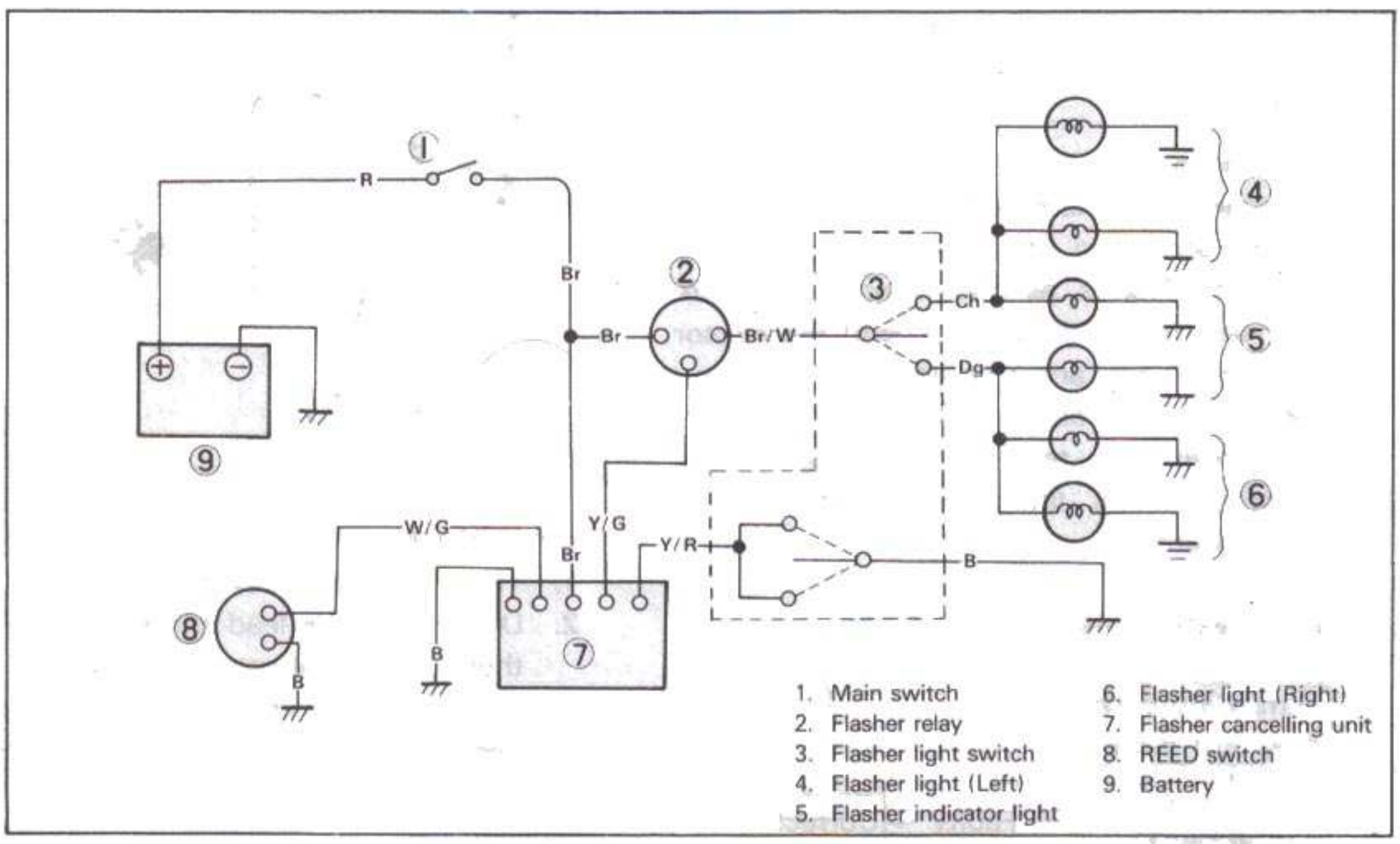
Self-cancelling Flasher System

1. Description:
The self-cancelling flasher system turns off the turn signal after a period of time or distacne involved in turning or changing lanes. Generally, the signal waill cancel after either 10 seconds, or 150 meters (40 feet), whichever is greater. At very low speed, the function is determined by distacne; at high speed, especially when changing speeds, the cancelling determination is a combination of both time and distance.
2. Operation:
The handlebar switch has three positions: L(left), OFF, and R(right). The switch lever will return to the "OFF" position after being pushed to L or R, but the signal will-function. By pushing the lever in, the signal may be cancelled manually.
3. Inspection
If the flasher self-cancelling system should become inoperative, proceed as follows:
a. Pull of the 6-pin connector from the flasher cancelling unit, and operate the handlebar switch, if the signal operates normally in L, R, and OFF, the following are in good condition.
1) Flasher unit
2) Bulb
3) Lighting circuit
4) Handlebar switch light circuit
If 1) through 4) are in good condition, the following may be faulty:
1) Flasher cancelling unit
2) Handlebar switch reset circuit
3) Speedometer sensor circuit

b. Pull off the 6-pin connector from the flasher cancelling unit, and connect a tester (ohms × 100 range) across the white/green and the black lead wires on the wire harness side. Turn the speedometer shaft. If the tester needle swing back and forth between 0 and ∞, the speedometer sensor circuit is in good condition. If not, the sensor to wire harness may be inoperative.
c. Pull off the 6-pin connector from the flasher cancelling unit. Check if there is continuity between the yellow/red lead wire on the wire harness side and the chassis.

Flasher switch OFF: ∞
Flasher switch L or R: 0 ohm

If the tester needle does not swing as indicated above, check the handlebar switch circuit and wire harness.
d. If no defect is found with the above three check-ups and the flaasher cancelling system is still inoperative, replace the flasher cancelling unit.
e. If the signal flashes only when the handlebar switch lever is turned to L or R and it turns off immediately when the handlebar switch lever returns to center, replace the flasher cancelling unit.

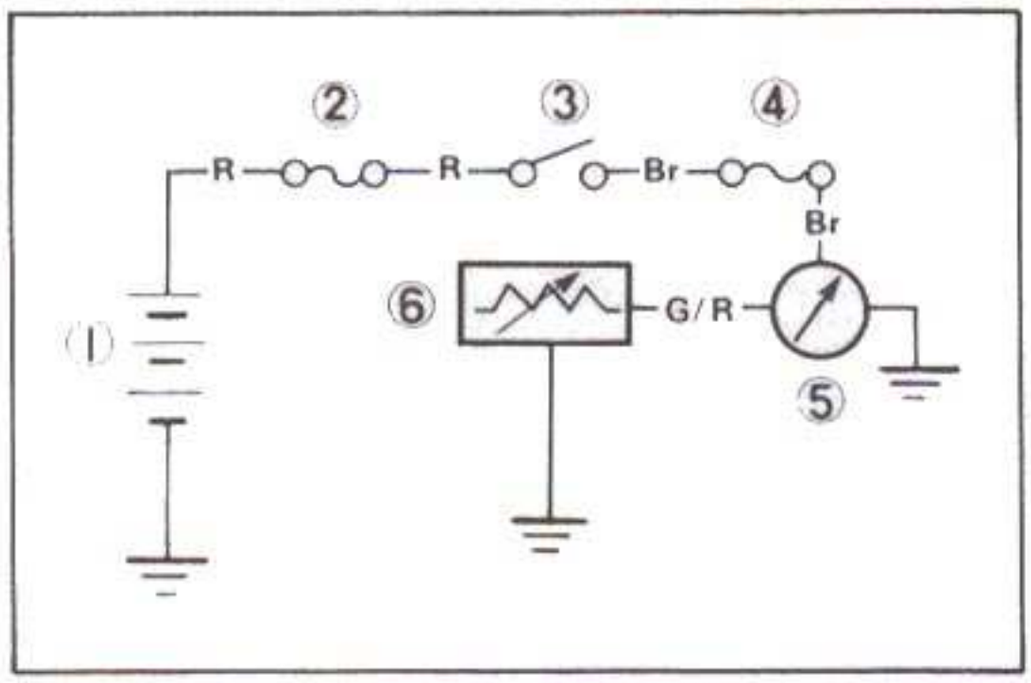


1. Main switch
2. Flasher relay
3. Flasher light switch
4. Flasher light (Left)
5. Flasher indicator light
6. Flasher light (Right)
7. Flasher cancelling unit
8. REED switch
9. Battery

WATER TEMPERATURE GAUGE

Description

The liquid cooling system has been employed in this model for providing better performance. And an electric thermometer has been equipped to indicate the engine operating temperature (coolant). This temperature meter consists of a thermo unit which is installed on the cylinder head.

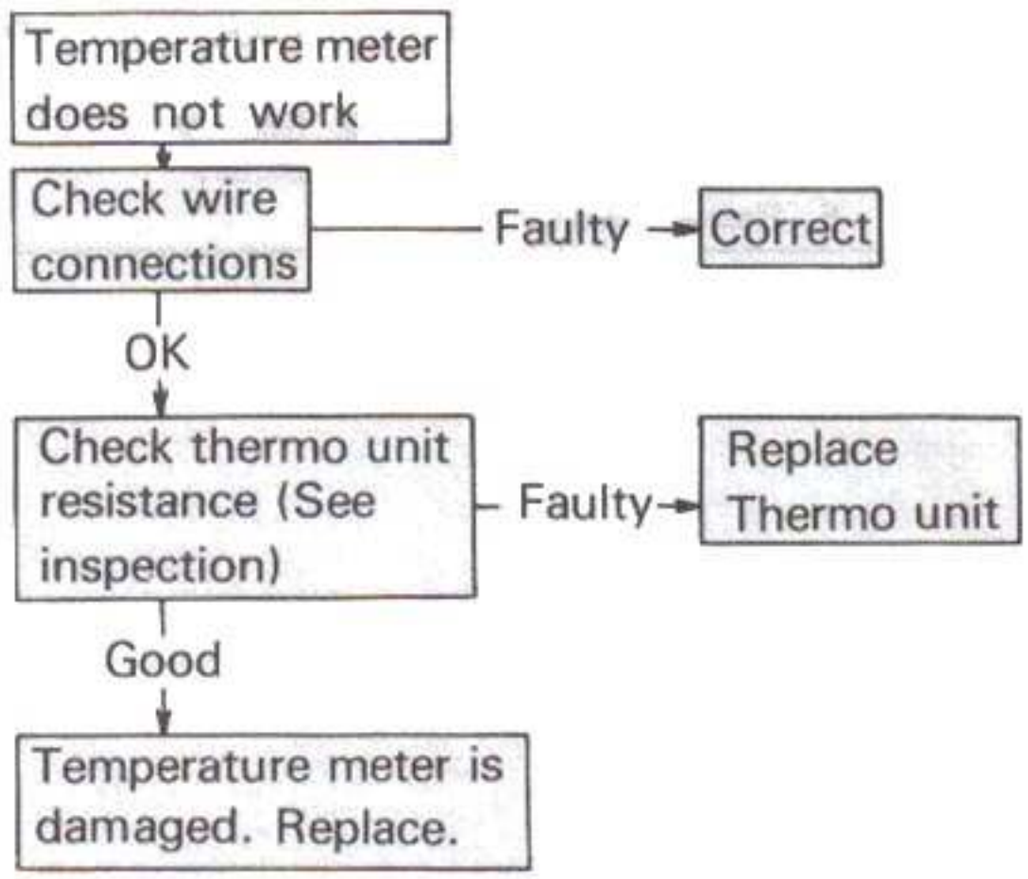


1. Batery
2. "MAIN" fuse
3. Main switch
4. "SIGNAL" fuse
5. Temp. meter
6. Thermo-unit

Operation

The thermo unit is a device whose resistacne varies according to engine temperature (coolant). That is, as the engine temperature becomes higher, the resistance of this sensor becomes lower, and vice versa. In this way, the sensor controls the flow of sensing current from the temperature gauge, thus resulting in an indication of the engine temperature.

Troubleshooting



Inspection

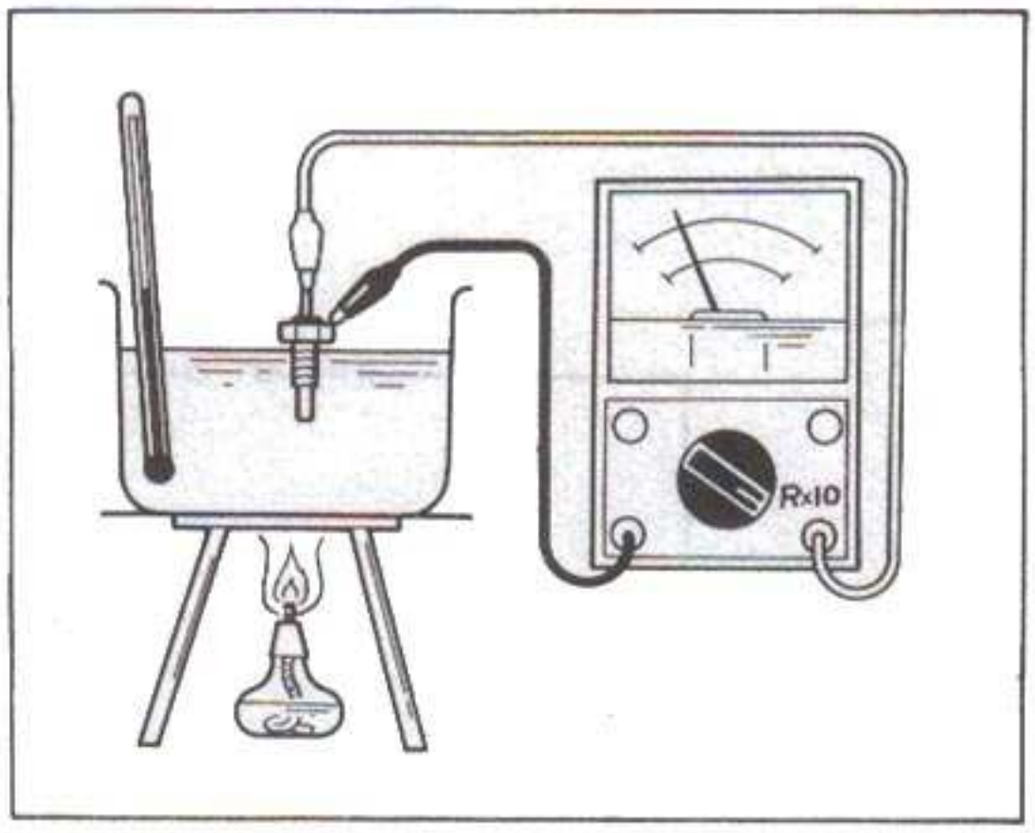
Thermo unit

Immerse the thermo unit in the water as shown. While heating the water, check the resistance at each temperature as tabulated. If the resistance is out of specification, the thermo unit is damaged. It should be replaced.

CAUTION:

Handle the thermo unit with special care. Never let it drop or give it a strong shock. Should it be dropped, it must be replaced.

Water Temperature	40°C (104°F)	60°C (140°F)	80°C (176°F)	100°C (212°F)
Resistance	240Ω	104 ± 4Ω	52.1 ± 2Ω	27.4Ω



Temp. Meter

1. Turn on the main switch.
2. Disconnect the lead (green/red) of the thermo unit and ground it to the engine body. Check if the engine temp. meter needle swings from 0 to the red zone when the lead is grounded.

CAUTION:

When the engine temp. meter needle swings into the red zone, stop grounding of the lead (green/red) immediately.

3. When the engine temp. meter needle swings to the red zone, the engine temp. meter is in good condition but the thermo unit is considered to be faulty. If the needle fails to swing to the red zone, replace the engine temp. meter assembly.
4. After replacing the thermo unit, tighten it to specification.

TIGHTENING TOROQUE
12 Nm (1.2 m · kg, 8.7 ft · lb)

CAUTION:

After replacing the thermo unit, check the coolant level in the radiator and also check for any leakage.

Catalyzer (Catalytic Conveter)

This motorcycle is equipped with catalytic converters in both mufflers. Therefore, the temperature of the mufflers during and directly after engine operation is extremely high.

- Never park this motorcycle in an area where a fire hazard such as grass or rags may exist.
- Make sure the mufflers have cooled down before adjusting or lubricating the drive chain or checking the tires.
- Do not allow the engine to idle for very long after the engine is fully warmed up.
- If the catalytic converter overheats, a warning light will come on and a buzzer will sound. If this occurs, immediately stop the motorcycle in a safe area, shut off the engine, let it cool off, and then restart. If the warning light and buzzer operate frequently, follow the troubleshooting chart until the source of the problem is located.

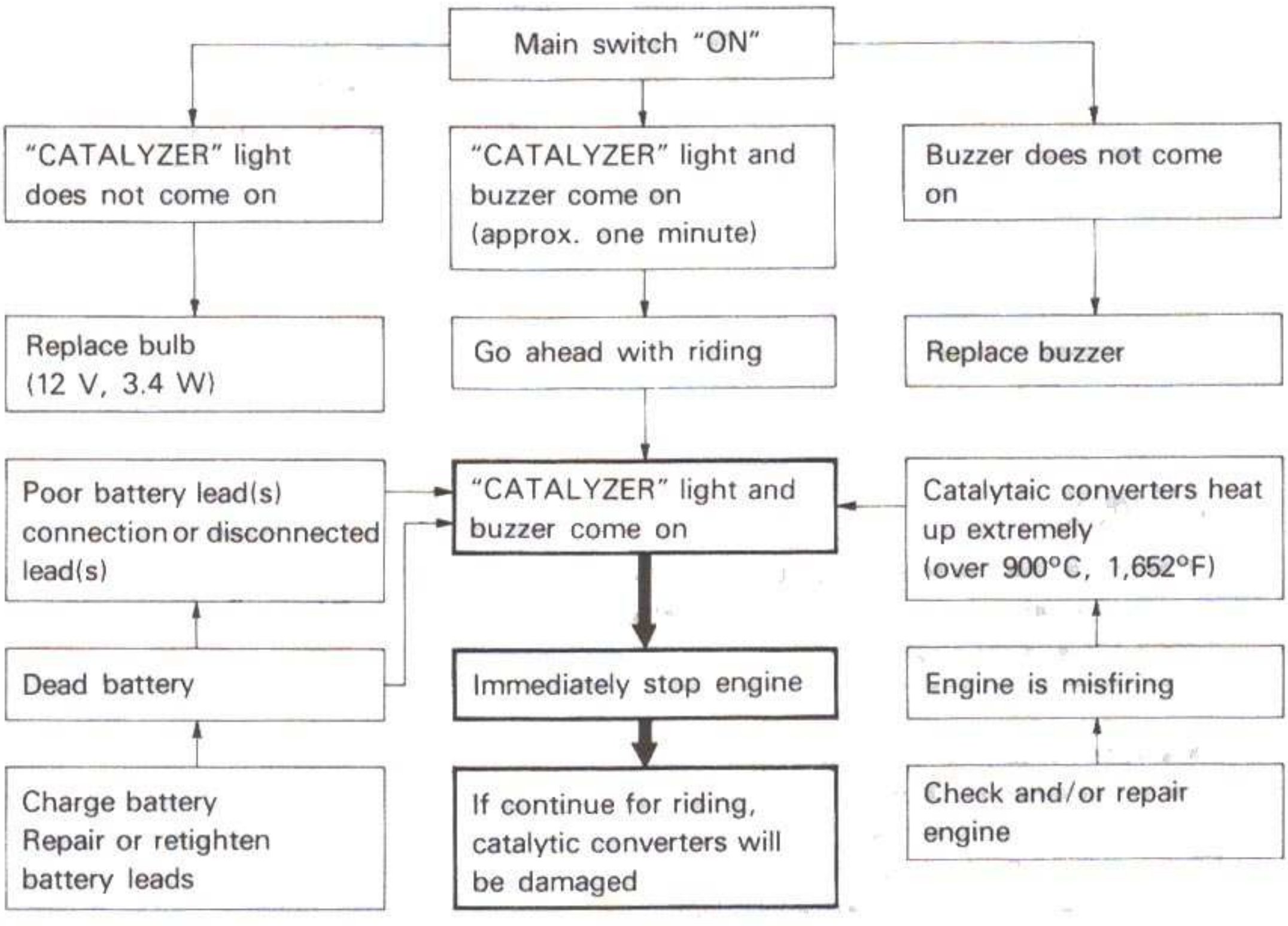
CAUTION:

Use unleaded fuel only. The use of leaded fuel will give unrepairable damage to the catalyzer. So both the muffler assemblies must be replaced.

NOTE:

The "CATALYZER" warning indicator light(red) and buzzer come on when the main switch turned "ON" (about one minute) or when the catalytic converter heats up extremely (about 900°C, 1,652°F)

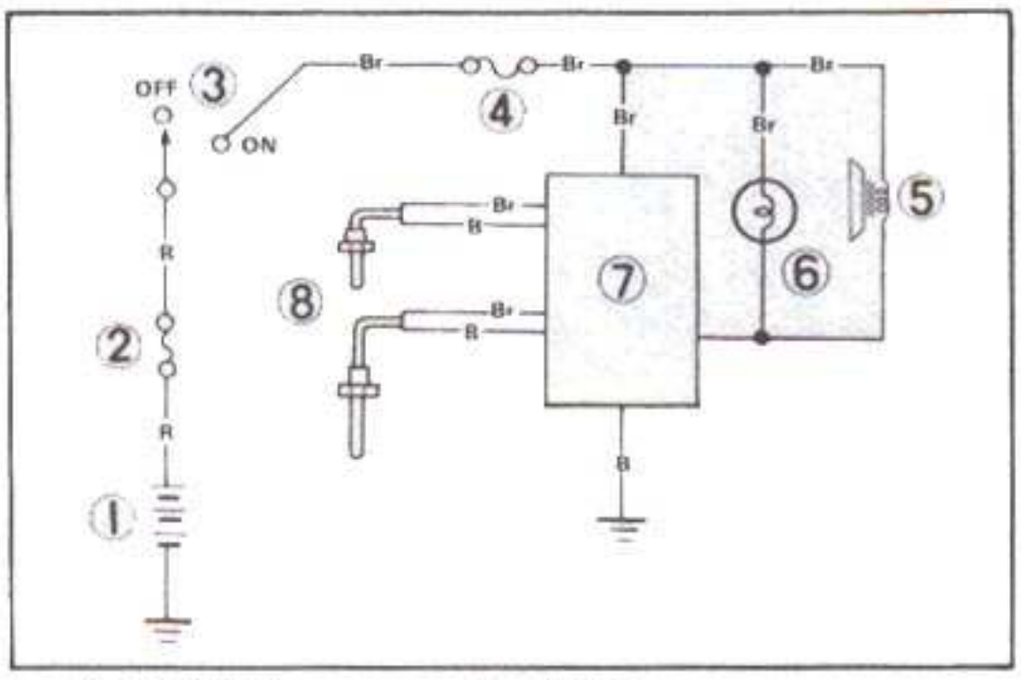
Troubleshooting



NOTE:

If, for instance, the left-hand cylinder should be malfunctioning, be sure to check both left- and right-hand mufflers.

Block Diagram



1. Battery (12V)
2. Fuse (MAIN)
3. Main switch
4. Fuse (SIGNAL)
5. Buzzer
6. "CATALYZER" light (3.4W)
7. Catalyzer thermo control unit
8. Catalyzer thermo sensor

Inspection

Catalyzer Light and Buzzer

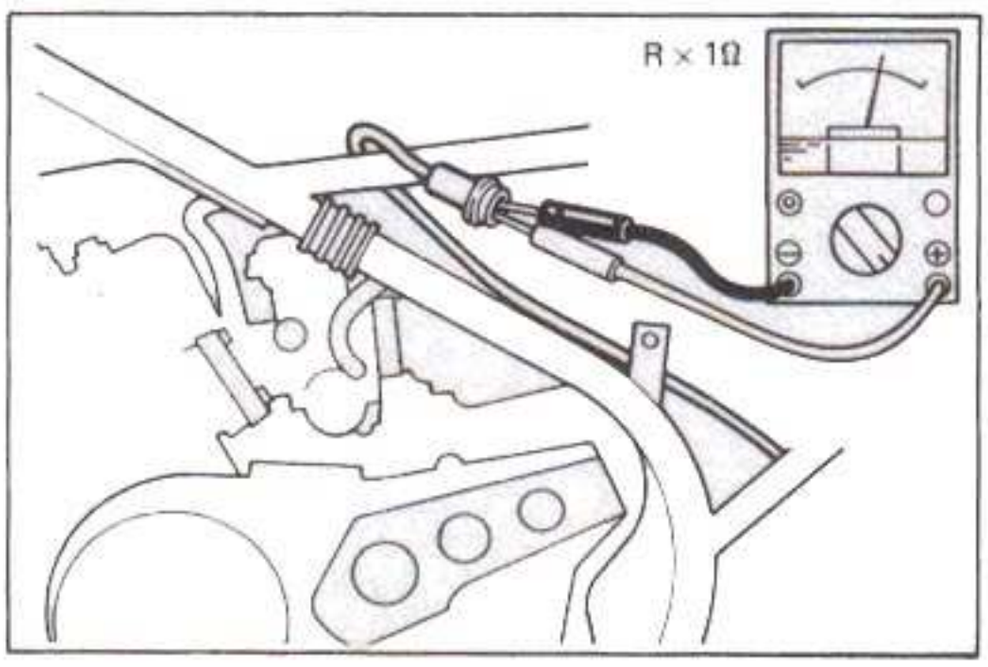
When the main switch turned "ON" the catalyzer light and buzzer come on. If none of the above operates, always check battery before proceeding further. Low battery voltage indicates either a faulty battery, low battery electrolyte, or defective charging system. See CHARGING SYSTEM for checks of the battery and charging system. Also checks fuse condition. Replace any "open" fuses. There are individual fuses for various circuits (see the complete circuit diagram).

1. Check the wire connections. Repair if necessary.
2. Turn on the main switch.
3. Disconnect the lead (white/red) of the catalyzer thermo control unit and ground it to the engine body. Check if catalyzer light and buzzer come on when the lead is grounded.

4. If the light and buzzer come on, the light and buzzer are in good condition but the catalyzer thermo control unit is considered to be faulty. If the bulb and/or buzzer do not come on, replace the bulb and/or buzzer.

Catalyzer Thermo Control Unit

1. Remove the seat and fuel tank.
2. Disconnect the catalyzer thermo sensor connectors from the catalyzer thermo control unit.
3. Connect the pocket tester as shown. If the resistance does not equal the specified value, the sensor(s) should be replaced.



Sensor resistance:
4Ω ± 20% at 20°C (68°F)

Catalyzer Thermo Control Unit

If the control unit should become inoperative, proceed as follows:

1. Inspect the CATALYZER light, buzzer, and thermo sensors are in good condition but the control unit is considered to be faulty. Replace the control unit assembly.



1. CATALYZER control unit

Catalyzer (Catalytic Converter) Inspection

This catalytic converter can be checked by the following procedure.

Check the exhaust smoke by test riding

↓

Heavy smoke (white color) comes out

↓

Remove the mufflers(s)

↓

Shake the mufflers(s) and check for an abnormal noise in the mufflers(s)

↓

*Check and repair the engine misfiring.

↓

Install the New mufflers(s)

*If, for instance, the left hand cylinder should be mulfunctioning, be sure to check both left and right hand mufflers.

Switches

Switchs may be checked for continuity with a pocket tester on the ohm × 1 scale.

1. Main switch.

Switch position	Wire color					
	B	B/W	R	Br	L/W	L/R
ON			○—○		○—○	
OFF	○—○					
LOCK	○—○					
P (parking)	○—○		○—○			○

2. Engine stop switch.

Switch position	Wire color	
	R/W	B
RUN	○	○
OFF		

3. Lights (dimmer) switch.

Switch position	Wire color		
	Y	L/B	G
HI	○—○		
LO		○	○

4. Turn switch

Switch position	Wire color				
	Ch	Br/W	Dg	Y/R	B
L	○—○			○—○	
L → N	○—○				
N → Push					
R → N		○—○			
R		○—○		○—○	

5. Horn switch

Switch position	Wire color	
	P	B
PUSH	○	○
OFF		

CHAPTER 8
APPENDICES

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CHAPTER 8. APPENDICES

TROUBLESHOOTING GUIDE

The following guide is not complete in itself. If a problem is found within an individual component mentioned in the chart, refer to the section or chapter involved for inspection procedures.

1. Engine will not starter or difficult to start

a. Ignition system

Possible cause	Remedy
No spark	1. Check ignition main switch. 2. Check engine stop switch. 3. Check C.D.I. unit. 4. Check pickup and source coil. 5. Check wiring, stator coil. 6. Check ignition coil. 7. Check spark plug lead. 8. Check spark plug.
Weak or intermittent spark	1. Use Electro Tester, spark gap test. 2. Check spark plug. 3. Check spark plug. 4. Check ignition coil.

b. Air/Fuel systems

Possible cause	Remedy
No fuel (Use unleaded fuel only)	1. Check fuel tank. 2. Check fuel cock. 3. Check fuel flow.
Intermittent or poor fuel flow	1. Clean fuel tank, check cap vent. 2. Clean fuel cock. 3. Clear or repair carburetor.
Bad fuel	1. Flush fuel system, complete. 2. Add fresh fuel, proper grade.
Blocked air intake or malfunction	1. Clean and lube filter. 2. Check reed valve assembly.

c. Engine/Exhaust systems

Possible cause	Remedy
Incorrect compression pressure	1. If compression is too high, check for excessive carbon build up. 2. No compression or low compression, Check: a. Cylinder head gasket. b. Cylinder base gasket. c. Piston, rings, cylinder.
Poor bottom end compression	Check crankcase seals, left and right.
Blocked exhaust system	1. Check muffler. 2. Check YPVS system/adjust YPVS cables 3. Check exhaust pipe for internal damage. 4. Check catalytic converter for damage.

2. Poor idle and/or low speed performance

a. Ignition system

Possible cause	Remedy
Spark plug fouled or incorrect gap	Clean and gap, or replace if necessary.
Incorrect ignition timing	Check C.D.I. unit, source and pickup coil.
Weak spark	Check ignition coil and condenser.

b. Air/Fuel systems

Possible cause	Remedy
Tank cap vent plugged	Clean or repair as necessary.
Fuel cock plugged	Clean or repair as necessary.
Carburetor slow speed system inoperative	Clean or repair as necessary.
Pilot screw out of adjustment or plugged	Adjust or clean as necessary.
Carburetor float level incorrect	Measure and adjust as required.
Starter lever on	Push lever off.
Air leak	Repair.
Carburetor not level	Level.

c. Engine/Exhaust system. See "No start" section.

3. Poor mid-range and high speed performance

a. Ignition systems

Possible cause	Remedy
Spark plug gap incorrect	Clean and gap or change spark plug if necessary.
Incorrect ignition timing	Check C.D.I. unit, charge and pickup coil.
YPVS operation	Check YPVS cable and adjust as required.

b. Air/Fuel systems

Possible cause	Remedy
Air filter element/secondary air filter element	Clean and replace if necessary.
Carburetor float level incorrect	Measure and adjust if required.
Incorrect main jet size	Remove jet and check size.
Incorrect jet needle clip position	Check position of clip in needle.
Cracked or leaking reeds	Remove and repair as necessary.
Carburetor not level	Level.

SPECIFICATIONS

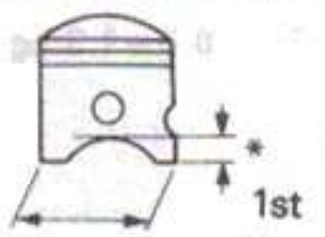
1. GENERAL SPECIFICATIONS

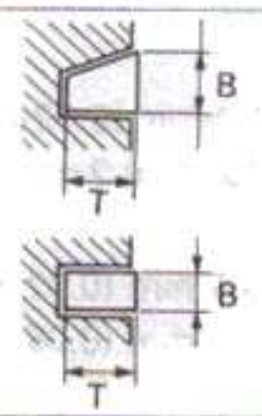
Model	RZ350L
Model code number	48H
Federal V.I.N. number	JYA48H00*EA000101
Engine starting number	48H-000101
Dimension: Overall length Overall width Overall height Seat height Wheelbase Minimum ground clearance	 2,120 mm (83.5 in) 710 mm (28.0 in) 1,175 mm (46.3 in) 800 mm (31.5 in) 1,385 mm (54.5 in) 175 mm (6.9 in)
Weight: With oil and full fuel tank	 168 kg (370.6 lb)
Minimum turning radius	2,400 mm (94.5 in)
Engine: Type Cylinder arrangement Displacement Bore × Stroke Compression ratio Starting system	 Liquid cooled 2-stroke, gasoline, torque induction with catalytic converters Twin, forward inclined 347 cm^3 64.0 × 54.0 mm (2.52 × 2.13 in) 6.0 : 1 Primary kick starter
Lubrication system	Separate lubrication (Yamaha Autolube)
Engine oil: Type Tank capacity	 Yamalube 2-cycle oil or 2-stroke engine oil with "BIA certified for service TC-W" 1.6 L (1.41 Imp qt, 1.69 US qt)
Transmission oil: Type Oil capacity Total Exchange	 Yamalube 4-cycle oil or SAE10W30 type SE motor oil or "GL" gear oil 1.7 L (1.5 Imp, qt, 1.8 US qt) 1.5 L (1.3 Imp qt, 1.6 US qt)
Radiator capacity (Including all routes)	1.5 L (1.32 Imp qt, 1.59 US qt)
Spark plug: Type Gap	 Standard: BR8ES (NGK), For high speed riding: BR9ES (NGK) 0.7 ~ 0.8 mm (0.02 ~ 0.03 in)
Carburetor × Quantity	VM26SS × 2
Air cleaner	Wet type element
Clutch type	Wet, multiple-disc
Transmission: Primary reduction system Primary reduction ratio Secondary reduction system Secondary reduction ratio Transmission type Operation system	 Helical gear 66/23 (2.869) Chain 40/17 (2.352) Constant mesh 6-speed Left foot operation

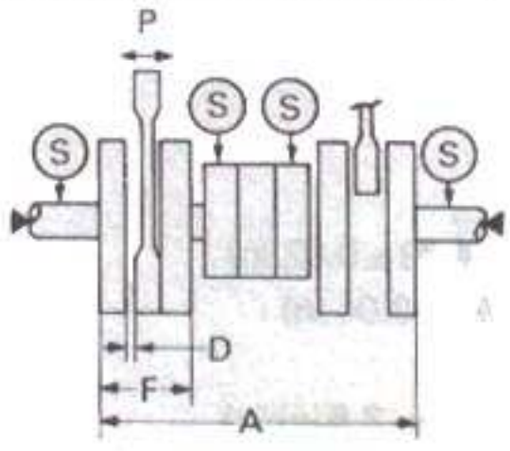
Model		RZ350L
Gear ratio	1st	36/14 (2.571)
	2nd	32/18 (1.778)
	3rd	29/22 (1.318)
	4th	26/24 (1.083)
	5th	25/26 (0.962)
	6th	24/27 (0.888)
Chassis:		
Frame type		Tubular, double-cradle
Caster		26°
Trail		96 mm (3.8 in)
Fuel:		
Type		Regular gasoline (Unleaded fuel only)
Tank capacity, Total		20.0 L (4.3 Imp gal, 5.3 US gal)
Reserve		2.0 L (0.4 Imp gal, 0.5 US gal)
Tire size:		
Front		90/90-18 51H
Rear		110/80-18 58H
Brake:		
System/operation		
Front		Double disc brake/Right hand operation
Rear		Single disk brake/Right foot operation
Suspension:		
Front		Telescopic fork
Rear		Swingarm (New monocross suspension)
Shock absorber:		
Front		Coil spring/air, oil damper
Rear		Coil spring, gas, oil damper
Wheel Travel:		
Front		140 mm (5.51 in)
Rear		100 mm (3.94 in)
Electrical:		
Ignition system		C.D.I.
Generator system		A.C. magneto
Battery:		
Type/Capacity		12N5.5-3B/12V, 5.5AH
Bulb wattage × Quantity:		
Headlight		60W/55W (Quartz bulb)
Tail/brake light		12V 8W/27W ×2
Flasher light		12V 27W ×4
Meter light		3.4W×3
Indicator light:		
NEUTRAL		3.4W
HIGH BEAM		3.4W
OIL		3.4W
CATALYZER		3.4W
TURN		3.4W×2

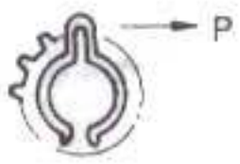
MAINTENANCE SPECIFICATION
Engine

Model	RZ350L
Cylinder head:	
Combustion chamber volume	21.3 ~ 21.9 cm^3
Warp limit	0.03 mm (0.0012 in)
Cylinder:	
Material	Aluminum alloy with cast iron sleeve (Cast in)
Bore size/ Limit	64 $^{+0.02}_{-0}$ mm (2.52 $^{+0.0008}_{-0}$ in)/ 64.1 mm (2.524 in)
Taper limit	0.05 mm (0.0020 in)
Warp limit	0.03 mm (0.0012 in)
Out of round limit	0.01 mm (0.0004 in)
Piston:	
Piston size/ Measuring point*	64.0 mm (2.520 in)/ 10 mm (0.39 in)
Piston clearance	0.060 ~ 0.065 mm (0.0024 ~ 0.0026 in)
Piston oversize 1st	64.25 mm (2.53 in)
2nd	64.50 mm (2.54 in)
Piston offset	0 mm (0 in)
Piston ring:	
Piston ring design/ B × T (Top)	Keystone/ 1.2 × 2.6 mm (0.047 × 0.102 in)
Piston ring design/ B × T (2nd)	Plain (With expander)/ 1.5 × 2.15 mm (0.059 × 0.085 in)
Ring end gap (installed) (Top)	0.30 ~ 0.45 mm (0.012 ~ 0.018 in)
Ring end gap (installed) (2nd)	0.35 ~ 0.50 mm (0.014 ~ 0.020 in)
Ring groove side clearance (Top)	0.02 ~ 0.06 mm (0.0008 ~ 0.0024 in)
Ring groove side clearance (2nd)	0.03 ~ 0.07 mm (0.0012 ~ 0.0028 in)
Crankshaft:	
Crankshaft assembly width	
(F)	54.00 $^{+0}_{-0.05}$ mm (2.13 $^{+0}_{-0.002}$ in)
(A)	156 $^{+0.05}_{-0.10}$ mm (6.14 $^{+0.002}_{-0.004}$ in)
Crankshaft runout limit (S)	0.05 mm (0.002 in)
Connecting rod big end side clearance (D)	0.25 ~ 0.75 mm (0.01 ~ 0.03 in)
Connecting rod small end deflection (P)	0.36 ~ 0.98 mm (0.014 ~ 0.039 in)
Clutch:	
Friction plate	
— Thickness/ Quantity	3.0 mm (0.12 in) × 7
— Wear limit	2.7 mm (0.106 in)
Clutch plate	
— Thickness/ Quantity	1.2 mm (0.047 in) × 6
— Warp limit	0.05 mm (0.002 in)
Clutch spring	
— Free length/ Quantity	36.4 mm (1.43 in) × 6
<Limit>	<34.4 mm (1.35 in)>







Model	RZ350L
Clutch housing	
— Thrust clearance	0.07 ~ 0.12 mm (0.003 ~ 0.005 in)
— Radial clearance	0.011 ~ 0.048 mm (0.0004 ~ 0.0019 in)
Clutch release method	Inner push, Cam push
Push rod bending limit	0.2 mm (0.008 in)
Primary reduction gear back lash tolerance	154 ~ 156
Primary drive gear back lash number	90 ~ 98
Primary driven gear back lash number	57 ~ 65
Shifter:	
Type	Cam drum
Guide bar bending limit	0.025 mm (0.001 in)
Kick starter:	
Type	Kick and mesh type
Kick clip friction force	P = 0.8 ~ 1.3 kg (1.76 ~ 2.90 lb)
	
Air filter — Oil grade	Yamaha 2-stroke engine oil or equivalent
Reed valve: (Engine)	
Bending limit	0.5 mm (0.02 in)
Valve lift	10.3 ± 0.2 mm (0.41 ± 0.008 in)
Reed valve: (catalyzer)	
Bending limit	0.5 mm (0.02 in)
Valve lift	1.2 mm (0.05 in)
	
Carburetor:	
Type/ Manufacturer/ Quantity	VM26SS/ MIKUNI/ 2
I.D. mark	48H00
Main jet (M.J.)	#230
Main air jet (M.A.J.)	#85
Jet needle - Clip position (J.N.)	5CK1-1
Needle jet (N.J.)	0-8
Cutaway (C.A.) left and right	2.0
Pilot jet (P.J.)	#20
Air screw (turns out) (A.S.)	Preset
Starter jet (G.S.) left and right	#80
Valve seat (V.S.)	ϕ2.8
Float height (F.H.)	21 ± 0.5 mm (0.83 ± 0.02 in)
Fuel level	2 ± 1 mm (0.08 ± 0.04 in)
Engine idling speed	1,200 ± 50 r/min
Vacuum pressure	12 kPa (90 mmHg, 3.5 inHg)
Lubrication:	
Autolube pump	
— Color code	Yellow
— Minimum stroke	0.10 ~ 0.15 mm (0.004 ~ 0.006 in)
— Maximum stroke	2.05 ~ 2.27 mm (0.08 ~ 0.09 in)
— Minimum output/ 200 stroke	0.12 ~ 0.19 cm^3 (0.004 ~ 0.007 Imp oz, 0.004 ~ 0.006 US oz)

Model	RZ350L
– Maximum output	2.58 ~ 2.85 cm³ (0.091 ~ 0.101 Imp oz, 0.087 ~ 0.096 US oz) (At idle)
Pulley adjusting position (Adjusting mark)	
Cooling:	
Radiator core size	
– Width	290.6 mm (11.44 in)
– Height	180 mm (7.08 in)
– Thickness	16 mm (0.63 in)
Radiator cap opening pressure	89.3 ± 14.7 kPa (0.9 ± 0.15 kg/cm², 12.8 ± 2.13 psi)
Coolant capacity (Total)	1.5 L (1.32 Imp qt, 1.59 US qt)
Water pump	
– Type	Single-suction centrifugal pump
– Reduction ratio	32/20 (1.60)

Tightening torque

Part	Thread size	Nm	m·kg	ft·lb
Cylinder head	M8	28	2.8	20
Cylinder	M8	25	2.5	18
Crankcase (No.1 ~ 8)	M8	23	2.3	17
Crankcase (No.9 ~ 16)	M6	10	1.0	7.2
Spark plug	M14	20	2.0	14
Primary drive gear	M16	65	6.5	47
Clutch boss	M20	90	9.0	65
Clutch spring	M6	10	1.0	7.2
Drive sprocket	M18	80	8.0	58
Kick crank	M8	25	2.5	18
Change pedal	M6	10	1.0	7.2
Reed valve	M3	1	0.1	0.7
Flywheel magneto	M12	80	8.0	58
Exhaust pipe	M8	18	1.8	13
Joint cover (Radiator hose)	M6	12	1.2	8.7
Housing cover (Thermostatic valve)	M6	10	1.0	7.2
Radiator cover	M5	3	0.3	2.2
Oil pump	M5	4	0.4	2.9
Reed valve	M6	14	1.4	10
Drain plug	M14	20	2.0	14
Crankcase cover (Right)	M6	10	1.0	7.2
Crankcase cover (Left)	M6	7	0.7	5.1
Bearing cover plate (Main axle)	M6	10	1.0	7.2
Tachometer driven gear housing	M5	5	0.5	3.6
Shift cam stopper plate	M6	10	1.0	7.2
Stopper lever	M6	14	1.4	10
Neutral switch	M5	3	0.3	2.2
Shift lever adjust screw	M8	30	3.0	22
Thermo sensor	M10	14	1.4	10
Catalyzer thermo sensor	M12	30	3.0	22
A.C. magneto base	M6	10	1.0	7.2

Chassis

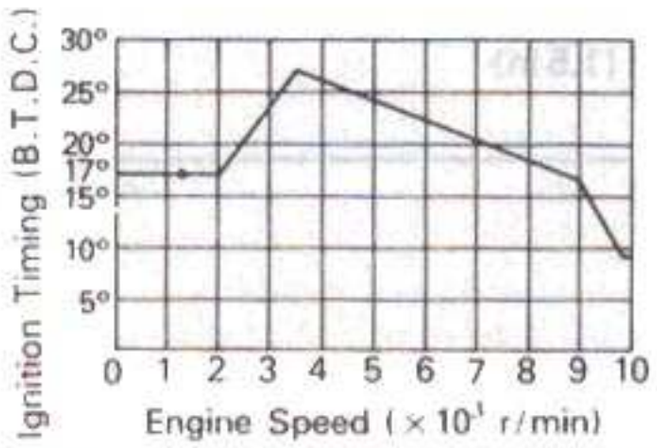
Model	RZ350L
Steering system:	
Steering bearing type	Ball bearing
No./ Size of balls	
Upper	19 pcs. 1/4 in
Lower	19 pcs. 1/4 in
Lock to lock angle	80°
Front suspension:	
Front fork travel	140 mm (5.51 in)
Front fork spring	
<Limit>	506.2 mm (19.9 in)
— Free length	<501.2 mm (19.73 in)>
— Spring rate	K_1 = 3.33 N/mm (0.34 kg/mm, 19.0 lb/in)
	0 ~ 140 mm (0 ~ 5.51 in)
Oil capacity	253 cm³ (8.91 Imp oz, 8.55 US oz)
Oil level	120 mm (4.72 in)
Oil grade	SAE 10W30 SE motor oil
Air pressure (STD)	39 kPa (0.4 kg/cm², 5.7 psi)
(Min. ~ Max.)	0 ~ 118 kPa (0 ~ 1.2 kg/cm², 0 ~ 17 psi)
Rear suspension:	
Shock absorber travel	40 mm (1.57 in)
Rear wheel travel	100 mm (3.94 in)
Rear absorber spring	
— Free length	184 mm (7.24 in)
— Spring rate	K_1 = 103.0 N/mm
	(10.5 kg/mm, 588 lb/in) 0 ~ 40 mm (0 ~ 1.57 in)
Gas properties	Nitrogen gas
Gas pressure	1,177 kPa (12 kg/cm², 171 psi)
Rear arm:	
Swing arm free play	
End	1 mm (0.04 in)
Side	0.2 ~ 0.4 mm (0.008 ~ 0.016 in)
Wheel:	
Type	Cast wheel
Rim size (Front)/ Material	MT2.15 × 18/ Aluminum
Rim size (Rear)/ Material	MT2.50 × 18/ Aluminum
Rim run out limit	
Vertical	2 mm (0.08 in)
Lateral	2 mm (0.08 in)
Drive chain:	
Type/ Manufacturer	520V-SR/DAIDO
Number of links	108
Chain free play	30 ~ 40 mm (1.2 ~ 1.6 in)

Model		RZ350L
Disc brake:		
Type		
Front		Dual
Rear		Single
Disc size-outside dia × Thickness		267 × 5 mm (10.5 × 0.19 in)
Disc wear limit		4.5 mm (0.18 in)
Pad thickness		6.8 mm (0.27 in)
Pad wear limit		0.8 mm (0.03 in)
Master cylinder inside diameter	Front	15.87 mm (0.62 in)
	Rear	12.70 mm (0.51 in)
Caliper cylinder inside diameter	Front	38.18 mm (1.5 in)
	Rear	38.18 mm (1.5 in)
Brake fluid type		DOT #3

Tightening torque

Part	Thread size	Nm	m · kg	ft · lb
Engine mounting bolt	M10	65	6.5	46
Engine mount stay	M8	23	2.3	17
Steering crown -Steering stem	M14	85	8.5	61
-Inner tube	M8	20	2.0	14
-Holder	M8	20	2.0	14
Under bracket -Inner tube	M8	20	2.0	14
Front wheel axle	M12	74	7.4	53
Pivot shaft	M14	65	6.5	47
Rear wheel axle	M12	105	10.5	75
Driven sprocket	M8	32	3.2	23
Rear shock (upper)	M8	40	4.0	29
Relay arm-Frame	M10	40	4.0	29
Relay arm-Arm 1, 2	M14	65	6.5	47
Arm 1, 2-Swingarm	M12	40	4.0	29
Muffler bracket-Muffler	M10	64	6.4	46
Brake disc-Hub (Front and rear)	M8	20	2.0	14
Brake hose-Union bolt (All)	M10	25	2.5	18
Caliper -Fork (Front)	M10	35	3.5	25
-Bleed screw	M8	5	0.5	4
Pad retainer bolt (Front)	M10	23	2.3	17
Caliper-bracket (Rear)	M10	35	3.5	25
Master cylinder bracket (Front)	M8	26	2.6	19
Master cylinder-Front (Rear)	M8	20	2.0	14

Electrical

Model	RZ350L
Ignition system:	
Model/ Manufacturer	AVCC58/NIPPONDENSO
Pickup coil resistance	W/R-W/G: 115Ω ± 20%
Source coil resistance	Br- G: 225Ω ± 20% (Low speed) Br- R: 5.3Ω ± 20% (High speed)
Ignition timing: (B.T.D.C.)	17° at 1,200 r/min
Advanced timing: (B.T.D.C.)	27° at 3,500 r/min
	
Ignition coil:	
Model/ Manufacturer	12900-027/ NIPPONDENSO
Minimum spark gap	6 mm (0.24 in)
Primary winding resistance	0.33Ω ± 10% at 20°C (68°F)
Secondary winding resistance	3.5kΩ ± 20% at 20°C (68°F)
Spark plug:	
Type/ Manufacturer	Standard: BR8ES/ (NGK), For high speed riding: BR9ES/ (NGK)
C.D.I. Unit:	
Type/ Manufacturer	AQAB06/ NIPPONDENSO
A.C. Generator:	
Model/ Manufacturer	AVCC58/ NIPPONDENSO
Charging output	14V14A/5,000 r/min
Charging coil resistance	(W-W) 0.4Ω ± 20% at 20°C (68°F)
Voltage regulator:	Short circuit type
Model/ Manufacturer	SH235-12C/SHINDENGEN/KOUGYOU
Regulating voltage	14.5 ± 0.5V
Rectifier:	Three phase, Full wave
Model/ Manufacturer	SH235-12C/SHINDENGEN KOUGYOU
Capacity	15A
Withstand voltage	200V
Battery:	
Model/ Manufacturer	12N5.5-3B/NIPPONDENSO
Charging rate	0.55A × 10 hour
Specific gravity	1.260
Horn:	
Model	SF12/ NIKKO
Maximum amperage	2.5A or less
Flasher relay:	
Type	Semi transistor type
Model/ Manufacturer	FU257CD/NIPPONDENSO
Flasher frequency	85 cycle/min
Capacity	12V,27W × 2 + 3.4W

Model	RZ350L
Catalyzer thermo sensor: Model/Manufacturer Sensor resistance	 48H/NTK 4Ω ± 20% at 20°C (68°F)
Catalyzer warning buzzer: Model/Manufacturer	 48H/YAMAHA
Circuit breaker: Type Amperage for individual circuit/quantity Main Headlight Signal Ignition Reserve	 Fuse 20A × 1 10A × 1 15A × 1 5A × 1 10A × 2
Thermo-unit: Model/Manufacturer	 YA55901NO/NISSEI

CONSUMER INFORMATION

NOTICE

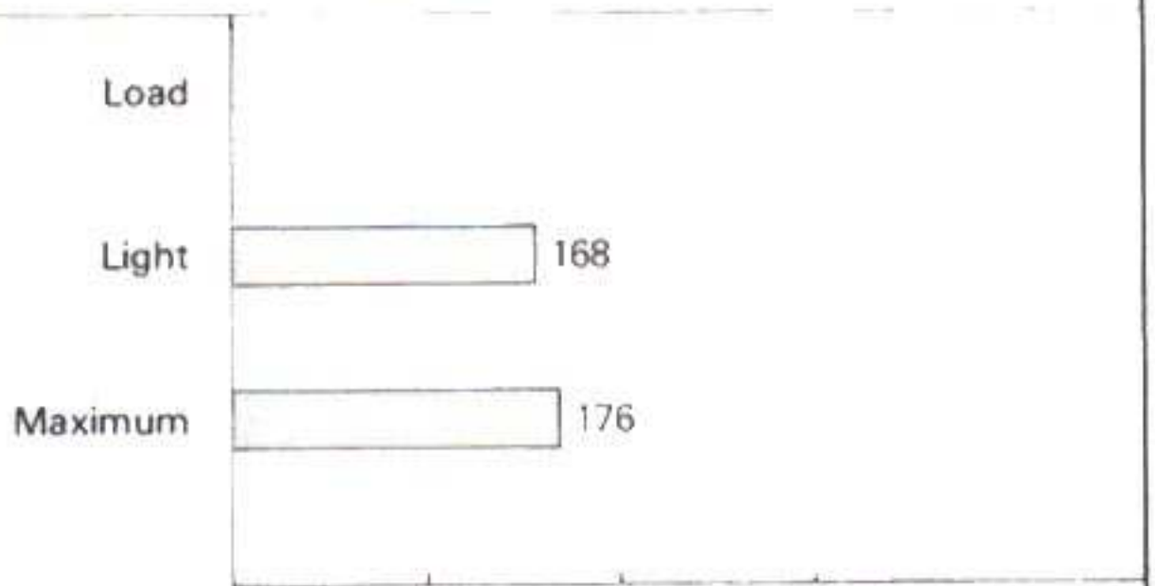
The information presented represents results obtainable by skilled drivers under controlled road and vehic!e conditions, and the information may not be correct under other conditions.

Stopping distance

These figures indicate braking performance that can be met or exceeded by the vehicles to which they apply, without locking the wheels, under different conditions of loading and with partial failures of the braking system. The information presented represents results obtainable by skilled drivers under controlled road and vehicle conditions and the information may not be correct under other conditions.

Description of vehicles to which this table applies.: Yamaha motorcycle RZ350L

A. Fully Operational Service Brake

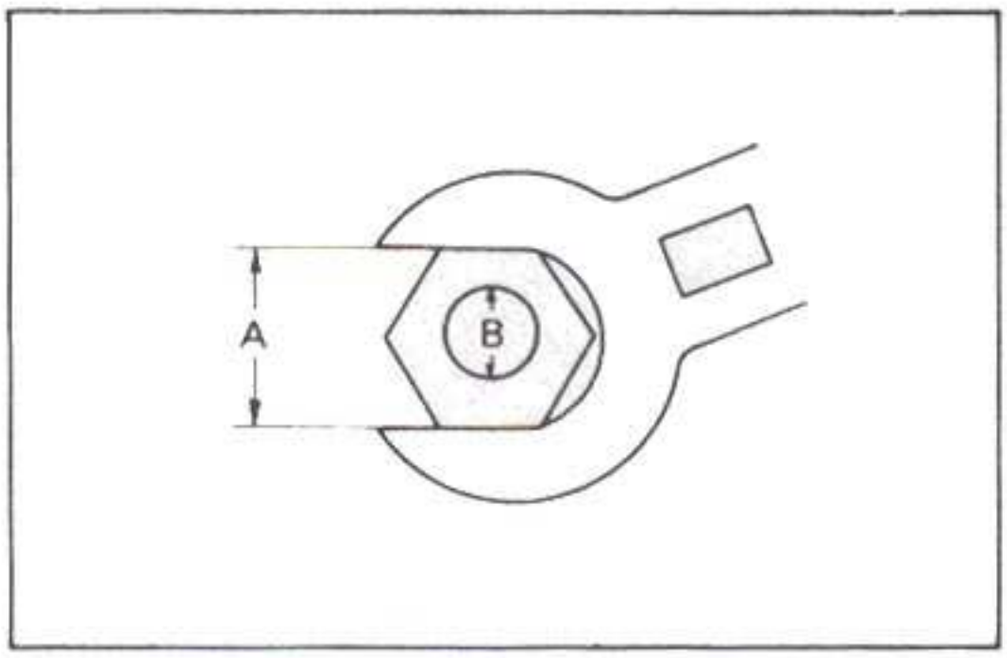


NOTE:
The statement above is required by U.S. Federal law. "Partial failures" of the braking system do not apply to this chart.

GENERAL TORQUE SPECIFICATIONS

This chart specifies torque for standard fasteners with standard I.S.O. pitch threads. Torque specifications for special components or assemblies are included in the applicable sections of this book. To avoid warpage, tighten multi-fastener assemblies in a crisscross fashion, in progressive stages, until full torque is reached. Unless otherwise specified, torque specifications call for clean, dry threads. Components should be at room temperature.

A (Nut)	B (Bolt)	General torque specifications		
		Nm	m·kg	ft·lb
10 mm	6 mm	6	0.6	4.3
12 mm	8 mm	15	1.5	11
14 mm	10 mm	30	3.0	22
17 mm	12 mm	55	5.5	40
19 mm	14 mm	85	8.5	61
22 mm	16 mm	130	13.0	94



COLOR CODE

R	Red	B/W	Black/White
B	Black	Y/R	Yellow/Red
Sb	Sky blue	B/Y	Black/Yellow
Br	Brown	G/Y	Green/Yellow
Ch	Chocolate	L/W	Blue/White
Dg	Dark green	Br/W	Brown/White
L	Blue	R/W	Red/White
Y	Yellow	L/B	Blue/Black
O	Orange	L/Y	Blue/Yellow
G	Green	L/R	Blue/Red
P	Pink	W/R	White/Red
W	White	W/G	White/Green

DEFINITION OF UNITS

Unit	Read	Definition	Measure
mm	millimeter	10^{-3} meter	Length
cm	centimeter	10^{-2} meter	Length
kg	kilogram	10^{3} gram	Weight
N	Newton	1 kg × m/sec²	Force
Nm	Newton meter	N × m	Torque
m·kg	Meter kilogram	m × kg	Torque
Pa	Pascal	N/m²	Pressure
N/mm	Newton per millimeter	N/mm	Spring rate
L	Liter	———	Volume
cm³	Cubic centimeter		or Capacity
r/min	Rotation per minute	———	Engine Speed

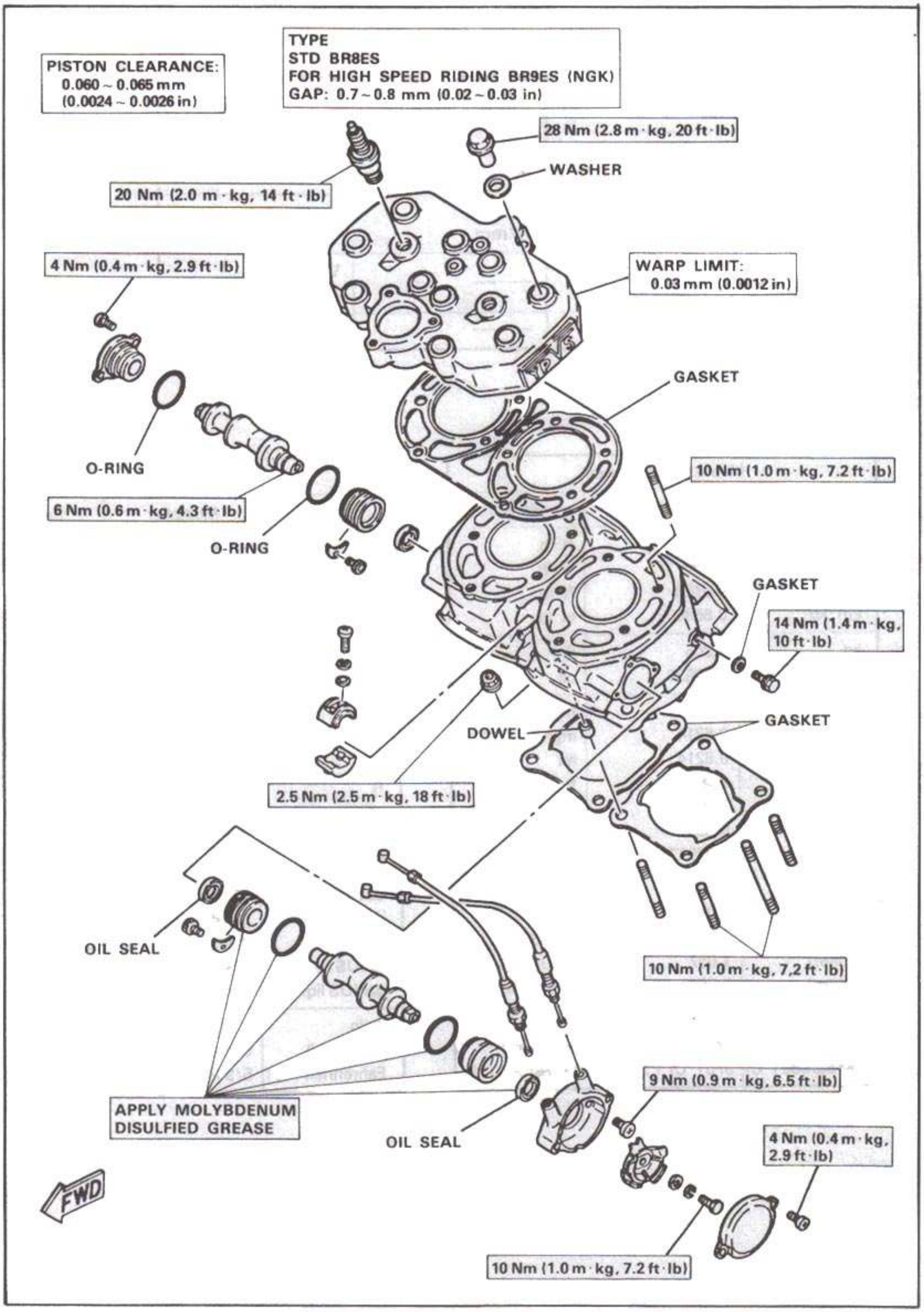
CONVERSION TABLES

Metric to inch system		
Known	Multiplier	Result
m·kg	7.233	ft·lb
m·kg	86.80	in·lb
cm·kg	0.0723	ft·lb
cm·kg	0.8680	in·lb
kg	2.205	lb
g	0.03527	oz
km/lit	2.352	mpg
km/hr	0.6214	mph
km	0.6214	mi
m	3.281	ft
m	1.094	yd
cm	0.3937	in
mm	0.03937	in
cc (cm³)	0.03382	oz (US liq)
cc (cm³)	0.06102	cu in
lit (liter)	2.1134	pt (US liq)
lit (liter)	1.057	qt (US liq)
lit (liter)	0.2642	gal (US liq)
kg/mm	56.007	lb/in
kg/cm²	14.2234	psi (lb/in²)
Centigrade (°C)	9/5 (°C) + 32	Fahrenheit (°F)

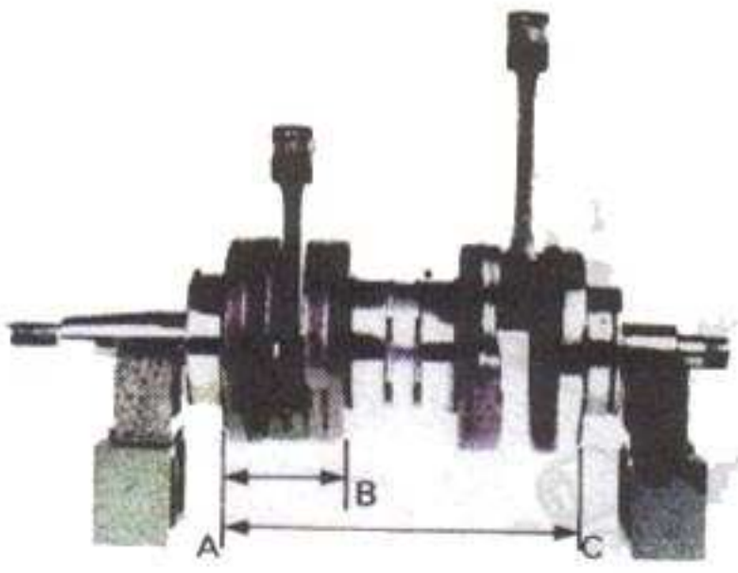
Inch to metric system		
Known	Multiplier	Result
ft·lb	0.13826	m·kg
in·lb	0.01152	m·kg
ft·lb	13.831	cm·kg
in·lb	1.1521	cm·kg
lb	0.4535	kg
oz	28.352	g
mpg	0.4252	km/lit
mph	1.609	km/hr
mi	1.609	km
ft	0.3048	m
yd	0.9141	m
in	2.54	cm
in	25.4	mm
oz (US liq)	29.57	cc (cm³)
cu in	16.387	cc (cm³)
pt (US liq)	0.4732	lit (liter)
qt (US liq)	0.9461	lit (liter)
gal (US liq)	3.785	lit (liter)
lb/in	0.017855	kg/mm
psi (lb/in²)	0.07031	kg/cm²
Fahrenheit (°C)	5/9 (°F − 32)	Centigrade (°F)

EXPLODED DIAGRAMS

CYLINDER HEAD/CYLINDER

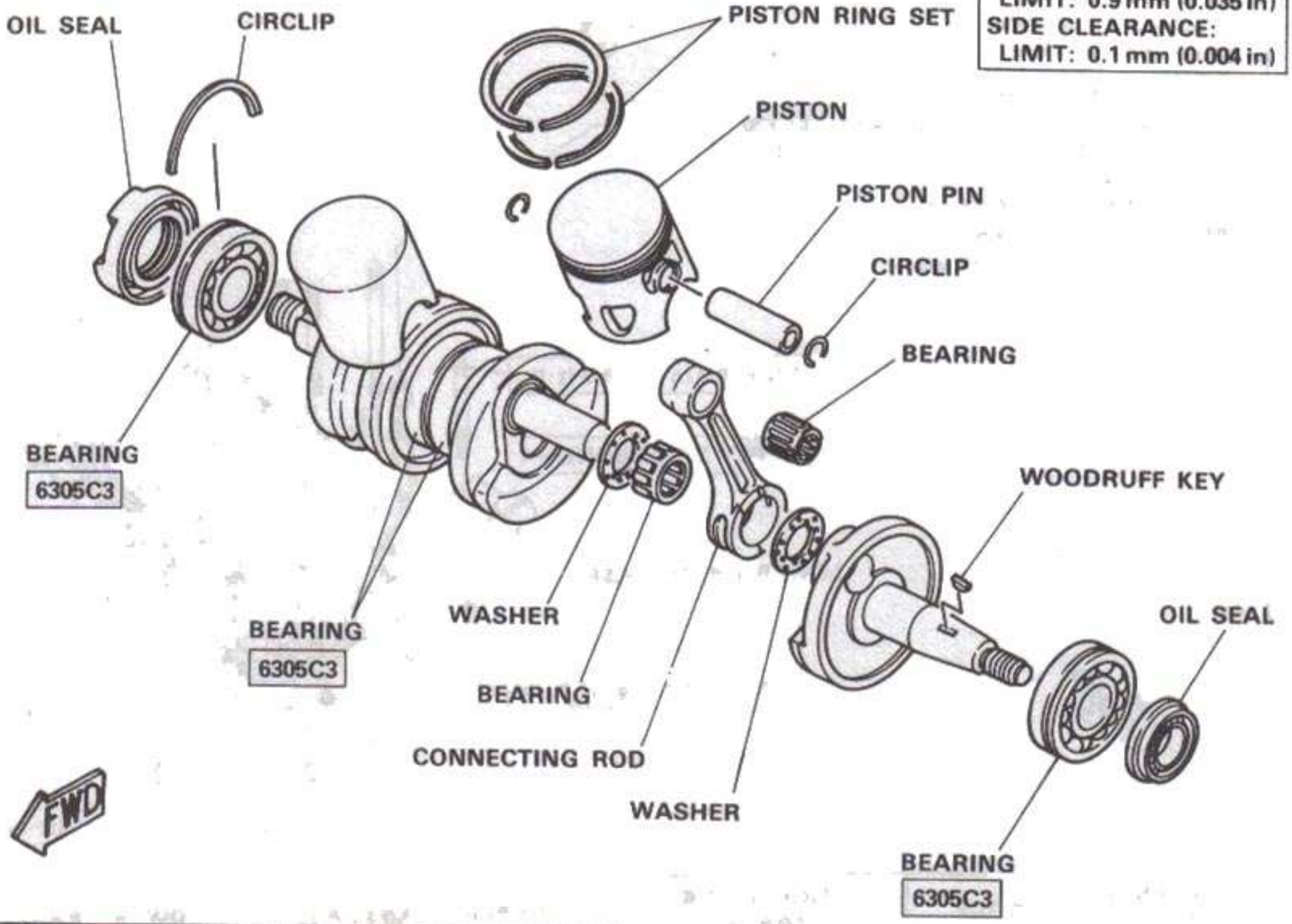


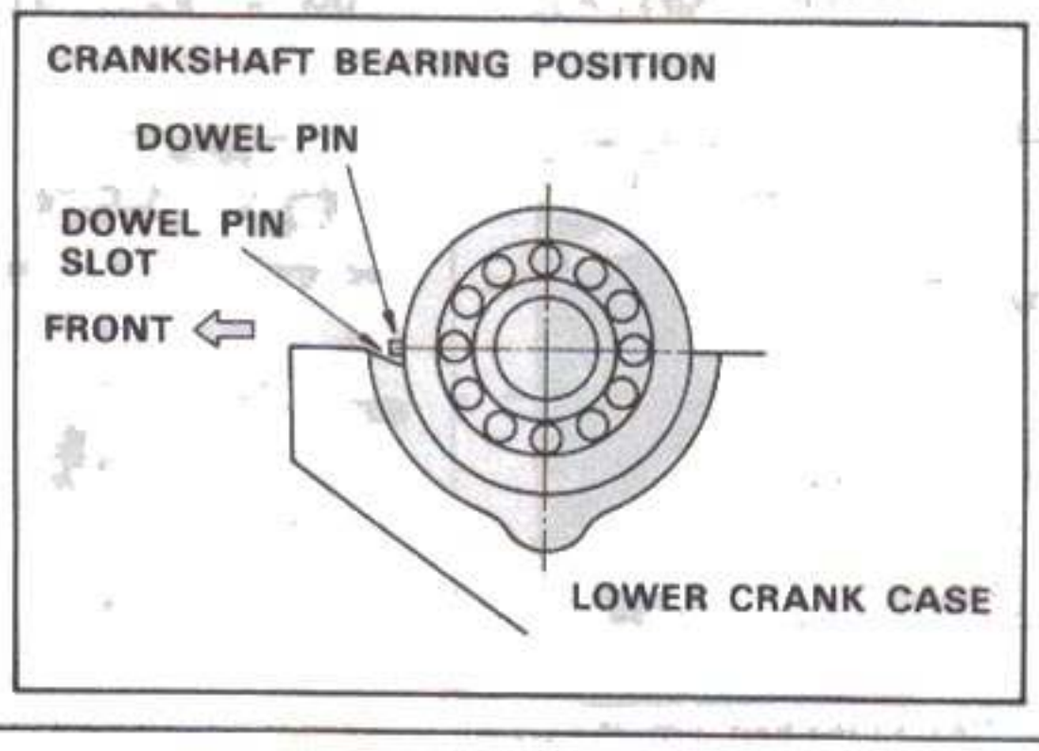
CRANKSHAFT



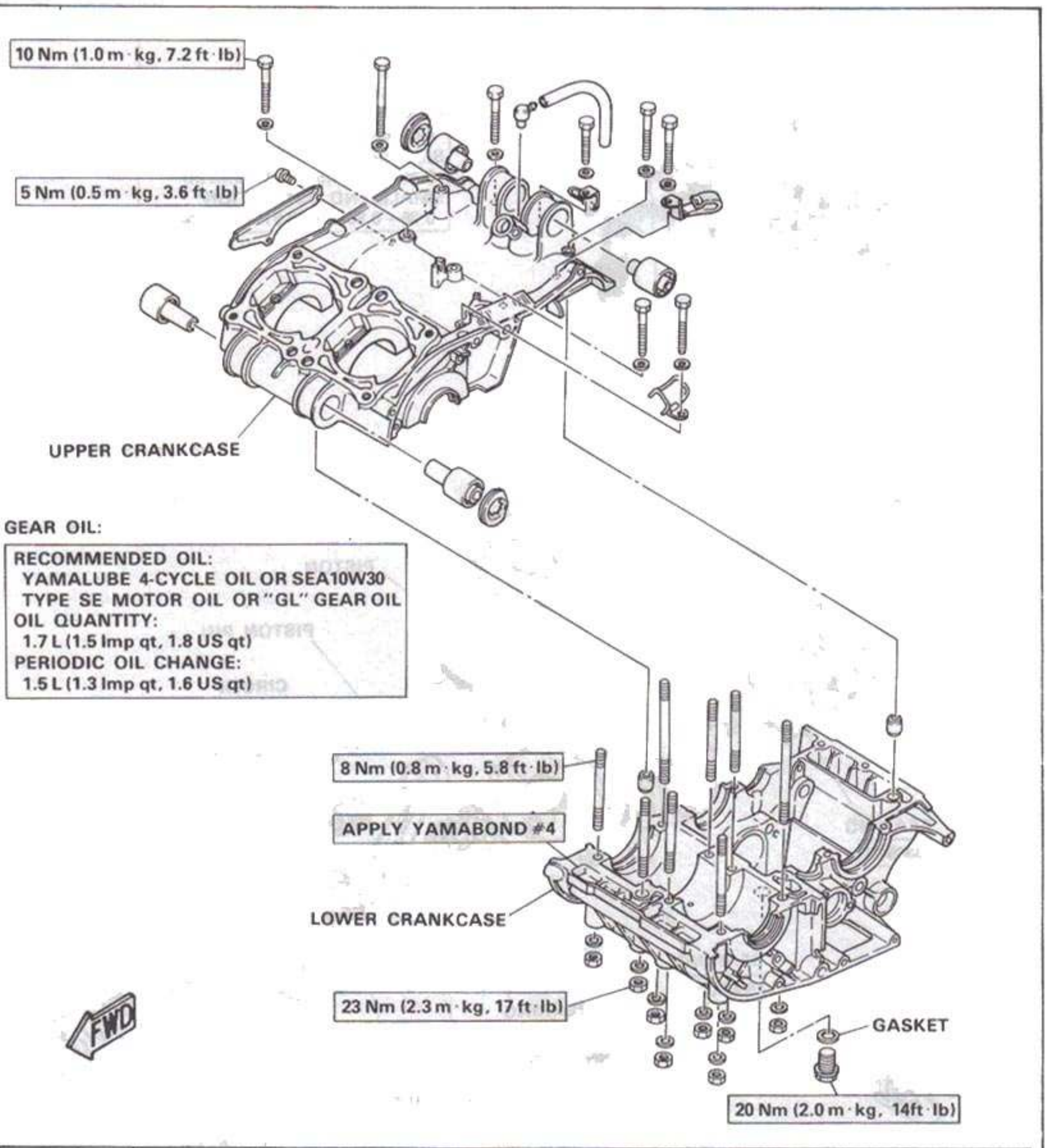
CRANKSHAFT:
ASSEMBLY WIDTH:
A – B: 54 mm (2.13 in)
A – C: 156 mm (6.14 in)
RUNOUT LIMIT:
0.05 mm (0.002 in)
SIDE CLEARANCE:
0.25 ~ 0.75 mm (0.01 ~ 0.03 in)
SMALL END DEFLECTION:
0.36 ~ 0.98 mm (0.0142 ~ 0.0386 in)

RING END GAP:
LIMIT: 0.9 mm (0.035 in)
SIDE CLEARANCE:
LIMIT: 0.1 mm (0.004 in)



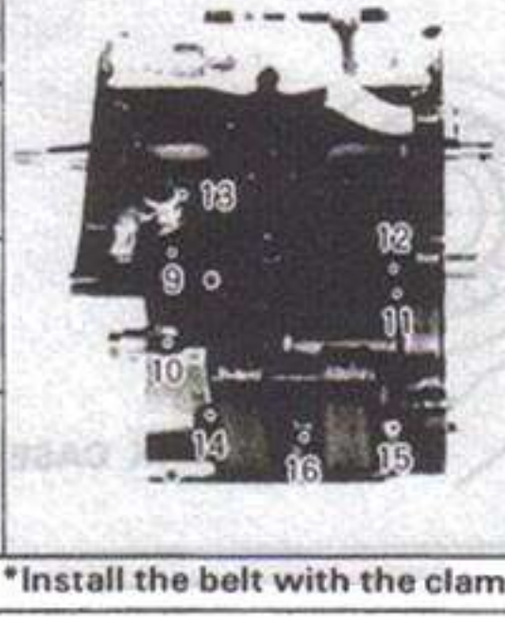
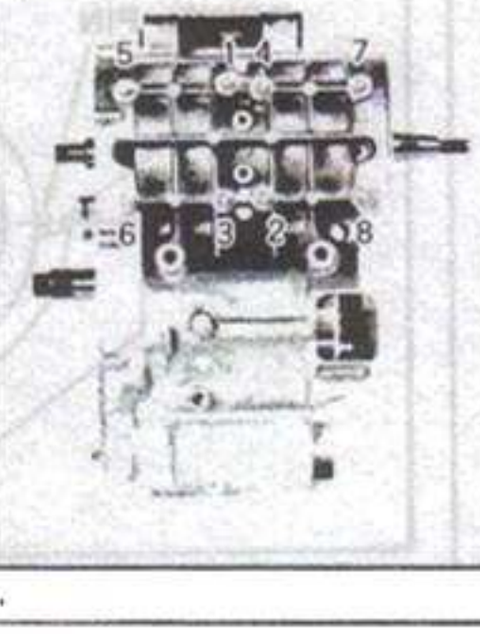


CRANKCASE

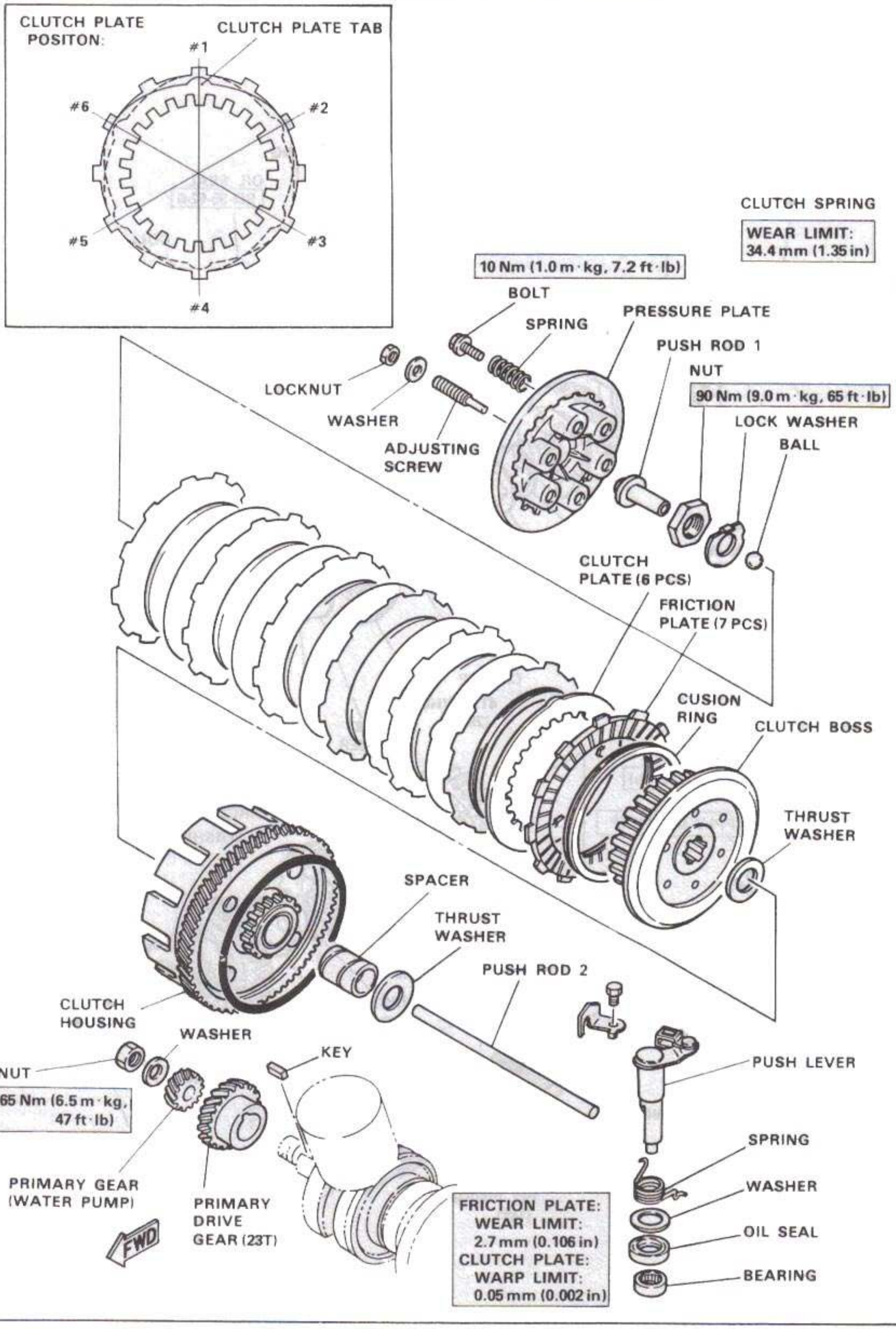


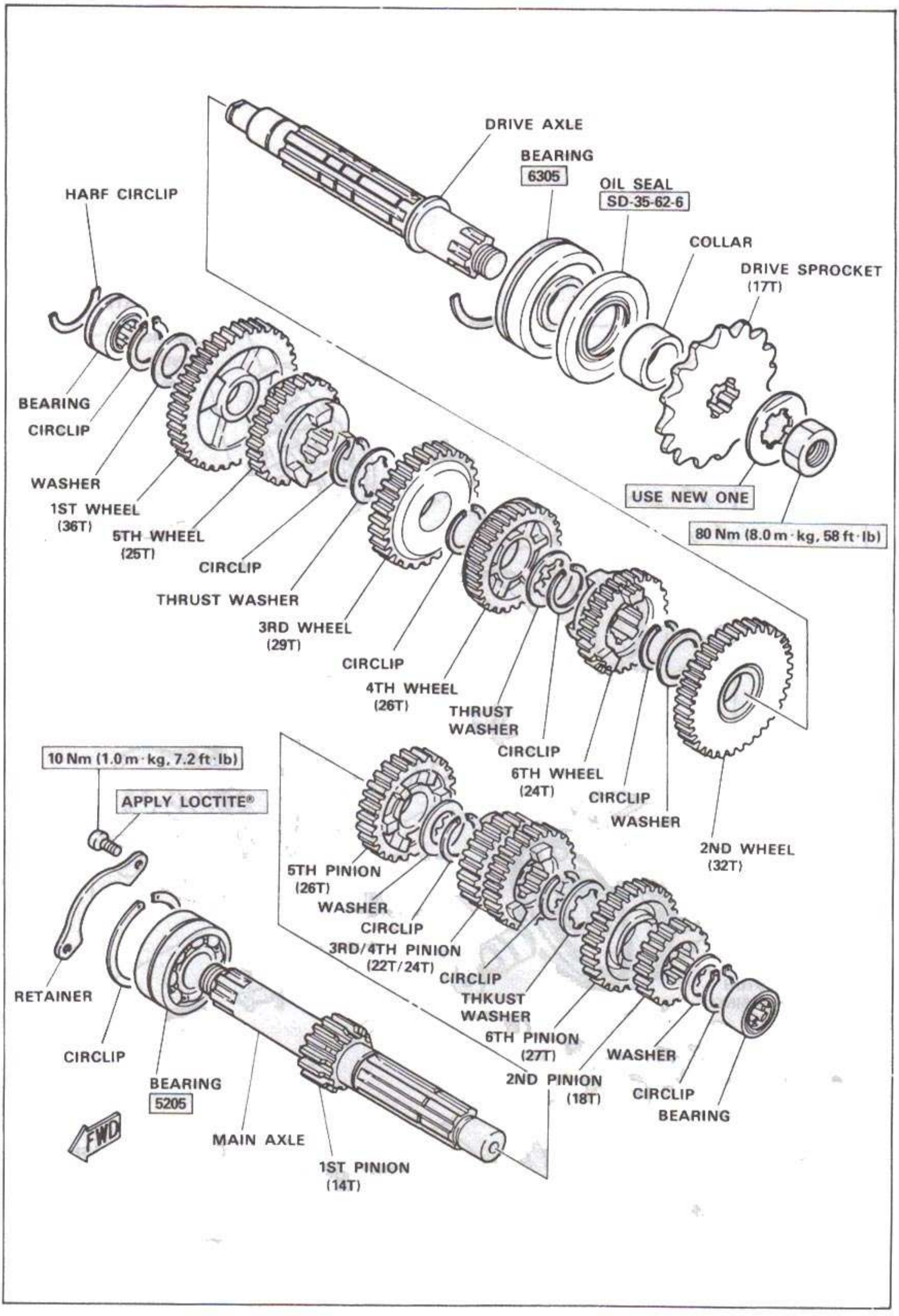
GEAR OIL:

RECOMMENDED OIL:
YAMALUBE 4-CYCLE OIL OR SEA10W30
TYPE SE MOTOR OIL OR "GL" GEAR OIL
OIL QUANTITY:
1.7 L (1.5 Imp qt, 1.8 US qt)
PERIODIC OIL CHANGE:
1.5 L (1.3 Imp qt, 1.6 US qt)

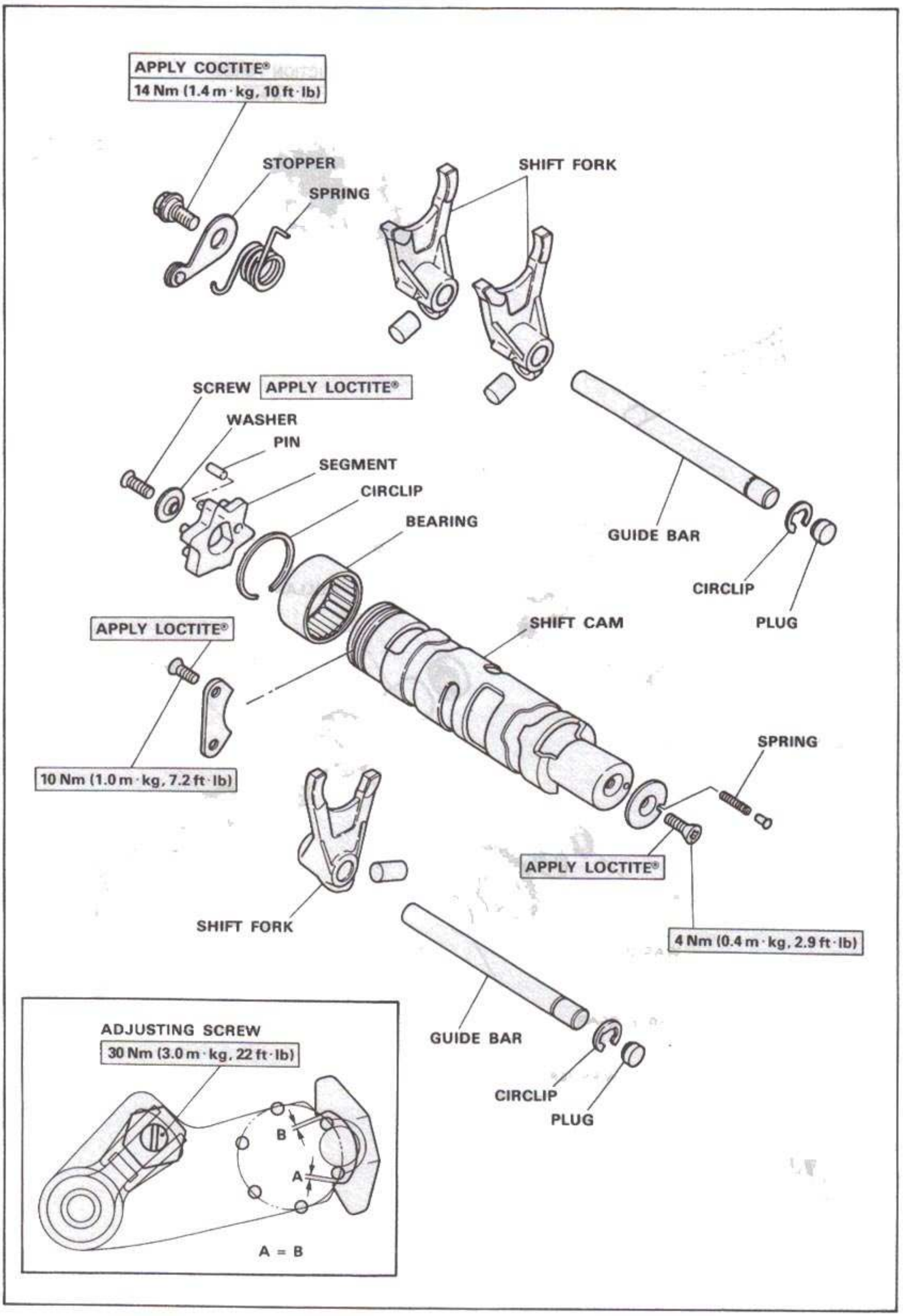
TIGHTENING STEP	PLACE	TIGHTENING TORQUE	UPPER CRANKCASE	LOWER CRANKCASE
1	UPPER CRANKCASE No. 9 ~ 16	6 Nm (0.6 m · kg, 4.3 ft · lb)		
2	LOWER CRANKCASE No. 1 ~ 8	13 Nm (1.3 m · kg, 9.4 ft · lb)		
3	LOWER CRANKCASE No. 1 ~ 8	23 Nm (2.3 m · kg, 17 ft · lb)		
4	UPPER CRANKCASE No. 9 ~ 16	10 Nm (1.0 m · kg, 7.2 ft · lb)		

*Install the belt with the clamp.

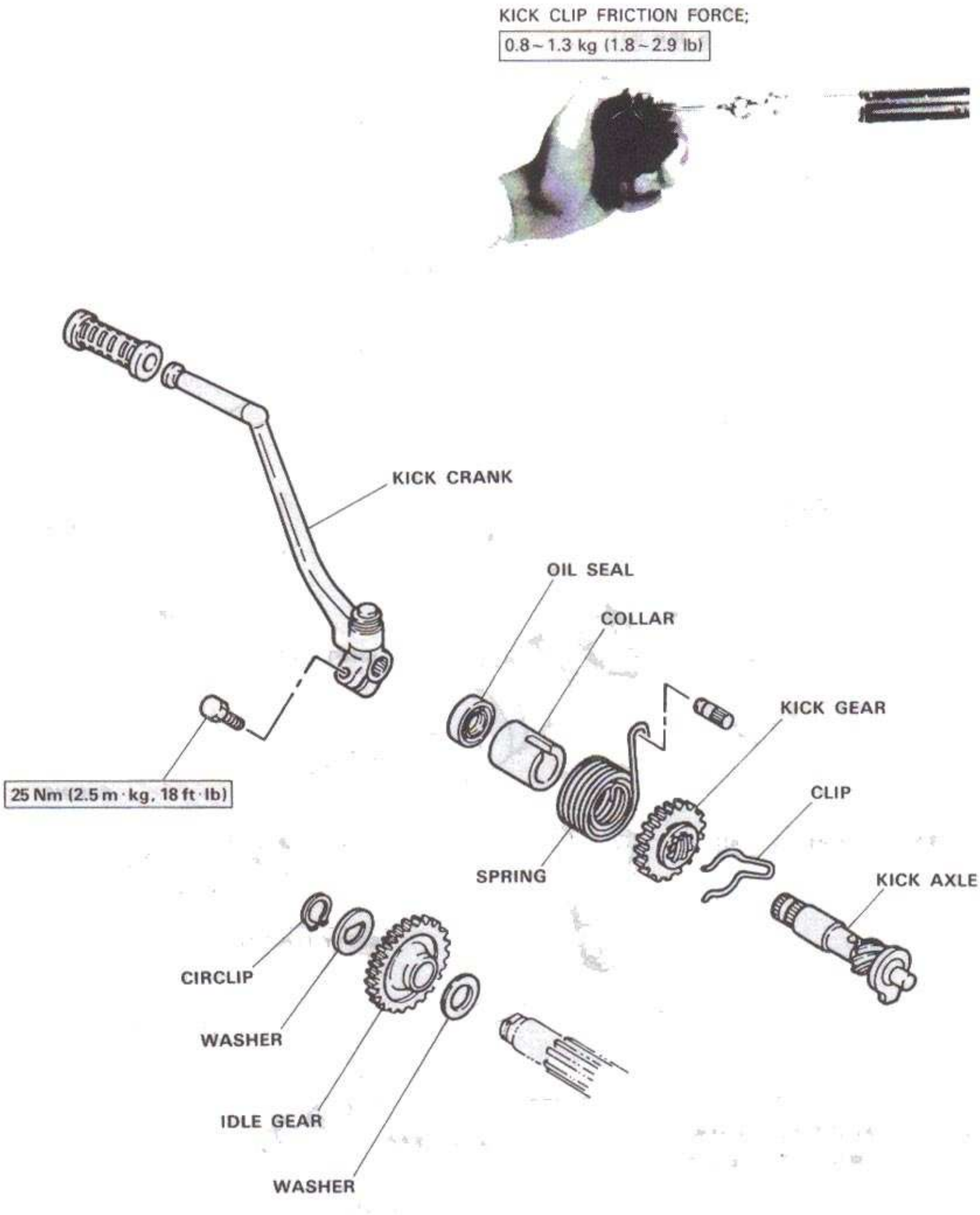

CLUTCH PLATE POSITON:
CLUTCH PLATE TAB
#1
#2
#3
#4
#5
#6
CLUTCH SPRING
WEAR LIMIT: 34.4 mm (1.35 in)
10 Nm (1.0 m · kg, 7.2 ft · lb)
BOLT
SPRING
PRESSURE PLATE
PUSH ROD 1
NUT
90 Nm (9.0 m · kg, 65 ft · lb)
LOCK WASHER
BALL
LOCKNUT
WASHER
ADJUSTING SCREW
CLUTCH PLATE (6 PCS)
FRICTION PLATE (7 PCS)
CUSION RING
CLUTCH BOSS
THRUST WASHER
SPACER
THRUST WASHER
PUSH ROD 2
CLUTCH HOUSING
WASHER
KEY
NUT
65 Nm (6.5 m · kg, 47 ft · lb)
PUSH LEVER
SPRING
WASHER
OIL SEAL
BEARING
PRIMARY GEAR (WATER PUMP)
PRIMARY DRIVE GEAR (23T)
FWD
FRICTION PLATE: WEAR LIMIT: 2.7 mm (0.106 in)
CLUTCH PLATE: WARP LIMIT: 0.05 mm (0.002 in)


DRIVE AXLE
BEARING
6305
OIL SEAL
SD-35-62-6
HARF CIRCLIP
COLLAR
DRIVE SPROCKET
(17T)
BEARING
CIRCLIP
WASHER
1ST WHEEL
(36T)
5TH WHEEL
(25T)
CIRCLIP
THRUST WASHER
3RD WHEEL
(29T)
CIRCLIP
4TH WHEEL
(26T)
THRUST
WASHER
CIRCLIP
6TH WHEEL
(24T)
CIRCLIP
WASHER
2ND WHEEL
(32T)
USE NEW ONE
80 Nm (8.0 m · kg, 58 ft · lb)
10 Nm (1.0 m · kg, 7.2 ft · lb)
APPLY LOCTITE®
5TH PINION
(26T)
WASHER
CIRCLIP
3RD/4TH PINION
(22T/24T)
CIRCLIP
THKUST
WASHER
6TH PINION
(27T)
WASHER
RETAINER
CIRCLIP
BEARING
5205
2ND PINION
(18T)
CIRCLIP
BEARING
FWD
MAIN AXLE
1ST PINION
(14T)

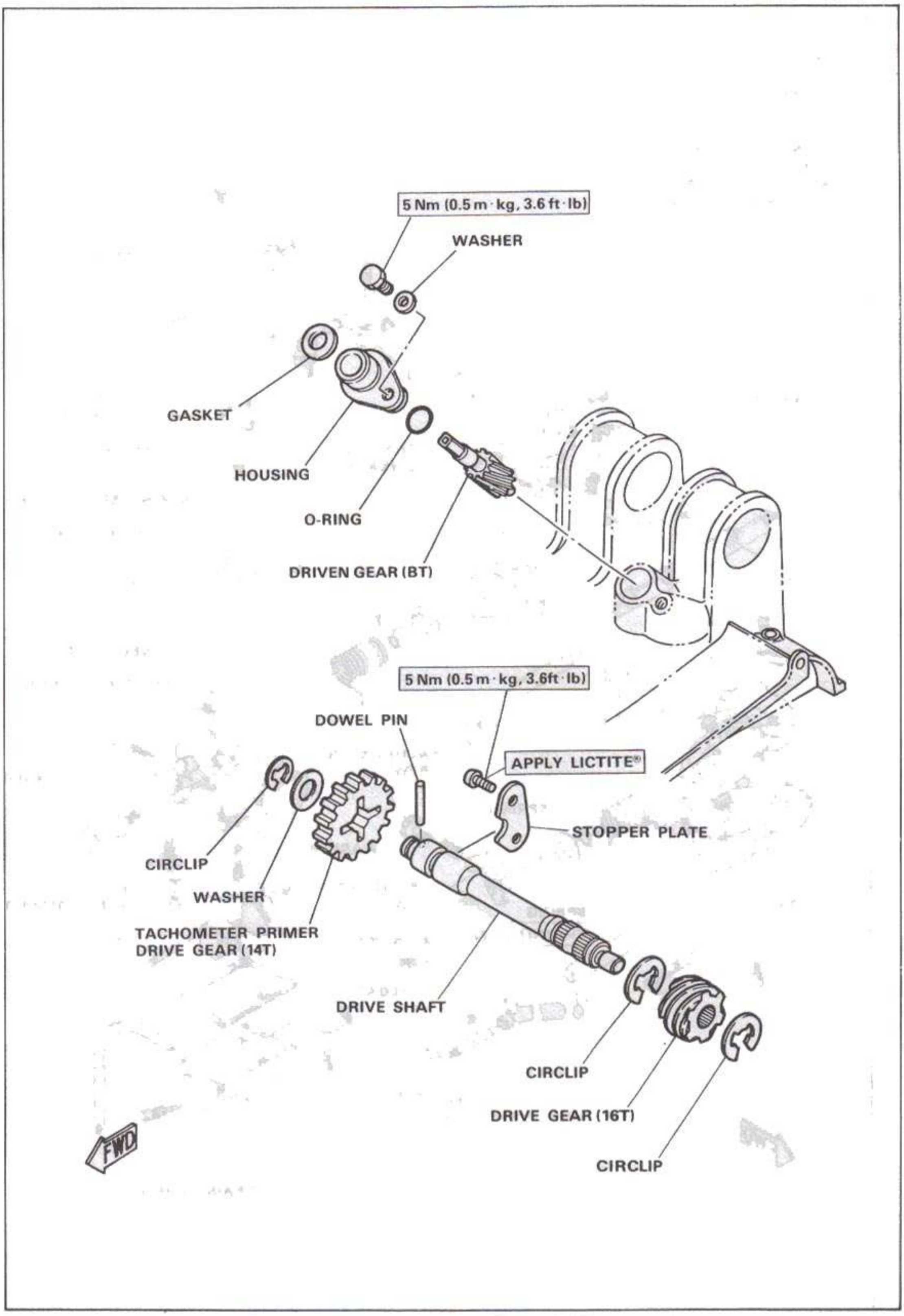
SHIFT FORK


APPLY COCTITE®
14 Nm (1.4 m · kg, 10 ft · lb)
STOPPER
SPRING
SHIFT FORK
SCREW
APPLY LOCTITE®
WASHER
PIN
SEGMENT
CIRCLIP
BEARING
GUIDE BAR
CIRCLIP
PLUG
APPLY LOCTITE®
SHIFT CAM
10 Nm (1.0 m · kg, 7.2 ft · lb)
SPRING
APPLY LOCTITE®
SHIFT FORK
4 Nm (0.4 m · kg, 2.9 ft · lb)
GUIDE BAR
CIRCLIP
PLUG
ADJUSTING SCREW
30 Nm (3.0 m · kg, 22 ft · lb)
B
A
A = B

KICK STARTER

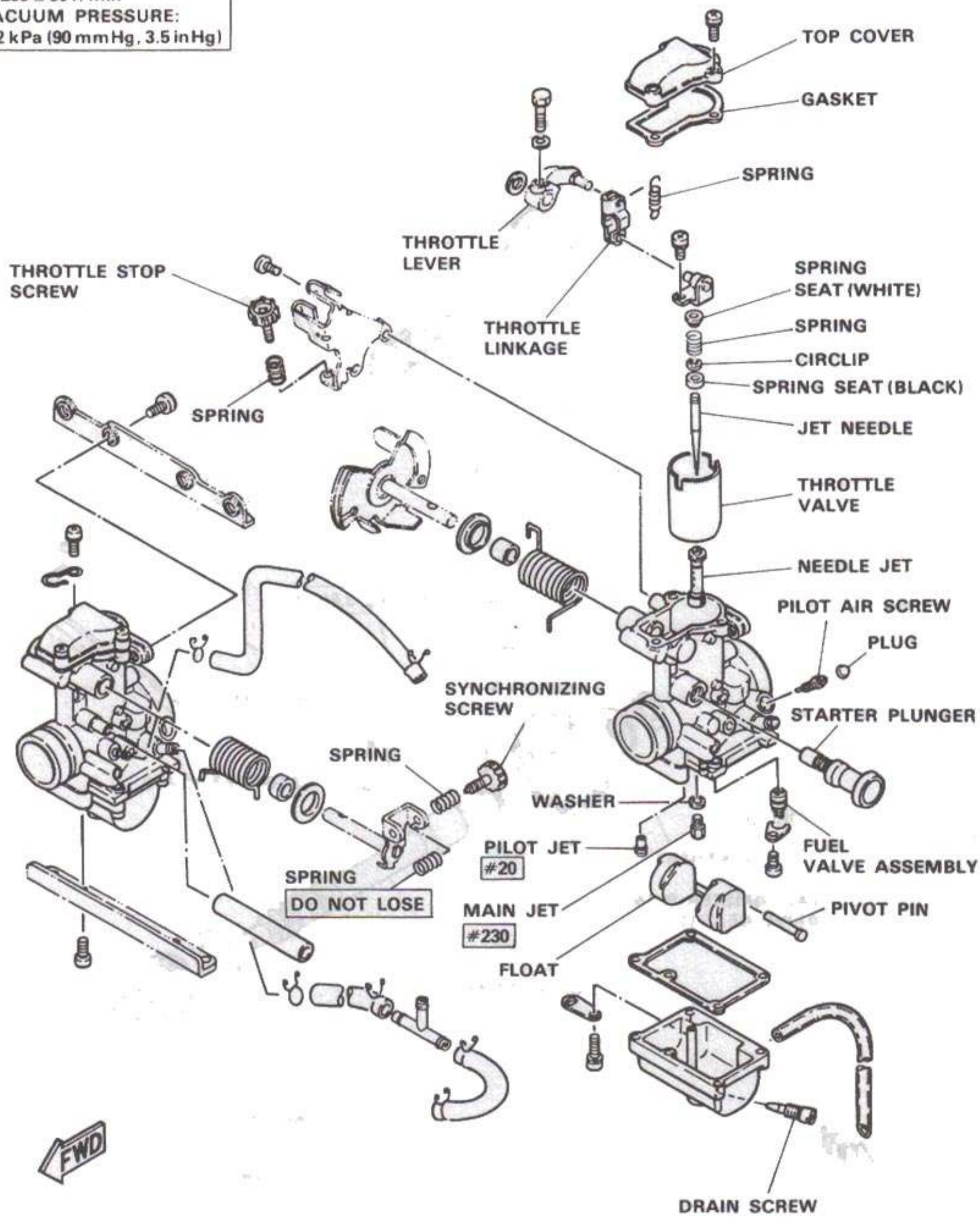


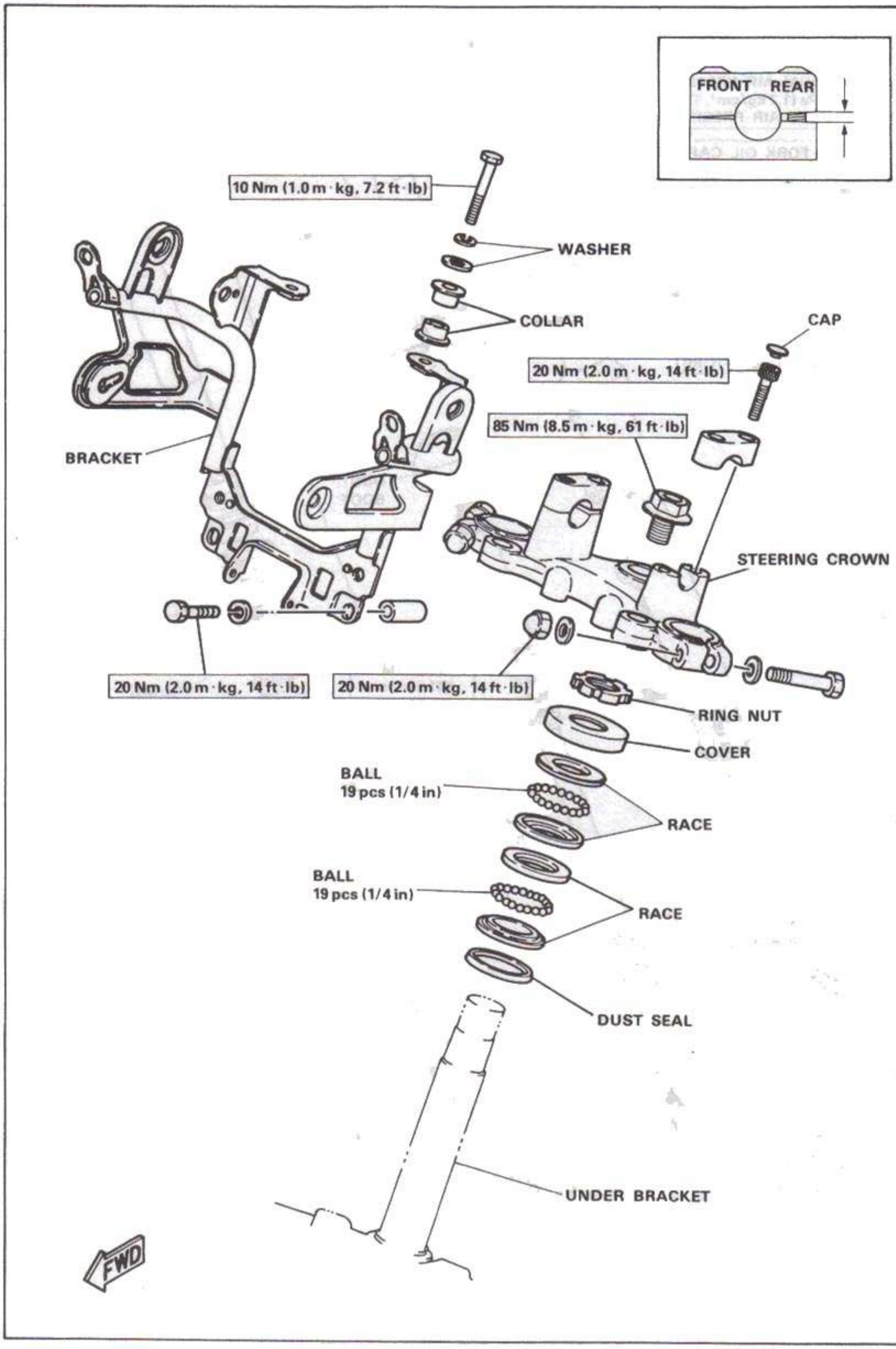
TACHOMETER GEARS



CARBURETOR

FUEL TYPE:
UNLEADED FUEL ONLY
FLOAT HEIGHT:
21 ± 0.5 mm (0.83 ± 0.02 in)
FUEL LEVEL:
2 ± 1 mm (0.08 ± 0.04 in)
ENGINE IDLE SPEED:
1,200 ± 50 r/min
VACUUM PRESSURE:
12 kPa (90 mmHg, 3.5 inHg)

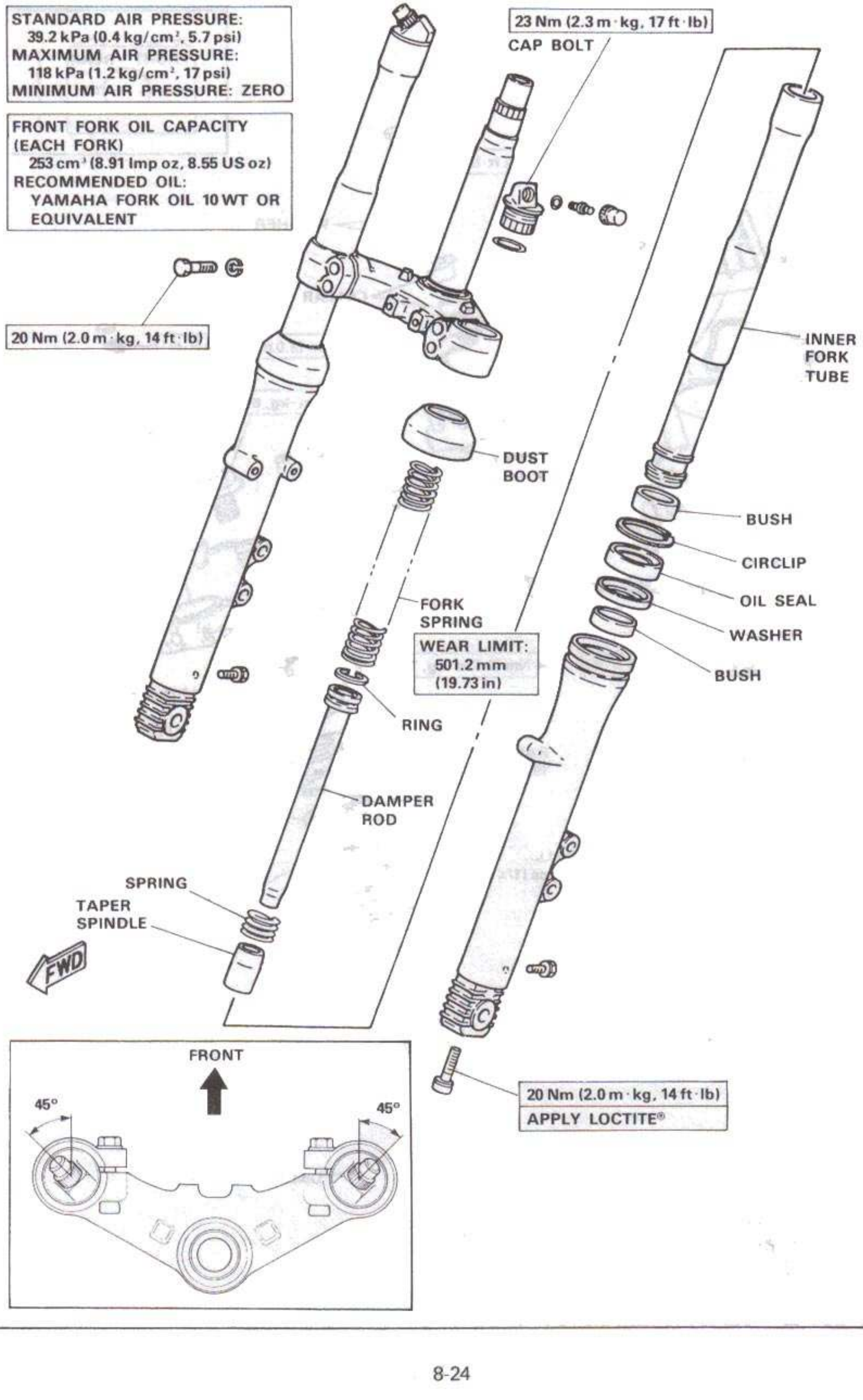



FRONT
REAR
10 Nm (1.0 m · kg, 7.2 ft · lb)
WASHER
COLLAR
CAP
20 Nm (2.0 m · kg, 14 ft · lb)
85 Nm (8.5 m · kg, 61 ft · lb)
BRACKET
STEERING CROWN
20 Nm (2.0 m · kg, 14 ft · lb)
20 Nm (2.0 m · kg, 14 ft · lb)
RING NUT
COVER
BALL
19 pcs (1/4 in)
RACE
BALL
19 pcs (1/4 in)
RACE
DUST SEAL
UNDER BRACKET
FWD

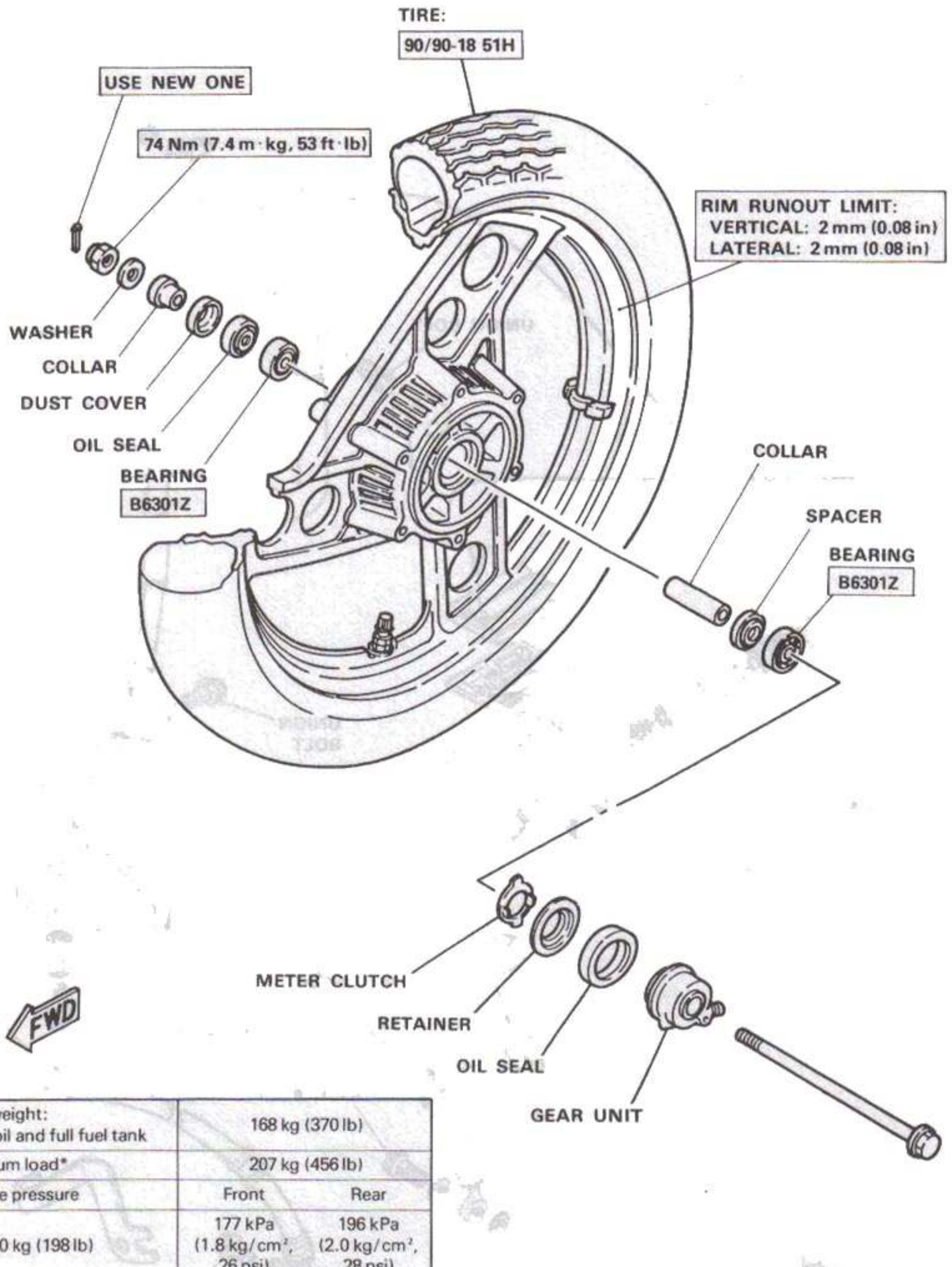
FRONT FORK

STANDARD AIR PRESSURE:
39.2 kPa (0.4 kg/cm², 5.7 psi)
MAXIMUM AIR PRESSURE:
118 kPa (1.2 kg/cm², 17 psi)
MINIMUM AIR PRESSURE: ZERO

FRONT FORK OIL CAPACITY
(EACH FORK)
253 cm³ (8.91 Imp oz, 8.55 US oz)
RECOMMENDED OIL:
YAMAHA FORK OIL 10 WT OR
EQUIVALENT



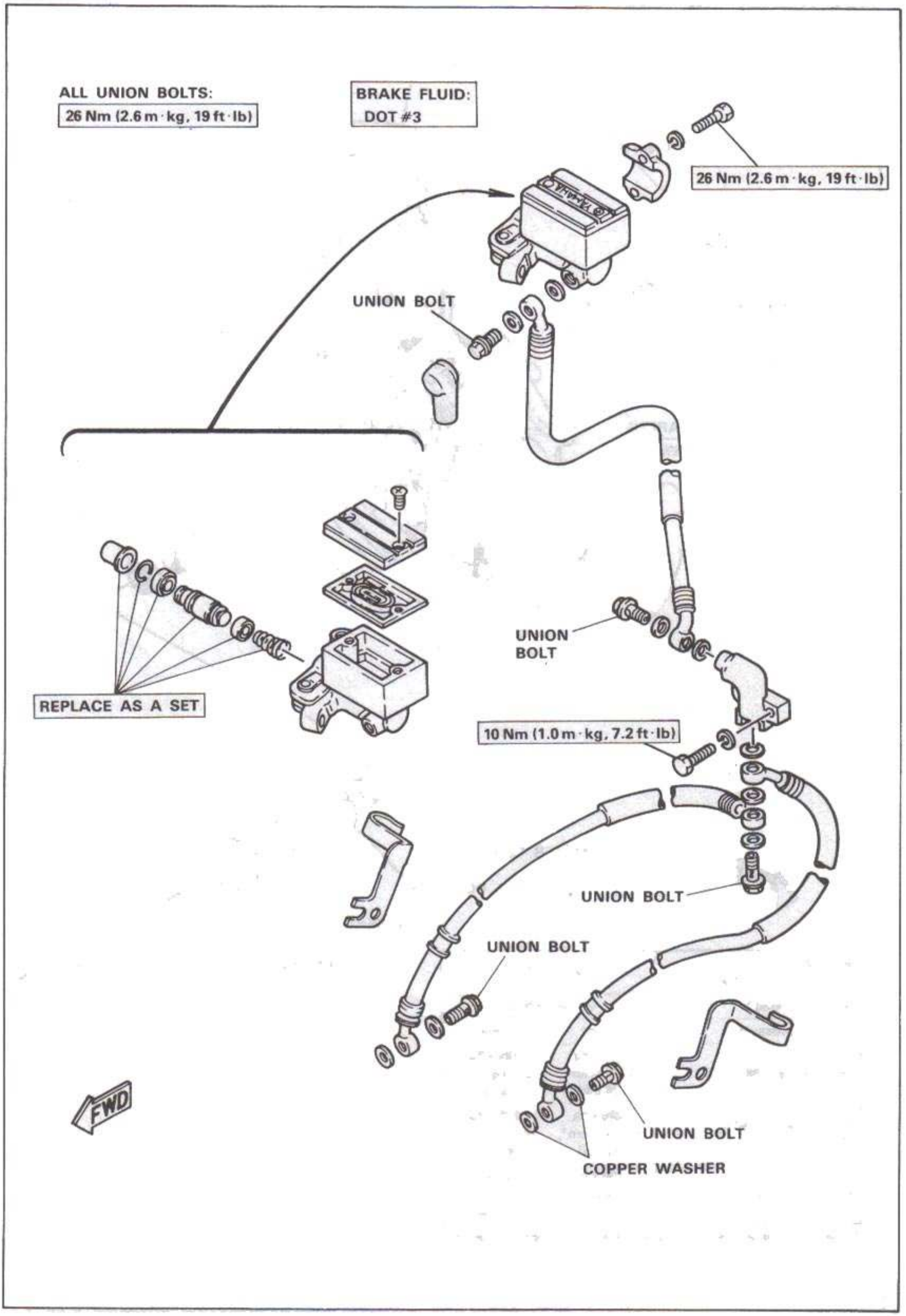
FRONT WHEEL



Basic weight: With oil and full fuel tank	168 kg (370 lb)	
Maximum load*	207 kg (456 lb)	
Cold tire pressure	Front	Rear
Up to 90 kg (198 lb)	177 kPa (1.8 kg/cm², 26 psi)	196 kPa (2.0 kg/cm², 28 psi)
90 kg (198 lb) load ~ Maximum load*	226 kPa (2.3 kg/cm², 32 psi)	275 kPa (2.8 kg/cm², 40 psi)
High speed riding	196 kPa (2.0 kg/cm², 28 psi)	226 kPa (2.3 kg/cm², 32 psi)

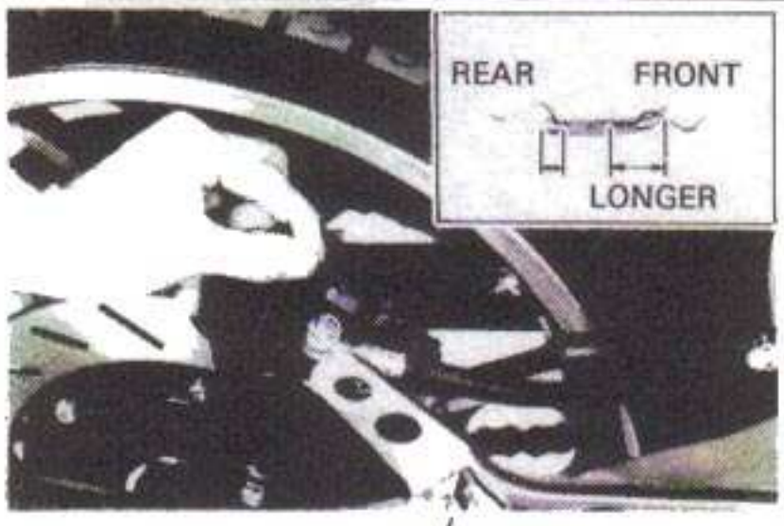
*Load is the total weight of cargo, rider, passenger and accessories.

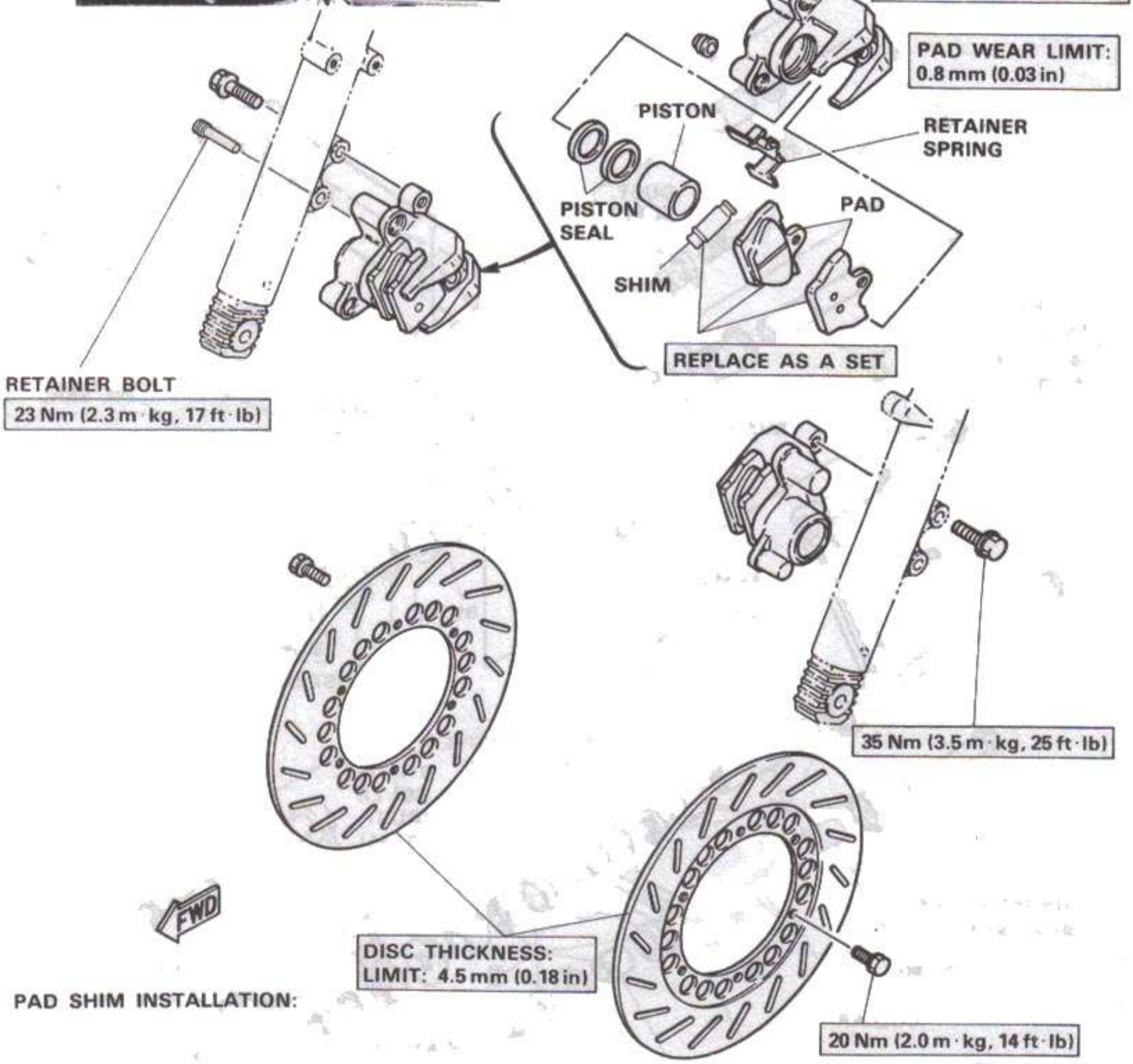
FRONT MASTER CYLINDER



NOTE:

Install the pad spring with its longer tangs in the disc rotation direction.

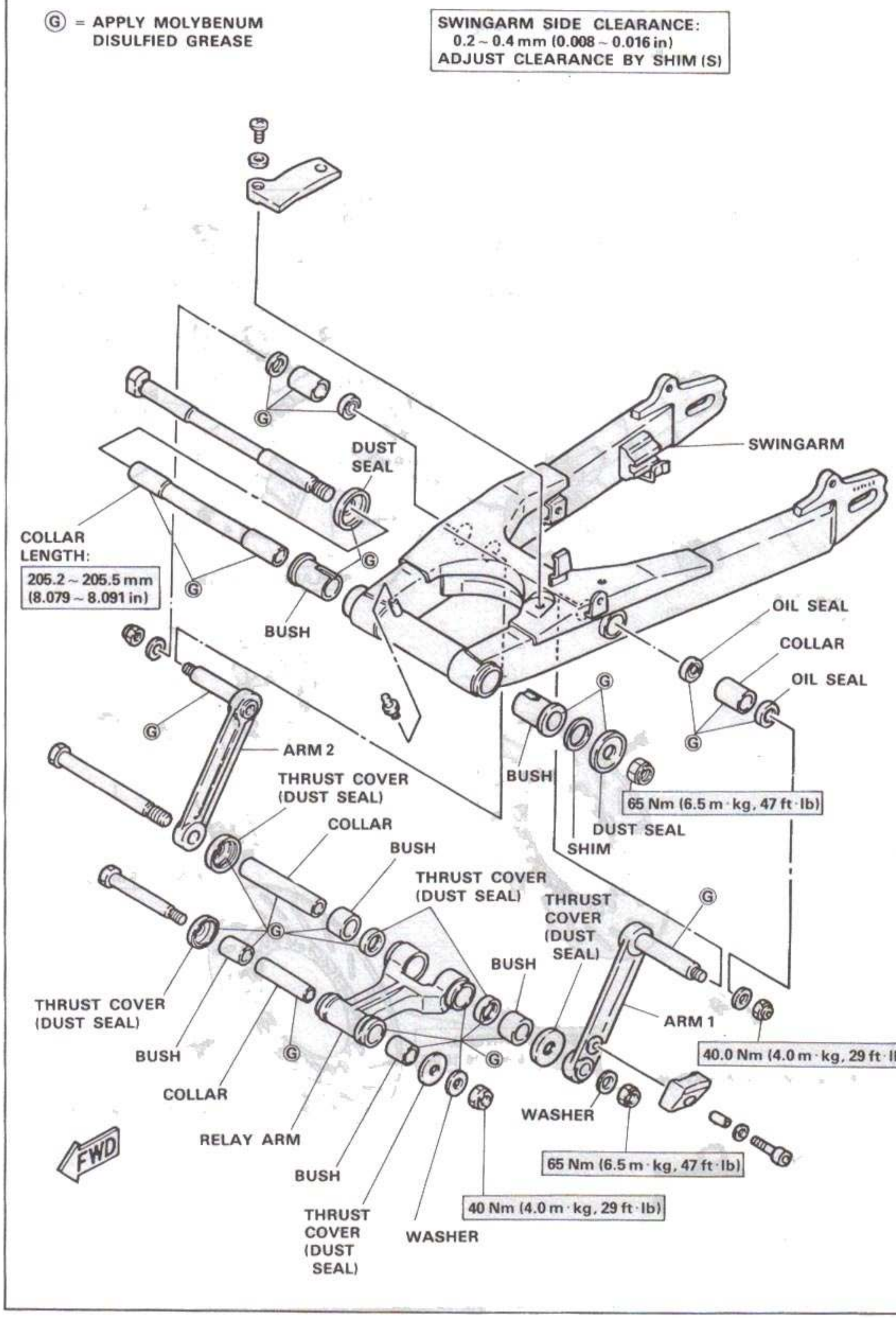




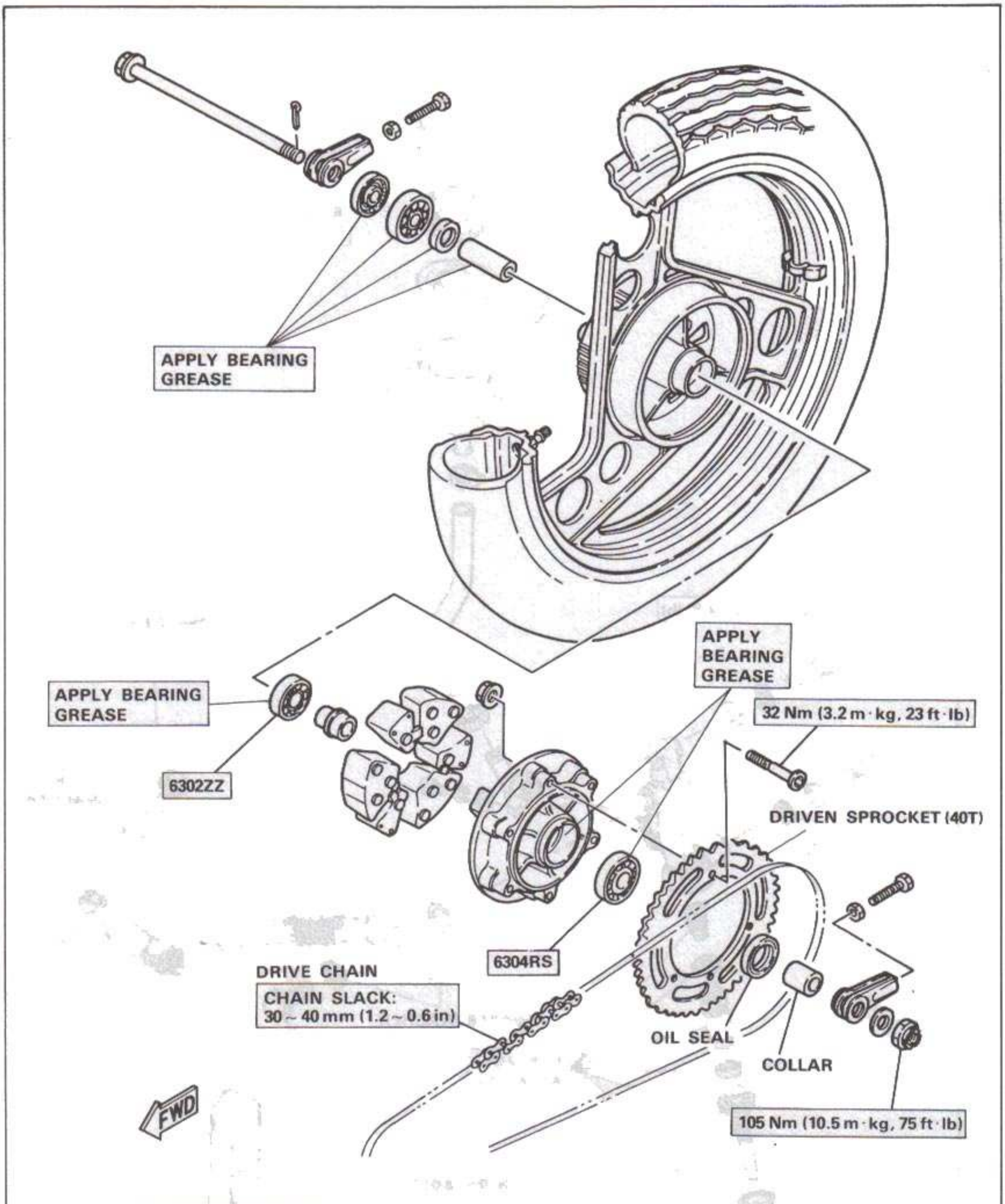
PAD SHIM INSTALLATION:

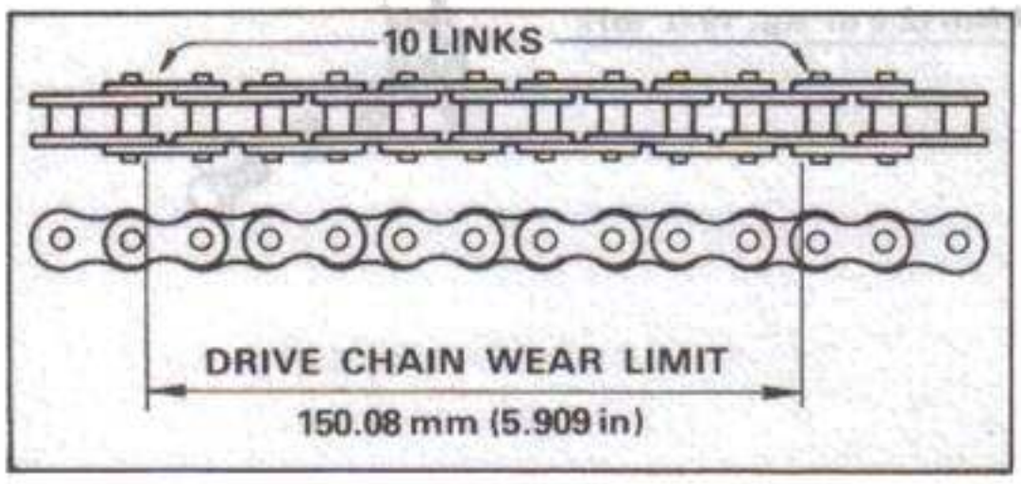


SWINGARM

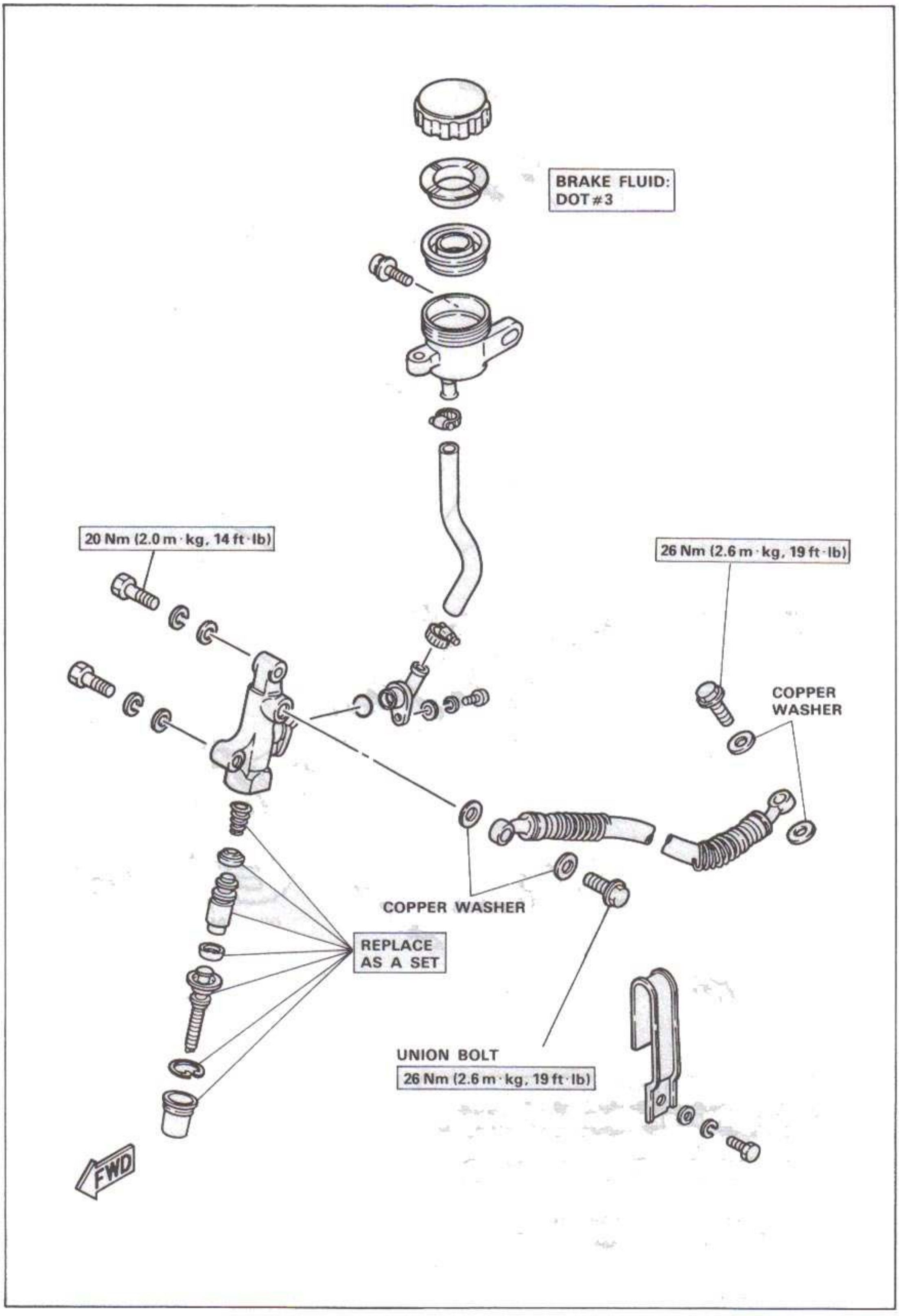

Ⓖ = APPLY MOLYBENUM DISULFIED GREASE
SWINGARM SIDE CLEARANCE: 0.2 ~ 0.4 mm (0.008 ~ 0.016 in) ADJUST CLEARANCE BY SHIM (S)
DUST SEAL
SWINGARM
COLLAR LENGTH: 205.2 ~ 205.5 mm (8.079 ~ 8.091 in)
BUSH
OIL SEAL
COLLAR
OIL SEAL
ARM 2
THRUST COVER (DUST SEAL)
BUSH
65 Nm (6.5 m · kg, 47 ft · lb)
COLLAR
DUST SEAL
SHIM
BUSH
THRUST COVER (DUST SEAL)
THRUST COVER (DUST SEAL)
THRUST COVER (DUST SEAL)
BUSH
ARM 1
40.0 Nm (4.0 m · kg, 29 ft · lb)
BUSH
COLLAR
RELAY ARM
BUSH
WASHER
65 Nm (6.5 m · kg, 47 ft · lb)
40 Nm (4.0 m · kg, 29 ft · lb)
THRUST COVER (DUST SEAL)
WASHER
FWD

REAR WHEEL

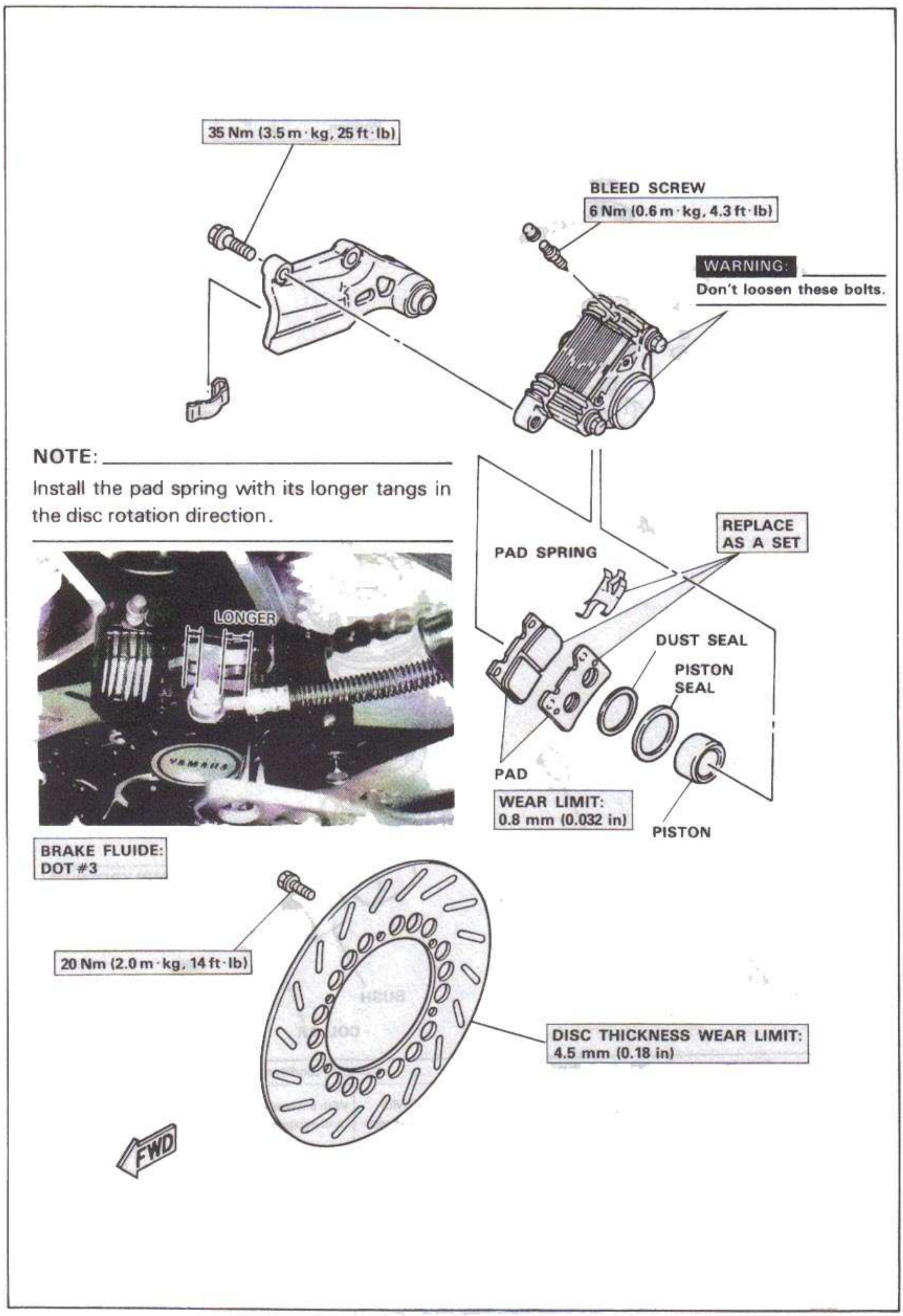

APPLY BEARING GREASE
APPLY BEARING GREASE
APPLY BEARING GREASE
6302ZZ
32 Nm (3.2 m · kg, 23 ft · lb)
DRIVEN SPROCKET (40T)
6304RS
DRIVE CHAIN
CHAIN SLACK:
30 ~ 40 mm (1.2 ~ 0.6 in)
OIL SEAL
COLLAR
105 Nm (10.5 m · kg, 75 ft · lb)
FWD


10 LINKS
DRIVE CHAIN WEAR LIMIT
150.08 mm (5.909 in)

REAR MASTER CYLINDER

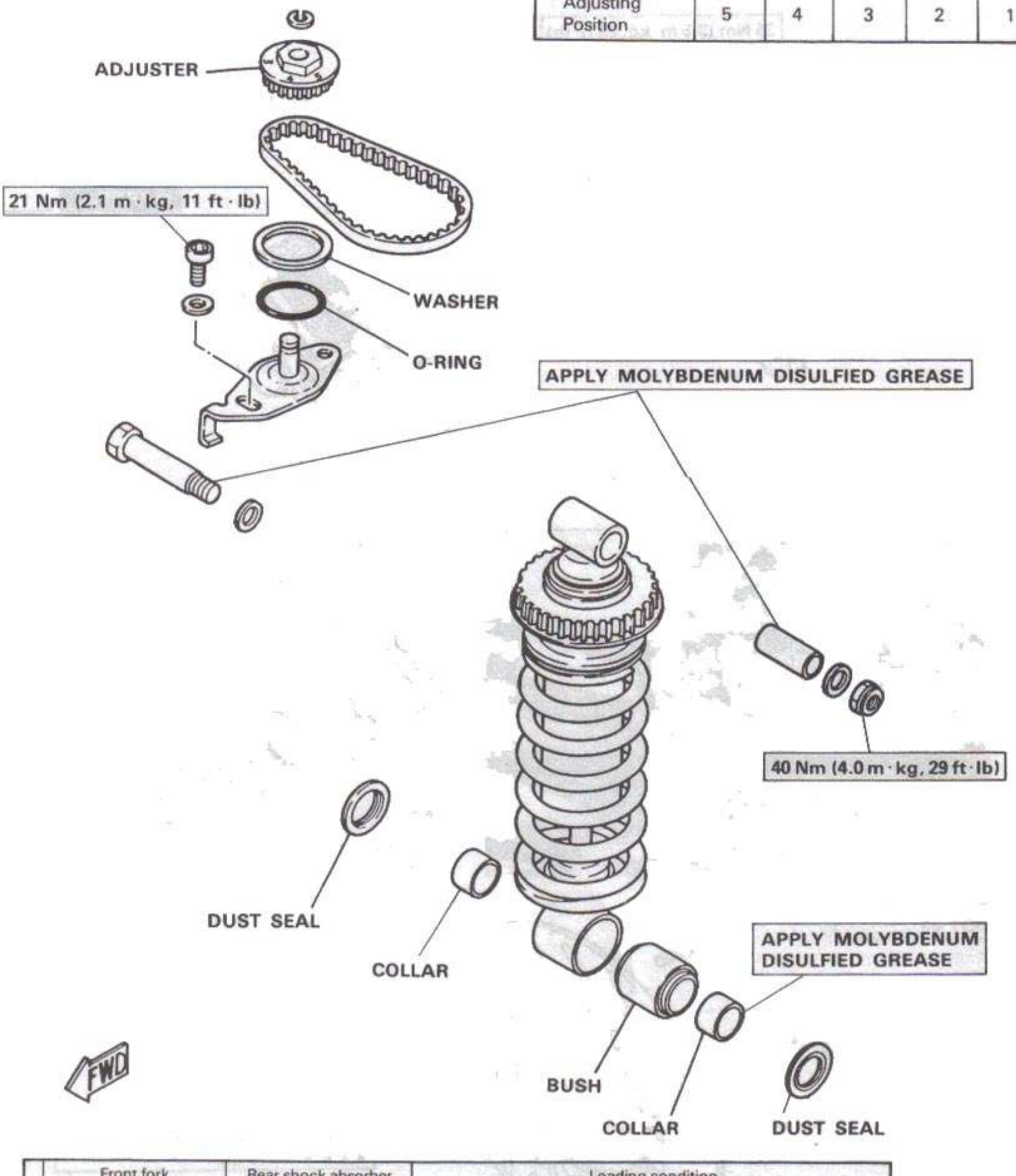


REAR BRAKE


35 Nm (3.5 m · kg, 25 ft · lb)
BLEED SCREW
6 Nm (0.6 m · kg, 4.3 ft · lb)
WARNING:
Don't loosen these bolts.
NOTE:
Install the pad spring with its longer tangs in the disc rotation direction.
LONGER
PAD SPRING
REPLACE AS A SET
DUST SEAL
PISTON SEAL
PAD
WEAR LIMIT: 0.8 mm (0.032 in)
PISTON
BRAKE FLUIDE: DOT #3
20 Nm (2.0 m · kg, 14 ft · lb)
DISC THICKNESS WEAR LIMIT: 4.5 mm (0.18 in)
FWD

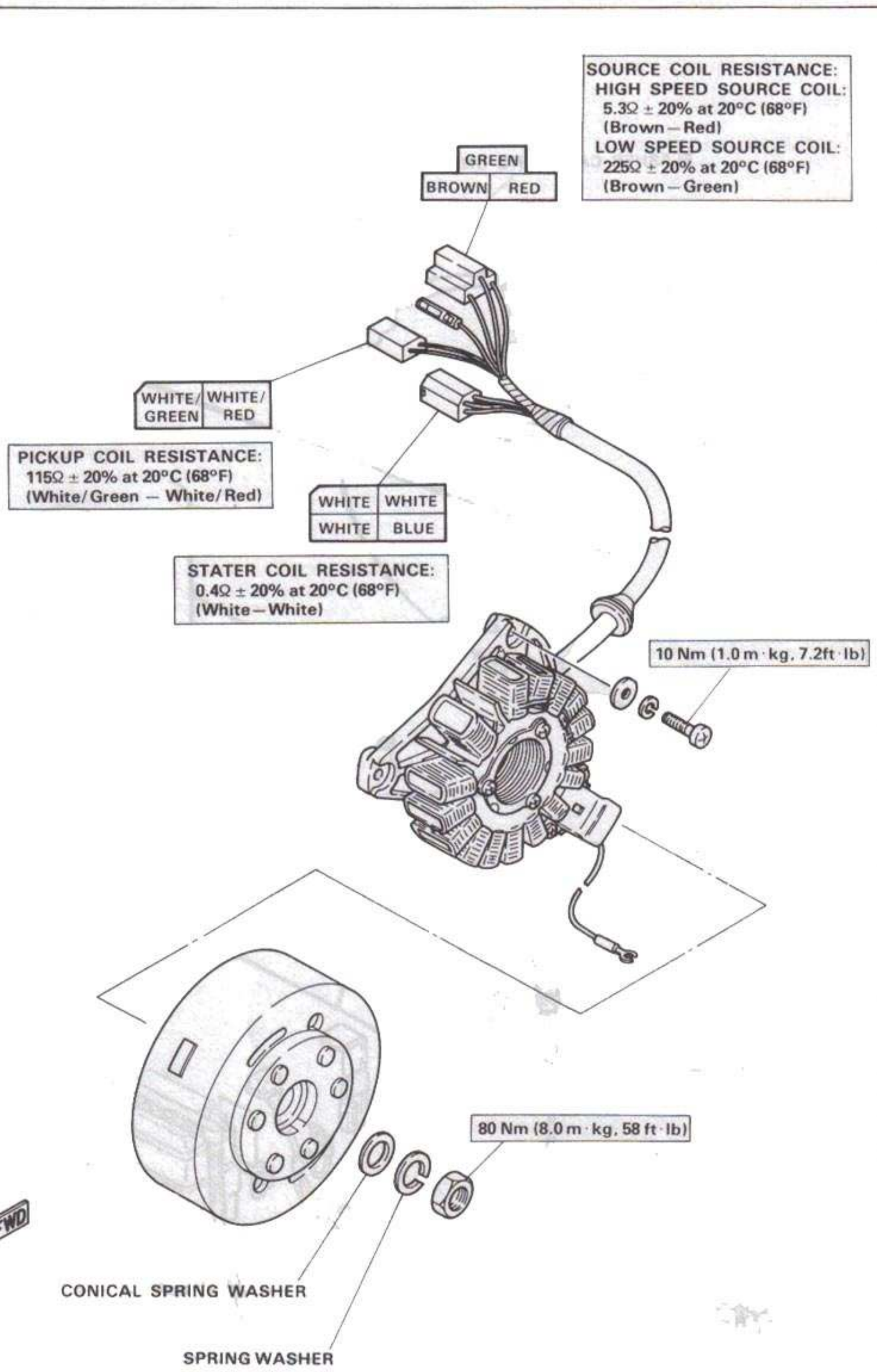
REAR SHOCK ABSORBER

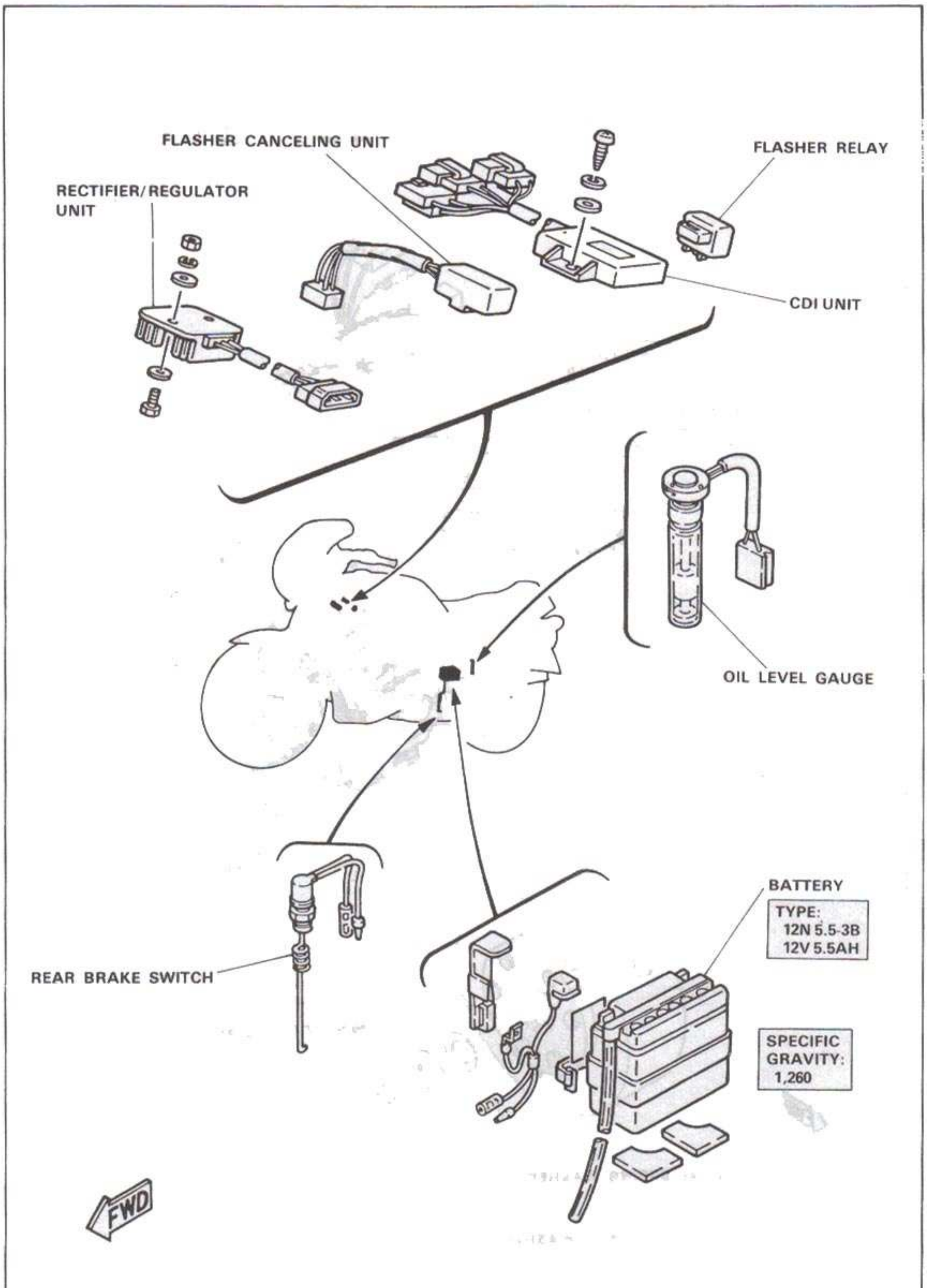
	Hard			STD	Soft
Adjusting Position	5	4	3	2	1

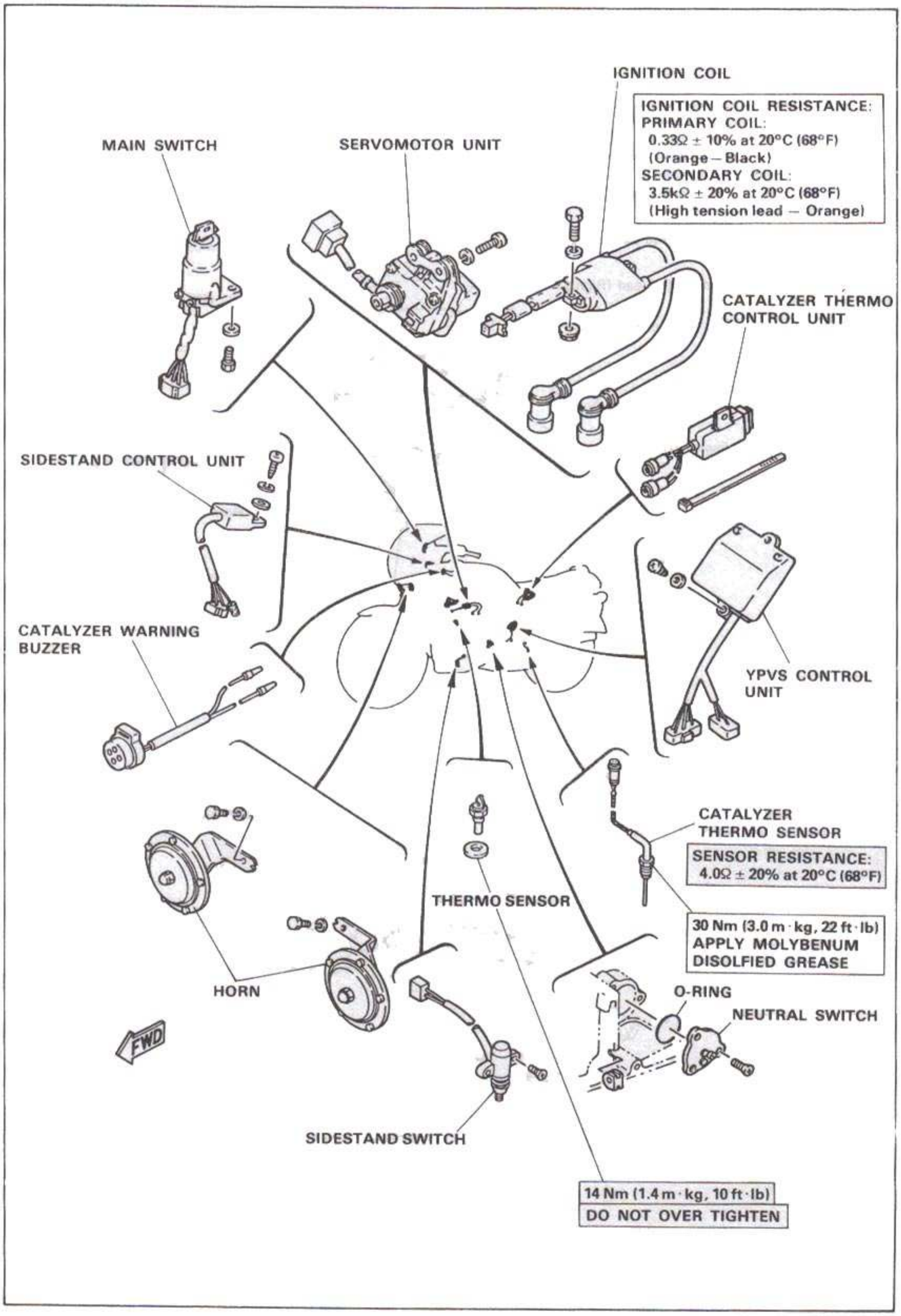


	Front fork	Rear shock absorber	Loading condition			
	Air pressure	Spring seat	Solo rider	With passenger	With accessories and equipment	With accessories, equipment, and passenger
1.	39.2 kPa (0.4 kg/cm², 5.7 psi)	1 or 2	○			
2.	58.8 kPa (0.6 kg/cm², 8.5 psi)	3		○		
3.	78.5 kPa (0.8 kg/cm², 11.4 psi)	4			○	
4.	98.1 kPa (1.0 kg/cm², 14.2 psi)	5				○

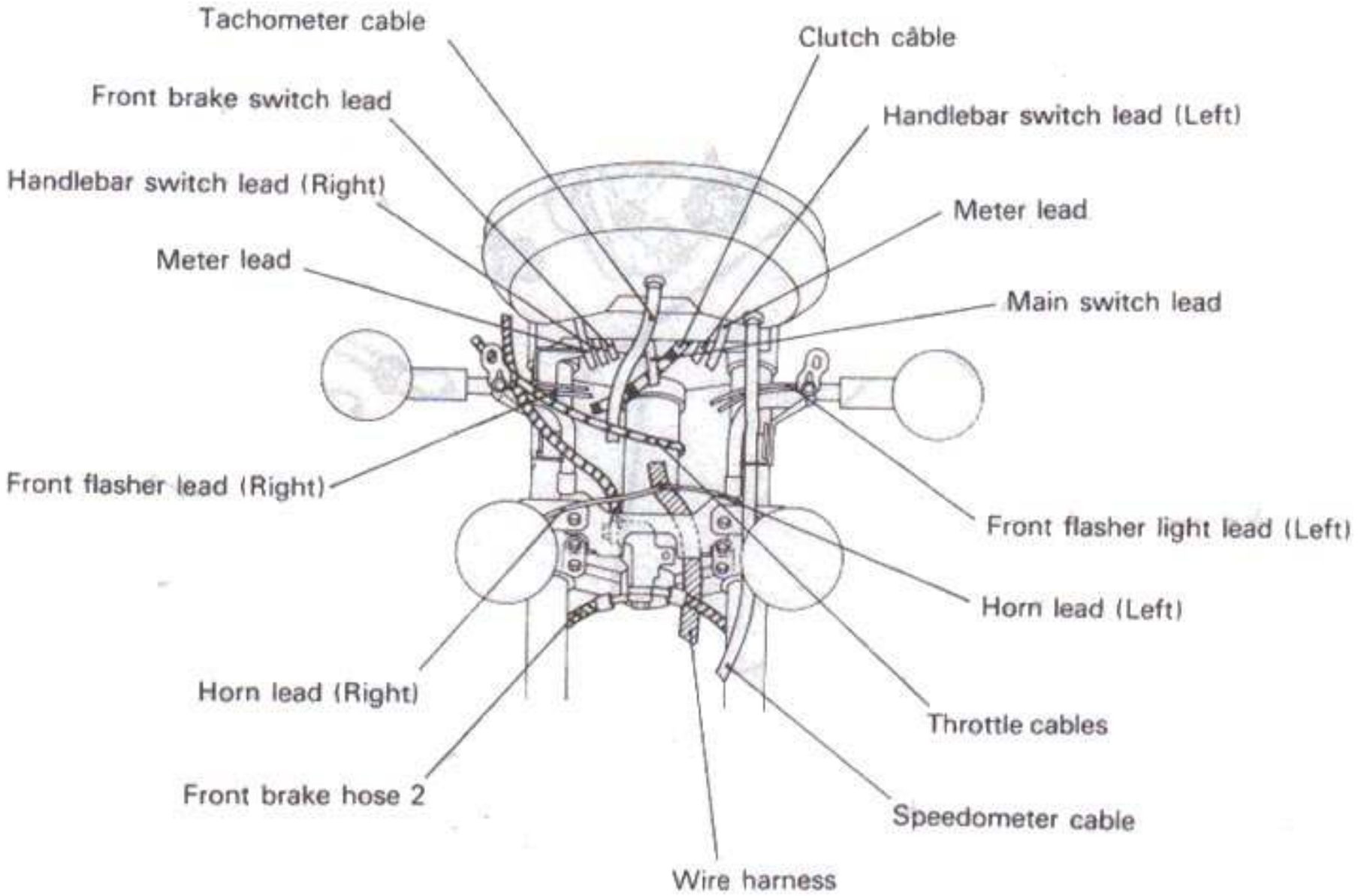
AC GENERATOR

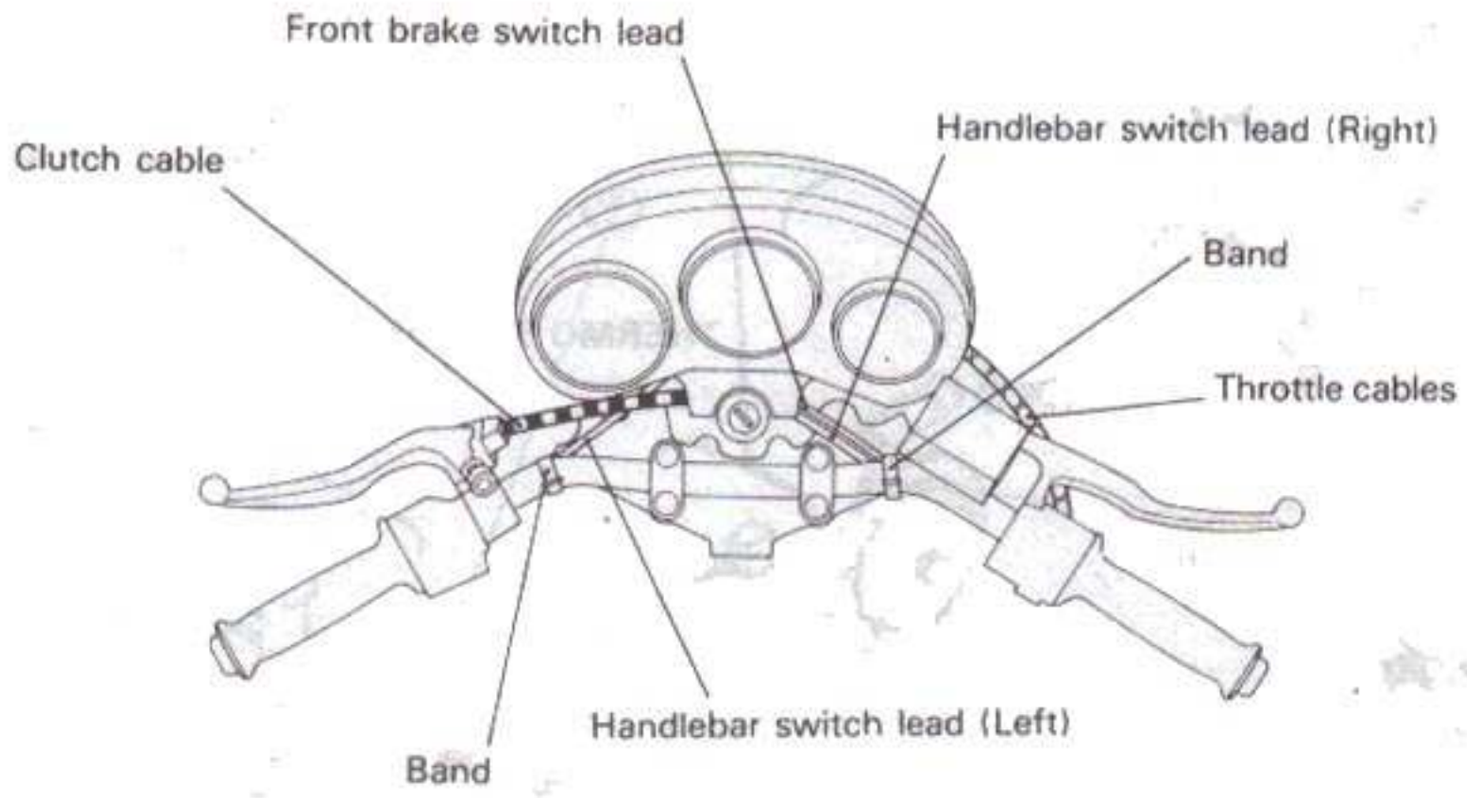


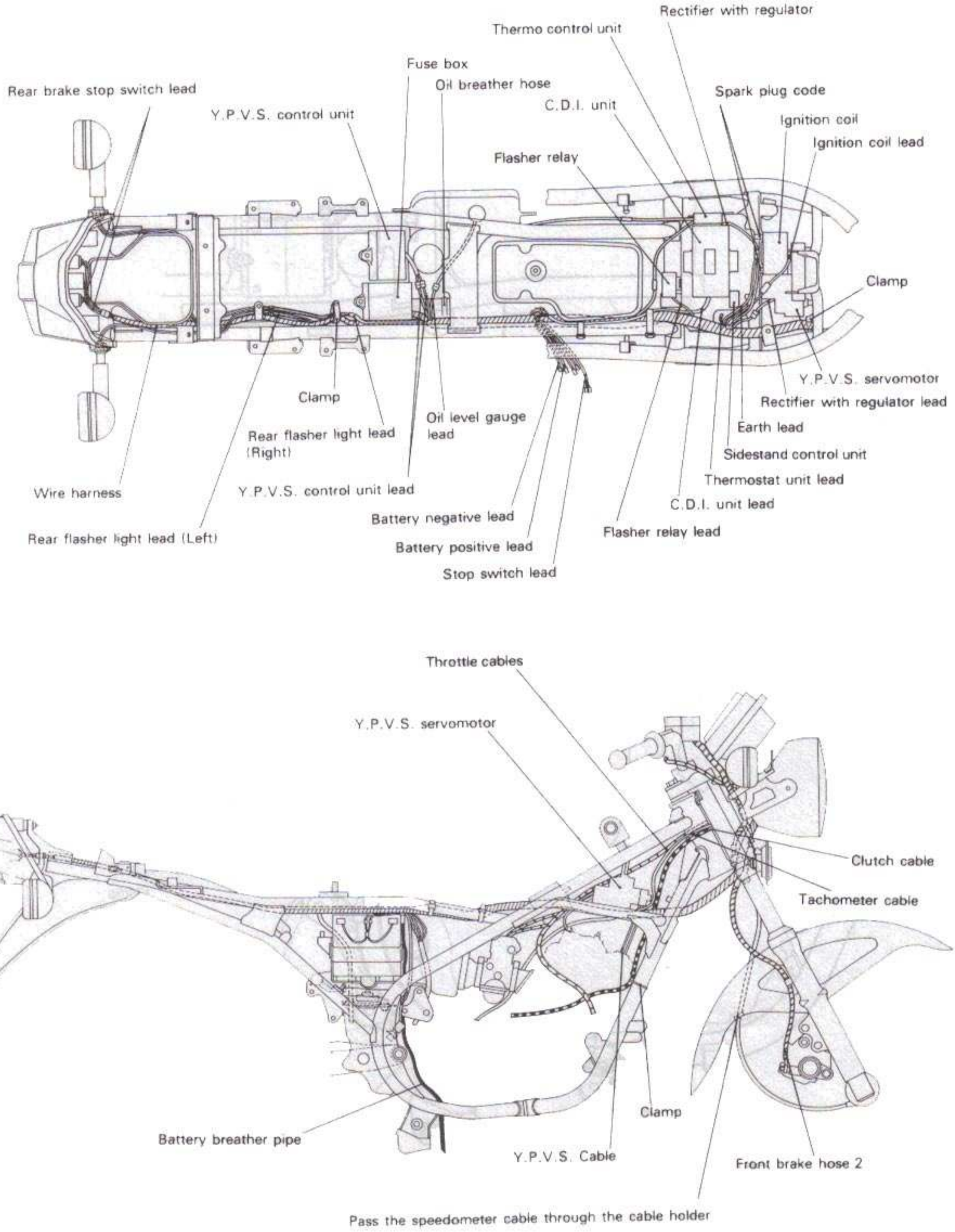

FLASHER CANCELING UNIT
FLASHER RELAY
RECTIFIER/REGULATOR UNIT
CDI UNIT
OIL LEVEL GAUGE
REAR BRAKE SWITCH
BATTERY
TYPE:
12N 5.5-3B
12V 5.5AH
SPECIFIC GRAVITY:
1.260
FWD

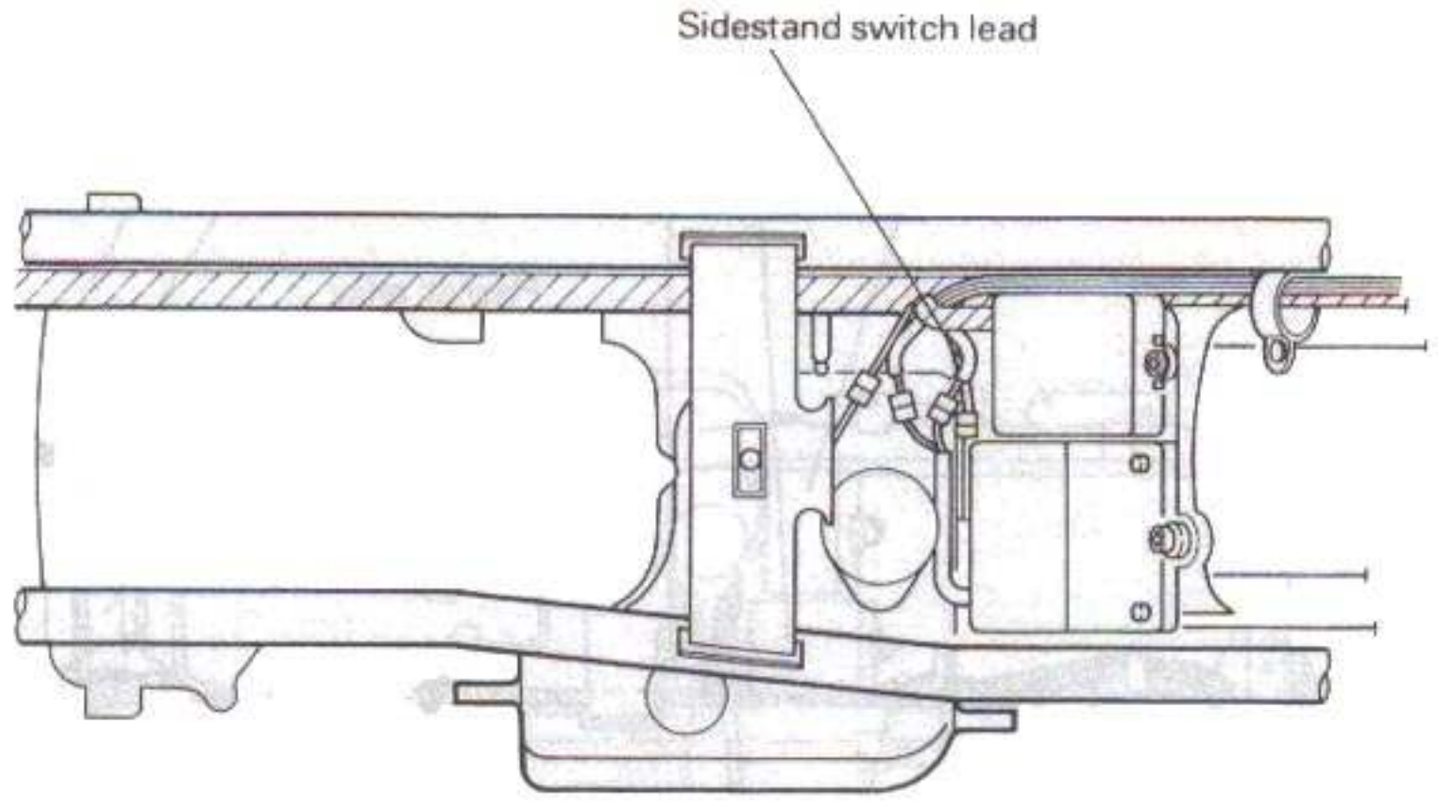

IGNITION COIL
IGNITION COIL RESISTANCE:
PRIMARY COIL:
0.33Ω ± 10% at 20°C (68°F)
(Orange – Black)
SECONDARY COIL:
3.5kΩ ± 20% at 20°C (68°F)
(High tension lead – Orange)
MAIN SWITCH
SERVOMOTOR UNIT
CATALYZER THERMO CONTROL UNIT
SIDESTAND CONTROL UNIT
CATALYZER WARNING BUZZER
YPVS CONTROL UNIT
CATALYZER THERMO SENSOR
SENSOR RESISTANCE:
4.0Ω ± 20% at 20°C (68°F)
THERMO SENSOR
30 Nm (3.0 m · kg, 22 ft · lb)
APPLY MOLYBENUM DISOLFIED GREASE
HORN
O-RING
NEUTRAL SWITCH
FWD
SIDESTAND SWITCH
14 Nm (1.4 m · kg, 10 ft · lb)
DO NOT OVER TIGHTEN

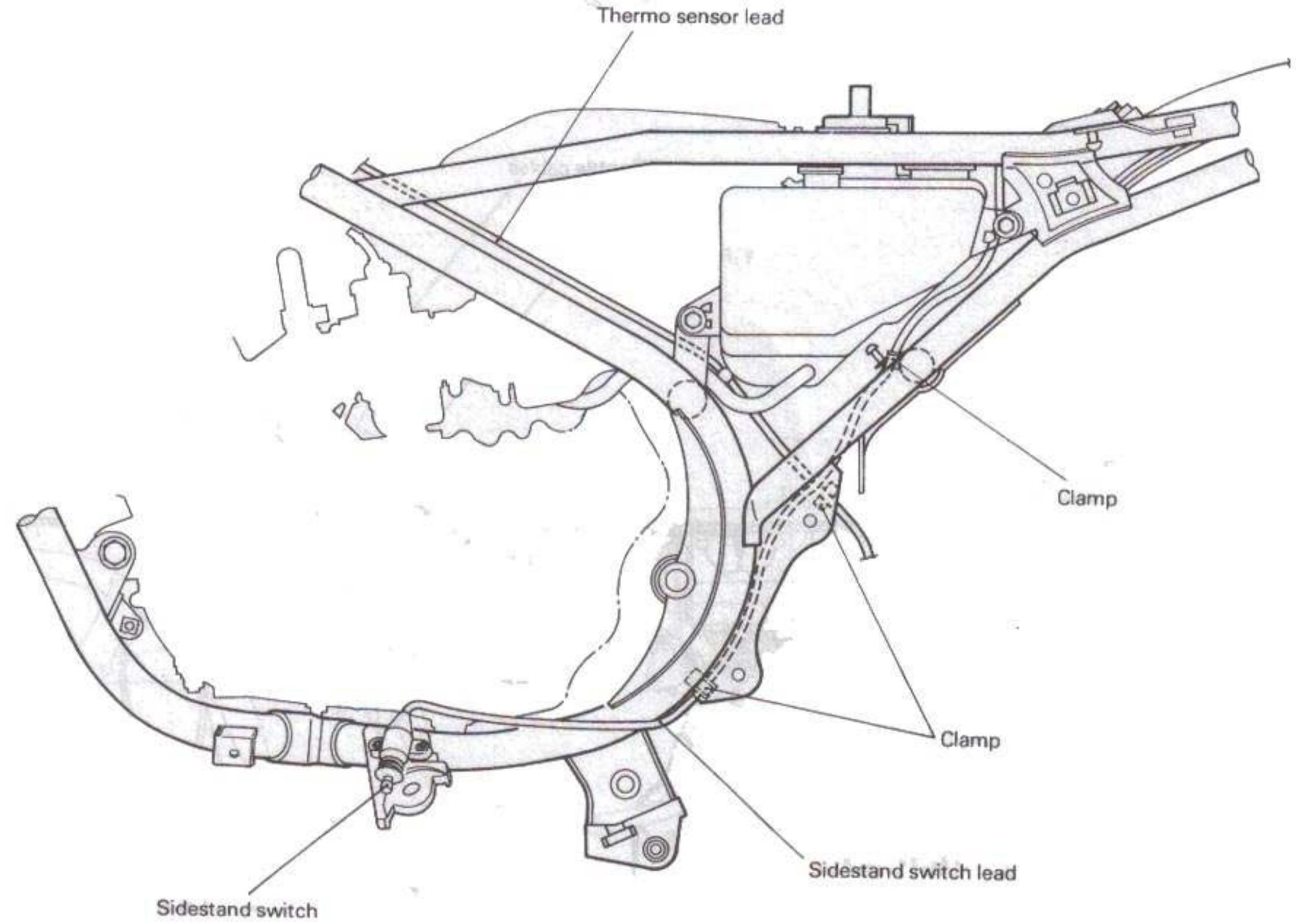
CABLE ROUTING



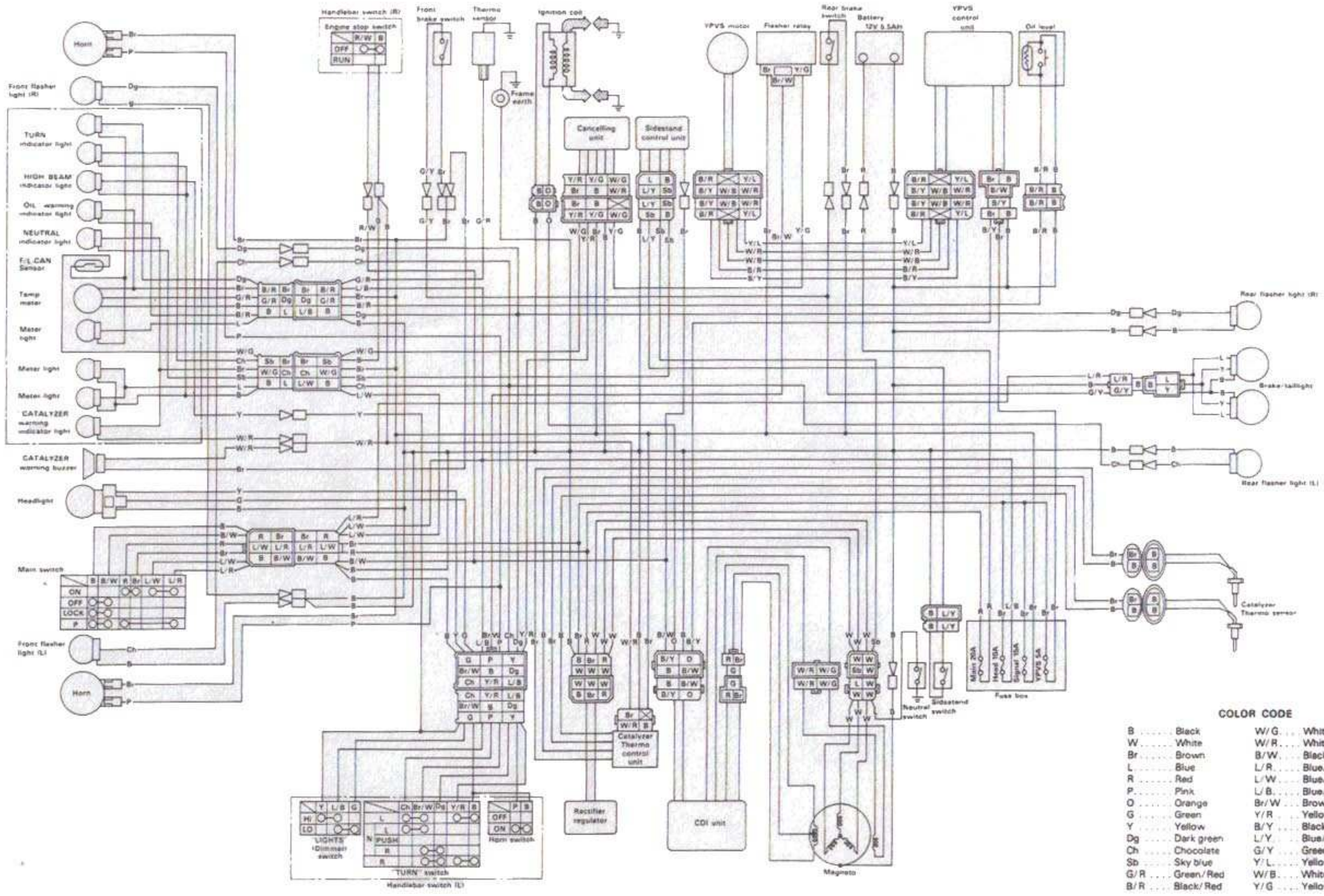



Rear brake stop switch lead
Y.P.V.S. control unit
Fuse box
Oil breather hose
Thermo control unit
Rectifier with regulator
Spark plug code
C.D.I. unit
Ignition coil
Ignition coil lead
Flasher relay
Clamp
Y.P.V.S. servomotor
Rectifier with regulator lead
Earth lead
Sidestand control unit
Thermostat unit lead
C.D.I. unit lead
Flasher relay lead
Clamp
Oil level gauge lead
Rear flasher light lead (Right)
Y.P.V.S. control unit lead
Battery negative lead
Battery positive lead
Stop switch lead
Wire harness
Rear flasher light lead (Left)
Throttle cables
Y.P.V.S. servomotor
Clutch cable
Tachometer cable
Clamp
Battery breather pipe
Y.P.V.S. Cable
Front brake hose 2
Pass the speedometer cable through the cable holder


Sidestand switch lead


Thermo sensor lead
Clamp
Clamp
Sidestand switch lead
Sidestand switch

WIRING DIAGRAM RZ350L



COLOR CODE

B	Black	W/G	White/Green
W	White	W/R	White/Red
Br	Brown	B/W	Black/White
L	Blue	L/R	Blue/Red
R	Red	L/W	Blue/White
P	Pink	L/B	Blue/Black
O	Orange	Br/W	Brown/White
G	Green	Y/R	Yellow/Red
Y	Yellow	B/Y	Black/Yellow
Dg	Dark green	L/Y	Blue/Yellow
Ch	Chocolate	G/Y	Green/Yellow
Sb	Sky blue	Y/L	Yellow/Blue
G/R	Green/Red	W/B	White/Black
B/R	Black/Red	Y/G	Yellow/Green