



**YAMAHA**

**TZ250G**

**TZ350G**

**OWNER'S SERVICE MANUAL**

**LIT-11626-02-06**

[www.legends-yamaha-enduros.com](http://www.legends-yamaha-enduros.com)

**3G2-28199-11**

## **IMPORTANT NOTICE**

This model is designed for roadrace use only. It is illegal to operate this vehicle on any public street, road and high way. Know your local laws and regulations before operating this vehicle.

Particularly important information is distinguished in this manual by the following notations:

**NOTE:** A NOTE provides key information to make procedures easier or clearer.

**CAUTION:** A CAUTION indicates special procedures that must be followed to avoid damage to the machine.

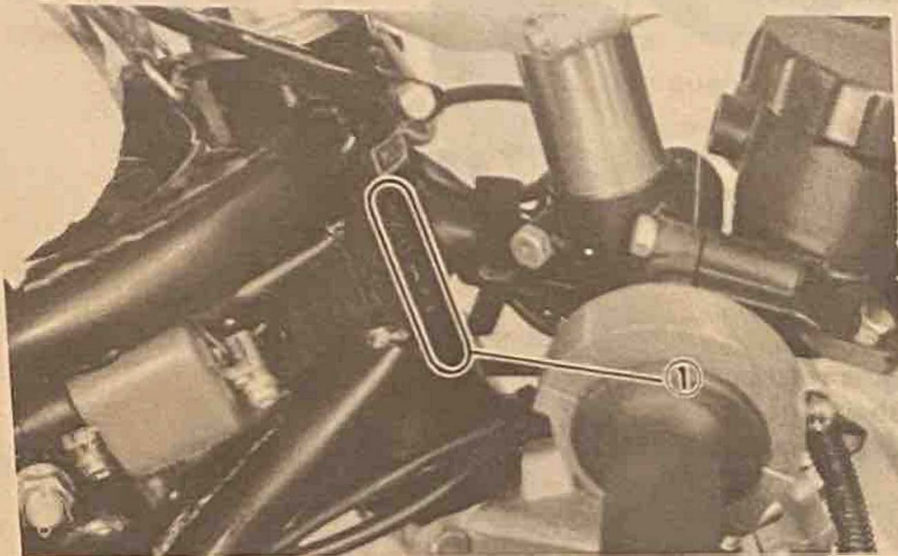
**WARNING:** A WARNING indicates special procedures that must be followed to avoid injury to a machine operator or person inspecting or repairing the machine.

**TZ250G/TZ350G OWNER'S SERVICE MANUAL  
FIRST EDITION, JULY 1979  
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PRINTED IN JAPAN  
LIT-11626-02-06**

# MACHINE IDENTIFICATION

## Frame serial number

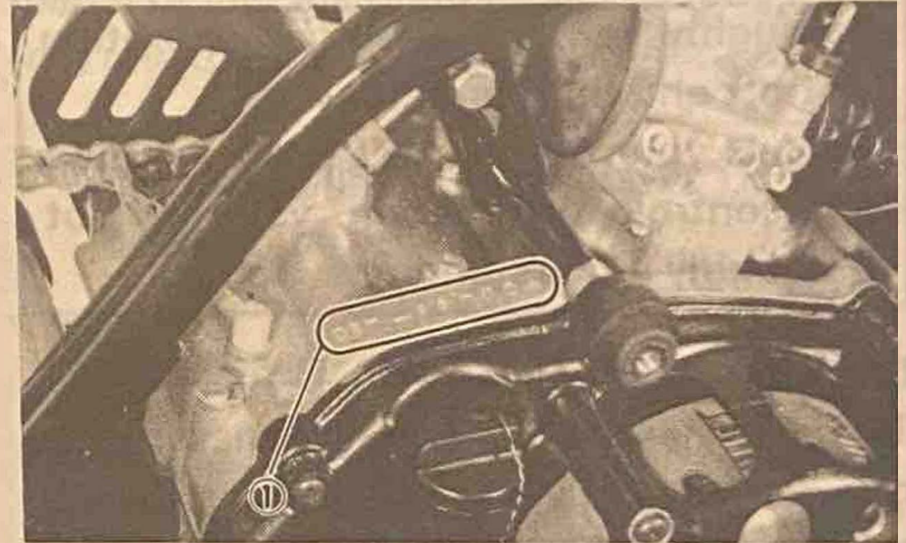
The frame serial number is stamped on the right side of the steering head pipe.



1. Frame serial number

## Engine serial number

The engine serial number is stamped into the elevated part of the right rear section of the engine.



1. Engine serial number

## NOTE:

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

# CONTROL FUNCTIONS

## CAUTION:

Before riding this machine, become thoroughly familiar with all operating controls and their function.

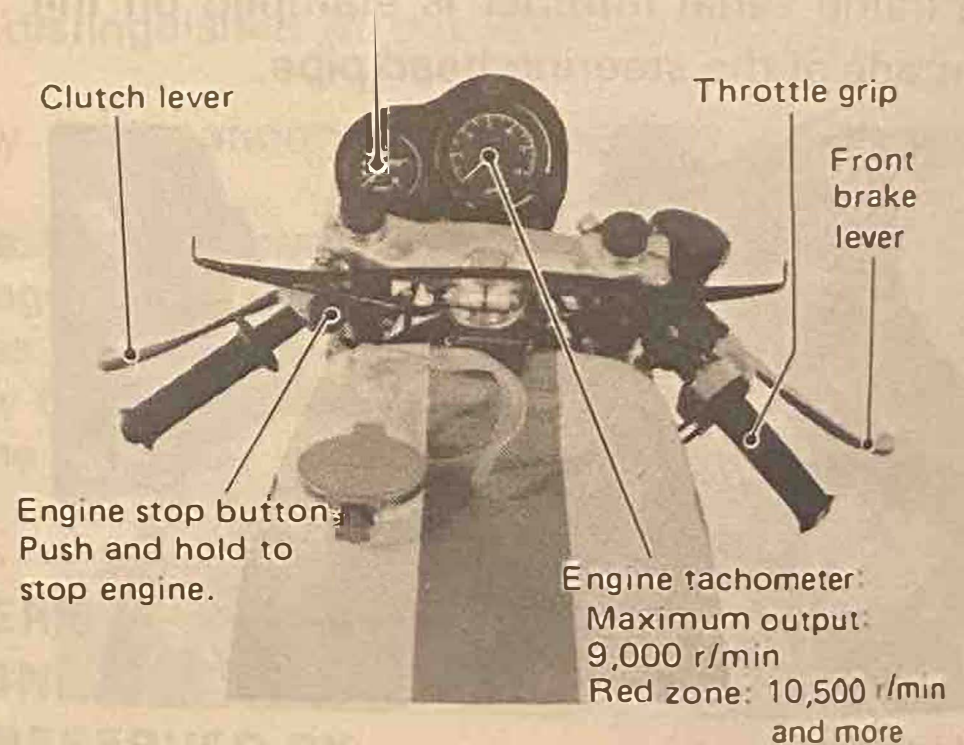
Consult your Yamaha dealer regarding any control of function you do not thoroughly understand.

## NOTE:

The machine that you have purchased, may differ from partly in design and specifications from that shown in this photo.

Water temp. meter:

Water temperature may be 80° C when engine is operated in good condition.





Rear brake pedal

Radiator cap:  
Be careful to open the cap  
when cooling water is hot.

Fuel petcock:  
Downward ... ON  
Horizontal position ... OFF



Shift pedal:  
Constant mesh 6-speed transmission

## Fuel

Use premium gasoline with an octane rating of 90+ mixed with oil. Always use fresh, name-brand gasoline. Always mix a fresh batch of fuel the morning of the race and do not retain a mixed batch overnight.

Fuel tank capacity: 23.5 lit (6.2 U.S.gals)

Mixture ratio: Break-in ..... 12:1

Racing ..... 15:1

## Oil

Engine mixing oil:

Recommended oil:

Yamalube "R", Castrol R30

[www.legends-yamaha-enduros.com](http://www.legends-yamaha-enduros.com)

## Transmission oil:

Transmission oil capacity:

1,700 cc + 50cc

Recommended oil:

Yamalube 4-cycle oil or

SAE 10W/30 motor oil type "SE"

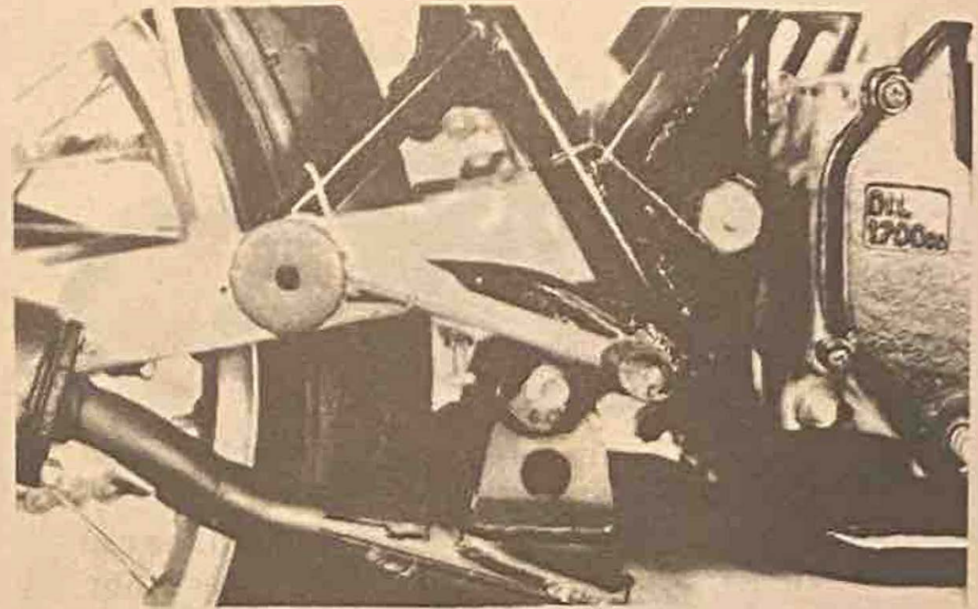
On the right side of the engine there is a filler plug with dipstick.

To check level:

- a. Run engine for several seconds.
- b. Remove filler plug.
- c. Just rest the dip stick in the hole.
- d. Remove. Check level.
- e. Top up as required. Reinstall filler plug. Tighten.

## NOTE:

1. Check oil level before every run.
2. Machine must be in level position during above measurement.



## CAUTION:

Do not add any chemical additives. Transmission oil also lubricates the clutch and additives could cause the clutch to slip.

# PRE-OPERATION CHECKS

Before using this motorcycle please check the following points:

Item	Procedure	Page
Brake (Front & Rear)	Check operation/adjustment/fluid level	21 ~ 23
Clutch	Check operation/adjustment	20 ~ 21
Fuel tank	Fill with proper fuel/oil mix	3 ~ 4
Transmission	Check oil level/top-up as required	4
Drive chain	Check alignment/free play/adjustment/lubrication	25
Throttle	Check for proper cable operation	15 ~ 16
Wheels & tires	Check pressure/runout/spoke tightness/axle nuts	74 ~ 77
Fittings/fasteners	Check all/tighten as necessary	—
Cooling system	Check water level/leakage/tightness of clamp	19 ~ 20

## NOTE:

Pre-operation checks should be made each time the machine is used. Such an inspection can be thoroughly accomplished in a very short time and the added safety it assures is more than worth the time involved.

# STARTING AND OPERATION

## **CAUTION:**

**Prior to operating the machine, perform steps listed in pre-operation check list.**

### **Starting the cold engine**

Shift transmission into "first gear". Turn the fuel petcock to "ON" and operate the starter rod and completely or slightly open the throttle grip. Give a strong push to start the engine.

### **Warming up**

Run the engine at varying speeds below 5,000 r/min for 3 ~ 4 minutes. Fully warm up until the thermometer reads 80°C (176°F) or so.

When the temperature rises to around 80°C, the thermostat begins to open. When

thermostat opens, the temperature goes down, causing the thermostat to close. Wait until the temperature goes up to 80°C (176°F) or so, and set out for cruising.

Next, shift to 1st gear, and run the machine over a short distance, rising the engine speed to 8,000 r/min under load, in first gear. Fully close the throttle valve, and at the same time, disengage the clutch. This prevents excessive gasoline from entering the crankcase, thus facilitating the next starting.

## **CAUTION:**

**Do not operate engine for extended warm-up periods.**

### **Starting a warm engine**

Do not engage starter jet. Open throttle slightly.

## **NOTE:**

Observe break-in procedures, for initial operation.



## Break-in procedures

1. Prior to starting, fill tank with a break-in gasoline/oil mixture of 12:1 and install the hotter type spark plugs.
2. After fueling and pre-operational checks have been made, refer to "Starting a cold engine" and start engine.
3. Allow engine to warm up. Check operating controls and "Engine stop" button operation.
4. Operate machine in lower gears at 5,000 r/min maximum for 5 ~ 10 minutes. Check spark plug condition. Spark plug will show rich condition during break-in.
5. Allow engine to cool. Repeat procedure, running for 10 minutes. Very briefly, shift to higher gears (4th or 5th) and check full throttle response. Check spark plug condition.
6. Allow engine to cool. Repeat procedure, running for 10 minutes. Full throttle and higher gears may be used, but avoid sustained full throttle operation. Check spark plug condition.
7. Allow engine to cool. Remove top end and inspect. Remove "high" spots on piston with No. 600 grit, wet sandpaper. Clean, and carefully reassemble.
8. Remove break-in fuel/oil mixture from tank. Refill with 15:1 operation fuel/oil mixture. Check entire unit for loose or mis-adjusted fittings/controls/fasteners.
9. Re-start engine and check through entire operating range thoroughly. Stop. Check spark plug condition. Re-start. After 10 ~ 15 minutes operation, machine is ready to race.

# PERIODIC MAINTENANCE

The maintenance and lubrication schedule chart should be considered strictly as a guide to general maintenance and lubrication intervals. You must take into consideration that weather, terrain, geographical locations, and a variety of individual uses all tend to demand that each owner alter this time schedule to match his environment.

For example, if the motorcycle is continually operated in an area of high humidity then all parts must be lubricated much more frequently than shown on the chart to avoid rust and damage. If you are in doubt as to how closely you can follow these time recommendations, check with the Yamaha dealer in your area.

## MAINTENANCE AND LUBRICATION SCHEDULE CHART

Item	Recommended Lubricant (By type *)	Every heat	Every meet	Every second	Every third	Every fifth	As required
<b>PISTON</b> Inspect seizure Clean Replace			○ ○		○		
<b>PISTON RING</b> Replace				○			
<b>CYLINDER HEAD</b> Inspect distortion Clean Replace Check head nut torque			○ ○ ○				○

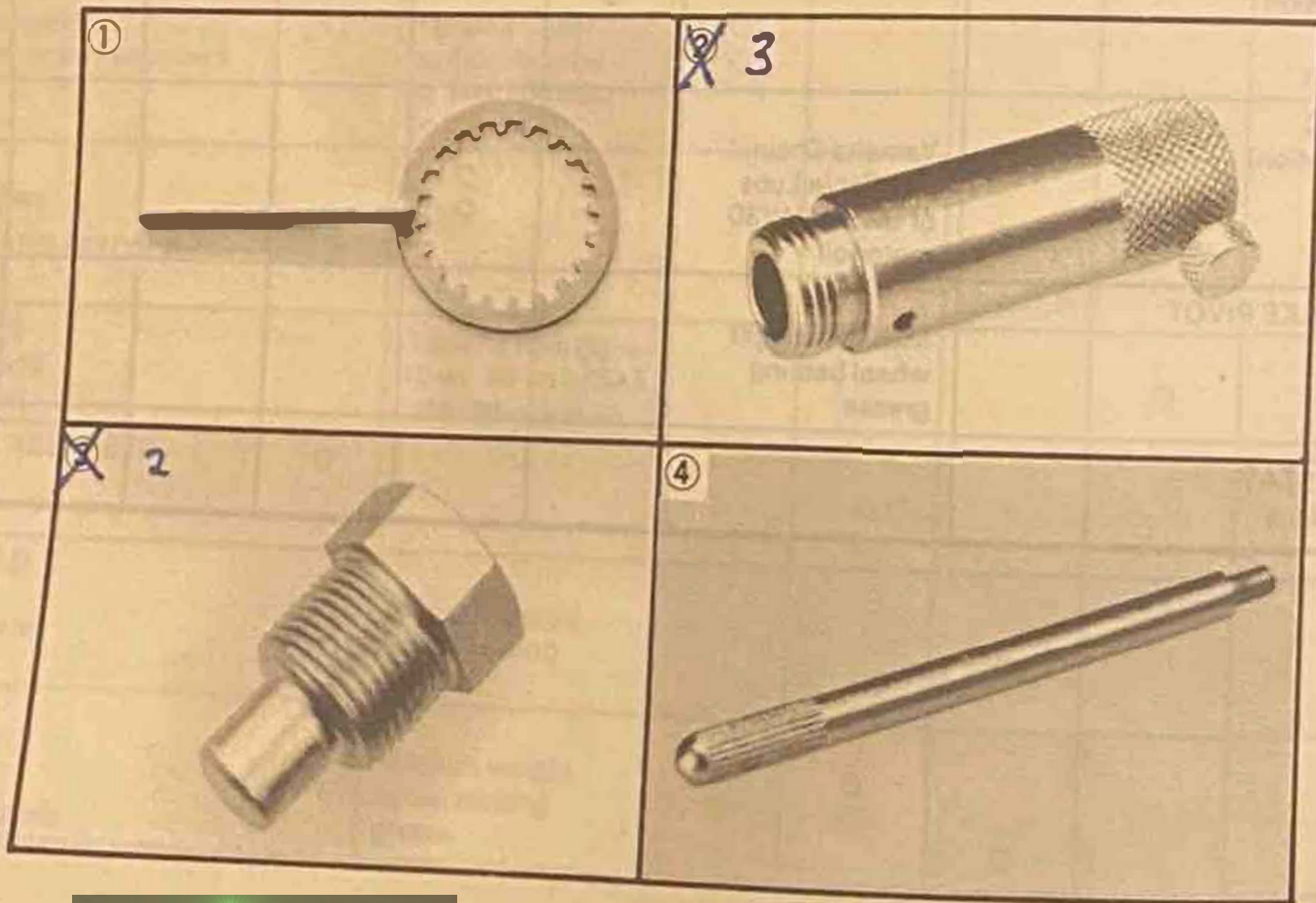
Item	Recommended lubricant (By type *)	Every heat	Every meet	Every second	Every third	Every fifth	As required
<b>CYLINDER</b> Inspect seizure Clean Replace Check cylinder nut			○ ○ ○				○
<b>CLUTCH</b> Adjust Inspect plates Replace			○		○		○
<b>TRANSMISSION</b> Change oil Inspect gears and shift fork Replace bearing	Yamalube 4-cycle oil or SAE 10W/30 "SE" motor oil			○		(○) ○	○
<b>ENGINE MAIN BEARING</b> Replace						○	
<b>CONNECTING ROD</b> Inspect bearings Replace						○	○
<b>PISTON PIN</b> Inspect Replace			○				○
<b>ROTOR NUT</b> Torque							○ (E/G Overhaul)
<b>EXHAUST SYSTEM</b> Inspect crack Clean		○				○	
<b>CARBURETOR</b> Check/Adjust/Tighten Clean			○ ○				

Item	Recommended Lubricant (By type •)	Every heat	Every meet	Every second	Every third	Every fifth	As required
<b>COOLING SYSTEM</b> Clean radiator Check leakage of system		<input type="radio"/>					<input type="radio"/>
<b>SPARK PLUG</b> Replace Inspect condition		<input type="radio"/>					<input type="radio"/>
<b>DRIVE CHAIN</b> Clean/Lubricate Check tension and alignment Replace	Yamaha Chain and Cable Lube or SAE 10W/30 motor oil	<input type="radio"/> <input type="radio"/>			<input type="radio"/>		
<b>FRAME</b> Clean/Inspect			<input type="radio"/>				
<b>FUEL TANK AND PETCOCK</b> Clean			<input type="radio"/>				
<b>FRONT FORKS</b> Drain and refill Replace seals	Yamaha Fork Oil 10 wt. 30 wt or SAE 10W/30 motor oil				<input type="radio"/>		<input type="radio"/>
<b>REAR SHOCK ABSORBER</b> Inspect Adjust			<input type="radio"/> <input type="radio"/>				
<b>STEERING HEAD</b> Inspect Clean/Lubricate Replace	Medium weight wheel bearing grease			<input type="radio"/>	<input type="radio"/>		<input type="radio"/>
<b>SWING ARM</b> Inspect Lubricate Replace chain guide	Medium weight wheel bearing grease		<input type="radio"/> <input type="radio"/>		<input type="radio"/>		

Item	Recommended lubricant (By type *)	Every heat	Every meet	Every second	Every third	Every fifth	As required
<b>BRAKE</b> Clean/Inspect/Adjust/Refill Replace pad			○				○
<b>WHEELS AND TIRES</b> Check pressure Check runout Check spoke tension Check bearings Replace bearings		○	○ ○ ○				○
<b>CONTROL CABLES</b> Routing (Connection) Inspect Lubricate	Yamaha Chain and Cable Lube or SAE 10W/30 motor oil		○ ○ ○				
<b>CLUTCH AND BRAKE PIVOT</b> Lubricate Retighten	Medium weight wheel bearing grease	○	○				
<b>ENGINE MOUNT STAY</b> Check and replace				○			○

# SPECIAL TOOLS

	Part name	Part No.
1	Clutch holding tool	90890-01022
2	Rotor puller	90890-20416
3	Dial gauge stand	90890-01195
4	Dial gauge needle	90890-03042



# ADJUSTMENTS AND MAINTENANCE

## Spark plug

The spark plug in your machine indicates how the engine is operating. If the engine is operating correctly, and the machine is being ridden correctly, then the tip of the white insulator around the center electrode of the spark plug will be a medium to light tan color. If the porcelain is a very dark brown or black color, then a plug with a hotter heat range may be required.

This situation is quite common during the engine break-in period. However, use the standard plug. If the insulator tip shows a very light tan or white color or is actually pure white or if the electrodes show signs of melting, then a spark plug with a colder heat range is required.

Remember, the insulator must be a medium to light tan color. If it is not, check

carburetion, timing, and ignition adjustments. If the situation persists, consult your Authorized Yamaha Dealer.

Do not attempt to experiment with different heat range spark plugs. This takes an experienced eye, to gauge the proper spark plug heat range to use and to determine if the spark plug itself is at fault.

For normal operation use:  
N-82G/Champion

Spark plug gap: 0.7 mm (0.028 in)

Engine conditions will cause any spark plug to slowly break down and erode. If erosion begins to increase, or if the electrodes finally become too worn, or if for any reason you believe the spark plug is not functioning correctly, replace it.

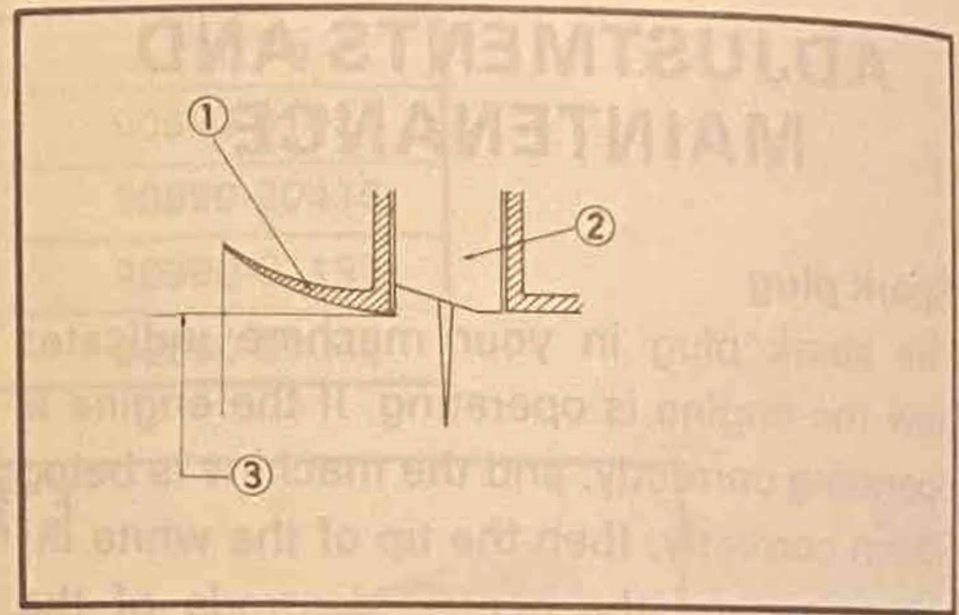
When installing the plug, always clean the gasket surfaces, use new gaskets, wipe off any grime that might be present on the surface of the spark plugs, and torque the spark plug properly.

Spark plug torque: 2.5 m-kg (18 ft-lb)

The spark plug must be removed and checked prior to using the machine. Check electrode wear, insulator color, and electrode gap.

### Carburetor

1. Throttle valve opening adjustment
  - a. Make sure that both carburetors fully open and close.
  - b. Check the positions of both the throttle valve cut-aways just before they disappear at the top of the carburetor venturi bore.

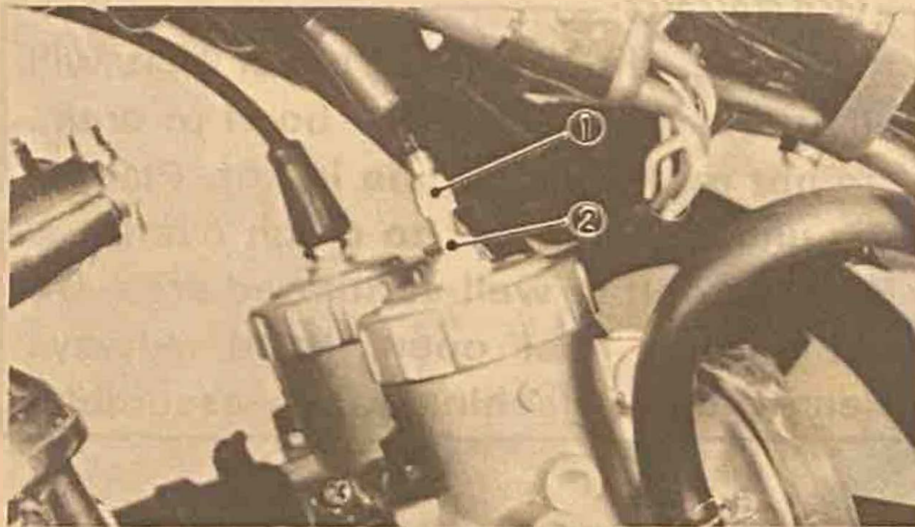


1. Carburetor venturi bore
2. Throttle valve
3. Open the throttle valve and synchronize the throttle cables just before the cutaways disappear

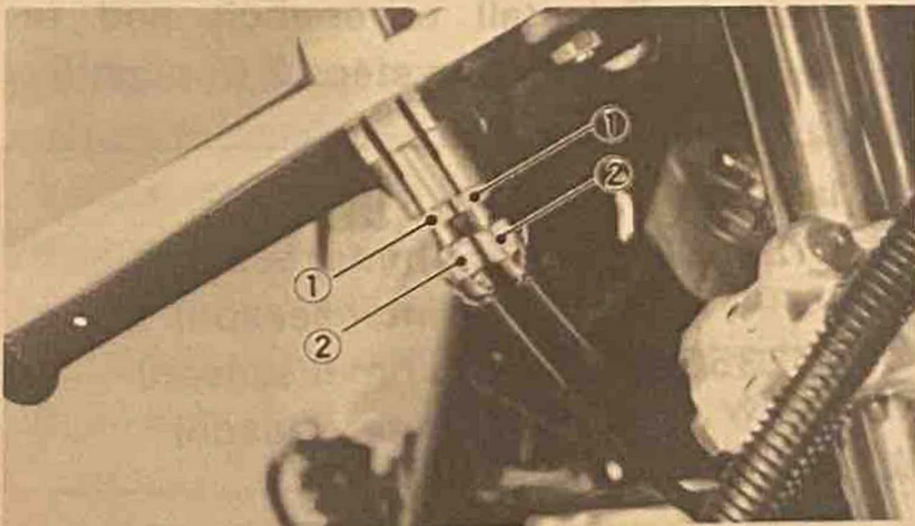
If they are not on a level with each other, the throttle cable should be adjusted by turning the adjusting screw on the carburetor cap or by turning the adjusting screw on the handle side.

- c. The adjustment can be made by the lock nut and adjuster. Tightening the adjuster raises the throttle valve, and vice versa.





1. Adjuster 2. Lock nut



1. Lock nut 2. Adjuster

2. Throttle cable free play adjustment  
After the throttle valve opening adjustment, check play in turning direction of throttle grip. The play should be 3 ~ 5 mm (0.12 ~ 0.2 in) at grip flange, loosen the lock nut and turn the wire adjuster to make the necessary adjustment.

When adjust the cable free play, turn the wire adjusters for equal number of turning.

Tighten the lock nuts.

3. Pilot air screw adjustment  
Turn pilot air screw in until lightly seated.  
Back out specified turns.

Pilot air screw turns out:

TZ250G.....	1.0
TZ350G.....	1.0

If the engine, when warm, hesitates after adjusting as described, turn the pilot air screw in or out in 1/8 turn increments until the problem is eliminated.

## Replacement of main jet

### NOTE:

Generally, in a race held in the rain or at altitudes, the main jet should be replaced by a one-step smaller type.

1. Turn fuel petcock lever to the "OFF" position.
2. Remove the gasoline tank fuel line into from the fitting at the carburetor.
3. Loosen the manifold and inlet joint bands (hose clamps).
4. Rotate carburetor, exposing main jet cover bolt.
5. Remove bolt. Main jet is located directly behind bolt.

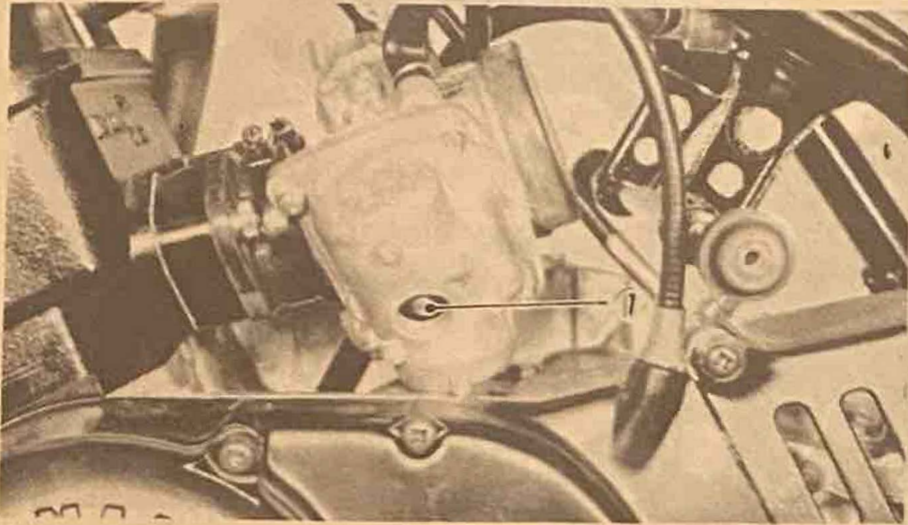
### WARNING:

Removing the main jet cover bolt will allow the fuel in the float bowl to drain. Do not remove if engine is hot. Place a rag under carburetor to catch overflow. Remove bolt in well-ventilated area. Do not remove near open flame. Always clean and dry machine after reassembly.

6. Remove the main jet. Change as required. Reinstall cover bolt and reassemble, reversing steps 2 through 5.

### Main jet:

TZ250G #230 (Summer season)  
#270 (Winter season)  
TZ350G #280 (Summer season)  
#360 (Winter season)



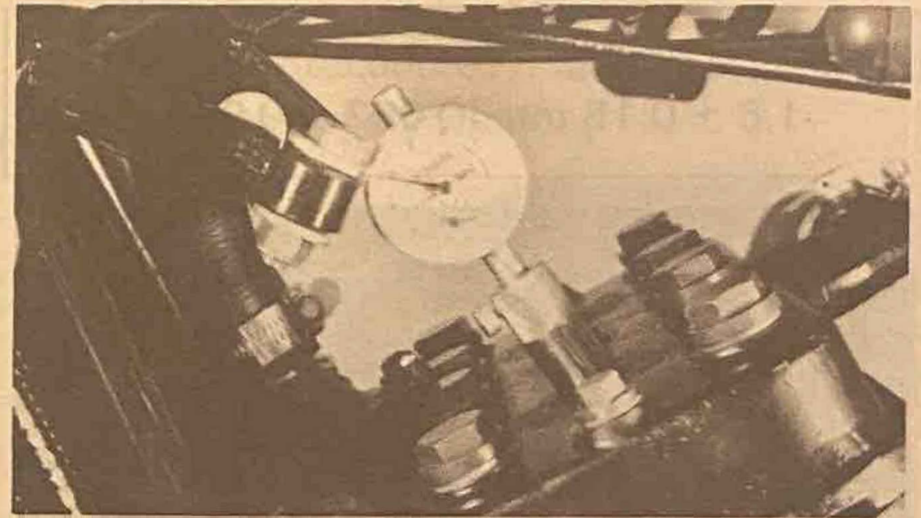
1. Main jet

### Ignition timing

Ignition timing must be set with a dial gauge (to determine piston position).

Proceed as follows:

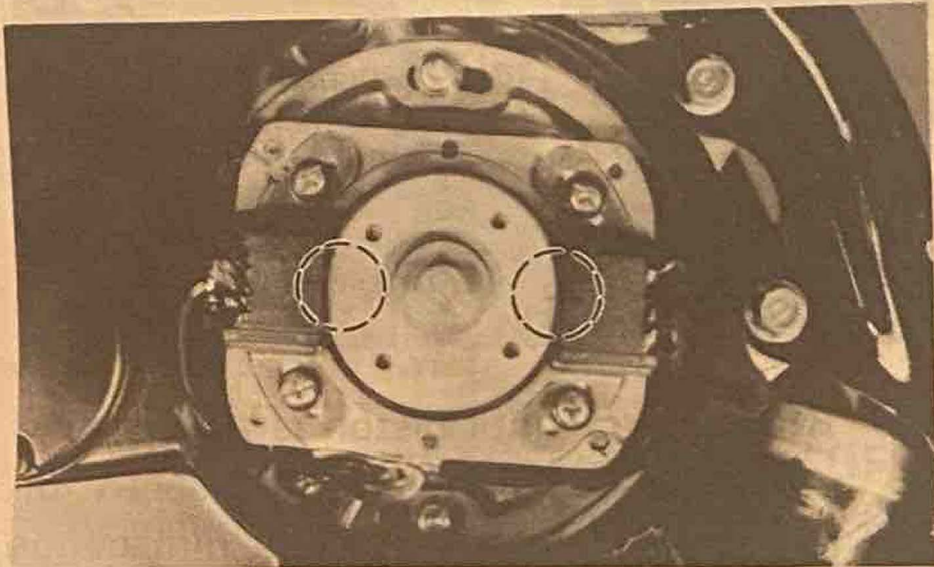
1. Remove spark plug and screw Dial Gauge Stand into spark plug hole.
2. Insert Dial Gauge Assembly with a 56 mm (2.2 in) extension (needle) into stand.
3. Remove left engine crankcase cover.



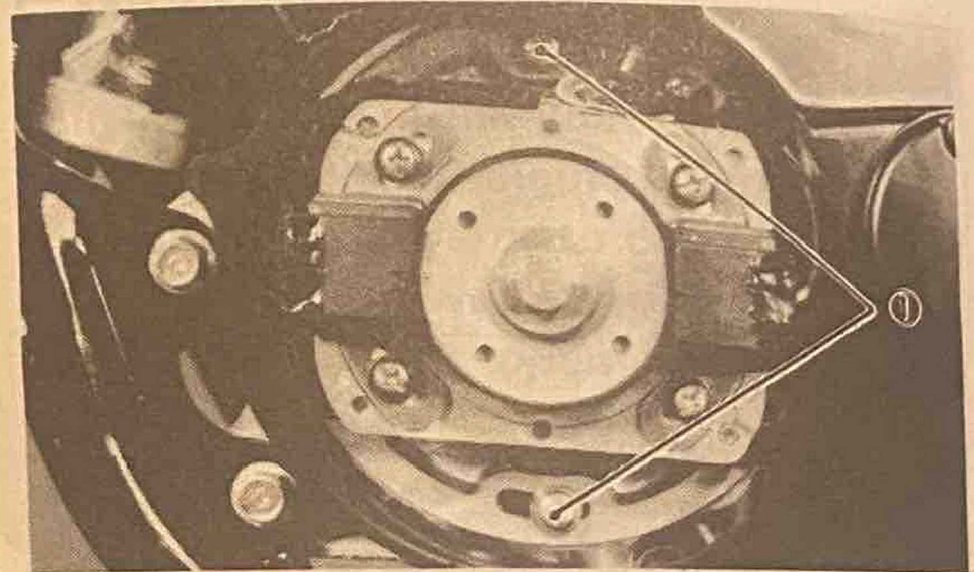
4. Rotate rotor until piston is at top-dead center (T.D.C.). Tighten set screw on dial gauge stand to secure dial gauge assembly. Set the zero on dial gauge face to line up exactly with dial gauge needle. Rotate rotor back and forth to be sure that gauge needle does not go past zero.
5. Starting at T.D.C., rotate rotor clockwise until dial indicator reads 2.0 mm (0.078 in) before top-dead-center (B.T.D.C.)

Ignition timing:

$1.6 \pm 0.15 \text{ mm}$  ( $0.063 \pm 0.006 \text{ in}$ )



6. Check to see that the rotor timing mark aligns with the stator timing mark. To adjust, loosen the two stator retaining screws and rotate the stator. Tighten screws and recheck the ignition timing.



1. Retaining screw

7. Remove dial gauge assembly and stand. Replace spark plug.

Spark plug torque:

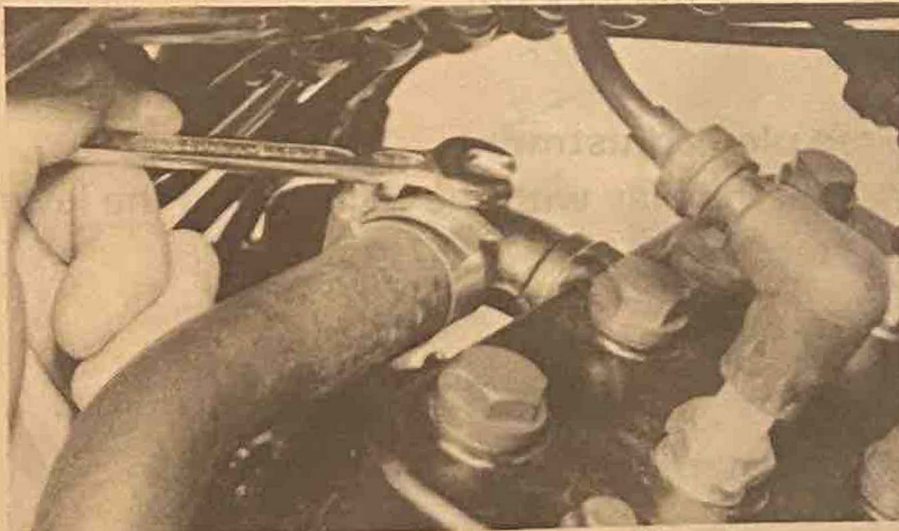
$2.5 \text{ m-kg}$  (18 ft-lb)

8. Replace engine crankcase cover.

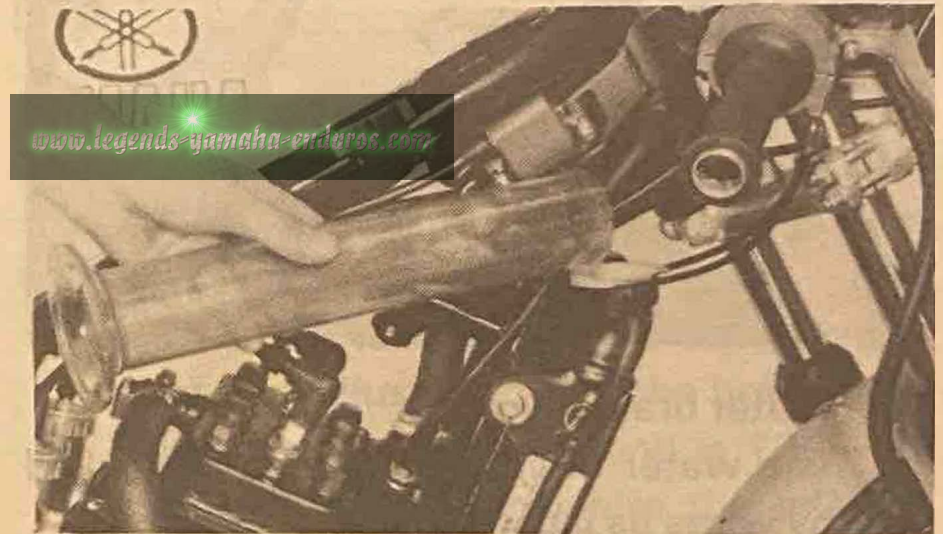
## Cooling water

In the TZ250G/350G model, it is necessary to rid the water jacket of its air. For this purpose, three water check plugs are provided on the cylinder head.

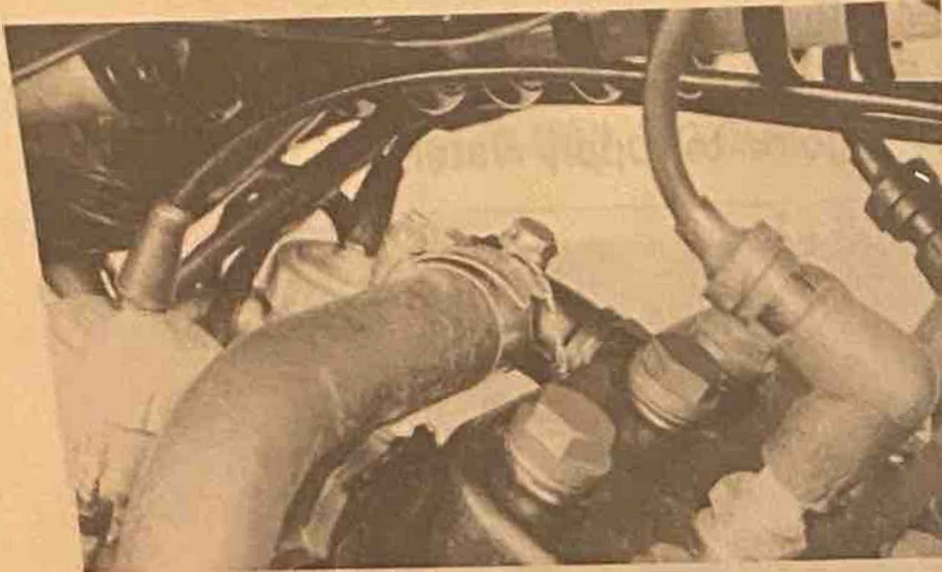
1. Loosen the water check plug by four or five turns.
2. Supply cooling water into the radiator through the hole provided in it.
3. Tighten the water check plugs when the water begins to come out of them.



4. Run the engine for a few minutes.
5. Repeat procedure 1. and 2. above and go on to supply water.

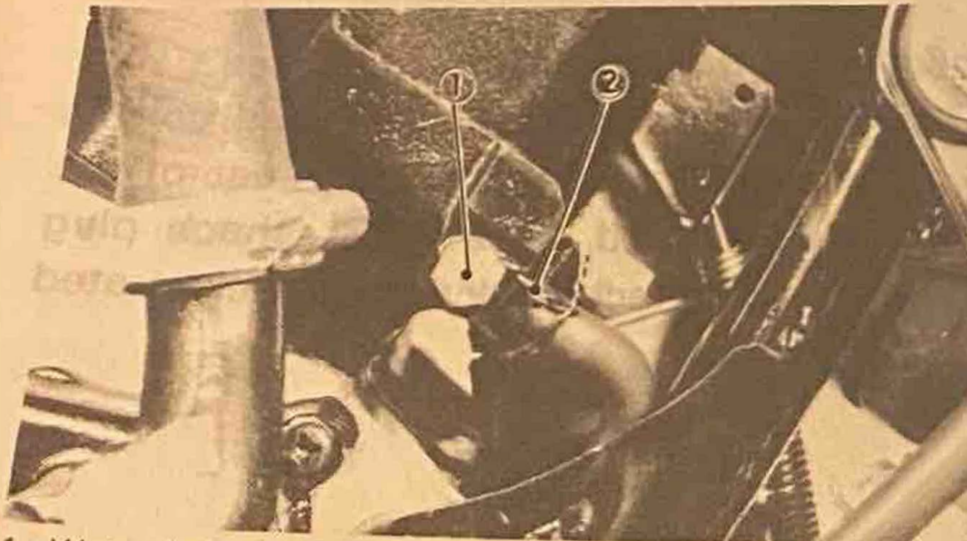


6. Locking with wires
  - a. The water check bolt (air bleed bolt) is attached to the joint at the rear of the cylinder head. This water check plug should be locked by wires as illustrated right.



**b. Water drain plug**

The water drain plug should be locked by wires as illustrated.



1. Water drain plug 2. Safety wire

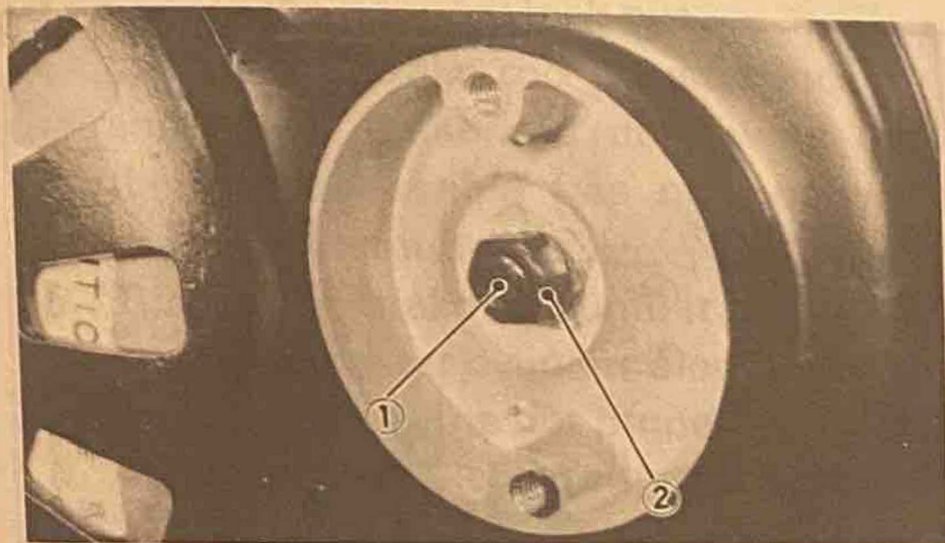
## Clutch

### Internal mechanism adjustment

1. Turn the adjuster in on the clutch lever holder side.
2. Remove the clutch adjuster cover on the left crankcase cover.
3. Loosen the lock nut and loosen the adjuster then slowly tighten the adjuster until it lightly seated.
4. Back out the adjuster 1/4 turn from the lightly seated position.
5. Lock the lock nut.

### Free play adjustment

Adjust the play with the adjuster on the lever holder.



1. Adjuster
2. Lock nut

Clutch lever free play:

2 ~ 3 mm (0.08 ~ 0.12 in) at  
pivot point

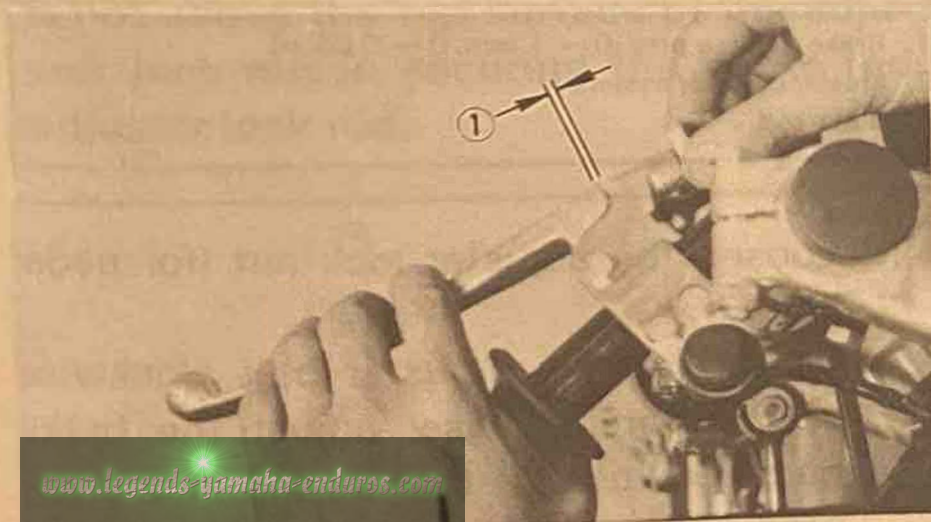
### Front brake adjustment

The front brake lever should be so adjusted that it has a free play of 5 ~ 8 mm (0.2 ~ 0.3 in) at the lever end.

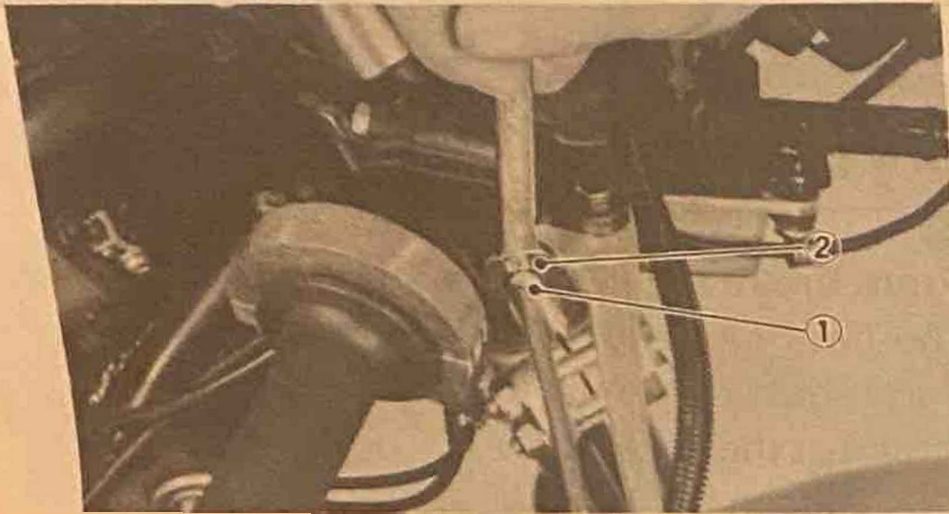
1. Loosen the lock nut on the brake lever.
2. Turn the adjuster so that the brake lever movement at the lever end is 13 ~ 26 mm (0.5 ~ 1.0 in) before the adjuster contacts the master cylinder piston.
3. After adjusting, tighten the lock nut.

**NOTE:** \_\_\_\_\_

Check for correct play and make sure it is working properly.  
\_\_\_\_\_



1. 2 ~ 3 mm (0.08 ~ 0.12 in)



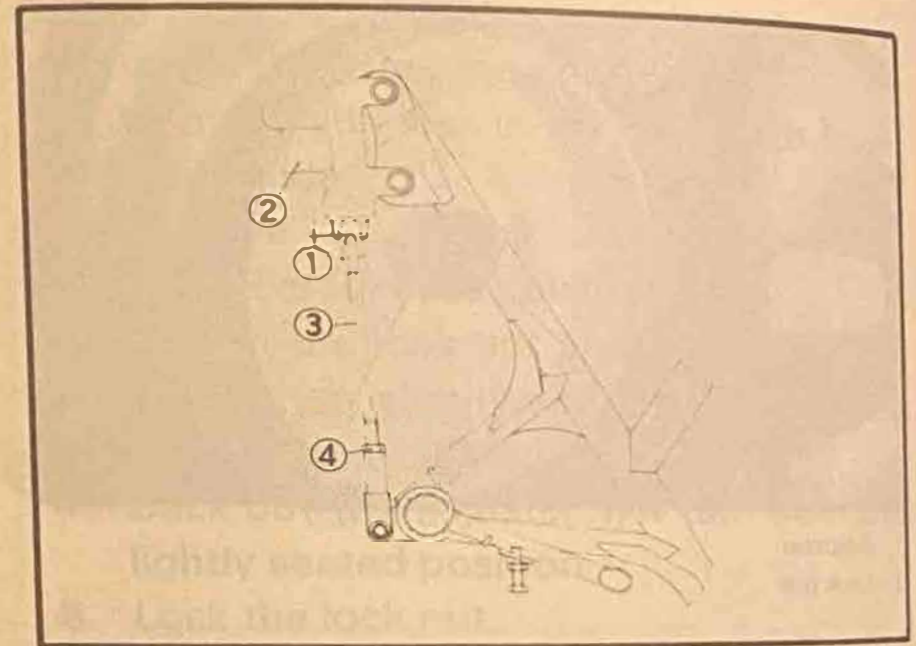
1. Adjuster 2. Lock nut

### Rear brake

#### CAUTION:

**For the brake pedal position adjustment, be sure to proceed as follows;**

The rear brake pedal should be so adjusted that it has a free play of 13 ~ 15 mm (0.51 ~ 0.59 in) from when the brake pedal is trod to when the brake begins to be effected.

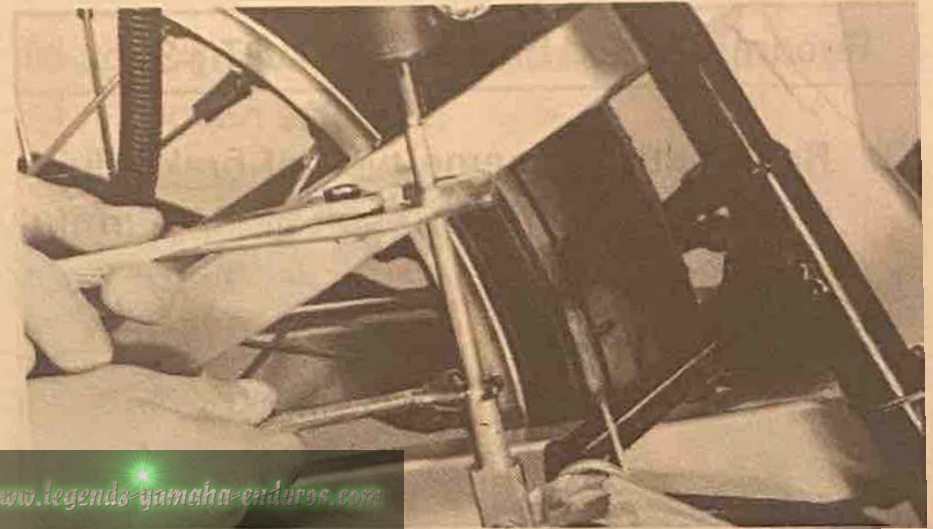


1. Brake rod free play (0 ~ 1 mm, 0 ~ 0.04 in)
2. Master cylinder assembly
3. Brake rod
4. Lock nut

1. Loosen the adjuster lock nut (for pedal height).
2. By turning the adjuster bolt clockwise or counterclockwise, adjust the brake pedal position so that its top end is approx. 40 ~ 50 mm (1.6 ~ 1.9 in) below the footrest top end.

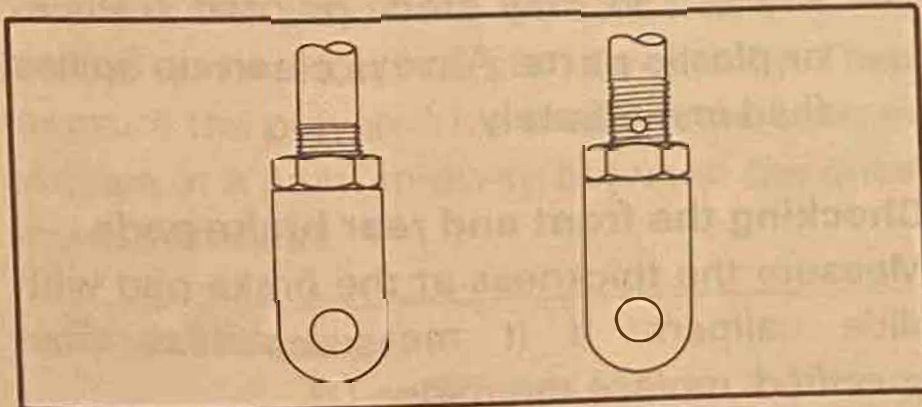


3. Secure the adjuster lock nut.
4. Loosen the brake rod adjuster lock nut and screw brake rod downward until there is noticeable free play between rod and master cylinder.
5. Turn in the brake rod until it lightly touches the master cylinder then turn it out by approx. 1 turns (for proper free play).
6. Tighten the brake rod adjuster lock nut.



**CAUTION:**

See that the drill mark on the brake rod is not above the top surface of the adjuster lock nut in securing the brake rod adjuster lock nut.



**Inspecting the brake fluid level**

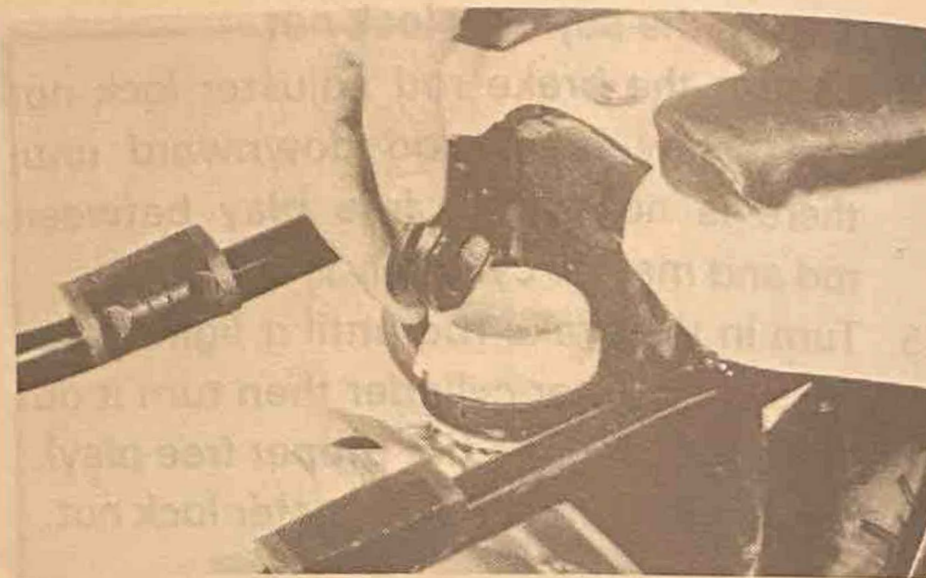
Insufficient brake fluid may allow air to enter the brake system, possibly causing the brakes to become ineffective.

Before riding, 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 fluid: DOT #3

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

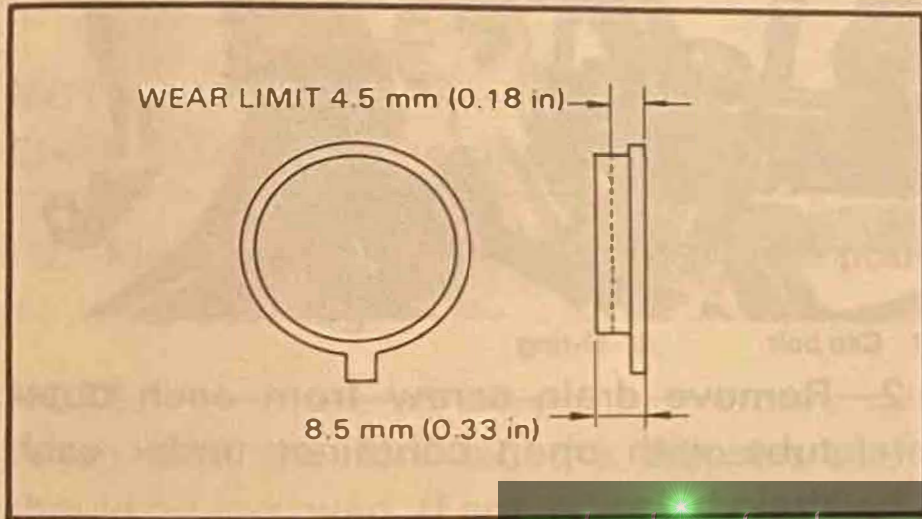


3. Be careful that water does not enter the master cylinder when refilling. Water will significantly lower the boiling point and may result in vapor lock.
4. Brake fluid may erode painted surfaces or plastic parts. Always clean up spilled fluid immediately.

### Checking the front and rear brake pads

Measure the thickness at the brake pad with slide calipers. If it measures less than specified, replace the pads.

Brake pad thickness: 8.5 mm (0.33 in)  
Wear limit: 4.5 mm (0.18 in)



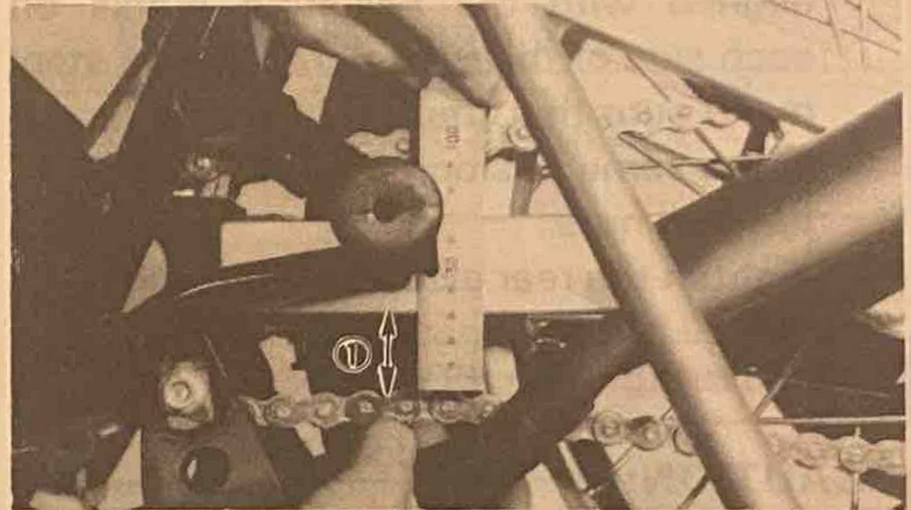
[www.legends-yamaha-enduros.com](http://www.legends-yamaha-enduros.com)

### Drive chain

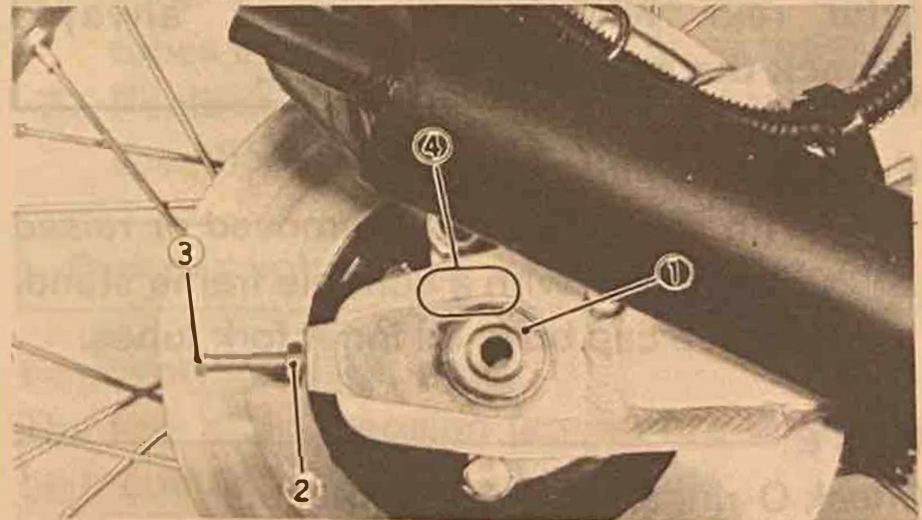
To check the play, both wheels touching the ground and motorcycle stand vertically. Then measure the play in drive chain at the bottom of chain at a point midway between the drive and driven axles.

Chain free play:  
30 ~ 35 mm (1.2 ~ 1.4 in)

To adjust drive chain, proceed as follows:  
1. Loosen axle nut.



1. 30 ~ 35 mm (1.2 ~ 1.4 in)



1. Axle nut 2. Lock nut 3. Adjuster 4. Adjusting mark

- Turn adjuster (left and right) until the adjusting marks on chain pullers are aligned with the adjusting marks on each side of the swing arm. In this step, make sure that the adjusting marks are in the same position on both side. Tighten lock nuts.
- Tighten the rear axle nut.

Torque: 8.5 m-kg (60 ft-lb)

**CAUTION:**

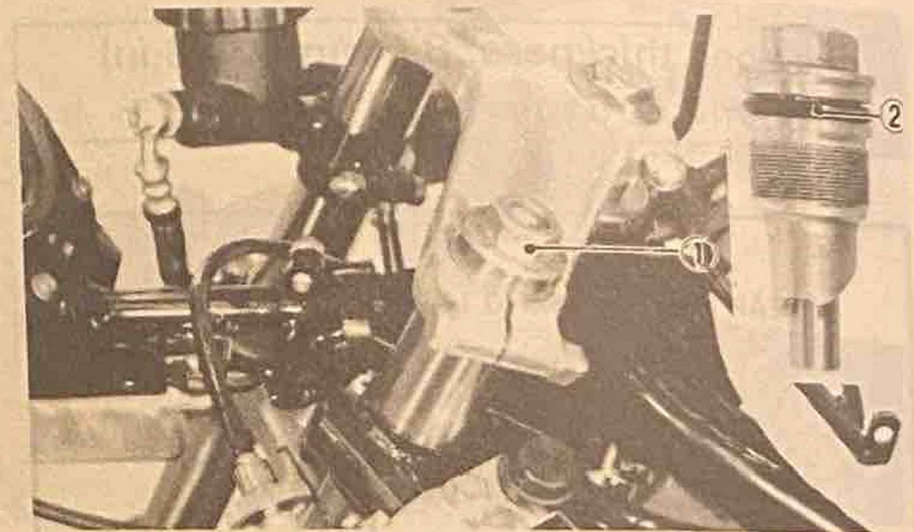
Whenever the chain is adjusted and/or the rear wheel is removed, always check the rear axle alignment.

**Front fork oil change**

- With the front wheel removed or raised off the floor with a suitable frame stand, remove cap bolts on inner fork tubes.

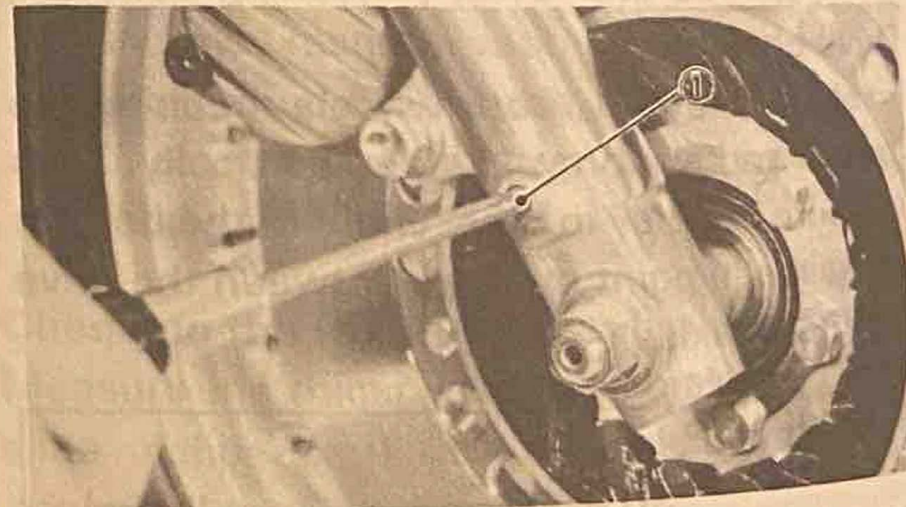
**NOTE:**

Check O-rings, replace if damaged.



1. Cap bolt      2. O-ring

- Remove drain screw from each outer tube with open container under each drain hole.



1. Drain screw

3. After most of oil has drained, slowly raise and lower outer tubes to pump out remaining oil.
4. Replace drain screws.

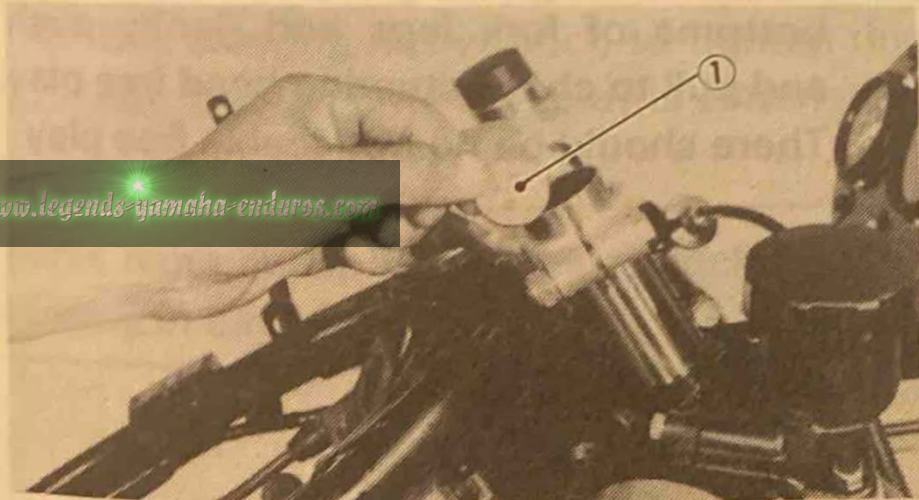
**NOTE:** \_\_\_\_\_

Check gaskets, replace if damaged.

5. Measure correct amount of oil and pour into each leg.

**NOTE:** \_\_\_\_\_

When refill the fork oil, the adjuster plate should be removed. If not, oil may be spilled.



1. Adjuster plate

Recommended oil:

Yamaha Fork Oil 10 wt, 20 wt or  
SAE 10W/30 motor oil

Quantity per leg: 202 cc (6.8 oz)

Oil level:

148 mm (5.83 in) from top of the  
inner tube (without spring and  
fully bottomed)

6. After filling, slowly pump the outer tubes up and down to distribute the oil.
7. Replace fork cap bolts and torque to specification.

Fork cap bolt torque: 2.0 m-kg (14 ft-lb)

### Fork spring adjustment

The fork spring tension (spring pre-load) can be adjusted in the following stages:

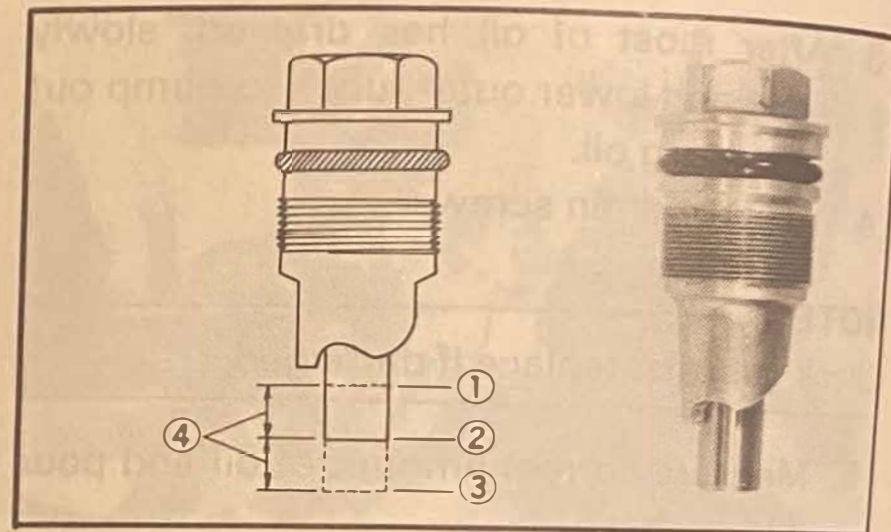
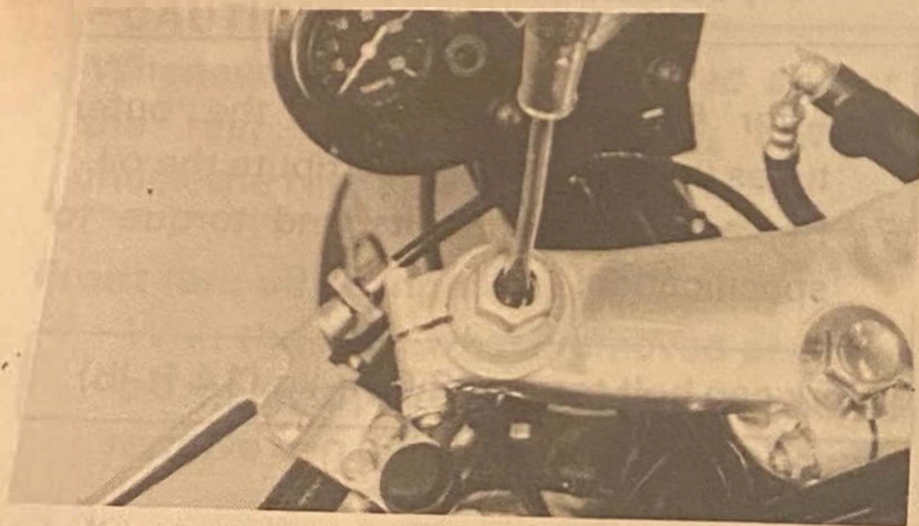
Using the screw driver, turn the tensioner

clockwise, and the spring tension will become stronger. To make it soft, turn counterclockwise.

Standard setting:  
Center position of the tensioner

**NOTE:**

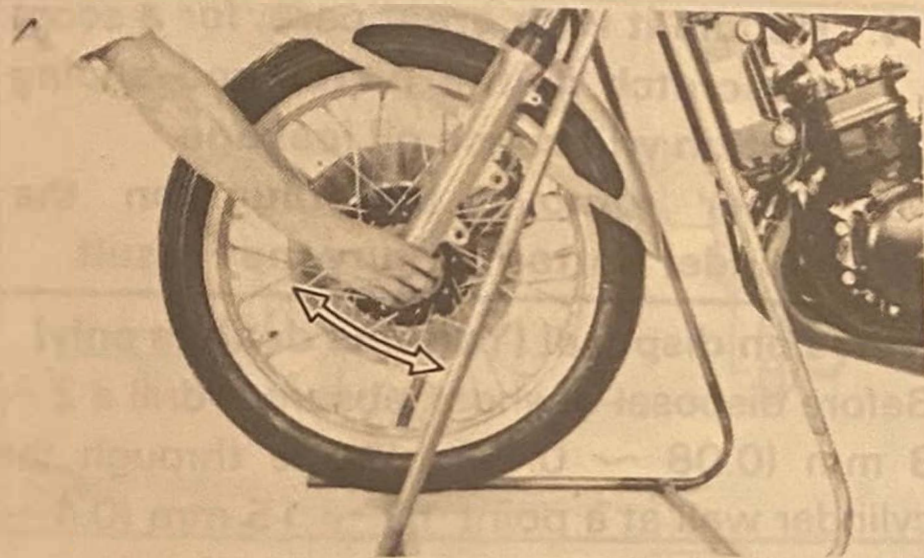
Both left and right tensioner should be the same position.



1. Soft    2. S.T.D.    3. Hard    4. 10 mm (0.39 in)

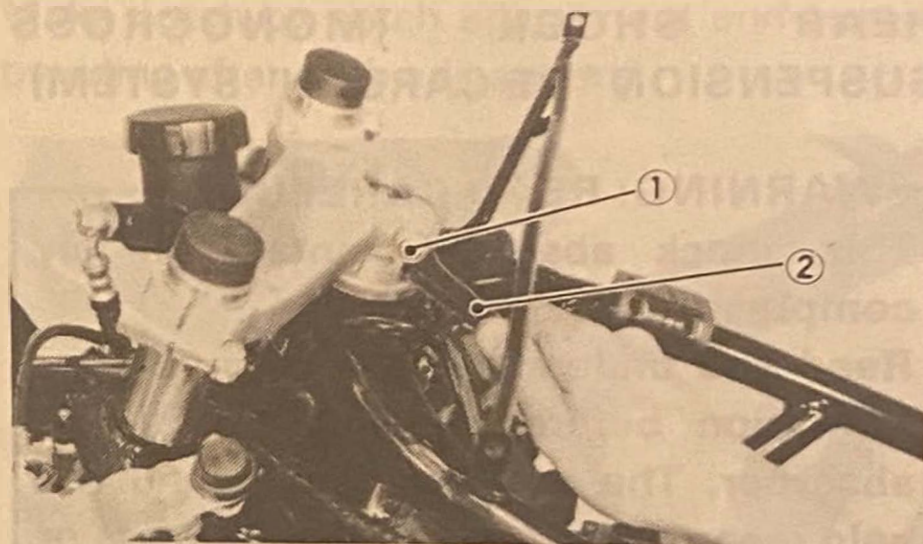
### Steering head adjustment

1. With front wheel elevated, grab bottoms of fork legs and gently push and pull to check steering head free play. There should be no noticeable free play.



2. To adjust, first loosen upper stem pinch bolt.
3. Loosen steering fitting bolt.
4. Use steering nut wrench to tighten ring nut. Tighten until free play is eliminated.

**NOTE:** \_\_\_\_\_  
Forks must swing from lock to lock without binding or catching.  
\_\_\_\_\_



1. Stem pinch bolt
2. Steering nut wrench

5. Tighten fitting bolt and torque to specification.

Fitting bolt torque: 5.5 m-kg (40 ft-lb)

6. Tighten pinch bolt at fork crown and torque to specification.

Stem pinch bolt torque:  
2.8 m-kg (20 ft-lb)

## REAR SHOCK (MONOCROSS SUSPENSION "DE CARBON" SYSTEM)

### WARNING: READ CAREFULLY

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.

4. Handle it with great care, for a score or scratch in the piston rod sliding portion will cause oil leakage.
5. Never remove the plug on the cylinder bottom. Injury may result.

### Notes on disposal (Yamaha dealers only)

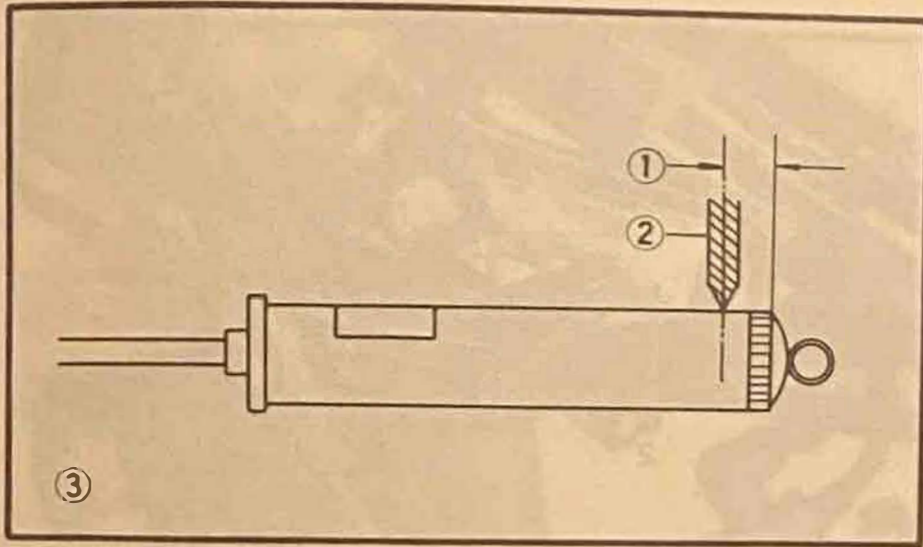
Before disposal of shock absorber drill a 2 ~ 3 mm (0.08 ~ 0.12 in) hole through the cylinder wall at a point 10 ~ 15 mm (0.4 ~ 0.6 in) above the bottom of the cylinder.

### CAUTION:

Release the gas pressure before operating above procedure and wear eye protection to prevent eye damage from escaping gas and/or metal chips.







1. 10 ~ 15 mm (0.40 ~ 0.60 in)
2. Drill 2 ~ 3 mm  $\phi$  (0.08 ~ 0.12 in  $\phi$ )
3. Wear eye protection!

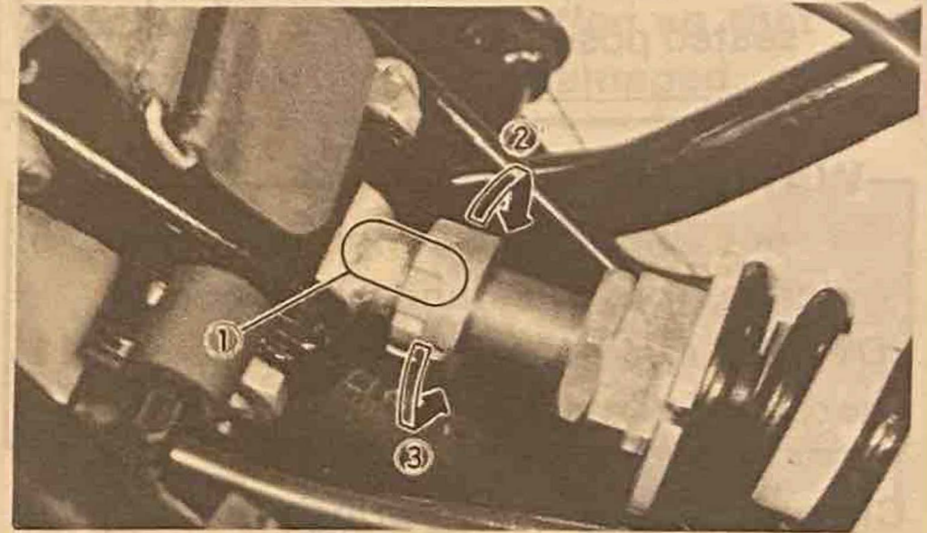
**WARNING:**

To dispose of a damaged or worn out shock absorber, take the unit to your Yamaha dealer for this disposal procedure.

**Changing damping performance:**

Adjustment can be made without removing the shock absorber. Turn the adjuster.

Make notch by notch adjustment and test it by riding after each adjustment.



1. Match mark (paint)
2. Soft
3. Stiff

**NOTE:**

Turn the adjuster until it clicks. Maximum (Minimum) extent can be known by the position where turning suddenly feels heavy (light). Do not give any more turns.

Standard setting (notch):

Back out 10 notches from lightly seated position.

**WARNING:**

Do not increase damping beyond 5 notches from the standard setting.

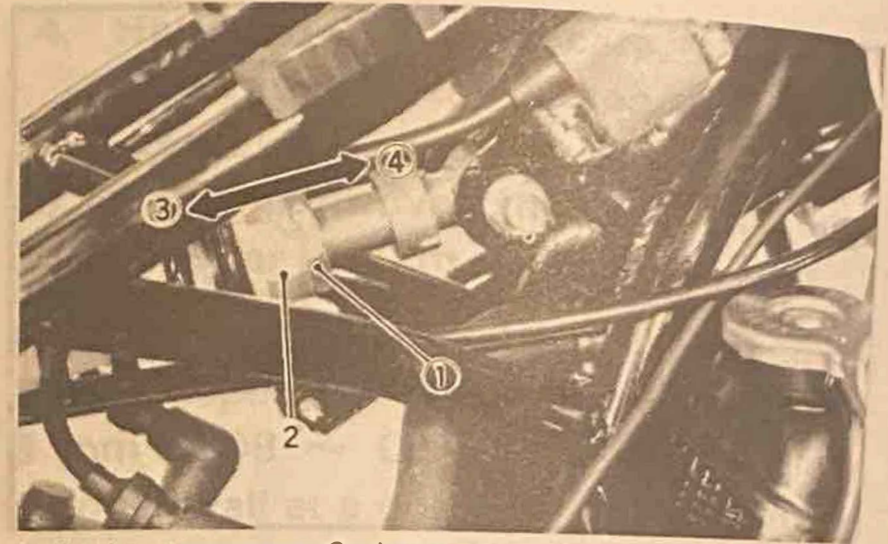
Do not decrease damping beyond 11 notches from the standard setting.

**Changing suspension spring preload:**

Perform this adjustment with a special wrench (in the owner's tool).

1. Remove the shock absorber.
2. Loosen the adjuster lock nut.
3. To increase fitting load, screw IN the adjuster.

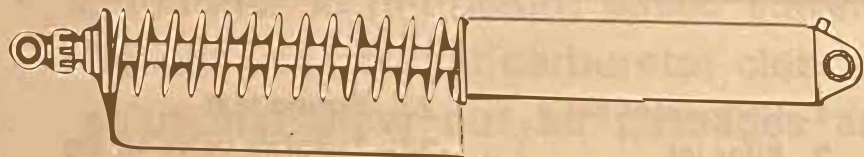
To decrease fitting load, screw OUT the adjuster.



- |                  |             |
|------------------|-------------|
| 1. Lock nut      | 3. Increase |
| 2. Adjusting nut | 4. Decrease |

**NOTE:**

Initial fitting length is set for 228 mm (8.98 in). Adjustable extent is maximum 243 mm (9.57 in) and minimum 223 mm (8.78 in). Be sure to adjust within the above limits



228 mm (8.98 in)

4. Tighten the lock nut by retaining the adjuster at turning position.

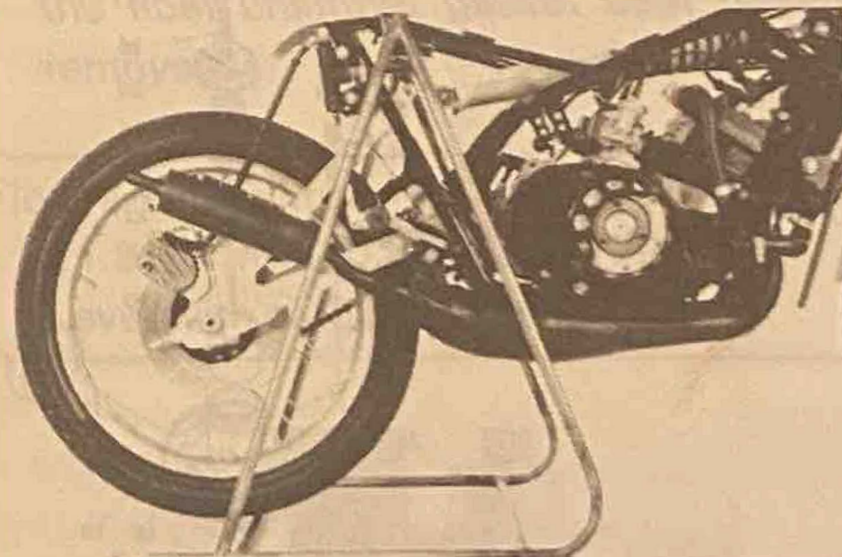
**Tightening torque:**  
6.0 m-kG (43 ft-lb)

**Gas pressure:**

The gas pressure can be adjusted. For this adjustment, take the unit to your Authorized Yamaha dealer.

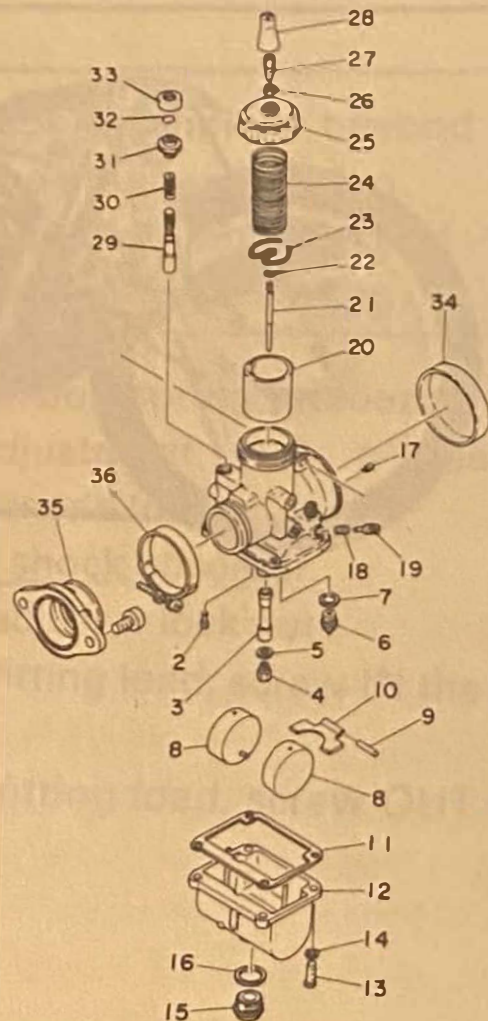
**CAUTION:**

Use a stand of proper height to keep rear wheel in right position so that the brake hose may not be damaged.



# MINOR REPAIR

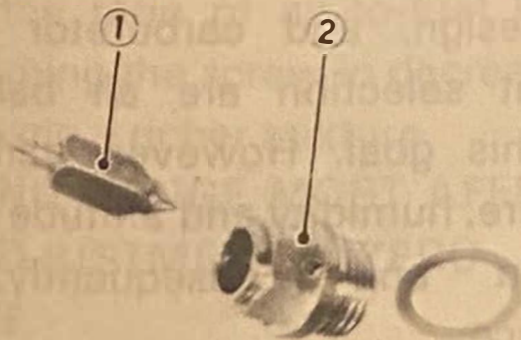
## CARBURETOR



- |                          |                           |
|--------------------------|---------------------------|
| 1. Carburetor ass'y      | 23. Spring seat           |
| 2. Pilot jet             | 24. Throttle valve spring |
| 3. Main nozzle           | 25. Mixing chamber top    |
| 4. Main jet              | 26. Wire adjusting nut    |
| 5. Main jet washer       | 27. Wire adjusting screw  |
| 6. Valve seat ass'y      | 28. Cap                   |
| 7. Valve seat washer     | 29. Starter plunger       |
| 8. Float                 | 30. Plunger spring        |
| 9. Float pin             | 31. Plunger cap           |
| 10. Float arm            | 32. Plunger clip          |
| 11. Float chamber gasket | 33. Plunger cap cover     |
| 12. Float chamber body   | 34. Carburetor cover      |
| 13. Panhead screw        | 35. Carburetor joint      |
| 14. Spring washer        | 36. Hose clamp            |
| 15. Screw plug           |                           |
| 16. Plug screw washer    |                           |
| 17. Air jet              |                           |
| 18. Air screw spring     |                           |
| 19. Pilot air screw      |                           |
| 20. Throttle valve       |                           |
| 21. Needle               |                           |
| 22. Clip                 |                           |

## Inspection

1. Examine carburetor body and fuel passages. If contaminated, wash carburetor in petroleum based solvent. Do not use caustic carburetor cleaning solutions. Blow out all passages and jets with compressed air.
2. Examine condition of floats. If floats are leaking or damaged, they should be replaced.
3. Inspect inlet needle valve and seat for wear or contamination. Replace these components as a set.



1. Needle valve

2. Valve seat

## Adjustments

### Float arm height

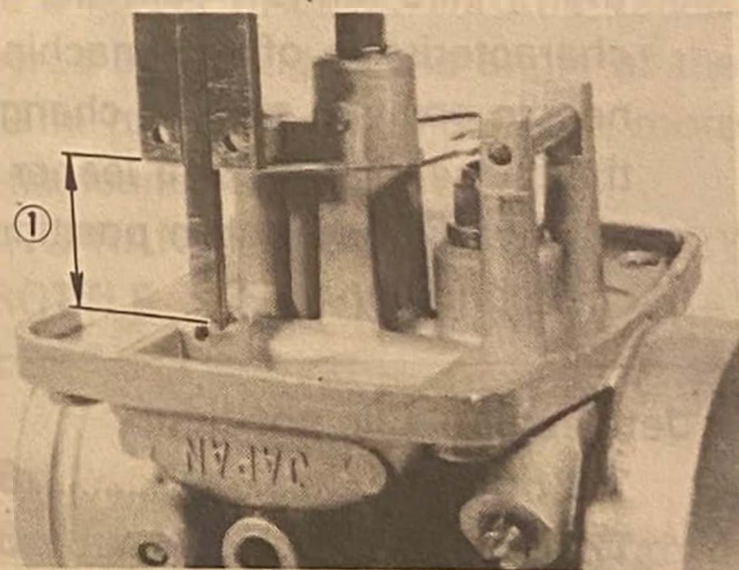
#### a. Checking

Using a vernier caliper, measure the float height from the top of the float to the float chamber gasket seat (gasket removed).

Float arm height:

$21.9 \pm 1 \text{ mm}$  ( $0.86 \pm 0.04 \text{ in}$ )

Level with carburetor base



1. Float arm height

## b. Adjustment

### CAUTION:

Check the needle valve and valve seat for wear before adjustment.

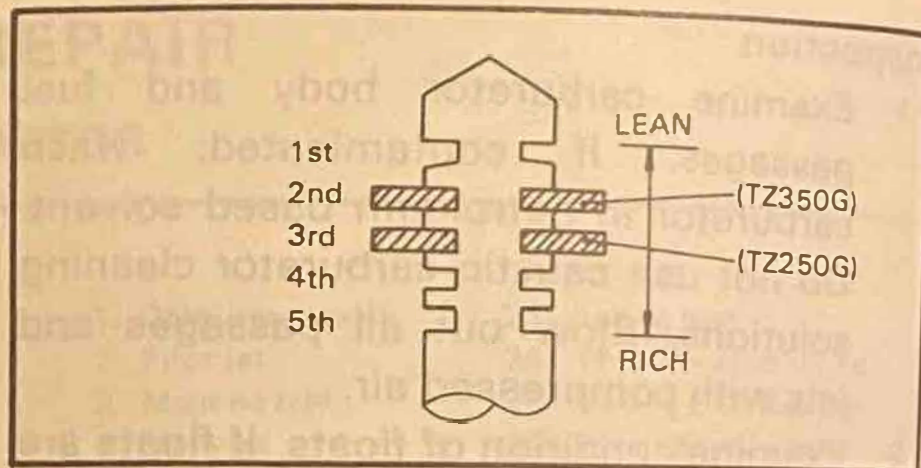
Make the adjustment by bending the tang on the float arm.

### Jet needle

The mid-range air/fuel supply is affected by the position of the needle in the needle jet. If it is necessary to alter the mid-range air/fuel mixture characteristics of the machine, the jet needle position may be changed. Move the jet needle up for a leaner condition or toward the bottom position for a richer condition.

### Jet needle—Clip position:

TZ250G.....	6DH3-3
TZ350G.....	6F13-2



## Troubleshooting

A motorcross machine requires immediate, predictable throttle response over a wide operating range. Cylinder porting, combustion chamber compression, ignition timing, muffler design, and carburetor size and component selection are all balanced to achieve this goal. However, variations in temperature, humidity and altitude will affect carburetion and consequently, engine performance.

The following list gives each of the major components of the carburetor that can be re-

adily changed in order to modify performance if required. If you are unfamiliar with carburetor theory, we suggest you refrain from making changes. Quite often, a performance problem is caused by another related component, such as the exhaust system, ignition timing or combustion chamber compression.

**NOTE:** \_\_\_\_\_  
See MECHANICAL ADJUSTMENTS for additional carburetor adjustments.  
\_\_\_\_\_

#### **Pilot air screw:**

Controls the ratio of air-to-fuel in the idle circuit. Turning the screw in decreases the air supply, giving a richer mixture.

OPERATING RANGE MOST AFFECTED BY THIS ADJUSTMENT: ZERO TO 1/8 THROTTLE.

#### **Pilot jet:**

Controls the fuel flow in the idle circuit. Changing the jet to one with a higher number supplies more fuel to the circuit giving a richer mixture.

OPERATING RANGE MOST AFFECTED BY THIS JET: ZERO TO 1/8 THROTTLE.

#### **Throttle valve (slide):**

The throttle valve (slide) has a portion of the base cut away to control air flowing over the main nozzle. A wider angle (more "cutaway") will create a leaner mixture. Throttle valves are numbered according to the angle of the cutaway. The higher the number, the more cutaway, the leaner the mixture.

OPERATING RANGE MOST AFFECTED BY THE THROTTLE VALVE: 1/8 to 1/4 (+) THROTTLE.

#### **Jet needle:**

The jet needle is fitted within the throttle valve. The tapered end of the needle fits into

the main nozzle outlet. Raising the needle allows more fuel to flow out of the needle. Moving the needle clip from the first, or top groove, through the fifth, or bottom groove, will give a correspondingly richer mixture.

**OPERATING RANGE MOST AFFECTED BY THE JET NEEDLE: 1/4 to 3/4 (+) THROTTLE.**

#### **Main jet:**

The main jet controls overall fuel flow through the main nozzle. Changing the jet to one with a higher number supplies more fuel to the main nozzle giving a richer mixture.

**OPERATING RANGE MOST AFFECTED BY THE MAIN JET: 3/4 TO FULL THROTTLE.**

#### **NOTE:**

Excessive changes in main jet size can affect performance at all throttle positions.

#### **CAUTION:**

The fuel/air mixture ratio is a governing factor upon engine operating temperature. Any carburetor changes, whatsoever, must be followed by a thorough spark plug test.

#### **Top end and muffler**

1. Muffler and cylinder head removal  
(Carburetor removed)
  - a. Remove the securing band from fuel tank.

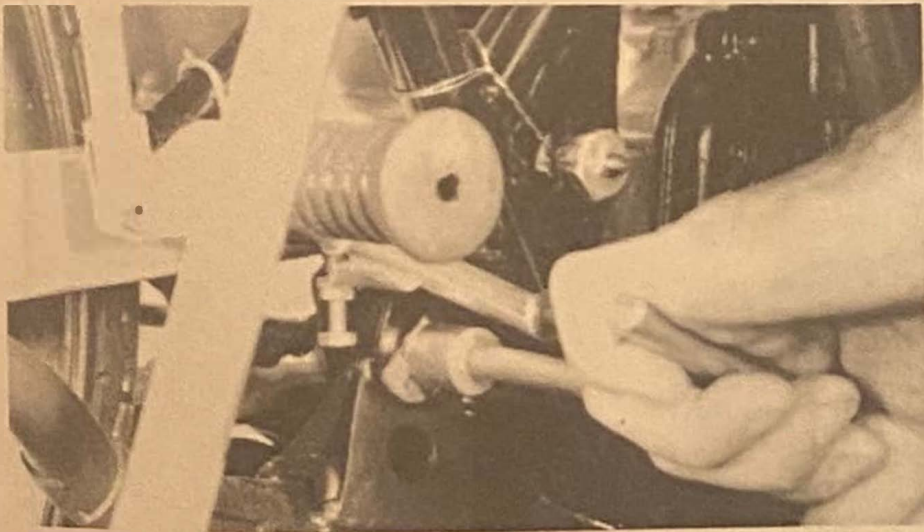




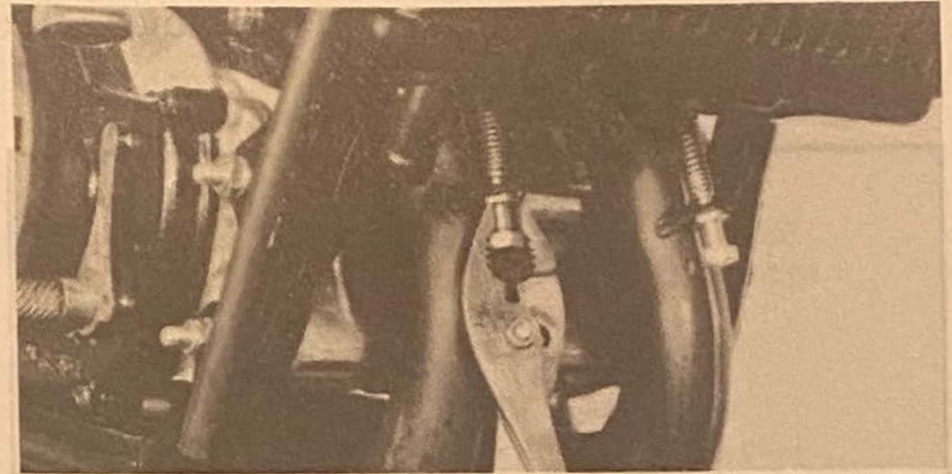
- b. Lift front of fuel tank up and pull forward to clean frame mounts.  
Remove tank.



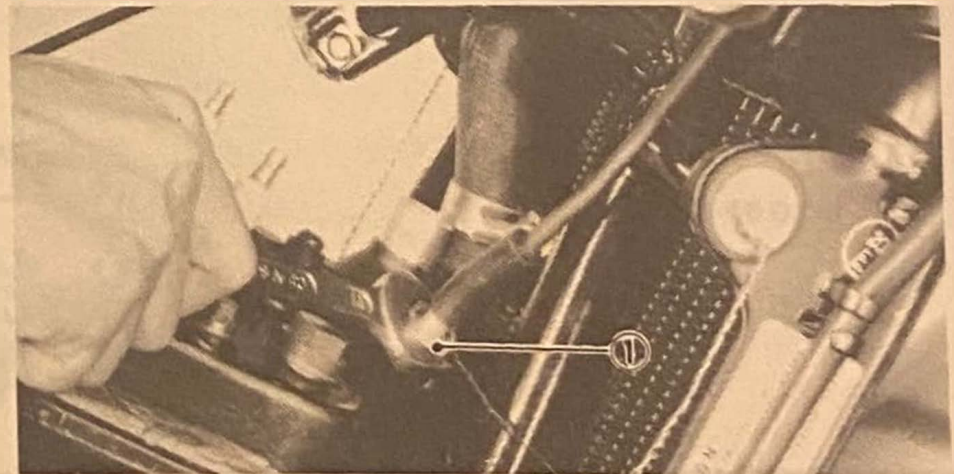
- c. Remove muffler mounting bolt.



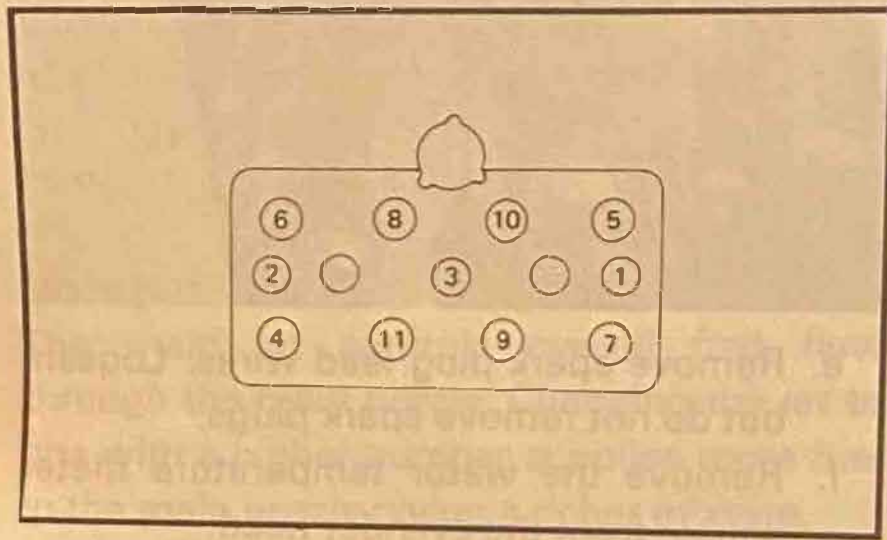
- d. Remove coil spring at muffler to cylinder joint and remove muffler.



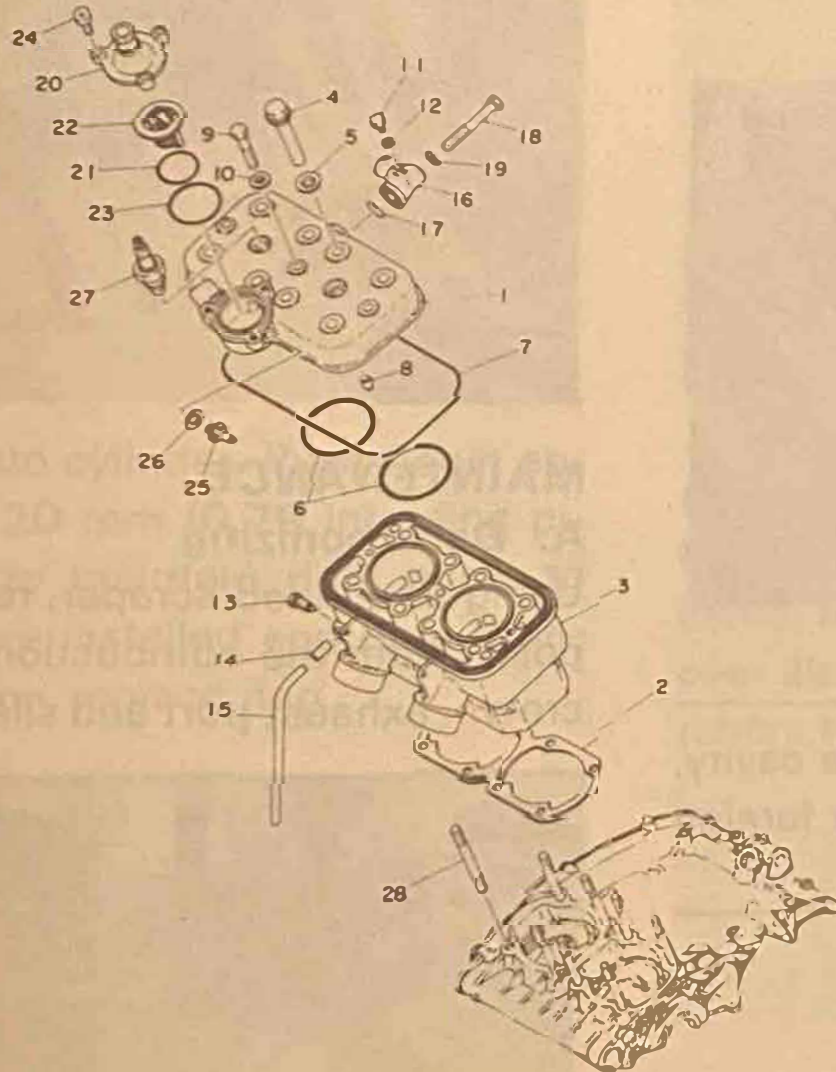
- e. Remove spark plug lead wires. Loosen, but do not remove spark plugs.  
f. Remove the water temperature meter sensor from the cylinder head.



g. Cylinder head bolt and nut removal.  
Loosen the bolts and nuts in numerical order as shown, and remove the cylinder head.



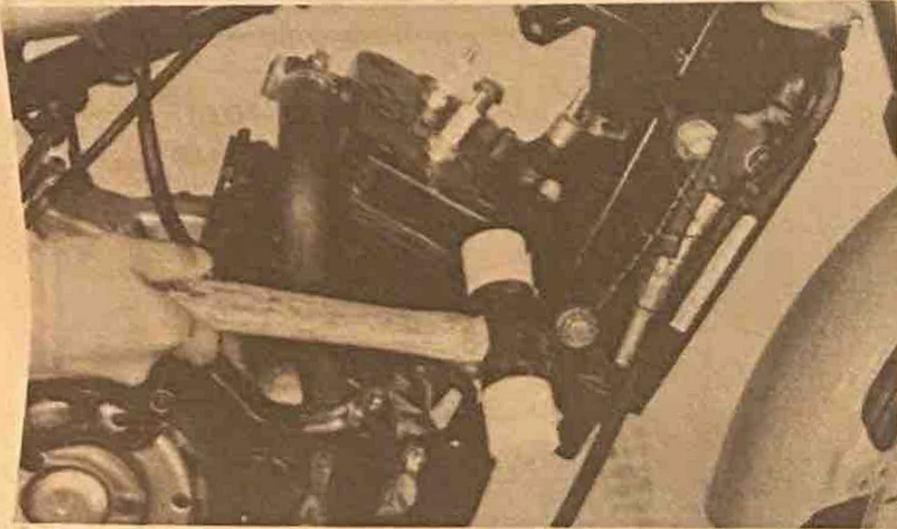
## CYLINDER HEAD — CYLINDER



1. Cylinder head
2. Cylinder gasket
3. Cylinder
4. Holding nut
5. Plate washer
6. O-ring (1.9-70.0)
7. O-ring (3.0-194.0)
8. Dowel pin
9. Bolt
10. Plate washer
11. Water check plug
12. Gasket
13. Straight screw plug
14. Nipple
15. Hose
16. Joint
17. O-ring (1.7-20)
18. Bolt
19. Plate washer
20. Thermostat cover
21. O-ring (2.0-40.0)
22. Thermostat
23. O-ring (2.2-46.0)
24. Panhead screw
25. Joint
26. Gasket
27. Spark plug
28. Stud bolt

## Cylinder removal

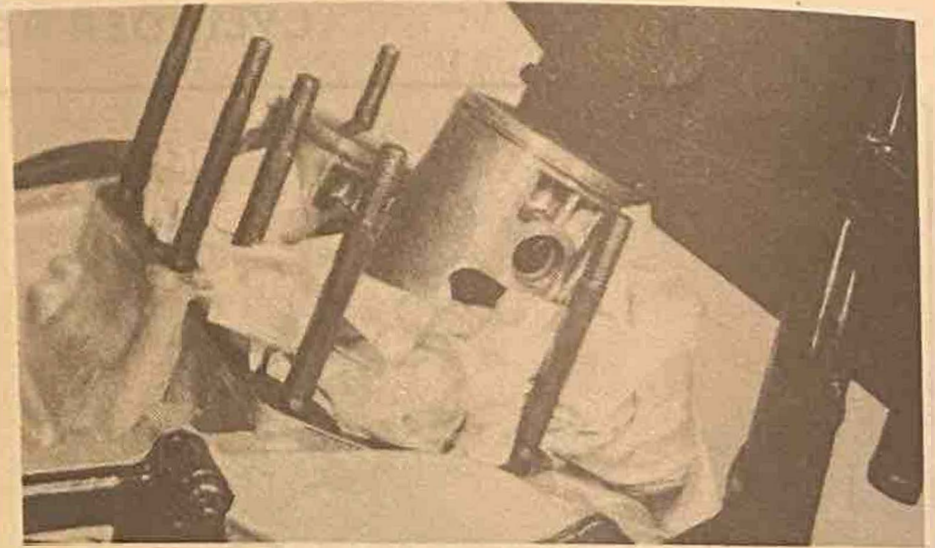
If necessary, loosen the cylinder by striking it lightly with a soft hammer.



### **NOTE:** \_\_\_\_\_

Stuff a clean shop rag into crankcase cavity, around rod, to prevent dirt and other foreign particles from entering.

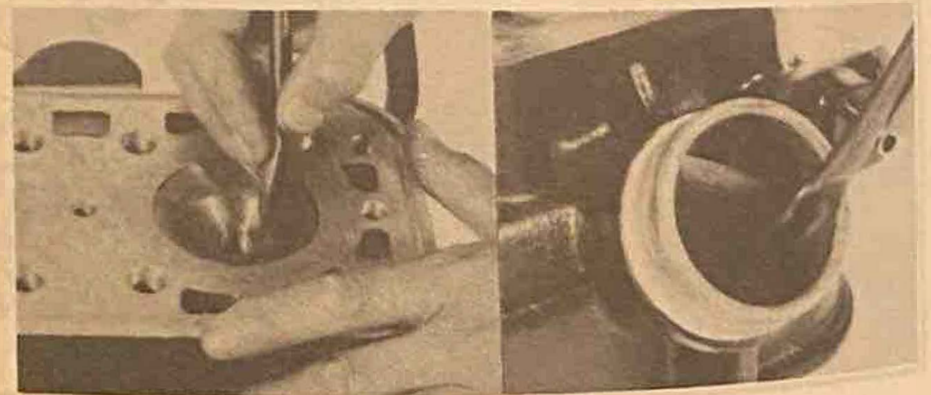
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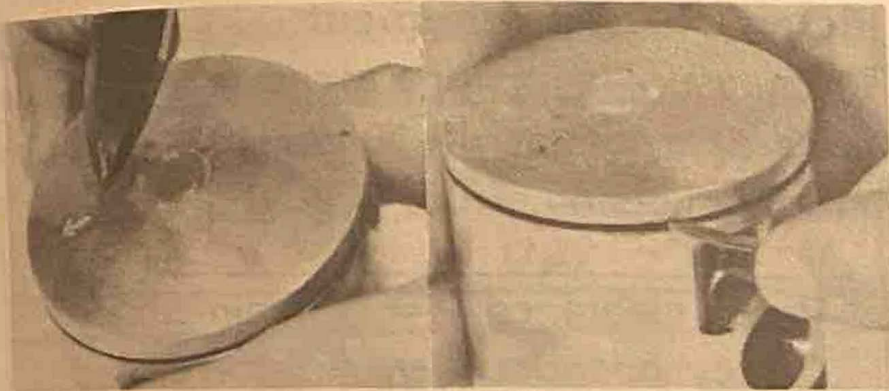


## MAINTENANCE

### A. Decarbonizing

Using a rounded scraper, remove carbon deposits from the combustion chamber, piston crown, exhaust port and silencer.



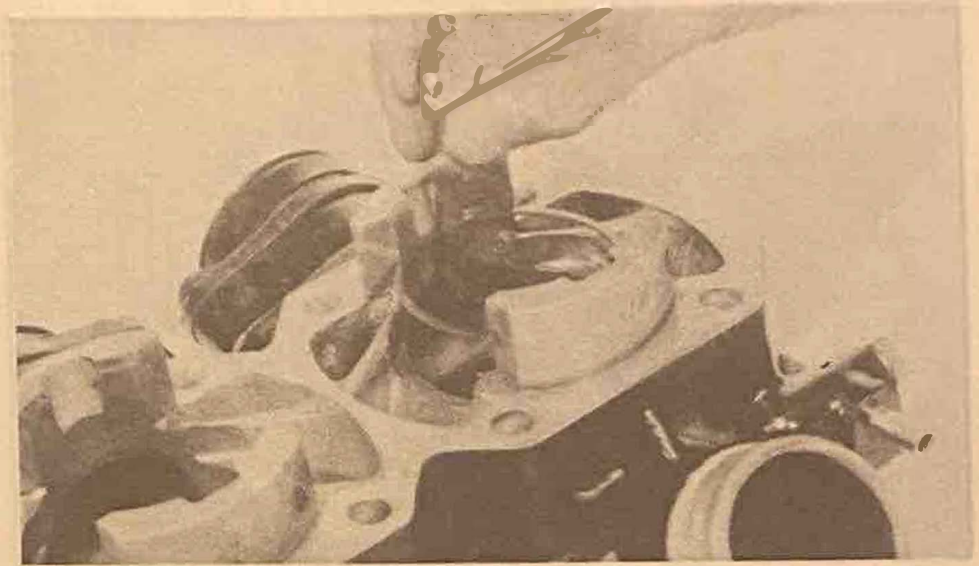


## B. Inspection

### Ring end gap

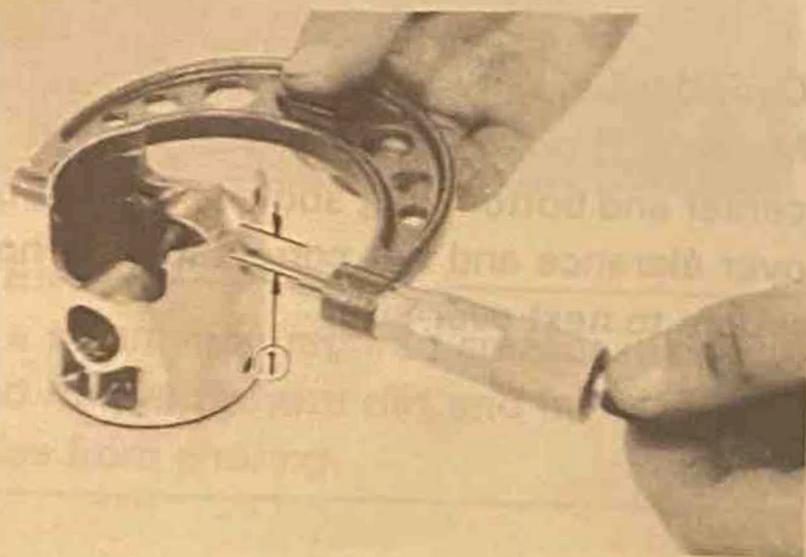
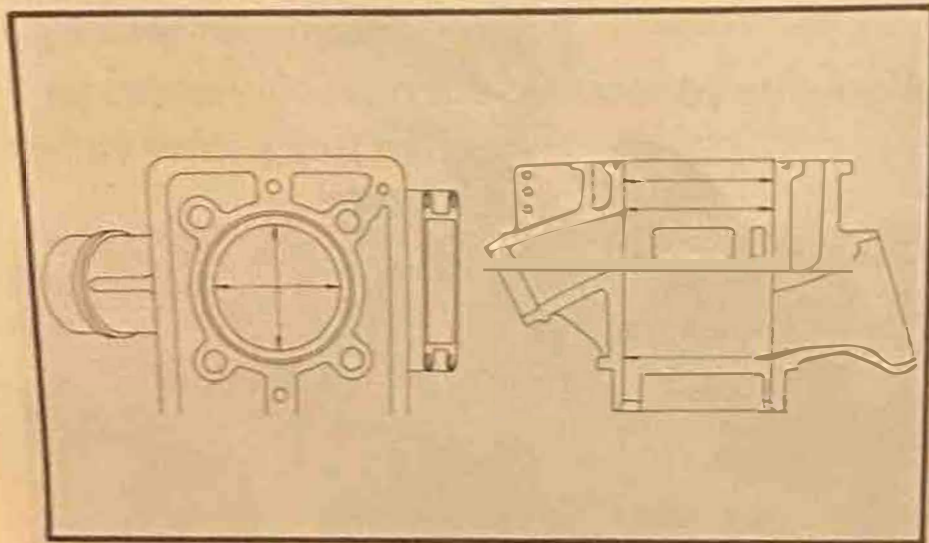
Insert ring into cylinder. Push down approximately 20 mm (0.79 in) using piston crown to maintain right angle to bore. Measure installed end gap. If beyond tolerance, replace ring.

Ring end gap, installed:	
TZ250G	0.2 ~ 0.4 mm (0.008 ~ 0.016 in)
TZ350G	0.3 ~ 0.5 mm (0.012 ~ 0.020 in)



### Cylinder bore measurement

Measure front-to-rear, side-to-side at top, center and bottom just above exhaust port. If over tolerance and not correctable by honing rebore to next over-size.



## Piston O.D. measurement

To measure a piston, measure across the skirts at a height of 10 mm (0.4 in) from bottom of piston skirts.

Piston clearancd	=	Minimum
cylinder dia.	-	piston dia.

Nominal piston clearance:

0.045 ~ 0.050 mm  
(0.0018 ~ 0.0020 in)

Maximum wear limit:

0.1 mm (0.0039 in)

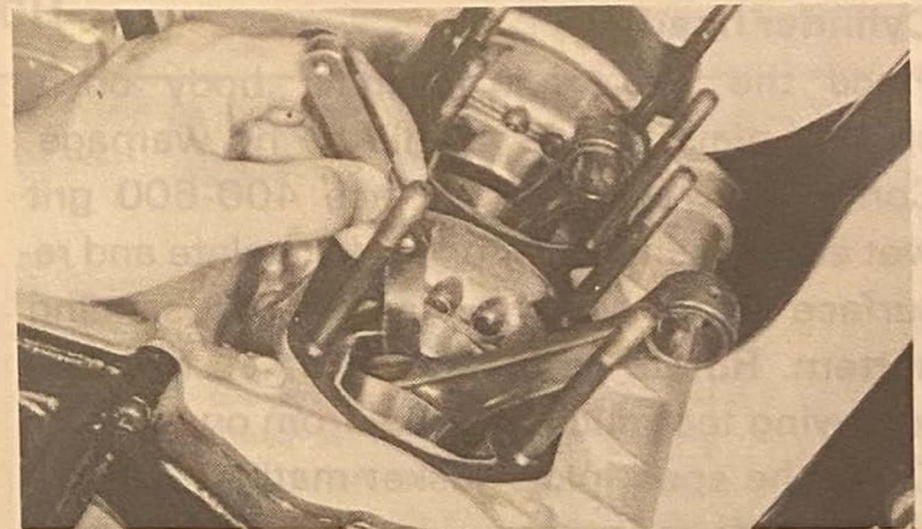
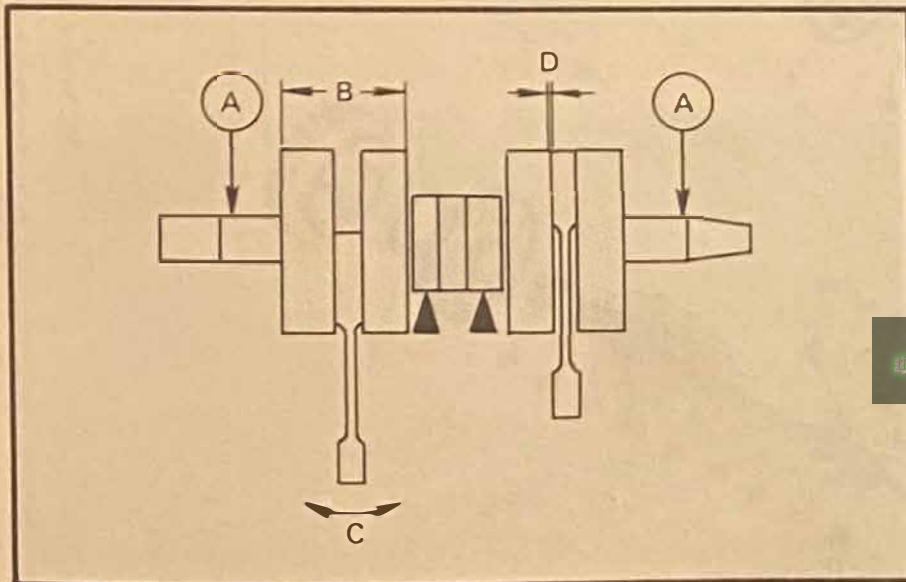
## Piston pin, bearing

1. Check the pin for signs of wear. If any wear is evident, replace pin and bearing.
2. Check the pin and bearing for signs of heat discoloration. If excessive (heavily blued), replace both.
3. Check the bearing cage for excessive wear. Check the rollers for signs of flat spots. If found, replace pin and bearing.

## Crankshaft specifications

Deflection tolerance (A)		Flywheel width (B)
0.03 mm (0.0012 in)	0.03 mm (0.0012 in)	55.90 ~ 55.95 mm (2.201 ~ 2.203 in)

Rod clearance			
Axial (C)		Side (D)	
New	Max.	Min.	Max.
0.8 ~ 1.0 mm (0.03 ~ 0.04 in)	2.0 mm (0.08 in)	0.1 mm (0.004 in)	0.3 mm (0.012 in)



1. Con-rod side clearance (D)



1. Con-rod axial clearance (C)

## Cylinder head

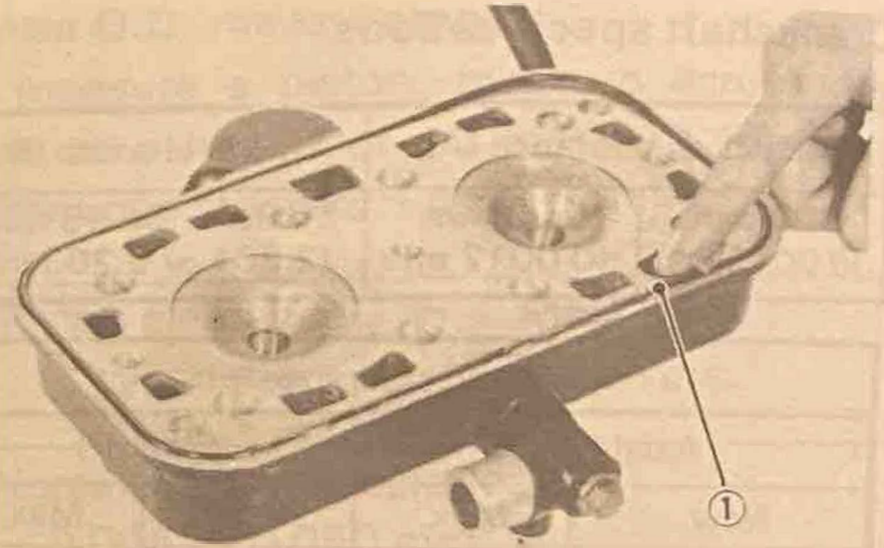
Place the head and cylinder body on a surface plate. These should be no warpage. Correct by resurfacing. Place 400-600 grit wet emery sandpaper on surface plate and resurface head using a figure-eight sanding pattern. Rotate head several times to avoid removing too much material from one side.

Clean the spark plug gasket mating surfaces thoroughly.

Wash the head in solvent and wipe dry. Install new cylinder head O-rings during re-assembly.

### **NOTE:** \_\_\_\_\_

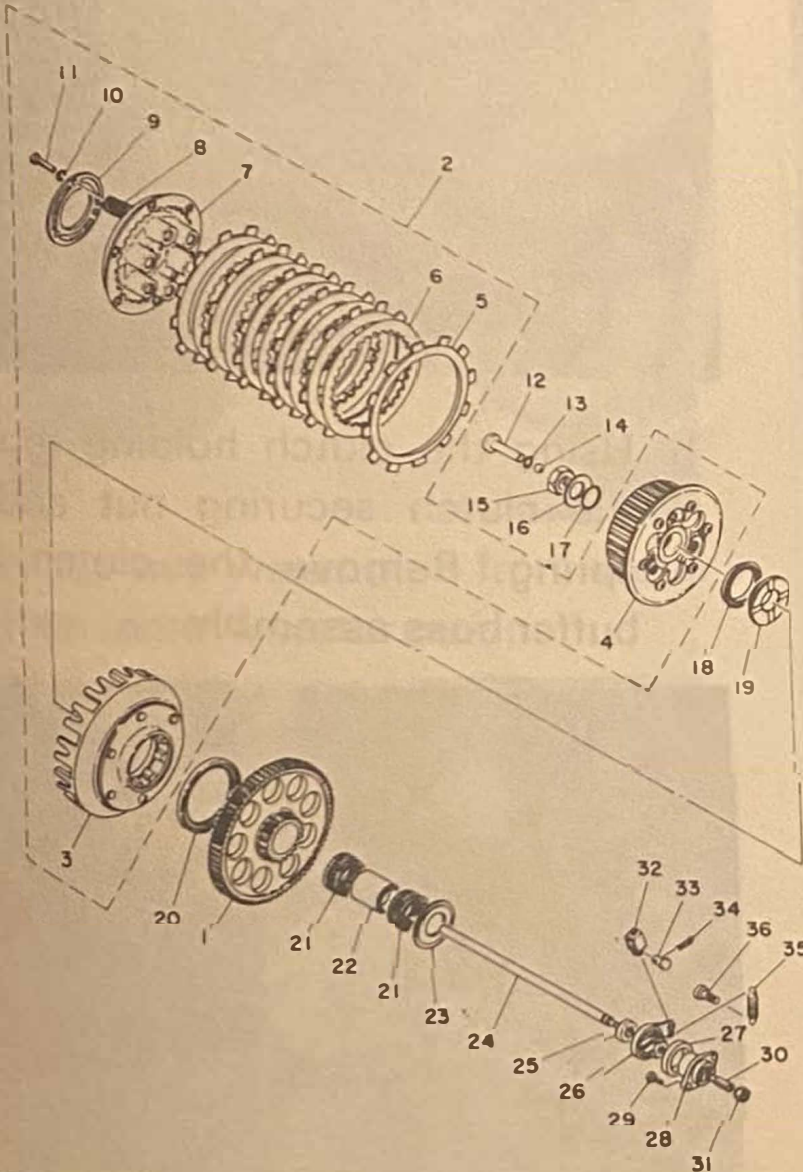
When the cylinder head is installed on the cylinder, O-ring may easily fall off the cylinder head. It is advisable, therefore, to coat the O-ring groove with grease sparingly before this procedure.



1. Grease



# CLUTCH



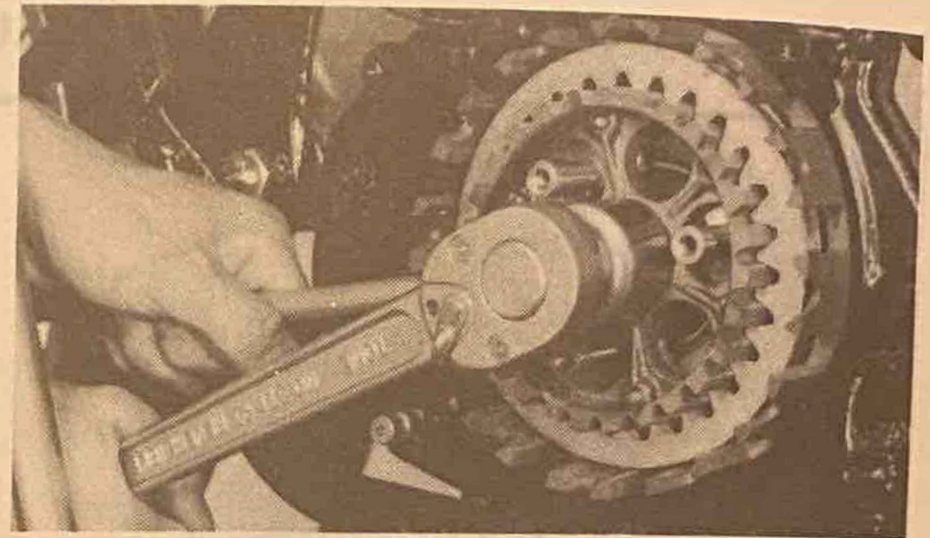
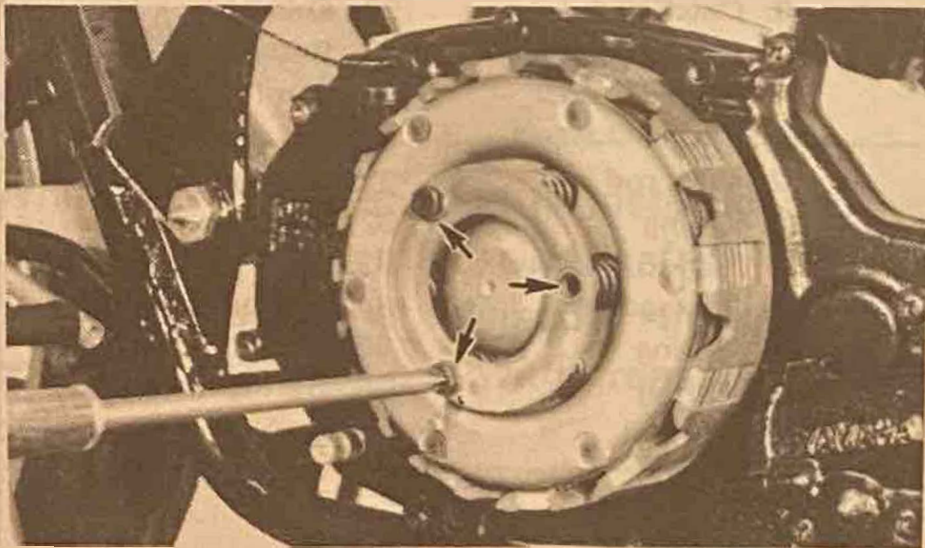
- |                              |                        |
|------------------------------|------------------------|
| 1. Primary driven gear comp. | 19. Spacer             |
| 2. Clutch ass'y              | 20. Oil seal           |
| 3. Buffer boss ass'y         | 21. Bearing            |
| 4. Clutch boss ass'y         | 22. Spacer             |
| 5. Friction plate            | 23. Thrust plate       |
| 6. Clutch plate 2            | 24. Push rod           |
| 7. Pressure plate ass'y      | 25. Push rod seal      |
| 8. Clutch spring             | 26. Push lever ass'y   |
| 9. Pressure plate 2          | 27. Dust seal          |
| 10. Spring washer            | 28. Push screw housing |
| 11. Hexagon screw            | 29. Pan head screw     |
| 12. Push rod                 | 30. Adjuster           |
| 13. O-ring                   | 31. Lock nut           |
| 14. Ball (5/16 inch)         | 32. Joint              |
| 15. Hexagon nut              | 33. Pin                |
| 16. Spring                   | 34. Cotter pin         |
| 17. O-ring                   | 35. Return spring      |
| 18. Oil seal                 | 36. Spring hook        |

## Removal

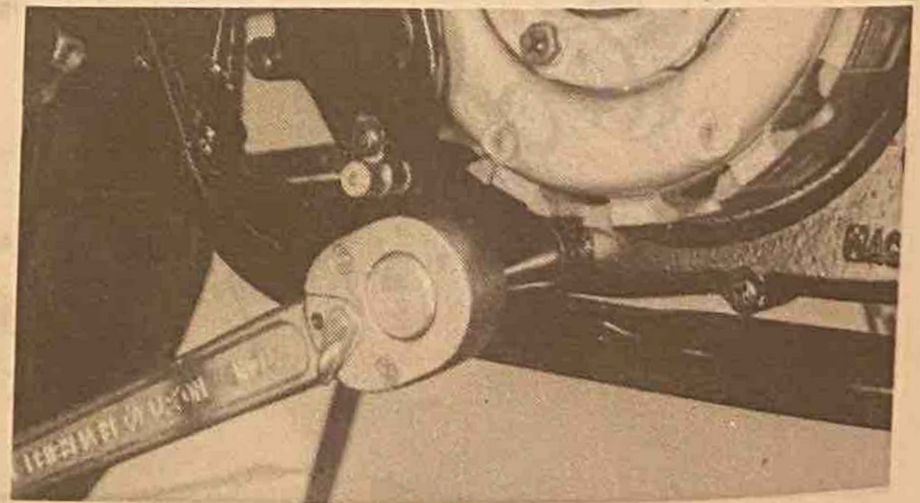
- a. Remove the screws (3) holding the pressure plate. Remove the clutch springs, the clutch plates and friction plates.

### NOTE:

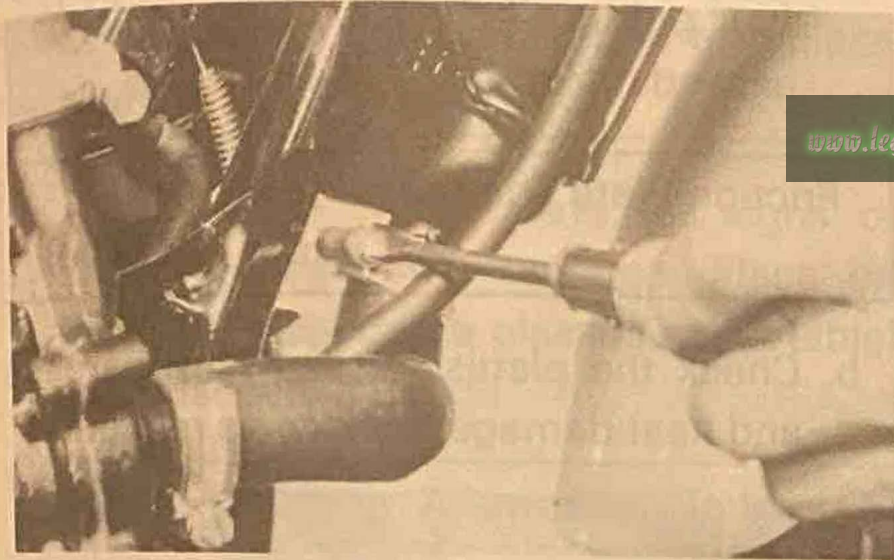
When removing screws, loosen each screw in several stages warpage. Note the condition of each piece as it is removed and its location with the assembly.



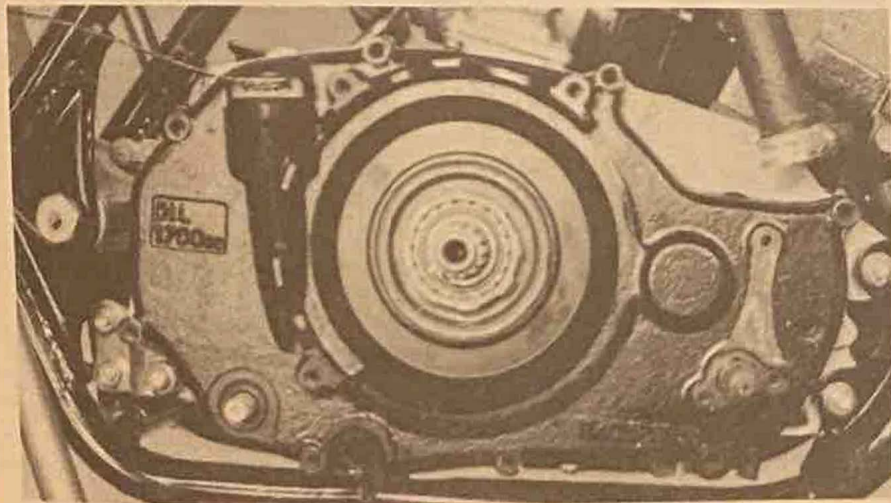
- b. Using the clutch holding tool, remove the clutch securing nut and Belleville spring. Remove the clutch boss and buffer boss assembly.



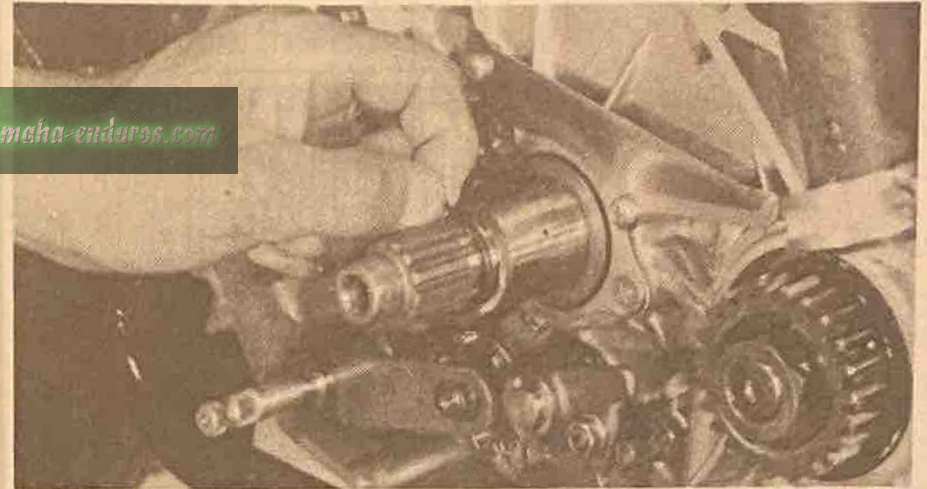
- c. Remove the drain bolt and drain the transmission oil.



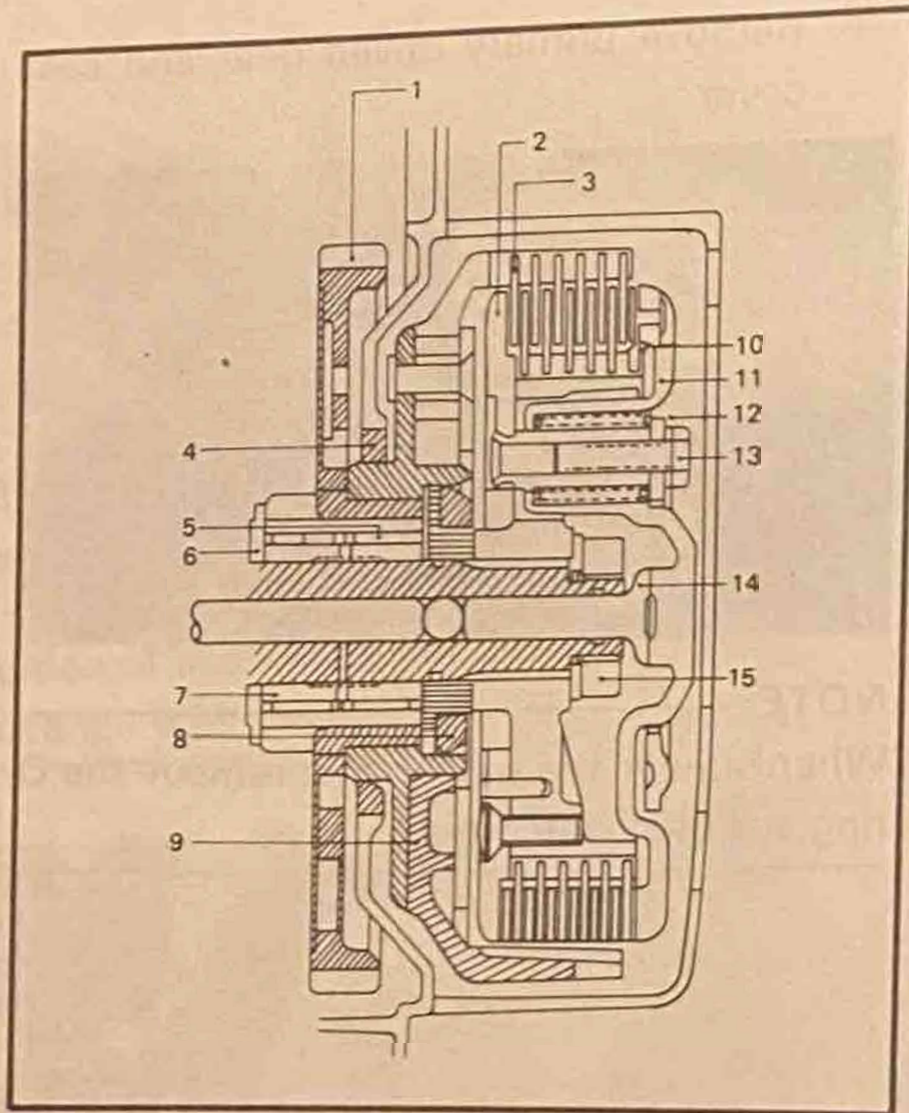
- d. Remove the two water pipe from water pump then remove water pump.



- e. Remove primary driven gear and case cover.



**NOTE:** \_\_\_\_\_  
When remove the spacer, first remove the O-ring and then check it.  
\_\_\_\_\_



- |                        |                  |                      |
|------------------------|------------------|----------------------|
| 1. Primary driven gear | 6. Thrust plate  | 11. Pressure plate B |
| 2. Pressure plate A    | 7. Spacer        | 12. Clutch spring    |
| 3. Friction plate      | 8. Oil seal      | 13. Bolt             |
| 4. Oil seal            | 9. Buffer boss   | 14. Push rod         |
| 5. Bearing             | 10. Clutch plate | 15. Nut              |

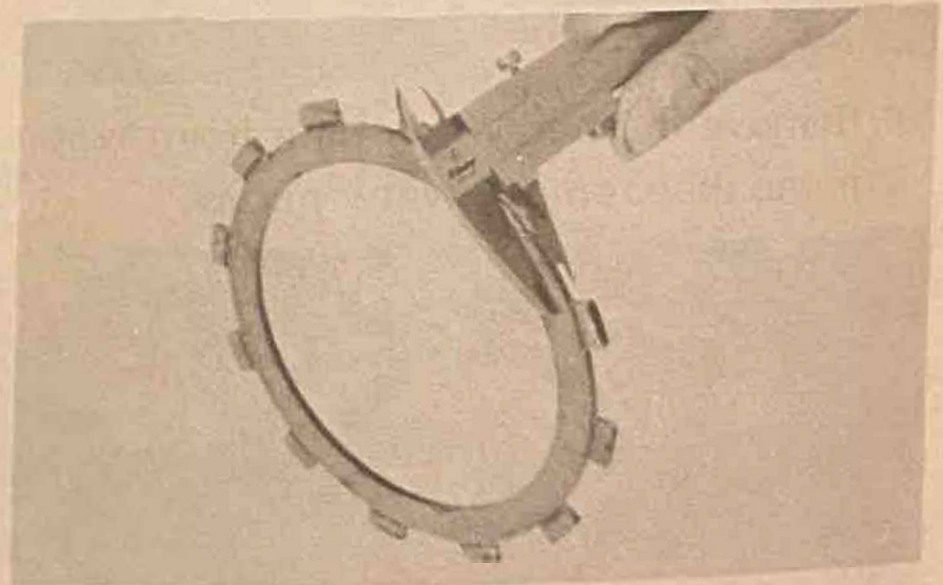
## Trouble Shooting

- a. Measure the friction plates at three or four points. If their minimum thickness exceeds tolerance, replace.

Friction Plate Thickness:

2.9 mm (0.114 in)

- b. Check the plates for signs of warpage and heat damage, replace as required.



**NOTE:**

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

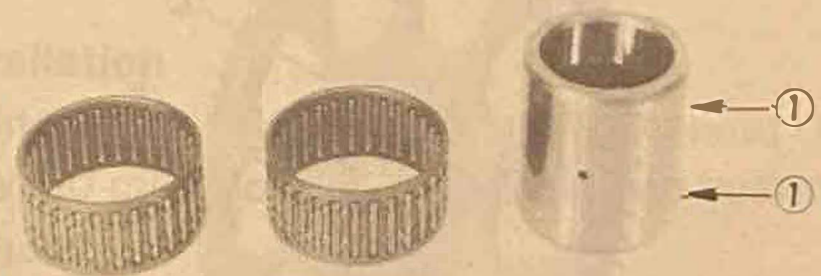
- c. Check each clutch plate for signs of heat damage and warpage. Place on surface plate (plate glass is acceptable) and use feeler gauge.

Clutch Plate Warp Allowance: None

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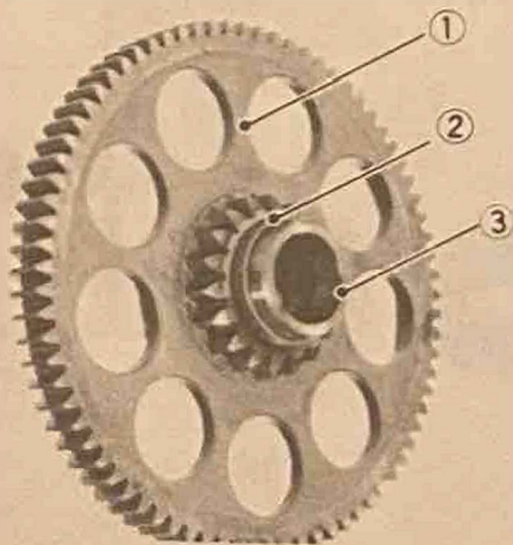


- d. Remove the pan head screws holding the crank case cover (R) in place and remove the cover.
- e. Remove the primary driven gear, spacer and bearings from transmission main shaft.
- f. Check the spacer for signs of wear. If any wear is evident, replace spacer and bearings.
- g. Check the spacer and bearings for signs of heat discoloration. If excessive (heavily blued), replace both.



1. Check the heat discoloration

- h. Check the bearing cages for excessive wear. Check the rollers for signs flat spots. If found, replace spacer and bearings.
- i. Apply a light film of oil to spacer and bearing surfaces. Install in primary driven gear. Check for play. There should be no noticeable vertical play. If play exists, check primary driven gear inside diameter and wear. Replace spacer and bearings or all as required.



1 Primary driven gear 2. Bearing 3. Spacer

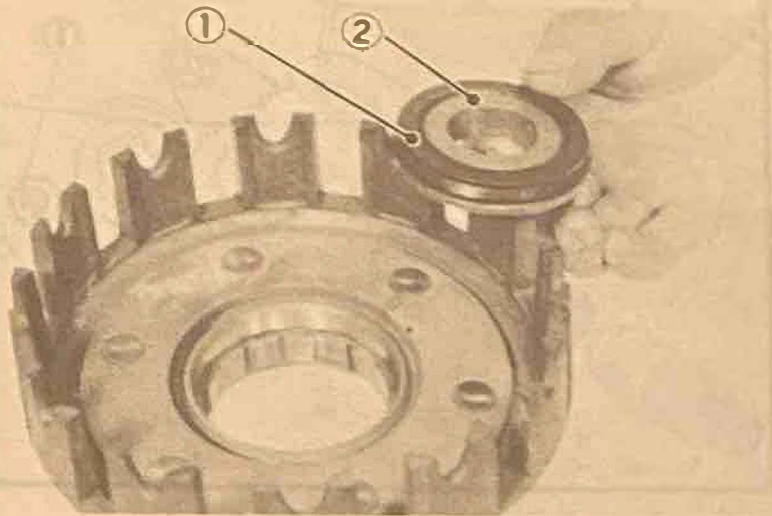
- j. Apply thin coat of oil on transmission main shaft and spacer inside. Slip spacer over main shaft. It should be a smooth, thumb-press fit. The spacer should rotate smoothly. Replace as required.
- k. Check splines on clutch boss for signs of galling. If moderate, deburr. If severe, replace.

**NOTE:** \_\_\_\_\_  
Galling on either the friction plate dogs of the buffer boss or clutch plate splines of the clutch boss will cause erratic clutch operation.



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- l. Check the thrust plate for signs of wear. Replace as necessary.
- m. Check the oil seals and spacer for signs of wear and oil leakage. If found oil leakage or excessive wear, replace oil seal or spacer.



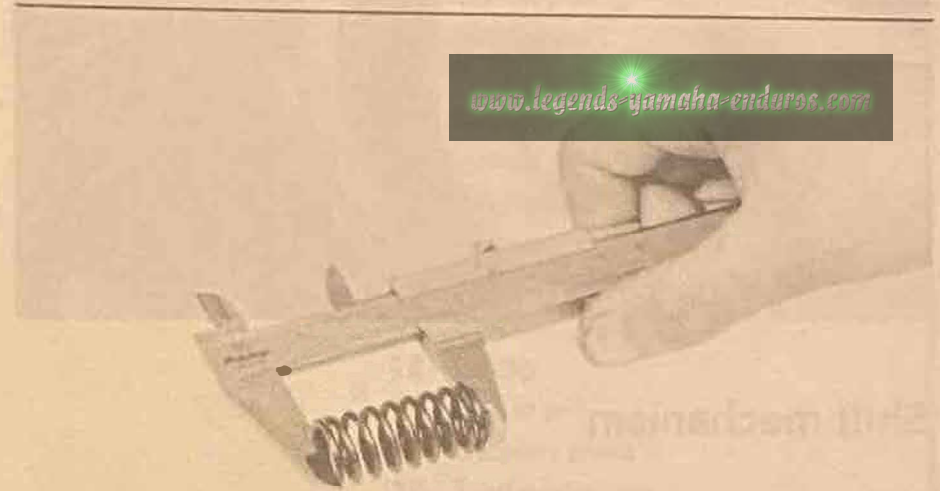
1. Oil seal      2. Spacer

- n. Measure each clutch spring. If beyond tolerance, replace.

Clutch spring free length:  
36.4 mm (1.433 in)

**NOTE:**

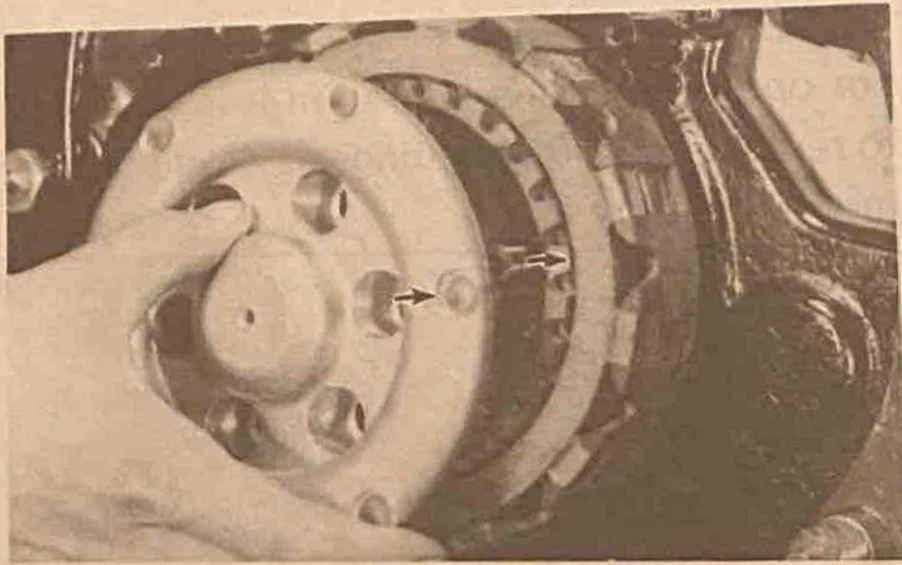
For optimum clutch operation it is advisable to replace the clutch springs as a set if one or more are faulty.



**Installation**

During installation, apply a light coat of 10W/30 motor oil to the spacers and bearing surfaces.

When installing the clutch pressure plate assembly, be sure to align the arrow mark on the clutch boss assembly with the arrow mark on the clutch pressure plate assembly.



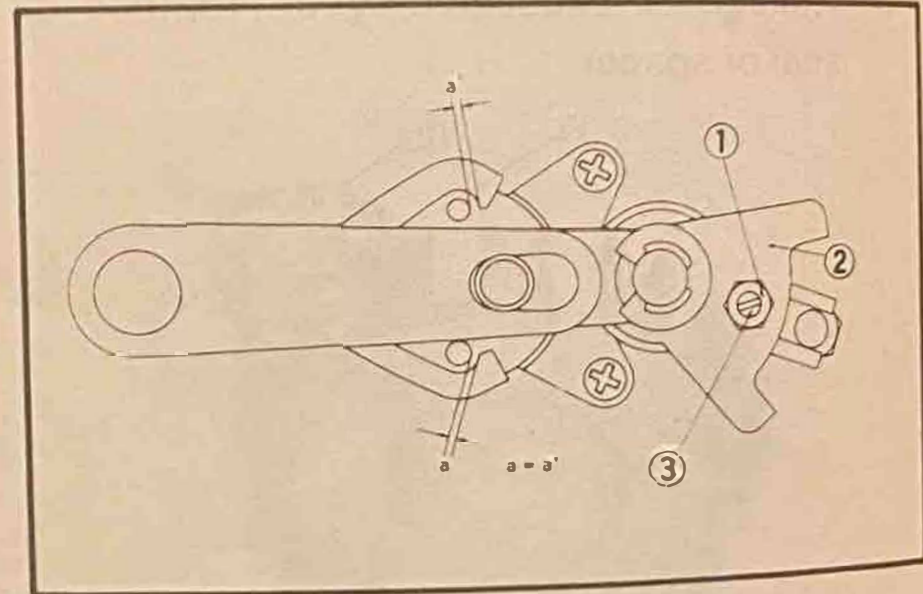
## Shift mechanism

### NOTE:

Shifter maintenance and adjustment should be performed with crank case cover (R) and clutch assembly removed.

- a. To check, shift to second gear, see that distance "a" is the same as "a" in the figure, showing the relationship between the gear shift arm and the shift drum pin.

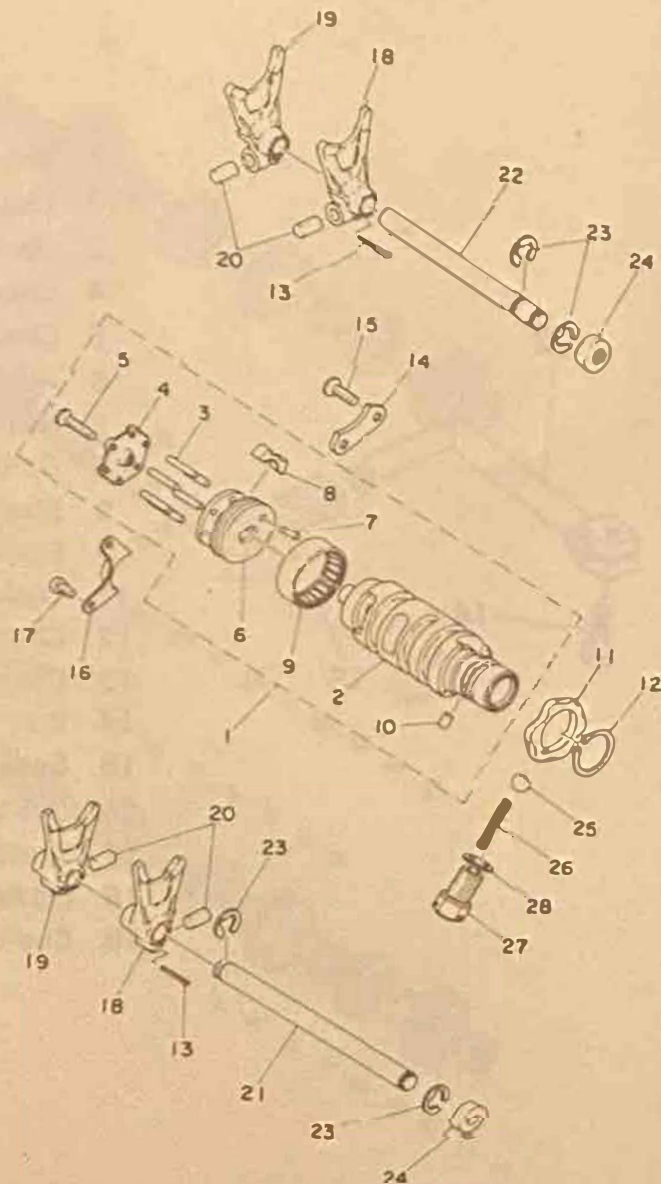
- b. To adjust, loosen the lock nut, and eccentric adjusting screw so that "a" becomes equal to "a'". Then fully tighten the lock nut.



1. Lock nut
2. Shift arm
3. Adjusting screw

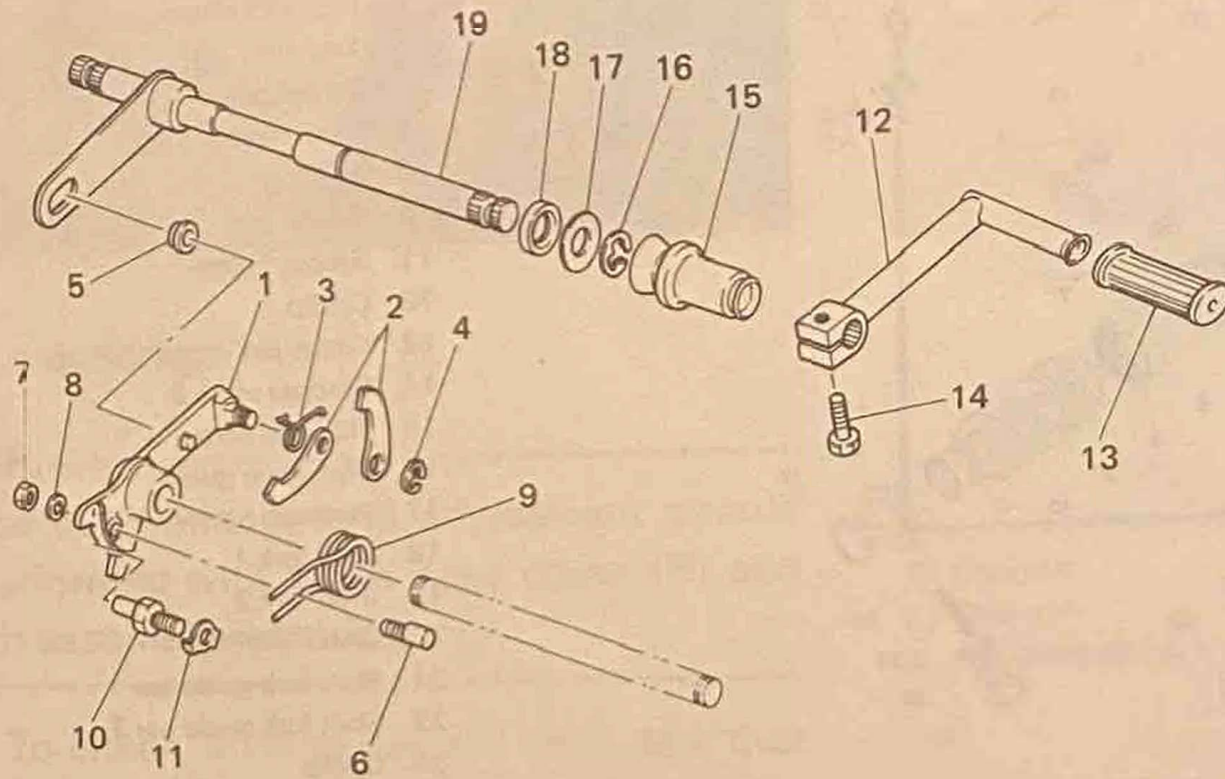


## SHIFTER A.



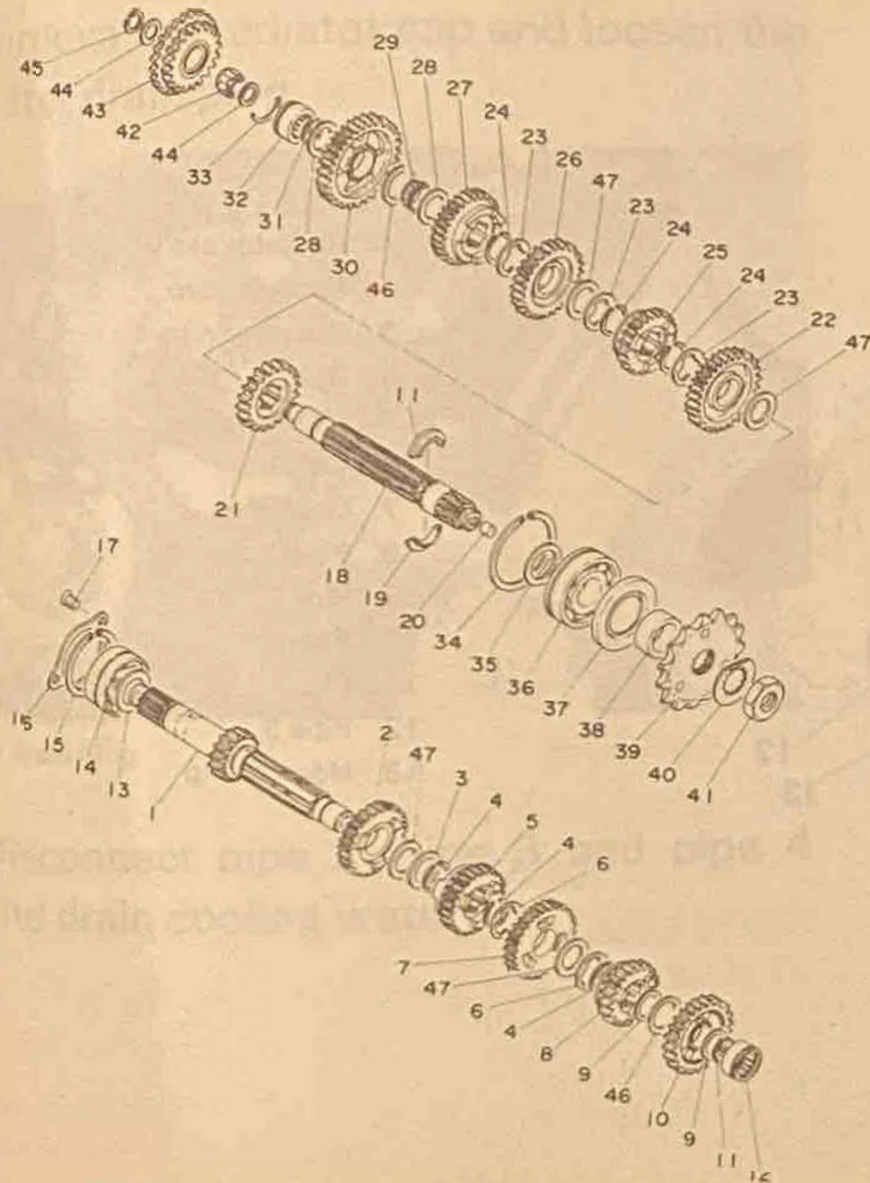
1. Shift cam ass'y
2. Shift cam
3. Dowel pin
4. Side plate
5. Flathead screw
6. Segment
7. Dowel pin
8. Pawl plate
9. Bearing
10. Dowel pin
11. Stopper plate
12. Circlip
13. Cotter pin
14. Stopper plate 2
15. Flathead screw
16. Shift lever guide
17. Panhead screw
18. Shift fork 1
19. Shift fork 2
20. Cam follower pin
21. Shift fork guide bar 1
22. Shift fork guide bar 2
23. Circlip
24. Blind plug
25. Cam stopper
26. Cam stopper spring
27. Spring screw
28. Drain plug gasket

# SHIFTER B.



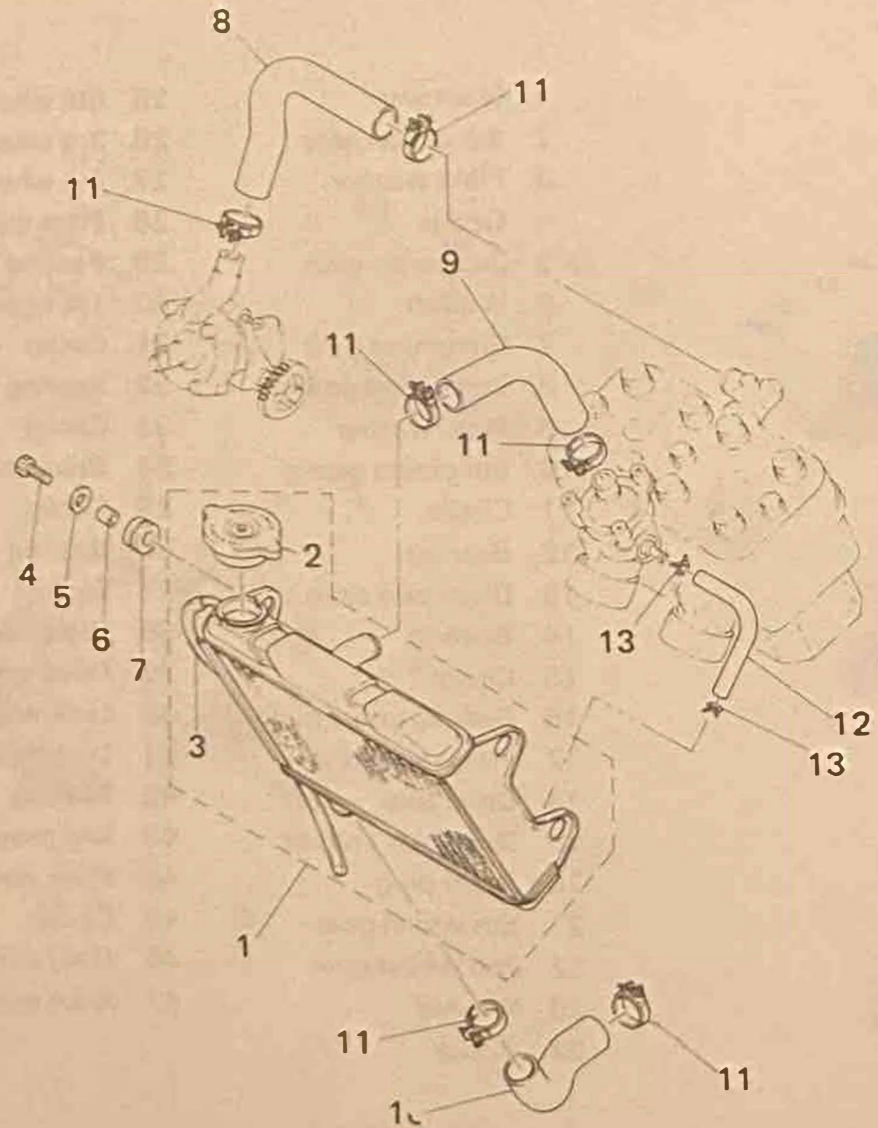
1. Bracket
2. Change lever
3. Spring
4. Circlip
5. Change lever roller
6. Adjusting screw
7. Nut
8. Spring washer
9. Shaft return spring
10. Stopper screw
11. Lock washer
12. Change pedal
13. Change pedal cover
14. Bolt
15. Sealing boot
16. Circlip
17. Washer
18. Oil seal
19. Change shaft ass'y

# TRANSMISSION



- |                         |                     |
|-------------------------|---------------------|
| 1. Main axle            | 25. 6th wheel gear  |
| 2. 4th pinion gear      | 26. 3rd wheel gear  |
| 3. Plate washer         | 27. 4th wheel gear  |
| 4. Circlip              | 28. Plate washer    |
| 5. 3rd pinion gear      | 29. Bearing         |
| 6. Washer               | 30. 1st wheel gear  |
| 7. 6th pinion gear      | 31. Circlip         |
| 8. 2nd pinion gear      | 32. Bearing         |
| 9. Plate washer         | 33. Circlip         |
| 10. 5th pinion gear     | 34. Drive axle shim |
| 11. Circlip             | 35. Circlip         |
| 12. Bearing             | 36. Bearing         |
| 13. Drive axle shim     | 37. Seal oil        |
| 14. Bearing             | 38. Distance collar |
| 15. Circlip             | 39. Drive sprocket  |
| 16. Bearing cover plate | 40. Lock washer     |
| 17. Flathead screw      | 41. Lock nut        |
| 18. Drive axle          | 42. Bearing         |
| 19. Drive axle spacer   | 43. Idle gear ass'y |
| 20. Taper plug          | 44. Plain washer    |
| 21. 5th wheel gear      | 45. Circlip         |
| 22. 2nd wheel gear      | 46. Main axle shim  |
| 23. Washer              | 47. Main axle shim  |
| 24. Circlip             |                     |

# COOLING SYSTEM

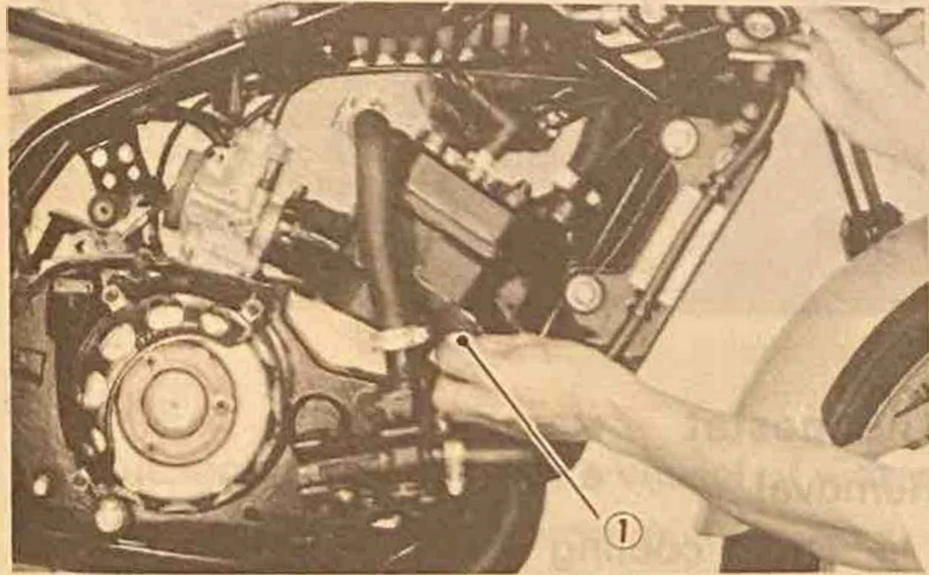


- 1. Radiator ass'y
- 2. Radiator cap
- 3. Breather pipe
- 4. Bolt
- 5. Plain washer
- 6. Collar
- 7. Grommet
- 8. Pipe 1
- 9. Pipe 2
- 10. Pipe 4
- 11. Clip
- 12. Pipe 3
- 13. Hose clamp

## Radiator

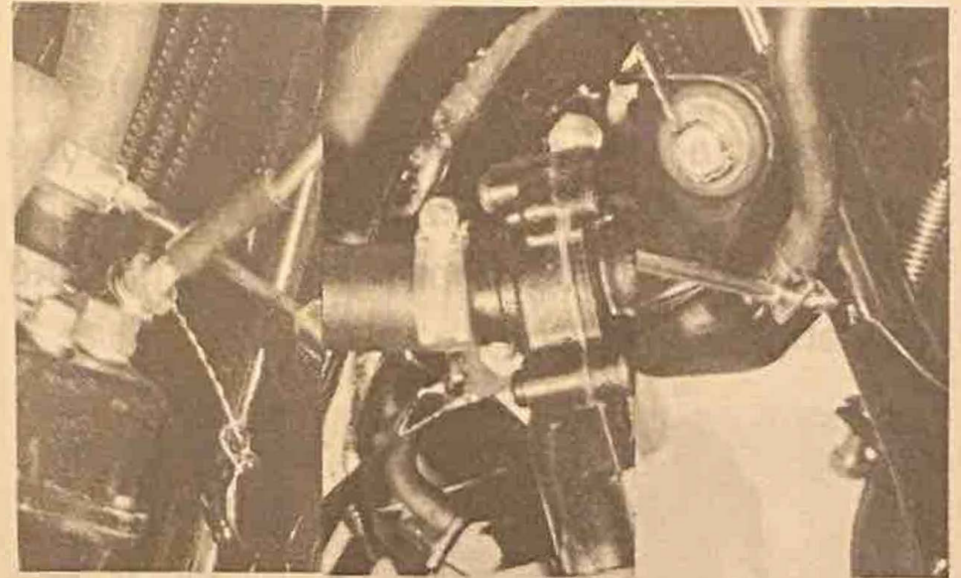
### Removal

- a. Remove the radiator cap and loosen the water drain plug

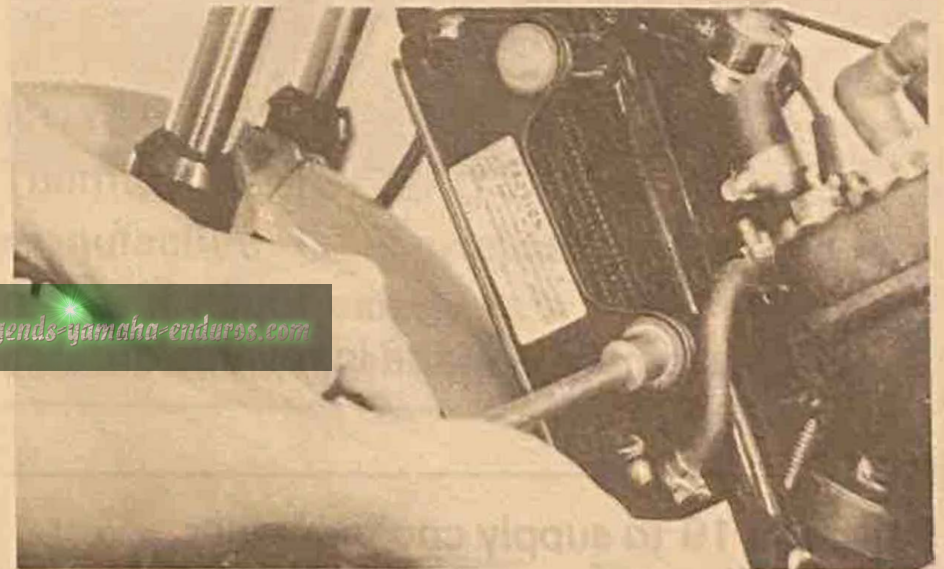


1. Water drain plug

- b. Disconnect pipe 2, pipe 3 and pipe 4 and drain cooling water.



- c. Remove four fixing bolts that secure the radiator to the frame.



## Cleaning

In very dusty conditions, and where insects are numerous, the radiator tube system should be kept clean by blowing through with compressed air from the engine side.

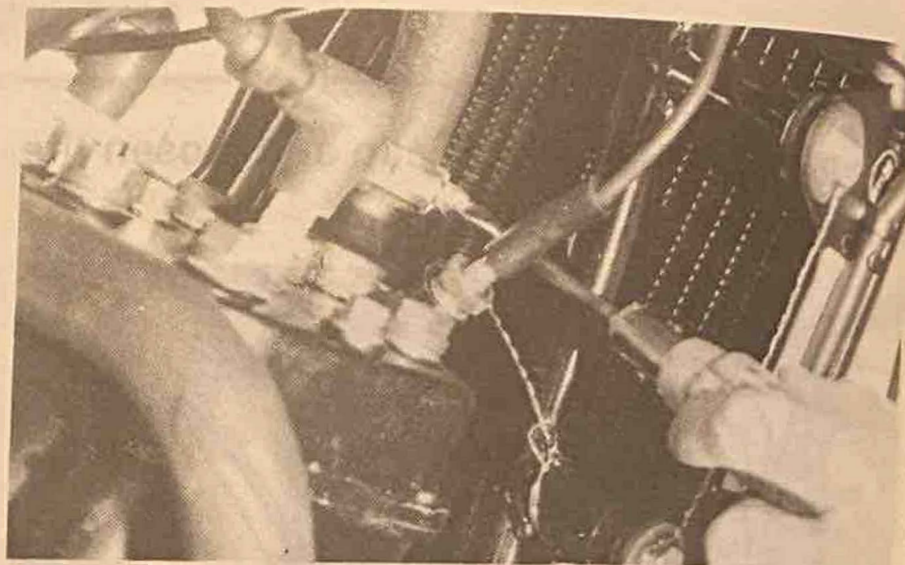


## Replacement

Replacement is made in reverse order.

### NOTE:

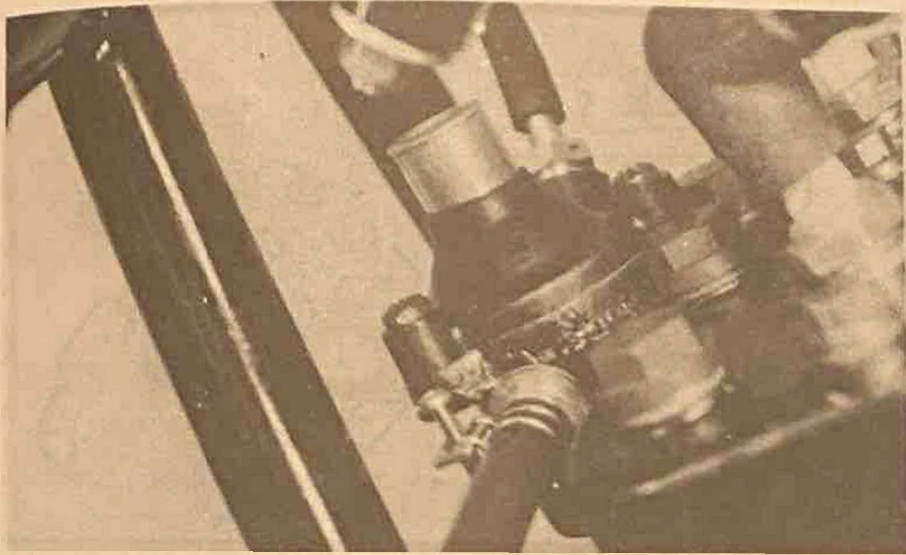
See page 19 to supply cooling water.



## Thermostat

### Removal

- Drain cooling water to below thermostat level.
- Disconnect water pipe connecting thermostat cover to radiator top tank.
- Remove screws (3) securing thermostat cover and take out thermostat.

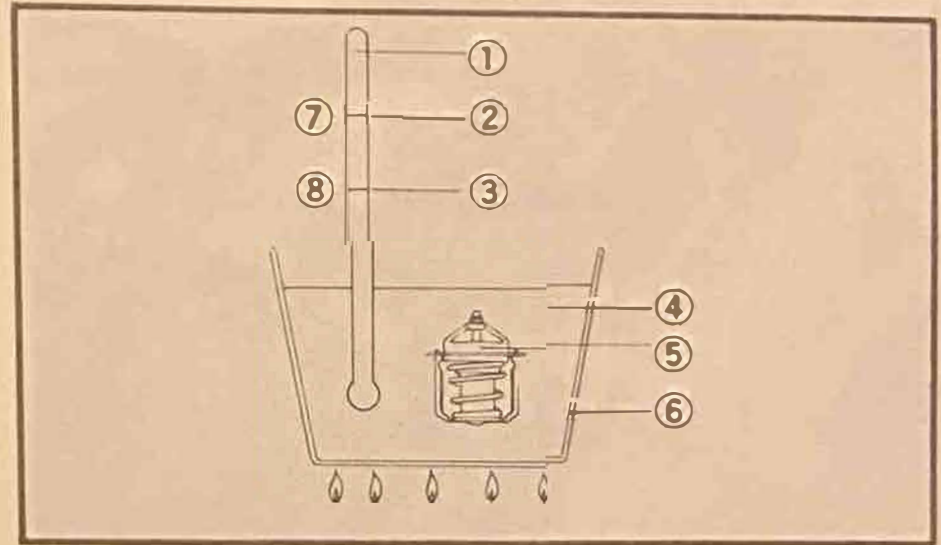


## Checking

- a. Suspend thermostat in a vessel of water with a reliable thermometer.
- b. Heat the water slowly, noting the thermometer reading and stirring the water continually.
- c. The thermostat valve should commence to open at  $71^{\circ}\text{C}$  ( $160^{\circ}\text{F}$ ) and be fully open at  $85^{\circ}\text{C}$  ( $185^{\circ}\text{F}$ ).

Maximum Valve Lift:

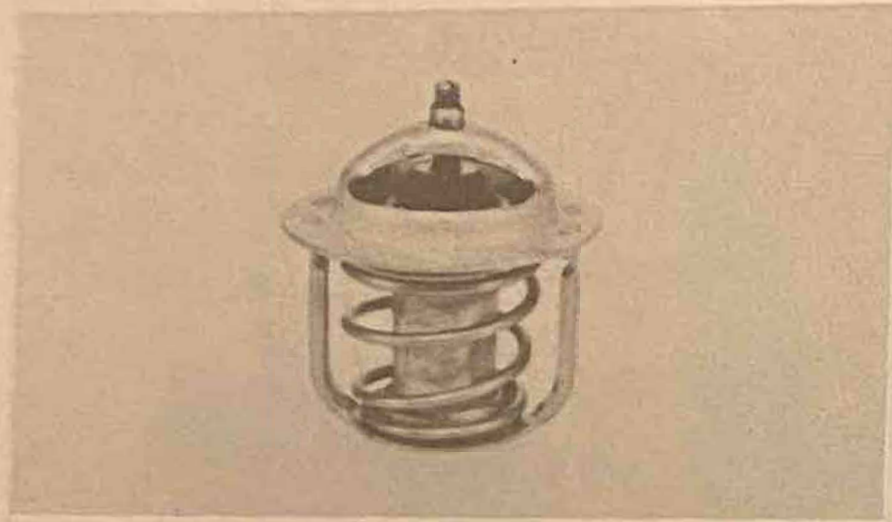
8 mm (0.31 in)/ $85^{\circ}\text{C}$  ( $185^{\circ}\text{F}$ )



- |                     |   |
|---------------------|---|
| 1. Thermometer      | 5. Thermostat                                     |
| 2. Fully open       | 6. Vessel   |
| 3. Commence to open | 7. $85^{\circ}\text{C}$ ( $185^{\circ}\text{F}$ ) |
| 4. Water            | 8. $71^{\circ}\text{C}$ ( $160^{\circ}\text{F}$ ) |

## NOTE:

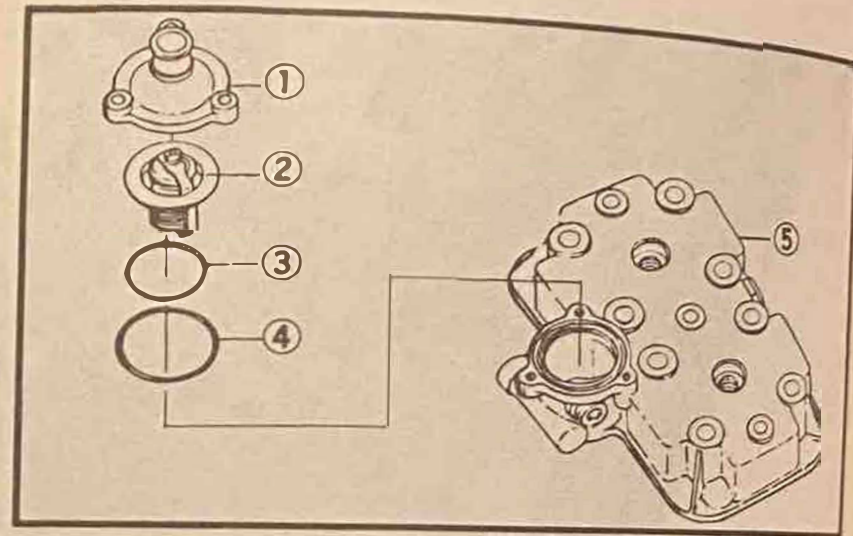
Thermostats are sealed and their setting and manufacture is specialised work. Always renew if doubt exists, as a faulty unit could cause serious overheating.



### Refitting

Refit is made in reverse order.

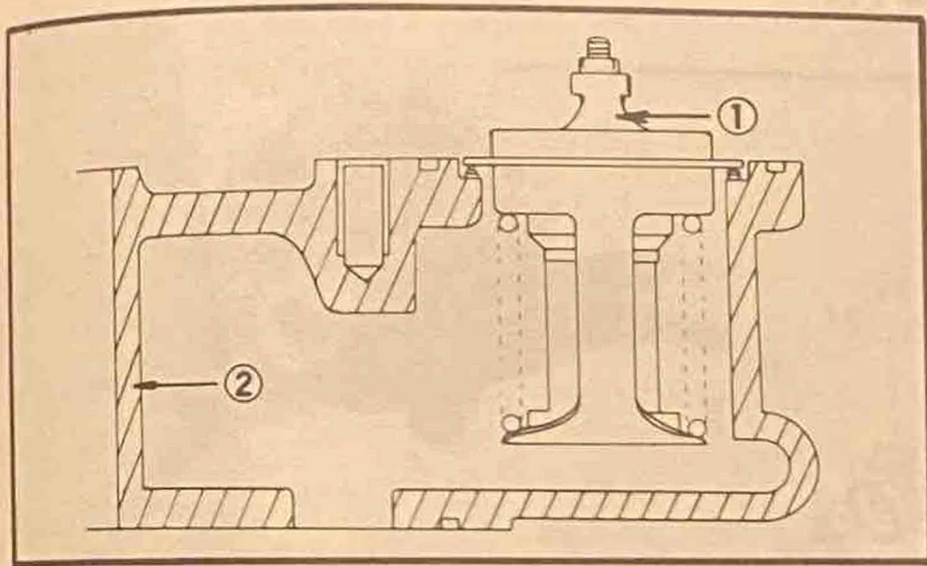
**NOTE:** \_\_\_\_\_  
The new O-rings should be used.



- |                     |                  |
|---------------------|------------------|
| 1. Thermostat cover | 4. O-ring        |
| 2. Thermostat       | 5. Cylinder head |
| 3. O-ring           |                  |

**NOTE:** \_\_\_\_\_  
When installing the thermostat on the cylinder head, place the thermostat in the direction as illustrated. If not, the thermostat mounting frame will obstruct the cooling water passage.



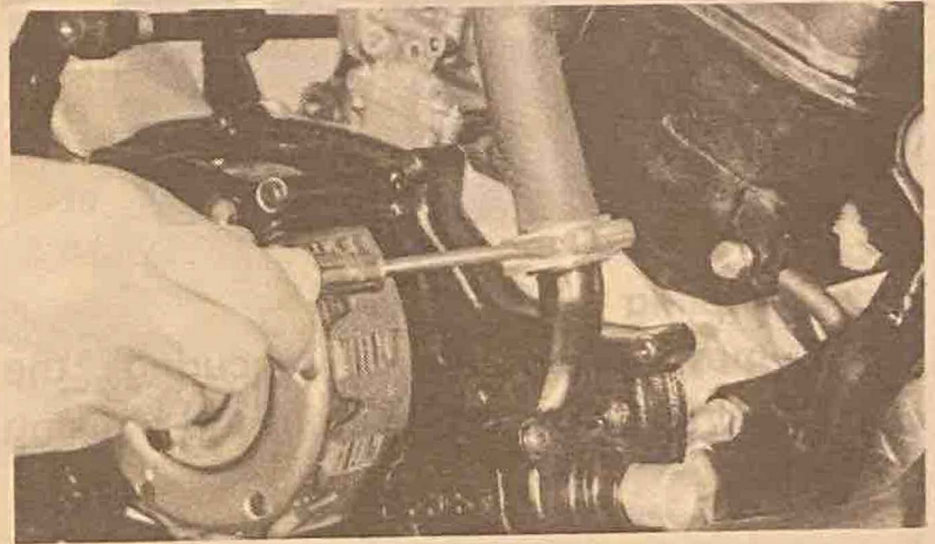
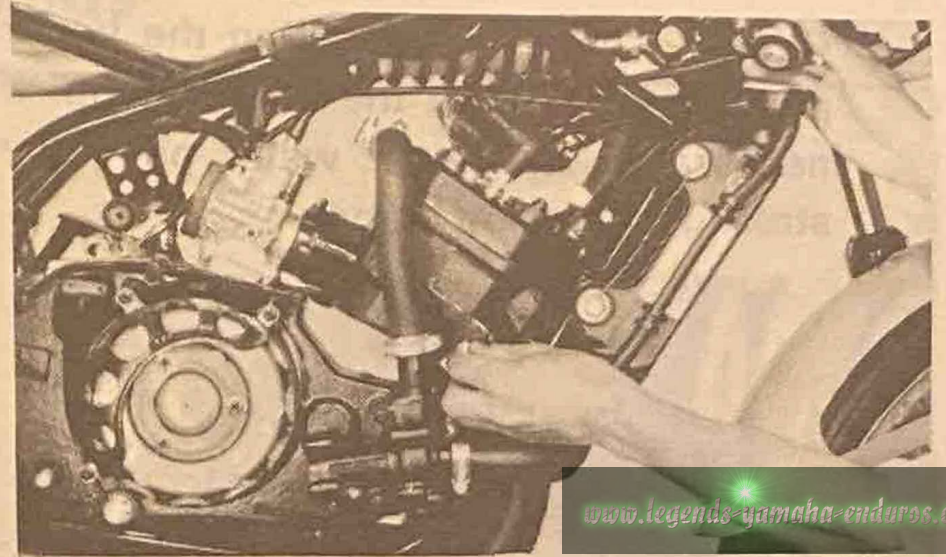


- 1. Thermostat
- 2. Cylinder head

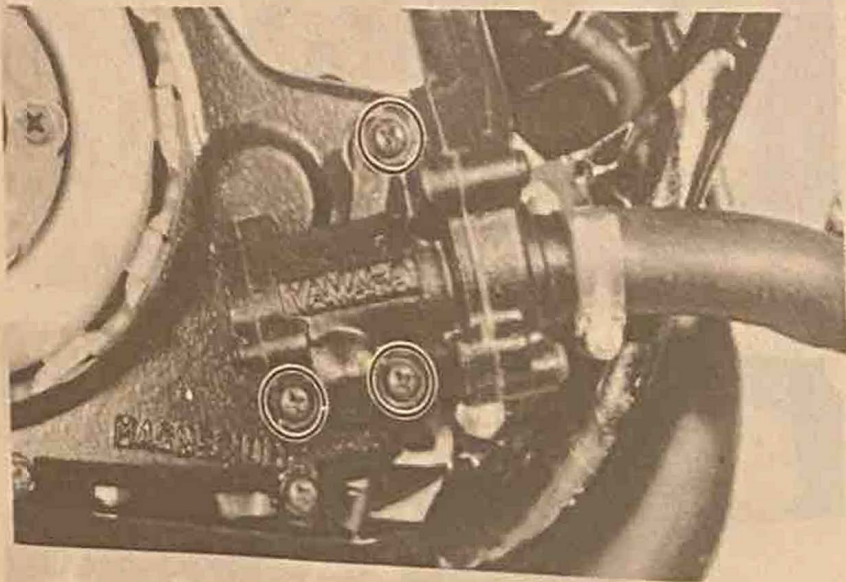
## Water pump

### Removal

- a. Drain cooling water. (See page 59)
- b. Loosen the pipe clips and disconnect the water pipes.



- c. Remove screws (3) securing the water pump and take out the water pump. If necessary, loosen the water pump by striking with a soft hammer.

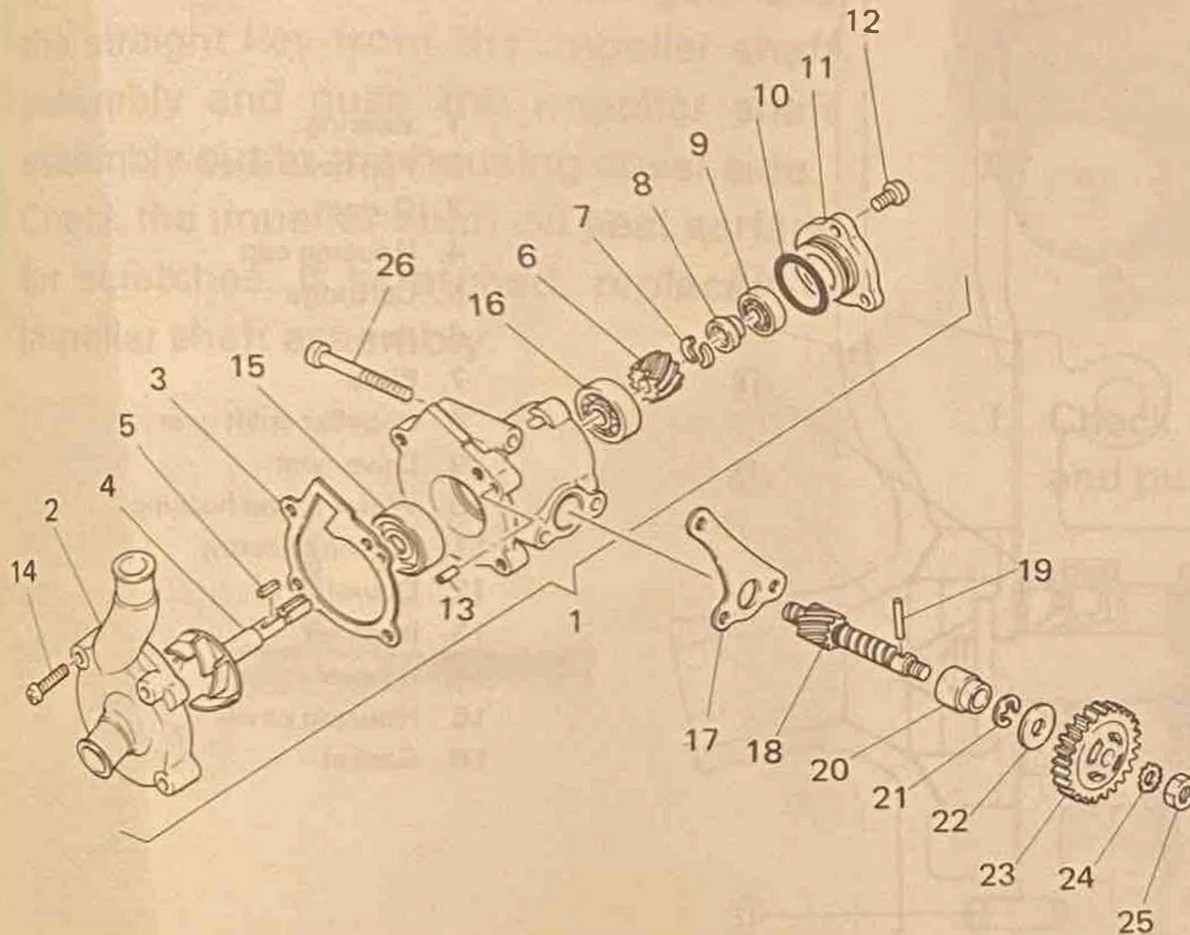


#### Disassembling

- a. Remove screws (4) securing the housing cover and take out the housing cover.

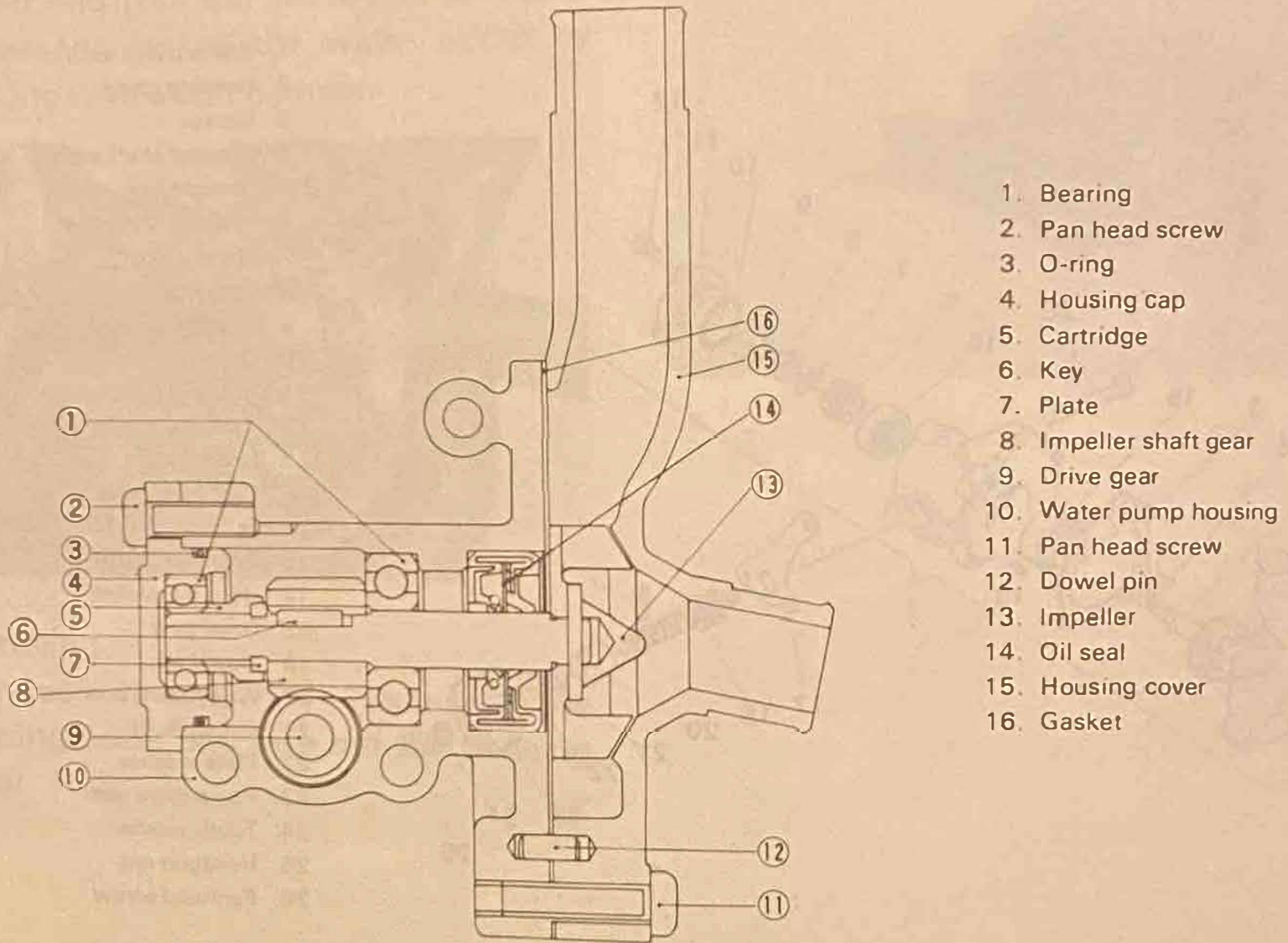


# WATER PUMP

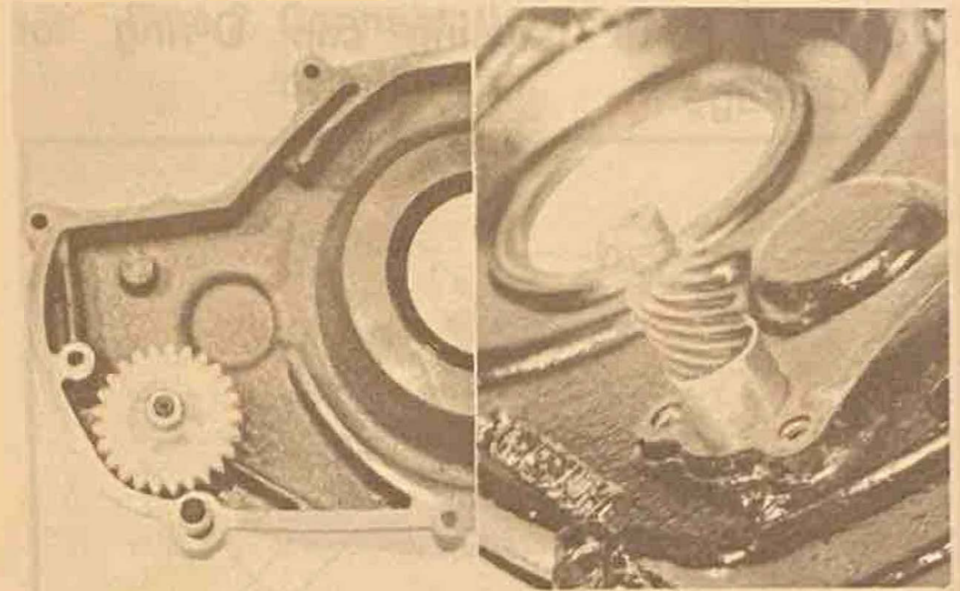


1. Water pump ass'y
2. Housing cover
3. Gasket
4. Impeller shaft ass'y
5. Straight key
6. Impeller shaft gear
7. Plate
8. Cartridge
9. Bearing
10. O-ring
11. Housing cap
12. Panhead screw
13. Dowel pin
14. Panhead screw
15. Oil seal (SW-10-31-13.5)
16. Bearing (6200)
17. Housing gasket
18. Drive gear
19. Dowel pin
20. Worm shaft bushing
21. Circlip (E-8)
22. Plate washer
23. Pump drive gear
24. Tooth washer
25. Hexagon nut
26. Panhead screw

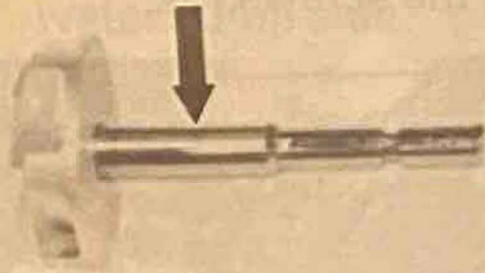
# WATER PUMP



- b. Remove screws (3) securing the housing cap and take out the cap.
- c. Remove the cartridge and the plates then remove the impeller shaft gear and the straight key from the impeller shaft assembly and push the impeller shaft assembly out to the housing cover side.
- d. Check the impeller shaft oil seal surface for scratches. If scratched, replace the impeller shaft assembly.



- f. Check the bearing in the housing cap and pump housing for wear.

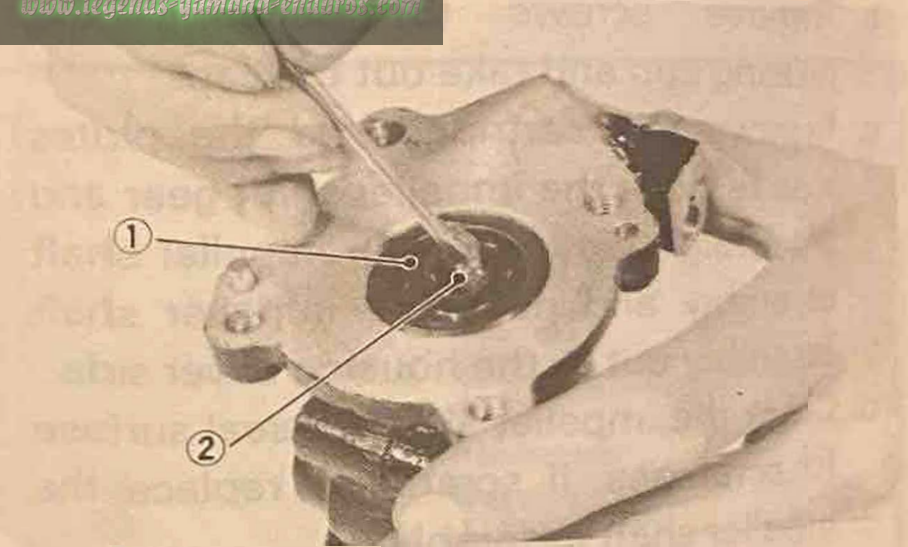
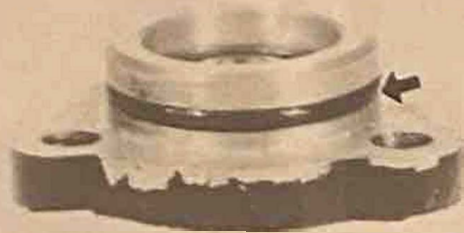


- e. Check the pump drive gear, impeller gear for wear or damage.



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g. Check the housing cap O-ring for damage.



1. Oil seal      2. Grease

h. Check the oil seal lip for scratches. If scratched, replace.

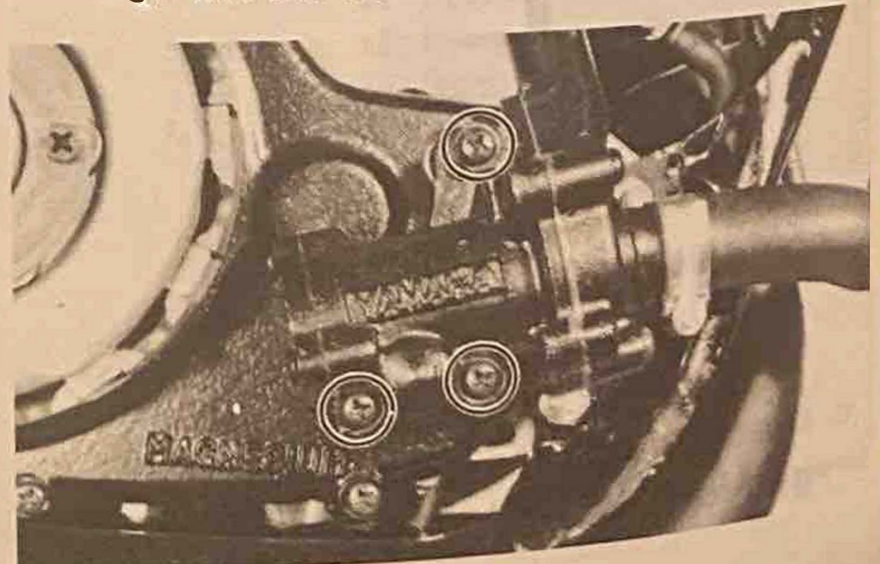
i. Before installing, fill the oil seal lip with the water-resisting grease. Use care not to damage the oil seal.

g. Replace the gasket and O-ring.

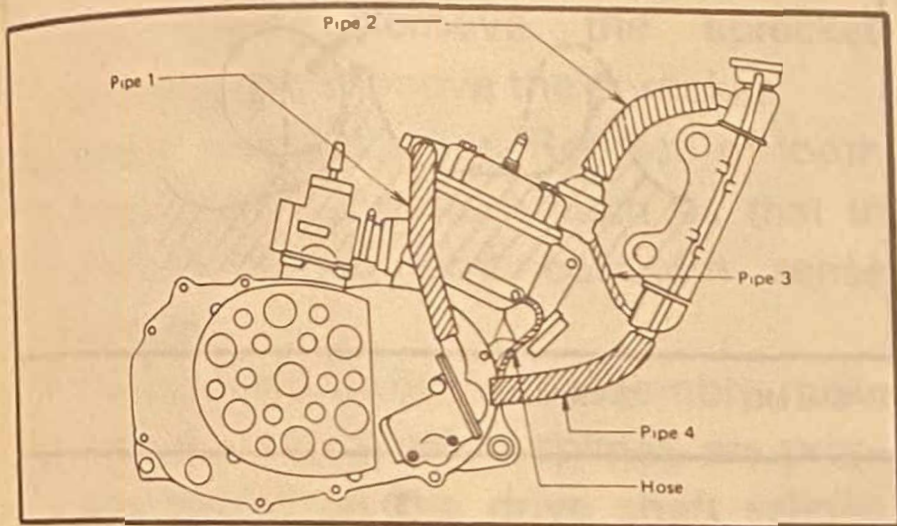
### 3. Installation

a. Replace the water pump housing gasket.

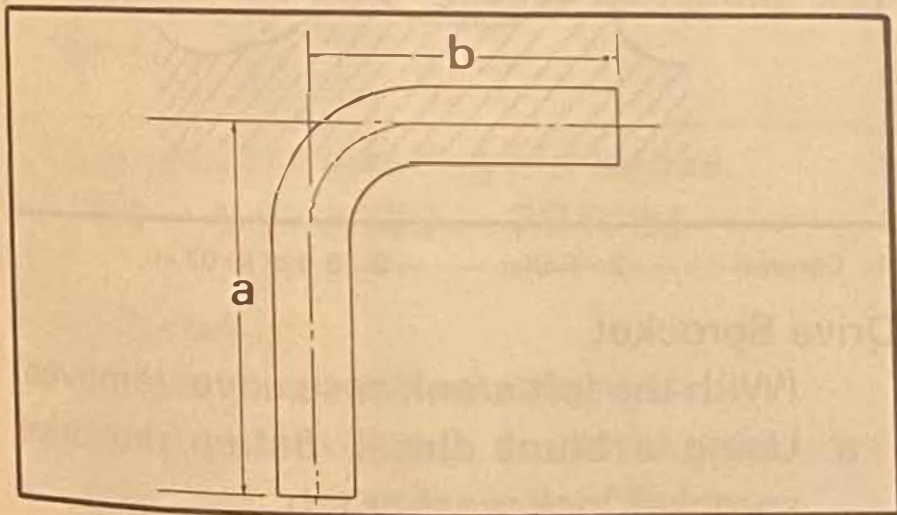
b. Install the water pump assembly and tighten the screws (3).



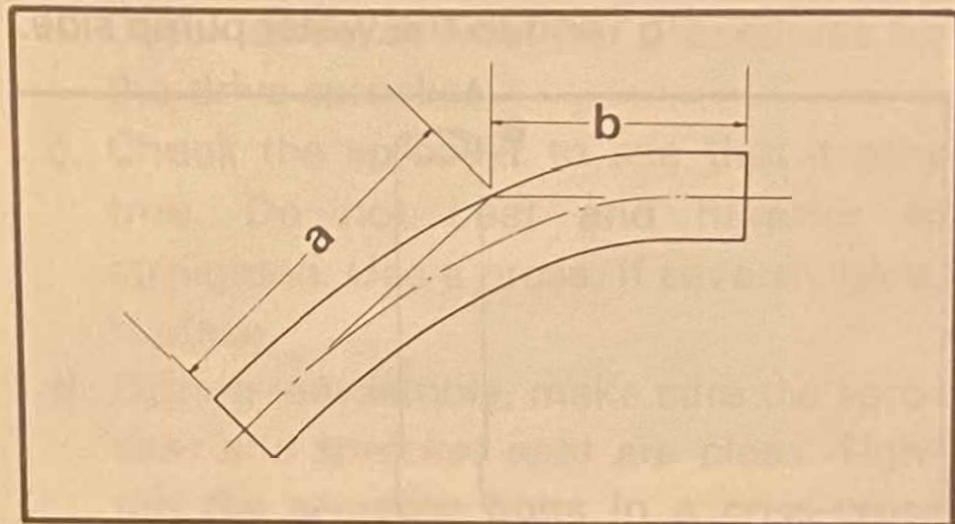
c. Water pipe installation.  
How to check and install the water hose.



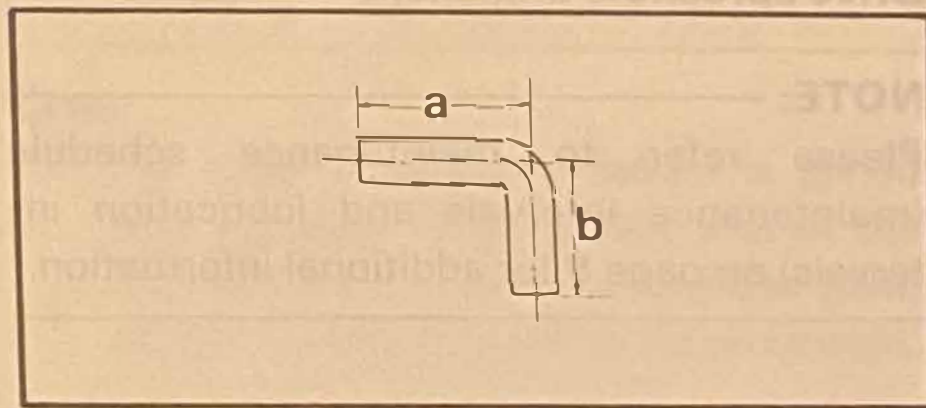
Pipe 1 Connect the longer side to the water pump side.



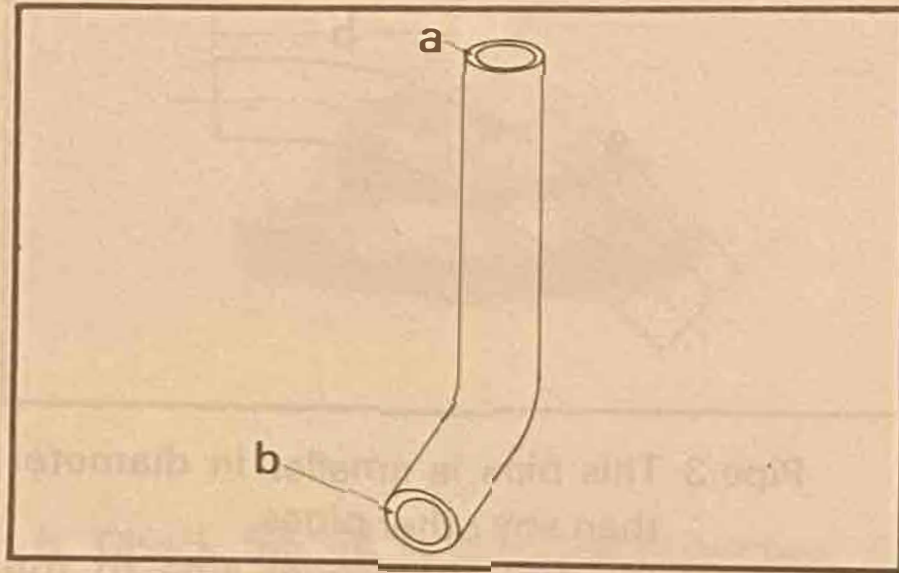
Pipe 2 Connect the longer side to the cylinder side.



Pipe 3 This pipe is smaller in diameter than any other pipes.  
Connect the longer side to the cylinder head side.



Pipe 4 Connect the "a" end to the cylinder side, and connect the "b" end to the water pump side.

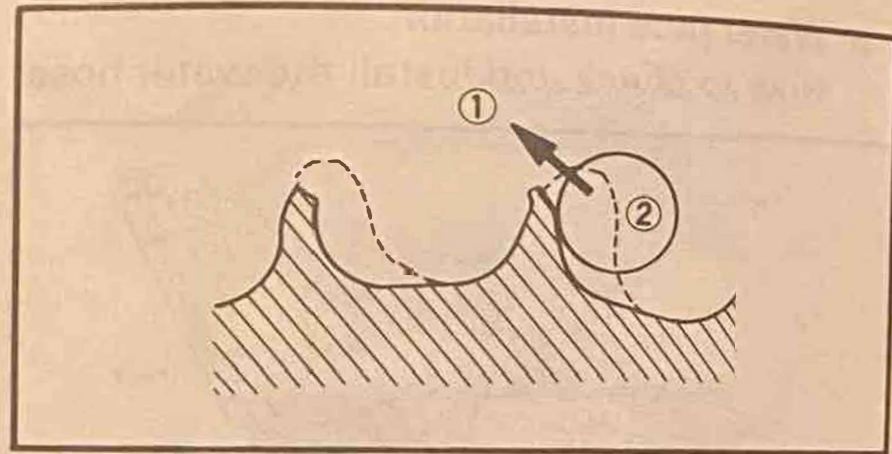


### Drive sprockets and chain

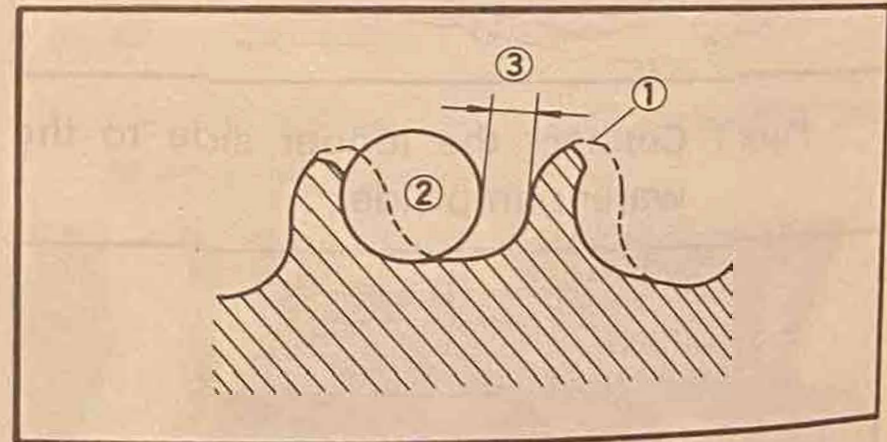
**NOTE:** \_\_\_\_\_

Please refer to maintenance schedule (maintenance intervals and lubrication intervals) on page 8 for additional information.

\_\_\_\_\_



1. Slip off      2. Roller



1. Correct      2. Roller      3. 3 mm (0.02 in)

### Drive Sprocket

- (With the left crank case cover removed)
- a. Using a blunt chisel, flatten the drive sprocket lock washer tab.



- b. With the drive chain in place, transmission in gear, firmly apply the rear brake. Remove the sprocket securing nut. Remove the sprocket.
- c. Check sprocket wear. Replace if tooth wear shows a pattern such as that in the illustration and common sense dictate.
- d. During drive sprocket reassembly, make sure the lock washer splines are properly seated on the drive shaft splines. Tighten securing nut thoroughly to specified torque value. Bend lock washer tab fully against securing nut flats.

Drive sprocket securing nut torque:  
4.5 ~ 5 m·kg (33 ~ 36 ft·lb)

### Driven Sprocket

(With the rear wheel removed)

- a. Using a blunt chisel, flatten the securing bolt lock washer tabs. Remove the

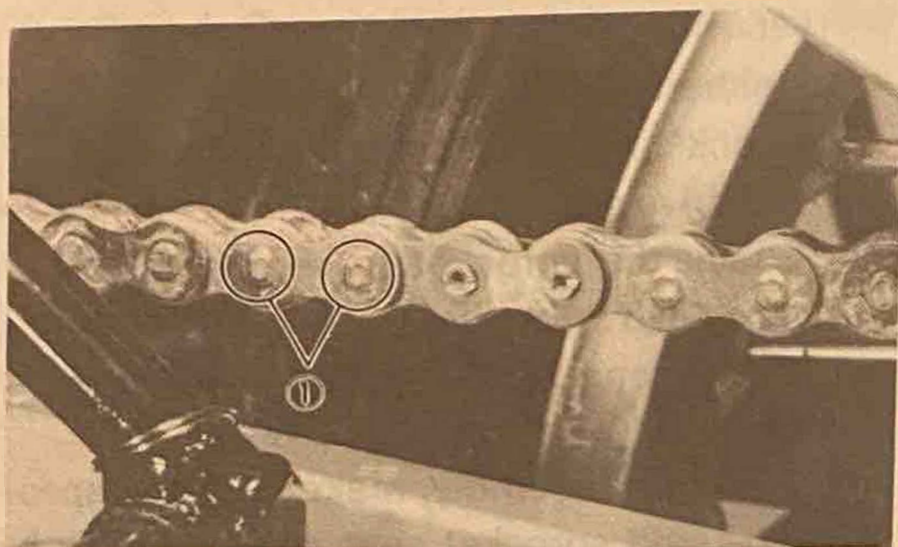
securing bolts (5). Remove the lock washers and sprocket.

- b. Check sprocket wear per procedures for the drive sprocket.
- c. Check the sprocket to see that it runs true. Do not heat and hammer to straighten. Use a press. If severely bent, replace.
- d. During reassembly, make sure the sprocket and sprocket seat are clean. Tighten the securing bolts in a criss-cross pattern. Bend the tabs of the lock washers fully against the securing bolts.

Drive sprocket securing bolt torque:  
2.0 m·kg (14.5 ft·lb)

### Chain

- a. The chain of a tourist model is joined with a master link clip, but that of the TZ250F/350F is with an endless joint, so that it cannot be easily disconnected.



1 Clinched parts

b. To service the chain, usually it is unnecessary to cut the chain. But if the chain has to be replaced, it should be cut at the chain joint. To cut, file down or grind the chain joint end (clinched part).

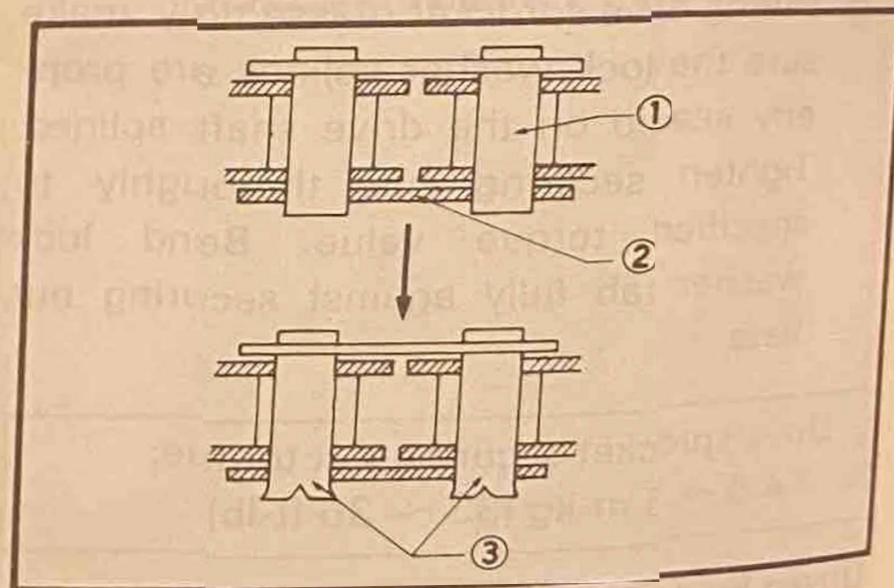
c. The chain should be linked as illustrated. Insert the endless joint end with a punch.

Chain type/Links:

DID520TR/95L + Joint

### Chain guide

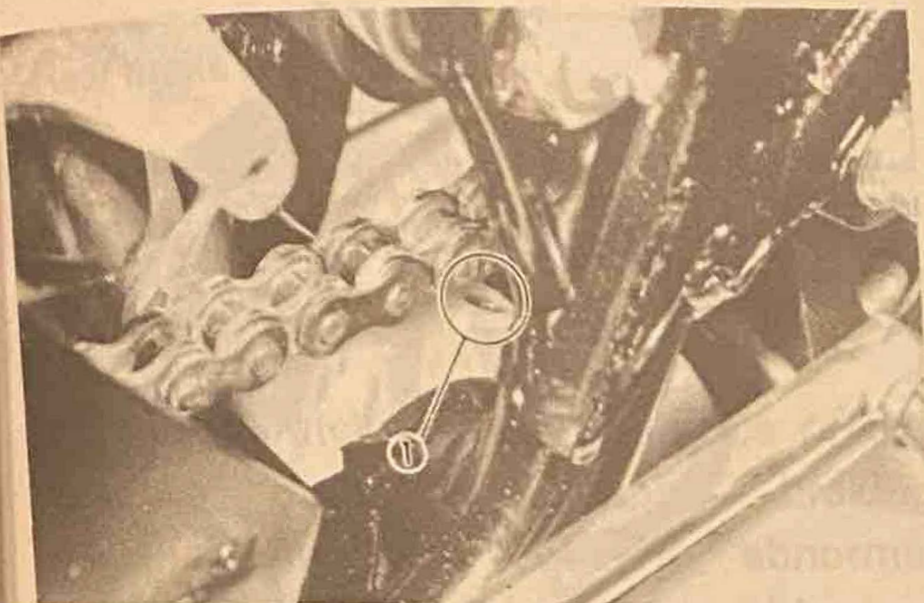
Replace the chain guide before the head of the bolt for holding this guide begins to show a sign of wear.



1. Endless joint

2. Joint plate

3. Caulk with a punch



1. Bolt

### Maintenance (chain)

The chain should be lubricated per recommendations given in the maintenance schedule chart on page 10.

More often if possible. Preferably after every use.

- a. Wipe off dirt with shop rag. If accumulation is severe, use soft bristle brush, then rag.
- b. Apply lubricant between roller and side plates in both inside and outside of chain. Don't skip a portion as this will

cause uneven wear. Apply thoroughly. Wipe off excess.

### Cables

Cable maintenance is primarily concerned with preventing deterioration through rust and weathering, and providing for proper lubrication to allow the cable to move freely within its housing. Cable removal is straight forward and uncomplicated.

### Maintenance

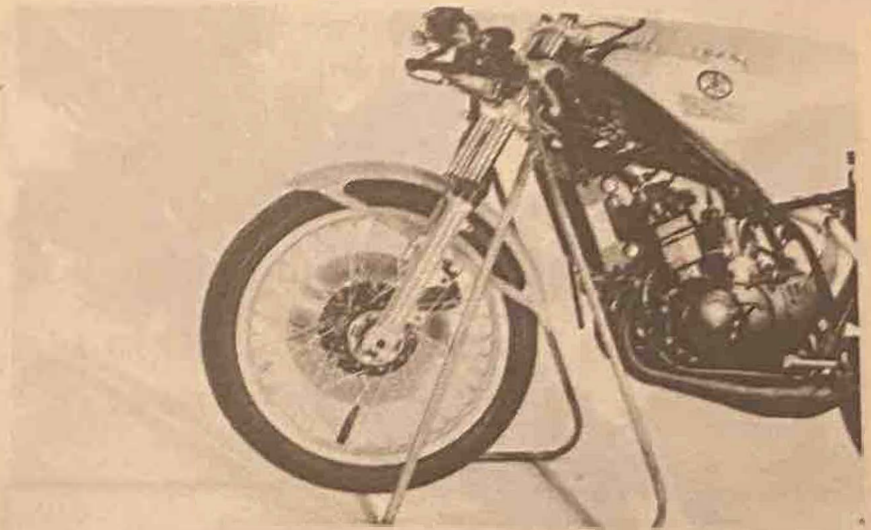
- a. Remove the cable.
- b. Check for the movement of the cable within its housing. If movement is obstructed, check for fraying of the cable strands. If fraying is evident, replace the cable assembly.
- c. To lubricate cable, hold in vertical position.  
Apply lubricant to uppermost end of cable. Leave in vertical position until lubricant appears at bottom end. Allow excess to drain and reinstall.



## Front Wheel

### a. Removal

Raise the front of the machine and set it on a machine stand and remove the front wheel.



## Rear Wheel

### a. Removal

- 1) Remove the rear wheel shaft nut.
- 2) Raise the rear of the machine and set it on box. Then pull out the rear wheel shaft by simultaneously twisting and pulling out.
- 3) Remove the rear wheel assembly.

## Checking Brake Pad Wear

Measure the thickness at the brake pad with slide calipers. If it measures less than 214 mm (8.43 in) replace it.

Rear brake pad thickness:

8.5 mm (0.33 in)

Replacement limit: 4.5 mm (0.18 in)

## Brake Disc

Oil or scratched on the surface or the brake disc will impair braking performance or result in abnormal noises. Remove oil by wiping with a rag soaked in lacquer thinner or solvent.

## Replacing Wheel Bearings.

Refer to front wheel section.

## Checking Rims and Spokes

(Front and Rear Wheels)

### a. Checking for loose spokes

Loose spokes can be checked by bracing the machine off the ground so that the front wheel can spin free.

Slowly revolve the front wheel and at the same time let the metal shaft of a fairly heavy screwdriver bounce off each

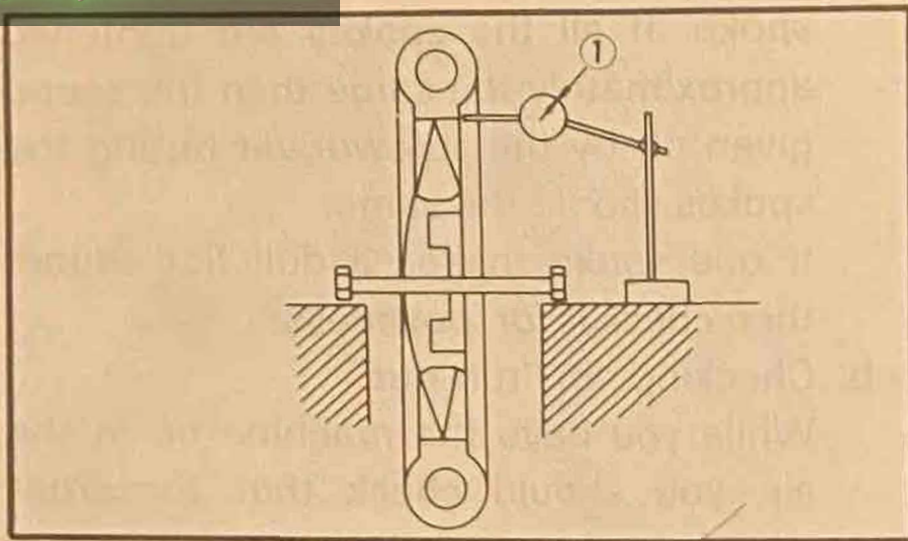
spoke. If all the spokes are tightened approximately the same then the sound given off by the screwdriver hitting the spokes should be the same.

If one spoke makes a dull flat sound, then check it for looseness.

### b. Checking rim "run-out"

While you have the machine up in the air, you should check that the front wheel does not have too much run-out. "Run-out" is the amount the front wheel deviates from a straight line as it spins. Secure the front forks to keep them from turning. Set up a dial gauge or solidly anchor a pointer about 2 mm (0.08 in) away from the side of the rim.

As the wheel spins, the distance between the pointer and the rim should not change more than 2 mm (0.08 in) total. Any greater fluctuation means that you should remove this rim warpage by properly adjusting the spokes.



1. Dial gauge

Run-out limits: 2 mm (0.08 in)

### Tire Removal

- a. Remove valve cap, valve core and valve stem lock nut.
- b. When all air is out of tube, separate tire bead from rim (both sides) by stepping on tire with your foot.
- c. Use two tire removal irons (with rounded edges) and begin to work the tire bead over the edge of the rim, starting 180° opposite the tube stem.

Take care to avoid pinching the tube as you do this.

- d. After you have worked one side of the tire completely off the rim, they you can slip the tube out. Be very careful not to damage the stem while pushing it back out to the rim hole.

### NOTE:

If you changing the tire itself, then finish the removal by working the tire off the same rim edge.

### Installing Tire

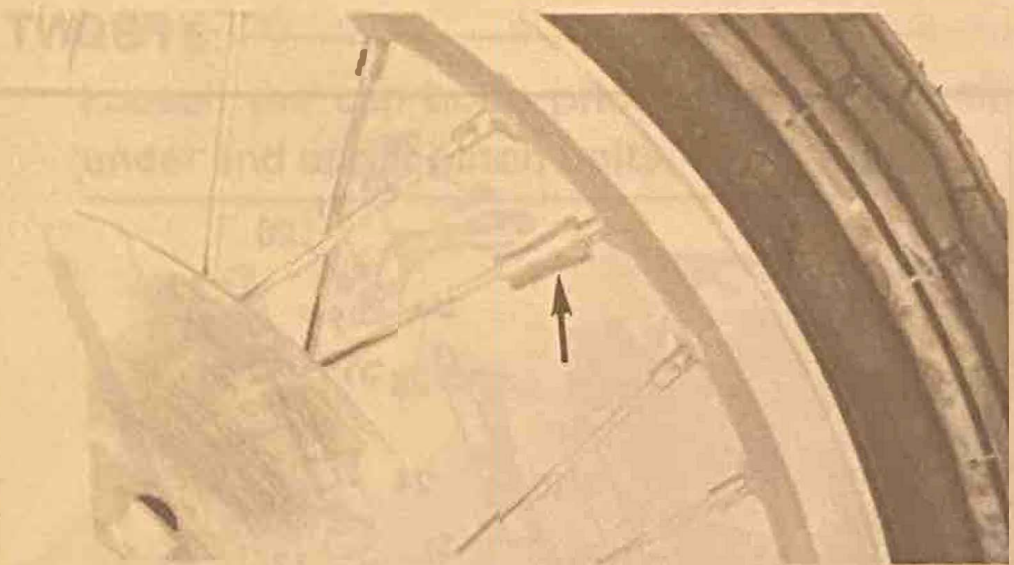
Re-installing the tire assembly can be accomplished by reversing the disassembly procedure. The only different in procedure would be right after the tube has been installed, but before the tire has been completely slipped onto the rim inflate the tube. This removes any creases that might exist. Release the air and continue with

reassembly. Also, right after the tire has been completely slipped onto the rim, check to make sure that the stem is squarely in the center of the hole in the rim.

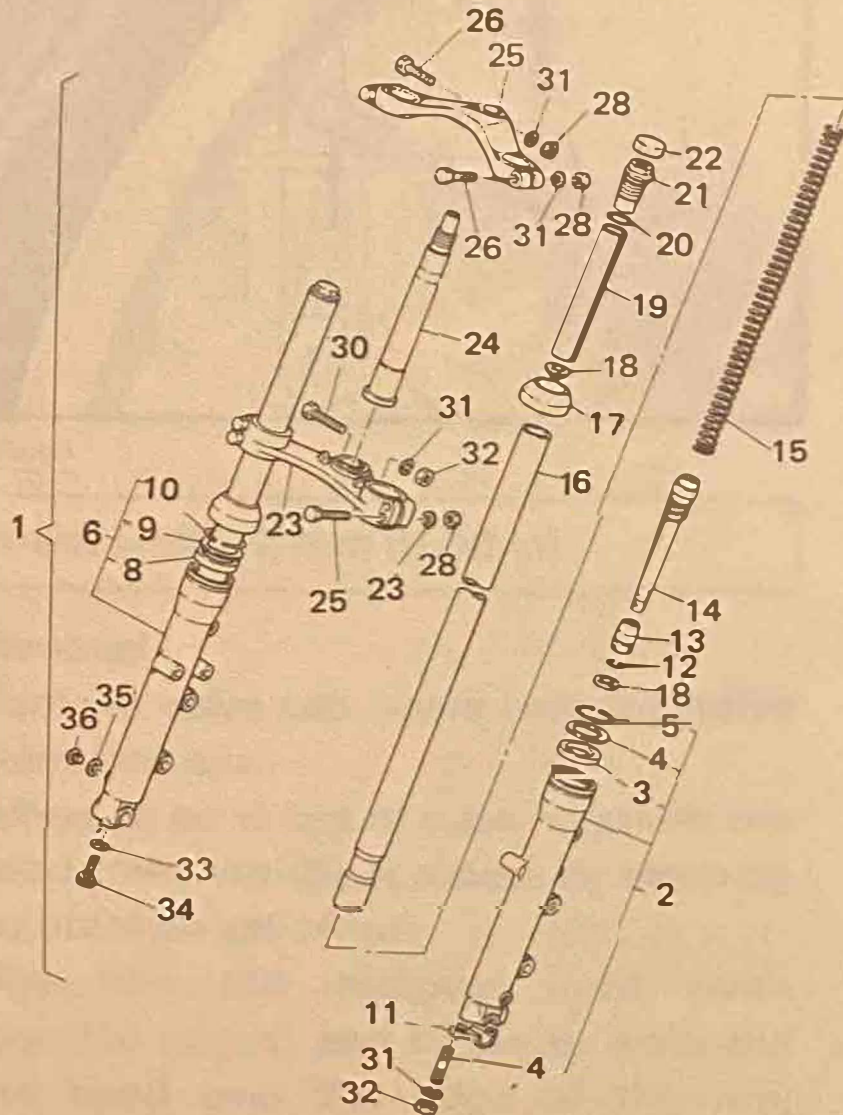
### Wheel Balancing

Whenever the wheel is removed for tire repair or wheel turning, it must be re-balanced. Wheel balance weights are available, however, a length of solder would tightly around a spoke serves as well.

- a. With the wheel elevated, or in a turning stand, rotate and allow to come to rest. Mark the bottom-most portion of the wheel (heaviest portion).
- b. Spin several times, marking stopping point. If wheel continually comes to rest at same point, wrap several turns of solder around spoke nipple opposite heavy spot. Re-check. Continue procedure until wheel stops at random points.



# FRONT FORK

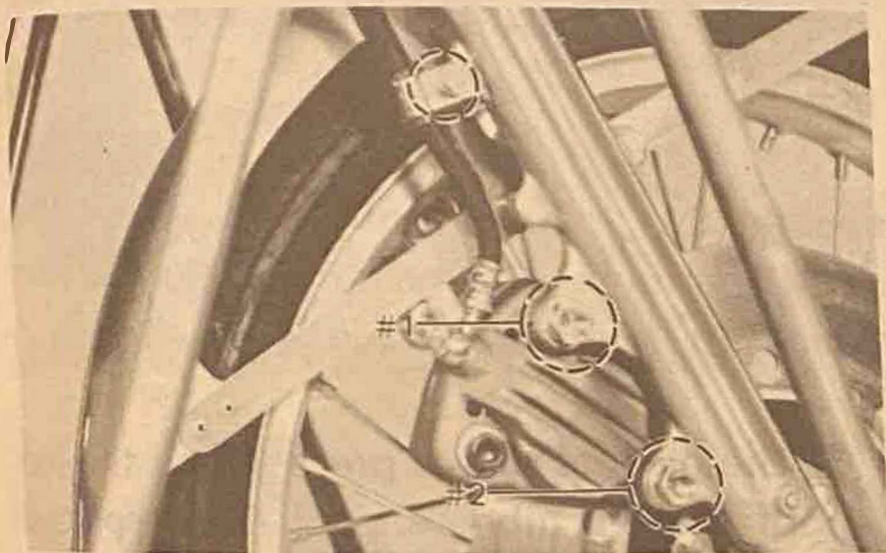


- |                               |                          |
|-------------------------------|--------------------------|
| 1. Front fork ass'y           | 19. Spacer               |
| 2. Outer tube left            | 20. Gasket               |
| 3. Oil seal                   | 21. Cap bolt             |
| 4. Oil seal washer            | 22. Dust seal            |
| 5. Oil seal clip              | 23. Under bracket comp.  |
| 6. Outer right tube           | 24. Steering shaft comp. |
| 7. Axle holder bolt           | 25. Upper bracket        |
| 8. Oil seal                   | 26. Bolt                 |
| 9. Oil seal washer            | 27. Plate washer         |
| 10. Oil seal clip             | 28. U nut                |
| 11. Axle holder               | 29. Bolt                 |
| 12. Circlip                   | 30. Bolt                 |
| 13. Front fork piston         | 31. Spring washer        |
| 14. Front fork cylinder comp. | 32. Nut                  |
| 15. Fork spring               | 33. Gasket               |
| 16. Inner tube                | 34. Bolt                 |
| 17. Dust seal                 | 35. Drain plug gasket    |
| 18. Spring upper seat         | 36. Drain plug           |



## Disassembly

Remove the front wheel and front fender before starting this procedure. Before removing the right front fork, caliper body and brake hose fitting bolt #2 must be removed from the front fork.

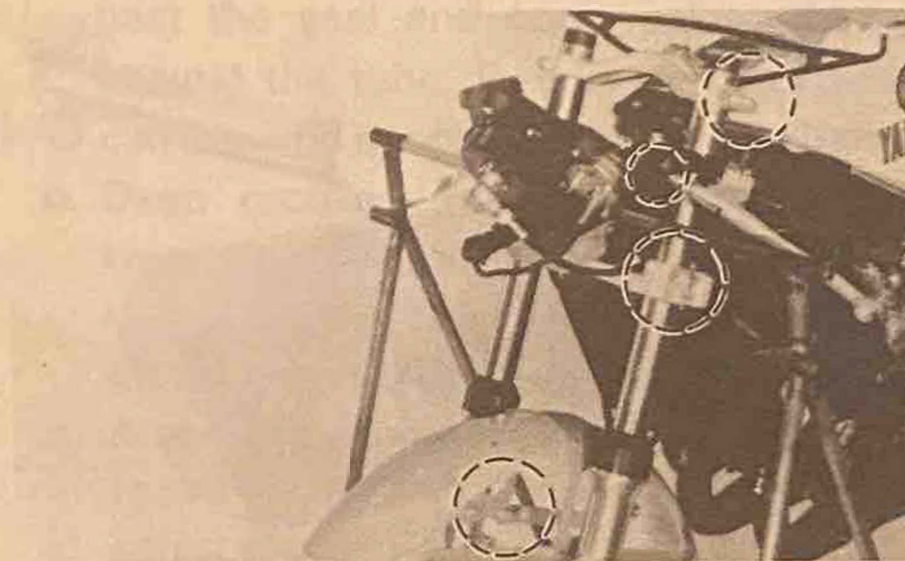


- a. Loosen the under bracket pinch bolt; handle bar mounting bolts and nuts handle crown bolts and inner tube cap bolts.

## NOTE: \_\_\_\_\_

Loosen the cap bolts prior to loosening the under and upper pinch bolts.

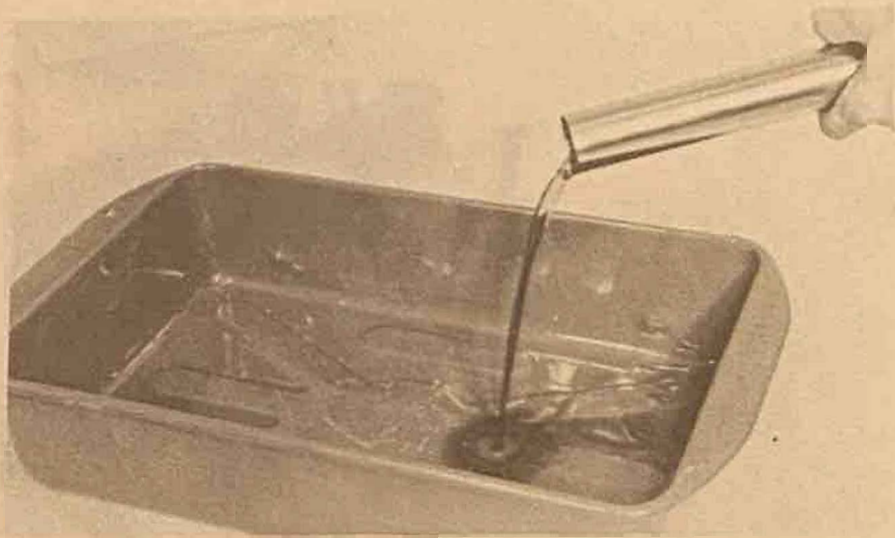
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- b. Pull out the inner fork tube from the bracket complete.
- c. Remove the cap bolt from inner fork tube.
- d. Drain the oil from both fork tube to oil pan, and remove the fork spring.

**NOTE:**

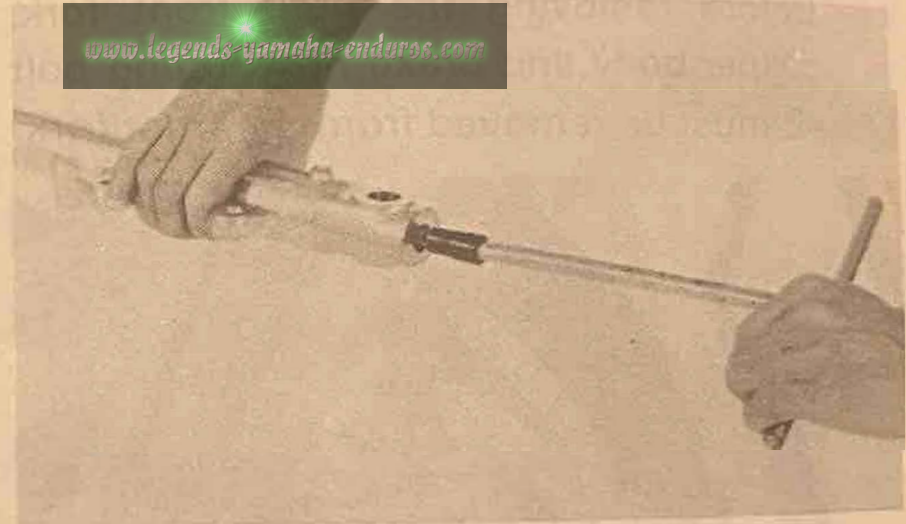
The oil can be completely drained off by sliding the inner tube in and out.



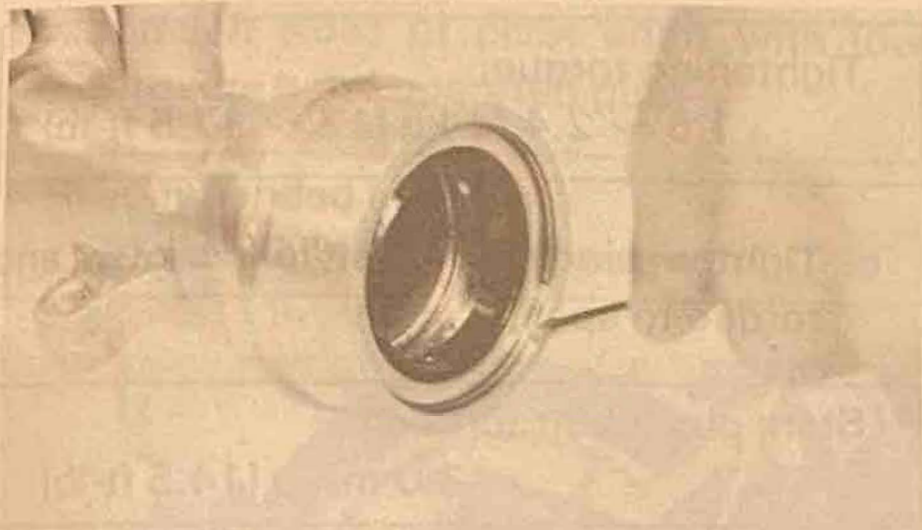
e. Remove the cylinder holding bolt at the bottom end of outer fork tube. If it is difficult to remove the bolt, take the following steps.

- 1) Pull out the inner tube from the outer tube until it stops, and warp the outer tube thickly, then grip it in the vice.
- 2) While pulling the outer tube toward you,

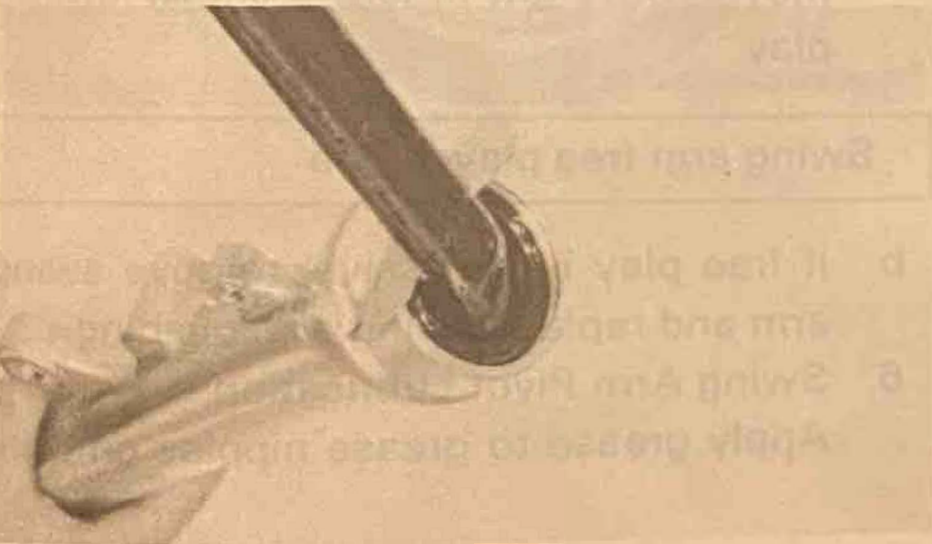
remove the holding bolt using an Allen wrench. (Take care so the gasket is not lost.)



- 3) The oil seal that is pressed into the top of outer tube should be replaced whenever the forks are disassembled.
  - a) Remove the oil seal clip and oil seal washer from the outer tube.



b) Warm up the outer tube, and remove the oil seal using a tire removal iron. (Take care not to damage the outer tube.)



## Inspection

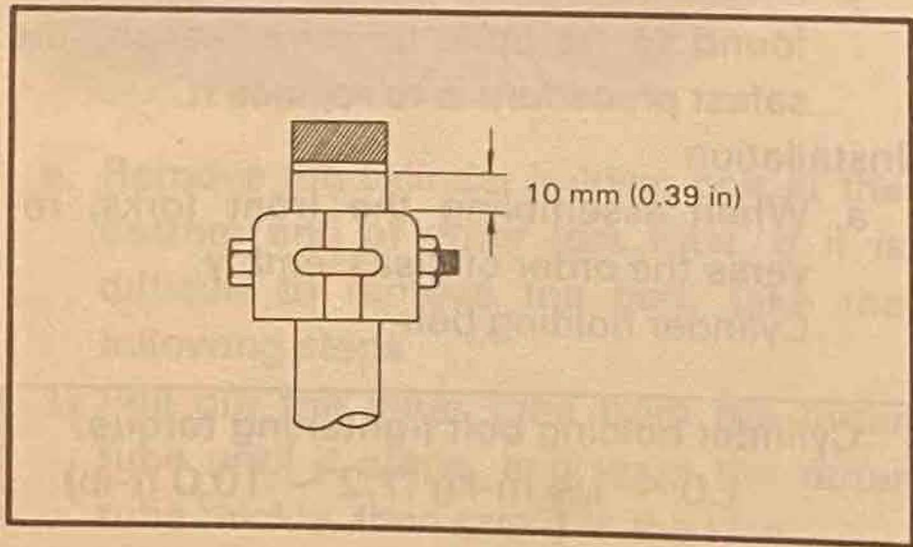
- a. The inner tube must be checked for surface wear, bend, rust and wound the tube gets scratched from dirt working past the seal and continually rubbing against the tube. In addition, the tube can become deeply grooved if it is bent.
- b. Deep grooves, or nicks, can quickly wear out the seal lips and permit oil to blow past the seal. Replace the tube if these deep grooves are evident.
- c. Also check for a bent tube. If the tube is found to be bent for any reason, the safest procedure is to replace it.

## Installation

- a. When assembling the front forks, reverse the order of disassembly.  
Cylinder holding bolt.

Cylinder holding bolt tightening torque:  
1.0 ~ 1.4 m·kg (7.2 ~ 10.0 ft·lb)

- b. Before installing the front forks to the bracket, pour oil into the front forks through top ends of the inner tubes (See page 26).
- c. Reinstall the fork cap bolt and torque to specification.  
Check the packing. If damaged, replace it.
- d. Insert the inner tube in the bracket complete. And tighten the upper and lower pinch bolt as illustrated.



Tightening torque:

1.6 ~ 2.4 m-kg (12 ~ 17.5 ft-lb)

- e. Tighten pinch bolts at fork crown and torque to specification.

Stem pinch bolt torque:

2.0 m-kg (14.5 ft-lb)

### Swing Arm Inspection

- a. With rear wheel and shock absorbers removed, grasp the ends of the arm and move from right to left to check for free play.

Swing arm free play: None

- b. If free play is excessive, remove swing arm and replace swing arm bushing.

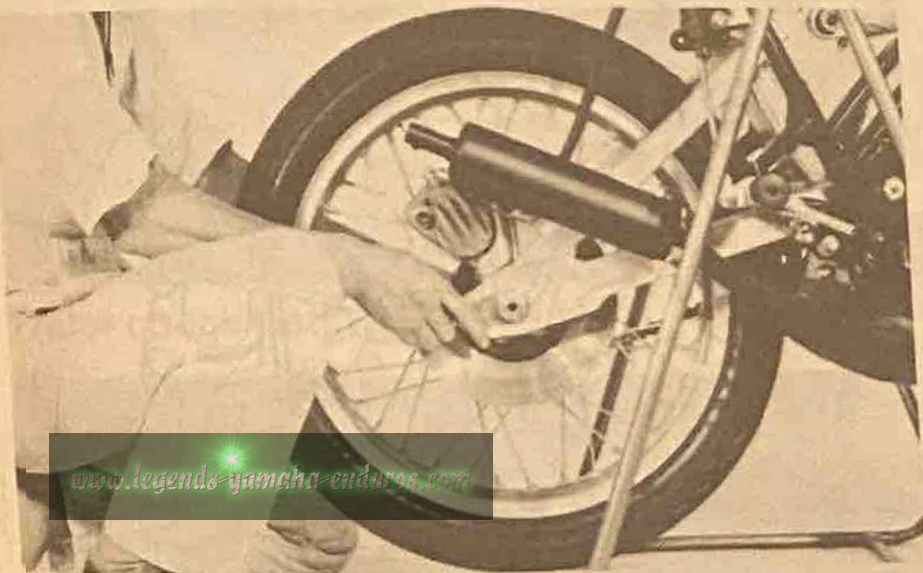
### 6. Swing Arm Pivot Lubrication

Apply grease to grease nipples on right

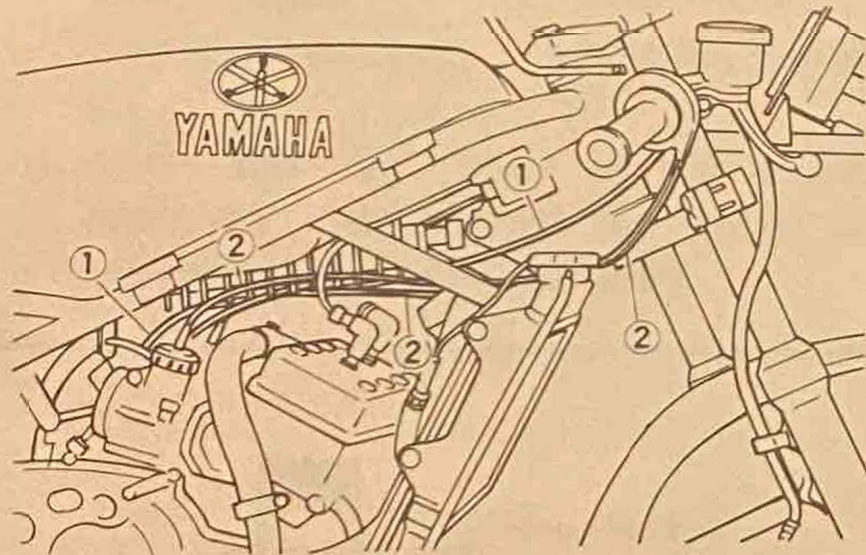
and left sides of pivot shaft with low pressure hand operated gun.

Recommended lubricant:

Standard chassis lube grease

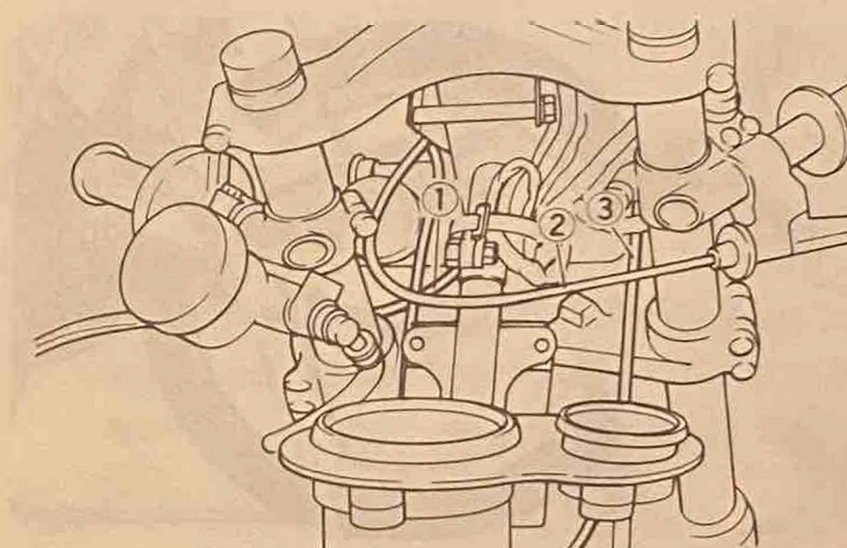


# CABLE ROUTING DIAGRAM



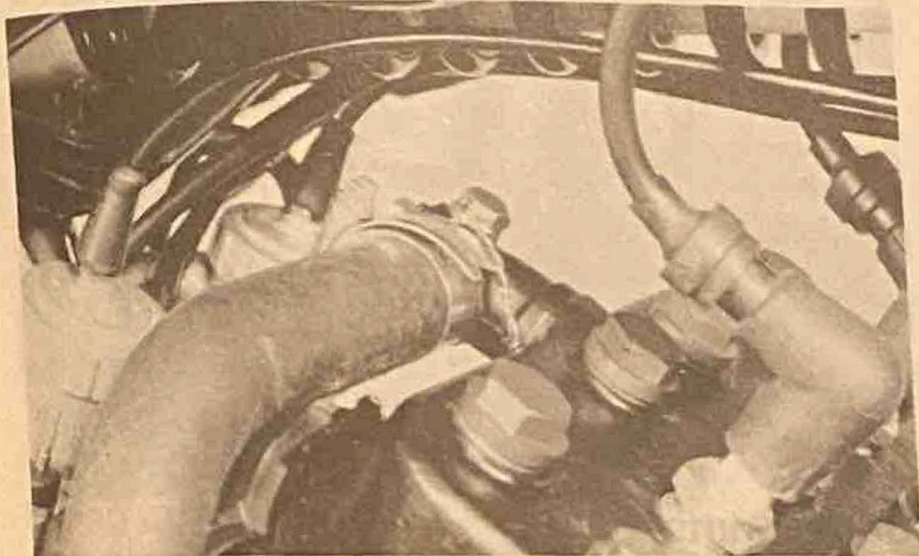
- 1. Clutch cable
- 2. Throttle cable

and left side of front shaft with low  
hand forward and  
lubricated  
lubricant  
lubricant

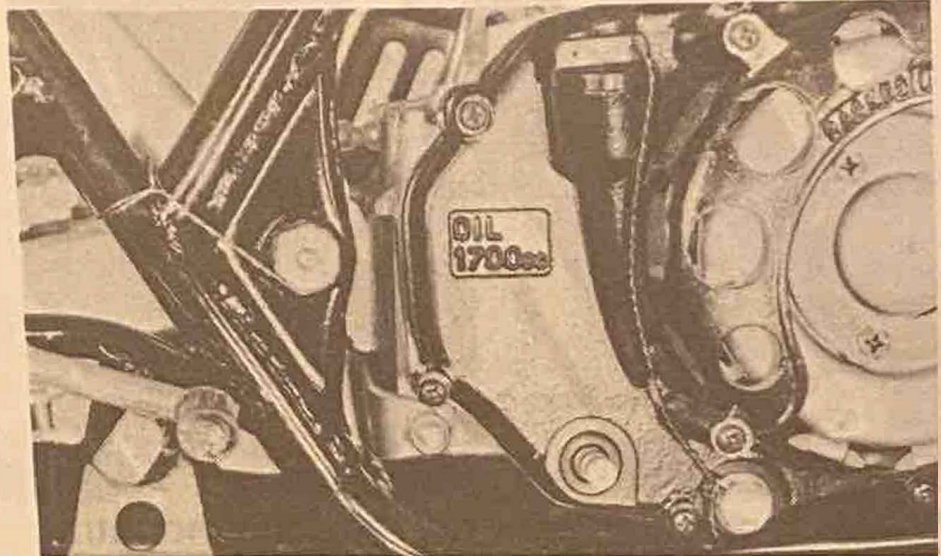


- 1. Throttle cable
- 2. Clutch cable
- 3. Tachometer cable

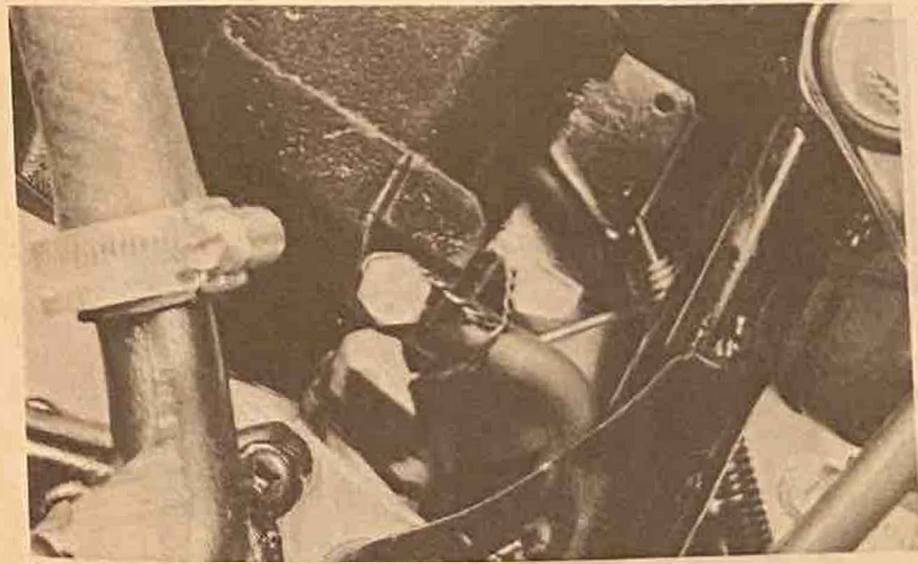
# LOCKING WIRE INSTRUCTION



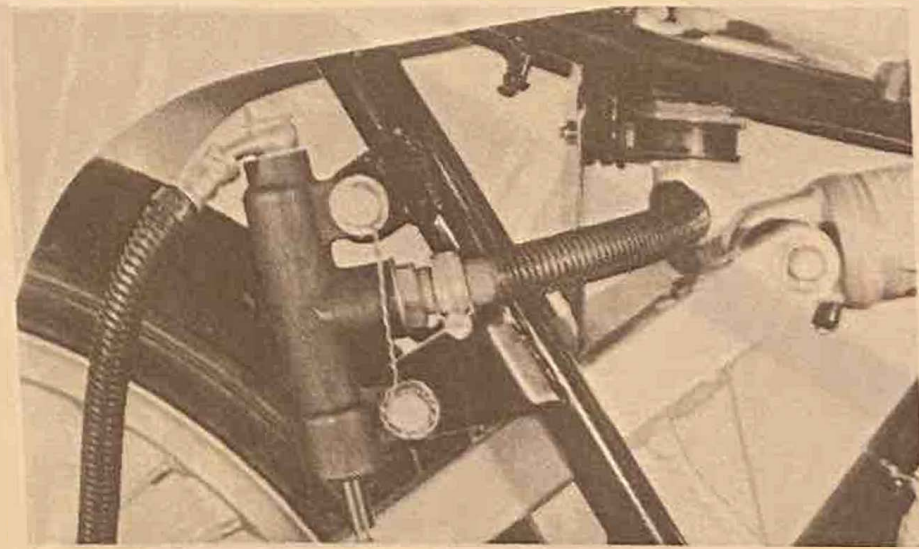
Water check bolt (air bleed bolt)



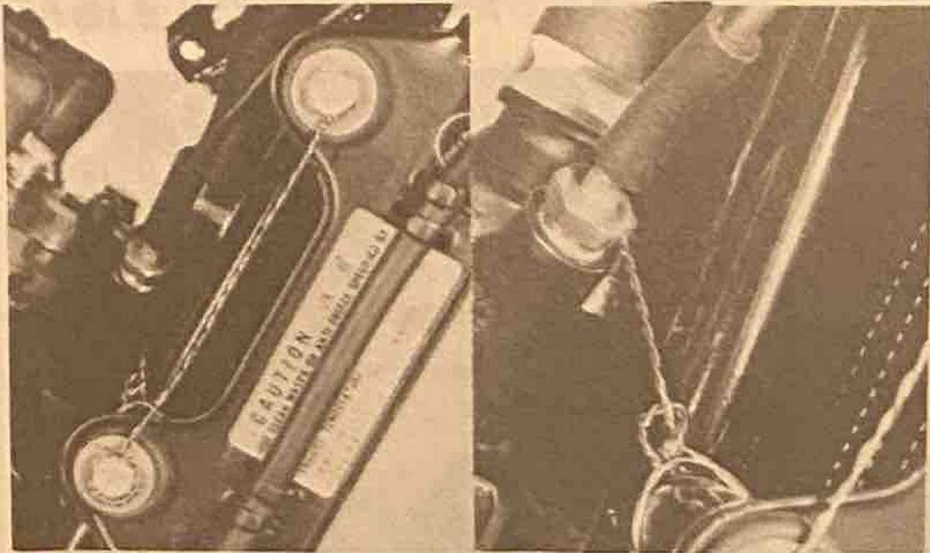
Oil plug & Drain bolt



Water drain bolt



Master cylinder mounting bolts



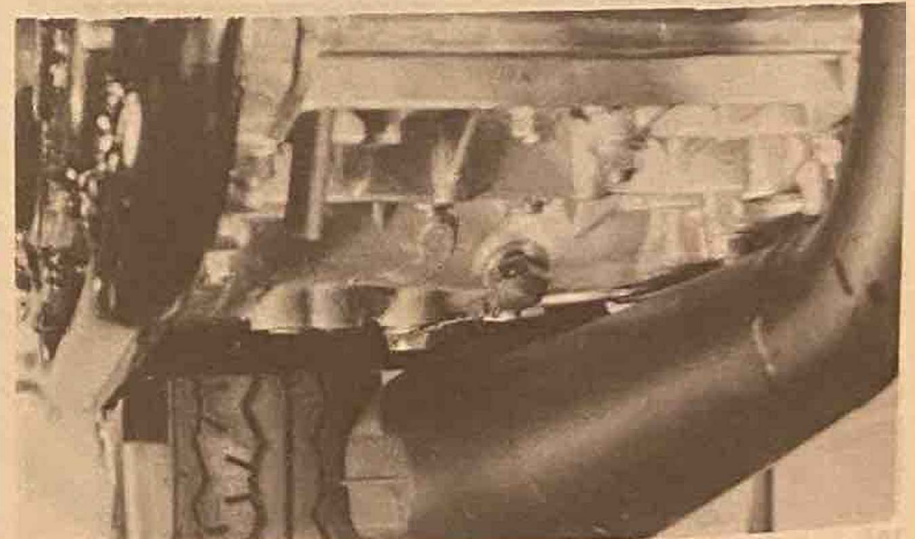
Water temp. sencer and radiator mounting bolts.



Footrest nuts

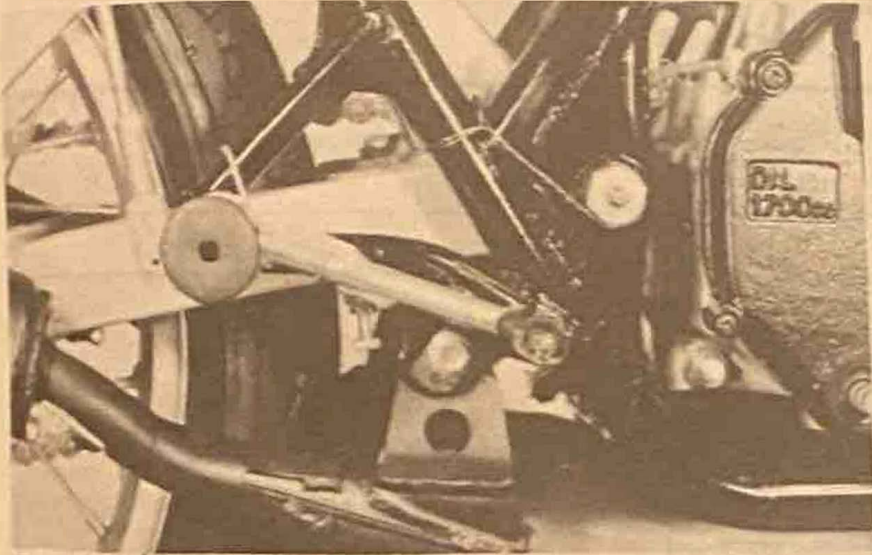


Throttle cable adjusters



Drain plugs





Swing arm pivot shaft

# SPECIFICATIONS

ITEM	MODEL	TZ250G	TZ350G
<b>A. General</b>			
Dimensions:			
Overall length		1,935 mm (76.2 in)	1,935 mm (76.2 in)
Overall width		630 mm (24.8 in)	630 mm (24.8 in)
Overall height		950 mm (37.4 in)	950 mm (37.4 in)
Wheel base		1,320 mm (52.0 in)	1,320 mm (52.0 in)
Minimum ground clearance		170 mm (6.7 in)	165 mm (6.49 in)
Machine net weight		106.5 kg (235 lbs.)	107.5 kg (237 lbs.)
Performance:			
Maximum speed		215 km/h or more	230 km/h or more
Min. turning radius		4,400 mm (173.2 in)	4,400 mm (173.2 in)
<b>B. Engine</b>			
Description:			
Type		Water cooled, 2-stroke twin 5-port, piston valve	Water cooled, 2-stroke 5-port, piston valve
Displacement		249 cc (15.2 cu.in)	347 cc (21.18 cu.in)
Bore x Stroke		54.2 x 54 mm (2.134 x 2.126 in)	64 x 54 mm (2.519 x 2.126 in)
Compression ratio		7.9 : 1	7.5 : 1
Starting system		Push to start	Push to start
Ignition system		CDI magneto ignition	CDI magneto ignition

ITEM	MODEL	TZ250G	TZ350G
Lubrication system		Mixed gasoline 15:1	Mixed gasoline 15:1
Cylinder head: Combustion chamber volume		12.2 cc (N-82G spark plug)	19.6 cc (N-82G spark plug)
Piston & Piston ring: Piston clearance Ring end gap		40 ~ 45 $\mu$ 0.4 ~ 0.5 mm (0.016 ~ 0.02 in)	40 ~ 50 $\mu$ 0.4 ~ 0.5 mm (0.016 ~ 0.02 in)
Crankshaft: Assembly width Big end side clearance Small end axial play Deflection		0.1 ~ 0.3 mm (0.004 ~ 0.012 in) 0.8 ~ 1.0 mm (0.031 ~ 0.039 in) 0.03 mm (0.0012 in)	0.1 ~ 0.3 mm (0.004 ~ 0.012 in) 0.8 ~ 1.0 mm (0.031 ~ 0.039 in) 0.03 mm (0.0012 in)
Clutch: Type Primary reduction ratio, method Friction plate Thickness/Q'ty Wear limit Clutch plate warp limit Clutch spring free length Service limit		Air cooled, multiple disc 77/23 (3.347), Gear 2.9 mm (0.114 in) 2.7 mm (0.106 in) None 36.4 mm (1.433 in) 35.4 mm (1.40 in)	Air cooled multiple disc 74/25 (2.960), Gear 2.9 mm (0.114 in) 2.7 mm (0.106 in) None 36.4 mm (1.433 in) 35.4 mm (1.40 in)

ITEM	MODEL		TZ250G		TZ350G	
Clutch housing axial play			0.05 ~ 0.10 mm (0.002 ~ 0.004 in)		0.05 ~ 0.10 mm (0.002 ~ 0.004 in)	
Push rod bending limit			0.15 mm (0.006 in)		0.15 mm (0.006 in)	
Transmission:						
Type			Constant mesh, 6-speed		Constant mesh, 6-speed	
Gear ratio, 1st			29/25 (1.933)		29/15 (1.933)	
2nd			27/19 (1.421)		27/19 (1.421)	
3rd			27/24 (1.125)		27/24 (1.125)	
4th			25/26 (0.961)		25/26 (0.961)	
5th			20/23 (0.869)		20/23 (0.869)	
6th			22/27 (0.814)		22/27 (0.814)	
Gear oil quantity			1,700±500 cc (1.8 US qts)		1,700 cc (1.8 US qts)	
Gear oil type			Yamalube 2-cycle oil or SAE 10W/30 motor oil "SE"		Yamalube 2-cycle oil or SAE 10W/30 motor oil "SE"	
Carburetor:						
Type/Manufacturer			VM34SS x 2/MIKUNI		VM38SS x 2/MIKUNI	
			Summer	Winter	Summer	Winter
I.D. Mark			4A100	4A110	3G300	3G310
			4A1E0 (Sweden)	4A1F0 (Sweden)	3G3E0 (Sweden)	3G3F0 (Sweden)
Main jet			#230	#270	#280	#360
Air jet			φ2.0	φ2.0	φ2.5	φ2.5
Power jet			#80	#80	#80	#80

ITEM	MODEL		TZ250G		TZ350G	
Jet needle-Clip position	6DH3-3	6DH3-3	6F13-2	6F13-2		
Needle jet	N-8	N-8	Q-0	Q-0		
Cutaway	2.0	2.0	3.0	3.0		
	2.0 (Made of BsBM: Sweden)	2.0 (Made of BsBM: Sweden)	3.0 (Made of BsBM: Sweden)	3.0 (Made of BsBM: Sweden)		
Pilot jet	#60	#60	#70	#70		
Air screw (Turns out)	1.0	1.0	1.0	1.0		
Starter jet	#80	#80	#80	#80		
Float arm height	21.9 ± 1.0 mm (0.86±0.04 in)		21.9±1.0 mm (0.86±0.04 in)			
<b>C. Chassis</b>						
Steering system:						
Caster	64°		64°		64°	
Trail	97 mm (3.82 in)		97 mm (3.82 in)		97 mm (3.82 in)	
Lock to lock angle	40°		40°		40°	
Head pipe bearing type	Taper roller bearing		Taper roller bearing		Taper roller bearing	
Front suspension:						
Type	Telescopic fork		Telescopic fork		Telescopic fork	
Damper construction	Coil spring and oil damper		Coil spring and oil damper		Coil spring and oil damper	
Front fork travel	125 mm (4.92 in)		125 mm (4.92 in)		125 mm (4.92 in)	
Front fork spring - Free length	320 mm (12.6 in)		320 mm (12.6 in)		320 mm (12.6 in)	
- Spring constant	k = 0.92 kg/mm		k = 0.92 kg/mm		k = 0.92 kg/mm	

ITEM	MODEL	TZ250G	TZ350G
Oil quantity/Grade		202±4 cc (6.8±0.14 oz) Yamaha fork oil 10wt, 20wt or SAE 10W/30 motor oil	202±4 cc (6.8±0.14 oz) Yamaha fork oil 10wt, 20wt or SAE 10W/30 motor oil
Rear suspension:			
Type		Yamaha Monocross suspension (De Carbon System)	Yamaha Monocross suspension (De Carbon System)
Damper construction		Coil spring, gas/oil damper	Coil spring, gas/oil damper
Gas properties		Nitrogen gas	Nitrogen gas
Gas pressure		18 kg/cm <sup>2</sup>	18 kg/cm <sup>2</sup>
Absorber stroke		65 mm (2.56 in)	65 mm (2.56 in)
Rear wheel travel		130 mm (5.12 in)	130 mm (5.12 in)
Compression spring - Free length		251 mm (9.88 in)	251 mm (9.88 in)
- Set length		228 mm (8.98 in)	228 mm (8.98 in)
- Spring constant		k = 4.530 kg/mm	k = 4.530 kg/mm
Swing arm free play		0 ~ 1 mm (0 ~ 0.004 in)	0 ~ 1 mm (0 ~ 0.04 in)
Fuel tank:			
Capacity		23.5 lit (6.2 U.S.gal)	23.5 lit (6.2 U.S.gal)
Fuel grade		Mixed gasoline 15:1 (30:1 BEL RAY MC-1) (Premium gasoline: Yamalube "R")	

ITEM	MODEL	TZ250G	TZ250F	TZ350G
	Wheel:			
Tire size (F)		3.00-18-4PR		3.00-18-4PR
(R)		3.50-18-4PR		3.50-18-4PR
Tire pressure (F)		18 bar (1.8 kg/cm <sup>2</sup> )		18 bar (1.8 kg/cm <sup>2</sup> )
(R)		20 bar (2.0 kg/cm <sup>2</sup> )		20 bar (2.0 kg/cm <sup>2</sup> )
Rim runout limit (F)		2.0 mm (0.78 in)		2.0 mm (0.078 in)
(R)		2.0 mm (0.078 in)		2.0 mm (0.078 in)
Secondary drive:				
Type		Chain/DK520TR		Chain/DK520TR
Number of links		95 links + Joint		95 links + Joint
Chain free play		30~35 mm(1.18~1.38in)		30~35 mm (1.18~1.38 in)
Brake: Type		Hydraulic disc brake		Hydraulic disc brake
Disc diameter/thickness		Front: 298mm/5mm (11.7in/0.19in)		Front: 298mm/5mm (11.7in/0.19in)
Pad thickness/Wear limit		Rear: 229mm/5mm (9.0in/0.19in) 8.5mm (0.33in)/4.5mm (0.18in)		Rear: 229mm/5mm (9.0in/0.19in) 8.5mm (0.33in)/4.5mm (0.18in)
Brake fluid type		DOT #3		DOT #3
<b>D. Electrical</b>				
Ignition system:				
Type		CDI magneto (Inner rotor)		
Model/Manufacturer		M200-08/HITACHI		M200-08/HITACHI
Pulser coil resistance		50Ω±15% (20°C, 68°F)		50Ω±15% (20°C, 68°F)
Charge coil resistance (No.1)		1.140Ω±15% (20°C, 68°F)		1.140Ω±15% (20°C, 68°F)
(No.2)		90Ω±15% (20°C, 68°F)		90Ω±15% (20°C, 68°F)

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ITEM	MODEL	TZ250G	TZ350G
Ignition timing:		1.6±0.15 mm (0.063±0.006 in)	1.6±0.15 mm (0.063±0.006 in)
Ignition coil: Model/Manufacturer Winding resistance, - Primary coil - Secondary		CM61-20CA/HITACHI 0.60±10% (20°C, 00°F) 6.2K±20% (20°C, 00°F)	CM61-20CA/HITACHI 0.60±10% (20°C, 00°F) 6.2K±20% (20°C, 00°F)
Spark plug: Type/Manufacturer Spark plug gap		N-82G/CHAMPION 0.7 mm (0.027 in)	N-82G/CHAMPION 0.7 mm (0.027 in)
CDI unit: Type/Manufacturer		TIA02-01/HITACHI	TIA02-01/HITACHI

### E. Tightening torque



Engine:		
Cylinder	M8	2.0 m-kG (14.5 ft-lb)
Cylinder head	M6	1.0 m-kG (7.2 ft-lb)
Spark plug	M14	2.5 m-kG (18 ft-lb)
Primary drive gear	M16	8 m-kG (58 ft-lb)
Clutch boss	M18	9.5 m-kG (68 ft-lb)
Clutch spring	M6	1.0 m-kG (7.5 ft-lb)
Drive sprocket	M18	9.5 m-kG (68 ft-lb)



Water drain screw	M10	2 m-kg (14.5 ft-lb)
Water check plug	M6	1.0 m-kg (7.5 ft-lb)
Oil drain bolt	M14	4.3 m-kg (31 ft-lb)
<b>Chassis:</b>		
Front wheel axle nut	M14	12 m-kg (87 ft-lb)
Front wheel axle pinch bolt	M8	1.5 m-kg (11 ft-lb)
Brake disc bracket	M8	1.9 m-kg (14 ft-lb)
Brake disc	M6	1.0 m-kg (7.5 ft-lb)
Handle crown pinch bolt	M8	1.9 m-kg (14 ft-lb)
Handle crown fitting bolt	M14	8.5 m-kg (62 ft-lb)
Brake hose fitting bolt	M10	2.6 m-kg (19 ft-lb)
Caliper fitting bolt	M12	8.5 m-kg (62 ft-lb)
Caliper fitting bolt	M10	4.5 m-kg (33 ft-lb)
Handle fitting bolt	M8	1.8 m-kg (13 ft-lb)
Engine mounting, front	M8	2.5 m-kg (18 ft-lb)
rear	M10	4.5 m-kg (33 ft-lb)
Engine stay	M8	1.8 m-kg (13 ft-lb)
Rear arm pivot shaft	M16	7.5 m-kg (55 ft-lb)
Rear wheel axle nut	M18	12 m-kg (52 ft-lb)
Driven sprocket	M8	2.5 m-kg (18 ft-lb)
Rear brake disc	M8	2.2 m-kg (16 ft-lb)
Rear shock absorber, front	M12	6 m-kg (44 ft-lb)
Caliper fitting bolt	M10	4.5 m-kg (33 ft-lb)
Shimmy damper fitting bolt	M8	1.5 m-kg (11 ft-lb)
Front cawling stay	M8	1.5 m-kg (11 ft-lb)

# CLEANING AND STORAGE

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## Cleaning

Frequent thorough cleaning of your motorcycle will not only enhance its appearance, but will improve general performance and extend the useful life of many components.

1. Before cleaning the machine:  
Block off end of exhaust pipe to prevent water entry; a plastic bag and strong rubber band may be used.
2. If engine case is excessively greasy, apply degreaser with a paint brush. Do not apply degreaser to chain, sprockets, or wheel axles.
3. Rinse dirt and degreaser off with garden hose, using only enough hose pressure to do the job. Excessive hose pressure may cause water seepage and contamination of wheel bearings, front forks, brake drums, and transmission seals. Many expensive repair bills will result from improper high-pressure detergent applications such as those available in coin-operated car washes.
4. Once the majority of dirt has been hosed off, wash all surfaces with warm water and mild detergent-type soap. An old toothbrush or bottle brush is handy to reach those hard-to-get-to places.
5. Rinse machine off immediately with clean water and dry all surfaces with a chamois skin, clean towel, or soft absorbent cloth.
6. Immediately after washing, remove excess moisture from chain and lubricate to prevent rust.
7. Clean the seat with a vinyl upholstery cleaner to keep the cover pliable and glossy.
8. Automotive-type wax may be applied to all painted and chrome-plated surfaces. Avoid combination cleaner-waxes.

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