YAMAHA

# TT600K

# Service Manual



LIT-11616-03-55

34K-28197-10

# TT600K
# SERVICE MANUAL

1st Edition - March 1983
2nd Printing - January 1984 JEM D-171



LIT-11616-03-55

# NOTICE

This manual was written by the Yamaha Motor Company primarily for use by Yamaha dealers and their qualified mechanics. It is not possible to put an entire mechanic's education into one manual, so it is assumed that persons using this book to perform maintenance and repairs on Yamaha motorcycles have a basic understanding of the mechanical concepts and procedures inherent to motorcycle repair technology. Without such knowledge, attempted repairs or service to this model may render it unfit to use and/or unsafe.

This model has been designed and manufactured to perform within certain specifications in regard to performance. Proper service with the correct tools is necessary to ensure that the motorcycle will operate as designed. If there is any question about a service procedure, it is imperative that you contact a Yamaha dealer for any service information changes that apply to this model. This policy is intended to provide the customer with the most satisfaction from his motorcycle.

Yamaha Motor Company, Ltd. is continually striving to improve all models manufactured by Yamaha. Modifications and significant changes in specifications or procedures will be forwarded to all Authorized Yamaha dealers and will, where applicable, appear in future editions of this manual.

Particularly important information is distiguished 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 motorcycle.

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

**OVERSEAS SERVICE**
**OVERSEAS OPERATIONS**
**YAMAHA MOTOR CO., LTD.**

## EXTERNAL VIEW


**NOTE:**

Designs and specifications are subject to change without notice.

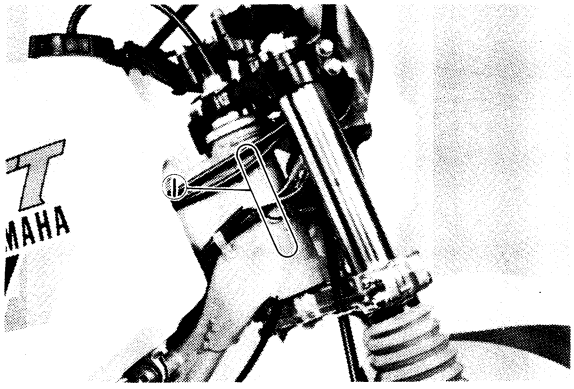
# INDEX

# CHAPTER 1 GENERAL INFORMATION

# CHAPTER 1
# GENERAL INFORMATION

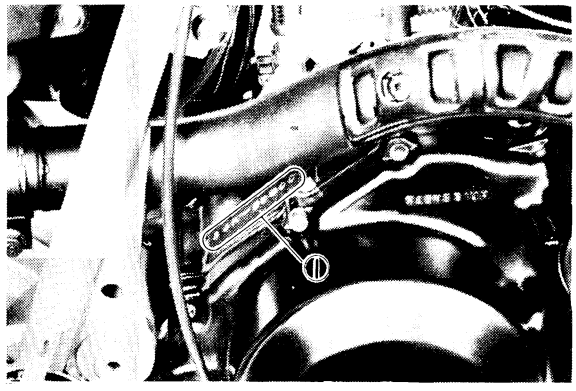
## MOTORCYCLE IDENTIFICATION

### A. Frame Serial Number
The frame serial number is stamped into the right side of the steering head pipe.



1. Frame Serial Number

### B. Engine Serial Number
The engine serial number is stamped into the elevated part of the right section of the engine.



1. Engine Serial Number

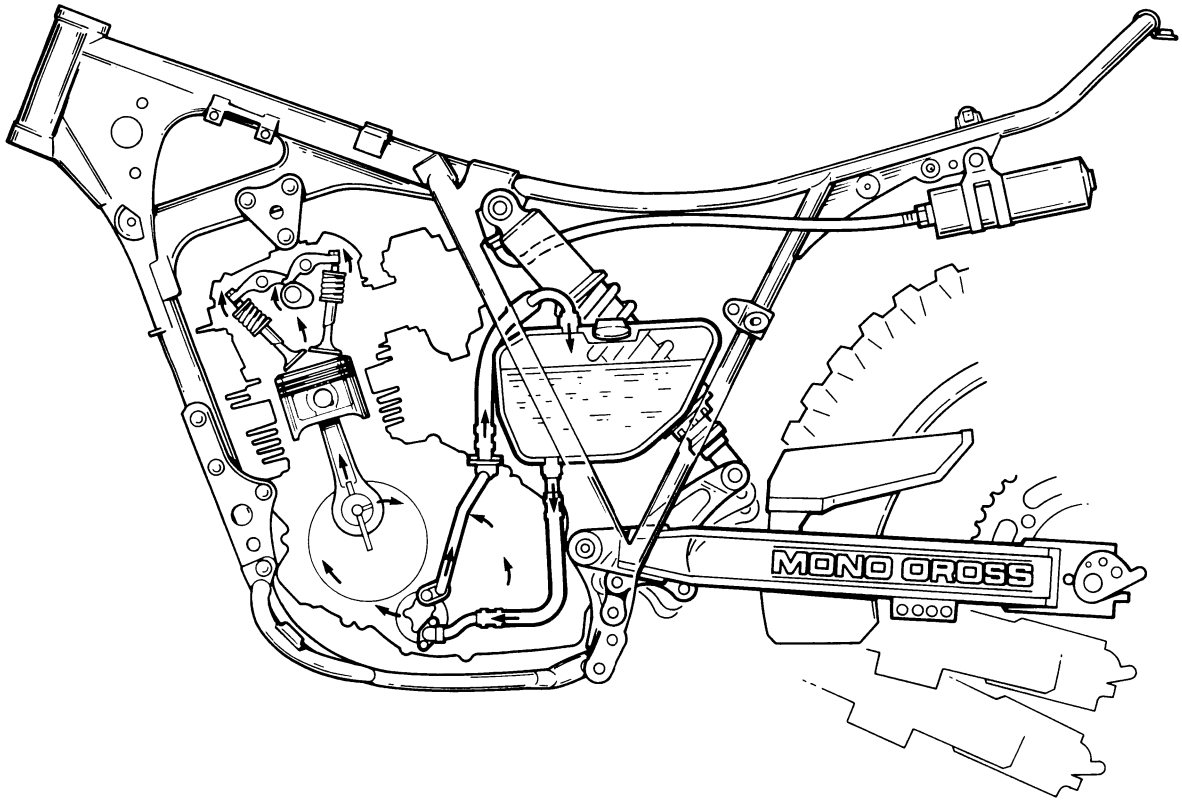
**NOTE:**

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

| Starting Serial Number: |
|---|
| TT600K . . . . . 34K-000101 |

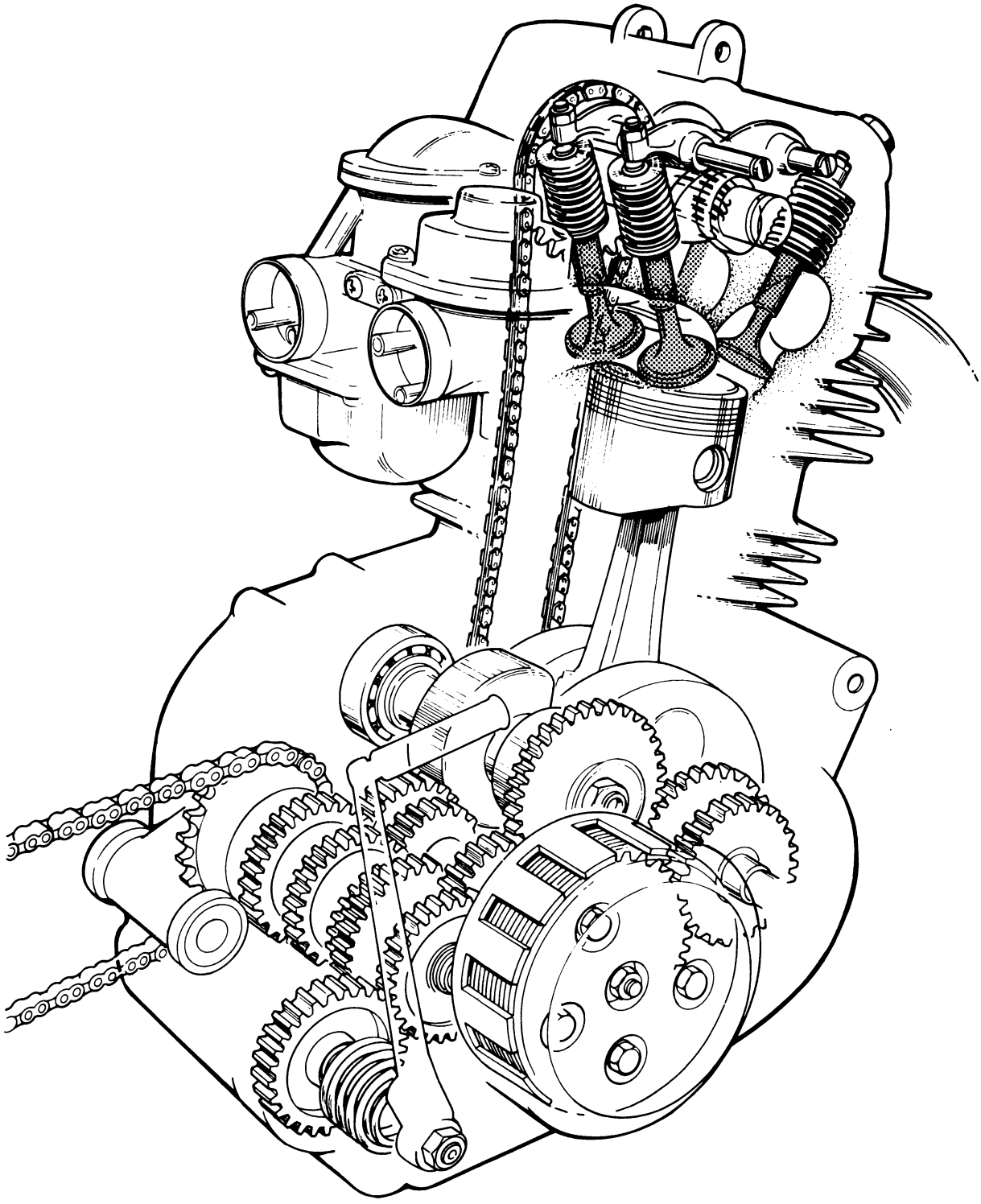
# MAJOR FEATURES

## A. Dry Sump System and Monocross Suspension




The TT600, which inherits the traditional XT500 dry sump system, features monoshock suspension, light weight, and a new diamond-shaped frame. The oil tank is newly attached behind the left side cover instead of the integrated frame.

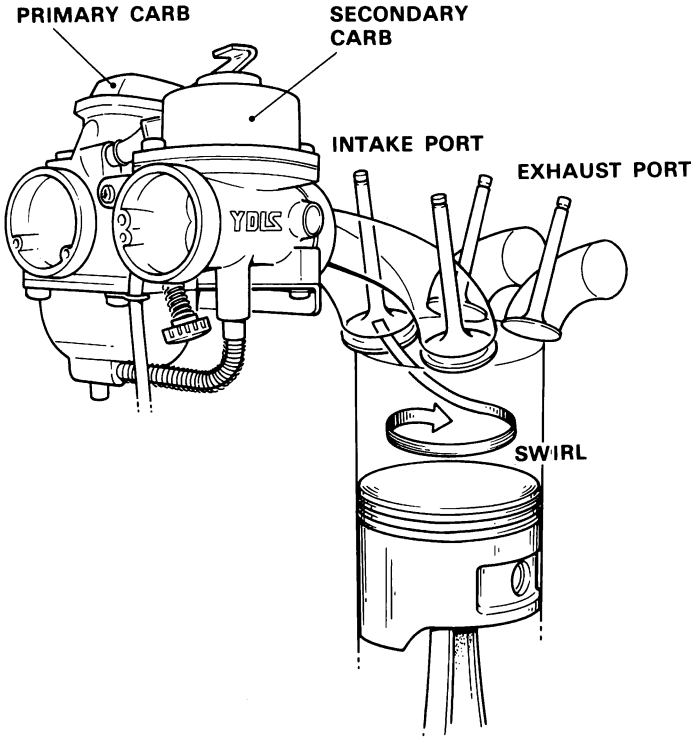
## B. Four-Valve Engine

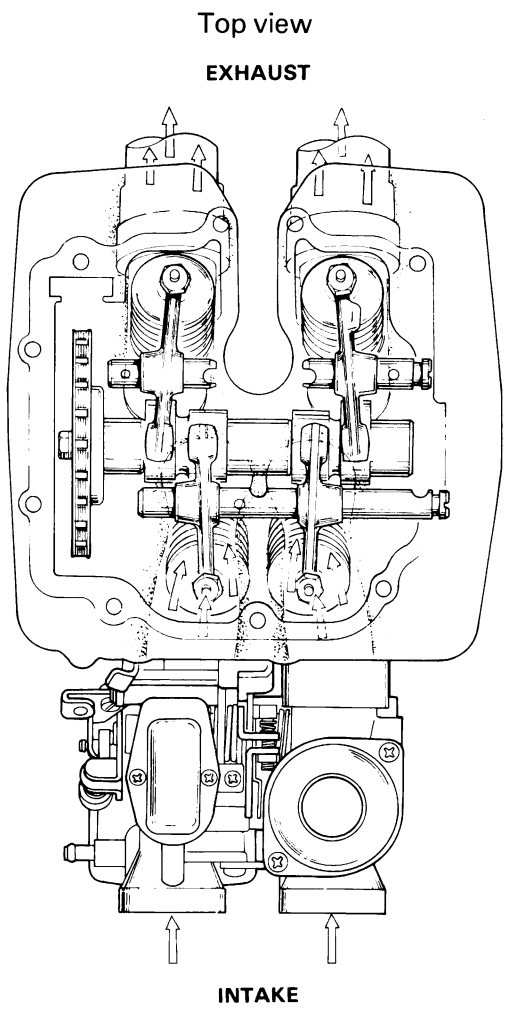


595 $cm^3$ compact engine equipped with: S.O.H.C., 4-Valve head, Dual intake and dual exhaust ports, gear-driven balancer, Yamaha Duo Intake System (YDIS), and 5-speed transmission.

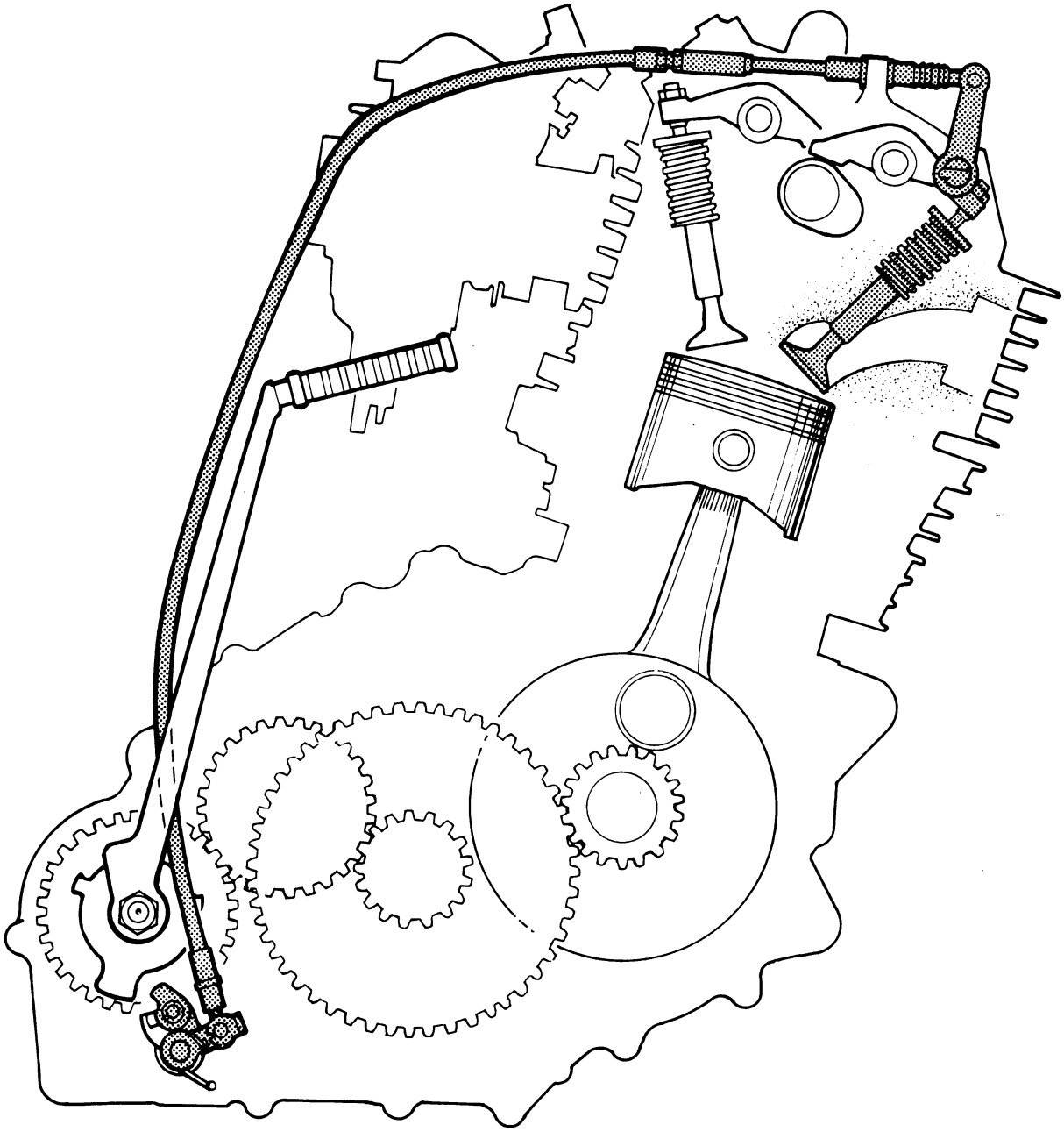
## C. Yamaha Duo Intake System (YDIS)

For this system, the primary carburetor and the secondary carburetor are equipped as a unit: A cable-operated-slide type functions as the primary carb, and a vaccum-controlled-slide type provides a secondary bore. The engine has a 4-valve head, and each carb has its own intake port and valve. Although each carb bore and intake port is smaller than that of a more conventional engine, their conbined area is about 20% greater than a single, larger carb and intake layout. Flow efficiency of both the intake and exhaust sides is substantially improved. From idle to about half throttle, the primary carb supplies the air-fuel mixture, and almost the entire intake charge enters through just one valve; since the 4-valve layout offsets the intake ports relative to the cylinder-bore axis, a strong YICS-type swirl is produced in the low-to-medium rpm range. Combustion efficiency is significantly enhanced, resulting in improved fuel economy. In addition, the single small bore provides excellent low- and medium-speed throttle response due to the high air velocity in the venturi. This eliminates the need for a mechanical accelerator pump, allowing minimal carb height and ample room for the Monocross rear suspension. As the throttle is turned from half to wide open, a linkage between the carburetors gradually opens the secondary-carb butterfly. The vaccum-controlled slide in the secondary carb opens as engine demand builds, providing superb mid-range smoothness. With both slides fully open, the engine receives more mixture and produces more power than a regular single-carb machine.



## D. Kick Synchronous Automatic Decompression



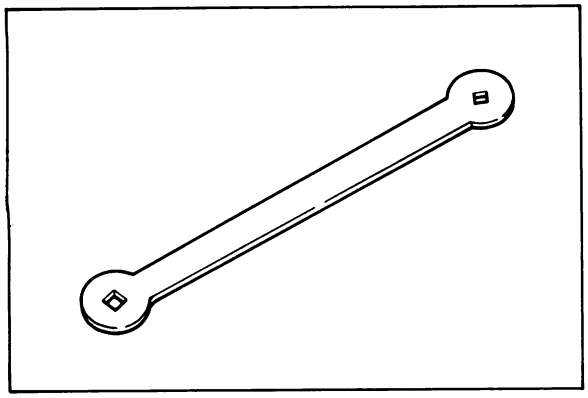
The kick-starting mechanism is interlinked with one of the exhaust valves, thus automatically decompressing the combustion chamber for ease in kick-starting. Combined with electronic advance ignition, kick-starting is free from possible kickback. Correct adjustment is required of this kick-synchronous automatic decompression system for effective performance.

## SPECIAL TOOLS

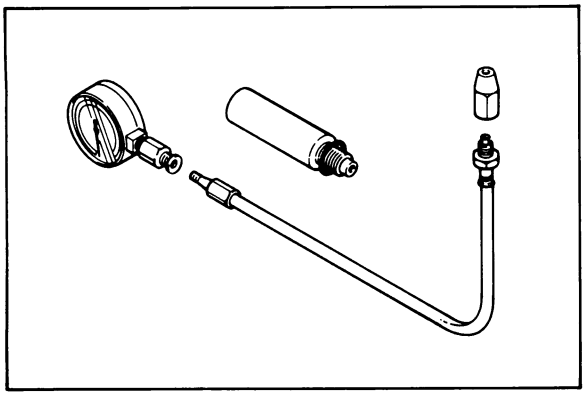
The proper special tools are necessary for complete and accurate tune-up and assembly. Using the correct special tool will help prevent damage caused by the use of improper tools or improvised techniques.

### A. For Tune-up

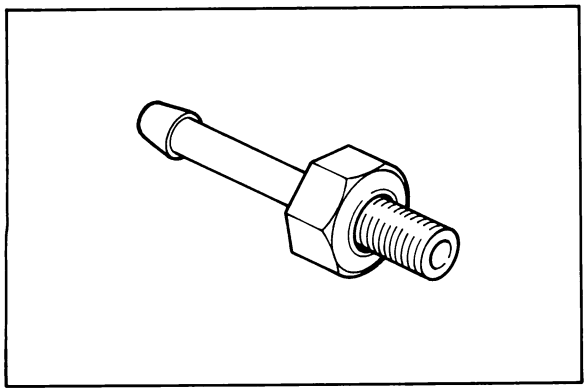
1. Valve adjusting tool
   P/N. YM-08035



2. Compression gauge set
   Adapter (M12) P/N. YU-33223
   P/N. YU-33223-3

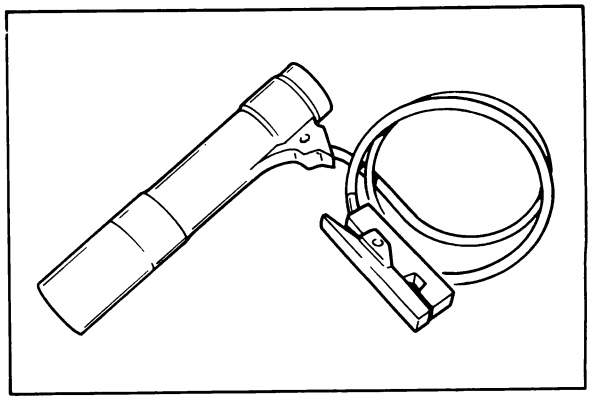


3. Oil pressure gauge adapter
   P/N. YU-08030-1

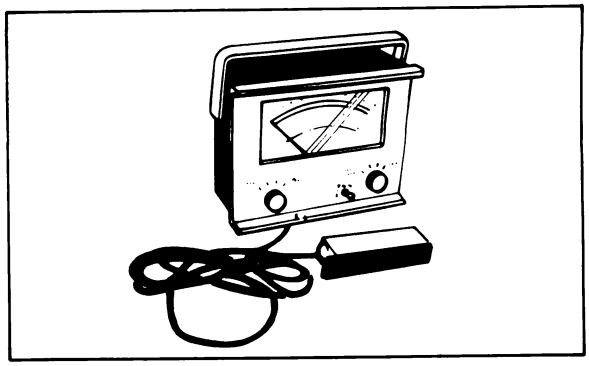


This adapter is attached at the top of the oil filter cover after removing the air bleed screw.

4. Inductive timing light
   P/N. YU-33277

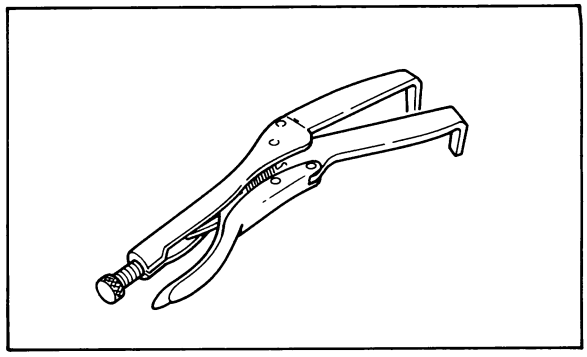


5. Inductive tachometer
   P/N. YU-08036



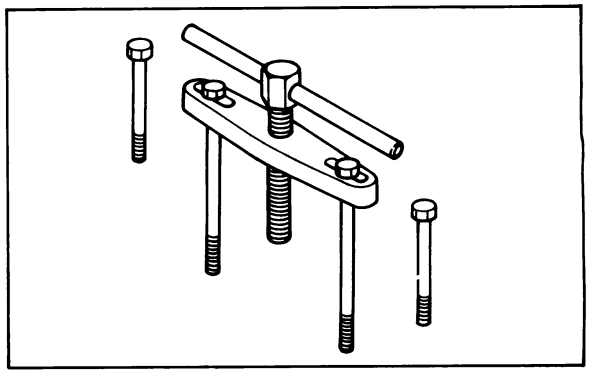
### B. For Engine Service

1. Universal clutch holder
   P/N. YM-91042

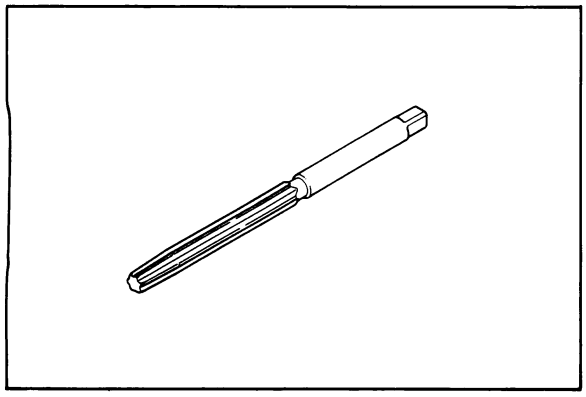


This tool is used to hold the clutch when removing or installing the clutch boss locknut.

2. Crankcase separation tool
   P/N. YU-01135

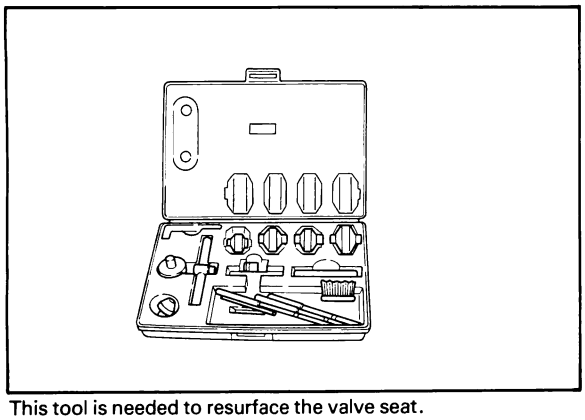


3. Valve guide reamer
P/N. YM-01227



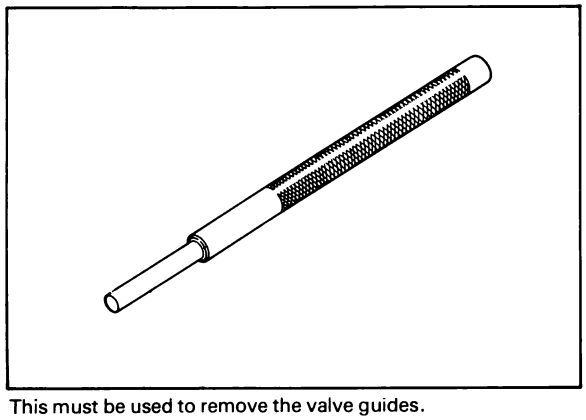
This must be used when replacing the valve guide.

4. Valve seat cutter
P/N. YM-91043



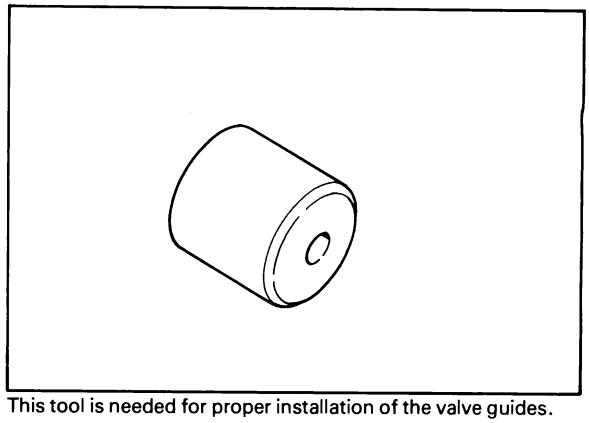
This tool is needed to resurface the valve seat.

5. Valve guide remover
P/N. YM-01225



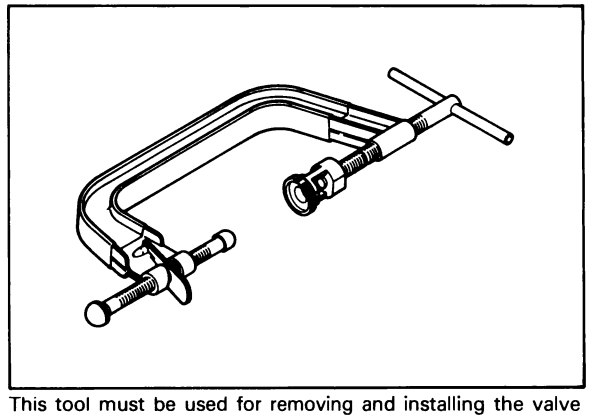
This must be used to remove the valve guides.

6. Valve guide installer
P/N. YM-04017



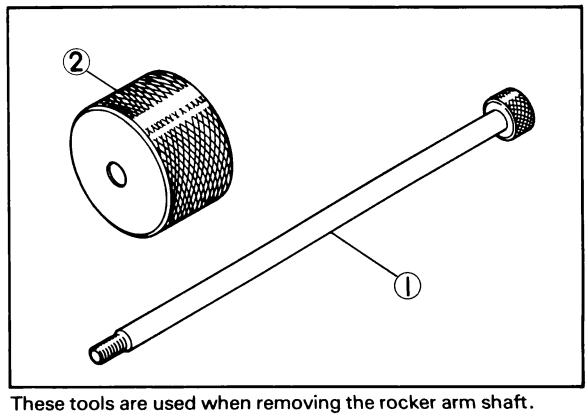
This tool is needed for proper installation of the valve guides.

7. Valve spring compressor
P/N. YM-04019



This tool must be used for removing and installing the valve assemblies.

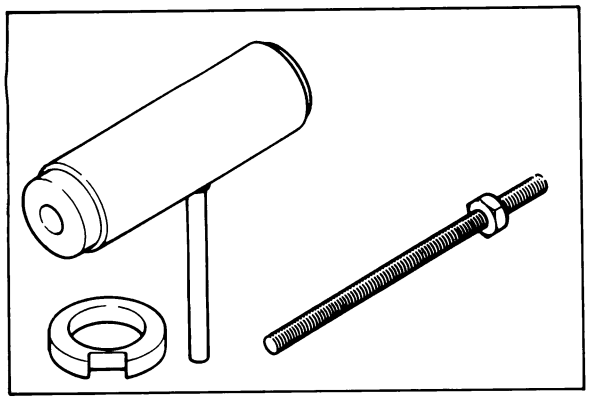
8. Slide hammer set
P/N. YU-01083




These tools are used when removing the rocker arm shaft.

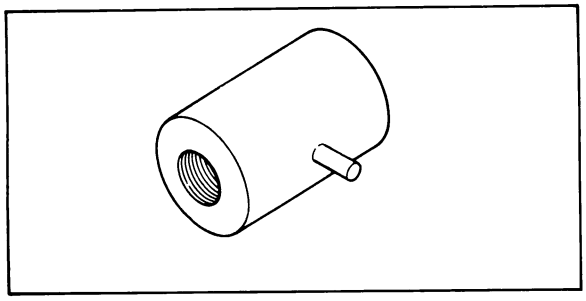
1. Bolt P/N. YU-01083-1
2. Weight P/N. YU-01083-3

9. Crankshaft installing set
P/N. YU-90050



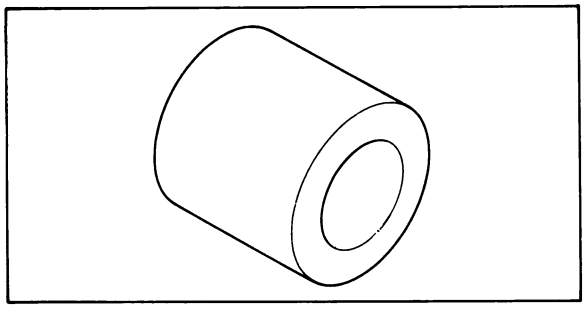
This tool is used when installing the crankshaft.

10. Adapter #10 crankshaft installing bolt (M14)
P/N. YM-90069



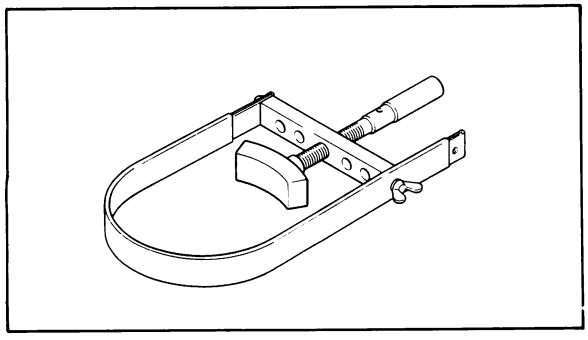
14 mm × 1.5 adapter for installing the crankshaft.

11. Crank pot spacer
P/N. YM-90070A



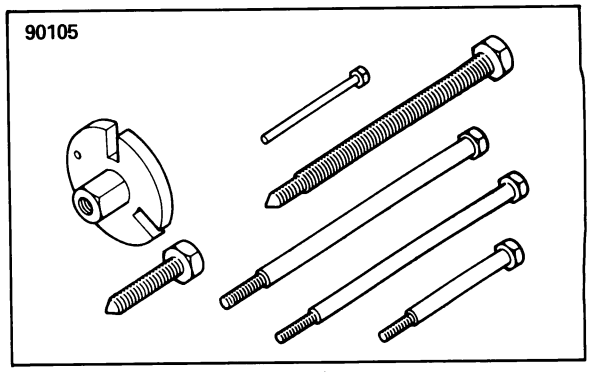
This tool is used when installing the crankshaft.

12. Primary sheave holder
P/N. YU-01701

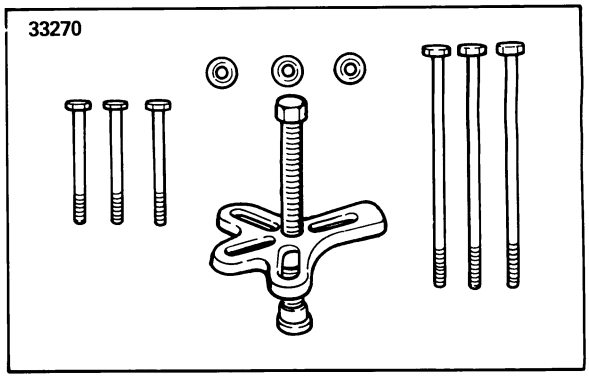


This tool is used for loosening and tightening the CDI rotor securing nut.

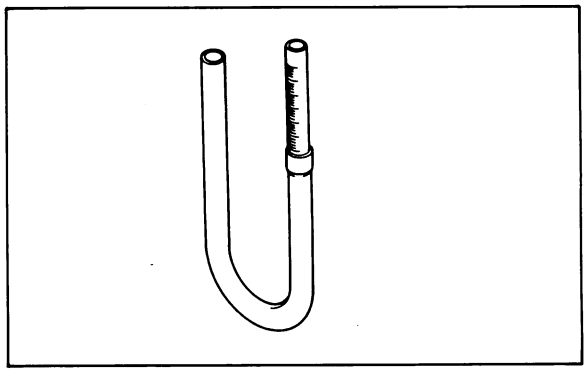
13. Flywheel puller or (Universal puller)
P/N. YU-90105 or YU-33270




This tool is used for removing the CDI rotor.

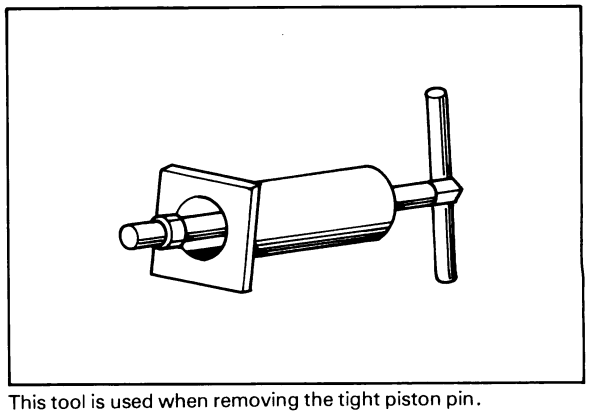



14. Fuel level gauge
P/N. YM-01312



This tool is needed for checking the carburetor fuel level.

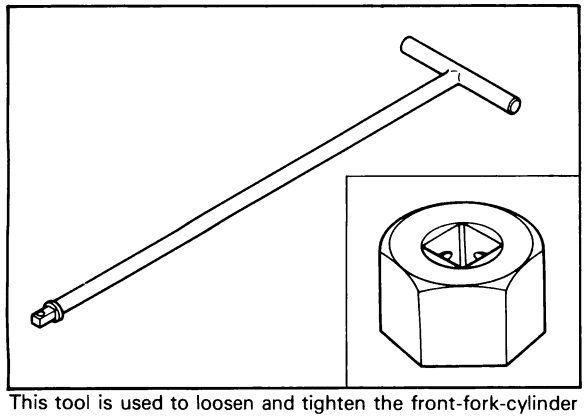
15. Piston pin puller
P/N. YU-01304



This tool is used when removing the tight piston pin.

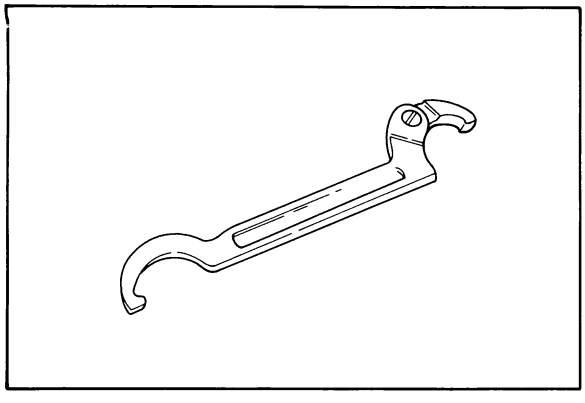
## C. For Chassis Service

1. Front-fork-cylinder holder
   P/N. YM-33962
   T-handle
   P/N. YM-01326



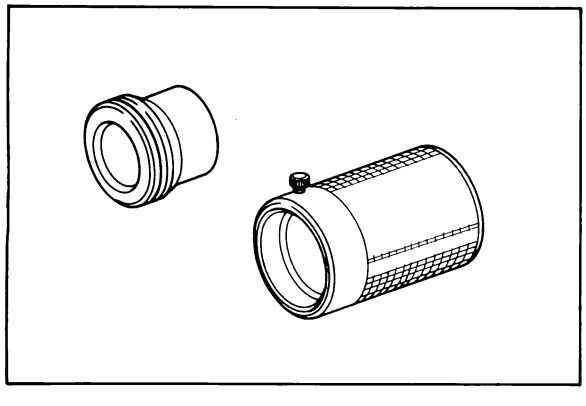
This tool is used to loosen and tighten the front-fork-cylinder bolt.

2. Steering nut wrench
   P/N. YU-01268



3. Drive chain cutter
   Sold on market.

4. Fork seal driver set
   P/N. YM-08020

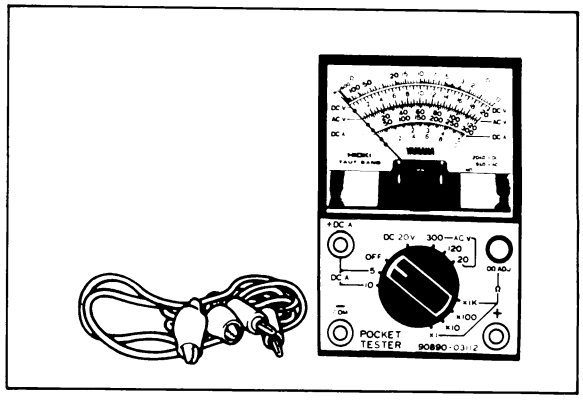


5. Grease gun
   Sold on market.

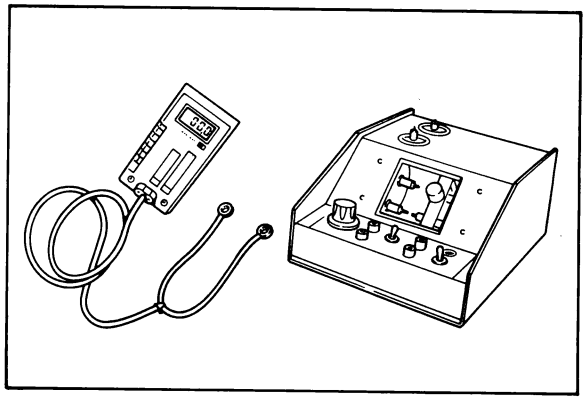
## D. For Electrical Components

The uses of these tools are described in Chapter 6.

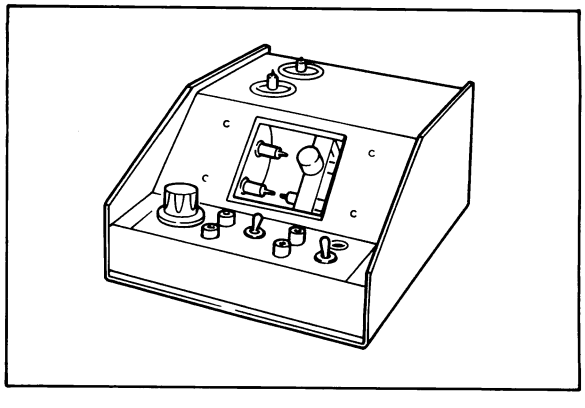
1. Pocket tester
   P/N. YU-03112




2. Electro tester
   P/N. YU-33260



3. Coil tester
   P/N. YU-33261



# CHAPTER 2
# PERIODIC INSPECTIONS AND ADJUSTMENTS

# CHAPTER 2
# PERIODIC INSPECTIONS AND ADJUSTMENTS

## INTRODUCTION

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

## MAINTENANCE ITERVALS CHARTS

Proper periodic maintenance is important. This controls not only function to ensure cleaner air but is also vital to proper engine operation and maximum performance.

### PERIODIC MAINTENANCE/LUBRICATION

Unit: km (miles)

| Item | Remarks | Break-in 1,000 (600) | Every | |
|---|---|---|---|---|
| | | | 6,000 (4,000) or 6 Month | 12,000 (8,000) or 12 Month |
| Valve clearance | Check/Adjust valve clearance. | ○ | ○ | ○ |
| Spark plug | Check/Clean/Replace if necessary. | ○ | ○ | ○ |
| Air filter | Clean. Replace if necessary. | | ○ | ○ |
| Carburetor | Check/Adjust/idle speed, starter operation. | ○ | ○ | ○ |
| Fuel line | Check fuel hose for cracks or damage. | | ○ | ○ |
| Engine oil | Replace (Warm engine before draining). | ○ | ○ | ○ |
| Engine oil filter | Replace. | ○ | ○ | ○ |
| Brake | Check operation/Adjust if necessary. | | ○ | ○ |
| Clutch | Check operation/Adjust if necessary. | | ○ | ○ |
| Decompression system | Check/Adjust if necessary. | | ○ | ○ |
| Rear arm pivot | Check rear arm assembly for looseness. Moderately repack.*** | Check | ○ | ○ |
| Relay arm | Check relay arm assembly for looseness/clean and lube.*** | Check | ○ | ○ |
| Wheels | Check balance/damage/runout/spoke tightness. | | ○ | ○ |
| Wheel bearings | Check bearings assembly for looseness/damage. Replace if damaged. | | ○ | ○ |
| Steering bearing | Check bearings assembly for looseness. Moderately repack every 24,000 (16,000) or 24 months.** | Check | | Check |
| Front forks | Check operation/oil leakage. | | ○ | ○ |
| Rear shock absorber | Check operation/oil leakage. | | ○ | ○ |
| Drive chain | Check and adjust tension/alignment/clean/lube. | Every 500 (300) | | |
| Fittings/Fasteners | Check all chassis fitting and fasteners. | ○ | ○ | ○ |
| Oil tank strainer | Clean/Replace if necessary. | Every 24 months | | |

**: Medium weight wheel bearing grease.
***: Lithium base grease.

# ENGINE

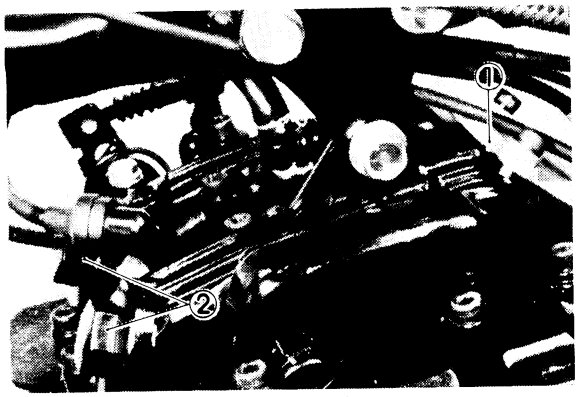
## A. Valve Clearance

Adjust the valve clearance as follows:

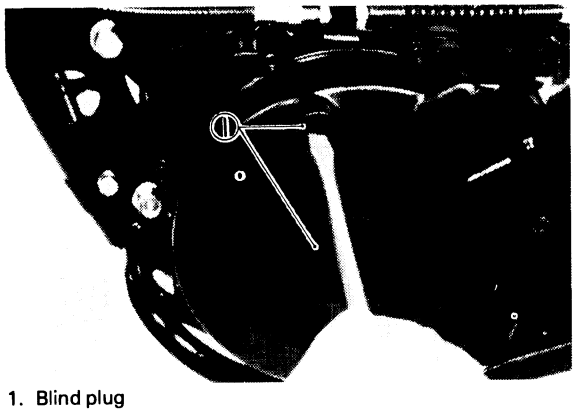
**NOTE:**

Valve clearance must be measured when the engine is cool to the touch.

1. Remove the side covers, seat and fuel tank.
2. Remove intake and exhaust tappet covers and two blind plugs on the left crankcase cover.



1. Intake tappet cover 2. Exhaust tappet covers

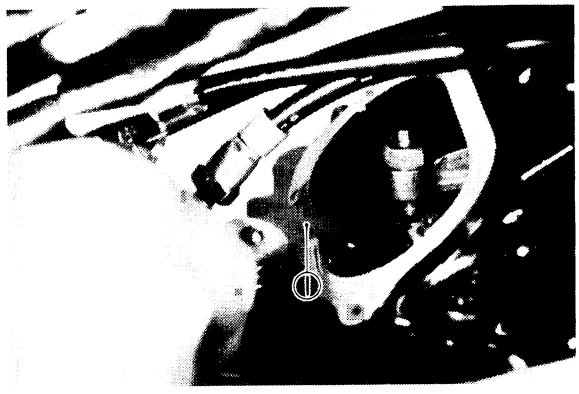


1. Blind plug

3. Align the "T" mark on the flywheel with the timing mark on the crankcase cover. This places the piston at the Top Dead Center and the valve clearance should be checked and adjusted at T.D.C. on the compression stroke by observing when the valve adjusters have clearance.

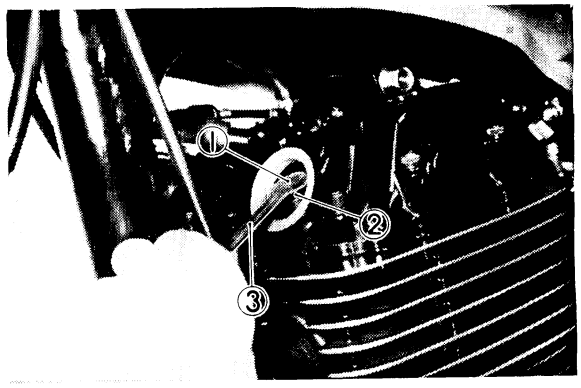
4. Use a feeler gauge to determine the clearance.

| |
|---|
| Intake valve (cold): |
| 0.05 ~ 0.10 mm (0.002 ~ 0.004 in) |
| Exhaust valve (cold): |
| 0.12 ~ 0.17 mm (0.005 ~ 0.007 in) |



1. Feeler gauge

5. Loosen the valve adjuster locknut. Turn the adjuster in or out to obtain the correct clearance. Hold the adjuster to prevent it from moving and thoroughly tighten the locknut.
   Recheck the clearance after tightening.



1. Adjuster 2. Locknut 3. Valve adjusting tool

6. Reinstall the intake and exhaust tappet covers and two blind plugs on the left crankcase cover.

### B. Spark Plug

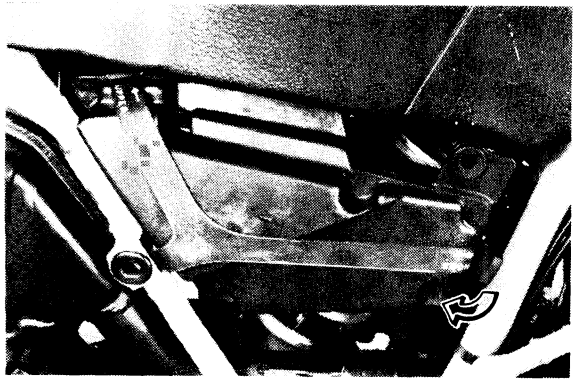
1. Check electrode condition and wear, insulator color and electrode gap.
2. Clean the spark plug with a spark plug cleaner if necessary.
   Use a wire gauge to adjust the plug gap to the specification.
3. If the electrodes become too worn, replace it.
4. When installing the plug, always clean the gasket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

| |
|---|
| Standard spark plug:<br>DPR7EA (NGK), DP7EA (NGK)<br>*D7EA (NGK)<br>Spark plug gap:<br>0.8~0.9 mm (0.031~0.035 in)<br>*0.6~0.7 mm (0.024~0.028 in)<br>Spark plug tightening torque:<br>20 Nm (2.0 m·kg, 14 ft·lb) |

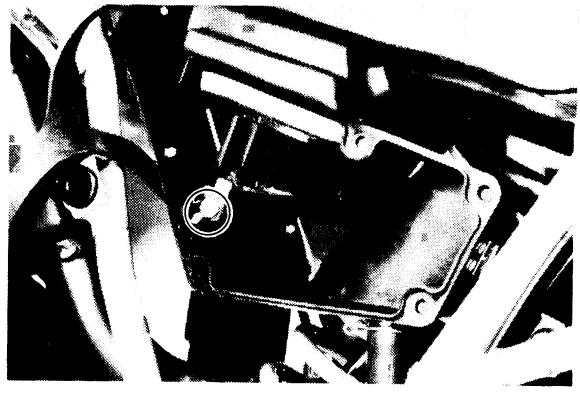
### C. Air Filter

The air filter protects the engine from dirt which can enter with the intake air and cause rapid engine wear. This dirt is filtered from the air by the air filter element.
When this filter element becomes dirty it should be cleaned.

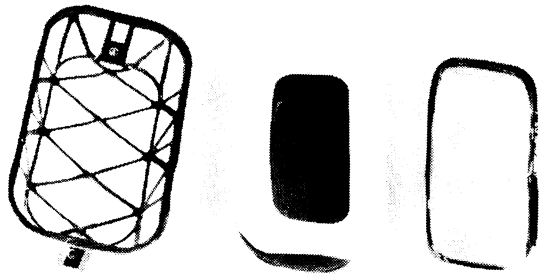
1. Remove the right side cover.
2. Remove the air filter case fitting band and the filter case cover.



3. Remove the wing bolt.



4. Remove the element from the guide.

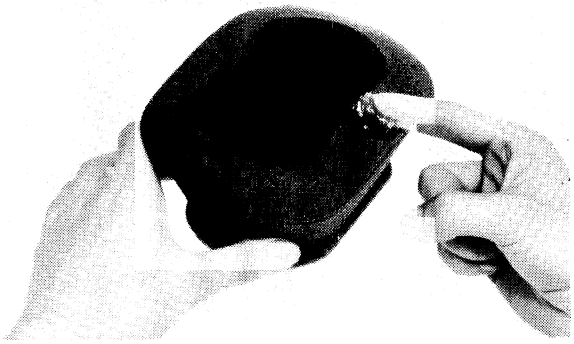


5. Wash the element gently, but thoroughly, in solvent.
6. Squeeze the excess solvent out of the element and let dry.
7. Pour a small quantity of Yamalube 2-cycle oil onto the filter element and work thoroughly into the porous foam material.

**NOTE:**

In order to function properly, the element must be damp with oil at all times, but not "dripping" with oil.

8. Reinsert the guide into the element.
9. Coat the mating surface of the filter with all-purpose grease for an airtight seal between the filter case and filter seat.

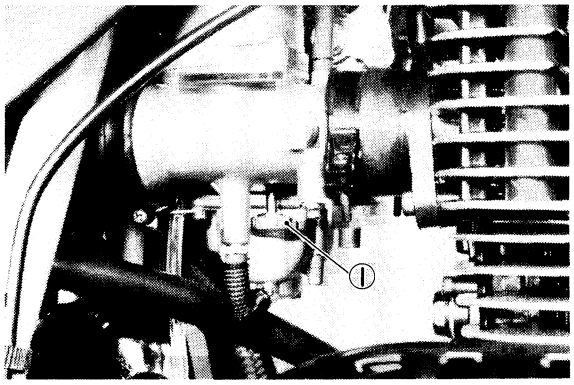


10. Install the filter element into the case.
11. Install the filter case cover.
12. Install the fuel tank, seat and side covers.

### D. Idle Speed

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

| Engine Idle: 1,300 ~ 1,400 r/min |
|---|



1. Throttle stop screw

### E. Fuel Line

Check fuel pipe from fuel cock to carburetor for cracks or damage; replace if necessary.

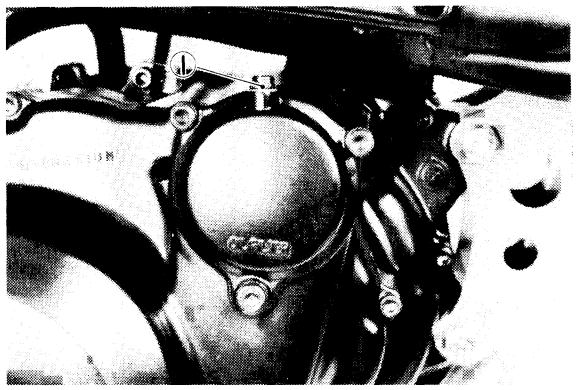
### F. Engine Oil

**Recommended oil**

| Yamalube 4-cycle oil or SAE 20W40 type SE motor oil |
|---|

**Oil level measurement**

1. Loosen the air bleed screw on the oil filter cover.

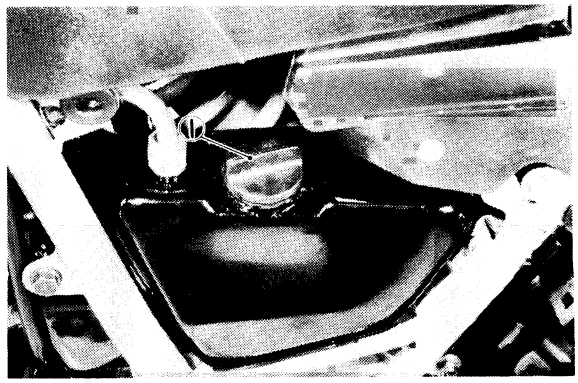


1. Air bleed screw

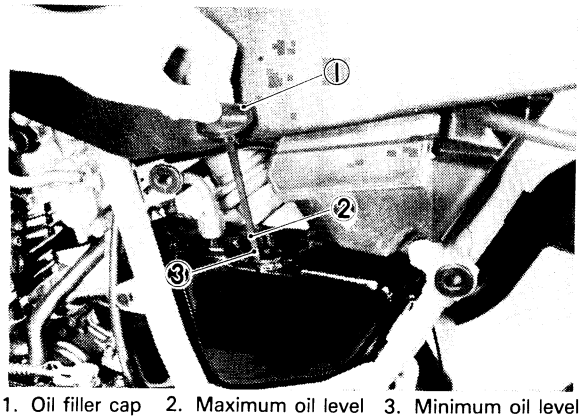
2. Start the engine and let it idle.
3. If no oil comes out of the bleed screw after 30 seconds, immediately turn off the engine and add engine oil.
4. If oil comes out of the bleed screw, tighten the bleed bolt, and warm up the engine for several minutes.
5. Stop the engine, remove the oil filler cap, and check the oil level.

**NOTE:**

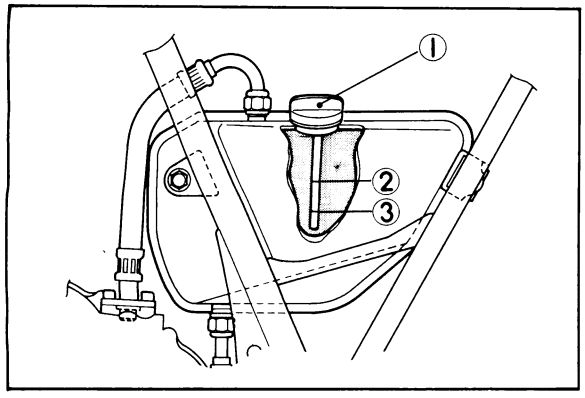
Be sure the motorcycle is positioned straight up when checking the oil level; a slight tilt toward the side can produce false readings.



1. Oil filler cap



1. Oil filler cap 2. Maximum oil level 3. Minimum oil level



1. Oil filler cap 2. Maximum oil level 3. Minimum oil level

6. The oil should be between the maximum and minimum marks on the filler cap gauge.
   If the level is lower, add sufficient oil to raise it to the proper level.

**WARNING:**

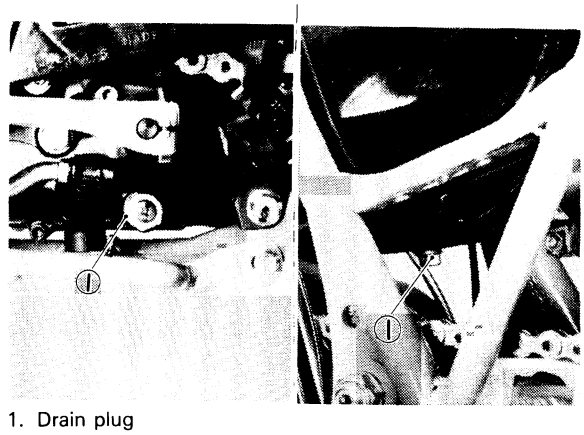
**Never attempt to remove the oil tank filler cap just after high speed operation (and/or when engine is running). The heated oil could spout out, causing injury.**
**Wait until the oil cools down to approximately 50°C (122°F).**

### Oil capacity

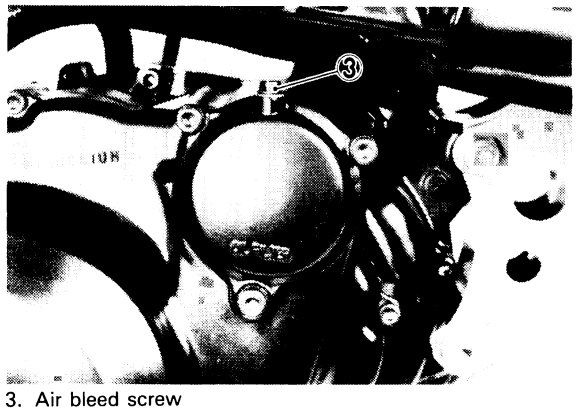
| | |
|---|---|
| 1. Regular oil replacement | 2.0 L (1.8 Imp qt, 2.1 US qt) |
| 2. Oil filter replacement | 2.1 L (1.85 Imp qt, 2.2 US qt) |
| 3. Total amount | 2.4 L (2.1 Imp qt, 2.5 US qt) |

### Engine oil replacement (without replacing filter)

1. Start the engine and stop after a few minutes of warm-up.
2. Place an oil receiver under the engine.
3. Remove the oil tank filter cap, drain plugs (at two places), and air bleeder screw attached to the oil filter cover.



1. Drain plug



3. Air bleed screw

**NOTE:**

The oil filter cover is secured by three screws. The lower one should be loosened until the threaded portion comes out completely.

4. Check each O-ring. If damaged, replace.
5. Install the drain bolts (at two places) and the bleed screw, oil filter and filter cover.
6. Fill with 2.0 L (1.8 Imp qt, 2.1 US qt) of engine oil. Install the oil tank filler cap and tighten.

### G. Oil Filter Replacement

1. Start the engine. After a few minutes of warm-up, stop the engine.
2. *Place oil pans* under the engine and under the oil tank.
3. Remove the oil tank filler cap, drain plugs (at two places), air bleed screw attached to the oil filter cover, and drain the engine oil.

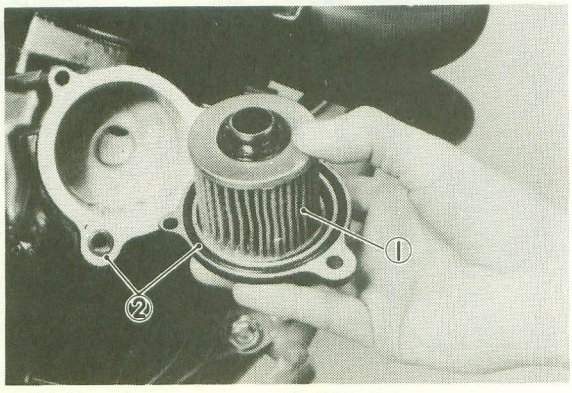
**NOTE:**

The oil filter cover is secured by three screws. The lower one should be loosened until the threaded portion comes out completely.

**NOTE:**

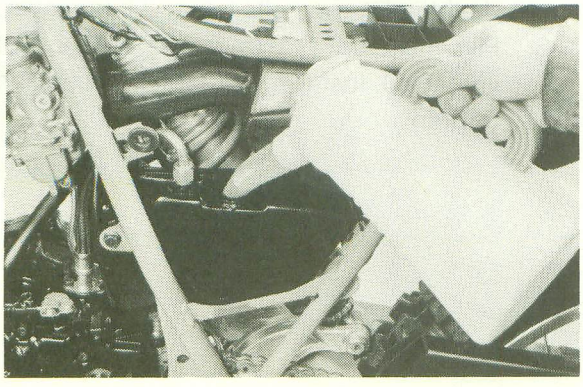
When removing the drain plug on the down tube, take care not to get stained by the oil that spouts out.

4. Remove the oil filter cover, and replace the filter element.




1. Oil filter element 2. "O"-ring

5. Check the O-rings. If damaged, replace.
6. Install the drain bolts, air bleed screw, oil filter, and oil filter cover.
7. Add 2.1 L (1.85 Imp qt, 2.2 US qt) of engine oil. Install the oil tank filler cap and tighten. Use 20W40 type SE oil.

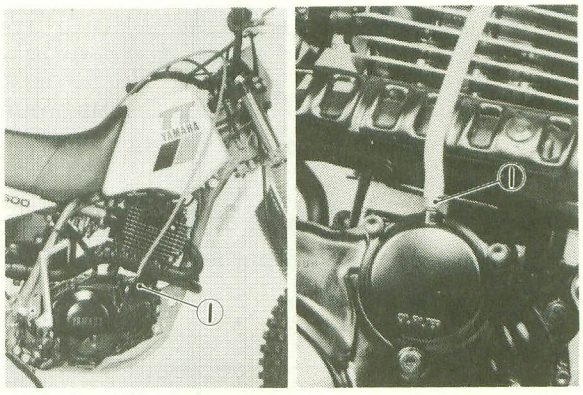


8. Start the engine and allow a few minutes of warm-up. While warming up, check for oil leakage. If oil leaks, stop the engine immediately, and check for the cause.
9. After warm up, stop the engine and check the oil level. (Refer to **"Engine Oil"**.)

### H. Oil Pressure Check

Oil pressure can be checked using the following procedure:

1. Start the engine and let it idle for a few minutes.
2. Stop the engine.
3. Remove the air bleed screw from the oil filter cover.
4. Remove the exhaust pipe *protector*.
5. Install the oil pressure gauge adapter (special tool P/N. YU-08030-1).
6. Install a oil pressure gauge or pass a vinyl tube over the handle bar and put it into the oil tank.




1. Oil pressure gauge adapter

7. Start the engine.
8. If oil pressure is below the specified range or if oil does not flow into the oil tank, stop the engine immediately, and check for the cause.

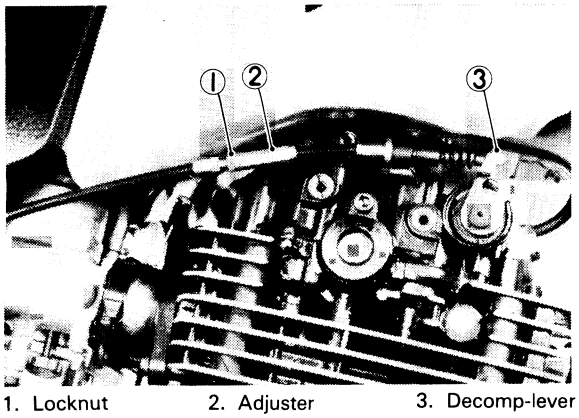
Specified oil pressure: 9.81 ~ 19.6 kPa
(0.1 ~ 0.2 kg/cm$^2$, 1.42 ~ 2.84 psi)

### I. Decompression System

**NOTE:**

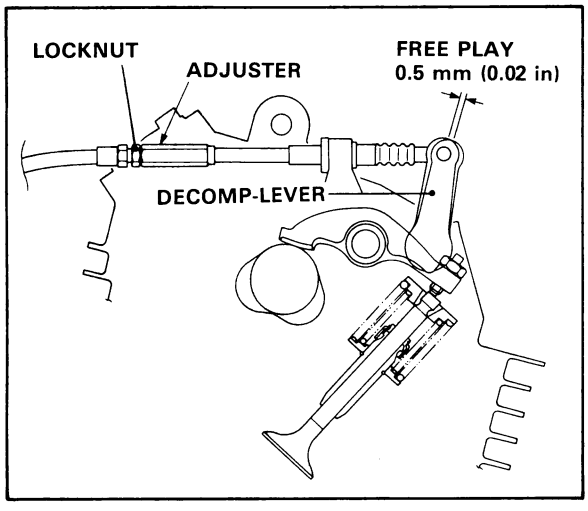
Decomp-cable adjustment must follow the valve clearance adjustment.

1. Remove the two blind plugs on the left crankcase cover.
2. Align the "T" mark on the flywheel with the timing mark on the crankcase cover. This places the piston at Top Dead Center, and the decomp-cable adjustment should be checked and adjusted with the piston at T.D.C. on the compression stroke.



1. Locknut 2. Adjuster 3. Decomp-lever

3. Loosen the locknut on the decompcable adjuster. Then turn the adjuster so 0.5 mm (0.02 in) free play can be provided for the end of the decomp-lever.




4. After the above adjustment, tighten the locknut on the decomp-cable adjuster.
5. Reinstall the two blind plugs on the left crankcase cover.

**J. Compression Pressure Measurement**

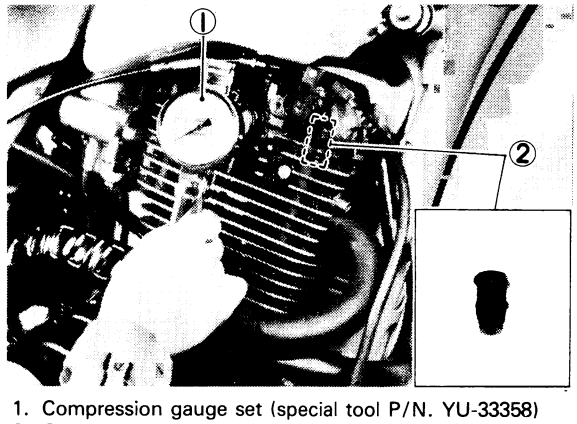
Insufficient compression pressure will result in performance loss and may indicate leaking valves or worn or damaged piston rings.

1. Make sure the valve clearance is correct.
2. Warm up the engine for 2~3 minutes; stop the engine.
3. Remove the spark plug.
4. Install a compression gauge.
5. Turn over the engine with the kick starter with the throttle wide open until the pressure indicated on the gauge does not increase further. The compression should be within the specified levels.

Compression pressure (at sea level):
Standard....
1,079 kPa (11 kg/cm$^2$, 156 psi)
Minimum....
883 kPa (9 kg/cm$^2$, 128 psi)
Maximum....
1,177 kPa (12 kg/cm$^2$, 171 psi)

**WARNING:**

**When cranking the engine, ground the spark plug wires to prevent sparking.**



1. Compression gauge set (special tool P/N. YU-33358)
2. Compression gauge adapter (special tool P/N. YU-33358-3)

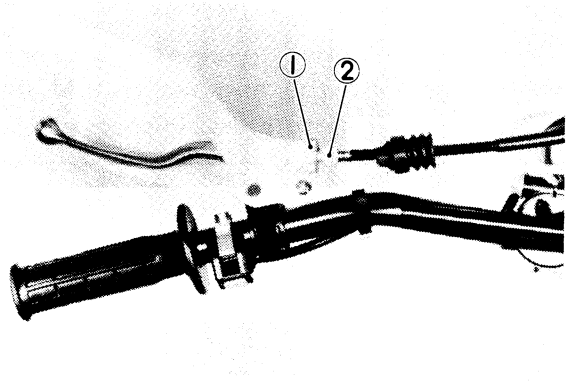
6. If the pressure is too low, squirt a few drops of oil into the cylinder. Measure compression again. If there is a higher reading than before (without oil), the piston rings may be worn or damaged. If the pressure remains the same after measuring with the oil, one or both rings and valves may be the source of the problem.

### K. Clutch Adjustment

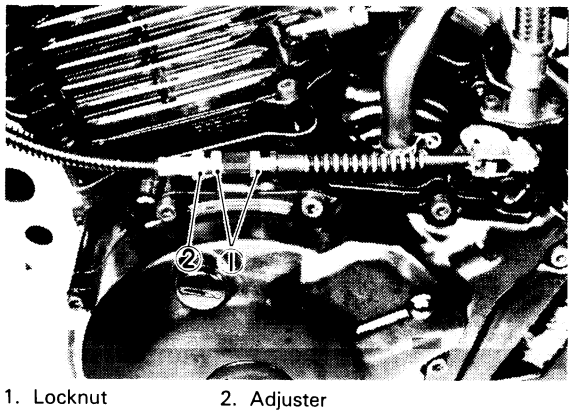
This model has two clutch cable length adjusters and a clutch mechanism adjuster. Cable *length adjusters* are used to take up slack from cable stretch and to provide sufficient free play for proper clutch operation under various operating conditions. The clutch mechanism adjuster is used to provide the correct amount of clutch "throw" for proper disengagement. Normally, once the mechanism is properly adjusted, the only adjustment required is maintenance of free play at the clutch handle lever.

**Free play adjustment**

Loosen either the handle lever adjuster locknut or the cable in-line length adjuster locknut. Next, turn the length adjuster either in or out until proper lever free play is achieved.




1. Adjuster locknut 2. Adjuster




1. Locknut 2. Adjuster

***Mechanism* adjustment**

See Chapter 3 "Clutch Mechanical Adjustment"

## CHASSIS

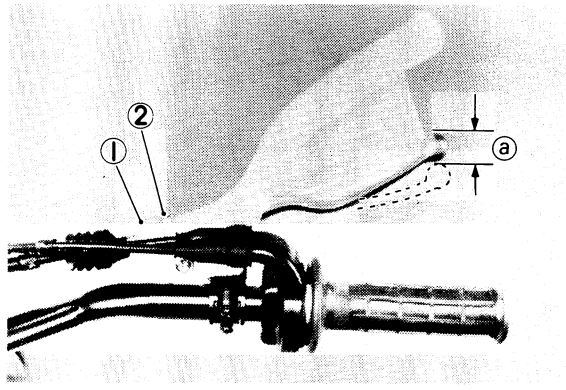
### A. Brake

**Front-brake-lever free play adjustment**

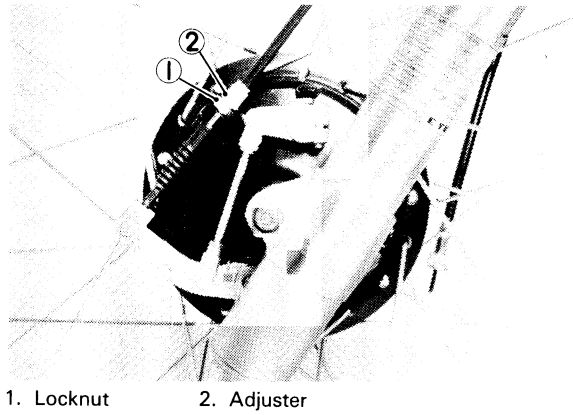
The brake can be adjusted by simply adjusting the free play of the brake lever.

Adjustment is accomplished at one of two places, either the handle lever holder or the front brake hub.

1. Loosen the adjuster locknut.
2. Turn the cable length adjuster in or out until adjustment is suitable.




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




1. Locknut 2. Adjuster

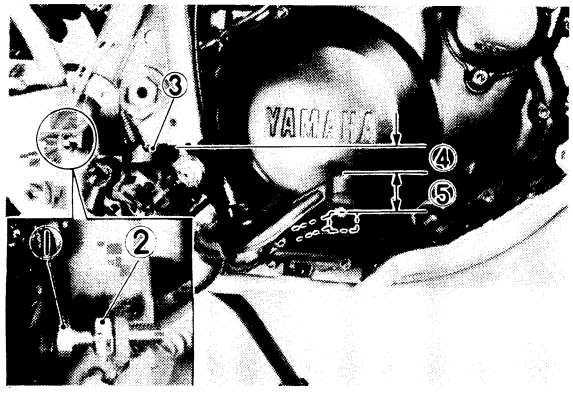
3. Tighten the adjuster locknut.

**Rear-brake-pedal height adjustment**

1. Loosen the adjuster locknut (for pedal height).
2. By turning the adjuster bolt clockwise or counterclockwise, adjust the brake pedal position so that its top end is flush with the top of the footrest.
3. Secure the adjuster locknut.

**WARNING:**

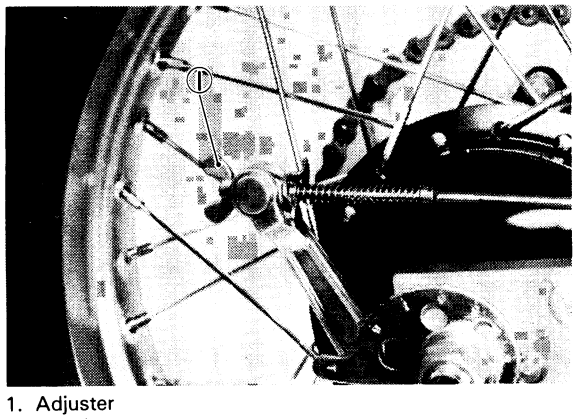
**After adjusting the pedal height, the brake-pedal free play should be adjusted.**




1. Adjuster bolt (for pedal height)
2. Locknut
3. Footrest
4. Pedal height 10 mm (0.4 in)
5. Free play 20 ~ 30 mm (0.8 ~ 1.2 in)

### Rear-brake-pedal free play adjustment

Turn the adjuster on the brake rod clockwise or counterclockwise to provide the brake pedal end with a free play of 20 ~ 30 mm (0.8 ~ 1.2 in).

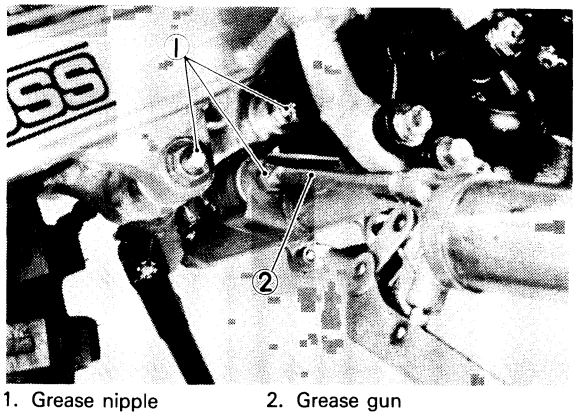


1. Adjuster

### B. Swingarm and Relay-Arm Pivot Bearings

The swingarm and relay-arm must pivot freely on its bearings, but not have any excess play. Check swingarm and relay-arm pivot bearing operation according to the PERIODIC MAINTENANCE SCHEDULE.

Using a grease gun, lubricate the swingarm relay pivot points.



1. Grease nipple
2. Grease gun

Recommended lubricant:
Medium weight wheel bearing grease

### C. Cable Inspection and Lubrication

The throttle twist grip assembly should be greased when the cable is lubricated, since the grip must be removed to get at the end of the throttle cable. Two screws clamp the throttle housing to the handlebar. Once these two are removed, the end of the cable can be held high to pour in several drops of lubricant. With the throttle grip disassembled, coat the metal surface of the grip assembly with a suitable all-purpose grease to cut down friction.

1. Damage to the outer housing of the various cables may cause corrosion. Often free movement will be obstructed. An unsafe condition may result. Replace such cables as soon as possible.
2. If the inner cables do not operate smoothly, lubricate or replace them.

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

### D. Levers, Pedals and Sidestand Pivot

Lubricate the pivoting parts of the lever, pedal, and sidestand.

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

## E. Tires and Wheels

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

1. Check tire pressure before riding; adjust as necessary.

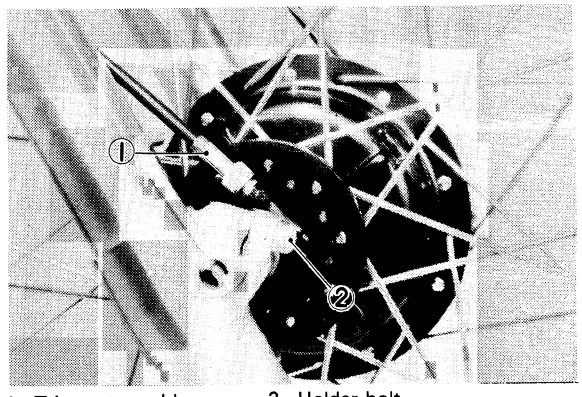
| | Front | Rear |
|---|---|---|
| Off-road riding | 98 kPa (1.0 kg/cm$^2$, 14 psi) | 98 kPa (1.0 kg/cm$^2$, 14 psi) |

2. Before operation, always check the tire surfaces for wear and/or damage; look for cracks, glass, nails, metal fragments, stones, etc. Correct any such hazard before riding.
3. Always inspect the wheels before a ride. Place the motorcycle on the sidestand and check for cracks, bends, or warpage of the wheels. Do not attempt even small repairs to the wheel. If a wheel is deformed or cracked, it must be replaced.
4. After installing a tire, ride conservatively to allow the tire to seat itself on the rim properly. Failure to allow proper seating may cause tire failure resulting in damage to the motorcycle and injury to the rider.
5. After repairing or replacing a tire, check to be sure the bead stopper locknut is securely fastened. If not, torque it as specified.

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

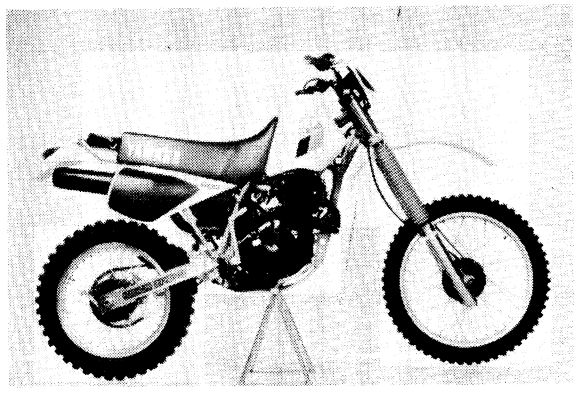
### Front wheel removal

1. Loosen and remove the front wheel axle nut.
2. Remove the trip meter cable.
3. Loosen the holder bolt.

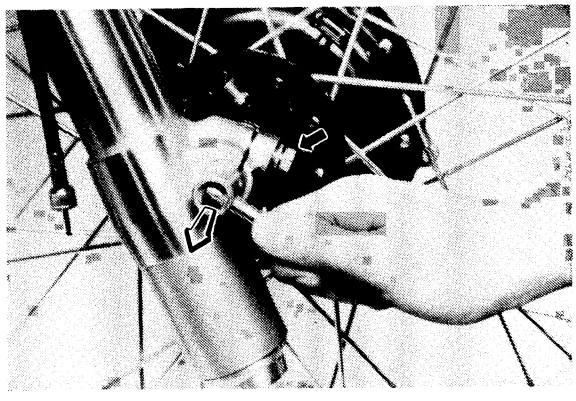


1. Trip meter cable 2. Holder bolt

4. Elevate the front wheel by placing a suitable stand under the engine.



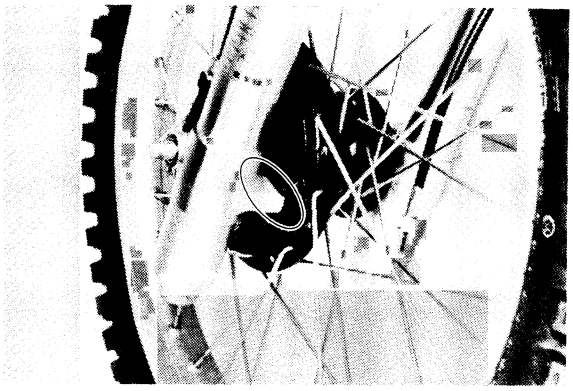
5. Turn and pull out the front wheel axle; the wheel assembly can now be removed.



### Front wheel installation

When installing the front wheel, reverse the removal procedure. Pay attention to the following points.

1. Be sure the boss on the outer fork tube correctly engages with the locating slot on the brake shoe plate.



2. Tighten the axle nut and axle holder nut.

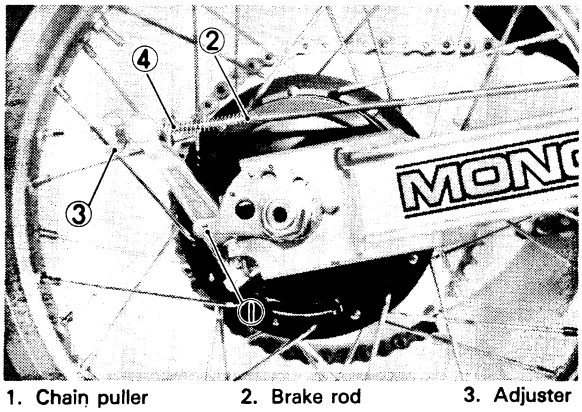
| Axle nut torque: |
| --- |
| 60 Nm (6.0 m · kg, 43 ft · lb) |

| Axle holder nut torque: |
| --- |
| 20 Nm (2.0 m · kg, 14 ft · lb) |

3. Reinstall the trip meter cable.
4. Adjust the play in the brake lever.

**Rear wheel removal**

1. Elevate the rear wheel by placing a suitable stand nuder the engine.
2. Remove the brake rod from the brake shoe plate. The brake rod can be removed by moving the spring seat forward.
3. Remove the rear wheel axle nut.
4. The rear wheel assembly, the collar, the chain puller(s), etc., can be removed from the motorcycle by pulling the wheel axle.

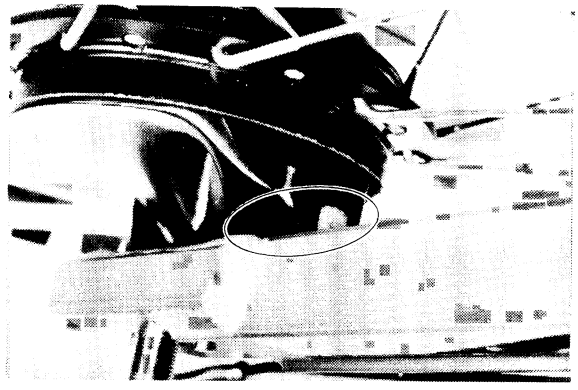



1. Chain puller 2. Brake rod 3. Adjuster
4. Spring seat

**Rear wheel installation**

When installing the rear wheel, reverse the removal procedure. Pay attension to the following points.

1. Be sure the swingarm boss correctly engages the locating slot on the brake shoe plate.



2. Make sure the chain pullers are installed with the number punched side outward.
3. Adjust the drive chain tension.
4. Tighten the axle nut.

| Axle nut torque: |
| --- |
| 100 Nm (10.0 m · kg, 72 ft · lb) |

5. Adjust the rear brake.

**F. Wheel Bearings**

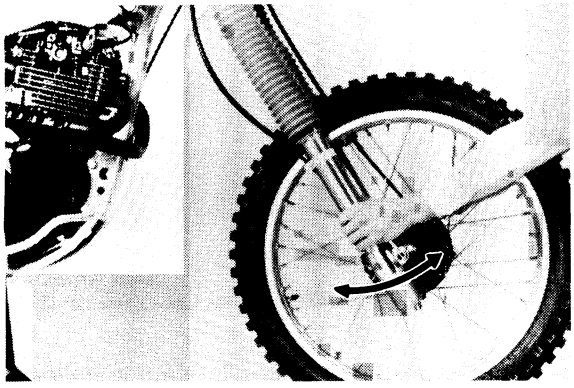
If a rolling rumble is noticed and increases with increasing wheel speed (not engine or transmission speed), the wheel bearings may be worn. Check the wheel bearings on both the front and rear wheels.

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

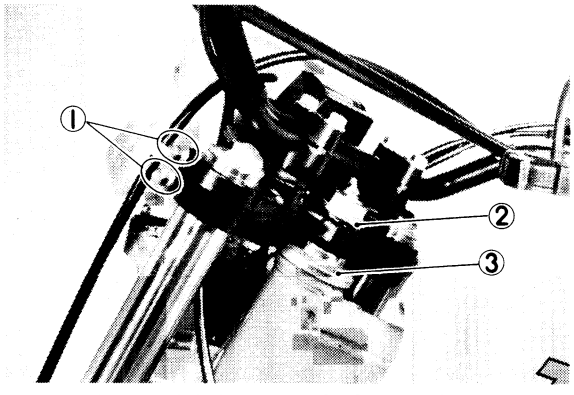
## G. Steering Head Adjustment

The steering assembly should be checked periodically for looseness.

1. *Raise the* front end of the motorcycle so that there is no weight on the front wheel.
2. Grasp the bottom of the forks and gently rock the fork assembly backward and forward, checking for looseness in the steering assembly bearings.



3. If the steering head is loose, adjust it. Loosen the steering fitting bolt and front fork pinch bolts.



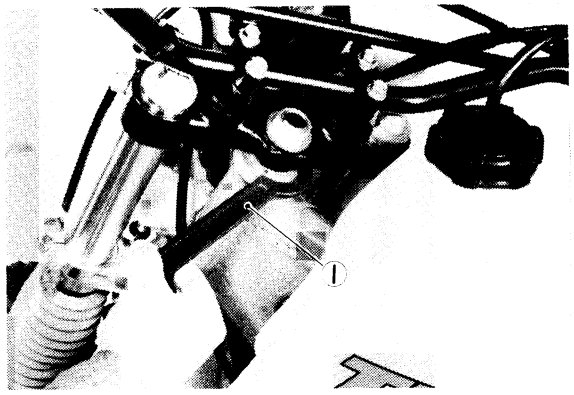

1. Front fork pinch bolt
2. Steering fitting bolt
3. Steering ring nut

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

**NOTE:**

Excessive tightening of this nut will cause rapid wear of the bearings and races.

Recheck for looseness and freedom of movement.




1. Ring nut wrench

5. Retighten the top steering fitting nut, steering fitting bolt, and steering stem, and the front fork pinch bolts in that order.
6. Recheck steering adjustment to make sure there is no binding when the forks are moved from lock to lock. If necessary, repeat the adjustment procedure.

## H. Front Forks

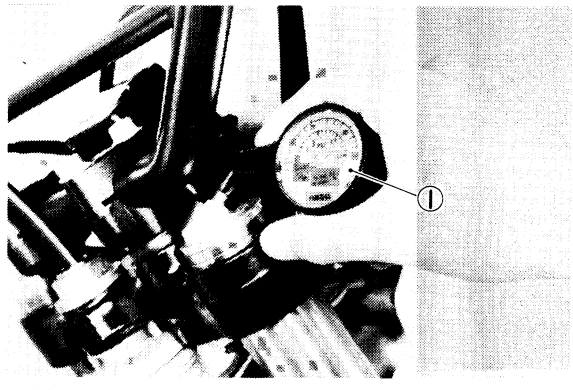
### Front fork adjustment

1. Elevate the front wheel by placing a suitable stand under the engine.

**NOTE:**

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

2. Remove the air valve caps from the left and right fork cap bolts.
3. Using the air check gauge, check and adjust the air pressure.




1. Air check gauge

**NOTE:**

An optional air check gauge is available.
P/No. 2X4-2811A-00

If the air pressure is increased, the suspension becomes stiffer and if decreased, it becomes softer.

**To increase:**

Use a manual air pump or other pressurized air supply.

**To decrease:**

Release the air by pushing the valve pin.

| |
|---|
| Standard air pressure:<br>0 kPa (0 kg/cm$^2$, 0 psi)<br>Maximum air pressure:<br>118 kPa (1.2 kg/cm$^2$, 17 psi) |

**CAUTION:**

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

**WARNING:**

**The difference between both the left and right tubes should be 9.8 kPa (0.1 kg/cm$^2$, 1.4 psi) or less.**

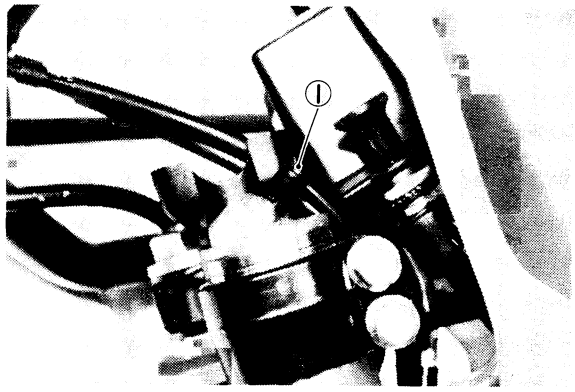
4. Install the air valve caps securely.

**Front fork oil change**

**WARNING:**

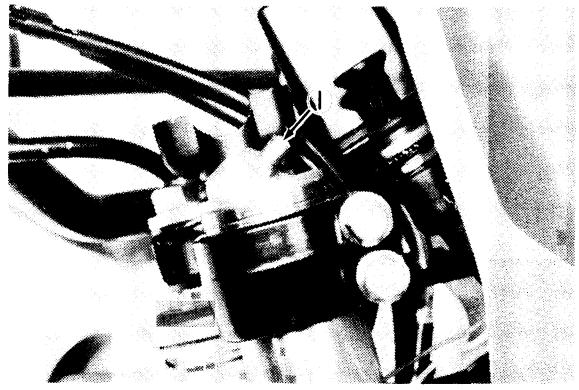
1. **Fork oil leakage can cause loss of stability and safe handling. Have any problem corrected before operating the motorcycle.**
2. **Securely support the motorcycle so there is no danger of it falling over.**

1. Elevate the front wheel by placing a suitable stand under the engine.
2. Remove the handlebar.
3. Remove the air valve caps from the left and right fork cap bolts.



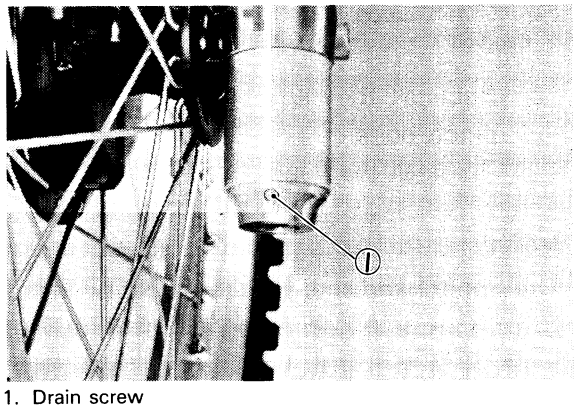

1. Air valve cap

4. Keep the valve open while pressing it for several seconds so that the air can be let out of the inner tube.



1. Push

5. Loosen the fork pinch bolts and remove the cap bolts from inner fork tube.
6. Place open container under each drain hole. Remove the drain screw from each outer tube.

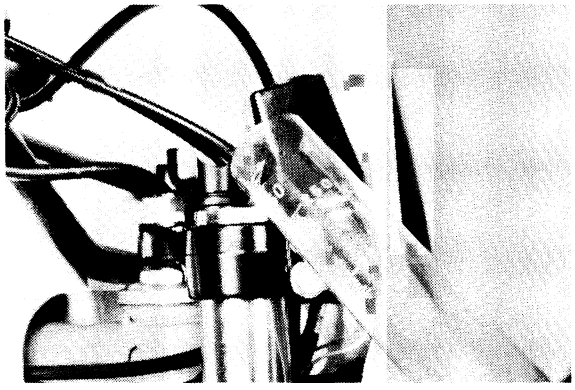



1. Drain screw

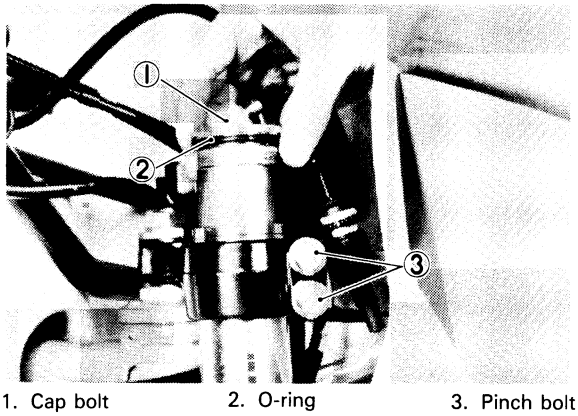
7. When most of the oil has drained, slowly raise and lower the outer tubes to pump out the remaining oil
8. Inspect the drain screw gasket. Replace if damaged. Reinstall the drain screw.

9. Pour specified amount of oil into the fork inner tube.

Front fork oil (each fork):
578 $cm^3$ (20.3 Imp oz, 19.5 US oz)
Yamaha Fork Oil 10Wt or equivalent



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




1. Cap bolt 2. O-ring 3. Pinch bolt

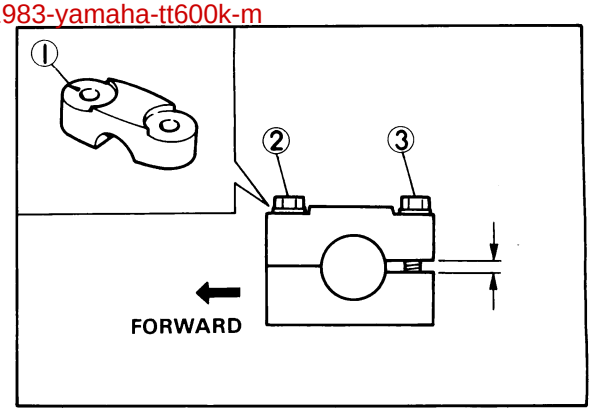
12. Reinstall the cap bolts and tighten the pinch bolts.
13. Reinstall the handlebar.

**NOTE:**

The upper handlebar holder should be installed with the embossed punched mark forward.

**CAUTION:**

**First tighten the bolts on the front side of the handlebar holder, and then tighten the bolts on the rear side.**




1. Punched mark 2. 1st. 3. 2nd.

TIGHTENING TORQUE:
Cap bolt:
23 Nm (2.3 m · kg, 17 ft · lb)
Pinch bolt:
23 Nm (2.3 m · kg, 17 ft · lb)
Handle upper holder pinch bolt:
23 Nm (2.3 m · kg, 17 ft · lb)

14. Fill the fork with air using a manual air pump or other pressurized air supply. Refer to "Front fork adjustment" for proper air pressure adjusting.

Maximum air pressure:
118 kPa (1.2 $kg/cm^2$, 17 psi)
Do not exceed this limit

## I. Rear Shock Absorber

**WARNING:**

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

1. **Do not tamper or attempt to open the cylinder assembly.**
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.**