



YAMAHA

YZ250K

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**OWNER'S MANUAL
AND SERVICE**

IMPORTANT NOTICE

THIS MACHINE IS DESIGNED STRICTLY FOR COMPETITION USE ONLY. IT IS ILLEGAL TO OPERATE THIS VEHICLE ON STREET. OFF ROAD USE ON PUBLIC LAND MAY BE ILLEGAL. PLEASE CHECK YOUR LOCAL RIDING AREA REGULATIONS. SUSPENSION ON THIS MACHINE CAN BE ADJUSTED. FOR DETAILS OF TUNING, REFER TO THE RACE PREPARATION AND TUNING MANUAL.

SAFETY WARNINGS:

1. **GASOLINE IS HIGHLY FLAMMABLE:**
 - * Always turn off the engine when refueling.
 - * Take care not to spill on the engine or exhaust pipe/muffler, when refueling.
 - * If any gasoline spills on the engine or exhaust pipe/muffler, wipe it off immediately.
 - * Never refuel while smoking or in the vicinity of an open flame.
2. If you should swallow some gasoline or inhale a lot of gasoline vapor, or allow some gasoline to get in your eye(s), see your doctor immediately. If any gasoline spills on your skin or clothing, immediately wash it with soap and water, and change your clothes.
3. Do not touch any moving or heated areas.
 - * The engine and exhaust pipe/muffler are heated up. Park the machine in a place where pedestrians or children are not likely to touch the machine.
 - * Do not park the machine on a slope or soft ground; the machine can easily overturn.
4. When transporting the machine in another vehicle, be sure it is kept upright and that the fuel petcock is turned to the "OFF" position. If it should lean over, gasoline may leak out of the carburetor or fuel tank.
5. Never start your engine or let it run for any length of time in a closed area. The exhaust fumes are poisonous and can cause loss of consciousness and death within a short time. Always operate your machine in an area with adequate ventilation.
6. Always wear a helmet, gloves, boots, trousers, and jacket for motocross riding.
7. The side stand should be removed whether in races or practice.

YZ250K

OWNER'S MANUAL AND SERVICE

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TO THE NEW OWNER

This manual will provide you with a good basic understanding of features, operation, and basic maintenance and inspection items of this vehicle.

PLEASE READ THIS MANUAL CAREFULLY AND COMPLETELY BEFORE OPERATING YOUR NEW MACHINE. If you have any questions regarding the operation or maintenance of your machine, please consult your Yamaha dealer.

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

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

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.

NOTICE

Some data in this manual may become outdated due to improvements made to this model in the future. If there is any question you have regarding this manual or your machine, please consult your Yamaha dealer.

F.I.M. MOTORCYCLE WEIGHTS

Weights of motorcycles without fuel

The minimum weights for motocross motorcycles are:

for the class 125 cc	minimum 88 kg (194 lb)
for the class 250 cc	minimum 98 kg (216 lb)
for the class 500 cc	minimum 102 kg (225 lb)

In modifying your bike (e.g., for weight reduction), take note of the above limits of weight.

SERVICE DEPT.
INTERNATIONAL DIVISION
YAMAHA MOTOR COMPANY, LTD.

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1 GENERAL INFORMATION

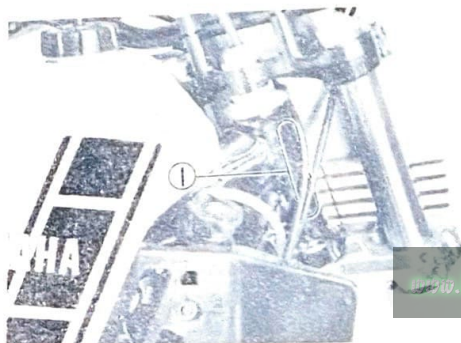
MACHINE IDENTIFICATION

There are two significant reasons for knowing the serial number of your machine:

1. When ordering parts, you can give the number to your Yamaha dealer for positive identification of the model you own;
2. If your bike is stolen, the authorities will need the number to search for and identify your machine.

Frame serial number

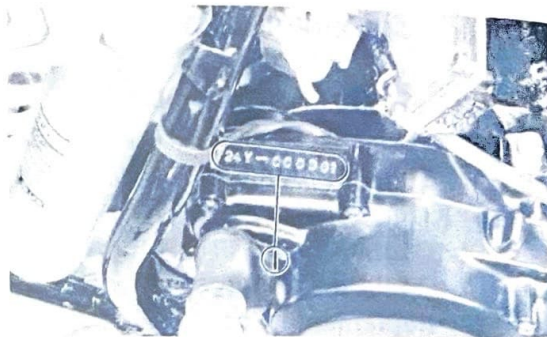
The frame serial number is stamped on the right of the steering head pipe.



1. Frame serial number

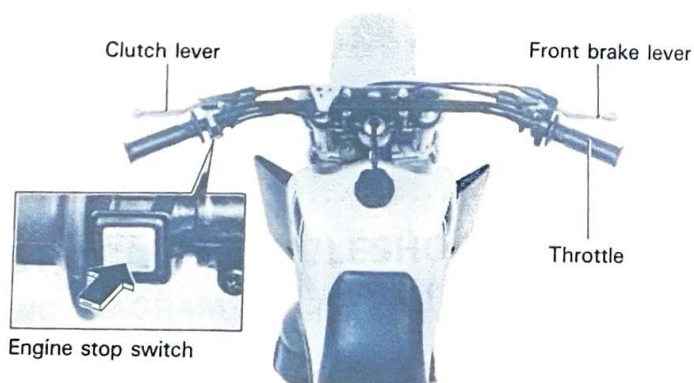
Engine serial number

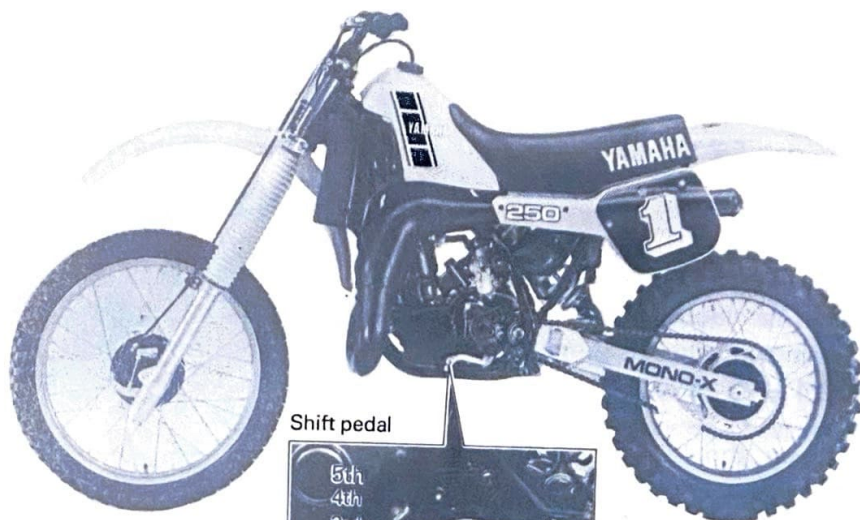
The engine serial number is stamped into the elevated part of the right rear section of the engine.



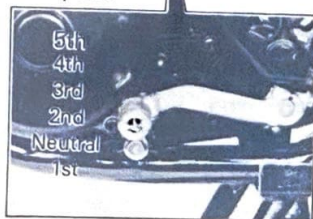
1. Engine serial number

CONTROL FUNCTIONS

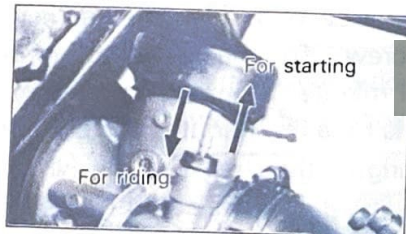




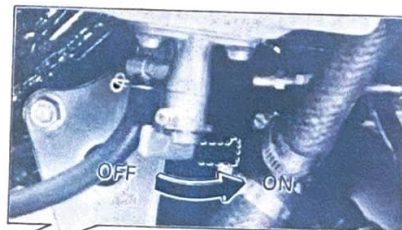
Shift pedal



Starter knob



Fuel cock



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FUEL, OIL AND COOLANT

Fuel

Recommended fuel:
Premium fuel with an octane rating of at least 90

Fuel tank capacity:
8.5 L (1.9 Imp gal, 2.2 US gal)

Engine mixing oil

Recommended oil: Yamalube "R"
(Yamalube Racing 2-cycle oil)
Mixing ratio: 24 : 1

If for any reason you should use another type, select from the following list.

* Castrol R30
* Castrol A545
Mixing ratio: 20 : 1

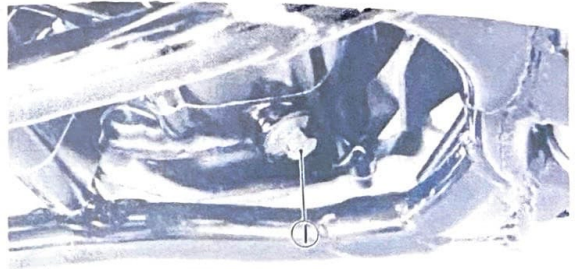
CAUTION:

Never mix two types of oil in the same batch; clotting of the oil could result.

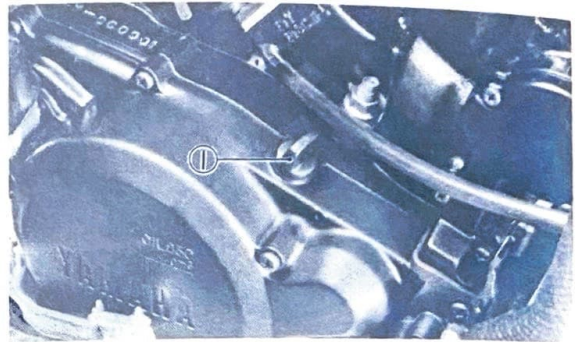
Transmission oil

Recommended oil:
Yamalube 4-cycle oil or SAE
10W 30 SE motor oil

Transmission oil capacity:
Periodic oil change:
850 cm³ (0.74 Imp qt, 0.89 US qt)
Overhaul:
900 cm³ (0.79 Imp qt, 0.95 US qt)



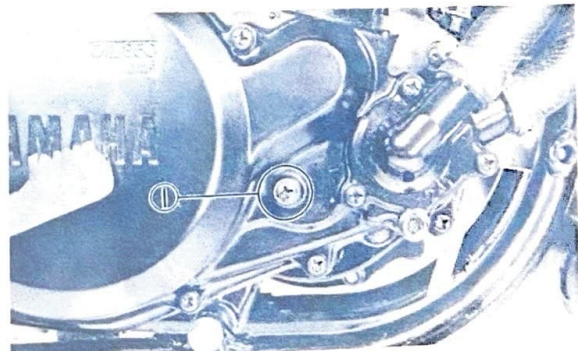
1. Drain plug



1. Filler plug

CHECKING OIL LEVEL

On the right side of the engine there is a checking screw. To check, warm up the engine for 1 minute. Stop engine. Leave the engine as it is for a few minutes and place the machine upright, then remove the oil level checking screw. If oil flows out, the oil level is correct.



1. Checking screw

Coolant level

WARNING:

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

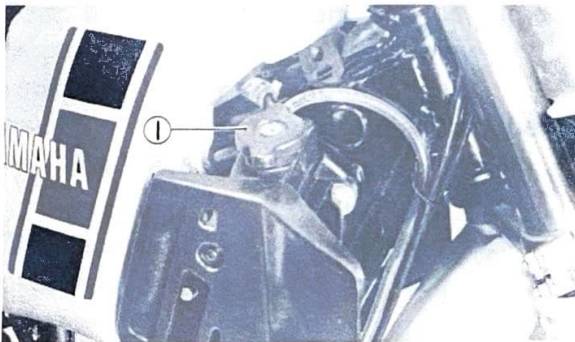
Recommended coolant:

High quality ethylene glycol anti-freeze containing corrosion inhibitors for aluminum engine

Coolant capacity:

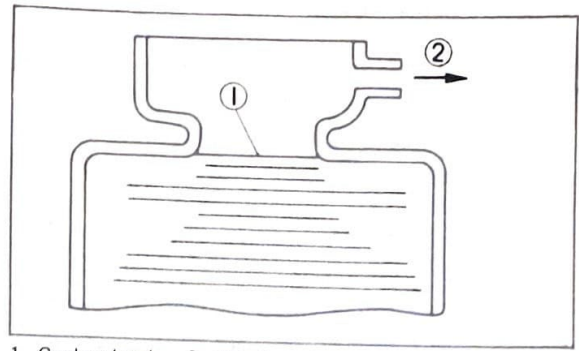
1.0 L (0.88 Imp qt, 1.057 US qt)

Coolant and water mixed ratio: www.legends-yamaha-enduro.com
1 : 1 (50% water, 50% coolant)



1. Radiator cap

Check the coolant level in the radiator tank when the engine is cold. If the coolant level is low, add the coolant.



1. Coolant level 2. Breather pipe

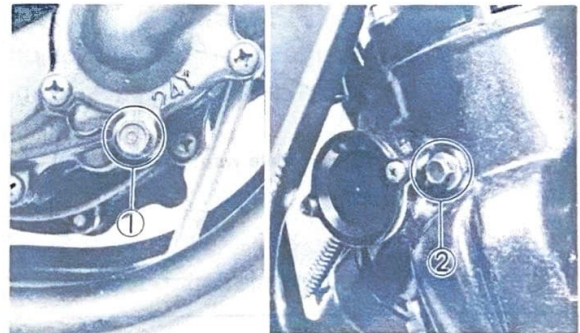
CAUTION:

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

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

Coolant draining

1. Place a container under the engine.
2. Remove the radiator tank cap.
3. Gently loosen the pump cover drain screw to drain the coolant, and remove the cylinder drain bolt.



1. Pump cover drain bolt 2. Cylinder drain bolt

4. Drain the coolant completely. Thoroughly flush the cooling system with clean tap water.

CAUTION:

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

5. Retighten the drain bolts.
If the gasket is damaged, replace it.

Replenishing coolant

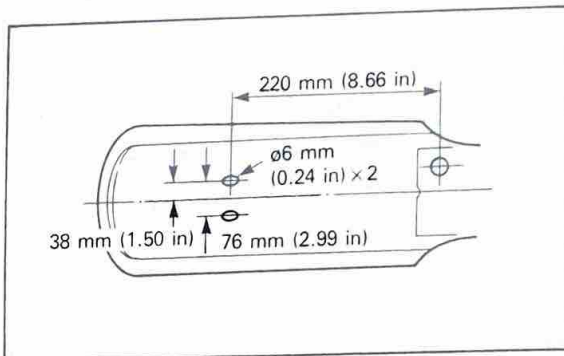
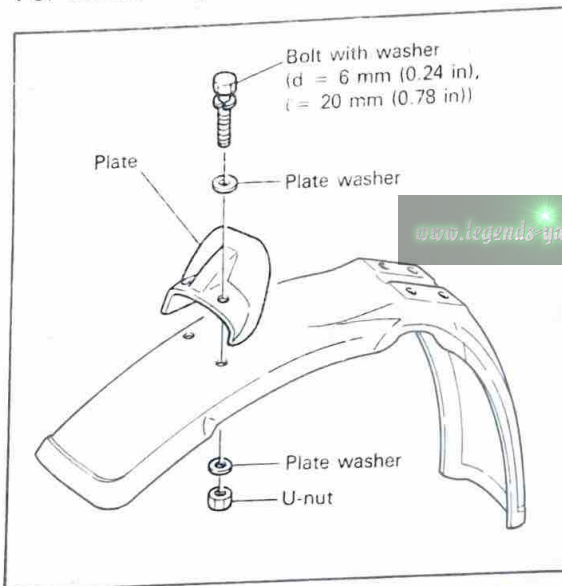
NOTE: _____

Before pouring the coolant into the radiator, check the cooling system for damage, loose joints or leaks.

1. Pour the recommended coolant into the radiator up to the specified level.
2. After starting the engine, race the engine a few times and add the coolant again up to the specified level.
3. When the coolant level becomes stable, stop the engine and tighten the radiator cap.

Fender plate

This fender plate should be used **only** when you ride the machine in the **rain**. It prevents the number plate grille from clogging with mud. For installation, refer to the following figure.



PREOPERATION CHECKS

Before riding for break-in operation, practice or a race, make sure the machine is in good operating condition.

INSPECTION AND MAINTENANCE

Cooling water

Check that water is filled up to the radiator filler cap.

Fuel

Check that a fresh mixture of oil and gasoline is filled in the fuel tank.

Gear oil

Check that the gear oil level is correct.

Gear shifter and clutch

Check that gears can be shifted correctly in order and that the clutch operates smoothly.

Brakes

Check the play of both front and rear brakes and their braking effect.

Chain

Check chain tension and alignment. Check that the chain is lubricated properly.

Wheels

Is the tire pressure correct?

Check for excessive wear. Check for loose spokes and have no excessive play.

Steering

Check that the handlebars can be turned smoothly and have no excessive play.

Front forks and rear shock

Check that they operate smoothly and there is no oil leakage.

Cables (Wires)

Check that the clutch, brake and throttle cables move smoothly. Check that they are not caught when the handlebars are turned or when the front forks travel up and down.

Muffler

Check that the muffler is tightly mounted and has no cracks.

Sprocket

Check that the rear wheel sprocket tightening bolt is not loose.

Bolts and nuts

Check the chassis and engine for loose bolts and nuts.

Fuel, oil and coolant

Check the fuel tank, fuel cock, carburetor, engine bottom, and cooling system for leakage.

Lead wire connectors

Check that the CDI magneto, CDI unit, and ignition coil are connected tightly.

Settings

Is the machine set suitably for the condition of the racing course and weather or by taking into account the results of test-runs before racing? Is inspection and maintenance completely done?

*The machine should be checked and serviced regularly so that only a simple, minor adjustment of settings is required prior to a race.

STARTING AND BRAKE-IN

CAUTION:

Before starting the machine, perform the checks in the preoperation check list.

WARNING:

Never start or run the engine in a closed area. The exhaust fumes are poisonous; they can cause loss of consciousness and death in a very short time. Always operate the machine in a well-ventilated area.

Starting a cold engine

Shift the transmission into neutral. Turn on the fuel cock and raise the starter knob on the carburetor. With the throttle completely closed, kickstart the engine with a smooth, firm stroke. Using the starter knob as required, run the engine at idle or slightly higher until it warms up; this usually takes about one or two minutes. The engine is warmed up when it responds normally to the throttle with the starter knob pushed completely down.

CAUTION:

Do not warm up the engine for extended periods.

Starting a warm engine

Do not raise the starter knob. Open the throttle slightly and kickstart the engine with a smooth, firm stroke.

CAUTION:

Observe the following break-in procedures during initial operation to ensure optimum performance and avoid engine damage.

Break-in procedures

1. Before starting the engine, fill the fuel tank with a break-in oil-fuel mixture of 12 : 1 to 14 : 1.
2. Perform the preoperation checks on the machine.
3. Start and warm up the engine. Check the idle speed, and check the operation of the controls and the engine stop switch.
4. Operate the machine in the lower gears at moderate throttle openings for five to eight minutes. Stop and check the spark plug condition; it will show a rich condition during break-in.
5. Allow the engine to cool. Restart the engine and operate the machine as in the step above for five minutes. Then, very briefly shift to the higher gears and check full-throttle response. Stop and check the spark plug.
6. After again allowing the engine to cool, restart and run the machine for five more minutes. Full throttle and the higher gears may be used, but sustained full-throttle operation should be avoided. Check the spark plug condition.
7. Allow the engine to cool, remove the top end, and inspect the piston and cylinder; instructions for this are on page 3-5. Remove any high spots on the piston with 600-grit, wet sandpaper. Clean all components and carefully reassemble the top end.
8. Drain the break-in oil-fuel mixture from the fuel tank and refill with the specified mix. Check the entire machine for loose screws, bolts, and nuts.
9. Restart the engine and check the operation of the machine throughout its entire operating range. Stop and check the spark plug condition. Restart the machine and operate it for about 10 to 15 more minutes. The machine will now be ready to race.

CAUTION:

1. After the break-in period is completed, check the entire machine for loose fittings and fasteners. Tighten all such fasteners as required.
2. When any of the following parts have been replaced, they must be broken in.

CYLINDER AND CRANKSHAFT:

About one hour of break-in operation is necessary.

PISTON, RINGS, GEARS:

These parts require about 30 minutes of break-in operation at half-throttle or less. Observe the condition of the engine carefully during operation.

CLEANING AND STORAGE

Cleaning

Frequent cleaning of your machine will enhance its appearance, maintain good overall performance, and extend the life of many components.

1. Before washing the machine, block off the end of the exhaust pipe to prevent water from entering. A plastic bag secured with a rubber band may be used for this purpose.
2. If the engine is excessively greasy, apply some degreaser to it with a paint brush. Do not apply degreaser to the chain, sprockets, or wheel axles.
3. Rinse the dirt and degreaser off with a garden hose; use only enough pressure to do the job.

CAUTION:

Excessive hose pressure can force water into wheel bearings, front fork seals, brake drums, and transmission seals. Avoid using high-pressure hoses such as those found in coin-operated car washes.

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4. After the majority of the dirt has been hosed off, wash all surfaces with warm water and a mild detergent. Use an old toothbrush to clean hard-to-reach places.
5. Rinse the machine off immediately with clean water, and dry all surfaces with a soft towel or cloth.
6. Immediately after washing, remove excess water from the chain with a paper towel and lubricate the chain to prevent rust.
7. Clean the seat with a vinyl upholstery cleaner to keep the cover pliable and glossy.
8. Automotive wax may be applied to all painted or chromed surfaces. Avoid combination cleaner-waxes, as they may contain abrasives.
9. After completing the above, start the engine and allow it to idle for several minutes.

Storage

If your machine is to be stored for 60 days or more, some preventive measures must be taken to avoid deterioration. After cleaning the machine thoroughly, prepare it for storage as follows:

1. Drain the fuel tank, fuel lines, and the carburetor float bowl.
2. Remove the spark plug, pour a tablespoon of SAE 10W 30 motor oil in the spark plug hole, and reinstall the plug. With the engine stop switch pushed in, kick the engine over several times to coat the cylinder walls with oil.
3. Remove the drive chain, clean it thoroughly with solvent, and lubricate it. Reinstall the chain or store it in a plastic bag tied to the frame.
4. Lubricate all control cables.
5. Block the frame up to raise the wheels off the ground.
6. Tie a plastic bag over the exhaust pipe outlet to prevent moisture from entering.
7. If the machine is to be stored in a humid or salt-air environment, coat all exposed metal surfaces with a film of light oil. Do not apply oil to rubber parts or the seat cover.

NOTE: _____

Make any necessary repairs before the machine is stored.

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2 REGULAR MAINTENANCE AND ADJUSTMENT

MAINTENANCE INTERVALS

The following schedule is intended as a general guide to maintenance and lubrication. Bear in mind that such factors as weather, terrain, geographical location, and individual usage will alter the required maintenance and lubrication intervals. If you are in doubt as to what intervals to follow in maintaining and lubrication intervals. If you are a doubt as to what intervals to follow in maintaining and lubricating your machine, consult your Yamaha dealer.

Item	After break-in	Every race	Every third	Every fifth	As required	Remarks
PISTON Inspect and clean Replace	●	●		●	●	Inspect crack Remove carbon
PISTON RING Inspect Replace	●	●	●		●	Check ring end gap
PISTON PIN, SMALL END BEARING Inspect Replace				●	●	
CYLINDER HEAD Inspect and clean Retighten	● ●	● ●				Remove carbon Check gasket
CYLINDER Inspect and clean Replace	●	●			●	seizure wear
Y.P.V.S. Check operation and retighten		●				
CLUTCH Inspect and adjust Replace	●	●			●	Inspect friction plate, clutch plate and spring
TRANSMISSION Replace oil Inspect transmission	●			●	●	Yamalube 4-cycle oil or SAE 10W30 SE motor oil
SHIFT CAM, FORK Inspect					●	Inspect wear
ROTOR NUT Retighten				●		
MUFFLER Inspect Clean	●	●		●		
CRANK Inspect and clean				●	●	
CARBURETOR Inspect, adjust and clean	●	●				
SPARK PLUG Inspect and clean Replace	●	●			●	STD plug: N-86 Gap: 0.5 ~ 0.6 mm (0.020 ~ 0.023 in)
DRIVE CHAIN Lubricate, free play, alignment Replace	●	●			●	Use chain lube Free play: 30 ~ 40 mm (1.2 ~ 1.6 in)

Item	After break-in	Every race	Every third	Every fifth	As required	Remarks
COOLING SYSTEM Check coolant level and leakage Check radiator cap operation Replace coolant Inspect hoses	●	●			● ●	Every two years
OUTSIDE NUTS AND BOLTS Retighten	●	●				
AIR FILTER Clean and oil Replace	●	●			●	Use Foam air-filter oil
FRAME Clean and inspect	●	●				
FUEL TANK, PETCOCK Clean and inspect	●		●			
BRAKES Adjust free play Lubricate pivot point Replace linings	● ●	● ●			●	Lining wear limit: 2 mm (0.08 in)
FRONT FORKS Inspect and adjust Replace oil Replace oil seal	● ●	●		●	●	Yamaha fork oil 10 wt
REAR SHOCK Inspect and adjust lube and retighten	● ●	● ●				Lithium base grease
CHAIN GUARD AND ROLLERS Inspect and replace					●	
SWINGARM Inspect and retighten	●	●				
RELAY ARM, TORQUE ARM Inspect and lube	●	●				Lithium base grease
STEERING HEAD Inspect free play and retighten Clean and lube Replace bearing	●	●		●	●	Medium weight wheel bearing grease
TIRE, WHEELS Inspect air pressure, wheel run-out, tire wear and spoke looseness Retighten sprocket bolt Inspect bearings Replace bearings Lubricate	● ●	● ●		● ●	●	Medium weight wheel bearing grease
THROTTLE, CONTROL CABLE Check routing and connection Lubricate	● ●	● ●				Yamaha cable lube SAE 10W30 motor oil
OUTSIDE NUTS AND BOLTS Retighten	●	●				

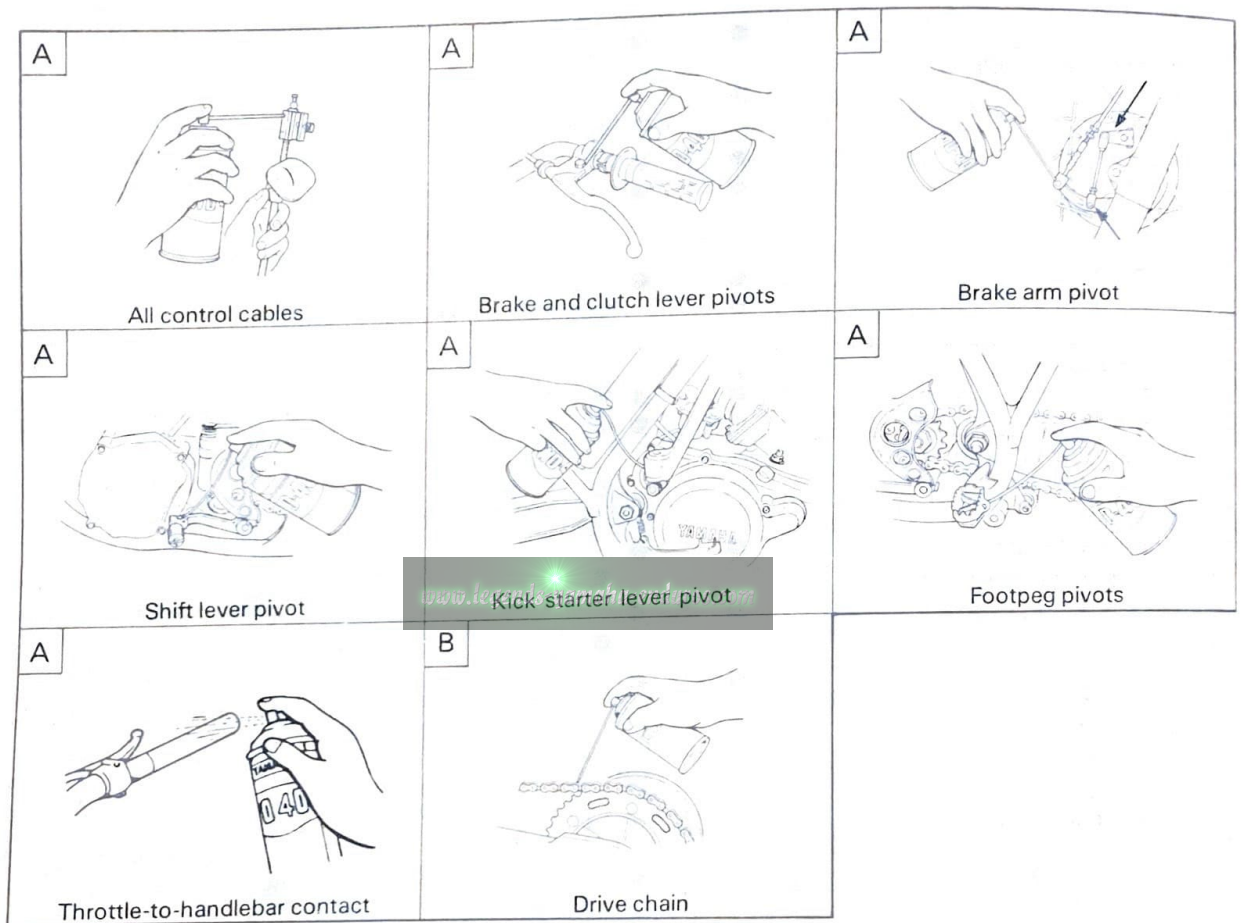
LUBRICATION

To ensure smooth operation of all components, lubricate your machine during setup, after break-in, and after every race.

Before lubricating, thoroughly clean the machine of sand, dirt and water.

A. Use Yamaha cable lube or WD-40 on these areas.

B. Use racing chain lube.



C. Lubricate the following areas with high-quality, lithium base grease:

CAUTION:

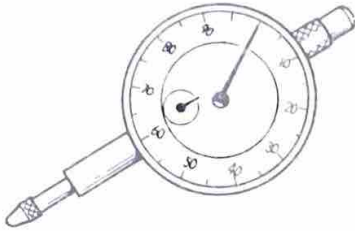
Wipe off any excess grease, and avoid getting grease on the brake shoes.

			
<p>Throttle guide and wire end</p>	<p>Brake and clutch wire ends</p>	<p>Wheel axle collar</p>	
			
<p>Brake shoe cam and pivot</p>	<p>Wheel axles and pivot shaft</p>	<p>Steering bearing and dust cover</p>	
			
<p>Rear brake backing plate bushing</p>	<p>Brake pedal pivot</p>	<p>Torque arm pivot bushing</p>	
			
<p>Relay arm bearing and oil seal Connecting rod bearing and oil seal</p>		<p>Rear shock pivot (upper and lower)</p>	

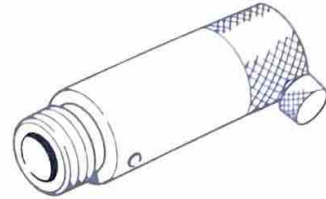
SPECIAL TOOLS

The following special tools are required to perform maintenance, adjustments, and repairs on your machine. These tools can be obtained through your Yamaha dealer.

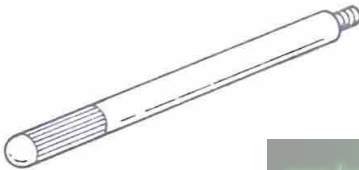
1 Dial gauge (T/No. YU-03097)



2 Dial gauge stand (T/No. YU-01256-1)

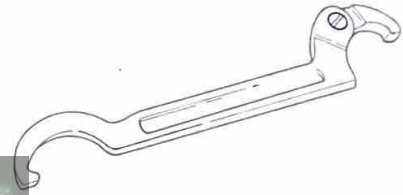


3 Dial gauge extension (T/No. YU-01256-2)



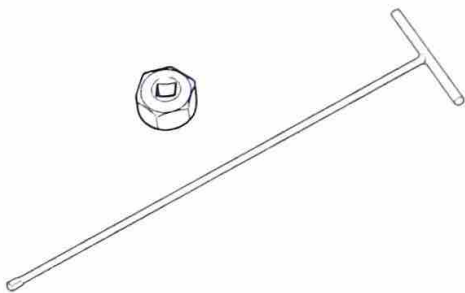
Tools 1,2, and 3 are used to set the ignition timing.

4 Steering nut wrench (T/No. YU-01268)



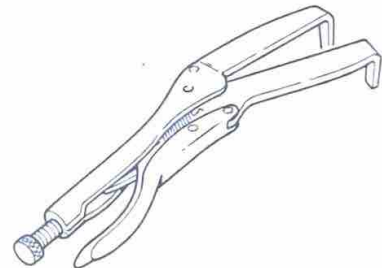
Use this wrench to put the proper tension on the steering head bearings.

5 Fork cylinder holder and adapter (T/No. YM-01327, YM-01326)



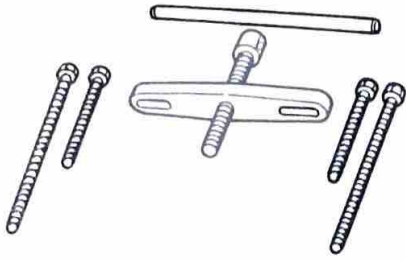
Use these tools to remove and install the fork cylinder.

6 Clutch holding tool (T/No. YM-91042)



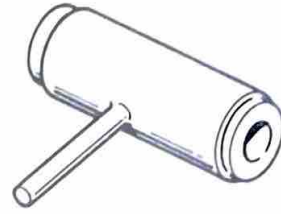
Use this tool to hold the clutch boss while removing or tightening the clutch boss nut.

7 Crankcase separating tool (T/No. YU-01135)

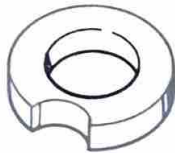


This tool is used to split the crankcases as well as remove the crankshaft from either case.

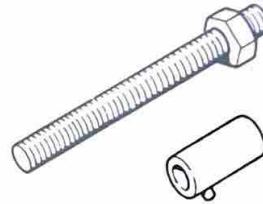
8 Crankshaft installing tool (YU-90059)



9 Spacer (YU-90058)



10 Crankshaft installing bolt and adapter (T/No. YU-90060, YU-90062)



Tools 8, 9, and 10 are used to install the crankshaft.

11 Rotor puller (T/No. YM-55500)



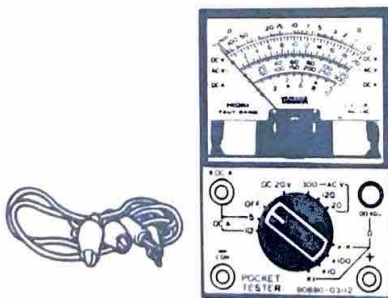
This tool is used to remove the magneto.

12 Fork seal and bushing service tool (T/No. YM-08020)



This tool is used to install the fork oil seal.

13 Yamaha pocket tester (YU-03112)



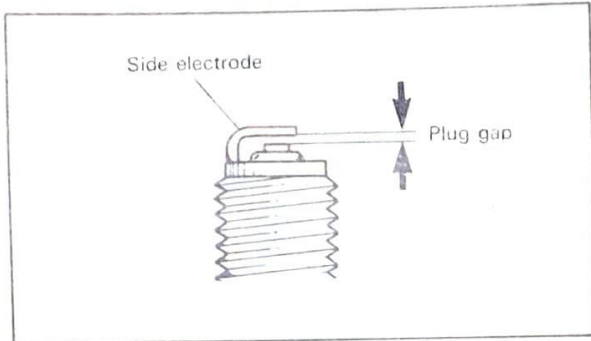
Use this tool to measure the coil resistance, output voltage and amperage.

MINOR MAINTENANCE AND ADJUSTMENTS

Spark plug

Standard spark plug:
N-86 (CHAMPION)

Spark plug gap:
0.5 ~ 0.6 mm (0.02 ~ 0.024 in)



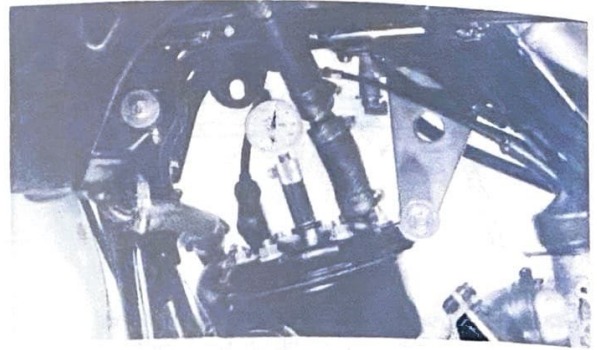
1. Whenever a new spark plug is installed, the gap must be checked and adjusted properly. Use a wire feeler gauge to check the gap, and adjust the gap by bending the side electrode gently.
2. Be sure to clean the gasket surface and threads before installing the spark plug. Torque the plug to specification.

Spark plug torque:
25 Nm (2.5 m · kg, 18 ft · lb)

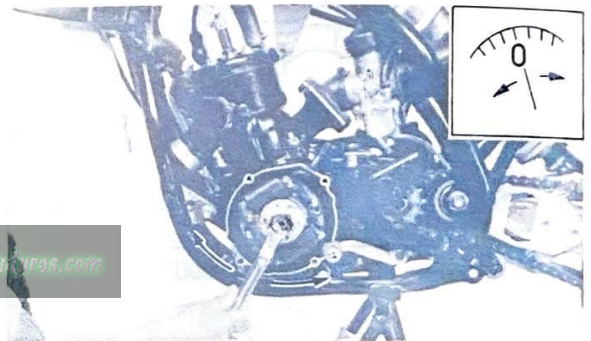
Ignition timing

The ignition timing must be set precisely to ensure that the ignition spark occurs at the proper time to provide optimum engine power.

1. Remove the spark plug, expansion chamber, and the left-hand crankcase cover.
2. Screw the dial gauge stand into the spark plug hole.
3. Install the extension on the dial gauge, and slide the dial gauge assembly into the dial gauge stand.

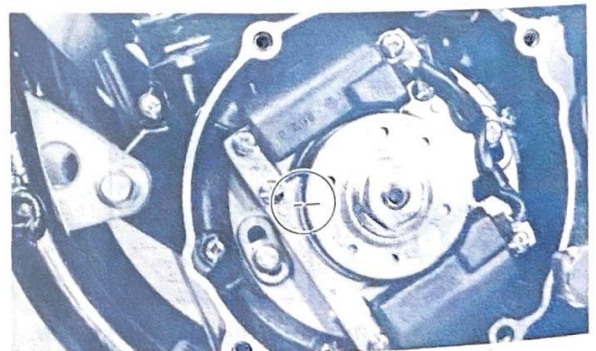


4. Rotate the magneto rotor until the piston reaches top dead center (TDC). When this happens, the needle on the dial gauge will stop and reverse directions even though the rotor is being turned in the same direction. Zero the dial gauge at TDC.

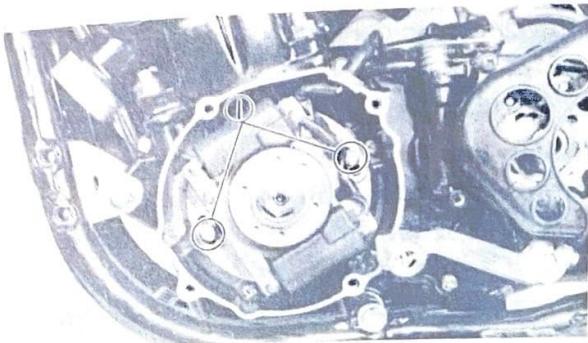


5. From TDC, rotate the rotor clockwise until the dial gauge indicates that the piston is at a specified distance from TDC. At this point, the scribed marks on the rotor and the stator plate should be aligned.

Ignition timing: B.T.D.C.
1.50 ± 0.1 mm (0.06 ± 0.004 in)



- If the marks are not aligned, loosen the two stator retaining screws and rotate the stator until the marks line up. Tighten the screws and recheck the timing marks.



1. Retaining screws

- Remove the dial gauge assembly and stand, and reinstall the spark plug. Torque the plug to specification.

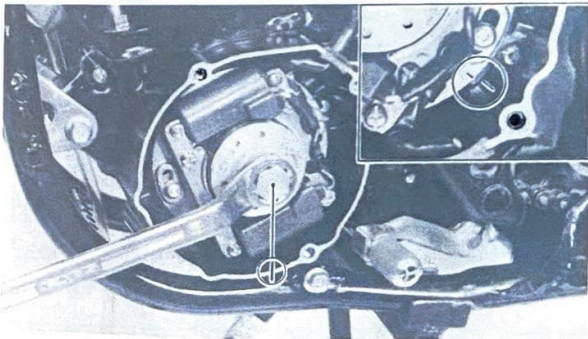
Spark plug torque:
25 Nm (2.5 m · kg, 18 ft · lb)

- Reinstall the left-hand crankcase cover and the expansion chamber.

Rotor removal

When removing the rotor, use the rotor puller.

- Remove the rotor holding nut.
- Install the rotor puller and tighten it.



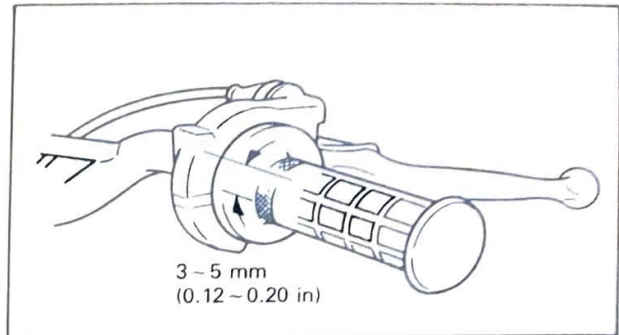
1. Rotor puller (YM-55500)

*Before removing the magneto base, put match marks both on the crankcase and the base so that they can be reassembled without trouble.

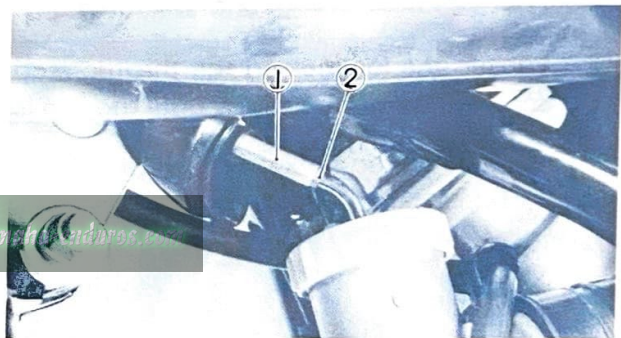
Tightening torque:
40 Nm (4.0 m · kg, 30 ft · lb)

Throttle cable

- Check the free play in the throttle twist grip; the play should be 3 ~ 5 mm (0.12 ~ 0.20 in) at the edge of the inner flange of the grip.

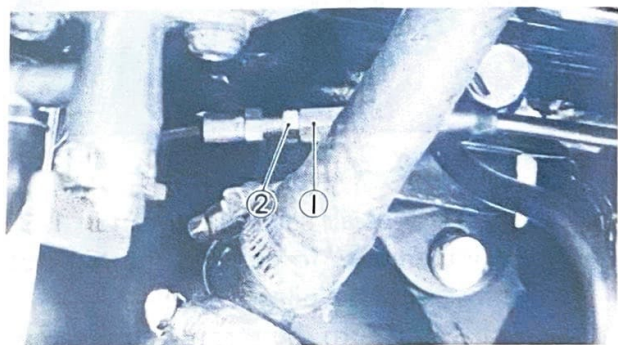


- To adjust the free play, loosen the lock nut on the cable adjuster and turn the adjuster in or out to achieve the proper free play. Retighten the locknut.



1. Adjuster

2. Locknut



1. Adjuster

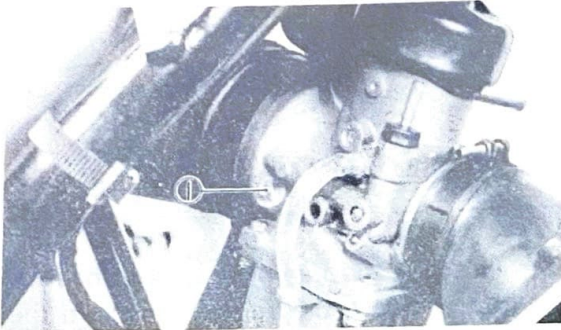
2. Locknut

- After adjustment, start the engine and check throttle operation. Turn the handlebars from lock to lock and note if the engine speeds up; if it does, the cable adjustment is too tight and must be readjusted.

Idle speed

*For carburetor tuning, refer to the Race preparation and Tuning manual.

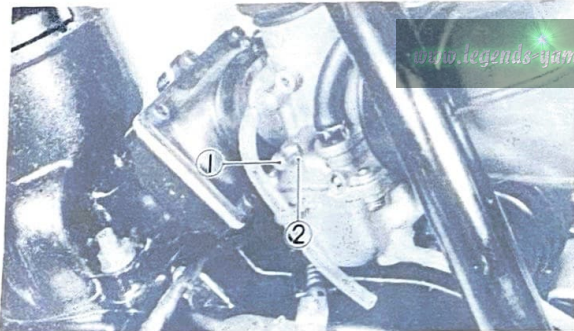
1. Screw in the pilot air screw until it is lightly seated.
2. Back out by the specified number of turns. Start the engine and let it warm up.



1. Pilot air screw

Pilot air screw setting: 1 and 1/4 turns out

3. Loosen the locknut on the throttle stop screw and turn the screw until the idle is at the desired rpm.



1. Throttle stop screw

2. Locknut

4. Turn the pilot air screw in or out in 1/8-turn increments to achieve the highest rpm with just the pilot screw.
5. Once again, turn the throttle stop screw to attain the desired idle rpm, and tighten the locknut.

The throttle response off idle should be crisp and clean, without any hesitation. If the engine is completely warmed up and hesitates off idle, turn the pilot air screw in or out in 1/8-turn increments until the problem is eliminated.

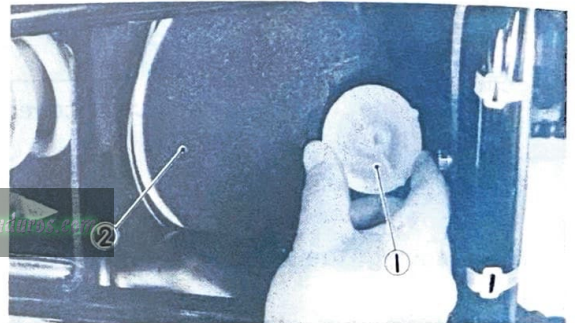
Air filter

Proper air filter maintenance is the biggest key to preventing premature engine wear and damage. All elements of the air filter system should be maintained after every moto; engine life will be prolonged and power output will remain consistent.

CAUTION:

Never run the engine without the air filter elements in place; this would allow dirt and dust to enter the engine and cause rapid wear and possible engine damage. In addition, carburetor jetting would be significantly affected, with subsequent poor performance and possible overheating.

1. Remove the seat from the machine.
2. Remove the fitting nut and remove the air filter elements.

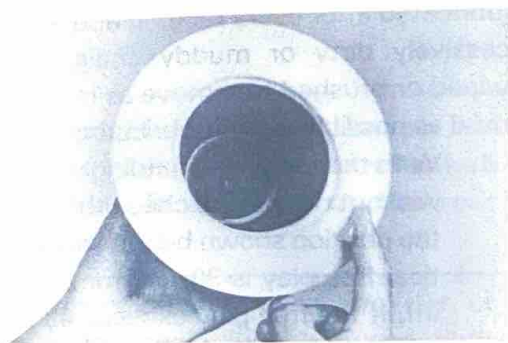


1. Fitting nut

2. Double-layer elements



3. Separate the two elements from the filter cage.
4. Wash both elements gently but thoroughly in solvent, squeeze the solvent out of the elements, and allow the elements to dry.
5. Pour a small quantity of **foam-air-filter oil** on the elements and work it thoroughly into the foam. Squeeze out the excess oil.
6. Reinstall the elements on the filter cage, and coat the sealing edge of the element assembly with light grease to provide an airtight seal.



7. After checking the air inlet hose for any obstructions, carefully reinstall the element assembly in the air filter box. Reinstall the fitting nut and tighten it.

CAUTION:

Do not overtighten the fitting nut to avoid distorting the filter element cage.

8. Inspect the air filter joint and intake manifold rubber for tears and cracks. Replace them if any damage is found.

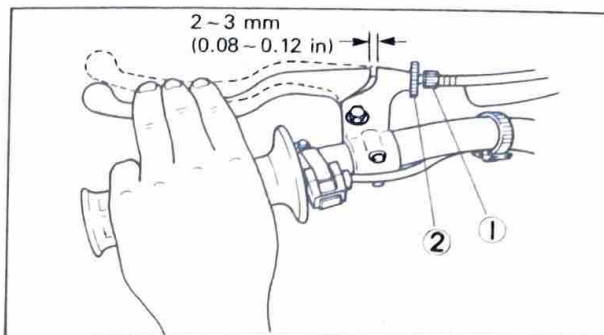
NOTE:

Each time filter element is serviced check inside air box for any signs of dirt or dust.

Clutch

To avoid clutch slipping or dragging, the clutch mechanism and cable must be adjusted correctly.

1. Adjust the cable adjuster at the handle lever to provide 2 ~ 3 mm (0.08 ~ 0.12 in) of free play at the clutch lever pivot; tighten the locknut.



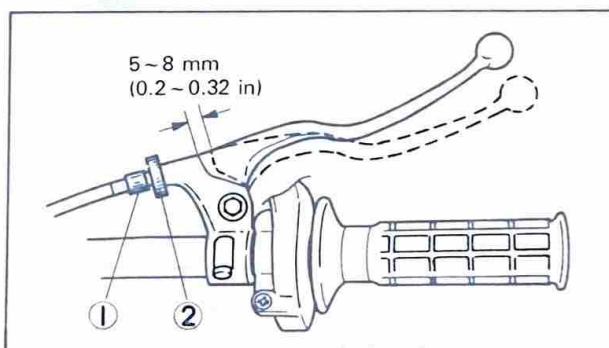
1. Adjuster 2. Locknut

*For the mechanical adjustment, refer to "3-15" of CLUTCH.

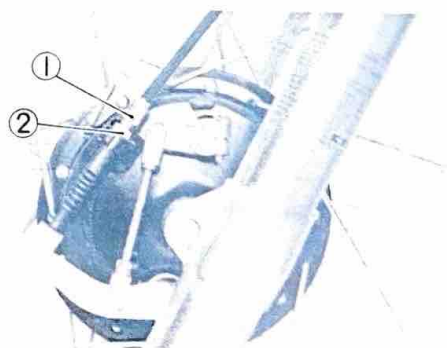
Front brake

The front brake can be adjusted to suit rider preference within a 5 ~ 8 mm (0.2 ~ 0.32 in) free play at the brake lever pivot.

1. Make sure the cable adjuster at the handle lever is screwed all the way in.
2. Loosen the locknut on the cable adjuster at the brake backing plate, and turn the adjuster in or out to achieve 8 mm (0.3 in) of free play at the brake lever pivot. Tighten the locknut.



1. Adjuster 2. Locknut



1. Adjuster 2. Locknut

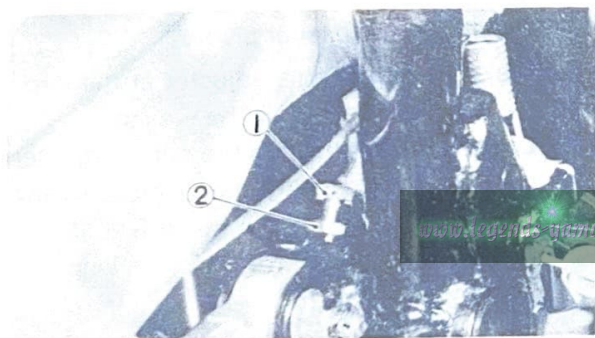
- At the handle lever, turn the adjuster out to achieve the desired free play within the specified range. Tighten the lock nut.

*For two leading shoe brake adjustment, refer to page "4-3" of "WHEEL SECTION".

Rear brake

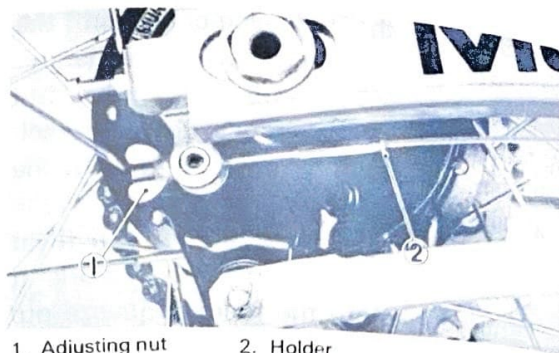
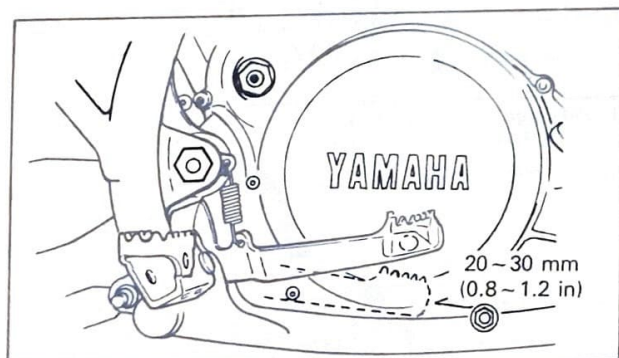
In adjusting the rear brake, the pedal height should first be set and then the free play should be adjusted.

- Loosen the locknut on the brake pedal height adjuster, and turn the adjuster to achieve the desired pedal height according to rider preference. Tighten the locknut.



1. Adjuster 2. Locknut

- Turn the adjusting nut on the end of the brake rod in or out to achieve the desired free play within 20 ~ 30 mm (0.8 ~ 1.2 in).

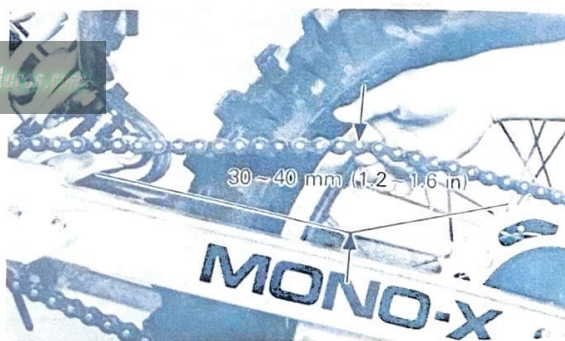


1. Adjusting nut 2. Holder

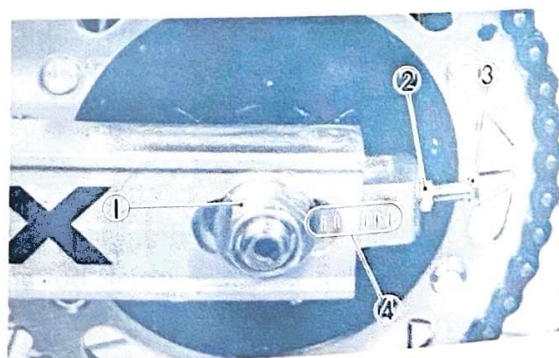
Drive chain

To ensure reliability and prolong chain and sprocket life, the chain must be adjusted and lubricated after every race. In addition, an excessively dirty or muddy chain should be wiped or brushed to remove as much dirt and mud as possible before lubricating.

- With the machine standing vertically and without rider on it, check the free play at the position shown below; the normal vertical free play is 30 ~ 40 mm (1.18 ~ 1.57 in). If the free play exceeds 40 mm (1.57 in), the chain must be adjusted.



- Loosen the axle securing nut, and loosen both locknuts on the chain adjuster bolts.



1. Axle securing nut 2. Locknut 3. Adjusting bolt 4. Adjust mark

3. Turn both adjuster bolts an equal amount to achieve the proper chain free play. Check to see that the adjusting marks on both chain adjusters align with the corresponding marks on the swing arm on each side to ensure proper axle alignment.
4. Tighten the locknuts on the adjusting bolts.
5. Tighten the axle securing nut to specification.

Torque: 100 Nm (10.0 m · kg, 70 ft · lb)

6. Check the brake pedal free play.

CAUTION:

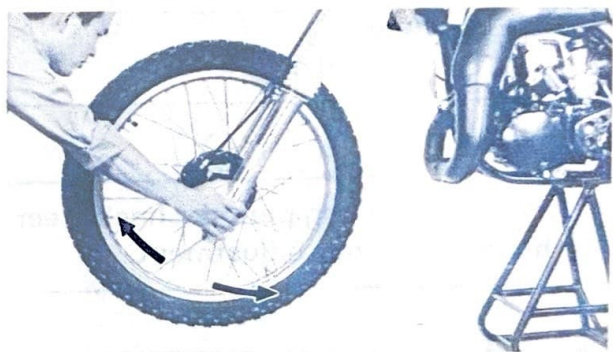
The brake pedal free play and the rear axle alignment must always be checked after the chain is adjusted or the rear wheel is removed.

7. After removing any excessive dirt or mud, spray chain lube between both rows of sideplates and on the chain rollers.
8. To clean the chain thoroughly, remove the chain from the machine, place it in solvent, and brush off as much dirt as possible. Then remove the chain from the solvent, dry the chain, and lubricate it immediately to prevent rust. Reinstall the chain on the machine and adjust it.

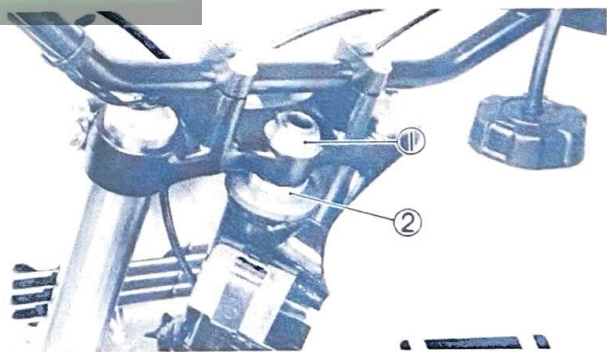
*For the maintenance of the sprocket and chain, refer to "4-4".

Steering head

1. Block the front wheel off the ground, grab the bottom of the fork legs, and gently push and pull the legs to check for free play in the steering head. If there is any noticeable play in the steering head, the bearings must be adjusted. In addition, check to see that the forks swing from lock to lock without any binding or catching. If any such binding is noticed, the bearings should be cleaned, inspected, and readjusted after thorough greasing.



2. To adjust the bearings, first loosen the steering fitting nut.

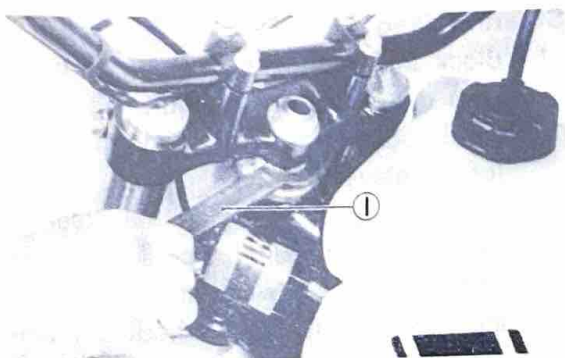


1. Steering fitting nut

2. Ring nut

3. Tighten the ring nut beneath the handle crown with the steering nut wrench until the free play is eliminated and there is no binding.

Tightening torque:
10 Nm (1.0 m · kg, 7.2 ft · lb)



1. Steering nut wrench (YU-01268)

4. Torque the steering fitting nut to specification.

Fitting nut torque:
130 Nm (13.0 m · kg, 94 ft · lb)

CAUTION:

After a short running period, check steering head for proper adjustment.

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3 ENGINE MAINTENANCE AND REPAIR

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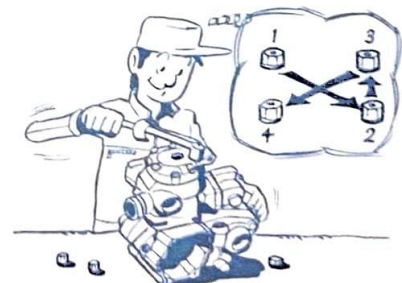
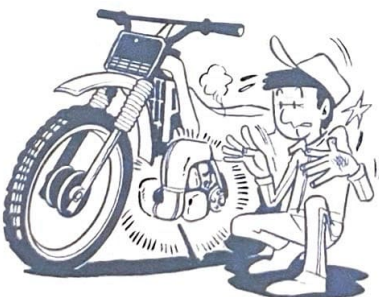
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3 ENGINE MAINTENANCE AND REPAIR

PREPARATION FOR SERVICE

Prior to beginning any work on the engine, take note of the following bits of advice; they will greatly facilitate your engine maintenance and repair:

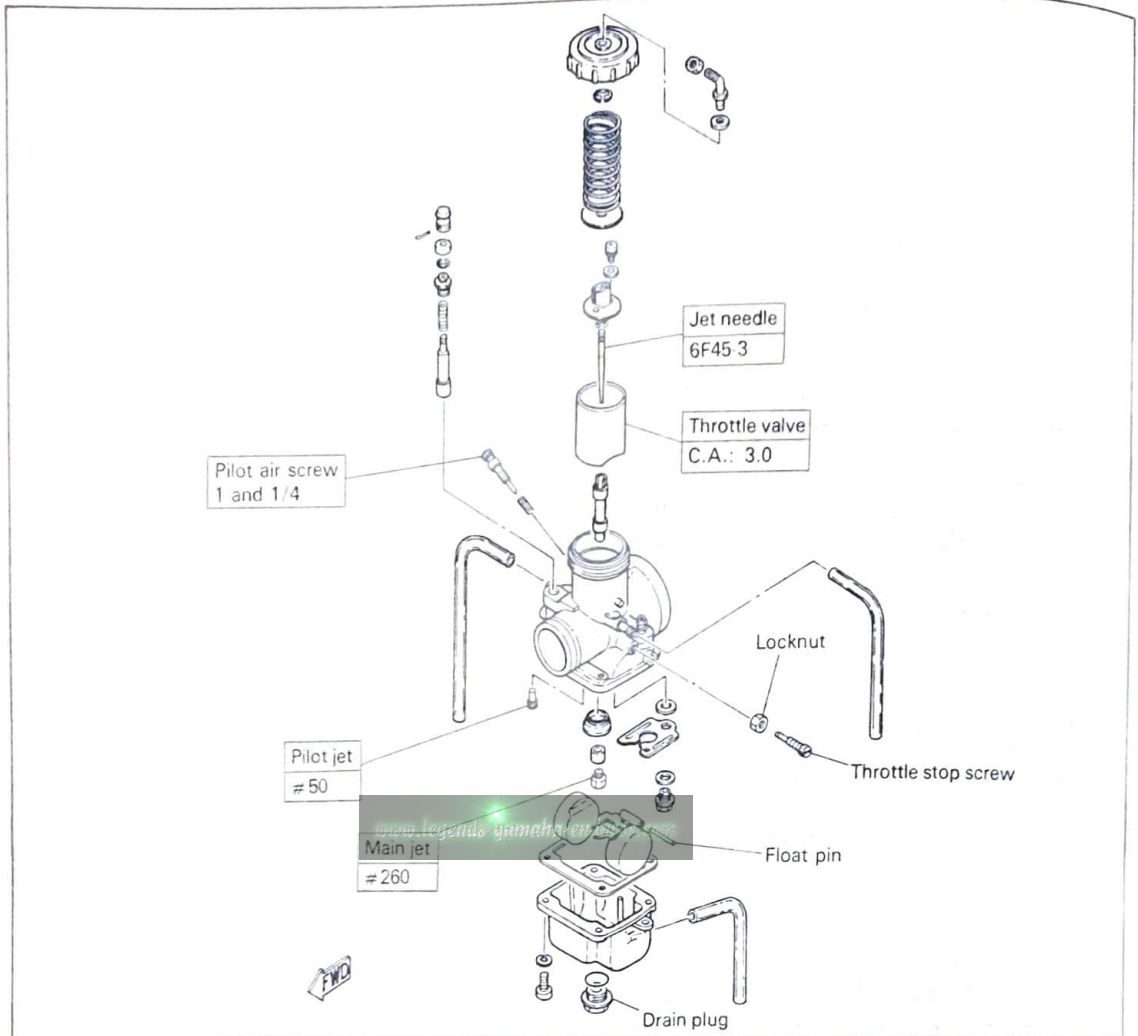
- Clean your machine as described in the General Information section entitled, "Cleaning and Storage";
- Group the parts of each component on individual trays, and arrange the parts in the order of their removal;
- When replacing parts, always use the genuine Yamaha article to maintain optimum performance, durability, and safety;
- All gaskets and seals should be replaced during engine work, and all gasket surfaces should be clean;
- During assembly, always apply oil or grease to bearing surfaces to protect them upon initial start-up;
- Replace all circlips which are distorted from use or disassembly;
- Always replace cotter pins and piston pin clips after one use;
- Always clean and oil the threads of nuts, bolts, and screws during assembly, and torque them to the proper specifications whenever possible.



DISASSEMBLY, INSPECTION AND ASSEMBLY

CARBURETOR

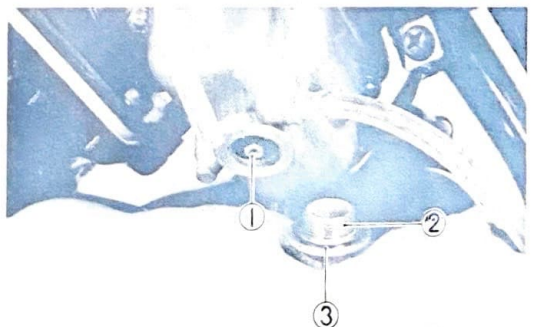
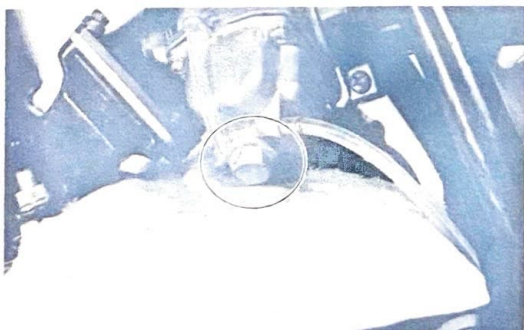
For details of carburetor tuning, refer to the Race Preparation and Tuning Manual.



Main jet replacement

NOTE:

It is not necessary to remove the carburetor to replace the main jet: Loosen the hose clamps on the manifold and air cleaner joint, rotate the carb, and remove the main jet cover bolt from the float bowl. The main jet can thereby be removed and replaced.



1. Main jet
2. Cover bolt
3. O-ring

Standard Main Jet Size: # 260

WARNING:

When the main jet cover bolt is removed, the fuel in the float bowl will drain. Do not remove the bolt when the engine is hot. Place a rag under the carb when removing the bolt to catch the fuel. Remove the bolt in a well-ventilated area, away from any open flame. Always clean and dry the machine after completing main jet changes.

IMPORTANT:

The carburetor has been set for operation at or near sea level; in most instances, it will not require changes. Some conditions, however, do demand carb setting changes to maintain performance. If this is the case, make the changes in small increments and check the results with a spark plug check. Improper settings can lead to poor performance or possible engine damage. If you are in doubt as to what setting changes to make, consult your Yamaha dealer.

Float height

Hold the carburetor in an upside down position.

Incline the carburetor at 60° ~ 70° (so that the end of the float valve does not hang down of float weight), and measure the distance from the mating surface of the float chamber (gasket removed) to the top of the float using a gauge.

Float height:

27.0 ± 1.0 mm (1.06 ± 0.04 in)

Level with carburetor base



Float height

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 damaged, they should be replaced.
3. Inspect inlet float valve and seat for wear or contamination. Replace these components as a set.

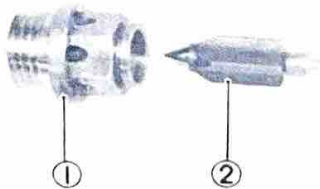
CAUTION:

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

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



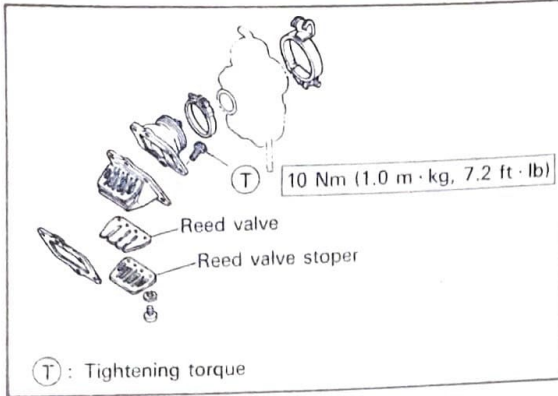
1. Tang



1. Valve seat

2. Float valve

REED VALVE



Inspection

1. Inspect rubber intake manifold for signs of weathering, checking or other deterioration.
2. Inspect reed petals for signs of fatigue and cracks. Reed petals should fit flush or nearly flush against neoprene seats. If in doubt as to sealing ability, apply suction to carburetor side of assembly. Leakage should be slight to moderate.
4. Check reed valve for bending. If beyond tolerance, replace reed valve.

Reed valve bending limit:
0.5 mm (0.020 in)

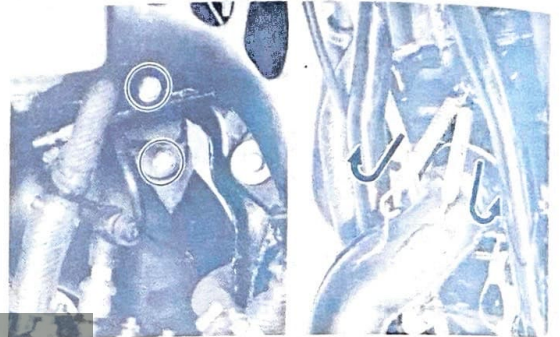
5. During reassembly, note the cut in the lower corner of the reed and stopper plate.



MUFFLER

Removal

1. Remove the panhead screws and remove side cover.
2. Loosen muffler mounting bolts.
3. Remove coil springs at muffler to cylinder joint and remove muffler.



Maintenance

1. Using a rounded scraper, remove excess carbon deposits from manifold area of exhaust pipe.
2. Check the exhaust pipe and muffler mounting bracket for cracks. If it has excessive cracks repair or replace it.

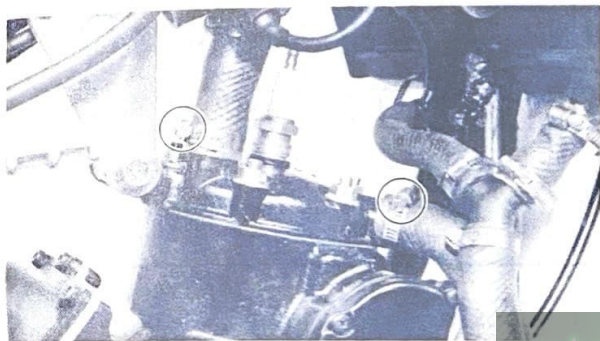
CYLINDER HEAD

Removal

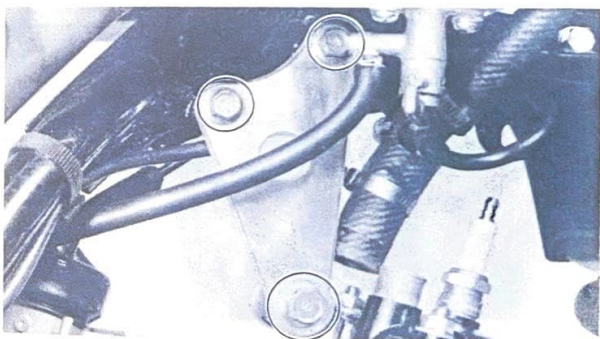
NOTE:

Before servicing the engine (disassembling of the cylinder head, cylinder, and clutch), thoroughly drain the coolant.

1. Place the machine on machine stand. Drain the transmission oil.
2. Drain off the coolant from the cooling system. (See, paragraph "Coolant draining" Page 1-4.)
3. Remove the spark plug lead wire from the plug. Loosen the spark plug, but do not remove it.
4. Disconnect radiator hoses at cylinder head.



5. Remove the three bolts from the cylinder head holding bracket, and remove the bracket.

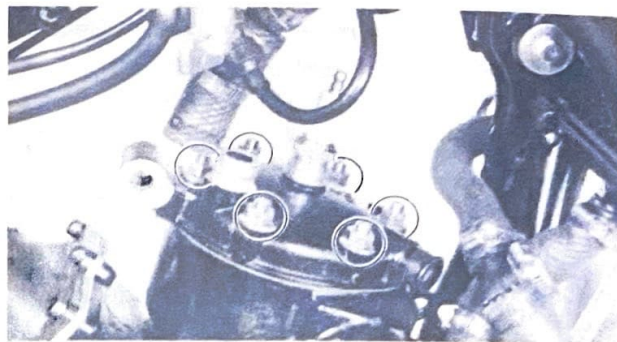


Bracket to:

Frame 30 Nm (3.0 m · kg, 22 ft · lb)

Engine 60 Nm (6.0 m · kg, 43 ft · lb)

6. Loosen the five cylinder head nuts a quarter turn each in a crisscross pattern, then remove the cylinder head nuts in the same pattern. Remove the cylinder head and head gasket. And discard it.



Cylinder head nut:

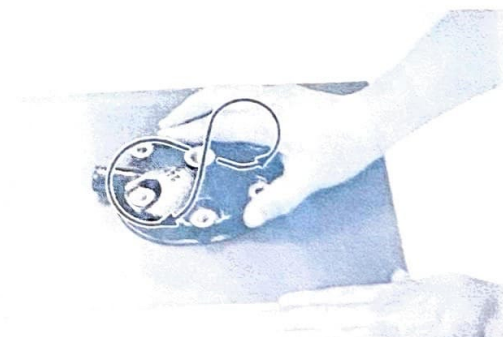
25 Nm (2.5 m · kg, 18 ft · lb)

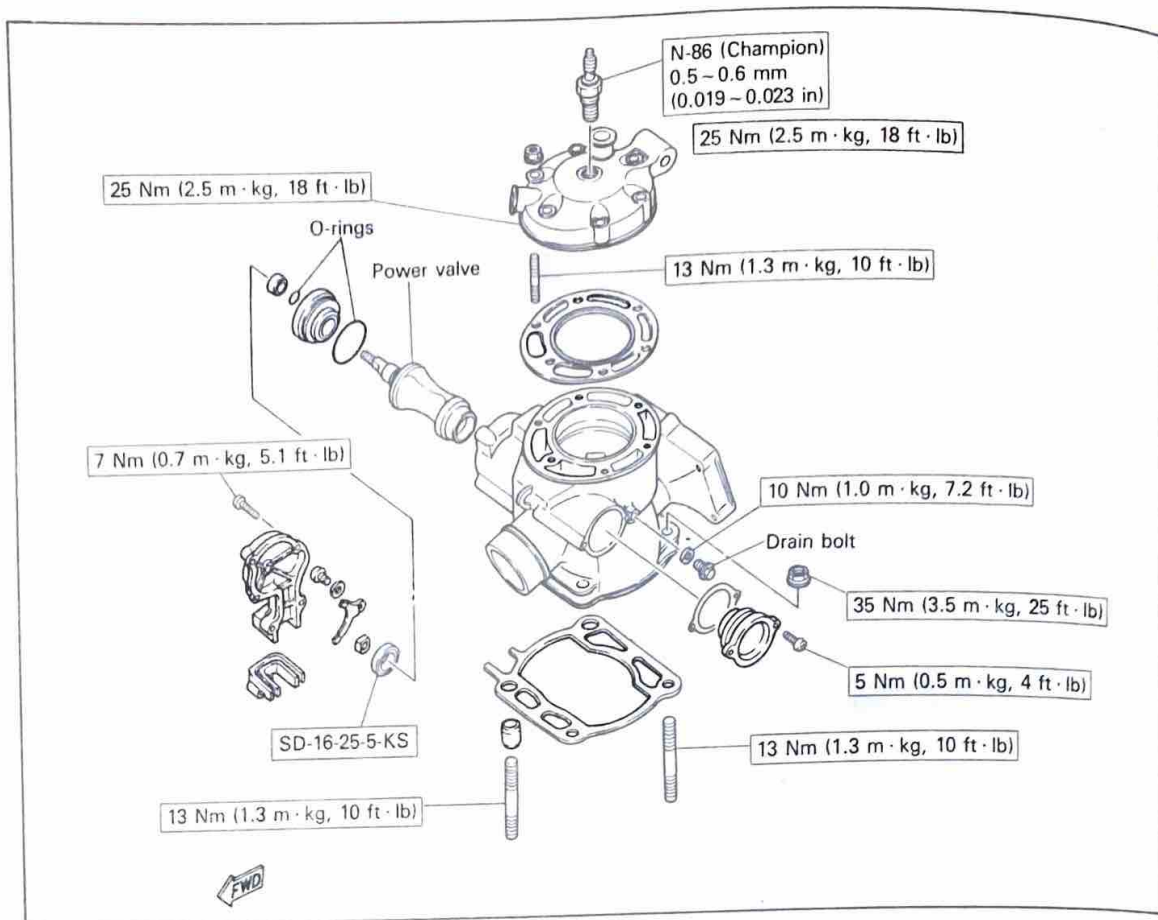
Maintenance

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



2. Place the head on a surface plate. There 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.



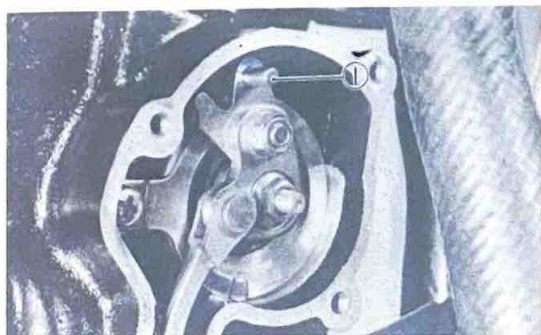


CYLINDER Removal

NOTE:

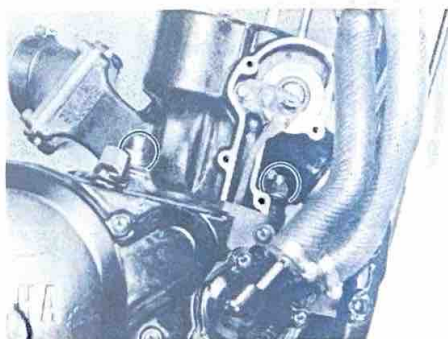
When removing the cylinder, be sure to remove the link assembly from the power valve first.

1. Remove the power valve cover.
2. Secure the valve arm to the cylinder with the locating pin, and remove the nut.



1. Knock pin

3. Loosen the cylinder holding nuts a quarter turn each in a crisscross pattern, and then remove the nuts in the same pattern.

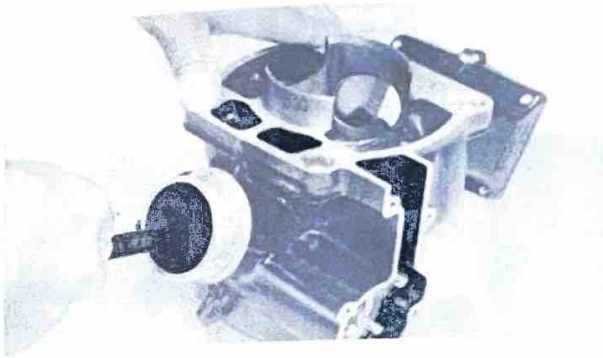


Cylinder holding nut:
35 Nm (3.5 m · kg, 25 ft · lb)

4. Remove the clutch wire.
5. With the piston at top dead center, raise the cylinder just enough to stuff a clean shop towel into the crankcase around the connecting rod; this will prevent dirt from entering the crankcase. Remove the cylinder and base gasket and discard the gasket.

Maintenance

1. Using a rounded scraper, remove carbon deposits from the exhaust port.

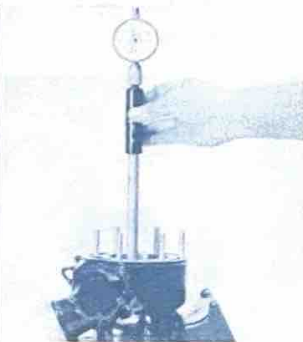
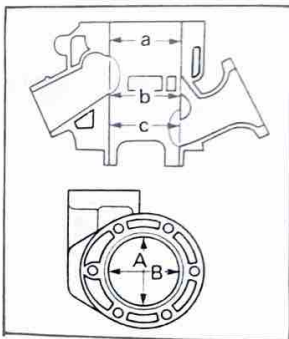


2. Check cylinder bore. Using a cylinder hone, remove any scoring. Hone lightly, using smooth stones. Hone no more than required to avoid excess piston clearance.

NOTE:

Before honing the cylinder, remove the power valve from it.

3. Using a cylinder gauge set to standard bore size, measure the cylinder. Measure front-to-rear and side-to-side at top, center and bottom just above exhaust port.



4. Compare minimum and maximum measurements. If over tolerance and not correctable by honing, rebore to next oversize.

Max. allowable taper:

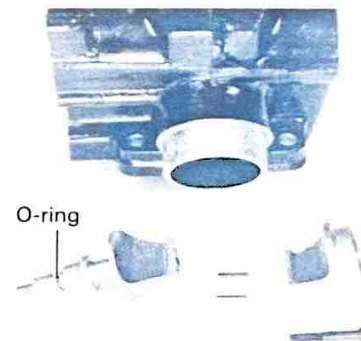
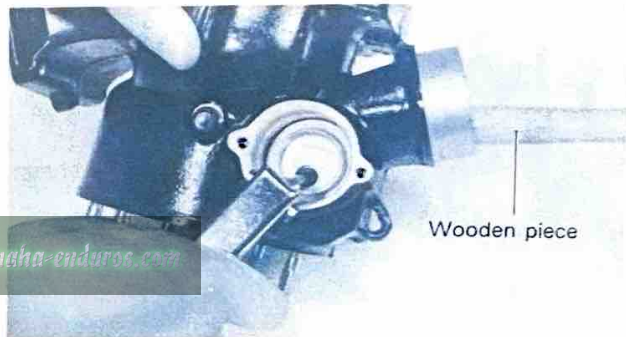
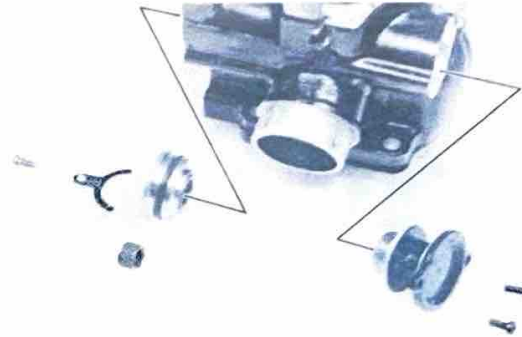
0.08 mm (0.0031 in)

Max. allowable out-of-round:

0.05 mm (0.0020 in)

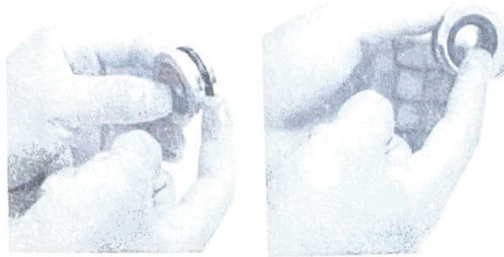
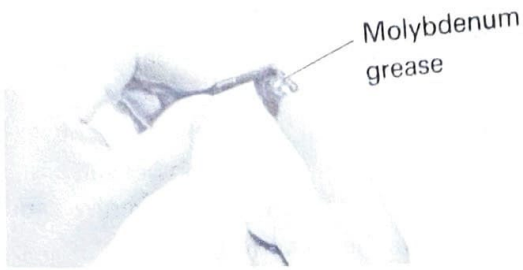
Power valve disassembly

1. After removing the housing cover stopper holder and valve holder, set the power valve with its punched dot upward.
2. Use a piece of wood through the exhaust port to steady the power valve.
3. Loosen the allen head screw and separate the power valve.



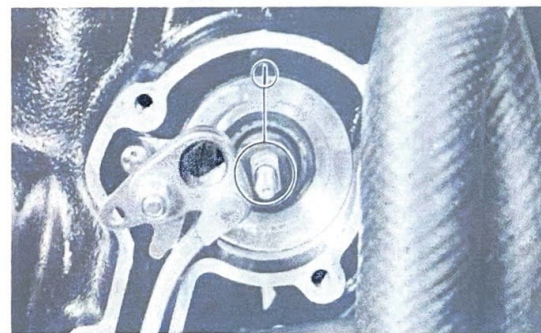
Power valve assembly

1. For reassembly, reverse the procedure for disassembly. Take care of the following precautions.
2. Apply molybdenum grease to the allen head screw.
3. Apply grease to the O-ring and oil seal.
4. After installing the valve, check it moves smoothly.



Power valve alignment

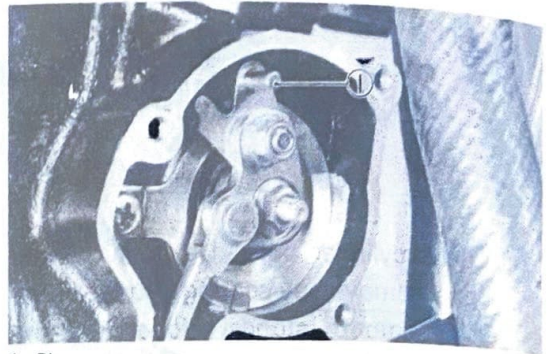
1. With the punch mark on the valve facing upward, install the lever boss and lever.
2. Lock the lever to the cylinder by inserting the pin into the holes.



1. Punch mark

3. Install the push rod bracket. Tighten the upper nut first and then, tighten the lower nut.

Tightening torque:
5 Nm (0.5 m · kg, 4 ft · lb)



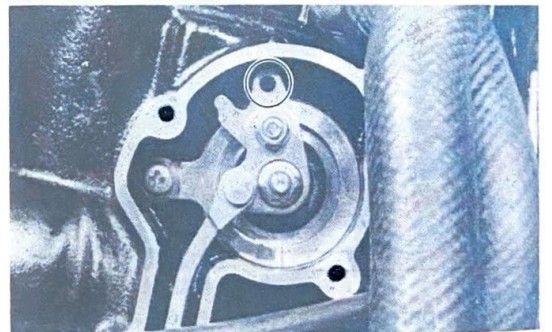
1. Pin

4. After tightening the nuts, remove the locating pin.

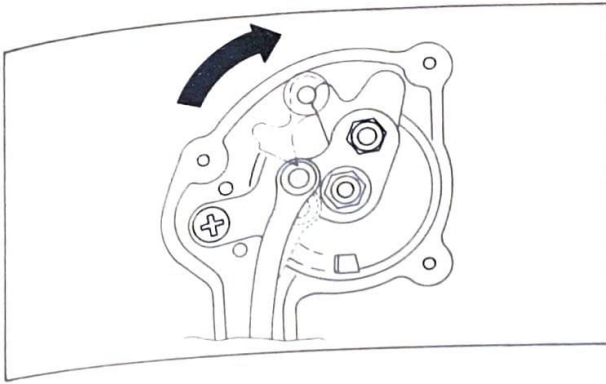
CAUTION:

Don't forget to remove the locating pin. Or it will adversely affect valve operation, and the engine will lack power at high speeds.

5. Make sure that as illustrated, the cut in the valve arm is aligned with the mark on the cylinder. If not aligned, make an adjustment.



6. After starting the engine, make sure that as illustrated, the arm operates smoothly while racing the engine.



CAUTION:
Avoid racing the engine for more than two seconds.

PISTON ASSEMBLY

Removal

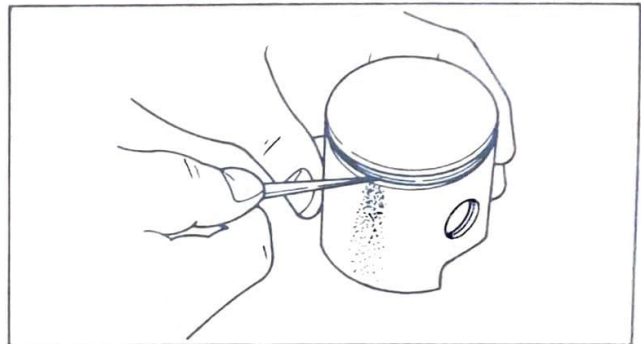
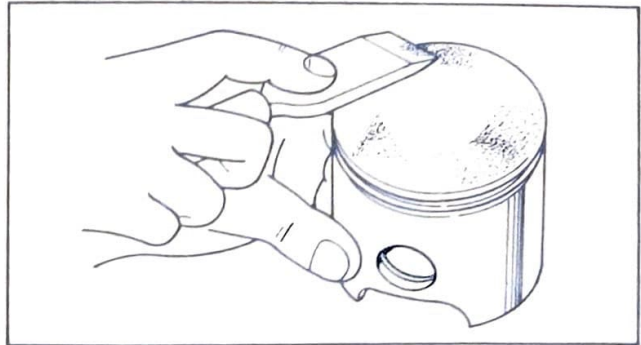
1. Remove the piston pin clip (1) from the piston. Push the piston pin out from opposite side. Remove the piston.



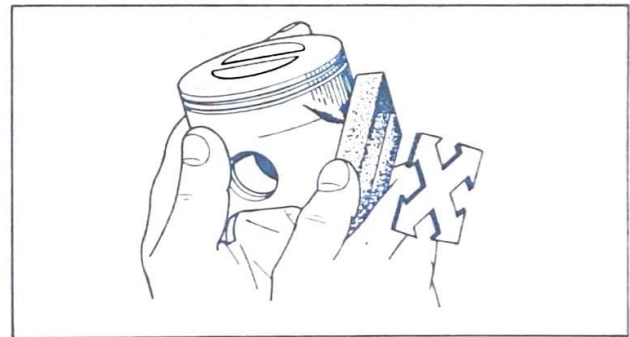
NOTE:
If the pin hangs up, use a piston pin puller. Do not hammer on pin as damage to rod, piston and bearing will result.

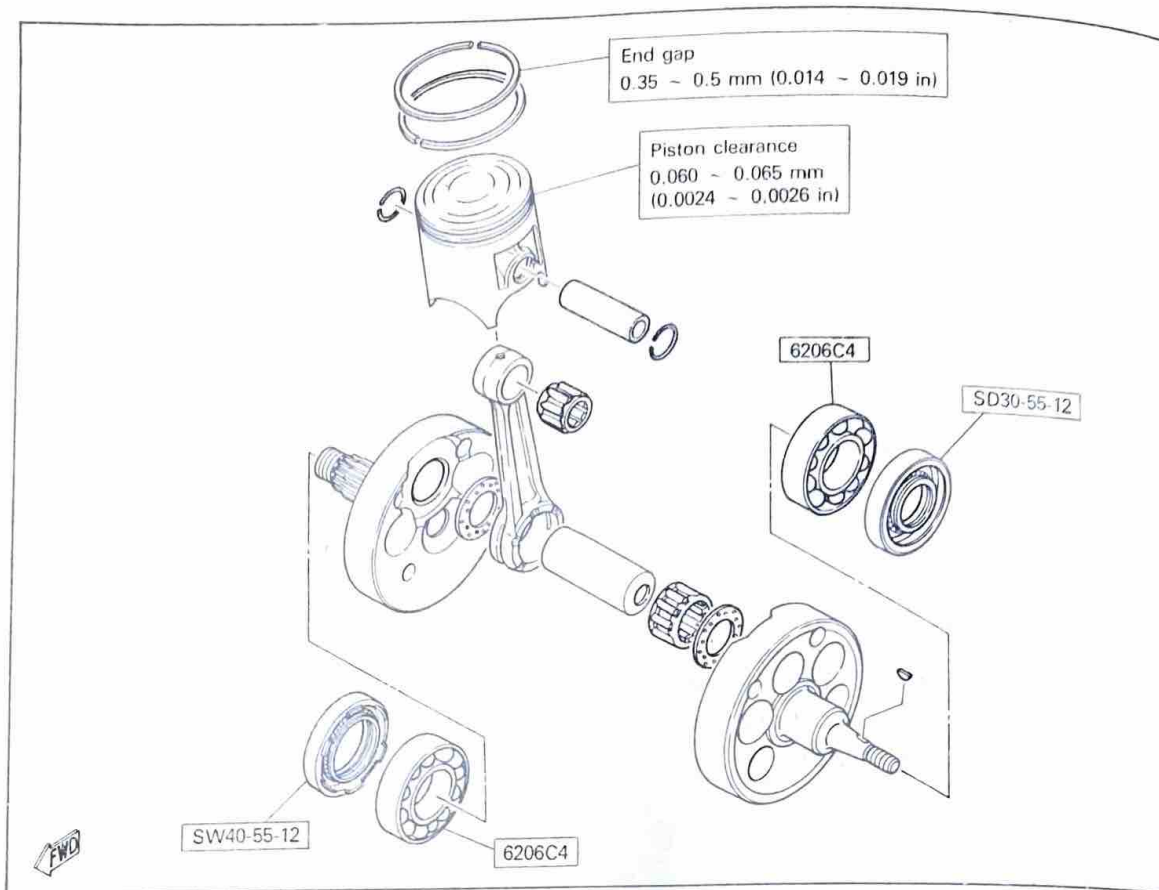
Maintenance

1. Using a rounded scraper, remove carbon deposits from piston crown and ring grooves.



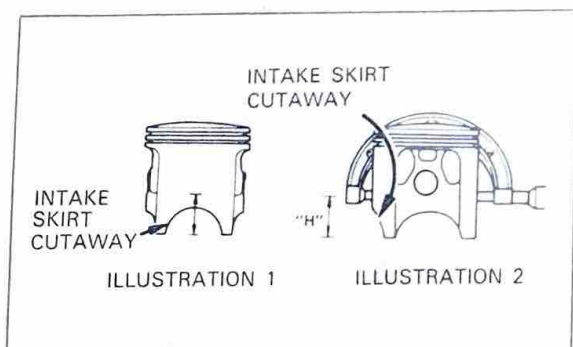
2. Using 400 ~ 600 grit wet sandpaper, lightly sand score marks and lacquer deposits from sides of piston. Sand in crisscross pattern. Do not sand excessively.





Piston outside diameter measurement

- To measure a cutaway piston, measure across the skirts at height "H" (just above the intake skirt cutaway) as shown in illustrations 1 and 2. Record this partial measurement.



- Add to this Partial Measurement (PM) the Adjustment Amount (AA) in the following table (PM + AA = piston diameter). The result will be the piston diameter. Use this figure to compute piston-to-cylinder clearance.

HEIGHT "H"	ADJUSTMENT AMOUNT (AA)
31 mm (1.22 in)	0.0 mm (0.0 in)

- To determine the piston-to-cylinder clearance, subtract the piston diameter from the minimum cylinder diameter. If the nominal piston clearance is not within tolerance, replace the piston or bore the cylinder as required.

PISTON CLEARANCE =	
Minimum	Maximum
Cylinder Diameter - Piston diameter	

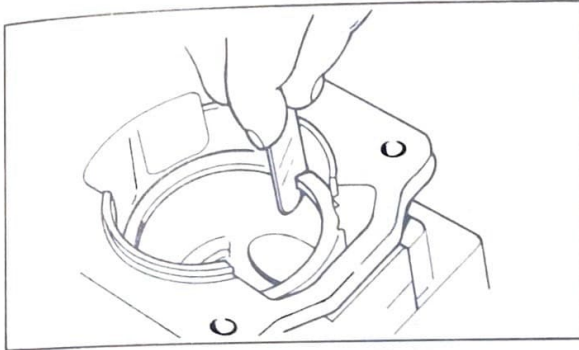
$$68.030 \text{ mm (2.678 in)} - 67.965 \text{ mm (2.675 in)} = 0.065 \text{ (0.002 in)}$$

Nominal piston clearance
0.060 ~ 0.065 mm (0.0024 ~ 0.0026 in)

Piston rings

1. Insert ring into cylinder. Push down approximately 20 mm (0.787 in) using piston crown to maintain right-angle to bore. Measure installed end gap. If beyond tolerance, replace.

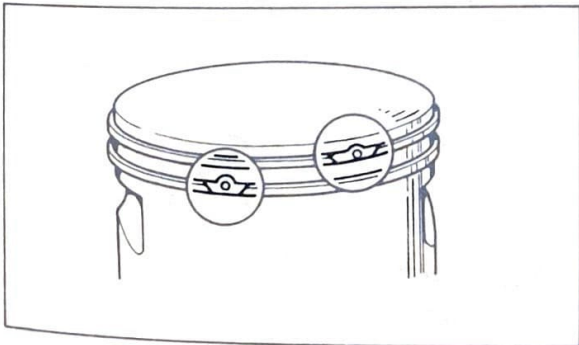
Ring end gap installed
0.35 ~ 0.50 mm (0.014 ~ 0.02 in)



2. Holding cylinder towards light, check for full seating of ring around bore. If not fully seated, check cylinder. If cylinder is not out-of-round, replace piston ring.
3. During installation, make sure ring ends are properly fitted around ring locating pin in piston groove. Apply liberal coating of two-stroke oil to ring.

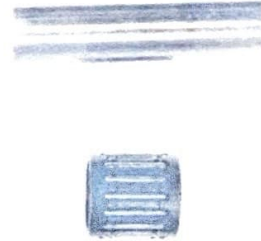
NOTE: _____

New ring requires break-in. Follow first portion of new machine break-in procedure.



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.



Reassembling

1. During re-assembly, always use a new cylinder base gasket.

NOTE: _____
Be sure to tighten the cylinder head nuts to specification.

Cylinder nut torque:
35 Nm (3.5 m · kg, 25 ft · lb)
Cylinder head nut torque:
25 Nm (2.5 m · kg, 18 ft · lb)

2. During re-assembly, coat the piston skirt areas liberally with two-stroke oil.
3. Install new piston pin circlips and make sure they are fully seated within their grooves.
4. Take care during installation to avoid damaging the piston skirts against the crankcase as the cylinder is installed.

NOTE: _____

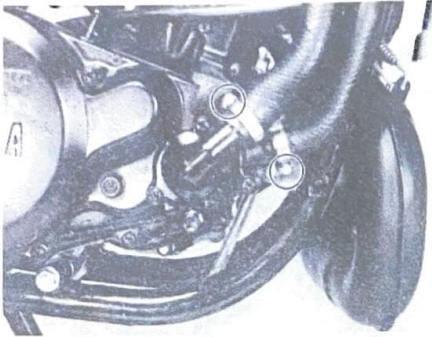
The arrow on piston dome must face forward.

5. Add the transmission oil and coolant to specification.

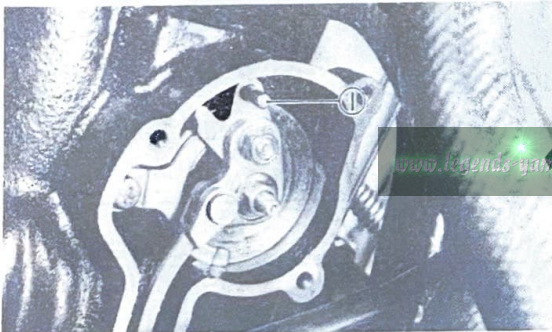
CRANKCASE COVER

Removal

1. Remove the brake adjuster and return spring.
2. Remove the kickstart lever.
3. Drain off the transmission oil and coolant.
4. Loosen the hose clamp and disconnect the hoses.

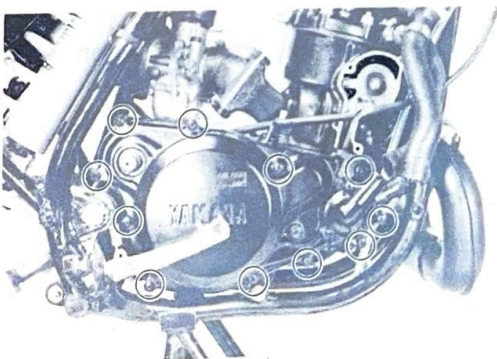


5. Remove the power valve cover and disconnect the valve arm.



1. Pin

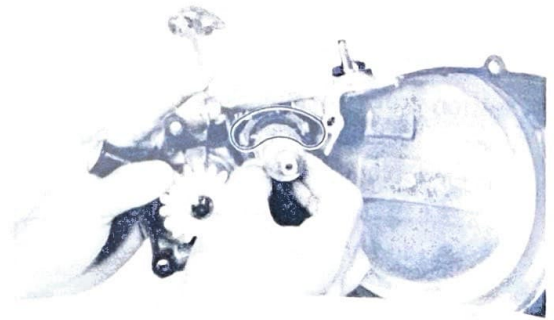
6. Remove the right hand crankcase cover.



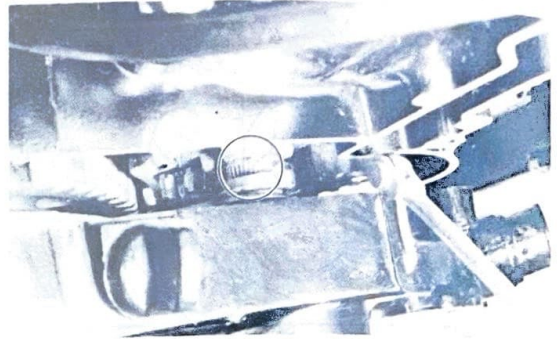
Reassembly

For reassembly, reverse the procedure for disassembly while taking the following care:

1. Align the groove in the governor with the fork guide and set the governor in the case.



2. Bring the serrations of the governor shaft and driven gear to align.



NOTE:

Be careful not to install the driven gear front side back. Otherwise, the case cover cannot achieve a full-faced contact with the case.

3. Engage the serrations of the pump drive gear and driven gear by turning the impeller by hand.



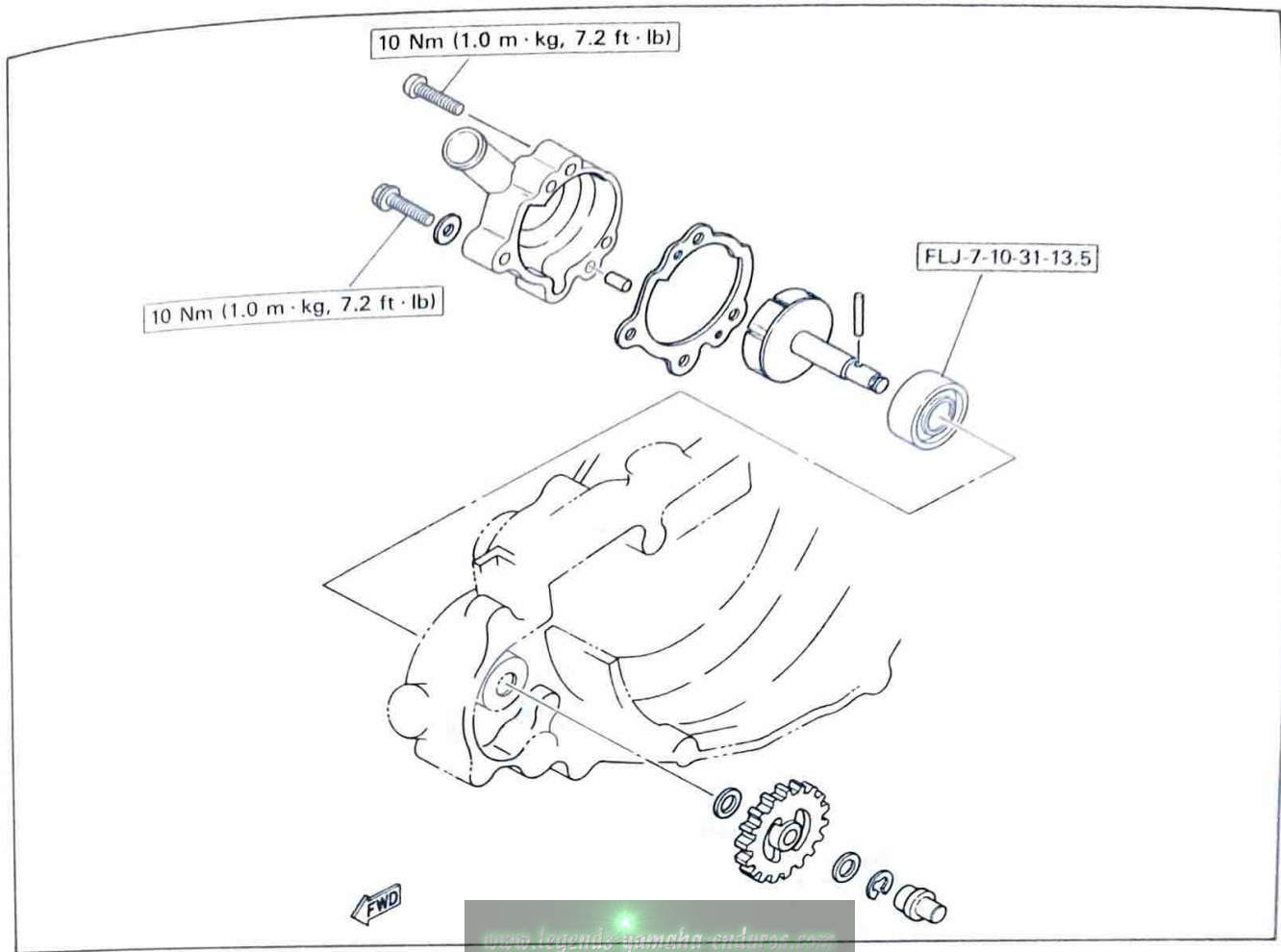
4. Install the power valve arm.

WATER PUMP

Disassembly

NOTE:

It is necessary to disassemble the water pump, unless there is no abnormality such as excessive change in coolant level, discoloration of coolant, or milky transmission oil.



Inspection

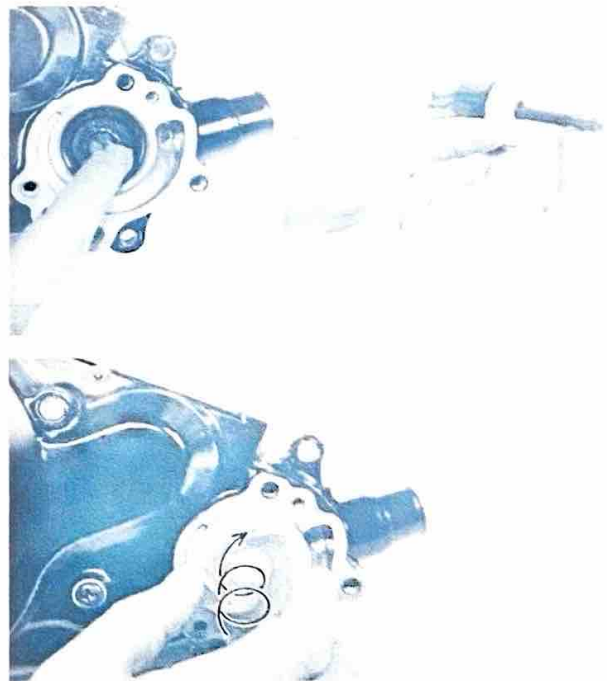
1. Remove the deposits from the impeller and water pump housing.
2. Check the impeller for cracks and damage. Replace if necessary.
3. Check for wear of the impeller, and replace it as required.
4. Check the oil seal and bearing for damage and wear. If damaged or worn excessively, replace the oil seal and bearing as a set.

NOTE:

When installing the oil seal, with the "WATER SIDE" mark is on the outside.

NOTE:

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



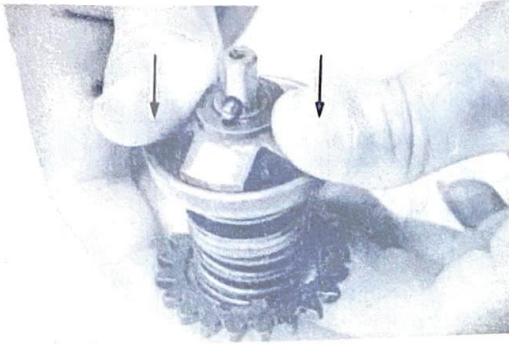
Reassembly

For reassembly, reverse the procedure for disassembly while taking the following care:

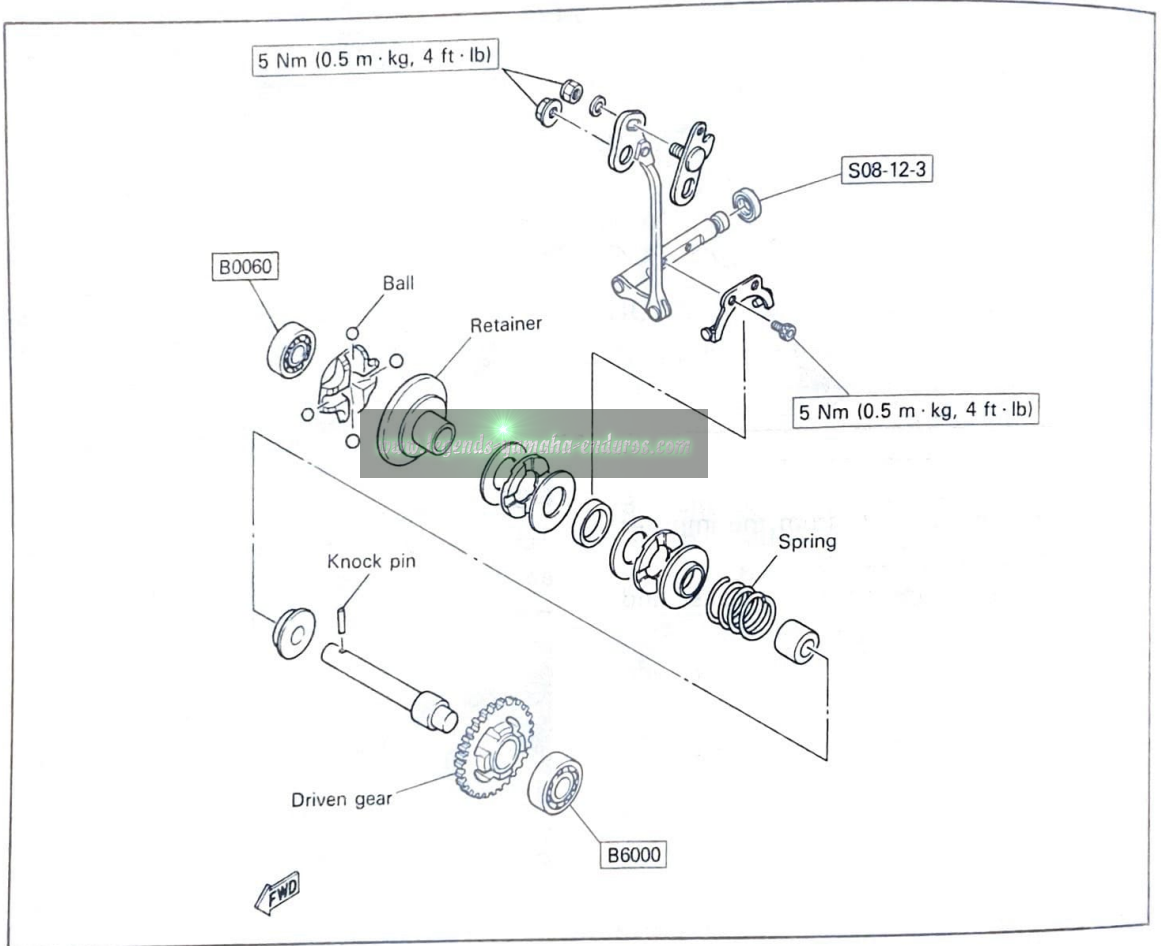
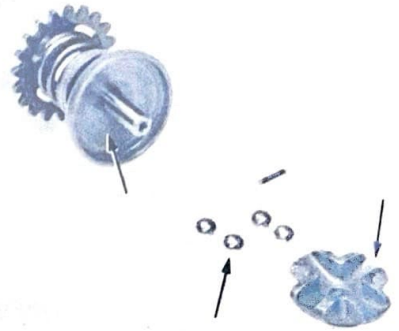
1. When installing the impeller shaft, apply a grease to oil seal and impeller shaft. And install the shaft while turning it.

Governor

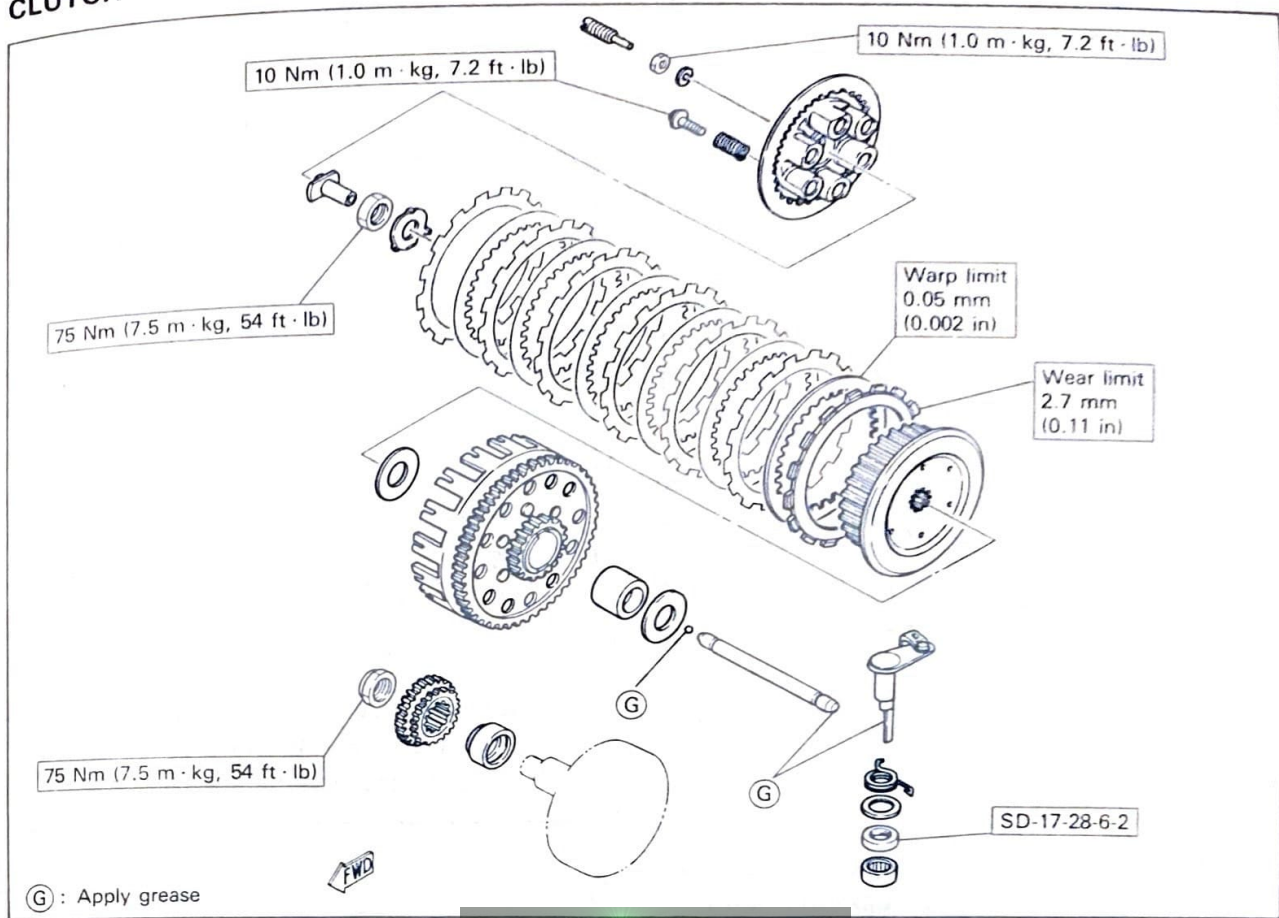
1. To disassemble the governor, remove the knock pin while depressing down the retainer plate as shown.



2. Check for spring fatigue or retainer wear. Replace the spring or retainer, if necessary.



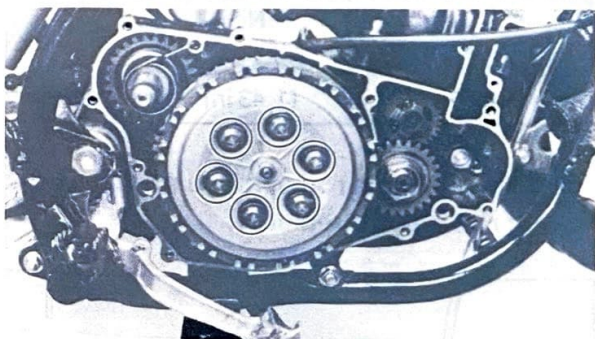
CLUTCH



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Removal

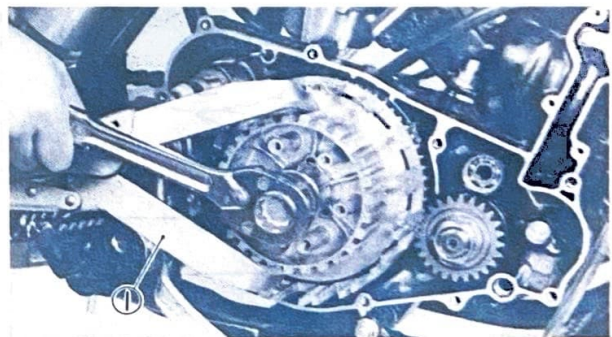
1. Remove the phillips screws (6) holding the pressure plate. Remove the clutch springs, pressure plate and push rod. Remove the clutch plates and friction plates.



NOTE:

When removing phillips spring screws, loosen each screw in several stages working in a crisscross pattern to avoid any unnecessary warpage. Note the condition of each piece as it is removed and its location within the assembly.

2. Bend lock washer tab down. Using the clutch holding tool, remove the clutch securing nut and lock washer. Remove the clutch boss and driven gear (clutch housing).



1. Clutch holding tool (YM-91042)

Clutch locknut torque:

75 Nm (7.5 m · kg, 54 ft · lb)

Primary drive gear nut torque:

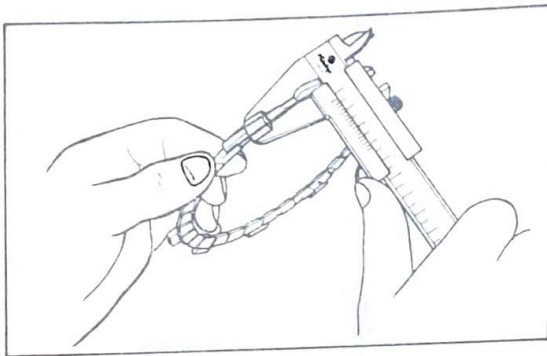
75 Nm (7.5 m · kg, 54 ft · lb)

- Remove the primary drive gear and water pump drive gear.

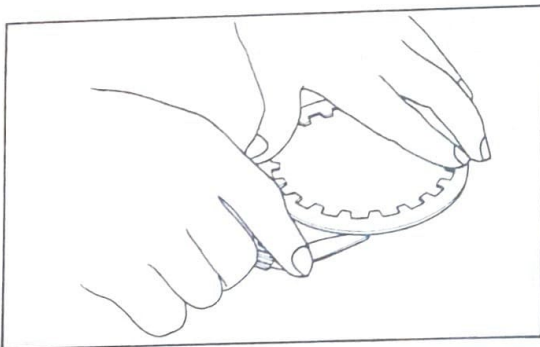
Maintenance

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

	New	Wear limit
Friction plate thickness	3.0 mm (0.12 in)	2.7 mm (0.106 in)

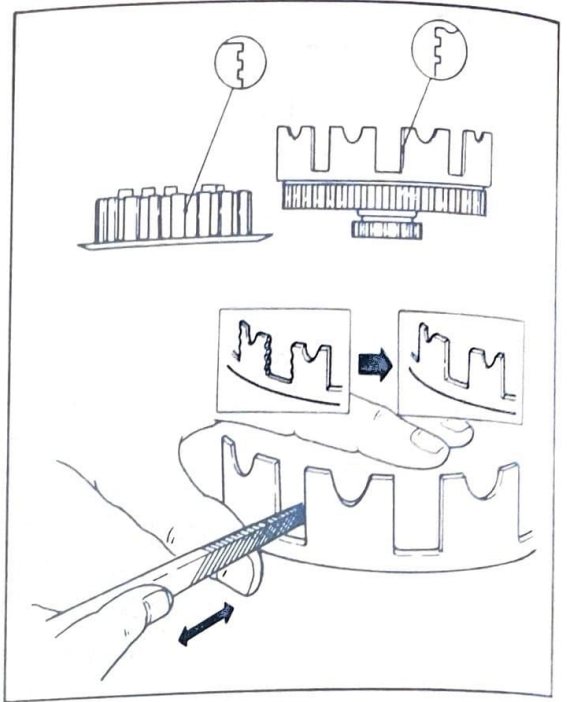


- Place each clutch plate on a surface plate and check for warpage with a feeler gauge; if warpage exceeds 0.05 mm (0.002 in), replace the clutch plate.

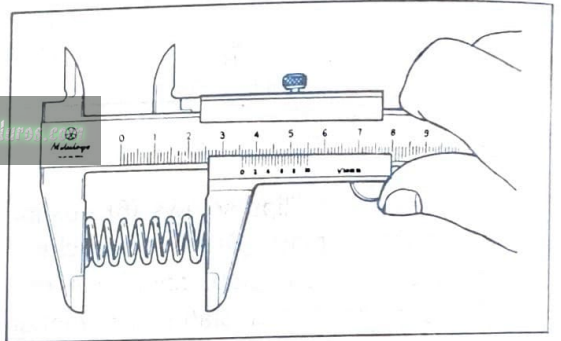


Clutch plate warpage allowance:
0.05 mm (0.002 in) Maximum

- Inspect the clutch hub and the outer clutch for wear as shown; if the wear is excessive, replace the component.

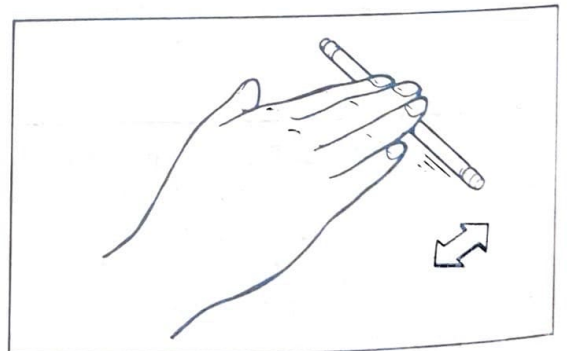


- Measure each clutch spring; if the free length of a spring is less than 35.4 mm (1.39 in), replace the spring as a set.



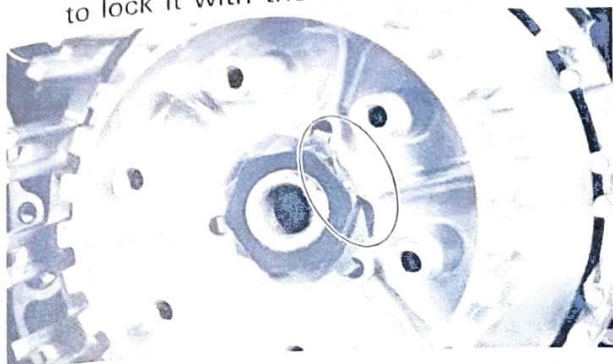
	New	Min.
Clutch spring free length	36.4 mm (1.43 in)	35.4 mm (1.39 in)

- Roll the push rod across a surface plate. If rod is bent, replace.

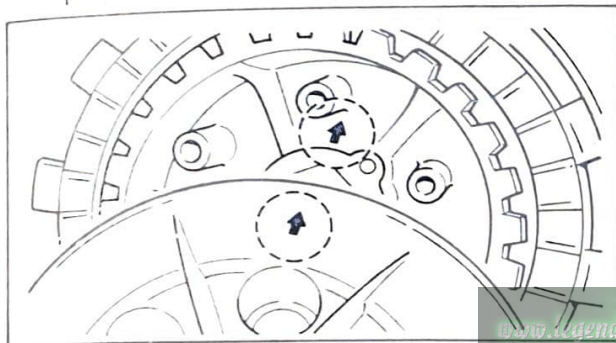


Installation

1. When installing the clutch locknut, always use a new lock washer. After tightening the locknut to the specification, be sure to lock it with the lock washer.

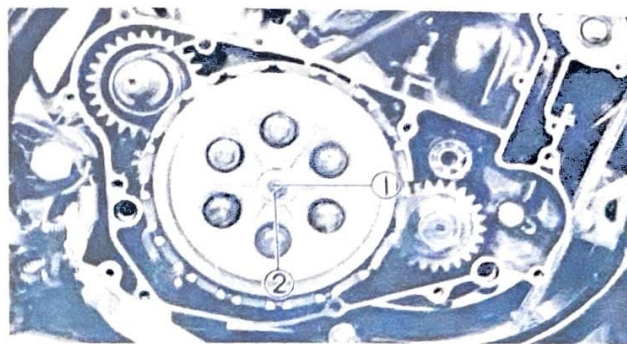


2. When installing the clutch pressure plate, align arrow mark on clutch boss and pressure plate mark.



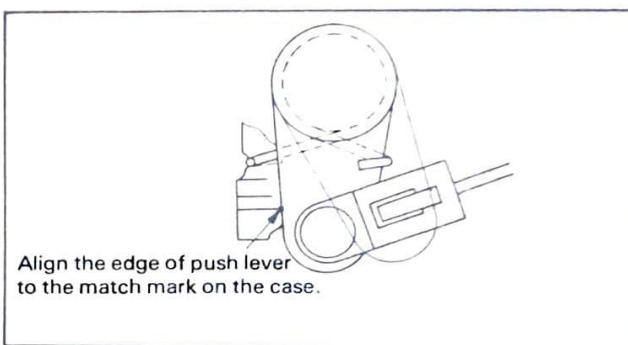
Mechanism adjustment

1. Loosen the clutch mechanism adjuster locknut, and loosen the adjusting screw.



1. Adjuster 2. Lock nut

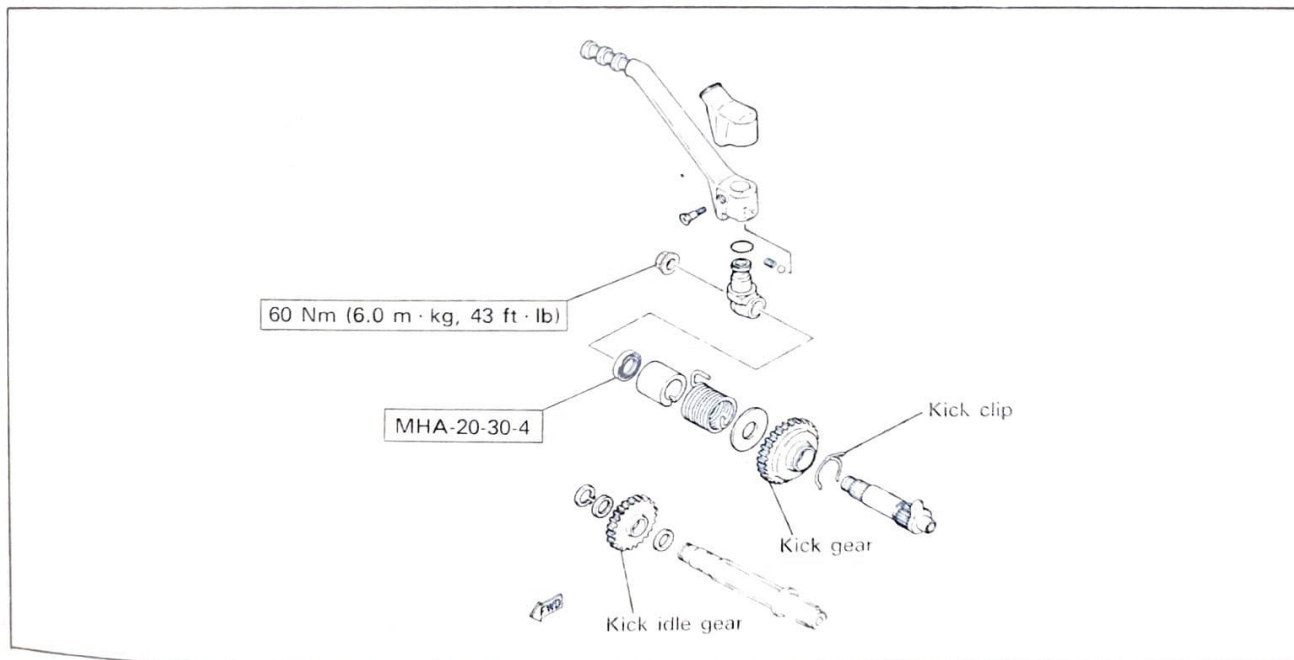
2. At the handle lever, loosen the cable adjuster locknut and adjust the cable length to align the match mark on the left-hand crankcase with the edge of the push lever.



Align the edge of push lever to the match mark on the case.

3. Turn the clutch mechanism adjusting screw in until resistance is felt, and tighten the adjuster locknut.
4. Adjust the cable adjuster at the handle lever to provide 2 ~ 3 mm (0.08 ~ 0.12 in) of free play at the clutch lever pivot; tighten the locknut.

KICK STARTER



Primary drive and driven gears

If primary drive and driven gear produce excessive noise during operation, gear lash may be incorrect. Marks are scribed on the side of each gear.

And in replacement, a gear having the same mark as before must be used.

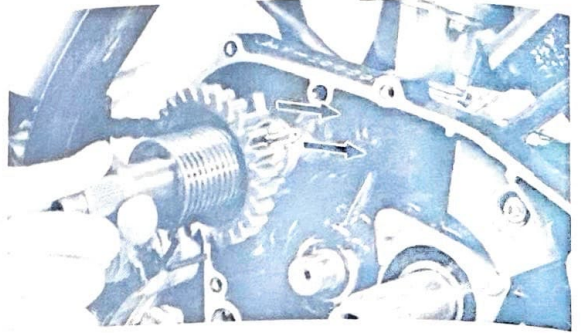
Removal

1. Remove circlip, kick idle gear and washers.
2. Unhook the kick spring from its post in the crankcase. Allow it to relax. Then remove the kick axle assembly by rotating the shaft counterclockwise and then pulling out the entire assembly. Check the gear teeth for wear and breakage.



Reassembly

1. Slide the shaft into the case; make sure the kick clip fits into its boss in the crankcase.



2. Turn the kick starter return spring clockwise and insert the hook into the proper hole in the crankcase.
3. After installing, check to make sure the kick gear engages and disengages properly with the idle gear.

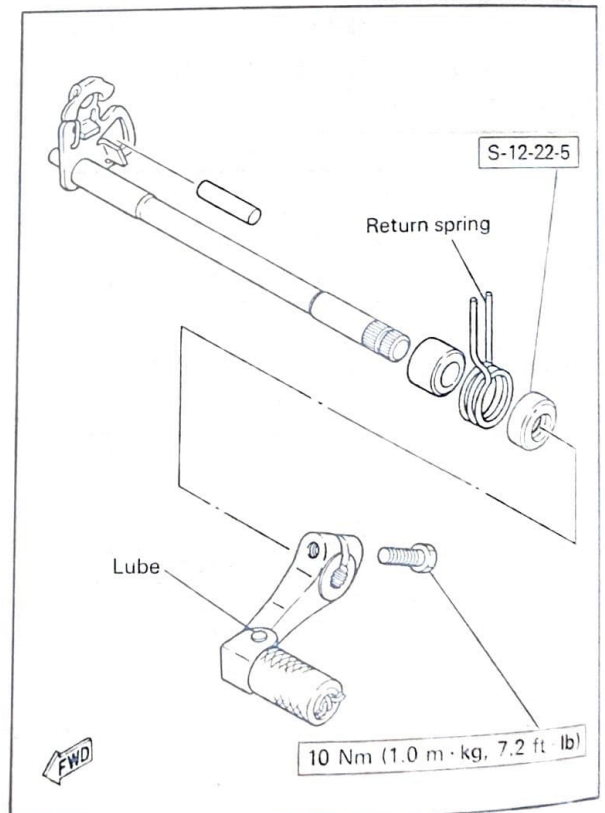
SHIFTER

NOTE:

Shifter maintenance should be performed with clutch assembly removed.

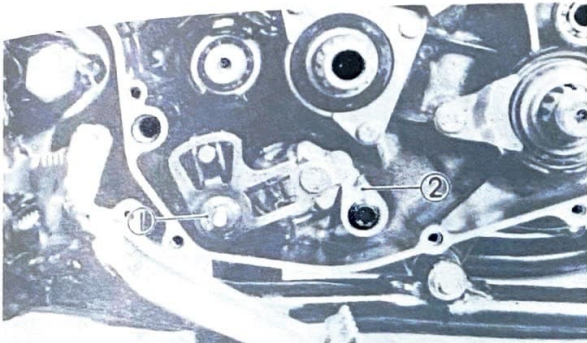
Inspection

1. Inspect the teeth of the idle and kick gears for wear or damage, replace the gear if wear or damage is found.
2. The pressure required to move the kick clip on the kick gear should be about 1.0 kg (2.2 lb). If the pressure required is more or less than this amount, the kick starter will malfunction; the kick clip must be replaced.



Removal

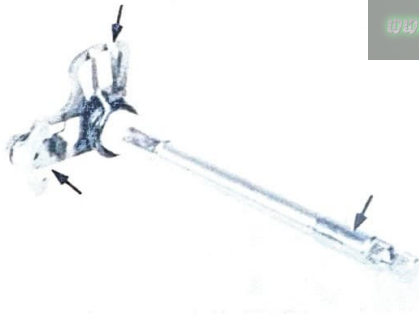
1. Pull out the change lever assembly.
2. Remove the flange bolt, stopper lever and spring.



1. Change lever assembly 2. Stopper lever

Inspection

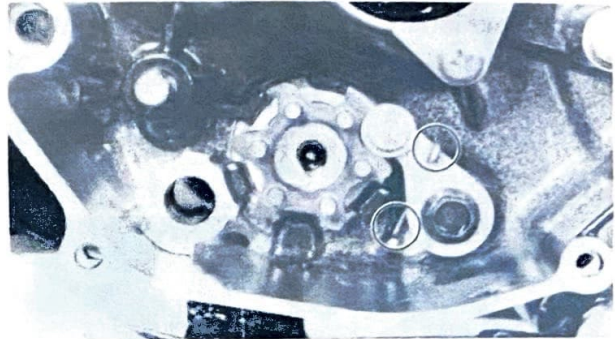
1. Inspect shift return spring. A broken or worn spring will impair the return action of the shifting mechanism.
2. Inspect change shaft assembly for bending of shaft, worn or bent spline, and broken or worn shift arm spring. A bent shaft will cause hard shifting.



3. Inspect the segment for wear or damage, replace as required.

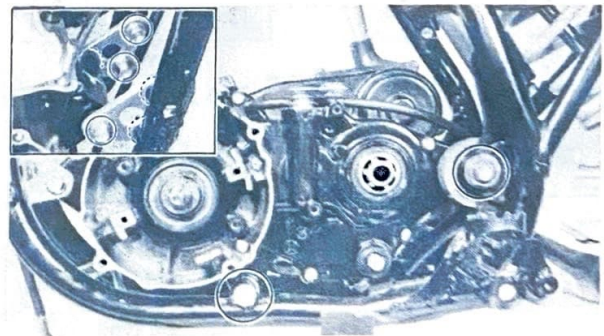
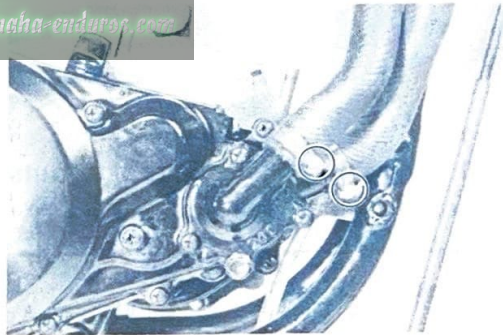
Installation

1. Engage the shift return spring with its home position.

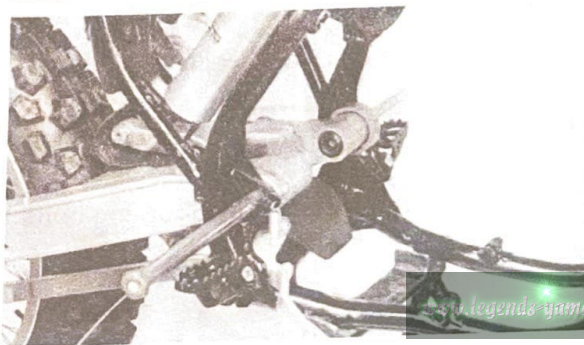
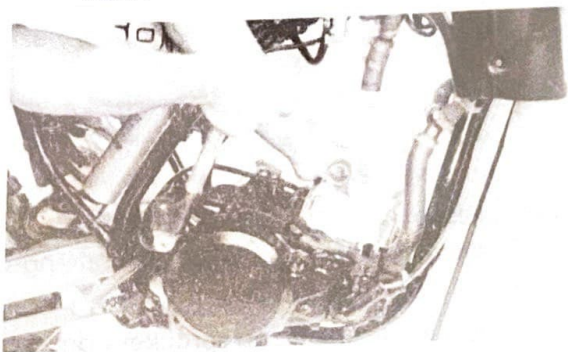


Engine removal

1. Remove the magneto base change pedal, and chain cover.
2. Remove the chain and sprocket from the machine.
3. Remove the rear brake adjuster and return spring.
4. Loosen the hose clamps and disconnect the water hoses.
5. Remove the two engine mounting bolts.



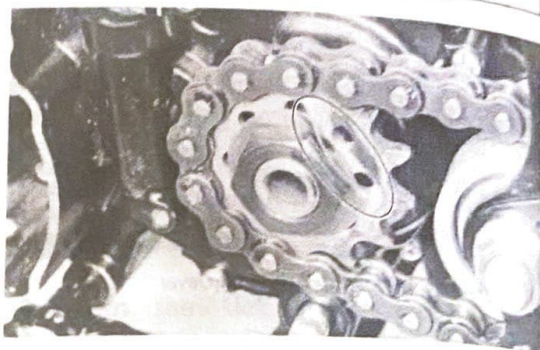
- Remove the nut from the swingarm pivot shaft, and pull the shaft out about two-thirds of its length; if the shaft is pulled all the way out, the swingarm will come loose. If possible, insert a shaft of similar diameter into the other side of the swingarm to support it.
- Remove the engine from right side of frame.



When installing the pivot shaft, grease it.

- Install drive sprocket.

Drive sprocket nut torque:
75 Nm (7.5 m · kg, 54 ft · lb)



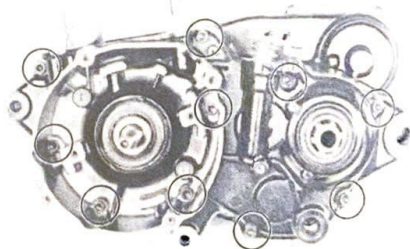
- Install flywheel magneto.

Rotor nut torque:
40 Nm (4.0 m · kg, 30 ft · lb)

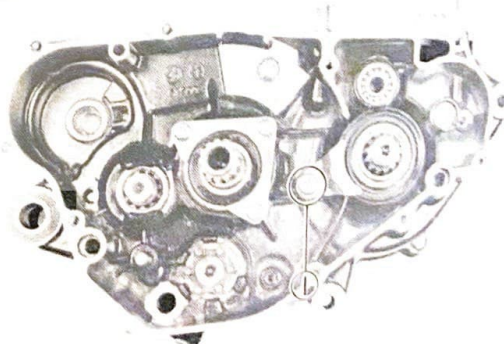
CRANKCASE

Crankcase disassembly

- Working in a crisscross pattern, loosen panhead screws 1/4 turn each. Remove them after all are loosened.



- Remove the oil seal retainer.



1. Retainer

Mounting

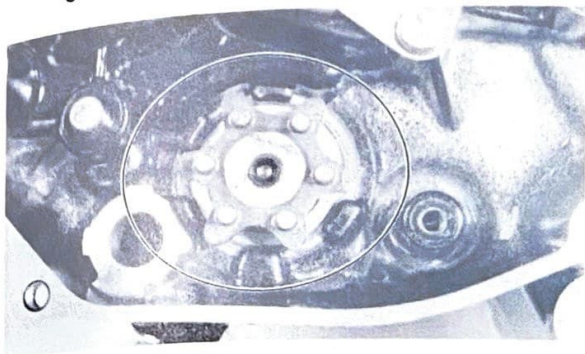
- Install engine mounting bolts and nuts with proper tightening torque.

Bolt		Tightening torque
Front	Bracket to frame	30 Nm (3.0 m · kg, 22 ft · lb)
	Bracket to engine	30 Nm (3.0 m · kg, 22 ft · lb)
Center, Lower		30 Nm (3.0 m · kg, 22 ft · lb)

Upper	Bracket to frame	30 Nm (3.0 m · kg, 22 ft · lb)
	Bracket to engine	65 Nm (6.5 m · kg, 47 ft · lb)

Pivot shaft nut:
85 Nm (8.5 m · kg, 60 ft · lb)

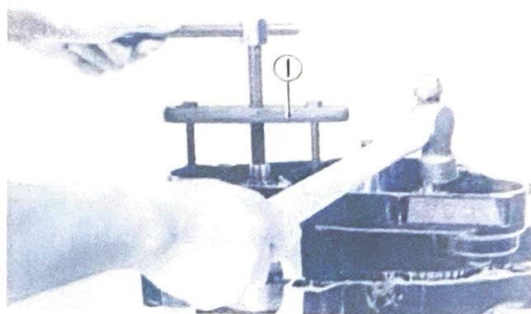
3. Before separating the crankcase, turn the segment to the position shown in the figure so that it does not contact the crankcase.



4. Install crankcase separating tool as shown.

NOTE:

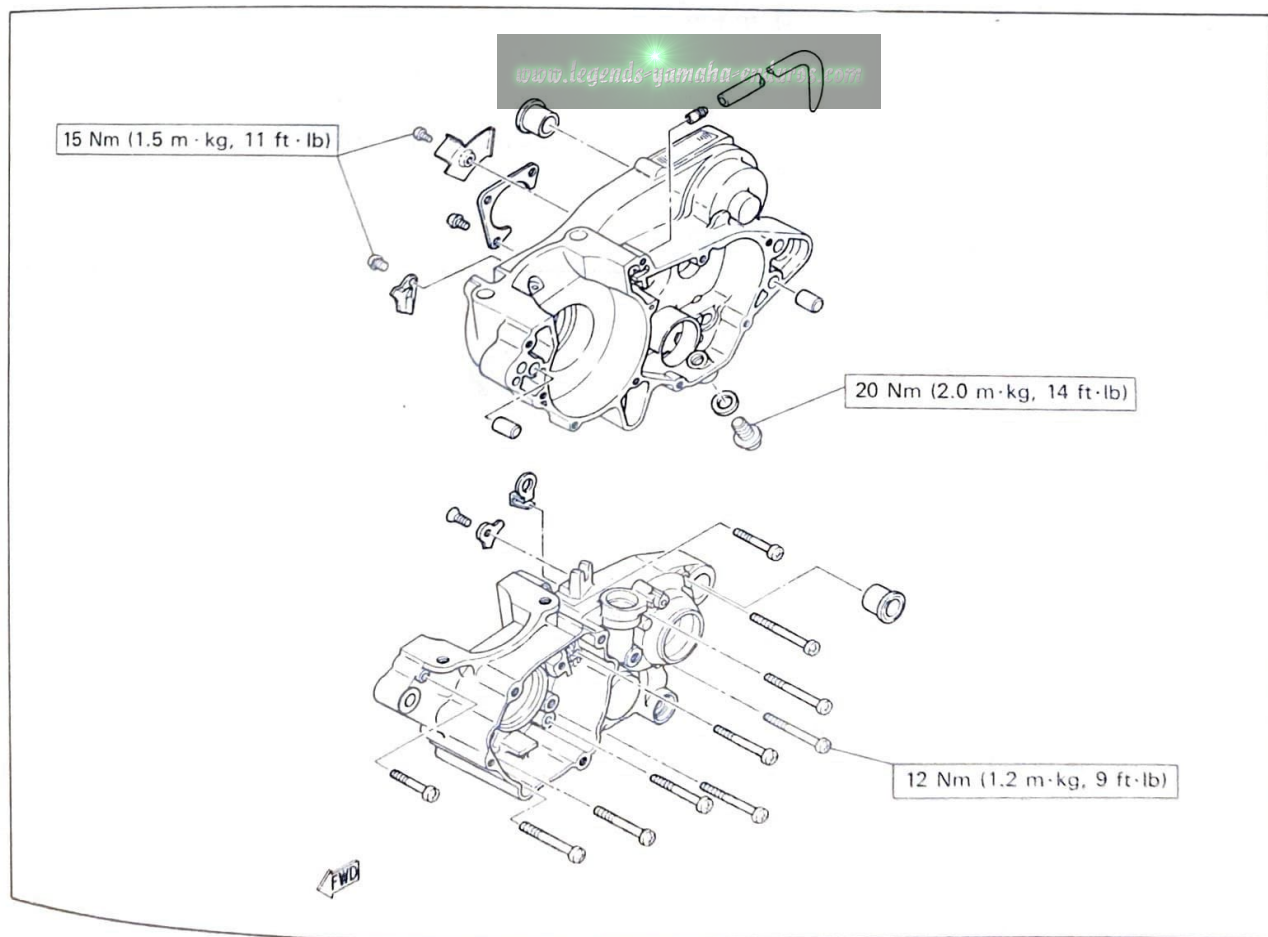
Tighten the securing bolts on the crankcase separating tool, but make sure the tool body is parallel with the case. If necessary, one screw may be backed out slightly to level tool body.



1. Crankcase separating tool (YU-01135)

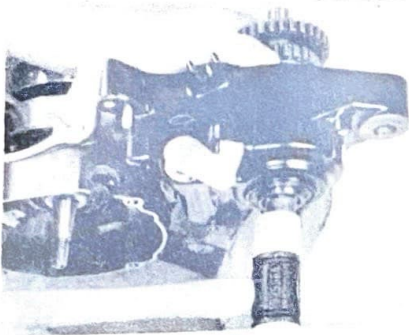
CAUTION:

Use a soft hammer to tap on the case half. Tap only on reinforced portions of case. Do not tap on gasket mating surface. Work slowly and carefully. Make sure the case halves separate evenly. If one end "hangs up," take pressure off the push screw, realign and start over. If the halves are reluctant to separate, check for a remaining case screw or fitting. Do not force.



Transmission and shifter

1. Tap lightly on the transmission drive shaft with a soft hammer to remove.



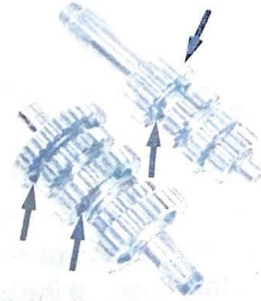
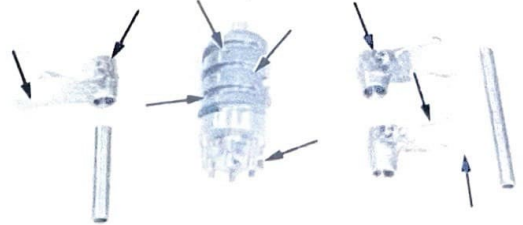
NOTE:

Remove assembly carefully. Note the position of each part. Pay particular attention to the location and direction of shift forks.

Inspection

1. Inspect each shift fork for signs of galling on gear contact surfaces. Check for bending. Make sure each fork slides freely on its guide bar.
2. Check the shift cam grooves for signs of wear or damage. If any profile has excessive wear and/or any damage, replace cam.
3. Check the cam followers on each shift fork for wear. The follower should fit snugly into its seat in the shift fork, but should not be overly tight. Check the ends that ride in the grooves in the shift
4. Carefully inspect each gear. Look for signs of obvious heat damage (blue discoloration). Check the gear teeth for signs of pitting, galling; or other extreme wear. Replace as required.
5. Check to see that each gear properly engages its counterpart on the shaft. Check the mating dogs for rounded edges, cracks, or missing portions. Replace as required.

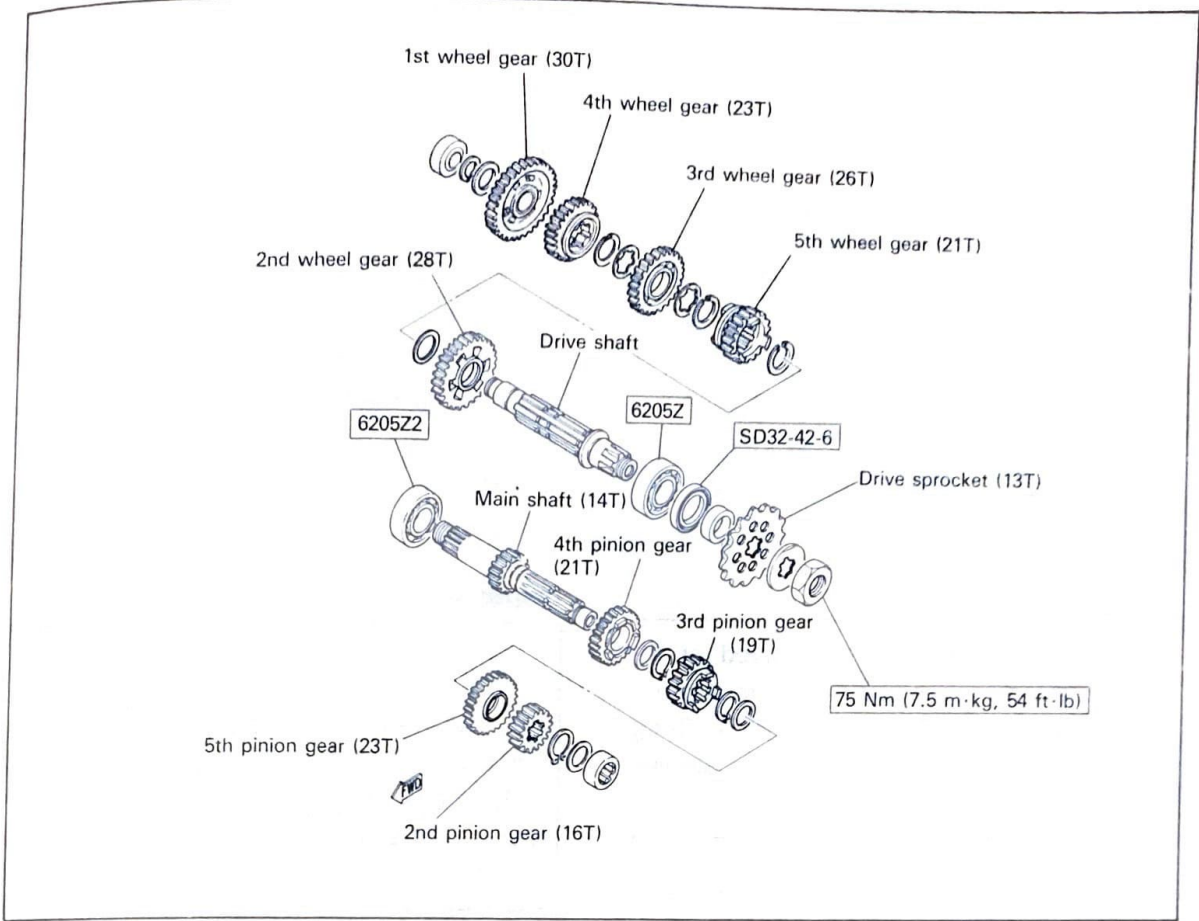
cam. If they are worn or damaged, replace.



15 Nm (1.5 m·kg, 11ft·lb)

6001

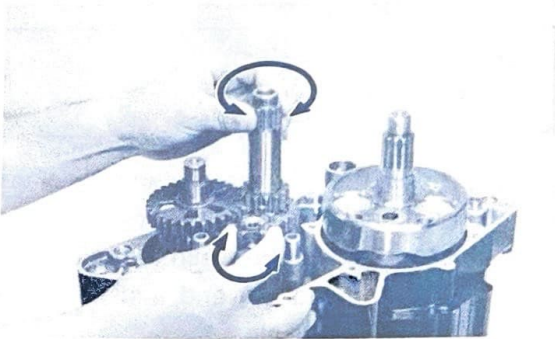




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Transmission installation

1. Check to see that all parts move freely and that all loose shims are in place. Make sure all shafts are fully seated.



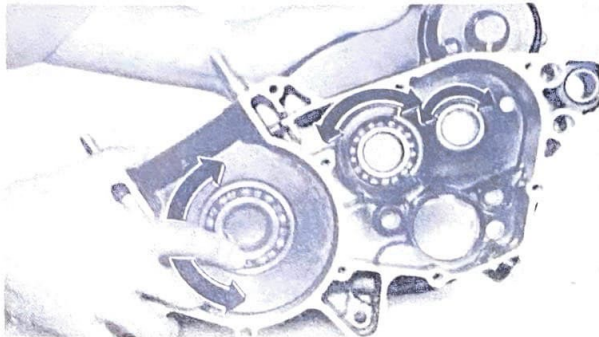
2. Thoroughly clean the case mating surfaces of oil or grease with lacquer thinner. Apply YAMAHA BOND #4 to the mating surfaces of both case halves.

NOTE: _____

- a. Do not tap on machined surface or end of crankshaft.
 - b. Before installing the crankshaft, check the crankshaft O-ring for damage.
-
3. After reassembly, apply a liberal coating of two-stroke oil to the crank pin and bearing and into each crankshaft bearing oil delivery hole.
 4. Check crankshaft and transmission shafts for proper operation and freedom of movement.

Bearings and oil seals

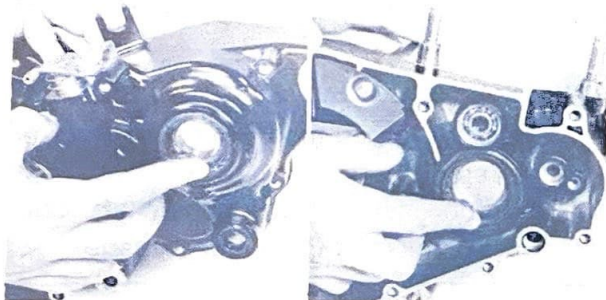
1. After cleaning and lubricating the bearings, rotate inner race with a finger. If rough spots are noticed, replace the bearing.



NOTE:

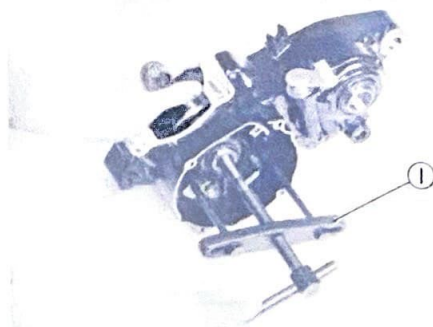
Bearing(s) are most easily removed or installed if the cases are first heated to approximately 90° ~ 120°C (194° ~ 248°F). Bring the case up to proper temperature slowly. Use an oven.

2. Check oil seal lips for damage or wear. Replace as required.
3. Always replace crankshaft oil seals whenever the crankshaft is removed.
4. Install bearing(s) and oil seal(s) with their manufacturer marks or numbers facing outward. Before installation, apply grease to oil seal lip(s) and bearing(s).



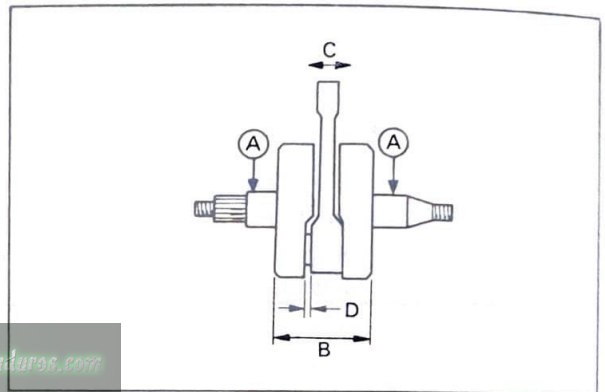
Crankshaft

1. Remove crankshaft assembly with crankcase separating tool.



1. Crankcase separating tool (YU-01135)

Inspection



- a. Mount the dial gauge at right angles to the connecting rod small end, holding the bottom of rod toward the dial indicator. Rock top of rod and measure axial play.

Connecting rod axial play (C):
0.8 ~ 2.0 mm (0.031 ~ 0.079 in)

- b. Remove the dial gauge and slide the connecting rod to one side. Insert a thickness gauge between the side of the connecting rod big end and the crank wheel. Measure clearance.

Connecting rod/crank side clearance (D):
0.25 ~ 0.75 mm (0.01 ~ 0.029 in)

Unit: mm (in)

Deflection tolerance (A)		Flywheel width (B)
Left side	Right side	62 ⁺⁰ _{-0.05} (2.44 ⁺⁰ _{-0.02})
0.03 (0.0012)	0.03 (0.0012)	

- c. If any of the above measurements exceed tolerance, crankshaft repair is required. Take the machine to your authorized Yamaha dealer.

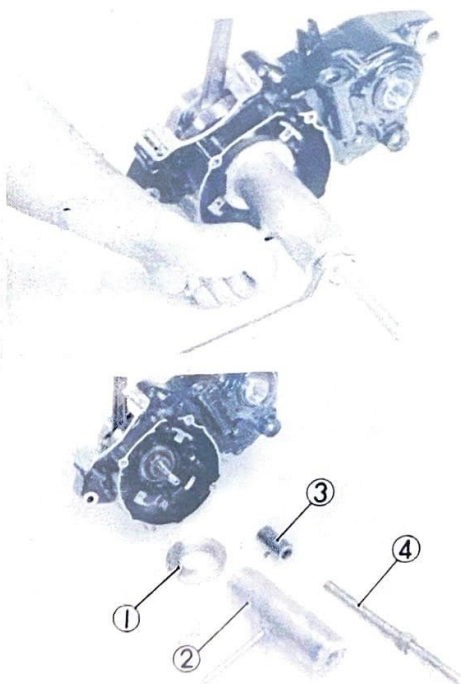
Crankshaft installation

1. Set the crankshaft into left case half and install crankshaft installing tool.

CAUTION:

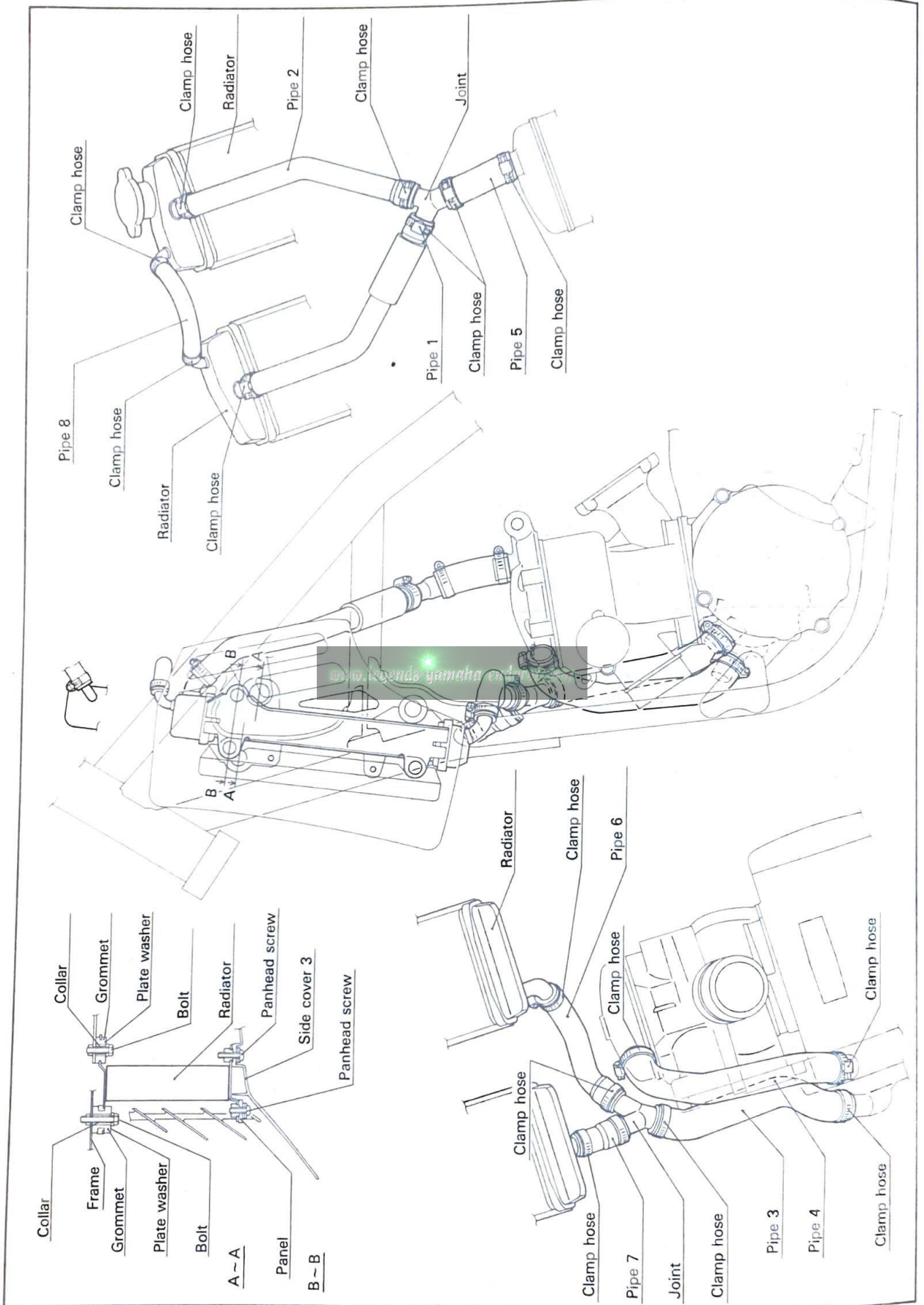
To protect the crankshaft against scratches or to facilitate the operation of installation: Pack the oil seal lips with grease. Apply engine oil to each bearing.

2. Hold the connecting rod at top dead center with one hand while turning the handle of the installing tool with the other. Operate tool until crankshaft bottoms against bearing.



1. Spacer
2. Crankshaft installing pot
3. Adapter
4. Crankshaft installing bolt

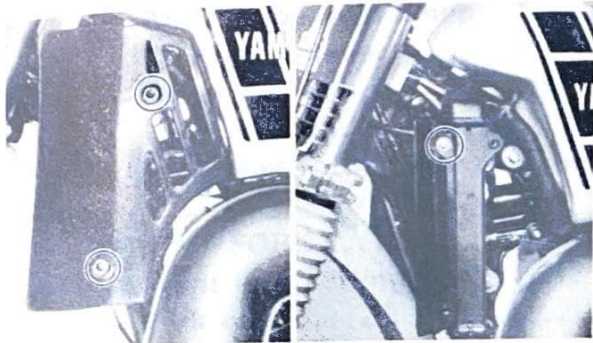
COOLING SYSTEM



Radiator removal

Before servicing the radiator, it should be drained off.

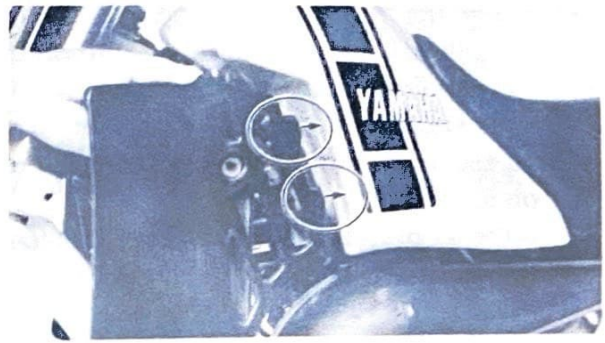
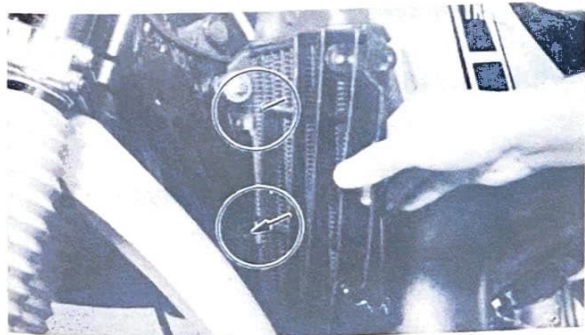
1. Remove the pan head screws and remove the side cover.
2. Remove the pan head screw, and remove the air deflector.
3. Remove the three bolts, remove the radiator hose, and remove the radiator.



Radiator installation

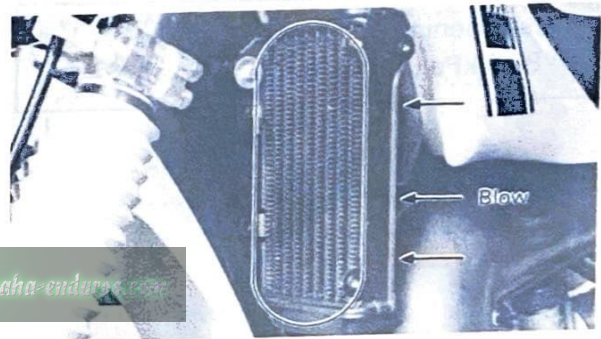
When installing the radiator, keep in mind the following:

1. Insert the air deflector stays firmly into the holes in the radiator.
2. Insert the side cover stay into the fuel tank.



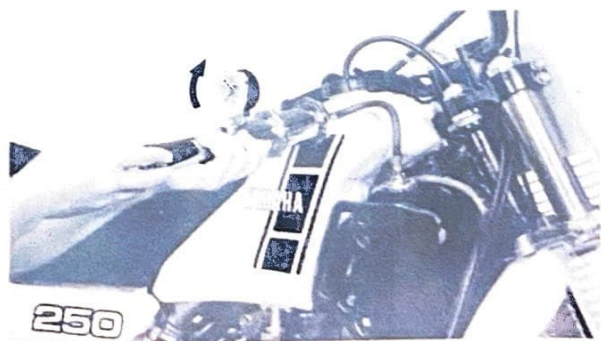
Cooling system checks

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



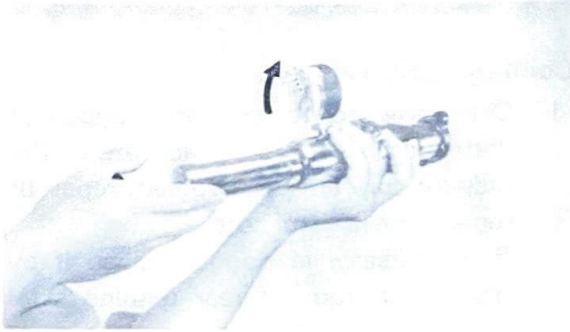
2. Check the coolant hoses for cracks and damage. Replace as required.
3. Inspect the cooling system for leaks. Attach the cap tester to the radiator and pump it to the specified pressure. If the pressure gauge drops, inspect all hoses, fittings and radiator for an external leak. If leakage is found, repair or replace defective parts.

Pressure: 98.1 kPa (1,0 kg/cm², 14.2 psi)



- Using the cap tester, check that the radiator cap vacuum valve and pressure valve operate correctly. Measuring with a tester, apply the specified pressure for 10 seconds, and make sure there is no pressure drop.

If the air pressure shows a drop, replace the radiator filler cap.



Valve opening pressure:
88.3 kPa (0.9 kg/cm², 12.8 psi)

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4 CHASSIS MAINTENANCE AND REPAIR

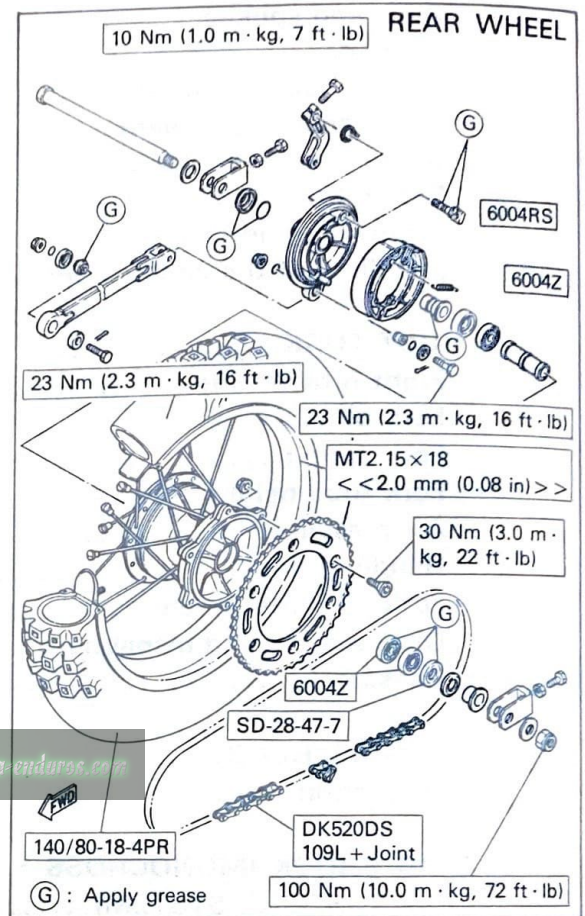
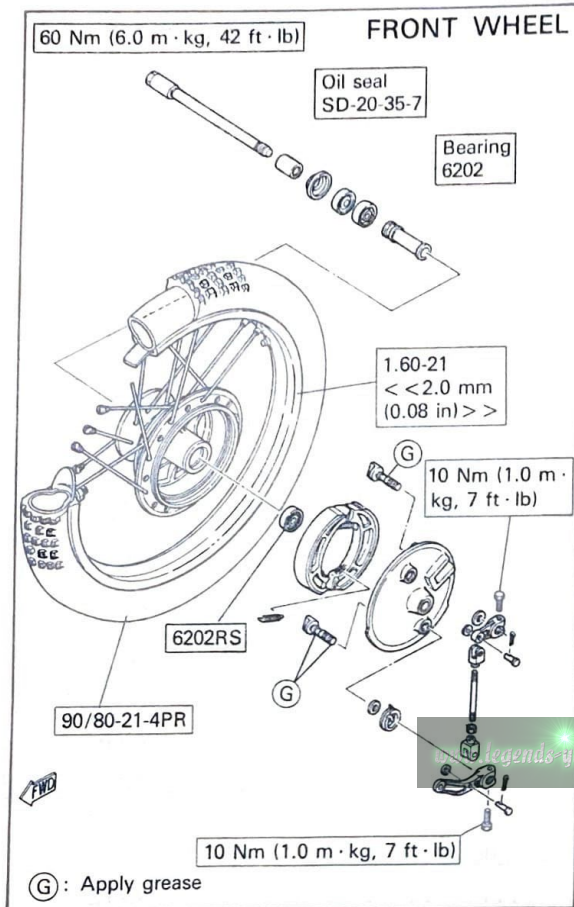
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4 CHASSIS MAINTENANCE AND REPAIR

WHEEL ASSEMBLIES, SPROCKETS AND CHAIN

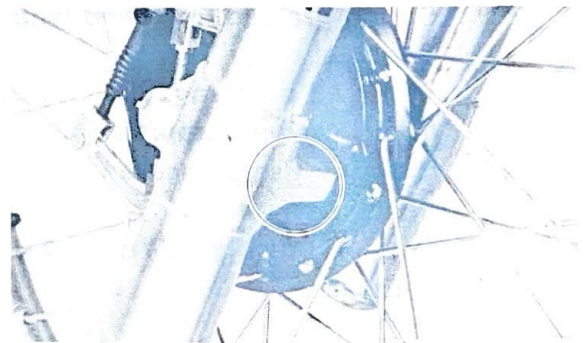
Whenever performing chassis work, always take extra care and double-check each step of each procedure. The wheels, brakes, suspension, steering, and frame must all be in top condition to provide optimum performance, reliability, and safety.



Wheel installation

When installing wheels, reverse the removal procedure taking care of the following points.

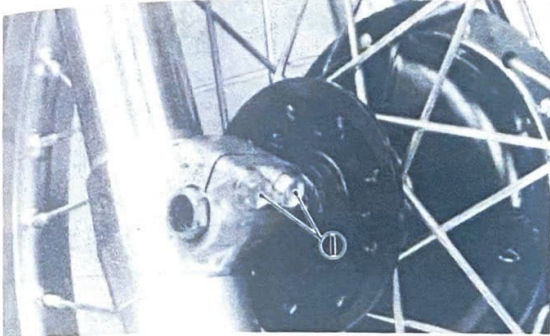
1. Lightly smear grease on:
 - * The shafts
 - * The bearings and oil seal lips
 - * The O-ring and dust cover interior for the rear brake shoe plate
 - * The oil seal and collar outer circumference from the torque arm.
2. Check for proper engagement of the boss on the outer tube with the locating slot on the brake shoe plate.



3. Make sure nuts are properly tightened.

NOTE:

- a. After installing the wheel, rotate it freely and apply the brake.
- b. With the brake applied, tighten the axle nut.
- c. Dive the front forks several times, and while keeping them dived, tighten the axle pinch bolts.



1. Pinch bolt

Front wheel axle:

60 Nm (6.0 m · kg, 43 ft · lb)

Axe pinch bolts:

20 Nm (2.0 m · kg, 14 ft · lb)

Rear wheel axle:

100 Nm (10.0 m · kg, 72 ft · lb)

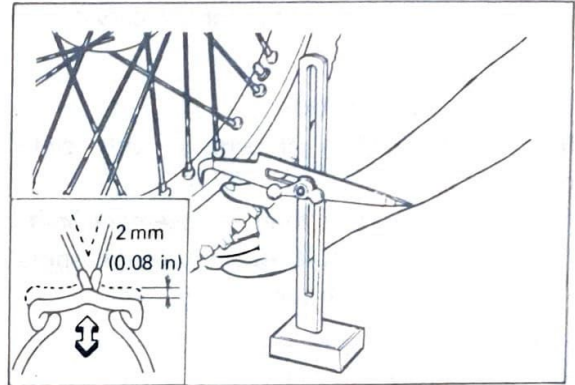
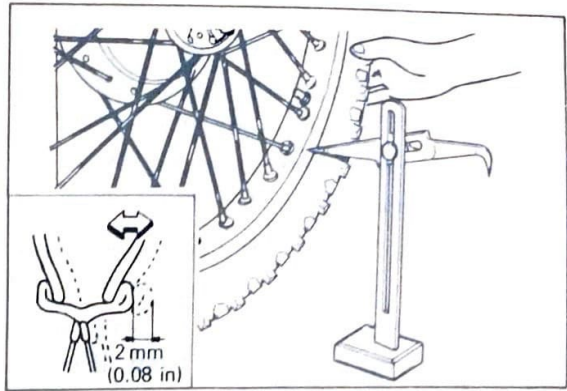
Torque arm:

23 Nm (2.3 m · kg, 16 ft · lb)

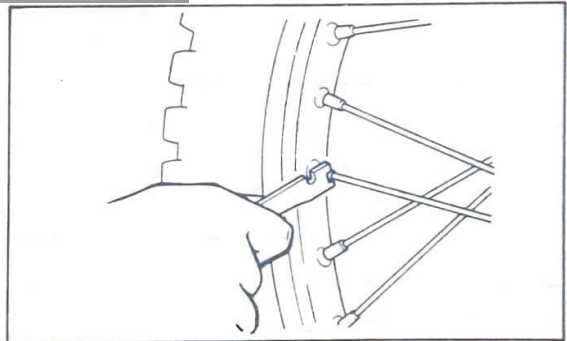
4. Always use new cotter pins. Old pins should be discarded.
5. Be sure to adjust the tension of the chain. (Refer to Page 2-11 of "Drive chain".)
6. Adjust the play in the brake lever and pedal.

Rims and spokes

1. Block the wheels off the ground.
2. Spin the wheels and observe the amount of runout.
3. If the runout exceeds 2.0 mm (0.080 in), true the wheels.



4. Tap each spoke with a spoke wrench to determine if any spokes are loose; tighten all loose spokes and replace bent spokes.



*The nipple wrench must be of the correct size. Use care not to over-tighten.

5. If a rim is severely "dinged" or bent, replace the rim.

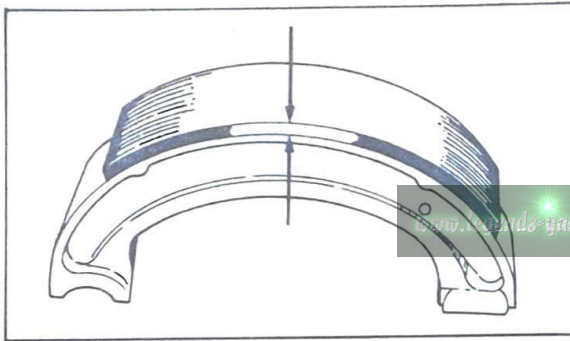
Bearings

1. To inspect the wheel bearings, try to move the wheel sideways in relation to the fork in the front or the frame in the rear. If any movement is felt, the bearings must be replaced.
2. Block the wheels off the ground and spin each wheel. If the wheels do not spin freely with the brakes disengaged, the bearings must be replaced. If bearings need replacement, take the wheels to your Yamaha dealer for this service.

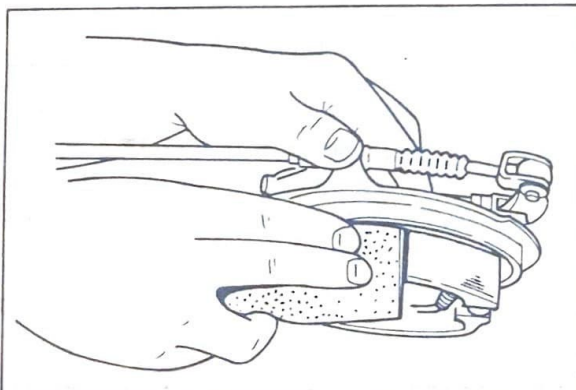
Brake shoe inspection

Measure the shoe thickness with slide calipers.

If they measure less than replacement limit, replace them. Smooth out any rough spots on shoe surface with sandpaper.

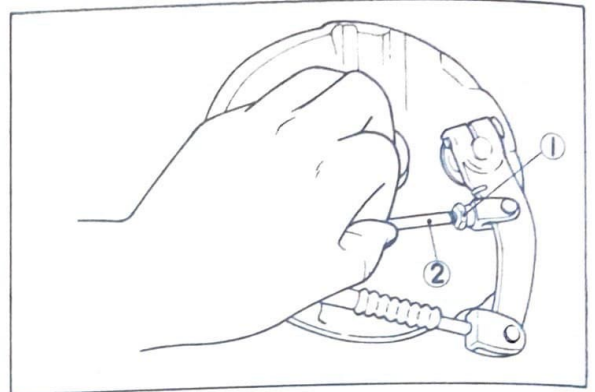


Standard thickness	Min. allowable thickness
4 mm (0.16 in)	2 mm (0.08 in)

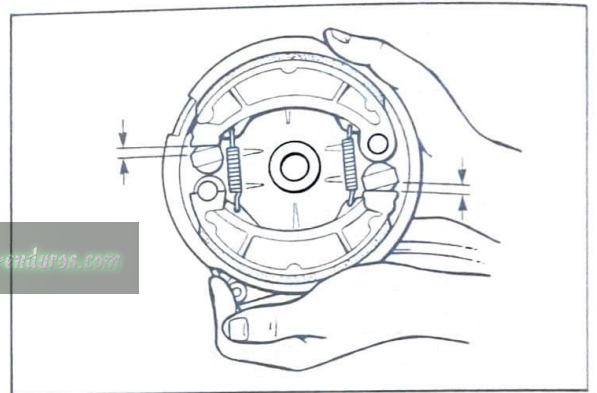


Brake shoe adjustment

On the two-leading shoe brake, the cam lever should be so installed that when the brake is applied, the two cams push the brake shoes evenly and simultaneously. This adjustment should be done by turning the adjuster and locknut.

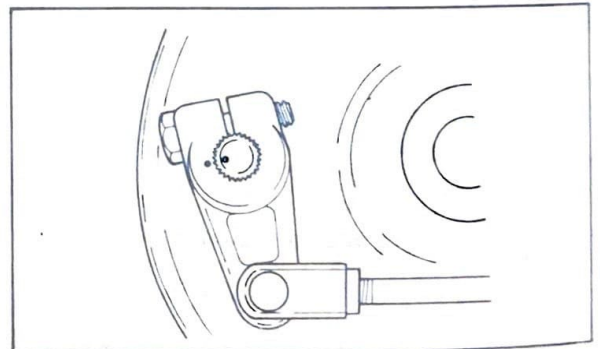


1. Locknut 2. Adjuster



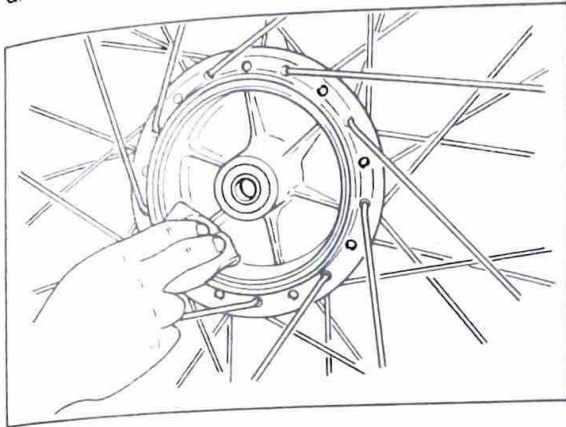
Brake cam lever

When removing the brake cam lever from the shaft, put match marks on both the cam lever and the shaft. The marks will be of great help when the brake is reassembled.



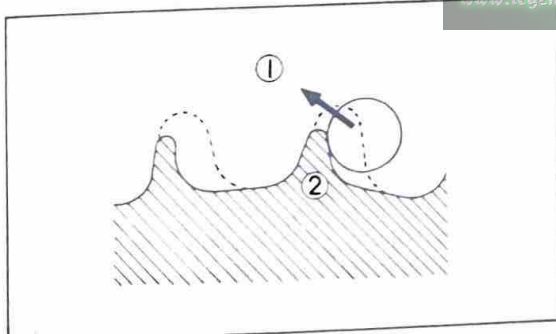
Brake drum

Inspect the brake drum; if there is any oil or dirt on the inner surface, wipe the drum clean with a rag dampened with lacquer thinner or solvent. If the drum is deeply grooved, the drum must be replaced.



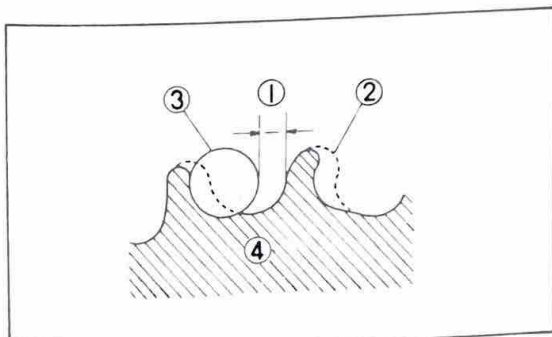
Sprockets and chain (Adjustment begins on page 2-11)

1. Inspect the teeth on the rear sprocket; if they are worn as shown in the illustrations below, replace the sprockets and chain as a set.



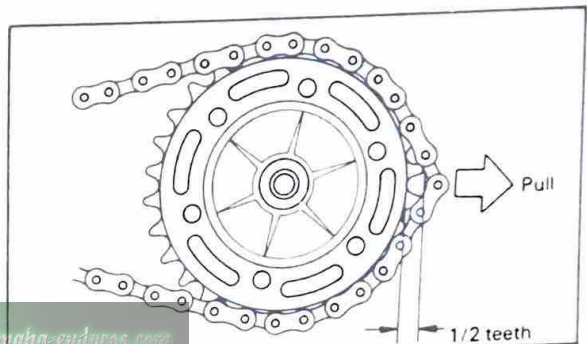
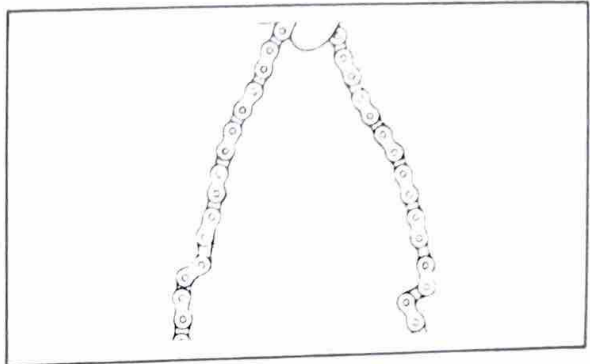
1. Slip off

2. Bend teeth



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

2. If the chain stays bent or kinked after cleaning and lubrication, or if the chain can be pulled away from the sprocket more than 1/2 the length of a sprocket tooth, the chain and sprockets should be replaced as a set.



3. When replacing the drive sprockets, always use a new lock washer. After tightening the sprocket nut to the specification, be sure to lock it with the lock washer.

Drive sprocket securing nut torque:
75 Nm (7.5 m · kg, 54 ft · lb)

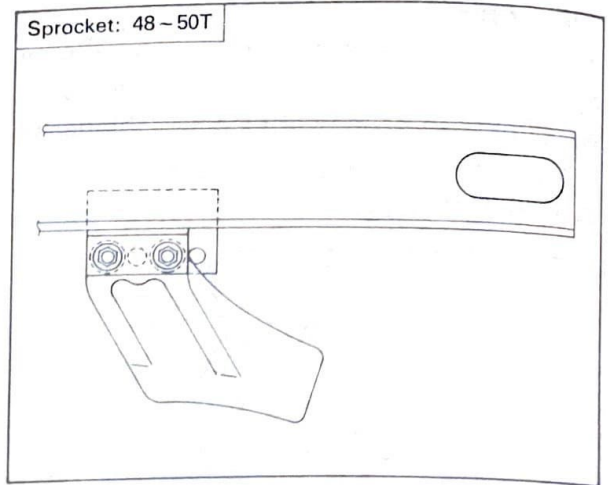
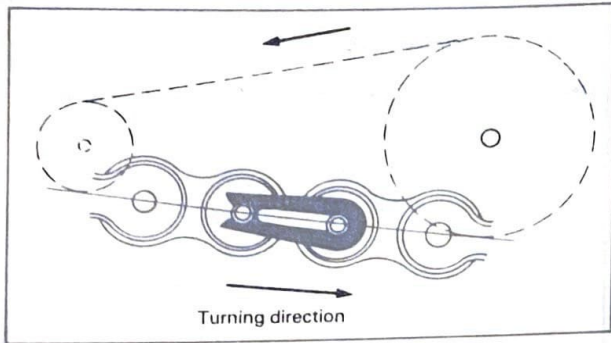
4. When installing the driven sprocket, lightly smear grease on the fitting bolts.

Driven sprocket securing nut torque:
30 Nm (3.0 m · kg, 22 ft · lb)

5. During reassembly, the master link clip must be installed with the rounded end facing the direction of travel.

NOTE: _____

The chain should be cleaned and lubricated after every use of the machine.

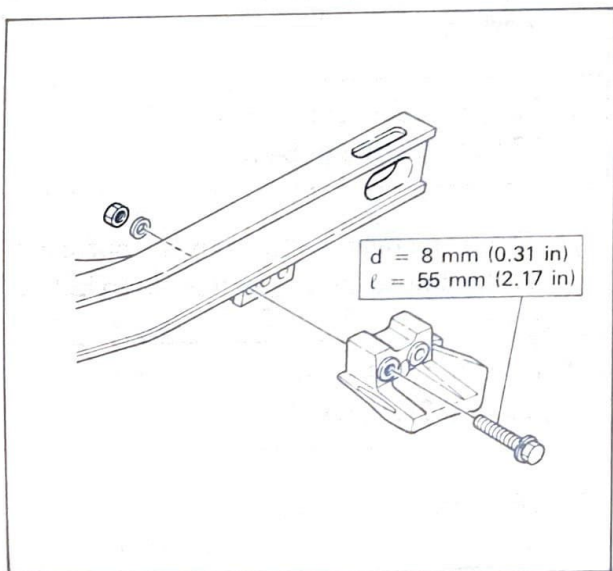
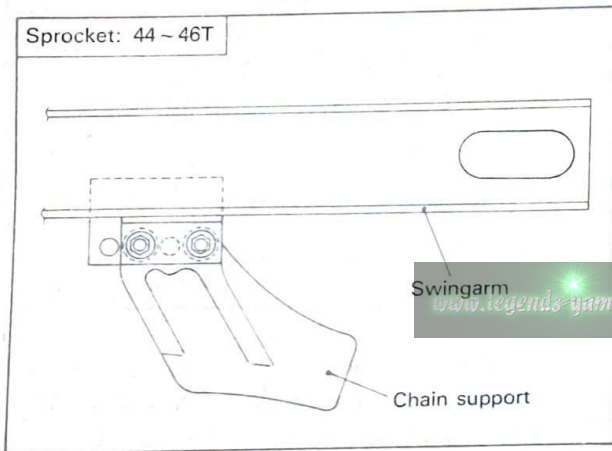


NOTE: _____

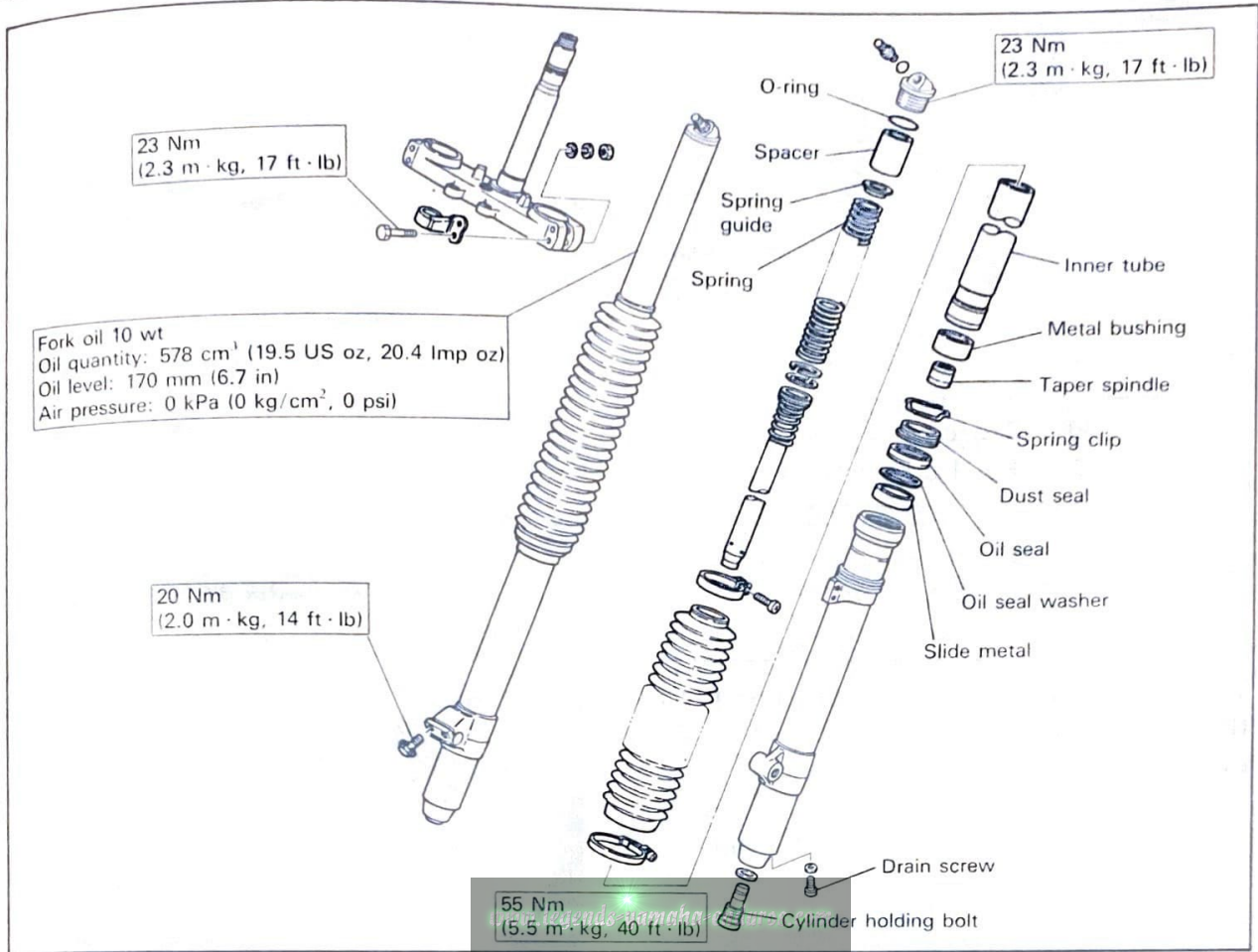
When the chain tension adjustment requires more than 10 mm (0.4 in) (at A), the chain support position should be changed toward rear.

Installing of the chain support

The chain support position should be properly changed depending on the sprocket size.



FRONT FORK



Front fork setting

For details of front fork setting, refer to the **Race Preparation and Tuning Manual**. It is advisable to take a note of the standard setting data and specified range of adjustment.

Fork oil

Recommended oil:
Yamaha Fork oil 10 wt or
SAE #10 fork oil
Oil quantity:
578 cm³ (20.4 Imp oz, 19.5 US oz)
Oil level:
STD 170 mm (6.69 in)
MIN. 150 mm (5.91 in)
MAX. 200 mm (7.9 in)

Fork spring

STD	Spring	K = 3.0 N/mm (0.305 kg/mm, 17.1 lb/in) L = 559 mm (22.0 in) (23X-23141-L0)
	Collar	L = 80 mm (3.15 in) (5X6-23118-10)
Heavy	Spring	K = 3.2 N/mm (0.325 kg/mm, 18.2 lb/in) L = 529 mm (20.8 in) (23X-23141-20)
	Collar	L = 110 mm (4.3 in) (5X6-23118-M0)
Light	Spring	K = 2.8 N/mm (0.290 kg/mm, 16.2 lb/in) L = 529 mm (20.8 in) (23X-23141-M0)
	Collar	L = 110 mm (4.33 in) (5X6-23118-M0)

Fork tube height

STD 8.5 mm (0.33 in)
MIN. 0 mm (0 in)
MAX. 10 mm (0.39 in)



Air pressure

STD	0 kPa (0kg/cm ² , 0 psi)
MAX	117.7 kPa (1.2 kg/cm ² , 17 psi)

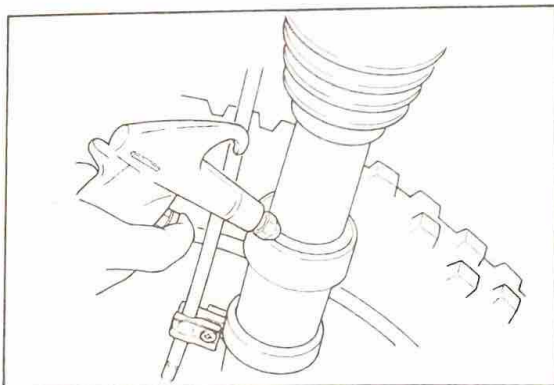
Handling note

CAUTION:

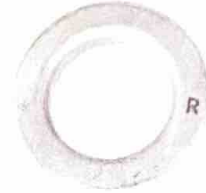
To prevent an accidental explosion of air, the following instructions should be observed:

1. Use only air or nitrogen for filling. Never use any other gas. An explosion may result.
2. Never throw the front fork into fire.
3. Before removing the cap bolts or front forks, be sure to extract the air from the air chamber completely.

- 1 After running over a dusty or sandy course, remove the dust cover and remove the dust around the front forks. This cleaning will protect the fork oil seals against damage.

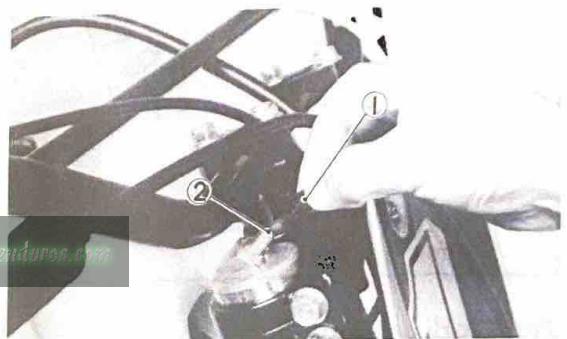


2. Before removing the front forks, put the marks, R and L, on the tops of cap bolts, spring guide so you will not be confused when reinstalling the front forks.



Fork oil replacement

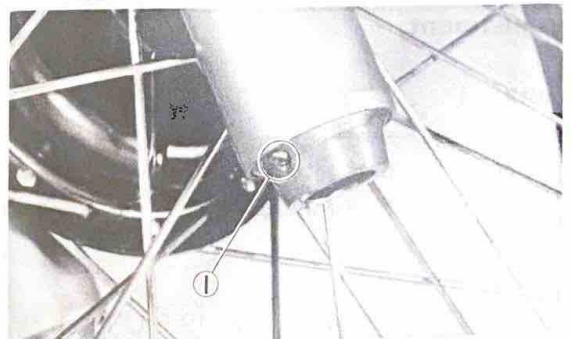
1. Remove the valve cap and depress the air valve to allow the air to escape from the fork legs.



1. Valve cap

2. Valve

2. Place an open container beneath each drain hole and remove the drain screws.



1. Drain screw

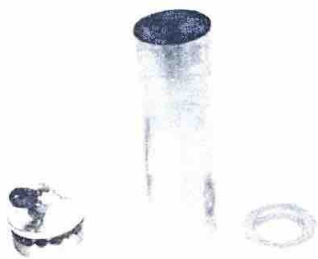
3. After most of oil has drained, slowly raise and lower outer tubes to pump out remaining oil.

4. Install drain screws.

NOTE:

Check gasket, replace if damaged.

5. Place a suitable stand under the engine to keep the front of machine raised off the floor.
6. Remove the cap bolt assembly.
Remove the spacer, spring seat and fork spring.



7. Measure the correct amount of oil and pour it into each leg. After filling, allow it a few minutes and slowly pump the inner tube up and down 2 or 3 times so that air can be extracted from the oil.

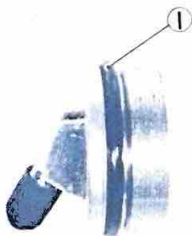
Recommended oil:

Yamaha fork oil 10wt or
SAE 10W motor oil

Oil quantity:

578 cm³ (20.4 Imp oz, 19.5 US oz)

8. Inspect the O-ring on the cap bolt; if it is cut or otherwise damaged, replace the O-ring.



1. O-ring

9. Install spacer, spring seat, fork spring and cap bolt and torque to specification.

Tightening torque:

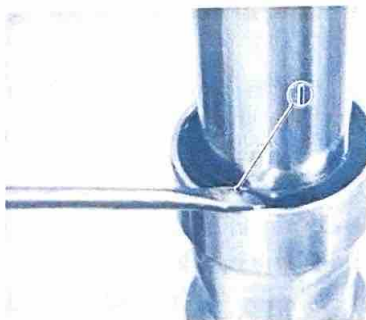
23 Nm (2.3 m · kg, 17 ft · lb)

Disassembly and inspection

1. Place the machine on a suitable stand to keep it stable while the front wheel and forks are removed.
2. Let the air out of the forks, and loosen the cap bolts slightly.
3. Remove the front wheel, loosen the fork tube pinch bolts, and remove the forks.
4. The oil seal in the fork leg must be removed hydraulically. Fill the fork completely with fork oil and reinstall the cap bolt. Depress the air valve until oil flows out.



5. Remove the snap ring from the top of the slider.

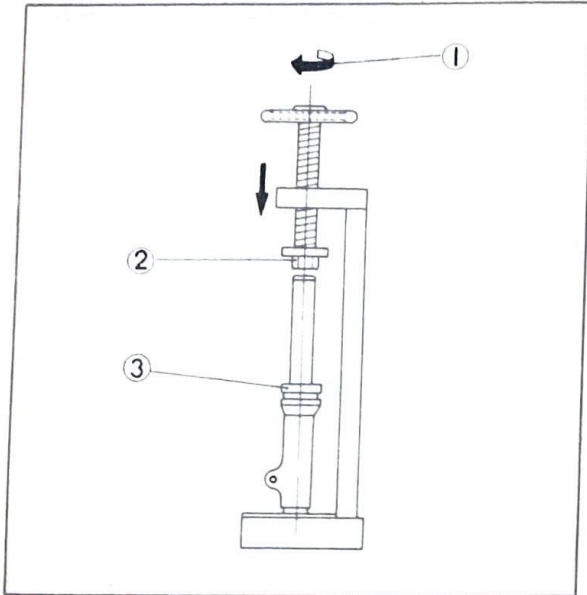


1. Snap ring

6. Place a spacer on top of the cap bolt, and place the fork leg in a hand press as illustrated. The spacer will keep the press from contacting the air valve.

CAUTION:

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



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

7. Wrap a rag around the top of the slider, and slowly turn the handle of the press until the oil seal is pushed out of the slider.
8. Remove the dust seal, and oil seal. Discard the oil seal, as the seal must always be replaced whenever the fork is disassembled.
9. Remove the oil seal washer and slide metal, and inspect the slide metal; if it shows excessive wear, replace the slide metal.
10. Clamp the axle lug in a vise, and push the inner tube all the way into the slider.
11. Use the damping-cylinder holding tool to remove the holding bolt from the bottom of the slider.



1. Cylinder holding tool (YM-01326, 01327)

NOTE:

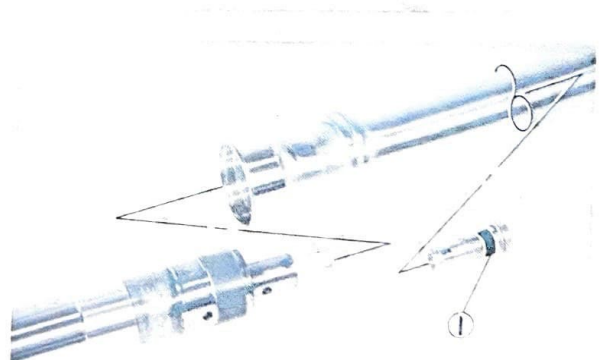
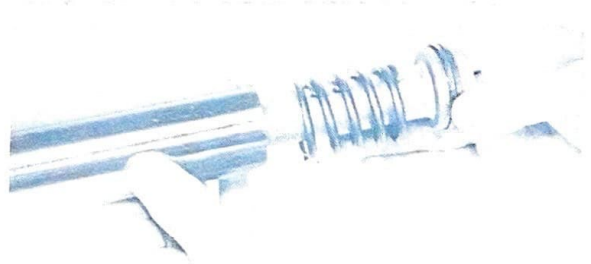
The holding bolt is locked with LOCTITE®. To remove it, tap it with a hammer several times so that it can be loosened.

12. Remove the fork leg from the vise and hold it parallel to the ground while removing the slider from the inner tube.

Reassembly

The assembly procedure is the reverse of the disassembly procedure.

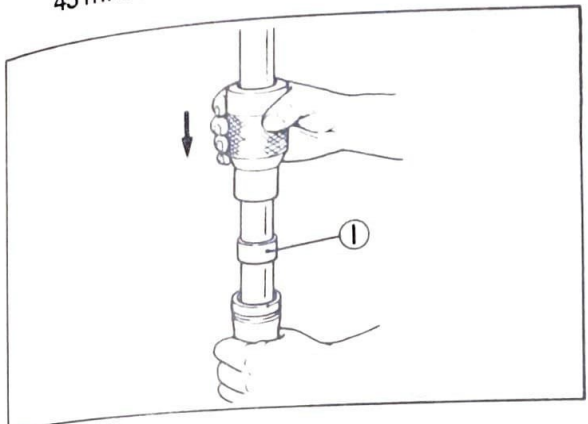
1. Make sure all components are clean before assembly. Always install a new fork seal. Do not re-use a seal.
2. Apply Loctite to the threads of the bolt, and reinstall the bolt. Using the damping-cylinder holding tool, torque the holding bolt to specification.



1. Apply Loctite

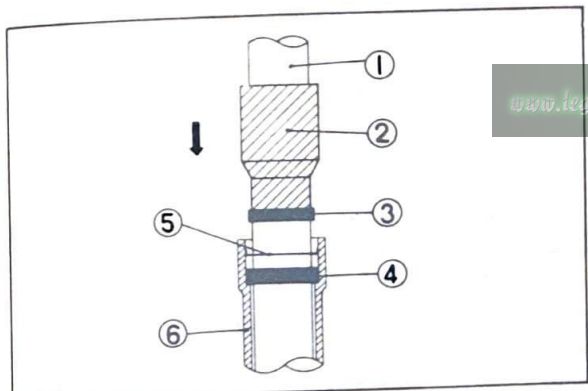
Holding bolt torque:
55 Nm (5.5 m · kg, 40 ft · lb)

3. Install the guide bushing in the special 43 mm (1.69 in) fork tool (YM-08020).



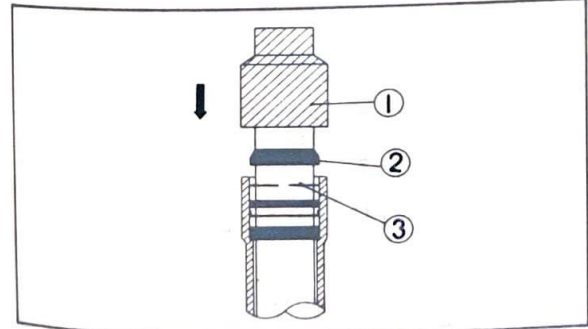
1. Top bushing

4. Install a new seal spacer, making sure the beveled edge faces upward.
5. Oil and install a new oil seal in the top of the slider with the special tool; see illustration



1. Inner tube
2. Special tools
3. Oil seal
4. Top bushing
5. "L" Section washer
6. Outer tube

6. Install the retaining clip, and gently tap the dust seal into place with the special tool; see illustration.

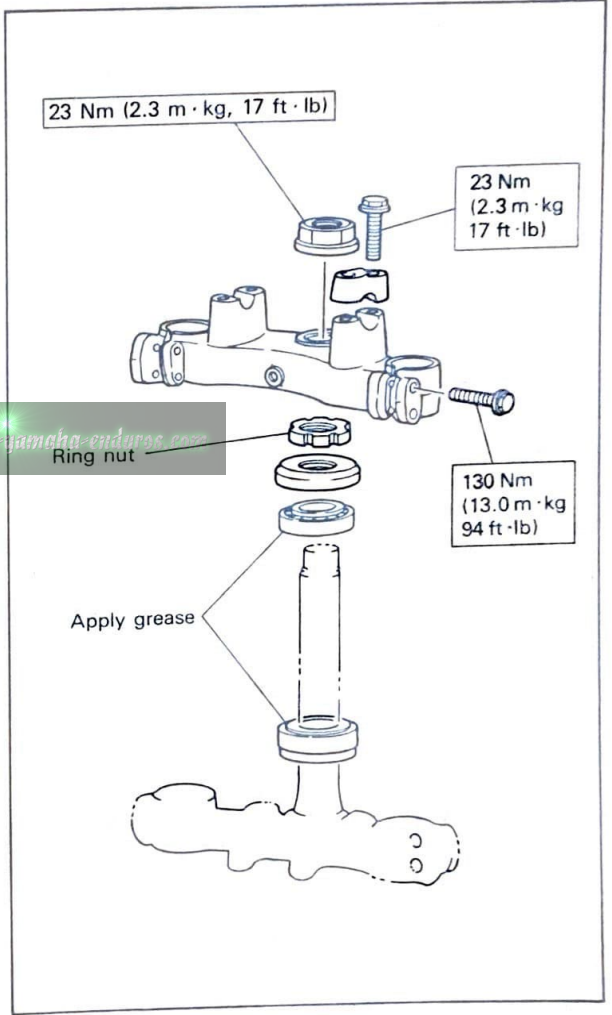


1. Special tool
2. Dust cover
3. Circlip

7. Pour the correct amount of fork oil into the fork leg, and pump the inner tube up and down to remove all air from the valving mechanism.
8. Use the fork oil level tool to attain the proper oil level with the tube pushed down.
9. Check the air pressure in the fork, and set it to specification.

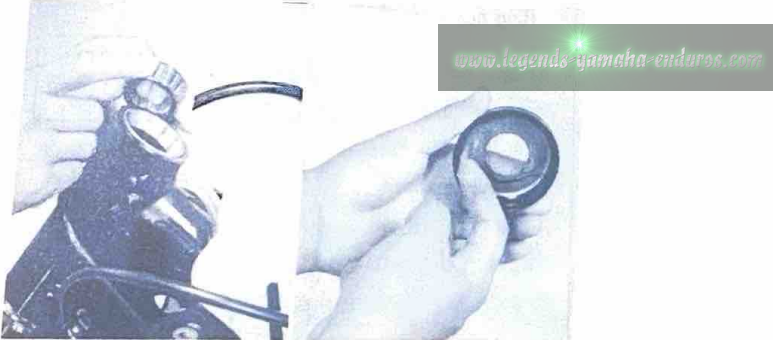
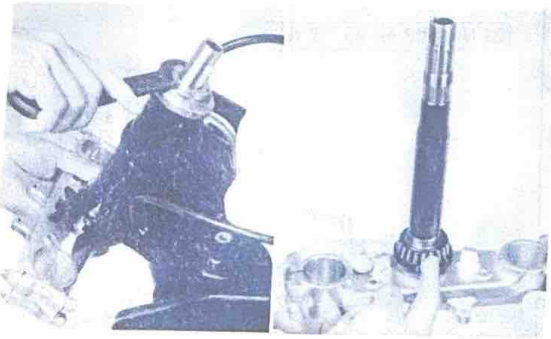
STEERING HEAD

(Adjustment begins on page 2-12 of chapter 2.)

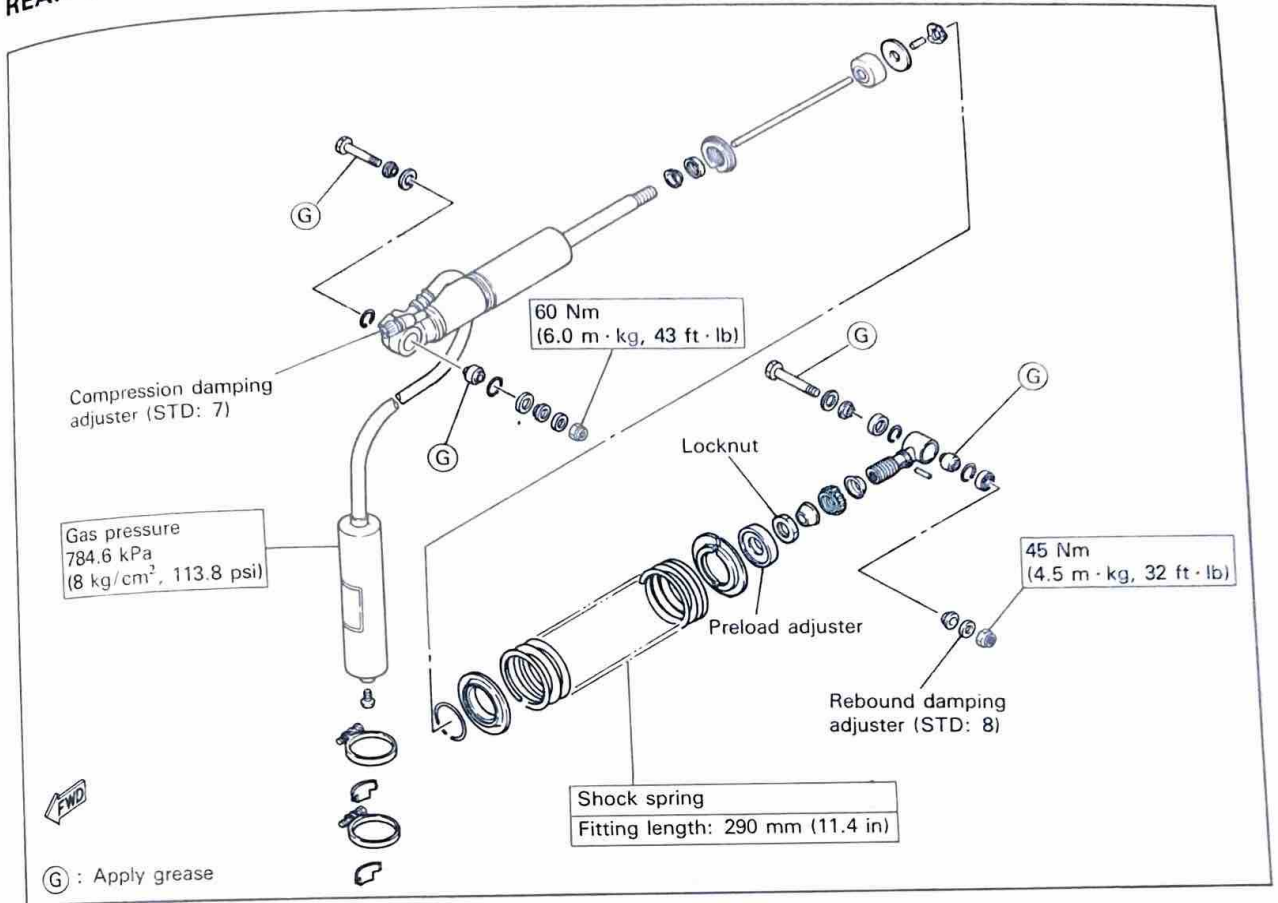


Inspection

1. Wash the bearings in solvent.
2. Inspect the bearings for pitting or other damage. Replace the bearings if pitted or damaged. Replace the races when bearings are replaced.
3. Clean and inspect the bearing races. If races are damaged, replaces the races and bearings.
4. Install the bearings in the races. Spin the bearings by hand. If the bearings hang up or are not smooth in their operation in the races, replace bearings and races.
5. Coat the dust seal and bearing(s) with high quality, lithium base grease before installing.



REAR SHOCK (MONOCROSS SUSPENSION "DE CARBON" SYSTEM)



Rear shock setting

For details of rear shock setting, refer to the Race Preparation and Tuning Manual. It is advisable to take a note of the standard setting and specified range of adjustment.

Tightening torque:

55 Nm (5.5 m · kg, 40 ft · lb)

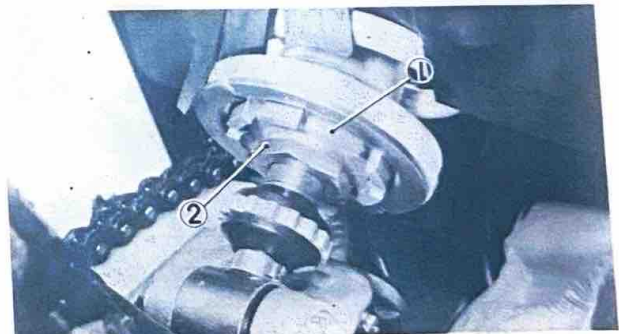
Spring preload (Installed length)

Standard	290 mm (11.42 in)
Minimum	270 mm (10.63 in)
Maximum	295 mm (11.61 in)

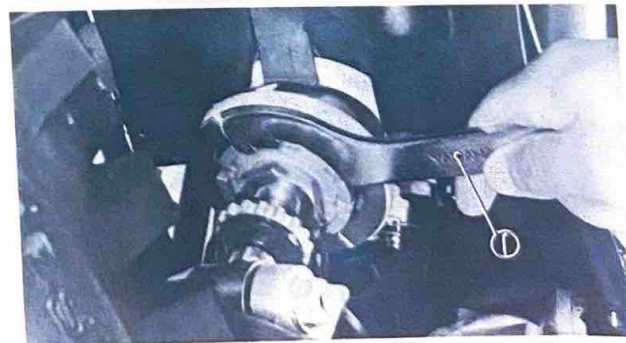
The length of the spring (installed) changes 1 mm (0.04 in) per turn of the adjuster.

CAUTION:

Never attempt to turn the adjuster beyond the maximum or minimum setting.



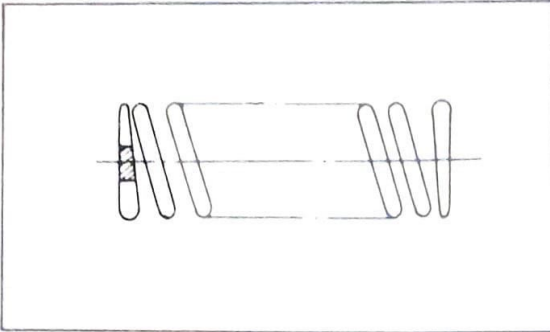
1. Adjuster 2. Locknut



1. Special wrench

Shock spring

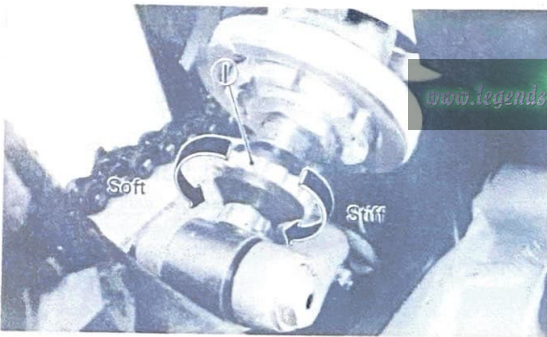
Type	Part number	Spring rate (kg/mm)	I.D. color
STD	23X-22212-00	K = 4.5	--
LIGHT	23X-22212-10	K = 4.25	White
HEAVY	23X-22212-20	K = 4.75	Blue



Rebound damping

STD SETTING: 8 clicks out

Don't turn out the adjuster more than 25 clicks from the stiffest position.

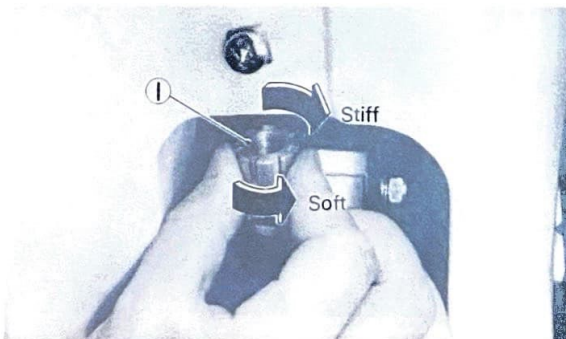


1. Rebound damping adjuster

Compression damping

STD SETTING: 7 clicks out

Don't turn out the adjuster more than 20 clicks from the stiffest position.



1. Compression damping adjuster

Nitrogen gas pressure

STD 785 kPa (8kg/cm², 114 psi)
 MIN. 686 kPa (7kg/cm², 100 psi)
 MAX. 981 kPa (10kg/cm², 140 psi)

Handling notes

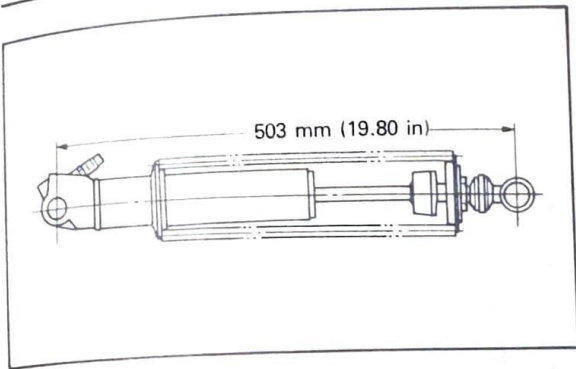
WARNING:

This shock absorber is provided with a separate type tank filled with high-pressure nitrogen gas. To prevent the danger of explosion, read and understand the following information before handling the shock absorber.

The manufacturer can not be held responsible for property damage or personal injury that may result from improper handling.

1. Never tamper or attempt to disassemble the cylinder or the tank. Never tamper with the nut securing the hose to the cylinder assembly; otherwise, oil will spurt from the cylinder due to the high pressure in the nitrogen gas tank.
2. Never throw the shock absorber into an open flame or other high heat. The shock absorber may explode as a result of nitrogen gas expansion and/or damage to the hose.
3. Be careful not to damage any part of the gas tank. A damaged gas tank will impair the damping performance or cause a malfunction.
4. Use care not to damage any part of the hose. Any break in the hose may result in a spurt of oil under high-pressure.
5. Take care not to scratch the contact surface of the piston rod with the cylinder; or oil could leak out.
6. Never attempt to remove the plug at the bottom of the nitrogen gas tank. It is very dangerous to remove the plug.
7. When scrapping the shock absorber, follow the instructions on disposal.

8. Don't use on this machine any suspension whose free length exceeds 503 mm (19.80 in). Such unit causes malfunctioning suspension.

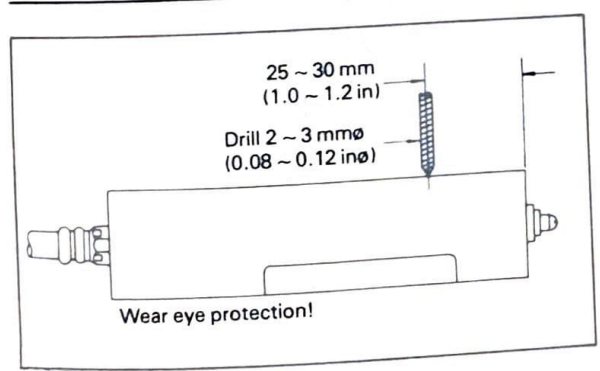


Notes on disposal (Yamaha dealers only)

Before disposing the shock absorber, be sure to extract the nitrogen gas. To do so, drill a 2 or 3 mm (0.08 ~ 0.12 in) hole through the tank at a position 25 ~ 30 mm (1.0 ~ 1.2 in) from the bottom end of the tank. At this time, wear eye protection to prevent eye damage from escaping gas and/or metal chips.

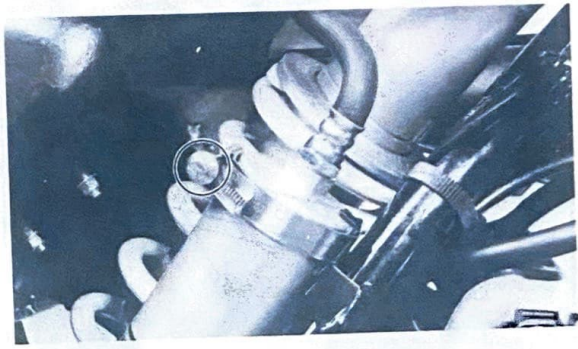
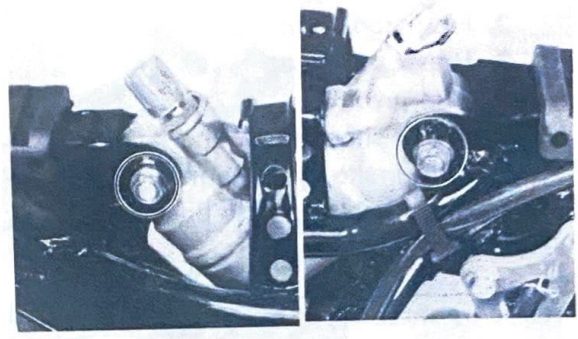
WARNING:

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

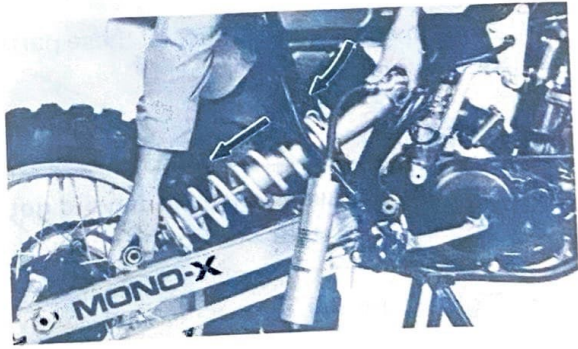


Removal

1. To remove the shock absorber, place the machine on a suitable stand to keep the bike stable while the shock absorber is removed.

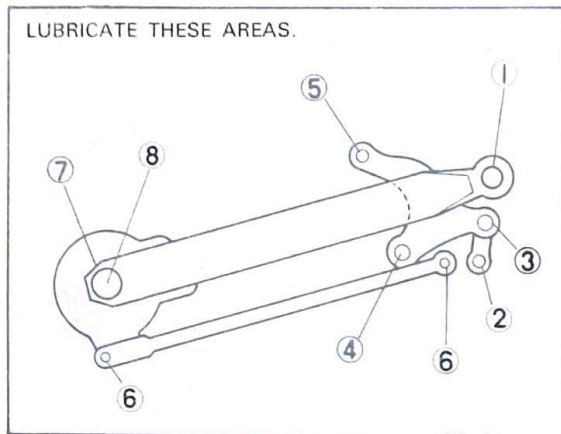


2. Carefully remove the shock absorber from the frame; take care to avoid damaging the rubber hose or the shock reservoir.



3. For assembly, reverse the procedure for disassembly while taking the following precautions:

- a. Make sure the thrust covers and washers are positioned.
- b. The following areas must be lubricated during setup, use a high-quality, lithium-base grease.
 1. Swingarm pivot
 2. lower rod pivot
 3. Upper rod pivot
 4. Arm pivot
 5. Lower shock mounting pivot
 6. Both brake torque arm pivots
 7. Brake backing plate bushing
 8. Wheel axle



*Remove the parts indicated by (2), (3) and (4), and lubricate the pivots. Use care so that no needles fall off the bearing.

- d. After installing, make sure all these parts move smoothly.

CAUTION:

Wipe off any excess grease, and avoid getting grease on the brake shoes.

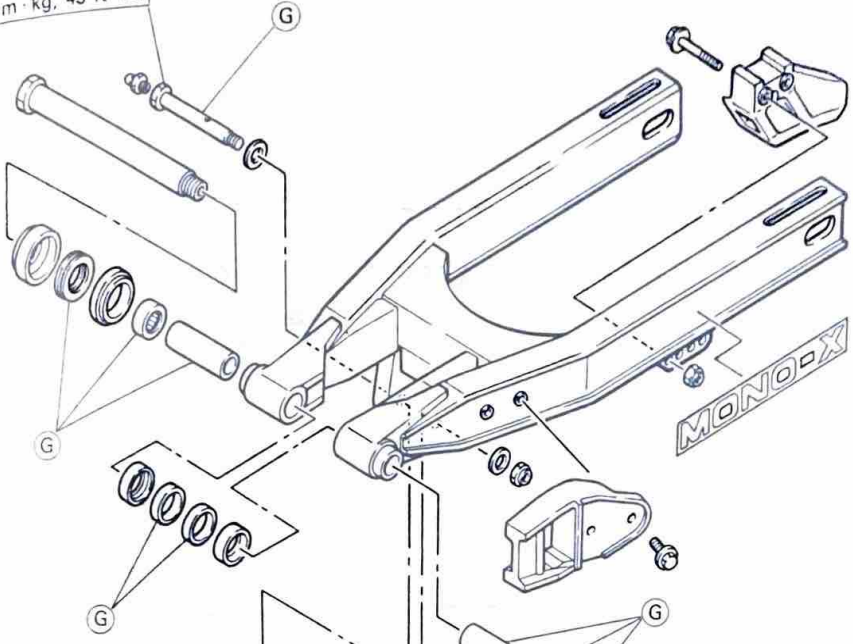
- c. Tighten the nut to specification.

Upper bolt: 60 Nm (6.0 m · kg, 43 ft · lb)

Lower bolt: 32 Nm (4.5 m · kg, 52 ft · lb)

SWINGARM

60 Nm
(6.0 m · kg, 43 ft · lb)



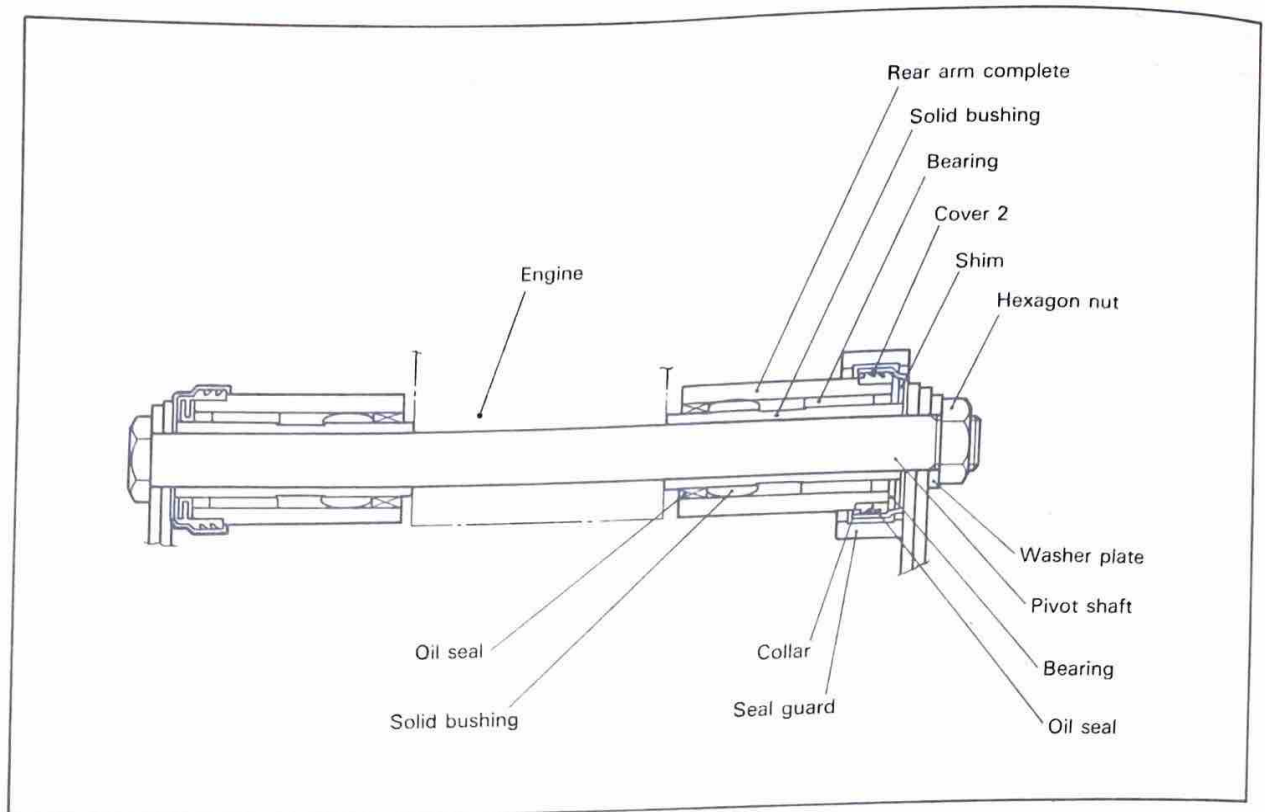
45 Nm
(4.5 m · kg, 32 ft · lb)

85 Nm
(8.5 m · kg, 61 ft · lb)



60 Nm
(6.0 m · kg, 43 ft · lb)

(G) : Apply grease



Inspection

1. To check the swingarm bearings, remove the rear wheel and disconnect the shock from the arm and swingarm.
2. Grasp the ends of the swingarm and try to move the arm sideways; if the free play exceeds tolerance, remove the swingarm and take it to your Yamaha dealer for bearing replacement.

Swingarm free play:
0 ~ 1 mm (0 ~ 0.04 in)

3. Closely inspect the swingarm for cracks or other damage, and repair or replace it as required.
4. When reinstalling the swingarm, be sure to grease the bearings, bushings, and oil seal lips.
5. Grease the pivot shaft, install it and its nut, and torque the nut to specification.

Pivot shaft nut torque:
85 Nm (8.5 m · kg, 60 ft · lb)



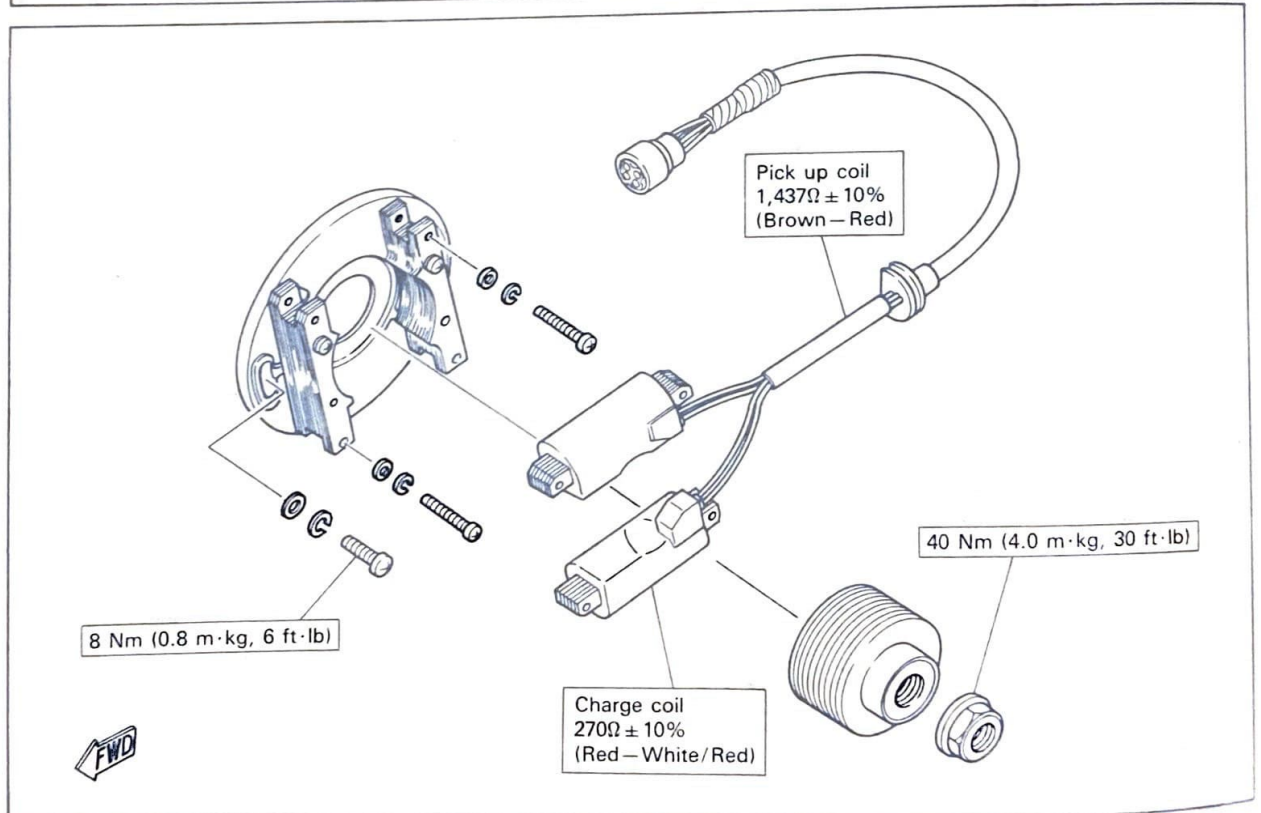
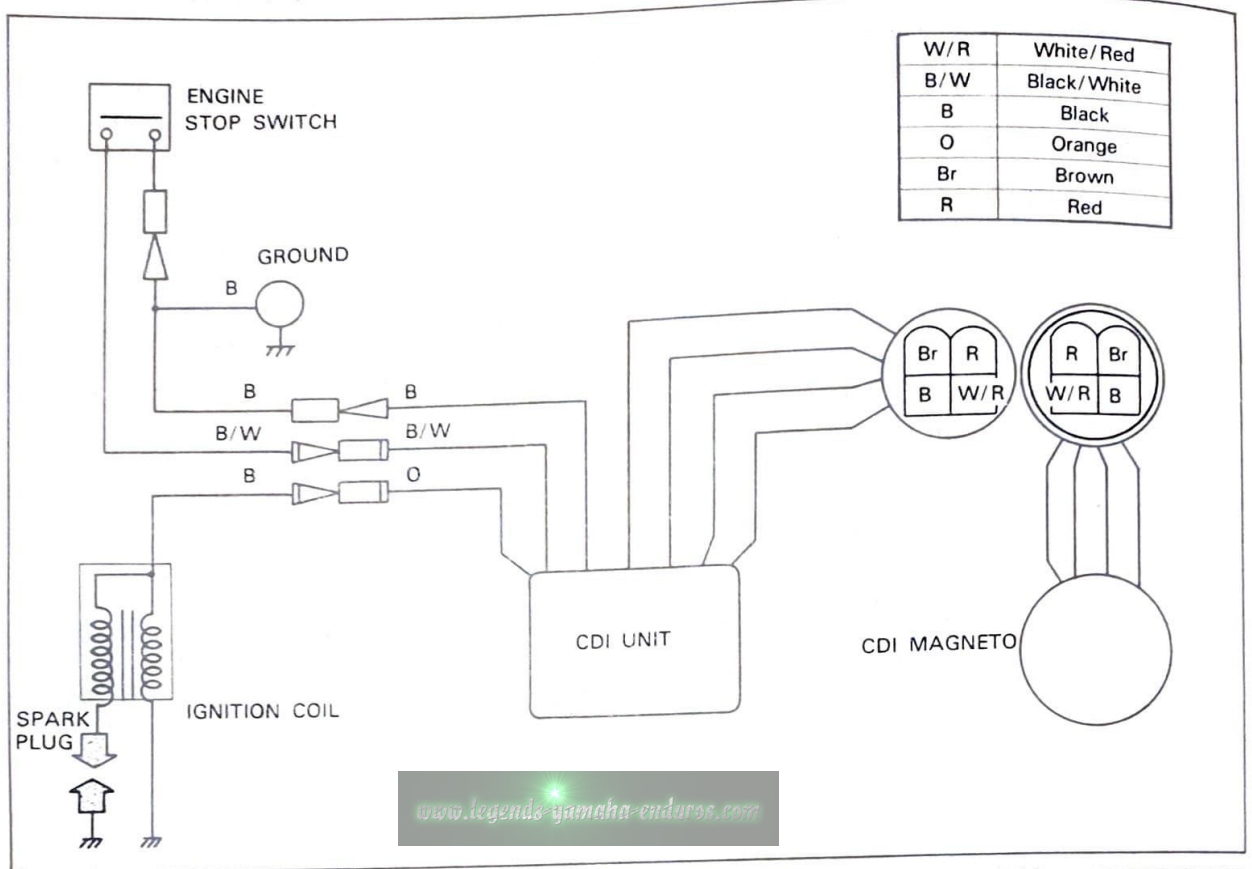
5 ELECTRICAL TROUBLESHOOTING

WIRING DIAGRAM	5-1
IGNITION SYSTEM	5-2

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5 ELECTRICAL TROUBLESHOOTING

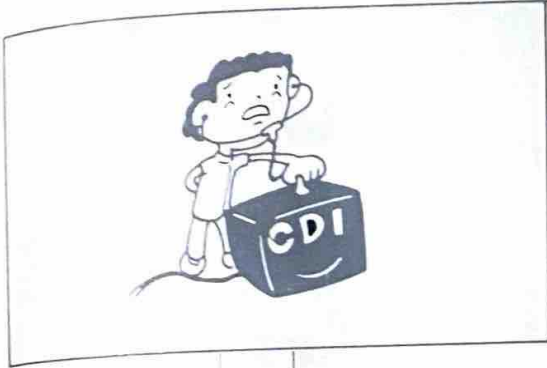
WIRING DIAGRAM



IGNITION SYSTEM

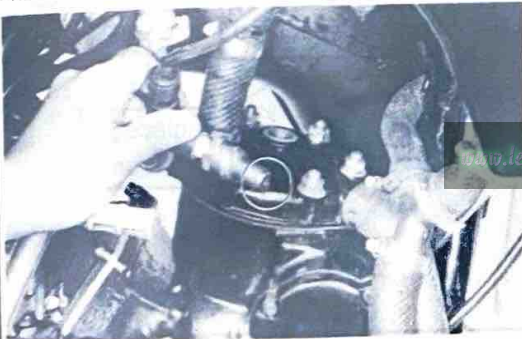
Troubleshooting

If the ignition spark is of poor quality or if there is no spark at all, use the following procedure, to locate and repair the problem.



1 Spark plug test

Remove the spark plug and check the spark.

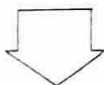


Ground the spark plug to the cylinder head, and kick the starter.

NOTE:

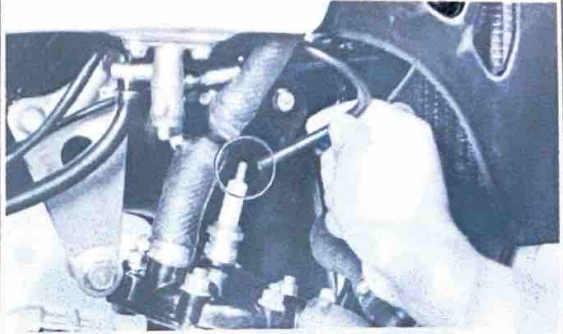
If the spark plug is oily or has carbon deposits, clean or replace it.

No spark.



2 Spark gap test

Remove the spark plug cap and check the spark.



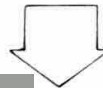
Hold the high tension lead 5 mm (0.20 in) from the head, and kick the engine through.

Good spark

1. Check plug cap.

No spark

2. Check sparks plug



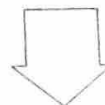
3 Engine stop switch

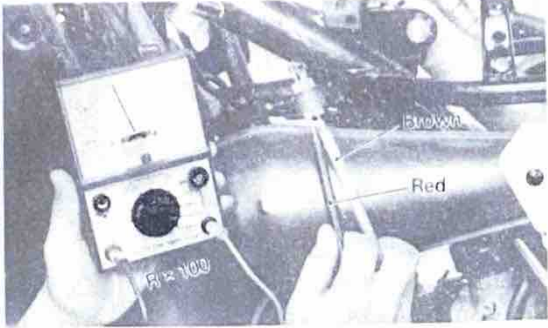
Disconnect the Black/White lead of engine stop switch at C.D.I. unit.

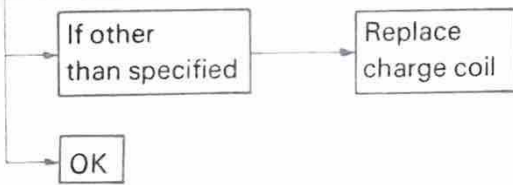


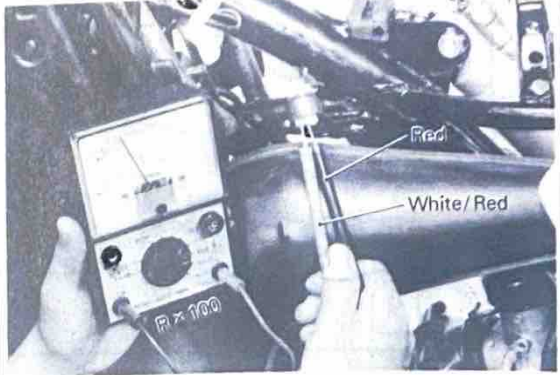
If start,
engine stop switch
is shorted.

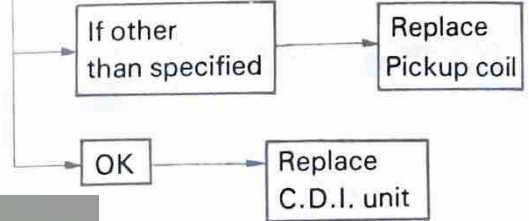
Engine does not
start.



4	C.D.I. Magneto (Charge coil) test
<p>Disconnect the magneto leads, and use the pocket tester to check the resistance of the magneto coils.</p>	
	
<div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 0 auto;"> <p>Charge coil resistance: Red to Brown: $1,437 \Omega \pm 10\%$</p> </div>	

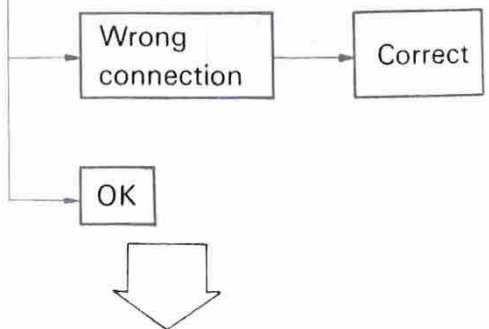


5	C.D.I. Magneto (Pickup coil) test
<p>Disconnect the magneto leads, and use the pocket tester to check the resistance of the pickup coil.</p>	
	
<div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 0 auto;"> <p>Pickup coil resistance: Red to White/Red: $270 \Omega \pm 10\%$</p> </div>	



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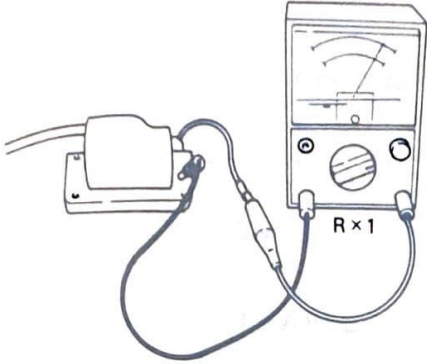
6	Connectors check-up
<ol style="list-style-type: none"> 1. Check the connectors and couplers for looseness of joining ends. 2. Keep the connectors and couplers from dirt or rust. 	



7

Ignition coil test

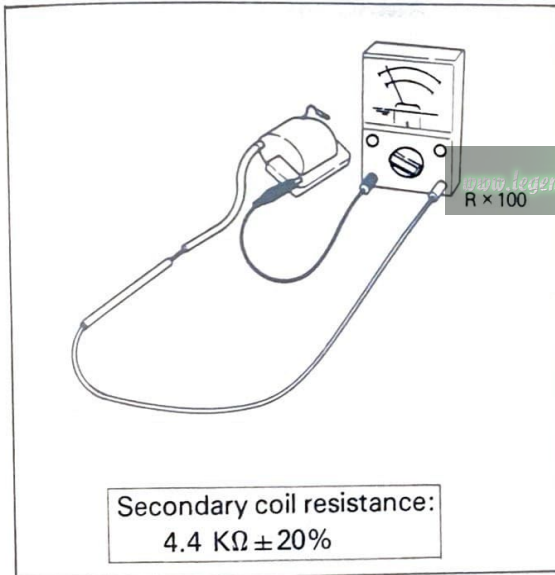
Use the pocket tester to check the resistance of primary and secondary windings of the ignition coil.



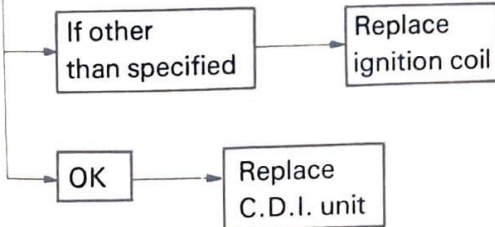
Primary coil resistance:
 $0.22\Omega \pm 10\%$

CAUTION:

Make sure the wire harness is in a position it will not make contact with exhaust pipe, which could short out C.D.I. unit.



Secondary coil resistance:
 $4.4\text{ K}\Omega \pm 20\%$



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6 APPENDICES

TROUBLESHOOTING GUIDE	6-1
Engine is hard to start or does not start	6-1
Poor high speed performance	6-2
Overheat.....	6-3
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6 APPENDICES

TROUBLESHOOTING GUIDE

Engine is hard to start or does not start.

Ignition System	
Possible Cause	Remedy
<ol style="list-style-type: none"> 1. Spark plug is wet. 2. Ignition coil is faulty. 3. C.D.I. unit is faulty. 4. C.D.I. magneto is faulty (Pulser coil, source coil) 5. Ignition timing is incorrect. 6. Wire is broken, shorted or disconnected. 7. Engine stop switch is shorted. 	<ul style="list-style-type: none"> • Clean or replace • Replace • Replace • Replace • Adjust • Repair, replace or connect • Repair or replace
Compression System	
Possible Cause	Remedy
<ol style="list-style-type: none"> 1. Piston rings are sticking or worn. 2. Cylinder or piston is worn or scratched. 3. Compression leaks passing cylinder head gasket. (Head is distorted.) 4. Crankshaft side oil seal is faulty. 5. Air leaks through crankcase sealing surfaces. 	<ul style="list-style-type: none"> • Replace • Repair or replace • Replace (or repair) • Replace • Repair
Air/Fuel System	
Possible Cause	Remedy
<ol style="list-style-type: none"> 1. Carburetor pilot jet is clogged. 2. Fuel petcock or pipe is clogged. 3. Float valve is faulty. (Float height is too high or too low.) 4. Reed valve is broken or deformed. 5. Fuel tank filler cap or carburetor breather pipe is clogged. 6. Air screw is improperly adjusted. 7. Fuel is deteriorated. 8. Oil-gas mixing ratio is incorrect. 9. Air leaks through carburetor joints. 	<ul style="list-style-type: none"> • Clean • Clean • Replace (remove gasoline from crankcase) • Replace • Clean • Adjust • Replace • Replace • Retighten or replace gasket

poor high speed performance

Ignition System	
Possible Cause	Remedy
<ol style="list-style-type: none"> 1. Spark plug is dirty or plug gap is too narrow. 2. C.D.I. unit is faulty. 3. C.D.I. magneto is faulty. 4. Ignition coil is faulty. 5. Ignition timing is incorrect. 6. Loose wire connection. 	<ul style="list-style-type: none"> • Clean, repair or replace • Replace • Replace • Replace • Adjust • Repair
Compression System	
Possible Cause	Remedy
<ol style="list-style-type: none"> 1. Piston rings are sticking or worn. 2. Cylinder or piston is worn or scratched. 3. Compression leakage through crankcase sealing surfaces or crankshaft side oil seal. 4. Carbon deposits in combustion chamber (Piston, Cylinder head). 5. Power valve malfunctions. 	<ul style="list-style-type: none"> • Replace • Repair or replace • Repair or replace • Decarbonize • Repair or replace
Air/Fuel System	
Possible Cause	Remedy
<ol style="list-style-type: none"> 1. Clogged carburetor jets. 2. Improperly adjusted main jet (High speed) 3. Improperly adjusted jet needle (Medium speed) 4. Incorrect fuel lever 5. Dirty or clogged air cleaner element 6. Clogged fuel tank filler cap or carburetor breather pipe. 7. Clogged fuel petcock or kinked fuel pipe. 8. Deteriorated fuel. 9. Improper oil-gas mixing ratio 10. Cracked or broken exhaust pipe (Leakage of exhaust gases). 	<ul style="list-style-type: none"> • Clean • Adjust • Adjust • Adjust • Clean • Clean • Clean or repair • Replace • Replace • Replace

Overheat

Possible Cause	Remedy
<ol style="list-style-type: none"> 1. Incorrect air-fuel mixture 2. Air leaks through carburetor joint. 3. Incorrect ignition timing 4. Carbon builds up in cylinder head or on piston head. 5. Improper spark plug heat range (too hot) 6. Fuel is deteriorated or oil-gas mixing ratio is incorrect. 7. Coolant of inferior quality. 8. Coolant level is low. 9. Water pump is faulty. 10. Cooling passage is clogged. 11. Radiator is clogged. 	<ul style="list-style-type: none"> • Adjust • Repair or replace • Adjust • Decarbonize • Replace • Replace • Replace with specified type. • Add upto specified line. • Repair or replace. • Clean passage. • Clean radiator.

Low coolant level

Possible Cause	Remedy
<ol style="list-style-type: none"> 1. Radiator is leaky. 2. Hose is damaged or joint is loose. 3. Water pump cover is leaky. 4. Cylinder head O-ring is faulty. 	<ul style="list-style-type: none"> • Repair or replace. • Replace hose or retighten joint. • Repair or replace. • Replace.

Transmission and shifter

Trouble	Possible Cause	Remedy
Gears slip off	<ol style="list-style-type: none"> 1. Gear dogs are worn. 2. Shift forks are bent. (burnt or worn) 3. Shift cam stopper spring is fatigued. 	<ul style="list-style-type: none"> • Replace • Replace • Replace
Gear shifts skipping over the next.	<ol style="list-style-type: none"> 1. Shift cam stopper spring is fatigued. 2. Shift forks are bent. (burnt or worn) 	<ul style="list-style-type: none"> • Replace • Replace
Gear does not select	<ol style="list-style-type: none"> 1. Shift cam is worn. (broken) 2. Change shaft is bent. 3. Shift arm spring is broken. 4. Gears are broken. 	<ul style="list-style-type: none"> • Replace • Replace • Replace • Removal (Replace)
Shift pedal does not return.	<ol style="list-style-type: none"> 1. Change return spring is broken. 2. Change shaft is bent. 	<ul style="list-style-type: none"> • Replace • Replace

Clutch

Trouble	Possible Cause	Remedy
Clutch slips	<ol style="list-style-type: none"> 1. Friction plate is worn. 2. Clutch plate is worn. 3. Clutch spring is fatigued. 4. Pressure plate is deformed. 5. Clutch adjustment is incorrect. 6. Match marks of clutch boss and pressure plate does not aligned. 	<ul style="list-style-type: none"> • Replace • Replace • Replace • Replace • Adjust • Reassemble
Clutch drags	<ol style="list-style-type: none"> 1. Clutch plate is warped. 2. Clutch lock nut is loosen. 3. Friction plate is broken. 4. Clutch play is too much. 5. Oil viscosity is incorrect. 	<ul style="list-style-type: none"> • Replace • Replace • Replace • Adjust • Replace

Chassis

Steering head is loose		
Possible Cause	Remedy	
<ol style="list-style-type: none"> 1. Roller is worn. 2. Steering nut is loose. 	<ul style="list-style-type: none"> • Replace • Retighten 	
Wheels have excessive run-out		
Possible Cause	Remedy	
<ol style="list-style-type: none"> 1. Bearing is worn. 2. Rim has dent. 3. Spokes are loose (or broken). 4. Axle nut is loose. 	<ul style="list-style-type: none"> • Replace • Repair or replace • Retighten or replace • Retighten 	
Brakes		
Trouble	Possible Cause	Remedy
Faulty	<ol style="list-style-type: none"> 1. Brake shoes are worn. 2. Brake is improperly adjusted. 3. Brake drum contains water. 4. Lining is greasy. 	<ul style="list-style-type: none"> • Replace • Adjust • Clean • Degrease or replace
Not return smoothly	<ol style="list-style-type: none"> 1. Wire is starved for oil. 2. Camshaft is starved for grease. 3. Return spring or brake shoe spring is broken. 4. Brake pedal axle is starved for grease. 	<ul style="list-style-type: none"> • Grease or replace • Grease • Replace • Grease
Frame and Swingarm		
Possible Cause	Remedy	
<ol style="list-style-type: none"> 1. Frame is cracked. 2. Rear arm is bend. 3. Rear arm is cracked. 4. Bushing is worn. 5. Bushing lacks oil. 	<ul style="list-style-type: none"> • Weld, reinforce or replace • Repair or replace • Replace • Replace • Lubricate 	

SPECIFICATIONS

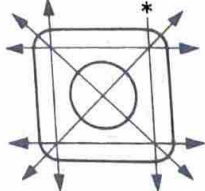
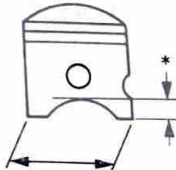
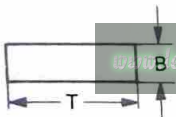
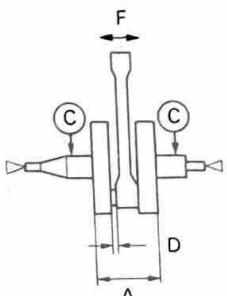
I. GENERAL SPECIFICATIONS


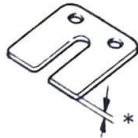
Item	Model	YZ250K
Model Code Number	24Y	
Frame Starting Number	24Y-000101	
Engine Starting Number	24Y-000101	
Dimensions:		
Overall Length	2,170 mm (85.4 in)	
Overall Width	850 mm (33.5 in)	
Overall Height	1,230 mm (48.4 in)	
Seat Height	960 mm (37.8 in)	
Wheelbase	1,470 mm (57.9 in)	
Minimum Ground Clearance	335 mm (13.2 in)	
Basic Weight:		
With Oil and Full Fuel Tank	105 kg (231.5 lb)	
Engine:		
Engine Type	Liquid, cooled 2-stroke, gasoline, torque induction	
Cylinder Arrangement	Single cylinder, forward inclined	
Displacement	246 cm ³	
Bore × Stroke	68 × 68 mm (2.677 × 2.677 in)	
Compression Ratio	7.4 ~ 9.2 : 1	
Starting System	Kick starter	
Lubrication System	Premix (24 : 1) (Yamalube R) Premix (20 : 1) (Castrol R30) www.legends-yamaha-enduros.com (Castrol A545)	
Oil Type or Grade (2-Cycle):		
Transmission Oil	Yamalube 4-cycle oil or SAE 10W30 type SE motor oil or GL gear oil	
Periodic Oil Change	0.85 L (0.75 Imp qt, 0.90 US qt)	
Total Amount	0.90 L (0.79 Imp qt, 0.95 US qt)	
Radiator Capacity (Including All Routes)	1.0 L (0.88 Imp qt, 1.06 US qt)	
Air Filter	Wet type element	
Fuel:		
Type	Premix (24 : 1) Premium gasoline	
Tank Capacity	8.5 L (1.87 Imp gal, 2.25 US gal)	
Carburetor:		
Type/Manufacturer	VM38SS/MIKUNI	
Spark plug:		
Type/Manufacturer	N-86/ CHAMPION	
Gap	0.5 ~ 0.6 mm (0.019 ~ 0.024 in)	
Clutch Type	Wet, multiple-disc	

Item	Model	YZ250K
Transmission: Primary Reduction System Primary Reduction Ratio Secondary Reduction System Secondary Reduction Ratio Transmission Type Operation Gear Ratio 1st 2nd 3rd 4th 5th		Helical gear 63/24 (2.625) Chain drive 48/13 (3.692) Constant mesh, 5-speed Left foot operation 30/14 (2.142) 28/16 (1.750) 26/19 (1.368) 23/21 (1.095) 21/23 (0.913)
Chassis: Frame Type Caster Angle Trail		Semi double cradle 28° 119 mm (4.69 in)
Tire: Type Size (F) Size (R)		With tube 90/80-21-4PR 140/80-18-4PR
Brake: Front Brake Type Operation Rear Brake Type Operation		Drum brake Right hand operation Drum brake Right foot operation
Suspension: Front Suspension Rear Suspension	www.legends-yamaha.com	Telescopic fork (Pneumo-mechanical) Swingarm (Monocross suspension)
Shock Absorber: Front Shock Absorber Rear Shock Absorber		Air, coil spring, oil damper Gas, coil spring, oil damper
Wheel Travel: Front Wheel Travel Rear Wheel Travel		300 mm (11.8 in) 320 mm (12.6 in)
Electrical: Ignition System Generator System		C.D.I. Magneto Flywheel magneto

II. MAINTENANCE SPECIFICATIONS (2 Cycle Engine)

A. Engine

Item	Model	YZ250K
Cylinder Head: Warp Limit 		$<0.03 \text{ mm (0.0012 in)}>$ *Lines indicate straightedge measurement.
Cylinder: Bore Size Taper Limit Out of Round Limit		$68_{+0.020}^0 \text{ mm (2.68}_{+0.0008}^0 \text{ in)}$ $<0.08 \text{ mm (0.003 in)}>$ $<0.05 \text{ mm (0.002 in)}>$
Piston: Piston Size/ Measuring Point* Piston Clearance <Limit> Oversize 1st 2nd 3rd 4th 		$68_{-0.06}^0 \text{ mm (2.68}_{-0.002}^0 \text{ in}) / 31 \text{ mm (1.22 in)}$ $0.060 \sim 0.065 \text{ mm (0.0024} \sim 0.0026 \text{ in)}$ $<0.1 \text{ mm (0.004 in)}>$ $68.25 \text{ mm (2.69 in)}$ $68.50 \text{ mm (2.70 in)}$ $68.75 \text{ mm (2.71 in)}$ $69.00 \text{ mm (2.72 in)}$
Piston Ring: Sectional Sketch Top/2nd Ring End Gap (Installed) Top/2nd Ring Side Clearance (Installed) Top/2nd Ring 		Plain $B = 1.2 \text{ mm (0.047 in)}$ $T = 7.8 \text{ mm (0.110 in)}$ $0.35 \sim 0.50 \text{ mm (0.014} \sim 0.020 \text{ in)}$ $0.04 \sim 0.08 \text{ mm (0.0016} \sim 0.0031 \text{ in)}$
Crankshaft: Crank Width "A" Run Out Limit "C" Connecting Rod Big End Side Clearance "D" Small End Free Play Limit "F" 		$62_{-0.05}^0 \text{ mm (2.44}_{-0.002}^0 \text{ in)}$ $<0.03 \text{ mm (0.0012 in)}>$ $0.25 \sim 0.75 \text{ mm (0.0098} \sim 0.0295 \text{ in)}$ $0.4 \sim 1.0 \text{ mm (0.016} \sim 0.04 \text{ in)} <2.0 \text{ mm (0.08 in)}>$

Item	Model YZ250K
Clutch: Friction Plate Thickness/ Quantity Wear Limit Clutch Plate Thickness/ Quantity Warp Limit Clutch Spring Free Length/ Quantity Clutch Spring Minimum Length Clutch Housing Thrust Clearance Clutch Housing Radial Clearance Clutch Release Method Push Rod Bending Limit	3.0 mm (0.12 in) × 7 <2.7 mm (0.11 in)> 1.6 mm (0.063 in) × 6 <0.05 mm (0.002 in)> 36.4 mm (1.433 in) × 6 <35.4 mm (1.39 in)> 0.17 ~ 0.23 mm (0.067 ~ 0.0090 in) 0.03 ~ 0.55 mm (0.0012 ~ 0.0217 in) Inner push, cam axle <0.2 mm (0.008 in)>
Shifter: Shifting Type Guide Bar Bending Limit	guide bar <0.05 mm (0.0020 in)>
Kick Starter Type: Kick Clip Friction Force	Kick and mesh type P = 0.8 ~ 1.0 kg (1.76 ~ 2.65 lb)
	
Air Filter Oil Grade (Oiled Filter)	Foam-air-filter oil
Carburetor: Type/ Manufacturer I.D. Mark Main Jet (M.J.) Main Air Jet (M.A.J.) Jet Needle-clip Position (J.N.) Needle Jet (N.J.) Cutaway (C.A.) Pilot Jet (P.J.) Pilot Air Screw (P.A.S.) Valve Seat Size (V.S.) Starter Jet (G.S.) Float Height (F.H.)	VM38SS/ MIKUNI 24Y-00 #260 #2.5 6F45-3 P-6 3.0 #50 1 and 1/4 ø3.5 #90 27 ± 1.0 mm (1.1 ± 0.4 in)
Reed Valve: Thickness* Valve Stopper Height Valve Bending Limit	0.20 mm (0.008 in) 12 mm (0.47 in) 0.5 mm (0.02 in)
	
Cooling: Radiator Core Size -Width -Height -Thickness Radiator Cap Opening Pressure Coolant Capacity (Total) Water Pump -Type -Oil Seal Type -Reduction Ratio	123 mm (4.84 in) 273 mm (10.7 in) 32 mm (1.26 in) 88.3 kPa (0.9 kg/cm ² , 12.8 psi) 1.0 L (0.88 Imp qt, 1.06 US qt) Single-Suction Centrifugal Pump FLJ-7-10-31-13.5 18/24 (0.75)

Tightening Torque	Thread Size	Nm	m · kg	ft · lb	
Spark plug	M14 × 1.25	25	2.5	18	
Cylinder head	-Nut	M8 × 1.25	25	18	
	-Stud	M8	13	9.4	
Cylinder drain bolt	M6 × 1.0	10	1.0	7	
Cylinder	-Nut	M10 × 1.25	35	25	
	-Stud	M10 × 1.25	13	10	
Power valve	-Allen bolt	M5 × 0.8	6	5	
	-Bolt	M5 × 0.8	4.5	3	
	-Panhead screw	M5 × 0.8	5	4	
	-Flange nut	M5 × 0.8	5	4	
	-Thrust plate	M5 × 0.8	5	4	
	-Bracket	M5 × 0.8	5	4	
	-Governor fork	M5 × 0.8	5	4	
	-Housing	M5 × 0.8	5	4	
	Housing cover	-Panhead screw	M6 × 1.0	10	7
		-Bolt	M6 × 1.0	10	7
Intake manifold	M6 × 1.0	12	9		
Crankcase	M6 × 1.0	12	9		
Crankcase cover	M6 × 1.0	8	6		
Crankcase cover 1	M6 × 1.0	10	7		
Crankcase cover	M6 × 1.0	10	7		
Chain case cover	M6 × 1.0	10	7		
Bearing cover plate	M6 × 1.0	10	7		
Holder	M8 × 1.25	16	12		
Plate	M6 × 1.0	10	7		
Oil drain bolt	M12 × 1.5	20	14		
Kickstarter lever	M12 × 1.0	60	42		
Primary drive gear	M18 × 1.0	75	54		
Clutch	M20 × 1.0	75	54		
Push rod 1	M6 × 1.0	10	7		
Clutch spring	M6 × 1.0	10	7		
Drive sprocket	M20 × 1.0	75	54		
Shift pedal	M6 × 1.0	10	7		
Stopper lever	M6 × 1.0	15	11		
Magneto rotor	M10 × 1.25	40	30		
Magneto backing plate	M6 × 1.0	8	6		

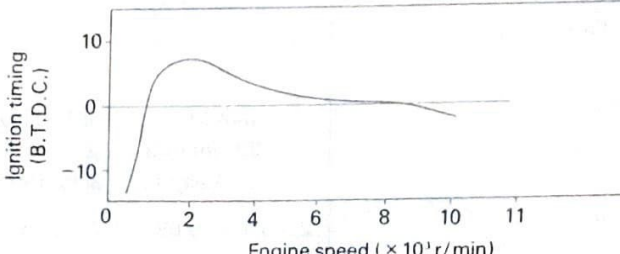
II. MAINTENANCE SPECIFICATIONS

B. Chassis

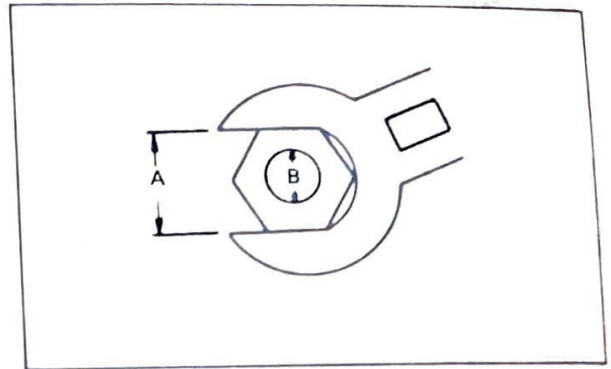
Item	Model	YZ250K
Steering System: Steering Bearing Type		Taper roller bearing
Front Suspension Front Fork Travel Fork Spring Free Length Collor Length Spring Rate/ Stroke Optional Spring Spring Rate, Soft Hard Oil Capacity or Oil Level Oil Grade Enclosed Air Pressure		300 mm (11.8 in) 559 mm (22.0 in) 80 mm (3.1 in) K = 3.0 N/mm (0.305 kg/mm, 17.1 lb/in) Yes K = 2.8 N/mm (0.290 kg/mm, 16.2 lb/in) K = 3.2 N/mm (0.325 kg/mm, 18.2 lb/in) 578 cm ³ (20.4 Imp oz, 19.5 US oz) 170 mm (6.7 in) (From top of inner tube fully compressed without spring.) Yamaha fork oil 10 wt 0 kPa (0 kg/cm ² , 0 psi)
Rear Suspension: Shock Absorber Travel Spring Free Length Fitting Length Spring Rate/ Stroke Optional Spring Spring Rate, Soft (White) Hard (Blue) Enclosed Gas Pressure Max. ~ Min.		122 mm (4.8 in) 300 mm (12 in) 290 mm (11.4 in) K ₁ = 45 N/mm (4.5 kg/mm, 252 lb/in) Yes K = 42.5 N/mm (4.25 kg/mm, 238 lb/in) K = 47.5 N/mm (4.75 kg/mm, 266 lb/in) 784 kPa (8 kg/cm ² , 113.7 psi) <686 ~ 980 kPa (7 ~ 10 kg/cm ² , 99.5 ~ 142 psi)>
Rear Arm: Swingarm Free Play Limit End Side		<1 mm (0.04 in)> <0.2 mm (0.008 in)>
Wheel: Front Wheel Type Rear Wheel Type Front Rim Size/ Material Rear Rim Size/ Material Rim Runout Limit Vertical Lateral		Spoke wheel Spoke wheel 1.60-21/ Aluminum MT2.15 × 18/ Aluminum <2 mm (0.08 in)> <2 mm (0.08 in)>
Drive Chain: Type/ Manufacturer Number of Links Chain Free Play		DK520DS/ DAIDO 109 links + Joint 30 ~ 40 mm (1.2 ~ 1.6 in)

Model		YZ250K				
Item						
Drum Brake:						
Type	Front	Two-leading				
	Rear	Leading and trailing				
Drum Inside Dia		130 mm (5.12 in)				
<Limit>	Front/ Rear	<131 mm (5.16 in)>				
Lining Thickness		4 mm (0.16 in)				
<Limit>		<2 mm (0.08 in)>				
Shoe Spring Free Length	Front/ Rear	36.5 mm (1.44 in)				
Brake Lever & Brake Pedal:						
Brake Lever Free Play/ Position	5 ~ 8 mm (0.2 ~ 0.32 in)/ at lever pivot					
Brake Pedal Free Play	20 ~ 30 mm (0.8 ~ 1.2 in)					
	(Vertical height below footrest top.)					
Clutch Lever Free Play/ Position	2 ~ 3 mm (0.08 ~ 0.12 in)/ at lever pivot					
Tightening Torque:	Thread Size	Q'ty	Nm	m · kg	ft · lb	Remarks
Front wheel axle	M14 × 1.5	1	60	6.0	43	
Handle crown -Inner tube	M8 × 1.25	4	23	2.3	17	
-Steering shaft	M22 × 1.0	1	130	13.0	94	
-Handle holder	M8 × 1.25	4	23	2.3	17	
Steering nut	M25 × 1.0	1	10	1.0	7.2	
Engine mount -Front, Frame	M8 × 1.25	2	30	3.0	22	
-Front, Engine	M8 × 1.25	1	30	3.0	22	
-Lower	M8 × 1.25	1	30	3.0	22	
-Rear, Upper	M8 × 1.25	2	30	3.0	22	
-Rear, Engine	M10 × 1.25	1	65	6.5	47	
Rear wheel axle	M18 × 1.5	1	100	10.0	72	
Sprocket wheel -Hub	M8 × 1.25	6	30	3.0	22	
Rear shock -Frame	M10 × 1.25	1	60	6.0	43	
Pivot axle	M16 × 1.5	1	85	8.5	61	
Torque arm	M8 × 1.25	2	23	2.3	17	
Brake cam lever	M6 × 1.0	1	10	1.0	7.2	
Relay arm -Swingarm	M12 × 1.25	1	60	6.0	43	
-Rear shock	M10 × 1.25	1	45	4.5	32	
-Connecting rod	M10 × 1.25	1	45	4.5	32	
Frame -Connecting rod	M10 × 1.25	1	60	6.0	43	

C. Electrical

Item	Model
Voltage	YZ250K 6V
Ignition System: Ignition Timing (B.T.D.C.) Advancer Type	$1.5 \pm 0.1 \text{ mm}$ ($0.06 \pm 0.004 \text{ in}$) Electrical 
C.D.I. Magneto-Model/ Manufacture Pickup Coil Resistance (Color) Charging Coil Resistance (Color) C.D.I. Unit-Model/ Manufacturer	M100-35/ HITACHI $1.437 \Omega \pm 10\%$ at 20°C (68°F) (Brown – Red) $270 \Omega \pm 10\%$ at 20°C (68°F) (Red – White/ Red) T1A01-45/ HITACHI
Ignition Coil: – Model/ Manufacturer Minimum Spark Gap Primary Winding Resistance Secondary Winding Resistance	CM61-29/ HITACHI 10 kV or more at 500 r/min 15 kV or less at 8,000 r/min 6 mm (0.24 in) at 1,500 $0.22 \Omega \pm 10\%$ at 20°C (68°F) $4.4 \text{ k}\Omega \pm 10\%$ at 20°C (68°F)

A (Nut)	B (Bolt)	TORQUE SPECIFICATION		
		Nm	m · kg	ft · lb
10 mm	6 mm	5	0.6	4.5
12 mm	8 mm	15	1.5	11.0
14 mm	10 mm	30	3.0	22.0
17 mm	12 mm	55	5.5	40.0
19 mm	14 mm	85	8.5	61.0
22 mm	16 mm	130	13.0	94.0



A: Distance across flats
B: Outside thread diameter

CONVERSION TABLES

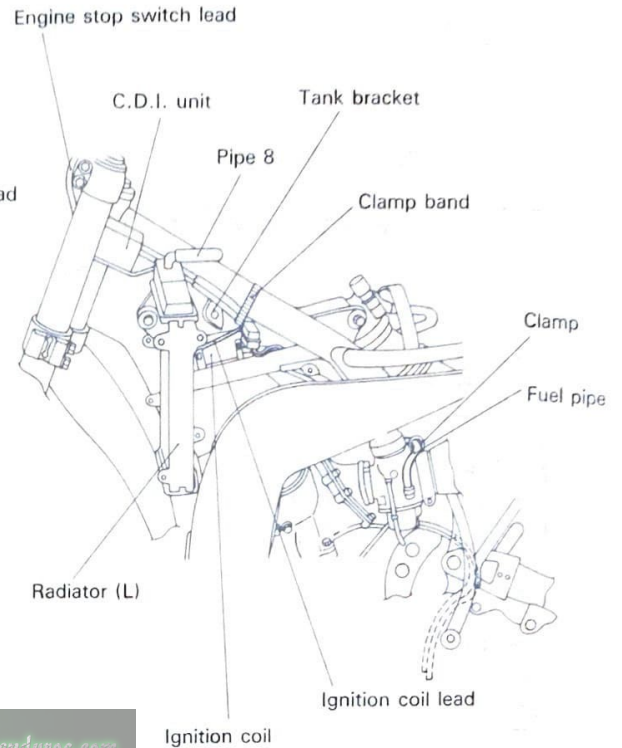
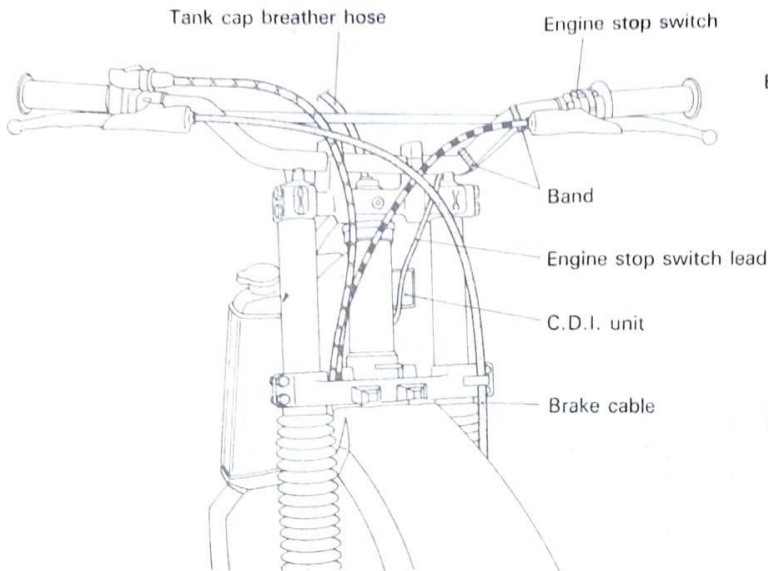
METRIC TO INCH SYSTEM			
	KNOWN	MULTIPLIER	RESULT
TORQUE	m · kg	7.233	ft · lb
	m · kg	86.80	in · lb
	cm · kg	0.0723	ft · lb
	cm · kg	0.8680	in · lb
WT.	kg	2.205	lb
	g	0.03527	oz
FLOW/DISTANCE	km/ℓ	2.352	mpg
	km/hr	0.6214	mph
	km	0.6214	mi
	m	3.281	ft
	m	1.094	yd
	cm	0.3937	in
	mm	0.03937	in
VOL./CAPACITY	cc (cm ³)	0.03382	oz (US liq)
	cc (cm ³)	0.06102	cu.in
	ℓ (liter)	2.1134	pt (US liq)
	ℓ (liter)	1.057	qt (US liq)
	ℓ (liter)	0.2642	gal (US liq)
MISC.	kg/mm	56.007	lb/in
	kg/cm ²	14.2234	psi (lb/in ²)
	Centigrade(°C)	9/5(°C) + 32	Fahrenheit(°F)

INCH TO METRIC SYSTEM			
	KNOWN	MULTIPLIER	RESULT
TORQUE	ft · lb	0.13826	m · kg
	in · lb	0.01152	m · kg
	ft · lb	13.831	cm · kg
	in · lb	1.1521	cm · kg
WT.	lb	0.4535	kg
	oz	28.352	g
FLOW/DISTANCE	mpg	0.4252	km/ℓ
	mph	1.609	km/hr
	mi	1.609	km
	ft	0.3048	m
	yd	0.9141	m
	in	2.54	cm
	in	25.4	mm
VOL./CAPACITY	oz (US liq)	29.57	cc (cm ³)
	cu.in	16.387	cc (cm ³)
	pt (US liq)	0.4732	ℓ (liter)
	qt (US liq)	0.9461	ℓ (liter)
	gal (US liq)	3.785	ℓ (liter)
MISC.	lb/in	0.017855	kg/mm
	psi (lb/in ²)	0.07031	kg/cm ²
	Fahrenheit(°C)	5/9(°F - 32)	Centigrade(°F)

DEFINITION OF UNITS

Unit	Read	Definition	Measure
mm	millimeter	10 ⁻³ meter	Length
cm	centimeter	10 ⁻² meter	Length
kg	kilogram	10 ³ gram	Weight
N	Newton	1 kg × m/sec ²	Force
Nm	Newton meter	N × m	Torque
m · kg	Meter kilogram	m × kg	Torque
Pa	Paskal	N/m ²	Pressure
N/mm	Newton per millimeter	N/mm	Spring rate
L	Liter	—	Volume or Capacity
cm ³	Cubic centimeter	—	Volume or Capacity
r/min	Rotation per minute	—	Engine speed

CABLE ROUTING DIAGRAM



1. Throttle wire

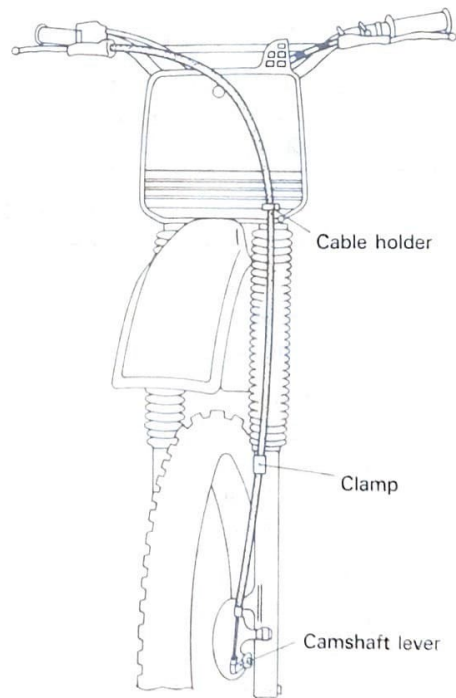
Grip cap → Behind the brake wire → Right side of radiator hose 4 → Right side of head pipe → Outer side of clutch wire → Route the inner side of sub-tank hose → Route along the main pipe and hold on the right side of main pipe with band → Route along the radiator hose 3 → Left side of engine upper stay → Carburetor

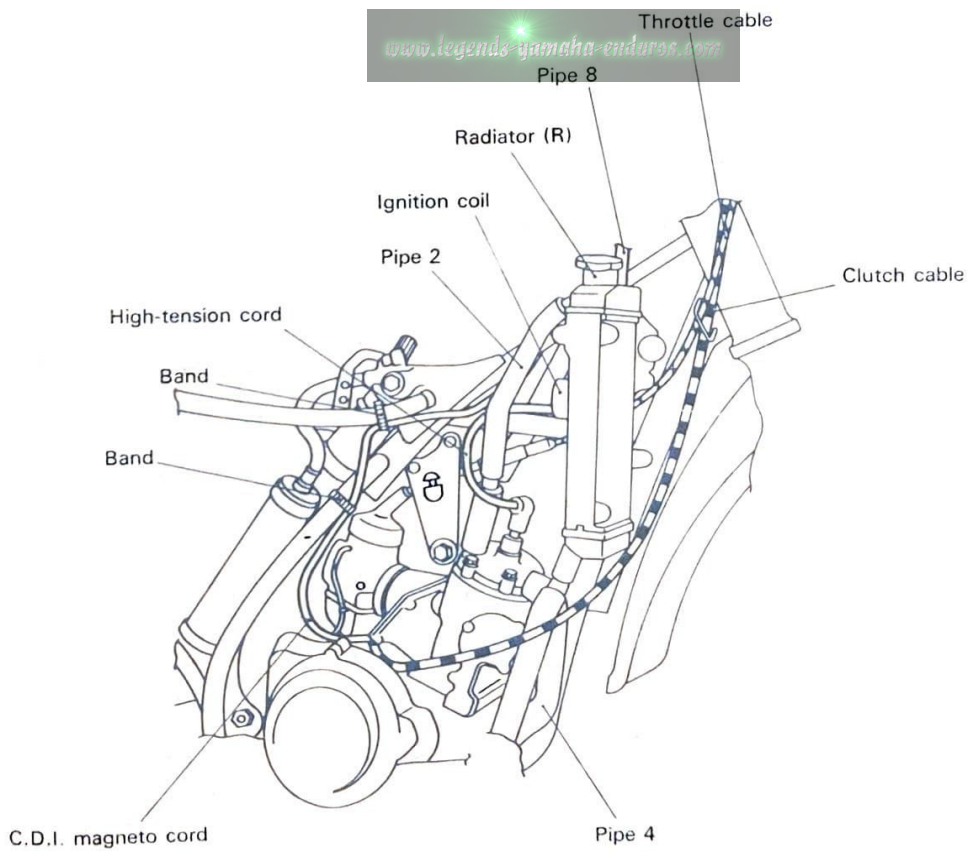
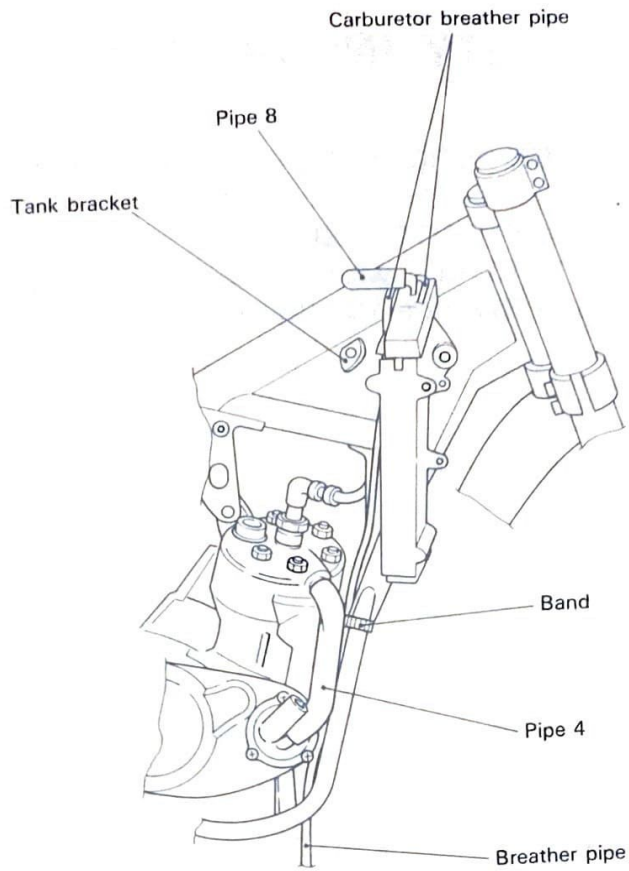
2. Front brake wire

Lever (right) → In front of throttle wire and clutch wire → Wire holder (upper left of handle crown) → Wire holder (left side of underbracket) → Clamp and tighten the screw (outer tube) → Camshaft lever

3. Clutch wire

Lever (left) → Left side of radiator breather hose 4 → Right side of head pipe (inner side of throttle wire and radiator breather hose) → Sub-tank holder → Wire holder of upper crankcase → Clutch lever axle





WARRANTY INFORMATION

STATEMENT OF PURCHASER'S RESPONSIBILITY

This (model) Yamaha motorcycle is sold AS IS, WITHOUT ANY WARRANTIES EXPRESSED OR IMPLIED REGARDLESS OF THE INTENDED USE.

THE PURCHASER OF THIS MOTORCYCLE, which is intended for competition purposes, IS RESPONSIBLE FOR ALL COSTS OF SERVICE AND/REPAIR.

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