



YAMAHA

YZ400F

OWNER'S SERVICE MANUAL

www.legends-yamaha-enduros.com

LIT-11626-01-32

2X5-28199-10

IMPORTANT NOTICE

This motorcycle 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.

This Owner's Service Manual is included to provide basic information for operation and maintenance.

Additional information regarding major repairs, such as crankcase disassembly, can be found within the DT250D/DT400D Service Manual (1M1-28197-10) and various other information and training manuals available from your Authorized Yamaha.

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

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

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

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

**YZ400F OWNER'S SERVICE MANUAL
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INTRODUCTION

Congratulations on your purchase of the Yamaha YZ400F. This model represents the product of many years of Yamaha experience in the production of fine sporting, touring, and pace-setting racing machines. You can now appreciate the high degrees of craftsmanship and reliability that have made Yamaha a leader in these fields.

This manual will provide you with a good basic understanding of the 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.

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Some data in this manual may become outdated due to improvements made to this model in the future.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.

**SERVICE DEPT.
INTERNATIONAL DIVISION
YAMAHA MOTOR COMPANY, LTD.**

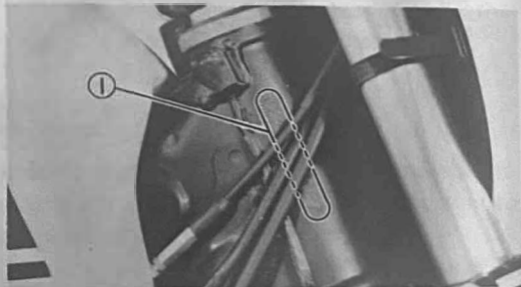
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MACHINE IDENTIFICATION

Frame serial number

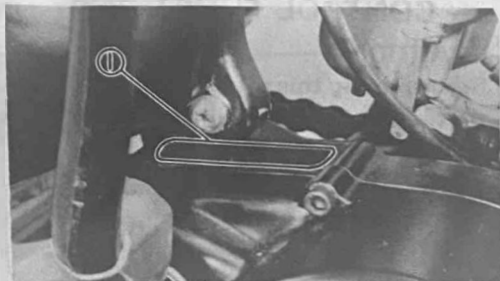
The frame serial number is stamped on the right side of the steering head pipe.



1. Frame serial number

Engine serial number

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



1. Engine serial number

NOTE:

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

CONTROL FUNCTIONS

CAUTION:

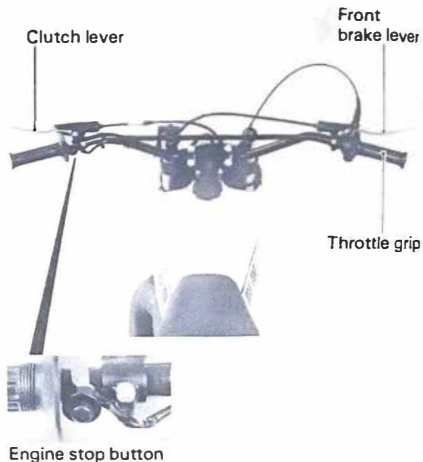
Before riding this motorcycle, become thoroughly familiar with all operating controls and their function.

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

WARNING:

This model is not equipped with highway approved lighting. This model is designed solely for competition use and should not be used on a street or highway at any time. In most instances, it is illegal to ride this model on any public street or highway.

INSTRUMENT



Engine stop button

The engine stop button is located on the left handlebar. Push and hold to stop engine.

Front brake lever

Located on the right handlebar.

Pull the front brake lever toward the handlebar to activate the front brake.

Clutch lever

Located on the left handlebar.

Pull the clutch lever toward the handlebar to disengage the clutch and release the lever to engage the clutch.

Throttle

The throttle is the positive-return type, and is located on the right handlebar.

RIGHT SIDE

Fuel petcock



Fuel petcock

Turn the petcock lever to the ON position and fuel will flow to the carburetor. Turn lever to the OFF position to shut off fuel supply to the carburetor.

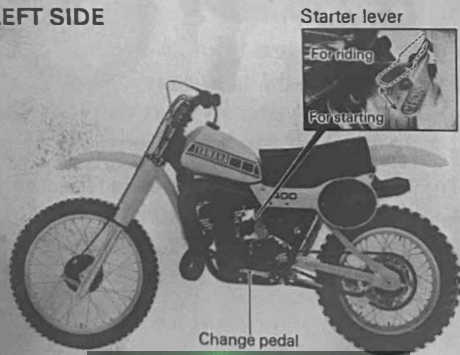
Kick crank

The kick starter crank is located on the right rear side of the engine. Rotate the crank lever out, push down until the gear engage the primary drive train and kick briskly to start the engine.

Rear brake pedal

Located directly in front of the rider's right footrest. Press down on the brake pedal to activate the rear brake.

LEFT SIDE



Starter lever



Change pedal

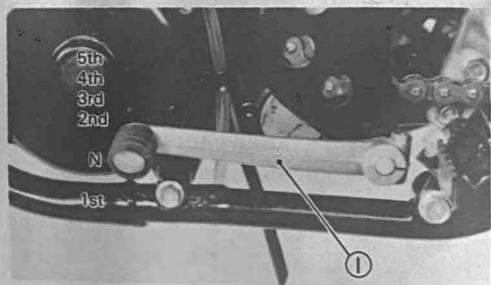
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Starter lever

When cold, the engine requires richer fuel mixture for starting. Push the lever down to open the circuit (for starting) and pull it up to close the circuit before riding. Never ride the machine with the lever down.

Change pedal

The shift mechanism is of the ratcheting type and controls gear selection for the 5-speed transmission.



1. Change pedal

Fuel

Use premium gasoline with an octane rating of 90+ mixed with oil at a gas/oil ratio of 20 : 1. Always use fresh, name-brand gasoline. Always mix a fresh batch of fuel the morning of the race and do not retain a mixed batch overnight.

Fuel tank capacity: 7.6 lit (2.0 US. gal)

Engine mixing oil

Recommended oil: Yamalube "R"
(Yamalube Racing 2-cycle oil)

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

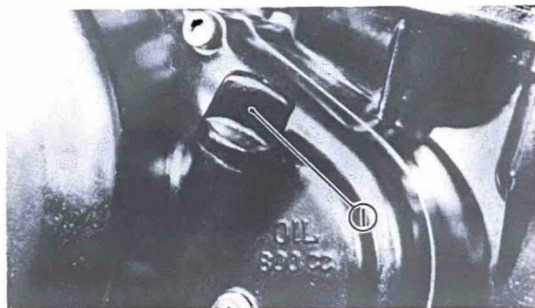
- * Shell Super M
- * Castrol R 30

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Transmission oil

Recommended oil:

Yamalube 4-cycle oil or SAE 10W/30
"SE" motor oil



1. Filler plug

Transmission oil capacity:

Periodic oil change:

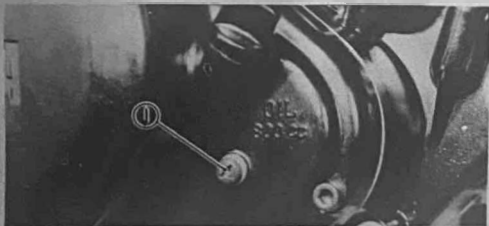
750 ~ 850 cc (0.80 ~ 0.9 US qt)

Overhaul:

800 ~ 900 cc (0.85 ~ 0.95 US qt)

Checking oil level

On the right side of the engine there is a checking screw. To check, warm up the engine for 2 ~ 3 minutes. Stop engine. Place the motorcycle upright and remove the oil level checking screw. If oil flows out, the oil level is correct.



1. Checking screw

Oil replacement

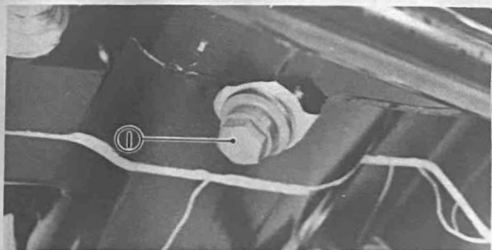
The transmission oil should be drained and refilled every second race meet.

On the bottom of the engine there is a drain plug. Remove it and drain all the oil from the transmission. Reinstall the drain plug (make sure it is tight). Add oil through filler hole.

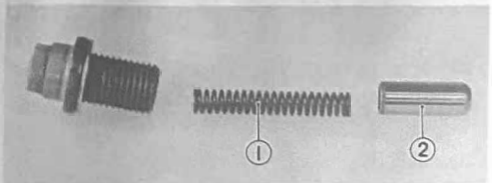
NOTE:

This drain plug can also serve as the cam stopper.

Take care so that the stopper and spring are not lost.



1. Drain plug



1. Spring 2. Cam stopper

PRE-OPERATION CHECKS

Before using this motorcycle please check the following points:

Item	Procedure	Page
Brakes	Check operation/ adjustment	25, 26
Clutch	Check operation/ adjustment	23 ~ 25
Fuel Tank	Fill with proper fuel/oil mix	5
Transmission	Change oil as required	5, 6
Drive Chain	Check alignment/ adjustment/ lubrication	27, 28
Spark Plug	Check color and condition	17, 18
Throttle	Check for proper cable operation	20
Air Filter	Foam type— must be clean and damp with oil always	22, 23
Wheels & Tires	Check pressure/runout/spoke tightness/ axle nuts	—
Fittings/ Fasteners	Check all/ tighten as necessary	—

NOTE: _____

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

STARTING AND OPERATION

CAUTION:

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

Starting a cold engine

Shift transmission into "NEUTRAL". Turn the fuel petcock to "ON" and operate the starter lever and completely close the throttle grip. Engage the kick starter and start the engine.

Warm-up

Run the engine at idle or slightly higher using the starter lever as required until the engine is warm. This procedure normally takes 1 to 2 minutes. To check, see if the engine responds normally to throttle with starter off.

CAUTION:

Do not operate engine for extended warm-up periods.

Starting a warm engine

Do not engage starter lever. Open throttle slightly. Engage the kick starter and start the engine.

CAUTION:

Observe break-in procedures for initial operation.

Break-in procedures

1. Prior to starting, fill tank with a break-in gasoline/ oil mixture of 15 : 1.
2. After fueling and pre-operational checks have been made, refer to "Starting and Operation" and start engine.
3. Allow engine to warm up. Check engine idle speed. Check operating controls and "Engine stop switch operation".

4. Operate machine in lower gears at moderate throttle settings for 3 ~ 5 minutes. Check spark plug condition. Spark plug will show rich condition during break-in.
5. Allow engine to cool. Repeat procedure, running for 5 minutes. Very briefly, shift to higher gears (4th or 5th) and check full throttle response. Check spark plug condition.
6. Allow engine to cool. Repeat procedure, running for 5 minutes. Full throttle and higher gears may be used, but avoid sustained full throttle operation. Check spark plug condition.
7. Allow engine to cool. Remove top end and inspect. Remove "high" spots on piston with No. 600 grit, wet sandpaper. Clean, and carefully reassemble.
8. Remove break-in fuel/oil mixture from tank. Refill with 20 : 1 operation fuel/oil mixture. Check entire unit for loose or mis-adjusted fittings/controls/fasteners.
9. Re-start engine and check through entire-operating range thoroughly. Stop. Check spark plug condition. Restart. After 10 ~ 15 minutes operation, machine is ready to race.

PERIODIC MAINTENANCE AND ADJUSTMENTS

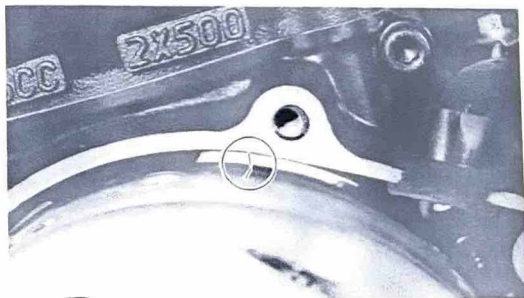
The maintenance and lubrication schedule chart should be considered strictly as a guide to general maintenance and lubrication intervals. You must take into consideration that weather, terrain, geographical locations, and a variety of individual uses all tend to demand

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

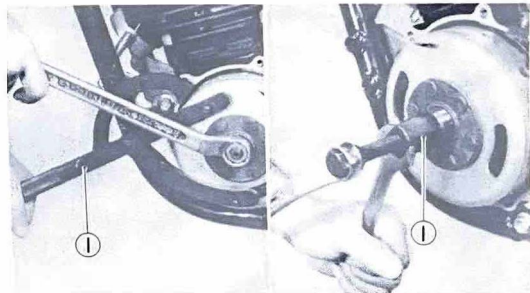
replacement, punch a new mark on the crankcase matching the one on the flywheel.

NOTE:

Be sure to locate the piston in the correct position before remarking.



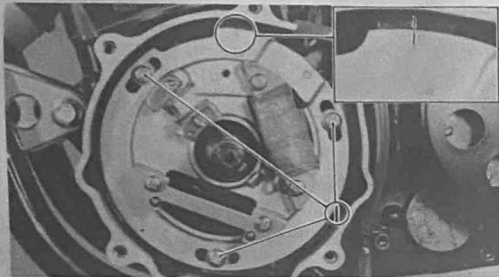
7. Remove the flywheel magneto using the magneto holder and flywheel puller.



1. Flywheel holding tool
(90890-01235)

1. Flywheel puller
(90890-01189)

8. Check the alignment marks on the crankcase and base for alignment. If they are not aligned, loosen the base set screws until alignment is achieved. Tighten the screws.



1. Base screw

9. Install the flywheel magneto and remove the dial gauge assembly and stand.

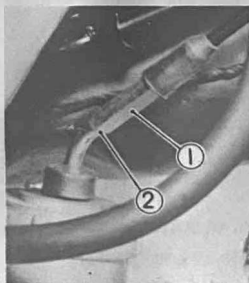
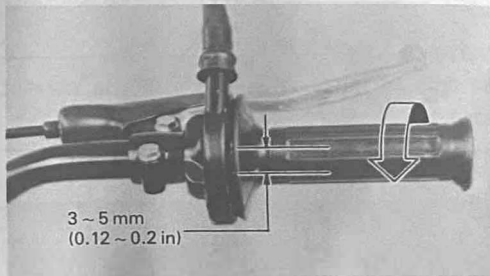
Flywheel nut torque: 5 m-kg (36 ft-lb)

10. Install the spark plug, muffler and crankcase cover.

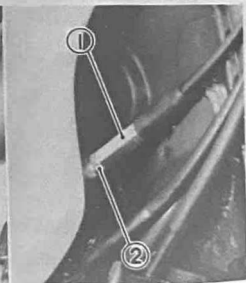
Throttle cable adjustment

Check play in turning direction of throttle grip. The play should be 3 ~ 5 mm (0.12 ~ 0.20 in) at grip flange. Loosen the lock nut

and turn the wire adjuster to make the necessary adjustment. Be sure tighten the lock nut properly.



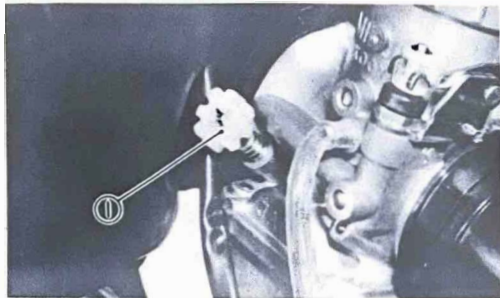
1. Adjuster



2. Lock nut

Idle speed and idle air adjustments

1. Turn idle air screw in until lightly seated.
2. Back out 1-3/4 turn.



1. Air screw

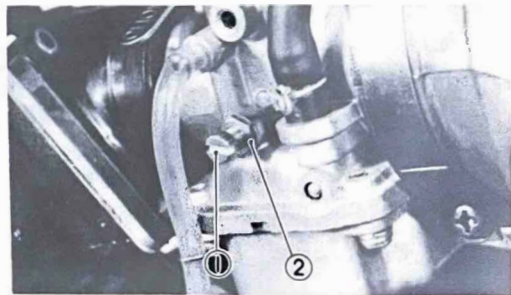
Idle air screw: Back out 1-3/4 turn.

3. Turn the idle speed adjusting screw until idle is at desired rpm.

NOTE: _____

A lock nut is incorporated for positive retention of idle adjusting screw.

4. Turn the idle air mixture screw in or out until idle speed is at highest rpm.
5. Turn the idle speed adjusting screw in or out until idle speed is at desired rpm.



1. Idle speed adjusting screw 2. Lock nut

NOTE: _____

Idle air mixture and idle speed adjustment screws should be so adjusted that engine response from idle position is rapid and without hesitation.

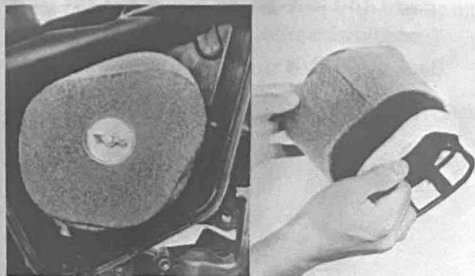
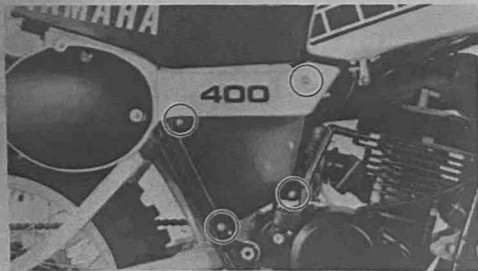
Idle speed: As desired.

If the engine, when warm, hesitates after adjusting as described, turn the idle air mixture screw in or out in 1/4 turn increments until the problem is eliminated.

AIR FILTER

Removal

1. Remove the Phillips-head screw (4) and remove filter case cover.
2. Remove the air filter from the filter case.
3. Slip the filter from the guide.



Cleaning

1. Wash the filter gently, but thoroughly, in solvent.
2. Squeeze the excess solvent out of the filter and let dry.
3. Pour a small quantity of 30W motor oil onto the filter and work thoroughly into the porous foam material.
4. Re-insert the guide into the filter.

NOTE: _____

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

5. Coat the sealing edges of the filter with light grease. This will provide an air-tight seal between the filter case cover and filter seat.



6. Reinstall the filter assembly and parts removed for access.

NOTE: _____

Each time filter element maintenance is performed, check the air inlet to the filter case for obstructions. Check the air cleaner joint rubber to the carburetor and manifold fittings for an air-tight seal. Tighten all fittings thoroughly to avoid the possibility of unfiltered air entering the engine.

CAUTION: _____

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

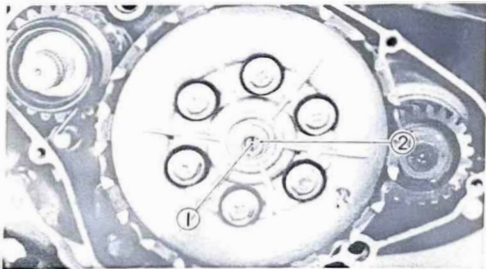
CLUTCH

Mechanism adjustment

1. Fully loosen the cable in-line length ad-

juster lock nut and screw in the adjuster until tight.

2. Turn the handle lever adjuster in.
3. Loosen the rear brake and remove the foot rest. Remove the kick starter crank.
4. Drain the transmission oil and remove the crankcase cover (R).
5. Loosen the clutch mechanism adjuster lock nut.

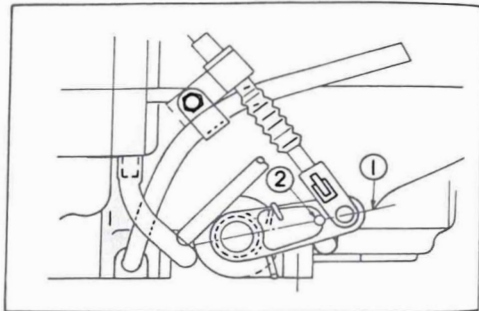


1. Adjuster 2. Lock nut

6. Push the push lever toward the front with your finger until it stops. With the push lever in this position, turn the ad-

juster in until the push lever center and crankcase match mark are aligned. Tighten the lock nut.

Tightening torque: 0.8 m·kg (6 ft·lb)

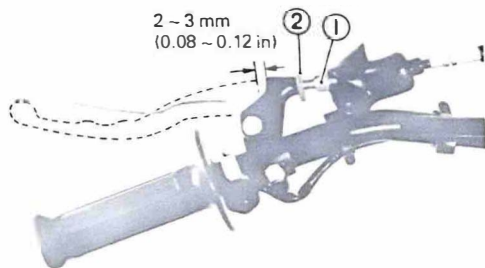


1. Push lever center 2. Case match mark

Freeplay adjustment

1. Loosen either the handle lever adjuster lock nut or the cable in-line length adjuster lock nut.

- Next, turn the length adjuster either in or out until proper lever freeplay is achieved.
- Tighten the lock nut.



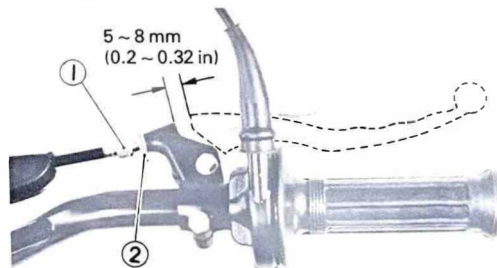
1. Adjuster 2. Lock nut

Front brake

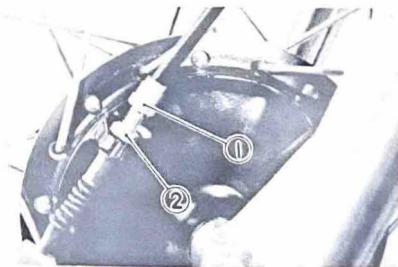
Front brake should be adjusted to suit rider preference with a minimum cable slack of 5 ~ 8 mm (0.2 ~ 0.32 in) play at the brake lever pivot point.

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

- Loosen the adjuster lock nut.
- Turn the cable length adjuster in or out until adjustment is suitable.
- Tighten the adjuster lock nut.



1. Adjuster 2. Lock nut

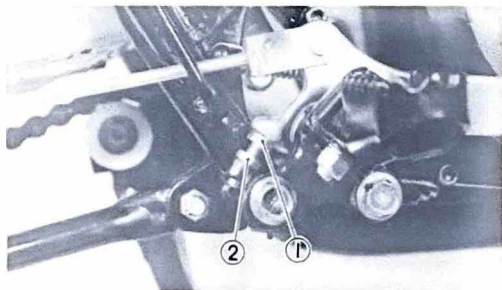


1. Adjuster 2. Lock nut

Brake pedal position adjustment

The position of the rear brake pedal should be adjusted to suit the rider. Loosen the lock nut and adjust the pedal height by turning the adjuster.

After adjusting, check for correct rear brake play. Do not forget to tighten the lock nut.



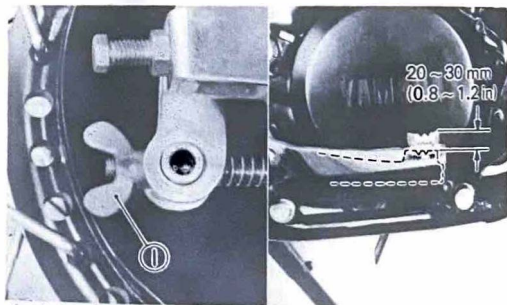
1. Adjuster 2. Lock nut

Rear brake

Adjust rear brake pedal play to suit, providing a minimum of 20 ~ 30 mm (0.8 ~ 1.2 in) freeplay.

Adjustment is accomplished as follows:
Turn the adjusting nut on the rear brake lever in or out until brake pedal freeplay is suitable.

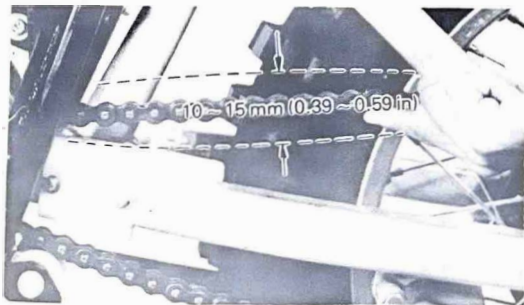
NOTE: _____
Rear brake pedal adjustment must be checked whenever chain is adjusted or rear wheel is removed and then re-installed.



1. Adjusting nut

Drive chain tension check

Inspect the drive chain with both tires touching the ground. Check the tension at the position shown in the illustration. The normal vertical deflection is approximately 10 ~ 15 mm (0.39 ~ 0.59 in). If the deflection exceeds 15 mm (0.59 in) adjust the chain tension.

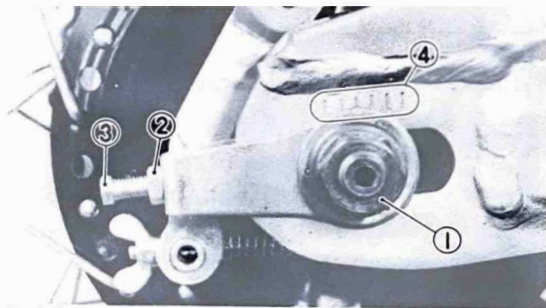


Adjustment

1. Loosen axle securing nut while holding the opposite side with a screwdriver.

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2. Turn adjusting bolts left and right until the adjust marks on the adjusters are aligned with the adjust marks on each side of the swing arm. Tighten lock nuts on adjusting bolts.



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

3. Tighten the rear axle securing nut.

Torque: 8.0 m·kg (58 ft·lb)

4. Check brake pedal freeplay.

CAUTION:

Whenever the chain is adjusted and/or the rear wheel is removed, always check during reassembly:

1. Rear axle alignments.
2. Brake pedal free play.

FRONT FORKS

This machine employs the newly developed air suspension whose front fork inner tube is furnished with a cap bolt having a valve which can adjust the interior air compression for varied spring characteristics.

This suspension features:

1. Adjustment of air pressure makes possible a free choice of spring characteristics.
2. Spring characteristics peculiar to the air suspension helps a great deal to give the rider greater comfort and less fatigue.

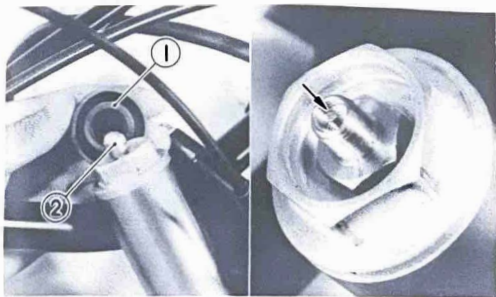
CAUTION:

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 air shock absorber into fire.
3. Before removing the air shock absorbers out from the front forks, be sure to extract the air from the air chamber completely.

Fork oil replacement

1. Place a suitable stand under the engine to keep the front of machine raised off the floor.
2. Remove the rubber cap and valve cap.



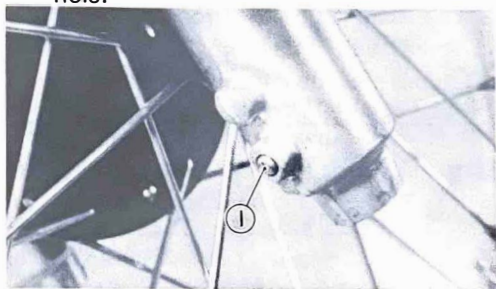
1. Rubber cap 2. Valve cap

- Using a slotted-head screwdriver, press the valve and keep it open for more than 3 seconds so that the air can be let out from the inner tube.

NOTE: _____

When the air has to be extracted from the tube extract little by little. If not, oil stout out together with the air, causing harm to you.

- Remove the cap bolt assembly.
- Remove drain screw from each outer tube open container under each drain hole.



1. Drain screw

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

NOTE: _____

Check gasket, replace if damaged.

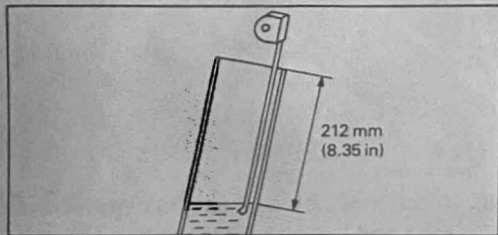
- Measure correct amount of oil and pour into each leg.

Recommended oil:

SAE #15W motor oil

Oil quantity: 364 cc (0.385 qt)

9. Measure the oil level from top of the fork tube with a tape measure. The fork tubes must be fully bottomed.

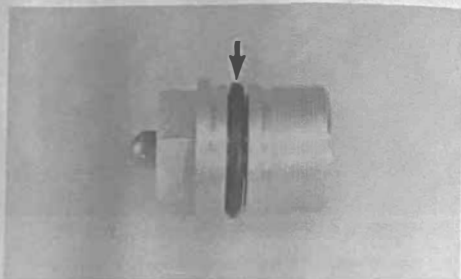


NOTE: _____

Select the weight oil that suits local conditions and your preference (lighter for less damping, heavier for more damping).

10. After filling, slowly pump the outer tubes up and down to distribute the oil.

11. Inspect the O-ring on cap bolt and replace if damaged.



12. Install cap bolt and torque to specification.

Tightening torque: 2.3 m-kg (16.5 ft-lb)

Air pressure adjustment

For proper damping effects, the sealed air pressure must be maintained at the following levels. Both forks must have the same pressure.

1. Place a suitable stand under the engine to keep the front of machine raised off the floor. No weight on front wheel.
2. Using a manual air pump fill with air.

Maximum air pressure:
2.5 kg/cm² (35.56 lb/in²)

Do not exceed this amount.
Damage to seals will result.

3. Using the air check gauge, adjust the air pressure to specification.



Standard air pressure: 0.9 kg/cm² (12.8 psi)

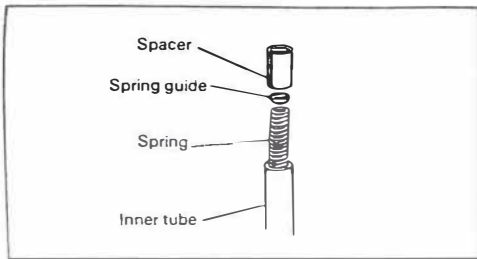
NOTE:


When oil enters the gauge, thereby keeping the needle from returning to the original positive, loosen the screw in the rubber at the gauge mouth, and shake the gauge several times to remove the oil inside. After making sure of the needle being at the original position, retighten the screw.

4. The difference between both right and left tubes should be 0.1 kg/cm² (1.42 lb/in²) or less.

Front fork spring replacement

In addition to the standard type, two different type fork spring are sold. A proper spring should be selected according to the conditions of a racing course or the weight of the rider.

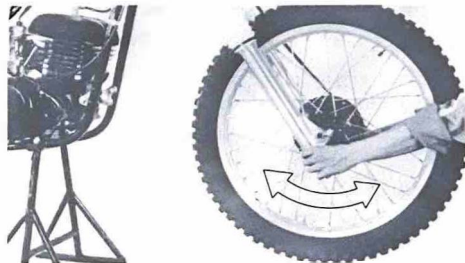


Type		Part No.	Spring rate (kg/mm)	I.D. mark
Light duty	Spring	2X4-23141-10	K = 0.214	
STD	Spring	2X4-23141-00	K = 0.268	
Heavy duty	Spring	2X4-23141-20	K = 0.333	

Steering head adjustment

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

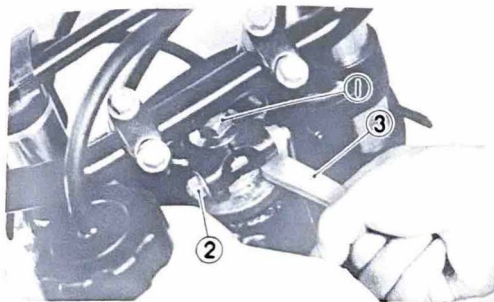
2. To adjust, first loosen upper stem pinch bolt.



3. Loosen steering fitting bolt.
4. Use steering nut wrench to tighten ring nut. Tighten until free play is eliminated.

Tightening torque: 0.7 m-kG (5 ft-lb)

NOTE: _____
Forks must swing from lock to lock without binding or catching.



1. Steering fitting bolt
2. Stem pinch bolt
3. Steering nut wrench

5. Tighten fitting bolt and torque to specification.

Fitting bolt torque: 9.5 m·kg (68 ft·lb)

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

Stem pinch bolt torque:
2.3 m·kg (17 ft·lb)

REAR SHOCK (MONOCROSS SUSPENSION "DE CARBON" SYSTEM)

WARNING:

This shock absorber contains highly compressed nitrogen gas.

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

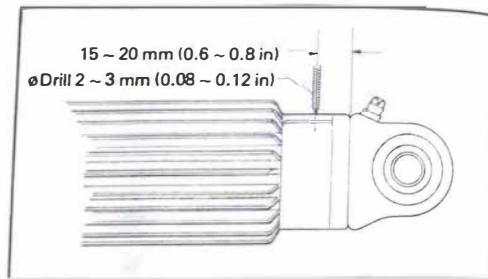
4. Handle it with great care, for a score or scratch in the piston rod sliding portion will cause oil leakage.
5. Never remove the plug on the cylinder bottom. Injury may result.

Notes on Disposal (Yamaha dealers only)

Gas pressure must be released before disposing of shock absorber. To do so, drill a 2 ~ 3 mm (0.08 ~ 0.12 in) hole through the cylinder wall at a point 15 ~ 20 mm (0.6 ~ 0.8 in) above the bottom of the cylinder. 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.



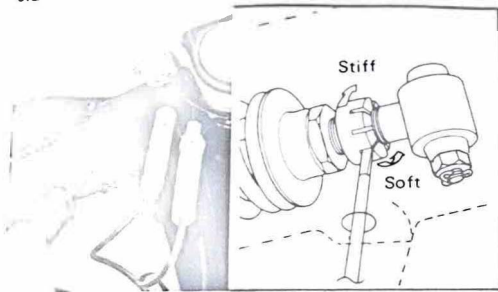
Adjustment

- When bottoming feels excessive and too soft:
 1. Increase the spring pre-load
 2. Make damping performance stiffer
- When springing feels excessive and too hard:
 1. Decrease the spring pre-load
 2. Make damping performance softer

Damping performance

Adjustment can be made without removing the shock absorber.

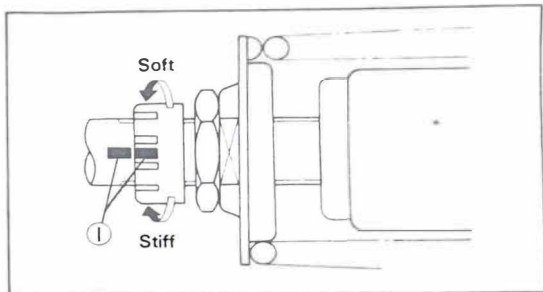
Turn the adjuster with a slotted-head screwdriver through the hole provided right side of the frame.



1. To make it stiffer, screw in the adjuster.

NOTE: _____

Turn the adjuster until it clicks. Maximum extent can be known by the position where turning suddenly feels heavy. Do not give any further turns. The adjustable range covers approximately 12 notches from the standard position.



1. Match mark (Red point)

2. To make it softer, screw out the adjuster.

NOTE: _____

Turn the adjuster until it clicks.

Minimum extent can be known by the position where turning suddenly feels light.

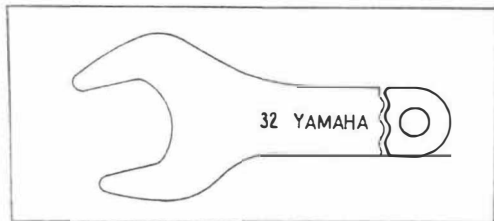
Do not give any farther turns.

The adjustable range covers approximately 12 notches from the standard position.

Spring preload

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

1. Remove the rear shock absorber. (See page 66)



2. Loosen the adjuster lock nut.
3. To increase fitting load, screw in the adjuster.
To decrease fitting load, screw out the adjuster.
4. Tighten the lock nut by retaining the adjuster at turning position.

Tightening torque: 5.5 m·kg (40.0 ft·lb)

NOTE:

Initial fitting:

306 mm (12.05 in)

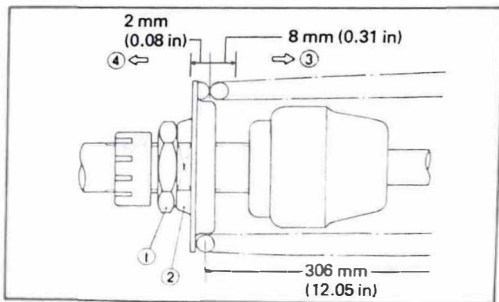
Minimum adjustable extent:

298 mm (11.73 in)

Maximum adjustable extent:

308 mm (12.13 in)

Be sure to adjust within the above limits.



1. Lock nut
2. Adjuster
3. Increase
4. Decrease

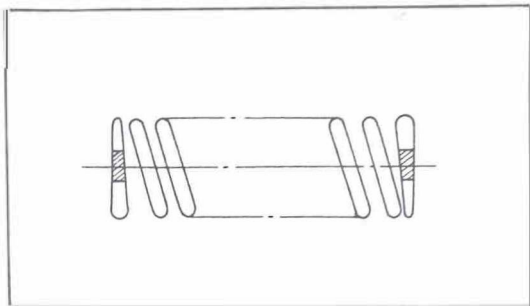
Gas pressure

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

Rear shock spring replacement

In addition to the standard type two different type rear shock springs are sold. A proper type should be selected according to the conditions of a racing course or the weight of the rider.

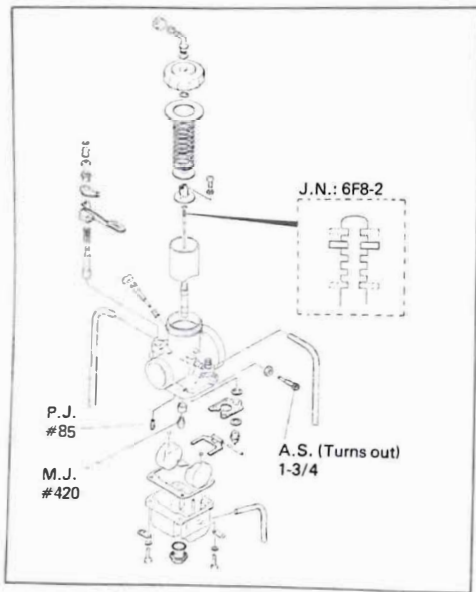
Type	Part No.	Spring rate (kg/mm)	Color code
Light duty	90501-99481	$K_1 = 2.09$ $K_2 = 4.91$	Yellow
Standard	90501-99479	$K_1 = 2.55$ $K_2 = 5.03$	Blue
Heavy duty	90501-99480	$K_1 = 2.96$ $K_2 = 5.05$	Red



NOTE: _____
Code color is shown on the end of the spring.

MINOR REPAIRS

CARBURETOR



Replacement of main jet

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

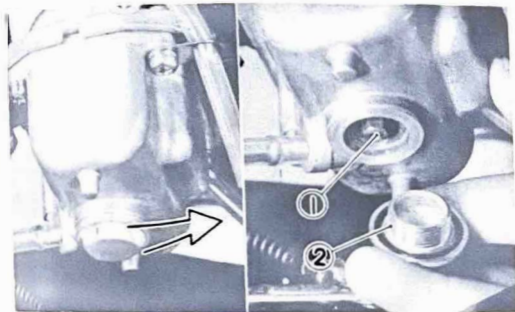
Remove bolt. Main jet is located directly behind bolt.

WARNING:

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

5. Remove the main jet. Change as required. Reinstall cover bolt and reassemble, reversing steps 1 through 3.

Standard Main Jet Size: # 420



1 Main jet 2. Cover bolt

IMPORTANT:

The YZ400F carburetor has been set for normal sea level conditions. The standard setting is the result of extensive testing and does not usually require changing.

However, under conditions of high atmospheric pressure or heavy load (deep sand or mud) the standard Main jet should be replaced with another Main jet. If the carburetor requires any other setting changes to suit local conditions of altitude, weather, etc., the changes must be made with great care. Improper carburetor setting changes will cause poor engine performance and possible engine damage. Please consult your YAMAHA dealer about any carburetor setting changes before actually going about them.

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 jet with compressed air.

2. Examine condition of floats. If floats are damaged, they should be replaced.
3. Inspect inlet needle valve and seat for wear or contamination. Replace these components as a set.



Adjustment

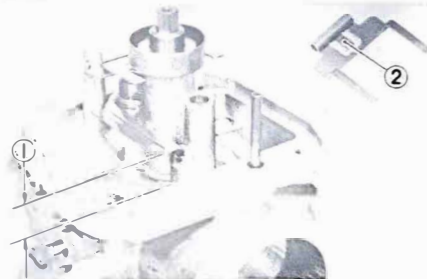
1. Float arm height
 - a. Checking

Hold the carburetor in an upside down position. While holding the float arm so the tang is just touching the float needle, measure the distance from the top

of the float arm to the float bowl gasket surface. Both arms must be the same height.

Float arm height: $18.1 \pm 1 \text{ mm}$ ($0.71 \pm 0.04 \text{ in}$)
 Level with carburetor base

Handwritten note: 23/32



1. Float arm height
2. Tang

b. Adjustment

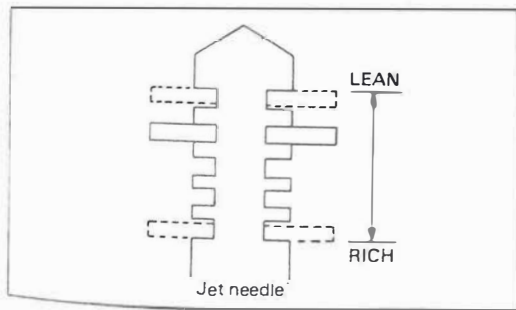
CAUTION:

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

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

2. Jet needle adjustment

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



Troubleshooting

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

The following list gives each of the major components of the carburetor that can be readily changed in order to modify performance if required. If you are unfamiliar with carburetor theory, we suggest you refrain from making changes. Quite often, a performance problem is caused by another related component, such as the exhaust system, ignition timing or combustion chamber compression.

NOTE: _____

See MECHANICAL ADJUSTMENTS for additional carburetor adjustments.

Pilot air screw

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

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

Pilot jet

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

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

Throttle valve (slide)

The throttle valve (slide) has a portion of the base cut away to control air flowing over the main nozzle. A wider angle (more "cutaway"

will create a leaner mixture. Throttle valves are numbered according to the angle of the cutaway. The higher the number, the more cutaway, the leaner the mixture.

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

Jet needle

The jet needle is fitted within the throttle valve. The tapered end of the needle fits into the main nozzle outlet. Raising the needle allows more fuel to flow out of the needle. Moving the needle clip from the first, or top groove, through the fifth, or bottom groove, will give a correspondingly richer mixture.

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

Main jet

The Main jet controls overall fuel flow through the main nozzle. Changing the jet to

one with a higher number supplies more fuel to the main nozzle giving a richer mixture.

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

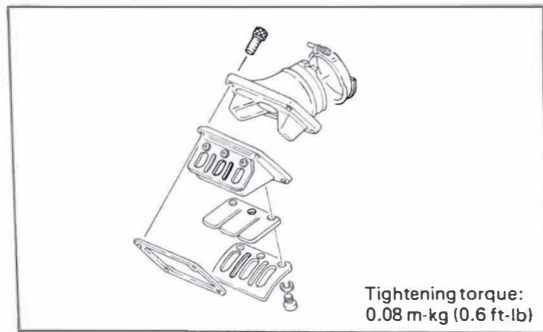
NOTE: _____

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

CAUTION: _____

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

REED VALVE



Tightening torque:
0.08 m·kg (0.6 ft·lb)

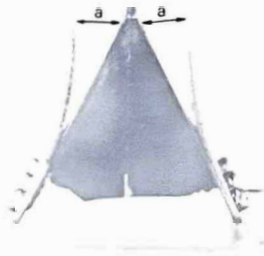
Inspection

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.

3. The valve stopper controls the movement of the valve. Check clearance "a".

Standard value "a": 12 mm (0.47 in)

If it is 0.2 mm more or less than specified, replace the valve stopper.



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

Reed valve bending limit:
0.6 mm (0.024 in)

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



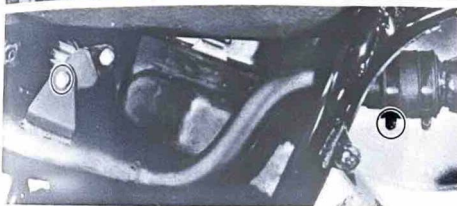
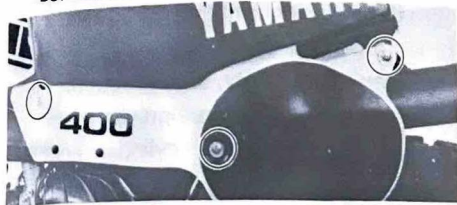
TOP END AND MUFFLER

Removal

(Carburetor Removed)

1. Remove the two bolts and remove seat.
2. Remove the securing bolt and holding band from fuel tank. Lift rear of the fuel tank up and pull back to clear frame mounts. Remove tank.

3. Remove muffler and silencer mounting bolts and screw.

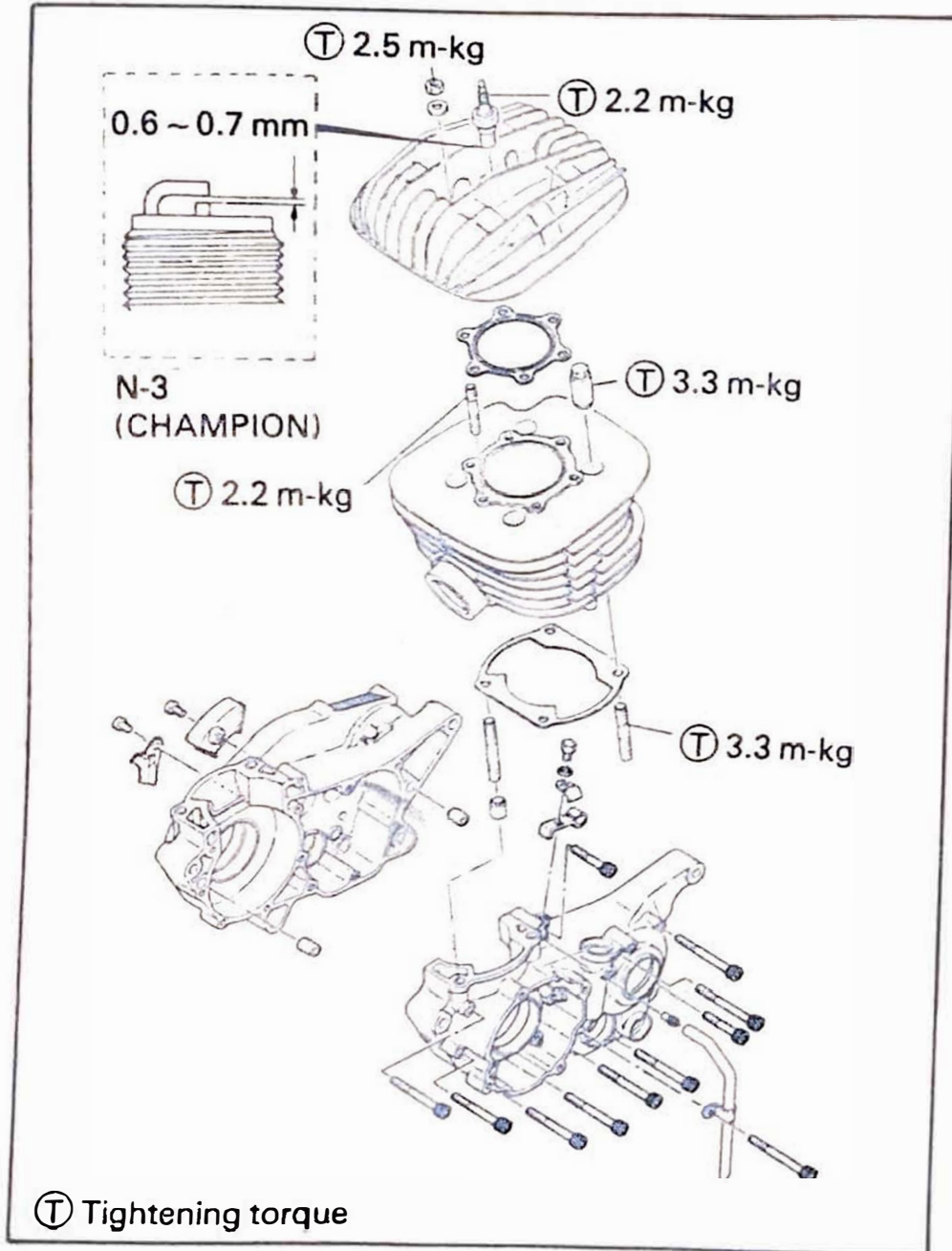


4. Remove coil springs at muffler to cylinder joint and remove muffler.

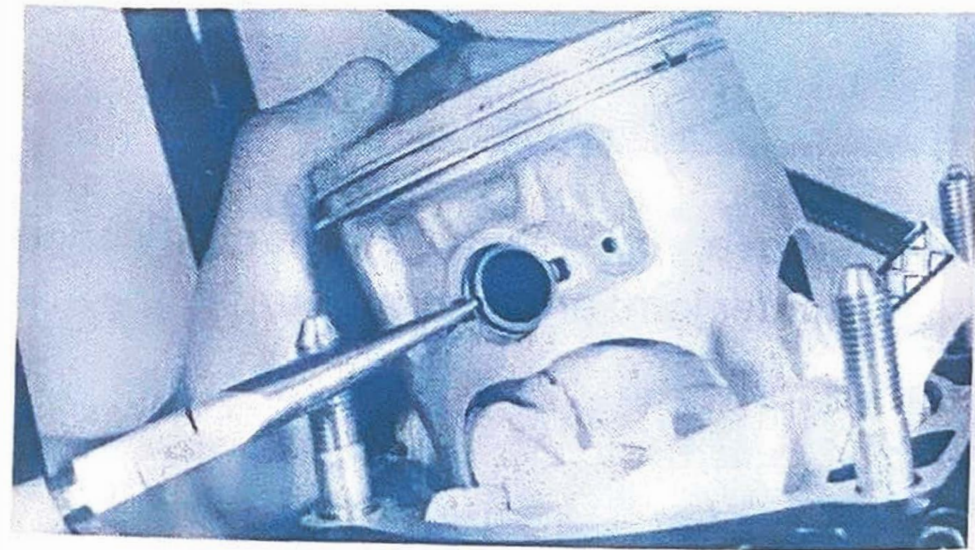


5. Remove spark plug lead wire. Loosen, but do not remove spark plug.
6. Remove nuts securing cylinder head (6 nuts).
- Remove cylinder head and gasket.

CYLINDER HEAD AND CYLINDER



- Remove cylinder holding nuts (4).
With the piston at top dead center, rise the cylinder until the cylinder skirts clear crankcase. Stuff a clean shop rag into crankcase cavity, around rod, to prevent dirt and other foreign particles from entering. Remove cylinder and base gasket.
- 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

Exhaust pipe

1. Using a rounded scraper, remove excess carbon deposits from manifold area of exhaust pipe.
2. Carbon deposits within the silencer may be removed by lightly tapping the outer shell with a hammer and then blowing out with compressed air. Heavy wire, such as a coat hanger, may be inserted to break loose deposits. Use care.

Cylinder head

1. Using a rounded scraper, remove carbon deposits from combustion chamber. Take care to avoid damaging

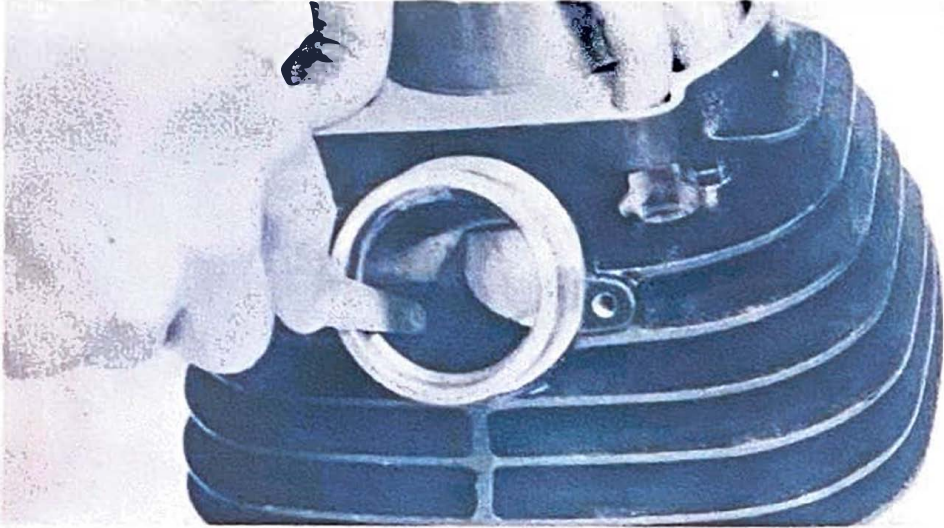
the spark plug threads. Do not use a sharp instrument. Avoid scratching the metal surface.



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 re-surface head using a figure-eight sanding pattern. Rotate head several times to avoid removing too much material from one side.

Cylinder

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

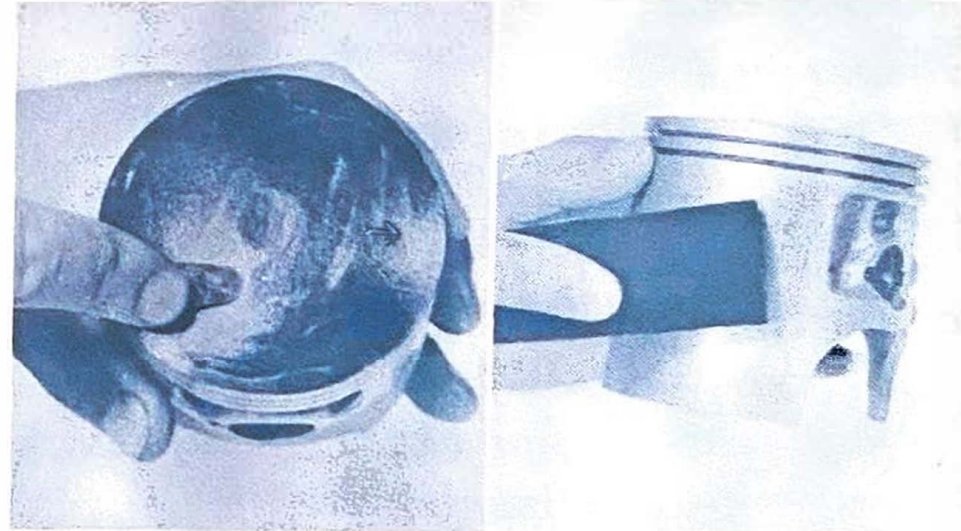


2. Check cylinder bore. Using a cylinder hone, remove any scoring. Hone lightly, using smooth stones. Hone no more than required to avoid excess piston clearance.

Piston

1. Using a rounded scraper, remove carbon deposit from piston crown.

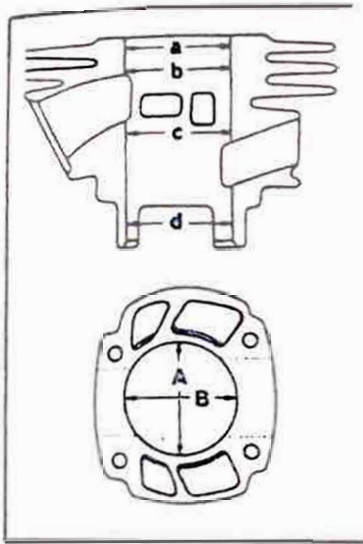
2. Using 400 ~ 600 grit wet sandpaper, lightly sand score marks and lacquer deposits from sides of piston. Sand in cross-hatch pattern. Do not sand excessively.



PISTON CLEARANCE

Cylinder bore measurement

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.



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)

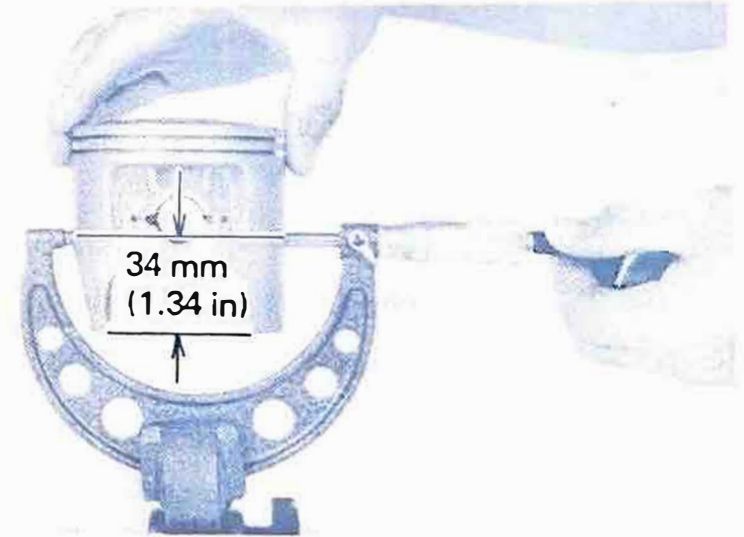
Max. allowable out-of-round:

0.05 mm (0.0020 in)

Piston outside diameter measurement

Using an outside micrometer, measure piston diameter. The measuring point is at right-

angles to the piston pin holes, 34 mm (1.34 in) from the bottom of the piston skirts. Compare piston diameter to cylinder bore measurements (bottom two measurements at right angles to piston pin line).



PISTON CLEARANCE =

Minimum

Maximum

Cylinder Diameter – Piston Diameter

$$82.035 \text{ mm} - 81.980 \text{ mm} = 0.055 \text{ mm}$$

If beyond tolerance replace piston or rebore cylinder as required.

Nominal piston clearance

0.050 ~ 0.055 mm (0.0019 ~ 0.022 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

0.40 ~ 0.55 mm (0.016 ~ 0.022 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: _____

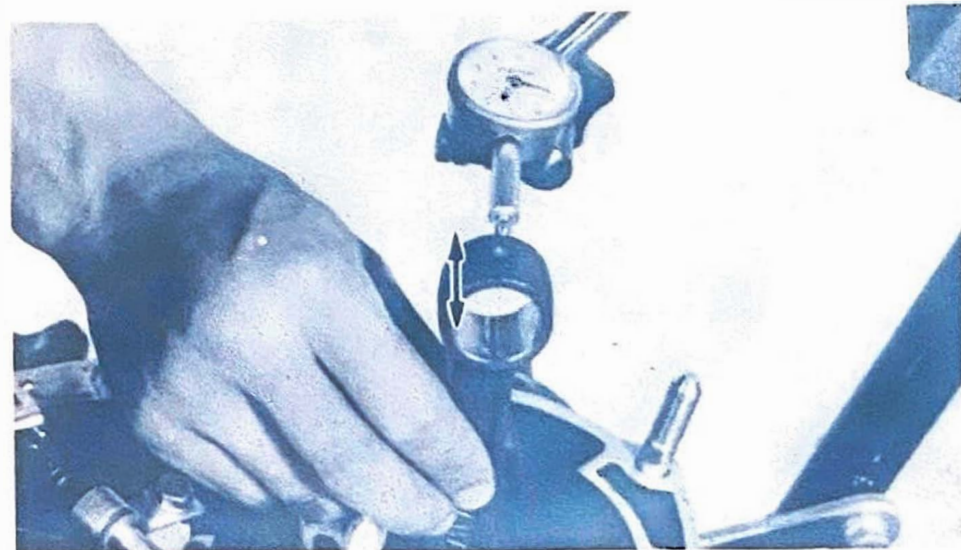
New ring requires break-in. Follow first portion of new machine break-in procedure.

Piston pin, bearing and connecting rod

1. Apply a light film of oil to pin and bearing surfaces. Install in connecting rod small end. Check for play. There should be no noticeable vertical play. If play exists, check connecting rod small end diameter for wear. Replace pin and bearing or all as required.
2. 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:

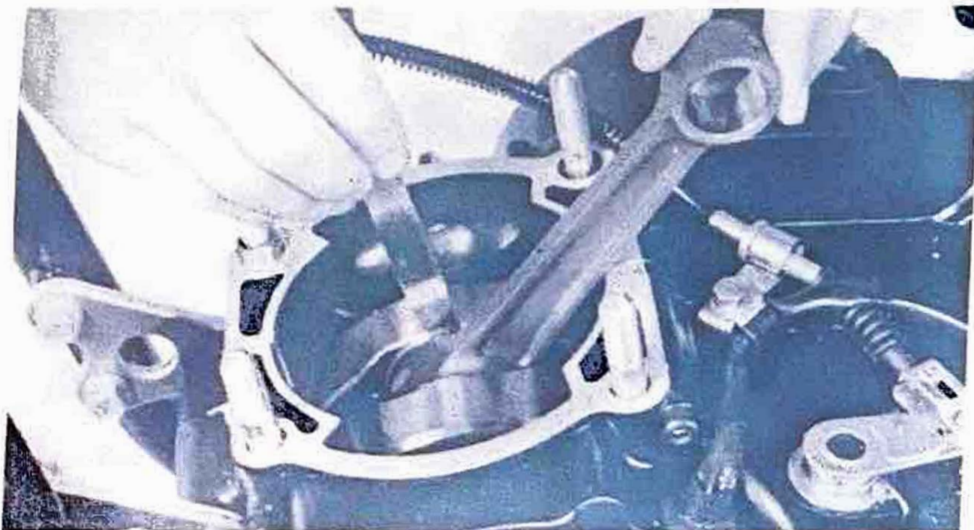
0.4 ~ 2.0 mm (0.016 ~ 0.079 in)



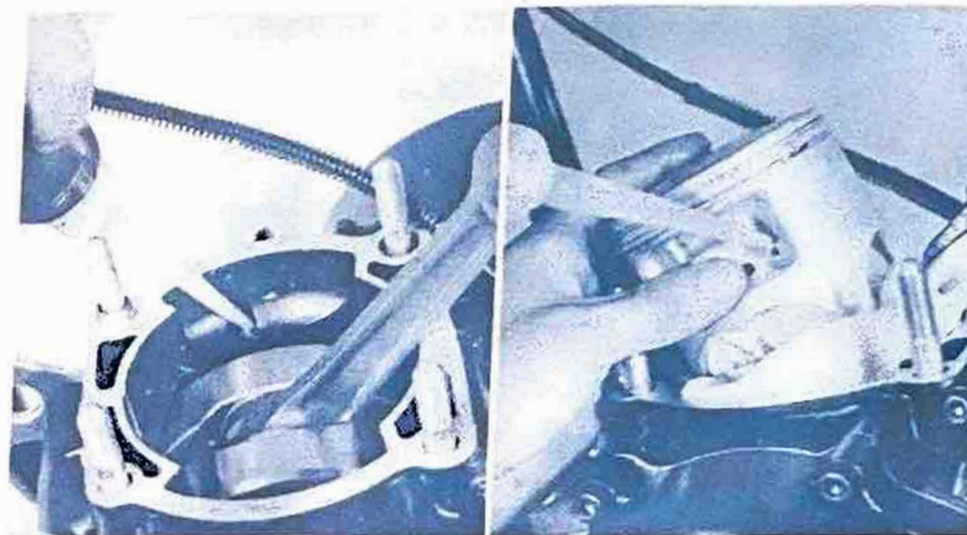
3. Remove the dial gauge and slide the connecting rod to one side. Insert a feeler gauge between the side of the connecting rod big end and the crank wheel. Measure clearance.

Connecting rod/crank side clearance:

0.25 ~ 0.75 mm (0.0098 ~ 0.0295 in)



4. If any of the above measurements exceed tolerance, crankshaft repair is required. Take the machine to your authorized Yamaha dealer.
5. During reassembly, apply a liberal coating of two-stroke oil to the piston pin and bearing. Apply several drops of oil to the connecting rod big end. Apply several drops of oil into each crankshaft bearing oil delivery hole.



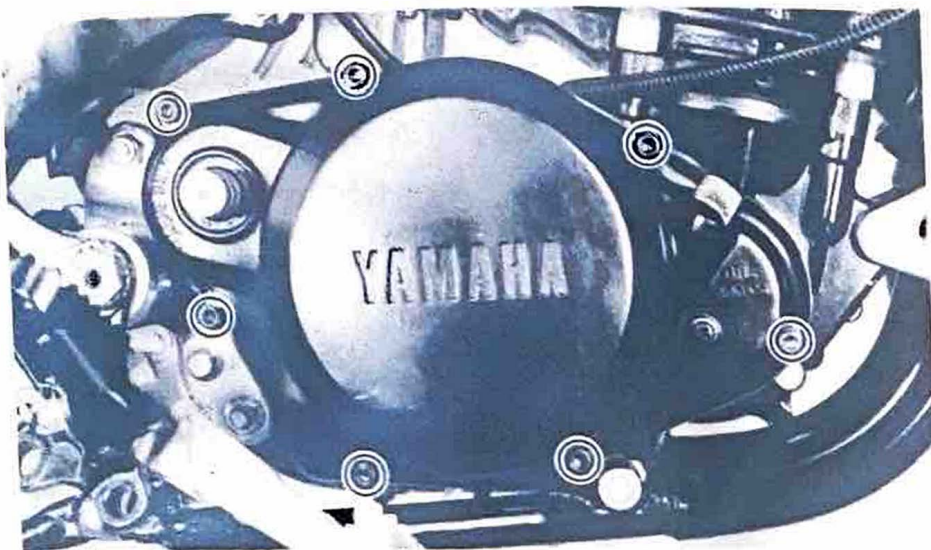
Clutch

NOTE:

Clutch adjustment is covered in "Adjustments and Maintenance".

Removal

1. Remove the oil plug and drain plug, and drain the transmission oil.
2. Loosen the rear brake and remove the foot rest. Remove the kick starter.
3. Remove the Allen bolts holding the side cover in place and remove the cover. Note the position of the dowel pins.

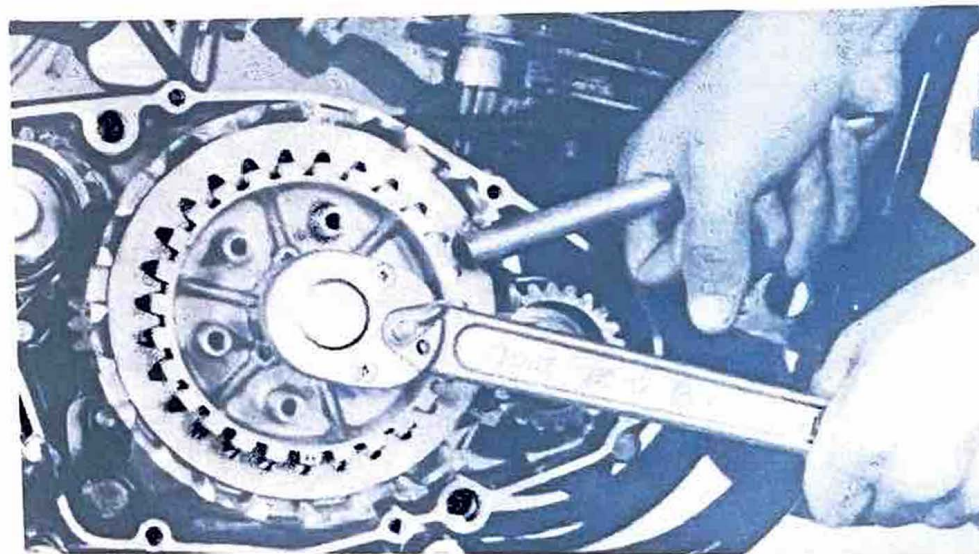


4. Remove the Phillips screws (6) holding the pressure plate. Remove the clutch springs, pressure plate and push rod. Remove the clutch plates and friction plates.

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.

5. 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 (90890-01024)

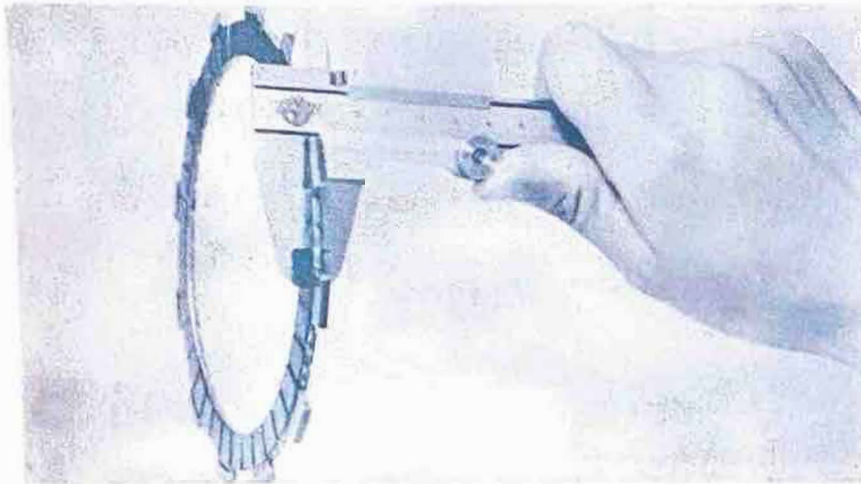
6. If the clutch housing spacer remains on the transmission main shaft, remove it. Remove the thrust plate and thrust plate spacers.

Troubleshooting

1. 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 (1.12 in)	2.7 mm (0.106 in)



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

NOTE:

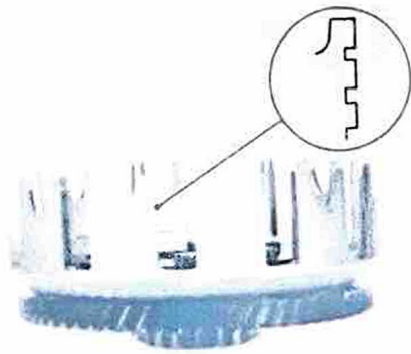
For optimum performance, if any plate requires replacement, it is advisable to replace the entire set.

3. Check each clutch plate for signs of heat damage and warpage. Place on surface plate (plate glass is acceptable) and use feeler gauge as illustrated. If warpage exceeds tolerance, replace.

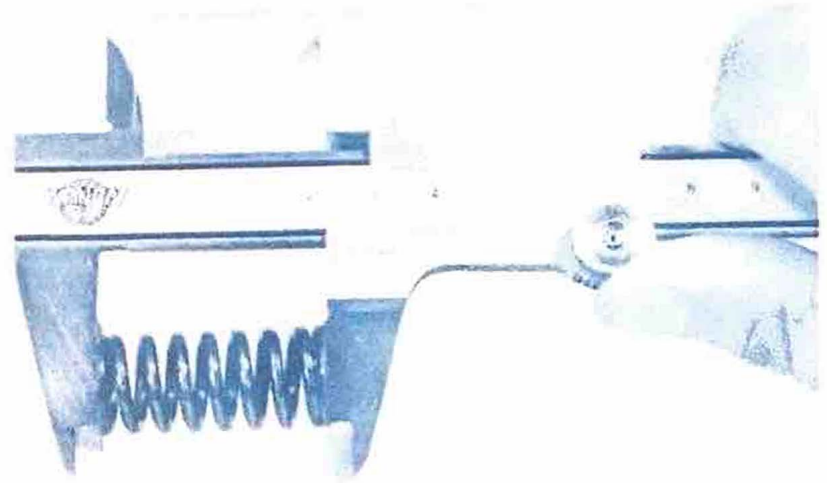
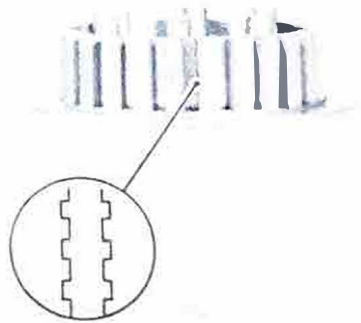


Clutch plate warpage allowance:
0.05 mm (0.002 in) Maximum

4. Check dogs on driven gear (clutch housing). Look for cracks and signs of galling on edges. If moderate, deburr. If severe, replace.



www.legends-yamaha-enduros.com



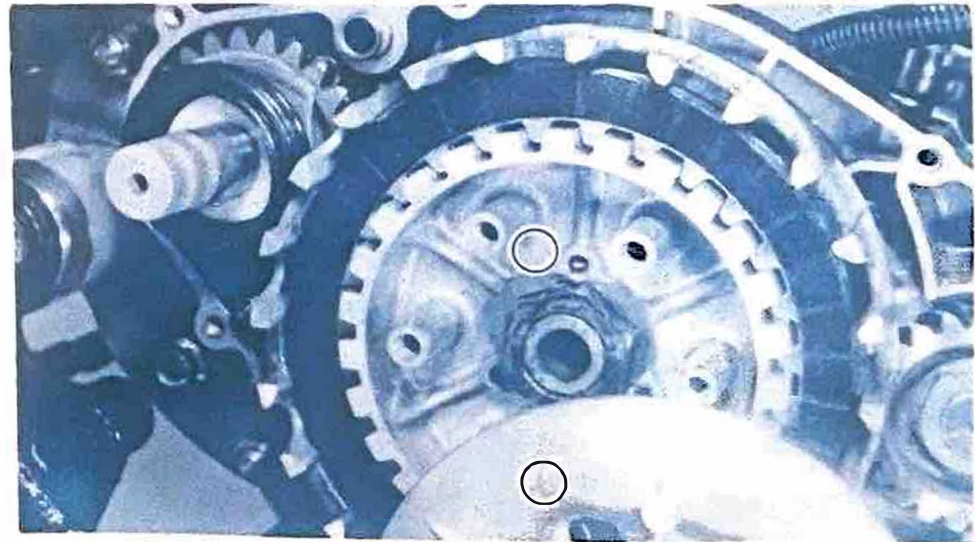
5. Measure each clutch spring. If beyond tolerance, replace.

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

	New	Min.
Clutch spring free length	36 mm (1.42 in)	35 mm (1.38 in)

NOTE: _____

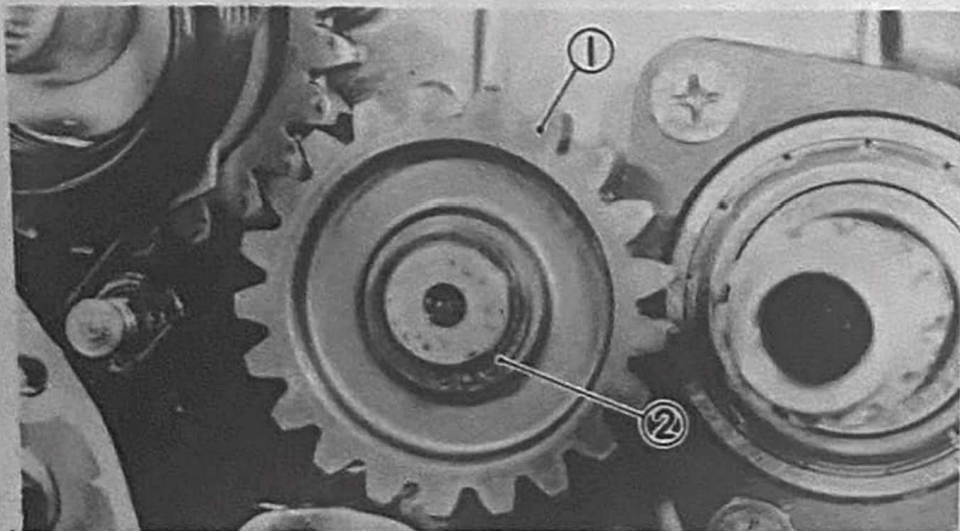
For optimum clutch operation it is advisable to replace the clutch springs as a set if one or more are faulty.



KICK STARTER

Removal

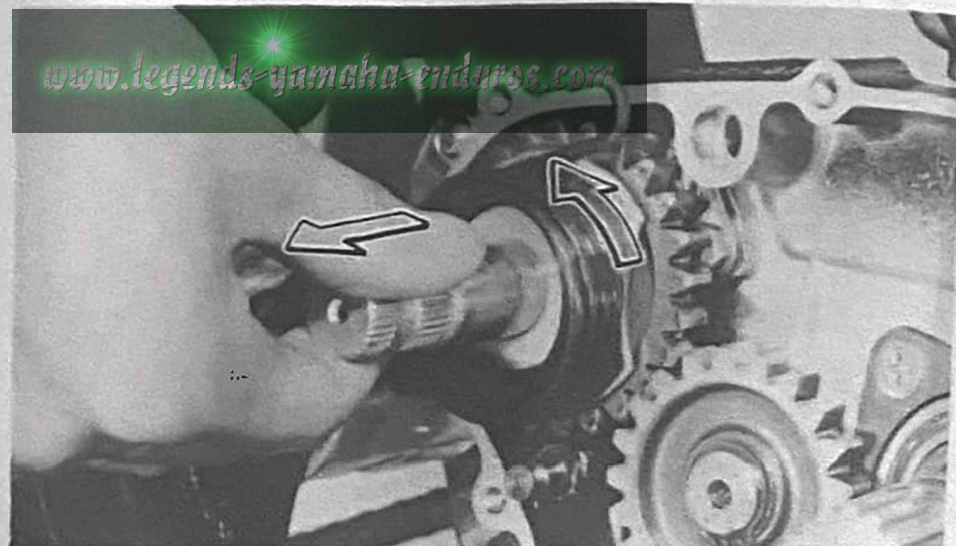
1. Remove the circlip and then remove kick idle gear.



1. Kick idle gear

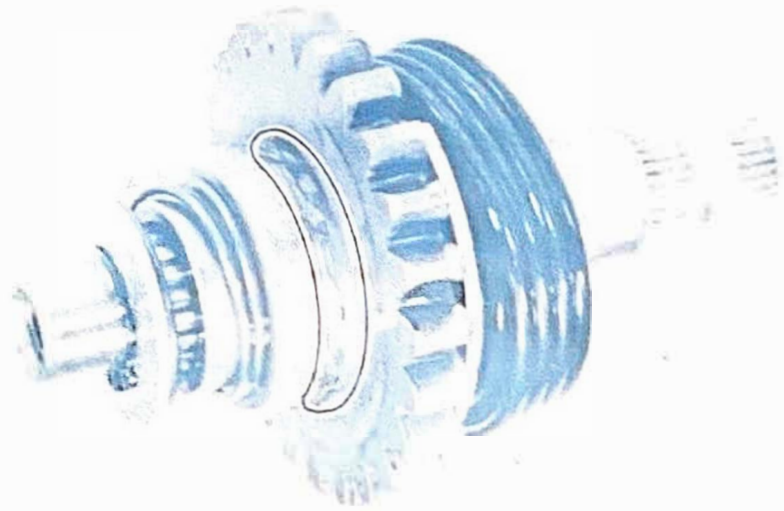
2. Circlip

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.

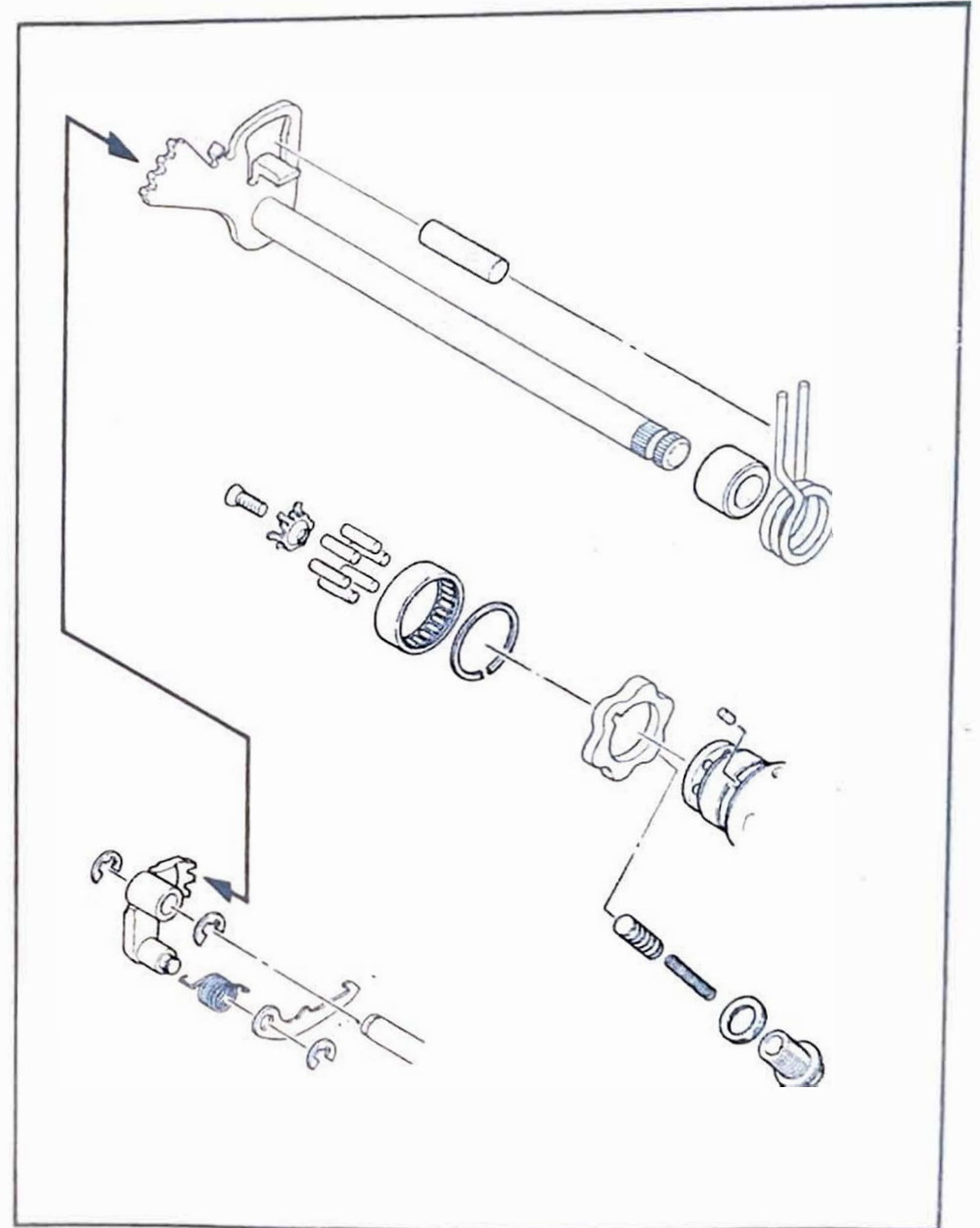


Inspection

1. Check the ratchet teeth on the kick gear and ratchet wheel. The matching edges should fit flush against each other. If there is severe rounding off, replace as required.



SHIFTER



Reassembly

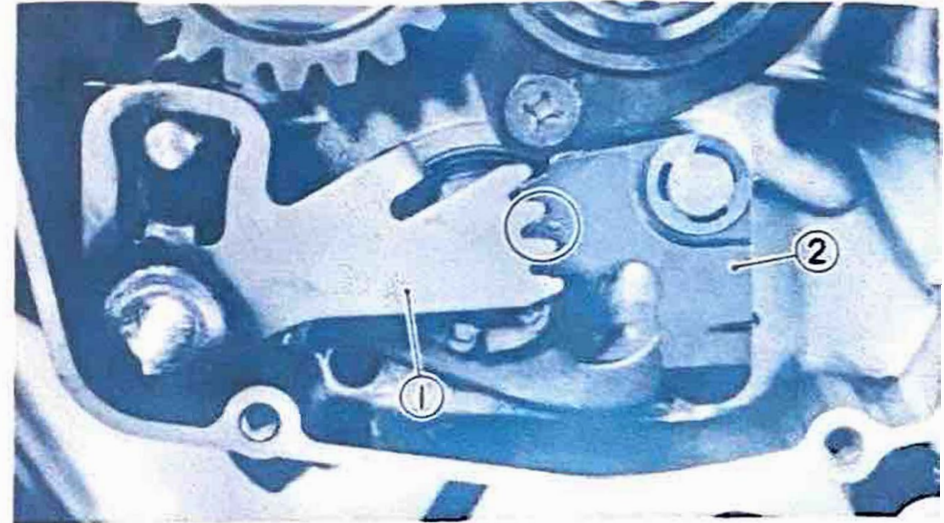
1. Install the kick starter assembly.
Push the kick starter assembly straight in, and hook the spring to the spring hook. Check whether the kick starter acts correctly and whether it returns to its home position.
2. After installing the kick ass'y be sure to check whether it operates smoothly or not.

NOTE: _____

Shifter maintenance and adjustment should be performed with clutch assembly removed.

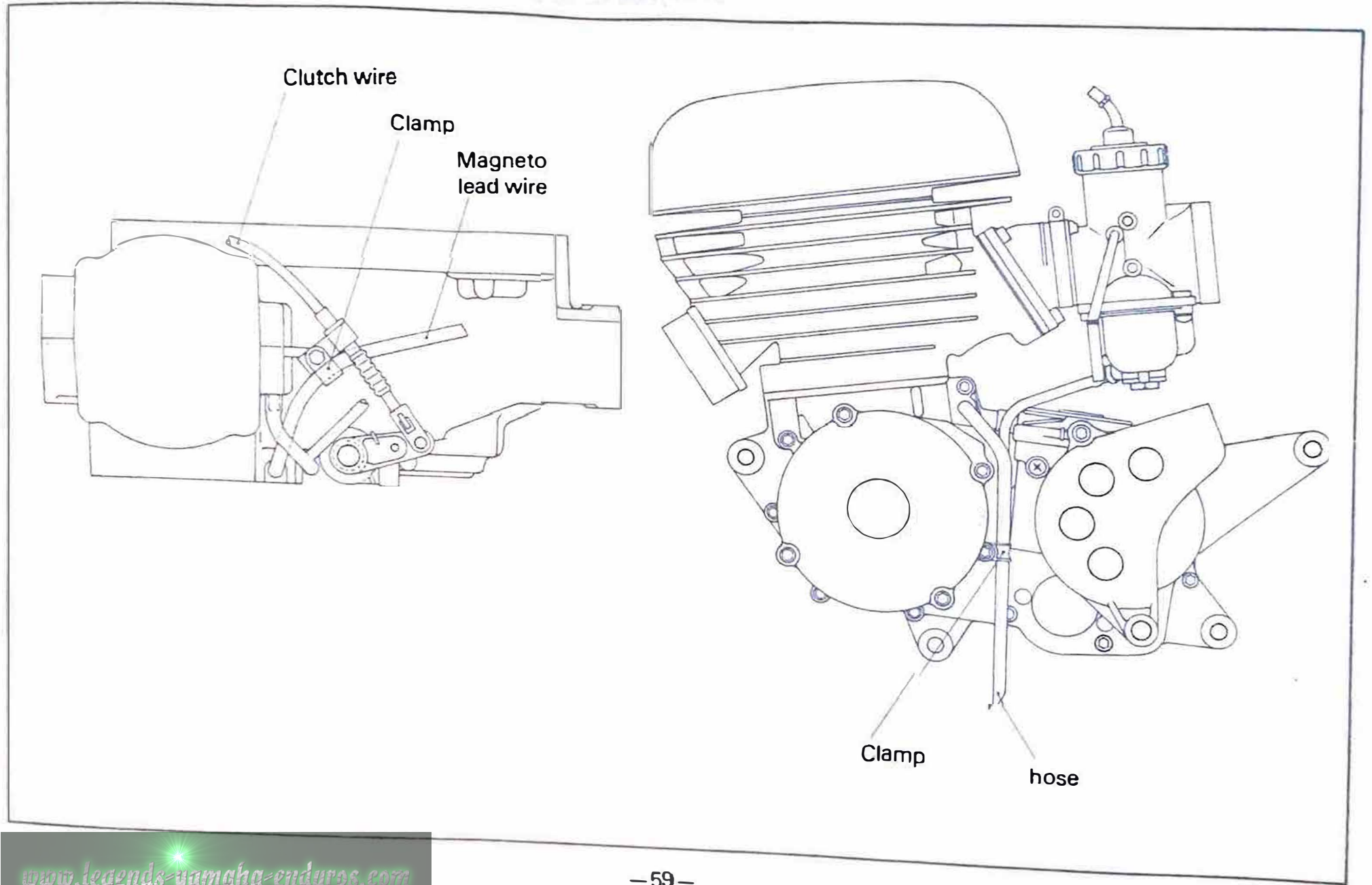
Inspection

1. Inspect shift return spring. A broken or wear spring will impair the return action of the shifting mechanism.
2. Inspect change shaft assembly for bending of shaft, worm or bent splines, and broken or wear shift arm spring. A bent shaft will cause hard shifting.
3. During installation, align the index mark on change lever 2 and the center of change lever 1.



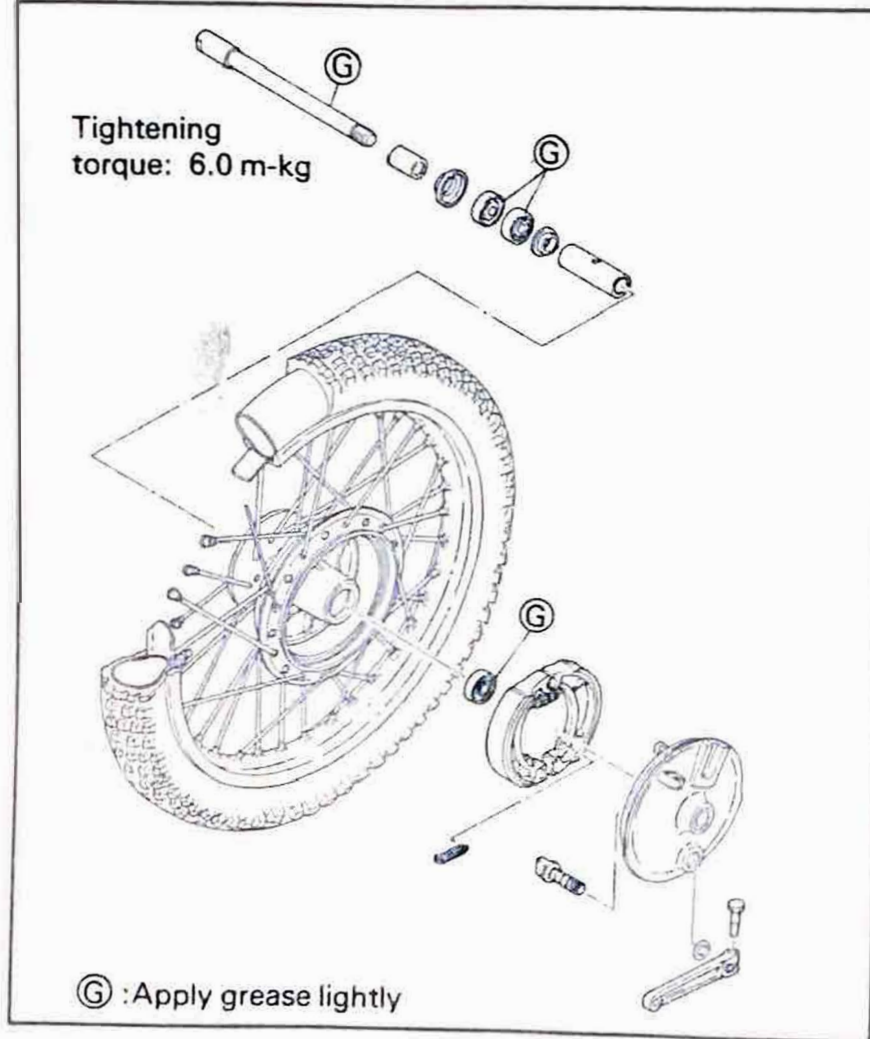
1. Change lever 1 2. Change lever 2

PIPE AND WIRE ROUTING DIAGRAM (For Engine)



CHASSIS MAINTENANCE AND MINOR REPAIRS

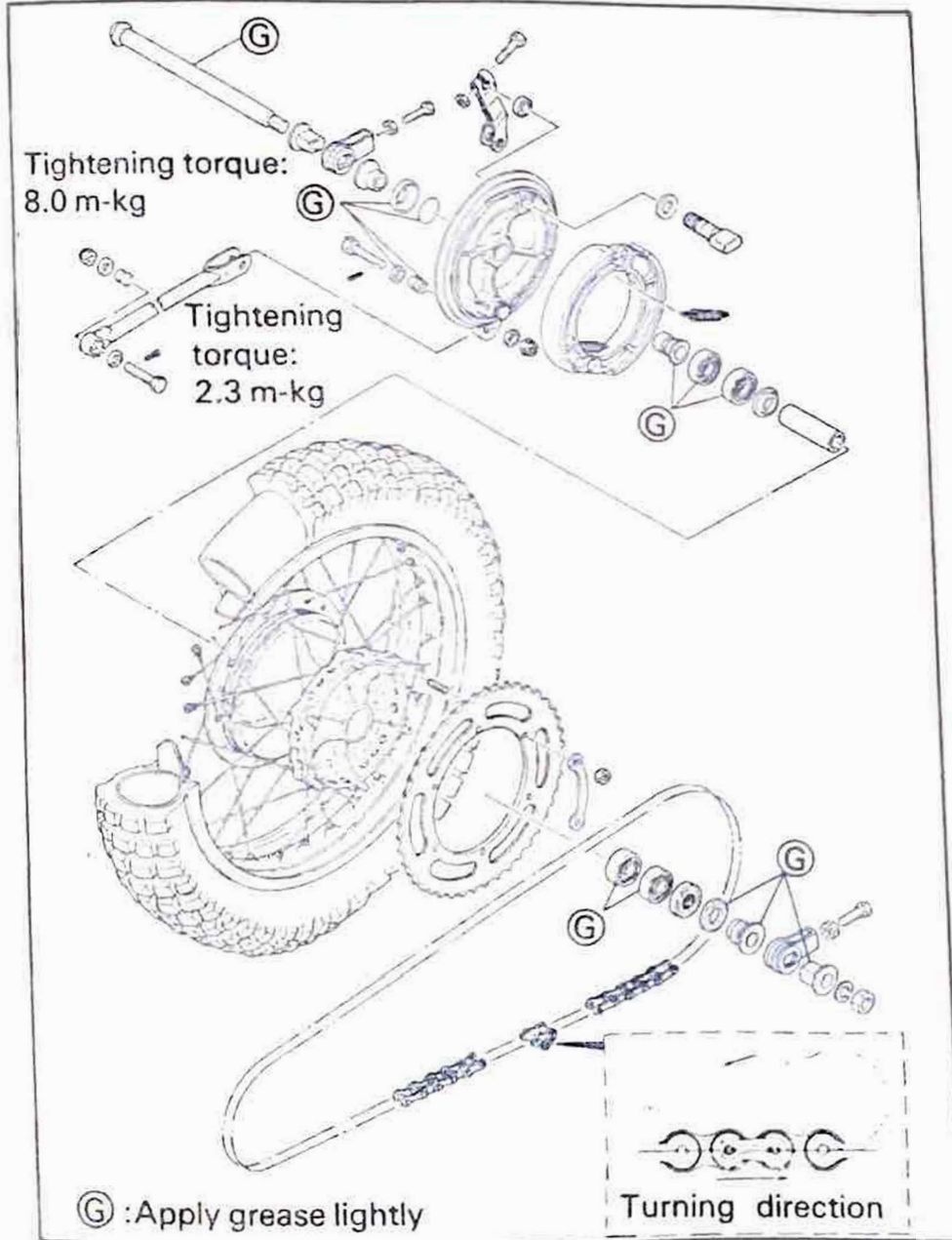
FRONT WHEEL



Front wheel removal

1. Elevate the front wheel by placing a suitable stand under the engine.
2. Remove brake cable: Loosen all cable adjuster screws and remove cable from handle lever holder. Then remove cable from cam lever at front brake shoe plate.
3. Loosen front axle pinch bolt.
4. Remove the front wheel axle; the wheel assembly can now be removed.

REAR WHEEL



Rear wheel removal

1. Elevate the rear wheel by placing a suitable stand under the engine.
2. Remove the tension bar and the brake rod from the brake shoe plate. The tension bar can be removed by removing the cotter pin and nut from the tension bar bolt. The brake rod can be removed by removing the adjuster.
3. Remove the master link clip and master link and remove the chain from the rear sprocket.
4. Remove the rear wheel axle nut.
5. Pull out the rear wheel shaft by simultaneously twisting and pulling out.
6. Remove the rear wheel assembly.

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 tension bar.
2. Check for proper engagement of the boss on the outer tube with the locating slot on the brake shoe plate.



3. Always use a new cotter pins. Old pins should be discarded.
4. Make sure nuts are properly tightened.

Front wheel axle:	6.0 m-kg (43 ft-lb)
Axle pinch bolt:	1.0 m-kg (7 ft-lb)
Rear wheel axle:	8.0 m-kg (58 ft-lb)
Tension bar:	2.3 m-kg (16 ft-lb)

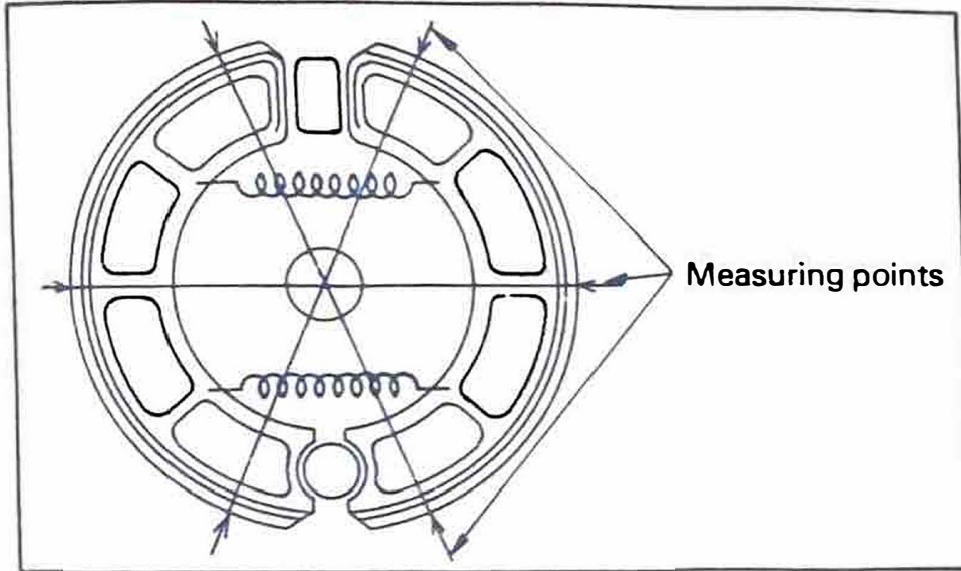
5. Be sure to adjust the tension of the chain. (Refer to "Drive chain tension adjustment")
6. Adjust the plays in the brake lever and pedal.

Brake shoe inspection

Measure the outside diameter of the brake shoe set with slide calipers.

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

	Front	Rear
Brake shoe diameter	130 mm (5.12 in)	160 mm (6.3 in)
Replacement limit	126 mm (4.96 in)	156 mm (6.14 in)



Brake drum

Oil or scratches on the inner surface of the brake drum will impair braking performance or result in abnormal noises. Remove oil by wiping with a rag soaked in lacquer thinner or solvent. Remove scratches by lightly and evenly rubbing with emery cloth.

Replace wheel Bearings

If the bearings allow excessive play in the wheel or if it does not turn smoothly have your dealer replace the wheel bearings. Bearing replacement requires the use of special tools and should be done by a Yamaha dealer.

Check the spokes

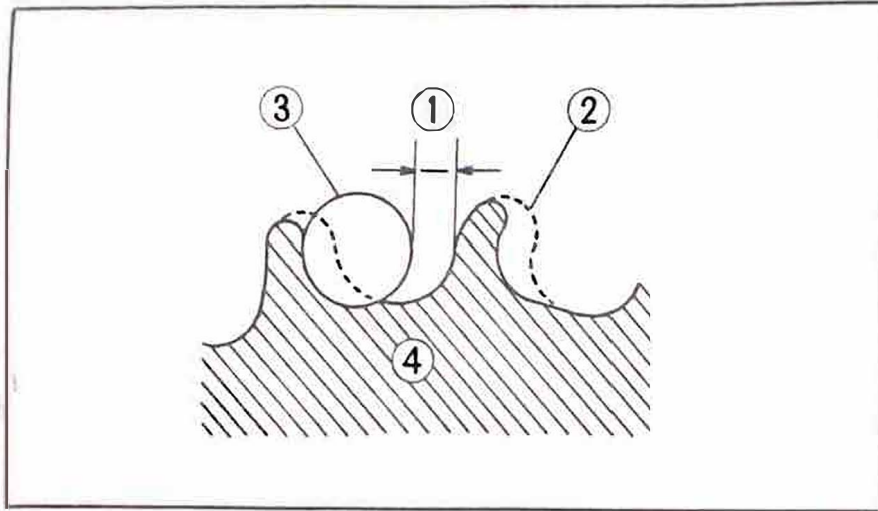
If they are loose or bent, tighten or replace them. The spokes should be checked before each use.

Sprockets

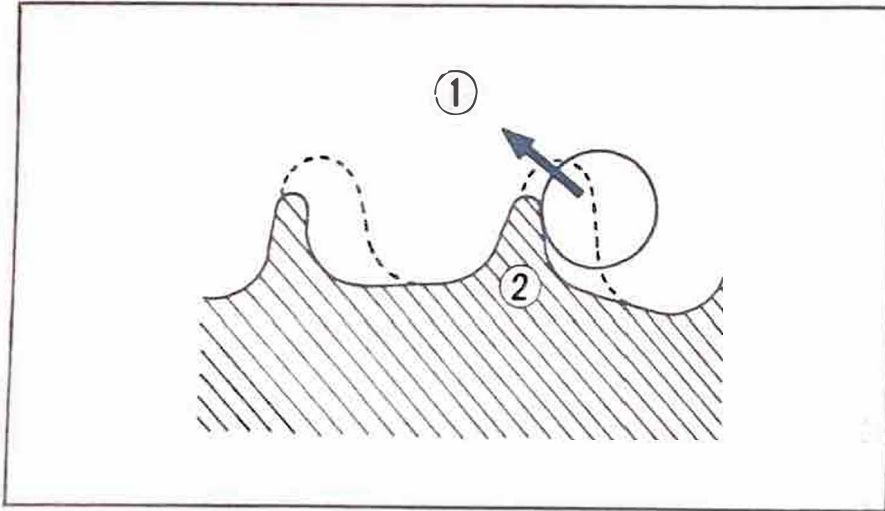
NOTE: _____

Please refer to Maintenance Intervals and Lubrication Intervals charts for additional information.

1. Check sprocket wear. Replace if wear decrease tooth height to a point approaching the roller center line.
2. Replace if tooth wear shows a pattern such as that in the illustration.



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



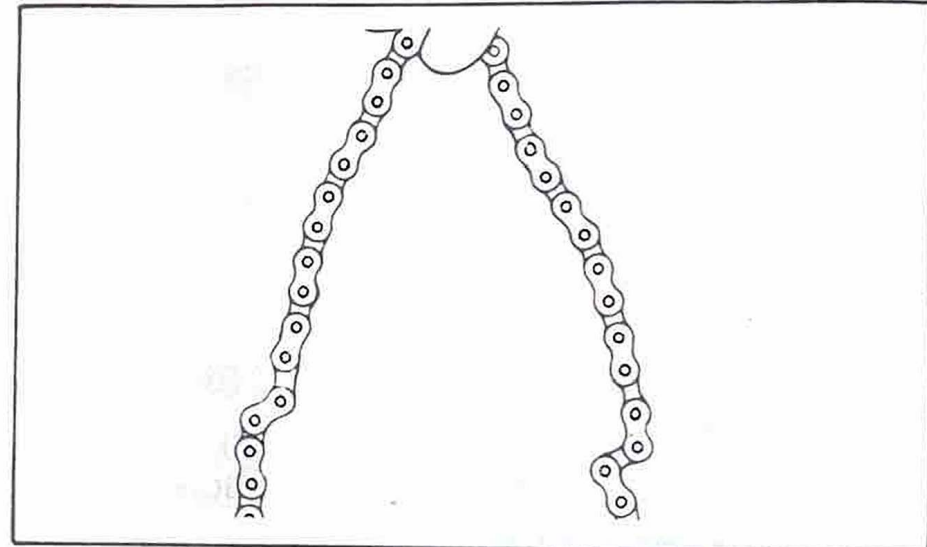
1. Slip off 2. Bend teeth

Drive sprocket securing nut torque:
7.5 m-k_g (54 ft-lb)

Driven sprocket securing nut torque:
3.0 m-k_g (22 ft-lb)

Chain

NOTE: _____
Please refer to Maintenance and Lubrication
Intervals charts for additional information.



1. Check the chain for stiffness. If stiff, soak in solvent solution, clean with medium bristle brush, dry with high pressure air.

Oil chain thoroughly and attempt to work out kinks. If still stiff, replace.

2. Check the side plates for visible wear. Check to see if excessive play exists in pins and rollers. Check for damaged rollers. Replace as required.
3. During reassembly, the master link clip must be installed with the rounded end facing the direction of travel.

NOTE:

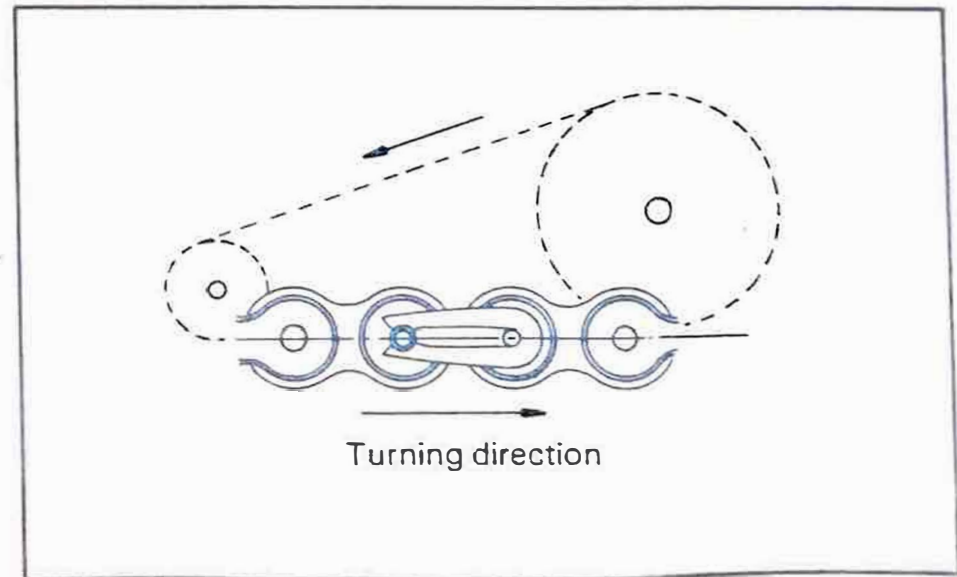
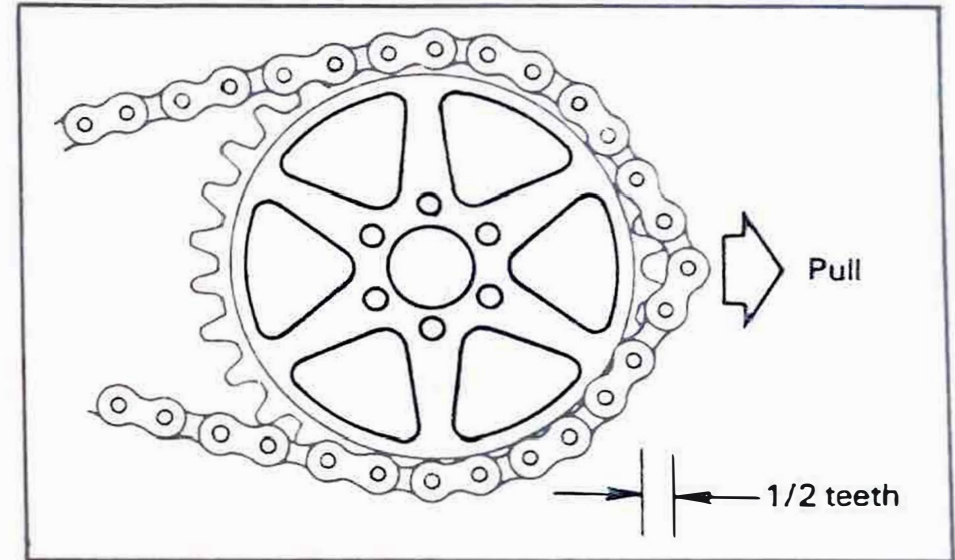
The chain should be lubricated after every use of the machine.

Troubleshooting

With the chain installed on the machine, excessive wear may be roughly determined by attempting to pull the chain away from the rear sprocket. If the chain will lift away more than one-half the length of the sprocket teeth, remove and inspect.

If any portion of the chain shows signs of damage, or if either sprocket shows signs of

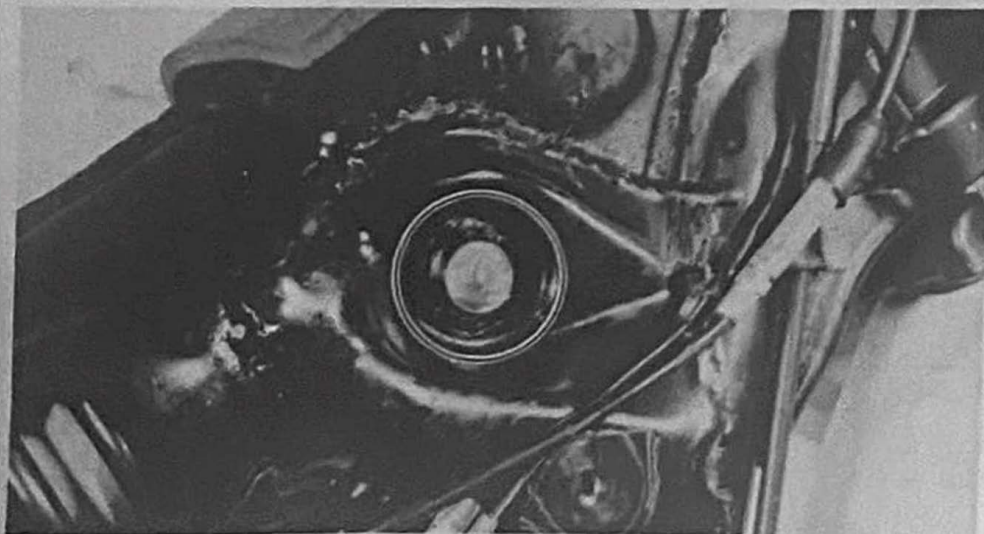
excessive wear, remove and inspect.



Rear shock absorber (Monocross suspension) Removal

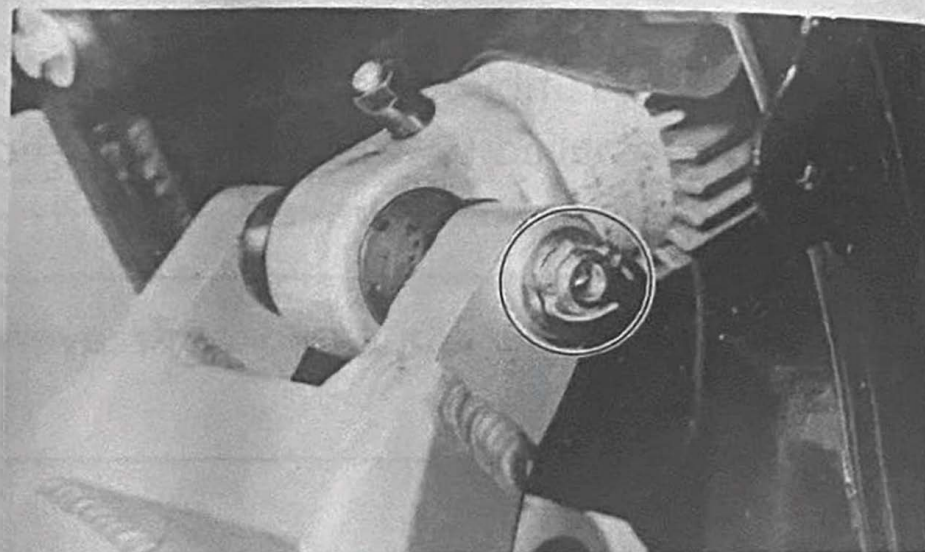
1. Elevate the rear wheel by placing a suitable stand under the engine.
2. Remove the two bolts holding the fuel tank (petcock lever must be placed in OFF). Lift up the front of the tank and remove it.
3. Remove the cotter pin and nut. And remove the bolt securing the upper bracket to frame.

Upper bracket tightening torque:
3.0 m·kg (22 ft·lb)

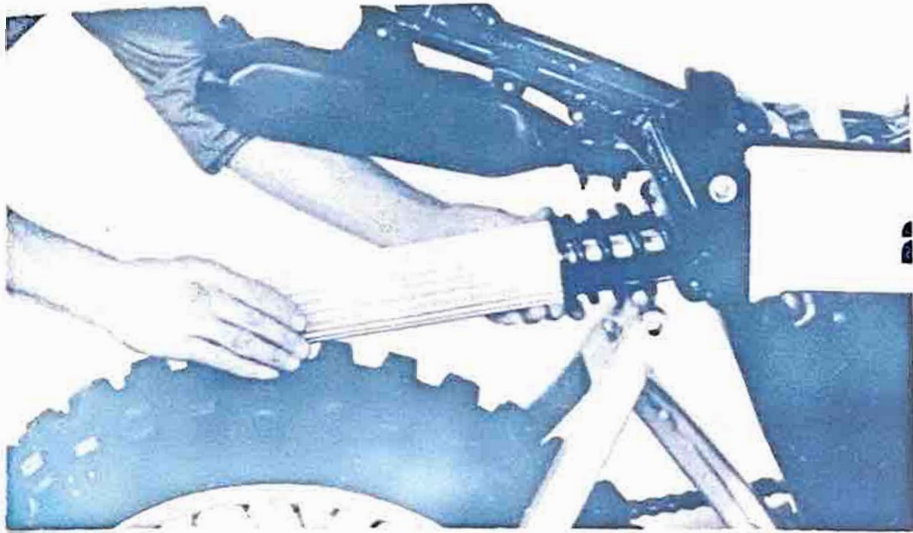


4. Remove the cotter pin and pull out the pivot shaft from the lower bracket.

NOTE: _____
Always use a new cotter pin.



5. Remove the rear shock absorber from the frame. (To remove, pull the rear shock backward.)



NOTE:

- a. When remove the shock absorber, be careful not to bend the absorber rod.
- b. Take care so the two washers are not lost.

6. When assembling, reverse the removal procedure taking care of the following points:
 - a. Always use new cotter pins.
 - b. Grease the pins and thrust cover lips.
 - c. Make sure nut is properly tightened.

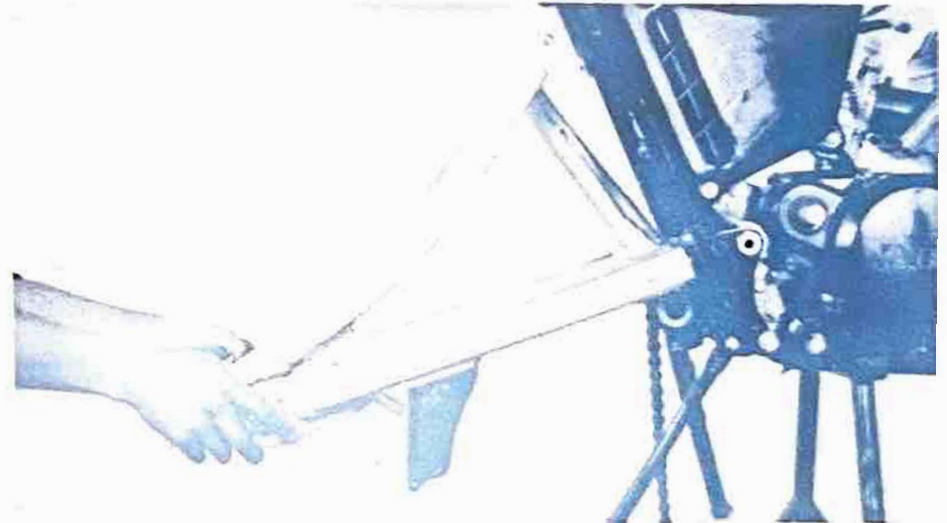
Swing Arm Inspection

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

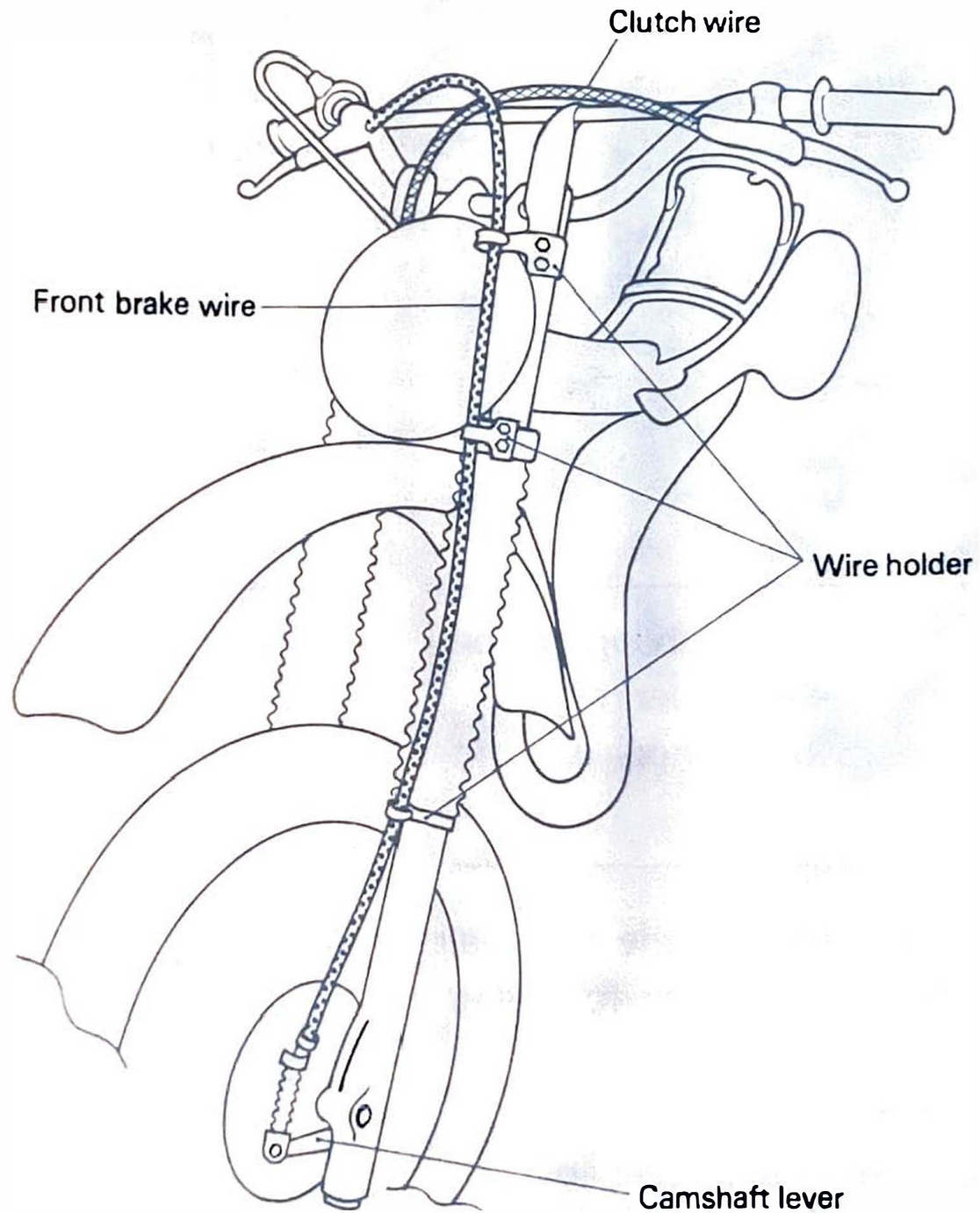
Swing arm free play:

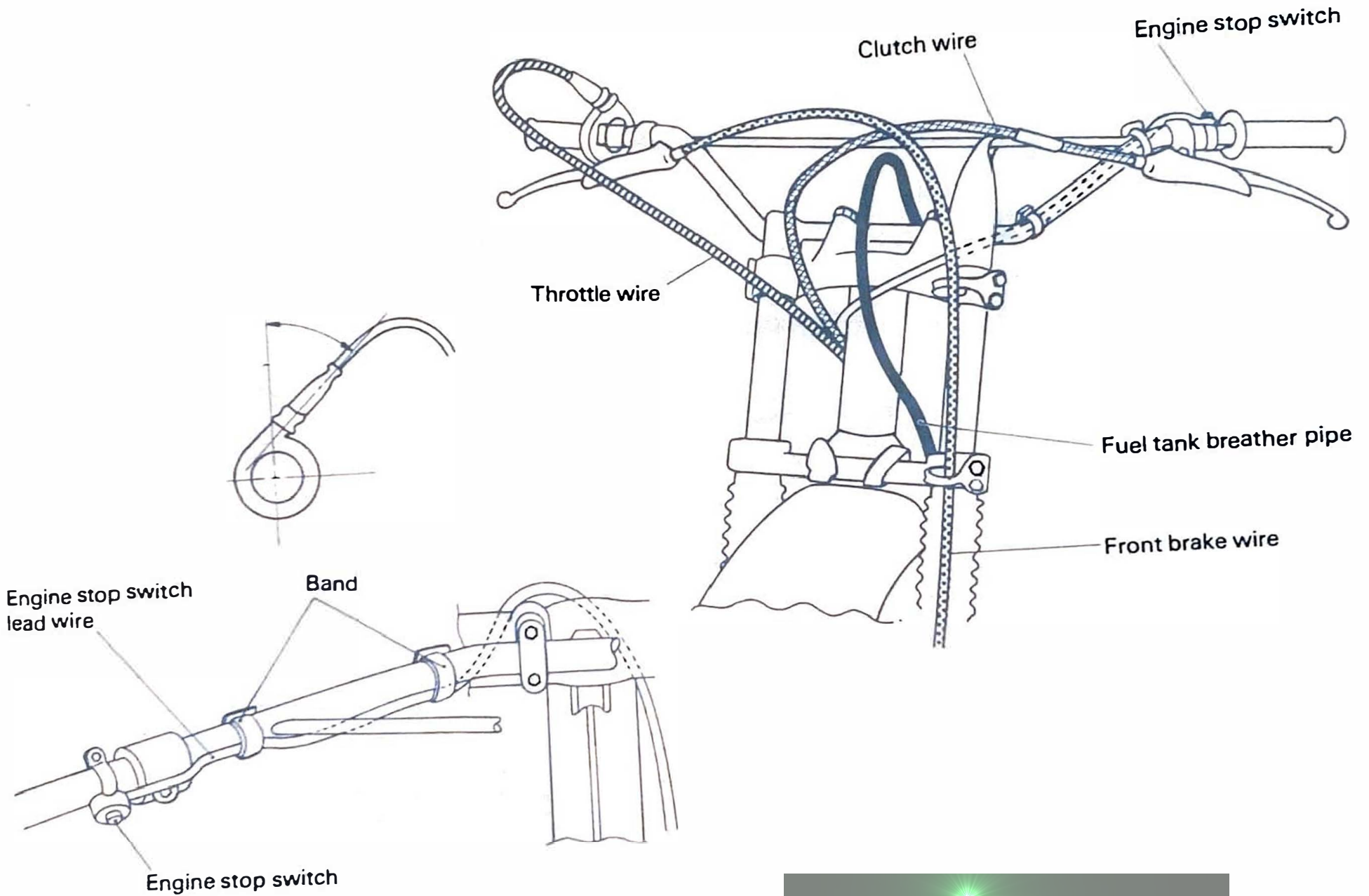
0 ~ 1 mm (0 ~ 0.04 in)

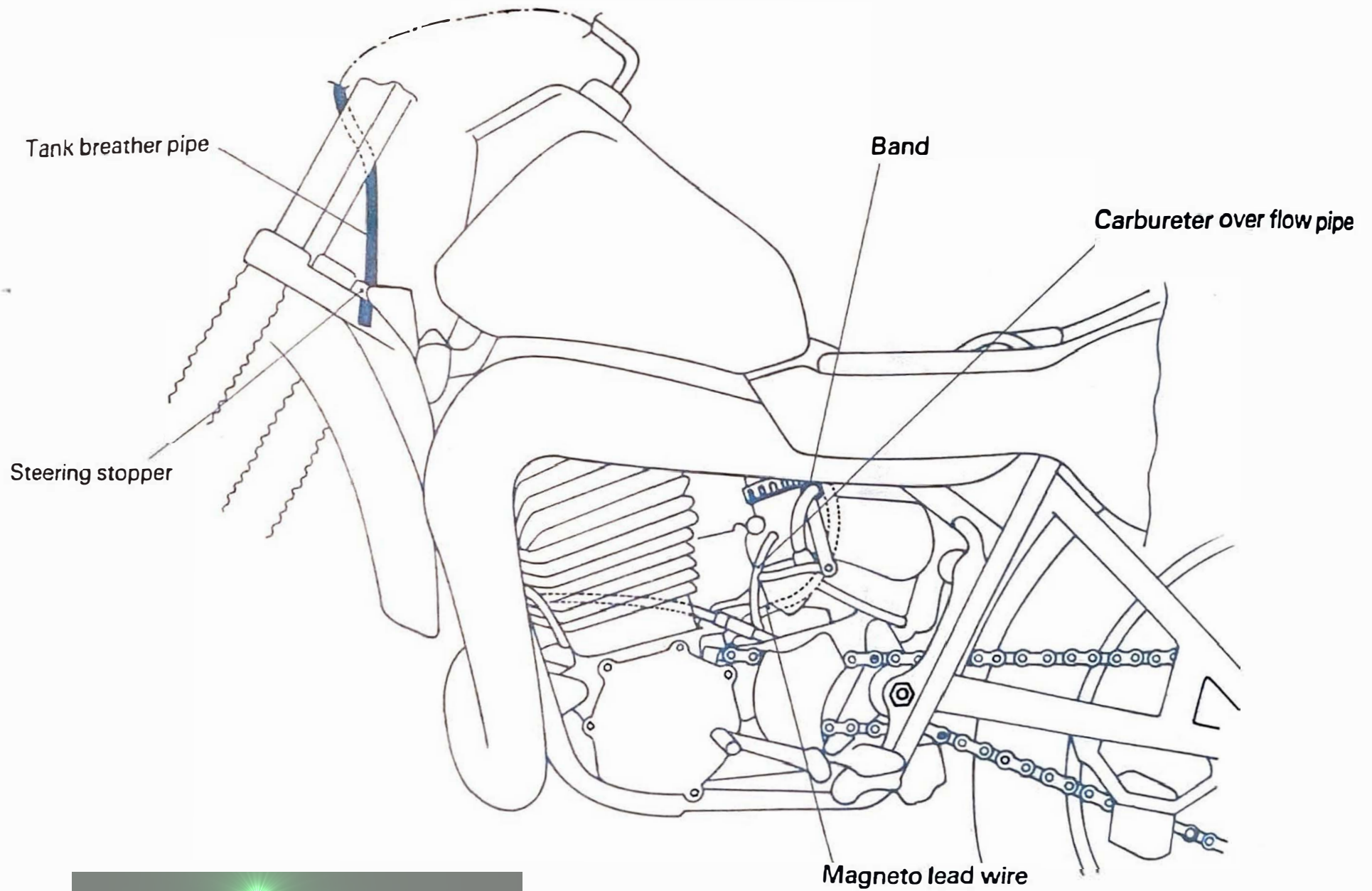
2. If free play is excessive, remove swing arm and replace swing arm bushings and bearings.

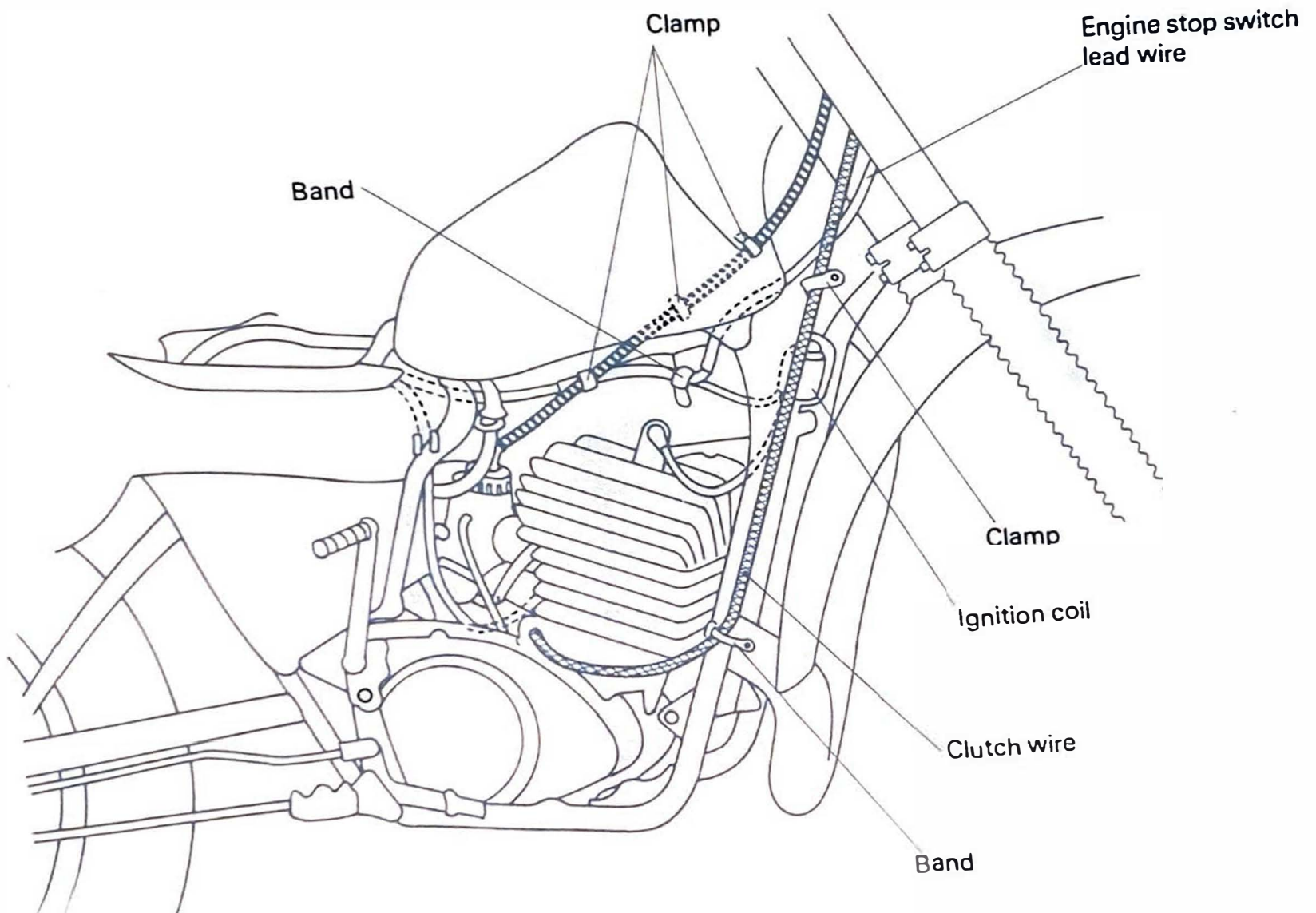


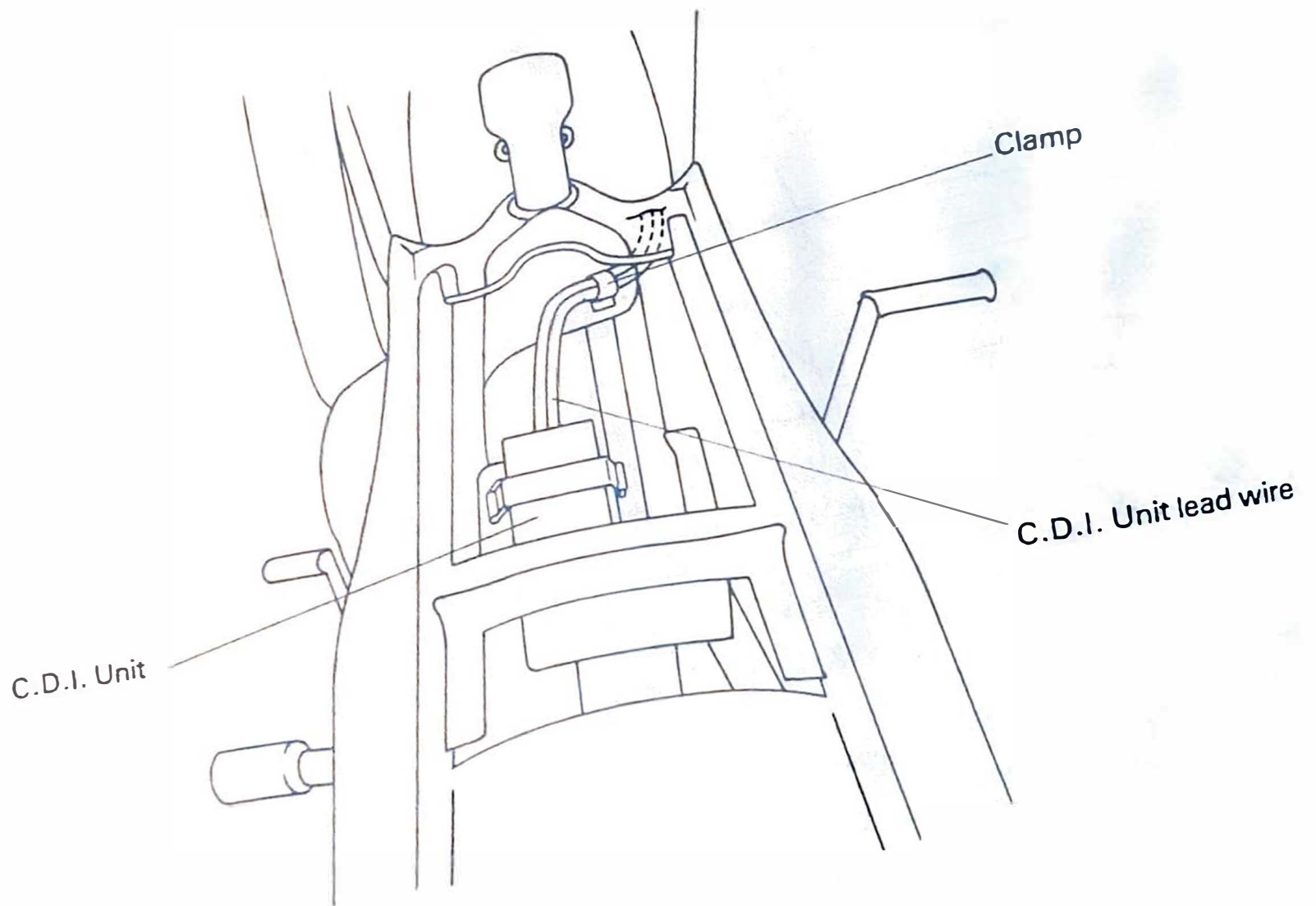
CABLE ROUTING DIAGRAM



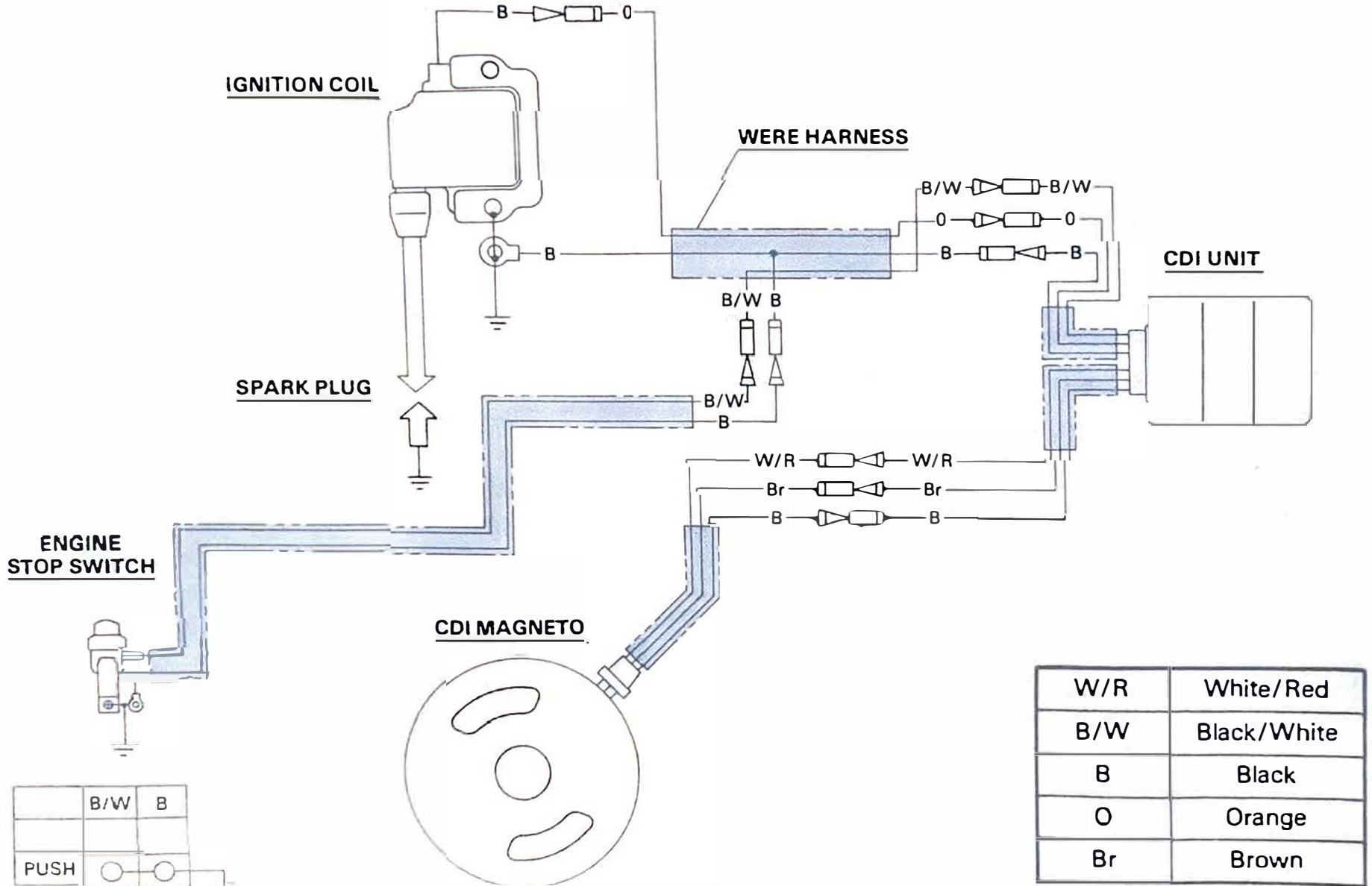






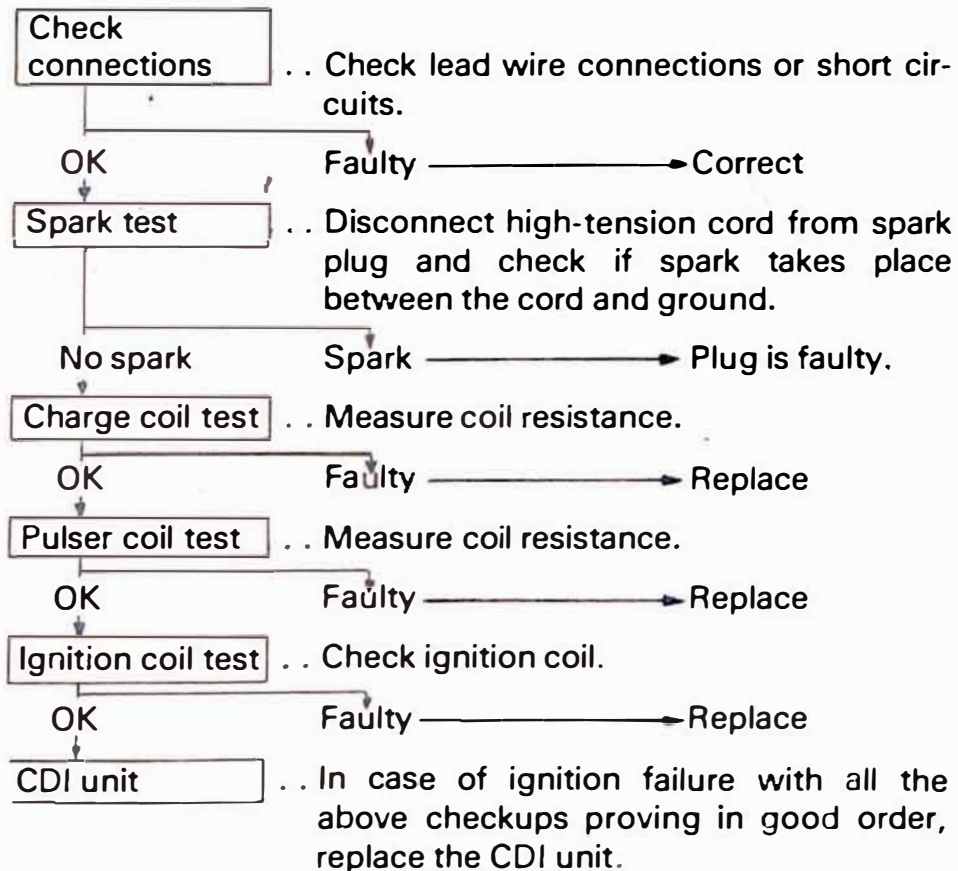


WIRING DIAGRAM

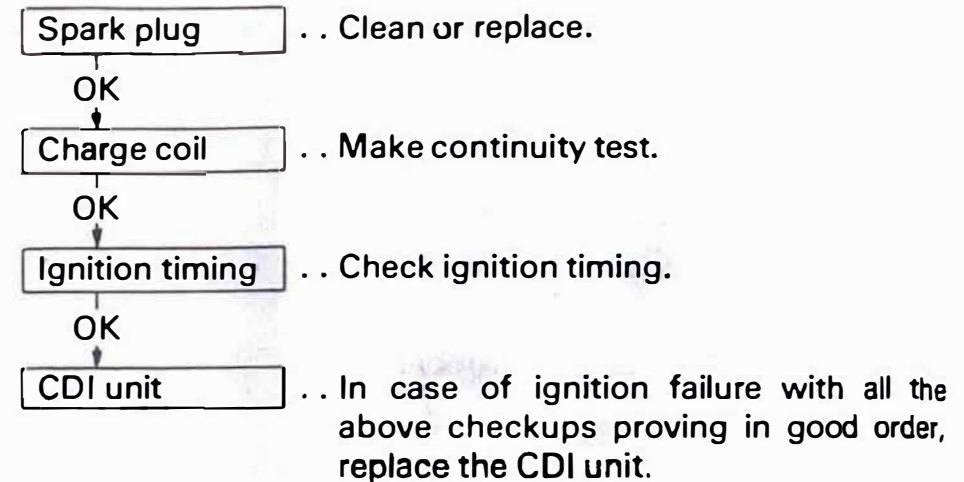


Troubleshooting

1. No spark is produced or weak.



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



SPECIFICATIONS

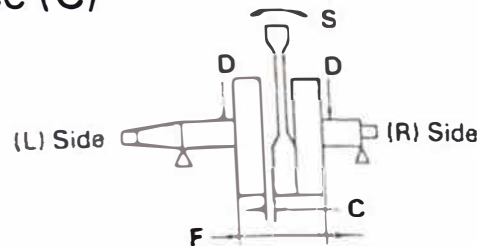
A. General

MODEL	YZ400F
Model: Model (I.B.M. No.) Frame I.D. and Starting Number Engine I.D. and Starting Number	2X5 2X5-000101 2X5-000101
Dimension: Overall length Overall width Overall height Seat height Wheel base Minimum ground clearance	2,145 mm (84.4 in) 935 mm (36.8 in) 1,200 mm (47.2 in) 930 mm (36.6 in) 1,450 mm (57.1 in) 320 mm (12.6 in)
Weight: Net weight	102 kg (225 lb)

B. Engine

MODEL	YZ400F
<p>Description:</p> <p>Engine type</p> <p>Engine model</p> <p>Displacement</p> <p>Bore × Stroke</p> <p>Compression ratio</p> <p>Starting system</p> <p>Ignition system</p> <p>Lubrication system</p>	<p>Air Cooled, 2-stroke Gasoline Torque Induction system</p> <p>2X5</p> <p>396 cc (24.2 cu. in)</p> <p>82 mm × 75 mm (3.23 in × 2.95 in)</p> <p>7.4 : 1</p> <p>Primary kick starter</p> <p>C.D.I. magneto</p> <p>Mixed Gas (20 : 1)</p>
<p>Cylinder head:</p> <p>Cylinder head volume-with spark plug</p> <p>Combustion chamber type</p> <p>Head gasket material/thickness</p>	<p>38.5 cc (2.35 cu. in)</p> <p>Dome + Squish</p> <p>Copper/1.0 mm (0.04 in)</p>
<p>Cylinder:</p> <p>Material</p> <p>Bore size</p> <p>Wear limit</p> <p>Taper limit</p> <p>Out of round limit</p>	<p>Aluminum cylinder with cast iron sleeve</p> <p>82 mm (3.228 in)</p> <p>82.1 mm (3.232 in)</p> <p>0.08 mm (0.003 in)</p> <p>0.05 mm (0.002 in)</p>

MODEL	YZ400F
Piston: Piston skirt clearance Piston over size	0.050 ~ 0.055 mm (0.0019 ~ 0.0022 in) 82.25 mm (3.24 in), 82.50 mm (3.25 in) 82.75 mm (3.26 in), 83.00 mm (3.27 in)
Piston ring: Ring design, Ring end gap, installed (Top, Second) Ring groove side clearance (Top, Second)	Plane ring 0.40 ~ 0.55 mm (0.016 ~ 0.022 in) 0.07 ~ 0.11 mm (0.0028 ~ 0.0043 in)
Small end bearing: Type	Needle bearing (18 × 23 × 22)
Big end bearing: Type	Needle bearing (25 × 31 × 20)
Crankshaft: Crank width (F) Crankshaft deflection (D) Con-rod small end deflection (S) Big end side clearance (C)	66 $^{+0}_{-0.05}$ mm (2.59 $^{+0}_{-0.002}$ in) 0.03 mm (0.0012 in) 0.4 ~ 2.0 mm (0.016 ~ 0.079 in) 0.25 ~ 0.75 mm (0.010 ~ 0.030 in)



MODEL	YZ400F
Crank bearing type, L R Crank oil seal, L R	6306C4 SPECIAL 6306C4 SPECIAL SD 30 × 55 × 12 SW 40 × 55 × 12
Clutch: Clutch type Clutch push mechanism Primary reduction method ratio Friction plate thickness/limit Clutch plate thickness/warp limit Clutch spring length/limit Clutch housing thrust clearance Push rod bending limit	Wet multiple disc type Inner push, Cam axle Helical gear 60/23 (2.608) 3.0 mm/2.7 mm (0.12 in/0.106 in) 1.2 mm/0.05 mm (0.047 in/0.0020 in) 36.0 mm/35.0 mm (1.42 in/1.38 in) 0.05 ~ 0.25 mm (0.002 ~ 0.0098 in) 0.2 mm (0.008 in)
Transmission: Type Gear ratio, 1st 2nd 3rd 4th 5th	Constant mesh, 5 speed return 31/13 (2.384) 28/16 (1.750) 25/19 (1.315) 23/22 (1.045) 20/24 (0.833)

MODEL	YZ400F
<p>Transmission oil quantity</p> <p>Type</p> <p>Bearing type: Main axle (L) (R)</p> <p>Drive axle (L) (R)</p> <p>Drive axle oil seal type</p> <p>Secondary reduction method ratio</p>	<p>Total: 800 ~ 900 cc (0.85 ~ 0.95 US qt) Exchange: 750 ~ 850 cc (0.8 ~ 0.90 US qt) Yamalube 4-cycle oil or SAE 10W/30 "SE" motor oil</p> <p>Needle bearing (32 × 20 × 12) 6204NZ</p> <p>4205-INRS</p> <p>Needle bearing (32 × 20 × 12) SD 32 × 42 × 6</p> <p>Chain 50/14 (3.571)</p>
<p>Shifting mechanism:</p> <p>Type</p> <p>Oil seal type</p> <p>Shift fork finger thickness/limit</p>	<p>Guide bar type S 12 × 22 × 5</p> <p>4.85 mm/4.45 mm (0.191 in/0.175 in)</p>
<p>Intake:</p> <p>Air cleaner, type</p> <p>Oil grade</p> <p>Reed valve, type</p> <p>Bending limit</p> <p>Valve lift</p>	<p>Oiled foam rubber 10W/30 motor oil "V" type</p> <p>0.6 mm (0.024 in) 12 ± 0.2 mm (0.47 ± 0.008 in)</p>

MODEL	YZ400F
Carburetor: Type and manufacturer I.D. mark Main jet (M.J.) Jet needle-clip position (J.N.) Needle jet (N.J.) Cut away (C.A.) Pilot jet (P.J.) Air screw turns out (A.S.) Starter jet (G.S.) Float height	VM38SS MIKUNI 2X500 #420 6F8-2 Q-4 4.0 85 1-3/4 80 18.1 ± 1 mm (0.71 ± 0.04 in)

C. Chassis

MODEL	YZ400F
Frame: Design	Tubular steel double cradle

MODEL	YZ400F
Rear shock absorber travel Rear wheel travel Swing arm length deflection (rear end) free play (pivot shaft) Pivot shaft - bearing type	142 mm (5.59 in) 265 mm (10.4 in) 490 mm (19.3 in) 0 ~ 1.0 mm (0 ~ 0.039 in) 0 ~ 0.2 mm (0 ~ 0.0079 in) Needle bearing + Thrust bearing
Fuel tank: Capacity	7.6 lit (2 US. gal)
Wheels: Tire size (F) (R) Manufacture Patern Pressure (Normal) Front Rear Rim size (F) (R) Run out (vert.) Front — limit Rear — limit	3.00-21-4PR 5.10-18-4PR INOUE Nobby 1.0 kg/cm ² (14 psi) 1.0 kg/cm ² (14 psi) 1.60-21 2.50-18 2 mm (0.08 in) 2 mm (0.08 in)

MODEL	YZ400F
Run out (horiz.) Front — limit Rear — limit Bearing type and size Front wheel (L) (R) Rear wheel (L) (R) Oil seal type and size Front wheel (R) Rear wheel (L)	2 mm (0.08 in) 2 mm (0.08 in) 6202-RS 6202 6203, 6203-RS 6203, 6203-RS SD-20-35-7 SD-25-40-8
Drive chain: Type Number of links Chain pitch Free play	DK520TR 107 15.875 mm (0.625 in) 10 ~ 15 mm (0.394 ~ 0.591 in)
Brakes: Type Brake drum I.D. Front	Drum brake 130 mm (5.12 in)

MODEL	YZ400F
Rear Brake shoe dia. × width	160 mm (6.30 in)
Front	130 mm × 22 mm (5.12 in × 0.87 in)
Rear	160 mm × 25 mm (6.30 in × 0.98 in)
Lining length	
Front	136.14 mm (5.36 in)
Rear	161.53 mm (6.36 in)
Lining thickness/wear limit	4 mm/2 mm (0.16 in/0.079 in)
Shoe springs free length (F)	35 mm (1.38 in)
(R)	68 mm (2.68 in)

D. Electrical

MODEL	YZ400F
Ignition system:	
System	C.D.I. Ignition
Manufacture	Mitsubishi
Model	F3T354
Pulser coil resistance	4.0 Ω ± 10% / 20°C (68°F), White/Red
Charge coil resistance	250 Ω ± 10% / 20°C (68°F), Brown

MODEL	YZ400F
Rotor puller thread size	M27 (1.063 in)
Ignition timing (B.T.D.C.)	3.1 mm ± 0.15 mm (0.122 in ± 0.006 in)
Ignition coil Manufacture Model Spark gap Primary winding resistance Secondary winding resistance Spark plug Manufacture and type Gap	Mitsubishi F006T41174 6 mm (0.28 in) or more 300 r/min 1.0 Ω ± 10% / 20°C (68°F) 5.9 kΩ ± 20% / 20°C (68°F) Champion N-3 0.6 ~ 0.7 mm (0.024 ~ 0.028 in)
C.D.I. unit Manufacture Model	Mitsubishi F008T01472

E. Tightening torque

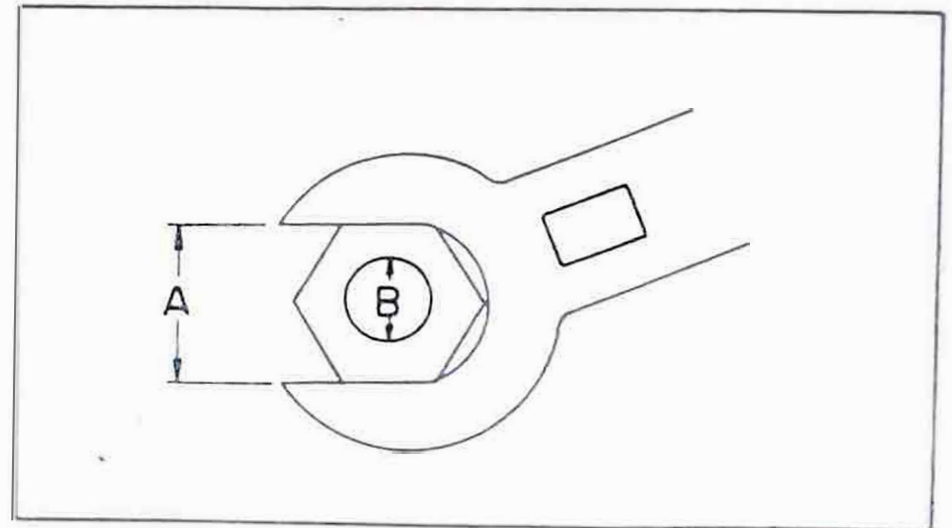
www.legends-yamaha-enduros.com

Engine	Torque		
Cylinder head	M 8	2.5	m-kg (18 ft-lb)
Spark plug	M14	2.2	m-kg (16 ft-lb)
Cylinder	M10	3.3	m-kg (24 ft-lb)

Engine	Torque	
Primary drive	M18	7.5 m-kg (54 ft-lb)
Clutch boss	M20	7.5 m-kg (54 ft-lb)
Clutch spring	M 6	0.8 m-kg (6 ft-lb)
Drive sprocket	M20	7.5 m-kg (54 ft-lb)
Kick crank	M 8	2.3 m-kg (17 ft-lb)
Change pedal	M 6	1.1 m-kg (8 ft-lb)
Reed valve	M 3	0.08 m-kg (0.6 ft-lb)
Inner rotor	M10	3.5 m-kg (25 ft-lb)
Stator base	M 6	0.8 m-kg (6 ft-lb)
Clutch pressure plate	M 6	0.8 m-kg (6 ft-lb)
Chassis	Torque	
Front wheel axle	M15	6.0 m-kg (43 ft-lb)
Handle crown - Inner tube	M8	2.3 m-kg (17 ft-lb)
- Steering shaft	M14	9.5 m-kg (68 ft-lb)
- Steering pinch	M8	2.3 m-kg (17 ft-lb)
- Handle holder	M8	2.3 m-kg (17 ft-lb)
Steering bearing	M25	0.7 m-kg (5 ft-lb)
Engine mount front upper — frame	M8	1.6 m-kg (11 ft-lb)
— engine	M8	3.0 m-kg (22 ft-lb)
lower — engine	M8	3.0 m-kg (22 ft-lb)
rear — engine	M8	3.0 m-kg (22 ft-lb)
— rear under bracket	M8	1.6 m-kg (11 ft-lb)

Chassis	Torque	
Rear wheel axle	M16	8.0 m-kg (58 ft-lb)
Rear hub stud	M8	3.0 m-kg (22 ft-lb)
Sprocket wheel	M8	3.0 m-kg (22 ft-lb)
Rear shock absorber	M8	3.0 m-kg (22 ft-lb)
Pivot shaft	M16	8.0 m-kg (58 ft-lb)
Foot rest - bracket	M8	2.3 m-kg (16 ft-lb)
Tension bar - brake	M8	2.3 m-kg (17 ft-lb)
Brake cam lever	M6	1.0 m-kg (7 ft-lb)
Front fork - cap bolt	M34	2.3 m-kg (17 ft-lb)
- under bracket	M8	2.3 m-kg (17 ft-lb)
- damper unit	M12	3.5 m-kg (25 ft-lb)

A (NUT)	B (BOLT)	TORQUE SPECIFICATION	
		m-kg	ft-lb
10 mm	6 mm	0.6	4.5
12 mm	8 mm	1.5	11.0
14 mm	10 mm	3.0	22.0
17 mm	12 mm	5.5	40.0
19 mm	14 mm	8.5	61.0
22 mm	16 mm	13.0	94.0



CLEANING AND STORAGE

A. CLEANING

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

1. Before cleaning the machine:

Block off end of exhaust pipe to prevent water entry; a plastic bag and strong rubber band may be used.

2. If engine case is excessively greasy, apply degreaser with a paint brush. Do not apply degreaser to chain, sprockets, or wheel axles.

3. Rinse dirt and degreaser off with garden hose, using only enough hose pressure to do the job. Excessive hose pressure may cause water seepage and contamination of wheel bearings, front forks, brake drums, and transmission

seals. Many expensive repair bills have resulted from improper high pressure detergent applications such as those available in coin-operated car washers.

4. Once the majority of the dirt has been hosed off, wash all surfaces with warm water and mild, detergent-type soap.

An old tooth reach hard-to-get-to places.

5. Rinse machine off immediately with clean water and dry all surfaces with a chamois, clean towel, or soft absorbent cloth.

6. Immediately after washing, remove excess moisture from chain and lubricate to prevent rust.

7. Clean the seat with a vinyl upholstery cleaner to keep the cover pliable and glossy.

8. Automotive-type wax may be applied to all painted and chrome-plated surfaces. Avoid combination cleaner-waxes.

Many contain abrasives which may mar paint or protective finish.

9. After finishing, start the engine immediately and allow to idle for several minutes.

B. STORAGE

Long term storage (30 days or more) of your motorcycle will require some preventive procedures to insure against deterioration. After cleaning machine thoroughly, prepare for storage as follows:

1. Drain fuel tank, fuel lines, and carburetor float bowl(s).
2. Remove empty fuel tank, pour a cup of SAE 10W/30 oil in tank, shake tank to coat inner surfaces thoroughly and drain off excess oil. Re-install tank.
3. Remove spark plug, pour about one tablespoon of SAE 10W/30 oil in spark plug hole(s) and re-install spark plug. Kick engine over several times (with ig-

niton off) to coat cylinder walls with oil.

4. Remove drive chain. Clean thoroughly with solvent and lubricate. Re-install chain or store in a plastic bag (tie to frame for safe-keeping).
5. Lubricate all control cables.
6. Block up frame to raise both wheels off ground.
7. Tie a plastic bag over exhaust pipe outlet to prevent moisture from entering.
8. If storing in humid or salt-air atmosphere, coat all exposed metal surfaces with a light film of oil. Do not apply oil to rubber parts or seat cover.

NOTE: _____
Make any necessary repairs before storing the motorcycle.

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/OR REPAIR.

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