YAMAHA

YZ100D

OWNER'S SERVICE MANUAL

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1J4-28199-11

IMPORTANT NOTICE

This motorcycle may be equipped either for competition use or general off-road use. It may be illegal to operate this vehicle off-road when it is equipped for competition use.
Check your state and local riding area regulations. This vehicle is not manufactured for use on public streets, roads or highways. Such use is prohibited by law.

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.

YZ100D OWNER'S SERVICE MANUAL
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INTRODUCTION

Congratulations on your purchase of the Yamaha YZ100D. 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Some data in this manual may become outdated due to improvements made to this model in the future.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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NOMENCLATURE

Right hand side

Left hand side

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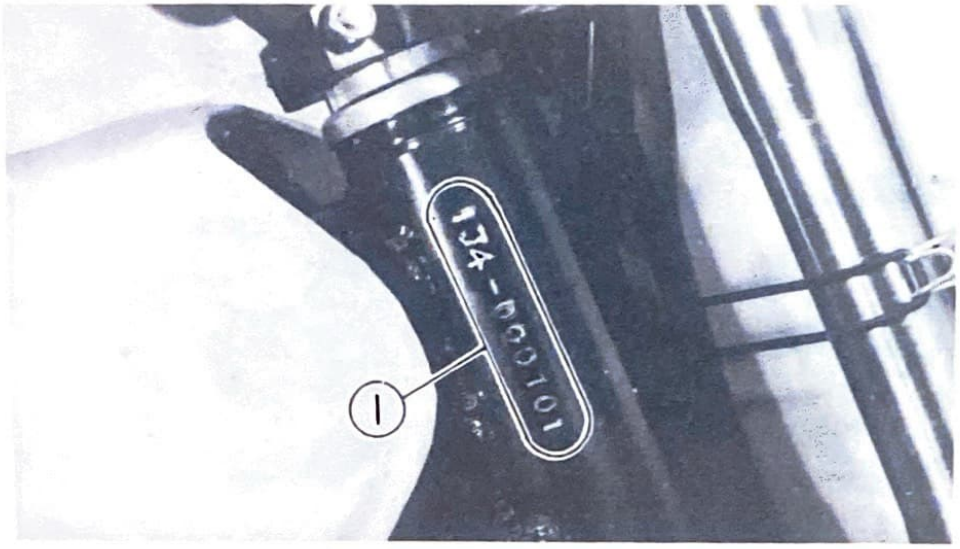
MACHINE IDENTIFICATION

Frame serial number

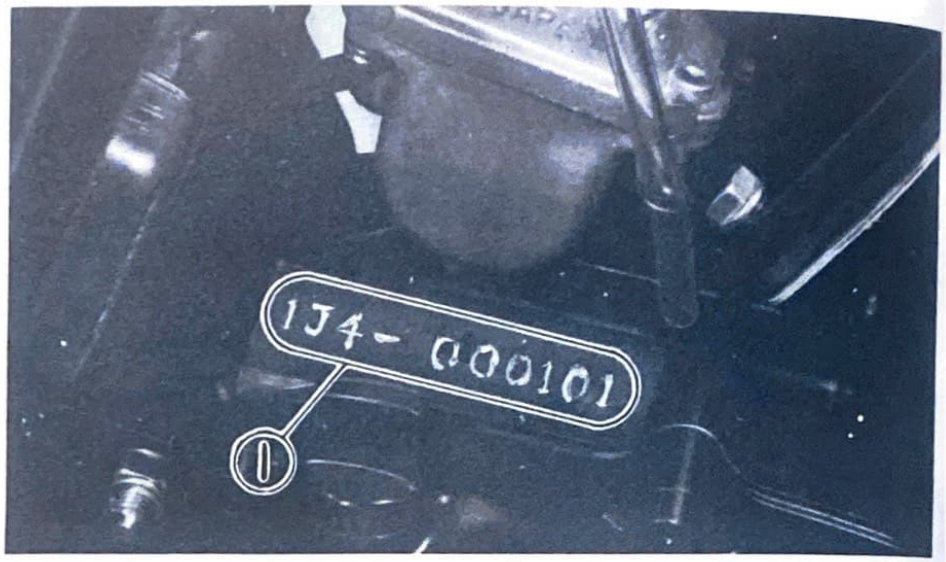
The frame serial number is stamped on the right side of the steering head stock.



1. Frame serial number

Engine serial number

The engine serial number is stamped into the raised 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. The engine and frame serial numbers are usually identical.

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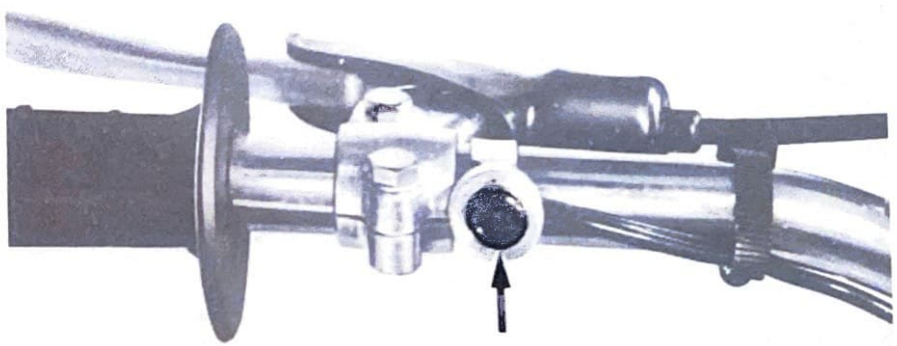
CONTROL FUNCTIONS

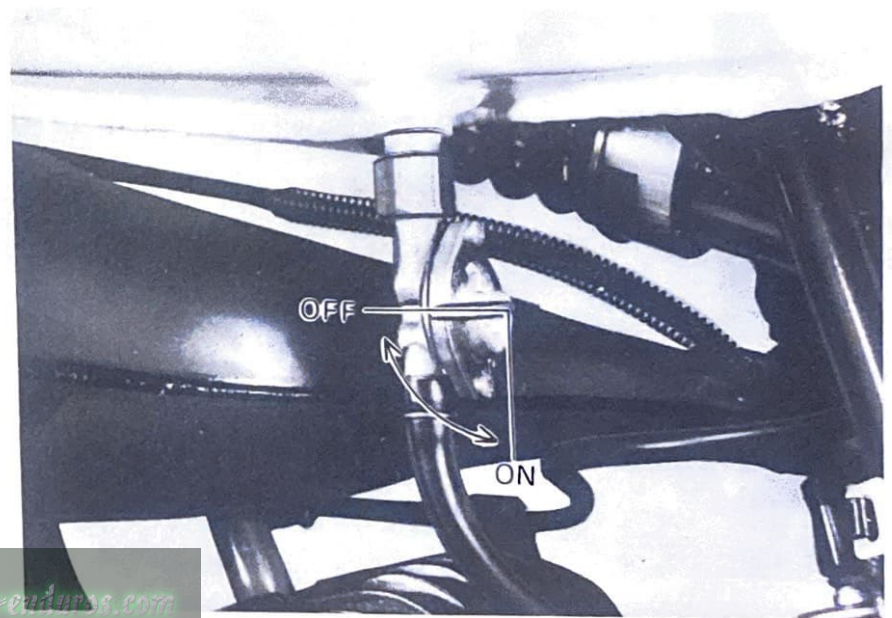
Engine Stop Button

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



Fuel Tank and Petcock

The fuel tank incorporates a threaded plastic filler cap. The cap has a vent tube which is routed to the tensionbar. The fuel tank petcock is located on the rear leftside of the fuel tank. Turn the petcock lever to the vertical position (ON) and fuel will flow to the carburetor. Turn lever to the horizontal position (OFF) to shut off fuel supply to the carburetor.



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Front Brake Lever

Located on the right handlebar. The front brake lever actuates the single leading-shoe front brake when the brake lever is squeezed.

Rear Brake Pedal

Located directly in front of the right-side rider's foot rest. The rear brake pedal actuates the single-leading shoe rear brake when the pedal is depressed.

Clutch Lever

Located on the left handlebar. The clutch lever will disengage the wet-type, multi-plate clutch when the lever is squeezed.

Throttle

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

Kick Crank

The kick starter crank is located on the right, rear side of the engine. Rotate the crank out, press your foot upon it firmly, push down until the gears engage the primary drive train and kick briskly to start the engine. Fold the crank in after engine starts.

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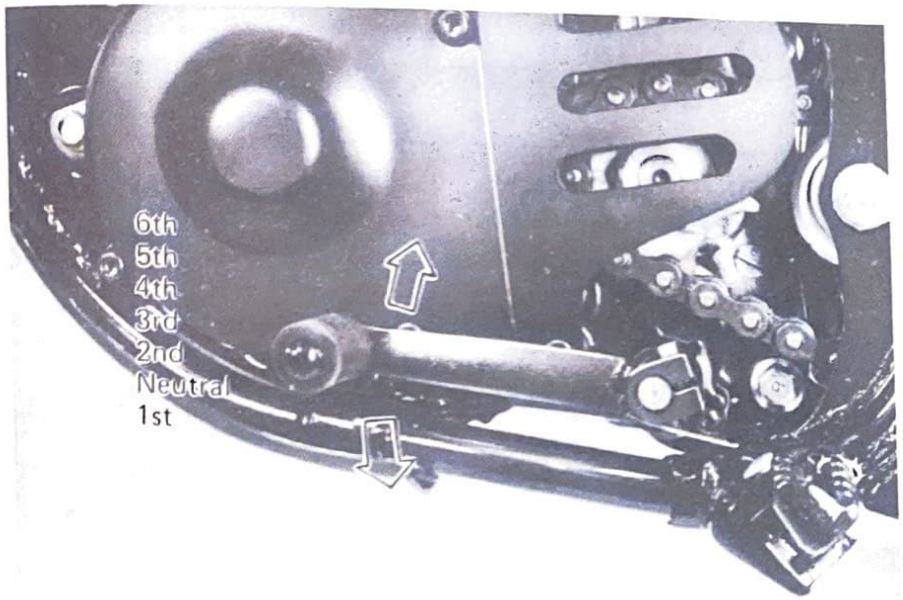
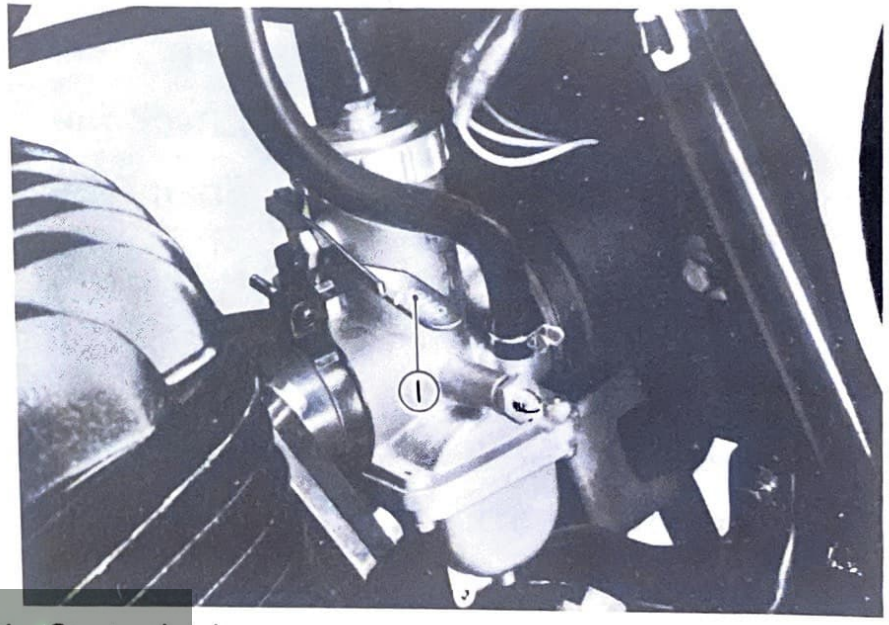
Shift Pedal

The transmission shift pedal is located on the leftside of the machine directly in front of the rider's foot rest. The shift mechanism is of the ratcheting type and controls gear selection for the 6-speed transmission.



Carburetor Starter Jet (Lever)

The carburetor starter jet is located on the left-side of the carburetor assembly. The jet is designed to supply an extra-rich fuel/air mixture for cold engine starts. It is actuated by a lever. Push the lever down to open the jet. Always close the jet after the engine is running smoothly. Never ride the machine with the lever down.



1. Starter jet lever

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PREOPERATION CHECKS

Before using this motorcycle please check the following points:

ITEM	PROCEDURE	PAGE
BRAKE	Check operation/adjustment	20 ~ 21
CLUTCH	Check operation/adjustment	22 ~ 23
FUEL TANK	Fill with proper fuel/oil mix	7
TRANSMISSION	Change oil as required	7
DRIVE CHAIN	Check alignment/adjustment/lubrication	23 ~ 24
SPARK PLUG	Replace each meet	27 ~ 28
THROTTLE	Check for proper cable operation	24 ~ 25
AIR FILTER	Foam type—must be clean and damp with oil always	32 ~ 33
WHEELS & TIRES	Check pressure/runout/spoke tightness/axle nuts	75 ~ 79
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.

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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.

Oil

1. Engine Mixing Oil:

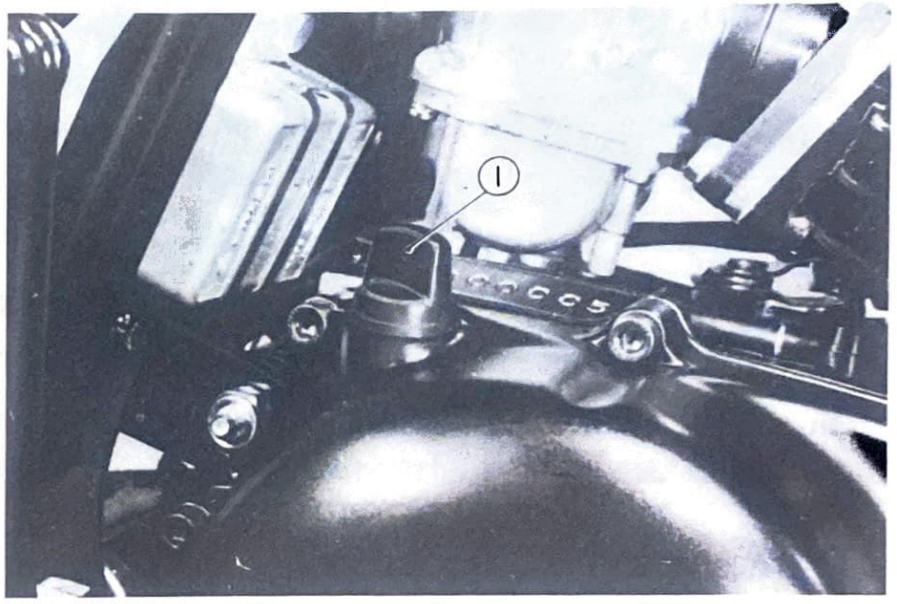
Recommended oil: Yamalube R (Yamalube Racing 2-cycle oil)

If for any reason you should use another type, the oil should meet BIA certification. "TC-W".
Check the container top or label for service specification and mixing ratios.

2. Transmission Oil:

Recommended oil: Yamalube 4-cycle oil or SAE 10W/30 "SE" name-brand motor oil

The transmission filler plug is located above the kick starter.



1 Filler plug

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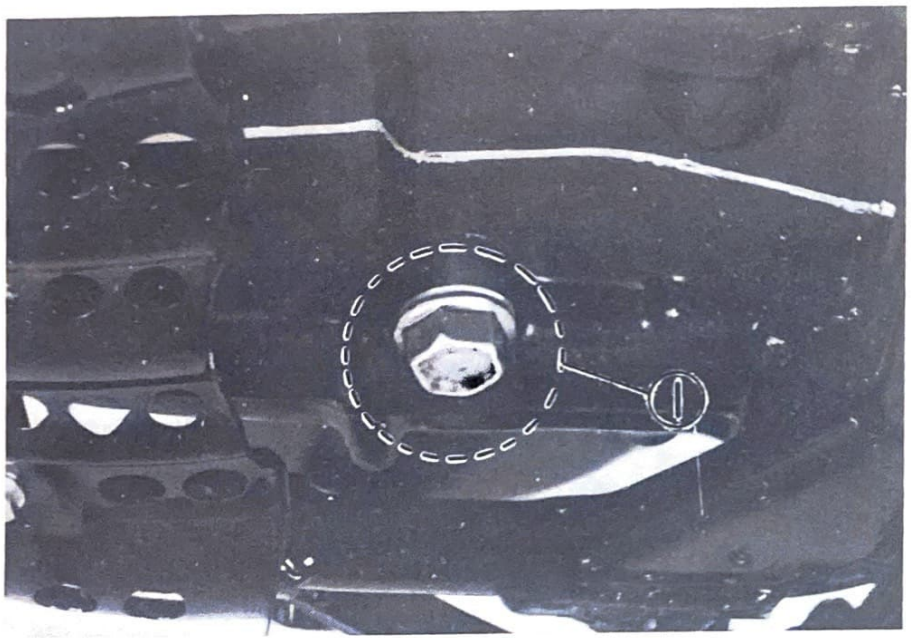
On the bottom of the engine there is a drain plug. Remove it and drain all the oil from the transmission. Reinstall the drain plug (make sure it is tight). Add oil through filler hole.



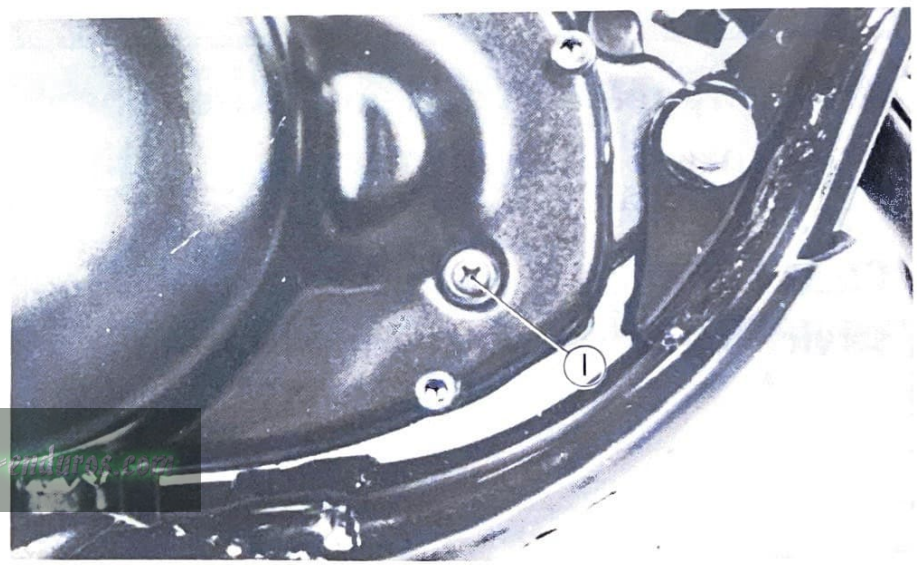
1. Drain plug

Transmission oil capacity:
650±50cc (22±2 oz.)

On the right side of the engine there is a checking screw. To check, warm up the engine for 2—3 minutes. Place the motorcycle upright and remove the oil level checking screw. If oil flows out, the oil level is correct. The transmission oil should be drained and refilled every second race meet.

NOTE:

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



1. Checking screw

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CAUTION:

1. 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.
2. This model is designed for competition use. It is not equipped with highway approved lighting, mirrors, horn or directional signals. In most instances, it is illegal to ride this model (either day or night) on any public street or highway.
3. Observe the break-in procedures to preclude mechanical failures.

BREAK-IN PROCEDURES

1. Prior to starting, fill tank with a break-in gasoline/oil mixture of 16 : 1 to 19 : 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" button 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 (5th or 6th) and check full throttle response. Check spark plug condition.

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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. Refil with 20 : 1 operation fuel/oil mixture. Check entire unit for loose or mis-adjusted fittings/controls/fasterns.
9. Re-start engine and check through entire-operating range thoroughly. Stop. Check spark plug condition. Re-start. After 10 – 15 minutes operation, machine is ready to race.

STARTING AND OPERATION

CAUTION:

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

NOTE:

Observe break-in procedures for initial operation.

Starting Cold

Depress the starter lever. Keep the throttle completely closed. Engage the kick starter and start the engine.

The kick mechanism is of the primary type. Therefore, the engine may be started in any gear, provided the clutch is disengaged. The engine may be started in neutral with clutch engaged or disengaged.

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Starting with Engine Warm

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

Warm-up

Run the engine at idle or slightly higher using the starter jet 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 jet off.

CAUTION: ——————————————

Do not operate engine for extended warm-up periods.

——————————————————

Shifting

A 6-speed transmission is used. Low gear is at the bottom of the shift pattern; high gear at the top of the shift pattern; neutral is located half-way between first and second positions.

The shift mechanism is of the ratcheting type common to most motorcycles. Allow the lever to return to its "at rest" position prior to selecting another gear. Neutral is selected by pulling up or depressing on the shift lever halfway between first and second gears.

With the engine running in the neutral position, disengage the clutch (pull in clutch lever), press down on the shift lever until low gear is engaged, remove foot from shift lever, increase engine speed slightly, slowly release clutch lever while advancing throttle. Repeat procedure for remaining gears.

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PERIODIC MAINTENANCE AND MINOR PERAIR

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.

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MAINTENANCE AND LUBRICATION SCHEDULE CHART

Item	Recommended lubricant (By type *)	Race/Meet Interval					
		Every meet	Every second	Every third	Every heat (moto)	Every 6 months of racing	As required
PISTON • Inspect • Clean • Replace		X X					X
PISTON RINGS • Replace			X				
CYLINDER • Inspect (Compression Check) • Clean • Replace • Check head bolt torque		X X			X		X
CLUTCH • Adjust • Replace (Plates)		X					X
TRANSMISSION • Change oil • Inspect gears • Replace bearing • Inspect shift forks	No. 1		X			X X X	
ENGINE MAIN BEARINGS • Replace						X	

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* See Recommended Lubricants

Item	Recommended lubricant By type	Race/Meet Interval					
		Every meet	Every second	Every third	Every heat (moto)	Every 6 months of facing	As required
CONNECTING ROD • Check bearings • Replace big end bearing • Replace small end bearing		X				X	(X) X
CARBURETOR • Check/Adjust/Tighten • Clean and Inspect					X X		
PISTON PIN • Inspect • Replace		X					X
EXHAUST SYSTEM • Inspect					X		
ROTOR NUT • Torque		X					
KICK STARTER • Inspect idier gear • Replace						X	X
FRAME • Clean and Inspect		X					
SWING ARM • Check Lubricate	No. 7				X		
CONTROLS AND CABLES • Check and Adjust • Lubricate	No. 2	X			X		

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Item	Recommanded lubricant By type	Race/Meet Interval					
		Every meet	Every second	Every third	Every heat (moto)	Every 6 months of racing	As required
BRAKES • Clean/Check/Adjust • Replace		X			X		X
WHEELS AND TIRES • Check pressure • Check runout • Check spoke tension • Check bearings • Replace bearings		X X			X X		X
STEERING HEAD • Check • Clean and repack	No. 3			X	X		
CDI WIRING • Check connections					X		
AIR FILTER • Clean and oil • Replace	No. 5	X					X
SPARK PLUG • Replace							X
DRIVE CHAIN • Clean and lubricate • Check tension and align • Replace	No. 2				X X		X

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Item	Recommended lubricant type	Race/Meet Interval					
		Every meet	Every Second	Every third	Every heat (moto)	Every 6 months of racing	Every As required
FITTINGS AND FASTENERS ●Tighten					X		
FUEL TANK ●Clean/Flush ●Clean petcock filter		X X					
FRONT FORKS ●Drain and refill ●Replace seals	No. 6			X			X
SHOCK ABSORBER ●Check ●Replace				X			X
CLUTCH AND BRAKE PIVOTS ●Lubricate	No. 7	X					
FOOT PEG AND KICK CRANK ●Lubricate	No. 2	X					
POINT CAM LUBRICATOR ●Lubricate	No. 4					X	
THROTTLE GRIP/HOUSING ●Lubricate	No. 7			X			(X)

NOTE:

When replacing the oil or gas in the monoshock (Monocross unit), consult your nearest Authorized Yamaha Dealer.

RECOMMENDED LUBRICANT

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

#2 1. Use YAMAHA CHAIN/CABLE LUBE
2. Use SAE 10W/30 "SE" motor oil. (If desired, specialty type lubricants of quality manufacture may be used.)

#3 Medium-weight wheel bearing grease of quality manufacture (preferably waterproof.)

#4 Light weight machine oil.

#5 Air filters: Foam element air filters must be damp with oil at all times to function properly. Clean and lube every meet. In hard usage, clean and lube every heat (MOTO). Do not over-oil. Use SAE 10W/30 "SE" motor oil.

#6 Use Yamaha Fork Oil 20wt

#7 Use lithium base grease.

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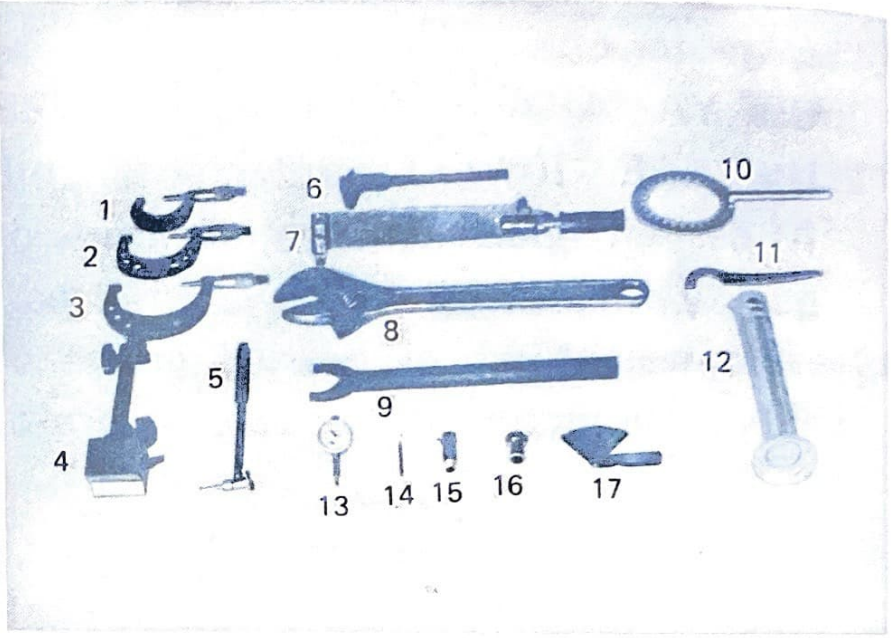
SPECIAL TOOLS

The maintenance procedures outlined within this manual require special tools and instruments. A comprehensive list of the special tools is given below.

*1. Outside Micrometer (0 – 25 mm)
*2. Outside Micrometer (25 – 50 mm)
*3. Outside Micrometer (75 – 100 mm)
4. Magnetic Base
*5. Cylinder Gauge (50 – 100 mm)
*6. Vernier Calipers (0 – 150 mm)
7. Torque Wrench
8. Adjustable Wrench
*9. Ring Nut Wrench
*10. Clutch Holding Tool
*11. Steering Nut Wrench
12. Measuring Cylinder (0 – 250 cc, 10 cc increments)
*13. Dial Gauge
*14. 56mm dial gauge needle
*15. Dial Gauge Stand #2
*16. Flywheel Puller
17. Thickness Gauge



NOTE:
These items marked with an asterisk (*) available from Yamaha.

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NOTE:

The Research and Engineering Departments of Yamaha are continually striving to further perfect all models. Improvements and modifications are therefore inevitable. In light of this fact, the foregoing specifications are subject to change without notice to the owner. Information regarding significant changes is forwarded to all Authorized Yamaha Dealers as soon as available. If a discrepancy is noted, please consult your dealer.

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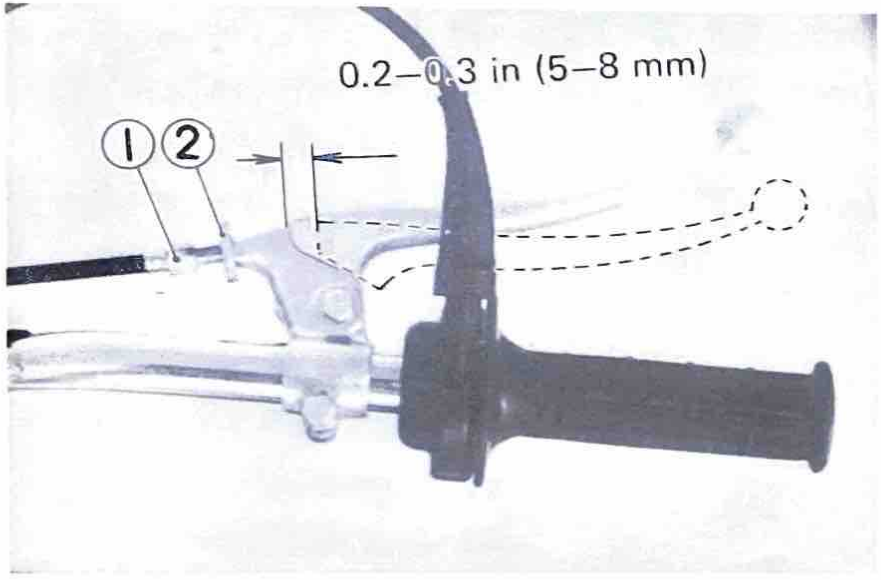
MECHANICAL ADJUSTMENTS

Front Brake

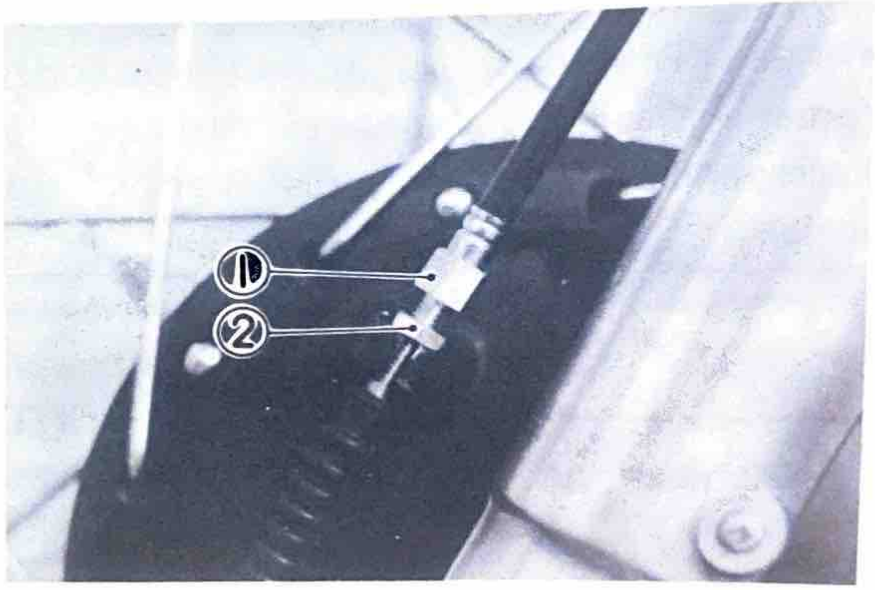
Front brake should be adjusted to suit rider preference with a minimum cable slack of 5 – 8 mm (0.2 – 0.3 in) play at the brake lever pivot point.



1. Adjuster 2. Adjuster lock nut

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

a. Loosen the adjuster locknut.
b. Turn the cable length adjuster in or out until adjustment is suitable.
c. Tighten the adjuster locknut.



1. Adjuster 2. Lock nut

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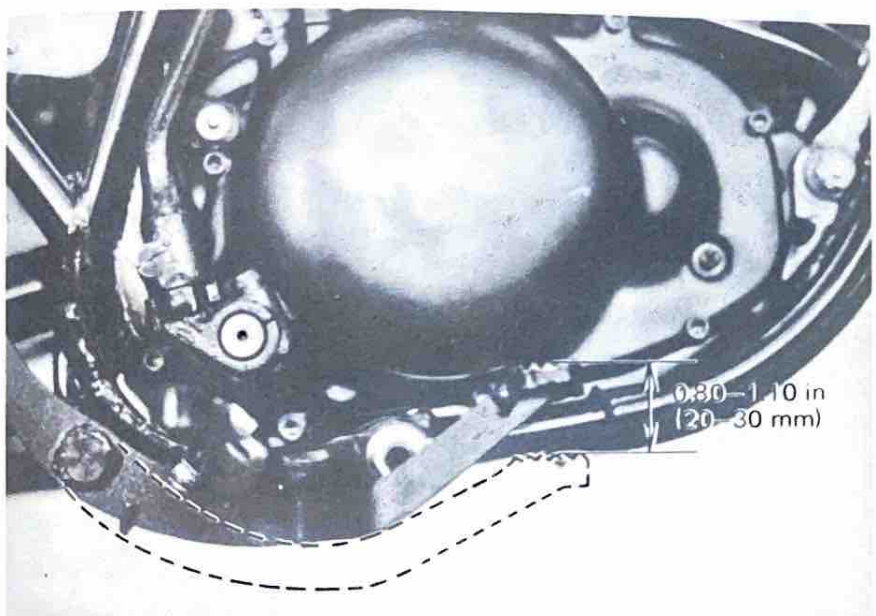
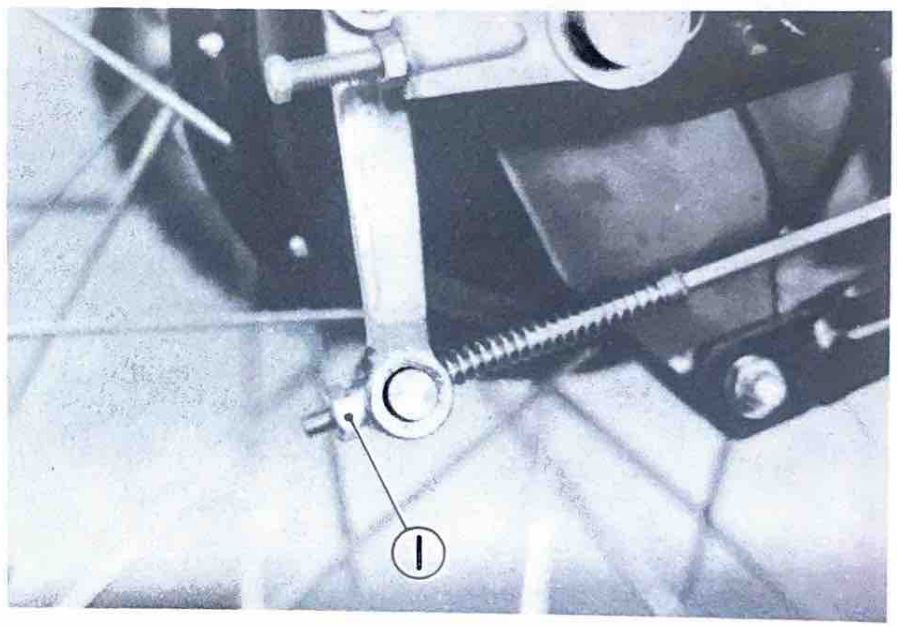
Rear Brake

Adjust rear brake pedal play to suit, providing a minimum of 20 – 30 mm (0.80 – 1.10 in) freeplay. Turn the adjusting nut on the rear brake ferrule in or out until brake pedal freeplay is suitable.

NOTE:

Rear brake pedal adjustment must be checked anytime chain is adjusted or rear wheel is removed and then reinstalled.





1. Adjusting nut

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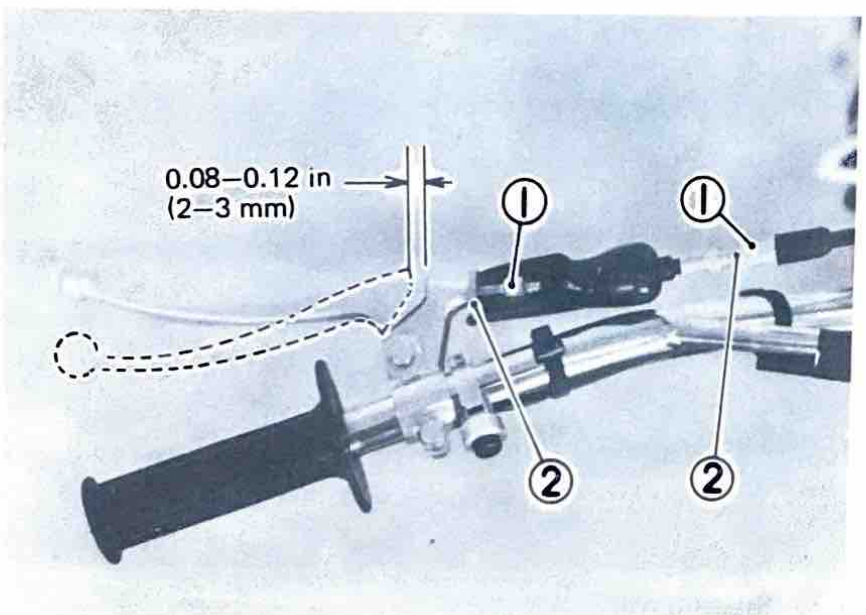
Clutch

Proper clutch adjustment requires two separate procedures.

1. Loosen either the handle lever adjuster locknut or the cable in-line length adjuster locknut.
2. Turn the length adjuster either in or out.



1. Adjuster 2. Locknut

NOTE:

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

3. Remove shift pedal and left crankcase cover.
4. Loosen adjuster locknut. Back the nut off 2 or 3 turns.
5. Using a Phillips screwdriver, fully tighten eccentric adjusting screw.
6. Turn cable length adjuster in or out until lever is positioned slightly behind main axle center line.

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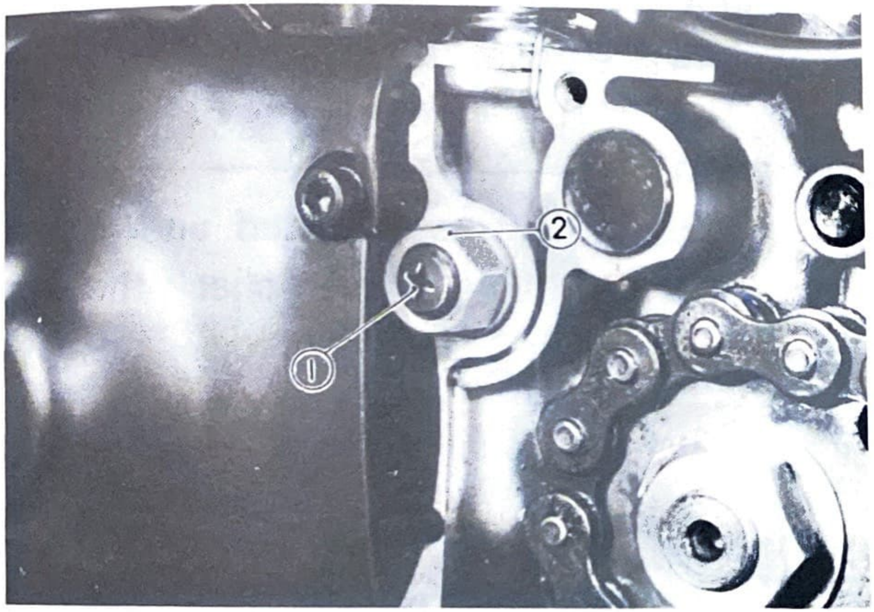
7. Back eccentric adjusting screw out until axle lever shaft contacts clutch push rod inside engine. Turn adjusting screw in approximately 1/8 turn.



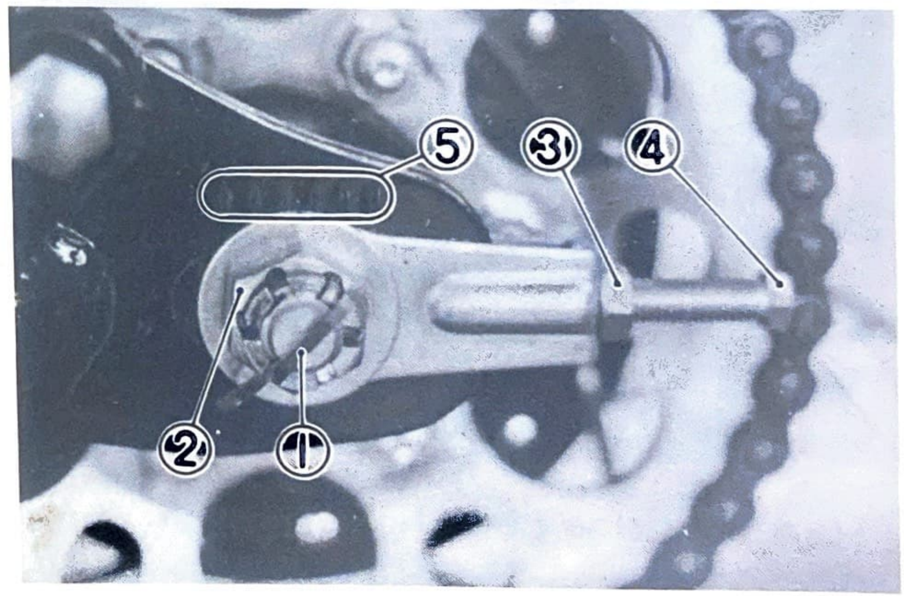
1. Eccentric adjusting screw 2. Locknut

8. Tighten locknut while holding adjusting screw in place.
9. At clutch lever assembly, left handlebar, turn cable length adjuster in or out until freeplay at lever pivot equals 2 – 3 mm (0.08 – 0.12 in).
10. Tighten adjuster locknut.
11. Reinstall shift pedal and left crankcase cover.

Drive chain

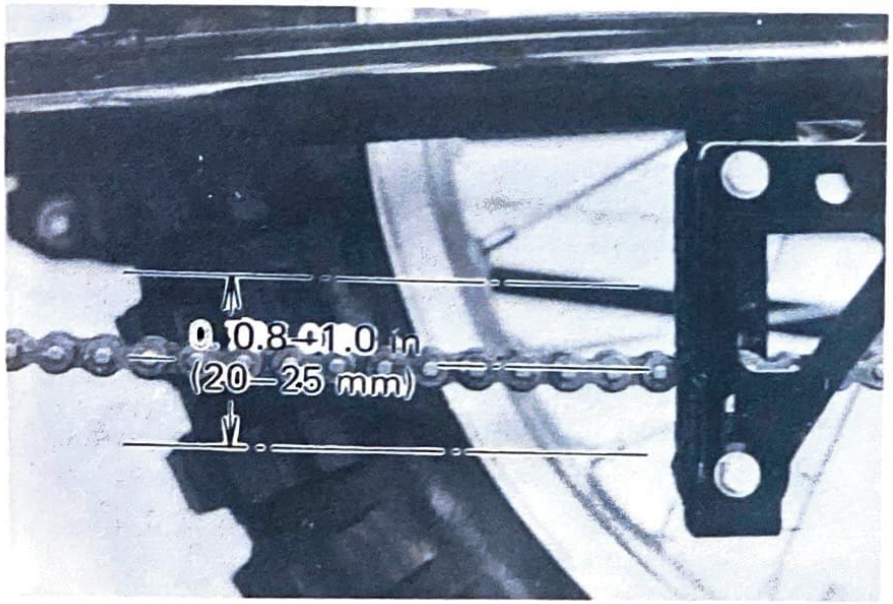
To adjust drive chain, proceed as follows:

1. Remove rear axle cotter pin.
2. Loosen axle securing nut while holding the axle with a screwdriver.



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

3. With rider in position on machine, both wheels on ground, set axle adjusters until there is 20 – 25 mm (0.8 – 1.0 in) slack in the drive chain at the bottom of the chain at a point midway between the drive and driven axles.



4. 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 locknuts on adjusting bolts.

5. Tighten the rear axle securing nut.

Torque:	10 m-kg (72 ft-lb)

6. Install a new cotter pin.
7. Check brake pedal freeplay.

CAUTION:

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

Carburetor

Under normal operating conditions, there are only three adjustments to be made to the carburetor.

1. **Throttle cable adjustment:**

a. Slide the rubber cover off the top of the carburetor.

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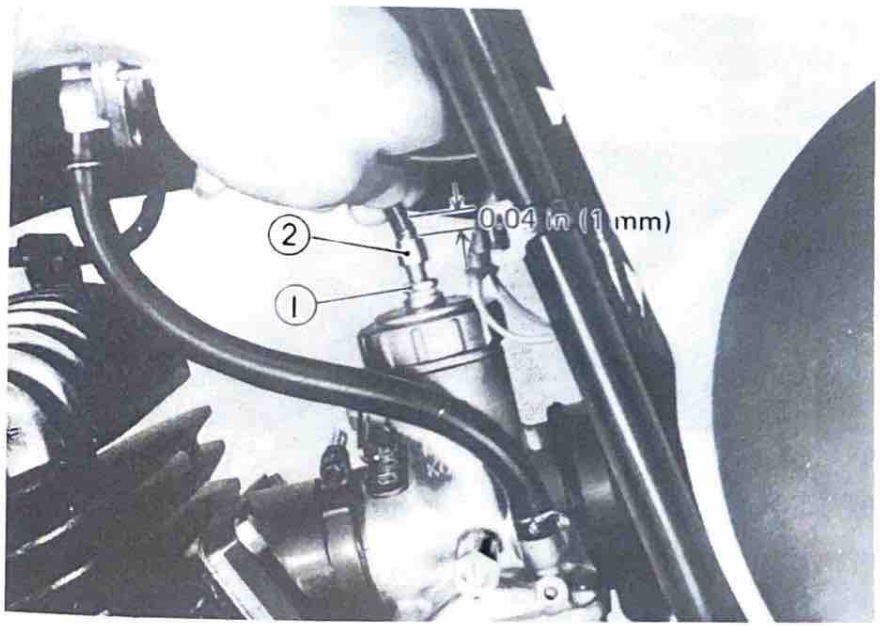
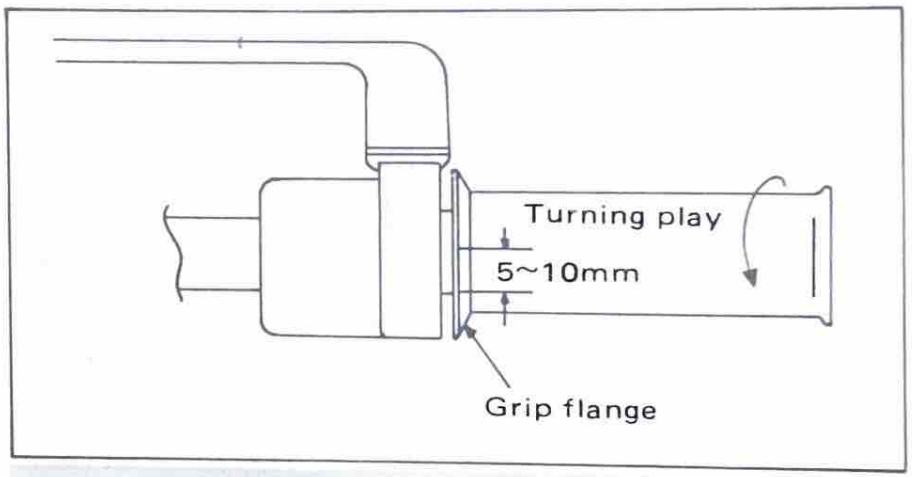
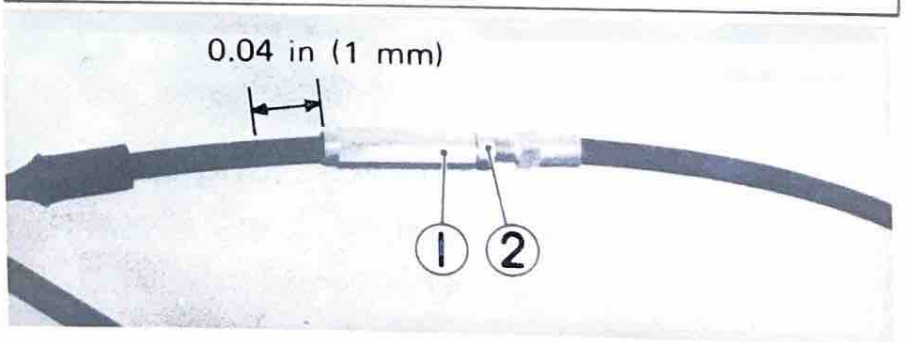
b. Grasp the outer cable housing. Lift it up. Slack should equal 1 mm (0.04 in) at the adjuster. If slack is incorrect, loosen adjusting bolt locknut and turn adjusting bolt in or out as required to achieve correct slack. Tighten the adjusting bolt locknut. Reinstall the cap cover.



1. Lock nut
2. Adjusting bolt

Check play in turning direction of throttle grip. The play should be 5 — 10 mm (0.2 — 0.4 in) at grip flange. Loosen the locknut and turn the wire adjuster to make the necessary adjustment. After adjusting, be sure to tighten the locknut properly.





1. Adjuster
2. Lock nut

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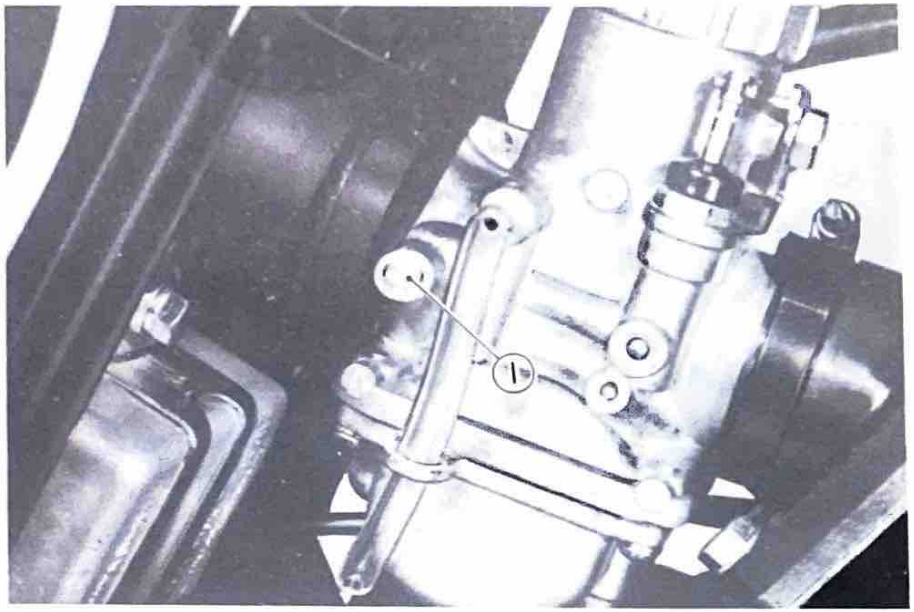
2. Idle speed and idle air adjustments:

a. Turn idle air screw in until lightly seated.

b. Back out 1-1/2 turns.



1. Air screw

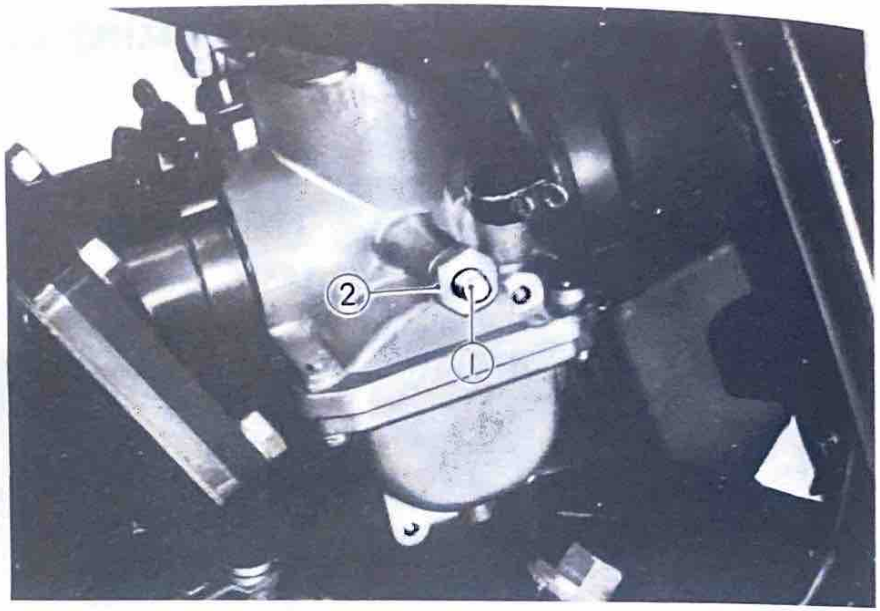
c. Turn the idle speed adjusting screw until idle is at desired rpm.

NOTE:

A locknut is incorporated for positive retention of idle adjusting screw.

d. Turn the idle air mixture screw in or out until idle speed is at highest rpm.

e. 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.

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Idle air screw: Back out 1-1/2 turns.

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.

Spark plug

The spark plug in your machine indicates how the engine is operating. If the engine is operating correctly, and the machine is being ridden correctly, then the tip of the white insulator around the center electrode of the spark plug will be a medium to light tan color.

If the porcelain is a very dark brown or black color, then a plug with a hotter heat range may be required.

This situation is quite common during the engine break-in period.

If the insulator tip shows a very light tan or white color or is actually pure white or if the electrodes show signs of melting, then a spark plug with a colder heat range is required.

Remember, the insulator must be a medium-to-light tan color. If it is not, check carburetion, timing, and ignition adjustments. If the situation persists, consult your Authorized Yamaha Dealer.

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

For normal operation use:
N59G Champion

Spark plug gap:
0.5 – 0.6 mm (0.02 in)

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

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

Spark plug torque:
3.0 m-kg (22 ft-lb)

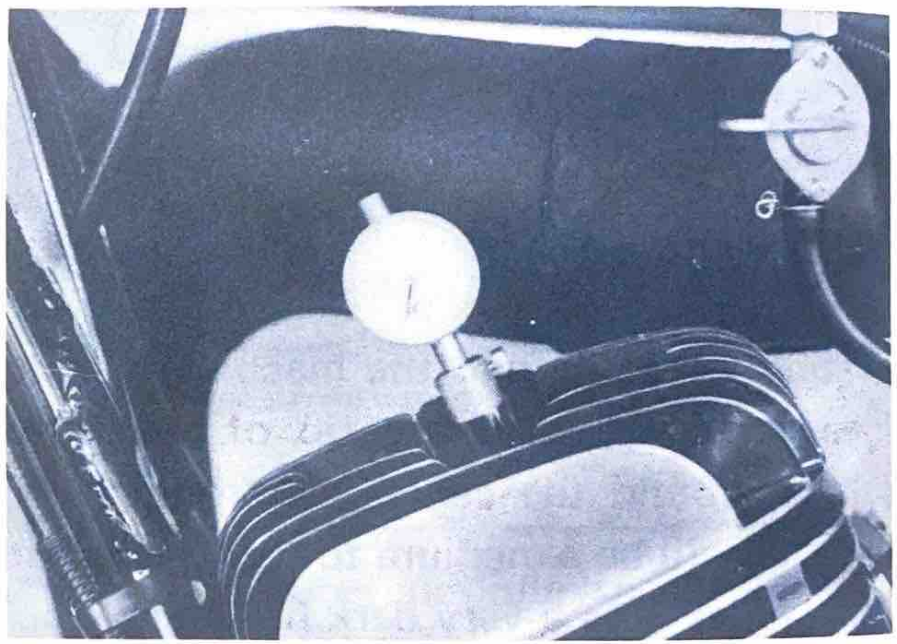
The spark plug must be removed and checked prior to using the machine. Check electrode wear, insulator color, and electrode gap.

Ignition timing

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

Proceed as follows:

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



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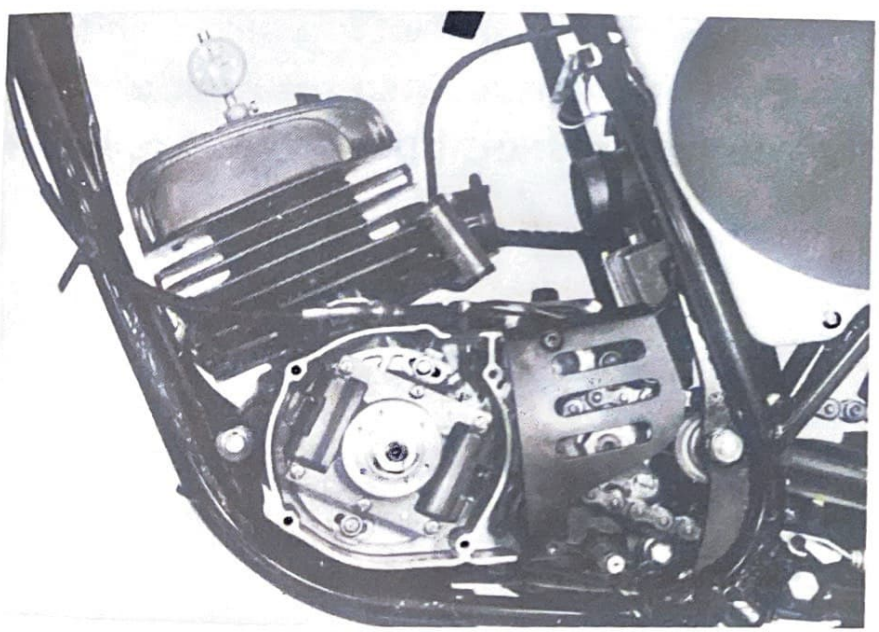
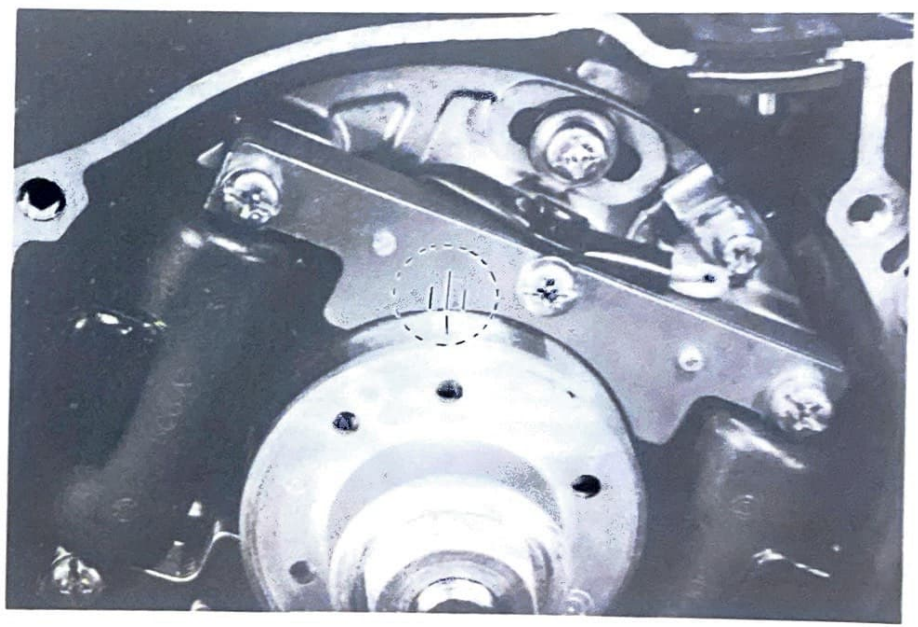
3. Remove left engine crankcase cover.
4. Rotate rotor until piston is at top-dead center (T.D.C.). Tighten set screw on spark plug stand to secure dial gauge assembly. Set the zero on dial gauge face to line up exactly with dial gauge needle. Rotate rotor back and forth to be sure that gauge needle does not go past zero.



5. Starting at T.D.C., rotate rotor clockwise until dial indicator reads 1.6mm (0.064 in) before top-dead-center (B.T.D.C.)

Ignition timing: 1.6mm±0.15mm (0.064±0.006in) B.T.D.C.



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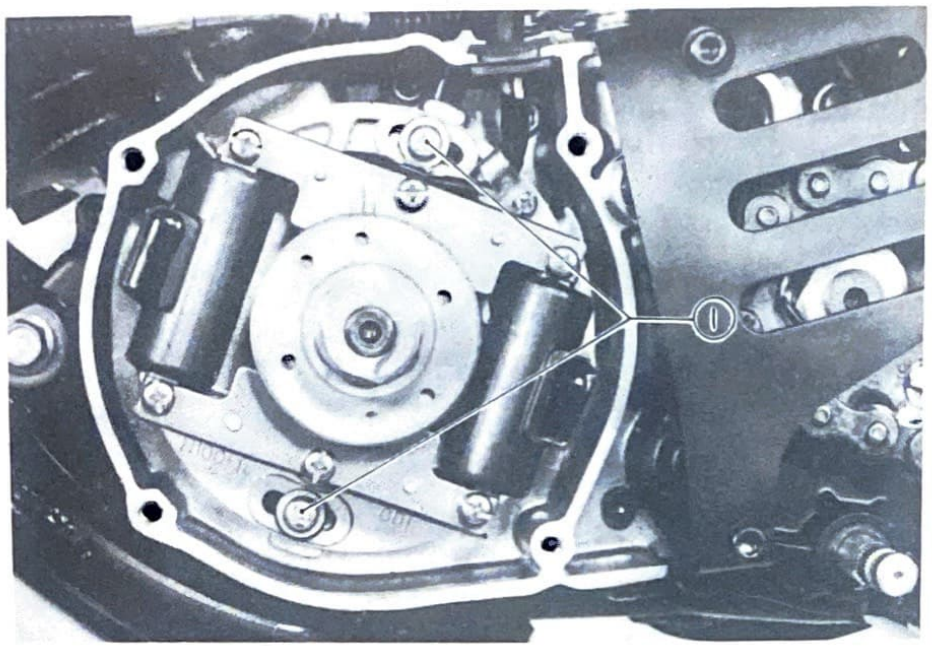
6. Check to see that the rotor timing mark aligns with the stator timing mark. To adjust, loosen the two stator retaining screws and rotate the stator. Tighten screws.



1. Retaining screw

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

Spark plug torque:		
	3.0 m-kg	(22 ft-lb)

8. Replace engine crankcase cover.

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ENGINE MAINTENANCE AND MINOR REPAIRS

The following sections provide information for the disassembly, troubleshooting, and maintenance of various components of the machine. If you do not have the necessary tools and an understanding of the mechanical principles involved, please refrain from attempting repairs. The use of improper tools and/or procedures can cause major damage to units with resultant additional repair costs.

To properly understand the procedures outlined, we suggest you consult other technical publications.

Finally, we suggest you consult your Yamaha Dealer prior to attempting any repair procedures.

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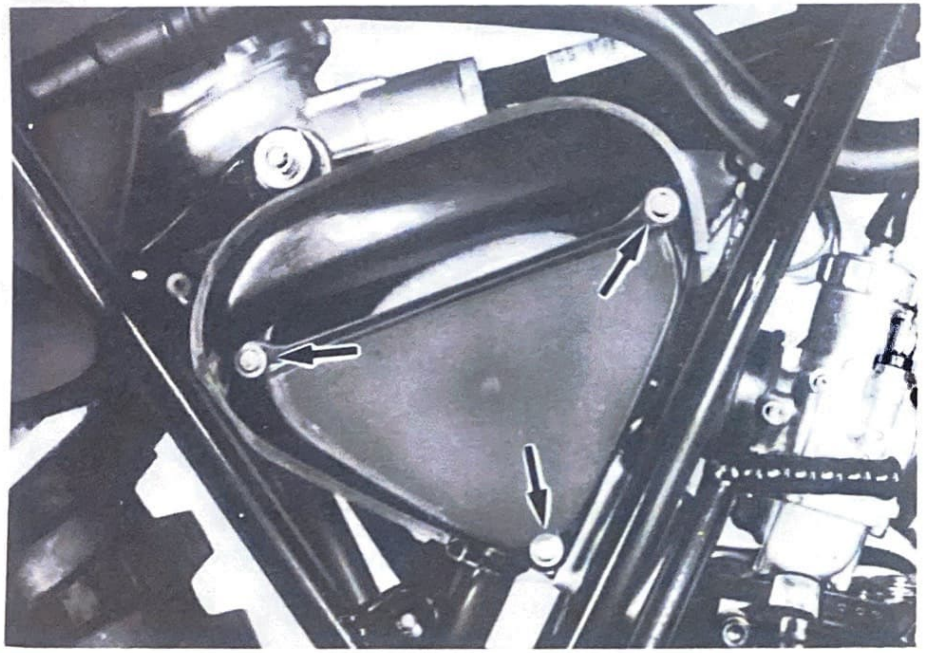
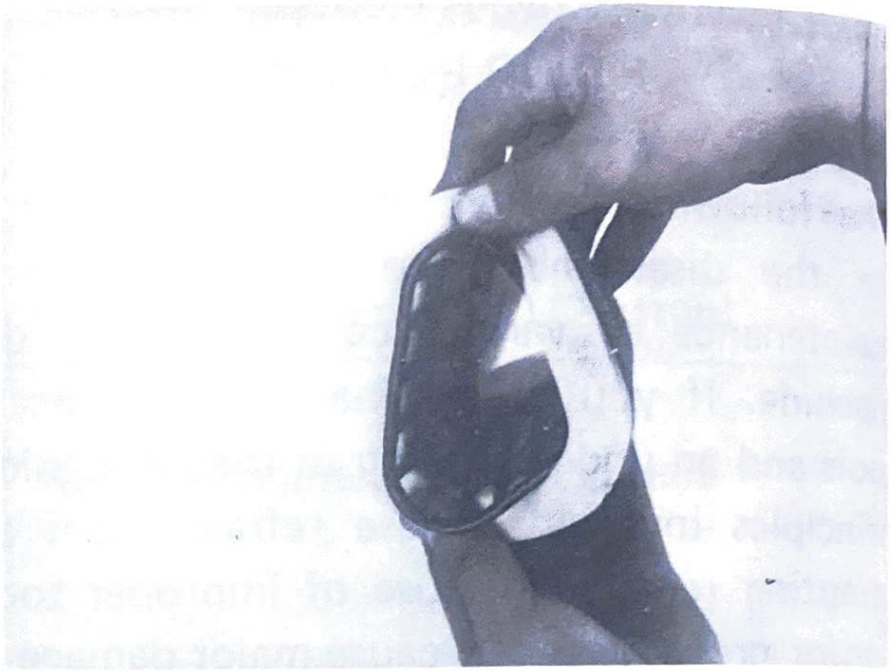
Air filter

1. Removal
   a. Remove the screw and remove the right number plate.
   b. Remove the Phillips-head screws (3) and remove filter case cover.



   c. Remove the air filter from the filter case.
   d. Slip the filter from the guide.



2. **Cleaning method**
   a. Wash the element gently, but thoroughly, in solvent.
   b. Squeeze the excess solvent out of the element and let dry.
   c. Pour a small quantity of 30W motor oil onto the filter element and work thoroughly into the porous foam material.
   d. Re-insert the filter element guide into the element.

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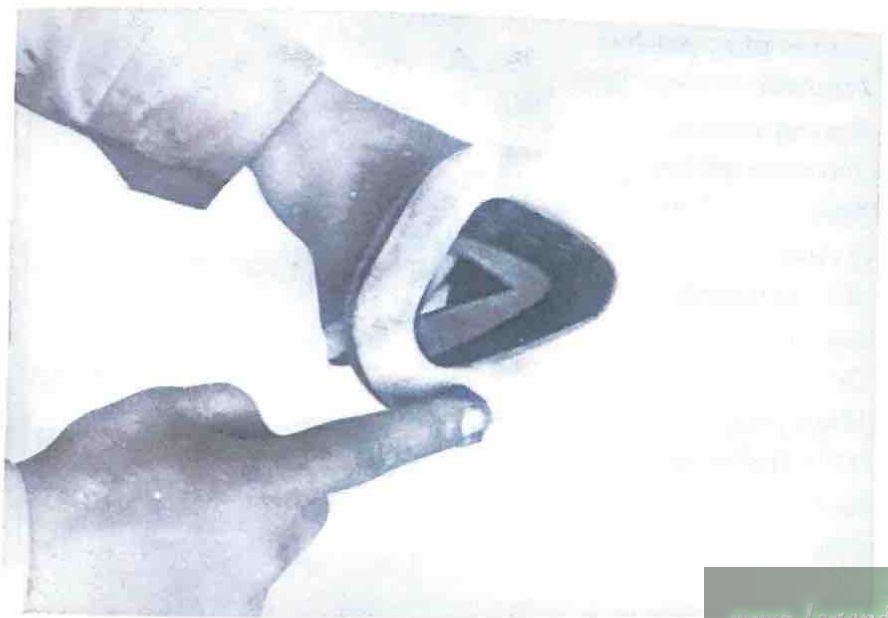
NOTE:
In order to function properly, the element must be damp with oil at all times, but not dripping with oil.

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



f. Reinstall the element 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.

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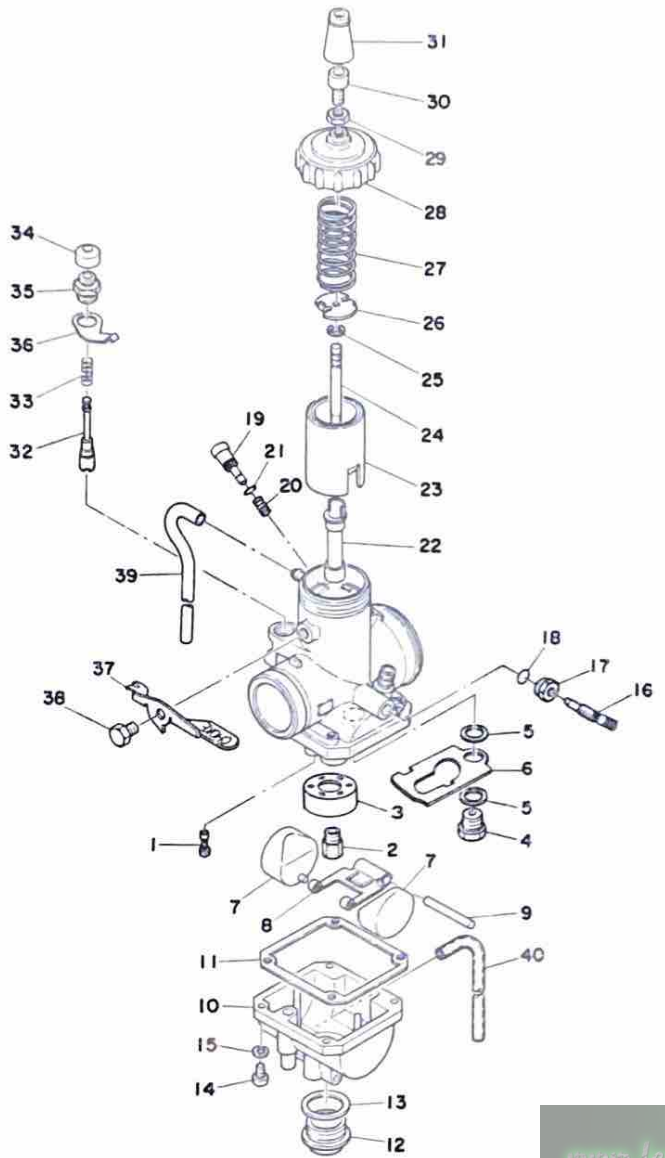
CARBURETOR



1. Pilot jet
2. Main jet
3. Main jet washer
4. Valve seat ass'y
5. Valve seat washer
6. Plate
7. Float
8. Float arm
9. Float pin
10. Float chamber body
11. Float chamber gasket
12. Screw plug
13. Screw plug washer
14. Panhead screw
15. Spring washer
16. Throttle screw
17. Nut
18. O-ring
19. Air adjusting screw
20. Air adjusting spring
21. O-ring
22. Main nozzle
23. Throttle valve
24. Needle
25. Clip
26. Spring seat
27. Throttle valve spring
28. Mixing chamber top
29. Nut
30. Wire adjusting screw
31. Cap
32. Starter plunger
33. Plunger spring
34. Plunger cap cover
35. Plunger cap
36. Starter lever plate
37. Starter lever
38. Bolt
39. Air vent tube
40. Air vent pipe

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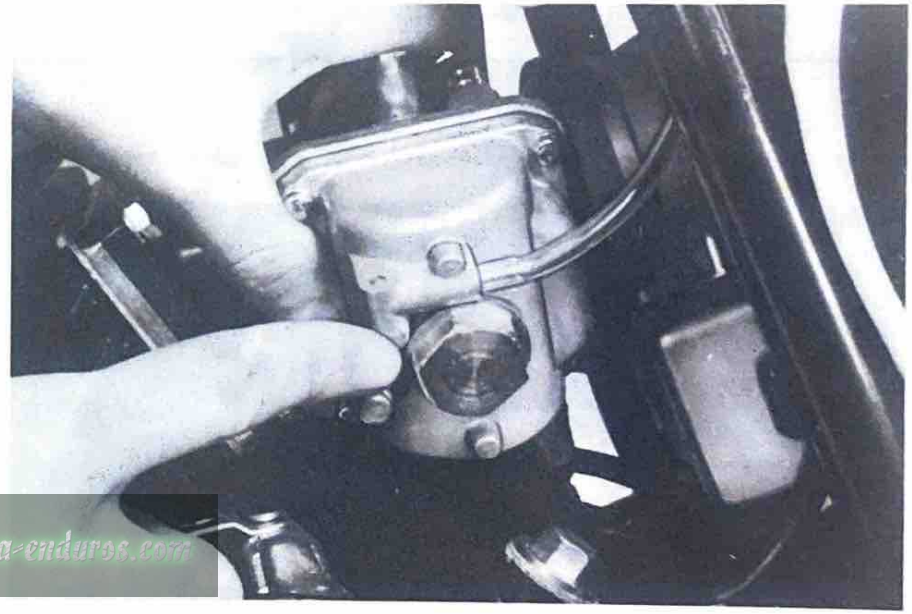
1. **Replacement of main jet**
   a. Turn fuel petcock lever to the "OFF" position.
   b. Remove the gasoline tank fuel line into from the fitting at the carburetor.
   c. Loosen the manifold and inlet joint bands (hose clamps).

NOTE:
For carburetor main jet replacement only, follow steps a through c then:

   1) Rotate carburetor, exposing main jet cover bolt.
   2) Remove bolt. Main jet is located directly behind bolt.

IMPORTANT:
The YZ100D Carburetor has been set for normal sea level conditions. The standard setting (listed below) 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.



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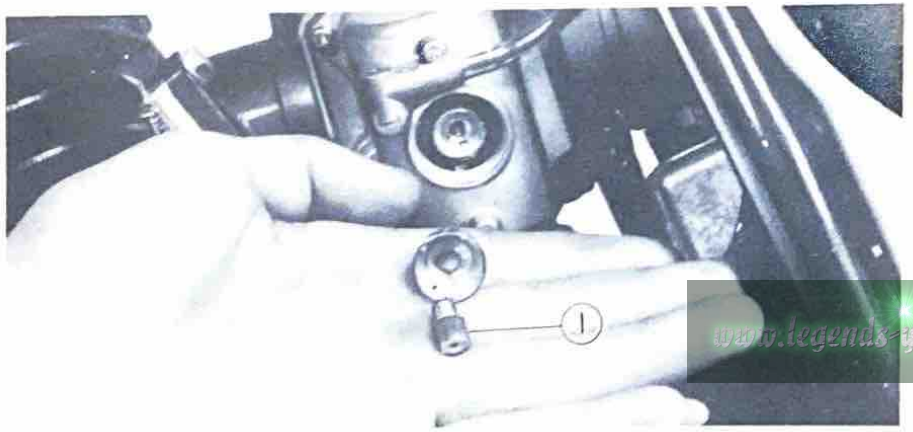
WARNING

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.

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

Main jet: # 190



1 Main jet

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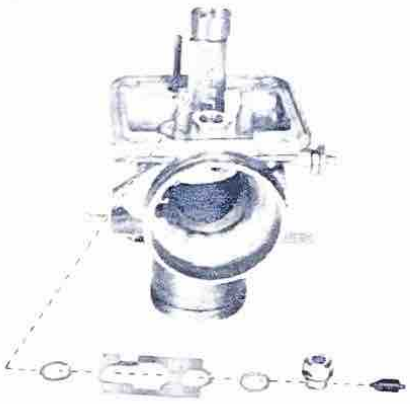
2. Inspection

a. 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.

b. Examine condition of floats. If floats are leaking or damaged, they should be replaced.

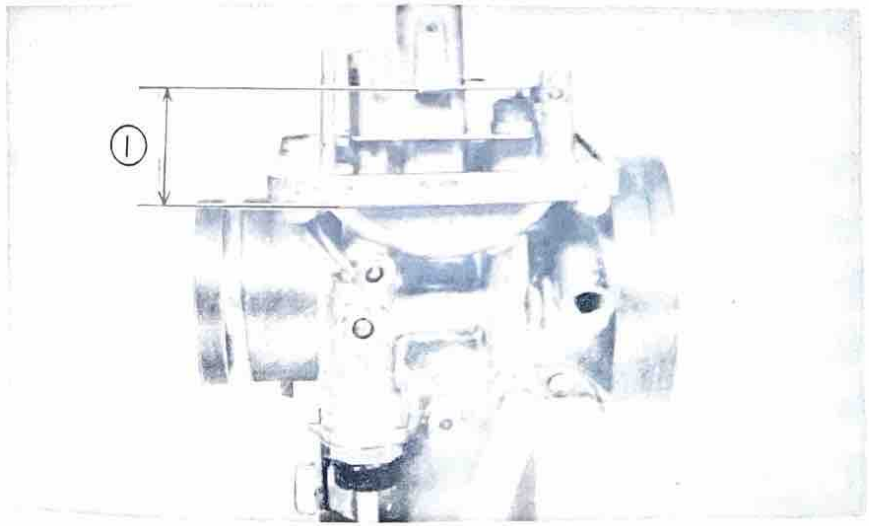
c. Inspect inlet needle valve and seat for wear or contamination. Replace these components as a set.



3. **Adjustments**

a. Float level adjustment

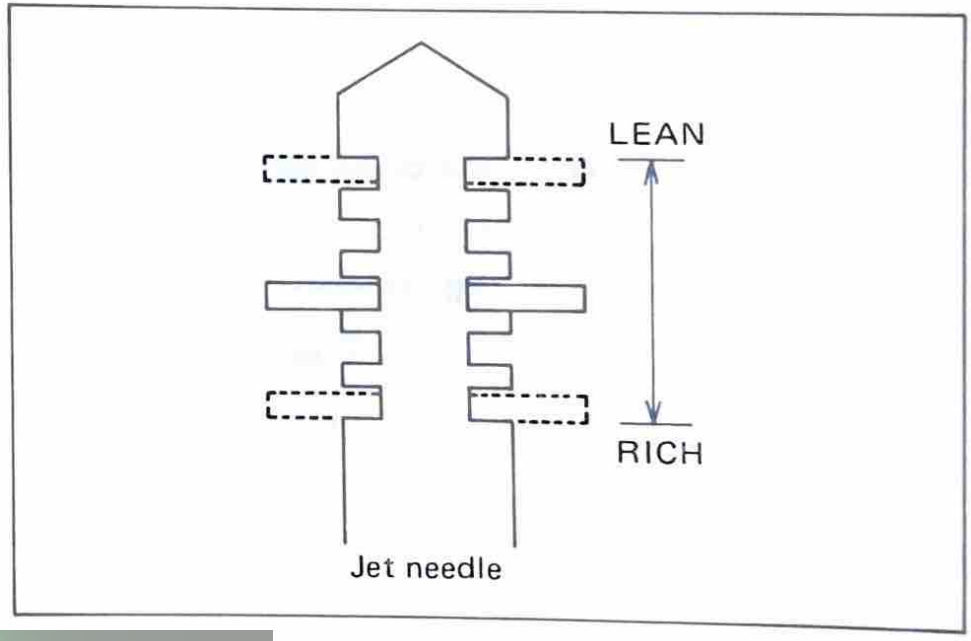
Measure the distance from the float arm to the float bowl gasket surface. Bend the tang on the float arm if any float level adjustment is necessary. Both float arm must be at the same height. If the fuel level is too high, a rich air/fuel mixture will occur. If too low, a lean mixture will result.



1. Float arm height

b. 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.



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4. TROUBLESHOOTING

A Motocross 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.

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NOTE:

See MECHANICAL ADJUSTMENTS for additional carburetor adjustments.

Idle Air Mixture 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.

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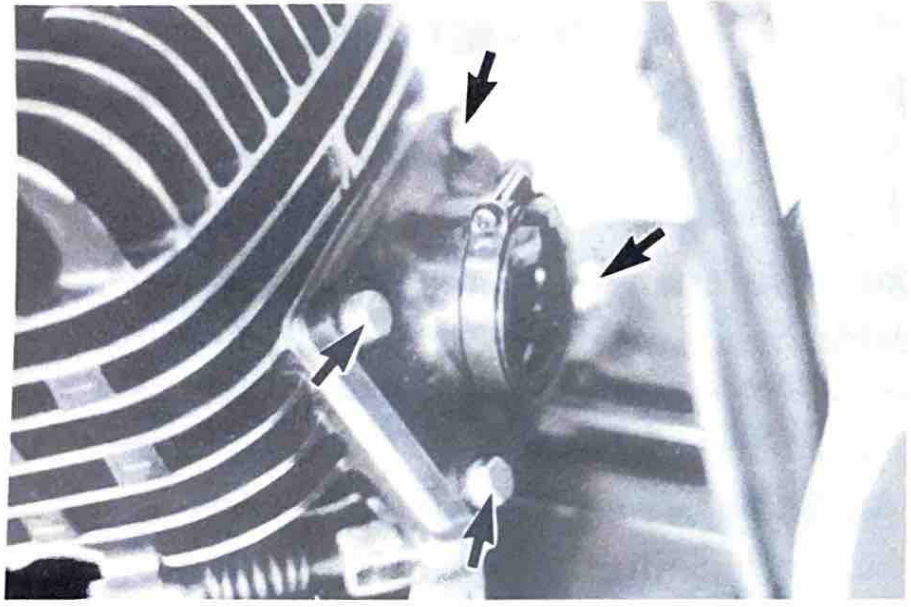
Reed Valve

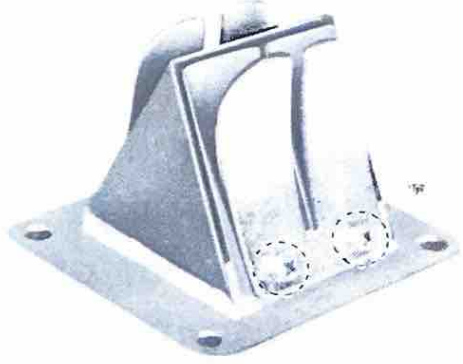
a. With carburetor removed, remove the four bolts holding the intake manifold and reed valve assembly to the cylinder. Remove the reed valve assembly.



b. Inspect reed petals for signs of fatigue 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.

c. If disassembly of the reed valve assembly is required, proceed as follows:

1) Remove philips screws (2) securing stopper plate and reed to reed block. Handle reed carefully. Avoid scratches and do not bend. Note from which side of the reed block the reed and stopper plate were removed. Reinstall on same side.



2) During reassembly, clean reed block, reed, and stopper plate thoroughly.

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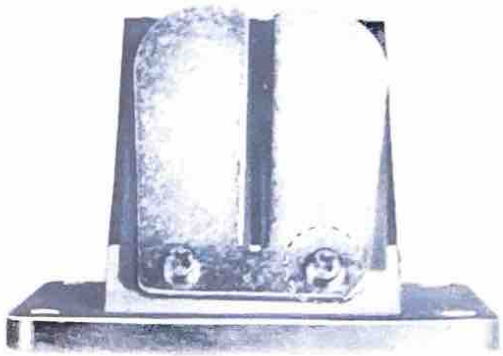
Apply a holding agent, such as "Lock-Tite," to threads of phillips screws. Tighten screws gradually to avoid warping, then tighten the screws thoroughly.

CAUTION:

Do not over-tighten securing screws or stopper plates may warp.

Securing screw torque:
8.0 cm-kg (6.9 in-lb)



NOTE:

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

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

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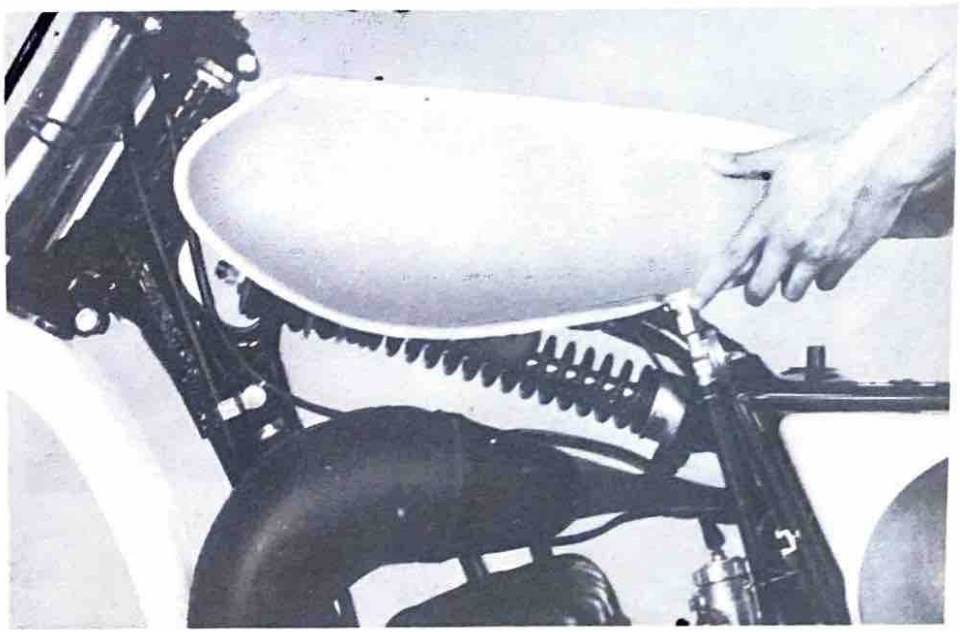
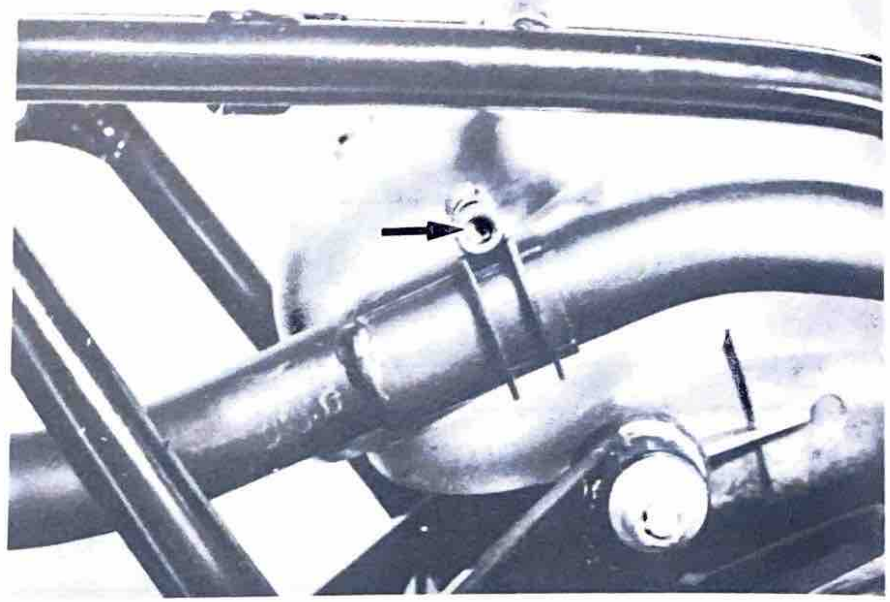
TOP END AND MUFFLER

Muffler, Head, and Cylinder Removal (Carburetor Removed)

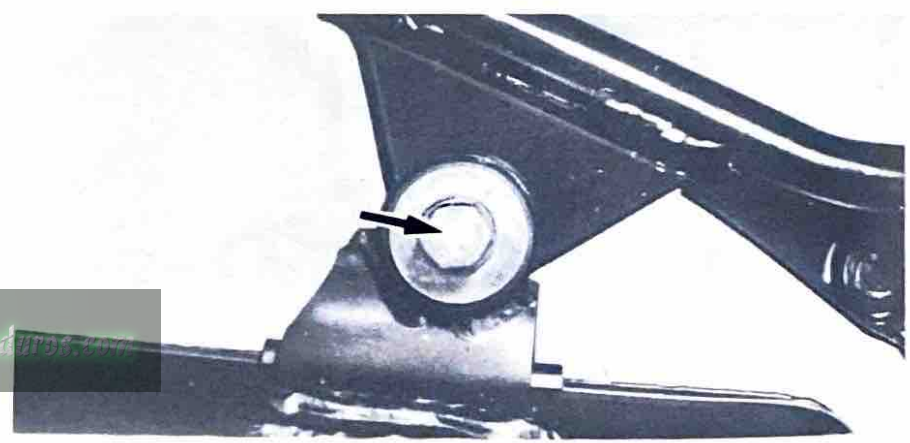
a. Remove the two bolts and remove seat.
b. Remove the securing bolt from fuel tank.
c. Lift rear of fuel tank up and pull back to clear frame mounts. Remove tank.



d. Loosen the muffler and silencer joint band.



e. Remove muffler and silencer mounting bolts.



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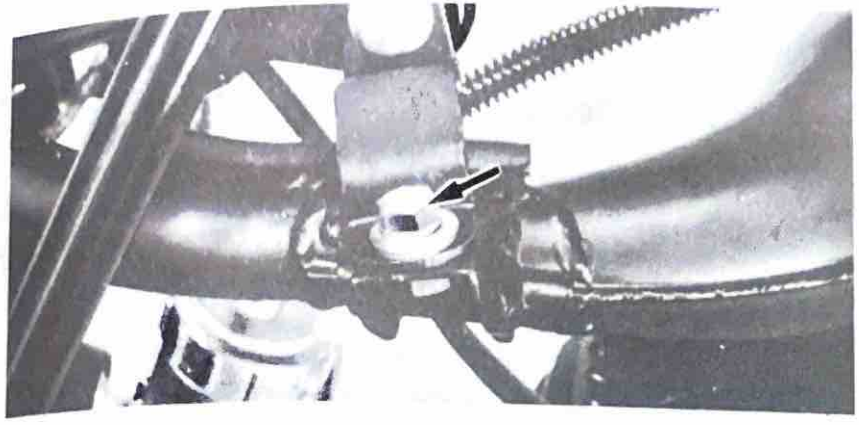
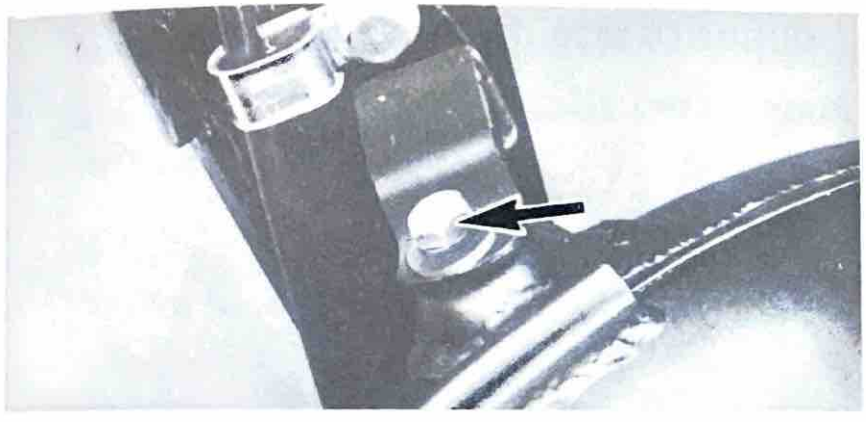
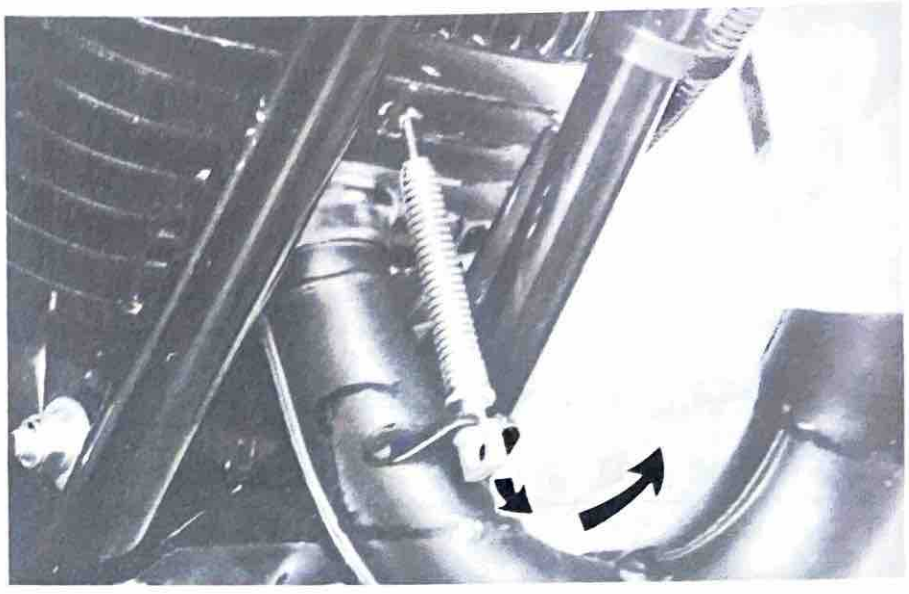
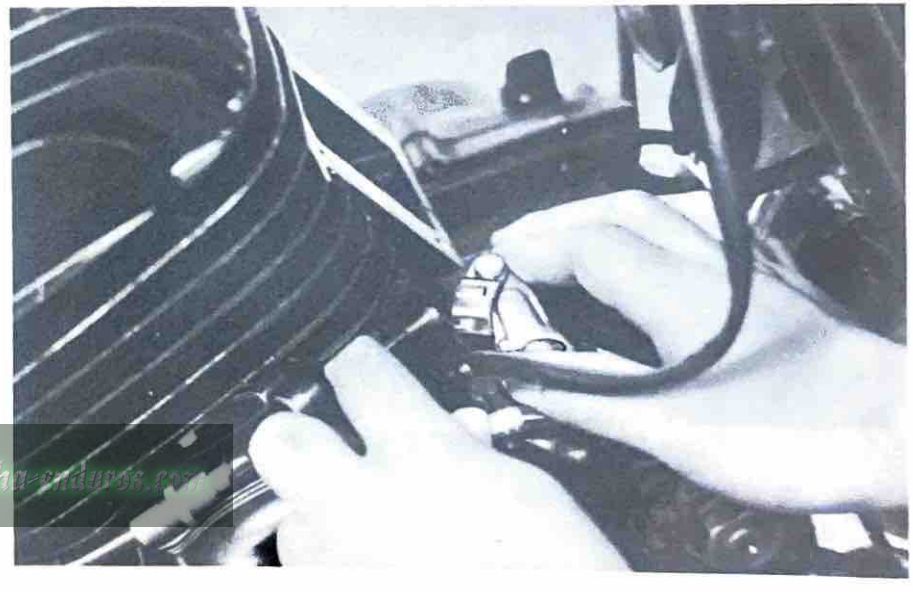




f. Remove coil spring at muffler to cylinder joint and remove muffler, and silencer.



g. Remove the clutch wire at handle lever first and then at clutch push lever.



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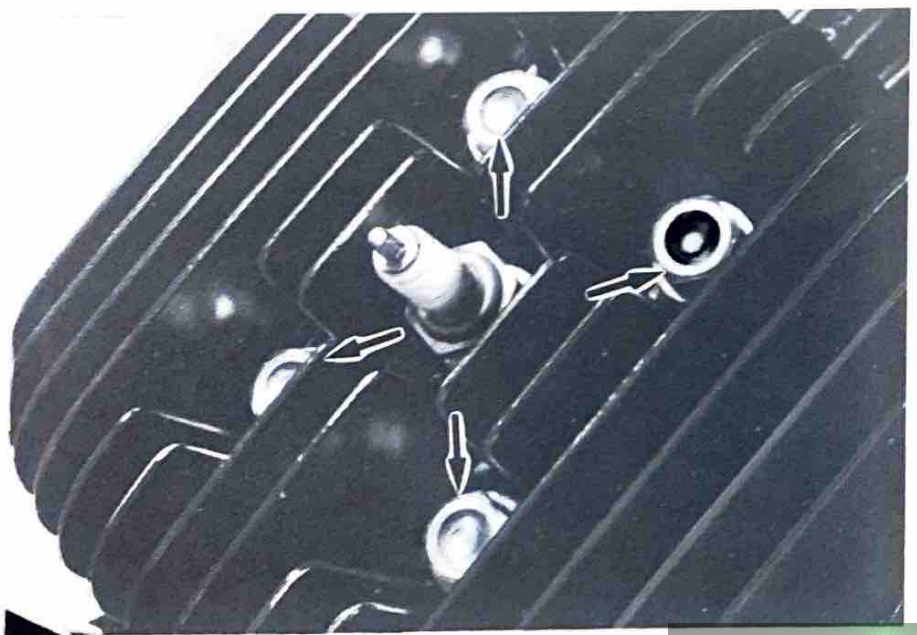
h. Remove spark plug lead wire. Loosen, but do not remove spark plug.

i. Remove nuts securing cylinder and head (4 nuts). Remove cylinder head and gasket.

NOTE:

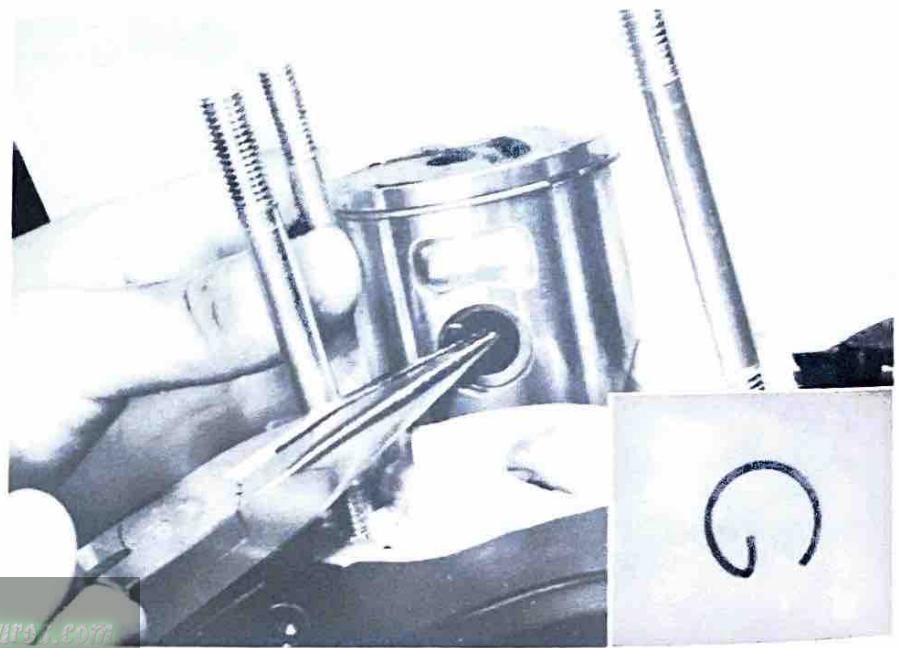
Break each nut loose (1/4 turn) prior to removing.



Cylinder and Piston Removal

a. With the piston at top dead center, raise 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.

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



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NOTE:

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

Maintenance

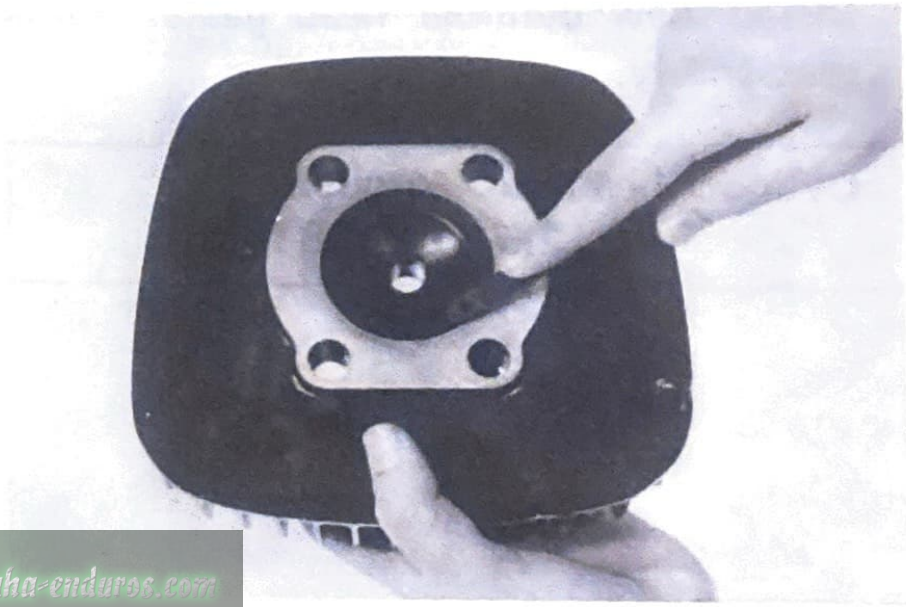
Exhaust Pipe

Accumulations of carbon and other residue can cause damaging conditions in the combustion chamber area and impair performance of the exhaust pipe.

a. Using a rounded scraper, remove excess carbon deposits from manifold area of exhaust pipe.
   Check muffler gasket condition. The gasket seat is located around the cylinder exhaust port.
b. 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.
c. Reinstall muffler.

Cylinder Head

a. 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.



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b. Place the head on a surface plate. There should be no warpage. Correct by re-surfacing. 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.

c. Clean the spark plug gasket mating surface thoroughly.

d. Wash the head in solvent and wipe dry.

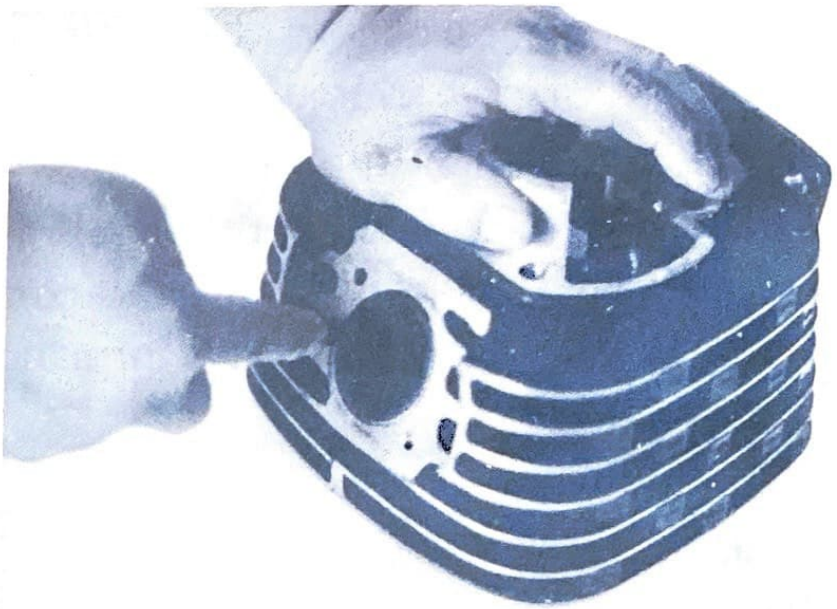
e. Install new cylinder head gasket during reassembly.

Cylinder head nuts torque:
2.5 m-kg (18 ft-lb)

Cylinder

a. Remove reed valve assembly.

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



c. Remove cylinder base gasket and clean gasket seat on cylinder and crankcase thoroughly.

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d. Hone cylinder bore using a hone with fine stones. Hone no more than required to remove all wear marks.

e. 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.

Standard bore: 50 mm (1.97 in)
Max. allowable taper: 0.05mm (0.002 in)
Max. allowable out-of-round: 0.01mm (0.004 in)

f. Clean cylinder in solvent, then wash with hot soapy water. Dry. Coat walls with light oil film.

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

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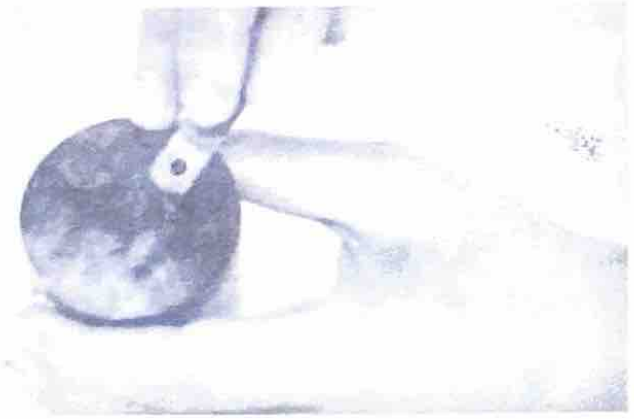
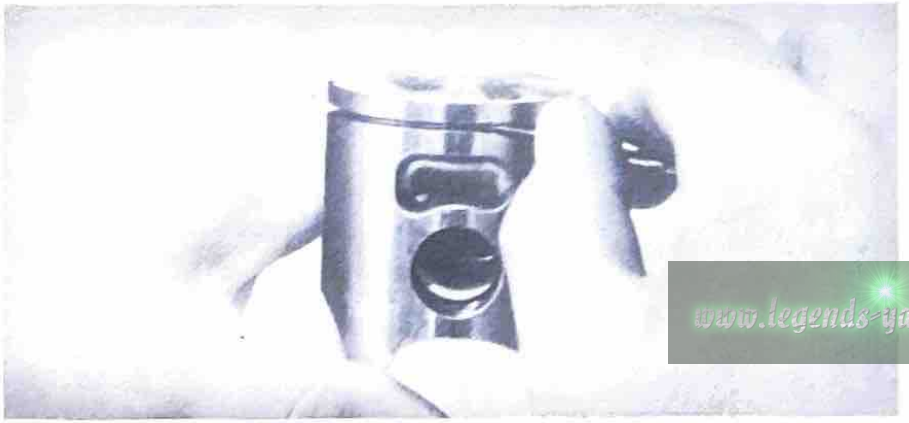
Piston (see also Piston Ring)

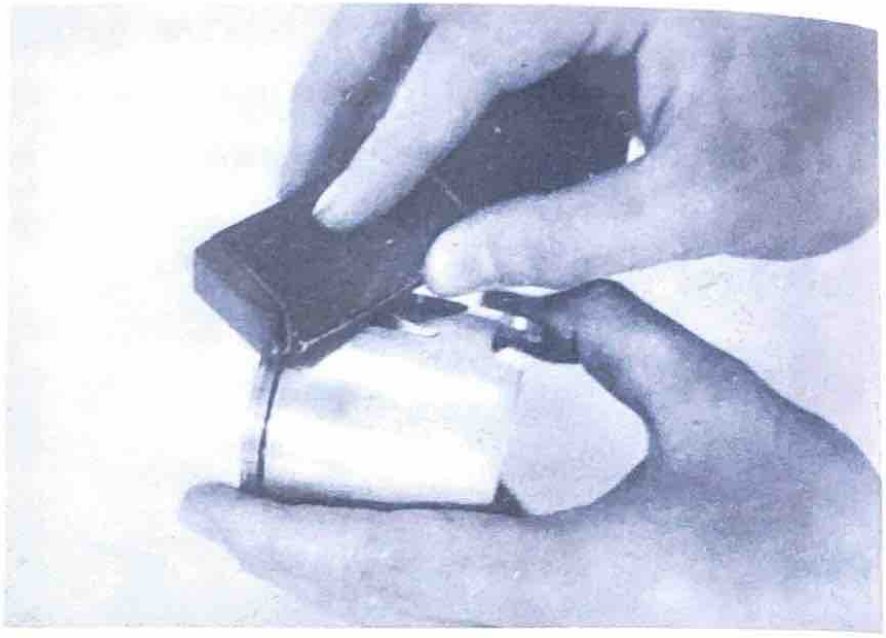
a. Using a rounded scraper, remove carbon deposits from piston crown.



b. Break a used piston ring in two. File end square. De-burr edges to avoid scratching ring groove and clean carbon deposits from ring groove.



c. 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.



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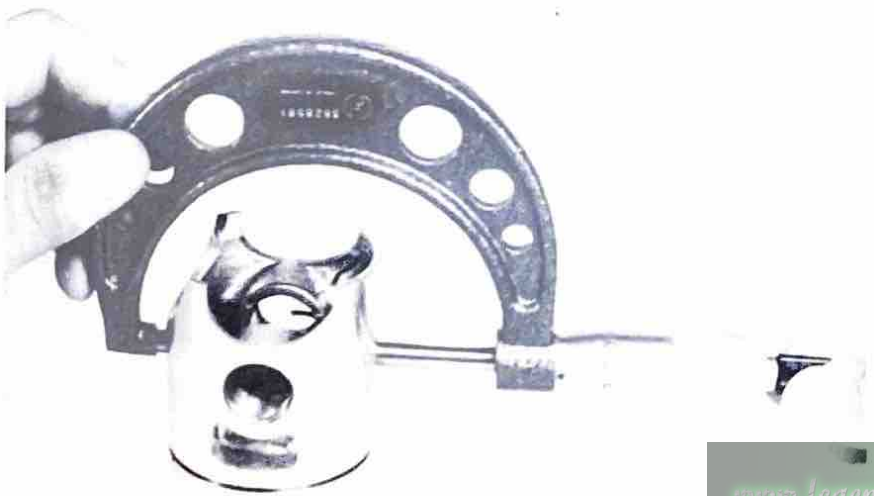
d. Wash piston in solvent and wipe dry.

e. Using an outside micrometer, measure piston diameter. The piston is cam-ground and tapered. The only measuring point is at right-angles to the piston pin holes, 0.7 in (18.0 mm) 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 maximum diameter subtracted from minimum cylinder diameter gives piston clearance. If beyond tolerance, replace piston or rebore cylinder as required.

Nominal piston clearance:
0.045–0.050mm (0.0018–0.0020 in)
Maximum wear limit:
0.1 mm (0.0039 in)

f. During re-assembly, coat the piston skirt areas liberally with two-stroke oil.

g. Install new piston pin circlips and make sure they are fully seated within their grooves.

h. 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.

i. Make sure the ring is properly seated as the cylinder is installed.

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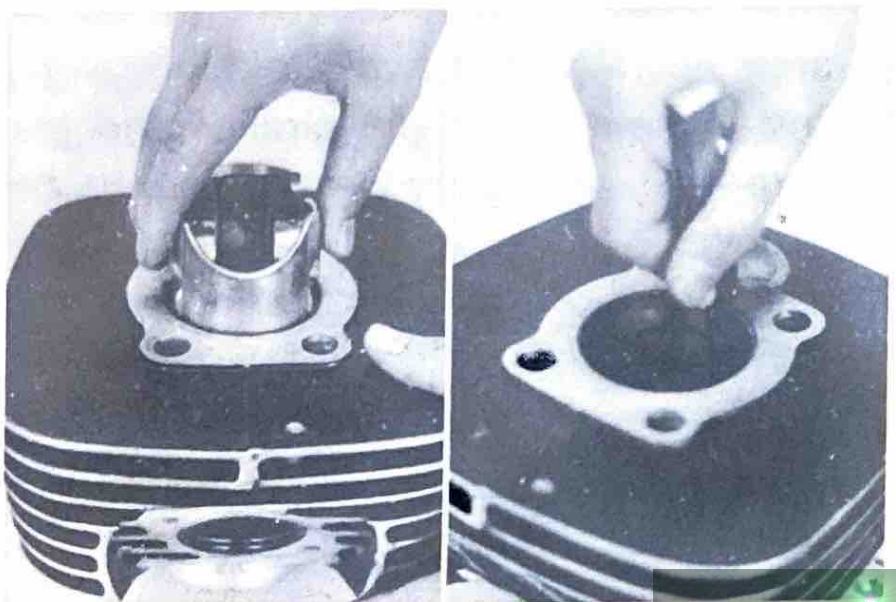
Piston Ring

a. Insert ring into cylinder. Push down approximately 3/4" (20mm) using piston crown to maintain right angle to bore. Measure installed end gap. If beyond tolerance, replace.

Ring end gap, installed:
0.3 – 0.5 mm (0.012 – 0.020 in)



b. 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 ring.

c. During installation, make sure ring ends are properly fitted around ring location 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.

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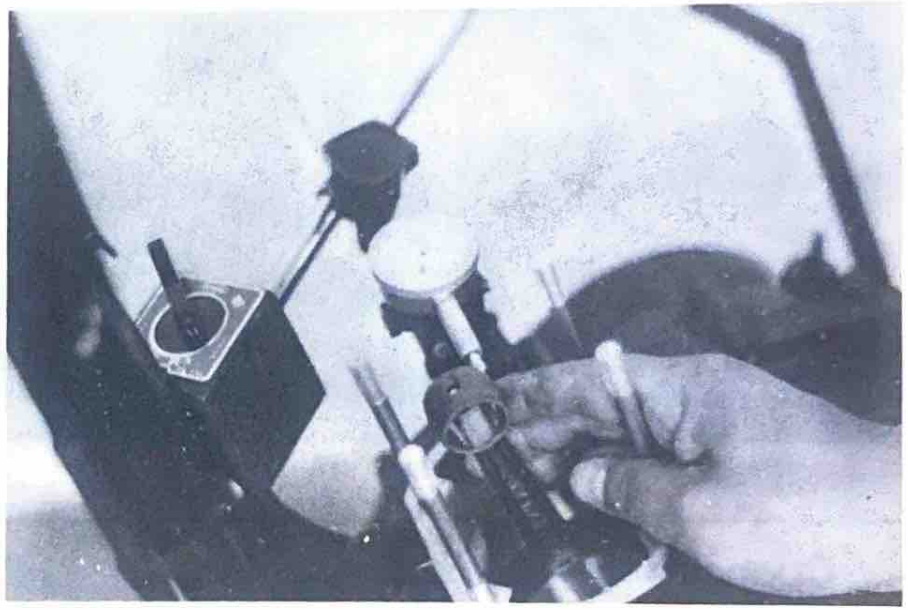
Piston pin, Bearing and Connecting Rod

a. Check the pin for signs of wear. If any wear is evident, replace pin and bearing.
b. Check the pin and bearing for signs of heat discoloration. If excessive (heavily blued), replace both.
c. Check the bearing cage for excessive wear. Check the rollers for signs of flat spots. If found, replace pin and bearing.
d. 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 and wear. Replace pin and bearing or all as required.

e. 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:
0.8 – 2.0 mm (0.031 – 0.079 in)



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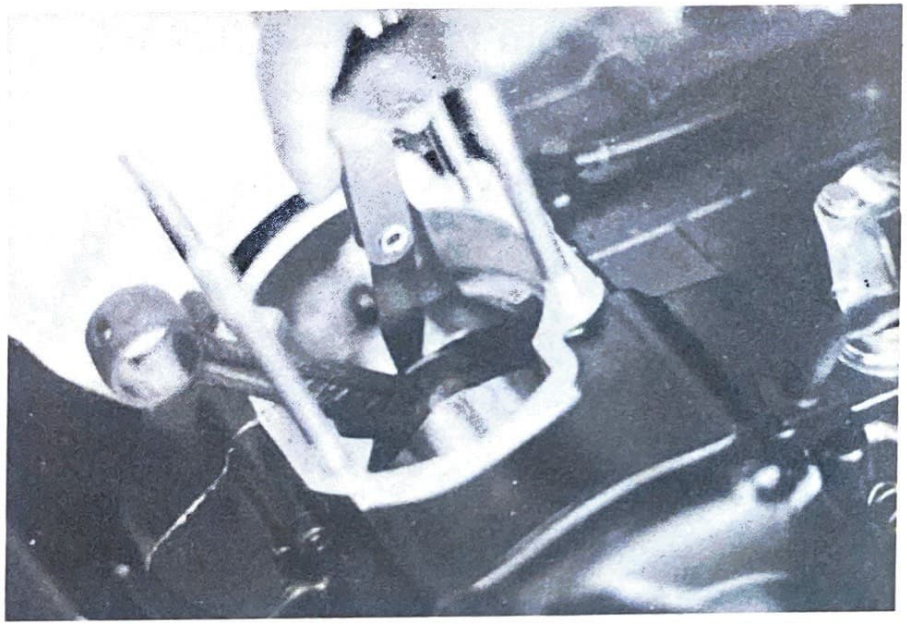
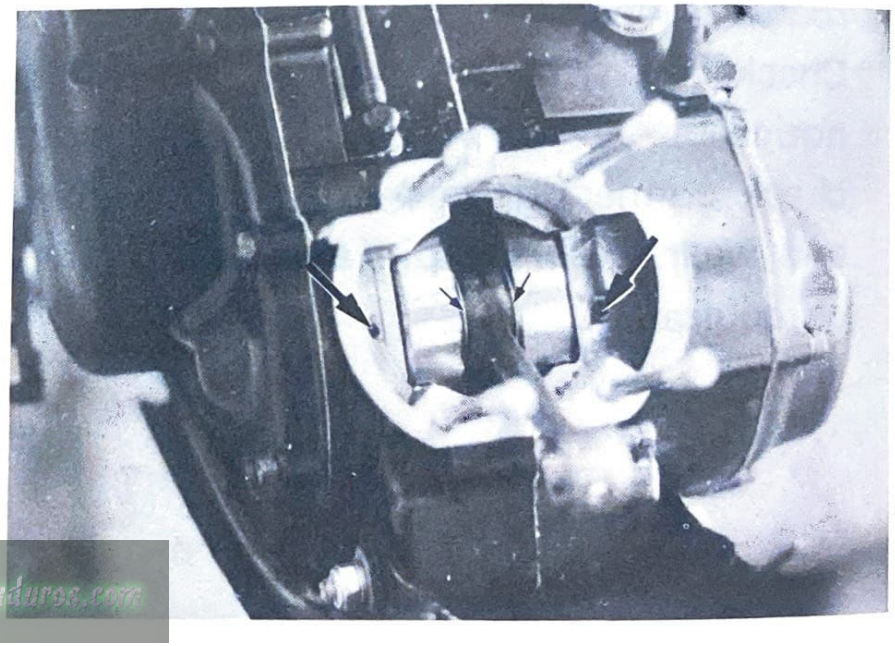
f. Remove the dial gauge and slide the connecting rod to one side. Insert a thickness gauge between the side of the connecting rod big end and the crank wheel. Measure clearance.



Connecting rod/crank clearance:
0.2 – 0.7 mm (0.008 – 0.028 in)

g. If any of the above measurements exceed tolerance, crankshaft repair is required. Take the machine to your Authorized Dealer.

h. 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.



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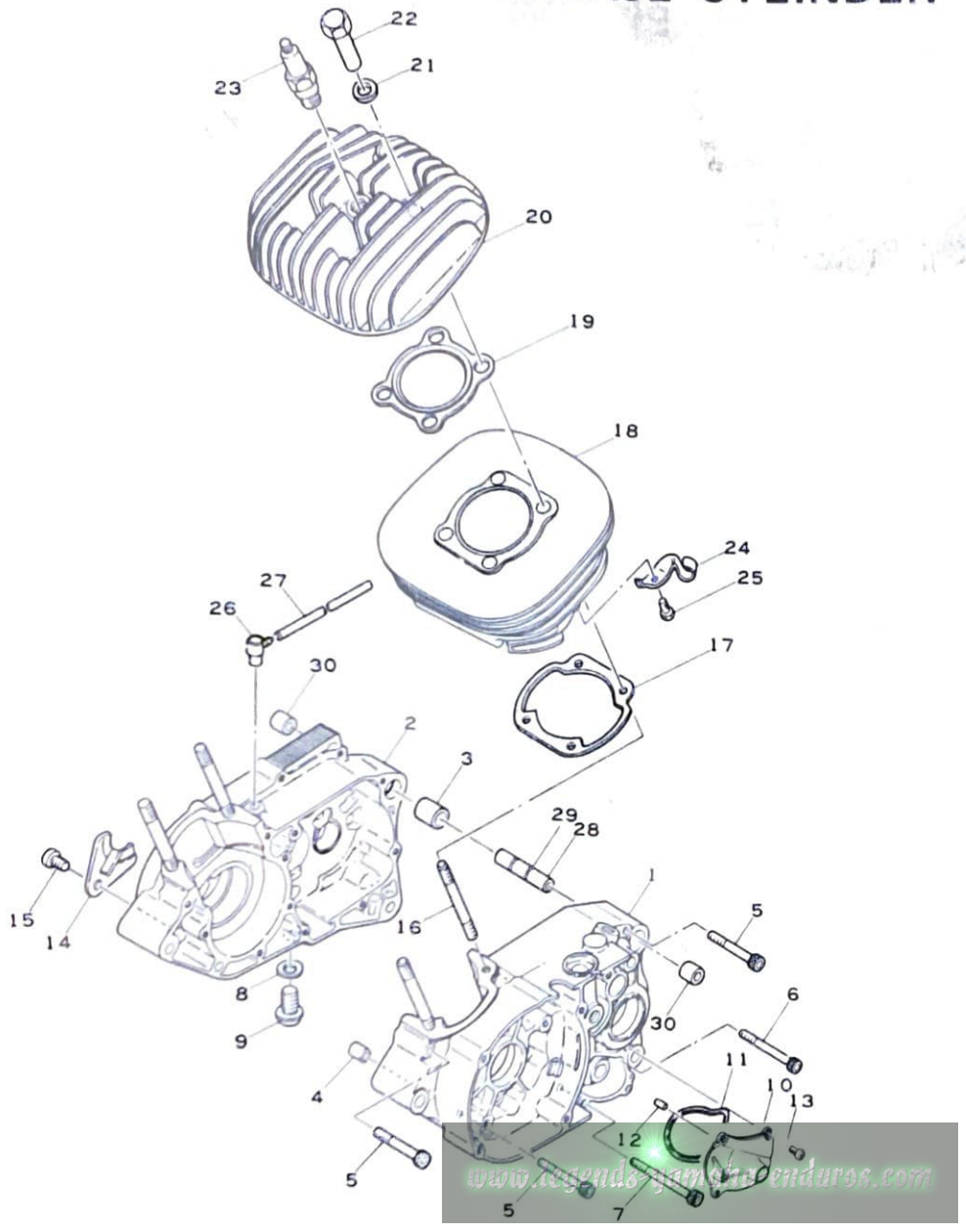
CRANKCASE · CYLINDER



1. Crank left case
2. Crank right case
3. Dowel pin
4. Dowel pin
5. Hexagon socket head bolt
6. Hexagon socket head bolt
7. Hexagon socket head bolt
8. Gasket
9. Straight plug
10. Shifter cover
11. Rubber ring
12. Dowel pin
13. Panhead screw
14. Right holder
15. Panhead screw
16. Stud bolt
17. Cylinder gasket
18. Cylinder
19. Cylinder head gasket
20. Cylinder head
21. Plate washer
22. Nut
23. Spark plug
24. Clutch wire holder
25. Bolt
26. Breather
27. Hose
28. Engine mount spacer
29. O-ring
30. Engine mount damper

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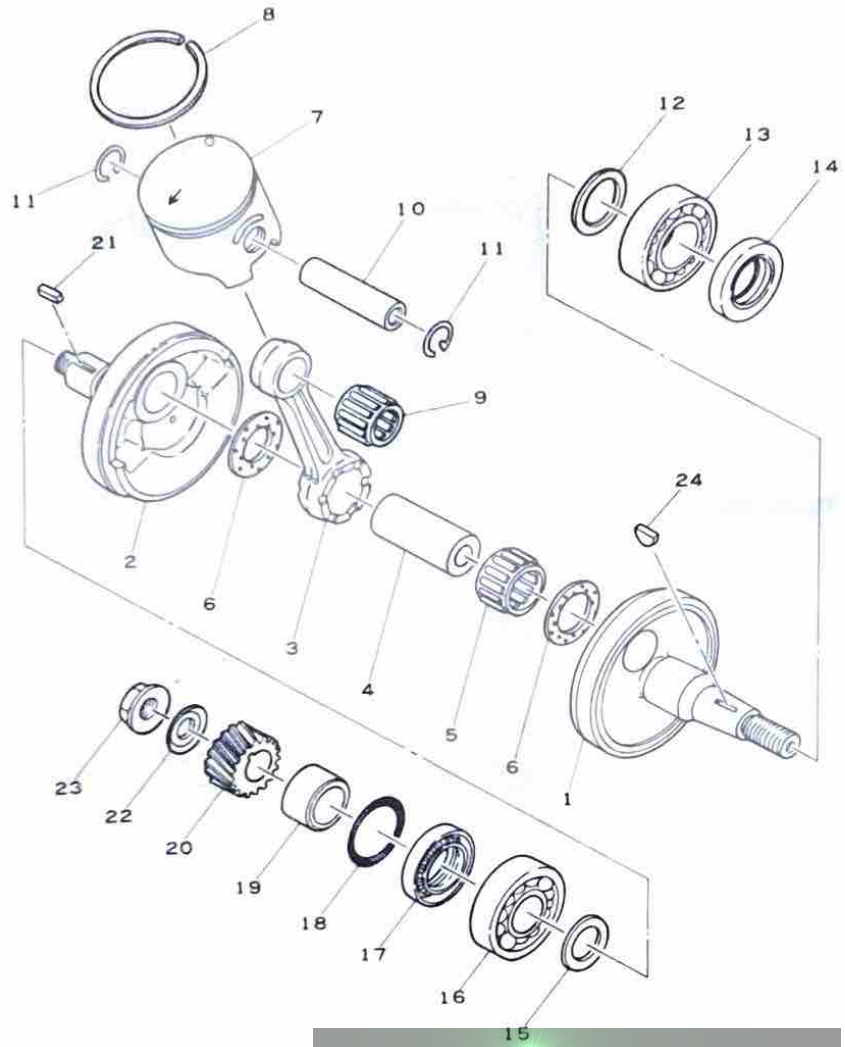
CRANK · PISTON



1. Left crank
2. Right crank
3. Connecting rod
4. Crank pin
5. Con-rod big end bearing
6. Washer
7. Piston
8. Piston ring
9. Con-rod small end bearing
10. Piston pin
11. Circlip
12. Crank shim
13. Bearing
14. Oil seal
15. Crank shim
16. Crank bearing
17. Oil seal
18. O-ring
19. Distance collar
20. Primary drive gear
21. Straight key
22. Washer
23. Nut
24. Woodruft key

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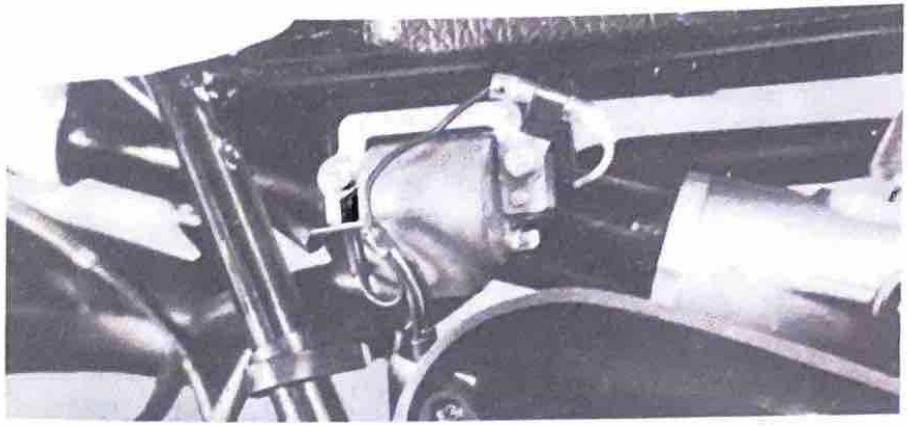
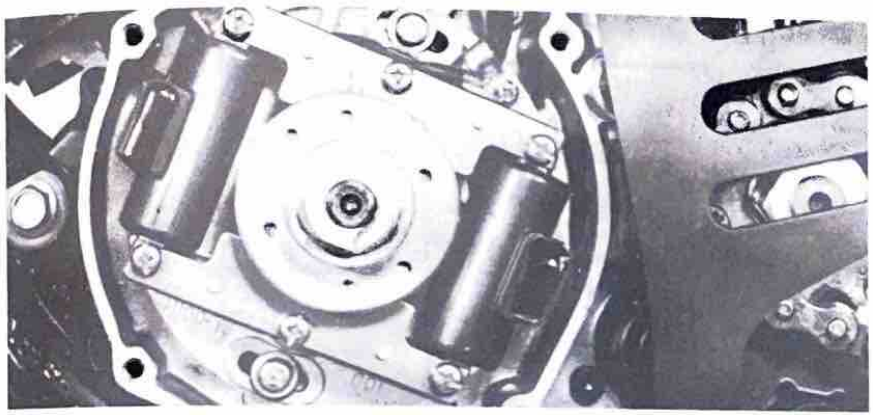
IGNITION

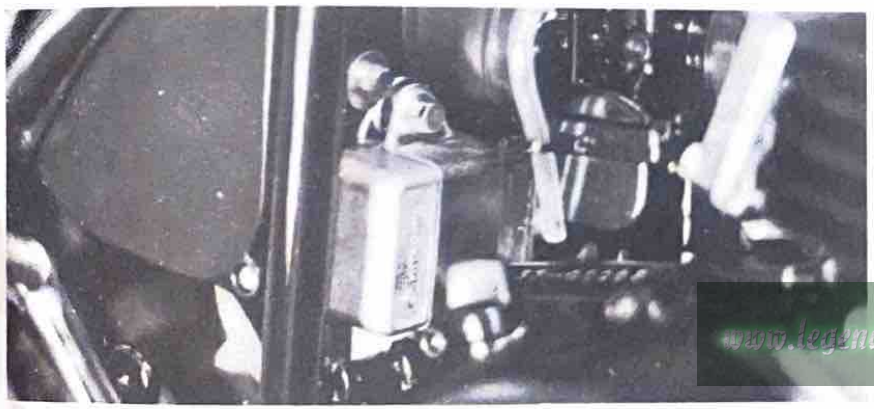
C.D.I. Ignition Requires No Periodic Maintenance.

1. Location of Components

The system consists of a magneto, a coil and a CDI unit. The magneto is located on the left side of the engine. The CDI unit is located under the air cleaner case, and coil is mounted on the frame behind the side cover (L).







The Engine Stop switch is located on the left handle bar.

2. Troubleshooting

a. Check for spark at spark plug—if no spark, check connectors.

b. If connections are clean and tight, refer to Mechanical Adjustments, Ignition Timing. Ensure that the timing is correct. Any further troubleshooting of the CDI system must be performed by your Yamaha Dealer.

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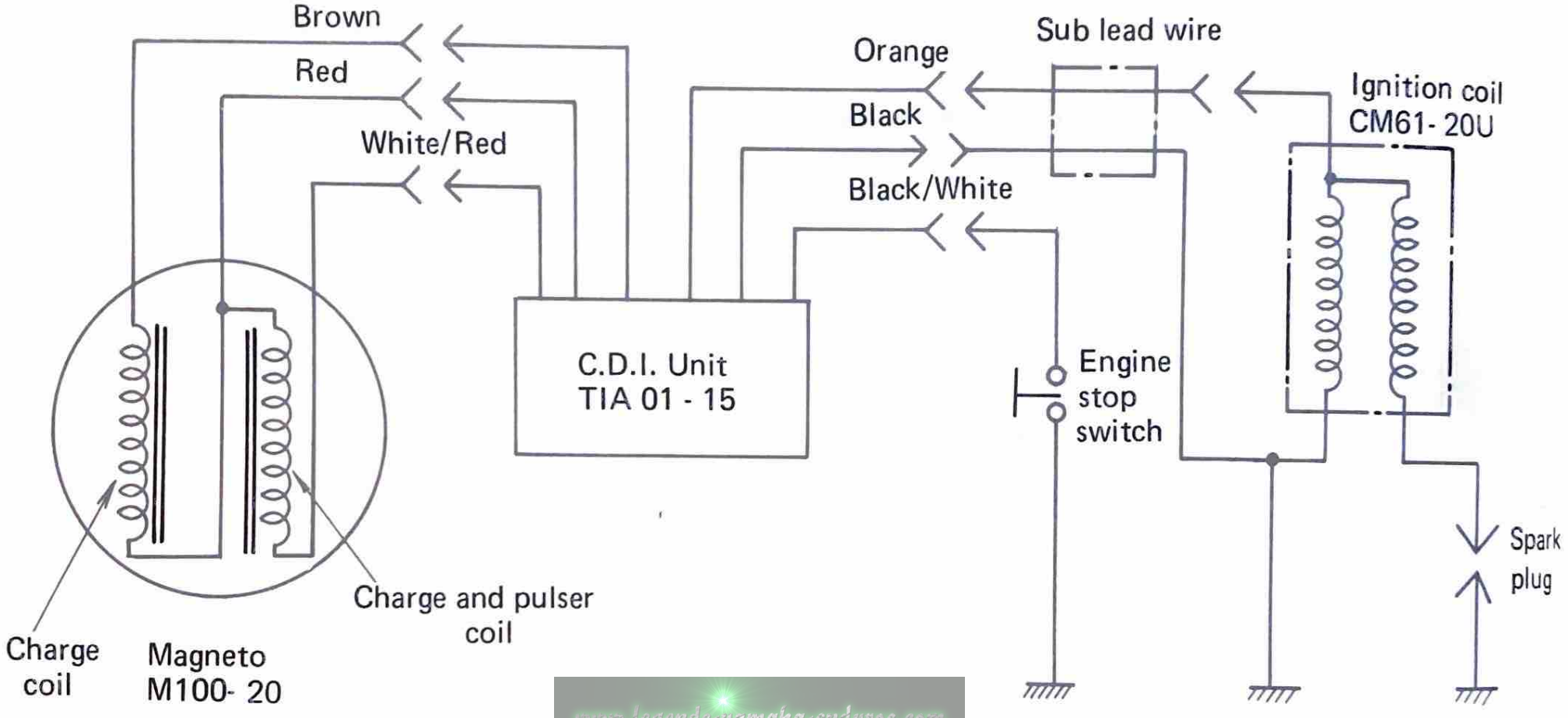
3. Wiring Diagram



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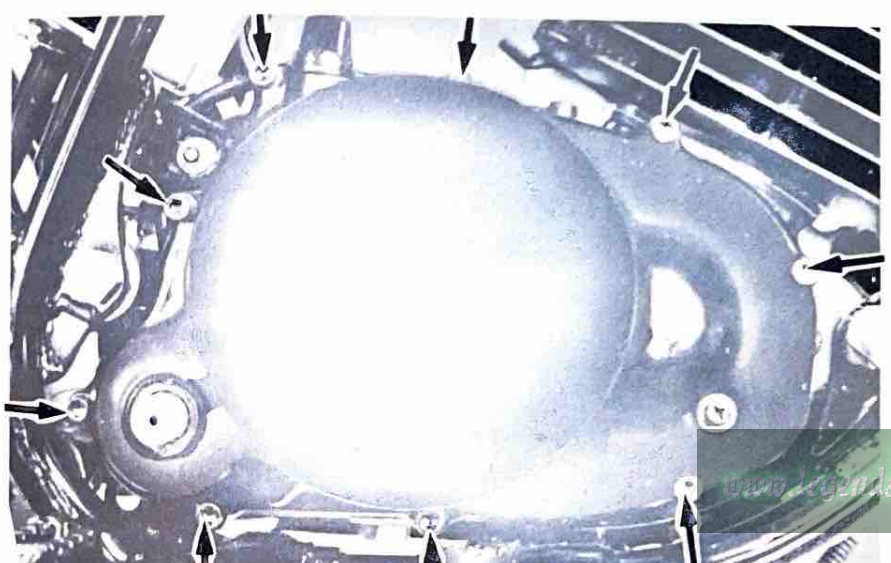
NOTE:

Clutch adjustment is covered in Chapter V, "Mechanical Adjustments".

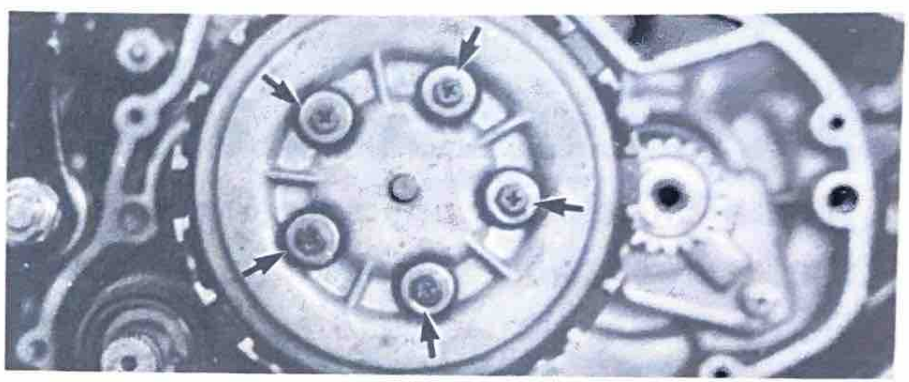
Kick Starter and Crankcase Cover (R) Removal

a. Remove the oil plug and drain plug, and drain the transmission oil.
b. Remove the kick starter lever.
c. Remove the Allen bolts holding the side cover in place and remove the cover. Note the position of the dowel pins.



Clutch and Kick Axle Assembly Removal

a. Repeat steps Kick Starter and Crank case cover (R) Removal.
b. Remove the Phillips screws (5) 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 with the assembly.

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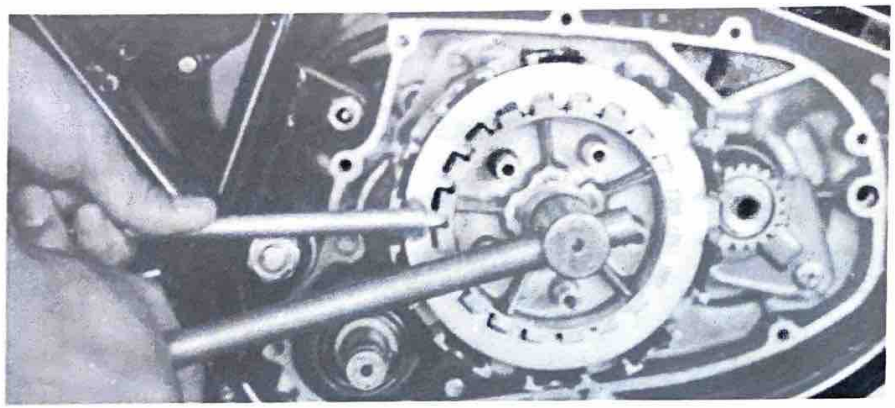
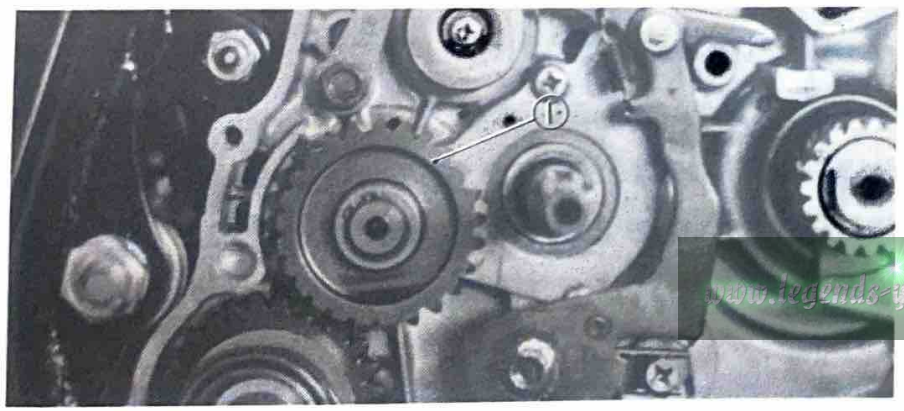
c. Using the clutch holding tool, remove the clutch securing nut and lock washer. Remove the clutch boss and driven gear (clutch housing).



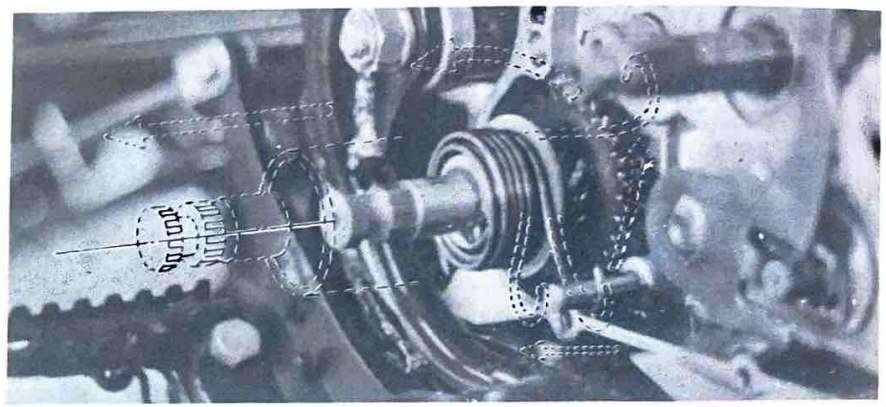
d. If the clutch housing spacer remains on the transmission main shaft, remove it. Remove the thrust plate and thrust plate spacers.



1. Kick idle gear

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

f. Unhook the kick spring from its post in the crankcase. Allow it to relax. Then remove the kick axle assembly by rotating the shaft counter clockwise and then pulling out the entire assembly. Check to see that the kick gear spirals freely on the worm shaft. Check the gear teeth for wear and breakage.



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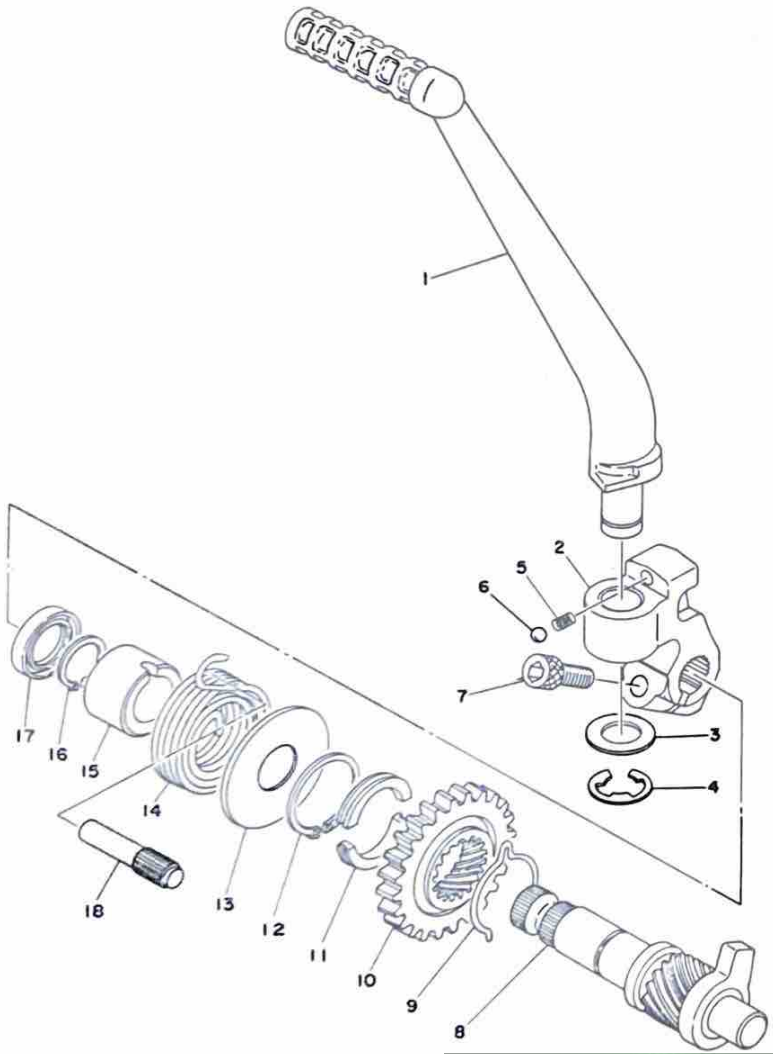
KICK STARTER



1. Kick crank
2. Kick crank boss
3. Plate washer
4. Circlip
5. Stopper spring
6. Stopper ball
7. Bolt
8. Kick axle ass'y
9. Clip
10. Kick gear
11. Kick gear holder
12. Circlip
13. Spring cover
14. Return spring
15. Spacer
16. Circlip
17. Oil seal
18. Kick spring stopper

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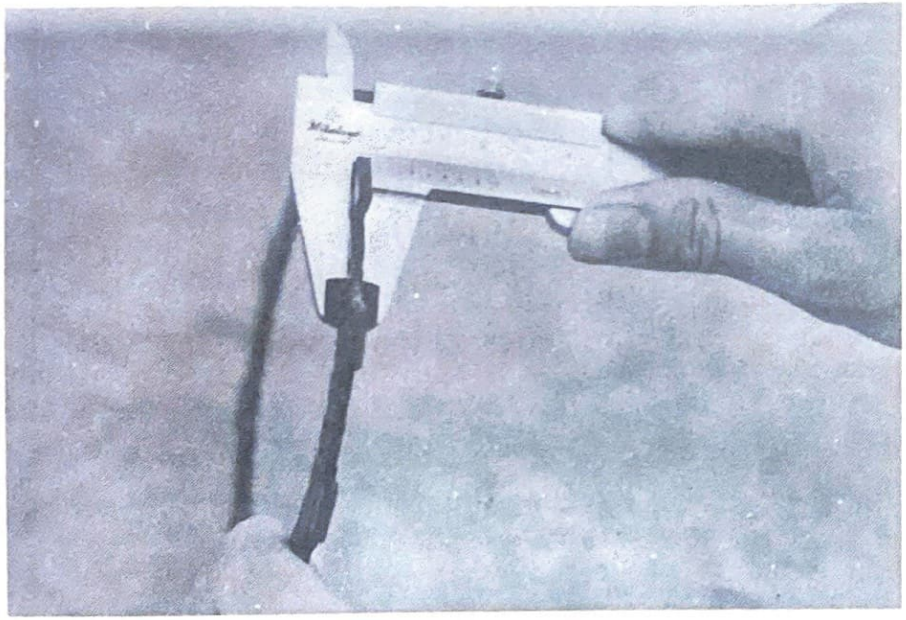
Troubleshooting–Clutch Assembly

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

	New	Wear Limit
Friction plate thickness	3.0 mm (0.12 in)	2.7 mm (0.11 in)



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

NOTE:

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

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

Clutch plate warp allowance: 0.05 mm

d. Thoroughly clean the clutch housing and spacer. Apply a light film of oil on the bushing surface and spacer. Fit the spacer into the bushing. It should be a smooth, thumb-press fit. The spacer should rotate smoothly within the bushing. If necessary, replace spacer or clutch housing.

e. Check the bushing and spacer for signs of galling, heat damage, etc. If severe, replace as required.

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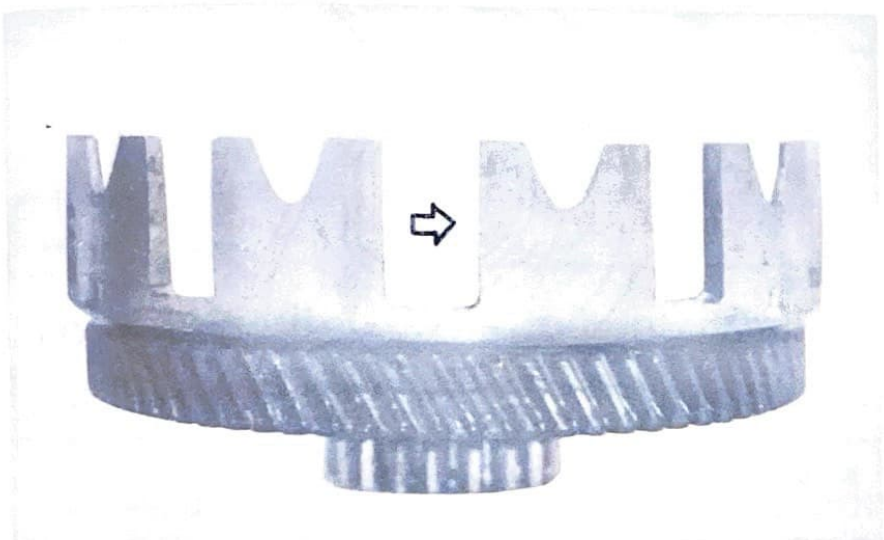
f. Apply thin coat of oil on transmission main shaft and bushing spacer I.D. Slip spacer over main shaft. Spacer should fit with approximately same "feel" as in clutch housing. Replace as required.

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



h. Check splines on clutch boss for signs of galling. If moderate, deburr. If severe, replace.

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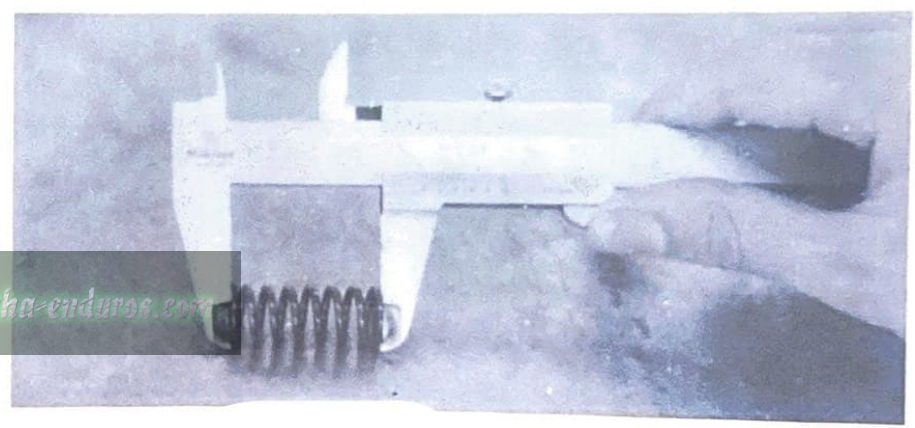
NOTE:

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

i. Fit the clutch thrust plate with a light film of oil on all parts. Check for smooth rotation. Check for signs of excessive wear, all parts. Replace as necessary.

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

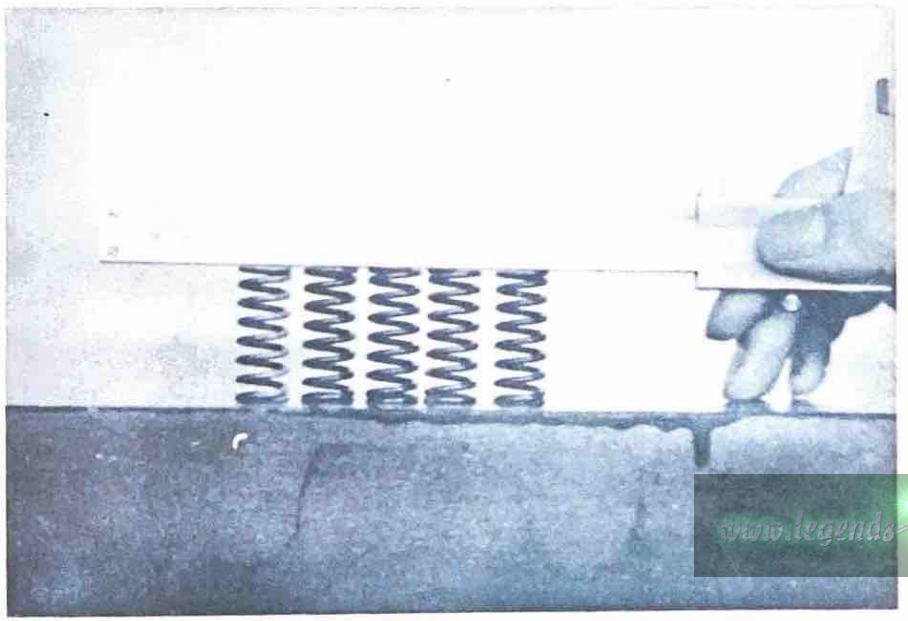
	New	Minimum
Clutch spring free length	36 mm (1.42 in)	35 mm (1.38 in



m. Stack the clutch spring set on a level surface. Rotate each spring until all are at approximately the same vertical angle and maximum apparent height. Place straight edge across set. If any spring exceeds tolerance, replace that spring.

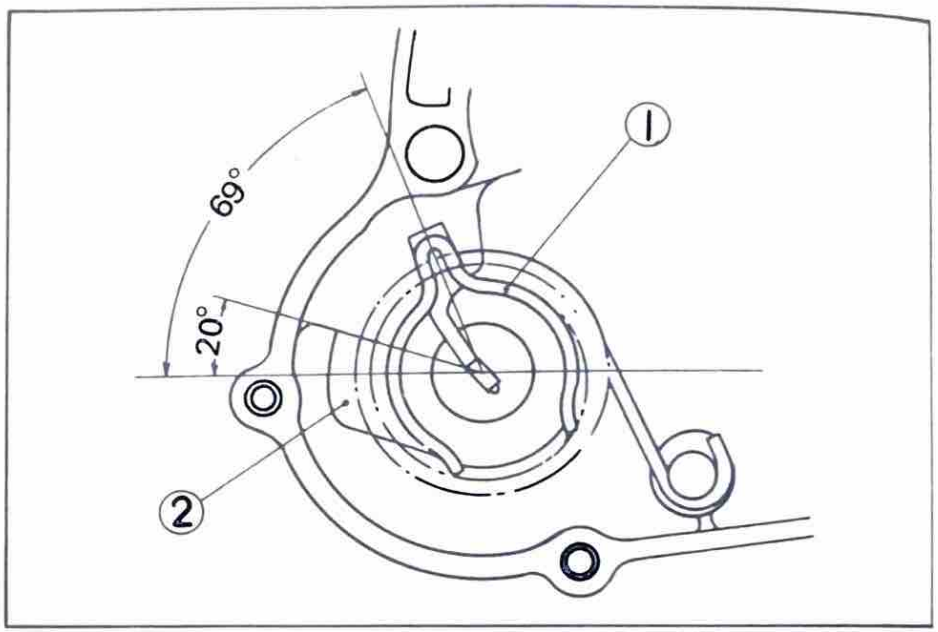
NOTE:

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



Reassembly

a. Install the kick starter assembly.
   (1) Set the kick gear clip in the groove of crankcase.
   (2) Rotate kick spring clockwise and hook it on kick spring stopper.



1. Kick gear clip 2. Kick stopper

NOTE:

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

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

b. Install kick idle gear.

c. Install clutch assembly.

(1) Install the plate washer, spacer, primary driven gear, thrust plate and clutch boss in that order.

(2) Using clutch holding tool and tighten clutch securing nut.

Clutch securing nut torque: 7m-kg (50 ft-lb)

NOTE:

Apply motor oil 10W/30 to contact surfaces of moving parts.

(3) After tightening the clutch securing nut, make sure the clutch boss turns easily.

(4) Install clutch plates and friction plates with a heavy coat of 10W/30 motor oil on their mating surfaces.

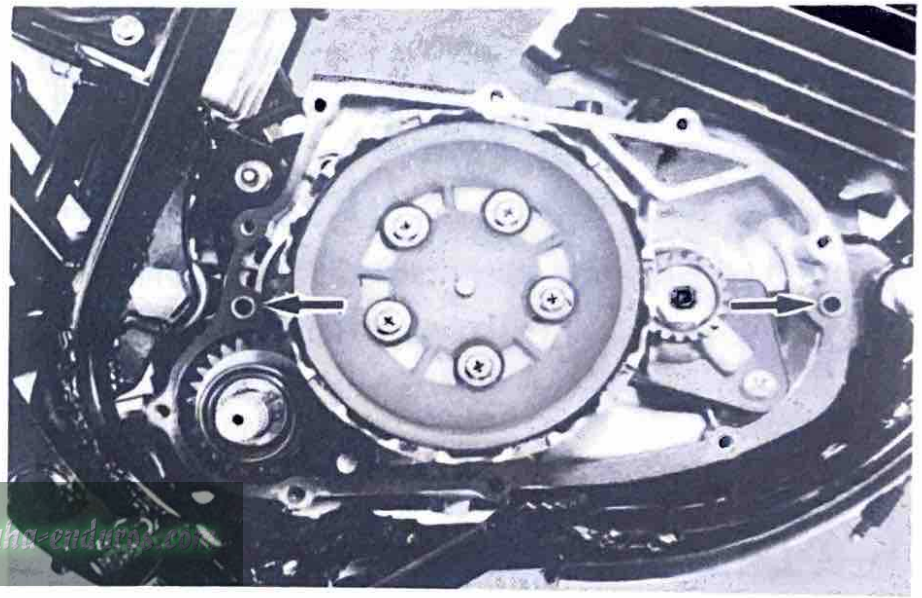
(5) Install push rod into main axle.

(6) Install clutch pressure plate.

d. Install the crankcase cover (right). Next, install kick crank assembly.

NOTE:

When installing the crankcase cover on crankcase, use a new crankcase cover gasket. Make sure two dowel pins are in place.



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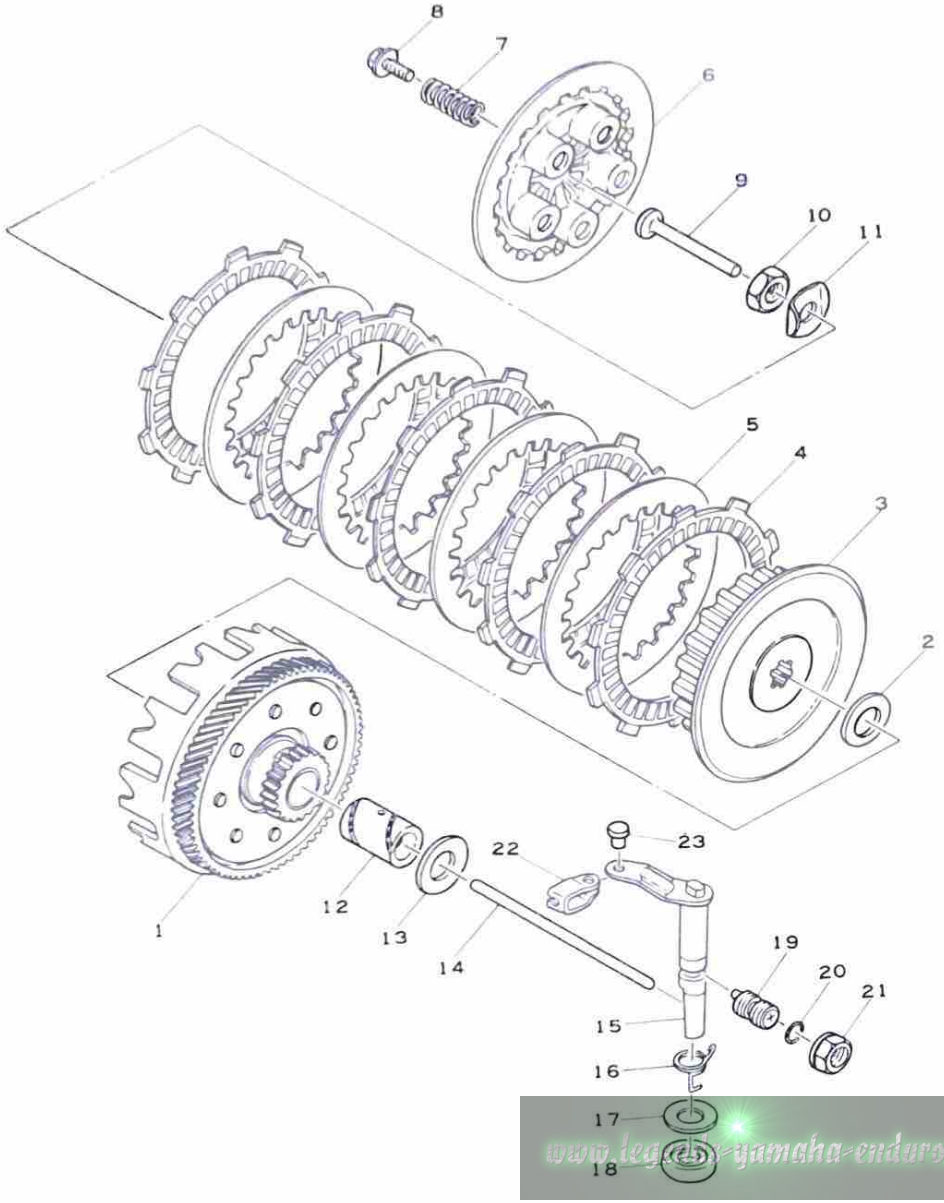
CLUTCH



1. Primary driven gear comp.
2. Thrust plate
3. Clutch boss
4. Friction plate
5. Clutch plate 2
6. Pressure plate
7. Spring
8. Hexagon bolt
9. Push rod 1
10. Hexagon nut
11. Lock washer
12. Spacer
13. Plate washer
14. Push rod 2
15. Push lever axle
16. Torsion spring
17. Plate washer
18. Oil seal
19. Screw
20. O-ring
21. Nut
22. Joint
23. Pin

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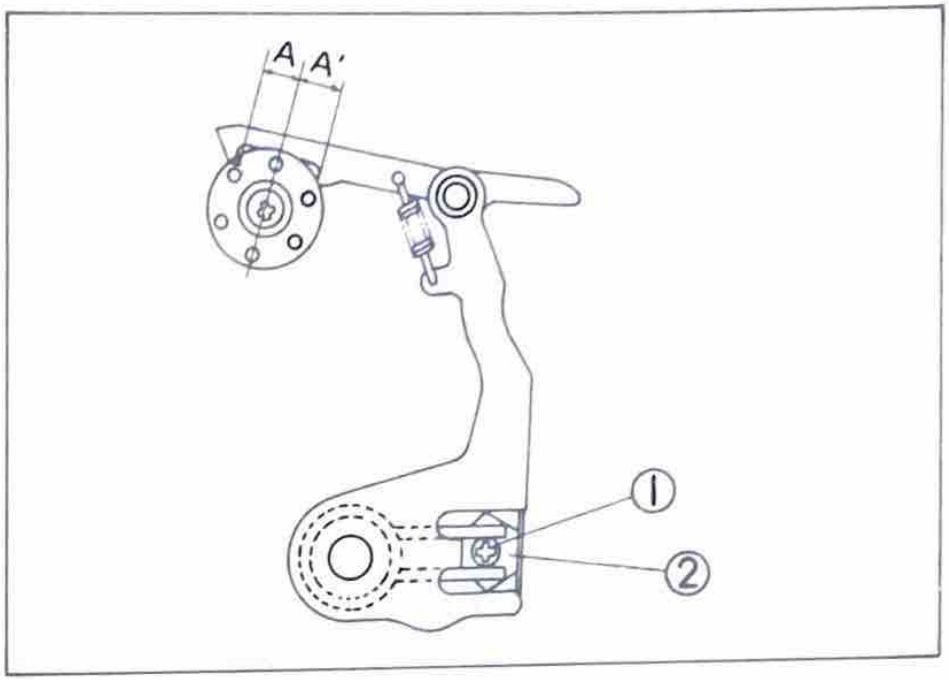
Shift Mechanism

NOTE:

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

a. Adjusting the gear shift arm.
Adjusting or correcting the travel of the gear shift arm to prevent improper shifting progression (excess feed or insufficient feed of the gear shift arm) is accomplished by turning the gear shift return spring stop screw (eccentric screw) in or out. Adjust the ecccentric screw until distance A and A' are equal. Adjust in 2nd, 3rd or 4th gear.



1. Eccentric adjusting screw 2. Locknut

DRIVE SPROCKETS AND CHAIN

NOTE:

Please refer to Maintenance Intervals and Lubrication Intervals charts located in Chapter 1 for additional information.

Drive Sprocket

a. Using a blunt chisel, flatten the drive sprocket lock washer tab.

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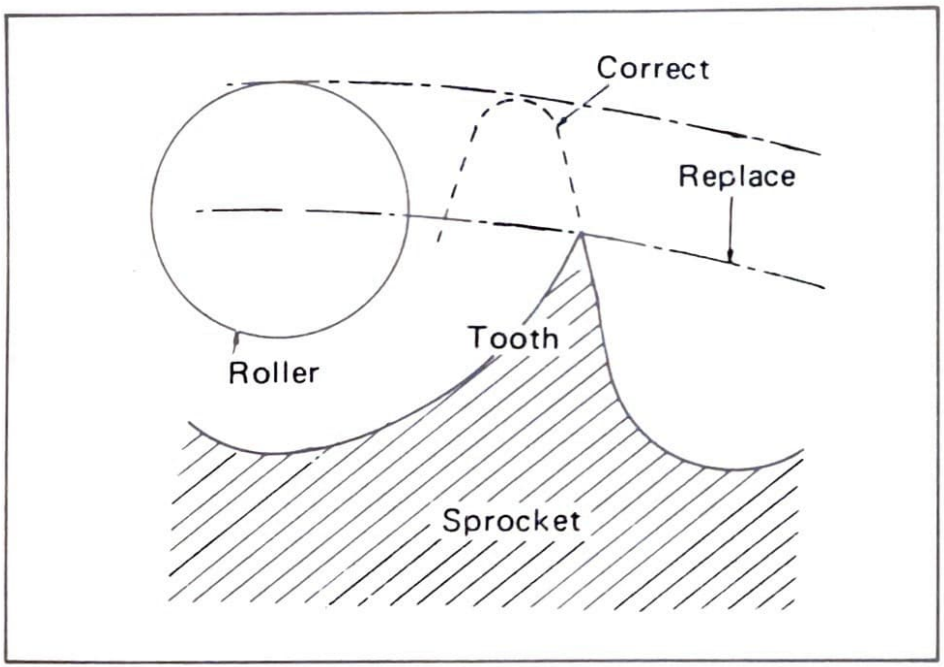
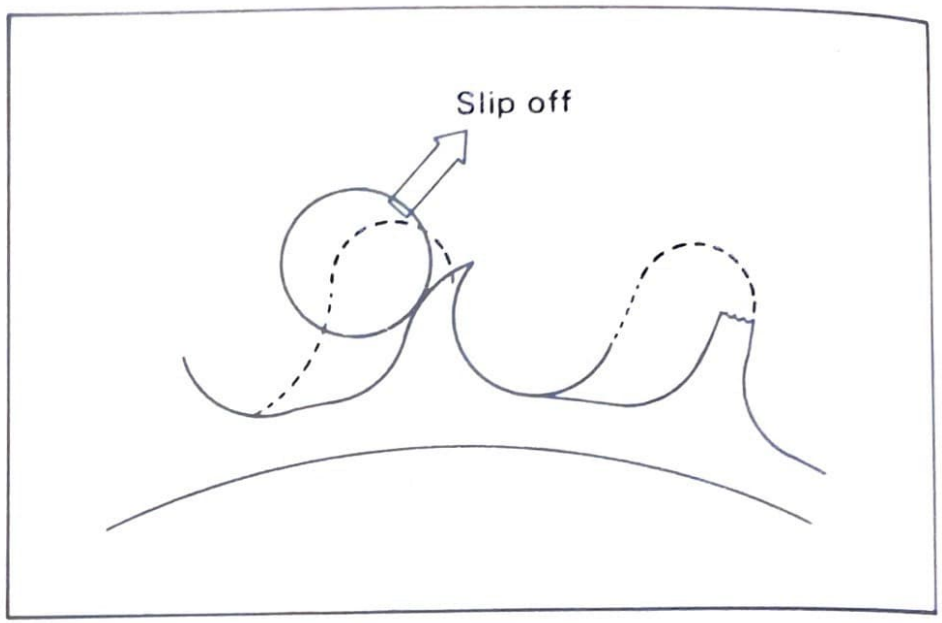
b. With the drive chain in place, transmission in gear, firmly apply the rear brake. Remove the sprocket securing nut. Remove the sprocket.

c. Check sprocket wear. Replace if wear decreases tooth height to a point approaching the roller center line.



d. Replace if tooth wear shows a pattern such as that in the illustration, or as precaution and common sense dictate.



e. During drive sprocket reassembly, make sure the lock washer splines are properly seated on the drive shaft splines. Tighten securing nut thoroughly to specified torque value. Bend lock washer tab fully against securing nut flats.

Drive sprocket securing nut torque:
8 m-kg (58 ft-lb)

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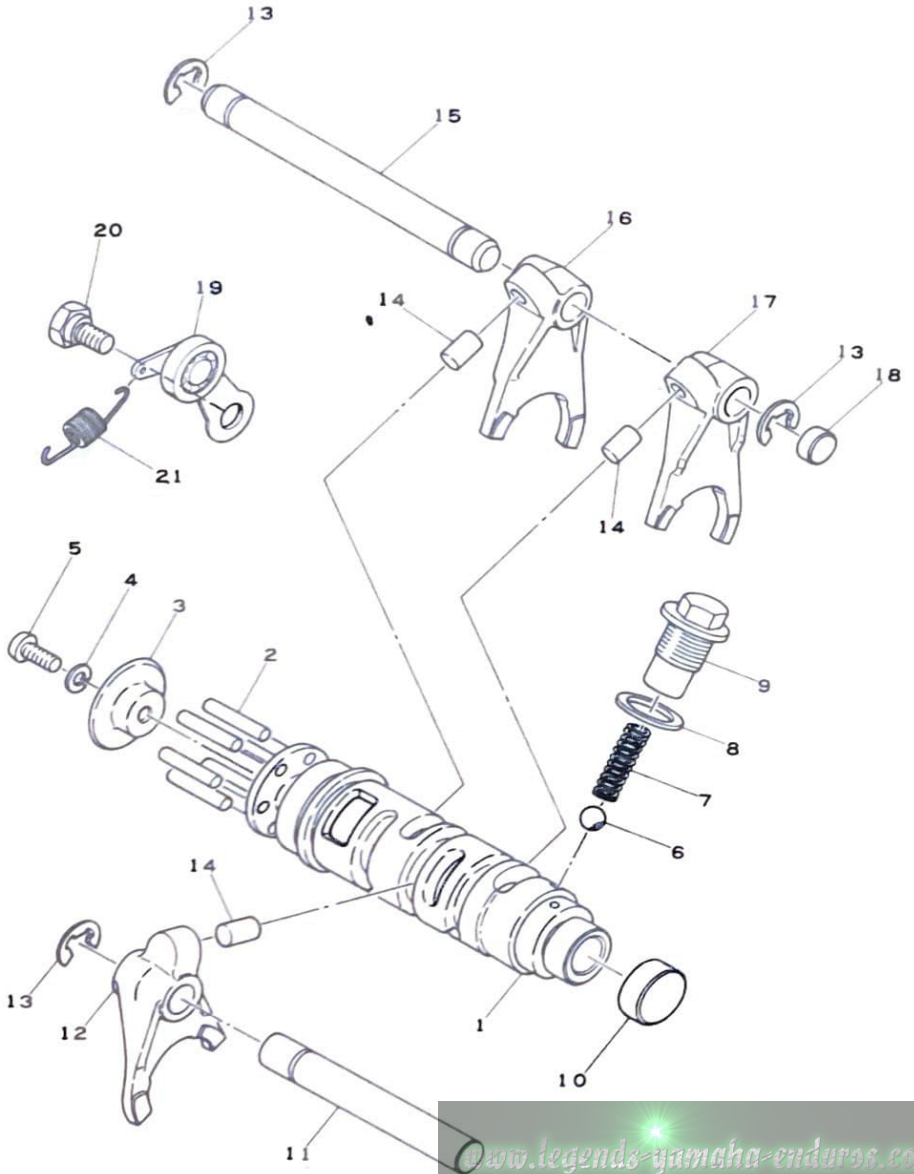
SHIFTER 1



1. Shift cam
2. Dowel pin
3. Side plate
4. Spring washer
5. Panhead screw
6. Ball
7. Spring
8. Drain plug gasket
9. Spring screw
10. Plug
11. Shift fork guide bar 1
12. Shift fork 2
13. Circlip
14. Straight pin
15. Shift fork guide 2
16. Shift fork 3
17. Shift fork 1
18. Plug
19. Stopper lever
20. Bolt
21. Tension spring

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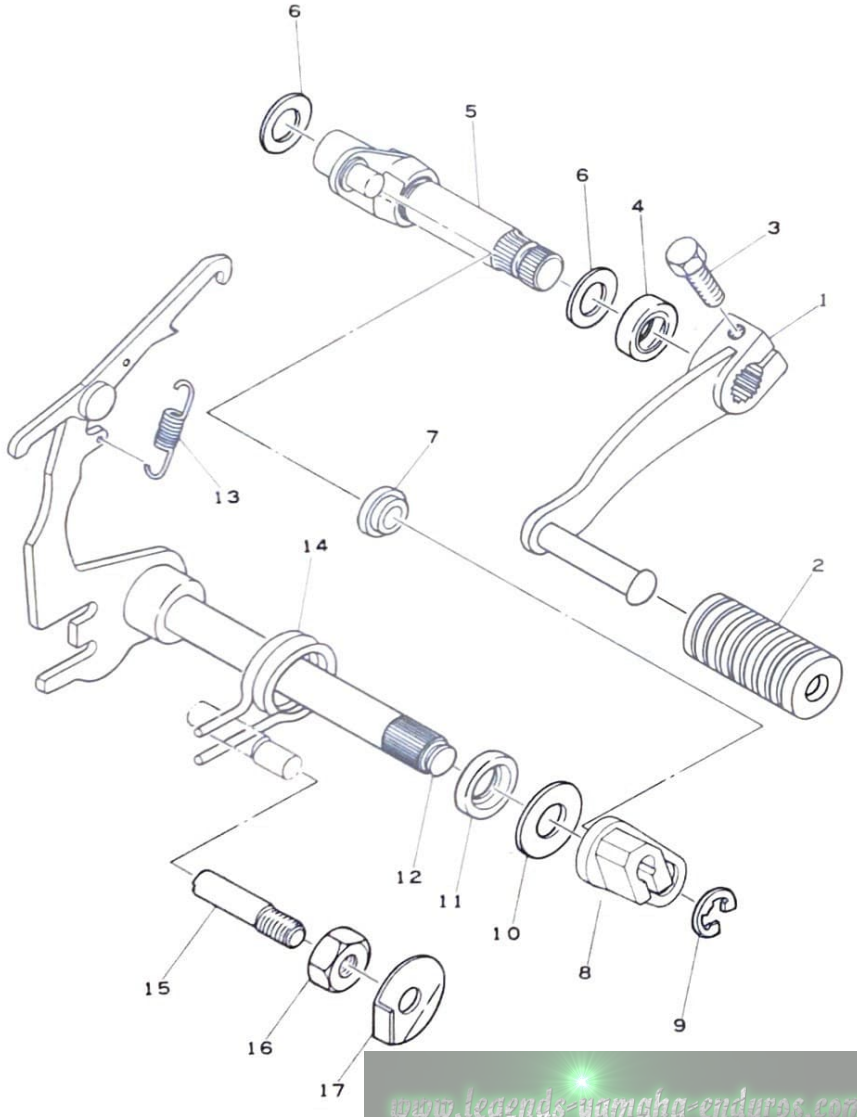
SHIFTER 2



1. Change pedal
2. Change pedal cover
3. Bolt
4. Oil seal
5. Change shaft 2
6. Shim
7. Change lever roller
8. Change lever 4
9. Circlip
10. Plate washer
11. Oil seal
12. Change shaft 1
13. Tension spring
14. Torsion spring
15. Screw
16. Hexagon nut
17. Lock washer

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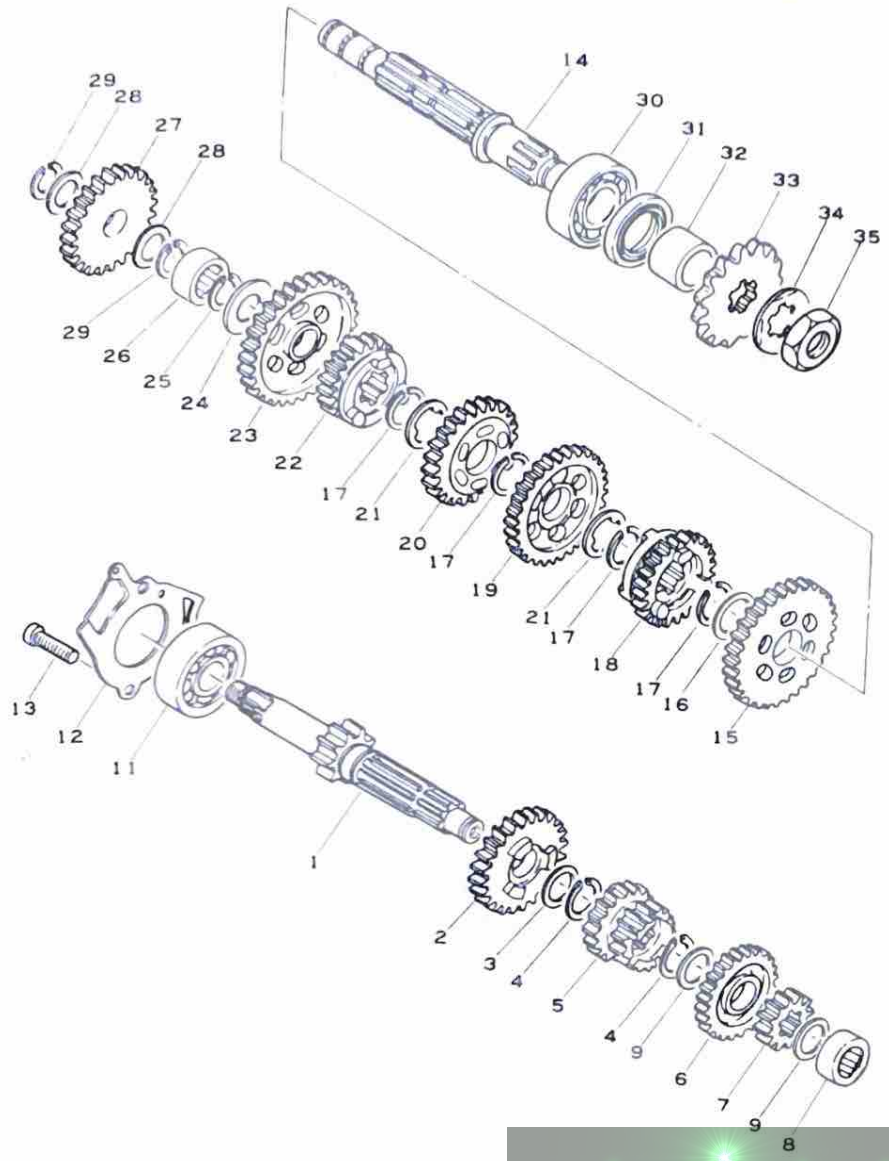
TRANSMISSION



1. Main axle
2. 6th pinion gear
3. Plate washer
4. Circlip
5. 3rd/4th pinion gear
6. 5th pinion gear
7. 2nd pinion gear
8. Bearing
9. Washer
10. Circlip
11. Bearing
12. Bearing cover plate
13. Panhead screw
14. Drive axle
15. 2nd wheel gear
16. Plate washer
17. Circlip
18. 5th wheel gear
19. 3rd wheel gear
20. 4th wheel gear
21. Washer
22. 6th wheel gear
23. 1st wheel gear
24. Drive axle shim
25. Circlip
26. Bearing
27. Kick idle gear
28. Main axle shim
29. Circlip
30. Bearing
31. Oil seal
32. Collar
33. Drive sprocket
34. Lock washer
35. Nut

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Driven Sprocket and Drive Chain

With the rear wheel removed, proceed as follows:

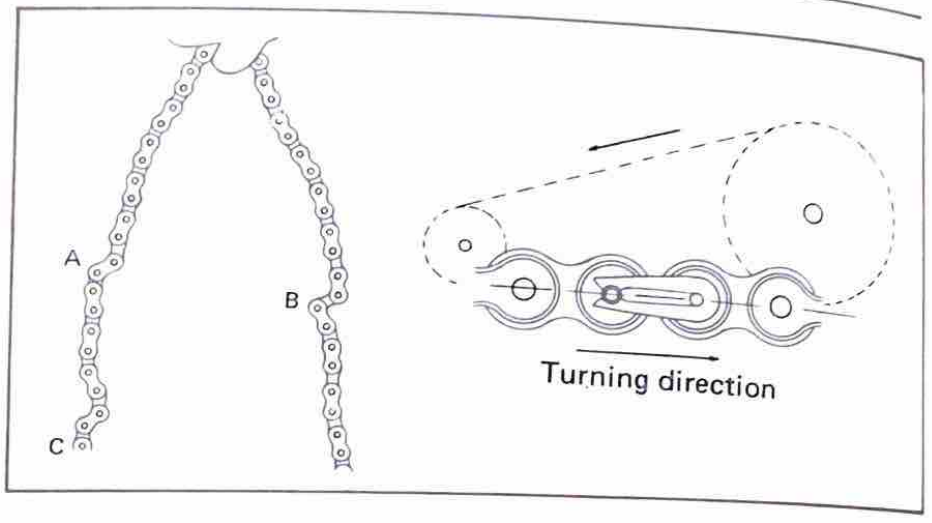
a. Using a blunt chisel, flatten the securing bolt lockwasher tabs. Remove the securing nuts (6). Remove the lock washers and sprocket.
b. Check sprocket wear (see procedures for the drive sprocket.)
c. Check the sprocket to see that it runs true. If severely bent, replace.
d. During reassembly, make sure the sprocket and sprocket seat are clean. Tighten the securing bolts in a crisscross pattern. Bend the tabs of the lock washers fully against the securing bolt flats.

Driven sprocket securing nut torque:
4.5 m-kg (31 ft-lb)

Chain

NOTE:

Refer to Maintenance and Lubrication Charts located in Chapter 1 for additional information.



a. Using a blunt-nosed pliers, remove the master link clip and side plate. Remove the chain.
b. Check the chain for stiffness. Hold as illustrated. If stiff, soak in solvent solution, clean with medium bristle brush, dry with high pressure air. Oil chain thoroughly

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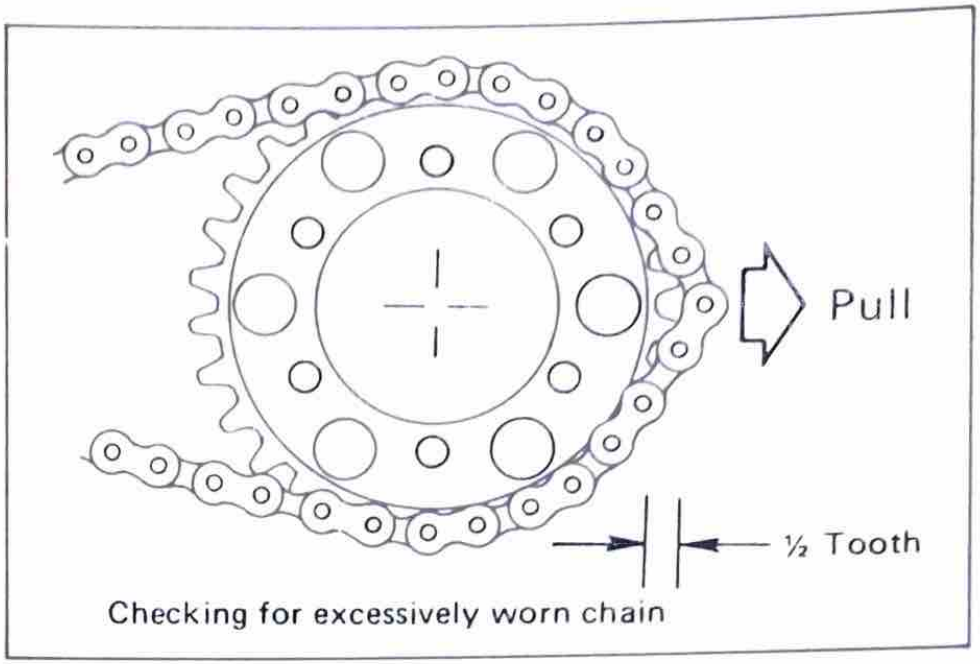
and attempt to work out kinks. If still stiff, replace chain.

c. 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.

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



Checking for excessively worn chain

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-halt 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 replace chain and/or damaged sprockets.

Maintenance

The chain should be lubricated per the recommendations given in the Maintenance and Lubrication Schedule Chart located in (Lubricate more often, if possible.) It is preferable to lubricate chain after each use of the machine.

a. Wipe off dirt with shop rag. If accumulation is severe, use wire brush, then rag.

b. Apply lubricant between roller and side plates on both inside and outside of

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chain. Don't skip a portion as this will cause uneven wear. Apply thoroughly. Wipe off excess.

NOTE:

Chain and lubricant should be at room temperature to assure penetration of lubricant into rollers.

Use Yamaha Chain and Cable Spray lubricant.

c. Periodically, remove the chain, wipe and/or brush excess dirt off. Blow off with high pressure air.

d. Soak chain in solvent, brushing off remaining dirt. Dry with high pressure air. Lubricate thoroughly while off machine. Work each roller thoroughly to make sure lubricant penetrates. Wipe off excess. Re-install.

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Cables

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

Cable removal is straightforward and uncomplicated. Removal will not be discussed within this section. For details, see the individual maintenance section for which the cable is an integral part.

Maintenance

a. Remove the cable.

b. Check for free movement of the cable with its housing. If movement is obstructed, check for fraying of the cable strands. If fraying is evident, replace the cable assembly.

c. To lubricate cable, hold in vertical position. Apply lubricant to uppermost end of cable. Leave in vertical position until lubricant appears at bottom end. Allow excess to drain and reinstall.

Use Yamaha Chain and Cable Spray lubricant.

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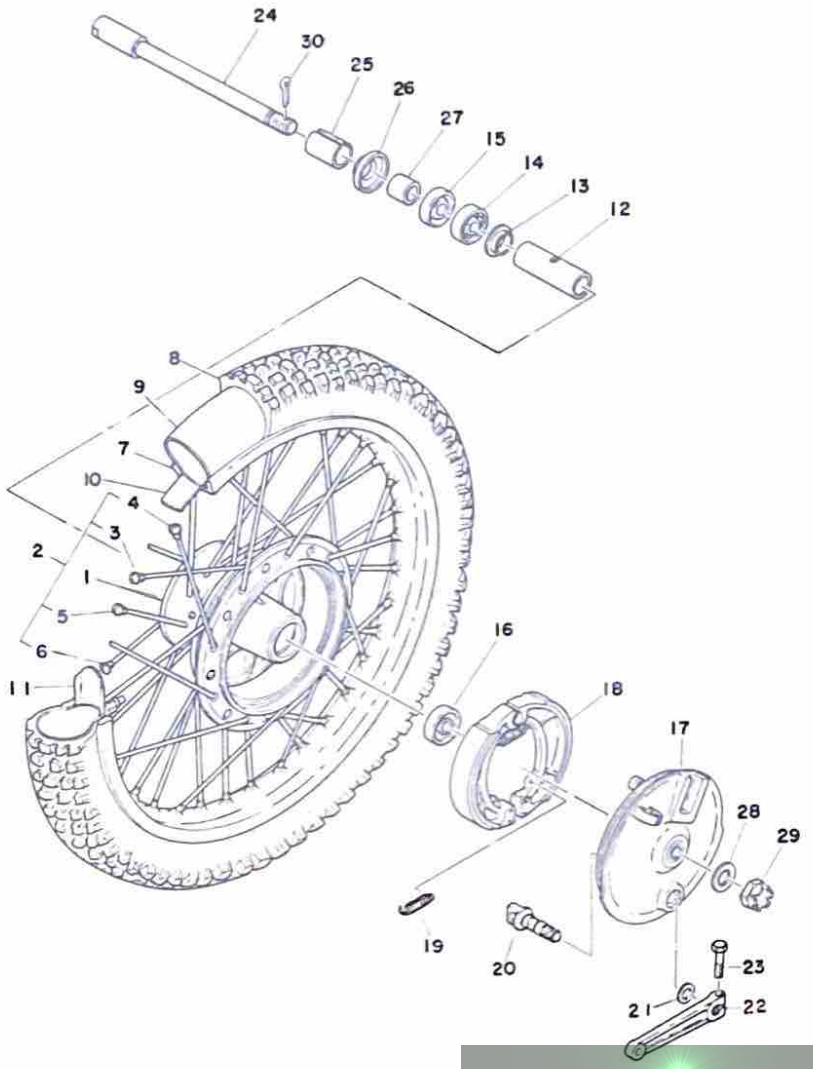
FRONT WHEEL



1. Front hub
2. Spoke set
3. Spoke set, inner left
4. Spoke set, outer left
5. Spoke set, inner right
6. Spoke set, outer right
7. Front Rim
8. Front tire
9. Front tube
10. Rim band
11. Bead spacer
12. Spacer
13. Spacer flange
14. Bearing
15. Oil seal
16. Bearing
17. Brake shoe plate
18. Brake shoe comp.
19. Return spring
20. Camshaft
21. Camshaft seal
22. Camshaft lever
23. Bolt
24. Wheel shaft
25. Collar
26. Hub dust cover
27. Collar
28. Plain washer
29. Castle nut
30. Cotter pin

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CHASSIS MAINTENANCE AND MINOR REPAIRS

Front Wheel Removal

a. To remove the front wheel, disconnect the brake cable at the front brake lever.
b. Loosen the front wheel axle holder nuts.
c. Remove cotter pin from front wheel nut.
d. Remove the front wheel nut.
e. Put a box or stand under the engine. Then remove the wheel assembly.
f. Remove the front wheel axle by simultaneously twisting and pulling out on the axle.

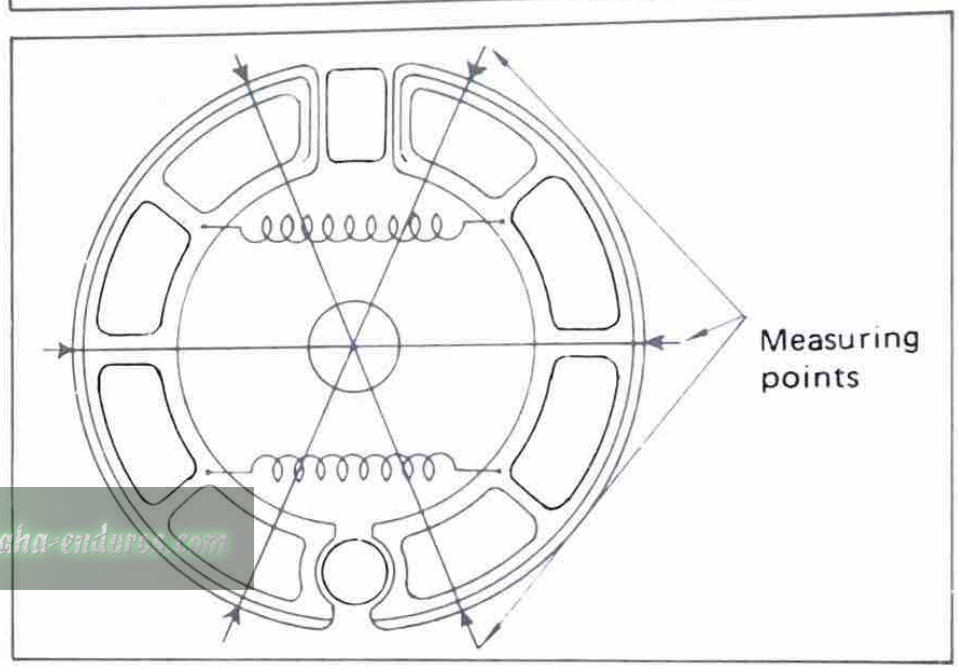
Rear Wheel Removal

1) Remove the tension bar and brake rod from rear shoe plate.
2) Remove cotter pin from rear wheel shaft nut.
3) Remove the rear wheel shaft nut.
4) Pull out the rear wheel shaft by simultaneously twisting and pulling out.
5) Remove the rear brake shoe plate.
6) Lean the machine to the left and remove the rear wheel assembly.

Checking Brake Shoe Wear

Measure the outside diameter at the brake shoe with slide calipers. If it measures less than 126mm (4.9 in) replace it.

Minimum brake lining thickness: 2mm



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3. 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.

Replacing Wheel Bearings

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

a. First clean the outside of the wheel hub.
b. Insert the bent end of the special tool into the hole located in the center of the bearing spacer, and drive the spacer out from the hub by tapping the other end of the special tool with a hammer. (Both bearing spacer and space flange can easily be removed.)
c. Push out the bearing on the other side.
d. To install the wheel bearing, reverse the above sequence. Be sure to grease the bearing before installation and use the bearing fitting tool.
e. Check the lips of the seals for damage or warpage. Replace if necessary.

Spokes

Check the spokes. If they are loose or bent, tighten or replace them. If the machine is ridden in rough country often, or raced, the spokes should be checked regularly.

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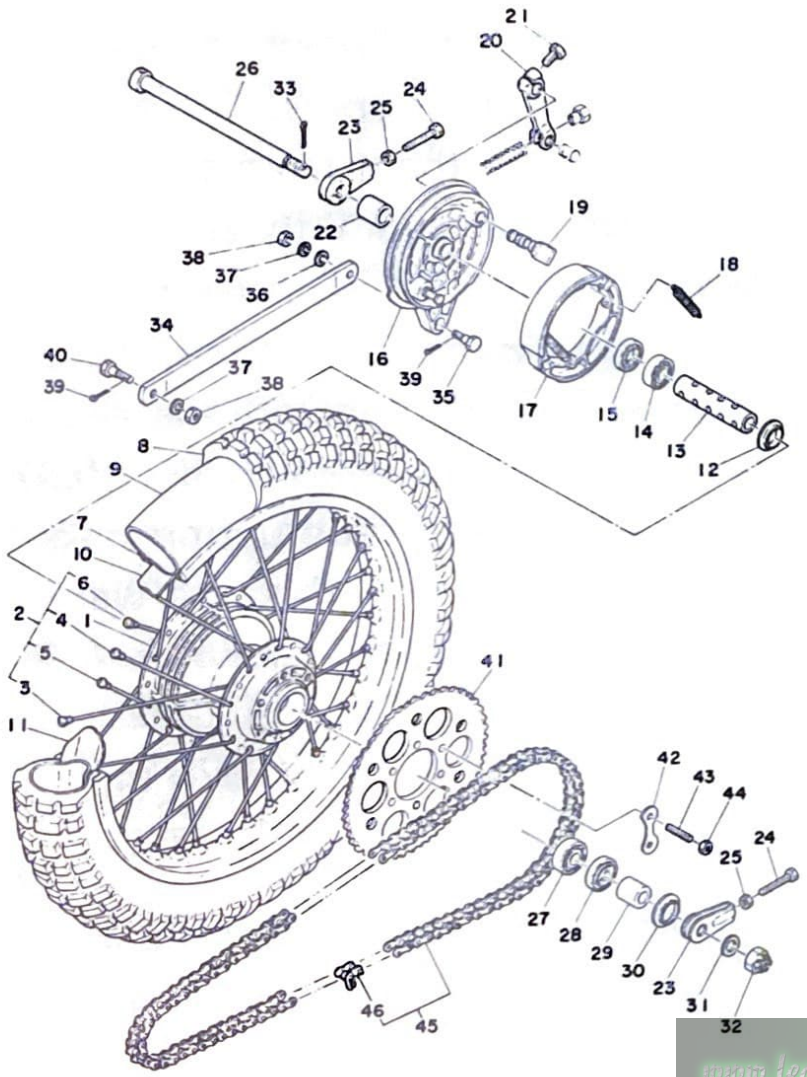
REAR WHEEL



1. Rear hub
2. Spoke set
3. Spoke set, inner left
4. Spoke set, outer right
5. Spoke set, inner left
6. Spoke set, outer right
7. Rear rim
8. Rear tire
9. Rear tube
10. Rim band
11. Bead spacer
12. Spacer flange
13. Bearing spacer
14. Bearing
15. Oil seal
16. Brake shoe plate
17. Brake shoe comp
18. Return spring
19. Camshaft
20. Camshaft lever
21. Bolt
22. Collar
23. Chain puller
24. Adjusting bolt
25. Lock nut
26. Wheel shaft
27. Bearing
28. Oil seal
29. Collar
30. Dust cover
31. Plate washer
32. Castle nut
33. Cotter pin
34. Tension bar
35. Bolt
36. Plate washer
37. Spring washer
38. Nut
39. Cotter pin
40. Bolt
41. Sprocket wheel gear
42. Lock washer
43. Stud bolt
44. Nut
45. Chain
46. Chain joint

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Checking Rims and Spokes (Front & Rear Wheels)

a. Checking for loose spokes

Loose spokes can be checked by bracing the machine off the ground so that the front wheel can spin freely. Slowly rotate the front wheel and at the same time let the metal shaft of fairly heavy screwdriver bounce off each spoke. If all the spokes are tightened approximately the same then the sound given off by the screwdriver hitting the spokes should sound the same. If one spoke makes a dull flat sound, then check it for looseness.

b. Checking rim "run-out"

While you have the machine up, check the front wheel run-out. "Run-out" is the amount the front wheel deviates from a straight line as it spins. Secure the front forks to keep them from turning. Set up a dial indicator or solidly anchor a pointer about 3 mm (0.12 in) away from the side of the rim. As the wheel spins, the distance between the pointer and the rim should not change more than 2 mm (0.079 in) total. Any greater fluctuation means that you should remove this rim warpage by properly adjusting the spokes.

Run-out limits: 2 mm (0.079 in)

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Tire Removal

a. Remove valve cap, valve core, valve stem lock nut, and rim lock nuts.
b. When all air is out of tube, separate tire bead from rim (both sides) by stepping on tire with your foot.
c. Use two tire removal irons (with rounded edges) and begin to work the tire bead over the edge of the rim, starting 180° opposite the tube stem. Take care to avoid pinching the tube as you do this.
d. After you have worked one side of the tire completely off the rim, then you can slip the tube out. Be very careful not to damage the stem while pushing it back out to the rim hole.

NOTE:

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

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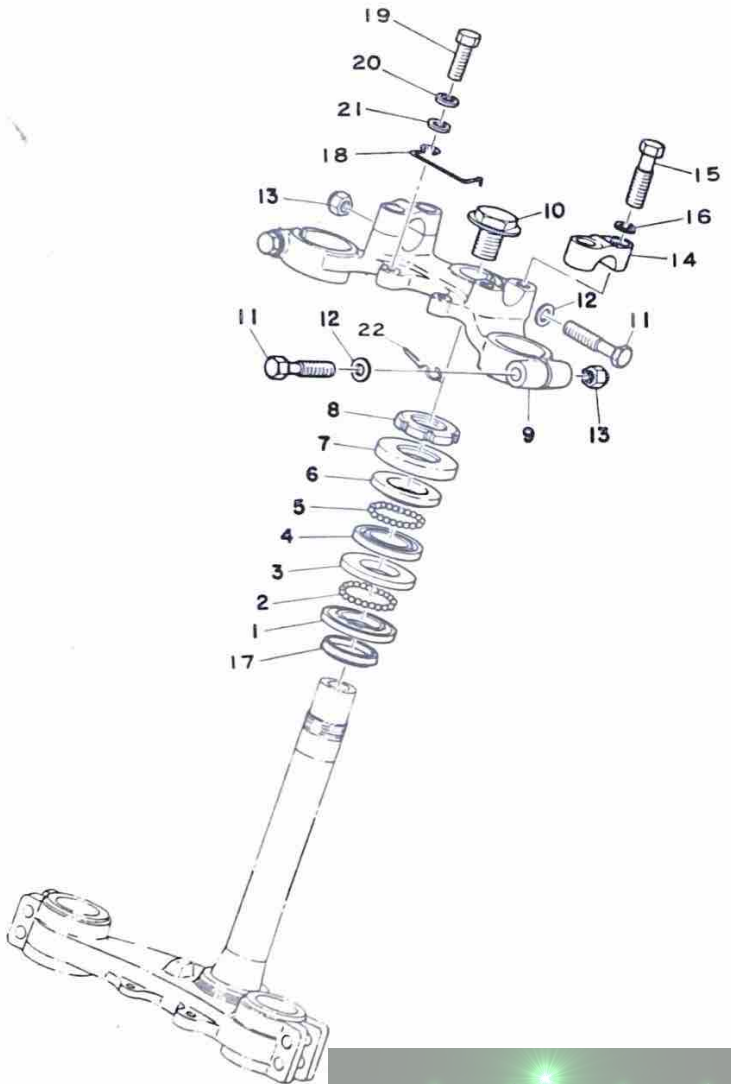
Installing Tire

Re-installing the tire assembly can be accomplished by reversing the disassembly procedure. The only difference in procedure would be right after the tube has been installed, but before the tire has been completely slipped onto the rim. Inflate the tube. This removes any creases that might exist. Release the air and continue with reassembly. Also, right after the tire has been completely slipped onto the rim, check to make sure that the stem is squarely in the center of the hole in the rim.

Tire pressure for normal riding:
Front—0.9 kg/cm² (13 lb/in²)
Rear —1.1 kg/cm² (15 lb/in²)

STEERING



1. Ball race 1
2. Ball
3. Ball race 2
4. Ball race 2
5. Ball
6. Ball race
7. Ball race cover
8. Nut
9. Handle crown
10. Fitting bolt
11. Bolt
12. Plate washer
13. U nut
14. Handle upper holder
15. Bolt
16. Spring washer
17. Dust seal
18. Wire holder
19. Bolt
20. Spring washer
21. Plate washer
22. Wire holder

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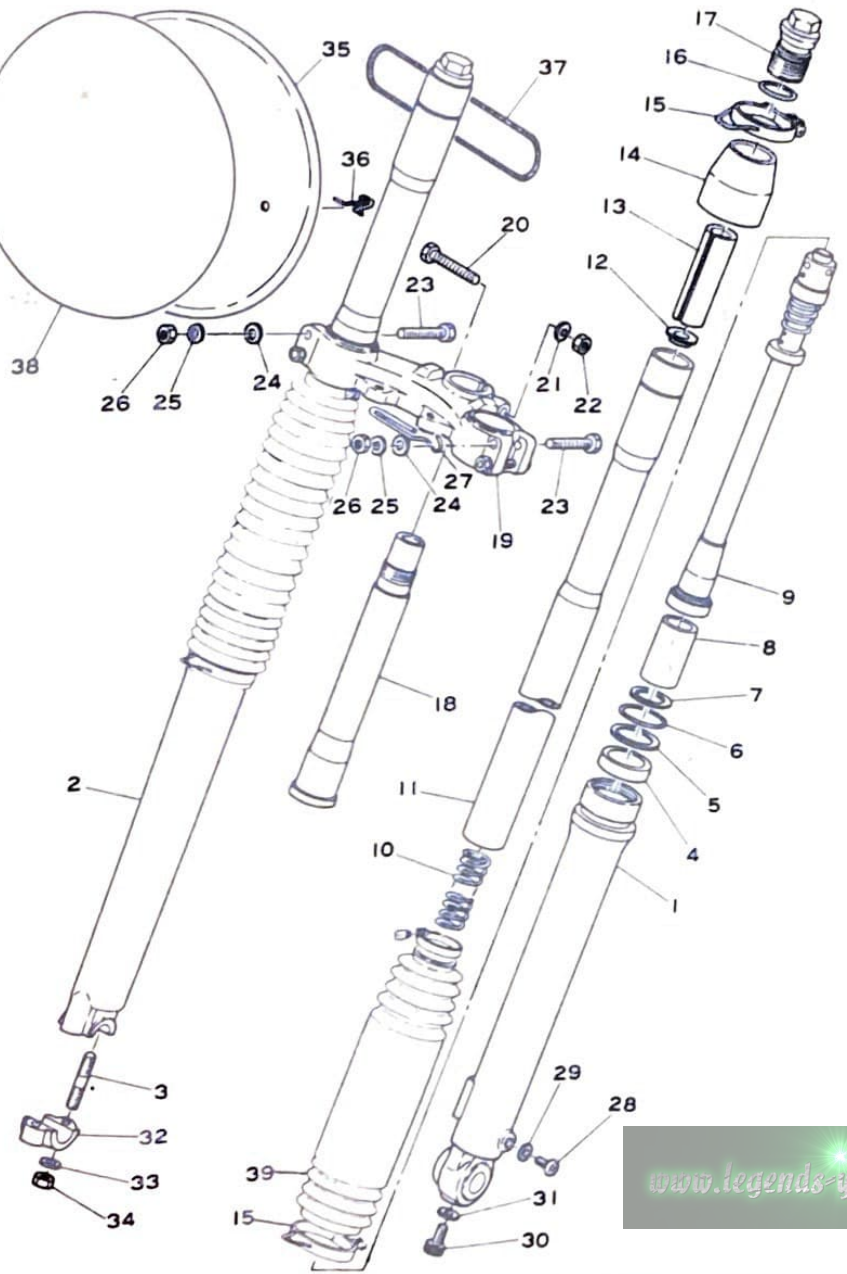
FRONT FORK



1. Outer left tube
2. Outer right tube
3. Axle holder bolt
4. Oil seal
5. Oil seal washer
6. Oil seal clip
7. Circlip
8. Front fork piston
9. Front fork cylinder
10. Front fork spring
11. Inner tube
12. Spring upper seat
13. Spacer
14. Dust seal
15. Hose clamp
16. O-ring
17. Cap bolt
18. Steering shaft
19. Under bracket comp.
20. Bolt
21. Spring washer
22. Nut
23. Under bracket bolt
24. Plate washer
25. Spring washer
26. Nut
27. Wire holder
28. Drain plug
29. Drain plug gasket
30. Bolt
31. Gasket
32. Axle holder
33. Plate washer
34. Nut
35. Number plate
36. Number plate stay
37. O-ring
38. Number emblem
39. Boot

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FRONT FORKS AND STEERING HEAD

General

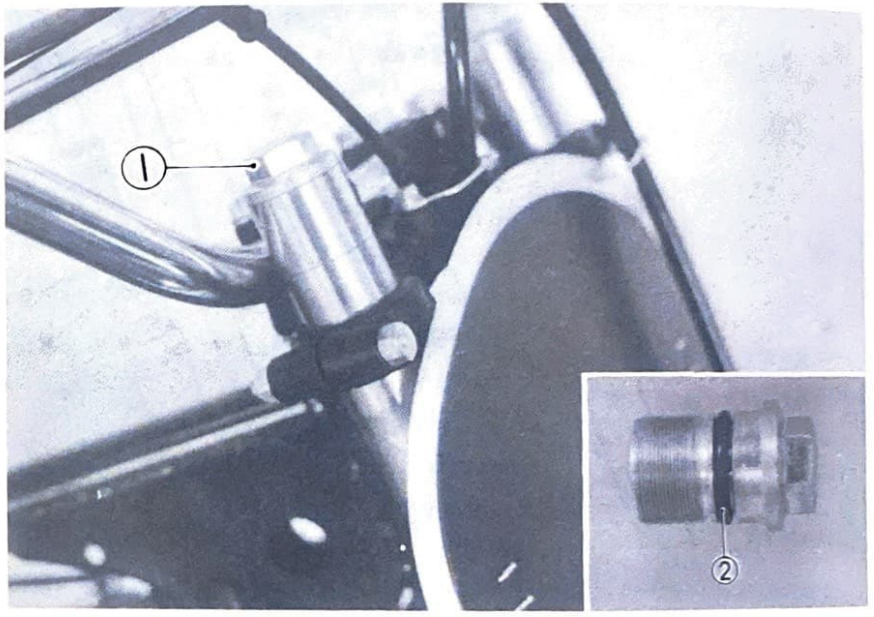
The front forks on your machine utilize chrome-plated tubular steel fork legs (inner tubes) and tubular aluminum sliders (outer tubes). The bearing surface is the entire inside surface of the aluminum outer tube. The steering head pivot is supported by two sets of uncaged ball and race bearing assemblies.

Front Fork Oil Change

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

NOTE:

Check O-rings. Replace if damaged.



1. Cap bolt 2. O-ring

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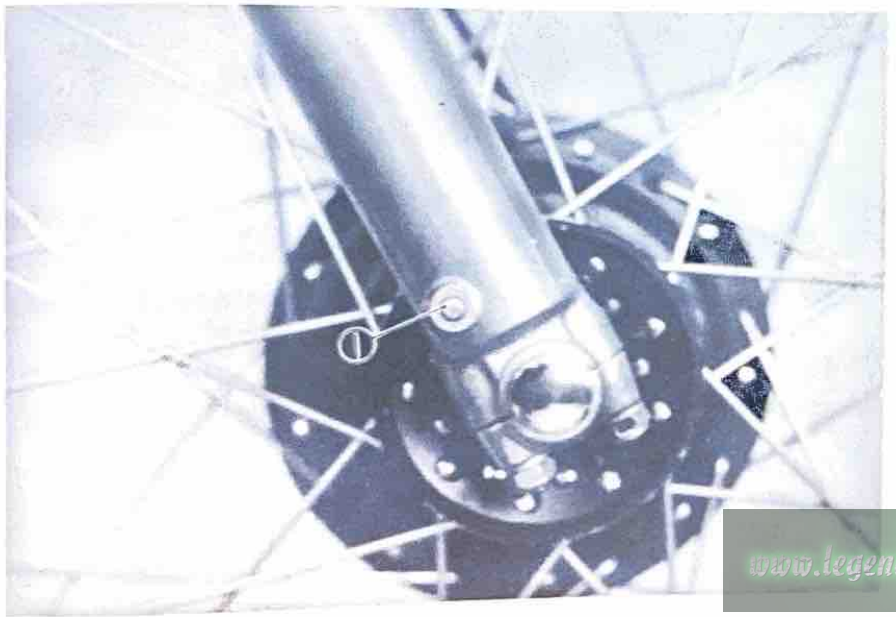
b. Remove drain screw from each outer tube with open container under each drain hole.
c. After most of oil has drained, slowly raise and lower outer tubes to pump out remaining oil.
d. Replace drain screws.

NOTE:

Check gaskets. Replace screws and gaskets if damaged.



1. Drain screw

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

Recommended oil:
Yamaha Fork Oil, 20wt, 30wt

Quantity per leg: 190cc (6.42 oz.)

NOTE:

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

f. After filling, slowly pump the outer tubes up and down to distribute the oil.
g. Inspect O-ring on fork cap bolts and replace if damaged.
h. Replace fork cap bolts and torque to specification.

Fork cap bolt torque:
2.5 m-kg (18 ft-lb)

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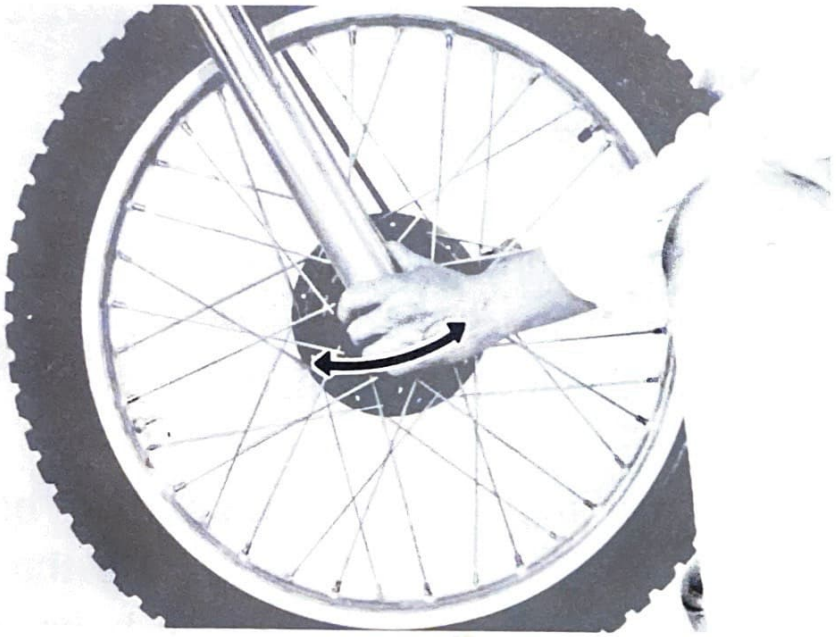
Steering Head Adjustment

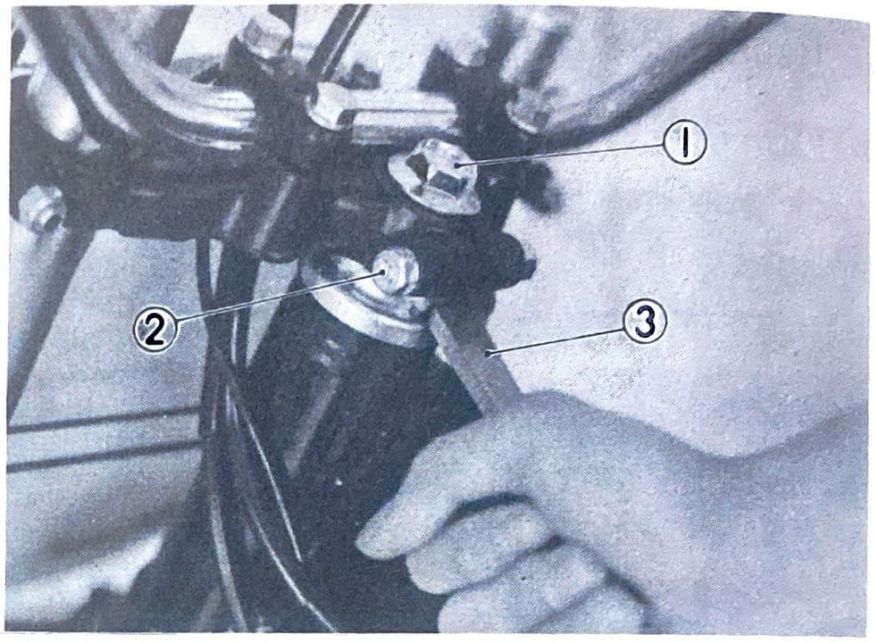
a. With front wheel elevated, grasp bottoms of fork legs and gently push and pull to check steering head freeplay. There should be no noticeable freeplay.



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

c. Loosen stem bolt.

d. Use ring nut wrench to tighten adjust nut. Tighten until freeplay is eliminated.



1. Stem bolt 2. Pinch bolt 3. Ring nut wrench

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CAUTION:

Forks must swing from lock to lock without binding or catching.

e. Tighten stem bolt and torque to specification.

Stem bolt torque:
6 m-kg (44 ft-lb)

f. Tighten pinch bolts at fork crown and torque to specification.

Stem pinch bolt torque:
1.5 m-kg (11 ft-lb)

NOTE:

For steering head disassembly – refer to DT100C/125C/175C Service Manual for correct procedure.

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REAR SHOCK (MONO-CROSS SUSPENSION) AND SWING ARM

CAUTION:

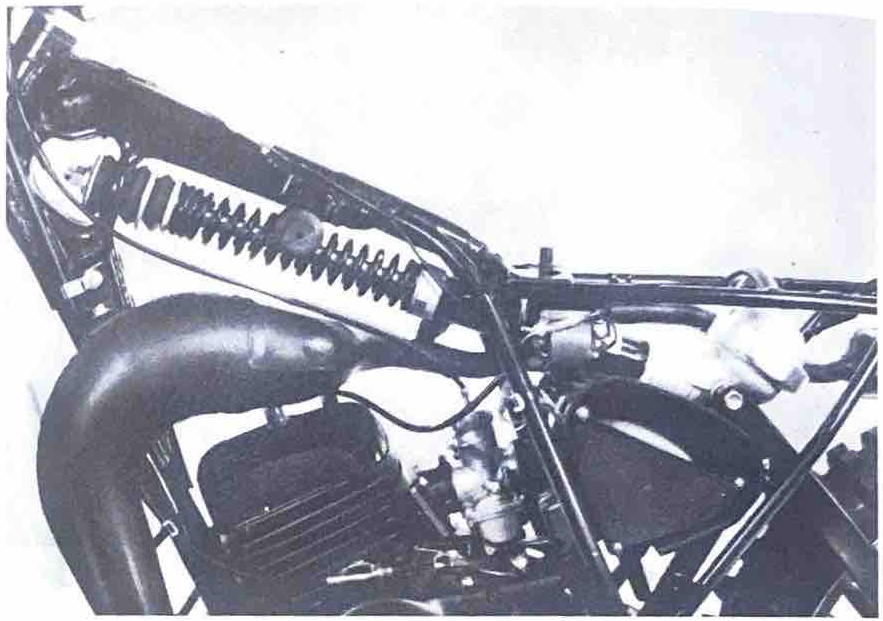
READ INSTRUCTIONS BELOW

1. Monocross Suspension Unit contains highly compressed nitrogen gas.
2. Use only nitrogen gas for refilling. Other gases may result in explosion.
3. Do not incinerate.
4. Monocross Suspension Unit should be serviced only by Authorized Yamaha Dealer.

Rear Shock Absorber (Monocross Suspension)

Removal

a. Remove the two bolts securing the rider's seat, then remove the seat. Remove the bolt holding the fuel tank, and remove the fuel tank (before this operation, the fuel petcock lever must be OFF, and the fuel pipe must be removed at the carburetor side. The air vent pipe must also be removed).
Lift up the rear of the fuel tank slightly, and pull it backward. The two rubber dampers (on both sides of front bottom of the fuel tank) will come off the frame.



b. Next, remove the cotter pin and pivot shaft nut on the front part of the rear shock (Monocross suspension), and remove the washer, and rubber.

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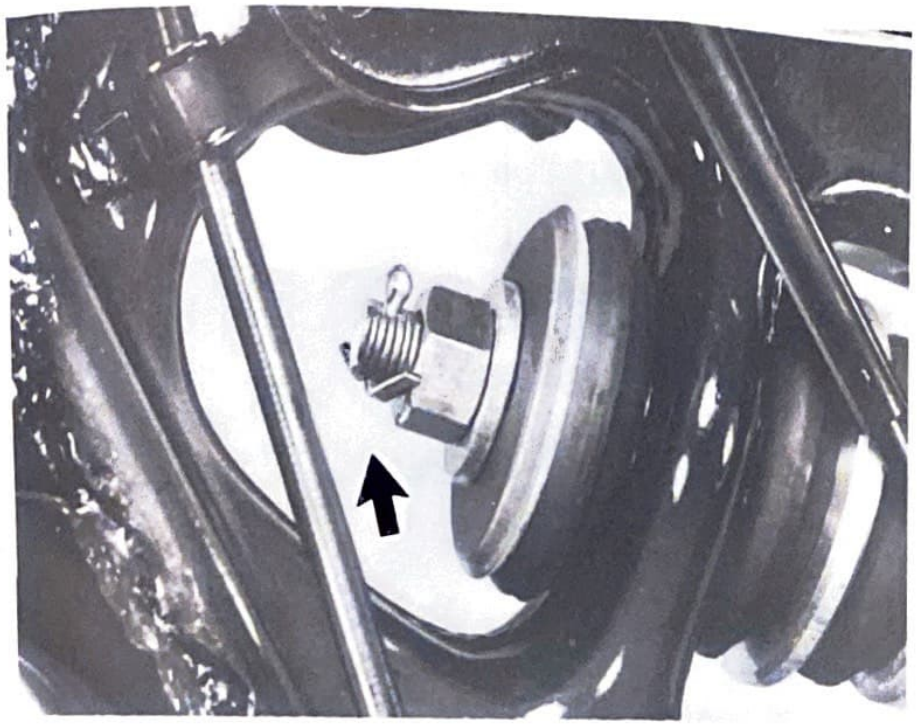
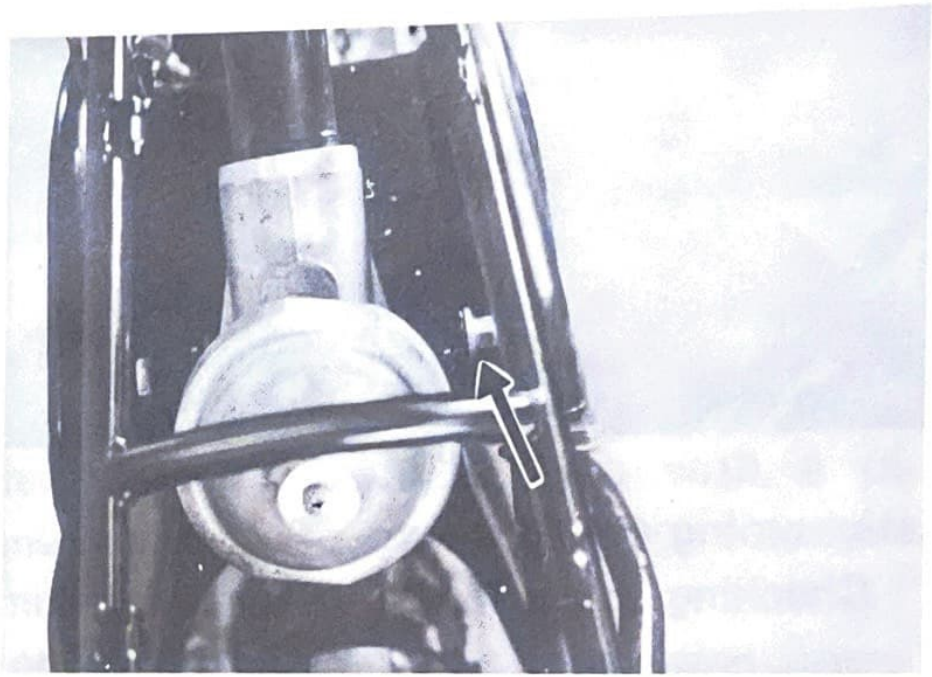


Pivot shaft nuts torque:
7 m-kg (50 ft-lb)

c. Next, remove the bolt securing the membrane housing to the rear of the frame. The bolt is held by a stopper so it does not turn when the nut is screwed out. Loosen the nut first, and remove the bolt. Take care so the two washers are not lost.



Membrane housing install nut torque:
2 m-kg (14 ft-lb)

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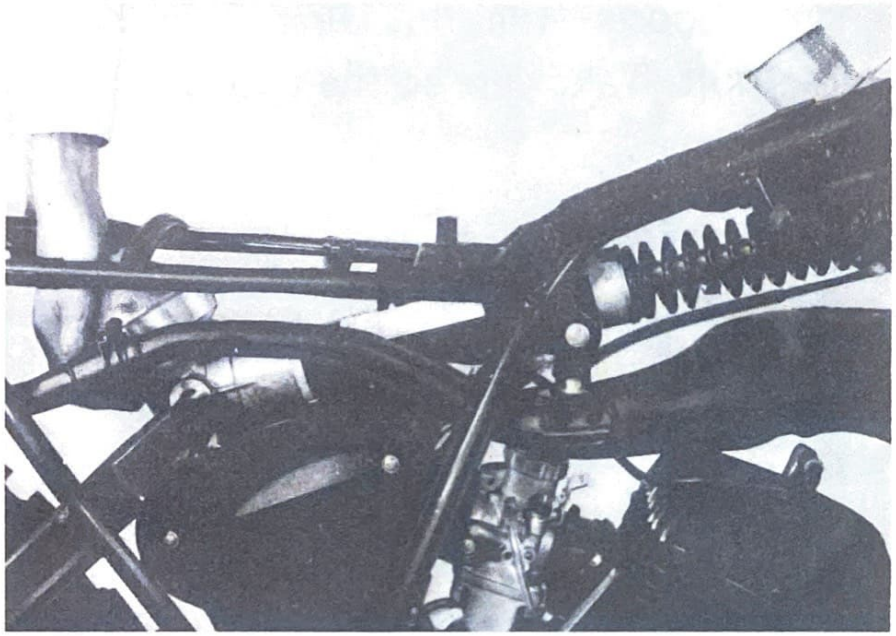
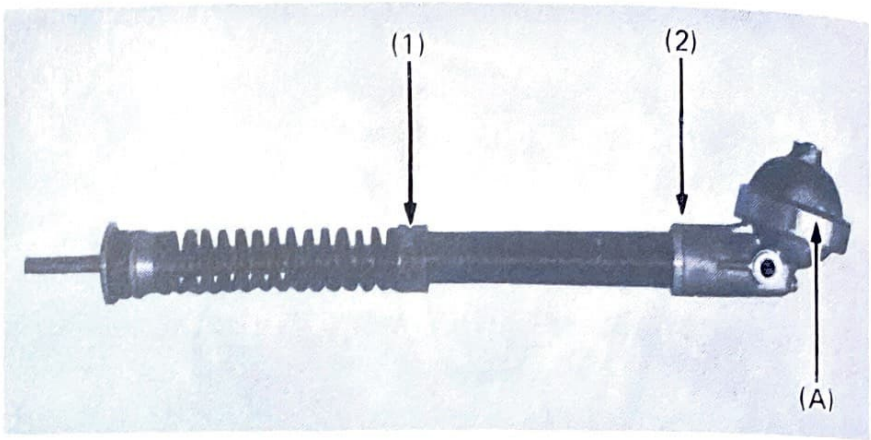
d. Remove the rear shock from the frame. (To remove, pull the rear shock backward while lifting up the swing arm.)





b. Retightening

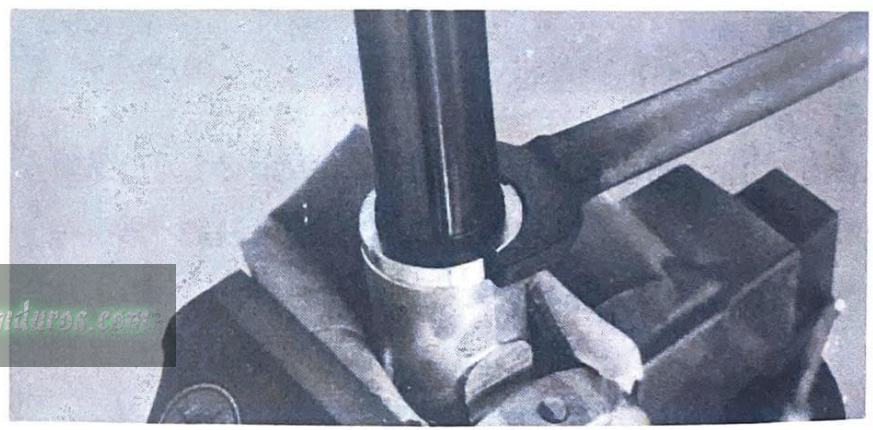
Since the cylinder case may come loose, it should be tightened in the following order, whether (1) or (2) is loose.

1) Remove the spring.
2) Loosen the ring nut (2).

Retightening the Monocross Suspension Unit

a. Checking points for tightness.

(1) Case cap
(2) Ring nut



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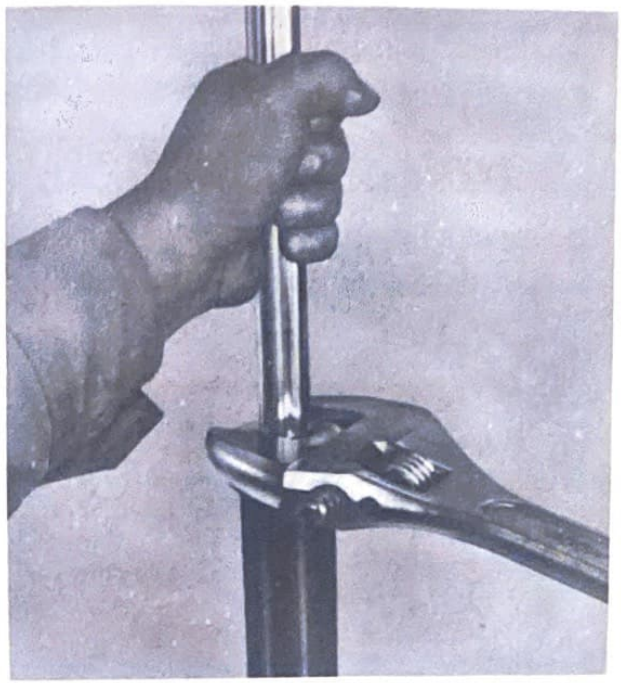
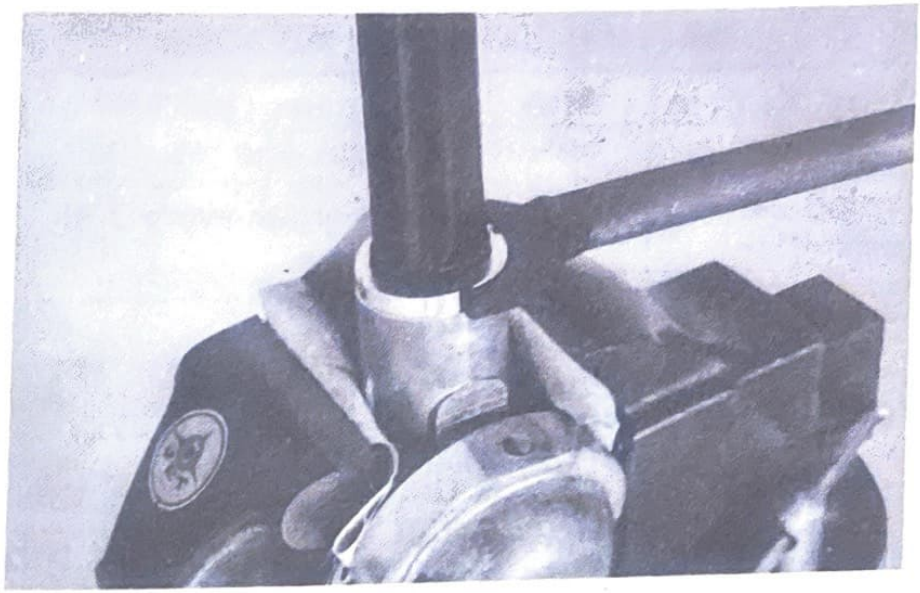
3) Retighten the cap case (1).

Torque: 15 m-kg (108 ft-lb)



4) Retighten the ring nut (2).

Torque: 20 m-kg (146 ft-lb)



5) Install the spring.

NOTE:

Never tap the cylinder case with a pipe wrench. For retightening, the suspension unit must be removed from the machine.

For easy operation, the membrane housing (A) of the suspension unit should be held by a vise.

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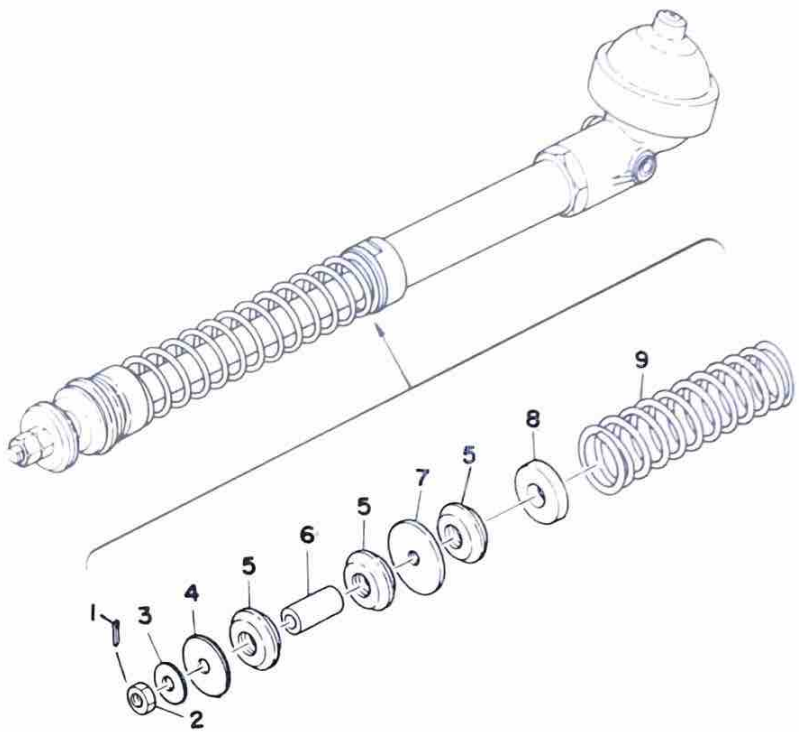
c. Inspection intervals

After-break-in inspection	After first 60 miles (100 km) of operation, check and retighten.
Periodical inspection	Check and retighten every 300 miles (500 km)

Rear Shock Spring Replacement

a. Cover the bolt hole areas of the membrane housing with a rag or rubber tube, and grip it in a vise. Using a large wrench remove the T-nut. If any nut is damaged, replace.

T-nut Torque: 1.5 m-kg (11 ft-lb)



1. Cotter pin
2. Hexagon nut
3. Pate washer
4. Plate washer
5. Damper
6. Collar
7. T-nut
8. Spring seat
9. Spring

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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 race courses or the weight of the rider.

Type	Part No.	Spring constant kg/mm	Color code
Soft	90501 - 80367	3.6	Painted white & yellow
Standard	90501 - 80362	3.8	Painted yellow
Hard	90501 - 80368	4.0	Painted blue & yellow

NOTE:

For assembly, the above-mentioned procedure should be reversed.

b. For adjustment or replacement of the nitrogen gas, or change of the shock absorber oil in the accumulator, or for assembly of the accumulator, or for disassembly of the accumulator, consult your authorized Yamaha dealer.

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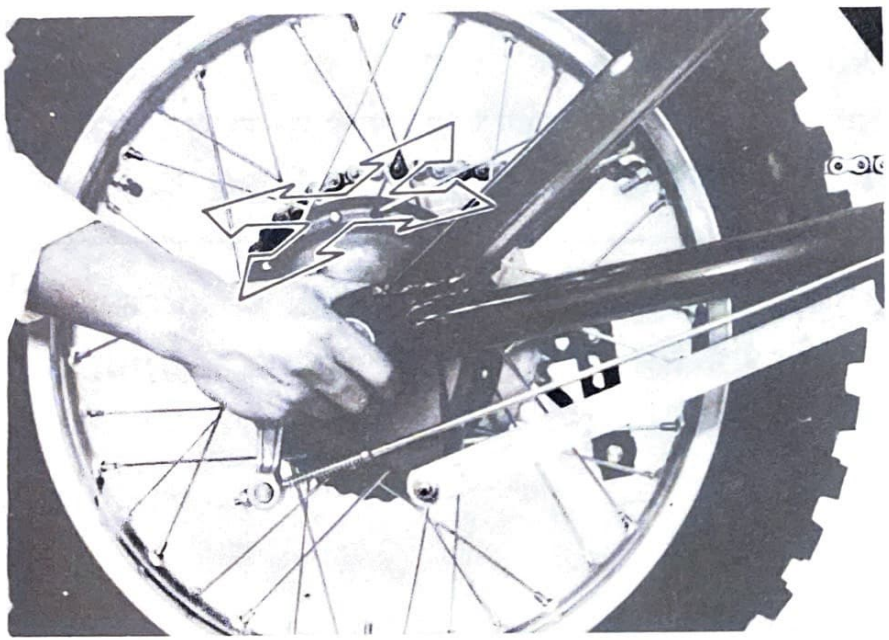
Swing arm inspection

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

Swing arm freeplay: None



Swing arm pivot lubrication

Apply grease to fitting on top of pivot with low pressure hand operated gun. Apply until fresh grease appears.

Recommended Lubricant: smooth lube grease

b. If freeplay is excessive, remove swing arm and replace swing arm bushing.

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CLEANING AND STORAGE

Cleaning

Frequent thorough cleaning of your motorcycle will not only enhance its apperance, 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 washes.

4. Once the majority of dirt has been hosed off, wash all surfaces with warm water and mild detergent-type soap. An old toothbrush or bottle brush is handy to reach those hard-to-get-to places.

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

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

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7. Chrome-plated parts such as handlebars, spokes, forks, etc. may be further cleaned with automotive chrome cleaner.

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

9. 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.

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

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.

2. Remove empty fuel tank, pour a cup of 10W to 30W 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 10W to 30W oil in spark plug hole and reinstall spark plug. Kick engine over several times (with ignition off) to coat cylinder wall with oil.

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4. Remove drive chain. Clean thoroughly with solvent and lubricate with graphite-base chain lubricant. 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. Deflate tires to 12 lb/in.^{2} (0.8 kg/cm.^{2})

8. Tie a plastic bag over exhaust pipe outlet to prevent moisture entering.

9. 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.

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MISCELLANEOUS

CONVERSION TABLES

Metric to Inch System

KNOWN	MULTIPLIER (Rounded off)	RESULT
TORQUE		
m-kg	7.233	ft-lb
m-kg	86.796	in-lb
cm-kg	0.0723	ft-lb
cm-kg	0.8679	in-lb
WEIGHT		
kg	2.205	lb
g	0.0353	oz
FLOW/DISTANCE		
km/lit	2.352	mpg
km/h	0.6214	mph
km	0.6214	mi
m	3.2809	ft
m	1.0936	yd
cm	0.3937	in
mm	0.03937	in
VOLUME/CAPACITY		
cc	0.03381	oz(U.S. liq)
cc	0.06103	cu. in
lit	2.1134	pt(U.S. liq)
lit	1.057	qt (U.S liq)
lit	0.2642	gal (U.S. liq)
MISC		
kg/mm	55.9970	lb/in
kg/cm²	14.2233	psi (lb/in²)
$\frac{5}{9}$ Centigrade (°C) +32		Fahrenheit (°F)

Inch to Metric System

KNOWN	MULTIPLIER (Rounded off)	RESULT
TORQUE		
ft-lb	0.1383	m-kg
ft-lb	13.8313	cm-kg
in-lb	0.01152	m-kg
in-lb	1.1522	cm-kg
WEIGHT		
lb	0.4536	kg
oz	28.3286	g
FLOW/DISTANCE		
mi/gal	0.4252	km/lit
mi/h	1.6093	km/h
mi	1.6093	km
ft	0.3048	m
yd	0.9144	m
in	2.540	cm
in	25.40	mm
VOLUME/CAPACITY		
oz (U.S. liq)	29.577	cc
cu. in	16.385	cc
pt (U.S. liq)	0.4732	lit
qt (U.S. liq)	0.9461	lit
gal (U.S. liq.)	3.7850	lit
MISC		
lb/in	0.01786	kg/mm
psi (lb/in²)	0.07031	kg/cm²
$\frac{5}{9}$ · [Fehrenheit (°F) −32]		Centigrade (°C)

DEFINITION OF TERMS:

m-kg — Meter-kilogram: Usually torque.
g — Gram.
kg — Kilogram: 1,000 grams.
km — Kilometer.
lit — Liter.
km/lit — Kilometer per liter: Mileage.
km/lit — Cubic centimeter (cm^3): Volume or capacity.
kg/mm — Kilogram per millimeter: Usually spring compression rate.
kg/cm^2 — Kilogram per square centimeter: Pressure.

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SPECIFICATIONS

These specifications are for general use. For a more complete list, refer to Maintenance Specifications and/or the Service Manuals.

DIMENSIONS/WEIGHT	
Overall length	2,045 mm (80.5 in)
Overall width	985 mm (38.7 in)
Overall height	1,135 mm (44.7 in)
Wheelbase	1,370 mm (53.9 in)
Minimum ground clearance	275 mm (10.8 in)
Seat height (unloaded)	865 mm (34.1 in)
Machine net weight	86 kg (190 lb)
ENGINE	
Type	Air cooled, 2-stroke, single
Bore/Stroke	1.969x1.969 in (50x50 mm)
Displacement	98 cc (5.98 cu. in.)
Compression ratio	7.2 : 1
Starting system	Kick starter
Lubricating system	Mixed Gas 20 : 1
CARBURETION	
Manufacturer /Type	MIKUNI VM30SS
Effective venturi size	30 mm (1.18 in)
Main jet	#190
Needle jet	Q–2 (169)

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GENERAL SPECIFICATIONS

Jet needle	6DP 10 – 3
Pilot jet	# 40
Air screw (Turns out)	1-1/2
Cut away	2.0
Float level	16.5 ± 2.5 mm (0.65 ± 0.01 in)
CLUTCH	
Type	Wet multiple disc type
Primary drive system	Helical gear
Primary dirive ratio	74/19 3.894
TRANSMISSION	
Type	Constant mesh, 6 speed Forward
Reduction ratio 1st	33/13 2.538
2nd	29/15 1.933
3rd	28/18 1.555
4th	26/20 1.300
5th	24/21 1.142
6th	23/22 1.045
SECONDARY DRIVE	
Drive/Driven sprocket	12/40 DID520T/89L + Joint
Type/Size	Chain
Reduction ratio	3.333
ELECTRICAL	
Ignition type/Manufacturer	C.D.I. Magneto M100 – 20 Hitachi
Coil/Manufacturer	Hitachi CM61 – 20U
C.D.I. unit/Manufacturer	Hitachi TIA01 – 15

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GENERAL SPECIFICATIONS

CHASSIS	
Frame type	Tubular steel double cradle
Front suspension/Travel	195 mm (7.68 in)
Front fork spring free length	393.5 mm (15.49 in)
Rear suspension/Travel	104.5 mm (4.11 in)
Rear cushion spring free length	231.1 mm (9.1 in)
Caster/Trail	60°/125 mm (4.92 in)
Front tire Size	2.75-21 – 4PR
Tread type	Knobby
Nominal pressure	1.0 kg/cm^2 (14 psi)
Rear tire Size	3.50-18 – 4PR
Tread type	Knobby
Nominal pressure	1.2 kg/cm^2 (17 psi)
Front brake type	Drum (leading/trailing)
Actuating method	Cable
Rear brake type	Drum (leading/trailing)
Actuating method	Link rod
VOLUMES/TYPE FLUID	
Gasoline tank/Type (Gasoline: Oil Ratio)	5.5 lit (1.5 gal.) Premium (20 : 1)
Transmission/Type	650 ± 50 cc (SAE 10W/30)
Front fork (each)/Type	190.5 cc SAE 10W/30
Rear shock nitrogen gas pressure (psi)	14 [14 to 30]

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NOTE:

The Research and Engineering Departments of Yamaha are continually striving to further improve all models. Improvements and modifications are therefore inevitable.
In light of this fact, the foregoing specifications are subject to change without notice to the owner. Information regarding significant changes is forwarded to all Authorized Yamaha Dealers as soon as available. If a discrepancy is noted, please consult your dealer.

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SECTION C. MAINTENANCE SPECIFICATIONS

C.D.I. Ignition	
Secondary ignition coil Resistance (Primary)	0.61 Ω±10%/20°C (68°F)
Secondary ignition coil Resistance (Secondary)	6.0 KΩ±20%/20°C (68°F)
Ignition timing (Advanced)	1.6±0.15 mm (0.064±0.006 in)
Spark plug (Normal conditions)	N59G Champion
Spark plug gap	0.5 – 0.6 mm(0.020 – 0.024 in)
ENGINE – TOP END	
Piston clearance	0.045 – 0.050 mm (0.0018 – 0.002 in)
Piston wear limit	0.1 mm (0.004 in)
Ring end gap (Installed)	0.3 – 0.5 mm (0.012 – 0.020 in)
Connecting Rod/Piston pin side clearance	0.8 – 1.0 mm (0.031 – 0.039 in) *[2 mm (0.079 in)]
Connecting Rod/Crank side clearance	0.2 – 0.7 mm (0.008 – 0.028 in)
ENGINE – CLUTCH	
Friction plate thickness	3.0 mm (0.121 in) *[2.7 mm (0.11 in) minimum]
Clutch plate warp allowance	0.05 mm (0.002 in)
Clutch spring free length	36 mm (1.417 in) *[35 mm (1.378 in) minimum]

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MAINTENANCE SPECIFICATIONS

CHASSIS			
Front brake shoe diameter	130 mm (5.1 in)		
Front brake shoe replacement limit	126 mm (4.9 in)		
Rear brake shoe diameter	130 mm (5.1 in)		
Rear brake shoe replacement limit	126 mm (4.9 in)		
Wheel run-out limits vertical	2 mm (0.079 in)		
Wheel run-out limits lateral	2 mm (0.079 in)		
Front fork spring free length	393.5 mm (15.39 in)		
Rear shock spring free length	231.1 mm (9.24 in)		
TORQUE VALUES	BOLT SIZE	METRIC SPEC	ENGLISH SPEC
Cylinder head	M8	2.5 m-kg	(18 ft-lb)
Clutch boss	M14	7 m-kg	(50 ft-lb)
Primary drive gear	M12	7.0 m-kg	(50 ft-lb)
Drive sprocket	M16	8 m-kg	(58 ft-lb)
C.D.I. rotor	M12	5.0 m-kg	(36 ft-lb)
Engine mounting bolt (front)	M8	2.5 m-kg	(18 ft-lb)
" (rear, upper)	M8	2.5 m-kg	(18 ft-lb)
" (rear, lower)	M10	4.5 m-kg	(33 ft-lb)
Handle crown and inner tube	M8	1.5 m-kg	(11 ft-lb)
Handle crown and steering shaft pinch bolt	M8	1.5 m-kg	(11 ft-lb)
Steering Stem bolt	M14	6 m-kg	(44 ft-lb)

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	BOLT SIZE	METRIC SPEC	ENGLISH SPEC
Handle crown and handle holder	M8	1.5 m-kg	(11 ft-lb)
Under bracket and inner tube	M8	2.5 m-kg	(18 ft-lb)
Under bracket and steering shaft	M8	2.0 m-kg	(14 ft-lb)
Front fork cap bolt	M30	2.5 m-kg	(18 ft-lb)
Cylinder holding bolt	M10	2.5 m-kg	(18 ft-lb)
Front wheel axle	M14	10.0 m-kg	(72 ft-lb)
Front wheel axle holder	M8	2 m-kg	(14 ft-lb)
Pivot shaft	M12	4 m-kg	(29 ft-lb)
Rear wheel axle	M14	10 m-kg	(72 ft-lb)
Driven sprocket	M10	4.5 m-kg	(33 ft-lb)
Tension bar and brake plate	M8	2 m-kg	(14 ft-lb)
Tension bar and rear arm	M8	2 m-kg	(14 ft-lb)
Rear cushion ass'y (frame)	M14		
" (rear arm)	M8	2 m-kg	(14 ft-lb)
Rear hub stud bolt	M10	4 m-kg	(29 ft-lb)
Mono-cross suspension			
Piston rod and self locking nut	M12	3.5 m-kg	(25.3 ft-lb)
Cylinder case and membrane housing	M44	* 15.0 m-kg	(108 ft-lb)
Cylinder case and ring nut	M44	* 20.0 m-kg	(144 ft-lb)
Cylinder case and cap case	M44	15.0 m-kg	(108 ft-lb)
Housing cap and membrane housing	M91	* 7.0 m-kg	(50 ft-lb)
Bind screw	M6	0.5 m-kg	(3.6 ft-lb)

* Use Heat Resistance Grease

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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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