YAMAHA

MX125C

OWNER'S SERVICE MANUAL

565-28199-10

NOTICE

Yamaha Motor Company is confident you will enjoy your new Yamaha to the utmost. We have made every effort to provide you with a safe, well-engineered and constructed product.

This Owner's Service Manual will acquaint you with several features and maintenance procedures concerning your Yamaha. However, if you are unfamiliar with the product, or the features or procedures outlined within this manual, we strongly urge you to consult your Authorized Yamaha Dealer for additional information.

MX125C OWNER'S SERVICE MANUAL

1975

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FOREWORD

Yamaha's MX125C is completely new model designed solely for the rigors of Motocross competition. Production is limited. Each unit is assembled and checked according to the same rigorous principles as our championship road racing models.

This Owner's Service Manual is included to provide basic information for operation and maintenance. Additional information regarding major repairs, such as crankcase disassembly, can be found within the DT100C/125C/175C Service Manuals and various other information and training manuals available from your Authorized Yamaha Dealer.

YAMAHA MOTOR COMPANY, LTD.
SERVICE DEPARTMENT
OVERSEAS ENGINEERING DIVISION
IWATA, JAPAN

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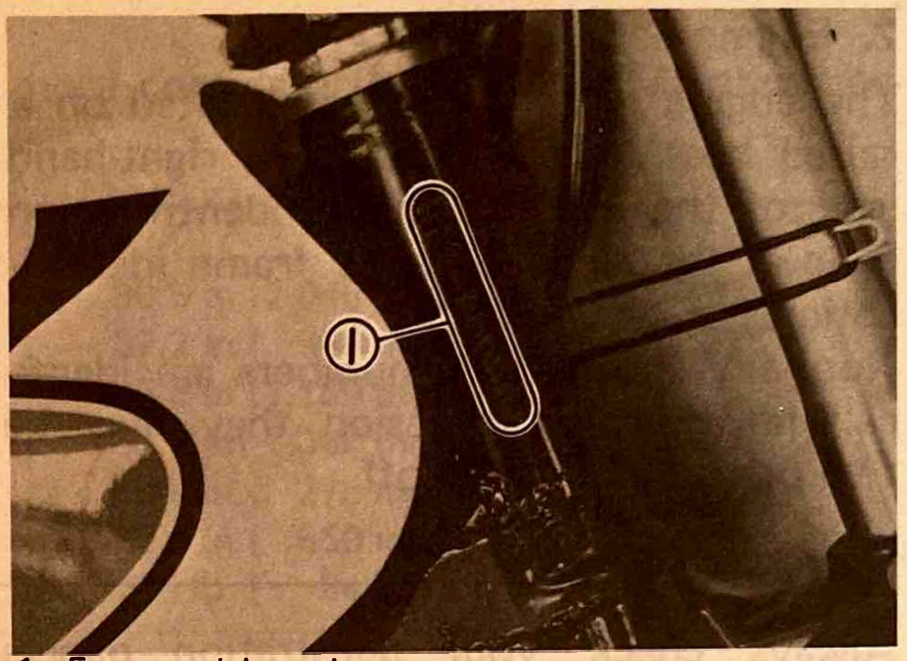
SECTION A. MACHINE IDENTIFICATION

1. Frame Serial Number

The frame serial number is located on the right-hand side of the headstock assembly. The first three digits identify the model. This is followed by a dash. The remaining digits identify the production number of the unit. Yamaha production begins-000101.



1. Frame serial number

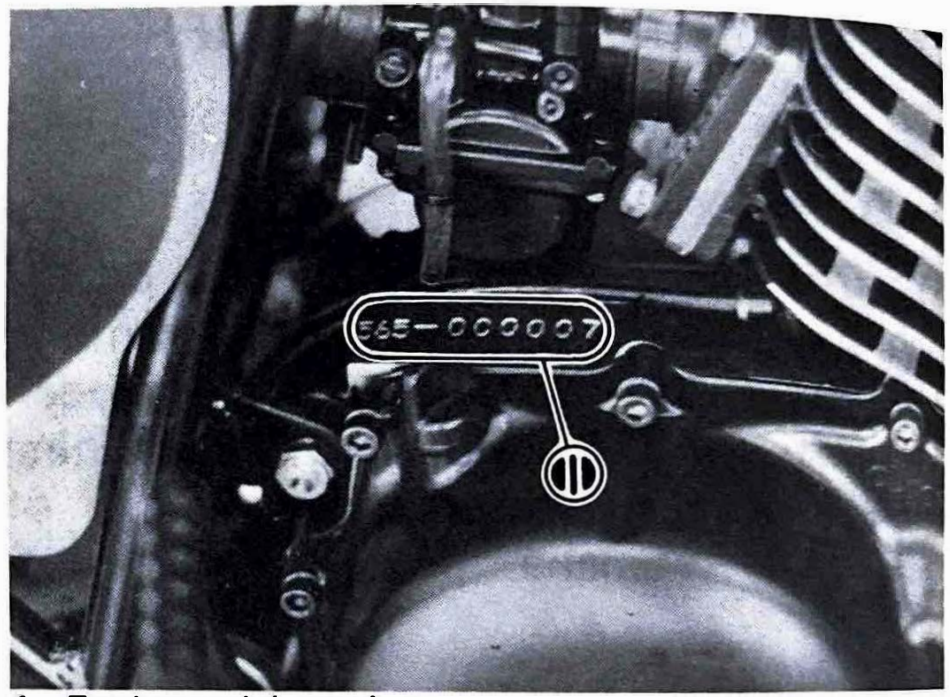
2. Engine Serial Number

The engine serial number is located on a raised boss on the upper rear, right-hand side of the engine. Engine identification follows the same code as frame identification.

Normally, both serial numbers are identical; however, on occasion they may be two or three numbers off.

NOTE:

Always check your registration papers against the actual machine serial numbers. If any discrepancy is found, have it corrected immediately.



1. Engine serial number

SECTION B. GENERAL 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	80.5 in (2,045 mm)
Overall width	37.2 in (945 mm)
Overall height	45.3 in (1,150 mm)
Wheelbase	53.7 in(1,365 mm)
Minimum ground clearance	10.8 in (275 mm)
Seat height (Unloaded)	33.5 in (850 mm)
Machine net weight	185 lb (84 kg)
ENGINE	
Type	Air cooled, 2-stroke, single
Bore/Stroke	2.205x1.969 in (56x50 mm)
Displacement	7.51 cu.in. (123 cc)
Compression ratio	7.5 : 1
Starting system	Kick starter
Lubricating system	Mixed Gas 20 : 1
CARBURETION	
Manufacturer/Type	MIKUNI VM 30SS
Effective venturi size	1.18 in (30 mm)
Main jet	#190
Needle jet	P – 4 (169)

(continued)

GENERAL SPECIFICATIONS

Jet needle	6DP1 – 4
Pilot jet	#60
Air screw (Turns out)	1½
Cut away	3.0
Float level	0.59 ± 0.04 in (15.0 ± 1 mm)
Air cleaner type	Oiled foam rubber
CLUTCH	
Type	Wet multiple disc type
Primary drive system	Helical gear
Primary drive ratio	74/19 3.894
TRANSMISSION	
Type	
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	45/14
Type/Size	Chain DK428HD 113L
Reduction ratio	3.214
ELECTRICAL	
Ignition type/Manufacturer	C.D.I. Magneto M100–18 Hitachi
Coil/Manufacturer	Hitachi CM61–20Y
C.D.I. unit/Manufacturer	Hitachi TIA01–05

GENERAL SPECIFICATIONS

CHASSIS	
Frame type	Tubular steel double cradle
Front suspension/Travel	7.68 in (195 mm)
Front fork spring free length	15.49 in (393.5 mm)
Rear suspension/Travel	3.90 in (100 mm)
Rear cushion spring free length	9.80 in (249 mm)
Caster/Trail	58°25' / 5.51 in (140 mm)
Front tire Size	3.00-21 – 4PR
Thread type	Full konbby
Nominal pressure (Psi)	0.9
Rear tire Size	4.10-18 – 4PR
Thread type	Full knobby
Nominal pressure (Psi)	1.1
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 (Ratio)	1.5 gal. (5.5 lit) Premium (20 : 1)
Transmission/Type	650 ± 50 cc (SAE 10W30)
Front fork (each)/Type	190.5 cc 10,20,30 wt Fork oil

NOTE:

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In light of this fact, the foregoing specifications are subject to change without notice to the owner. Information regarding changes is forwarded to all Authorized Yamaha Dealers as soon as available. If a descrepancy is noted, please consult your dealer.

SECTION C. MAINTENANCE SPECIFICATIONS

C.D.I. IGNITION	
Secondary ignition coil Resistance (Primary)	0.61 Ω ± 10%/20°C
Secondary ignition coil Resistance (Secondary)	6.0 KΩ ± 20%/20°C
Ignition timing	0.08 in ± 0.001 in (2.0 ± 0.15 mm) B.T.D.C.
Spark plug constant Normal	NGK B-9EV
Spark plug gap	0.024 in (0.6 mm)
ENGINE – TOP END	
piston clearance	0.0018 – 0.002 in (0.045 – 0.050 mm)
Piston wear limit	0.004 in (0.1 mm)
Ring end gap (Installed)	0.016 – 0.020 in (0.4 – 0.5 mm)
Connecting Rod/Piston pin side clearance	0.031 – 0.039 in (0.8–1.0mm)* 0.079in(2mm)
Connecting Rod/Crank side clearance	0.008 –0.028 in (0.2 – 0.7 mm)
ENGINE – CLUTCH	
Friction plate thickness	0.121 in (3.0 mm) * 0.11 in(2.7 mm)
Clutch plate warp allowance	None
Clutch spring free length	1.417 in (36 mm) * 1.378 in (35 mm)

*[ALLOWABLE]

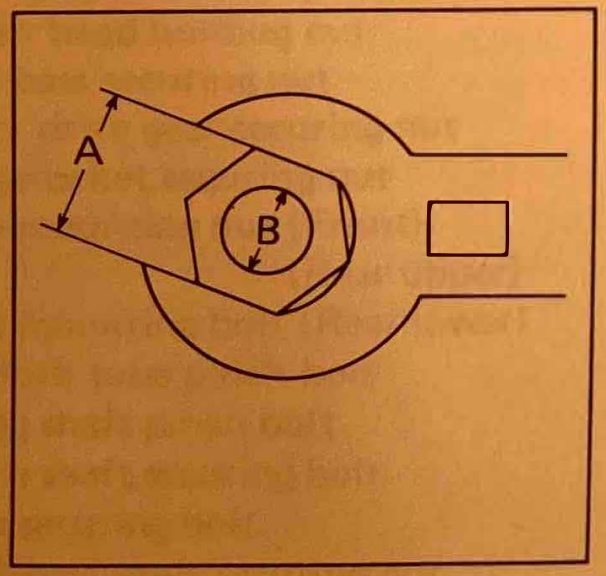
MAINTENANCE SPECIFICATIONS

CHASSIS	
Front brake shoe diameter	5.1 in (130 mm)
Front brake shoe replacement limit	4.9 in (125 mm)
Rear brake shoe diameter	5.1 in (130 mm)
Rear brake shoe replacement limit	4.9 in (125 mm)
Wheel run-out limits vertical	0.079 in (2 mm)
Wheel run-out limits lateral	0.079 in (2 mm)
Front fork spring free length	15.49 in (393.5 mm)
Rear shock spring free length	7.80 in (249 mm)
TORQUE VALUES	
(Also see Torque chart page 8)	
Cylinder head holding nut	15 – 18 ft-lb M 8 (2.1 – 2.5 m-kg)
Clutch bass securing nut	36 – 51 ft-lb M12 (5.0 – 7.0 m-kg)
Primary drive gear securing nut	36 – 51 ft-lb M12 (5.0 – 7.0 m-kg)
Drive sprocket securing nut	47 – 72 ft-lb M16 (6.5 – 10.0 m-kg)
Engine mounting nut (Front)	14 – 22 ft-lb M 8 (2.0 – 3.0 m-kg)
(Rear upper)	14 – 22 ft-lb M 8 (2.0 – 3.0 m-kg)
Engine mounting bolt (Rear lower)	22 – 35 ft-lb M10 (3.0 – 4.8 m-kg)
Front fork tube pinch bolt	8 – 13 ft-lb M 8 (1.1 – 1.8 m-kg)
Steering shaft pinch bolt	8 – 13 ft-lb M 8 (1.1 – 1.8 m-kg)
Steering shaft securing bolt	30 – 47 ft-lb M14 (4.2 – 6.5 m-kg)
Handle securing bolt	8 – 13 ft-lb M 8 (1.1 – 1.8 m-kg)
Front wheel shaft securing nut	51 – 72 ft-lb M14 (7.0 – 10.0 m-kg)

Pivot shaft securing nut	25 – 36 ft-lb	M12	(3.5 – 5.0 m-kg)
Rear wheel shaft securing nut	51 – 72 ft-lb	M14	(7.0 – 10.0 m-kg)
Driven sproket securing nut	22 – 35 ft-lb	M10	(3.0 – 4.8 m-kg)
Tension bar and brake plate bolt	10 – 16 ft-lb	M 8	(1.4 – 2.2 m-kg)
Tension bar and rear arm blot	10 – 16 ft-lb	M 8	(1.4 – 2.2 m-kg)
C.D.I. Rotor securing bolt	29 ft-lb	M18	(4.0 m-kg)

SECTION D. TORQUE CHART

The chart covers those stud/bolt sizes with standard I.S.O. pitch threads. Torque specifications for components with thread pitches other than standard are given within the applicable chapter.
Torque specifications are for dry, clean threads. Components such as the cylinder or cylinder head should be at room temperature prior to torquing. A cylinder head or any other item with several fasteners should be torqued down in a cross-hatch pattern in successive stages until torque specification is reached. The method is similar to installing an automobile wheel and will avoid warping the component.



A (mm) (nut)	B(mm) (bolt)	Torque specification		
		m-kg	ft-lb	in-lb
10	6	1.0	7	85
12	8	2.0	15	175
14	10	3.5–4.0	25–30	300–350
17	12	4.0–4.5	30–35	350–400
19	14	4.5–5.0	30–35	400–400
22	16	5.5–6.5	41–49	480–570
24	18	6.0–7.0	40–50	500–600
27	20	7.0–8.0	50–60	600–700
Spark plug		2.5–3.0	20–22	230–250

SECTION E. MAINTENANCE AND LUBRICATION SCHEDULE

The maintenance and lubrication schedule chart should be considered strictly as a guide to general maintenance and lubrication intervals. You must take into consideration that weather, terrain, geographical locations, and a variety of individual uses all tend to demand that each owner alter this time schedule to match his environment. For example, if the motorcycle is continually operated in an area of high humidity then all parts must be lubricated much more frequently than shown on the chart to avoid rust and damage. If you are in doubt as to how closely you can follow these time recommendations, check with the YAMAHA dealer in your area.

MAINTENANCE AND LUBRICATION SCHEDULE CHART – NOTES

No. (1) At ambient temperatures of 0°C~ 30°C(32~86°F), use SAE 10W/30 "SE" motor oil. Do not use "additives" in oil.

No. (2) Use SAE 10W/30 "SE" motor oil. (If desired, specialty type lubricants of quality manufacture may be used.)

No. (3) Use graphite base type (specialty types available – use name-brand, quality manufacturer).

No. (4) Light duty: smooth, light-weight, "white" grease. Heavy duty: soft chassis lube grease (do not use lube grease on throttle/housing).

No. (5) Use soft chassis lube grease – smooth, not carse.

No. (6) Medium-weight wheel bearing grease of quality manufacturer (preferably waterproof.)

No. (7) Light-weight machine oil.

No. (8) Air filters – foam element air filters must be damp with oil at all times to function properly. Clean and lube every meet. If hard usage, clean and lube every heat (MOTO). Do not over-oil. Use SAE 10W/30 "SE".

No. (9) Use 10 ~ 30W fork oil (non-foaming hydraulic fluid).

MAINTENANCE AND LUBRICATION SCHEDULE CHART

Item	RACE/MEET INTERVAL					
	Every meet	Every second	Every third	Every heat (moto)	Every 6 months of racing	As required
PISTON						
• Inspect	X					
• Clean	X					
• Replace						X
PISTON RINGS						
• Replace	X					
CYLINDER						
• Inspect (Compression Check)	X					
• Clean	X					
• Replace						
• Check head bolt torque				X		
CLUTCH						
• Adjust	X					
• Replace (Plates)						X
TRANSMISSION						
• Change Oil		X(1)				
• Inspect gears					X	
• Replace bearings					X	
• Inspect shift forks					X	

MAINTENANCE AND LUBRICATION SCHEDULE CHART (Continued)

Item	RACE/MEET INTERVAL					
	Every meet	Every second	Every third	Every heat (moto)	Every 6 months of racing	As required
ENGINE MAIN BEARINGS						
• Replace					X	
CONNECTING ROD						
• Check bearings	X					
• Replace big end bearing					X	
• Replace small end bearing						X
CARBURETOR						
• Check/Adjust/Tighten	X					
• Clean & Inspect	X					
PISTON PIN						
• Inspect	X					
• Replace						X
EXHAUST SYSTEM						
• Inspect	X					
ROTOR NUT						
• Torque	X					
KICK STARTER						
• Inspect idler gear					X	
• Replace						X

MAINTENANCE AND LUBRICATION SCHEDULE CHART (Continued)

Item	RACE/MEET INTERVAL					
	Every meet	Every second	Every third	Every heat (moto)	Every 6 months of rading	As required
FRAME						
• Clean & Inspect	X					
SWING ARM						
• Check	X					
• Lubricate			X(5)			
CONTROLS & CABLES						
• Check & Adjust	X					
• Lubricate	X(3)					
BRAKES						
• Clean/Check/Adjust	X					
• Replace						X
WHEELS AND TIRES						
• Check pressure	X					
• Check runout	X					
• Check spoke tension				X		
• Check bearings	X					
• Replace bearing						X
STEERING HEAD						
• Check	X					
• Clean and repack			X(6)			

MAINTENANCE AND LUBRICATION SCHEDULE CHART (Continued)

Item	RACE/MEET INTERVAL					
	Every meet	Every second	Every third	Every heat (moto)	Every 6 momths of rading	As required
CDI WIRING						
• Check connections	X					
AIR FILTER						
• Clean and oil	X(8)					
• Replace						X
SPARK PLUG						
• Replace				X		
DRIVE CHAIN						
• Clean & lubricate				X(2)		
• Check tension and alignment				X		
• Replace						X
FITTINGS AND FASTENERS						
• Tighten	X					
FUEL TANK						
• Clean/Flush	X					
• Clean petcock filter	X					
SHOCK ABSORBERS						
• Check			X			
• Replace						X
FRONT FORKS						
• Drain & refill			X(9)			
• Replace seals						X

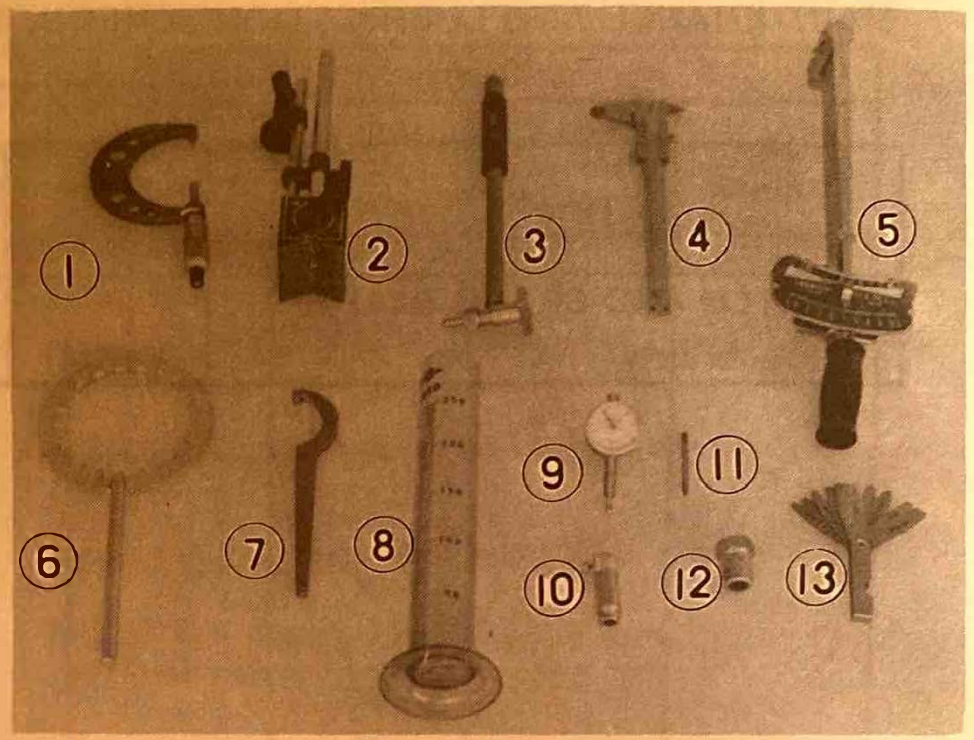
MAINTENANCE AND LUBRICATION SCHEDULE CHART (Continued)

Item	RACE/MEET INTERVAL					
	Every meet	Every second	Every third	Every heat (moto)	Every 6 months of racing	As required
CLUTCH AND BRAKE SHAFTS						
Lubricate	X(4)					

SECTION F. 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 (50 – 75mm)
2. Magnetic Base
3. Cylinder Gauge (50 – 100mm)
4. Verner Caliper (0 – 150mm)
5. Torque Wrench
*6. Clutch Holding Tool
*7. Steering Nut Wrench
8. Measuring Cylinder (0 – 250cc, 10 cc increments)
*9. Dial Gauge
*10. Dial Gauge Stand
*11. Dial Gauge Needle (56mm)
*12. Rotor Puller
13. Thickness Gauge



NOTE:

Those items marked with an asterisk (*) available from Yamaha.

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CHAPTER II.
BASIC INSTRUCTIONS

SECTION A. CONTROL FUNCTIONS

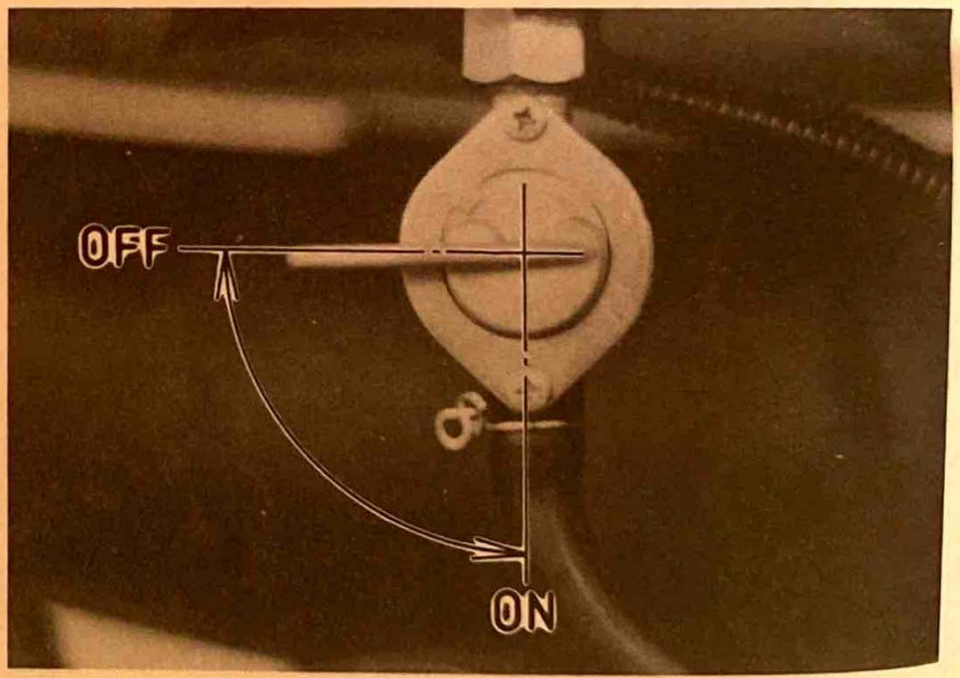
1. Enging Stop Button

The engine stop button is located on the left handlebar. Push and hold for ignition off.

2. Fuel Tank and Petcock

The fuel tank incorporates a threaded plastic filter cap. The cap has a vent tube which is routed to the front of the tank and down alongside a frame down tube.

The fuel tank petcock is located on the rear left-side 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.



3. Front Brake Lever

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

4. Rear Brake Pedal

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

5. Clutch Lever

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

6. Throttle

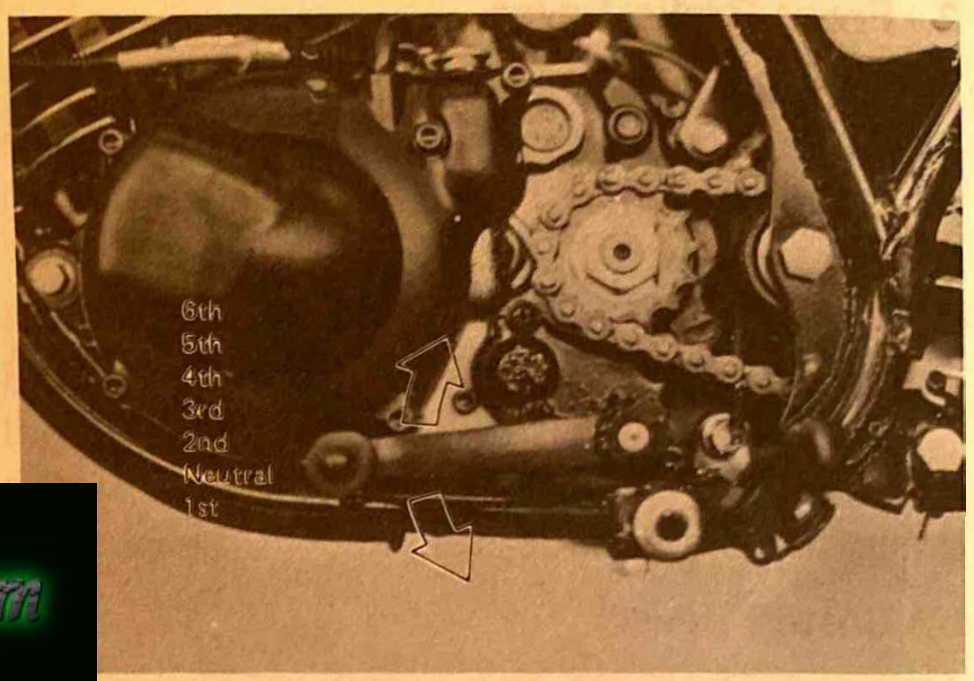
The throttle is the positive-return type, and is located on the right handlebar.

7. 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.

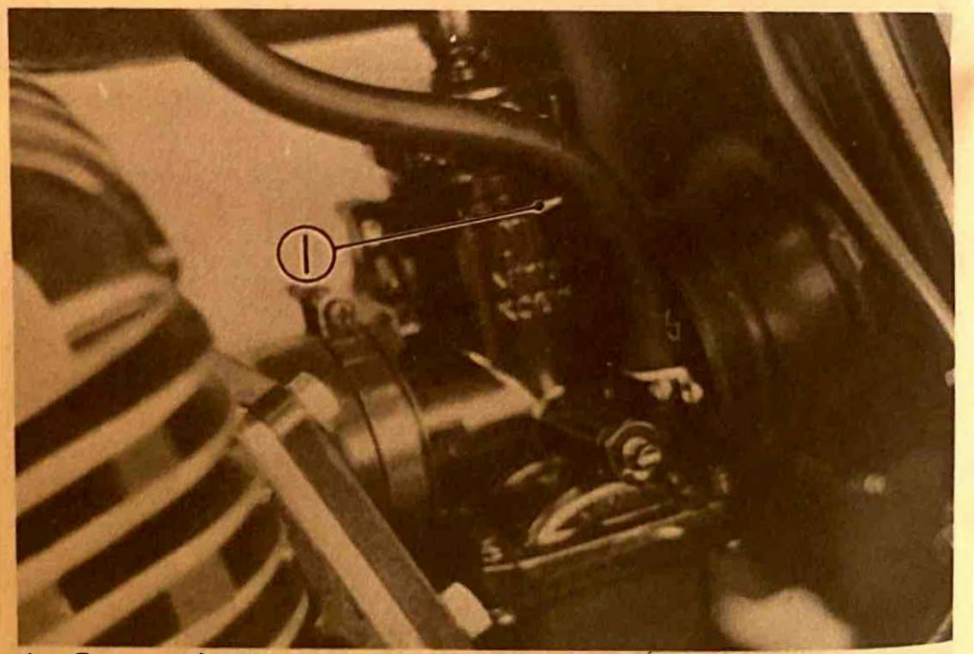
8. Shift Lever

The transmission shift lever is located on the left-hand side 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.



9. Carburetor Starter Jet

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 jet. Always disengage the lever after the engine is running smoothly. Never ride the machine with the lever down.



1. Starter jet lever

SECTION B. FUEL AND OIL

1. Fuel

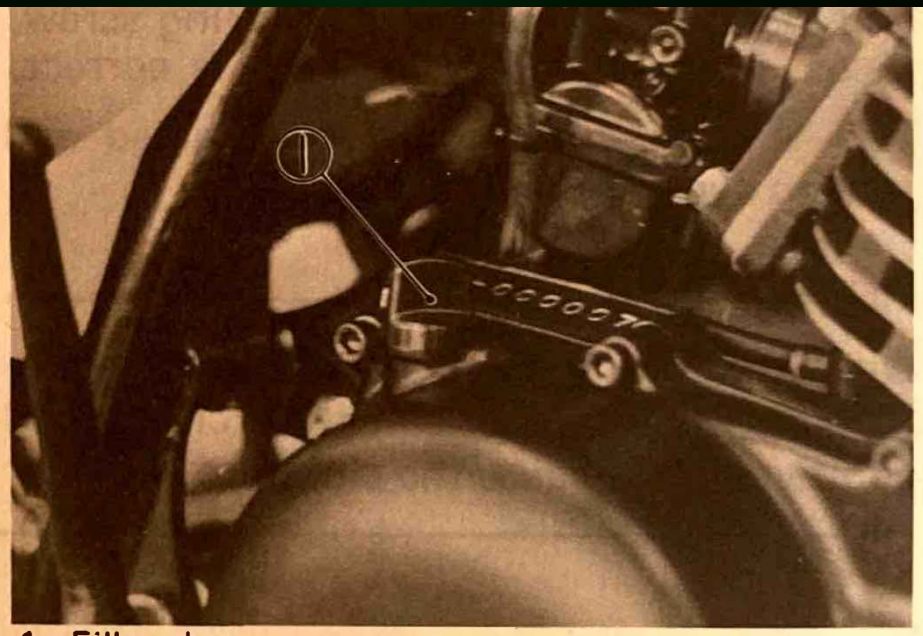
Use premium gasoline with an octane rating of 90+ mixed with oil at a gas/oil ratio of 20 : 1. Always use fresh, name-brand gasoline.

Always mix a fresh batch of fuel the morning of the race and do not retain a mixed batch overnight.

2. Oil

a. Engine Mixing Oil. We recommend that your first choice be Castrol R—30 and shell super M (vegetable base) oil. If for any reason you should use another type, the oil should meet or exceed BIA certification "TC-W". Check the container top or label for service specification and mixing ratios.

b. Transmission Oil. The transmission filler plug is located above the kick-starter. Recommended oil: 10W/30 SAE type "SE" name-brand motor oil.



1. Filler plug

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.

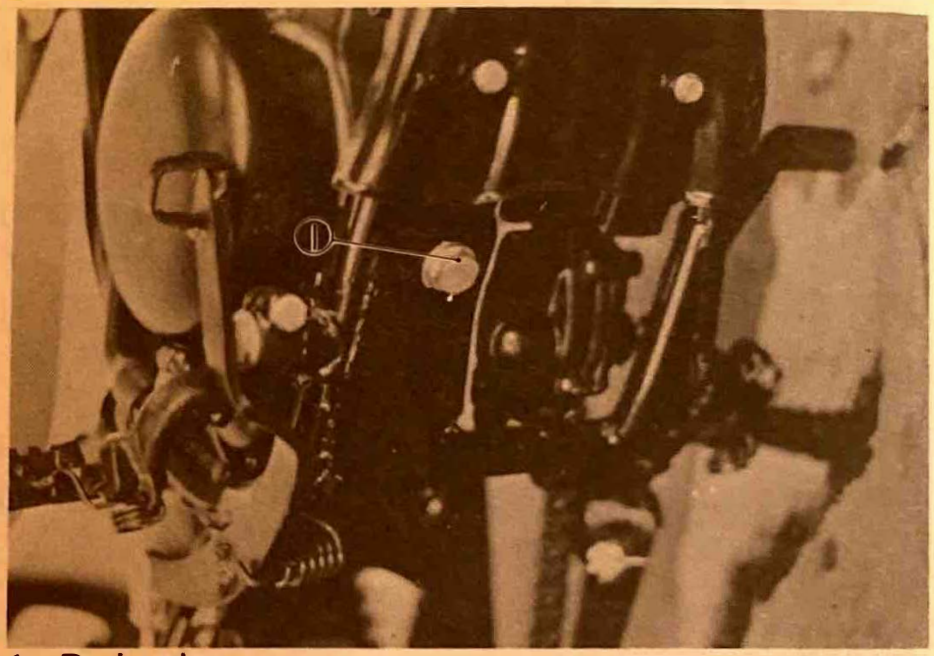
Transmission oil capacity:
39.7 ± 3.05 cu.in. (650 ± 50 cc)

On the right side of the engine there is a checking screw 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.

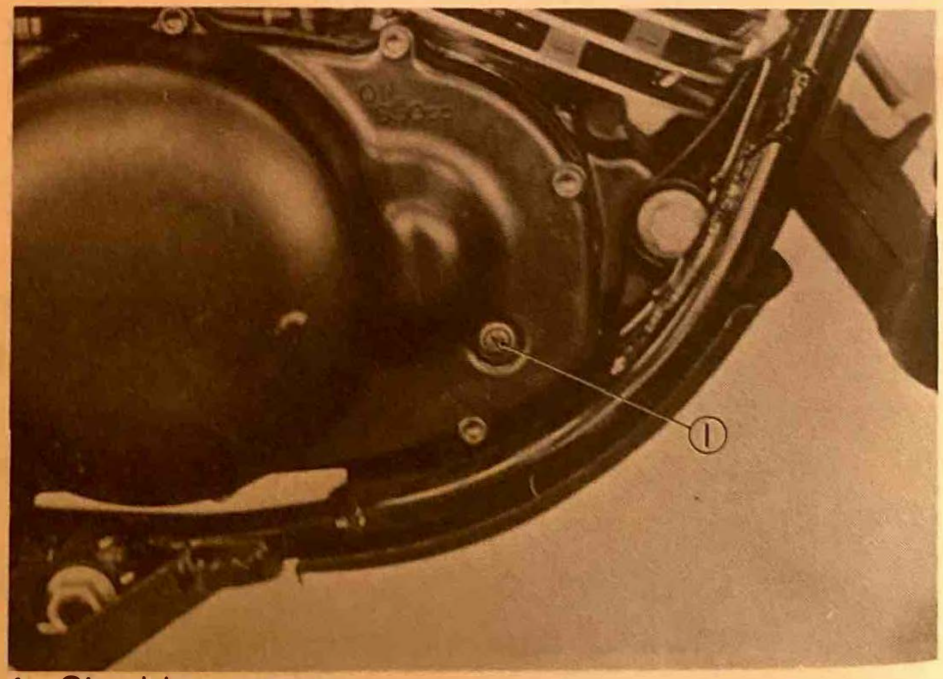
The transmission should be drained and refilled every second race meet.

NOTE:

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



1. Drain plug



1. Checking screw

CHAPTER III. OPERATION

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 only. 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.

SECTION A. PRE-OPERATION CHECK LIST

ITEM	ROUTINE
BRAKE	Check operation/adjustment
CLUTCH	Check operation/lever adjustment
FUEL TANK	Fill with proper fuel/oil mix
TRANSMISSION	Change oil as required
DRIVE CHAIN	Check alignment/adjustment/lubrication
SPARK PLUG	Replace each race (moto)
THROTTLE	Check for proper cable operation
AIR FILTER	Foam type—must be clean and damp with oil always
WHEELS & TIRES	Check pressure/runout/spoke tightness/axle nuts
FITTINGS/FASTENERS	Check all/tighten as necessary

NOTE:

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

SECTION B. BREAK-IN PROCEDURE

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 (Section C) 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.
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.
6. Allow engine to cool. Repeat procedure, running for 5 minutes. Full throttle and higher gears may be used, but avoid sustained full throttle operation. Check spark plug condition.
7. Allow engine to cool. Remove top end and inspect. Remove "high" spots on piston with No. 600 grit, wet sandpaper. Clean, and carefully reassemble.
8. Remove break-in fuel/oil mixture from tank. Refill with 20:1 operation fuel/oil mixture. Check entire unit for loose or mis-adjusted fittings/controls/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.

SECTION C. 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. Agitate machine prior to starting and fuel prior to filling to provide correct mixture. Never leave the fuel in tank for long periods. The fuel/oil mix will denature. Turn fuel pet-cock lever to open (vertical) position.

1. 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. There-fore, 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.

2. Starting with Engine Warm

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

3. 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.

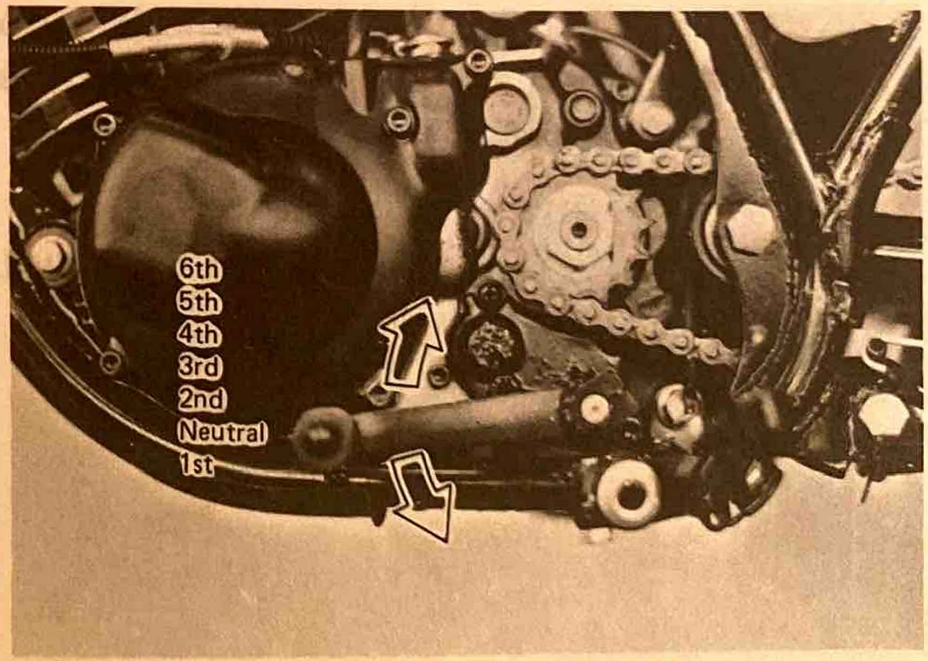
CAUTION:

Do not operate engine for extended warm-up periods.

4. Shifting

A 6-speed transmission is used. Low gear is at the bottom of the shift pattern; high hear 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.



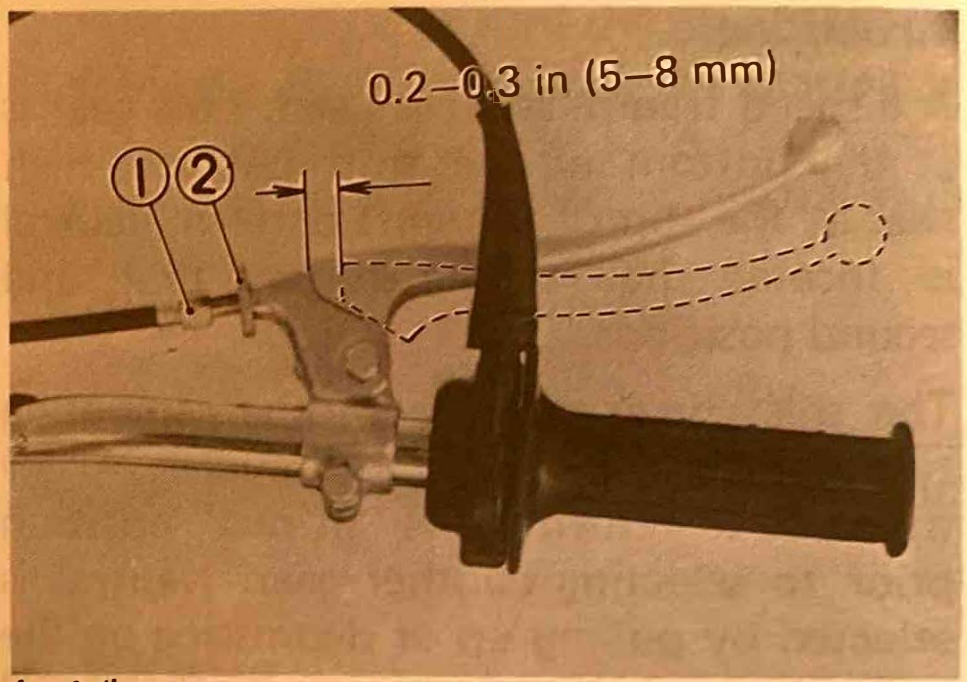
With the engine running in the neutral position, disengage the clutch (pull in clutch lever), press down on the shift lever until low gear is engaged, remove foot from shift lever, increase engine speed slightly, slowly release clutch lever while advancing throttle. Repeat procedure for remaining gears.

CHAPTER IV.
MECHANICAL ADJUSTMENTS

SECTION A. BRAKES

1. Front Brake

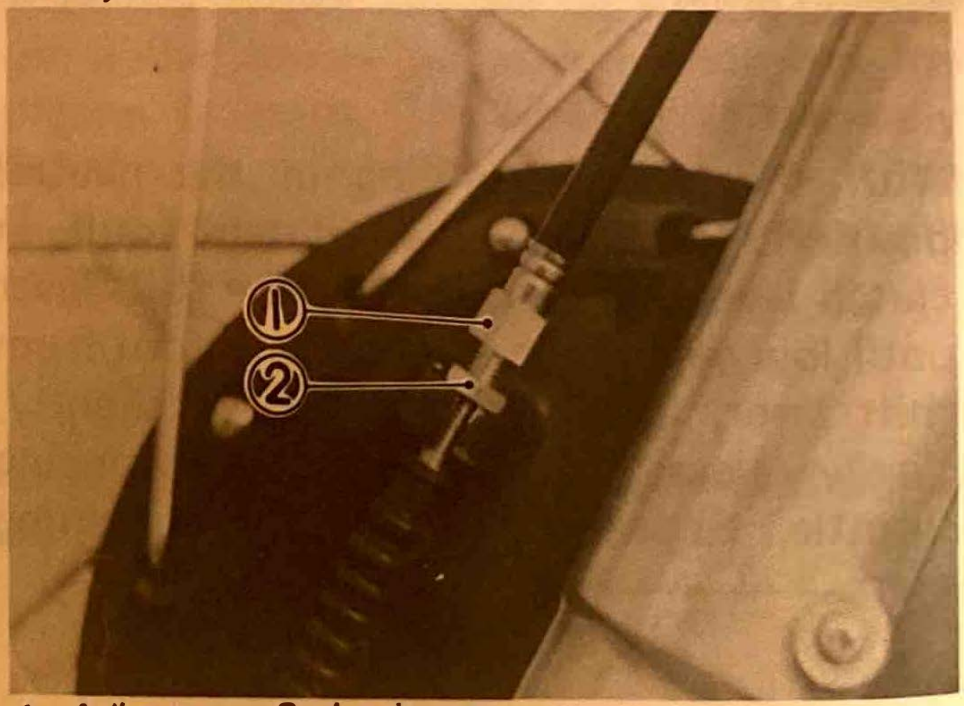
Front brake should be adjusted to suit rider preference with a minimum cable slack of 0.2 – 0.3 in (5 – 8 mm) play at the brake lever pivot point.



1. Adjuster
2. Adjuster lock nut

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

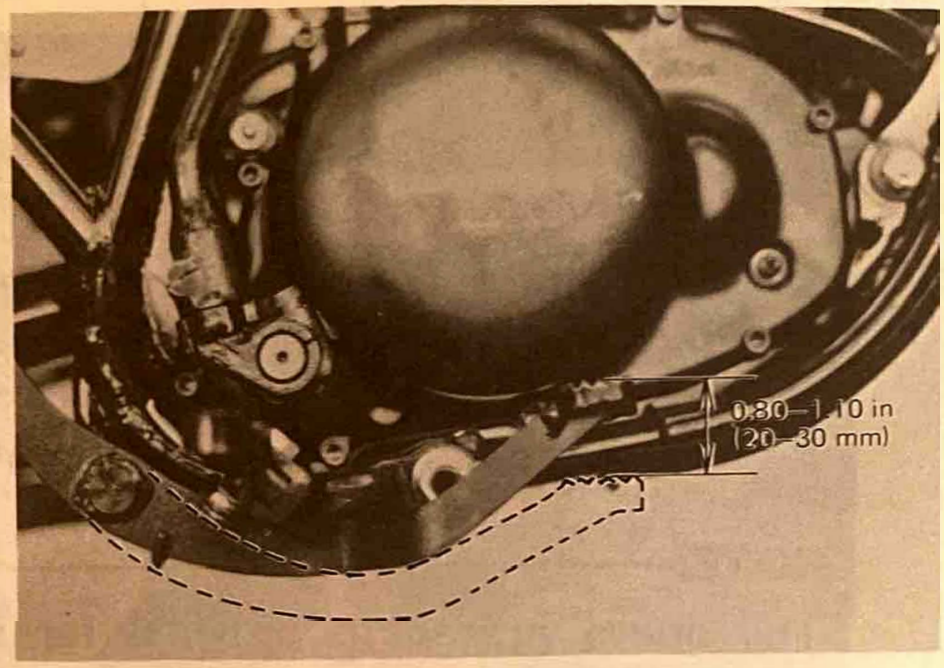
a. Loosen the adjuster locknut.
b. Turn the cable length adjuster in or out until adjustment is suitable.
c. Tighten the adjuster locknut.



1. Adjuster 2. Lock nut

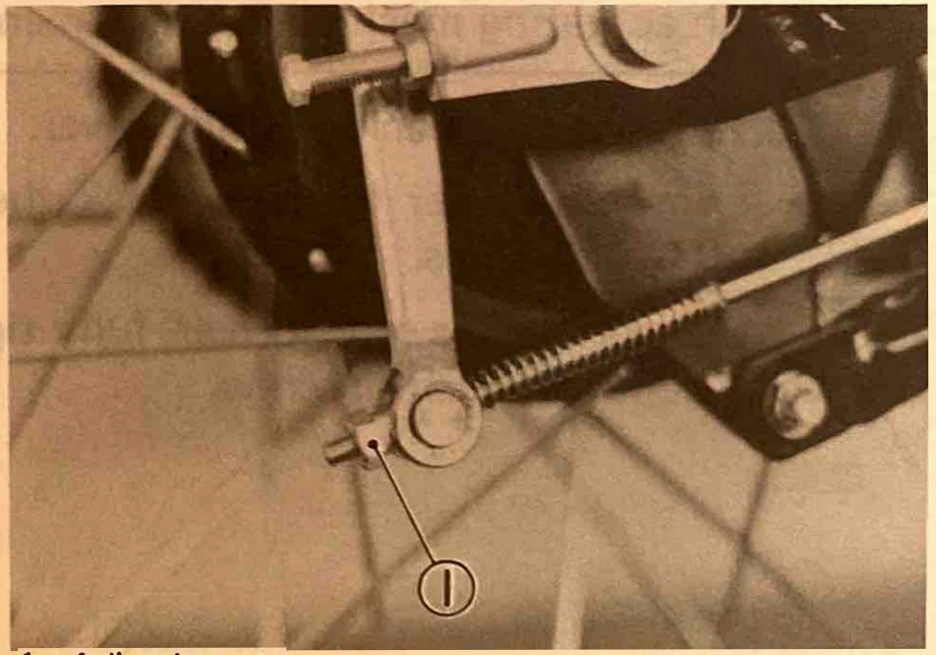
2. Rear Brake

Adjust rear brake pedal play to suit, providing a minimum of 0.80–1.10 in (20 – 30 mm) 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

SECTION B. CLUTCH

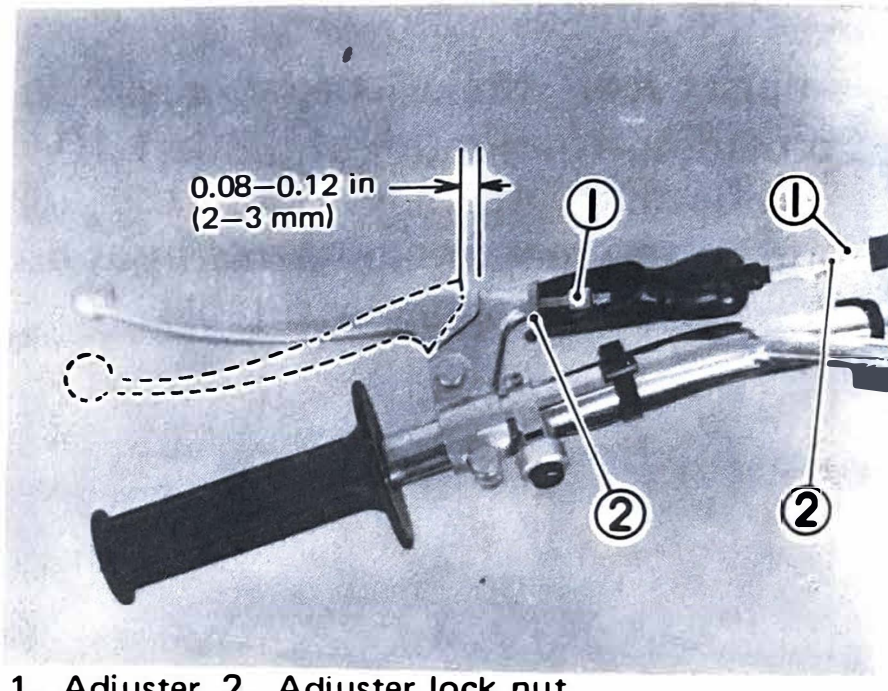
Proper clutch adjustment requires two separate procedures.

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.

NOTE:

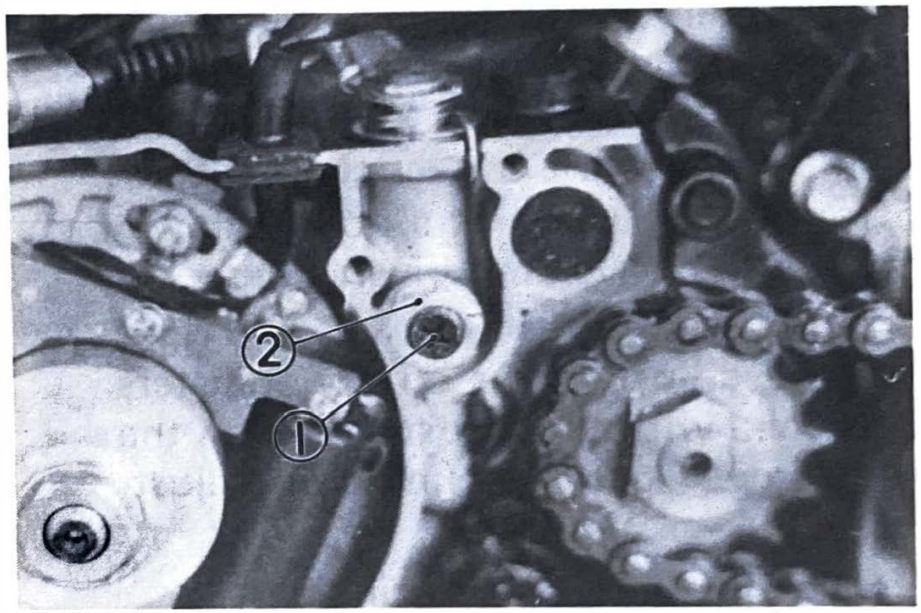
The above procedure provides for maximum cable freeplay to allow for proper clutch actuating mechanism adjustment.

3. Remove left crankcase side cover.
4. Loosen adjuster locknut. Back the nut off 2 or 3 turns.
5. Using a Phillips screwdriver, fully tighten eccentric adjusitng screw.



1. Adjuster 2. Adjuster lock nut

6. Turn cable length adjuster in or out until lever is positioned slightly behind main axle center line.
7. Back eccentric adjusting screw out until axle lever shaft contacts clutch push rod inside engine. Turn adjusting screw in approximately 1/8 turn.
8. Tighten locknut while holding adjust screw in place.
9. At clutch lever assembly, left handlebar, turn cable length adjuster in or out until freeplay at lever pivot equals 0.08–0.12 in. (2–3mm.).
10. Tighten adjuster locknut.
11. Reinstall side ocver.



1. Eccentric adjusting screw 2. Lock nut

SECTION C. DRIVE CHAIN

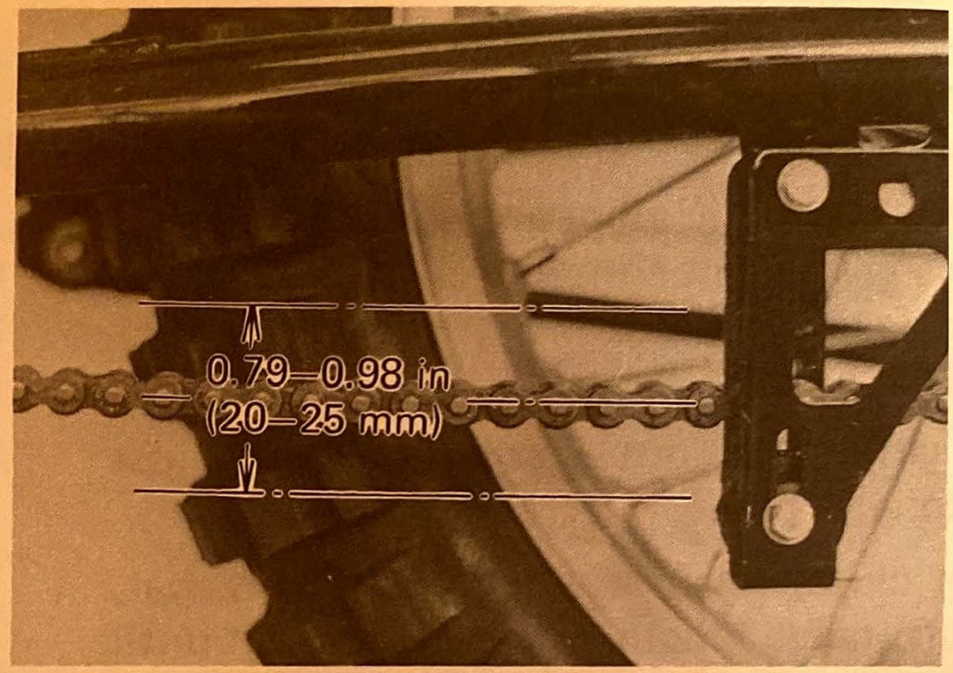
To adjust drive chain, proceed as follows:

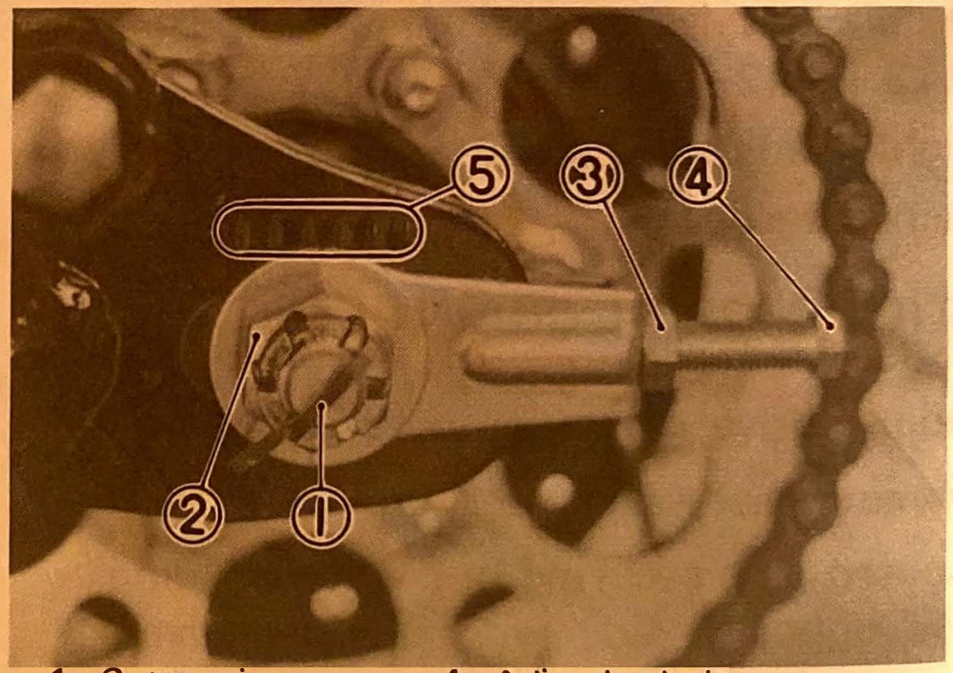
1. Remove rear axle cotter pin.
2. Loosen axle securing nut while holding the opposite side with a screwdriver.

3. With rider in position on machine, both wheels on ground, set axle adjusters until there is 0.79 – 0.98 in (20 – 25 mm) 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 both left and right until the adjust marks on the adjusters are aligned with the adjust marks on the swing arm. Tighten locknuts on adjusting bolts.
5. Tighten the rear axle securing nut.

Torque: 51—72 ft-lb (7 – 10 m-kg)

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





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

CAUTION:

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

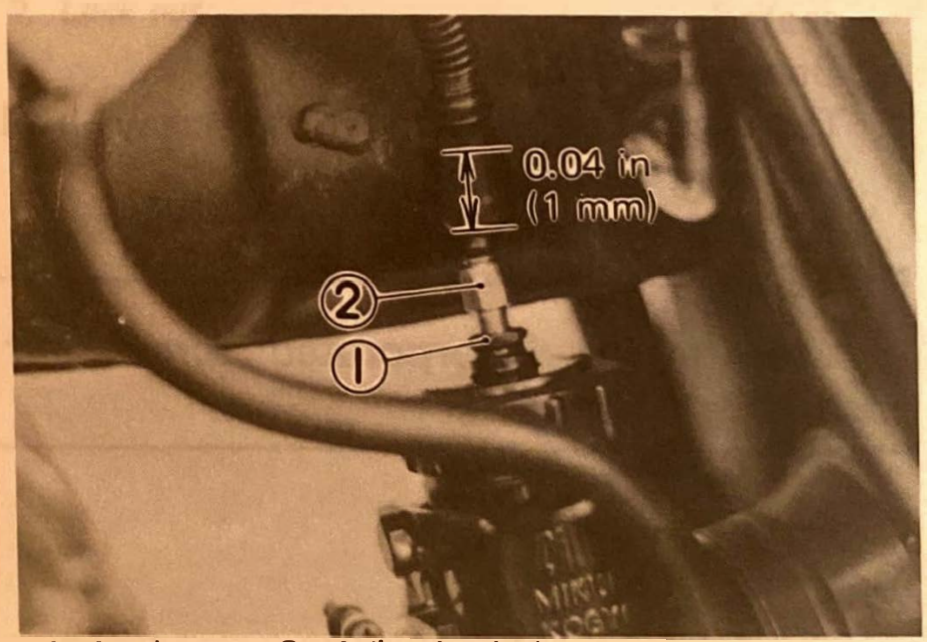
SECTION D. CARBURETOR

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.

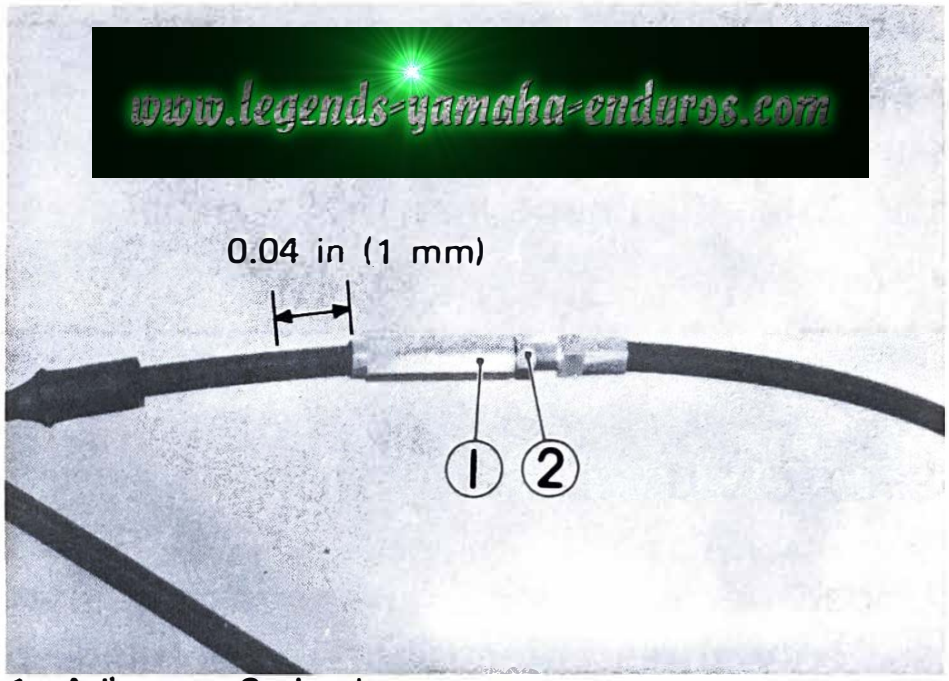
b. Grasp the outer cable housing. Lift it up.
Slack should equal 0.04 in (1 mm) at the adjuster. If slack is incorrect, loosen adjusting bolt locknut and turn adjusting bolt in or out as required to achieve correct slack. Tighten the adjusting bolt locknut. Reinstall the cap cover.



1. Lock nut 2. Adjusting bolt

c. Grasp the throttle cable housing at the adjuster on the throttle cable near the handle bar, pull in out.
Slack should equal 0.04 in (1 mm). If not loosen cable length adjuster locknut and adjust cable length as required.

d. Tighten the adjuster locknut.



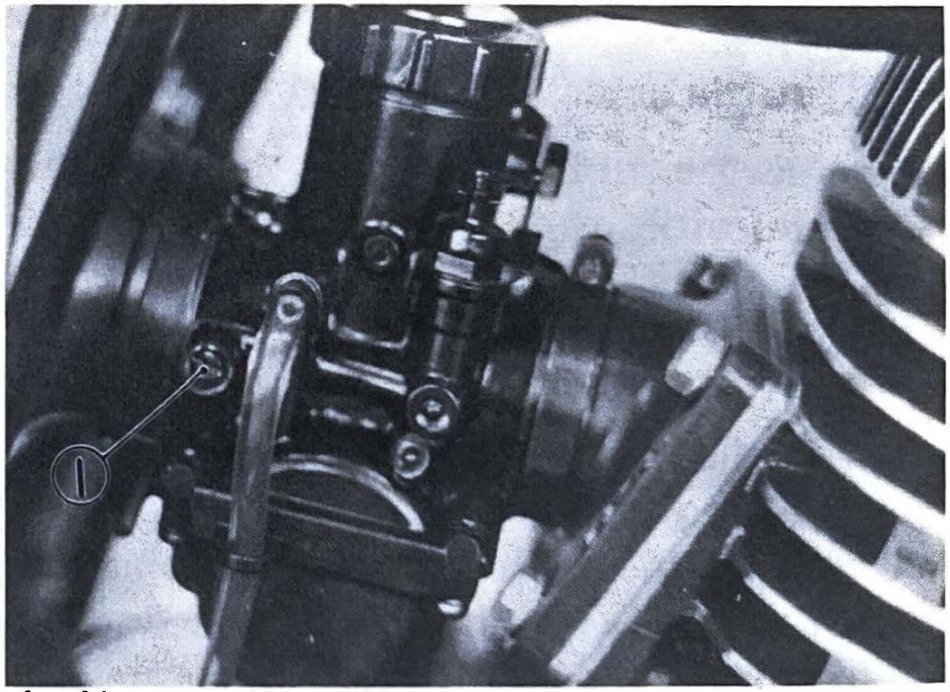
1. Adjuster 2. Lock nut

2. Idle speed and idle air adjustments:

a. Turn idle air screw in until lightly seated.
b. Back out 1-1/2 turns.
c. Turn the idle speed adjusting screw until idle is at desired rpm.

NOTE:

A locknut is incorporated screws for positive retention.



1. Air 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.

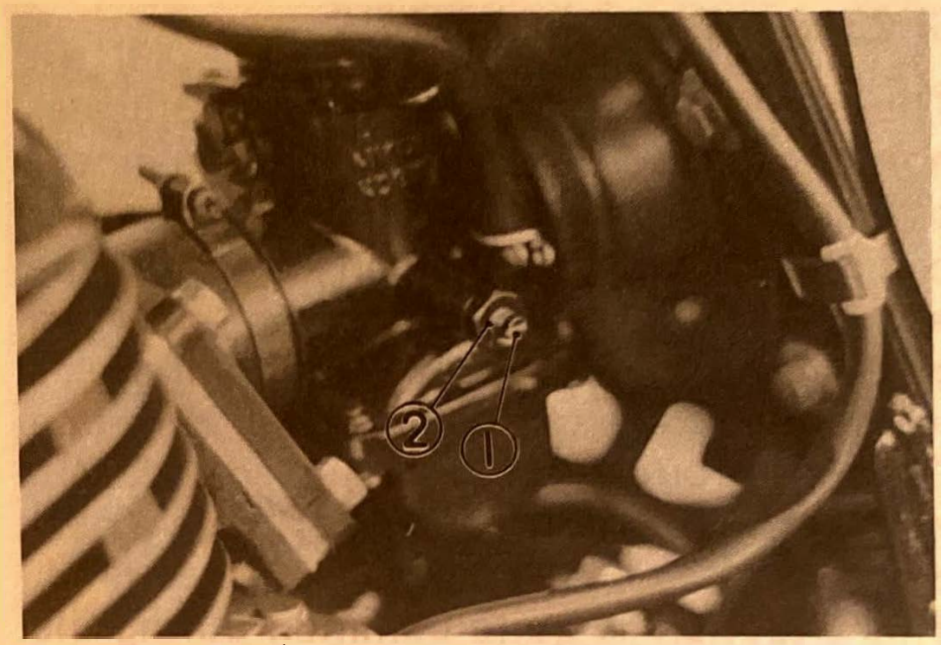
NOTE:

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

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.



1. Idle speed adjusting screw
2. Lock nut

SECTION E. 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 positive electrode of the spark plug will be a medium to light tan color. If the porcelain "donut" around the positive electrode 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 area surrounding the positive electrode of the spark plug 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 heart 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:
NGK B9EV.

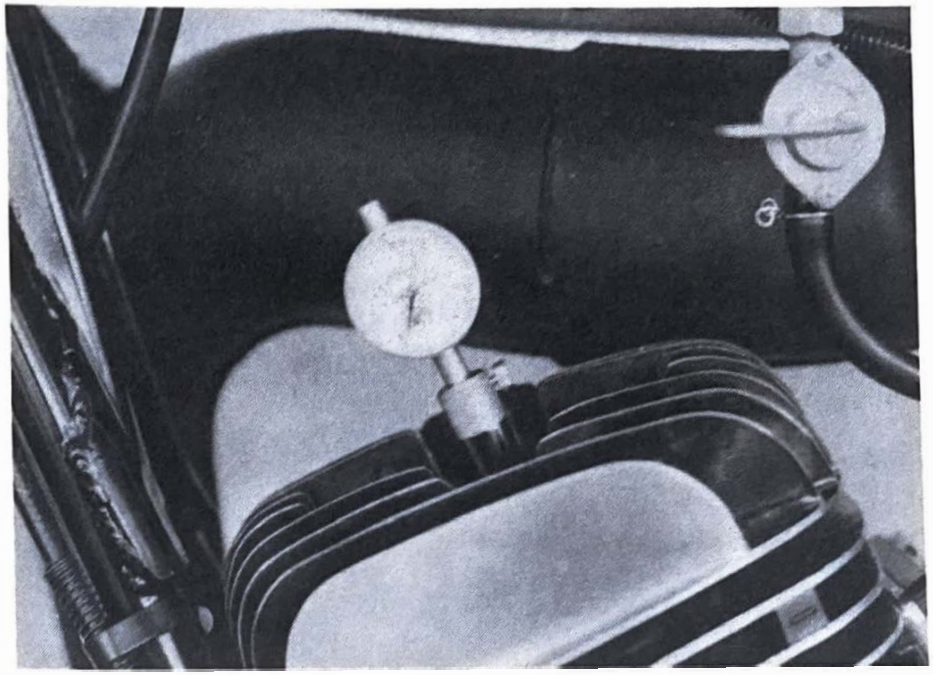
Spark plug gap :
0.024 in (0.6 mm)

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, torque the spark plug properly.

Spark plug torque:
20 – 22 ft-lb (2.5–3.0 m-kgs.)

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



SECTION F. IGNITION TIMING

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

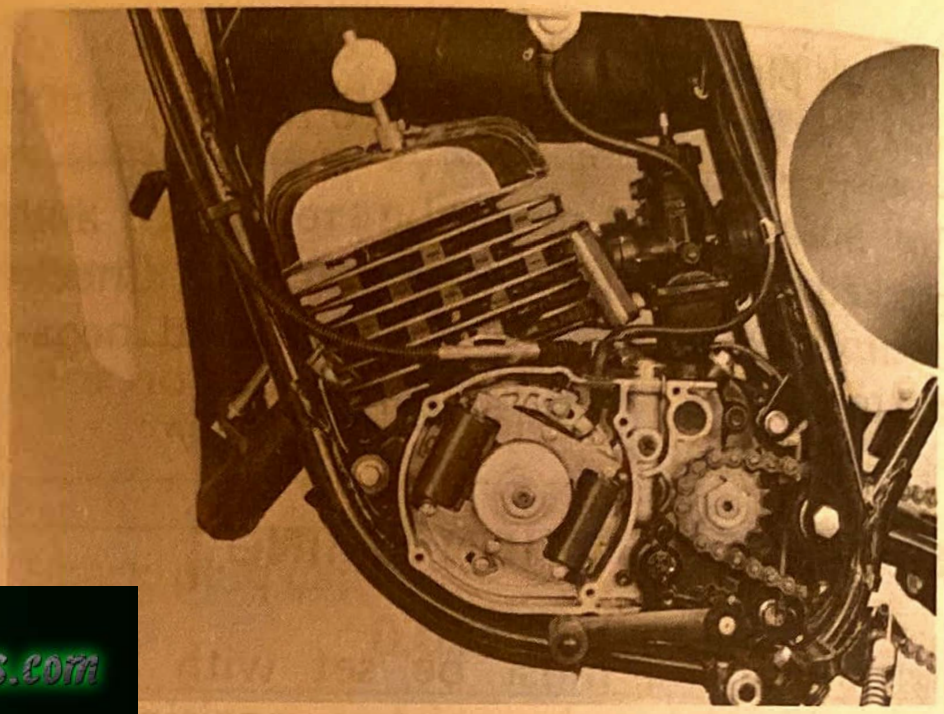
1. Remove spark plug and screw Dial Gauge Stand into spark plug hole.
2. Insert Dial Gauge Assembly into stand.

NOTE:

At this time, install the needle (2.2 in (56mm)) on the dial gauge.

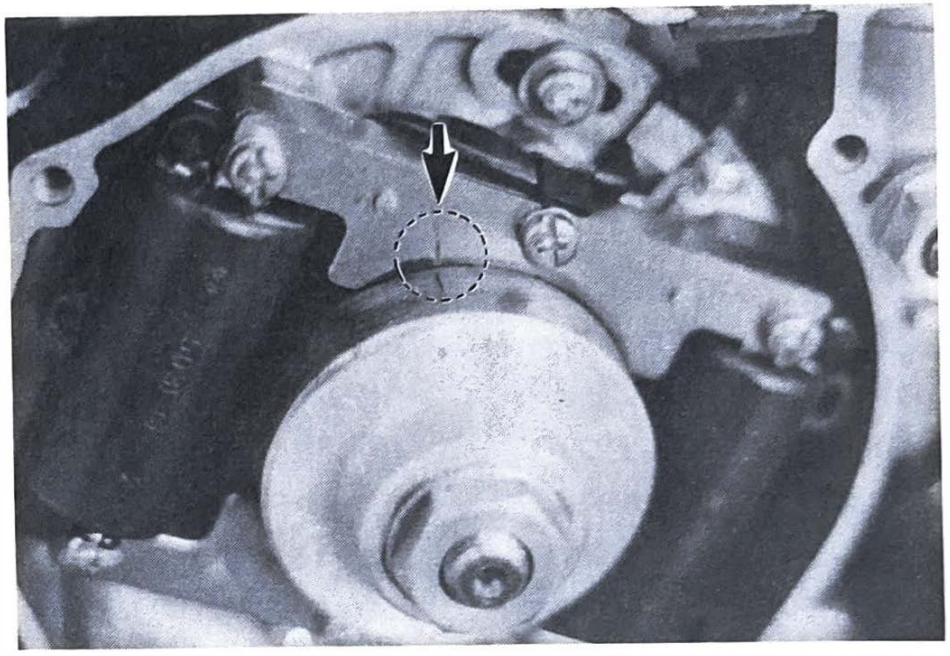
3. Remove left engine crankcase cover.

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 0.08 in (2.0 mm) before top-dead-ecnter (B.T. D.C.)

Ignition timing:	0.08 in (2.0 mm) B.T.D.C.



6. Check to see that the rotor timing mark aligns with the starter timing mark. To adjust, loosen the two starter retaining screws and rotate the starter. Tighten screws.
7. Remove dial gauge assembly and stand. Replace spark plug.

Spark plug torque:	20 – 22 ft-lb (2.5 – 3.0 m-kg)

8. Replace engine crankcase cover.

CHAPTER V.
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.

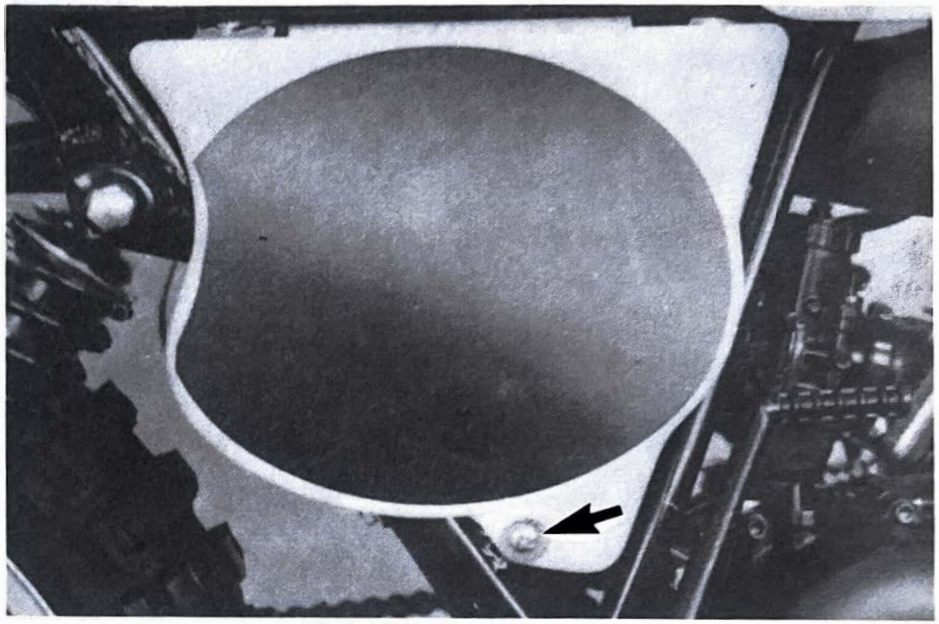
To properly understand the procedures outlined, we suggest you consult the Service Manuals and the various other technical publications.

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

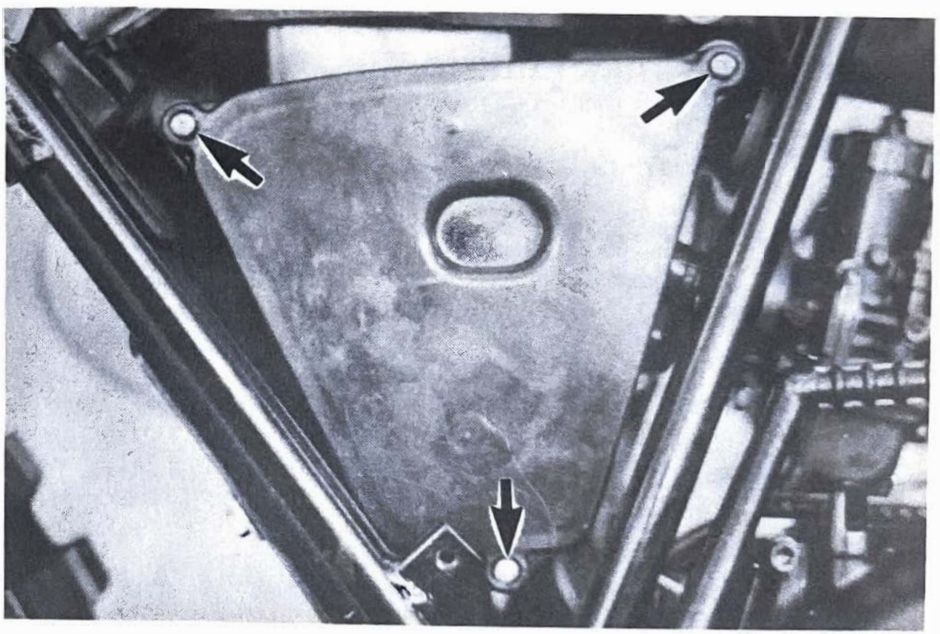
SECTION A. AIR FILTER

1. Air Filter

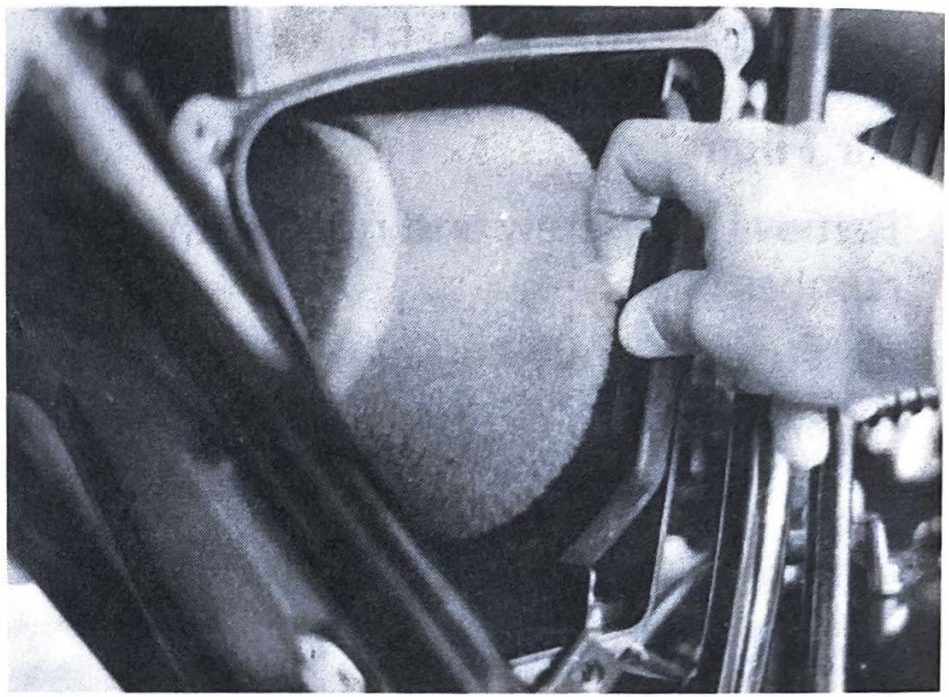
a. Remove the screw and remove the right number plate.



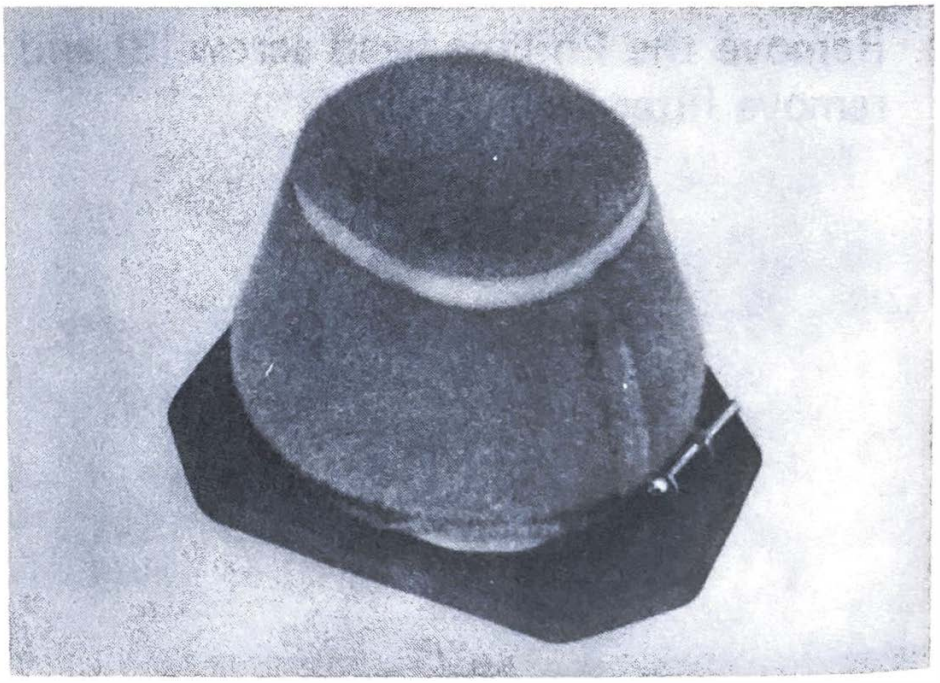
b. Remove the Phillips-head screw (3) and remove filter case cover.



c. Remove the air filter from the filter case.



d. Remove the clamp and slip the filter from the mesh guide.



2. Air Filter Cleaning

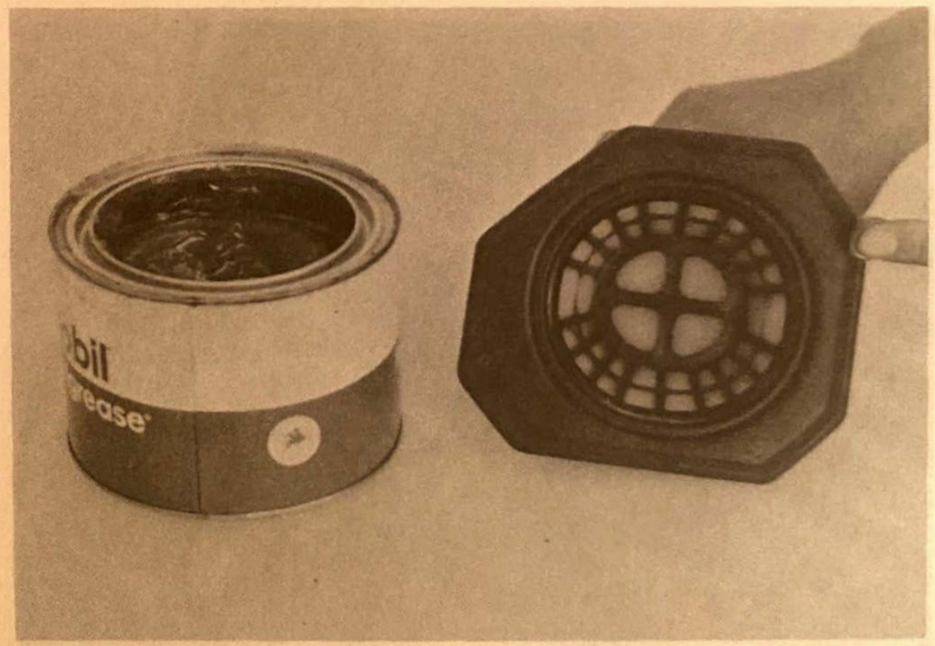
a. Wash the element gently, but thoroughly, in solvent.
b. Squeeze the excess solvent out of the element and let dry.
c. Pour a small quantity of 10-30W "SE" motor oil onto the filter element and work thoroughly into the porous foam material.
d. Re-insert the mesh filter element guide into the element.

NOTE:

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

e. Secure the element onto mesh guide by clamp.

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



g. 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.

SECTION B. CARBURETOR AND REED VALVE

1. Carburetor

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).

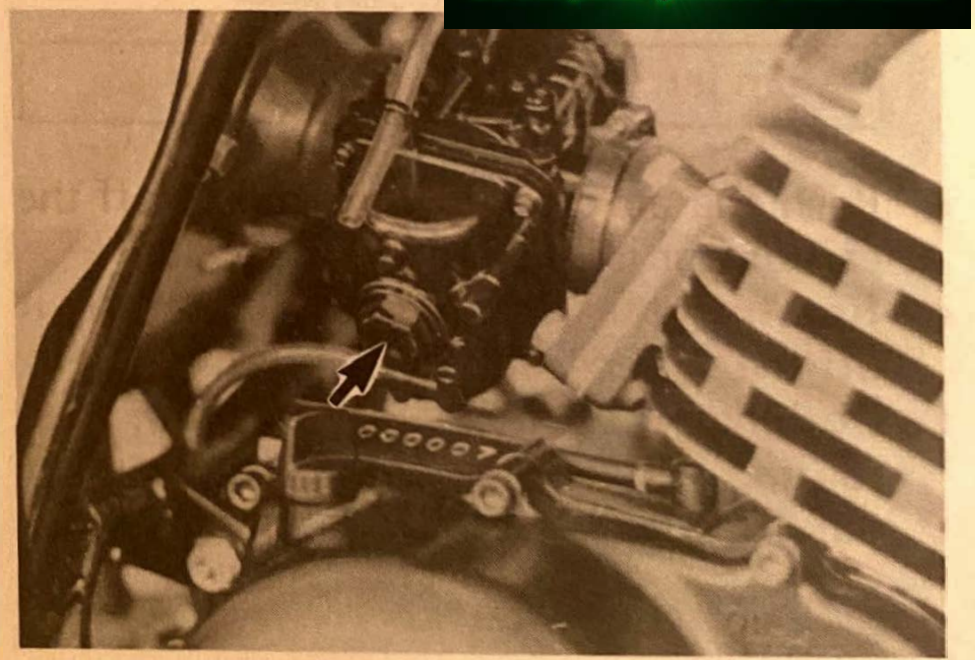
NOTE:

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 MX125C 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 other 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 then.



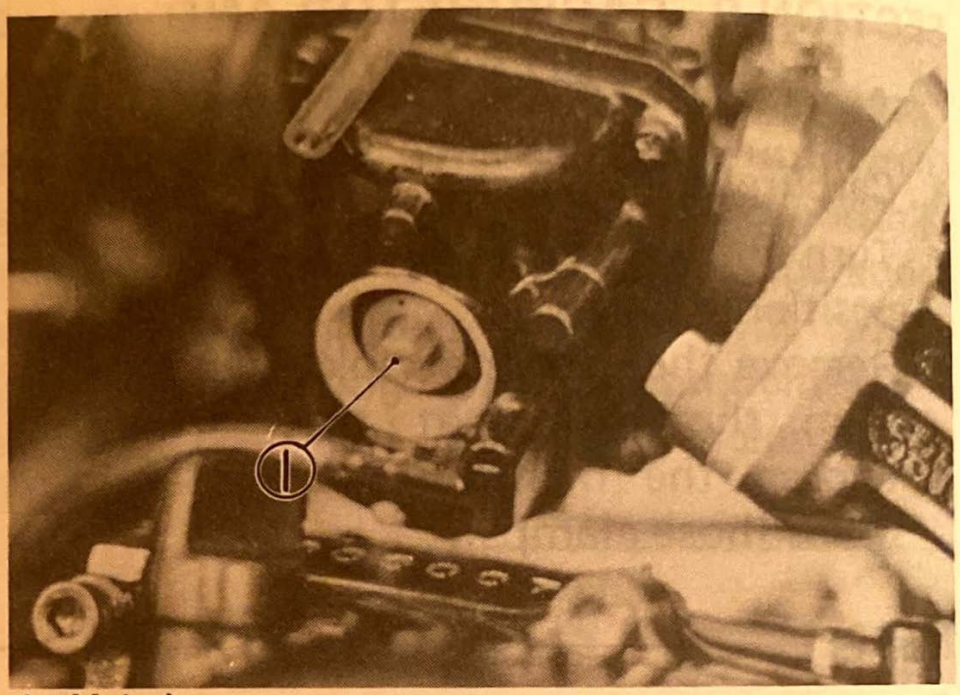
WARNING

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.

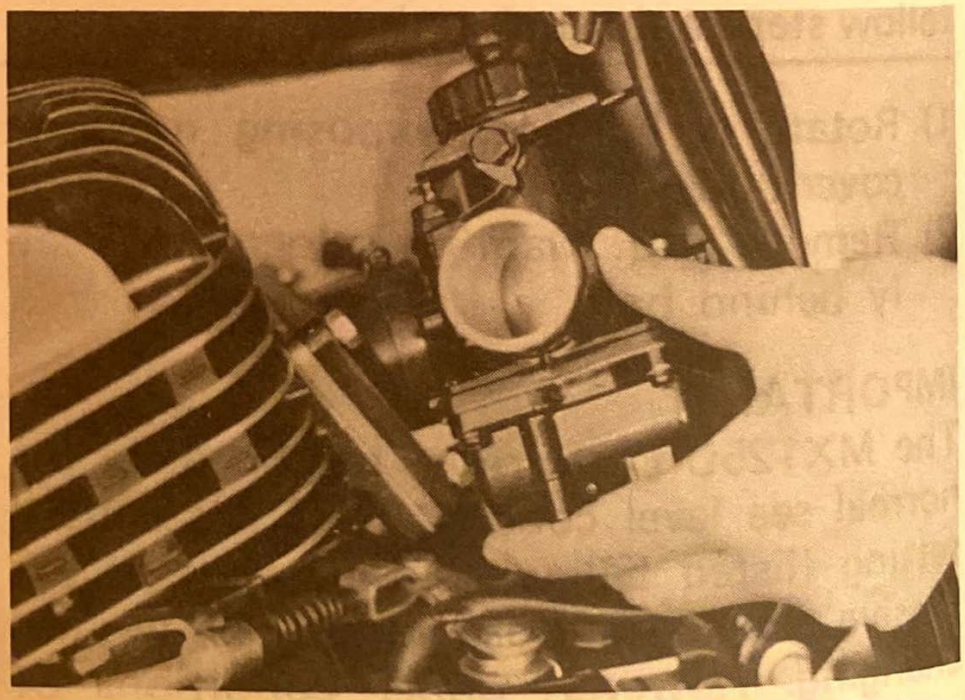
3) Using a 6mm socket or "Spin-tite," remove the main jet. Change as required. Reinstall cover bolt and reassemble, reversing steps 1 through 3.

Main jet: #190

d. Push the air cleaner joint (hose) off the carburetor inlet.
e. Rotating the carburetor body, work it off the cylinder manifold joint.
f. Nothing the presence, location, and routing of all vent and overflow tubes, pull the carburetor toward you.

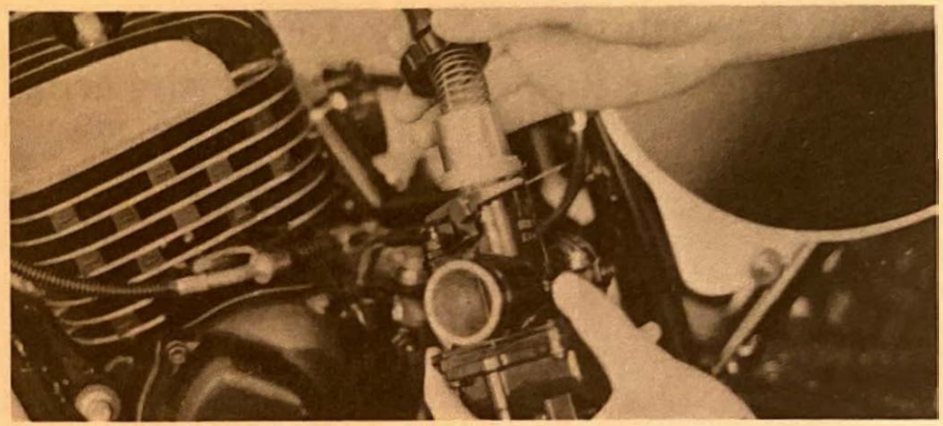


1. Main jet

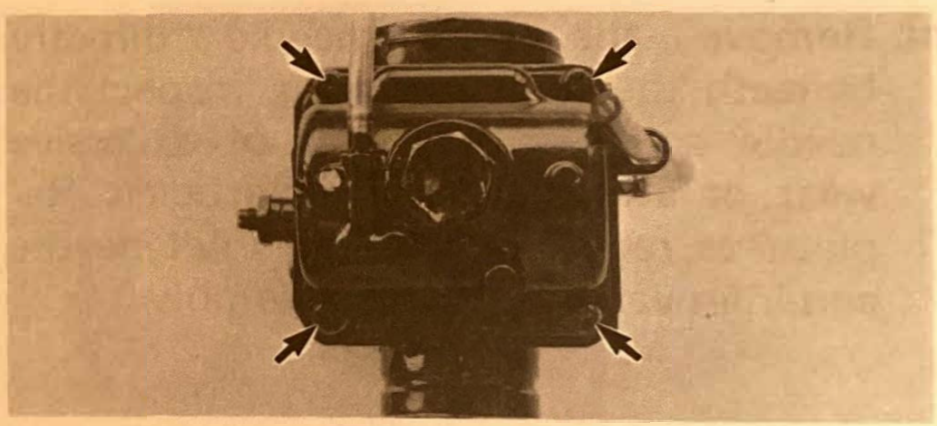


g. Unscrew the mixing chamber top. Remove the slide and needle assembly.

h. Remove the main jet cover bolt and drain the float bowl fuel into suitable receptacle.

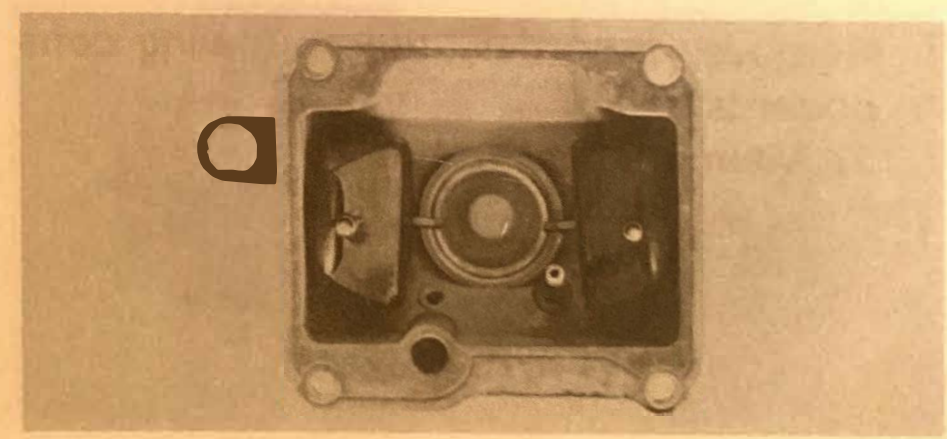


i. Remove the Phillips screws (4) holding float bowl to body. Remove float bowl.

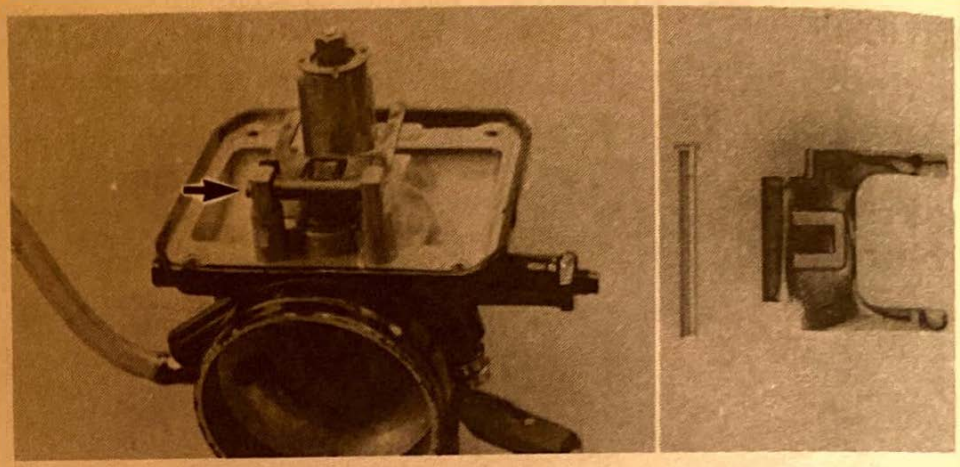


j. Carefully set body aside and inspect each independent float within the float bowl cavity.
Note their installation position. The float arm pin must be on the lower side of the float and in, towards the center.

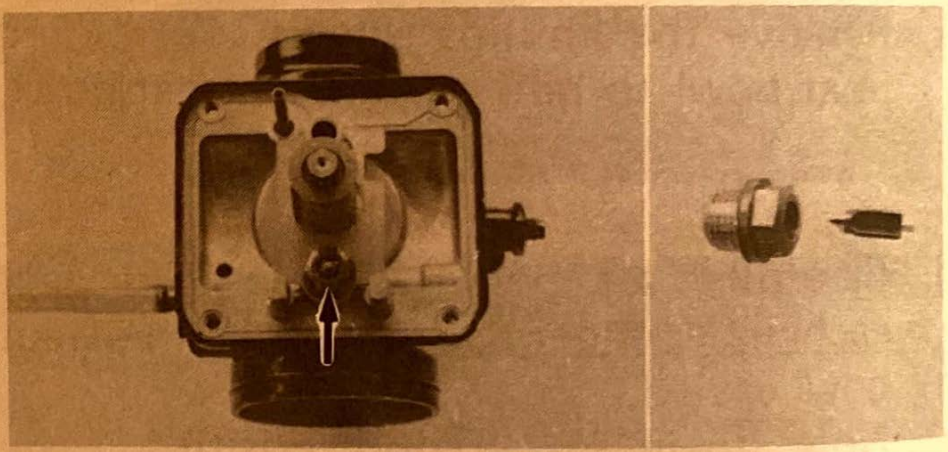
k. Remove each float. If fuel has entered a float, replace it. If a pin is loose or missing, or if the floats are damaged in any fashion, replace them.



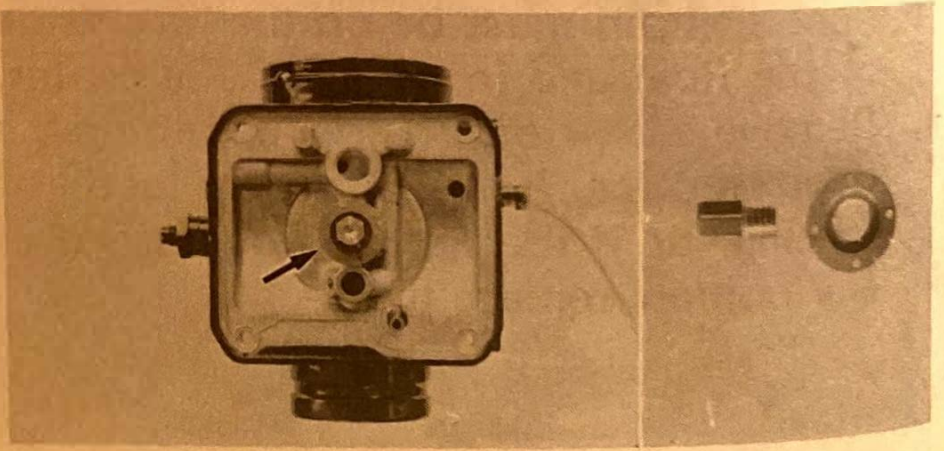
l. On the carburetor body, remove the pin securing the float arm. Remove the arm.



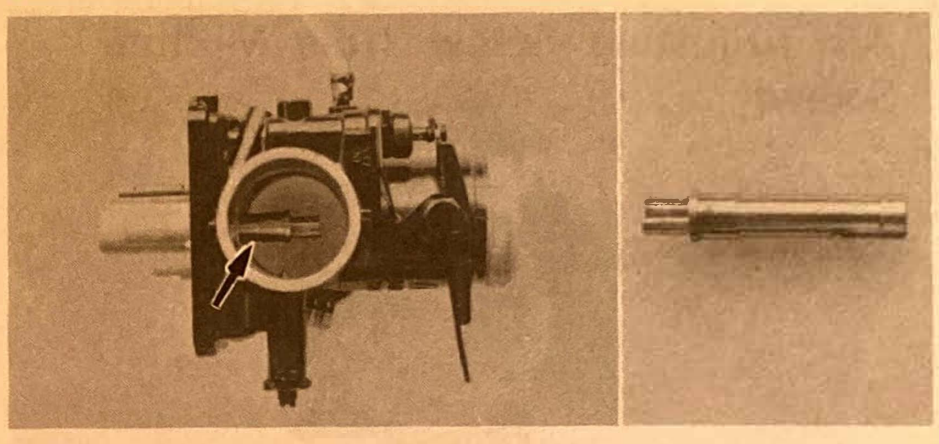
m. Remove the inlet needle directly beneath the float arm tang. Inspect the needle and seat for signs of excessive wear or attached foreign particles. Replace as required. Replace inlet needle and inlet valve seat as an assembly.



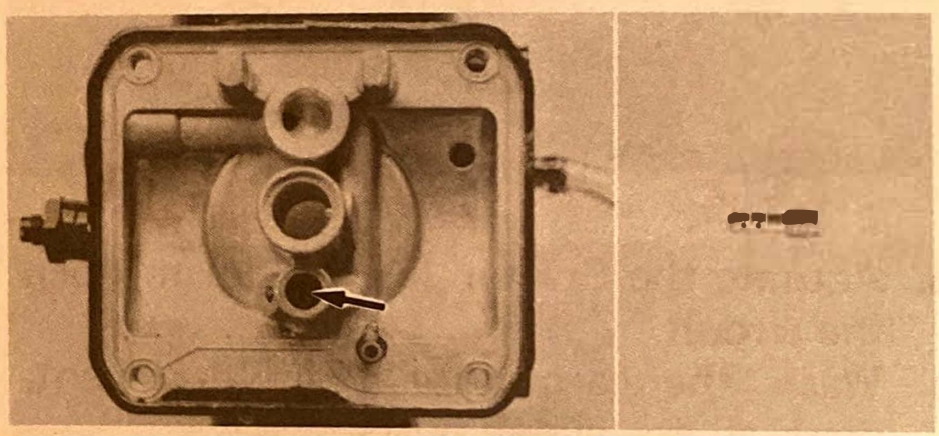
n. Remove, in order, the following components.
   1) Main jet and Washer.



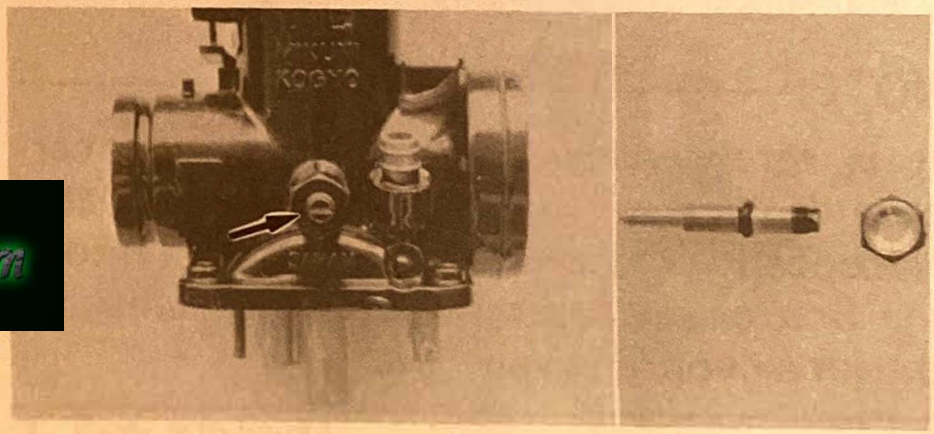
2) Main Nozzle (push from bottom through venturi).



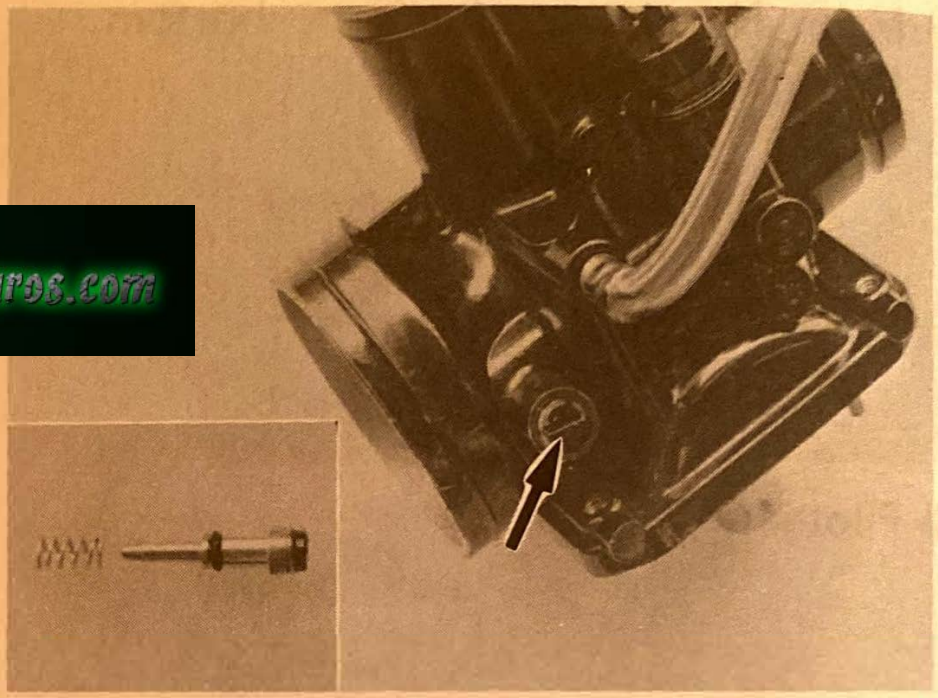
3) Pilot jet



4) Throttle Screw (Idle Speed Screw)



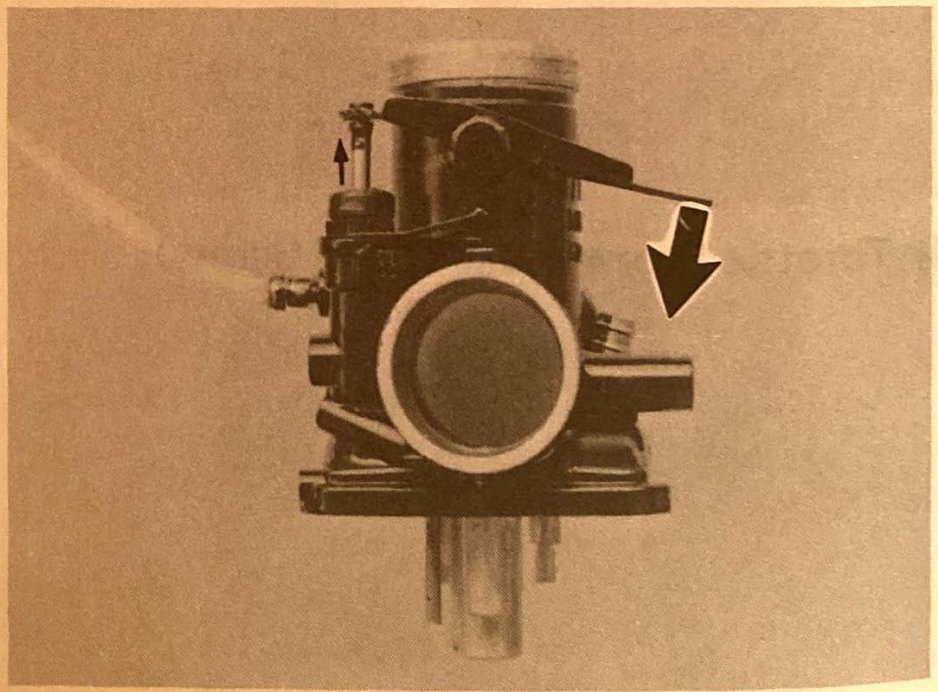
5) Air Adjusting Screw (Idle Mixture Screw)



o. Actuate the Starter Jet control to open the circuit.
p. Wash the carburetor in mild solvent. Wash all associated parts.

NOTE:

It is rarely necessary to "boil" the carburetor in a warm or hot carburetor bath. If deposits warrant this procedure, remove the Starter Jet Assembly to avoid damaging the jet's neoprene valve seat.



q. Using high pressure air, blow out all passages and jets.

CAUTION:

Never direct high pressure air into carburetor with float bowl installed. Damage to floats may occur.

r. Reinstall components, with the exception of the float bowl.

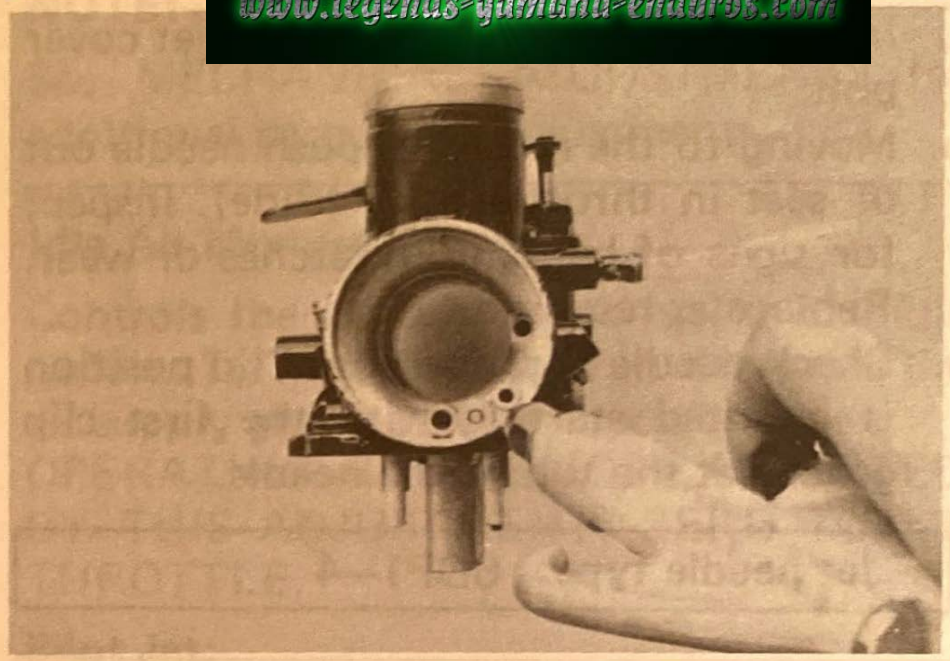
s. Check to ensure that the float arm is parallel with the carburetor base.

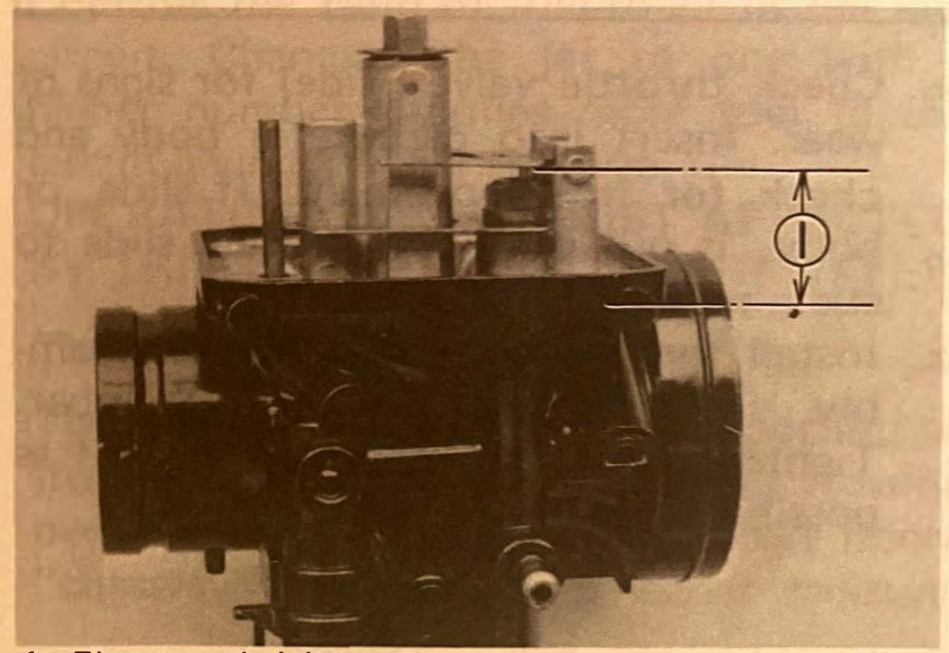
NOTE:

The float arm should be just resting on, but not depressing, the spring loaded inlet needle.

To correct float arm height, remove the arm and bend the tang a slight amount as required. Both the right and left sides of the float arm should measure identically. Correct as required.

Float arm height:
0.59 in (15 mm)
Level with carburetor base





1. Float arm height

t. Install the float bowl and main jet cover bolt.
u. Moving to the machine, push needle out of seat in throttle valve (slide). Inspect for signs of bending, scratches or wear. Replace as required.
v. Check needle clip position. Clip position is counted starting with the first clip groove at the top of the needle.

Jet needle type: 6DP1–4

Clip position: No. 4 Groove

w. Check throttle valve (slide) for signs of wear. Insert into carburetor body and check for free movement. If slide, or body, is out of round causing slide to stick, replace as required.
x. Install throttle valve and needle assembly in carburetor mixing chamber. Tighten mixing chamber top as tight as possible by hand.

CAUTION:

Do not use pliers or vise-grips as they may deform the mixing chamber shape, causing the throttle valve to stick during operation.

y. Install the mixing chamber top cover and all overflow and vent tubes. Reinstall carburetor. Check tightness of all fittings. Make sure carburetor is mounted in a level position.

NOTE:

After installation, check throttle cable adjustment and check to ensure that slide is free by turning and releasing throttle.

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, to name a few, will affect carburetion and consequently, engine performance.

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

NOTE:

See MECHANICAL ADJUSTMENTS for additional carburetor adjustments.

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 nozzle outlet giving a richer mixture. There are five circlip grooves at the top 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.

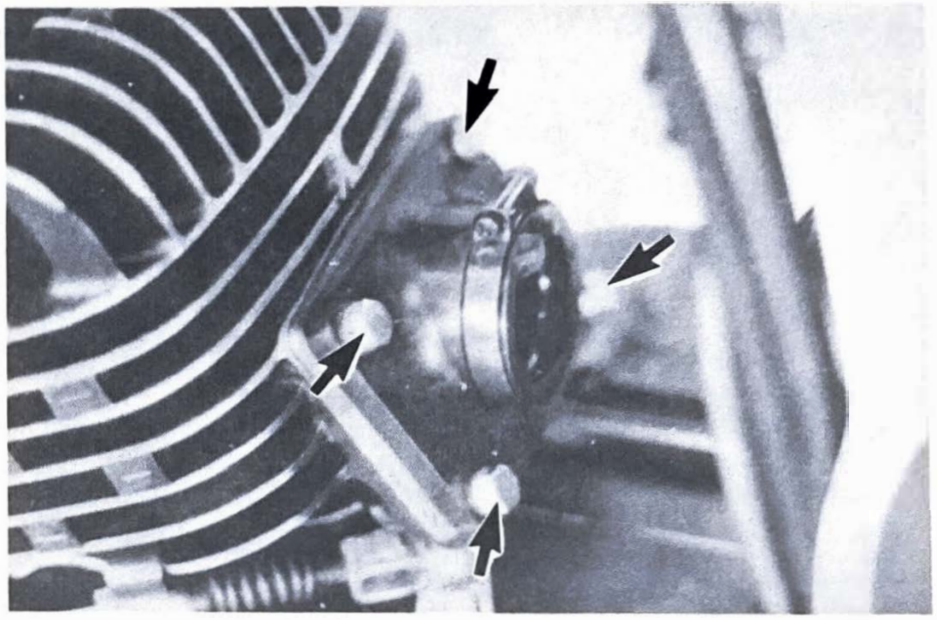
2. Reed Valve

a. With carburetor removed, remove the four (4) bolts holding the intake manifold and reed valve assembly to the cylinder. Remove the reed valve assembly.

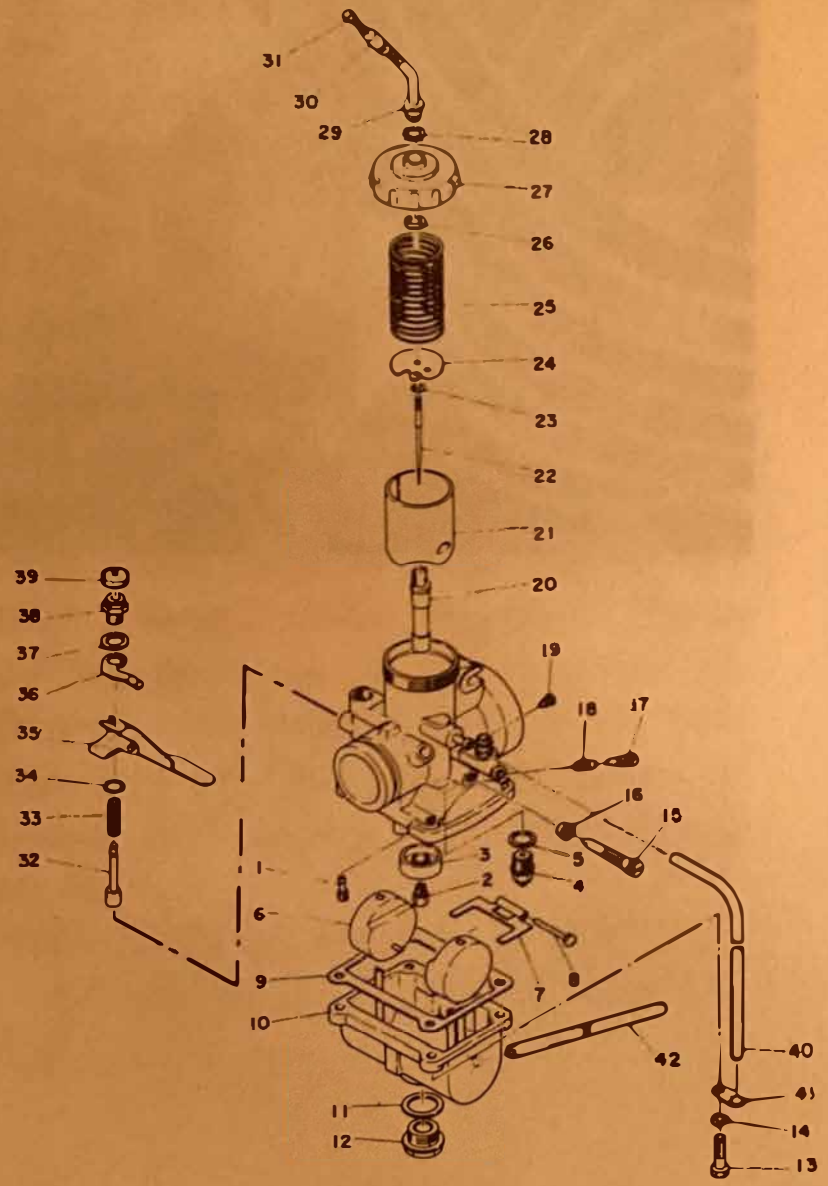
b. Inspect reed petals for signs of fatigue cracks. Reed petals should fit flush or nearly flush against neoprene seats. If in doubt as to sealing ability, apply suction to carburetor side of assembly. Leakage should be slight to moderate.

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

   1) Remove philips screws (3) 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.



CARBURETOR



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

) During reassembly, clean reed block, reed, and stopper plate thoroughly. Apply a holding agent, such as "Lock-Tite," to threads of phillips screws. Tighten each screw gradually to avoid warping. Tighten the screws thoroughly.

CAUTION:

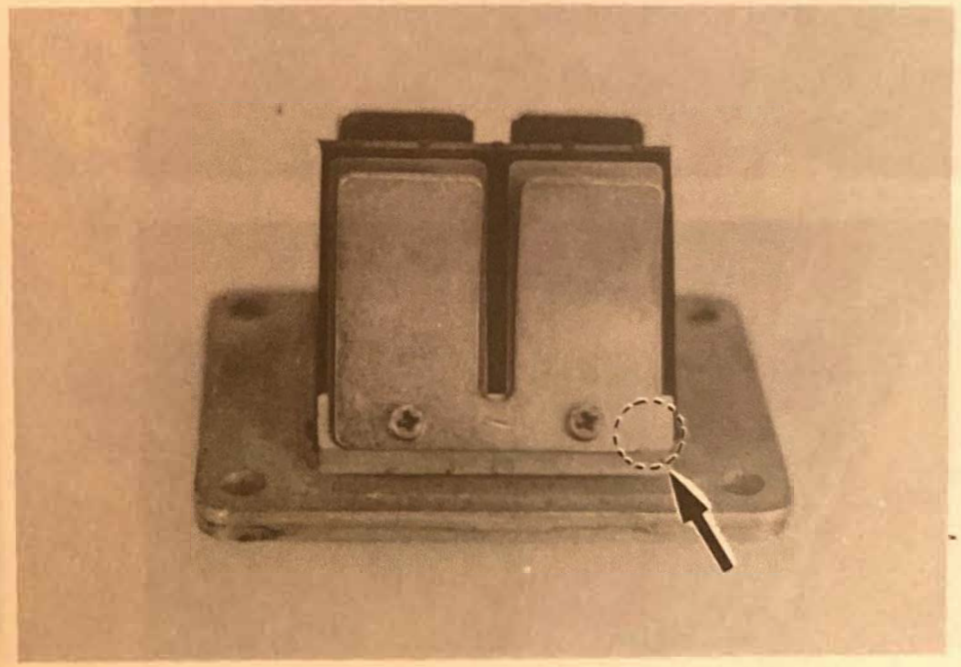
Do not over-tighten securing screws, topper plates may warp.

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

NOTE:

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

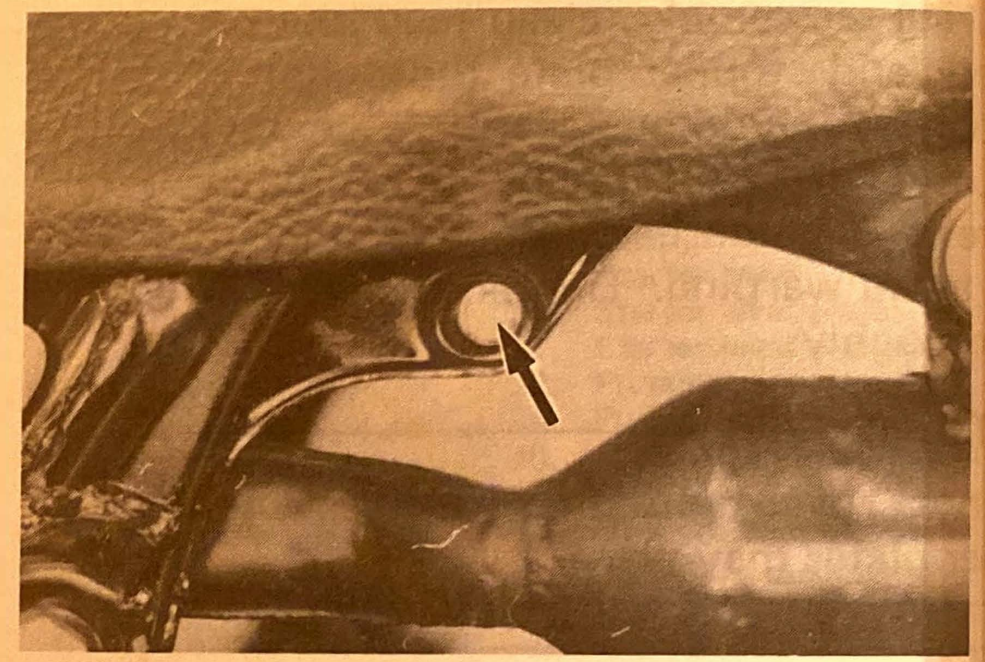
1. During reassembly of the reed valve assembly and manifold, install new gaskets and torque the securing bolts gradually and in pattern.



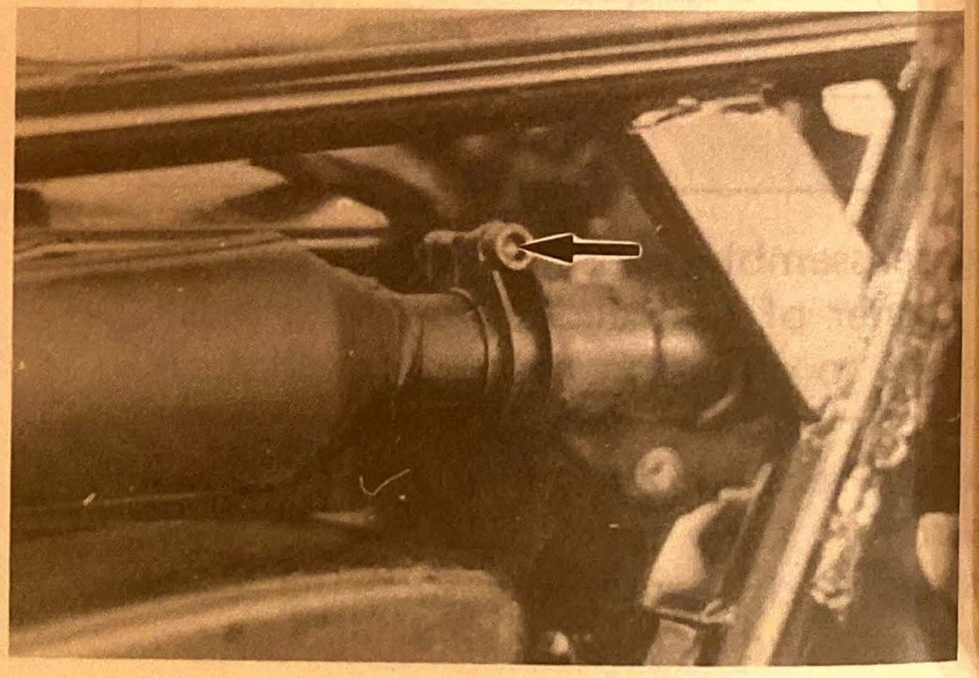
SECTION C. TOP END AND MUFFLER

1. Muffler and Cylinder and Head Removal (Carburetor Removed)

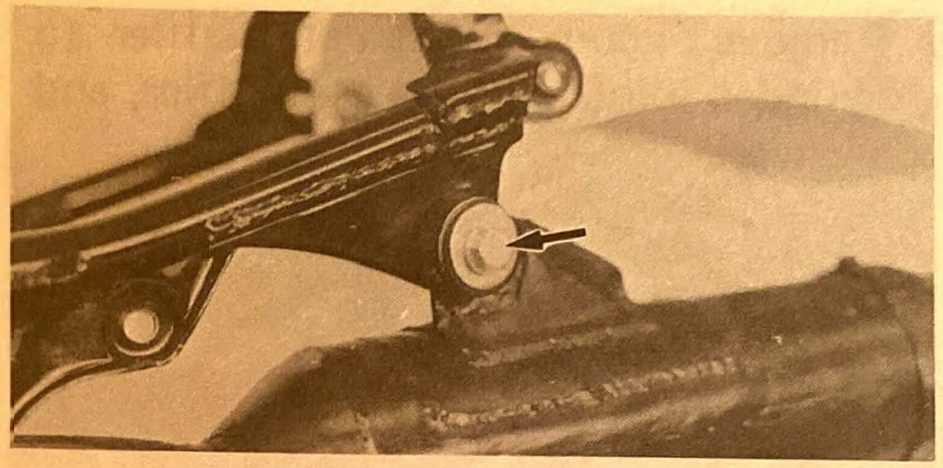
a. Remove the two bolts and remove seat.
b. Remove the securing bolt from fuel tank.
c. Lift rear of fuel tank up and pull back to clear frame mounts. Remove tank.

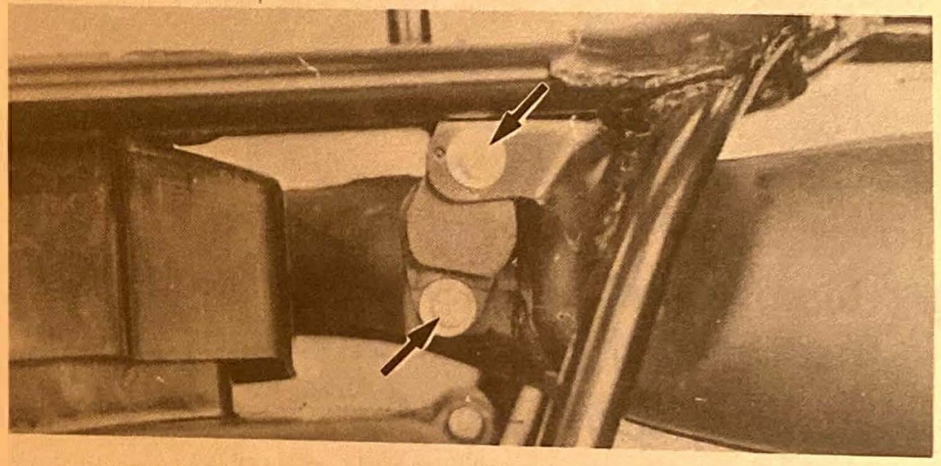


d. Loosen the muffler and silencer joint band.

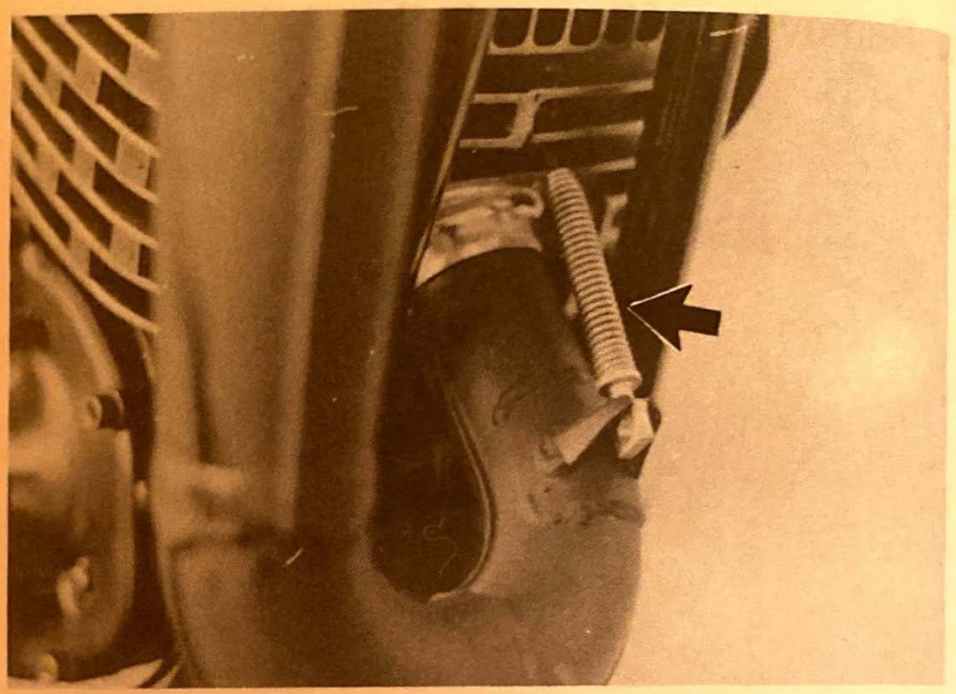


e. Remove muffler and silencer mounting bolts.



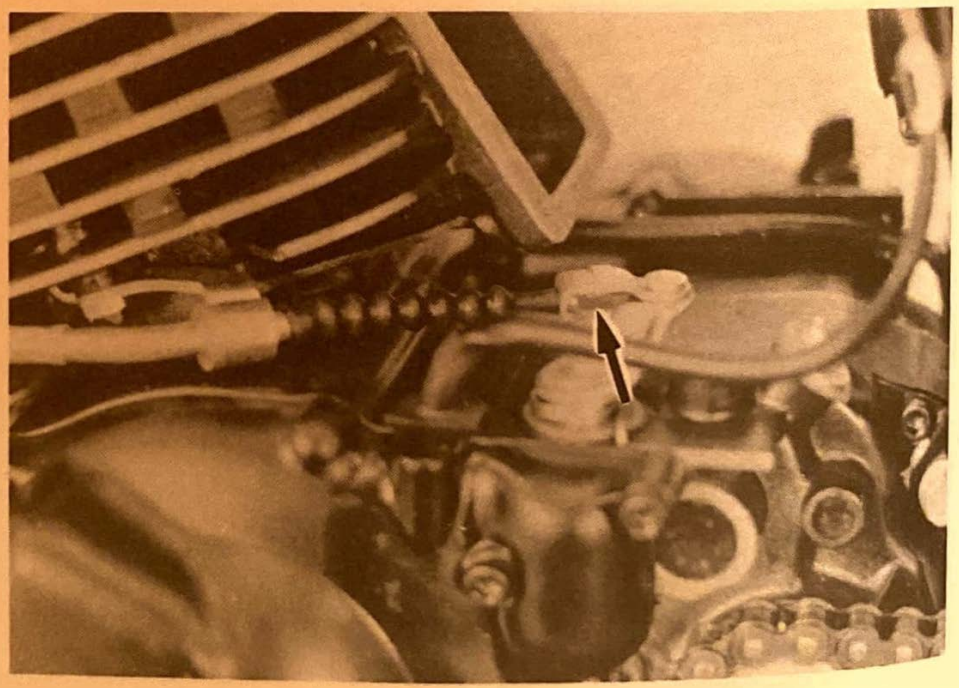


f. Remove coil springs at muffler to cylinder joint and remove muffler, and silencer.



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

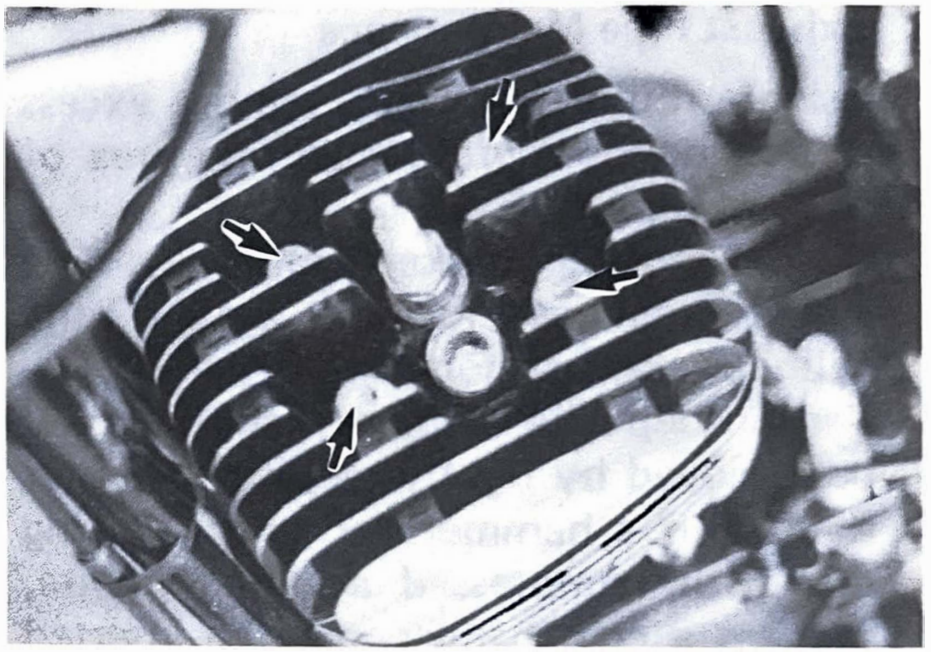
h. Remove spark plug lead wire. Loosen, but do not remove spark plug.



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

NOTE:

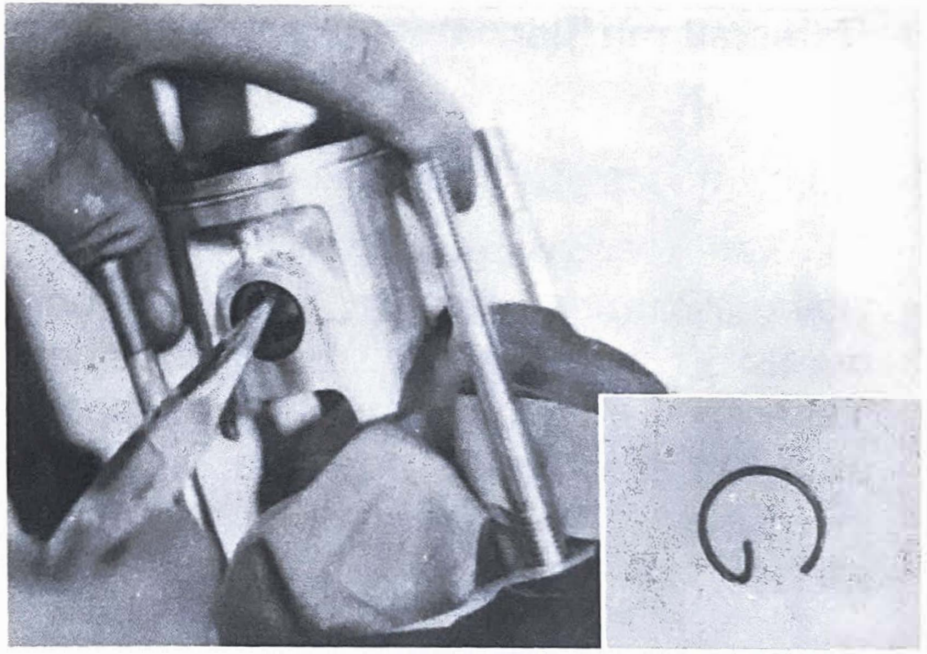
Break each nut loose (1/4 turn) prior to removing.



2. 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.



NOTE:

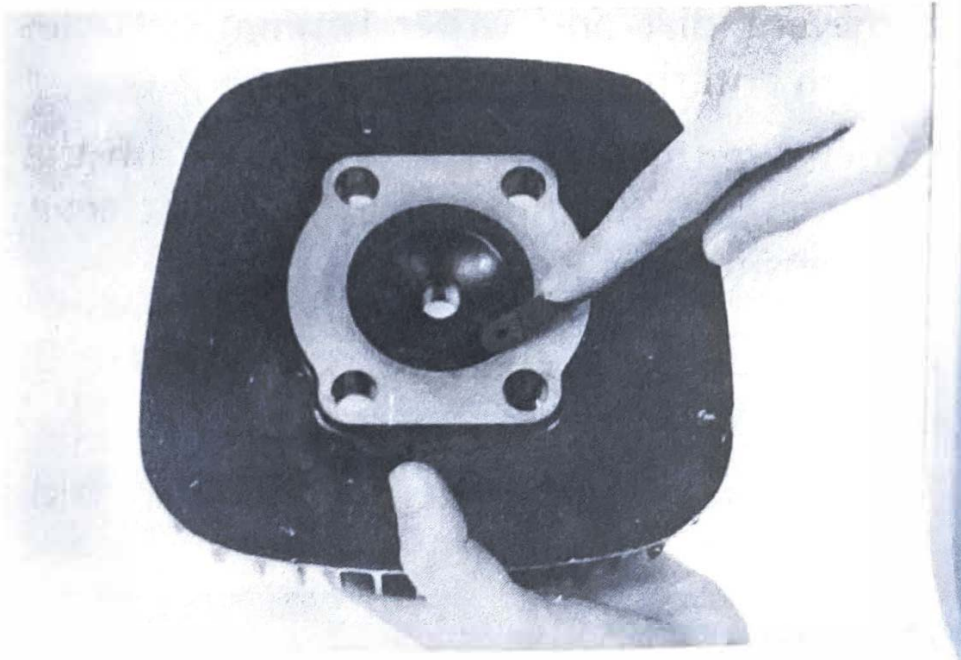
If the pin hangs up, use a piston pin puller. Do not pound on pin as damage to rod, piston and bearing will result.

3. Exhaust Pipe Maintenance

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.

4. Maintenance—Cylinder Head

a. Remove spark plug.
b. 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.



c. 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.

d. Clean the spark plug gasket mating surface thoroughly.

e. Wash the head in solvent and wipe dry.

f. Install new cylinder head gasket during reassembly.

Cylinder head nuts torque:
15 – 18 ft-lb (2.1 – 2.5 kg)

5. Maintenance—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 clyinder and crankcase thoroughly.

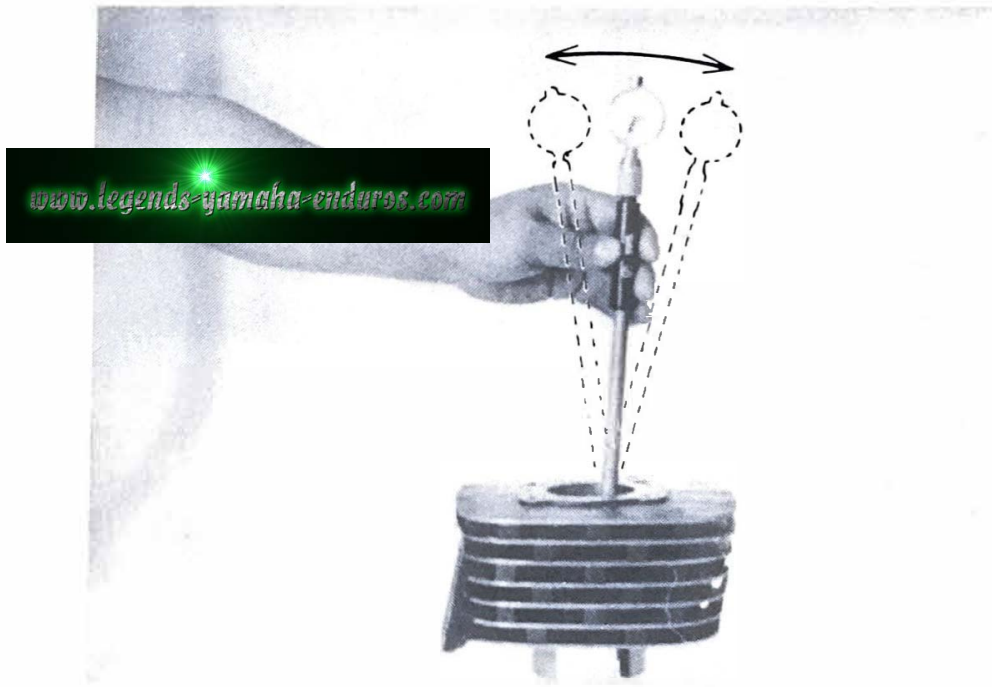
d. Hone cylinder bore using a hone with fine stones. Hone no more than required to remove all wear marks.

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 over – size.

Standard bore:	2.20 in.(56mm)
Max. allowable taper:	0.002 in.(0.05mm)
Max. allowable out-of-round:	0.004 in.(0.01mm)

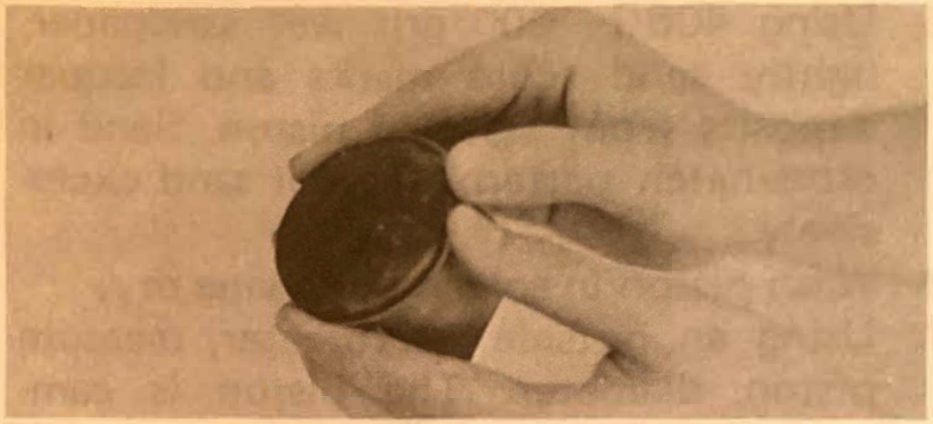
f. Clean cylinder in solvent, then wash with hot soapy water. Dry. Coat walls with light oil film.

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



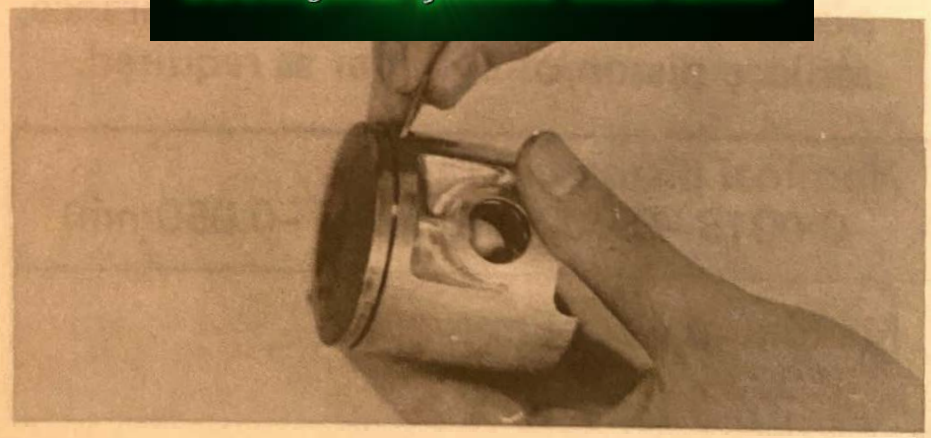
6. Maintenance—Piston

a. Remove ring from piston.



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

c. 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.

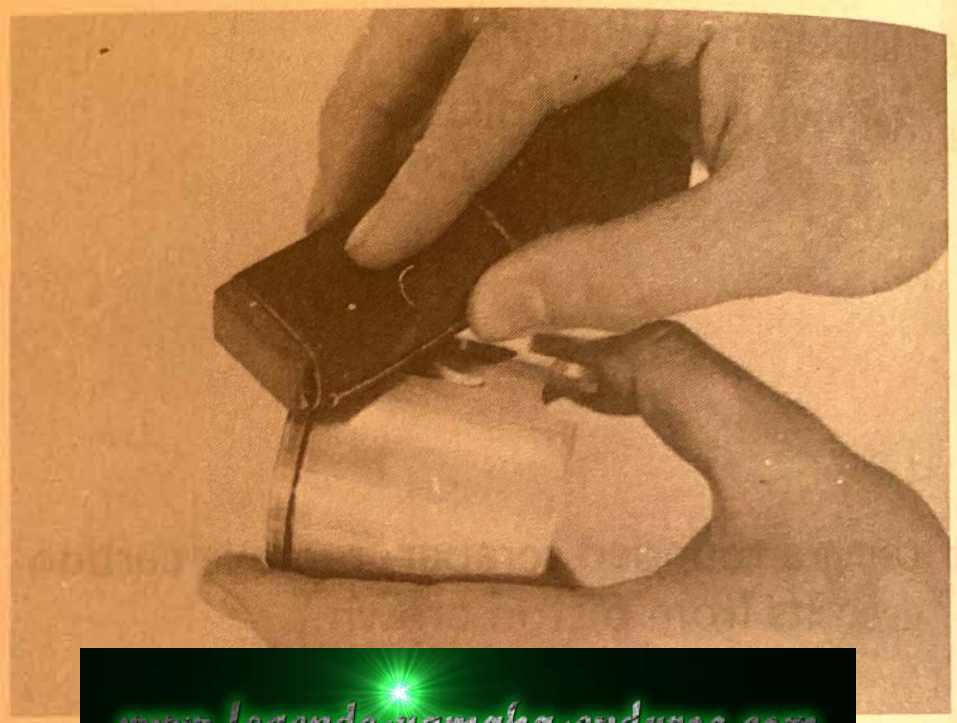


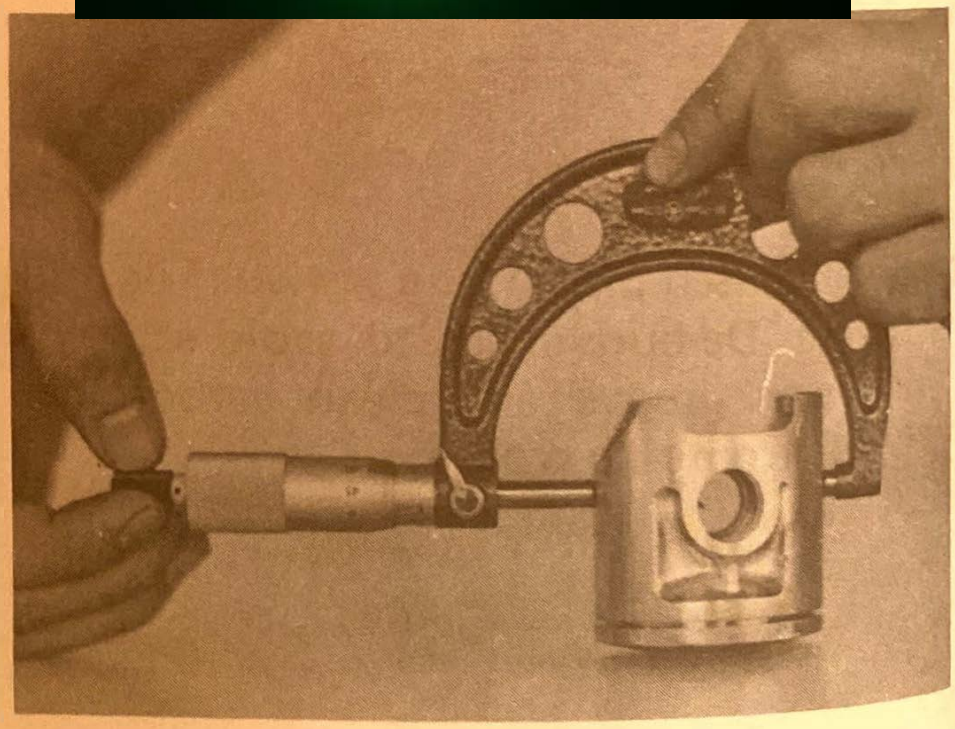
d. Using 400 – 600 grit wet sandpaper, lightly sand score marks and lacquer deposits from sides of piston. Sand in cross-hatch pattern. Do not sand excessively.

e. Wash piston in solvent and wipe dry.

f. 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) 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 cylinder as required.

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





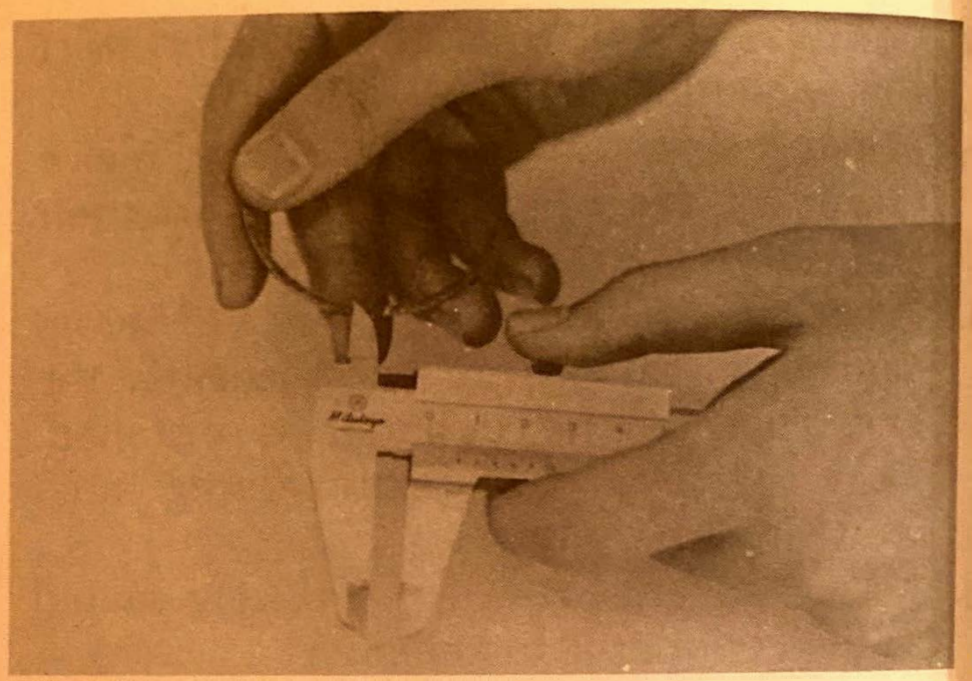
g. During re-assembly, coat the piston skirt areas liberally with two-stroke oil.
h. Install new piston pin circlips and make sure they are fully seated within their grooves.
i.. Take care during installation to avoid damaging the piston skirts against the crankcase as the cylinder is installed. Note the arrow on piston dome must face forward.
j. Make sure the ring is properly seated as the cylinder is installed.

7. Maintenance—Piston Ring

a. Remove ring from piston.

b. Measure ring end gap in free position. If beyond tolerance, replace.

Ring end gap, free: 0.216 in(5.5mm)



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

Ring end gap, installed: 0.016 – 0.020 in (0.4 – 0.5 mm)

d. Holding cylinder towards light, check for full seating of ring around bore. If not fully seated, check cylinder. If cylinder not out-of-round, replace it.
e. 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.

8. Maintenance– 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. Replacy pin and bearing or all as required.

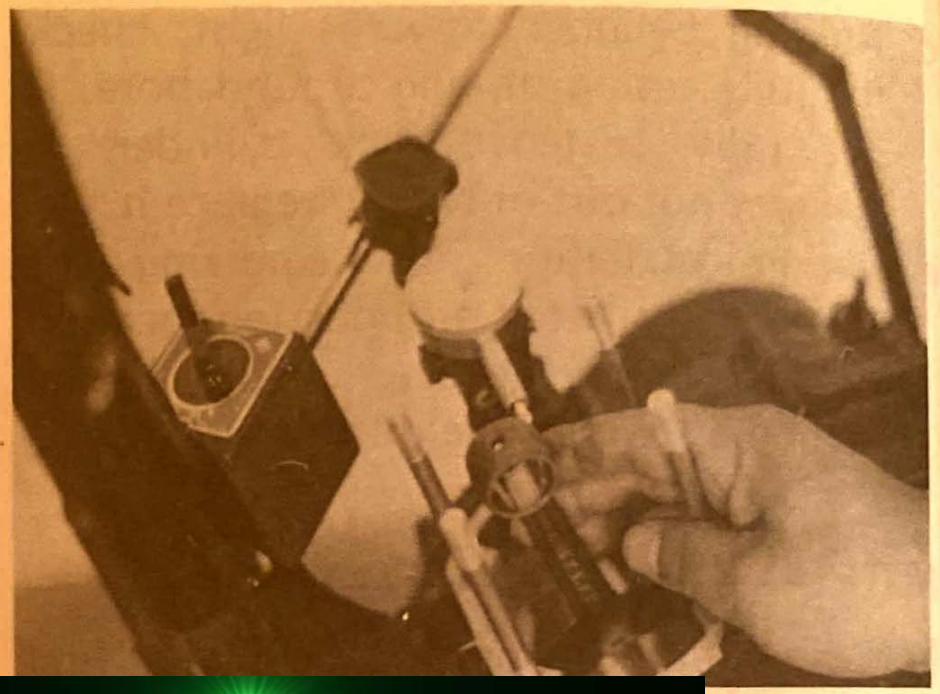
e. Mount the dial gauge at right angles to the connecting rod small end holding the bottom of rod toward the dial indicator, rock top of rod and measure axial play.

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

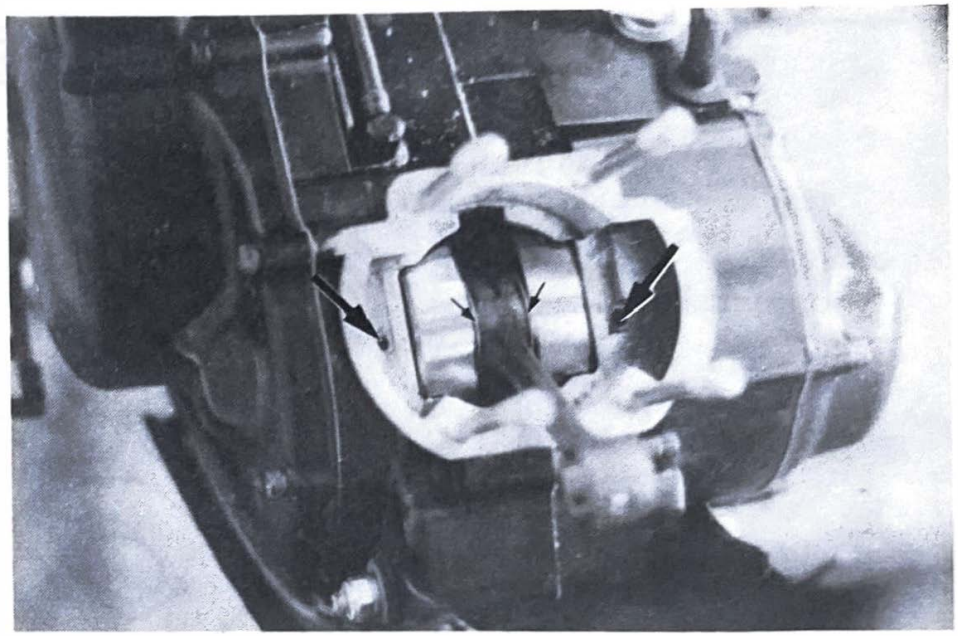
f. Remove the dial gauge and slide the connecting rod to one side. Insert a thickness gauge between the side of the connecting rod big end and the crank wheel. Measure clearance.

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

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.

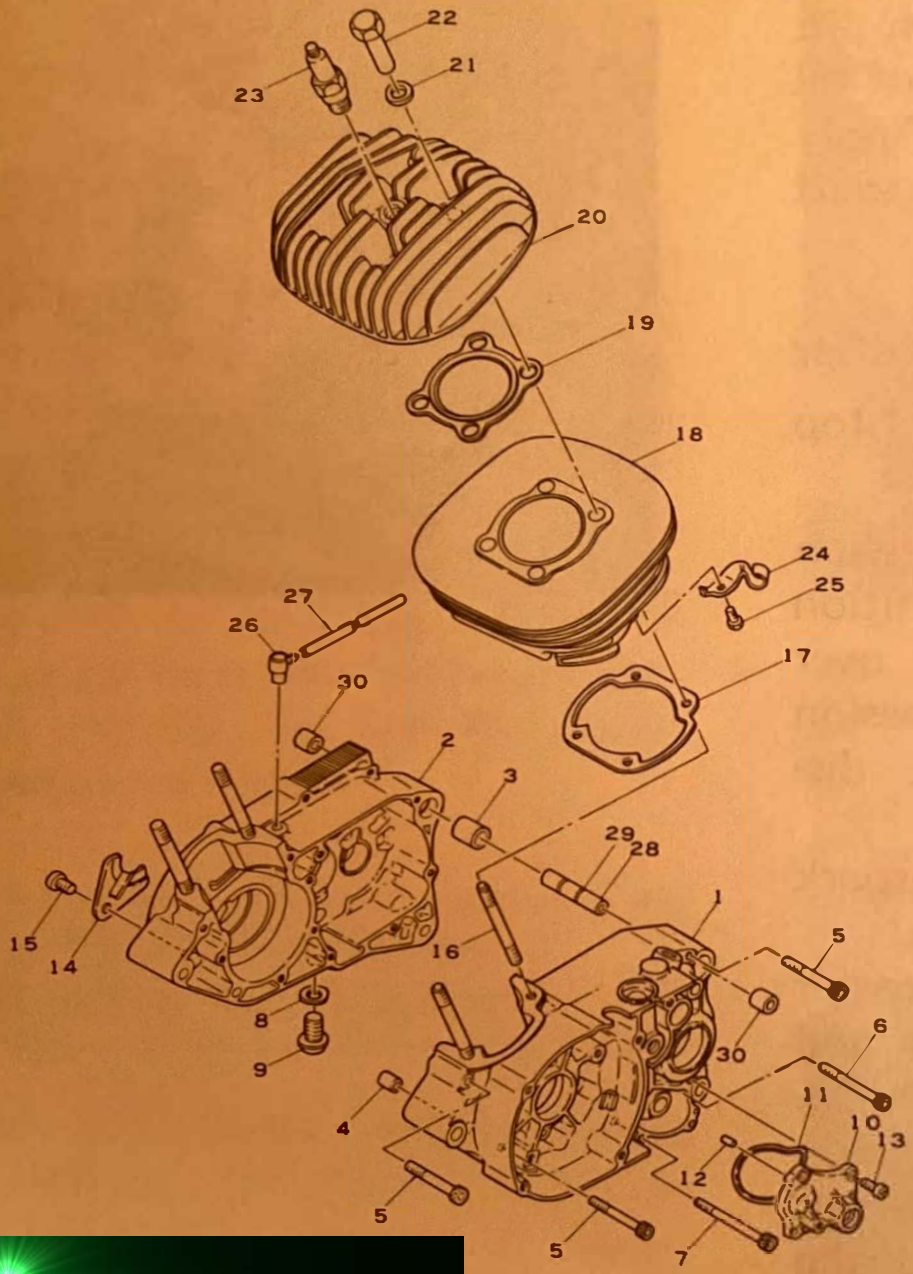


9. Troubleshooting—Top End and Muffler

The following procedure will indicate if top end disassembly is required.

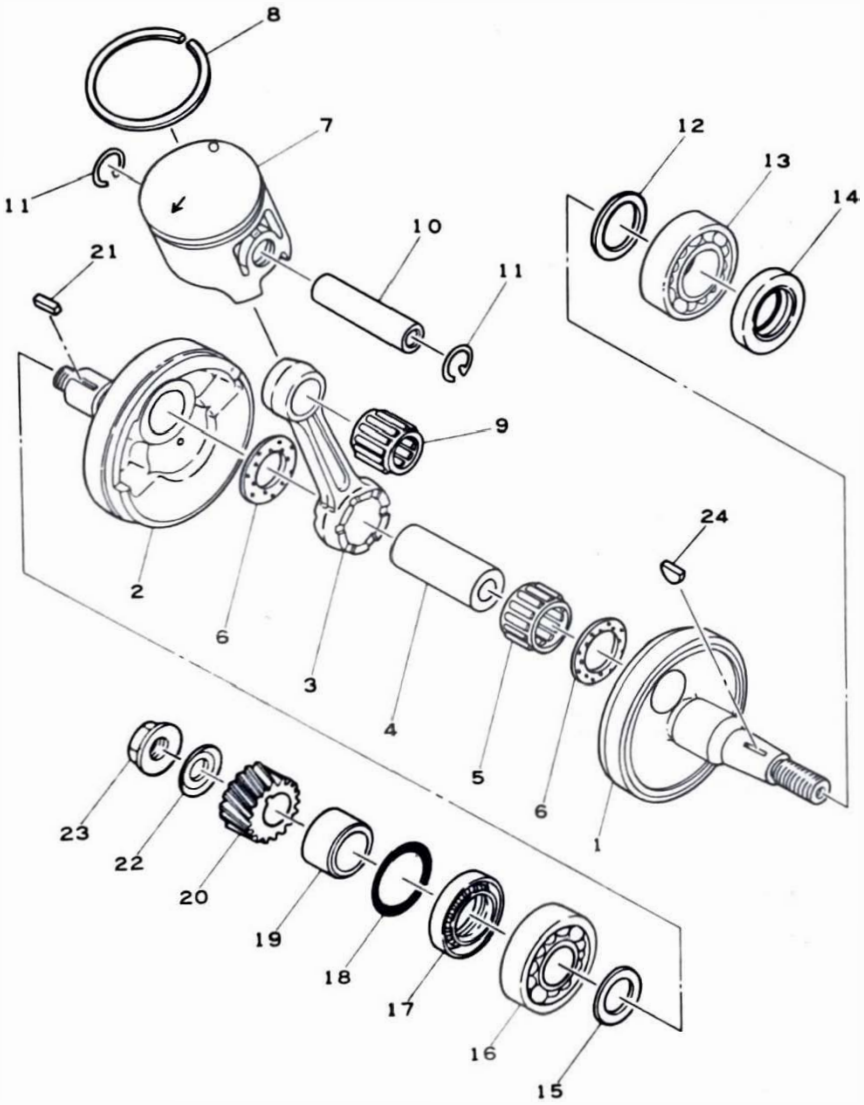
a. Warm up engine. Insert compression gauge into spark plug hole. With ignition off and throttle on, kick engine over briskly several times. If compression measurement exceeds tolerances, disassemble top end complete.
b. Make a spark plug reading. Adjust spark plug and or carburetion as required.
c. Decarbonize muffler/spark arrester assembly. Remove cylinder head and make thorough visual inspection. Decarbonize cylinder head and piston crown. Take care that carbon does not drop into crankcase cavity or foul ring groove. Reassemble.

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 (B-9EV)
24. Clutch wire holder
25. Bolt
26. Breather
27. Hose
28. Engine mount spacer
29. O-ring
30. Engine mount damper

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

SECTION D. IGNITION

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

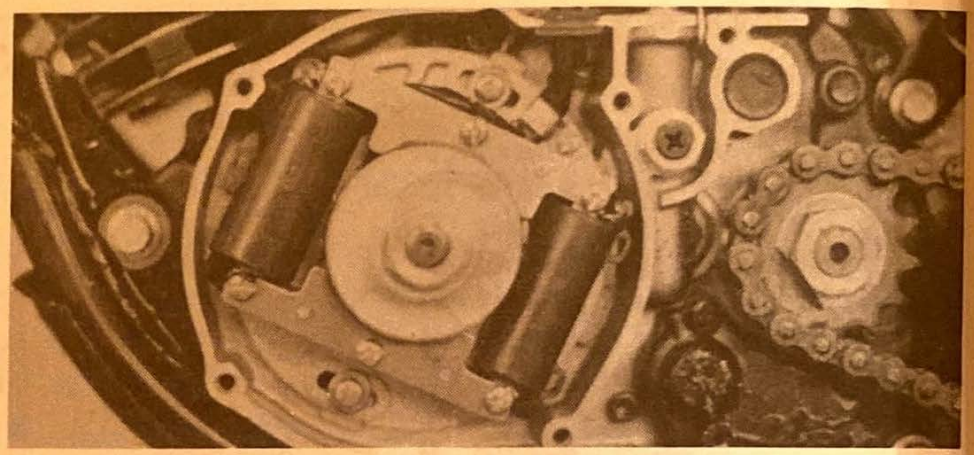
1. Location of Components

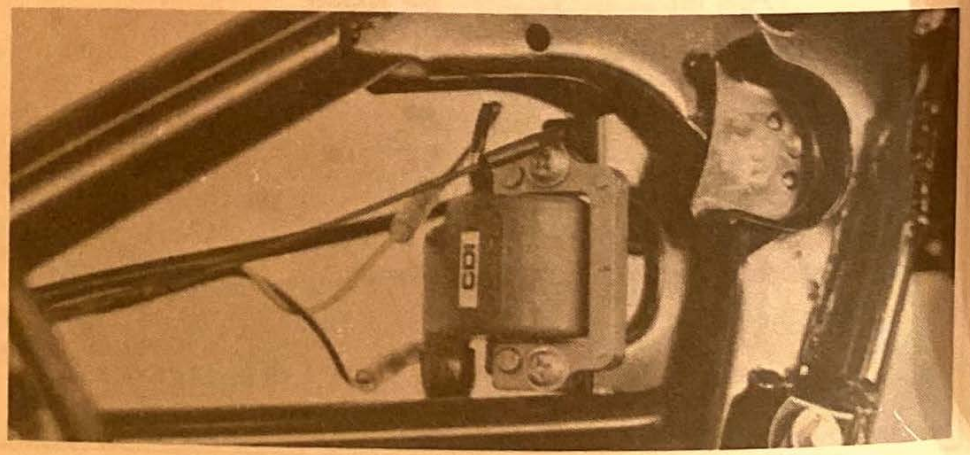
The system consists of a magneto, a coil and a CDI unit. The magneto is located behind the case on the left side of the engine. The CDI unit is located on the rear fender, and coil is mounted on the frame under the fuel tank.

A Engine Stop switch is located on the left handle bar to stop the engine.

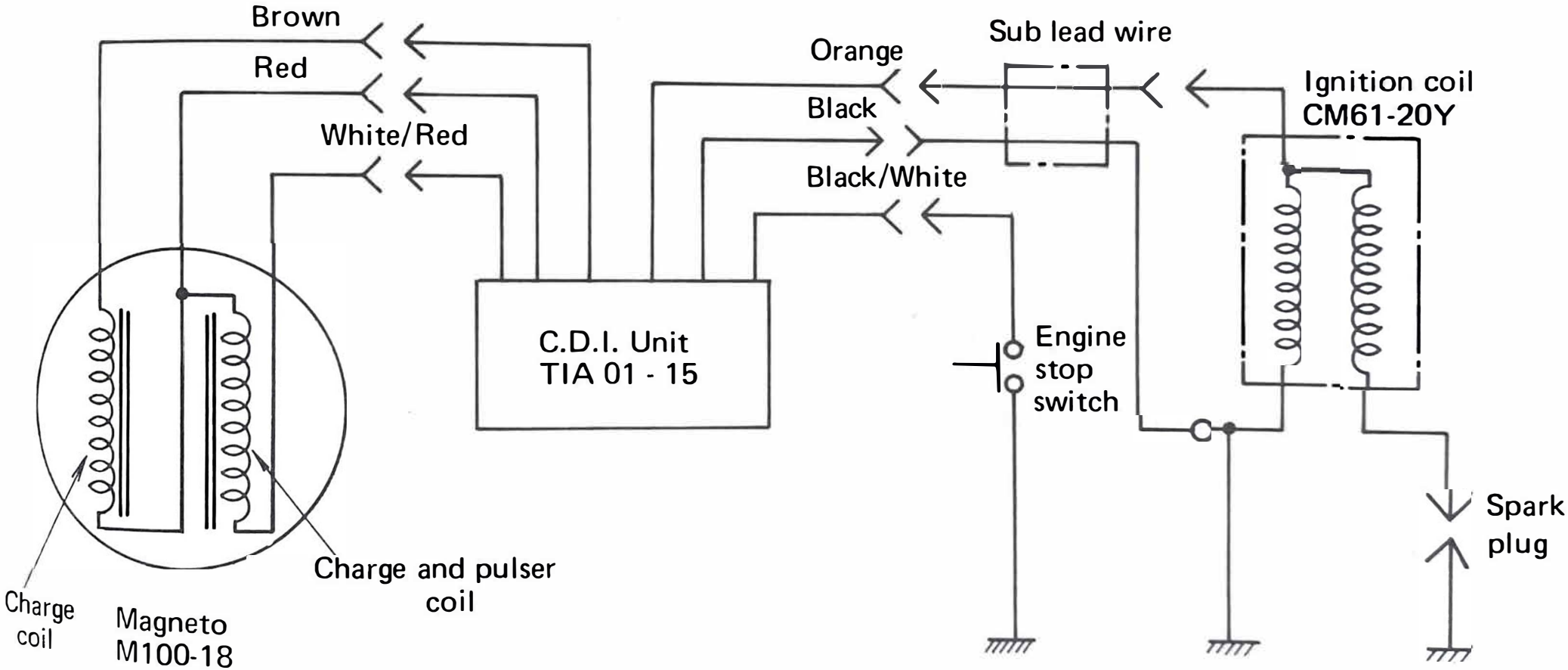
2. Troubleshooting

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.





3. Wiring Diagram



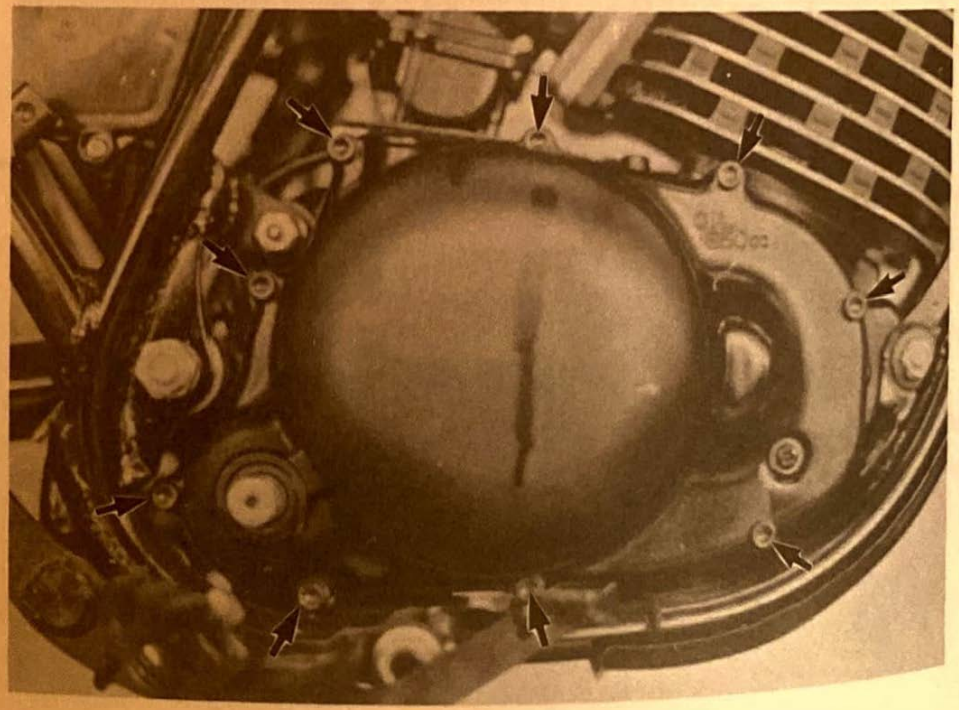
SECTION E. CLUTCH, SHIFTER, AND KICK STARTER

NOTE:

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

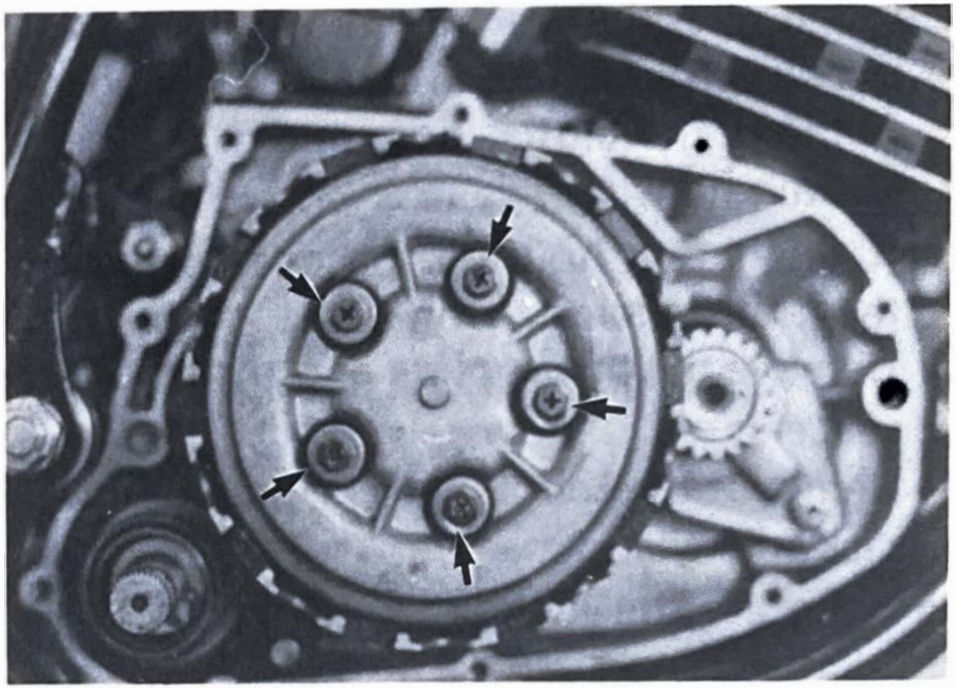
1. Kick Starter and Crankcase Cover (R) Removal

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.



2. 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:

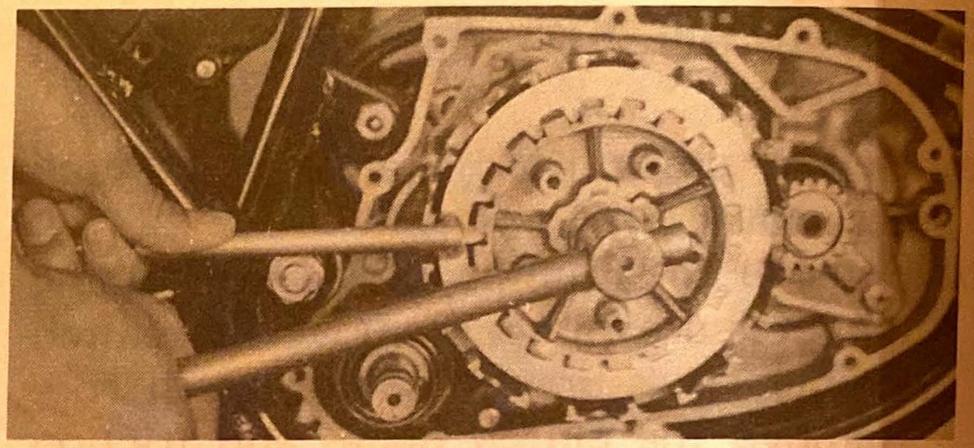
When removing Phillips spring screws, loosen each screw in several stages working in a cross-hatch pattern to avoid any unnecessary warpage. Note the condition of each piece as it is removed and its location with the assembly.

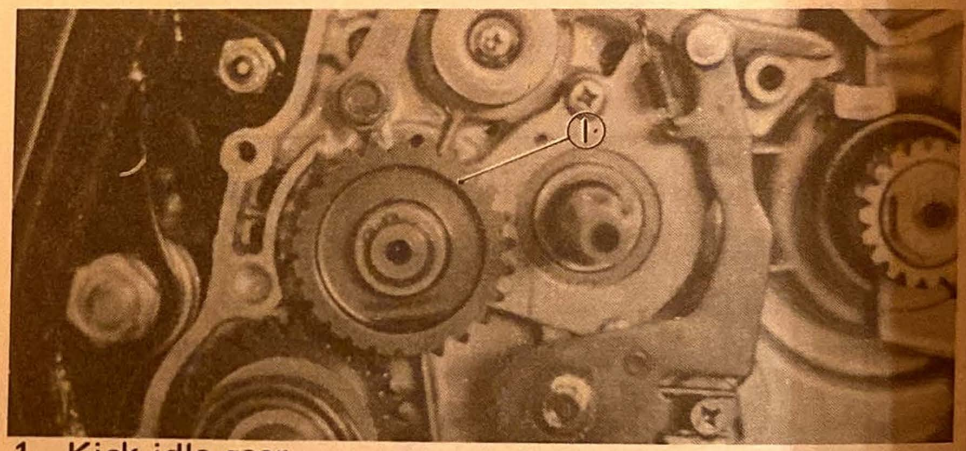
c. Using the clutch holding tool, remove the clutch securing nut and lock washer. Remove the clutch boss and driven gear (clutch housing).

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

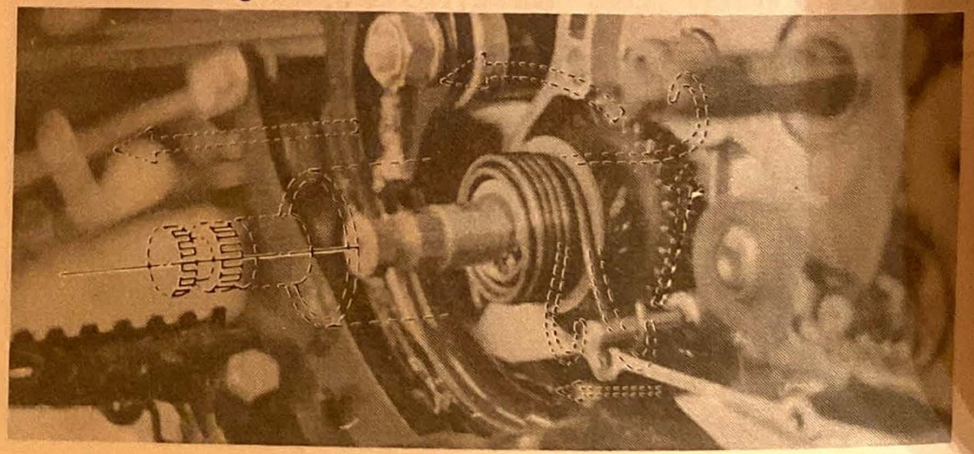
e. Remove the circlip and then remove kick idle gear.

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.

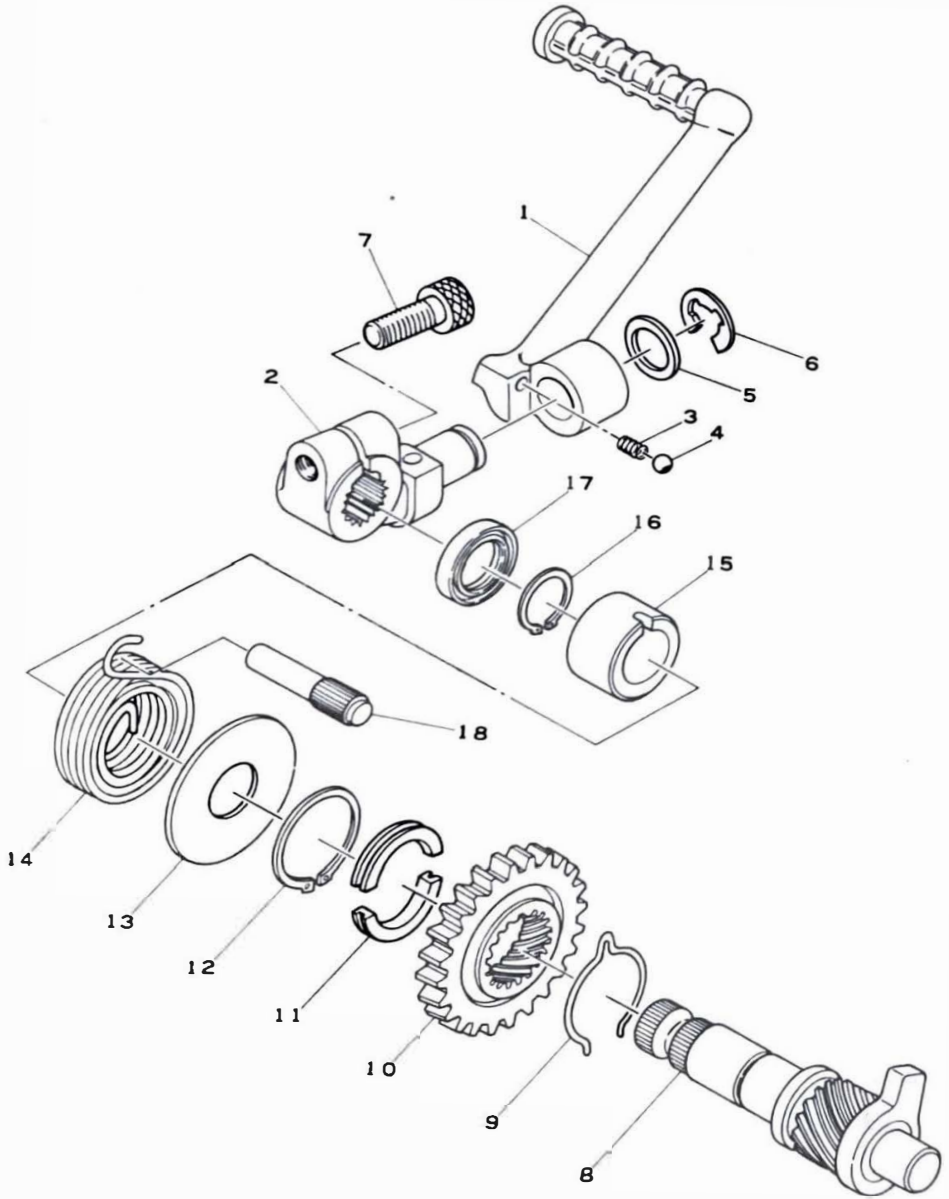




1. Kick idle gear



KICK STARTER



1. Kick crank
2. Kick crank boss
3. Spring
4. Ball
5. Washer
6. Circlip
7. Hexagon socket head bolt
8. Kick axle ass'y
9. Clip
10. Kick gear
11. Kick gear holder
12. Circlip
13. Spring cover
14. Torsion spring
15. Spacer
16. Circlip
17. Oil seal
18. Kick spring stopper

3. Troubleshooting—Clutch Assembly

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

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

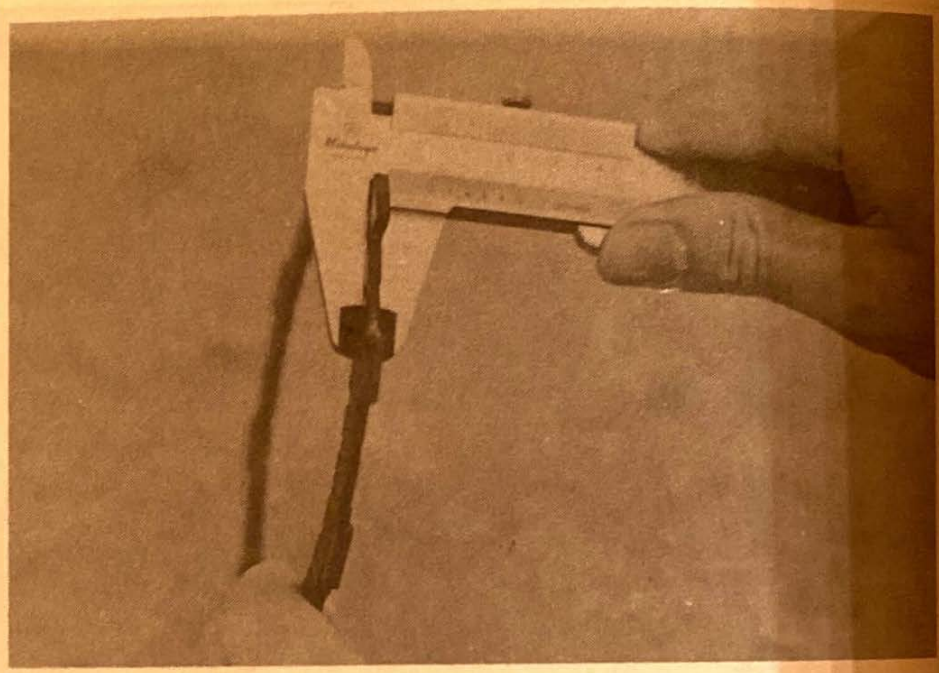
b. Check the plates for signs of warpage and heat damage, replace as required.

NOTE:

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

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

Clutch plate warp allowance: None



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 appropriate measuring devices are available, measure the minimum I.D. of the clutch housing and the maximum O.D. of the bushing spacer. If beyond tolerance, have dealer replace bushing and refit.

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

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.
See measurement tolerances.

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.

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. If clutch operation has been abnormal, and the above procedures show no major failures, install the clutch housing on the transmission main shaft with thrust plates, and clutch boss in their proper positions for reassembly. Do not install clutch or friction plates. Install lock washer and clutch securing nut. Torque to standard assembly value.

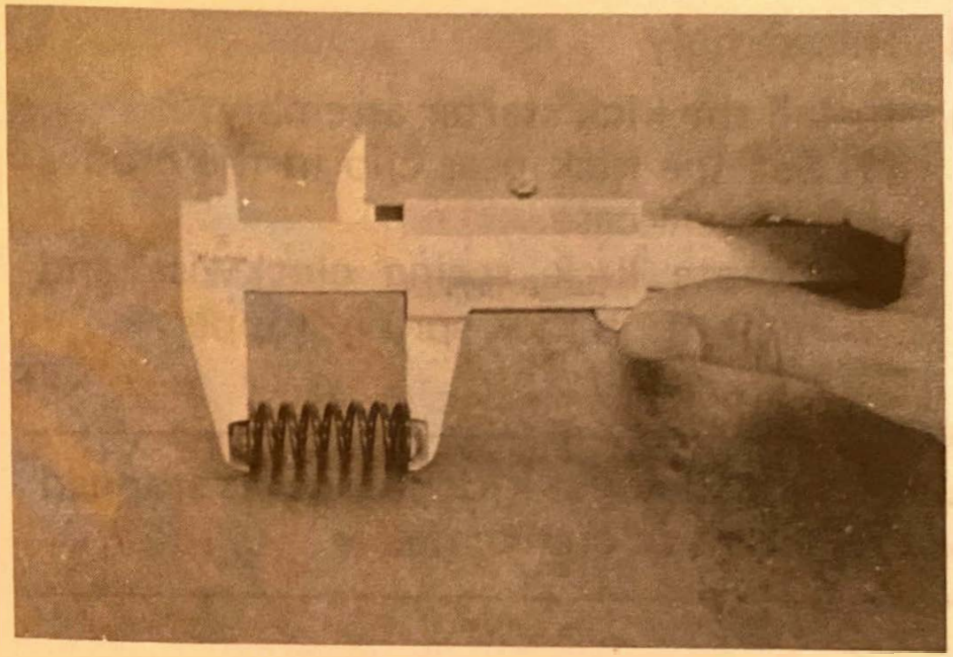
k. With transmission in neutral, primary driven gear stationary, clutch boss should turn without excessive drag within the clutch housing. If housing does not turn easily, indicating insufficient housing end play, check thrust plates for incorrect thickness. Correct by installing thinner thrust plates. Clutch housing end play is given in table and can be measured with a dial gauge.

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

	New	Minimum
Clutch spring free length	1.417 in (36mm)	1.378 in (35mm)

NOTE:

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

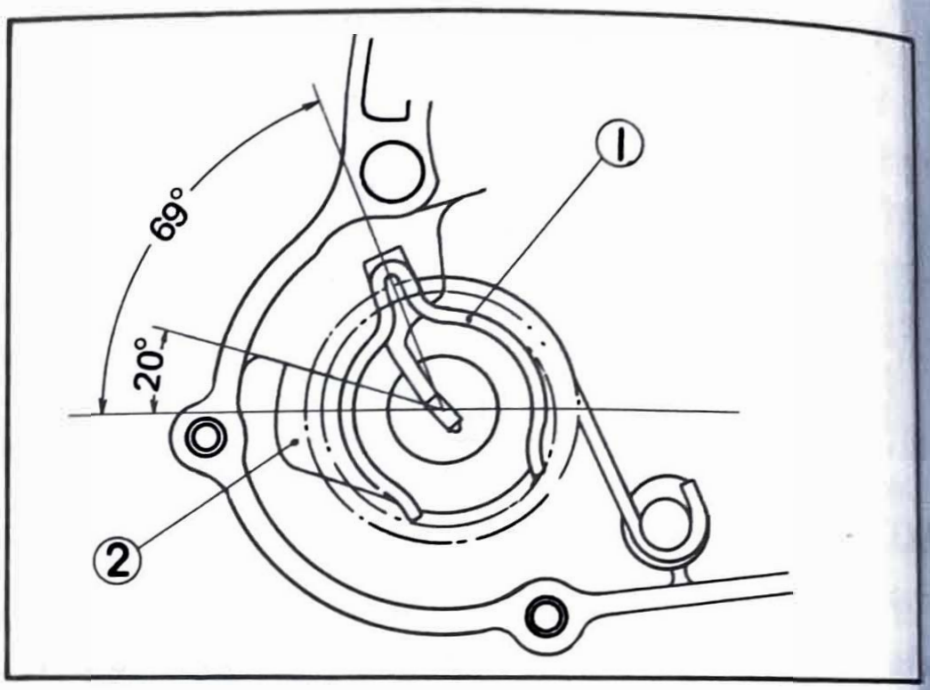


m. Stack the clutch spring set on a level surface. Rotate each spring until all are at approximately the same vertical angle and maximum apparent height. Place straight edge across set. If any spring exceeds tolerance, replace that spring.

4. 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.

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



1. Kick gear clip
2. Kick stopper

   (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.

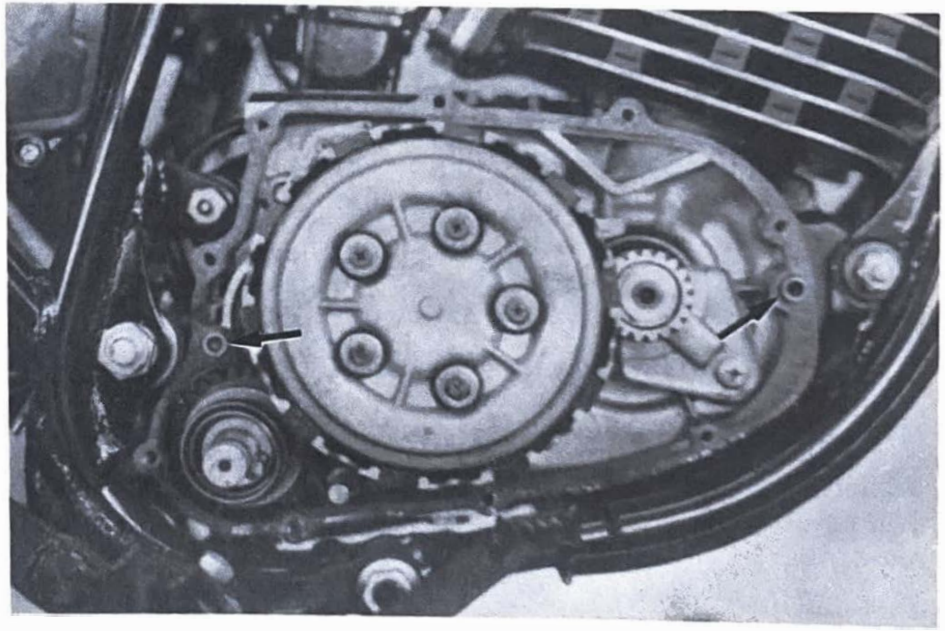
Clutch securing nut torque:
36 – 51 ft-lb (5.0 – 7.0 m-kg)

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

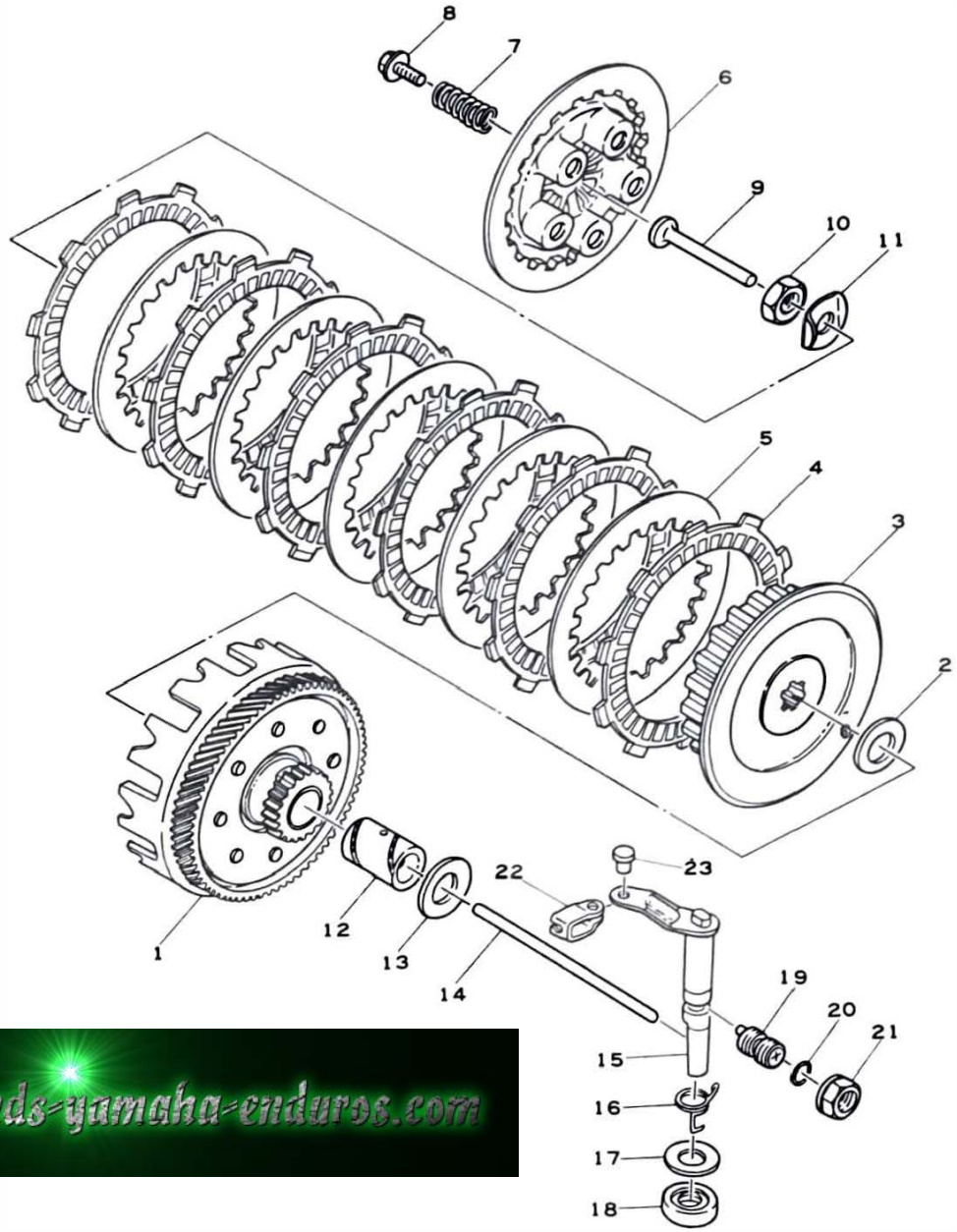
(3) After tightening the clutch securing nut, make sure the clutch boss turns lightly.
(4) Install clutch plates and friction plates with a heavy coat of 10W/30 motor oil on their mating surfaces.
(5) Install push rod into main axle.
(6) Install clutch pressure plate.

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.



CLUTCH



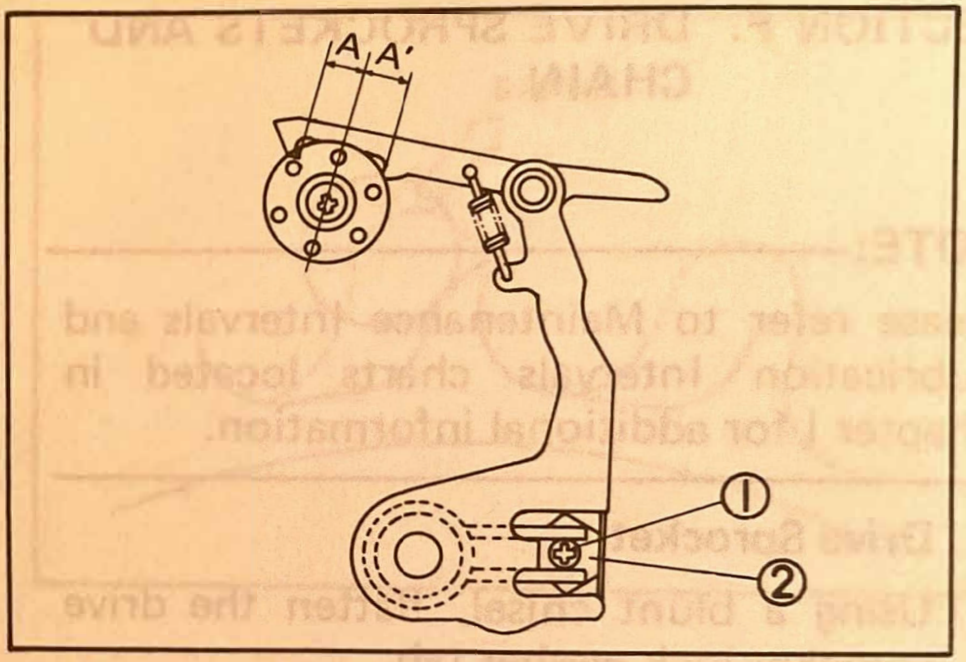
1. Primary driven gear comp.
2. Thrust plate
3. Clutch boss
4. Friction plate
5. Clutch plate 2
6. Pressure plate
7. Spring
8. Hexagon bolt
9. Push rod 1
10. Hexagon nut
11. Lock washer
12. Spacer
13. Plate washer
14. Push rod 2
15. Push lever axle
16. Torsion spring
17. Plate washer
18. Oil seal
19.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

5. Shift Mechanism

NOTE:

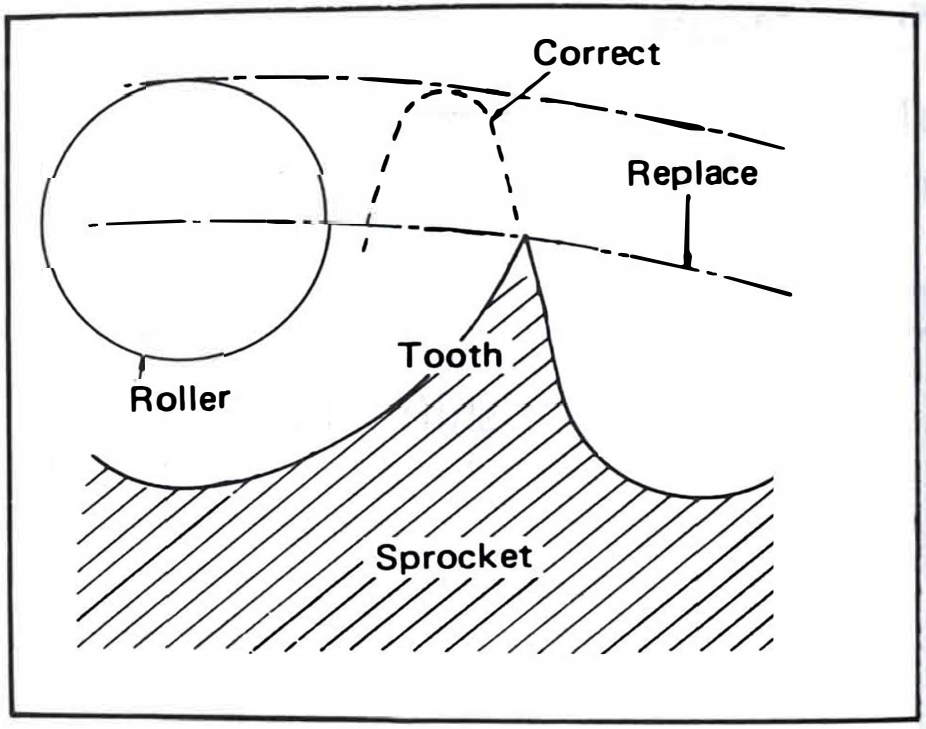
Shifter maintenance and adjustment should be performance with clutch assembly by removed.

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 eccentric screw until distance A and A' are equal. Adjust in 2nd, 3rd or 4th gear.



1. Eccentric adjusting screw
2. Locknut

SECTION F. DRIVE SPROCKETS AND CHAIN



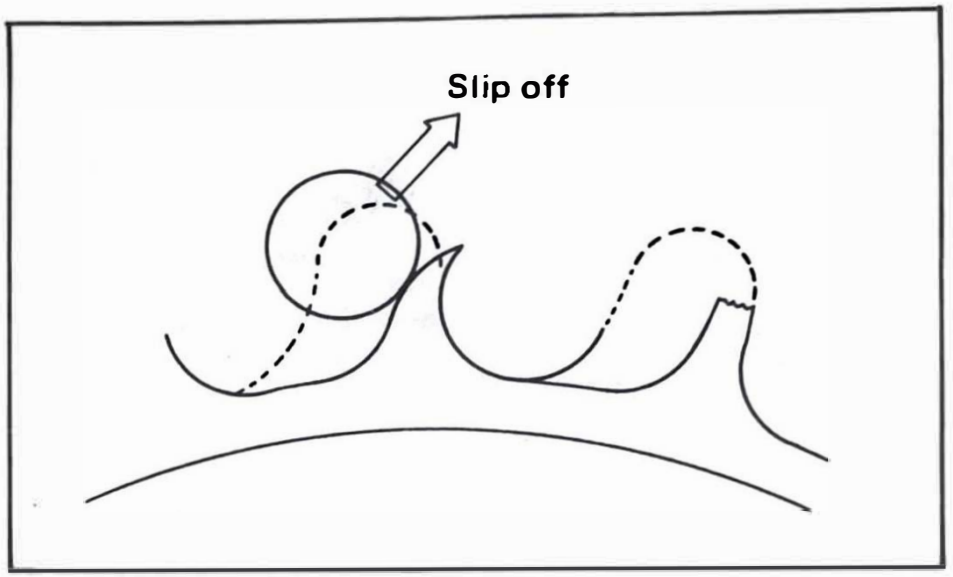
NOTE:

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

1. Drive Sprocket

a. Using a blunt chisel, flatten the drive sprocket lock washer tab.
b. With the drive chain in place, transmission in gear, firmly apply the rear brake. Remove the sprocket securing nut. Remove the sprocket.
c. Check sprocket wear. Replace if wear decreases tooth height to a point approaching the roller center line.

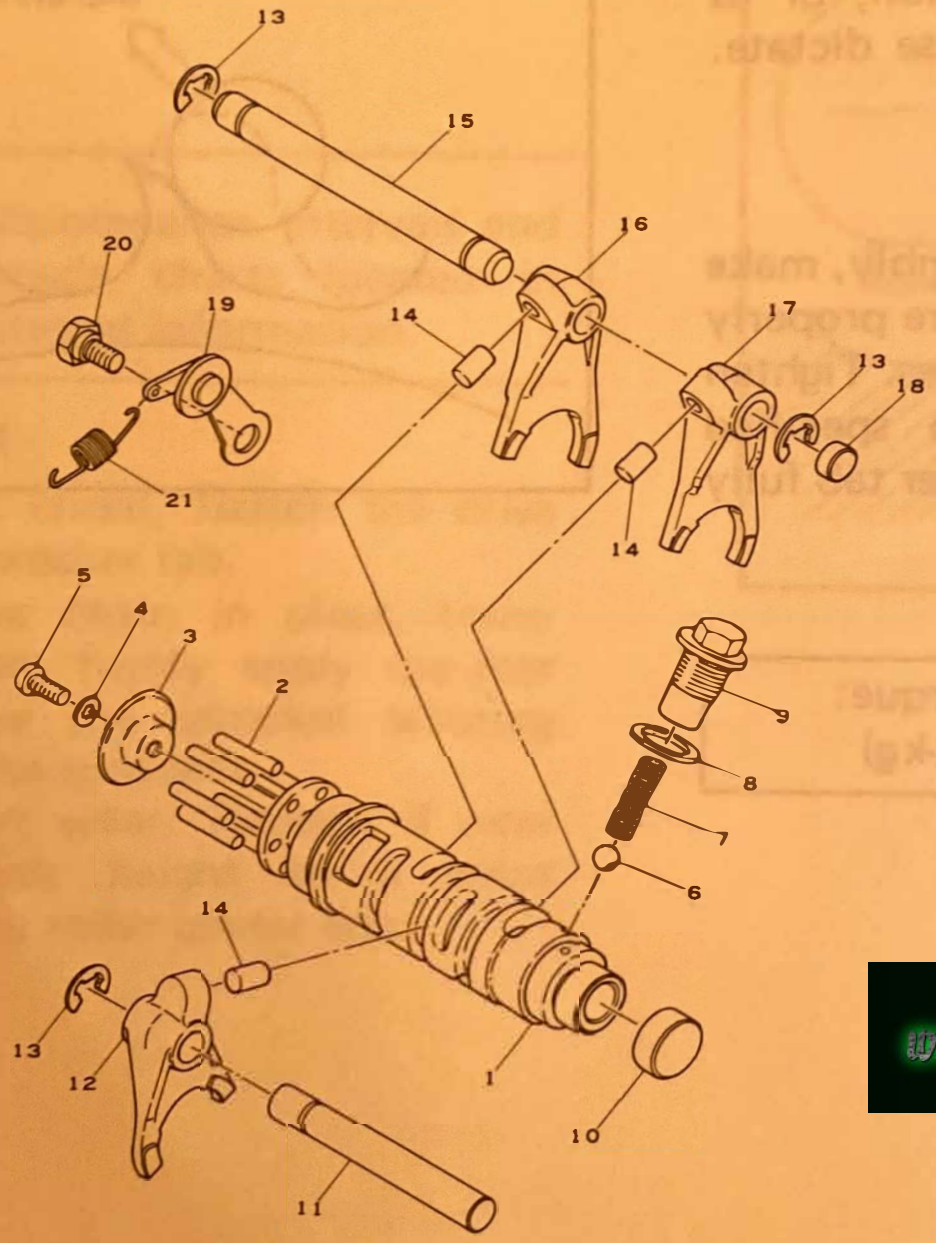
d. Replace if tooth wear shows a pattern such as that in the illustration, or as precaution and common sense dictate.



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

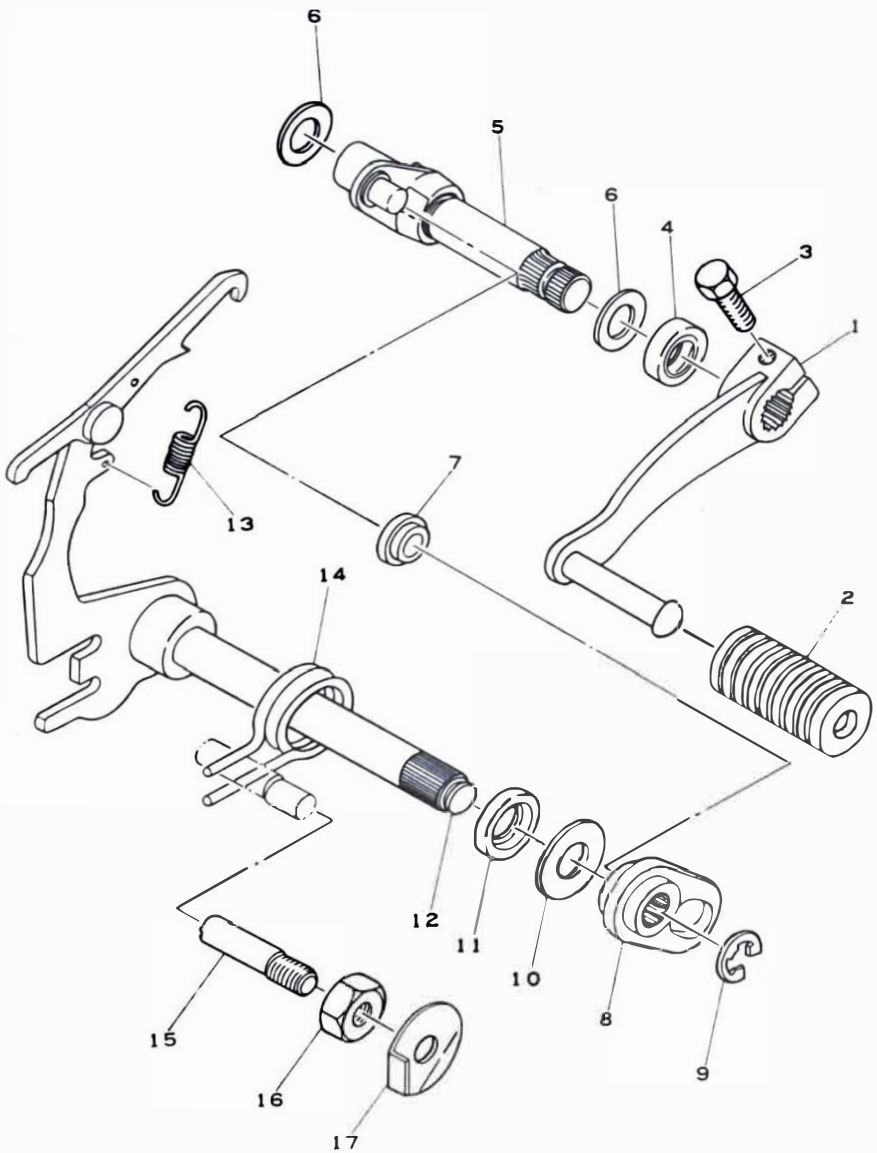
Drive sprocket securing nut torque:
47—72 ft-lb (6.5—10.0 m-kg)

SHIFTER 1



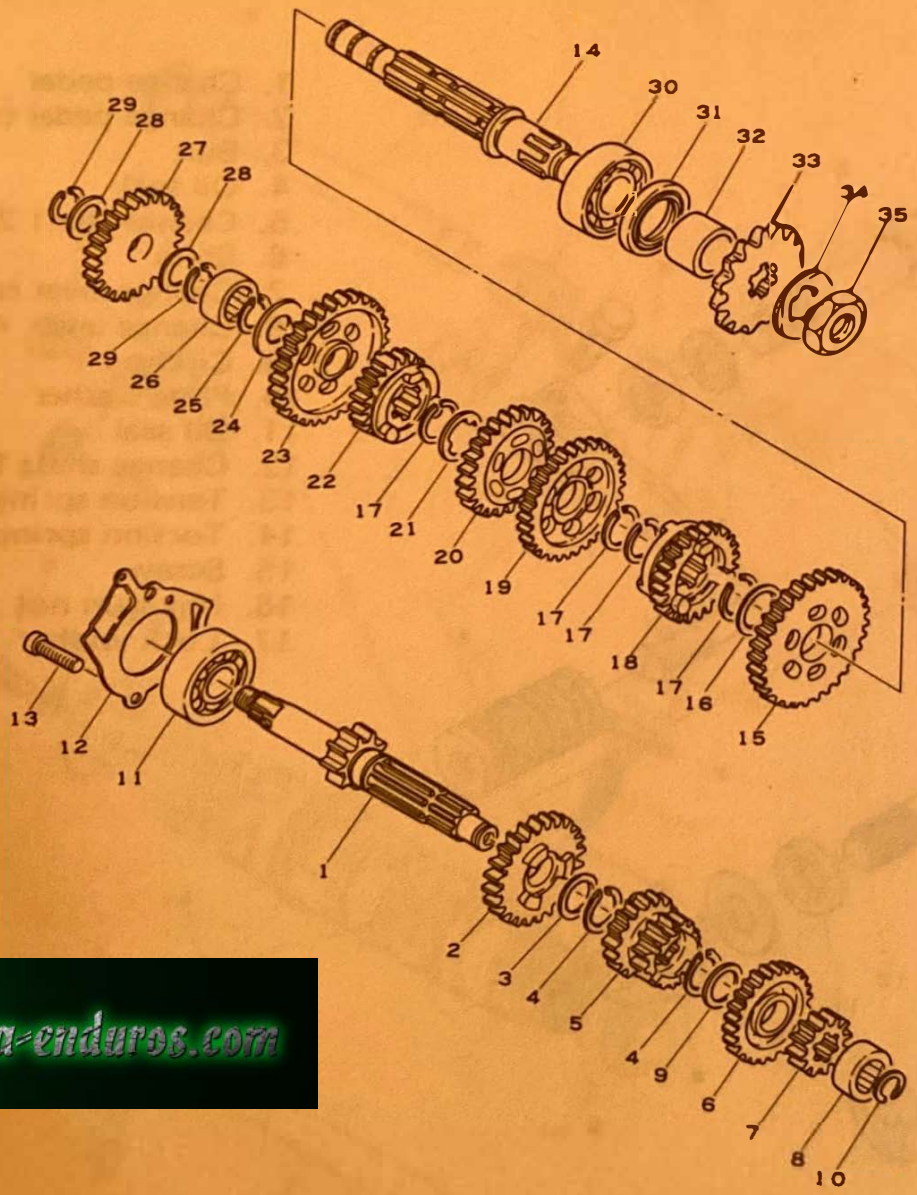
1. Shift cam
2. Dowel pin
3. Side plate
4. Spring washer
5. Panhead screw
6. Ball
7. Spring
8. Drain plug gasket
9. Spring screw
10. Plug
11. Shift fork guide bar1
12. Shift fork 2
13. Circlip
14. Straight pin
15. Shift fork guide 2
16. Shift fork 3
17. Shift fork 1
18. Plug
19. Stopper lever
20. Bolt
21. Tension spring

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

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

2. Driven Sprocket and Drive Chain

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

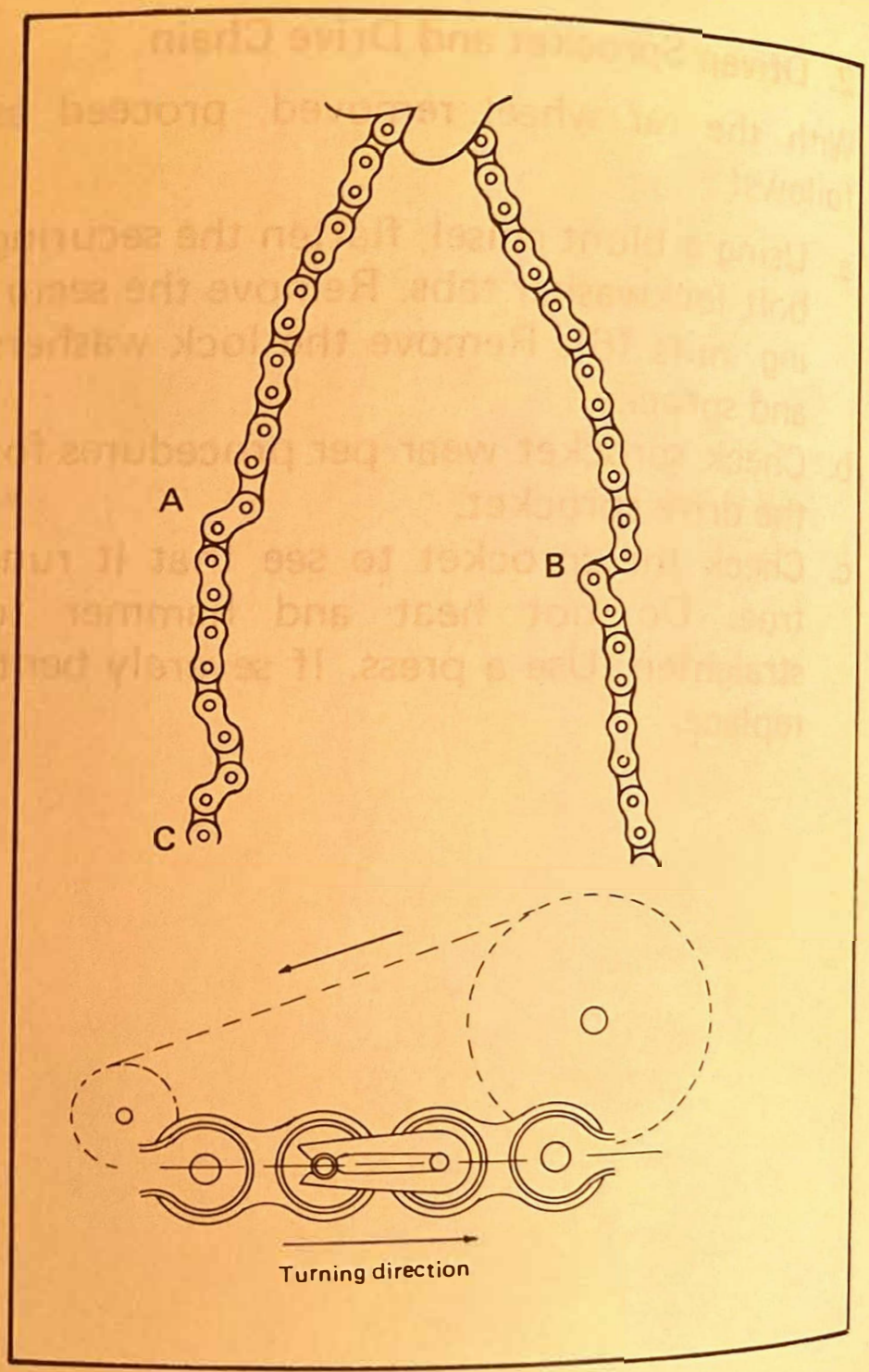
Driven sprocket securing nut torque:
22 – 35 ft-lb (3.0 – 4.8 m-kg)

3. Chain

NOTE:

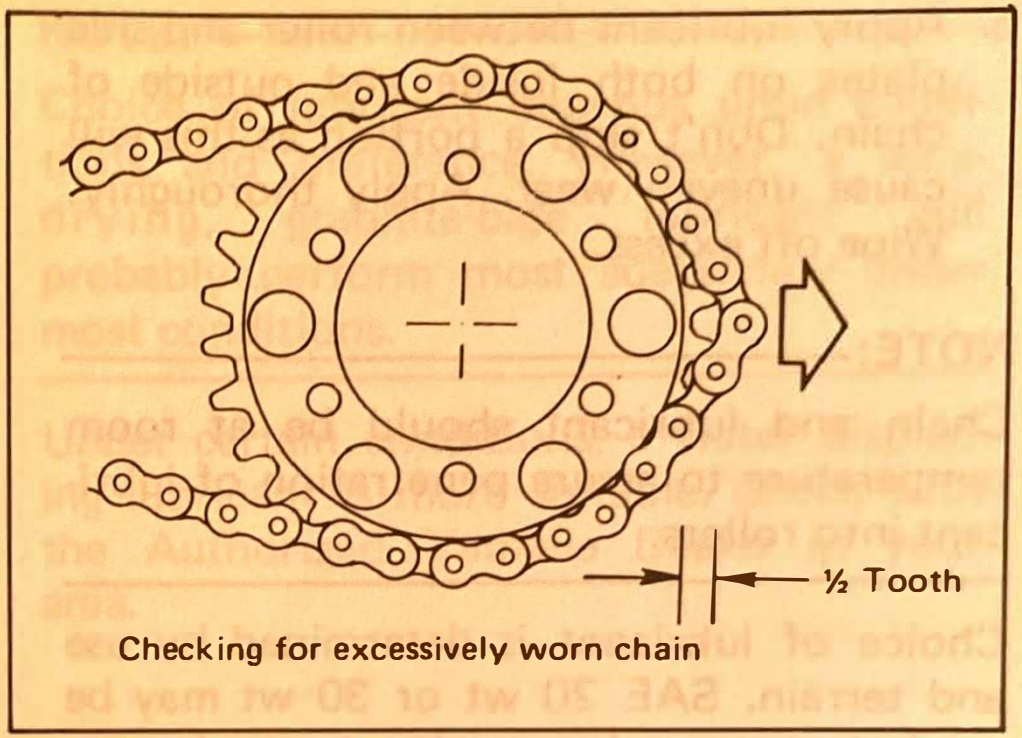
Refer to Maintenance and Lubrication Charts located in Chapter I for additional information.

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 and attempt to wrok out kinks. If still stiff, replace.
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 directionof travel.



4. Troubleshooting

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



Checking for excessively worn chain

5. Maintenance

The chain should be lubricated per the recommendations given in the Maintenance and Lubrication Schedule Chart located in Chapter I. More often if possible. Preferably after every use.

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

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

Choice of lubricant is determined by use and terrain. SAE 20 wt or 30 wt may be used, but several specialty types by accessory manufacturers offer more penetration, corrosion resistance and shear strength for roller protection.

In certain areas, semi-drying lubricants are preferable. These will resist picking up and particles, dust, etc. Consult your Authorized Yamaha Dealer.

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.

NOTE:

See Maintenance and Lubrication Schedule Charts located in Chapter I for additional information.

6. 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.

7. Maintenance

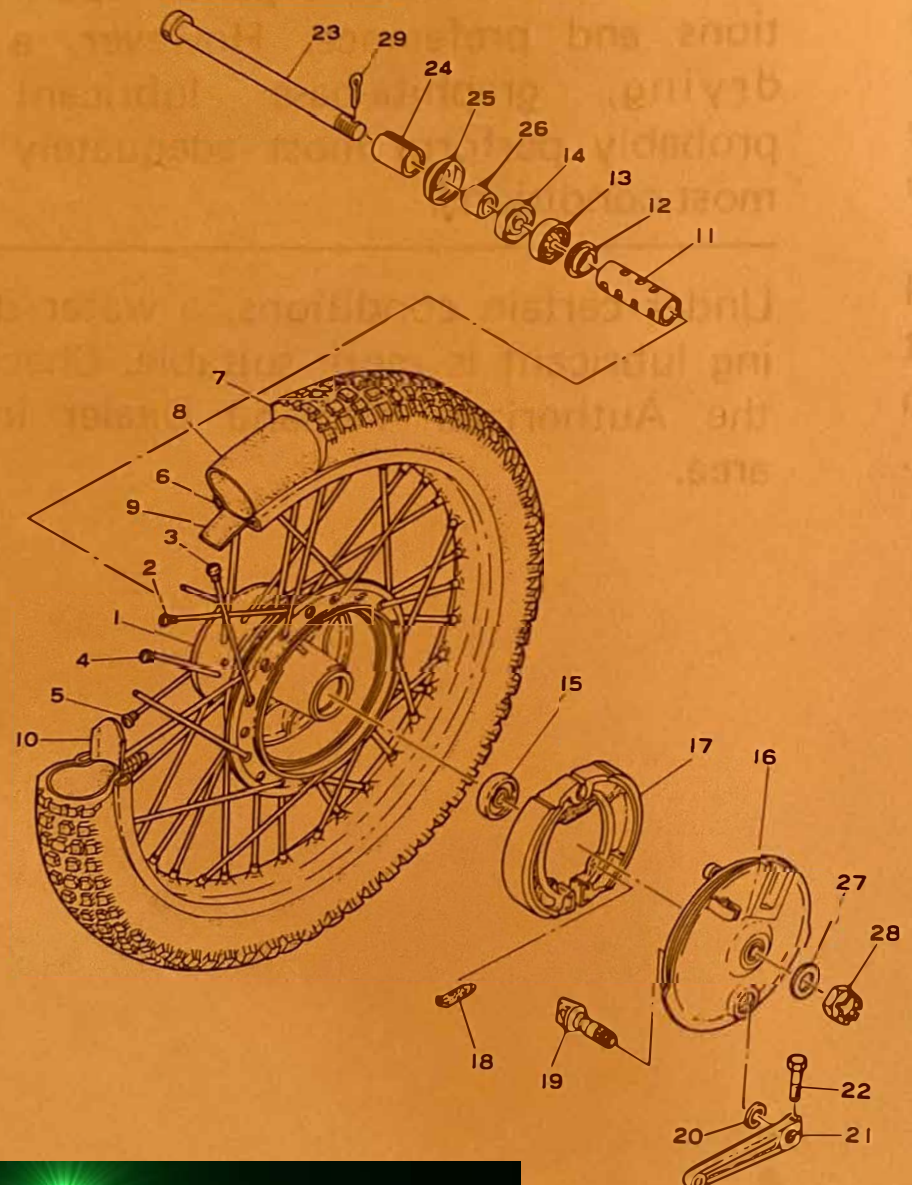
a. Remove the cable.
b. Check for free movement of the cable with its housing. If movement is obstructed, check for fraying of the cable strands. If fraying is evident, replace the cable assembly.
c. To lubricate cable, hold in vertical position. Apply lubricant to uppermost end of cable. Leave in vertical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

NOTE:

Choice of lubricant depends upon conditions and preference. However, a semi-drying, graphite-base lubricant will probably perform most adequately under most conditions.

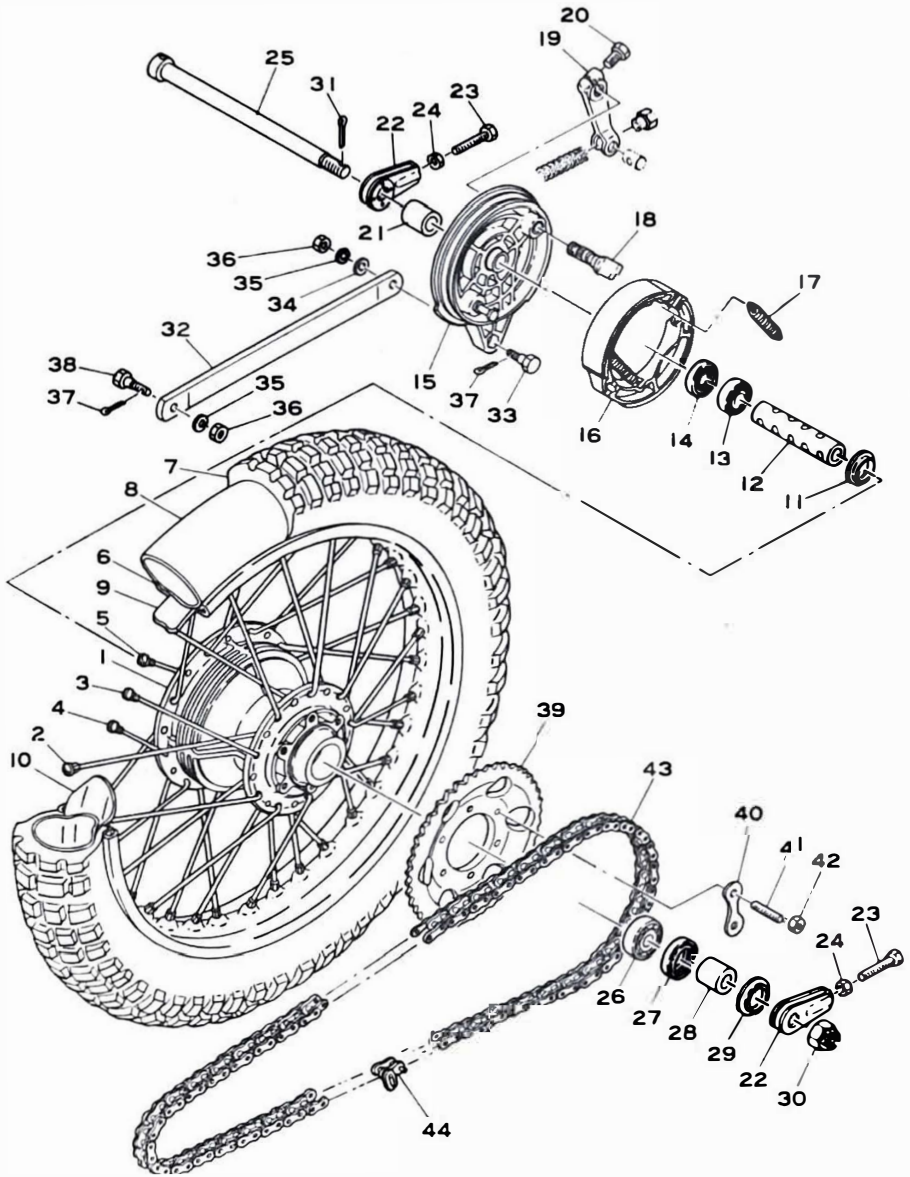
Under certain conditions, a water displacing lubricant is more suitable. Check with the Authorized Yamaha Dealer in your area.

FRONT WHEEL



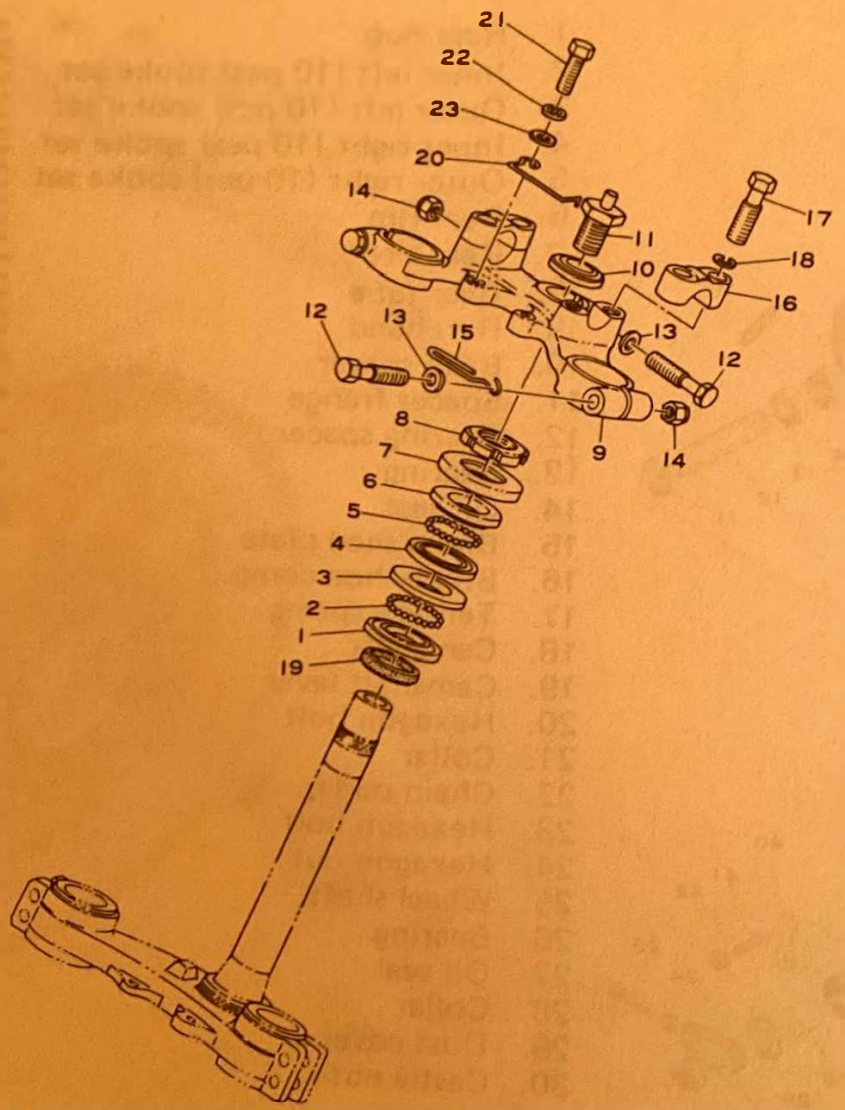
1. Front hub
2. Inner left (10 pcs) spoke set
3. Outer left (10 pcs) spoke set
4. Inner right (10 pcs) spoke set
5. Outer right (10 pcs) spoke set
6. Front rim
7. Front tire
8. Front tube
9. Rim band
10. Bead spacer
11. Bearing spacer
12. Spacer flange
13. Bearing
14. Oil seal
15. Bearing
16. Brake shoe plate
17. Brake shoe comp.
18. Tension spring
19. Camshaft
20. Camshaft seal
21. Camshaft lever
22. Hexagon bolt
23. Wheel shaft
24. Collar
25. Hub dust cover
26. Collar
27. Plain washer
28. Castle nut
29. Cotter pin

REAR WHEEL



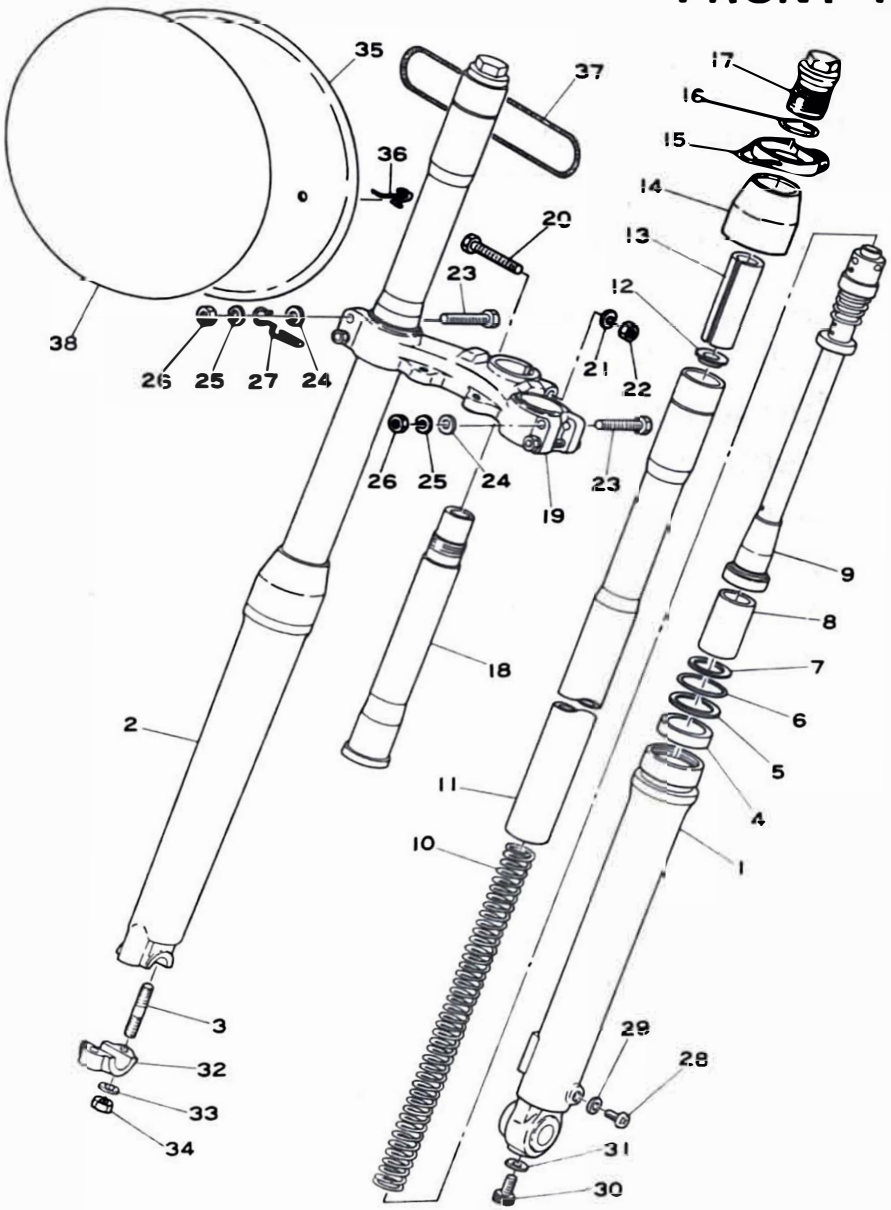
1. Rear hub
2. Inner left (10 pcs) spoke set
3. Outer left (10 pcs) spoke set
4. Inner right (10 pcs) spoke set
5. Outer right (10 pcs) spoke set
6. Rear rim
7. Rear tire
8. Rear tube
9. Rim band
10. Bead spacer
11. Spacer frange
12. Bearing spacer
13. Bearing
14. Oil seal
15. Brake shoe plate
16. Brake shoe comp.
17. Tension spring
18. Camshaft
19. Camshaft lever
20. Hexagon bolt
21. Collar
22. Chain puller
23. Hexagon bolt
24. Hexagon nut
25. Wheel shaft
26. Bearing
27. Oil seal
28. Collar
29. Dust cover
30. Castle nut
31. Cotter pin
32. Tension bar
33. Bolt
34. Plain washer
35. Spring washer
36. Hexagon nut
37. Coter pin
38. Bolt
39. Sproket wheel gear
40. Lock washer
41. STud bolt
42. Nut
43. Chain
44. Chain joint

STEERING



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

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

CHAPTER VI.
CHASSIS MAINTENANCE AND MINOR REPAIRS

SECTION A. WHEELS, TIRES, BRAKES

1. Front Wheel

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 fornt wheel nut.
d. Remove the front wheel nut.
e. Raise the front of the machine and set it on a box. Then remove the wheel assembly.
f. Remove the front wheel axle by simultaneously twisting and pulling out on the axle.

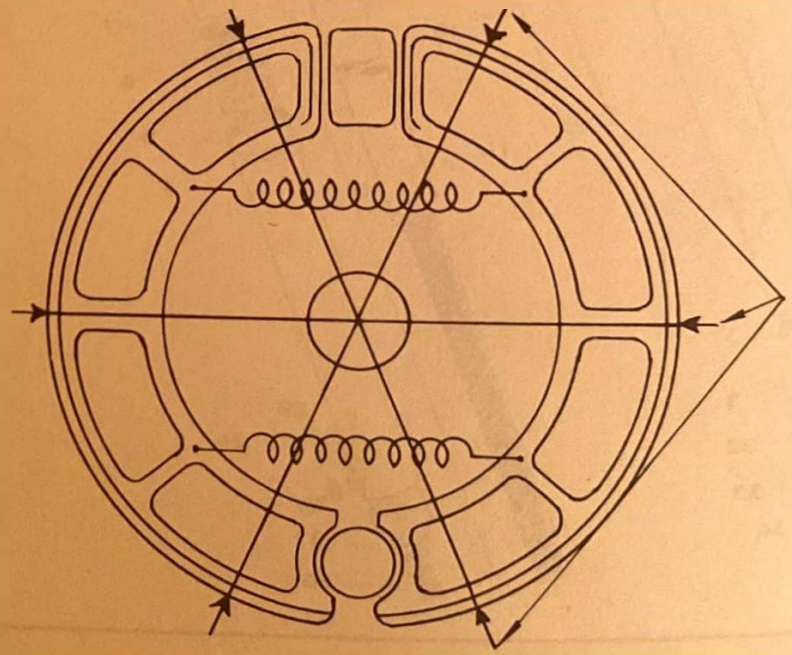
2. Checking Brake Shoe Wear

Measure the outside diameter at the brake shoe with slide calipers. If it measures less than 4.9 in (125mm) replace it.

Front brake shoe diameter: 5.1 in (130 mm)
Replacement limit: 4.9 in(125mm)

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.



4. 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 (furnished by Yamaha).
e. Check the lips of the seals for damage or warpage. Replace if necessary.

5. 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.

6. 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.

7. Checking Brake Shoe Wear

Measure the outside diameter at the brake shoe with slide calipers. If it measures less than 4.9 in (125mm), repalce it.

Rear brake shoe diameter:	5.1 in (130mm)
Replacement limit:	4.9 in (125mm)

8. Brake Drum

Oil or scratches on the inner surface or 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.

9. Replacing Wheel Bearings

Refer to front wheel section.

10. 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 slip free. Slowly revolve 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. Smooth out a rough shoe surface with sandpaper or with a file.

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

Run-out limits: 0.079 in (2 mm)

11. 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 remove 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.

12. Installing Tire

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

Tire pressure for normal riding:
Front—13 lb/in^2 (0.9 kg/cm^2)
Rear —15 lb/in^2 (1.1 kg/cm^2)

SECTION B. FRONT FORKS AND STEERING HEAD

1. General

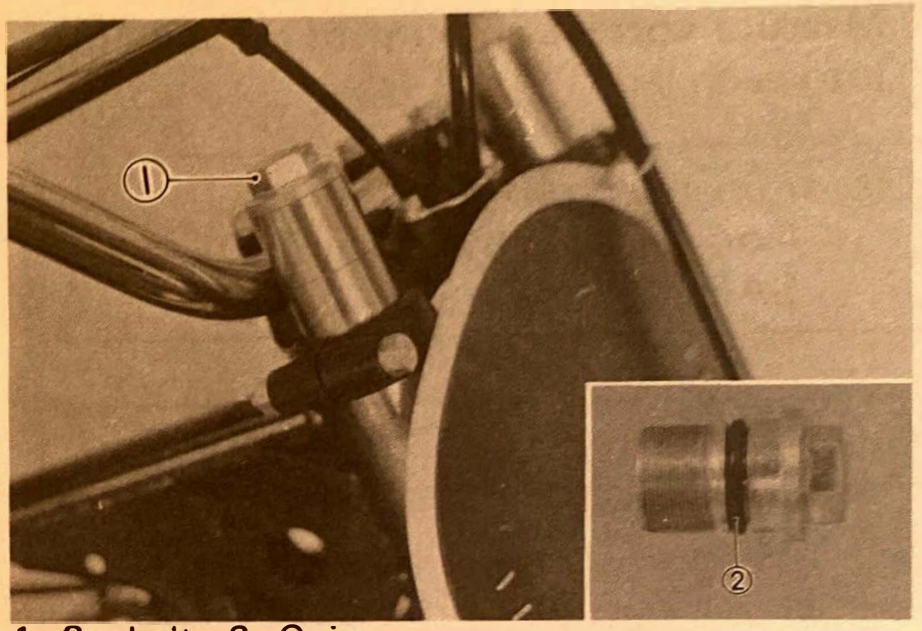
The front forks on your machine utilize chrome plated tubular steel fork legs (inner tubes) and tubular aluminum sliders (outer tubes). The bearing surface is the entire inside surface of the aluminum outer tube. The steering head pivot is supported by two sets of uncaged ball and race bearing assemblies.

2. 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

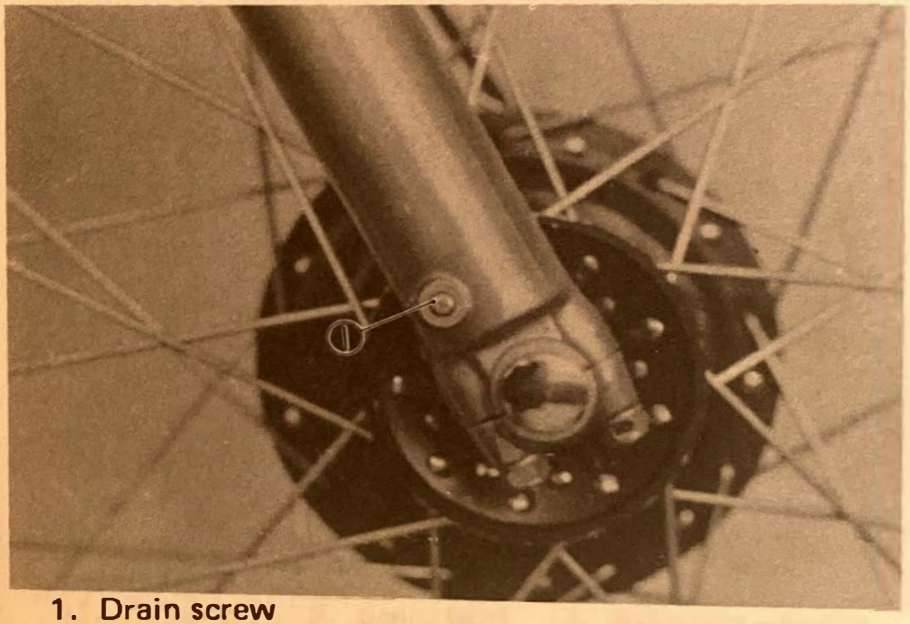
b. Remove drain screw from each outer tube with open container under each drain hole.

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 if damaged.



1. Drain screw

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

Recommended oil:
Non-foaming hydraulic fluid SAE 10W/30

Quantity per leg: 11.63 cu.in (190.5 cc)

NOTE:

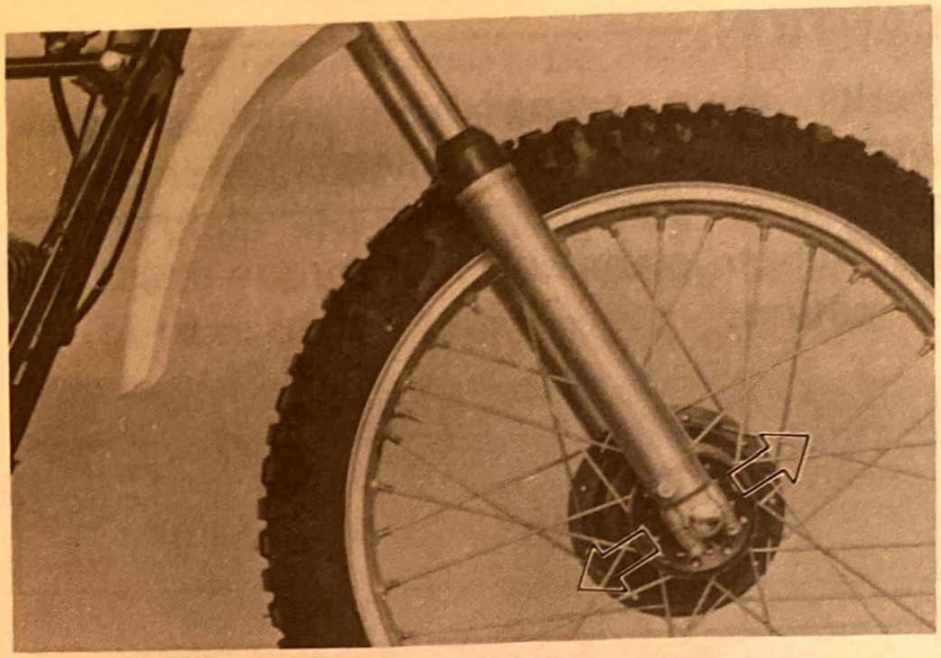
Select the weight oil that suits local conditions and your preference (lighter for less damping; heavier for more damping.

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.

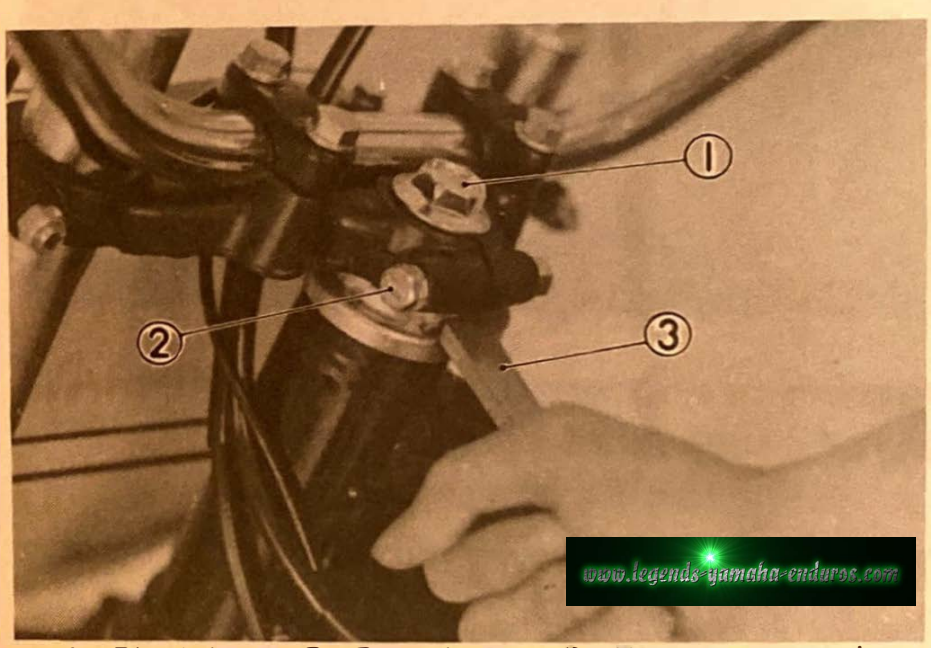
Fork cap bolt torque:
22 – 29 ft-lb (3.0 – 4.0 m-kg)

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

CAUTION:

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

e. Tighten stem bolt and torque to specification.

Stem bolt torque:
30 – 47 ft-lb (4.2 – 6.5 m-kg)

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

Stem pinch bolt torque:
8 – 13 ft-lb (1.1 – 1.8 m-kg)

NOTE:

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

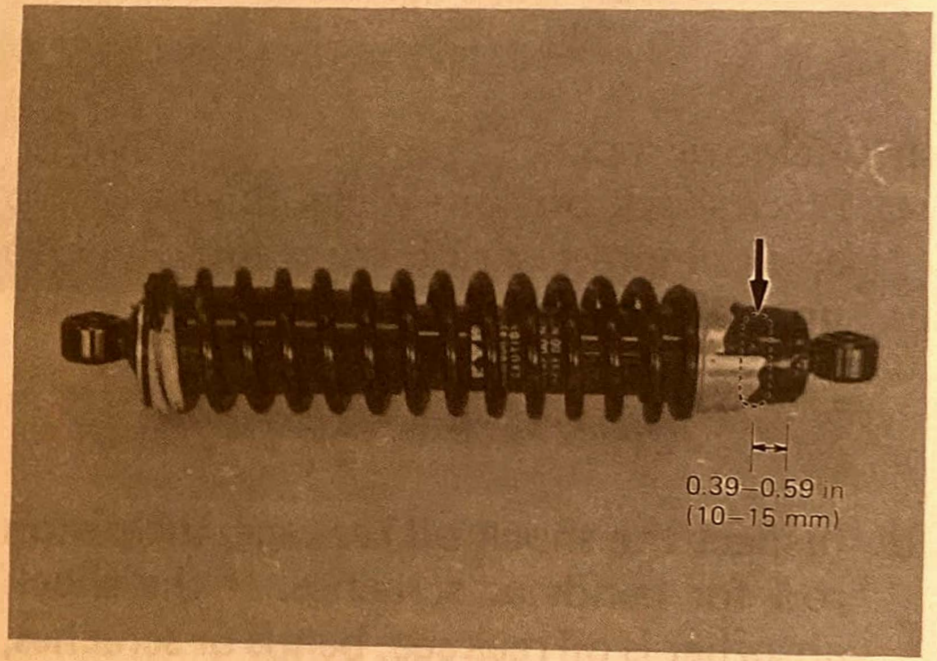
SECTION C. REAR SHOCKS AND SWING ARM

WARNING:

THIS SHOCK ABSORBER CONTAINS HIGHLY PRESSURIZED NITROGEN GAS

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

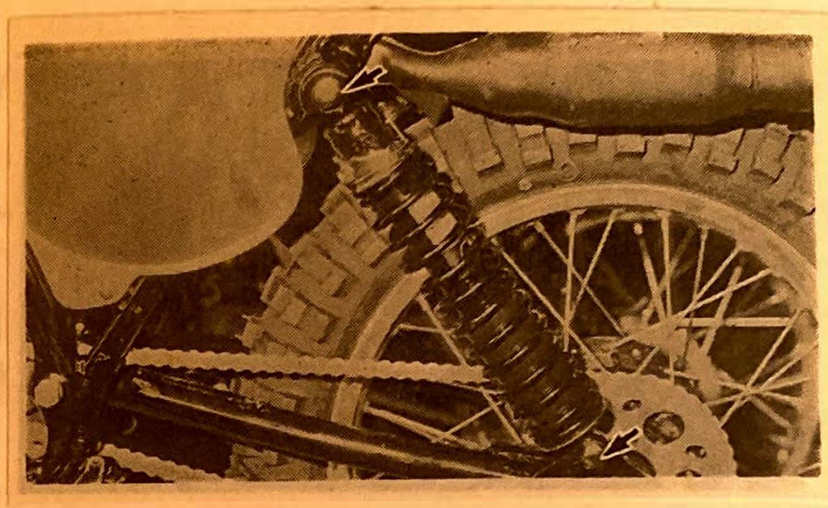
1. Do not tamper with or attempt to remove the snap ring or bearing at the top of the cylinder.
2. Do not subject shock absorber to an open flame or other high heat. This may cause the unit to explode due to excessive gas pressure.
3. Do not deform or damage the cylinder in any way. Cylinder damage will result in poor damping performance.
4. Gas pressure must be released before disposing of the shock absorber. To do so, drill a 0.08 – 0.12 in. (2–3mm) hole through the cylinder wall at a point 0.39 – 0.59 in. (10–15mm) above the bottom of the cylinder.



WARNING: Wear eye protection to prevent eye damage from escaping gas and/or metal chips.

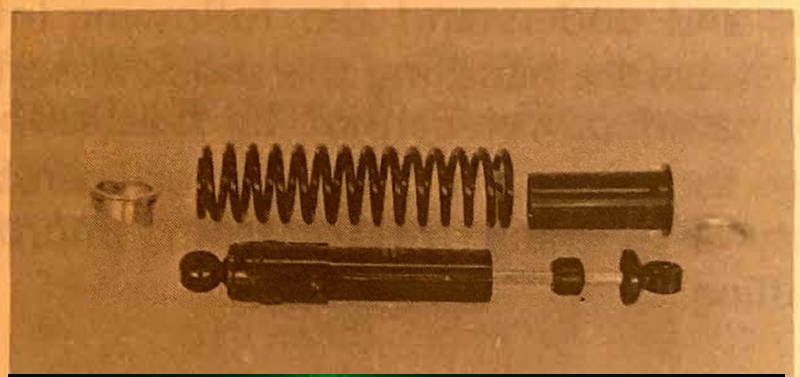
1. Rear shock removal and inspection

a. Remove two bolts, lock wahsers and cup washers from each shock.



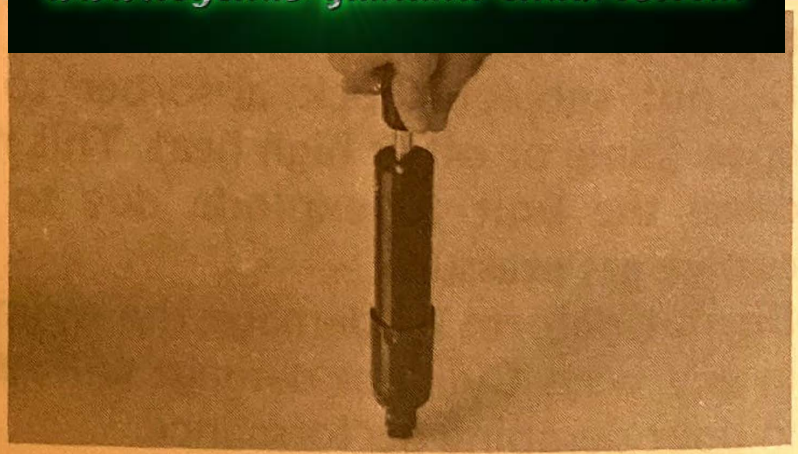
b. Remove shock.

c. Place shock bottom eyelet in vise. Grasp and compress spring from top. Remove upper spring seat and spring.



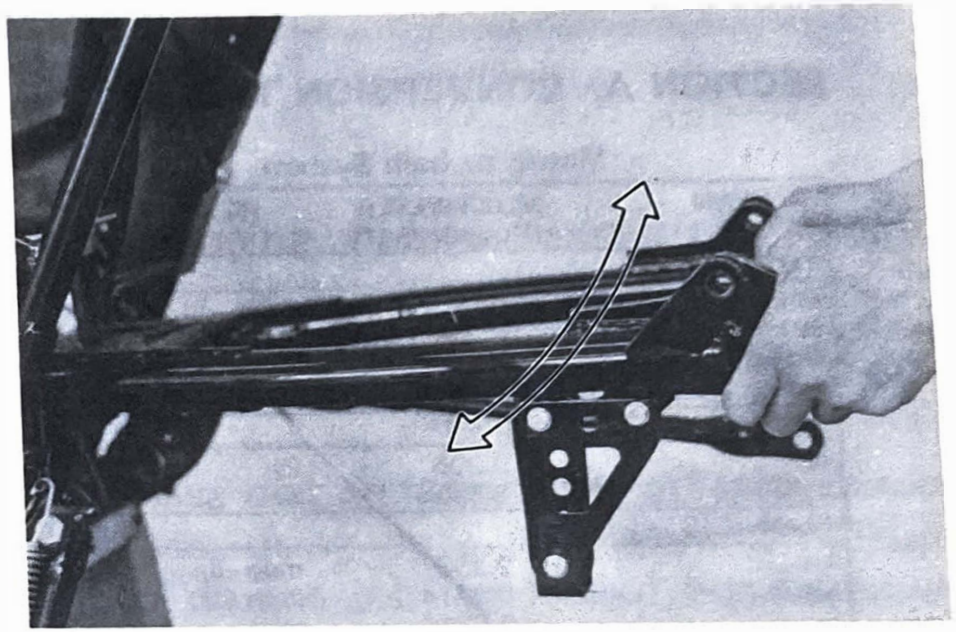
d. Inspect the shock oil reakage, the piston rod for bends or scraches. If the shock absorber is oil reakage, bends or scraches, replace it.

e. Operate shock absorber shaft to check damping. As you push down, only slight damping should be felt. Return stroke will have considerable damping. If there is no damping, replace shock.



2. 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 freeplay.



Swing arm freeplay: None

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

3. Swing arm pivot lubrication

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

Recommended Lubricant: 90 wt, smooth lube grease

CHAPTER VII. MISCELLANEOUS

SECTION A. 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/cm^2	14.2233	psi (lb/in^2)
$\frac{9}{5}$. 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/in^2)	0.07031	kg/cm^2
$\frac{5}{9}$. [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.

SECTION B. CLEANING AND STORAGE

Cleaning

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

1. Before Cleaning the Machine:

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

b. Remove air cleaner or protect it from water with plastic covering.

NOTE:

With air cleaner removed make sure no water enters intake.

c. Make sure spark plug, gas cap, oil tank cap, transmission oil filler cap and battery caps are properly installed.

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 tooth brush or bottle brush is handy to reach those hard to get to places.

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

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

7. Chrome-plated parts such as handlebars, rims, 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 paint or protective finish on fuel and oil tanks.

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(s).

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 table-spoon 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.

4. Remove drive chain. Clean thoroughly with solvent and lubricate with graphite-base chain lubricant. Re-install chain or store in a plastaic bag (tie to frame for safe-keeping).

5. Lubricate all control cables.

6. Block up frame to raise both wheels off ground. (Main stands can be used on machines so equipped).

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.

SECTION C. WARRANTY

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.

SINCE 1887

YAMAHA MOTOR CO.,LTD.

IWATA, JAPAN

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