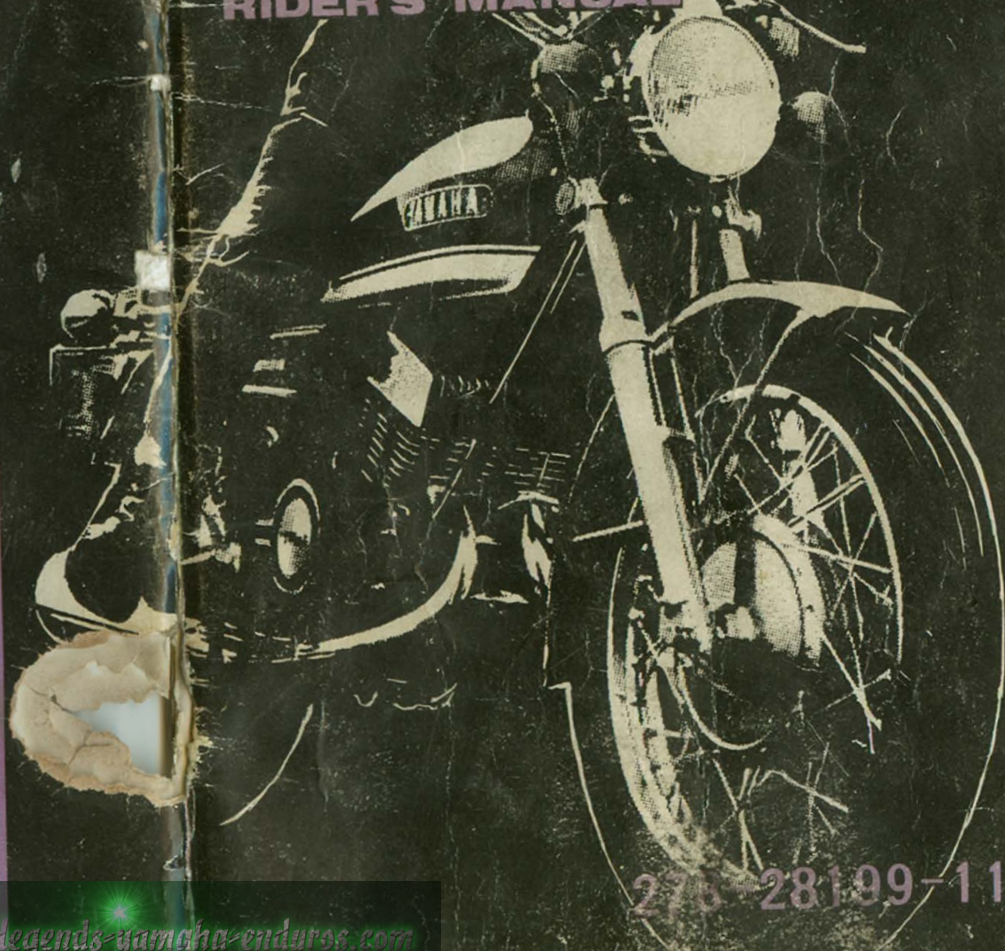


YAMAHA

R5C 350

RIDER'S MANUAL



YAMAHA MOTOR CO., LTD.

PRINTED IN JAPAN

[www.legends-yamaha-enduros.com](http://www.legends-yamaha-enduros.com)

276-28199-11



Congratulations! You are now the owner of a new Yamaha R5C. The R5C is a high performance motorcycle manufactured by the leading manufacturer of motorcycles in Japan.

The R5C, the newest and top of the Yamaha line, is designed for competition and high-speed road use. It features a rugged, powerful 2-stroke twin cylinder engine and Autolube; the revolutionary lubricating system developed by the Yamaha Technical Research Laboratory and proven in all Yamaha models.

This manual explains some of the steps necessary for the operation and care of your new motorcycle. Please read it carefully so as to become thoroughly familiar with all the features and advantages built into your R5C.



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## 1 Special Features and Specifications

### 1-1 Special Features

#### 1 Parallel Twin Engine with 5-Port Cylinders

The Yamaha R5C employs a powerful 2-stroke 350 c.c. twin cylinder engine equipped with special 5-port cylinders.

This new 5-port cylinder has two more scavenging ports than the conventional piston ported system, resulting in more power and performance.

#### 2 Advanced Engine with Autolube & Aluminum Cylinder

This highly sophisticated powerful 2-stroke engine when lubricated with Autolube develops 36 P.S. horsepower at 7,000 rpm. After normal break-in you can expect outstanding acceleration and a top speed of over 100 mph. (160 km/h)

You can enjoy high-speed touring and competition to the fullest.

#### 3 5-Speed Gearbox

A five speed transmission assures you of plenty of power in any driving situation.

#### 4 Ease of Starting

A new carburetor with built-in starter jet makes the R5C easy to start in cold or even freezing weather.

#### 5 Reliable Brakes

The front brake, which is more important for high speed road riding is a race-bred twin leading shoe unit. Both brakes are sealed against dirt and water. This means that your brakes will work well in rain or on dirt roads.

#### 6 Adjustable Rear Suspension

The rear springs can be adjusted to suit changes of road surface, speed and load.

#### 7 Comfortable Ride

Years of painstaking research have gone into the desing of the tubular fram and suspension. A great deal of time has been spent on seating position and control location. The result is an exceptionally well balanced machine which handles well, gives a silky ride, and is never tiring to ride.

## 1-2 Specifications R5C

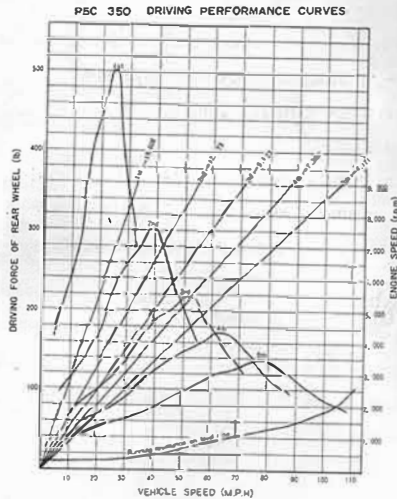
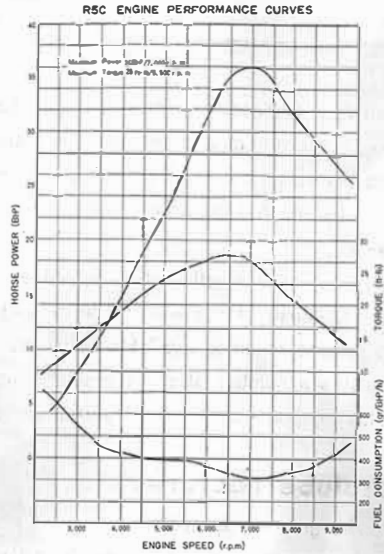
The below performance may be changed without notice

Model		YAMAHA R5C
Dimensions	Overall length	80.3 in. (2,040 mm.)
	Overall width	32.9 in. ( 835 mm.)
	Overall height	42.7 in. (1,085 mm.)
	Wheelbase	52.0 in. (1,320 mm.)
	Minimum road clearance	6.1 in. ( 155 mm.)
Weight	Gross	343 lbs. (155 kg)
	Net	308 lbs. (140 kg)
Performance	Maximum speed	100 mph plus (160 km/h plus)
	Fuel consumption (on paved level road)	82.5 mpg @ 37mph (35km/ℓ @ 60km/h)
	Climbing capacity	28 degrees
	Braking distance	46 ft @ 31 mph (14 m @ 50 km/h)
	Minimum turning radius	90.6 in. (2,300 mm.)
Engine	Model	YAMAHA R5
	Classification	Air-cooled 2-stroke, gasoline, 5-port
	Lubricating system	Yamaha Autolube: automatic lubrication
	Number of cylinder	2, parallel
	Displacement	21.18 cu.in. (347 c.c.)
	Bore & Stroke	2.520×2.126 in. (64×54 mm.)
	Compression ratio	6.9 : 1
	Maximum power	36 P.S./7,000 r.p.m.
	Maximum torque	28 ft-lbs/6,500 r.p.m. (3.87 kg-m/6,500 r.p.m.)
	Starting system	Kick starter
	Ignition system	Battery ignition

Model		YAMAHA R5C	
Transmission	Primary reduction ratio & system	2.869 (66/23) gear	
	Secondary reduction ratio & system	2.666 (40/15) chain	
	Clutch	Wet, multi-disc	
	Gear box	Constant mesh, 5-speed	
Gear box	Gear ratio	First	41/16 (2.564)
		Second	35/22 (1.590)
		Third	31/26 (1.192)
		Fourth	28/29 (0.965)
		Fifth	25/31 (0.806)
	Oil capacity	1.6 qts	
Body	Frame	Cradle-type tube frame	
	Front suspension	Telescopic (coil spring oil damper)	
	Rear suspension	Swing arm (coil spring oil damper)	
Steering	Steering angle	40 degrees both right and left	
	Caster	62° 30'	
	Trail	4.17 in. (106 mm.)	
Brakes	Type	Internal expansion	
	Front	Right hand, cable actuated, double reading shoe	
	Rears	Right foot, rod actuated, single reading shoe	
Tires	Front	3.00—18—4PR	
	Rear	3.50—18—4PR	
Tanks	Gasoline tank capacity	3.2 us gal. (12 liters)	
	Oil tank capacity	2.1 us qt. (2 liters)	



### 3. Performance Curves



### 2 What is Yamaha Autolube ?

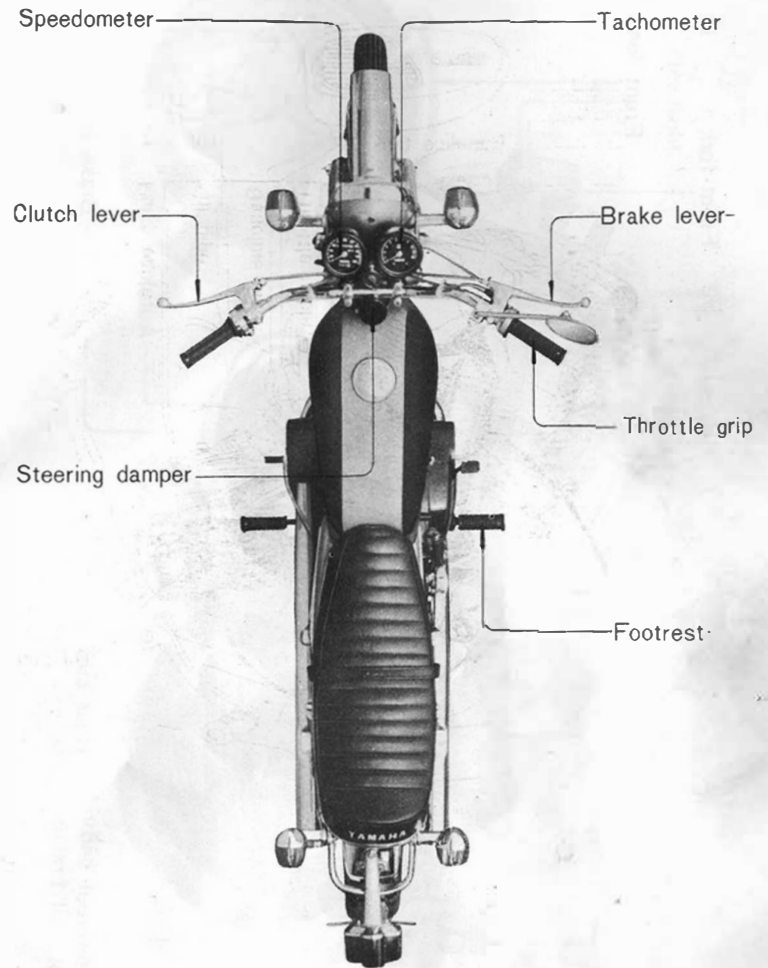
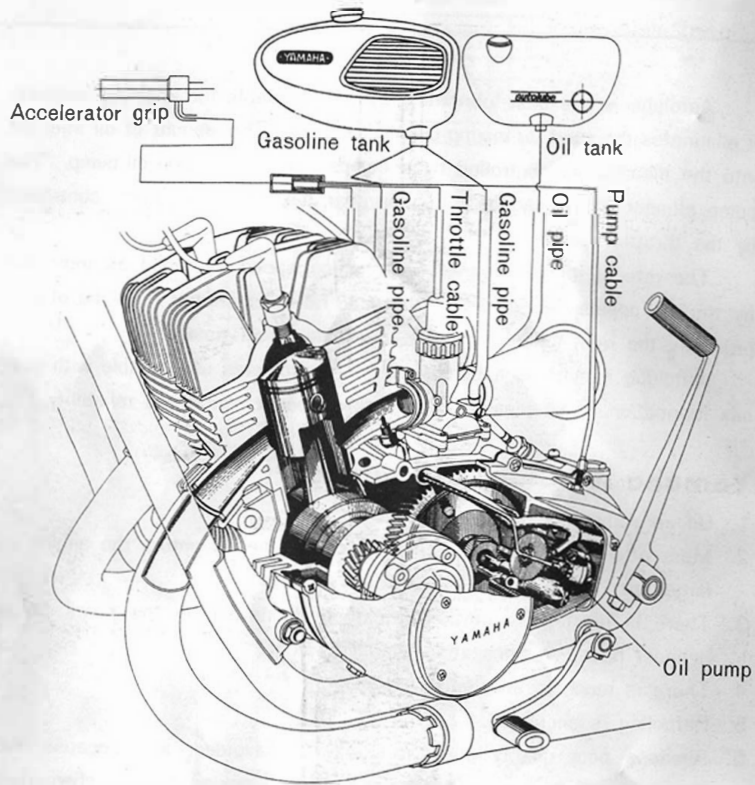
Autolube is the best lubricating system available for 2-stroke engines. It eliminates the need for mixing oil and gasoline. The amount of oil injected into the manifold is controlled by a compact, high-precision oil pump. The pump plunger, driven by the reduction gear, has its displacement controlled by the throttle opening.

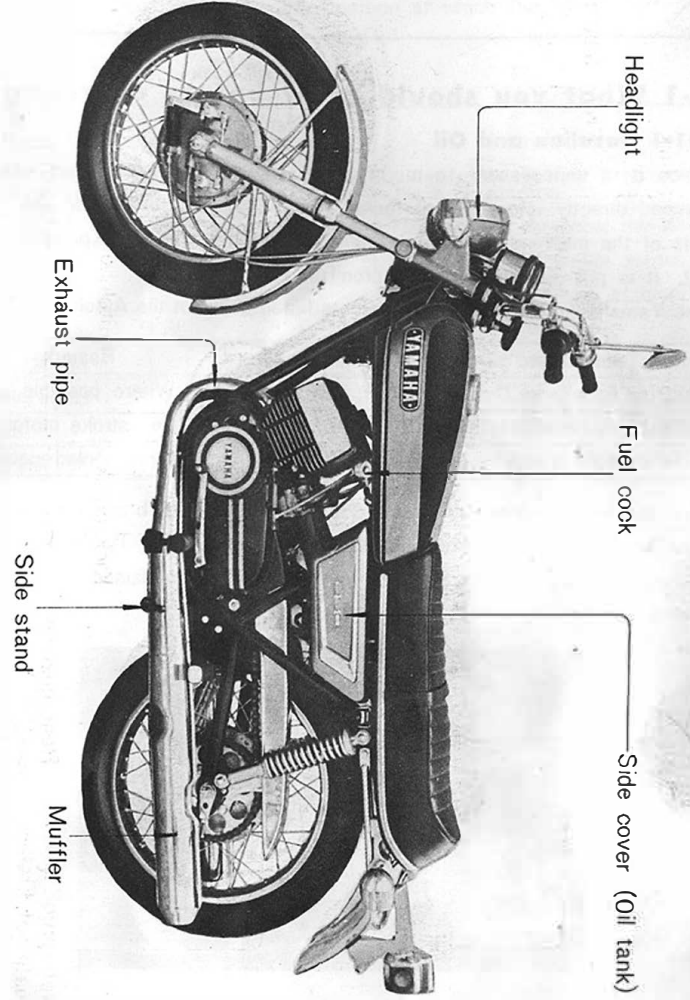
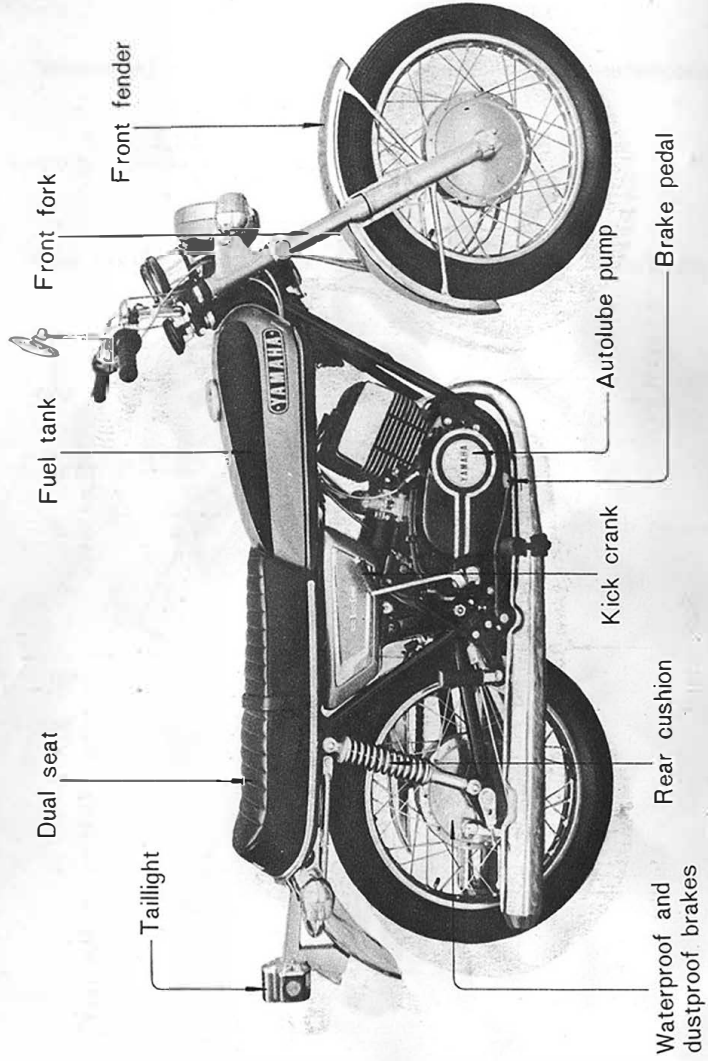
The rate of injection varies with engine speed and load as indicated by throttle opening. Because of the wide range of control Autolube offers, precisely the right amount of oil is available at all times.

Autolube eliminates a number of major problems unavoidable with pre-mix lubrication. This means both improved performance and reliability.

#### Yamaha Autolube Features:

1. Oil consumption is greatly reduced.
2. More effective lubrication results because the oil enters the engine in larger size droplets.
3. There is much less unwanted carbon deposited on the spark plugs, cylinder heads, pistons and exhaust system!
4. There is much less exhaust smoke.
5. Refueling is simplified.
6. Because poor quality oils can easily be avoided, and because the possibility of mismeasuring or inadequately mixing fuel is eliminated, Autolube offers completely consistent lubrication.







## 4 Operating Instructions

### 4-1 What you should know before operating

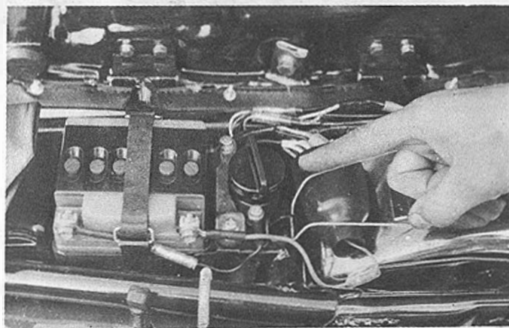
#### 4-1-1 Gasoline and Oil

Since it is unnecessary to mix fuel and oil with Autolube, gas can be pumped directly into the fuel tank. The oil tank is located on the right side of the machine. The minimum octane required to avoid preignition is 72. It is not necessary to use premium fuel.

Use Yamaha Autolube Oil or equivalents listed below in the Autolube system.

Temperature	Recommendable oil	Remarks
20°C(68°F) or more	SAE30W, 10W/30, 20W	Where possible use
20°C(68°F) ~ -10°C(14°F)	SAE10W/30	two stroke motor oil
-10°C(14°F) or less	SAE5W, 10W	for air cooled engines.

Find the best oil available in your area and use this brand consistently. Your dealer will be able to help you in your selection. The few pennies you save by using low grade oils will not pay for the damage they might permit.



NOTE: The model will operate well on quality (MS) motor oil out two-stroke oil for air-cooled engines offers a greater degree of safety in the event of severe operation.

#### 4-1-2 Main switch

The following chart shows the key position at which the lights, horn and ignition circuit are switched on or off:

(The circle (O) denotes "Switch on.")

Parts Name	Key Position			Instructions
	O	I	II	
Ignition circuit		○		I ... Kick starting
Headlight		○		Turn on left handlebar switch.
Taillight		○	○	Turn on left handlebar switch Use II when parking at night.
Stoplight		○		The brake is applied.
Neutrallight		○		The change pedal is in neutral.
Meterlights		○		Turn on left handlebar switch.
Horn		○		The horn button is depressed.
Flasherlight		○		Turn on left handlebar switch.

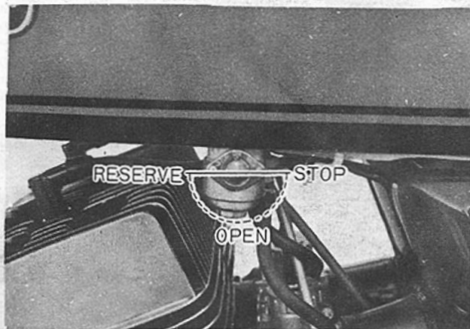


- O When stopped
- I Day driving
- II Night parking



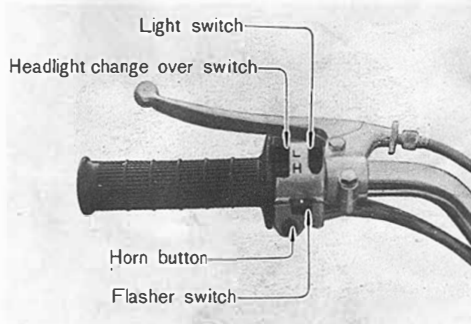
#### 4-1-3 Fuel Cock

To fill the carburetor float bowels, set the fuel cock lever to OPEN position. If you should run low of fuel on the road, turn the lever to RESERVE position. With just over a quart of fuel, you can drive nearly 25 miles (40 km); enough to get you to the nearest service station for refueling. When parking or storing your machine, be sure that the lever is in the STOP position.



#### 4-1-4 Handlebar Switch & Horn Button

- To sound the horn, depress the horn button.
- To light the headlight, taillight and meterlights, push the light switch forward.
- To raise the headlight beam, pull the switch toward you.  
To lower the beam, push the switch forward.



#### 4-1-5 Steering Lock Key

Turn the handle bars to the right, insert the steering lock key, and turn it 90° clockwise and pull the key, turn it 90° counterclockwise. Remove the key after checking to see that the front forks are securely locked. Be sure to lock your froks whenever you park.

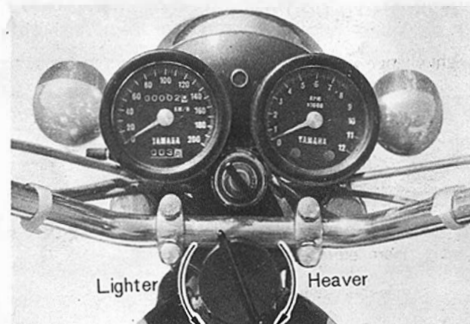


#### 4-1-6 Steering Damper

When driving on rough roads, adjust the steering damper to absorb shock by turning it clockwise.

To get heavier damping, turn the damper knob clockwise.

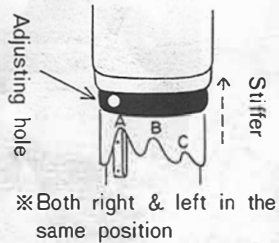
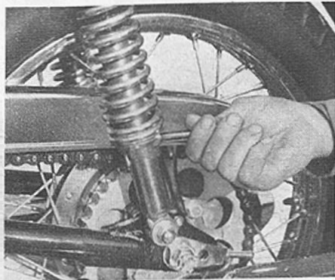
To get lighter damping, turn the damper knob counterclockwise.



#### 4-1-7 How to Adjust the Rear Suspension

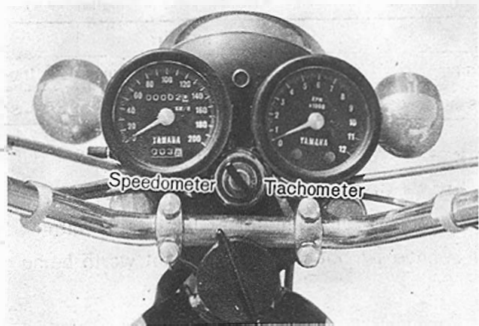
Insert the screwdriver from your rider's tool kit in the adjusting hole. Turn the notched collar to change the spring rate. The rear suspension should be adjusted to fit the load, speed and road conditions.

- Standard ..... A
- Intermediate ..... B
- Stiff ..... C



#### 4-1-8 How to Read the Tachometer

A tachometer is provided so that the rider can easily maintain engine RPM sufficient to keep the engine within the power curve. For maximum performance accelerate in each gear to 7,500 rpm or at most to 8,000 rpm before shifting. The best range for city driving is 3,500 to 4,000 rpm. In this range the engine has ample power and yet is quite docile. Never lug your engine! (i.e. operate below 3,500 r.p.m.) It is recommended not to use red-zone 8,000~10,000 rpm.

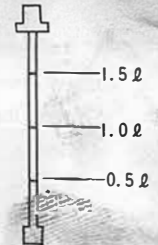
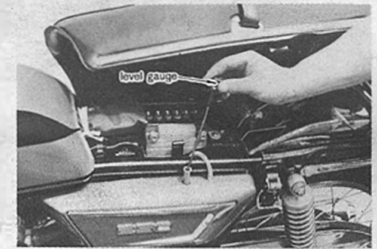
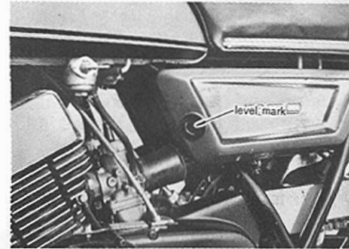


#### 4-2 What you should check before riding

Before you start for a ride you should check several points for safety.

- a Do you have enough fuel?
- b Do you have enough oil?

If the oil is below the level mark in the glass port, add oil. Make sure that the oil is sufficient for your driving plan by using an oil level gauge.



- c Are your tire pressures correct?

Incorrect tire pressures affect the comfort, handling, acceleration and life of tires. Incorrect tire pressures can also lead to accidents!

	Front tire	Rear tire
Normal riding	23 lbs/in <sup>2</sup> (1.6 kg/cm <sup>2</sup> )	29 lbs/in <sup>2</sup> (2.0 kg/cm <sup>2</sup> )
Continuous high speed riding	29 lbs/in <sup>2</sup> (2.0 kg/cm <sup>2</sup> )	34 lbs/in <sup>2</sup> (2.4 kg/cm <sup>2</sup> )

- d Do both brakes and the brake light work?
- e Are the lights and horn working in order?

Check the headlight, tail light, meter lights and warning lights. The few minutes you save by not checking are not worth being stranded without lights!



## 4-3 Starting, Shifting Gears, Stopping and Parking

### 4-3-1 Starting

#### a Before Starting

1. Turn the fuel cock lever to the "OPEN" position.
2. Insert the ignition key and turn it to "DRIVING".

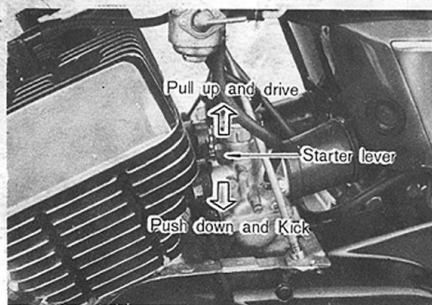
The use of a primary kick starting system enables you to start the engine either in gear or in neutral.

#### b Starting in Cold Weather

Any engine is difficult to start in cold or freezing weather.

The R5C, however, uses a new type carburetor with a built-in starter jet that gives a richer mixture for easier starting.

1. Depress the starter lever.
2. Start the engine with the kick starter keeping the throttle closed.



#### c Starting When Your Engine is Warm

When your engine is warm after riding or in warm weather, don't use the starter lever.

Open the throttle slightly ( $\frac{1}{4}$  turns or less) and kick the starter.

#### d Warming Up

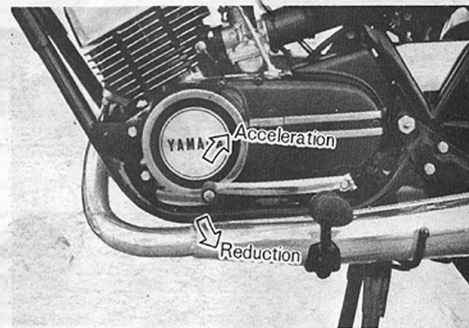
To get maximum engine life, always "warm up" the engine for a few minutes before starting off. Never accelerate hard with a cold engine! To see whether or not the engine is warm, see if it responds to throttle normally. Don't forget to raise the starter lever after the engine is warm.

### 4-3-2 Shifting Gears

The R5C has a 5-speed transmission. The transmission allows you to control the amount of power you have available at a given speed for starting, accelerating, climbing hills, etc.

The use of the gear lever is illustrated below.

FIFTH  
FOURTH  
THIRD  
SECOND  
NEUTRAL  
LOW



To shift into NEUTRAL, depress the gear lever to the end of its travel (you will feel a stop when you are in low gear), then raise it slightly. If you are in neutral, the green light in the tachometer will be on.

1. Pull the clutch lever to disengage the clutch.
2. Shift into LOW.
3. Open the throttle gradually, and, at the same time, release the clutch lever slowly.
4. At 10 to 15 mph, release the throttle, and at the same time pull in the clutch lever quickly.
5. Shift into SECOND. Be careful not to shift into neutral.
6. Open the throttle part way and gradually release the clutch lever.
7. To accelerate or decelerate, use the same procedure.
8. Except for competition or high speed driving, shift so that the engine speed remains between 4,000~5,000 rpm.

This is the optimum operating range for the engine.

Gear	Driving Conditions	OPTIMUM SPEED
1st	Starting or very steep hills	0 - 20 mph
2nd	Hills or slow traffic	15 - 35 mph
3rd	Gentle hills or city streets	30 - 45 mph
4th	Main roads	40 - 55 mph
5th	High-speed cruising	45 mph plus

#### 4-3-3 Driving on Hills

##### a Going Uphill

When starting to climb a gentle grade, open the throttle little by little to avoid losing engine speed and power.

When climbing a steep grade, shift down from THIRD to SECOND or from SECOND to FIRST as required.

##### b Going Downhill

On a long down grade or sharp descent, don't rely on the brakes alone, but use the engine compression as a brake: shift into THIRD or SECOND as required by the grade and release the throttle.

**CAUTION:** Never attempt to turn off the ignition switch on a long hill.

This will only cause the spark plugs to foul.

#### 4-3-4 Stopping and Parking

##### a Stopping

1. Be sure to apply the front and rear brakes together.  
Applying only one may, under certain conditions, cause skids.
2. Apply both brakes gently.
3. After stopping, be sure to shift into NEUTRAL.
4. Turn the fuel cock lever to the "STOP" position.
5. Remove the ignition key.

##### b Parking

1. Close the fuel cock and remove the ignition key.
2. Lock the handlebars by using the steering lock key.
3. When parking at night, turn the main switch key to "III"-the taillight functions as a parking light.

**CAUTION:** If the parking light is used for a long time, the battery will discharge. Avoid excessive use of it.



#### 4-4 Break-in period

During the first 500-750 miles you can, by observing a few simple precautions, greatly increase the life and over-all performance of your R5C. Each moving part in the machine requires a period of time to properly "bed-in" with matching parts. During this "bedding in" process the parts can become permanently damaged if abused. The following precautions will guarantee proper seating of the engine parts.

1. During the first 200 miles do not exceed 4,000 rpm.
2. During the next 200 miles do not exceed 5,000 rpm.
3. During the next 200 miles do not exceed 6,000 rpm.
4. After 600 miles the engine should be properly broken-in and normal driving habits can prevail.

NOTE: Under no circumstances should the machine be accelerated or decelerated suddenly. Use the throttle gently.

Driving Distance	Engine RPM	Maximum Speed, mph (km/h)				
		Top	Fourth	Third	Second	Low
0 to 200 miles (0~300 km)	4,000 rpm	47(75)	38(61)	32(51)	24(38)	14(22)
200 to 400 miles (300~600 km)	5,000 rpm	58(93)	48(77)	39(62)	30(48)	18(29)
400 to 600 miles (600~1,000 km)	6,000 rpm	71(114)	58(93)	48(76)	36(58)	22(35)

## 5 How to keep your Motorcycle in top condition

Regular inspections and maintenance help keep your motorcycle in top condition. They are preventative measures. Don't wait until something goes wrong.

### 5-1 Periodic service at Your Yamaha Dealer's

#### Greasing and Oiling

			300 miles	1,000 miles	2,000 miles	every 2,000 miles	every 4,000 miles
1	Brake cam shaft	G		○	○	○	
2	Wheel bearing	G			○		○
3	Brake wire	M/O		○	○	○	
4	Clutch wire	M/O		○	○	○	
5	Tacho, speedometer cable	G			○	○	
6	Meter gear unit	G			○	○	
7	Steering ball race	G					○
8	Front fork oil	M/O	○		○	○	
9	Brake pedal shaft	G		○	○	○	
10	Change pedal shaft	M/O, G			○	○	
11	Axle grip	G		○	○	○	
12	Transmission oil	M/O	○	○	○	○	
13	Dynamo lubricator	G					○
14	Stand shaft	M/O, G					○
15	Rear arm pivot shaft	G			○	○	
16	Drive chain	M/O		○	○	○	

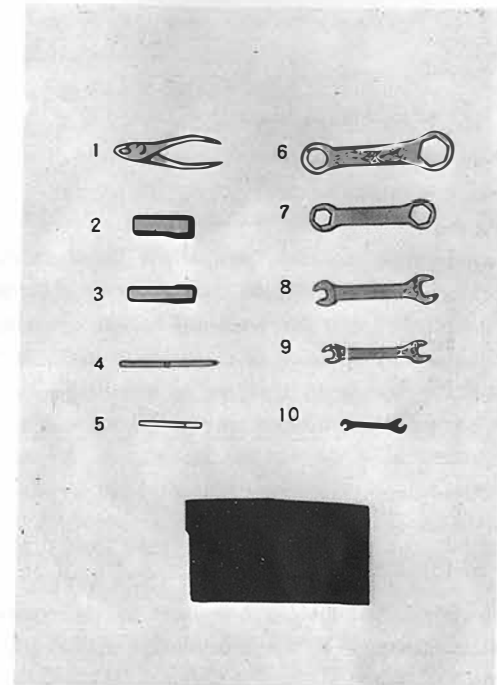
## Check Point Periodic Inspection Guide

		Pre-operation check	300 miles	1,000 miles	2,000 miles	every 2,000 miles	every 4,000 miles
1	Front and rear brake adjustment (F. R)	○	○	○	○	○	
2	Clutch adjustment		○	○	○	○	
3	Transmission oil replacement	○	○	○	○	○	
4	Front fork oil replacement		○		○	○	
5	Grease up			○	○	○	
6	Battery electrolyte refilling	○	○	○	○	○	
7	Spark plug cleaning	○	○	○	○	○	
8	Ignition timing adjustment			○	○	○	
9	Fuel pet cock cleaning		○	○	○	○	
10	Carburetor adjustment			○	○	○	
11	Carburetor cleaning						○
12	Air cleaner cleaning	○		○	○	○	
13	Cylinder, piston cleaning			○		○	
14	Silencer muffler cleaning			○		○	
15	Drive chain adjustment, oiling		○	○	○	○	
16	Autolube pump adjustment	○	○	○	○	○	
17	F. R wheel inspection	○		○	○	○	
18	Bolt, Nut retightening		○	○	○	○	
19	Spoke, Rim inspection			○	○	○	

Be sure to check the above points before long-distance touring.

## 5-2 Service Tools and Their use

### 5-2-1 Service tools:



1. Pliers
2. 17×21 mm. socket wrench
3. Screw driver handle
4. Combination slotted & phillips types screwdriver
5. Phillips type screw driver
6. 22×29 mm. Double-ended Spanner
7. 19×22 mm. Double-ended Spanner
8. 13×17 mm. spanner
9. 8×10 mm. spanner
10. 5.5×7 mm. point spanner and feeler gauge



## SERVICING

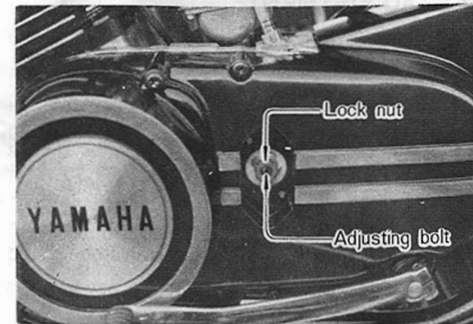
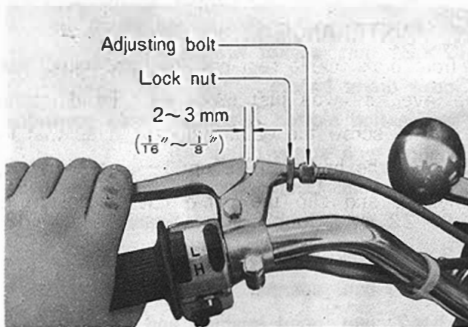
### CLUTCH CABLE:

The clutch cable requires periodic lubrication to prevent the cable strands from rusting or hanging up in the casing. First, disconnect the cable from the clutch lever by screwing the adjuster all the way back to the cable casing. This will provide enough free play in the cable for you to slip the cable out of the lever holder through the slot in the lock nut, adjuster, and holder. Hold the cable upright and allow several drops of liquid graphite to flow down the cable. Hold the cable upright for several minutes to permit complete lubrication.

If the cable needs to be replaced, then perform the steps above and disconnect the cable at the lever. Next, disconnect the cable at the engine. Begin by taking off the cover that houses the clutch activating mechanism (left side of the engine). Looking at the inside of this cover, you will see the clutch actuating arm push the arm up and lift the cable end off. Removing the old cable and hooking up the new one will take but a few moments.

### CLUTCH CABLE ADJUSTMENT:

The R5C has two clutch adjustments. The first, located at the handlebar clutch lever, is used to take up slack from cable stretch and to provide sufficient free play so that the clutch engages and disengages completely. The picture below illustrates all the parts involved in making the adjustment.



1. First, loosen the lock nut. Then turn the adjuster either in or out depending on which direction is necessary to arrive at 2-3 mm ( $1/16''$  -  $1/8''$ ) free play.
2. The second adjustment is located behind the clutch adjust cover. Removing the cover will expose the adjusting set screw and lock nut. Loosen the lock nut, rotate the set screw in until it lightly seats against a clutch push rod that works with the set screw to operate the clutch. Back the set screw out  $1/4$  turn and tighten the lock nut. This adjustment must be checked because heat and clutch wear will affect this free play, possibly enough to cause incomplete clutch operation.

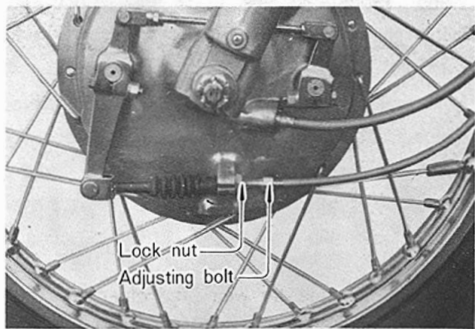
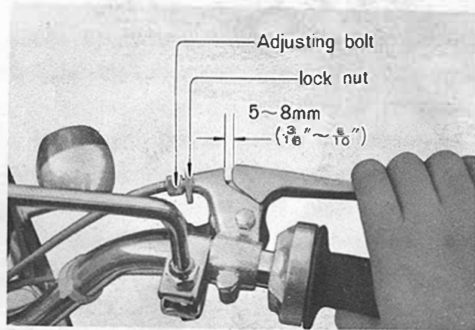
### FRONT BRAKE CABLE MAINTENANCE:

This cable also needs periodic lubrication. To release one end of the cable for lubrication, follow the same procedures as listed previously in the CLUTCH CABLE MAINTENANCE section.

Removal of the front brake cable requires that you must first disconnect the cable at the lever, as was just explained. To disconnect it at the front hub, you have to screw the cable adjuster in so that there is plenty of cable slack right at the brake. Line up the slots in the adjuster, lock nut, and hub housing, and slip the cable out of the adjuster and out through the slots.

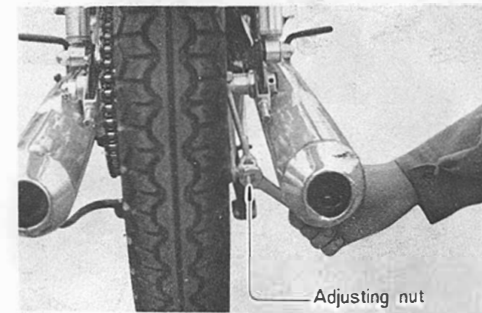
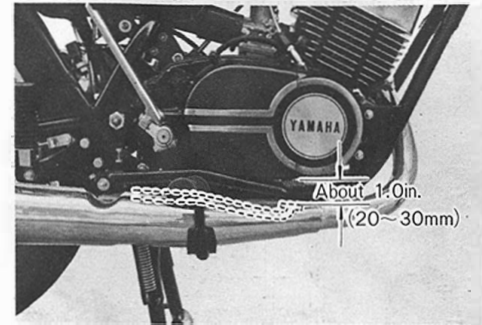
## FRONT BRAKE ADJUSTMENT:

As with the clutch, there are also two adjustments to check. These two adjustments are located at the brake lever and at the front hub. In this situation though, only one brake adjustment is necessary, using either of these two places to make the adjustment. Preferably, it is much easier to make it at the brake lever. This is done by loosening the lock nut, and screwing the adjuster in or out until you have 3/16" free play.



## Rear Brake

The correct free play of the rear brake pedal is about 1.0 in. (25 mm.). Adjust by turning the adjusting nut at the end of the rear brake rod a half turn at a time. After adjusting the brake, make sure the brake light is working. If not, readjust the stoplight switch.

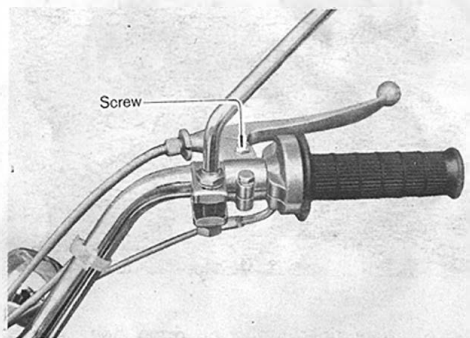


**Note:** Inspect the brake linings for wear and clean the brake shoes and drums every 2,000 miles (3,000 km), Always keep the shoes and drums free of oil.



### THROTTLE CABLE AND GRIP LUBRICATION:

The throttle twist grip assembly should be greased at the time that the cable is lubricated, since the grip must be removed to get at the end of the throttle cable. Two screws clamp the throttle grip to the handlebar. Once these two are removed, the end of the cable can be held high to pour in several drops of liquid graphite. Coat the metal surfaces of the grip assembly with a suitable all-purpose grease to cut down friction.

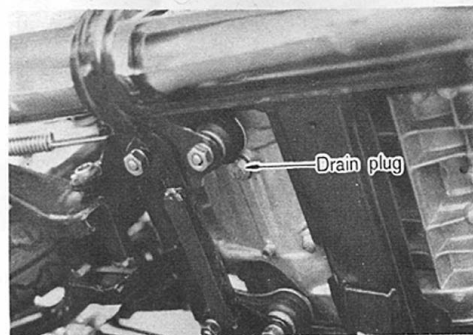


### 3 Replacing the Gear Oil

During the break-in period, replace the gear oil after 30 days from the purchase or after 300 miles (500 km) running.

After the first replacement, replacement should be made at least every three months or every 1,200 miles (2,000 km).

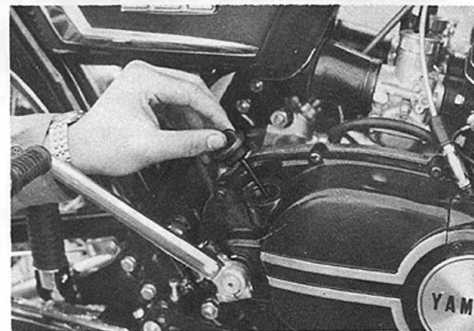
To drain the oil from the bottom of the crankcase, remove the oil drain plug.



After draining the oil, fully tighten the oil drain bolt, and fill with new oil up to the specified level.

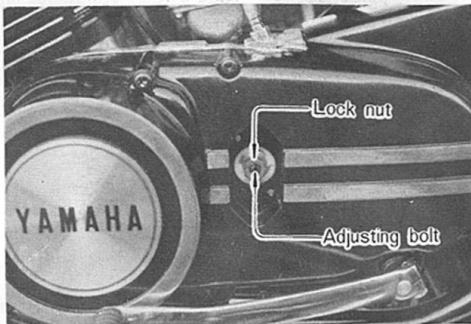
Oil ..... Yamaha Gear Oil or Motor Oil SAE 10W/30

Oil Amount ..... 1.6 qts. (1,500 c.c.)



### Clutch adjustment

The adjustment is located behind the clutch adjust cover. Removing the cover will expose the adjusting set screw and lock nut.

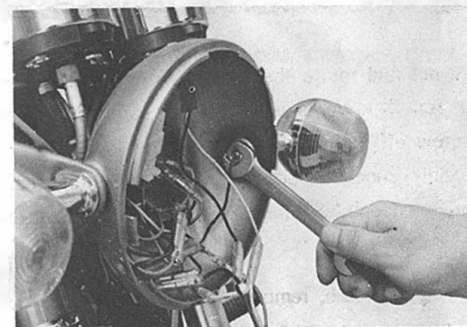
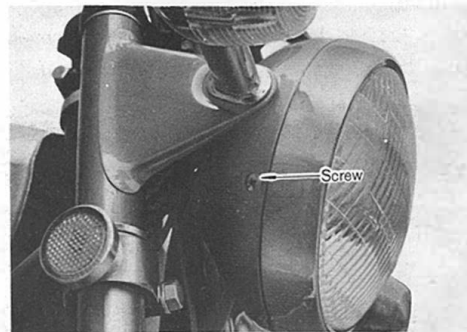


Loosen the lock nut and rotate the set screw in until it lightly seats against the clutch push rod that works with the set screw to operate the clutch. Back the set screw off  $\frac{1}{4}$  turn and tighten the lock nut. This adjustment must be periodically checked because heat and clutch wear will affect the free play, possibly enough to cause incorrect clutch operation.

### Headlight

To replace the headlight bulb, remove the two countersunk screws (Phillips) from the lower part of the headlight body. Remove the head lamp rim from the headlight body, and remove the socket from the headlight body. Then replace the sealed beam unit.

There are two headlight beam adjusting methods. To adjust the headlight beam horizontally, turn in or out the slot-head screw on the head lamp rim. To adjust it vertically, loosen the head lamp mounting bolts on the bottom of the shell and tilt the head lamp body.

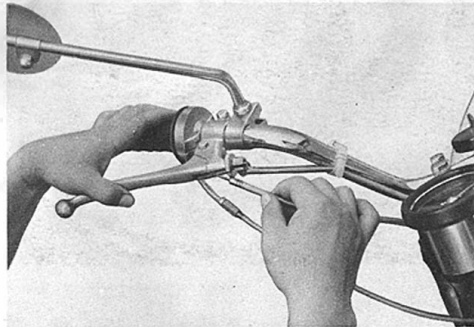


### Front wheel:

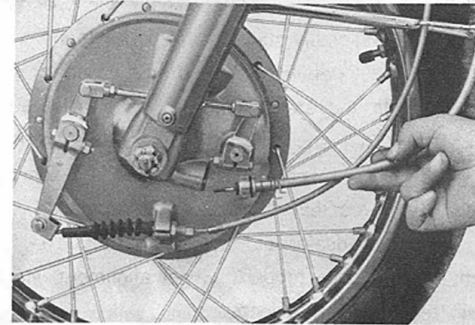
Work that might need to be done on the front wheel assembly includes tire or tube exchange, brake shoe replacement, hub/spokes/rim assembly replacement, and brake assembly maintenance and inspection. The following are the steps necessary to dismantle the front wheel, step by step, and you should proceed with the steps until you have removed the part that you wish to replace. We suggest that you, as the owner, can replace everything but the hub, the spokes, or the rim. To individually replace any of these parts requires that the spokes be "replaced". This should be done by a competent dealer as the spokes must be positioned and torqued correctly. If not done properly wheel alignment will not be correct and steering will be negatively affected.

To carry out front wheel repair, you must remove the wheel.

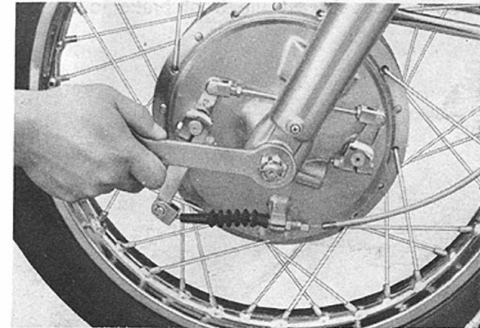
1. Disconnect the brake cable at the front brake lever.



2. Disconnect both the brake cable and speedometer cable from the front wheel hub plate.

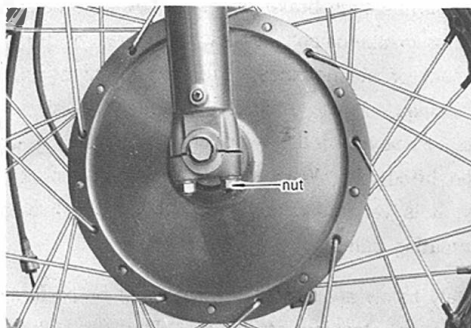


3. Remove the front wheel nut.

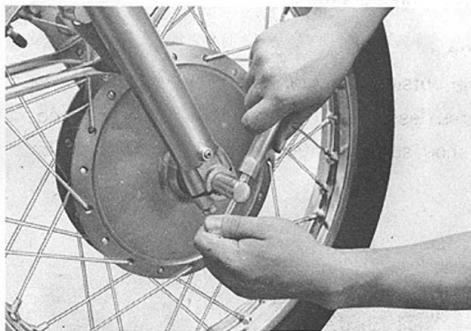




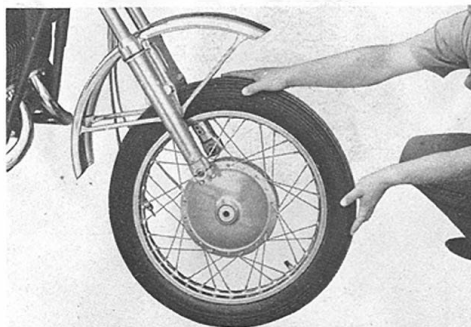
4. Loosen the front wheel axle lock nuts.



5. Remove the front axle by simultaneously twisting and pulling out on the axle.



6. Brace the front of the machine off the ground and remove the wheel assembly.

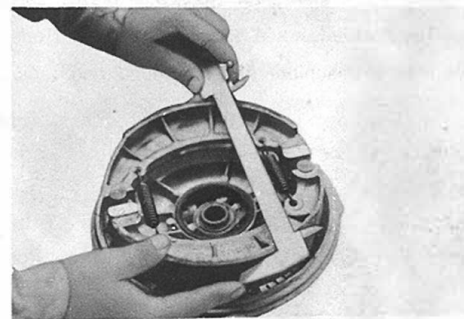


The brake plate can now be easily slipped out of the front wheel hub. The brake plate carries both brake shoes. They can be left in place on the brake plate for measurement, as shown below, or they can be lifted off for replacement or maintenance. The two brake shoes are held in place by two springs. These springs hold the two shoes to the brake actuating cams. Removal of these springs, or spreading them, will allow the shoes to be lifted off. Whenever you have the brake plate off the wheel assembly, it is very good policy to apply a small amount of grease to the brake actuating cams.

Shown immediately below are two steps that must be performed periodically to maintain maximum stopping efficiency. The brake linings and brake drum must be in correct working condition, and these steps do much to guarantee perfect working order.

#### I. Brake shoe

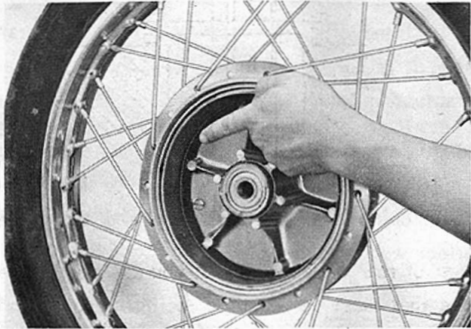
Measure the outside diameter of the brake shoe set with slide calipers. If it measures less than 175 mm (6.9 in.), replace it. Smooth out any rough shoe surface with sandpaper or with a file.



## 2. Brake drum

Oil or scratches on the inner surface of the brake drum will impair braking performance or result in abnormal noises.

Clean or smooth out the surface with a rag soaked in laquer thinner or with sandpaper.

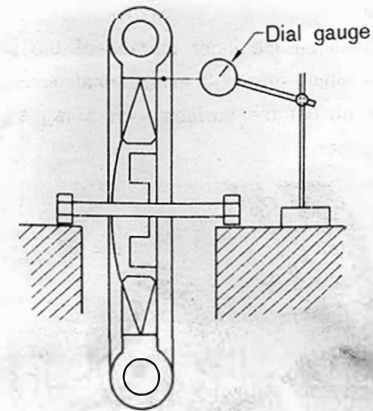


There are also checks that you can perform to determine if wheel work is necessary for your dealer to do. First, check for any loose spokes. This can be checked by bracing the front end off the ground so that the front wheel can spin free. Slowly revolve the front wheel and at the same time let a fairly 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.

While you have the front end 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.

Completely tighten down on the steering damper, spin the front wheel, and solidly anchor some sort of a pointer about 1/8" away from the side of the rim.

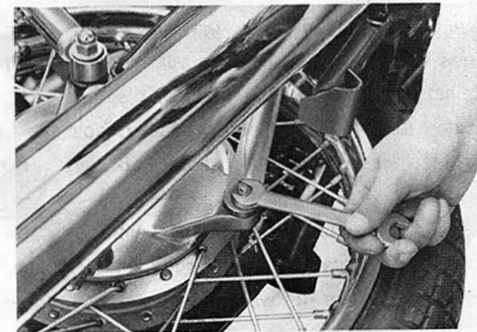
As the wheel spins, the distance between the pointer and the rim should not change more than 1/16", total. Any greater fluctuation means that you should have your dealer remove this rim warpage by properly adjusting the spokes.



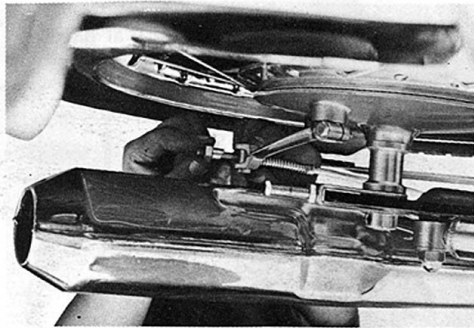
## Rear wheel :

A complete list of rear wheel parts that you can remove, certain precautions and limitations that must be adhered to, checking for wheel run-out, and checking for spoke tightness can all be found in the FRONT WHEEL section. In order for you to carry out those steps that are possible, a list of procedures is given explaining how to completely disassemble the rear wheel assembly.

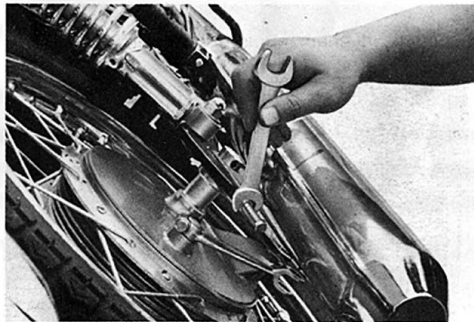
1. Remove the tension bar and the brake rod from the rear shoe plate. Pay strict attention to the presence and location of the lock washer and cotter key. These are safety parts and must be included during reassembly.



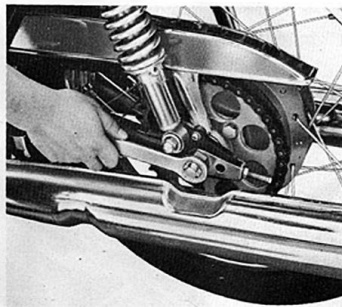
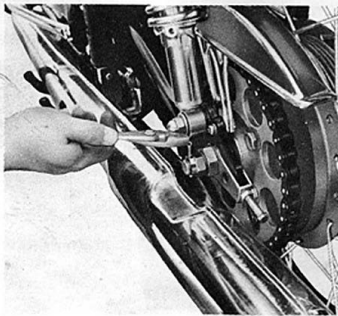




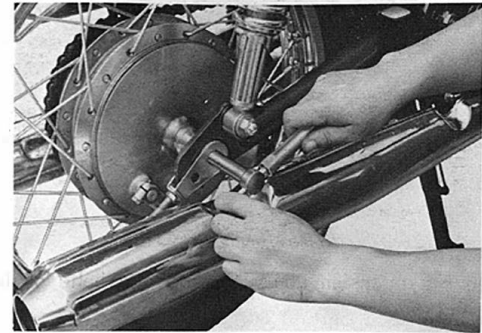
2. Loosen the chain tension adjusting nuts and bolts on both right and left sides.



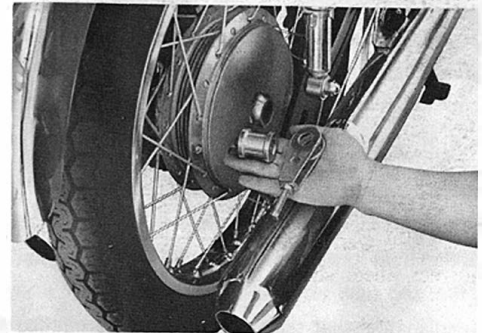
3. Remove the rear wheel shaft nut.



4. Remove the rear axle by simultaneously twisting and pulling out on the axle.

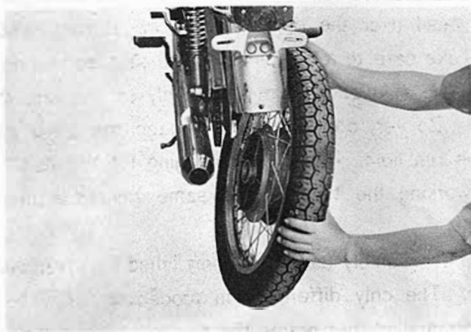


5. Remove the right-hand chain adjuster and distance collar.





6. Lean the machine to the left and remove the rear wheel assembly.



The brake plate carries both brake shoes. They can be left in place on the brake plate for measurement, or they can be lifted off for replacement or maintenance. The two brake shoes are held in place by two springs. These springs hold one end of the two shoes to an anchor post, and the other end against the brake actuating cam. Removal of these spring, or spreading them, will allow the shoes to be lifted off. Whenever you have the brake plate off the wheel assembly, it is very good policy to apply a small amount of grease to the brake actuating cam.

#### Tire repair :

Whether it is the front tire or the rear tire that you wish to change, the procedure of tire and tube removal is identical.

Consider the explanation that follows as the proper method for both wheels.

First, remove the valve cap and valve stem lock nut. Empty all the air out of the tire. Use two tire removal irons (with rounded edges) and begin to work the tire bead over the edge of the rim, starting 180° opposite the tube stem. Take care to avoid pinching the tube as you do this. 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 as you push it back out of the rim hole. If you are changing the tire itself, then finish the removal by working the tire off the same rim edge just previously mentioned.

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

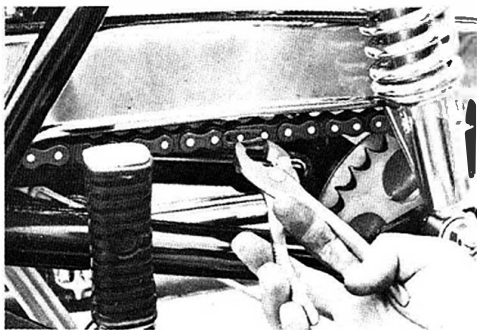
#### Rear wheel sprocket :

This sprocket is an integral part of the motorcycle's overall gearing. Because of this it receives a certain amount of punishment.

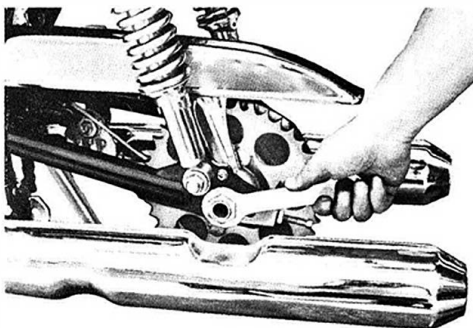
Eventually it might wear enough to need replacement. Or, perhaps a different sized sprocket might be desired to change the overall gearing. (A larger sprocket cuts down the top speed but provides the motorcycle with more pulling power.) Whichever reason it might be, the end result would be the necessity of removing the rear wheel sprocket. After removing the entire wheel assembly from the frame, proceed with the steps listed below.

**Note** Check with your dealer to determine what would be the correct size sprocket to install. Tell him where you plan to ride how much weight will be carried, and how closely the current gearing comes to satisfying you now.

1. Disconnect the chain joint and remove the chain.



2. Remove the sprocket shaft nut, then the sprocket.



3. Bend the lock washer ears flat.



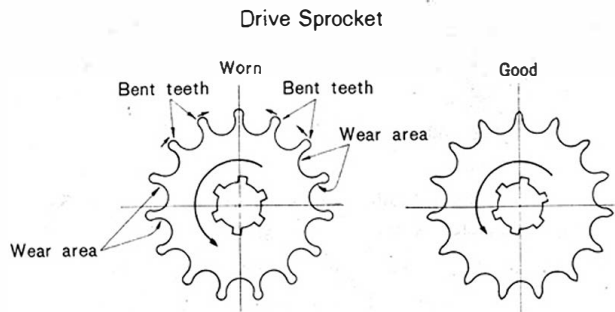
4. Remove the sprocket mounting bolts. Check the lock washer and hexagonal bolt for breakage and damage. If the lock washer is not bent over the hexagon bolt head, or is broken, or the bolt is loose, the sprocket can come loose. Make sure that both lock washers and the mounting bolts are tight.



#### COUNTER SHAFT SPROCKET

This sprocket is bolted to the back transmission shaft and it transmits power through the chain to the back wheel. All that was mentioned just previously in the REAR WHEEL SPROCKET section also applies to this sprocket. It also is an excellent place to alter the gearing. Again, check with your dealer and he will explain which sprocket would best suit your purposes.

If your machine receives exceptionally hard usage, check this sprocket frequently for signs of wear. These drawings show just what to look for to determine if the sprocket is wearing.



If the sprocket has worn to the degree as shown in the drawing, then it should be replaced. Sprocket replacement is possible if you have sufficient tools, otherwise your dealer can change it in a very short time.

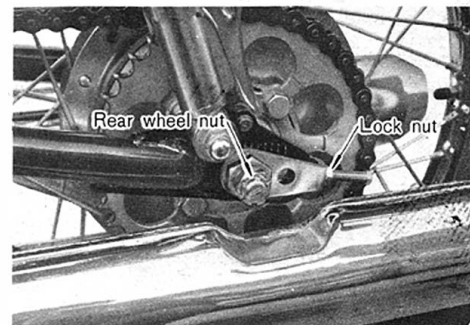
The first step in removing the sprocket is to remove the shift lever and pull off the left hand engine cover. The sprocket will now be completely in view. Flatten the tab washer used to lock the sprocket retaining nut. Remove the retaining nut. To keep the sprocket from turning while applying force to the retaining nut, have someone engage the rear brake during this step.

During reassembly, make sure the retaining nut is tight and the locking tab of the washer is bent back into place.

#### Drive chain:

Because the chain consists of an extraordinary amount of parts that rub against one another, it is prone to wear if it is not maintained constantly and correctly. Without any lubrication, a chain can wear out within 100 miles. You should develop a habit of servicing the chain on a regular schedule. This habit is especially important if you spend the major portion of your time riding in the dirt where dust and dirt can readily work into the chain links. ▴

1. Lubrication—there are several excellent pressure can lubricants available. Use a rag to wipe off any accumulation of dirt, then spray a liberal amount of lubricant on the chain at least every 100 miles.
2. Cleaning—the chain has to be periodically removed from the machine and soaked in cleaning solvent. Completely saturate the chain with solvent to remove as much dirt as possible. Drain and dry the chain thoroughly. Immediately after the chain has dried completely, lubricate to prevent any rust from forming.
3. Adjustment—proper drive chain up and down free play, with the rider in position both wheels on the ground, should equal 20 mm (3/4") when measured at the center of the lower section of chain. Follow these steps to obtain the correct free play:



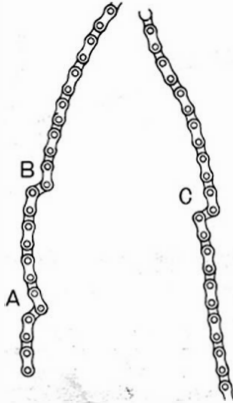
- a. Loosen the rear wheel nut
- b. Loosen the chain adjusting bolt lock nuts
- e. Rotate the adjusting bolts in or out, whichever is needed to obtain the correct free play, and at the same time make sure that both ends of the axle are positioned evenly. This can be checked by utilizing the marks on the very end or the swing arms, just above and to the rear of the rear wheel nuts.
- d. After completing the adjustment, retighten all the lock nuts.
- e. Finally, check for correct brake pedal operation as it could have changed due to the chain adjustment.



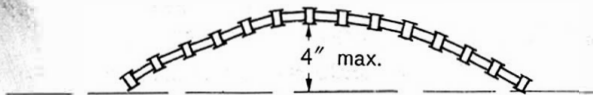
#### 4. Checking the chain

Whenever you have the chain off for cleaning, take time to check for excessive wear or links binding up. Clean the chain first and hold the chain straight up in the air. Visually check to see if any of the part of the chain is kinked (any place the chain does not hang straight down).

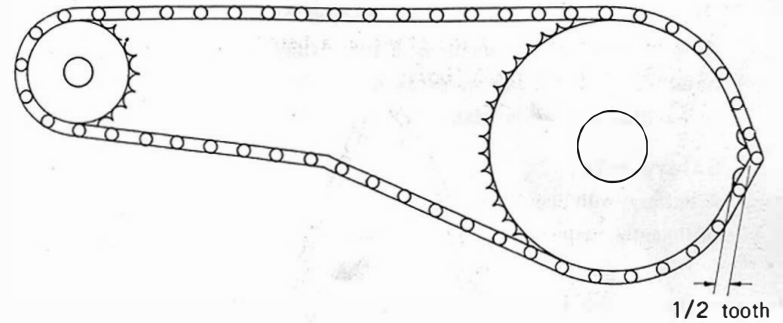
Another check is to lay the chain on a bench, in a straight line, and see how much the chain "bows".



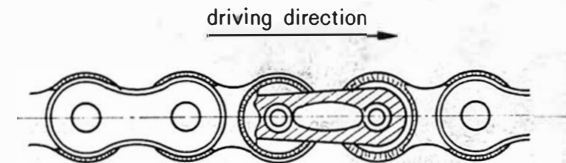
A new chain, or one that can still be used, will not deviate more than 3"-4" from a straight line.



A simple test that can be utilized while the chain is still on the motorcycle is to lift the chain away from the curvature of the rear wheel sprocket. A chain is defective if you can pull the chain away from the sprocket more than half the length of a chain link.



**Note:** Whenever reinstalling the chain, always install the master link retaining clip so that the rounded end faces the direction of travel.



**Note:** TO DETERMINE THE VALUE OF KEEPING THE CHAIN IN PROPER WORKING CONDITION, JUST CONSIDER THAT A CHAIN THAT HAS BECOME EXCESSIVELY WORN COULD QUITE POSSIBLY REDUCE THE LIFE OF BOTH SPROCKETS. WHENEVER YOU INSTALL A NEW CHAIN, ALWAYS CHECK BOTH SPROCKETS. IF EITHER ONE IS WORN SUFFICIENTLY, REPLACE IT. BEAR IN MIND THAT A WORN SPROCKET CAN POSSIBLY CAUSE YOUR BRAND NEW CHAIN TO WEAR OUT PREMATURELY.

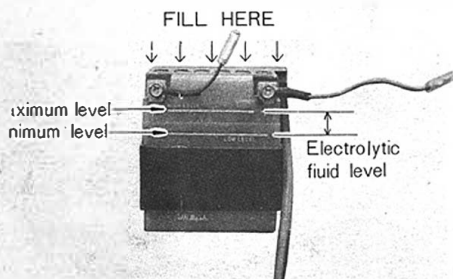
## Battery:

The life of your battery depends greatly on how well you keep it serviced. In order to service it completely and correctly, there are certain facts that you must know.

1. Always keep the battery fluid level between the "Maximum" and the "Minimum" level. It should be checked at least once a month, and more often during hot weather. If the battery needs filling, use distilled water. Do not use tap water as it usually contains minerals that can be harmful to the life of the battery.

### Safety note:

A battery with insufficient fluid could allow generator voltage to rise sufficiently to possibly burn out bulbs in the electrical circuit.



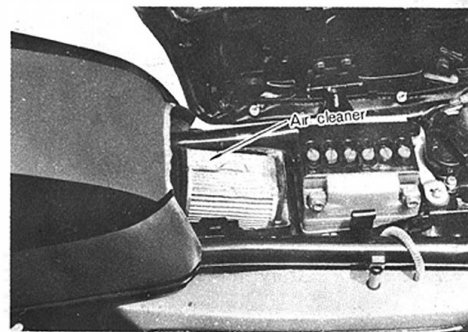
2. If for any reason the battery has become discharged, and you are going to charge it yourself, use a "trickle charger" that has no more than a one amp per hour rating. Also, make sure that all the battery caps have been taken off and that the rubber battery breather tube is not clogged or pinched shut. A charging battery creates gas, and pressure could build up in the battery if all the outlets were plugged up.

3. If the motorcycle is to be stored for more than a month, then remove the battery, have it fully charged, and store it in a cool dry storage area. If storage time is going to be lengthy, it is best to leave the battery with your dealer with specific instructions to recharge the battery every month or so. This procedure is necessary to insure maximum battery life.
4. When reinstalling the battery, be sure to hook up the RED lead to the positive terminal and the BLACK lead to the negative terminal (the polarity of each is stamped just below each terminal).

### Air Cleaner

An air cleaner excludes dust and dirt from the engine. It must be clean at all times. If you drive often on dirt roads, be sure to clean it at least once a month.

- a Open the seat and remove the rubber band holding the air cleaner case cap.
- b Raise the cleaner element and remove it.



### Cleaning

The air cleaner is a paper filter. Never wash the filter in gasoline. Blow compressed air through it from the inside. Never wash the filter in water or oil. Use air only.

Coat the moltiplane on both ends of the cleaner element with a small amount of oil so that the foam rubber parts can easily be installed in the cleaner case.

## Checking the Carburetors

Each carburetor is set by the factory after careful tests.

Except for the following, do not change the carburetor setting without consulting your local Yamaha dealer.

### a Idling Speed Adjustments

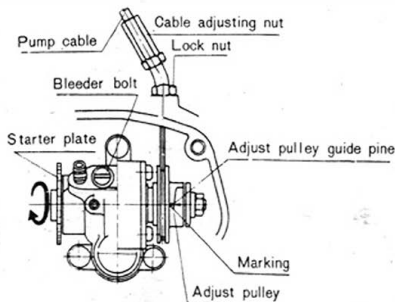
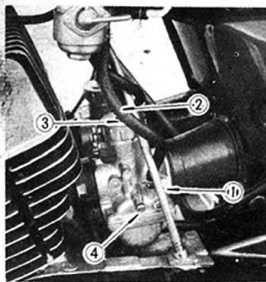
- Lightly tighten the pilot air screw (1), and back it off  $1\frac{3}{4}$  turns.
- Slightly loosen the adjusting screw of the throttle cable A connected to the accelerator grip, and start the engine.
- After warming up the engine, turn the throttle stop screw (4) so that engine speed increases to approximately 1,350 r.p.m.  
After this adjustment, loosen the lock nut (3) to adjust the play of the throttle cable B to 0.02 to 0.04 in. (0.5 to 1.0 mm.); and turn the throttle cable adjuster (2) while pulling the throttle cable B for the adjustment. Then lock the throttle cable B with the lock nut.

### b Adjusting the Pump Cable

After adjustment of the carburetor, adjust the pump cable coupled with the throttle valve.

- Slightly turn the accelerator grip from the closed position so that free play of the accelerator grip is nil. (In other words, the throttle valve is ready to open only another slight turning of the throttle.)
- Turn the pump cable adjusting nut so that the marking on the adjusting pulley is aligned with the guide pin.

NOTE: The right and left throttle slides must move simultaneously when the throttle is opened. To make absolutely are synchronized, remove the air intake rubbers to the carburetors and insert a finger into each throttle bore. Gently touch the throttle slide and open the throttle slowly. The slides should both begin moving together and should reach the top of the throttle bore together. If one is at a different height than the other, read just the cable length (adjuster 2) until synchronized.



## Ignition timing

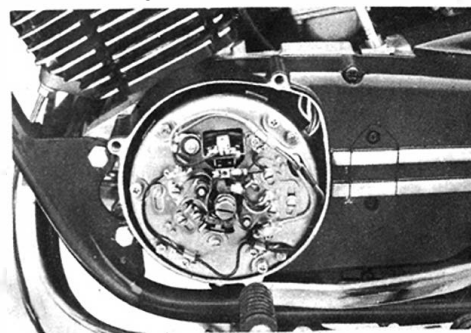
Timing is of critical importance. If, after both your service checkups have been completed, and for any reason you wish to check the timing, have your dealer check for you.

## Breaker Points

The ignition breaker points greatly affect ignition.

It is necessary, therefore, that the points be periodically polished with oil stone or sandpaper and that the point gap be correctly adjusted. If the adjustment is made wrong, the ignition timing will be incorrect. It is advisable to have the point gap adjusted by a Yamaha dealer.

Breaker point gap: 0.3—0.4 mm



## Spark plug:

The spark plug in your machine can tell you a great deal as to how the engine is operating when you know how to "read" the plug. If the engine is operating correctly, and if it is being ridden correctly, then the tip of the white insulator in the spark plug will be a light tan color (standard plug is NGK B-9HS). If, when you remove the spark plug, it is very dark brown or black, then a plug with a hotter heat range is needed. This situation is quite common during the engine break-in period. If the insulator tip shows a very light tan color, or is actually white, or if the electrodes begin to melt, then a spark plug with a colder heat range is required. Again, if the spark plug insulator tip does not have a light tan color, have



your dealer install a spark plug with a different heat range to correct the situation. Do not attempt to experiment with different heat range spark plugs yourself, as it takes an experienced eye to gauge which spark plug to use.

It is all right though for you to replace the standard plug. Engine conditions can cause any spark plug to slowly break down. If deposits begin to build up, or if the electrodes finally become too worn, or if for any reason you believe the spark plug to not be functioning correctly, replace it. Be sure, when replacing the plug, that you always clean the gasket surface, that you use a new gasket, and that the spark plug is torqued to 20-25 ft/lbs. Also wipe off any grime that might be present on the surface of the spark plug. The plug can be taken out to be cleaned and gapped. As long as deposit build-up on the insulator is not extreme, you can use a spark plug cleaner to quickly remove the deposits.

Use a wire type feeler gauge to set the electrode gap at 0.024"-0.028" (0.6 mm-0.7 mm.)

### Cleaning the Mufflers

To remove the inner cylinder from the muffler, remove the cylinder set screw and pull the cylinder out with pliers. Remove the carbon with a wire brush.

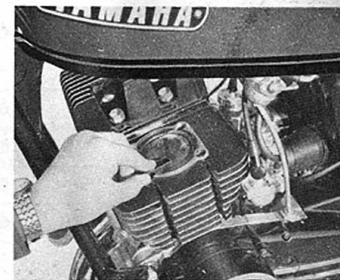
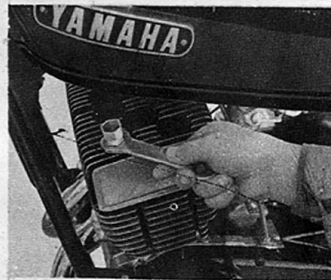


### Cleaning the Cylinder Head and Piston

Carbon accumulations around the cylinder heads and pistons causes poor performance, loss of power, overheating, piston slap and other problems.

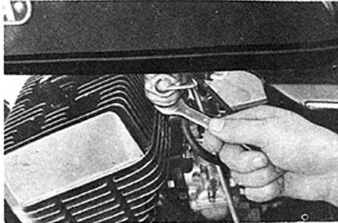
- a Remove the cylinder head, and remove all carbon from the combustion chamber.
- b Remove all carbon from the piston crown.

**NOTE:** Use a wire brush or screwdriver being careful not to mark the aluminum. Clean the surfaces with gasoline.



### Cleaning the Fuel Cock Filter

The fuel cock filter removes impurities from gasoline before they flow into the carburetors. A dirty filter clogs the system and as a result, the engine will not work properly. The filter must be cleaned from time to time. Remove the cup from the fuel cock and then the filter. Wash it carefully in gasoline.



### Nuts and Bolts

Go over your machine periodically checking to see that all hardware is secure. In particular, check the following items.

- |                    |                      |
|--------------------|----------------------|
| Front & rear axles | Engine mountings     |
| Foot rests         | Carburetors          |
| Swinging arm shaft | Brake linkages       |
| Mufflers           | Rear shock absorbers |
| Center stand       | Handlebars           |
| Side stand         |                      |

### Greasing and oiling

	Parts to be lubricated	Distance driving 1st lubr., miles	of at interval, miles	Type of Lubricant
1	Front brake cam shaft	600	2,000	cup grease
2	Rear brake cam shaft	600	2,000	"
3	Front brake wire	600	2,000	motor oil
4	Accelerator grip	600	2,000	cup grease
5	Stand shaft	600	2,000	"
6	Brake linkage	600	2,000	"
7	Drive chain	300	600	motor oil
8	Gear oil	300	1,200	"
9	Swing arm shaft	600	2,000	cup grease

## 6 Repair and Troubleshooting Charts

### 6-1 Factory Authorized Service

Your Yamaha dealer is a factory trained mechanic who guarantees thorough and correct maintenance for your motorcycle. We recommend that you let your dealer make all repairs and adjustments on your motorcycle. You will be assured prompt and good service.

### 6-2 Genuine Yamaha Parts

Always use genuine Yamaha parts and not "substitute" brands. Yamaha parts are manufactured to meet the factory's exacting standards of precision and quality.

### 6-3 If Something Should Go Wrong.....

The R5C undergoes rigid factory tests to assure you long and satisfactory performance. However, if something should go wrong with your machine, immediately ask your Yamaha dealer for advice.

He is always glad to answer your questions.

**IMPORTANT:** Some components are sealed or cannot be disassembled. If repairs to such components are necessary go to your Yamaha dealer. Yamaha cannot be responsible for repairs and adjustments to such components.

**NOTE:** The inspection and maintenance of Autolube are the dealer's responsibility.

## 6-4 Troubleshooting Charts

### 1 Engine does not start.

#### a Light switch is "on" position but headlight does not light.

1 Disconnected battery cable	Check battery terminals under left side cover. Tighten up loose screws.
2 Burnt-out fuse	Replace. Have your dealer inspect.
3 Dead battery	Have your dealer inspect.

#### b Battery is good but engine does not start.

1 a Empty gasoline tank b Closed fuel cock	Refill Open.
2 Incorrect usage of starter lever.	See Section 4-3-1. (18 page)
3 Dirty or worn spark plug	If plug soots up with carbon, clean and blow dry, or replace.
4 There is spark, but engine does not start.	Incorrect plug gap. See page 31.
5 No spark (To see if there is no spark, remove plug with high-tension lead in place; ground it to cylinder head, and then kick down crank pedal).	Replace. If plug is not defective, either ignition coil or point breaker is faulty. Have your dealer repair.
6 Fuel in carburetor is overflowing.	Inspect carburetor for overflowing. Have your dealer disassemble and clean.

### 2 Engine overheats and speed is slow

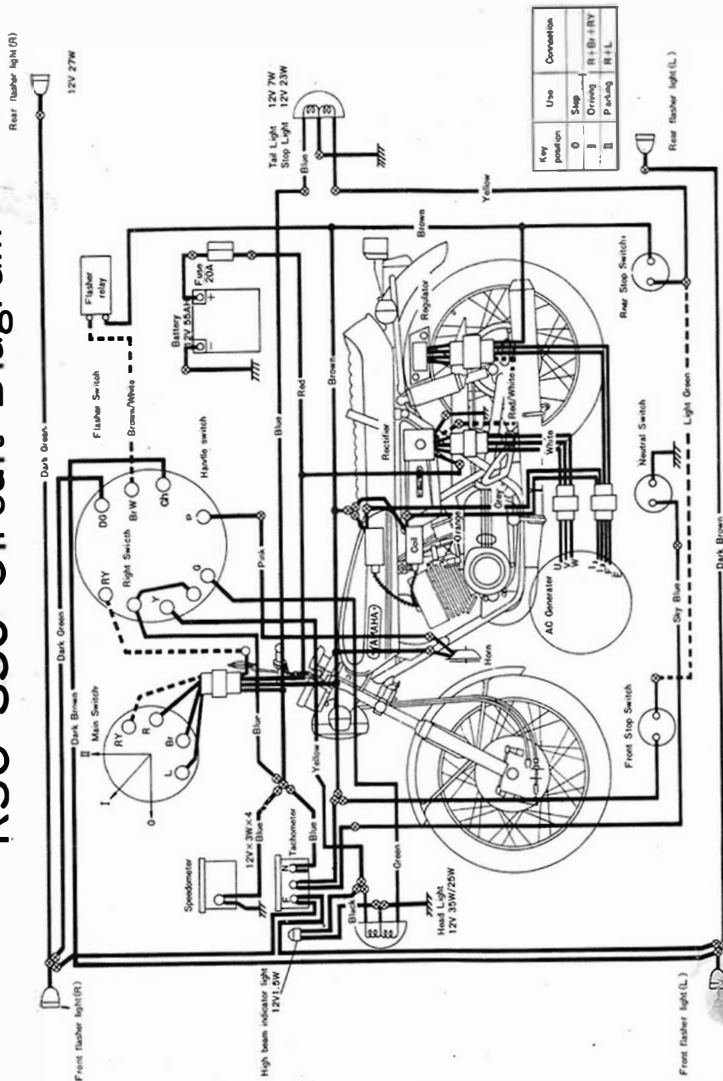
1 Improper ignition timing	Have your dealer inspect.
2 Clogged bypass in carburetor	Have your dealer clean.
3 Loose carburetor fitting and/or cylinder head	Tighten
4 Dirty or clogged air cleaner	Clean.
5 Lack of oil in drive chain	Apply oil.
6 Carbon coated muffler	Clean. (See p. 35)

If any troubles should occur, please consult your Yamaha dealer. He is always glad to answer your questions.





# R5C 350 Circuit Diagram



## Stopping Distance

This figure indicates braking performance that can be met or exceeded by the vehicles to which it applies, without locking the wheels, under different conditions of loading and with partial failures of the braking system. The information presented represents results obtainable by skilled drivers under controlled road and vehicle conditions, and the information may not be correct under other conditions.

Description of vehicles to which this table applies: Yamaha motorcycle R5C

### A. Fully Operational Service Brake



Stopping Distance in Feet from 60 mph.

## Acceleration and passing ability

MEMO

This figure indicates passing times and distances that can be met or exceeded by the vehicles to which it applies, in the situations diagrammed below.

The low-speed pass assumes an initial speed of 20 mph and a limiting speed of 35 mph. The high-speed pass assumes an initial speed of 50 mph and a limiting speed of 80 mph.

NOTICE: The information presented represents results obtainable by skilled drivers under controlled road and vehicle conditions, and the information may not be correct under other conditions.

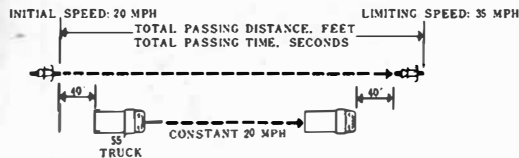
Description of vehicles to which this table applies: Yamaha motorcycle R5C

### Summary table:

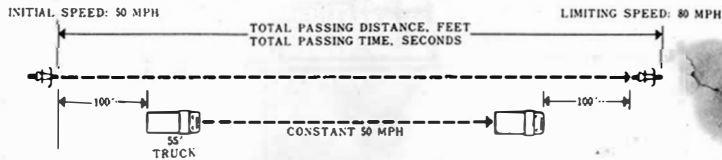
Low-speed pass ..... 340 feet; 6.8 seconds

High-speed pass ..... 1100 feet; 12.0 seconds

### LOW-SPEED



### HIGH-SPEED



MEMO