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FOREWORD

This Service Manual has been written to acquaint the mechanic with the maintenance and troubleshooting procedures required to provide optimum performance and longevity of the unit. The information enclosed should be closely studied to avoid unnecessary repairs and to provide the owner with a sound, dependable machine. The specifications or procedures in this manual are the most up-to-date at the time of publication, and we reserve the right mark any changes without further notice.

YAMAHA RD50
SERVICE MANUAL
1st Edition, June 1977
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NOTICE

This manual has been written by Yamaha Motor Company for use by Authorized Yamaha Dealers and their qualified mechanics. In light of this purpose it has been assumed that certain basic mechanical precepts and procedures inherent to basic knowledge, repairs or service to this model may render the machine unsafe, and for this reason we must advise that all repairs and/or service be performed by an Authorized Yamaha Dealer who is in possession of the requisite basic product knowledge.

The Research, Engineering and Overseas Service Department of Yamaha are continually striving to further improve all models manufactured by the company. Modifications are therefore inevitable and significant changes in specifications or procedures will be forwarded to all Authorized Yamaha Dealers and will, where applicable, appear in future editions of this manual.

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

- NOTE:** A NOTE provides key information to make procedures easier or clearer.
- CAUTION:** A CAUTION indicates special procedures that must be followed to avoid damage to the machine.
- WARNING:** A WARNING indicates special procedures that must be followed to avoid injury to a machine operator or person inspecting or repairing the machine.

SERVICE DEPT.
INTERNATIONAL DIVISION
YAMAHA MOTOR CO., LTD.

MAINTENANCE INTERVALS CHARTS

The following charts should be considered strictly as a guide to general maintenance and lubrication intervals. You must take into consideration that weather, terrain, geographical location, and a variety of individual uses all tend to alter this time schedule. 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 damage caused by water to metal parts.

A. Maintenance Intervals

Unit: km (miles)

Item	Remarks	Initial			Thereafter every	
		500 (300)	1,500 (1,000)	3,000 (2,000)	3,000 (2,000)	6,000 (4,000)
Cylinder head/Exhaust system	Decarbonize		○	○	○	
Air filter	Wet type — Must be wash and damp with oil		○	○	1,500 (1,000)	
Carburetor	Check operation / Fittings		○	○	○	
	Clean/Refit/Adjust			○		○
Autolube pump	Check/Adjust/Air bleeding	○	○	○	○	
Brake system (complete)	Check/Adjust as required — Repair as required	○	○	○	1,500 (1,000)	
Clutch	Check/Adjust as required	○	○	○	○	
Wheels and tire	Check pressure/Wear/Balance/Run out	○	○	○	○	
Drive chain	Check tension/Alignment	Every 500 (300)				
Suspension system	Check operation/Repair as required	○	○	○	○	
Fuel cock	Clean/Flush tank as required		○	○	○	
Battery	Top-up/Check specific gravity and breather pipe	○	○	○	○	
Ignition timing	Adjust/Clean or replace breaker points as required	○		○	○	
Lights/Signals	Check operation/Replace as required	○	○	○	○	
Fittings/Fasteners	Tighten before each trip and/or	○	○	○	○	

B. Lubrication Intervals

Unit: km (miles)

Item	Remarks	Type	Initial			Thereafter every		
			500 (300)	1,500 (1,000)	3,000 (2,000)	3,000 (2,000)	6,000 (4,000)	
Transmission oil	Replace/Warm engine before draining	SAE 10W/30 type "SE" motor oil	○	check	○	○		
Air filter	Wet type air filter must be wash and damp with oil	30wt. motor oil		○	○	1,500 (1,000)		
Control and meter cables	Apply thoroughly	SAE 10W/30 motor oil		○	○	○		
Throttle grip and housing	Apply lightly	Lithium base grease			○		○	
Hydraulic brake fluid reserve	Use new fluid only	DOT No. 3	check	check	check	check		
Brake lever/Pedal shaft	Apply lightly	Lithium base grease		○	○	○		
Brake cam shaft	Apply lightly	Lithium base grease		○	○	○		
Front forks	Drain completely – Check specifications	SAE 10W/30 type "SE" motor oil					12,000 (8,000)	
Steering bearing	Inspect thoroughly/ Pack moderately	Medium-weight wheel bearing grease			check		12,000 (8,000)	
Speedometer gear housing	Inspect thoroughly/ moderately	Lithium base grease					12,000 (8,000)	
Rear arm pivot shaft	Apply until new grease shows	Lube grease			○		○	
Wheel bearings	Do not over-pack Yearly or . . .	Medium-weight wheel bearing grease					12,000 (8,000)	
Drive chain	Clean and lube	SAE 10W/30 motor oil	Every 500 (300)					
Point cam lubrication	Apply very lightly	Light-weight machine oil		○	○	○		

NOTE:

Brake fluid replacement

1. When disassembling the master cylinder, replace the brake fluid. Normally check the brake fluid level and add the fluid required.
2. On the inner parts of the master cylinder and caliper cylinder, replace the oil seals every two years.
3. Replace the brake hoses every four years.

ENGINE

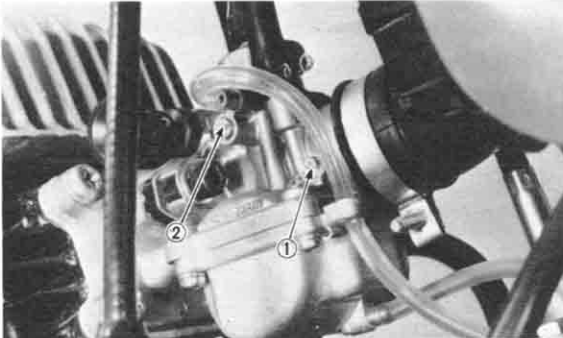
A. Carburetor

1. Idle mixture and idle speed adjustment
 - a. Make certain that throttle cable has some suitable free play.
 - b. Turn air adjusting screw until it lightly seats, then back its out to specification. This adjustment can be made with engine stopped.

Air screw (Turns out):
1-1/2 turns

- c. Start the engine and let it warm up.
 - d. Turn throttle stop screw in or out to achieve smooth engine operation at specified idle speed.

Idling speed:
1,250 ~ 1,350 r/min



1. Pilot air screw 2. Throttle stop screw

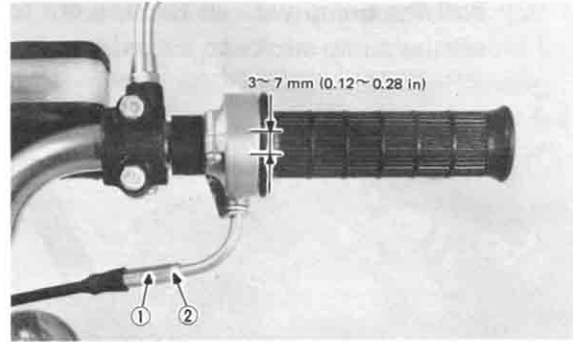
2. Throttle cable adjustment

NOTE:

Idle speed should be set before making this adjustment.

The throttle grip should have a play of 3 ~ 7 mm (0.12 ~ 0.28 in) in the turning direction at the grip flange. If the play is not this range, take the following steps for adjustment.

- a. Loosen the adjuster lock nut and turn the cable adjuster to make the necessary adjustment.
- b. After adjusting, be sure to tighten the lock nut properly.



1. Adjuster 2. Lock nut

B. Autolube

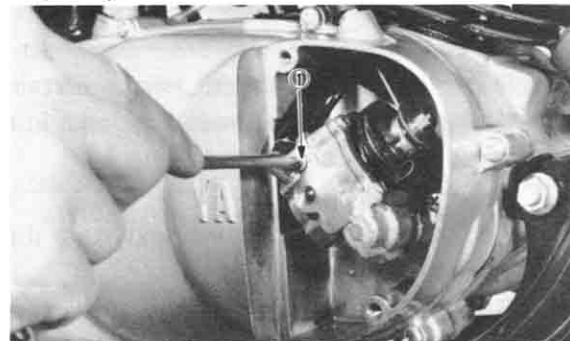
1. Air bleeding

The Autolube Pump and delivery lines must be bled on the following occasions:

- * Setting up a new machine out of the crate.
- * Whenever the Autolube tank has run dry.
- * Whenever any portion of the Autolube system is disconnected.

a. Bleeding the pump case and/or oil pipe.

- 1) Remove the pump cover and remove the bleed screw.



1. Bleed screw

- 2) Keep the oil running out until air bubbles disappear.
- 3) When air bubbles are expelled completely, tighten the bleed screw and install the pump cover.

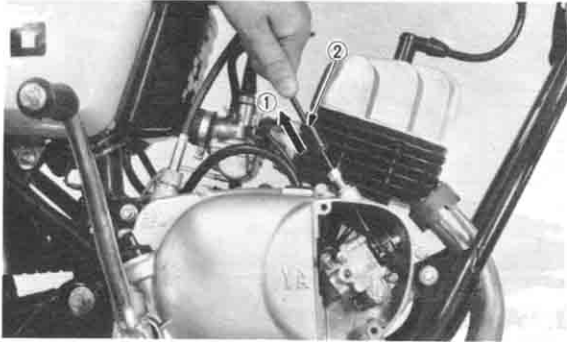
NOTE:

Check the bleed screw gasket, and if damaged, replace with a new one.

b. Bleeding the pump distributor and/or delivery pipe.

- 1) Start the engine.

- 2) Pull the pump wire all the way out to set the pump stroke to a maximum.



1. Pull 2. Pump wire

NOTE: _____

It is difficult to bleed the distributor completely with the pump stroke at a minimum, and therefore the pump stroke should be set to a maximum.

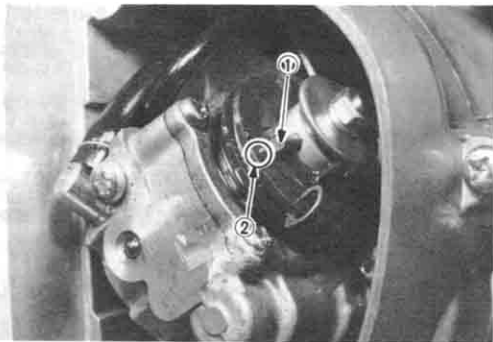
- 3) Keep the engine running at about 2,000r/min for two minutes or so, and both distributor and delivery pipe can be completely bled.

2. Pump wire adjustment

NOTE: _____

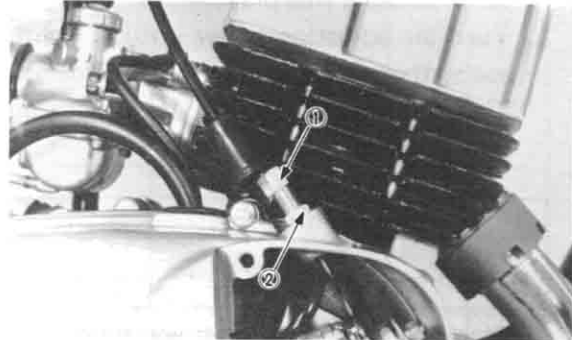
Prior to this adjustment, make certain that throttle cable free play and idle speed is correct.

- a. Remove the pump cover and start the engine.
- b. Rotate throttle grip slightly until free play is removed from throttle cable, and adjust the pump cable so that the mark on the pump adjusting pulley aligns with the adjusting pulley guide pin.



1. Guide pin 2. Mark

- c. If the mark and pin are not in alignment loosen the cable length adjuster lock nut on top of crankcase cover and adjust cable length until alignment is achieved.
- d. Tighten adjuster lock nut.

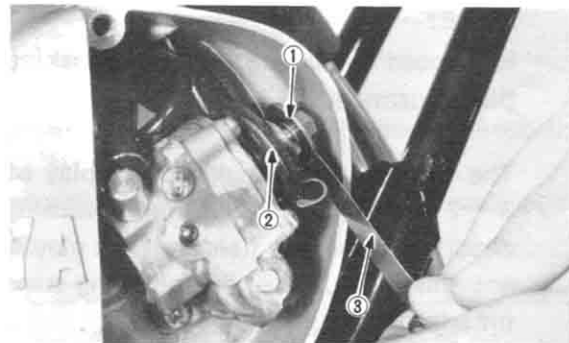


1. Adjuster 2. Lock nut

3. Minimum pump stroke check and adjustment

Normally the checking and adjustment of the pump stroke are not required, but if any sign of trouble resulting from an incorrect minimum pump stroke is notice (e.g., excessive engine oil consumption or engine seizure), proceed as follows:

- a. Remove the pump cover and start the engine.
- b. While running the engine idle, observe the pump adjust plate carefully, and stop the engine the moment that the adjust plate moves out to the limit.
- c. Measure the gap with the thickness gauge between the raised boss on the pump adjust pulley and the adjust plate.



1. Adjust plate 2. Adjust pulley
3. Thickness gauge

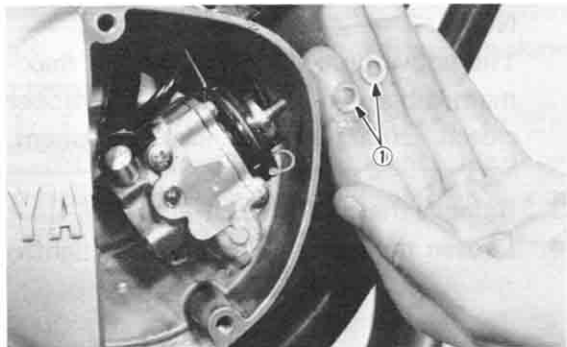
- d. Repeat steps b. and c. above a few times. When the gap measured is the largest, the pump stroke is considered to be at a minimum.

NOTE: _____

When inserting the thickness gauge between the adjusting plate and the adjusting pulley, be careful so that either the plate or the pulley is not moved. In other words, do not force the thickness gauge into the gap.

Minimum pump stroke:
0.20 ~ 0.25 mm (0.008 ~ 0.010 in)

- e. If clearance is not correct, remove the adjust plate lock nut and the adjust plate.
f. Remove or add an adjust shim as required.



1. Adjust shim

- g. Reinstall adjust plate and lock nut. Tighten the lock nut. Re-measure gap. Repeat procedure as required.

C. Transmission Oil

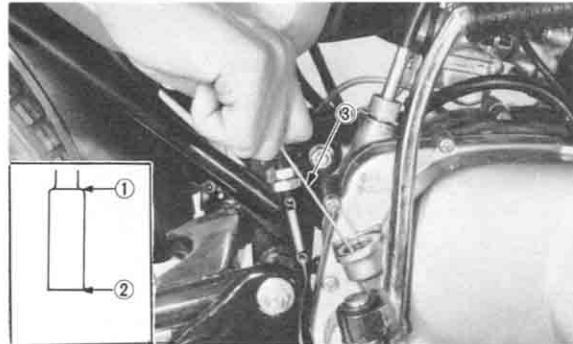
1. Oil level measurement
a. Place the machine is level place and on both wheels.
b. Remove the oil filler cap, and check the oil level.

NOTE: _____

Prior to this check, start the engine and let it run for several minutes to warm and distribute oil with the engine stopped.

- c. The dip stick has a minimum and maximum mark, and the oil level should be between the two. If the level is lower, then add sufficient oil to raise it to the proper level.

Recommended oil :
SAE 10W/30 type "SE" motor oil



1. Maximum level 3. Dip stick
2. Minimum level

2. Oil replacement

- a. Start the engine and stop after a few minutes of warm up.
b. Place an oil receiver under the engine.
c. Remove the drain plug and drain oil. A drain plug is located on the bottom of the crankcase. Reinstall plug and add fresh oil.

NOTE: _____

Check drain plug gasket. If damaged replace.



1. Drain plug

Transmission oil quantity:
500 cc (0.44 IMP qt)

CAUTION:

Under no circumstances should any additives be included with the transmission oil. This oil also lubricates and cools the clutch. Additives may cause clutch slippage.

D. Air Filter

1. Remove the side cover (R.H.).



2. Remove the air filter element from its case, remove element from core and clean with solvent. After cleaning, remove the remaining solvent by squeezing the foam rubber.



Then apply 30wt. motor oil to the entire surface and squeeze out the excess oil. Foam should be wet but not dripping. When installing the air filter element in

its case, be sure its sealing surface of the case so there is not air leakage.

The air filter element should be cleaned once a month or every 1,500 km (1,000 miles). It should be cleaned every ten hours or more often if the machine is operated in extremely dusty areas.

CAUTION:

The engine should never be run without the air filter element installed; excessive piston and/or cylinder wear may result.

E. Clutch Adjustment

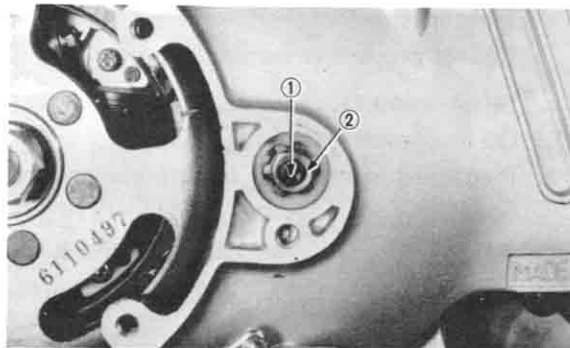
Proper clutch adjustment requires two separate procedures.

1. Loosen cable adjuster lock nut.
2. Turn clutch cable adjuster (at lever) all the way into the lever holder.

NOTE:

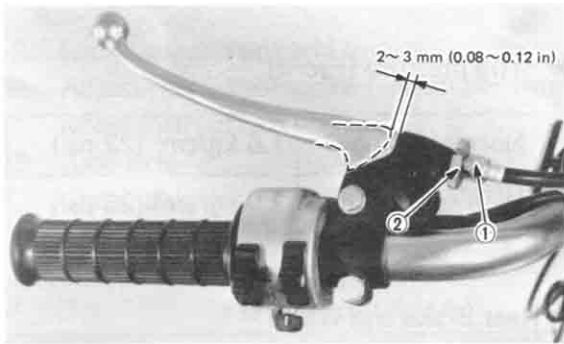
The above procedure provides for maximum cable free play to allow for proper clutch actuating mechanism adjustment.

3. Remove the crankcase cover (L.H.).
4. Loosen the lock nut, and slowly tighten the adjuster until resistance is felt. This means that the play of the push rod is removed; back off adjuster 1/4 turn.



1. Adjuster 2. Lock nut

5. At clutch lever assembly, turn cable length adjuster in or out until proper lever free play is obtained.



1. Adjuster 2. Lock nut

Free play:
2 ~ 3 mm (0.08 ~ 0.12 in)

6. Tighten clutch lever lock nut.

CHASSIS

A. Fuel Petcock

The fuel petcock has a built-in filter to remove any particles before they reach the carburetor. If the filter becomes blocked, the fuel cannot enter the carburetor. To prevent this, inspection and cleaning should be done at recommended intervals.

1. First, turn the petcock lever to the "OFF" position, then remove the filter cup and clean the bottom of the cup with solvent.



1. Drain cover

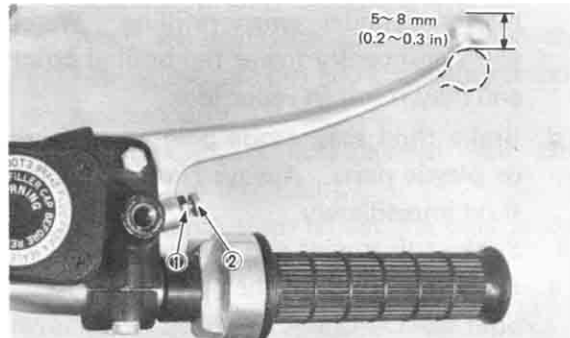
2. After removing the filter cup, remove and clean the filter screen. At the same time, you should examine the condition of the filter gasket. Replace if damaged.
3. When reassembling, be careful not to clamp the filter cup too tightly as this may cause the filter gasket to become unseated resulting in fuel leakage.

B. Front Brake and Wheel

1. Front brake adjustment

The front brake lever should be so adjusted, that it has a free play of 5 ~ 8 mm (0.2 ~ 0.3 in) at the lever end.

- a. Loosen the lock nut on the brake lever.
- b. Turn the adjuster so that the brake lever movement at the lever end is 5 ~ 8 mm (0.2 ~ 0.3 in) before the adjuster contacts the master cylinder piston.



1. Lock nut 2. Adjuster

- c. After adjusting, tighten the lock nut.

NOTE:

Check for correct play and make sure it is working properly.

2. Front brake pad check

For easy check of wear on the disc brake pads, a wear indicator line is attached to each brake pads. This indicator permits a visual check without disassembling the pads. If the pads is worn down to the indicator line, replace the pads.

3. Check the brake fluid level

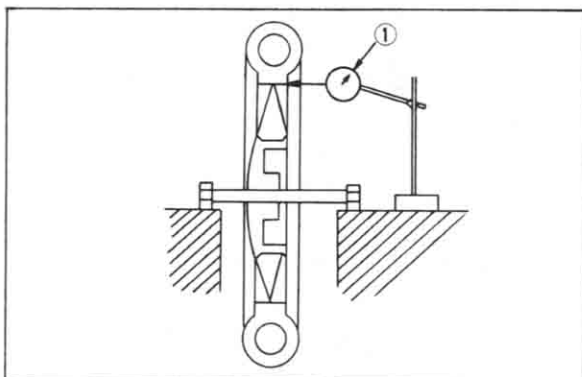
Insufficient brake fluid may allow air to enter the brake system, possibly causing the brakes to become ineffective. Before driving, check the brake fluid level and replenish when necessary, and observe these precautions:

- a. Use only the designated quality brake fluid; otherwise, the rubber seals may deteriorate causing leakage and poor brake performance.

Recommended brake fluids:
DOT # 3

- b. Refill with the same type of brake fluid; mixing fluids may result in a harmful chemical reaction and lead to poor performance.
 - c. Be careful that water does not enter the master cylinder when refilling. Water will significantly lower the boiling point and may result in vapor lock.
 - d. Brake fluid may erode painted surfaces or plastic parts. Always clean up spilled fluid immediately.
4. Spoke adjustment and torque
- a. Raise the wheel off the ground. Spin wheel. Check rim run out as shown in illustration.

Rim run out limits:
Vertical 2 mm (0.08 in)
Lateral 2 mm (0.08 in)



1. Dial gauge

- b. Check each spoke for tightness.

Spoke torque:
Front 0.2 m-kG (1.4 ft-lb)
Rear 0.2 m-kG (1.4 ft-lb)

5. Front axle
- a. Check axle nut.

Front axle nut torque:
7.0 m-kG (50.5 ft-lb)

6. Tire pressure (Front)

Normal riding	1.6 kg/cm ² (22 psi)
High speed riding	2.0 kg/cm ² (28 psi)

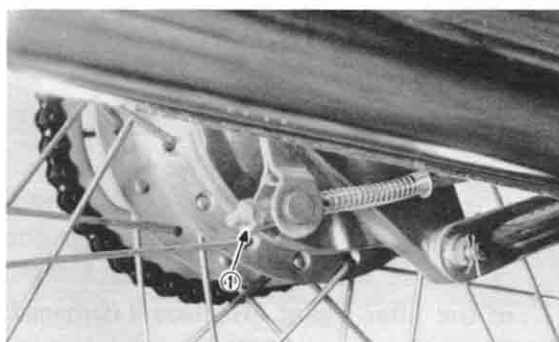
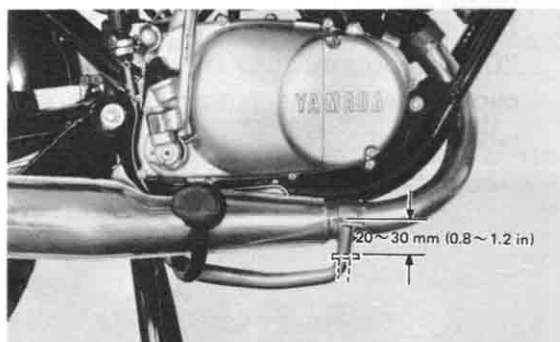
C. Rear Brake and Wheel

1. Rear brake and adjustment

The rear brake should be adjusted so the end of the brake pedal moves 20 ~ 30 mm (0.8 ~ 1.2 in). To adjust, turn the adjuster on the brake rod clockwise to reduce play; turn the nut counterclockwise to increase play. Check whether or not the stop light operates correctly after adjusting.

NOTE:

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



1. Adjuster

2. Spoke adjustment and torque
Adjust rear wheel spoke tension per front wheel instructions.
3. Rear axle
Check axle nut.

Rear axle nut torque: 7.0 m-kg (50.5 ft-lb)
--

4. Tire pressure (Rear)

Normal riding	2.0 kg/cm ² (28 psi)
High speed riding	2.3 kg/cm ² (32 psi)

D. Drive Chain

1. Drive chain tension check

NOTE:

Before checking and/or adjusting, rotate rear wheel through several revolutions and check tension several times to find the tightest point. Check and/or adjust chain tension with rear wheel in this "tight chain" position.

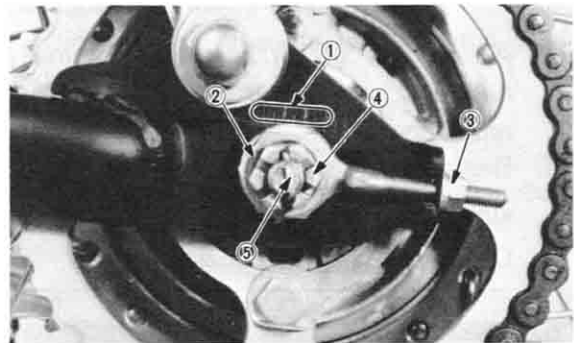
Inspect the drive chain with tires touching the ground. Check the tension at the position shown in the illustration. The normal vertical deflection is approximately 25 mm (1.0 in). If the deflection exceeds 25 mm (1.0 in) adjust the chain tension.



2. Drive chain tension adjustment
 - a. Loosen the rear brake rod adjust nut.
 - b. Remove the cotter pin of the rear wheel axle nut with pliers.
 - c. Loosen the rear wheel axle nut and the

sprocket shaft nut.

- d. To tighten chain turn puller adjust nuts clockwise and pull wheel backward. To loosen chain turn adjust nuts counter-clockwise and push wheel forward. Turn each nuts exactly the same amount to maintain correct axle alignment (There are marks on each side of rear arm and on each chain puller; use them to check for proper alignment).
- e. After adjusting, be sure to tighten the rear wheel axle nut and the sprocket axle nut properly.
- f. Tighten adjust nuts against rear arm (about 1/4 turn each).
- g. In the final step, adjust the play in the brake pedal.



1. Marks for alignment
2. Sprocket shaft nut
3. Chain puller adjust nut
4. Rear wheel axle nut
5. Cotter pin

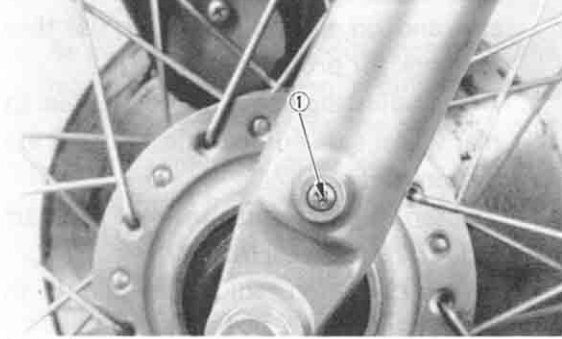
3. Drive chain lubrication

The chain consists of many parts which work against each other. If the chain is not maintained properly, it will wear out rapidly. Without lubrication the chain could wear out within 1,500 km (1,000 miles); therefore, form the habit of periodically servicing the chain. This service is especially necessary when riding in dusty conditions.

- a. Use any of the many brands of spray type chain lubricant. First, remove dirt and mud from the chain with a brush or cloth and then spray the lubricant between both rows of side plates and on all center rollers. This should be performed every 500 km (300 miles).

E. Front Fork Oil Change

1. Elevate front wheel by placing a suitable stand under the engine.
2. Remove cap bolts from inner fork tubes.
3. Remove drain screw from each outer tube with open container under each drain hole.



1. Drain screw

4. After most of oil has drained, slowly raise and lower outer tubes to pump out remaining oil.
5. Replace drain screw.

NOTE:

Check gasket, replace if damaged.

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

Recommended oil:
SAE 10W/30 type "SE" motor oil
Quantity per leg:
 94 ± 4 cc (3.18 ± 0.14 oz)

7. After filling, slowly pump the outer tubes up and down to distribute the oil.
8. Inspect "O" ring on fork caps bolts and replace if damaged.
9. Replace fork cap bolts and torque to specification.

Fork cap bolt torque:
3.0 m·kg (21.5 ft·lb)

F. Suspension, Steering and Swing Arm

1. Steering head adjustment

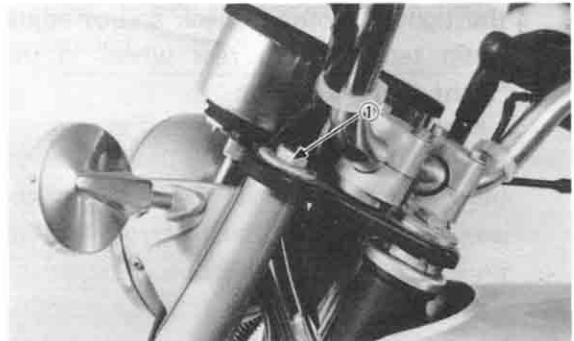
The steering assembly should be checked periodically for looseness.

Do this follows:

- a. Block machine up so that front wheel is off the ground.
- b. Grasp bottom of forks and gently rock fork assembly backward and forward, checking for looseness in the steering assembly bearings.

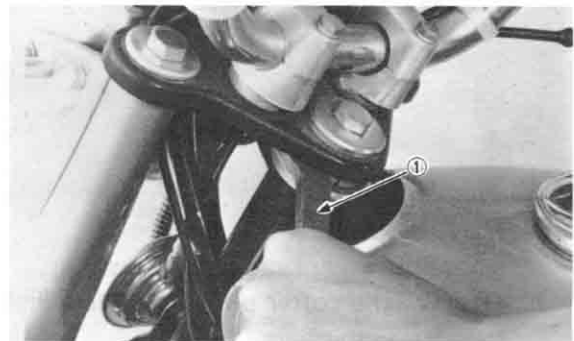


- c. If steering head needs adjustment, loosen fitting nut.



1. Fitting nut

- d. Using steering nut wrench, adjust steering head fitting nut until steering head is tight without binding when forks are turned.



1. Steering nut wrench

NOTE: _____

Excessive tightening of this nut will cause rapid wear of ball bearings and races. Re-check for looseness and freedom of movement.

- e. Tighten steering fitting bolt and under bracket pinch bolts in that order.

Steering fitting bolt torque: 3.0 m-kg (21.5 ft-lb) Under bracket pinch bolt torque: 2.0 m-kg (14.5 ft-lb)

NOTE: _____

After completing steering adjustment, make certain forks pivot from stop to stop without binding. If binding is noticed repeat adjustment.

2. Suspension
 - a. Check all suspension components for proper operation.
 - b. Check all suspension components for proper tightness.
3. Swing arm
 - a. Check for freedom of up and down movement.
 - b. Check side to side free play.

Swing arm free play: 1.0 mm (0.04 in) at end of swing arm

- c. Check all securing bolts for proper tightness.

ELECTRICAL

A. Contact Breaker Points

1. Apply a few drops of light-weight machine oil or distributor lubricant to the point can lubricator.
2. The ignition points can be lightly sanded with oil stone to remove corrosion. Place a piece of clean paper between the

points, let them close, and remove the paper. Repeat until no residue shows. The paper may be dipped in lacquer thinner or point cleaning fluid to remove oil and sanding residue from point surfaces.

3. Point replacement should only be necessary when point gap exceeds maximum tolerance; when the points are severely pitted or if the points become shorted or show faulty operation.

NOTE: _____

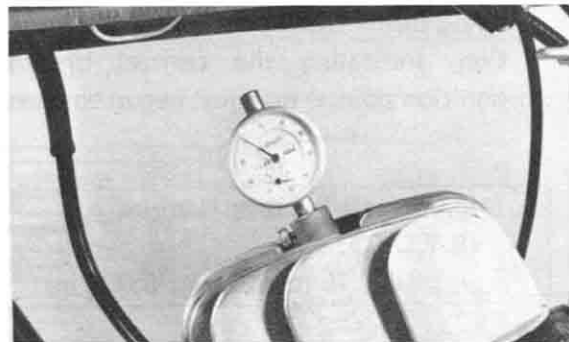
New points, when installed, must be cleaned and adjusted.

B. Ignition Timing Adjustment

Ignition timing must be set with dial gauge and point checker.

Proceed as follows:

1. Put machine in neutral.
2. Remove spark plug and screw dial gauge stand into spark plug hole.
3. Insert dial gauge into stand.



4. Remove left crankcase cover.
5. Adjust ignition points:
 - a. Rotate crankshaft counterclockwise and insert a thickness gauge of 0.35 mm (0.014 in) with the point gap at maximum. The gap is satisfactory if the thickness gauge can be inserted.
 - b. If the gap is not proper, adjust by moving the contact point assembly.

Point gap:
0.30 ~ 0.40 mm (0.012~0.016in)

6. Switch on point checker and adjust. Disconnect magneto harness from ignition wire. Connect red lead of point checker to black wire in ignition wire coming from magneto.
7. Connect black lead of point checker to unpainted surface of cylinder fin or unpainted crankcase bolt or screw.
8. Rotate magneto until piston is at T.D.C. Set the zero on dial gauge face to line up exactly with dial gauge needle. Tighten set screw on spark plug stand to secure dial gauge assembly. Rotate magneto back and forth to be sure the dial gauge needle does not go past zero.
9. Starting at T.D.C. rotate magneto clockwise until dial gauge reads approximately 2 needle revolutions B.T.D.C.
10. Slowly turn magneto counterclockwise until dial gauge reads ignition advance setting listed in specifications. At this time, the point checker needle should swing from "CLOSED" to "OPEN" position, indicating the contact breaker (ignition points) have just begun to open.

Ignition timing specifications
(B.T.D.C.):
1.8 ± 0.15 mm (0.07 ± 0.006 in)

11. Repeat steps 9. and 10. to verify point opening position. If points do not open within specified tolerance, they must be adjusted.
12. Adjust ignition points by slightly loosening Phillips head screw and carefully rotating contact breaker assembly with a slotted screwdriver. Make minor adjustment and retighten Phillips head screw before rechecking timing. Recheck timing by repeating step 8. and 9.

13. Remove dial gauge assembly and stand. Disconnect point checker. And reconnect magneto wire harness. Replace crankcase cover (L.H.).

C. Spark Plug

The spark plug 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 will be a medium tan color. If the insulator is very dark brown or black color, then a plug with a hotter heat range might 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 is actually pure white and glazed or if electrodes show signs of melting, then a spark plug with a color heat range is required. Remember, the insulator area surrounding the positive electrode of the spark plug must be a medium tan color. If it is not, check carburetion, timing and ignition adjustments. The spark plug must be removed and checked. Check electrode wear, insulator color, and electrode gap.

Spark plug gap:
0.6 ~ 0.7 mm (0.024 ~ 0.028 in)

Engine heat and combustion chamber deposits will cause any spark plug to slowly break down and erode. If the electrode finally become too worn, or if 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 of the surface of the spark plug, torque the spark plug properly.

Standard spark plug: B-7HS (NGK)
Spark plug torque: 2.0 m-kg
(14.5 ft-lb)

D. Battery

1. Checking
 - a. If sulfation (white accumulations) occurs on plates due to lack of battery electrolyte, the battery should be replaced.
 - b. If the bottom of the cells are filled with corrosive material falling off plates, the battery should be replaced.
 - c. If the battery shows the following defects, it should be replaced.
 - 1) If the voltage will not rise to a specific value even after long hours charging.
 - 2) No gassing occurs in any cell.
 - 3) The 6V battery requires a charging voltage of more than 8.5V in order to supply a current of 0.4A for 10 hours.
2. Service life

The service life of a battery is usually 2 to 3 years, but lack of care as described below will shorten the life of the battery.

 - a. Negligence in keeping battery topped off with distilled water.
 - b. Battery being left discharged.
 - c. Over-charging nushing charge.
 - d. Freezing.
 - e. Filling with water or sulfuric acid containing impurities.
 - f. Improper charging voltage/current on new battery.

Battery type	6V, 4AH
Electrolyte	Specific gravity: 1.26 Quantity: 200 cc (6.76 oz)
Initial charging current	0.4 Amperes / 10 hours (New battery)
Re-charging current	0.4 Amperes until specific gravity reaches 1.26
Re-fill fluid	Distilled water to maximum level line
Re-fill period	Check once per month or more often as required

3. Storage

If the motorcycle is not used for a long time, remove the battery and have it

stored by a battery service shop. The following instructions should be observed by shop equipped with charger.

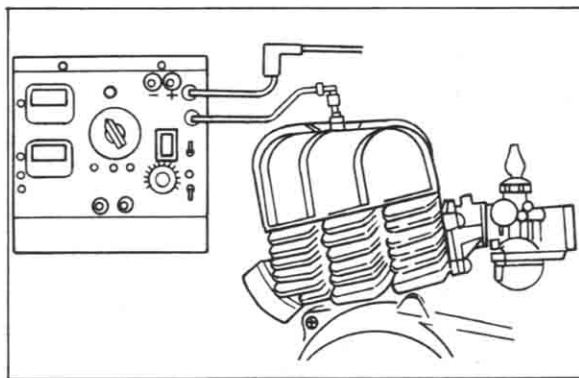
- a. Recharge the battery.
- b. Store the battery in a cool, dry place, and avoid temperatures below 0°C (32°F).
- c. Recharge the battery before reinstallation.

E. Spark Gap Test

The entire ignition system can be checked for misfire and weak spark using the "Electric Tester". If the ignition system will fire across a sufficient gap, the entire ignition system can be considered good. If not, proceed with individual component tests until the problem is found.

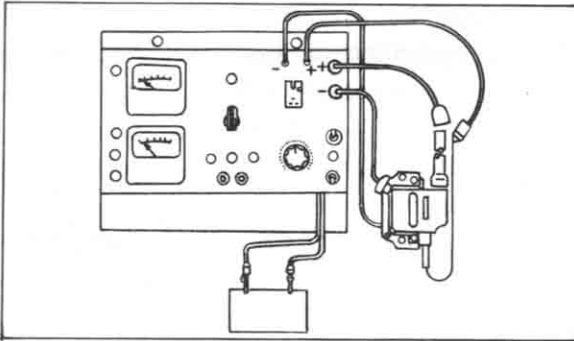
1. Warm-up engine thoroughly so that all electrical components are at operating temperature.
2. Stop engine and connect tester as shown.
3. Start engine and increase spark gap until misfire occurs. (Test at various rpm's)

Minimum spark gap:
7 mm (0.28 in) or more



F. Ignition Coil Test

1. Coil spark gap test
 - a. Remove fuel tank and disconnect ignition coil from wire harness and spark plug.
 - b. Connect Electro Tester as shown.

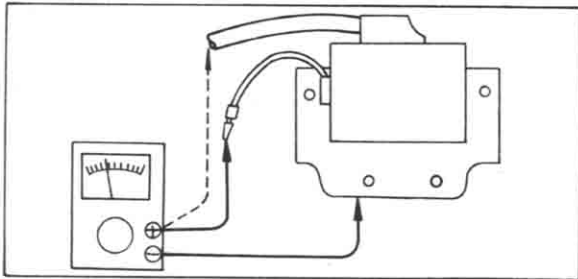


- c. Connect fully charged 6V battery to tester.
- d. Turn on spark gap switch and increase gap until misfire occurs.

Minimum spark gap:
7 mm (0.28 in) or more

2. Coil winding resistance tests
Use a pocket tester or equivalent ohmmeter to determine resistance and continuity of primary and secondary coil windings.

Primary coil resistance:
 $1.0\Omega \pm 10\%$ at 20°C (68°F)
Secondary coil resistance:
 $5.9\text{K}\Omega \pm 20\%$ at 20°C (68°F)



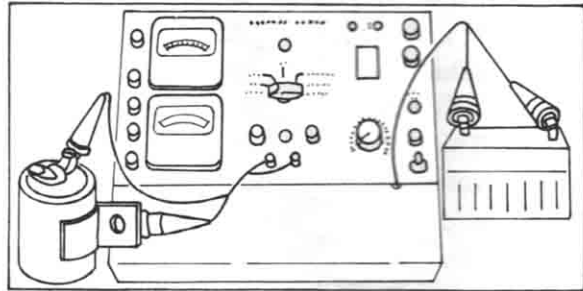
G. Condenser Test

The condenser is capable of storing a large electrical charge. If it were not for the condenser, an electric arc would jump across the separating contact points, causing them to burn.

Burned contact points greatly affect the flow of current in the primary winding of the ignition coil. If the contact points show excessive wear, or the spark is weak but the ignition coil is in good condition, check the condenser.

1. Condenser insulation test (Use electro tester)
 - a. Set ohmmeter to highest resistance scale ($\Omega \times 1,000$ or higher).
 - b. Remove condenser from engine and connect ohmmeter as shown below.
 - c. Resistance reading should be "Infinity" or very close to it.

Minimum resistance: $3\text{M}\Omega$ or more



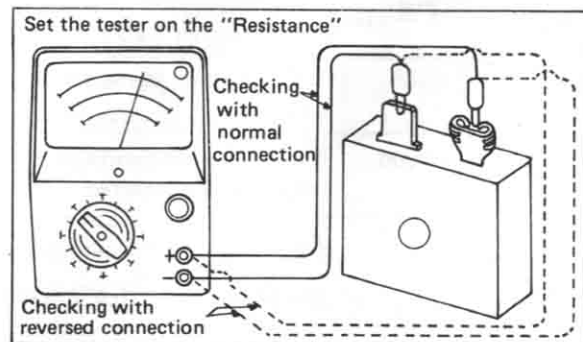
2. Capacity test (Use electro tester)
 - a. Calibrate capacity scale.
 - b. Connect tester (same as insulation test).
 - c. Meter needle will deflect and return to center as condenser is charged.
After needle stops, note reading on μF scale.

Condenser capacity: $0.30\ \mu\text{F} \pm 10\%$

CAUTION:
After this measurement, the condenser should be discharged by connecting the positive and negative sides with a thick wire to prevent shock.

H. Checking Silicon Rectifier

Checking with normal connecting using Yamaha pocket tester. Connect the tester's leads as shown.

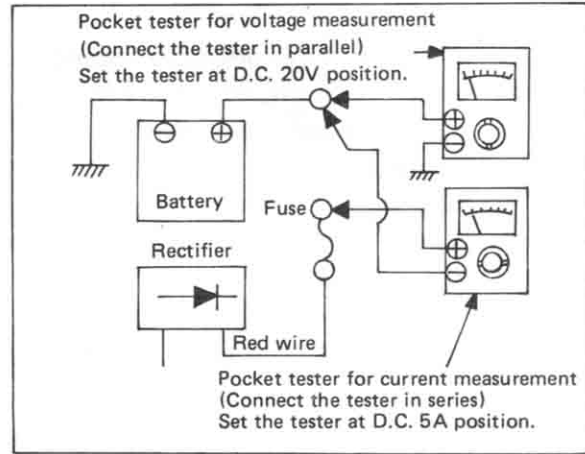


NOTE:

This rectifier test must be checked both normal and reversed connections.

CAUTION:

The silicon rectifier can be damaged, if subject to overcharging. Special care should be taken to avoid a short circuit and/or incorrect connection of the positive and negative leads at the battery. Never connect the rectifier directly to the battery to make a continuity check.



NOTE:

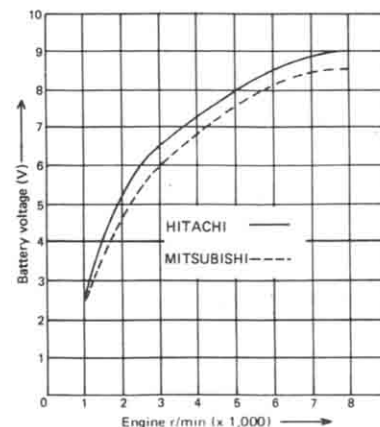
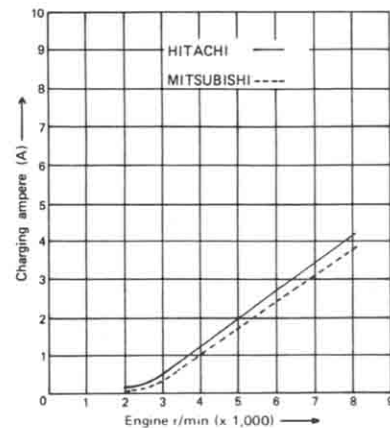
When measuring charging current, put out neutral light; otherwise, incorrect measurement will result. Take either of the following steps to put out neutral light.

- * Remove neutral bulb.
- * Disengage clutch and shift gear.
- * Disconnect neutral lead wire coming from flywheel magneto under fuel tank.

	Normal connection	Reversed connection
Good	 $\Omega \times 1$ 9 - 10 Ω	 $\Omega \times 100$
Replace	 $\Omega \times 1$	 $\Omega \times 100$
Replace	 $\Omega \times 1$	 $\Omega \times 100$

I. Charging Voltage and Current Check

1. Raise seat and locate battery connections.
2. Connect pocket tester as shown.
3. Turn ignition switch to ON (daytime) position, start engine and note voltage and amperage readings at r/min specified below.
4. Switch to nighttime (lights on) and note voltage and amperage readings at specified r/min.



J. Lighting Tests and Checks

The 6V battery provides power for operation of the horn, stoplight, neutral light and flasher lights. If none of the above operate, always check battery voltage before proceeding further. Low battery voltage indicates either a faulty battery, low battery water, or a defective charging system.

1. Horn does not work.
 - a. Check for 6V on brown wire to horn.
 - b. Check for 6V on green/yellow wire to stoplight.
 - c. Check for 6V on brown wire to each stop switch (front brake and brake switches).
2. Stoplight does not work.
 - a. Replace bulb.
 - b. Check for 6V on green/yellow wire to stoplight.
 - c. Check for 6V on brown wire to each stop switch (front brake and rear brake switches).
 - d. Check for ground on black wire to tail/stoplight assembly.
3. Taillight does not work.
 - a. Replace bulb.
 - b. Check for 6V on blue wire.
 - c. Check for ground on black wire to tail/stoplight assembly.
4. Flasher light(s) do not work.
 - a. Replace bulb.
 - b. Right circuit.
 - 1) Check for 6V on dark green wire to light.
 - 2) Check for ground on black wire to light assembly.
 - c. Left circuit.
 - 1) Check for 6V on dark brown wire to light.
 - 2) Check for ground on black wire to light assembly.
 - d. Right and left circuits do not work.
 - 1) Check for 6V on chocolate wire to flasher switch on left handlebar.
 - 2) Check for 6V on chocolate wire to flasher relay.
 - 3) Replace flasher relay.
 - 4) Replace flasher switch.

TROUBLESHOOTING

The following is not complete in itself. If a problem is found within an individual component mentioned within the chart.

A. No Start or Difficult to Start

Ignition System	
Possible cause	Remedy
No spark	<ol style="list-style-type: none">1. Check contact breaker assembly.2. Check condenser.3. Check wiring, magneto coil.4. Check ignition coil.5. Check high tension lead wire.6. Check spark plug.7. Check ignition timing.
Weak or intermittent spark	<ol style="list-style-type: none">1. Use electro tester, spark gap test.2. Check spark plug.3. Check high tension lead wire.4. Check ignition coil.

Air/fuel systems	
Possible cause	Remedy
No fuel	<ol style="list-style-type: none"> 1. Check fuel tank. 2. Check fuel petcock. 3. Remove main jet, check fuel flow.
Intermittent or poor fuel flow	<ol style="list-style-type: none"> 1. Clean fuel tank. 2. Check fuel tank cap vent. 3. Clean fuel petcock. 4. Clean carburetor.
Bad fuel	<ol style="list-style-type: none"> 1. Flush fuel system, complete. 2. Add fresh fuel, proper grade.
Blocked air intake or malfunction	<ol style="list-style-type: none"> 1. Clean and lube filter. 2. Check reed valve assembly.

Engine/exhaust systems	
Possible cause	Remedy
Incorrect compression pressure	<ol style="list-style-type: none"> 1. If reading too high, check for excessive carbon. 2. If reading too low, check: <ol style="list-style-type: none"> a. Cylinder head gasket. b. Cylinder base gasket. c. Piston, rings, cylinder.
Poor bottom end compression	<ol style="list-style-type: none"> 1. Check crankcase seals Left and Right.
Blocked exhaust system	<ol style="list-style-type: none"> 1. Check muffler. 2. Check exhaust port carbon formation. 3. Check exhaust pipe for internal damage.

B. Poor Idle and/or Low Speed Performance

Ignition systems	
Possible cause	Remedy
Spark plug fouled or incorrect gap	Clean or correct gap or replace if necessary.
Contact breaker point bad	Clean or correct gap or replace if necessary.
Incorrect ignition timing	Reset ignition timing.
Weak spark	Check ignition oil and condenser.

Air/fuel system	
Possible cause	Remedy
Tank cap vent plugged	Clean or repair as necessary.

Fuel petcock plugged	Clean or repair as necessary.
Carburetor slow speed system inoperative	Clean or replace as necessary.
Pilot screw out of adjustment or plugged	Clean or repair as necessary.
Carburetor float level incorrect	Measure and adjust if required.
Start lever on	Clean or repair as necessary.
Air leak	Clean or repair as necessary.
Carburetor not level	Clean or repair as necessary.

Engine/exhaust systems (See "No start")

C. Poor Mid-range and High Speed Performance

Ignition system	
Possible cause	Remedy
Spark plug incorrect	Clean or correct gap or change plug is necessary.
Ignition timing incorrect	Reset.
Contact breaker point set too close	Regap.

Air/fuel systems	
Possible cause	Remedy
Dirty air filter element	Clean.
Carburetor float level incorrect	Measure and adjust if required.
Incorrect main jet size	Check main jet size and change if necessary.
Cracked or leaking reeds	Remove.
Carburetor not level	Level.

SPECIFICATIONS

A. General Specifications

Dimensions:	
Overall length	1,825 mm (71.7 in)
Overall width	710 mm (28.0 in)
Overall height	980 mm (38.6 in)
Seat height (unloaded)	730 mm (28.7 in)
Wheelbase	1,185 mm (46.7 in)
Minimum ground clearance	150 mm (5.9 in)
Weight:	
Net (Dry)	74 kg (168 lb)

Performance: Minimum turning radius Brake distance Climbing ability	1,800 mm (70.9 in) 4.0 m at 20 km/h (13.1 ft at 12.4 mi/h) 18°
Engine: Model Type Lubrication system Cylinder Displacement Bore and stroke Compression ratio Starting system Ignition system Ignition timing Spark plug	481 Air cooled, 2-stroke, gasoline Separate lubrication (Yamaha autolube) Single, forward inclined 49 cc (2.99 cu. in) 40 x 39.7 mm (1.575 x 1.563 in) 6.9 : 1 Kick starter (Primary kick) Magneto ignition 1.8 ± 0.15 mm (0.07 ± 0.006 in) B.T.D.C. B-7HS (N.B.K.)
Carburetor: Type Manufacturer	VM16SH MIKUNI
Air cleaner: Type	Oiled foam rubber
Clutch: Type Primary reduction system Primary reduction ratio	Wet, multiple disc Gear 68/19 (3.578)
Transmission: Type Reduction ratio 1st 2nd 3rd 4th 5th	Constant mesh, 5 speed forward 39/12 (3.250) 34/17 (2.000) 30/21 (1.428) 27/24 (1.125) 25/26 (0.961)
Chassis: Model Frame Suspension system Front Rear Shock absorber system Front Rear	481 Tubular double cradle Telescopic fork Swing arm Coil spring, oil damper Coil spring, oil damper
Steering system: Caster Trail	28° 85 mm (3.35 in)

Braking system: Type Front Rear Operation system Front Rear	Disc brake Drum brake Right hand operation Right foot operation
Tire: Size Front Rear Pressure Front Rear	2.50-17-4PR 2.50-17-4PR 1.6 kg/cm ² (22 psi): Normal riding 2.0 kg/cm ² (28 psi): High speed riding 2.0 kg/cm ² (28 psi): Normal riding 2.3 kg/cm ² (32 psi): High speed riding
Flywheel magneto: Model Manufacturer	F11-L65 or FIT 10172 HITACHI or MITSUBISHI
Lights: Headlight Tail/stop light Flasher light Indicator lights Turn indicator Neutral indicator Meter light	6V, 25/25W 6V, 3/10W 8V, 10W 6V, 3W 6V, 3W 6V, 1.5W x 2
Volumes/type fluid: Fuel tank/type Oil tank/type Transmission/type Front fork (each)/type	8.0 lit (1.76 IMP. gal)/Low-lead gasoline 1.0 lit (0.88 IMP. qt)/2-cycle motor oil 500 cc (0.44 IMP qt)/SAE 10W/30 type "SE" motor oil 94 ± 4 cc (3.18 ± 0.14 oz)/SAE 10W/30 type "SE" motor oil

B. Maintenance Specifications

Items	Required << Allowable >>
Autolube: Autolube pump color code Minimum pump stroke (at idle) Maximum pump stroke (at full throttle)	Pink 0.20 ~ 0.25 mm (0.008 ~ 0.010 in) 1.45 ~ 1.70 mm (0.057 ~ 0.067 in)
Engine-Top end: Piston clearance Top ring end gap (Installed) 2nd ring end gap (Installed) Crankshaft assembly width Crankshaft deflection Con-rod big end side clearance Con-rod small end deflection	0.030 ~ 0.035 mm (0.0012 ~ 0.0014 in) 0.15 ~ 0.35 mm (0.006 ~ 0.0014 in) 0.15 ~ 0.35 mm (0.006 ~ 0.0014 in) 38 ^{-0.05} _{-0.10} mm (1.496 ^{-0.002} _{-0.004} in) 0.03 mm (0.0012 in) or less 0.3 ~ 0.8 mm (0.012 ~ 0.030 in) 0.8 ~ 1.0 mm (0.03 ~ 0.04 in) <<2.0 mm (0.08 in)>>

<p>Engine-Clutch:</p> <p>Friction plate thickness x Q'ty</p> <p>Clutch plate warp. allowance</p> <p>Clutch plate thickness x Q'ty</p> <p>Spring free length x Q'ty</p>	<p>3.5 mm (0.14 in) x 3 pcs. <<3.2 mm (0.13 in)>> 0.05 mm (0.002 in) 1.6 mm (0.063 in) x 2 pcs. 31.5 mm (1.24 in) x 4 pcs. <<29.5 mm (1.16 in)>></p>
<p>Carburetor:</p> <p>Type</p> <p>Manufacturer</p> <p>Main jet (M.J.)</p> <p>Jet needle and clip position</p> <p>Needle jet (N.J.)</p> <p>Cut away (C.A.)</p> <p>Pilot jet (P.J.)</p> <p>Air screw (turns out)</p> <p>Starter jet (G.S.)</p> <p>Float level</p> <p>Idling engine speed (rpm)</p>	<p>VM16SH MIKUNI # 120 (High land # 100) 3E2, 3rd position E-4 2.0 # 20 1-1/2 # 30 22.4 ± 1.0 mm (0.88 ± 0.04 in) <<2.5 mm (0.098 in)>> 1,300 ± 50 r/min</p>
<p>Bearing type:</p> <p>Crank (Left)</p> <p>(Right)</p> <p>Main axle (Left)</p> <p>(Right)</p> <p>Drive axle (Left)</p> <p>(Right)</p>	<p>B6204 B6204 Bushing (12-15-10) B6203 B6303 Bushing (12-15-10)</p>
<p>Oil seal type:</p> <p>Crank (Left)</p> <p>(Right)</p> <p>Drive axle (Sprocket side)</p> <p>Kick axle</p> <p>Change shaft</p>	<p>SD20-35-7 SW28-40-8 SD25-40-5 SDO15-26-6 S12-22-5</p>
<p>Front forks:</p> <p>Fork spring free length</p> <p>Fork travel</p> <p>Fork oil quantity (each)</p> <p>Fork oil type</p>	<p>154.5 mm (6.08 in) 85 mm (3.35 in) 94 ± 4 cc (3.18 ± 0.14 oz) SAE 10W/30 type "SE" motor oil</p>
<p>Number and size of balls in steering heads:</p> <p>Upper race</p> <p>Lower race</p>	<p>22 pcs. 3/16 in 19 pcs. 1/4 in</p>
<p>Rear shock absorbers:</p> <p>Spring free length</p>	<p>147 mm (5.79 in)</p>

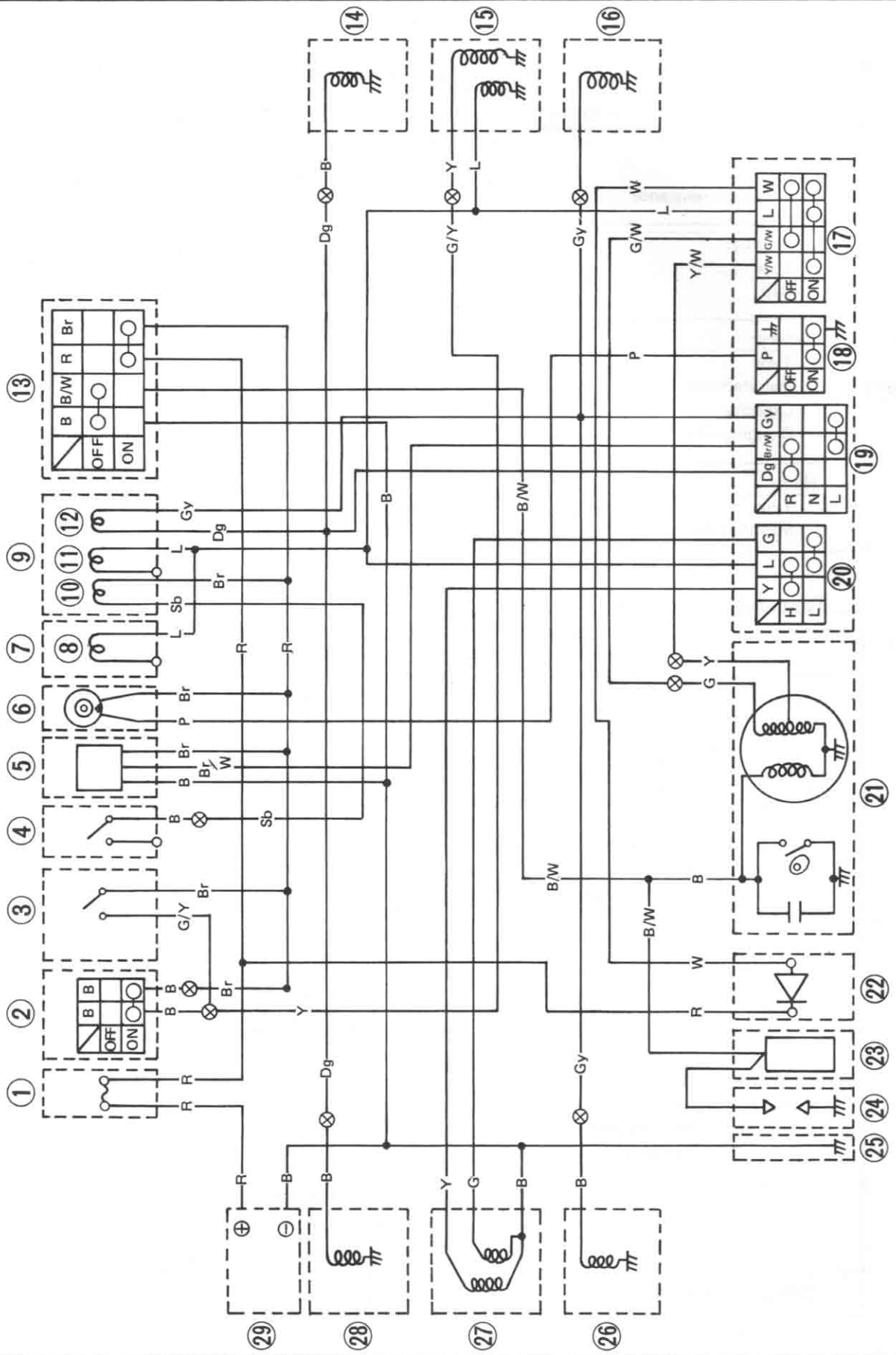
Front brake: Type Disc size (Outside dia. x thickness) Disc wear limit Disc pad size Pad wear limit Brake fluid type	Disc brake 203 x 4 mm (7.99 x 0.16 in) 3 mm (0.12 in) 6 mm (0.24 in) 2 mm (0.08 in) DOT # 3
Rear brake: Type Shoe size (dia. x width) Lining thickness	Drum brake 110 x 25 mm (4.33 x 0.98 in) 4 mm (0.16 in) << 2 mm (0.08 in) >>
Wheel: Wheel run-out (Vertical) (Lateral) Rim size (Front) (Rear)	2 mm (0.08 in) 2 mm (0.08 in) 1.40 x 17 1.40 x 17
Secondary drive chain: Type Number of links Free play	DK420 100L 25 mm (1.0 in)
Bearing type: Front wheel (Left) (Right) Rear wheel (Left) (Right)	B6301Z B6301Z B6202 B6202Z
Oil seal type: Front wheel (Left) (Right) Rear wheel (Left) (Right)	SDD45-56-6 DD20-37-8 DD30-42-8 SO21-35-7
Electrical: Magneto type Model Manufacturer Voltage Ignition source coil resistance Lighting coil resistance Ignition system Ignition timing	Flywheel magneto F11-L65 or FIT10172 HITACHI or MITSUBISHI 6V 1.54 Ω (HITACHI) 1.64 Ω (MITSUBISHI) 0.30 Ω (HITACHI) 0.39 Ω (MITSUBISHI) Magneto ignition 1.8 \pm 0.15 mm (0.07 \pm 0.006 in) B.T.D.C.
Ignition coil: Type Manufacturer Primary winding resistance Secondary winding resistance	F006T40174 MITSUBISHI 1.0 Ω \pm 10% at 20°C (68°F) 5.9K Ω \pm 20% at 20°C (68°F)

Contact breaker: Point gap Spring pressure	0.3 ~ 0.4 mm (0.012 ~ 0.016 in) 650 ~ 750 g (22.9 ~ 26.5 oz)
Condenser: Capacity Insulation resistance	0.30 μ F \pm 10% 3M Ω or more
Spark plug: Type Gap	B-7HS (N.B.K.) 0.6 ~ 0.7 mm (0.024 ~ 0.028 in)
Battery: Type Manufacturer Capacity Charging rate	6N4A-4D G.S. or F.B. 6V-4AH 0.4A x 10 Hours
Horn: Type Manufacturer	MF-6 NIKKO

C. Torque Specifications

Parts to be tightened	Tightening torque	
Cylinder head holding bolt	1.0 m-kG	(7.0 ft-lb)
Spark plug	2.0 m-kG	(14.5 ft-lb)
Cylinder holding bolt	1.0 m-kG	(7.0 ft-lb)
Primary drive gear securing nut	4.5 m-kG	(32.5 ft-lb)
Clutch boss securing nut	4.5 m-kG	(32.5 ft-lb)
Clutch spring screw	1.0 m-kG	(7.0 ft-lb)
Drive sprocket securing nut	4.5 m-kG	(32.5 ft-lb)
Engine mounting bolt (Front)	3.0 m-kG	(21.5 ft-lb)
(Rear Upper)	3.0 m-kG	(21.5 ft-lb)
(Rear Lower)	3.0 m-kG	(21.5 ft-lb)
Steering shaft securing bolt	3.5 m-kG	(25.5 ft-lb)
Front fork cap bolt	3.0 m-kG	(21.5 ft-lb)
Under bracket and inner tube	2.0 m-kG	(14.5 ft-lb)
Rear shock absorber (Upper)	3.5 m-kG	(25.5 ft-lb)
(Lower)	3.5 m-kG	(25.5 ft-lb)
Pivot shaft	3.0 m-kG	(21.5 ft-lb)
Front wheel axle nut	7.0 m-kG	(50.5 ft-lb)
Rear wheel axle nut	7.0 m-kG	(50.5 ft-lb)
Drive sprocket securing bolt	2.0 m-kG	(14.5 ft-lb)
Transmission drain plug	4.0 m-kG	(29.0 ft-lb)
Flywheel nut	6.0 m-kG	(43.5 ft-lb)
Handle holder mounting bolt	3.5 m-kG	(25.5 ft-lb)
Master cylinder and brake hose	3.5 m-kG	(25.5 ft-lb)
Brake hose and brake pipe	2.0 m-kG	(14.5 ft-lb)
Disc mounting bolt	2.5 m-kG	(18.0 ft-lb)
Caliper and brake pipe	2.0 m-kG	(14.5 ft-lb)

RD50 WIRING DIAGRAM



COLOR CODE

1. Fuse	R: Red
2. Rear stop switch	Br: Brown
3. Front stop switch	L: Blue
4. Neutral switch	Dg: Dark green
5. Flasher relay	B: Black
6. Horn	P: Pink
7. Speedometer	Y: Yellow
8. Meter light	G: Green
9. Tachometer	Ch: Chocolate
10. Neutral light	Sb: Sky blue
11. Meter light	O: Orange
12. Flasher indicator light	Gy: Gray
13. Main switch	W: White
14. Rear flasher light (R.H.)	R/Y: Red/Yellow
15. Tail/stop light	G/Y: Green/Yellow
16. Rear flasher light (L.H.)	B/R: Black/Red
17. "LIGHTS" switch	W/G: White/Green
18. "HORN" switch	R/W: Red/White
19. "TURN" switch	Br/W: Brown/White
20. Dimmer switch "LIGHTS"	Y/G: Yellow/Green
21. Flywheel magneto	W/R: White/Red
22. Rectifier	Y/G: Yellow/Green
23. Ignition coil	L/B: Blue/Black
24. Spark plug	
25. Body earth	
26. Front flasher light (L.H.)	
27. Headlight	
28. Front flasher light (R.H.)	
29. Battery	



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