

YAMAHA

RD400F

Supplementary

Service Manual

Page numbers shown in brackets correspond to page numbers of the RD400C(D) (LIT-11618-00-02).

(PAGE 3)

1-1. MACHINE IDENTIFICATION

Starting Serial Number



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1-2. SPECIAL TOOLS

13. Vacuum gauge

This gauge is needed for carburetor synchronization.

P/N. 90890-03094



14. Special thickness gauge

This tool is used to check and adjust the exhaust valve opener.

P/N. 90890-01293



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1-3. EXHAUST VALVE SYSTEM

On this model an Exhaust Valve System is installed to improve the driveability and to reduce the engine emission level.

A. Construction

This system consists of an Exhaust valve, Check valve, Actuator, and Valve opener.

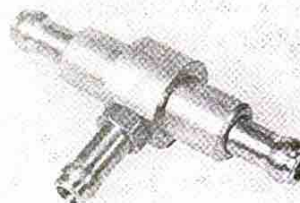
1. Exhaust valve:

This component, which is connected to the actuator, is operated to open/close the exhaust gas passage.



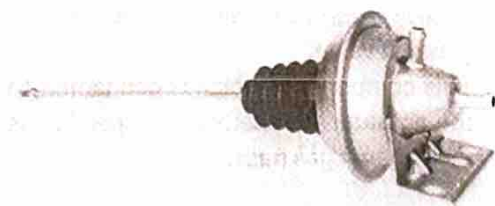
2. Check valve:

The function of this component is to maintain the negative pressure from the intake manifolds.



3. Actuator:

The negative pressure from the intake manifolds works the diaphragm in the actuator. In this way the diaphragm overcomes the return spring force, causing the exhaust valve connected to the diaphragm to close.



chamber approaches atmospheric pressure, the internal spring pushes the actuator rod to its static position which opens the exhaust valve.

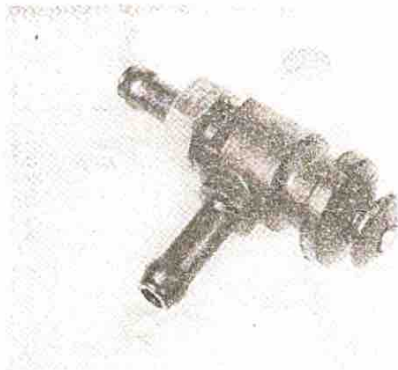
Valve opener	Actuator	Exhaust valve
Open	OFF*	Open
Closed	ON*	Closed

* OFF: Actuator is working to open the exhaust valve.

ON: Actuator is working to close the exhaust valve.

4. Valve opener:

At less than 3.3 ± 0.2 mm (0.13 ± 0.008 in) throttle valve slide opening, the valve opener is designed to close the air passage from the air cleaner to the actuator. At more than 3.3 mm (0.13 in) throttle valve slide opening, the valve opener is designed to open said passage, allowing the air flow from the air cleaner to the actuator.



B. Operation

1. When engine is stopped:

The exhaust valve is opened by means of a return spring in the actuator.

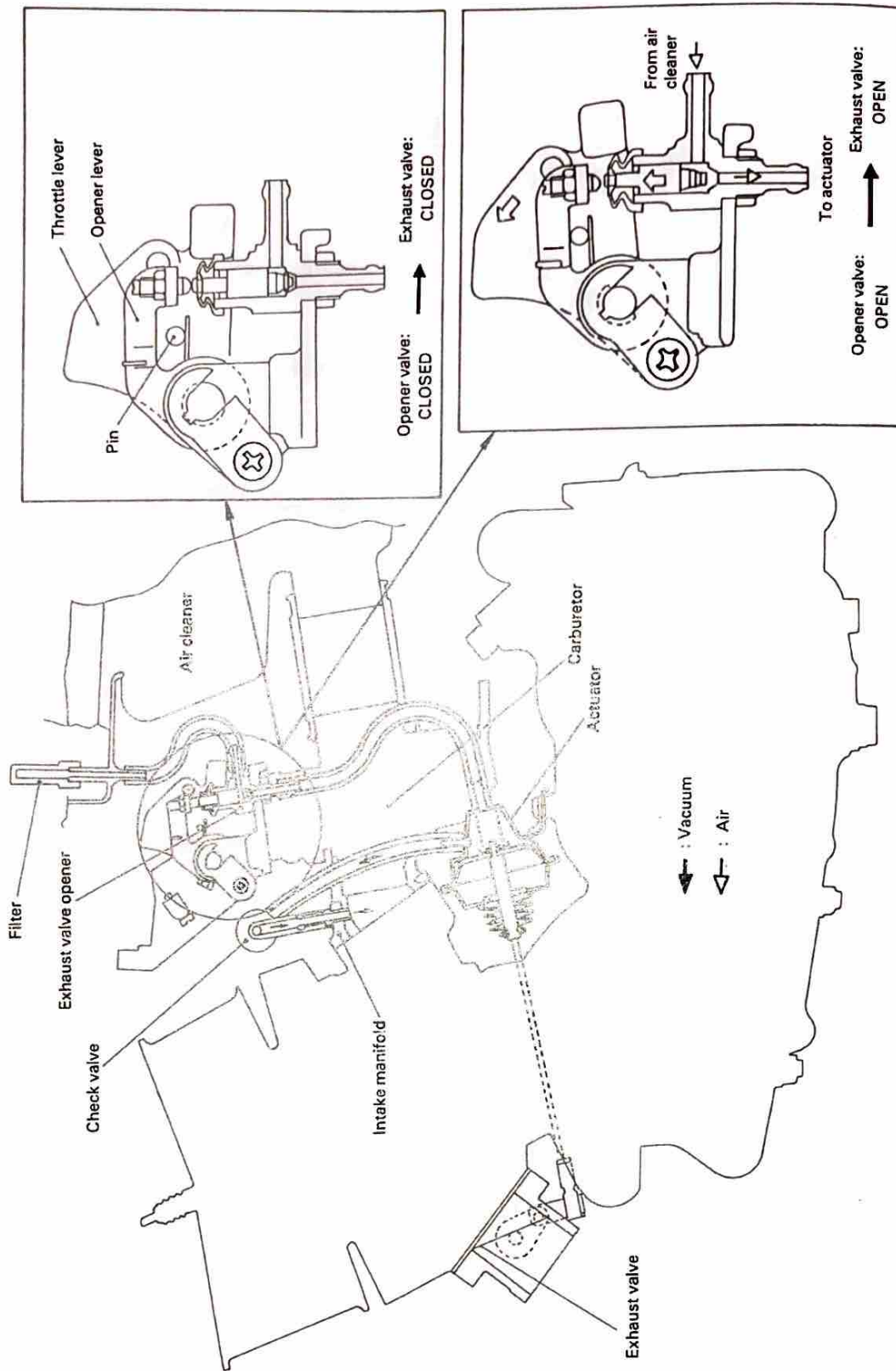
2. When engine is running:

a. The exhaust valve is closed at less than 3.3 ± 0.2 mm (0.13 ± 0.008 in) of throttle valve slide opening. The intake manifold vacuum through the check valve moves the actuator, causing the exhaust valve to close.

b. When the throttle valve slide is opened more than 3.3 ± 0.2 mm (0.13 ± 0.008 in), the opener allows air to enter the actuator diaphragm chamber.

As the pressure of the diaphragm

EMISSION CONTROL SYSTEM



(PAGE 7 ~ 8)

MAINTENANCE AND LUBRICATION CHART

A. Periodic Maintenance emission control system

No.	ITEM	REMARKS	INITIAL BREAK-IN		THEREAFTER EVERY
			1,000 km (600 mi) or 1 month	5,000 km (3,000 mi) or 7 months	4,000 km (2,500 mi) or 6 months
1.	Ignition Timing	Check and clean contact breaker point. Check ignition timing. Replace point if necessary. Check point cam wick. Apply oil if necessary.	○	○	○
2.	Spark Plug	Check spark plug condition and plug gap. Replace plug every 4,000 km (2,500 mi).	○	Replace	Replace
3.	Carburetor synchronization	Adjust synchronization of carburetors and adjust exhaust valve opener at the same time.	○	○	○
4.	Idle Speed	Check and adjust engine idle speed. Adjust cable free play if necessary.	○	○	○
5.	Exhaust Valve System	Check exhaust valve for proper function. Check control hoses for cracks or damage. Replace if necessary.	○	○	○
6.	Exhaust System	Check for leakage. Retighten if necessary. Replace gasket(s) if necessary.	○	○	○
7.	Fuel Hose	Check fuel hose for cracks or damage. Replace if necessary.	○	○	○
8.	Fuel Petcock	Check fuel petcock for proper function.	○	○	○

B. General maintenance/lubrication

No.	ITEM	REMARKS	TYPE	INITIAL BREAK-IN		THEREAFTER EVERY		
				1,000 km (600 mi) or 1 month	5,000 km (3,000 mi) or 7 months	4,000 km (2,500 mi) or 6 months	8,000 km (5,000 mi) or 12 months	16,000 km (10,000 mi) or 24 months
1.	Transmission Oil	Warm-up engine before draining.	Yamalube 4-cycle oil or SAE 10W/30 "SE" motor oil or "GL" gear oil	○	○	○		
2.	Air Filter	Dry type filter. Clean with compressed air	—	○	○	○		
3.	Brake System	Adjust free play. Replace pads if necessary.	—	○	○	○		
4.	Clutch	Adjust free play.	—	○	○	○		
5.	Drive Chain	Apply chain lube thoroughly.	Yamaha chain and cable lube or SAE 10W/30 motor oil	CHECK CHAIN TENSION AND LUBE EVERY 500 km (300 mi)				
6.	Control/Meter Cables	Apply cable lube thoroughly.	Yamaha chain and cable lube or 10W/30 motor oil	○	○	○		
7.	Throttle cable	Adjust/Lubricate if necessary	Lithium base grease		○	○		
8.	Rear Arm Pivot shaft	Apply lightly.	Lithium base grease		○		○	

NO.	ITEM	REMARKS	TYPE	INITIAL BREAK-IN		THEREAFTER EVERY		
				1,000 km (600 mi) or 1 month	5,000 km (3,000 mi) or 7 months	4,000 km (2,500 mi) or 6 months	8,000 km (5,000 mi) or 12 months	16,000 km (10,000 mi) or 24 months
9.	Stand Shaft Pivots/Brake Pedal Shaft/ Change Pedal Shaft/Kick Crank Boss	Apply lightly.	Yamaha chain and cable lube or SAE 10W/30 motor oil		○	○		
10.	Front Fork Oil	Drain completely. Refill to specifi- cation.	Yamaha Fork Oil 10Wt or equivalent					○
11.	Steering Ball Bearing and Races	Check bearing assembly for looseness. Moderately repack every 16,000 km (10,000 mi).	Medium weight wheel bearing grease		○	○		Repack
12.	Wheel Bearings	Check bearings for smooth rotation.	—		○	○		
13.	Battery	Check specific gravity. Check breather pipe for proper operation.	—		○	○		
14.	Autolube Pump	Check and adjust pump and mini- mum pump stroke.	—	○	○	○		

C. Anticipated maintenance

The maintenance items in this table are set apart from the regular periodic maintenance items because of their anticipated need for irregular service intervals. The service interval is dependent upon variable factors such as the severity of use, operating conditions, etc. Therefore, perform this maintenance when the described symptoms warrant it.

No.	ITEM	REMARKS
1	Spark Plug	If any spark plug failure is noticed, replace it. Symptoms indicating spark plug failure are anticipated to occur around 4,000 km (2,500 mi).
2	Decarbonization	If heavy power loss is evident, decarbonize the cylinder head, piston head and exhaust system. Carbon built-up is anticipated to occur around 5,000 ~ 10,000 km (3,000 ~ 6,000 mi).
3	Piston	If the piston rattles, the vehicle becomes hard to start, appears to be lacking power, or becomes inoperative, repair as follows: replace the piston and piston rings, clean, hone, or replace the cylinder. These symptoms are anticipated to occur mainly below 4,000 km (2,500 mi).

1. Spark plug
 - a. Symptoms—If the spark plug becomes wet with fuel or oil, or receives an accumulation of carbon, the spark plug will become electrically shorted and ineffective. As a result, engine misfiring may occur, possibly the engine may suddenly stop and restarting will be impossible. These symptoms are anticipated to occur at about 4,000 km.
 - b. Maintenance criterion—If above mentioned symptoms are noticed, remove the spark plug and inspect the electrode for carbon bridging and/or oily electrode condition.
 - c. Maintenance—After inspection, replace plug if necessary.
2. Decarbonization
 - a. Symptoms—If a vehicle is driven habitually at low speed, the engine runs cold and thus carbon tends to build up on the cylinder exhaust port, cylinder head, piston head, exhaust passage, in the exhaust pipe, and in the silencer. With sufficient carbon deposits the exhaust passages become clogged and restricts the passage of exhaust gas. Eventually the engine will demonstrate poor performance, poor acceleration (20 to 30% down from original), afterburning, or after running. Sufficient carbon accumulation to justify decarbonization is anticipated to occur between 5,000 to 10,000 km of operation.
 - b. Maintenance criterion—If any of the symptoms above are noticed, inspect as follows to determine the necessity for anticipated maintenance.
 - 1) Check fuel flow.
 - 2) Check ignition timing.
 - 3) Check spark plug for color and carbon build-up. (In the case of heavy carbon build-up, spark plug shows black color and/or the carbon build-up evident.)
 - c. Maintenance—After this inspection, if decarbonization is deemed necessary, decarbonize the piston crown, exhaust port, cylinder head and exhaust passage of exhaust system by disassembling these components and carefully scraping the accumulated carbon with a round scraper.
3. Piston
 - a. Symptoms—If the engine develops a rattling piston noise, is difficult to start, provides markedly reduced performance (20% or more), and/or causes a sudden engine stoppage, the piston may be worn excessively. This may be the result of a number of conditions of improper carburetion, inadequate or improper lubrication and/or improper ignition timing. Such conditions can result in overheating and piston wear. These symptoms are anticipated to occur below 4,000 km.
 - b. Maintenance criterion—If any of the above mentioned symptoms are noticed, inspect as follows to determine the necessity for anticipated maintenance.
 - 1) Check fuel flow.
 - 2) Check ignition timing.
 - 3) Check for kick cranking resistance. (If piston worn, the resistance of the kick crank is unusually heavy or unusually light.)
 - 4) Check spark plug for unusual color or deposit. (If piston is worn, the spark plug may show a bright metallic color or deposit on the spark plug insulator.)
 - c. Maintenance—If an inspection reveals damage to the cylinder, bore or replace cylinder, and replace piston and piston rings. Make sure proper piston clearance is maintained.

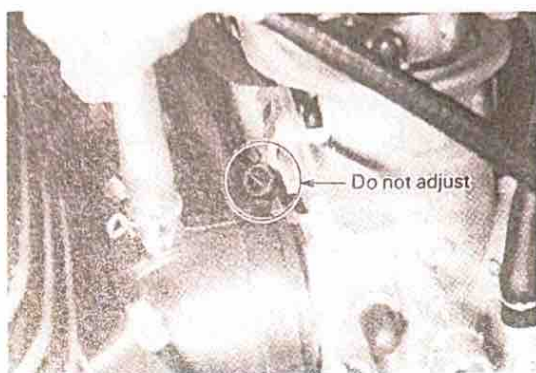
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2-3. ENGINE

A. Carburetor

1. Idle mixture

The idle mixture is set at the factory by the use of special equipment. No attempt should be made by the dealer to change this adjustment.



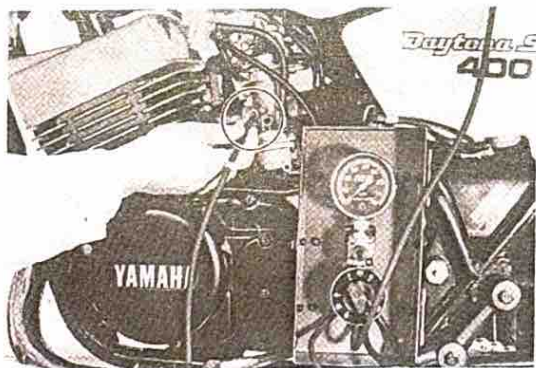
2. Synchronization

NOTE:

Carburetors must be checked for simultaneous opening and closing at specified intervals. Adjust synchronization if necessary. Ignition timing must be set properly before checking and/or adjusting carburetor synchronization.

a. Synchronization check

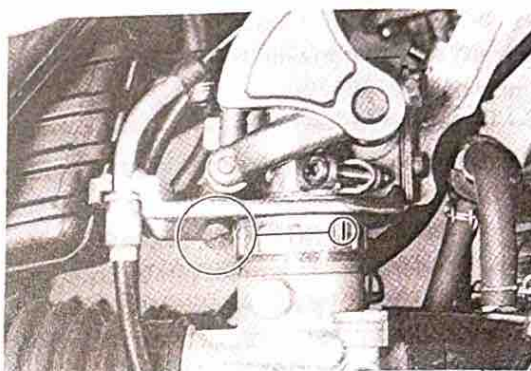
- 1) Remove the rubber caps from the right and left carburetor vacuum take off nozzles, and connect the vacuum gauge hoses to each nozzle.



- 2) Start the engine and allow it to warm up for a few minutes.
The warm up is complete when the engine responds normally to throttle

opening.

- 3) With the engine warm and idling, adjust the vacuum gauge dampers until the gauge needles flutter slightly. Quickly open and close the throttle to check that the gauge needles respond quickly. If response is slow, readjust the gauge dampers. (This procedure is not necessary when using mercury manometers.)
- 4) Set the engine speed at approximately 2,500 r/min with the throttle stop screw.



1. Throttle stop screw

- 5) The carburetors are synchronized if the difference in gauge readings is within the specified limits: if not, adjust the synchronization.

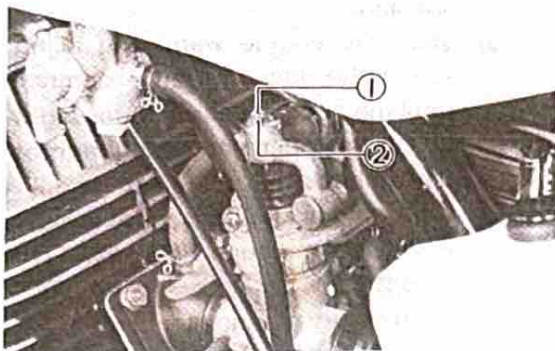
Difference in gauge reading:
Less than 30 mmHg

b. Synchronizing the carburetors

NOTE:

The fuel tank must be either elevated at the rear or removed to gain access to the carburetor synchronizing screw.

- 1) Loosen the synchronizing screw lock nut and turn the synchronizing screw in or out until both carburetors are synchronized.



1. Synchronizing screw 2. Lock nut

2) After adjusting, tighten the lock nut.

NOTE:

The exhaust valve opener must be checked and adjusted whenever the carburetors are synchronized.

c. Checking and adjusting the exhaust valve

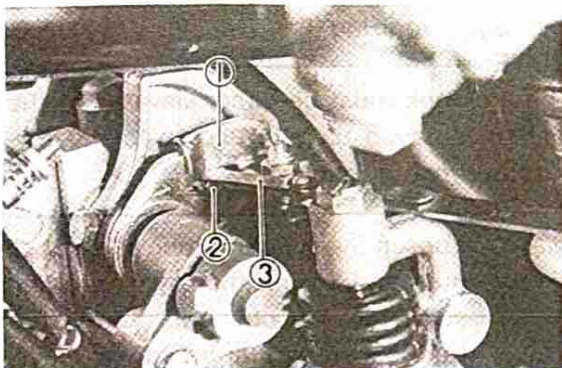
1) Measure the gap between the opener lever and lift pin by using the thickness gauge (special tool).

Proper gap: $0.8 \begin{smallmatrix} +0.2 \\ -0.2 \end{smallmatrix}$ mm ($0.031 \begin{smallmatrix} +0.008 \\ -0.012 \end{smallmatrix}$ in)

If the gap exceeds the specified limit, adjust the gap.

NOTE:

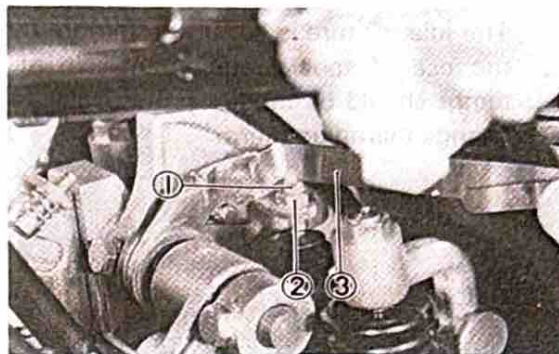
Before measuring gap, set the engine speed at specified idling speed. (Refer to A-3. "Idle Speed").



1. Opener lever 2. Lift pin 3. Special thickness gauge (Special tool)

2) Adjusting the gap as follows:
Loosen the adjusting screw lock nut on the opener lever and turn the ad-

justing screw in or out (use a special thickness gauge as a screw driver) until the proper gap is obtained.



1. Adjusting screw 2. Lock nut 3. Special thickness gauge

3) After adjusting tighten the lock nut.

3. Idle speed

Check and adjust idle speed as follows:

NOTE:

Carburetors must be synchronized before setting final idle speed. The idle speed adjustment is made by turning the throttle stop screw only.

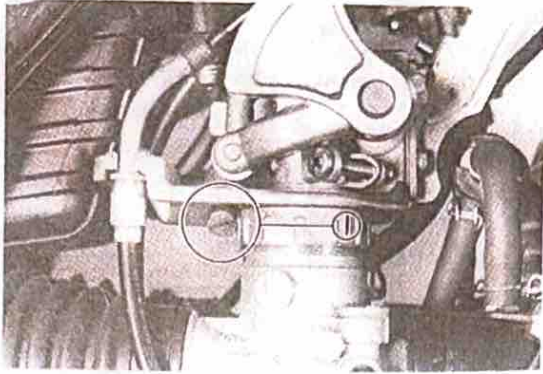
a. The engine must be warmed up before setting idle speed.

NOTE:

A warmed engine is defined as one which has been operated for about 5 minutes at 2,500 ~ 3,000 r/min with no load.

b. Set the engine idle speed to the specified r/min by turning the throttle stop screw in to increase the engine speed and back off the screw to decrease the engine speed. Use a tachometer for checking and adjusting the engine speed.

Idle speed: 1,300 ~ 1,400 r/min



1. Throttle stop screw

4. Exhaust valve system

Check the exhaust valve operation as follows:

a. Checking with the engine stopped

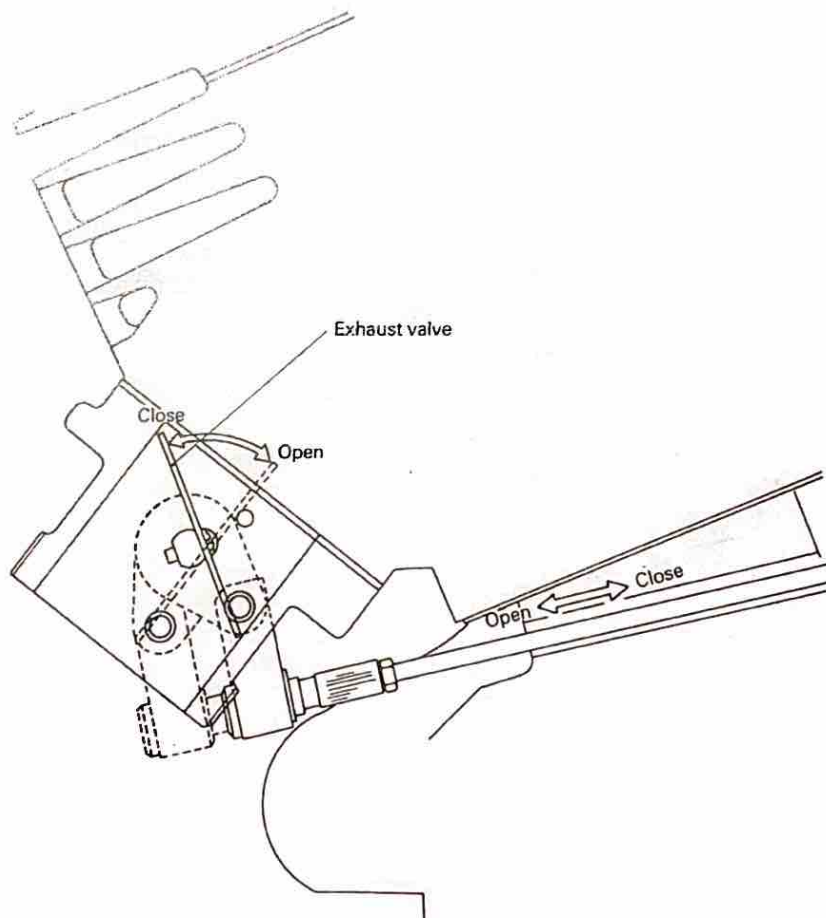
- 1) Check to see whether the exhaust valve is in the open position.
(This valve is open if the control link is extended.)

If the valve is not in the open position, check the following:

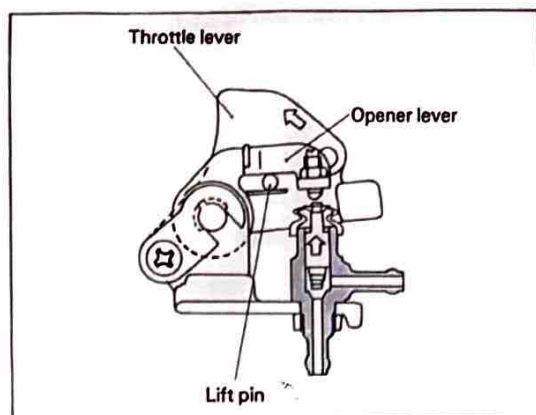
Open the throttle to actuate the valve opener mechanism.

(If this procedure does not open the valve:)

First, open the valve manually, pulling the exhaust control rod out. Then, close the valve manually, pushing the rod in. When the rod is released, the valve should open freely. If the mechanism operates stiffly, and the valve cannot be moved by the force of the actuator spring alone, replace the exhaust valve assembly.



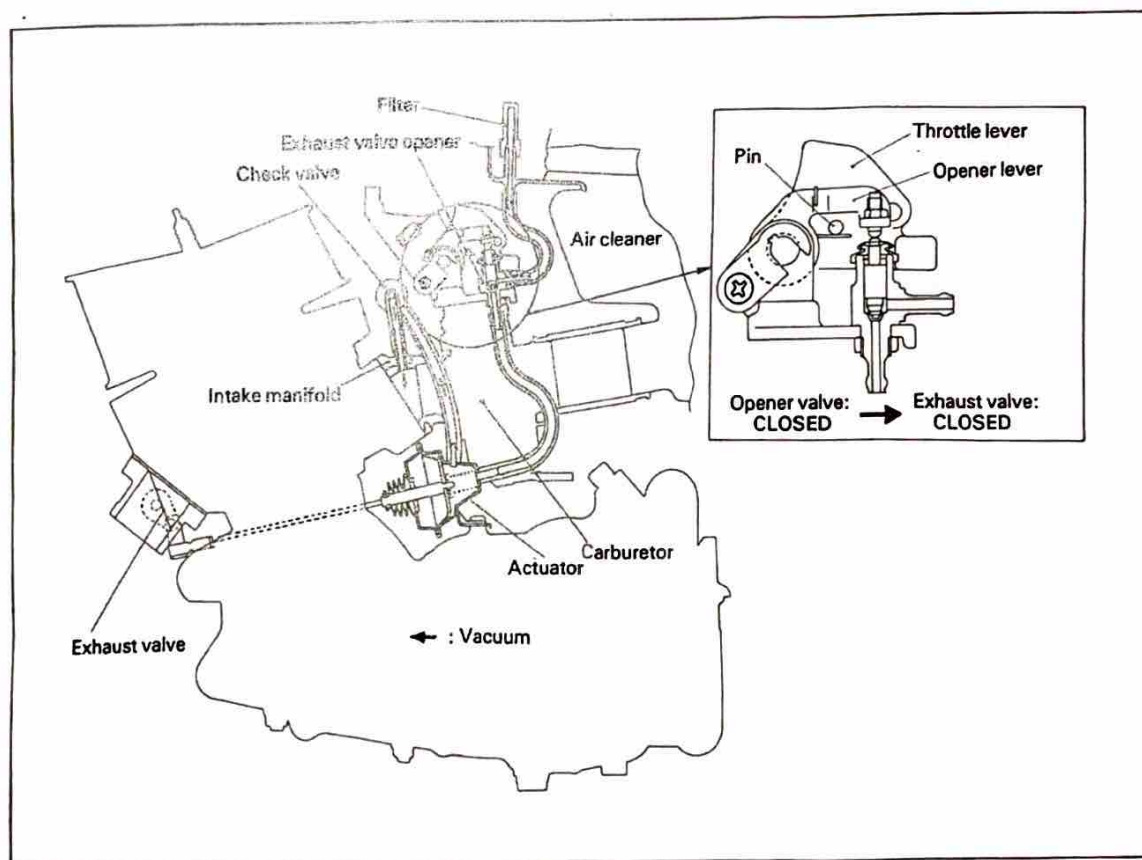
- 2) Check the operation of opener lever. While turning the throttle grip slowly, check to see if the opener lever is lifted by the lift pin. The opener lever may begin to operate before the lift pin contacts it. If this condition exists, dirt or debris may be blocking the free movement of the lever. Clean and lubricate as necessary to maintain free lever movement. Use engine oil or equivalent for lubrication.

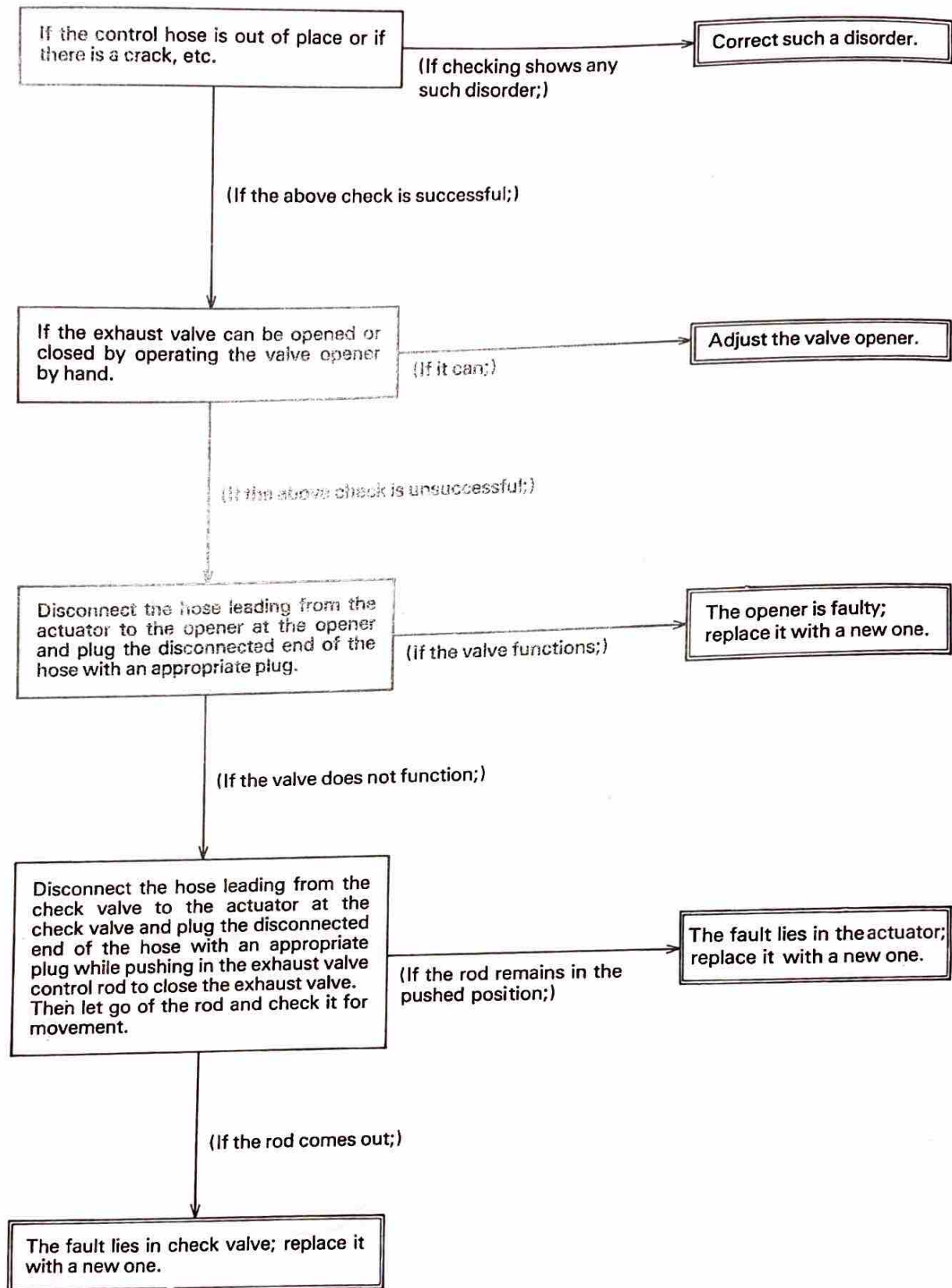


b. Checking at idling

The valve should be completely closed at idle. Check to see whether the exhaust valve is closed or not. (This can be

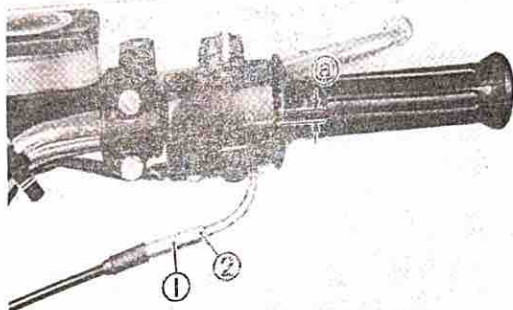
ascertained by noting whether the control link is withdrawn into the actuator.) If it is not closed, check the following:





5. Throttle cable

After setting the engine idle speed and synchronizing the carburetors, check play in turning direction of throttle grip. The play should be 3 ~ 7 mm (0.12 ~ 0.28 in) at grip flange. Loosen the lock nut and turn the wire adjuster to make the necessary adjustment. After adjusting, be sure to tighten the lock nut properly.



1. Adjuster a. 3 ~ 7 mm (0.12 ~ 0.128 in)
2. Lock nut

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B. Air cleaner

2. NOTE should read as follow:

NOTE:

The element of this model is a dry foam rubber type. The element can be cleaned with water, however, dry it completely before installing.

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D. Engine and transmission oil

2. Transmission

- b. The oil recommendation should read as follows:

Recommended oil:

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

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2-4. CHASSIS

A. Brakes and wheels

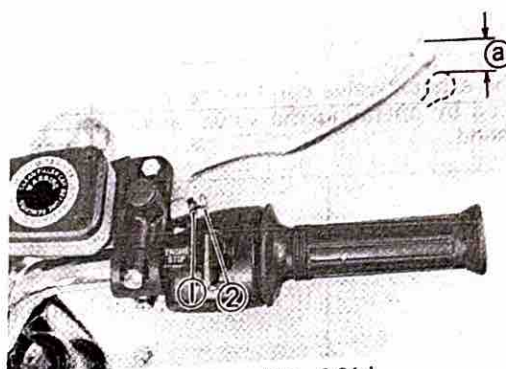
1. Brake adjustment

a. Front brake

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.

- 1) Loosen the lock nut on the brake lever.
- 2) 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 a. 5 ~ 8 mm (0.2 ~ 0.3 in)
2. Adjuster

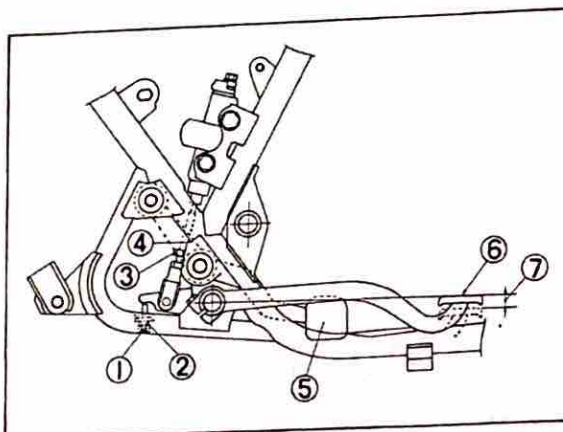
- 3) After adjusting, tighten the lock nut.

NOTE:

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

b. Rear brake

The rear brake pedal should be so adjusted that it has a free play of 8 ~ 10 mm (0.3 ~ 0.4 in) from when the brake pedal is trod to when the brake begins to be effected.



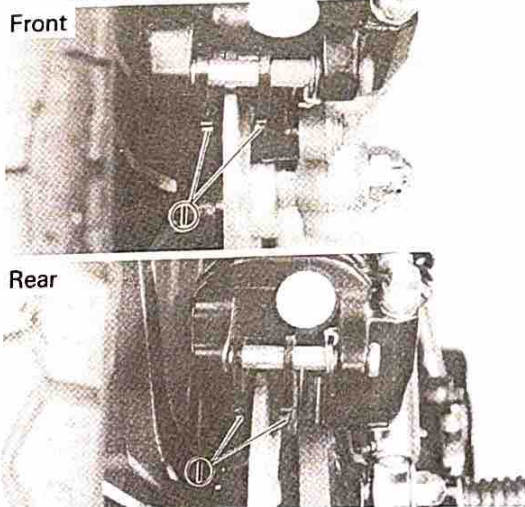
1. Adjuster (for pedal height)
2. Lock nut
3. Lock nut
4. Brake rod
5. Footrest
6. Pedal height 0 mm (0 in)
7. Free play 8 ~ 10 mm (0.3 ~ 0.4 in)

- 1) Loosen the adjuster lock nut (for pedal height).
- 2) By turning the adjuster clock wise or counterclockwise, adjust the brake pedal position so that its top end is flush with the footrest top end.
- 3) Secure the adjuster lock nut.
- 4) Loosen the brake rod adjuster lock nut and turn the brake rod downward until there is noticeable free play between rod and master cylinder.
- 5) Turn in the brake rod until it lightly touches the master cylinder, then turn it out by approximately 1-1/2 turns (for proper free play).
- 6) Tighten the brake rod adjuster lock nut.

CAUTION:

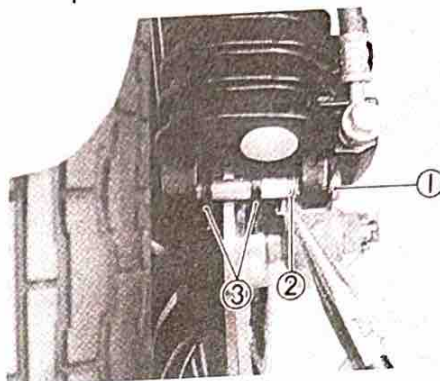
See that the punched mark on the brake rod is not above the top surface of the adjuster lock nut when securing the brake rod adjuster lock nut.

2. Brake pad check (Front and rear)
For easy checking of wear on the disc brake pads, a wear indicator is attached to each brake pad. This indicator permits a visual check without disassembling the pads.
To check, look at the pad wear indicator in back of the caliper. If any pad is worn to the wear limit, replace pads as a set.



1. Wear indicator

3. Caliper pad replacement
It is not necessary to disassemble the brake calipers and brake hoses to replace the pads.
a. Pull out the pad retaining pin while pinching the coil spring clip ends with pliers.



1. Pad retaining pin 3. Pad
2. Coil spring

- b. Install the new brake pads. Replace the following parts if pad replacement is required:

*Pads *Coil spring *Pin

NOTE:

Replace the pads as a set if either is worn to the wear limit.

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D. Front fork oil change

6. Specifications should read as follows:

Front fork oil:

Yamaha Fork Oil 10Wt or equivalent

Oil capacity:

163.5 ± 4 cc (5.53 ± 0.14 oz) each leg

Oil level (below the top of the inner tube and without spring):

420 mm (16.54 in) each leg

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2-5. ELECTRICAL

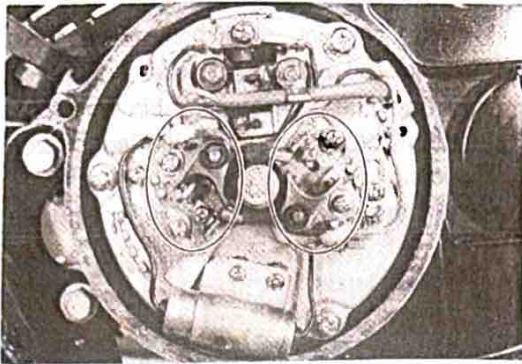
A. Ignition Timing

1. Ignition timing is checked with a timing light by observing the position of the stationary pointer stamped on the timing plate and the mark on the rotor.

NOTE:

Check and clean the contact breaker before adjusting the ignition timing.

a. Checking the contact breaker



- 1) Visually check the arm's bakelite heel for chipping or damage. If faulty, replace the contact breaker.
- 2) Visually check the contact breaker point surfaces for protuberance, burning, oil or dust. If necessary, clean surfaces (refer to A-1-b).
- 3) Check the breaker arm and arm shaft for rust or wear. If necessary, replace the contact breaker.

b. Cleaning the contact breaker

- 1) Using a point file or sandpaper, smooth out the surfaces.
- 2) Place a white business card or paper of hard texture between the points, and by pulling it repeatedly, thoroughly remove the metal, dust and/or oil. (For easy operation, the card may be damped with a lacquer thinner or detergent.)

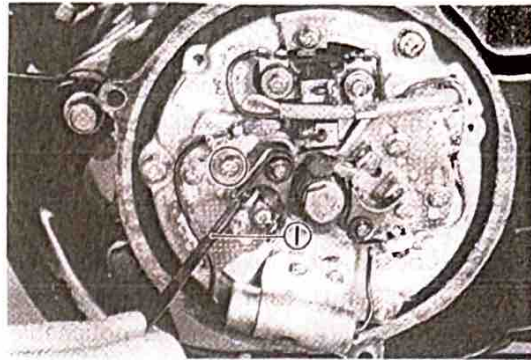
If the repeated application of steps in 1) and 2) above are not effective, replace the contact breaker.

c. Replacing the contact breaker

If any defect is found in a-1) or a-3) above, or if the steps in b. above are not effective, the contact breaker should be replaced.

- d. Adjust point gap (at widest opening) by moving the contact breaker assembly. Use feeler gauge for this adjustment.

Point gap: 0.3 ~ 0.4 mm (0.012 ~ 0.016 in)



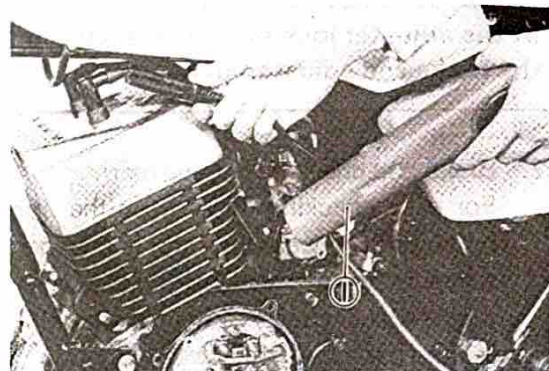
1. Feeler gauge

- e. Add a few drops of lightweight machine oil onto the felt rubbing pad after each point adjustment to lubricate the point cam surface. Do not over oil.

2. Checking and adjusting the ignition timing

- a. Remove the generator cover.

- b. Connect the timing light to the left (right) spark plug lead wire.

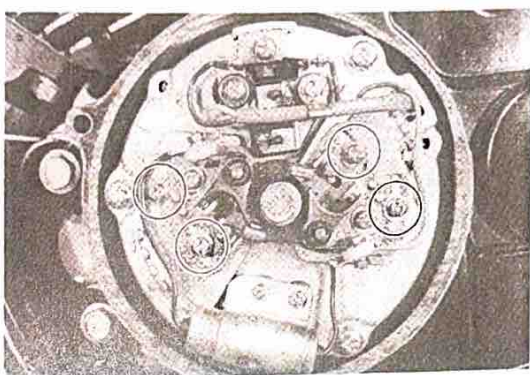
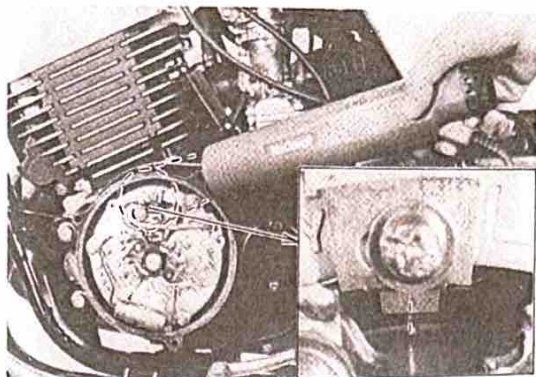


1. Timing light

- c. Start the engine and keep its speed as specified. Use a tachometer for checking.

- d. The timing mark on the rotor should line up with the stationary pointer on the timing plate at a specified engine speed. If it does not align, loosen the two breaker shift plate screws and move the shift plate until the marks align.

Idle speed: 1,300 ~ 1,400 r/min
Ignition timing: 20°B.T.D.C. @ idle

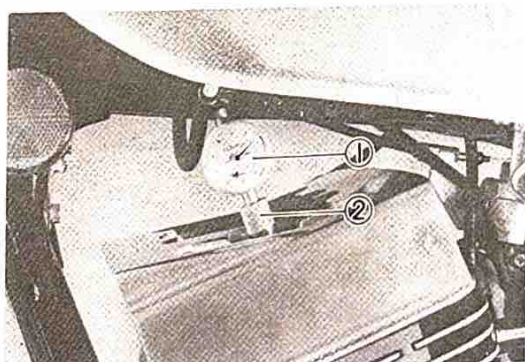


- e. Retighten the screws. Check the timing again.
- f. Repeat the procedure (step b ~ e) for the right cylinder.

3. Setting the timing plate

Be sure to set the timing plate as follows when the engine is overhauled or when replacing the generator cover.

- a. Shift the transmission into neutral.
- b. Remove the left spark plug and screw the dial gauge stand and the dial gauge into the spark plug hole.



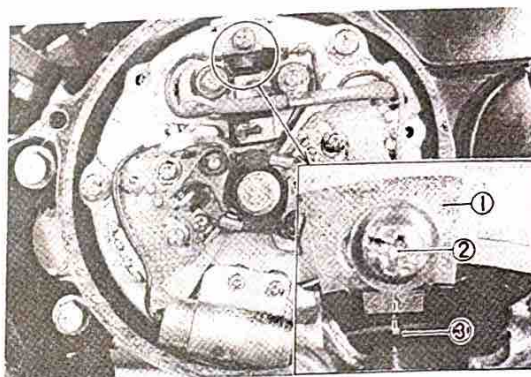
1. Dial gauge 2. Gauge stand

- c. Rotate the crankshaft until the left side piston is at the top-dead-center (T.D.C.).

Set the dial gauge needle to "0" and tighten the set screw on the gauge stand.

- d. Starting at T.D.C., rotate the crankshaft clockwise until the dial gauge reads approximately 4 needle revolutions.
- e. Slowly rotate the crankshaft counter-clockwise until the dial gauge reads ignition advance setting listed in the specification.
- f. Loosen the timing plate setting screw and align the stationary pointer stamped on the timing plate and the mark on the rotor. Tighten the setting screw and adjust the ignition timing (refer to "A. Ignition Timing").

Ignition timing (B.T.D.C.):
 $2.4 \pm 0.15 \text{ mm}$ ($0.0945 \pm 0.0059 \text{ in}$)



1. Timing plate
 2. Timing plate setting screw

3. Rotor

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C. Spark plug

1. After a run of initial 1,000 km (600 mi), check the discoloration of the spark plug and clean it. After that, measure the plug gap and adjust it if it does not conform to the specification.
2. Whenever the spark plug is replaced or cleaned, measure the plug gap, and if incorrect, readjust the plug gap.

Spark plug gap:
 $0.6 \sim 0.8 \text{ mm}$ ($0.024 \sim 0.031 \text{ in}$)

3. Replace the spark plug when the machine has travelled the specified distance. When replacing spark plugs,

always use the proper type.

Replacement limit:
Initial 5,000 km (3,000 mi) thereafter
every 4,000 km (2,500 mi)
Standard spark plug: B8ES (NGK)

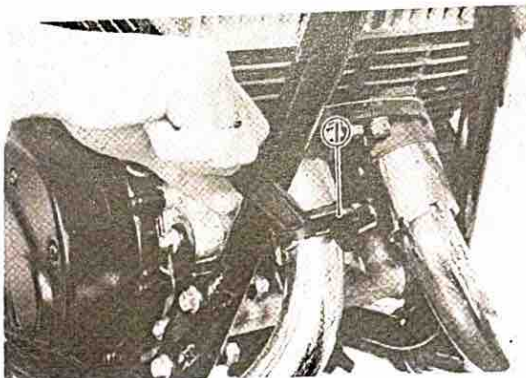
4. When installing the plug, always clean the gasket surface, wipe off any grime that might be present on the surface of the spark plug, and torque the spark plug properly.

Spark plug tightening torque:
2.0 m·kg (14.5 ft·lb)

(PAGE 27)
CHAPTER 3.
ENGINE OVERHAUL
3-1. REMOVAL

C. Exhaust

1. Remove the ring nuts holding the exhaust pipes to the exhaust valve body.

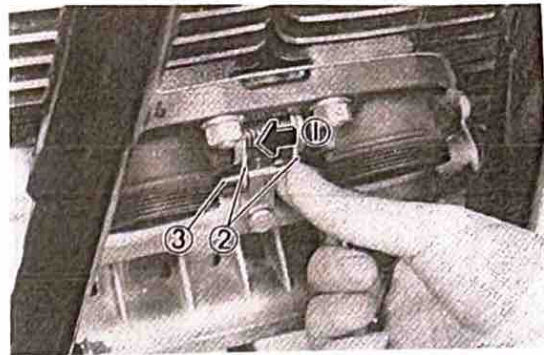


1. Ring nut wrench

2. Remove the exhaust pipes.
3. Remove the exhaust valve cover plate and disconnect the linkage at the valve levers by pushing the lever against the compression spring.

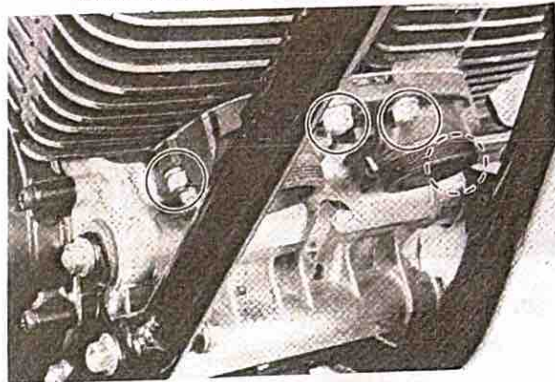
CAUTION:

The joint nut is locked by holding agent. Do not remove the joint nut yet, this may damage the actuator diaphragm.



1. Push 3. Connecting pin
2. Valve lever

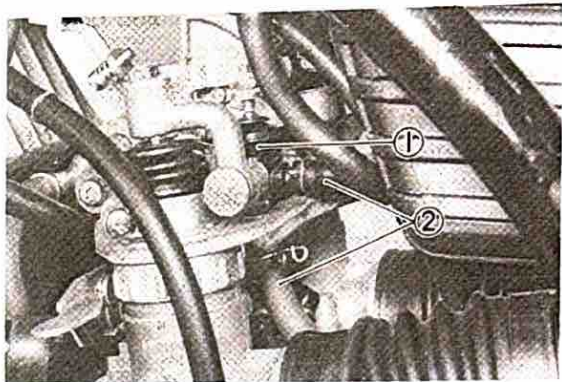
4. Remove the nuts holding the exhaust valve assembly to the cylinders.



(PAGE 28)

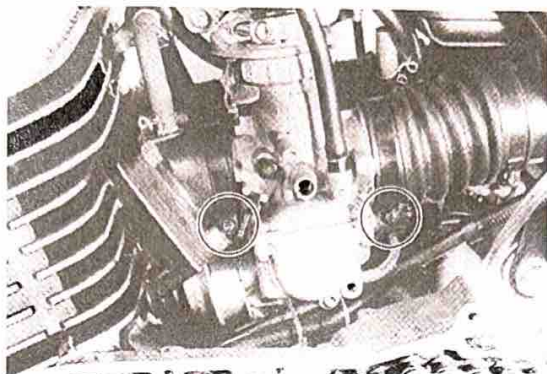
F. Carburetor

1. Remove the control hoses at the exhaust valve opener.

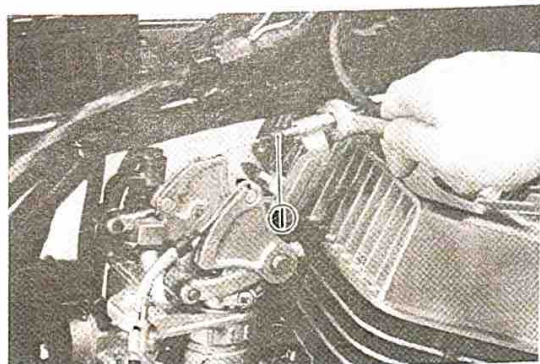


1. Valve opener 2. Control hose

2. Loosen the carburetor hose clamps.



3. Push the air cleaner joints off the carburetor inlet and carefully remove the carburetor assembly. Disconnect the throttle cable from the throttle lever.



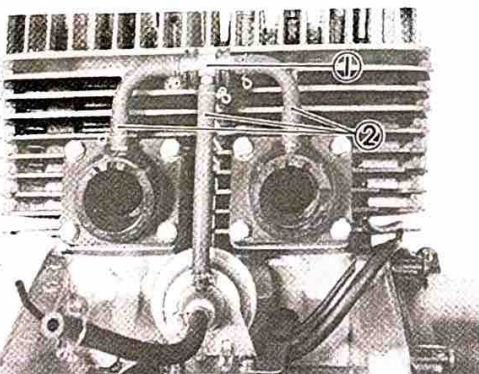
1. Throttle cable

(PAGE 29)

3-2. DISASSEMBLY

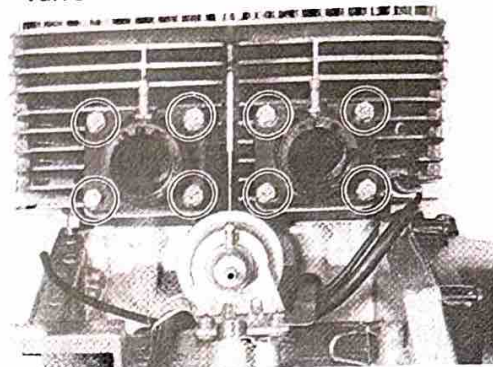
A. Check valve and reed valve

1. Remove the control hoses and the check valve from the carburetor joints. Remove the check valve holding bracket.



1. Check valve 2. Control hose

2. Remove the carburetor joints and reed valve assemblies.



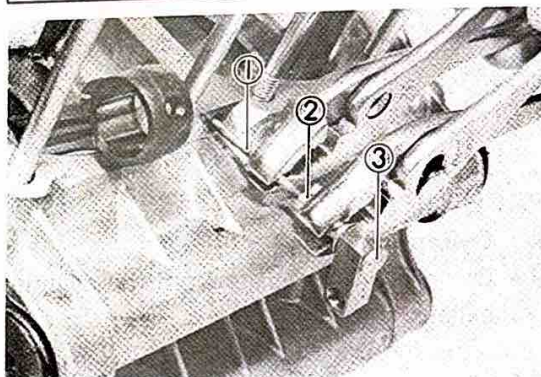
Add the following item next of "D. Piston pin and piston."

Actuator

1. Remove the joint nut, holding the rod with pliers.

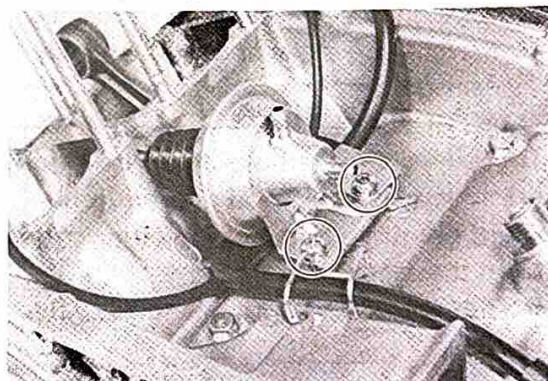
CAUTION:

When removing the joint nut, the rod must be held tightly to prevent it from turning together with said nut since it is locked by a holding agent. The lock nut must never be loosened as it effects the exhaust valve opening.



1. Control rod 2. Lock nut 3. Joint nut

2. Remove the actuator assembly and the hose clamp.



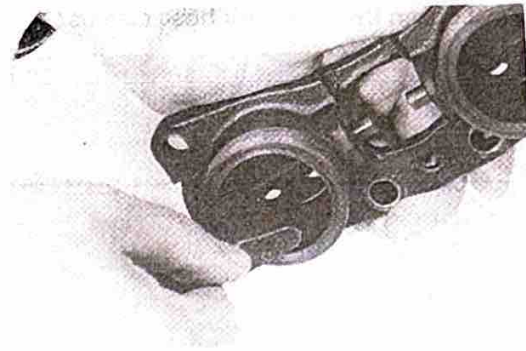
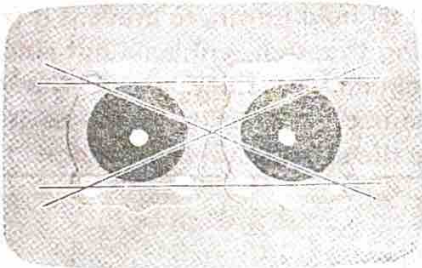
(PAGE 32 ~ 33)

3-3. INSPECTION AND REPAIR

A. Cylinder head

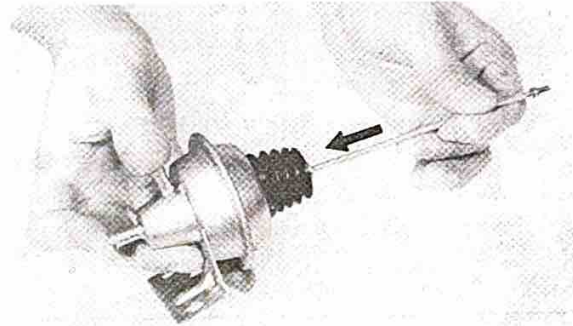
1. Remove the spark plugs.
2. Using a rounded scraper, remove carbon deposits from combustion chamber. Take care to avoid damaging the spark plug threads. Do not use a sharp instrument. Avoid scratching the aluminum.
3. Check the cylinder head for warpage by using a precision straight edge. If the warpage exceeds the specified limit, correct by machining or replace it.

Head surface warpage:
Less than 0.15 mm (0.006 in)



2. Actuator

Plug the actuator nozzles with your fingers or an appropriate plug while pushing in the control rod, then let go of the rod and check it for movement. If the rod comes out, replace the actuator.



(PAGE 33)

B. Cylinder

1. Remove any deposits from the cylinder exhaust port.

(PAGE 41)

P. Emission control system

1. Exhaust valve

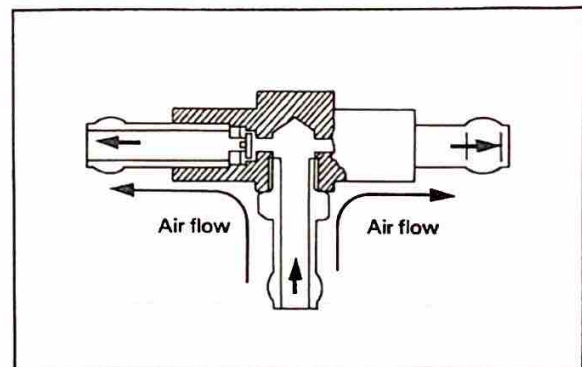
Remove any deposits from the exhaust valve and check the valve for damage. Replace the exhaust valve assembly if damaged.

CAUTION:

The exhaust valve holding screw ends are covered with locking compound. Do not remove this locking compound from these screw ends. Do not apply any lubricant to the valve shaft.

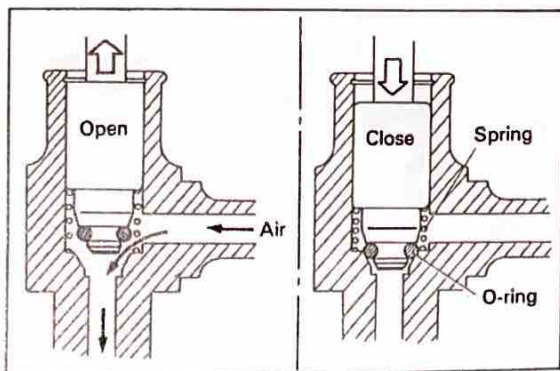
3. Check valve

Check the check valve for oneway function. Replace if damaged.



4. Valve opener

Check the valve opener (attached on the throttle control body) for proper function. Replace if damaged.



5. Control hoses
Check the hoses for cracks or damage.
Replace if damaged.

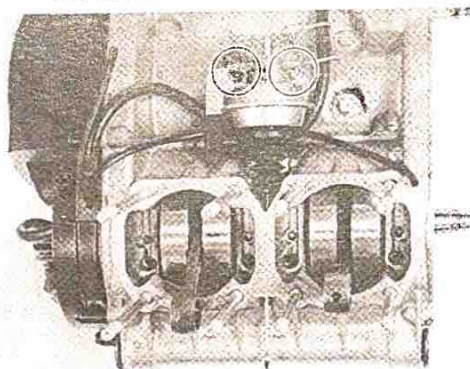
(PAGE 46)

3-4. ENGINE ASSEMBLY AND ADJUSTMENT

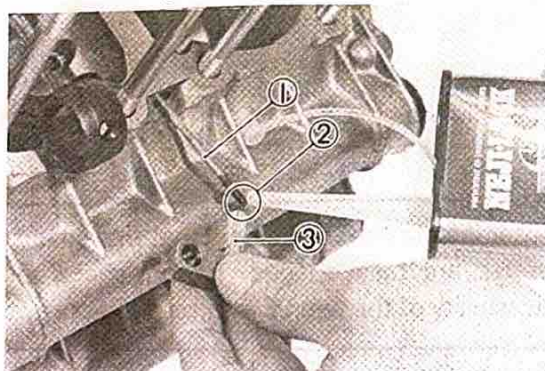
Add the following item next of "1. Right-hand crankcase cover".

Actuator

1. Pass the control rod through the holes of the upper crankcase, and then install the actuator and the hose clamp onto the crankcase.



2. Apply a holding agent, such as "LOCK-TITE" to the control rod thread and install the joint nut on it securely.

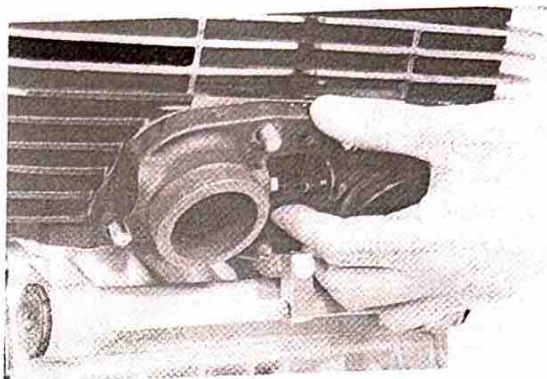


1. Control rod 3. Joint nut
2. Apply holding agent

(PAGE 47)

L. Exhaust valve and cylinder head

1. Install a head gasket and the cylinder head onto the cylinders. Place the washers and nuts in place and tighten nuts temporarily (finger tight).
2. Install an exhaust valve gasket and exhaust valve assembly.

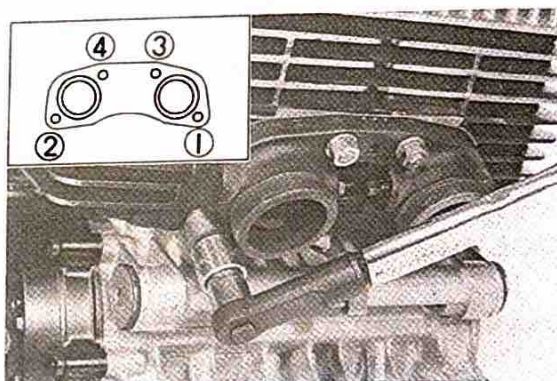


3. By following the illustration, tighten the nuts with the proper tightening sequence. Torque all nuts in two stages and final torque to the specification.

Exhaust valve nut torque:

1st 0.8 m-kp (5.8 ft-lb)

Final. 1.6 m-kp (11.6 ft-lb)

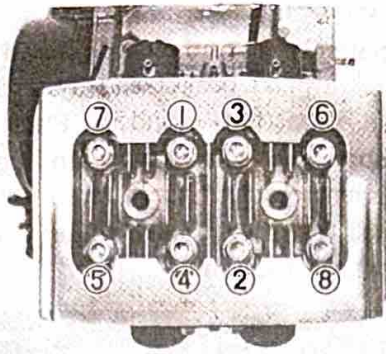


4. Follow the illustration for the proper cylinder head tightening sequence. Torque all nuts in two stages and final torque to the specification.

Cylinder head nut torque:

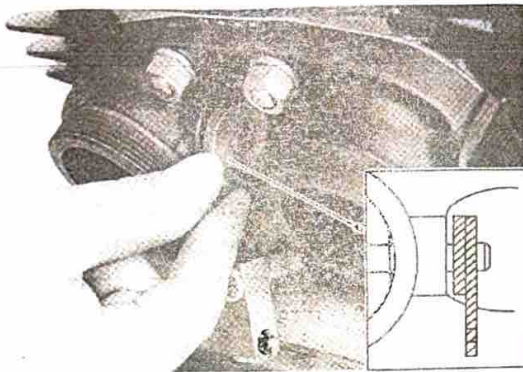
1st 1.0 m-kp (7.2 ft-lb)

Final. 2.0 m-kp (14.5 ft-lb)



5. Connect the control rod to the exhaust valve.

- a. Install the right valve lever to the right exhaust valve shaft.



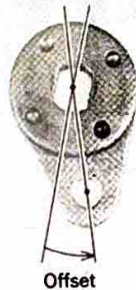
CAUTION:

Note that the exhaust valve levers are not interchangeable between the right and the left, even though they are similar in shape to each other.

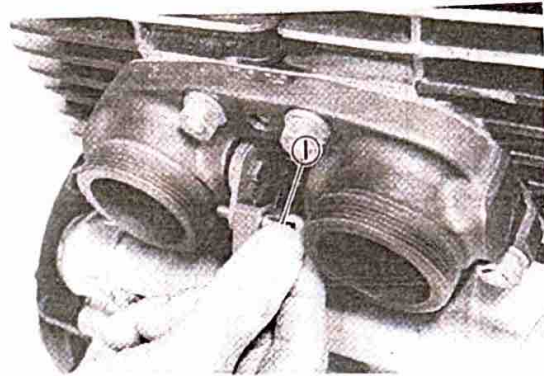
Right valve lever



Left valve lever

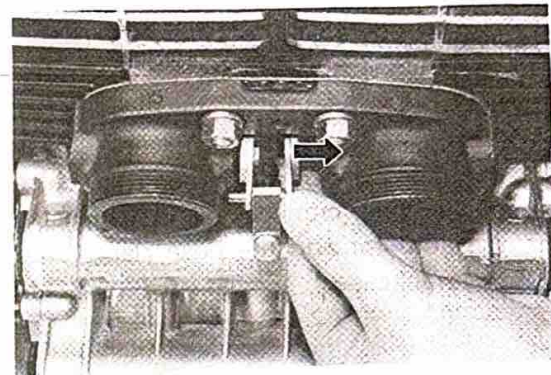


- b. Install the control rod joint to the valve lever with the connecting pin.

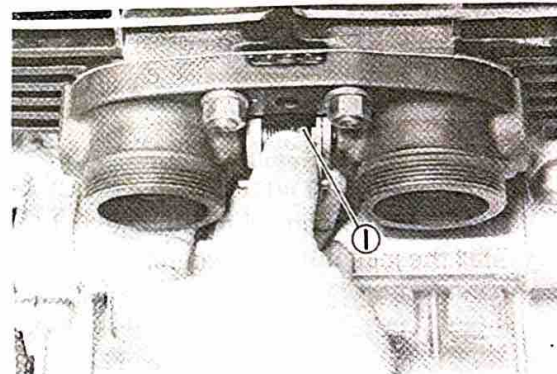


1. Connecting pin

- c. First install the left valve lever to the connecting pin and then to the left valve shaft.



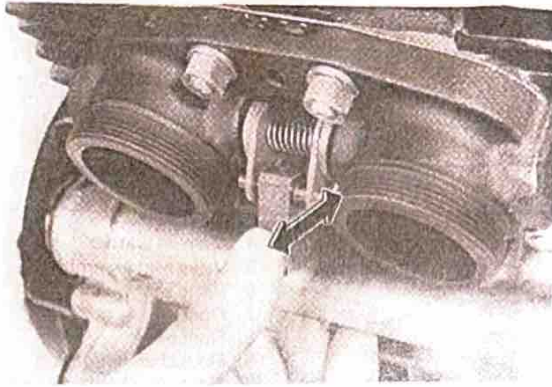
- d. Install the lever holding spring between the right and left levers.



1. Lever holding spring

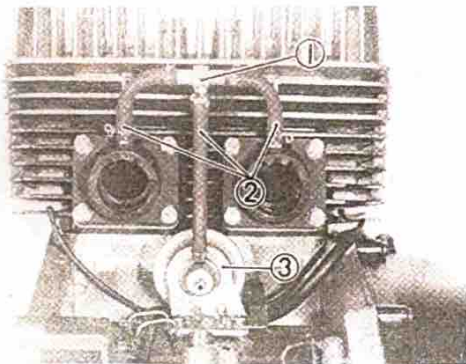
NOTE:

After installation, make sure that the exhaust valves are fully opened. If not, check the possibility of the wrong lever being fitted.



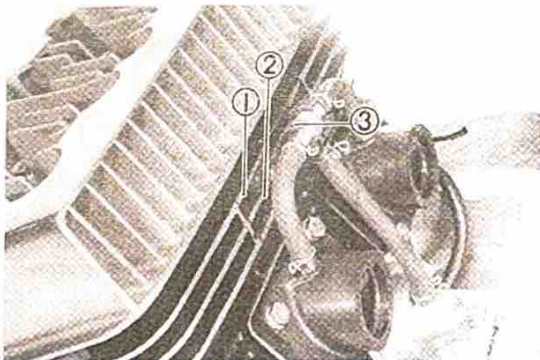
M. Actuator control hoses and check valve

1. Connect the hoses to the actuator and the check valve as shown.



1. Check valve 3. Actuator
2. Control hose

2. Install the check valve holding bracket to the cylinder and hold the check valve.



1. Top fin 3. Valve holding bracket
2. Second fin

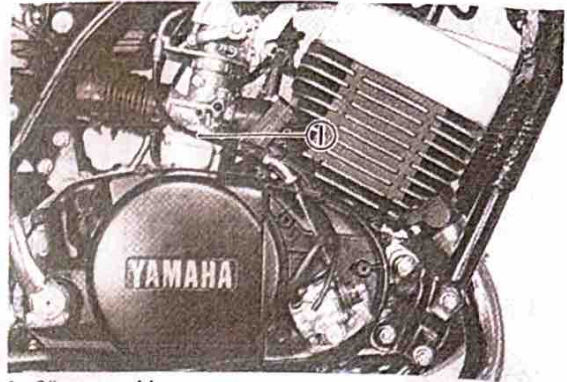
NOTE:

Securely insert the check valve holding bracket between the top and the second fin on the right (or left) cylinder.

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3-5. MOUNTING

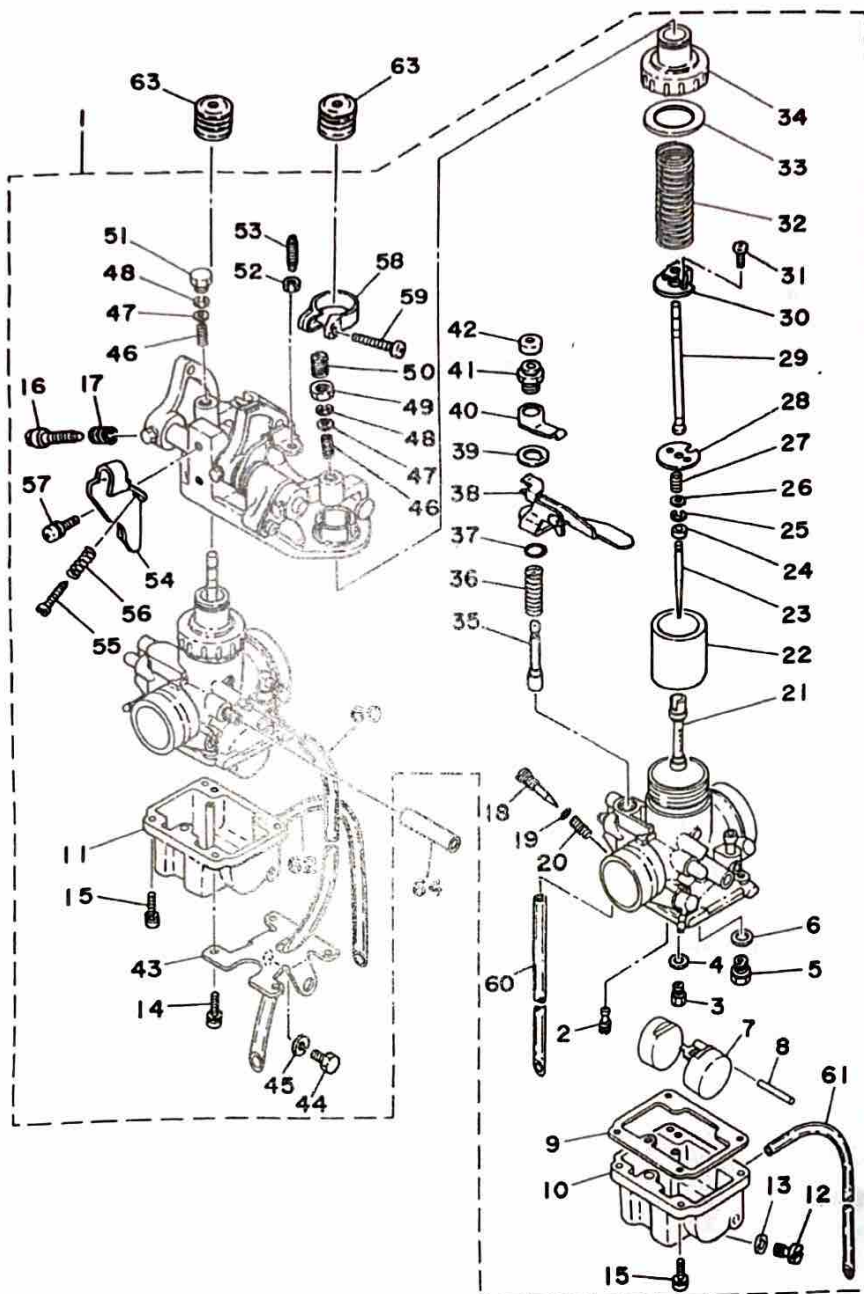
12. Install the oil pump cable and adjust.
(Refer to 2-3-C)



1. Oil pump cable

13. Install the fuel tank and connect the fuel hoses.

(PAGE 51 ~ 52)
4-1. CARBURETOR



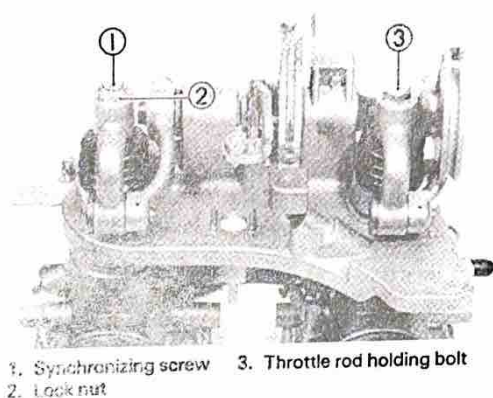
1. Carburetor assembly
2. Pilot jet
3. Main jet
4. Main jet washer
5. Valve seat assembly
6. Valve seat washer
7. Float
8. Float pin
9. Float chamber gasket
10. Float chamber body (left)
11. Float chamber body (right)
12. Drain plug
13. Packing
14. Screw
15. Screw
16. Throttle stop screw
17. Spring
18. Pilot screw
19. "O"-ring
20. Spring
21. Main nozzle
22. Throttle valve slide
23. Jet needle
24. Ring
25. Clip
26. Washer
27. Spring
28. Jet needle set plate
29. Throttle rod
30. Plate
31. Screw
32. Throttle valve spring
33. Packing
34. Mixing chamber top
35. Plunger
36. Plunger spring
37. "O"-ring
38. Starter lever
39. Washer
40. Plate
41. Plunger cap
42. Cover
43. Plate
44. Bolt
45. Spring washer
46. Spring
47. Washer
48. Clip
49. Nut
50. Screw
51. Screw
52. Nut
53. Screw
54. Bracket
55. Full throttle stop screw
56. Spring
57. Screw
58. Clip
59. Screw
60. Air vent pipe
61. Over flow pipe (left)
62. Over flow pipe (right)
63. Cap
64. Starter connecting pipe

A. Disassembly

CAUTION:

Do not disassemble the carburetors, especially the throttle control body except when it is necessary. If it was disassembled, make elaborate synchronization and adjustments to the opener and idle speed.

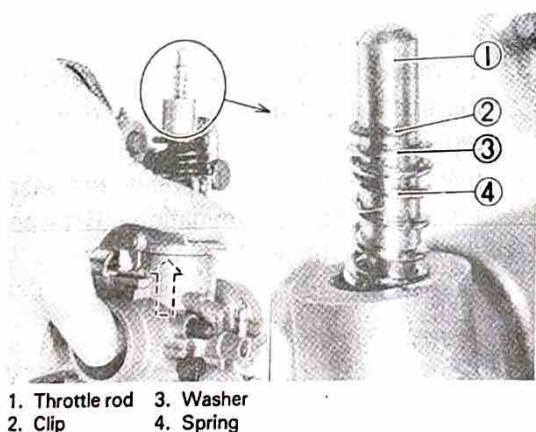
1. Throttle control body removal
 - a. Loosen the synchronizing screw lock nut (left carburetor) and remove the synchronizing screw (left carburetor)/throttle rod holding bolt (right carburetor).



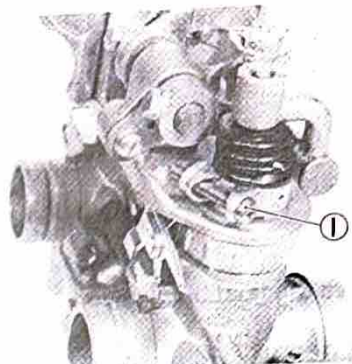
- b. Lift the throttle valve slide by your finger and remove the clip, washer, and spring from the throttle rod. Remove the boots from the throttle rods.

NOTE:

Be careful not to lose the clips, washers, springs etc.

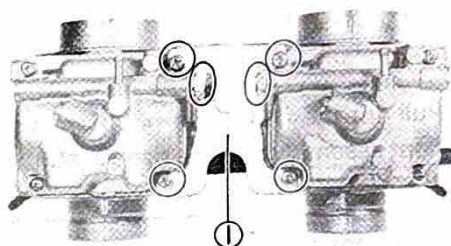


- c. Loosen the clamp screws holding the throttle control body to the carburetors and remove the throttle control body.



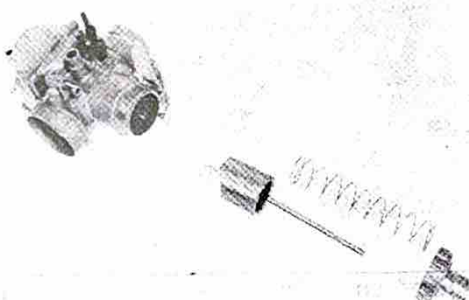
1. Clamp screw

2. Remove the carburetor joint plate holding screws and bolts. Separate the right and left carburetors.

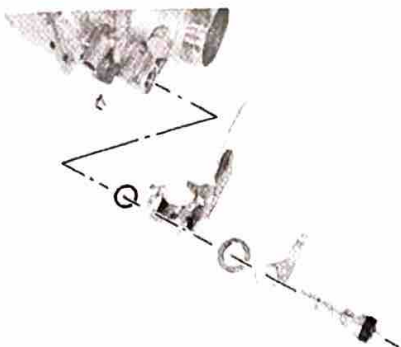


1. Joint plate

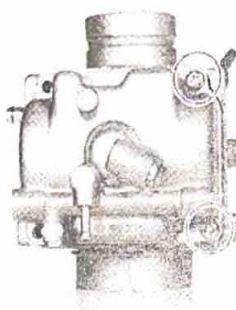
3. Remove the mixing chamber top and the throttle valve slide.



4. Straighten the lock washer tab and remove the starter assembly from the left carburetor.



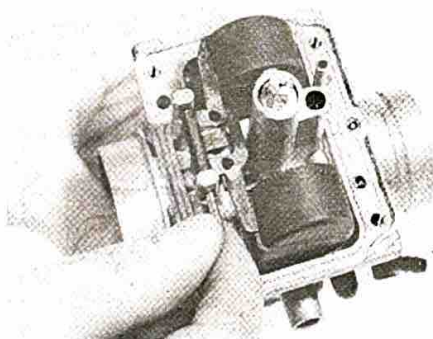
5. Remove the float bowl cover.



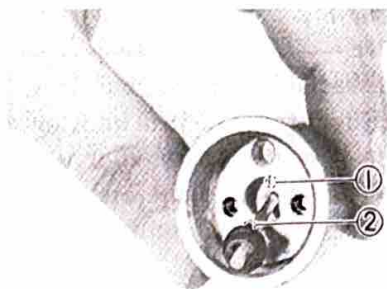
6. Pull out the float pivot pin. Remove the float assembly and the needle jet.

NOTE:

Be careful not to lose the float valve needle located under the float level adjustment tang.



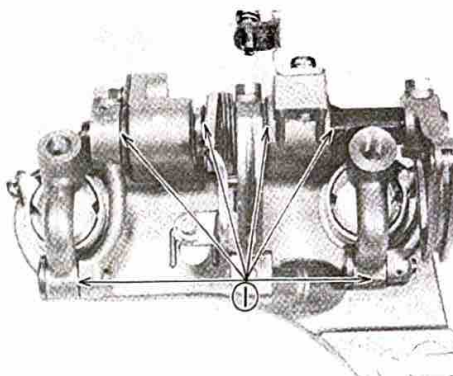
7. Reassemble in reverse order. Pay attention to the following when assembling the throttle valve slide.
 - a. The jet needle spacer is fitted with a position determining pin. Securely insert this pin (longer end) into the positioning hole in the throttle valve.



1. Positioning hole 2. Position determining pin

B. Inspection

1. Inspect the throttle control linkage for wear or damage. Lubricate the throttle lever shaft and the pivots with Yamaha Chain and Cable Lube or 10W/30 motor oil. Replace, if damaged.



1. Lubricate

2. Examine the carburetor body and fuel passages. If contaminated, wash the carburetor in a petroleum-based solvent. Do not use caustic carburetor cleaning solutions. Blow out all passages and jets with compressed air.
3. Examine the condition of the floats. If the floats are damaged, they should be replaced.
4. Inspect the inlet needle valve and seat for wear or contamination. Replace these components as a set.



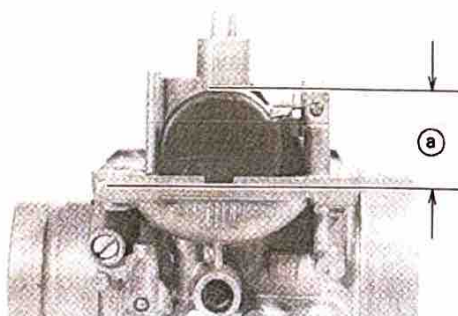
5. Inspect the throttle valve slide.
Replace the throttle valve if scratched or damaged.



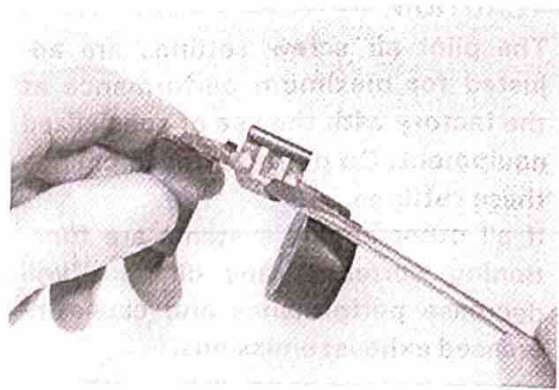
C. Adjustments

1. Float level adjustment

Measure the distance from the bottom of the float to the float bowl gasket seating surface without the gasket. Bend the tang on the float arm if any float level adjustment is necessary. Both floats must be at the same height. Adjust the float level to the specification.

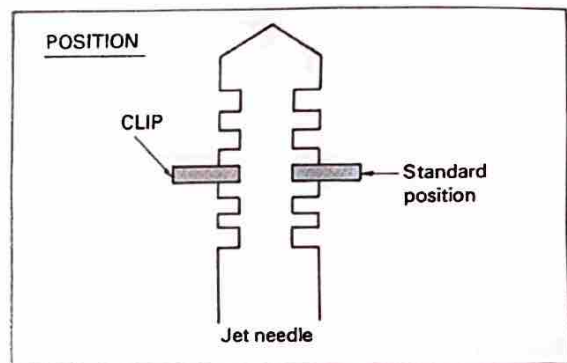


- a. Float level
 $21 \pm 1 \text{ mm}$ ($0.83 \pm 0.04 \text{ in}$)



2. Jet needle clip position

The mid-range air/fuel supply is effected by the position of the needle in the needle jet. Check to see that the needle clip position is correct. If not, change the clip position to the specified position.



d. Specifications

Main jet	#140
Jet needle/ Clip position	5FN29/3
Needle jet	0-0
Starter jet	#40
Float height (above gasket surface)	$21 \pm 1 \text{ mm}$ ($0.83 \pm 0.04 \text{ in}$)
Pilot jet	#30
Pilot air screw	Preset
Fuel valve seat	$\phi 2.5$
Engine idle speed	1,300 ~ 1,400 r/min

CAUTION:

The pilot air screw settings are adjusted for maximum performance at the factory with the use of specialized equipment. Do not attempt to change these settings.

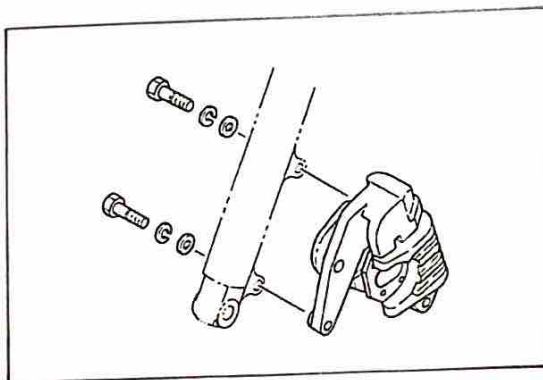
If all other engine systems are functioning correctly, any changes will decrease performance and cause increased exhaust emissions.

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5-3. DISC BRAKES (Front and rear)

A-1. Caliper disassembly

- Remove the caliper brake hose. Allow the caliper assembly to drain into a container.
- Place the open hose end into the container and pump the old fluid out of the master cylinder.
- Remove the coil spring, pin, and pads.
- Remove the brake caliper holding bolt and remove the caliper assembly from the front fork.



- Remove the retaining ring and the dust seal.
- Carefully force the piston out of the caliper cylinder with compressed air. Never try to pry out the piston.

WARNING:

Cover the piston with a rag. Use care so that piston does not cause injury as it is expelled from the cylinder.

- Remove the piston seal.

(PAGE 61 ~ 62)

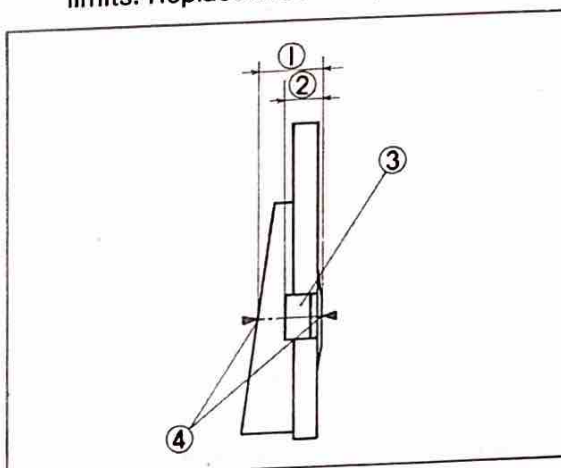
B. Brake inspection and repair

Recommended Brake Component Replacement Schedule:

Brake pads	As required
Piston seal, dust seal . . .	Every two years
Brake hoses	Every four years
Brake fluid	Replace only when brakes are disassembled

1. Caliper

- Replace the caliper piston if it is scratched.
- Replace any brake pad worn beyond limits. Replace the brake pads as a set.



- | | |
|------------------|---------------------|
| 1. Pad thickness | 3. Wear indicator |
| 2. Wear limit | 4. Measuring points |

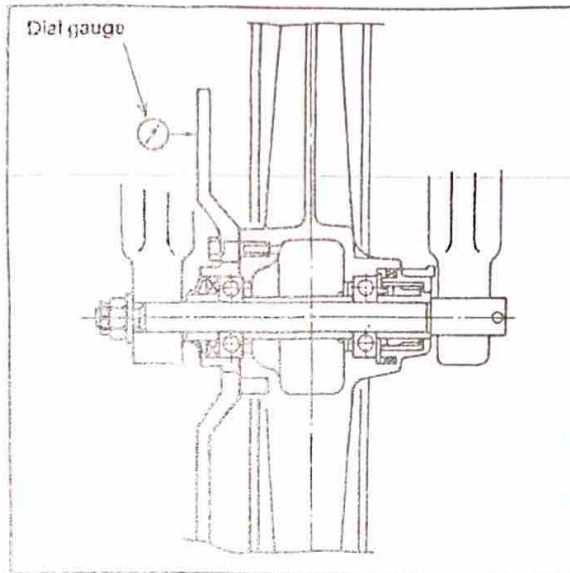
Wear limit (Front and rear):
6.5 mm (0.26 in)

See Caliper Pad Replacement procedure for parts to be replaced when pads are replaced.

- Replace the piston and the dust seals if damaged. Replace the seals every two years.
- Inspect the caliper cylinder body. Replace if scratched. Clean all passages with new brake fluid.
- Inspect the brake hoses. Replace hoses at recommended intervals or if cracked, frayed or damaged.
- Check for wear and deflection of the disc (front and rear).

Maximum deflection: 0.15 mm (0.006 in)
Minimum disc thickness: 4.5 mm (0.18 in)

If the disc is worn beyond minimum thickness or deflection exceeds specified limit, replace the disc.

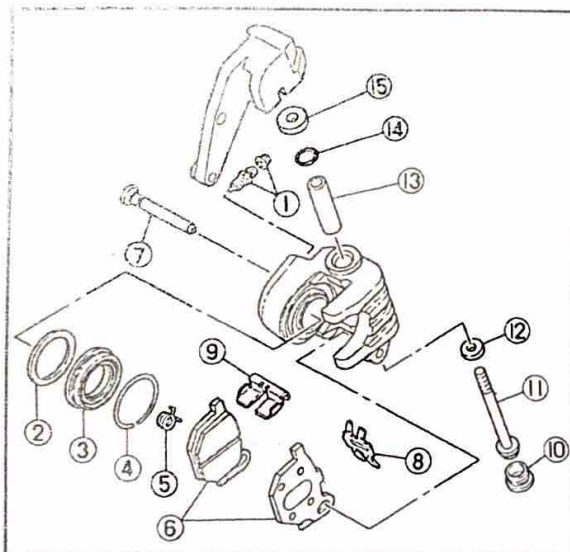


(PAGE 64)

C. Disc brake assembly

2. Caliper

2. Replace the following parts whenever a caliper is disassembled.



- | | | |
|---------------------------|--------------------|----------------|
| 1. Bleed screw (with cap) | 6. Pads | 11. Swing bolt |
| 2. Piston seal | 7. Pin | 12. Washer |
| 3. Dust seal | 8. Spring pad | 13. Sleeve |
| 4. Retaining ring | 9. Retainer | 14. O-ring |
| 5. Coil spring | 10. Swing bolt cap | 15. Washer |

- b. Install the piston seal and piston. Place the caliper cylinder into the caliper frame.
- c. Install the retaining ring, coil spring, pads, pin, pad spring, and retainer.
- d. Install the pivot bolt, washers, sleeve, O-ring, and bolt cap. When installing the pivot bolt, apply it with a holding agent, such as "LOCK-TITE".

Pivot bolt torque: 2.5 m-kp (18.0 ft-lb)

- e. Attach the brake hoses.

Brake hose torque: 2.5 m-kp (18.0 ft-lb)

(PAGE 64)

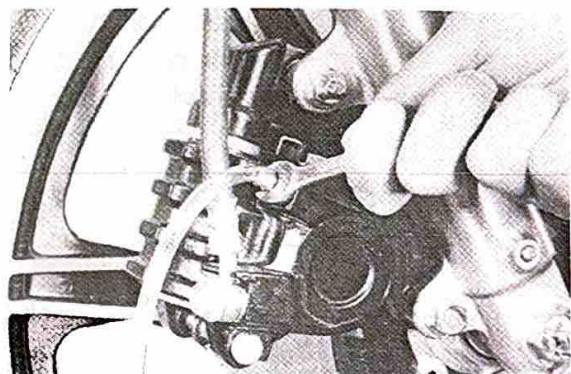
C. Disc brake assembly

3-f. Air bleeding

CAUTION:

If the brake system is disassembled or if any brake hose has been loosened or removed, the brake system must be bled to remove air from the brake fluid. If the brake fluid level is very low or brake operation is incorrect, bleed the brake system.

- 1) Add proper brake fluid to the reservoir. Install the diaphragm, being careful not to spill or overflow the reservoir.
- 2) Connect the clear plastic tube tightly to the caliper bleed screw. Put the end of the tube into a container.



- 3) Slowly apply the brake lever or pedal several times. Pull in lever (push down pedal). Hold the lever or pedal in "ON" position. Loosen the bleed screw. Allow the pedal or lever to travel slowly toward its limit. Tighten the bleed screw just before the limit.

NOTE:

If bleeding is difficult, it may be necessary to let the brake system stabilize for a few hours. Repeat bleeding procedure.

Bleed screw tightening torque:
0.6 m·kg (4.5 ft·lb)

(PAGE 67 ~ 68)

5-6. FRONT FORKS

B. Assembly

- 2-b. Pour specified amount of oil into the inner tube through the upper end opening.

Recommended oil:

Yamaha Fork Oil 10wt or equivalent

Quantity per leg:

163.5 ± 4 cc (5.53 ± 0.14 oz)

Oil level (below the top of the inner tube and without spring):

420 ± 10 mm (16.54 ± 0.39 in)

(PAGE 87 ~ 93)

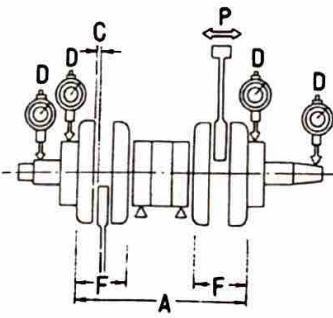
7-2. SPECIFICATION

A. General

Items	RD400F
Model: Model (I.B.M. No.) Frame I.D. and starting number Engine I.D. and starting number	RD400F (2V0) 2V0-000101 2V0-000101
Dimension: Overall length Overall width Overall height Seat height Wheel base Minimum ground clearance	2,005 mm (78.9 in) 830 mm (32.7 in) 1,090 mm (42.9 in) 795 mm (31.3 in) 1,320 mm (52.0 in) 155 mm (6.1 in)
Weight: Net weight	155 kg (342 lb)
Performance: Climbing ability Minimum turning radius Braking distance	28° 2,310 mm (90.9 in) 14 m at 50 km/h (45.9 ft at 31 mph)

B. Engine

Items	RD400F
Description: Engine type Engine model Displacement Bore × stroke Compression ratio Starting system Ignition system Lubrication system	Air cooled, 2-stroke forward incline, twin, torque induction system 2V0 398 cc 64 × 62 mm (2,520 × 2,441 in) 10.2 : 1 (6.7 : 1 Corrected) Primary kick starter Battery ignition Separate lubricator (Yamaha Autolube)
Cylinder head: Combustion chamber volume Combustion chamber type Head gasket thickness Tightening torque: Cylinder head holding nut (M8 P1.25) Spark plug (M14 P1.25)	21.7 ± 0.5 cc (with B8ES) Dome + Squish 1.5 mm (0.06 in) 2.0 m·kg (14.5 ft·lb) 2.0 m·kg (14.5 ft·lb)
Cylinder: Material Bore size Taper limit Out of round limit	Aluminum alloy with cast iron sleeve $64^{+0.02}_{0}$ mm ($2.13^{+0.0008}_{0}$ in) 0.05 mm (0.002 in) 0.01 mm (0.0004 in)

Items	RD400F
Piston: Piston skirt clearance Piston over size: 1st 2nd 3rd 4th Piston pin outside diameter × length	0.030 ~ 0.035 mm (0.0012 ~ 0.0014 in) 64.25 mm (2.530 in) 64.50 mm (2.539 in) 64.75 mm (2.549 in) 65.00 mm (2.559 in) 16 × 54 mm (0.63 × 2.13 in)
Piston ring: Piston ring: Top 2nd Ring end gap, installed: Top 2nd Ring groove side clearance: Top 2nd	Keystone ring/1.2 mm (0.047 in) Keystone ring/1.2 mm (0.047 in) 0.3 ~ 0.5 mm (0.012 ~ 0.020 in) 0.3 ~ 0.5 mm (0.012 ~ 0.020 in) — —
Small end bearing: Type	Needle bearing
Big end bearing: Type	Needle bearing
Crankshaft: Crankshaft assembly width (A) Crankshaft assembly width (F) Crankshaft deflection (D) Connecting rod large end side clearance (C) Connecting rod small end deflection (P)	$154^{+0.05}_{-0.10}$ mm ($6.06^{+0.002}_{-0.004}$ in) $52^0_{-0.05}$ mm ($2.05^0_{-0.02}$ in) 0.03 mm (0.0012 in) 0.25 ~ 0.75 mm (0.010 ~ 0.030 in) 0.36 ~ 0.98 mm (0.014 ~ 0.039 in)
Crank pin outside diameter × length Crank pin type Crank bearing type: left/Q'ty center/Q'ty right/Q'ty Crank oil seal type: left/Q'ty center/Q'ty right/Q'ty	 22 × 51 mm (0.87 × 2.01 in) Solid type B6305C3/1pc. B6206C3/2 pcs. B6305C3/1pc. SW-20-40-10/1pc. Labyrinth seal/1pc. SW-40-62-10/1pc.
Clutch: Clutch type Clutch generating mechanism	Wet, multiple disc type Inner push type, screw push system

Items	RD400F
Primary reduction ratio and method	66/23 (2.870)/Helical gear
Primary reduction gear back lash	150 ~ 152 71 → 79 ~ 81, 72 → 78 ~ 80 73 → 77 ~ 79, 74 → 76 ~ 78 75 → 75 ~ 77
Primary drive gear back lash number	75 ~ 81
Primary driven gear back lash number	71 ~ 75
Friction plate: Thickness/Q'ty	3 mm (0.12 in)/7 pcs
Wear limit	2.7 mm (0.11 in)
Clutch plate: Thickness/Q'ty	1.2 mm (0.05 in)/6 pcs.
Warp limit	0.3 mm (0.012 in)
Clutch spring: Free length/Q'ty	36.4 mm (1.43 in)/6 pcs.
Minimum length	35.4 mm (1.39 in)
Clutch housing axial play	0.07 ~ 0.14 mm (0.003 ~ 0.006 in)
Push rod bending limit	0.2 mm (0.008 in)
Oil seal type: Push lever axle	SDO-8.8-22-6
Tightening torque:	
Primary drive gear securing nut (M16 P1.0)	6.5 m·kg (47.0 ft·lb)
Clutch boss securing nut (M18 P1.0)	6.5 m·kg (47.0 ft·lb)
Clutch spring screw (M6 P1.0)	0.9 m·kg (6.5 ft·lb)
Transmission:	
Type	Constant mesh, 6-speed forward
Gear ratio: 1st, teeth (ratio)	36/14 (2.571)
2nd	32/18 (1.778)
3rd	29/22 (1.318)
4th	26/24 (1.083)
5th	25/26 (0.962)
6th	24/27 (0.889)
Transmission gear oil: Type	SAE 10W/30 type "SE" motor oil or "GL" gear oil
Capacity	Oil change: 1.5 lit (1.6 US qt)
	Total: 1.7 lit (1.8 US qt)
Bearing type: Main axle: Left	Needle bearing (ø20-ø30-15)
Right	5205
Drive axle: Left	6305N
Right	Needle bearing (ø20-ø33-15)
Oil seal type: Drive axle	SD-35-62-6
Secondary reduction ratio and method	37/17 (2.176)/chain
Tightening torque:	
Drive sprocket securing nut (M18 P1.0)	6.5 m·kg (47.0 ft·lb)
Shifting mechanism:	
Type	Cam drum, return type
Oil seal type: Change lever	S-12-22-5
Tightening torque:	
Change pedal securing bolt (M6 P1.0)	1.1 m·kg (8.0 ft·lb)
Kick starter:	
Type	Ratchet type
Oil seal type	SO-20-35-4.5
Kick clip friction torque	0.8 ~ 1.3 kg (1.8 ~ 2.9 lb)
Tightening torque:	
Kick crank securing bolt (M8 P1.25)	2.3 m·kg (16.5 ft·lb)
Crankcase:	
Tightening torque: (M8 P1.25)	2.5 m·kg (18.0 ft·lb)
(M6 P1.0)	1.0 m·kg (7.2 ft·lb)

Items	RD400F
Intake: Air cleaner: Type/Q'ty Induction system Reed valve: Type Bending limit Valve lift Tightening torque (M5 P0.5)	Dry foam rubber/1 pc. Torque induction system "V" type $0.9 + 0.2$ -0.3 mm ($0.035 + 0.008$ -0.012 in) or less 9.2 ± 0.4 mm (0.362 ± 0.016 in) 0.09 m·kg (0.65 ft·lb)
Carburetor: Type and manufacturer/Q'ty I.D. mark Main jet (M.J.) Air jet (A.J.) Jet needle: Clip position (J.N.) Needle jet (N.J.) Cutaway (C.A.) Pilot jet (P.J.) Pilot air screw (Turns out) (A.S.) Starter jet (G.S.) Float height (F.H.) Idling engine speed	VM28SS/MIKUNI/2 pcs. 2V000 #140 0.6 5FN29-3 0-0 4.0 #30 Preset #40 21 ± 1 mm (0.83 ± 0.04 in) 1,300 ~ 1,400 r/min
Lubrication: Autolube pump: Color code Minimum stroke Maximum stroke Reduction ratio Minimum output/200 cycles Maximum output/200 cycles Throttle position (Adjusting mark) Oil tank capacity Oil grade	Sky blue 0.20 ~ 0.25 mm (0.008 ~ 0.010 in) 2.05 ~ 2.27 mm (0.081 ~ 0.089 in) $21/23 \times 55/1 = 50.217$ 0.50 cc (0.017 oz) 5.53 cc (0.19 oz) At full opened (—) 1.6 lit (1.7 US qt) 2-stroke engine oil

C. Chassis

Items	RD400F
Frame: Frame design Tightening torque: Engine mounting bolt (M8 P1.25) Engine mounting bolt (M10 P1.25)	Double cradle type, high tensile tube frame 1.8 m·kg (13.0 ft·lb) 3.0 m·kg (21.5 ft·lb)
Steering system: Caster Trail Number and size of balls in steering head: Upper race Lower race Tightening torque: Steering shaft fitting nut (M16 P1.5) Stem pinch bolt (M8 P1.25) Handlebar mounting bolt (M8 P1.25)	27.5° 109 mm (4.29 in) 19 pcs., 1/4 in 19 pcs., 1/4 in 8.0 m·kg (58.0 ft·lb) 1.8 m·kg (13.0 ft·lb) 1.8 m·kg (13.0 ft·lb)

Items	RD400F
Front suspension: Type Damper type Front fork travel Front fork spring: Free length Wire diameter × winding diameter Spring constant: 0 ~ 100 mm (0 ~ 3.94 in) 100 ~ 140 mm (3.94 ~ 5.51 in) Inner tube outside diameter Oil seal type Front fork oil: Capacity Type Fork oil level (below top of the fork) Tightening torque: Front fork cap bolt (M15 P1.5) Under bracket and inner tube (M12 P1.25) Handle crown and inner tube (M8 P1.25)	Telescopic fork Oil damper, coil spring 140 mm (5.51 in) 444.5 mm (17.50 in) 4.0 × 22.5 mm (0.16 × 0.89 in) $K_1 = 0.38 \text{ kg/mm (21.3 lb/in)}$ $K_2 = 0.762 \text{ kg/mm (42.7 lb/in)}$ 35 mm (1.38 in) SD35-48-10.5 163.5 ± 4 Yamaha Fork Oil 10wt or equivalent 420 ± 10 mm (16.54 ± 0.39 in) 2.5 m·kg (18.0 ft·lb) 4.0 m·kg (29.0 ft·lb) 1.8 m·kg (13.0 ft·lb)
Rear suspension: Type Damper type Rear shock absorber: Travel Set length Rear shock absorber spring: Set length Free length Wire diameter × winding diameter Spring constant: 0 ~ 46 mm (0 ~ 1.81 in) 46 ~ 80 mm (1.81 ~ 3.15 in) Swing arm free play (limit) Pivot shaft: Outside diameter Tightening torque: Rear shock absorber, upper (M10 P1.25) Rear shock absorber, under (M10 P1.25) Pivot shaft (M14 P1.5)	Swing arm Oil damper, coil spring 80 mm (3.15 in) 322 mm (12.68 in) 198 mm (7.80 in) 219 mm (8.62 in) 65 × 53.5 mm (0.26 × 2.11 in) $K_1 = 1.5 \text{ kg/mm (84.0 lb/in)}$ $K_2 = 2.175 \text{ kg/mm (121.8 lb/in)}$ 1 mm (0.04 in) 16 mm (0.63 in) 3.0 m·kg (21.5 ft·lb) 3.0 m·kg (21.5 ft·lb) 6.5 m·kg (47.0 ft·lb)
Fuel tank: Capacity Fuel grade	16.5 lit (4.4 US gal) Regular gasoline
Wheel: Type: Front Rear Tire size: Front Rear Tire pressure (Normal riding): Front Rear Rim size: Front Rear Rim runout limit (front/rear): Vertical Lateral Bearing type: Front wheel: Left Right	Aluminum cast wheel Aluminum cast wheel 3.25S18-4PR 3.50S18-4PR 1.8 kg/cm ² (26 psi) 2.0 kg/cm ² (28 psi) 1.85-18 2.15-18 2 mm (0.08 in) 2 mm (0.08 in) 6302 ZZ 6302 ZZ

Items	RD400F
Rear wheel: Left Right Oil seal type: Front wheel, Left Right Rear wheel, Left Right Secondary drive chain: Type Number of links Chain pitch Chain free play Tightening torque: Front wheel axle (M14 P1.5) Front axle holder (M8 P1.25) Rear wheel axle (M14 P1.5)	6304 Z 6303 ZZ SDD45-56-6 SD22-42-7 SD27-52-5 SD28-47-7 DID50DS 95L + Joint 15.875 mm (0.625 in) 30 mm (1.2 in) 11.0 m·kg (79.5 ft·lb) 1.0 m·kg (7.2 ft·lb) 11.0 m·kg (79.5 ft·lb)
Brake: Disc brake (front/rear): Type Disc size (outside dia. × thickness) Disc wear limit Disc pad size Pad wear limit Master cylinder inside dia. Caliper cylinder inside dia. Brake fluid type Tightening torque Brake disc and hub (front/rear) (M8 P1.25) Caliper bracket and front fork (M10 P1.25) Caliper and caliper bracket (front/rear) (M8 P1.25) Caliper and brake hose (front/rear) (M10 P1.25) Master cylinder and brake hose (front and rear) (M10 P1.25) Caliper and bleed screw (front/rear) (M8 P1.25)	Hydraulic disc type 267 × 5 mm (10.5 × 0.20 in) 4.5 mm (0.18 in) 11.0 mm (0.43 in) 6.5 mm (0.26 in) 15.87 mm (0.62 in) 42.85 mm (1.69 in) DOT #3 2.0 m·kg (14.5 ft·lb) 3.5 kg (25.5 ft·lg) 2.5 m·kg (18.0 ft·lb) 2.5 m·kg (18.0 ft·lb) 2.5 m·kg (18.0 ft·lb) 0.6 m·kg (4.3 ft·lb)

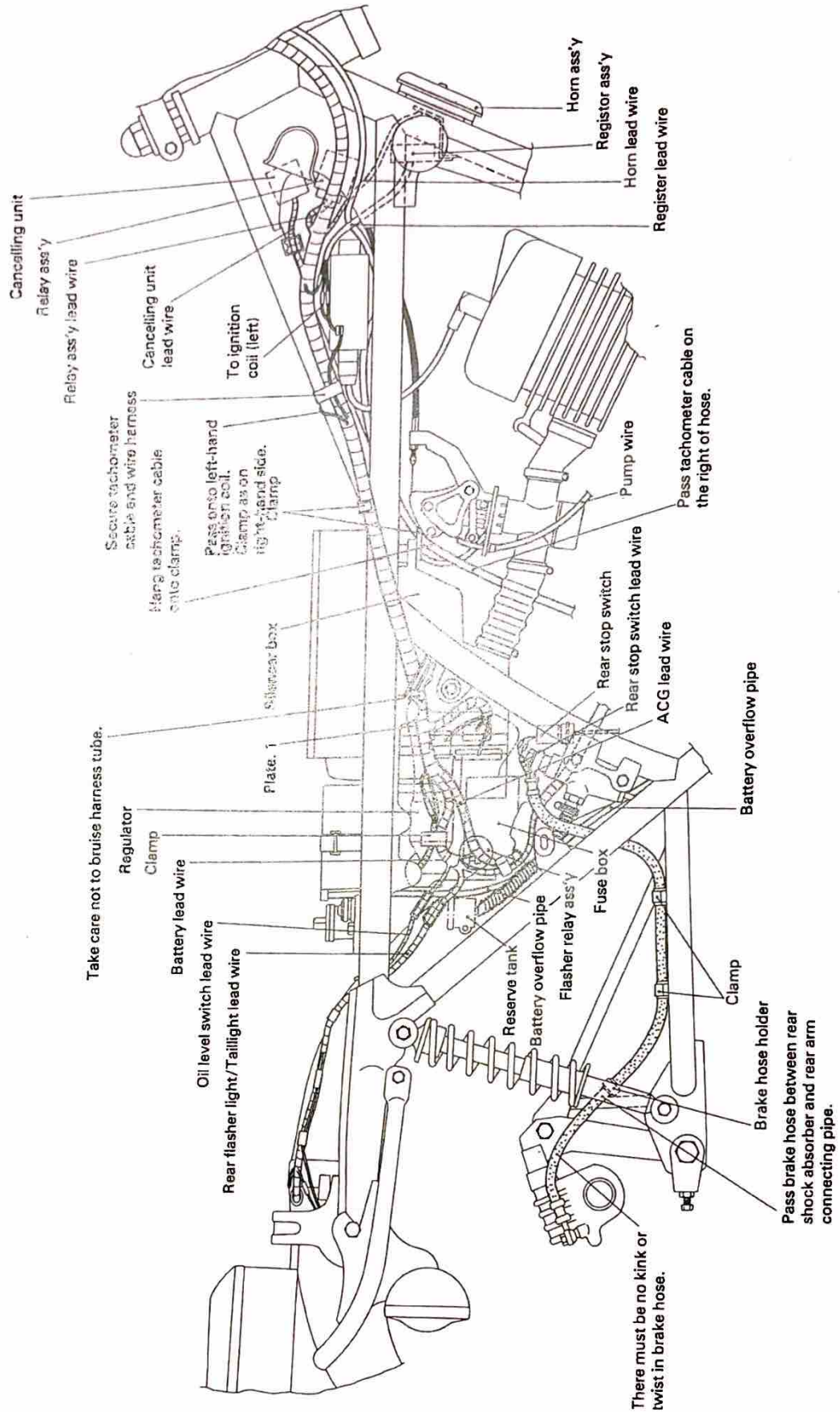
D. Electrical

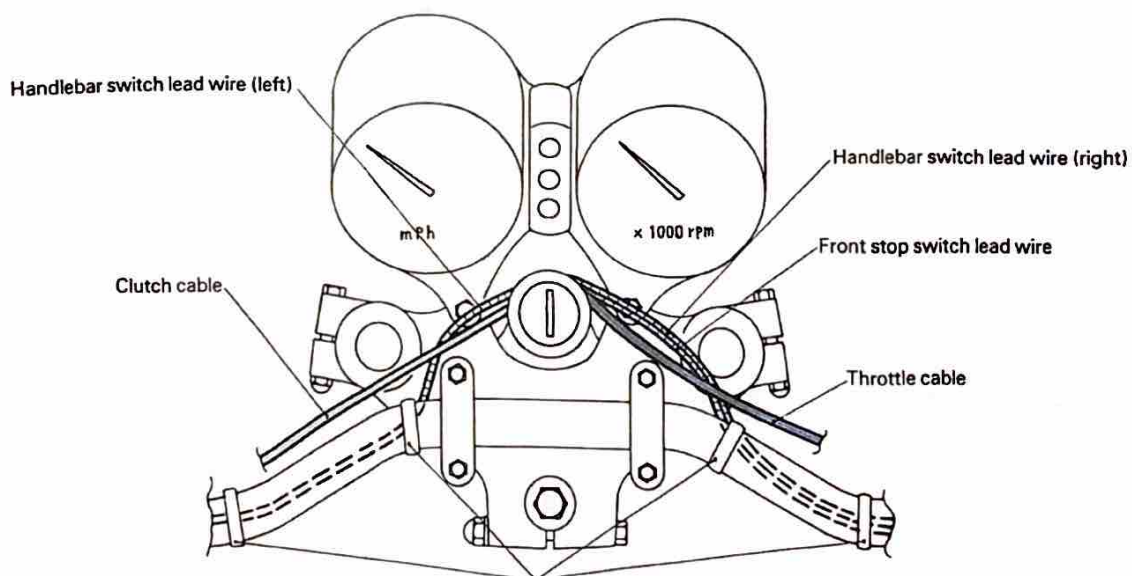
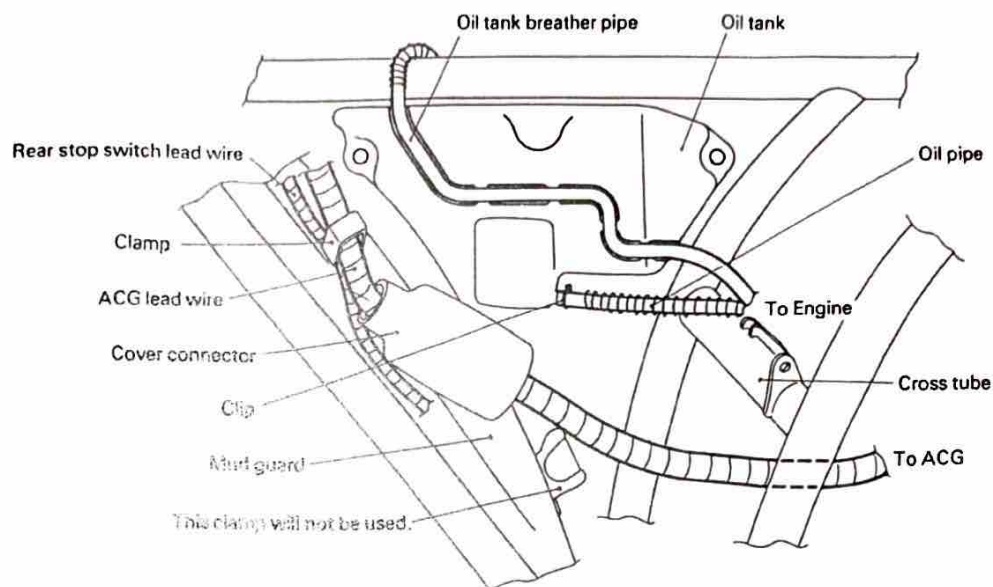
Items	RD400F
Voltage	12V
Ignition system: Model/Manufacturer Voltage Rotor Coil Thread Size Tightening Torque (Rotor) Tightening Torque (Stator) Ignition Timing Ignition Coil: Model/Manufacturer Spark Gap	Battery ignition AZ2015Y16/MITSUBISHI 12V M10 P1.25 2 m·kg (14.5 ft·lb) 0.9 m·kg (6.5 ft·lb) 20° B.T.D.C. @idle (2.4 ± 0.15 mm, 0.0945 ± 0.0059 in B.T.D.C.) CM11-53/HITACHI 6 mm or more/500 r/min

Items	RD400F
Primary Winding Resistance Secondary Winding Resistance Spark Plug: Type/Quantity Spark Plug Gap Resistor: Resistance Contact Breaker: Manufacture/Quantity Point Gap Point Spring Pressure Condenser: Capacity Insulation Resistance Q'ty	$1.4\Omega \pm 10\%/20^{\circ}\text{C}$ $6.6\Omega \pm 20\%/20^{\circ}\text{C}$ NGK B 8ES 2 pcs. 0.6 ~ 0.8 mm (0.024 ~ 0.031 in) $1.9\Omega \pm 10\%/20^{\circ}\text{C}$ MITSUBISHI/2 pcs. 0.30 ~ 0.40 mm (0.012 ~ 0.016 in) 700 $\pm$ 50 g 0.22 μ F 5M Ω (500V megger used) 2 pcs.
Charging system AC Generator: Charing Output Rotor Coil Resistance (Filed coil) Stator coil Resistance (Armature coil) Brush Size/Q'ty Brush Wear Limit Brush Spring Pressure Rectifier: Type Model Capacity Withstand Voltage Regulator: Type Regulating Voltage Battery: Model/ Manufacture Capacity Charging Rate Specific Gravity	14V 20A or more/5,000 r/min $5.5\Omega \pm 15\%/20^{\circ}\text{C}$ $0.23\Omega \pm 10\%/20^{\circ}\text{C}$ 11 mm (0.43 in)/2 pcs. 6 mm (0.24 in) 540 g $\pm$ 15% Full wave SH235-12B 15A 200V I.C. regulator 14.5 $\pm$ 0.5V 12N5.5A-3B/FURUKAWA or YUASA 12V, 5.5A 0.55A 10 hours 1.28/20 $^{\circ}$ C
Lighting system: Head Light Tail/brake Light Flasher Light Pilot Lights: Flasher High beam Neutral Oil warning Meter Light	12V, 50W/35W 12V, 3CP/32CP (8W/27W) $\times$ 2 12V, 32CP (27W) $\times$ 4 12V, 3.4W 12V, 3.4W 12V, 3.4W 12V, 3.4W 12V, 3.4W $\times$ 4

Items	RD400F
Horn: Model/ Manufacturer Maximum Amperage Flasher Relay: Type Model/ Manufacturer Flasher frequency Capacity Flasher Canceling Unit: Model Voltage Fuse: Rating/Q'ty	CF3-12/ NIKKO 2.5A Condenser type FN25C/ NIPPON DENSO 85 cycl/ min. 27W × 2 + 3.4W EVH-AC518 DC 9V ~ 16V MAIN (Red) 20A HEAD. L (Red/ Yellow) 10A SIGNAL (Brown) 10A IGNITION (Red/ White) 10A
Miscellaneous Oil Level Switch: Manufacturer Stroke	 STANLEY 82 mm (3.23 in)

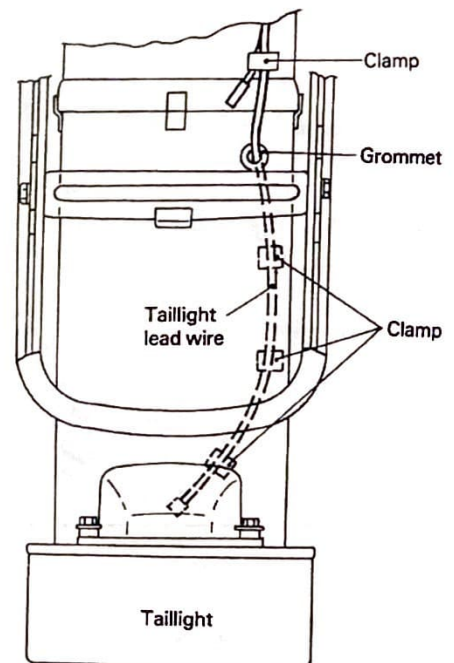
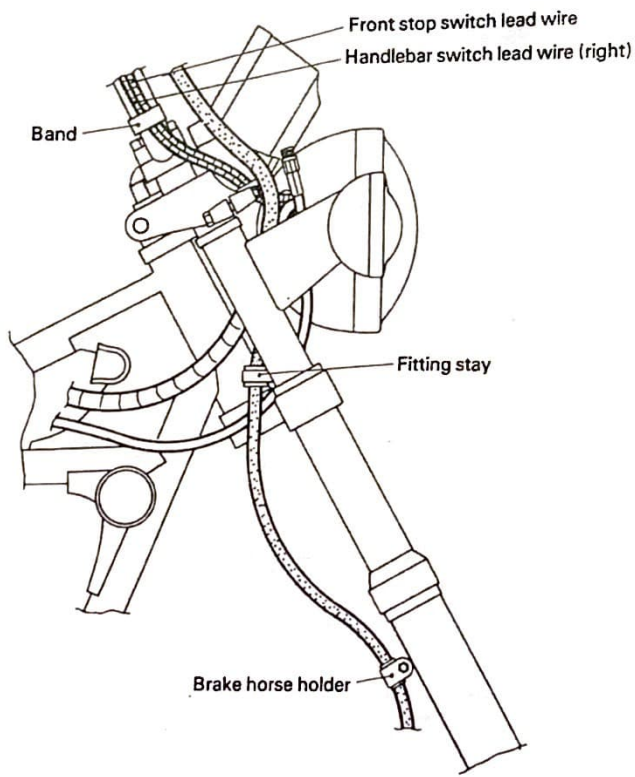
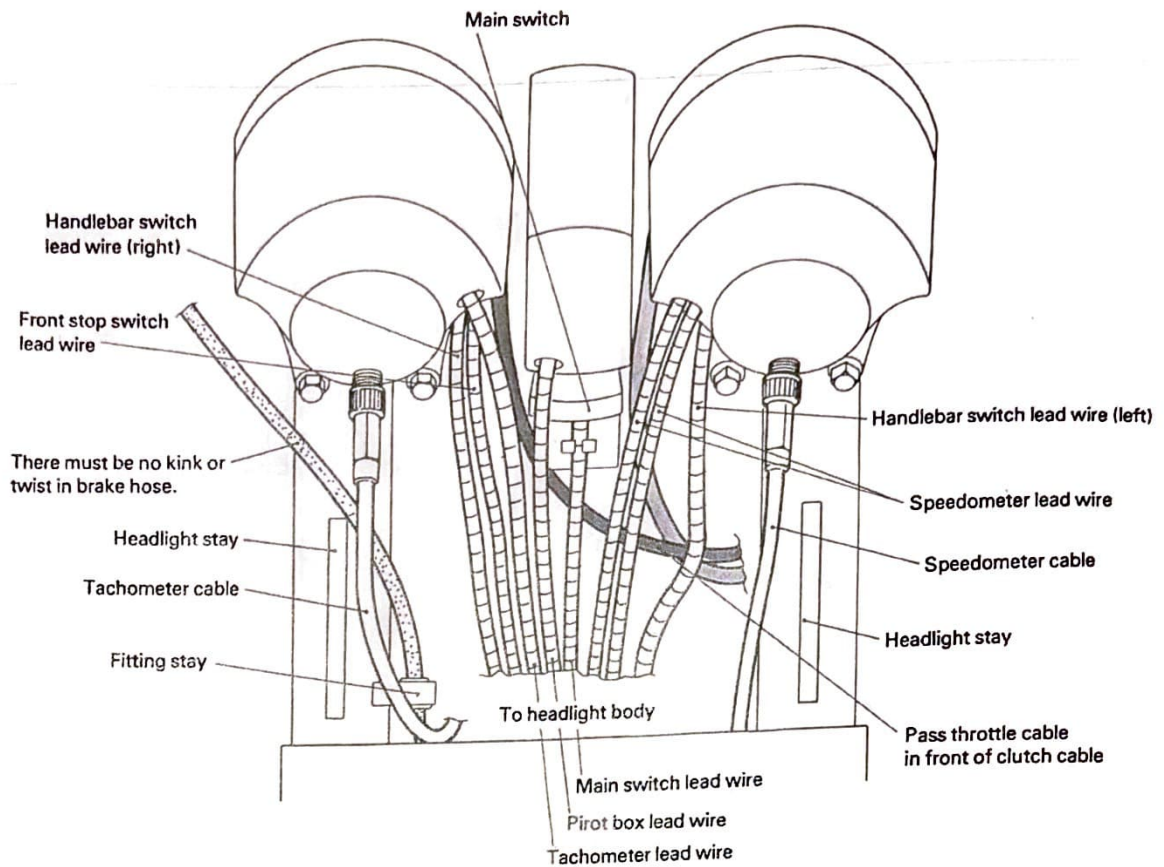
CABLE ROUTING

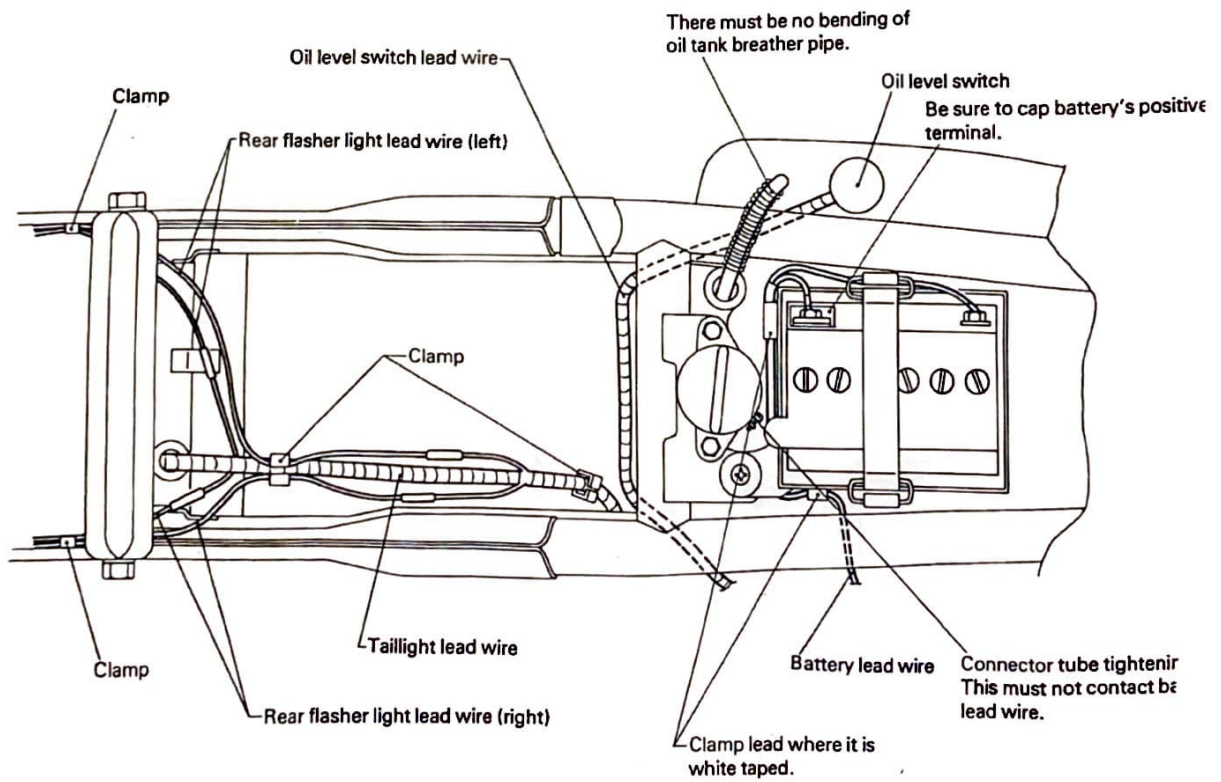
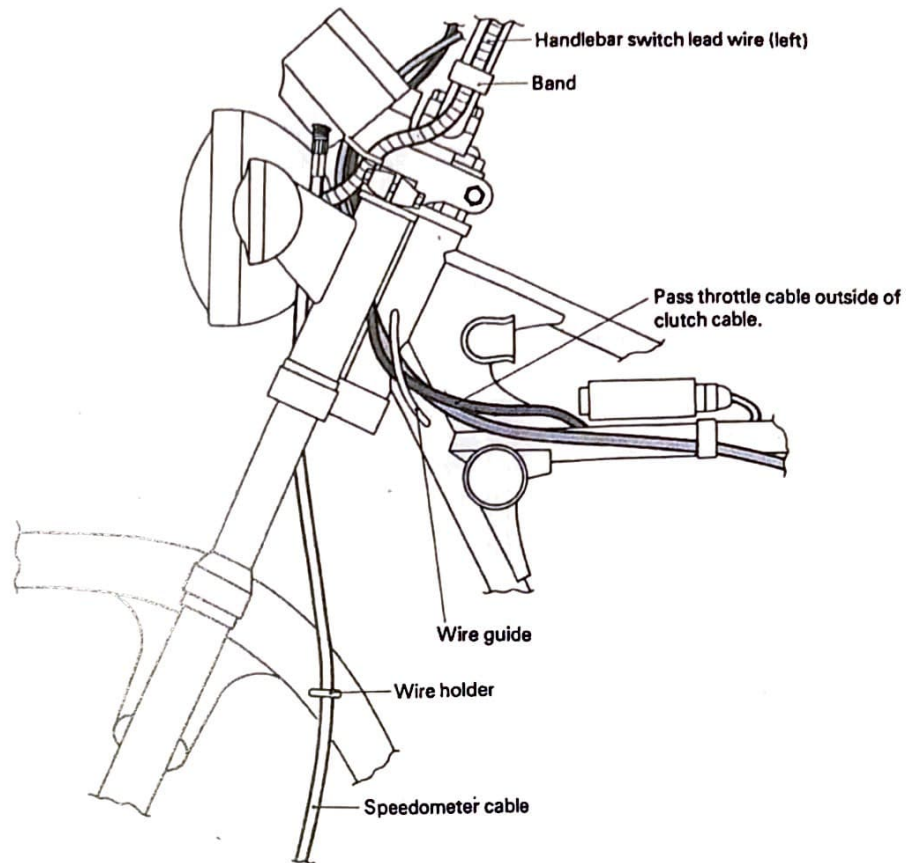




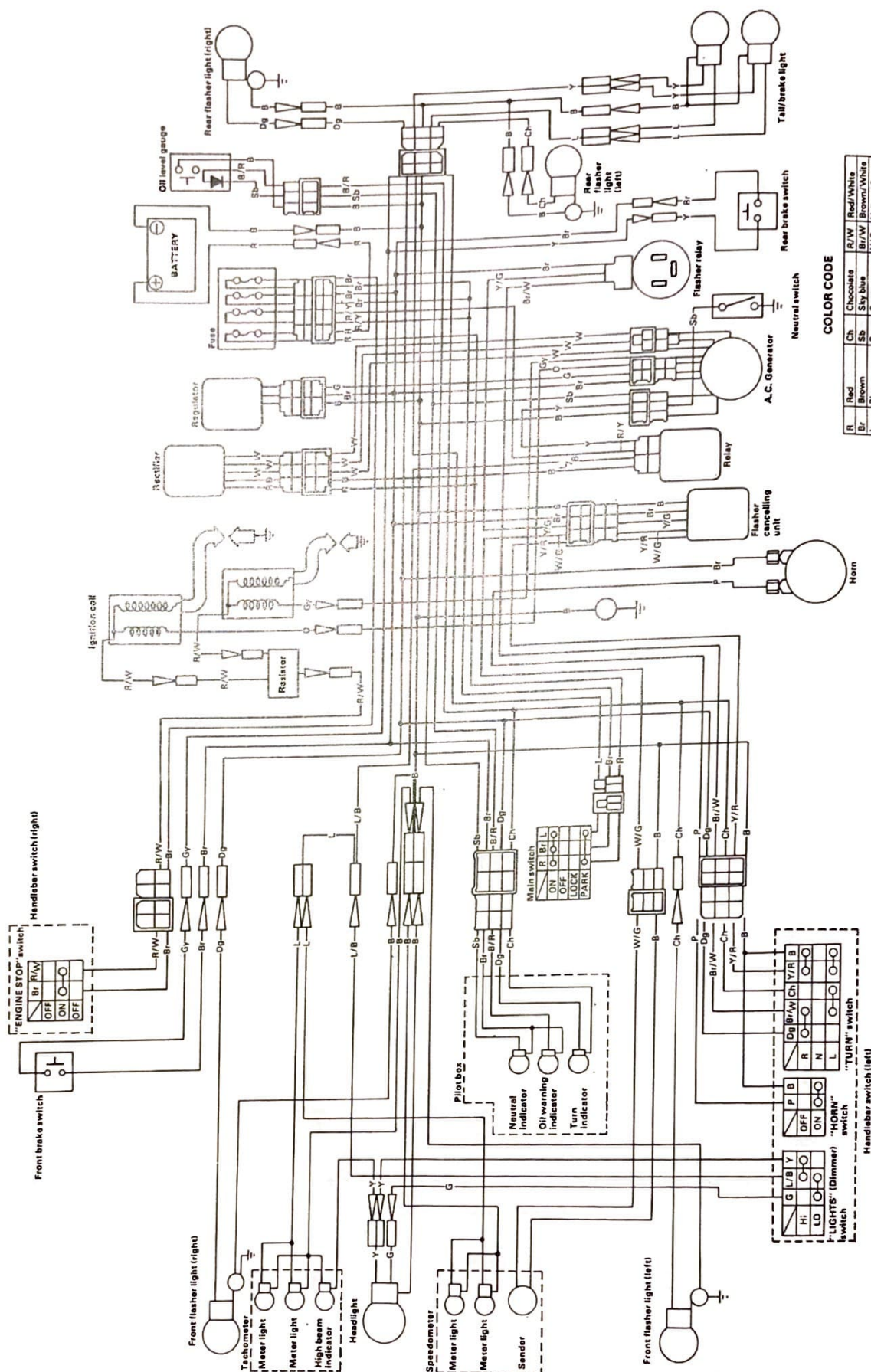
Pass these lead wires between handle crown and meter bracket. These wires must not be slack. Any slack must be stored under meters.

Secure handlebar switch lead wires to handlebar at four places using band meters.





WIRING DIAGRAM



COLOR CODE

	R	Red	Ch	Chocolate	R/W	Red/White
R	Red	Brown	S	Sky blue	Br/W	Brown/White
Br	Blue	Blue	O	Orange	Y/G	Yellow/Green
G	Dark green	Dark green	Gy	Grey	W/R	White/Red
B	Black	Black	W	White	Y/R	Yellow/Red
P	Pink	Pink	R/Y	Red/Yellow	L/B	Blue/Black
Y	Yellow	Yellow	B/R	Black/Red		
G	Green	Green	W/G	White/Green		

