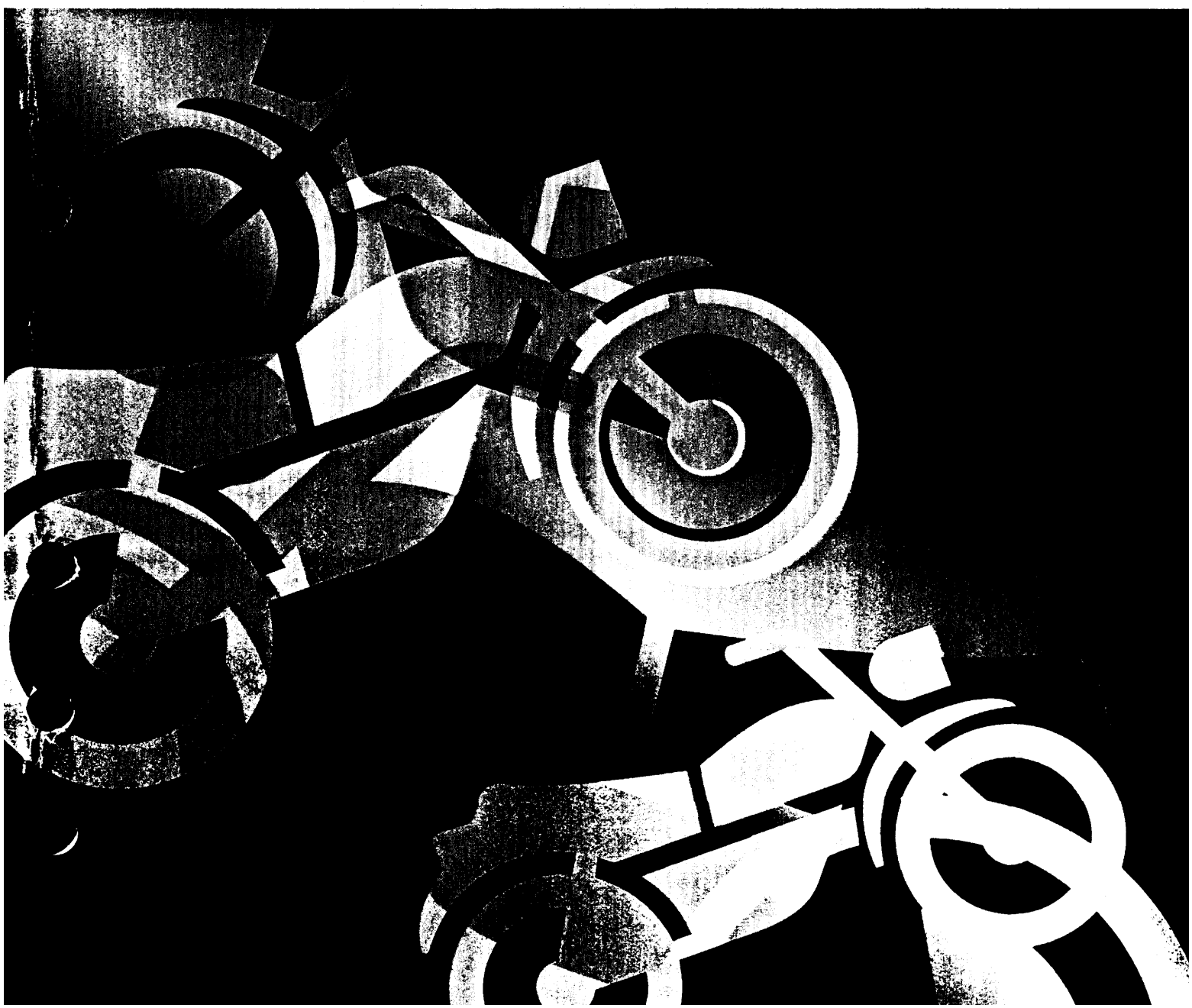
YAMAHA

XJ750RH~RK ('81~'83)
"SECA 750"

Service Manual



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Being a Yamaha owner, you obviously prefer a quality product.

gĕn·ū·ĭne

adj. 1. Real 2. Authentic, not artificial 3. Yamaha.

GENUINE **YAMAHA** PARTS & ACCESSORIES

Don't compromise the quality and performance of your Yamaha with off-brand alternatives. You'll be getting exactly what you're paying for.

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 our products are already known and understood by the reader.

Without such basic knowledge, repairs or service to this model may render the motorcycle 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.

This 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.

XJ750 RH

1st Edition - May 1981

7th Printing - January 1986 - JEM B-97/D-176

LIT-11616-XJ-70

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This manual has been combined with previous service manuals to provide complete service information for: **XJ750RH.**

Please read and give special consideration to the "NOTICE" on the preceding page for your safety.

YAMAHA

XJ750RH

Supplementary Service Manual

RH

.IT-11616-02-34

5G2-28197-10

FOREWORD

This Supplementary Service Manual has been prepared to introduce new service and new data for the XJ750RH. For complete information on service procedures, it is necessary to use this Supplementary Service Manual together with following manual:

XJ650G Service Manual (LIT-11616-01-94)

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

NOTE:
This Supplementary Service Manual contains information regarding periodic maintenance to the emission control system for the XJ750RH. Please read this material carefully.

NOTICE

This manual was written by the Yamaha Motor Company primarily for use by Yamaha dealers and their qualified mechanics. It is not possible to put an entire mechanic's education into one manual, so it is assumed that persons using this book to perform maintenance and repairs on Yamaha motorcycles have a basic understanding of the mechanical concepts and procedures inherent to motorcycle repair technology. Without such knowledge, attempted repairs or service to this model may render it unfit for use and/or unsafe.

This model has been designed and manufactured to perform within certain specifications in regard to performance and emissions. Proper service with the correct tools is necessary to ensure that the motorcycle will operate as designed. If there is any question about a service procedure, it is imperative that you contact a Yamaha dealer for any service information changes that apply to this model. This policy is intended to provide the customer with the most satisfaction from his motorcycle and to conform with federal environmental quality objectives.

Yamaha Motor Company, Ltd. is continually striving to improve all models manufactured by Yamaha. Modifications 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.

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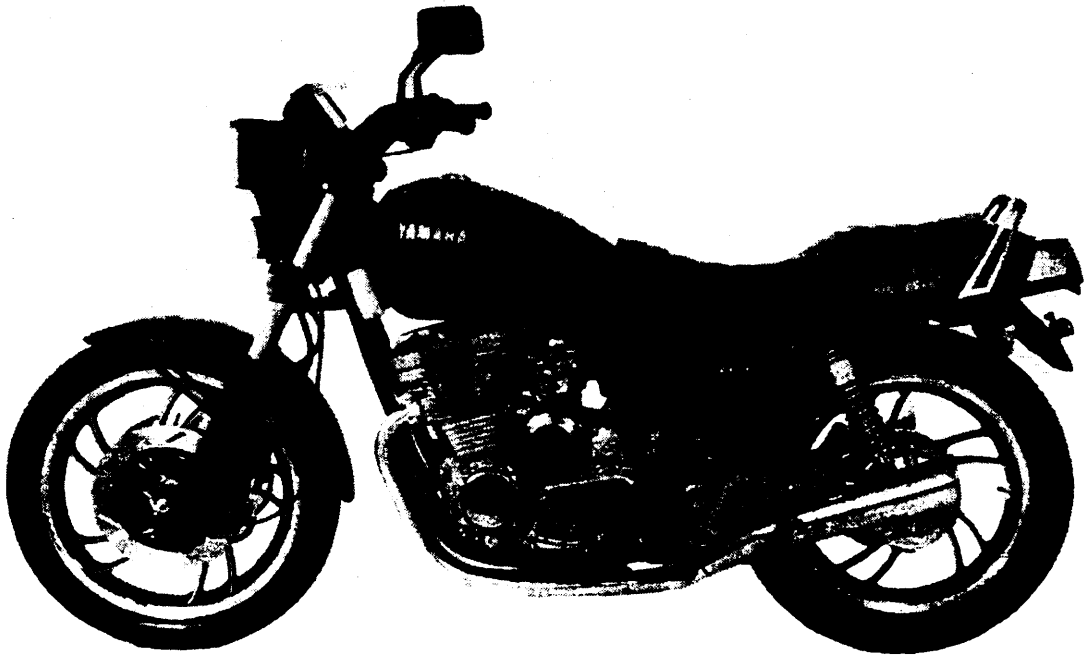
XJ750RH
SUPPLEMENTARY SERVICE MANUAL

1st Edition - January 1981
2nd Printing - May 1981 JEM

LIT-11616-02-34

Starting Serial Number

XJ750RH	5G2-000101



MAINTENANCE AND LUBRICATION CHART

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	8,000 km (5,000 mi) or 12 months
1*	Valve clearance	Check and adjust valve clearance when engine is cold.		O		O
2	Spark plugs	Check condition. Adjust cap. Clean. Replace at 13,000 km (or 18 months) or thereafter every 12,000 km (or 18 months).		O	O	Replace every 12,000 km (7,500 mi) or 18 months.
3*	Crankcase ventilation system	Check ventilation hose for cracks or damage. Replace if necessary.		O		O
4*	Fuel line	Check fuel hose and vacuum pipe or damage. Replace if necessary.		O		O
5*	Exhaust system	Check for leakage. Retighten if necessary. Replace gasket(s) if necessary.		O	O	
6*	Carburetor synchronization	Adjust synchronization of carburetors.		O	O	
7*	Idle speed	Check and adjust engine idle speed. Adjust cable free play if necessary.		O	O	

* It is recommended that these items be serviced by a Yamaha dealer or other qualified mechanic.

General maintenance/lubrication

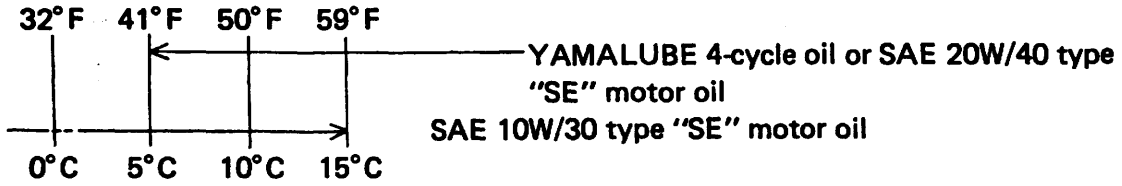
No.	Item	Remarks	Type	Initial break-in		Thereafter every		
				1,000 km (600 mi) or 1 month	5,000 km (3,000 mi) or 7 months	4,000 km (2,500 mi) or 6 months	8,000 km (5,000 mi) or 12 months	16,000 km (10,000 mi) or 24 months
1	Engine oil	Warm-up engine before draining.	Refer to NOTE	O	O	O		
2	Oil filter	Replace.	–	O	O		O	
3	Final gear oil	Replace.	Refer to NOTE	O			O	
4*	Air filter	Chain with compressed air.	–		O		O	
5*	Brake system	Adjust free play. Replace pads if necessary. Check plunger case for brake fluid leakage (front). Replace shoes if necessary (rear).	–	O	O	O		
6*	Clutch	Adjust free play.	–	O	O	O		
7*	Control and meter cable	Apply chain lube thoroughly.	Yamaha chain and cable lube or SAE 10W/30 motor oil	O	O	O		
8	Brake pedal and change pedal shaft pivots	Apply chain lube lightly.	Yamaha chain and cable lube or SAE 10W/30 motor oil		O	O		
9	Center and side stand pivots	Apply chain lube lightly.	Yamaha chain and cable lube or SAE 10W/30 motor oil		O	O		
10*	Rear arm pivot bearing	Check bearings assembly for looseness. Moderately repack every 16,000 km (10,000 mi).	Medium weight wheel bearing grease					Repack

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
11*	Front fork oil	Drain completely. Refill to specification.	Yamaha fork oil 10Wt or equivalent					O
12*	Steering bearing and races	Check bearings assembly for looseness. Moderately repack every 16,000 km (10,000 mi).	Medium weight when bearing grease		O	O		Repack
13*	Wheel bearings	Check bearings for smooth rotation. Replace if necessary.	–		O	O		
14	Battery	Check specific gravity Check breather pipe for proper operation.	–		O	O		
15	*Brake/Clutch* lever pivot shaft	Apply chain lube lightly.	Yamaha chain and cable lube or SAE 10W/30 motor oil		O	O		
16*	A.C. Generator	Replace generator brushes. Replace at initial 13,000 km (8,000 mi) and thereafter every 16,000 km (10,000 mi).	–					Replace

* It is recommended that these items be serviced by a Yamaha dealer or other qualified mechanic.

NOTE:

Engine oil type:



Final gear oil type:

SAE 80 API "GL-4" Hypoid gear oil

NEW SERVICE

*ENGINE

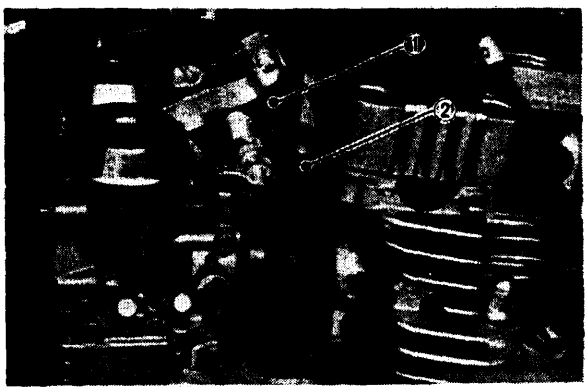
A. SYNCHRONIZATION

The seat must be opened and the rear of the tank elevated to gain access to the vacuum connections and synchronizing screw of the carburetors.

NOTE:

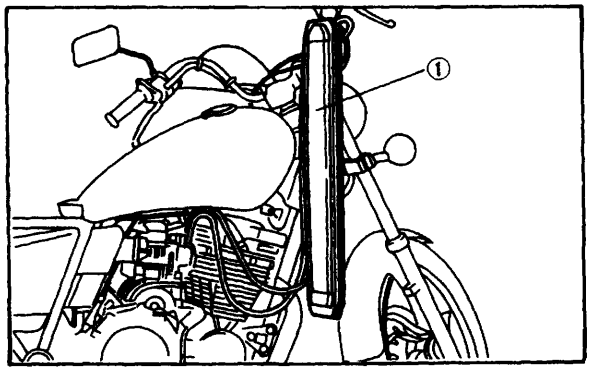
The valve clearances must be set properly before synchronizing the carburetors.

1. Remove the vacuum pipe from the carburetor manifold (No. 3 cylinder) and turn the fuel petcock to "PRI".
2. Remove the rubber caps from the No. 1, 2, and 4 carburetor manifolds.



1. Vacuum pipe 2. Rubber cap

3. Remove either the left or right (but not both) blind plug at the end of the YICS (Yamaha Induction Control System) passage in the cylinder.
4. Insert the YICS shutoff tool (special tool) fully and flip the locking lever.
5. Connect each vacuum gauge hose to its proper carburetor.



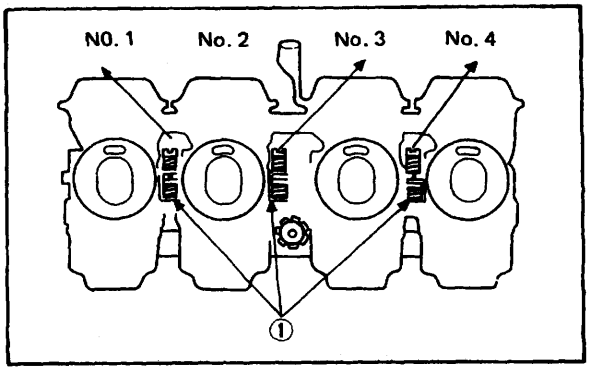
1. Vacuum gauge

6. Start the engine allow it to warm-up for a few minutes. The warm-up is complete when engine responds normally to the throttle opening.
7. Make sure the engine idle speed is 950 ~ 1,000 r/min. If it does not, adjust the idle speed with the throttle stop screw.

NOTE:

With the YICS shutoff tool fitted, the engine speed generally drops a little. Thus, continue with the following steps at idle speed of 950 ~ 1,000 r/min.

8. Each gauge reading will indicate the same if the carburetors are synchronized. The No. 3 carburetor has no synchronizing screw and the other carburetors are to be synchronized to it in order, one at a time.
   First, synchronize carburetor No. 1 to carburetor No. 2 by turning the No. 1 synchronizing screw until both gauges read the same.
   Second, in the same way synchronize carburetor No. 4 to carburetor No. 3.
   Third, by adjusting No. 2 screw to watch No. 3 carburetor reading, No. 1 and No. 2 carburetors will both change to match No. 3 carburetor.



1. Synchronizing screws

9. Remove the YICS shutoff tool and reinstall the blind plug.

Tightening torque: 2.2 m-kg (16.0 ft-lb)

10. Check the idle speed.
    Adjust if necessary.
    (Refer to B. IDLE SPEED ADJUSTMENT)

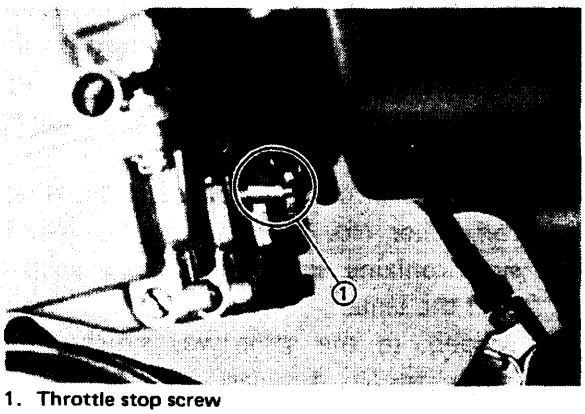
B. IDLE SPEED ADJUSTMENT

NOTE:

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

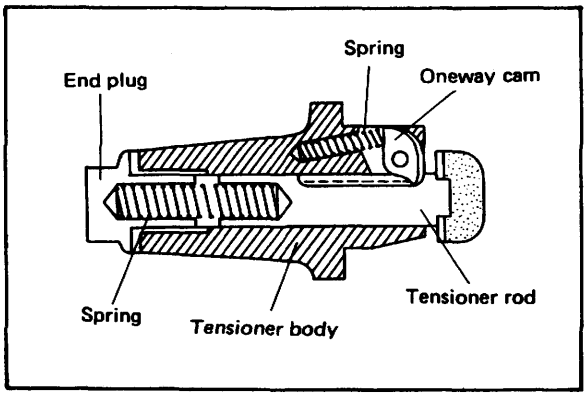
1. The engine must be warmed up before setting idle speed.
2. Set the engine idle speed by turning the throttle stop screw in (to increase engine speed) or out (to decrease engine speed).

Standard idle speed: 1,050 r/min



1. Throttle stop screw

C. CAM CHAIN TENSIONER



This model has been equipped the automatic cam chain tensioner. No adjustment is necessary.

When installing this tensioner onto the cylinder proceed as follows:

1. Remove the end plug and spring from the tensioner assembly.
2. Unlock the oneway cam by pushing it with your finger and push the tensioner rod into the tensioner body until it stops.
3. Install the tensioner to the cylinder and torque the bolts to the specification.

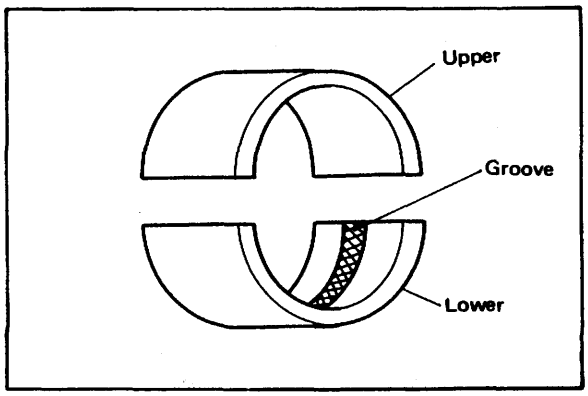
Tightening torque: 1.0 m-kg (7.2 ft-lb)

4. Reinstall the spring and end plug with the gasket. Torque the end plug to the specification.

Tightening torque: 1.5 m-kg (11 ft-lb)

D. CRANKSHAFT BEARING

The crankshaft main bearing which has no groove on the bearing surface should be installed in the upper crankcase.



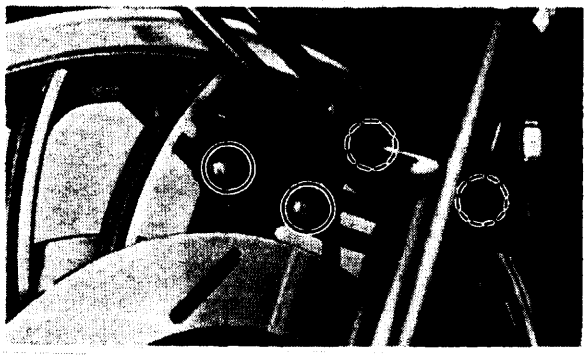
E. CARBURETION

1. Specification

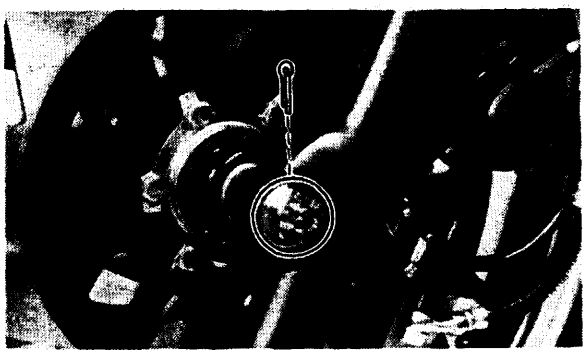
Main jet	#120
Jet needle	Y-3
Starter jet	#40
Fuel level	3 ± 1 mm (0.118 ± 0.039 in)
Pilot screw	Preset
Float valve seat	ϕ2.0
Engine idle speed	1,050 r/min

A. FRONT WHEEL

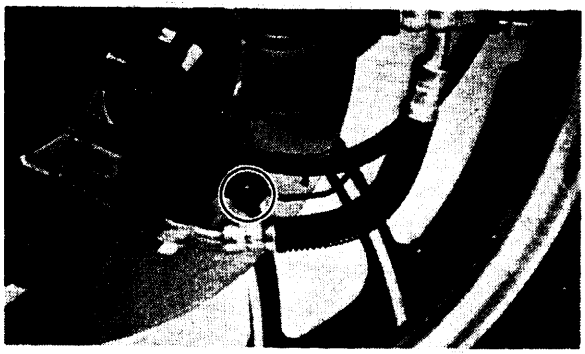
1. Place the motorcycle on the center stand.
2. Remove the front fender securing bolts and remove the fender.



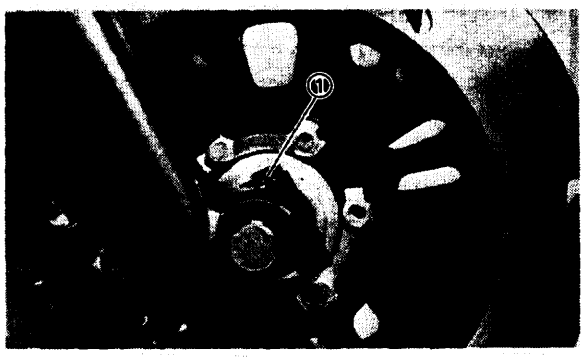
3. Remove the cotter pin and wheel axle nut.



4. Remove the speedometer cable holder securing bolt.

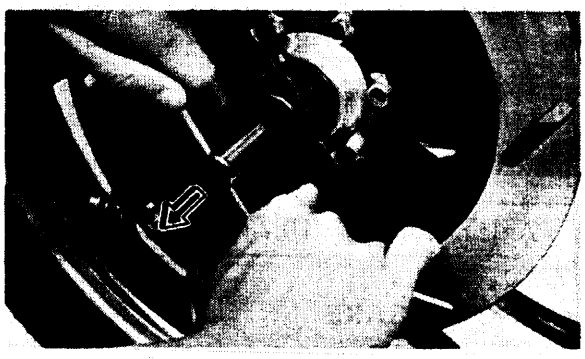


5. Loosen the pinch bolt securing the axle.



1. Pinch bolt

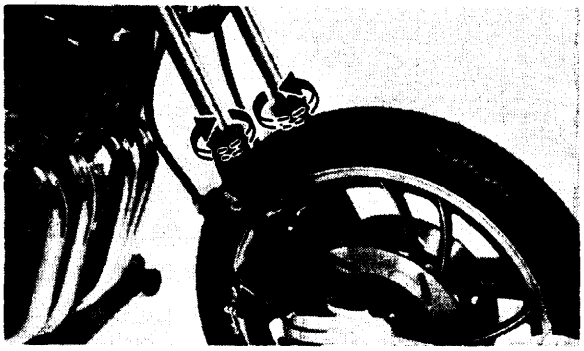
6. Remove the axle shaft and the front wheel. In this case, make sure the motorcycle is properly supported.



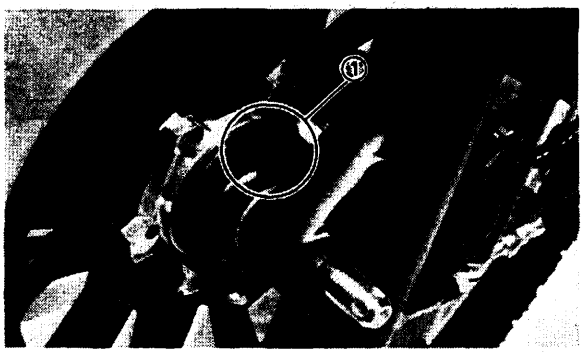
NOTE:

Do not depress the brake lever when the wheel is off the motorcycle as the brake pads will be forced to shut.

7. Lower the wheel until the brake discs come off the calipers. Turn the calipers outward so they do not obstruct the wheel and remove the wheel.



8. For reassembly, follow the procedure below with case;
   a. Install the speedometer cable holder securing bolt.
   b. Make sure the projecting portion (torque stopper) of the speedometer housing is positioned correctly.

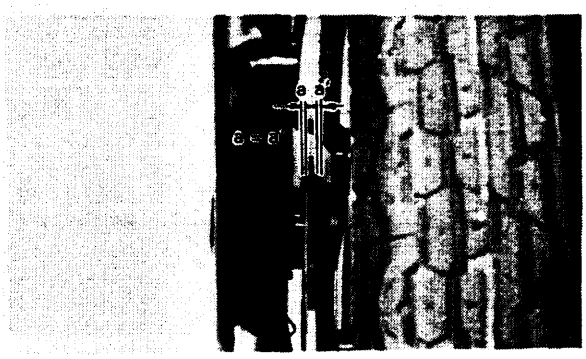


1. Torque stopper

   c. Tighten the axle nut and install a new cotter pin.

Axle nut torque: 10.7 m-kg (77.5 ft-lb)

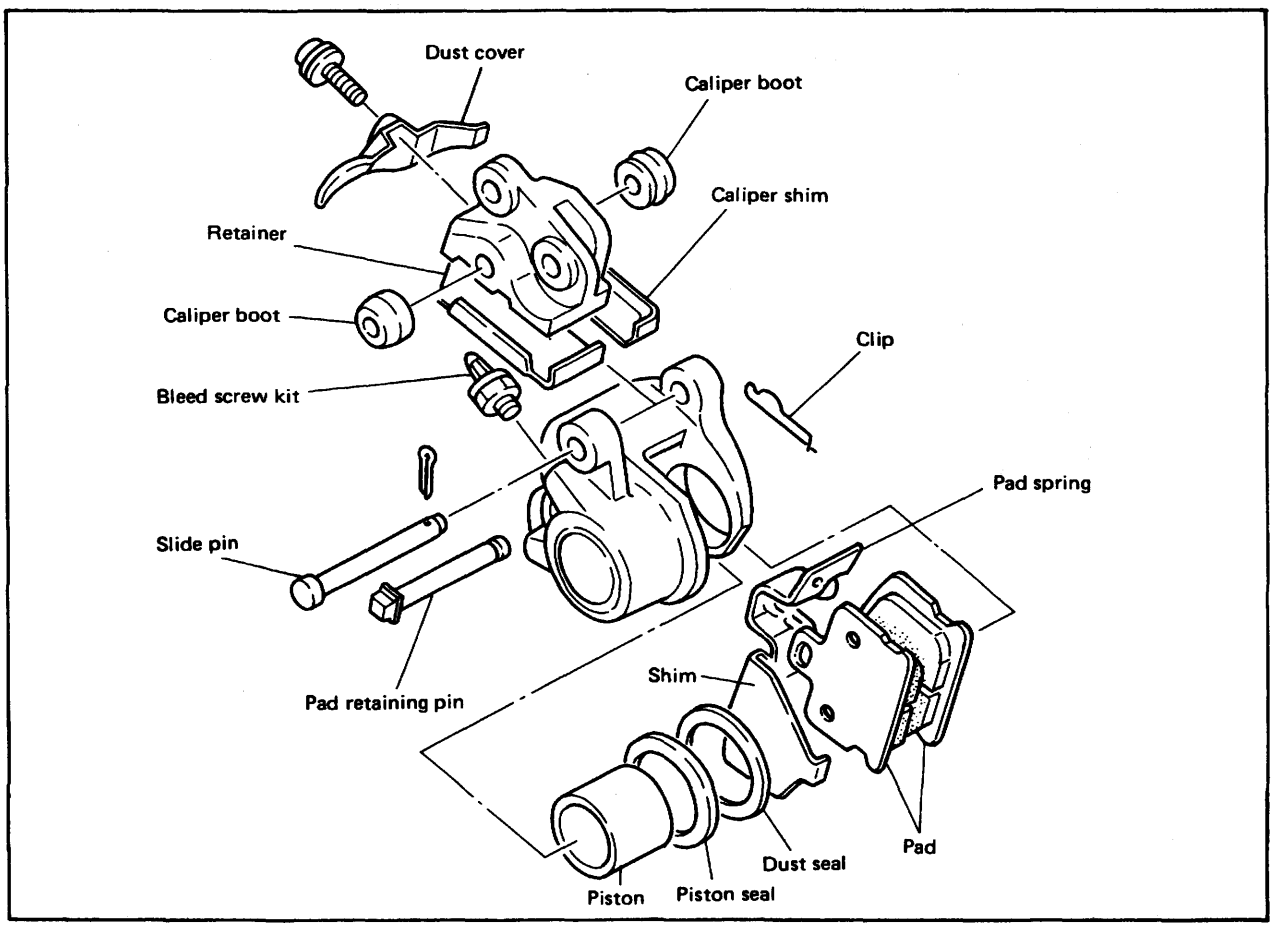
   d. Install the front fender.
   e. Before tightening the pinch bolt, compress the front forks several times to make sure of proper fork operation.
   With the axle pinch bolt loose, work the right fork leg back and forth until the proper clearance between the disc and caliper bracket on the front is obtained.



   f. Tighten the axle pinch bolt.

Axle pinch bolt torque: 2.0 m-kg (14.5 ft-lb)

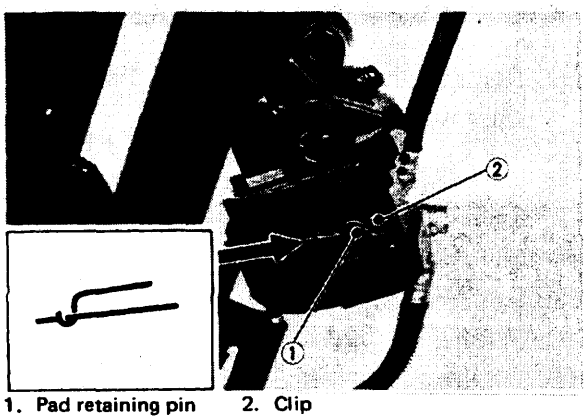
B. FRONT BRAKE



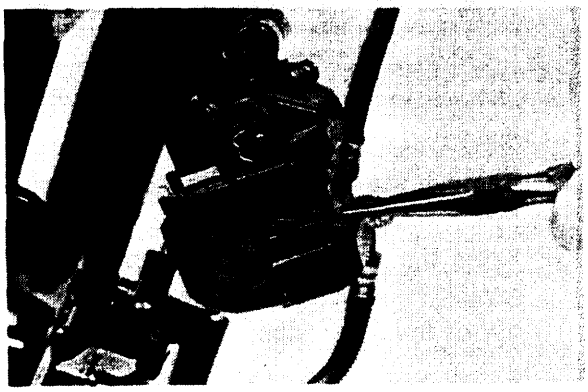
Caliper Pad Replacement

It is not necessary to disassembly the brake caliper and brake hose to replace the brake pads.

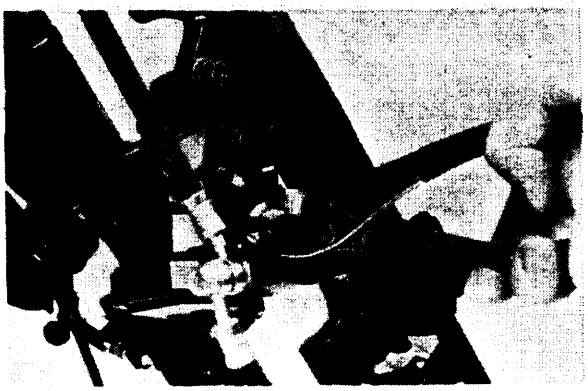
1. Remove the front fender and front wheel.
2. Unhook the pad retaining pin clip and remove the clip.



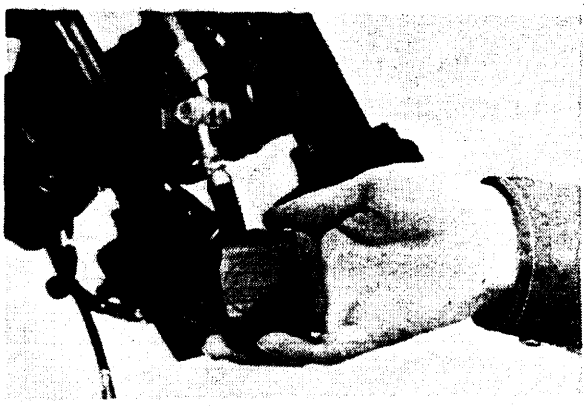
1. Pad retaining pin 2. Clip



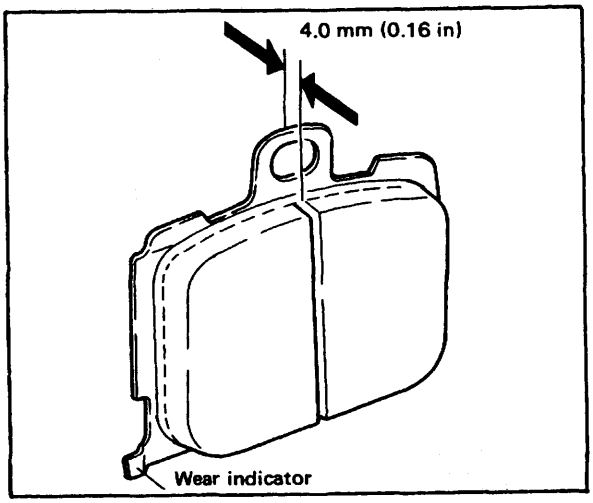
3. Pull out the pad retaining pin.



4. Remove the pads.



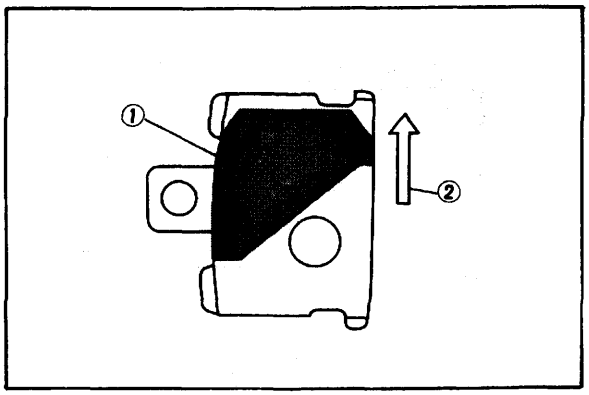
Pad wear limit: 4.0 mm (0.16 in)



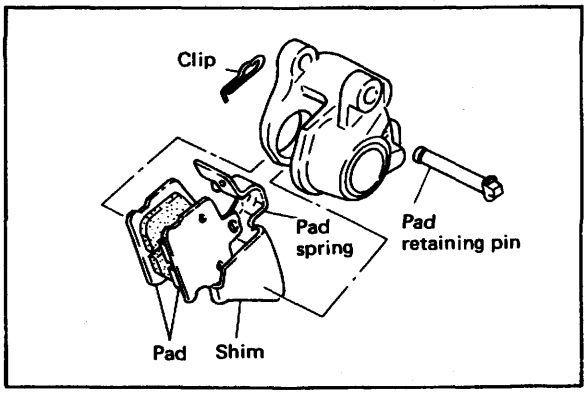
5. Install the new brake pads and shims. Before installing the pads, install the shim on the back plate which faces the caliper piston, as shown. Also replace the following parts if pad replacement is required.
   a. Pad spring
   b. Shim
   c. Pad retaining pin
   d. Clip

NOTE:

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



1. Shim 2. Disc rotating direction



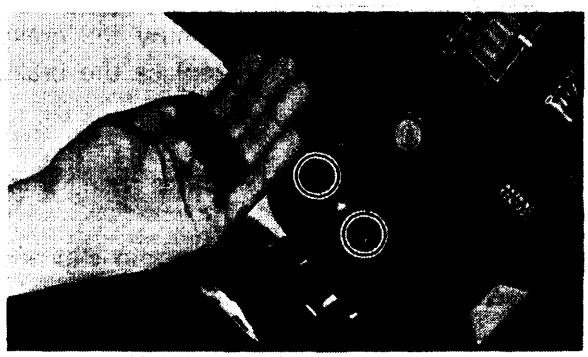
C. FRONT FORK/REAR SHOCK ABSORBER

Front fork oil change

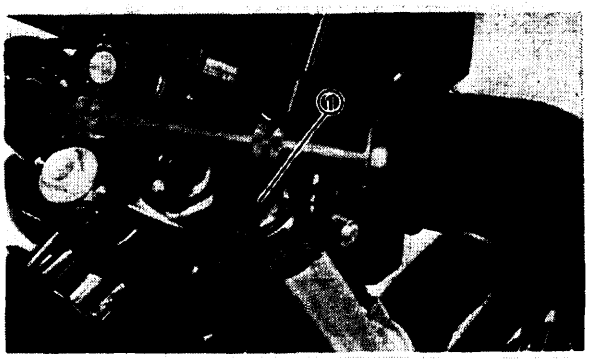
WARNING:

1. **Fork oil leakage can cause loss of stability and safe handling. Have any problem corrected before operating the motorcycle.**
2. ***Securely support the motorcycle so there is no danger of it falling over.***

1. Raise the motorcycle or remove the front wheel so that there is no weight on the front end of the motorcycle.
2. Remove the center handlebar cover and handlebar.

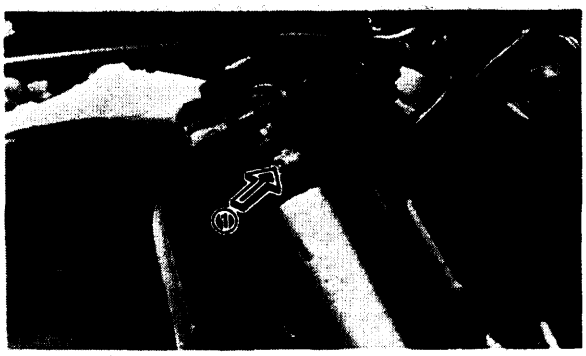


3. Remove the rubber cap from the top of each fork.



1. Rubber cap

4. Remove the air valve caps from the each fork.
5. Keep the valve open by pressing it for several seconds so that the air can be let out of the inner tube.

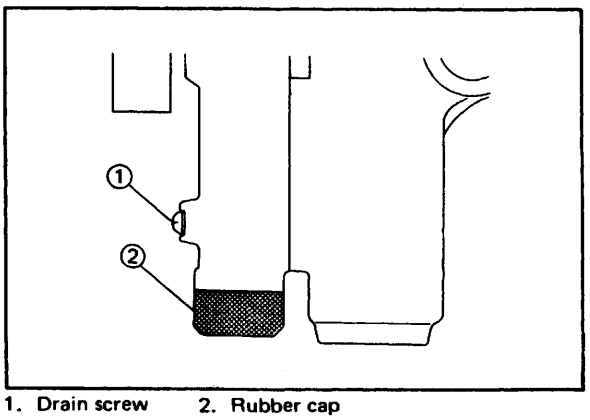


1. Push

6. The spring seat and fork spring are retained by a stopper ring (spring wire circlip). It is necessary to depress the spring seat and fork spring to remove the stopper ring. Remove the stopper ring by carefully prying out one end with a small screwdriver.
7. Place an open container under each drain hole. Remove the drain screw from each anti-dive unit.

WARNING:

Do not allow oil to contact the disc brake components. If any oil should contact the brake components it must be removed before the motorcycle is operated. Oil will cause diminished braking capacity and will damage the rubber components of the brake assembly.

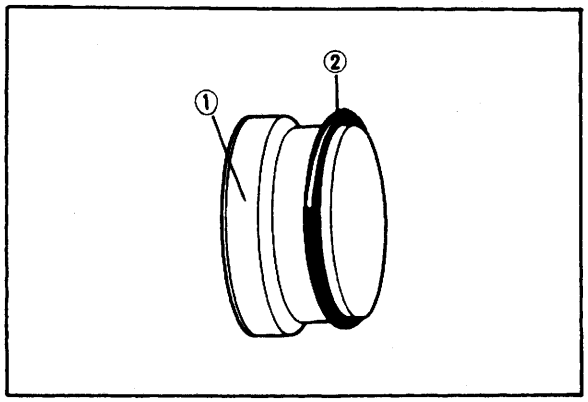


1. Drain screw 2. Rubber cap

8. When most of the oil has drained, slowly raise and lower the outer tubes to pump out the remaining oil.
9. Inspect the drain screw gasket. Replace if damaged. Reinstall the drain screw.
10. Pour the specified amount of oil into the fork inner tube.

Front fork oil (each fork):
309 cc (10.5 oz)
Yamaha Fork Oil 20Wt or equivalent

11. After filling, slowly pump the forks up and down to distribute the oil.
12. Inspect the O-ring on the spring seat. Replace O-ring if damaged.



1. Spring seat 2. O-ring

13. Reinstall the spring seat and fill the fork with air using a manual air pump or other pressurized air supply. Refer to "Front fork and rear shock absorber adjustment" for proper air pressure adjusting.

CAUTION:

Always use a new stopper ring (spring wire circlip).

Maximum air pressure:
2.5 kg/cm² (36 psi)
Do not exceed this amount.

Front fork and rear shock absorber adjustment

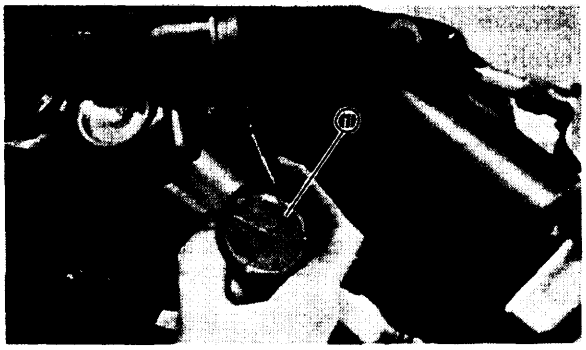
Front fork:

1. Elevate the front wheel by placing the motorcycle on the center stand.

NOTE:

When checking and adjusting the air pressure, there should be no weight on the front end of the motorcycle.

2. Remove the air valve caps from each fork.
3. Using the air gauge, check and adjust the air pressure.
   If the air pressure is increased, the suspension becomes stiffer and if decreased, it becomes softer.
   To increase:
   Use a manual air pump or other pressurized air supply.
   To decrease:
   Replace the air by pushing the valve pin.



1. Air gauge

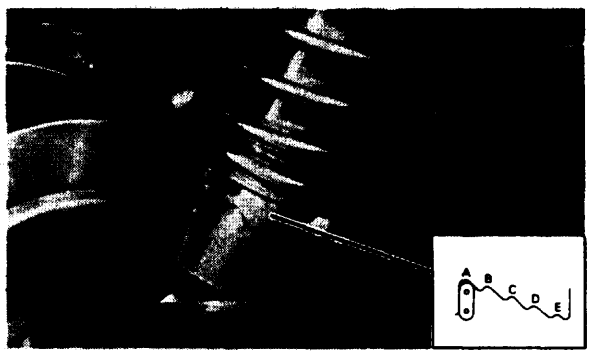
Standard air pressure:
0.4 kg/cm² (5.7 psi)
Maximum air pressure:
2.5 kg/cm² (36 psi)
Minimum air pressure: Zero
* Never exceed the maximum pressure, or oil seal damage may occur.
* The difference between both the left and right tubes should be 0.1 kg/cm² (1.4 psi) or less.

4. Install the air valve caps securely.

Rear shock absorber:

1. Spring preload
   If the spring seat is raised, the spring becomes stiffer and if lowered, it becomes softer.

Standard position – A
A. position – Softest
E. position – Stiffest

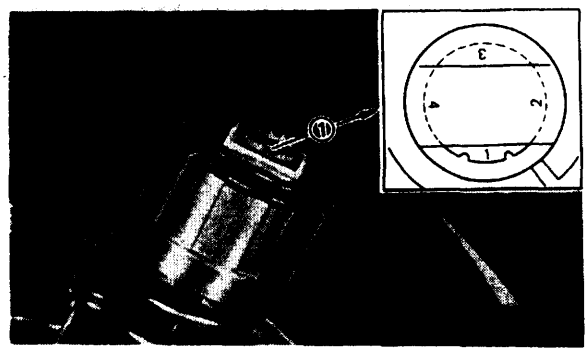


2. Damping force
   Turn the damping force adjuster by your fingers to increase or decrease the damping force. If it is difficult to turn it with your fingers, use a screw driver.

Standard position – No. 1
No. 1 – Minimum damping force
No. 4 – Maximum damping force

NOTE:

When adjusting the damping force, the adjuster should be placed in the clicked position. If not, the damping force will be set to the maximum (No. 4).
Always adjust both the right and left absorbers to the same position.



1. Damping force adjuster

Recommended combinations of the front fork and the rear shock absorber.

Use this table as guidance to meet specific riding conditions and motorcycle load.

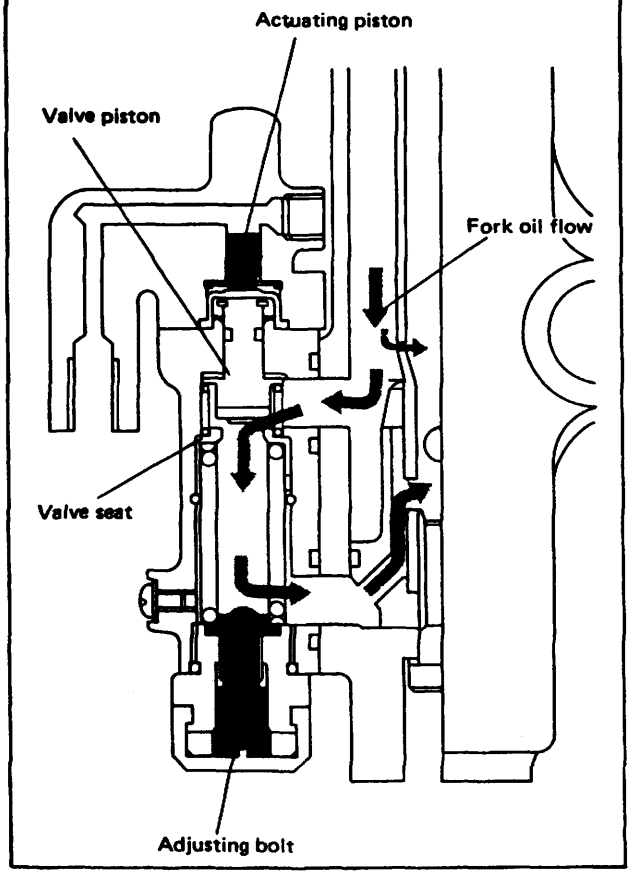
	Front fork	Rear shock absorber		Loading condition			
	Air pressure	Spring seat	Damping adjuster	Solo rider	With passenger	With accessory equipments	With accessory equipments and passenger
1.	0.4 ~ 0.8 kg/cm² (5.7 ~ 11.4 psi)	A ~ C	1	O			
2.	0.4 ~ 0.8 kg/cm² (5.7 ~ 11.4 psi)	A ~ C	2	O	O		
3.	0.4 ~ 0.8 kg/cm² (5.7 ~ 11.4 psi)	C ~ E	3		O	O	
4.	0.8 ~ 1.2 kg/cm² (11.4 ~ 17.1 psi)	E	4			O	O

D. ANTI-DIVE SUSPENSION

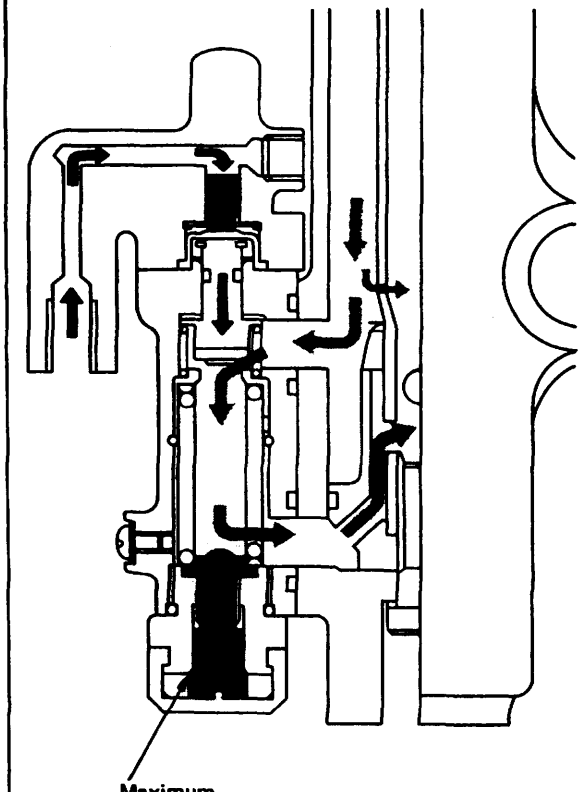
Operation

1. When the brake lever is squeezed for a certain amount, the brake fluid pressure pushes the valve piston into the pressure control valve seat via the actuating piston, closing the control valve; the flow of fork oil through the compression damping circuit is restricted substantially and prevent the motorcycle front dive.
2. This anti-dive effect can be adjusted to suit motorcycle load and riding conditions by turning the adjusting bolt (see illustrations). This control valve controls the compression oil pressure in the front fork.
3. When a bump is encountered during braking, the fork oil pressure in the compression damping circuit increases. This increased pressure override the system by pushing the spring-loaded pressure control valve seat away from the valve piston, and fork oil flows through the valve. The fork then responds to absorb the shock of the bump.
4. As the road becomes smooth again, the pressure in the compression damping circuit decreases, allowing the valve seat to return to its position against the valve piston, then the system resumes its stabilizing effect on the fork.

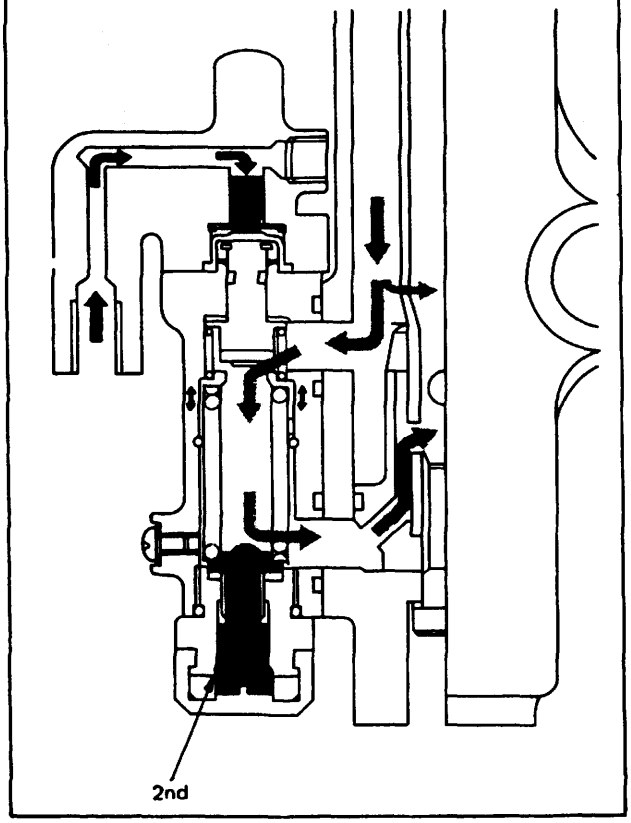
ANTI-DIVE SYSTEM



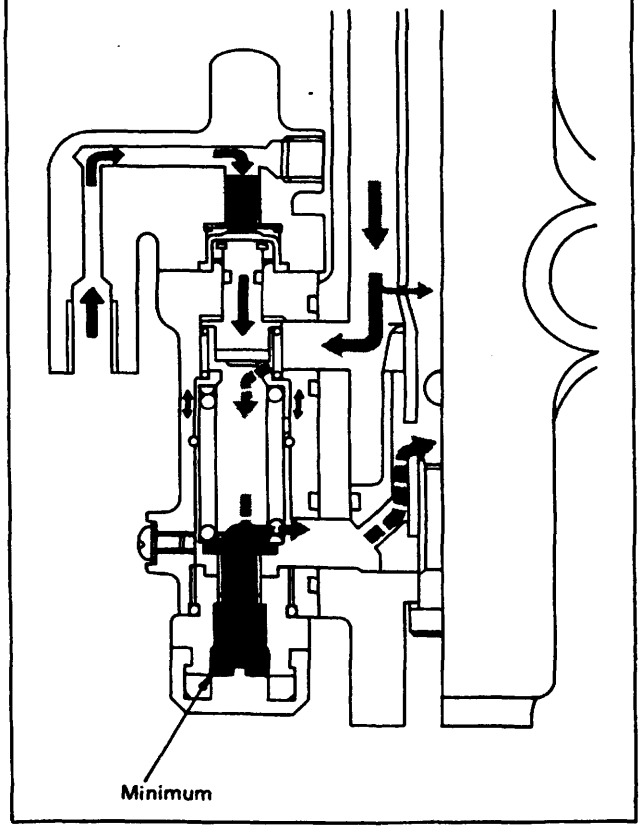
Oil flow as the adjusting bolt is set to the minimum.



Oil flow as the adjusting bolt is set to the 2nd.



Oil flow as the adjusting bolt is set to the maximum.

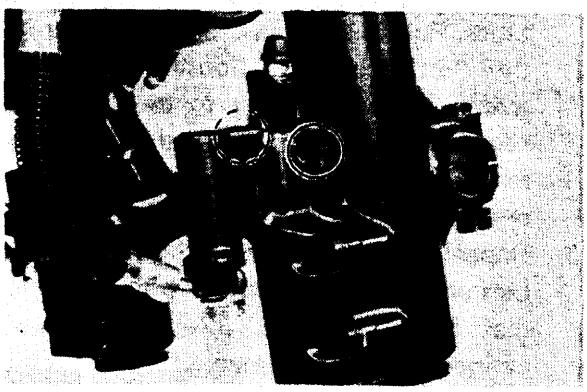


System inspection

1. Apply the front brake for a few minutes and check to see if any brake fluid leaks out of the pipe joint and/or the vent.
2. Check the fork for fork oil leakage.
3. Turn the anti-dive adjusting bolt to the maximum position.
4. Compress the front forks while applying the front brake. If the front forks are compressed easily, the anti-dive system may be damaged.

Removal

1. Release the air from the front fork by pressing the air valve pin.
2. Remove the drain screw from the anti-dive valve housing and drain the fork oil.
3. Remove the brake hose from the actuating piston housing.
4. Remove the bolts securing the actuating piston housing, and remove the housing from the anti-dive valve housing.



5. Remove the anti-dive adjusting bolt cover and remove the adjusting bolt seat.

CAUTION:

The adjusting bolt can not be removed from its seat.

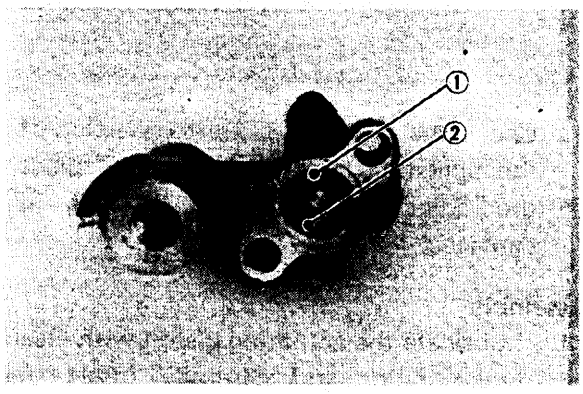
6. Remove four bolts securing the anti-dive valve assembly and remove the housing assembly from the front fork. Remove two O-rings from the front fork.

Inspection

NOTE:

The anti-dive valve housing can not be disassembled so it must be replaced with a new one if the anti-dive valve malfunction is found.

1. Remove the circlip and remove the actuating piston from the actuating piston housing.

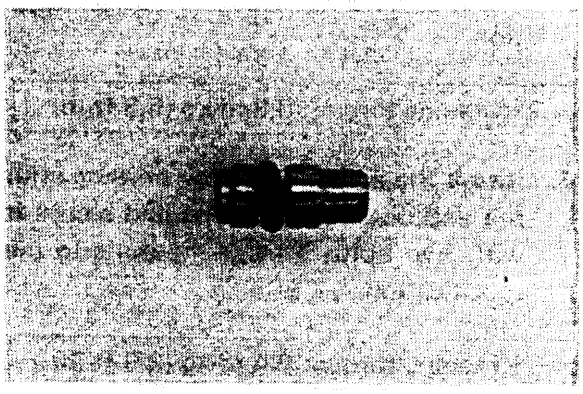


1. Circlip 2. Actuating piston

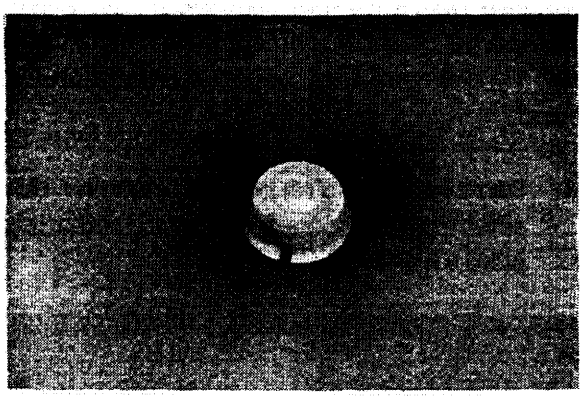
CAUTION:

Do not remove the O-ring from the actuating piston.

2. Check the piston, O-ring, and cylinder for wear, cracks, rust, and/or scrathces. If any damage is found, replace the actuating piston housing assembly.



3. Check the piston separator for cracks and replace if damaged.



4. Check the spring seat rivetted portion of the adjusting bolt for damage. Replace the adjusting bolt seat assembly if damaged.

Assembly

1. Lubricate the actuating piston with clean brake fluid, and carefully insert the piston into the actuating piston housing cylinder until the shoulder of the piston is flush with the cylinder edge.
2. Install the washer and circlip.
3. Install the separator into the actuating piston housing.
4. Install new O-rings around the front fork oil pasages.
5. Install the anti-dive valve housing onto the front fork and secure it with four bolts. Torque the bolts to the specification.

Tightening torque: 0.8 m-kg (5.8 ft-lb)

6. Install the actuating piston housing onto the anti-dive valve housing and secure it with two bolts. Torque the bolts to the specification.

Tightening torque: 0.4 m-kg (2.9 ft-lb)

7. Install a new O-ring onto the adjusting bolt seat and apply a thread locking compound. Install the adjusting bolt seat assembly and tighten it to the specification.

Tightening torque: 2.0 m-kg (14.5 ft-lb)

8. Connect the brake hose to the actuating piston housing with the union bolt and copper washers. Torque it to the specification.

Tightening torque: 2.6 m-kg (18.8 ft-lb)

9. Pour the specified amount of front fork oil into the fork inner tube.

Front fork oil capacity (each leg): 309 cc (10.5 oz) Recommended oil: Yamaha fork oil 20Wt or equivalent

10. Add proper brake fluid into the brake reservoir being careful not to spill or overflow.
11. Connect the clear plastic tube of 4.5 mm in inside diameter tightly to the actuating piston housing bleed screw. Put the other end of the tube into a container.
12. Slowly apply the brake lever several times. Pull in the lever. Hold the lever in the "on" position. Loosen the bleed screw. Allow the lever to travel slowly toward its limit. When the limit is reached, tighten the bleed screw. Then release the lever.
13. Repeat the above step until all air bubbles are removed from the brake line. It may be necessary to bleed the caliper cylinder in the same manner.

NOTE:

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

14. Fill the fork with air using a manual air pump or other pressurized air supply.

Standard air pressure: 0.4 kg/cm^2 (5.7 psi)

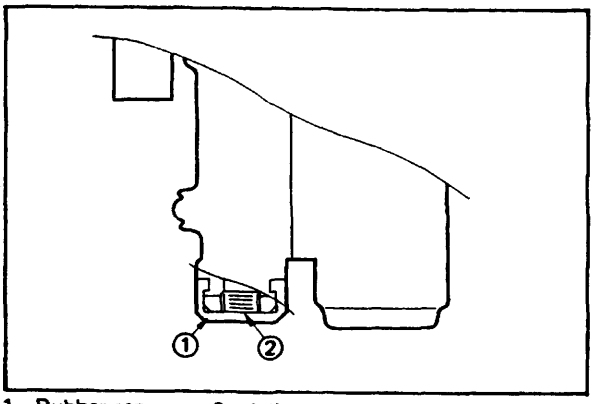
15. Adjust the anti-dive adjusting bolt.

WARNING:

The anti-dive setting must be the same on both anti-dive units.

Anti-dive adjustment

1. Remove the rubber cap from the bottom of the anti-dive unit.
2. Observe the head of the adjusting bolt through the machines slot(s) in the bottom of the anti-dive unit. In the standard position, four lines will be visible on the adjusting bolt head. Consult the fork adjustment chart below to determine the proper setting.

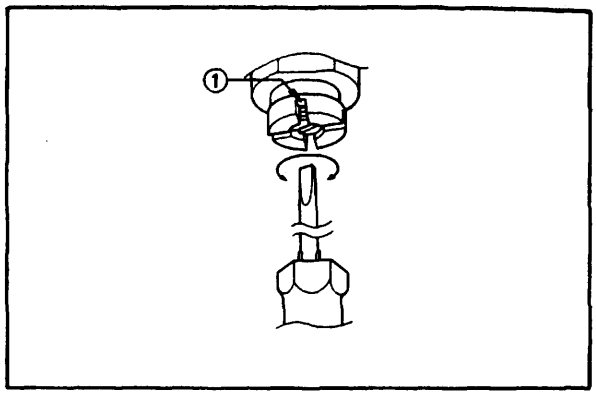


1. Rubber cap 2. Adjusting bolt

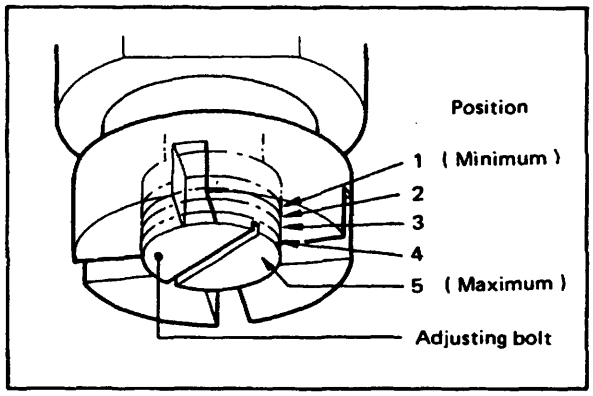
3. To decrease the anti-dive effect, turn the adjusting bolt counterclockwise until the first line appears level to the top of the machined slot(s).

WARNING:

When the first line appears in the machined slot(s), the adjusting bolt will bottom in the anti-dive unit and a resistance will be felt. Do not attempt to turn the adjusting bolt beyond this point, or the anti-dive unit will be damaged.



1. Machined slot



4. To increase the anti-dive effect, turn the adjusting bolt clockwise.
5. Replace the rubber cap.

WARNING:

The anti-dive settings must be the same on both anti-dive units. Hence, be sure to perform the above procedure on both anti-dive units.

Adjusting bolt position	Loading condition		
	Solo rider	With accessory equipments or passenger	With accessory equipments and passenger
1	O		
2	O	O	
3	O	O	O
4		O	O
5			O

Front Fork Disassembly

WARNING

Securely support the motorcycle so it won't fall over when the front wheel and fork legs are removed.

1. Remove the caps from the fork air valves, and depress the valves until the air pressure escapes completely from both fork legs.
2. Disconnect the speedometer cable from the speedometer drive unit.
3. Remove the brake calipers from the fork legs.
4. Remove the front wheel.
5. Remove the bolts which hold the anti-dive plunger cases to the anti-dive units, and remove the plunger cases.
6. Remove the front fender.
7. Loosen the fork pinch bolts in the handle crown and underbracket.
8. Slide the fork legs out of the handle crown, and remove the rubber O-rings and the air valve brackets from the fork legs.
9. Remove the spring wire circlips from the outside of the fork legs, and remove the fork legs from the motorcycle.

NOTE:

Perform the fork leg disassembly and reassembly procedures on one fork leg at a time.

10. Remove the rubber cap from the top of the fork tube.
11. Push down on the spring seat, and remove the spring seat circlip from the fork tube.
12. Remove the spring seat and fork spring.
13. Inspect the O-ring on the spring seat, and replace the O-ring if it is damaged.
14. Over a drain pan, turn the fork leg upside down and slowly pump the fork oil out of the fork leg.
15. Remove the four bolts that hold the anti-dive unit to the fork leg, and remove the anti-dive unit.
16. Remove the damper rod bolt from the bottom of the fork leg.
17. Hold one hand over the top of the fork leg, and turn the leg upside down so the damping rod and rebound spring slide down and out of the fork leg; take care not to let the damper rod fall to the ground, as it may be damaged.
18. With the fork leg upright, use a propane torch to heat the top of the slider lightly, and remove the dust seal with a thin screwdriver. Take care not to scratch the inner tube. Discard the dust seal.

CAUTION:

Do not apply too much heat to the slider, as the paint will be damaged.

19. Remove the retaining clip and oil seal washer.
20. Hold the fork leg horizontally, securely clamp the axle-mounting boss of the slider in a vise with soft jaws, and again heat the top of the slider.
21. Slowly push the inner tube into the slider, and then pull the inner tube back out quickly until it tops out; the oil seal and guide bushing will be dislodged from the slider after this is done several times.

CAUTION:

Avoid bottoming the inner tube in the slider during the above procedure, as the oil lock valve assembly will be damaged.

22. Remove all components of the oil lock valve assembly and inspect them; replace the assembly if there are any damaged components.

23. Remove the oil seal, seal spacer, and both bushings from the inner tube; discard these parts and use new ones during reassembly.

24. Clean all components of the fork leg and inspect them; replace any worn or damaged components prior to reassembly.

Front Fork Reassembly

1. Install the rebound spring on the damper rod.

2. Install the slide bushing (slide metal 2) on the inner tube.

3. Install the damper rod in the inner fork tube, and allow it to slide slowly down the tube until it protrudes from the bottom.

4. Install the oil lock plate washer and valve spring, the oil lock valve, and the oil lock piece on the damper rod.

5. Carefully insert the inner tube and damper rod assembly into the slider, and align the damper rod bolt hole with the hole in the bottom of the slider. Also align the middle hole in the oil lock piece with the lowest hole leading to the anti-dive unit.

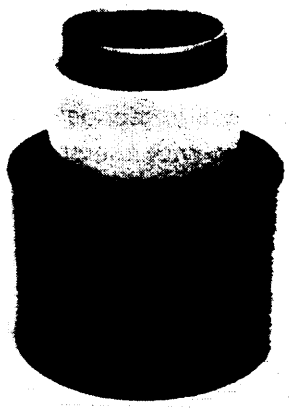
6. Apply a thread-locking compound such as Locktite® to the threads of the damper rod holding bolt, install the bolt in the damper rod, and torque it to specification.

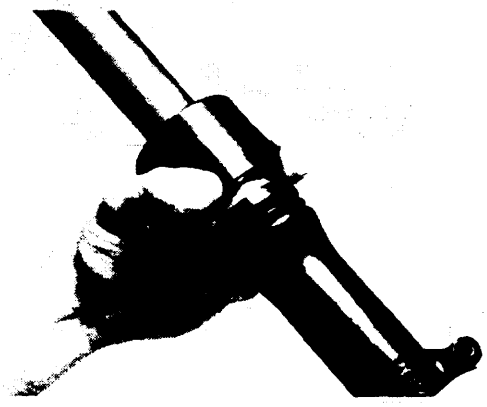
TIGHTENING TORQUE:	2.0 m-kg (14.5 ft-lb)

7. Make sure both O-rings are in place in the anti-dive unit; apply thread-locking compound to the bolts which hold the anti-dive unit to the slider, install the anti-dive unit, and torque the bolts to specifications.

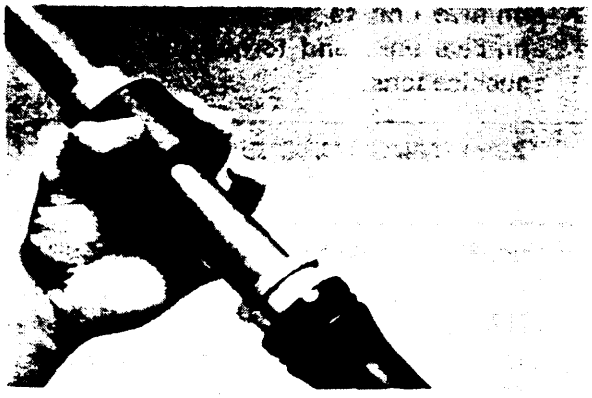
TIGHTENING TORQUE:	0.8 m-kg (5.8 ft-lb)

8. Install the guide bushing (slide metal 1) in the special 36mm fork tool (TLM-11080-10-00); see Photo 1. Use the tool to align the bushing in the top of the slider; see Photo 2.



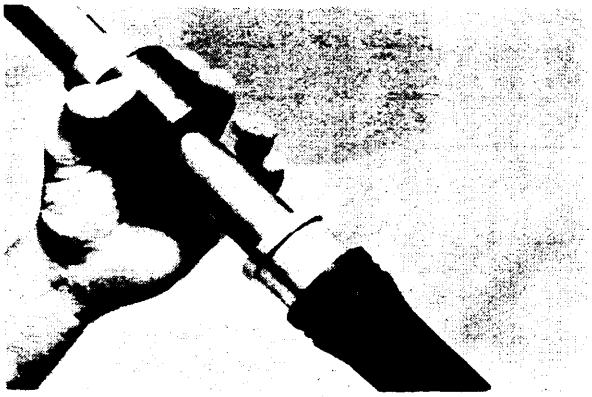


9. Remove the large part of the fork tool, place the small part on the guide bushing, and use the large part of the tool to drive in the bushing; see Photo 3.

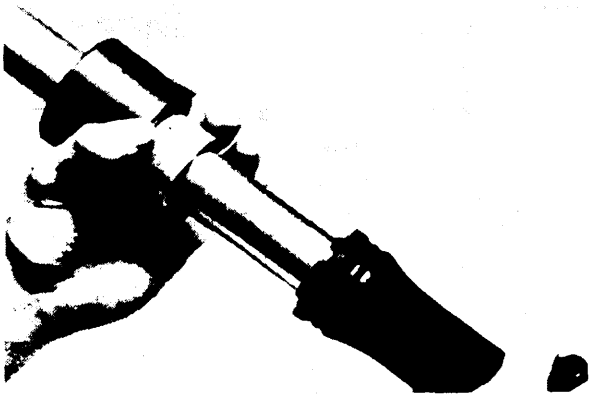


10. Install a new seal spacer, making sure the beveled edge faces upward.

11. Oil and install a new oil seal in the top of the slider with the special tool; see Photo 4.



12. Install the oil seal washer and circlip, and gently tap the dust seal into place with the special tool; see Photo 5.



13. Pour the specified amount of the recommended fork oil into the fork leg.

FORK OIL CAPACITY: 309cc (10.4 oz) per leg
RECOMMENDED OIL: 20wt Yamaha Fork Oil

11. Slowly pump the fork leg up and down to distribute the oil.

12. Install the fork spring, spring seat, and a new spring seat circlip.

13. Install the rubber cap in the top of the fork leg.

14. Slide the fork leg into the underbracket, and install the spring wire circlip, air valve bracket, and rubber O-ring on the fork leg.

15. Slide the fork leg the rest of the way into the handle crown, and align the air valve bracket properly. Torque the pinch bolts in the handle crown and underbracket.

TIGHTENING TORQUE: 2.0 m-kg (14.5 ft-lb)

16. Install the proper amount of air pressure in the fork legs. Take care not to exceed the maximum allowable air pressure.

MAXIMUM FORK AIR PRESSURE: 2.5 kg/cm² (36 psi)

17. Install the air valve caps.

WARNING

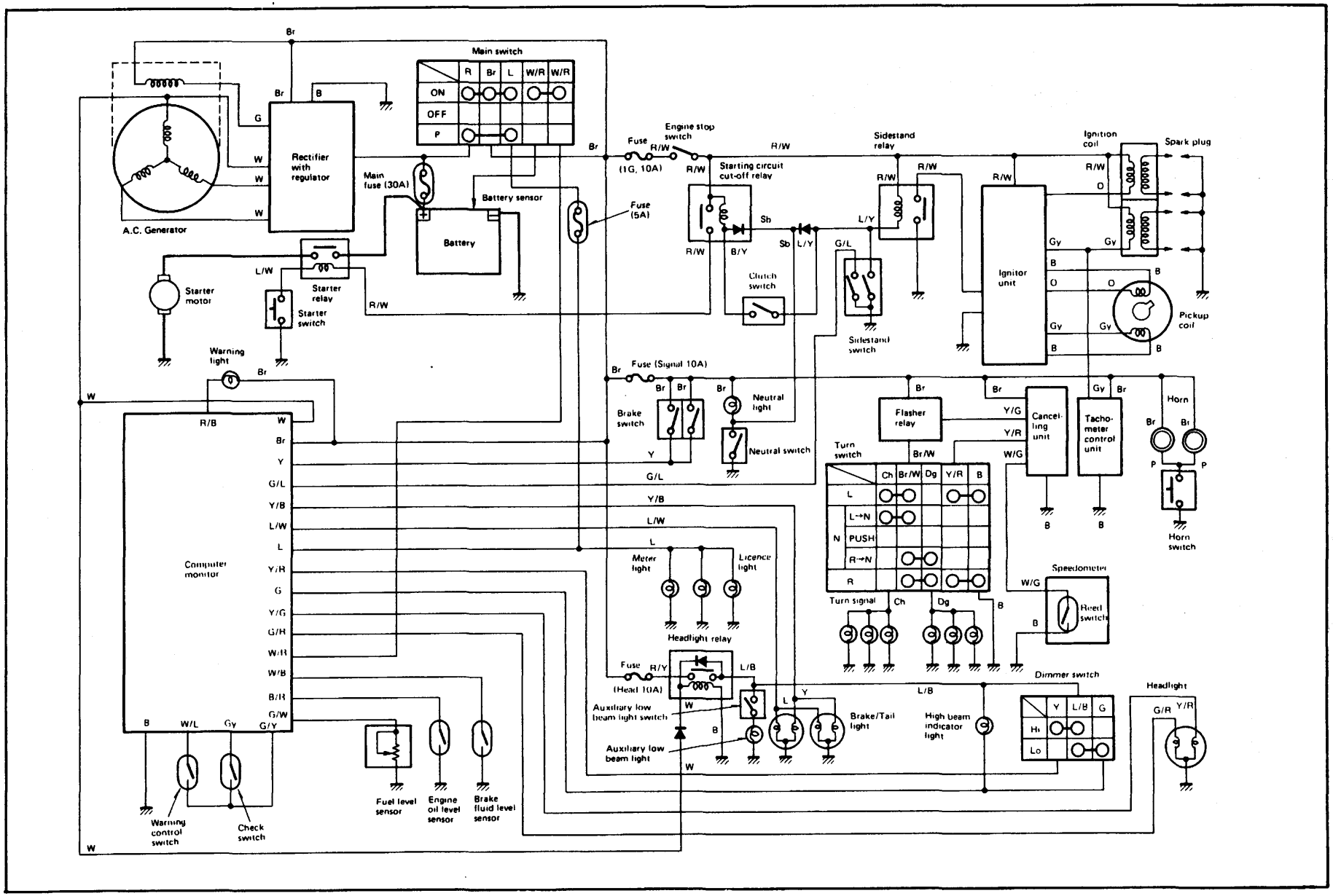
Make sure no oil has contacted any disc brake components or the anti-dive actuating piston housing; oil will cause diminished braking capacity and damage the rubber

components of the brake assembly and anti-dive actuating piston assembly. Make sure all oil is removed from the brake and actuating piston assemblies before they are reassembled and the motorcycle is operated.

18. Install the front fender, anti-dive plunger cases, front wheel, and brake calipers.

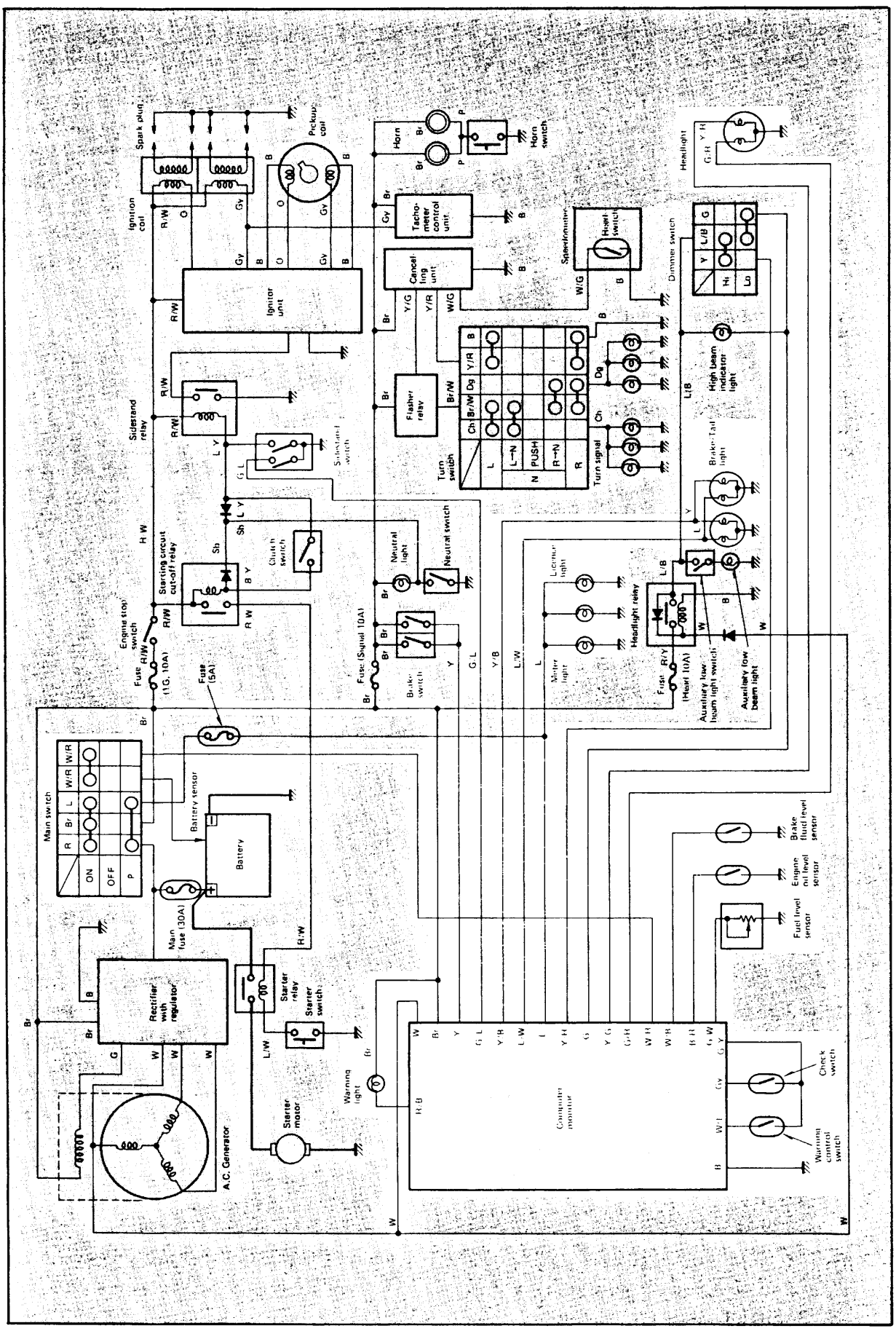
19. Connect the speedometer cable to the drive unit, and check the operation of the motorcycle.

A. XJ750RH WIRING DIAGRAM



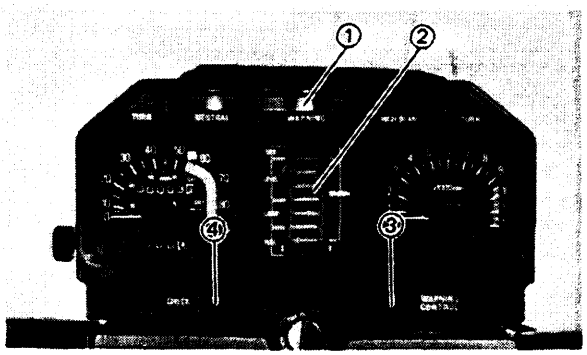
B. COMPUTERIZED MONITOR SYSTEM

Circuit diagram



Operation

This system monitors seven separate functions and will warn you of any malfunction if encountered until it is fixed. In addition, the fuel gauge in this system indicates the amount of fuel in the tank.



1. Warning light (red)
2. Display panel
3. Warning control switch
4. Check switch

1. When the main switch is turned on, all seven liquid crystal displays (LCDs) come on, with the bottom fuel display (■■■■) indicating the amount of fuel in the tank.
2. When the engine is started, the system begins its scan of the motorcycle conditions. From top to bottom all the LCDs flash on and then off in sequence. If any one condition is found improper or inadequate, the red warning light will begin flashing and the LCD for the area in question will remain displayed.

WARNING:

If any LCD remains displayed or the warning light flashes on, correct the problem immediately.

3. Warning light operation can be controlled by the warning control switch. If the control switch is pushed once, the warning light glow will change from a flashing to a steady one. If pushed again, the glow will go out completely. Still another push on the switch brings back the warning light operation all over again.

NOTE:

1. This switch operates only when a malfunction is displayed on an LCD.
2. Even if the warning light is made to glow steady or to go out, it will begin flashing on with another malfunction.

4. The entire monitoring system condition can be checked by pushing the check switch. The system will scan through the seven areas in sequence, just as when the engine was first started, to assure the rider that the system is functioning properly.

Display panel

STND

This indicator is displayed when the side stand is extended. Be sure to retract it before starting out on the road.

BRK

This indicator is displayed when the brake fluid level is below specification in the front brake master cylinder.

WARNING:

Do not run the motorcycle with a low brake fluid level for a long time or at high speeds.

OIL

This indicator is displayed when the engine oil level is low. If it remains displayed or keeps flickering while riding, add engine oil at the first opportunity.

WARNING:

Do not run the motorcycle with a low engine oil level for a long time or at high speeds.

BATT

This indicator is displayed when the battery fluid level is low. If it remains displayed, add distilled water at the first opportunity.

CAUTION:

Continuous riding with a low battery fluid level will damage the battery.

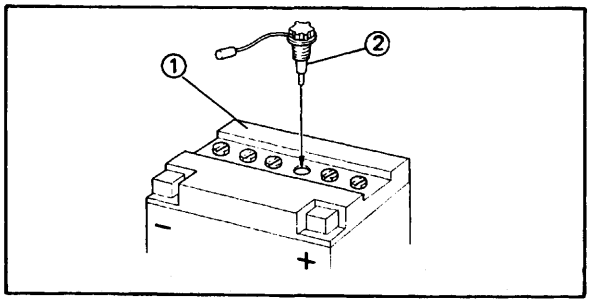
NOTE:

The battery sensor terminal must be cleaned approximately every 5,000 km (3,000 mi). The terminal is constructed of lead, and its surface may become corroded, allowing a system malfunction. Also, the terminal must

be installed in the fourth cell from the negative terminal on the battery, as the sensor must pick up a specified voltage.

CAUTION:

Make sure that the connection to the battery is correct; otherwise, damage to the microcomputer may occur.



1. Battery 2. Battery sensor

HEAD

This indicator is displayed when the headlight bulb is burned out. If it remains displayed, have it replaced and correctly adjusted at the first opportunity.

TAIL

This indicator is displayed when the taillight and/or brake light bulb is burned out. If it remains displayed, have it replaced at the first opportunity.

FUEL

This indicator is displayed when the fuel level is low. If it remains displayed or keeps flickering while riding, add fuel at the first opportunity.

GENERAL CAUTION:

Failure to observe any of the following "mustn'ts" may result in malfunction of the microcomputer or damage to the electrcical circuit.

1. **Taillight, brake light and other bulbs of wattage other than specified mustn't be used.**
2. **Extra electric accessories mustn't be connected to the computerized monitor system circuit (ex: taillight, headlight, etc.)**
3. **The instrument panel mustn't be subjected to any water splashes or steam from underneath.**
4. **The display panel mustn't be pressed hard or given any shock.**
5. **A magnet or other magnetized objects mustn't be put near the display panel.**

Troubleshooting

1. After the main switch is turned on:

PROBLEM	CAUSE	SOLUTION
a. Warning light doesn't come on.	Bulb is burned out.	Replace bulb.
	Low battery charge.	Recharge battery.
	Faulty coupler connection.	Clean coupler contacts.
	Broken wire.	Replace wiring.
	CMS control unit failed.	Replace CMS control unit.
b. Liquid crystal display (LCD) flashes on and off.	CMS control unit failed.	Replace CMS control unit.
c. LCD does not function.	LCD connectors incorrectly installed.	Reinstall connectors.
	Broken wire.	Replace wiring.
	Faulty contact between LCD panel and control unit.	Clean contacts.
	LCD panel failed.	Replace LCD panel.
	CMS control unit failed.	Replace CMS control unit.
d. LCD only partially displays.	LCD panel failed.	Replace LCD panel.

2. After the engine is started.

PROBLEM	CAUSE	SOLUTION
a. LCD does not cycle.	Faulty coupler connection. Broken wire. CMS control unit failed.	Clean coupler contacts. Replace wiring. Replace CMS control unit.

3. After the check switch is pushed:

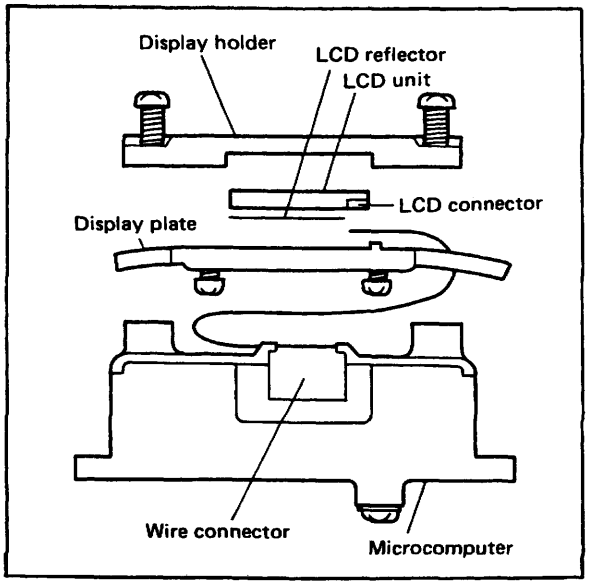
PROBLEM	CAUSE	SOLUTION
a. LCD does not cycle.	Check switch failed. Faulty coupler connection. Broken wire. CMS control unit failed.	Replace check switch. Clean coupler contacts. Replace wiring. Replace CMS control unit.

4. After the warning control switch is pushed:

PROBLEM	CAUSE	SOLUTION
a. Warning light continues to flash.	Warning control switch failed. Faulty coupler connection. Broken wire. CMS control unit failed.	Replace warning control switch. Clean coupler contacts. Replace wiring. Replace CMS control unit.

Cleaning and replacement

Use the following procedure to replace the LCD unit or the microcomputer unit.



1. Remove the headlight lens and the two headlight-body holding bolts. This will give you easy access to the instrument-panel holding nuts.
2. Disconnect the wire connectors in the headlight assembly that lead to the instrument panel.
3. Disconnect the speedometer cable.
4. Disconnect the instrument-panel holding nuts, and remove the panel.
5. Remove the three nuts which secure the instrument-panel mounting bracket, and remove the bracket.
6. Place the instrument panel assembly on a clean work surface, and remove the back panel.
7. Remove the four phillips-head screws which secure the LCD/microcomputer, and remove the unit.
8. Remove the four screws which hold the LCD display holder.
9. Very carefully turn the display holder over, and completely remove the five display plate holding screws. Remove the LCD reflector and the display plate.
10. Detach the wire connector from its indexing points.

CAUTION:

Disconnect the wire connector carefully. Do not pull on the wire connector. It is indexed and could be damaged if you pull on it. Do not touch the connector contacts. They are gold plated.

11. Remove the display plate and the LCD unit.
12. Clean the display plate and the LCD unit.

CAUTION:

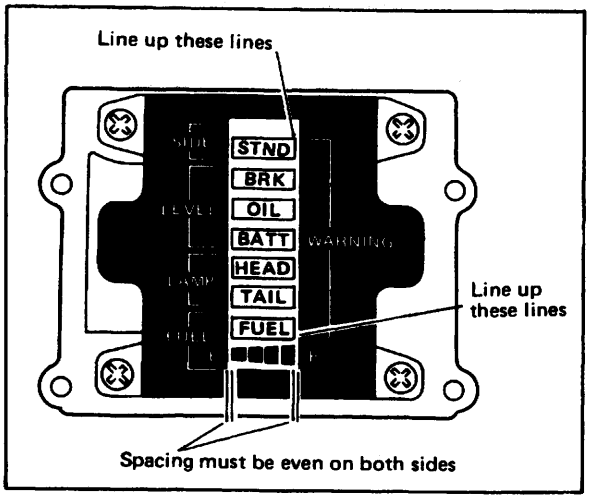
a. **Use compressed-air lens cleaner (as used on cameras) to clean the display and the LCD unit. Do not use shop air for this purpose.**
b. **Use a soft cloth. Do not use cotton. It will leave lint deposits which will interfere with the delicate contacts.**
c. **Very carefully clean the LCD unit because it is possible to generate enough static electricity to damage it.**

13. Reinstall the LCD unit into the display holder.

CAUTION:

Do not touch the LCD connector with bare hands.

IMPORTANT NOTE:
The LCD unit must line up as shown in the illustration to seal the LCD unit properly.



14. Reinstall the LCD reflector so that the shiny surface faces toward the LCD unit.
15. Carefully place the wire connector on the LCD connector and seat it on its two indexing points. Install the display plate and carefully screw in the wire connector indexing screw first. Then screw in the remaining four holding screws. Do not overtighten the screws.

Tightening torque:
3 mm: 10 cm-kg (0.7 ft-lb)
(Use LOCTITE)
4 mm: 24 cm-kg (1.7 ft-lb)

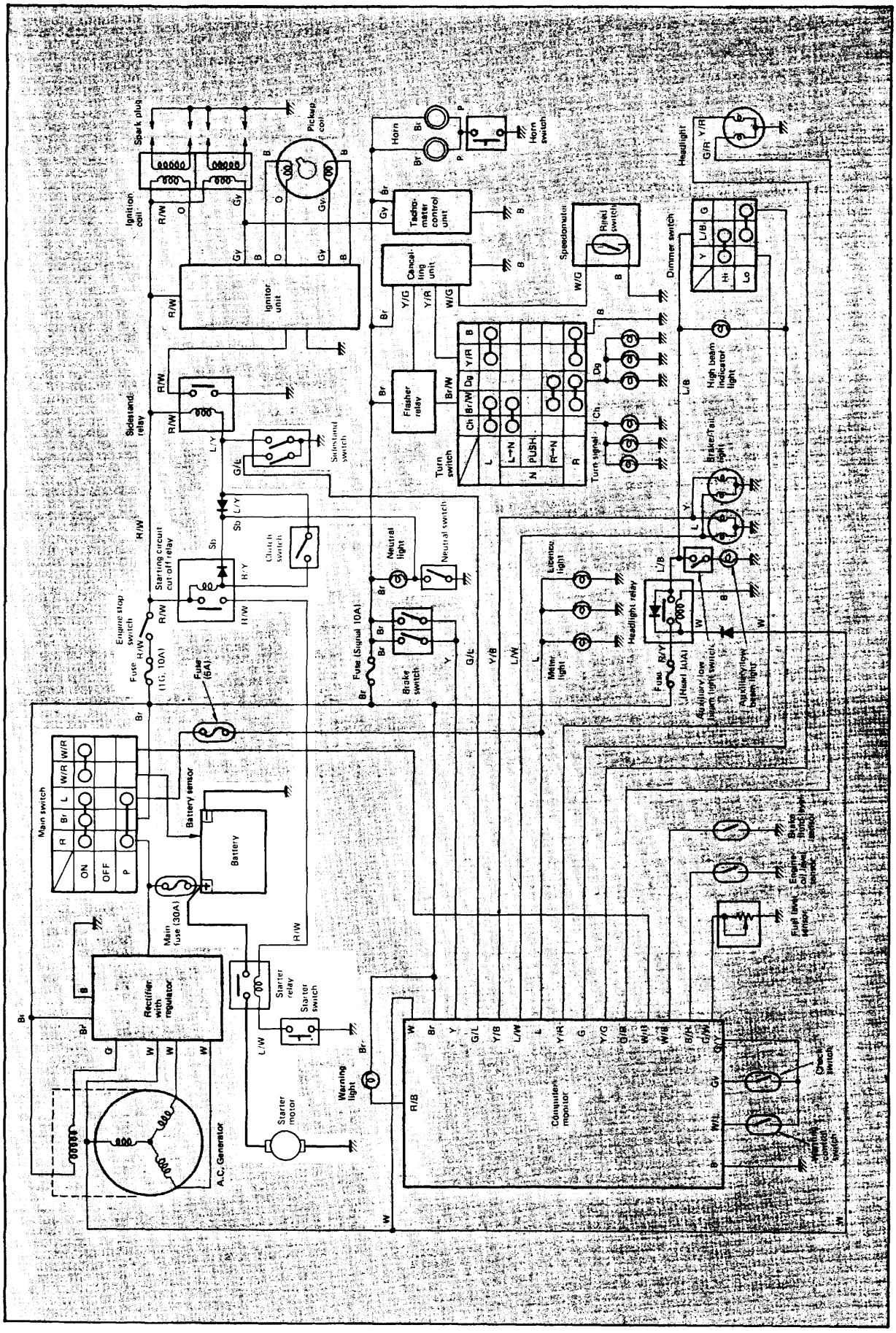
16. Reinstall the display holder on the microcomputer.

IMPORTANT NOTE:
Before reinstalling the components, connect the LCD assembly to the motorcycle and check that it is function properly.

17. Reinstall the entire unit in the instrument panel.
18. Reinstall the instrument panel back to the motorcycle.
19. Check that the COM system is functioning properly.

C. ELECTRIC STARTING SYSTEM

Circuit diagram



Starting circuit operation

The starting circuit on this model consists of the starter motor, starter relay, and the starting-circuit cut-off relay. If the engine stop switch and the main switch are both on, the starter motor can operate only if:

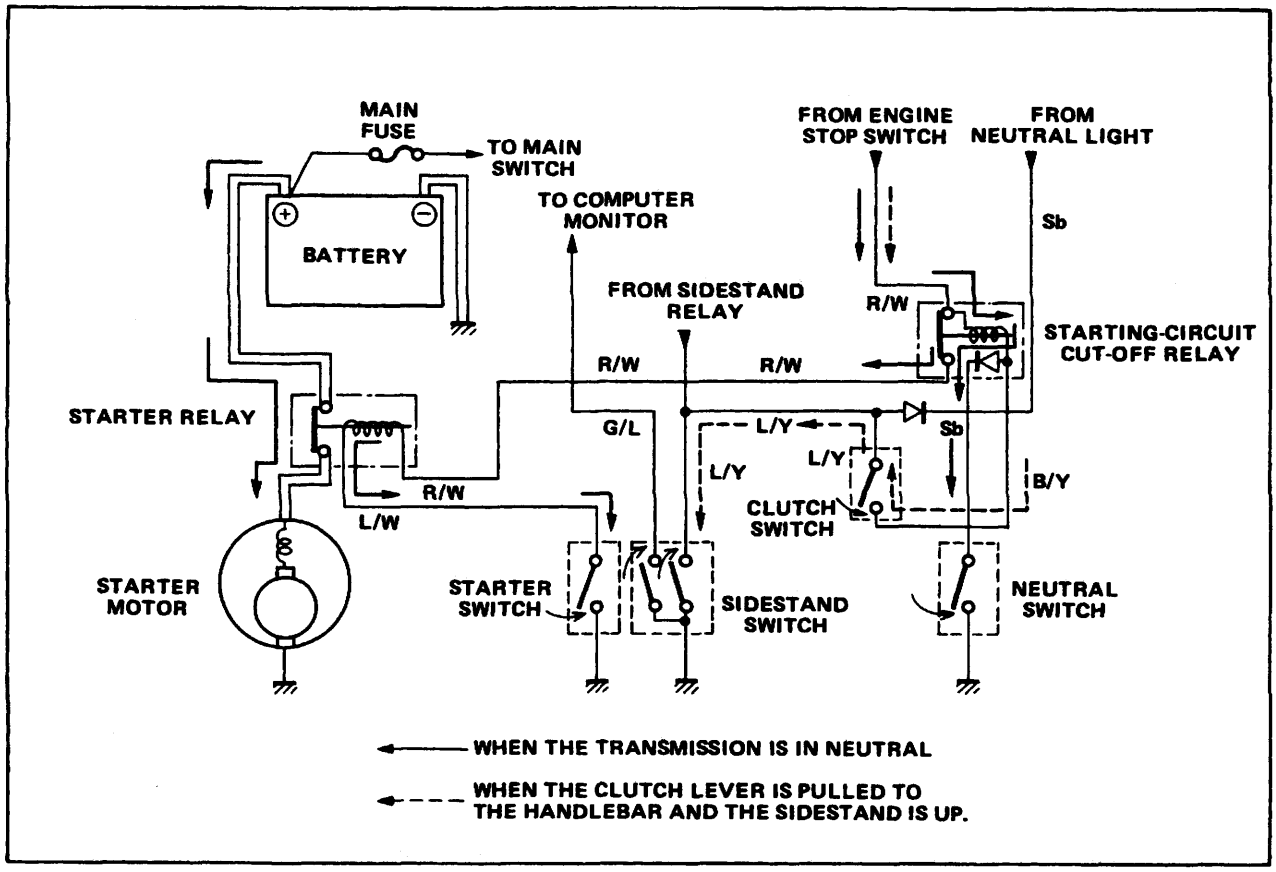
a. The transmission is in neutral (the neutral switch is on).

or if

b. The clutch lever is pulled to the handlebar (the clutch switch is on) and the sidestand is up (the sidestand switch is on.)

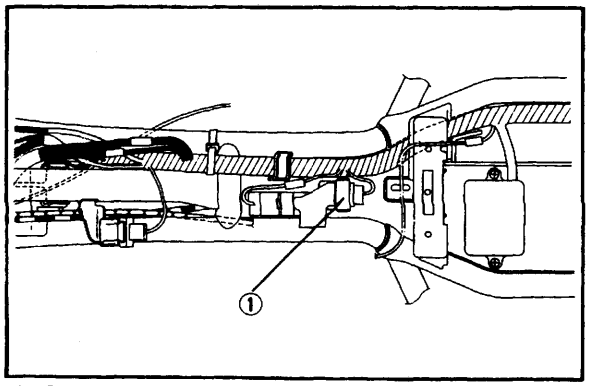
The starting-circuit cut-off relay prevents the starter from operating when neither of these conditions has been met. In this instance, the starting-circuit cut-off relay is off so current cannot reach the starter motor.

When one or both of the above conditions have been met, however, the starting-circuit cut-off relay is on, and the engine can be started by pressing the starter switch.



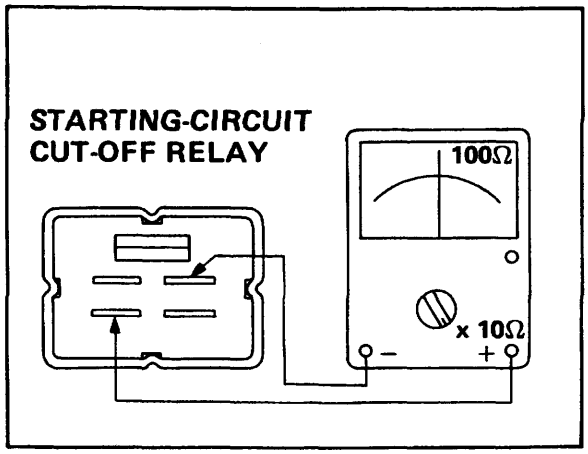
Starting-circuit cut-off relay inspection

1. Open the seat, and remove the fuel tank.
2. Remove the starting-circuit cut-off relay from the frame, and disconnect the connector.

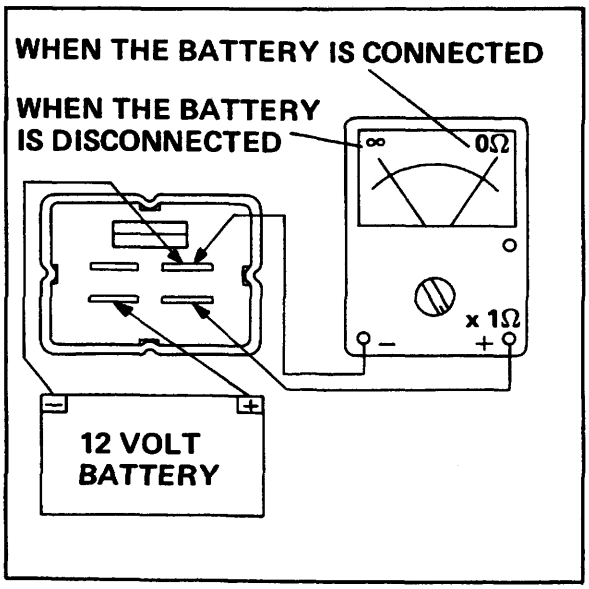


1. Starting-circuit cut-off relay

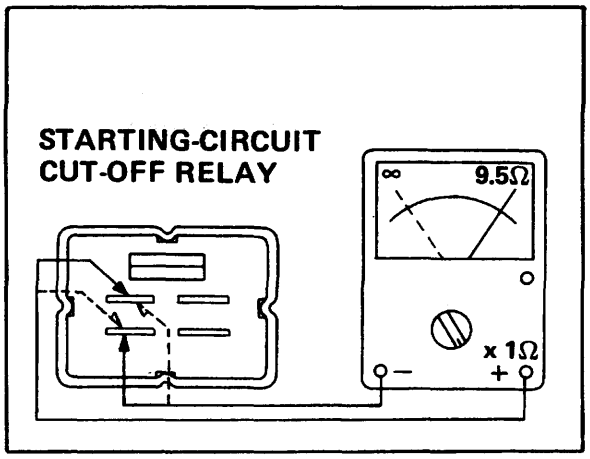
3. Check the resistance of the relay coil windings with the pocket tester. If the resistance is not within specification, replace the relay.



4. Check the relay function with a 12 volt battery and the pocket tester. Connect the leads as shown in the illustration. If the resistance readings do not equal those shown in the illustration, replace the relay.



5. Check the diode in the starting circuit cut-off relay with the pocket tester as shown in the illustration. Replace the relay if the diode is damaged.

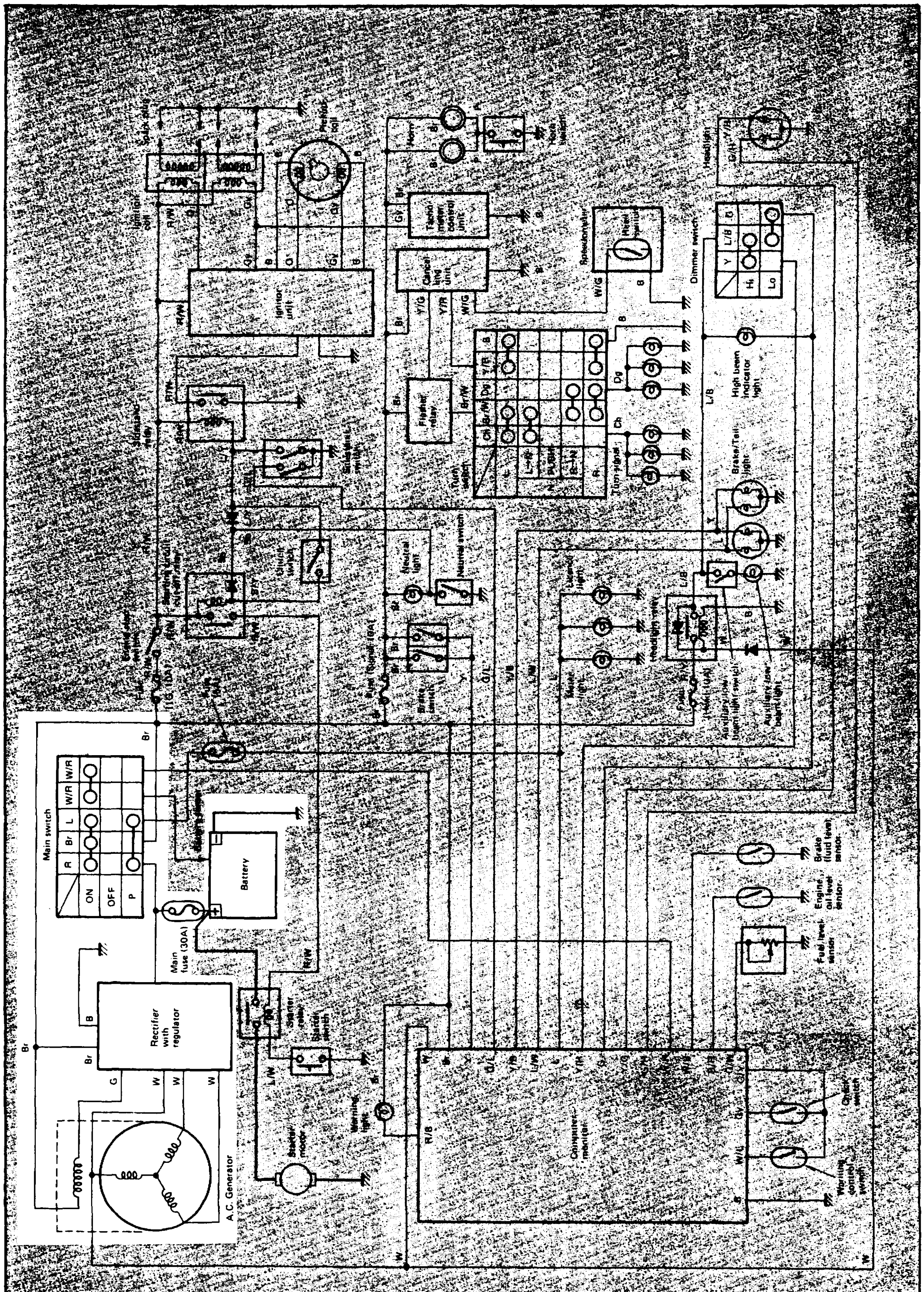


NOTE:

Only the Yamaha Pocket Tester will give a 9.5Ω reading when testing continuity. The particular characteristics of other testesr will very the continuity test readings.

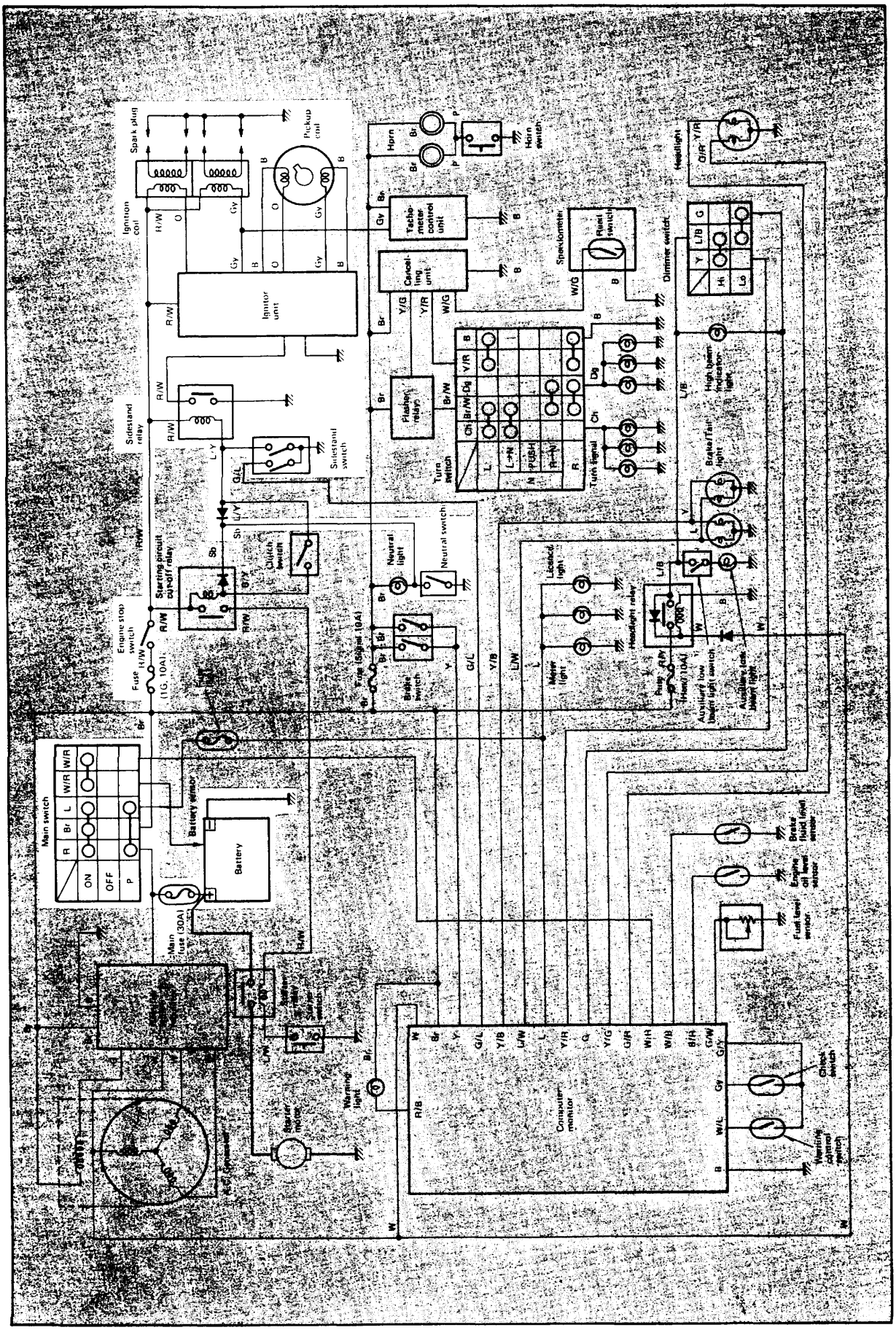
D. CHARGING SYSTEM

Circuit diagram



E. IGNITION SYSTEM

Circuit diagram



Description

This model is equipped with a battery operated, fully transistorized, breakerless ignition system. By using magnetic pickup coils, the need for contact breaker points is eliminated. This adds to the dependability of the system by eliminating frequent cleaning and adjustment of points and ignition timing. The TCI (Transistor Control Ignition) unit incorporates an automatic advance circuit controlled by signals generated by the pickup coil. This adds to the dependability of the system by eliminating the mechanicl advancer. This TCI system consists of two units; a pickup unit and an ignitor unit.

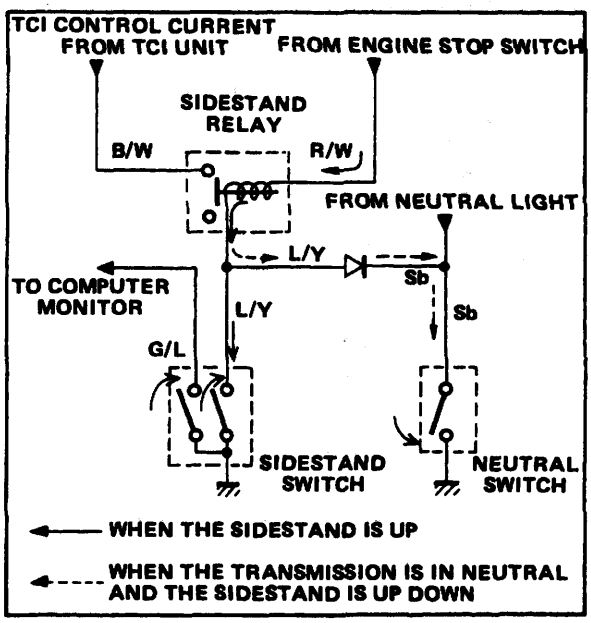
NOTE:

The ignition circuit can be operated only when the sidestand is up (the sidestand switch is on) or the transmission is in neutral.

Operation

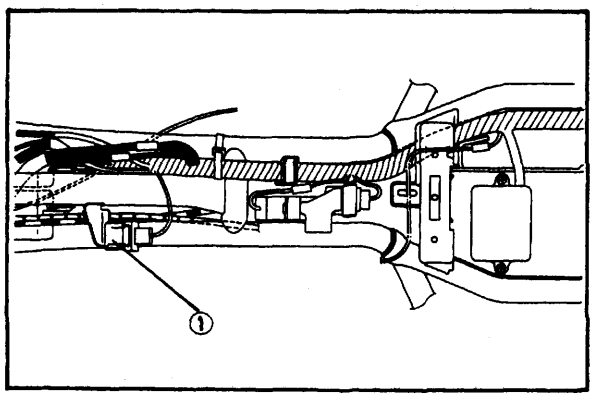
The TCI functions to the same principle as a conventional DC ignition system with the exception of using magnetic pickup coils and a transistor control box (TCI) in place of contact breaker points.

1. Pickup unit
   The pickup unit consists of two pickup coils and a flywheel mounted onto the crankshaft. When the projection on the flywheel passes a pickup coil, a signal is generated and transmitted to the ignitor unit. The width of the projection on the flywheel determines the ignition advance.
2. Ignitor unit
   This unit controls when form, duty control, switching, electronic ignition advance, etc. They duty control circuit reduces electrical consumption by controlling the duration of the primary ignition current.
   The ignitor unit also has a protective circuit for the ignition coil. If the ignition switch is on and the crankshaft is not turning, the protective circuit interrupts the current flow to the primary coil after a few seconds. When the crankshaft is turning, however, the ignitor unit sends current to the primary coil.
3. Sidestand relay
   The sidestand relay operates by shorting the TCI control current. When the sidestand is down, the sidestand relay is closed, and the TCI control current is grounded through the sidestand relay. Thus, the engine will not run with the sidestand down unless the transmission is in neutral.



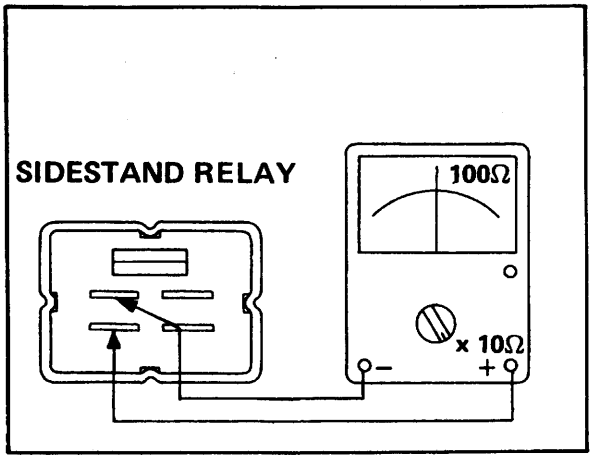
Sidestand relay inspection

1. Open the seat, and remove the fuel tank.
2. Remove the sidestand relay from the frame, and disconnect the connector.

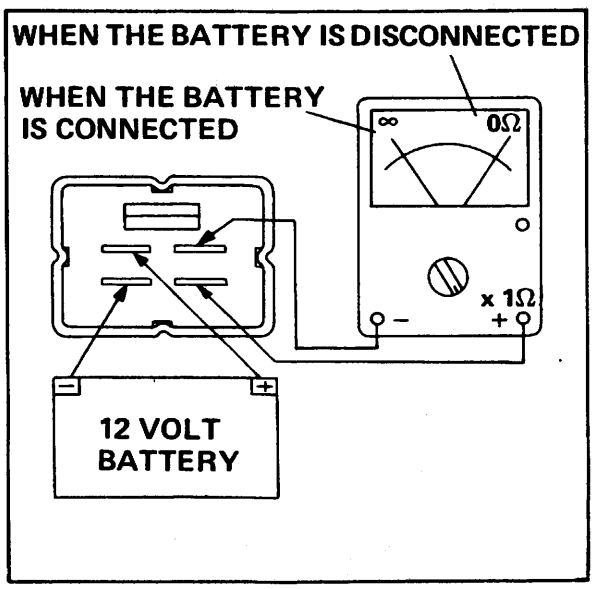


1. Sidestand relay

3. Check the resistance of the relay coil windings with the pocket tester. If the resistance is not within specification, replace the relay.

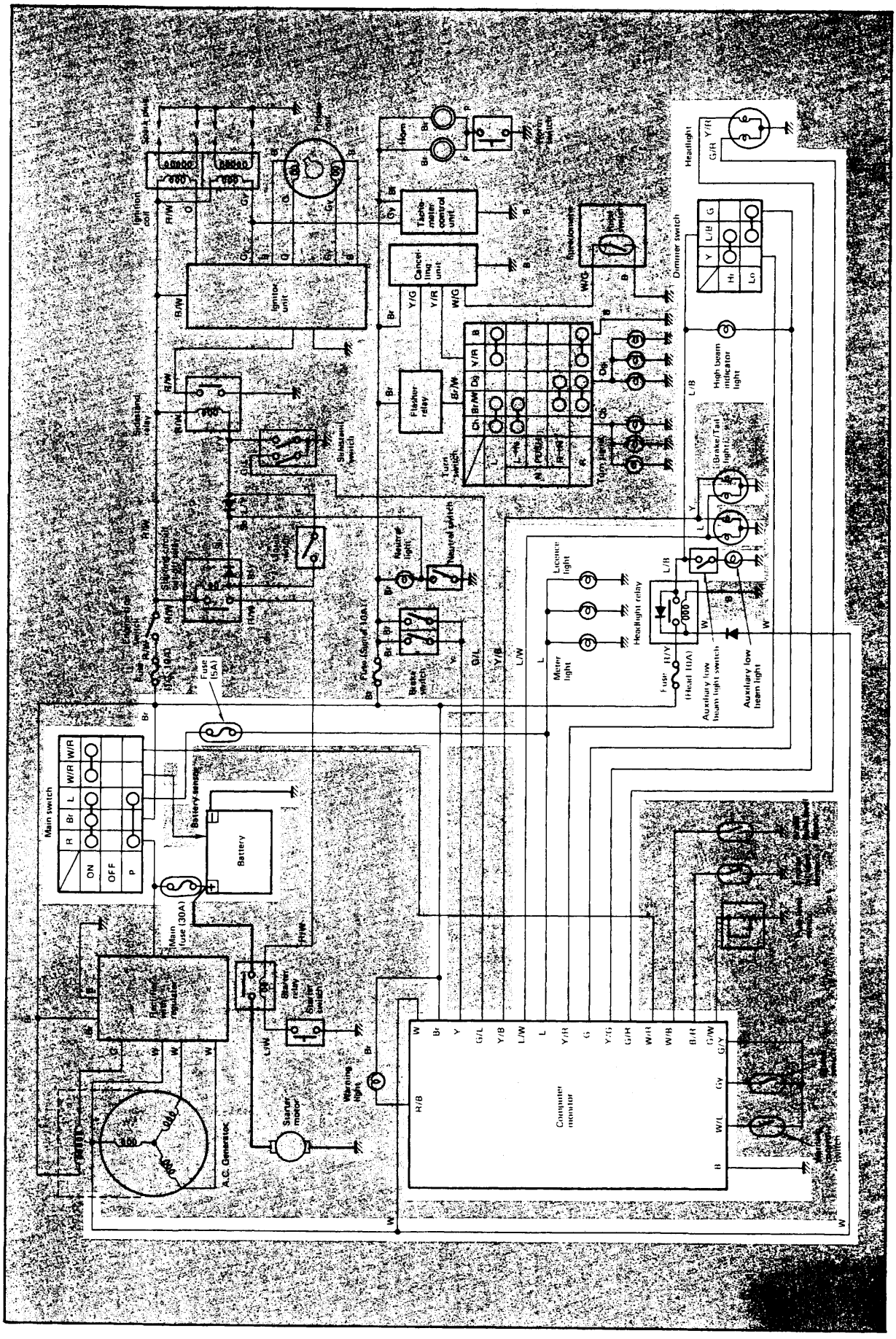


4. Check the relay contact breaker points with the pocket tester and a 12 bolt battery. Connect the leads as shown in the illustration. If the resistance readings do not equal those shown in the illustration, replace the relay.



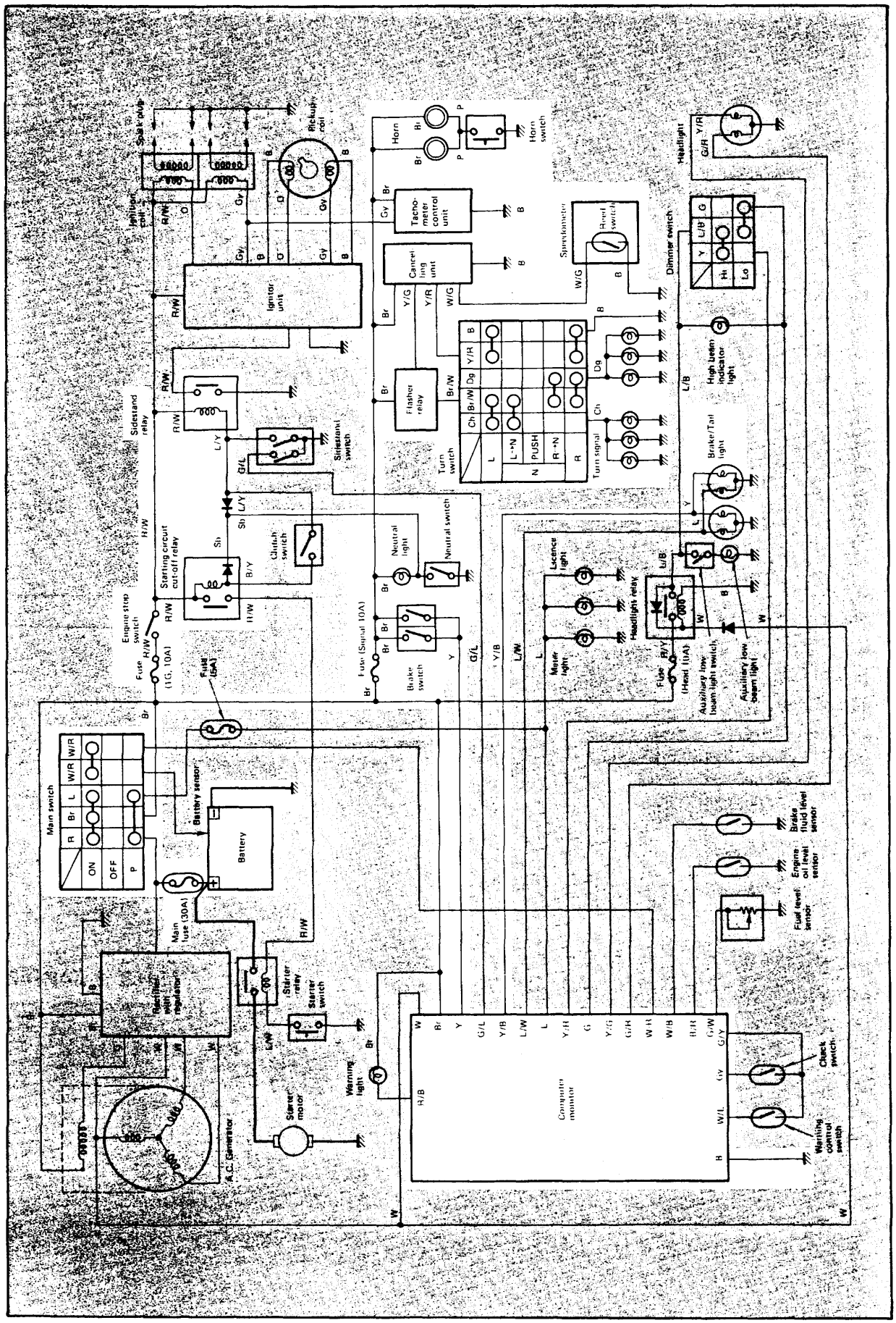
F. LIGHTING SYSTEM

Circuit diagram



G. SIGNAL SYSTEM

Circuit diagram



SPECIFICATIONS

General Specifications

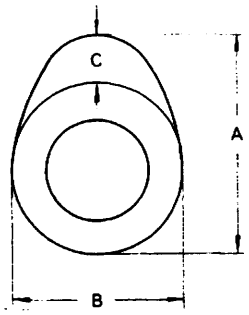
	XJ750RH
Basic color	New Yamaha Black or Brilliant Red
Dimensions:	
Overall length	2,110 mm (83.1 in)
Overall width	860 mm (33.9 in)
Overall height	1,120 mm (44.1 in)
Seat height	775 mm (30.5 in)
Wheelbase	1,445 mm (56.9 in)
Minimum ground clearance	140 mm (5.5 in)
Caster (steering head angle)	28°
Trail	114 mm (4.49 in)
Weight:	
Net	218 kg (480 lb)
Engine:	
Type	D.O.H.C. air-cooled, gasoline
Bore x stroke x cylinders	65.0 x 56.4 mm x 4 (2.559 x 2.220 in x 4)
Displacement	748 cc (45.64 cu.in)
Compression ratio	9.2 : 1
Lubrication:	
Lubrication system	Pressure lubricated, wet sump
Delivery pump type	Trochoid
Carburetion:	
Manufacture	HITACHI
Type	HSC32, constant velocity
Rated venturi size	25.3 mm (0.996 in)
Air filter:	Dry type element
Ignition:	
Type	Battery ignition (Full transistor ignition)
Spark plug	BP7ES (NGK) or W22EP (ND)
Charging:	
Type	Three-phase, regulated alternator
Manufacture, I.D. No.	HITACHI, LD119-08
Maximum output	14V 19A
Battery type	YB14L-A2
Battery dimensions	89 x 116 x 134 mm (3.50 x 6.54 x 5.28 in)
Regulator/Rectifier	S8534, I.C. type, full wave
Regulating voltage (No. load)	14.2 ~ 14.8V
Starting:	Electric starter
Primary drive:	
Type	Spur gear
Teeth, ratio	97/58 1.672
Clutch:	Wet, multiple disc
Transmission:	
Type	Constant mesh, 5-speed drum shifter
Teeth, ratio 1st	35/16 2.187
2nd	30/20 1.500
3rd	30/26 1.153
4th	28/30 0.933
5th	26/32 0.812

	XJ750RH
Secondary type:	
Type	Shaft drive
Transmission output:	
Type, teeth, ratio	Spur gear, 49/36, 1.361
Middle gear case:	
Type, teeth, ratio	Bevel gear, 19/18, 1.055
Final gear case:	
Type, teeth, ratio	Bevel gear, 32/11, 2.909
Chassis:	
Frame	Tubular steel double cradle
Suspension: Front (type, travel)	Telescopic fork (Pneumo-mechanical) 150 mm (5.91 in)
Rear (type, travel)	Swing arm, 80 mm (3.15 in)
Tires: Front	3.25H19-4PR, Tubeless
Rear	120/90-18 65H, Tubeless
Brakes: Front	Dual hydraulic disc
Rear	Drum brake
Fuel tank: Total	19 lit (5.0 US. gal)
Reserve	4.1 lit (1.08 US.gal)
Wheels: Front	MT1.85 x 19, Cast Aluminum
Rear	MT2.15 x 18, Cast Aluminum

Maintenance Specifications

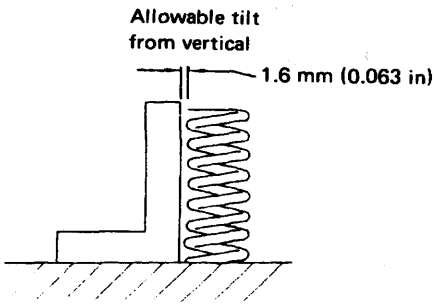
1. Engine

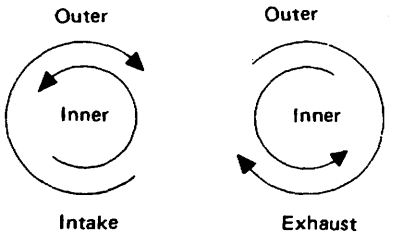
Engine oil capacity:	
Total amount	3,500 cc (3.70 US.qt)
Oil and filter change	2,800 cc (2.96 US.qt)
Oil change	2,500 cc (2.64 US.qt)
Recommended lubricant:	
If temperature does not go below 5°C (40°F)	SAE 20W/40 SE motor oil
If temperature does not go above 15°C (60°F)	SAE 10W/30 SE motor oil
Cranking pressure (at seal level):	*11 kg/cm² (156 psi)*
Maximum difference between cylinders:	1 kg/cm² (14 psi)
Camshafts:	
Camshaft bearing surface diameter:	24.967 ~ 24.980 mm (0.9830 ~ 0.9835 in)
Camshaft-to-cap clearance:	
Standard	0.020 ~ 0.054 mm (0.0008 ~ 0.0021 in)
Maximum	0.160 mm (0.006 in)
Camshaft runout limit	0.1 mm (0.004 in)



Dimensions		Standard size	Wear limit
Intake	A	36.80 mm (1.449 in)	36.65 mm (1.443 in)
	B	28.00 mm (1.102 in)	27.85 mm (1.096 in)
	C	8.80 mm (0.346 in)	–
Exhaust	A	35.80 mm (1.449 in)	35.65 mm (1.404 in)
	B	28.00 mm (1.102 in)	27.85 mm (1.096 in)
	C	7.80 mm (0.307 in)	–

Valve spring:



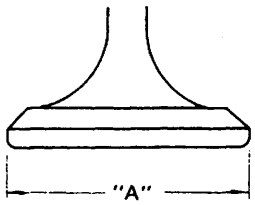


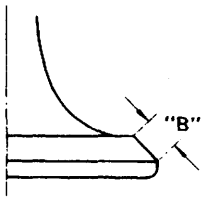
	Inner Intake/Exhaust	Outer Intake/Exhaust
Free length	35.9 mm (1.413 in)	39.5 mm (1.555 in)
Spring rate	2.36 kg/mm (132.2 lb/in)	4.58 kg/mm (256.5 lb/in)
Installed length (valve closed)	31.0 mm (1.220 in)	34.0 mm (1.339 in)
Installed pressure (valve closed)	9.0 kg (19.8 lb)	19.1 kg (42.1 lb)
Compressed length (valve open)	IN: 22.5 mm (0.886 in) EX: 23.5 mm (0.925 in)	IN: 25.5 mm (1.004 in) EX: 26.5 mm (1.043 in)
Wire diameter	2.8 mm (0.110 in)	3.9 mm (0.154 in)
Number of windings	7.75	6.0
Winding O.D.	$20.6\ ^{+0.3}_{0}$ mm $(0.811\ ^{+0.012}_{0}$ in	$29.4\ ^{0}_{-0.3}$ mm $(1.157\ ^{0}_{-0.012}$ in)

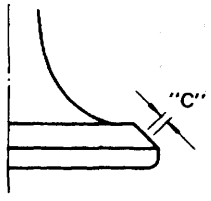
Valves:

Valve stem run-out maximum — 0.03 mm (0.0012 in)

Valve seat width standard/maximum — 1.0 mm (0.0039 in)/2.0 mm (0.080 in)





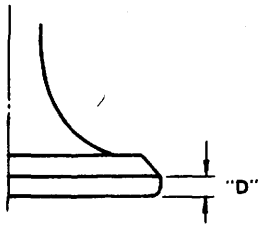


INTAKE

Clearance (Cold engine)	0.11 ~ 0.15 mm (0.004 ~ 0.006 in)
"A" head diameter	33 ± 0.1 mm (1.2992 ± 0.0039 in)
"B" face width	2.3 mm (0.0906 in)
"C" seat width	1.0 ± 0.1 mm (0.0394 ± 0.0039 in)
"D" margin thickness (minimum)	1.2 ± 0.2 mm (0.0472 ± 0.0079 in)
Stem diameter (O.D.)	$7\ ^{-0.010}_{-0.025}$ mm $(0.2756\ ^{-0.0004}_{-0.0010}$ in)
Guide diameter (I.D.)	$7\ ^{+0.012}_{0}$ mm $(0.2756\ ^{+0.0005}_{0}$ in)
Stem-to-guide clearance	0.010 ~ 0.037 mm (0.0004 ~ 0.0015 in)

EXHAUST

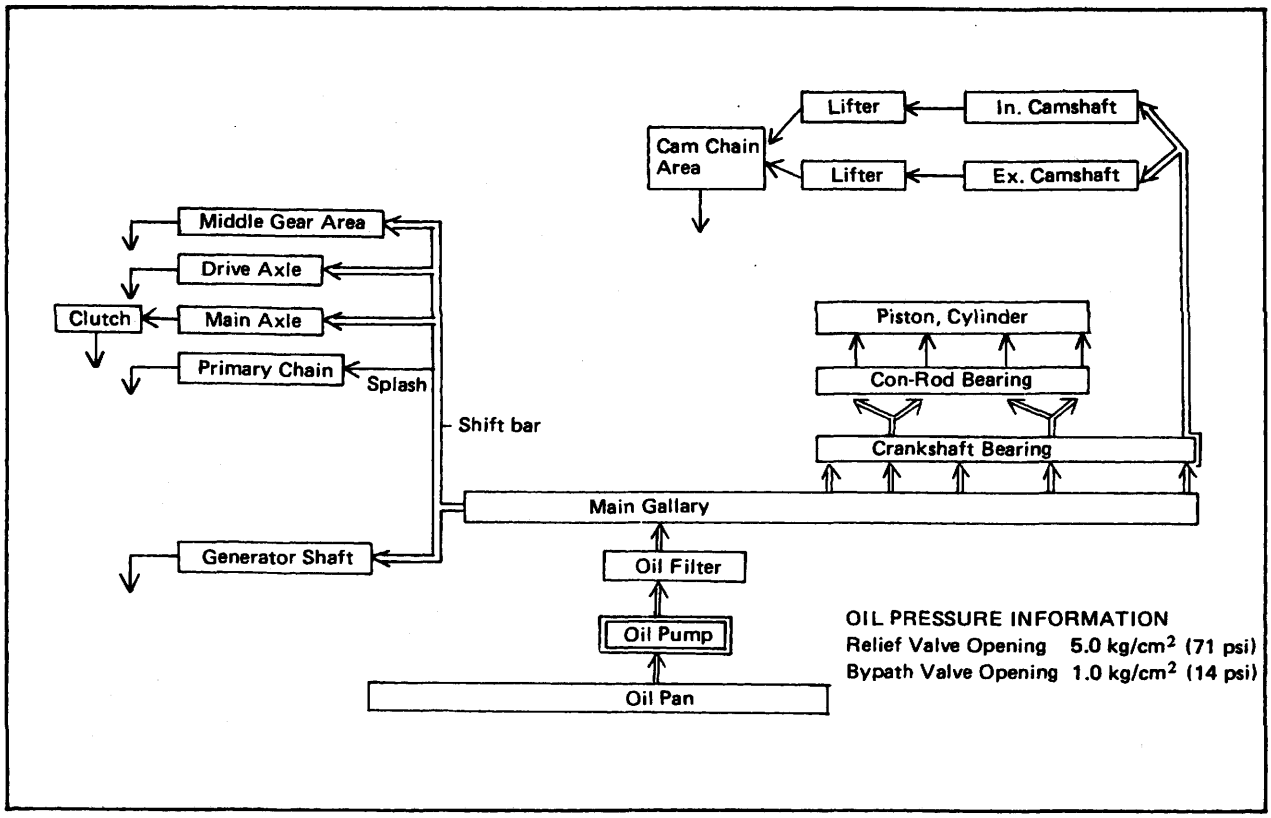
Clearance (Cold engine)	0.16 ~ 0.20 mm (0.006 ~ 0.008 in)
"A" head diameter	28 ± 0.1 mm (1.2205 ± 0.0039 in)
"B" face width	2.3 mm (0.0906 in)
"C" seat width	1.0 ± 0.1 mm (0.0394 ± 0.0039 in)
"D" margin thickness (minimum)	1.0 ± 2.0 mm (0.0392 ± 0.0079 in)



Stem diameter (O.D.)	$7\ ^{-0.025}_{-0.040}$ mm ($0.2756\ ^{-0.0010}_{-0.0016}$ in)
Guide diameter (I.D.)	$7\ ^{+0.012}_{0}$ mm ($0.2756\ ^{+0.0005}_{0}$ in)
Stem-to-guide clearance	0.025 ~ 0.052mm (0.0010 ~ 0.0020 in)

Cylinder and piston:				
Cylinder material		Aluminum alloy		
Cylinder liner		Pressed in; special cast iron		
Bore size: Standard		65.00 mm (2.5591 in)		
Wear limit		65.10 mm (2.5630 in)		
Cylinder taper limit		0.05 mm (0.0020 in)		
Cylinder out-of-round limit		0.01 mm (0.0004 in)		
Piston clearance: Standard		0.030 ~ 0.050 mm (0.0012 ~ 0.0020 in)		
Maximum		0.1 mm (0.0039 in)		
Piston ring:		Top	2nd	Oil
Design		Barrel	Taper	Expander
End gap (installed):	Standard	0.15 ~ 0.35 mm (0.0059 ~ 0.0318 in)	0.15 ~ 0.35 mm (0.0059 ~ 0.0138 in)	0.3 ~ 0.9 mm (0.0018 ~ 0.035 in)
	Limit	1.0 mm (0.0394 in)	1.0 mm (0.0394 in)	1.5 mm (0.0591 in)
Side clearance:	Standard	0.03 ~ 0.07 in (0.0012 ~ 0.0028 in)	0.02 ~ 0.06 in (0.008 ~ 0.0024 in)	–
	Limit	0.15 mm (0.0059 in)	0.15 mm (0.0059 in)	–
Crankshaft:				
Crank journal/bearing oil clearance		0.004 ~ 0.064 mm (0.0016 ~ 0.0025 in)		
Main journal run-out (maximum)		0.040 mm (0.0016 in)		
Connecting rods:				
Rod bearing oil clearance		0.03 ~ 0.09 mm (0.0012 ~ 0.0035 in)		
Oil pump:				
Housing-to-outer rotor clearance		0.09 ~ 0.15 mm (0.0035 ~ 0.0059 in)		
Outer rotor-to-inner rotor clearance		0.03 ~ 0.09 mm (0.0012 ~ 0.0035 in)		
Clutch:				
Friction plate:	Thickness/q'ty	3.0 mm (0.12 in)/8		
	Minimum thickness	2.8 mm (0.11 in)		
Clutch plate:	Thickness	1.6 mm (0.063 in)/7		
	Warp limit	0.05 mm (0.0020 in)		
Clutch spring:	Length/q'ty	41.2 mm (1.622 in)/5		
	Minimum length	40.2 mm (1.583 in)		
	Spring rate	1.22 kg/mm (68.3 lb/in)		
Clutch lever free play (at lever pivot point)		2 ~ 3 mm (0.08 ~ 0.12 in)		
Transmission shaft run-out maximum:		0.08 mm (0.0031 in)		
Middle gear case lash:		0.1 ~ 0.2 mm (0.0039 ~ 0.0079 in)		

LUBRICATION CHART



2. Carburetion

Manufacturer	HITACHI	Fuel level	3 ± 1 mm (0.118 ± 0.039 in)
Model I.D. No.	5G200	Pilot screw	Preset
Main jet	#120	Air jet, Main	#80
Pilot jet	#40	Air jet, Pilot	#225
Starter jet	#40 (ϕ0.9)	Float valve seat	ϕ2.0
Jet needle	Y-13	Engine idle speed	1,050 r/min

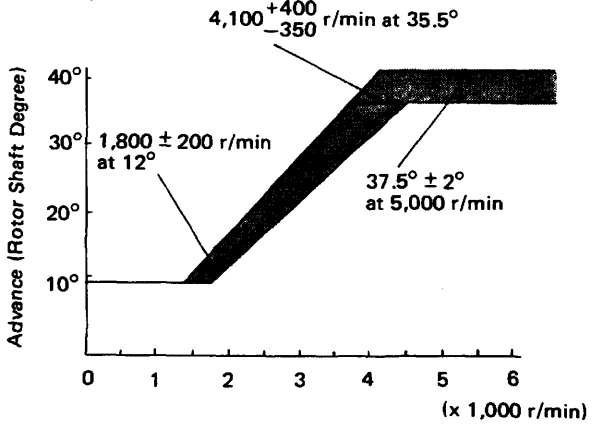
3. Chassis

*Total weight of accessories, etc. excepting motorcycle.

Wheels and tires:		
Rim run-out: Vertical	2.0 mm (0.079 in)	
Horizontal	2.0 mm (0.079 in)	
Tire pressure (cold)	Front	Rear
Up to 90 kg (198 lb) load*	1.8 kg/cm² (26 psi)	2.0 kg/cm² (28 psi)
90 kg (198 lb) ~ 215 kg (474 lb) load* (Maximum load)	2.0 kg/cm² (28 psi)	2.3 kg/cm² (32 psi)
High speed riding	2.3 kg/cm² (32 psi)	2.5 kg/cm² (36 psi)
Minimum tire tread depth	0.8 mm (0.03 in)	0.8 mm (0.03 in)
Brakes:		
Recommended fluid	DOT #3	
Pad wear limit	4.0 mm (0.16 in)	
Rear brake lining wear limit	2 mm (0.08 in)	
Brake disc maximum deflection	0.15 mm (0.006 in)	
Brake disc minimum thickness	4.5 mm (0.18 in)	
Front brake free play (at lever pivot point)	1.0 ~ 2.0 mm (0.04 ~ 0.08 in)	
Rear brake free play (end of pedal)	20 ~ 30 mm (0.8 ~ 1.2 in)	

Front forks:	
Travel	150 mm (5.91 in)
Spring free length	604.9 mm (23.81 in)
Spring preload length	582.9 mm (22.95 in)
Spring rate:	
0 ~ 132 mm (0 ~ 5.20 in)	0.4 kg/mm (22.4 lb/in)
132 ~ 150 mm (5.20 ~ 5.91 in)	0.5 kg/mm (28.0 lb/in)
Fork oil capacity (each side)	309 cc (10.5 oz)
Oil type	Yamaha Fork Oil 20Wt or equivalent
Standard air pressure	0.4 kg/cm^2 (5.7 psi)
Rear shock absorbers:	
Spring free length	227.8 mm (8.97 in)
Spring preload length	207.8 mm (8.18 in)
Spring rate:	
0 ~ 55 mm (0 ~ 2.17 in)	1.7 kg/mm (95.2 lb/in)
55 ~ 80 mm (2.17 ~ 3.15 in)	2.1 kg/mm (117.6 lb/in)
Travel	80 mm (3.15 in)

4. *Electrical*

Ignition timing retarded	7° at 1,050 r/min
Ignition timing advance	
Spark plug:	NGK BP7ES or ND W22EP
Electrode gap	0.7 ~ 0.8 mm (0.023 ~ 0.032 in)
Spark plug cap resistance	5.0 kΩ (No. 1, No. 4), 10 kΩ (No. 2, No. 3)
Pick up coil:	
Resistance	650Ω ± 20% at 20°C (68°F)
Ignition coil type:	
Spark gap	HITACHI CM12-09
Primary resistance	2.5Ω ± 10% at 20°C (68°F)
Secondary resistance	11 kΩ ± 20% at 20°C (68°F)
Starter motor type:	ND, ADB4D2
Armature coil resistance	0.014Ω ± 6% at 20°C (68°F)
Brush length: Standard	12.0 mm (0.472 in)
Minimum	8.5 mm (0.33 in)
Brush spring pressure	800 ± 150g (28.24 ± 5.30 oz)
Armature mica undercut	0.6 mm (0.024 in)
Battery type:	YUASA YB14L-A2
Charging rate	1.4 Amps for 10 Hours

Generator type: Output Field (inner) coil resistance Stator (outer) coil resistance	HITACHI LD119-08 14V-19A at 5,000 r/min 4.0Ω ± 10% at 20°C (68°F) 0.46Ω ± 10% at 20°C (68°F)
Regulator type: Regulated voltage Allowable amperage	I.C. (S8534) 14.5 ± 0.3V 3A
Starter relay switch: Cut-in voltage	 Less than 8V
Headlight Tail/brake light Flasher light License light Pilot lights: Turn High beam Neutral Warning Meter light Auxiliary low beam light	12V, 60W/55W 12V, 8W (3CP)/27W (32CP) 12V, 27W (32CP) x 4 12V, 8W (3CP) x 2 12V, 3.4W x 2 12V, 3.4W x 1 12V, 3.4W x 1 12V, 3.4W x 1 12V, 3.4W x 2 12V, 35W x 1

Tightening torque

Part to be tightened	Part name	Thread size	Q'ty	Tightening torque		Remarks
				m-kg	ft-lb	
ENGINE:						
Cylinder head	Nut	M10 P1.25	12	3.2	23.1	Apply oil.
Cylinder head cover	Bolt	M6 P1.0	20	1.0	7.2	
Spark plug	–		4	2.0	14.5	
Cylinder	Nut	M8 P1.25	2	2.0	14.5	Cam chain case Front & Rear
Cam shaft cap	Bolt	M6 P1.0	20	1.0	7.2	Tighten in 3-stages.
Cam sprocket	Bolt	M7 P1.0	4	2.0	14.5	
Cam chain tensioner adjustment lock nut	Nut	M8 P1.25	1	0.9	6.5	
Cam chain tensioner end plug	Bolt	M8 P1.25	1	1.5	10.8	
Connecting rod	Nut	M7 P0.75	8	2.5	18.1	
Generator (rotor)	Bolt	M10 P1.25	1	5.5	39.8	
Drain plug	Bolt	M14 P1.5 M8 P1.25	1 1	4.3 1.6	31.0 11.6	Crankcase drain Middle gear case drain
Oil filter	Bolt	M20 P1.5	1	1.5	11.0	
Pump cover	Screw	M6 P1.0		0.7	5.1	
Strainer cover	Bolt	M6 P1.0	13	0.7	5.1	
Crankcase	Flange bolt	M8 P1.25 M6 P1.0	12 27	2.4 1.2	17.5 8.7	
Clutch boss	Nut	M20 P1.0	1	7.0	50.6	
Clutch spring screw	Bolt	M6 P1.0	5	1.0	7.2	
Change pedal	Bolt	M6 P1.0	1	0.8	5.8	
Neutral switch	–	M10 P1.25	1	2.0	14.5	
Exhaust pipe	Nut	M6 P1.0	8	0.75	5.4	

Part to be tightened	Part name	Thread size	Q'ty	Tightening torque		Remarks
				m-kg	ft-lb	
SHAFT DRIVE:						
Middle gear:						
Drive shaft	Nut	M34 P1.5	1	11	80.0	Stake.
Mount cover	Screw	M8 P1.25	4	2.5	18.1	Stake.
Driven shaft	Nut	M14 P1.5	1	12	87.0	Use LOCTITE: Stake.
Bearing cap	Flange bolt	M8 P1.25	4	2.5	18.1	
Final gear:						
Drive shaft	Nut	M14 P1.5	1	11	80.0	
Bearing housing	Flange bolt	M10 P1.25	2	2.3	16.6	
Bearing housing	Nut	M8 P1.25	6	2.3	16.6	
Oil mount screw	Plug	M14 P1.5	1	2.3	16.6	
Oil drain screw	Plug	M14 P1.5	1	2.3	16.6	
Bearing retainer	—	M65 P1.5	1	11	80.0	Left hand screw
CHASSIS:						
Engine mounting bolt:						
Front, upper	Nut	M10 P1.25	1	4.2	30.4	
Front, under	Nut	M10 P1.25	2	4.2	30.4	
Rear	Nut	M10 P1.25	2	7.0	50.6	
Engine mounting stay:						
Front	Nut	M8 P1.25	4	2.0	14.5	
Handle crown & Steering shaft	Bolt Nut	M14 P1.25 M8 P1.25	1 1	5.4 2.0	39.1 14.5	
Handle crown & Inner tube	Nut	M8 P1.25	1	2.0	14.5	
Handle crown & Handle holder	Bolt	M8 P1.25	2	2.0	14.5	
Front fork:						
Under bracket & Inner tube	Bolt	M8 P1.25	4	2.0	14.5	
Front wheel shaft	Nut castle	M14 P1.5	1	10.7	77.4	
Front wheel axle pinch bolt	Nut salf locking	M8 P1.25	2	2.0	14.5	
Pivot shaft	Bolt	M22 P1.5	1	0.55	4.0	Taper roller bearing
Rear wheel shaft	Nut castle	M14 P1.5	1	10.7	77.4	
Rear shock absorber (Upper)	Nut cap	M10 P1.25	2	3.0	21.7	
Rear shock absorber (Lower)	L Nut cap R Bolt	M10 P1.25	2	3.0	21.7	
Footrest	Bolt	M10 P1.25	2	4.2	30.4	
Tension bar & Brake plate	Bolt	M8 P1.25	1	2.0	14.5	
Tension bar & Rear arm	Bolt	M8 P1.25	1	2.0	14.5	
Camshaft lever & Camshaft	Bolt	M6 P1.0	1	0.9	6.5	
Disc brake section:						
Brake disc & Hub (Front)	Bolt	M8 P1.25	12	2.0	14.5	Lock washer
Master cylinder & Brake hose (Front)	Bolt union	M10 P1.25	1	2.0	14.5	
Brake hose & Joint	Bolt union	M10 P1.25	1	2.6	18.8	
Caliper & Brake hose	Bolt union	M10 P1.25	1	2.6	18.8	
Caliper & Front fork (Front)		M10 P1.25	1	4.5	32.5	
Caliper bleed screw (Front)		M8 P1.25	1	0.6	4.3	
Front fender	Bolt	M8 P1.25	4	1.0	7.2	

Part to be tightened	Part name	Thread size	Q'ty	Tightening torque		Remarks
				m-kg	ft-lb	
Pivot shaft	Bolt	M22 P1.5	1	10.0	72.3	Lock washer
Final gear & Rear arm	Nut	M10 P1.25	4	4.2	30.4	
Cross joint	Hexagon bolt with washer	M8 P1.25	4	4.4	31.8	
Muffler bracket & Frame	Bolt	M10 P1.25	3	4.3	31.1	
Rear fender	Bolt	M10 P1.25	2	3.2	23.1	
Muffler bracket & Muffler	Bolt	M10 P1.25	2	2.5	18.1	

DEFINITION OF TERMS:

m-kg = Meter-kilogram(s) (usually torque)
g = Gram(s)
kg = Kilogram(s) (1,000 grams)
lit = Liter(s)
km/lit = Kilometer(s) per liter (fuel consumption)
cc = Cubic centimeter(s) (cm^3) (volume or capacity)
kg/mm = Kilogram(s) per milimeter (usually spring compression rate)
kg/cm^2 = Kilogram(s) per square centimeter (pressure)

CONSUMER INFORMATION

Notice

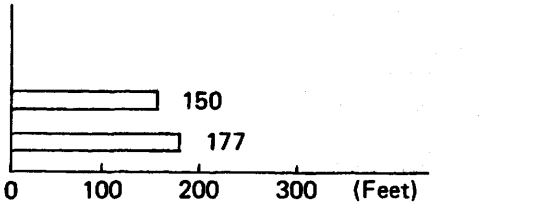
The information presented represents results obtainable by skilled drivers under controlled road and vehicle conditions, and the information may not be correct under other conditions.

STOPPING DISTANCE

This figure indicates braking performance that can be met or exceeded by the vehicles to which it applies, without locking the wheels, under different conditions of loading and with partial failures of the braking system.

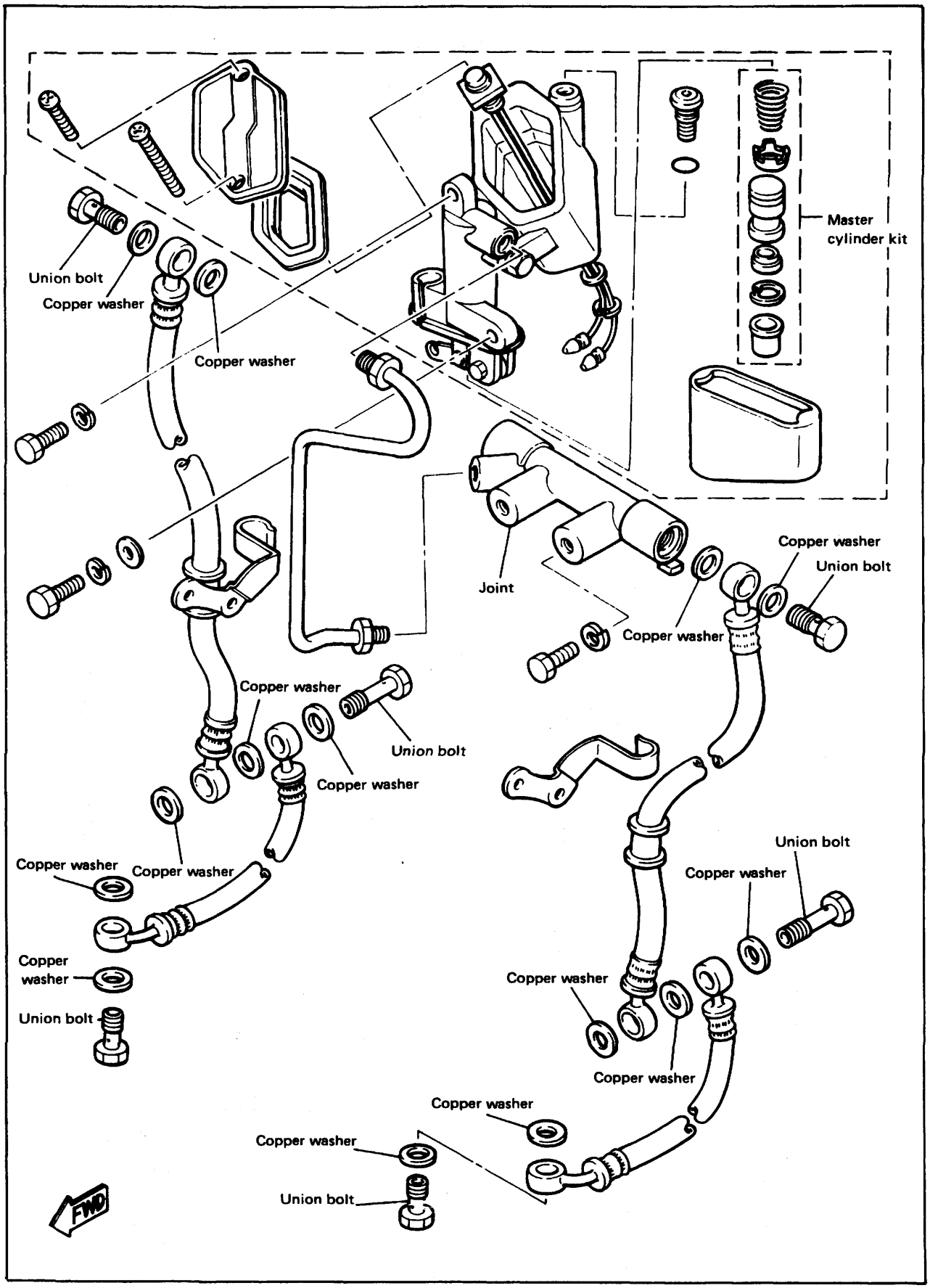
FULL OPERATIONAL SERVICE BRAKE

("Partial failure" information is not applicable and is not included)

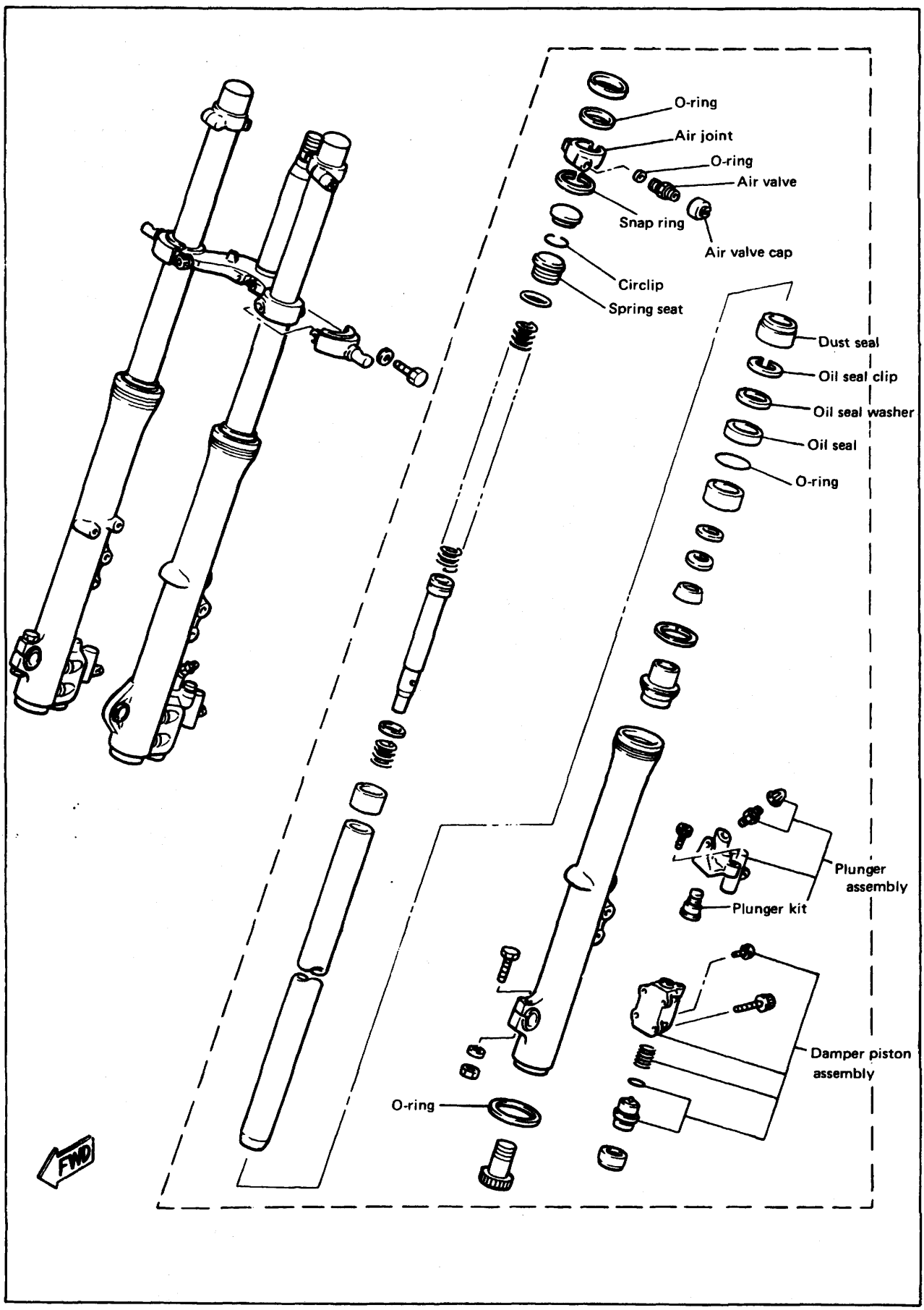


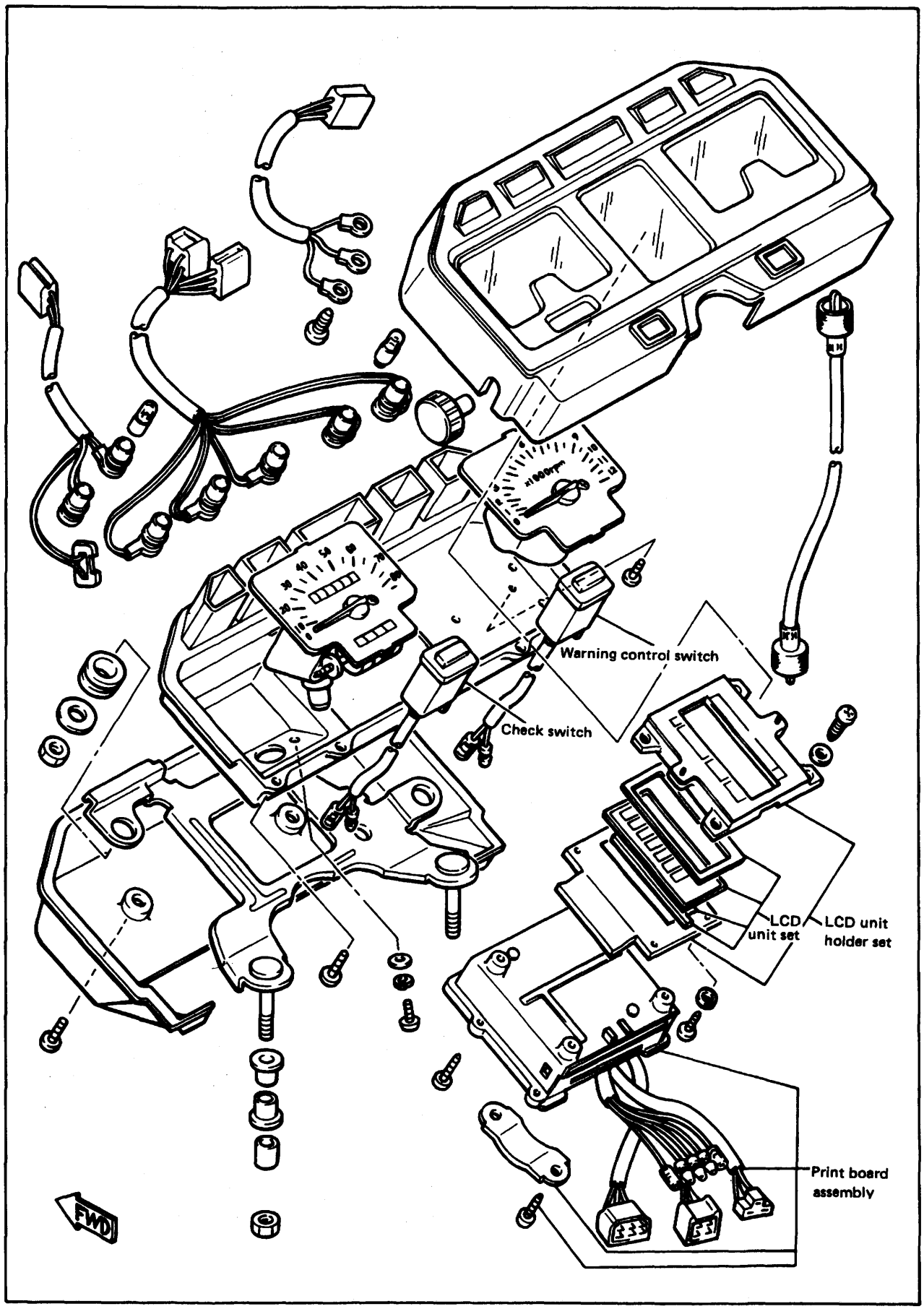
STOPPING DISTANCE IN FEET FROM 60 MPH

PARTS ILLUSTRATIONS
FRONT BRAKE (MASTER CYLINDER)

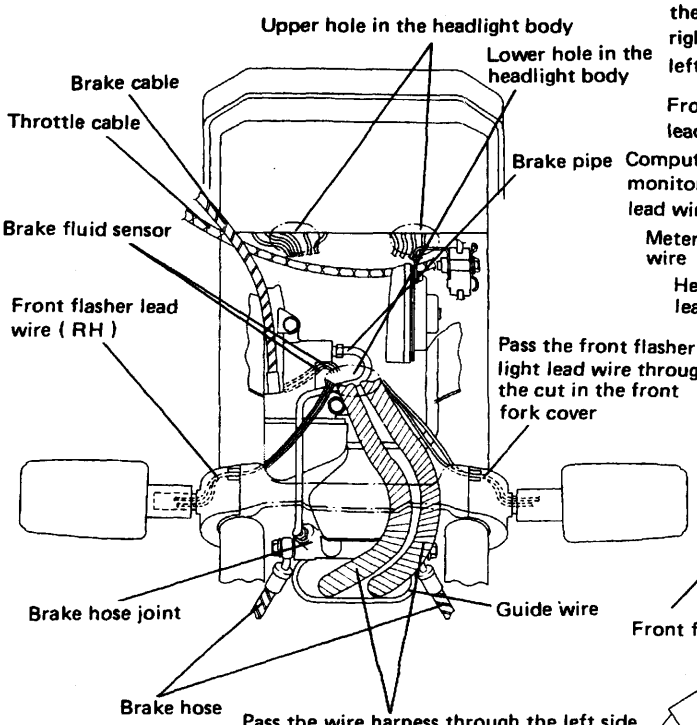


FRONT FORK

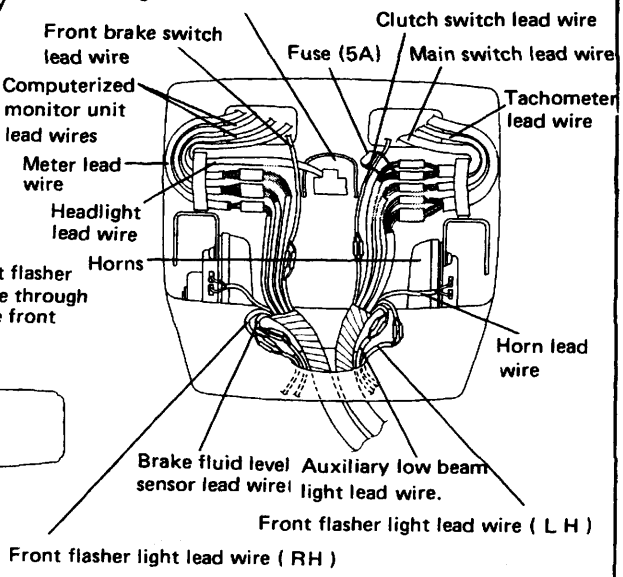

O-ring
Air joint
O-ring
Air valve
Snap ring
Air valve cap
Circlip
Spring seat
Dust seal
Oil seal clip
Oil seal washer
Oil seal
O-ring
Plunger assembly
Plunger kit
Damper piston assembly
O-ring
FWD

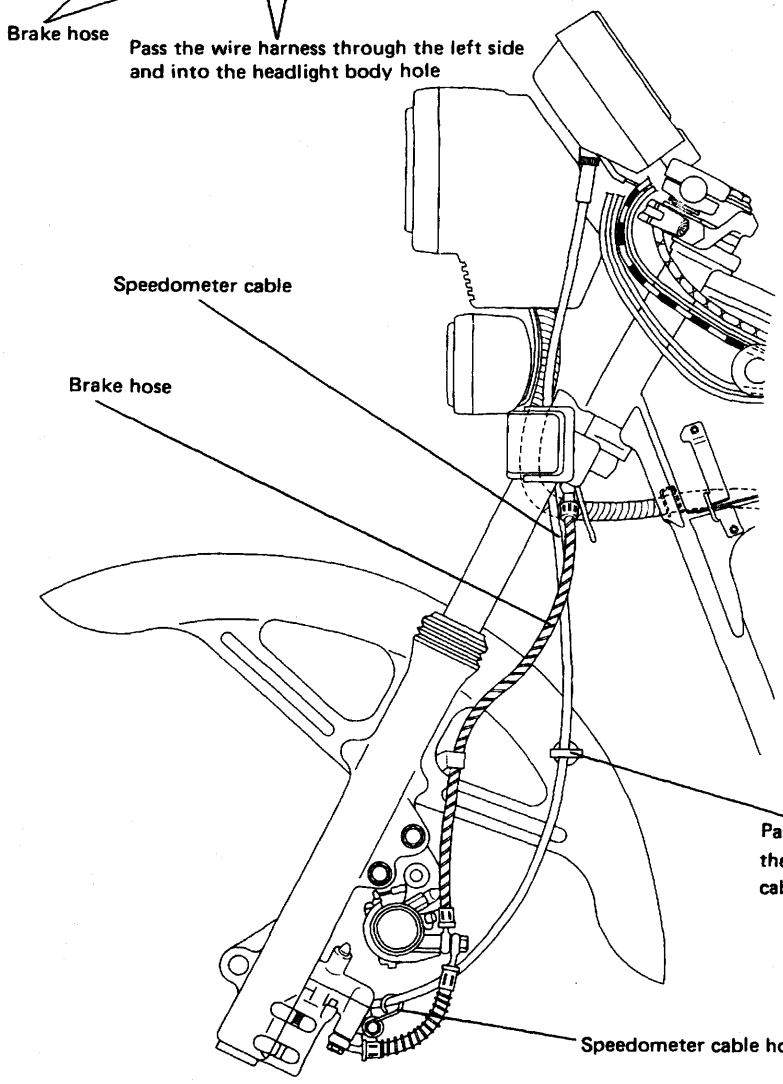

Warning control switch
Check switch
LCD unit set
LCD unit holder set
Print board assembly
FWD

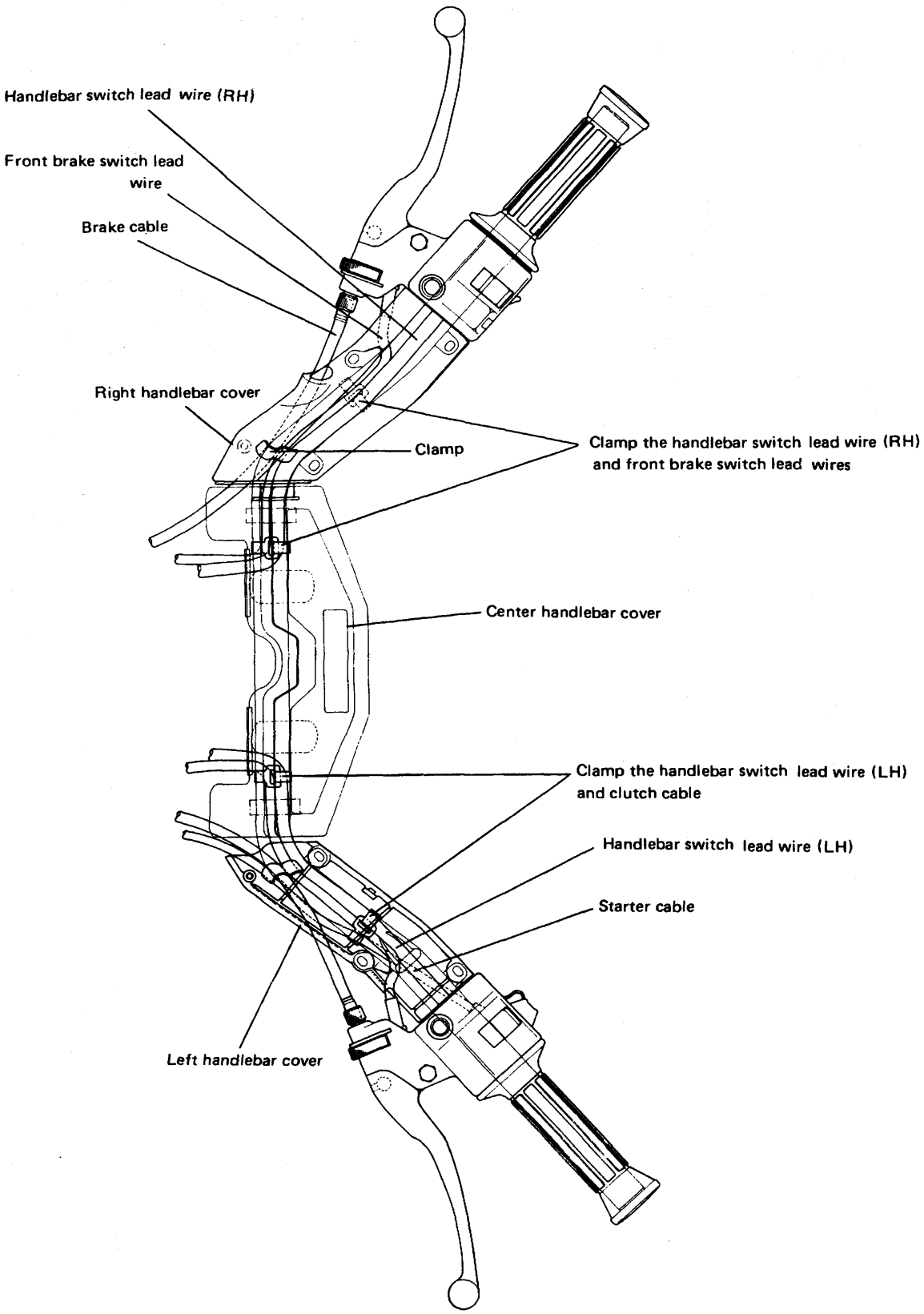
CABLE ROUTING

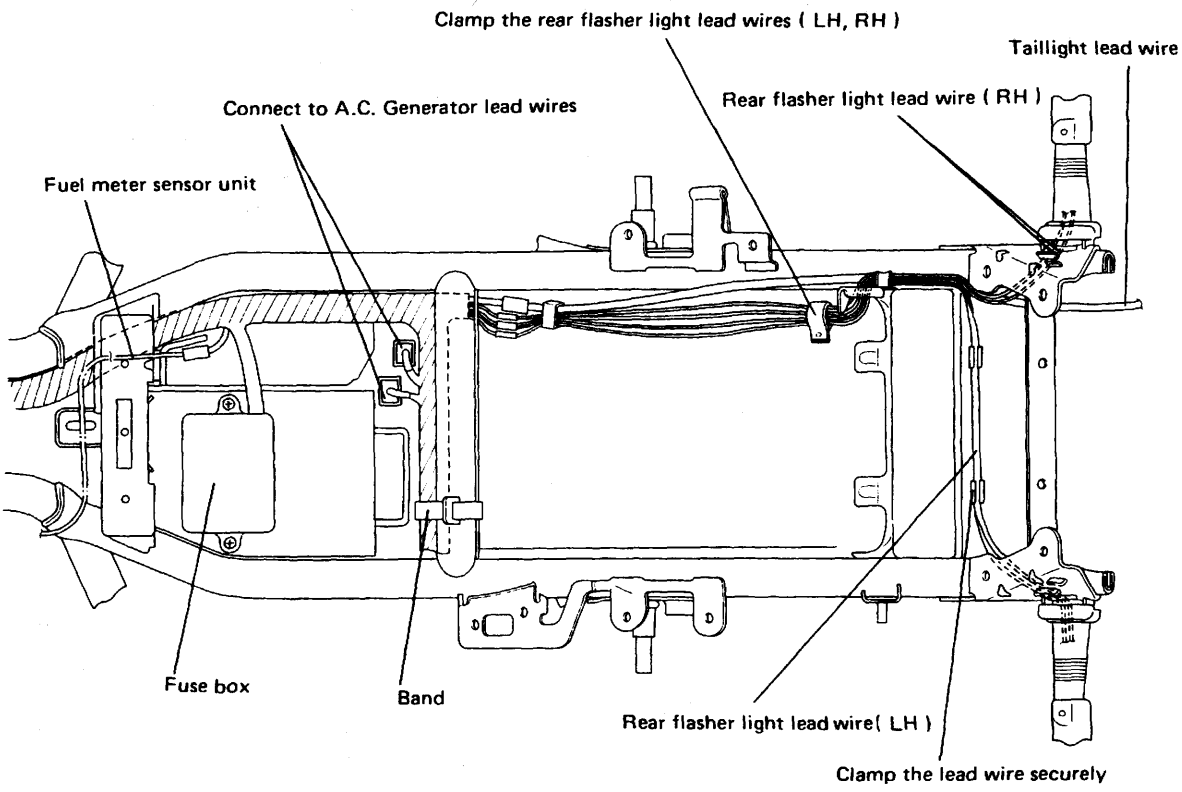


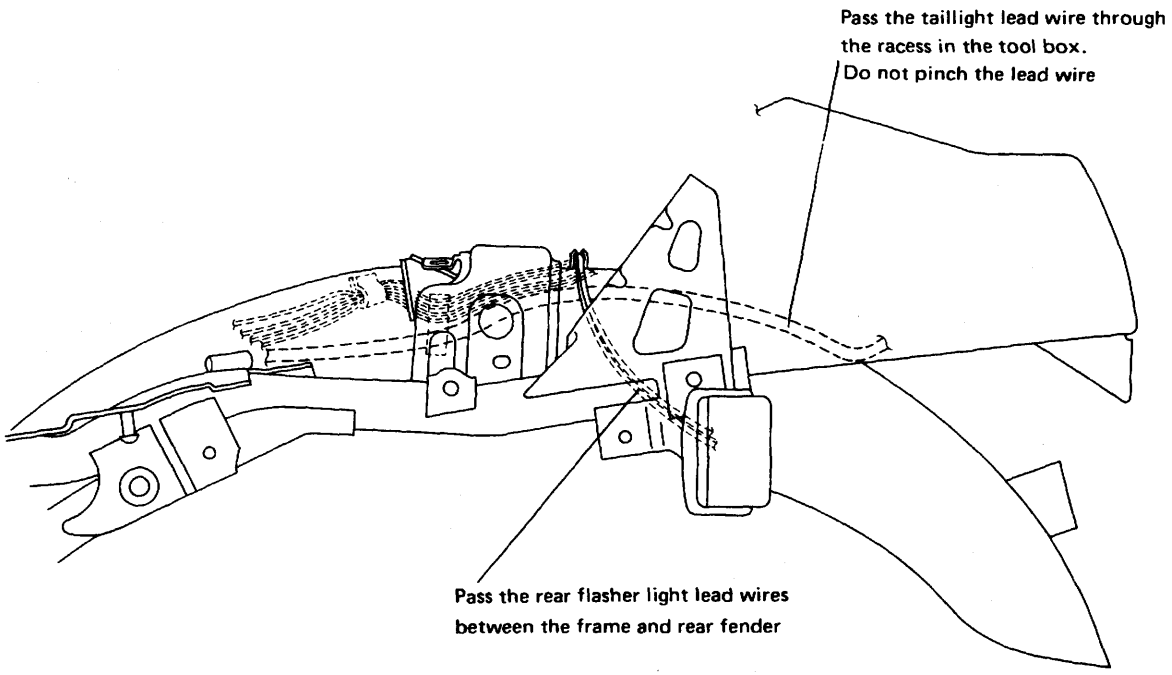
Clamp the lead wires coming from the upper left hole with the left clamp and the lead wires coming from the upper right hole with the right clamp. Keep the space between left and right leads couplers for the headlight coupler.



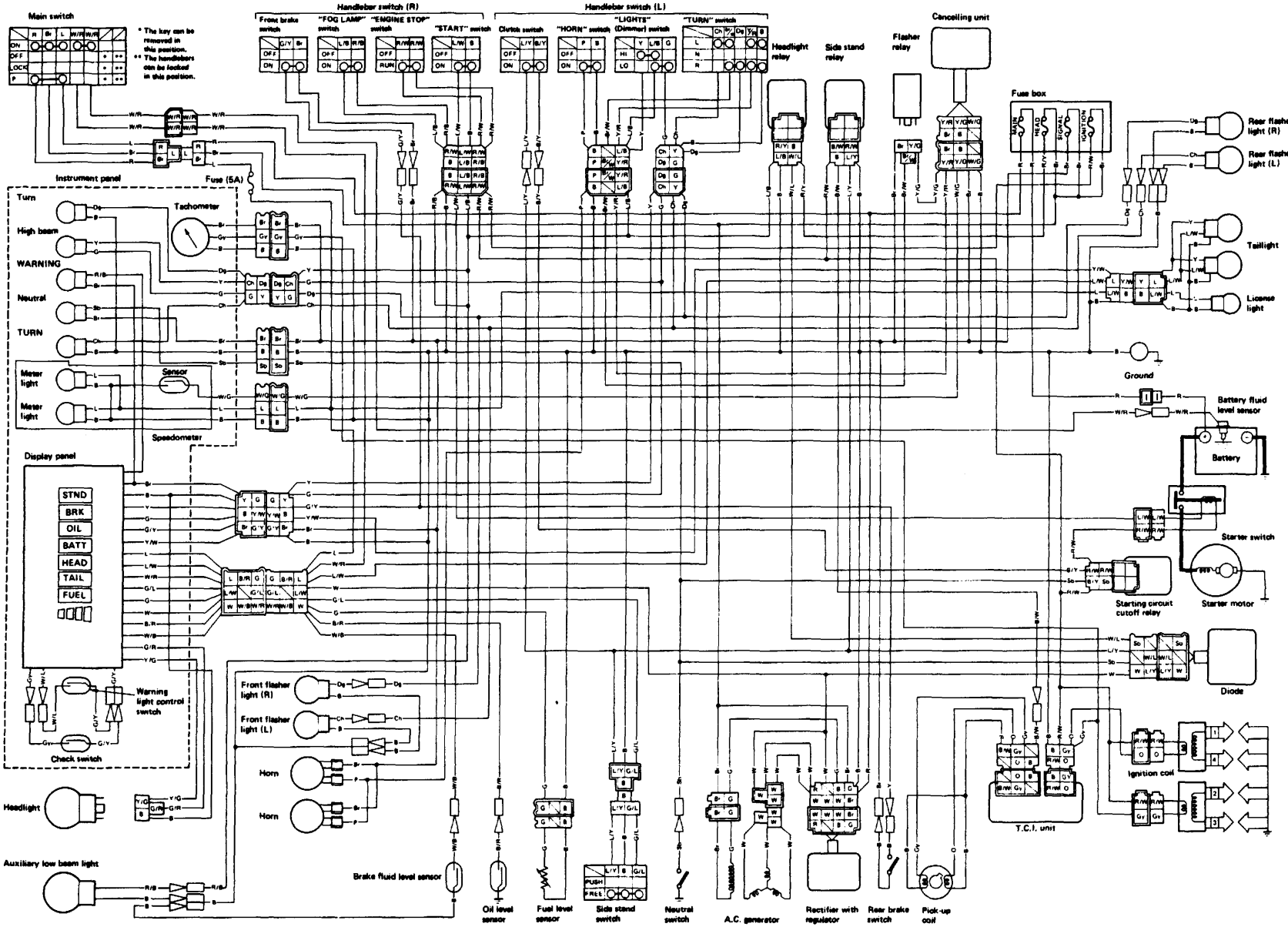



Handlebar switch lead wire (RH)
Front brake switch lead wire
Brake cable
Right handlebar cover
Clamp
Clamp the handlebar switch lead wire (RH) and front brake switch lead wires
Center handlebar cover
Clamp the handlebar switch lead wire (LH) and clutch cable
Handlebar switch lead wire (LH)
Starter cable
Left handlebar cover


Clamp the rear flasher light lead wires (LH, RH)
Taillight lead wire
Rear flasher light lead wire (RH)
Connect to A.C. Generator lead wires
Fuel meter sensor unit
Fuse box
Band
Rear flasher light lead wire(LH)
Clamp the lead wire securely


Pass the taillight lead wire through
the racess in the tool box.
Do not pinch the lead wire
Pass the rear flasher light lead wires
between the frame and rear fender

WIRING DIAGRAM



COLOR CODE

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