YAMAHA

SUPPLEMENTARY SERVICE MANUAL

RD 250B
RD 350B

YAMAHA MOTOR CO., LTD.

361-28197-10

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 product are already known and understood by the reader.

Without such basic knowledge, repairs or service to this model may render the machine unsafe, and for this reason we must advise that all repairs and/or service be performed by an Authorized Yamaha dealer who is in possession of the requisite basic product knowledge.

Other information is produced by the U.S. distributor, Yamaha International Corporation, (CANADA distributor, Yamaha Motor Canada Ltd.) and is necessary to provide total technical coverage regarding the product.

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The Research, Engineering, and Overseas Service Departments of Yamaha are continually striving to further improve all models manufactured by the company. Modifications are therefore inevitable and 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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YAMAHA

1975 RD250B AND RD350B

SUPPLEMENTARY SERVICE MANUAL

1st Edition MAY 1974

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LIT-11613-61-00

FOREWORD

The RD250B and RD350B incorporate Yamaha's latest technical refinement such as a fixed-caliper type disc brake.

These features and specifications pertaining to the RD250B and RD350B models are covered within this Supplementary Service Manual.

For complete information on service procedures it is necessary to use this supplement together with the Service Manual for the models RD250 and RD350.

Overseas Service Dept.
International Division
Yamaha Motor Co., Ltd.


YAMAHA
250

CONTENTS

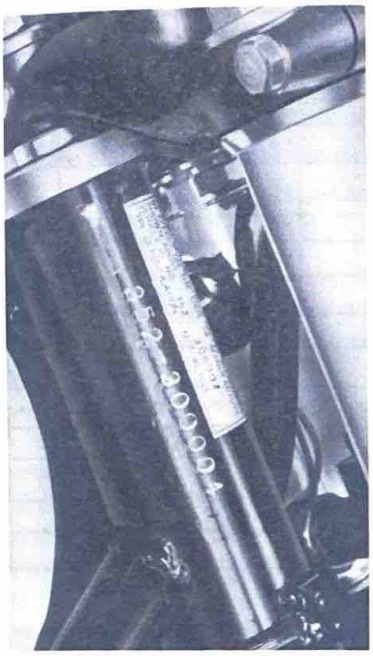
1. MACHINE IDENTIFICATION

The frame serial number is located on the righthand side of the headstock assembly. The first three digits identify the model. This is followed by a dash. The remaining digits identify the production number of the unit. Yamaha production usually begins at ...101.

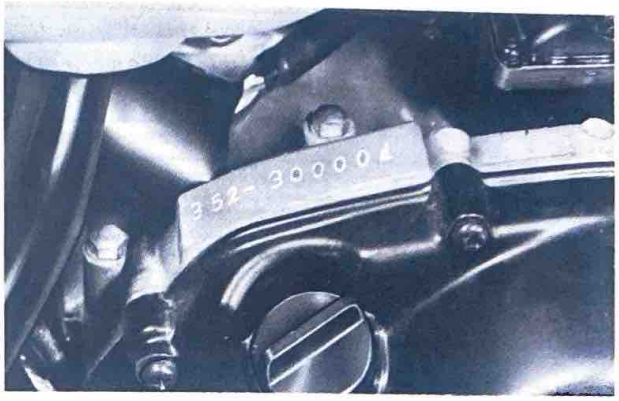
The engine serial number is located on a raised boss on the upper rear, righthand side of the engine. Engine identification follows the same code as frame identification.

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

STARTING SERIAL NUMBER	
RD250B	352-300101
RD350B	351-300101



Frame Serial Number



Engine Serial Number

MAINTENANCE AND LUBRICATION INTERVALS

These charts should be considered strictly as a guide to general maintenance and lubrication intervals. You must take into consideration that weather, terrain, geographical location, and variety of individual uses all tend to demand that each owner alter this time schedule to match his environment. For example, if the motorcycle is continually operated in an area of high humidity, then all parts must be lubricated much more frequently than shown on the chart to avoid damage caused by water to metal parts.

Maintenance intervals

Item	Remarks	Initial (miles)				Thereafter every (miles)		
		250	500	1,000	2,000	1,000	2,000	8,000
Brake System (Complete)	Check/Adjust as required — Repair as required		o	o			o	
Clutch	Check/Adjust as required		o	o			o	
Battery	Top-off/Check specific gravity as required — Monthly or →	o	o	o		o		
Spark plug	Inspect/Clean or Replace as required	o	o	o		o		
Wheels & Tires	Pressure/Spoke-tension/Runout	o	o	o		o		
Fittings & Fasteners	Tighten before each trip and/or →	o	o	o		o		
Autolube	Cable operation/Adjustment	o	o	o			o	
Drive Chain	Tension/Alignment	o	o	o		o	o	
Transmission Oil Level Check	Includes transmission/Autolube tank #1	o	o	o		o		
Air Filter	Dry paper type #4	o	o	o		o		
Fuel Petcock	Clean/Flush tank as required	o		o			o	
Ignition Timing	Adjust/Clean or Replace parts as required		o	o			o	
Carburetor Adjustment	Check operation/Fittings		o	o			o	
Carburetor Overhaul	Clean/Repair as required — Refit/Adjust				o			o
Cylinder Compression	Preventive maintenance check		o	o			o	
Engine Decarbonization	Includes exhaust system			o			o	

Service notes:

No. 1. Check Autolube tank level before each ride. Top off when oil level shows at the sight glass or before any prolonged use. See "Lubrication Intervals" for type of oil to use.

No. 2. Pre-operational checks should be made each time the machine is used. Such an inspection can be thoroughly accomplished in a very short time, and the added safety it assured the rider is more than worth the minimal time involved.

No. 3. For additional information regarding drive chain, engine oil level, see "Lubrication Intervals".

No. 4. Air cleaner should be cleaned, by blowing with compressed air and/or by lightly tapping the filtering paper so that the dust may be removed.

Lubrication intervals

Item	Remarks	Type	Period							
			Initial (miles)				Thereafter every (miles)			
			250	500	1,000	2,000	1,000	2,000	4,000	8,000
Autolube	See "Service Notes"	No.1	See "Service Notes'							
Transmission Oil	Warm engine before draining		Check	o	o		Check	o		
Drive Chain	Lube/Adjust as required	No.3	See "Service Notes"							
Drive Chain	Remove/Clean-Lube/Adjust	No.3								
Control/Meter Cables	Apply thoroughly	No.4		o				o		
Throttle Grip/Housing	Light application	No.5		o				o		
Tacho/Speedo Gear Housings	Light application	No.5			o				o	
Rear Arm Pivot Shaft	Apply until shows	No.6			o			o		
Brake Pedal Shaft	Light application	No.5			o			o		
Change Pedal Shaft	Light application	No.5			o			o		
Stand Shaft Pivot	Light application	No.5			o			o		
Front Forks	Drain Completely/Check Specs.	No.3		Check		o		Check	o	
Steering Ball Races	Inspect thoroughly—Med pack	No.7				o			o	
Point Cam Lubricating Wick	Very light application	No.8			o				o	
Wheel Bearings	Do not overpack	No.7				o			o	

No. 1. Check tank level before each ride. Top off when oil level is at sight glass or before any prolonged use. Use the following lubricant (in order of preference):
Yamalube "2-cycle" or; two-stroke oil labeled "BIA certified for service TC-W".

No. 2. At ambient temperatures of 45 — 90°F, use Yamalube 4-cycle. Do not use "additives" in oil.

No. 3. Use 10W/30 "SE" motor oil (If desired, specialty type lubricants of quality manufacture may be used.)
"Drive Chains"—Lube every 150 — 200 miles. If severe usage, every 50 — 100 miles.

No. 4. Use graphic base type (specialty types available—use name brand, quality manufacturer).

No. 5. Light duty-smooth light-weight "white" grease. Heavy duty standard chassis lube grease (do not use 90wt lube grease on throttle/housing).

No. 6. Use standard chassis lube grease-smooth, not coarse.

No. 7. Medium-weight wheel bearing grease of quality manufacturer-preferably waterproof.

No. 8. Light-weight machine oil.

3. SPECIFICATIONS/SERVICE DATA

Model	RD250B	RD350B
Dimensions:		
Overall length	80.3 ins. (2,040 mm.)	80.3 ins. (2,040 mm.)
Overall width	32.9 ins. (835 mm.)	32.9 ins. (835 mm.)
Overall height	43.7 ins. (1,110 mm.)	43.7 ins. (1,110 mm.)
Wheelbase	52.0 ins. (1,320 mm.)	52.0 ins. (1,320 mm.)
Min. ground clearance	5.9 ins. (150 mm.)	6.1 ins. (155 mm.)
Weight:		
Net	309 lbs. (140 kgs.)	315 lbs. (143 kgs.)
Performance:		
Max. speed	93 m.p.h. plus (150 km/h. plus)	100 m.p.h. plus (160 km/h. plus)
Fuel consumption	94.1 m.p.g. at 31 m.p.h.	82.5 m.p.g. at 37 m.p.h.
(on paved level road)	(40 km/lit. at 50 km/h.)	(35 km/lit. at 60 km/h.)
Climbing capacity	24°	28°
Min. turning radius	90.6 ins. (2,300 mm.)	90.6 ins. (2,300 mm.)
Braking distance	46 ft. at 31 m.p.h. (14 m. at 50 km/h.)	46 ft. at 31 m.p.h. (14 m. at 50 km/h.)
Engine:		
Model	352	351
Type	2-stroke, air cooled	2-stroke, air cooled
Cylinder	YAMAHA Torque Induction	YAMAHA Torque Induction
Lubrication system	Separate lubrication (YAMAHA Autolube)	Separate lubrication (YAMAHA Autolube)
Displacement	15.07 cu.in. (247 c.c.)	21.18 cu.in. (347 c.c.)
Bore & Stroke	2.126 x 2.126 ins. (54 x 54 mm.)	2.520 x 2.126 ins. (64 x 54 mm.)
Compression ratio	6.7 : 1	6.6 : 1
Piston skirt clearance	0.0013 — 0.0015 in. (0.035 — 0.040 mm.)	0.0013 — 0.0015 in. (0.035 — 0.040 mm.)
Piston ring end gap		
Top	0.008 — 0.015 in. (0.2 — 0.4 mm.)	0.008 — 0.015 in. (0.2 — 0.4 mm.)
2nd	0.008 — 0.015 in. (0.2 — 0.4 mm.)	0.006 — 0.014 in. (0.15 — 0.35 mm.)
Piston ring groove side gap		
Top	0.001 — 0.003 in. (0.03 — 0.07 mm.)	0.001 — 0.003 in. (0.03 — 0.07 mm.)
2nd	0.001 — 0.003 in. (0.03 — 0.07 mm.)	0.001 — 0.003 in. (0.03 — 0.07 mm.)
Max. output	30 PS/7,500 r.p.m.	(39 PS/7,500 r.p.m.)
Max. torque	21.1 ft-lbs./7,500 r.p.m. (2.9 m-kgs./7,000 r.p.m.)	28.0 ft-lbs./7,000 r.p.m. (3.8 m-kgs./7,000 r.p.m.)
Starting system	Primary kick starter	Primary kick starter
Ignition system	Battery ignition	Battery ignition
Carburetor:	VM28SC x 2	VM28SC x 2
Air cleaner:	Dry, paper filter type	Dry, paper filter type
Power transmission:		
Clutch	Wet, multi-disc type	Wet, multi-disc type
Primary reduction system	Helical gear	Herical gear
Primary reduction ratio	68/21 (3.238)	66/23 (2.869)
Gear box:		
Type	Constant mesh, 6-speed forward	Constant mesh, 6-speed forward
Reduction ratio 1st	36/14 (2.571)	36/14 (2.571)
Reduction ratio 2nd	32/18 (1.777)	32/18 (1.777)

Model	RD250B	RD350B
Reduction ratio 3rd	29/22 (1.318)	29/22 (1.318)
Reduction ratio 4th	26/25 (1.040)	26/25 (1.040)
Reduction ratio 5th	24/27 (0.888)	24/27 (0.888)
Reduction ratio 6th	22/28 (0.785)	22/28 (0.785)
Secondary reduction ratio	40/15 (2.666)	40/15 (2.666)
Secondary reduction system	Chain	Chain
Transmission oil		
Amount	91.50 cu.in. (1,500 c.c. ±50 c.c.)	91.50 cu.in. (1,500 c.c. ±50 c.c.)
Type	SAE 10W/30	SAE 10W/30
Chassis:		
Model	352	351
Type of frame	Double cradle type	Double cradle type
Suspension system, front	Telescopic fork	Telescopic fork
Front fork oil		
Amount	8.54 cu.in. (140 c.c.)	8.54 cu.in. (140 c.c.)
Type	SAE 10W/30	SAE 10W/30
Suspension system, rear	Swing arm	Swing arm
Shock absorber system, front	Coil spring, oil damper	Coil spring, oil damper
Shock absorber system, rear	Coil spring, oil damper	Coil spring, oil damper
Steering system:		
Caster	62°30′	62°30′
Trail	4.17 ins. (106 mm.)	4.17 ins. (106 mm.)
Braking system:		
Type	Disc (front)	Disc (front)
	Internal expansion (rear)	Internal expansion (rear)
Operation method, front	Right hand operation	Right hand operation
Operation method, rear	Right foot operation	Right foot operation
Tire, front (normal pressure)	3.00—18—4PR (23 lbs/in.^{2})	3.00—18—4PR (23 lbs/in.^{2})
Tire, rear (normal pressure)	3.25—18—4PR (28 lbs/in.^{2})	3.50—18—4PR (28 lbs/in.^{2})
Fuel tank capacity	12 lits. (3.2 US gals.)	12 lits. (3.2 US gals.)
Oil tank capacity	2 lits. (2.1 US qts.)	2 lits. (2.1 US qts.)
Generator:		
Model	AZ2010NI	AZ2010NI
Manufacturer	Mitsubishi Elec.	Mitsubishi Elec.
Spark plug (gap)	B-8HS x 2	B-8HS x 2
	0.024 — 0.028 in.	0.024 — 0.028 in.
	(0.6 — 0.7 mm.)	(0.6 — 0.7 mm.)
Point gap (normal)	0.012 — 0.016 in.	0.012 — 0.016 in.
	(0.3 — 0.4 mm.)	(0.3 — 0.4 mm.)
Ignition timing (BTDC)	0.078 ± 0.006 in.	0.078 ± 0.006 in.
	(2.0 ± 0.15 mm.)	2.0 ± 0.15 mm.)
Battery:		
Model	12N5.5A—3B	12N5.5A—3B
Capacity	12V. 5.5AH.	12V. 5.5AH.
Lights:		
Headlight	12V. 35/25W.	12V. 35/25W.
Taillight/Stoplight	12V. 8/23W.	12V. 8/23W.
Flasher lights	12V. 27W.	12V. 27W.
Neutral light	12V. 3W.	12V. 3W.
Meter lights	12V. 3W. x 4	12V. 3W. x 4
High beam indicator light	12V. 3W.	12V. 3W.
Flasher pilot light	12V. 3W. x 2	12V. 3W. x 2
Lamp checker indicator	12V. 3W.	12V. 3W.

All data are subject to change without notice.

4. CARBURETOR

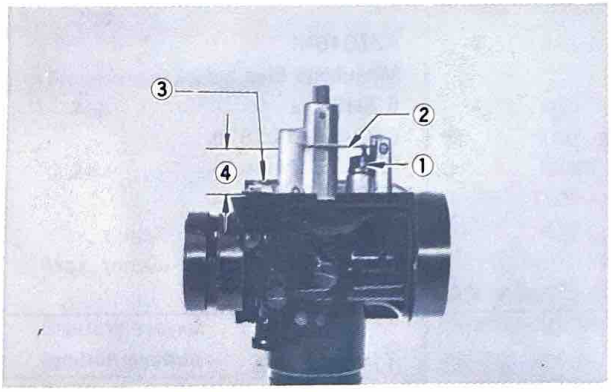
1 Carburetor setting

Item \ Model	RD250B	RD350B
Type	MIKUNI VM28SC, 36102	MIKUNI VM28SC, 36002
M.J. (Main jet)	#120	#140
N.J. (Needle jet)	0—8	0—8
J.N. (Jet needle)	5I4-3	5I4-4
C.A. (Throttle valve cutaway)	2.5	2.5
P.J. (Pilot jet)	#30	#25
A.S. (Air screw)	1-1/4	1-3/4
G.S. (Starter jet)	#70	#70
V.S. (Valve seat)	2.5	2.5
H. Float level	0.59±0.04 in. (15.0±1.0 mm.)	0.59±0.04 in. (15.0±1.0 mm.)

Note:
1) The starter jet is only left hand carburetor.
2) All data are subject to change without notice.

2 Float level

1) If float level within the carburetor float chamber body decreases, the fuel/air mixture ratio will be leaner. If the level increases, mixture will be richer.
2) The level is set according to the design of the carburetor and float bowl chamber. Under no circumstances should float level be altered in an attempt to correct a performance problem.



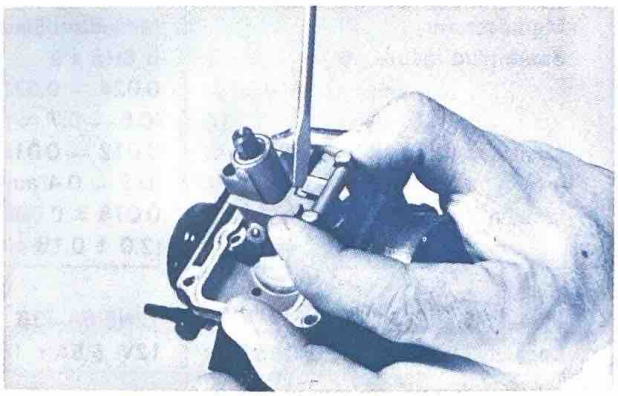
1. Needle head
2. Float holding plate
3. Mixing chamber gasket surface
4. Float level

3) Using a vernier caliper, measure the distance of the float arm from the float chamber gasket surface (gasket removed) to the float arm.
Float level:

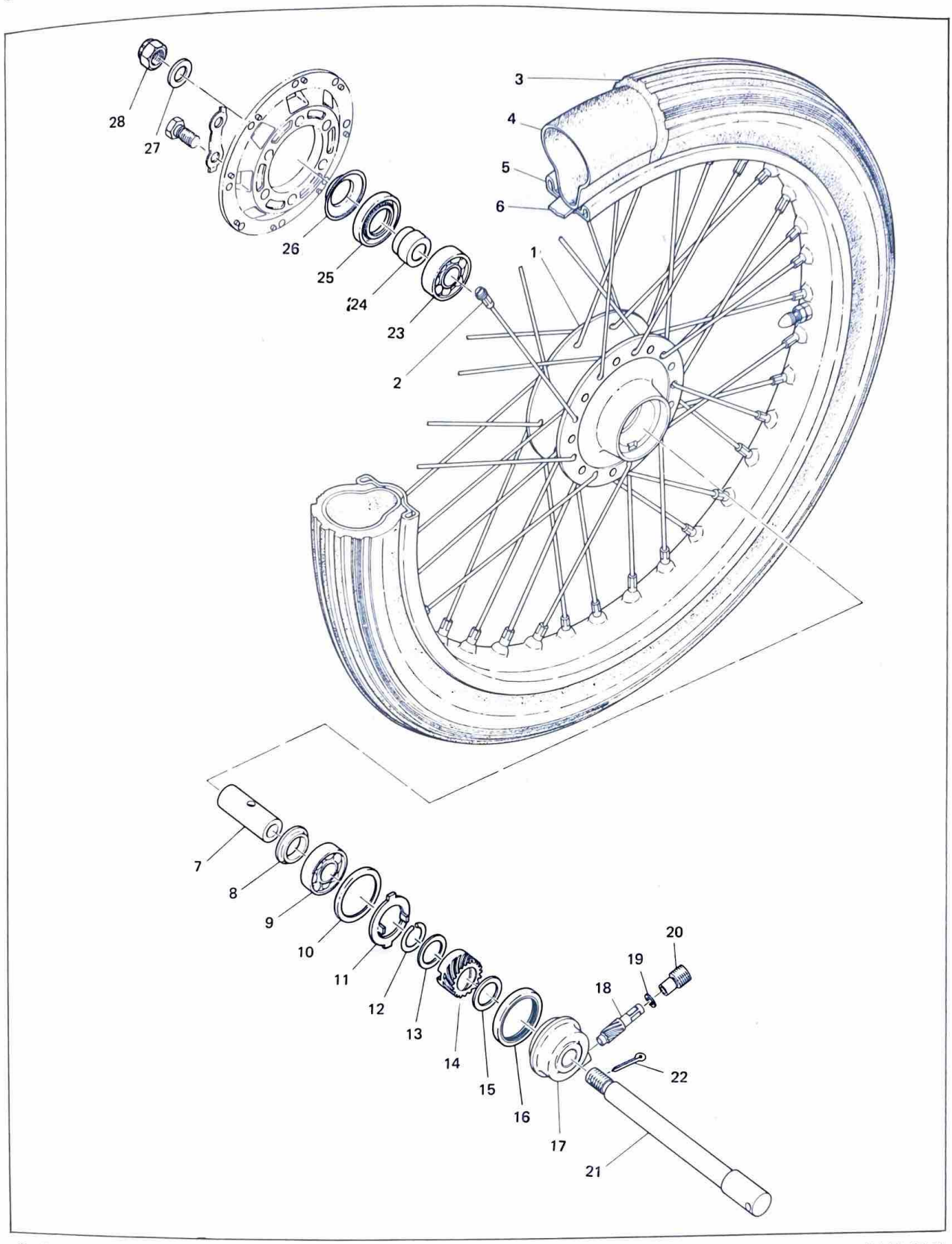
0.59 ± 0.04 in. (15.0 ± 1.0 mm.)

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

4) To correct float level remove the float assembly and bend the tang a slight amount as required.
Both the right and left sides of the float arm should be mesured indentically.
Correct as required.



5. FRONT WHEEL

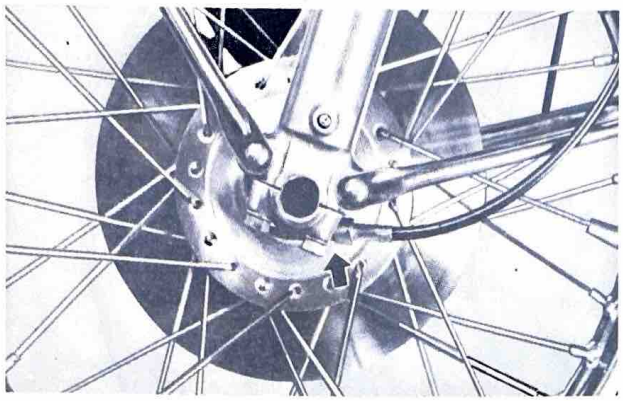


1. Front hub
2. Spoke set
3. Front tire (3.00-18-4PR)
4. Tube (3.00-18)
5. Rim (1.6A-18)
6. Rim band (3.00-18)
7. Bearing spacer
8. Spacer flange
9. Bearing (6303Z)
10. Clutch meter retainer
11. Meter clutch
12. Stop ring
13. Thrust washer (25-29-1.0)
14. Drive gear
15. Thrust washer (25-32-1.6)
16. Oil seal (SDD45-36-6)
17. Gear unit housing
18. Meter gear
19. Washer (6.2-9.5-0.8)
20. Bushing
21. Wheel axle
22. Cotter pin
23. Bearing (6303)
24. Wheel axle collar
25. Oil seal (SD28-47-7)
26. Hub dust cover
27. Plain washer
28. Axle nut

The front tire is 3.00—18—4 PR in size. The brake is a fixed-caliper type disc brake.

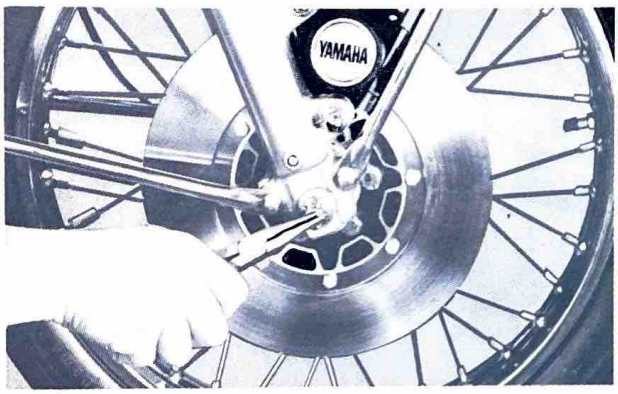
1 Removal

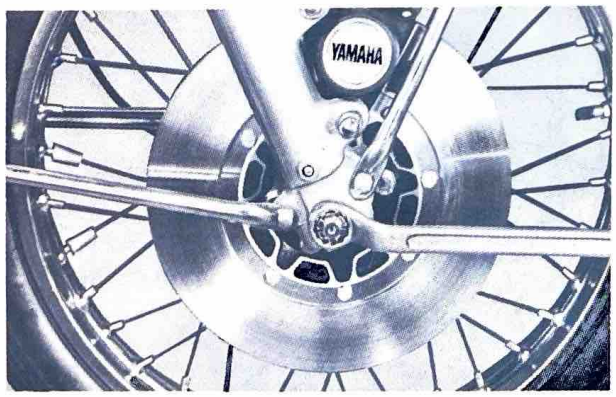
1) Disconnect the speedometer cable.



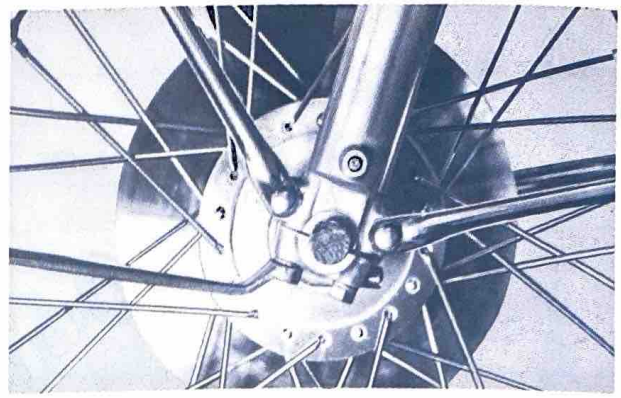
2) Remove the cotter pin, and then the front wheel axle nut.

Note:
Replace the cotter pin if damaged or worn.

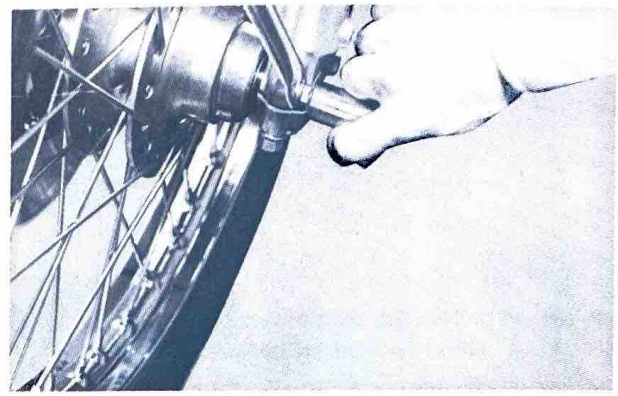




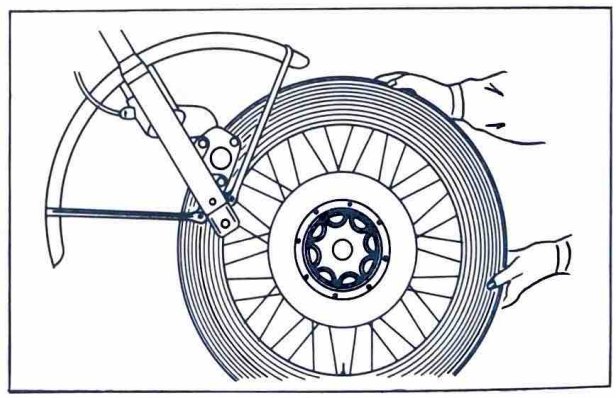
3) Loosen the front wheel axle holder nuts.



4) Pull out the front wheel axle



5) Raise the front of the chassis, and remove the front wheel assembly.

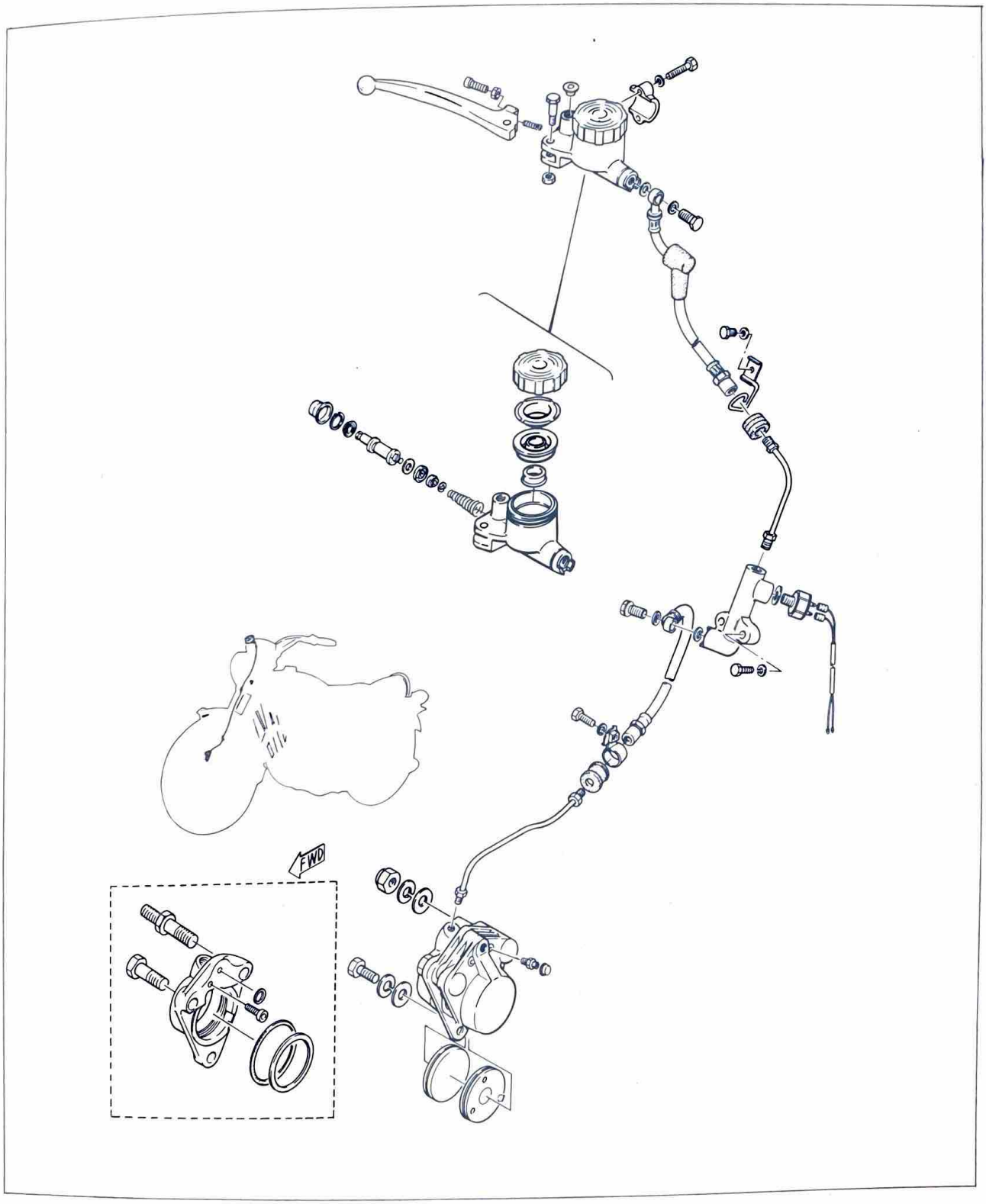


6. DISC BRAKE

1 Construction

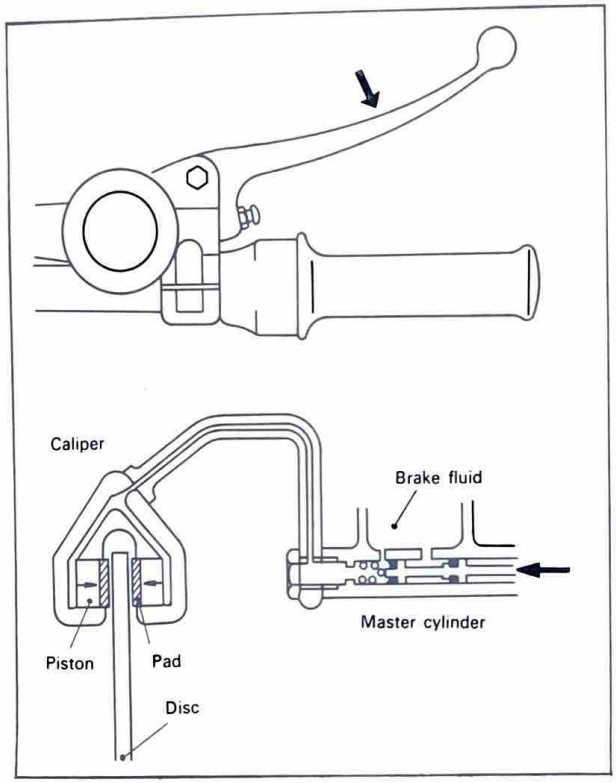
Construction

RD250B/350B have a fixed-caliper type disc brake, in which two brake pads grip the rotating disc. The right part of the handlebar has a brake level and a master cylinder. The calipers are installed on the front fork, while the brake disc is mounted on the front hub. The master cylinder is connected to the calipers by a brake hose and pipe.



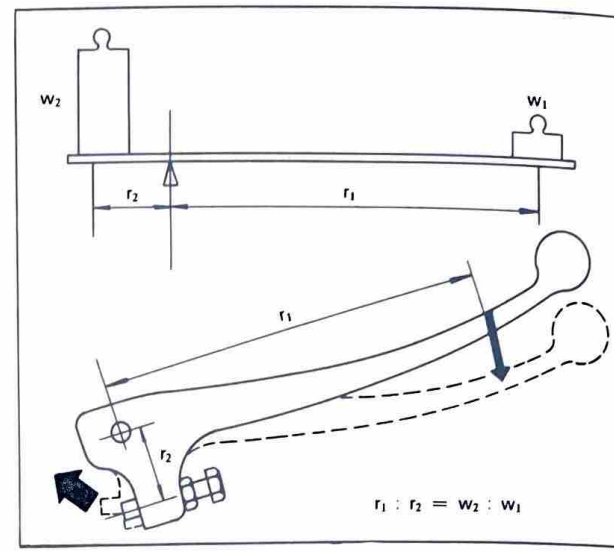
Operation

When the front brake lever is squeezed, it forces the master cylinder piston to move. As the piston cup moves past the compensating port, it traps the brake fluid in the cylinder. Pressure rises rapidly, and the fluid is forced through the brake hose to the caliper cylinders. The brake fluid forced into the caliper cylinders pushes against the pistons in the cylinders, and the pads (or "pucks") located on each side of the disc are forced against the disc. The friction between the pads and revolving disc then provides the braking action. As the brake lever is released, both brake lever and pistons are forced back to their respective original positions by the force of return springs.



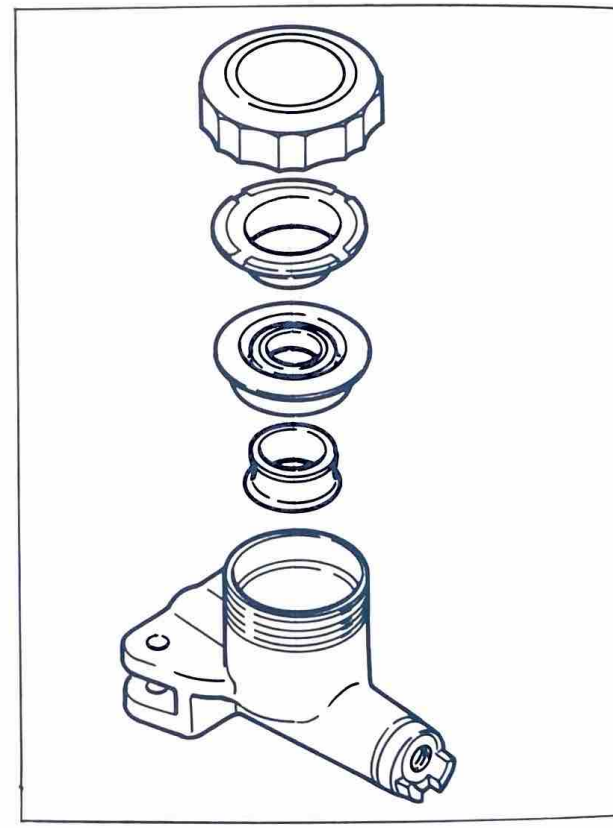
Brake lever

When the brake lever is squeezed, it produces a push, at the master cylinder piston about four times greater than the force applied to the brake lever.



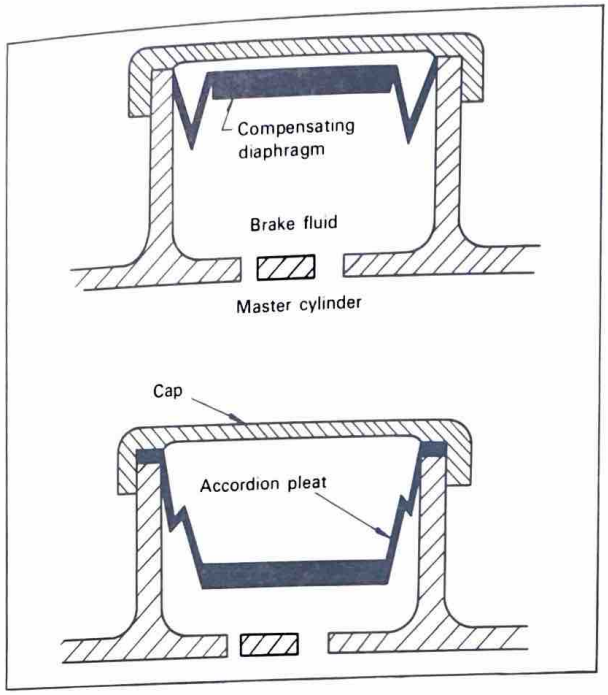
Master cylinder

The master cylinder piston is linked to the brake lever. When the brake lever is squeezed, the piston forces the brake fluid through the hose and pipe to the calipers.



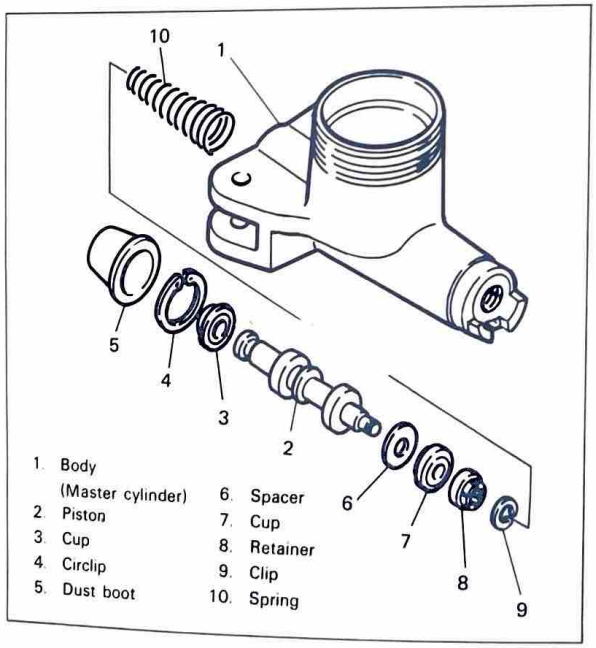
Reservoir tank

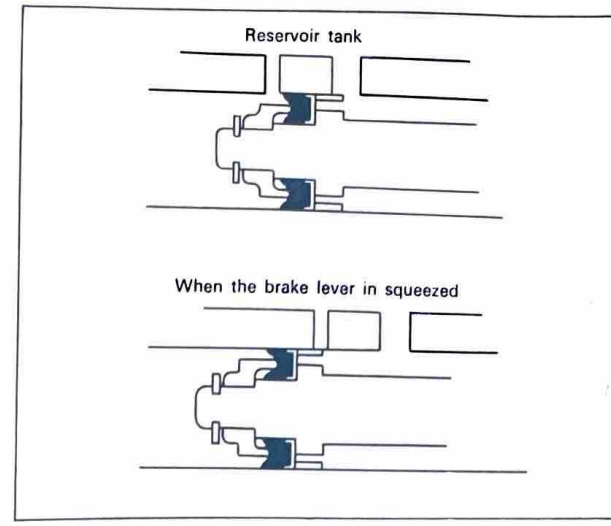
As wear on the brake pads increases, the amount of brake fluid must be increased to maintain proper hydraulic pressure. The reservoir tank supplies this brake fluid. (Tank capacity is approximately 30 c.c.). To prevent air from entering the brake line when the brake fluid level lowers, especially on a rough road or in an inclined position, a compensating diaphragm is provided for the reservoir tank.



Piston

The master cylinder piston has two cups; one maintains good sealing between the cup and the cylinder wall of the master cylinder, and the other prevents the brake fluid from leaking out from the cylinder to the brake lever side. The return spring forces the brake lever to its home position, when the lever is released.





Brake hose and pipe

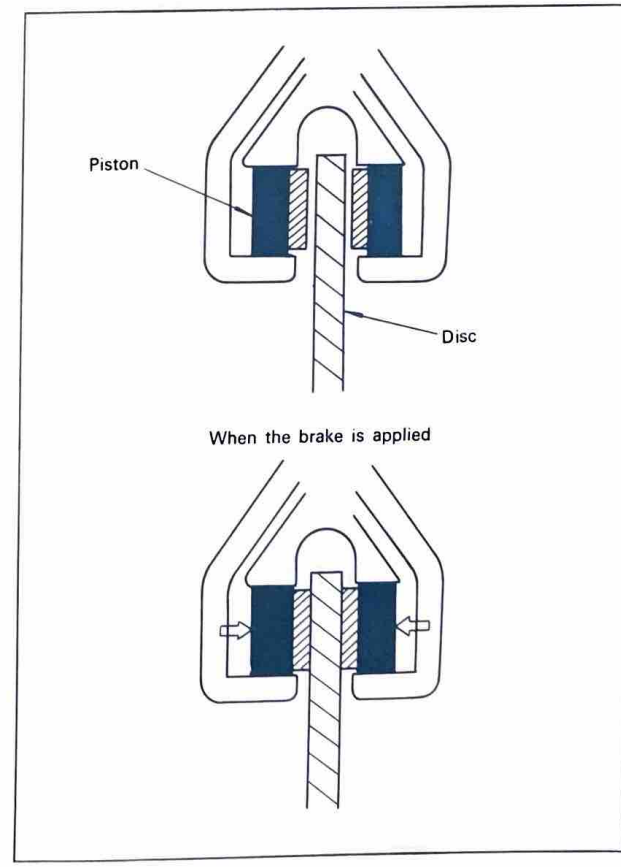
The brake hose and pipe carry hydraulic pressure to the calipers.

The brake hose is flexible and capable of withstanding a hydraulic pressure of 350 kg/cm.^{2} in conforming to DOT #3 or #4.

The brake pipe is made of doubled steel tubing. For better corrosion resistance it is palted with zinc.

Calipers

The hydraulic pressure carried to the calipers forces the caliper pistons out by which action the pads are pushed out to grip the revolving disc.



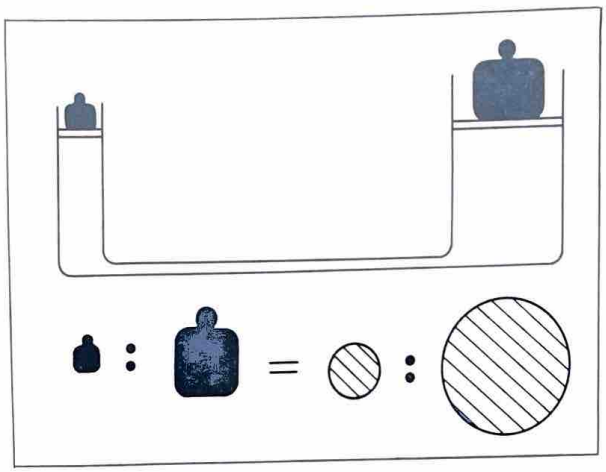
Seals

Each caliper cylinder has a piston seal (to maintain good sealing between the piston and the caliper cylinder wall) and a dust seal (to prevent dirt and water from entering the cylinder).

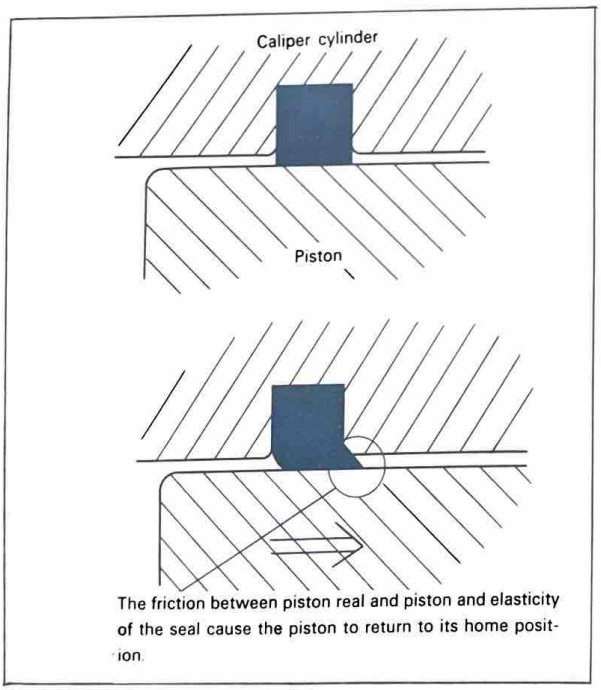
The piston seal is designed to move the piston back to its home position after the brake lever is released. The return movement is produced by the frictional force and elasticity of the piston seal. The piston seal also serves as an automatic adjuster of the clearance between the disc and the pad. (The clearance between the disc and pad is normally 0.004 — 0.012 in. (0.1 — 0.3 mm.))

Piston

The caliper pistons are forced against the pads by hydraulic pressure which is about nine times greater than the pressure produced in the master cylinder. This is because the caliper cylinder piston surface area in much large than the master cylinder piston surface area.



The pressure load ratio is proportional to the area ratio.



The friction between piston real and piston and elasticity of the seal cause the piston to return to its home position.

Pads

The pads are forced against the revolving disc by the caliper cylinder pistons to grip the disc. They are composed of resin molded asbestos.

Bleed screw

Air in the hydraulic line impairs hydraulic action. To expel air out of the caliper cylinder, a bleed screw is provided on the caliper assembly.

Disc

The stainless steel disc is bolted to the front wheel hub, and it is gripped by the pads located on each side of the disc.

Brake fluid

The brake fluid is pressurized in the master cylinder, and the hydraulic pressure thus produced is carried to the caliper cylinder pistons. In this sense, the brake fluid plays a very important role. The brake fluid must meet the following requirements:

1) Proper viscosity and liquiodity must be maintained at working temperatures.
2) Good stability must be maintained. (That is, the fluid will not separate, change in viscosity, and/or precipitate.)
3) Boiling point must be high. (No vapor lock will result.)
4) It will not deteriorate rubber.
5) Water resisting property must be excellent.

Note that the disc brake fluid must be of good quality, because the fluid temperature tends to be higher as compared with the drum brake.

Suggested brake fluid specifications: DOT #3 or#4

2. Disassembly

The tire and bearings can be disassembled without removing the brake disc. Do not attempt to remove the brake disc unnecessarily.

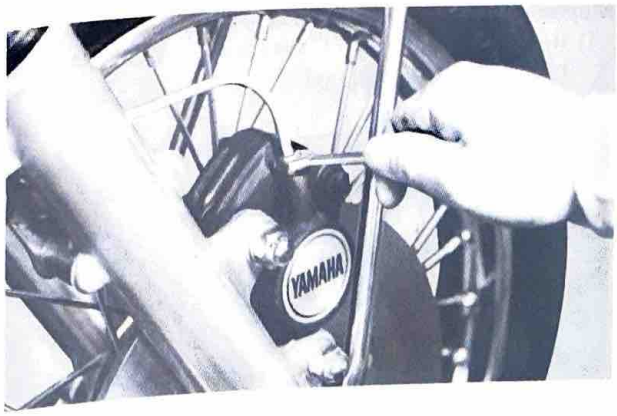
Tools and parts required for disassembly:

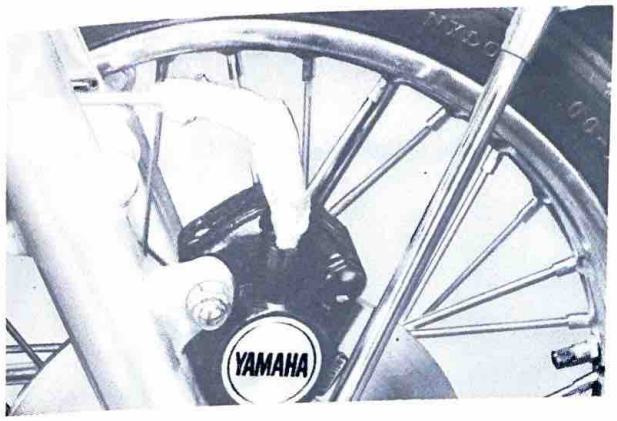
General service tools
Hexagon wrench, 5 mm.
Grip pliers
Air compressor
Rags
Torque wrench

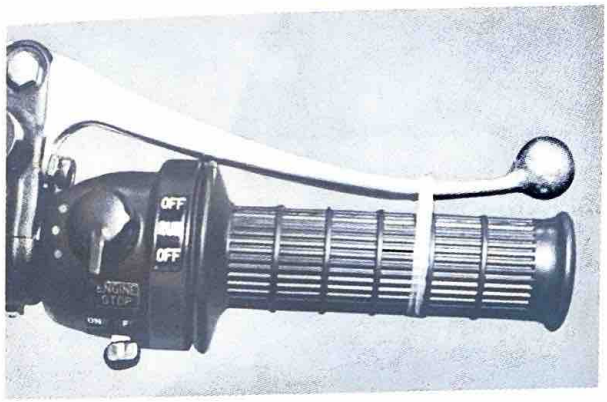
Removing the caliper

1) Remove the brake pipe from the caliper assembly. Put the removed brake pipe is a clean vinyl bag so that it can be kept free from dust and dirt.

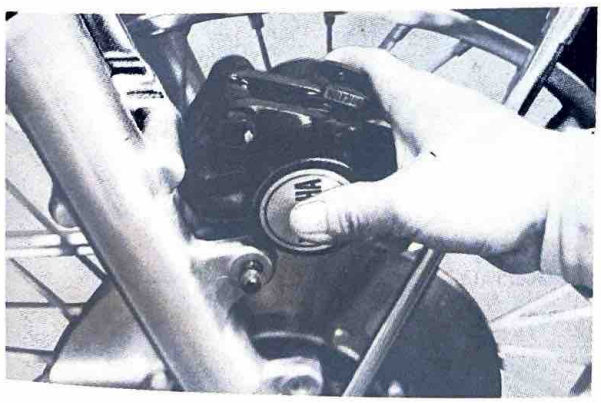
   Note:
   It is advisable to keep the brake lever squeezed, because this brake lever position prevents the fluid from leaking out of the reservoir. Place a heavy rubber band around the lever and handlebar grip.



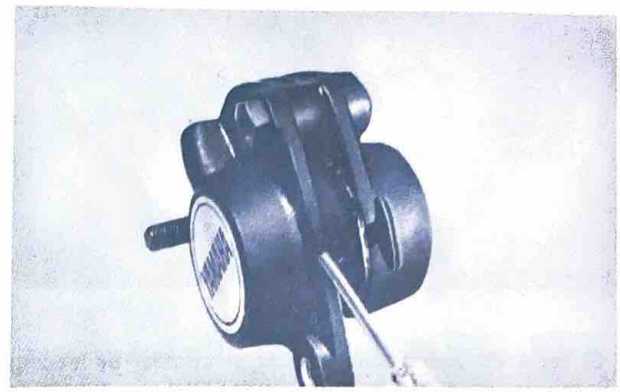




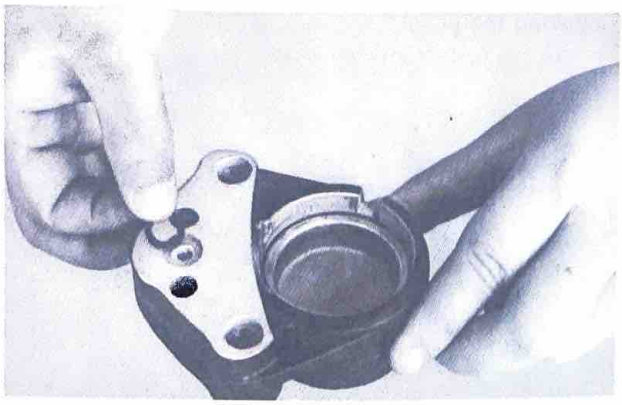
2) Remove the caliper mounting bolts and nuts.
3) Rotate the caliper assembly upward, and remove it.



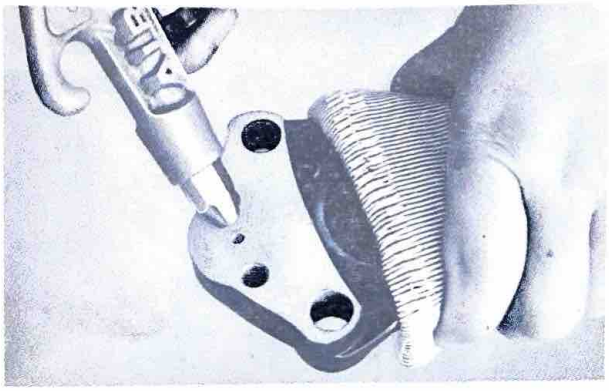
Removing the pads
Remove the pads from their seats.



Removing the caliper pistons and seals:
1) Remove the two bridge bolts and two hexagon bolts.
2) Remove the caliper seal.

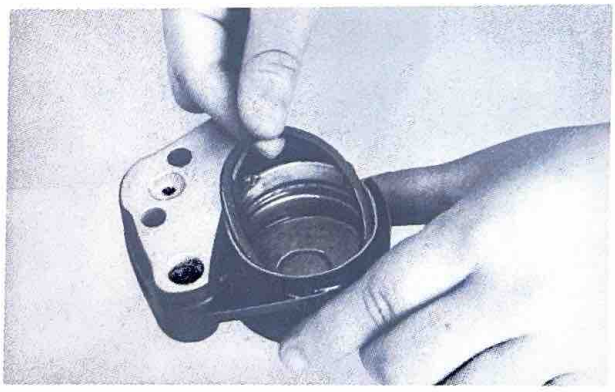


3) Force the piston from the caliper cylinder by feeding compressed air into the cylinder through the fluid inlet. Never attempt to push the pistons, with a screw driver.



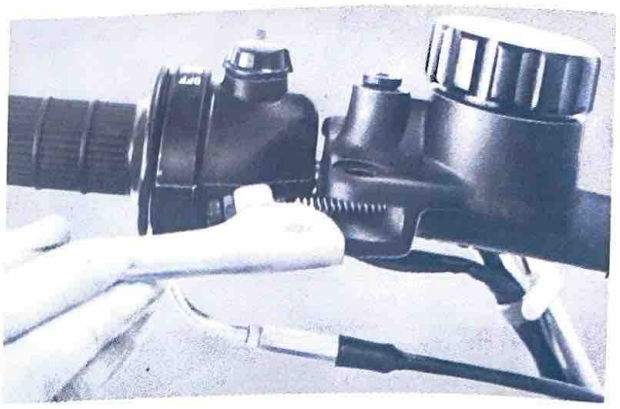
4) Remove the piston seal and dust seal from the caliper body.
The foregoing applies to both pistons.

Note:
The removed parts should be kept free from gasoline, kerosene, engine oil, etc. If any oil attaches to a seal, it will swell up or deteriorate.

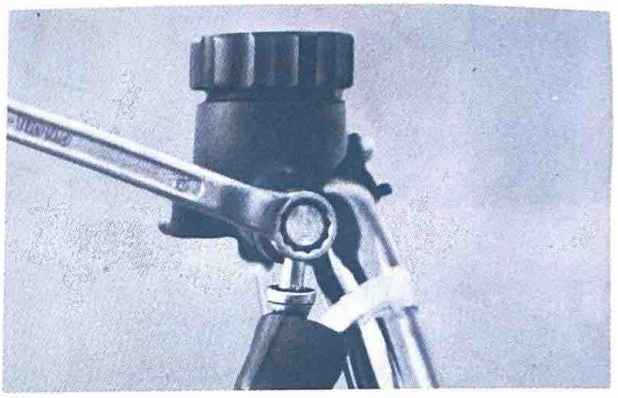


Master cylinder

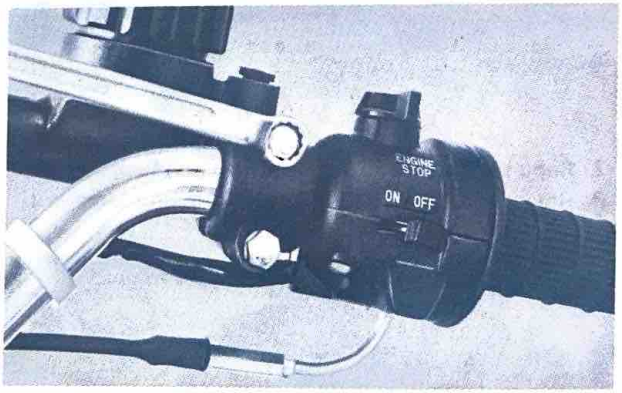
1) Remove brake lever. (Take care not to misplace the brake lever return spring.)



2) Remove the brake hose.

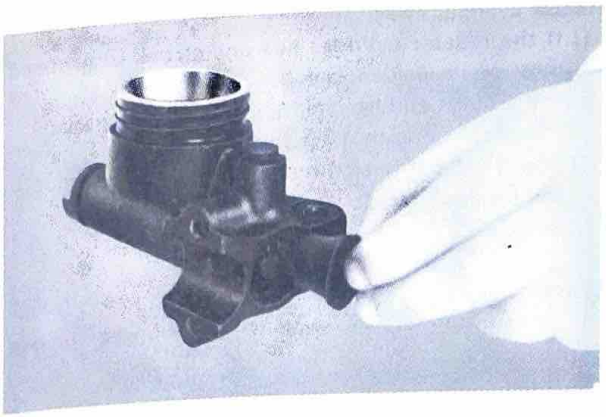


3) Remove the two master cylinder mounting bolts, and remove the master cylinder from the handlebar.

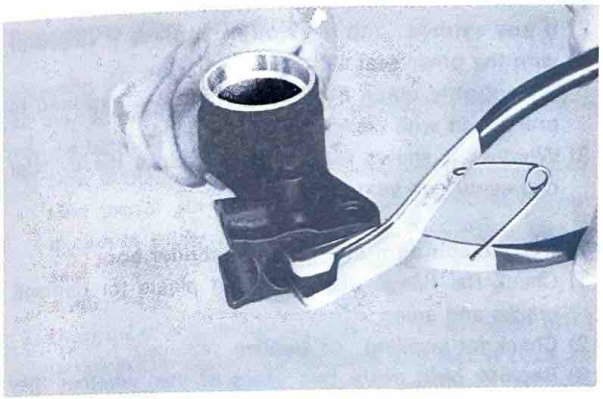


4) Remove the reservoir tank cap, and remove the diaphragm.
5) Drain the brake fluid from the reservoir tank.

6) Remove the master cylinder boot.

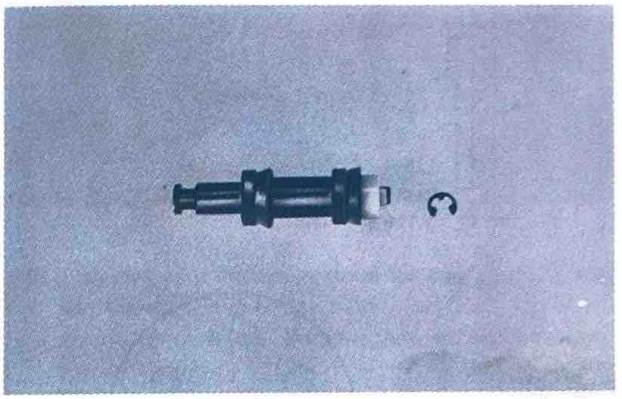


7) Remove the snap ring with clip pliers.

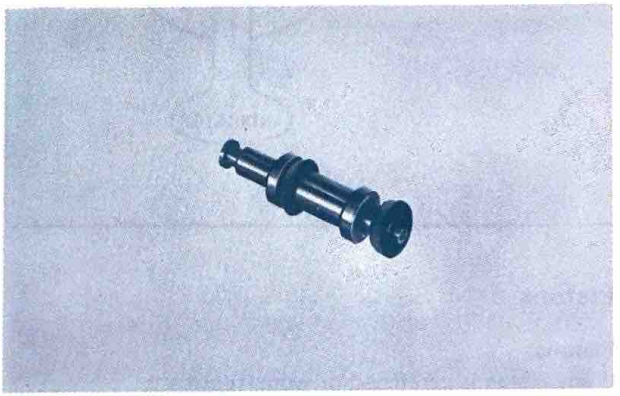


8) Remove the piston. (Note that a spring remains in the master cylinder.)

9) Remove the E clip, and remove the cylinder cup retainer.

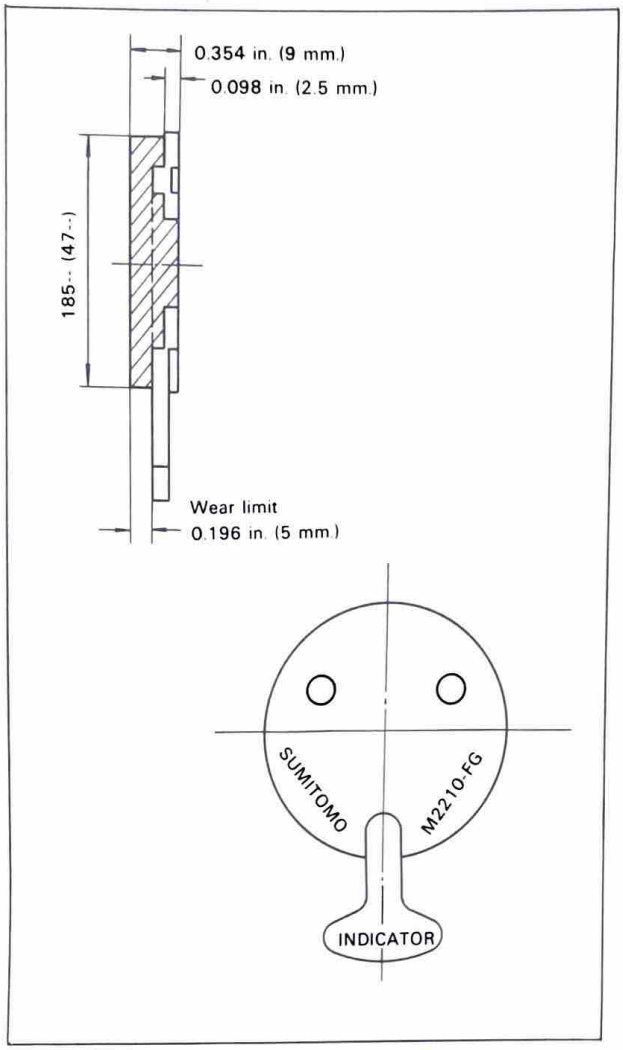


10) Remove the cylinder cup.



Inspection

Measuring Instruments required for Inspection
- Dial gauge
- Dial gauge adapter
- Micrometer 0 — 25 mm.
- Vernier calipers 150 mm.



Pistons

Pistons
If any piston is scratched or worn, replace it.

Pads
If any pad is excessively worn, replace it. Min allow pad thickness: 0.196 in. (5 mm.)

Piston seal and dust seal
If any seal is damaged, replace it.
It is advisable to replace the seals every two years of use, whether they appear damaged or not.

Bridge bolt
Replace the bridge bolts each time they are removed for disassembly, whether damaged or not.

Master cylinder

Master cylinder body
1) If the master cylinder has any streak or grooved wear on its wall, replace it.
2) If the outlet end has any scratch or dent, replace it.
3) Check the compensating port for clogging.
4) Check for any foreign matter inside the cylinder and the reservoir tank.

Piston
1) If the piston has any streak or grooved wear, replace it.
2) If the piston has any rust, replace it.

Cylinder cups
1) If any cylinder cup has streak or grooved wear on its contacting surface, replace it.
2) If any cylinder cup is swollen, replace it together with the other seal and rubber parts.
   Thoroughly wash all areas which are exposed to brake fluid with clean, new, brake fluid.
3) Whether it shows wear or not, replace the cylinder cup every two years of use.

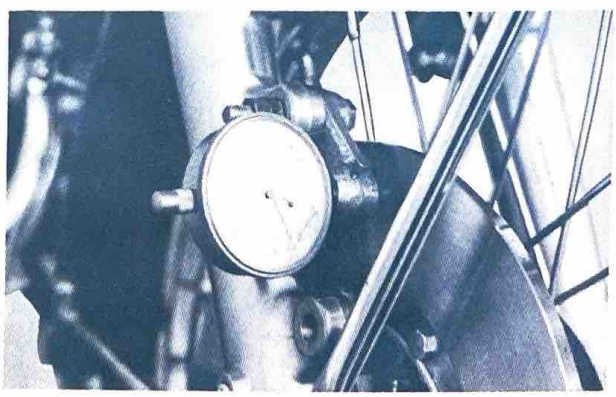
Reservoir diaphragm and master cylinder boot
1) Check the flange and accordion pleats for damage, cracks and aging.
2) Check for swelling. (If swollen, replace.)
3) Replace both every two years of use, whether they are in good condition or not.

Conical spring

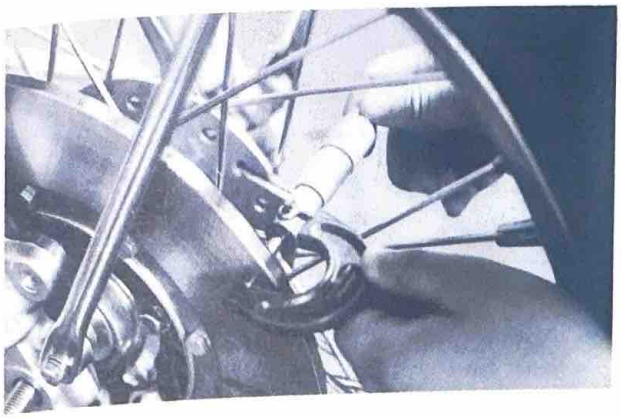
Check the spring for breakage and wear.

Brake hose and brake pipe
1) Check them for leakage and damage.
2) Replace the brake hose every four years of use.

Disc
1) Check the disc assembly for run-out.
   If the disc shows a deflection of 0.006 in. (0.15 mm.) or more, check the disk itself and the bearings.



2) If the disc has excessive wear or damage, replace it.
Min allow disc thickness: 0.256 in. (6.5 mm.)
Normal disc thickness: 0.276 in. (7 mm.)



Assembly and adjustment

Cleaning

All the removed parts should be washed in the following manner before they are installed.

1) New brake fluid should be used as a cleaning agent. (The use of any mineral oil should avoided, because it causes rubber parts to swell. The same can be said of alcohol. Any rubber dipped in alcohol will swell.)
2) If an oil of any other kind (such as mineral oil) is mixed in the system by mistake, the piston cups and seals should be replaced with new ones. All other parts should be washed with clean, new brake fluid. In addition, the lines, ports, passages, etc., should be thoroughly flushed with clean, new brake fluid.

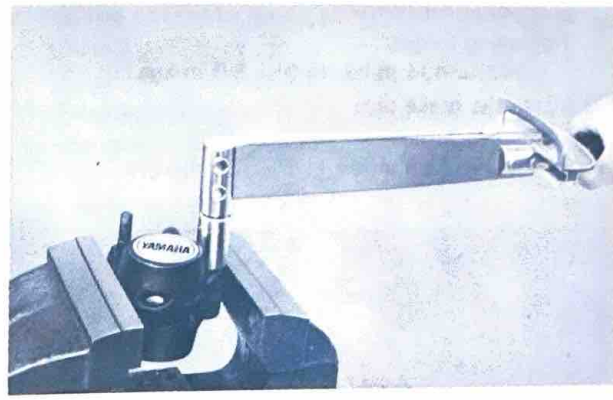
Calipers

Piston installation

1) Install the piston seal and dust seal in their seats in the caliper cylinder.
2) Coat the caliper cylinder walls and piston with new brake fluid.
3) Insert the piston into the caliper cylinder by hand. While inserting the piston, special care should be taken so that the piston goes into the cylinder smoothly.

Assembling the outer and inner calipers

4) Install the caliper seals in their seats.
5) Put together the outer and inner calipers. (Make sure that no dust or dirt is attached to the mating surfaces.)
6) The two bridge bolts must be replaced with new ones. Tighten the two hexagon bolts (M8 x 1.0). (The bridge bolts should be tightened later.)
Tightening torque:
192 — 278 in-lbs. (2.2 — 3.2 m-kgs.)



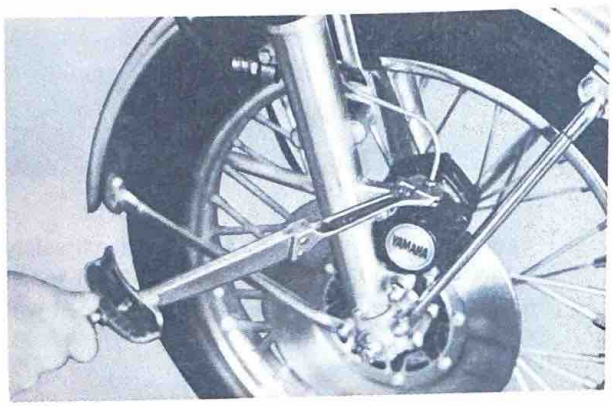
7) They are very important parts for operational safety, and therefore, the bridge bolts: (M10 x 1.25) should always be replaced. Be sure they are tightened with correct torque.
Tightening torque:
650 — 825 in-lbs. (7.5 — 9.5 m-kgs.)

Pad installation

8) Install the pads in their seats.
9) When replacing the pads alone, it is necessary to push back the piston so that new pads can easily be installed. (When the piston is pushed back, and the compensating port is open, the brake fluid level in the reservoir tank will rise. Loosen the bleed screw if necessary, and bleed off the excess brake fluid.

Installing the calipers

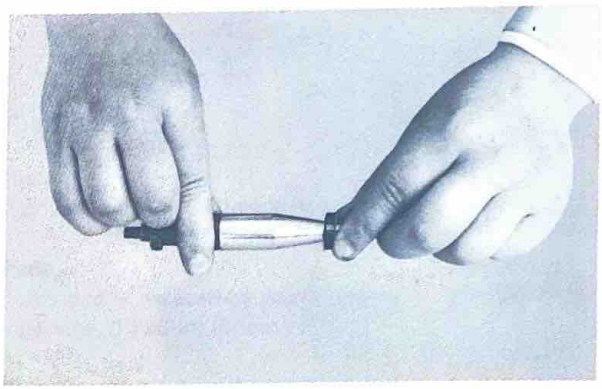
10) To install the calipers on the front fork, reverse the procedures for removal.
Tightening torque:
347 — 434 in-lbs. (4.0 — 5.0 m-kgs.)
11) Install the brake pipe.
Tightening torque:
113 — 156 in-lbs. (1.3 — 1.8 m-kgs.)

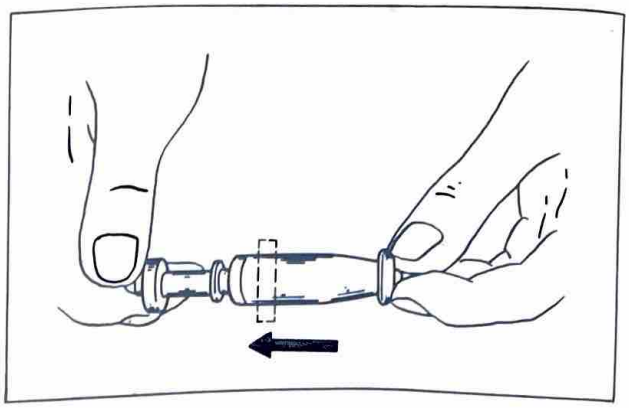


Master cylinder

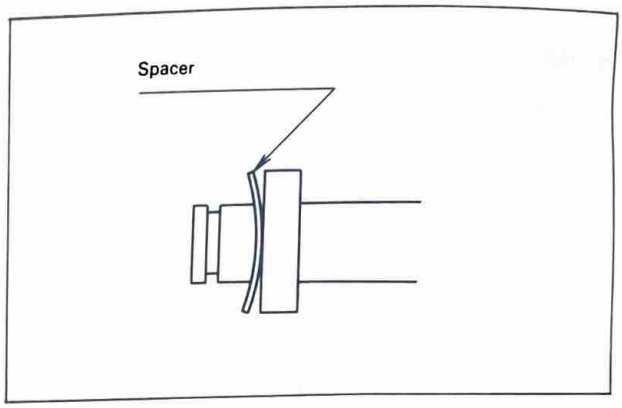
Installing the cylinder cup

1) Dip the cup in a new brake fluid, and install it. Take care not to scratch the cup and the piston. (Special tool No.: 90890-01171)

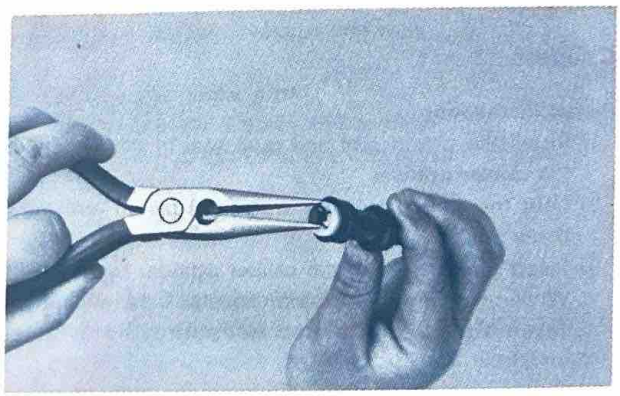




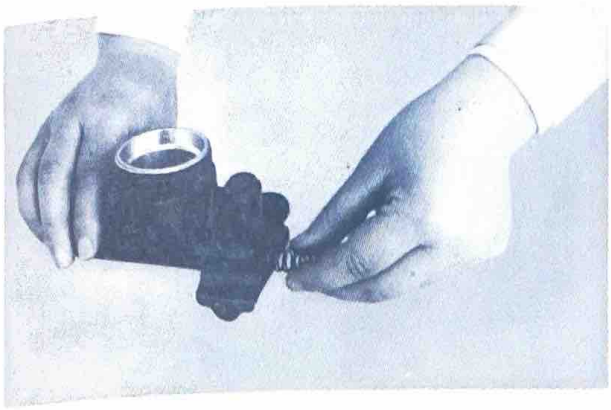
2) Install the spacer. Be sure that the spacer is positional correctly.



3) Install the cup, retainer and E clip.



4) Insert the spring into the master cylinder body.



Installing the piston

5) Check the piston surfaces and cup surfaces for scratches, and then, insert the piston into the cylinder.
   Avoid forcing the piston into the cylinder; otherwise, the cylinder wall will be scratched, thus allowing the brake fluid to leak past.
6) Install the snap ring.
7) Install the boot in the master cylinder groove and the piston groove, respectively.

Installing the master cylinder on the handlebar

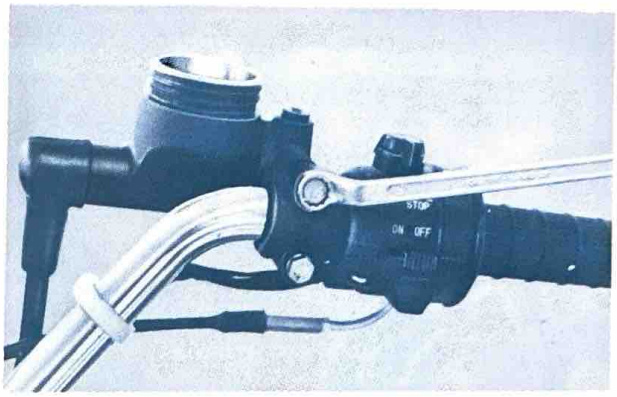
8) Install the master cylinder on the handlebar.
9) Adjust the clearance between the piston and the push rod.

   Note:
   Fully tighten the adjusting screw lock nut so that it will not become loose.

10) Fasten the brake hose to the master cylinder with the union bolt.

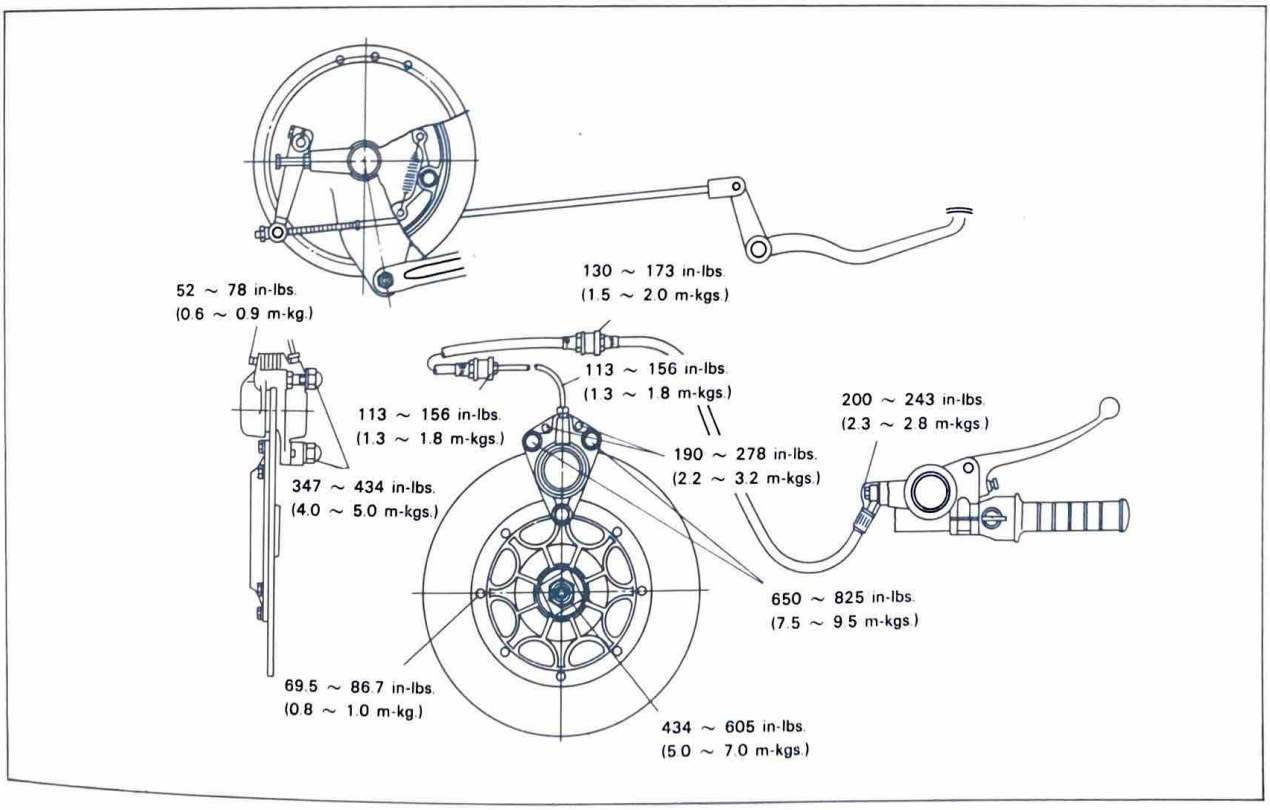
    Note:
    If the gasket is found scratched, it should be replaced.

11) Feed approximately 30 c.c. brake fluid into the reservoir tank prior to bleeding.



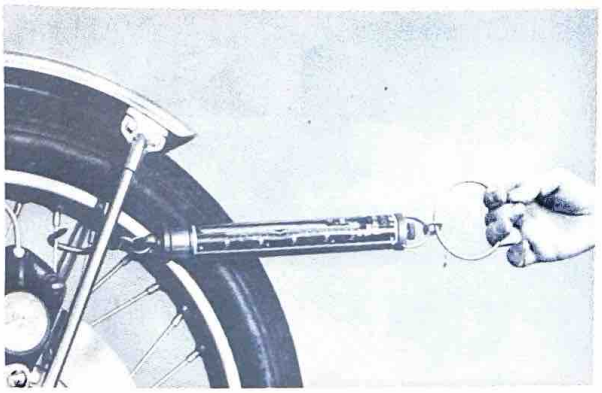
Brake hose and brake pipe

The brake hose and brake pipe fitting should be fastened with the following torque.



Disk

1) The disc mounting bolts should be tightened gradually and in pattern with correct torque.
   The lock tabs should be properly positioned and bent tightly over the bolt heads.
   Tightening torque:
   69.5 — 86.7 in-lbs. (0.8 — 1.0 m-kg.)
2) The deflection of the disc assembly should be within the specified value. (0.0059 in. (0.15 mm.))
3) The wheel turning torque should be within the specified amount after it is assembled.
   Torque:
   4.4 — 8.8 lbs. (2 — 4 kgs.) when tested as shown in the figure below.
   If the value exceeds this limit, check the disc run out. A slight drag on brake disc is normal.
   A slight drag will not result inserious trouble, and will not become worse.

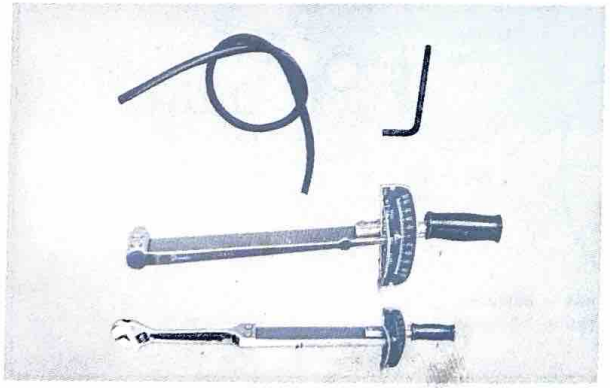


Air bleeding

When any parts relating to the brake fluid are reinstalled, be sure that each metal fastner is fully tightened and then bleed the air.

Tools and parts

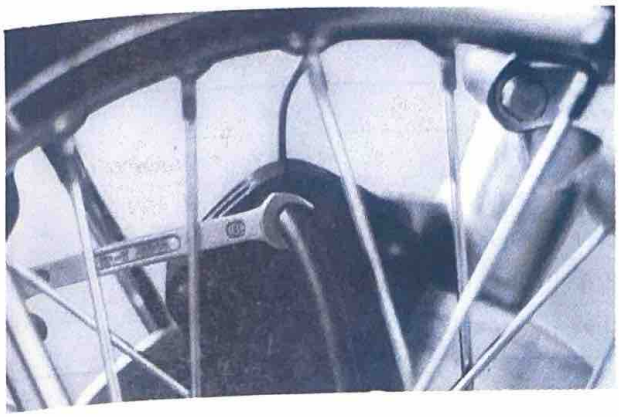
Wrench
Torque wrench
Plastic tube (Inside dia. 4 mm.)
Brake fluid (DOT #3 — #4)
Brake fluid receiving vessel
Rags



1) Fill reservoir with brake fluid so that the level reaches the specified line.
2) Install the diaphragm to prevent the brake fluid from escaping.

3) Connect the plastic tube to the caliper bleed screw tightly so that no brake fluid will leak out.

4) Place the brake fluid receiving vessel at the end of the tube.

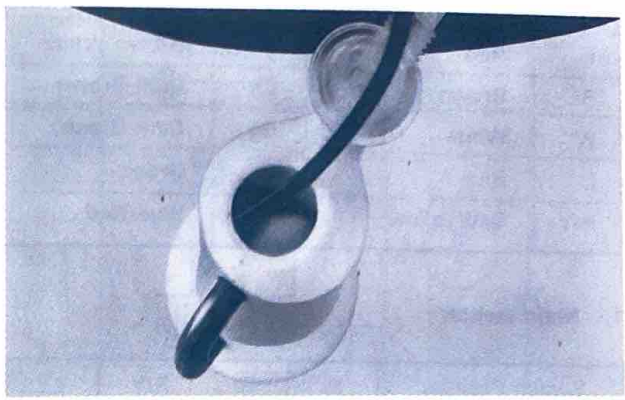


5) Apply the brake lever slowly a few times. With the brake lever squeezed, loosen the bleed screw.
6) As fluid and air escape, the lever will move toward handlebar. Tighten the bleed screw before the lever bottoms on the handlebar grip.

Note:
When bleeding the air, do not operate the brake lever quickly. Otherwise, the air will turn into fine bubbles, thereby making the air bleeding difficult.

7 Repeat the procedures in 5) — 6) above until air bubbles completely disappear from the plastic tube.

Note:
Bleed screw tightening torque: 52 — 78 in-lbs. (0.6 — 0.9 m-kg.)



8) Refill with brake fluid so that the level will again reach the specified line.

7. SWITCHES

The main switch and right and left handlebar switches may be checked for continuity or shorts with a pocket tester on the "Ω x 1" scale.

Wire color abbreviations							
R	Red	Br/W	Brown White	Y	Yellow	G/Y	Green/Yellow
Br	Brown	Ch	Dark Brown	P	Pink	R/W	Red/White
W	White	Dg	Dark Green	L/W	Blue/White	B	Black
L	Blue	G	Green	R/B	Red/Black	Sb	Sky Blue
R/Y	Red/Yellow	L/R	Blue/Red	G/W	Green/White		

1. Main switch

Switch Position	R	Br	R/Y	L
OFF				
I	o	o	o	
II	o			o

2. Engine stop switch (Right handlebar)

Switch Position	R/B	Br
OFF		
RUN	o	o
OFF		

3. Lighting switch (Right handlebar)

Switch Position	L	R/Y	L/W
OFF			
ON	o	o	o

4. Dimmer switch (Left handlebar)

Switch Position	Y	L/W	G
HI	o	o	
LO		o	o

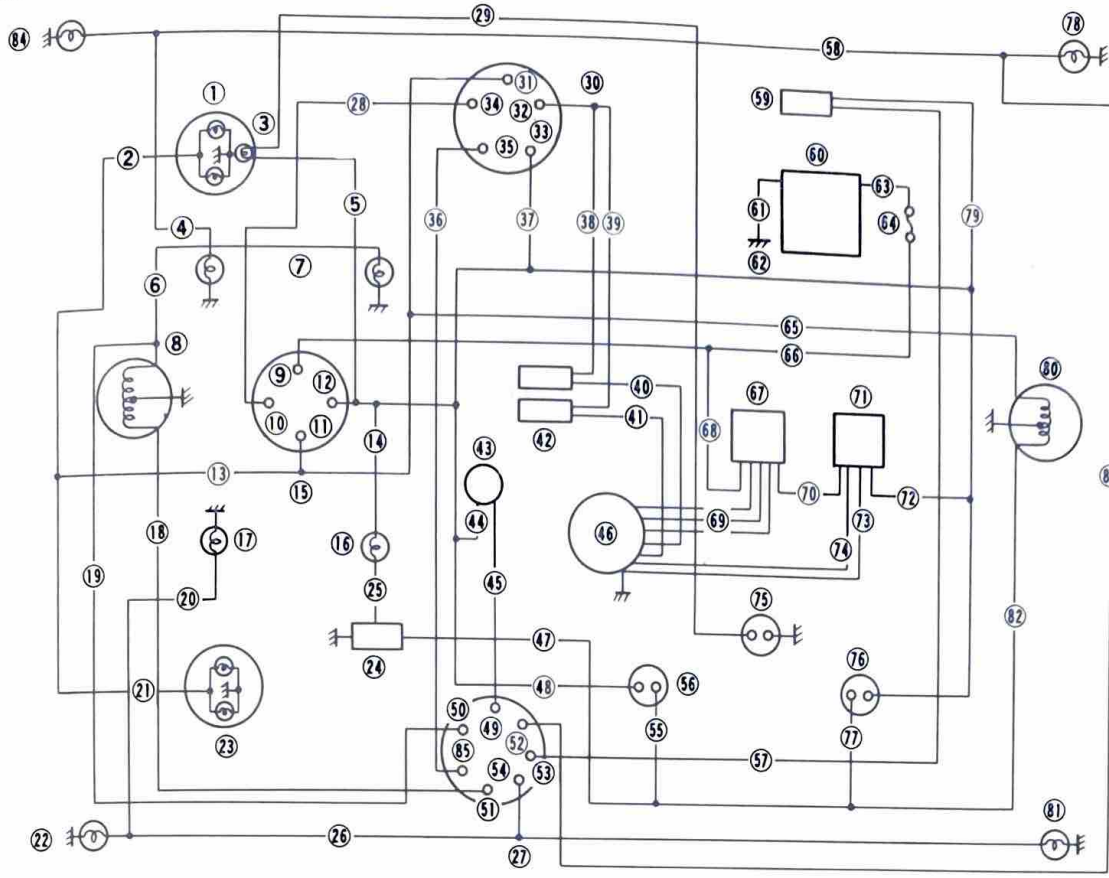
5. Flasher switch (Left handlebar)

Switch Position	Dg	Br/W	Ch
R	o	o	
N			
L		o	o

6. Horn button (Left handlebar)

Switch Position	P	⏚
OFF		
PUSH	o	o

8. RD250B/RD350B CONNECTION DIAGRAM



1. Tachometer
2. L
3. N
4. Dg
5. Br
6. Flasher indicator
7. High beam indicator
8. Headlight
9. R
10. R/Y
11. L
12. Br
13. L
14. Br
15. Main switch
16. Stoplight indicator
17. Flasher indicator
18. G
19. Y
20. Ch
21. L
22. Front flasherlight (L)
23. Speedometer
24. Light checker
25. G/W
26. Ch
27. Handle switch (L)
28. R/Y
29. Sb
30. Handle switch (R)
31. L
32. R/B
33. Br
34. R/Y
35. L/W
36. L/W
37. Br
38. Br
39. Br
40. By
41. D
42. Ignition coil
43. Horn
44. Br
45. P
46. ACG
47. Y
48. Br
49. P Y
50. L/W
51. G
52. Dg
53. B/W
54. Ch
55. G/Y
56. Front stop switch
57. B/W
58. Dg
59. Flasher relay
60. Battery
61. B
62. Br
63. R
64. Fuse
65. L
66. R
67. Rectifier
68. R
69. W W W
70. R/W
71. Regulator
72. Br
73. B
74. G
75. Neutral switch
76. Rear stop switch
77. Y
78. Rear flasherlight (R)
79. Br
80. Taillight
81. Rear flasherlight (L)
82. Y
83. Dg
84. Front flasherlight (R)
85. L/W

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

9. TROUBLESHOOTING GUIDE

The following guide is not complete in itself. If a problem is found within an individual component mentioned within the chart, refer to the section or chapter involved for inspection procedures.

1. No start or difficult to start

Possible Cause	Remedy
Ignition System	
No Spark	1. Check ignition main switch. 2. Check ignition kill switch. 3. Check point assembly. 4. Check condenser. 5. Check wiring. 6. Check coil. 7. Check high tension lead. 8. Check spark plug. 9. Check ignition timing.
Weak or Intermittent Spark	1. Use Electro-Tester, spark gap test. 2. Check spark plug. 3. Check high tension lead. 4. Check ignition assembly. 5. Check condenser.
Air/Fuel Systems	
No Fuel	1. Check fuel tank. 2. Check fuel petcock. 3. Remove main jet, check fuel flow.
Intermittent or Poor Fuel Flow	1. Clean fuel tank, check fuel tank cap vent. 2. Clean fuel petcock. 3. Remove carburetor, service.
Bad Fuel	1. Flush fuel system, completely. 2. Add fresh fuel, proper grade.
Blocked Air Intake or Malfunction	1. Clean air filter. 2. Check reed valve assembly.

2. Engine/exhaust systems

Possible Cause	Remedy
Incorrect Compression Pressure	1. If reading too high, check for excessive carbon. 2. If reading too low, check. a. Cylinder head gasket. b. Cylinder base gasket. c. Piston, rings, cylinder.
Poor Bottom End Compression	Check crankcase seals L. & R.
Blocked Exhaust System	1. Check muffler. 2. Check exhaust port carbon formation. 3. Check exhaust pipe for internal damage.

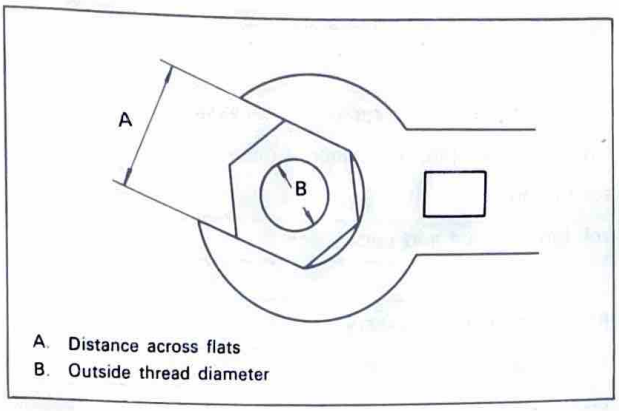
3. Poor idle and/or low speed performance

Possible Cause	Remedy
Ignition System	
Spark Plug Fouled or Incorrect Gap	Clean or correct gap, or replace if necessary.
Contact Points Bad	Clean or correct gap, or replace if necessary
Ignition Timing Incorrect	Reset timing.
Weak Spark	Check ignition coil and condenser.
Air/Fuel Systems	
Tank Cap Vent Plugged	Clean or repair as necessary.
Fuel Petcock Plugged	Clean or repair as necessary.
Carburetor Slow Speed System Inoperative	Clean or repair as necessary.
Pilot Screw improperly adjusted or Plugged	Clean or repair as necessary.
Carburetor Float Level Incorrect	Measure and adjust if required.
Starter Lever on	Check or repair as necessary.
Air Leak	Check or repair as necessary.
Carburetor Not Level	Check or repair as necessary

4. Poor mid-range and poor high speed performance

Possible Cause	Remedy
Ignition System	
Spark Plug Incorrect	Clean or correct gap or change plug if necessary.
Ignition Timing Incorrect	Reset.
Points Set too Close	Regap.
Air/Fuel Systems	
Dirty Air Filter Element	Clean.
Carburetor Float Level Incorrect	Measure and adjust if required.
Incorrect Main Jet Size	Remove jet and check size.
Incorrect Jet Needle Notch	Check position of needle clip.
Carburetor Not Level	Level.
Cracked or Leaking Reeds	Replace

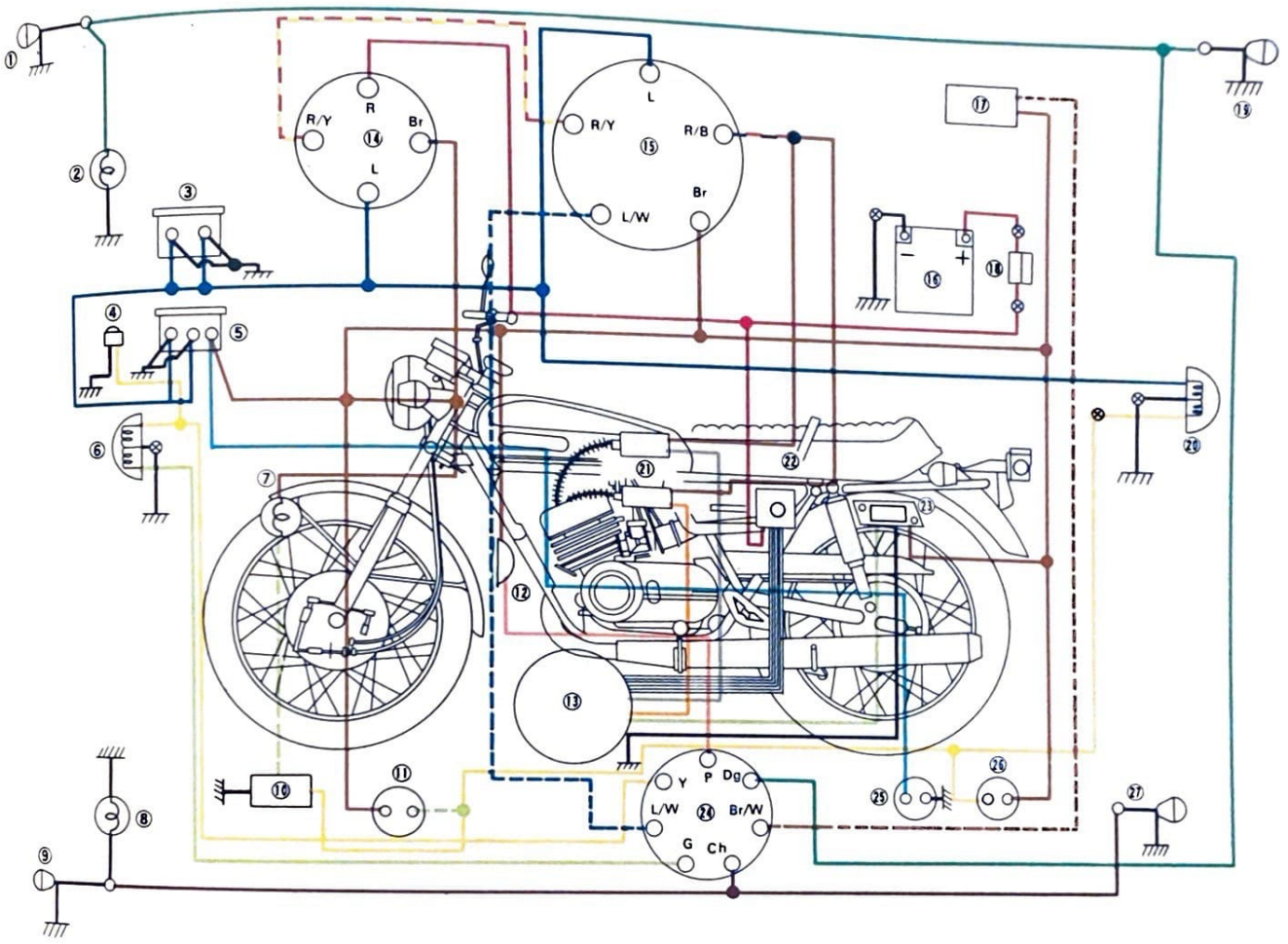
10. THE OTHER TORQUE SPECIFICATION



A. Distance across flats
B. Outside thread diameter

A (Nut)	B (Bolt)	Torque Specification		
		m-kgs.	ft-lbs.	in-lbs.
10 mm.	6 mm.	1.0	7.2	85
13 mm.	8 mm.	2.0	15	175
14 mm.	8 mm.	2.0	15	175
17 mm.	10 mm.	3.5 – 4.0	25 – 29	300 – 350
19 mm.	12 mm.	4.0 – 4.5	29 – 33	350 – 400
22 mm.	14 mm.	4.5 – 5.0	33 – 36	400 – 440
26 mm	17 mm.	5.8 – 7.0	42 – 50	500 – 600
27 mm.	18 mm.	5.8 – 7.0	42 – 50	500 – 600
30 mm.	20 mm.	7.0 – 8.3	50 – 60	600 – 700

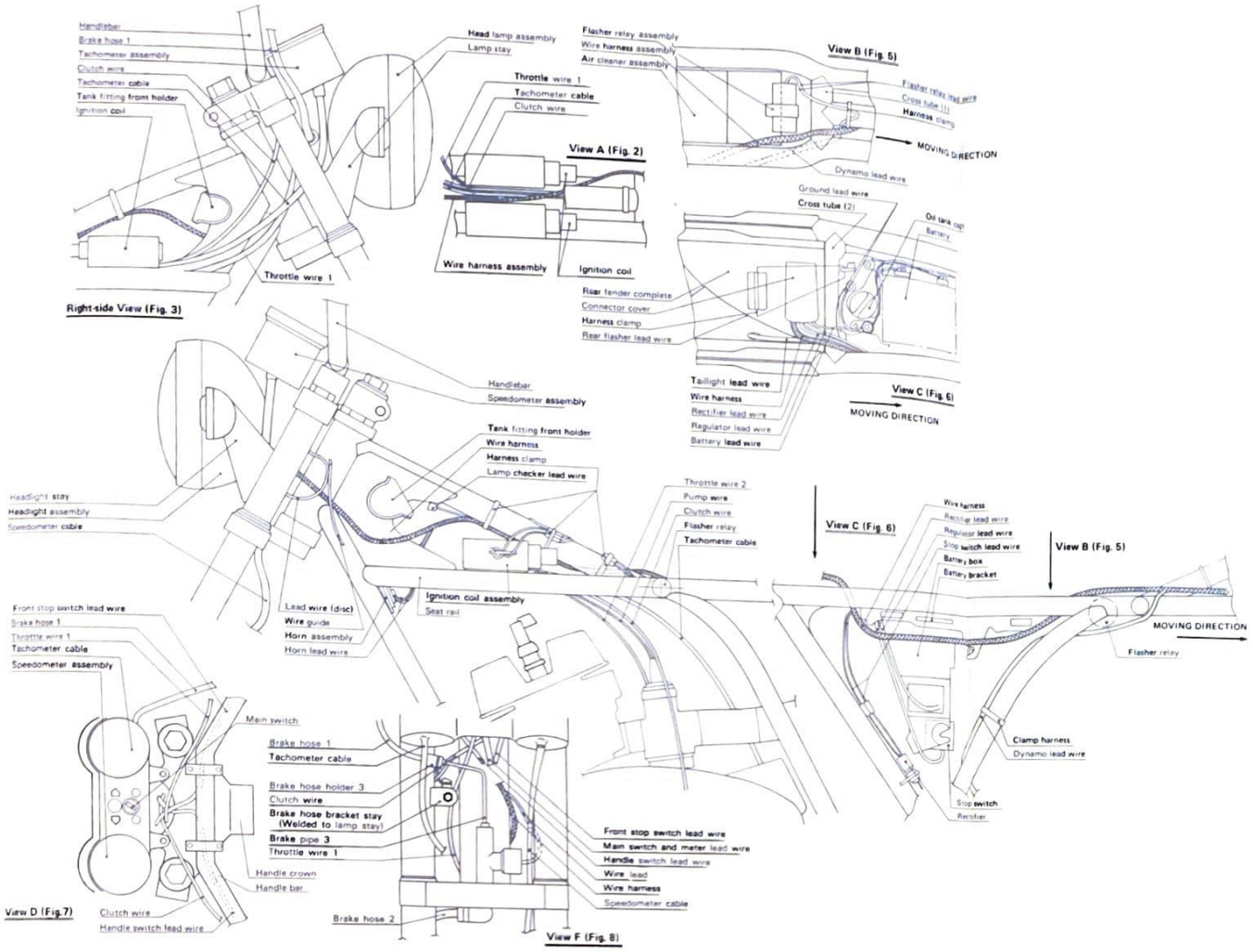
11. RD250B/RD350B CIRCUIT DIAGRAM



1. Flasher light (R)
2. Flasher indicator
3. Speedometer
4. High beam indicator light
5. Tachometer
6. Headlight
7. Light checker indicator
8. Flasher indicator
9. Flasher light (L)
10. Light checker
11. Front stop switch
12. Horn
13. AC generator
14. Main switch
15. Handle switch (R)
16. Battery
17. Flasher relay
18. Fuse
19. Flasher light (R)
20. Tail/stop light
21. Ignition coil
22. Rectifier
23. Regulator
24. Handle switch (L)
25. Neutral switch
26. Rear stop switch
27. Flasher light (L)

Key position	Use	Connection
0	Stop	—
I	Driving	R+Br+RY
II	Parking	R+L

12. WIRING PROCEDURE



WIRING PROCEDURE OF WIRE HARNESS ASSEMBLY

1. Wire harness assembly — Head lamp assembly — Under throttle wire — Left side of head pipe — Inside of wire guide — Outside of throttle wire — Above the center of ignition coil bracket — Right side of upper member — Above frame cross pipe (1) — Inside of seat rail (right side) — Lower right of box complete — Under seat rail (right) — Outside of battery bracket — Inside of seat rail (right) — Above cross tube (2) — Right side of cross tube (2) — and hold the connector cover above rear fender by using harness clamp. (Figs. 1, 2, 4, 5 and 6)
2. Handle switch lead wire — Left side of handlebar — Pass through handlebar pipe — Above handle crown — Inside of meter bracket mounting boss (under throttle wire (1) and front stop switch lead wire and above clutch wire) — Headlight assembly (Figs. 7 and 8)
3. Light switch lead wire — Right side of handlebar — Pass through handlebar pipe — Inside of meter bracket mounting boss (Under throttle wire (1), and above clutch wire and handle switch lead wire) — Headlight assembly (Figs. 7 and 8)
4. Horn lead wire — Wire harness assembly — Connect to horn lead wire (Fig. 1)
5. Ignition coil lead wire — Clamp to wire harness assembly on upper member — Connect to ignition coil lead wire
6. Dynamo lead wire — Under cross pipe (1) — Thread through right side seat pillar tube and rear side of seat pillar tube — Clamp with harness clamp — Thread through side cover bracket — Connect to connector (Figs. 4 and 5)
7. Flasher relay lead wire — Right side of upper member — Clamp on upper member — Upper left of cross pipe (1) — Flasher relay assembly (Fig. 5)
8. Regulator lead wire — Connector cover — Above cross tube (2) — Under the right side seat rail and inside of battery bracket — Clamp at holder on the right side of battery box complete — Regulator (Figs. 4 and 6)
9. Rectifier lead wire — Connector cover — Above cross tube (2) — Under the right side seat rail and inside of battery bracket — Clamp at holder on the right side of battery box complete — Rectifier (Figs. 4 and 6)
10. Battery lead wire — Connector cover — Above cross tube (2) — Connect to top of battery box complete by means of screw — Thread through between battery box and oil tank cap (Connect ground lead wire to the terminals on the wire harness assembly battery lead wire side, and secure it with a screw on the right rear side of oil tank cap stay) (Fig. 6)
11. Taillight lead wire — Upper right of cross tube (2) — Insert into the hole on the right inner side of rear fender complete and clamp — Connect to taillight lead wire (Fig. 6)
12. Rear flasher lead wire — Upper right of cross tube (2) — Above rear fender complete — Connect to flasher lead wire (Fig. 6)
13. Main switch and meter lead wire — Meter assembly — Pass through between handle switch lead wire and front switch lead wire — Headlight assembly
14. Stop switch lead wire — Right outer side of box complete — Connect to stop switch lead wire (Fig. 8)
15. Lamp checker lead wire — Clamp to wire harness assembly under upper member — Connect to lamp checker lead wire (Fig. 1)
16. Wire lead — Joint — Rear side of wire harness assembly — Under steering lock — Headlight assembly (Figs. 1 and 8)

WIRING PROCEDURE

1. Speedometer cable assembly — Left rear side of headlight — Front side of lead wire — Right front side of underbracket — Front fender wire guide — Outside of front fender stay — Front hub (Figs. 1 and 8)
2. Tachometer cable assembly — Right rear side of headlight assembly — Front side of brake hose holder — Upper right inside of under bracket — Right side of head pipe — Under tank fitting holder and under clutch wire — Center of ignition coil assembly and above ignition coil bracket — Under cross tube (1) — Center of air cleaner joint rubber — Engine (Figs. 1, 2, 3 and 8)
3. Throttle wire (1) — Grip cap (right) — Between brake hose (1) and handlebar — Inside of meter bracket mounting boss — Right side of head pipe (front side of light change over switch lead wire) — Under inside of tachometer cable and clutch wire — Upper tank rail — Under ignition coil — Wire cylinder assembly (Figs. 1, 2, 7 and 8)
4. Throttle wire — Wire cylinder assembly — Under upper member — Carburetor assembly (Fig. 1)
5. Pump wire — Wire cylinder assembly — Right side of crankcase (Fig. 1)
6. Clutch wire — Clutch lever — Inside of meter bracket mounting boss (front side of throttle wire, under front stop switch lead wire and handle switch lead wire) — Right side of head pipe — Under tank fitting holder and above tachometer cable assembly — Center of ignition coil assembly, and above ignition coil bracket — Under cross tube (1) — Rear side of throttle wire (2) — Crankcase cover (right side) (Figs. 1, 2, 3, 7 and 8)
7. Brake hose and pipe — Master cylinder — Front side of throttle wire —Right side of tachometer cable assembly — Under right side of lamp stay — Brake hose holder (3) — Joint — Lower right side of underbracket — Right rear inside of front fork outer tube (brake hose holder (2)) — Caliper (brake pipe (1)) (Figs. 7 and 8)

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