YAMAHA

RD200C

581-000101

SUPPLEMENTARY SERVICE MANUAL

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.

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.

YAMAHA
RD200C
SUPPLEMENTARY SERVICE MANUAL
1st EDITION APRIL, 1975
ALL RIGHTS RESERVED BY YAMAHA
MOTOR COMPANY LTD., JAPAN
PRINTED IN JAPAN
LIT-11616-00-12

FOREWORD

This model incorporates Yamaha's latest technical refinements such as a *floating*-caliper type disc brake. These features and others pertaining to the RD200C model are covered within this Supplemental Service Manual. For complete information on service procedures it is necessary to use this supplement together with the Service Manuals for the models RD125B and RD200B.

SERVICE DEPT.
OVERSEAS ENGINEERING DIVISION
YAMAHA MOTOR CO., LTD.

TABLE OF CONTENTS

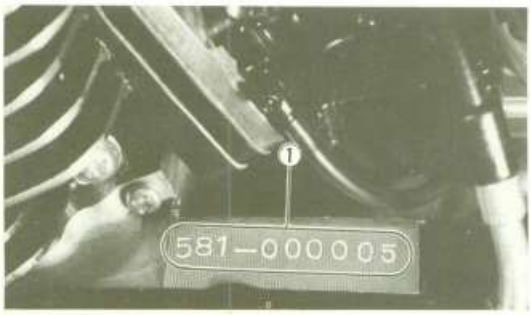
I. GENERAL
- A. MACHINE IDENTIFICATION 1
- B. SPECIFICATIONS AND PERFORMANCE 2
- C. MAINTENANCE SPECIFICATIONS 4

II. CHASSIS
- A. DISC BRAKE 7
  - 1. Construction 7
  - 2. Function 8
  - 3. Disassembly 11
  - 4. Inspection 18
  - 5. Cleaning 19
  - 6. Installation and adjustment 19
- B. FRONT WHEEL 23
  - 1. Disassembly 23
  - 2. Installation 24
- C. FRONT FORKS 27
  - 1. Disassembly 28
  - 2. Inspection 30
  - 3. Installation 30
- D. CHANGING FORK OIL 31

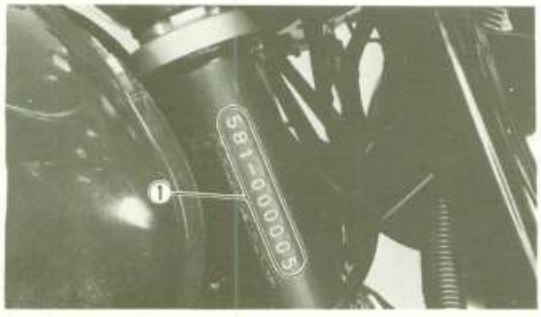
III. TORQUE SPECIFICATIONS 32

I. GENERAL

A. MACHINE IDENTIFICATION



1. Engine number



1. Frame number

The frame serial number is located in the right-hand 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, left-hand 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

RD200C: 581-000101

B. SPECIFICATIONS AND PERFORMANCE (The following data are subject to change without notice.)

Items \ Model	RD200C
Dimensions:	
Overall length	1,945 mm (76.6 in)
Overall width	740 mm (29.1 in)
Overall height	1,005 mm (39.6 in)
Wheelbase	1,245 mm (49.0 in)
Minimum ground clearance	155 mm (6.1 in)
Weight:	
Net	116 kg (256 lb)
Performance:	
Fuel consumption (On paved level road)	35 km/ℓ (50) km/h (82.5 mi/U.S. gal (31) mph)
Climbing capacity	24°
Minimum turning radius braking distance	2,100 mm(82.7 in)
Acceleration performance (SS1/4 mi)	16.0 sec.
Engine:	
Engine Model	581
Type	Air-cooled 2-stroke
Cylinder	Parallel twin, forward inclined, torque induction
Lubrication system	Separate lubrication (Yamaha Autolube)
Displacement	195 cc (11.89 cu.in)
Bore × stroke	52 × 46 mm (2.05 × 1.81 in)
Compression ratio	7.1 : 1
Starting system	Electric and primary kick
Ignition system	Battery ignition
Carburetor:	Y2OPX2
Air cleaner:	Oiled foam rubber × 2
Transmission:	
Clutch	Wet, multiple disc
Primary reduction system	Gear, helical type
Primary reduction ratio	53/16 3.312
Gear oil capacity	800 ~ 850 cc Yamalube 4-cycle
Gear box:	
Type	Constant mesh, 5-speed forward
Reduction ratio 1st	34/12 2.833
2nd	29/17 1.705
3rd	25/20 1.250
4th	23/22 1.045
5th	22/24 0.916
Secondary reduction system	Chain
Secondary reduction ratio	36/14 (2.571)
Chassis:	
Frame model	581
Type of frame	Steel tubing, diamond structure
Suspension system Front	Telescopic fork
Rear	Swing arm
Shock absorber system Front	Coil spring, oil damper
Rear	Coil spring, oil damper
Tire size and pressure Front	2.75-18-4PR, 1.6 kg/cm^2
Rear	3.00-18-4PR, 2.0 kg/cm^2

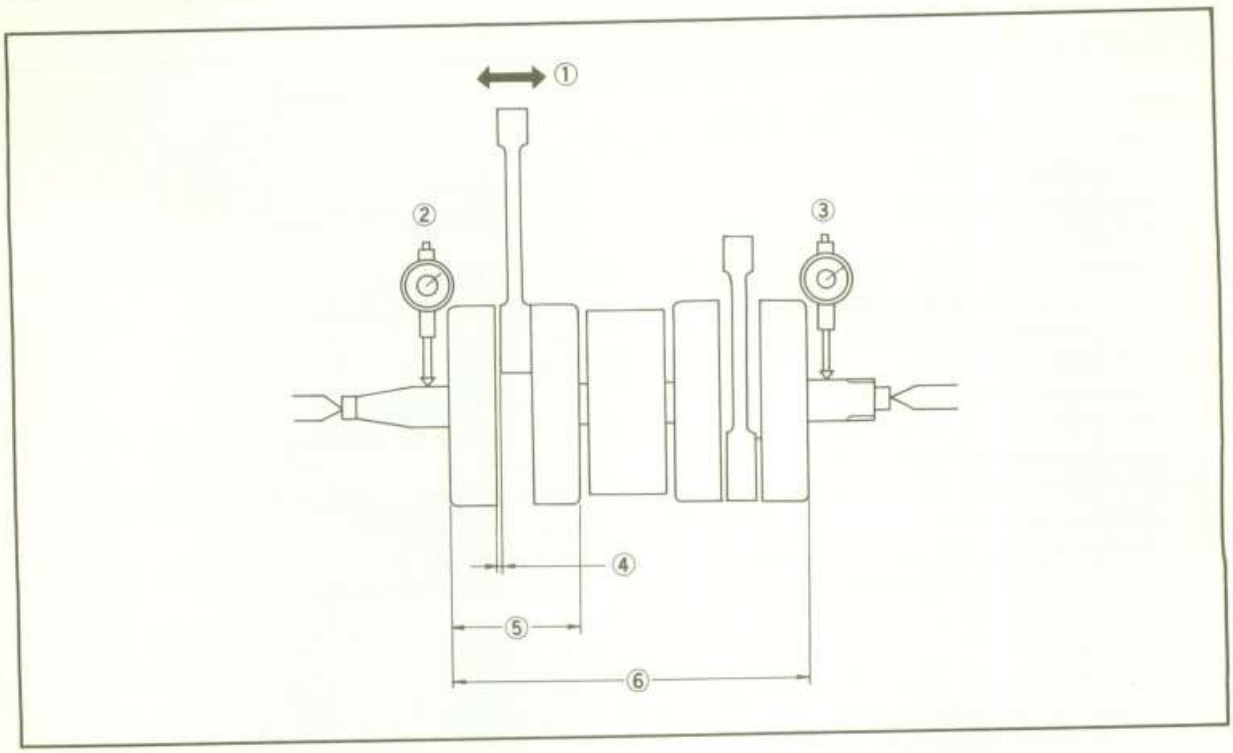
Items \ Model	RD200C
Steering system:	
Caster	62°30′
Trail	95 mm (3.7 in)
Braking system:	
Front	Hydraulic disc brake
Rear	Drum brake (Leading-trailing)
Tank capacity:	
Fuel tank	11.5 lit (3.0 U.S. gal)
Oil tank	2.0 lit (2.1 U.S. qt)
Generator:	
Model	GS214-02
Manufacturer	HITACHI
Spark plug:	NGK B8ES × 2
Battery:	
Model	12N9-3A-1
Capacity	12V, 9 AH
Lights:	
Headlight	12V, 30W/30W
Taillight	12V, 8W
Stoplight	12V, 27W
Flasher lights	12V, 27W
Neutral lights	12V, 3.4W
Meter lights	12V, 3.4W
High beam indicator light	12V, 2W
Charging light	12V, 3.4W
Flasher pilot light	12V, 3.4W

C. MAINTENANCE SPECIFICATIONS

Items \ Model	RD200C
Engine:	
Piston skirt clearance	0.040 ~ 0.045 mm (0.0016 ~ 0.0018 in)
Cylinder bore size	52 mm (2.05 in)
Taper	0.05 mm (0.0020 in)
Out of round	0.01 mm (0.0004 in)
Piston ring design Top ring	L-type key stone ring
2nd ring	Plain ring (expander used)
Ring end gap Top ring	0.15 ~ 0.35 mm (0.006 ~ 0.014 in)
2nd ring	0.15 ~ 0.35 mm (0.006 ~ 0.014 in)
Ring groove side gap	0.03 ~ 0.08 mm (0.0012 ~ 0.0032 in)
Piston pin outside diameter × length	14 × 41 mm (0.55 × 1.61 in)
Clutch:	
Friction plate thickness × quantity	4.0 mm × 5 pcs ≪3.7 mm≫ (0.16 × 5 pcs ≪0.146 in≫)
Clutch plate thickness × quantity	1.6 mm × 5 pcs (0.063 in × 5 pcs)
Clutch spring free length × quantity	34 mm × 5 pcs ≪33 mm≫(1.34 in × 5 pcs ≪1.30 in≫)
Spring constant	1.31 kg/mm
Primary drive and driven gear's "Lash Number"	118 ± 1
Carburetor type and manufacturer:	Y2OPX2, TEIKEI
I.D. mark and quantity	39764
Main jet (M.J.)	#94
Air jet (A.J.)	2.0
Jet needle-clip position	4F51-2
Needle jet	N80
Cutaway	2.5
Pilot jet	#44
Air screw (turns out)	1-1/2
Starter jet	#70
Float level	20.0 ± 2.5 mm (0.79 in ± 0.098 in)
Engine idling speed	1,200 ± 50 rpm
Lubrication system:	
Autolube minimum pump stroke	0.20 ~ 0.25 mm (0.0079 ~ 0.0098 in)
Autolube maximum pump stroke	2.05 ~ 2.27 mm (0.081 ~ 0.089 in)
Autolube cable adjustment (Throttle position)	At idling (Adjusting mark: △)
Autolube pump plunger diameter	4 mm (0.157 in)
Autolube pump color code	Brown
Chassis:	
Front fork spring free length	326.5 mm (12.85 in)
Spring constant	K = 0.396 kg/mm
Cushion stroke	110 mm (4.33 in)
Oil quantity	118 cc
Rear cushion spring free length	184.3 mm (7.26 in)
Rear spring constant	$K_1 = 1.86$ $K_2 = 2.85$ kg/mm^2
Rear cushion stroke	70 mm (2.76 in)
Front brake type:	Disc brake
Disc: diameter × thickness	245 × 5 mm ≪4.5 mm≫ (9.65 × 0.197 in ≪0.177 in≫)
Pad: thickness	6 mm ≪4.5 mm≫ (0.236 in ≪0.177 in≫)
Rear brake type:	Dram brake (Leading trailing)
Shoes: diameter × width	150 × 25 mm (5.91 × 0.98 in)
Lining: thickness	4 mm ≪2 mm≫ (0.158 in ≪0.079 in≫)

Items \ Model	RD200C
Electrical:	
Dynamo type	Starter dynamo
Model and manufacturer	GS214-02, HITACHI
Voltage	12V
Output	14V, 7A/1,900 rpm
Brush dimension: width × height × length	4.5 mm × 8 mm × 21 mm
Brush quantity and minimum brush length	4 pcs 9 mm
Brush spring pressure	600 g ±15%
Commutator diameter	38.5 mm *(36.5 mm)
Mica under cut	0.5 ~ 0.8 mm *(0.2 mm)
Field coil resistance: shunt coil	4.6Ω at 20°C
Field coil resistance: series coil	0.0135Ω ± 10% at 20°C
Armature coil resistance	0.04Ω ± 10% at 20°C
Voltage regulator type and manufacturer	T107-58, HITACHI
"No Load" voltage adjustment	15.8 ~ 16.5V/2,500 rpm
Yoke gap	0.6 ~ 0.7 mm
Core gap	0.4 ~ 0.7 mm
Point gap	0.4 ~ 0.5 mm
Voltage coil resistance	11.8Ω ± 15%
Cut-out relay cut-in voltage	12.5 ~ 13.5V
Core gap	0.8 ~ 1.0 mm
Point gap	0.6 ~ 0.8 mm
Magnetic switch actuating voltage	10V
Core gap	1.3 ~ 1.4 mm
Point gap	1.4 ~ 1.5 mm
Resistance of voltage coil	11.2Ω ± 15%
Ignition system	Battery ignition
Ignition timing (B.T.D.C.)	1.8 ± 0.15 mm
Spark plug type and gap	B-8ES 0.6 ~ 0.7 mm
Contact breaker point gap	0.3 ~ 0.4 mm
Contact breaker spring pressure	700 ± 50 g
Condenser capacity	0.22 μF
Condenser insulation resistance	3MΩ or more
Ignition coil type and manufacturer	CM11-59B HITACHI
Spark gap test	6 mm or more/500 rpm
Primary winding resistance	3.9Ω ± 10% at 20°C
Secondary winding resistance	8kΩ ± 20% at 20°C
Battery type	12N9-3A-1
Capacity	12V, 9AH
Charging rate	0.9A × 10 hours
Fuse rating	20A

Crankshaft Specifications



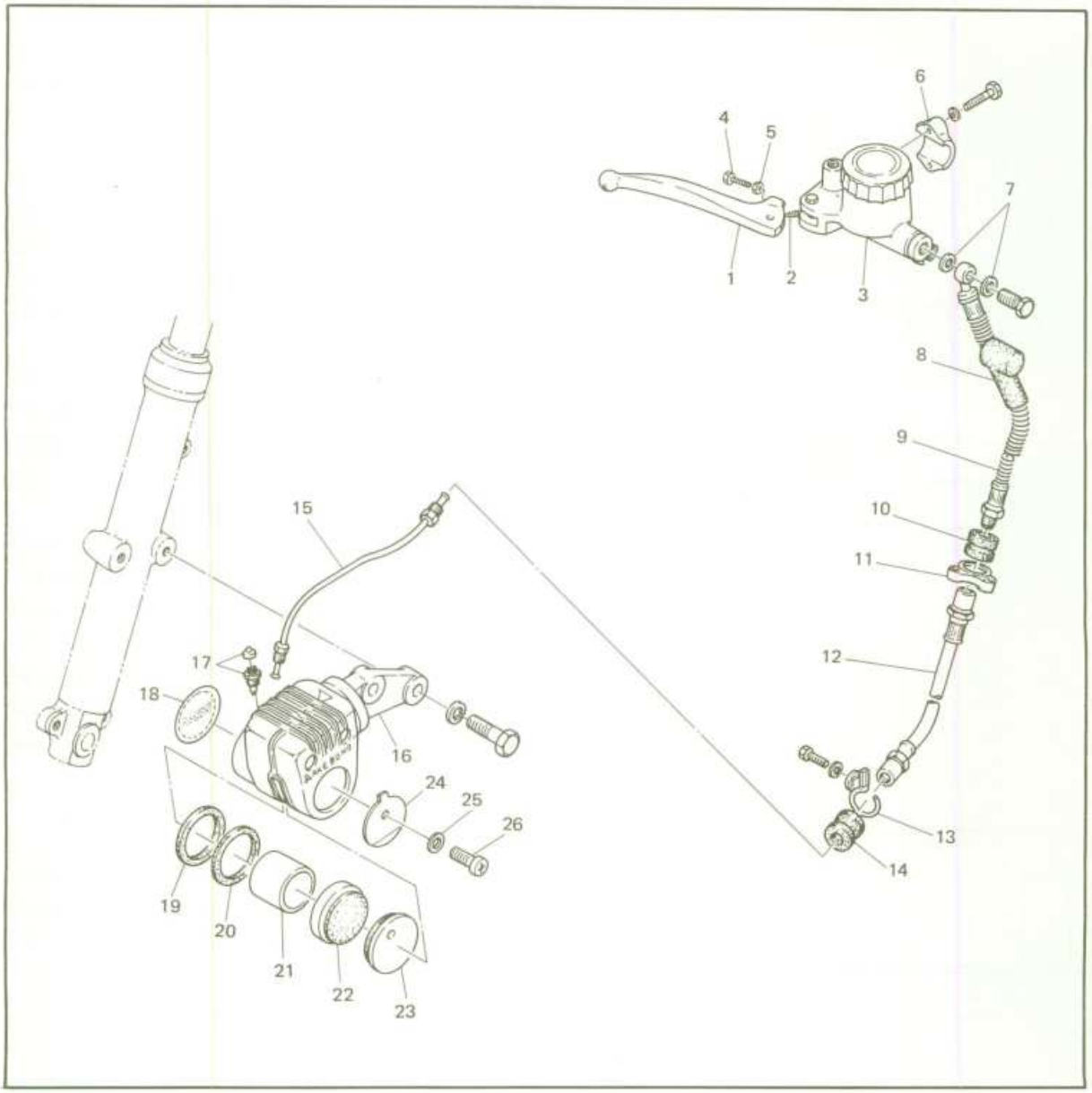
1. Free play: 0.8 ~ 1.0 mm *(2 mm)
2. Deflection: 0.03 mm or less
3. Deflection: 0.03 mm or less
4. Side clearance: 0.1 ~ 0.3 mm
5. Crank width: $47\ ^{-0.05}_{-0.10}$ mm
6. Width of crankshaft assembly: $140\ ^{+0}_{-0.20}$ mm

II. CHASSIS

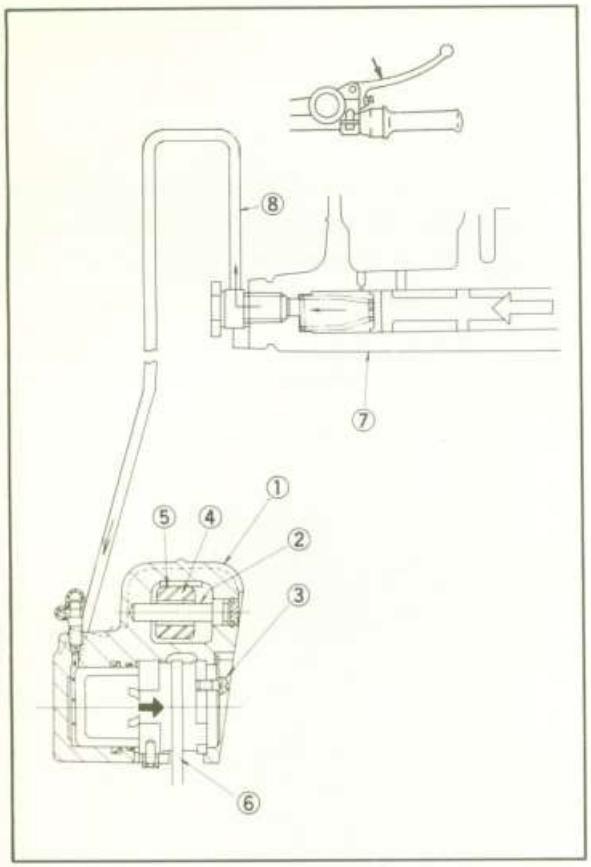
A. DISC BRAKE

1. Construction

A floating-caliper type disc brake, in which the two flat shoes grip the rotating disc, is in use. The right part of the handlebar has a brake lever and a master cylinder. The calipers are installed on the front fork, while the disc is mounted on the front hub. The master cylinder is connected to the calipers by brake hoses and pipes.



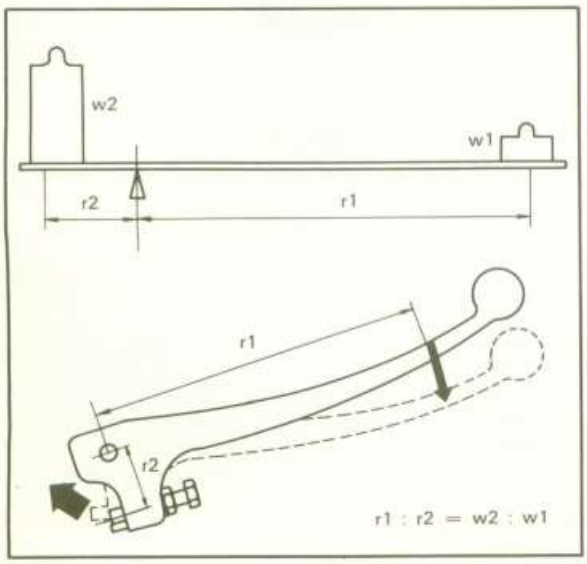
1. Brake lever
2. Return spring
3. Master cylinder assembly
4. Adjusting screw
5. Locknut
6. Master cylinder bracket
7. Oil bolt washer
8. Master cylinder boot
9. Brake hose 1
10. Brake hose rubber 1
11. Brake hose holder 1
12. Brake hose 2
13. Brake hose holder 2
14. Brake hose rubber 2
15. Brake pipe
16. Caliper assembly
17. Bleed screw
18. Caliper emblem
19. Piston seal
20. Dust seal
21. Piston
22. Inner pad
23. Outer pad
24. Pad support
25. Washer
26. Pan head screw



1. Caliper assembly
2. Slide pin
3. Panhead screw
4. Support bracket
5. Anti rattle spring
6. Disc plate
7. Master cylinder
8. Brake hose

2. Function

1) 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 cylinder. The brake fluid forced by the caliper cylinder pushes against the piston in the cylinder.
2) When the piston is forced to move, it pushes disc brake pad 1 in the direction of the arrow.
3) Disc brake pad 1 is forced against the brake disc, thus starting braking. When disc brake pad 1 is further pushed, the caliper body is forced to move over the slide pin in the opposite direction to the piston. (At this moment, disc brake pad 1 is not yet pushed.)
4) When the caliper body moves further to push brake disc pad 2 against the brake disc, the brake disc is gripped sufficiently by both disc pads, and the increasing braking power stops the wheel.
5) When the brake lever is released, both brake lever and piston are pushed back by return springs, and the brake fluid pressure is reduced to the original level.
   As you see now, the braking effect of the floating-caliper type is about the same with the fixed-caliper type of disc brake.

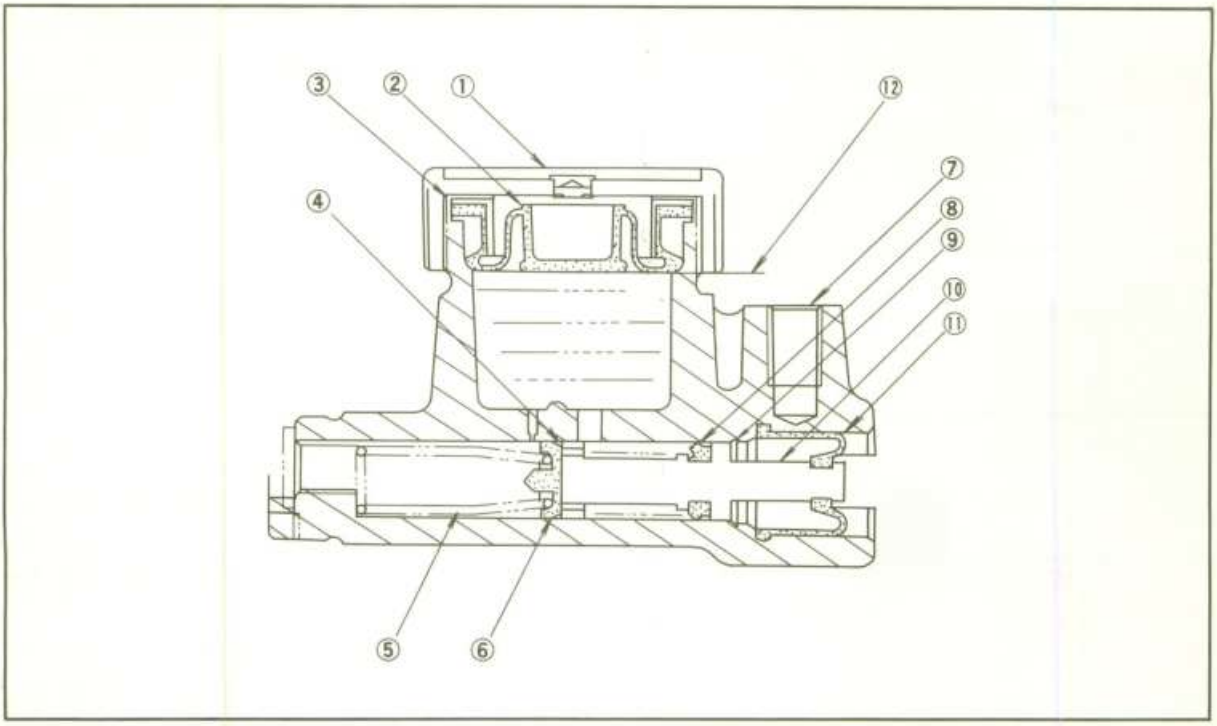


Brake lever

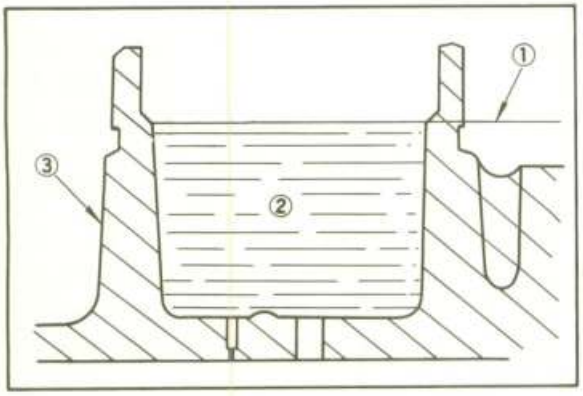
When the brake lever is squeezed, it produces a push at the master cylinder piston about four times greater than the force applied to the brake lever.

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.



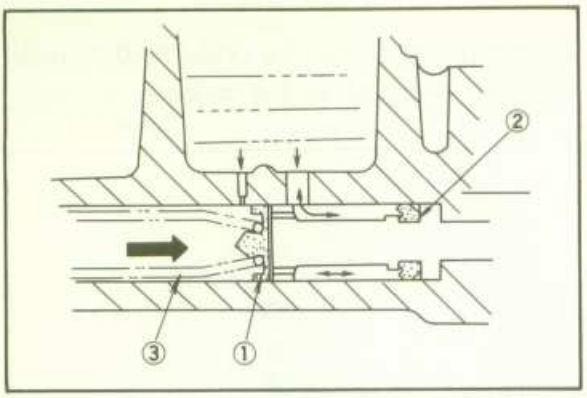
1. Reservoir cap
2. Reservoir diaphragm
3. Diaphragm bush
4. Piston cup spacer
5. Conical spring
6. Cylinder cup 1
7. Master cylinder body
8. Cylinder cup 2
9. Circlip
10. Master cylinder piston
11. Master cylinder inner boot
12. Brake fluid low level



1. Fluid low level
2. Brake fluid
3. Reservoir tank

Reservoir tank

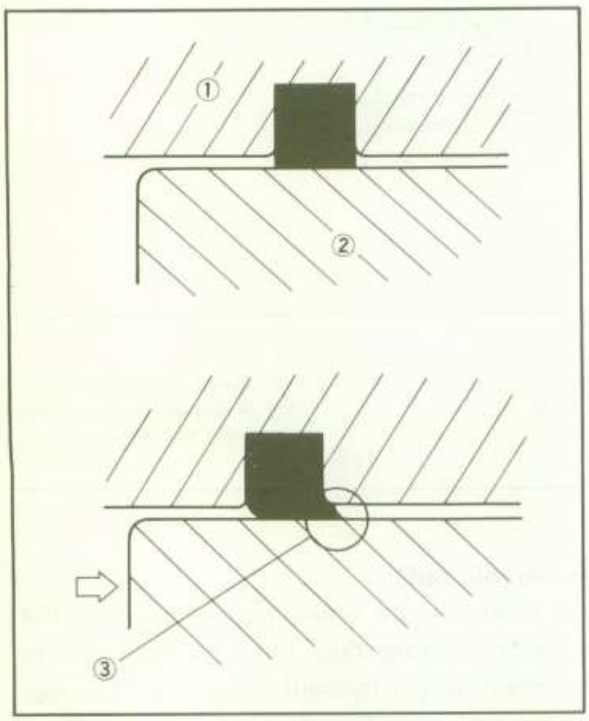
As wear on the brake pads increases, the amount of brake fluid must be increased to maintain proper hydraulic pressure. The reservoir tank supplies this brake fluid. (Tank capacity is approximately 55 cc.) To prevent air from entering the brake line when the brake fluid level lowers, especially on a rough road or in an inclined position, a compensating diaphragm is provided for the reservoir tank.



1. Cylinder cup 1
2. Cylinder cup 2
3. Conical spring

Piston

The master cylinder piston has two cups; one maintains good sealing between the piston 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.



1. Caliper cylinder
2. Piston
3. The friction between piston seal and piston and elasticity of the seal cause the piston to return to its home position.

Seals

The 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 by making use of its torsional moment after the brake lever is released. The torsional moment 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.

Pads

The pads are forced against the revolving disc by the caliper cylinder piston 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

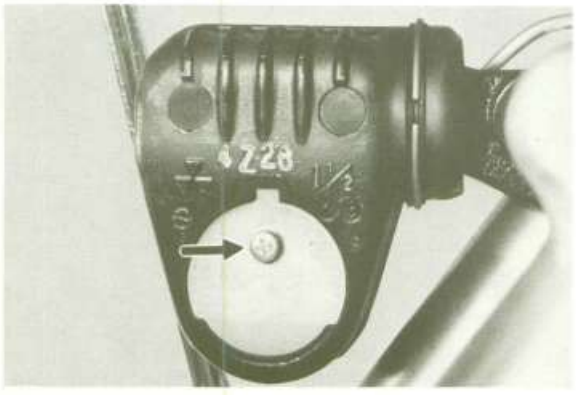
The stainless steel disc is attached to the front wheel hub, and it is gripped by the pads located on each side of the disc.

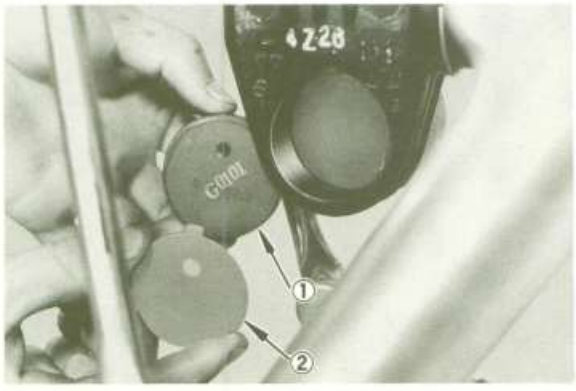
Brake fluid

The brake fluid is compressed in the master cylinder, and the hydraulic pressure thus produced is carried to the caliper cylinder piston. In this sense, the brake fluid plays a very important role.

The brake fluid must meet the following requirements:

1) Proper viscosity and liquidity 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 is high. (No vapor lock will result.)
4) It will not deteriorate rubber.
5) Water resisting property must be excellent.





1. Outer pad
2. Pad support

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

Recommended brake fluid specifications:
DOT #3 or #4

NOTE:

Do not mix brake fluids with different brand names. Some brake fluids are not compatible with other.

3. Disassembly

Tools and parts required for disassembly:
General service tools
Circlip pliers
Air compressor
Rags
Torque wrench

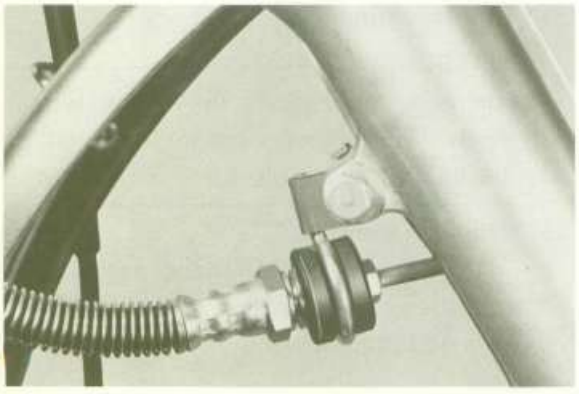
NOTE:

For easy operation, the front wheel should be removed before removal of the caliper assembly.

a. Caliper assembly
   1) Remove the pan head screw and then, remove the outer pad and pad support.



2) Remove the inner pad.



3) Loosen the brake hose holder bolt.

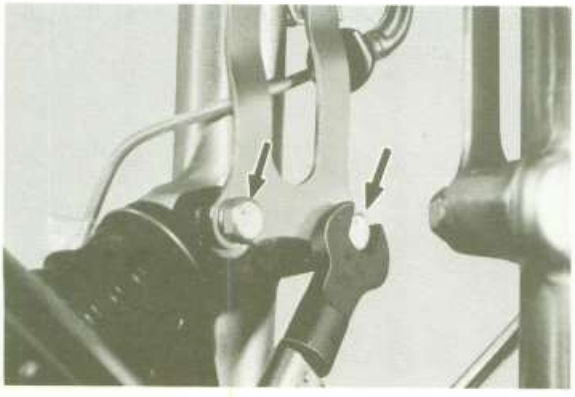


4) Remove the brake pipe. Put the removed brake pipe in a clean vinyl bag so that it can be kept free from dust and dirt.





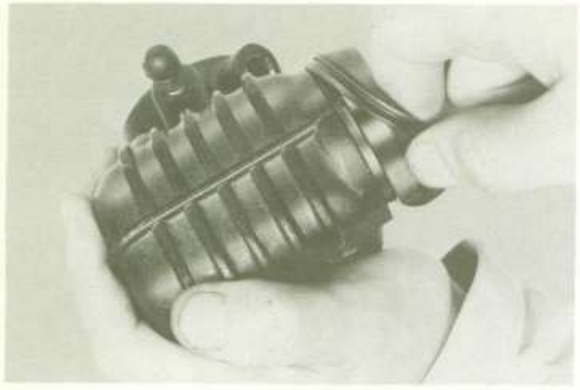
NOTE:
It is advisable to keep the brake lever squeezed, because this brake lever position prevents the fluid from leaking out of the reservoir. Tie the brake lever to the handle grip with a rubber band.



5) Remove the caliper mounting bolts and remove the caliper assembly.

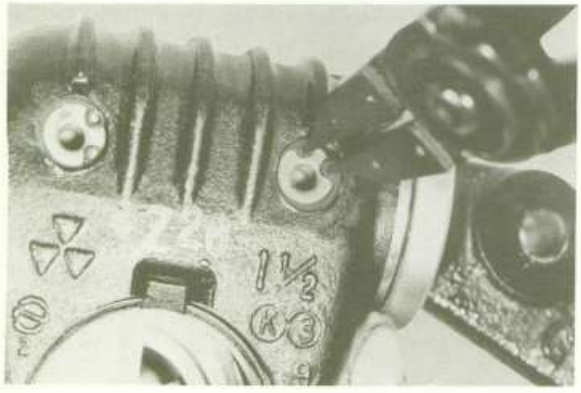


6) Remove the boot ring. (Take care not to damage the boot.)
Remove the boot.

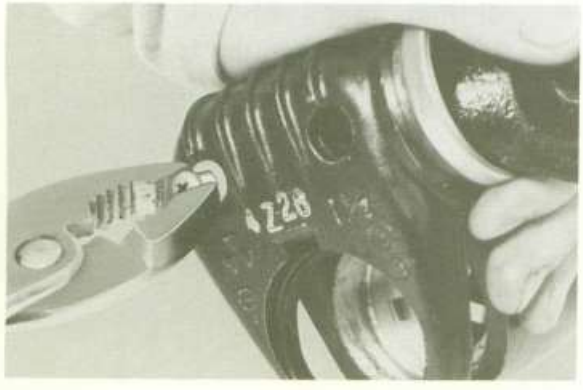




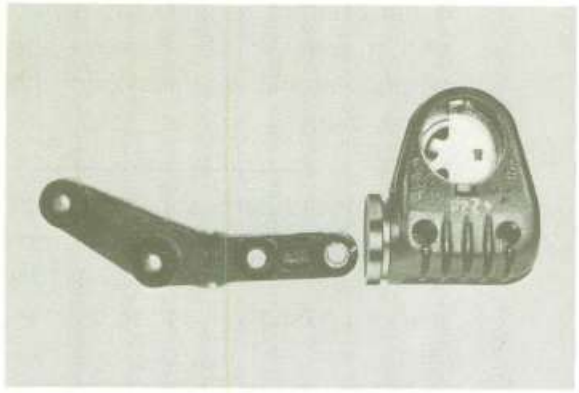
7) Remove the blind plugs.



8) Remove the circlips using the circlip pliers.

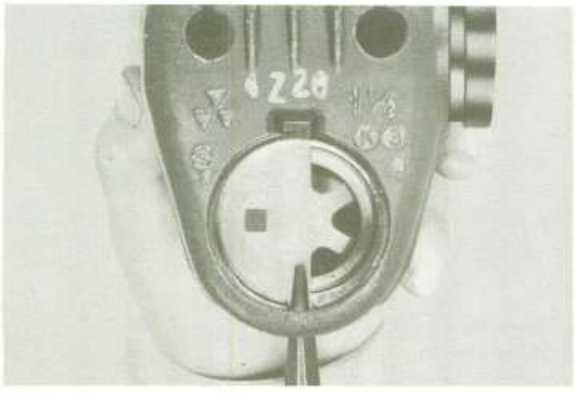


9) Screw a 5-mm screw into the slide pin and pull it out using a plier. Remove the support bracket.





10) Remove the anti-rattle spring.



11) Remove the anti-squeak shim using the long-nose plier.



12) Force the piston out from the caliper body by feeding compressed air into the cylinder through the fluid inlet.

NOTE:

Keep the air pressure at a proper level so the piston is not forced out.

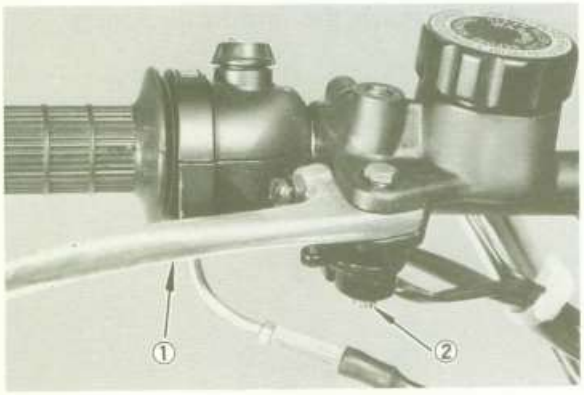
Never attempt to push the piston with a screwdriver. Remove the piston seal and dust seal from the caliper body.

NOTE:

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

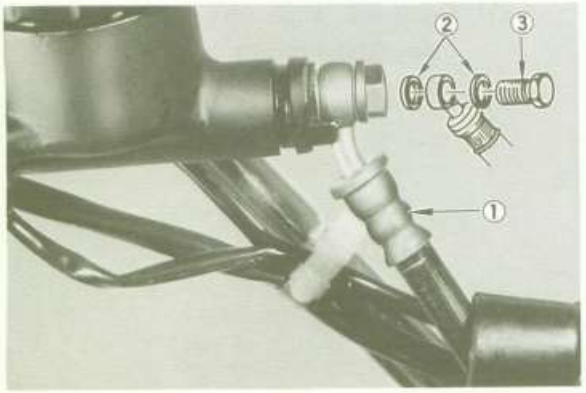
b. Master cylinder

1) Remove the stop switch and brake lever. (Take care so the brake lever return spring is not lost.)



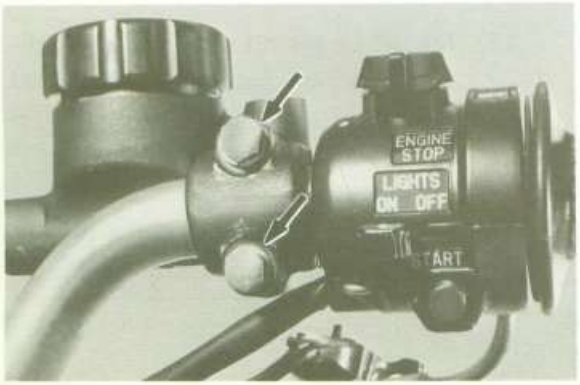
1. Brake lever
2. Stop switch

2) Remove the oil bolt and brake hose. Take care so the oil bolt washer is not lost.



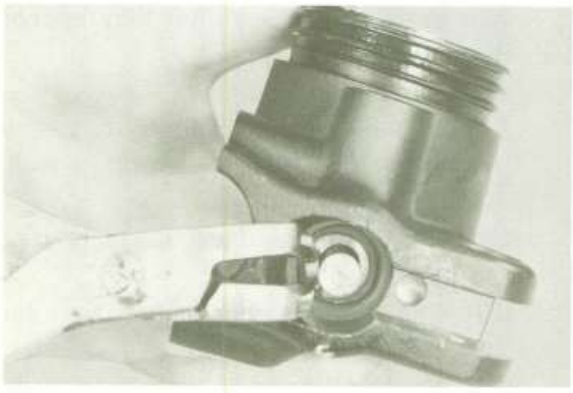
1. Brake hose
2. Oil bolt washer
3. Oil bolt

3) Remove the two master cylinder mounting bolts, and remove the master cylinder from the handlebar.
4) Remove the reservoir tank cap and diaphragm.
5) Drain the brake fluid from the reservoir tank.





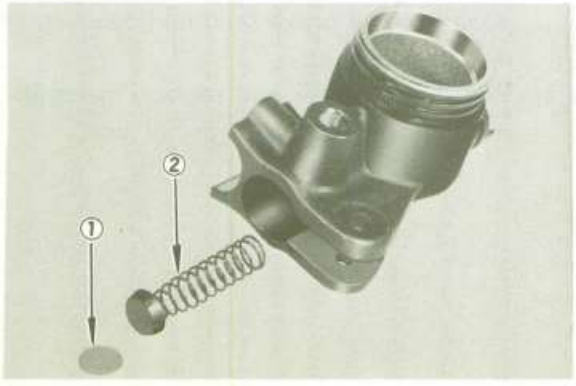
6) Remove the master cylinder boot. (Take care not to damage the boot.)



7) Remove the circlip with clip pliers.

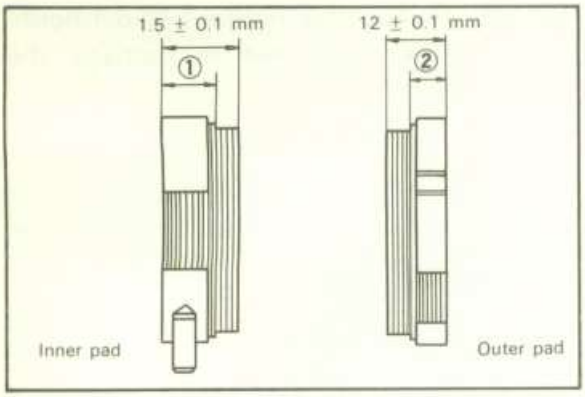


8) Remove the piston assembly.



9) Remove the piston cup spacer and spring assembly.

1. Piston cup spacer
2. Spring



4. Inspection

Pads

If any pad is found excessively worn, replace it.

Minimum allowable pad thickness:

Inner pad 1 - 11.0 mm

Outer pad 2 - 75 mm

Piston (Caliper)

If the piston is found scratched or worn, replace it.

Piston seal and dust seal

If any seal is found damaged, replace it.

It is advisable to replace the seal every two years of use, whether they appear damaged or not.

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 (Master cylinder)

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

Reservoir diaphragm and master cylinder boot

1) Check the flange and surface for damage, cracks and aging.
2) Check for swelling. (If swollen, take the same steps as in the case of the cylinder cup.)
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.

Piston cup spacer

Check the spacer for damage and wear.

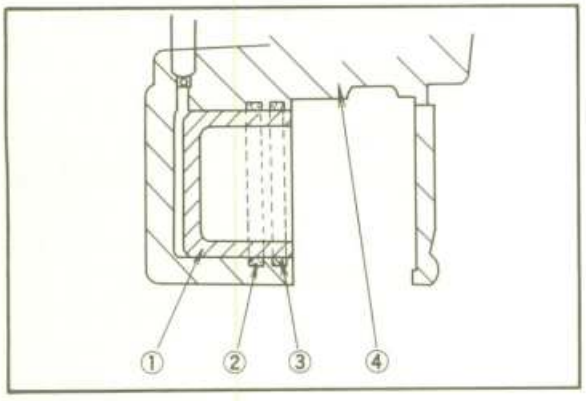
Disc

1) Check the disc assembly for run-out.
   If the disc shows a deflection of 0.15 mm or more, check the disc itself and the wheel shaft bearings.
2) If the disc has excessive wear or damage, replace it.
   Minimum allowance disc thickness:
   4.5 mm

5. 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 detergent. (The use of any mineral oil should be 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 fresh, clean, new brake fluid.
   In addition, the lines, ports, passages, etc., should be thoroughly flushed with clean, new brake fluid.



1. Piston
2. Piston seal
3. Dust seal
4. Caliper body assembly

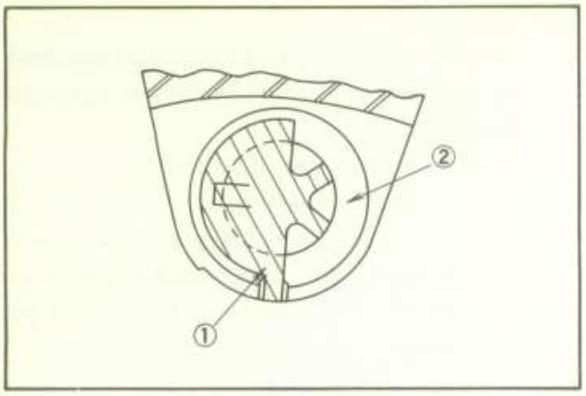
6. Installation and adjustment

a. Caliper assembly

NOTE:
Apply the order in reassembly opposite to that of disassembling.

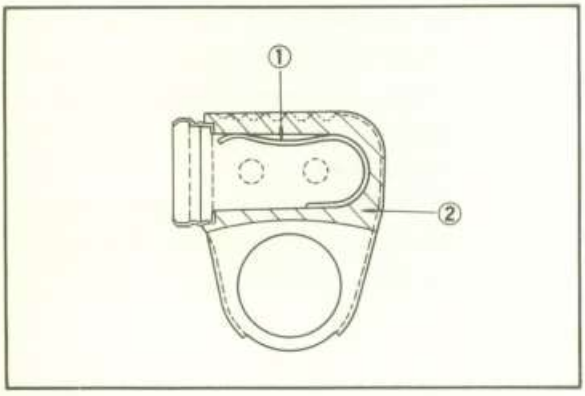
1) Install the piston seal and dust seal in their seats in the caliper cylinder.
2) Coat the caliper cylinder wall and piston with new brake fluid.
3) Insert the piston into the caliper cylinder.

NOTE:
In inserting the piston, special care should be taken so that the piston goes into the cylinder smoothly.



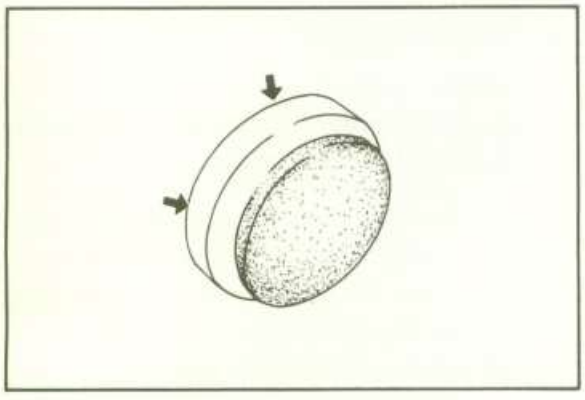
4) Apply a silicon compound to both faces of the anti-squeak shim, and install it to the caliper cylinder.

1. Anti-squeak shim
2. Piston



1. Anti-rattle spring
2. Caliper body

5) Insert the "anti-rattle spring" into the caliper body as shown in illustration right.
6) Insert the support bracket into the caliper body.
7) Apply a light coating of grease between metallic and rubber parts, and to the slide pin, then insert them into the holes of the caliper body.
8) Install the circlips and blind plugs.
9) Install the boots in the caliper body grooves, respectively.
10) Install the boot rings.

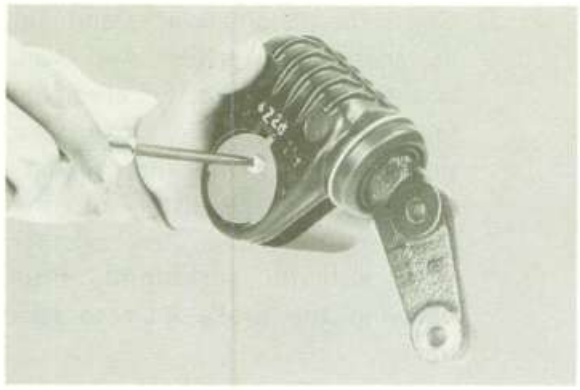


11) Install the pads in their seats.

NOTE:

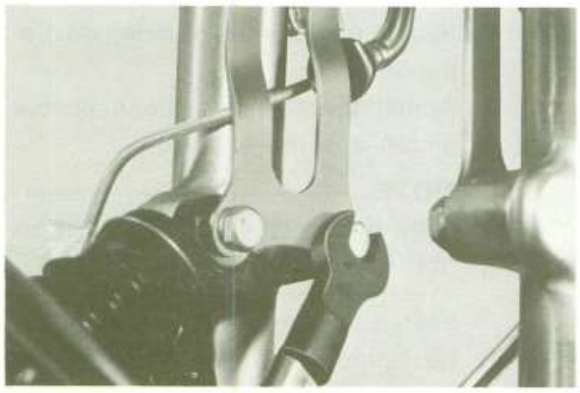
Apply a light coating of a silicon compound to the contact surface (indicated by an arrow mark) of the inner pad, and install.

Fitting screw-tightening torque: 0.15 ~ 0.25 m-kg

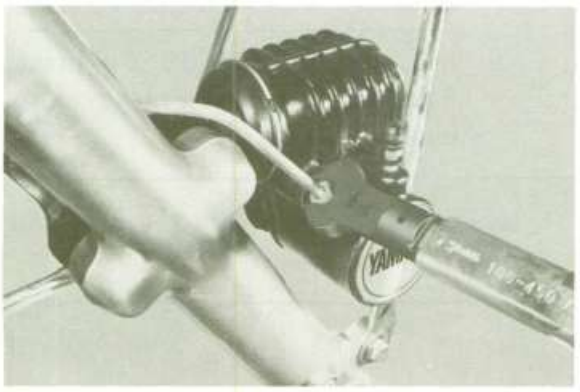


12) When replacing the pads alone, it is necessary to push back the piston so that new pads can easily be installed.

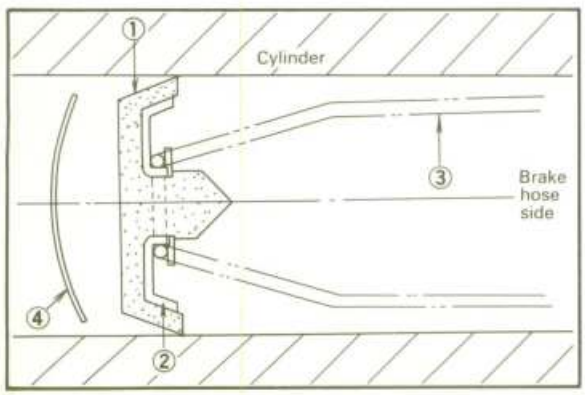
NOTE:
When the piston is pushed back, and the compensating port is open, the brake fluid level in the reservoir tank will rise steeply. Loosen the bleed screw if necessary, and bleed off the excess brake fluid.



13) To install the caliper assembly on the front fork, reverse the procedures for removal.
Tightening torque:
2.3 ~ 2.8 m-kg



14) Install the brake pipe.
Tightening torque:
130 ~ 180 cm-kg



b. Master cylinder

1) Insert the spring assembly (spring, spring retainer, cylinder cup) into the master cylinder body. And insert the piston cup spacer.

NOTE:
The cup spacer should be installed as illustrated.

1. Cylinder cup 1
2. Spring retainer
3. Conical spring
4. Piston cup spacer

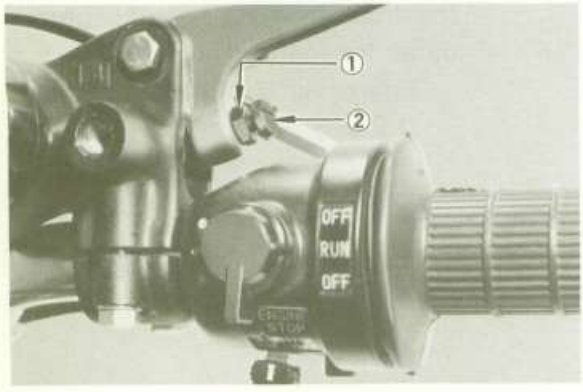
2) Check the piston surfaces and cup surfaces for scratches. And then, coat the surface of piston assembly with new brake fluid. Insert the piston assembly into the cylinder. Avoid forcing the piston into the cylinder; otherwise, the cylinder wall will be scratched, thus allowing the brake fluid to leak past.
3) Install the circlip.
4) Install the master cylinder boot in the piston groove.
5) Install the master cylinder on the handlebar.
6) Adjust the clearance between the piston and the push rod.

NOTE:
Fully tighten the adjusting nut so that it will not become loose.

7) Fasten the brake hose to the master cylinder with the oil bolt.

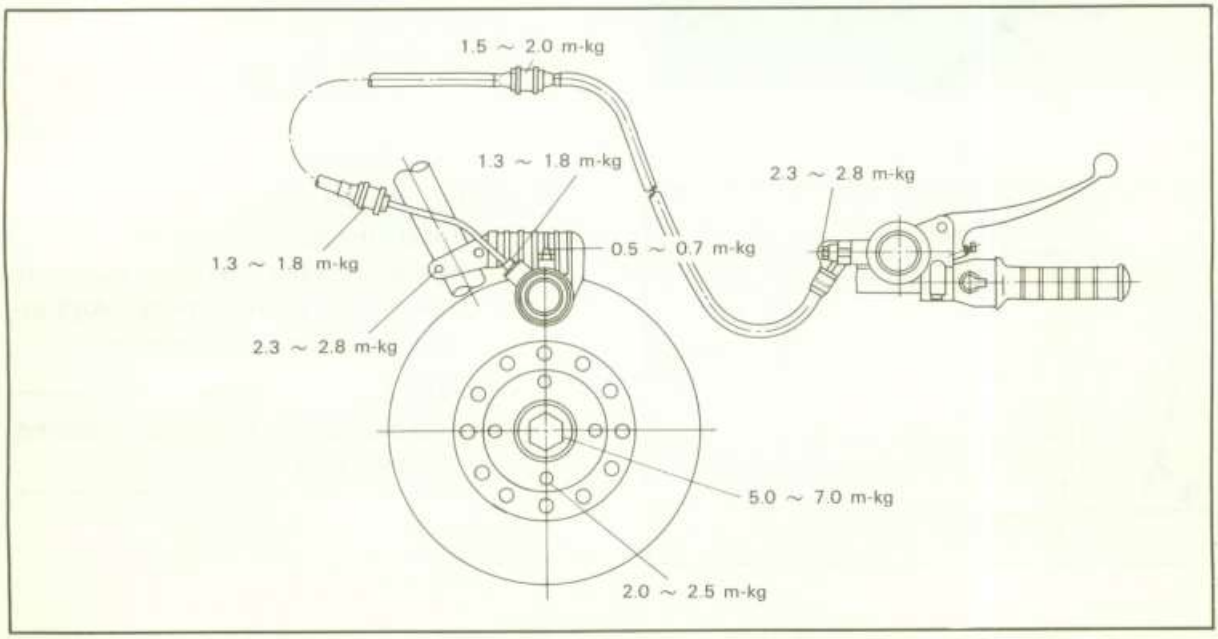
NOTE:
If the "oil bolt washers" are found scratched, they should be replaced.

8) Feed approximately 30 cc of brake fluid into the reservoir tank prior to bleeding.

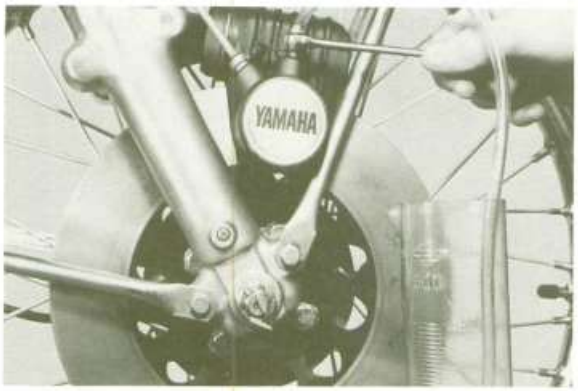


1. Lock nut 2. Adjusting screw

7. Brake hose and brake pipe
The brake hose and brake pipe fittings should be fastened with the specified torque in Fig. below.







8. Air bleeding

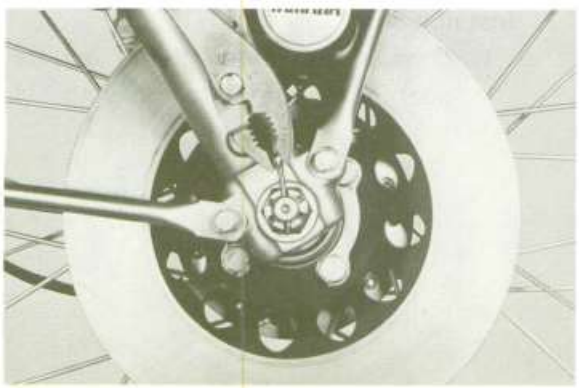
When any part of the hydraulic system has been disconnected or presence of air in the system is detected, the system must be bled.

1) Check and fill the reservoir with the fluid from time to time so as not to run empty.

NOTE:

Fill the fluid carefully lest it should drop to any part of painted surface.

2) Remove the rubber cap from the bleed screw and connect a vinyl tube to the screw. Submerge the other end of the tube into a container half filled with clean brake fluid.
3) Apply the brake lever slowly several times to bleed the air, and with the brake lever depressed, loosen the bleed screw 1/3 to 1/2 turn, then close the screw immediately.
4) Repeat this operation until the brake fluid flows into the container without any air.
5) Install the bleed screw rubber cap on the screw and replenish brake fluid in the reservoir up to the specified level.
6) After the installation, squeeze the brake lever for a few minutes, and check to see if any brake fluid leaks out from pipe joints or the cylinder.
7) Check whether or not the brake hose contacts the frame or other parts by turning the handlebars fully to the right and the left.

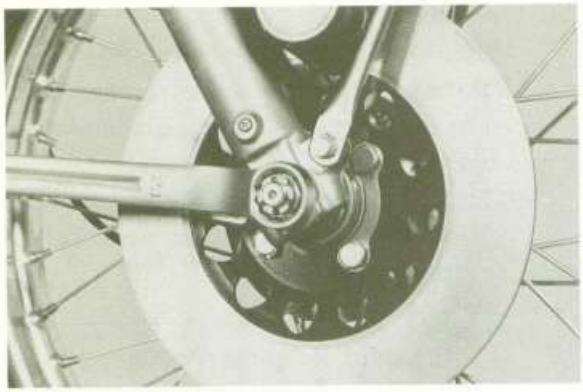


B. FRONT WHEEL

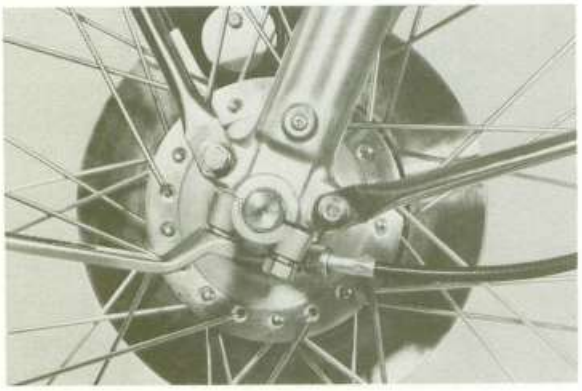
1. Disassembly

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

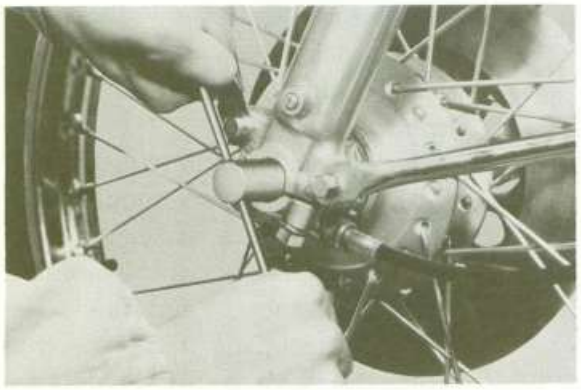
1) Remove the front wheel shaft nut cotter pin. The pin must be replaced with a new one each time it is removed.



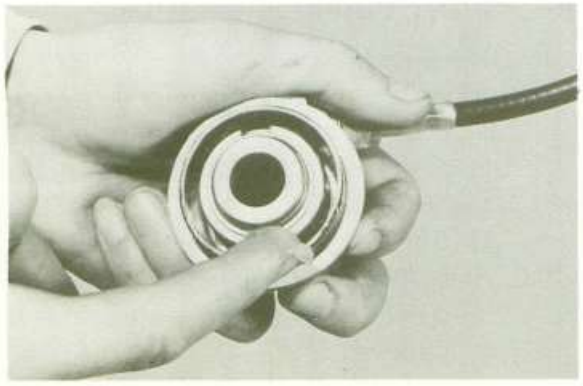
2) Remove the front wheel axle nut.



3) Loosen the two front wheel axle holder locknuts.

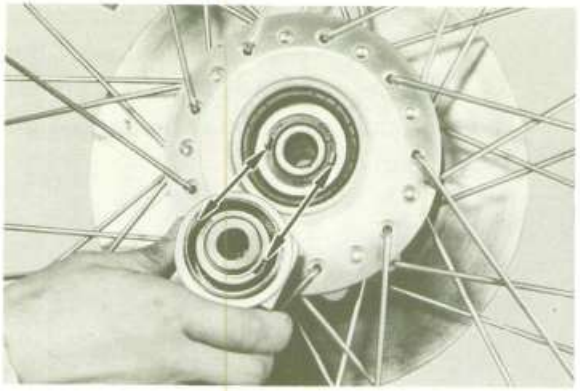


4) Pull out the front wheel axle, and remove the front wheel assembly. In this case, the speedometer housing must be removed.

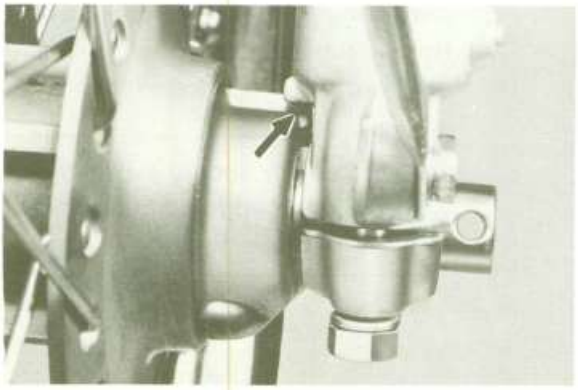


2. Installation

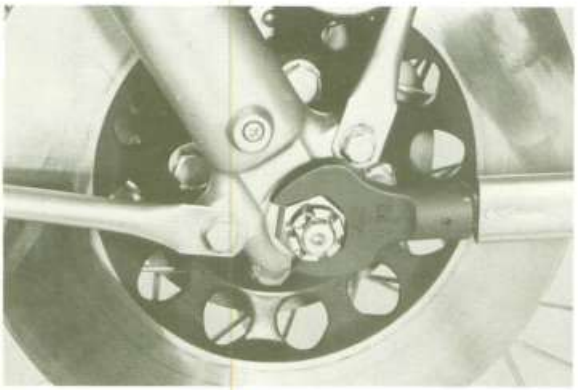
1) Grease the meter clutch and oil seal inside the meter housing.



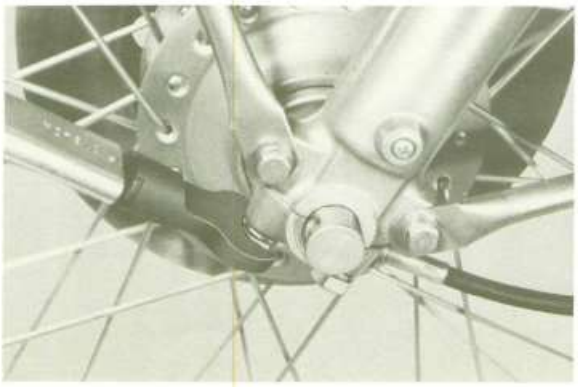
2) Assemble the front wheel assembly and meter housing and install this sub-assembly on the frame.



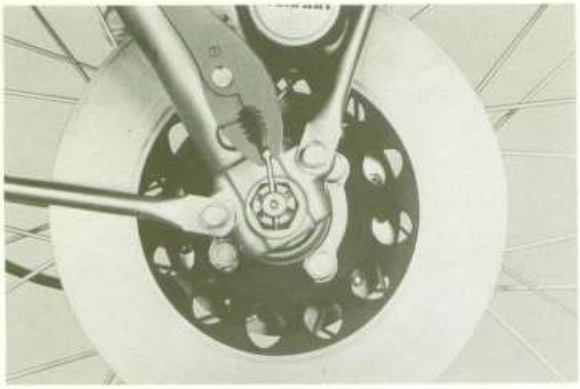
NOTE:
Be sure the projecting portion (torque stopper) of the master housing is positioned correctly.



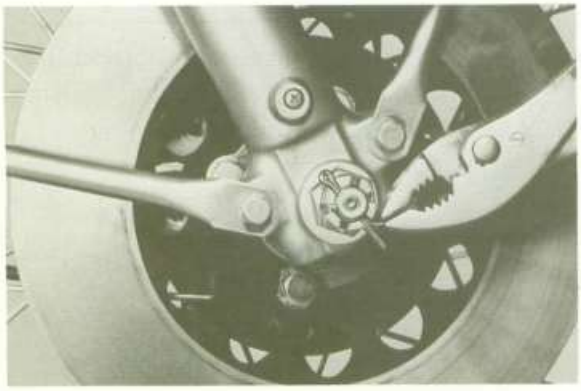
3) Install the axle securing nut on the axle.
Tighten the axle securing nut, using a torque wrench.
Axle securing nut torque:
5.0 ~ 7.0 m-kg



4) Tighten the axle holder locknuts, using a torque wrench. Tighten each nut in stages so that the axle is gripped evenly.
Axle holder locknut torque:
0.77 ~ 1.12 m-kg



5) Install the axle securing nut cotter pin. If the castellated edges of the nut and the hole in the axle do not line up, the nut may be backed off slightly.

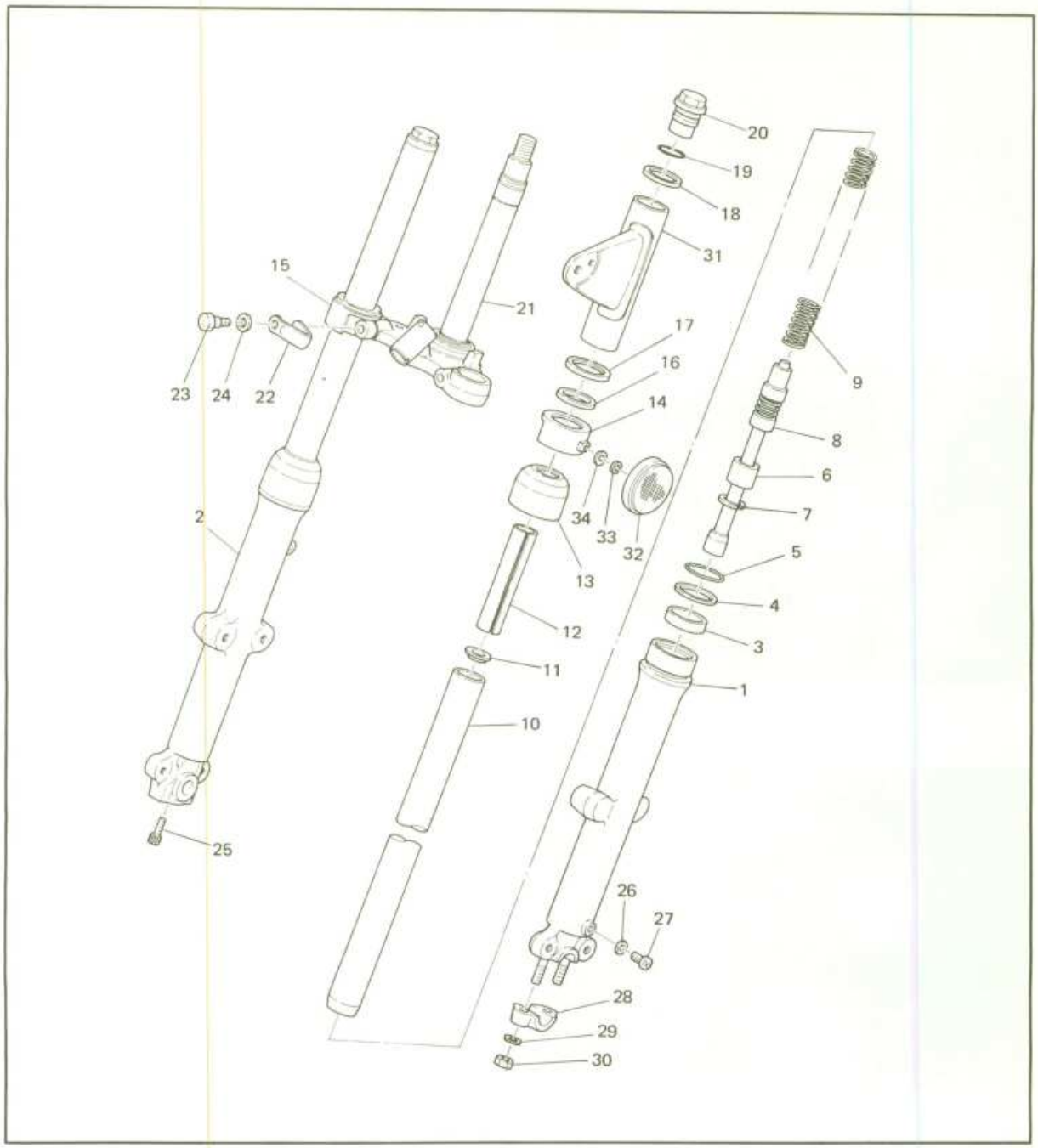


6) Bend the cotter pin ends away from each other and around the axle nut. Cut off the excess.

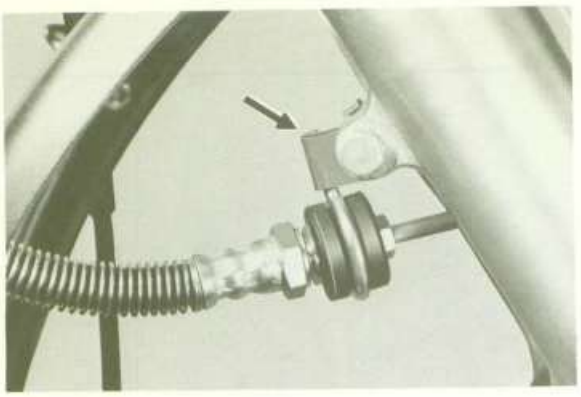
NOTE:

The cotter pin should be installed with the open ends pointing down, prior to bending the ends apart.

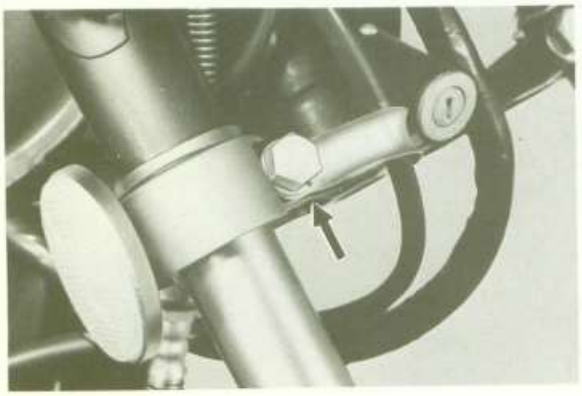
C. FRONT FORKS



1. Outer tube, left
2. Outer tube, right
3. Oil seal
4. Oil seal washer
5. Oil seal clip
6. Front fork piston
7. Circlip
8. Front fork cylinder complete
9. Fork spring
10. Inner tube
11. Spring upper seat
12. Spacer
13. Dust seal
14. Outer cover, left
15. Outer cover, right
16. Packing
17. Cover under guide
18. Cover guide
19. Packing (O-ring)
20. Cap bolt
21. Under bracket complete
22. Wire holder
23. Under bracket bolt
24. Packing
25. Bolt
26. Drain plug gasket
27. Drain plug
28. Axle holder
29. Spring washer
30. Nut
31. Upper cover
32. Reflector
33. Spring washer
34. Plain washer



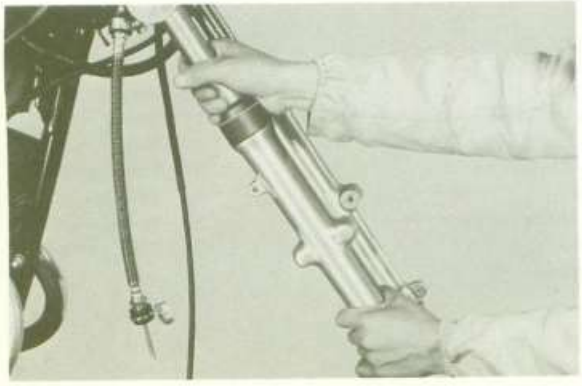
1. Disassembly
   Remove the front wheel and front fender before starting this procedure. Before removing the right front fork, caliper body and brake hose fitting bolt #2 must be removed from the front fork.



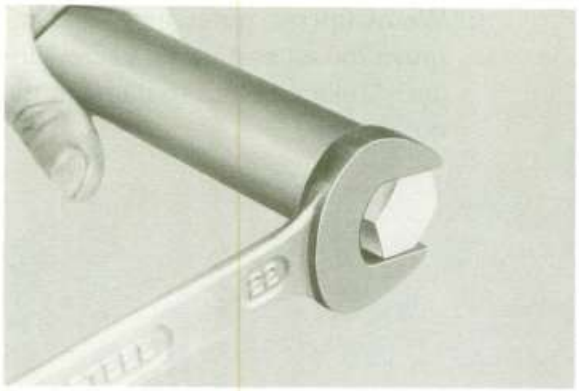
1) Loosen the under bracket pinch bolt; inside the upper cover and front fork holding bolt.

NOTE:
Loosen the cap bolts prior to loosening the under and upper pinch bolts.

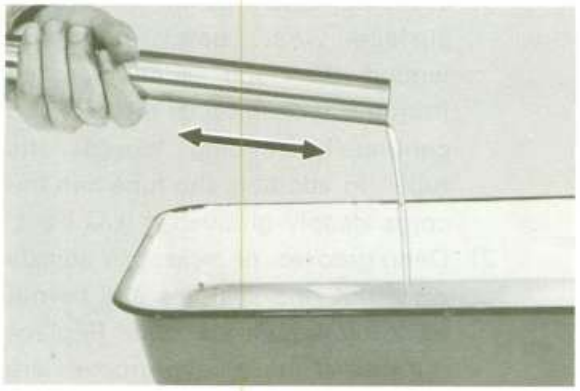




2) Pull out the inner fork tube from the bracket complete.



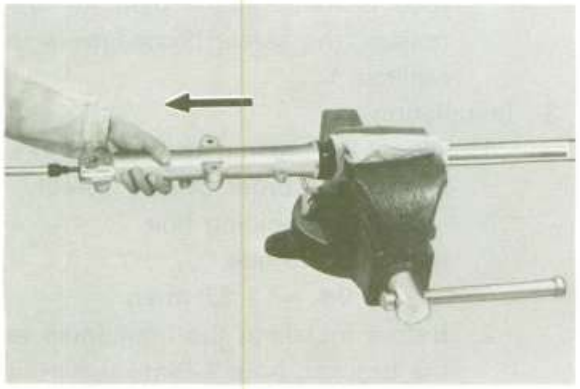
3) Remove the cap bolt from inner fork tube.



4) Drain the oil from both fork tube to oil pan, and remove the fork spring.

NOTE:

The oil can be completely drained off by sliding the inner tube in and out.



5) Remove the cylinder holding bolt at the bottom end of outer fork tube. If it is difficult to remove the bolt, take the following steps.

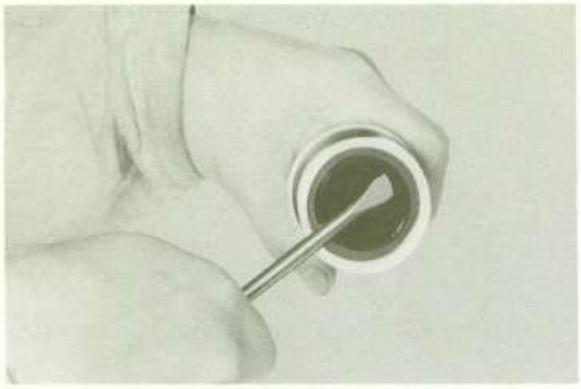
a) Pull out the inner tube from the outer tube until it stops, and warp the outer tube thickly, then grip it in the vice.

b) While pulling the outer tube toward you, remove the holding bolt using an Allen wrench. (Take care so the gasket is not lost.)



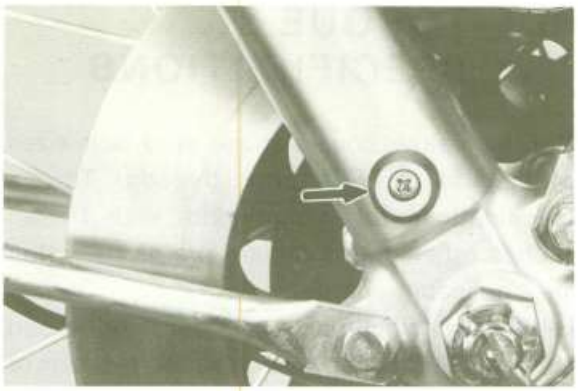
6) The oil seal that is pressed into the top of outer tube should be replaced whenever the forks are disassembled.

a) Remove the oil seal clip and oil seal washer from the outer tube.



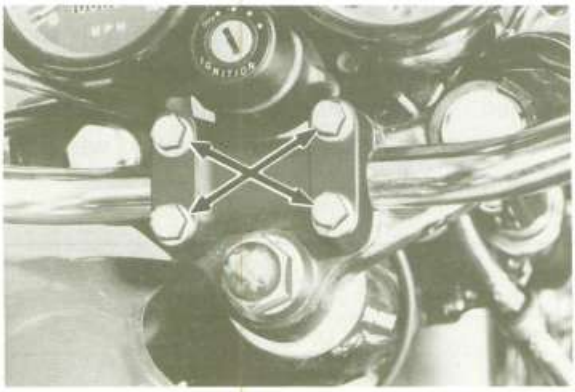
b) Warm up the outer tube, and remove the oil seal using a screwdriver. (Take care not to damage the outer tube.)

2. Inspection
   1) The inner tube must be checked for surface wear, bend, rust and wound the tube gets scratched from dirt working past the seal and continually rubbing against the tube. In addition, the tube can become deeply grooved if it is bent.
   2) Deep grooves, or nicks, can quickly wear out, the seal lips and permit oil to blow past the seal. Replace the tube if these deep grooves are evident.
   3) Also check for a bent tube. If the tube is found to be bent for any reason, the safest procedure is to replace it.
3. Installation
   1) When assembling the front forks, reverse the order of disassembly.
      Cylinder holding bolt
      tightening torque:
      0.94 ~ 1.37 m-kg
   2) Before installing the front forks to the bracket, pour oil into the front forks through top ends of the inner tubes. The oil should be 10W/30 "SE" motor oil.
      Fork oil capacity:
      118 cc
   3) Reinstall the fork cap bolt and torque to specification.
      Check the packing. If damaged, replace it.
   4) Insert the inner tube in the bracket complete. And tighten the upper and lower pinch bolt.
      Tightening torque:
      1.60 ~ 2.34 m-kg

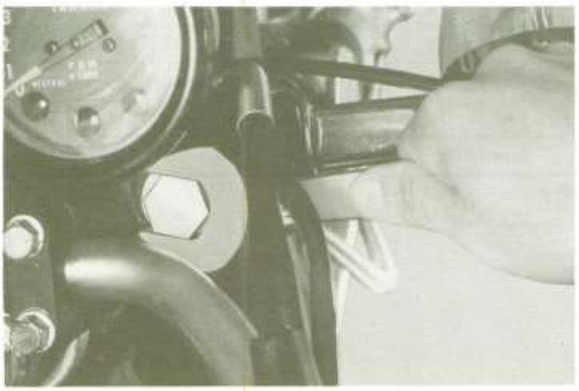


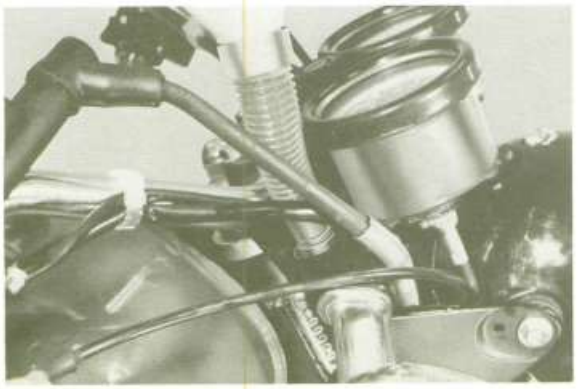
D. CHANGING FORK OIL

1. Remove the drain screw from the outside of both forks and allow the oil to drain out. Push down on the handlebar a few times to compress the forks and pump out any remaining oil. Install both drain screws.



2. Loosen the handle upper holder fitting bolts and rotate the handlebars. Remove the both fork cap bolts.



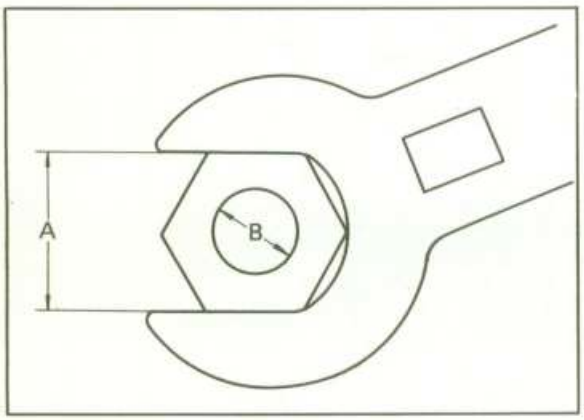


3. Pour 173 cc of 10W/30 into each leg. Check the cap bolt packing. If it is damaged, replace it. Install the both cap bolts.

III. TORQUE SPECIFICATIONS

The list below covers those stud bolt sizes with standard I.S.O. pitch threads. Torque specifications for components with thread pitches other than standard are given within the applicable chapter.

Torque specifications call for cry, clean threads. Components such as the cylinder or cylinder head should be at room temperature prior to torquing. A cylinder head or any other item with several fasteners should be torqued down in a crisscross pattern in successive stages until torque specification is reached. The method is similar to installing an automobile wheel and will avoid warping the component.



A (mm) (nut)	B (mm) (bolt)	Torque specifications		
		m-kg	ft-lb	in-lb
10	6	1.0	7	85
12	8	2.0	15	175
14	10	3.5 ~ 4.0	25 ~ 30	300 ~ 350
17	12	4.0 ~ 4.5	30 ~ 35	350 ~ 400
19	14	4.5 ~ 5.0	30 ~ 35	400 ~ 400
22	16	5.5 ~ 6.5	41 ~ 49	480 ~ 570
24	18	6.0 ~ 7.0	40 ~ 50	500 ~ 600
27	20	7.0 ~ 8.0	50 ~ 60	600 ~ 700
Spark plug		2.5 ~ 3.0	20 ~ 22	230 ~ 250