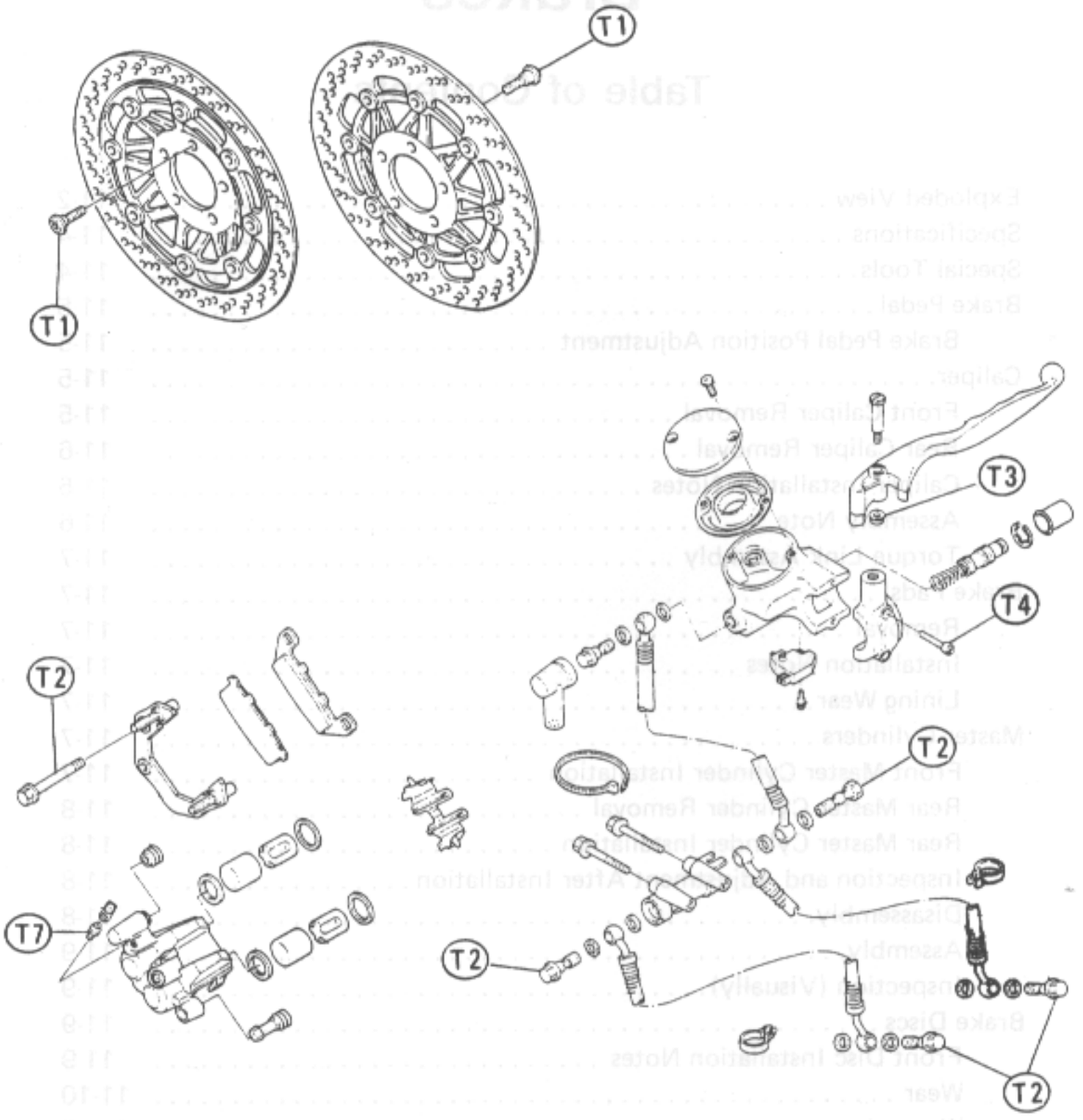
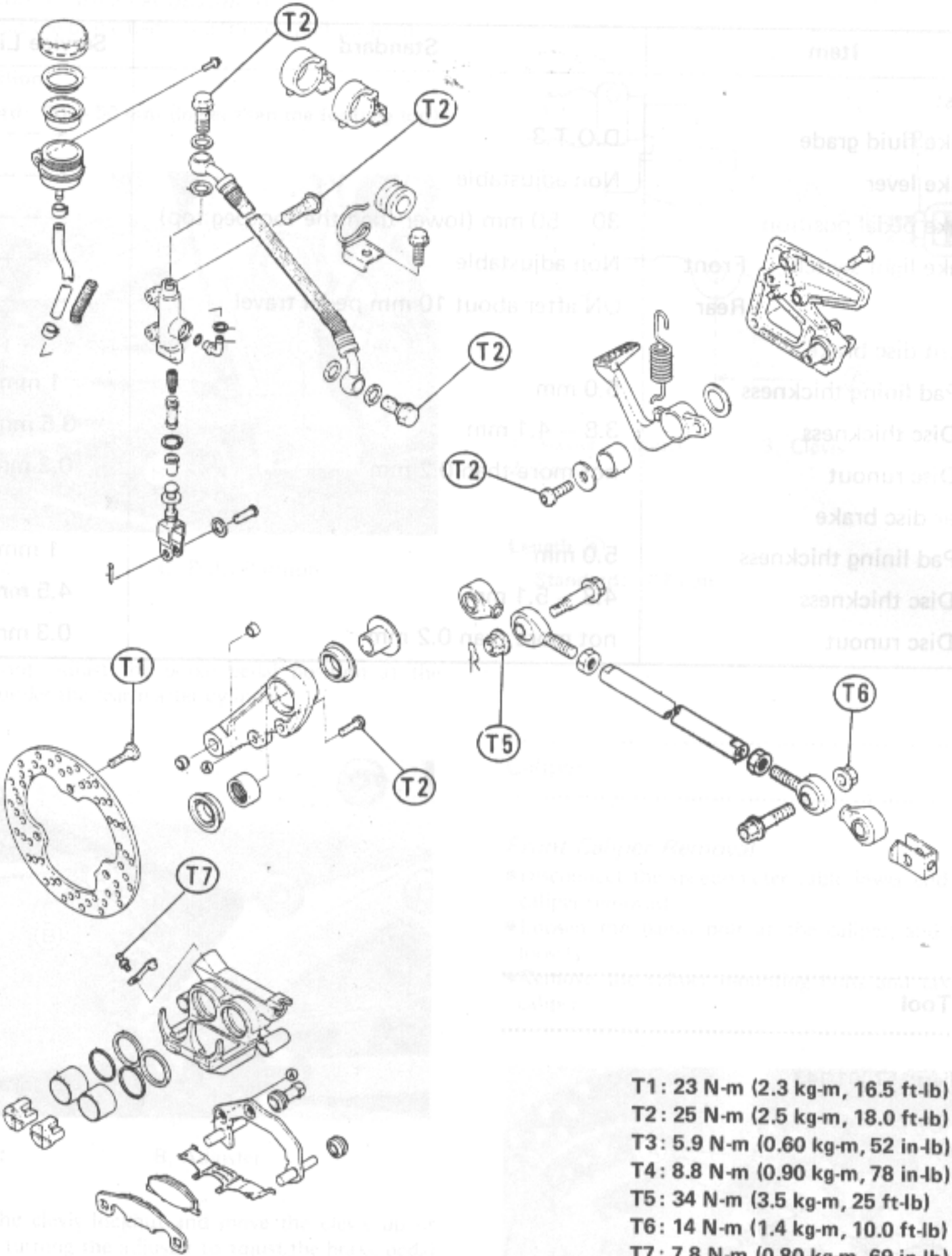
Brakes

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Exploded View





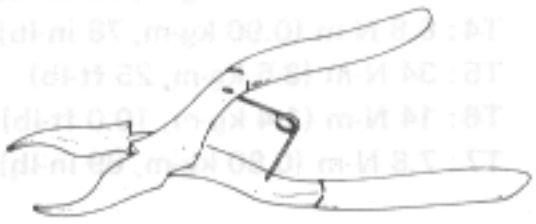
T1 : 23 N-m (2.3 kg-m, 16.5 ft-lb)
T2 : 25 N-m (2.5 kg-m, 18.0 ft-lb)
T3 : 5.9 N-m (0.60 kg-m, 52 in-lb)
T4 : 8.8 N-m (0.90 kg-m, 78 in-lb)
T5 : 34 N-m (3.5 kg-m, 25 ft-lb)
T6 : 14 N-m (1.4 kg-m, 10.0 ft-lb)
T7 : 7.8 N-m (0.80 kg-m, 69 in-lb)

Specifications

Item		Standard	Service Limit
Brakes:			
Brake fluid grade		D.O.T.3	– – –
Brake lever		Non adjustable	– – –
Brake pedal position		30 – 50 mm (lower than the footpeg top)	– – –
Brake light switch:	Front	Non adjustable	– – –
	Rear	ON after about 10 mm pedal travel	– – –
Front disc brake			
Pad lining thickness		5.0 mm	1 mm
Disc thickness		3.8 – 4.1 mm	3.5 mm
Disc runout		not more than 0.2 mm	0.3 mm
Rear disc brake			
Pad lining thickness		5.0 mm	1 mm
Disc thickness		4.8 – 5.1 mm	4.5 mm
Disc runout		not more than 0.2 mm	0.3 mm

Special Tool

Circlip Pliers: 57001-143



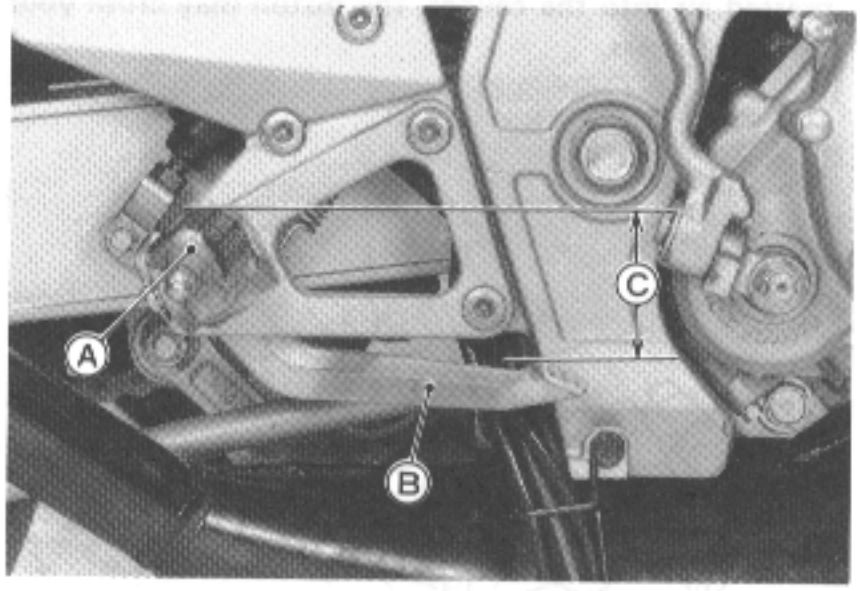
Brake Pedal

Brake Pedal Position Adjustment

●Check that the brake pedal is in the correct position.

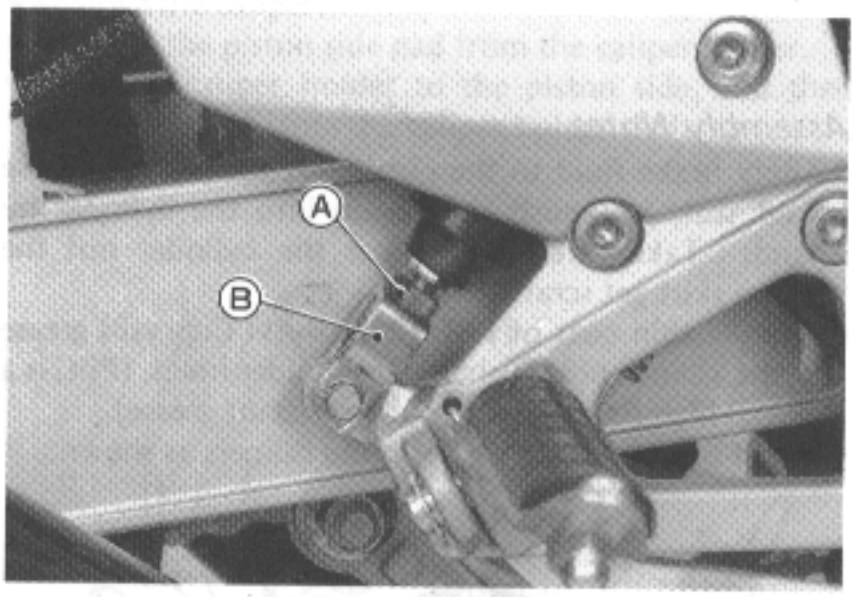
Pedal Position

Standard: 30 – 50 mm (lower than the footpeg top)



A. Footpeg
B. Brake Pedal
C. Pedal Position

★If it is not, adjust the brake pedal position at the adjuster under the rear master cylinder.



A. Locknut
B. Adjuster

●Loosen the clevis locknut and move the clevis up or down by turning the adjuster to adjust the brake pedal position.

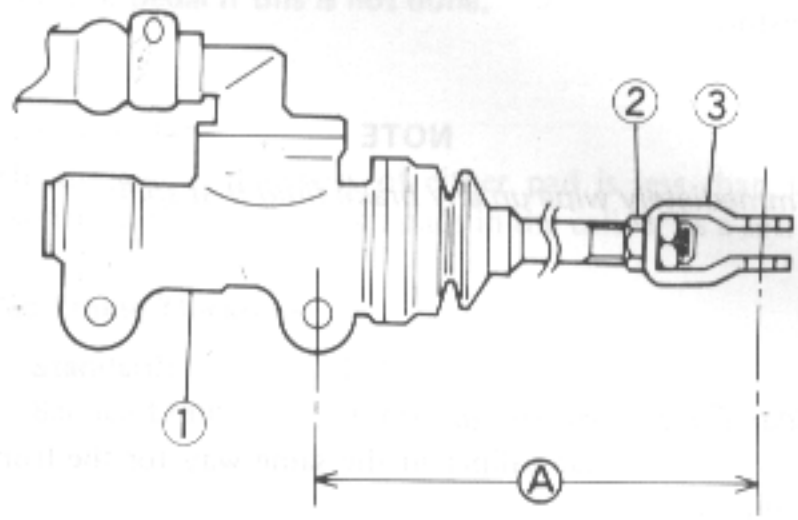
NOTE

○*Usually it's not necessary to adjust the pedal position, but always adjust it when the master cylinder is disassembled.*

○*If the push rod length cannot be adjusted by turning the clevis, the brake pedal may be deformed or incorrectly installed.*

●When the brake pedal is in its rest position, measure the length Ⓐ indicated in the figure.

★If the length Ⓐ is not within the specified length, adjust a nut.



1. Master Cylinder
2. Locknut
3. Clevis

Length Ⓐ

Standard: 67 mm

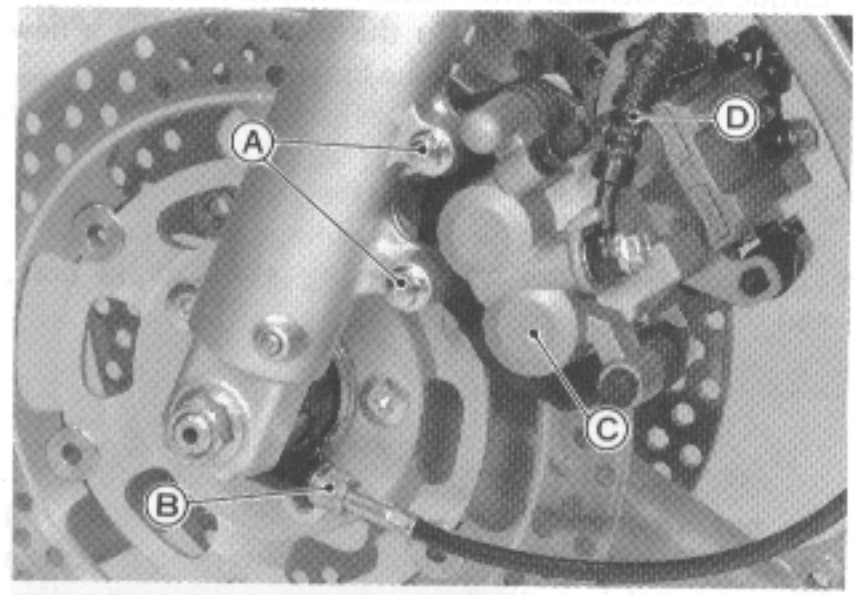
Caliper

Front Caliper Removal

●Disconnect the speedometer cable lower end (left side caliper removal).

●Loosen the banjo bolt at the caliper, and tighten it loosely.

●Remove the caliper mounting bolts and take off the caliper.



A. Caliper Mounting Bolts
B. Cable Lower End
C. Caliper
D. Brake Hose

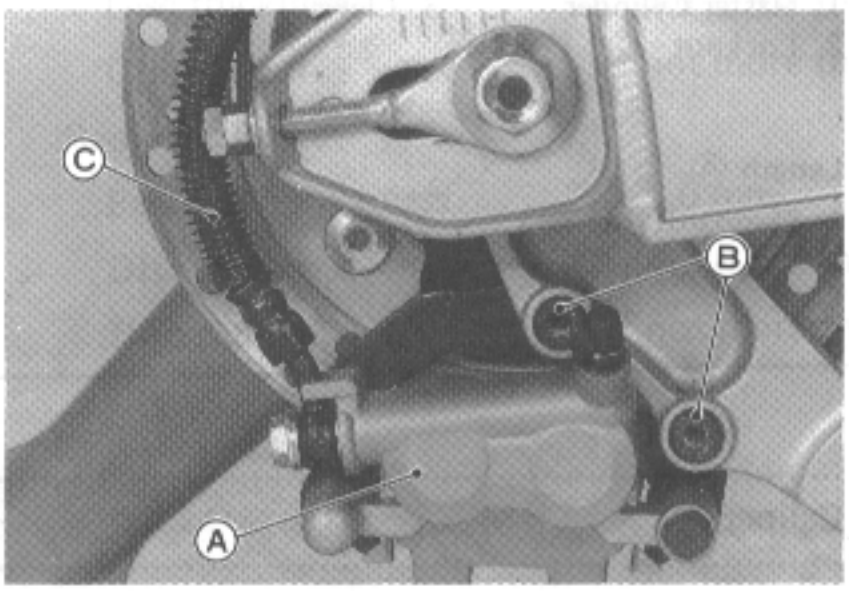
●Disconnect the brake hose from the caliper.
★If the caliper is to be disassembled after removal and if compressed air is not available, remove the piston using the following steps before disconnecting the brake hose from the caliper.
○Remove the pads.
○Pump the brake lever or pedal to remove the caliper piston.

NOTE

○*Immediately wipe up any brake fluid that spills.*

Rear Caliper Removal

●Remove the rear caliper in the same way for the front caliper.



A. Caliper
B. Mounting Bolts
C. Brake Hose

Caliper Installation Notes

●Tighten the caliper mounting bolts to the specified torque (see General Information chapter).
●Connect the brake hose to the caliper putting a new flat washer on each side of the brake hose fitting.
●Tighten the banjo bolt to the specified torque (see General Information chapter).
●Check the fluid level in the master cylinder (reservoir), and bleed the brake line (see Bleeding the Brake).
●Check the brake for weak braking power, brake drag, and fluid leakage.

WARNING

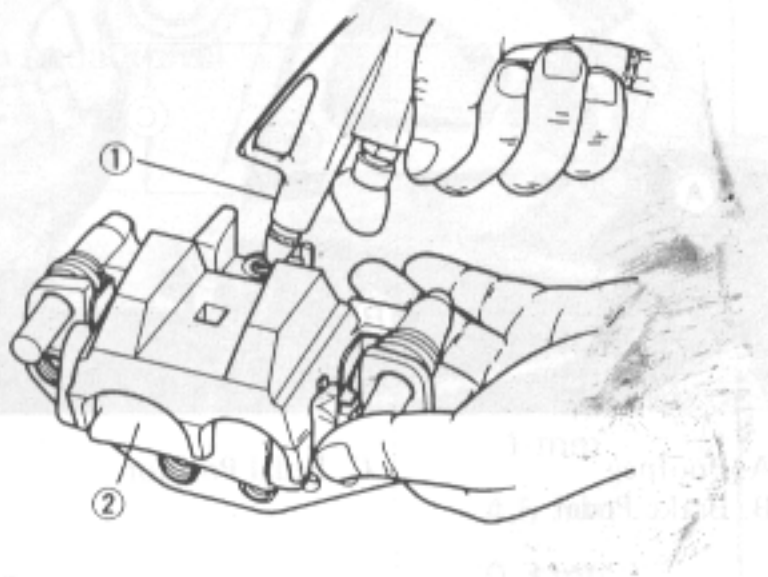
○**Do not attempt to drive the motorcycle until a full brake lever or pedal is obtained by pumping the brake lever or pedal until the pads are against the disc. The brakes will not function on the first application of the lever or pedal if this is not done.**

Disassembly Notes

●Using compressed air, remove the piston.
○Cover the caliper opening with a clean, heavy cloth.
○Remove the piston by lightly applying compressed air to where the brake line fits into the caliper.

WARNING

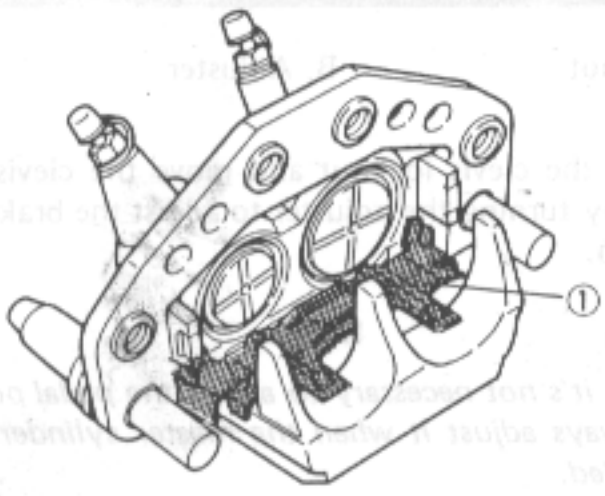
○**To avoid serious injury, never place your fingers or palm inside the caliper opening. If you apply compressed air into the caliper, the piston may crush your hand or fingers.**



1. Apply compressed air. 2. Cloth

Assembly Notes

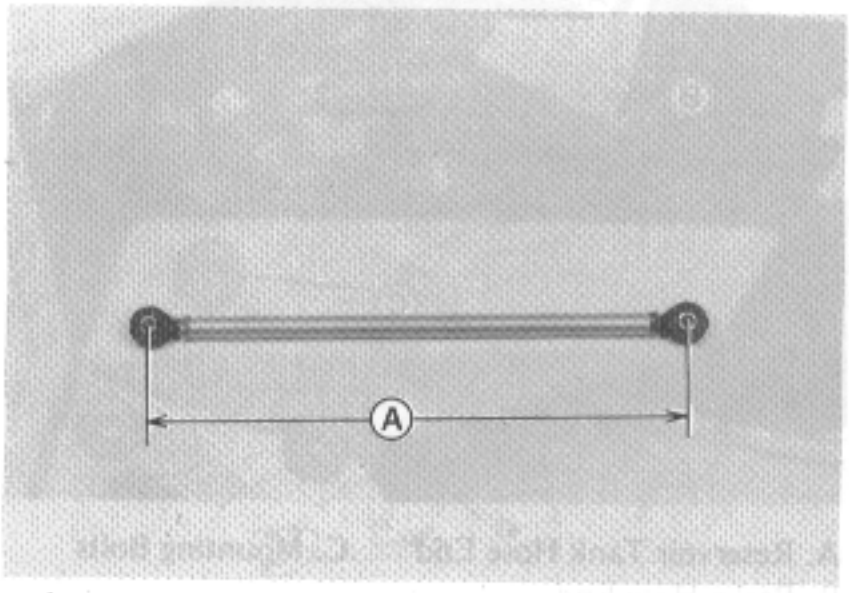
●Apply brake fluid to the outside of the piston and the fluid seal, and push the piston into the cylinder by hand. Take care that neither the cylinder not the piston skirt get scratched.
●Apply a thin coat of PBC (Poly Butyl Cuprysil) grease to the caliper holder shafts and holder holes. (PBC is a special high temperature, water-resistant grease).
●Install the anti-rattle spring in the calipers as shown.



1. Anti-rattle Spring

Torque Link Assembly Note

●Assemble the torque link as shown, if it was disassembled.

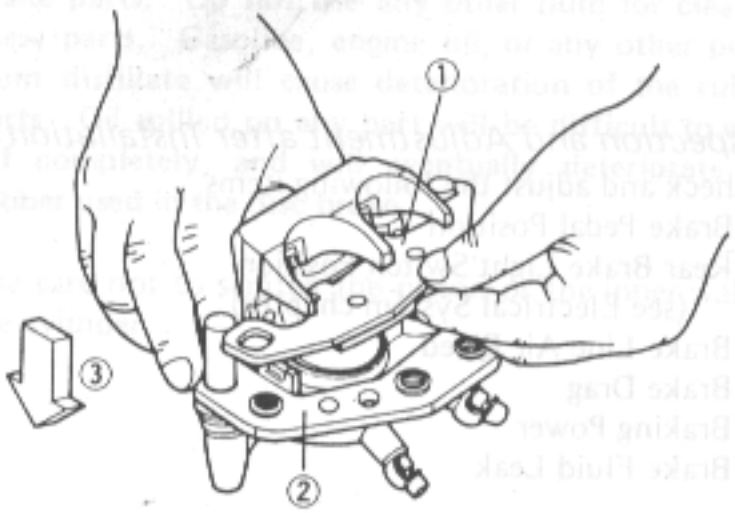


A. 393 – 395 mm

Brake Pads

Removal

●Remove the caliper.
●Take off the piston side pad from the caliper holder.
●Push the caliper holder to the piston side, and then remove the pad from the caliper holder shaft.



1. Pad
2. Caliper Holder
3. Push the caliper holder.

Installation Notes

●Push the caliper pistons in by hand as far as they will go.

WARNING

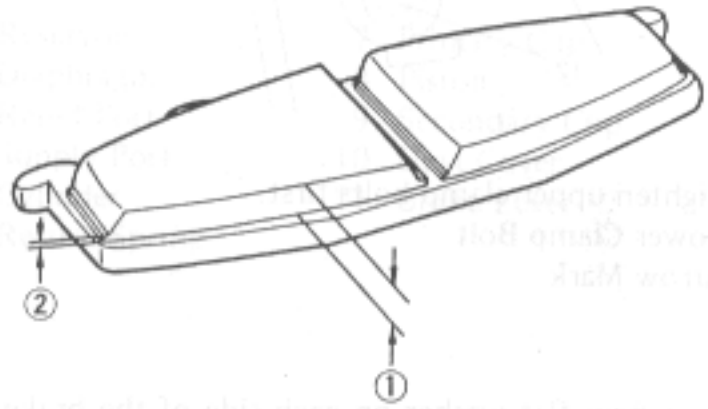
○**Do not attempt to drive the motorcycle until a full brake lever or pedal is obtained by pumping the brake lever or pedal until the pads are against the disc. The brake will not function on the first application of the lever or pedal if this is not done.**

Lining Wear

★If the lining thickness of either pad is less than the service limit, replace both pads in the caliper as a set.

Pad Lining Thickness

Standard:	**5.0 mm**
Service Limit:	**1 mm**

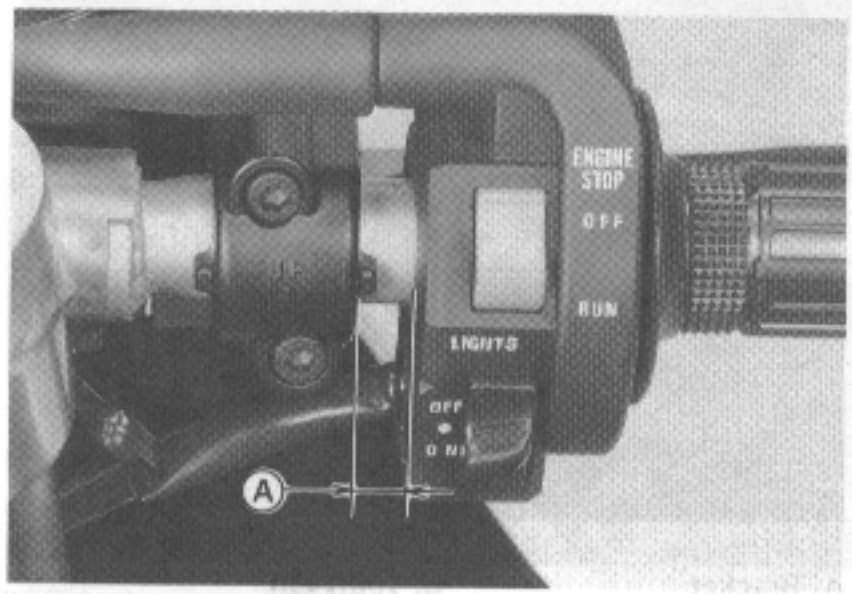


1. Lining Thickness
2. Service Limit

Master Cylinders

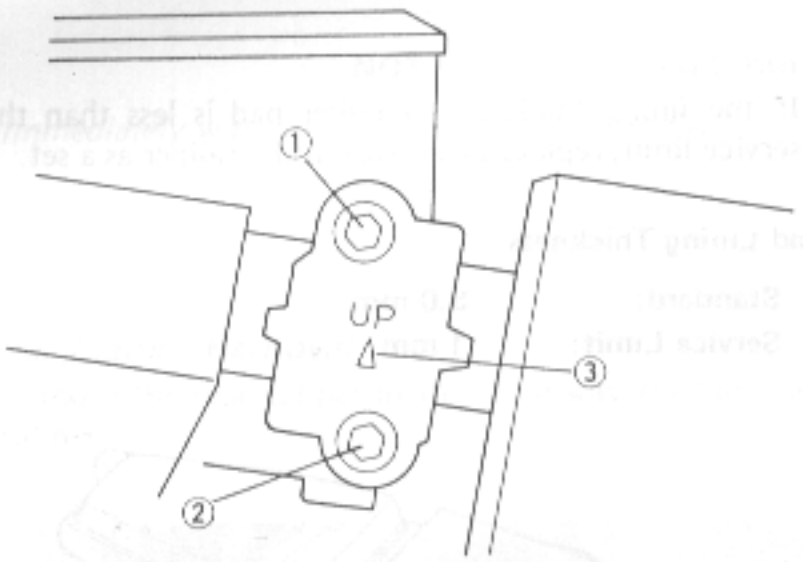
Front Master Cylinder Installation

●When installing the front master cylinder, note the following.
○Install the master cylinder clamp at 10 mm far from the right switch housing.



A. 10 mm

○The master cylinder clamp must be installed with the arrow mark upward.
○Torque the upper clamp bolt first, and then the lower clamp bolt to the specification (see General Information chapter). There will be a gap at the lower part of the clamp after tightening.

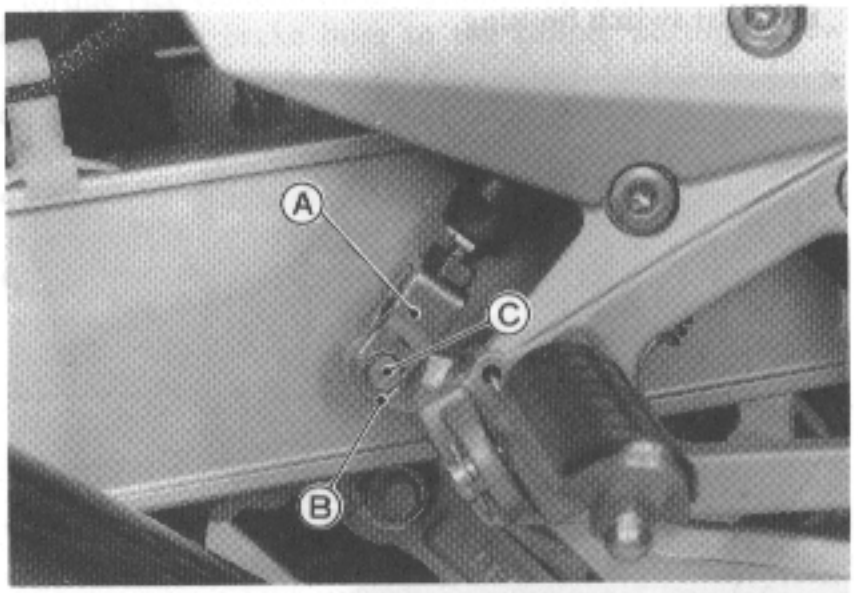


1. Tighten upper clamp bolts first.
2. Lower Clamp Bolt
3. Arrow Mark

○Use a new flat washer on each side of the brake hose fitting.
○Tighten the banjo bolts to the specified torque (see General Information chapter).

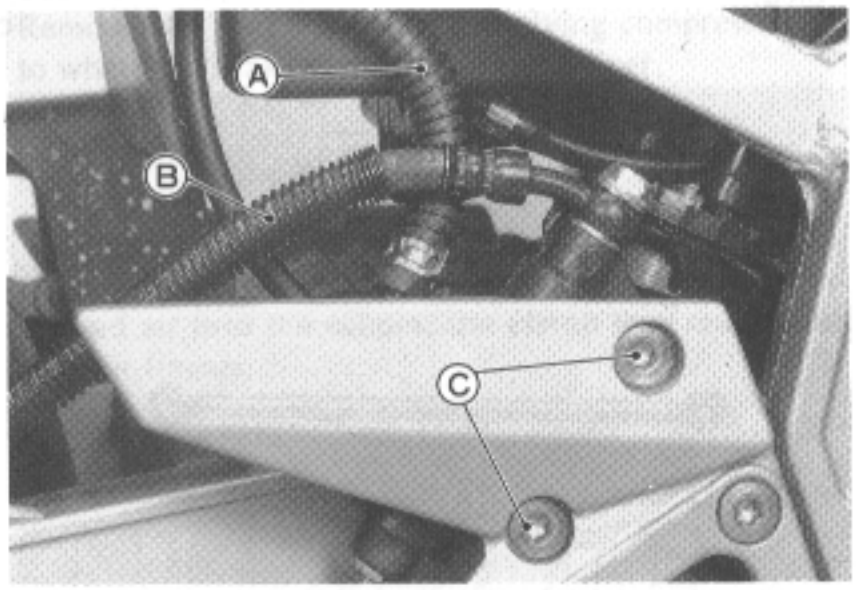
Rear Master Cylinder Removal

●Remove the cotter pin from the rear master cylinder bracket, and remove the joint pin.



A. Bracket
B. Cotter Pin
C. Joint Pin

●Remove the following.



A. Reservoir Tank Hose End
B. Brake Hose End
C. Mounting Bolts

NOTE

○*Immediately wipe up any brake fluid that spills.*

Rear Master Cylinder Installation

●Note the following.
○Use a new flat washer on each side of the brake hose fitting. Be sure that the metal pipe is properly fitted into the U-shaped notch in the master cylinder.
○Tighten the banjo bolts to the specified torque (see General Information chapter).
○Tighten the rear master cylinder mounting bolts to the specified torque (see General Information chapter).

Inspection and Adjustment after Installation

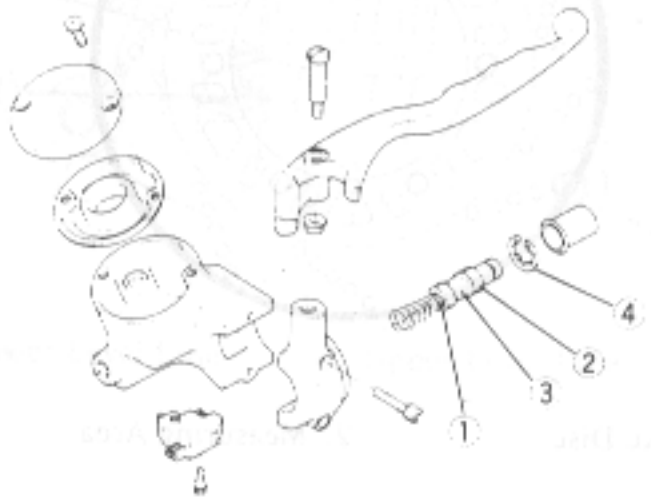
●Check and adjust the following items.
Brake Pedal Position
Rear Brake Light Switch Position
(see Electrical System chapter)
Brake Line Air Bleed
Brake Drag
Braking Power
Brake Fluid Leak

Disassembly

●Remove the following parts.
Dust Cover
Retainer
Piston with Secondary Cup
Primary Cup
Spring

CAUTION

○Do not remove the secondary cup from the piston since removal will damage them.



1. Primary Cup
2. Secondary Cup
3. Piston
4. Retainer

Assembly

●Note the following.

○Before assembly, clean all parts including the master cylinder with brake fluid or alcohol.

○Apply brake fluid to the removed parts and to the inner wall of the cylinder.

CAUTION

○Except for the disc pads and discs; use only disc brake fluid, isopropyl alcohol, or ethyl alcohol, for cleaning brake parts. Do not use any other fluid for cleaning these parts. Gasoline, engine oil, or any other petroleum distillate will cause deterioration of the rubber parts. Oil spilled on any part will be difficult to wash off completely, and will eventually deteriorate the rubber used in the disc brake.

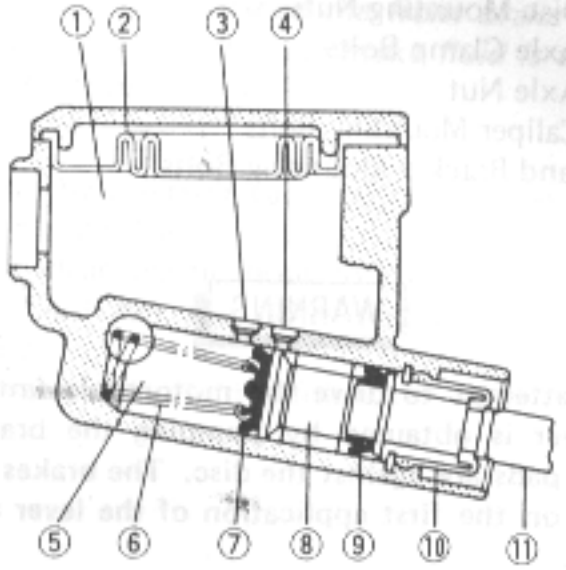
○The care not to scratch the piston or the inner wall of the cylinder.

Inspection (Visually)

●Check that there are no scratches, wear, rust or pitting on the following parts.

Inside of the Master Cylinder
Outside of the Piston
Primary Cups
Secondary Cups
Dust Covers
Return Spring
Relief and Supply Port Plugged

★If they are damaged, replace them.

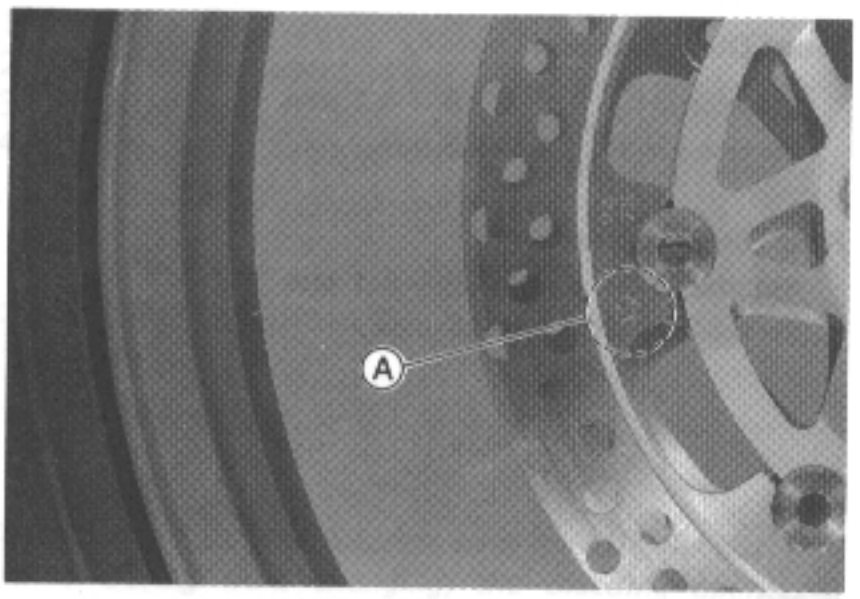


1. Reservoir
2. Diaphragm
3. Relief Port
4. Supply Port
5. Cylinder
6. Return Spring
7. Primary Cup
8. Piston
9. Secondary Cup
10. Dust Cover
11. Brake Lever

Brake Disc

Front Disc Installation Notes

●Check the disc rotation mark on the disc, and install it on the wheel accordingly.



A. Mark

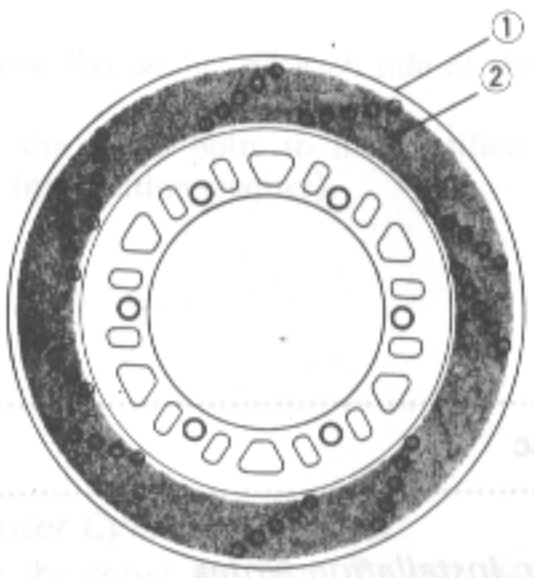
- Apply non-permanent locking agent to the threads of side stand bracket mounting bolts.
- Tighten the following parts to the specified torque (see General Information chapter).
  - Brake Disc Mounting Nuts
  - Front Axle Clamp Bolts
  - Front Axle Nut
  - Brake Caliper Mounting Bolts
  - Side Stand Bracket Mounting Bolts

WARNING

○Do not attempt to drive the motorcycle until a full brake lever is obtained by pumping the brake lever until the pads are against the disc. The brakes will not function on the first application of the lever if this is not done.

Wear

★Replace the disc if it has worn past the service limit.



1. Brake Disc 2. Measuring Area

Front Disc Thickness

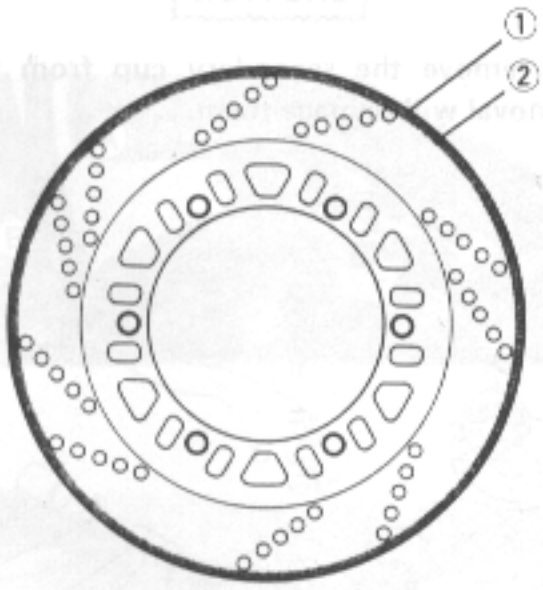
Standard:	**3.8 – 4.1 mm**
Service Limit:	**3.5 mm**

Rear Disc Thickness

Standard:	**4.8 – 5.1 mm**
Service Limit:	**4.5 mm**

Warp

★If runout exceeds the service limit, replace the disc.



1. Brake Disc 2. Measuring Area

Disc Runout

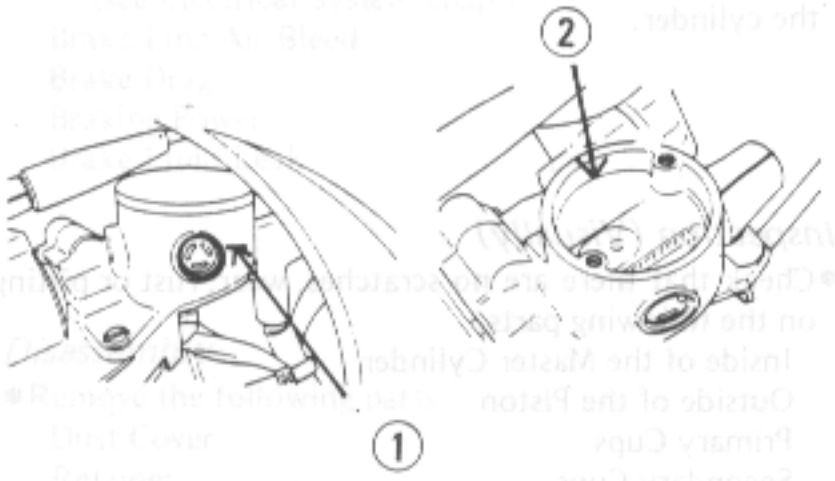
Standard:	**Under 0.2 mm**
Service Limit:	**0.3 mm**

Brake Fluid

Fluid Level Inspection

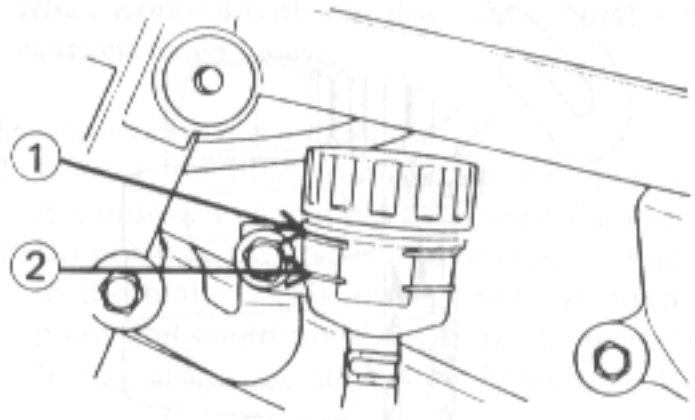
- Check the brake fluid level in the reservoir.

Front Brake Fluid Reservoir



1. Lower Level Line 2. Upper Level Line

Rear Brake Fluid Reservoir



1. Lower Level Line 2. Upper Level Line

NOTE

○*Hold the reservoir horizontal when checking brake fluid level.*

★If the fluid level is lower than the lower level line, fill the reservoir to the upper level line of the reservoir.

WARNING

○**Change the brake fluid in the brake line completely if the brake fluid must be refilled but the type and brand of the brake fluid that already is in the reservoir are unidentified. After changing the fluid, use only the same type and brand of fluid thereafter. Mixing different types and brands of brake fluid lowers the brake fluid boiling point and could cause the brake to be ineffective. It may also cause the rubber brake parts to deteriorate.**

Recommended Brake Fluid

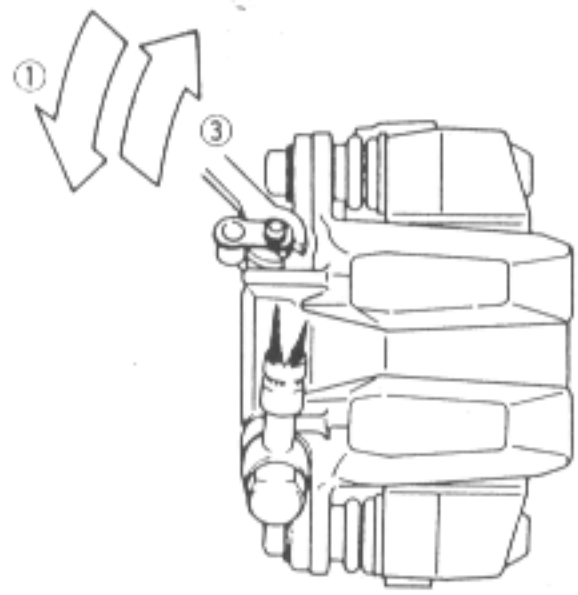
Type	**D.O.T.3**
Brand	**Atlas Extra Heavy Duty**
	Shell Super Heavy Duty
	Texaco Super Heavy Duty
	Wagner Lockheed Heavy Duty
	Castrol Girling-Universal
	Castrol GT (LMA)
	Castrol Disc Brake Fluid

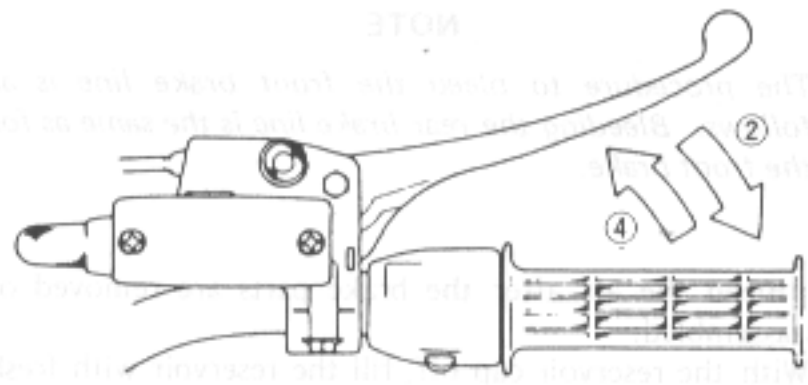
Brake Fluid Change

NOTE

○*The procedure to change the front brake fluid is as follows. Changing the rear brake fluid is the same as for the front brake.*

- Remove the reservoir cap, and remove the rubber cap on the bleed valve.
- After a clear plastic hose to the bleed valve on the caliper, and run the other end of the hose into a container.
- Change the brake fluid as follows:





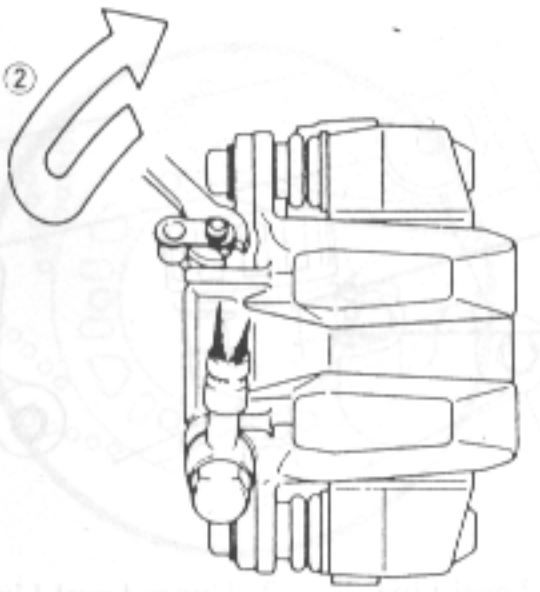
1. Open the bleed valve.
2. Apply the brake and hold it.
3. Close the bleed valve.
4. Release the brake lever.

○Check the fluid level in the reservoir often, replenishing it as necessary.

NOTE

○*If the fluid in the reservoir runs completely out any time during fluid changing, the bleeding operation must be done over again from the beginning since air will have entered the line.*

○Repeat this operation until fresh brake fluid comes out from the plastic hose or the color of the fluid changes.

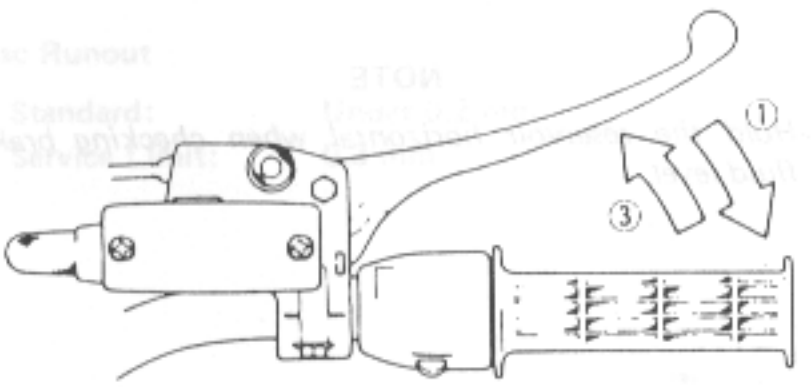


WARNING

○Do not mix two brands of fluid. Change the brake fluid in the brake line completely if the brake fluid must be refilled but the type and brand of the brake fluid that is already in the reservoir are unidentified.

NOTE

○Front Brake: Repeat the above steps one more time for the other caliper.



Bleeding the Brake Line

NOTE

○The procedure to bleed the front brake line is as follows. Bleeding the rear brake line is the same as for the front brake.

Bleed the air after the brake parts are removed or disassembled.

- With the reservoir cap off, fill the reservoir with fresh brake oil.
- Slowly pump the brake lever or pedal several times until no air bubbles can be seen rising up through the fluid from the holes at the bottom of the reservoir. This bleeds the air from the master cylinder and the brake line.

NOTE

○Tap the brake hose lightly going from the caliper to the reservoir side and let the air off from the reservoir when the brake lever has a sponge feeling.

- After a clear plastic hose to the bleed valve on the caliper, and run the other end of the hose into a container.
- Bleed the brake line and the caliper as follows:

1. Pump the brake lever a few times until it becomes firm.
2. Quickly open and close the valve.
3. Release the brake lever.

○Check the fluid level in the reservoir often, replenishing it as necessary.

NOTE

○If the fluid in the reservoir runs completely out any time during bleeding, the bleeding operation must be done over again from the beginning since air will have entered the line.

○Front Brake: Repeat the above steps one more time for the other caliper.

○Repeat this operation until no more air can be seen coming out into the plastic hose.

NOTE

○If the brake lever action still feels soft or spongy, tap the brake hose lightly from bottom to top end or air will rise up to the top part of the hose, slowly pump the brake lever as the same manner as above.

WARNING

○**When working with the disc brake, observe the precautions listed below.**

1. Never reuse old brake fluid.
2. Do not use fluid from a container that has been left unsealed or that has been open for a long time.
3. Do not mix two types and brands of fluid for use in the brake. This lowers the brake fluid boiling point and could cause the brake to be ineffective. It may also cause the rubber brake parts to deteriorate.
4. Don't leave the reservoir cap off for any length of time to avoid moisture contamination of the fluid.
5. Don't change the fluid in the rain or when a strong wind is blowing.
6. Except for the disc pads and disc, use only disc brake fluid, isopropyl alcohol or ethyl alcohol, for cleaning brake parts. Do not use any other fluid for cleaning these parts. Gasoline, motor oil, or any other petroleum distillate will cause deterioration of the rubber parts. Oil spilled on any part will be difficult to wash off completely and will eventually deteriorate the rubber used in the disc brake.
7. When handling the disc pads or disc, be careful that no disc brake fluid or any oil gets on them. Clean off any fluid or oil that inadvertently gets on the pads or disc with a high flash point solvent. Do not use one which will leave an oily residue. Replace the pads with new ones if they cannot be cleaned satisfactorily.
8. Brake fluid quickly ruins painted surfaces; any spilled fluid should be completely wiped up immediately.
9. If any of the brake line fittings or the bleed valve is opened at any time, the **AIR MUST BE BLED FROM THE BRAKE.**