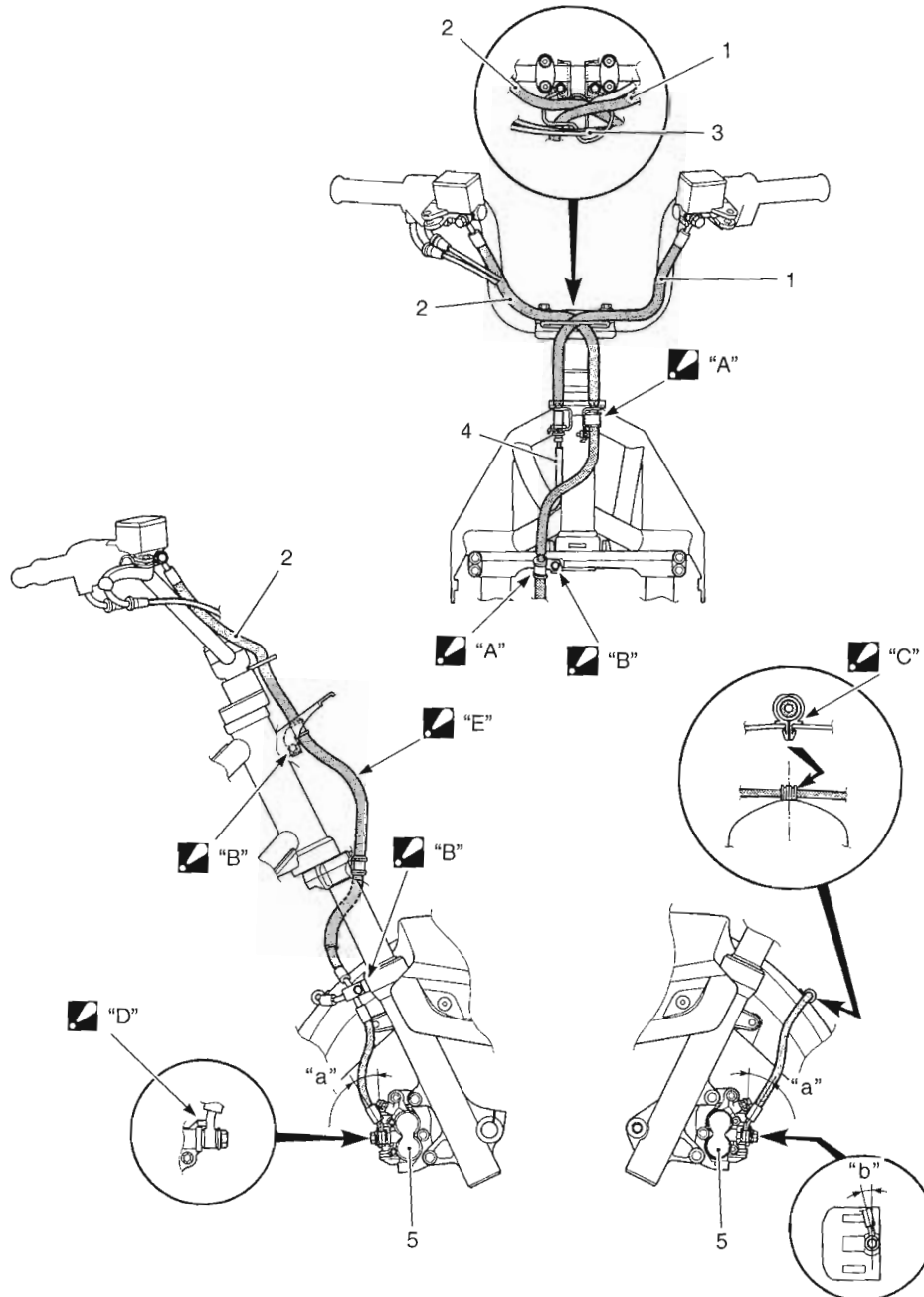


Brake Control System and Diagnosis

Schematic and Routing Diagram

Front Brake Hose Routing Diagram

B705H24102001

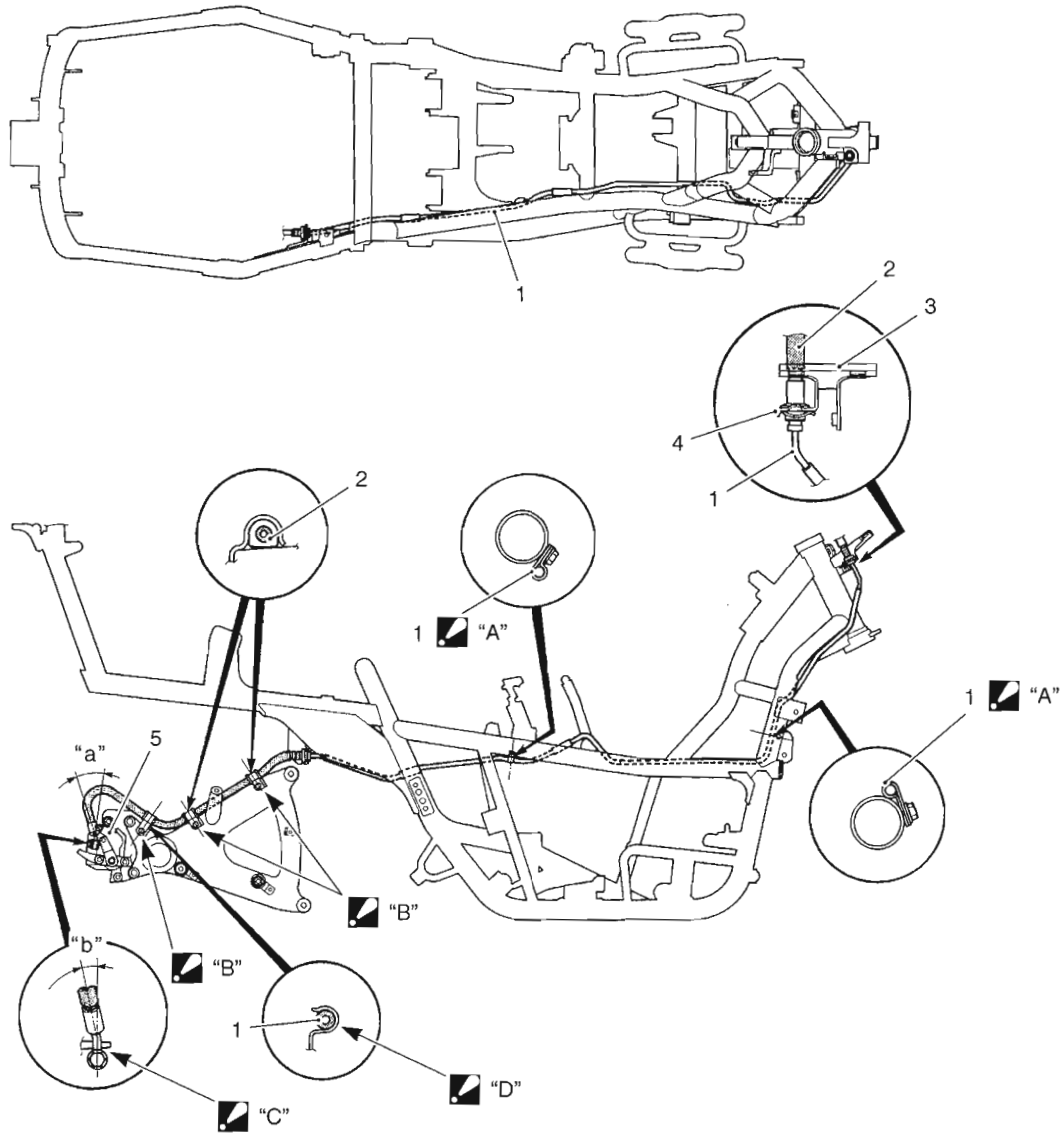


I705H1410028-02

1. Rear brake hose	☑ "B": After touching the clamp to the stopper, tighten the clamp bolt.
2. Front brake hose	☑ "C": Insert the clamp to the hole of the front fender fully.
3. Brake hose guide	☑ "D": After touching the brake hose union to the stopper, tighten the union bolt to the specified torque.
4. Rear brake pipe	☑ "E": Do not bend the brake hose to frame head pipe side.
5. Front brake caliper	"a": 28°
☑ "A": Fix the brake hose grommet to its hose clamp.	"b": 14°

Rear Brake Hose Routing Diagram

B705H24102002



1705H1410029-03

1. Rear brake pipe	▣ "B": After positioning the clamp with the stopper on the swingarm, tighten the clamp bolt.
2. Rear brake hose	▣ "C": After touching the brake hose union to the stopper, tighten the union bolt to the specified torque.
3. Front cowling plate	▣ "D": Clamp the brake hose firmly.
4. E-ring	"a": 28°
5. Rear brake caliper	"b": 14°
▣ "A": Clamp the rear brake pipe at white mark position.	

Diagnostic Information and Procedures

Brake Symptom Diagnosis

B705H24104001

Condition	Possible cause	Correction / Reference Item
Insufficient brake power	Leakage of brake fluid from hydraulic system.	<i>Repair or replace.</i>
	Worn pads.	<i>Replace.</i>
	Oil adhesion on friction surface of pads.	<i>Clean disc and pads.</i>
	Worn disc.	<i>Replace.</i>
	Air in hydraulic system.	<i>Bleed air.</i>
	Not enough brake fluid in the reservoir.	<i>Replenish.</i>
Brake squeaking	Carbon adhesion on pad surface.	<i>Repair surface with sandpaper.</i>
	Tilted pad.	<i>Correct pad fitting or replace.</i>
	Damaged wheel bearing.	<i>Replace.</i>
	Loose front-wheel axle or rear-wheel axle.	<i>Tighten to specified torque.</i>
	Worn pads or disc.	<i>Replace.</i>
	Foreign material in brake fluid.	<i>Replace brake fluid.</i>
	Clogged return port of master cylinder.	<i>Disassemble and clean master cylinder.</i>
Excessive brake lever stroke	Air in hydraulic system.	<i>Bleed air.</i>
	Insufficient brake fluid.	<i>Replenish fluid to specified level; bleed air.</i>
	Improper quality of brake fluid.	<i>Replace with correct fluid.</i>
Leakage of brake fluid	Insufficient tightening of connection joints.	<i>Tighten to specified torque.</i>
	Cracked hose.	<i>Replace.</i>
	Worn piston and/or cup.	<i>Replace piston and/or cup.</i>
Brake drags	Rusty part.	<i>Clean and lubricate.</i>
	Insufficient brake lever or brake pedal pivot lubrication.	<i>Lubricate.</i>
	Malfunction of brake-lock.	<i>Adjust or replace.</i>

Repair Instructions

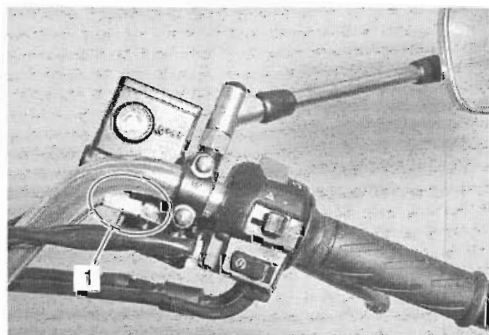
Brake Light Switch Inspection

B705H24106001

Front Brake Light Switch

Inspect the front brake light switch in the following procedures:

- 1) Remove the handlebar cover. Refer to "Handlebar Cover Removal and Installation in Section 9D (Page9D-13)".
- 2) Disconnect the front brake light switch lead wire couplers (1).



I705H1410001-01

- 3) Inspect the switch for continuity with a tester. If any defects are found, replace the front brake light switch with a new one. Refer to "Front Master Cylinder / Brake Lever Disassembly and Assembly (Page4A-9)".

Special tool

: 09900-25008 (Multi-circuit tester set)

Tester knob indication

Continuity ()

Front brake light switch

Color Position	Terminal (B/BI)	Terminal (B/R)
OFF		
ON	○ ———	——— ○

I705H1410020-03

- 4) Connect the front brake light switch lead wire couplers.

Rear Brake Light Switch

Inspect the rear brake light switch in the same manner as the front brake light switch. Refer to "Brake Light Switch Inspection (Page4A-3)".

Rear brake light switch

Color Position	Terminal (B/Y)	Terminal (B/Y)
ON	○	○
OFF		

I705H1410021-01

Brake Fluid Level Check

B705H24106002

Refer to "Brake System Inspection in Section 0B (Page0B-13)".

Brake Hose Inspection

B705H24106003

Refer to "Brake System Inspection in Section 0B (Page0B-13)".

Air Bleeding from Brake Fluid Circuit

B705H24106004

Air trapped in the brake fluid circuit acts like a cushion to absorb a large proportion of the pressure developed by the master cylinder and thus interferes with the full braking performance of the brake caliper. The presence of air is indicated by "sponginess" of the brake lever and also by lack of braking force. Considering the danger to which such trapped air exposes the machine and rider, it is essential that after remounting the brake and restoring the brake system to the normal condition, the brake fluid circuit be purged of air in the following manner:

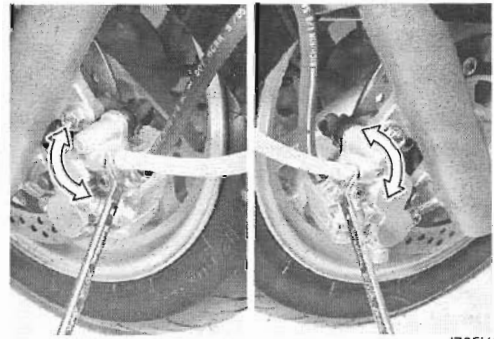
⚠ CAUTION

Handle brake fluid with care: the fluid reacts chemically with paint, plastic, rubber materials, etc.

Front Brake

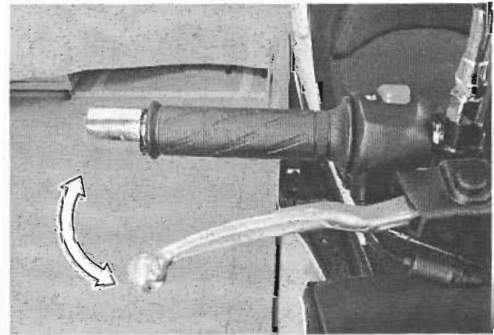
- 1) Fill the master cylinder reservoir to the top of the inspection window. Place the reservoir cap to prevent dirt from entering.

- 2) Attach a hose to the air bleeder valve, and insert the free end of the hose into a receptacle.



I705H1410002-03

- 3) Squeeze and release the brake lever several times in rapid succession and squeeze the lever fully without releasing it.



I705H1410022-01

- 4) Loosen the air bleeder valve by turning it a quarter of a turn so that the brake fluid runs into the receptacle, this will remove the tension of the brake lever causing it to touch the handlebar grip.
- 5) Close the air bleeder valve, pump and squeeze the lever, and open the valve.
- 6) Repeat this process until the fluid flowing into the receptacle no longer contains air bubbles.

NOTE

While bleeding the brake system, replenish the brake fluid in the reservoir as necessary. Make sure that there is always some fluid visible in the reservoir.

4A-5 Brake Control System and Diagnosis:

- 7) Close the air bleeder valve and disconnect the hose.
- 8) Fill the reservoir with brake fluid to the top of the inspection window.

Tightening torque

Air bleeder valve (Front brake): 6.0 N·m (0.6 kgf-m, 4.5 lb-ft)

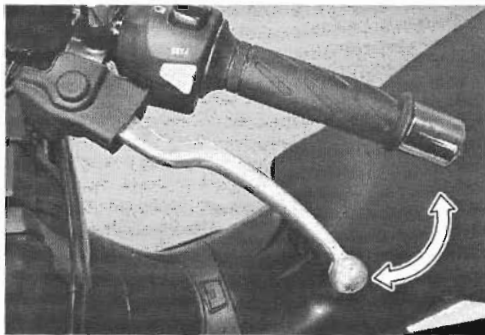
- 9) Install the reservoir cap.

Rear Brake

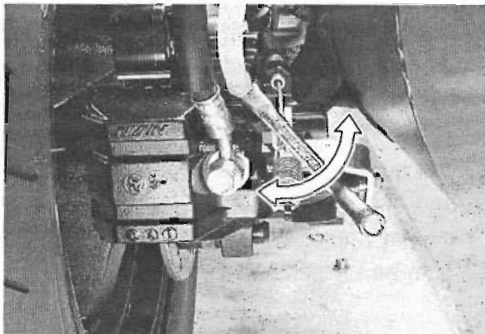
Bleed air from the rear brake in the same manner as the front brake.

Tightening torque

Air bleeder valve (Rear brake): 6.0 N·m (0.6 kgf-m, 4.5 lb-ft)



I705H1410023-01



I705H1410024-01

Brake Fluid Replacement

B705H24106005

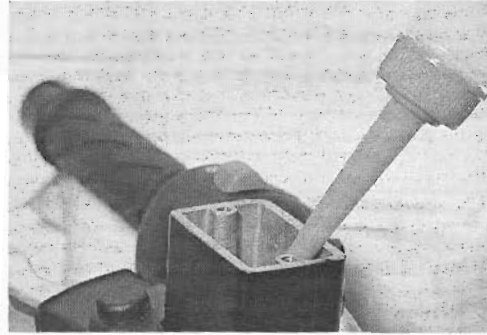
⚠ CAUTION

Handle brake fluid with care: the fluid reacts chemically with paint, plastic, rubber materials, etc.

Front Brake

- 1) Place the motorcycle on a level surface and keep the handlebars straight.

- 2) Remove the brake fluid reservoir cap and diaphragm.
- 3) Suck up the old brake fluid as much as possible.

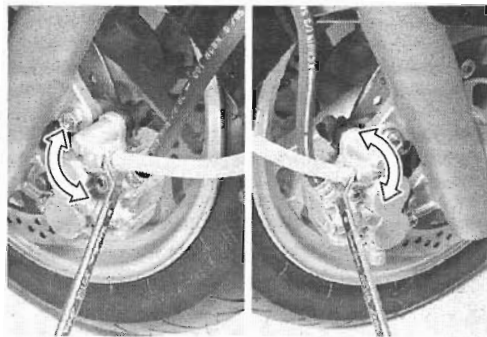


I705H1410003-01

- 4) Fill the reservoir with new brake fluid.

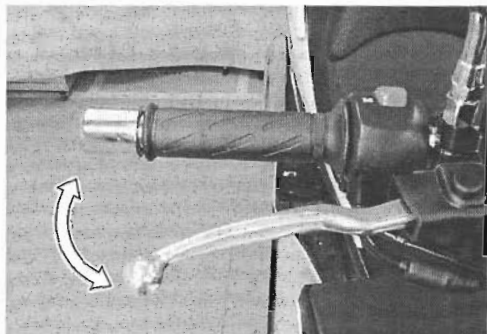
BF: Brake fluid (DOT 4)

- 5) Connect a clear hose to the air bleeder valve and insert the other end of the hose into a receptacle.



I705H1410002-03

- 6) Loosen the air bleeder valve and pump the brake lever until the old brake fluid flows out of the brake system.

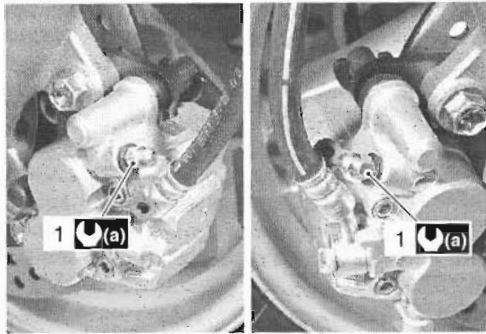


I705H1410022-01

- 7) Close the air bleeder valve (1) and disconnect the clear hose.

Tightening torque

Air bleeder valve (Front brake) (a): 6.0 N·m (0.6 kgf·m, 4.5 lb-ft)



I705H1410004-02

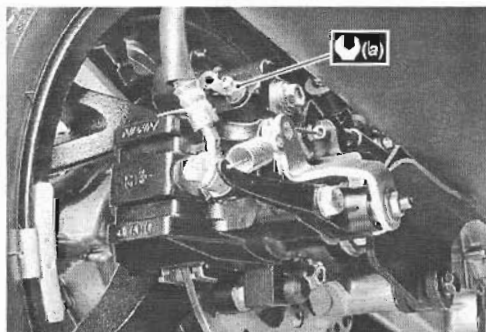
- 8) Fill the reservoir with new brake fluid to the upper line of the reservoir.

Rear brake

Brake fluid replacement in the same manner as the front brake.

Tightening torque

Air bleeder valve (Rear brake) (a): 6.0 N·m (0.6 kgf·m, 4.5 lb-ft)



I705H1410025-01

Front Brake Hose Removal and Installation

B705H24106006

Removal

- 1) Remove the front leg shield. Refer to "Front Leg Shield Removal and Installation in Section 9D (Page9D-14)".
- 2) Drain brake fluid. Refer to "Brake Fluid Replacement (Page4A-5)".
- 3) Remove the front brake hoses. Refer to "Front Brake Hose Routing Diagram (Page4A-1)".

Installation

⚠ CAUTION

The seal washers should be replaced with the new ones to prevent fluid leakage.

- 1) Install the front brake hose. Refer to "Front Brake Hose Routing Diagram (Page4A-1)".
- 2) Bleed air from the front brake system. Refer to "Air Bleeding from Brake Fluid Circuit (Page4A-4)".
- 3) Reinstalled remove the parts.

Rear Brake Hose Removal and Installation

B705H24106007

Removal

- 1) Remove the right foot board. Refer to "Footboard Removal and Installation in Section 9D (Page9D-21)".
- 2) Drain brake fluid. Refer to "Brake Fluid Replacement (Page4A-5)".
- 3) Remove the rear brake hose. Refer to "Rear Brake Hose Routing Diagram (Page4A-2)".

Installation

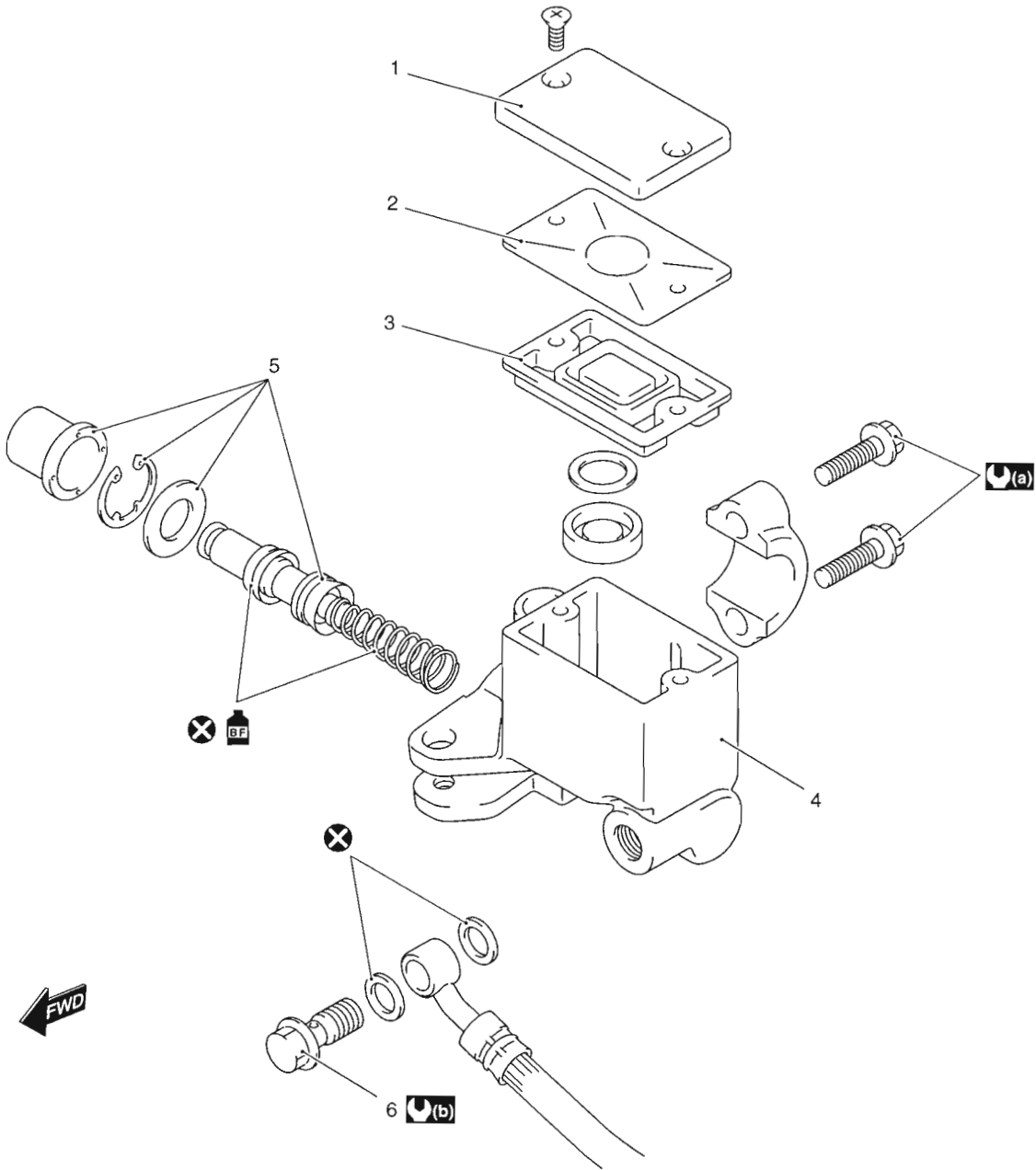
⚠ CAUTION

The seal washers should be replaced with the new ones to prevent fluid leakage.

- 1) Install the rear brake hose. Refer to "Rear Brake Hose Routing Diagram (Page4A-2)".
- 2) Bleed air from the rear brake system. Refer to "Air Bleeding from Brake Fluid Circuit (Page4A-4)".
- 3) Reinstalled remove the parts.

Front Brake Master Cylinder Components

B705H24106008



I705H1410026-06

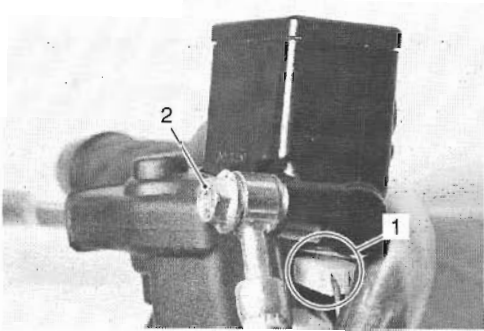
1. Reservoir cap	4. Master cylinder	(a) : 10 N·m (1.0 kgf·m, 7.0 lb-ft)	BF : Apply brake fluid.
2. Plate	5. Piston/Cup set	(b) : 23 N·m (2.3 kgf·m, 16.5 lb-ft)	
3. Diaphragm	6. Brake hose union bolt	X : Do not reuse.	

Front Brake Master Cylinder Assembly Removal and Installation

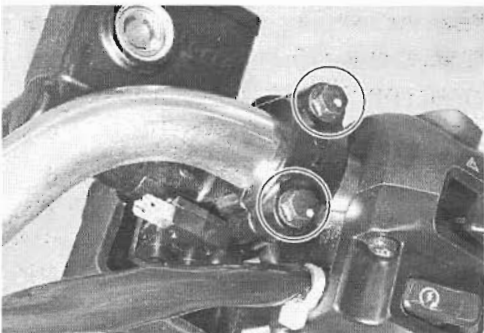
B705H24106009

Removal

- 1) Remove the handlebar cover. Refer to "Handlebar Cover Removal and Installation in Section 9D (Page9D-13)".
- 2) Remove the rear view mirror.
- 3) Drain the brake fluid. Refer to "Brake Fluid Replacement (Page4A-5)".
- 4) Disconnect the front brake light switch lead wire couplers (1).
- 5) Place a rag underneath the union bolt (2) on the master cylinder to catch any split brake fluid. Remove the brake hose union bolt and disconnect the brake hose.
- 6) Remove the master cylinder assembly.



I705H1410005-01



I705H1410006-01

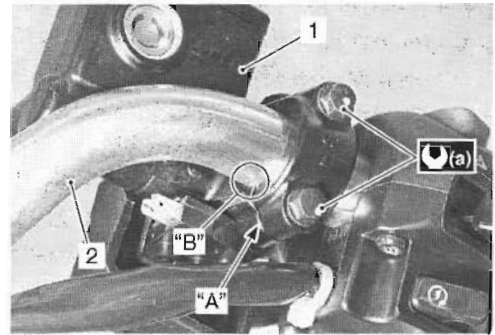
Installation

Install the front brake master cylinder in the reverse order of removal. Pay attention to the following points:

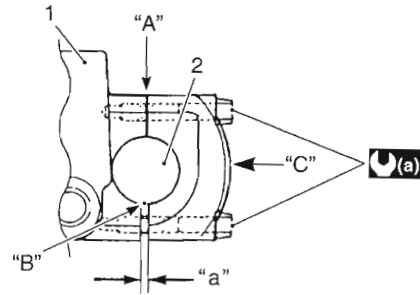
- When installing the master cylinder (1) onto the handlebars (2), align the master cylinder holder's mating surface "A" with the punch mark "B" on the handlebars (2) and tighten the upper holder bolt first temporarily to provide clearance on the lower side and then tighten both of the bolts to the specified torque.

Tightening torque

Master cylinder holder bolt (a): 10 N·m (1.0 kgf-m, 7.0 lb-ft)



I705H1410007-02



I705H1410018-02

"C": "Up" mark	"a": Clearance
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4A-9 Brake Control System and Diagnosis:

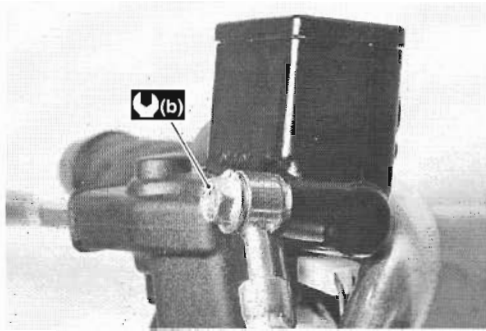
- After setting the brake hose union to the stopper, tighten the union bolt to the specified torque.

⚠ CAUTION

The seal washers should be replaced with the new ones to prevent fluid leakage.

Tightening torque

Brake hose union bolt (b): 23 N·m (2.3 kgf-m, 16.5 lb-ft)



I705H1410008-01

- Bleed air from the brake system. Refer to "Air Bleeding from Brake Fluid Circuit (Page4A-4)".

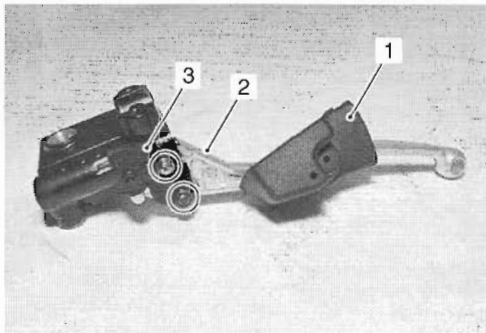
Front Master Cylinder / Brake Lever Disassembly and Assembly

B705H24106010

Refer to "Front Brake Master Cylinder Assembly Removal and Installation (Page4A-8)".

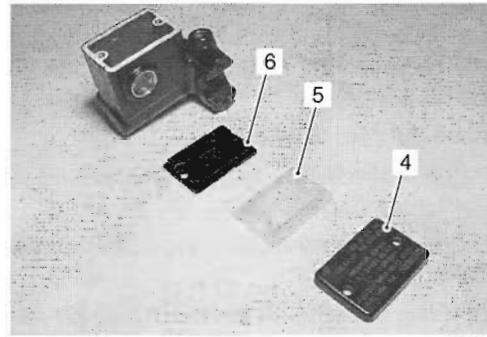
Disassembly

- 1) Remove the dust cover (1), brake lever (2) and brake light switch (3).



I705H1410009-01

- 2) Remove the reservoir cap (4), plate (5) and diaphragm (6).

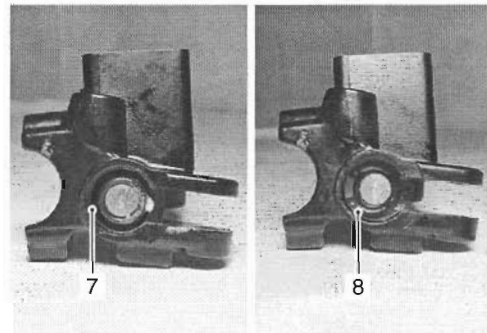


I705H1410010-02

- 3) Pull out the dust boot (7) and remove the snap ring (8) using the special tool.

Special tool

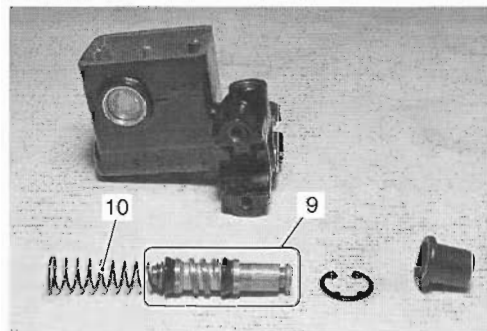
 : 09900-06108 (Snap ring pliers)



I705H1410011-01

- 4) Remove the following parts from the master cylinder.

- Piston/Cup set (9)
- Spring (10)



I705H1410012-01

Assembly

Assemble the master cylinder in the reverse order of disassembly. Pay attention to the following points:

CAUTION

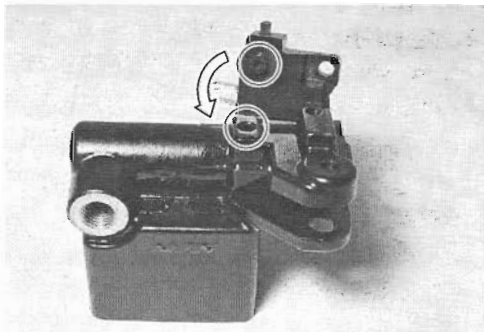
- Wash the master cylinder components with new brake fluid before reassembly.
- Do not wipe the brake fluid off after washing the components.
- When washing the components, use the specified brake fluid. Never use different types of fluid or cleaning solvents such as gasoline, kerosine, etc.
- Apply brake fluid to the master cylinder bore and all of the master cylinder component to be inserted into the bore.

BF: Brake fluid (DOT 4)



1649G1410024-01

- When installing the brake light switch, align the projection on the switch with the hole in the master cylinder.

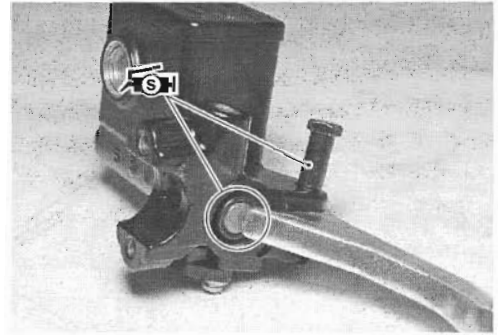


1705H1410013-01

- Apply grease to the brake lever pivot bolt.

- Apply grease to the contact point between piston and brake lever.

FSH: Grease 99000-25100 (SUZUKI Silicone Grease or equivalent)



1705H1410014-01

Tightening torque

Brake lever pivot bolt: 1.0 N·m (0.1 kgf-m, 0.72 lb-ft)

Brake lever pivot bolt lock-nut: 6.0 N·m (0.6 kgf-m, 4.5 lb-ft)

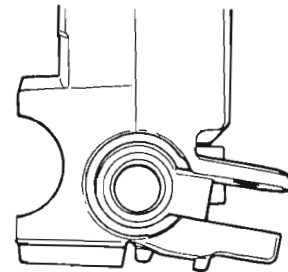
Front Master Cylinder Parts Inspection

B705H24106011

Refer to "Front Master Cylinder / Brake Lever Disassembly and Assembly (Page4A-9)".

Master Cylinder

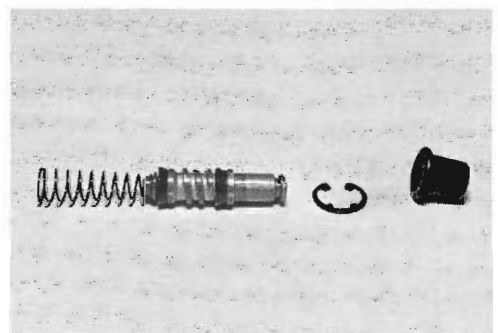
Inspect the master cylinder bore for any scratches, corrosion or other damage. If any defects are found, replace it with the new ones.



1649G1410027-01

Inner Parts

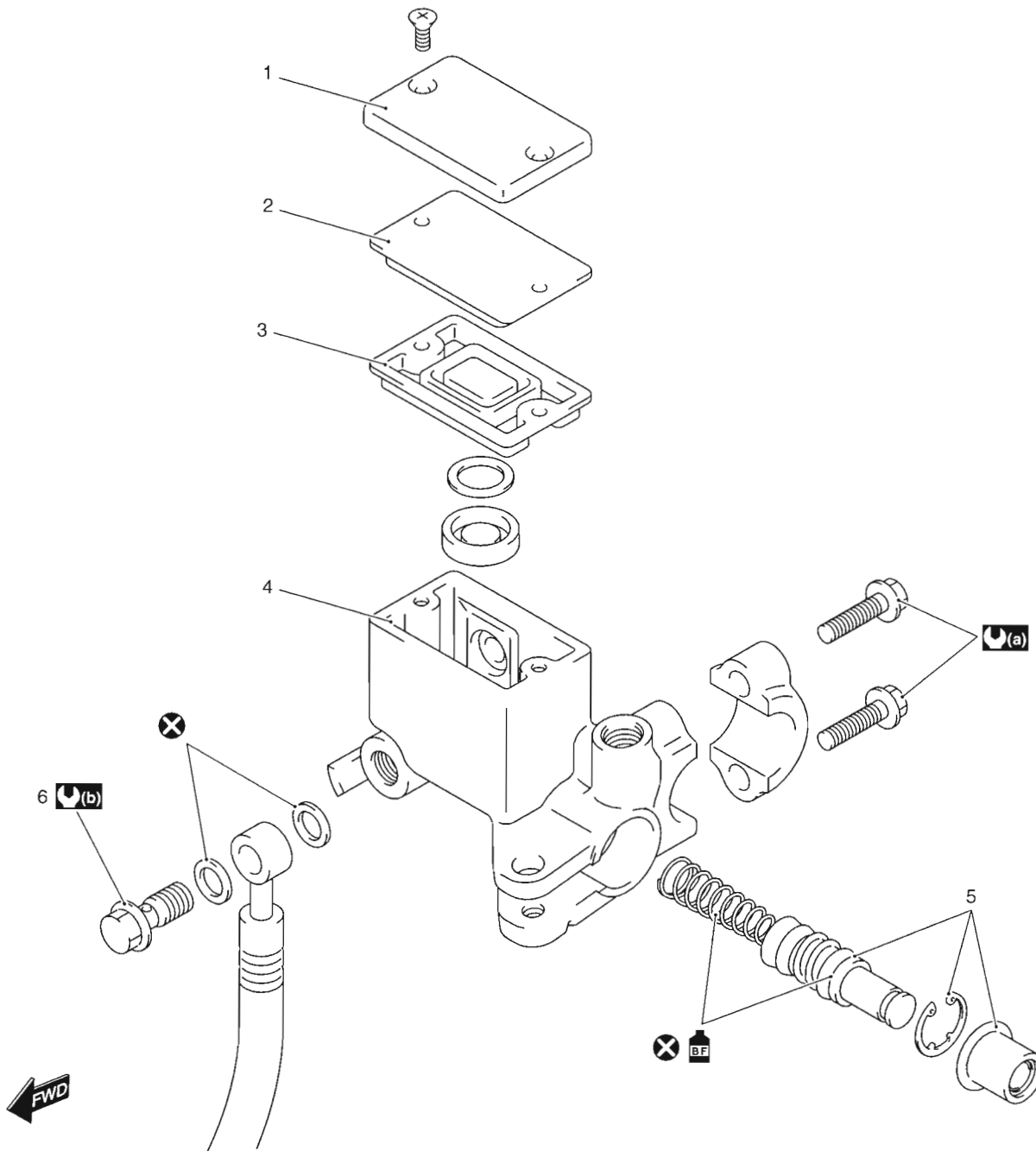
Inspect the piston/cup set, spring, snap ring and dust boot surface for any scratches or other damage. If any defects are found, replace it with the new ones.



1705H1410015-01

Rear Brake Master Cylinder Components

B705H24106012



I705H1410027-04

1. Reservoir cap	4. Master cylinder	(a) : 10 N·m (1.0 kgf·m, 7.0 lb-ft)	⊗ : Do not reuse.
2. Plate	5. Piston/Cup set	(b) : 23 N·m (2.3 kgf·m, 16.5 lb-ft)	
3. Diaphragm	6. Brake hose union bolt	BF : Apply brake fluid.	

Rear Brake Master Cylinder Assembly Removal and Installation

B705H24106013

Refer to "Front Brake Master Cylinder Assembly Removal and Installation (Page4A-8)".

Removal

Remove the rear brake master cylinder in the same manner as the front brake master cylinder. Refer to "Front Brake Master Cylinder Assembly Removal and Installation (Page4A-8)".

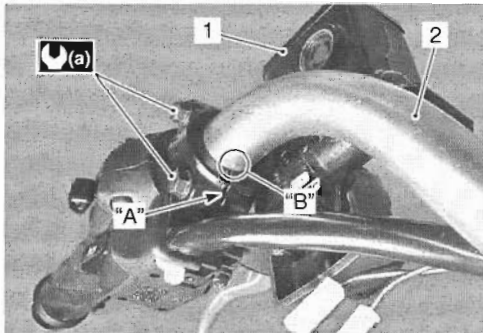
Installation

Install the rear brake master cylinder in the same manner as the front brake master cylinder. Refer to "Front Brake Master Cylinder Assembly Removal and Installation (Page4A-8)".

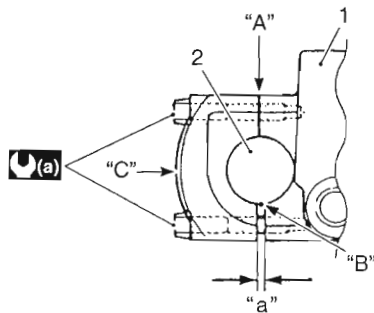
- When installing the master cylinder (1) onto the handlebars (2), align the master cylinder holder's mating surface "A" with the punch mark "B" on the handlebars (2) and tighten the upper holder bolt first temporarily to provide clearance on the lower side and then tighten both to the bolts to the specified torque.

Tightening torque

Master cylinder holder bolt (a): 10 N·m (1.0 kgf-m, 7.0 lb-ft)



I705H1410016-02



I705H1410019-02

"C": "UP" mark	"a": Clearance
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- After setting the brake hose union to the stopper, tighten the union bolt to the specified torque.

⚠ CAUTION

The seal washers should be replaced with the new ones to prevent fluid leakage.

Tightening torque

Brake hose union bolt (b): 23 N·m (2.3 kgf-m, 16.5 lb-ft)



I705H1410017-01

- Bleed air from the brake system. Refer to "Air Bleeding from Brake Fluid Circuit (Page4A-4)".

Rear Master Cylinder/Brake Lever Disassembly and Assembly

B705H24106014

Refer to "Rear Brake Master Cylinder Assembly Removal and Installation (Page4A-12)".

Refer to "Rear Brake Master Cylinder Components (Page4A-11)".

Disassembly

Disassemble the rear brake master cylinder/brake lever in the same manner as the front brake master cylinder/brake lever. Refer to "Front Master Cylinder / Brake Lever Disassembly and Assembly (Page4A-9)".

Assembly

Assemble the rear brake master cylinder/brake lever in the same manner as the front brake master cylinder/brake lever. Refer to "Front Master Cylinder / Brake Lever Disassembly and Assembly (Page4A-9)".

Rear Master Cylinder Parts Inspection

B705H24106015

- 1) Inspect the rear master cylinder parts in the same manner as the front brake master cylinder. (Refer to "Front Master Cylinder Parts Inspection (Page4A-10)".)

Specifications

Service Data

B705H24107001

Brake + Wheel

Unit: mm (in)

Item		Standard	Limit
Master cylinder bore	Front & Rear	12.700 – 12.743 (0.500 – 0.502)	—
Master cylinder piston diameter	Front & Rear	12.657 – 12.684 (0.498 – 0.499)	—
Brake fluid type		DOT 4	—

Tightening Torque Specifications

B705H24107002

Fastening part	Tightening torque			Note
	N·m	kgf·m	lb·ft	
Air bleeder valve (Front brake)	6.0	0.6	4.5	☞ (Page4A-5) / ☞ (Page4A-6)
Air bleeder valve (Rear brake)	6.0	0.6	4.5	☞ (Page4A-5) / ☞ (Page4A-6)
Master cylinder holder bolt	10	1.0	7.0	☞ (Page4A-8) / ☞ (Page4A-12)
Brake hose union bolt	23	2.3	16.5	☞ (Page4A-9) / ☞ (Page4A-12)
Brake lever pivot bolt	1.0	0.1	0.72	☞ (Page4A-10)
Brake lever pivot bolt lock-nut	6.0	0.6	4.5	☞ (Page4A-10)

NOTE

The specified tightening torque is also described in the following.

“Front Brake Master Cylinder Components (Page4A-7)”

“Rear Brake Master Cylinder Components (Page4A-11)”

Reference:

For the tightening torque of fastener not specified in this section, refer to “Tightening Torque Specifications in Section 0C (Page0C-7)”.

Special Tools and Equipment

Recommended Service Material

B705H24108001

Material	SUZUKI recommended product or Specification		Note
Brake fluid	DOT 4	—	☞ (Page4A-5) / ☞ (Page4A-10)
Grease	SUZUKI Silicone Grease or equivalent	P/No.: 99000-25100	☞ (Page4A-10)

NOTE

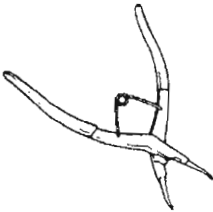

Required service material is also described in the following.

“Front Brake Master Cylinder Components (Page4A-7)”

“Rear Brake Master Cylinder Components (Page4A-11)”

Special Tool

B705H24108002

09900-06108 Snap ring pliers ☞ (Page4A-9)		09900-25008 Multi-circuit tester set ☞ (Page4A-3)	
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