

Diagnostic Information and Procedures

Brake Symptom Diagnosis

B817H34104001

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 and disk.	<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 and 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>
	Worn piston seal and dust seal.	<i>Replace piston seal and dust seal.</i>
Brake drags	Rusty part.	<i>Clean and lubricate.</i>
	Insufficient brake lever or brake pedal pivot lubrication.	<i>Lubricate.</i>

Repair Instructions

Brake Pedal Height Inspection and Adjustment

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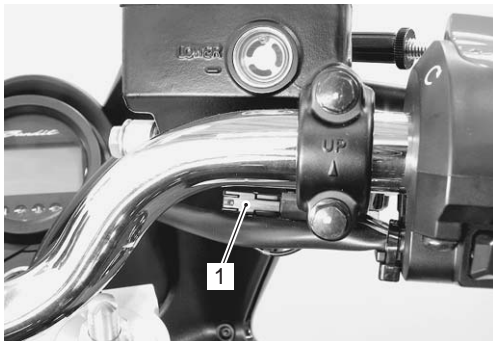
Refer to "Brake System Inspection in Section 0B (Page 0B-18)".

Front Brake Light Switch Inspection

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Inspect the front brake light switch in the following procedures:

- 1) Disconnect the front brake light switch lead coupler (1).



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- 2) Inspect the switch for continuity with a tester. If any abnormality is found, replace the front brake light switch with a new one. Refer to "Front Brake Master Cylinder / Brake Lever Disassembly and Assembly (Page 4A-10)".

Special tool

 : 09900-25008 (Multi-circuit tester set)

Tester knob indication

Continuity (•••)

Color Position	Terminal (B/G)	Terminal (B)
OFF		
ON	○ ————— ○	○ ————— ○

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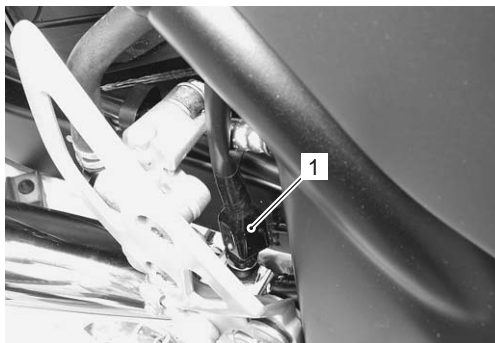
- 3) Connect the front brake light switch lead coupler.

Rear Brake Light Switch Inspection

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Inspect the rear brake light switch in the following procedures:

- 1) Disconnect the rear brake light switch lead coupler (1).



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- 2) Inspect the switch for continuity with a tester. If any abnormality is found, replace the rear brake light switch with a new one.

Special tool

: 09900-25008 (Multi-circuit tester set)

Tester knob indication

Continuity (•)))

Rear brake light switch

Color Position	Terminal (O/G)	Terminal (W/B)
ON	○	○
OFF		

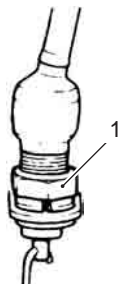
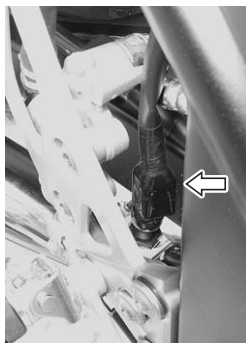
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- 3) Connect the rear brake light switch lead coupler.

Rear Brake Light Switch Inspection and Adjustment

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Check the rear brake light switch so that the brake light will come on just before pressure is felt when the brake pedal is depressed. If the brake light switch adjustment is necessary, turn the adjuster nut (1) in or out while holding the brake pedal.



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Brake Fluid Level Check

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Refer to "Brake System Inspection in Section 0B (Page 0B-18)".

Brake Hose Inspection

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Refer to "Brake System Inspection in Section 0B (Page 0B-18)".

Air Bleeding from Brake Fluid Circuit

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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

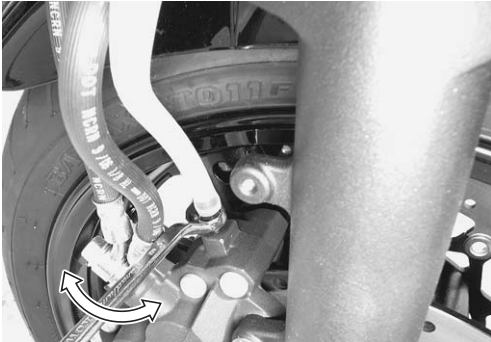
- 1) Fill the master cylinder reservoir to the top of the inspection window. Place the reservoir cap to prevent dirt from entering.



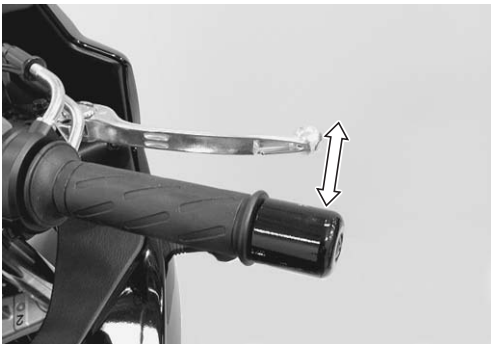
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4A-6 Brake Control System and Diagnosis:

- 2) Attach a hose to the air bleeder valve, and insert the free end of the hose into a receptacle.
- 3) Squeeze and release the brake lever several times in rapid succession and squeeze the lever fully without releasing it.
- 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.



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- 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.

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

Tightening torque

Air bleeder valve (Front brake): 8.5 N-m (0.85 kgf-m, 6.1 lb-ft)

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



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- 9) Install the reservoir cap.

Rear Brake

Bleed air from the rear brake system as the same manner of front brake.

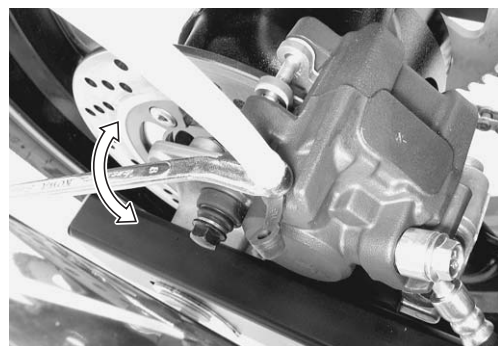
- Remove the right frame cover. Refer to "Exterior Parts Removal and Installation in Section 9D (Page 9D-6)".

NOTE

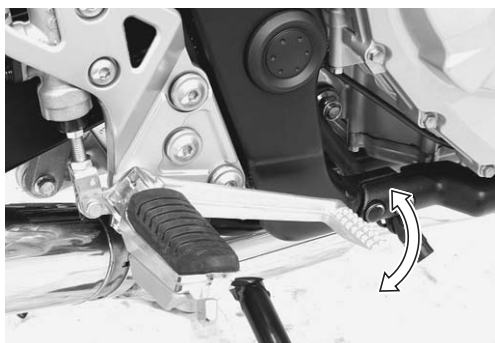
The only difference of bleeding operation from the front brake is that the rear master cylinder is actuated by a pedal.

Tightening torque

Air bleeder valve (Rear brake): 6 N-m (0.6 kgf-m, 4.5 lb-ft)



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- Install the right frame cover. Refer to “Exterior Parts Removal and Installation in Section 9D (Page 9D-6)”.

Brake Fluid Replacement

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⚠ 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.

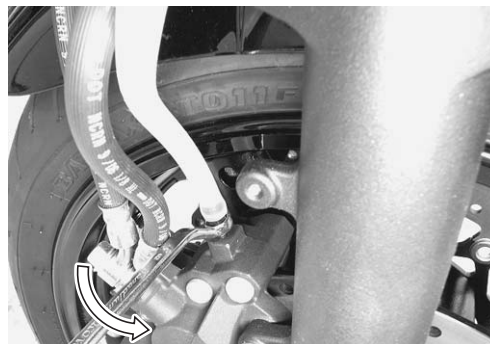


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- 4) Fill the reservoir with new brake fluid.

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.



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



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

Tightening torque

Air bleeder valve (Front brake) (a): 8.5 N·m (0.85 kgf·m, 6.1 lb·ft)

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



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- 9) Install the reservoir cap.

4A-8 Brake Control System and Diagnosis:

Rear Brake

- 1) Place the motorcycle on a level surface.
- 2) Remove the right frame cover. Refer to “Exterior Parts Removal and Installation in Section 9D (Page 9D-6)”.
- 3) Remove the brake fluid reservoir cap and diaphragm.
- 4) Suck up the old brake fluid as much as possible.



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- 5) Fill the reservoir with new brake fluid.

BF: Brake fluid (DOT 4)

- 6) Connect a clear hose to the air bleeder valve and insert the other end of the hose into a receptacle.
- 7) Loosen the air bleeder valve and pump the brake pedal until the old brake fluid flows out of the brake system.



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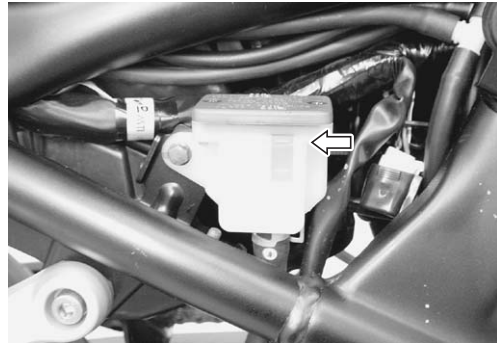
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- 8) Close the air bleeder valve and disconnect the clear hose.

Tightening torque

Air bleeder valve (Rear brake) (a): 6 N·m (0.6 kgf·m, 4.5 lb-ft)

- 9) Fill the reservoir with brake fluid to the upper mark reservoir.



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Brake Hose Removal and Installation

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Removal

- 1) Drain brake fluid. Refer to “Brake Fluid Replacement (Page 4A-7)”.
- 2) Remove the front and rear brake hoses as shown in the front and rear brake hose routing diagram. Refer to “Front Brake Hose Routing Diagram (GSF650) (Page 4A-1)” or “Front Brake Hose Routing Diagram (GSF650S) (Page 4A-2)” and “Rear Brake Hose Routing Diagram (Page 4A-3)”.

Installation

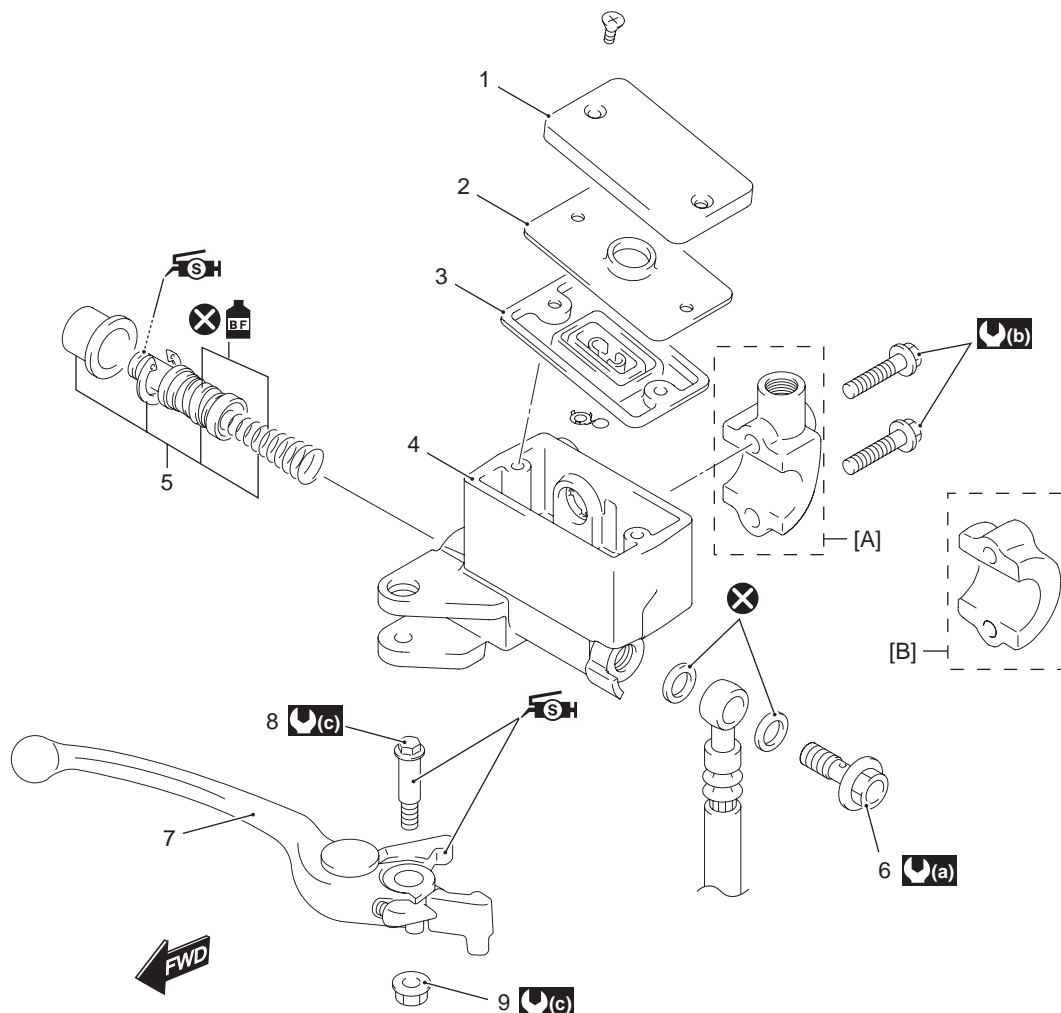
⚠ CAUTION

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

- 1) Install the front and rear brake hoses as shown in the front and rear brake hose routing diagram. Refer to “Front Brake Hose Routing Diagram (GSF650) (Page 4A-1)” or “Front Brake Hose Routing Diagram (GSF650S) (Page 4A-2)” and “Rear Brake Hose Routing Diagram (Page 4A-3)”.
- 2) Bleed air from the front and rear brake system. Refer to “Air Bleeding from Brake Fluid Circuit (Page 4A-5)”.

Front Brake Master Cylinder Components

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1. Reservoir cap	7. Brake lever	U(b) : 10 N-m (1.0 kgf-m, 7.0 lb-ft)
2. Plate	8. Brake lever pivot bolt	U(c) : 6.0 N-m (0.6 kgf-m, 4.5 lb-ft)
3. Diaphragm	9. Brake lever pivot bolt lock-nut	BF : Apply brake fluid.
4. Master cylinder	[A]: For GSF650	SH : Apply silicone grease.
5. Piston/Cup set	[B]: For GSF650S	X : Do not reuse.
6. Brake hose union bolt	U(a) : 23 N-m (2.3 kgf-m, 16.5 lb-ft)	

Front Brake Master Cylinder Assembly Removal and Installation

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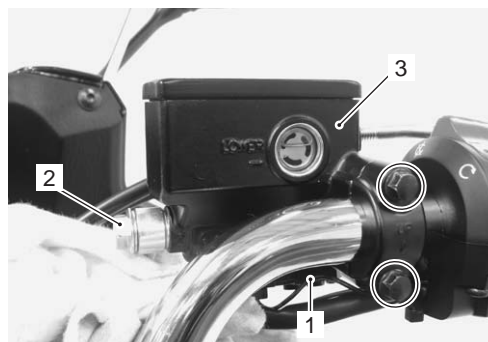
Removal

- 1) Drain brake fluid. Refer to "Brake Fluid Replacement (Page 4A-7)".
- 2) Disconnect the front brake light switch lead coupler (1).
- 3) Place a rag underneath the brake hose union bolt (2) on the master cylinder to catch any spilt brake fluid.

CAUTION

The brake fluid reacts chemically with paint, plastics, rubber materials, etc., and will damage them severely.

- 4) Remove the brake hose union bolt (2) and disconnect the brake hose.
- 5) Remove the right rear view mirror. (GSF650S)
- 6) Remove the master cylinder assembly (3).



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