

Parking Brake

General Description

Parking Brake System (Brake-lock System) Description

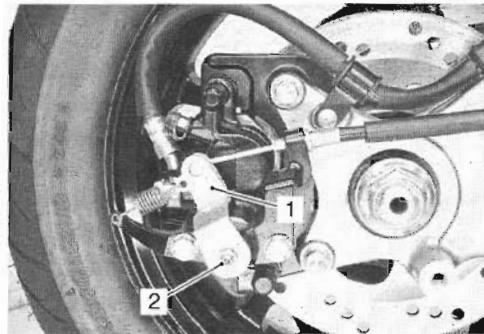
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Parking Brake (Brake-lock) Operation

The brake-lock arm turns through the brake-lock cable as soon as pulling the brake-lock lever. The turning movement is converted to axial movement by the brake-lock adjuster connected to the body with the thread "A".

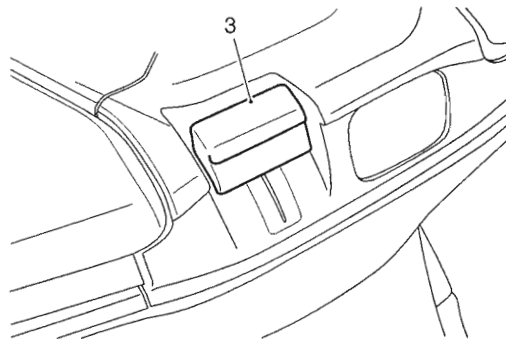
The axial movement transmits automatically from sleeve piston to adjust-bolt. The adjust-bolt presses brake pad to brake disk through the adjust-nut/caliper piston. In this bout, the adjust-bolt and adjust-nut move together with the relation as shown in the figure.

When releasing the brake-lock lever, each part return to home position, the caliper piston will be returned by an elasticity transform of piston seal, the adjust-bolt will be returned by the adjust-bolt spring, the brake-lock adjuster will be returned by the return-spring.



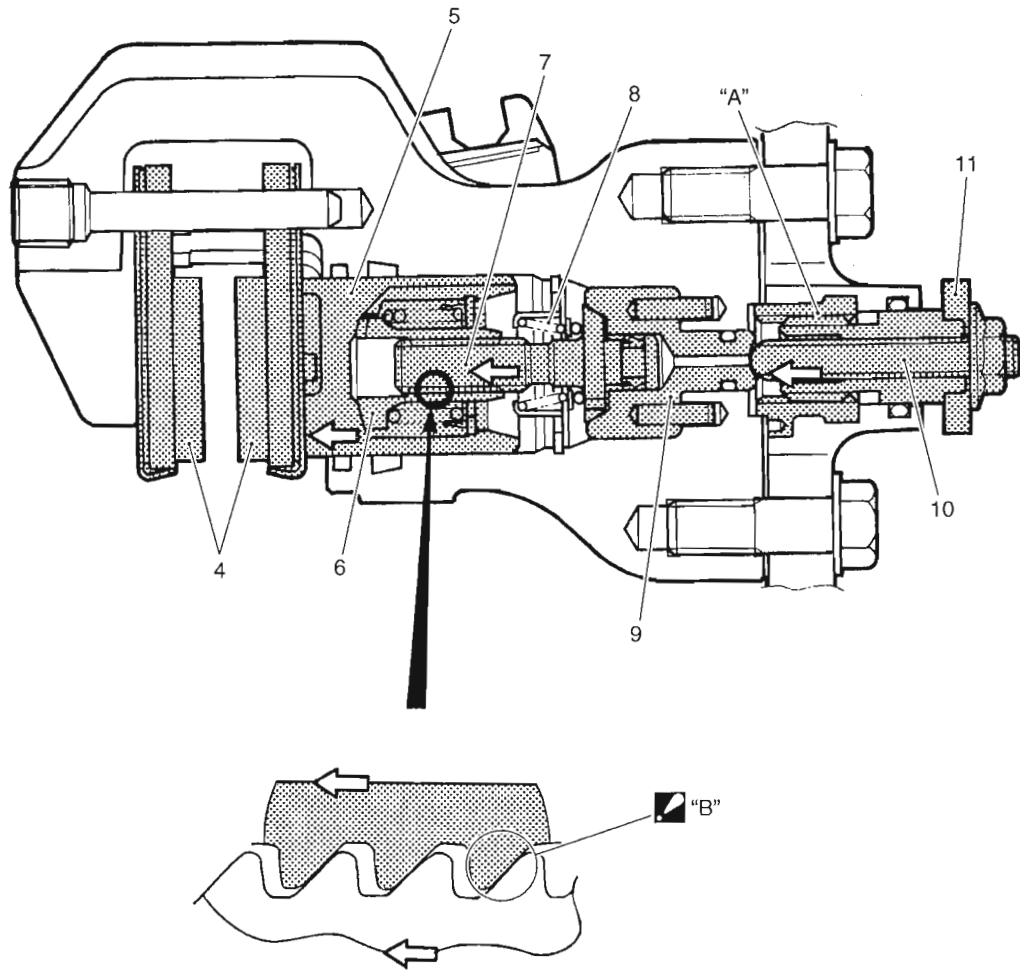
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1. Brake-lock arm	2. Brake-lock adjuster
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3. Brake-lock lever



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4. Brake pad	9. Sleeve piston
5. Caliper piston	10. Brake-lock adjuster
6. Adjust nut	11. Brake-lock arm
7. Adjust bolt	"A": Thread
8. Adjust bolt spring	▣ "B": The adjust bolt presses the adjust nut.

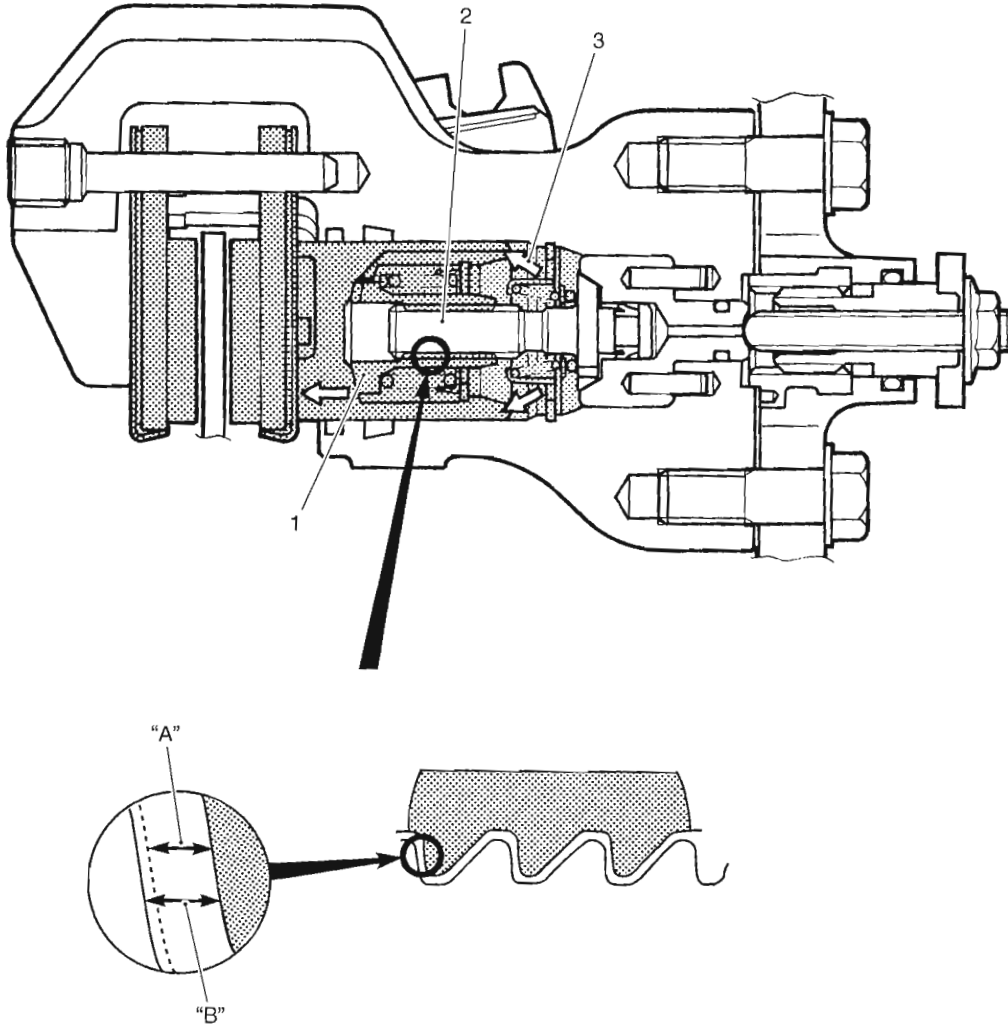
4D-3 Parking Brake:

Automatic Parking Brake Adjuster System (Automatic Brake-lock Adjuster System)

The automatic brake-lock adjuster system is equipped on the brake-lock. If the brake pad worn, the adjust-bolt/nut adjust the position of caliper piston so as to keep the certain clearance between brake pad and brake disk.

Operation (Normal Condition → Braking)

The hydraulic pressure by brake lever operation acts on the adjust-nut/caliper piston. The adjust-bolt threads and adjust-nut threads have a clearance. The piston stroke when braking is shorter than clearance, thus, the braking operation will finish without automatic brake-lock adjuster system operation.



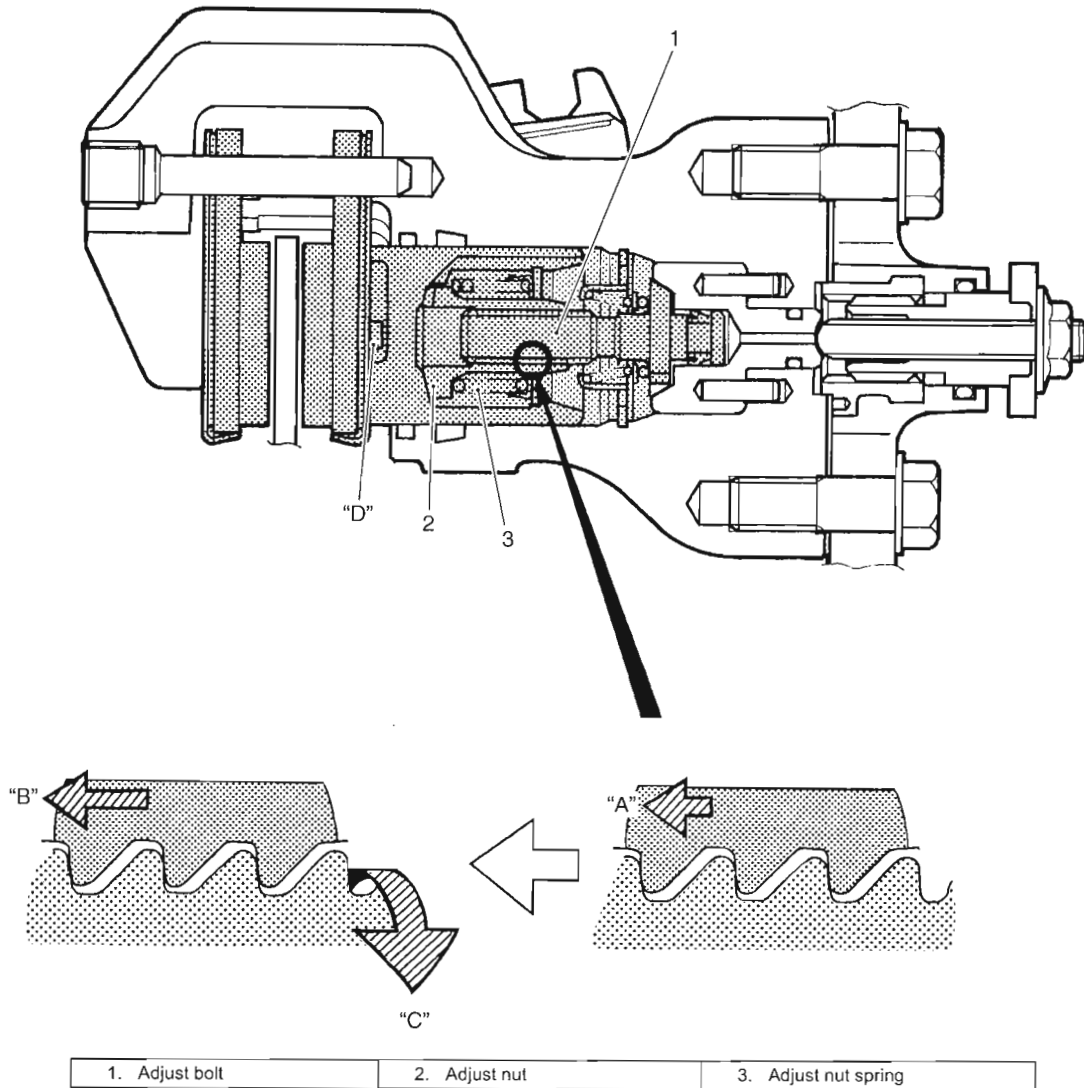
1. Adjust nut	3. Hydraulic pressure	"B": Clearance
2. Adjust bolt	"A": Caliper piston stroke	

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Operation (Brake Pads are Worn → Braking → Automatic Adjuster Operate)

If braking when the brake pad being worn, the caliper piston/adjust nut move "A" until the clearance depended on abrasion is done away.

The axial movement "B" is converted to rotary movement and acts on the adjust bolt and adjust-nut. Only the adjust-bolt turns "C" because the caliper piston/adjust-nut is fixed to the brake pad with caliper piston groove and pad boss at "D". Thus, the adjust-bolt keeps original position with rotating as well as the caliper piston/adjust-nut moves outside. The adjust-bolt stops rotating once the brake pad-to-disc clearance become zero, so the automatic adjuster operation is completed.

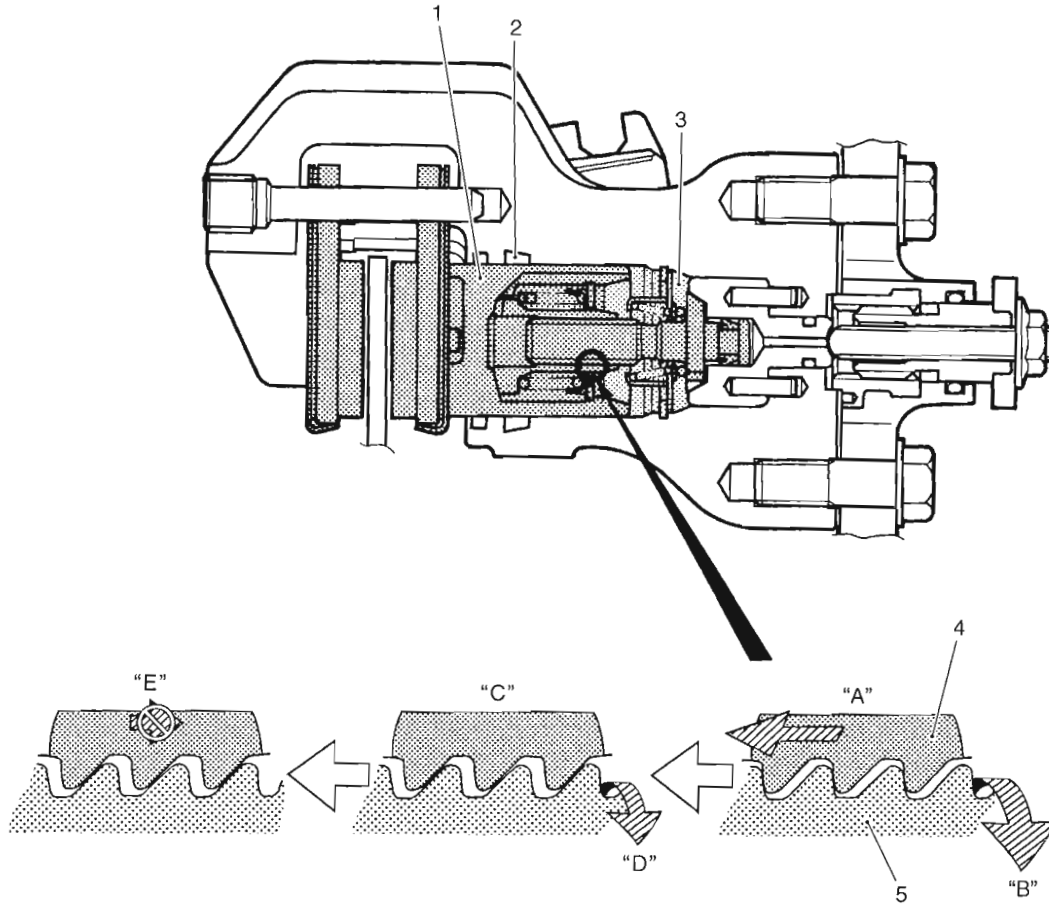


4D-5 Parking Brake:

Over-adjust Prevention Mechanism

When rapid braking "A", the automatic brake-lock adjuster operation works too fast "B".

The caliper piston/adjust nut is forced to stop "C" as soon as the brake pad contacts with brake disk, but the adjust bolt turns by inertia force "D" after that. The adjust bolt stops after the adjust-bolt/nut clearance becomes zero. On this account, the caliper piston/adjust nut can not return back "E" using the elasticity transform of piston seal when releasing the brake lever. It is the over-adjust condition.

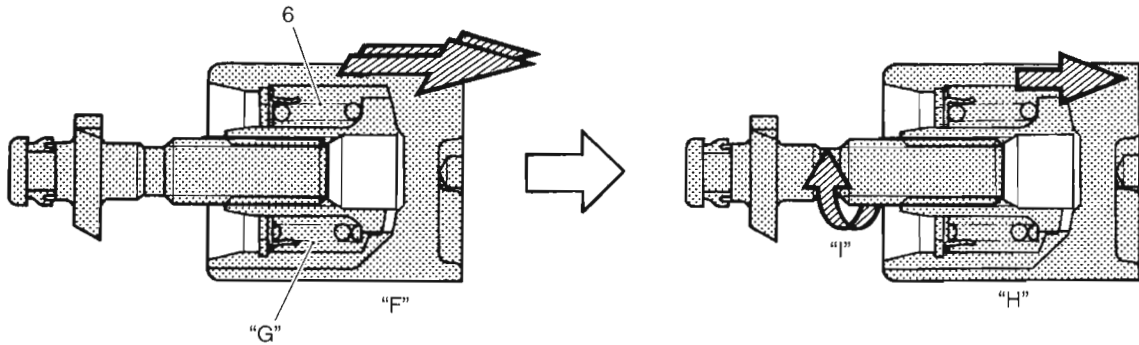


1. Caliper piston	"A": Rapid braking
2. Piston seal	"B": Rapid rotation
4. Hydraulic pressure	"C": Sudden stop
4. Adjust nut	"D": Turn by inertia
5. Adjust bolt	"E": Impossible to return

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The spring is equipped between the caliper piston and the adjust-nut for preventing the over-adjust, serves damper in term of rapid caliper piston movement.

The spring compress "A" as soon as the caliper piston moves exponentially "B", the adjust-nut moves "C", "D" behind time. Here with, it is possible to make correct clearance of the adjust bolt/nut because the inertia force with rapid movement does not work the adjust-bolt.



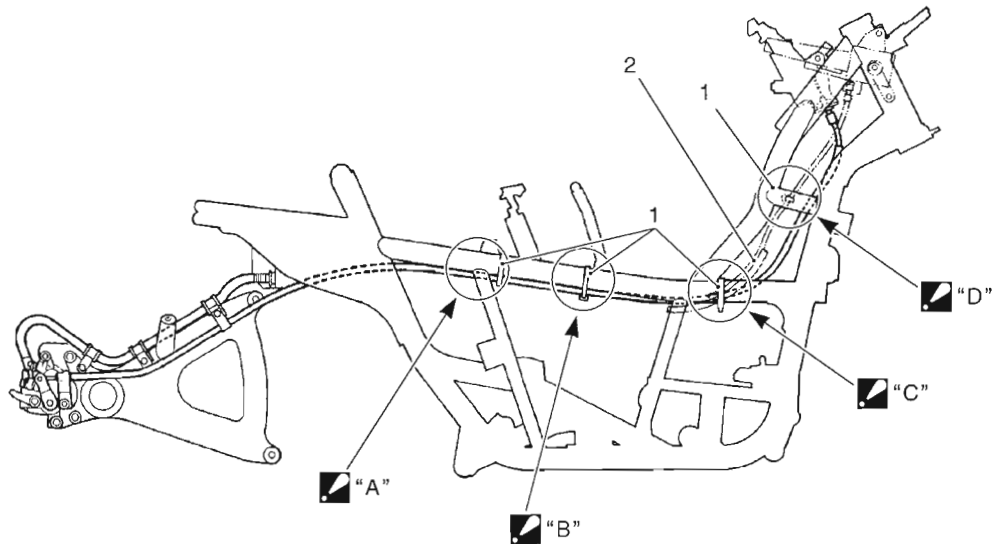
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6. Spring	"G": Spring compresses	"I": Rotate
"F": Rapid braking	"H": Spring tensions/adjuster nut moves	

Schematic and Routing Diagram

Parking Brake Cable (Brake-lock Cable) Routing Diagram

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1. Clamp	☑ "B": Pass the throttle cables through under and inside of the frame. Bind the brake-lock cable, starter motor lead wire and seal-lock cable together.
2. Wire harness	☑ "C": Pass the throttle cables through inside of the frame. Bind the brake-lock cable starter motor lead wire and seal-lock cable together.
☑ "A": Pass the throttle cables through inside of the frame.	☑ "D": Pass the throttle cables through inside of the frame.

Repair Instructions

Parking Brake System (Brake-lock System) Inspection

B705H24406001

Refer to "Parking Brake (Brake-lock) Inspection in Section 0B (Page0B-20)".

Parking Brake System (Brake-lock System) Removal and Installation

B705H24406002

Refer to "Rear Brake Caliper Removal and Installation in Section 4C (Page4C-3)".

Parking Brake System (Brake-lock System) Disassembly and Assembly

B705H24406003

Refer to "Rear Brake Caliper Disassembly and Assembly in Section 4C (Page4C-4)".

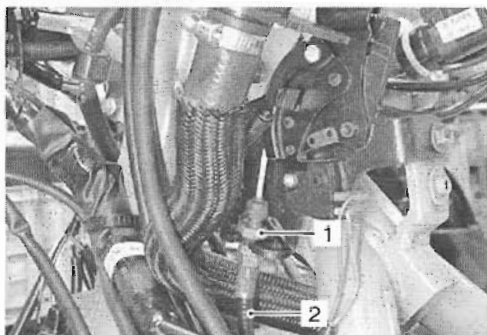
Parking Brake Cable (Brake-lock Cable) Removal and Installation

B705H24406004

Refer to "Parking Brake Cable (Brake-lock Cable) Routing Diagram (Page4D-6)".

Removal

- 1) Remove the front box. Refer to "Front Box Removal and Installation in Section 9D (Page9D-18)".
- 2) Loosen the brake-lock nut (1), remove the brake-lock cable (2).



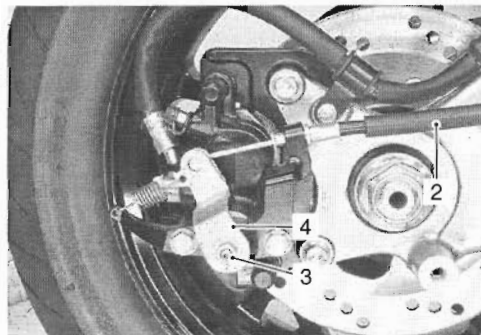
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- 3) Remove the brake hose clamp.



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- 4) Remove the lock-nut (3) and remove the brake-lock arm (4).

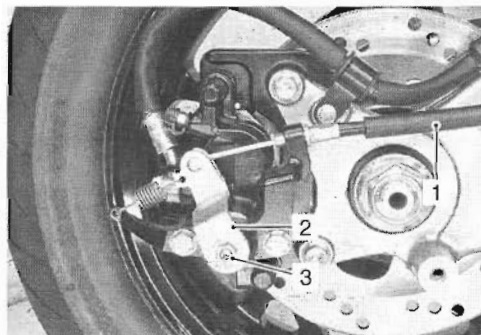


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- 5) Remove the brake-lock cable. Refer to "Parking Brake Cable (Brake-lock Cable) Routing Diagram (Page4D-6)".

Installation

- 1) Install the brake-lock cable. Refer to "Parking Brake Cable (Brake-lock Cable) Routing Diagram (Page4D-6)".
- 2) Assemble the brake-lock cable (1) to brake-lock arm (2), install the lock-nut (3). Refer to "Rear Brake Caliper Removal and Installation in Section 4C (Page4C-3)".

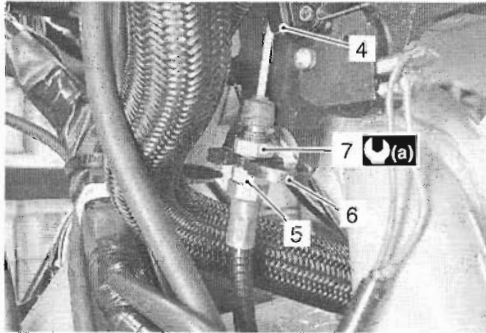


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- 3) Pull the brake-lock lever (4) one notch.
- 4) Tighten the brake-lock cable adjust bolt (5) by hand until it contacts the holder (6).
- 5) Tighten the brake-lock cable lock-nut (7) to the specified torque.

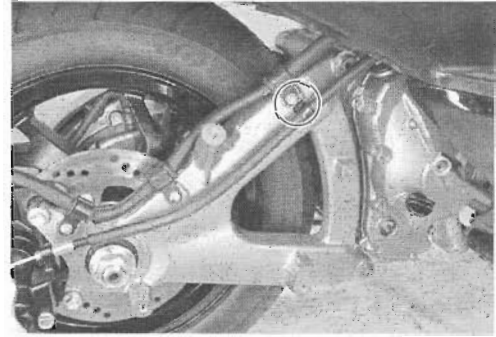
Tightening torque

Brake-lock cable lock-nut (a): 10 N·m (1.0 kgf-m, 7.0 lb-ft)



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- 6) Install the brake hose clamp.



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- 7) Install the front box. Refer to "Front Box Removal and Installation in Section 9D (Page9D-18)".
- 8) After installing, adjust the brake-lock. Refer to "Brake System Inspection in Section 0B (Page0B-13)".

Specifications

Tightening Torque Specifications

B705H24407001

Fastening part	Tightening torque			Note
	N·m	kgf-m	lb-ft	
Brake-lock cable lock-nut	10	1.0	7.0	(Page4D-8)

Reference:

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

