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SECTION **BR** BRAKE SYSTEM

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PRECAUTIONS

PRECAUTIONS

PF0:00001

Precautions for Supplemental Restraint System (SRS) “AIR BAG” and “SEAT BELT PRE-TENSIONER”

GFS00001

The Supplemental Restraint System such as “AIR BAG” and “SEAT BELT PRE-TENSIONER”, used along with a front seat belt, helps to reduce the risk or severity of injury to the driver and front passenger for certain types of collision. Information necessary to service the system safely is included in the SRS and SB section of this Service Manual.

WARNING:

- To avoid rendering the SRS inoperative, which could increase the risk of personal injury or death in the event of a collision which would result in air bag inflation, all maintenance must be performed by an authorized NISSAN/INFINITI dealer.
- Improper maintenance, including incorrect removal and installation of the SRS, can lead to personal injury caused by unintentional activation of the system. For removal of Spiral Cable and Air Bag Module, see the SRS section.
- Do not use electrical test equipment on any circuit related to the SRS unless instructed to in this Service Manual. SRS wiring harnesses can be identified by yellow and/or orange harnesses or harness connectors.

Precautions for Brake System

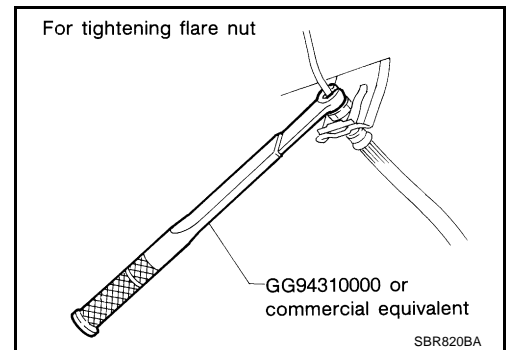
GFS00002

- Clean dust on front brake and rear brake with a vacuum dust collector. Do not blow with compressed air.
- Recommended fluid is brake fluid “DOT 3”.
- Never reuse drained brake fluid.
- Be careful not to splash brake fluid on painted areas; it may cause paint damage. If brake fluid is splashed on painted areas, wash it away with water immediately.
- To clean or wash all parts of master cylinder, disc brake caliper, wheel cylinder, use new brake fluid.
- Never use mineral oils such as gasoline or kerosene. They will ruin rubber parts of the hydraulic system.
- Use a flare nut wrench when removing flare nuts, and use a flare nut torque wrench when tighten flare nuts.
- Always tighten brake lines to the specified torque when installing.
- Before working, turn ignition switch OFF and disconnect electrical connector of ABS actuator and electric unit (control unit) or the battery cables.
- Burnish the new brake surfaces after refinishing or replacing drums or rotors, after replacing pads or linings, or if a soft pedal occurs at very low mileage.

Refer to [BR-29, "BRAKE BURNISHING PROCEDURE"](#) .

WARNING:

Clean brake pads and shoes with a waste cloth, then wipe with a dust collector.



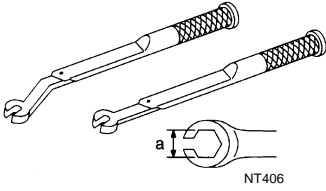
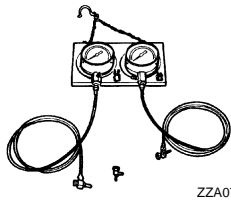
PREPARATION

PREPARATION

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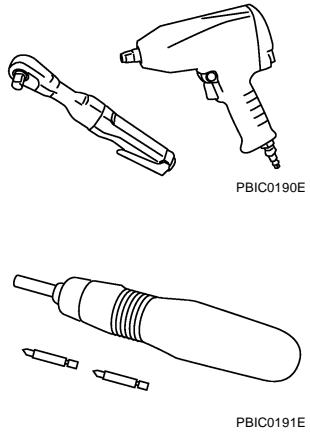
Special Service Tools

GFS00003

Tool number Tool name	Description
GG94310000 Flare nut torque wrench a:10 mm (0.39 in)	 Installing brake tube and hose
KV991V0010 Brake fluid pressure tester	 Brake fluid pressure measurement

Commercial Service Tools

GFS00004

Tool name	Description
Power tool	 Removing front caliper assembly, tires

BRAKE PEDAL

BRAKE PEDAL

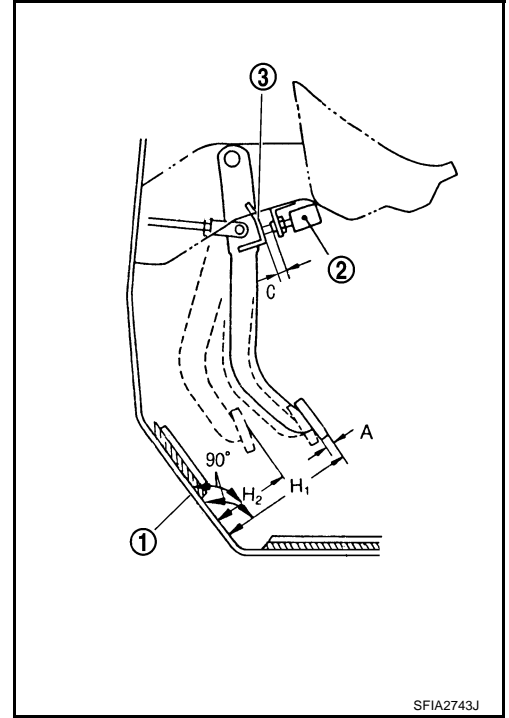
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Inspection and Adjustment

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Play and clearance inspection between brake pedal and floor panel with pedal depressed.

- Check brake pedal play.
- Check brake pedal height from dash lower panel (1).
- Adjust height referring to the following specifications.



H ₁	Brake pedal height (From dash lower panel top surface)	A/T	165.9 – 174.7 mm (6.53 – 6.88 in)
		M/T	158.8 – 167.6 mm (6.25 – 6.60 in)
H ₂	Brake pedal depressed height [Under a force of 490 N (50 kg, 110 lb) with engine running]		153 mm (6.02 in) or more
C	Clearance between bracket (3) and threaded end of the stop lamp switch (2)		0.74 – 1.96 mm (0.0291 – 0.0772 in)
A	Pedal play		3 – 11 mm (0.12 – 0.43 in)

BRAKE PEDAL

ADJUSTMENT

1. Loosen the stop lamp switch and by turning it counterclockwise by 45°.
2. Loosen lock nut (A) on the input rod, then turn input rod to adjust the pedal to specified height, and tighten lock nut (A).

CAUTION:

Make sure the threaded end of the input rod stays inside the clevis.

Lock nut (A) : 18.7 N·m (1.9 kg-m, 14 ft-lb)

3. With the pedal pulled and held by hand, press the stop lamp switch and until its threaded end contacts the stopper.
4. With the threaded end of the stop lamp switch and contacting the stopper, turn the switch clockwise by 45° to secure.

CAUTION:

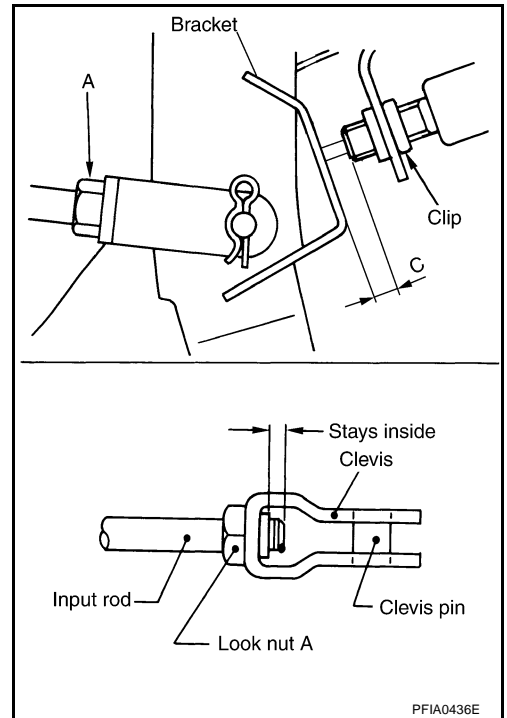
Make sure that the clearance (C) between the bracket and threaded end of the stop lamp switch and are within the standard.

5. Check the pedal play.

CAUTION:

Make sure that the stop lamp goes off when the pedal is released.

6. Start the engine to check the brake pedal depressed height. Refer to [BR-6, "Inspection and Adjustment"](#).

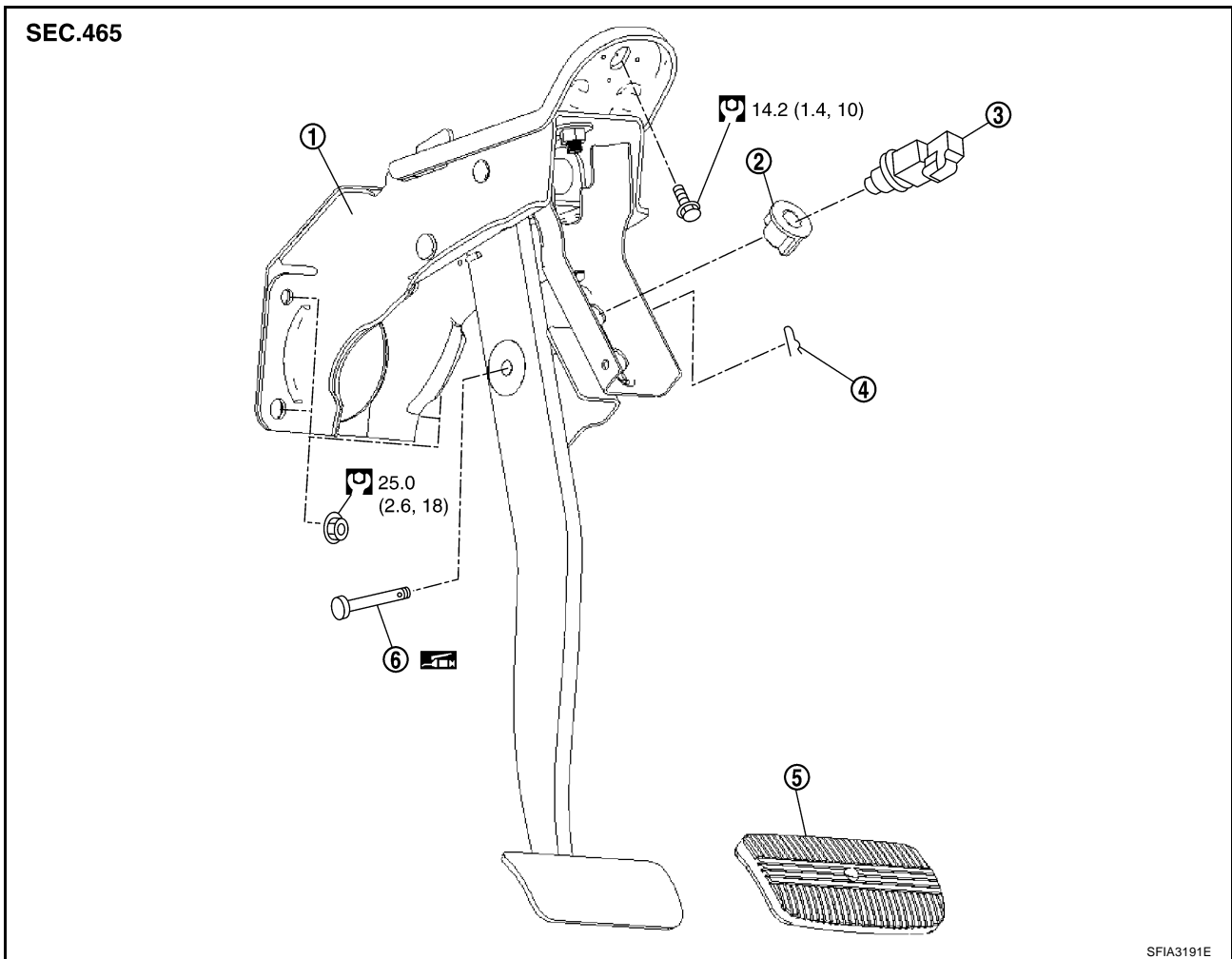


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BRAKE PEDAL

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Removal and Installation COMPONENTS



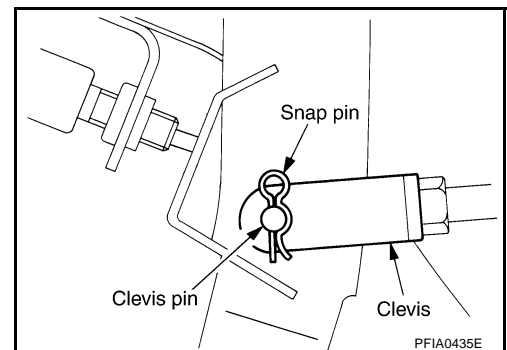
- | | | |
|-------------------------|--------------------|---------------------|
| 1. Brake pedal assembly | 2. Clip | 3. Stop lamp switch |
| 4. Snap pin | 5. Brake pedal pad | 6. Clevis pin |

 : Multi-purpose grease

Refer to GI section for symbol marks except in the above.

REMOVAL

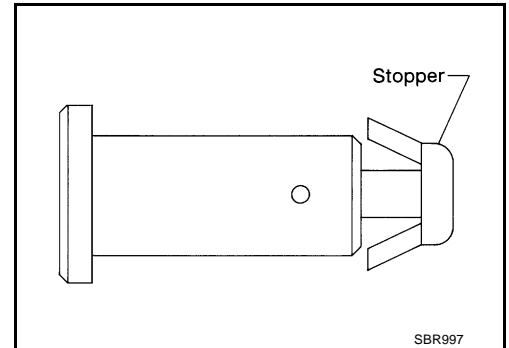
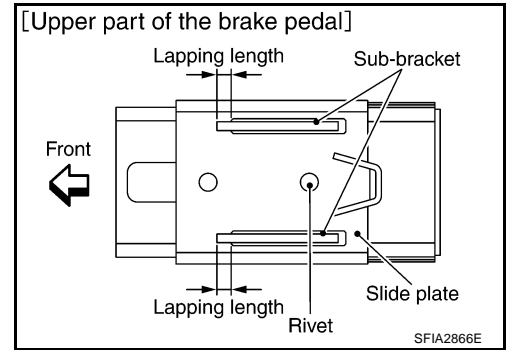
1. Remove lower instrument panel RH. Refer to [IP-12, "LOWER INSTRUMENT PANEL LH"](#).
2. Remove stop lamp switch and from brake pedal assembly.
3. Remove snap pin and clevis pin from input rod clevis.
4. Remove mounting nuts from pedal bracket, and remove brake pedal assembly from vehicle.



BRAKE PEDAL

INSPECTION AFTER REMOVAL

- Check brake pedal upper rivet for deformation.
 - Make sure that the lapping length of sub-bracket and slide plate is at least 4 mm (0.16 in).
 - Check brake pedal for bend, damage, and cracks on the welded parts.
 - Replace brake pedal assembly if any non-standard condition is detected.
-
- Check clevis pin and plastic stopper for damage and deformation. Replace clevis pin if there are.



INSTALLATION

Installation is in the reverse order of the removal. Tightening torques for brake pedal assembly mounting nut and bolt are referred to [BR-8, "COMPONENTS"](#) . Tightening torque for lock nut (A) is referred to Refer to [BR-7, "ADJUSTMENT"](#) .

- After installing the brake pedal assembly to the vehicle, adjust the brake pedal. Refer to [BR-6, "Inspection and Adjustment"](#) .

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BRAKE FLUID

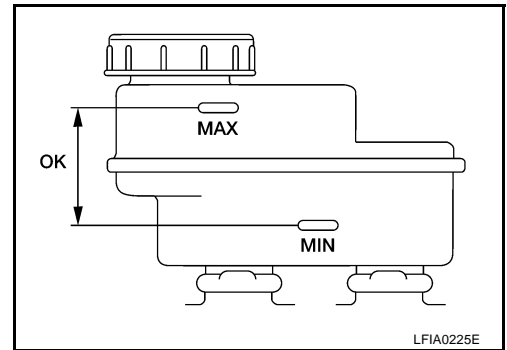
BRAKE FLUID

PFP:KN100

On-board Inspection CHECKING BRAKE FLUID LEVEL

GFS00008

- Make sure the fluid level in the tank is within the standard (between MAX and MIN lines).
- Visually check around the reservoir tank for fluid leakage.
- If fluid level is excessively low, check brake system for fluid leakage.
- Release parking brake lever and see if brake warning lamp goes off. If not, check brake system for fluid leakage.



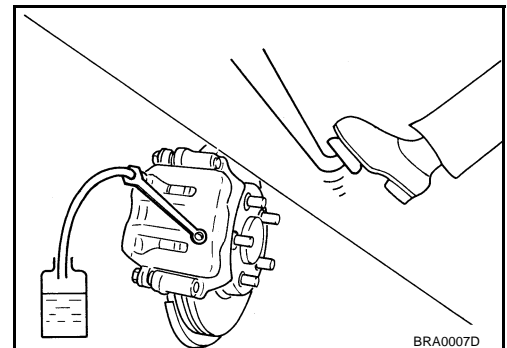
Drain and Refill

GFS00009

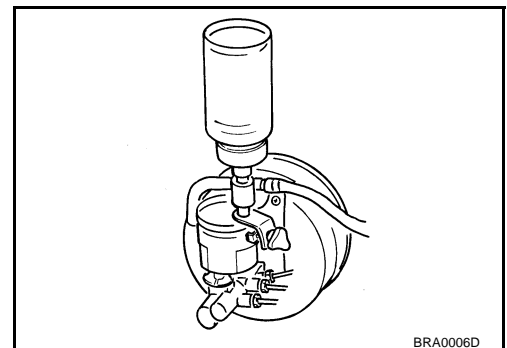
CAUTION:

- Refill with new brake fluid "DOT 3".
- Never reuse drained brake fluid.
- Be careful not to splash brake fluid on painted areas; it may cause paint damage. If brake fluid is splashed on painted areas, immediately wipe off them and wash it away with water.
- Before working, disconnect connector of ABS actuator and electric unit (control unit) or the battery cables.

1. Connect a vinyl tube to bleed valve.
2. Depress the brake pedal, loosen the bleed valve, and gradually remove the brake fluid.



3. Clean inside of reservoir tank, and refill with new brake fluid.
4. Loosen bleed valve, depress brake pedal slowly to full stroke and then release it. Repeat the procedure every 2 or 3 seconds until the new brake fluid comes out, then close the bleed valve while depressing the pedal. Repeat the same work for each wheel.
5. Bleed air. Refer to [BR-11, "Bleeding Brake System"](#).



BRAKE FLUID

Bleeding Brake System

GFS0000A

CAUTION:

- While bleeding, pay attention to master cylinder fluid level.
 - Before working, disconnect electrical connector of ABS actuator and electric unit (control unit) or the battery cables.
1. Connect a vinyl tube to the rear left bleed valve.
 2. Fully depress brake pedal 4 to 5 times.
 3. With brake pedal depressed, loosen bleed valve to let the air out, and then tighten it immediately.
 4. Repeat steps 3, 4 until no more air comes out.
 5. Tighten bleed valve to specified torque. Refer to [BR-24, "Components"](#) (front disc brake), [BR-30, "Components"](#) (rear drum brake).
 6. From the steps 1 to 5 above, with master cylinder reservoir tank filled at least half way, bleed air from the front right, rear right, and front left brake, in that order.

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BRAKE TUBE AND HOSE

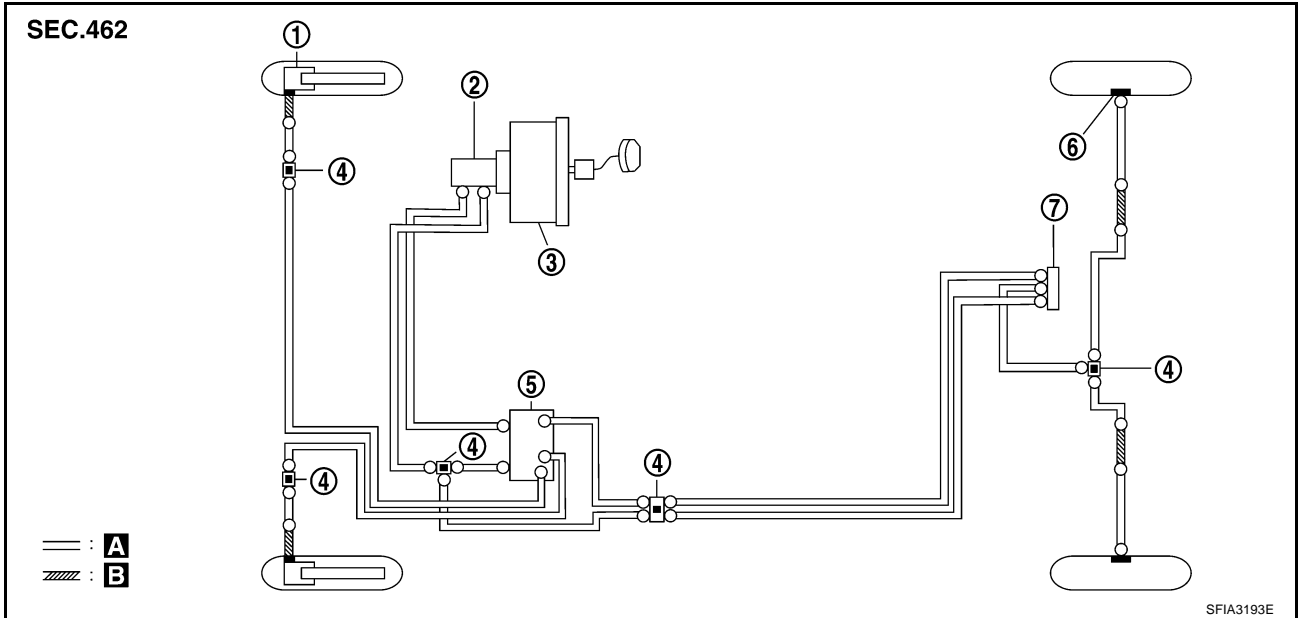
BRAKE TUBE AND HOSE

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Hydraulic Circuit

GFS0000B

With ABS



1. Front disc brake

2. Master cylinder

3. Brake booster

4. Connector

5. ABS actuator and electric unit (control unit)

6. Rear drum brake

7. Load sensing valve

A : Brake tube

B : Brake hose

○ : Flare nut

◻ : Connector mounting bolt

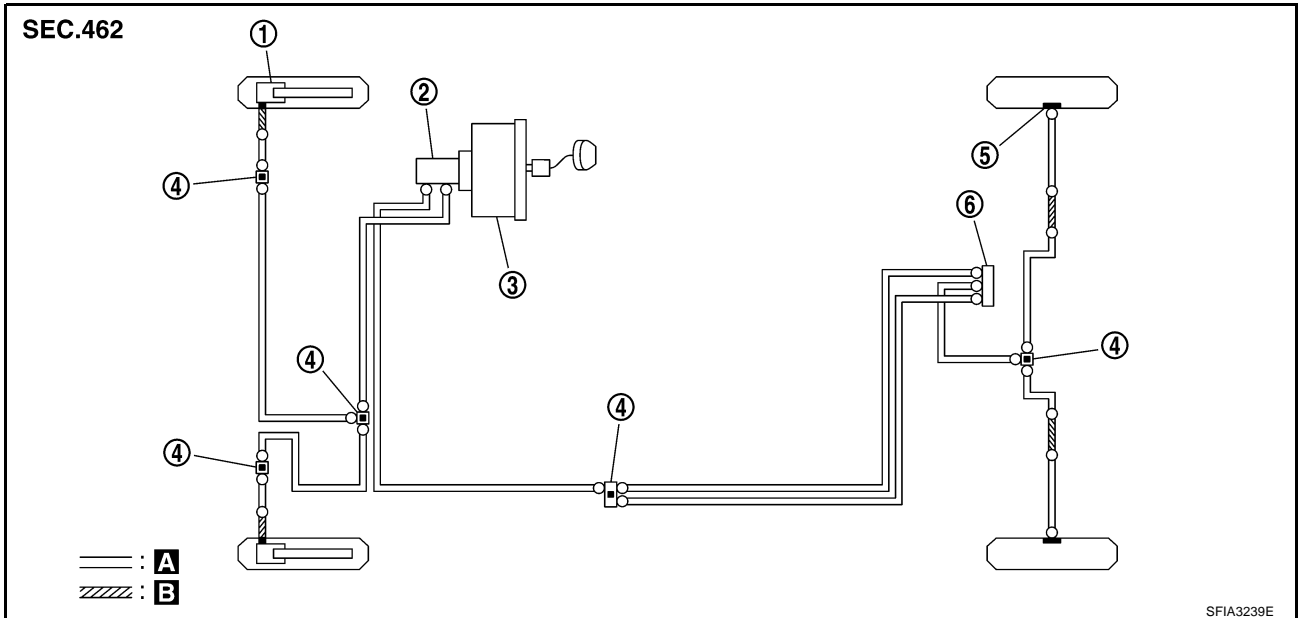
◼ : Union bolt

⊙ : 16.2 N·m (1.7 kg·m, 12.0 ft·lb)

⊙ : 7.0 N·m (0.71 kg·m, 62.0 in·lb)

⊙ : 18.2 N·m (1.9 kg·m, 13.0 ft·lb)

Without ABS



1. Front disc brake

2. Master cylinder

3. Brake booster

4. Connector

5. Rear drum brake

6. Load sensing valve

A : Brake tube

B : Brake hose

○ : Flare nut

◻ : Connector mounting bolt

◼ : Union bolt

⊙ : 16.2 N·m (1.7 kg·m, 12.0 ft·lb)

⊙ : 7.0 N·m (0.71 kg·m, 62.0 in·lb)

⊙ : 18.2 N·m (1.9 kg·m, 13.0 ft·lb)

BRAKE TUBE AND HOSE

CAUTION:

- All brake tubes and hoses must be free from excessive bending, twisting and pulling.
- Make sure that there is no interference with other parts when turning steering both clockwise and counterclockwise.
- Brake tube and hose is an important safety part. Always disassemble the parts and retighten their fittings, if a brake fluid leak is detected. Replace applicable part with a new one, if damaged part is detected.
- Be careful not to splash brake fluid on painted areas; it may cause paint damage. If brake fluid is splashed on painted surfaces of body, immediately wipe off them and wash it away with water.
- Do not bend or twist brake hose sharply, or strongly pull it.
- Cover the open end of brake tube and hoses when disconnecting to prevent entrance of dirt.
- Refill with new brake fluid "DOT 3".
- Never reuse drained brake fluid.

Removal and Installation of Front Brake Tube and Brake Hose

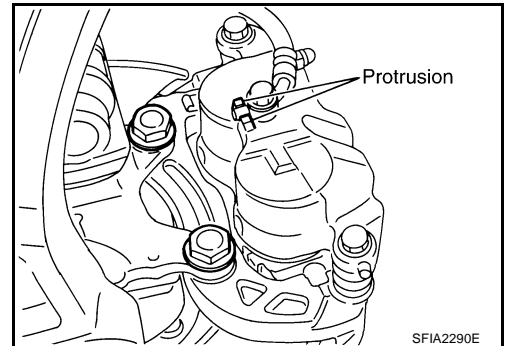
GFS0000C

REMOVAL

1. Drain brake fluid. Refer to [BR-10, "Drain and Refill"](#) .
2. Using a flare nut wrench, disconnect brake tube from brake hose.
3. Remove union bolt and remove brake hose from caliper assembly.
4. Remove lock plate and remove brake hose from vehicle.

INSTALLATION

1. Assemble the union bolt and copper washers to the brake hose.
2. Insert brake hose by aligning with the protrusion on caliper assembly, and tighten union bolt to the specified torque. Refer to [BR-12, "Hydraulic Circuit"](#) .
3. Connect brake hose to the brake tube, partially tighten the flare nut as much as possible by hand, then secure it to the bracket with lock plate.
4. Using flare nut torque wrench, tighten flare nut to the specified torque. Refer to [BR-12, "Hydraulic Circuit"](#) .
5. Refill brake fluid and bleed air. Refer to [BR-11, "Bleeding Brake System"](#) .



Removal and Installation of Rear Brake Tube and Brake Hose

GFS0000D

REMOVAL

1. Drain brake fluid. Refer to [BR-10, "Drain and Refill"](#) .
2. Using a flare nut wrench, disconnect brake tube from brake hose, wheel cylinder and load sensing valve.
3. Remove lock plate and remove brake tube from vehicle.

INSTALLATION

1. Insert brake tube, then secure it to bracket with lock plate.
2. Install brake tube to brake hose, wheel cylinder and load sensing valve, then tighten the flare nut to the specified torque using a flare nut torque wrench. Refer to [BR-12, "Hydraulic Circuit"](#) .
3. Refill brake fluid and bleed air. Refer to [BR-11, "Bleeding Brake System"](#) .

BRAKE TUBE AND HOSE

Inspection after Installation

GFS0000E

CAUTION:

Brake tubes and hoses are important safety parts. Always disassemble the parts and retighten their fittings, if a brake fluid leak is detected. Replace applicable part with a new one, if damaged part is detected.

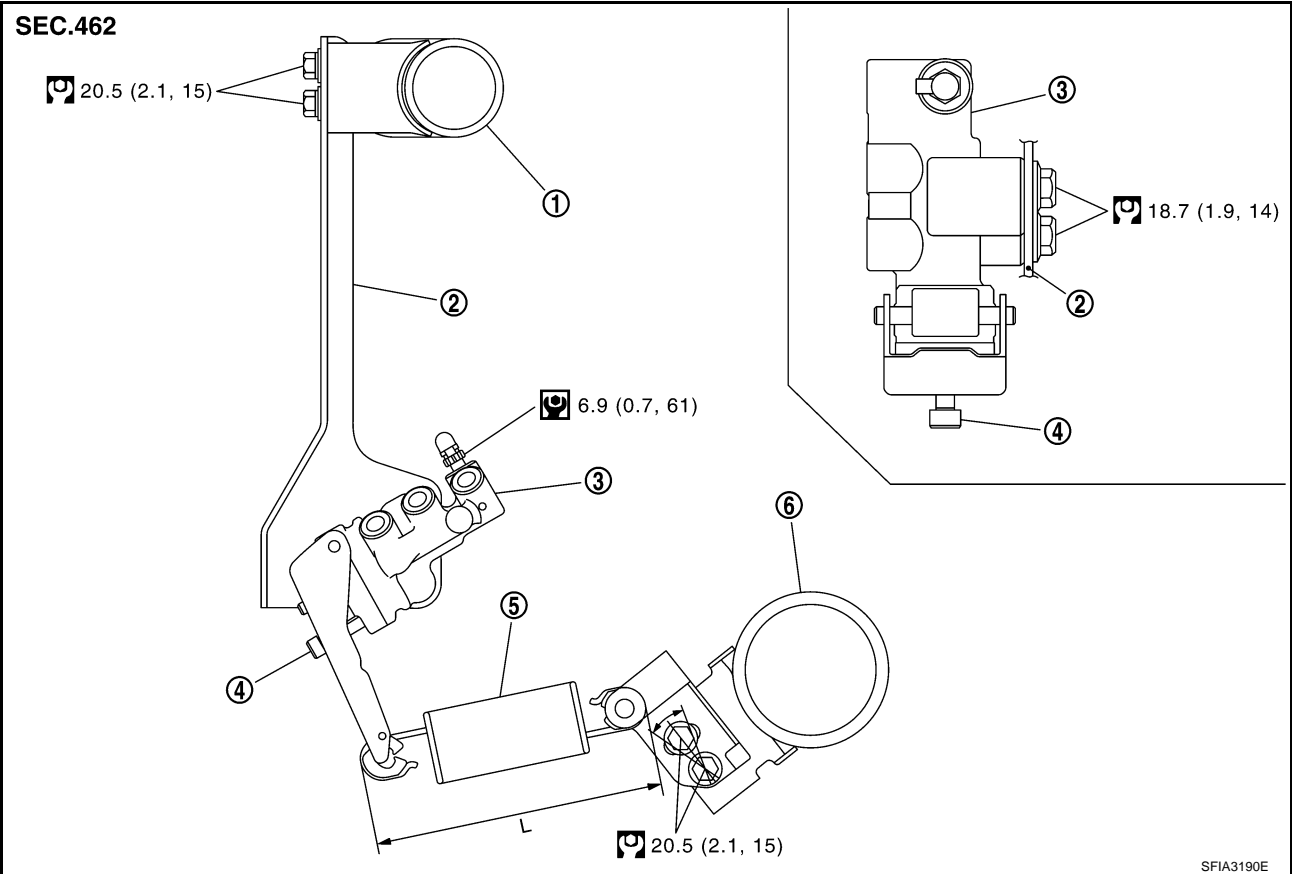
1. Check hydraulic brake lines (tubes and hoses) and connections for fluid leakage, damage, twists, deformations, contacts with other parts, and loose connections. Replace any damage parts.
2. While depressing brake pedal under a force of 785 N (80 kg, 177 lb) with engine running at idle speed for approximately 5 seconds, check each part for fluid leakage.

LOAD SENSING VALVE

PFP:46400

LOAD SENSING VALVE Removal and Installation

GFS0000F



- | | | |
|-------------------|-------------------------------|-----------------------|
| 1. Torsion member | 2. Load sensing valve bracket | 3. Load sensing valve |
| 4. Stopper | 5. Sensor spring | 6. Rear axle tube |

Refer to GI section for symbol marks in the figure.

CAUTION:

- Always use a flare nut wrench to remove brake tube. Be careful not to damage flare nut and brake tube. Also, use flare nut torque wrench for brake tube installation and tightening to the specified torque. Refer to [BR-12, "Hydraulic Circuit"](#).
- Refill with new brake fluid "DOT 3".
- Never reuse drained brake fluid.

REMOVAL

1. Drain brake fluid.
2. Cover brake line connections/openings to protect them from foreign material such as dust or dirt.
3. Using a flare nut wrench, remove flare nut on brake tube from load sensing valve.
4. Remove mounting bolts to remove load sensing valve.

INSTALLATION

- Carefully performing the following, install in the reverse order of removal.
- After installing load sensing valve to vehicle, perform the following: bleed air from brake line. Refer to [BR-11, "Bleeding Brake System"](#), and check mounting length "L" of sensor spring.

LOAD SENSING VALVE

GFS0000G

Inspection INSPECTION

1. With the vehicle in unladen condition, a person should sit in driver's seat at the rear. Then he/she should get out of car gently. (This is to stabilize suspension deflection.)

NOTE:

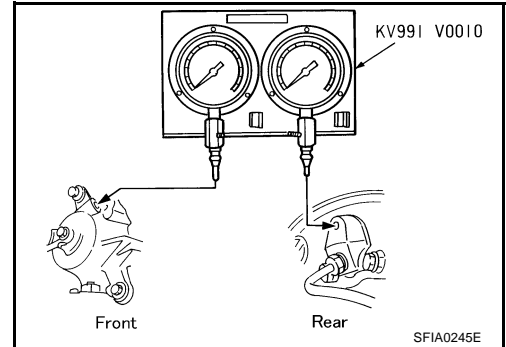
"Unladen condition": with full coolant, lubricant, 6 to 8 liters of fuel, spare tire, jack, and hand tools loaded.

2. Press load sensing valve against stopper bolt. Check if center-to-center length "L" between adjusting reference hole and reference pin is as specified below.

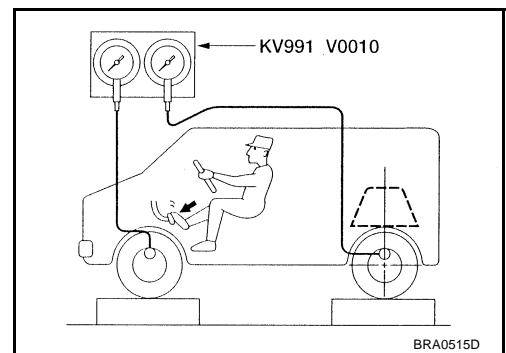
Length "L" : 143.9 – 146.9 mm (5.67 – 5.78 in)

- If measurement is outside the standard, perform following; loosen mounting bolt of sensor spring bracket. By moving sensor spring bracket, adjust so that the length "L" comes into specified range.

3. Connect brake fluid pressure tester (special service tool) to bleed valves of front caliper and rear wheel cylinder.
4. Bleed air from brake fluid pressure tester (special service tool).
5. With brake pedal depressed, check brake fluid pressure at front caliper and rear wheel cylinder. The respective measurements should be as specified in the table below.



6. Under condition of step 2 above, adjust rear shaft weight with weights to obtain 143.9 – 146.9 mm (5.67 – 5.78 in) as length "L". Then, check brake fluid pressure as described in step 5 above. If measurements are outside the standards, replace load sensing valve main body.



Standard

Front caliper brake fluid pressure MPa (kg/cm ²)	Rear wheel cylinder brake fluid pressure MPa (kg/cm ²)			
	2WD		4WD	
	unladen	loaded	unladen	loaded
4.9 (50)	3.2 – 4.2 (33 – 43)	3.9 – 5.9 (40 – 60)	1.8 – 2.7 (18 – 28)	3.9 – 5.9 (40 – 60)
9.8 (100)	4.1 – 5.1 (42 – 52)	6.3 – 8.3 (65 – 85)	2.6 – 3.6 (27 – 37)	7.0 – 8.9 (71 – 91)

7. After inspection, remove brake fluid pressure tester (special service tool) and bleed air. Refer to [BR-11, "Bleeding Brake System"](#).

BRAKE MASTER CYLINDER

BRAKE MASTER CYLINDER

PF:46010

On-Board Inspection LEAK INSPECTION

GFS000H

- Check for fluid leakage from master cylinder attachment portion such as reservoir tank and brake tube connections.

Removal and Installation

GFS000I

CAUTION:

Be careful not to splash brake fluid on painted areas; it may cause paint damage. If brake fluid is splashed on painted areas immediately wipe off then and wash it away with water.

REMOVAL

1. Drain brake fluid. Refer to [BR-10, "Drain and Refill"](#).
2. Using flare nut wrench, disconnect brake tube from master cylinder assembly.
3. Remove master cylinder assembly mounting nuts and master cylinder assembly.

INSTALLATION

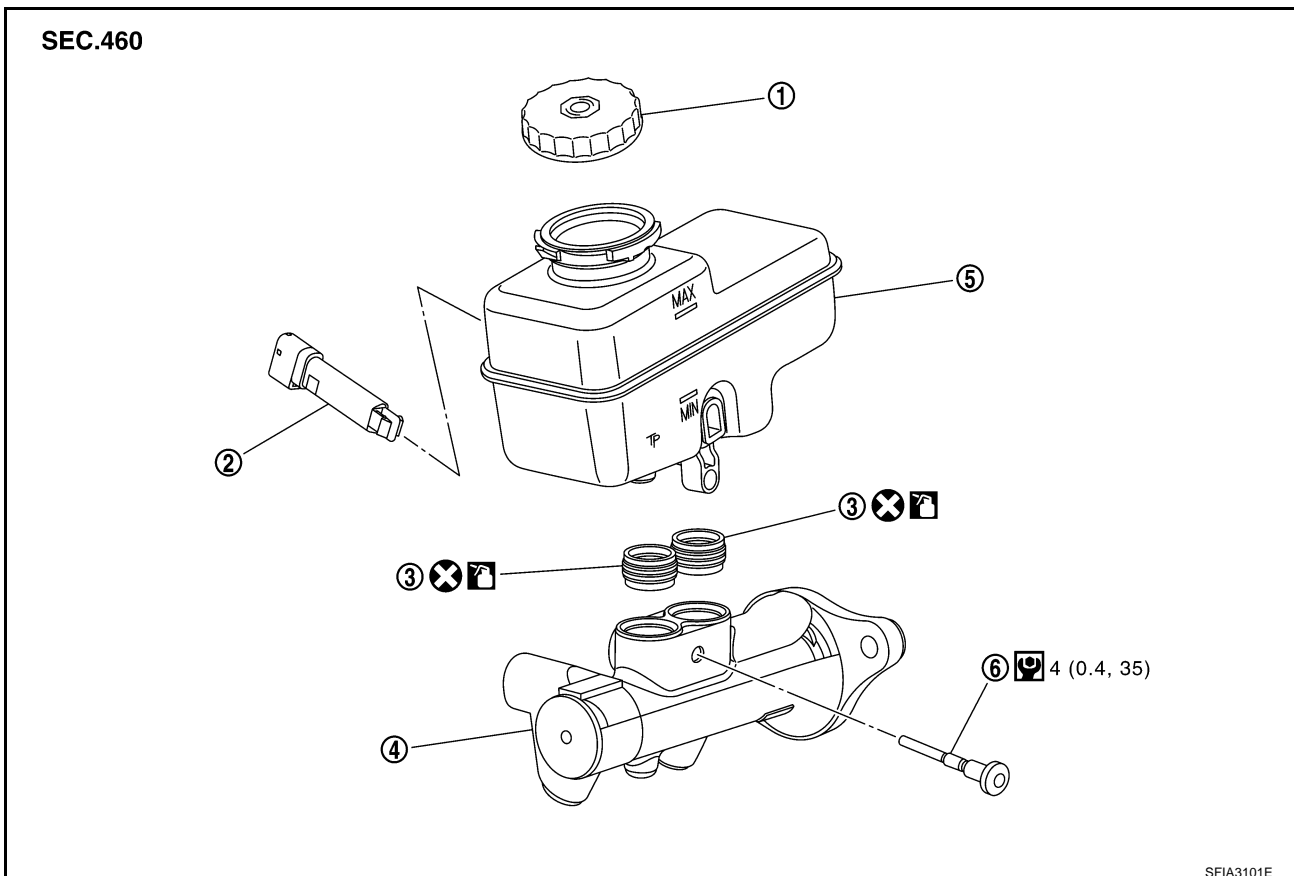
- Installation is in the reverse order of the removal.
- Refill brake fluid and bleed air. Refer to [BR-11, "Bleeding Brake System"](#).


CAUTION:

- Refill with new brake fluid "DOT 3".
- Never reuse drained brake fluid.

Components

GFS000J



 : Brake fluid

Refer to GI section for symbol marks except in the above.

BRAKE MASTER CYLINDER

Disassembly and Assembly

GFS0000K

DISASSEMBLY

CAUTION:

- Master cylinder assembly cannot be disassembled.
- Remove reservoir tank only when absolutely necessary.

Pull reservoir tank off master cylinder sub-assembly, then remove grommets from master cylinder sub-assembly body.

ASSEMBLY

CAUTION:

- Do not use mineral oils such as kerosene, gasoline during the cleaning and assembly process.
 - Do not drop parts. If a part is dropped, do not use it.
1. Apply brake fluid to the grommet and attach to the cylinder body.
 2. Install reservoir tank onto the cylinder body.

BRAKE BOOSTER

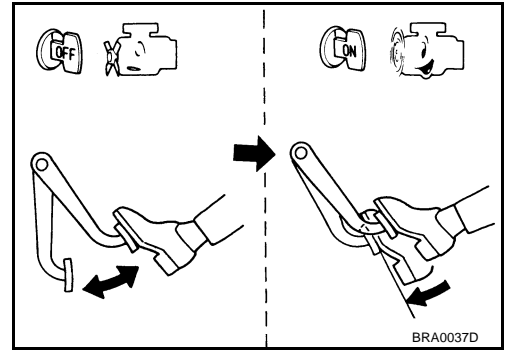
BRAKE BOOSTER

PFP:47200

On-Vehicle Service OPERATING CHECK

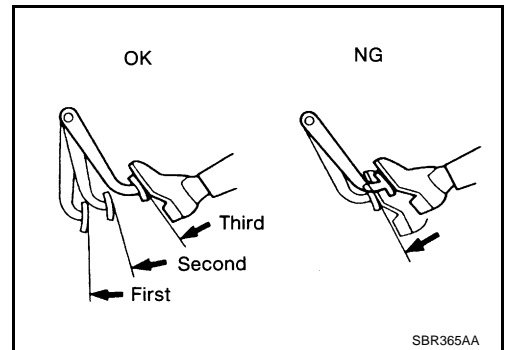
GFS0000L

With engine stopped, change vacuum to atmospheric pressure by depressing brake pedal several times. Then with brake pedal fully depressed, start engine and when vacuum pressure reaches the standard, make sure that clearance between brake pedal and floor panel decreases.



AIRTIGHT CHECK

- Run engine at idle for approximately 1 minute, and stop it after applying vacuum to booster. Depress brake pedal normally to change vacuum to atmospheric pressure. Make sure that distance at intervals of 5 seconds between brake pedal and floor panel gradually increases.
- Depress brake pedal while engine is running, and stop engine with pedal depressed. The pedal stroke should not change after holding pedal down for 30 seconds.

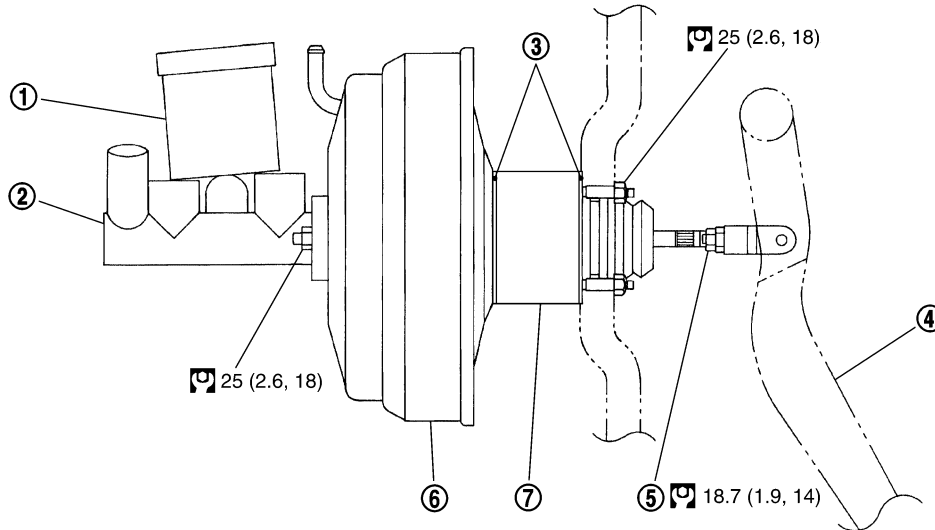


BRAKE BOOSTER

GFS0000M

Removal and Installation COMPONENTS

SEC.460•465•470



SFIA3194E

- | | | |
|-------------------|--------------------|------------------|
| 1. Reservoir tank | 2. Master cylinder | 3. Gasket |
| 4. Brake pedal | 5. Lock nut | 6. Brake booster |
| 7. Spacer | | |

Refer to GI section for symbol marks in the figure.

REMOVAL

CAUTION:

- Be careful not to deform or bend brake tube while removing and installing the brake booster.
- Replace clevis pin if it is damaged.
- Be careful not to damage brake booster stud bolt threads. If brake booster is tilted or inclined during installation, the dash panel may damage the threads.

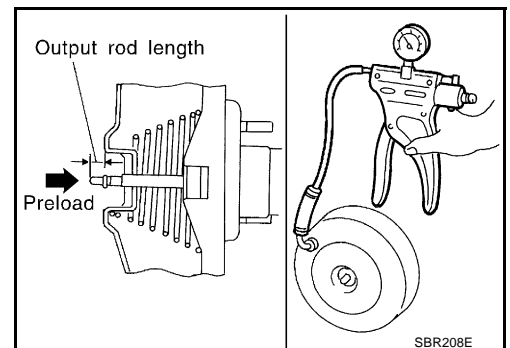
1. Remove brake tube from brake master cylinder.
2. Remove brake master cylinder. Refer to [BR-17, "Removal and Installation"](#).
3. Remove vacuum hose from brake booster. Refer to [BR-23, "Removal and Installation"](#).
4. Remove brake pedal attachment snap pin and clevis pin from inside vehicle.
5. Remove nuts on brake booster and brake pedal assembly.
6. Remove brake booster assembly from dash panel.

INSPECTION AFTER REMOVAL

Output Rod Length Inspection

1. Using a handy vacuum pump, apply a vacuum of -66.7 kPa (-500 mmHg , -19.69 inHg) to the brake booster.
2. Check output rod length.

**Standard dimension at a vacuum of -66.7 kPa
(-500 mmHg , -19.69 inHg)**
: $-15.6 \text{ mm} - 15.9 \text{ mm}$ ($-0.614 - 0.626 \text{ in}$)



SBR208E

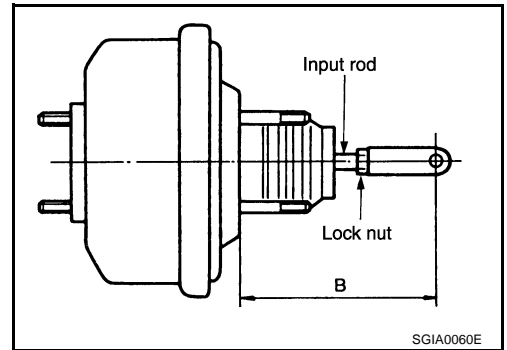
BRAKE BOOSTER

INSTALLATION

1. Loosen the lock nut to adjust the input rod length so that the length B (in the figure) satisfies the specified value.

Length "B" : 145 - 152 mm (5.71- 5.98 in)

2. After adjusting "B", temporarily tighten the lock nut to install the booster assembly to the vehicle. At this time, securely install a gasket and spacer block between the booster assembly and the dash panel.
3. Connect brake pedal with the clevis of the input rod.
4. Install brake booster mounting nuts and tighten them to the specified torque. Refer to [BR-20, "COMPONENTS"](#).
5. Install brake tube from brake master cylinder to ABS actuator and electric unit (control unit)(with ABS). Refer to [BR-12, "Hydraulic Circuit"](#).
6. Connect vacuum hose to brake booster.
7. Install master cylinder to brake booster assembly. Refer to [BR-17, "Removal and Installation"](#).
8. Adjust the height and play of brake pedal. Refer to [BR-6, "Inspection and Adjustment"](#).
9. Tighten lock nut of input rod to the specified torque. Refer to [BR-7, "ADJUSTMENT"](#).
10. Refill new brake fluid and bleed air. Refer to [BR-11, "Bleeding Brake System"](#).



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VACUUM LINES

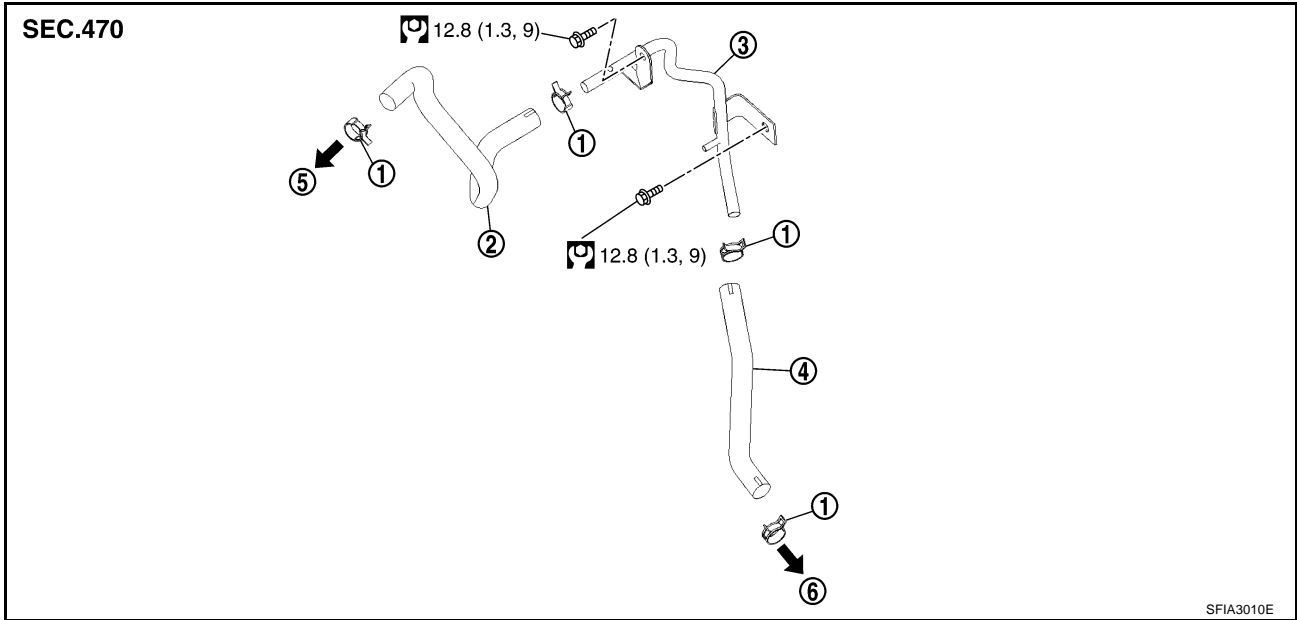
VACUUM LINES

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Component

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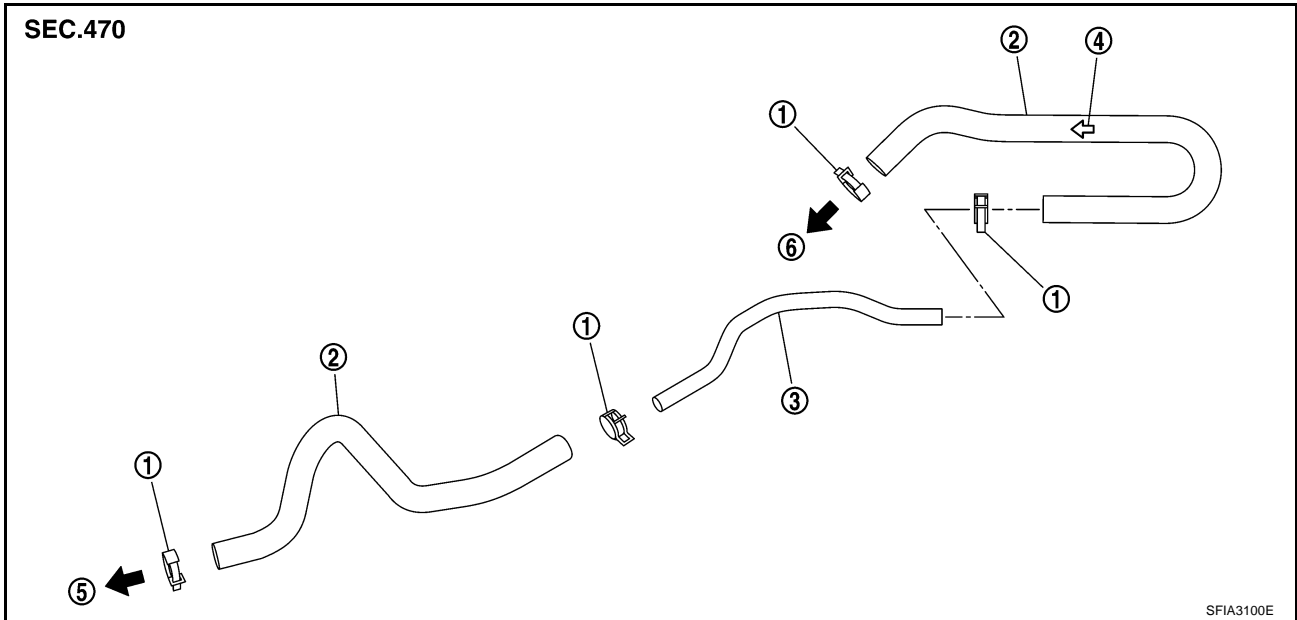
YD25DDTi ENGINE



- | | | |
|----------------|----------------------|--------------------|
| 1. Clamp | 2. Vacuum hose | 3. Vacuum tube |
| 4. Vacuum hose | 5. For brake booster | 6. For vacuum pump |

Refer to GI section for symbol marks in the figure.

VQ40DE ENGINE



- | | | |
|--|----------------------|------------------------|
| 1. Clamp | 2. Vacuum hose | 3. Vacuum tube |
| 4. Engine side indicator stamp
(build-in check valve) | 5. For brake booster | 6. For intake manifold |

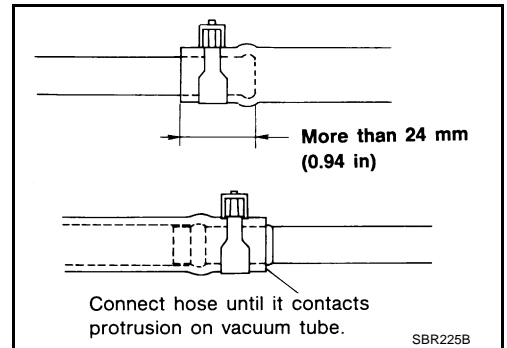
VACUUM LINES

Removal and Installation

GFS00000

CAUTION:

- Because vacuum hose contains a check valve, it must be installed in the correct position. Refer to the stamp to confirm correct installation. Brake booster will not operate normally if the hose is installed in the wrong direction.
- Insert vacuum hose at least 24 mm (0.94 in).
- Do not use lubricating oil during assembly.



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Inspection

VISUAL INSPECTION

Check for correct assembly, damage and deterioration.

CHECK VALVE INSPECTION

Airtightness Inspection

Check vacuum with a handy vacuum pump.

When connected to the booster side (1):

Vacuum should decrease within 1.3 kPa (10 mmHg, 0.39 inHg) for 15 seconds under a vacuum of -66.7 kPa (-500 mmHg, -19.69 inHg).

When connected to the engine side (2):

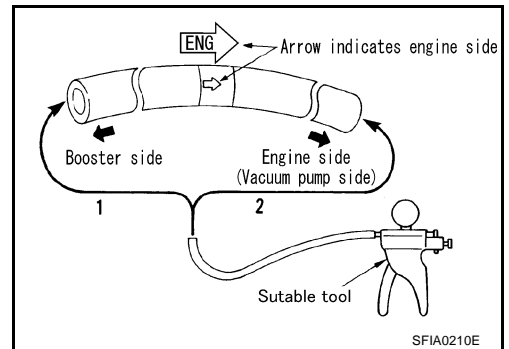
Vacuum should not exist.

- Replace vacuum hose assembly if vacuum hose and check valve are malfunctioning.

GFS0000P

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FRONT DISC BRAKE

PFP:41000

FRONT DISC BRAKE

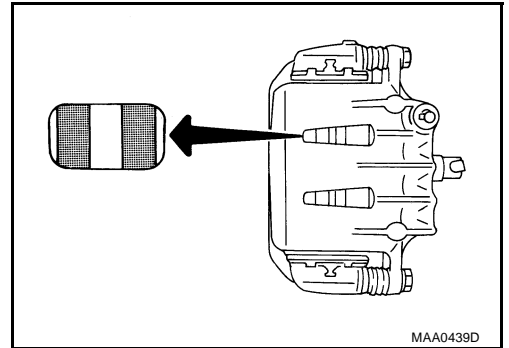
On-Board Inspection PAD WEAR INSPECTION

GFS0000Q

- Check pad thickness from a inspection hole on cylinder body. Check using a scale if necessary.

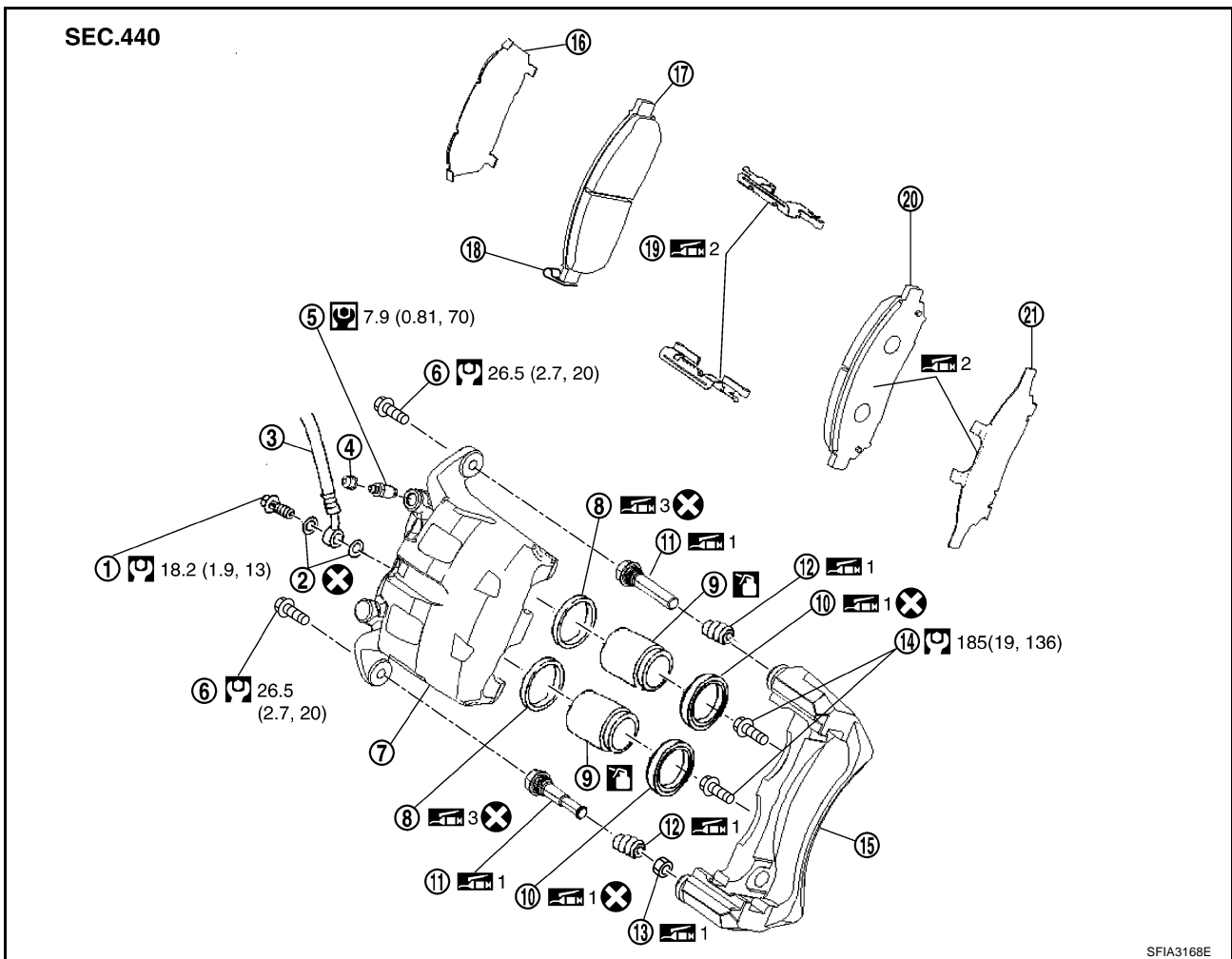
Standard thickness : 11.0 mm (0.43 in)

Repair limit thickness : 2.0 mm (0.08 in)




Components

GFS0000R



- | | | |
|------------------|---------------------------------|-------------------------------|
| 1. Union bolt | 2. Copper washer | 3. Brake hose |
| 4. Cap | 5. Bleed valve | 6. Sliding pin bolt |
| 7. Cylinder body | 8. Piston seal | 9. Piston |
| 10. Piston boot | 11. Sliding pin | 12. Sliding pin boot |
| 13. Bushing | 14. Torque member mounting bolt | 15. Torque member |
| 16. Inner shim | 17. Inner pad | 18. Pad wear sensor (RH side) |
| 19. Pad retainer | 20. Outer pad | 21. Outer shim |
- 1: Rubber grease
 2: PBC (Poly Butyl Cuprysil) grease or silicone-based grease
 3: Polyglycol ether based lubricant

FRONT DISC BRAKE

 : Brake fluid

Refer to GI section for symbol marks except in the above.

WARNING:

Clean dust on caliper and brake pad with a vacuum dust collector to minimize the hazard of air-borne particles or other materials.

CAUTION:

- While removing cylinder body, do not depress brake pedal because piston will pop out.
- It is not necessary to remove bolts on torque member and brake hose except for disassembly or replacement of caliper assembly. In this case, hang cylinder body with a wire so as not to stretch brake hose.
- Do not damage piston boot.
- If any shim is subject to serious corrosion, replace it with a new one.
- Always replace shim as a set when replacing brake pad.
- Keep rotor out of brake fluid.

Removal and Installation of Brake Pad

GFS0000S

REMOVAL

1. Remove tire from vehicle with power tool.
2. Remove lower sliding pin bolt.
3. Hang cylinder body with a wire. Remove pad assembly and pad retainer from torque member.

CAUTION:

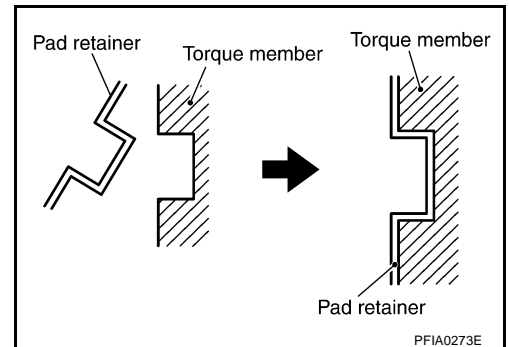
When removing the pad retainer from the torque member, lift it in the direction indicated by the arrow in the figure so that it does not deform.

INSTALLATION

1. Install inner shim to inner pad, and outer shim to outer pad.
2. Install pad retainers and pad assembly to torque member.
3. Press in piston until pads can be installed, and then install cylinder body to torque member.

CAUTION:

- When installing pad retainer, attach it firmly so that it does not flat up higher than torque member, as shown in the figure.
 - In the case of replacing pad with new one, check a brake fluid level in the reservoir tank because brake fluid returns to master cylinder reservoir tank when pressing piston in.
4. Install lower sliding pin bolt and tighten to the specified torque. Refer to [BR-24, "Components"](#).
 5. Check front disc brake for drag.
 6. Install tire to vehicle.



FRONT DISC BRAKE

Removal and Installation of Brake Caliper Assembly

GFS0000T

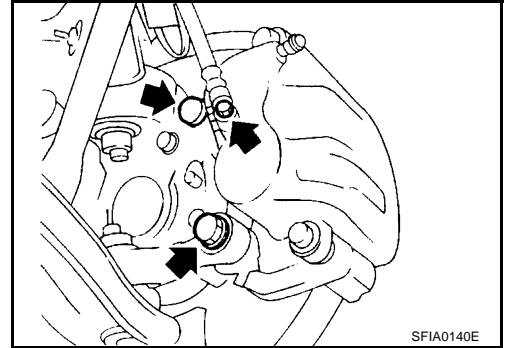
REMOVAL

1. Remove tire from vehicle with power tool.
2. Fasten disc rotor using wheel nut.

CAUTION:

Align the matching marks of disc rotor and wheel hub, which were marked at the time of removal when reusing disc rotor.

3. Drain brake fluid. Refer to [BR-10, "Drain and Refill"](#) .
4. Remove union bolt and then disconnect brake hose from caliper assembly.
5. Remove torque member mounting bolt, and remove brake caliper assembly.



INSTALLATION

CAUTION:

- Refill with new brake fluid "DOT 3".
- Never reuse drained brake fluid.

1. Install brake caliper assembly to vehicle, and tighten torque member mounting bolts to the specified torque. Refer to [BR-24, "Components"](#) .

CAUTION:

Before installing caliper assembly, wipe off oil and moisture on all mounting surfaces of steering knuckle and caliper assembly and threads, bolts.

2. Install brake hose and then tighten union bolt to the specified torque. Refer to [BR-12, "Hydraulic Circuit"](#) .
3. Refill with new brake fluid and bleed air. Refer to [BR-11, "Bleeding Brake System"](#) .
4. Check front disc brake for drag.
5. Install tire to vehicle.

Disassembly and Assembly of Brake Caliper Assembly

GFS0000U

DISASSEMBLY

NOTE:

Do not remove torque member, pads, shims, and pad retainers when disassembly and assembly cylinder body assembly.

1. Remove sliding pin bolts. And then remove the pad assembly and pad retainers from torque member, if necessary.

CAUTION:

When removing the pad retainer from the torque member, lift it in the direction indicated by the arrow in the figure so that it does not deform.

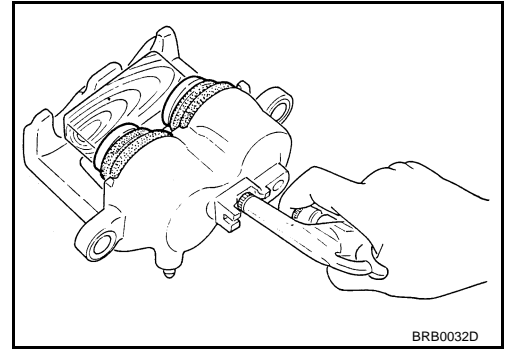
2. Remove sliding pins and sliding pin boots from torque member.

FRONT DISC BRAKE

3. Place a wooden block as shown in the figure, and blow air from union bolt mounting hole to remove pistons and piston boots.

CAUTION:

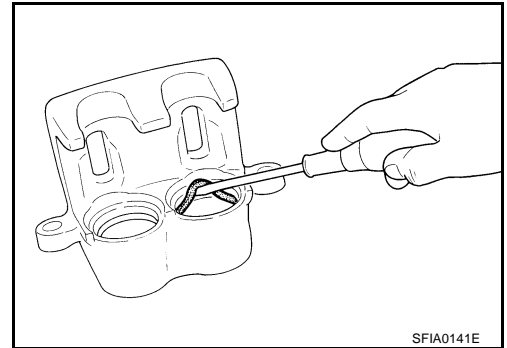
Do not get fingers caught in the piston.



4. Using a flat-bladed screwdriver, remove piston seal from cylinder body.

CAUTION:

Be careful not to damage cylinder inner wall.



INSPECTION AFTER DISASSEMBLY

Cylinder Body

Check inner wall of cylinder for corrosion, wear, and damage. If a malfunction is detected, replace cylinder body.

CAUTION:

Use new brake fluid to clean. Do not use mineral oils such as gasoline or kerosene.

Torque Member

Check torque member for wear, cracks, and damage. If a malfunction is detected, replace applicable part.

Piston

Check piston surface for corrosion, wear, and damage. If a malfunction is detected, replace applicable part.

CAUTION:

The piston sliding surface is plated. Do not polish with sandpaper.

Sliding Pin, Sliding Pin Bolt and Sliding Pin Boot

Check sliding pin, sliding pin bolt and sliding pin boot for wear, damage, and cracks. If a malfunction is detected, replace applicable part.

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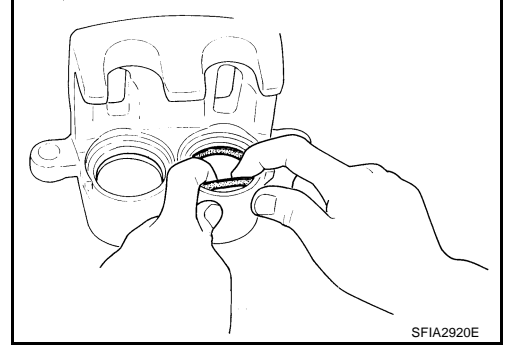
FRONT DISC BRAKE

ASSEMBLY

CAUTION:

When assembling, use only rubber lubricant specified below.

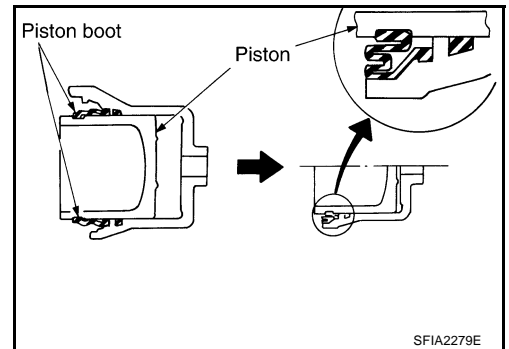
1. Apply polyglycol ether based lubricant to the piston seal, and install them to the cylinder body.



2. Apply brake fluid to piston and apply rubber grease to piston boot. Cover the piston end with the piston boot, and then install cylinder side lip of the piston boot securely into the groove on cylinder body.
3. Insert piston into cylinder body by hand and insert piston boot piston-side lip into the piston groove.

CAUTION:

Press the piston evenly and vary the pressing point to prevent cylinder inner wall from being rubbed.



4. Install sliding pin and sliding pin boot to torque member.
5. If pad assemblies are removed, install pad assemblies to torque member. Refer to [BR-25, "Removal and Installation of Brake Pad"](#).
6. Install cylinder body to torque member, and then tighten sliding pin bolt to the specified torque. Refer to [BR-24, "Components"](#).

DISC ROTOR INSPECTION

Visual Inspection

Check surface of disc rotor for uneven wear, cracks, and serious damage. If any of them is detected, replace applicable part.

Runout Inspection

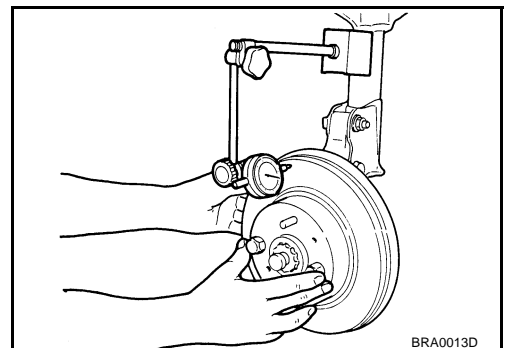
1. Using wheel nuts, secure disc rotor to wheel hub. (2 or more positions)
2. Check runout using a dial indicator.
[measured at 10 mm (0.39 in) inside the disc edge]

Runout limit : 0.05 mm (0.002 in)
(with it attached to the vehicle)

CAUTION:

Make sure that wheel bearing axial end play is within the specifications before measuring runout. Refer to [FAX-5, "WHEEL BEARING INSPECTION"](#).

3. If runout is outside the limit, find the minimum runout point by shifting mounting positions of disc rotor and wheel hub by one hole.
4. If runout is still out of the specification, refinish the disc rotor with on-car brake lathe ("MAD, DL-8700", "AMMCO 700 and 705" or equivalent). Or replace the disc rotor.

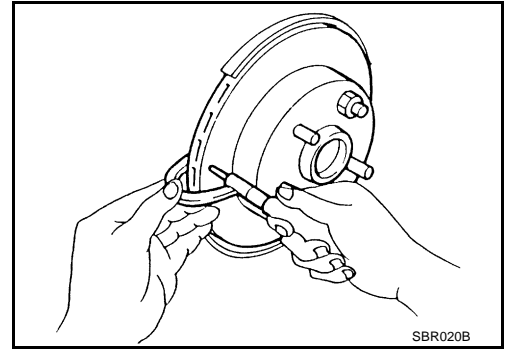


FRONT DISC BRAKE

Thickness Inspection

Using a micrometer, check thickness of the disc rotor. If thickness is outside the standard, replace disc rotor.

Standard thickness	: 28.0 mm (1.102 in)
Repair limit	: 26.0 mm (1.024 in)
Thickness variation (measured at 8 positions)	: 0.005 mm (0.0002 in)



BRAKE BURNISHING PROCEDURE

Burnish the new braking surface according to the following procedure after refinishing or replacing rotors, after replacing pads, or if a soft pedal occurs at very low mileage.

CAUTION:

Only perform this procedure under safe road and traffic conditions. Use extreme caution.

1. Drive the vehicle on a straight smooth road at 50 km/h (31 MPH).
2. Use medium brake pedal foot effort to bring the vehicle to a complete stop from 50 km/h (31 MPH). Adjust brake pedal foot pressure such that vehicle stopping time equals 3 to 5 seconds.
3. To cool brake system, drive the vehicle at 50 km/h (31 MPH) for 1 minute without stopping.
4. Repeat steps 1 to 3, 10 times or more to complete the burnishing procedure.

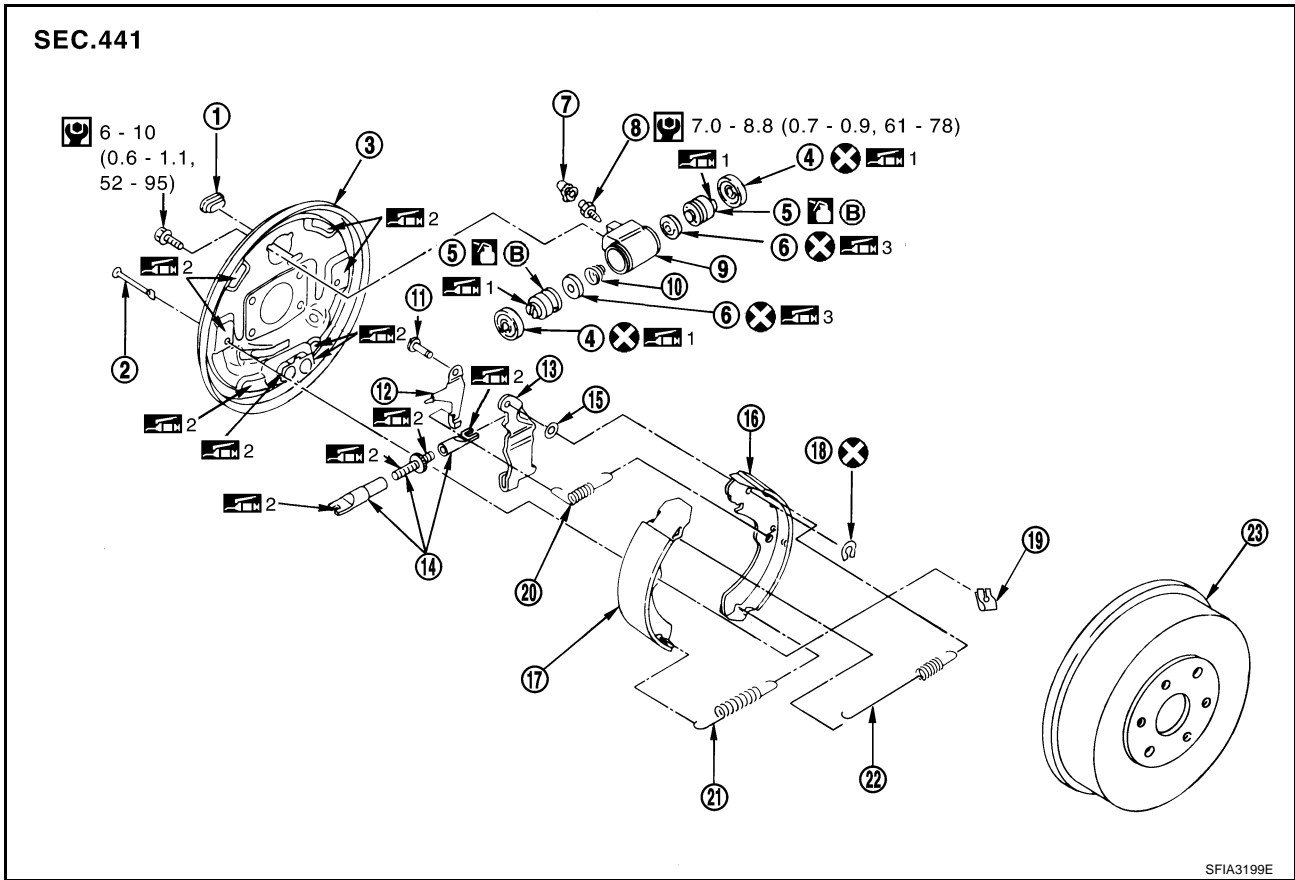
REAR DRUM BRAKE

PFP:43206

GFS0000V

REAR DRUM BRAKE

Components



- | | | |
|--------------------------------|-------------------------|--------------------------------|
| 1. Plug | 2. Shoe hold pin | 3. Back plate |
| 4. Boot | 5. Piston | 6. Piston cup |
| 7. Cap | 8. Bleed valve | 9. Wheel cylinder |
| 10. Spring | 11. Pin | 12. Adjuster lever |
| 13. Toggle lever | 14. Adjuster | 15. Conical washer |
| 16. Shoe (trailing side) | 17. Shoe (leading side) | 18. Retainer ring |
| 19. Retainer | 20. Adjuster spring | 21. Return spring (lower side) |
| 22. Return spring (upper side) | 23. Drum | |

1: PBC (Poly Butyl Cuprysil) grease
or silicone-based grease

2: Rubber grease

: Brake fluid

3: Polyglycol ether based lubricant

Refer to GI section for seasonal marks except in the above.

WARNING:

Clean dust on drum and back plate with a vacuum dust collector to minimize the hazard of air borne particles or other materials.

CAUTION:

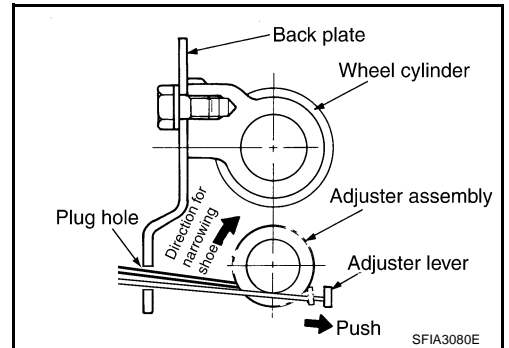
Make sure parking brake lever is released completely.

REAR DRUM BRAKE

Removal and Installation of Drum Brake Assembly REMOVAL

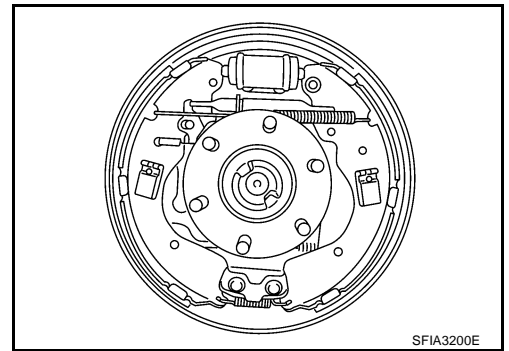
GFS0000W

1. Remove tire from vehicle with power tool.
2. With the parking brake lever released, remove the brake drum. If it is difficult to remove brake drum, remove as follows:
 - a. Press up adjuster lever with a wire or equivalent from plug hole (plug hole at the side of wheel cylinder) on the back plate as shown in the figure. Turn frame of adjuster assembly with a flat bladed screw driver in the direction that narrows frame to narrow enlarged brake shoe.



3. While pushing and rotating the retainer, pull out shoe hold pin, and remove shoe assembly.

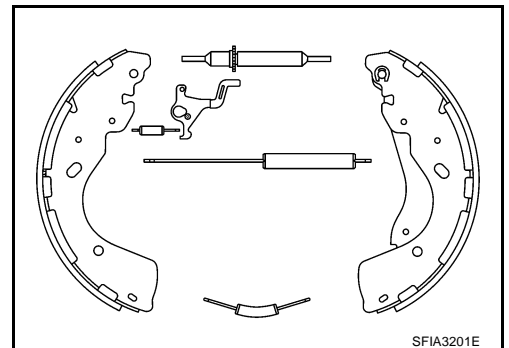
CAUTION:
Do not damage the wheel cylinder boot.



4. Remove parking brake rear cable from operating lever.

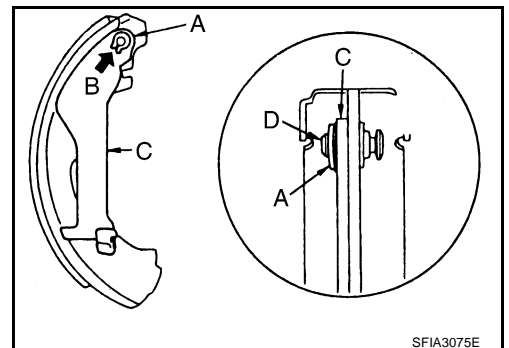
CAUTION:
Do not bend the parking brake cable.

5. Disassemble the shoe assembly (shoe, springs, adjuster, adjuster lever).



6. Remove retainer ring with a tool to separate operating lever from brake shoe.

- A: Retainer ring
- B: Contact point
- C: Operating lever
- D: Pin



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REAR DRUM BRAKE

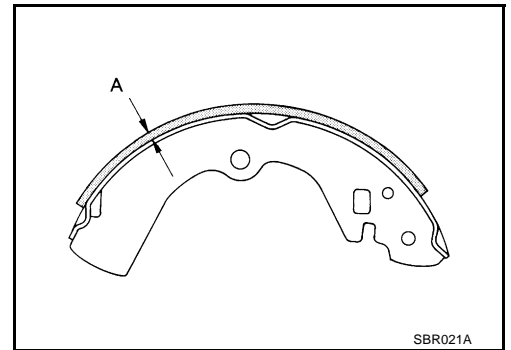
INSPECTION AFTER REMOVAL

Lining Thickness Inspection

Check lining thickness.

Standard thickness (A) : 5.5 mm (0.22 in)

Repair limit thickness (A) : 1.5 mm (0.06 in)



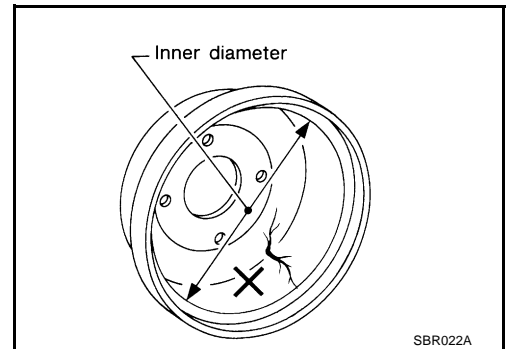
Drum Inner Diameter Inspection

Check inner diameter of brake drum.

Measurement area: lining contact surface (center)

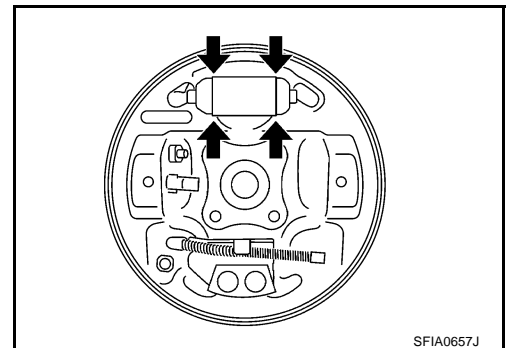
Standard inner diameter : 295 mm (11.61 in) dia.

Repair limit inner diameter : 296.5 mm (11.67 in) dia.



Wheel Cylinder Leakage Inspection

- Check wheel cylinder for brake fluid leakage.
- Check for wear, damage, and looseness. If any non-standard condition is found, replace it.



Other Inspections

Check the following:

- Inside of the drum for excessive wear, damage, and cracks.
- Lining for excessive wear, damage, and peeling.
- Shoe sliding surface for excessive wear and damage.
- Return spring for sagging.

Replace with new part if the above part is malfunction.

- Check back plate for damage, cracks, and deformation. If malfunction is detected, repair or replace it.

REAR DRUM BRAKE

INSTALLATION

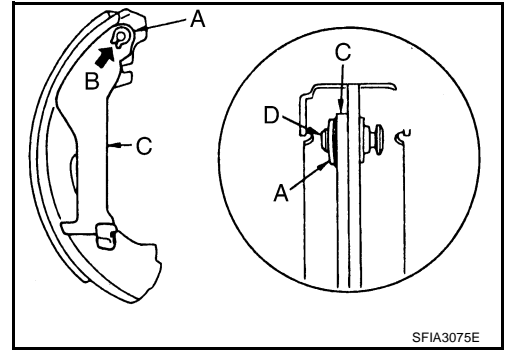
1. When removing operating lever, install following procedure.
 - a. Install operating lever to brake shoe.
 - b. Install retainer ring to operating lever, and crimp them until their contact points are met.

A: Retainer ring

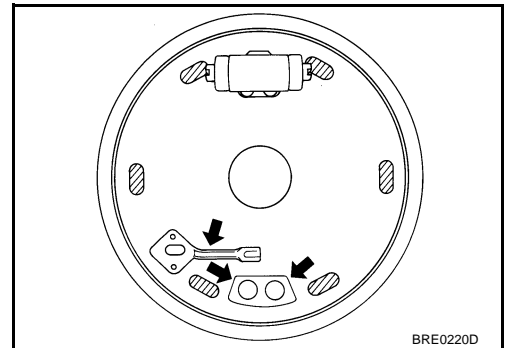
B: Contact point

C: Operating lever

D: Pin



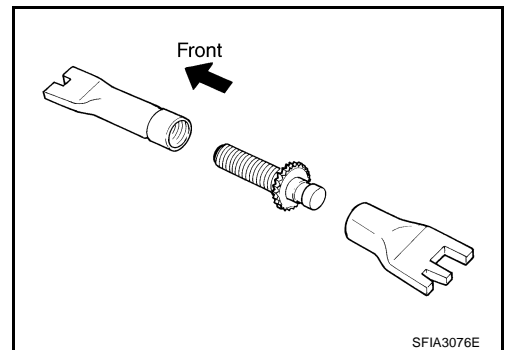
2. Apply rubber grease to brake shoes sliding surfaces (the shaded areas) and other parts on the back plate as indicated by arrows in the figure.



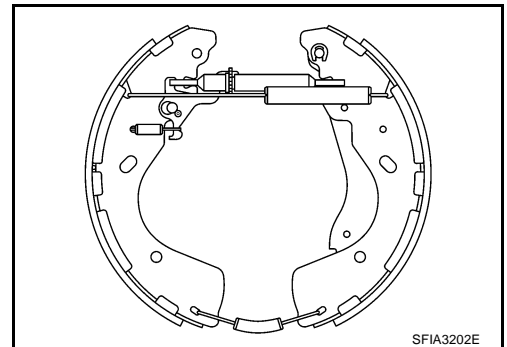
3. Apply rubber grease to screw and confirm the difference between right and left wheel for assembling when disassembled.

Right rear wheel **Thread cutting direction** : **Right-hand screw**

Left rear wheel **Thread cutting direction** : **Left-hand screw**



4. Assemble the shoe, adjuster, adjuster lever and springs to the shoe assembly.



5. Connect the parking brake rear cable to the operating lever.
6. Install shoe assembly. After assembly, be sure that each part is installed properly.

CAUTION:

Do not damage the wheel cylinder piston boot.

7. Install the brake drum.
8. Depress brake pedal for several time (approximately 2, 3 time).
9. Adjust clearance of brake shoe. Refer to [PB-2, "ADJUSTMENT"](#).
10. Install tires to the vehicle.

REAR DRUM BRAKE

Removal and Installation of Wheel Cylinder

GFS0000X

REMOVAL

1. Drain brake fluid. Refer to [BR-10, "Drain and Refill"](#) .
2. Remove rear brake shoe assembly.
3. Remove brake tube from the wheel cylinder.
4. Remove bolts on the wheel cylinder, and then remove wheel cylinder from back plate.

INSTALLATION

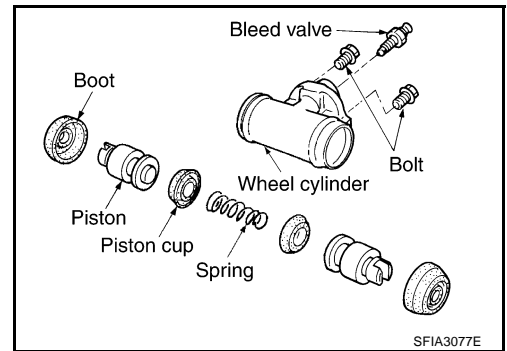
- Installation is the reverse order of removal. Tighten bolts to the specified torque. Refer to [BR-30, "Components"](#) .
- Refill with new brake fluid and bleed air. Refer to [BR-11, "Bleeding Brake System"](#) .

Disassembly and Assembly of Wheel Cylinder

GFS0000Y

DISASSEMBLY

1. Remove boots at the right and left of the wheel cylinder, and pull out the pistons from cylinder.
2. Remove piston from piston cup.



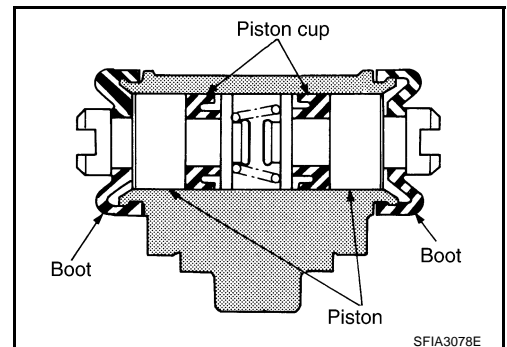
INSPECTION AFTER DISASSEMBLY

Check the pistons, piston cups, and inner wall of the cylinder for wear, corrosion, and damage. If malfunction is detected, replace it.

ASSEMBLY

CAUTION:

- Do not use Nissan rubber grease (KRE0000010, KRE000001001) during assembly.
 - When inserting the piston, be careful not to scratch the cylinder.
1. Apply brake fluid to the piston sliding surface on the wheel cylinder.
 2. Apply polyglycol ether based lubricant to the piston cups and piston boots and assemble as shown in the figure.



SERVICE DATA AND SPECIFICATIONS (SDS)

SERVICE DATA AND SPECIFICATIONS (SDS)

PPF:00030

General Specifications

GFS0000Z

Unit: mm (in)

Front brake	Brake model		CLZ33VB
	Cylinder bore diameter		46.4 (1.83) × 2
	Pad length × width × thickness		140 × 47.8 × 11 (5.51 × 1.88 × 0.43)
	Rotor outer diameter × thickness		296 × 28 (11.65 × 1.10)
Rear brake	Brake model		LT30
	Cylinder bore diameter		38.1 (1.50)
	Lining Length × width × thickness		295 × 55 × 5.5 (11.61 × 2.17 × 0.22)
	Drum inner diameter		295 (11.61)
Master cylinder	Cylinder bore diameter		25.4 (1.0)
Control valve	Valve model		Electric brake force distribution
Brake booster	Booster model		C215T
	Diaphragm diameter	Primary	228.5 (9.0)
		Secondary	203 (8.0)
Recommended brake fluid			DOT 3

Brake Pedal

GFS00010

Unit: mm (in)

Brake pedal height (From dash lower panel top surface)	A/T	171.2 – 181.2 (6.74 – 7.13)
	M/T	164.1 – 174.1 (6.46 – 6.85)
Brake pedal depressed height [Under a force of 490 N (50 kg, 110 lb) with the engine running]		110 (4.33) or more
Clearance between bracket and the threaded end of the stop lamp switch		0.74 - 1.96 (0.0291 - 0.0772)
Pedal play		3 - 11 (0.12 - 0.43)

Brake Booster

GFS00011

Vacuum type

Unit: mm (in)

Input rod installation standard dimension	145 - 152 (5.71 - 5.98)
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Check Valve

GFS00012

Vacuum leakage [at vacuum of -66.7 kPa (-500 mmHg, -19.69 inHg)]	within 1.3 kPa (10 mmHg, 0.39 inHg) of vacuum for 15 seconds
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Front Disc Brake

GFS00013

Unit: mm (in)

Brake model		CLZ33VB
Brake pad	Standard thickness	11.0 (0.43)
	Repair limit thickness	2.0 (0.08)
Disc rotor	Standard thickness	28.0 (1.102)
	Repair limit	26.0 (1.024)
	Thickness variation (measured at 8 positions)	0.005 (0.0002)
	Runout limit (with it attached to the vehicle)	0.05 (0.002)

SERVICE DATA AND SPECIFICATIONS (SDS)

Rear Disc Brake

GFS00014

Unit: mm (in)

Brake model		LT30
Brake lining	Standard thickness	5.5 (0.22)
	Repair limit thickness	1.5 (0.06)
Drum	Standard inner diameter	295 (11.61)
	Repair limit inner diameter	296.5 (11.67)