

SECTION **BR**  
BRAKE SYSTEM

A  
B  
C  
D  
E

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# PRECAUTIONS

< PRECAUTION >

## PRECAUTION

### PRECAUTIONS

#### Precaution for Supplemental Restraint System (SRS) "AIR BAG" and "SEAT BELT PRE-TENSIONER"

INFOID:000000009466569

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. This system includes seat belt switch inputs and dual stage front air bag modules. The SRS system uses the seat belt switches to determine the front air bag deployment, and may only deploy one front air bag, depending on the severity of a collision and whether the front occupants are belted or unbelted. Information necessary to service the system safely is included in the SR 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 SR 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 WHEN USING POWER TOOLS (AIR OR ELECTRIC) AND HAMMERS

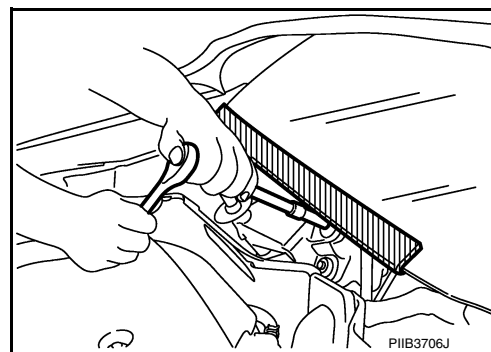
#### **WARNING:**

- When working near the Airbag Diagnosis Sensor Unit or other Airbag System sensors with the Ignition ON or engine running, DO NOT use air or electric power tools or strike near the sensor(s) with a hammer. Heavy vibration could activate the sensor(s) and deploy the air bag(s), possibly causing serious injury.
- When using air or electric power tools or hammers, always switch the Ignition OFF, disconnect the battery, and wait at least 3 minutes before performing any service.

#### Precaution for Procedure without Cowl Top Cover

INFOID:000000009466570

When performing the procedure after removing cowl top cover, cover the lower end of windshield with urethane, etc.



#### Precaution for Brake System

INFOID:000000009466571

- Always use recommended brake fluid. Refer to [MA-15. "FOR USA AND CANADA : Fluids and Lubricants"](#) (for United States and Canada) or [MA-16. "FOR MEXICO : Fluids and Lubricants"](#) (for Mexico).
- Do not reuse drained brake fluid.
- Do not spill or splash brake fluid on painted surfaces. Brake fluid may seriously damage paint. Wipe it off immediately and wash with water if it gets on a painted surface.
- Always confirm the specified tightening torque when installing the brake pipes.
- After pressing the brake pedal more deeply or harder than normal driving, such as air bleeding, check each item of brake pedal. Adjust brake pedal if it is outside the standard value.
- Do not use mineral oils such as gasoline or light oil to clean. They may damage rubber parts and cause improper operation.
- Always loosen the brake tube flare nut with a flare nut wrench.

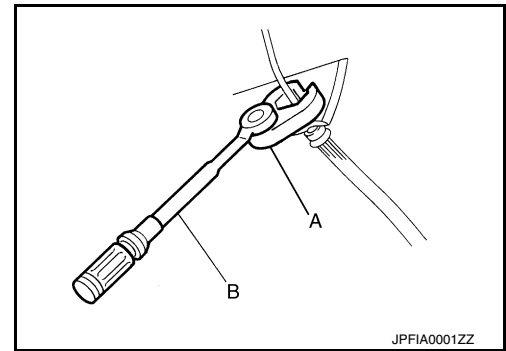
## PRECAUTIONS

### < PRECAUTION >

- Tighten the brake tube flare nut to the specified torque with a crow-foot (A) and torque wrench (B).
- Always connect the battery terminal when moving the vehicle.
- Turn the ignition switch OFF and disconnect the ABS actuator and electric unit (control unit) harness connector or the battery negative terminal before performing the work.
- Check that no brake fluid leakage is present after replacing the parts.

### **WARNING:**

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



# PREPARATION

< PREPARATION >

## PREPARATION

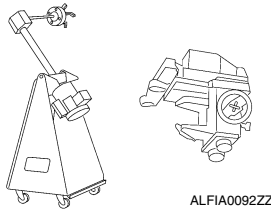
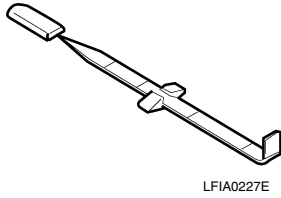
### PREPARATION

#### Special Service Tool

INFOID:000000009466572

The actual shapes of the tools may differ from those illustrated here.

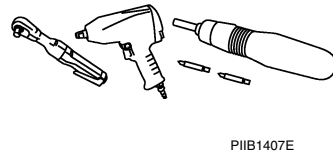
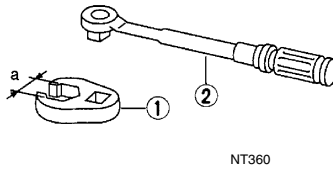
| Tool number<br>(TechMate No.)<br>Tool name              | Description                  |
|---|------------------------------|
| —<br>(J-46532)<br>Brake pedal height measurement tool   | Measuring brake pedal height |
| 38-PFM90.5<br>( — )<br>Pro-Cut PFM90 On-Car Brake Lathe | Refinishing rotors           |



#### Commercial Service Tool

INFOID:000000009466573

| Tool name                                 | Description   |
|---|---|
| 1. Flare nut crowfoot<br>2. Torque wrench | Installing brake tubes and hoses<br><b>a: 10mm (0.39 in)/12mm (0.47 in)</b> |
| Power tool                                | Loosening nuts, screws and bolts  |



# NOISE, VIBRATION AND HARSHNESS (NVH) TROUBLESHOOTING

< SYMPTOM DIAGNOSIS >

## SYMPTOM DIAGNOSIS

### NOISE, VIBRATION AND HARSHNESS (NVH) TROUBLESHOOTING

#### NVH Troubleshooting Chart

INFOID:000000009466574

Use the chart below to help you find the cause of the symptom. If necessary, repair or replace these parts.

| Symptom | Possible cause and SUSPECTED PARTS |       | Reference page  |
|---------|------------------------------------|-------|---|
|         | Noise                              | Shake |   |
| Symptom | Noise                              |       | <a href="#">BR-7, "BRAKE PAD : Inspection of Pad"</a> , <a href="#">BR-8, "BRAKE PAD : Inspection of Pad"</a>       |
|         | Shake                              |       | <a href="#">BR-7, "BRAKE PAD : Inspection of Pad"</a> , <a href="#">BR-8, "BRAKE PAD : Inspection of Pad"</a>       |
|         | Shimmy, Shudder                    |       | <a href="#">BR-7, "BRAKE PAD : Inspection of Pad"</a> , <a href="#">BR-8, "BRAKE PAD : Inspection of Pad"</a>       |
|         |                                    |       | —   |
|         |                                    |       | —   |
|         |                                    |       | <a href="#">BR-7, "DISC ROTOR : Inspection of Rotor"</a> , <a href="#">BR-8, "DISC ROTOR : Inspection of Rotor"</a> |
|         |                                    |       | —   |
|         |                                    |       | —   |
|         |                                    |       | —   |
|         |                                    |       | <a href="#">BR-7, "DISC ROTOR : Inspection of Rotor"</a> , <a href="#">BR-8, "DISC ROTOR : Inspection of Rotor"</a> |
|         |                                    |       | <a href="#">FAX-4, RAX-4</a>  |
|         |                                    |       | <a href="#">FSU-5, "NVH Troubleshooting Chart"</a>  |
|         |                                    |       | <a href="#">WT-55, "NVH Troubleshooting Chart"</a>  |
|         |                                    |       | <a href="#">WT-55, "NVH Troubleshooting Chart"</a>  |
|         |                                    |       | <a href="#">FAX-4, "NVH Troubleshooting Chart"</a>  |
|         |                                    |       | <a href="#">ST-8, "NVH Troubleshooting Chart"</a>   |

×: Applicable

# FRONT DISC BRAKE

< BASIC INSPECTION >

## BASIC INSPECTION

### FRONT DISC BRAKE

#### BRAKE PAD

#### BRAKE PAD : Inspection of Pad

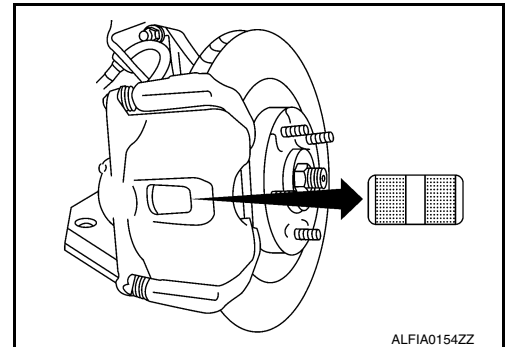
INFOID:000000009466575

#### PAD WEAR

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

**Standard thickness** : Refer to [BR-46, "Front Disc Brake"](#).

**Minimum thickness** : Refer to [BR-46, "Front Disc Brake"](#).



#### DISC ROTOR

#### DISC ROTOR : Inspection of Rotor

INFOID:000000009466576

#### VISUAL

Check surface of disc rotor for uneven wear, cracks, and serious damage. Replace as necessary.

#### RUNOUT

1. Attach disc rotor to wheel hub using wheel nuts (at two or more positions).
2. Inspect runout using a dial gauge placed at 10 mm (0.39 in) inside the disc edge.

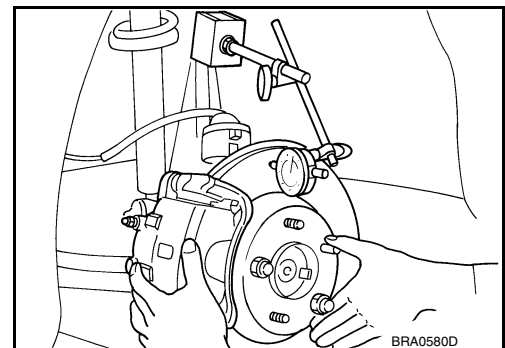
**Runout limit** : Refer to [BR-46, "Front Disc Brake"](#).  
(with it attached to the vehicle)

#### NOTE:

Before measuring, make sure that wheel bearing axial end play is within the specification. Refer to [FAX-5, "Inspection"](#).

3. When runout exceeds limit value, displace mounting positions of disc rotor by one hole. Then find a position of the minimum value for runout.
4. If runout is outside the specified value after performing the above operation, refinish disc rotor using Tool.

**Tool number** : 38-PFM90.5



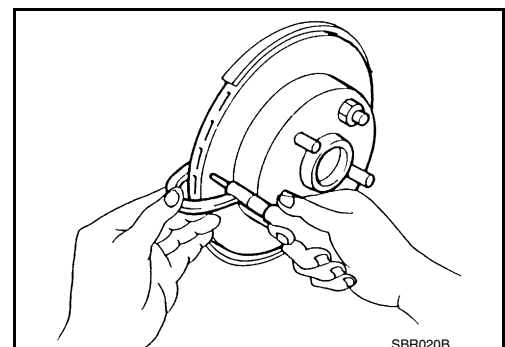
#### THICKNESS

Check thickness of the disc rotor using a micrometer. Replace disc rotor if thickness is under the wear limit.

**Standard thickness** : Refer to [BR-46, "Front Disc Brake"](#).

**Minimum thickness** : Refer to [BR-46, "Front Disc Brake"](#).

**Thickness variation (Measured at 8 positions)** : Refer to [BR-46, "Front Disc Brake"](#).



A  
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C  
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L  
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P

# REAR DISC BRAKE

< BASIC INSPECTION >

## REAR DISC BRAKE

### BRAKE PAD

#### BRAKE PAD : Inspection of Pad

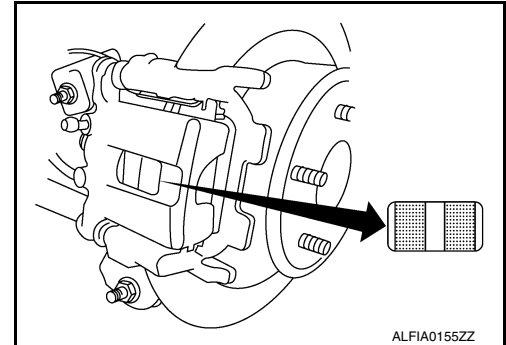
INFOID:000000009466577

#### PAD WEAR

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

**Standard thickness** : Refer to [BR-46, "Rear Disc Brake"](#).

**Minimum thickness** : Refer to [BR-46, "Rear Disc Brake"](#).



### DISC ROTOR

#### DISC ROTOR : Inspection of Rotor

INFOID:000000009466578

#### VISUAL

Check surface of disc rotor for uneven wear, cracks, and serious damage. Replace if necessary.

#### RUNOUT

1. Attach disc rotor to wheel hub using wheel nuts (at two or more positions).
2. Inspect runout using dial gauge placed at 10 mm (0.39 in) inside disc edge.

**Runout limit** : Refer to [BR-46, "Rear Disc Brake"](#).

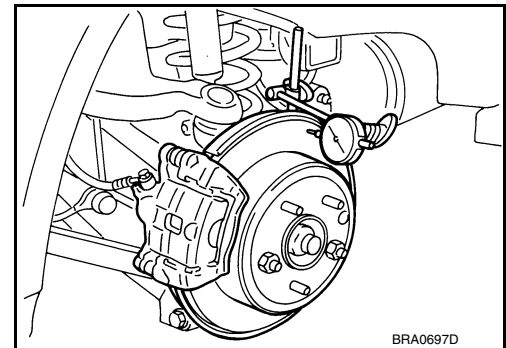
**(With it attached to the vehicle)**

#### NOTE:

Before measuring, make sure that wheel bearing axial end play is within the specification. Refer to [RAX-5, "Inspection"](#).

3. When runout exceeds limit value, displace mounting positions of disc rotor by one hole. Then find a position of the minimum value for runout.
4. If runout is outside the specified value after performing the above operation, refinish the disc rotor using Tool.

**Tool number** : 38-PFM90.5



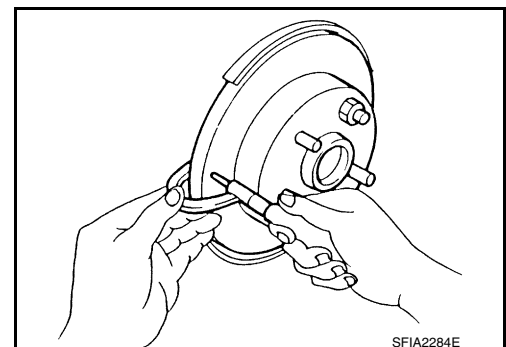
#### THICKNESS

Check the thickness of the disc rotor using a micrometer. Replace disc rotor if the thickness is less than the wear limit.

**Standard thickness** : Refer to [BR-46, "Rear Disc Brake"](#).

**Minimum thickness** : Refer to [BR-46, "Rear Disc Brake"](#).

**Thickness variation (Measured at 8 positions)** : Refer to [BR-46, "Rear Disc Brake"](#).





# BRAKE BOOSTER

< BASIC INSPECTION >

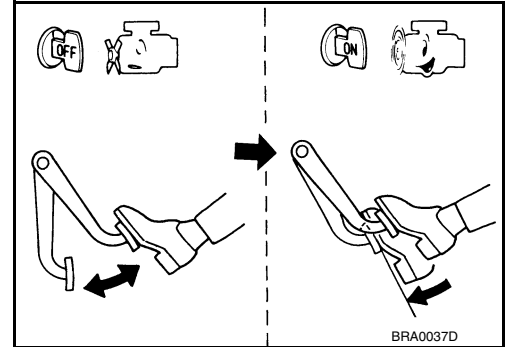
## BRAKE BOOSTER

### Inspection

INFOID:000000009466579

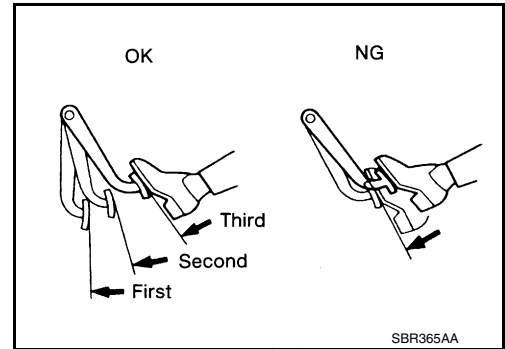
#### OPERATION

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.



#### AIR TIGHT

• 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.

# VACUUM LINES

< BASIC INSPECTION >

## VACUUM LINES

### Inspection

INFOID:000000009466580

#### VISUAL INSPECTION

Check for improper assembly, damage and deterioration. Replace as necessary.

#### CHECK VALVE INSPECTION

##### Airtightness Inspection

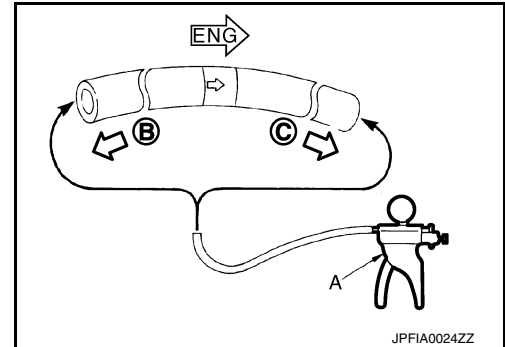
Use a suitable tool (A) to check the built-in check valve. Replace the vacuum hose with the built-in check valve as an assembly if the vacuum hose is out of specification.

When suitable tool (A) is connected to booster side (B)

Refer to [BR-46, "Check Valve"](#).

When suitable tool (A) is connected to engine side (C)

Refer to [BR-46, "Check Valve"](#).



# BRAKE MASTER CYLINDER

< BASIC INSPECTION >

## BRAKE MASTER CYLINDER

---

### Inspection

INFOID:000000009466581

### LEAK INSPECTION

Check for leaks at master cylinder to brake booster attachment point, reservoir tank, and brake tube connections.

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B

C

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**BR**

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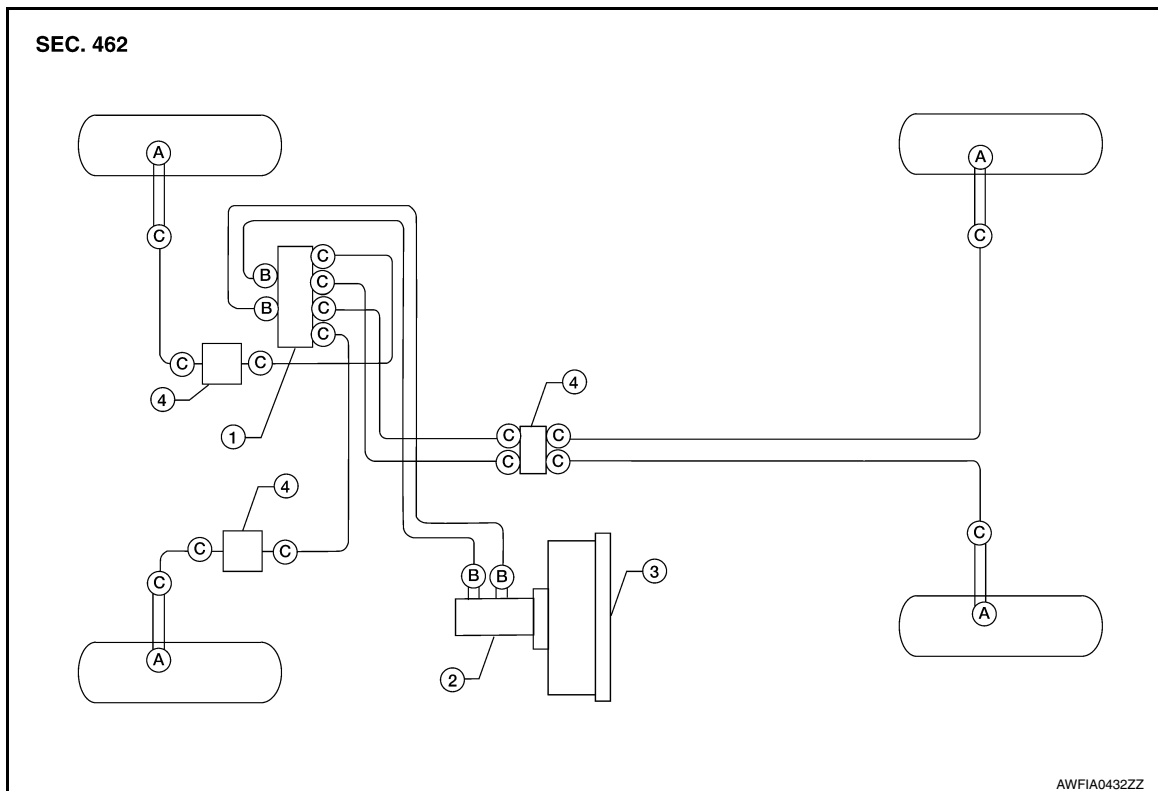
# BRAKE TUBE AND HOSE

< BASIC INSPECTION >

## BRAKE TUBE AND HOSE

### Hydraulic Circuit

INFOID:000000009466582



- |   |  |   |
|---|--|---|
| 1. Actuator                                       | 2. Master cylinder                             | 3. Brake booster                                  |
| 4. Connector                                      | A. Union bolt<br>18.2 N·m (1.9 kg-m, 13 ft-lb) | B. Flare nut M12<br>22.1 N·m (2.3 kg-m, 16 ft-lb) |
| C. Flare nut M10<br>16.2 N·m (1.7 kg-m, 12 ft-lb) |  |   |

### CAUTION:

- All hoses and piping (tubes) must be free from excessive bending, twisting and pulling.
- Make sure there is no interference with other parts when turning the steering wheel both clockwise and counterclockwise.
- The brake piping is an important safety part. If a brake fluid leak is detected, always disassemble the parts. Replace applicable part with a new one, if necessary.
- 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.
- Do not bend or twist brake hose sharply, or strongly pull it.
- When removing components, cover connections so that no dirt, dust, or other foreign matter gets in.
- Refill with new specified brake fluid. Refer to [MA-15, "FOR USA AND CANADA : Fluids and Lubricants"](#) (for United States and Canada) or [MA-16, "FOR MEXICO : Fluids and Lubricants"](#) (for Mexico).
- Do not reuse drained brake fluid.

### FRONT BRAKE

#### FRONT BRAKE : Inspection

INFOID:000000009466583

#### INSPECTION AFTER REMOVAL

### 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.

# BRAKE TUBE AND HOSE

## < BASIC INSPECTION >

1. Check brake lines (tubes and hoses) and connections for fluid leaks, damage, twists, deformation, contacts with other parts, and loose connections. Replace any parts as necessary. Refer to [BR-20, "Removal and Installation of Front Brake Piping and Brake Hose"](#).
2. While depressing brake pedal under a force of 785 N (80 kg, 177 lb) with engine running for approximately 5 seconds, check each part for fluid leaks.

## REAR BRAKE

### REAR BRAKE : Inspection

INFOID:000000009466584

### INSPECTION AFTER REMOVAL

#### **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 brake lines (tubes and hoses) and connections for fluid leaks, damage, twists, deformation, contacts with other parts, and loose connections. Replace any parts as necessary. Refer to [BR-21, "Removal and Installation of Rear Brake Piping and Brake Hose"](#).
2. While depressing brake pedal under a force of 785 N (80 kg, 177 lb) with engine running for approximately 5 seconds, check each part for fluid leaks.

# BRAKE PEDAL

< PERIODIC MAINTENANCE >

## PERIODIC MAINTENANCE

### BRAKE PEDAL

#### Inspection and Adjustment

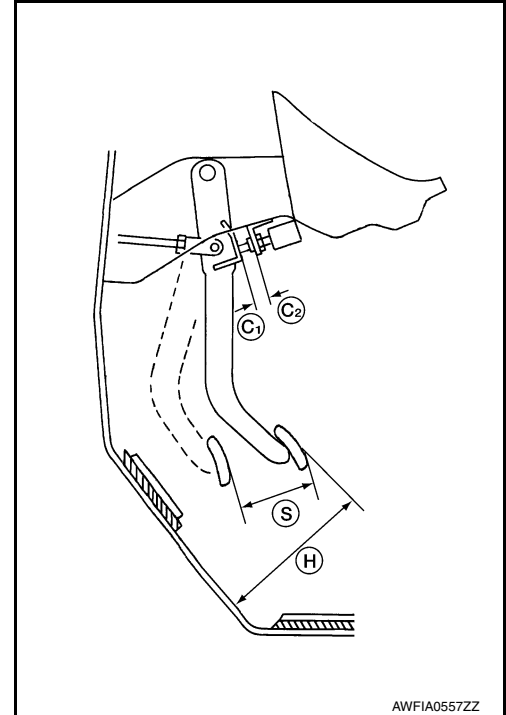
INFOID:000000009466585

#### INSPECTION

1. Inspect the brake pedal free height (H) from the floor using Tool at a 90° angle to the floor as shown.

**Tool number** : — (J-46532)

2. Adjust the brake pedal free height (H) to specifications.



|   |   |
|---|---|
| Brake pedal free height (H)   | Refer to <a href="#">BR-45, "Brake Pedal"</a> . |
| Brake pedal full stroke (S)   | Refer to <a href="#">BR-45, "Brake Pedal"</a> . |
| Clearance between brake pedal bracket (C1) and threaded end of stop lamp switch and ASCD cancel switch (C2) | Refer to <a href="#">BR-45, "Brake Pedal"</a> . |

#### ADJUSTMENT

1. Loosen the stop lamp switch and ASCD cancel switch by turning 45° counterclockwise.

# BRAKE PEDAL

## < PERIODIC MAINTENANCE >

- Loosen lock nut (A) on the input rod, then turn input rod to adjust the brake pedal to specified height. When finished adjusting, tighten lock nut (A) to specification.

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

**CAUTION:**

**Make sure that the screw portion of the end of input rod is located inside the clevis.**

- With the brake pedal pulled up and held by hand, press the stop lamp switch and the ASCD cancel switch in until threaded ends contact the brake pedal bracket.
- With the threaded ends of the stop lamp switch and ASCD cancel switch contacting the pedal bracket, turn the switches 45° clockwise to lock in place. Check that the stop lamp switch and ASCD cancel switch threaded end to brake pedal bracket gap (C) is within specifications.

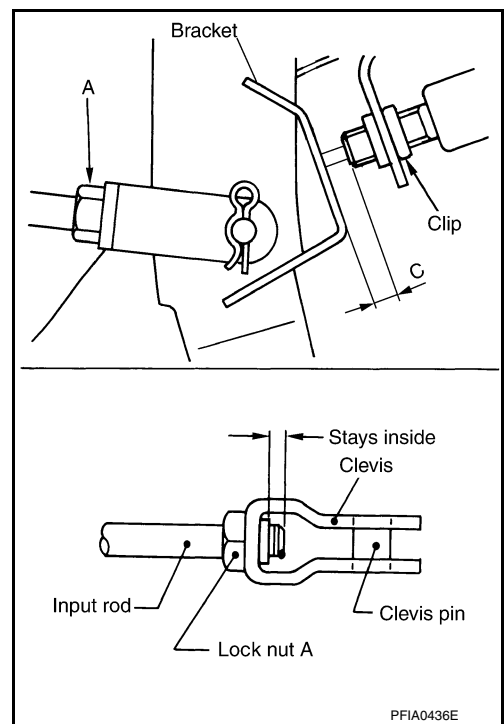
**CAUTION:**

**Make sure that the gap (C) between the brake pedal bracket and stop lamp switch and ASCD cancel switch threaded ends are within specification.**

- Check the brake pedal for smooth operation.

**CAUTION:**

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



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# BRAKE FLUID

< PERIODIC MAINTENANCE >

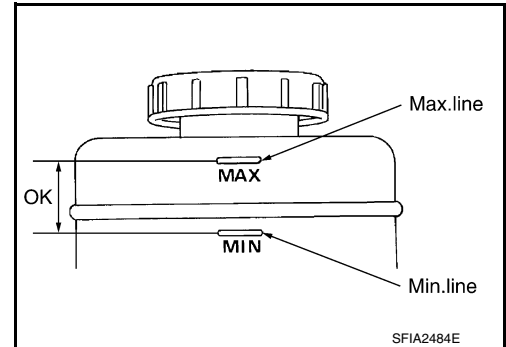
## BRAKE FLUID

### Inspection

INFOID:000000009466586

#### LEVEL CHECK

- Make sure that a brake fluid level in reservoir tank is between MAX and MIN lines as shown.
- Visually check around reservoir tank for fluid leakage.
- If the level is excessively low, check brake system for leaks.
- If brake warning lamp remains illuminated after parking brake pedal is released, check brake system for fluid leaks.



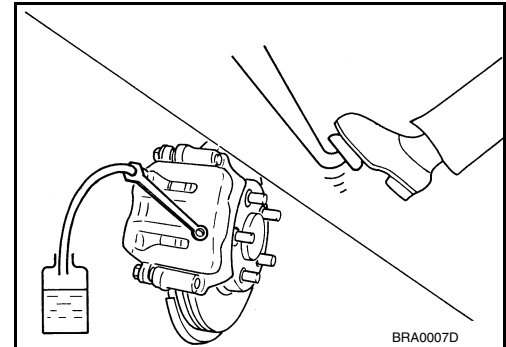
### Drain and Refill

INFOID:000000009466587

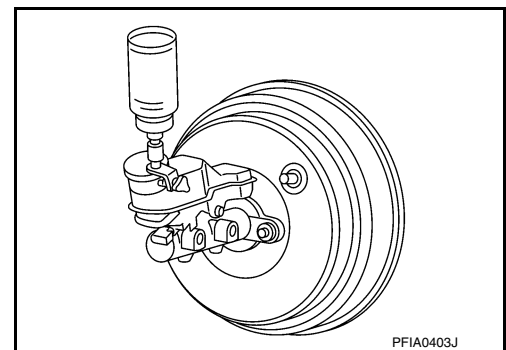
#### CAUTION:

- Refill with new brake fluid. Refer to [MA-15, "FOR USA AND CANADA : Fluids and Lubricants"](#) (for United States and Canada) or [MA-16, "FOR MEXICO : Fluids and Lubricants"](#) (for Mexico).
- Do not reuse drained brake fluid.
- Do not let brake fluid splash on the painted surfaces of the body. This might damage the paint. If brake fluid is splashed on painted areas, wash it away with water immediately.
- Before working, disconnect ABS actuator and electric unit (control unit) harness connector or battery negative terminal.

1. Turn ignition switch OFF and disconnect ABS actuator and electric unit (control unit) harness connector or battery negative terminal.
2. Connect a vinyl tube to bleed valve.
3. Depress brake pedal, loosen bleed valve, and gradually remove brake fluid.



4. Make sure there is no foreign material in the reservoir tank, and refill with new brake fluid.
5. Rest foot on brake pedal. Loosen bleed valve. Slowly depress brake pedal until it stops. Tighten bleed valve. Release brake pedal. Repeat the process a few times, then pause to add new brake fluid to master cylinder. Continue until the new brake fluid flows out of bleed valve. Bleed the air out of the brake hydraulic system. Refer to [BR-16, "Bleeding Brake System"](#).



### Bleeding Brake System

INFOID:000000009466588

#### BLEEDING BRAKE SYSTEM

#### CAUTION:

- While bleeding, pay attention to master cylinder fluid level.



# BRAKE FLUID

## < PERIODIC MAINTENANCE >

- **Before working, disconnect ABS actuator and electric unit (control unit) harness connector or battery negative terminal.**

1. Turn ignition switch OFF and disconnect ABS actuator and electric unit (control unit) harness connector or battery negative terminal.
2. Connect a vinyl tube to rear right brake caliper bleed valve.
3. Fully depress brake pedal 10 times.
4. With brake pedal depressed, loosen bleed valve to bleed air in brake line, and then tighten it immediately.
5. Repeat steps 3 and 4 until all of the air is out of the brake line.
6. Tighten the bleed valve to the specified torque. Refer to [BR-32. "Exploded View of Brake Caliper"](#) (front disc brake), [BR-36. "Exploded View of Brake Caliper"](#) (rear brake).
7. Repeat steps 2 through 6, with master cylinder reservoir tank filled at least halfway. Bleed the air in the following order:  
Front right brake→Front left brake→Rear right brake→Rear left brake

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BR

# BRAKE PEDAL

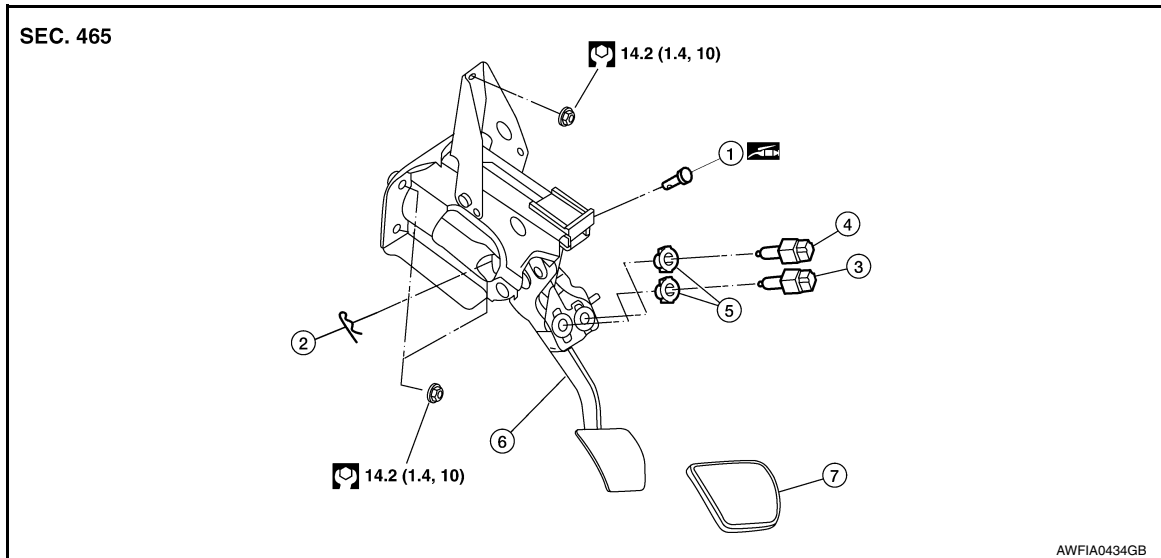
< REMOVAL AND INSTALLATION >

## REMOVAL AND INSTALLATION

### BRAKE PEDAL

#### Exploded View

INFOID:000000009466589



- |                       |             |                         |
|-----------------------|-------------|-------------------------|
| 1. Clevis pin         | 2. Snap pin | 3. Stop lamp switch     |
| 4. ASCD cancel switch | 5. Clip     | 6. Brake pedal assembly |
| 7. Brake pedal pad    |             |                         |

#### NOTE:

The clevis pin must be installed from the RH side as shown.

### Removal and Installation

INFOID:000000009466590

#### REMOVAL

1. Remove instrument lower panel LH and lower knee protector. Refer to [IP-10. "Exploded View"](#).
2. Remove the accelerator pedal assembly. Refer to [ACC-3. "Removal and Installation"](#).
3. Disconnect the harness connectors from the stop lamp switch and ASCD cancel switch.
4. Remove stop lamp switch and ASCD cancel switch from brake pedal assembly.
5. Remove snap pin and clevis pin from brake booster clevis.
6. Disconnect the steering column upper joint and reposition it out of the way.
7. Remove brake pedal assembly to brake booster nuts. Pull brake booster toward engine room to the extent that does not deform the brake tubes.

#### WARNING:

**Do not bend the brake tube.**

8. Remove brake booster clevis from input rod.
9. Remove top nut and then remove brake pedal assembly.
  - Temporarily install the brake pedal assembly to brake booster nuts by hand to support the brake booster.

#### CAUTION:

**Avoid damage from dropping the brake pedal assembly during handling.**

#### INSPECTION AFTER REMOVAL

Check the brake assembly for the following items:

- Crack or deformation of the clevis pin.
- Crack of any welded portion of the brake pedal assembly.
- Brake pedal bend or deformation.

# BRAKE PEDAL

## < REMOVAL AND INSTALLATION >

---

### INSTALLATION

Installation is in the reverse order of removal.

- Check the brake pedal for smooth operation. There should be no binding or sticking when applying or releasing the brake pedal.
- Adjust brake pedal height after installing brake pedal assembly. Refer to [BR-14, "Inspection and Adjustment"](#).

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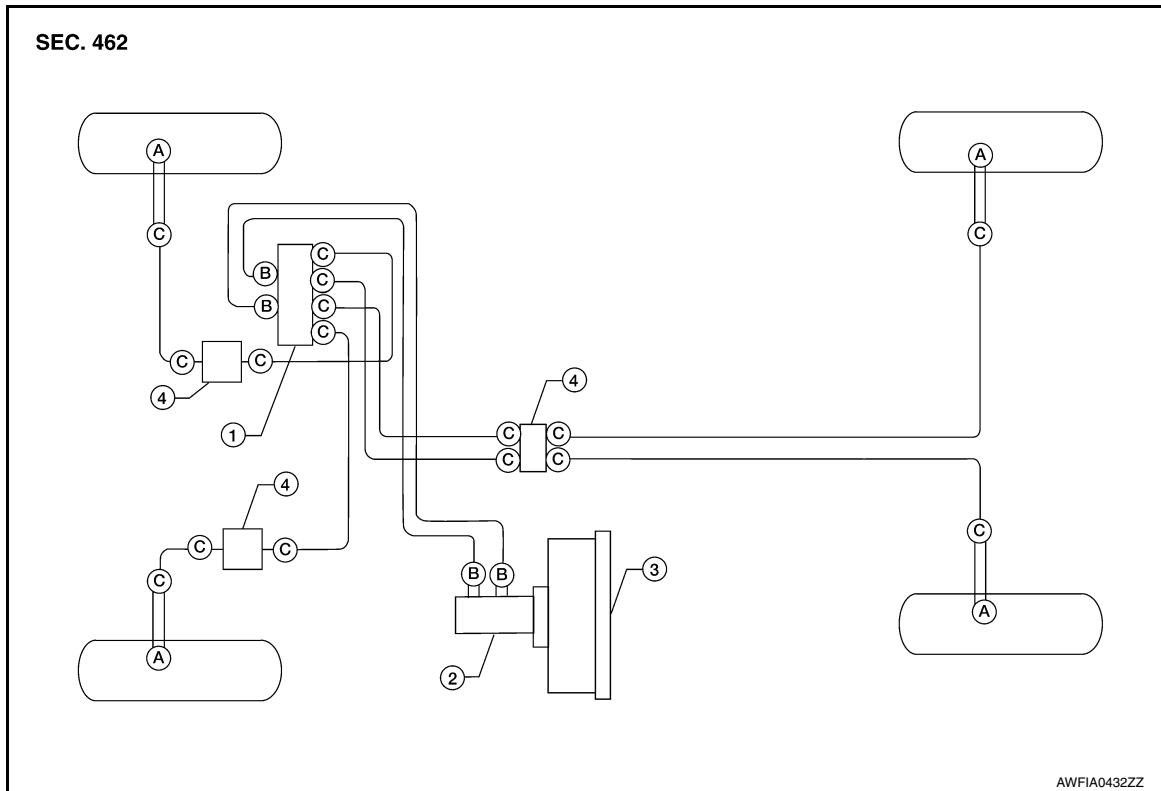
# BRAKE TUBE AND HOSE

< REMOVAL AND INSTALLATION >

## BRAKE TUBE AND HOSE

### Hydraulic Circuit

INFOID:000000009466591



- |   |  |   |
|---|--|---|
| 1. Actuator                                       | 2. Master cylinder                             | 3. Brake booster                                  |
| 4. Connector                                      | A. Union bolt<br>18.2 N·m (1.9 kg-m, 13 ft-lb) | B. Flare nut M12<br>22.1 N·m (2.3 kg-m, 16 ft-lb) |
| C. Flare nut M10<br>16.2 N·m (1.7 kg-m, 12 ft-lb) |  |   |

### CAUTION:

- All hoses and piping (tubes) must be free from excessive bending, twisting and pulling.
- Make sure there is no interference with other parts when turning the steering wheel both clockwise and counterclockwise.
- The brake piping is an important safety part. If a brake fluid leak is detected, always disassemble the parts. Replace applicable part with a new one, if necessary.
- 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.
- Do not bend or twist brake hose sharply, or strongly pull it.
- When removing components, cover connections so that no dirt, dust, or other foreign matter gets in.
- Refill with new specified brake fluid. Refer to [MA-15, "FOR USA AND CANADA : Fluids and Lubricants"](#) (for United States and Canada) or [MA-15, "FOR USA AND CANADA : Fluids and Lubricants"](#) (for Mexico).
- Do not reuse drained brake fluid.

### Removal and Installation of Front Brake Piping and Brake Hose

INFOID:000000009466592

#### NOTE:

When removing components such as hoses, tubes/lines, etc., cap or plug openings to prevent fluid from spilling.

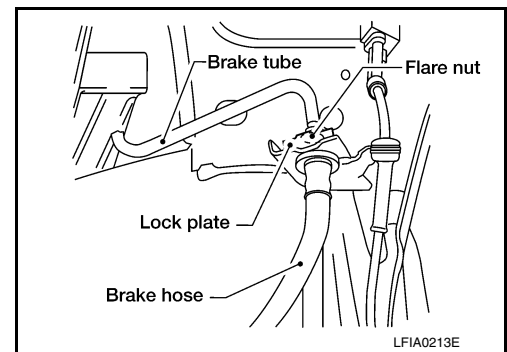
#### REMOVAL

1. Remove the front wheel and tire using power tool. Refer to [WT-60, "Adjustment"](#).
2. Remove the reservoir cap.

# BRAKE TUBE AND HOSE

## < REMOVAL AND INSTALLATION >

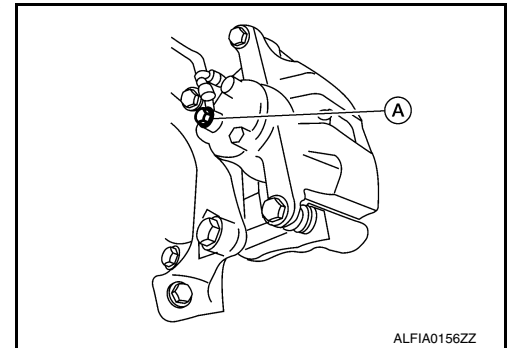
3. Disconnect brake hose from brake tube, using a suitable tool.
4. Remove lock plate and then remove brake hose from bracket.



5. Remove union bolt (A) and then remove brake hose and copper sealing washers from brake caliper assembly.

**CAUTION:**

**Do not reuse copper sealing washers.**

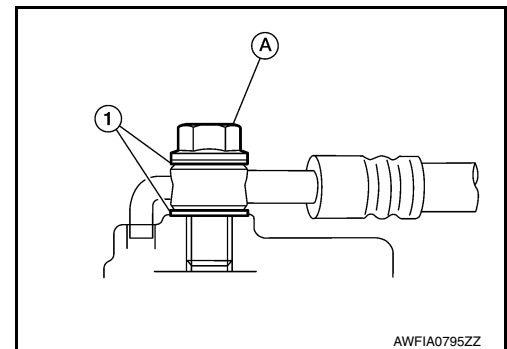


## INSTALLATION

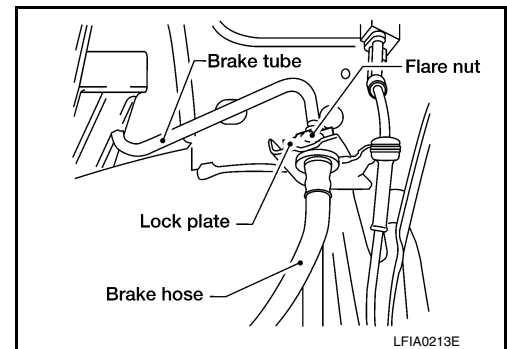
1. Install brake hose by aligning with the protrusion on brake caliper assembly, then install the union bolt (A) and new copper sealing washers (1) and tighten union bolt (A) to specification. Refer to [BR-20, "Hydraulic Circuit"](#).

**CAUTION:**

**Do not reuse copper sealing washers.**



2. Connect brake hose to brake tube, partially tighten flare nut by hand as much as possible, then secure it to the bracket with lock plate.
3. Tighten flare nut to the specified torque, using a suitable tool. Refer to [BR-20, "Hydraulic Circuit"](#).



4. Refill brake fluid and bleed air. Refer to [BR-16, "Bleeding Brake System"](#).
5. Install the reservoir cap.
6. Install the front wheel and tire. Refer to [WT-60, "Adjustment"](#).

## Removal and Installation of Rear Brake Piping and Brake Hose

INFOID:000000009466593

**NOTE:**

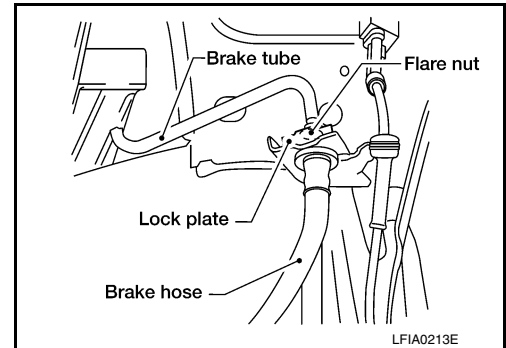
When removing components such as hoses, tubes/lines, etc., cap or plug openings to prevent fluid from spilling.

## REMOVAL

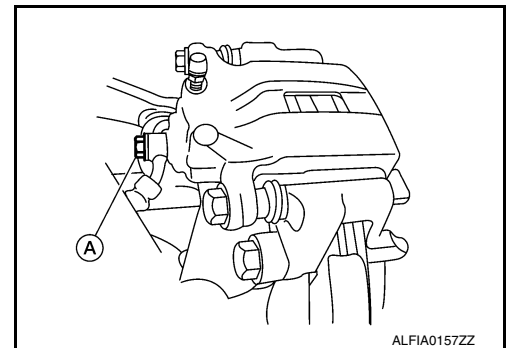
# BRAKE TUBE AND HOSE

## < REMOVAL AND INSTALLATION >

1. Remove the rear wheel and tire using power tool. Refer to [WT-60, "Adjustment"](#).
2. Remove the reservoir cap.
3. Disconnect brake hose from brake tube, using a suitable tool.
4. Remove lock plate and then remove brake hose from bracket.

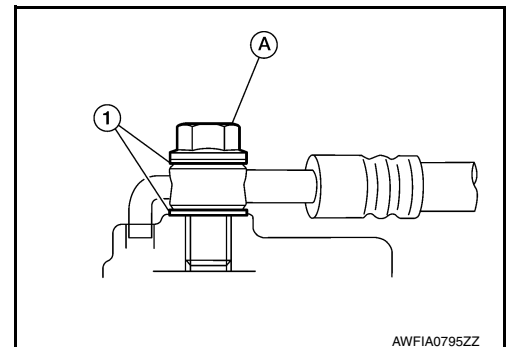


5. Remove union bolt (A), and then remove brake hose and copper sealing washers from brake caliper assembly.  
**CAUTION:**  
**Do not reuse copper sealing washers.**

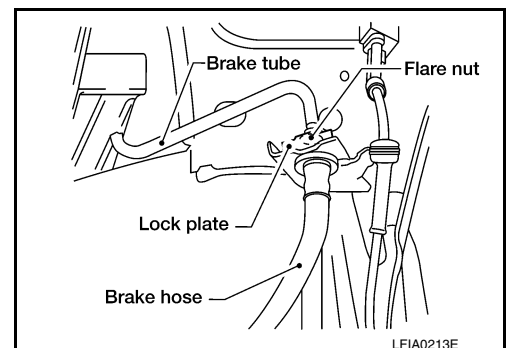


## INSTALLATION

1. Install brake hose by aligning with the protrusion on brake caliper assembly, then install the union bolt (A) and new copper sealing washers (1) and tighten union bolt (A) to specification. Refer to [BR-20, "Hydraulic Circuit"](#).  
**CAUTION:**  
**Do not reuse copper sealing washers.**



2. Connect brake hose to brake tube, partially tighten flare nut by hand as much as possible, then secure it to the bracket with lock plate.
3. Tighten flare nut to the specified torque, using a suitable tool. Refer to [BR-20, "Hydraulic Circuit"](#).



4. Refill brake fluid and bleed air. Refer to [BR-16, "Bleeding Brake System"](#).
5. Install the reservoir cap.
6. Install the rear wheel and tire. Refer to [WT-60, "Adjustment"](#).

## Inspection After Installation

INFOID:000000009466594

**CAUTION:**

# BRAKE TUBE AND HOSE

## < REMOVAL AND INSTALLATION >

**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 a damaged part is detected.**

1. Check brake lines (tubes and hoses), and connections for fluid leaks, damage, twist, deformation, contact with other parts, and loose connections. Replace any parts as necessary. Refer to [BR-20, "Hydraulic Circuit"](#).
2. While depressing brake pedal under a force of 785 N (80 kg, 177 lb) with engine running for approximately 5 seconds, check each part for fluid leaks.

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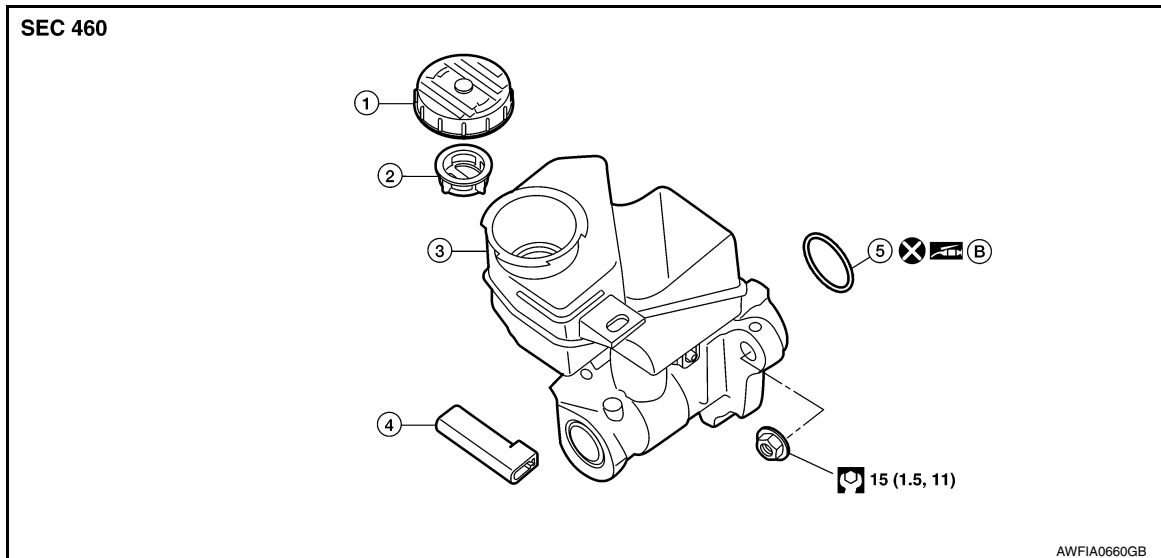
# BRAKE MASTER CYLINDER

< REMOVAL AND INSTALLATION >

## BRAKE MASTER CYLINDER

Exploded View

INFOID:000000009466595



- |  |                        |                             |
|--|------------------------|-----------------------------|
| 1. Reservoir cap   | 2. Oil strainer (blue) | 3. Master cylinder assembly |
| 4. Brake fluid level switch harness connector                | 5. O-ring              |                             |
| B. PBC (Poly Butyl Cuprysil) grease or silicone-based grease |                        |                             |

## Removal and Installation

INFOID:000000009466596

### CAUTION:

- Do not 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.
- Refill with new brake fluid.
- Do not reuse drained brake fluid.

### NOTE:

When removing components such as hoses, tubes/lines, etc., cap or plug openings to prevent fluid from spilling.

### REMOVAL

1. Remove the engine room cover. Refer to [EM-23, "Removal and Installation"](#).
2. Remove the air cleaner and air duct. Refer to [EM-24, "Removal and Installation"](#).
3. Disconnect the harness connector from the brake fluid level switch.
4. Disconnect master cylinder brake tubes, using a suitable tool.
5. Remove master cylinder nuts.
6. Remove master cylinder assembly and O-ring.

### CAUTION:

**Do not reuse O-ring.**

### INSTALLATION

Installation is in the reverse order of removal.



## BRAKE MASTER CYLINDER

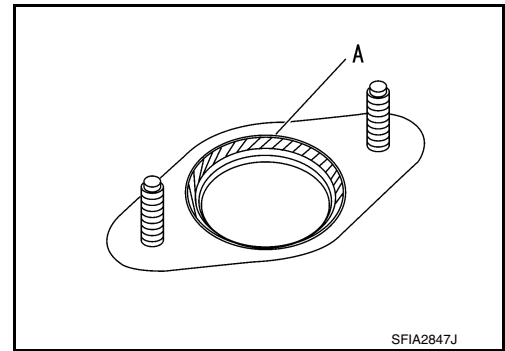
### < REMOVAL AND INSTALLATION >

- Apply silicone grease to brake booster at position (A) as shown, be sure the O-ring is in proper position when installing master cylinder to brake booster.

**CAUTION:**

**Do not reuse O-ring.**

- Tighten brake tube flare nut to the specified torque using a suitable tool. Refer to [BR-20. "Hydraulic Circuit"](#).
- Refill the brake hydraulic system with new brake fluid and bleed air. Refer to [BR-16. "Bleeding Brake System"](#).
- If necessary, adjust the brake booster input rod length. Refer to [BR-46. "Brake Booster"](#).



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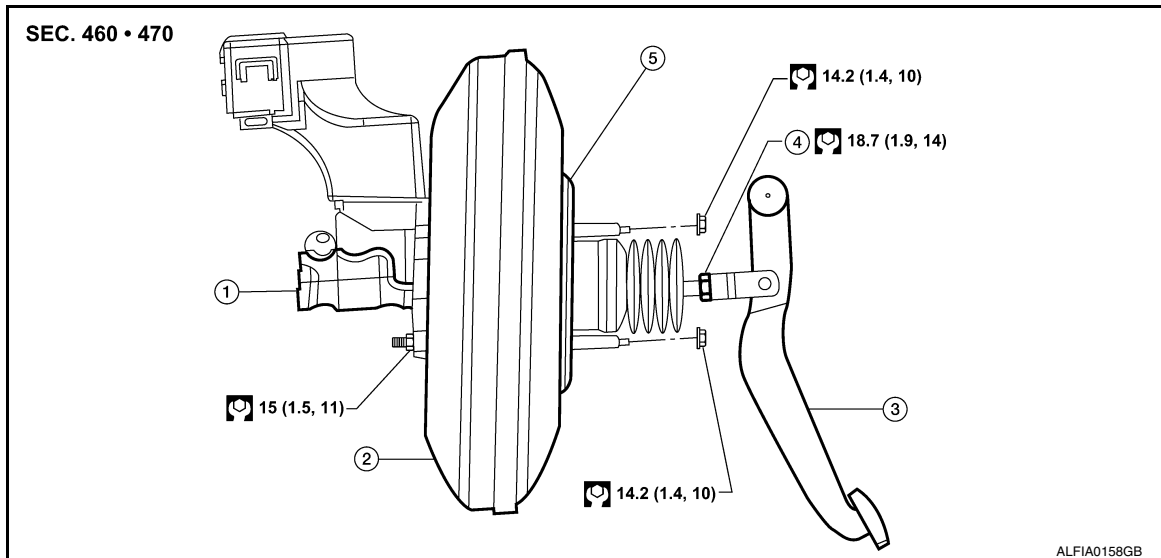
# BRAKE BOOSTER

< REMOVAL AND INSTALLATION >

## BRAKE BOOSTER

### Exploded View

INFOID:000000009466597



- |                             |                  |                |
|-----------------------------|------------------|----------------|
| 1. Master cylinder assembly | 2. Brake booster | 3. Brake pedal |
| 4. Lock nut                 | 5. Gasket        |                |

### Removal and installation

INFOID:000000009466598

#### NOTE:

When removing components such as hoses, tubes/lines, etc., cap or plug openings to prevent fluid from spilling.

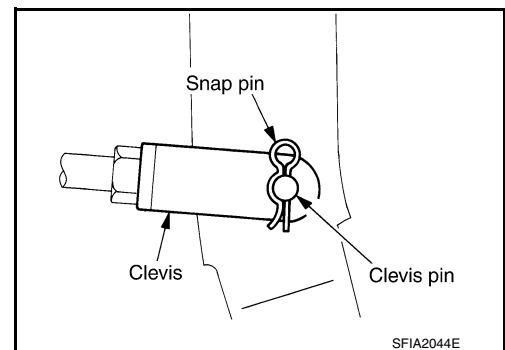
#### REMOVAL

1. Release the fuel pressure. Refer to [EC-592, "Inspection"](#).
2. Disconnect the battery negative terminal. Refer to [PG-67, "Exploded View"](#).
3. Remove the engine room cover. Refer to [EM-23, "Removal and Installation"](#).
4. Remove the air cleaner and air duct. Refer to [EM-24, "Removal and Installation"](#).
5. Remove cowl top, cowl top extension LH and the lower cowl top extension brace. Refer to [EXT-20, "Exploded View"](#).
6. Disconnect fuel line from engine, clip and main line and reposition out of the way.
7. Remove master cylinder. Refer to [BR-24, "Removal and Installation"](#).
8. Disconnect vacuum hose from brake booster.
9. Remove instrument lower panel LH. Refer to [IP-10, "Exploded View"](#).
10. Disconnect the harness connector from the accelerator pedal.
11. Remove snap pin and clevis pin from inside vehicle.
12. Disconnect the steering column upper joint and reposition it out of the way.
13. Disconnect the harness connectors from the ASCD cancel switch and stop lamp switch.
14. Remove nuts on brake booster and brake pedal assembly, then remove brake pedal. Refer to [BR-18, "Exploded View"](#).
15. Remove brake booster from dash panel on engine room side.

#### CAUTION:

**Be careful not to deform or bend brake tube while removing brake booster.**

16. Remove the brake booster gasket.



# BRAKE BOOSTER

## < REMOVAL AND INSTALLATION >

### INSTALLATION

#### CAUTION:

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

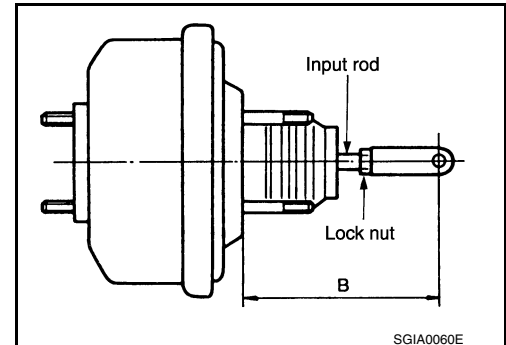
1. Loosen lock nut to adjust input rod length (B) to the specified value as shown.

**Input rod length (B) : Refer to [BR-46, "Brake Booster"](#).**

2. After adjusting input rod length (B), temporarily tighten the lock nut to install the booster assembly. At this time, make sure that a gasket between booster assembly and dash panel is installed.

#### CAUTION:

**Always install gasket between brake booster and dash panel.**



3. Install and connect brake pedal with clevis of input rod.
4. Install brake pedal bracket nuts and tighten them to the specified torque. Refer to [BR-18, "Exploded View"](#).
5. Connect the ASCD cancel switch and stop lamp switch harness connectors.
6. Connect the steering column upper joint.
7. Connect the accelerator pedal harness connector.
8. Install instrument lower panel LH. Refer to [IP-10, "Exploded View"](#).
9. Install vacuum hose into brake booster.
10. Install master cylinder. Refer to [BR-24, "Removal and Installation"](#).
11. Position fuel line and connect to engine, clip and main line.
12. Install the air cleaner and air duct. Refer to [EM-24, "Removal and Installation"](#).
13. Install the engine room cover. Refer to [EM-23, "Removal and Installation"](#).
14. Install the cowl top, cowl top extension LH and the lower cowl top extension brace. Refer to [EXT-20, "Exploded View"](#).
15. Connect the battery negative terminal. Refer to [PG-67, "Exploded View"](#).
16. Adjust the brake pedal height, if necessary. Refer to [PG-67, "Exploded View"](#).
17. Tighten lock nut of input rod to the specified torque. Refer to [BR-26, "Exploded View"](#).
18. Refill new brake fluid and bleed air. Refer to [BR-16, "Bleeding Brake System"](#).

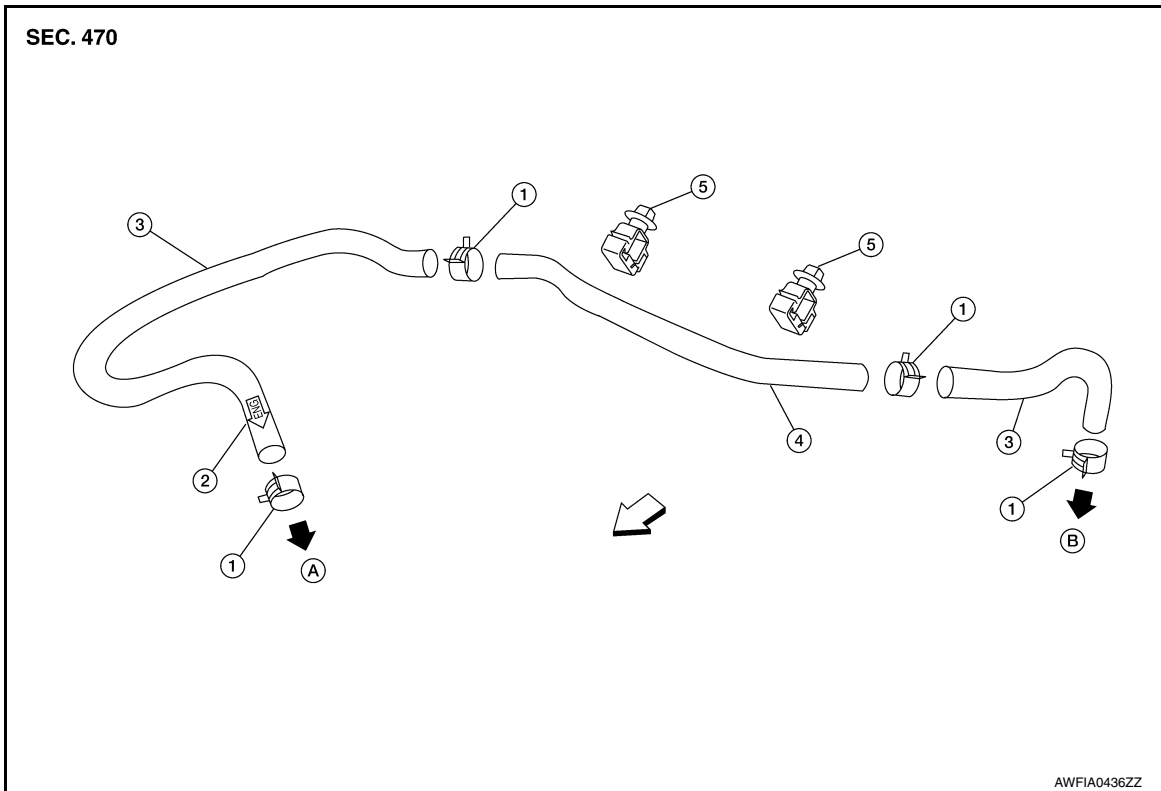
# VACUUM LINES

< REMOVAL AND INSTALLATION >

## VACUUM LINES

### Exploded View

INFOID:000000009466599



- |                     |                       |                       |
|---------------------|-----------------------|-----------------------|
| 1. Clamp            | 2. Installation arrow | 3. Vacuum hose        |
| 4. Vacuum pipe      | 5. Clip               | A. To intake manifold |
| B. To brake booster | ⇐ Front               |                       |

### Removal and Installation

INFOID:000000009466600

#### REMOVAL

1. Disconnect the vacuum hose from the brake booster.
2. Disconnect the vacuum hose from the intake manifold.
3. Release the clips and remove the vacuum pipe with the vacuum hoses attached.
4. Remove the vacuum hoses from the vacuum pipe.

#### INSPECTION AFTER REMOVAL

##### Visual Inspection

Check for correct installation, damage and deterioration of the vacuum hoses and pipe.

##### Valve Air-tightness Check

- Connect a suitable tool (hand vacuum pump) at each end of the vacuum hose to inspect the check valve operation.

**Vacuum applied at booster end** : Refer to [BR-46, "Check Valve"](#).

**Vacuum applied at intake manifold end** : Refer to [BR-46, "Check Valve"](#).

- Replace the vacuum hose component or check valve if out of specification.

#### INSTALLATION

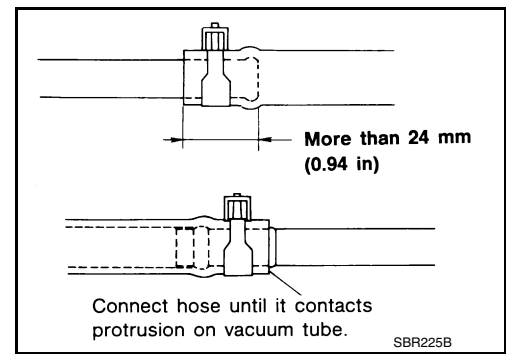
Installation is in the reverse order of removal.

#### CAUTION:

## VACUUM LINES

### < REMOVAL AND INSTALLATION >

- Because the vacuum hose contains a check valve, the vacuum hose must be installed in the correct position for proper operation. Refer to the stamp on the end of the vacuum hose to confirm correct installation. The brake booster will not operate normally if the vacuum hose with the check valve is installed in the wrong direction.
- Insert the vacuum pipe into the vacuum hose at least 24 mm (0.94 in) as shown.
- Do not use lubricating oil during installation.



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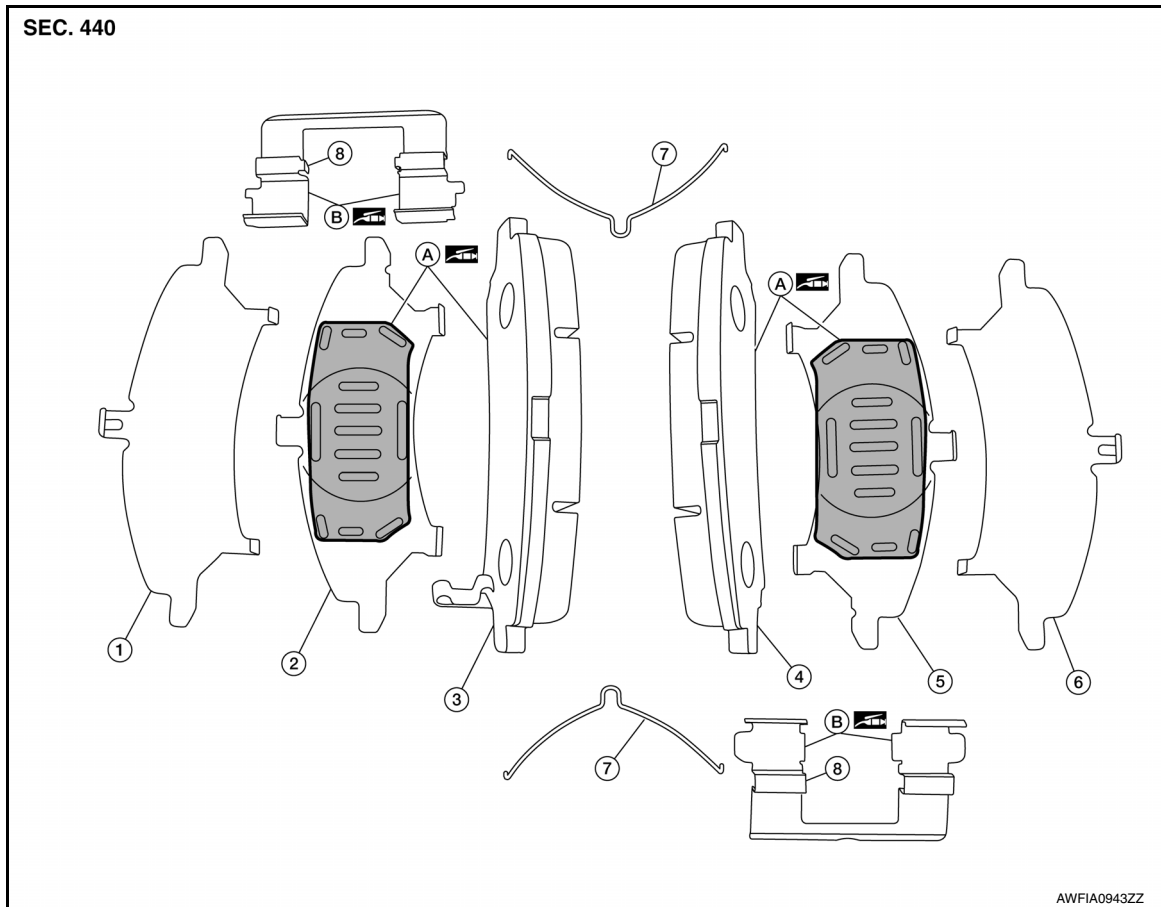
# FRONT DISC BRAKE

< REMOVAL AND INSTALLATION >

## FRONT DISC BRAKE

### Exploded View of Brake Pads

INFOID:000000009466601



- |                      |                  |                            |
|----------------------|------------------|----------------------------|
| 1. Inner shim cover  | 2. Inner shim    | 3. Inner pad               |
| 4. Outer pad         | 5. Outer shim    | 6. Outer shim cover        |
| 7. Anti-rattle clips | 8. Pad retainers | A. Molykote AS-880N grease |
|                      |                  | B. Molykote 7439 grease    |

### Removal and Installation of Brake Pads

INFOID:000000009466602

#### **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 brake pads, 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. For brake pad removal, 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 and shim cover as a set when replacing brake pads.
- Keep rotor and pads free from grease and brake fluid.
- Burnish the brake pads and disc rotor contacting surfaces, after refinishing or replacing rotors, after replacing pads, or if a soft pedal occurs at very low mileage. Refer to [BR-31, "Brake Burnishing Procedure"](#).

#### REMOVAL

1. Remove front wheel and tire using power tool. Refer to [WT-60, "Adjustment"](#).

# FRONT DISC BRAKE

## < REMOVAL AND INSTALLATION >

- Partially drain brake fluid from master cylinder.
- Remove the upper and lower sliding pin bolts.
- NOTE:**  
Note the sliding pin orientation during removal. The lower sliding pin contains a bushing.
- Remove the brake caliper from the torque member. Leaving the brake hose attached, reposition the brake caliper aside with wire.
- Remove anti-rattle clips, pads, shims, and shim covers from torque member.

## INSTALLATION

- Apply Molykote AS-880N grease or equivalent between the inner and outer shims and the back of the brake pads.
- Install the inner and outer shims and shim covers to the inner pad and outer pad.

### **CAUTION:**

**Do not get grease on the inner and outer pad friction surfaces.**

- Apply Molykote 7439 grease (A) or equivalent to the pad retainer and attach the pad retainer to the torque member.
- Install the assembled inner and outer shims, shim covers, pads and anti-rattle clips to the torque member.

### **CAUTION:**

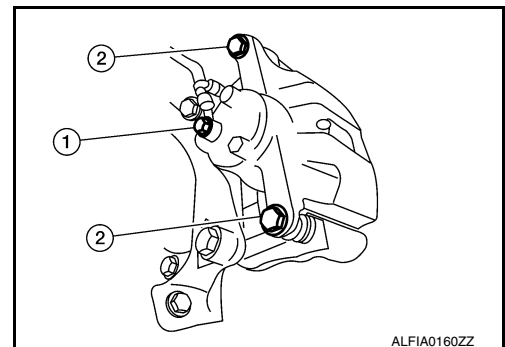
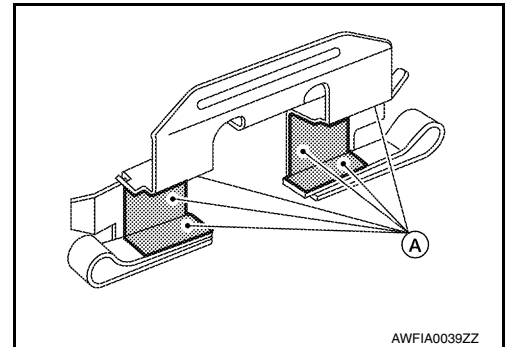
**Do not get grease on the inner and outer pad or rotor friction surfaces.**

- Press piston into cylinder body using suitable tool, then install the cylinder body on the torque member.

### **CAUTION:**

**When replacing pads with new set, check the brake fluid level in the reservoir tank because brake fluid returns to the master cylinder reservoir tank when pressing in the piston.**

- Install the upper and lower sliding pin bolts (2) and tighten it to the specified torque.
  - Union bolt (1)



- Check front disc brakes for drag.
- Install the front wheel and tire. Refer to [WT-60. "Adjustment"](#).
- Check brake fluid level and refill as necessary. Refer to [BR-16. "Inspection"](#).

## Brake Burnishing Procedure

INFOID:000000009466603

Burnish contact surfaces between disc rotors and pads according to following procedure after refinishing or replacing rotors, after replacing pads, or if a soft pedal occurs at very low mileage.

### **CAUTION:**

- Be careful of vehicle speed because the brake does not operate easily until pad and disc rotor are securely fitted.**
- Only perform this procedure under safe road and traffic conditions. Use extreme caution.**

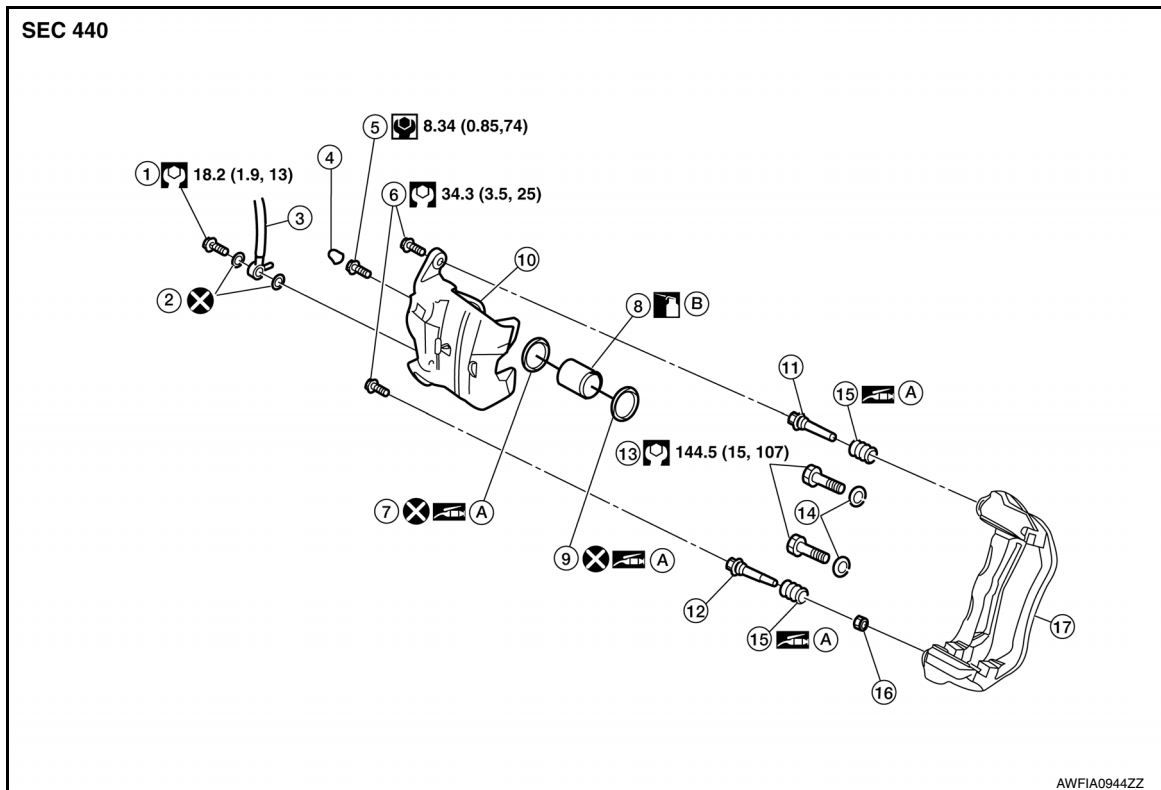
- Drive vehicle on straight, flat road.
- Depress brake pedal with the power to stop vehicle within 3 to 5 seconds until the vehicle stops.
- Drive without depressing brake for a few minutes to cool the brake.
- Repeat steps 1 to 3 until pad and disc rotor are securely fitted.

# FRONT DISC BRAKE

< REMOVAL AND INSTALLATION >

## Exploded View of Brake Caliper

INFOID:000000009466604



- |                        |                          |                            |
|------------------------|--------------------------|----------------------------|
| 1. Union bolt          | 2. Copper sealing washer | 3. Brake hose              |
| 4. Cap                 | 5. Bleed valve           | 6. Sliding pin bolt        |
| 7. Piston seal         | 8. Piston                | 9. Piston boot             |
| 10. Cylinder body      | 11. Upper sliding pin    | 12. Lower sliding pin bolt |
| 13. Torque member bolt | 14. Washer               | 15. Sliding pin boot       |
| 16. Bushing            | 17. Torque member        | A. Rubber grease           |
| B. Brake fluid         |                          |                            |

## Removal and Installation of Brake Caliper and Rotor

INFOID:000000009466605

### 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:

- When removing and installing the cylinder body, do not depress the brake pedal because the piston will pop out.
- Do not damage the piston boot.
- Keep the brake rotor free from grease and brake fluid.
- Refill the brake reservoir with new brake fluid only.
- Do not reuse the drained brake fluid.

### NOTE:

When removing components such as hoses, tubes/lines, etc., cap or plug openings to prevent fluid from spilling.

### REMOVAL

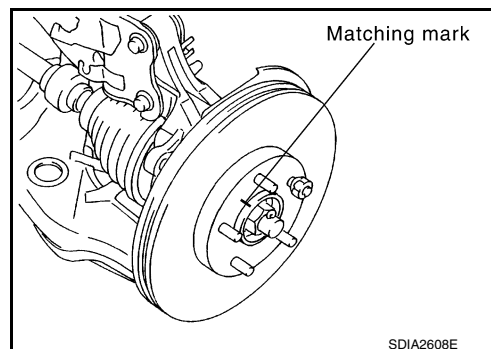
1. Remove front wheel and tire using power tool. Refer to [WT-60. "Adjustment"](#).
2. Secure the disc rotor using a wheel nut.
3. Remove the reservoir cap.



# FRONT DISC BRAKE

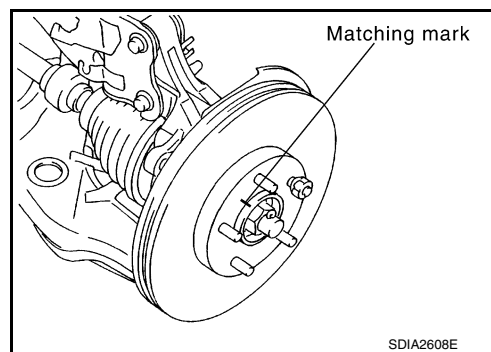
## < REMOVAL AND INSTALLATION >

4. Remove the union bolt (1) and disconnect the brake hose from the caliper assembly. Discard the copper sealing washers.  
**CAUTION:**  
**Do not reuse copper sealing washers.**
5. Remove the upper and lower sliding pin bolts.  
**NOTE:**  
Note the sliding pin orientation during removal. The lower sliding pin contains a bushing.
6. Remove the brake caliper.
7. Remove the torque member bolts (2), and the torque member.  
**CAUTION:**  
**Do not drop the brake pads.**
8. Remove the disc rotor. If reusing the disc rotor, apply a matching mark as shown for installation.  
**CAUTION:**  
**Put matching marks on wheel hub assembly and disc rotor, if reusing the disc rotor.**

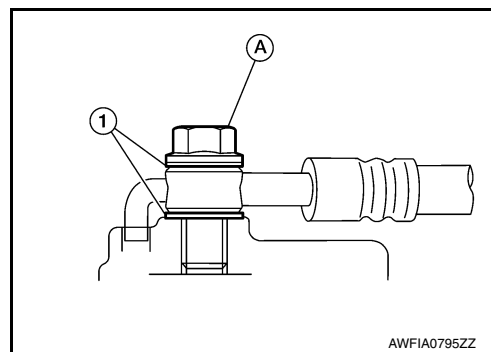


## INSTALLATION

1. Install the disc rotor. If reusing the disc rotor, align the matching mark on the disc rotor and wheel hub assembly for installation as shown.  
**CAUTION:**  
**Align the matching marks on wheel hub assembly and disc rotor, if reusing the disc rotor.**



2. Install the brake caliper assembly, and tighten the torque member bolts to the specified torque.  
**CAUTION:**  
**Do not allow oil or any moisture on all contact surfaces between steering knuckle and caliper assembly, bolts, and washer.**
3. Install the brake hose with two new copper sealing washers (1), using the L-shaped pin for alignment as shown, then tighten the union bolt (A) to the specified torque.  
**CAUTION:**  
**Do not reuse copper sealing washers.**



4. Refill the brake hydraulic system with new brake fluid and bleed air. Refer to [BR-16. "Bleeding Brake System"](#).
5. Check the front disc brakes for drag.
6. Install the reservoir cap.
7. Install the front wheel and tire. Refer to [WT-60. "Adjustment"](#).

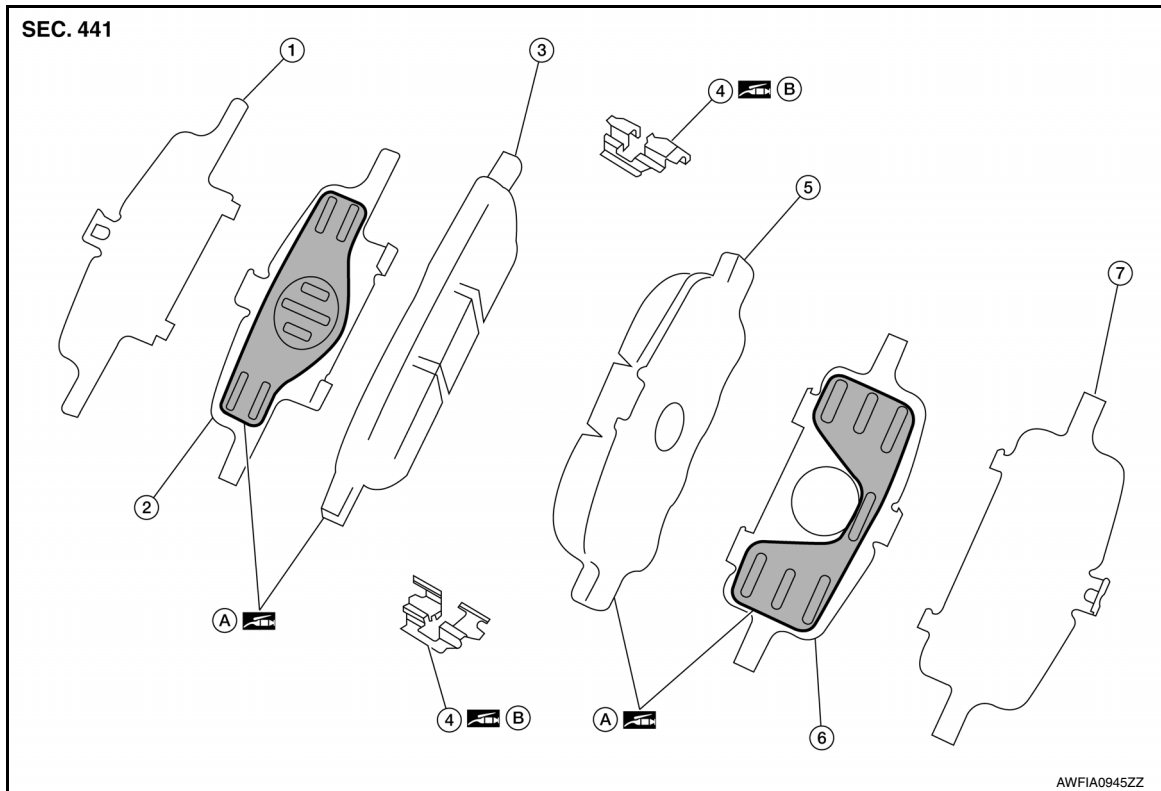
# REAR DISC BRAKE

< REMOVAL AND INSTALLATION >

## REAR DISC BRAKE

### Exploded View of Brake Pads

INFOID:000000009466606



- |                     |                            |                         |
|---------------------|----------------------------|-------------------------|
| 1. Inner shim cover | 2. Inner shim              | 3. Inner pad            |
| 4. Pad retainer     | 5. Outer pad               | 6. Outer shim           |
| 7. Outer shim cover | A. Molykote AS-880N grease | B. Molykote 7439 grease |

### Removal and Installation of Brake Pads

INFOID:000000009466607

#### **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 and installing 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. For pad removal and installation, 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 and shim covers as a set when replacing brake pads.
- Keep rotor and pads free from grease and brake fluid.
- Burnish the brake pads and disc rotor mutually contacting surfaces after refinishing or replacing rotors, after replacing pads, or if a soft pedal occurs at very low mileage. Refer to [BR-35, "Brake Burnishing Procedure"](#).

#### REMOVAL

1. Partially drain brake fluid from the master cylinder.
2. Remove the rear wheel and tire using power tool. Refer to [WT-60, "Adjustment"](#).
3. Remove the upper sliding pin bolt and loosen the lower sliding pin bolt to swing the cylinder body down.
4. Remove the pads, pad retainers, shims, and shim covers from the torque member.

# REAR DISC BRAKE

## < REMOVAL AND INSTALLATION >

### CAUTION:

Do not deform the pad retainers when removing them from the torque member.

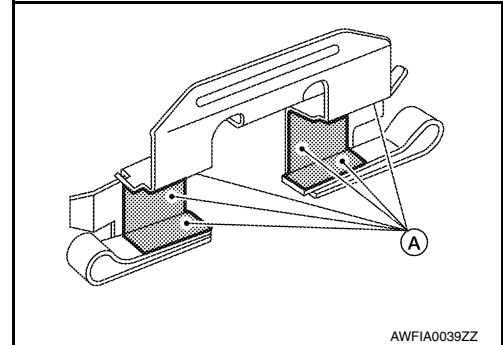
### INSTALLATION

1. Apply Molykote AS-880N grease or equivalent to between shim covers and shims. Install inner shim, inner shim cover to inner pad. Install outer shim and outer shim cover to outer pad.
2. Apply Molykote 7439 grease (A) or equivalent to between pad retainer and pad. Install pad retainers and pads to torque member.
3. Press in piston using suitable tool, until the pads can be installed, and then install the cylinder body in the torque member.

### CAUTION:

When replacing pads with new set, check the brake fluid level in the reservoir tank because brake fluid returns to the master cylinder reservoir tank when pressing in the piston.

4. Install upper sliding pin bolt and tighten the upper and lower sliding pin bolts to the specified torque.
5. Check the rear disc brakes for drag.
6. Install the rear wheel and tire. Refer to [WT-60. "Adjustment"](#).
7. Check brake fluid level and refill as necessary. Refer to [BR-16. "Inspection"](#).



### Brake Burnishing Procedure

INFOID:000000009466608

Burnish contact surfaces between disc rotors and pads according to following procedure after refinishing or replacing rotors, after replacing pads, or if a soft pedal occurs at very low mileage.

### CAUTION:

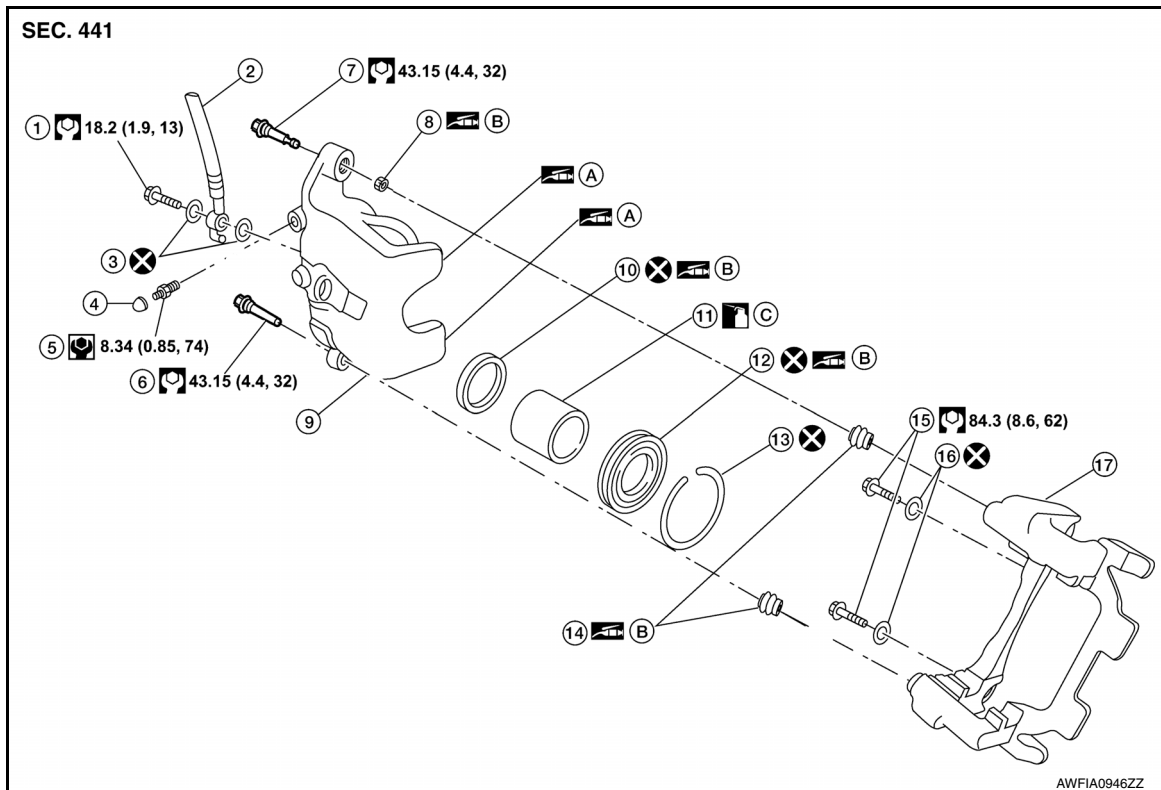
- Be careful of vehicle speed because the brake does not operate easily until pad and disc rotor are securely fitted.
  - Only perform this procedure under safe road and traffic conditions. Use extreme caution.
1. Drive vehicle on straight, flat road.
  2. Depress brake pedal with the power to stop vehicle within 3 to 5 seconds until the vehicle stops.
  3. Drive without depressing brake for a few minutes to cool the brake.
  4. Repeat steps 1 to 3 until pad and disc rotor are securely fitted.

# REAR DISC BRAKE

< REMOVAL AND INSTALLATION >

## Exploded View of Brake Caliper

INFOID:000000009466609



- |                           |                      |                            |
|---------------------------|----------------------|----------------------------|
| 1. Union bolt             | 2. Brake hose        | 3. Copper sealing washer   |
| 4. Cap                    | 5. Bleed valve       | 6. Lower sliding pin bolt  |
| 7. Upper sliding pin bolt | 8. Bushing           | 9. Cylinder body           |
| 10. Piston seal           | 11. Piston           | 12. Piston boot            |
| 13. Retaining ring        | 14. Sliding pin boot | 15. Torque member bolt     |
| 16. Washer                | 17. Torque member    | A. Molykote AS-880N grease |
| B. Brake grease           | C. Brake fluid       |                            |

## Removal and Installation of Brake Caliper and Rotor

INFOID:000000009466610

### 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 and installing the cylinder body, do not depress the brake pedal because the piston will pop out.
- Do not damage the piston boot.
- Keep rotor free from grease and brake fluid.
- Refill the brake reservoir with new brake fluid.
- Do not reuse drained brake fluid.

### NOTE:

When removing components such as hoses, tubes/lines, etc., cap or plug openings to prevent fluid from spilling.

### REMOVAL

1. Remove the rear wheel and tire using power tool. Refer to [WT-60, "Adjustment"](#).
2. Hold the disc rotor in place by installing a wheel nut.
3. Remove the reservoir cap.

# REAR DISC BRAKE

## < REMOVAL AND INSTALLATION >

4. Remove the union bolt and copper sealing washers, then disconnect the brake hose from the cylinder body. Discard the copper sealing washers.

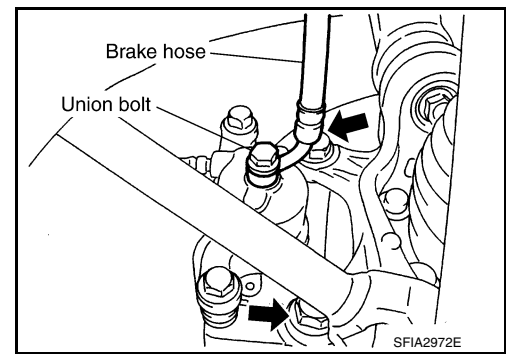
**CAUTION:**

**Do not reuse copper sealing washers.**

5. Remove the torque member bolts, and remove the brake caliper assembly.

**CAUTION:**

**Do not drop brake the pads.**



6. Remove upper and lower sliding pins.

**NOTE:**

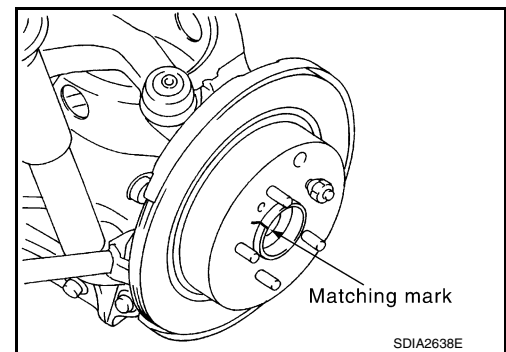
Note the sliding pin orientation during removal. The upper sliding pin contains a bushing.

7. Remove caliper.

8. Remove the disc rotor. If reusing the disc rotor, before removing the disc rotor apply matching mark as shown.

**CAUTION:**

**Put matching marks on wheel hub assembly and disc rotor, if reusing the disc rotor.**

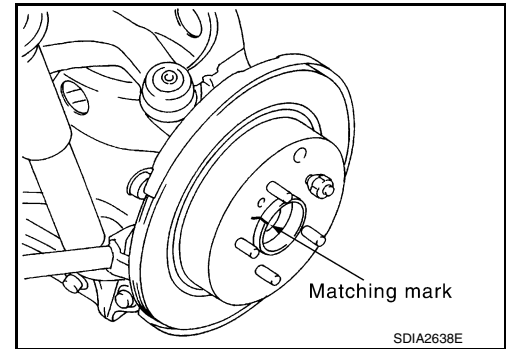


## INSTALLATION

1. Install the disc rotor. If reusing the disc rotor, align the matching mark to position the disc rotor on the wheel hub assembly.

**CAUTION:**

**Align the matching mark on wheel hub assembly and disc rotor, if reusing the disc rotor.**



2. Install the brake caliper assembly, and tighten the torque member bolts to the specified torque.

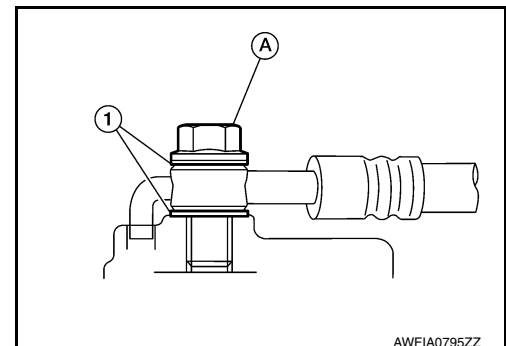
**CAUTION:**

**Before installing caliper assembly, wipe off oil and moisture on all mounting surfaces of rear axle and caliper assembly and threads, bolts and washers.**

3. Install the brake hose with two new copper sealing washers (1), using the L-shaped pin for alignment as shown, then tighten the union bolt (A) to the specified torque.

**CAUTION:**

**Do not reuse copper sealing washers.**



4. Refill the brake hydraulic system with new brake fluid and bleed brake system. Refer to [BR-16. "Bleeding Brake System"](#).

## REAR DISC BRAKE

### < REMOVAL AND INSTALLATION >

---

5. Check the rear disc brakes for drag.
6. Install the reservoir cap.
7. Install the rear wheel and tire. Refer to [WT-60. "Adjustment"](#).

# FRONT DISC BRAKE

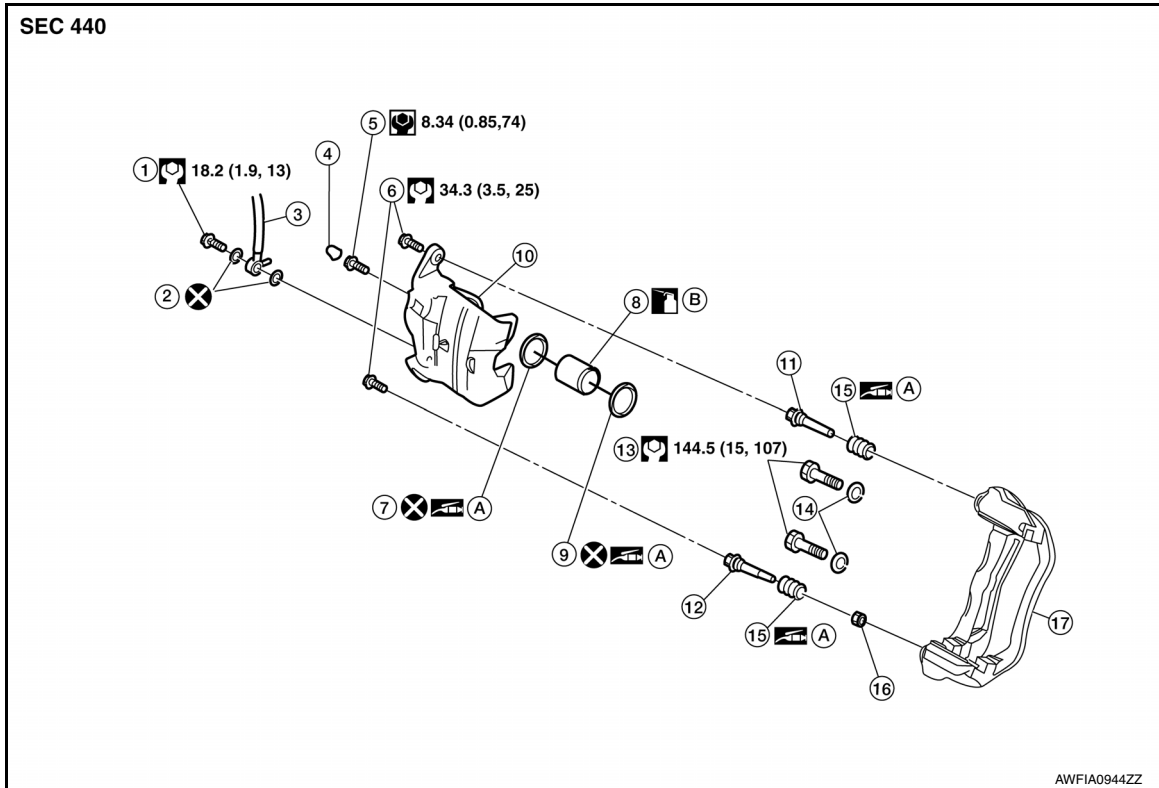
< UNIT DISASSEMBLY AND ASSEMBLY >

## UNIT DISASSEMBLY AND ASSEMBLY

### FRONT DISC BRAKE

#### Disassembly and Assembly

INFOID:000000009466611



- |                        |                          |                            |
|------------------------|--------------------------|----------------------------|
| 1. Union bolt          | 2. Copper sealing washer | 3. Brake hose              |
| 4. Cap                 | 5. Bleed valve           | 6. Sliding pin bolt        |
| 7. Piston seal         | 8. Piston                | 9. Piston boot             |
| 10. Cylinder body      | 11. Upper sliding pin    | 12. Lower sliding pin bolt |
| 13. Torque member bolt | 14. Washer               | 15. Sliding pin boot       |
| 16. Bushing            | 17. Torque member        | A. Rubber grease           |
|                        |                          | B. Brake fluid             |

#### NOTE:

Do not remove the torque member, pads, shims, shim covers, and anti-rattle clips when disassembling and assembling the cylinder body.

#### DISASSEMBLY

1. Remove the sliding pin bolts, and then remove the cylinder body from the torque member.

#### CAUTION:

**Do not drop pads, shims, shim cover and anti-rattle clips from torque member.**

2. Remove the sliding pins, bushing and sliding pin boots from the torque member.
3. Remove the cap and the bleed valve from the cylinder body.

## FRONT DISC BRAKE

### < UNIT DISASSEMBLY AND ASSEMBLY >

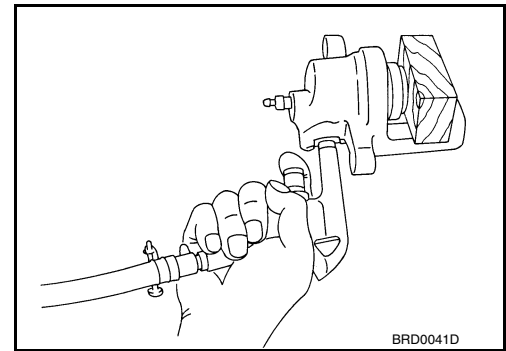
- Place a wooden block in the cylinder body and blow air through the union bolt hole to push out the piston and piston boot as shown. Discard the piston boot.

**WARNING:**

**Do not get fingers caught between the piston and cylinder body.**

**CAUTION:**

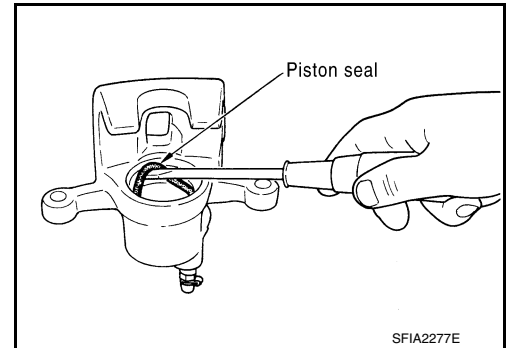
**Do not reuse the piston boot.**



- Remove the piston seal from the cylinder body using a suitable tool as shown. Discard the piston seal.

**CAUTION:**

- Be careful not to damage the inner cylinder wall.
- Do not reuse the piston seal.



### INSPECTION AFTER DISASSEMBLY

#### Cylinder Body

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

**CAUTION:**

**Clean the cylinder body using new brake fluid. Do not use mineral oils such as gasoline or kerosene.**

#### Torque Member

Check the torque member for wear, cracks, and damage. If a defect is detected, replace the torque member.

#### Piston

Check the piston surface for corrosion, wear, and damage. If a defect is detected, replace the piston.

**CAUTION:**

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

#### Sliding Pin, Sliding Pin Bolt, and Sliding Pin Boot

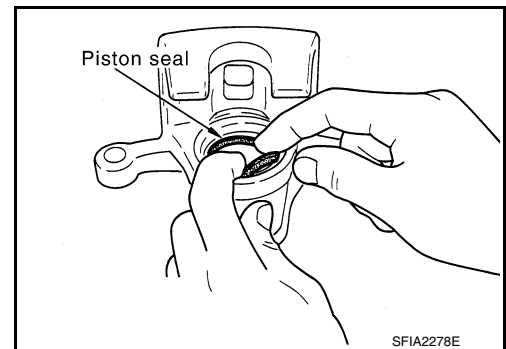
Check the sliding pin, sliding pin bolt, and sliding pin boot for wear, damage, and cracks. If a defect is detected, replace the components as necessary.

### ASSEMBLY

- Apply rubber grease to the new piston seal, and install it in the cylinder body.

**CAUTION:**

**Do not reuse piston seal.**





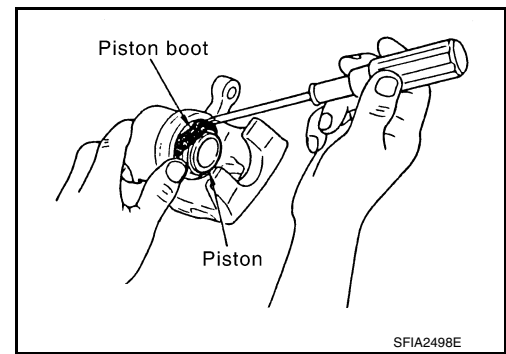
## FRONT DISC BRAKE

### < UNIT DISASSEMBLY AND ASSEMBLY >

2. Apply rubber grease to new piston boot and apply brake fluid to the piston. Cover the piston end with the piston boot, and then install the cylinder side lip on the piston boot securely into a groove on the cylinder body.

**CAUTION:**

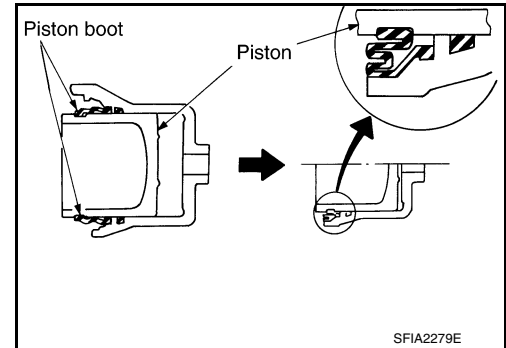
**Do not reuse piston boot.**



3. Push the piston into the cylinder body by hand and push the 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 the bleed valve and cap to the cylinder body.
5. Install the sliding pins, bushing and sliding pin boots on the torque member.
6. Install the cylinder body to the torque member, and then tighten the sliding pin bolts to the specified torque.

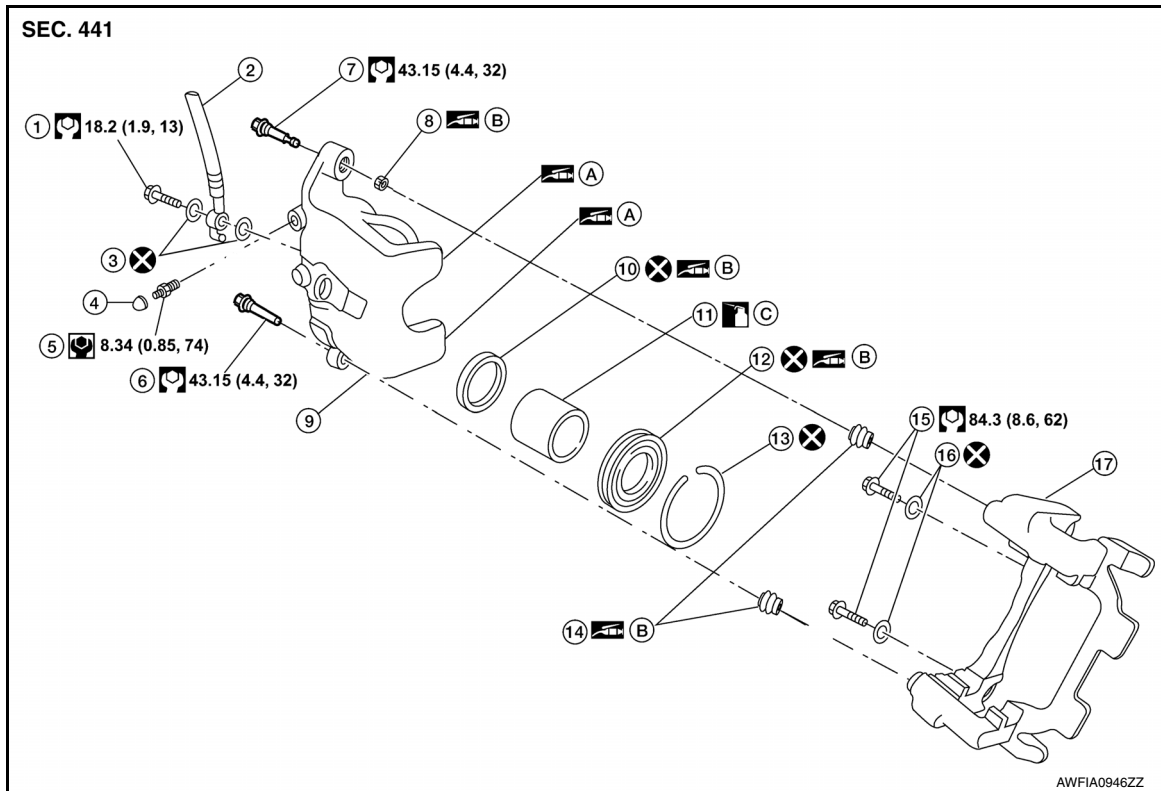
# REAR DISC BRAKE

< UNIT DISASSEMBLY AND ASSEMBLY >

## REAR DISC BRAKE

### Disassembly and Assembly

INFOID:00000009466612



- |                           |                      |                            |
|---------------------------|----------------------|----------------------------|
| 1. Union bolt             | 2. Brake hose        | 3. Copper sealing washer   |
| 4. Cap                    | 5. Bleed valve       | 6. Lower sliding pin bolt  |
| 7. Upper sliding pin bolt | 8. Bushing           | 9. Cylinder body           |
| 10. Piston seal           | 11. Piston           | 12. Piston boot            |
| 13. Retaining ring        | 14. Sliding pin boot | 15. Torque member bolt     |
| 16. Washer                | 17. Torque member    | A. Molykote AS-880N grease |
| B. Brake grease           | C. Brake fluid       |                            |

#### NOTE:

Do not remove the torque member, pads, shims, shim covers, and pad retainers when disassembling and assembling the cylinder body.

#### DISASSEMBLY

1. Remove the sliding pin bolts, and then remove the cylinder body from the torque member.  
**CAUTION:**  
**Do not drop pads, shims, shim cover and pad retainers from torque member.**
2. Remove the sliding pin boots from the torque member.
3. Remove the cap and the bleed valve from the cylinder body.

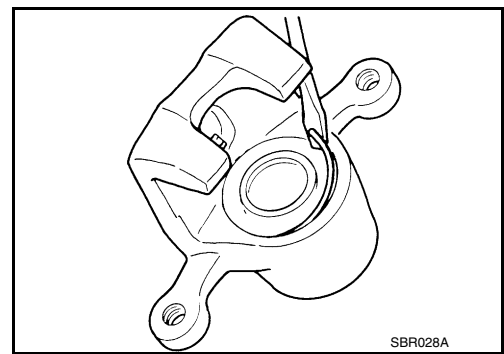
## REAR DISC BRAKE

### < UNIT DISASSEMBLY AND ASSEMBLY >

4. Remove the retaining ring from the cylinder body using a suitable tool as shown. Discard the retaining ring.

**CAUTION:**

**Do not reuse the retaining ring.**



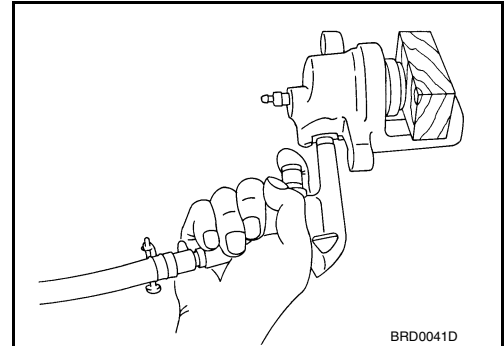
5. Place a wooden block in the cylinder body and blow air through the union bolt hole to push out the piston and piston boot as shown. Discard the piston boot.

**WARNING:**

**Do not get fingers caught between the piston and cylinder body.**

**CAUTION:**

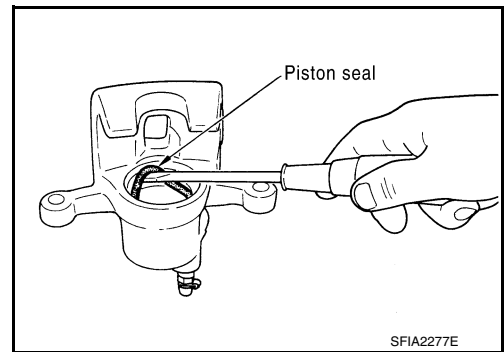
**Do not reuse the piston boot.**



6. Remove the piston seal from the cylinder body using a suitable tool as shown. Discard the piston seal.

**CAUTION:**

- **Be careful not to damage the inner cylinder wall.**
- **Do not reuse the piston seal.**



### INSPECTION AFTER DISASSEMBLY

#### Cylinder Body

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

**CAUTION:**

**Clean the cylinder body using new brake fluid. Do not use mineral oils such as gasoline or kerosene.**

#### Torque Member

Check the torque member for wear, cracks, and damage. If a defect is detected, replace the torque member.

#### Piston

Check the piston surface for corrosion, wear, and damage. If a defect is detected, replace the piston.

**CAUTION:**

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

#### Sliding Pin Bolt and Sliding Pin Boot

Check the sliding pin bolt and sliding pin boot for wear, damage, and cracks. If a defect is detected, replace the components as necessary.

### ASSEMBLY

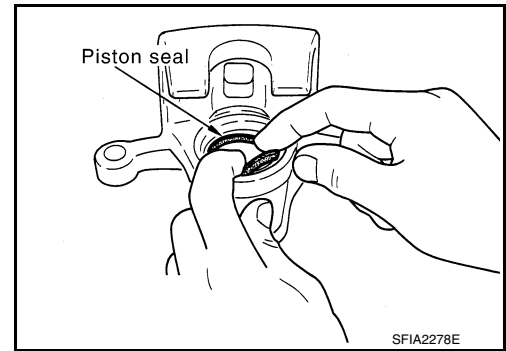
## REAR DISC BRAKE

### < UNIT DISASSEMBLY AND ASSEMBLY >

1. Apply rubber grease to the new piston seal, and install it in the cylinder body.

**CAUTION:**

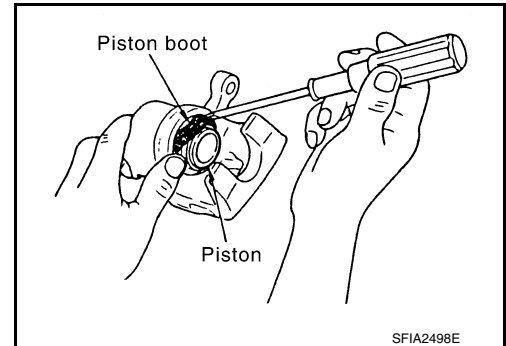
**Do not reuse piston seal.**



2. Apply rubber grease to the new piston boot and brake fluid to the piston. Cover the piston end with the piston boot, and then install the cylinder side lip on the piston boot securely into the groove on the cylinder body.

**CAUTION:**

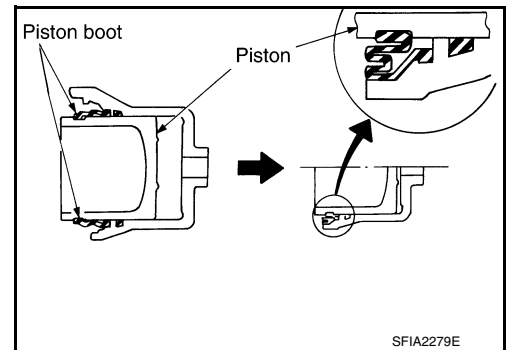
**Do not reuse piston boot.**



3. Push the piston into the cylinder body by hand and push the piston boot piston-side lip into the piston groove.

**CAUTION:**

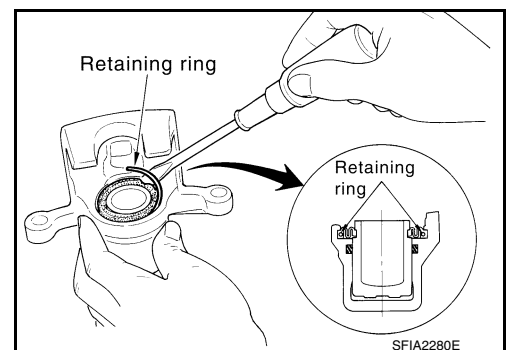
**Press the piston evenly and vary the pressing point to prevent cylinder inner wall from being rubbed.**



4. Secure piston boot with retaining ring.

**CAUTION:**

- Make sure that boot is securely engaged in the groove on cylinder body.
- Do not reuse retainer ring.



5. Install the bleed valve and cap to the cylinder body.
6. Install the sliding pin boots and bushing on the torque member.
7. Install the cylinder body to the torque member, and then tighten the sliding pin bolts to the specified torque.

# SERVICE DATA AND SPECIFICATIONS (SDS)

< SERVICE DATA AND SPECIFICATIONS (SDS)

## SERVICE DATA AND SPECIFICATIONS (SDS)

### SERVICE DATA AND SPECIFICATIONS (SDS)

#### General Specifications

INFOID:000000009466613

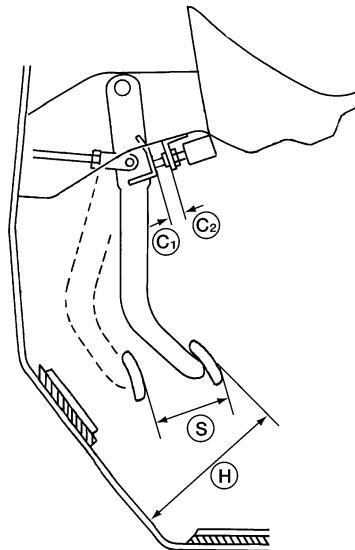
Unit: mm (in)

|                         |   |   |
|-------------------------|---|---|
| Brake model             | Kiriu   |   |
| Front brake             | Cylinder bore diameter  | 57.15 (2.250)                             |
|                         | Pad length × width × thickness  | 123.6 × 47.5 × 11 (4.866 × 1.870 × 0.433) |
|                         | Rotor outer diameter × thickness  | 320 × 28 (12.598 × 1.102)                 |
| Rear brake              | Brake model   | Kiriu                                     |
|                         | Cylinder bore diameter  | 34.93 (1.375)                             |
|                         | Pad length × width × thickness  | 83.0 × 33.0 × 8.5 (3.268 × 1.299 × 0.335) |
|                         | Rotor outer diameter × thickness  | 308 × 16 (12.126 × 0.630)                 |
| Master cylinder         | Cylinder bore diameter  | 23.81 (0.937)                             |
| Control valve           | Valve model   | Electric brake force distribution         |
| Brake booster           | Booster model   | Bosch                                     |
| Recommended brake fluid | Refer to <a href="#">MA-15. "FOR USA AND CANADA : Fluids and Lubricants"</a> for United States and Canada, or <a href="#">MA-16. "FOR MEXICO : Fluids and Lubricants"</a> for Mexico. |   |

#### Brake Pedal

INFOID:000000009466614

Unit: mm (in)



AWFIA0557ZZ

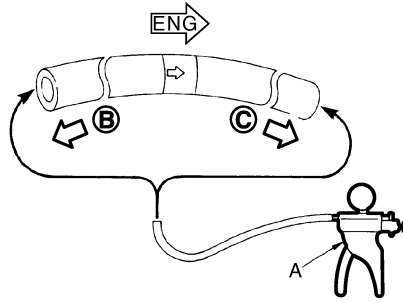
|   |                               |
|---|-------------------------------|
| Brake pedal free height (H)   | 190.7 - 202.7 (7.51 - 7.98)   |
| Brake pedal full stroke (S)   | 130.0 (5.12)                  |
| Clearance between brake pedal bracket (C1) and threaded end of stop lamp switch and ASCD cancel switch (C2) | 0.74 - 1.96 (0.0291 - 0.0772) |

# SERVICE DATA AND SPECIFICATIONS (SDS)

## < SERVICE DATA AND SPECIFICATIONS (SDS)

### Check Valve

INFOID:000000009466615



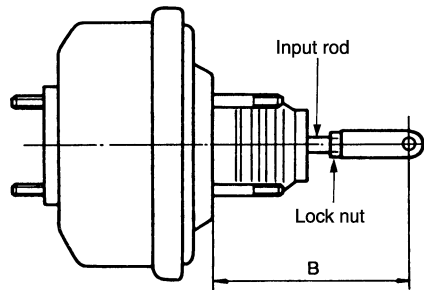
JPFIA0024ZZ

|   |   |
|---|---|
| When suitable tool (A) is connected to booster side (B) | 1.3 kPa (10 mmHg, 0.39 inHg) maximum vacuum loss for 15 seconds at vacuum of $-26.6 \pm 1.3$ kPa ( $200 \pm 1.0$ mmHg, $-7.87 \pm 0.04$ inHg) |
| When suitable tool (A) is connected to engine side (C)  | No vacuum should exist.   |

### Brake Booster

INFOID:000000009466616

Unit: mm (in)



SGIA0060E

|                                   |                                   |
|-----------------------------------|-----------------------------------|
| Input rod installation length (B) | $125 \pm 0.5$ ( $4.92 \pm 0.02$ ) |
|-----------------------------------|-----------------------------------|

### Front Disc Brake

INFOID:000000009466617

Unit: mm (in)

| Brake model |  | Kiriu          |
|-------------|--|----------------|
| Brake pad   | Standard thickness (new)                         | 11.0 (0.433)   |
|             | Minimum thickness                                | 2.0 (0.079)    |
| Disc rotor  | Standard thickness (new)                         | 28.0 (1.102)   |
|             | Minimum thickness                                | 26.0 (1.024)   |
|             | Thickness variation (measured at 8 positions)    | 0.015 (0.0006) |
|             | Maximum runout (with it attached to the vehicle) | 0.035 (0.0014) |

### Rear Disc Brake

INFOID:000000009466618

Unit: mm (in)

| Brake model |                          | Kiriu       |
|-------------|--------------------------|-------------|
| Brake pad   | Standard thickness (new) | 8.5 (0.335) |
|             | Minimum thickness        | 1.0 (0.039) |

# SERVICE DATA AND SPECIFICATIONS (SDS)

## < SERVICE DATA AND SPECIFICATIONS (SDS)

| Brake model |  | Kiriu          |
|-------------|--|----------------|
| Disc rotor  | Standard thickness (new)                         | 16.0 (0.630)   |
|             | Minimum thickness                                | 14.0 (0.551)   |
|             | Thickness variation (measured at 8 positions)    | 0.015 (0.0006) |
|             | Maximum runout (with it attached to the vehicle) | 0.05 (0.002)   |

A

B

C

D

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BR

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H

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