

SECTION **BR**
BRAKE SYSTEM

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PRECAUTIONS

< PRECAUTION >

PRECAUTION

PRECAUTIONS

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

INFOID:000000012601165

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 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, it is recommended that all maintenance and repair be performed by an authorized NISSAN/INFINITI dealer.
- Improper repair, 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

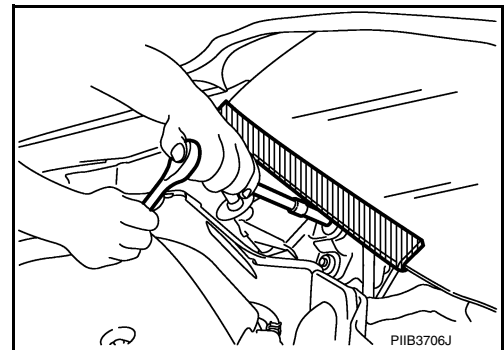
WARNING:

- 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 or batteries, and wait at least three minutes before performing any service.

Precaution for Procedure without Cowl Top Cover

INFOID:000000012601166

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



Precaution for Brake System

INFOID:000000012601167

WARNING:

Clean any dust from the front brake and rear brake with a vacuum dust collector. Do not blow with compressed air.

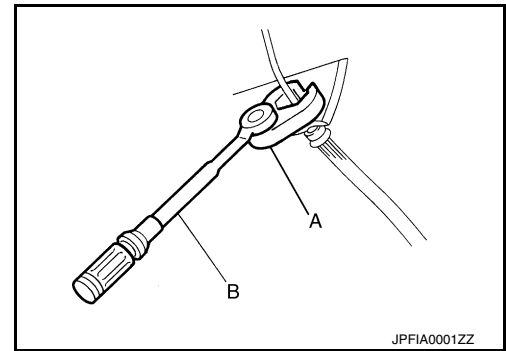
CAUTION:

- Brake fluid use. Refer to [MA-12. "Fluids and Lubricants"](#).
- 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 clean with new brake fluid when cleaning the master cylinder, brake caliper and other components.
- 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 flare nut crowfoot (A) and torque wrench (B).
- Always confirm the specified tightening torque when installing the brake pipes.
- Turn the ignition switch OFF and disconnect the ABS actuator and electric unit (control unit) connector or the battery negative terminal before performing the work.
- Check that no brake fluid leakage is present after replacing the parts.
- Burnish the brake contact surfaces after refinishing or replacing rotors, after replacing pads, or if a soft pedal occurs at very low mileage.
- Front brake: refer to [BR-18, "DISC BRAKE ROTOR : Brake Burnishing"](#).
- Rear brake: refer to [BR-20, "DISC BRAKE ROTOR : Brake Burnishing"](#).



PREPARATION

< PREPARATION >

PREPARATION

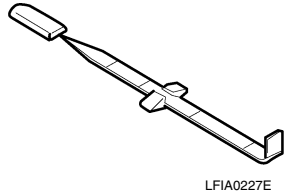
PREPARATION

Special Service Tool

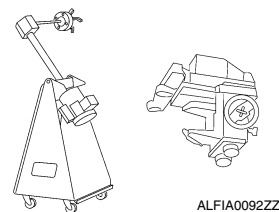
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The actual shape of the tools may differ from those illustrated here.

Tool number (TechMate No.) Tool name	Description
— (J-46532) Brake height tool	Measuring brake pedal height
38-PFM92 (—) ProCut™ PFM Series Lathe	Refinishing rotors



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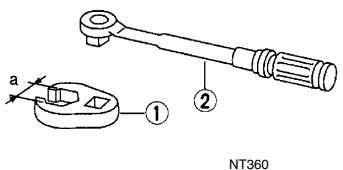


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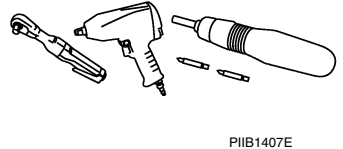
Commercial Service Tool

INFOID:0000000012601169

Tool name	Description
1. Flare nut crowfoot 2. Torque wrench	Tightening brake tube flare nuts a: 10mm (0.39 in)/12mm (0.47 in)
Power tool	Loosening nuts, screws and bolts
Vacuum pump	<ul style="list-style-type: none"> • Air tight • Inspection of check valve



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NOISE, VIBRATION AND HARSHNESS (NVH) TROUBLESHOOTING

< SYSTEM DESCRIPTION >

SYSTEM DESCRIPTION

NOISE, VIBRATION AND HARSHNESS (NVH) TROUBLESHOOTING

NVH Troubleshooting Chart

INFOID:000000012601170

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															
		Pads - damaged	Pads - uneven wear	Shims damaged	Rotor imbalance	Rotor damage	Rotor runout	Rotor deformation	Rotor deflection	Rotor rust	Rotor thickness variation	Drum out of round	WHEEL HUB	SUSPENSION	AXLE	TIRES	WHEEL	DRIVE SHAFT	STEERING
Noise	Noise	x	x	x															
	Shake				x							x	x	x	x	x	x	x	x
	Shimmy, Shudder				x	x	x	x	x	x	x	x	x	x	x	x	x	x	x

x: Applicable

BRAKE PEDAL

< BASIC INSPECTION >

BASIC INSPECTION

BRAKE PEDAL

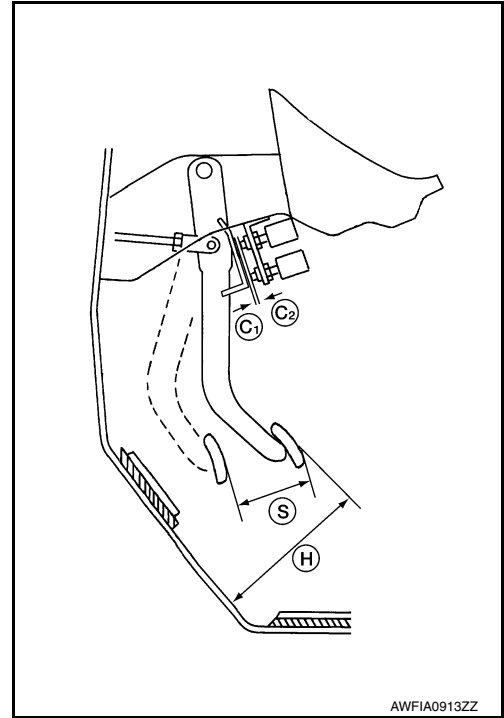
Inspection

INFOID:000000012601171

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

Tool number : — (J-46532)

2. Adjust the brake pedal height to specifications. Refer to [BR-14](#), "[Inspection and Adjustment](#)".



Brake Pedal Specifications

Brake pedal height (H) (from dash lower panel top surface)	Refer to BR-51 , " Brake Pedal ".
Brake pedal full stroke (S)	Refer to BR-51 , " Brake Pedal ".
Clearance between stopper bracket (C1) and threaded end of the stop lamp switch and brake pedal position switch (C2) (if equipped)	Refer to BR-51 , " Brake Pedal ".

BRAKE FLUID

< BASIC INSPECTION >

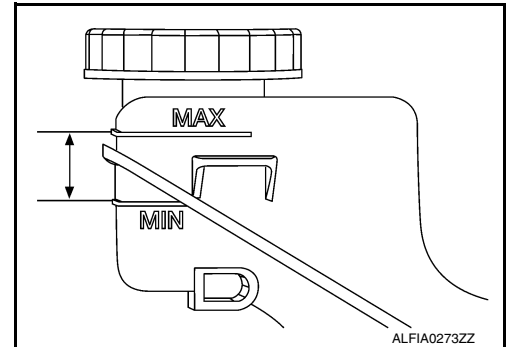
BRAKE FLUID

Inspection

INFOID:000000012601172

BRAKE FLUID LEVEL

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

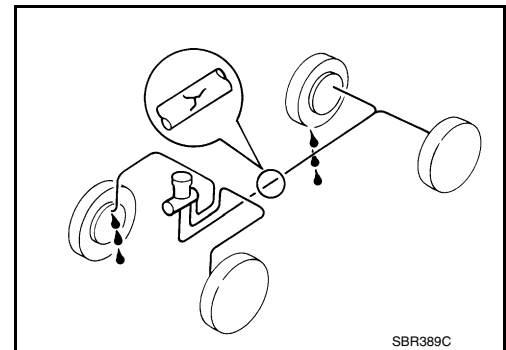


BRAKE LINE

1. Check brake line (tubes and hoses) for cracks, deterioration or other damage. Replace any damaged parts.
2. Check for brake fluid leakage by depressing brake pedal under a force of 785 N (80 kg-f, 177 lb-f) for approximately 5 seconds while engine is running.

CAUTION:

If brake fluid leakage occurs around joints, retighten or replace damaged parts as necessary.



BRAKE MASTER CYLINDER

< BASIC INSPECTION >

BRAKE MASTER CYLINDER

Inspection

INFOID:0000000012601173

Check for brake fluid leakage at the following areas:

- Master cylinder mounting face
- Reservoir tank mounting face
- Brake tube and brake tube connections
- Brake hose and brake hose connections

If any brake fluid leakage is found, repair as necessary.

On Board Inspection

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LEAK INSPECTION

Check for leaks in the master cylinder installation surface, reservoir tank installation surface, and brake pipe and hose connections.

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BRAKE BOOSTER

< BASIC INSPECTION >

BRAKE BOOSTER

Inspection

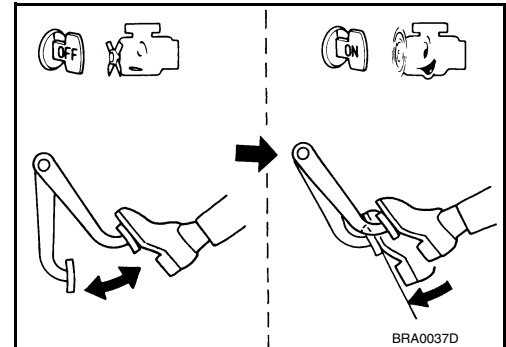
INFOID:000000012601175

OPERATION

Depress the brake pedal several times at five second intervals with the engine stopped. Start the engine with the brake pedal fully depressed. Check that the clearance between brake pedal and dash lower panel decreases.

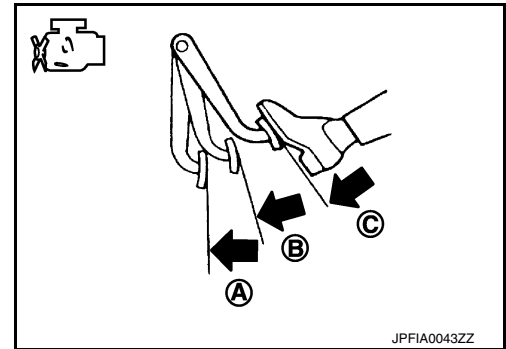
NOTE:

A slight impact with a small click may be felt on the pedal when the brake pedal is fully depressed. This is normal brake system operation.



VACUUM INSPECTION

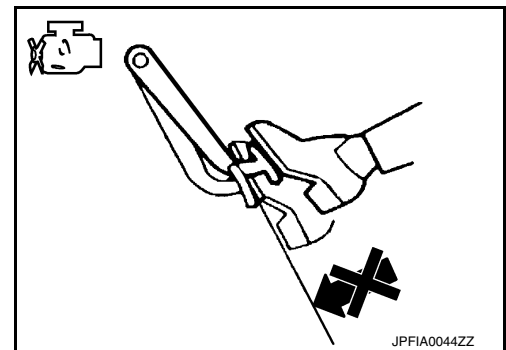
Idle the engine for one minute to apply vacuum to the brake booster. Stop the engine. Depress the brake pedal several times at five second intervals until the accumulated vacuum is released to atmospheric pressure. Check that the clearance between brake pedal and dash lower panel gradually increases (A → B → C) each time the brake pedal is depressed during this operation.



Depress the brake pedal with the engine running. Then stop the engine while holding down the brake pedal. Check that the brake pedal stroke does not change after holding down the brake pedal for 30 seconds or more.

NOTE:

A slight impact with a small click may be felt on the pedal when the brake pedal is fully depressed. This is normal brake system operation.



VACUUM LINES

< BASIC INSPECTION >

VACUUM LINES

Inspection - Vacuum Hose Without Check Valve

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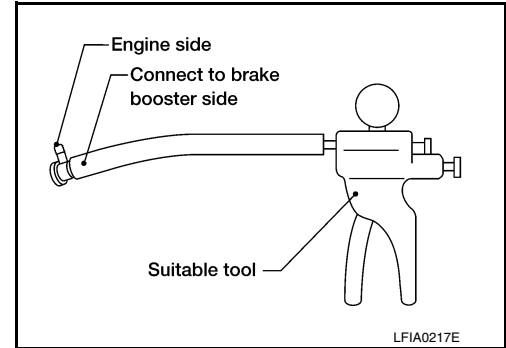
CHECK VALVE INSPECTION

Air-tightness Inspection

Use a suitable tool to check. Connect to brake booster side of check valve.

Check valve specification

: Refer to [BR-51, "Check Valve - Vacuum Hose Without Check Valve"](#).



Inspection - Vacuum Hose With Check Valve

INFOID:000000013230359

CHECK VALVE INSPECTION

Air-tightness Inspection

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

Vacuum applied at booster end

: Refer to [BR-52, "Check Valve - Vacuum Hose With Check Valve"](#).

Vacuum applied at intake manifold end

: Refer to [BR-52, "Check Valve - Vacuum Hose With Check Valve"](#).

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

FRONT DISC BRAKE

< BASIC INSPECTION >

FRONT DISC BRAKE

DISC BRAKE ROTOR

DISC BRAKE ROTOR : Inspection

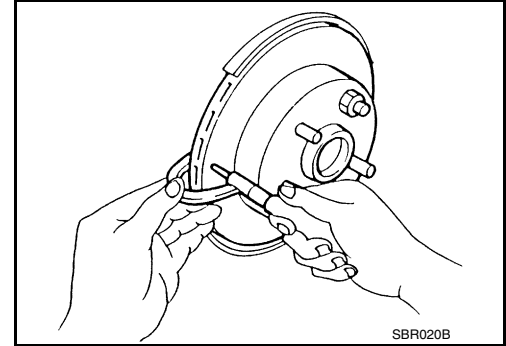
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INSPECTION

Uneven wear

Check for uneven wear of the disc brake rotor using a micrometer.
Replace the disc brake rotor if the thickness is below the wear limit.

Thickness variation : Refer to [BR-52, "Front Disc Brake"](#).
(measured at 8 positions)



REAR DISC BRAKE

< BASIC INSPECTION >

REAR DISC BRAKE

DISC BRAKE ROTOR

DISC BRAKE ROTOR : Inspection

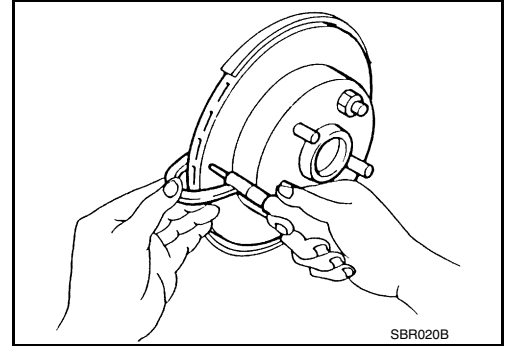
INFOID:0000000012601179

INSPECTION

Uneven wear

Check for uneven wear of the disc brake rotor using a micrometer.
Replace the disc brake rotor if the thickness is below the wear limit.

Thickness variation : Refer to [BR-52, "Rear Disc Brake"](#).
(measured at 8 positions)



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BRAKE PEDAL

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PERIODIC MAINTENANCE

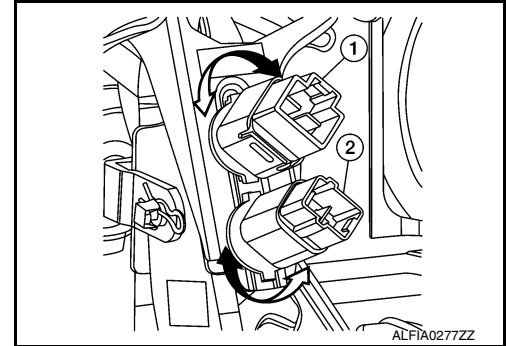
BRAKE PEDAL

Inspection and Adjustment

INFOID:000000012601180

ADJUSTMENT

1. Loosen the stop lamp switch (2) and brake pedal position switch (1) (if equipped) by turning each counterclockwise by 45°.



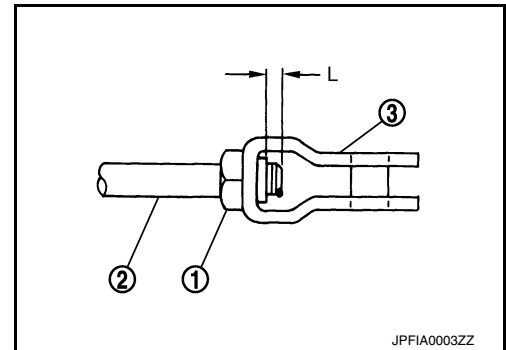
2. Loosen clevis lock nut (1) on the input rod (2), then turn input rod to adjust the brake pedal height to specification. Tighten clevis lock nut (1) to specification.

Brake pedal height : Refer to [BR-51, "Brake Pedal"](#).

Clevis lock nut : Refer to [BR-31, "Exploded View"](#). torque

CAUTION:

- Check the height with the floor trim removed.
- The threaded end of the input rod (2) must project to the inner side (L) of the clevis (3).



3. With the pedal pulled up and held by hand, press the stop lamp switch (1) and brake pedal position switch (2) (if equipped) until the threaded end contacts the brake pedal bracket.
4. With the threaded end of the stop lamp switch (1) and brake pedal position switch (2) (if equipped) contacting the brake pedal bracket, rotate the switch clockwise by 45° to secure.

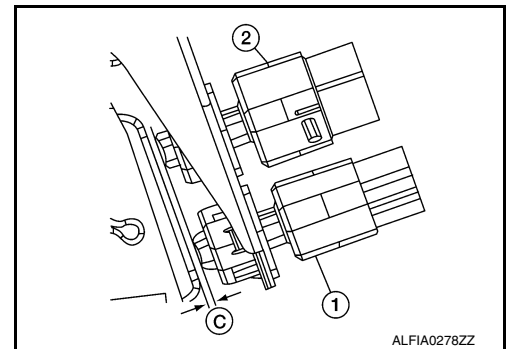
CAUTION:

Make sure that the clearance (C) between brake pedal bracket and end of stop lamp switch (1) and brake pedal position switch (2) (if equipped) is within the standard. Refer to [BR-51, "Brake Pedal"](#).

5. Check the brake pedal for smooth operation.

CAUTION:

Make sure that stop lamps are off when the brake pedal is released.



BRAKE FLUID

< PERIODIC MAINTENANCE >

BRAKE FLUID

Drain and Refill

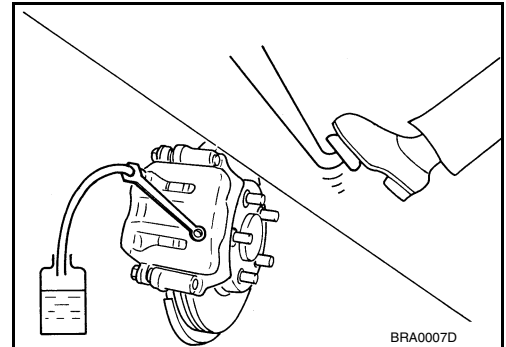
INFOID:000000012601181

CAUTION:

- Do not spill or splash brake fluid on painted surfaces. Brake fluid may damage paint. If brake fluid is splashed on painted areas, wash it away with water immediately.
- Prior to repair, turn the ignition switch OFF, disconnect the ABS actuator and electric unit (control unit) connector or negative battery terminal. Refer to [PG-78, "Removal and Installation"](#).
- Refill brake system with new brake fluid. Refer to [MA-12, "Fluids and Lubricants"](#).
- Do not reuse drained brake fluid.

DRAINING

1. Turn ignition switch OFF and disconnect ABS actuator and electric unit (control unit) connector or negative battery terminal. Refer to [PG-78, "Removal and Installation"](#).
2. Connect a vinyl tube to bleeder valve.
3. Depress brake pedal, loosen bleeder valve, and gradually remove brake fluid.



REFILLING

1. Make sure no foreign material is in the reservoir, and refill with new brake fluid.

CAUTION:

Do not reuse drained brake fluid.

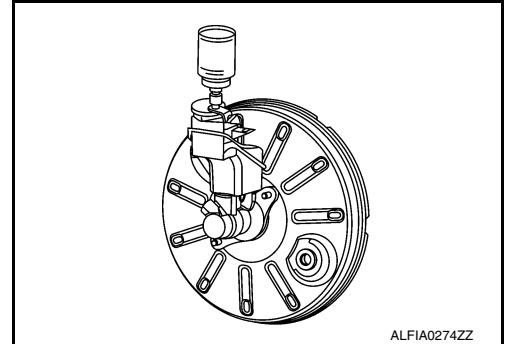
2. Refill the brake system as follows:
 - Depress the brake pedal.
 - Loosen bleeder valve.
 - Slowly depress brake pedal to 2/3 of the brake pedal full stroke.
 - Tighten bleeder valve.
 - Release brake pedal.

Repeat this operation at intervals of two or three seconds until all old brake fluid is discharged. Add new brake fluid to master cylinder reservoir sub tank frequently.

CAUTION:

Do not allow master cylinder reservoir to empty as this may cause damage to master cylinder internal components.

3. Bleed the air out of the brake hydraulic system. Refer to [BR-15, "Bleeding Brake System"](#).



Bleeding Brake System

INFOID:000000012601182

BLEEDING BRAKE SYSTEM

CAUTION:

- While bleeding, pay attention to master cylinder fluid level.
 - Prior to repair, turn the ignition switch OFF, disconnect the ABS actuator and electric unit (control unit) connector or negative battery terminal. Refer to [PG-78, "Removal and Installation"](#).
1. Connect a vinyl tube to front (RH) brake caliper bleeder valve.
 2. Fully depress brake pedal ten times.
 3. With brake pedal depressed, loosen bleeder valve to bleed air in brake line, and then tighten it immediately.
 4. Repeat steps 2 and 3 until all of the air is out of the brake line.

BRAKE FLUID

< PERIODIC MAINTENANCE >

5. Tighten the bleeder valve to the specified torque. Refer to [BR-39, "BRAKE CALIPER ASSEMBLY : Exploded View"](#) (front disc brake) or [BR-43, "BRAKE CALIPER ASSEMBLY : Exploded View"](#) (rear disc brake).
6. Repeat steps 1 to 5, for the remaining brake calipers with master cylinder reservoir tank filled at least half-way, bleed air from brake hydraulic line bleeder valves in the following order:
Front (RH)→Front (LH)→Rear (RH)→Rear (LH)

FRONT DISC BRAKE

< PERIODIC MAINTENANCE >

FRONT DISC BRAKE BRAKE PAD

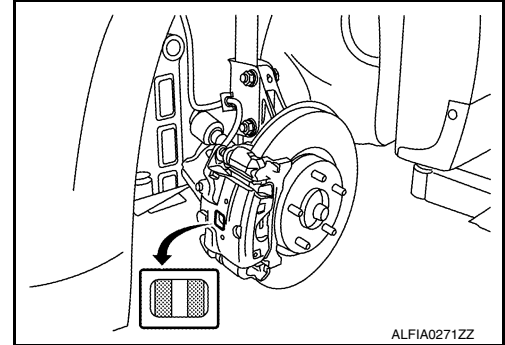
BRAKE PAD : Inspection

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PAD WEAR

Check brake pad thickness from an inspection hole on caliper body.
Check using a scale if necessary.

Wear limit thickness : Refer to [BR-52, "Front Disc Brake"](#).



BRAKE PAD : Brake Burnishing

INFOID:000000012816008

CAUTION:

- Burnish contact surfaces between brake pads and disc brake rotor according to the following procedure after refinishing the disc brake rotor, replacing brake pads or if a soft pedal occurs at very low mileage.
- Be careful of vehicle speed. Brakes do not operate firmly/securely until pads and disc brake rotor are securely seated.
- Only perform this procedure under safe road and traffic conditions. Use extreme caution.

1. Drive the vehicle on straight, flat road.
2. Depress the brake pedal until the vehicle stops.
3. Release the brake pedal for a few minutes to allow the brake components to cool.
4. Repeat steps 1 to 3 until pad and disc brake rotor are securely seated.

DISC BRAKE ROTOR

DISC BRAKE ROTOR : Inspection

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APPEARANCE

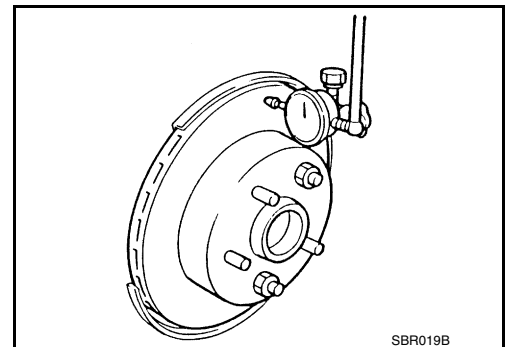
Check surface of disc brake rotor for uneven wear, cracks or damage. Replace if any abnormal conditions exist.

RUNOUT

1. Check the wheel bearing axial end play before the inspection. Refer to [FAX-6, "Inspection"](#).
2. Secure the disc brake rotor to the wheel hub and bearing with wheel nuts at two wheel nut locations.
3. Measure the runout with a dial gauge 10 mm (0.39 in) from the disc brake rotor edge.

Runout (with it attached to the vehicle) : Refer to [BR-52, "Front Disc Brake"](#).

4. Find the installation position with a minimum runout by shifting the disc brake rotor-to-wheel hub and bearing installation position by one hole at a time if the runout exceeds the limit value.
5. Refinish the disc brake rotor if the runout is outside the limit even after performing the above operation. When refinishing, use Tool.



Tool number : 38-PFM92 (—)

CAUTION:

FRONT DISC BRAKE

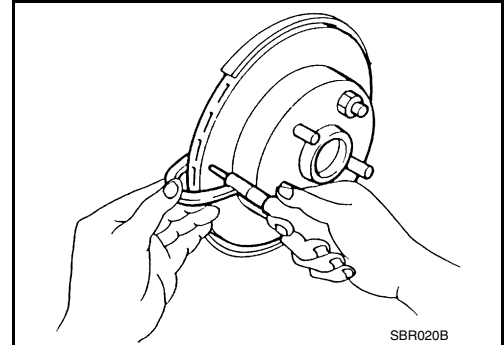
< PERIODIC MAINTENANCE >

- Check in advance that the thickness of the disc rotor is wear thickness + 0.3 mm (0.012 in) or more.
- If the thickness is less than wear thickness + 0.3 mm (0.012 in), replace the disc rotor. Refer to [BR-39, "BRAKE CALIPER ASSEMBLY : Removal and Installation"](#).

THICKNESS

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

Wear limit thickness : Refer to [BR-52, "Front Disc Brake"](#).



DISC BRAKE ROTOR : Brake Burnishing

INFOID:0000000012601183

CAUTION:

- Burnish contact surfaces between brake pads and disc brake rotor according to the following procedure after refinishing the disc brake rotor, replacing brake pads or if a soft pedal occurs at very low mileage.
 - Be careful of vehicle speed. Brakes do not operate firmly/securely until pads and disc brake rotor are securely seated.
 - Only perform this procedure under safe road and traffic conditions. Use extreme caution.
1. Drive the vehicle on straight, flat road.
 2. Depress the brake pedal until the vehicle stops.
 3. Release the brake pedal for a few minutes to allow the brake components to cool.
 4. Repeat steps 1 to 3 until pad and disc brake rotor are securely seated.

REAR DISC BRAKE

< PERIODIC MAINTENANCE >

REAR DISC BRAKE BRAKE PAD

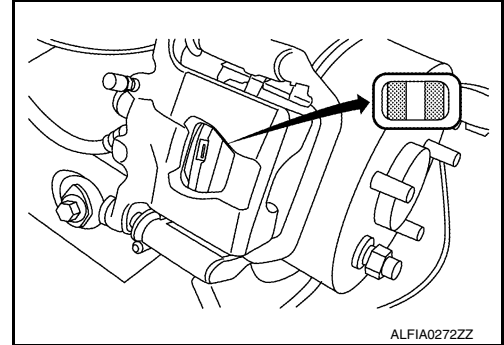
BRAKE PAD : Inspection

INFOID:0000000012816010

PAD WEAR

Check pad thickness from an inspection hole on caliper body. Check using a scale if necessary.

Wear limit thickness : Refer to [BR-52, "Rear Disc Brake"](#).



BRAKE PAD : Brake Burnishing

INFOID:0000000012816014

CAUTION:

- Burnish contact surfaces between brake pads and disc brake rotor according to the following procedure after refinishing the disc brake rotor, replacing brake pads or if a soft pedal occurs at very low mileage.
- Be careful of vehicle speed. Brakes do not operate firmly/securely until pads and disc brake rotor are securely seated.
- Only perform this procedure under safe road and traffic conditions. Use extreme caution.

1. Drive the vehicle on straight, flat road.
2. Depress the brake pedal until the vehicle stops.
3. Release the brake pedal for a few minutes to allow the brake components to cool.
4. Repeat steps 1 to 3 until pad and disc brake rotor are securely seated.

DISC BRAKE ROTOR

DISC BRAKE ROTOR : Inspection

INFOID:0000000012816012

APPEARANCE

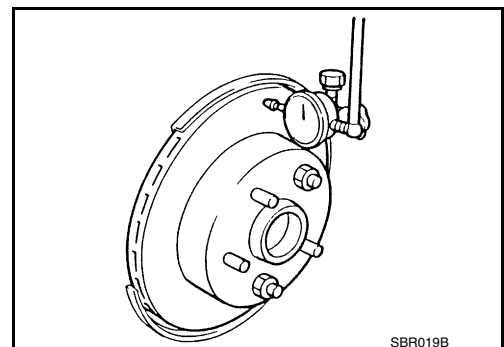
Check surface of disc brake rotor for uneven wear, cracks or damage. Replace if any abnormal conditions exist.

RUNOUT

1. Check the wheel bearing axial end play before the inspection. Refer to [FAX-6, "Inspection"](#).
2. Secure the disc brake rotor to the wheel hub and bearing with wheel nuts at two wheel nut locations.
3. Measure the runout with a dial gauge 10 mm (0.39 in) from the disc brake rotor edge.

Runout (with it attached to the vehicle) : Refer to [BR-52, "Rear Disc Brake"](#).

4. Find the installation position with a minimum runout by shifting the disc brake rotor-to-wheel hub and bearing installation position by one hole at a time if the runout exceeds the limit value.
5. Refinish the disc brake rotor if the runout is outside the limit even after performing the above operation. When refinishing, use Tool.



Tool number : 38-PFM92 (—)

REAR DISC BRAKE

< PERIODIC MAINTENANCE >

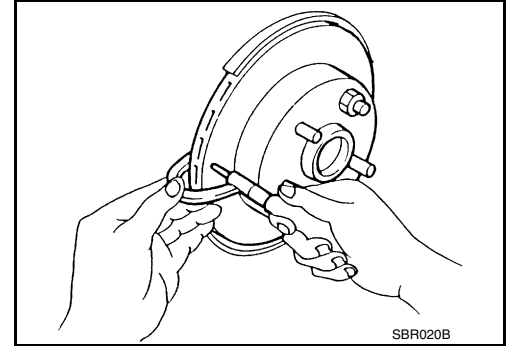
CAUTION:

- Check in advance that the thickness of the disc rotor is wear thickness + 0.3 mm (0.012 in) or more.
- If the thickness is less than wear thickness + 0.3 mm (0.012 in), replace the disc rotor. Refer to [BR-43, "BRAKE CALIPER ASSEMBLY : Removal and Installation"](#).

Thickness

Check the thickness of the disc brake rotor using a micrometer. Replace the disc brake rotor if the thickness is below the minimum thickness.

Wear limit thickness : Refer to [BR-52, "Rear Disc Brake"](#).



DISC BRAKE ROTOR : Brake Burnishing

INFOID:000000012601184

CAUTION:

- Burnish contact surfaces between brake pads and disc brake rotor according to the following procedure after refinishing the disc brake rotor, replacing brake pads or if a soft pedal occurs at very low mileage.
 - Be careful of vehicle speed. Brakes do not operate firmly/securely until pads and disc brake rotor are securely seated.
 - Only perform this procedure under safe road and traffic conditions. Use extreme caution.
1. Drive the vehicle on straight, flat road.
 2. Depress the brake pedal until the vehicle stops.
 3. Release the brake pedal for a few minutes to allow the brake components to cool.
 4. Repeat steps 1 to 3 until pad and disc brake rotor are securely seated.

BRAKE PEDAL

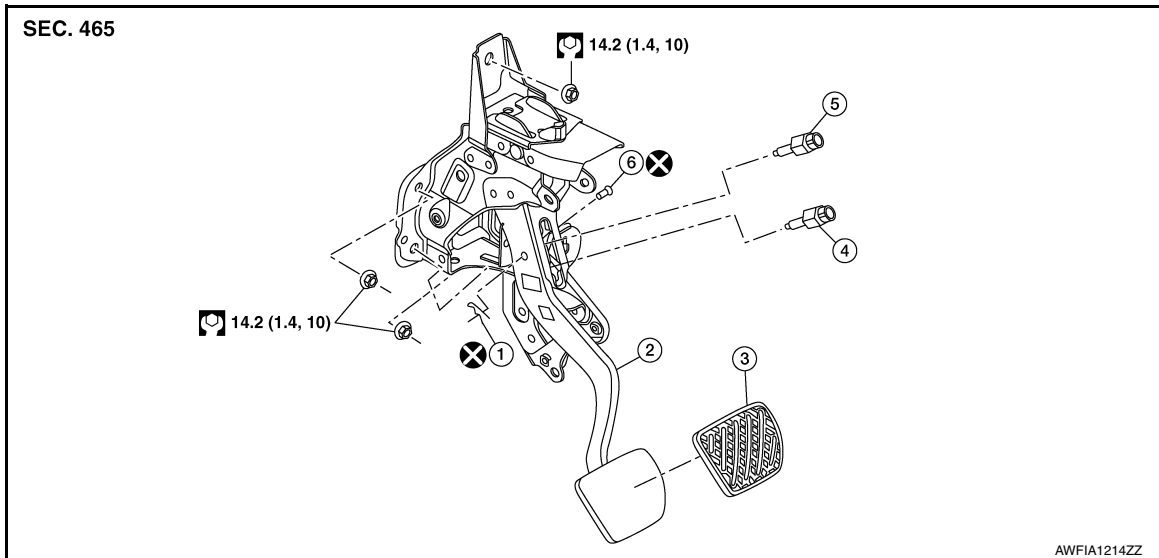
< REMOVAL AND INSTALLATION >

REMOVAL AND INSTALLATION

BRAKE PEDAL

Exploded View

INFOID:0000000012601185



- | | | |
|---------------------|--|--------------------|
| 1. Snap pin | 2. Brake pedal assembly | 3. Brake pedal pad |
| 4. Stop lamp switch | 5. brake pedal position switch (if equipped) | 6. Clevis pin |

Removal and Installation

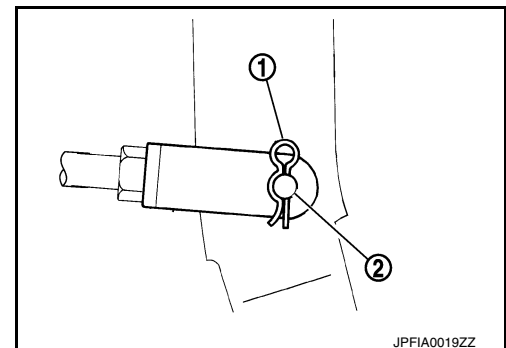
INFOID:0000000012601186

REMOVAL

1. Remove the instrument lower panel LH. Refer to [IP-14, "Exploded View"](#).
2. Remove the accelerator pedal. Refer to [ACC-3, "Removal and Installation"](#).
3. Disconnect the harness connectors from the stop lamp switch and brake pedal position switch (if equipped).
4. Rotate the stop lamp switch and brake pedal position switch (if equipped) counter clockwise to remove.
5. Remove the snap pin (1) and clevis pin (2) from the brake pedal assembly.

CAUTION:

Do not reuse the snap pin or clevis pin.



6. Disconnect the brake booster clevis from the brake pedal assembly.
7. Disconnect the steering column assembly pinch bolt and position the steering column assembly aside to gain access to the brake pedal assembly. Refer to [ST-34, "Exploded View"](#).
8. Remove the brake pedal assembly nuts.

NOTE:

Remove the top brake pedal assembly nut first.

9. Remove the harness clips from the brake pedal assembly.
10. Remove the brake pedal assembly.

BRAKE PEDAL

< REMOVAL AND INSTALLATION >

INSTALLATION

Installation is in the reverse order of removal.

CAUTION:

Do not reuse the snap pin or clevis pin.

- Adjust the brake pedal height after installing the brake pedal assembly. Refer to [BR-14, "Inspection and Adjustment"](#).
- Tighten the clevis lock nut to the specified torque. Refer to [BR-31, "Exploded View"](#).

BRAKE PIPING

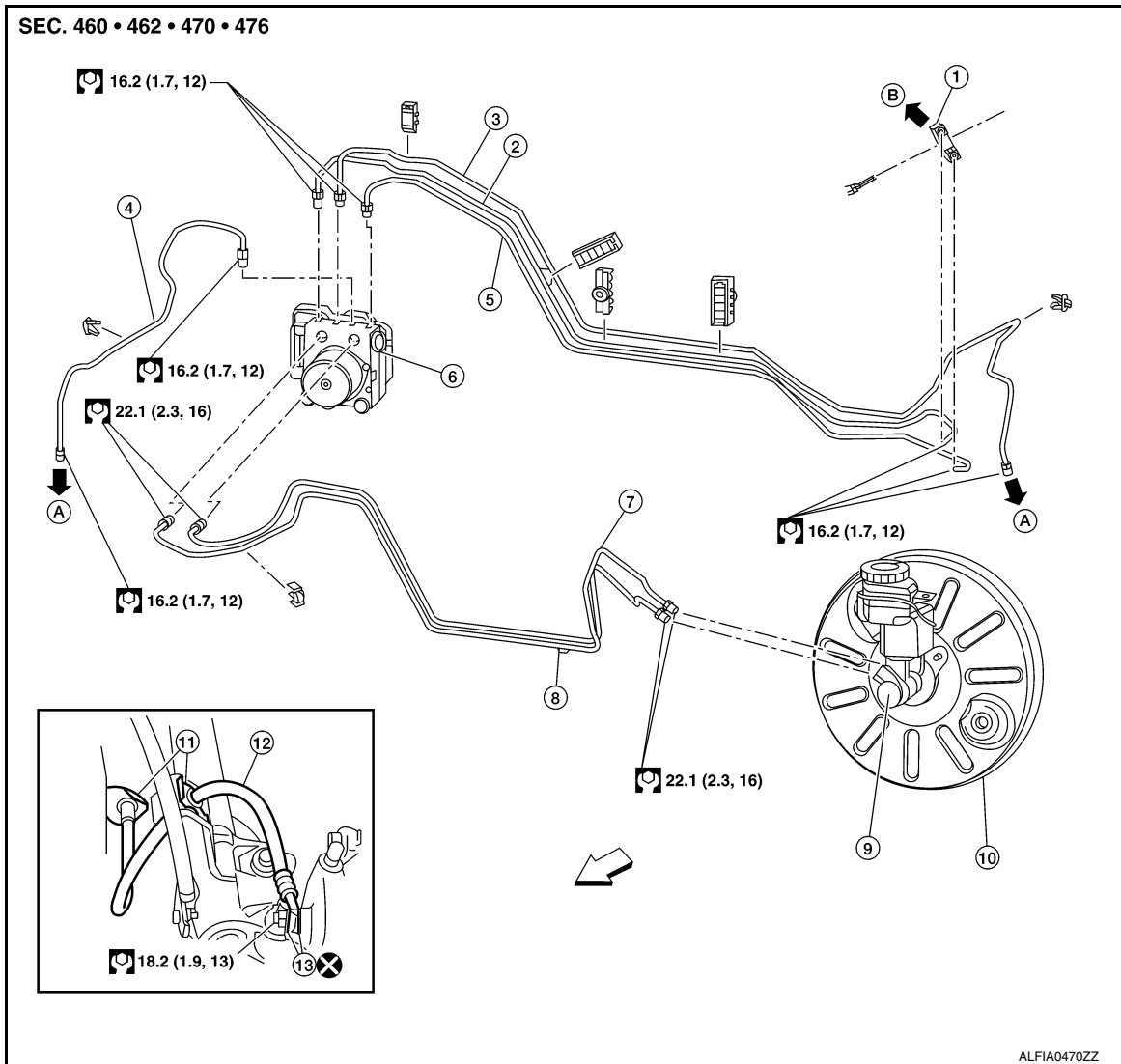
< REMOVAL AND INSTALLATION >

BRAKE PIPING

FRONT

FRONT : Exploded View

INFOID:000000012601187



- | | | |
|---|---|--|
| 1. Brake pipe connector | 2. ABS actuator to connector brake pipe assembly (RH) | 3. Front brake pipe assembly (LH) |
| 4. Front brake pipe assembly (RH) | 5. ABS actuator to connector brake pipe assembly (LH) | 6. ABS actuator and electric unit (control unit) |
| 7. Master cylinder primary to ABS actuator brake tube | 8. Master cylinder secondary to ABS actuator brake tube | 9. Master cylinder assembly |
| 10. Brake booster | 11. Lock plate | 12. Front brake hose |
| 13. Copper sealing washers | A. To front brake hose | B. To rear brake pipe |
- ← Front

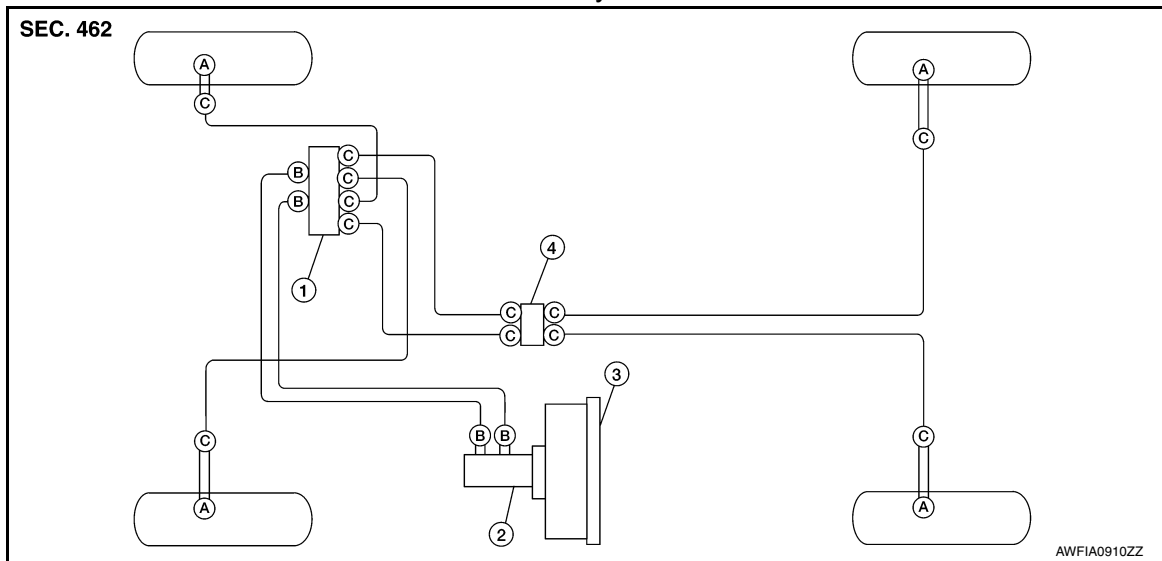
BRAKE PIPING

< REMOVAL AND INSTALLATION >

FRONT : Hydraulic Piping

INFOID:000000012601188

Four Channel Hydraulic Circuit



- | | | |
|--|--------------------|------------------|
| 1. ABS actuator and electric unit (control unit) | 2. Master cylinder | 3. Booster |
| 4. Connector | A. Union bolt | B. Flare nut M12 |
| C. Flare nut M10 | | |

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 steering 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.
- Do not reuse drained brake fluid.
- After installation, refill brake system with new brake fluid. Then bleed the air from the system. Refer to [BR-15, "Bleeding Brake System"](#).

FRONT : Removal and Installation

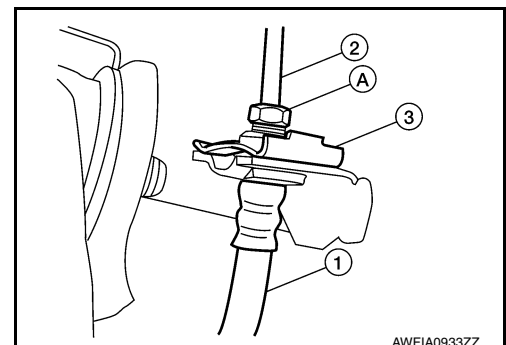
INFOID:000000012601189

REMOVAL

NOTE:

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

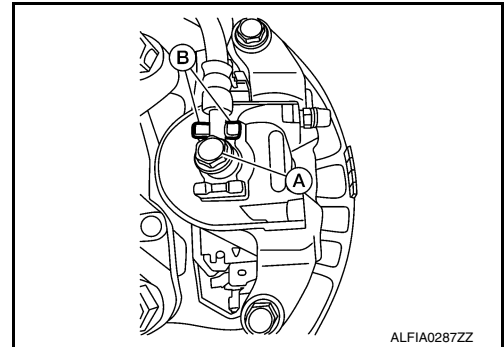
1. Remove the wheel and tire using power tool. Refer to [WT-54, "Adjustment"](#).
2. Drain brake fluid. Refer to [BR-15, "Drain and Refill"](#).
3. Disconnect the brake hose (1) from brake tube (2) at the flare nut (A) using a flare nut wrench and remove the lock plate (3).



BRAKE PIPING

< REMOVAL AND INSTALLATION >

- Remove the union bolt (A) and remove brake hose from caliper assembly. Discard the copper sealing washers.
 - Protrusions (B)
- CAUTION:**
Do not reuse the copper sealing washers.
- Remove the brake hose.



INSTALLATION

CAUTION:

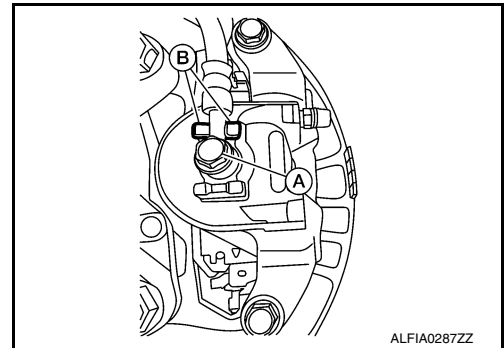
- All brake hoses and brake tubes must be free from excessive bending, twisting and pulling.
- Make sure that there is no interference with other parts when turning steering both clockwise and counterclockwise.
- Brake tubes and brake hoses are an important safety part. Always disassemble the parts and 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 areas, wash it away with water immediately.
- Refill with new brake fluid "DOT 3".
- Do not reuse drained brake fluid.

- Assemble the union bolt and new copper sealing washers on the brake hose.

CAUTION:

Do not reuse the copper sealing washers.

- Install brake hose by aligning the brake hose with the protrusion (B) on brake caliper assembly as shown. Tighten union bolt (A) to the specified torque. Refer to [BR-23, "FRONT : Exploded View"](#).

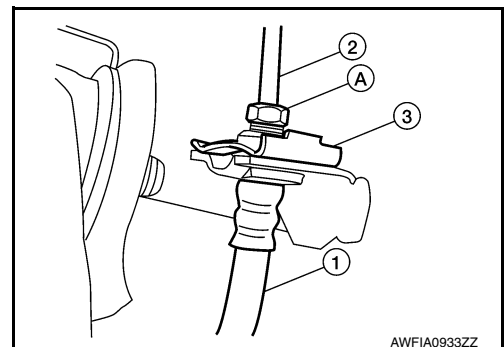


- Connect brake hose (1) to brake tube (2). Temporarily tighten flare nut (A) by hand until it does not rotate further. Secure the brake hose to the bracket with lock plate (3).
- Tighten flare nut to the specified torque using a flare nut crow-foot and torque wrench. Refer to [BR-23, "FRONT : Exploded View"](#).

CAUTION:

Do not scratch flare nut or brake tube.

- Refill brake fluid and perform the air bleeding procedure. Refer to [BR-15, "Bleeding Brake System"](#).
- Install the wheel and tire. Refer to [WT-60, "Road Wheel"](#).



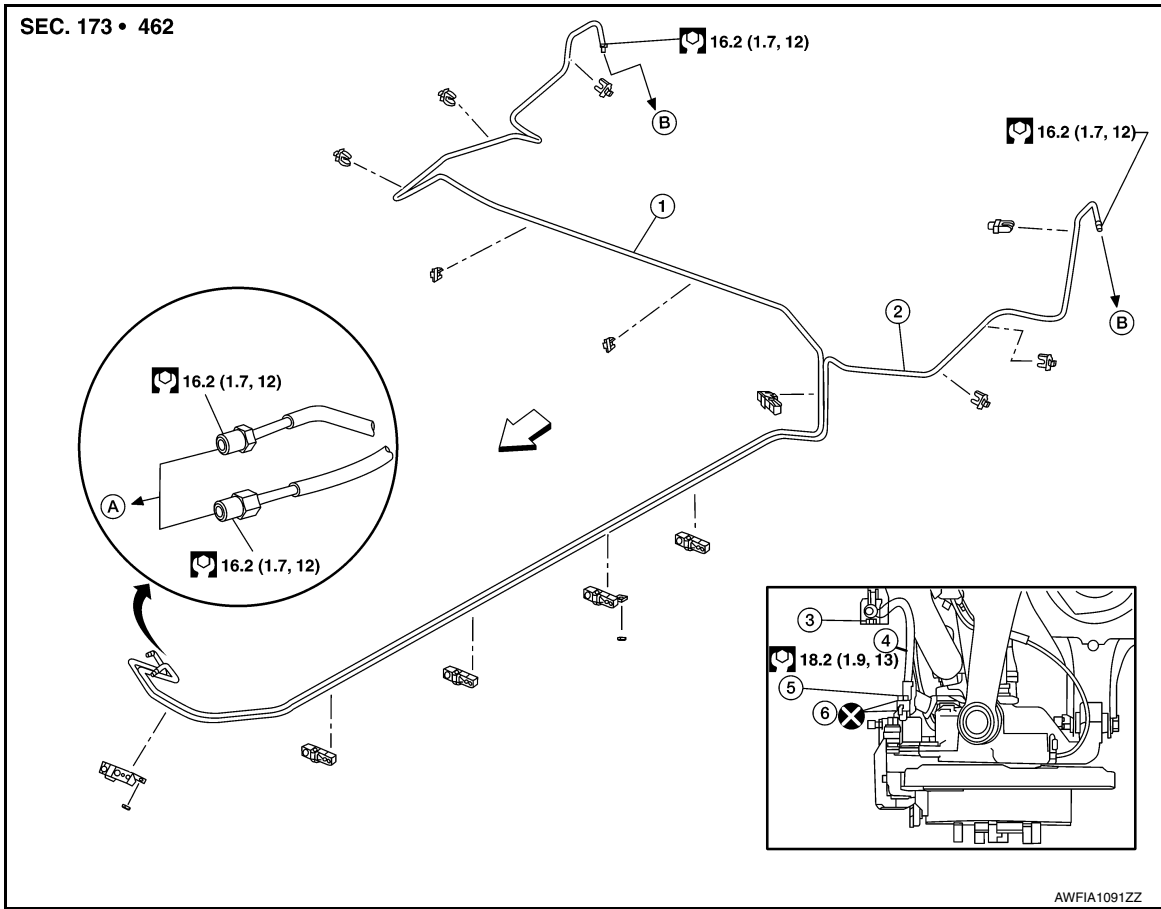
REAR

BRAKE PIPING

< REMOVAL AND INSTALLATION >

REAR : Exploded View

INFOID:000000012601190

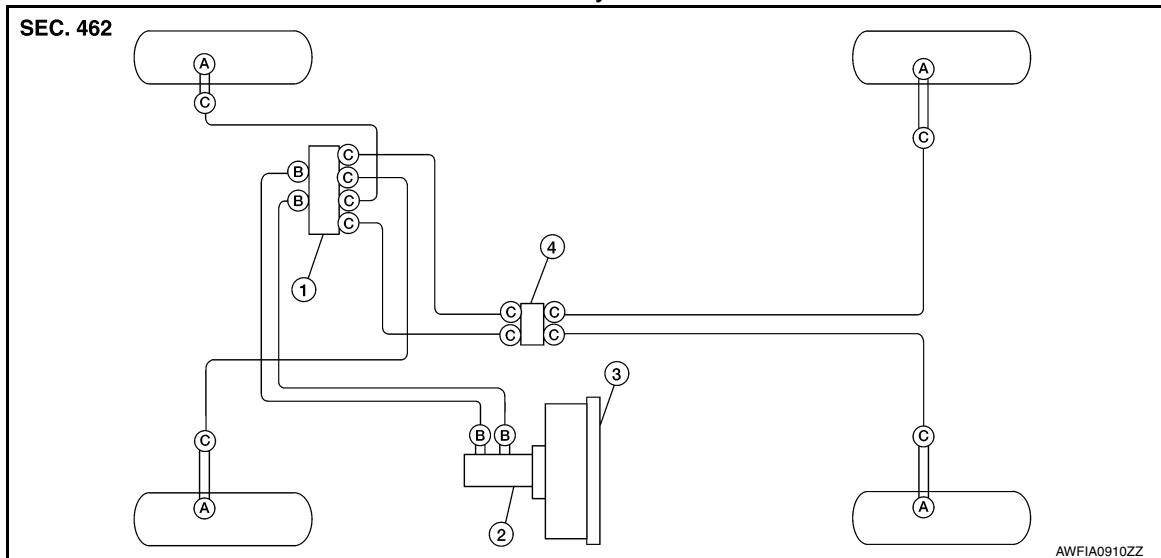


- | | | |
|----------------------------------|----------------------------------|---------------------------|
| 1. Rear brake pipe assembly (RH) | 2. Rear brake pipe assembly (LH) | 3. Lock plate |
| 4. Rear brake hose | 5. Union bolt | 6. Copper sealing washers |
| A. To brake pipe connector | B. To rear brake hose | ⇐ Front |

REAR : Hydraulic Piping

INFOID:000000012601191

Four Channel Hydraulic Circuit



BRAKE PIPING

< REMOVAL AND INSTALLATION >

- | | | |
|--|--------------------|------------------|
| 1. ABS actuator and electric unit (control unit) | 2. Master cylinder | 3. Booster |
| 4. Connector | A. Union bolt | B. Flare nut M12 |
| C. Flare nut M10 | | |

CAUTION:

- All hoses and piping (tubes) must be free from excessive bending, twisting and pulling.
- 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.
- Do not reuse drained brake fluid.
- After installation, refill brake system with new brake fluid. Then bleed the air from the system. Refer to [BR-15. "Bleeding Brake System"](#).

REAR : Removal and Installation

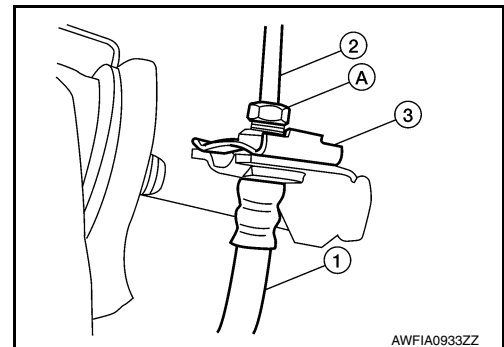
INFOID:000000012601192

NOTE:

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

REMOVAL

1. Remove wheel and tire using power tool. Refer to [WT-54. "Adjustment"](#).
2. Drain brake fluid. Refer to [BR-15. "Drain and Refill"](#).
3. Disconnect the brake hose (1) from brake tube (2) at the flare nut (A) using a flare nut wrench and remove the lock plate (3).

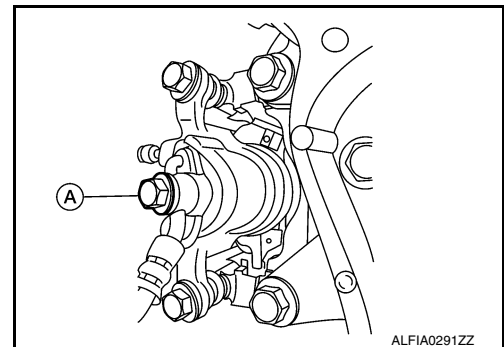


4. Remove the union bolt (A) and the brake hose from the brake caliper. Remove and discard the copper sealing washers.

CAUTION:

Do not reuse copper sealing washers.

5. Remove the lock plate and remove the brake hose.



INSTALLATION

CAUTION:

- All brake hoses and brake tubes must be free from excessive bending, twisting and pulling.
- Brake tubes and brake hoses are 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 areas, wash it away with water immediately.
- Refill with new brake fluid "DOT 3".
- Do not reuse drained brake fluid.

BRAKE PIPING

< REMOVAL AND INSTALLATION >

1. Assemble the union bolt (A) and the copper sealing washers (1) to the brake hose and install it as an assembly to the brake caliper. Align the brake hose L-pin by aligning it with the brake caliper hole, and tighten the union bolt (A) to the specified torque.

CAUTION:

Do not reuse copper sealing washers.

2. Install the brake pipe to the brake hose, temporarily tighten the flare nut by hand until it does not rotate further, and attach the brake hose to the bracket with the lock plate.

CAUTION:

Check that the brake hoses and pipes are not bent or twisted.

3. Connect brake hose (1) to brake tube (2). Temporarily tighten flare nut (A) by hand until it does not rotate further. Secure the brake hose to the bracket with lock plate (3).

4. Tighten flare nut to the specified torque using a flare nut crow-foot and torque wrench. Refer to [BR-26, "REAR : Exploded View"](#).

CAUTION:

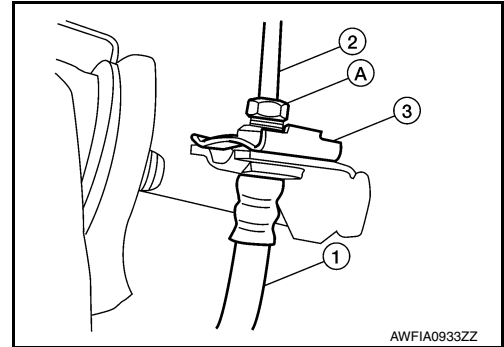
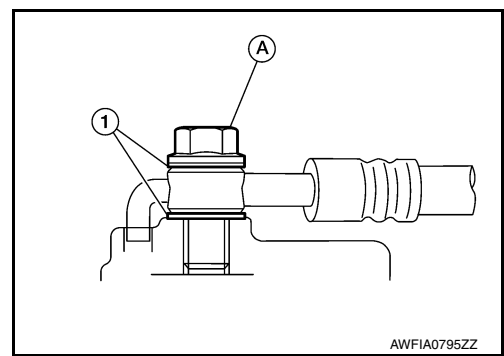
Do not scratch flare nut or brake tube.

5. Refill brake fluid and perform the air bleeding procedure. Refer to [BR-15, "Bleeding Brake System"](#).

CAUTION:

Do not reuse drained brake fluid.

6. Install the wheel and tire. Refer to [WT-54, "Adjustment"](#).
7. Perform inspection after installation. Refer to [BR-8, "Inspection"](#).



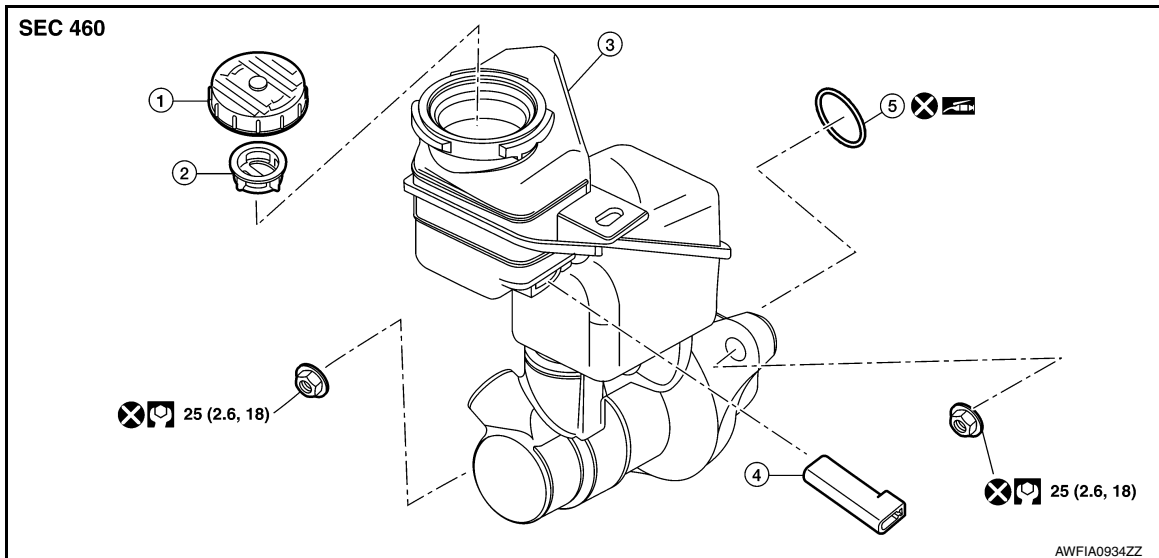
BRAKE MASTER CYLINDER


< REMOVAL AND INSTALLATION >

BRAKE MASTER CYLINDER

Exploded View

INFOID:0000000012601193



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

Removal and Installation

INFOID:0000000012601194

CAUTION:

- 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 scratch the piston of master cylinder when installing/removing because the piston is exposed. Check for any dust on the piston, and wash with brake fluid if needed.
- Hold the master cylinder body when handing the master cylinder assembly. Do not hold the piston because the piston might become detached if pulled strongly.
- Refill the reservoir tank with new brake fluid "DOT 3".
- Do not reuse drained brake fluid.
- Do not reuse master cylinder O-ring.

NOTE:

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

REMOVAL

1. Drain the brake fluid. Refer to [BR-15, "Drain and Refill"](#).
2. Remove air cleaner assembly and air ducts. Refer to [EM-29, "Removal and Installation"](#) (QR25DE) or [EM-146, "Removal and Installation"](#) (VQ35DE).
3. Disconnect the harness connector from the brake fluid level switch.
4. Remove the brake fluid level switch.
5. Disconnect the brake pipes from the master cylinder using a flare nut wrench.
6. Remove the master cylinder assembly nuts.
7. Remove the master cylinder assembly.
8. Remove and discard the O-ring from the master cylinder.

CAUTION:

Do not reuse O-ring.

INSTALLATION

Installation is in the reverse order of removal.

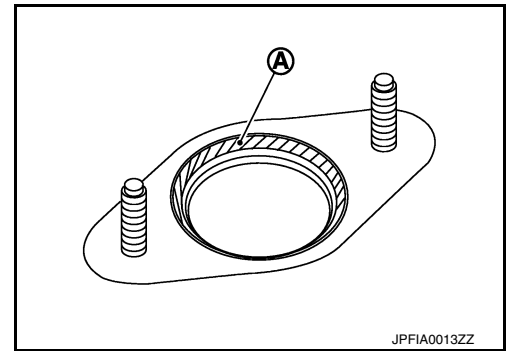
BRAKE MASTER CYLINDER

< REMOVAL AND INSTALLATION >

- Apply PBC (Poly Butyl Cuprysil) grease or silicone-based grease to brake booster at (A) position as shown. Be sure the O-ring is in the proper position before installing the master cylinder to the brake booster.

CAUTION:

- **Do not reuse O-ring.**
- **Do not reuse master cylinder assembly nuts.**
- Tighten brake tube flare nut to the specified torque using a flare nut crowfoot and torque wrench. Refer to [BR-23. "FRONT : Exploded View"](#).
- Check the brake pedal height after installing the brake master cylinder assembly. Refer to [BR-14. "Inspection and Adjustment"](#).
- Refill with new brake fluid and bleed air. Refer to [BR-15. "Bleeding Brake System"](#).



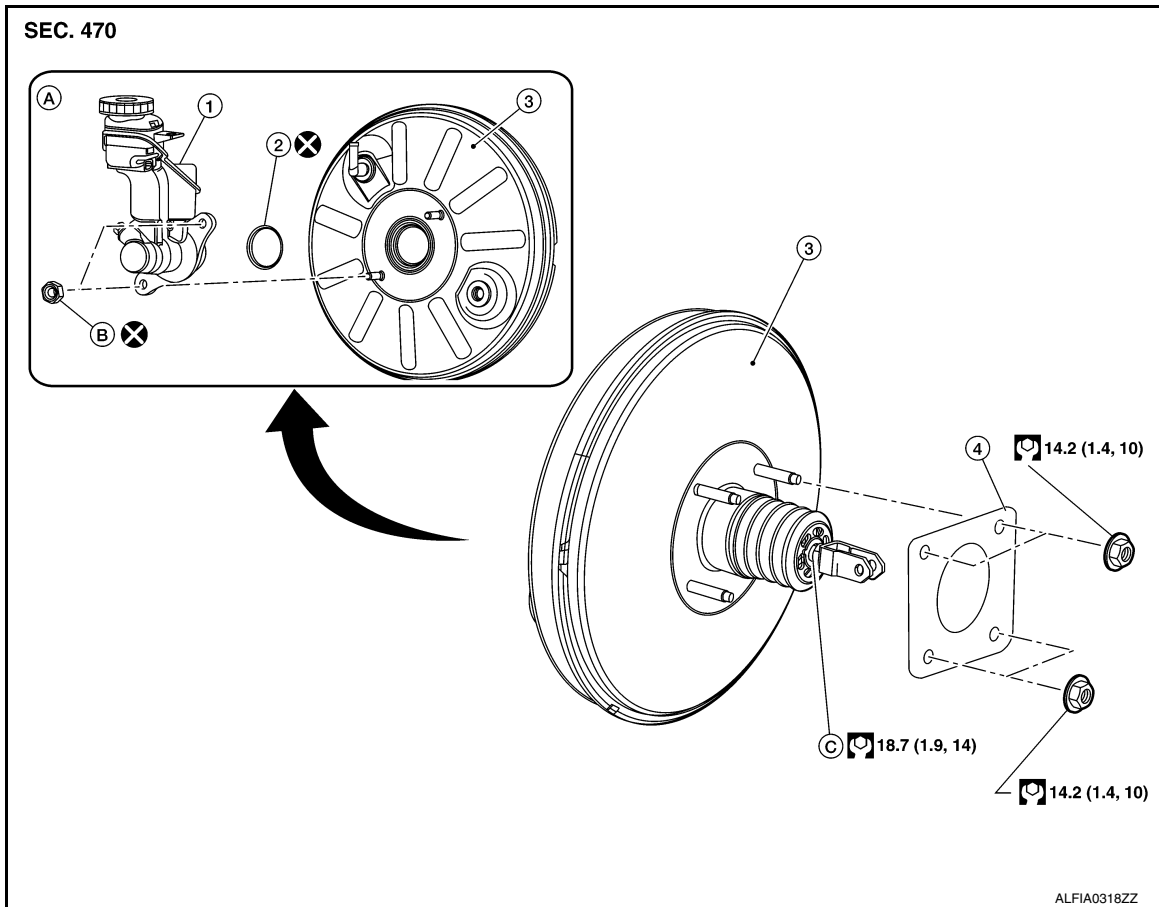
BRAKE BOOSTER

< REMOVAL AND INSTALLATION >

BRAKE BOOSTER

Exploded View

INFOID:000000012601195



- | | | |
|-----------------------------|---|---------------------------------|
| 1. Master cylinder assembly | 2. O-ring | 3. Brake booster |
| 4. Gasket | A. Refer to BR-29, "Removal and Installation" . | B. Master cylinder assembly nut |
| C. Clevis lock nut | | |

Removal and Installation - QR25DE

INFOID:000000012601196

CAUTION:

- Do not deform or bend brake tube while removing and installing brake booster.
- Do not reuse snap pin or clevis pin.
- Do not reuse brake booster gasket.
- Do not damage brake booster stud bolt threads. If brake booster is tilted during service, the dash panel may damage the threads.

REMOVAL

1. Release the fuel pressure from the fuel system. Refer to [EC-190, "Work Procedure"](#).
2. Disconnect the battery negative terminal. Refer to [PG-78, "Removal and Installation"](#).
3. Remove the instrument lower panel LH. Refer to [IP-21, "Removal and Installation"](#).
4. Disconnect the harness connector from the accelerator pedal assembly.

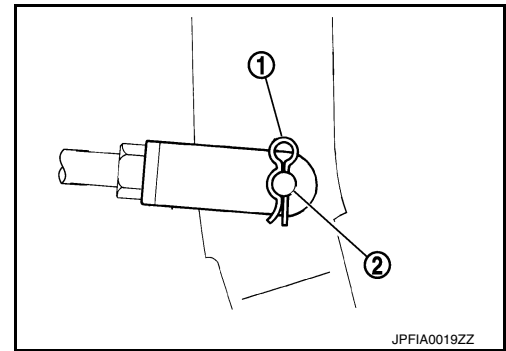
BRAKE BOOSTER

< REMOVAL AND INSTALLATION >

5. Remove the snap pin (1) and clevis pin (2) from the brake pedal.

CAUTION:

Do not reuse snap pin or clevis pin.



6. Disconnect the harness connectors from the brake pedal position switch (if equipped) and stop lamp switch.
7. Disconnect the steering column assembly pinch bolt and position the steering column shaft aside. Refer to [ST-34, "Exploded View"](#).
8. Remove the brake master cylinder. Refer to [BR-29, "Removal and Installation"](#).
9. Disconnect the fuel line main connections. Refer to [FL-4, "Quick Connector"](#).
10. Remove the cowl top and cowl top extension. Refer to [EXT-34, "Removal and Installation"](#).
11. Remove the strut tower bar. Refer to [FSU-18, "Exploded View"](#).
12. Disconnect the vacuum hose from the brake booster.
13. Disconnect the harness connector from the active boost sensor.
14. Remove brake booster nuts.
15. Remove the brake booster.
16. Remove and discard the brake booster gasket.

CAUTION:

Do not reuse brake booster gasket.

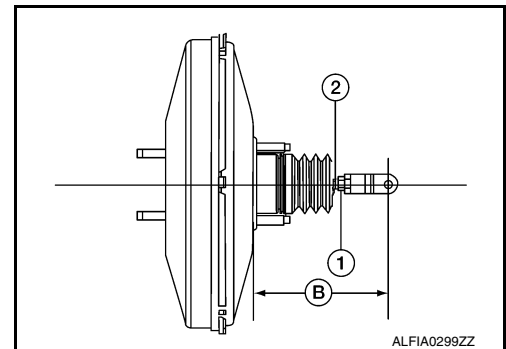
INSTALLATION

Installation is in the reverse order of removal.

- Prior to installation, loosen clevis lock nut (1) and adjust input rod (2) to the specified value (B).

Length (B) : Refer to [BR-52, "Brake Booster"](#).

- After input rod adjustment (B), temporarily tighten clevis lock nut for installation of brake booster.



- Connect the battery negative terminal. Refer to [PG-78, "Removal and Installation"](#).

Removal and Installation - VQ35DE

INFOID:000000012601197

CAUTION:

- **Do not deform or bend brake tube while removing and installing brake booster.**
- **Do not reuse snap pin or clevis pin.**
- **Do not reuse brake booster gasket.**
- **Do not damage brake booster stud bolt threads. If brake booster is tilted during service, the dash panel may damage the threads.**

REMOVAL

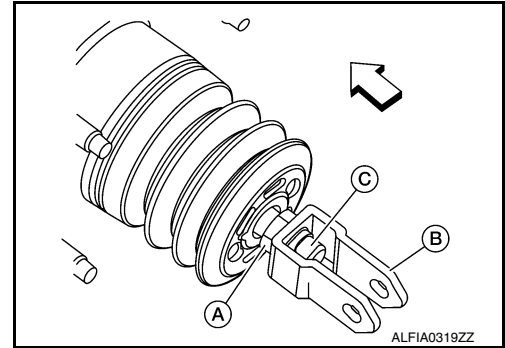
1. Release the fuel pressure from the fuel system. Refer to [EC-736, "Work Procedure"](#).
2. Disconnect the battery negative cable. Refer to [PG-78, "Removal and Installation"](#).
3. Remove the instrument lower panel LH. Refer to [IP-21, "Removal and Installation"](#).

BRAKE BOOSTER

< REMOVAL AND INSTALLATION >

4. Remove accelerator pedal assembly. Refer to [ACC-3, "Removal and Installation"](#).
5. Remove the brake pedal. Refer to [BR-21, "Removal and Installation"](#).
6. Loosen the clevis lock nut (A) and remove the clevis bracket (B) from the input rod (C).

⇐: Front



7. Remove the brake master cylinder. Refer to [BR-29, "Removal and Installation"](#).
8. Remove the vacuum hose. Refer to [BR-34, "Exploded View"](#).
9. Disconnect the fuel line main connections. Refer to [FL-4, "Quick Connector"](#).
10. Disconnect the harness connector from the Intelligent Key warning buzzer and remove the Intelligent Key warning buzzer from the LH strut tower. Refer to [DLK-220, "Removal and Installation"](#).
11. Remove the cowl top and cowl top extension. Refer to [EXT-34, "Removal and Installation"](#).
12. Remove the strut tower bar. Refer to [FSU-18, "Exploded View"](#).
13. Disconnect the harness connector from the active boost sensor.
14. Remove the brake booster.
15. Remove and discard the brake booster gasket.

CAUTION:

Do not reuse brake booster gasket.

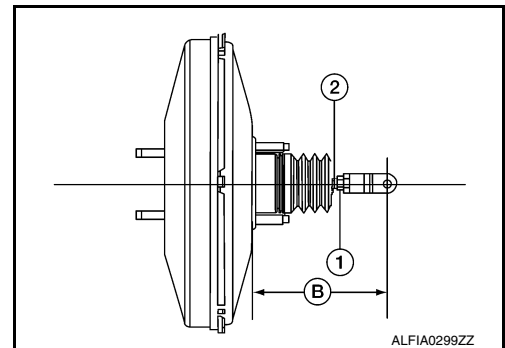
INSTALLATION

Installation is in the reverse order of removal.

- Prior to installation, loosen clevis lock nut (1) and adjust input rod (2) to the specified value (B).

Length (B) : Refer to [BR-52, "Brake Booster"](#).

- After input rod adjustment (B), temporarily tighten clevis lock nut for installation of brake booster.



- Connect the battery negative terminal. Refer to [PG-78, "Removal and Installation"](#).

VACUUM LINES

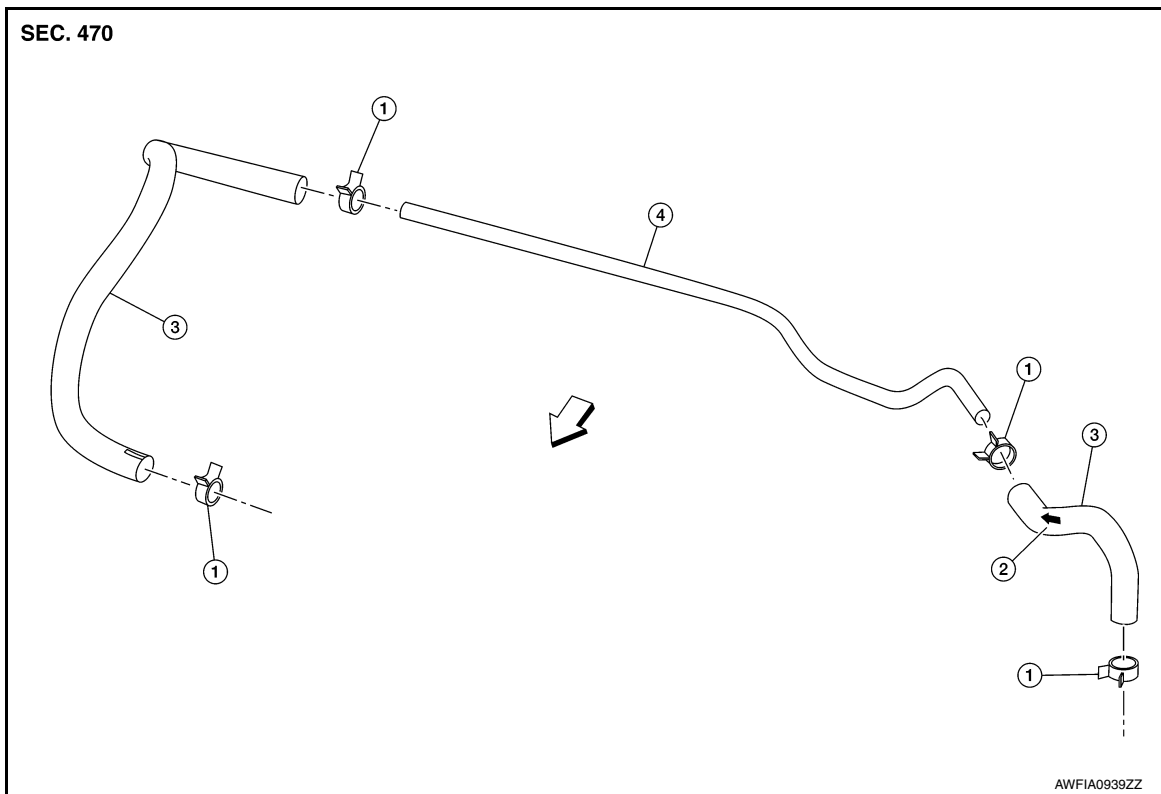
< REMOVAL AND INSTALLATION >

VACUUM LINES

Exploded View

INFOID:000000012601198

QR25DE



1. Clamp
 2. Check valve direction stamp (if equipped)
 3. Vacuum hose
 4. Vacuum piping
- ⇐ Front

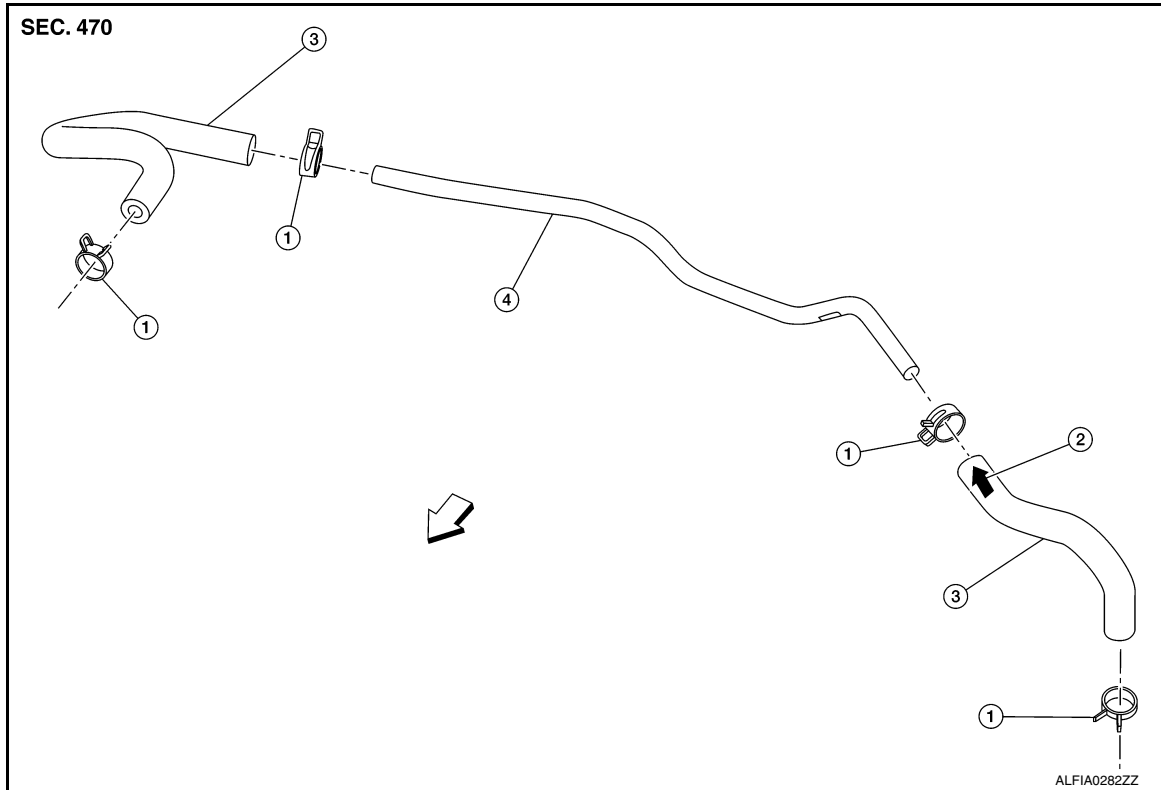
NOTE:

If check valve direction stamp is not on vacuum hose, the check valve is serviced as part of the brake booster.

VACUUM LINES

< REMOVAL AND INSTALLATION >

VQ35DE



1. Clamp
 2. Check valve direction stamp (if equipped)
 3. Vacuum hose
 4. Vacuum piping
- ↔ Front

NOTE:

If check valve direction stamp is not on vacuum hose, the check valve is serviced as part of the brake booster.

Removal and Installation

INFOID:000000012601199

REMOVAL

1. Disconnect the vacuum hose from the brake booster.
2. Disconnect the vacuum hose from the engine intake manifold.
3. Remove the vacuum hose.

INSPECTION AFTER REMOVAL

Visual Inspection

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

Air-tightness Check

- Connect a suitable tool to inspect check valve operation. Refer to [BR-11, "Inspection - Vacuum Hose Without Check Valve"](#) (Vacuum Hose Without Check Valve) or [BR-11, "Inspection - Vacuum Hose With Check Valve"](#) (Vacuum Hose With Check Valve).
- Replace vacuum hose component or brake booster if out of specification.

INSTALLATION

Installation is in the reverse order of removal.

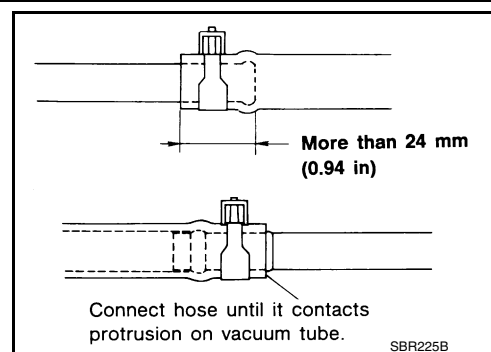
CAUTION:

- **Because the vacuum hose contains a one-way check valve, the hose must be installed in the correct position. Refer to the stamp on the hose to confirm the correct direction for installation. The brake booster will not operate normally if the hose is installed in the wrong direction.**
- **Do not use lubricating oil during assembly.**

VACUUM LINES

< REMOVAL AND INSTALLATION >

- Insert the vacuum hose at least 24 mm (0.94 in) onto the brake booster fitting as shown.



FRONT DISC BRAKE

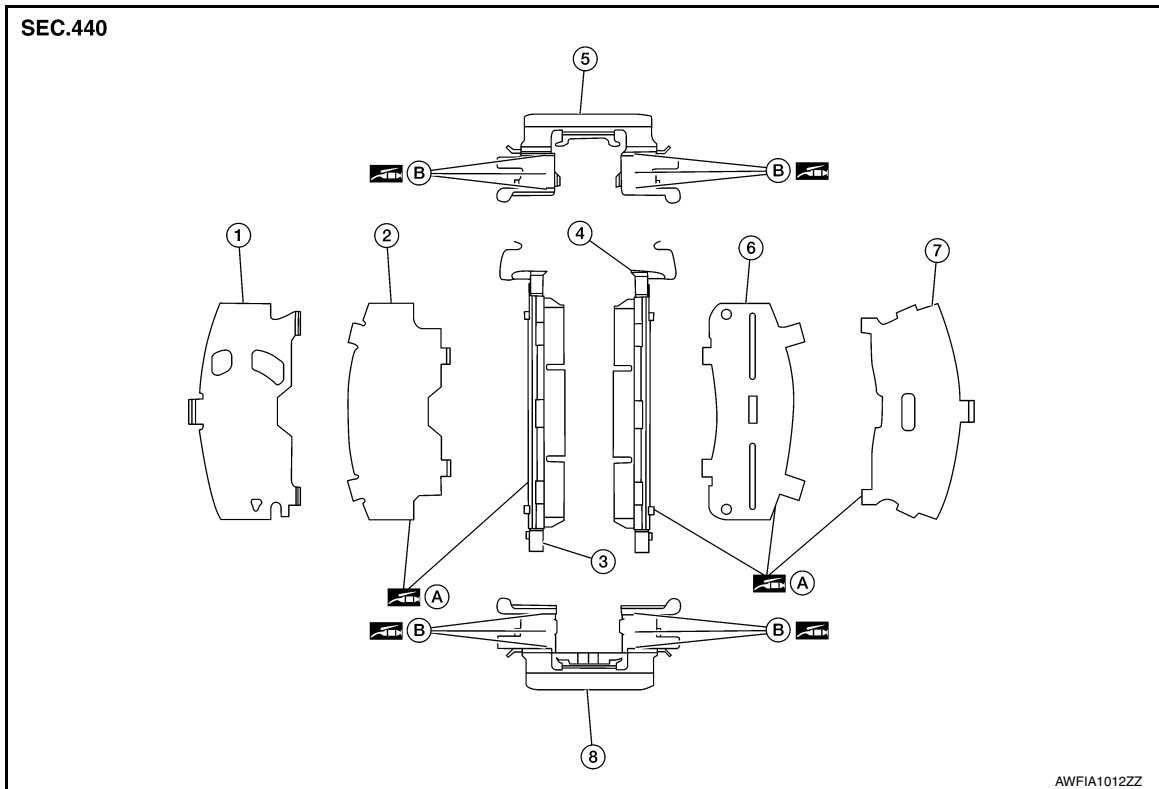
< REMOVAL AND INSTALLATION >

FRONT DISC BRAKE

BRAKE PAD

BRAKE PAD : Exploded View

INFOID:000000012601201



- | | | |
|-------------------------|-----------------------|----------------------------|
| 1. Inner shim cover | 2. Inner shim | 3. Inner pad |
| 4. Outer pad | 5. Pad retainer upper | 6. Outer shim |
| 7. Outer shim cover | 8. Pad retainer lower | A. Molykote AS-880N grease |
| B. Molykote 7439 grease | | |

BRAKE PAD : Removal and Installation

INFOID:000000012601202

WARNING:

Clean dust on brake calipers and brake pads with a vacuum dust collector to minimize the hazard of airborne particles or other materials.

CAUTION:

- 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.
- While removing brake caliper, do not depress brake pedal because piston will pop out.
- It is not necessary to remove bolts from torque member and brake hose except for disassembly or replacement of brake caliper assembly. In this case, hang brake caliper with a wire so as not to stretch brake hose.
- Do not damage piston boot.
- Keep brake rotor and brake pads free from brake fluid and grease.
- Burnish the brake pads and disc brake rotor mutually contacting surfaces after refinishing or replacing disc brake rotors, after replacing brake pads, or if a soft pedal occurs at very low mileage. Refer to [BR-18, "DISC BRAKE ROTOR : Brake Burnishing"](#).

REMOVAL

1. Observe brake fluid level in the master cylinder reservoir tank. Partially drain brake fluid if necessary.

CAUTION:

Do not reuse drained brake fluid

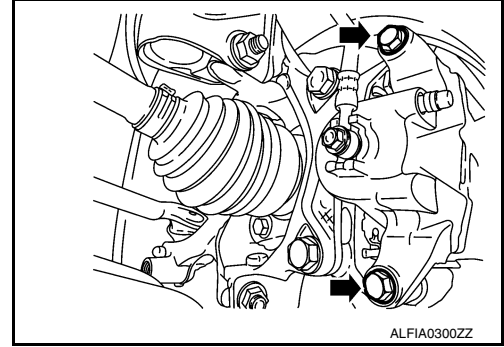
FRONT DISC BRAKE

< REMOVAL AND INSTALLATION >

- Remove the front wheel and tire using power tool. Refer to [WT-54, "Adjustment"](#).
- Remove upper and lower sliding pin bolts. Refer to [BR-39, "BRAKE CALIPER ASSEMBLY : Exploded View"](#).

NOTE:

Note the 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.

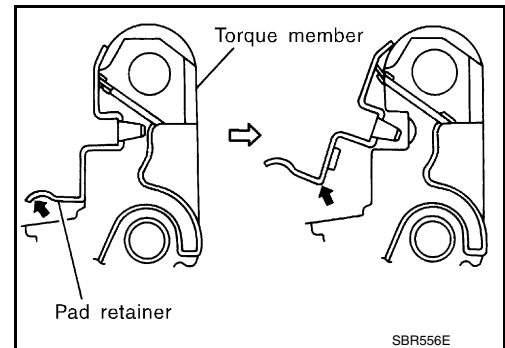
CAUTION:

Do not twist or stretch brake hose.

- Remove the brake pads, shims, and shim covers from the torque member.
- Remove the brake pad retainers from the torque member.

CAUTION:

When removing the brake pad retainers from the torque member, lift it in the direction indicated by the arrow as shown so that it does not deform.



INSTALLATION

Installation is in the reverse order of removal.

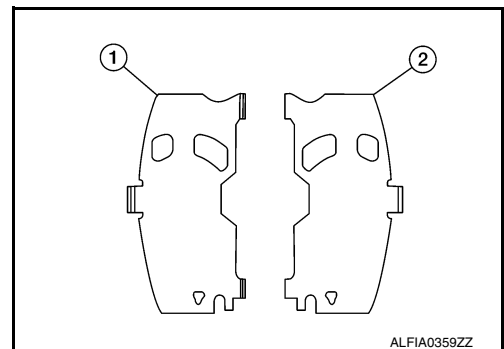
- Apply Molykote AS-880N grease or equivalent between the outer brake pad, outer shim cover and outer shim and between the inner shim and inner brake pad. Install outer shim and outer shim cover to outer brake pad. Install inner shim and inner shim cover to inner brake pad.

CAUTION:

- The inner shim cover (LH) (1) is different than the inner shim cover (RH) (2). Install the inner shim covers in the correct position.**
 - Replace brake pad shims and covers as a set if any corrosion or damage exists.**
- Apply Molykote 7439 grease or equivalent between brake pad retainers and brake pad ends. Install brake pad retainers and brake pads to torque member.

CAUTION:

- Make sure the brake pad retainers are fastened properly to the torque member.**
 - Replace brake pad retainers if damage exists.**
- Press the piston into the cylinder bore of the caliper using a suitable tool.
 - Check brake fluid level and refill as necessary. Refer to [BR-8, "Inspection"](#).
 - Burnish contact surface between brake pads and disc brake rotors. Refer to [BR-18, "DISC BRAKE ROTOR : Brake Burnishing"](#).



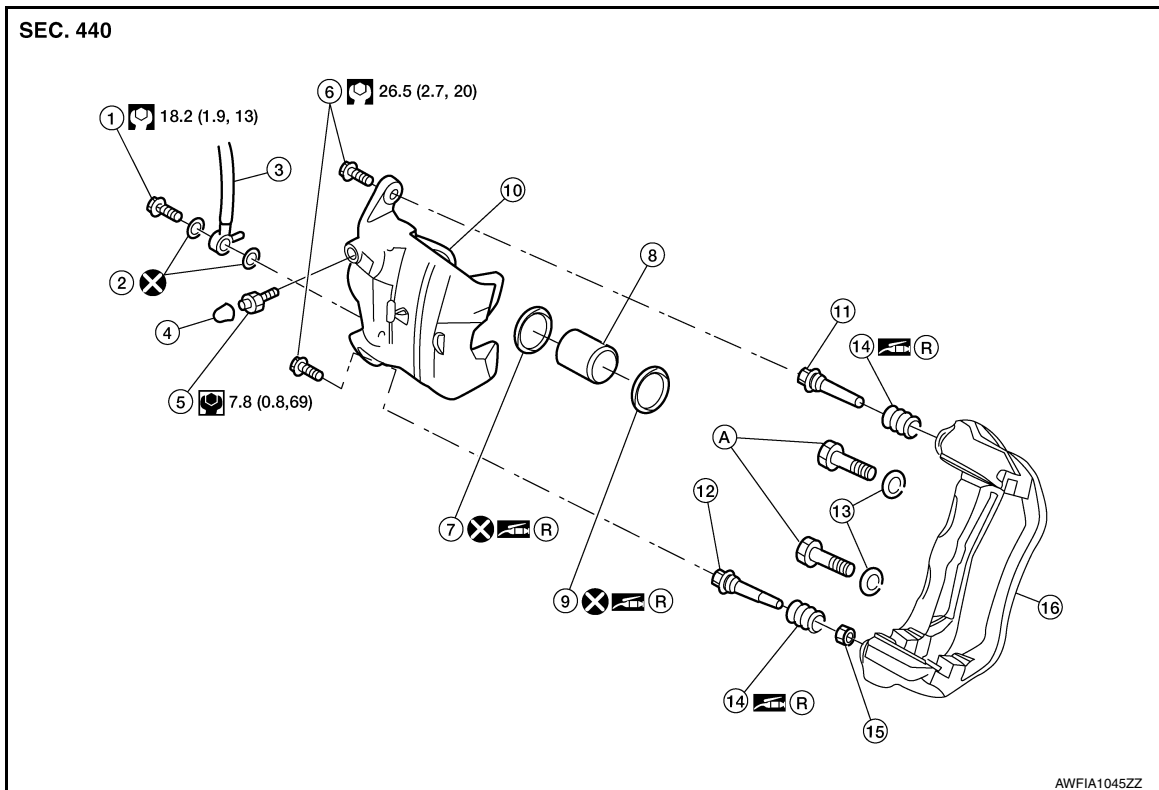
BRAKE CALIPER ASSEMBLY

FRONT DISC BRAKE

< REMOVAL AND INSTALLATION >

BRAKE CALIPER ASSEMBLY : Exploded View

INFOID:000000012601203



- | | | |
|----------------------------------|--------------------------|-------------------------------|
| 1. Union bolt | 2. Copper sealing washer | 3. Brake hose |
| 4. Cap | 5. Bleeder valve | 6. Sliding pin bolt |
| 7. Piston seal | 8. Piston | 9. Piston boot |
| 10. Brake caliper | 11. Upper sliding pin | 12. Lower sliding pin |
| 13. Washer (without flange bolt) | 14. Sliding pin boot | 15. Lower sliding pin bushing |
| 16. Torque member | A. Refer to Installation | R. Rubber grease |

BRAKE CALIPER ASSEMBLY : Removal and Installation

INFOID:000000012601204

WARNING:

Clean dust on brake calipers and brake pads with a vacuum dust collector to minimize the hazard of airborne particles or other materials.

CAUTION:

- 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.
- While removing brake caliper, do not depress the brake pedal because the piston will pop out.
- Do not damage piston boot.
- Keep disc brake rotor free from brake fluid.
- Refill the brake reservoir with new brake fluid "DOT 3".
- 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 reservoir cap.
2. Observe brake fluid level in master cylinder reservoir tank. Partially drain brake fluid if necessary.

CAUTION:

Do not reuse drained brke fluid

3. Remove front wheel and tire using power tool. Refer to [WT-54, "Adjustment"](#).

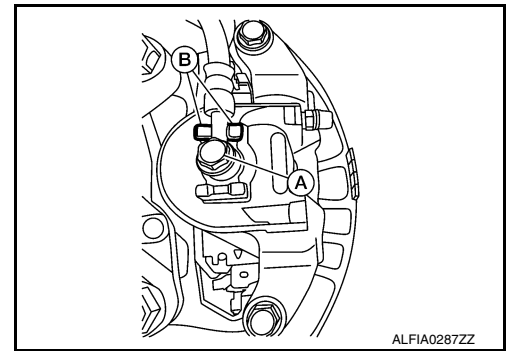
FRONT DISC BRAKE

< REMOVAL AND INSTALLATION >

- Remove union bolt (A) and then remove brake hose from brake caliper assembly. Discard the copper sealing washers.
 - Protrusions (B)

CAUTION:

Do not reuse copper sealing washers.



- Remove the upper and lower sliding pin bolts.

NOTE:

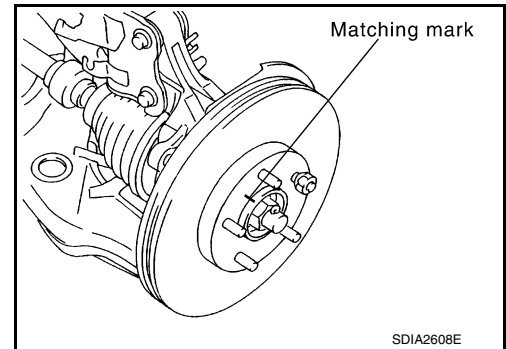
Note the sliding pin orientation during removal. The lower sliding pin contains a bushing.

- Remove the brake caliper from the torque member.
- Remove the brake pads and shims from the torque member.
- Remove torque member bolts and the torque member.

NOTE:

Torque member bolt style may differ between flange bolt and bolt with washer.

- Remove disc brake rotor. If reusing the disc brake rotor apply matching marks as shown.



INSTALLATION

Installation is in the reverse order of removal.

- Tighten components to specification. Refer to [BR-39, "BRAKE CALIPER ASSEMBLY : Exploded View"](#).
- Torque member bolt with washer: 144.5 N·m (15 kg-m, 107 ft-lb)
- Torque member flange bolt: 123 N·m (13 kg-m, 91 ft-lb)

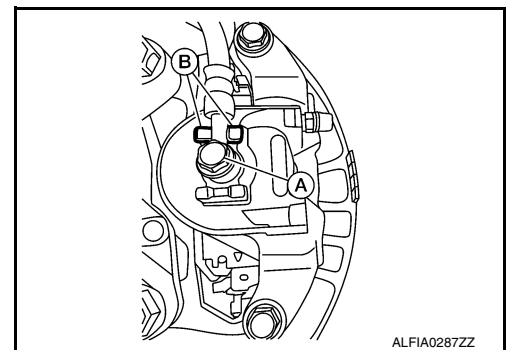
CAUTION:

Torque member bolt style may differ between flange bolt and bolt with washer.

- Install brake hose to brake caliper assembly with new copper sealing washers. Align the brake hose tab between the protrusions (B) on the brake caliper assembly as shown. Tighten union bolt (A) to the specified torque. Refer to [BR-39, "BRAKE CALIPER ASSEMBLY : Exploded View"](#).

CAUTION:

Do not reuse copper sealing washers.



- Refill with new brake fluid and bleed air from the brake hydraulic system. Refer to [BR-15, "Bleeding Brake System"](#).

REAR DISC BRAKE

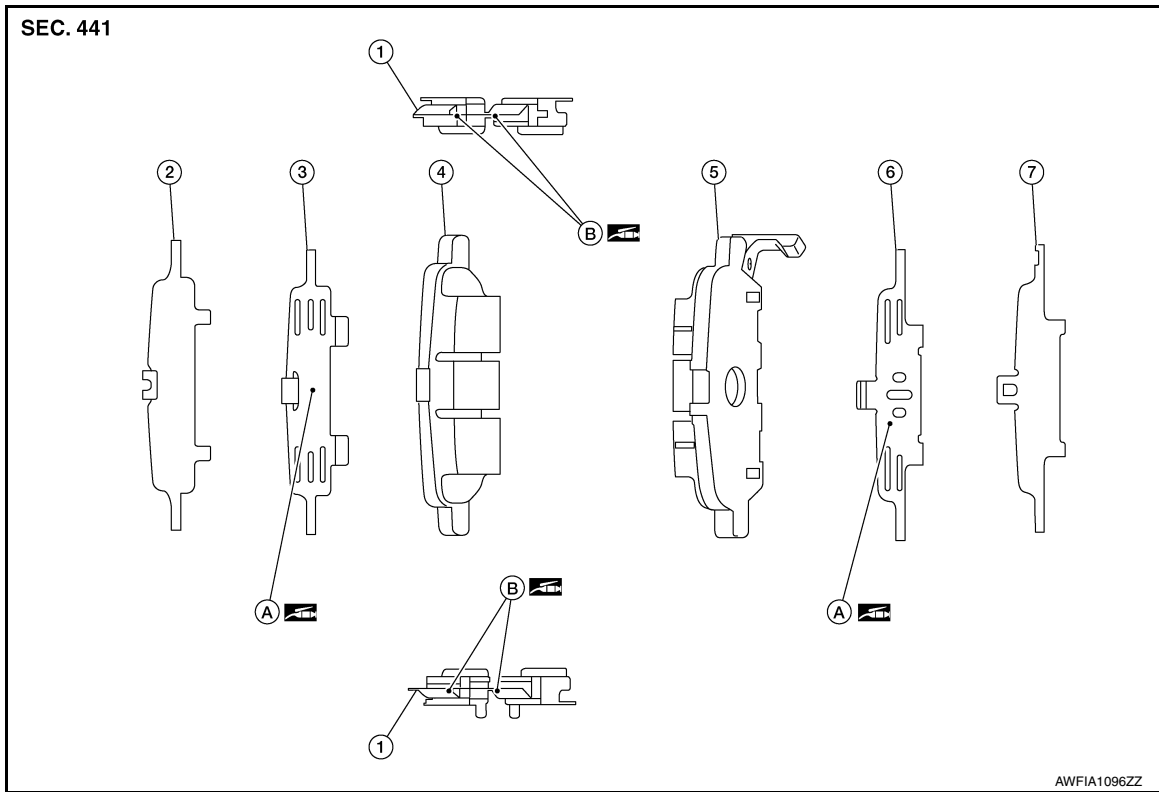
< REMOVAL AND INSTALLATION >

REAR DISC BRAKE

BRAKE PAD

BRAKE PAD : Exploded View

INFOID:000000012601205



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

BRAKE PAD : Removal and Installation

INFOID:000000012601206

WARNING:

Clean dust on brake calipers and brake pads with a vacuum dust collector to minimize the hazard of airborne particles or other materials.

CAUTION:

- 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.
- While removing brake caliper, do not depress brake pedal because piston will pop out.
- Do not damage piston boot.
- Keep disc brake rotors and brake pads free from brake fluid and grease.
- Burnish the brake pads and disc brake rotors mutually contacting surfaces after refinishing or replacing disc brake rotors, after replacing brake pads, or if a soft pedal occurs at very low mileage. Refer to [BR-20, "DISC BRAKE ROTOR : Brake Burnishing"](#).

REMOVAL

1. Observe brake fluid level in master cylinder reservoir tank. Partially drain brake fluid if necessary.

CAUTION:

Do not reuse drained brake fluid.

2. Remove rear wheel and tire using power tool. Refer to [WT-54, "Adjustment"](#).

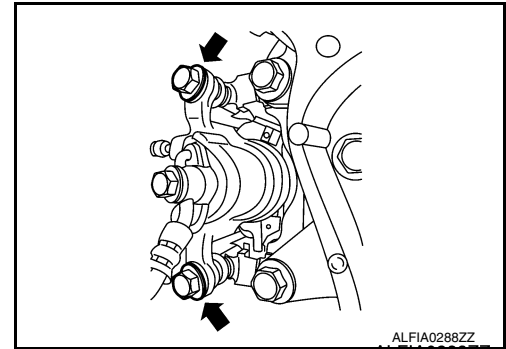
REAR DISC BRAKE

< REMOVAL AND INSTALLATION >

3. Remove the upper and lower sliding pin bolts. Refer to [BR-43](#), "[BRAKE CALIPER ASSEMBLY : Exploded View](#)".

NOTE:

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



4. Remove brake caliper from torque member. Leaving brake hose attached, reposition the brake caliper aside with wire.

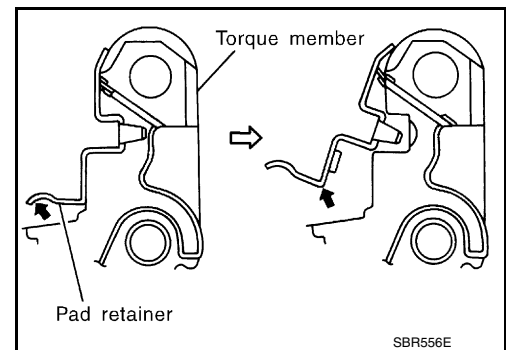
CAUTION:

Do not twist or stretch the brake hose.

5. Remove the brake pads and shims from the torque member.
6. Remove the brake pad retainers from the torque member.

CAUTION:

- When removing the brake pad retainers from the torque member, lift in the direction indicated by the arrow as shown so that it does not deform.
- Replace brake pad retainers if damage exists.



INSTALLATION

Installation is in the reverse order of removal.

- Apply Molykote AS-880N grease or equivalent between the outer brake pad, outer shim cover and outer shim and the inner shim and inner brake pad. Install outer shim, outer shim cover to outer brake pad, and inner shim, inner shim cover to inner brake pad.

CAUTION:

Replace brake pad shims and covers if damage exists.

- Apply Molykote 7439 grease or equivalent between brake pad retainers and brake pad ends. Install brake pad retainers and brake pads on torque member.

CAUTION:

- Make sure the brake pad retainers are fastened properly to the torque member.
- Replace brake pad retainers if damage exists.
- Using a suitable tool, press the piston into the cylinder bore of the caliper.
- Check brake fluid level and refill as necessary. Refer to [BR-8](#), "[Inspection](#)".
- Burnish contact surface between brake pads and disc brake rotors. Refer to [BR-20](#), "[DISC BRAKE ROTOR : Brake Burnishing](#)".

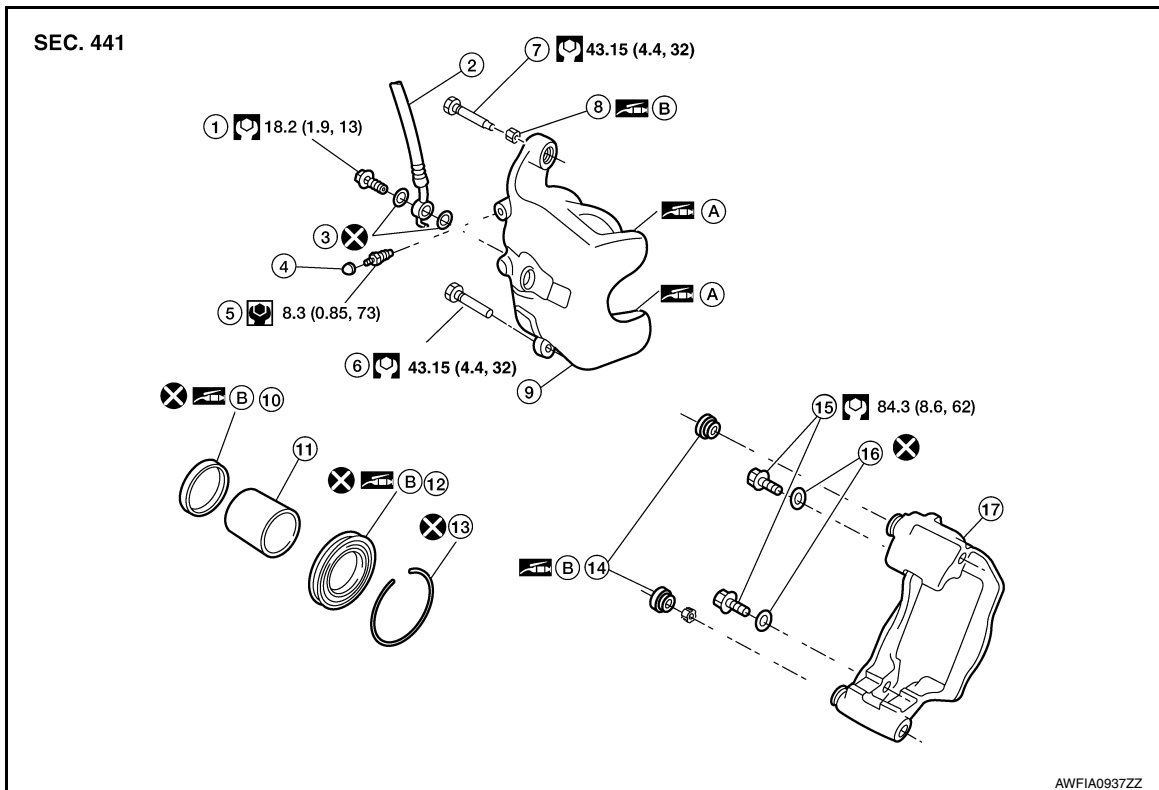
BRAKE CALIPER ASSEMBLY

REAR DISC BRAKE

< REMOVAL AND INSTALLATION >

BRAKE CALIPER ASSEMBLY : Exploded View

INFOID:000000012601207



- | | | |
|---------------------------|------------------------------|----------------------------|
| 1. Union bolt | 2. Brake hose | 3. Copper sealing washers |
| 4. Cap | 5. Bleeder valve | 6. Lower sliding pin bolt |
| 7. Upper sliding pin bolt | 8. Upper sliding pin bushing | 9. Brake caliper |
| 10. Piston seal | 11. Piston | 12. Piston boot |
| 13. Retaining ring | 14. Sliding pin boot | 15. Torque member bolt |
| 16. Washers | 17. Torque member | A. Molykote AS-880N grease |
| B. Rubber grease | | |

BRAKE CALIPER ASSEMBLY : Removal and Installation

INFOID:000000012601208

WARNING:

Clean dust on brake calipers and brake pads with a vacuum dust collector to minimize the hazard of airborne particles or other materials.

CAUTION:

- 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.
- While removing brake caliper, do not depress brake pedal because the piston will pop out.
- Do not damage piston boot.
- Keep disc brake rotor free from brake fluid.
- Refill the brake reservoir with new brake fluid "DOT 3".
- 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 master cylinder reservoir tank cap.
2. Observe brake fluid level in master cylinder reservoir tank. Partially drain brake fluid if necessary.
3. Remove rear wheel and tire using power tool. Refer to [WT-54, "Adjustment"](#).

REAR DISC BRAKE

< REMOVAL AND INSTALLATION >

- Remove union bolt and then remove brake hose from brake caliper. Discard the copper sealing washers.

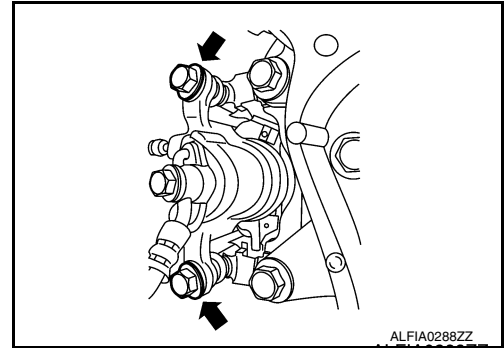
CAUTION:

Do not reuse copper sealing washers.

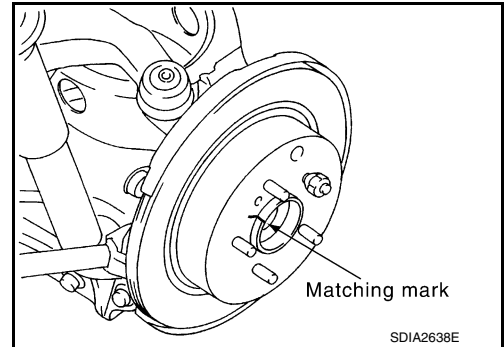
- Remove the upper and lower sliding pin bolts.

NOTE:

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



- Remove the brake caliper from the torque member.
- Remove the brake pads and shims from the torque member.
- Remove the torque member bolts and the torque member.
- Remove the disc brake rotor. If reusing the disc brake rotor apply matching marks as shown.



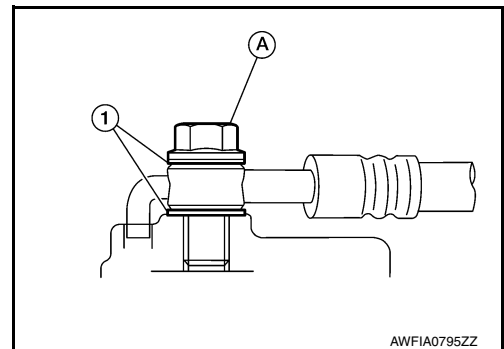
INSTALLATION

Installation is in the reverse order of removal.

- Tighten components to specification. Refer to [BR-43. "BRAKE CALIPER ASSEMBLY : Exploded View"](#).
- Align the L-shaped pin on the brake hose in the hole in the brake caliper, then install the brake hose with new copper sealing washers (1) and tighten the union bolt (A) to the specified torque. Refer to [BR-26. "REAR : Exploded View"](#).

CAUTION:

Do not reuse copper sealing washers.



- Refill with new brake fluid and bleed air from the brake hydraulic system. Refer to [BR-15. "Bleeding Brake System"](#).

FRONT DISC BRAKE

< UNIT DISASSEMBLY AND ASSEMBLY >

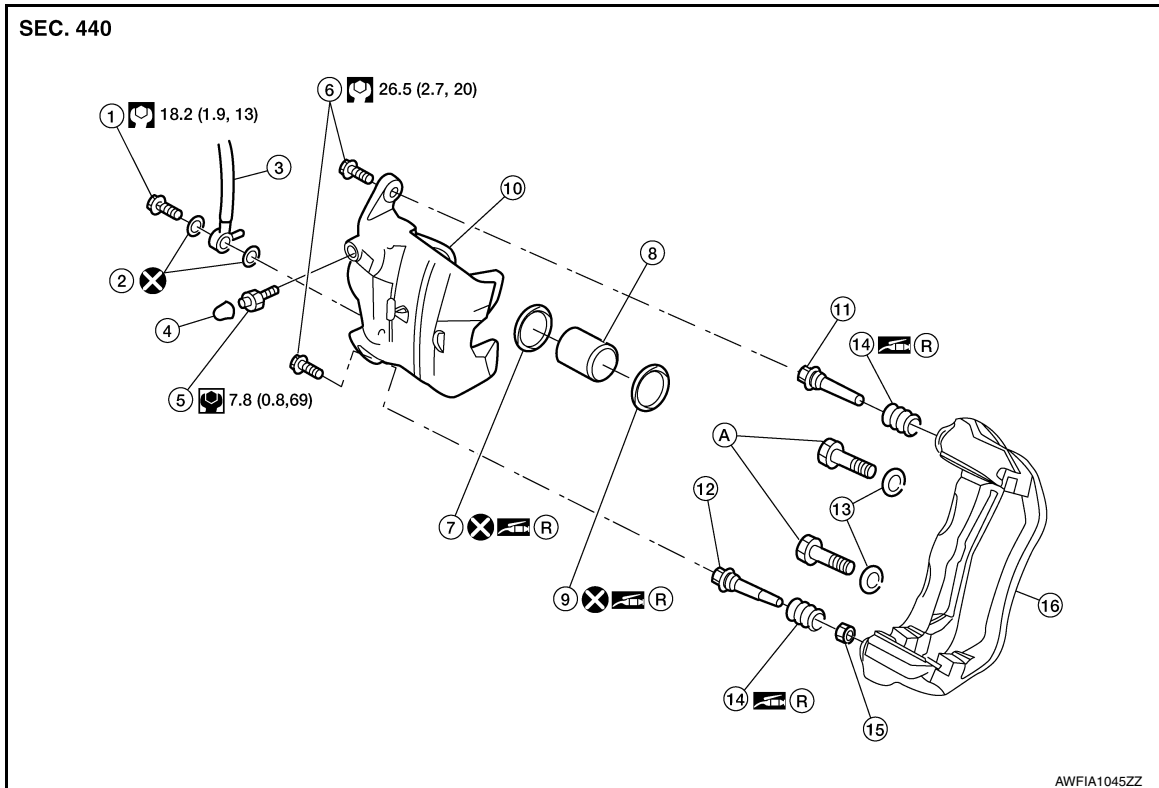
UNIT DISASSEMBLY AND ASSEMBLY

FRONT DISC BRAKE

BRAKE CALIPER ASSEMBLY

BRAKE CALIPER ASSEMBLY : Exploded View

INFOID:0000000012601209



- | | | |
|-----------------------------------|---------------------------|-------------------------------|
| 1. Union bolt | 2. Copper sealing washers | 3. Brake hose |
| 4. Cap | 5. Bleeder valve | 6. Sliding pin bolt |
| 7. Piston seal | 8. Piston | 9. Piston boot |
| 10. Brake caliper | 11. Upper sliding pin | 12. Lower sliding pin |
| 13. Washers (without flange bolt) | 14. Sliding pin boot | 15. Lower sliding pin bushing |
| 16. Torque member | A. Refer to Installation | R. Rubber grease |

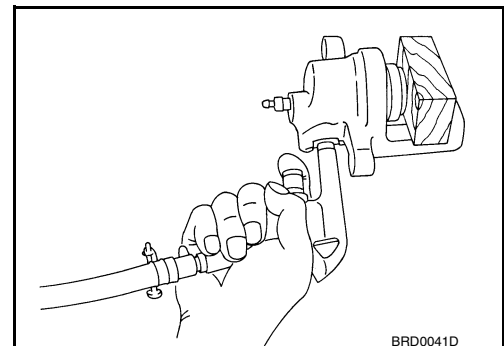
BRAKE CALIPER ASSEMBLY : Disassembly

INFOID:0000000012601210

- Place a wooden block in the brake caliper as shown, and blow air into the union bolt hole to remove the piston and piston boot.

WARNING:

Do not get fingers caught between the piston and wooden block.



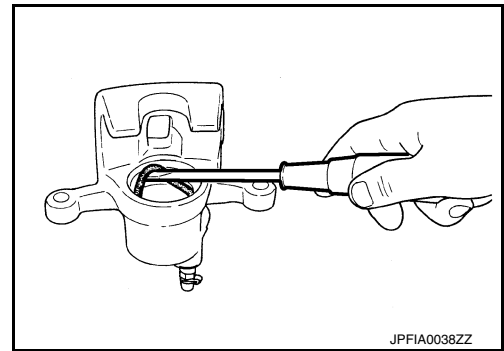
FRONT DISC BRAKE

< UNIT DISASSEMBLY AND ASSEMBLY >

2. Remove the piston seal from the brake caliper using a suitable tool. Discard the piston seal.

CAUTION:

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



BRAKE CALIPER ASSEMBLY : Inspection After Disassembly

INFOID:000000012601211

BRAKE CALIPER

Check the inner wall of brake caliper for corrosion, wear, and damage. Replace as necessary.

CAUTION:

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

TORQUE MEMBER

Check torque member for wear, cracks, and damage. Replace as necessary.

PISTON

Check the piston surface for corrosion, wear, and damage. Replace as necessary.

CAUTION:

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

SLIDING PIN, SLIDING PIN BOOT, SLIDING PIN BOLT

Check the sliding pin, sliding pin bolt, and sliding pin boot for wear, damage, and cracks. Replace as necessary.

BRAKE CALIPER ASSEMBLY : Assembly

INFOID:000000012601212

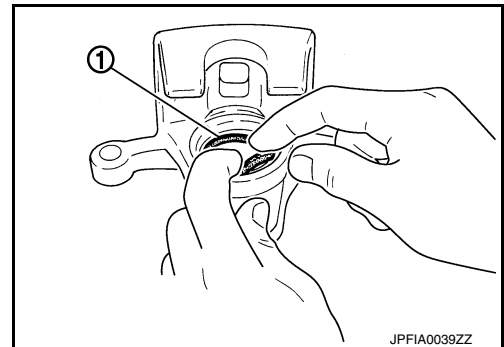
CAUTION:

Use NISSAN Rubber Grease during assembly.

1. Apply rubber grease to new piston seal (1), and install on brake caliper.

CAUTION:

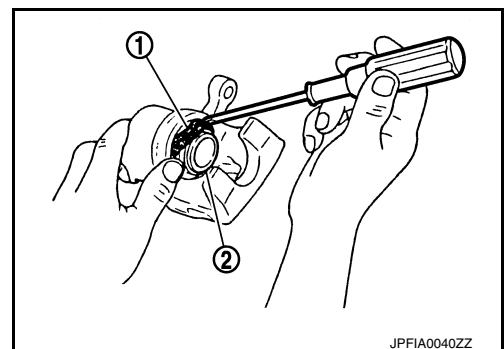
Do not reuse piston seal.



2. Apply rubber grease to new piston boot (1). Cover the piston (2) end with new piston boot, and then install cylinder side lip on new piston boot securely into a groove on brake caliper.

CAUTION:

Do not reuse piston boot.



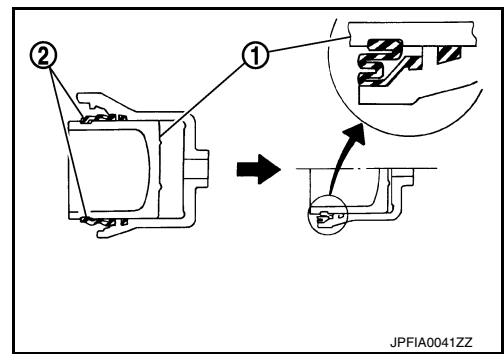
FRONT DISC BRAKE

< UNIT DISASSEMBLY AND ASSEMBLY >

3. Push piston (1) into brake caliper by hand and push piston boot (2) 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.



A

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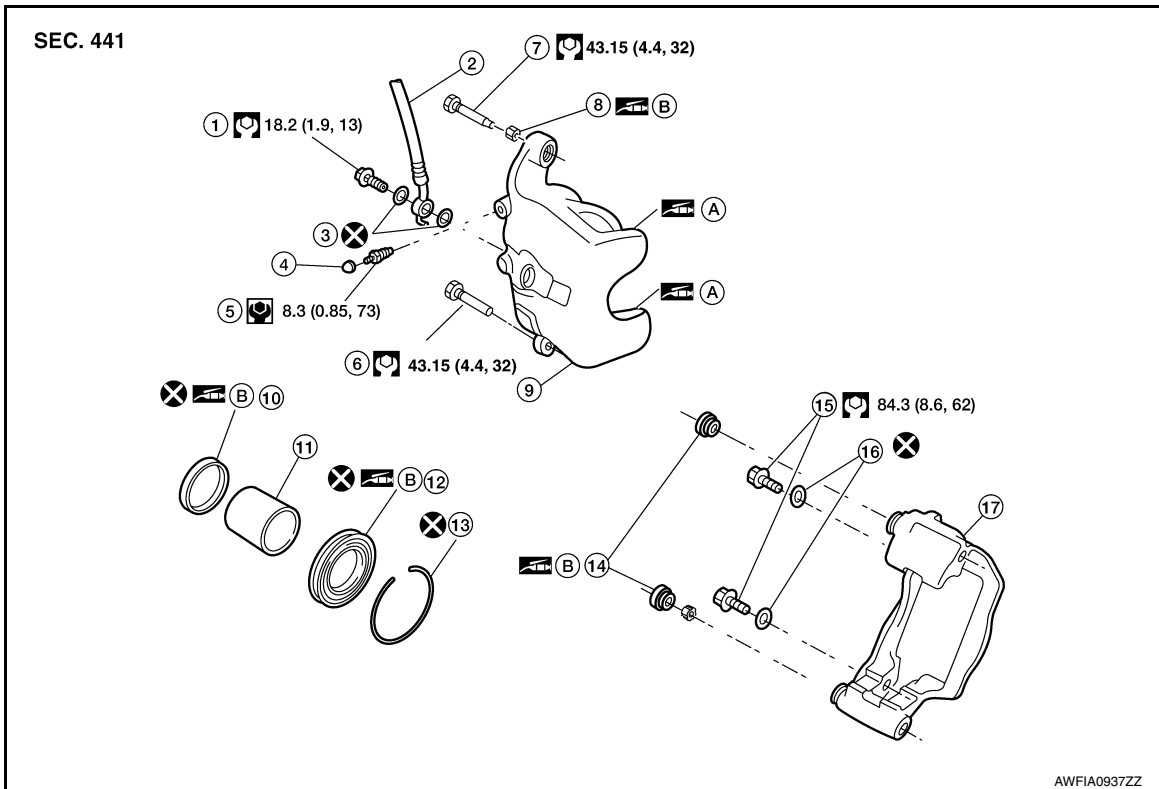
REAR DISC BRAKE

< UNIT DISASSEMBLY AND ASSEMBLY >

REAR DISC BRAKE BRAKE CALIPER ASSEMBLY

BRAKE CALIPER ASSEMBLY : Exploded View

INFOID:000000012601213



- | | | |
|---------------------------|------------------------------|----------------------------|
| 1. Union bolt | 2. Brake hose | 3. Copper sealing washers |
| 4. Cap | 5. Bleeder valve | 6. Lower sliding pin bolt |
| 7. Upper sliding pin bolt | 8. Upper sliding pin bushing | 9. Brake caliper |
| 10. Piston seal | 11. Piston | 12. Piston boot |
| 13. Retaining ring | 14. Sliding pin boot | 15. Torque member bolt |
| 16. Washers | 17. Torque member | A. Molykote AS-880N grease |
| B. Rubber grease | | |

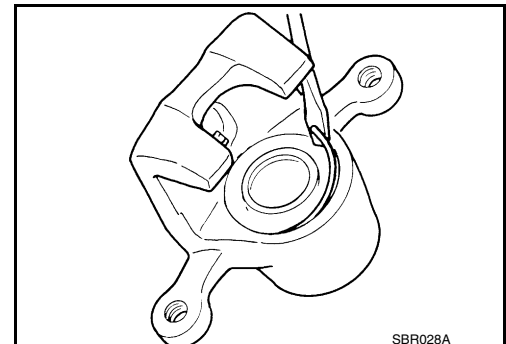
BRAKE CALIPER ASSEMBLY : Disassembly

INFOID:000000012601214

1. Remove the retaining ring from brake caliper using a suitable tool as shown. Discard the retaining ring.

CAUTION:

Do not reuse retaining ring.



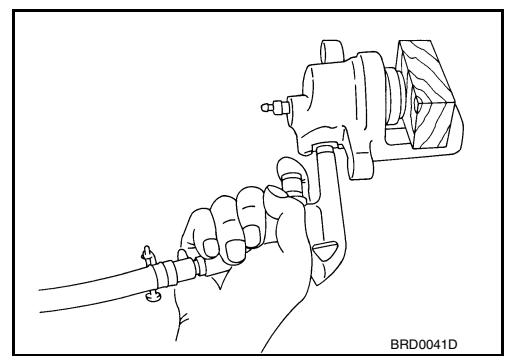
REAR DISC BRAKE

< UNIT DISASSEMBLY AND ASSEMBLY >

- Place a wooden block in the brake caliper as shown, and blow air into the union bolt hole to remove piston and piston boot.

WARNING:

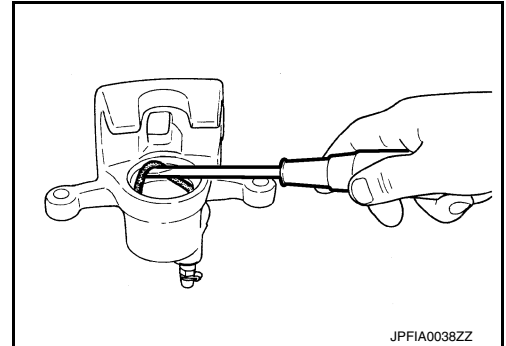
Do not get fingers caught between the piston and wooden block.



- Remove the piston seal from the brake caliper using a suitable tool. Discard the piston seal.

CAUTION:

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



BRAKE CALIPER ASSEMBLY : Inspection After Disassembly

INFOID:000000012601215

BRAKE CALIPER

Check the inner wall of the cylinder for corrosion, wear, and damage. Replace as necessary.

CAUTION:

Clean the brake caliper 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. Replace as necessary.

PISTON

Check the piston surface for corrosion, wear, and damage. Replace as necessary.

CAUTION:

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

SLIDING PIN BOLT, SLIDING PIN BOOT

Check the sliding pin bolt and sliding pin boot for wear, damage, and cracks. Replace as necessary.

BRAKE CALIPER ASSEMBLY : Assembly

INFOID:000000012601216

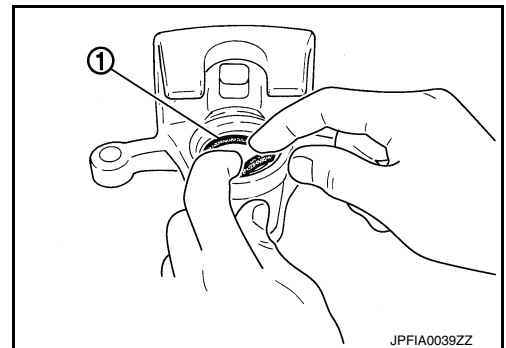
CAUTION:

Use NISSAN Rubber Grease during assembly.

- Apply rubber grease to new piston seal (1), and install on brake caliper.

CAUTION:

Do not reuse piston seal.



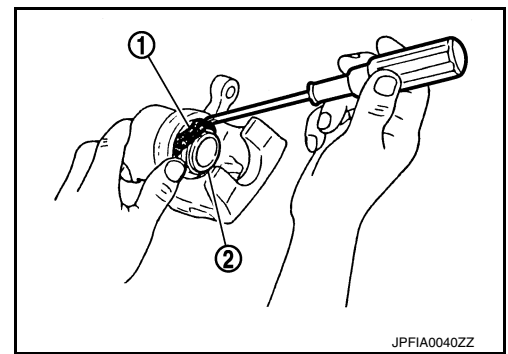
REAR DISC BRAKE

< UNIT DISASSEMBLY AND ASSEMBLY >

2. Apply rubber grease to new piston boot (1). Cover the piston (2) end with the new piston boot, and then install cylinder side lip on new piston boot securely into a groove on brake caliper.

CAUTION:

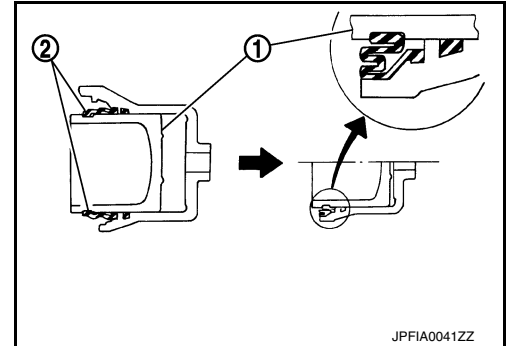
Do not reuse piston boot.



3. Push piston (1) into caliper by hand and push piston boot (2) piston side lip into the piston groove.

CAUTION:

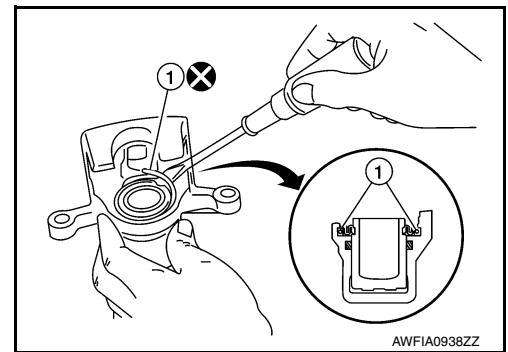
Press the piston evenly and vary the pressing point to prevent cylinder inner wall from being rubbed.



4. Using a suitable tool, secure piston boot with new retaining ring (1).

CAUTION:

- **Make sure that boot is securely engaged in the groove on brake caliper.**
- **Do not reuse retaining ring.**



SERVICE DATA AND SPECIFICATIONS (SDS)

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SERVICE DATA AND SPECIFICATIONS (SDS)

SERVICE DATA AND SPECIFICATIONS (SDS)

General Specifications

INFOID:0000000012601217

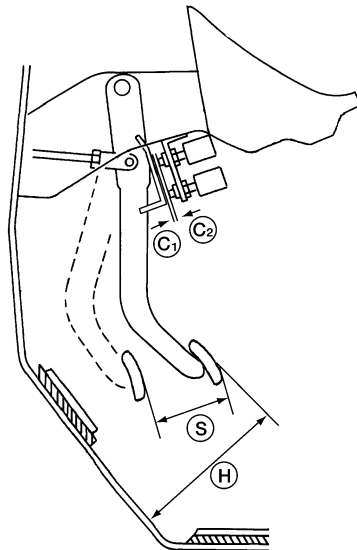
Unit: mm (in)

Front brake	Cylinder bore diameter	57.2 (2.252)
	Pad length × width × thickness	114 × 47 × 10 (4.488 × 1.850 × 0.394)
	Rotor outer diameter × thickness	296 × 26 (11.654 × 1.024)
Rear brake	Cylinder bore diameter	34.93 (1.375)
	Pad length × width × thickness	83 × 33 × 8.5 (3.268 × 1.299 × 0.335)
	Rotor outer diameter × thickness	292 × 9 (11.496 × 0.354)
Master cylinder	Cylinder bore diameter	25 (0.984)
Control valve	Valve model	Electric brake force distribution
Brake booster	Diaphragm diameter	280 (11)
Recommended brake fluid		DOT 3

Brake Pedal

INFOID:0000000012601218

Unit: mm (in)



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Item	Standard
Brake pedal height (H) (from dash lower panel top surface)	181.4 - 191.4 (7.1 - 7.5)
Brake pedal full stroke (S)	135.3 (5.3)
Clearance between stopper bracket (C1) and threaded end of the stop lamp switch and brake pedal position switch (C2) (if equipped)	0.74 - 1.96 (0.0291 - 0.0772)

Check Valve - Vacuum Hose Without Check Valve

INFOID:0000000013230545

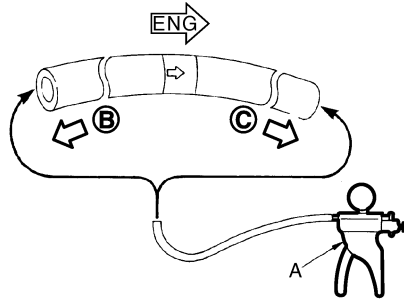
Vacuum leakage [at vacuum of - 66.7 kPa (- 500 mmHg, - 19.69 inHg)]	Within 1.3 kPa (10 mmHg, 0.39 inHg) of vacuum for 15 seconds
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SERVICE DATA AND SPECIFICATIONS (SDS)

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Check Valve - Vacuum Hose With Check Valve

INFOID:000000012601219



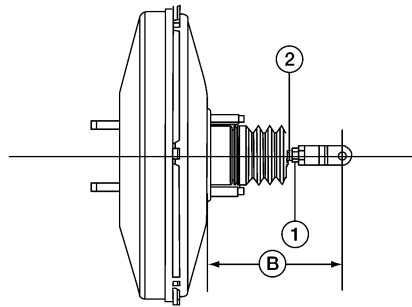
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When suitable tool (A) is connected to the booster side (B)	Vacuum should not decrease more than 3.3 kPa (25 mmHg, 0.98 inHg) for 15 seconds under a vacuum of -26.6 ± 1.3 kPa (-500 ± 1.3 mmHg, -19.69 ± 0.04 inHg) at room temperature.
When suitable tool (A) is connected to the engine side (C)	Vacuum should not exist.

Brake Booster

INFOID:000000012601220

Unit: mm (in)



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Input rod installation standard dimension (B) (1): Lock nut (2): Input rod	125 ± 0.5 (4.92 \pm 0.02)
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Front Disc Brake

INFOID:000000012601221

Unit: mm (in)

Brake pad	Standard thickness (new)	11.0 (0.433)
	Wear limit thickness	2.0 (0.079)
Disc brake rotor	Standard thickness (new)	26.0 (1.024)
	Wear limit thickness	24.0 (0.945)
	Thickness variation (measured at 8 positions)*	0.015 (0.0006)
	Maximum runout (with it attached to the vehicle)	0.040 (0.0016)

*To check if rotor imbalance, rotor runout or rotor deformation exists.

Rear Disc Brake

INFOID:000000012601222

Unit: mm (in)

Brake pad	Standard thickness (new)	8.5 (0.335)
	Wear limit thickness	1.0 (0.039)

SERVICE DATA AND SPECIFICATIONS (SDS)

< SERVICE DATA AND SPECIFICATIONS (SDS)

Disc brake rotor	Standard thickness (new)	9.0 (0.354)	A
	Wear limit thickness	8.0 (0.315)	
	Thickness variation (measured at 8 positions)*	0.015 (0.0006)	
	Maximum runout (with it attached to the vehicle)	0.05 (0.0020)	B

*To check if rotor imbalance, rotor runout or rotor deformation exists.

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