

# SECTION **BR**

## BRAKE SYSTEM

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# PRECAUTIONS

## PRECAUTIONS

PFP:00001

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

EFS0020K

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

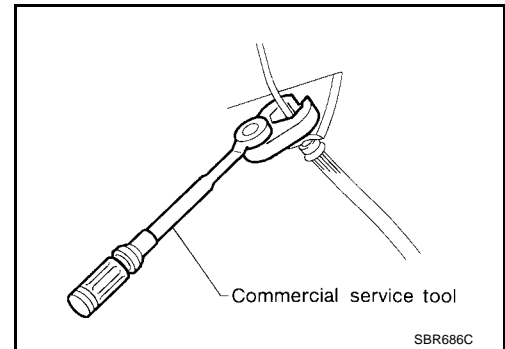
#### **WARNING:**

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

### Precautions for Brake System

EFS0020L

- Recommended fluid is brake fluid “DOT 3”.
- Never reuse drained brake fluid.
- Be careful not to splash brake fluid on painted areas.
- To clean or wash all parts of master cylinder, disc brake caliper and wheel cylinder, use clean brake fluid.
- Never use mineral oils such as gasoline or kerosene. They will ruin rubber parts of the hydraulic system.
- Use flare nut wrench when removing and installing brake tube.
- Always tighten brake lines to specified torque when installing.
- Burnish the brake contact surfaces after refinishing or replacing drums or rotors, after replacing pads or linings, or if a soft pedal occurs at very low mileage. Refer to [BR-28. "Brake Burnishing"](#).



#### **WARNING:**

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

### Wiring Diagrams and Trouble Diagnosis

EFS0020M

For wiring diagrams or trouble diagnosis relating to the brake system, refer to BRC section.

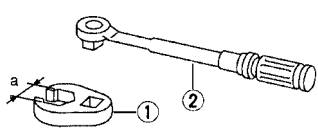
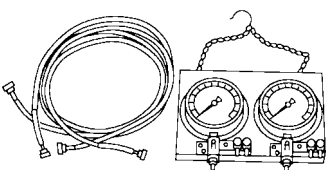
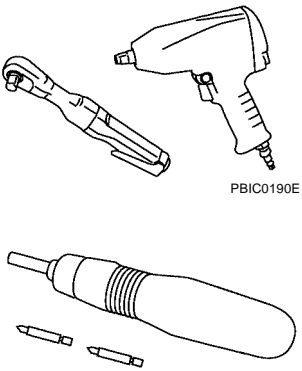
# PREPARATION

## PREPARATION

PFP:00002

### Commercial Service Tools

EFS0020N

Tool name	Description
1 Flare nut crowfoot 2 Torque wrench  S-NT360	Removing and installing each brake piping <b>a: 10 mm (0.39 in)</b>
Brake fluid pressure gauge  NT151	Measuring brake fluid pressure
Power tool  PBIC0190E PBIC0191E	Loosening fasteners

# NOISE, VIBRATION, AND HARSHNESS (NVH) TROUBLESHOOTING

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

PFP:00003

### NVH Troubleshooting Chart

EPS00200

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

Reference page																			
Possible cause and SUSPECTED PARTS																			
Symptom	BRAKE	Noise	×	×	×									×	×	×	×	×	×
		Shake				×								×	×	×	×	×	×
		Shimmy, Judder				×	×	×	×	×	×	×		×	×	×	×	×	×
			Pads - damaged																
			Pads - uneven wear																
			Shims damaged																
			Rotor imbalance																
			Rotor damage																
			Rotor runout																
			Rotor deformation																
			Rotor deflection																
			Rotor rust																
			Rotor thickness variation																
			DRIVE SHAFT																
			AXLE																
			SUSPENSION																
			TIRES																
			ROAD WHEEL																
			STEERING																

x: Applicable

# BRAKE PEDAL

## BRAKE PEDAL

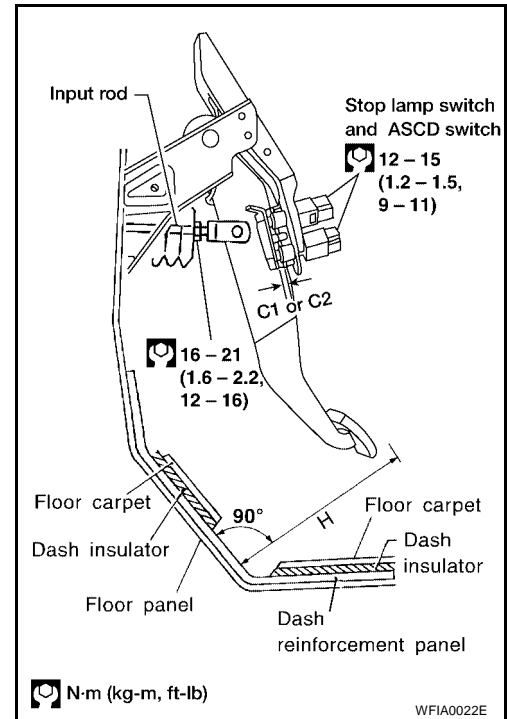
PFP:46501

### Inspection and Adjustment

EF50020P

Inspect the brake pedal free height "H" from dash reinforcement panel. Adjust if necessary.

Free height "H"	Refer to <a href="#">BR-37, "Brake Pedal"</a> .	
Clearance between pedal stopper and threaded end of stop lamp switch and ASCD switch "C1, C2"	0.74 - 1.96 mm (0.029 - 0.077 in)	
Pedal height (with engine running, brake pedal force 490 N {50 kgf, 110 lbf}) "H2"	M/T vehicle	: More than 84 mm (3.31 in)
	A/T vehicle	: More than 90.3 mm (3.55 in)
Pedal play "A"	3 - 11 mm (0.12 - 0.43 in)	



1. Loosen the stop lamp switch and ASCD switch by turning 45° counterclockwise.
2. Loosen lock nut on the input rod, then turn input rod to adjust the pedal to specified height. When finished adjusting, tighten lock nut.

#### CAUTION:

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

**Lock nut : 16 - 21 N-m (1.6 - 2.2 kg-m, 12 - 16 ft-lb)**

3. With the pedal pulled up and held by hand, press the stop lamp switch and the ASCD switch in until threaded ends contact rubber stops.
4. With the threaded ends of the stop lamp switch and ASCD switch contacting the rubber stops, turn the switches 45° clockwise to lock in place.

#### CAUTION:

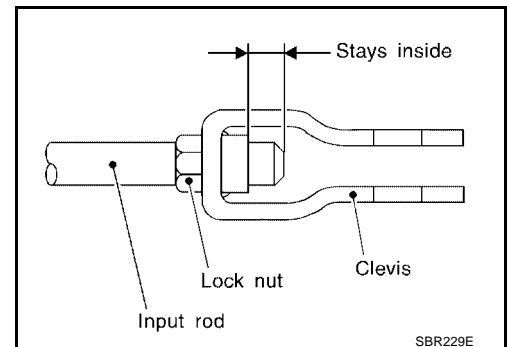
**Make sure that the gap (C<sup>1</sup>, C<sup>2</sup>) between the rubber stops and switch ends are within specification.**

5. Check the pedal play.

#### CAUTION:

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

6. Start the engine and check the height of the brake pedal when depressing it.

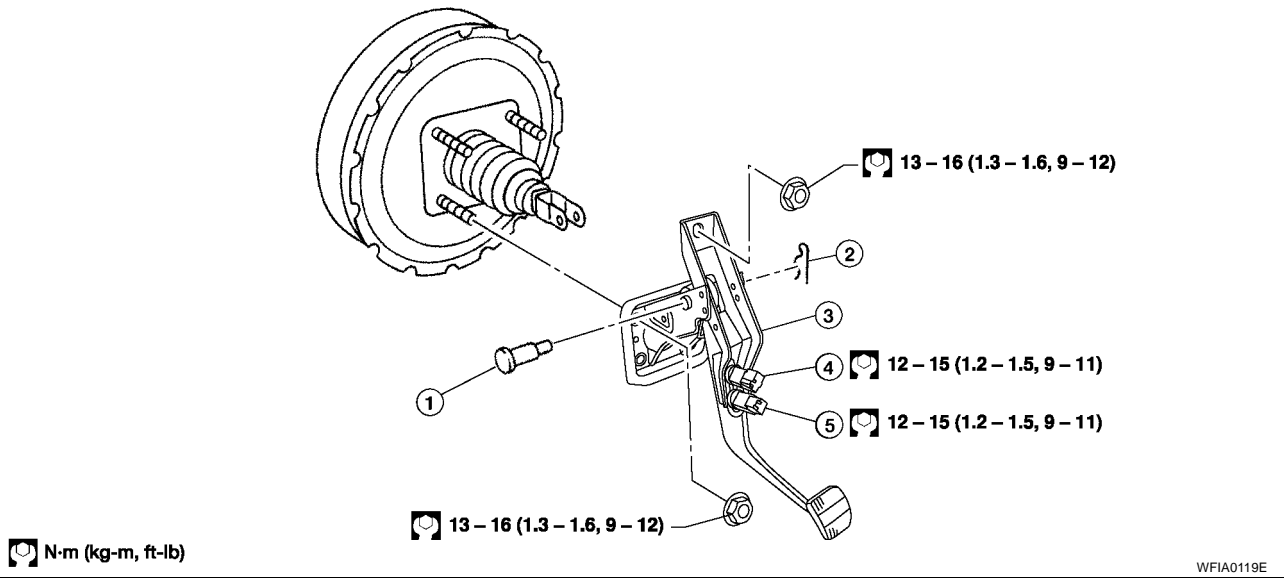


# BRAKE PEDAL

## Removal and Installation

EFS0020Q

SEC. 465 • 470



### REMOVAL

#### **WARNING:**

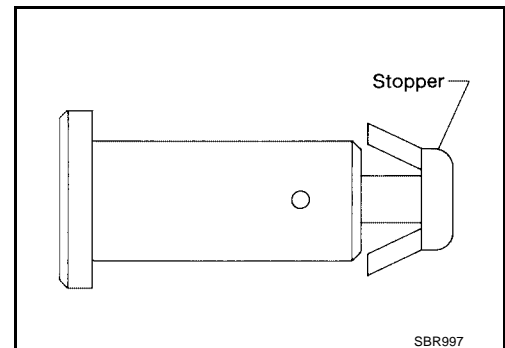
**Do not deform the brake tube.**

1. Remove the lower instrument panel cover on driver side. Refer to [IP-14, "Lower Driver Instrument Panel"](#).
2. Remove the stop lamp switch from the pedal assembly.
3. Remove ASCD switch from pedal assembly.
4. Remove snap pin and clevis pin from the clevis of brake booster.
5. Remove mounting nuts and the pedal assembly. Then carefully remove the brake booster from the bulk-head so as not to damage the brake tubes.

### INSPECTION AFTER REMOVAL

Check brake pedal for following items.

- Crack or deformation of clevis pin stopper
- Clevis pin deformation
- Crack of any welded portion
- Brake pedal bend



### INSTALLATION

- Installation is in the reverse order of removal.
- After installing the brake pedal assembly in the vehicle, be sure to adjust it. Refer to [BR-6, "Inspection and Adjustment"](#).

# BRAKE FLUID

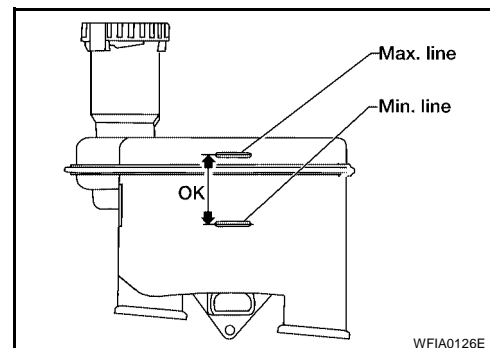
## BRAKE FLUID

PFP:KN100

### Checking Brake Fluid Level

EFS0020R

- Check fluid level in reservoir tank. It should be between Max and Min lines on reservoir tank.
- Visually check around the reservoir tank for leaks.
- If fluid level is extremely low, check brake system for leaks.
- Release parking brake lever and see if brake warning lamp goes off. If not, check brake system for leaks.



### Changing Brake Fluid

EFS0020S

#### CAUTION:

- Refill with new brake fluid "DOT 3".
  - Always keep fluid level higher than minimum line on reservoir tank.
  - Never reuse drained brake fluid.
  - Be careful not to splash brake fluid on painted areas; it may cause paint damage. If brake fluid is splashed on painted areas, wash it away with water immediately.
1. Connect a vinyl tube and container to the air bleeder.
  2. Depressing the brake pedal, drain the brake fluid gradually from the air bleeder of each wheel.
  3. Turn the ignition switch to OFF and disconnect the ABS actuator and control unit connector or battery ground cable.
  4. Clean inside of reservoir tank, and refill with new brake fluid.
  5. Loosen the air bleeder, depress the pedal slowly to the full stroke and then release it. Repeat the procedure every 2 or 3 seconds until the new brake fluid comes out, then close the air bleeder while depressing the pedal.

Refer to [BR-8, "Bleeding Brake System"](#) .

### Bleeding Brake System

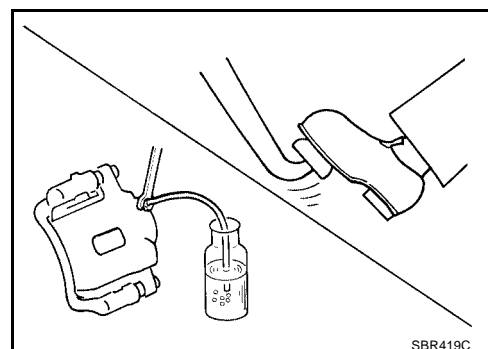
EFS0020T

#### CAUTION:

- Carefully monitor brake fluid level at master cylinder during bleeding operation.
  - Fill reservoir with new brake fluid "DOT 3". Make sure it is full at all times while bleeding air out of system.
  - Place a container under master cylinder to avoid spillage of brake fluid.
  - Do not loosen the connecting portion of the actuator during air bleeding.
1. Turn ignition switch OFF and disconnect ABS actuator and control unit connector or battery ground cable.
  2. Connect a transparent vinyl tube and container to air bleeder valve.
  3. Fully depress brake pedal several times.
  4. With brake pedal depressed, open air bleeder valve to release air.
  5. Close air bleeder valve.
  6. Release brake pedal slowly.
  7. Tighten air bleeder valve to specification.

**Air bleeder valve : 7 - 9 N·m (0.7 - 0.9 kg-m,  
61 - 78 in-lb)**

8. Repeat steps 2. through 7. until no more air bubbles come out of air bleeder valve.
9. Bleed the brake hydraulic system air bleeder valves in the following order:  
**Right rear brake → Left front brake → Left rear brake → Right front brake**





# BRAKE PIPING AND HOSE

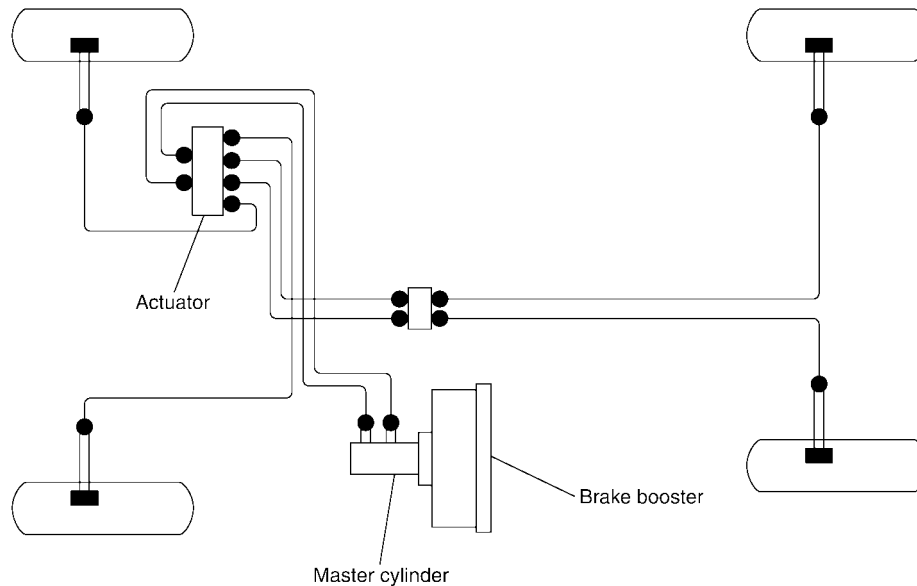
## BRAKE PIPING AND HOSE

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### Hydraulic Circuit

EFS0020U

SEC.462



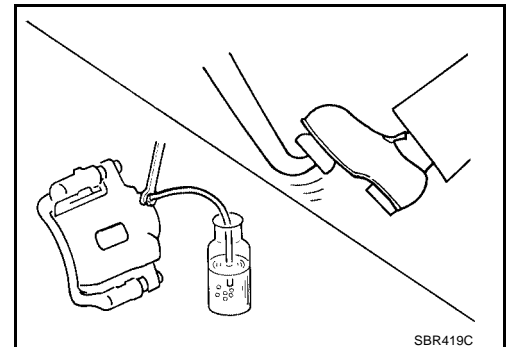
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### Front Brake Piping and Hose REMOVAL

EFS0020V

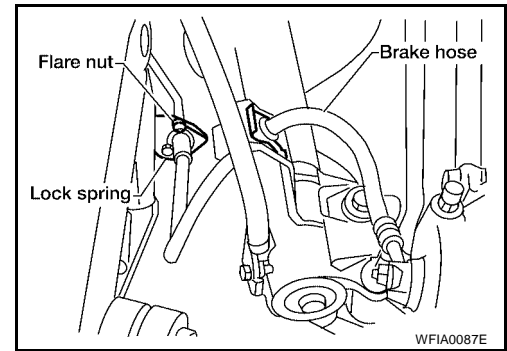
#### CAUTION:

- 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.
  - All hoses must be free from excessive bending, twisting and pulling.
  - Cover the open end of lines and hoses when disconnecting to prevent entrance of dirt.
1. Connect vinyl tube and container to air bleeder valve.
  2. Drain brake fluid from each air bleeder valve by depressing brake pedal.



## BRAKE PIPING AND HOSE

3. Remove the flare nut connecting the brake tube and hose, then withdraw the lock spring.
4. Remove the connecting bolt and disconnect the brake hose from the caliper assembly.
5. Remove lock springs from the mounting portion of the brake tube and the mounting portion of the strut.



### INSTALLATION

#### CAUTION:

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

1. Attach the brake hose to the caliper assembly, then temporarily tighten the connecting bolt by hand.

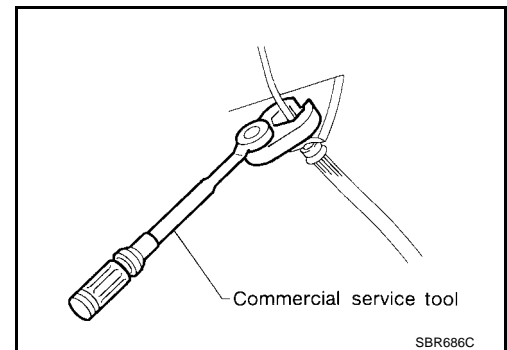
#### CAUTION:

- Correctly attach the brake hose to the cylinder body.
  - The copper washers of the connecting bolt have to be replaced with new ones every time the fitting is disconnected.
2. Attach the brake hose to the strut, then secure it with a lock spring.
  3. Attach the brake hose to the brake tube and temporarily tighten the flare nut as much as possible by hand, then secure it with a lock spring.
  4. Tighten all flare nuts and connecting bolts.

**Flare nut** : 14.8 - 17.6 N·m (1.5 - 1.7 kg-m, 11 - 12 ft-lb)

**Connecting bolt** : 16.7 - 19.6 N·m (1.7 - 1.9 kg-m, 13 - 14 ft-lb)

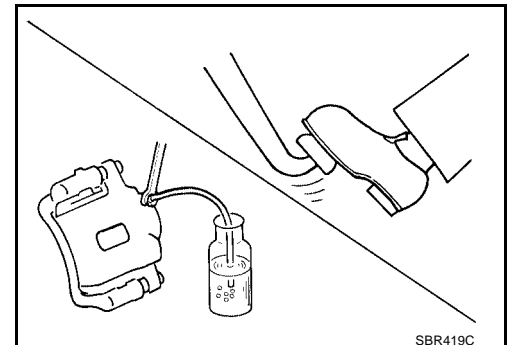
5. Refill until new brake fluid comes out of each air bleeder valve.
6. Bleed air. Refer to [BR-8, "Bleeding Brake System"](#).



### Rear Brake Piping and Hose REMOVAL

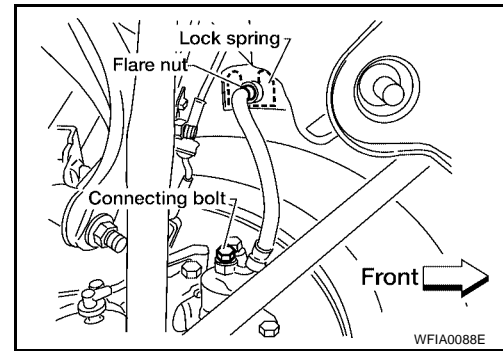
#### CAUTION:

- 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.
  - All hoses must be free from excessive bending, twisting and pulling.
  - Cover the open end of lines and hoses when disconnecting to prevent entrance of dirt.
1. Connect vinyl tube and container to air bleeder valve.
  2. Drain brake fluid from each air bleeder valve by depressing brake pedal.



# BRAKE PIPING AND HOSE

3. Remove flare nut connecting brake tube and hose, then withdraw lock spring.
4. Remove connecting bolt and disconnect brake hose from caliper assembly.



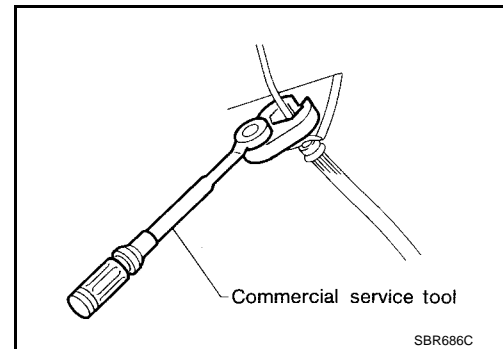
## INSTALLATION

### CAUTION:

- Refill with new brake fluid "DOT 3".
  - Never reuse drained brake fluid.
1. Attach the brake hose to the brake tube and temporarily tighten the flare nut as much as possible by hand.
  2. Attach the brake hose with a lock spring, then tighten the connecting bolt to the specified torque. Tighten the flare nut with a torque wrench to the specified torque.

**Flare nut** : 5 - 18 N·m (1.5 - 1.8 kg-m, 11 - 13 ft-lb)  
**Connecting bolt** : 17 - 20 N·m (1.7 - 2.0 kg-m, 12 - 14 ft-lb)

3. Refill until new brake fluid comes out of each air bleeder valve.
4. Bleed air from the brake system. Refer to [BR-8, "Bleeding Brake System"](#).

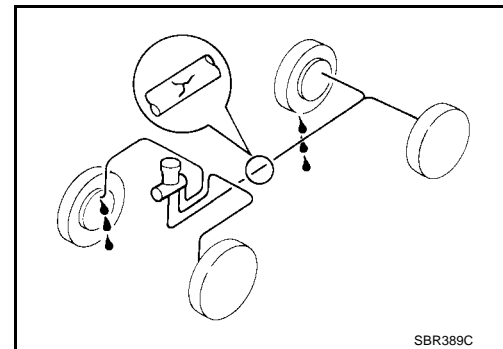


## Inspection

### CAUTION:

If leakage occurs around hose and tube connections, retighten or, if necessary, replace damaged parts.

1. Check brake lines (tubes and hoses) for leaks, cracks, distortion, deformation, without interfering with other parts or loosening connecting parts, deterioration or other damage. Replace any damaged parts.
2. Apply a stepping force of 784 N (80 kgf, 176 lbf) to the brake pedal with the engine running and keep it for about 5 seconds, then check each part for leaks.



# BRAKE MASTER CYLINDER

## BRAKE MASTER CYLINDER

PFP:46010

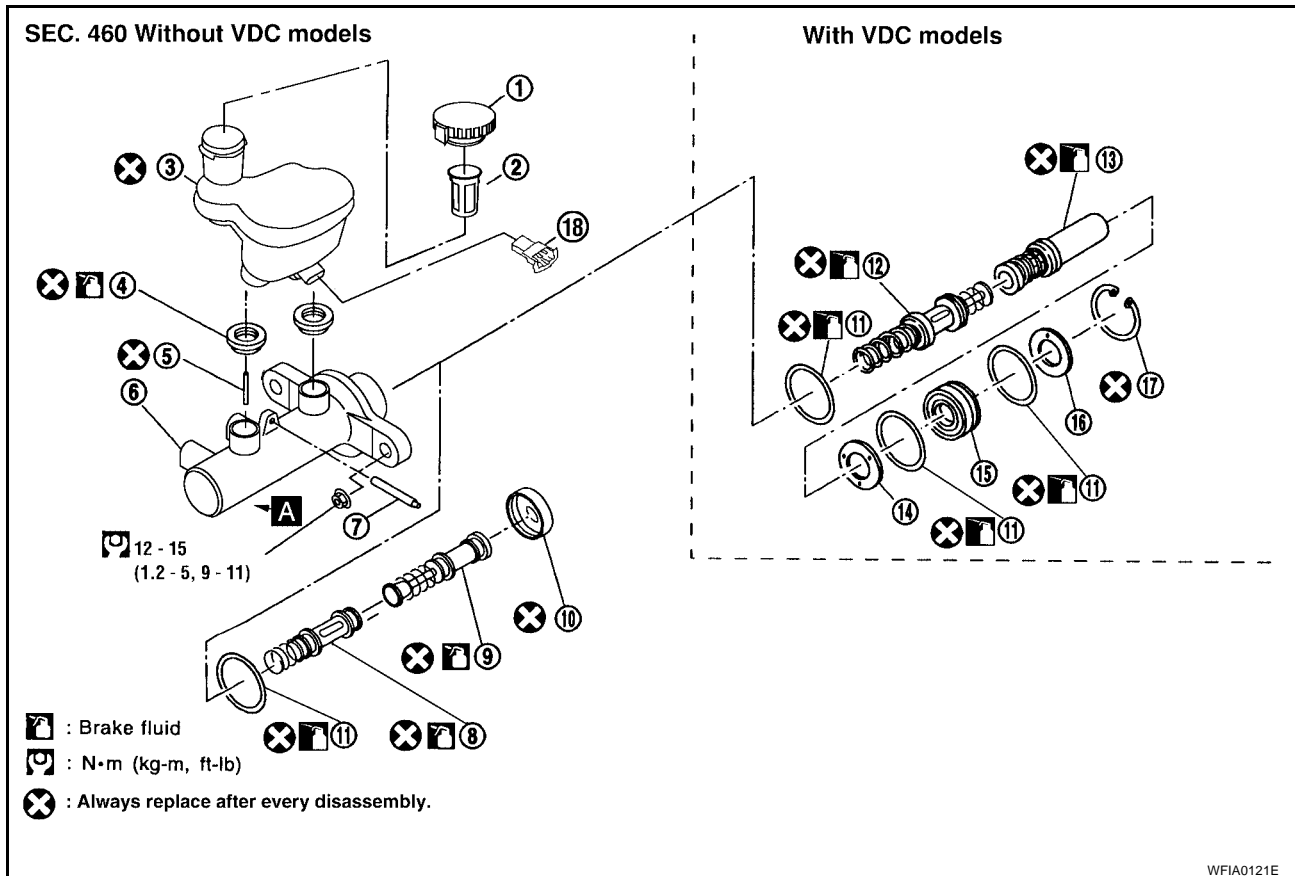
### On-board Inspection LEAK INSPECTION

EFS0030V

- Check for leaking in the master cylinder installation surface, the reservoir tank installation surface, the reservoir hose connections, and the brake tube connections.

### Components

EFS0030U



- |                             |                              |                               |
|-----------------------------|------------------------------|-------------------------------|
| 1. Reservoir cap            | 2. Oil strainer              | 3. Reservoir tank             |
| 4. Grommet                  | 5. Piston stopper            | 6. Cylinder body              |
| 7. Pin                      | 8. Secondary piston assembly | 9. Primary piston assembly    |
| 10. Stopper cap             | 11. O-ring                   | 12. Secondary piston assembly |
| 13. Primary Piston assembly | 14. Plate                    | 15. Guide                     |
| 16. Plate                   | 17. Snap ring                | 18. Brake fluid level switch  |

### Removal and Installation

EFS0030W

#### CAUTION:

Do not let brake fluid come in contact with painted surfaces on the body. This might damage the paint, so if it does come in contact, immediately wipe area and wash off with water.

#### REMOVAL

1. Drain brake fluid. Refer to [BR-8, "Changing Brake Fluid"](#).
2. Remove air cleaner and air duct. Refer to [EM-15, "Removal and Installation"](#).
3. Disconnect harness connector for brake fluid level switch.
4. Using a flare nut wrench, disconnect master cylinder brake tubes.
5. Remove the master cylinder nuts.

# BRAKE MASTER CYLINDER

## INSTALLATION

### CAUTION:

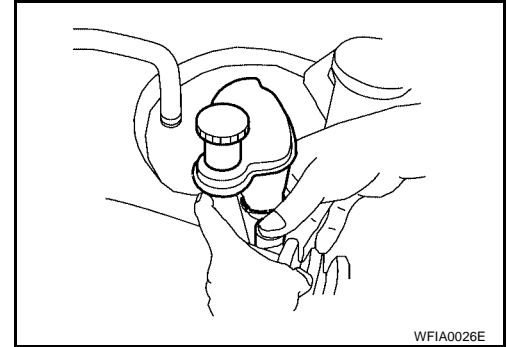
- Refill with new brake fluid "DOT3".
  - Never reuse drained brake fluid.
1. Place master cylinder onto brake booster and tighten master cylinder nuts.

**Master cylinder nuts : 12 – 15 N·m (1.2 – 1.5 kg-m,  
9 – 11 ft-lb)**

2. Fill reservoir tank with new brake fluid.
  3. Plug all ports on master cylinder with fingers to prevent air suction while releasing brake pedal.
  4. Have assistant depress brake pedal slowly several times until no air comes out of master cylinder.
- Install and tighten brake tube flare nuts to specification.

**Flare nut : 14.8 – 17.6 N·m (1.5 – 1.7 kg-m,  
11 – 12 ft-lb)**

- Refill brake fluid and bleed air from brake system. Refer to [BR-8, "Bleeding Brake System"](#).

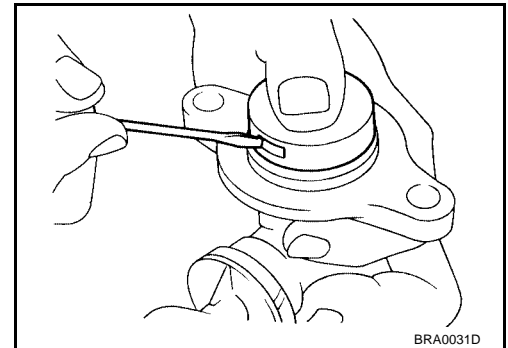


EFS0030X

## Disassembly and Assembly WITHOUT VDC MODELS

### Disassembly

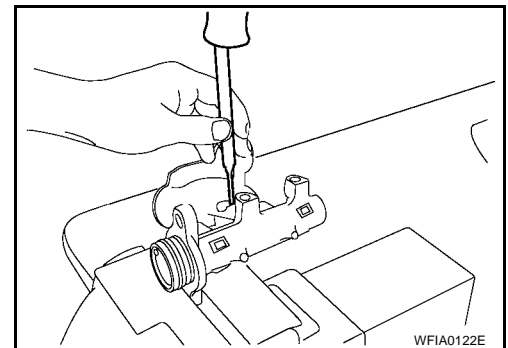
1. Using a screwdriver or suitable tool as shown, lift up the tabs on the stopper cap and remove it from the master cylinder. The piston inside the master cylinder might pop out when this is done, so hold the stopper cap down at the same time.



2. Using a pin punch [commercial service tool: diameter Approx. 4 mm (0.16 in)], remove mounting pins on the reservoir tank.
  - Place the side flange of the cylinder body with chamfering around the pin insertion hole facing up, and secure the master cylinder assembly with a vise.

### CAUTION:

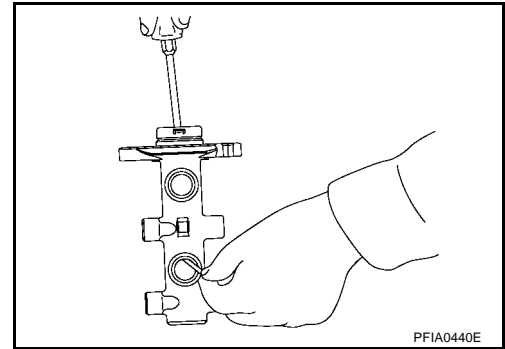
- When securing the master cylinder assembly with the vise, be sure not to over-tighten.
- When securing in a vise, use copper plates or cloth to protect the flange.



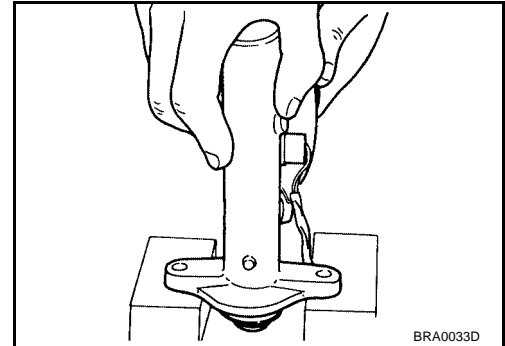
3. Remove master cylinder assembly from the vise.
4. Remove brake fluid level switch, if necessary.
5. Remove reservoir tank and grommet from cylinder body.

# BRAKE MASTER CYLINDER

6. Using a Phillips screwdriver or suitable tool, push in the piston and remove the piston stopper from the cylinder body.
7. Carefully pull the primary piston assembly straight out to prevent cylinder inner wall from being damaged.



8. Tap flange using a soft block such as wood, and carefully pull the secondary piston assembly straight out to prevent cylinder inner wall from being damaged.



## Inspection After Disassembly

### Master cylinder

Check that there is no damage, friction, rusting, or pinholes on the cylinder inner wall, and replace if there are any non-standard conditions.

### Piston

Check cup for damage. Replace the piston if damage is found.

## Assembly

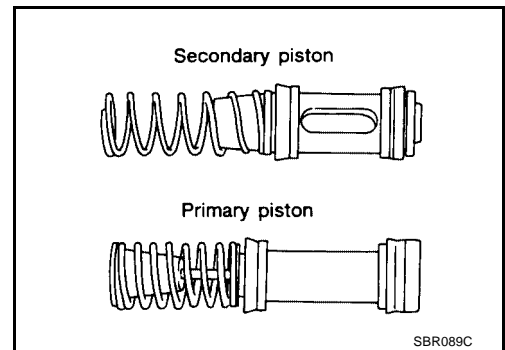
### CAUTION:

- Never use mineral oils such as kerosene, gasoline during the cleaning and assembly process.
- Make sure there is no foreign matter such as dirt or dust attached to the inner cylinder walls, the piston, or the cap seal, and use care to avoid damaging parts with the assembly tools.
- Do not drop parts. If a part is dropped, do not use it.

1. Apply fluid to cylinder inner wall body and contact surface of the piston assembly. Then insert secondary piston assembly and primary piston assembly into cylinder body in this order.

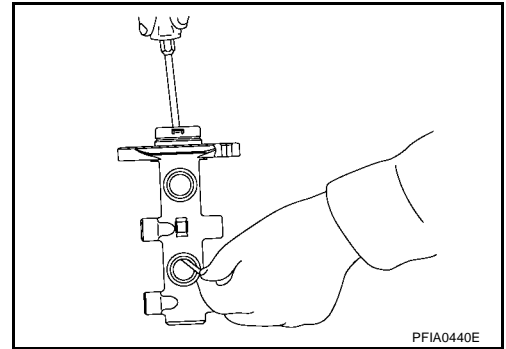
### CAUTION:

- Do not reuse the primary and secondary piston assemblies.
- Be sure to replace the assembly without disassembling the new inner kit.
- Pay attention to the orientation of the piston cup, and insert straight to prevent the cup from being caught by cylinder inner wall.



# BRAKE MASTER CYLINDER

2. Perform a visual inspection of the secondary piston slit through the tank boss hole on the secondary side of the cylinder body, and install the piston stopper.



3. Holding down the piston with the stopper cap, push the stopper cap tabs so they are firmly into the cylinder grooves, then attach the stopper cap.

**CAUTION:**

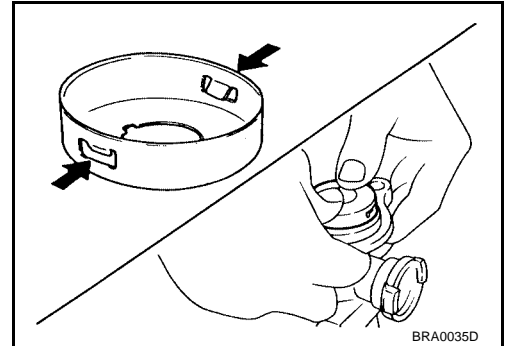
**Do not reuse the stopper cap.**

4. Apply brake fluid to the grommet and attach to the cylinder body.

**CAUTION:**

**Do not reuse the grommet.**

5. Fix master cylinder assembly in a vise as described in disassembly step 2.

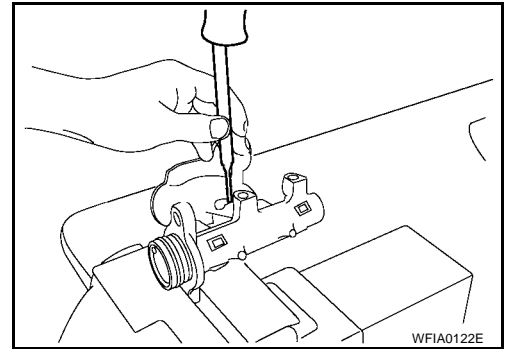


6. Using a pin punch [commercial service tool: diameter Approx. 4 mm (0.16 in)], attach the reservoir tank mounting pin so that the attachment side and the opposite side are identical.

**CAUTION:**

**Do not reuse reservoir tank grommet and mounting pin.**

7. If necessary, install brake fluid level switch.



## WITH VDC MODELS

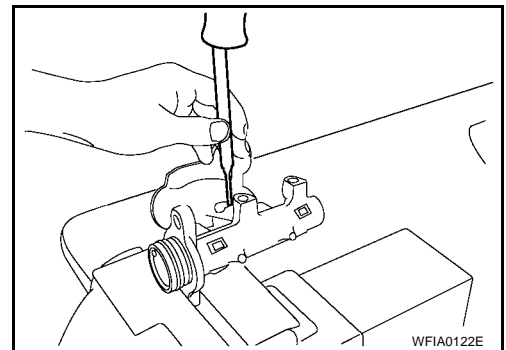
### Disassembly

1. Using a pin punch [commercial service tool: diameter Approx. 4 mm (0.16 in)], remove mounting pins on the reservoir tank.

- Place the side flange of the cylinder body with chamfering around the pin insertion hole facing up, and secure the master cylinder assembly with a vise.

**CAUTION:**

- When securing the master cylinder assembly with the vise, be sure not to over-tighten.
- When securing in a vise, use copper plates or cloth to protect the flange.



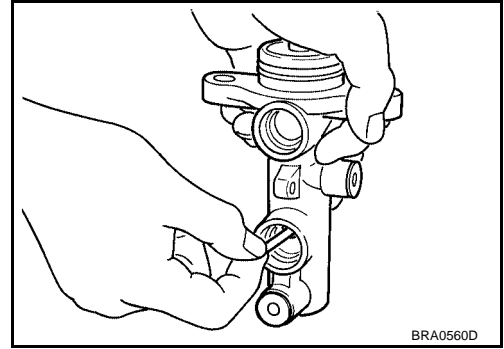
2. Remove master cylinder assembly from the vise.
3. Remove brake fluid level switch, if necessary.
4. Remove reservoir tank and grommet from cylinder body.

# BRAKE MASTER CYLINDER

5. Push in the primary piston and remove the piston stopper from the cylinder body.

**CAUTION:**

**Be careful not to damage the inner wall of the cylinder.**



6. Carefully pull the primary piston assembly straight out to prevent cylinder inner wall from being damaged.
7. Holding the rod of the primary piston, remove the primary piston assembly, the plate and the guide.

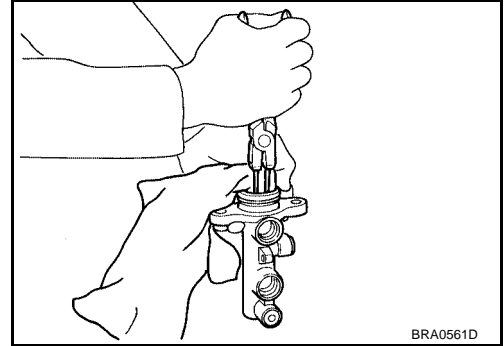
**CAUTION:**

**Pull components straight out to prevent cylinder inner wall from being damaged.**

8. Remove the plate and guide from the primary piston.

**CAUTION:**

**Be careful not to damage the rod on the inner wall of the plate.**



## Inspection After Disassembly

### Master cylinder

Check that there is no damage, friction, rusting, or pinholes on the cylinder inner wall, and replace if there are any non-standard conditions.

### Piston

Check cup for damage. Replace the piston if damage is found.

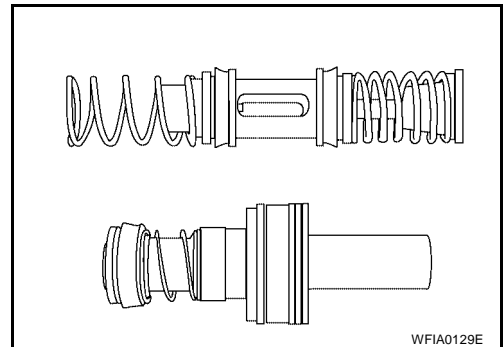
## Assembly

**CAUTION:**

- Never use mineral oils such as kerosene, gasoline during the cleaning and assembly process.
  - Make sure there is no foreign matter such as dirt or dust attached to the inner cylinder walls, the piston, or the cap seal, and use care to avoid damaging parts with the assembly tools.
  - Do not drop parts. If a part is dropped, do not use it.
1. Apply fluid to cylinder inner wall body and contact surface of the piston assembly. Then insert secondary piston assembly and primary piston assembly into cylinder body.

**CAUTION:**

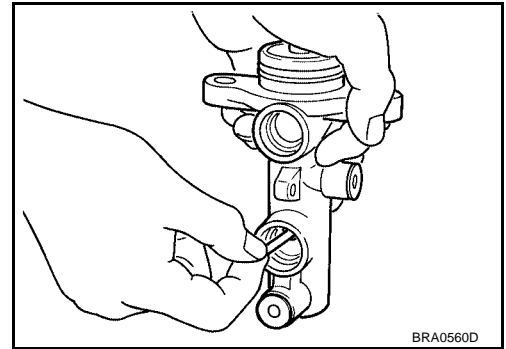
- Pay attention to the orientation of the piston cups. Also, insert pistons squarely to prevent scratching the cylinder inner wall.
- Always replace the inner kit as an assembly.





## BRAKE MASTER CYLINDER

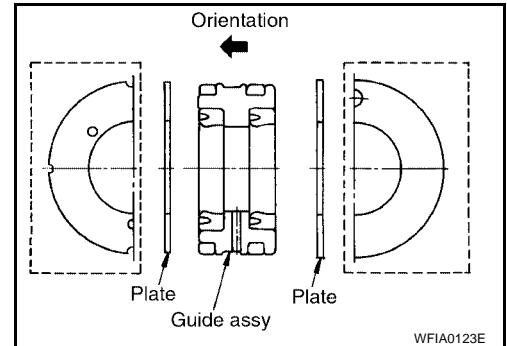
2. Align the slit in the center of the secondary piston with the axial direction of the piston stopper. Visually check the secondary piston slit from the piston stopper hole and install the piston stopper.



3. Insert the plates and the guide into the cylinder body as shown.

**CAUTION:**

- Be careful not to damage the primary piston rod.
- Pay attention to the orientation of the guide.

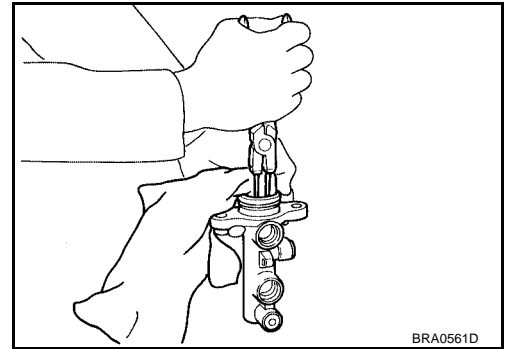


4. Press in the primary piston and install a new snap ring.

**CAUTION:**

- Make sure snap ring is fully inserted in the snap ring groove.
- Do not reuse snap ring.

5. Fix master cylinder assembly in a vise as described in disassembly step 1.

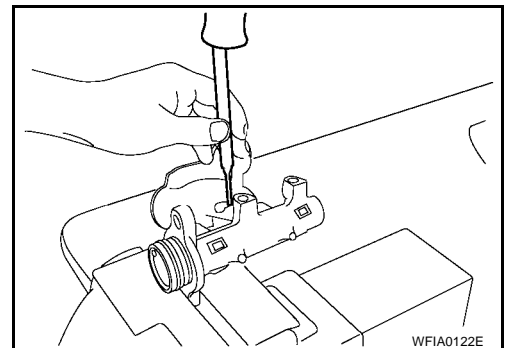


6. Using a pin punch [commercial service tool: diameter Approx. 4 mm (0.16 in)], attach the reservoir tank mounting pin so that the attachment side and the opposite side are identical.

**CAUTION:**

**Do not reuse reservoir tank grommet and mounting pin.**

7. If necessary, install brake fluid level switch.



# BRAKE BOOSTER

## BRAKE BOOSTER

PFP:47200

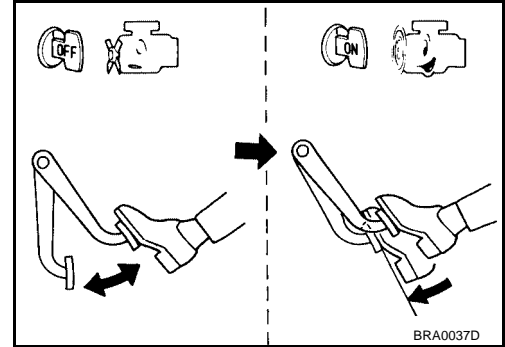
EFS0030Y

### On-Vehicle Service OPERATING CHECK

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

#### CAUTION:

Depressing pedal interval is approximately 5 seconds.

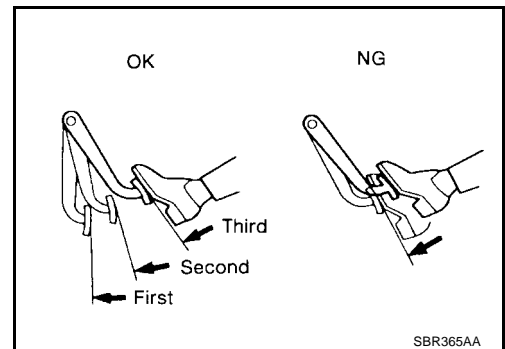


### AIRTIGHT CHECK

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

#### CAUTION:

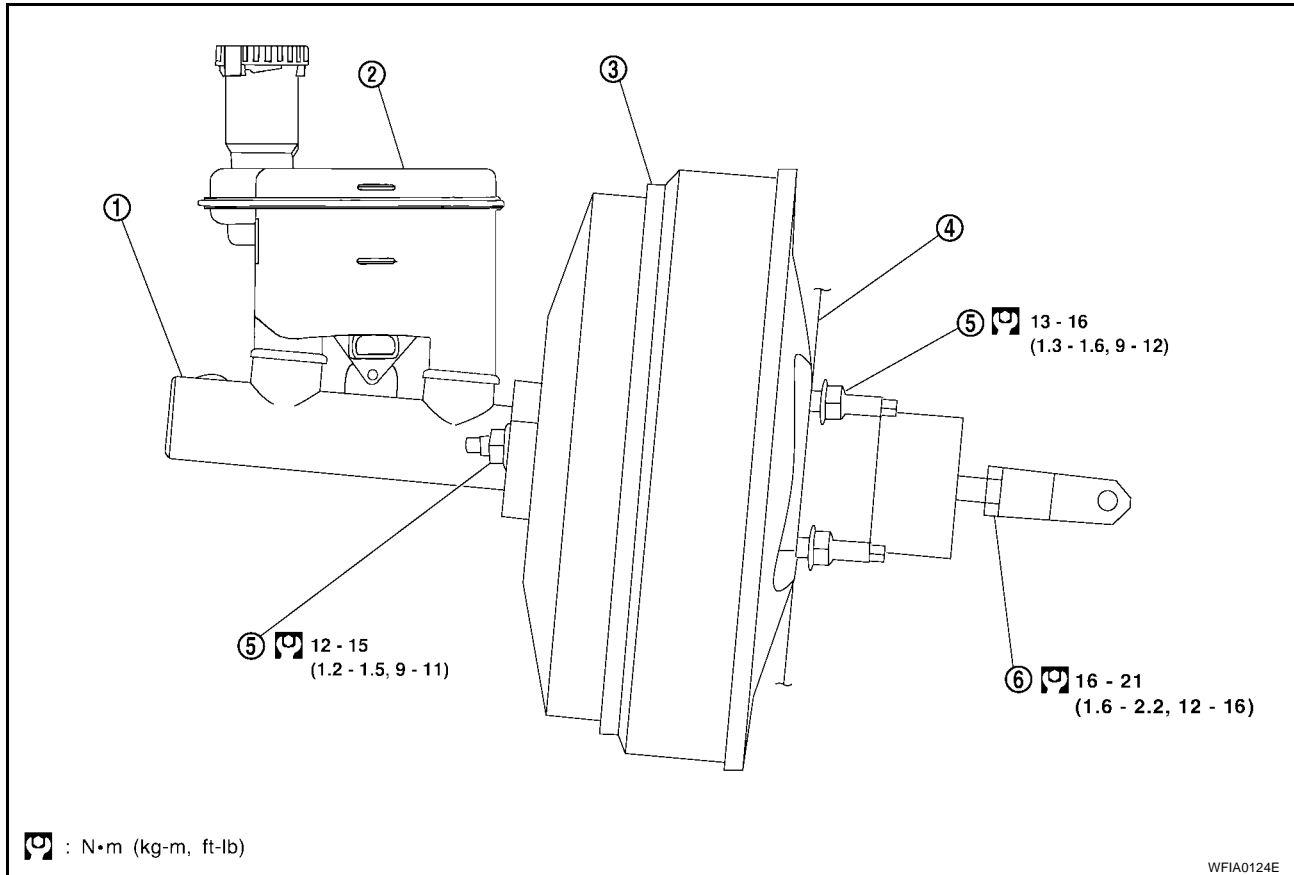
Depressing pedal interval is approximately 5 seconds.



# BRAKE BOOSTER

## Removal and Installation

EFS0030Z



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

### REMOVAL

#### CAUTION:

- Be careful not to deform or bend brake piping while removing and installing the brake booster.
  - Replace clevis pin if it is damaged.
  - Be careful not to damage brake booster stud bolt threads. If brake booster is tilted or inclined during installation, the dash panel may damage the threads.
  - Attach the check valve in the correct orientation.
1. Remove air cleaner and inlet duct. Refer to [EM-15, "Removal and Installation"](#).
  2. Remove the brake master cylinder. Refer to [BR-12, "Removal and Installation"](#).
  3. Remove vacuum hose from the brake booster. Refer to [BR-21, "Removal and Installation"](#).
  4. Remove lower driver instrument panel. Refer to [IP-14, "Lower Driver Instrument Panel"](#).
  5. Remove the brake pedal attachment snap pin and clevis pin from inside the vehicle.
  6. Remove the nuts on the brake booster and brake pedal assembly.
  7. Remove brake booster assembly from the engine compartment side.

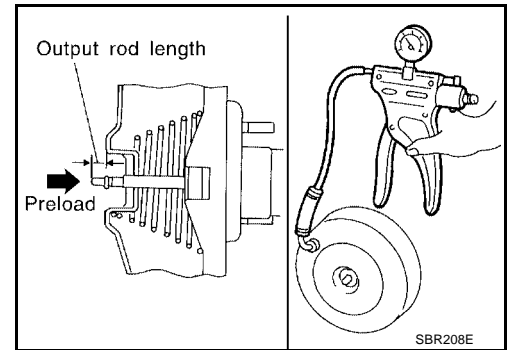
# BRAKE BOOSTER

## INSPECTION AFTER REMOVAL

### Output Rod Length Inspection

Using a handy vacuum pump, apply specified vacuum to the brake booster. Then check output rod length.

**Standard dimension at vacuum : 10.275 – 10.525 mm  
of (–66.7 kPa) [(–500 mmHg), (0.4045 – 0.4144 in)  
(–19.69 inHg)]**



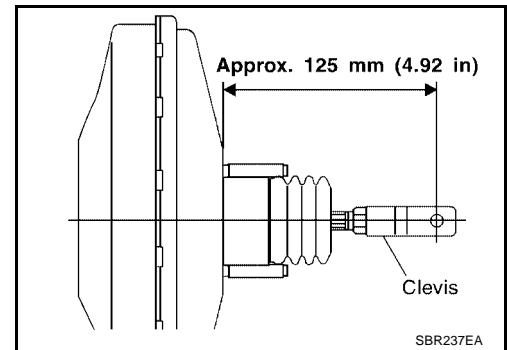
## INSTALLATION

1. Loosen the lock nut to adjust the input rod length so that the dimension shown satisfies the specified value.

**Standard value : 125 mm (4.92 in)**

2. After adjusting, temporarily tighten the lock nut to install the booster assembly to the vehicle. At this time, make sure to install a gasket between the booster assembly and the vehicle.
3. Connect the brake pedal with the clevis of the input rod.
4. Install the brake pedal assembly nuts and tighten them to the specified torque.

**Brake pedal : 13 – 16 N·m (1.3 – 1.6 kg-m,  
assembly nuts 9 – 12 ft-lb)**



5. Install the brake piping from the brake master cylinder to ABS actuator. Refer to [BR-9, "Hydraulic Circuit"](#).
6. Install the brake master cylinder to the brake booster. Refer to [BR-12, "Removal and Installation"](#).
7. Adjust the height and play of the brake pedal.
8. Tighten the lock nut of the input rod to the specified torque.

**Input rod lock nut : 16 – 21 N·m (1.6 – 2.2 kg-m,  
12 – 16 ft-lb)**

9. Adjust brake pedal. Refer to [BR-6, "Inspection and Adjustment"](#).
10. Refill new brake fluid and bleed air. Refer to [BR-8, "Bleeding Brake System"](#).

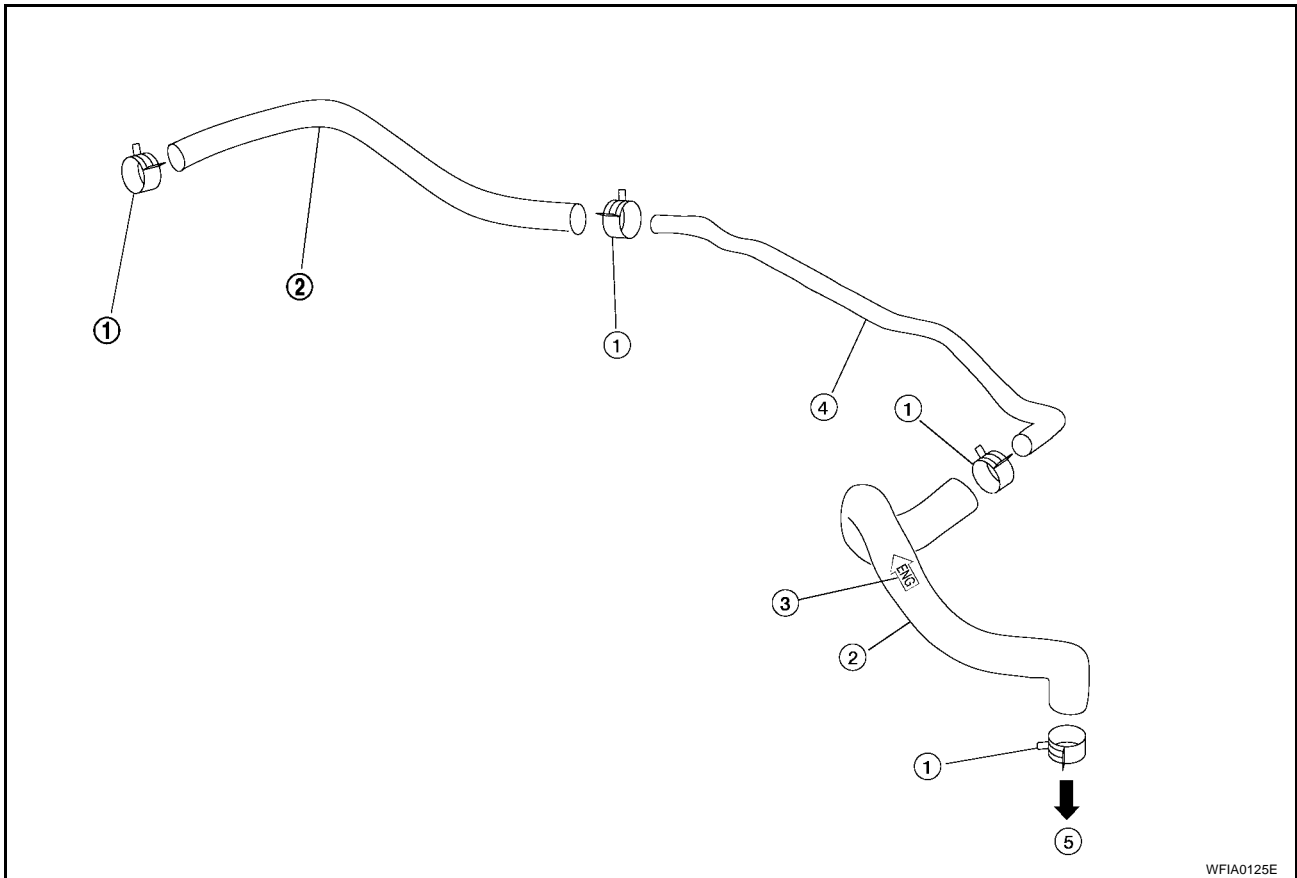
# VACUUM LINES

## VACUUM LINES

PFP:41920

### Removal and Installation

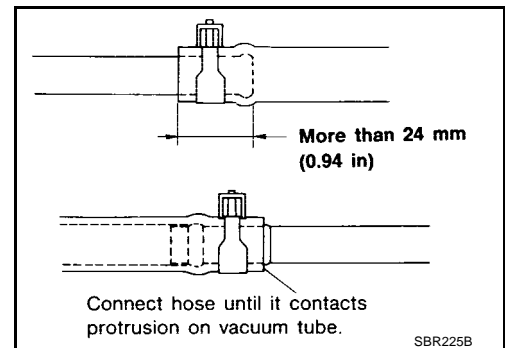
EFS00310



- |                  |                  |   |
|------------------|------------------|---|
| 1. Clamp         | 2. Vacuum hose   | 3. Check valve inclusion position stamp |
| 4. Vacuum piping | 5. Brake booster |   |

#### CAUTION:

- Because vacuum hose contains a check valve, it must be installed in the correct orientation. Refer to the stamp or label to confirm correct installation. The brake booster will not operate normally if the hose is installed in the wrong direction.
- Insert the vacuum hose for at least 24 mm (0.94 in).
- Never use lubricating oil during assembly.



# VACUUM LINES

EFS00311

## Inspection VISUAL INSPECTION

Check for improper assembly, damage and deteriorate.

## CHECK VALVE INSPECTION

### Airtightness Inspection

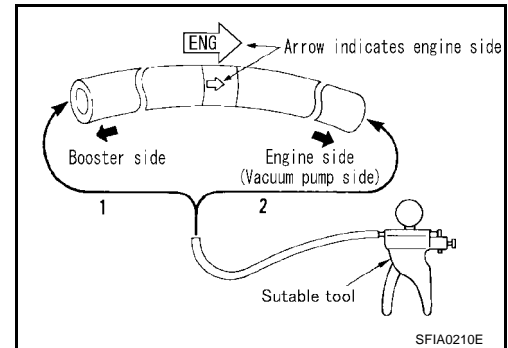
Use a hand-held vacuum pump to check.

**When connected to booster side (1):**

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

**When connected to engine side (2):**

**No vacuum will be applied**



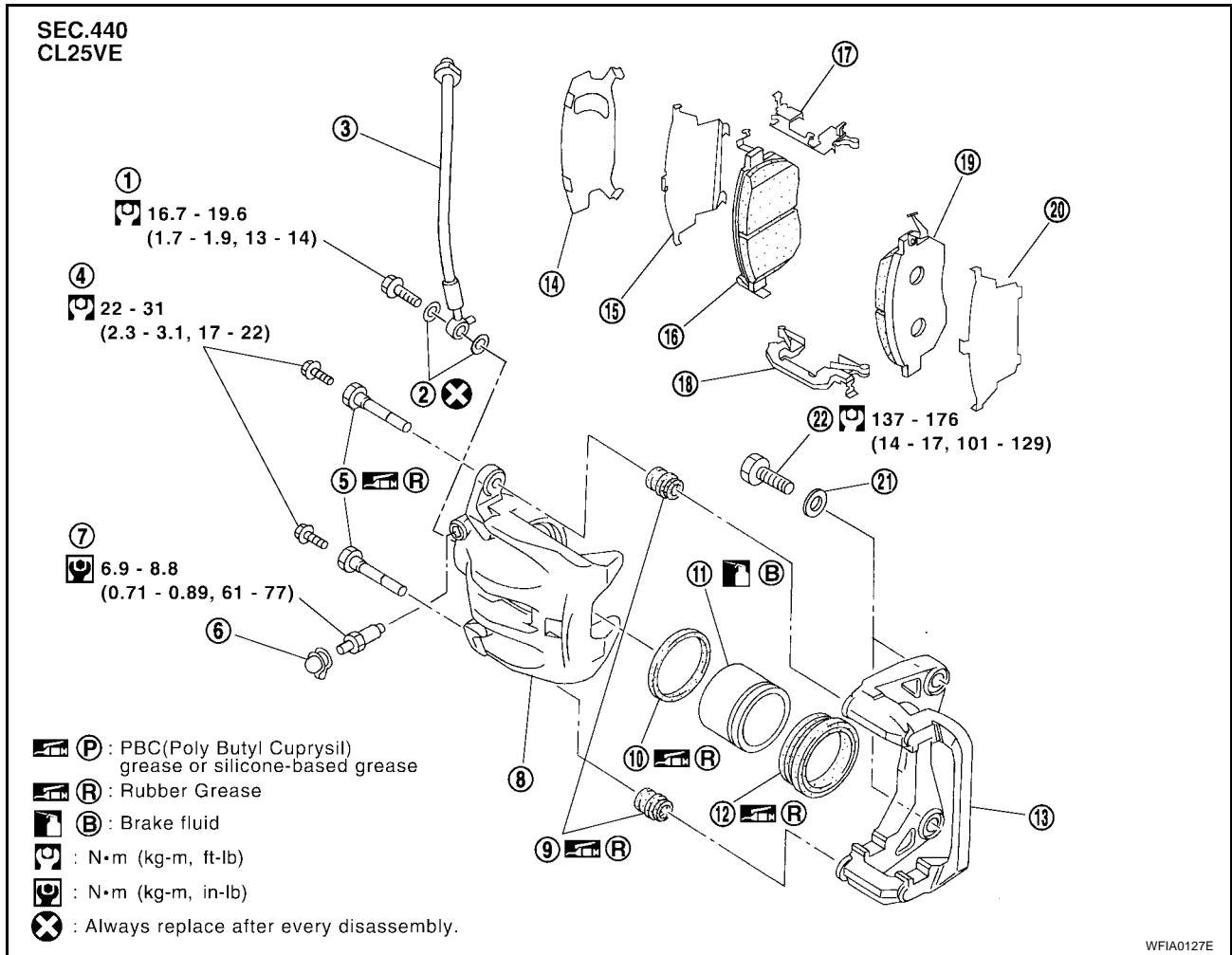
# FRONT DISC BRAKE

## FRONT DISC BRAKE

PFP:41000

### Component

EFS0030R



A  
B  
C  
D  
E  
BR  
G  
H  
I  
J  
K  
L  
M

- |                         |                      |                     |
|-------------------------|----------------------|---------------------|
| 1. Union bolt           | 2. Copper washer     | 3. Brake hose       |
| 4. Sliding pin bolt     | 5. Sliding pin       | 6. Cap              |
| 7. Air bleeder          | 8. Cylinder body     | 9. Sliding pin boot |
| 10. Piston seal         | 11. Piston           | 12. Piston boot     |
| 13. Torque member       | 14. Inner shim cover | 15. Inner shim      |
| 16. Inner pad           | 17. Pad retainer     | 18. Pad retainer    |
| 19. Outer pad           | 20. Outer shim       | 21. Washer          |
| 22. Torque member bolts |                      |                     |

### CAUTION:

- Clean dust on caliper and brake pad with a vacuum dust collector. Do not blow with compressed air.
- While the brake pad and cylinder body are separated, the piston may suddenly jump out, so do not depress the brake pedal.
- It is not necessary to remove bolts on torque member and brake hose except for disassembly or replacement of the caliper assembly. In this case, hang cylinder body with a wire so that brake hose is not under tension.
- Do not damage piston boot.
- If any shim is subject to serious corrosion, replace it with a new one.
- Always replace shims and shim covers as a set when replacing brake pads.
- Keep the rotor clean of brake fluid.

## FRONT DISC BRAKE

- Burnish the brake contact surfaces when refinishing or replacing brake rotors, after replacing pads or linings, or if a soft pedal occurs at very low mileage. Refer to [BR-28, "Brake Burnishing"](#) .

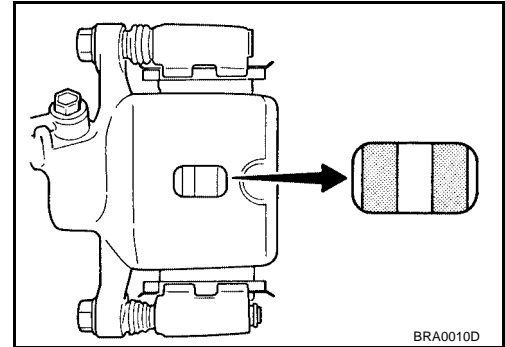
### On-board Inspection PAD WEAR INSPECTION

EFS0030S

- Inspect the thickness of the pad through the cylinder body inspection hole. Use a scale for inspection if necessary.

**Standard pad thickness** : 9.5 mm (0.374 in)

**Pad wear limit** : 2.0 mm (0.079 in)



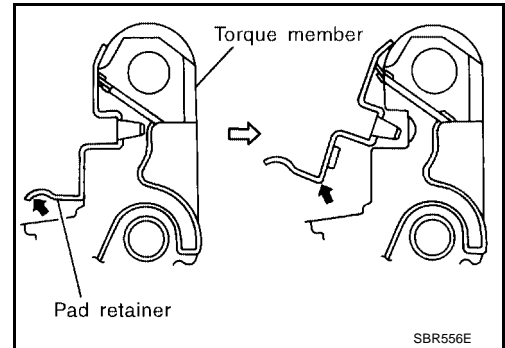
### Removal and Installation of Brake Pad REMOVAL

EFS0030T

1. Remove tires from vehicle using power tool.
2. Remove lower sliding pin bolt.
3. Hang the cylinder body with a wire and remove the pads and shims from the torque member.

#### CAUTION:

When removing the pad retainer from the torque member, lift the pad retainer in the direction shown by the arrow (shown in the figure) so as not to deform it.



### INSTALLATION

1. Attach the inner shim and shim cover to the inner pad and the outer shim to the outer pad.
2. Push the piston in so that the pad is firmly attached and attach the cylinder body to the torque member.

#### NOTE:

Using a disc brake piston tool (commercial service tool), makes it easier to push in the piston.

#### CAUTION:

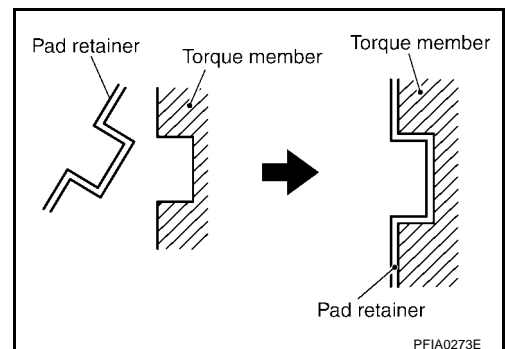
- By pushing in the piston, the brake fluid returns to the master cylinder reservoir tank. Watch the level of the surface of the reservoir tank.
  - When attaching the pad retainer, attach it firmly so that it does not float up higher than the torque member, as shown in the figure.
3. Install the sliding pin bolt and tighten to the specified torque.

**Sliding pin bolt** : 22 – 31 N·m (2.3 – 3.1 kg·m,  
17 – 22 ft·lb)

4. Check brake for drag.
5. Attach the tires to the vehicle. Refer to [MA-25, "Tire Rotation"](#) .

#### CAUTION:

Burnish the brake contact surfaces when refinishing or replacing brake rotors, after replacing pads or linings, or if a soft pedal occurs at very low mileage. Refer to [BR-28, "Brake Burnishing"](#) .





# FRONT DISC BRAKE

## Removal and Installation of Caliper Assembly and Disc Rotor

EFS0030K

### REMOVAL

1. Remove tires from vehicle with power tool.
2. Drain brake fluid. Refer to [BR-8, "Changing Brake Fluid"](#).
3. Remove union bolt and torque member bolts using power tool, then remove caliper assembly.
4. Remove disc rotor.
  - Prior to removing disc rotor, make alignment mark using a marker between the hub and disc rotor.

### INSTALLATION

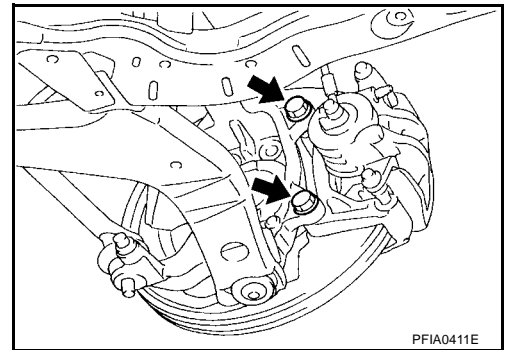
#### CAUTION:

- Refill with new brake fluid "DOT3"
  - Never reuse drained brake fluid.
1. Install disc rotor.
    - Align marks made during removal on the hub and disc rotor.
  2. Install caliper assembly to the vehicle, and tighten torque member bolts to the specified torque.

**Torque member bolts** : 137 - 176 N·m (14 - 17 kg-m,  
101 - 129 ft - lb)

#### CAUTION:

When attaching the caliper assembly to the vehicle, wipe any oil off the knuckle spindle washers and caliper assembly attachment surfaces.

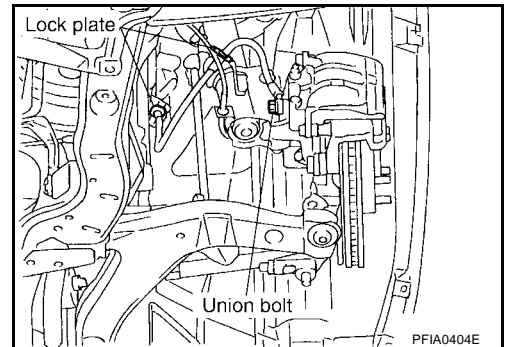


3. Install brake hose to the caliper assembly, and tighten union bolt to the specified torque.

**Union bolt** : 16.7 - 19.6 N·m (1.7 - 1.9 kg-m,  
13 - 14 ft-lb)

#### CAUTION:

- Do not reuse the copper washer for union bolts.
- Attach the brake hose to the protrusion on the caliper assembly attachment part.



4. Refill new brake fluid and bleed air. Refer to [BR-8, "Bleeding Brake System"](#).
5. Attach the tires to the vehicle. Refer to [MA-25, "Tire Rotation"](#).

#### CAUTION:

Burnish the brake contact surfaces when refinishing or replacing brake rotors, after replacing pads or linings, or if a soft pedal occurs at very low mileage. Refer to [BR-28, "Brake Burnishing"](#).

# FRONT DISC BRAKE

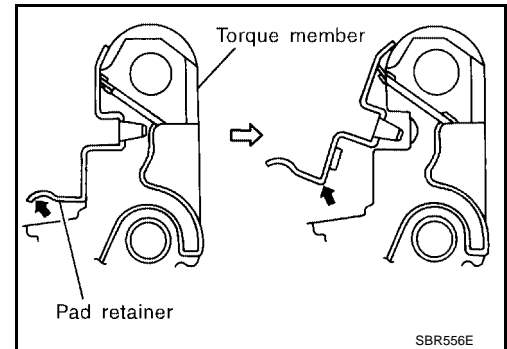
EFS0030L

## Disassembly and Assembly of Caliper Assembly DISASSEMBLY

1. Remove the sliding pin bolt, and then remove the pad, shim, shim cover, and pad retainer from the torque member.

### CAUTION:

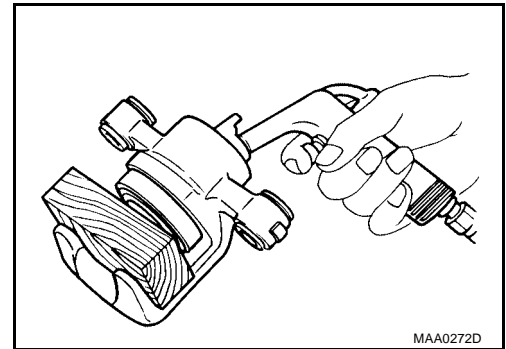
When removing the pad retainer from the torque member, lift it in the direction indicated by the arrow in the figure so that it does not deform.



2. Remove sliding pins and sliding pin boots from torque member.
3. Place a wooden block as shown, and blow air from union bolt mounting hole to remove pistons and piston boots.

### CAUTION:

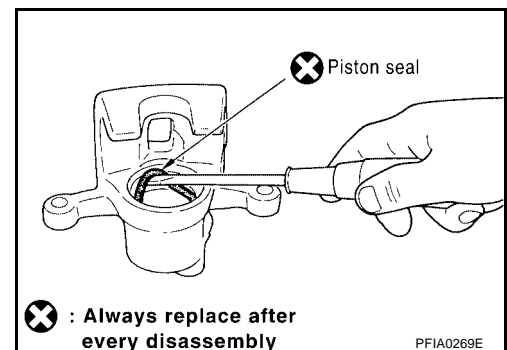
Do not get your fingers caught in the piston.



4. Remove the piston seal from the cylinder body using a screwdriver or suitable tool.

### CAUTION:

Be careful not to damage cylinder inner wall.



## CALIPER INSPECTION

### Cylinder Body

#### CAUTION:

- Use new brake fluid to clean. Never use mineral oils such as gasoline or kerosene.
- Check for corrosion, wear, or damage to the cylinder inner wall, and replace the caliper if there are any non-standard conditions.
- Minor flaws caused by corrosion or a foreign material can be removed by polishing the surface with a fine sandpaper. Replace the cylinder body, if necessary.

### Torque Member

Check for wear, cracks, and damage. If damage or deformation is present, replace the affected part.

### Piston

#### CAUTION:

- Since the piston surface is plated, do not repair using sandpaper.
- Check piston surface for corrosion, wear, and damage. If any non-standard condition is detected, replace applicable part.

# FRONT DISC BRAKE

## Sliding Pins, Sliding Pin Bolts, and Sliding Pin Boots

Check sliding pins, sliding pin bolts, and sliding pin boot for wear, damage, and cracks. If damage or deformation is present, replace the affected part.

### ASSEMBLY

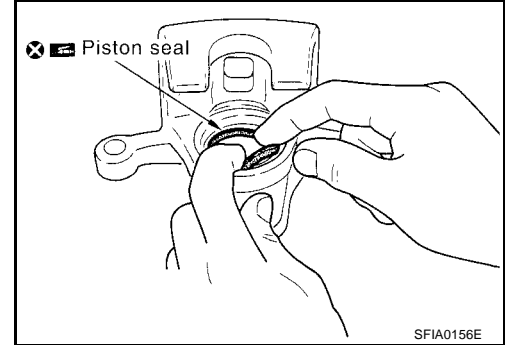
#### CAUTION:

Do not use Nissan Rubber Grease (KRE00 00010 or KRE00 00010 01) when assembling.

1. Apply rubber grease to the piston seal and attach to cylinder body.

#### CAUTION:

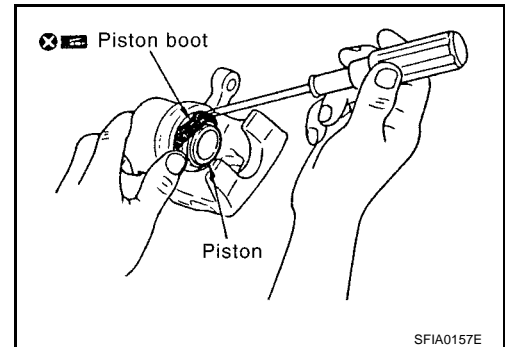
Do not reuse the piston seals.



2. Apply brake fluid or rubber grease to the piston boot, place it on the piston, and firmly insert the piston boot cylinder-side lip into the cylinder body groove.

#### CAUTION:

Do not reuse the piston boot.

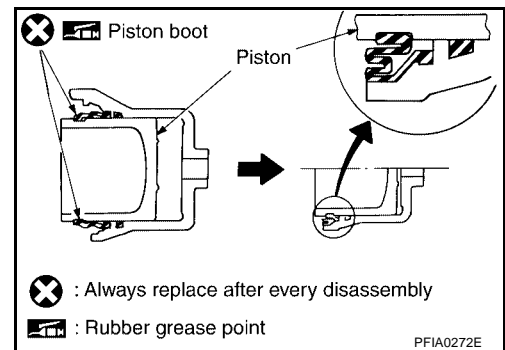


3. Apply brake fluid or rubber grease to the piston, insert into the cylinder body by hand and firmly attach the piston boot piston-side lip into the piston groove.

#### CAUTION:

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

4. Install sliding pins and sliding pin boots to torque member.



5. Attach the inner shim and shim cover to the inner pad and the outer shim to the outer pad.
6. Install cylinder body. Tighten sliding pin bolt to the specified torque.

## DISC ROTOR INSPECTION

### Visual Inspection

Check surface of the disc rotor for uneven wear, cracks, and serious damage. If any non-standard condition is detected, replace applicable part.

### Runout Inspection

1. Using wheel nuts, fix disc rotor to the wheel hub in 2 or more positions.

## FRONT DISC BRAKE

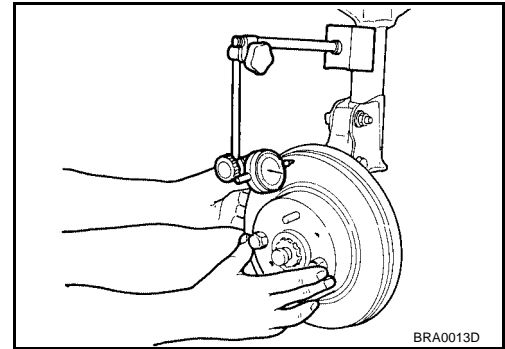
2. Inspect runout using a dial gauge.

**Standard value**  
(measured at 10 mm (0.39 in) inside the disc edge)  
**Runout limit** : 0.07 mm (0.0028 in)  
(with it attached to the vehicle) or less

**CAUTION:**

Before measuring, make sure the axle endplay is 0 mm (0 in). Refer to [FAX-5, "FRONT WHEEL BEARING"](#).

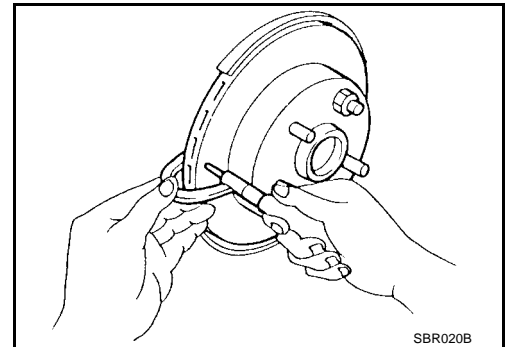
3. If runout is outside the limit, find the minimum runout point by shifting mounting positions of the disc rotor and wheel hub by one hole.



### Thickness Inspection

Using a micrometer, check thickness of the disc rotor. If thickness does not meet specification, replace disc rotor.

**Standard thickness** : 28 mm (1.10 in)  
**Minimum thickness** : 26 mm (1.02 in)  
**Maximum uneven wear** : 0.015 mm (0.0006 in) or  
(measured at 8 positions) less



### Brake Burnishing

EFS00312

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

**CAUTION:**

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

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

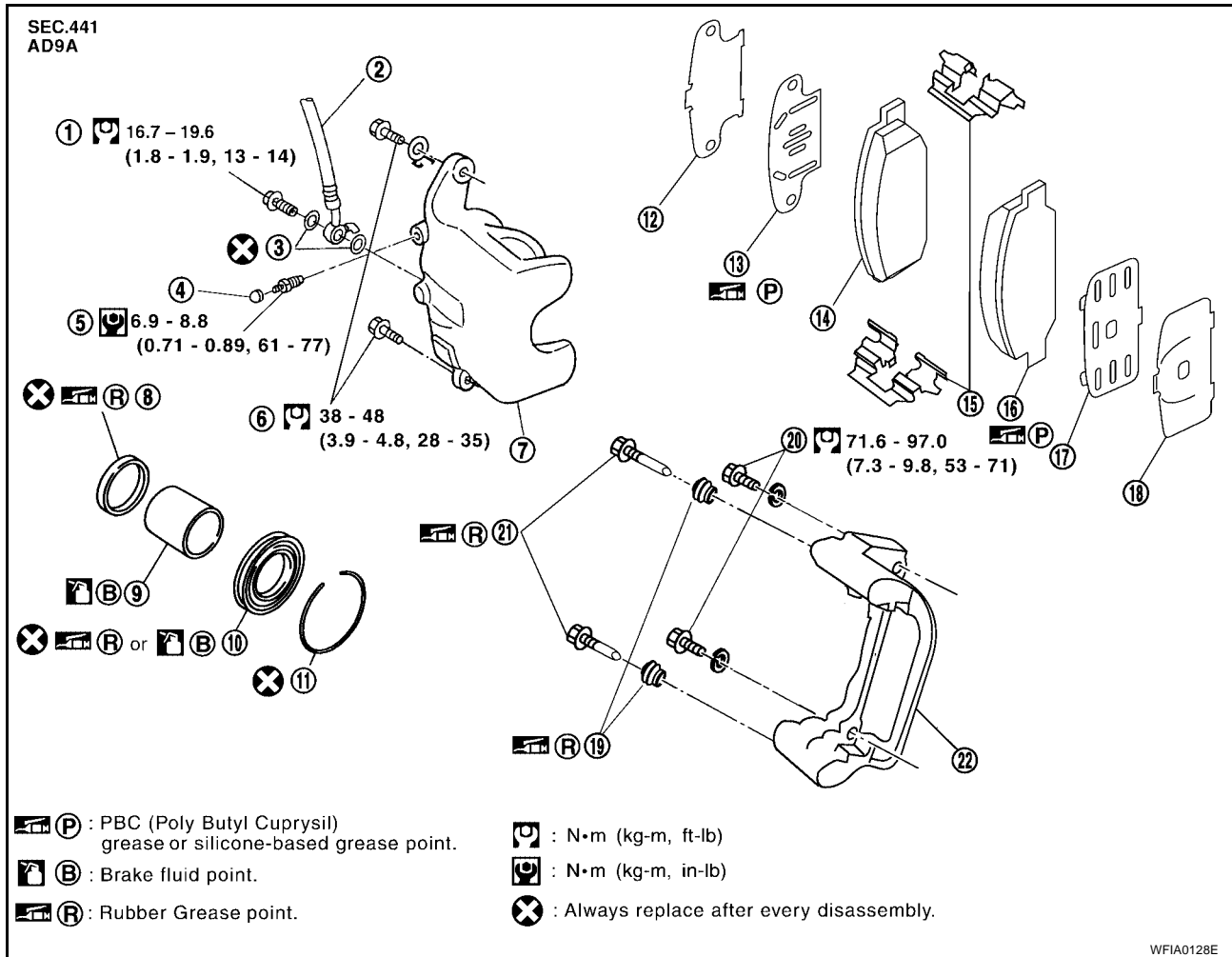
# REAR DISC BRAKE

## REAR DISC BRAKE

PFP:44000

### Component

EFS0030N



- |                      |                         |                      |
|----------------------|-------------------------|----------------------|
| 1. Union bolt        | 2. Brake hose           | 3. Copper washer     |
| 4. Cap               | 5. Air bleeder          | 6. Sliding pin bolt  |
| 7. Cylinder body     | 8. Piston seal          | 9. Piston            |
| 10. Piston boot      | 11. Retaining ring      | 12. Inner shim cover |
| 13. Inner shim       | 14. Inner pad           | 15. Pad retainer     |
| 16. Outer pad        | 17. Outer shim          | 18. Outer shim cover |
| 19. Sliding pin boot | 20. Torque member bolts | 21. Sliding pin      |
| 22. Torque member    |                         |                      |

### WARNING:

Clean dust on caliper and brake pad with a vacuum dust collector. Do not blow with compressed air.

### CAUTION:

- While removing cylinder body, never depress the brake pedal because the piston will pop out.
- It is not necessary to remove bolts on torque member and brake hose except for disassembly or replacement of the caliper assembly. In this case, hang cylinder body with a wire so that brake hose is not under tension.
- Do not damage piston boot.
- Always replace shims and shim covers as a set when replacing brake pads.
- Keep the rotor clean of brake fluid.
- Burnish the brake contact surfaces when refinishing or replacing brake rotors, after replacing pads or linings, or if a soft pedal occurs at very low mileage. Refer to [BR-35, "Brake Burnishing"](#).

# REAR DISC BRAKE

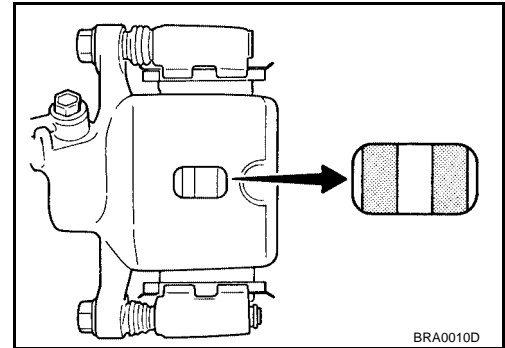
## On-board Inspection PAD WEAR INSPECTION

EFS0030M

- Inspect the thickness of the pad through the cylinder body inspection hole. Use a scale for inspection if necessary.

**Standard pad thickness** : 8.5 mm (0.335 in)

**Pad wear limit** : 2.0 mm (0.079 in)



## Removal and Installation of Brake Pad REMOVAL

EFS0030O

- Remove tires from vehicle with power tool.
- Remove bottom sliding pin bolt.
- Hang cylinder body with a wire, and remove pads, pad retainers, shims from torque member.

## INSTALLATION

- Apply PBC (Poly Butyl Cuprysil) grease or silicone-based grease to the rear of the pad and to both sides of the shim, and attach the inner shim and shim cover to the inner pad, and the outer shim and outer shim cover to the outer pad.
- Attach the pad retainer and pad to the torque member.
- Push the piston in so that the pad is firmly attached and attach the cylinder body to the torque member.

### NOTE:

Using a disc brake piston tool (commercial service tool), makes it easier to push in the piston.

### CAUTION:

By pushing in the piston, the brake fluid returns to the master cylinder reservoir tank. Watch the level of the surface of the reservoir tank.

- Install the sliding pin bolt and tighten to the specified torque.

**Sliding pin bolt** : 38 – 48 N·m (3.9 – 4.8 kg·m, 25 – 35 ft·lb)

- Check brake for drag.
- Attach the tires to the vehicle. Refer to [MA-25, "Tire Rotation"](#) .

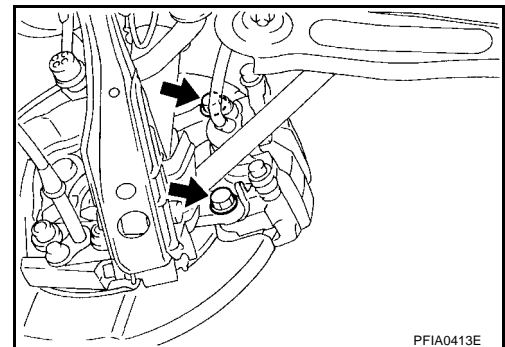
### CAUTION:

Burnish the brake contact surfaces when refinishing or replacing brake rotors, after replacing pads or linings, or if a soft pedal occurs at very low mileage. Refer to [BR-35, "Brake Burnishing"](#) .

## Removal and Installation of Caliper Assembly and Disc Rotor REMOVAL

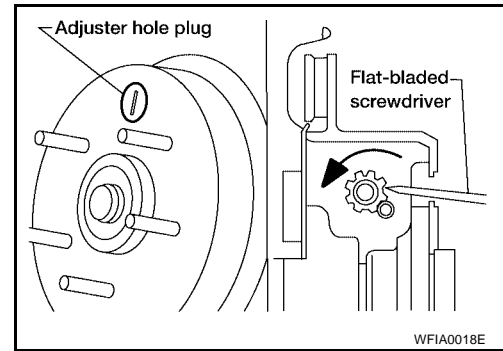
EFS0030P

- Remove tires from vehicle using power tool.
- Drain brake fluid. Refer to [BR-8, "Bleeding Brake System"](#) .
- Remove union bolt and torque member bolts using power tool, and remove caliper assembly.
- Remove caliper and disc rotor. If the disc rotor cannot be removed, remove as follows:
  - Make sure parking brake lever is completely disengaged.



## REAR DISC BRAKE

- Hold down the disc rotor with the wheel nut and remove the adjuster hole plug.
- Insert a flat-bladed screwdriver through the plug opening and rotate the star wheel on the adjuster assembly in the direction shown to loosen and retract the brake shoes.
- Prior to removing disc rotor, make alignment mark using a marker between the hub and disc rotor.
- Remove wheel nut and rotor.



### INSTALLATION

#### CAUTION:

- Refill with new brake fluid "DOT 3".
  - Never reuse drained brake fluid.
1. Install disc rotor.
    - Align marks made during removal on the hub and disc rotor.
  2. Install caliper assembly to the vehicle, and tighten torque member bolts to the specified torque.

**Torque member bolts : 71.6 – 97.0 N-m (7.3 – 9.8 kg-m, 53 – 71 ft-lb)**

#### CAUTION:

**Before installing caliper assembly to the vehicle, wipe off oil and grease on washer seats on axle assembly and mounting surface of caliper assembly.**

3. Install brake hose to caliper assembly and tighten union bolt to the specified torque.

**Union bolt : 16.7 – 19.6 N-m (1.7 – 1.9 kg-m, 13 – 14 ft-lb)**

#### CAUTION:

- Do not reuse the copper washer for union bolts.
  - Securely attach brake hose to protrusion on caliper assembly.
4. Add new brake fluid and bleed air. Refer to [BR-8, "Bleeding Brake System"](#).
  5. Adjust the parking brake. Refer to [PB-3, "Adjustment"](#).
  6. Attach the tires to the vehicle. Refer to [MA-25, "Tire Rotation"](#).

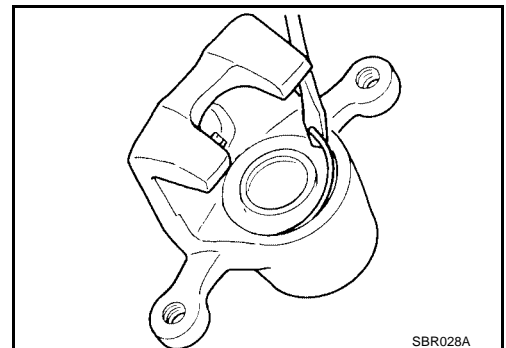
#### CAUTION:

**Burnish the brake contact surfaces when refinishing or replacing brake rotors, after replacing pads, or if a soft pedal occurs at very low mileage. Refer to [BR-35, "Brake Burnishing"](#).**

### Disassembly and Assembly of Caliper Assembly

EFS0030Q

- #### DISASSEMBLY
1. Remove the sliding pin bolt, and then remove the pad, shim, shim cover, and pad retainer from the torque member and cylinder.
  2. Remove sliding pin boot from torque member.
  3. Remove the retaining ring from the cylinder body using a screwdriver or suitable tool, as shown.

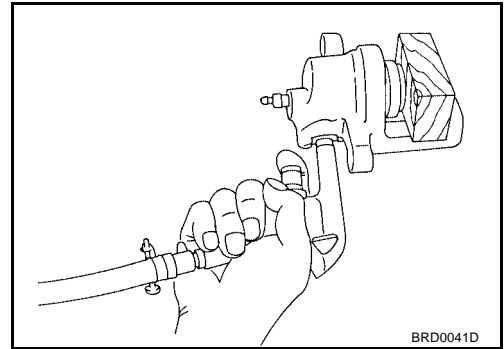


## REAR DISC BRAKE

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

**WARNING:**

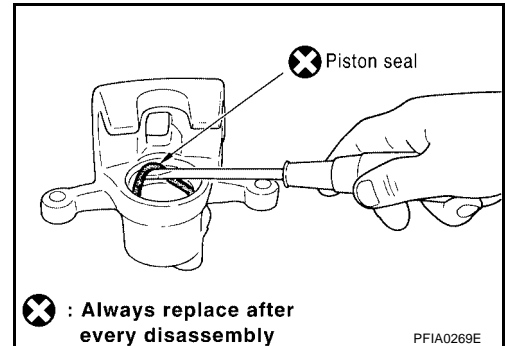
**Do not place your finger in front of piston.**



5. Remove piston seals from cylinder body using a screwdriver or suitable tool, as shown.

**CAUTION:**

**Be careful not to damage cylinder inner wall.**





# REAR DISC BRAKE

## CALIPER INSPECTION

### Cylinder Body

#### CAUTION:

- Use new brake fluid to clean. Never use mineral oils such as gasoline or kerosene.
- Check inner wall of cylinder for corrosion, wear, and damage. If any non-standard condition is detected, replace cylinder body.
- Minor flaws caused by corrosion or a foreign material can be removed by polishing the surface with a fine sandpaper. Replace the cylinder body, if necessary.

### Torque Member

Check for wear, cracks, and damage. If damage or deformation is present, replace the affected part.

### Piston

#### CAUTION:

Since the piston surface is plated, do not repair using sandpaper.

Check piston surface for corrosion, wear, and damage. If any non-standard condition is detected, replace applicable part.

### Sliding Pin Bolts and Sliding Pin Boots

Check that there is no wear, damage, or cracks in the sliding pin bolts and sliding pin boots, and if there are, replace them.

## ASSEMBLY

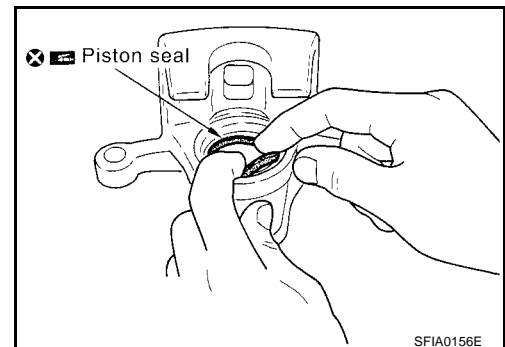
#### CAUTION:

Do not use Nissan Rubber Grease (KRE00 00010 or KRE00 00010 01) when assembling.

1. Apply a rubber grease to the piston seal and attach to cylinder body.

#### CAUTION:

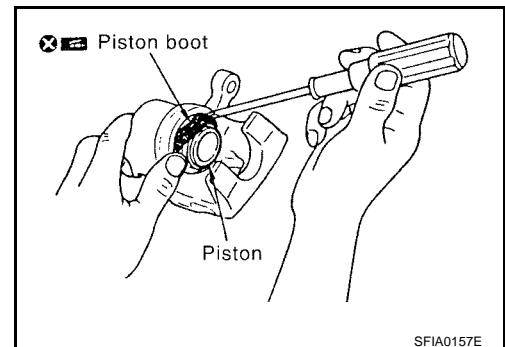
Do not reuse the piston seals.



2. Apply brake fluid or rubber grease to the piston boot, place it on the piston, and firmly insert the piston boot cylinder-side lip into the cylinder body groove.

#### CAUTION:

Do not reuse the piston boot.

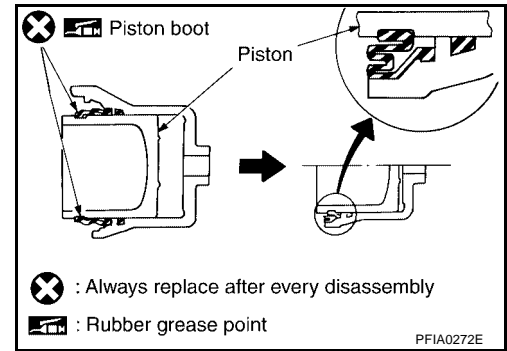


## REAR DISC BRAKE

3. Apply a brake fluid to the piston, insert into the cylinder body by hand and firmly attach the piston boot piston-side lip into the piston boot.

**CAUTION:**

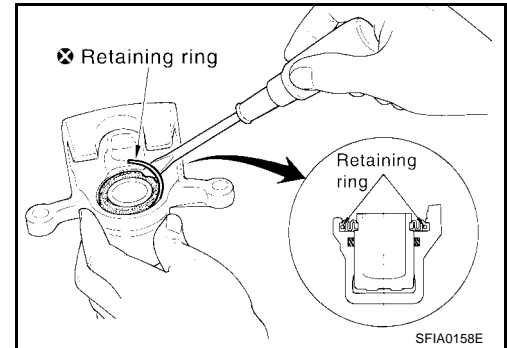
Press the piston evenly and vary the pressing point to prevent cylinder inner wall from being rubbed.



4. Fix piston boot with retaining ring.

**CAUTION:**

- Make sure the boot is firmly in the cylinder body groove.
- Do not reuse the retaining ring.

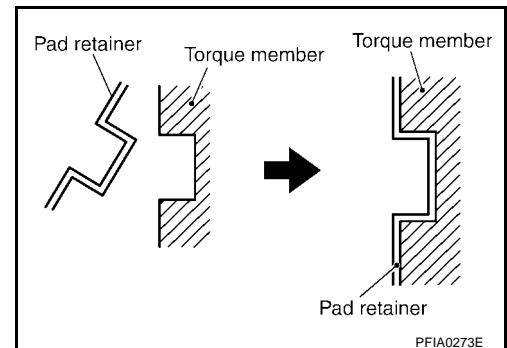


5. Attach the sliding pin bolt and sliding pin boot to the torque member.
6. Apply PBC (Poly Butyl Cuprysil) grease or silicone-based grease to the rear of the pad and to both sides of the shim, and attach the inner shim and shim cover to the inner pad, and the outer shim and outer shim cover to the outer pad.
7. Attach the pad retainer and pad to the torque member.

**CAUTION:**

When attaching the pad retainer, attach it firmly so that it does not float up higher than the torque member, as shown in the figure.

8. After assembling shims and shim covers to pad, install it to the torque member.
9. Install cylinder body. Tighten sliding pin bolts to the specified torque.



## DISC ROTOR INSPECTION

### Visual Inspection

Check surface of the disc rotor for uneven wear, cracks, and serious damage. If any non-standard condition is detected, replace applicable part.

### Runout Inspection

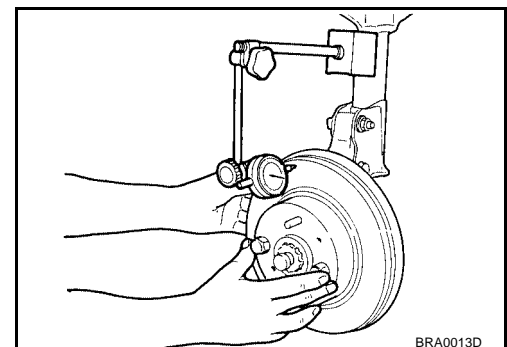
1. Using wheel nuts, fix disc rotor to the wheel hub. (2 or more positions)
2. Inspect runout using a dial gauge.

**Measurement position** : At a point 10 mm (0.39 in) from outer edge of the disc.

**Runout limit (with it attached to the vehicle)** : 0.05 mm (0.0020 in) or less

**CAUTION:**

Before measuring, make sure the axle endplay is 0 mm (0 in).



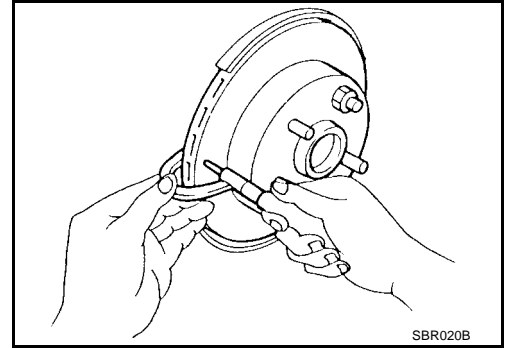
## REAR DISC BRAKE

3. If runout is outside the limit, find the minimum runout point by shifting mounting positions of the disc rotor and wheel hub by one hole.

### Thickness Inspection

Using a micrometer, check thickness of the disc rotor. If thickness is not within specification, replace disc rotor.

<b>Standard thickness</b>	<b>: 9.0 mm (0.350 in)</b>
<b>Minimum thickness</b>	<b>: 8.0 mm (0.310 in)</b>
<b>Maximum uneven wear (measured at 8 positions)</b>	<b>: 0.015 mm (0.0006 in) or less</b>



EFS00313

### Brake Burnishing

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

#### **CAUTION:**

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

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

# DUAL PROPORTIONING VALVE

## DUAL PROPORTIONING VALVE

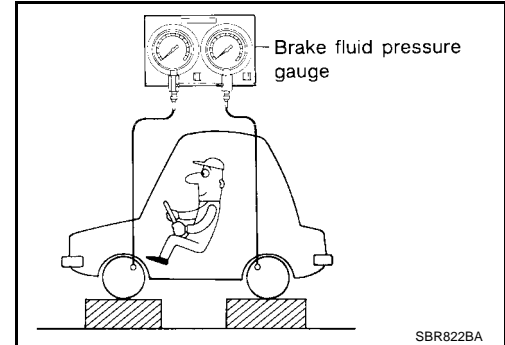
PFP:46400

### Inspection

EFS002PE

#### CAUTION:

- Carefully monitor brake fluid level at master cylinder.
  - Use new brake fluid "DOT 3".
  - Be careful not to splash brake fluid on painted areas; it may cause paint damage. If brake fluid is splashed on paint areas, wash it away with water immediately.
1. Connect Tool to air bleeders of front and rear brakes on either LH and RH side.



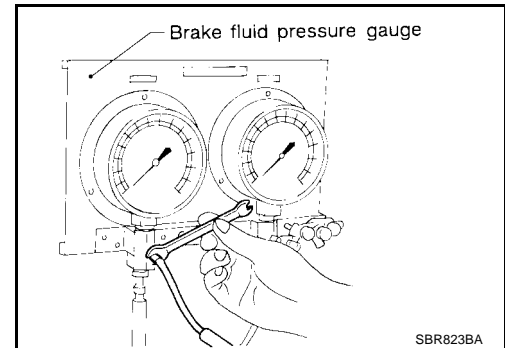
2. Bleed air from the Tool.
3. Check fluid pressure by depressing brake pedal.

**Applied pressure : 7,355 kPa (75 kg/cm<sup>2</sup>, 1,067 psi)**  
**(Front brake)**

**Output pressure : 5,100 - 5,492 kPa (52 - 56 kg/cm<sup>2</sup>, 739 - 796 psi)**  
**(Rear brake)**

If output pressure is out of specification, replace dual proportioning valve.

4. Bleed air after disconnecting the Tool. Refer to [BR-8, "Bleeding Brake System"](#).



# SERVICE DATA AND SPECIFICATIONS (SDS)

## SERVICE DATA AND SPECIFICATIONS (SDS)

PFP:00030

### General Specifications

EFS002PF

Unit: mm (in)

Front brake	Brake model		CLZ25VE disc brake
	Cylinder bore diameter		57.2 (2.25)
	Pad Length × width × thickness		111.0 × 62.5 × 9.5 (4.37 × 2.46 × 0.37)
	Rotor outer diameter × thickness		320 × 28 (12.60 × 1.10)
Rear brake	Brake model		AD9E disc brake
	Cylinder bore diameter		34.9 (1.374)
	Pad Length × width × thickness		83.0 × 33.0 × 8.5 (3.27 × 1.30 × 0.33)
	Rotor outer diameter × thickness		292 × 9 (11.50 × 0.35)
Master cylinder	Cylinder bore diameter		23.81 (15/16)
Control valve	Screw in type		30 × 0.4 (1.18 × 0.02)
Brake booster	Booster model		M215T
	Diaphragm diameter	Primary	230 (9.06)
		Secondary	205 (8.07)
Recommended brake fluid			DOT 3

### Disc Brake

EFS002PG

Unit: mm (in)

Brake model		CLZ25VE	AD9A
Pad wear limit	Minimum thickness	2.0 (0.079)	2.0 (0.079)
	Maximum runout	0.07 (0.0028)	0.05 (0.0020)
Rotor repair limit	Minimum thickness	26.0 (1.02)	8.0 (0.31)
	Maximum uneven wear (measured at 8 positions)	0.015 (0.0006) or less	

### Brake Pedal

EFS002PH

Unit: mm (in)

Free height "H"	M/T	164.1 - 174.1 (6.46 - 6.85)
	A/T	173.1 - 183.1 (6.81 - 7.21)
Clearance "C" between pedal stopper and threaded end of stop lamp switch or ASCD switch		0.74 - 1.96 (0.029 - 0.077)

\*: Measured from surface of dash reinforcement panel to surface of pedal pad

### Control Valve

EFS002PI

Unit: kPa (kg/cm<sup>2</sup>, psi)

Applied pressure (front)	7,355 (75, 1,067)
Output pressure (rear)	5,100 - 5,492 (52 - 56, 739 - 796)

### Brake Booster

EFS002PJ

Unit: mm (in)

Output rod length	10.275 - 10.525 (0.4045 - 0.4144)
Clevis length	130 (5.12)

## SERVICE DATA AND SPECIFICATIONS (SDS)

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