

A
B
C
D
E

SECTION **BR**

BRAKE SYSTEM

CONTENTS

<p>PRECAUTIONS 3</p> <p style="padding-left: 20px;">Precautions for Supplemental Restraint System (SRS) "AIR BAG" and "SEAT BELT PRE-TENSIONER" 3</p> <p style="padding-left: 20px;">Precautions for Brake System 3</p> <p style="padding-left: 20px;">Wiring Diagrams and Trouble Diagnosis 3</p> <p>PREPARATION 4</p> <p style="padding-left: 20px;">Special Service Tool 4</p> <p style="padding-left: 20px;">Commercial Service Tools 4</p> <p>NOISE, VIBRATION, AND HARSHNESS (NVH)</p> <p>TROUBLESHOOTING 5</p> <p style="padding-left: 20px;">NVH Troubleshooting Chart 5</p> <p>BRAKE PEDAL 6</p> <p style="padding-left: 20px;">Inspection and Adjustment 6</p> <p style="padding-left: 40px;">INSPECTION 6</p> <p style="padding-left: 40px;">ADJUSTMENT 6</p> <p style="padding-left: 20px;">Removal and Installation 8</p> <p style="padding-left: 40px;">REMOVAL 9</p> <p style="padding-left: 40px;">INSPECTION AFTER REMOVAL 10</p> <p style="padding-left: 40px;">INSTALLATION 10</p> <p>BRAKE FLUID 11</p> <p style="padding-left: 20px;">Checking Brake Fluid Level 11</p> <p style="padding-left: 20px;">Changing Brake Fluid 11</p> <p style="padding-left: 20px;">Bleeding Brake System 11</p> <p>BRAKE PIPING AND HOSE 12</p> <p style="padding-left: 20px;">Hydraulic Circuit 12</p> <p style="padding-left: 20px;">Front Brake Piping and Hose 12</p> <p style="padding-left: 40px;">REMOVAL 12</p> <p style="padding-left: 40px;">INSTALLATION 13</p> <p style="padding-left: 20px;">Rear Brake Piping and Hose 13</p> <p style="padding-left: 40px;">REMOVAL 13</p> <p style="padding-left: 40px;">INSTALLATION 14</p> <p style="padding-left: 20px;">Inspection 14</p> <p>BRAKE MASTER CYLINDER 15</p> <p style="padding-left: 20px;">On-board Inspection 15</p> <p style="padding-left: 40px;">LEAK INSPECTION 15</p> <p style="padding-left: 20px;">Removal and Installation 15</p> <p style="padding-left: 40px;">REMOVAL 15</p>	<p style="padding-left: 20px;">INSTALLATION 15</p> <p style="padding-left: 40px;">Disassembly and Assembly 16</p> <p style="padding-left: 60px;">WITHOUT VDC MODELS 16</p> <p style="padding-left: 60px;">WITH VDC MODELS 19</p> <p>BRAKE BOOSTER 21</p> <p style="padding-left: 20px;">On-Vehicle Service 21</p> <p style="padding-left: 40px;">OPERATING CHECK 21</p> <p style="padding-left: 40px;">AIRTIGHT CHECK 21</p> <p style="padding-left: 20px;">Removal and Installation 22</p> <p style="padding-left: 40px;">REMOVAL 22</p> <p style="padding-left: 40px;">INSPECTION AFTER REMOVAL 23</p> <p style="padding-left: 40px;">INSTALLATION 23</p> <p>VACUUM LINES 24</p> <p style="padding-left: 20px;">Removal and Installation 24</p> <p style="padding-left: 20px;">Inspection 25</p> <p style="padding-left: 40px;">VISUAL INSPECTION 25</p> <p style="padding-left: 40px;">CHECK VALVE INSPECTION 25</p> <p>FRONT DISC BRAKE 26</p> <p style="padding-left: 20px;">Component 26</p> <p style="padding-left: 20px;">On-board Inspection 27</p> <p style="padding-left: 40px;">PAD WEAR INSPECTION 27</p> <p style="padding-left: 20px;">Removal and Installation of Brake Pad 27</p> <p style="padding-left: 40px;">REMOVAL 27</p> <p style="padding-left: 40px;">INSTALLATION 27</p> <p style="padding-left: 20px;">Removal and Installation of Caliper Assembly and Disc Rotor 28</p> <p style="padding-left: 40px;">REMOVAL 28</p> <p style="padding-left: 40px;">INSTALLATION 28</p> <p style="padding-left: 20px;">Disassembly and Assembly of Caliper Assembly... 28</p> <p style="padding-left: 40px;">DISASSEMBLY 28</p> <p style="padding-left: 40px;">CALIPER INSPECTION 29</p> <p style="padding-left: 40px;">ASSEMBLY 29</p> <p style="padding-left: 40px;">DISC ROTOR INSPECTION 30</p> <p style="padding-left: 20px;">Brake Burnishing 31</p> <p>REAR DISC BRAKE 32</p> <p style="padding-left: 20px;">Component 32</p> <p style="padding-left: 20px;">On-board Inspection 33</p> <p style="padding-left: 40px;">PAD WEAR INSPECTION 33</p> <p style="padding-left: 20px;">Removal and Installation of Brake Pad 33</p> <p style="padding-left: 40px;">REMOVAL 33</p>
--	---

INSTALLATION	33	ASSEMBLY	35
Removal and Installation of Caliper Assembly and Disc Rotor	33	DISC ROTOR INSPECTION	36
REMOVAL	33	Brake Burnishing	37
INSTALLATION	34	SERVICE DATA AND SPECIFICATIONS (SDS)	38
Disassembly and Assembly of Caliper Assembly...	34	General Specifications	38
DISASSEMBLY	34	Disc Brake	38
CALIPER INSPECTION	35	Brake Pedal	39
		Brake Booster	39

PRECAUTIONS

PRECAUTIONS

PF0:00001

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

EFS00324

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:

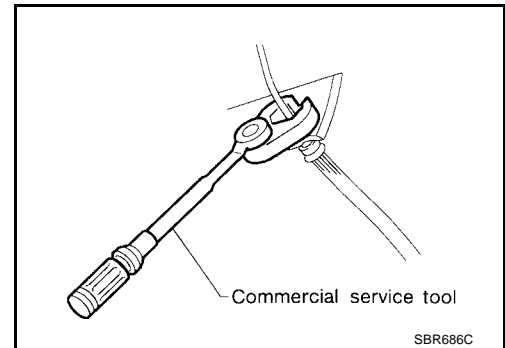
- To avoid rendering the SRS inoperative, which could increase the risk of personal injury or death in the event of a collision which would result in air bag inflation, all maintenance must be performed by an authorized NISSAN/INFINITI dealer.
- Improper maintenance, including incorrect removal and installation 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

EFS00325

CAUTION:

- Recommended fluid is brake fluid. Refer to [MA-10, "Fluids and Lubricants"](#).
- Never reuse drained brake fluid.
- Be careful not to splash brake fluid on painted areas; it may cause paint damage. If brake fluid is splashed on painted areas, wash it away with water immediately.
- To clean or wash all parts of master cylinder and disc brake caliper, 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.
- If a brake fluid leak is found, the part must be disassembled without fail. Then it has to be replaced with a new one if a defect exists.
- Turn the ignition switch OFF and remove the connector of the ABS actuator control unit or the battery terminal before performing the work.
- Always tighten brake lines to specified torque when installing.
- Burnish the brake contact surfaces after refinishing or replacing rotors, after replacing pads, or if a soft pedal occurs at very low mileage. Refer to [BR-31, "Brake Burnishing"](#) (front disc brakes) or [BR-37, "Brake Burnishing"](#) (rear disc brakes).



WARNING:

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

Wiring Diagrams and Trouble Diagnosis

EFS00326

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

PREPARATION

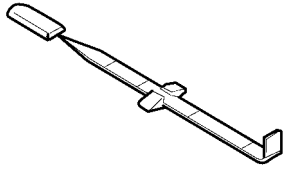
PREPARATION

PFP:00002

Special Service Tool

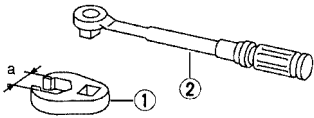
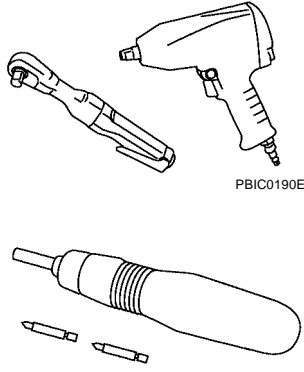
EFS004BC

The actual shapes of Kent-Moore tools may differ from those of special service tools illustrated here.

Tool number (Kent-Moore No.) Tool name	Description
<p>— (J-46532) Brake and clutch pedal height measurement tool</p>  <p style="text-align: right; font-size: small;">LFIA0227E</p>	<p>Measuring brake pedal height</p>

Commercial Service Tools

EFS00327

Tool name	Description
<p>1 Flare nut crowfoot 2 Torque wrench</p>  <p style="text-align: right; font-size: small;">S-NT360</p>	<p>Removing and installing each brake piping a: 10 mm (0.39 in)</p>
<p>Power tool</p>  <p style="text-align: right; font-size: small;">PBIC0190E PBIC0191E</p>	<p>Loosening bolts and nuts</p>

NOISE, VIBRATION, AND HARSHNESS (NVH) TROUBLESHOOTING

NOISE, VIBRATION, AND HARSHNESS (NVH) TROUBLESHOOTING

PF0:0003

NVH Troubleshooting Chart

EFS00328

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															
		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
Noise	Noise	x	x	x								x	x	x	x	x	x
	Shake				x							x	x	x	x	x	x
	Shimmy				x	x	x	x	x	x		x	x	x	x	x	x
	Shudder				x	x	x	x	x	x		x	x	x	x	x	x
Reference page		BR-26, BR-32	BR-27, BR-33	BR-26, BR-32	BR-30, BR-36	BR-26, BR-32	BR-30, BR-36	BR-30, BR-36	BR-30, BR-36	BR-31, BR-37	BR-30, BR-36	FAX-4, "NVH Troubleshooting Chart"	FAX-4, "NVH Troubleshooting Chart", RAX-4, "NVH Troubleshooting Chart"	FSU-5, "NVH Troubleshooting Chart", RSU-4, "NVH Troubleshooting Chart"	WT-3, "NVH Troubleshooting Chart"	WT-3, "NVH Troubleshooting Chart"	PS-5, "NVH Troubleshooting Chart"

x: Applicable

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

BR

BRAKE PEDAL

BRAKE PEDAL

PFP:46501

Inspection and Adjustment INSPECTION

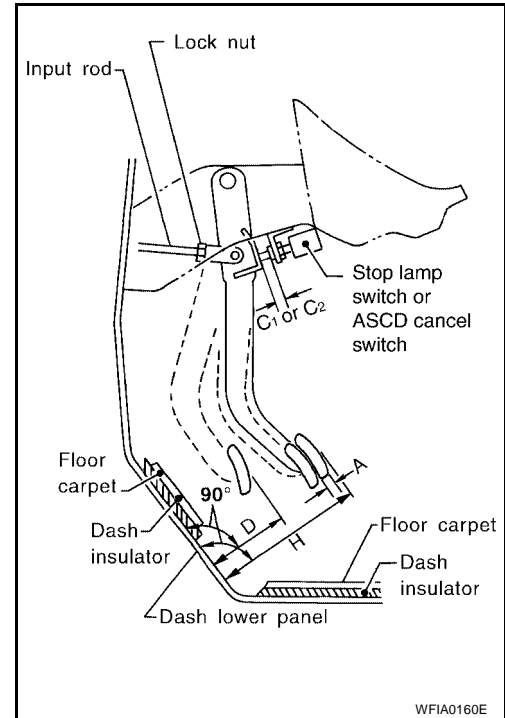
EFS00329

1. If equipped with adjustable pedals, move the brake pedal to the forward most position (closest to the floor).
2. Inspect the brake pedal height, play, and switch clearance from the dash lower panel as shown.

CAUTION:

When equipped with adjustable pedals, the brake pedal must be set in the forward most position (closest to the floor) for checking the brake pedal specifications.

Tool number : — (J-46532)



Free height "H"	156.3 - 166.3 mm (6.15 - 6.55 in)
Depressed pedal height "D" under a force of 490 N (50 kg, 110 lb) with engine running	More than 90.3 mm (3.55 in)
Clearance between pedal stopper and threaded end of stop lamp switch and ASCD cancel switch "C1" or "C2"	0.74 - 1.96 mm (0.029 - 0.077 in)
Pedal play "A"	3 - 11 mm (0.12 - 0.43 in)

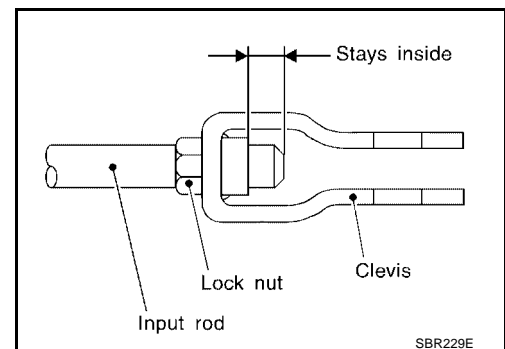
3. Adjust the brake pedal as necessary. Refer to [BR-6, "ADJUSTMENT"](#).

ADJUSTMENT

1. Loosen the stop lamp switch and ASCD cancel switch by turning 45° counterclockwise.
2. Loosen the lock nut on the input rod.

CAUTION:

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

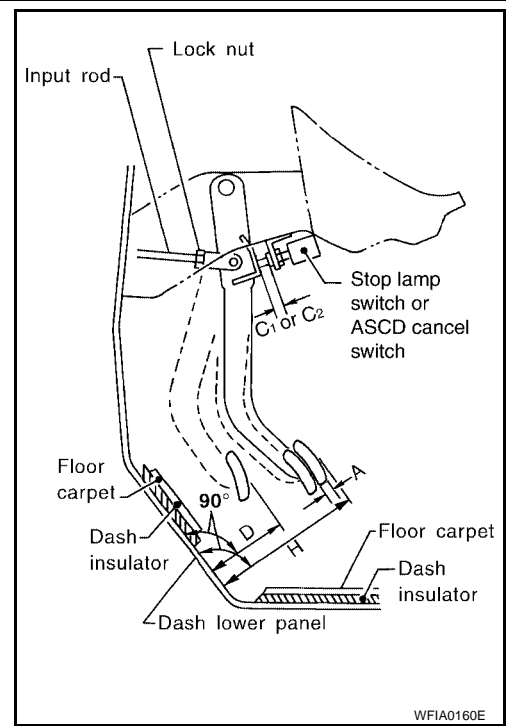


BRAKE PEDAL

- Turn input rod to adjust the brake pedal to the specified height. When the brake pedal is adjusted to specification, tighten the lock nut to specification.

Tool number : — (J-46532)

Lock nut : 18.5 N-m (1.9 kg-m, 14 ft-lb)



Free height "H"	156.3 - 166.3 mm (6.15 - 6.55 in)
Depressed pedal height "D" under a force of 490 N (50 kg, 110 lb) with engine running	More than 90.3 mm (3.55 in)
Clearance between pedal stopper and threaded end of stop lamp switch and ASCD cancel switch "C1" or "C2"	0.74 - 1.96 mm (0.029 - 0.077 in)
Pedal play "A"	3 - 11 mm (0.12 - 0.43 in)

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

CAUTION:

Make sure that the gap ("C1" and "C2") between the rubber stops and switch ends are within specification.

- Check the pedal play "A".

CAUTION:

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

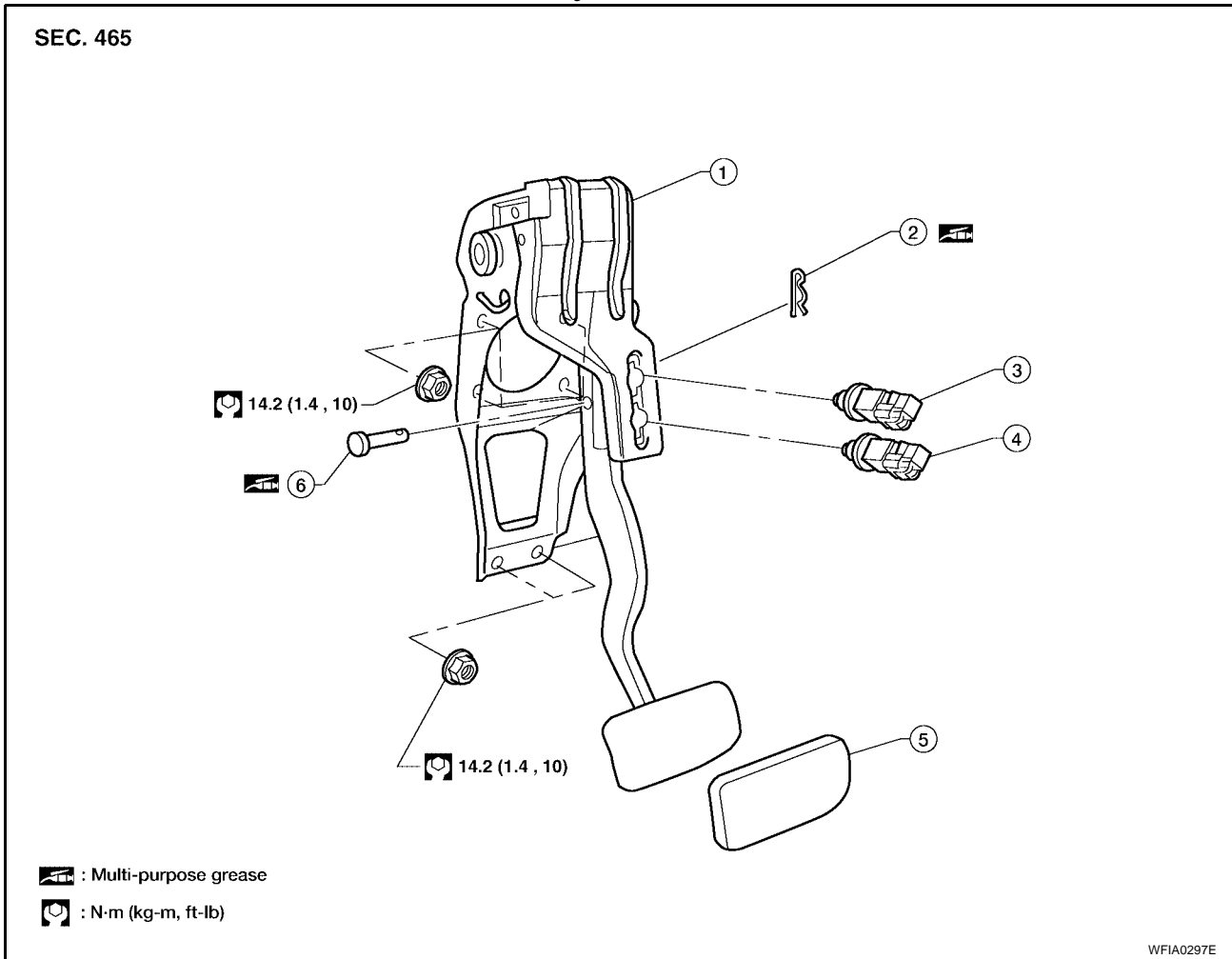
- Start the engine and check the height of the brake pedal when depressing it.

BRAKE PEDAL

EFS0032A

Removal and Installation

Non-adjustable Pedal



1. Brake pedal assembly

2. Snap pin

3. ASCD cancel switch

4. Stop lamp switch

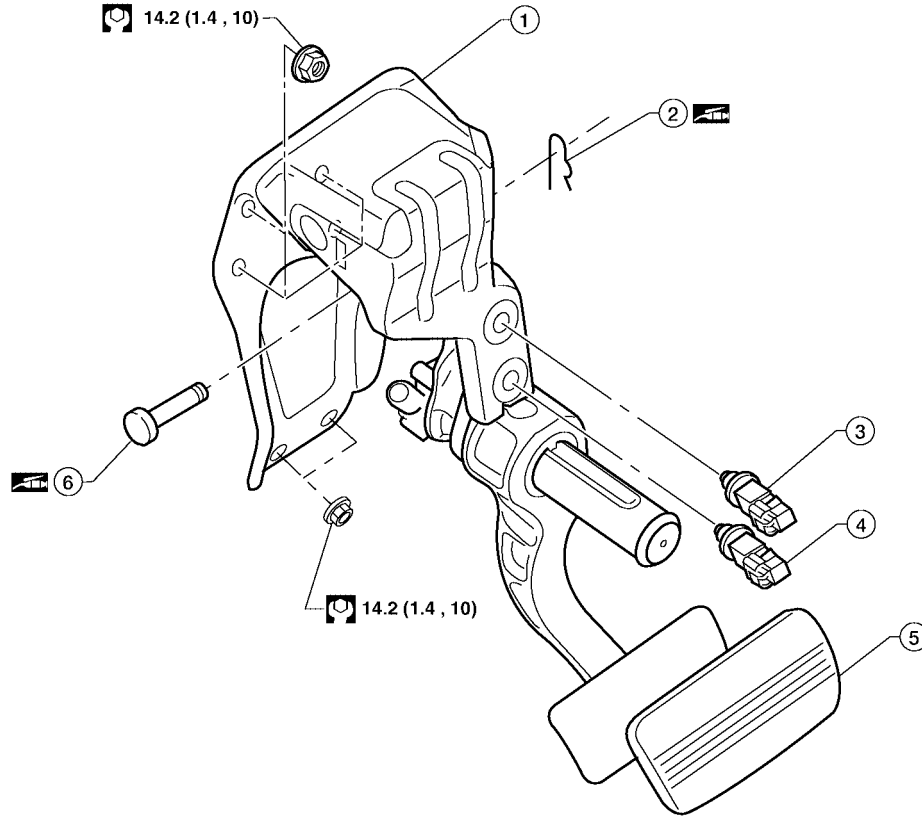
5. Pedal pad

6. Clevis pin


BRAKE PEDAL

Adjustable Pedal

SEC. 465



 : Multi-purpose grease

 : N·m (kg-m, ft-lb)

WFIA0298E

1. Brake pedal assembly

2. Snap pin

3. ASCD cancel switch

4. Stop lamp switch

5. Pedal pad

6. Clevis pin

WARNING:

Do not damage the brake tube.

CAUTION:

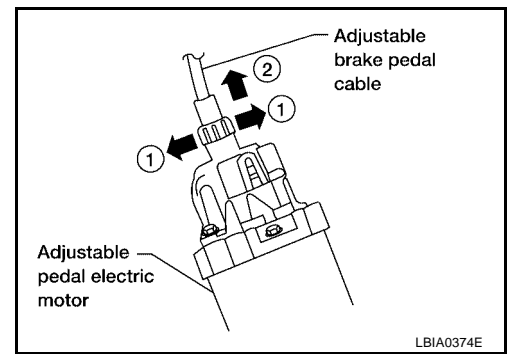
- Before removal and installation the accelerator and brake pedals (adjustable type only) must be in the forward most position (closest to the floor). This is to align the base position of the accelerator and brake pedals (adjustable type only).
- Do not disassemble the brake pedal adjusting mechanism (adjustable type only).
- Avoid damage from dropping the brake pedal assembly during handling.
- Keep the brake pedal assembly away from water.

REMOVAL

1. Remove the lower driver instrument panel. Refer to [IP-12, "Instrument Lower Panel LH"](#).
2. Remove the stop lamp switch and ASCD cancel switch from the brake pedal assembly by turning 45° degrees.

BRAKE PEDAL

3. If equipped with the adjustable pedal, disconnect the adjustable brake pedal cable from the adjustable pedal electric motor.
 - Unlock (1) then pull (2) the adjustable brake pedal cable to disconnect it from the adjustable pedal electric motor as shown.



4. Remove snap pin and clevis pin from the brake booster clevis.
5. Remove mounting nuts and the brake pedal assembly. Support the brake booster and master cylinder at the bulkhead so as not to damage the brake tubes.

CAUTION:

- Before removal and installation, the accelerator and brake pedals must be in the forward most position (closest to the floor). This is to align the base position of the accelerator and brake pedals (adjustable type only) for installation.
- Do not disassemble the brake pedal adjusting mechanism (adjustable type only).
- Avoid damage from dropping the brake pedal assembly during handling.
- Keep the brake pedal assembly away from water.

INSPECTION AFTER REMOVAL

Check brake pedal for following items.

- Clevis pin deformation
- Crack of any welded portion
- Brake pedal bent or damaged

INSTALLATION

Installation is in the reverse order of removal.

- Check the brake pedal for smooth operation. There should be no binding or sticking when applying or releasing the brake pedal.
- If equipped, check the brake pedal adjustable feature for smooth operation. There should be no binding or sticking when adjusting the brake pedal forward or backward.
- After installing the brake pedal assembly, adjust as necessary. Refer to [BR-6, "Inspection and Adjustment"](#).

BRAKE FLUID

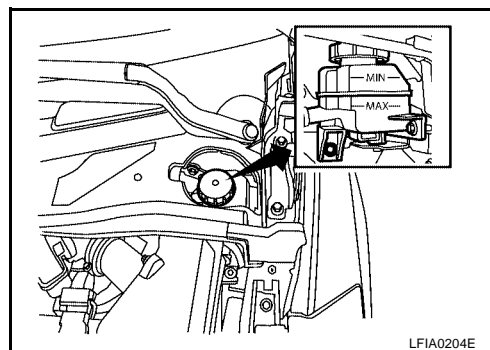
PPF:KN100

BRAKE FLUID

Checking Brake Fluid Level

EFS0032B

- Check fluid level in the sub tank. It should be between “MAX” and “MIN” lines on the sub tank.
- Visually check around the reservoir tank and sub 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

EFS0032C

CAUTION:

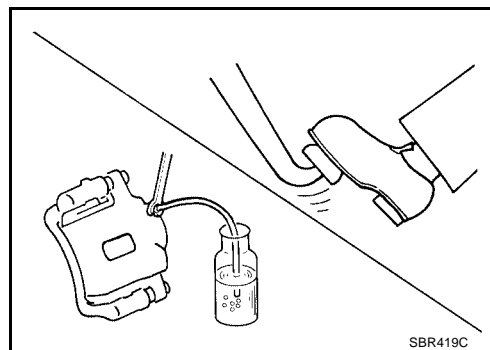
- Refill with new brake fluid. Refer to [MA-10, "Fluids and Lubricants"](#) .
 - Always keep fluid level higher than “MIN” line on sub tank.
 - Never reuse drained brake fluid.
 - Be careful not to splash brake fluid on painted areas; it may cause paint damage. If brake fluid is splashed on painted areas, 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. Disconnect the ABS actuator and control unit connector or negative battery terminal.
 4. Clean the inside of the sub tank, and refill the sub tank with new brake fluid.
 5. Bleed the brake system refilling the system with new fluid. Refer to [BR-11, "Bleeding Brake System"](#) .

Bleeding Brake System

EFS0032D

CAUTION:

- Carefully monitor brake fluid level at the sub tank during bleeding operation.
 - Fill the sub tank with new brake fluid. Refer to [MA-10, "Fluids and Lubricants"](#) . Make sure it is full at all times while bleeding the air out of system.
 - Place a container under the sub tank to avoid spilling brake fluid.
 - Do not loosen the line fittings at the ABS actuator during air bleeding.
1. Turn ignition switch OFF and disconnect ABS actuator and control unit connector or negative battery terminal.
 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 : 8 N·m (0.8 kg·m, 71 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



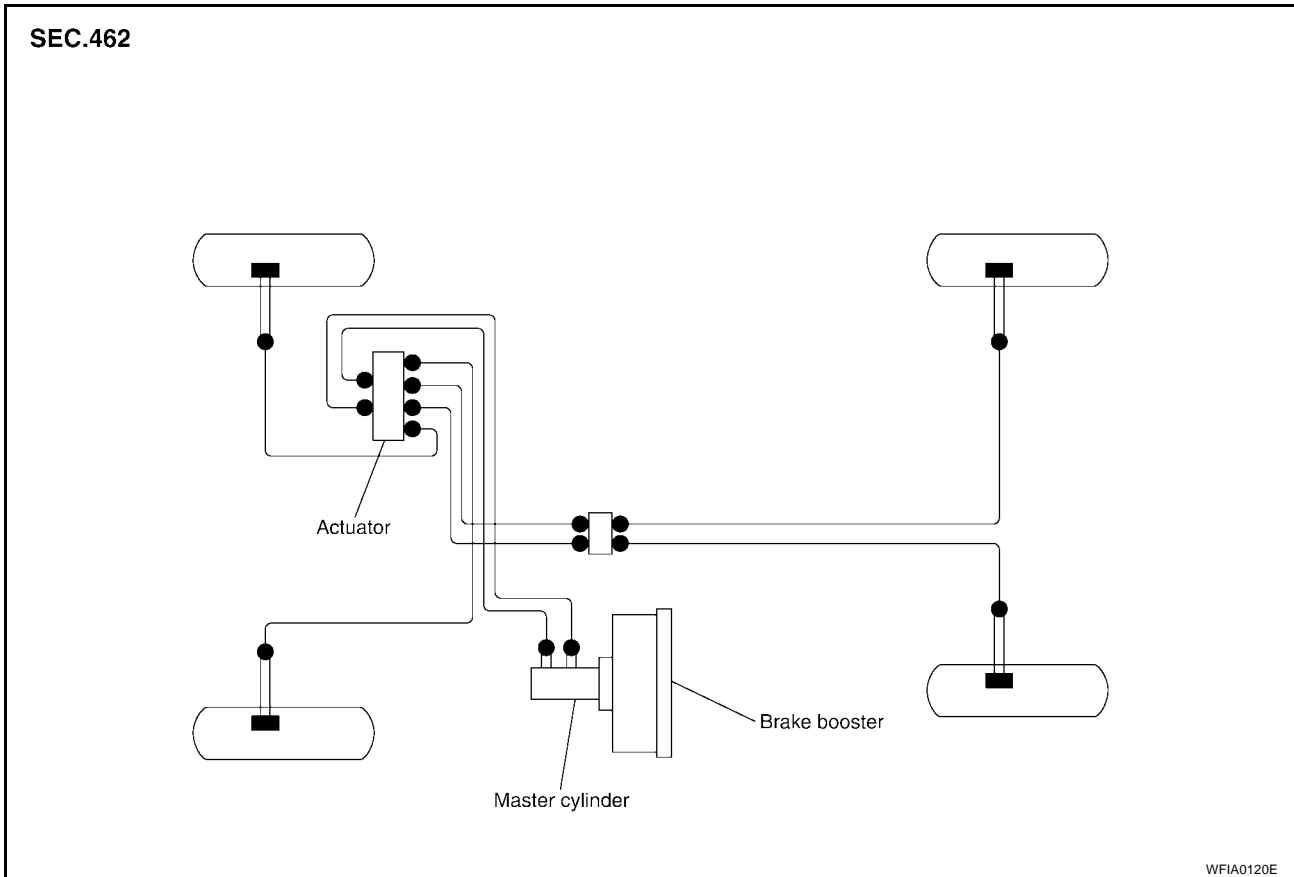
BRAKE PIPING AND HOSE

BRAKE PIPING AND HOSE

PFP:46210

Hydraulic Circuit

EFS0032E



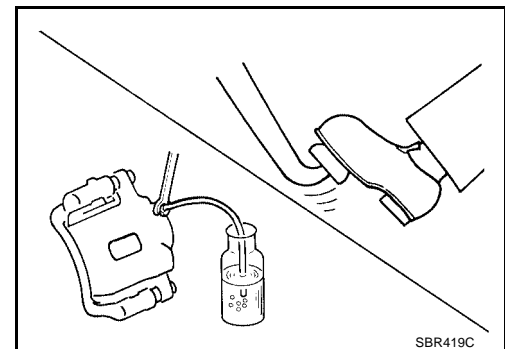
Front Brake Piping and Hose REMOVAL

EFS0032F

CAUTION:

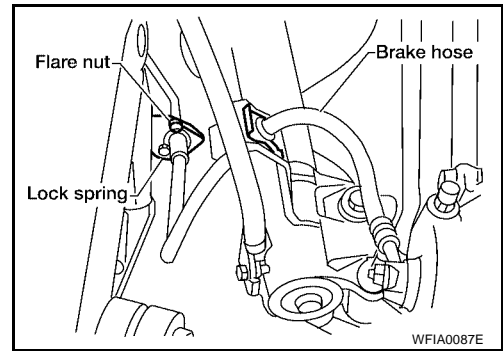
- Be careful not to splash brake fluid on painted areas; it may cause paint damage. If brake fluid is splashed on painted areas, wash it away with water immediately.
- All hoses must be free from excessive bending, twisting and pulling.
- Cover the open end of lines and hoses when disconnecting to prevent 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. Refer to [MA-10, "Fluids and Lubricants"](#) .
- Never reuse drained brake fluid.

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

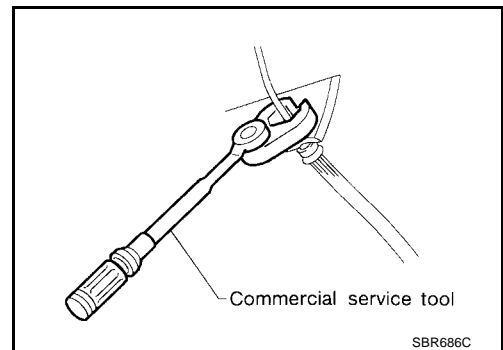
CAUTION:

- 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 : 16.2 N·m (1.7 kg·m, 12 ft·lb)

Union bolt : 18.2 N·m (1.9 kg·m, 13 ft·lb)

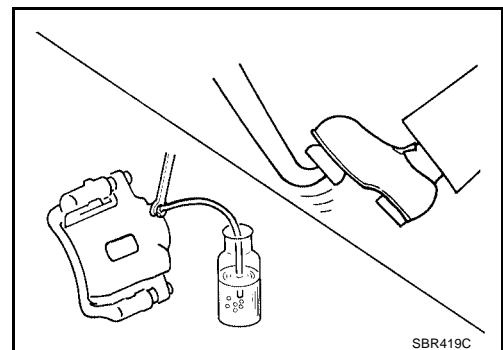
5. Refill until new brake fluid comes out of each air bleeder valve.
6. Bleed air from the brake system. Refer to [BR-11, "Bleeding Brake System"](#) .



Rear Brake Piping and Hose REMOVAL

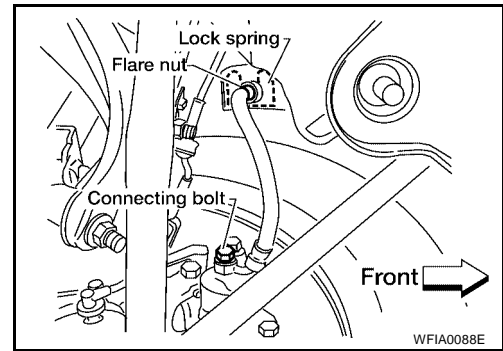
CAUTION:

- 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:

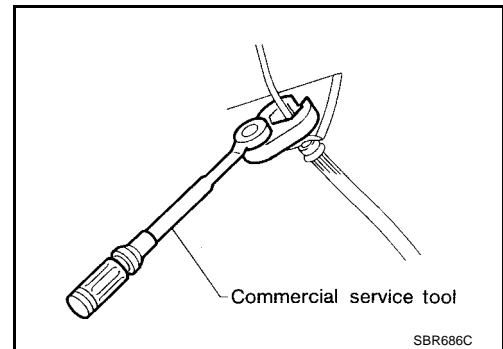
- Refill with new brake fluid. Refer to [MA-10, "Fluids and Lubricants"](#) .
- Never reuse drained brake fluid.

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 : 16.2 N·m (1.7 kg·m, 12 ft·lb)

Union bolt : 18.2 N·m (1.9 kg·m, 13 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-11, "Bleeding Brake System"](#) .

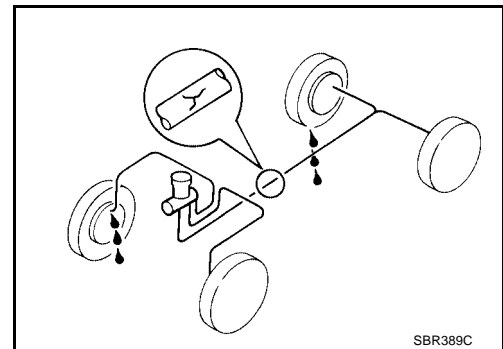


Inspection

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

PDF:46010

BRAKE MASTER CYLINDER

On-board Inspection LEAK INSPECTION

EFS0032I

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

Removal and Installation

EFS0032K

CAUTION:

Be careful not to splash brake fluid on painted areas, it may cause damage. If brake fluid is splashed on painted areas, wash it away with water immediately.

REMOVAL

1. Remove the cowl top and cowl top extension. Refer to [EI-18, "Removal and Installation"](#).
2. Drain the brake fluid. Refer to [BR-11, "Changing Brake Fluid"](#).
3. Remove the air cleaner to electric throttle control actuator tube attached to air cleaner case (upper). Refer to [EM-17, "Removal and Installation"](#).
4. Disconnect the harness connector for the brake fluid level switch.
5. Using a flare nut wrench, disconnect the master cylinder brake tubes and the hose from the reservoir tank to the sub tank.
6. Remove the master cylinder nuts and remove the master cylinder.

INSTALLATION

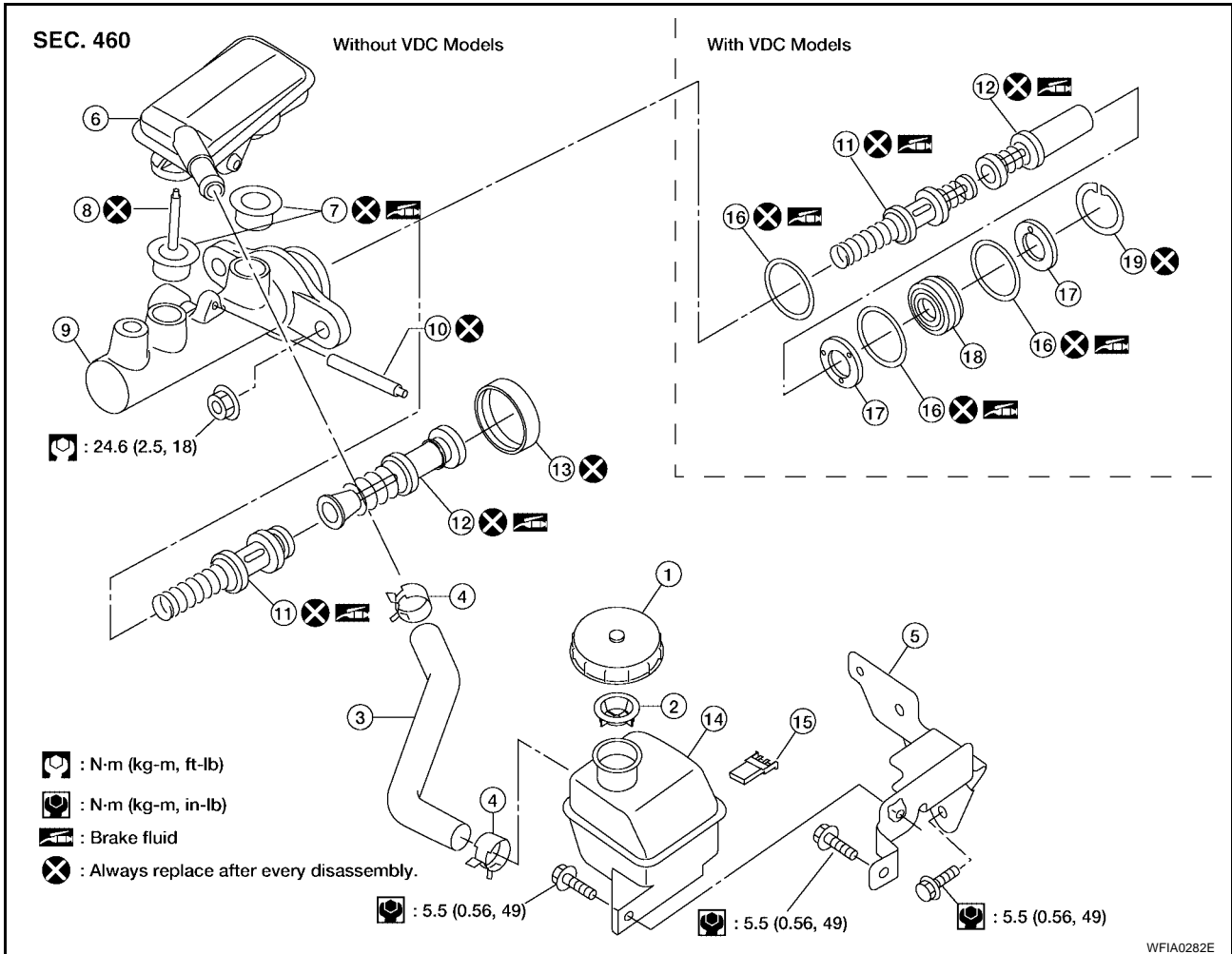
CAUTION:

- Refill with new brake fluid. Refer to [MA-10, "Fluids and Lubricants"](#).
 - Never reuse drained brake fluid.
1. Place master cylinder onto brake booster and tighten the master cylinder nuts to specification.
Master cylinder nuts : 13.5 N·m (1.4 kg-m, 10 ft-lb)
 2. Connect the sub tank hose to the master cylinder reservoir tank and fill the sub tank with new brake fluid.
 3. Plug all ports on master cylinder with your fingers to prevent air suction while releasing brake pedal.
 4. Have an assistant depress brake pedal slowly several times until no air comes out of the master cylinder.
 - Install and tighten brake tube flare nuts to specification.
Flare nut : 16.2 N·m (1.7 kg-m, 12 ft-lb)
 - Refill the brake system fluid and bleed the air from the brake system. Refer to [BR-11, "Bleeding Brake System"](#).
 5. Installation of the remaining components is in reverse order of removal.

BRAKE MASTER CYLINDER

EFS0032L

Disassembly and Assembly



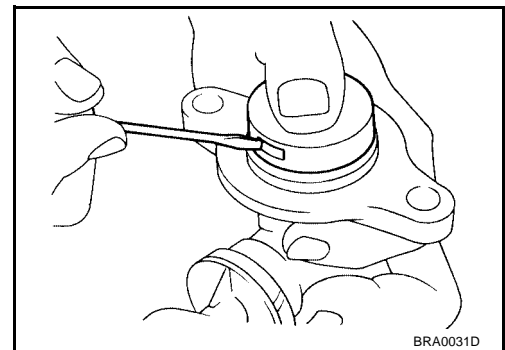
WFIA0282E

- | | | |
|------------------|-------------------------------|------------------------------|
| 1. Reservoir cap | 2. Oil strainer | 3. Hose |
| 4. Clamp | 5. Bracket | 6. Reservoir tank |
| 7. Grommet | 8. Piston stopper | 9. Cylinder body |
| 10. Pin | 11. Secondary piston assembly | 12. Primary piston assembly |
| 13. Stopper cap | 14. Sub tank | 15. Brake fluid level switch |
| 16. O-ring | 17. Plate | 18. Guide |
| 19. Snap ring | | |

WITHOUT VDC MODELS

Disassembly

- 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.

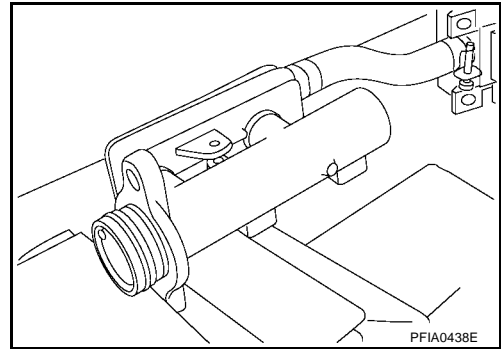


BRAKE MASTER CYLINDER

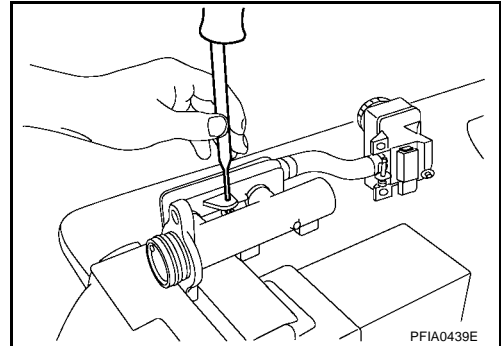
- Place the side flange of cylinder body with chamfering around the pin insertion hole facing up, and firmly set master cylinder assembly in a vise.

CAUTION:

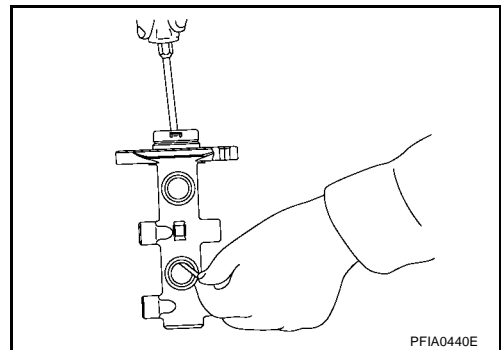
- When setting the master cylinder assembly with the vise, be sure not to over-tighten.
- When securing with a vise, use copper plates or cloth to protect the flange.



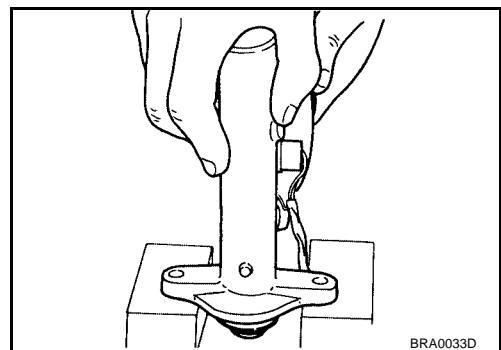
- Using a pin punch [commercial service tool: diameter approx. 4 mm (0.16 in)], remove mounting pins on the reservoir tank.
- Remove master cylinder assembly from the vise.
- Remove brake fluid level switch, if necessary.
- Remove reservoir tank and grommet from cylinder body.



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



- 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.

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

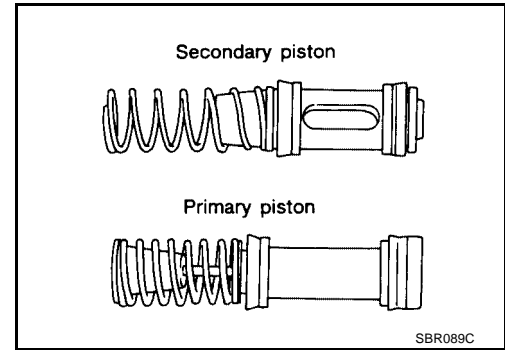
BRAKE MASTER CYLINDER

- **Do not drop parts. If a part is dropped, do not use it.**

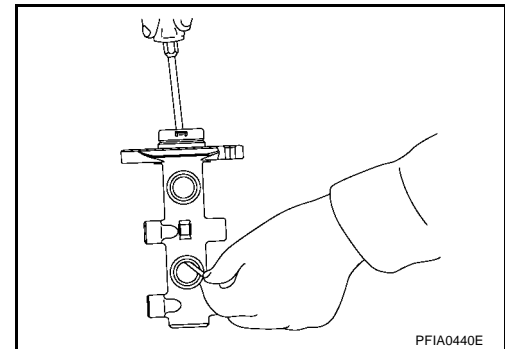
1. Apply fluid to cylinder inner wall body and contact surface of the piston assembly. Then insert secondary piston assembly and primary piston assembly into cylinder body in this order.

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.**



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:

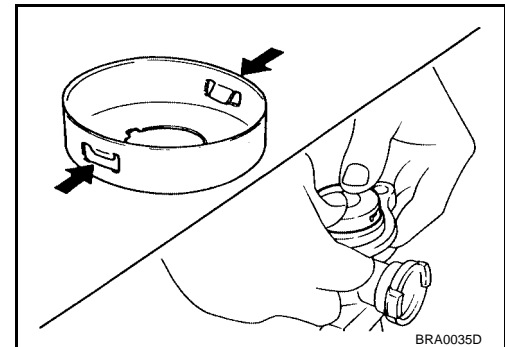
Do not reuse the stopper cap.

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.

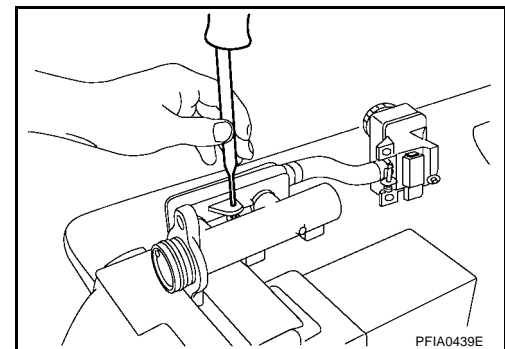


6. Using a pin punch [commercial service tool: diameter approx. 4 mm (0.16 in)], attach the reservoir tank mounting pin so that the attachment side and the opposite side are identical.

CAUTION:

Do not reuse reservoir tank grommet and mounting pin.

7. If necessary, install brake fluid level switch.



BRAKE MASTER CYLINDER

WITH VDC MODELS

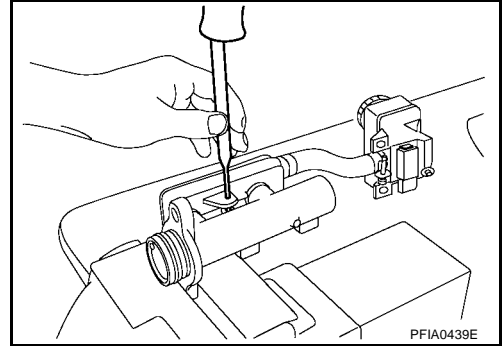
Disassembly

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:

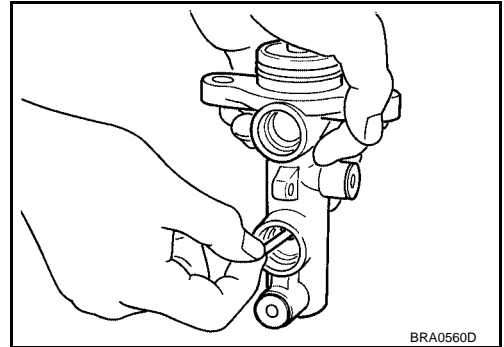
- When securing the master cylinder assembly with the vise, be sure not to over-tighten.
- When securing in a vise, use copper plates or cloth to protect the flange.



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.
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.

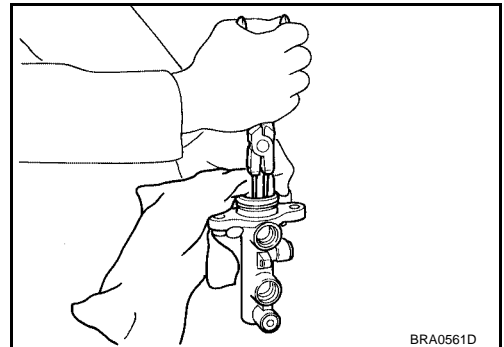
CAUTION:

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.

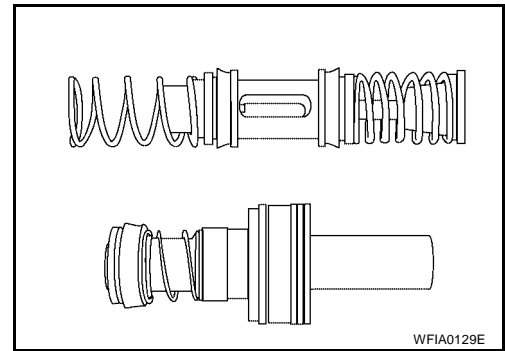
A
B
C
D
E
BR
G
H
I
J
K
L
M

BRAKE MASTER CYLINDER

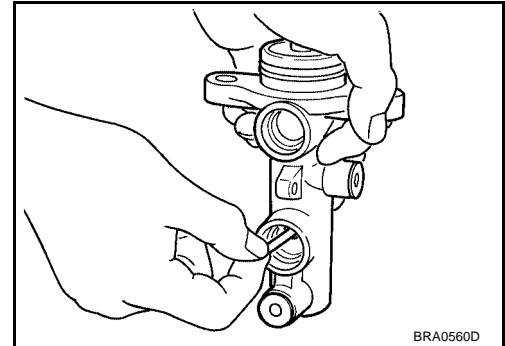
1. Apply fluid to cylinder inner wall body and contact surface of the piston assembly. Then insert secondary piston assembly and primary piston assembly into cylinder body.

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.



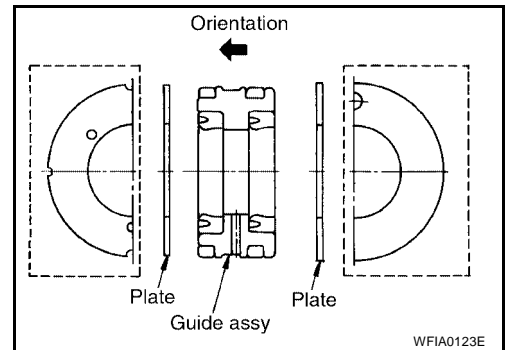
2. Align the slit in the center of the secondary piston with the axial direction of the piston stopper. Visually check the secondary piston slit from the piston stopper hole and install the piston stopper.



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.

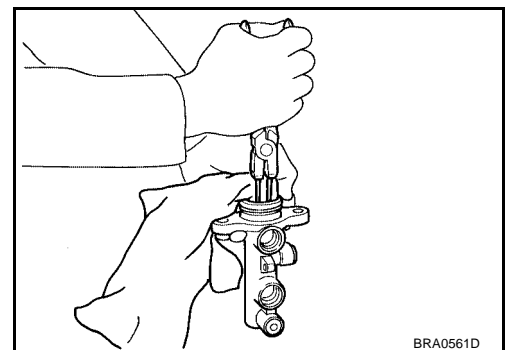


4. Press in the primary piston and install a new snap ring.

CAUTION:

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

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

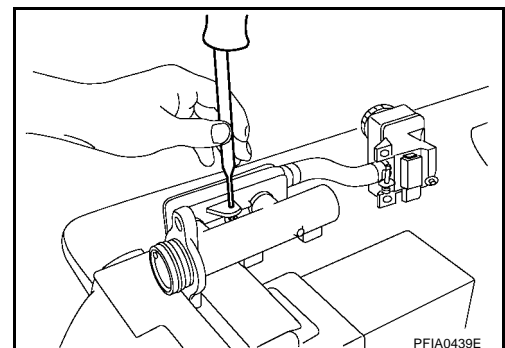


6. Using a pin punch [commercial service tool: diameter Approx. 4 mm (0.16 in)], attach the reservoir tank mounting pin so that the attachment side and the opposite side are identical.

CAUTION:

- Do not reuse reservoir tank grommet and mounting pin.

7. If necessary, install brake fluid level switch.



BRAKE BOOSTER

PFP:47200

EFS0032M

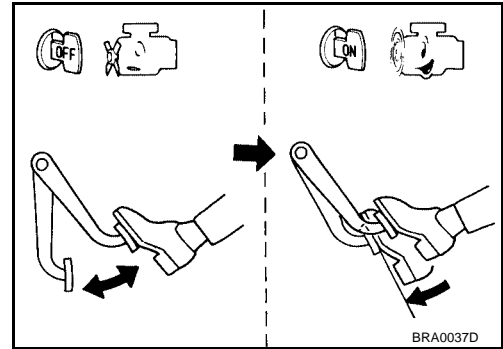
BRAKE BOOSTER

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.

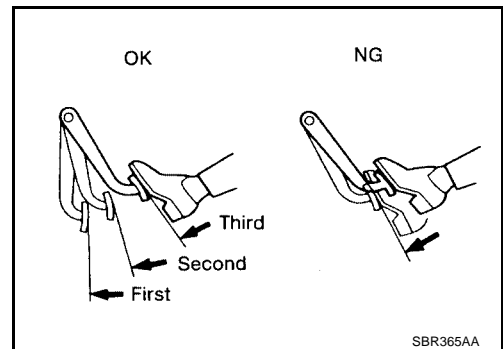


AIRTIGHT CHECK

- 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.

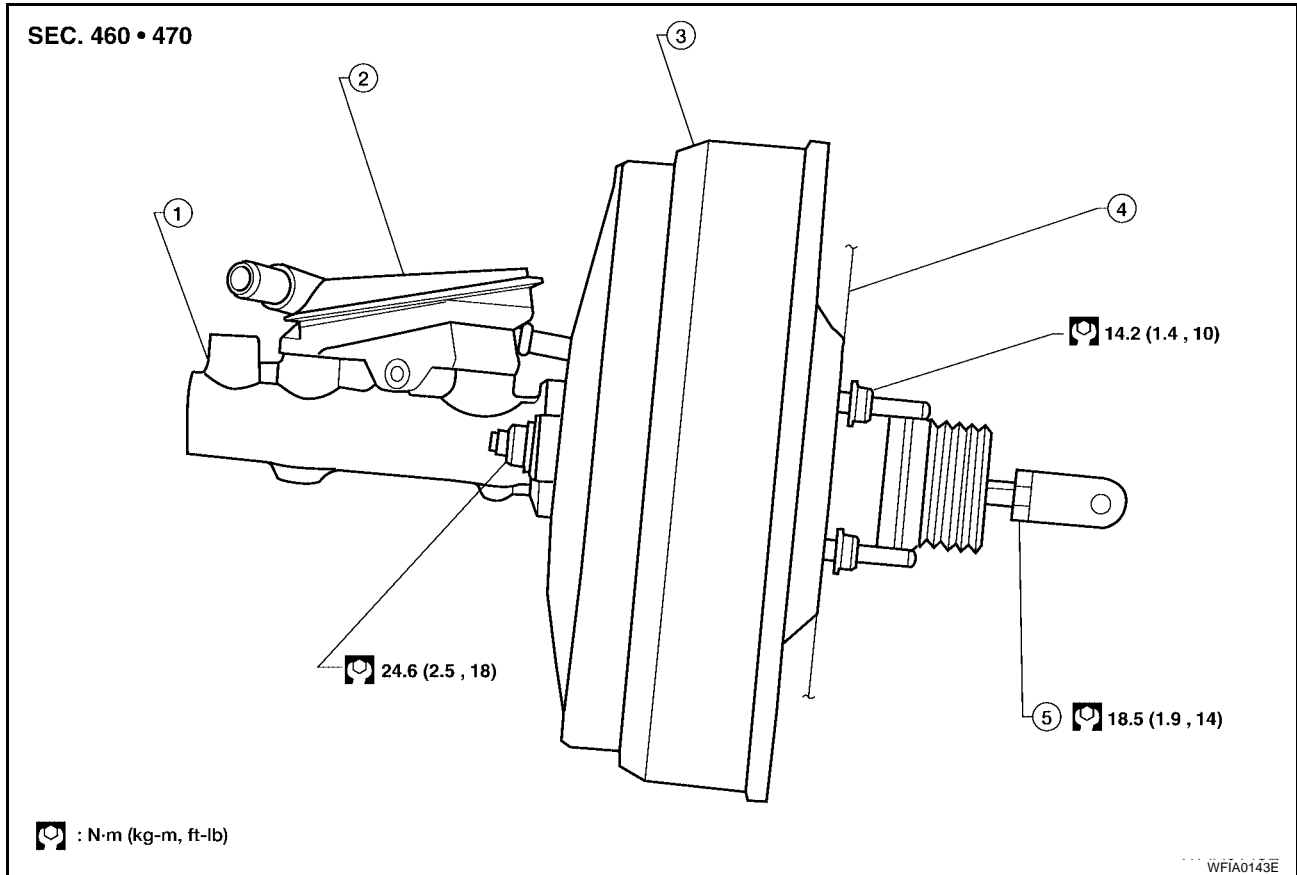


A
B
C
D
E
BR
G
H
I
J
K
L
M

BRAKE BOOSTER

Removal and Installation

EFS0032N



1. Master cylinder

2. Reservoir tank

3. Brake booster

4. Gasket

5. 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 the cowl top and cowl top extension. Refer to [EI-18, "Removal and Installation"](#) .
 2. Remove the brake master cylinder. Refer to [BR-15, "Removal and Installation"](#) .
 3. Remove vacuum hose from the brake booster. Refer to [BR-24, "Removal and Installation"](#) .
 4. Remove lower driver instrument panel. Refer to [IP-12, "Instrument Lower Panel LH"](#) .
 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.

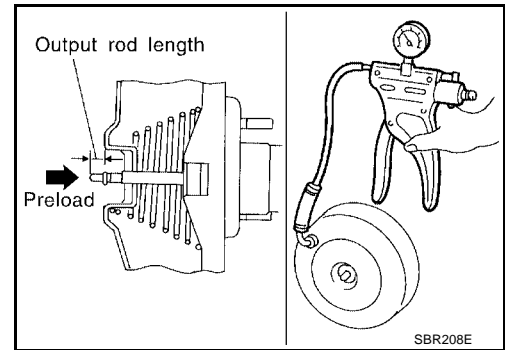
BRAKE BOOSTER

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 of (-66.7 kPa) [(-500 mmHg), (-19.69 inHg)] : 10.275 – 10.525 mm (0.4045 – 0.4144 in)



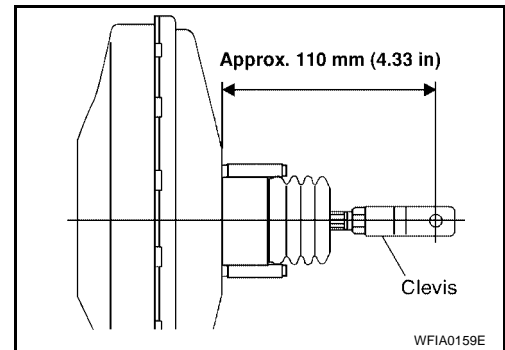
INSTALLATION

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

Standard value : 110 mm (4.33 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 assembly nuts : 14.2 N-m (1.4 kg-m, 10 ft-lb)



5. Install the brake piping from the brake master cylinder to ABS actuator. Refer to [BR-12, "Hydraulic Circuit"](#).
6. Install the brake master cylinder to the brake booster. Refer to [BR-15, "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 : 18.5 N-m (1.9 kg-m, 14 ft-lb)

9. Adjust brake pedal. Refer to [BR-6, "Inspection and Adjustment"](#).
10. Refill new brake fluid and bleed air. Refer to [BR-11, "Bleeding Brake System"](#).

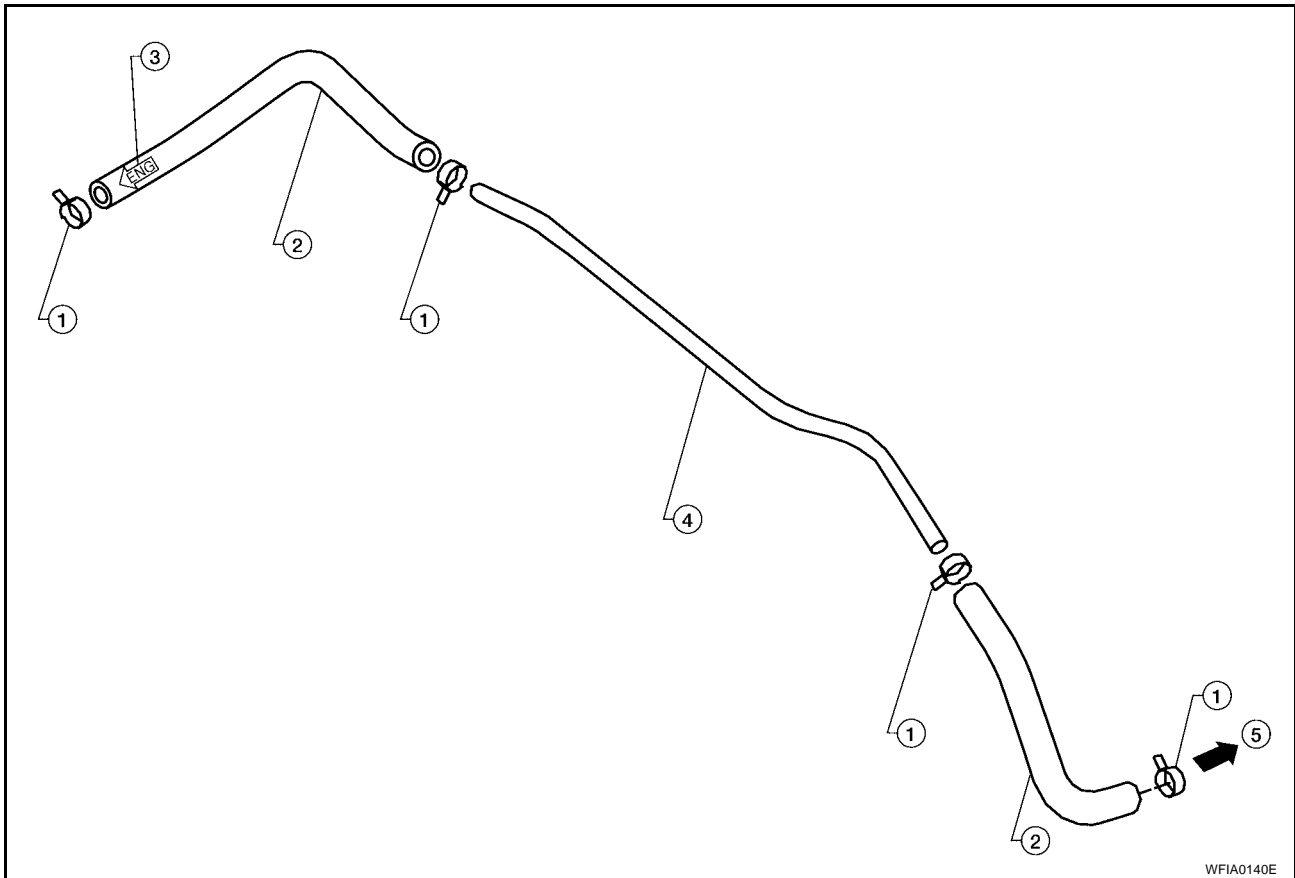
VACUUM LINES

PFP:41920

VACUUM LINES

Removal and Installation

EFS00320

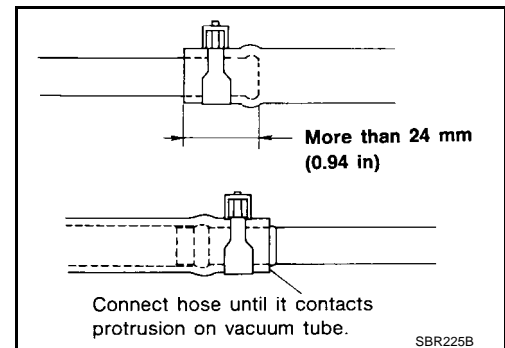


WFIA0140E

- | | | |
|------------------|------------------|---|
| 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.



SBR225B

VACUUM LINES

EFS0032P

Inspection VISUAL INSPECTION

Check for improper assembly, damage and deteriorate.

CHECK VALVE INSPECTION

Airtightness Inspection

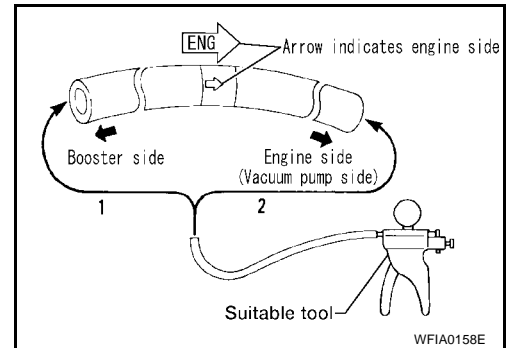
Use a hand-held vacuum pump to check.

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



A
B
C
D
E

BR

G
H
I
J
K
L
M

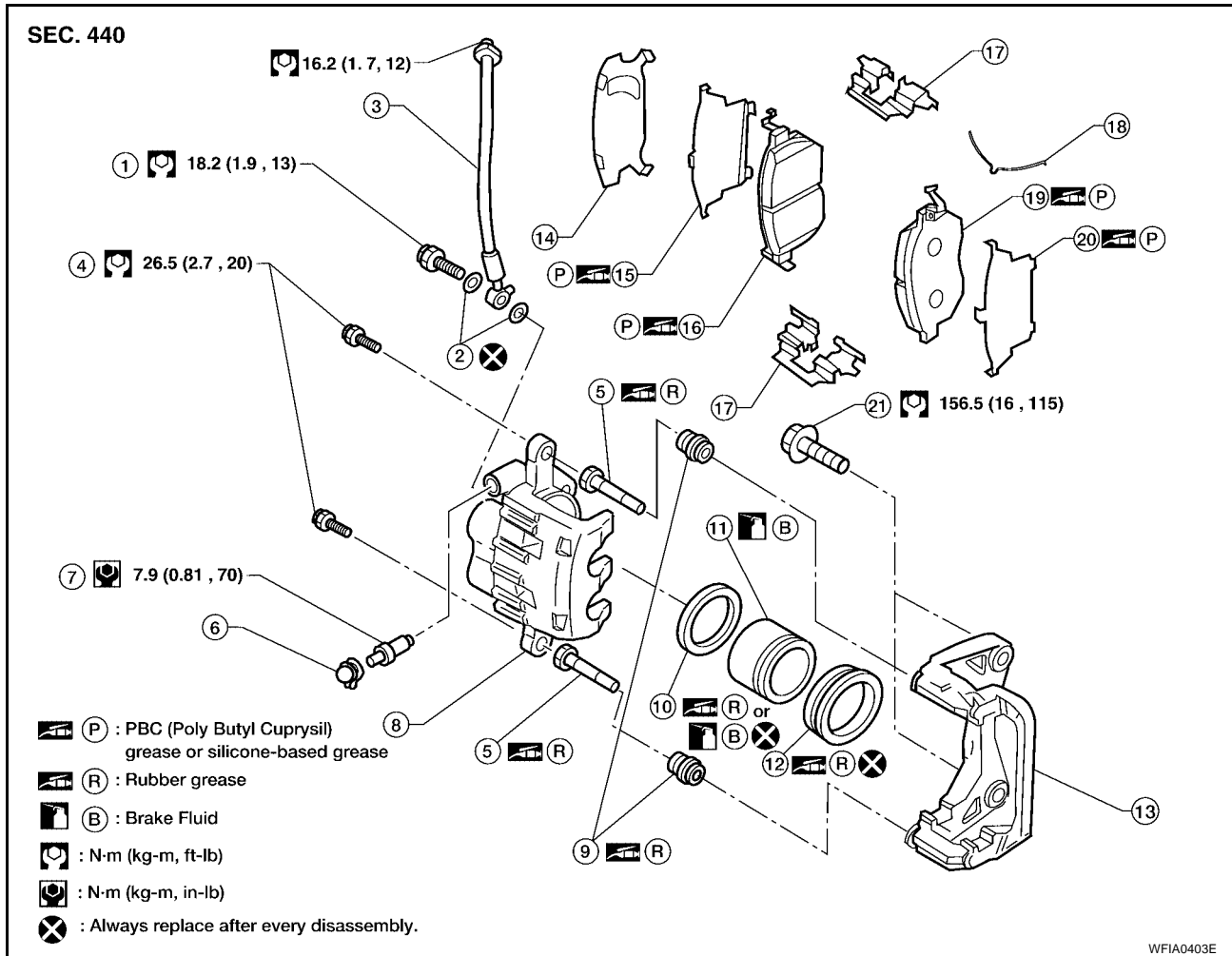
FRONT DISC BRAKE

FRONT DISC BRAKE

PFP:41000

Component

EFS0032Q



- | | | |
|---------------------|----------------------|------------------------|
| 1. Union bolt | 2. Copper washers | 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. Torque member bolt |

WARNING:

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

CAUTION:

- 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.
- 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-31, "Brake Burnishing"](#).

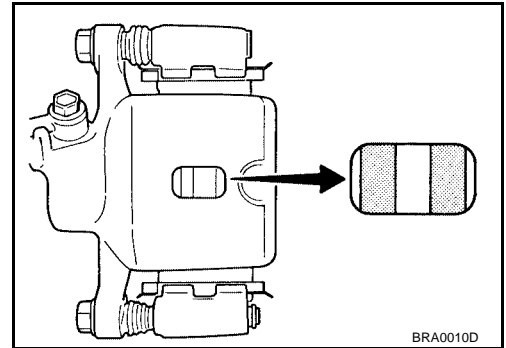
FRONT DISC BRAKE

On-board Inspection PAD WEAR INSPECTION

EFS0032R

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

Standard pad thickness : 10 mm (0.394 in)
Pad wear limit : 2.0 mm (0.079 in)



Removal and Installation of Brake Pad REMOVAL

EFS0032S

- Remove tires from vehicle using power tool.
- Remove lower sliding pin bolt.
- Hang the cylinder body with a wire and remove the pads, shims, and inner shim cover from the torque member.

INSTALLATION

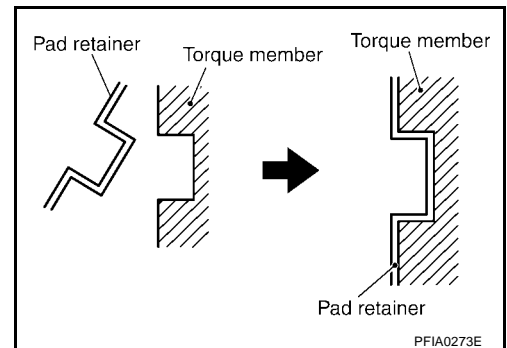
- Apply PBC (Poly Butyl Cuprysil) grease or silicone-based grease to the rear of the pad and to both sides of the shim, and attach the inner shim and shim cover to the inner pad, and the outer shim to the outer pad.
- Attach the pad retainer, inner pad, and outer pad to the torque member.
- Push the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



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

Sliding pin bolt : 26.5 N·m (2.7 kg·m, 20 ft·lb)

- Check brake for drag.
- Install the wheel and tire assemblies. Refer to [WT-6, "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-31, "Brake Burnishing"](#).

FRONT DISC BRAKE

EFS0032T

Removal and Installation of Caliper Assembly and Disc Rotor

REMOVAL

1. Remove the wheel and tire assemblies using power tool.
2. Drain brake fluid. Refer to [BR-11, "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:

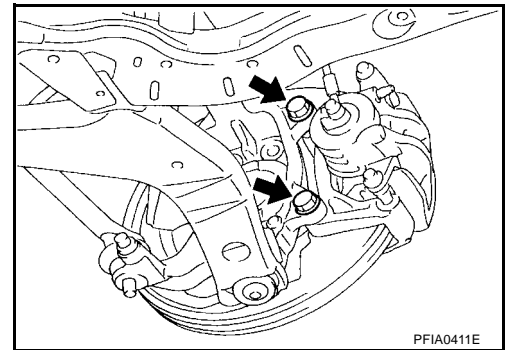
- Refill with new brake fluid. Refer to [MA-10, "Fluids and Lubricants"](#) .
- Never reuse drained brake fluid.

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 : 156.5 N-m (16 kg-m, 115 ft-lb)

CAUTION:

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

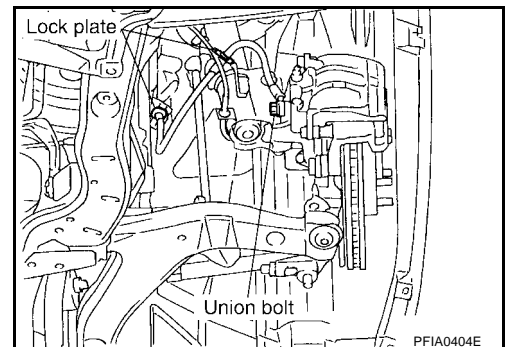


3. Install brake hose to the caliper assembly, and tighten union bolt to the specified torque.

Union bolt : 18.2 N-m (1.9 kg-m, 13 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-11, "Bleeding Brake System"](#) .
5. Install the wheel and tire assemblies. Refer to [WT-6, "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-31, "Brake Burnishing"](#) .

Disassembly and Assembly of Caliper Assembly

EFS0032U

DISASSEMBLY

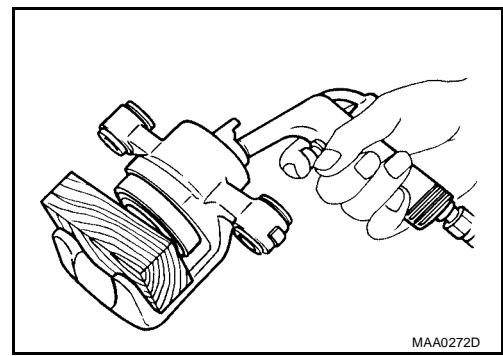
1. Remove the sliding pin bolt, and then remove the pad, shim, shim cover, and pad retainer from the torque member.
2. Remove sliding pins and sliding pin boots from torque member.

FRONT DISC BRAKE

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

WARNING:

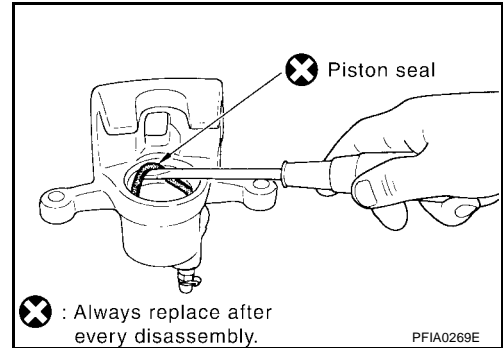
Do not get your fingers caught in the piston.



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.

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 Genuine NISSAN Rubber Grease (KRE00 00010 or KRE00 00010 01) when assembling.

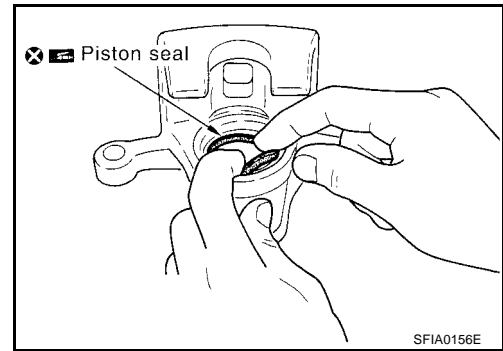
A
B
C
D
E
BR
G
H
I
J
K
L
M

FRONT DISC BRAKE

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.

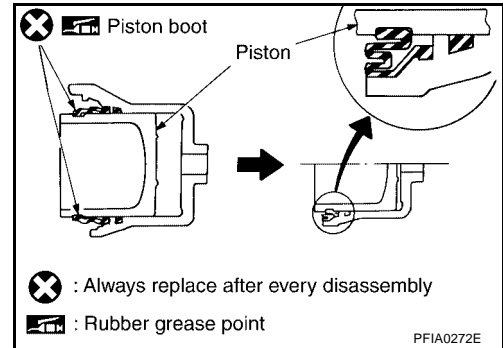
CAUTION:

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.

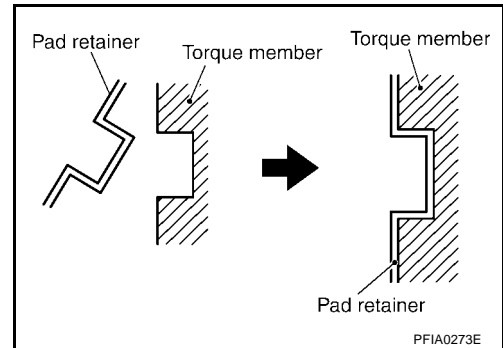


4. Install sliding pins and sliding pin boots to torque member.
5. Apply PBC (Poly Butyl Cuprysil) grease or silicone based grease, or equivalent, refer to [MA-10, "Fluids and Lubricants"](#), to the rear of the pad and to both sides of the shim, and attach the inner shim and inner shim cover to the inner pad, and the outer shim and outer shim cover to the outer pad.
6. 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.

7. After assembling the shims and the shim covers to the pad, install it to the torque member.



8. 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, secure disc rotor to the wheel hub in 2 or more positions.

FRONT DISC BRAKE

2. Inspect runout using a dial gauge.

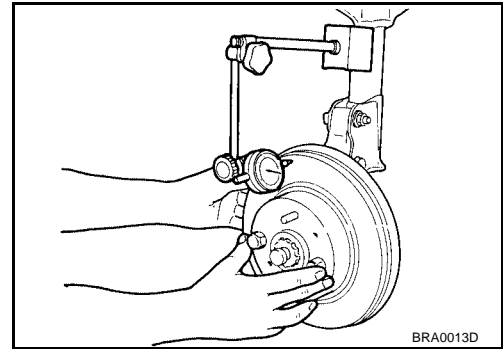
Measurement point : At a point 10 mm (0.39 in) from outer edge of the disc

Maximum runout (with it attached to the vehicle) : 0.04 mm (0.0016 in) or less

CAUTION:

Before measuring, make sure the axle end play 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.



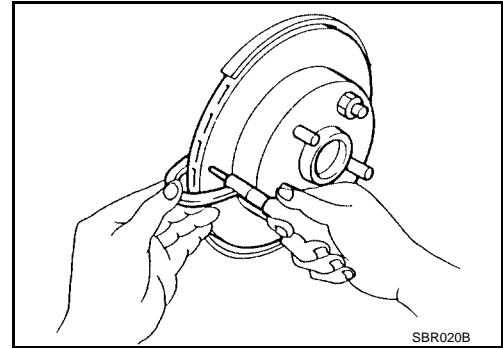
Thickness Inspection

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 thickness variation (measured at 8 positions) : 0.015 mm (0.0006 in) or less



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.

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

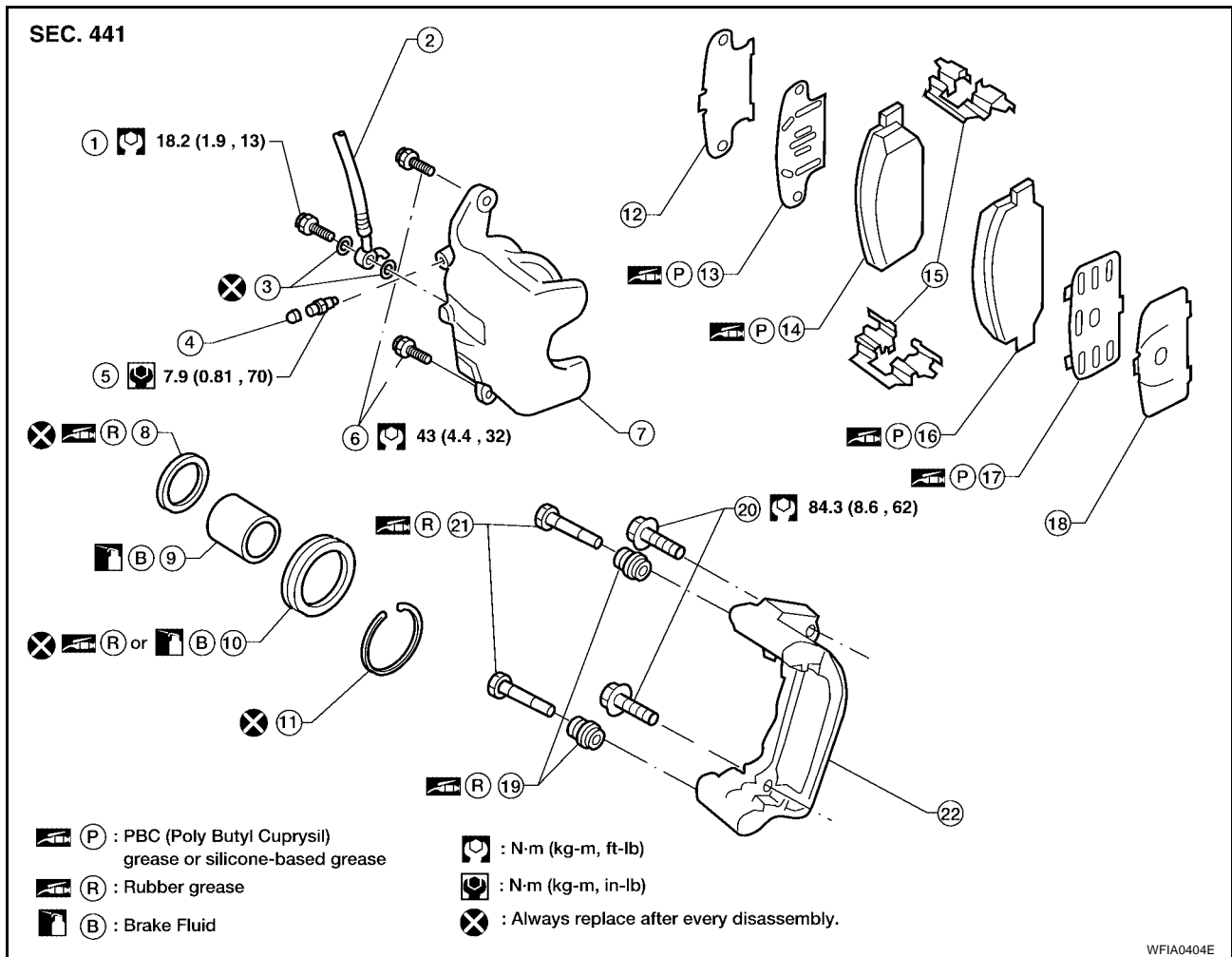
REAR DISC BRAKE

PFP:44000

EFS0032W

REAR DISC BRAKE

Component



- | | | |
|----------------------|------------------------|----------------------|
| 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 bolt | 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.
- 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.
- 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-37, "Brake Burnishing"](#).

REAR DISC BRAKE

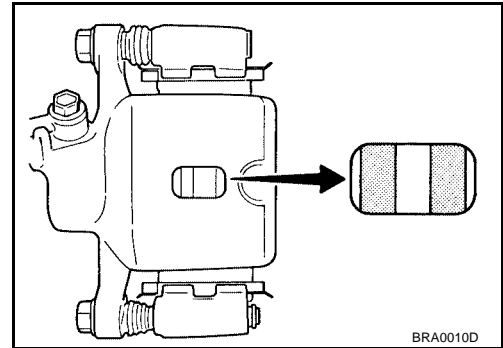
On-board Inspection PAD WEAR INSPECTION

EFS0032X

- 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

EFS0032Y

- Remove wheel and tires assemblies using 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 and the sub tank. Watch the brake fluid level in the sub 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.

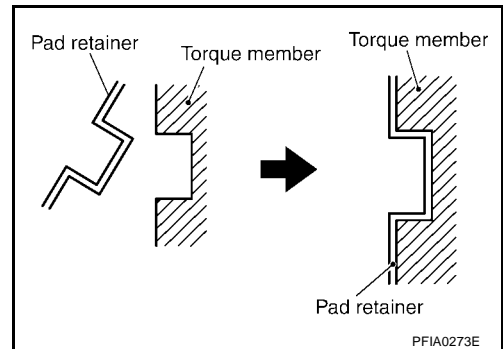
- Install the sliding pin bolt and tighten to the specified torque.

Sliding pin bolt : 43 N·m (4.4 kg·m, 325 ft·lb)

- Check the brake for any drag.
- Install the wheel and tire assemblies. Refer to [WT-6, "Rotation"](#).

CAUTION:

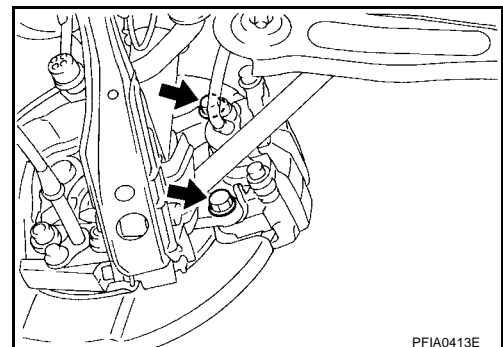
Burnish the brake contact surfaces when refinishing or replacing brake rotors, after replacing pads or linings, or if a soft pedal occurs at very low mileage. Refer to [BR-37, "Brake Burnishing"](#).



Removal and Installation of Caliper Assembly and Disc Rotor REMOVAL

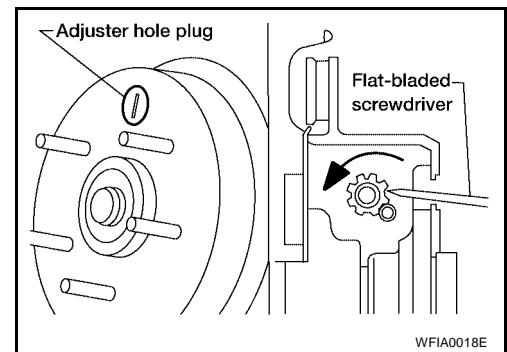
EFS0032Z

- Remove the wheel and tire assemblies using power tool.
- Drain brake fluid. Refer to [BR-11, "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 adjuster 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. Refer to [MA-10, "Fluids and Lubricants"](#) .
 - Never reuse drained brake fluid.
1. Install the disc rotor.
 - Align the marks made during removal on the hub and disc rotor.
 2. Install the caliper assembly, and tighten the torque member bolts to the specified torque.

Torque member bolts : 84.3 N·m (8.6 kg·m, 62 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 : 18.2 N·m (1.9 kg·m, 13 ft·lb)

CAUTION:

- Do not reuse the copper washer for the union bolts.
 - Securely attach the brake hose to the protrusion on the caliper assembly.
4. Add new brake fluid and bleed the air. Refer to [BR-11, "Bleeding Brake System"](#) .
 5. Adjust the parking brake. Refer to [PB-2, "ADJUSTMENT"](#) .
 6. Install the wheel and tire assemblies. Refer to [MA-25, "Tire Rotation"](#) .

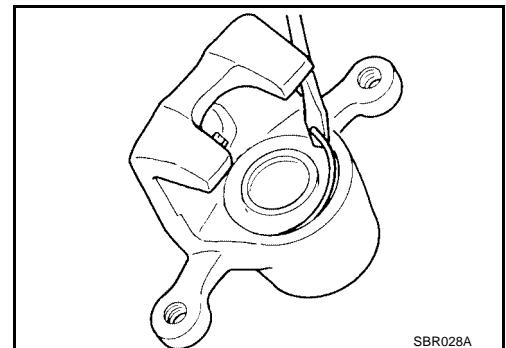
CAUTION:

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-37, "Brake Burnishing"](#) .

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 and cylinder.
2. Remove the sliding pin and the sliding pin boot from the torque member.
3. Remove the retaining ring from the cylinder body using a screwdriver or suitable tool, as shown.



EFS00330

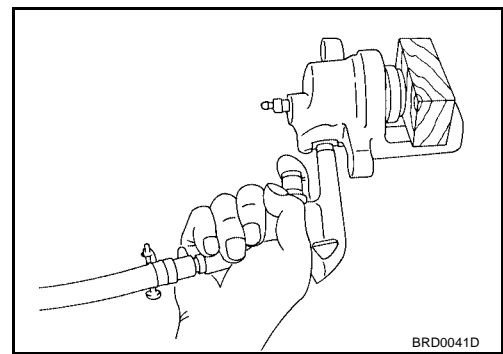
SBR028A

REAR DISC BRAKE

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

WARNING:

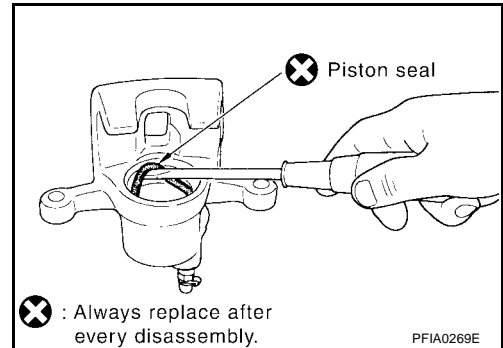
Do not place your finger in front of piston.



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

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 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

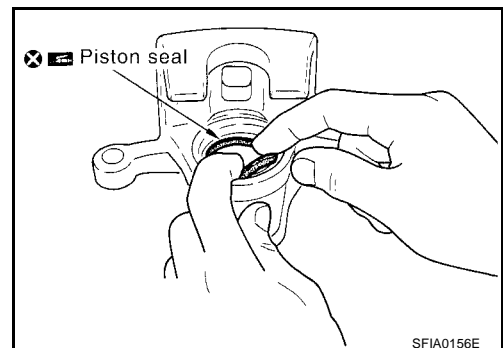
CAUTION:

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

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

CAUTION:

Do not reuse the piston seals.



REAR DISC BRAKE

- 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.

- Apply a 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 boot.

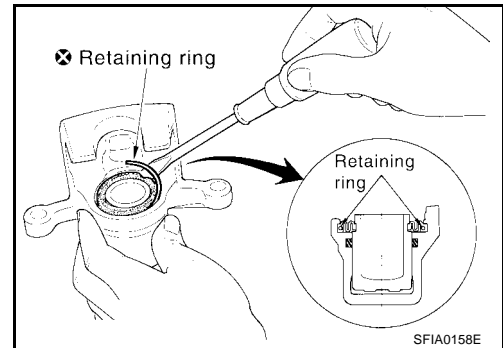
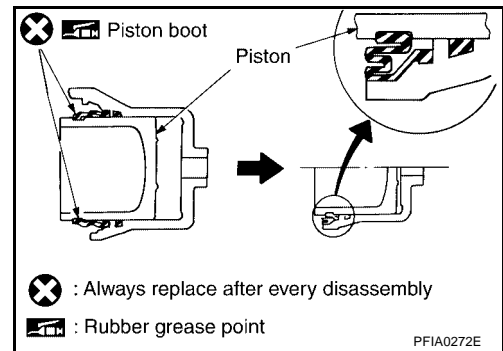
CAUTION:

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

- Fix piston boot with retaining ring.

CAUTION:

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

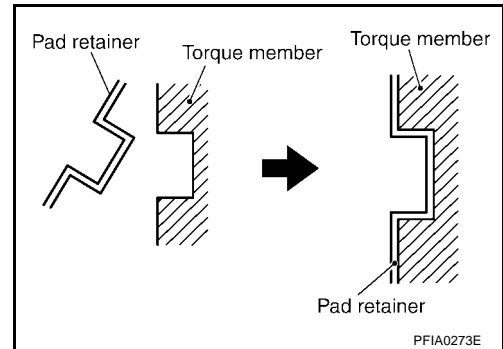


- Attach the sliding pin and sliding pin boot to the torque member.
- Apply PBC (Poly Butyl Cuprysil) grease or silicone-based grease, or equivalent, refer to [MA-10, "RECOMMENDED FLUIDS AND LUBRICANTS"](#) to the rear of the pad and to both sides of the shim, and attach the inner shim and shim cover 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.

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.

- After assembling shims and shim covers to pad, install it to the torque member.
- 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

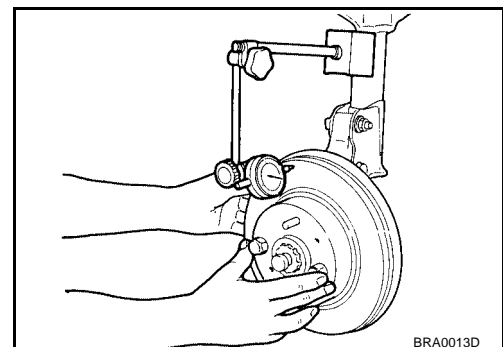
- Using wheel nuts, secure disc rotor to the wheel hub. (2 or more positions)
- Inspect runout using a dial gauge.

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 end play is 0 mm (0 in). Refer to [RAX-5, "On-Vehicle Inspection and Service"](#).



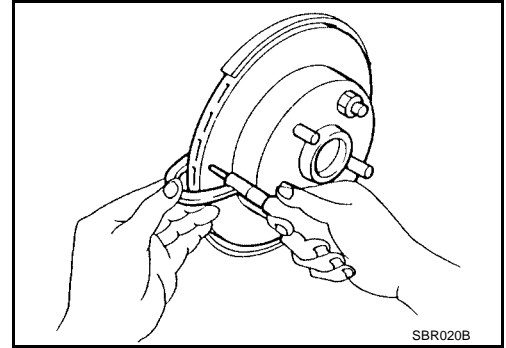
REAR DISC BRAKE

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.

Standard thickness	: 16.0 mm (0.630 in)
Minimum thickness	: 14.0 mm (0.551 in)
Maximum thickness variation (measured at 8 positions)	: 0.015 mm (0.0006 in) or less



EFS00331

Brake Burnishing

CAUTION:

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

NOTE:

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.

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.

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

SERVICE DATA AND SPECIFICATIONS (SDS)

SERVICE DATA AND SPECIFICATIONS (SDS)

PF0:00030

General Specifications

EFS00333

Unit: mm (in)

Front brake	Brake model		AD35VB disc brake
	Cylinder bore diameter		47.62 (1.87)
	Pad Length × width × thickness		132.0 × 53.5 × 10 (5.20 × 2.11 × 0.39)
	Rotor outer diameter × thickness		290 × 28 (11.42 × 1.10)
Rear brake	Brake model		AD14VE disc brake
	Cylinder bore diameter		42.86 (1.69)
	Pad Length × width × thickness		83.0 × 33.0 × 8.5 (3.27 × 1.30 × 0.33)
	Rotor outer diameter × thickness		308 × 16 (12.13 × 0.63)
Master cylinder	Cylinder bore diameter		25.4 (1.00)
Brake booster	Booster model		M245T
	Diaphragm diameter	Primary	252 (9.92)
		Secondary	230 (9.06)
Recommended brake fluid			Genuine NISSAN Super Heavy Duty Brake Fluid or equivalent, DOT 3 (US FMVSS No. 116)

Disc Brake

EFS00334

Unit: mm (in)

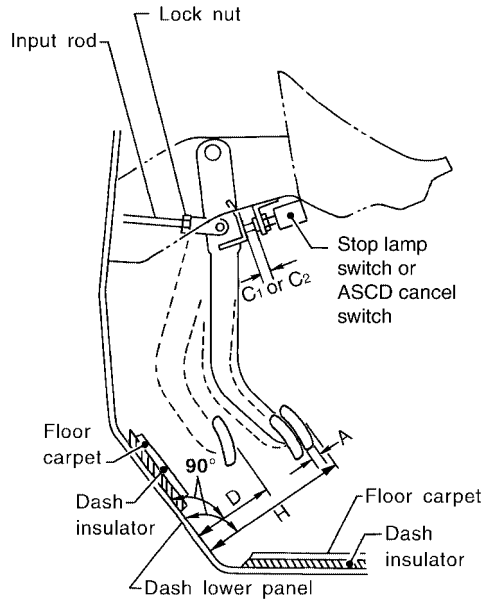
Brake model		AD35VB (Front)	AD14VE (Rear)
Pad wear limit	Minimum thickness	2.0 (0.079)	2.0 (0.079)
	Maximum runout	0.04 (0.0016)	0.05 (0.0020)
Rotor repair limit	Minimum thickness	26.0 (1.02)	14.0 (0.55)
	Maximum thickness variation (measured at 8 positions)	0.015 (0.0006) or less	

SERVICE DATA AND SPECIFICATIONS (SDS)

Brake Pedal

EFS00335

Unit: mm (in)



WFIA0160E

Free height "H" *	156.3 - 166.3 (6.15 - 6.55)
Depressed pedal height "D" [under a force of 490 N (50 kg, 110 lb) with engine running] *	more than 90.3 (3.55)
Clearance "C ¹ " or "C ² " between pedal stopper and threaded end of stop lamp switch or ASCD switch	0.74 - 1.96 (0.029 - 0.077)
Pedal play "A"	3 - 11 (0.12 - 0.43)

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

Brake Booster

EFS00337

Unit: mm (in)

Output rod length	10.275 - 10.525 (0.4045 - 0.4144)
Clevis length	110 (4.33)

SERVICE DATA AND SPECIFICATIONS (SDS)
