SECTION BR
BRAKE SYSTEM

CONTENTS

PRECAUTIONS

PFP:00001

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

EFS002FV

The Supplemental Restraint System such as “AIR BAG” and “SEAT BELT PRE-TENSIONER”, used along with a front seat belt, helps to reduce the risk or severity of injury to the driver and front passenger for certain types of collision. This system includes seat belt switch inputs and dual stage front air bag modules. The SRS system uses the seat belt switches to determine the front air bag deployment, and may only deploy one front air bag, depending on the severity of a collision and whether the front occupants are belted or unbelted.
Information necessary to service the system safely is included in the SRS and SB section of this Service Manual.

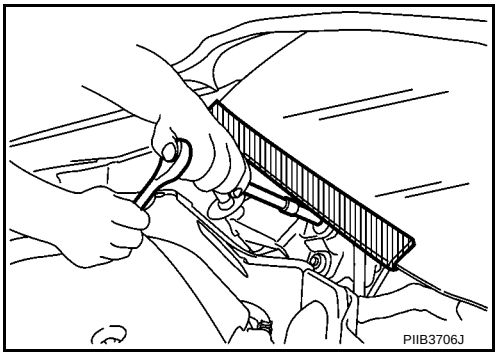
WARNING:

- **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 Procedures without Cowl Top Cover

EFS006DI

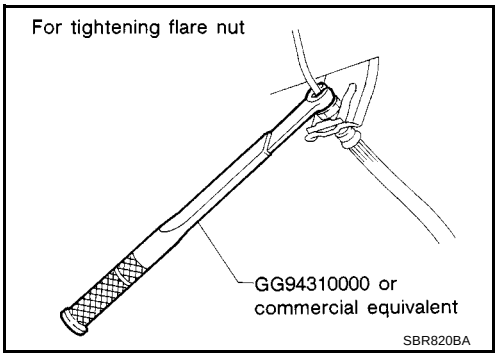
When performing the procedure after removing cowl top cover, cover the lower end of windshield with urethane, etc.



Precautions for Brake System

EFS002FW

- Clean dust on front brake and rear brake with a vacuum dust collector. Do not blow with compressed air.
- Recommended fluid is brake fluid “DOT 3” or “DOT 4”.
- Never reuse drained brake fluid.
- Be careful not to splash brake fluid on painted areas; it may cause paint damage. If brake fluid is splashed on painted areas, wash it away with water immediately.
- To clean or wash all parts of master cylinder, disc brake caliper and wheel cylinder, use new brake fluid.
- Never use mineral oils such as gasoline or kerosene. They will ruin rubber parts of the hydraulic system.
- Use a flare nut wrench when removing flare nuts, and use a flare nut torque wrench when tightening flare nuts.
- Always tighten brake lines to the specified torque when installing.
- Before working, turn ignition switch OFF and disconnect electrical connector of ABS actuator and electric unit (control unit) or the battery cables.
- Burnish the 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-26, "BRAKE BURNISHING PROCEDURE" .

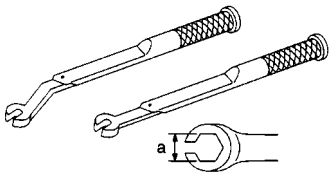


PREPARATION

PFP:00002

Special Service Tools

EFS002G1

Tool number Tool name		Description
GG94310000 Flare nut torque wrench a: 10 mm (0.39 in)	 NT406	Removing and installing each brake piping

NOISE, VIBRATION AND HARSHNESS (NVH) TROUBLESHOOTING

PFP:00003

NVH Troubleshooting Chart

EFS002IV

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

			Reference page	BR-21, BR-28	BR-21, BR-28	—	—	BR-25, BR-29	BR-25	—	—	—	BR-26	NVH in FAX, RAX and FSU, RSU section	NVH in WT section	NVH in WT section	NVH in FAX section	NVH in PS section
			Possible cause and SUSPECTED PARTS	Pads or linings - damaged	Pads or linings - uneven wear	Return spring damaged	Rotor or drum imbalance	Rotor or drum damage	Rotor runout	Rotor or drum deformation	Rotor or drum deflection	Rotor or drum rust	Rotor thickness variation	AXLE AND SUSPENSION	TYRES	ROAD WHEEL	DRIVE SHAFT	STEERING
Symptom	BRAKE	Noise		×	×	×								×	×	×	×	×
		Shake					×							×	×	×	×	×
		Shimmy, Judder					×	×	×	×	×	×	×	×	×	×		×

X: Applicable

BRAKE PEDAL

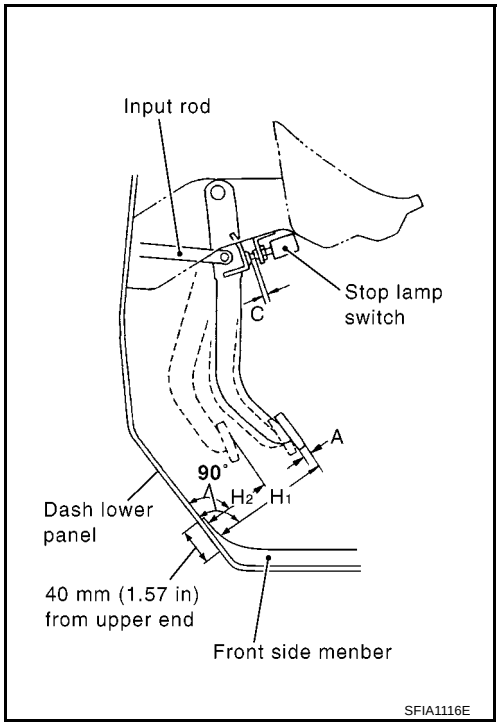
PFP:46501

Inspection and Adjustment

EFS002G6

PLAY AND CLEARANCE BETWEEN BRAKE PEDAL AND FLOOR PANEL WITH PEDAL DEPRESSED.

- Check the pedal play.
- Check the brake pedal free height from the dash floor panel.
- If value is outside the standard, make an adjustment to the following dimension.

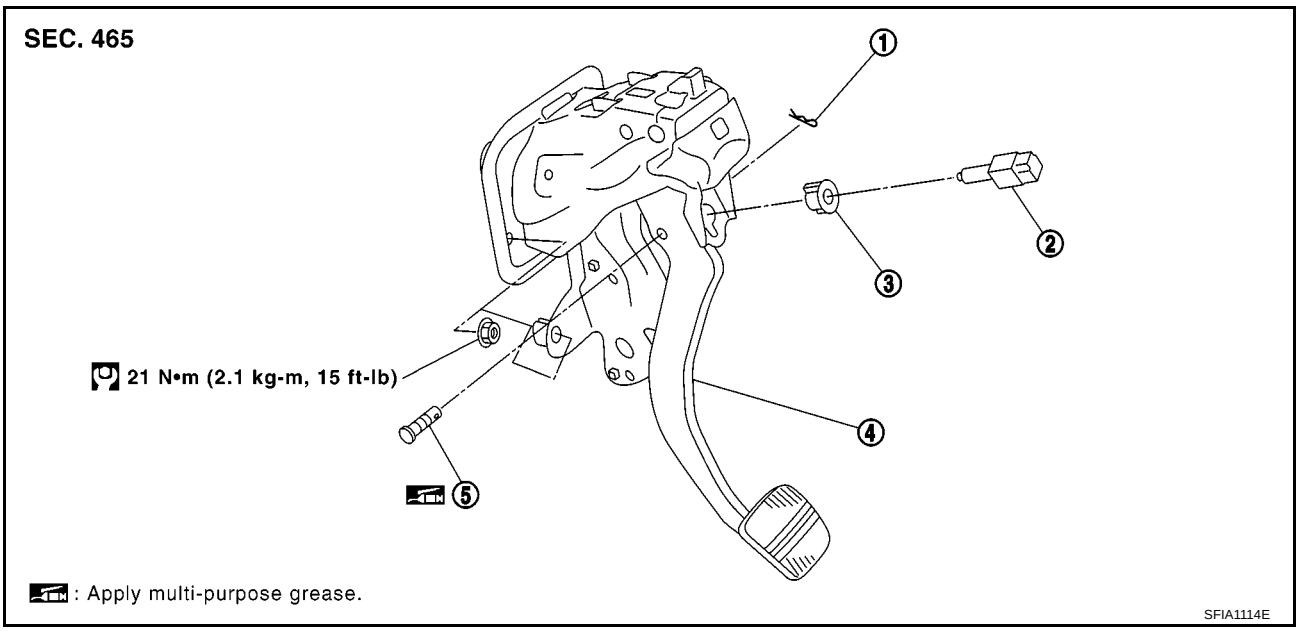


H_1	Brake pedal height	LHD	M/T models	161 - 171 mm (6.34 - 6.73 in)
			A/T models	171 - 181 mm (6.73 - 7.13 in)
		RHD	M/T models	156 - 166 mm (6.14 - 6.54 in)
			A/T models	166 - 176 mm (6.54 - 6.93 in)
H_2	Depressed pedal height [under a force of 490 N (50 kg, 110 lb) with the engine running]		M/T models	80 mm (3.15 in) or more
			A/T models	85 mm (3.35 in) or more
C	Clearance between the stopper rubber and the threaded end of stop lamp switch.			0.74 - 1.96 mm (0.029 - 0.077 in)
A	Pedal play			3 - 11 mm (0.12 - 0.43 in)

Removal and Installation

EFS002G7

COMPONENTS



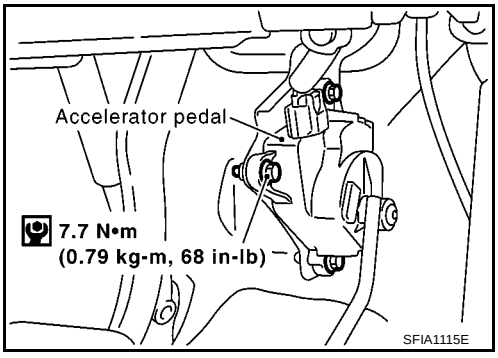
1. Snap pin
2. Stop lamp switch
3. Clip
4. Brake pedal assembly
5. Clevis pin

CAUTION:

- **Be careful not to deform brake tube.**
- **Do not strike the brake pedal assembly against anything during removal and installation.**

REMOVAL

1. Remove instrument lower driver panel. Refer to IP-4, "INSTRUMENT PANEL ASSEMBLY" .
2. Remove accelerator pedal harness clip and connector.
3. Disconnect stop lamp switch harness connector and remove stop lamp switch from the pedal assembly. (Remove it by rotating the switch by 45°)
4. Remove snap pin and clevis pin from the brake booster clevis.
5. Remove pedal assembly mounting nut and then remove pedal assembly from the vehicle while moving the master cylinder and brake booster to the engine room side while being careful not to deform the brake tube.
6. Remove accelerator pedal from the brake pedal.



INSPECTION AFTER REMOVAL

- Check brake pedal for bend, damage, and cracks on the welded parts. Replace applicable part if any non-standard condition is detected.

INSTALLATION

- For information regarding the tightening torque, refer to BR-7, "COMPONENTS" . Install in the reverse order of removal.
- After installing brake pedal assembly to the vehicle, adjust brake pedal.

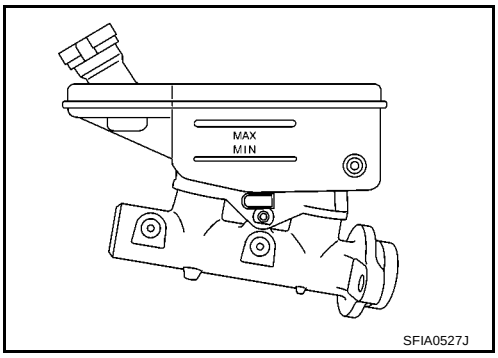
BRAKE FLUID

PFP:KN100

Level Inspection

EFS002G8

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



SFIA0527J

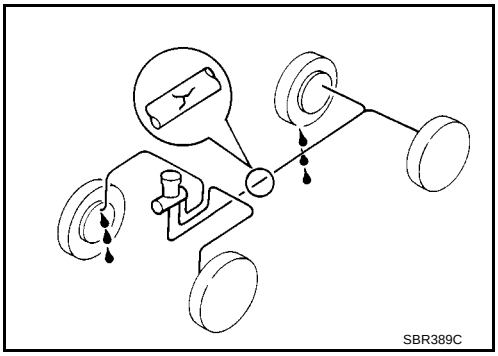
Checking Brake Line

EFS002G9

CAUTION:

If leakage occurs around joints, retighten or, if necessary, replace damaged parts.

1. Check brake line (tubes and hoses) for cracks, deterioration or other damage. Replace any damaged parts.
2. Check for oil leakage by fully depressing brake pedal while engine is running.


SBR389C

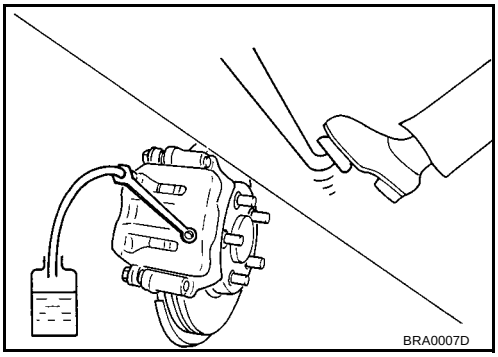
Drain and Refill

EFS002GA

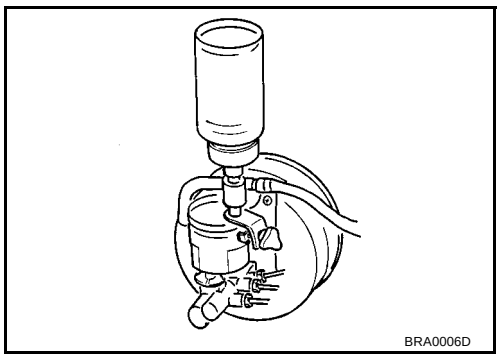
CAUTION:

- **Refill with new brake fluid “DOT 3” or “DOT 4”.**
- **Do not mix different types of brake fluid (DOT 3, DOT 4).**
- **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. Turn ignition switch OFF, and remove ABS actuator connector.
2. Connect a vinyl tube to the air bleeder.
3. Drain brake fluid gradually from the air bleeder of each wheel while depressing the brake pedal.


BRA0007D

4. Make sure that there is no foreign material in the reservoir tank, and refill with new brake fluid.
5. Rest foot on brake pedal. Loosen air bleeder. Slowly depress pedal until it stops. Tighten air bleeder. Release brake pedal. Repeat this process a few times, then pause to add new brake fluid to master cylinder. Continue until new brake fluid flows out. For information regarding air bleeding work, refer to BR-10, "Bleeding Brake System" .


BRA0006D

Bleeding Brake System

EFS002GB

CAUTION:

- **While bleeding, pay attention to master cylinder fluid level.**
- **Fill reservoir with new brake fluid “DOT 3” or “DOT 4”**
- **Do not mix different types of brake fluid (DOT 3, DOT 4)**

1. Turn ignition switch OFF, and remove ABS actuator connector.
2. Connect a vinyl tube to the rear left wheel air bleeder.
3. Fully depress brake pedal 4 to 5 times.
4. With brake pedal depressed, loosen air bleeder and bleed air, and then quickly tighten the air bleeder.
5. Repeat steps 3 - 4 until all of the air is out of the brake line.
6. Tighten the air bleeder to the specified torque.

Tightening torque : 10 N·m (1.0 kg-m, 7 ft-lb)

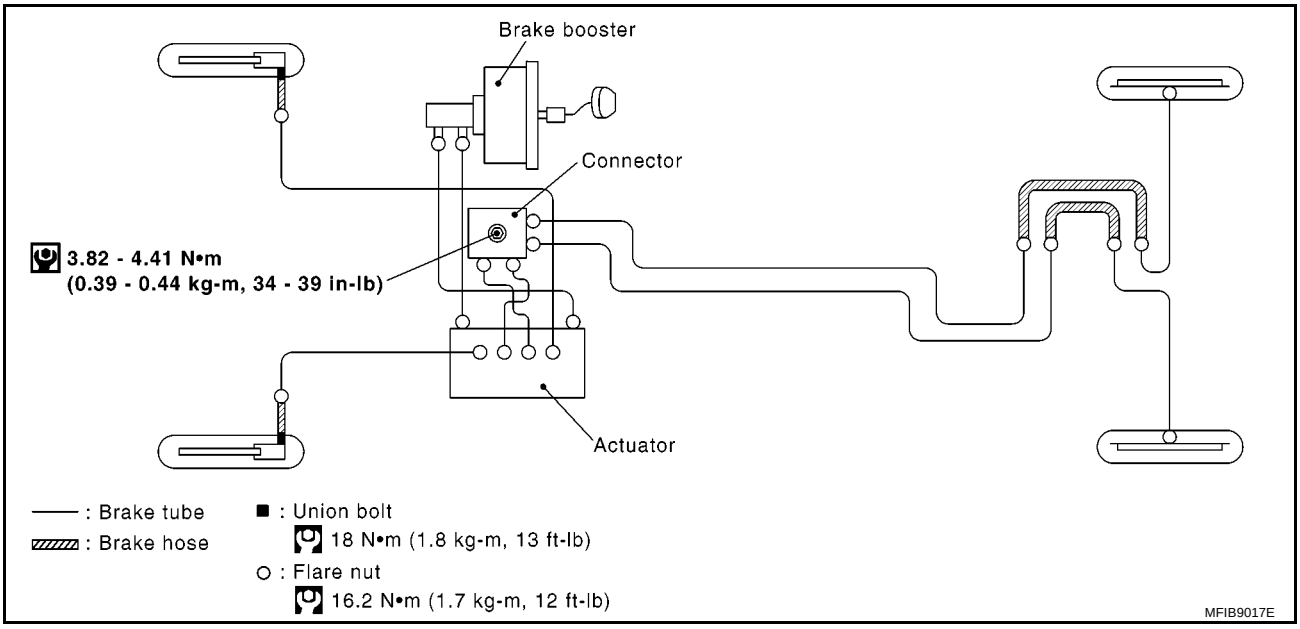
7. Repeat steps 2 to 6. Occasionally refill master cylinder reservoir tank with brake fluid in order to keep it at least half-full. Bleed air in the following order: front RH wheel, RH rear wheel, and front LH wheel.

BRAKE PIPING AND HOSE

PFP:46210

Hydraulic Circuit

EFS002GC



Removal and Installation of Front Brake Piping and Brake Hose

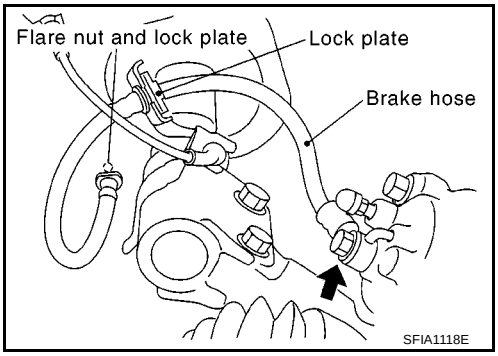
EFS002GD

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 hose must be free from excessive bending, twisting and pulling.**
- **Cover brake fluid line connections to prevent dust and other foreign material from entering.**

1. Drain brake fluid. Refer to BR-9, "Drain and Refill" .
2. Using a flare nut wrench, remove the flare nuts of the brake tube and disconnect the brake tube from the brake hose.
3. Remove brake caliper union bolts and disconnect caliper assembly from brake hose.
4. First remove the lock plate from the mounting positions of brake tubes and struts, and then brake hose.



INSTALLATION

CAUTION:

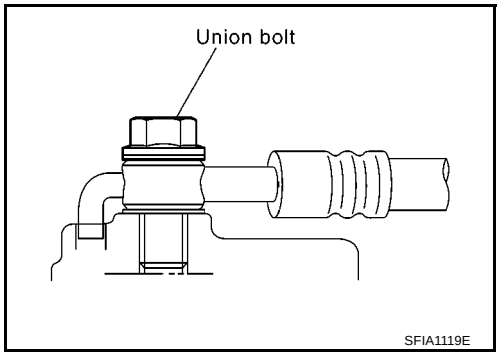
- **Refill with new brake fluid “DOT 3” or “DOT 4”.**
- **Do not mix different types of brake fluid (DOT3, DOT4).**
- **Never reuse the drained brake fluid.**

1. Install the brake hose to the caliper assembly and tighten union bolts to the specified torque.

   Tightening torque : 18 N·m (1.8 kg-m, 13 ft-lb)

   CAUTION:
   - **Install brake hose securely by inserting the hose fitting protrusion into the caliper hole.**
   - **Do not reuse the copper washer for union bolts.**
2. Connect brake hose to the strut and fix with lock plate.
3. Connect brake hose to brake tube. Temporarily tighten flare nuts by hand as far as they will go. Secure them with the lock plate.
4. Using a flare nut torque wrench, tighten to the specified torque.

   Tightening torque : 16.2 N·m (1.7 kg-m, 12 ft-lb)
5. Add new brake fluid. Refer to BR-9, "Drain and Refill" .
6. Bleed the air. Refer to BR-10, "Bleeding Brake System" .



Removal and Installation of Rear Brake Piping and Brake Hose

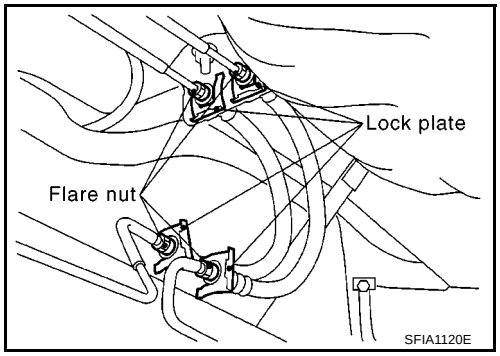
EFS002GE

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 hose must be free from excessive bending, twisting and pulling.**
- **Cover brake fluid line connections to prevent dust and other foreign material from entering.**

1. Drain brake fluid. Refer to BR-9, "Drain and Refill" .
2. Using a flare nut wrench, remove the flare nuts of the brake tube and disconnect the brake tube from the brake hose.
3. Remove the lock plate and remove the brake hose from the vehicle.



INSTALLATION

CAUTION:

- **Refill with new brake fluid “DOT 3” or “DOT 4”.**
- **Do not mix different types of brake fluid (DOT3, DOT4).**
- **Never reuse the drained brake fluid.**

1. Connect brake hose to the brake tube. Temporarily tighten flare nut by hand as far as it will go.
2. Secure brake hose with the lock plate, and then use a flare nut wrench to tighten the flare nuts to the specified torque.

   Tightening torque : 16.2 N·m (1.7 kg-m, 12 ft-lb)
3. Add new brake fluid. Refer to BR-9, "Drain and Refill" .
4. Bleed the air. Refer to BR-10, "Bleeding Brake System" .

Inspection

EFS002GF

CAUTION:

If leak is detected at the connections, retighten it or replace the damaged part if necessary.

1. Check hose, tube, and connections for fluid leaks, damage, twist, deformation, contact with other parts, and loose connections.
2. While depressing brake pedal with engine running for approximately 5 seconds, check for fluid leak from each part.

BRAKE MASTER CYLINDER

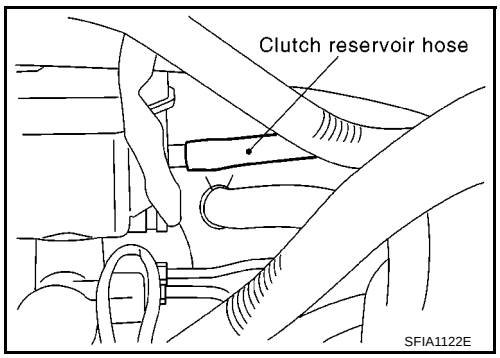
PFP:46010

Removal and Installation

EFS002GG

REMOVAL

1. Drain brake fluid. Refer to BR-9, "Drain and Refill" .
2. Remove harness connector of fluid level sensor.
3. Remove clutch reservoir hose. (M/T models)
4. Using a flare nut wrench, disconnect master cylinder assembly and brake tube.
5. First remove nuts on master cylinder assembly, and then master cylinder assembly from brake booster assembly.



INSTALLATION

1. Install brake tube to the master cylinder assembly and temporarily tighten the flare nuts by hand.
2. Install the master cylinder assembly to the brake booster assembly and tighten mounting nuts to the specified torque.

   Tightening torque : 14 N·m (1.4 kg-m, 10 ft-lb)

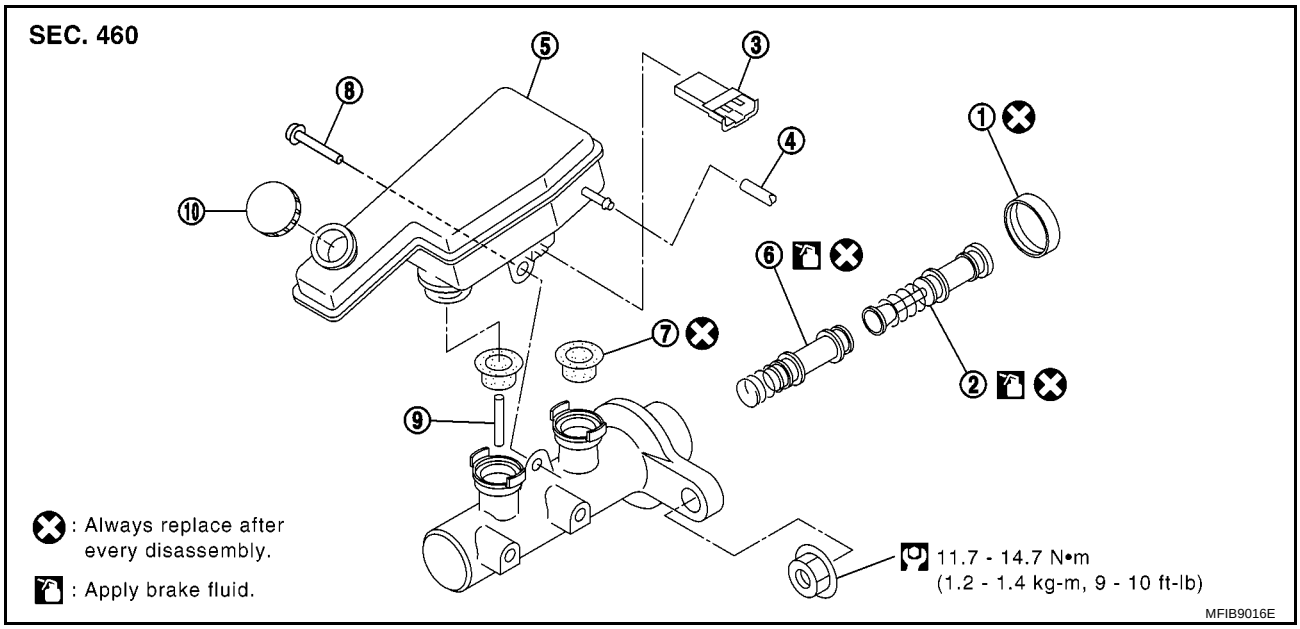
3. Tighten flare nuts of the brake tube to the specified torque.

   Tightening torque : 16.2 N·m (1.7 kg-m, 12 ft-lb)

4. Install the clutch reservoir hose. (M/T models)
5. Add new brake fluid. Refer to BR-9, "Drain and Refill" .
6. Bleed the air. Refer to BR-10, "Bleeding Brake System" .

Disassembly and Assembly

EFS002GH



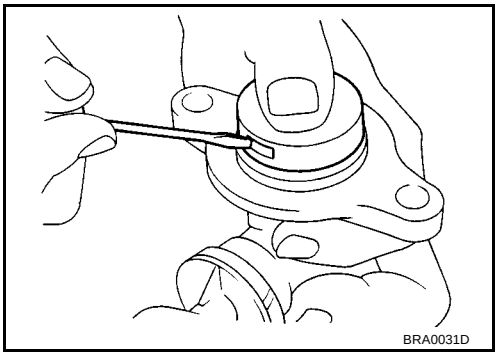
1. Stopper cap
2. Primary piston assembly
3. Fluid level sensor harness connector
4. Clutch reservoir hose (M/T models)
5. Reservoir tank
6. Secondary piston assembly
7. Grommet
8. Screw
9. Piston stopper
10. Reservoir tank cap

DISASSEMBLY

CAUTION:

Remove master cylinder reservoir tank only when necessary.

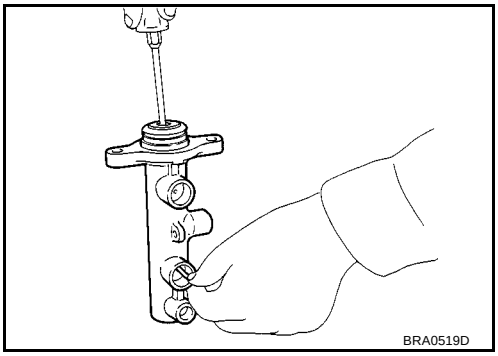
1. As shown in the figure, use a screwdriver to lift up the stopper cap hooks and remove the stopper cap from the master cylinder.



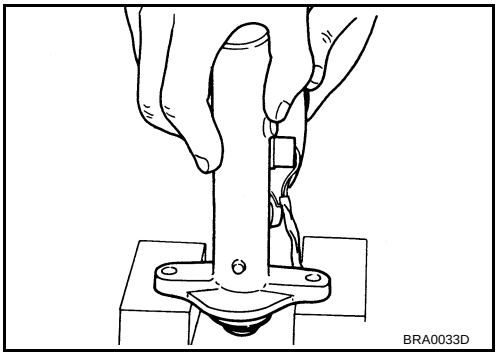
2. Remove reservoir tank mounting screw from cylinder body.
3. Remove reservoir tank and grommet from cylinder body.
4. Using a flat-bladed screwdriver, press and hold piston as shown in the figure. Remove piston stopper from secondary tank boss hole in the cylinder body.

   CAUTION:

   Be careful not to damage the inner wall of the cylinder.
5. Carefully pull the primary piston assembly straight out to prevent cylinder inner wall from being damaged.



6. Tap the flange against a soft block such as wood, and carefully pull the secondary piston assembly straight out to prevent cylinder inner wall from damage.



INSPECTION AFTER DISASSEMBLY

- Check inner wall of master cylinder for damage, wear, corrosion, and pinholes. Replace cylinder if any non-standard condition is detected.

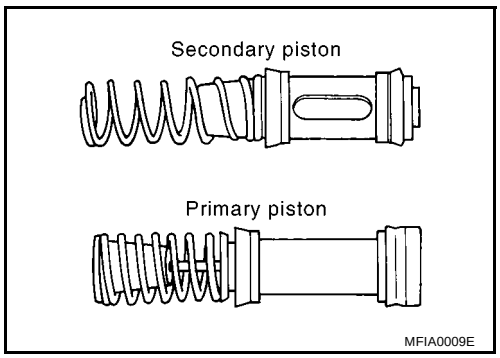
ASSEMBLY

CAUTION:

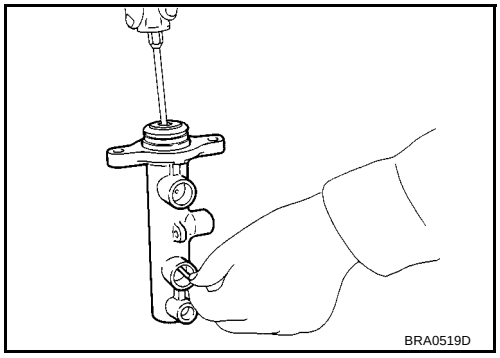
- **Never use mineral oils such as kerosene or gasoline during the cleaning and assembly processes.**
- **Make sure there is no foreign material such as dirt and dust on cylinder inner wall, piston, and cup seal. Be careful not to damage the parts with a service tool when assembling.**
- **Do not drop the parts. Do not use any dropped parts.**

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

   CAUTION:
   - **Do not reuse primary and secondary piston assemblies.**
   - **Pay attention to direction of piston cups, and insert straight to prevent the cup from being caught by the inner wall of the cylinder.**
   - **Do not disassemble the new part inner kit. Always replace it as a complete assembly.**



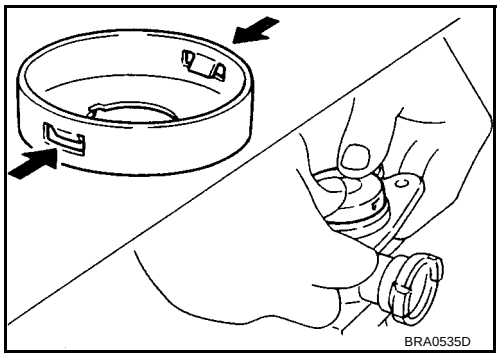
3. Visually check secondary piston slit position through cylinder body secondary tank boss hole and install piston stopper.



4. While holding the piston with the stopper cap, press the stopper cap fully until its tabs are engaged with the groove on the cylinder body to install.

   CAUTION:
   Do not reuse the stopper cap.
5. Apply brake fluid to a grommet, and press it into cylinder body.

   CAUTION:
   Do not reuse the grommet.
6. Install reservoir tank and reservoir tank mounting screw to cylinder body.



BRAKE BOOSTER

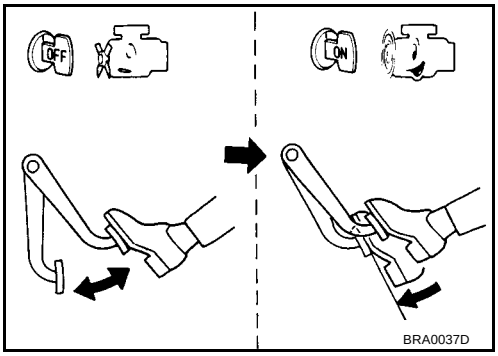
PFP:47200

On-Vehicle Service

EFS002GI

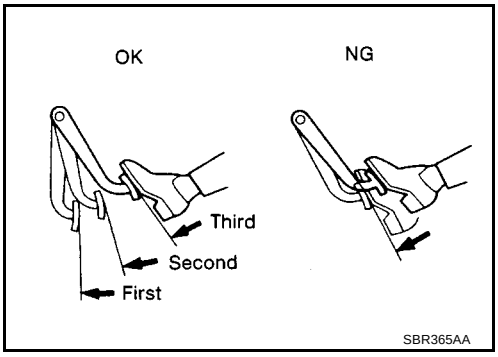
OPERATING CHECK

- Depress brake pedal several times with engine off, and check that there is no change in pedal stroke.
- Depress brake pedal, then start engine. If pedal goes down slightly, operation is normal.



AIRTIGHTNESS INSPECTION

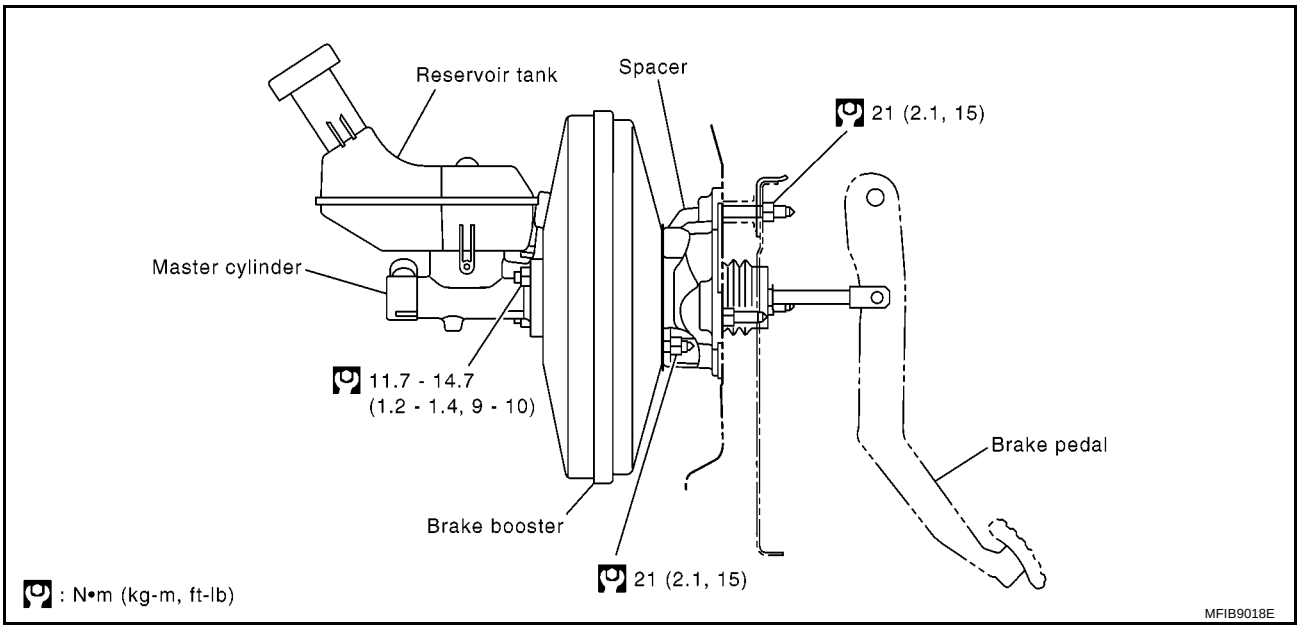
- Start engine, and stop it after one or two minutes. Depress brake pedal several times slowly. If pedal goes further down the first time and gradually rises after second or third time, booster is air-tight.
- Depress brake pedal while engine is running, and stop engine with pedal depressed. If there is no change in pedal stroke after holding pedal down 30 seconds, brake booster is airtight.



Removal and Installation

EFS002GJ

COMPONENTS



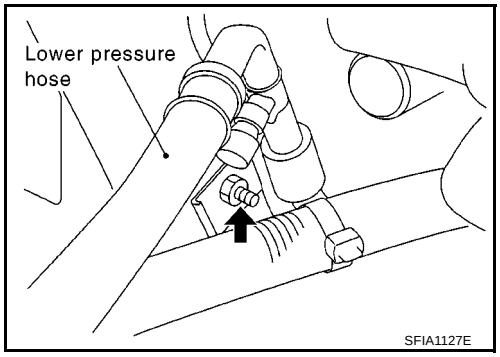
REMOVAL

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.**
- **Be sure to install check valve in the correct orientation.**

1. Remove the vacuum hose from the brake booster.

2. Remove brake master cylinder. Refer to BR-14, "Removal and Installation" .
3. Remove snap pin and clevis pin from the brake pedal mounting area via the vehicle cabin.
4. Remove brake booster and brake pedal assembly nuts.
5. Remove clutch master cylinder from the panel and pull it out through the engine room side and place it where it will not be in the way. Refer to CL-10, "Removal and Installation" (M/T models).
6. Remove the air conditioner lower pressure hose holding bracket.
7. Remove cowl top cover. Refer to EI-13, "Removal and Installation" .
8. Remove booster assembly from engine room.



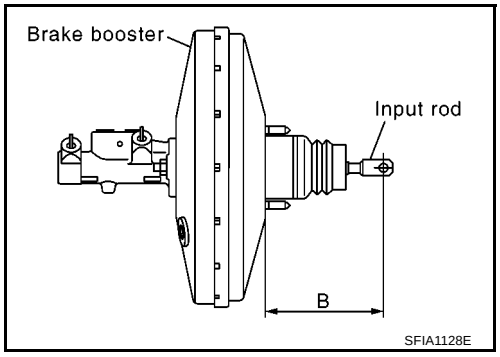
INSTALLATION

1. Check input rod length so that length B (in the figure) satisfies the specified value.

Length B standard

LHD models : 158.25 mm (6.23 in)

RHD models : 115.35 mm (4.54 in)



2. Install booster assembly in the vehicle.

CAUTION:

Be sure to install the gasket between the booster assembly and the vehicle.

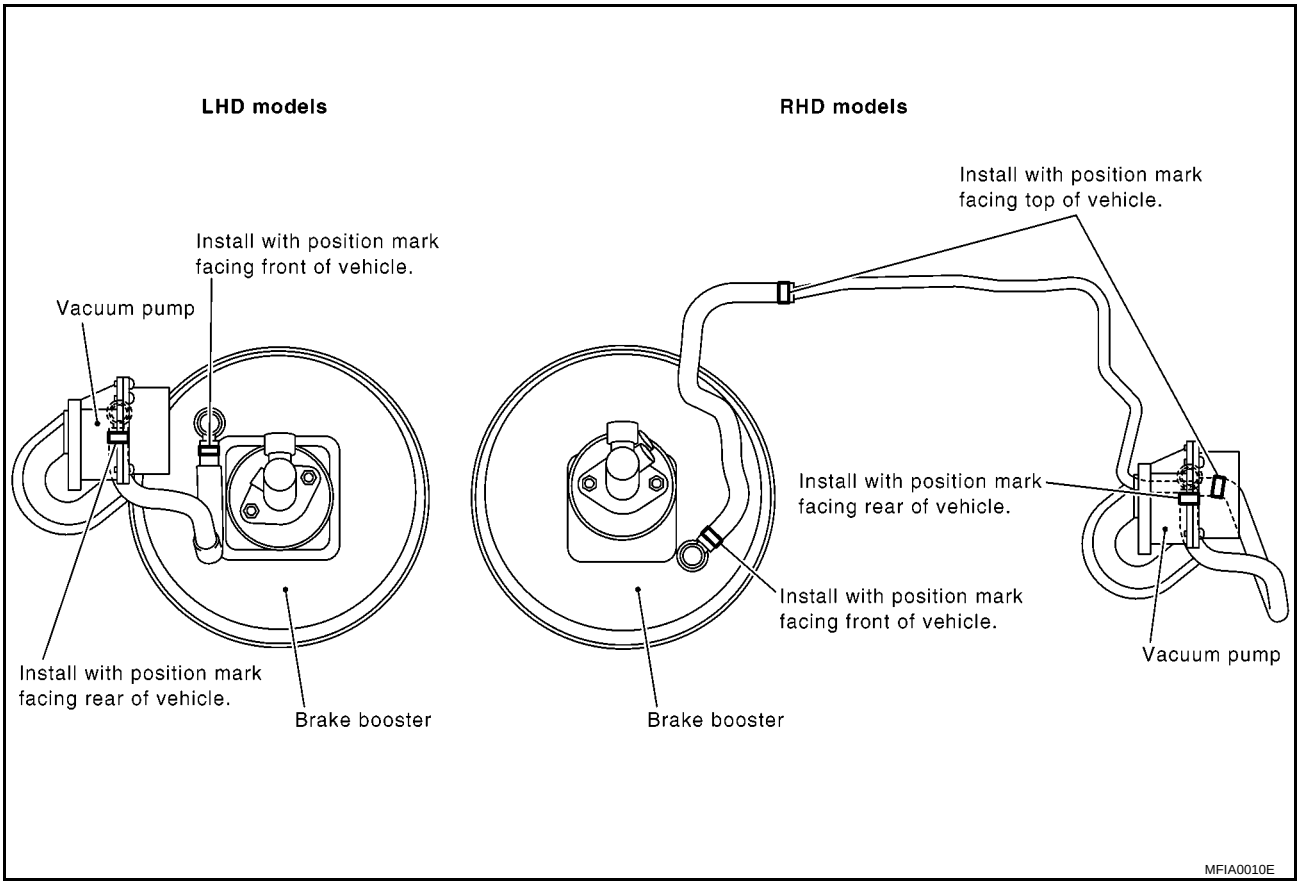
3. Connect the brake pedal with the clevis of the input rod.
4. Install nuts to booster assembly and tighten to the specified torque.
5. Install brake master cylinder to the booster assembly. Refer to BR-14, "Removal and Installation" .
6. Install the clutch master cylinder. Refer to CL-10, "Removal and Installation" (M/T models).
7. Install the air conditioner lower pressure hose holding bracket.
8. Install cowl top cover. Refer to EI-13, "Removal and Installation" .
9. Bleed air. Refer to BR-10, "Bleeding Brake System" .

VACUUM LINES

PFP:41920

Components

EFS005VX



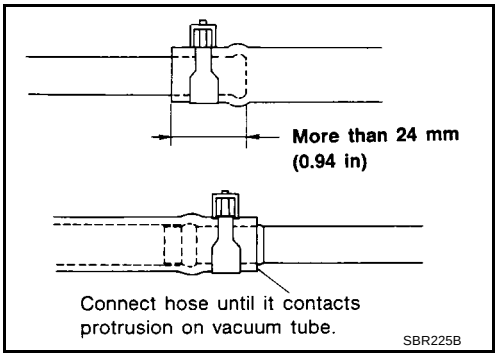
Removal and Installation

EFS002G4

VACUUM HOSE

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 PUMP

For information regarding vacuum pump removal and installation, refer to EM-269, "VACUUM PUMP" .

Inspection

EFS002G5

VISUAL INSPECTION

Check for improper assembly, damage and aging.

CHECK VALVE INSPECTION

Airtightness Inspection

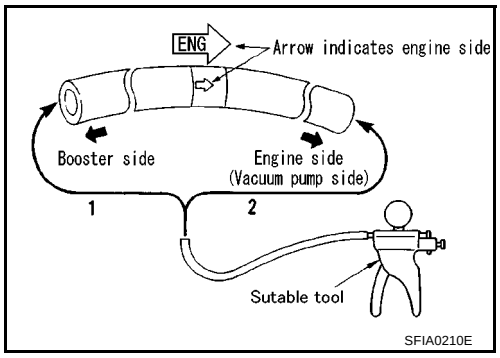
Use a hand-held vacuum pump to check.

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):

Vacuum should not exist.



FRONT DISC BRAKE

PFP:41000

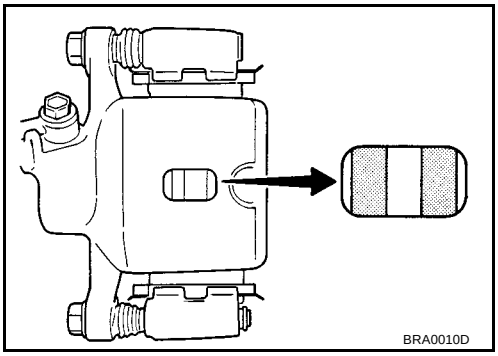
On Board Inspection

EFS002GK

PAD WEAR INSPECTION

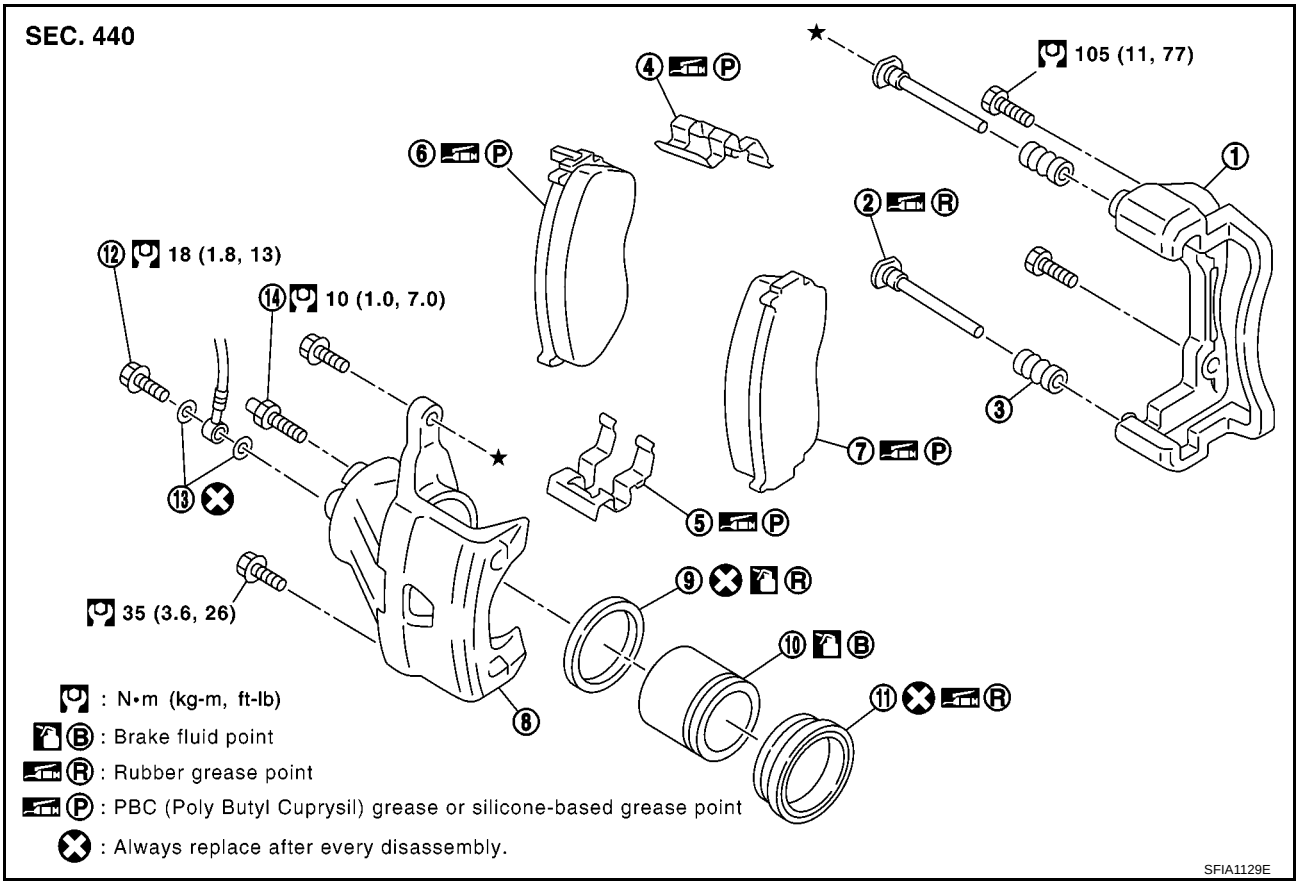
- Inspect the thickness of pad through cylinder body inspection hole. Use a scale for inspection if necessary.

Standard thickness : 12.4 mm (0.488 in)
Wear limit thickness : 2.0 mm (0.079 in)



Components

EFS002GL



1. Torque member	2. Sliding pin	3. Pin boot
4. Pad retainer (upper)	5. Pad retainer (lower)	6. Inner pad
7. Outer pad	8. Cylinder body	9. Piston seal
10. Piston	11. Piston boots	12. Union bolt
13. Copper washer	14. Air bleeder	

CAUTION:

- **Clean dust on the caliper and brake pad with a vacuum dust collector. Do not blow with compressed air.**
- **While removing the cylinder body, do not depress the brake pedal because the piston will pop out.**
- **Do not remove brake hose and torque member bolts unless disassembling or replacing caliper assembly. Hang cylinder body with a wire so that brake hose is not under tension.**
- **Be careful not to damage the piston boot. Do not allow brake fluid to get on the rotor.**

Removal and Installation of Brake Pad

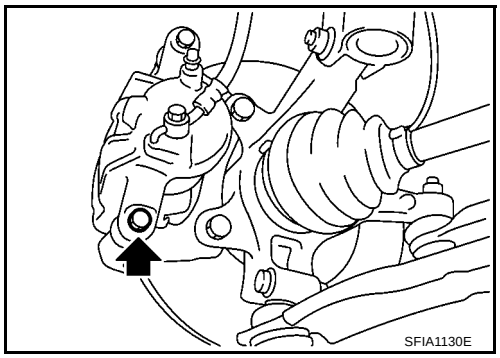
EFS002GM

REMOVAL

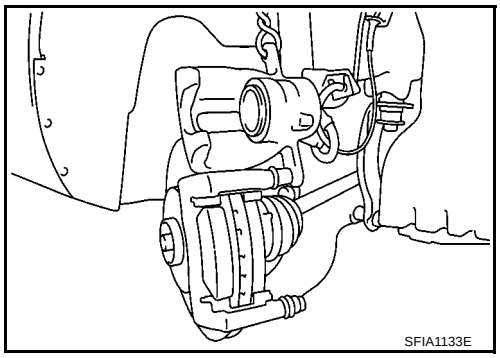
CAUTION:

Always replace the inner cover and outer shim as a set when replacing the brake pads.

1. Remove tyre from vehicle.
2. Remove brake master cylinder reservoir tank cap.
3. Remove lower sliding pin bolt.



4. Hang cylinder body with a wire, and remove pads and pad retainers from torque member.



INSTALLATION

1. Apply PBC (Poly Butyl Cuprysil) or silicone-based grease on inner pad (rear surface) and outer pad (rear surface).
2. Apply PBC (Poly Butyl Cuprysil) or silicone-based grease to pad contact surface on pad retainer. Install pad retainers and pads to the torque member.
3. Install cylinder body to torque member.

   CAUTION:

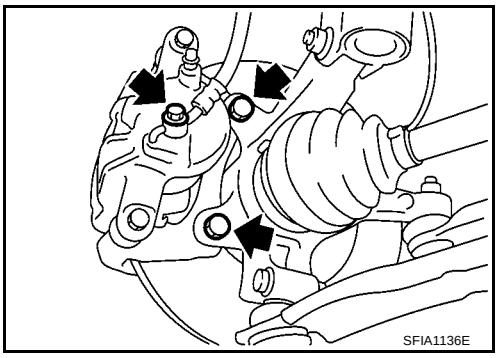
   When replacing pads with new ones, press in piston until pads can be installed. In this case, carefully monitor brake fluid level in the reservoir tank because brake fluid will return to the reservoir tank of master cylinder.
4. Insert the lower sliding pin bolt to tighten to the specified torque.
5. Check brake for drag.

Removal and Installation of Brake Caliper Assembly

EFS002GN

REMOVAL

1. Remove tyre from vehicle.
2. Drain brake fluid. Refer to BR-9, "Drain and Refill" .
3. Remove union bolts and torque member bolts, and remove brake caliper assembly.



INSTALLATION

CAUTION:

- **Refill with new brake fluid “DOT 3” or “DOT 4”.**
- **Do not mix different types of brake fluid (DOT 3, DOT 4).**
- **Never reuse the drained brake fluid.**

1. Install brake caliper assembly to the vehicle, and tighten bolts on torque member to the specified torque.

   CAUTION:

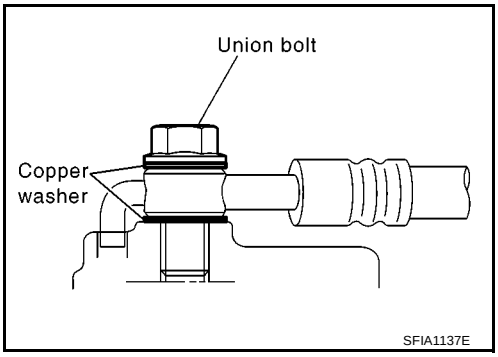
   Before installing brake caliper assembly, wipe off oil and grease on the nut washer seats and brake caliper assembly mounting surface.

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

   CAUTION:

   - **Do not reuse the copper washer for union bolts.**
   - **Assemble brake hose securely to the cylinder body mounting hole.**

3. Add new brake fluid. Refer to BR-9, "Drain and Refill" .
4. Bleed air. Refer to BR-10, "Bleeding Brake System" .



Disassembly and Assembly of Brake Caliper Assembly

EFS002GO

DISASSEMBLY

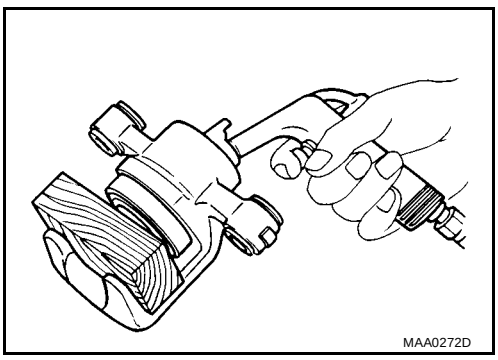
WARNING:

Be careful not to pinch your fingers in the piston.

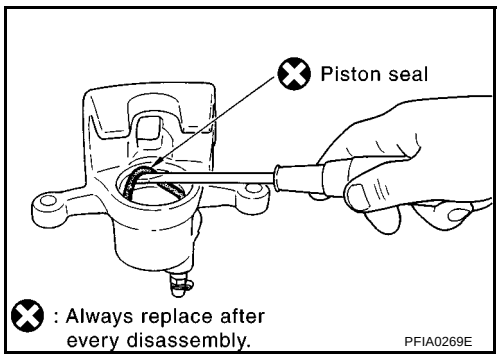
CAUTION:

Be careful not to damage cylinder inner wall.

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



2. Using a flat-bladed screwdriver, remove piston seals.



BRAKE CALIPER INSPECTION

Cylinder Body

CAUTION:

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

Check the inner wall of the cylinder for wear or damage. If any non-standard condition is detected, replace the cylinder.

Torque Member

Check for wear, cracks, and damage. If any non-standard condition is detected, replace the applicable part.

Piston

CAUTION:

Piston sliding surface is plated. Do not polish with sandpaper.

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

Sliding Pin and Pin Boots

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

ASSEMBLY

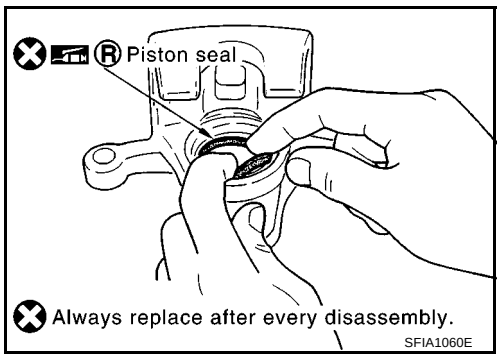
CAUTION:

Do not use rubber grease during assembly.

1. Apply NISSAN rubber lubricant (KRE1200030) or equivalent to the piston seals, and install them to the cylinder body.

   CAUTION:

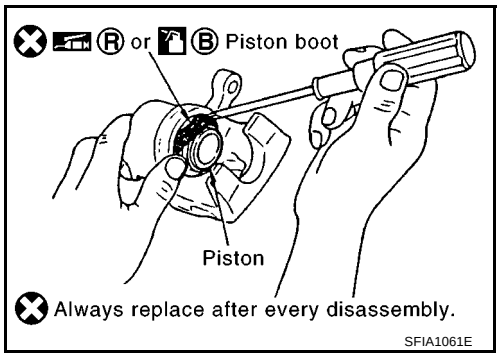
   Do not reuse the piston seals.



2. Apply brake fluid, NISSAN rubber lubricant (KRE1200030) or equivalent to the piston boot, cover the end of the piston with the piston boot, evenly insert the piston boot into the cylinder side, and make sure it is in the cylinder body groove.

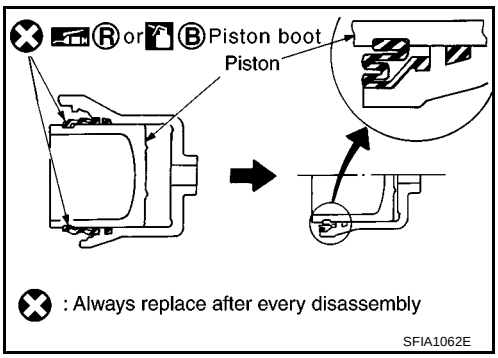
   CAUTION:

   Do not reuse the piston boot.



3. Apply brake fluid, NISSAN rubber lubricant or equivalent to piston. Press piston into cylinder body by hand. Assemble piston side lip on piston boot properly into groove on piston.

CAUTION:
Press the piston evenly and change the pressing point to prevent the inner wall of the cylinder from being rubbed.



Removal and Installation of Disc Rotor

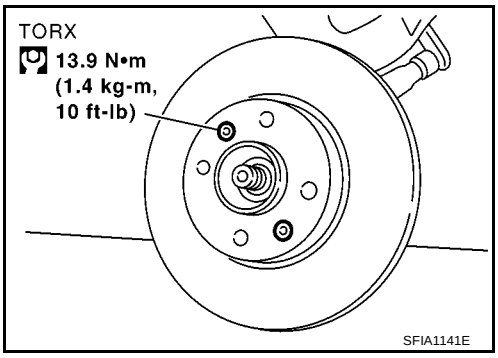
EFS002GP

REMOVAL

1. Remove tyre from vehicle.
2. Remove brake caliper assembly. Refer to BR-23, "REMOVAL" .

CAUTION:
- **Brake hose need not be disconnected brake caliper.**
- **Suspend brake caliper with wire so as not to stretch brake hose.**
- **Be careful not to depress brake pedal, or caliper piston will pop out.**
- **Make sure brake hose is not twisted.**

3. Remove disc rotor mounting screw (torx), then remove disc rotor from front axle.



INSTALLATION

- Install in the reverse order of removal. Tighten the mounting screw (torx) to the specified torque.

CAUTION:
Do not use any disc rotors that have once dropped.

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.

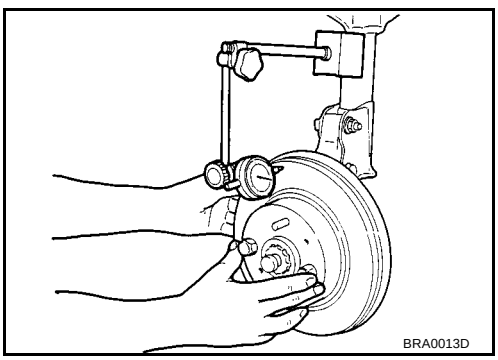
Runout Inspection

1. Using wheel bolts, fix disc rotor to the wheel hub. (2 or more positions)
2. Using a dial indicator, check the runout.

Measurement position
: At a point 10 mm (0.39 in) from outer edge of the disc
Runout limit: 0.058 mm (0.0023 in) or less

NOTE:
Make sure that wheel bearing axial end play is within the specifications before measuring. Refer to FAX-6, "FRONT WHEEL BEARING" .

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

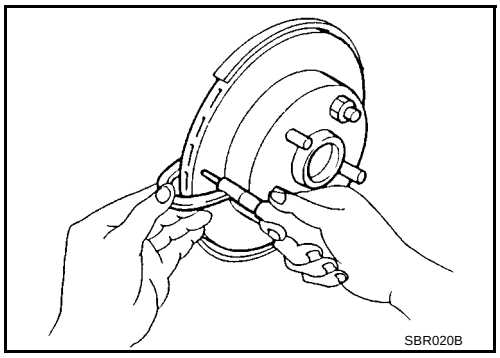


4. If the runout is still out of specification, turn rotor with on-car brake lathe (“MAD DL-8700”, “AMMCO 700 and 705” or equivalent).

Thickness Inspection

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

Standard thickness	**: 22.0 mm (0.87 in)**
Wear limit	**: 20.0 mm (0.79 in)**
Maximum uneven wear (measured at 8 positions)	**: 0.03 mm (0.0012 in) or less**



BRAKE BURNISHING PROCEDURE

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

CAUTION:

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

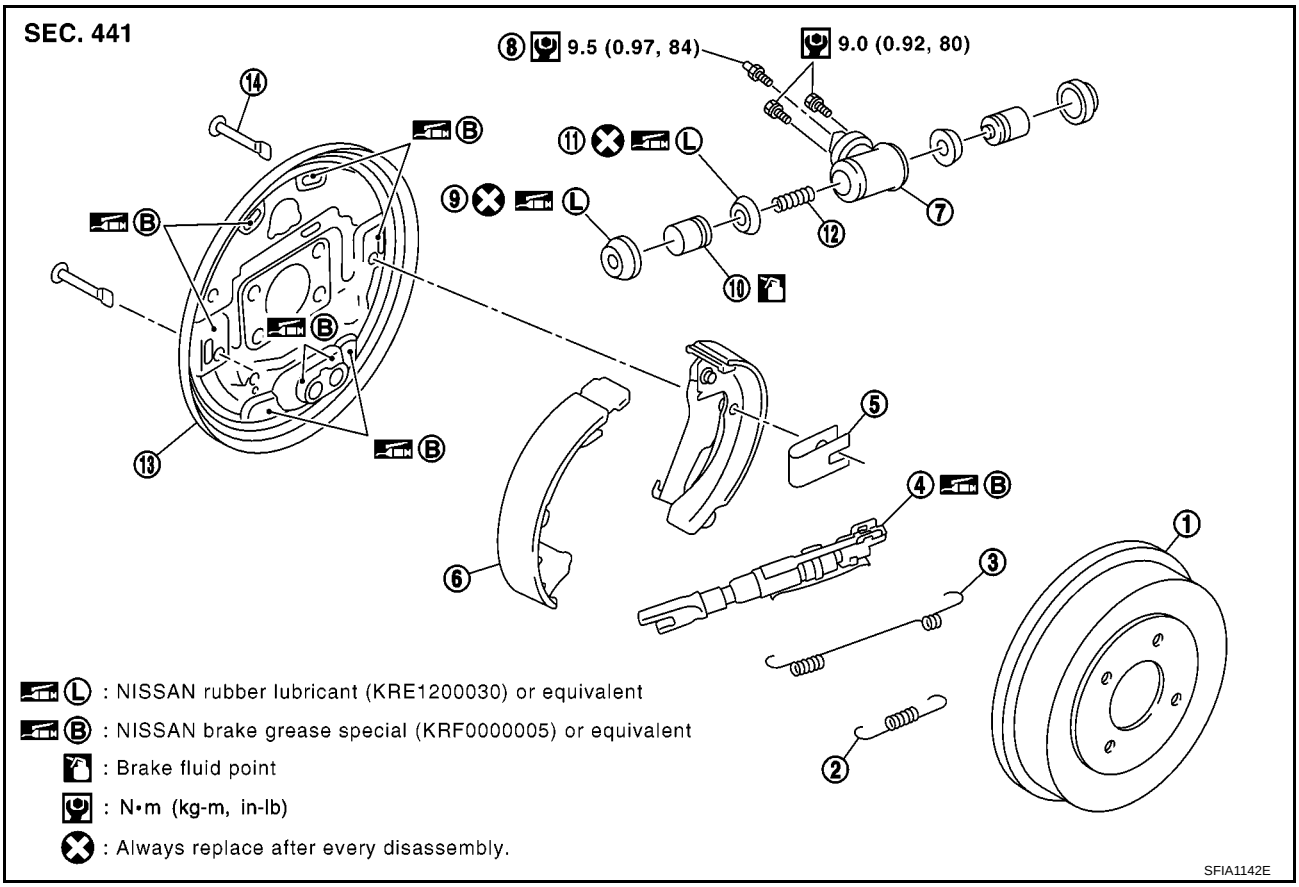
1. **Drive the vehicle on a straight smooth road at 50 km/h (31MPH).**
2. **Use medium brake pedal/foot effort to bring the vehicle to a complete stop from 50 km/h (31 MPH). Adjust brake pedal/foot pressure such that vehicle stopping time equals 3 to 5 seconds.**
3. **To cool the brake system, drive 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 DRUM BRAKE

PFP:43206

Components

EFS002GQ



1. Drum	2. Return spring (lower)	3. Return spring (upper)
4. Adjuster	5. Retaining clip	6. Shoe
7. Cylinder body	8. Air bleeder	9. Boots
10. Piston	11. Piston cup	12. Spring
13. Back plate	14. Shoe hold pin	

WARNING:

Clean dust on drum and back plate with a vacuum dust collector. Do not blow with compressed air.

CAUTION:

- **While removing drum, never depress brake pedal because the piston will pop out.**
- **Make sure parking brake lever is released completely.**

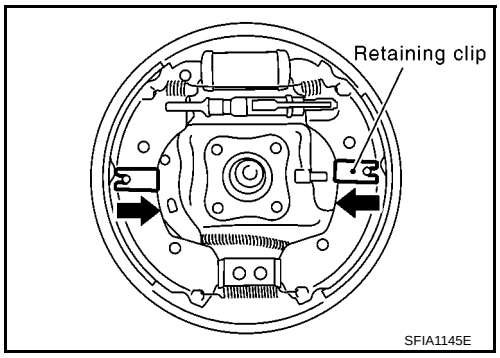
Removal and Installation of Drum Brake Assembly

EFS002GR

REMOVAL

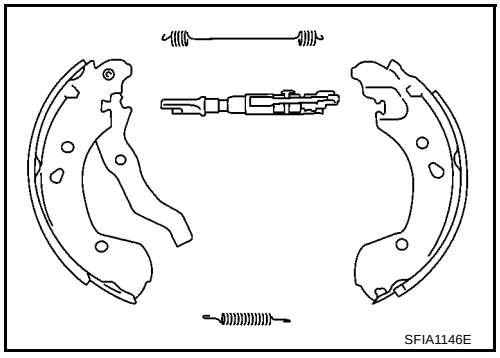
1. Remove tyre from vehicle.
2. With the parking brake lever released, remove the brake drum. Refer to RAX-5, "Removal and Installation" .
3. While pushing and rotating the retainer, pull out shoe hold pin, and remove shoe assembly.

   CAUTION:
   Do not damage the wheel cylinder piston boot.



4. Remove the parking brake cable from the operating lever.

   CAUTION:
   Do not bend the parking brake cable.
5. Disassemble the shoe assembly (shoe, springs, spacer, adjuster).

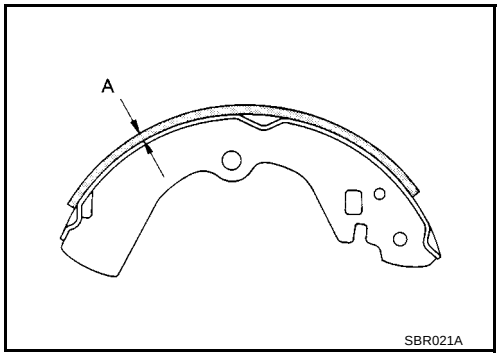


INSPECTION AFTER REMOVAL

Lining Thickness Inspection

Check lining thickness.

Standard thickness	**: 4.5 mm (0.177 in)**
Wear limit of thickness (A)	**: 1.5 mm (0.059 in)**

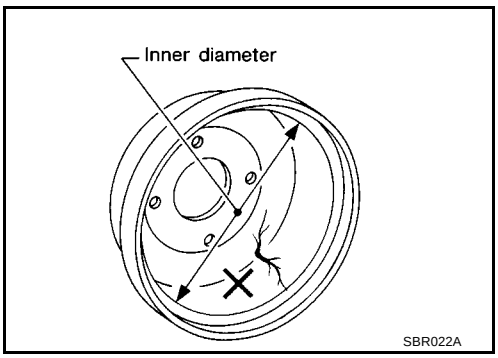


Drum Inner Diameter Inspection

Check the drum inside diameter.

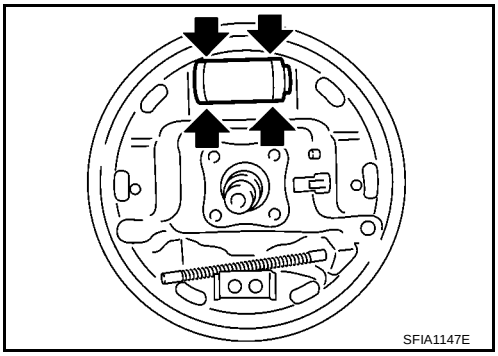
Measurement area: lining contact surface (center)

Standard inner diameter : 202 mm (7.95 in) dia.
Wear limit of inner diameter : 203.2 mm (8.0 in) dia.



Wheel Cylinder Leakage Inspection

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

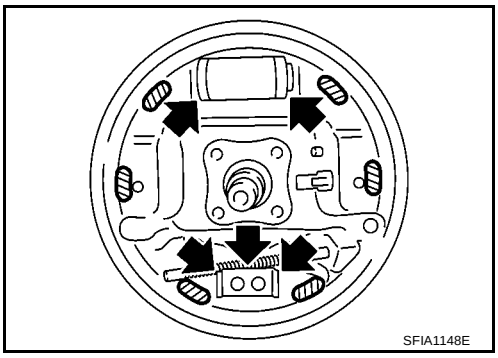


Other Inspections

- Check inside of the drum for excessive wear, damage, and cracks.
- Check lining for excessive wear, damage, and peeling.
- Check shoe sliding surface for excessive wear and damage.
- Check return spring for sagging.
- Check back plate for damage, cracks, and deformation.
- Check bolts on the back plate for looseness.

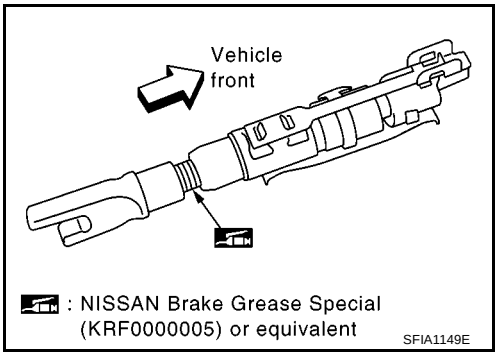
INSTALLATION

1. Apply Nissan brake grease special (KRF0000005) or equivalent to brake shoes sliding surfaces (the shaded areas) and other parts on the back plate as indicated by arrows in the figure.



2. Shorten adjuster by rotating it.

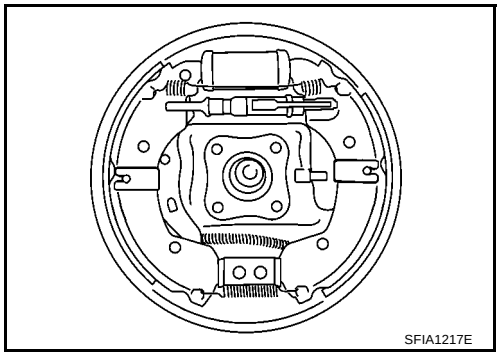
Wheel	Screw
Left	Left-hand thread
Right	Right-hand thread



3. Assemble the shoe, springs, adjuster and spacer to form the shoe assembly.

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

   CAUTION:
   Do not damage the wheel cylinder piston boot.
6. Install the brake drum. Refer to RAX-5, "Removal and Installation" .


SFIA1217E

7. When installing a new wheel cylinder or overhauling wheel cylinder, bleed air. Refer to BR-10, "Bleeding Brake System" .
8. Adjust the parking brake. Refer to PB-3, "Adjustment" .

Removal and Installation of Wheel Cylinder

EFS002GS

REMOVAL

1. Drain brake fluid. Refer to BR-9, "Drain and Refill" .
2. Remove the rear brake shoe assembly.
3. Remove the brake tube from the wheel cylinder.
4. Remove bolts on the wheel cylinder, and then remove wheel cylinder from the back plate.

INSTALLATION

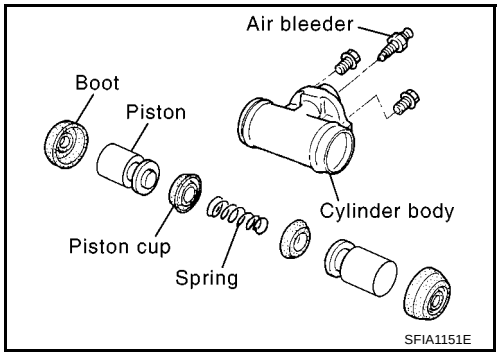
- Install in the reverse order of removal. Tighten bolts to the specified torque. Refer to BR-27, "Components" .
- Refill with new brake fluid and bleed air. Refer to BR-10, "Bleeding Brake System" .

Disassembly and Assembly of Wheel Cylinder

EFS002GT

DISASSEMBLY

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

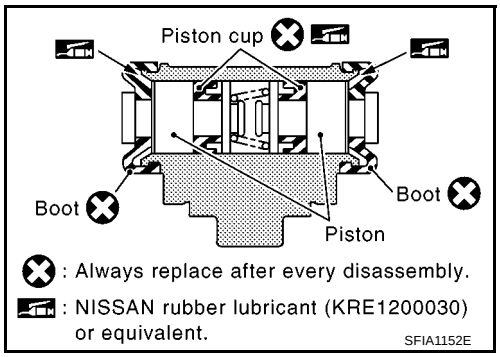


SFIA1151E

ASSEMBLY

CAUTION:
Do not use rubber grease during assembly.

1. Apply brake fluid to the piston sliding surface on the wheel cylinder.
2. Apply NISSAN rubber lubricant (KRE1200030) or equivalent to the cups and boots and assemble as shown in the figure.



SFIA1152E

Wheel Cylinder Inspection

EFS002GU

Check the pistons, piston cups, and inner wall of the cylinder for wear, corrosion, and damage. If a failure is detected, replace the applicable part.

CAUTION:

When inserting the piston, be careful not to scratch the cylinder.

SERVICE DATA AND SPECIFICATIONS (SDS)

PFP:00030

General Specifications

EFS002FH

Unit: mm (in)

Front brake	Brake model	CL22
	Rotor outer diameter × thickness	260 × 22.0 (10.24 × 0.87)
	Pad (thickness)	12.4 (0.488)
	Piston diameter	53.95 (2.124)
Rear brake	Brake model	LT20
	Drum inner diameter	203.2 (8.0)
	Lining Length × width × thickness	195 × 38 × 4.5 (7.68 × 1.50 × 0.177)
	Cylinder bore diameter	19.05 (3/4)
Master cylinder	Cylinder bore diameter	23.81 (0.94)
Control valve	Valve model	Linkage type load sensing valve
Brake booster	Booster model	T52/ 5/ 255
	Diaphragm diameter	254 (10)
Recommended brake fluid		DOT 3 or DOT 4

Brake Pedal

EFS002FI

Brake pedal height (from dash panel top surface)	LHD	M/T models	161 - 171 mm (6.34 - 6.73 in)
		A/T models	171 - 181 mm (6.73 - 7.13 in)
	RHD	M/T models	156 - 166 mm (6.14 - 6.54 in)
		A/T models	166 - 176 mm (6.54 - 6.93 in)
Depressed pedal height [under a force of 490 N (50 kg, 110 lb) with the engine running]		M/T models	More than 80 mm (3.15 in)
		A/T models	More than 85 mm (3.35 in)
Clearance between the stopper rubber and the threaded end of stop lamp switch.			0.74 - 1.96 mm (0.029 - 0.077 in)
Pedal play			3 - 11 mm (0.12 - 0.43 in)

Brake Booster

EFS002FJ

Vacuum type

Vacuum leakage [at vacuum of – 66.7 kPa (– 500 mmHg, –19.69 inHg)]		Within 3.3 kPa (25 mmHg, 0.98 inHg) of vacuum for 15 seconds
Input rod installation standard dimension	LHD models	158.25 mm (6.23 in)
	RHD models	115.35 mm (4.54 in)

Check Valve

EFS002FK

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

Front Disc Brake

EFS002FL

Brake model		CL22
Brake pad	Standard thickness (new)	12.4 mm (0.488 in)
	Repair limit thickness	2.0 mm (0.079 in)
Disc rotor	Standard thickness (new)	22.0 mm (0.87 in)
	Repair limit thickness	20 mm (0.79 in)
	Maximum uneven wear (measured at 8 positions)	0.03 mm (0.0012 in) or less
	Runout limit (with it attached to the vehicle)	0.058 mm (0.0023 in) or less

Rear Drum Brake

EFS002FM

Brake model		LT20
Lining	Standard thickness (new)	4.5 mm (0.177 in)
	Repair limit thickness	1.5 mm (0.059 in)
Drum	Standard inner diameter (new)	202 mm (7.95 in)
	Repair limit inner diameter	203.2 mm (8.0 in)