SECTION BR
BRAKE SYSTEM

CONTENTS

SERVICE INFORMATION

PRECAUTIONS

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

INFOID:0000000001703775

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.

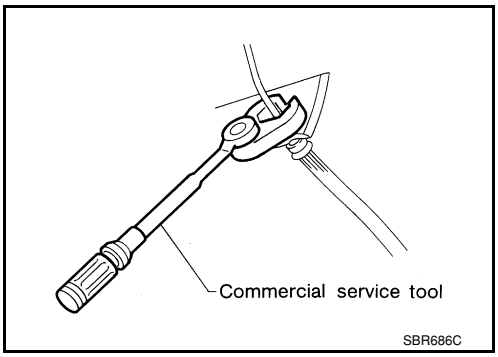
WARNING:

- **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.**

Precaution for Brake System

INFOID:0000000001703776

- Refill using recommended brake fluid. Refer to MA-10.
- Never reuse drained brake fluid.
- Be careful not to splash brake fluid on painted surface of body. If brake fluid is splashed on painted surfaces of body immediately wipe it off with cloth and then wash it away with water.
- 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 a brake tube and use a flare nut torque wrench when installing a brake tube.
- When installing brake tubes and hoses, be sure to check torque.
- Before working, turn ignition switch OFF and disconnect connectors of ABS actuator and electric unit (control unit) or the battery cable from the negative terminal.
- Burnish the new braking surfaces after refinishing or replacing drums or rotors, after replacing pads or linings, or if a soft pedal occurs at very low mileage. Refer to BR-28, "Brake Burnishing Procedure" .



PREPARATION

Commercial Service Tool

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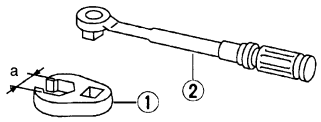
Tool name	Description
1. Flare nut crowfoot 2. Torque wrench  S-NT360	Removing and installing brake piping **a: 10 mm (0.39 in)/12 mm (0.47 in)**
Pin punch Tip diameter: 4 mm (0.16 in) dia.  ZZA0515D	Removing and installing reservoir tank pin

NOISE, VIBRATION AND HARSHNESS (NVH) TROUBLESHOOTING

NVH Troubleshooting Chart

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

Reference page		BR-23, BR-29	BR-23, BR-29	BR-23	BR-25, BR-29	BR-25, BR-29	BR-25, BR-29	BR-25, BR-29	BR-25, BR-29	—	BR-25, BR-29	BR-29	FAX-4, "NVH Troubleshooting Chart"	MT-7, "NVH Troubleshooting Chart"	FSU-5, "NVH Troubleshooting Chart"	WT-4, "NVH Troubleshooting Chart"	WT-4, "NVH Troubleshooting Chart"	FAX-4, "NVH Troubleshooting Chart"	PS-5, "NVH Troubleshooting Chart"
Possible cause and SUSPECTED PARTS		Pads/Lining damaged	Pads/Lining - uneven wear	Shims damaged	Rotor imbalance	Rotor damage	Rotor runout	Rotor deformation	Rotor deflection	Rotor rust	Rotor thickness variation	Drum out of round	WHEEL HUB	DIFFERENTIAL	SUSPENSION	TIRES	ROAD WHEEL	DRIVE SHAFT	STEERING
Symptom	Noise	×	×	×									×	×	×	×	×	×	×
	Shake				×								×		×	×	×	×	×
	Shimmy, Shudder				×	×	×	×	×	×	×	×			×	×	×		×

×: Applicable

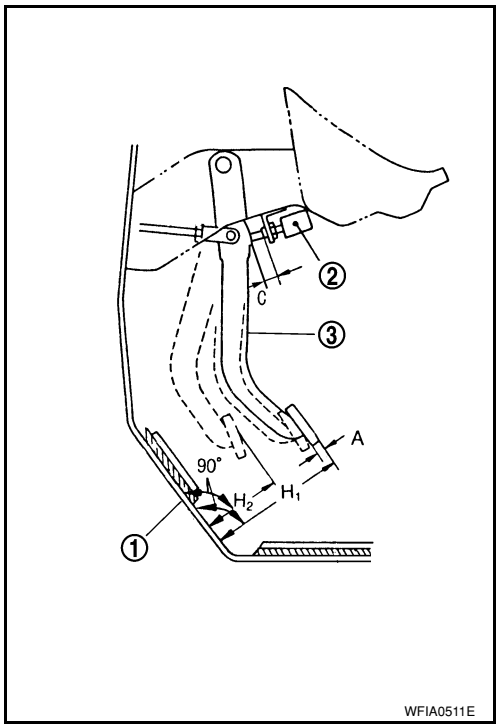
BRAKE PEDAL

Inspection and Adjustment

INFOID:0000000001703779

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

- Check brake pedal play.
- Check brake pedal free height from dash lower panel (1).
- Make an adjustment to the following dimension if value is outside the standard.

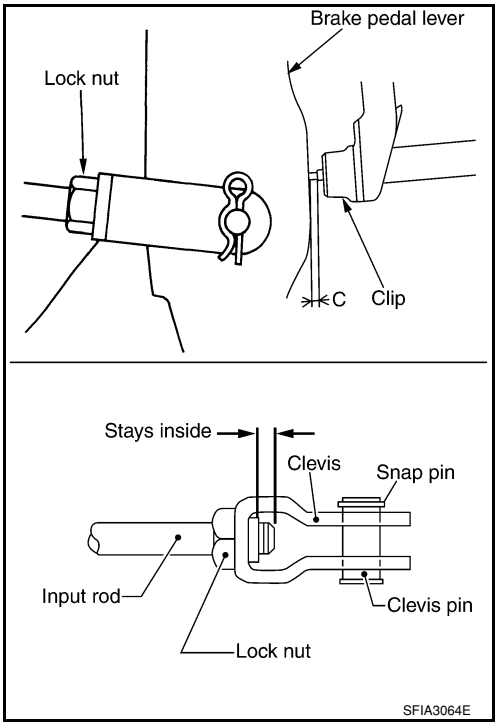


H1	Brake pedal free height (from dash panel top surface)	A/T, CVT models	172.4 - 182.4 mm (6.79 - 7.18 in)
		M/T model	162.3 - 172.3 mm (6.39 - 6.78 in)
H2	Brake pedal depressed height (under a force of 490 N (50 kg-f, 110 lb-f) with the engine running)	A/T, CVT models	98 mm (3.86 in) or more
		M/T model	90 mm (3.54 in) or more
C	Clearance between the threaded end of stop lamp switch (2) and brake pedal lever (3).		0.74 - 1.96 mm (0.0291 - 0.0772 in)
A	Pedal play		3 - 11 mm (0.12 - 0.43 in)

ADJUSTMENT

1. Loosen stop lamp switch by rotating it counterclockwise by 45°.
2. Loosen lock nut on input rod, then rotate input rod to set pedal to the specified height, and tighten lock nut.
   CAUTION:
   Make sure that the threaded end of input rod stays inside clevis.

   Lock nut : Refer to BR-18, "Removal and Installation" .
3. With the pedal pulled and held by hand, press stop lamp switch until its threaded end contacts brake pedal lever.
4. With the threaded end of stop lamp switch contacting brake pedal lever, rotate the switch clockwise by 45° to secure.
   CAUTION:
   Make sure that the clearance (C) is within the standard. Refer to "Inspection and Adjustment" .
5. Check the pedal play.
   CAUTION:
   Make sure that stop lamps go off when brake pedal is released.
6. Start engine to check brake pedal depressed height. Refer to "Inspection and Adjustment" .



Removal and Installation

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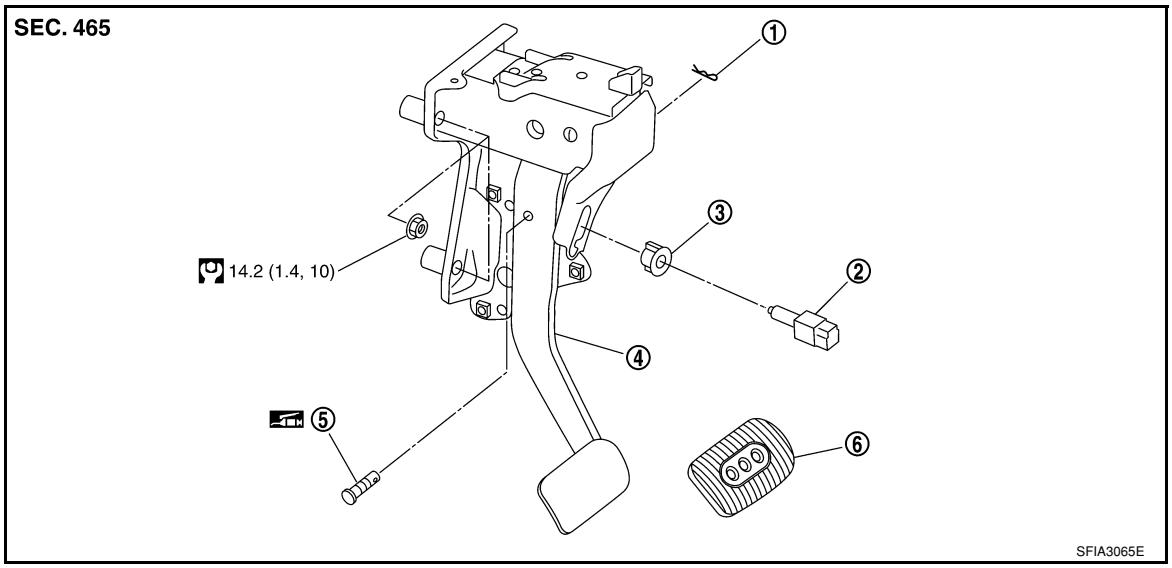
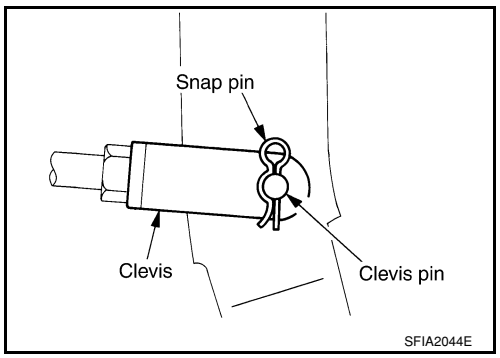
COMPONENTS



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

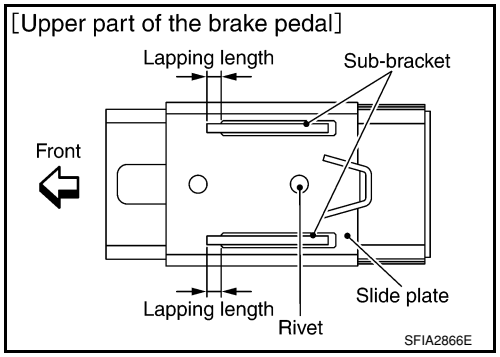
REMOVAL

1. Disconnect accelerator pedal position sensor harness connector.
2. Remove stop lamp switch from brake pedal assembly.
3. Remove snap pin and clevis pin from clevis of brake booster.
4. Remove nuts from brake pedal bracket, and remove brake pedal assembly from vehicle.
5. Remove accelerator pedal from brake pedal assembly.

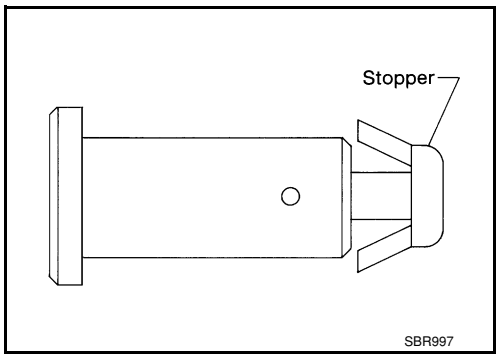


INSPECTION AFTER REMOVAL

- Check brake pedal upper rivet for deformation.
- Make sure that the lapping length of sub-bracket and slide plate is at least 6.9 mm (0.272 in).
- Check brake pedal for bend, damage, and cracks on the welded parts.
- Replace brake pedal assembly if any non-standard condition is detected.



- Check clevis pin and plastic stopper for damage and deformation. Replace clevis pin as necessary.



INSTALLATION

Installation is in the reverse order of the removal.

- After installing brake pedal assembly to vehicle, adjust brake pedal. Refer to BR-5, "Inspection and Adjustment" .
- After installing accelerator pedal, check accelerator pedal. Refer to ACC-3, "Removal and Installation" .

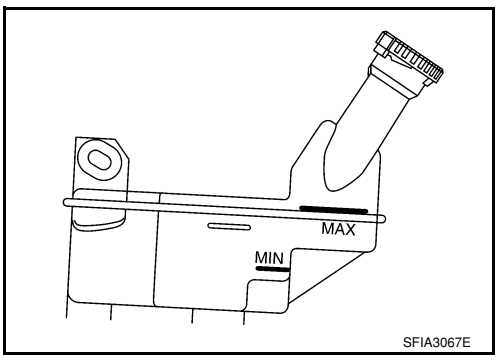
BRAKE FLUID

On Board Inspection

INFOID:0000000001703781

CHECKING BRAKE FLUID LEVEL

- 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 leakage.
- If fluid level is excessively low, check brake system for fluid leakage.
- Release parking brake lever and see if brake warning lamp goes off. If not, check brake system for fluid leakage.



Drain and Refill

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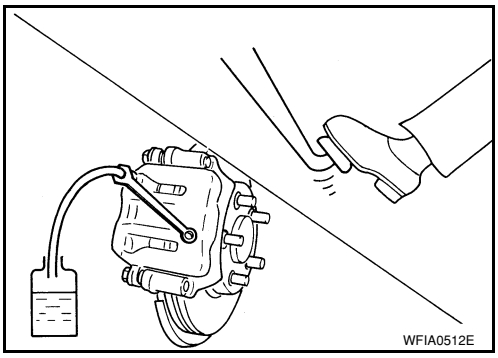
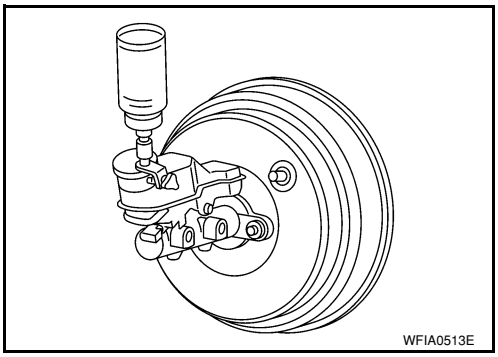
CAUTION:

- **Refill using recommended brake fluid. Refer to MA-10.**
- **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, immediately wipe them with cloth and wash it away with water.**
- **Before working, disconnect connectors of ABS actuator and electric unit (control unit) or battery cable from the negative terminal.**

1. Connect a vinyl tube to bleed valve.
2. Depress the brake pedal, loosen the bleed valve, and gradually remove the brake fluid.



3. Clean inside of reservoir tank, and refill with new brake fluid.
4. Loosen bleed valve, depress brake pedal slowly to full stroke and then release it. Repeat the procedure every 2 or 3 seconds until the new brake fluid comes out, then close the bleed valve while depressing the brake pedal. Repeat the same procedure for each wheel.
5. Bleed air. Refer to BR-8, "Bleeding Brake System" .



Bleeding Brake System

INFOID:0000000001703783

CAUTION:

- **While bleeding, pay attention to master cylinder fluid level.**
- **Before working, disconnect connectors of ABS actuator and electric unit (control unit) or the battery cable from the negative terminal.**

1. Connect a vinyl tube to the rear right bleed valve.
2. Fully depress brake pedal 4 to 5 times.

3. With brake pedal depressed, loosen bleed valve to let the air out, and then tighten it immediately.
4. Repeat steps 2, 3 until no more air comes out.
5. Tighten bleed valve to specified torque. Refer to BR-23, "Component" (front disc brake), BR-29, "Component" (rear drum brake).
6. Following the steps 1 to 5 above, with master cylinder reservoir tank filled at least half way, bleed air from the rear right, front left, rear left, and front right brake, in that order.

BRAKE TUBE AND HOSE

Hydraulic Circuit

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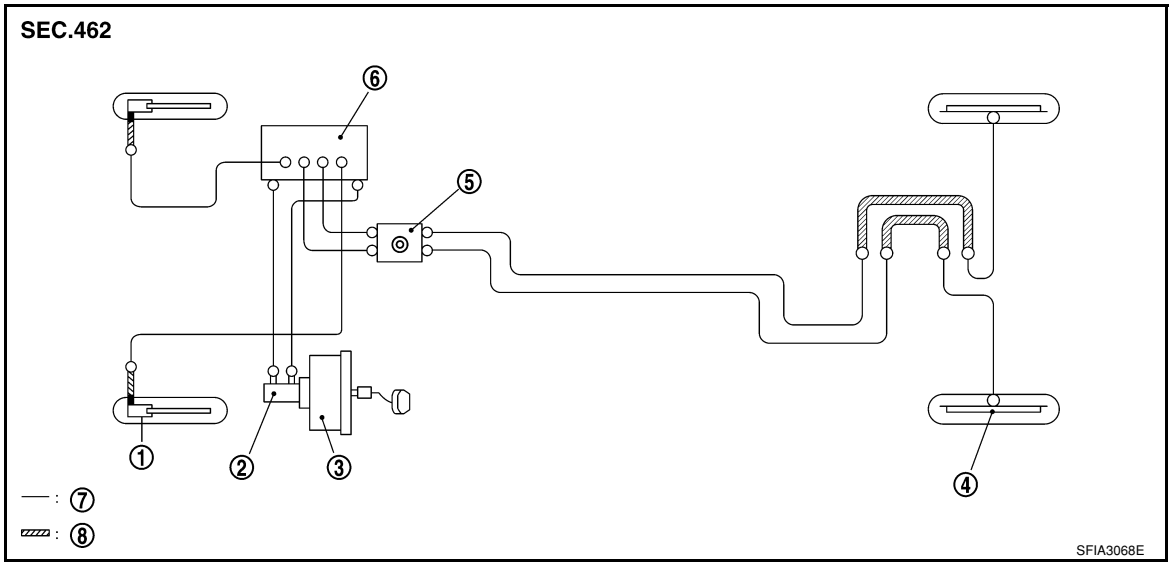


1.	Front disc brake	2.	Brake master cylinder	3.	Brake booster
4.	Rear drum brake	5.	Connector	6.	ABS actuator and electric unit (control unit)
7.	Brake tube	8.	Brake hose		
■:	Union bolt 18.2 N.m (1.9 kg-m, 13.0 ft-lb)	◎:	Connector bolt 10.0 N.m (1.0 kg-m, 87.0 in-lb)	○:	Flare nut 16.2 N.m (1.7 kg-m, 12.0 ft-lb)

CAUTION:

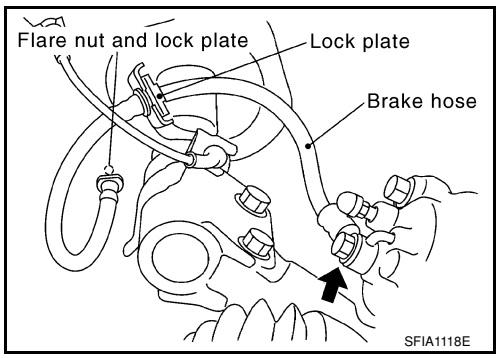
- **All tubes and hoses must be free from excessive bending, twisting and pulling.**
- **Make sure there is no interference with other parts when turning steering both clockwise and counterclockwise.**
- **Brake tubes and hoses are an important safety part. Always disassemble the parts and retighten their fittings, if a brake fluid leak is detected. Replace applicable part with a new one, if damaged part is detected.**
- **Be careful not to splash brake fluid on painted areas; it way cause paint damage. If brake fluid is splashed on painted surfaces of body, immediately wipe them with cloth and then wash it away with water.**
- **Do not bend or twist brake hose sharply, or strongly pull it.**
- **When removing components, cover brake line connections so that dirt, dust, or other foreign matters do not get in.**
- **Refill using recommended brake fluid. Refer to MA-10.**
- **Never reuse drained brake fluid.**

Front Brake Tube and Hose

INFOID:0000000001703785

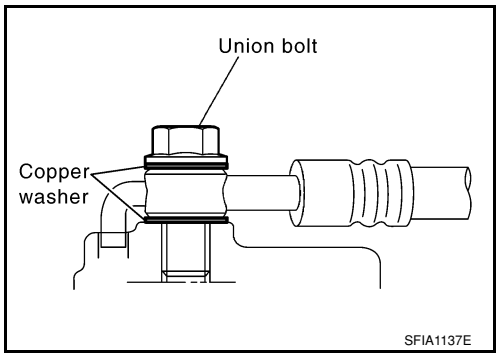
REMOVAL

1. Drain brake fluid. Refer to BR-8, "Drain and Refill" .
2. Using a flare nut wrench, remove brake tube from brake hose.
3. Remove union bolt, and remove brake hose from caliper assembly.
4. Remove lock plate, and remove brake hose from vehicle.



INSTALLATION

1. Assemble union bolt and copper washers to brake hose.
2. Position the L-shape metal fitting of the brake hose to the brake caliper assembly positioning hole.
3. Tighten union bolt to the specified torque. Refer to BR-10, "Hydraulic Circuit" .
4. Connect brake hose to brake tube on vehicle, and temporarily tighten flare nut by hand as much as possible.
5. Secure it with lock plate.
6. Tighten flare nut to the specified torque with a flare nut torque wrench. Refer to BR-10, "Hydraulic Circuit" .
7. Install brake hose to vehicle, and tighten nuts to the specified torque.
8. Bleed air from brake system. Refer to BR-8, "Bleeding Brake System" .

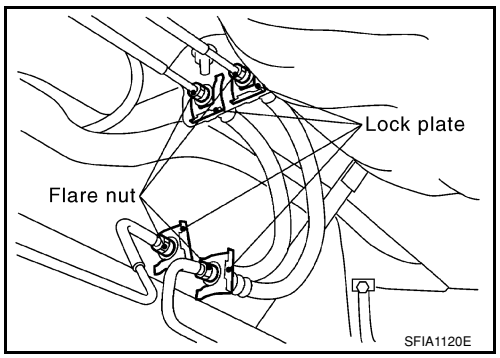


Rear Brake Tube and Hose

INFOID:0000000001703786

REMOVAL

1. Drain brake fluid. Refer to BR-8, "Drain and Refill" .
2. Using a flare nut wrench, remove brake tube from brake hose.
3. Remove lock plate, and remove brake hose from vehicle.



INSTALLATION

1. Connect brake hose to brake tube on vehicle, and temporarily tighten flare nut by hand as much as possible.
2. Secure it to bracket with lock plate.
3. Tighten flare nut to the specified torque with a flare nut torque wrench. Refer to BR-10, "Hydraulic Circuit" .
4. Bleed air from brake system. Refer to BR-8, "Bleeding Brake System" .

Inspection After Installation

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CAUTION:

- **Always disassemble the parts and retighten their fittings, if a brake fluid leak is detected. Replace applicable part with a new one, if damaged part is detected.**
- **If leak is detected at the connections, retighten it or replace the damaged part.**

1. Check brake hose, tube, and connections for fluid leaks, damage, twist, deformation, contact with other parts, and loose connections.
2. While depressing pedal under a force of 785 N (80 kg-f, 177 lb-f) with the engine running for approximately 5 seconds, check for fluid leak from each part.

BRAKE MASTER CYLINDER

On-Board Inspection

INFOID:0000000001703788

LEAK INSPECTION

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

Removal and Installation

INFOID:0000000001703789

CAUTION:
Be careful not to splash brake fluid on painted areas; it may cause paint damage. If brake fluid is splashed on painted areas, immediately wipe them with cloth and wash it away with water.

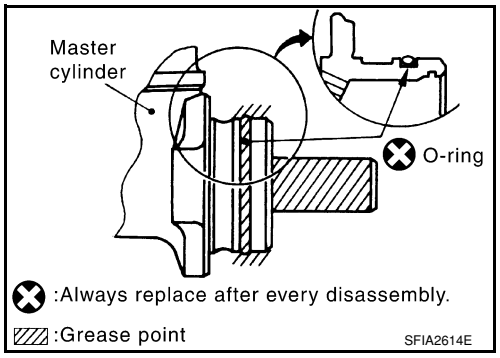
REMOVAL

1. Drain brake fluid. Refer to BR-8, "Drain and Refill" .
2. Remove battery. Refer to SC-6, "Removal and Installation" .
3. Remove air duct. Refer to EM-16, "Removal and Installation" .
4. Remove air cleaner. Refer to EM-16, "Removal and Installation" .
5. Disconnect brake fluid level switch harness connector.
6. Using a flare nut wrench, remove brake tube from master cylinder.
7. Remove master cylinder assembly nuts, and remove master cylinder assembly from vehicle..

INSTALLATION

CAUTION:
- **Refill using recommended brake fluid. Refer to MA-10.**
- **Never reuse drained brake fluid.**
- **Check if the rod of primary piston has dust or scratches.**

1. Install master cylinder to brake booster assembly, and tighten nuts to the specified torque. Refer to BR-18, "Removal and Installation".
   CAUTION:
   - **Do not damage or strain rod of primary piston.**
   - **Apply silicone grease for O-ring, primary piston rod and to inside of booster.**

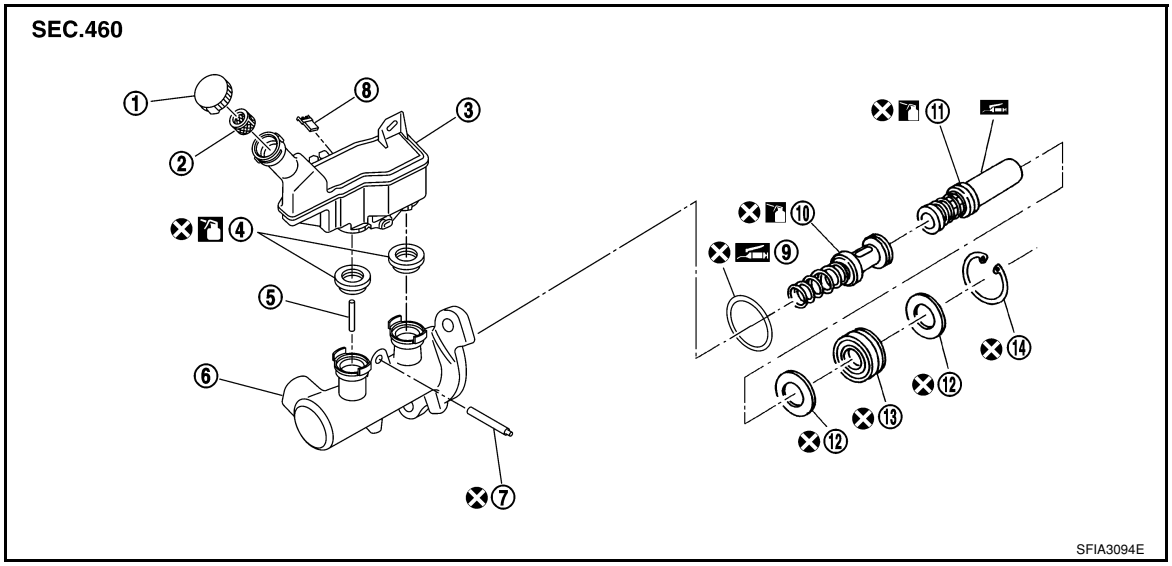


2. Install brake tube to master cylinder, and temporarily tighten the flare nuts on the brake tube to master cylinder by hand.
3. Install brake tube to brake hose, then tighten flare nut to the specified torque using a flare nut torque wrench. Refer to BR-10, "Hydraulic Circuit" .
4. Connect brake fluid level switch harness connector.
5. Refill new brake fluid and bleed air. Refer to BR-8, "Bleeding Brake System" .

Disassembly and Assembly

INFOID:0000000001703790

COMPONENTS



1.	Reservoir cap	2.	Oil filter	3.	Reservoir tank
4.	Grommet	5.	Piston stopper	6.	Cylinder body
7.	Pin	8.	Brake fluid level switch connector	9.	O-ring
10.	Secondary piston assembly	11.	Primary piston assembly	12.	Plate
13.	Guide assembly	14.	Snap ring		
	PBC (Poly Butyl Cuprysil) grease or silicone-based grease		Brake fluid		

Refer to GI section GI-8, "Component" for symbol marks unless shown.

DISASSEMBLY

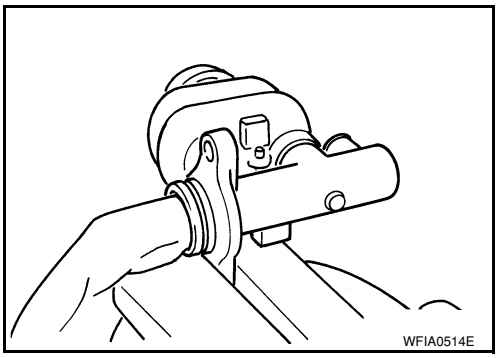
CAUTION:

While working, cover primary piston rod with cloth to prevent it from being damaged.

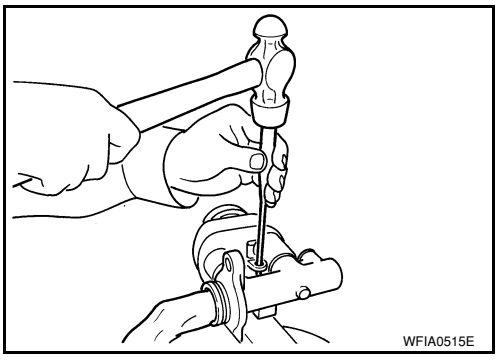
1. Secure flange of cylinder body in vise as shown.

   CAUTION:

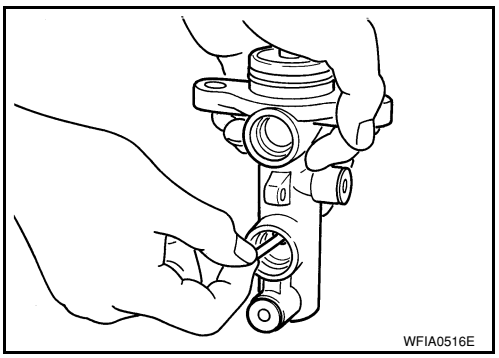
   - **Use copper plate or cloth to cover flange when securing in vise.**
   - **When securing master cylinder assembly in a vise, be sure not to over-tighten.**



2. Using a pin-punch [commercial service tool: diameter approx. 4 mm (0.16 in)], remove pin from reservoir tank.
3. Remove master cylinder assembly from vise.
4. Remove reservoir tank and grommet from cylinder body.



5. While pushing primary piston, remove piston stopper through secondary tank boss hole in the cylinder body.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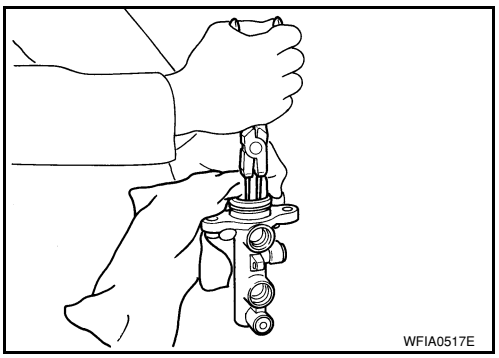
6. Remove snap ring with pushing primary piston.
CAUTION:
Be careful not to pop out piston.
7. Holding rod of primary piston, remove primary piston assembly, plate and guide assembly by pulling straight to prevent piston cup from being caught by the inner wall of cylinder.
8. Remove plate and guide assembly from primary piston.
CAUTION:
Be careful not to damage rod from the inner wall of plate.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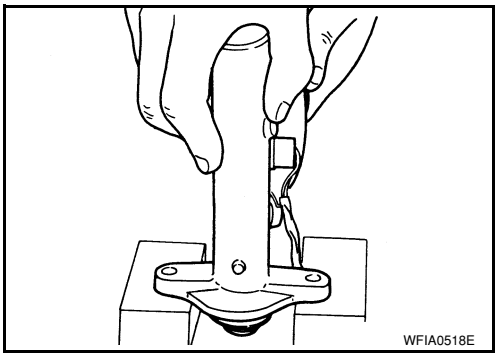
9. Tap flange using a soft block such as wood, and carefully pull secondary piston assembly straight out to prevent cylinder inner wall from being damaged.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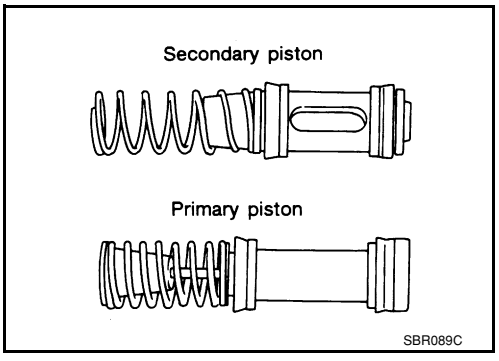
INSPECTION AFTER DISASSEMBLY

Cylinder Body
- Check the inner wall of cylinder for damage, wear, corrosion, and pin holes. Replace cylinder body if necessary.

ASSEMBLY

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

1. Apply brake fluid to the inner wall of cylinder body, primary piston assembly and secondary piston assembly.
2. Insert secondary piston and primary piston assembly into cylinder body in this order.
CAUTION:
- **Pay attention to the orientation of piston cup, and insert straight to prevent cup from being caught by the inner wall of cylinder.**
- **Always replace inner kit as a set.**



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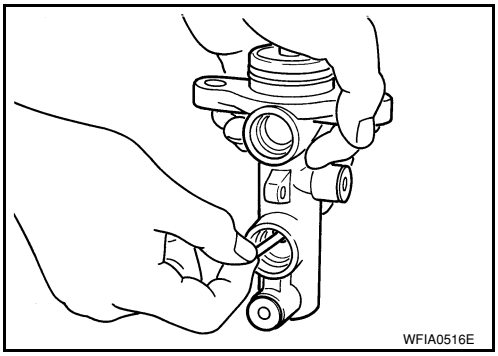
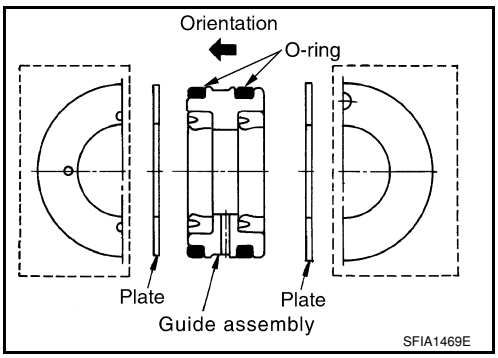
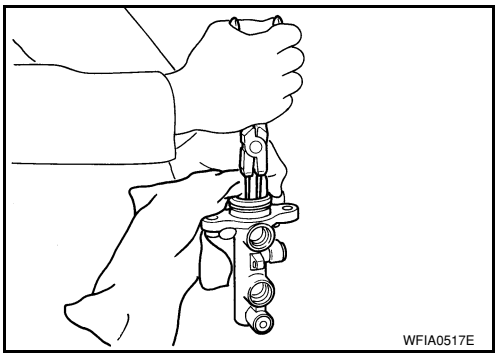
3. Set the slit of secondary piston towards the piston stopper mounting hole of cylinder body while pushing in the primary piston. Then install the piston stopper through the slit of secondary piston.



4. Insert plate and guide assembly into cylinder body.
CAUTION:
- **Be careful not to damage rod of primary piston.**
- **Pay attention to the orientation of guide assembly.**
- **Do not drop O-ring.**
- **Be careful the guide and/or plate are not inserted at an angle to cylinder inner wall.**

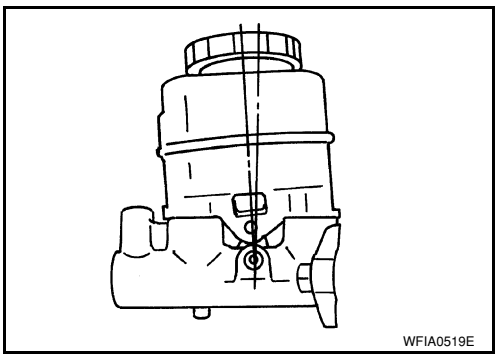


5. Be careful not to damage rod of primary piston with the cloth. Then insert snap ring to cylinder body while pushing primary piston.
CAUTION:
Make sure that snap ring is securely engaged in cylinder body inner diameter groove.

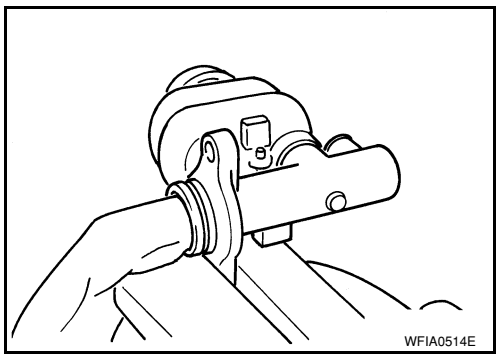


6. Apply brake fluid to a grommet, and press it into reservoir tank to install.

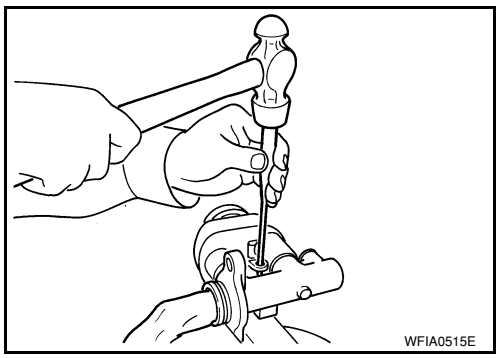
7. Install reservoir tank to cylinder body.
CAUTION:
Pay attention to the orientation of reservoir tank. Make sure reservoir tank is fully seated on master cylinder.



8. Secure flange of cylinder body in vise as shown.
CAUTION:
- **Use copper plate or cloth to cover flange for securing in the vise.**
- **When securing master cylinder assembly in a vise, be sure not to over-tighten.**
- **Be sure to secure the flange part with the brake tube installation side of cylinder body facing up (chamfered pin insert hole of cylinder body facing up).**



9. Using a pin punch [commercial service tool: diameter approx. 4 mm (0.16 in)], insert the reservoir tank pin into the pin hole.



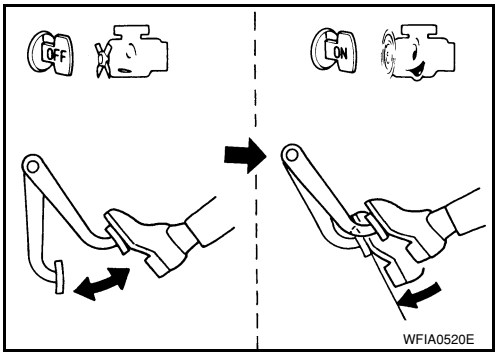
BRAKE BOOSTER

On Board Inspection

INFOID:0000000001703791

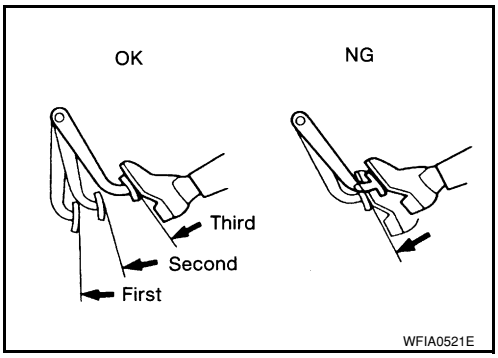
OPERATING CHECK

With the engine stopped, change the vacuum to the atmospheric pressure by depressing brake pedal several times at intervals of 5 seconds.
Then with brake pedal fully depressed, start engine and when the vacuum pressure reaches the standard, make sure that the clearance between brake pedal and floor panel decreases.



AIRTIGHT CHECK

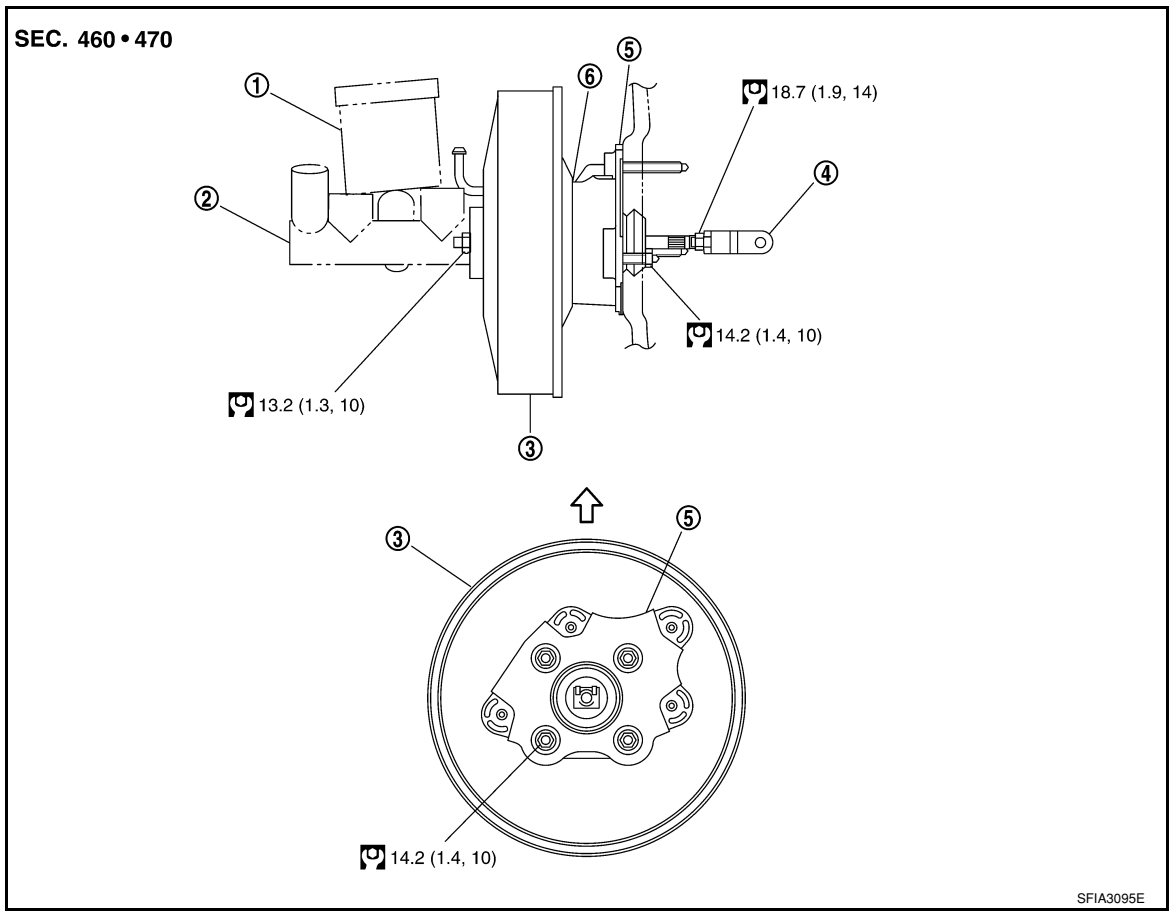
- Run engine at idle for approximately 1 minute, and stop it after applying vacuum to booster. Depress brake pedal normally to change the vacuum to the atmospheric pressure. Make sure that distance between brake pedal and floor panel gradually increases.
- Depress the brake pedal while engine is running,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



Removal and Installation

INFOID:0000000001703792

COMPONENTS



1. Reservoir tank
2. Master cylinder
3. Brake booster
4. Clevis
5. Spacer
6. Gasket

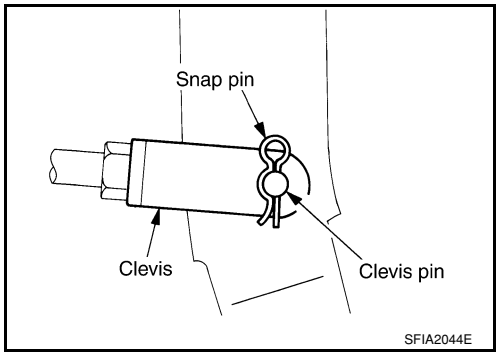
⇐: Up

REMOVAL

CAUTION:

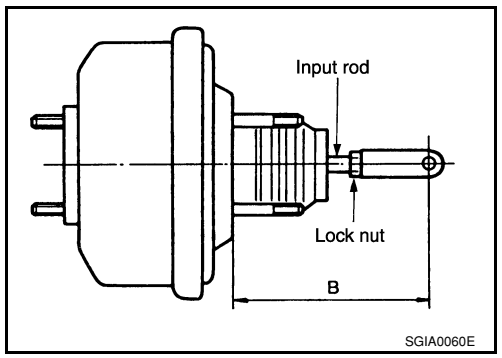
- **Be careful not to splash brake fluid on painted areas such as body. It may cause paint damage. If brake fluid is splashed on painted surfaces of body, wipe them with cloth immediately and then wash it away with water.**
- **Be careful not to deform or bend brake tubes while removing and installing 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, dash panel may damage the threads.**

1. Remove vacuum hose from brake booster.
2. Remove master cylinder assembly. Refer to BR-13, "Removal and Installation" .
3. Remove snap pin and clevis pin on the clevis of the brake booster, and remove input rod from brake pedal.
4. Remove brake pedal nuts on pedal bracket.
5. Remove between spacer and dash panel nut from dash panel.
6. Remove brake booster and spacer from vehicle.
7. Remove spacer from brake booster.



INSTALLATION

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



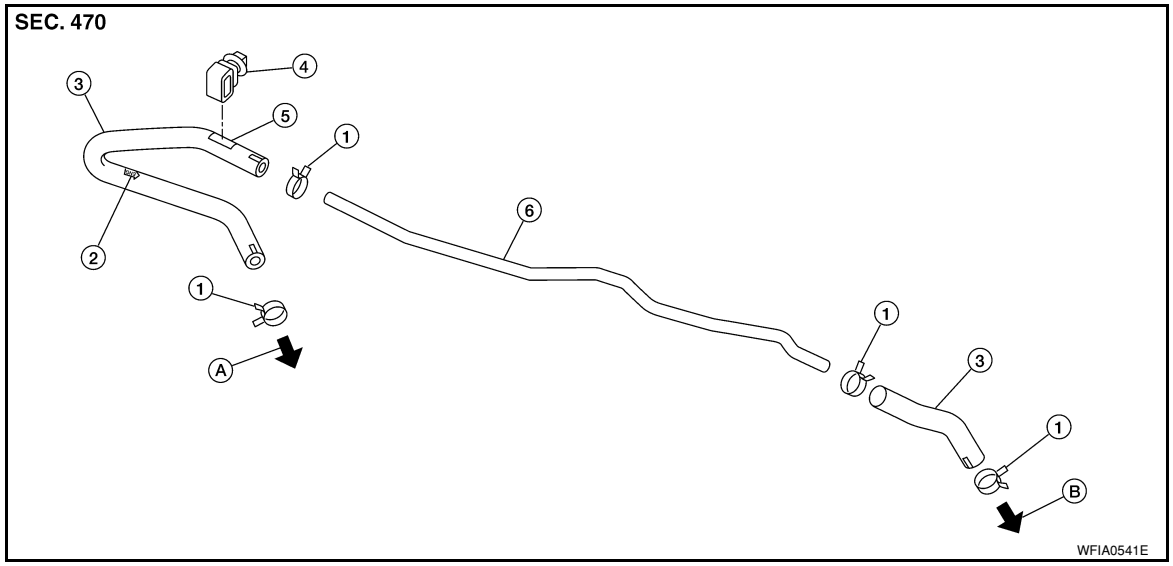
Length “B” : 154 - 161 mm (6.06 - 6.34 in)

2. Install spacer to brake booster and tighten spacer nut (brake booster side) to the specified torque.
3. After adjusting length “B”, temporarily tighten lock nut to install brake booster assembly to dash panel. At this time, make sure to install a gasket between brake booster and vehicle.
   CAUTION:
   Be sure to install the gasket between brake booster and vehicle.
4. Connect brake pedal to clevis of input rod with the clevis pin and snap pin.
5. Install brake pedal bracket nuts and tighten them to the specified torque.
6. Adjust the height and play of brake pedal. Refer to BR-5, "Inspection and Adjustment" .
7. Tighten lock nut of input rod to the specified torque. Refer to "COMPONENTS" .
8. Install vacuum hose into brake booster. Refer to BR-21, "Removal and Installation" .
9. Bleed air from brake system. Refer to BR-8, "Bleeding Brake System" .

VACUUM LINES

Component

INFOID:0000000001703793



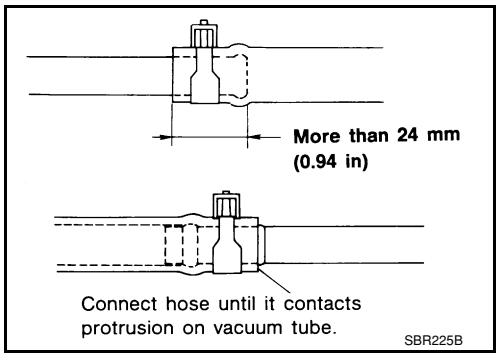
1. Clamp	2. Engine side indicator stamp (built-in check valve)	3. Vacuum hose
4. Clip	5. Clip position stamp	6. Vacuum tube
7. To brake booster	A. To intake manifold	B. To brake booster

Removal and Installation

INFOID:0000000001703794

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. Brake booster will not operate normally if hose is installed in the wrong direction.**
- **Insert vacuum hose at least 24 mm (0.94 in).**
- **Never use lubricating oil during assembly.**



Inspection

INFOID:0000000001703795

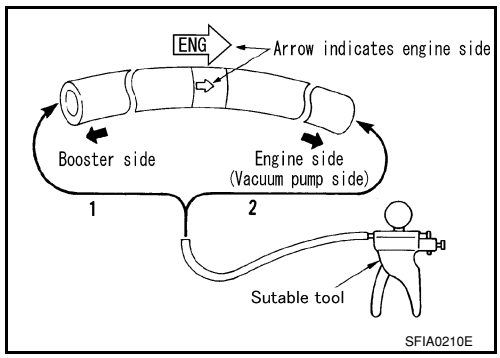
VISUAL INSPECTION

Check for improper assembly, damage and aging.

CHECK VALVE INSPECTION

Airtightness Inspection

Use a handy 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

Replace vacuum hose with the check valve as a set if damage or deformation is present at the vacuum hose.

FRONT DISC BRAKE

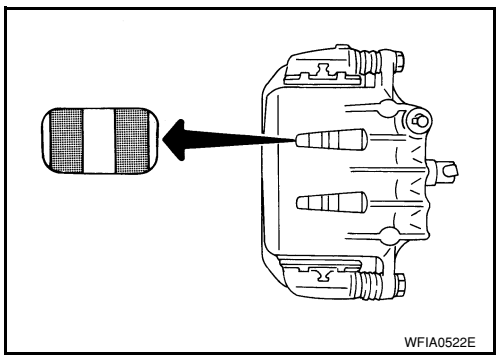
On Board Inspection

INFOID:0000000001703796

PAD WEAR INSPECTION

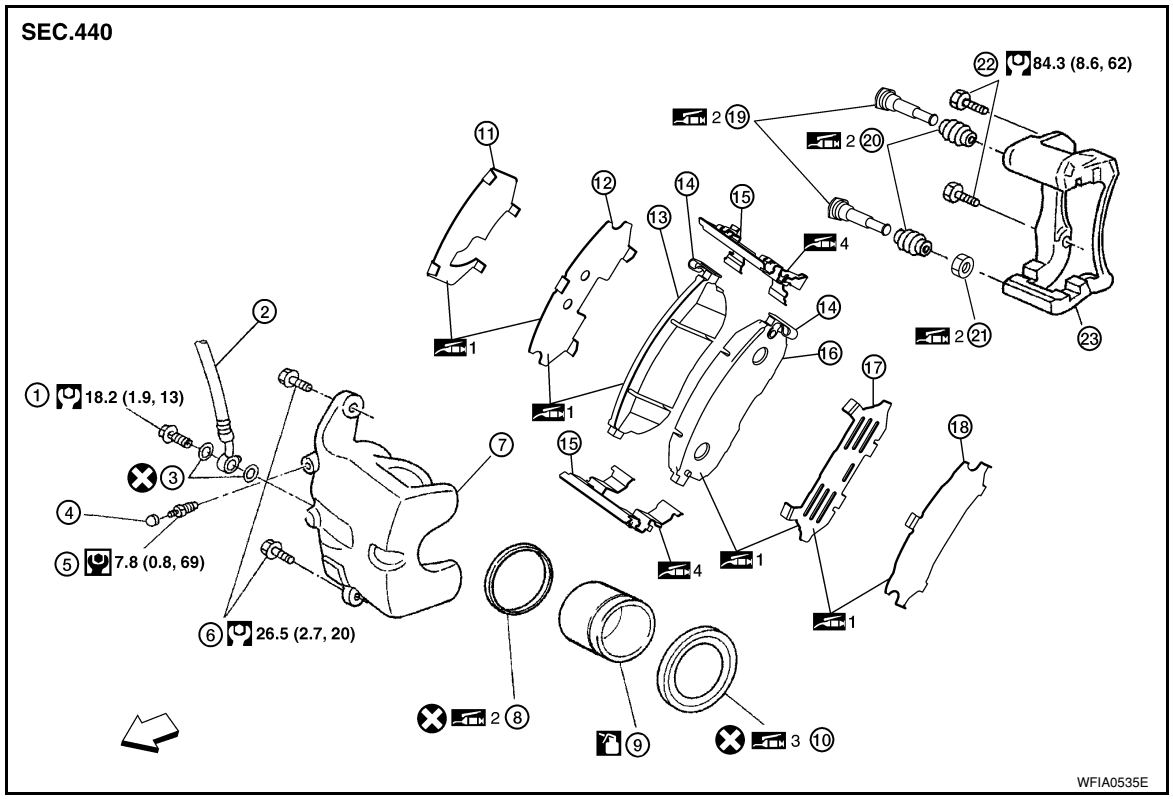
- Check pad thickness from check hole on cylinder body.

Standard thickness : 9.5 mm (0.374 in)
Repair limit thickness : 2.0 mm (0.079 in)



Component

INFOID:0000000001703797



1. Union bolt	2. Brake hose	3. Copper washer
4. Cap	5. Bleed valve	6. Sliding pin bolt
7. Cylinder body	8. Piston seal	9. Piston
10. Piston boot	11. Inner shim cover	12. Inner shim
13. Inner pad	14. Pad wear sensor	15. Pad retainer
16. Outer pad	17. Outer shim	18. Outer shim cover
19. Sliding pin	20. Sliding pin boot	21. Bushing
22. Torque member mounting bolt	23. Torque member	⇐ : Front
: Brake fluid	1: M-77 grease	2: Rubber grease
3: Polyglycol ether based lubricant	4: M7439 grease	

Refer to GI section GI-8, "Component" for symbol marks unless shown.

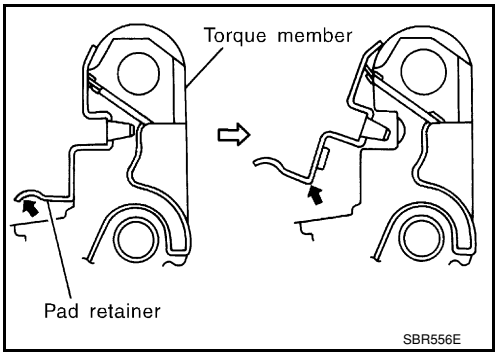
CAUTION:
- **Clean dust on caliper and brake pad with a vacuum dust collector. Do not blow with compressed air.**
- **While removing brake pad or cylinder body, do not depress brake pedal because piston will pop out.**
- **It is not necessary to remove torque member mounting bolts and brake hose except for disassembly or replacement of 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.**
- **Keep rotor free from brake fluid.**
- **When replacing brake pad, replace shim with a new one.**

Removal and Installation of Brake Pad

INFOID:0000000001703798

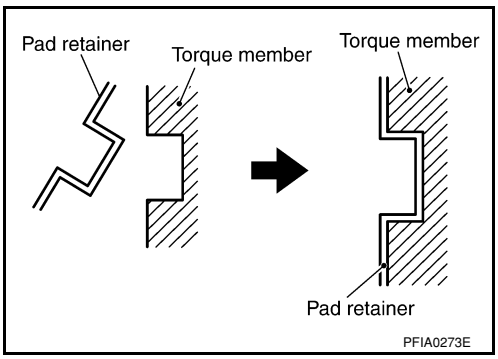
REMOVAL

1. Remove tires from vehicle.
2. Remove sliding pin bolt (lower side).
3. Hang cylinder body with a wire, and remove pads, shims and pad retainers from torque member.
   CAUTION:
   When removing pad retainer from torque member, lift pad retainer in the direction shown by arrow, so as not to deform it.



INSTALLATION

1. Apply M-77 grease or equivalent to the shims. Install shims to pads.
   CAUTION:
   Securely install shims according to mounting direction of pads.
2. Apply M7439 grease or equivalent to pad contact surface on pad retainers. Install pad retainers and pads to the torque member.
   CAUTION:
   - **When installing pad retainer, attach it firmly so that it is not lifted up from torque member, as shown.**



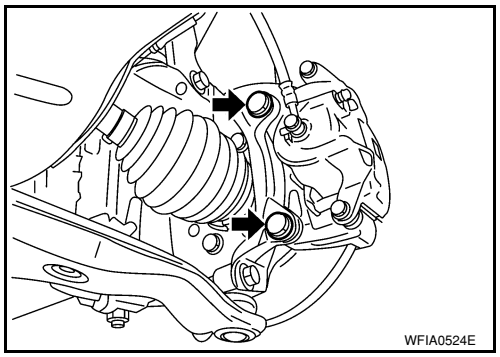
3. Install cylinder body to torque member.
   NOTE:
   Use a disc brake piston tool (commercial service tool) to easily press to piston in.
   CAUTION:
   Check the brake fluid level in the reservoir tank for fluid level because brake fluid returns to master cylinder reservoir tank when pressing piston in.
4. Install lower sliding pin bolt (lower side), and tighten it to the specified torque. Refer to BR-23, "Component" .
5. Check brake for drag.
6. Install tires to the vehicle.

Removal and Installation of Brake Caliper Assembly

INFOID:0000000001703799

REMOVAL

1. Remove tires from vehicle.
2. Secure disc rotor using wheel nuts.
   CAUTION:
   Put matching marks on wheel hub assembly and disc rotor, if it is necessary to remove disc rotor.
3. Drain brake fluid. Refer to BR-8, "Drain and Refill" .
4. Remove union bolt, and then remove brake hose from caliper assembly.
5. Remove torque member mounting bolts from torque member, and remove caliper assembly from vehicle.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INSTALLATION

1. Install caliper assembly to vehicle, and tighten mounting bolts to the specified torque. Refer to BR-23, "Component" .
   CAUTION:
   Before installing torque member to vehicle, wipe oil and grease on mounting surface of steering knuckle and torque member.
2. Install brake hose to caliper assembly. Refer to BR-10, "Hydraulic Circuit" .
3. Refill with new brake fluid and bleed air. Refer to BR-8, "Bleeding Brake System" .
4. Check front disc brake for drag.
5. Install tires to the vehicle.

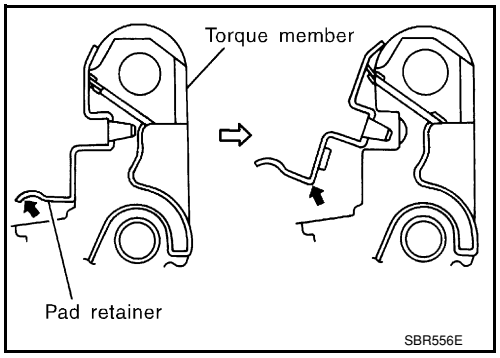
Disassembly and Assembly of Brake Caliper Assembly

INFOID:0000000001703800

NOTE:
Do not remove torque member, brake pads, shims and pad retainers, when disassembling or assembling cylinder body.

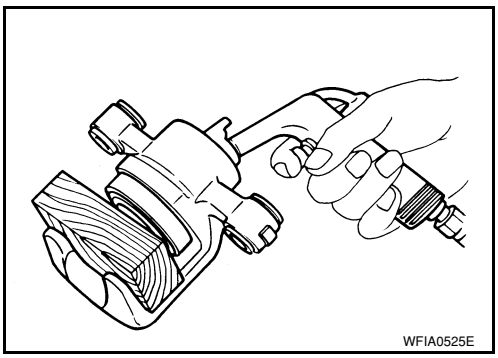
DISASSEMBLY

1. Remove caliper assembly from vehicle. Refer to BR-25, "Removal and Installation of Brake Caliper Assembly" .
2. Remove sliding pin bolts from cylinder body, and remove pads, shims and pad retainers from torque member, if necessary.
   CAUTION:
   When removing pad retainer from torque member, lift the pad retainer in the direction shown by arrow, so as not to deform it.

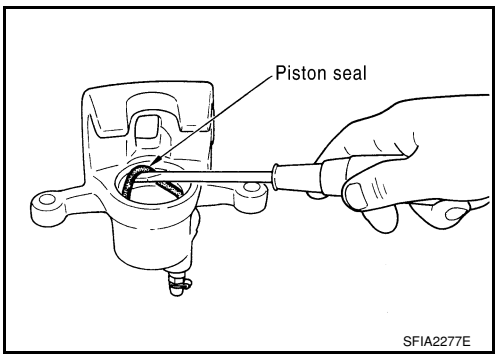


SBR556E

3. Remove sliding pins and sliding pin boots from torque member.
4. Place a wooden block as shown, and blow air from union bolt mounting hole to remove piston and piston boot.
   CAUTION:
   Do not get fingers caught in the piston.



5. Remove piston seal with a flat-bladed screwdriver.
   CAUTION:
   Be careful not to damage the inner wall of cylinder.



INSPECTION AFTER DISASSEMBLY

Cylinder Body

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

CAUTION:

Clean cylinder body using new brake fluid. Never use mineral oils such as gasoline or kerosene.

Torque Member

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

Piston

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

CAUTION:

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

Sliding Pin, Sliding Pin Bolt, and Sliding Pin Boot

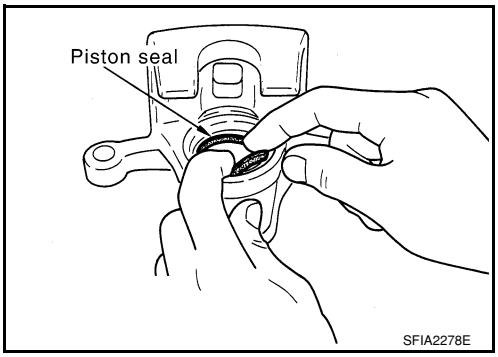
Check sliding pins, sliding pin bolts and sliding pin boots for wear, damage, and cracks. Replace applicable part as necessary.

ASSEMBLY

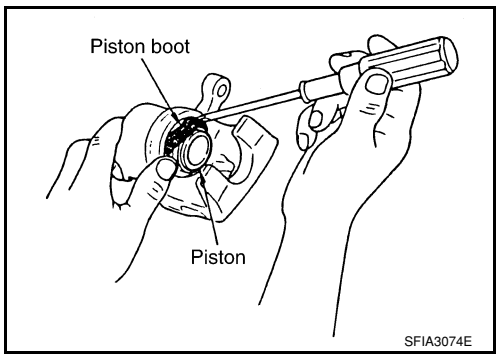
CAUTION:

When assembling, use only specified rubber lubricant.

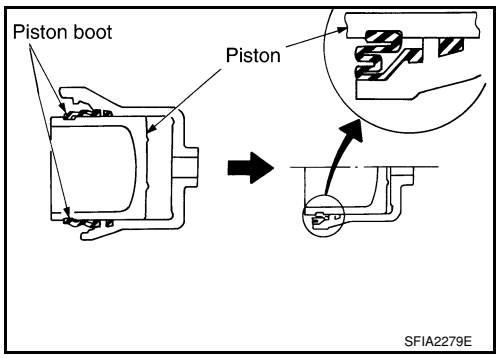
1. Apply polyglycol ether based lubricant to new piston seal and install them to cylinder body.



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



3. Press piston into cylinder body by hand to assemble piston-side lip on piston boot properly into a groove on piston.
CAUTION:
Press piston evenly and change pressing point to prevent inner wall of cylinder from being rubbed.
4. Install sliding pins and sliding pin boots to the torque member.



5. If pads, shims and pad retainers were removed, install them to torque member. Refer to BR-24, "Removal and Installation of Brake Pad" .
6. Install cylinder body to torque member.
7. Install sliding pin bolts.
8. Install caliper assembly to vehicle. Refer to BR-25, "Removal and Installation of Brake Caliper Assembly" .
9. Tighten sliding pin bolts to specified torque. Refer to BR-23, "Component" .

DISC ROTOR INSPECTION

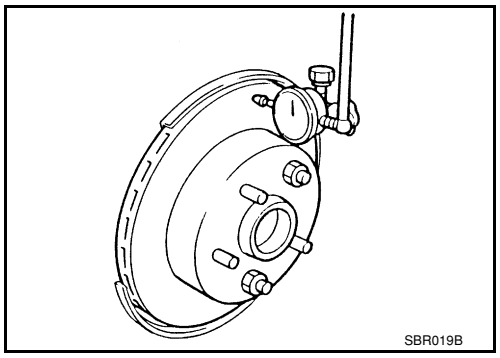
Visual Inspection

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

Runout Inspection

1. Using wheel nuts, secure disc rotor to wheels hub 2 or more positions.
2. Using a dial indicator, check runout.
CAUTION:
Make sure that wheel bearing axial end play is within the specifications before measuring runout. Refer to FAX-5, "On-Vehicle Inspection and Service" .

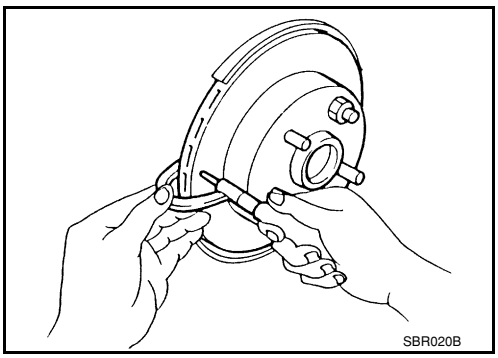
Runout limit : 0.04 mm (0.0016 in) or less [Measured at 10.0 mm (0.394 in) inside the disc edge]



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

Thickness Inspection

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



Standard thickness	**: 24.0 mm (0.945 in)**
Repair limit thickness	**: 22.0 mm (0.866 in)**
Maximum uneven wear (measured at 8 positions)	**: 0.02 mm (0.0008 in) or less**

2. If runout is still out of the specification, grind rotor with on-car brake lathe (″MAD, DL-8700″, ″AMMCO 700 and 705″ or equivalent) until runout becomes within the specified limit.

Brake Burnishing Procedure

INFOID:0000000001703801

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

CAUTION:

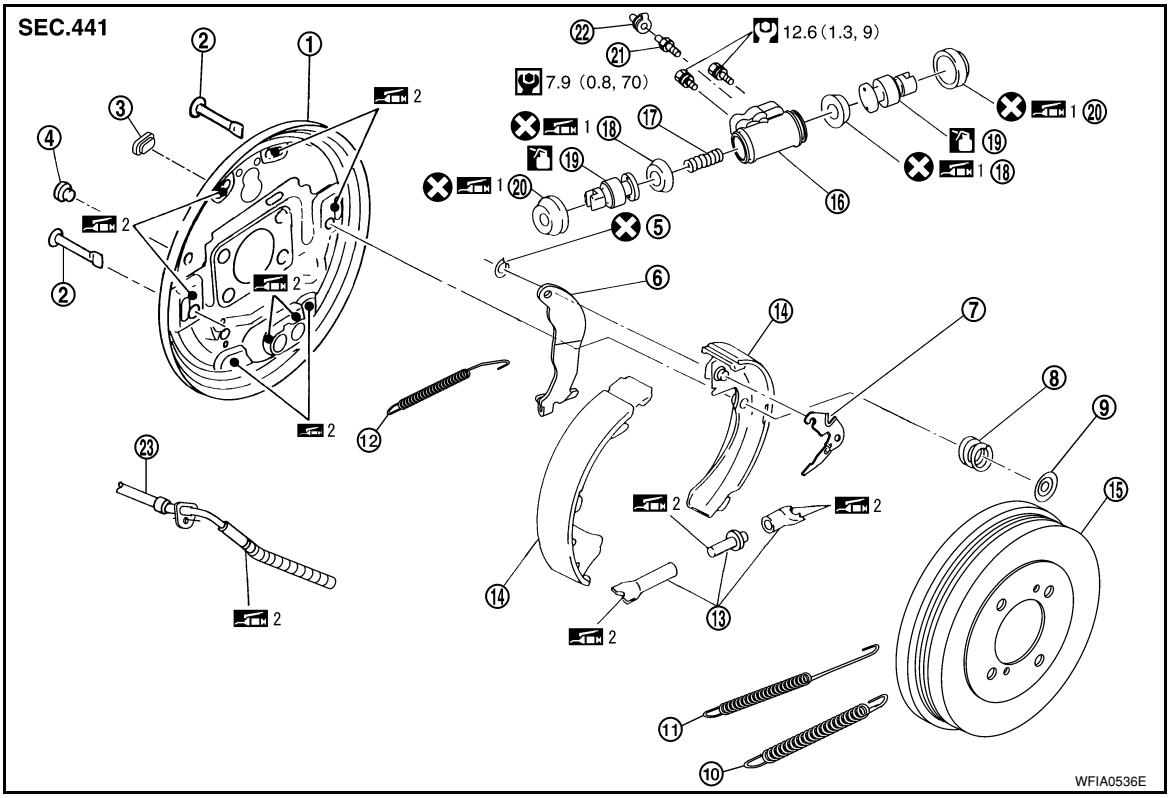
- **Be careful of vehicle speed because brake does not operate easily until pad and disc rotor are securely fitted.**
- **Only perform this procedure under safe road and traffic conditions. Use extreme caution.**

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

REAR DRUM BRAKE

Component

INFOID:0000000001703802



1. Back plate	2. Shoe hold pin	3. Plug
4. Plug	5. Retainer ring	6. Operating lever
7. Adjuster lever	8. Spring	9. Retainer
10. Return spring (lower side)	11. Return spring (upper side)	12. Adjuster spring
13. Adjuster	14. Brake shoe	15. Brake drum
16. Wheel cylinder	17. Spring	18. Piston seal
19. Piston	20. Boot	21. Bleed valve
22. Cap	23. Parking brake rear cable	
1: PBC (Poly Butyl Cuprysil) grease or silicone-based grease	2: Rubber grease	: Brake fluid

Refer to GI section GI-8, "Component" for symbol marks except as shown.

CAUTION:

- **Clean dust on drum and back plate with a vacuum dust collector. Do not blow with compressed air.**
- **Make sure parking brake lever is released completely.**

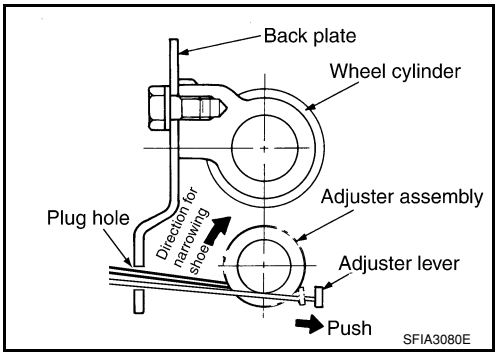
Removal and Installation of Drum Brake Assembly

INFOID:0000000001703803

REMOVAL

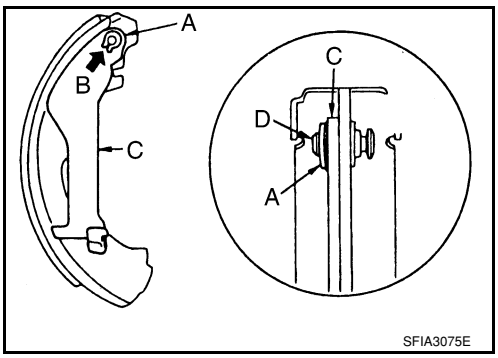
1. Remove tire from the vehicle.
2. With the parking brake lever released, remove the brake drum. If it is difficult to remove brake drum, remove as follows:

a. Press up adjuster lever with a wire or equivalent from plug hole (plug hole at the side of wheel cylinder) on the back plate as shown in the figure. Turn frame of adjuster assembly with a flat bladed screw driver in the direction that narrows frame to narrow enlarged brake shoe.



3. While pushing and rotating the retainer, pull out shoe hold pin, and remove shoe assembly.
   CAUTION:
   Do not damage the wheel cylinder boot.

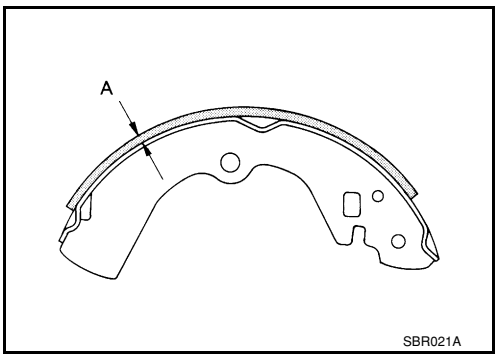
4. Remove the parking brake rear cable from the operating lever.
   CAUTION:
   Do not bend the parking brake cable.
5. Disassemble the shoe assembly (shoe, springs, adjuster, adjuster lever).
6. Remove retainer ring (A) with a tool to separate operating lever (C) from brake shoe.
   - Retainer ring (A)
   - Contact point (B)
   - Operating lever (C)
   - Pin (D)



INSPECTION AFTER REMOVAL

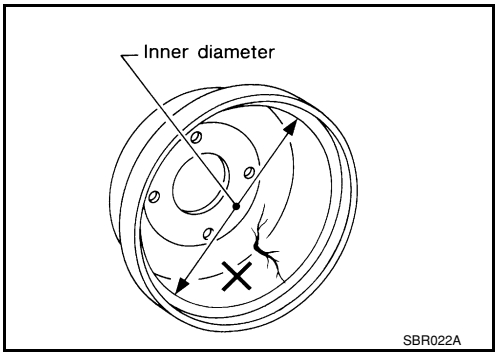
Lining Thickness Inspection
Check lining thickness.

Standard thickness (A) : 4.0 mm (0.157 in)
Repair limit thickness (A) : 1.5 mm (0.059 in)



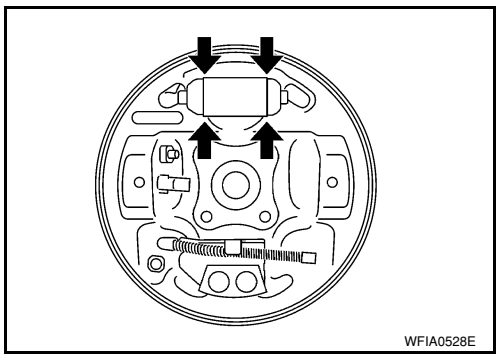
Drum Inner Diameter Inspection
Check inner diameter of brake drum.
Measurement area: lining contact surface (center)

Standard inner diameter : 228.6 mm (9.000 in) dia.
Repair limit inner diameter : 230.0 mm (9.055 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 the following:

- Inside of the drum for excessive wear, damage, and cracks.
- Lining for excessive wear, damage, and peeling.
- Shoe sliding surface for excessive wear and damage.
- Return spring for sagging.
- Check back plate for damage, cracks, and deformation. Replace back plate as necessary.

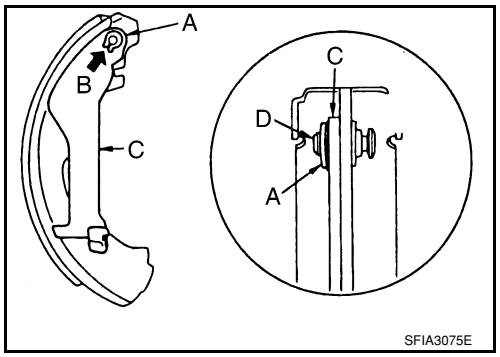
Replace applicable part as necessary.

INSTALLATION

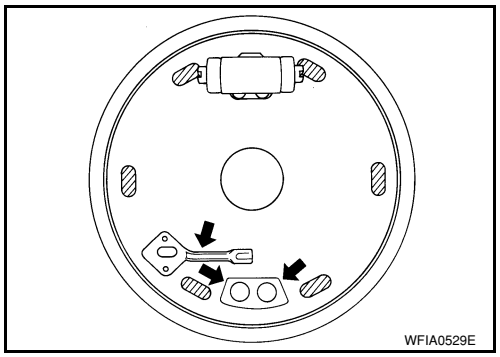
1. If operating lever (C) if removed.

a. Install operating lever (C) to brake shoe.

b. Install retainer ring (A) to operating lever (C), and crimp them until their contact points (B) are met.
   - Retainer ring (A)
   - Contact point (B)
   - Operating lever (C)
   - Pin (D)

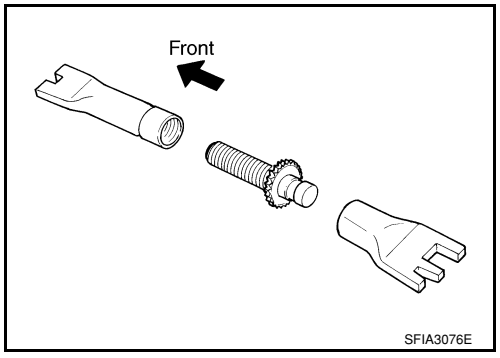


2. Apply Genuine NISSAN brake grease (KRF0000005) to brake shoes sliding surfaces (the shaded areas) and other parts on the back plate as indicated by arrows.



3. Apply Genuine NISSAN brake grease (KRF0000005) to screw and confirm the difference between right and left wheel for assembling when disassembled.

Right rear wheel	**Thread cutting direction**	**: Right-hand screw**
Left rear wheel	**Thread cutting direction**	**: Left-hand screw**



4. Assemble the shoe, adjuster, adjuster lever and springs to the shoe assembly.

5. Connect the parking brake rear cable to the operating lever.
6. Install the shoe assembly. After assembly, be sure that each part is installed properly.
   CAUTION:
   Do not damage the wheel cylinder piston boot.
7. Install the brake drum.
8. Depress brake pedal for several times (approximately 2, 3 times).
9. Adjust clearance of brake shoe. Refer to PB-4, "On-Vehicle Service" .
10. Install tires to the vehicle.

Removal and Installation of Wheel Cylinder

INFOID:0000000001703804

REMOVAL

1. Drain brake fluid. Refer to BR-8, "Drain and Refill" .
2. Remove the rear brake shoe assembly. Refer to BR-29, "Removal and Installation of Drum Brake 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

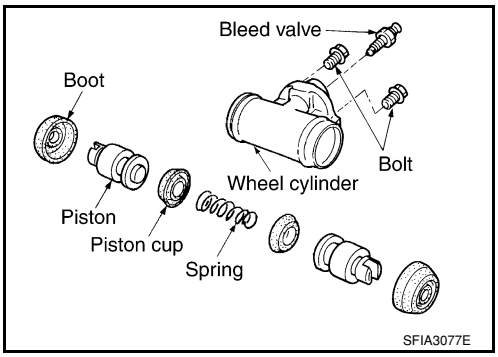
- Installation is the reverse order of removal. Tighten bolts to the specified torque. Refer to BR-29, "Component" .
- Refill with new brake fluid and bleed air. Refer to BR-8, "Bleeding Brake System" .

Disassembly and Assembly of Wheel Cylinder

INFOID:0000000001703805

DISASSEMBLY

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



INSPECTION AFTER DISASSEMBLY

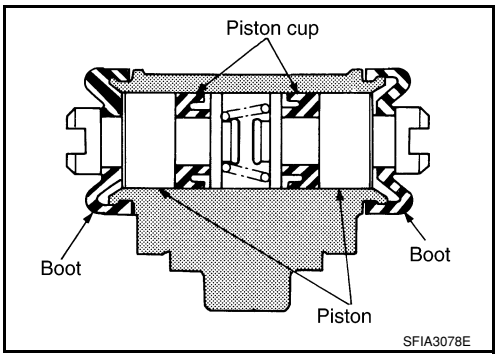
Check the pistons, piston cups, and inner wall of the cylinder for wear, corrosion, and damage. If malfunction is detected, replace it.

ASSEMBLY

CAUTION:

- **Do not use Nissan rubber grease (KRE0000010, KRE000001001) during assembly.**
- **When inserting the piston, be careful not to scratch the cylinder.**

1. Apply brake fluid to the piston sliding surface on the wheel cylinder.
2. Apply Genuine Nissan rubber lubricant (KRE1200030) to the piston cups and piston boots and assemble as shown.



SERVICE DATA AND SPECIFICATIONS (SDS)

General Specification

INFOID:0000000001703806

Front brake	Brake model	CLZ25VA
	Cylinder bore diameter	57.2 mm (2.252 in)
	Pad Length × width × thickness	125.6 mm × 46.0 mm × 9.5 mm (4.945 in × 1.811 in × 0.374 in)
	Rotor outer diameter × thickness	280 mm × 24.0 mm (11.02 in × 0.945 in)
Rear brake	Brake model	LT20D
	Cylinder bore diameter	15.87 mm (0.625 in)
	Lining Length × width × thickness	194.1 mm × 30.0 mm × 4.0 mm (7.642 in × 1.181 in × 0.157 in)
	Drum outer diameter	228.6 mm (9.000 in)
Master cylinder	Cylinder bore diameter	22.22 mm (0.875 in)
Control valve	Valve model	Electric brake force distribution
Brake booster	Booster model	C255
	Diaphragm diameter	255 mm (10.04 in)
Recommended brake fluid		Refer to MA-10 .

Brake Pedal

INFOID:0000000001703807

Unit: mm (in)

Brake pedal free height (from dash panel top surface)	A/T, CVT model	172.4 - 182.4 (6.79 - 7.18)
	M/T model	162.3 - 172.3 (6.39 - 6.78)
Brake pedal depressed height [under a force of 490 N (50 kg-f, 110 lb-f) with the engine running]	A/T, CVT model	98 (3.86) or more
	M/T model	90 (3.54) or more
Clearance between brake pedal lever and the threaded end of stop lamp switch		0.74 - 1.96 (0.0291 - 0.0772)
Pedal play		3 - 11 (0.12 - 0.43)

Check Valve

INFOID:0000000001703808

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

Brake Booster

INFOID:0000000001703809

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	154 - 161 mm (6.06 - 6.34 in)

Front Disc Brake

INFOID:0000000001703810

Unit: mm (in)

Brake model		CLZ25VA
Brake pad	Standard thickness (new)	9.5 (0.374)
	Repair limit thickness	2.0 (0.079)

Disc rotor	Standard thickness (new)	24.0 (0.945)
	Repair limit thickness	22.0 (0.866)
	Runout limit	0.04 (0.0016)
	Maximum uneven wear (measured at 8 positions)	0.02 mm (0.0008 in) or less

Rear Drum Brake

INFOID:0000000001703811

Unit: mm (in)

Brake model		LT20D
Brake lining	Standard thickness (new)	4.0 (0.157)
	Repair limit thickness	1.5 (0.059)
Drum	Standard inner diameter (new)	228.6 (9.000)
	Repair limit inner diameter	230.0 (9.055)