

DAIHATSU

F73,F78

BRAKE

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R7BR00001-00000

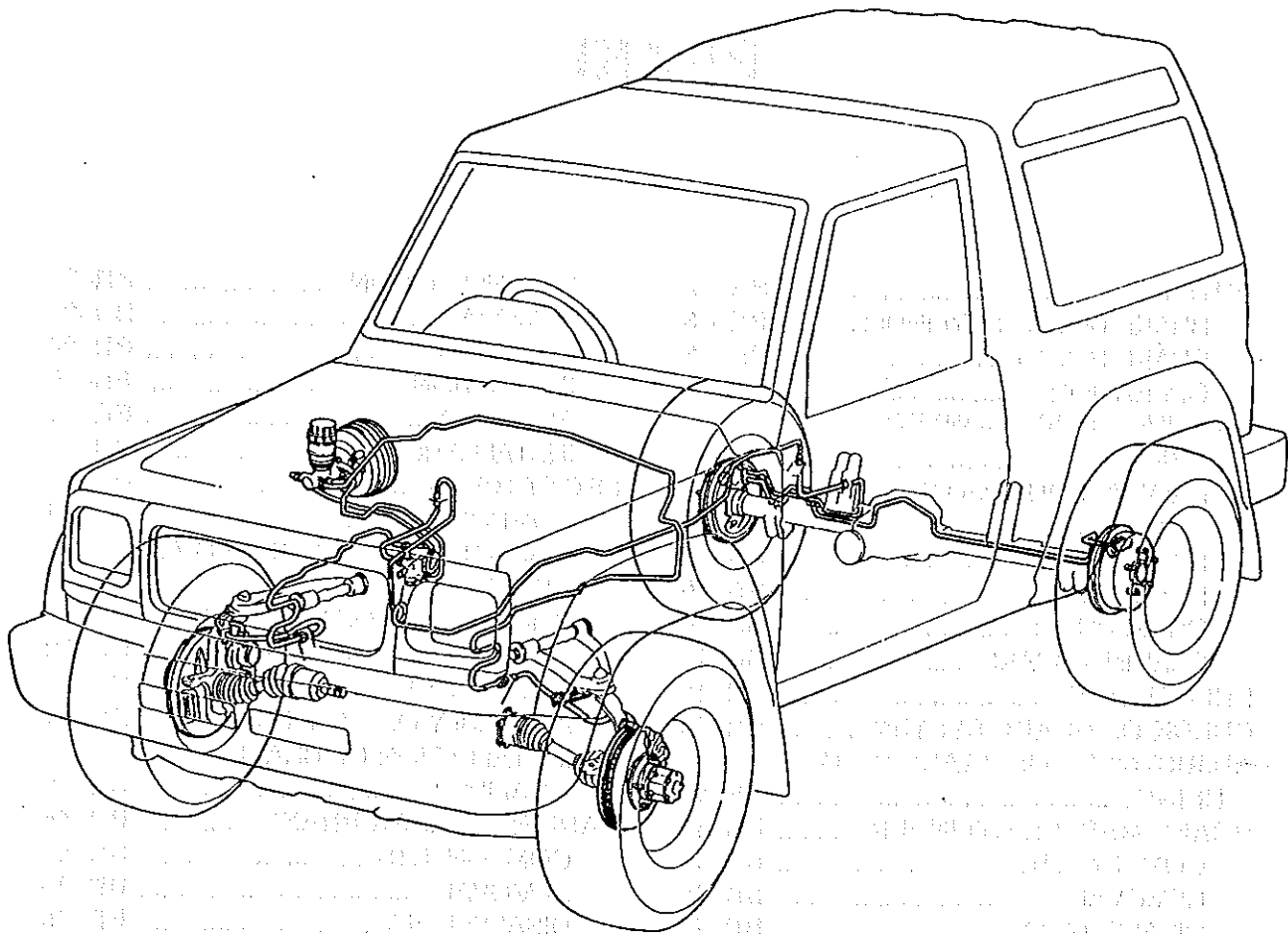
NO. 9705

BR-2

OUTLINE

For improved braking ability and enhanced safety, a tandem type brake booster (7-inch plus 8-inch) has been mounted on all vehicles. Moreover, to achieve the same purpose, the drum diameter of the rear brake has been changed and a P valve equipped with a bypass has been employed.

Brake piping diagram

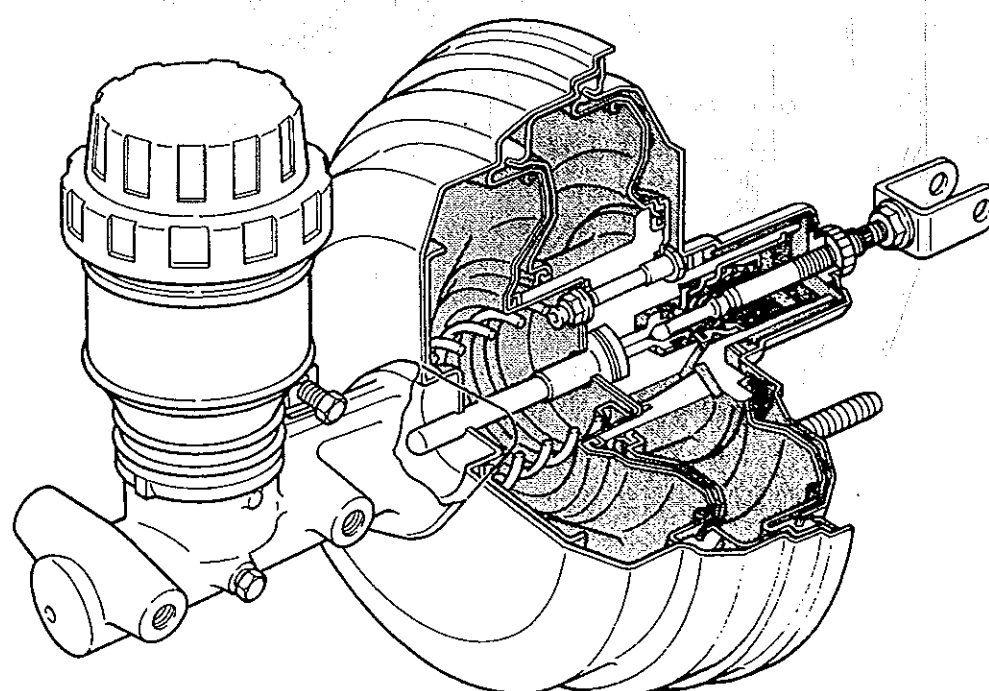
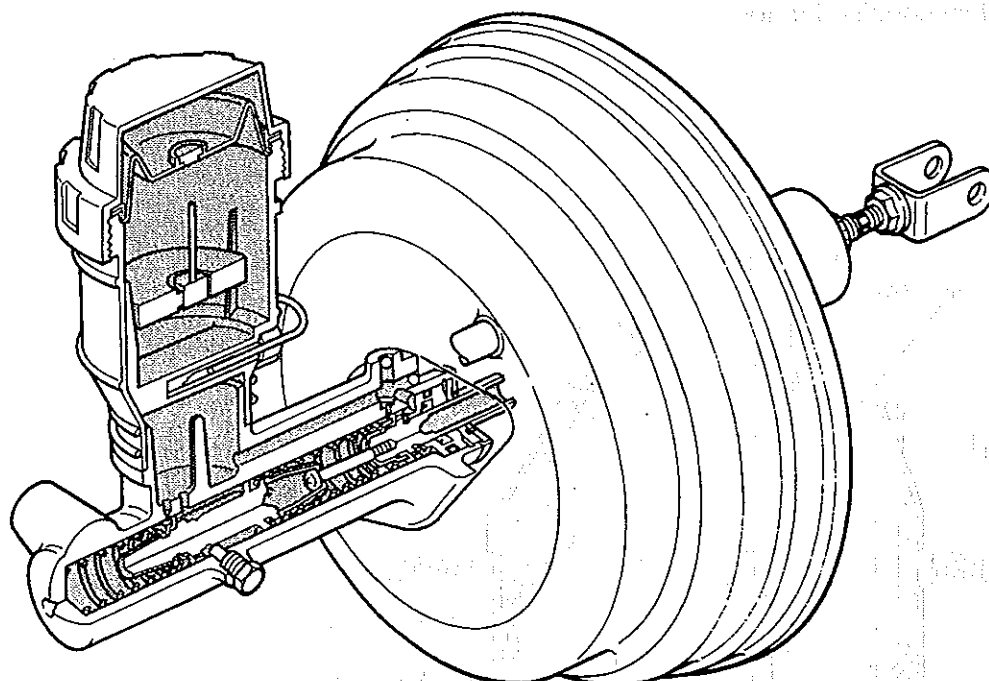


BRAKE MASTER CYLINDER

For improved braking feeling, the bore diameter of the brake master cylinder has been increased, compared with the hitherto-employed brake master cylinder.

BRAKE BOOSTER

In order to improve the braking ability and to reduce the pedal application force, a tandem type brake booster (7-inch plus 8-inch) has been mounted as standard equipment on all vehicles.



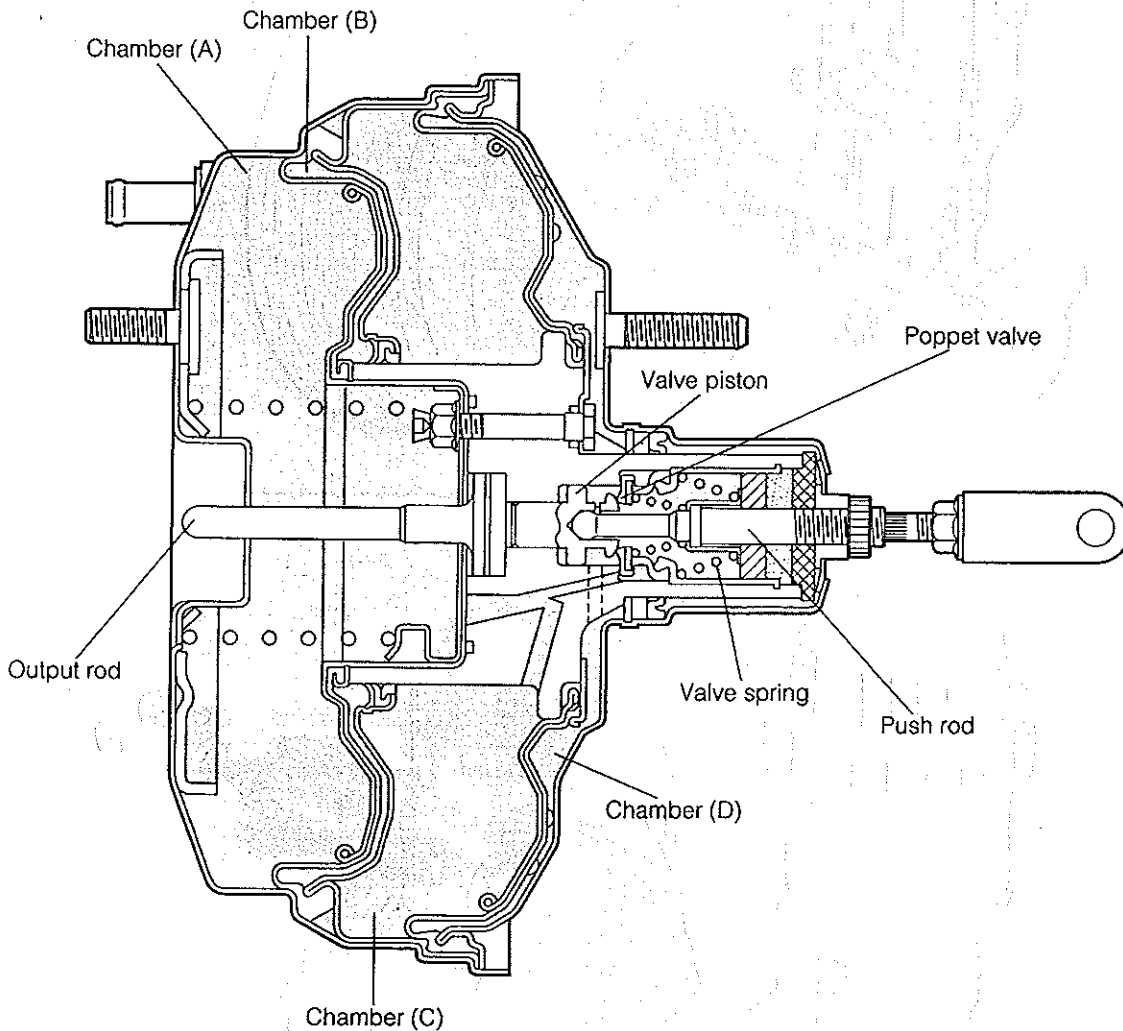
BR-4

OPERATION

When brake pedal is not depressed:

- Under a condition where the brake pedal is not depressed, the push rod is pushed back by means of the valve spring. Hence, the valve piston is pushed against the poppet valve. Consequently, the booster interior is sealed.

Furthermore, a negative pressure is applied to the chambers (A) and (C). As for the chambers (B) and (D), both the negative pressure and atmospheric pressure are shut off from these chambers, although a slight amount of atmosphere still remains. This setting causes the output rod to advance slightly (in the left direction in the illustration). As a result, the clearance between the pistons of the master cylinder is kept at a certain specified range.



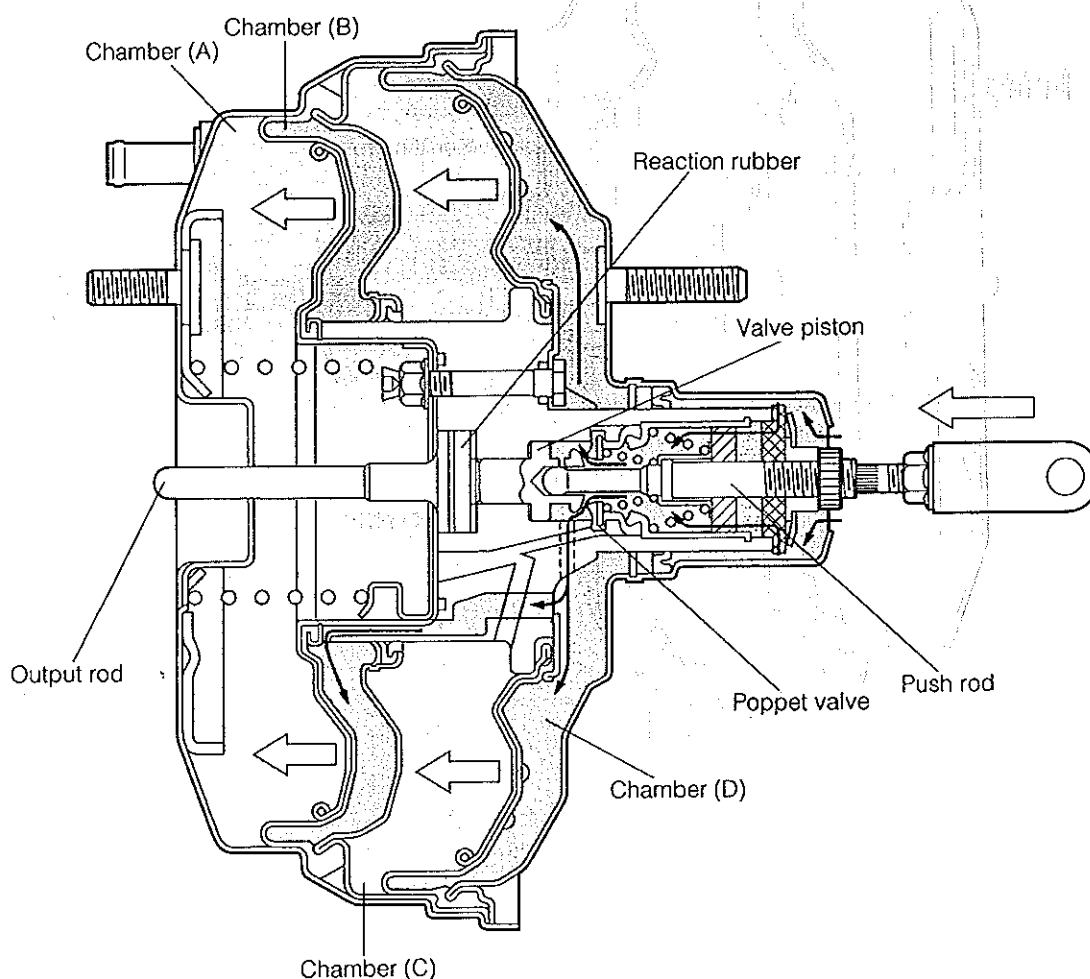
When brake pedal is depressed:

- When the brake pedal begins to be depressed, the push rod is pushed, thereby causing the valve piston to advance (in the left direction in the illustration).

At this time, the valve piston becomes apart from the poppet valve, permitting the atmosphere to flow into the chamber (D) through a gap between the valve piston and the poppet valve. Simultaneously, also the atmosphere flows into the chamber (B) through a passage (1).

Consequently, a difference in pressure occurs between the chamber (D) of the atmospheric pressure and the chamber (C) of the negative pressure. Also, a difference in pressure occurs between the chamber (B) of the atmospheric pressure and the chamber (A) of the negative pressure. Then, the booster plate and valve body are moved forward (in the left direction in the illustration). Thus, the output rod pushes the master cylinder through the reaction rubber.

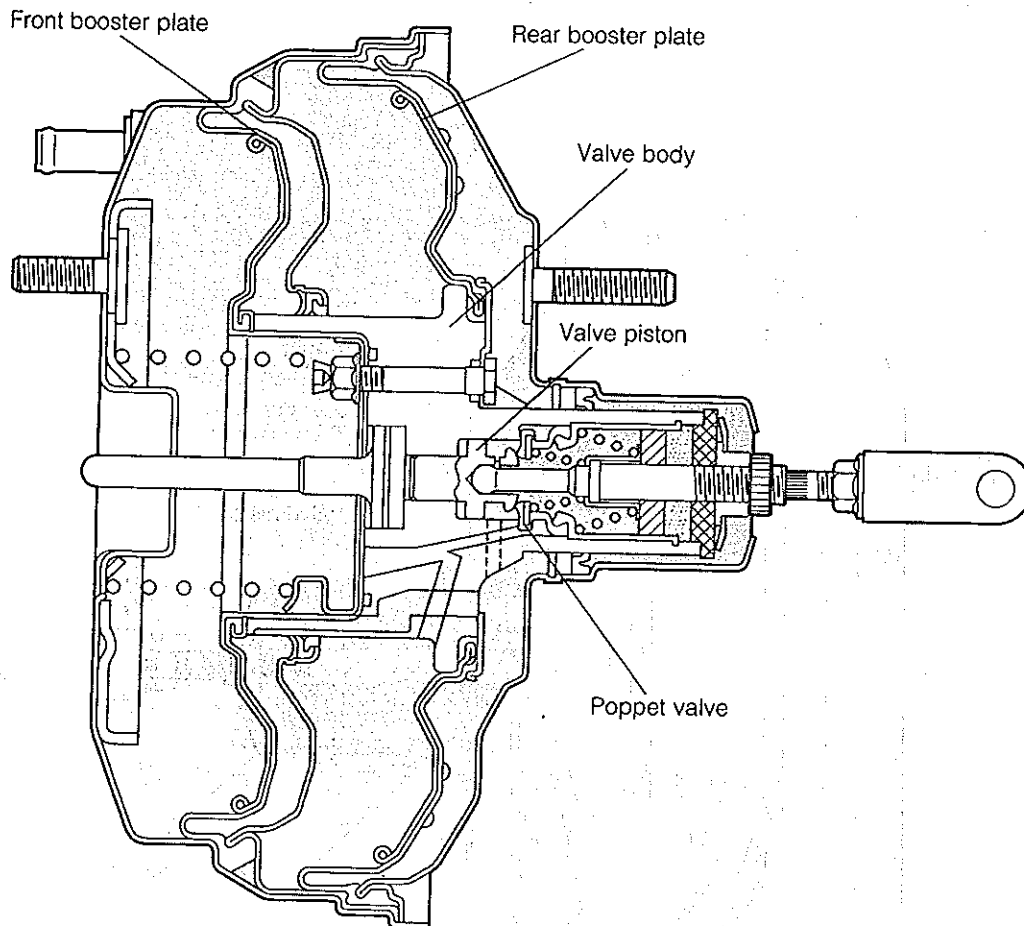
When the brake booster is functioning to the fullest extent and also the application force of the brake pedal is increasing, or when no negative pressure is applied to the brake booster, the pedal application force is transmitted without any reduction from the push rod to the valve piston and valve body. Thus, the output rod pushes the brake master cylinder piston.



BR-6

Brake holding condition:

- When the brake pedal is held midway (brake holding condition), the poppet valve makes contacts with both the valve body and valve piston at a point where the application force of the brake pedal (transmitted from the push rod) counterbalances to the pressure difference occurring at the booster plate. Consequently, all of the brake pedal application force and the force pushing the master cylinder come to equilibrium. Thus, the brake pedal is retained in an equilibrium state.

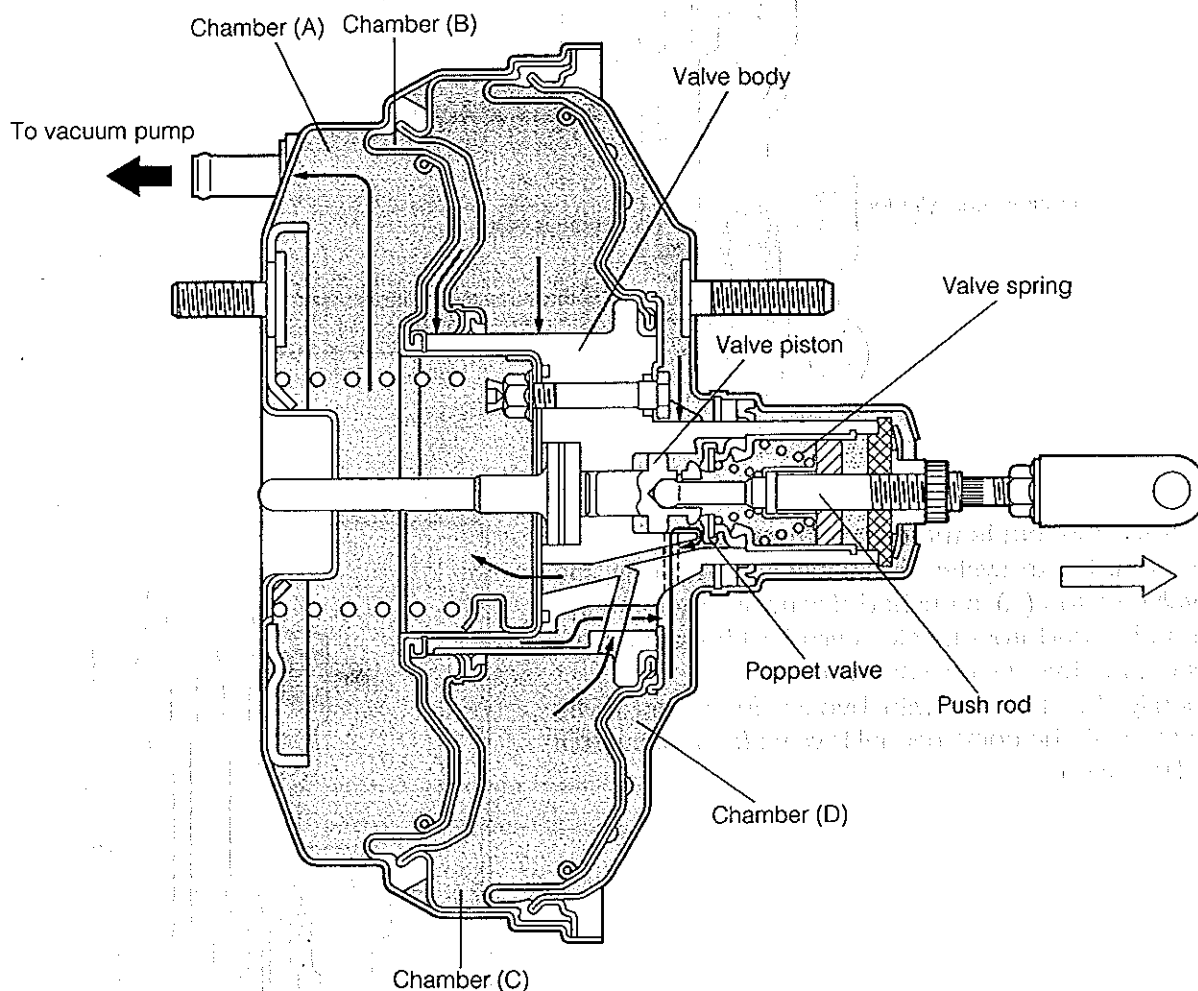


When brake pedal is released:

- When the brake pedal is released, the push rod moves backward (in the right direction in the illustration) by means of the valve spring. Then, the valve piston is brought into contact with the poppet valve, permitting the booster interior sealed.

Further, the valve piston pushes the poppet valve so that the poppet valve may become apart from the valve body. Consequently, a continuity condition exists between the chamber (B) and chamber (D) as well as between the chamber (A) and chamber (C).

Therefore, the atmosphere in the chambers (B) and (D) is discharged from the chamber (A) by means of the vacuum pump. In this way, any difference in pressure between the chamber (A) and chamber (B) as well as between the chamber (C) and chamber (D) no longer exists. As a result, the valve piston is pushed back by the booster spring.

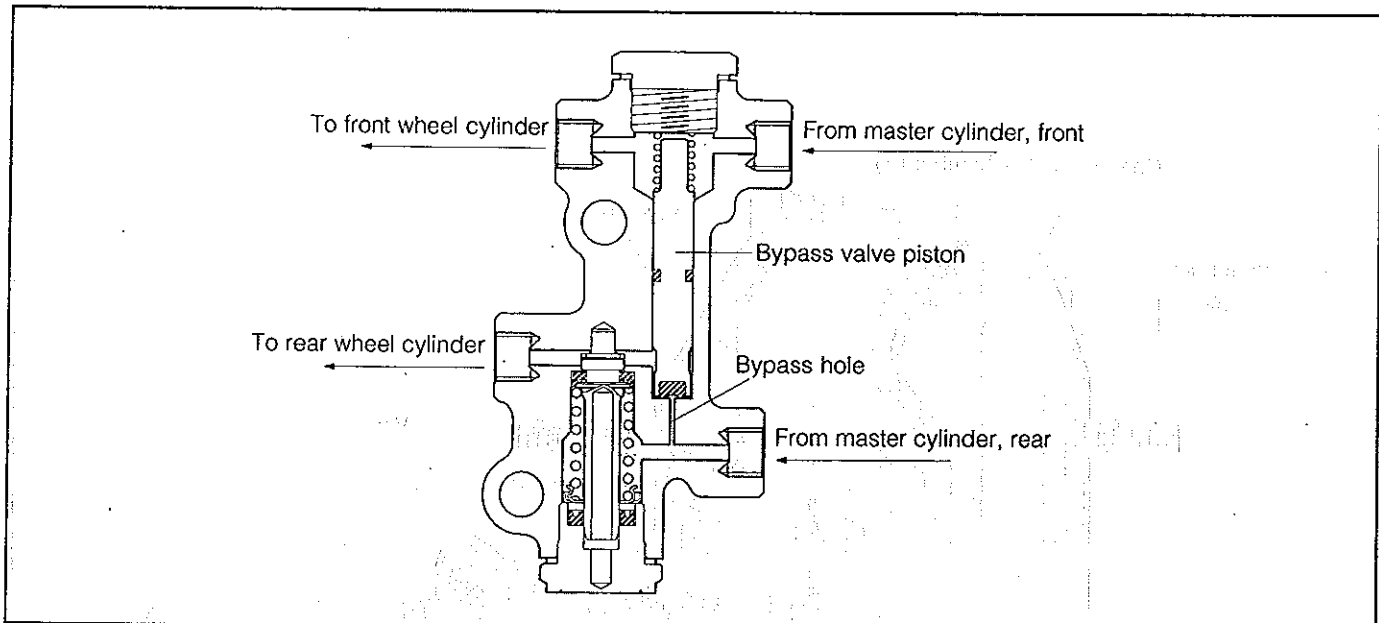


BRAKING FORCE CONTROL DEVICE

The braking force control device is standard equipment on all vehicles. Furthermore, newly adopted is a P valve equipped with bypass which makes it possible to increase the braking force acting on the rear wheels in the event of front brake failure.

P VALVE EQUIPPED WITH BYPASS

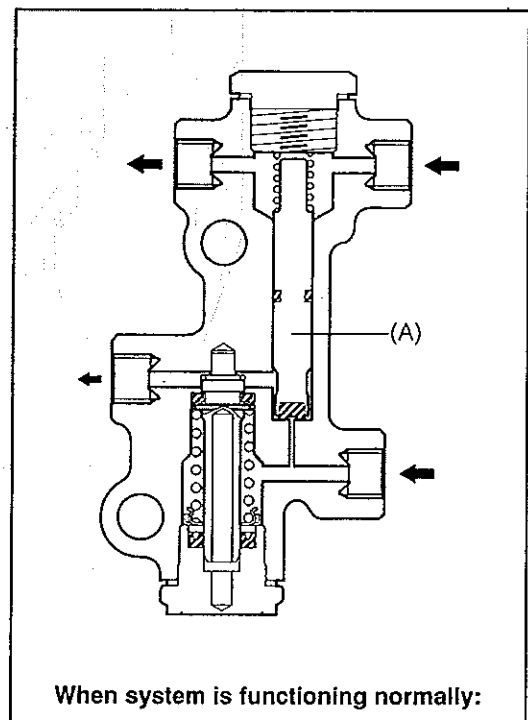
- The function of a conventional P valve is to control the output hydraulic pressure (rear wheel cylinder hydraulic pressure), for the purpose of preventing earlier rear wheel locking, when the input hydraulic pressure (rear master cylinder hydraulic pressure) exceeds a certain specified value so that the rear wheel locking may not occur earlier than the front wheel locking. In addition to the hitherto-existing functions, the newly adopted P valve equipped with bypass suspends the control of the rear wheel cylinder hydraulic pressure in the event of front brake failure so that the braking forces may be assured at all times.



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When front brake system is functioning normally:

- When the front brake system is functioning normally, the bypass valve piston (A) is pushed downward by the compression spring and front master cylinder hydraulic pressure. Hence, the bypass passage is closed. Consequently, the P valve with bypass functions in the same way as with the conventional P valve (as indicated in the right illustration).

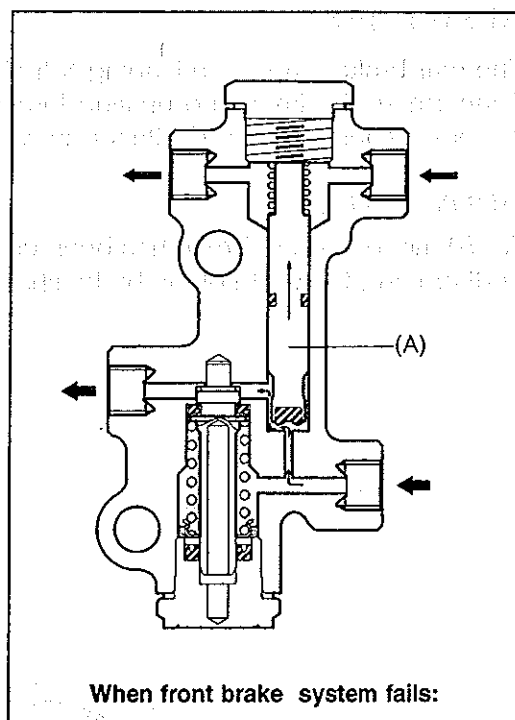


When system is functioning normally:

R7BR00009-99999

When front brake system fails:

- When the front brake system encounters a failure, the front master cylinder hydraulic pressure drops. Therefore, the bypass valve piston (A) is pushed upward by the rear master cylinder hydraulic pressure, thereby opening the bypass passage. Thus, the rear master cylinder hydraulic pressure works directly as the rear wheel cylinder hydraulic pressure.



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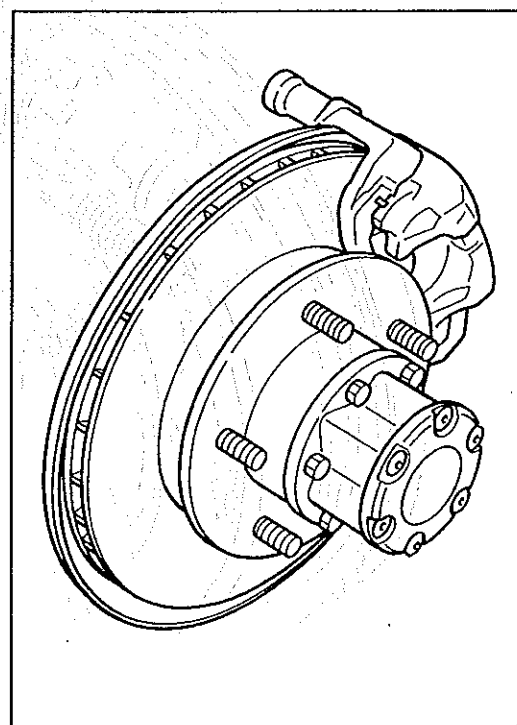
FRONT BRAKE

- The front brake comes in two kinds: One is a solid type (not treated by dacrotizing) and the other is a ventilated type (treated by dacrotizing).

Vehicles, equipped with solid type brake	
F73LG-MMDS	F78LG-BMDS
F73LG-BMDS	F78RG-BMDS
F73RG-MMDS	—
(F73LG-MMHT)	—

NOTE:

- In case of the vehicle model in parentheses (), the ventilated type disc brake is optional equipment. As for vehicle models other than those listed at the above, the ventilated type disc brake is standard equipment.



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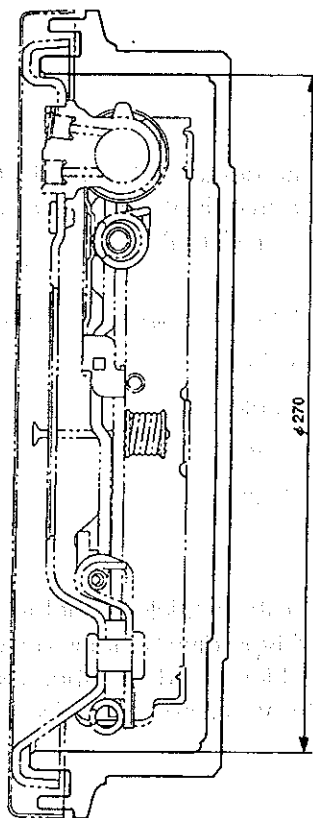
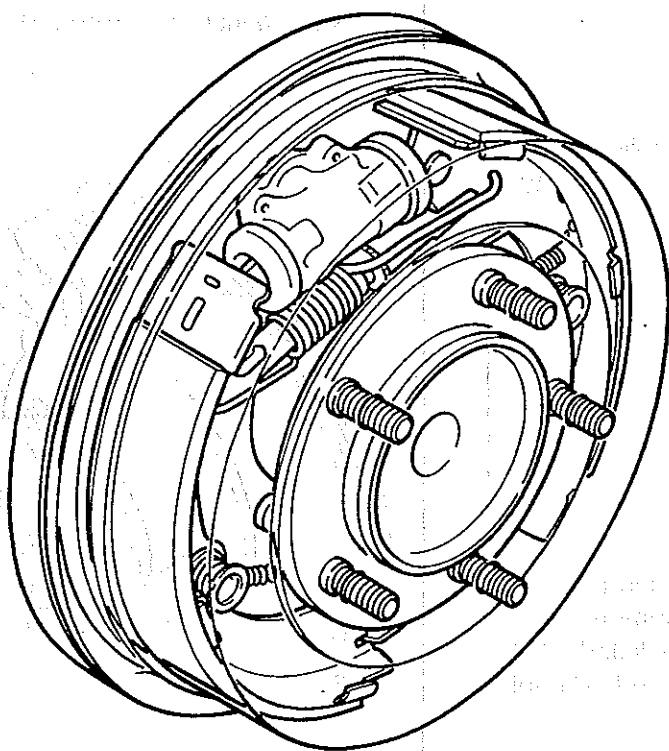
BR-10

REAR BRAKE

The rear brake employs a leading & trailing shoe type drum brake in the same way as before. Furthermore, for improved braking forces, the drum diameter has become larger and the lining width has become wider, compared with former vehicles.

DRUM BRAKE

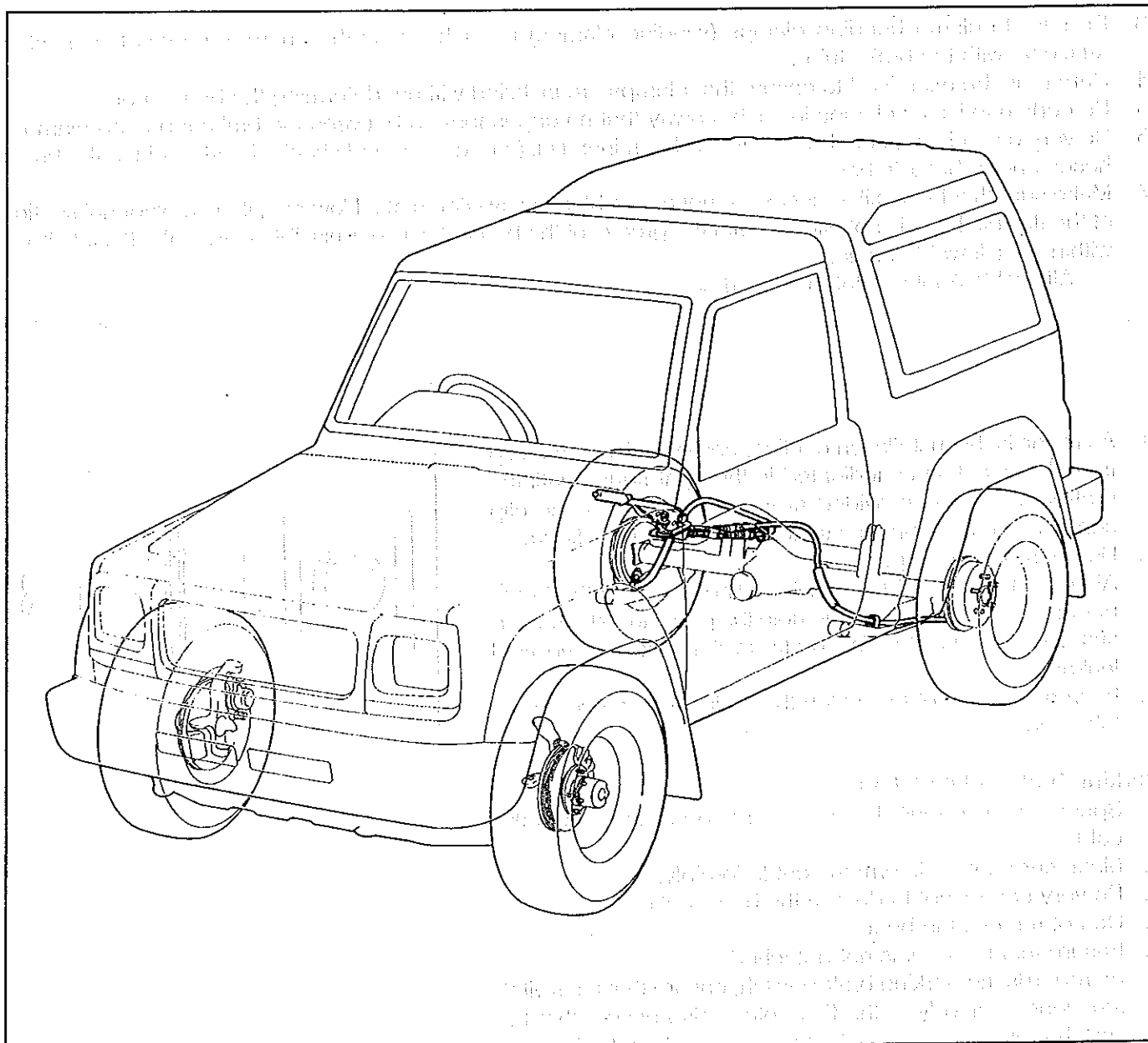
A 270 mm dia. drum brake has been used on all vehicles. Furthermore, the width of the brake shoe lining has been increased to 55 mm.



PARKING BRAKE

The parking brake employs a center lever type, with the braking force applied to the two rear wheels, in the same way as before.

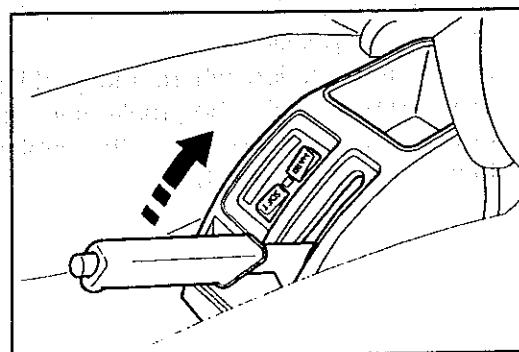
As a result of changes in the suspensions, the routing of the parking brake cable has been modified partially. Furthermore, the lever ratio has been changed so as to enhance the braking force. Other items of the parking brake remain unchanged.



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Parking brake lever

For enhanced braking force, the lever ratio of the parking brake lever has been altered.



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BR-12

PRECAUTION

Brake piping-related items

1. Never assemble the brake tube by deforming it purposely.
2. When tightening the flare nut, torque it to the specified value, while retaining the way section or the hose union section by means of a flare nut wrench or the like.

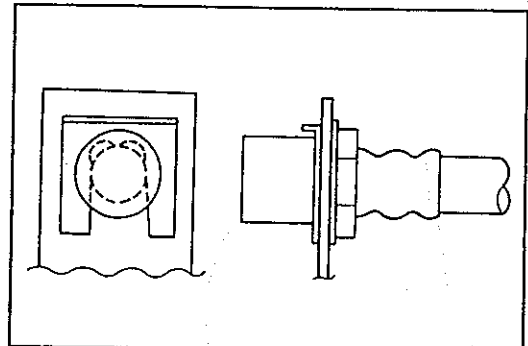
Tightening Torque: 12.7 - 17.7 N·m (1.3 - 1.8 kgf-m, 9.4 - 13.0 ft-lb)

3. Be sure to clamp bending clamps (winding clamps) in such a way that there is no displacement in relational with the brake tube.
4. Care must be exercised to ensure that clamps are installed without deforming the brake tube.
5. Be certain to install clamps in such a way that no gap is formed between the brake tube and clamp.
6. Be very careful not to get brake fluid and/or mineral oil (e.g. grease and shock absorber oil) to the brake hoses and/or brake tubes.
7. Make sure that the flexible hoses are not assembled in a twisted state. However, if the hexagonal section of the flexible hose is not aligned with the groove of the bracket, it is permissible to twist the flexible hose within the allowable angle.

Allowable Angle: Not to exceed 30°

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8. As regards the installation of clips, positively insert the clip from the direction as indicated in the right figure, until the protruded section provided at the central part of the clip contacts the hose union, as indicated in the right figure.
9. Do not reuse the clip.
10. After completion of brake air bleeding, depress the brake pedal at a force of 25 kgf and hold the pedal in a depressed state. Make sure that the brake system exhibits no fluid leakage.
11. Be very careful not to scratch the brake hose and/or brake tube surface.



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Parking brake-related items

1. Special caution must be paid so as to not to scratch the cable.
2. Make sure not to deform the cable forcibly.
3. Be very careful not to deform the boot section.
4. Do not remove the boot.
5. Ensure that the boot is not detached.
6. As regards the parking brake switch, ensure that the switch functions positively at the first notch. Also ensure that the switch makes correct contact with the parking brake lever attaching bolt when the parking brake lever is returned to the original position.
7. As for the section where the parking brake cables are crossed with each other, make sure that there exists a gap of at least 20 mm between the cables and under the unloaded state of the vehicles.

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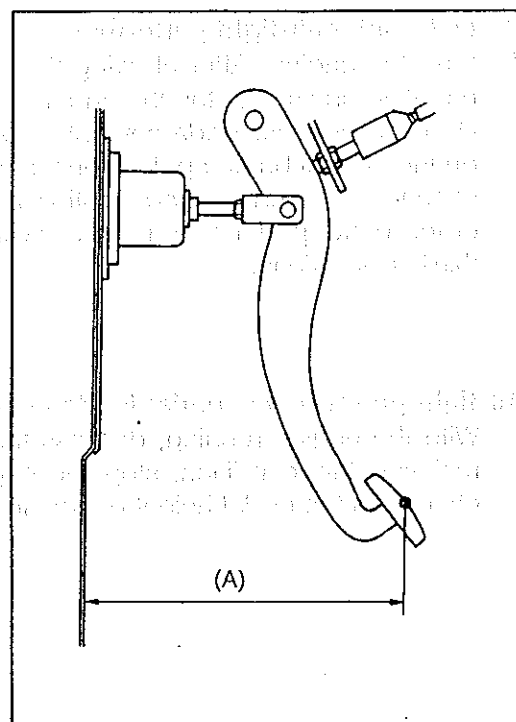
CHECK OF BRAKE SYSTEM

Brake pedal height

1. Measure the distance between the center of the pedal applying surface and the dash panel surface which is in parallel to the brake pedal applying center surface. Ensure that the measured value complies with the specifications. Also, ensure that the center of the brake pedal surface is located higher than the center of the accelerator pedal surface by 24 ± 6 mm in the case of the R.H.D; 28 ± 6 mm in the case of the L.H.D vehicles.

Specified Brake Pedal Height: 206 ± 3 mm

If not, adjust the brake pedal height.



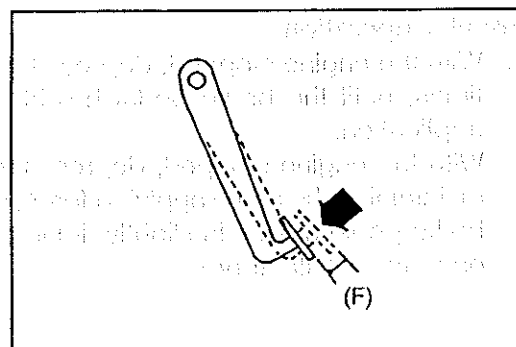
R7BR00018-99999

Brake pedal free travel

1. After stopping the engine, depress the brake pedal firmly four or five times so that no vacuum may remain in the brake booster.
2. Measure the brake pedal free travel (F) by pushing the brake pedal lightly with fingers. Ensure that the free travel is within the specifications.

Specified Value: Less than 5 mm

If not, adjust the brake pedal free travel.



R7BR00019-99999

Brake pedal reserve travel

1. With the engine running at the idling speed and with the parking brake lever released, apply the specified load to the brake pedal. Measure the distance between the center of the brake pedal applying surface and the lower end of the dash panel. Ensure that the distance complies with the specifications.

Specified Load: 25 kgf

Specified Value: 113 mm or more

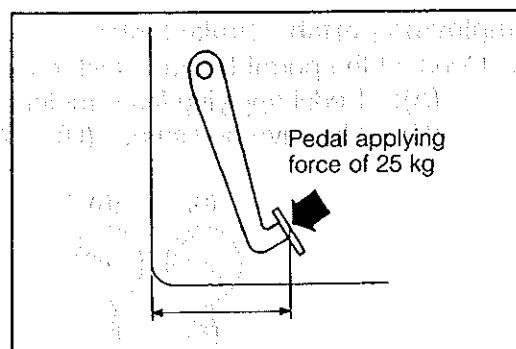
NOTE:

- If the measured value is lower than specified value, check the air bleeding condition and/or check and repair the brake automatic adjustment system.

2. When the brake pedal is held under the specified load in step (1), ensure that the height of the brake pedal applying surface remains unchanged.

NOTE:

- If the brake pedal applying surface drops, check the brake fluid for leakage and/or repair the brake fluid leakage as required. Moreover, perform the brake master cylinder overhauling, as required.

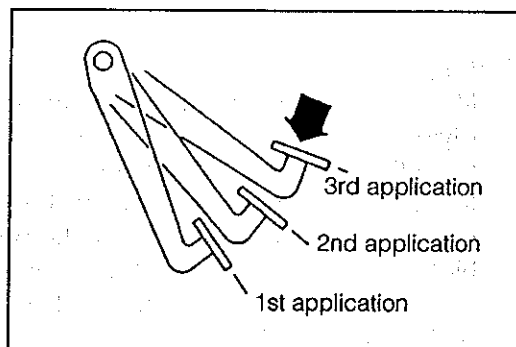


R7BR00020-99999

BR-14

Brake booster air-tight performance

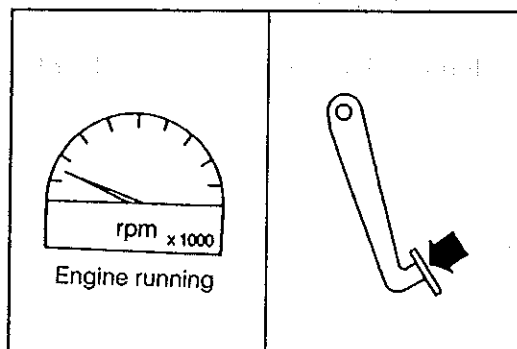
1. Start the engine. After allowing the brake booster to hold negative pressure, stop the engine.
2. Depress the brake pedal several times, applying force used during normal brake applications and allowing at least five seconds between each application. Ensure that the position of the brake pedal rises progressively at the second and third applications.



R7BR00022-99999

Air-tight performance under loaded condition

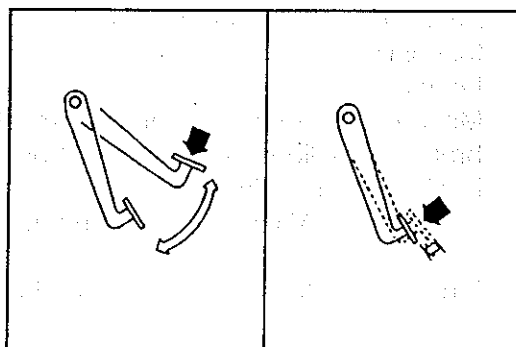
1. With the engine running, depress the brake pedal. While maintaining this condition, stop the engine. Ensure that no change in the pedal height occurs in about 30 seconds.



R7BR00023-99999

Booster operation

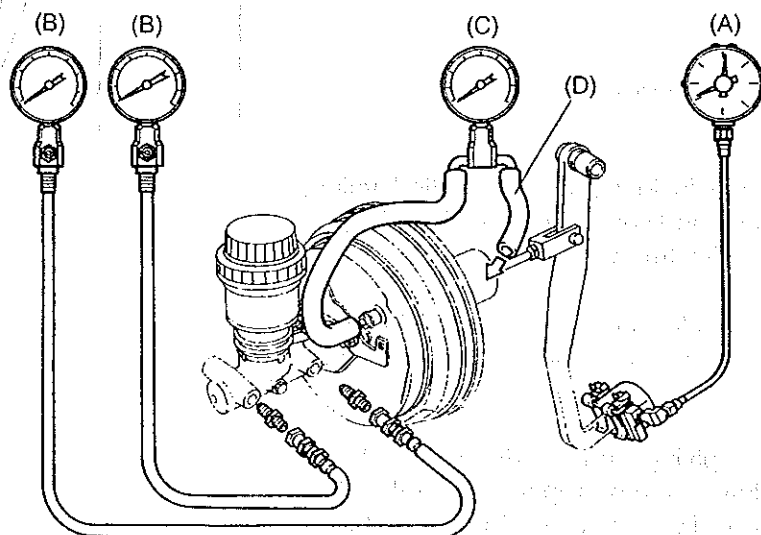
1. With the engine stopped, depress the brake pedal several times, until the brake pedal height will not vary at each application.
2. With the engine stopped, depress the brake pedal. While maintaining the same applying force, start the engine. If the brake pedal moves in slightly, it indicates that the booster operates satisfactory.



R7BR00024-99999

Employing portable brake tester

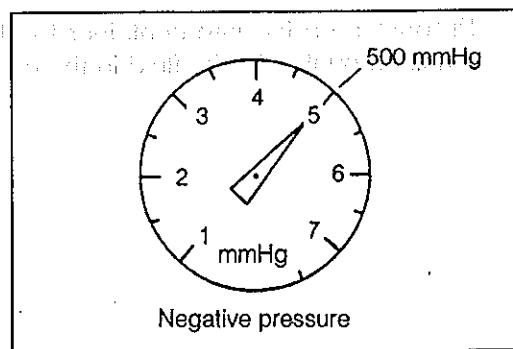
1. Connect the portable brake tester, as indicated in the figure below. Perform air bleeding.
(A): Pedal applying force meter, (B): Pressure gauge
(C): Negative pressure, (D): Vacuum hose



R7BR00025-99999

Booster air-tight performance

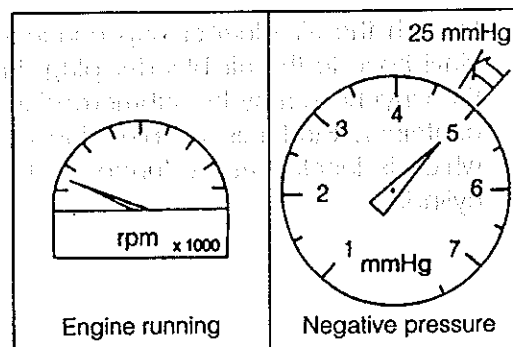
1. Start the engine. Apply a negative pressure of 500 mmHg to the brake booster.
2. Stop the engine. Ensure that no negative pressure drops for 15 seconds after the engine has stopped. If not, check the check valve and brake booster.



R7BR00026-99999

Booster air-tight performance under loaded condition

1. Start the engine.
2. Depress the brake pedal with a force of 20 kgf.
3. Apply a negative pressure of 500 mmHg to the booster.
4. Stop the engine.
5. Ensure that the negative pressure drop does not exceed 25 mmHg for 15 seconds after the engine has stopped. If not, repair the brake booster.



R7BR00027-99999

Brake hydraulic pressure

1. With the engine stopped, depress the brake pedal several times so that no negative pressure may not apply to the brake booster.
2. Ensure that the hydraulic pressure is obtained in accordance with the pedal applying force, as indicated in the right figure.

Pedal applying force: kgf	Hydraulic pressure: MPa (kgf/cm ²)
10	0 - 0.8 (0 - 6)
20	1.0 - 1.6 (8 - 18)
30	19 - 29 (19 - 29)

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Booster operation

1. Start the engine.
2. Set the booster negative pressure to 500 mmHg. Ensure that the hydraulic pressure is obtained in accordance with the pedal applying force. If not, repair the brake booster.

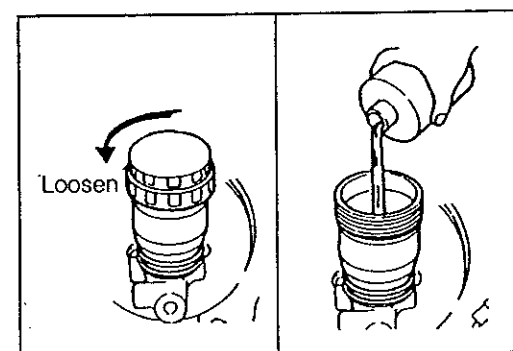
Pedal applying force: kgf	Hydraulic pressure: MPa (kgf/cm ²)
5	1.8 - 2.6 (6 - 14)
10	4.7 - 5.7 (24 - 34)
20	8.6 - 9.6 (63 - 73)
30	9.5 - 10.5 (74 - 84)

R7BR00029-00000

Air bleeding of brake system

1. Filling brake fluid
Fill the brake reservoir tank with the specified brake fluid to the full level. Maintain the full level at all times during the brake air bleeding.

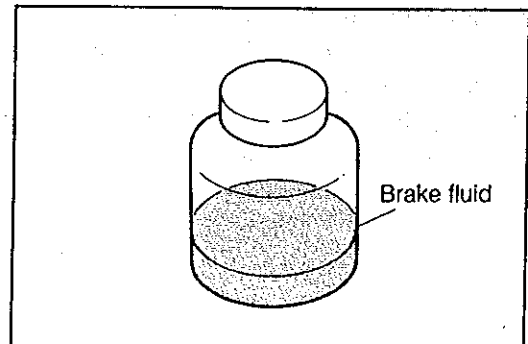
Specified Brake Fluid: DOT 3 or SAEJ 1703



R7BR00030-99999

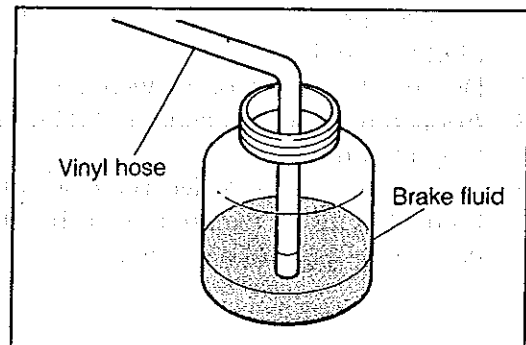
BR-16

2. Prepare an adequate container for the air bleeding. Fill a small amount of brake fluid in the container.



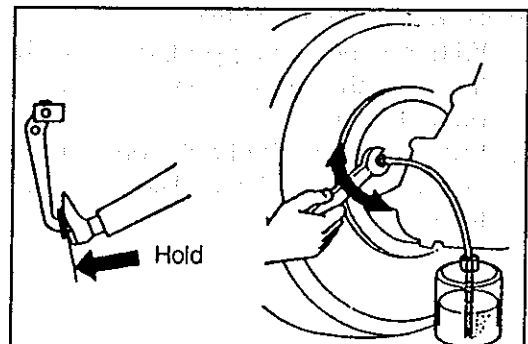
R7BR00031-99999

3. Detach the air bleeder cap connect one end of suitable vinyl hose to the air bleeder plug. Insert the other end of the vinyl hose may be submerged in the brake fluid in the container. Start this air bleeding operation at the brake which is located at the furthestmost point from the master cylinder.



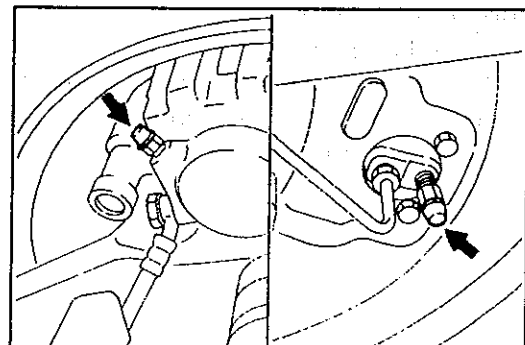
R7BR00032-99999

4. AIR bleeding
This operation should be performed by two persons.
(1) One person depress the brake pedal several times and hold it in a depressed state.
(2) The other person loosens the air bleeder plug 1/3 through 1/12 turn to bleed the air. Tighten the plug again.
(3) Repeat the steps (1) and (2), until no air or bubble comes from the air bleeder plug.
5. Tighten the air bleeder plug to the specified torque.
Tightening Torque: 8.8 - 12.8 N·m
(0.9 - 1.3 kgf-m, 6.5 - 9.4 ft-lb)



R7BR00033-99999

6. Install the bleeder plug cap to the bleeder plug.
7. Perform air bleeding for the other brakes in turn, starting from the step 3.
8. Perform the brake pedal reserve travel check. (see page BR-13.)



R7BR00034-99999

ADJUSTMENT OF BRAKE PEDAL HEIGHT

1. Disconnect the connector of the stop lamp switch.
2. Loosen the lock nut (1) of the stop lamp switch.
3. Back off the stop lamp switch.

NOTE:

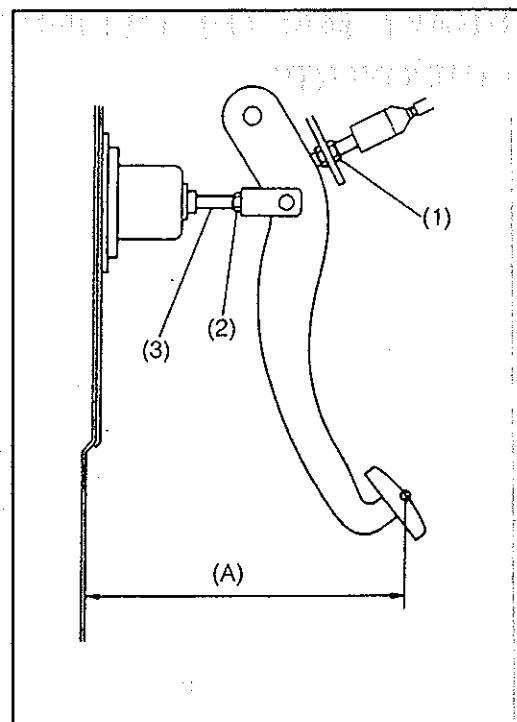
- Be very careful not to twist the code by turning it together with the switch.

4. Loosen the lock nut of the clevis (2).
5. Turn the push rod (3) to adjust the pedal height to the specified height.

Specified Height: 206 ± 3 mm

NOTE:

- The measurement should be made the center of the brake pedal applying surface and the dash panel surface which is in parallel to the brake pedal applying center surface.



R7BR00035-09999

6. Screw in the stop lamp switch, until the lower end of the threaded portion is brought into contact with the brake pedal cushion.
7. Tighten the stop lamp switch lock nut (1).
Tightening Torque: 17.7 - 29.4 N·m (1.8 - 3.0 kgf-m, 13.0 - 21.7 ft-lb)
8. Turn the push rod (3), until the brake pedal free travel becomes the specified value.
Specified Value: Less than 5 mm

NOTE:

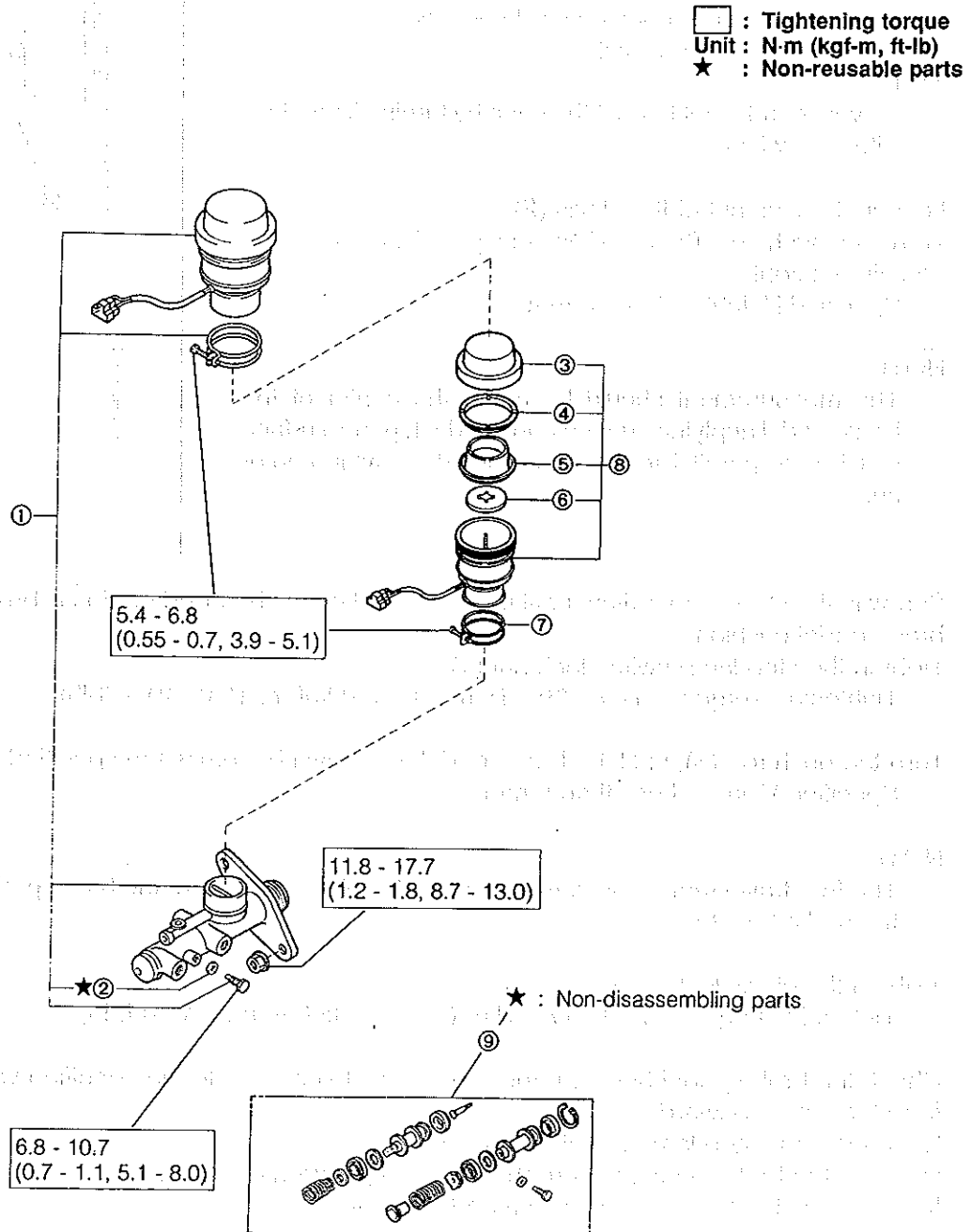
- The free travel represents a mechanical play observed before the brake pedal pushes the push rod of the brake booster.

9. Tighten the clevis lock nut (2).
Tightening torque: 11.8 - 17.7 N·m (1.2 - 1.8 kgf-m, 8.7 - 13.0 ft-lb)
10. Check the brake pedal height. If the height fails to conform to the specified value, repeat the operation from the step 2 onward.
11. Reconnect the stop lamp switch connector.
12. Depress the brake pedal. Ensure that stop lamp switch goes on.
If not, check the brake lamp system and repair its.

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BR-18

BRAKE MASTER CYLINDER COMPONENTS



REMOVAL

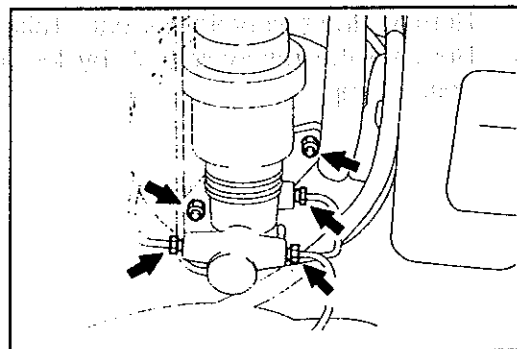
CAUTION:

- If the brake fluid is spilled in advertently over the paint finish surface of the vehicle, quickly wipe off the brake fluid. In addition, wipe the affected area, using white gasoline or the like.

1. Drain the brake fluid from the rear and front wheel cylinder.
2. Pull out the washer tank.

R7BR00038-00000

3. Disconnect the brake fluid level switch connector.
4. Disconnect the brake tubes from the master cylinder, using a flare nut wrench.
5. Remove the brake master cylinder from the brake booster by removing the brake master cylinder attaching nuts.



R7BR00039-99999

DISASSEMBLY

1. Clamp the master cylinder in a vice.

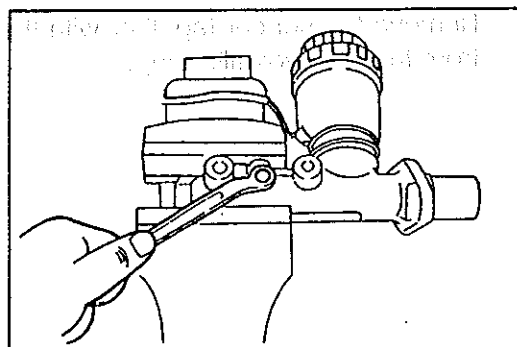
NOTE:

- Do not apply excessive force when installing the master cylinder to a vice.

2. Remove the piston set bolt with the gasket.

NOTE:

- Do not reuse the removed gasket.

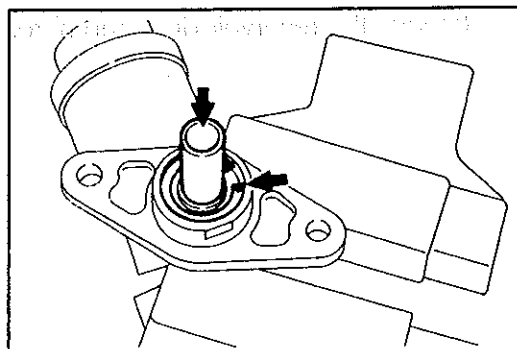


R7BR00040-99999

3. While pushing down the piston by your fingers, remove the snap ring, using the snap ring plier.

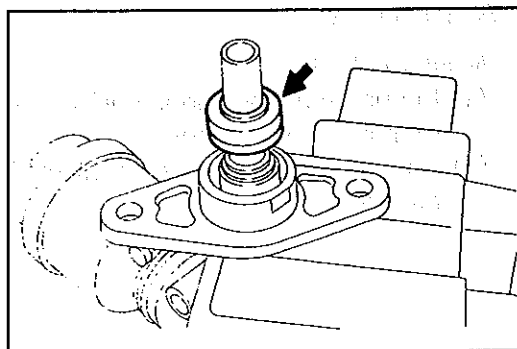
NOTE:

- Do not scratch the cylinder bore surface.
- Do not reuse the removed snap ring.



R7BR00041-99999

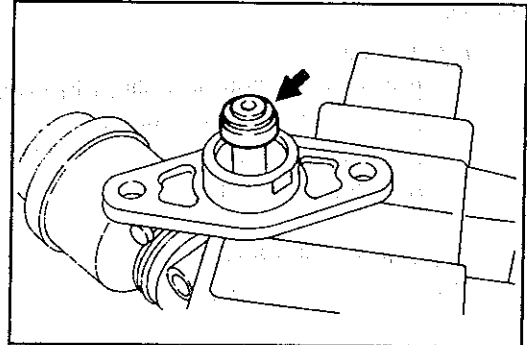
4. Remove the brake master cylinder piston No. 1 and piston cup.



R7BR00042-99999

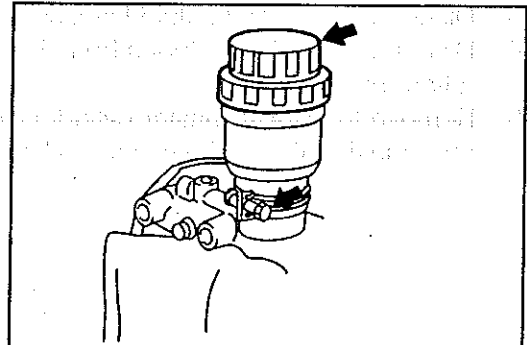
BR-20

5. Remove the brake master cylinder piston No. 2 by blowing air from the brake pipe connecting hole.



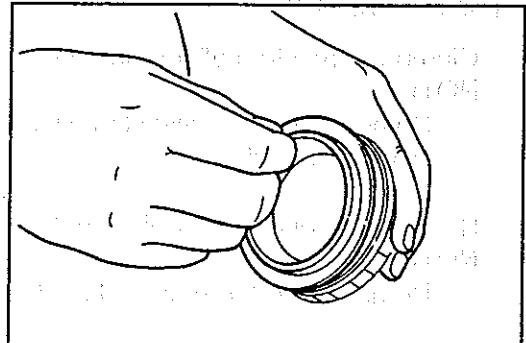
R7BR00043-99999

6. Remove the reservoir filler cap. Take out the float.
7. Remove the reservoir tank by loosening the reservoir tank hose clamp.



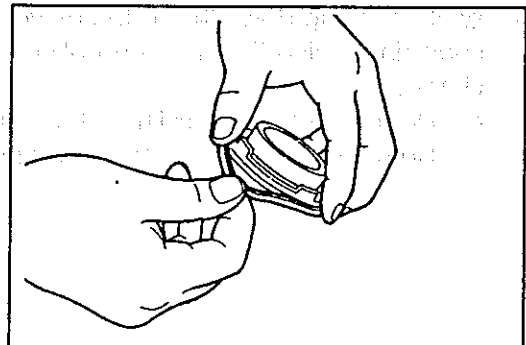
R7BR00044-99999

8. Remove the spacer together with the reservoir diaphragm from the reservoir filler cap.



R7BR00045-99999

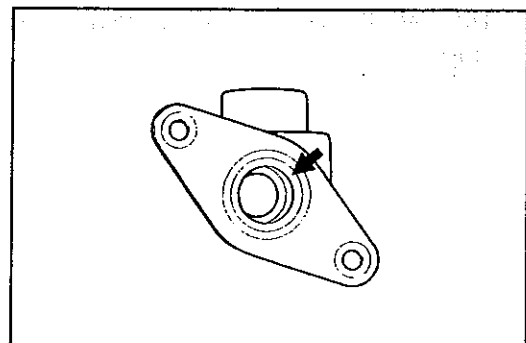
9. Remove the reservoir diaphragm from the spacer.



R7BR00046-99999

INSPECTION

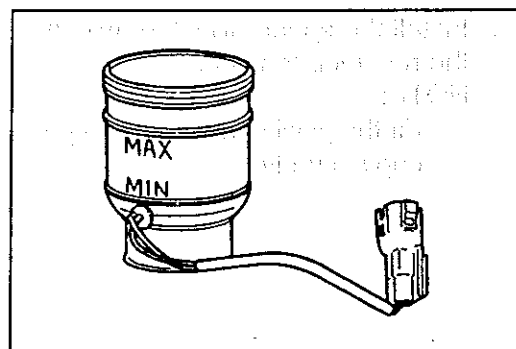
1. Master cylinder
 - (1) Ensure that the inner surface of the master cylinder exhibits no scratches.
 - (2) Ensure that the reservoir tank exhibits no damage, such as cracks.



R7BR00047-99999

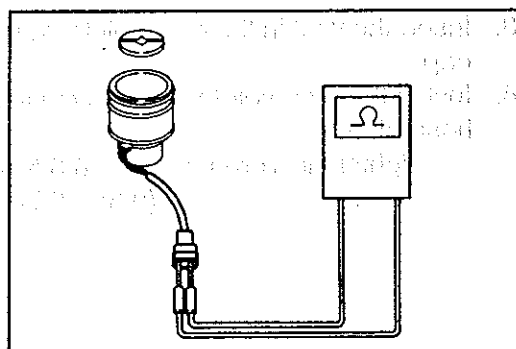
2. Reservoir tank

- (1) Ensure that the reservoir tank exhibits no damage, such as cracks.



R7BR00048-99999

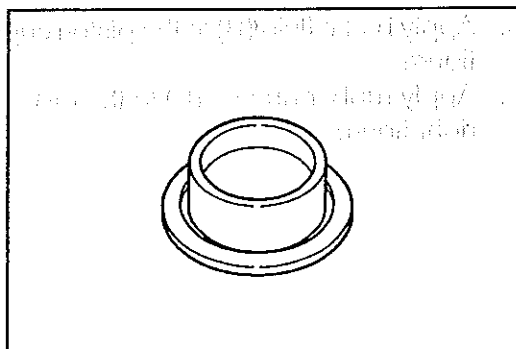
- (2) Ensure that continuity exists between the terminal of the connector when the float is put in the reservoir tank. Also ensure that no continuity exists when the float is taken out from the reservoir tank. If not replace the reservoir tank.



R7BR00049-99999

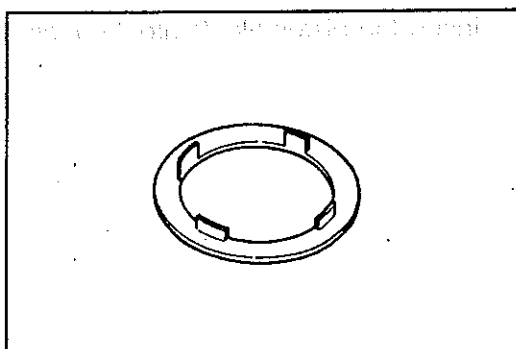
3. Reservoir tank cap, diaphragm and spacer

- (1) Ensure that the reservoir tank cap exhibits no damage, such as cracks.
- (2) Ensure that the reservoir diaphragm exhibits no damage, such as cracks and holes.



R7BR00050-99999

- (3) Ensure that the spacer exhibits no damage, such as cracks.



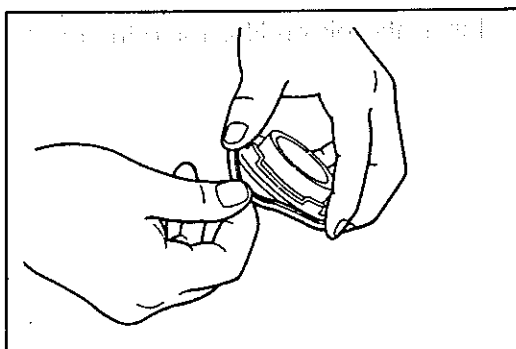
R7BR00051-99999

ASSEMBLY

1. Install the reservoir diaphragm to the spacer.

NOTE:

- Be sure to fit the reservoir diaphragm to the recessed section of the spacer.



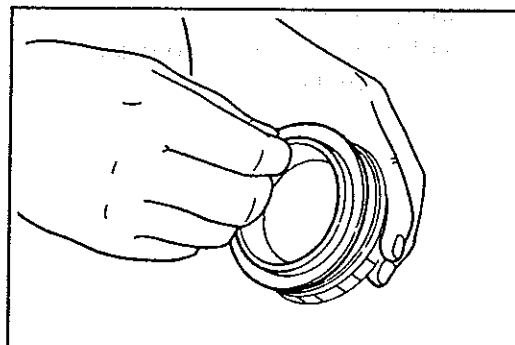
R7BR00052-99999

BR-22

2. Install the spacer together with the reservoir diaphragm to the reservoir tank cap.

NOTE:

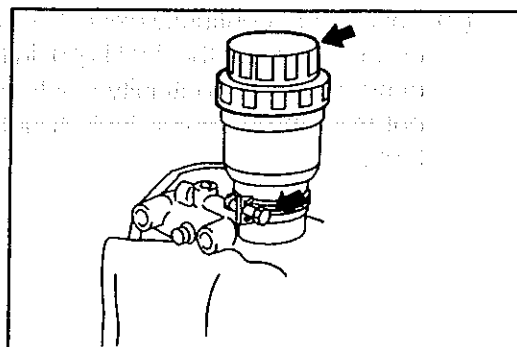
- Fit the pawl section of the spacer into the reservoir tank cap securely.



R7BR00053-99999

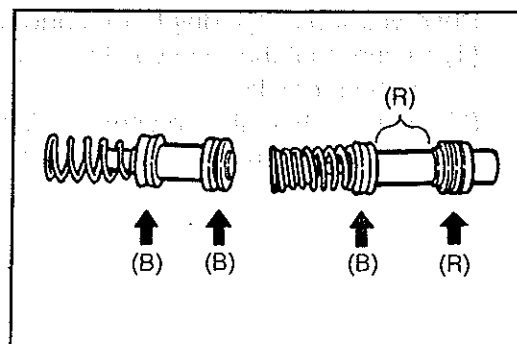
3. Insert the float in the reservoir tank. Install the reservoir tank cap.
4. Install the reservoir tank to the master cylinder. Tighten the hose clamp.

Tightening Torque: 5.4 - 6.8 N·m
(0.55 - 0.70 kgf-m, 3.9 - 5.1 ft-lb)



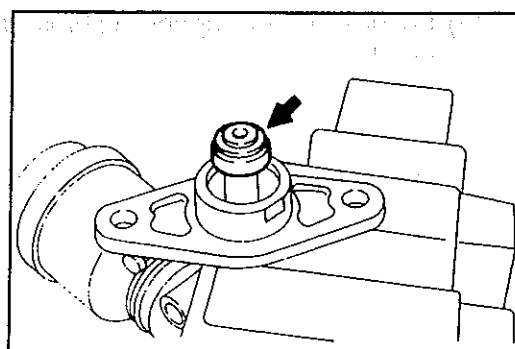
R7BR00054-99999

5. Apply brake fluid (B) to the piston cups indicated in the right figure.
6. Apply rubber grease (R) to the piston cups indicated in the right figure.



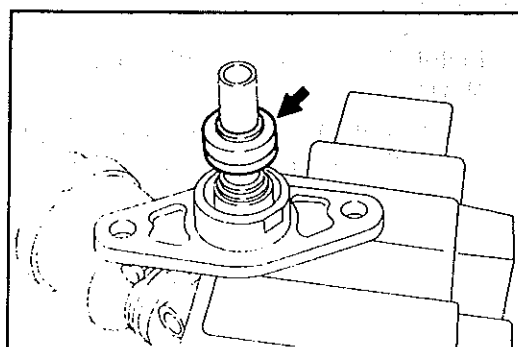
R7BR00055-99999

7. Insert the piston No. 2 into the master cylinder.



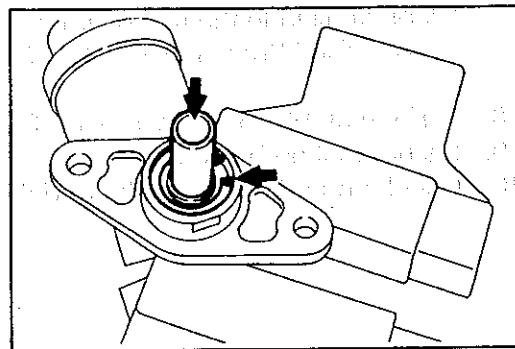
R7BR00056-99999

8. Insert the piston No. 1 into the master cylinder.



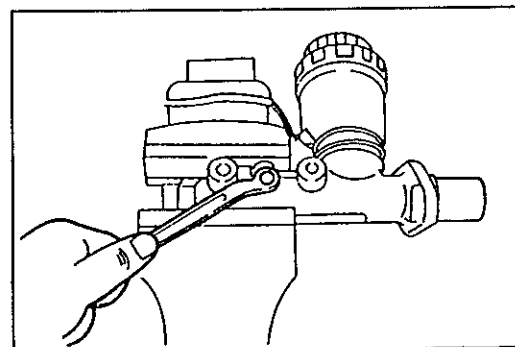
R7BR00057-99999

9. While pushing down the piston No. 1 by your fingers, install a new snap ring with the snap ring plier.



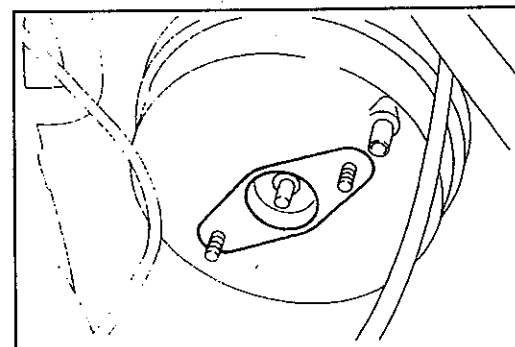
10. With a new gasket interposed, install the set bolt to the master cylinder and tighten them.

Tightening Torque: 6.8 - 10.7 N·m
(0.7 - 1.1 kgf-m, 5.1 - 8.0 ft-lb)



INSTALLATION

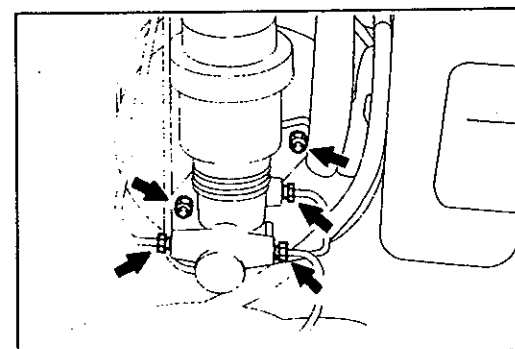
1. Ensure that the gasket at the brake booster side exhibits no damage. If any damage is present, replace the gasket.
2. Adjust the clearance between the brake booster push rod and the master cylinder.
(see page BR-27.)



3. Install the master cylinder to the brake booster. Tighten the adjusting nuts evenly to the specified torque over two or three stages.

NOTE:

- The installation section at the vehicle exterior side should be tightened together with the connector bracket of the brake fluid level switch.



4. Connect the brake tubes to the master cylinder. Fully tighten the flare nuts with your fingers and tighten them to the specified torque, using a flare nut wrench.

Tightening Torque: 12.7 - 17.7 N·m
(1.3 - 1.8 kgf-m, 8.7 - 13.0 ft-lb)

5. Reconnect the brake fluid level switch connector.
6. Install the washer tank.

BR-24

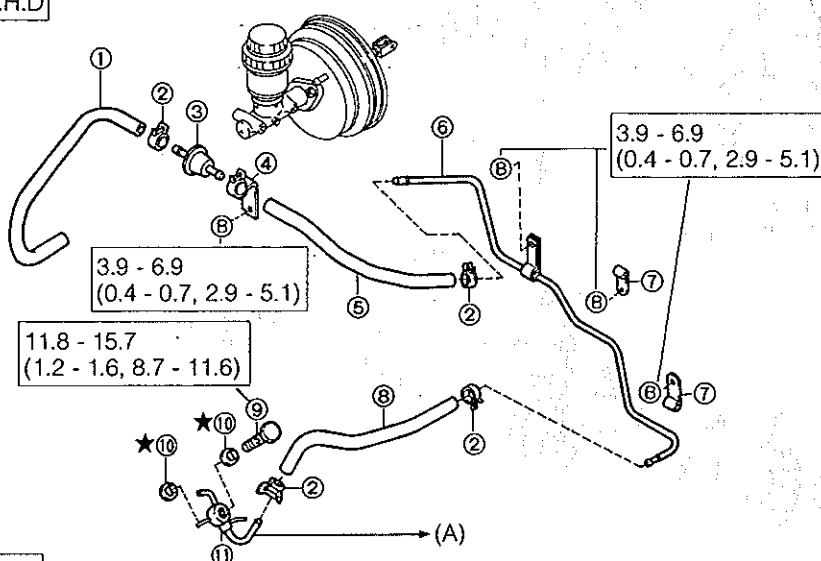
7. Fill brake fluid to the reservoir tank.
Specified Brake Fluid: DOT 3 or SAEJ 1703
8. Perform air bleeding. (see page BR-16.)
9. Ensure that no brake fluid is present.
10. Check and adjust the brake pedal height.

R7BR00063-00000

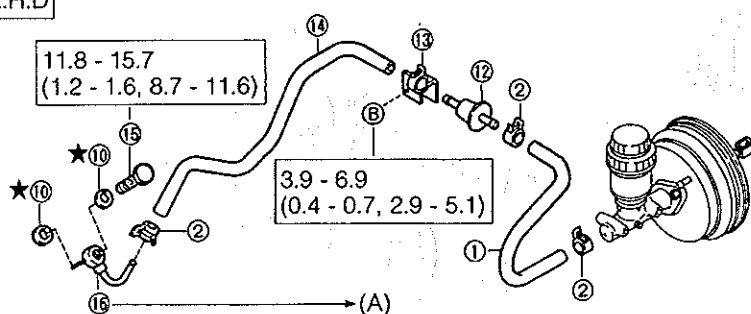
HOSE & CLAMP COMPONENTS

□ : Tightening torque
Unit : N·m (kgf·m, ft·lb)
★ : Non-reusable parts

R.H.D



L.H.D



(A) ON BOTH R.H.D & L.H.D

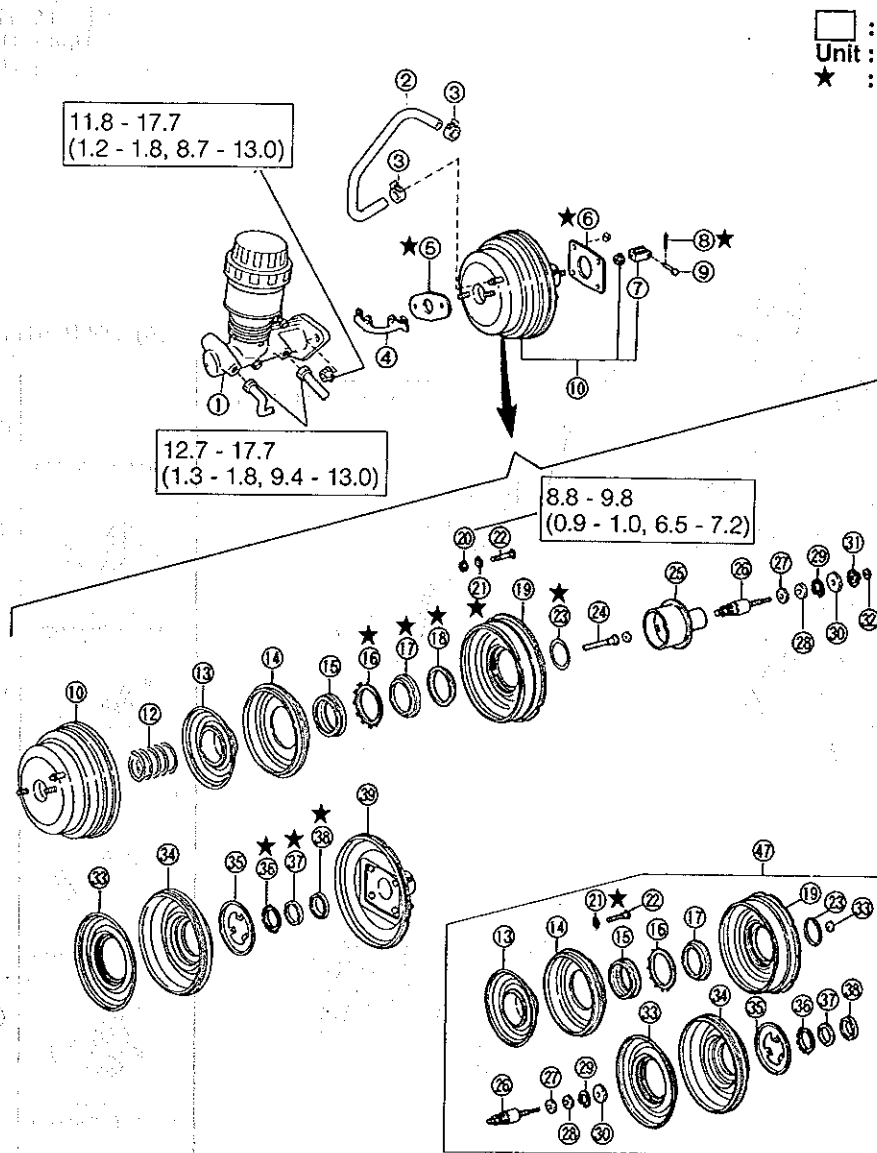
	T/C		N.A	
	P/S	A/C	P/S	A/C
90044-05226-000				
	×	×	×	○
90044-05227-000				
	○	×	○	○
90044-05228-000				
	×	○	—	—
90044-05229-000				
	○	○	—	—
90044-05230-000				
	—	—	×	×
90044-05231-000				
	—	—	○	×

- ① Hose check valve to brake booster
- ② Clip
- ③ Valve assembly vacuum check
- ④ Bracket vacuum check valve
- ⑤ Hose connector to check valve
- ⑥ Tube intake manifold
- ⑦ Clamp
- ⑧ Hose union to connector tube

- ⑨ Bolt union
- ⑩ Gasket
- ⑪ Union
- ⑫ Valve assembly vacuum check
- ⑬ Bracket vacuum check valve
- ⑭ Hose union to check valve
- ⑮ Bolt union
- ⑯ Union

BR-26

BRAKE BOOSTER COMPONENTS



The right side numbers of spare parts (①, ⑫ and ⑳) are not supplied as unit supply.

- | | | |
|-----------------------------------|-----------------------|------------------------------------|
| ① Brake master cylinder assembly | ⑬ Plate front booster | ⑳ Element C |
| ② Hose connector to check valve | ⑭ Diaphragm front | ㉑ Ring booster piston stop |
| ③ Clip | ⑮ Stopper diaphragm | ㉒ Element B |
| ④ Bracket lever warning coupler | ⑯ Seal stopper | ㉓ Nut booster operating rod adjust |
| ⑤ Gasket brake booster | ⑰ Seal piston | ㉔ Nut booster operating rod lock |
| ⑥ Gasket brake booster bracket | ⑱ Bush partition | ㉕ Plate rear booster |
| ⑦ Clevis master cylinder push rod | ⑲ Partition | ㉖ Diaphragm rear |
| ⑧ Pin cotter | ㉚ Nut flange | ㉗ Cover set |
| ⑨ Pin | ㉛ O-ring | ㉘ Retainer |
| ⑩ Booster assembly brake | ㉜ Nut flange lock | ㉙ Bush |
| ⑪ Body booster | ㉝ O-ring | ㉚ Seal piston |
| ⑫ Spring booster | ㉞ Rod booster piston | ㉛ Housing booster |
| | ㉟ Body valve | ㉜ Booster assembly brake |
| | ㊱ Valve rod complete | |
| | ㊲ Element A | |

CHECK OF VACUUM HOSE CHECK VALVE

1. Disconnect the booster vacuum hose from booster by detaching the hose band.
2. Apply negative pressure to disconnected hose.
Ensure that negative pressure applied to the applied pressure is maintained.
3. Blow air into the booster vacuum hose from the booster side.
Ensure that air continuity exists.
If not, replace the booster vacuum hose.
4. Connect the brake booster hose to booster. Install the new hose band.

CAUTION:

- Be sure to insert the hose up to the bottom of the spool at the inner side.
- Be sure to install the new hose band between the spools.

R7BR00066-00000

PRE-INSPECTION

1. Place the following SST on the master cylinder (A). Adjust the central rod of the SST so that it may contact with the bottom of the piston.

SST: 09737-87001-000

CAUTION:

- Be very careful not to allow the SST or rod to tilt. Failure to observe this caution may lead to brake malfunctioning.

NOTE:

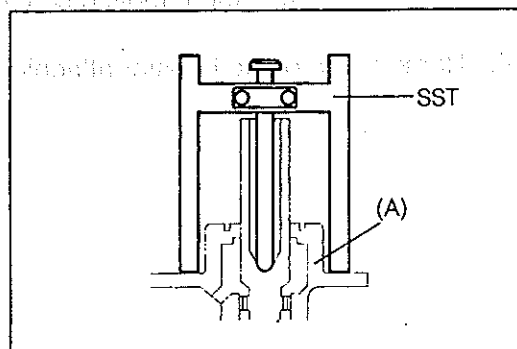
- If any brake fluid gets on the painting surface, immediately wipe off the brake fluid and wash the painting surface with water.

2. Install the gasket (A) to the brake booster.
3. Place the following SST with the seal (B) into the brake booster.

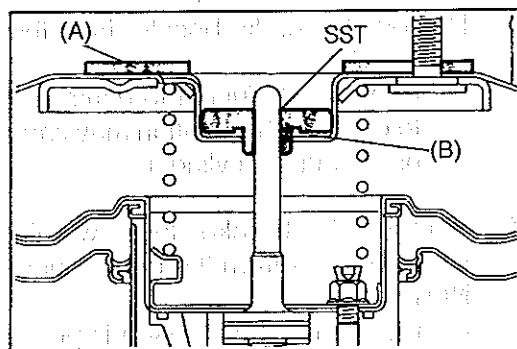
4. Connect the hose to the booster.
5. Apply a negative pressure of 500 mmHg to the brake booster, using a MityVac or the like.

NOTE:

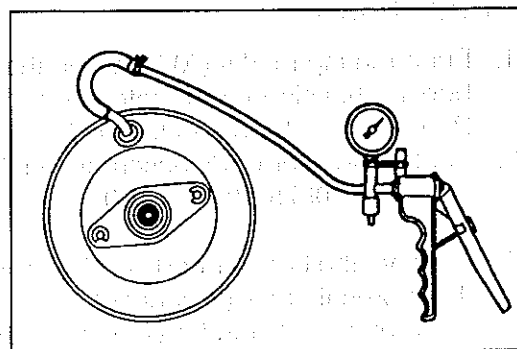
- Ensure that the negative pressure drop does not exceed 25 mmHg for 15 seconds.



R7BR00067-99999



R7BR00068-99999



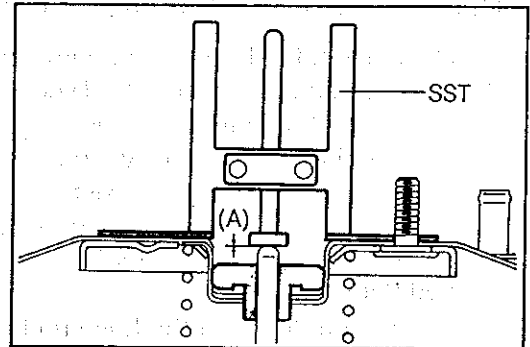
R7BR00069-99999

BR-28

6. Place the SST which was adjusted at the step 1 on the brake booster in a turned-over state. Ensure that the clearance (A) between the push rod and the SST is zero. If not, adjust the push rod height.

NOTE:

- The operation should be performed with the gasket installed.



REMOVAL

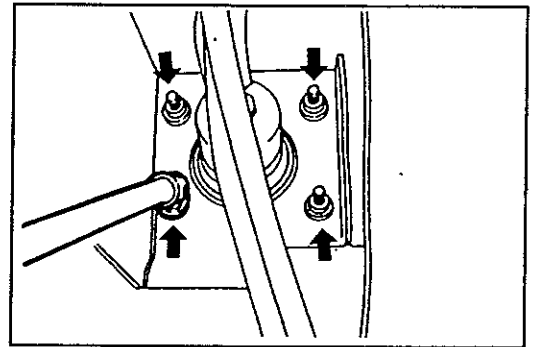
NOTE:

- If any brake fluid gets on the painting surface, immediately wipe off the brake fluid and wash the painting surface with the water.

1. Remove the brake master cylinder. (see page BR-19.)
2. Disconnect the brake booster hose from the brake booster.
3. Remove the clevis pin by removing the cotter pin.

NOTE:

- Do not reuse the removed cotter pin.



4. Remove the brake booster attaching nuts.

5. Remove the brake booster from the dash panel.

CAUTION:

- Be very careful not to damage the brake tubes. Failure to observe this caution may cause the malfunction of the brake master cylinder.

6. Remove the bracket lever warning coupler and gasket brake booster from the brake booster.

NOTE:

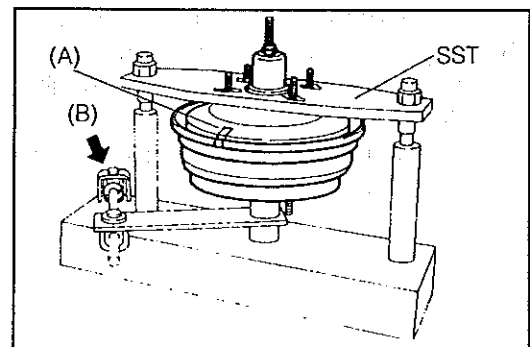
- Ensure that no damage is present in the gasket.

DISASSEMBLY

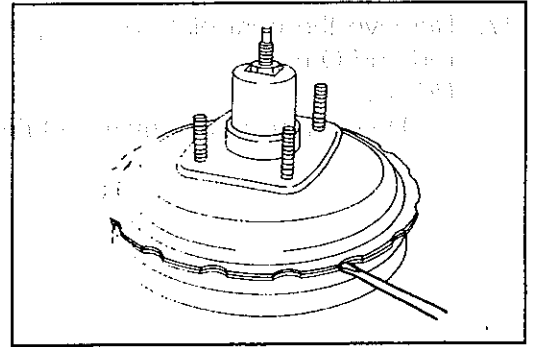
1. Put a mating marks (A) between the booster body and the booster housing for the reference of assembly.
2. Remove the clevis and lock nut.
3. Set the Booster body assembly on the following SST.

SST: 09753-87701-000

4. Remove the booster body and booster spring by tightening the aforesaid SST (B section).
5. Put a mating marks between the partition and the booster housing.

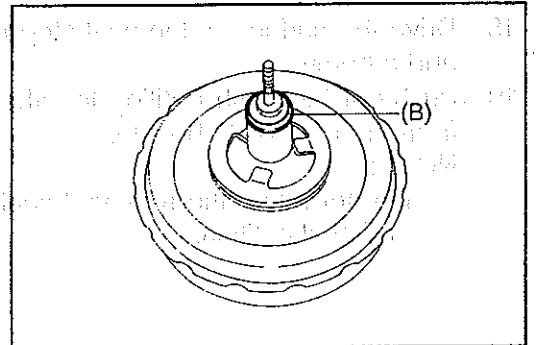


6. Separate the partition from the booster, using the flat driver or the like.



R7BR00074-99999

7. Remove the adjust nut.
8. Remove the B-element.
9. Remove the C-element.



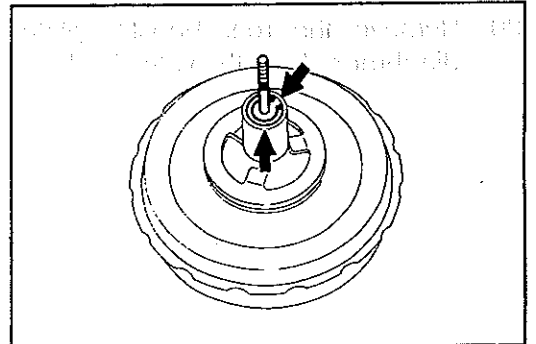
R7BR00075-99999

10. Remove the A-element (Light gray) by removing the snap ring, using the snap ring plier or the like.

NOTE:

- Do not reuse the removed snap ring.

11. Pull out the valve rod.

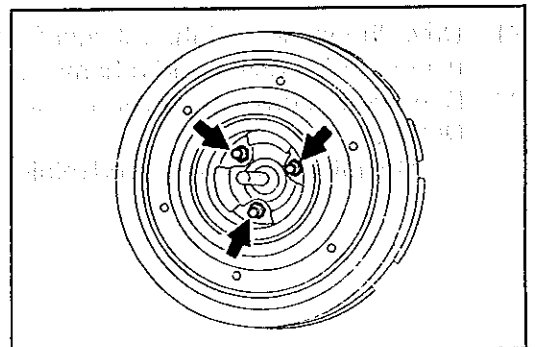


R7BR00076-99999

12. Turn over them.

13. Remove the spring retainer by removing the three flange nuts.

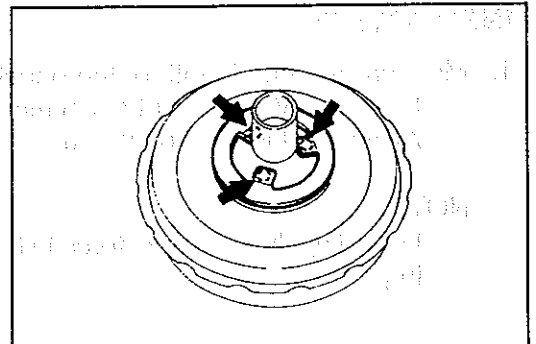
14. Turn over them again.



R7BR00077-99999

15. Remove the set cover and three tie bolts.

16. Remove the three O-rings from the valve body.



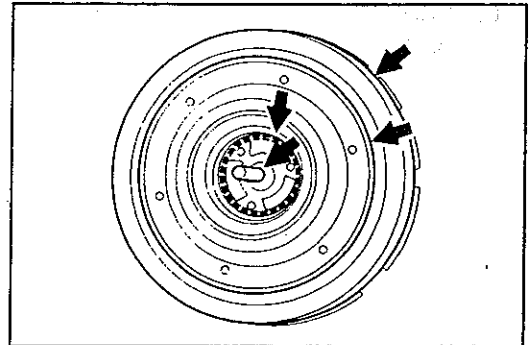
R7BR00078-99999

BR-30

17. Remove the front plate booster, front diaphragm, out put rod and O-ring.

NOTE:

- Do not reuse the removed O-ring.

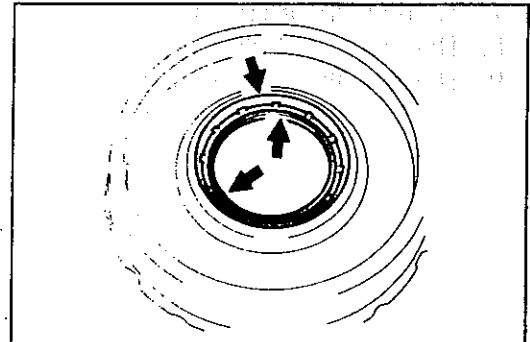


R7BR00079-99999

18. Drive the surface of the seal stopper, using the flat driver and a hammer.
19. Push-out the bush partition together with the seal partition from the front plate booster.

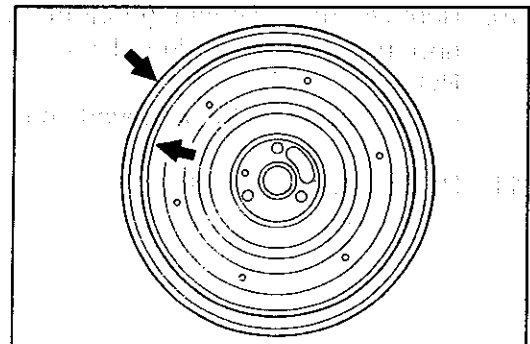
NOTE:

- Do not reuse the removed seal stopper, bush partition and seal partition.



R7BR00080-99999

20. Remove the rear booster plate (Silver) with the rear diaphragm from the valve body.

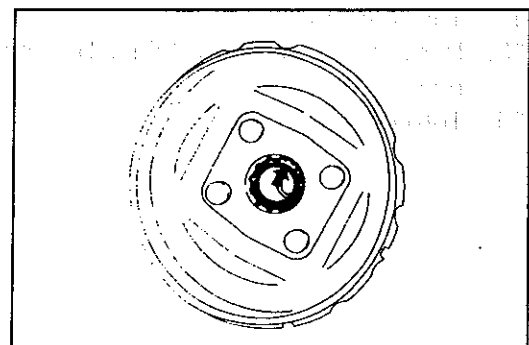


R7BR00081-99999

21. Drive the surface of the retainer from the booster housing, using the flat driver and a hammer or the like.
22. Remove the bush and piston seal.

NOTE:

- Do not reuse the removed retainer, bush and piston seal.



R7BR00082-99999

INSPECTION

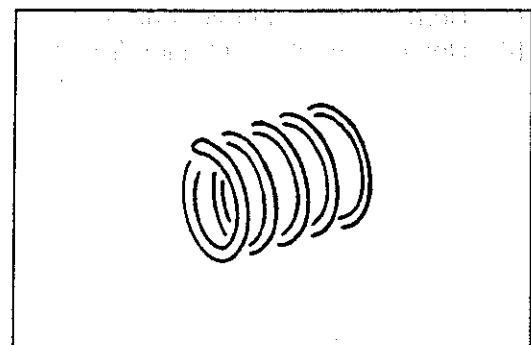
1. Measure the free length of the booster spring.

Specified Value: 114.0 ± 6 mm

Allowable Limit: 108.0 mm

NOTE:

- Do not apply excessive force to the spring when measuring.



R7BR00083-99999

ASSEMBLY

1. Apply silicon grease (0.7 - 1.8 grams) to the following section of the new piston seal.
 - (1) Inner/Outer periphery
 - (2) Groove section
2. Install the new bush and new retainer.

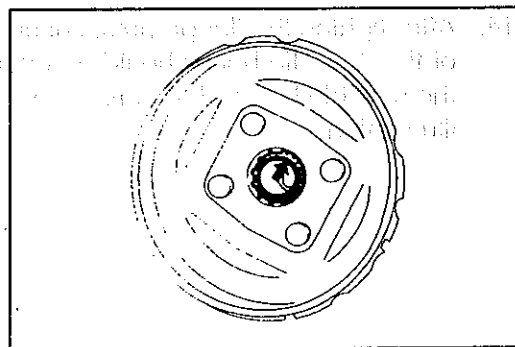
NOTE:

- Ensure that the protrusion sections of the retainer should be aligned with the groove section of the booster housing.

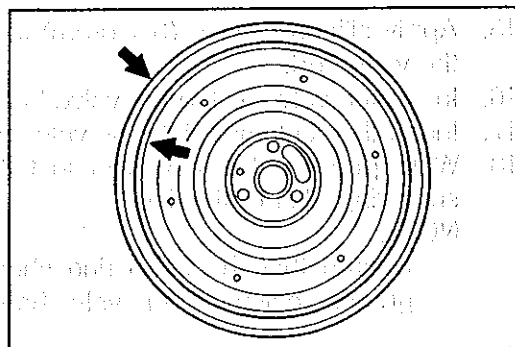
3. Apply silicon grease (1.8 - 2.4 grams) to the outer periphery of the valve body.
4. Install the rear diaphragm with the rear plate booster (Silver) to the rear valve body.

NOTE:

- For avoiding from turned over, be sure to install the rear diaphragm lip section correctly.



R7BR00084-99999

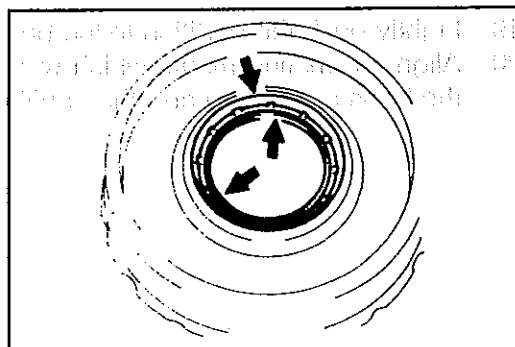


R7BR00085-99999

5. Apply silicon grease (2.3 - 2.8 grams) to the following sections of the bush partition.
 - (1) Inner/Outer periphery
 - (2) Groove section
6. Install the new piston seal to the new bush partition and install them to the partition.
7. Install the new seal stopper to the partition.

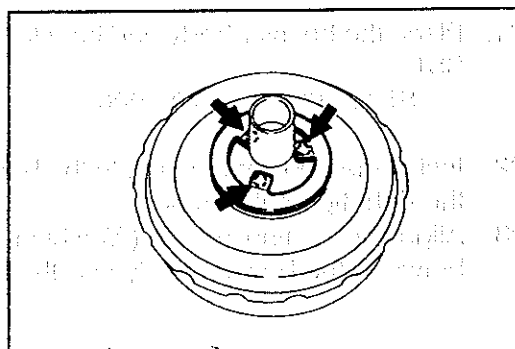
NOTE:

- Ensure that the protrusion sections of the new seal stopper should be aligned with the groove section of the partition.



R7BR00086-99999

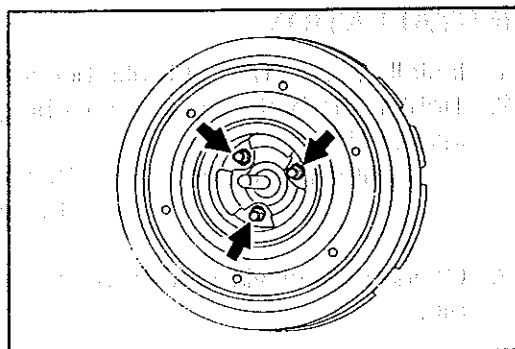
8. Place the new three O-rings to the valve body.
9. Install the set cover and insert the three tie bolts to the valve body.
10. Turn over them.



R7BR00087-99999

11. Place the out put rod and new O-ring.
12. Install the front plate and front diaphragm.
13. Tighten the spring retainer with the three flange nuts.

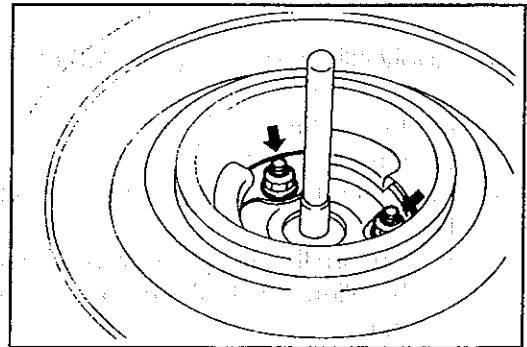
Tightening Torque: 8.8 - 9.8 N-m
(0.9 - 1.0 kgf-m, 6.5 - 7.2 ft-lb)



R7BR00088-99999

BR-32

14. After tighten the flange nuts, ensure that the head sections of the three tie bolts should be expanded (ie; Oval), using the suitable bar and a hammer as shown in the right figure illustration.

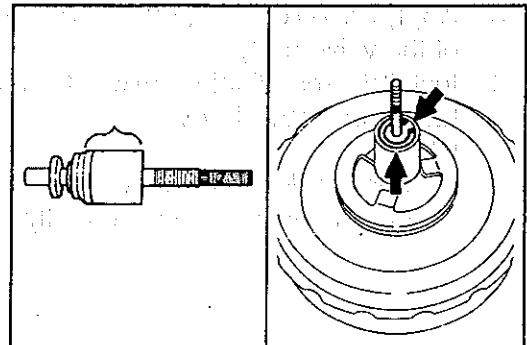


R7BR00089-99999

15. Apply silicon grease (0.1 gram) to the outer periphery of the valve rod.
16. Insert the valve rod to the valve body.
17. Insert the A-element into the valve rod.
18. While pressing the valve rod, install the snap ring with the snap ring plier or the like.

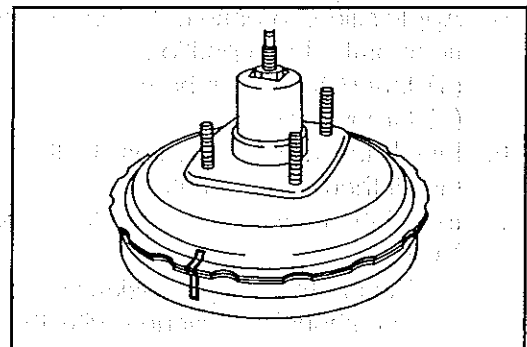
NOTE:

- Ensure that the snap ring should be installed to the groove sections of the valve body correctly.



R7BR00090-99999

19. Lightly push the partition to the booster housing.
20. Align the mating marks which was put at step 5 between the booster housing and the partition.

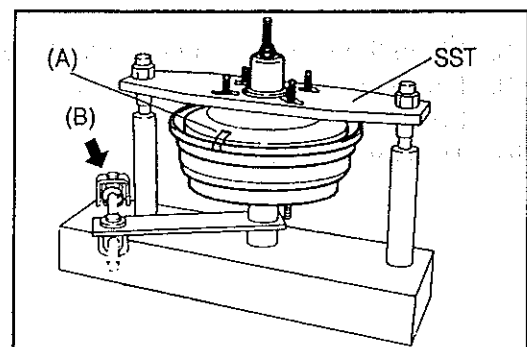


R7BR00091-99999

21. Place the booster body and booster spring on the following SST.

SST: 09753-87701-000

22. Install the booster housing to the booster body as shown in the right figure illustration.
23. Align the mating marks (A) which was put at the step 1. between the booster body and the booster housing.



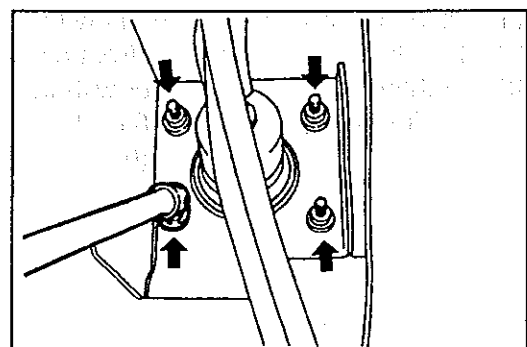
R7BR00092-99999

INSTALLATION

1. Install the new gasket brake booster to the dash panel.
2. Tighten the brake booster attaching nuts from the vehicle interior side.

Tightening Torque: 9.8 - 15.7 N·m
(1.0 - 1.6 kgf-m, 7.2 - 11.6 ft-lb)

3. Connect the clevis to the brake pedal by means of the clevis pin.



R7BR00093-99999

4. Install the new cotter pin to prevent the pin from dropping.
NOTE:

- Be sure to bend the new cotter pin beyond 90-degrees and apply chassis grease to the pin.

5. Adjust the push rod clearance between the master cylinder and the brake booster. (see page BR-27.)

6. With the new brake booster gasket and level warning coupler bracket interposed, tighten the master cylinder.

Tightening Torque: 12.7 - 17.7 N·m
(1.3 - 1.8 kgf-m, 8.7 - 13.0 ft-lb)

7. Temporary tighten the flare nut of the brake tubes with your fingers and Then, tighten them.

Tightening Torque: 12.7 - 17.7 N·m
(1.3 - 1.8 kgf-m, 9.4 - 13.0 ft-lb)

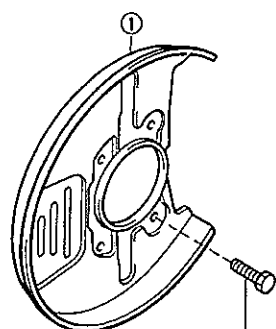
8. Connect the brake hose to the brake booster with the hose band.

9. Perform air bleeding.

R7BR00094-00000

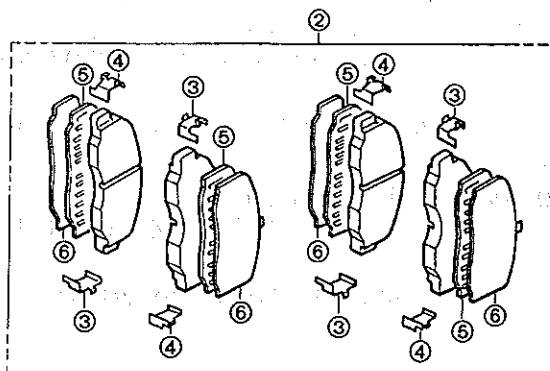
BR-34

FRONT BRAKE COMPONENTS



10.5 - 24.5
(1.05 - 2.45, 7.5 - 17.6)

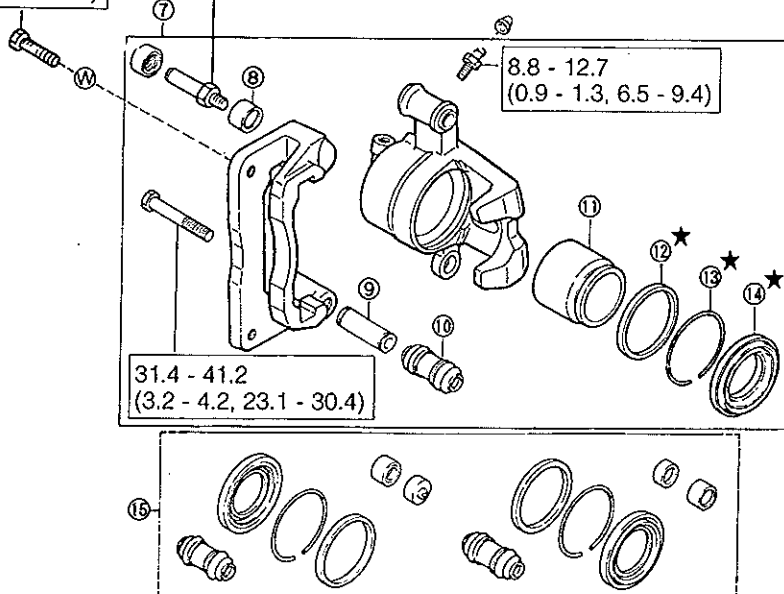
□ : Tightening torque
Unit : N·m (kgf-m, ft-lb)
★ : Non-reusable parts



39.2 - 49.0
(4.0 - 5.0, 28.9 - 36.2)

68.6 - 88.3
(7.0 - 9.0, 50.6 - 65.1)

FRONT

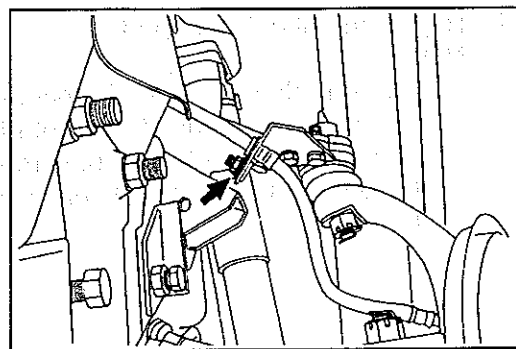


- ① Disc brake dust cover
- ② Disc brake cylinder kit
- ③ Disc brake pad guide No. 2 plate
- ④ Disc brake pad guide plate
- ⑤ Anti squeal No. 2 shim
- ⑥ Anti squeal No. 3 shim
- ⑦ Disc brake cylinder assembly
- ⑧ Pin boot

- ⑨ Cylinder slide bush
- ⑩ Bush dust boot
- ⑪ Front disc brake piston
- ⑫ Piston seal
- ⑬ Set ring
- ⑭ Cylinder boot
- ⑮ Disc brake cylinder kit
- ⑯ Union

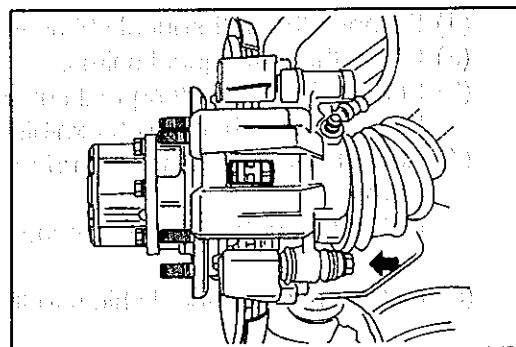
INSPECTION OF BRAKE PAD AND DISC

1. Slacken the hub nuts of the front wheel.
2. Jack up the vehicle and support it with safety stands.
3. Remove the front wheel by removing the five hub nuts.
4. Remove the brake hose attaching nuts.



R7BR00096-99999

5. Remove the caliper body attaching bolts.



R7BR00097-99999

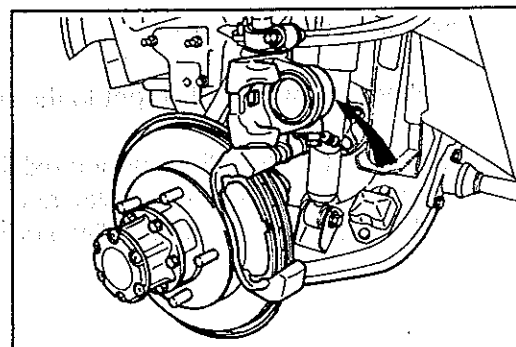
6. Lift the caliper body.
 7. Suspend the caliper body with the suitable wire or the like.
- NOTE:**

- Ensure that no undue force is applied to the brake hose.

8. Measure the brake pad thickness.

New Part: 9.0 mm

Limit Thickness: 1.0 mm

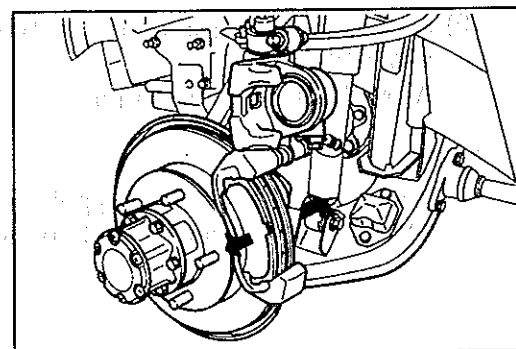


R7BR00098-99999

9. Remove the brake pad.

NOTE:

- Be very careful not to disengage the disc brake pad guide plate during this operation.

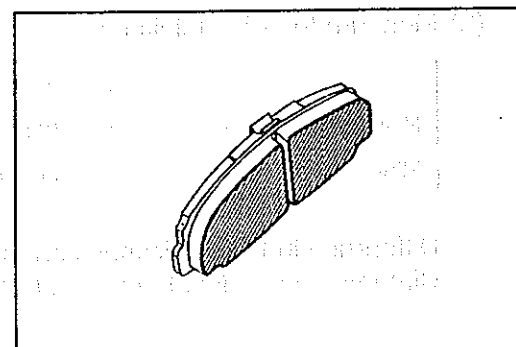


R7BR00099-99999

10. Inspect the brake pad surface for burning.

NOTE:

- If the brake pad exhibits burning, replace the brake pad.



R7BR00100-99999

BR-36

11. Replacement of brake pad.

NOTE:

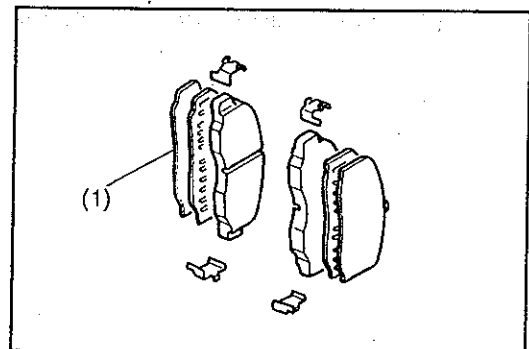
- When replacing the brake pad, be sure to replace the pad inside and outside for both the right and left sides as a set. This replacement is required so as to prevent the vehicle from pulling to one side on application of the brakes.

R7BR00101-00000

- (1) Remove the anti-squeal shims from the brake pads.
- (2) Clean the anti-squeal shims.
- (3) Ensure that the anti-squeal shims exhibits no damage. Replace any shim which exhibit damage.
- (4) Apply brake grease to the surface between the pad and shims.

Filling Amount: 0.8 - 1.3 grams

- (5) Install the anti-squeal shims to the disc brake pad.



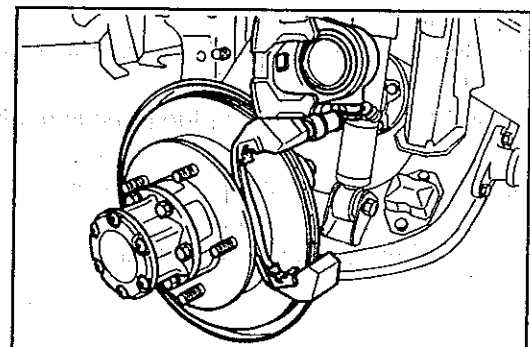
R7BR00102-99999

12. Inspection of brake disc.

NOTE:

- Never allow any oil to get to the disc and/or pad.

- (1) Ensure that the disc surface exhibits no damage, such as abnormal wear, cracks and discoloration. If any damage exhibits on the disc surface, replace them.



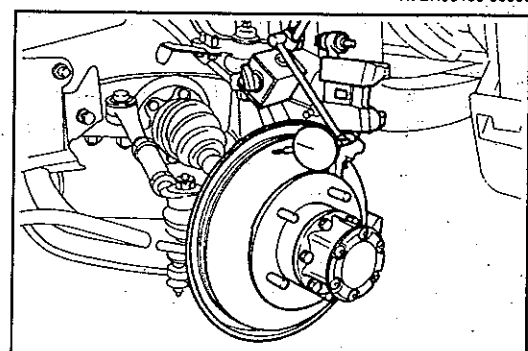
R7BR00103-99999

- (2) Ensure that the runout of the brake disc is within the allowable limit.

Allowable Limit: 0.10 mm

NOTE:

- Ensure that the measuring point should be point 10 mm inward from the outer periphery of rotor.

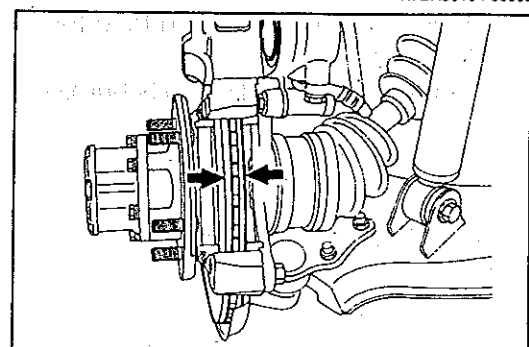


R7BR00104-99999

- (3) Measure the disc thickness.

	Standard	Ventilation
New parts thickness	12.5 mm	18.0 mm
Minimum limit thickness	11.5 mm	17.0 mm

Difference in Disc Thickness on the Same Circumstance: Not to exceed 0.015 mm

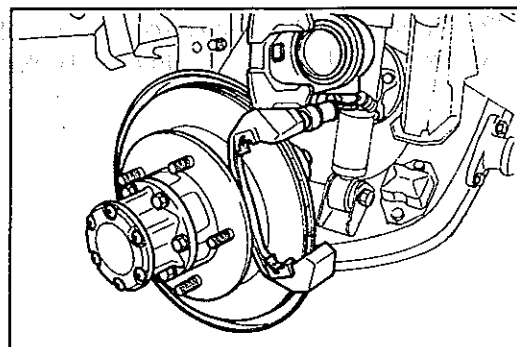


R7BR00105-99999

13. Inspection of disc brake guide

- (1) Ensure that no damage exists on the disc brake pad guide.

If any damage is present, replace the disc brake pad guides.



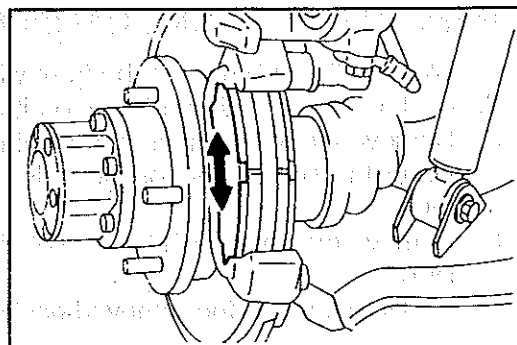
R7BR00106-99999

- (2) Install the pad to the mounting support.

NOTE:

- The pad equipped with the warner should come at the inside of the vehicle.
- Never allow any oil get to the pad.

- (3) Turn the pad in the rotating direction to ensure that no excessive looseness exists. If any excessive looseness exists, replace the disc brake pad guides.



R7BR00107-99999

14. Inspect the caliper piston for brake fluid.

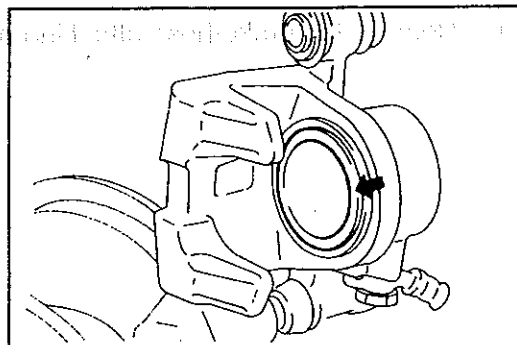
NOTE:

- If the fluid leakage is present, repair the relates parts.

15. Push the caliper to the cylinder side.

NOTE:

- Prior to this operation, drain the brake oil, as required, so that no brake oil overflows from the brake reservoir tank during this operation.



R7BR00108-99999

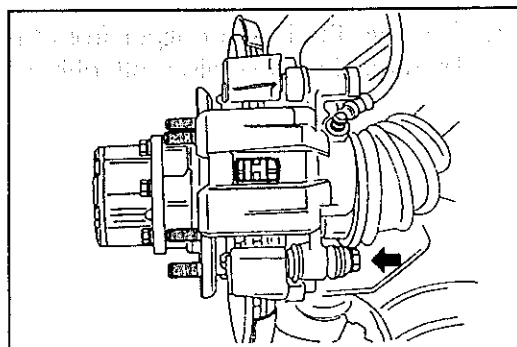
16. Install the caliper on the brake pad.

NOTE:

- Care must be exercised not to bring the caliper into contact with the anti-squeal shims during this operation.

17. Tighten the caliper with the attaching bolt.

Tightening Torque: 31.4 - 41.2 N·m
(3.2 - 4.2 kgf-m, 23.1 - 30.4 ft-lb)



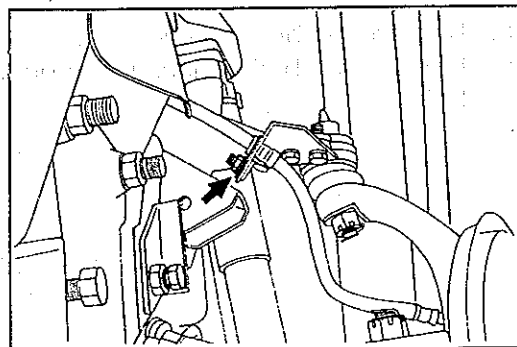
R7BR00109-99999

18. Tighten the brake hose attaching nut.

Tightening Torque: 6.9 - 16.1 N·m
(0.7 - 1.6 kgf-m, 5.1 - 11.6 ft-lb)

19. Tighten the front wheel with the five hub nuts.

Tightening Torque: 88.3 - 118.0 N·m
(9.0 - 12.0 kgf-m, 65.1 - 87.0 ft-lb)



R7BR00110-99999

20. Check the brake fluid level.

21. Jack down the vehicle.

BR-38

22. Perform air bleeding from the air bleeder plugs.
23. Perform the brake tests on a brake tester.

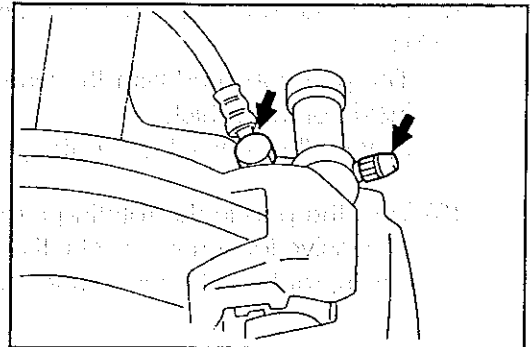
R7BR00111-00000

REMOVAL OF BRAKE CALIPER

1. Slacken the hub nuts of the front wheel.
2. Jack up the vehicle and support its with safety stands.
3. Remove the front wheel by removing the five hub nuts.
4. Drain the brake fluid of the caliper from the air bleeder plugs.
5. Remove the union with the two gaskets installed.

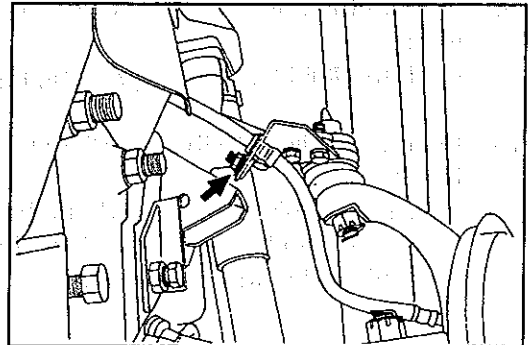
NOTE:

- Do not reuse the removed gaskets.



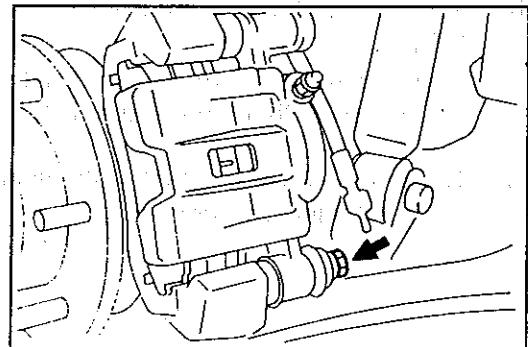
R7BR00112-99999

6. Remove the brake hose attaching nut.



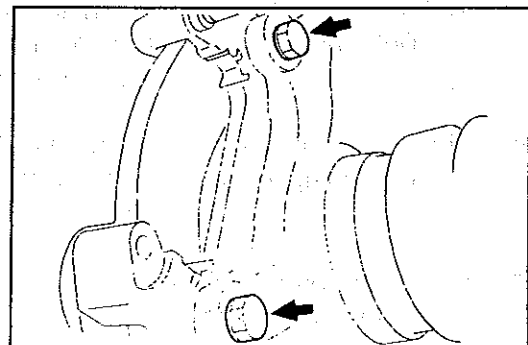
R7BR00113-99999

7. Remove the brake caliper from the mounting support pin by removing the caliper attaching bolt.



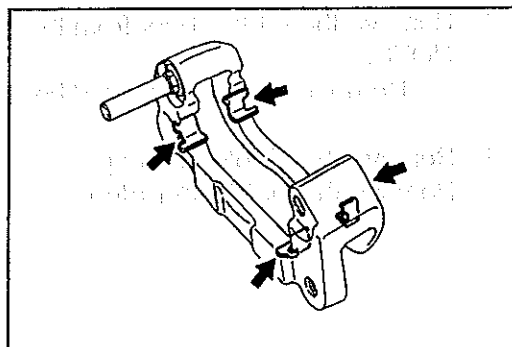
R7BR00114-99999

8. Remove the brake pads.
9. Remove the brake mounting support by removing the two bolts.



R7BR00115-99999

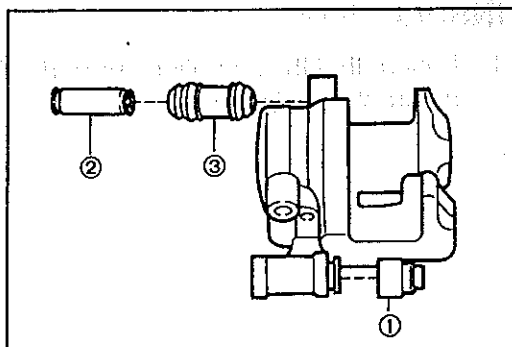
10. Remove the brake pad guide from the brake mounting support.



R7BR00116-99999

DISASSEMBLY OF CALIPER

1. Remove the rubber boot from the caliper.
2. Pull out the cylinder side bush.
3. Remove the bush dust boot.

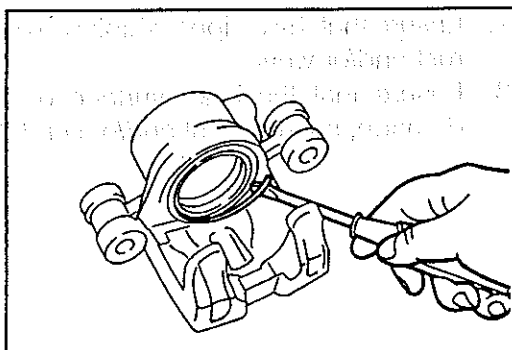


R7BR00117-99999

4. Remove the boot set ring.

NOTE:

- Do not reuse the removed set ring.

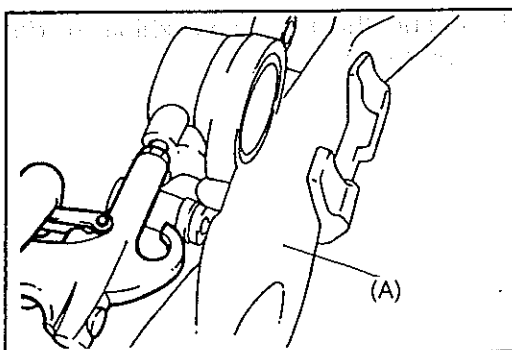


R7BR00118-99999

5. Insert the suitable cloth or a wooden block in front of the piston. Then, pull out the piston by applying compressed air from the brake hose connecting section.

WARNING:

- Since the piston jumps out strongly when applying compressed air, care must be exercised so that your fingers or the like may not be caught in.
- Be sure to put on safety goggles when using compressed air.

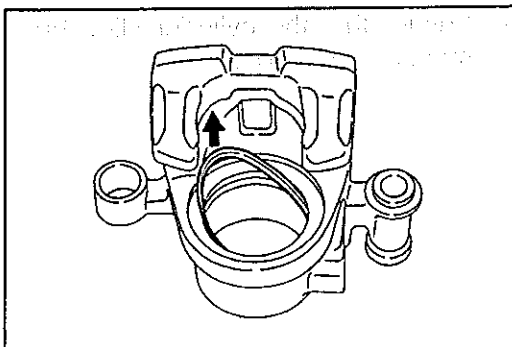


R7BR00119-99999

6. Remove the piston seal from the cylinder section.

NOTE:

- Do not reuse the removed piston seal.



R7BR00120-99999

BR-40

7. Remove the rubber boot from the piston.

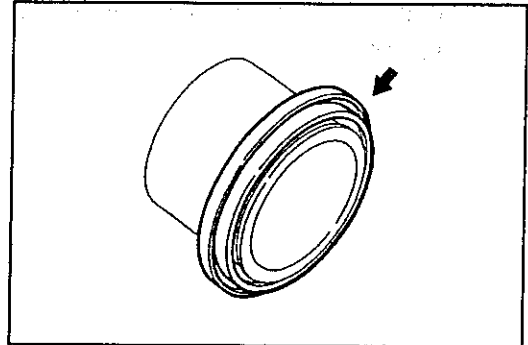
NOTE:

- Do not reuse the removed boot.

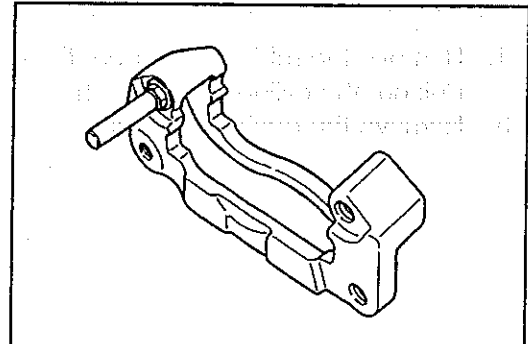
8. Remove the air bleeder cap.
9. Remove the air bleeder plug.

INSPECTION

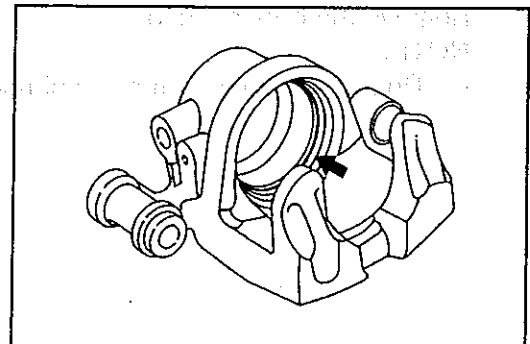
1. Ensure that the mounting support exhibits no damage, such as cracks and/or wear.
2. Ensure that the caliper exhibits no damage, such as cracks, rust and/or wear.
3. Ensure that the inner surface of the caliper exhibits no damage, such as rust and/or scratches.
4. Ensure that the piston exhibits no damage, such as rust and scratches.
5. Ensure that the cylinder slide bush exhibits no damage, such as rust and/or scratches.



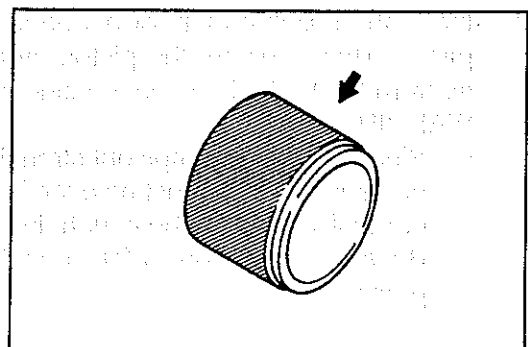
R7BR00121-99999



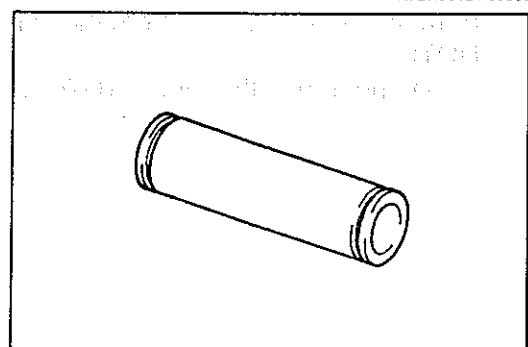
R7BR00122-99999



R7BR00123-99999

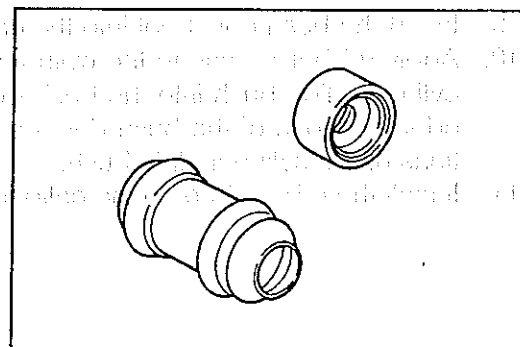


R7BR00124-99999



R7BR00125-99999

6. Ensure that the bush dust boot and rubber boot exhibits no damage, such as cracks and/or scratches.
7. Ensure that the pad guide plate exhibits no wear or damage.



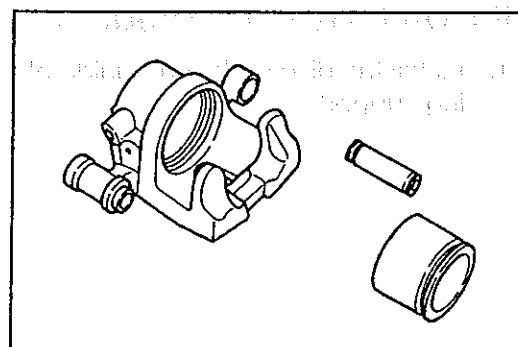
R7BR00126-99999

ASSEMBLY OF CALIPER

1. Install the air bleeder plug.
2. Install the air bleeder plug cap.
3. Wash the reassembling parts and dry them with compressed air.

WARNING:

- Be sure to put on safety goggles when using compressed air. Failure to observe this warning may cause the injury of your self.



R7BR00127-99999

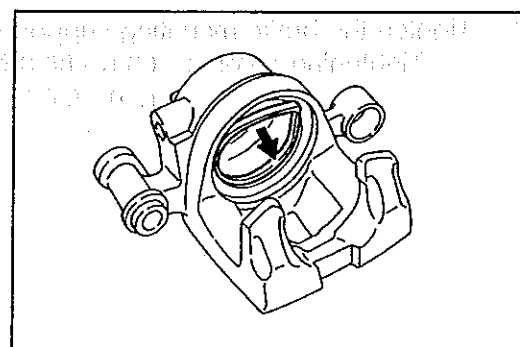
4. Apply rubber grease to the piston seal. Install the piston seal to the cylinder.

CAUTION:

- Never reuse the removed piston seal.
- Be very careful not to scratch the edge of the piston seal. Failure to observe this caution may cause the malfunctioning of brake (ie: Leakage of brake fluid).

NOTE:

- The rubber grease is also included in the repair kit.



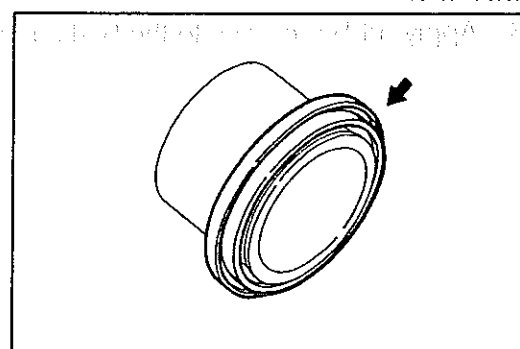
R7BR00128-99999

5. Apply rubber grease to the new cylinder boot. Install the cylinder boot to the piston.

CAUTION:

- Never reuse the removed cylinder boot. Failure to observe this caution may cause the malfunctioning of brake (ie: Leakage of brake fluid.)

6. Apply rubber grease to the piston sliding surface.



R7BR00129-99999

7. Insert the piston into the cylinder.

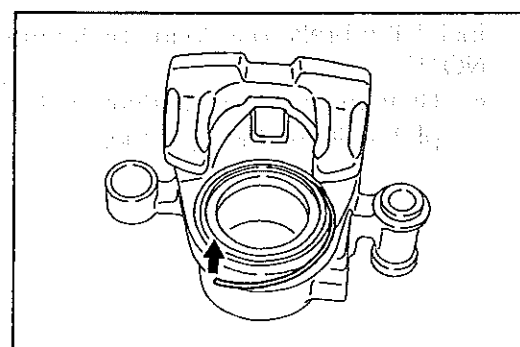
NOTE:

- Be very careful not to damage the rubber boot during this operation.

8. Fit the cylinder boot into the groove at the cylinder side. Fit the set ring into the groove of the cylinder boot.

CAUTION:

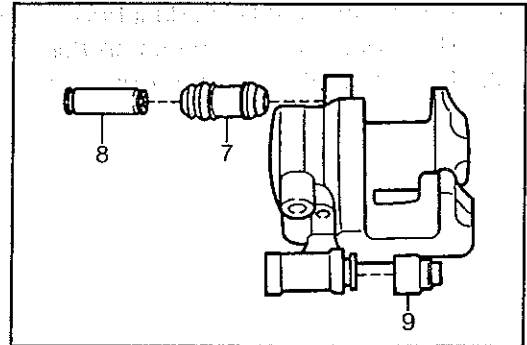
- Never reuse the removed set ring. Failure to observe this caution may cause the malfunctioning of brake.



R7BR00130-99999

BR-42

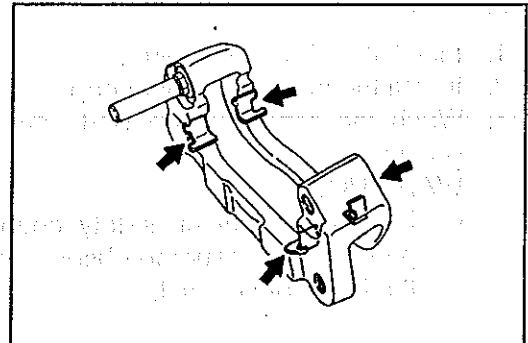
9. Insert the bush dust boot into the caliper.
10. Apply rubber grease to the cylinder slide bush. Insert the cylinder slide bush into the bush dust boot. Then, fit both edge sections of the bush dust boot into the groove sections of the cylinder slide bush.
11. Install the rubber boot to the caliper.



R7BR00131-99999

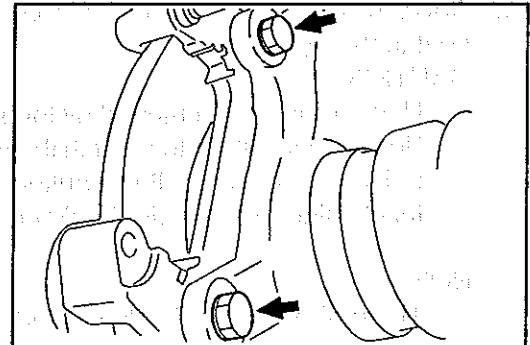
INSTALLATION OF BRAKE CALIPER

1. Install the disc brake pad guide plates to the brake mounting support.



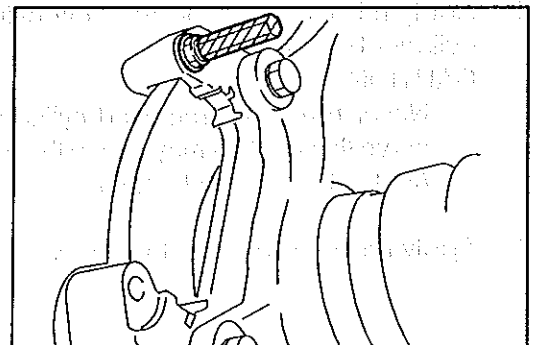
R7BR00132-99999

2. Tighten the brake mounting support attaching bolts.
Tightening Torque: 68.6 - 88.3 N·m
(7.0 - 9.0 kgf-m, 50.6 - 65.1 ft-lb)



R7BR00133-99999

3. Apply rubber grease to the brake mounting support pin.

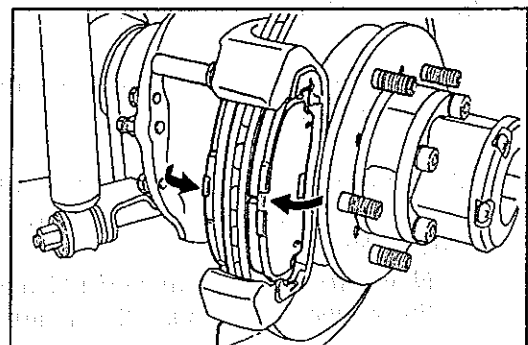


R7BR00134-99999

4. Install the brake pad to the brake mounting support.

NOTE:

- Be very careful not to damage the disc brake pad guide plates during this operation.

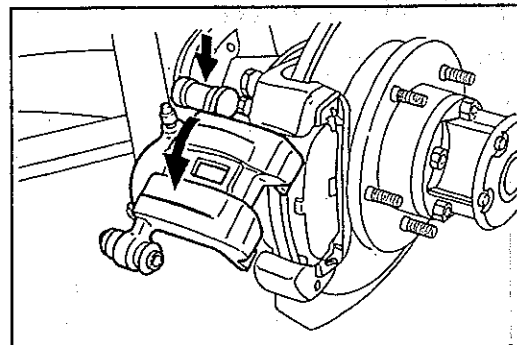


R7BR00135-99999

5. Install the brake caliper to the mounting support. Place the mounting support over the brake pad.

NOTE:

- Be very careful not to damage the anti-squeal shim during this operation.

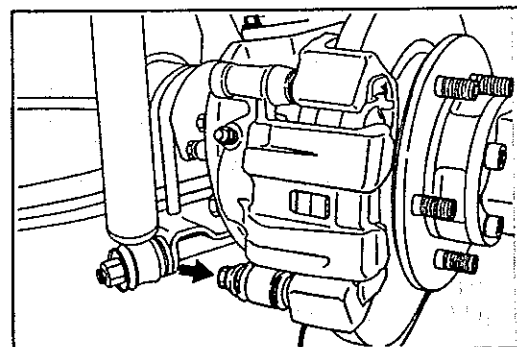


R7BR00136-99999

6. Tighten the brake caliper attaching bolts.
Tightening Torque: 31.4 - 41.2 N·m
(3.2 - 4.2 kgf-m, 23.1 - 30.4 ft-lb)

7. Ensure that each boot of the caliper exhibits no damage, such as cracks. Also, ensure that no turning-over is present at the fitting section of each boot.

8. Tighten the brake hose attaching nut.
Tightening Torque: 6.9 - 16.1 N·m
(0.7 - 1.6 kgf-m, 5.1 - 11.6 ft-lb)



R7BR00137-99999

9. Tighten the front wheel with the five hub nuts.
Tightening Torque: 88.3 - 118.0 N·m
(9.0 - 12.0 kgf-m, 65.1 - 87.0 ft-lb)

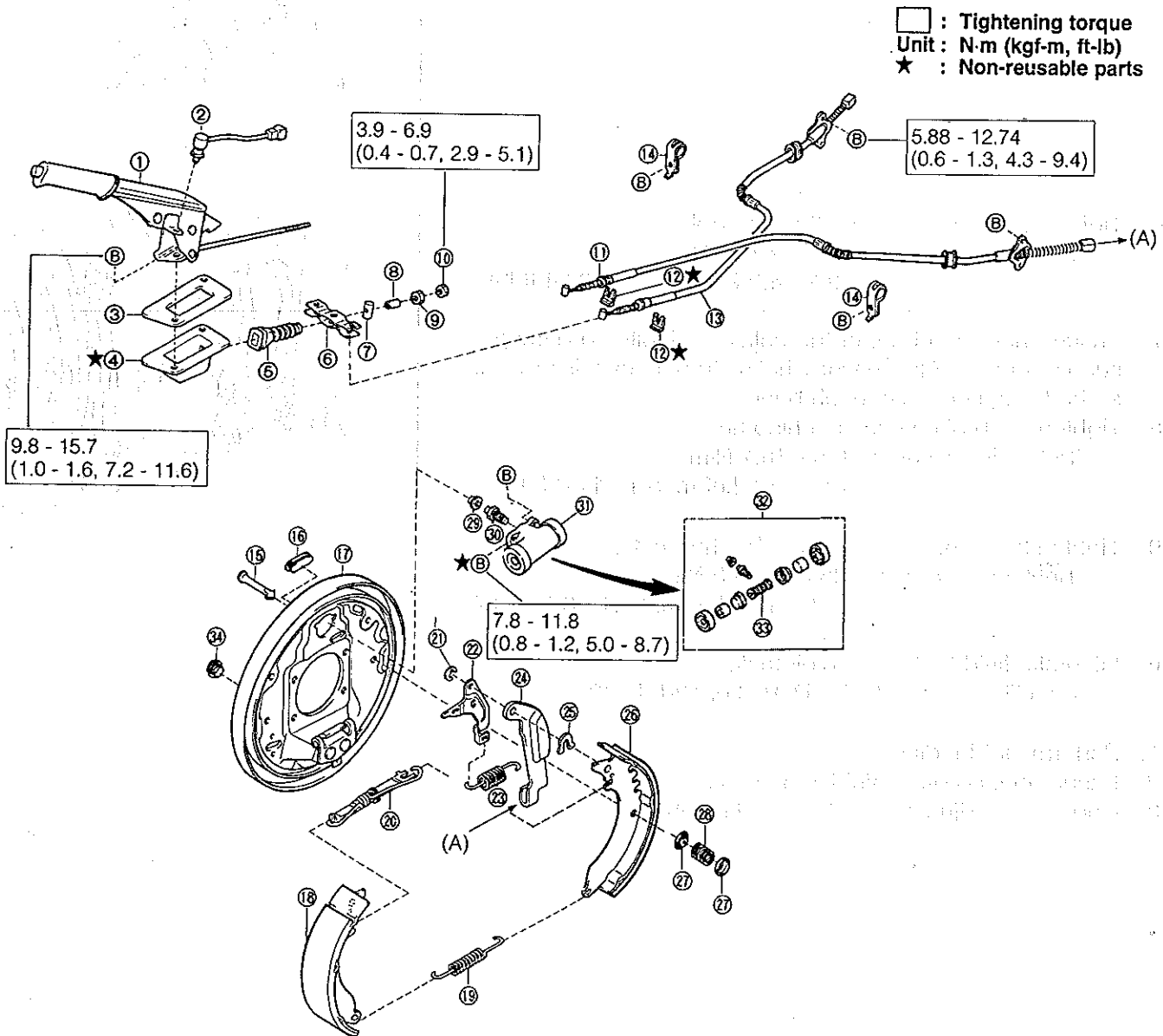
10. Fill brake fluid to the reservoir tank.
Specified Brake Fluid: DOT 3 or SAEJ 1703

11. Perform air bleeding.
12. Ensure that no brake fluid is present.
13. Check and adjust the brake pedal height.

R7BR00138-00000

BR-44

PARKING & REAR BRAKE COMPONENTS

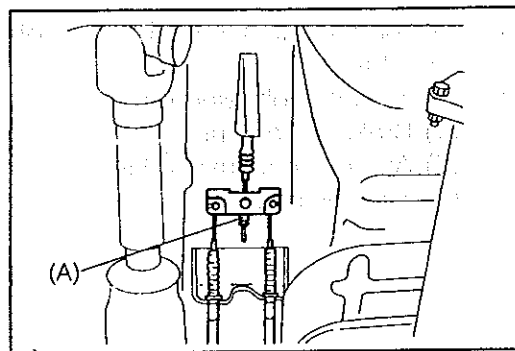


- ① Parking brake control handle assembly
- ② Parking brake switch
- ③ Parking brake hold shield
- ④ Parking brake lever dust cover
- ⑤ Parking brake dust cover
- ⑥ Parking brake equalizer
- ⑦ Parking brake plunger pin
- ⑧ Collar
- ⑨ Nut
- ⑩ Nut
- ⑪ Parking brake cable assembly
- ⑫ Clamp
- ⑬ Parking brake cable assembly
- ⑭ Clamp
- ⑮ Shoe hold down spring pin
- ⑯ Hole plug
- ⑰ Rear brake backing plate subassembly

- ⑱ Rear brake shoe
- ⑲ Tension spring
- ⑳ Parking brake shoe strut
- ㉑ E-ring
- ㉒ Automatic adjust lever
- ㉓ Tension spring No. 2
- ㉔ Parking brake shoe lever subassembly
- ㉕ "C"-washer
- ㉖ Rear brake shoe
- ㉗ Shoe hold down spring cup
- ㉘ Shoe hold down spring
- ㉙ Bleeder plug cap
- ㉚ Bleeder plug
- ㉛ Rear wheel brake cylinder assembly
- ㉜ Rear wheel cylinder cap kit
- ㉝ Compression spring
- ㉞ Hole plug

REMOVAL

1. Slacken the hub nuts of the rear wheel.
2. Release the parking brake lever.
3. Jack up the vehicle and support its with safety stands.
4. Remove the rear wheel by removing the five hub nuts.
5. Loosen the lock nut of the parking brake lever adjusting screw (A). Fully loosen the adjusting screw.

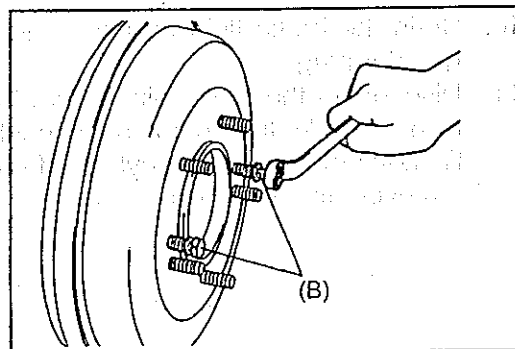


R7BR00140-99999

6. Remove the rear brake drum.

NOTE:

- If any difficulty is encountered in removing the brake drum, install the bolts (B: (M10 × 1.25)) to each bolt hole, as indicated in the right figure. The brake drum can be detached easily by screwing-in the bolts alternately.
- Be sure to loosen the attaching bolts evenly over two or three stages in the sequence.



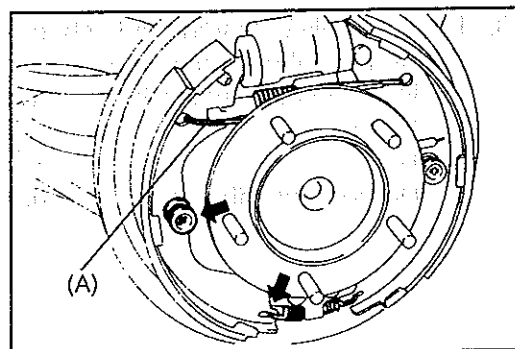
R7BR00141-99999

DISASSEMBLY

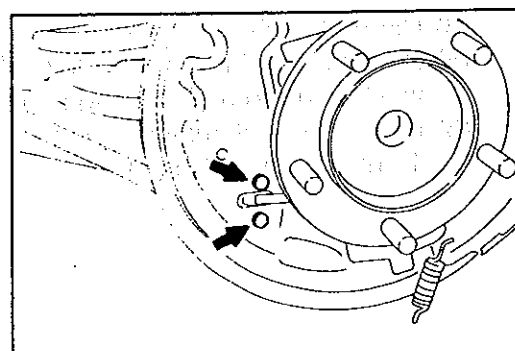
CAUTION:

- Make sure that no lubricant, such as grease, gets to the brake shoe and/or drum surface.

1. Detach the tension spring (A), using the flat driver or the like.
2. Detach the shoe hold down spring pin and hold down spring at the trailing side.
3. Remove the shoe from the backing plate.
4. Detach the tension spring from the shoe at the trailing side.
5. Remove the parking brake assembly by removing the two bolts.

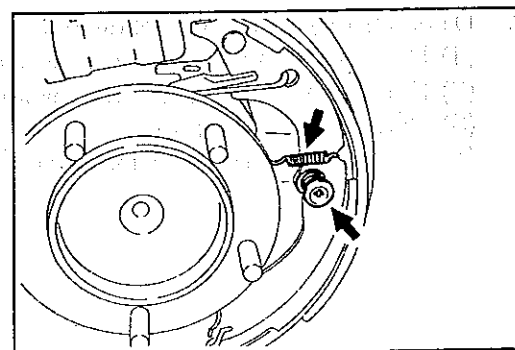


R7BR00142-99999



R7BR00143-99999

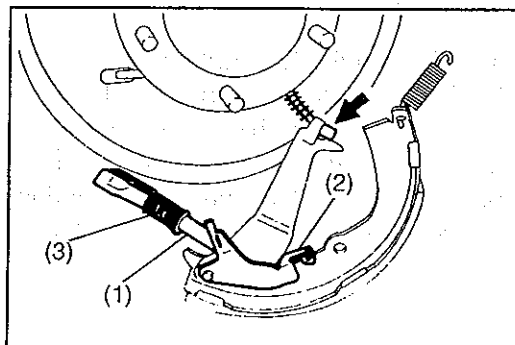
6. Detach the tension spring, using the plier or the like.
7. Detach the shoe hold down spring pin and hold down .



R7BR00144-99999

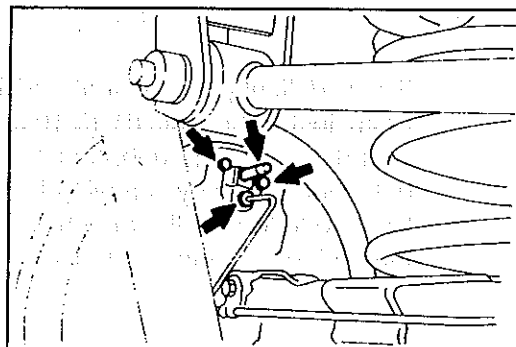
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8. Disconnect the parking brake cable from the parking brake shoe lever.
9. Remove the following parts.
 - (1) Brake shoe strut
 - (2) Automatic adjusting lever
 - (3) Tension springs



R7BR00145-99999

10. Drain the brake fluid by loosening the wheel cylinder air bleeder plug.
11. Disconnect the brake pipes from the rear wheel cylinder, using a brake tube union nut wrench.
12. Remove the rear wheel cylinder from the backing plate by removing the two bolts.

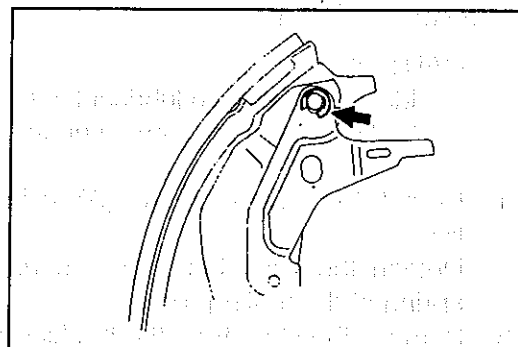


R7BR00146-99999

13. Disassembly of leading side shoe.
 - (1) Remove the tension spring.
 - (2) Remove the parking brake shoe lever by removing the E-ring.

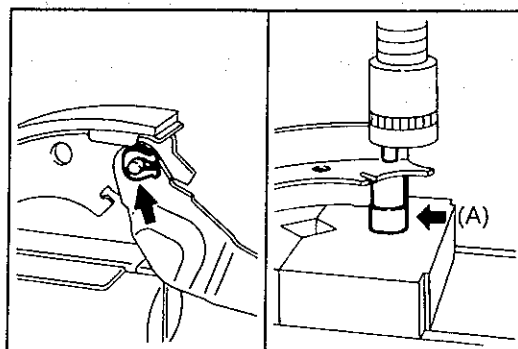
NOTE:

- Do not reuse the removed E-ring.



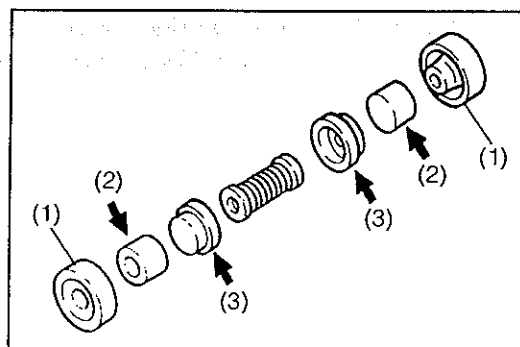
R7BR00147-99999

- (3) Clamp the shoe in a vice.
- (4) Remove the brake shoe lever by removing the "C"-washer, using a chisel and hammer.
- (5) Press the automatic adjusting lever pin, using the 17 mm box wrench (A).



R7BR00148-99999

14. Disassembly of rear wheel cylinder.
 - (1) Remove the wheel cylinder boots.
 - (2) Remove the wheel cylinder pistons.
 - (3) Remove the piston cups.
 - (4) Remove the compression spring.



R7BR00149-99999

INSPECTION

NOTE:

- When replacing the brake shoe, be sure to replace the leading and trailing shoe for both the right and left side as a set. This replacement required so as to prevent the vehicle from pulling to one side on application of the brakes.

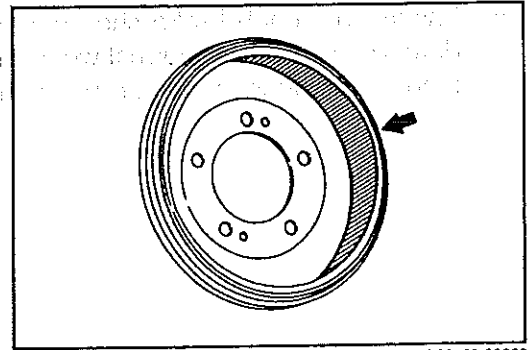
1. Check of brake drum.

- Ensure that the brake shoe contact surface exhibits no damage, such as severe roughness and abnormal wear. If any damage is present, replace the brake drum with a new one.

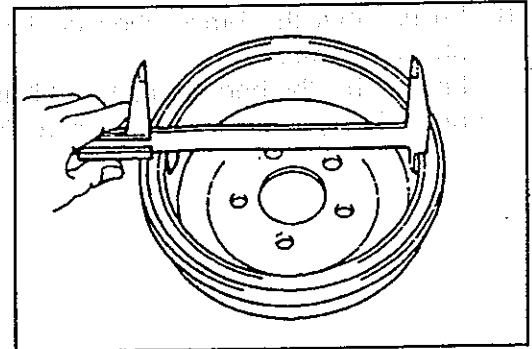
- Measure the inner diameter of the rear brake drum. Ensure that the measured value is less than the maximum limit. If the measured value is greater than the maximum limit, replace the brake drum with a new one.

New Part: 270.00 mm

Maximum Limit: 272.00 mm



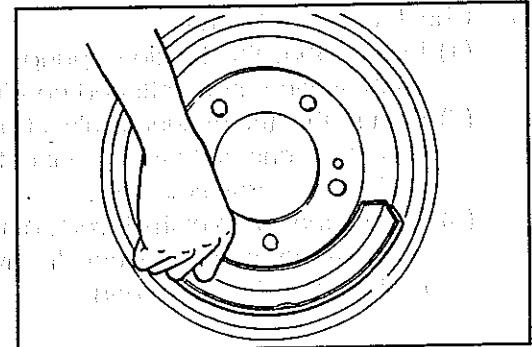
R7BR00150-99999



R7BR00151-99999

2. Check of brake shoe-to-drum contact.

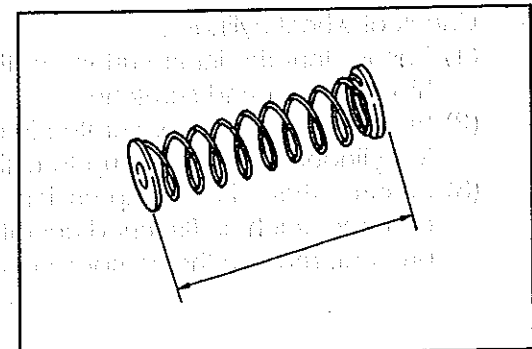
- Coat the inner surface of the brake drum with a light film of chalk. Slide the brake shoes against the inner surface of the drum.
- Check to see if the chalk particles can be seen evenly over the whole surface of the brake linings, using a shoe grinder.



R7BR00152-99999

3. Ensure that the free length of the compression spring is within standard value.

Standard: 57 ± 1.5 mm



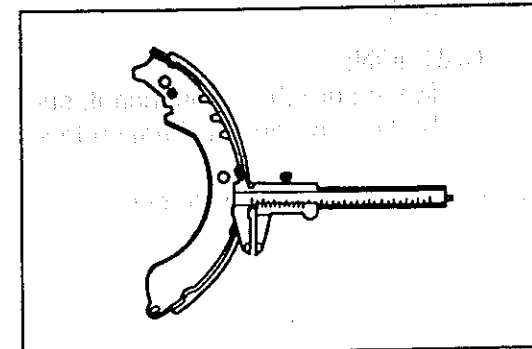
R7BR00153-99999

4. Ensure that the remaining amount of the brake lining exceeds the minimum limit.

If the remaining amount is greater than the minimum limit, replace the brake lining as a set.

New Part: 5.6 mm

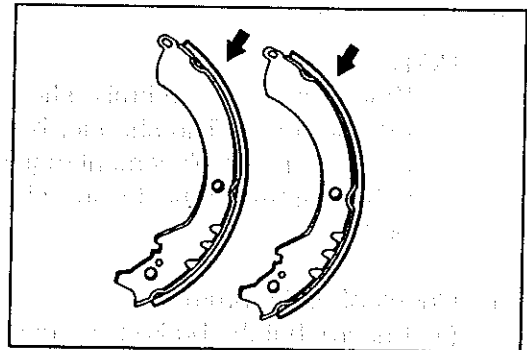
Minimum Limit: 1.0 mm



R7BR00154-99999

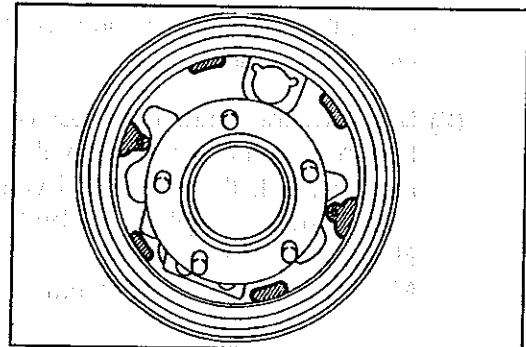
BR-48

5. Ensure that each brake shoe contact surface exhibits no damage, such as abnormal wear and cracks.
If any damage is present, replace the brake shoe as a set.



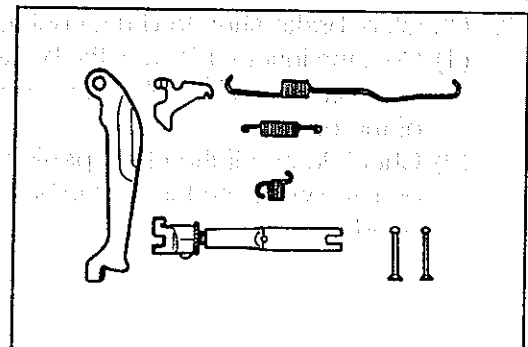
R7BR00155-99999

6. Ensure that the brake shoe contact surface exhibits no abnormal wear.
Ensure that the backing plate exhibits no damage, such as bend. If any damage is present, replace the backing plate.



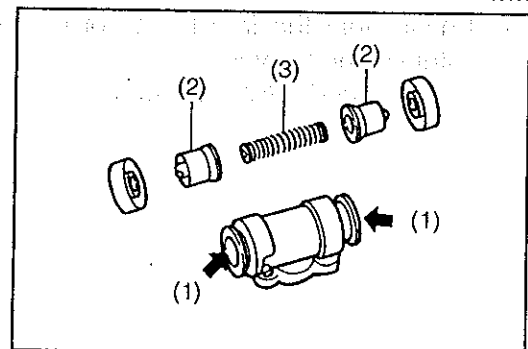
R7BR00156-99999

7. Check of related parts.
- (1) Ensure that the tension springs exhibits no damage, such as wear and flattened condition.
 - (2) Ensure that the parking brake strut exhibits no wear and rust. Also, ensure that the connecting section of parking brake strut turns smoothly.
 - (3) Ensure that each of the levers, pins and so forth exhibits no damage, such as wear. If any damage is present, replace the damaged parts.



R7BR00157-99999

8. Check of wheel cylinder.
- (1) Ensure that the inner surface of the wheel cylinder exhibits no rust and scratches.
 - (2) Ensure that no rust or scratch is present at the piston-to-cylinder surface and cup-to-cylinder contact surface.
 - (3) Ensure that the compression spring exhibits no damage, such as flattened condition. If any damage is present, replace the compression spring.



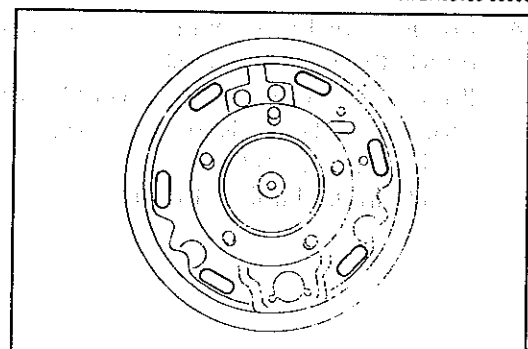
R7BR00158-99999

ASSEMBLY

CAUTION:

- Make sure that no lubricant, such as grease gets to the brake shoe and/or drum surface.

1. Clean the backing plate surface.



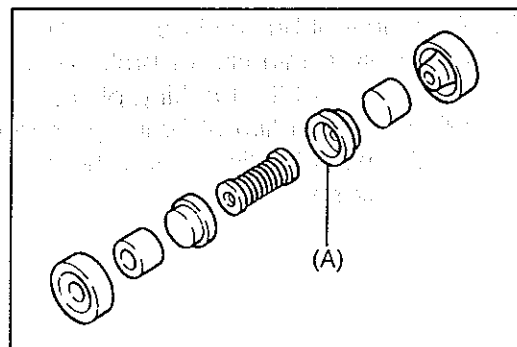
R7BR00159-99999

2. Installation of wheel cylinder.

- (1) Thinly apply rubber grease to the piston cup. Assemble the pistons and cups to the cylinder together with the compression spring.

CAUTION:

- Make sure that the cup is installed in the correct direction. The cup should be assembled so that its protruding (A) surface may face toward the compression spring.



R78R00160-99999

- (2) Install the boot to the cylinder. Assemble the boot to the piston.

- (3) Apply the Three Bond® 1105B to the wheel cylinder installation surface of the backing plate.

R78R00161-00000

- (4) Temporary tighten the wheel cylinder to the backing plate with the two bolts.

- (5) Temporary connect the brake tubes to the wheel cylinder.

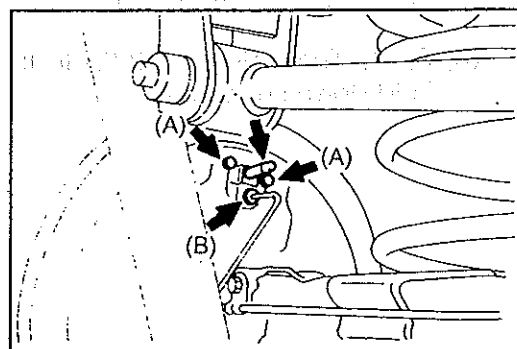
- (6) Tighten the wheel cylinder (A) and the tubes (B).

Tightening Torque (A):

7.8 - 11.8 N·m (0.8 - 1.2 kgf-m, 5.8 - 8.7 ft-lb)

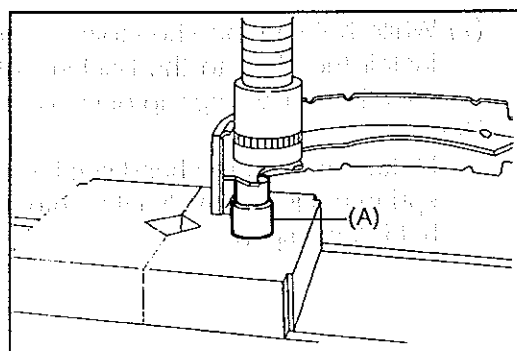
Tightening Torque (B):

12.7 - 17.7 N·m (1.3 - 1.8 kgf-m, 9.4 - 13.0 ft-lb)



R78R00162-99999

3. Press the automatic adjusting lever pin, using the 17 mm box wrench (A).

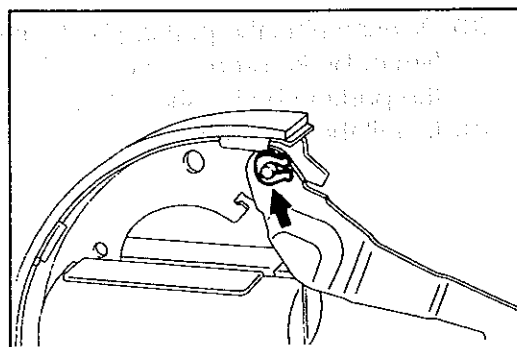


R78R00163-99999

4. Thinly apply brake grease to the parking brake lever pin.
5. Install a new "C"-washer to the parking brake lever pin.
6. Bend the "C"-washer by means of pliers, until both ends of the "C"-washer come in contact with each other.

NOTE:

- Never reuse the removed "C"-washer.

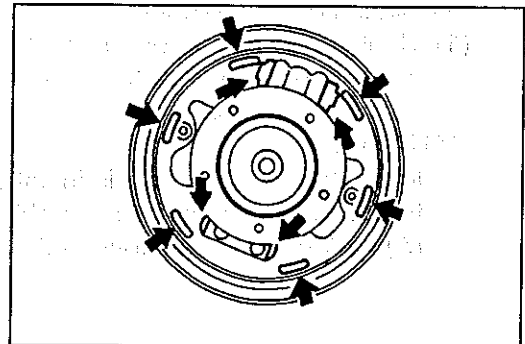


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7. Assembly of brake shoe at leading side.

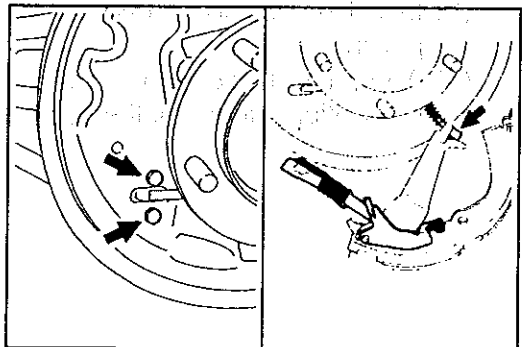
- (1) Apply a thin film of brake grease to the shoe contact surface of the backing plate.
- (2) Apply thin film of brake grease to the pawl section of the wheel cylinder and the anchor arm section of the brake shoe.



R7BR00165-99999

- (3) Insert the parking brake cable into the backing plate.
- (4) Tighten the parking brake cable to the backing plate with the two bolts.

Tightening Torque: 5.88 - 12.74 N·m
(0.6 - 1.3 kgf-m, 4.3 - 9.4 ft-lb)



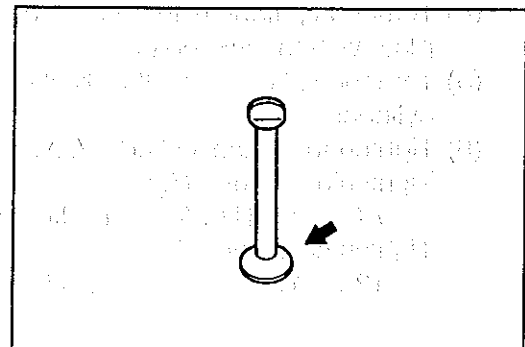
R7BR00166-99999

- (5) Connect the parking brake cable to the parking brake lever.

NOTE:

- Be very careful not to bend the parking brake cable by applying undue force to it.

- (6) Apply Three Bond® 1105B to the head section of the hold down spring pin.

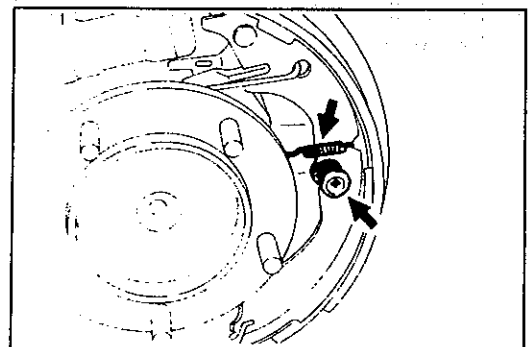


R7BR00167-99999

- (7) While holding the shoe toward the backing plate side, install the shoe to the backing plate by means of the shoe hold down spring pin and shoe hold down spring.

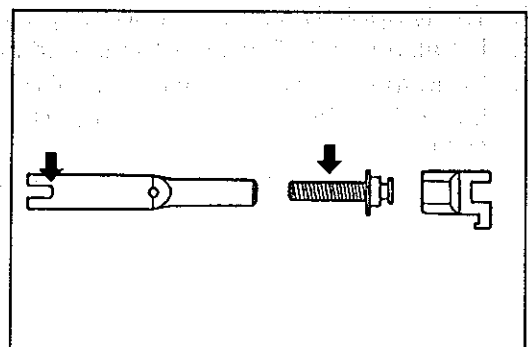
NOTE:

- Make sure that the head section of the shoe hold down spring pin is positively fitted into the groove of the shoe hold down spring.



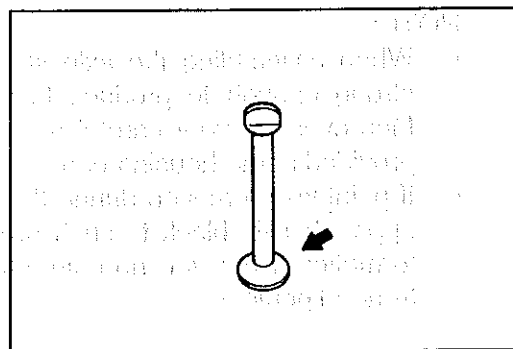
R7BR00168-99999

- (8) Disassemble the parking brake shoe strut. Apply a thin film of brake grease to each sliding section. Assemble the parking brake shoe strut.
- (9) Install the tension spring.



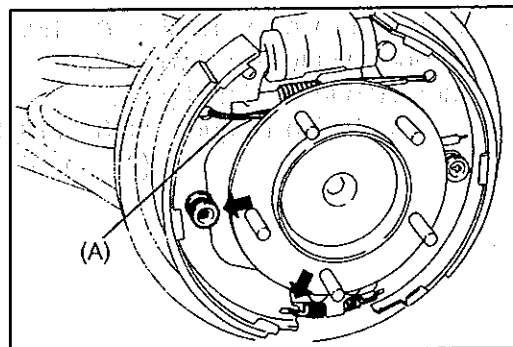
R7BR00169-99999

8. Apply the Three Bond® 1105B to the head section of the hold down spring.



R7BR00170-99999

9. Lift the shoe at the leading side over the backing plate.
10. While holding the shoe at the leading side toward the backing plate, install the shoe to the backing plate by means of the shoe hold down spring pin and hold down spring.
11. Install the tension spring (A), using the plier or the like.



R7BR00171-99999

12. Inspection

Be sure to perform the following inspection to assure safe running.

- (1) Ensure that the rear brake is mounted correctly.

WARNING:

- If the rear brake is not mounted correctly, it may cause brake failure during the running or parking brake failure.

- (2) Inspect the lubricant, such as oil or grease, gets on the surface of the rear brake drum or brake lining. If any lubricant gets on the surface, remove the lubricant, using abrasive paper.

WARNING:

- If any lubricant gets on the surface of the rear brake drum or the brake lining, it may cause in adequate braking.

- (3) Check that the rear wheel cylinder and brake tube attaching sections are tightened to the specified torque. Inspect the attaching sections for brake fluid.

WARNING:

- If the brake tubes are not installed correctly, it may cause brake failure.

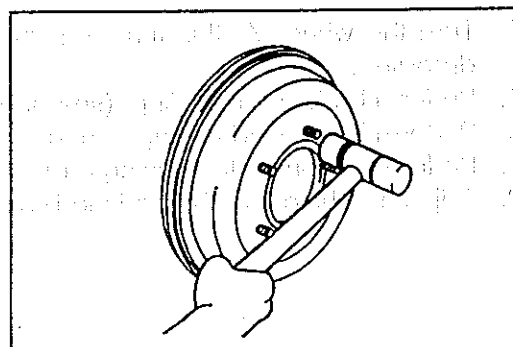
R7BR00172-00000

13. Install the brake drum.

Attach the brake drum to the rear axle shaft. Tap the brake drum lightly into the axle shaft, using a plastic hammer or the like.

WARNING:

- If any lubricant, such as grease or oil, gets on the inner surface of the brake drum, be sure to wipe it off. Failure to observe this warning may cause in adequate braking.



R7BR00173-99999

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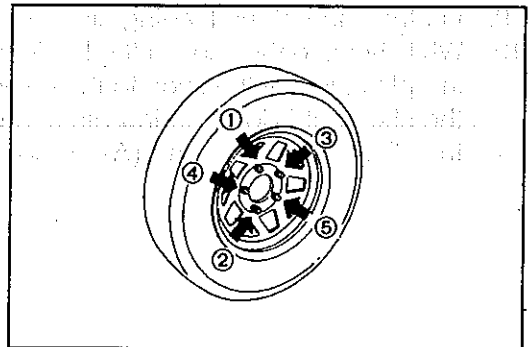
NOTE:

- When assembling the axle shaft, never apply impact strong enough to produce traces inside the bearing. Moreover, be very careful not to damage the oil seal provided at the housing end.
- If paint was removed during the installation, be sure to apply chassis black to such areas to prevent the rust formation. However, no paint should be applied to the treaded portions.

R7BR00174-00000

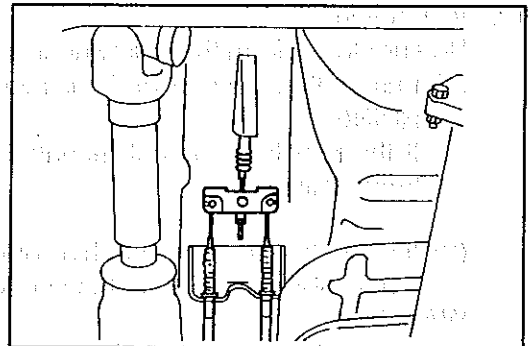
14. Install the wheel. Tighten the hub nuts to the specified torque evenly over two or three stages in the sequence indicated in the right figure.

Tightening Torque: 88.3 - 118.0 N·m
(9.0 - 12.0 kgf-m, 65.1 - 87.0 ft-lb)



R7BR00175-99999

15. Screw in the parking brake lever adjusting screw lock nut (A) about halfway.

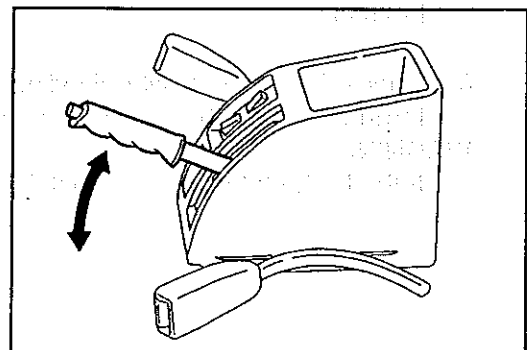


R7BR00176-99999

16. Repeat the pulling/returning operation of the parking brake lever, until the several clicking noise is emitted from the brake drum.

17. With a force of 245 N (25 kgf), pulling/returning the parking brake lever slowly and count the notches.

Specified Working Travel: 7 - 8 notches



R7BR00177-99999

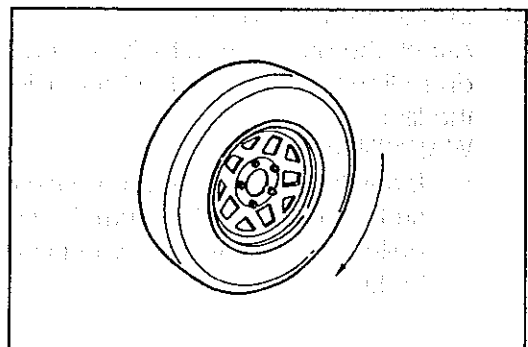
18. Turn the wheel. At this time, ensure that the brake is not dragging.

19. Perform brake air bleeding. (see page BR-16.)

20. Perform brake fluid leakage check.

21. Perform the brake test, using a brake tester.

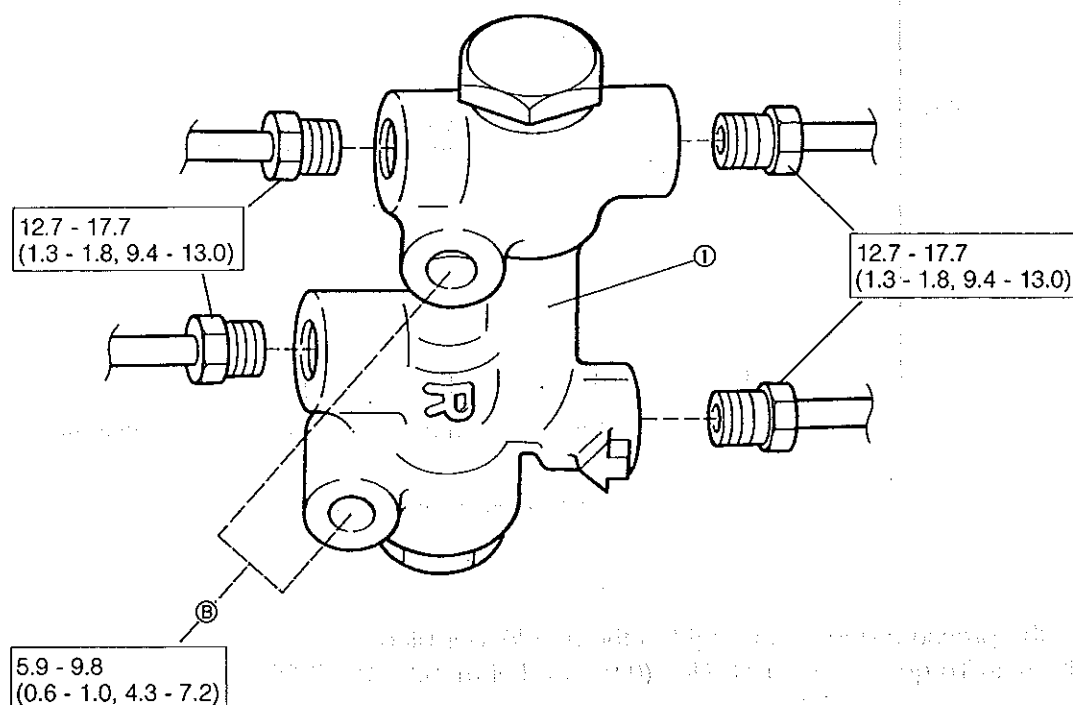
22. Adjust the height of the parking brake lever.



R7BR00178-99999

P-VALVE

□ : Tightening torque
Unit : N·m (kgf·m, ft·lb)

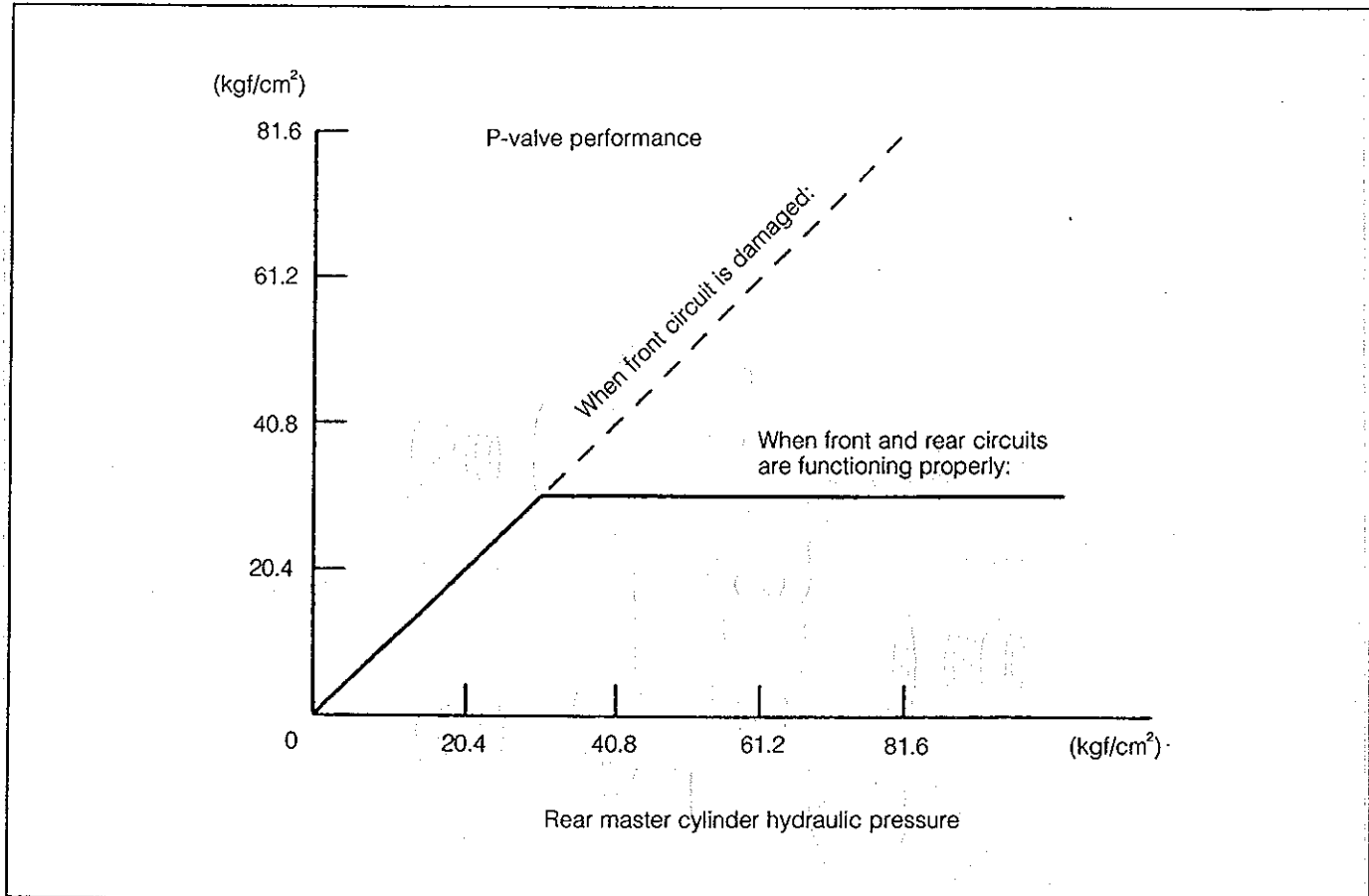


① valve p

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P-VALVE OPERATION INSPECTION

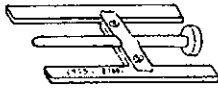
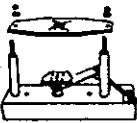
1. Remove the air bleeder plugs on the right front wheel and left rear wheel.
2. Install a pressure gauge and perform air bleeding of the pressure gauge.
3. Ensure that no brake fluid leakage is present.
4. Inspect the brake fluid pressure on the front and rear.



5. Remove the pressure gauge and tighten the air bleeder plug.
Tightening Torque: 8.8 - 12.8 N·m (0.9 - 1.3 kgf-m, 6.5 - 9.4 ft-lb)
6. In the same manner as the step 2 through 5, inspect the left front wheel and right rear wheel.
7. Perform air bleeding and fill new brake fluid (See pages BR-15 through BR-16).

APPENDIX

SST

Shape	Parts No.	Part name
	09737-87001-000	Brake booster push rod
	09737-87601-000	Brake booster push rod seal block
	09737-87701-000	Tool subassembly brake booster overhaul

R7BR00180-99999

SERVICE SPECIFICATION

		Specified value	Allowable limit	Remarks
Brake pedal	Height	206 ± 3 mm	—	
	Free length	Less than 5 mm	—	
	Reserve travel	113 mm or more	—	
Front brake pad thickness	New	9.0 mm	—	
	Minimum limit	1.0 mm	—	
Front brake disc	Runout	—	0.1 mm	
	Rotor thickness	Solid	12.5 mm	11.5 mm
		Ventilation	18.0 mm	17.0 mm
Rear brake	Shou thickness	5.6 mm	1.0 mm	
	Drum inner diameter	270.0 mm	272.0 mm	
	Compression spring free length	57 ± 1.5 mm		
Clearance between master cylinder and brake booster		0 mm		
Booster	Booster spring free length	114.0 ± 6 mm	108.0 mm	

R7BR00181-00000

BR-56

TIGHTENING TORQUE

	N·m	kgf·m	ft·lb
Stop lamp switch × Lock nut	17.7 - 29.4	1.8 - 3.0	13.0 - 21.7
Brake clevis × Lock nut	11.8 - 17.7	1.2 - 1.8	8.7 - 13.0
Brake master cylinder × Clamp hose	5.4 - 6.8	0.55 - 0.7	3.9 - 5.1
Master cylinder × Lock nut	6.8 - 10.7	0.7 - 1.1	5.1 - 8.0
Master cylinder × Booster	11.8 - 17.7	1.2 - 1.8	8.7 - 13.0
Vacuum check valve bracket × Bolt	3.9 - 6.9	0.4 - 0.7	2.9 - 5.1
Union × Bolt	11.8 - 15.7	1.2 - 1.6	8.7 - 11.6
Master cylinder × Brake tube	12.7 - 17.7	1.3 - 1.8	9.4 - 13.0
Brake dust cover × Bolt	10.5 - 24.5	1.05 - 2.45	7.5 - 17.6
Caliper × Air bleeder plug	8.8 - 12.7	0.9 - 1.3	6.5 - 9.4
Brake mounting support × Pin	39.2 - 49.0	4.0 - 5.0	28.9 - 36.2
Brake mounting support × Bolt	68.6 - 88.3	7.0 - 9.0	50.6 - 65.1
Brake caliper × Bolt	31.4 - 41.2	3.2 - 4.2	23.1 - 30.4
Parking lever × Bolt	9.8 - 15.7	1.0 - 1.6	7.2 - 11.6
Parking lever × Adjusting nut	3.9 - 6.9	0.4 - 0.7	2.9 - 5.1
Rear wheel cylinder × Backing plate	7.8 - 11.8	0.8 - 1.2	5.0 - 8.7
Backing plate × Parking cable	5.88 - 12.74	0.6 - 1.3	4.3 - 9.4
Parking lever × Bolt	9.8 - 15.7	1.0 - 1.6	7.2 - 11.6
P-valve × Bolt	5.9 - 9.8	0.6 - 1.0	4.3 - 7.2
Wheel × Hub nut	88.3 - 118.0	9.0 - 12.0	65.1 - 87.0

R7BR00182-00000