

DAIHATSU
F70,F75,F77

**Service
manual**

BRAKE SYSTEM

BR

DAIHATSU MOTOR CO., LTD.

NO.9703-FE

DAIHATSU

F70,F75,F77

BRAKE

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WRE91-BR001

BRAKE

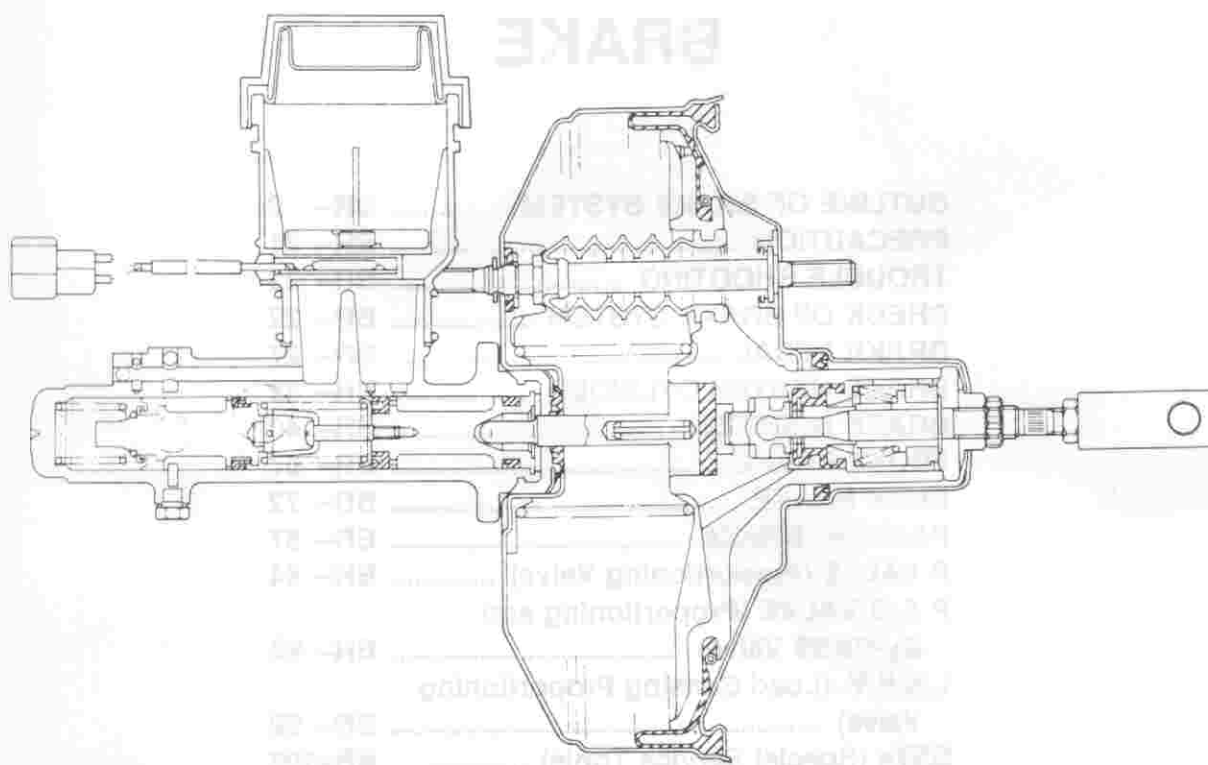
OUTLINE OF BRAKE SYSTEM

The brake system features 8-inch brake booster, large rear wheel cylinder use of P valve, P&B valve or L.S.P.V., and a parking brake built into the rear brake. All these contribute to increased braking capacity.

WRE91-BR004

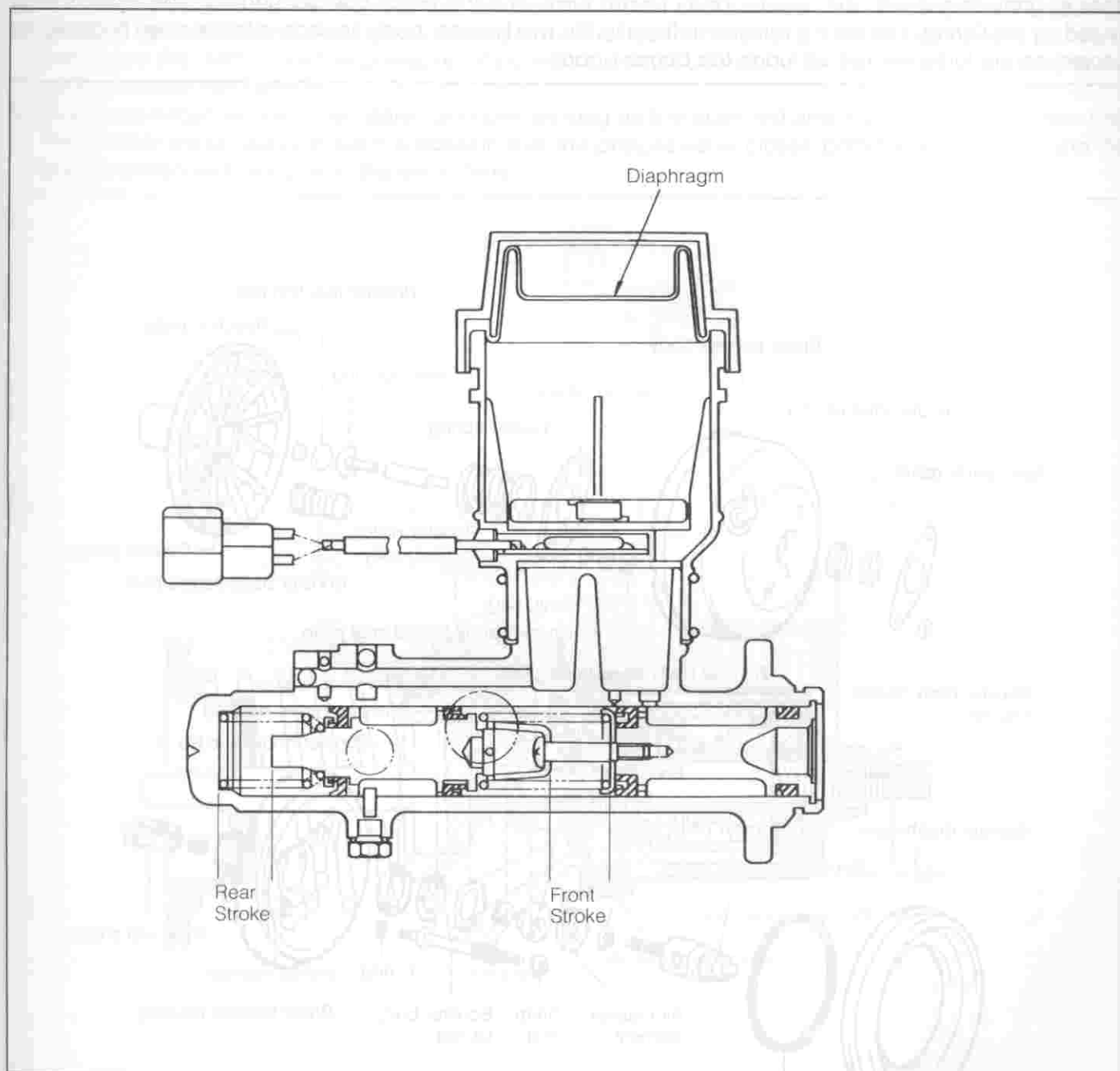
BRAKE BOOSTER

The brake booster is 8 inches in size. The Garback type booster where two tie-rods support from the master cylinder to the instrument panel increases stiffness of the brake pedal when it is pressed.



MASTER CYLINDER AND RESERVOIR

The master cylinder is an aluminum casting. The reservoir is a sealed type which shuts off the brake fluid from the atmosphere with the diaphragm, thus preventing the fluid from oxidation and maintaining high braking capacity for long periods of time.



WRE91-BR002

Master cylinder specifications

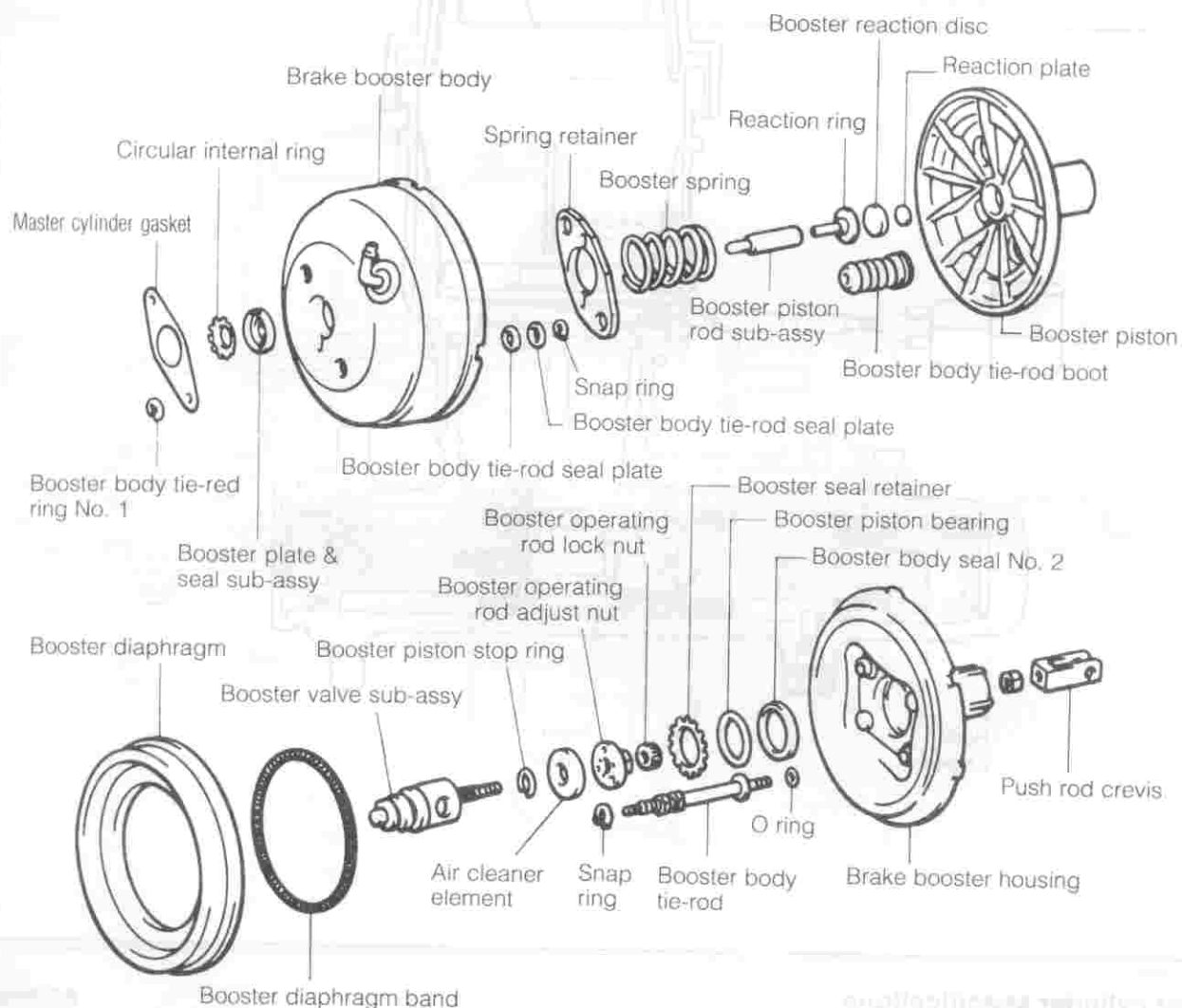
Stroke	Front	mm	18.5
	Rear	mm	11.5
Inner diameter		mm	22.22
Reserve tank capacity cc	Front		16
	Rear		12
	Portion shared in common		114

WRE91-BR003

BRAKE

Construction

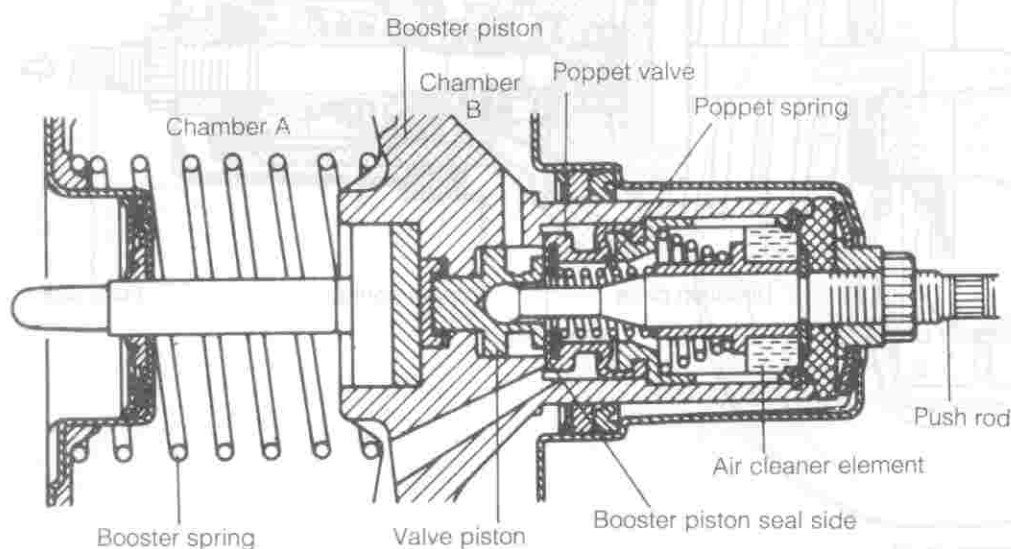
The brake booster body and housing are penetrated and supported by two booster body tie-rods, and are fixed in place with the booster body tie-rod ring No. 1 and snap ring. The booster body tie-rod and brake booster body are sealed together with the seal, the booster piston and booster body tie-rod with the booster body tie-rod boot, and the brake booster housing and booster body tie-rod by the O ring. The spring retainer is fixed to the two booster body tie-rods with the snap rings, so the booster spring force will not act upon the booster body.



Operation

With brake not operated

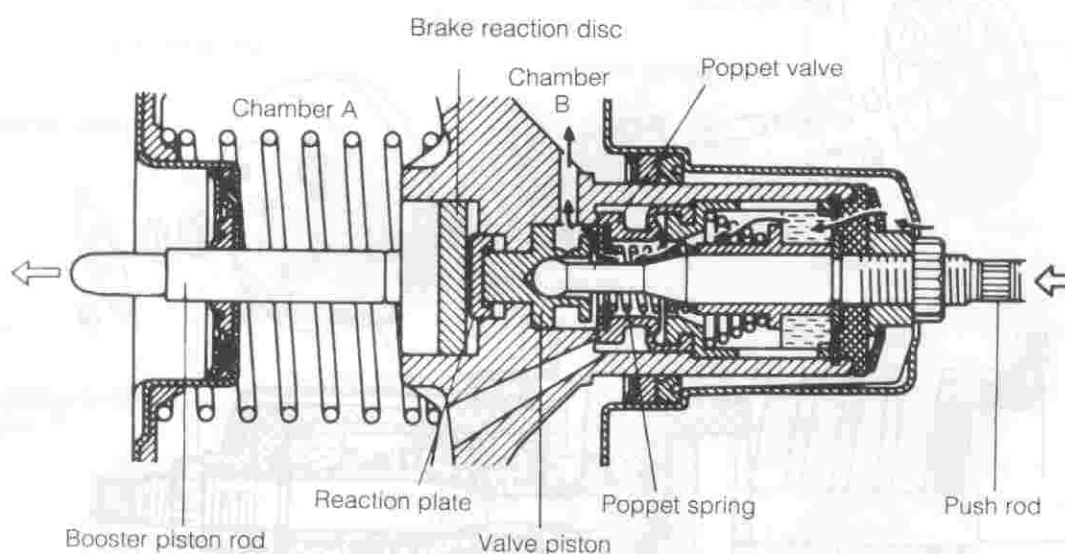
1. The poppet valve is pressed against the valve piston by the poppet spring to prevent the air from the air cleaner element from entering the booster.
2. The poppet valve is also in contact with the booster piston seal surface, thus shutting the chambers A and B off from each other. As a result, the chamber B is free from the negative and atmospheric pressure, and keeps the "semi-negative pressure" state where a small quantity of air equivalent to the load of the spring booster has flown in.
3. This "semi-negative pressure" state continues as long as the push rod and the valve piston remain still. The booster piston stays in such a position that the poppet valve closes both the valve piston and the booster piston seal surface at the same time.



BRAKE

With brake operated

1. When the brake pedal is pushed, the push rod is also pressed down to cause the valve piston to advance.
2. This causes the poppet valve to shift forward due to the poppet spring to close the booster piston seal surface, and as a result the chambers A and B are shut off from each other.
3. As the valve piston advanced further, the valve piston and the poppet valve separate from each other. Then, the air from the air cleaner element passes through the clearance between them to reach the chamber B.
4. This entrance of air into the chamber B generates a difference in pressures in the chambers A and B. Then, overcoming the booster spring force, the booster piston shifts forward to have the booster piston rod push the piston in the master cylinder via the reaction plate and booster reaction disc.

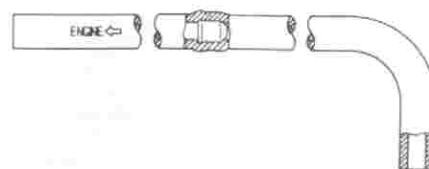


WRE91-BR009

CHECK VALVE

The one-way valve called check valve is incorporated into the vacuum hose so as to maintain the negative pressure applied to the brake booster chamber side.

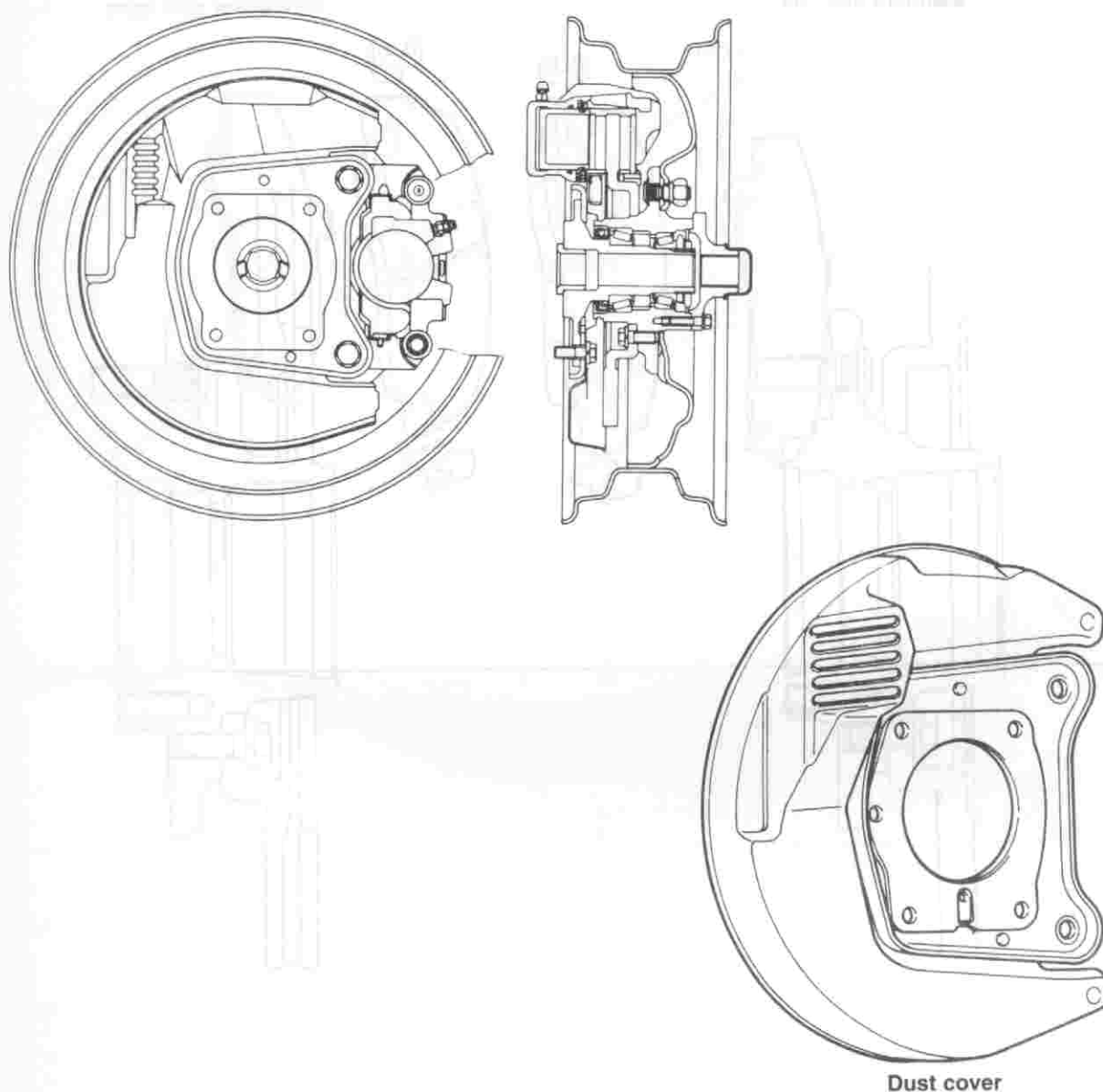
Make sure to install the check valve in such a direction that the "ENGINE ⇐" side comes at the engine side.



WRE91-BR010

FRONT BRAKE

The front brake is a disc type whose dust cover is of resin for light weight.



WRE91-BR011

Specifications

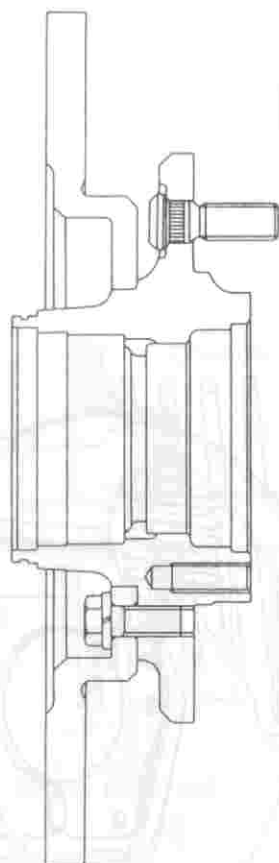
Type		AD disc type
Cylinder bore	mm	53.97
Pad size	mm	115.7 × 48.0 × 9.0
Pad surface area [per pad]	cm ²	49
Pad material		NS 101C

WRE91-BR012

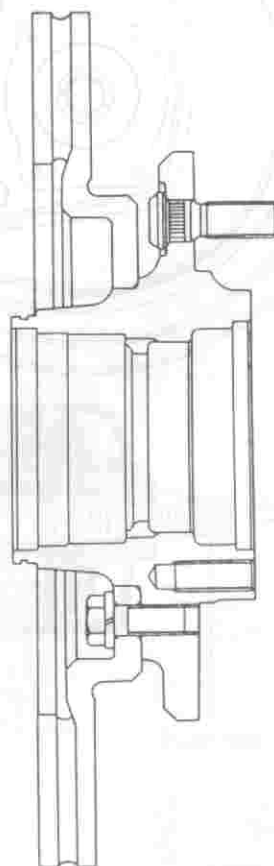
DISC ROTORS

As for the disc rotor, a solid type disc rotor is standard, whereas a ventilated disc rotor having improved heat fade-resistance is optional equipment.

Standard disc rotor



Ventilation disc rotor



WRE91-BR013

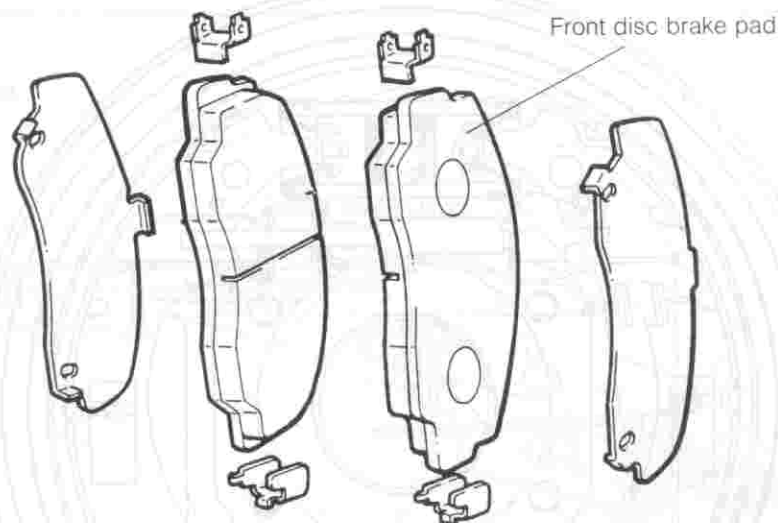
Disc rotor specifications

Item	Type	Standard disc rotor	Ventilation disc rotor
Disc rotor outer diameter	mm	277	277
Disc rotor thickness	mm	12.5	18.0

WRE91-BR014

FRONT DISC BRAKE PADS

The AK NS101C (asbestos-free pad material) has been employed in the front disc brake pads.

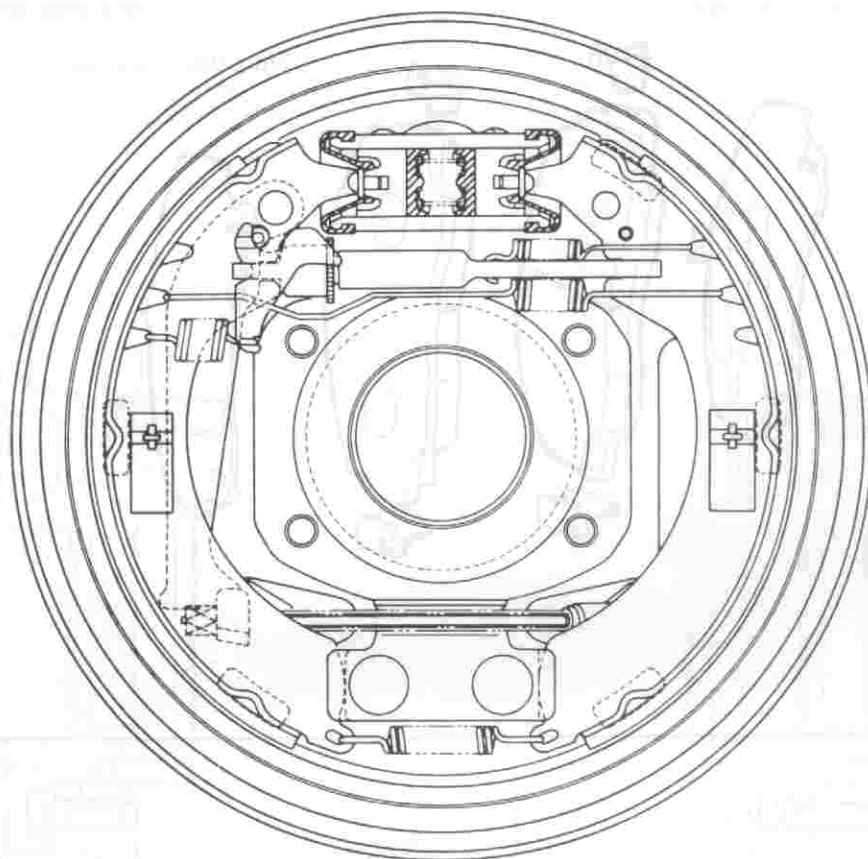


WRE91-BR015

BRAKE

REAR BRAKE

The bore size of rear wheel cylinder is 22.2 mm. This brake incorporates a parking brake inside, and the rear brake shoe automatic adjuster is designed to activate when the parking brake lever is operated.



WRE91-BR016

Specifications

Item	Model	F70, F75 and F77
		Leading, Trading
Drum inner diameter	mm	254
Lining size	mm	265.9 × 44.0 × 5.0
Lining area [per lining]	cm ²	117
Lining material		AKL610A (Asbestos-free)
Cylinder bore	mm	22.2

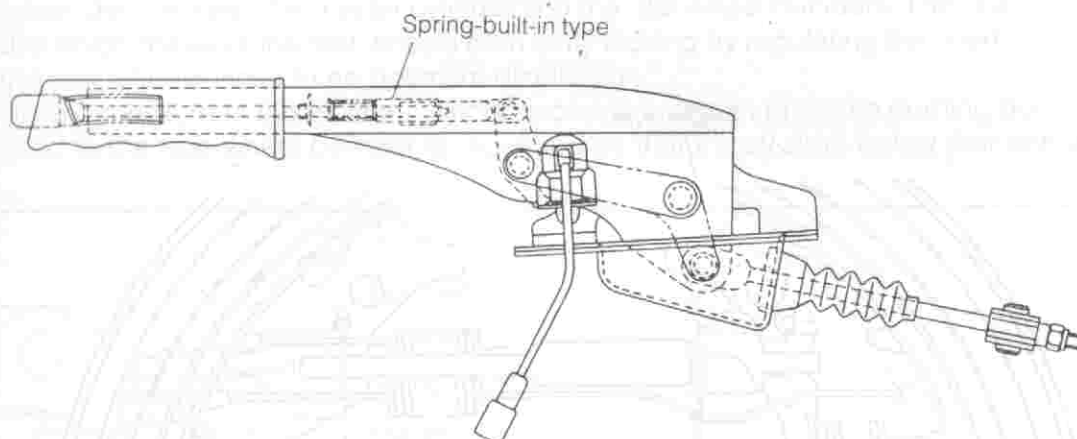
WRE91-BR017

PARKING BRAKE

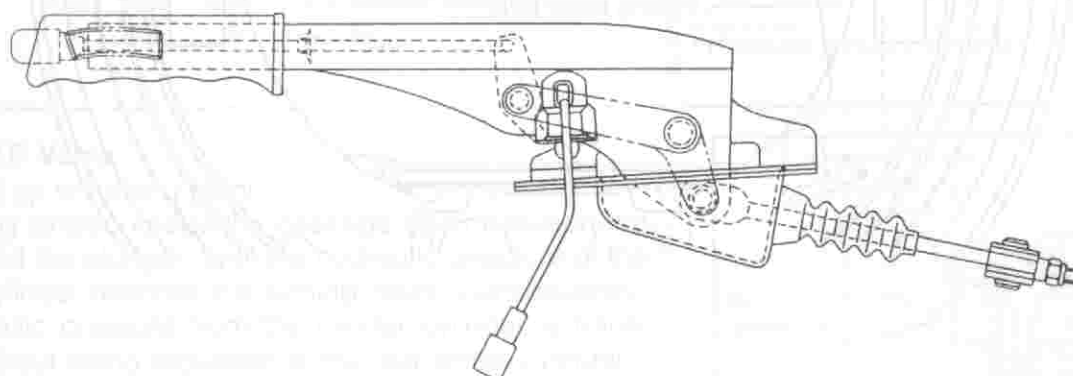
The parking brake is a mechanically-operated, rear wheel braking type. The parking brake lever is located at the center between the right and left front seats. The cable adjustment method employs a center lever type which can be adjusted from the under side of vehicles.

The parking brake comes in two kinds; one for the EC and general specifications and the other for the Australian specifications.

Australian specifications



EC and General specifications



WRE91-BR018

Parking brake specifications

Type	Mechanically-operated, wheel braking type		
Braked wheel	Two rear wheels		
Lining	Area	cm ²	117 × 2-piece × 2-wheel
	Material		AKL610A (asbestos-free)
	Dimensions	mm	265.9 × 44.0 × 5.0
Brake drum inner diameter		mm	φ254

WRE91-BR019

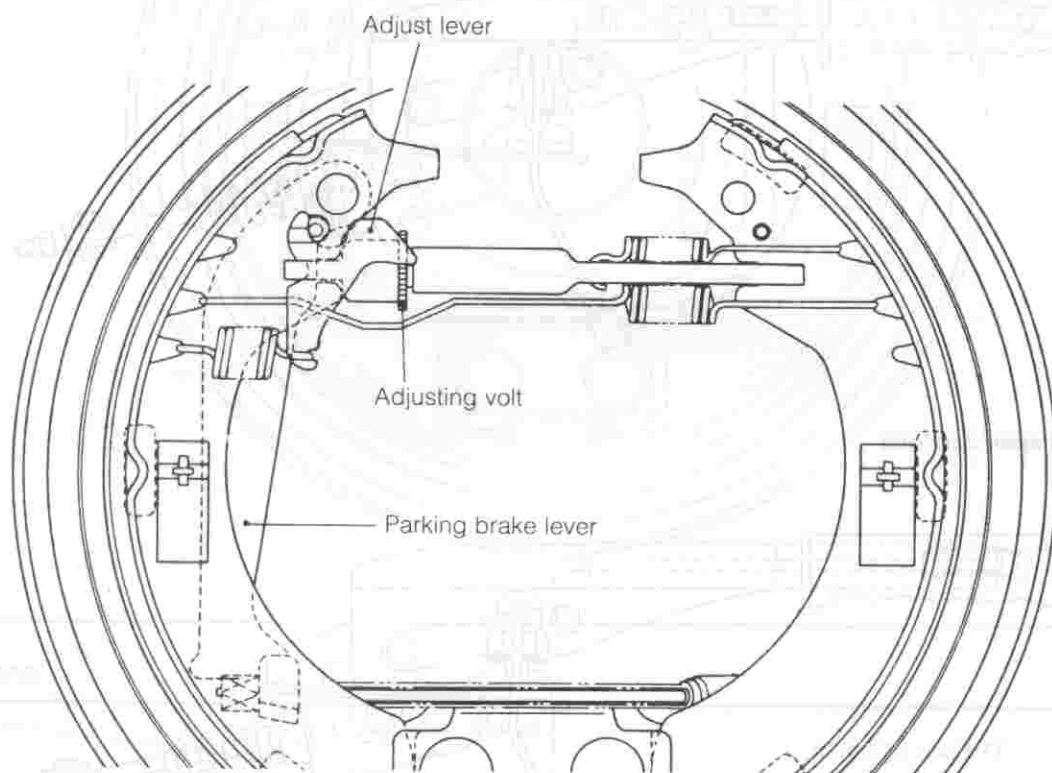
BRAKE

Operation of automatic adjuster

The automatic rear brake shoe clearance adjuster is activated when the parking brake is operated. As shown in the figure below, the adjuster adjust lever is fixed to the parking brake lever.

This adjust lever serves to hold the adjuster teeth, thus locking it in place. It acts in such a manner as causes the adjuster teeth to advance when the parking brake is applied. If the shoe clearance is normal, the amount of shift of the adjust lever is not big enough to move one tooth of the adjuster. But if the lining is worn and the shoe clearance is bigger, the lever operating angle is big, and as a result, the amount of shift of the adjust lever is big enough to cause the adjuster to advance by one tooth.

Thus normal shoe clearance is maintained.



WRE91-BR020

P VALVE (Proportioning Valve)

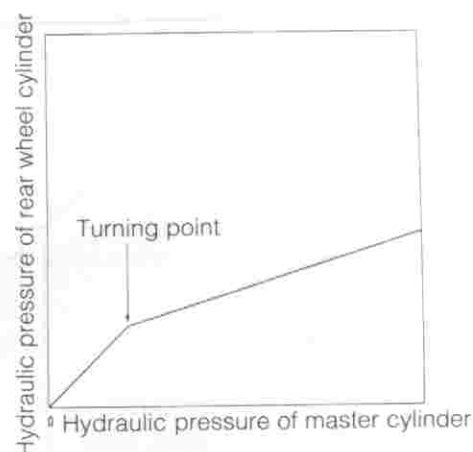
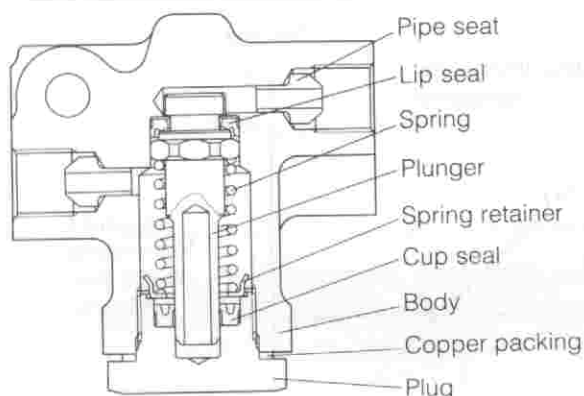
The P valve installed on the F70 & F75 having the general specifications has been employed on all vehicle models.

WRE91-BR021

What is P valve?

The P valve is provided between the master cylinder and the rear wheel cylinders. This is a hydraulic pressure regulating valve which prevents the rear wheels from early locking by regulating the braking force distribution of the front and rear wheels close to an optimum distribution.

When the hydraulic pressure of the master cylinder exceeds a certain pressure (turning point), the hydraulic pressure applied to the rear wheel cylinder is regulated so that it may drop below that applied to the front disc brake.



WRE91-BR022

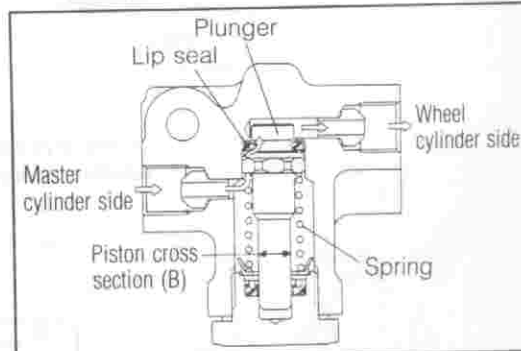
Operation of P Valve

1. Operation up to turning point

The spring tension keeps the passage open between the lip seal and the plunger, until the hydraulic pressure of the master cylinder reaches the turning point. Consequently, the hydraulic pressure from the master cylinder is transmitted without being regulated to the rear wheel cylinder.

2. Operation at turning point

When the hydraulic pressure of the master cylinder reaches the pressure at the turning point, the pressure being applied to the cross section of the piston overcomes the spring tension, thereby lowering the piston. In this way, the passage between the plunger and the lip seal is closed.



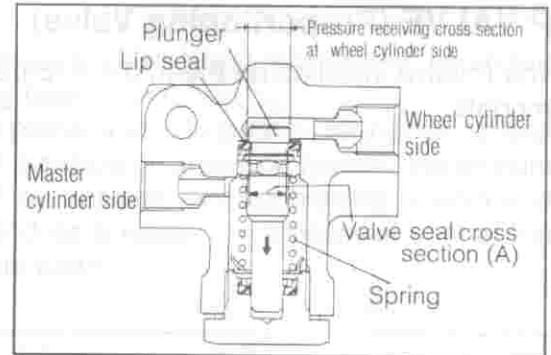
WRE91-BR023

BRAKE

3. Operation after turning point

After the passage between the plunger and the lip seal is closed, two kinds of pressures act on the plunger: One is a pressure being applied to the pressure receiving cross section of the wheel cylinder. The other is a pressure (+ spring tension) being applied to the annular cross section (A - B) which is obtained by subtracting the piston cross section from the valve seal cross section. Both of them act in such a way that they may balance with each other.

The pressure receiving cross section at the wheel cylinder side is larger than the pressure receiving (annular) cross section (A - B) at the master cylinder side. Consequently, the balance is achieved under such a condition that the hydraulic pressure of the wheel cylinder is lower than that of the master cylinder.



WRE91-BR024

P & B VALVE (Proportioning & By-pass Valve)

The P valve which is installed on the F70 & F75 having the ECE & EEC and the Australian specifications has been employed on all vehicle models.

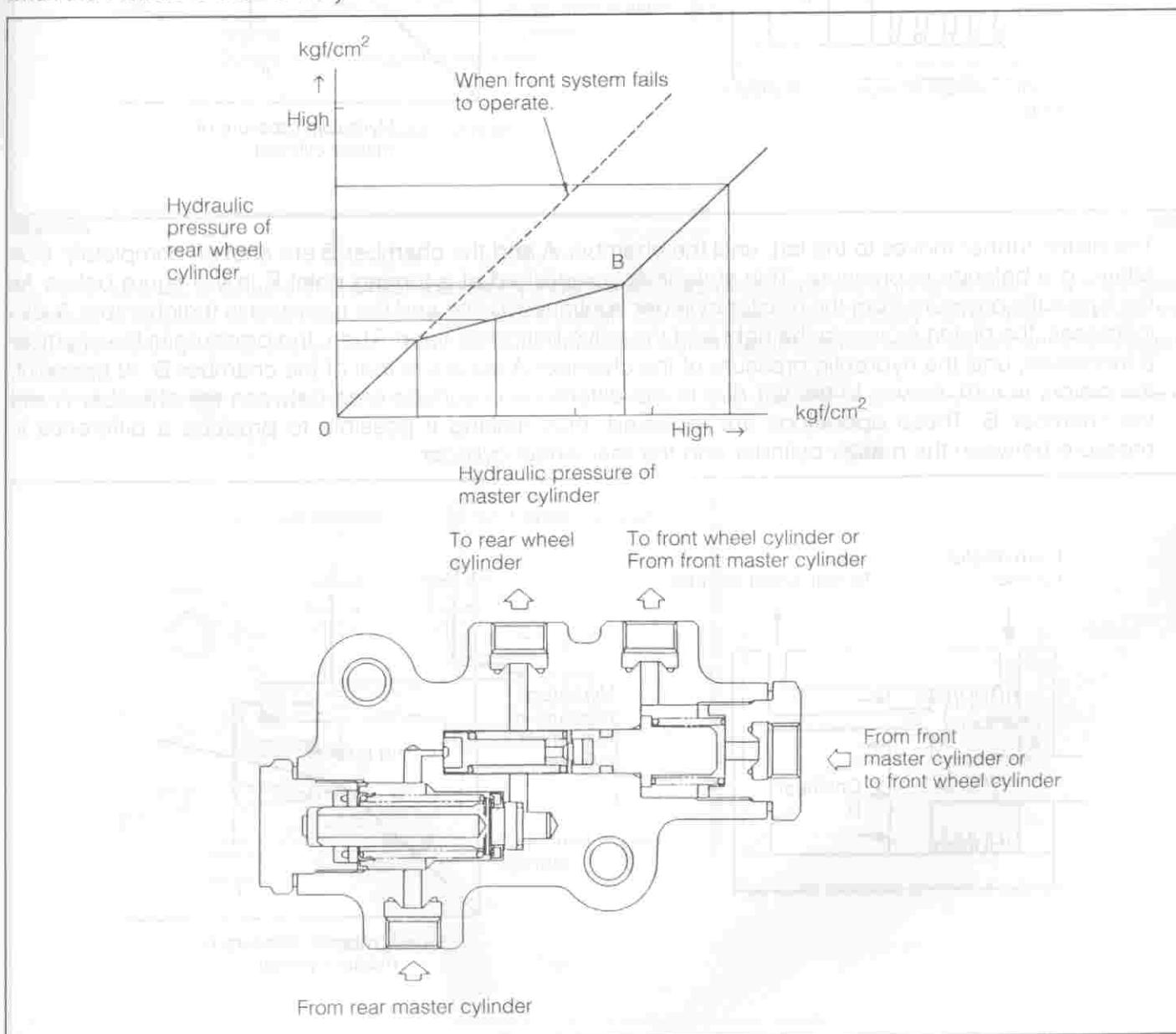
WRE91-BR025

What is P & B Valve

The P & B valve is provided in the brake line between the front and rear wheel brake systems. The purpose of the P & B valve is to assure braking stability by distributing the braking forces of the front and rear wheels at an optimum ratio. The P & B valve is provided with a mechanism whereby the hydraulic pressure of the rear wheel cylinder bypasses the proportioning valve and is applied directly to the rear wheel cylinder in the event that the front brake system is encountered with a malfunction.

The proportioning valve employs a secondary turning point type.

In addition to the normal proportioning valve functions, the secondary turning point type proportioning valve has such characteristics that the hydraulic pressure ratio for the rear wheels is increased again at a middle point (point B in the figure below) in the hydraulic pressure characteristics diagram. This increase is necessary because the braking forces become insufficient for the rear wheels due to greater rear wheel load when the vehicle is loaded fully.

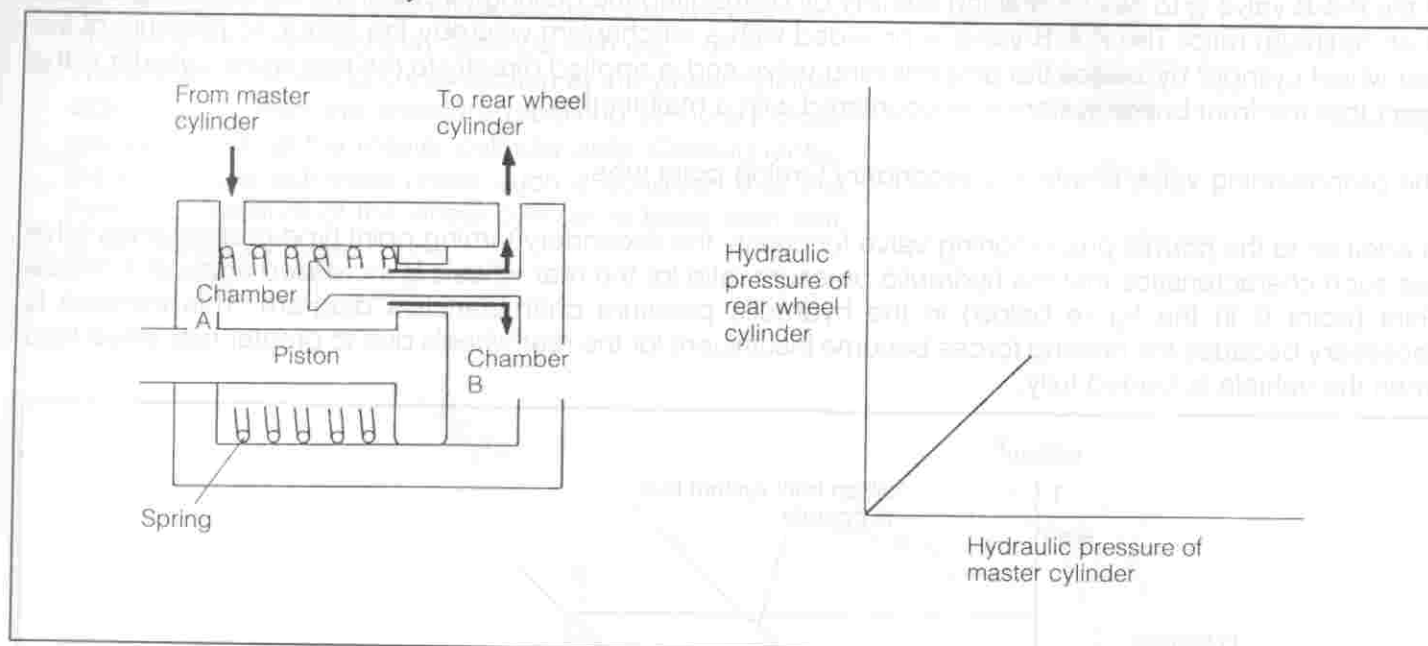


WRE91-BR026

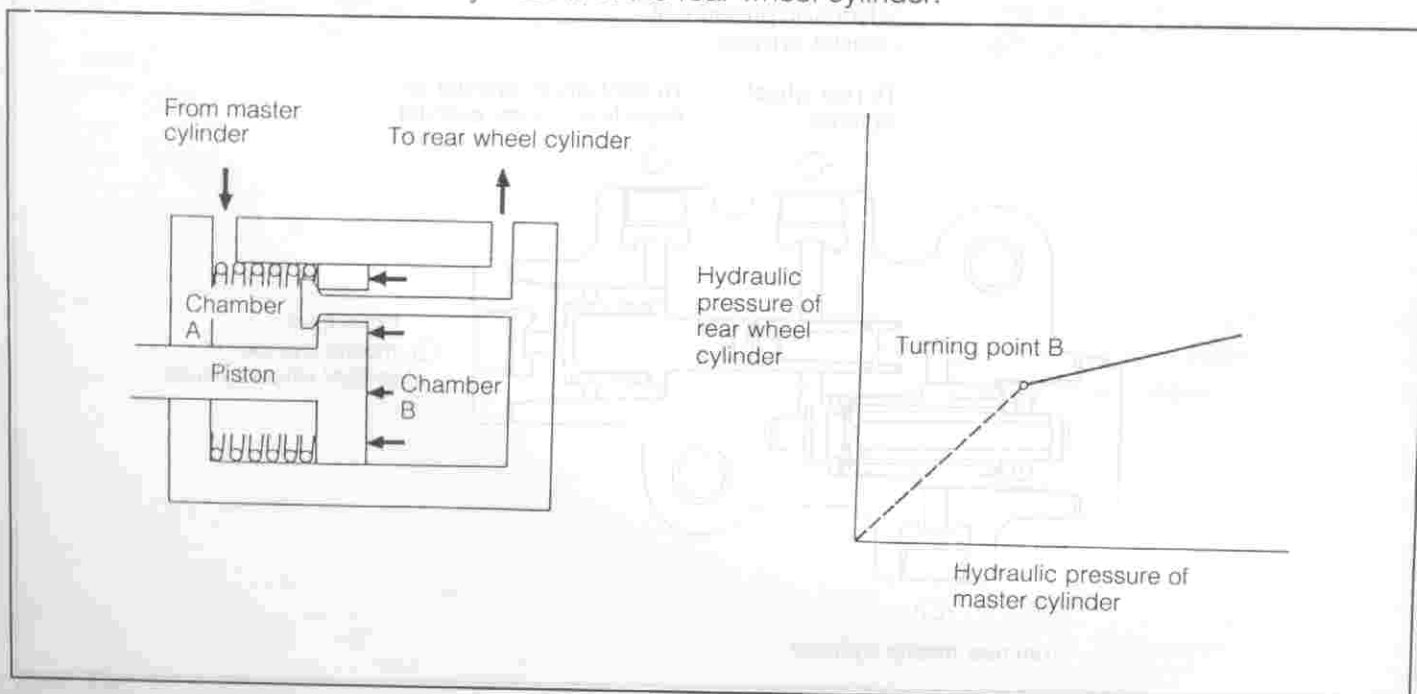
Outline of P & B valve operation

Operation principle of proportioning valve

1. The hydraulic pressure from the master cylinder is applied through the chamber A to the chamber B, as shown in the figure below. The same pressure is applied to both the chambers A and B. Since the hydraulic pressure-receiving area of the chamber A is smaller than that of the chamber B, the piston moves to the left. Hence, while the piston is moving, the hydraulic pressure of the master cylinder is equal to that of the rear wheel cylinder.

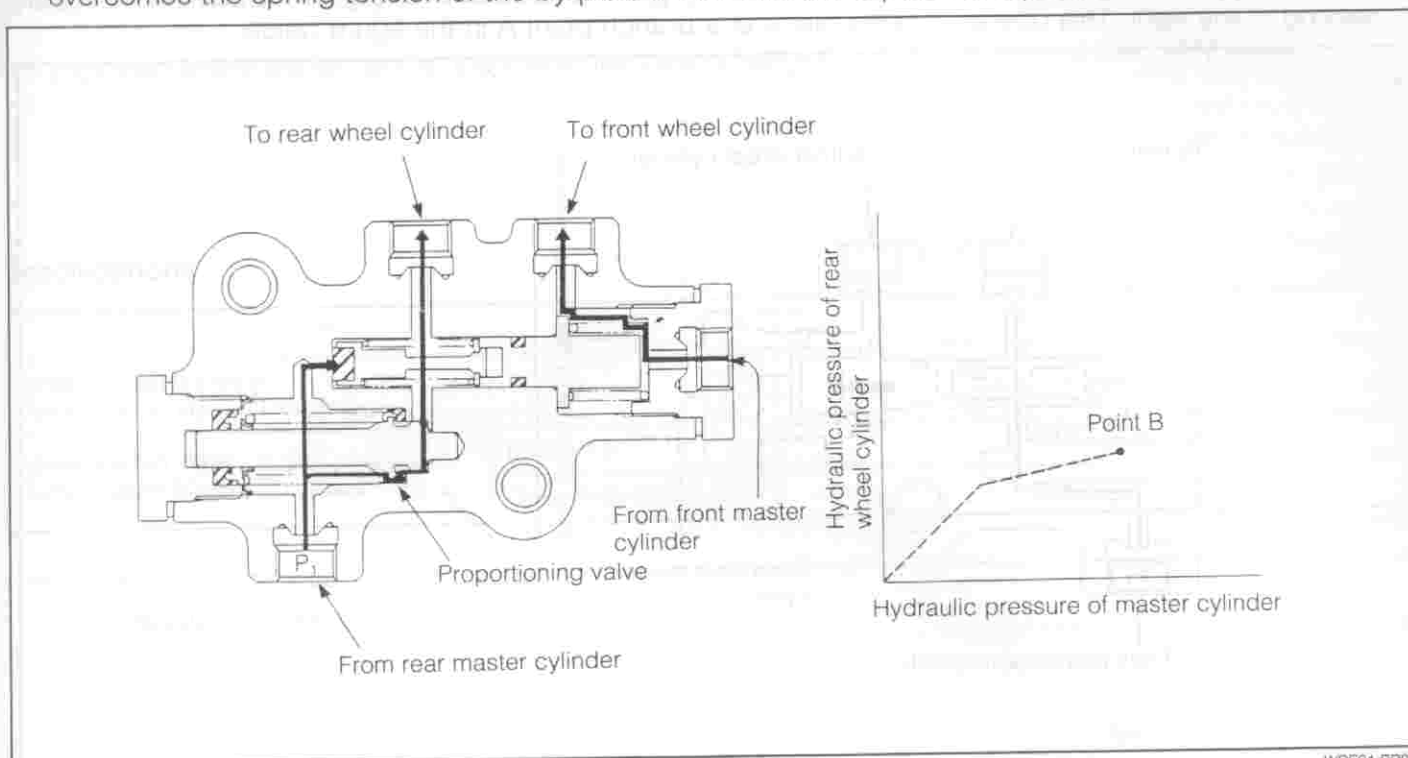


2. The piston further moves to the left, until the chamber A and the chamber B are shut off completely, thus attaining a balance in pressure. This state is accomplished at a turning point B in the figure below. As the hydraulic pressure from the master cylinder continues to rise and the pressure in the chamber A also increases, the piston moves to the right and the valve becomes open. Then, the pressure in the chamber B increases, until the hydraulic pressure of the chamber A equals to that of the chamber B. At this point, the piston, in turn, moves to the left due to the difference in surface area between the chamber A and the chamber B. These operations are repeated, thus making it possible to produce a difference in pressure between the master cylinder and the rear wheel cylinder.



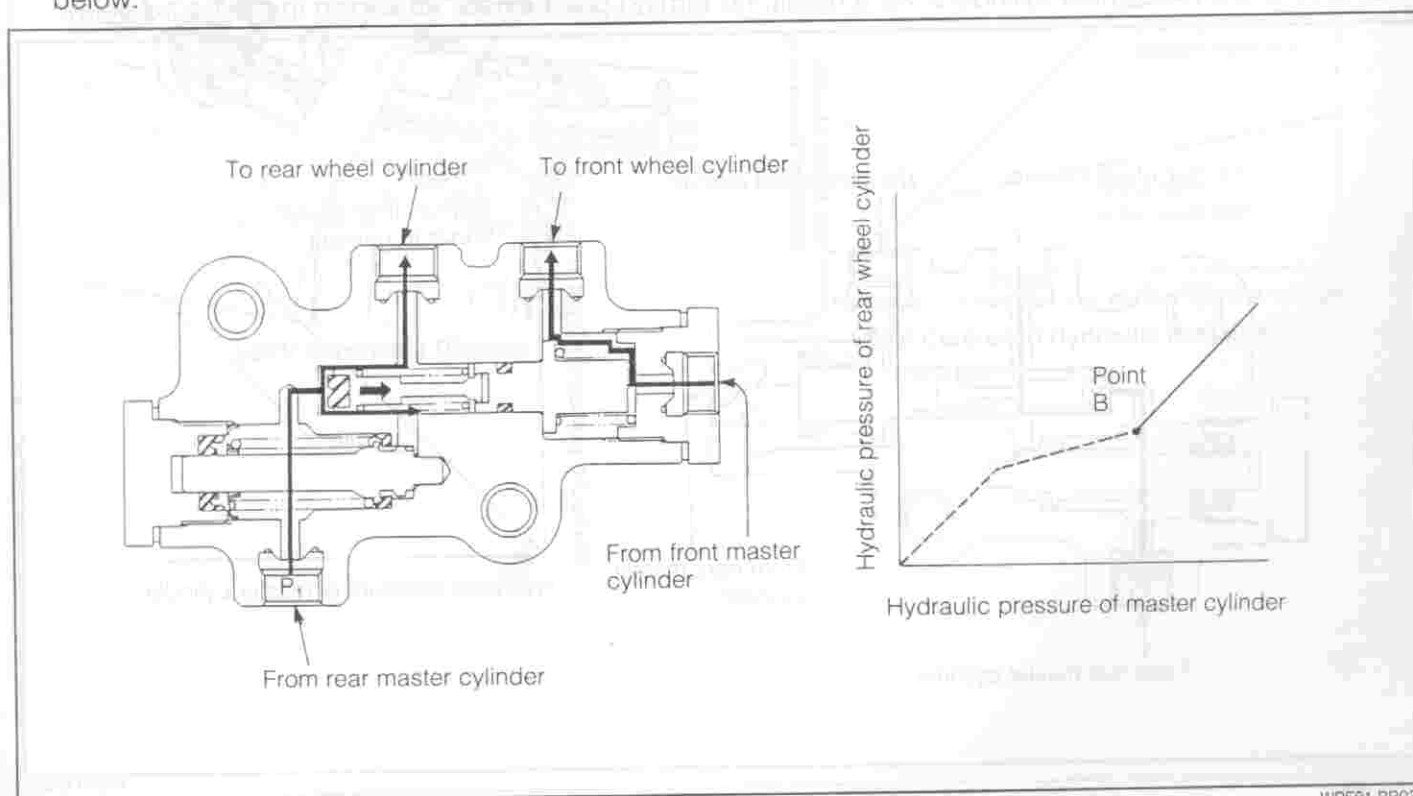
Operation principle of secondary turning point

1. The hydraulic pressure of the rear master cylinder is reduced by the proportioning valve and is applied to the rear wheel cylinder. As the pressure P_1 shown in the figure below rises gradually, the pressure overcomes the spring tension of the by-pass valve. This takes place at a point B in the figure below.



WRE91-BR029

2. The hydraulic pressure of the rear master cylinder which has overcome the spring tension of the by-pass valve is applied to the rear wheel cylinders through the by-pass valve directly rather than through the proportioning valve. As a result, the hydraulic pressure again begins to increase, as shown in the figure below.

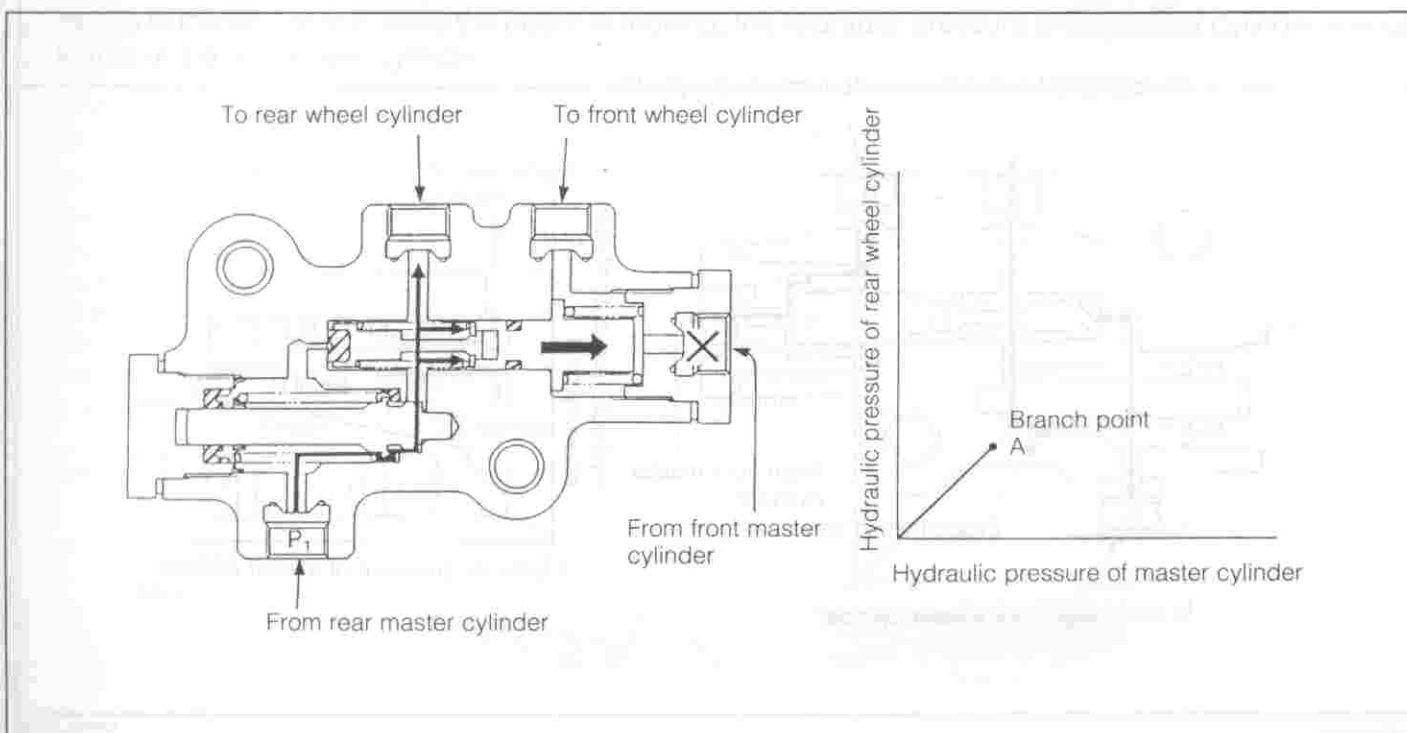


WRE91-BR030

BRAKE

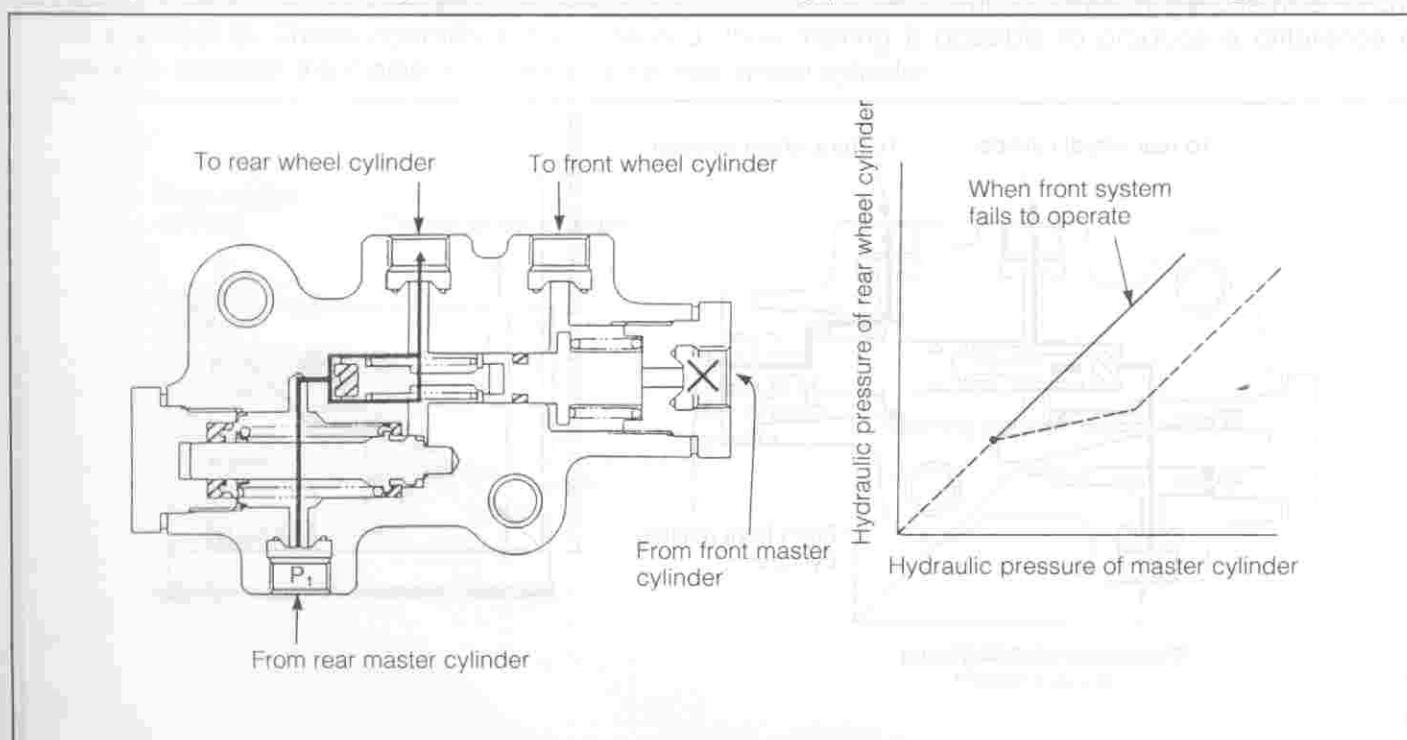
Operation principle of by-pass valve

1. If the front brake system should fail to operate due to some reasons, the hydraulic pressure applied to the front wheel cylinders drops. Then, the hydraulic pressure P_1 which has been applied to the rear wheel cylinder overcomes the spring tension of the by-pass valve, thus causing the by-pass valve to start moving to the right. This operation takes place at a branch point A in the figure below.



WRE91-BR031

2. Inasmuch as the hydraulic pressure of the front wheel cylinder drops, the by-pass valve moves to the right. This by-pass valve's movement to the right forms a by-pass circuit for the hydraulic pressure of the rear wheel cylinders. Hence, the pressure is no longer reduced by the proportioning valve and is applied directly to the rear wheel cylinders. As a result, no turning point exists, as shown in the figure below.



WRE91-BR032

LSPV (LOAD SENSING PROPORTIONING VALVE) (PICK UP)

The LSPV has been provided as standard equipment for all specifications.

This valve controls the brake hydraulic pressure by changing the proportioning valve's turning point in the hydraulic pressure according to the rear axle weight of the motor vehicle.

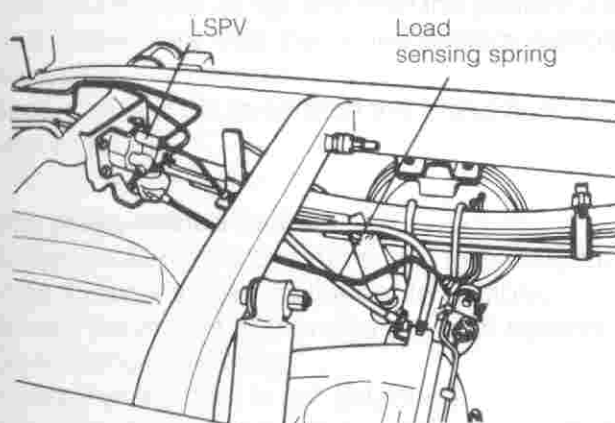
For improved brake performance, the valve has been changed from the P valve to the LSPV valve.

WRE91-BR033

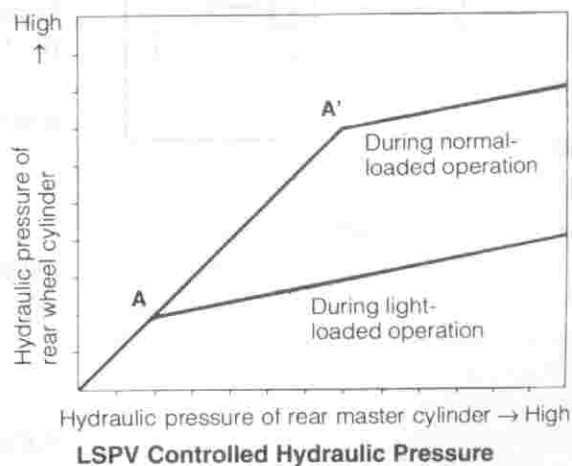
Specifications

		F77
Under no-loaded state Turning point [kgf/cm ²] × grade		14 × 0.25
Under loaded state Turning point [Kgf/cm ²] × grade	ECE & EEC	88 × 0.25
	Other than ECE & EEC	86 × 0.25

WRE91-BR034



LSPV Schematic Diagram



LSPV Controlled Hydraulic Pressure

WRE91-BR035

BRAKE

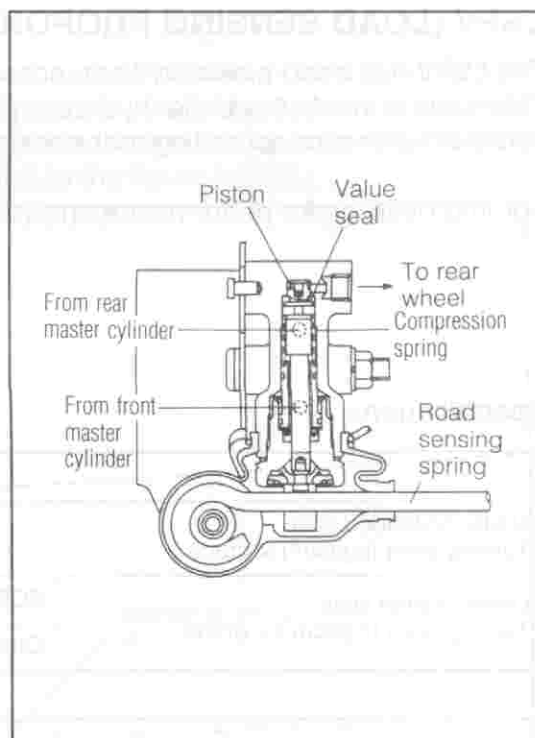
Construction and operation

The hydraulic pressure from the rear master cylinder is applied to the rear wheel cylinder through a gap between the valve seal and the piston. At this state, a down force is applied to the piston because of the difference in pressure-receiving area between the upper part and the lower part.

As the hydraulic pressure rises, the piston moves down, because the increasing hydraulic pressure overcomes the combined force of the compression spring tension, and the load sensing spring tension. Thus, the piston descends until it comes in contact with the valve seal, thereby interrupting the fluid passage between the master cylinder and the wheel cylinder. (See the A-A' range in the illustration above.)

More over the master cylinder hydraulic pressure further rises, the piston starts moving upward, at this moment, the piston is separated from the valve seal, the hydraulic pressure is applied to the wheel cylinder. Then, the piston moves downward again, thus closing the fluid passage. The foregoing operations are repeated, thus making it possible to perform the pressure-reducing control of the rear wheel cylinder hydraulic pressure (as indicated in the curve beyond the A-A' range in the illustration above.)

The brake pipe from the front master cylinder is a brake pipe which has been provided to transmit the regulating hydraulic pressure to the LSPV whereby the hydraulic pressure is applied to the rear wheel cylinder without the hydraulic pressure regulation at the LSPV in the event that the hydraulic pressure in the front brake pipe drops abnormally.



WRE91-BR036

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 relation 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 the 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.

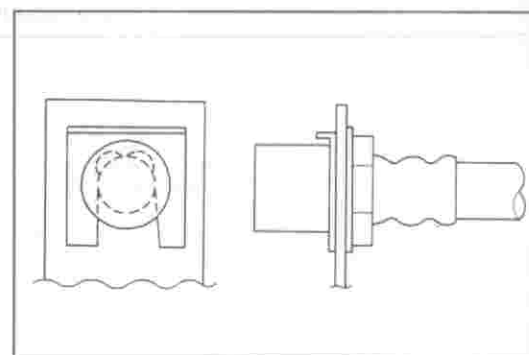
If such fluid or lubricant, etc. should get to these parts, be sure to wipe it off immediately.

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 degrees

WRE91-BR037

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 clips.
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 surfaces.



WRE91-BR038

Parking brake-related items

1. Special caution must be paid so as not to scratch the cable.
2. Make sure not to deform the cable forcibly.
3. Be very careful not to damage 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 under the unloaded state of the vehicle.

WRE91-BR039

BRAKE

TROUBLE SHOOTING

Symptom	Possible causes	Checking points
Brake juddering	Runout of front disc rotor Rear brake drum out-of round	Check disc rotor for runout. Check rear brake drum.
Improper height of brake pedal	Brake pedal improperly installed or adjusted	Check installation height of brake pedal.
Abnormal noise	Brake pedal emitting abnormal noise Disc pad improperly installed Brake shoe improperly installed Disc rotor bearing damaged or improperly lubricated Dust cover distortion	Check brake pedal for proper lubrication. Check disc pad. Check brake shoe. Check disc rotor bearing. Check dust cover.
Car pulls to one side on application of brakes.	Faulty disc pad or brake shoe Disc pad and brake shoe contaminated by lubricant, etc. Attachment curvature of parking brake cable too sharp	Check pad or shoe. Check pad or shoe. Check parking brake cable.
Low or spongy brake pedal	Air trapped in brake line	Perform air bleeding operation.
Brake will not work effectively.	Brake fluid leaky Brake vacuum line leaky	Check brake tube, etc. Check brake vacuum line.

WRE91-BR040

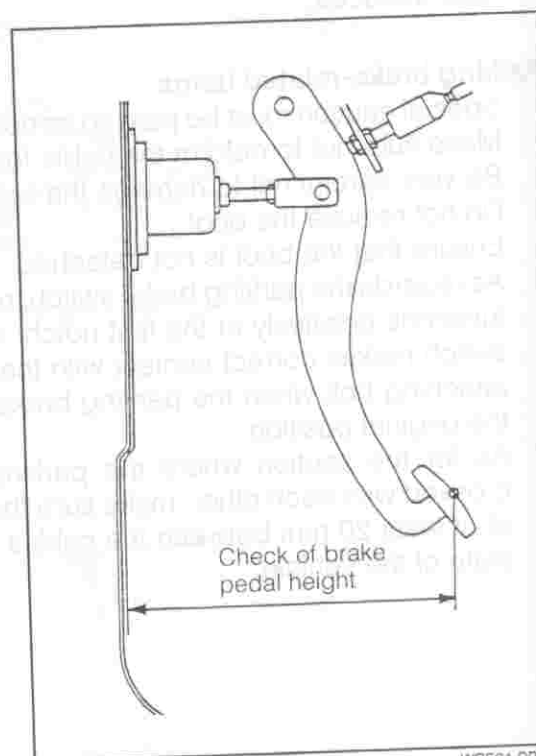
CHECK OF BRAKE SYSTEM

1. Check of brake pedal height

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. vehicle; 28 ± 6 mm in the case of the L.H.D. vehicle.

Specified Brake Pedal Height: 220 ± 5 mm

If not, adjust the brake pedal height. (See page BR-27.)



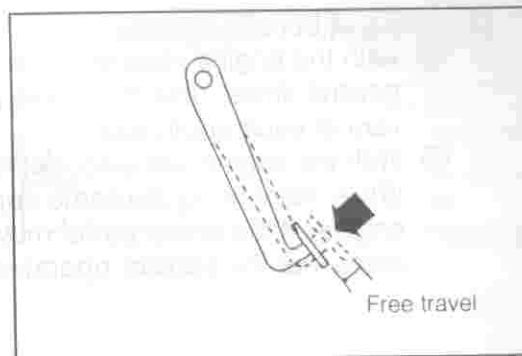
WRE91-BR041

2. Check of 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 by pushing the brake pedal lightly with fingers. Ensure that the free travel is with the specifications.

Specified Value: 2 - 4 mm

If not, adjust the brake pedal free travel.
(See page BR-27.)



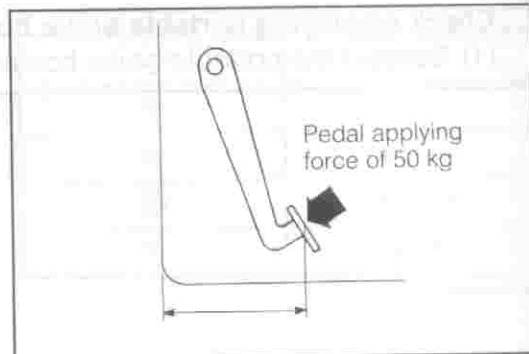
WRE91-BR042

3. Check of 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: 50 kgf

Specified Value: 80 mm or more



WRE91-BR043

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

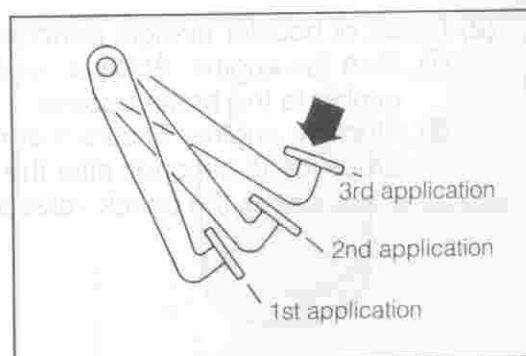
- (2) When the brake pedal is held under the specified load in (1), ensure that the height of the brake pedal applying surface remains unchanged.

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.

4. Check of brake booster

- (1) Check of brake booster air-tight performance

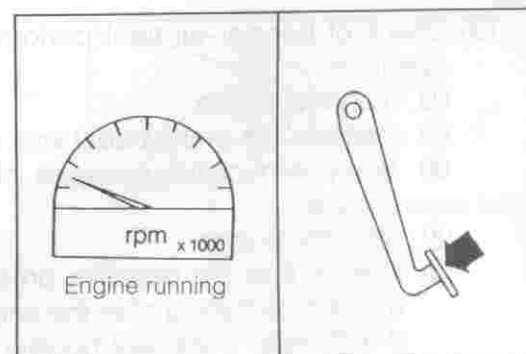
- ① Start the engine. After allowing the brake booster to hold negative pressure, stop the engine.
- ② Depress the brake pedal several times, applying force used during normal brake applications and allowing at least five seconds between each application. Ensure that the position of the brake pedal rises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



WRE91-BR044

- (2) Check of brake booster air-tight performance under loaded condition

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.

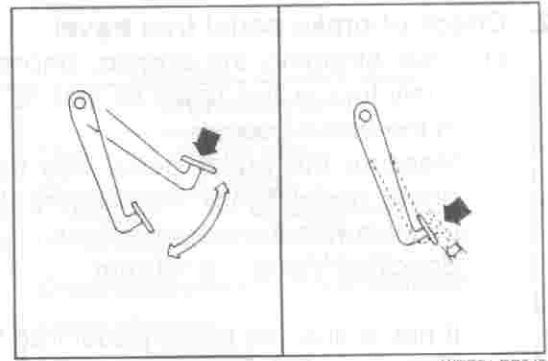


WRE91-BR045

BRAKE

(3) Check of booster operation

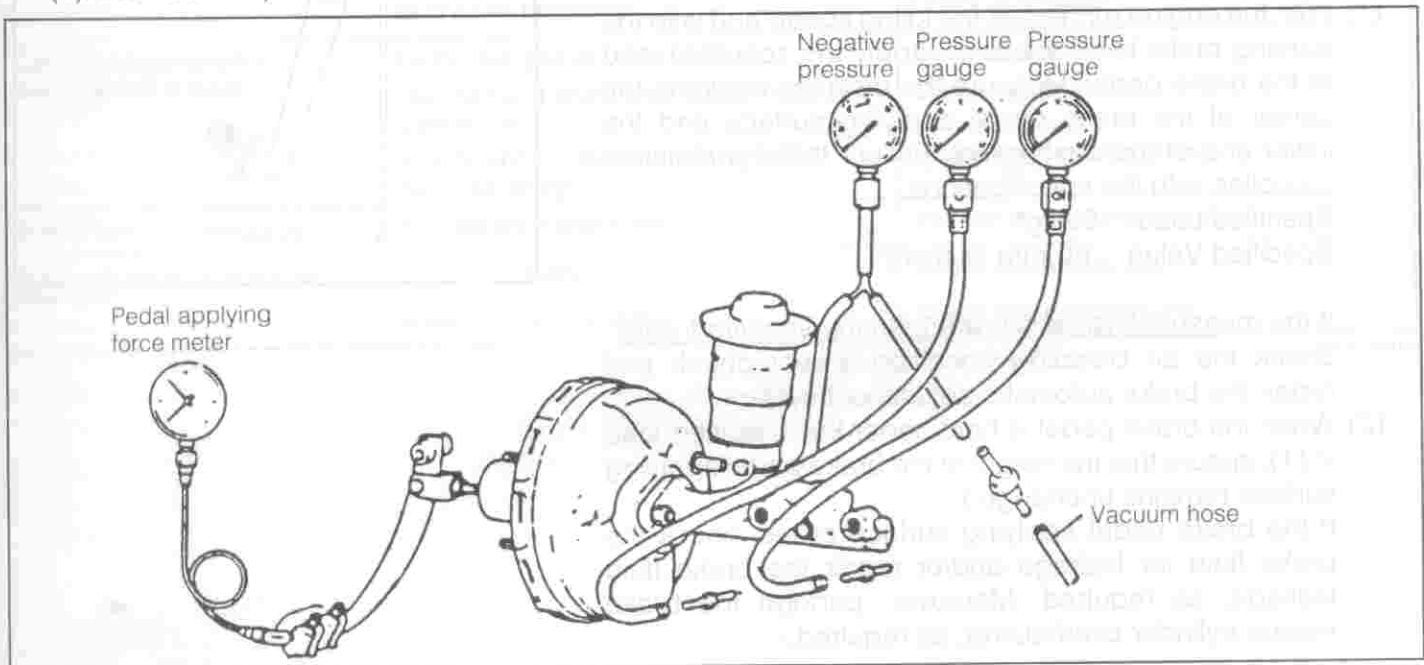
- ① With the engine stopped, depress the brake pedal several times, until the brake pedal height will not vary at each application.
- ② With the engine stopped, depress the brake pedal. While maintaining the same applying force, start the engine. If the brake pedal moves in slightly, it indicates that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



WRE91-BR046

5. Check employing portable brake booster tester

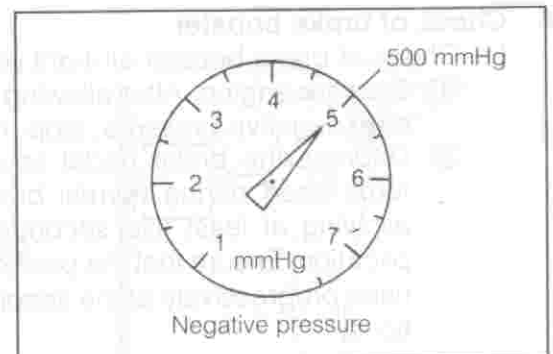
- (1) Connect the portable brake booster tester, as indicated in the figure. Perform air bleeding.



WRE91-BR047

(2) Check of booster air-tight performance

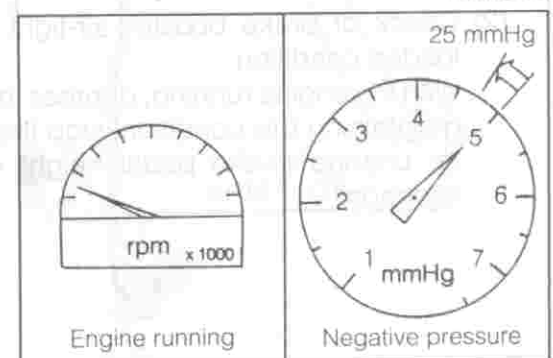
- ① Start the engine. Apply a negative pressure of 500 mmHg to the brake booster.
- ② Stop the engine. Ensure that no negative pressure drops for 15 seconds after the engine has stopped. If not, check the check valve and brake booster.



WRE91-BR048

(3) Check of 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 after the engine has stopped. If not, repair the brake booster.



WRE91-BR049

(4) Check of 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 table.
If not, check the air bleeding condition.

Pedal applying force kgf	Hydraulic pressure kgf/cm ²
10	0 - 6
20	8 - 18
30	19 - 29

WRE91-BR050

(5) Check of 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 kgf/cm ²
5	6 - 14
10	24 - 34
20	63 - 73
30	74 - 84

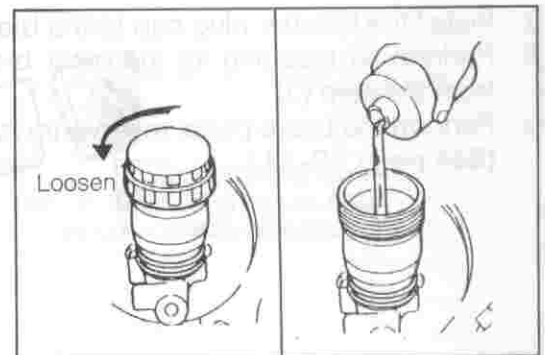
WRE91-BR051

Air bleeding of brake system

1. Filling brake fluid

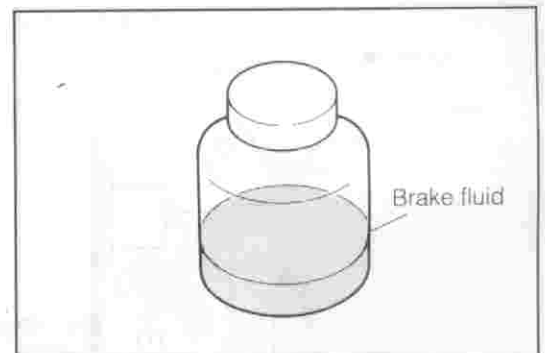
Fill the brake reservoir tank with the specified brake fluid to the full level. Maintain the full level at all times during the brake air bleeding.

Specified Brake Fluid: DOT 3 or SAEJ 1703



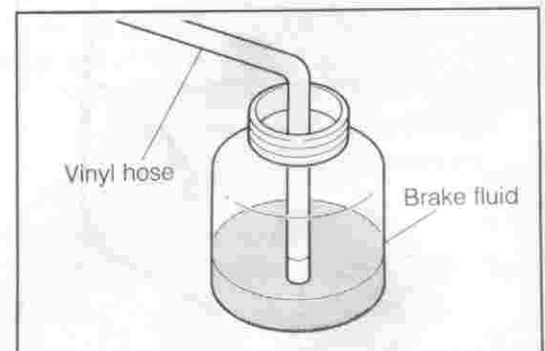
WRE91-BR052

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



WRE91-BR053

3. Detach the air bleeder cap connect one end of a suitable vinyl hose to the air bleeder plug. Insert the other end of the vinyl hose into the prepared container in such a way that 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.



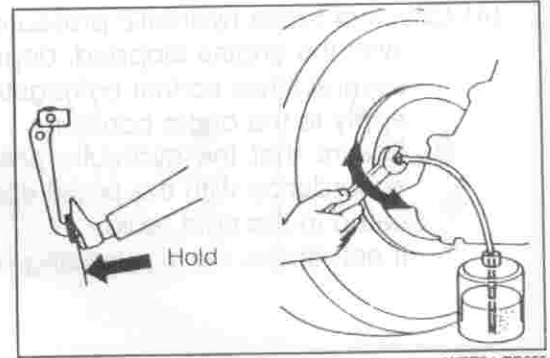
WRE91-BR054

BRAKE

4. Air bleeding

This operation should be performed by two persons.

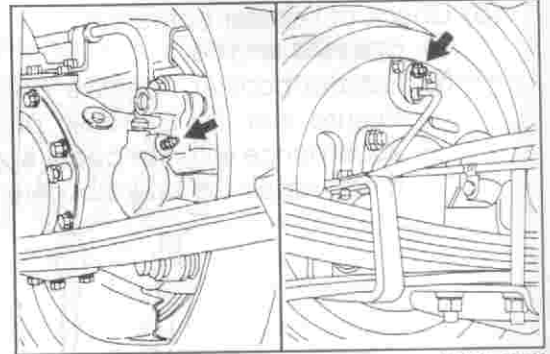
- (1) One person depresses the brake pedal several times and hold it in a depressed state.
- (2) The other person loosens the air bleeder plug 1/3 through 1/2 turn to bleed the air. Tighten the plug again.
- (3) Repeat the steps (1) and (2), until no air or bubble comes from the air bleeder plug.
- (4) Start the engine. Repeat the steps (1) and (2), until no air or bubble comes from the air bleeder plug. (Rear-ABS equipped vehicle only)



WRE91-BR055

5. Tighten the air bleeder plug to the specified torque.

Tightening Torque: 8.8 - 12.7 N·m
(0.9 - 1.3 kgf·m, 6.5 - 9.4 ft·lb)

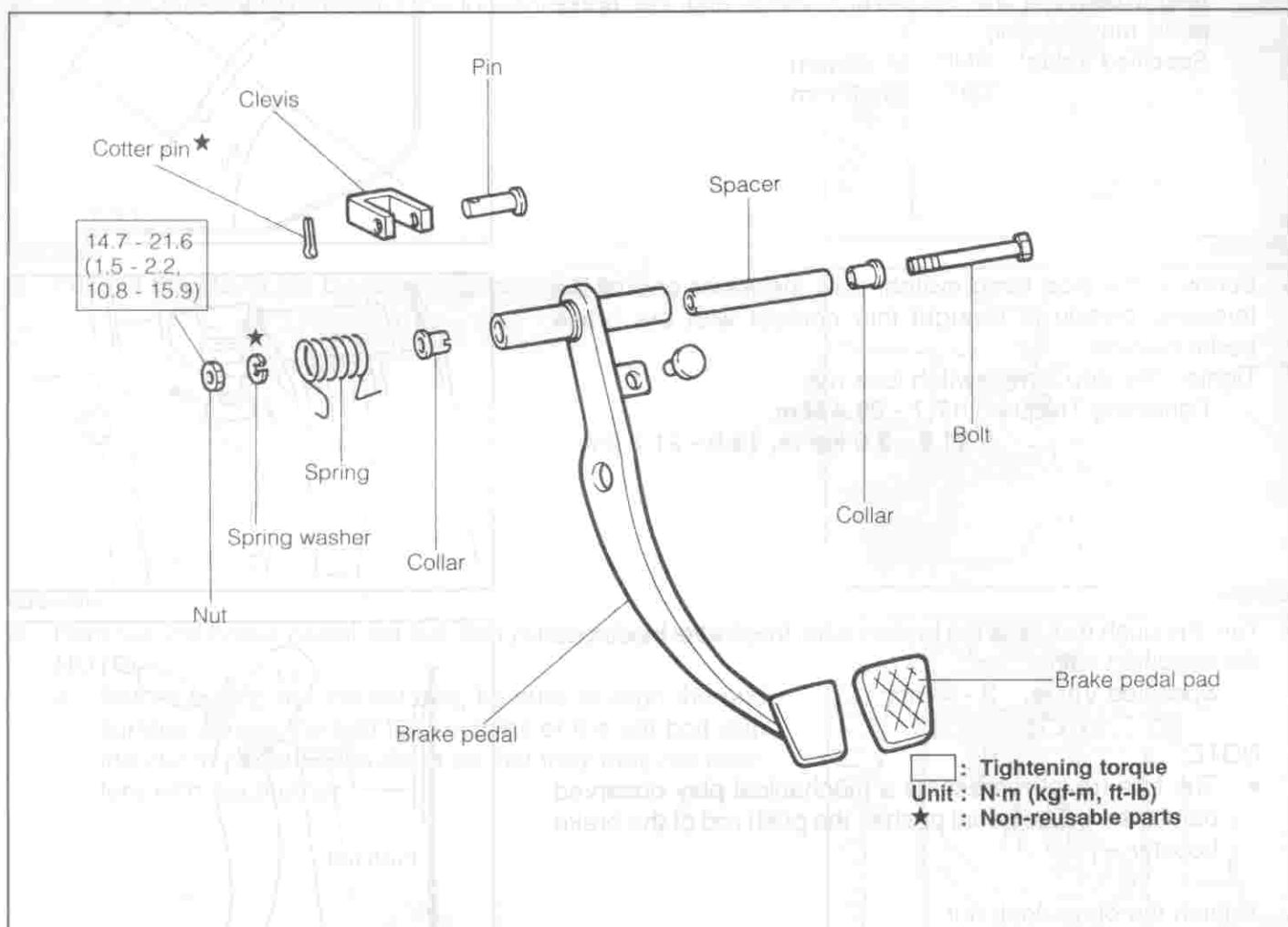


WRE91-BR056

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-23.)

WRE91-BR057

BRAKE PEDAL COMPONENTS



WRE91-BR058

ADJUSTMENT OF BRAKE PEDAL HEIGHT

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

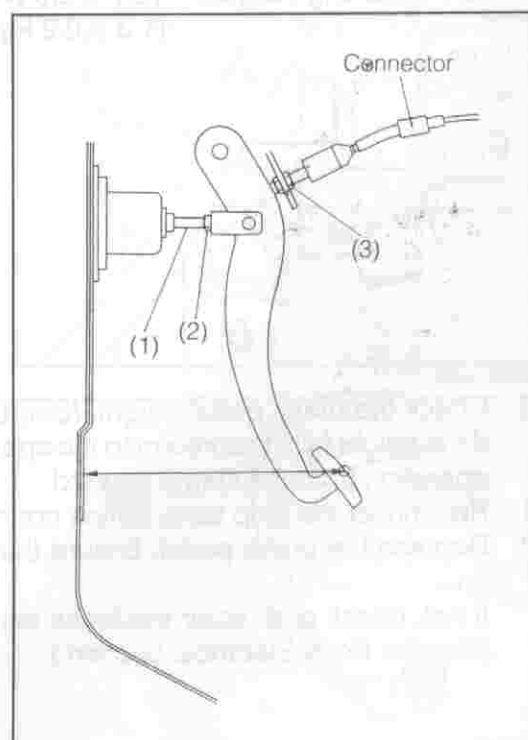
NOTE:

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

4. Loosen the lock nut of the clevis (2).
5. Turn the push rod (1) to adjust the pedal height to the specified height.

Specified Height: 220 ± 5 mm

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



WRE91-BR059

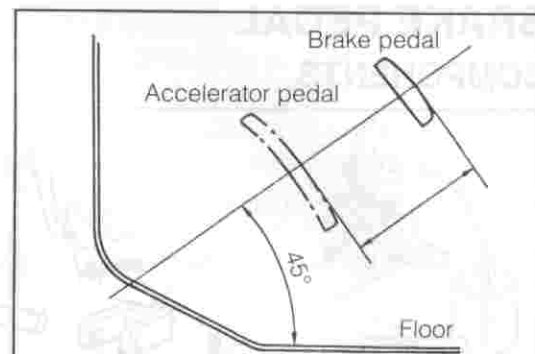
BRAKE

NOTE:

- Adjust the brake pedal height so that the difference in height between the accelerator pedal and the brake pedal may become.

Specified Value: RHD 24 ± 6 mm

LHD 28 ± 6 mm



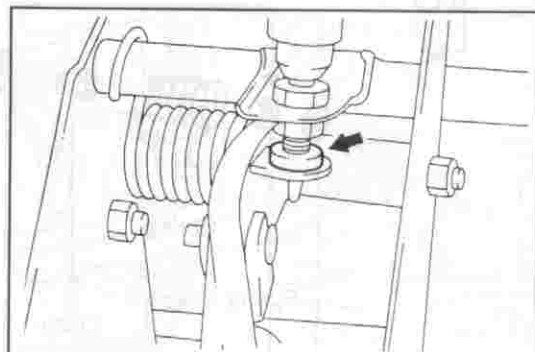
WRE91-BR060

- Screw in the stop lamp switch, until the lower end of the threaded portion is brought into contact with the brake pedal cushion.

- Tighten the stop lamp switch lock nut.

Tightening Torque: $17.7 - 29.4$ N·m

($1.8 - 3.0$ kgf-m, $13.0 - 21.7$ ft-lb)



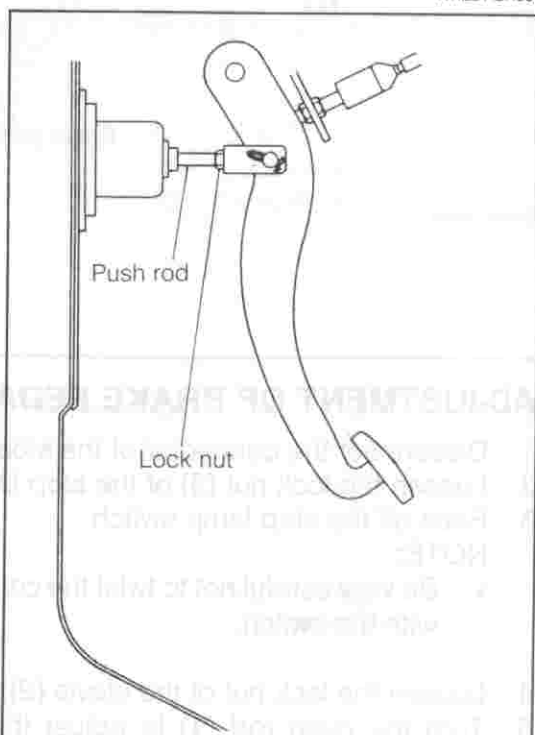
WRE91-BR061

- Turn the push rod, until the brake pedal free travel becomes the specified value.

Specified Value: $2 - 4$ mm

NOTE:

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



WRE91-BR062

- Tighten the clevis lock nut.

Tightening Torque: 12.7 ± 2.6 N·m

(1.3 ± 0.2 kgf-m, 9.4 ± 1.9 ft-lb)

- Check the brake pedal height. (See the step 5.)

If the height fails to conform to the specifications, repeat the operation from the step 2 onward.

- Reconnect the stop lamp switch connector.

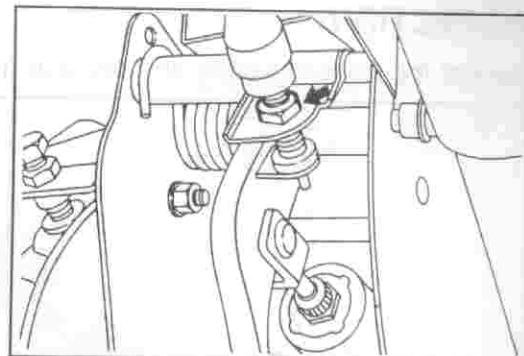
- Depress the brake pedal. Ensure that the stop lamp goes on.

If not, check and repair the brake lamp system.

(See the Body Electrical Section.)

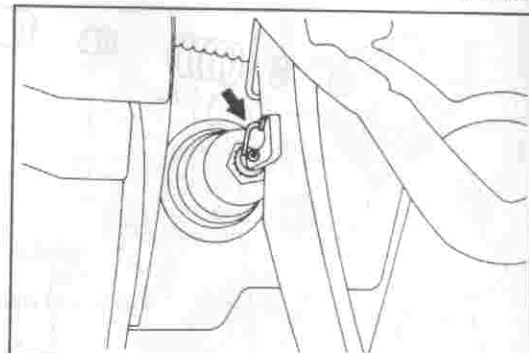
REMOVAL

1. Disconnect the connector of the stop lamp switch.
2. Remove the stop lamp switch by loosening its lock nut.



WRE91-BR064

3. Pull out the clevis pin by removing its cotter pin.

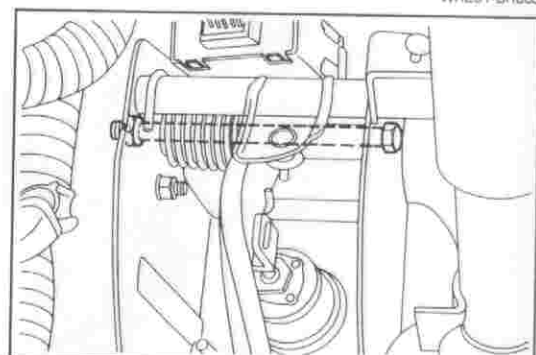


WRE91-BR065

4. Remove the brake pedal set nut and pull out the set bolt.

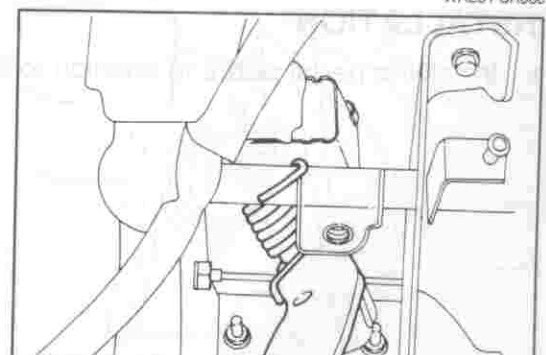
NOTE:

- Before pulling out the set bolt, be sure to align the end surface across the two flat sections of the set bolt with the clutch pedal end surface so that they may not interfere with each other.



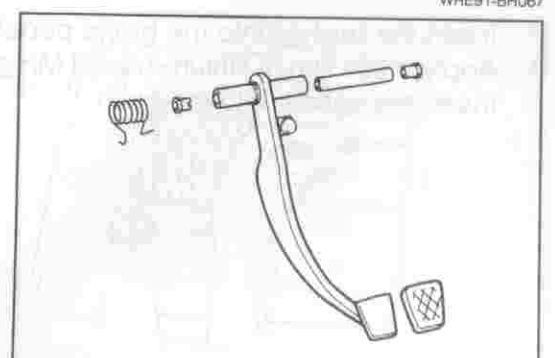
WRE91-BR066

5. Remove the return spring from the pedal bracket while changing the brake pedal angle.



WRE91-BR067

6. Remove the spring, bushes, spacer, cushion and pedal pad from the brake pedal.

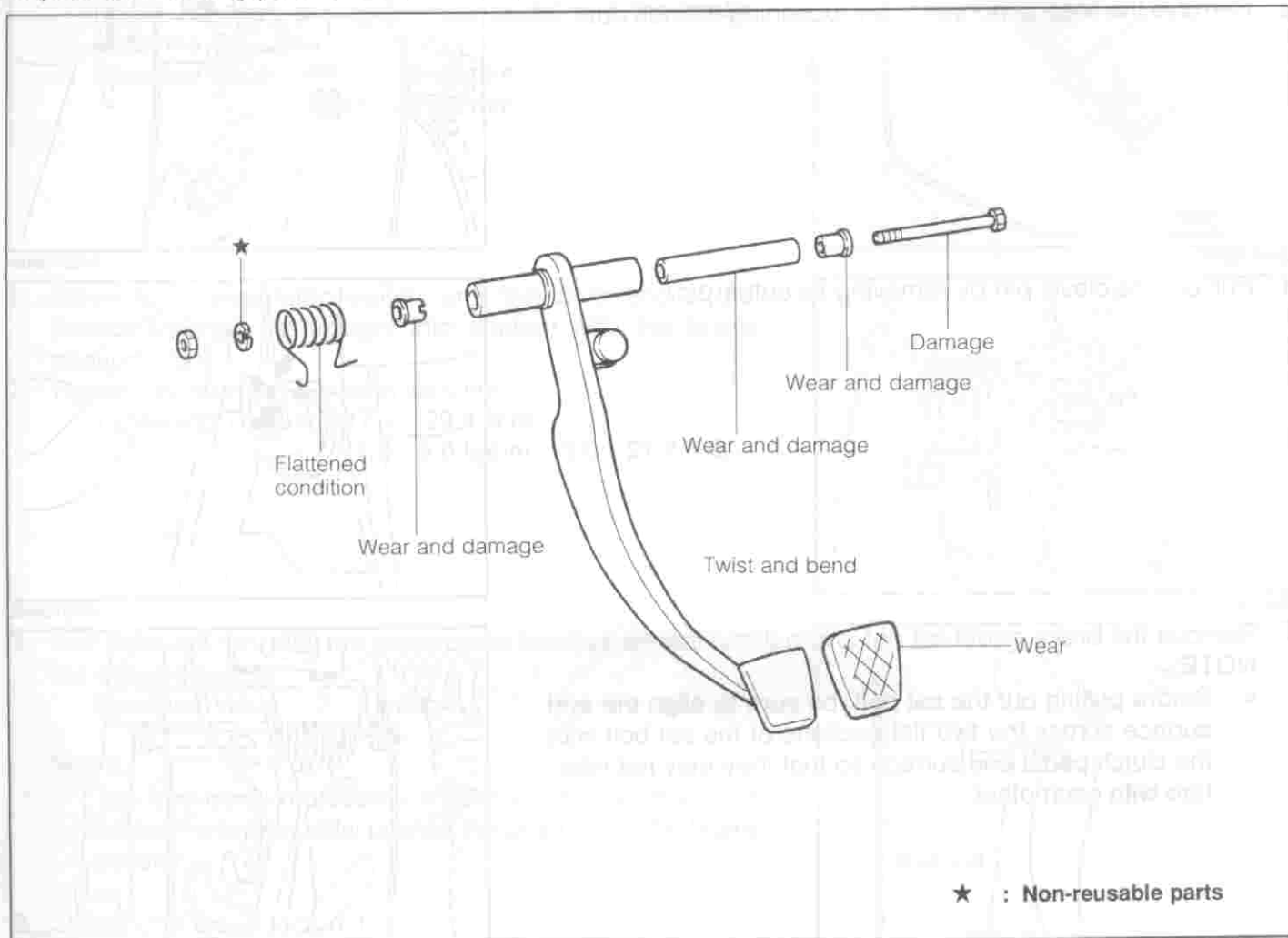


WRE91-BR068

BRAKE

INSPECTION

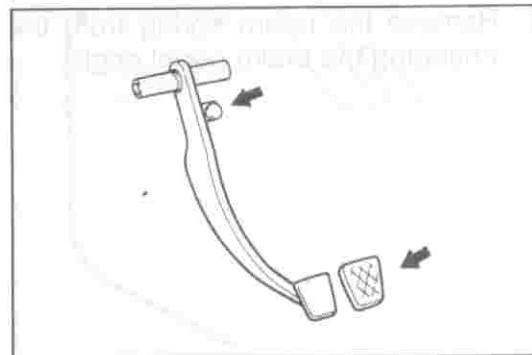
Inspect the following parts and replace any defective part.



WRE91-BR069

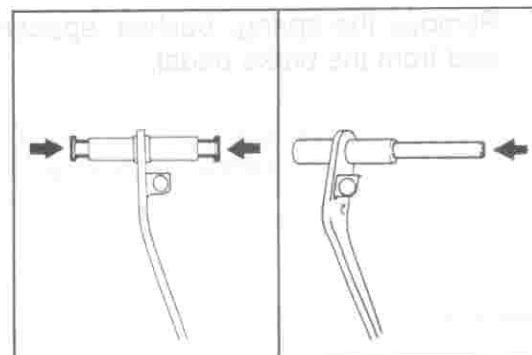
INSTALLATION

1. Install the pedal pad and cushion to the brake pedal.



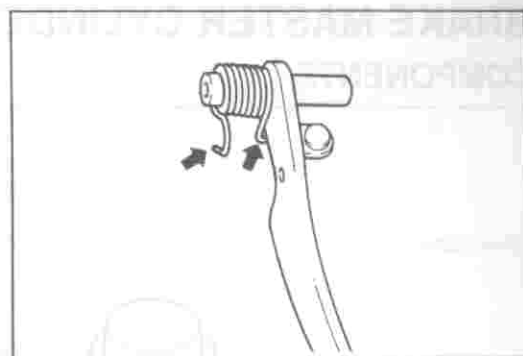
WRE91-BR070

2. Insert the bushes into the brake pedal.
3. Apply a thin film of lithium-based MP grease to the spacer. Insert the spacer into the bush.



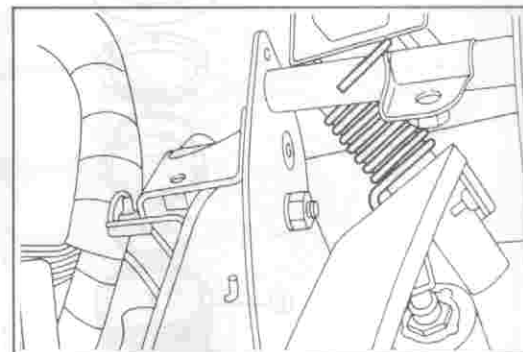
WRE91-BR071

4. Apply a thin film of lithium based MP grease to the supporting section of the return spring. Install the return spring to the brake pedal.



WRE91-BR072

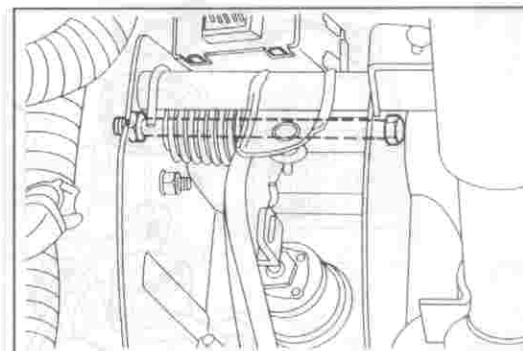
5. Hook the return spring to the pedal bracket.



WRE91-BR073

6. With the brake pedal aligned with the attaching hole, insert the attaching bolt.
7. Tighten the attaching nut to the specified torque.

Tightening Torque: 14.7 - 21.6 N-m
(1.5 - 2.2 kgf-m, 10.8 - 15.9 ft-lb)

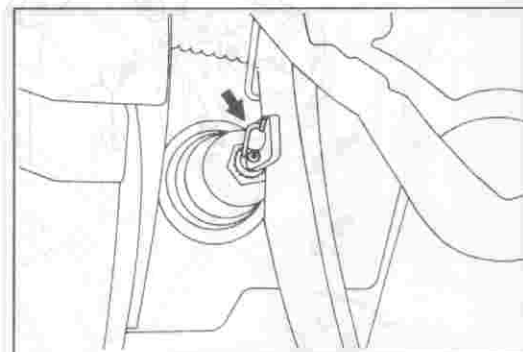


WRE91-BR074

8. Connect the clevis to the brake pedal by means of the clevis pin. Install the new cotter pin and bend its legs.

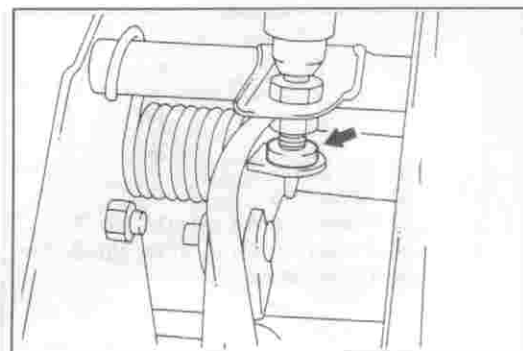
NOTE:

- Be sure to bend the cotter pin beyond 90 degrees.



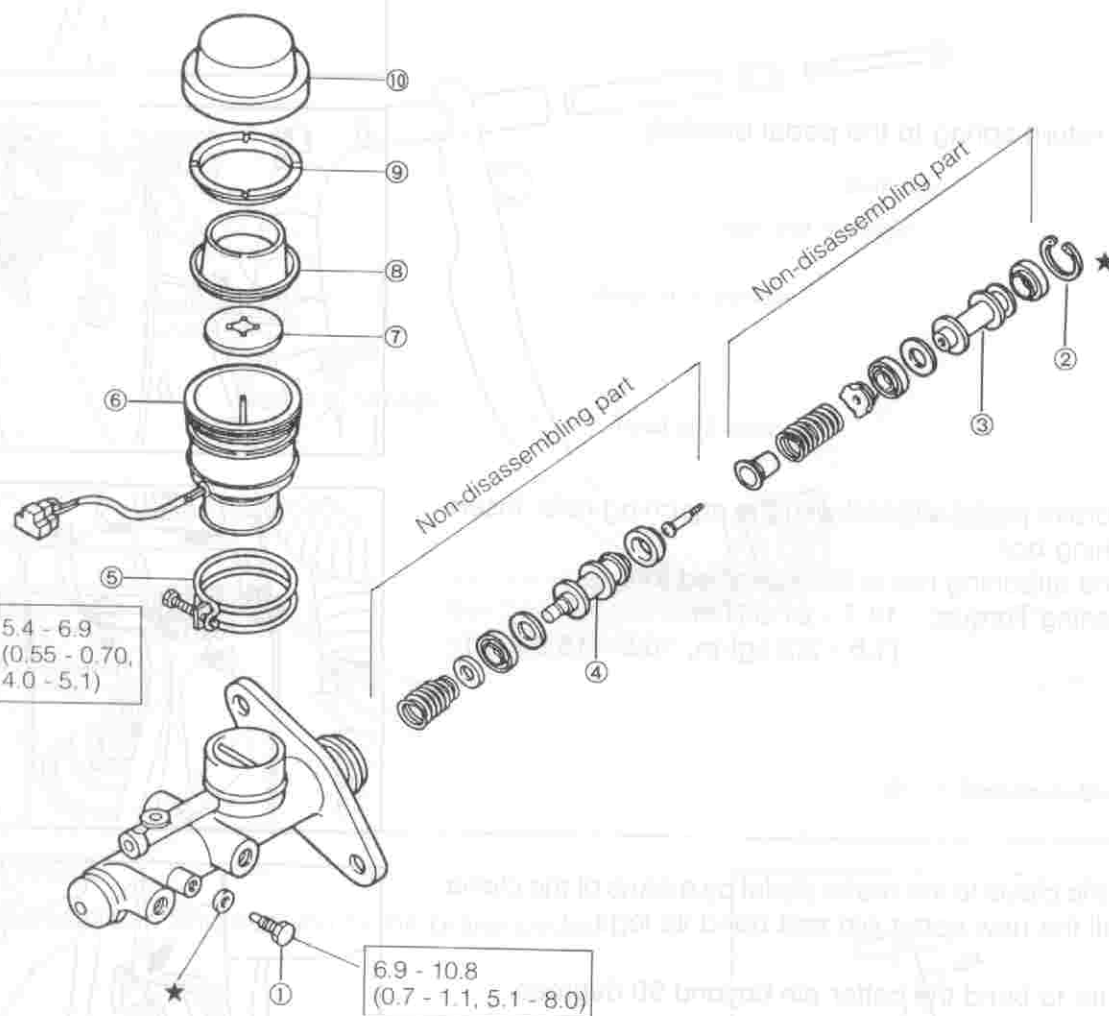
WRE91-BR075

9. Install the stop lamp switch. Adjust the brake pedal height. (See page BR-27.)
10. Operate the brake pedal and check to see if any trouble exists.



WRE91-BR076

BRAKE MASTER CYLINDER COMPONENTS



- ① Set bolt
- ② Snap ring
- ③ Piston master cylinder No. 1
- ④ Piston master cylinder No. 2
- ⑤ Hose clamp

- ⑥ Master cylinder reservoir sub-assembly
- ⑦ Master cylinder reservoir float
- ⑧ Reservoir diaphragm
- ⑨ Spacer
- ⑩ Reservoir filler cap

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

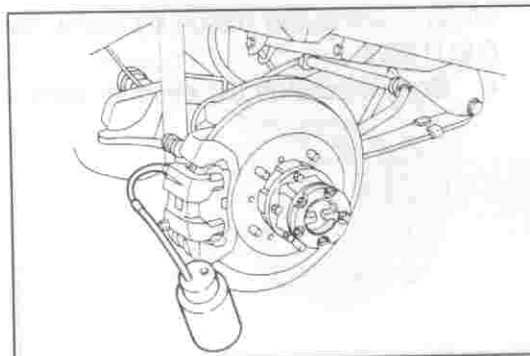
REMOVAL

CAUTION:

- If the brake fluid is spilled inadvertently 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.

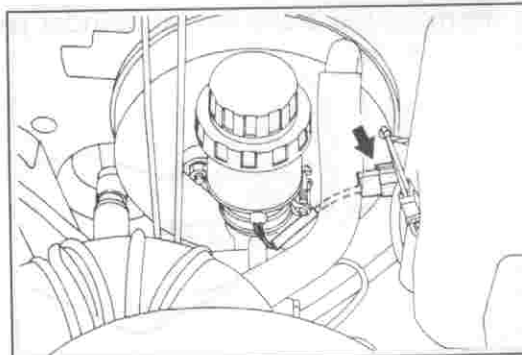
WRE91-BR078

1. Drain the brake fluid from the rear and front wheel cylinder.



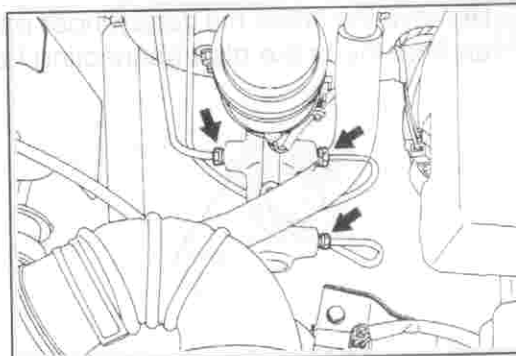
WRE91-BR079

2. Disconnect the brake fluid level switch connector.



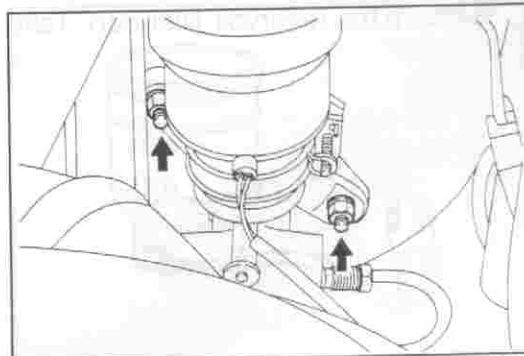
WRE91-BR080

3. Disconnect the brake tubes from the master cylinder, using a flare nut wrench.



WRE91-BR081

4. Remove the brake master cylinder from the brake booster by removing the brake master cylinder attaching nuts.



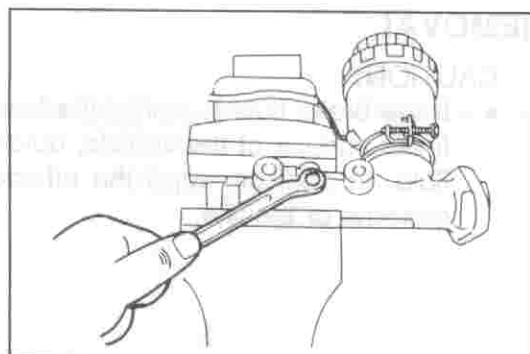
WRE91-BR082

BRAKE

5. Remove the piston set bolt.

NOTE:

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

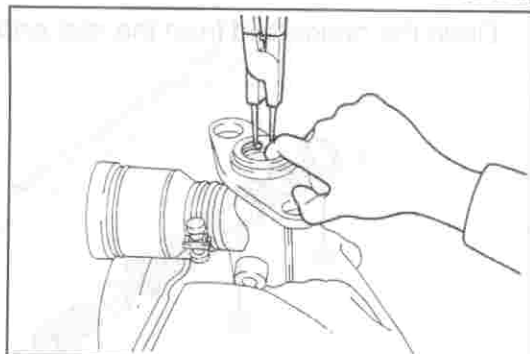


WRE91-BR083

6. While holding the piston by hand, remove the snap ring.

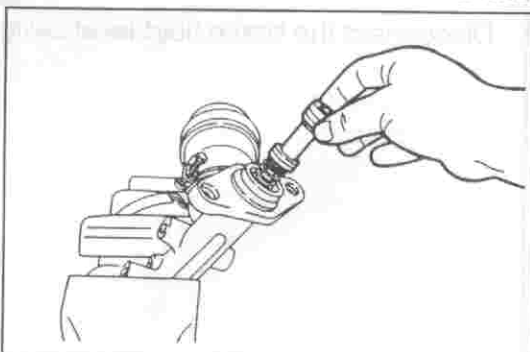
CAUTION:

- Do not scratch the cylinder bore surface.



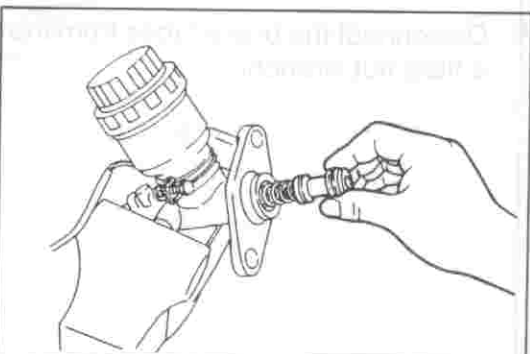
WRE91-BR084

7. Remove the brake master cylinder piston No. 1.



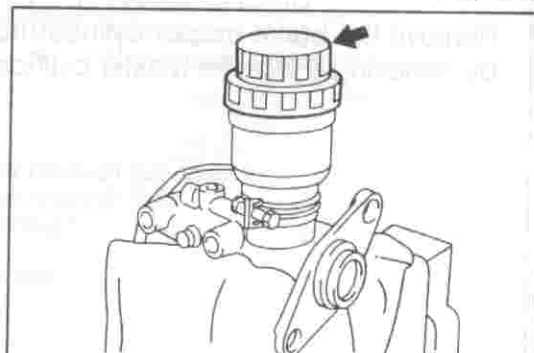
WRE91-BR085

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



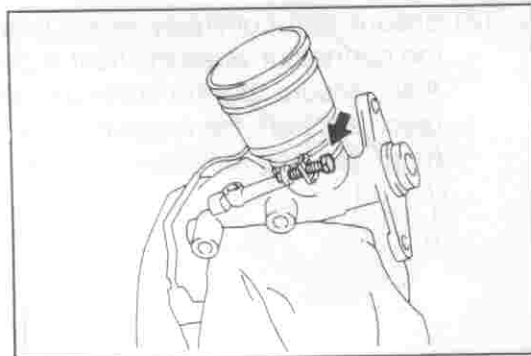
WRE91-BR086

9. Remove the reservoir filler cap. Take out the float.



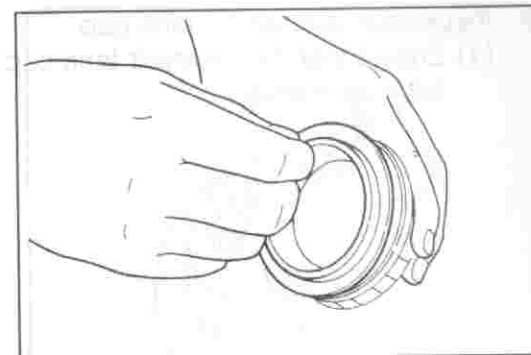
WRE91-BR087

10. Remove the reservoir tank by loosening the reservoir tank hose clamp.



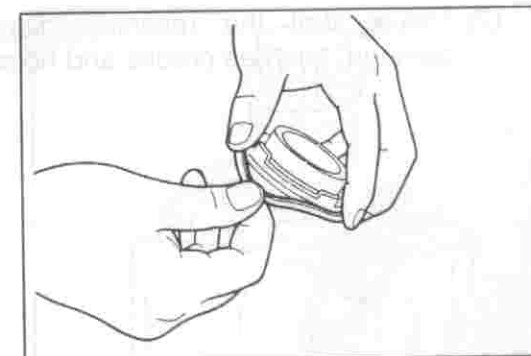
WRE91-BR088

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



WRE91-BR089

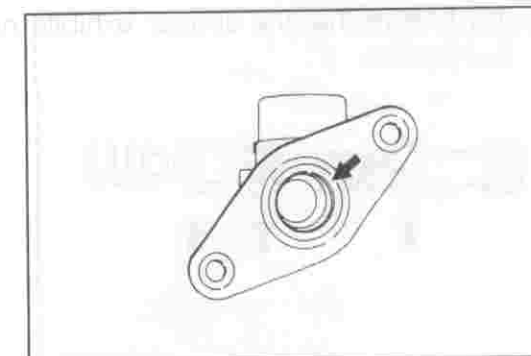
12. Remove the reservoir diaphragm from the spacer.



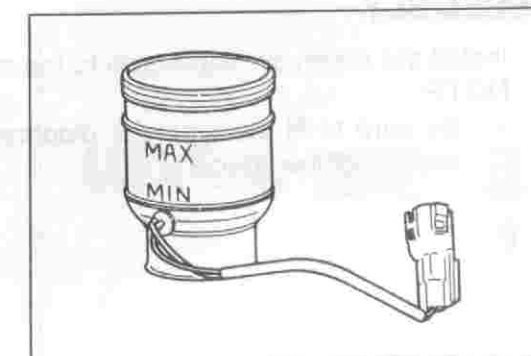
WRE91-BR090

INSPECTION

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



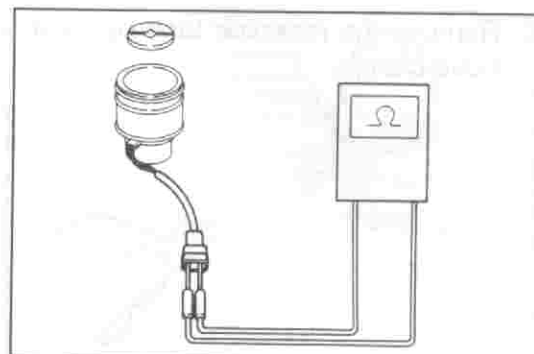
WRE91-BR091



WRE91-BR092

BRAKE

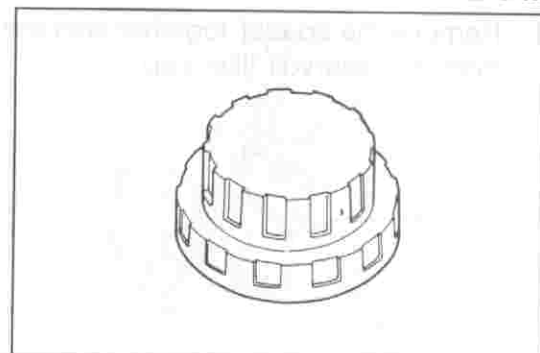
- (2) Ensure that continuity exists between the terminals of the connector when the float is put in the reservoir tank. Also, ensure that no continuity exists when the float is taken out from the reservoir tank. If not, replace the reservoir tank.



WRE91-BR093

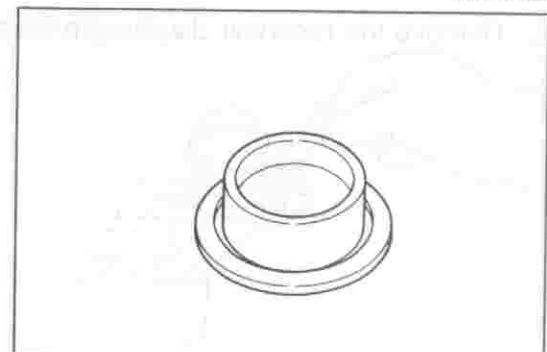
3. Inspection of reservoir tank cap

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



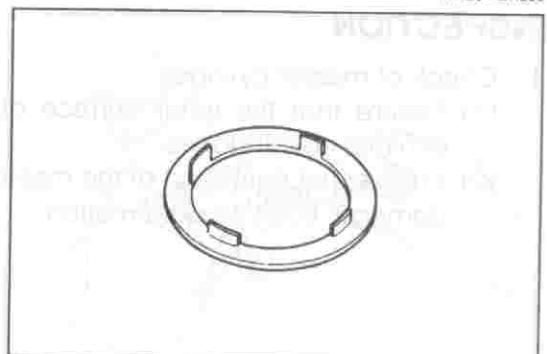
WRE91-BR094

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



WRE91-BR095

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



WRE91-BR096

ASSEMBLY

1. Install the reservoir diaphragm to the spacer.

NOTE:

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

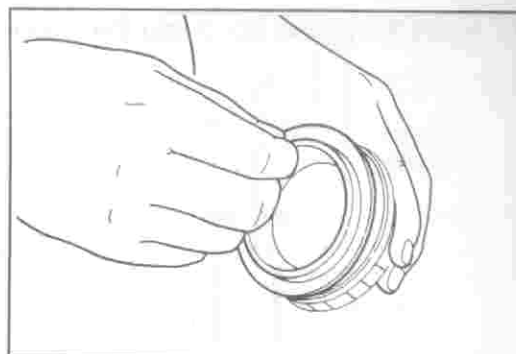


WRE91-BR097

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

NOTE:

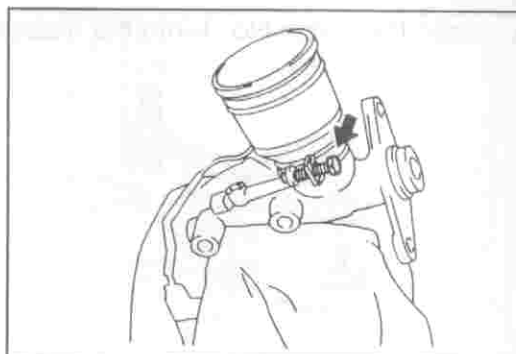
- Fit the pawl section of the spacer into the reservoir tank cap securely.



WRE91-BR098

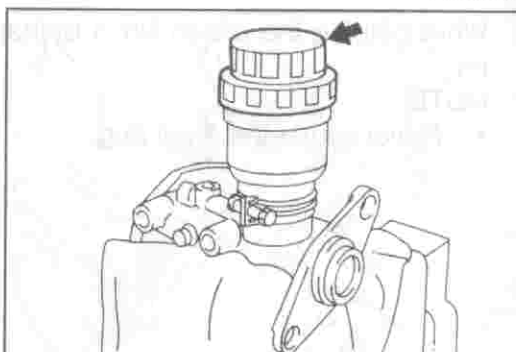
3. Install the reservoir tank to the master cylinder. Tighten the clamp.

Tightening Torque: 5.4 - 6.9 N·m
(0.55 - 0.70 kgf-m, 4.0 - 5.1 ft-lb)



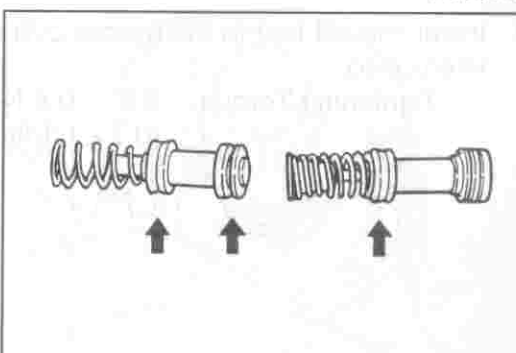
WRE91-BR099

4. Insert the float in the reservoir tank. Install the reservoir tank cap.



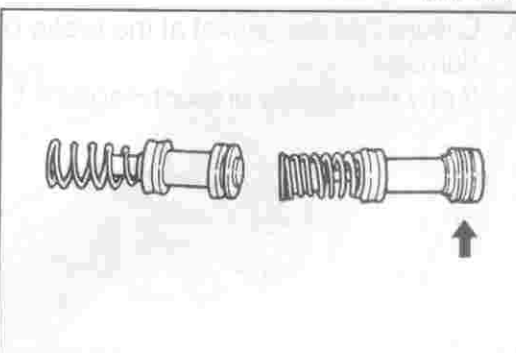
WRE91-BR100

5. Apply brake fluid to the piston cups indicated in the right figure.



WRE91-BR101

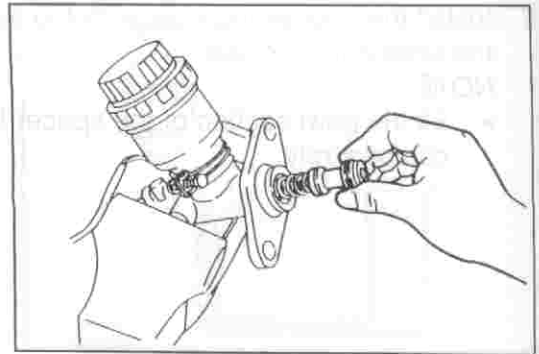
6. Apply rubber grease to the piston cups indicated in the right figure.



WRE91-BR102

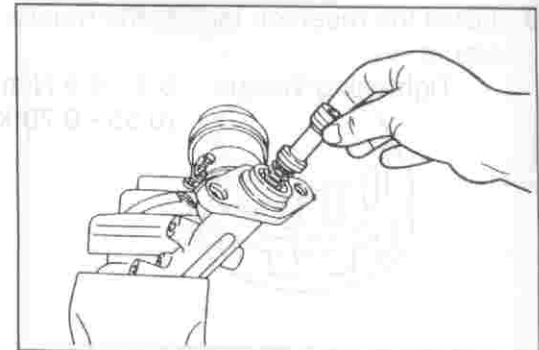
BRAKE

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



WRE91-BR103

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

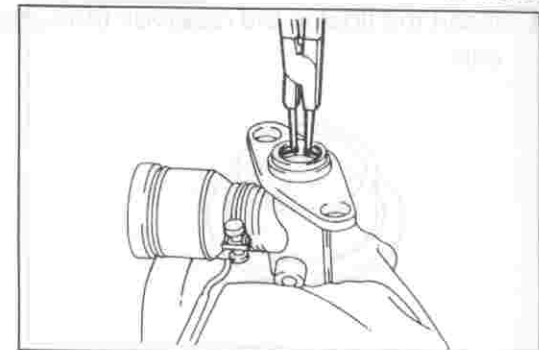


WRE91-BR104

9. While holding the piston No. 1 by hand, install a new snap ring.

NOTE:

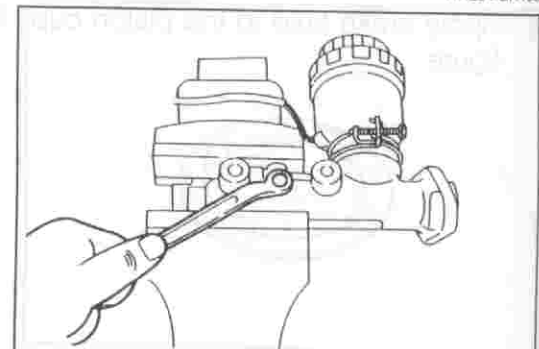
- Never reuse the snap ring.



WRE91-BR105

10. Install the set bolt to the master cylinder with a new gasket interposed.

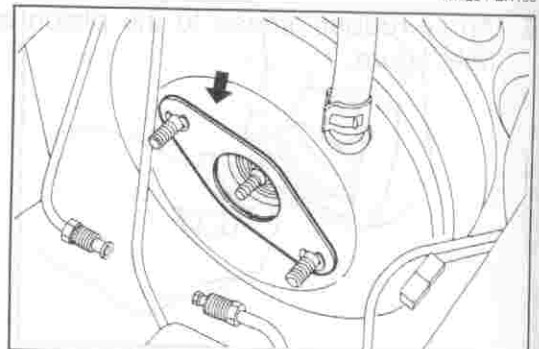
Tightening Torque: 6.9 - 10.8 N·m
(0.7 - 1.1 kgf·m, 5.1 - 8.0 ft·lb)



WRE91-BR106

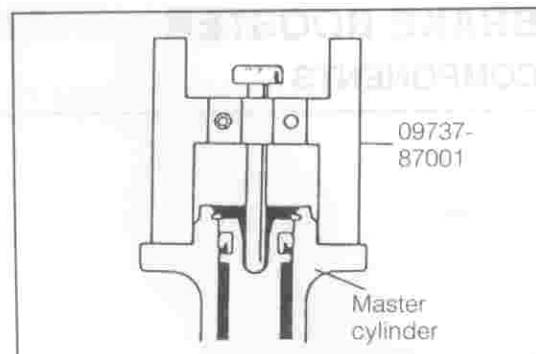
11. Ensure that the gasket at the brake booster side exhibits no damage.

If any damage is present, replace the gasket.



WRE91-BR107

12. Adjust the clearance between the brake booster push rod and the master cylinder.
(See page BR-54.)



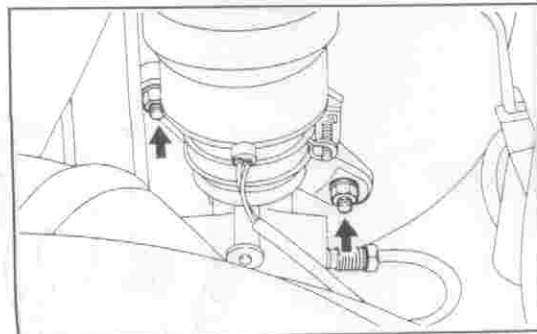
WRE91-BR108

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

Tightening Torque: 10.2 - 15.3 N·m
(1.04 - 1.56 kgf-m, 7.52 - 11.3 ft-lb)

NOTE:

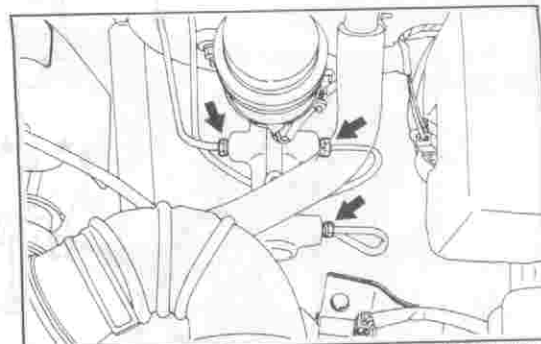
- The installation section at the vehicle exterior side should be tightened together with the connector bracket of the brake fluid level switch.



WRE91-BR109

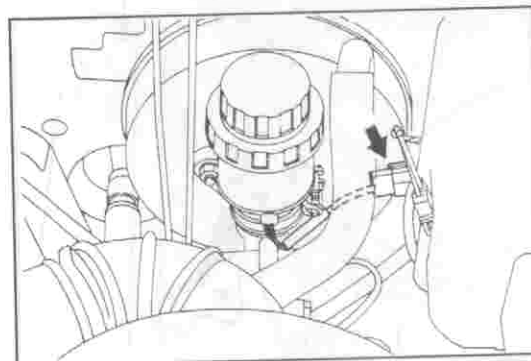
14. Connect the brake tubes to the master cylinder. Tighten the flare nut to the specified torque, using a flare nut wrench.

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



WRE91-BR110

15. Reconnect the brake fluid level switch connector.



WRE91-BR111

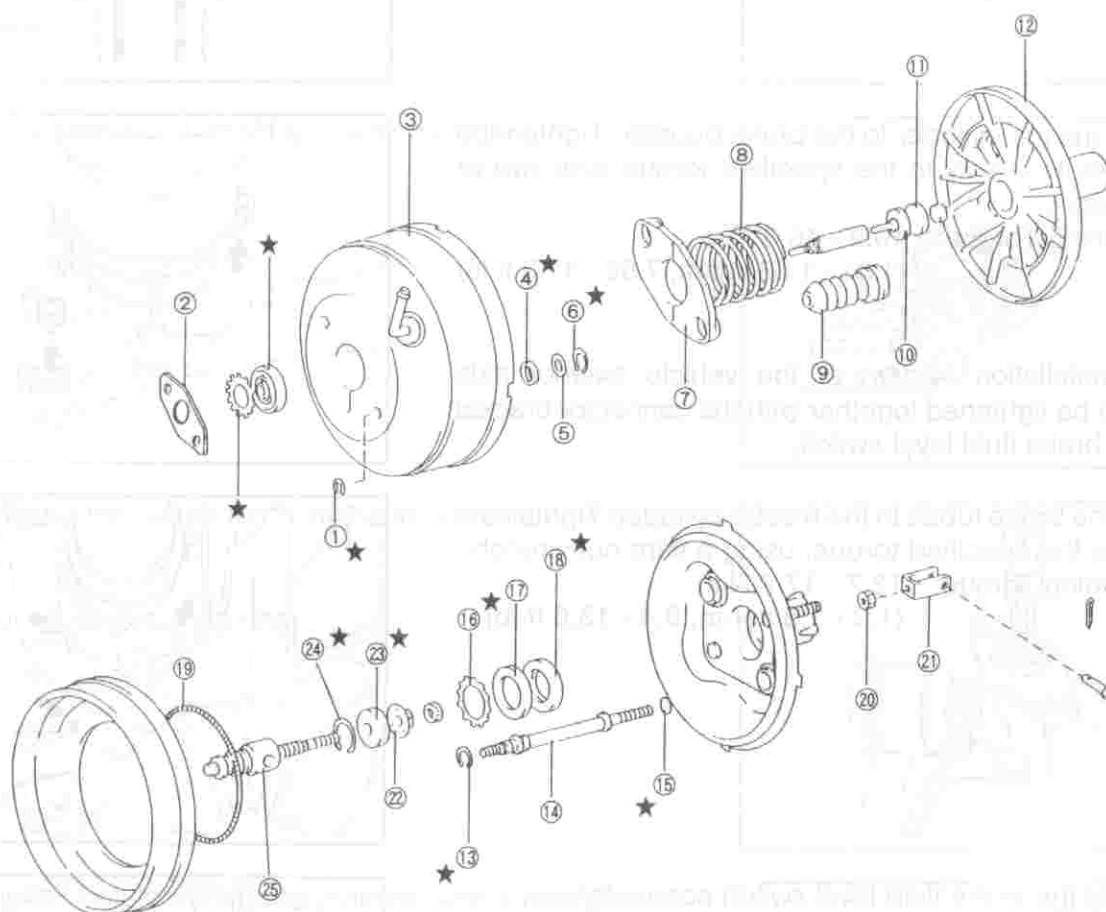
16. Fill brake fluid to the reservoir tank.
Specified Brake Fluid: DOT 3 or SAEJ - 1703

17. Perform air bleeding.
(See page BR-25.)
18. Ensure that no brake fluid leakage is present.
19. Check and adjust the brake pedal height.
(See page BR-22.)



WRE91-BR112

BRAKE BOOSTER COMPONENTS



★ : Non-reusable parts

- ① "E" ring
- ② Gasket
- ③ Booster body
- ④ Tie rod seal
- ⑤ Seal plate
- ⑥ Snap ring
- ⑦ Spring retainer
- ⑧ Booster spring
- ⑨ Tie rod boot
- ⑩ Reaction ring
- ⑪ Reaction rubber
- ⑫ Booster piston
- ⑬ Snap ring

- ⑭ Tie rod
- ⑮ "O" ring
- ⑯ Bush stopper
- ⑰ Bush
- ⑱ Piston seal
- ⑲ Diaphragm band
- ⑳ Nut
- ㉑ Clevis master cylinder push rod
- ㉒ Booster operating rod adjusting nut
- ㉓ Element
- ㉔ Booster piston stop ring
- ㉕ Poppet valve complete

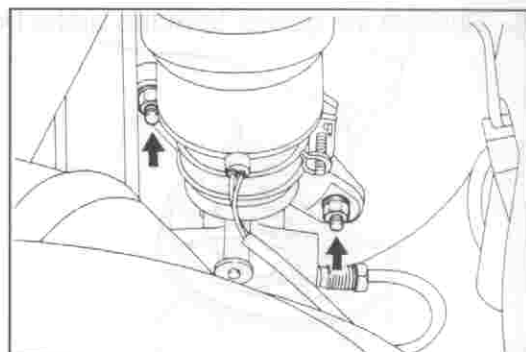
REMOVAL

NOTE:

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

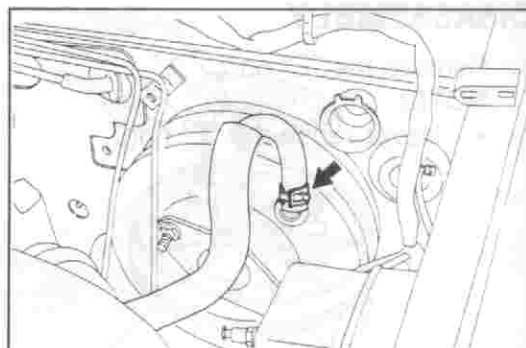
WRE91-BR114

1. Remove the master cylinder.
(See page BR-33.)



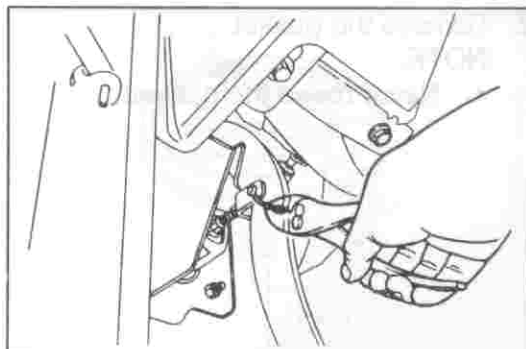
WRE91-BR115

2. Disconnect the brake booster hose from the brake booster.



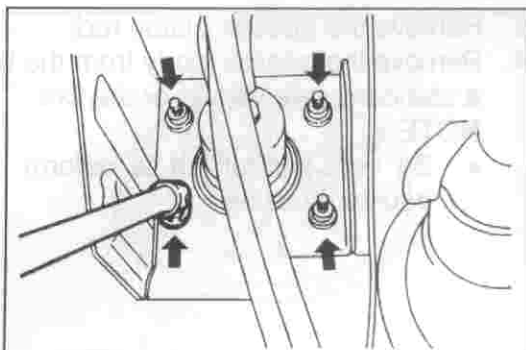
WRE91-BR116

3. Remove the clevis pin by removing the cotter pin.



WRE91-BR117

4. Remove the brake booster attaching nuts.



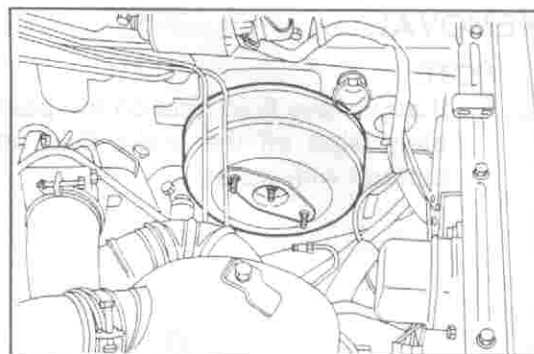
WRE91-BR118

BRAKE

5. Remove the brake booster from the dash panel.

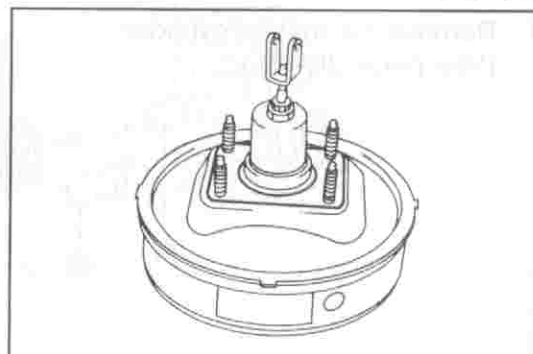
CAUTION:

- Be very careful not to damage the brake tubes.



WRE91-BR119

6. Remove the gasket from the brake booster.



WRE91-BR120

DISASSEMBLY

1. Remove the "E" ring.

NOTE:

- Never reuse the "E" ring.

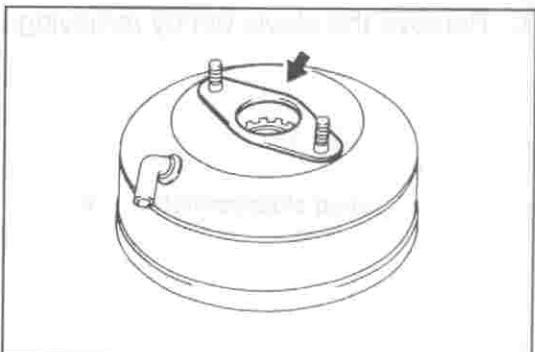


WRE91-BR121

2. Remove the gasket.

NOTE:

- Never reuse the gasket.



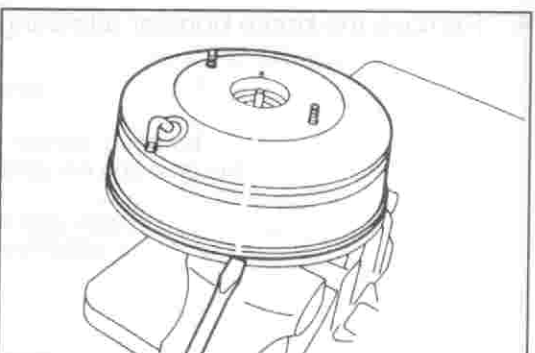
WRE91-BR122

3. Remove the booster piston rod.

4. Remove the booster body from the booster housing, using a standard screwdriver or the like.

NOTE:

- Be very careful not to deform the booster body and booster housing.



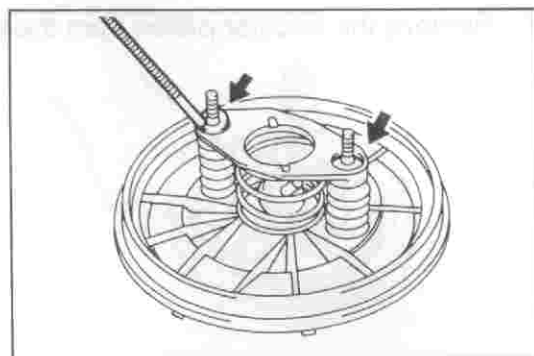
WRE91-BR123

5. Remove the tie rod seal, using a minor screwdriver or the like.

NOTE:

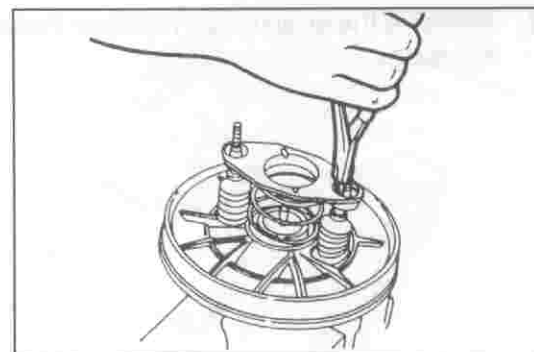
- Never reuse the tie rod seal.

6. Remove the tie rod seal plate, using a magnet finger or the like.



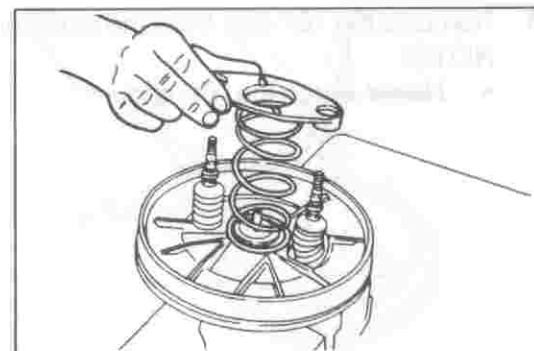
WRE91-BR124

7. While holding the spring retainer, remove the snap rings.



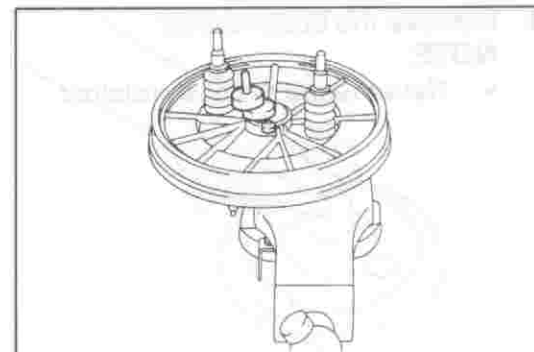
WRE91-BR125

8. Remove the spring retainer and booster spring from the booster piston.



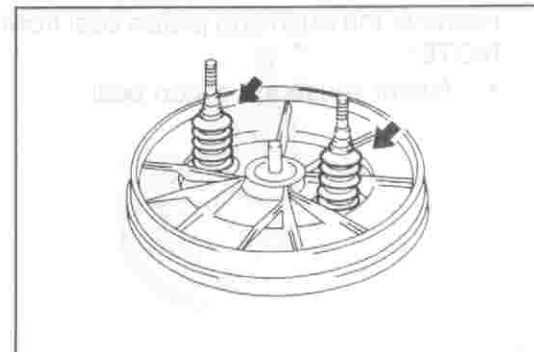
WRE91-BR126

9. Remove the reaction ring, rubber and reaction plate.



WRE91-BR127

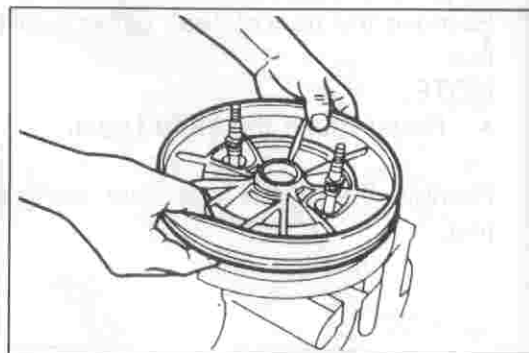
10. Remove the tie rod boot from the tie rod and piston.



WRE91-BR128

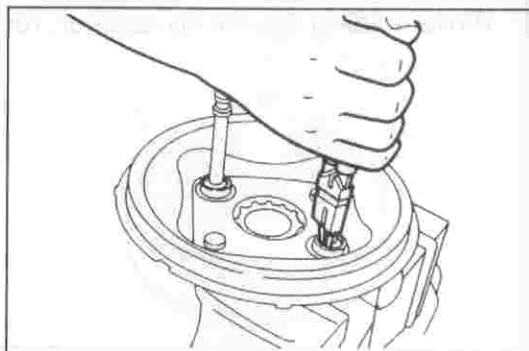
BRAKE

11. Remove the booster piston from the booster housing.



WRE91-BR129

12. Remove the snap rings. Remove the tie rod from the booster housing.

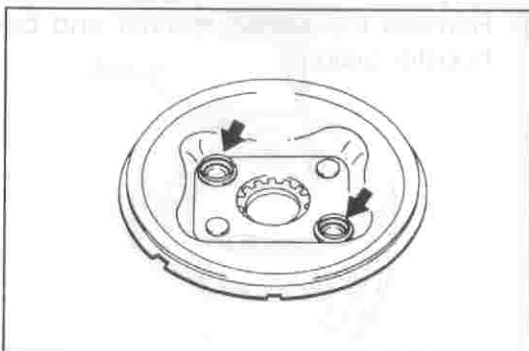
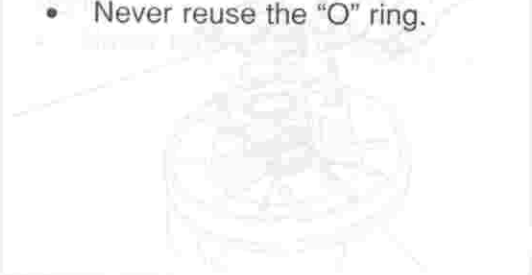


WRE91-BR130

13. Remove the "O" ring from the booster housing.

NOTE:

- Never reuse the "O" ring.

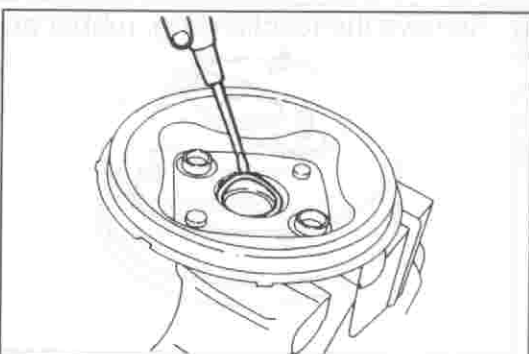


WRE91-BR131

14. Remove the bush retainer.

NOTE:

- Never reuse the bush retainer.

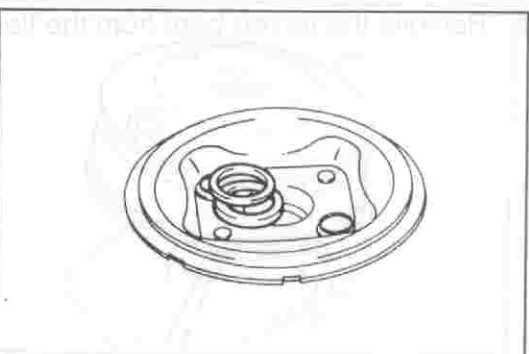
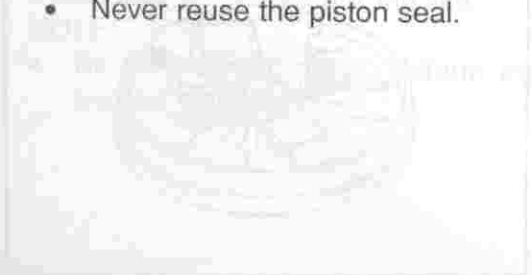


WRE91-BR132

15. Remove the bush and piston seal from the booster housing.

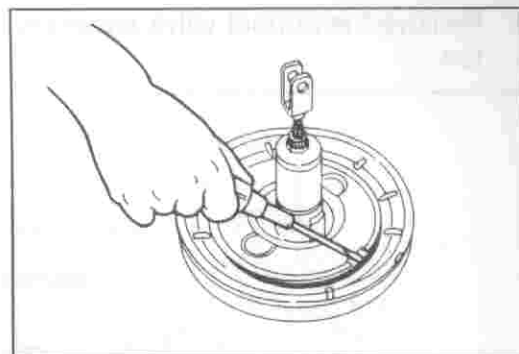
NOTE:

- Never reuse the piston seal.



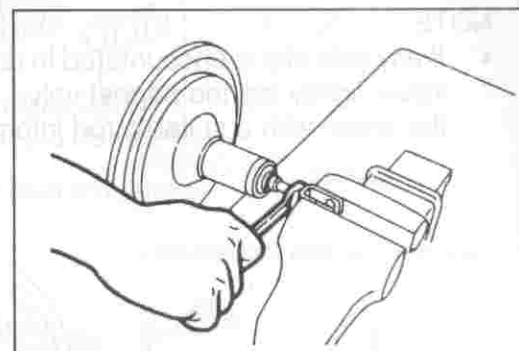
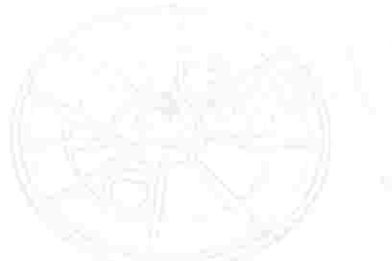
WRE91-BR133

16. Remove the diaphragm band. Remove the diaphragm.



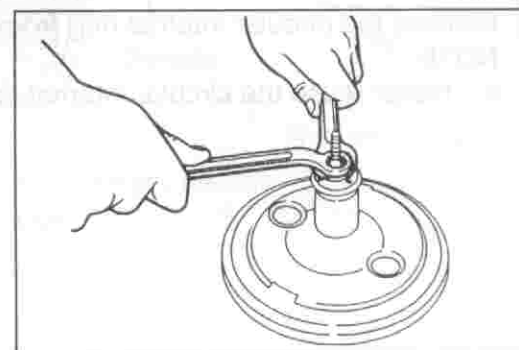
WRE91-BR134

17. Loosen the lock nut. Remove the clevis and lock nut.



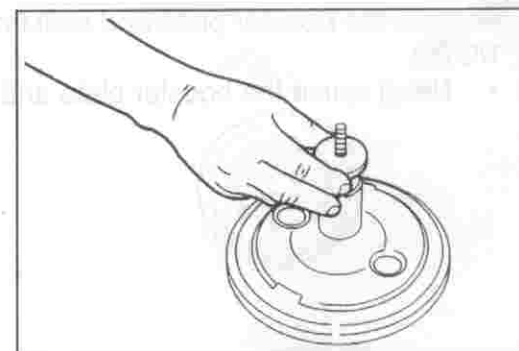
WRE91-BR135

18. Loosen the lock nut. Remove the lock nut and adjusting nut.



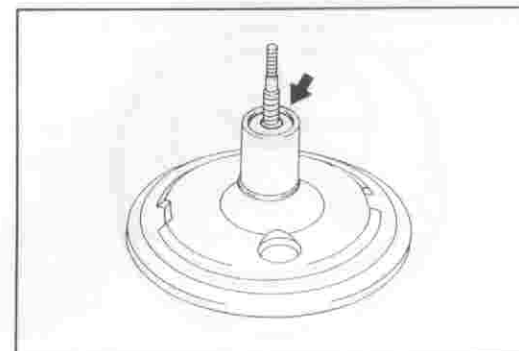
WRE91-BR136

19. Remove the element from the booster piston.



WRE91-BR137

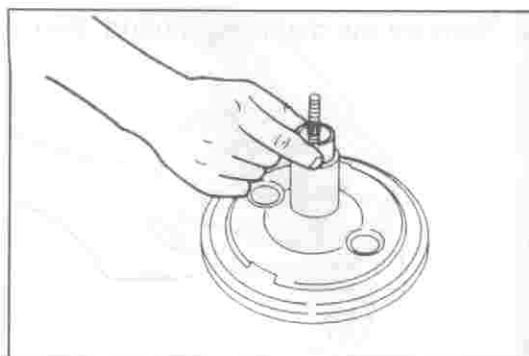
20. Remove the booster piston stop ring.



WRE91-BR138

BRAKE

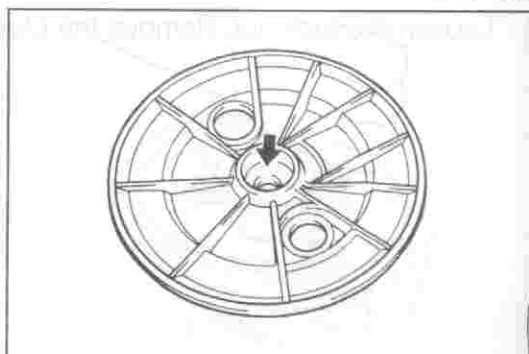
21. Remove the poppet valve assembly from the booster piston.



WRE91-BR139

NOTE:

- If any difficulty is encountered in drawing out the poppet valve, lightly tap the poppet valve from the back side of the piston with a suitable rod interposed.

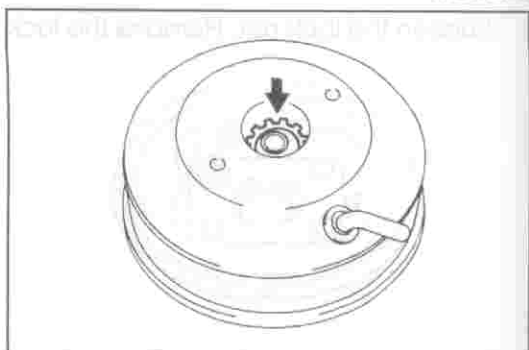


WRE91-BR140

22. Remove the circular internal ring from the booster body.

NOTE:

- Never reuse the circular internal ring.

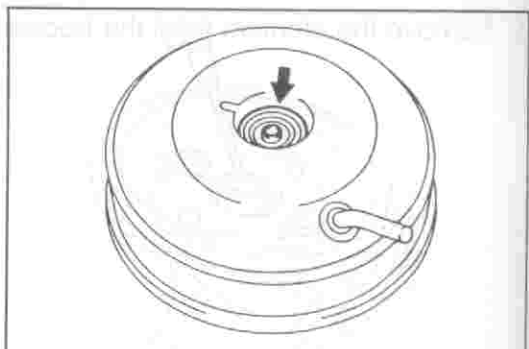


WRE91-BR141

23. Remove the booster plate and seal from the booster body.

NOTE:

- Never reuse the booster plate and seal.

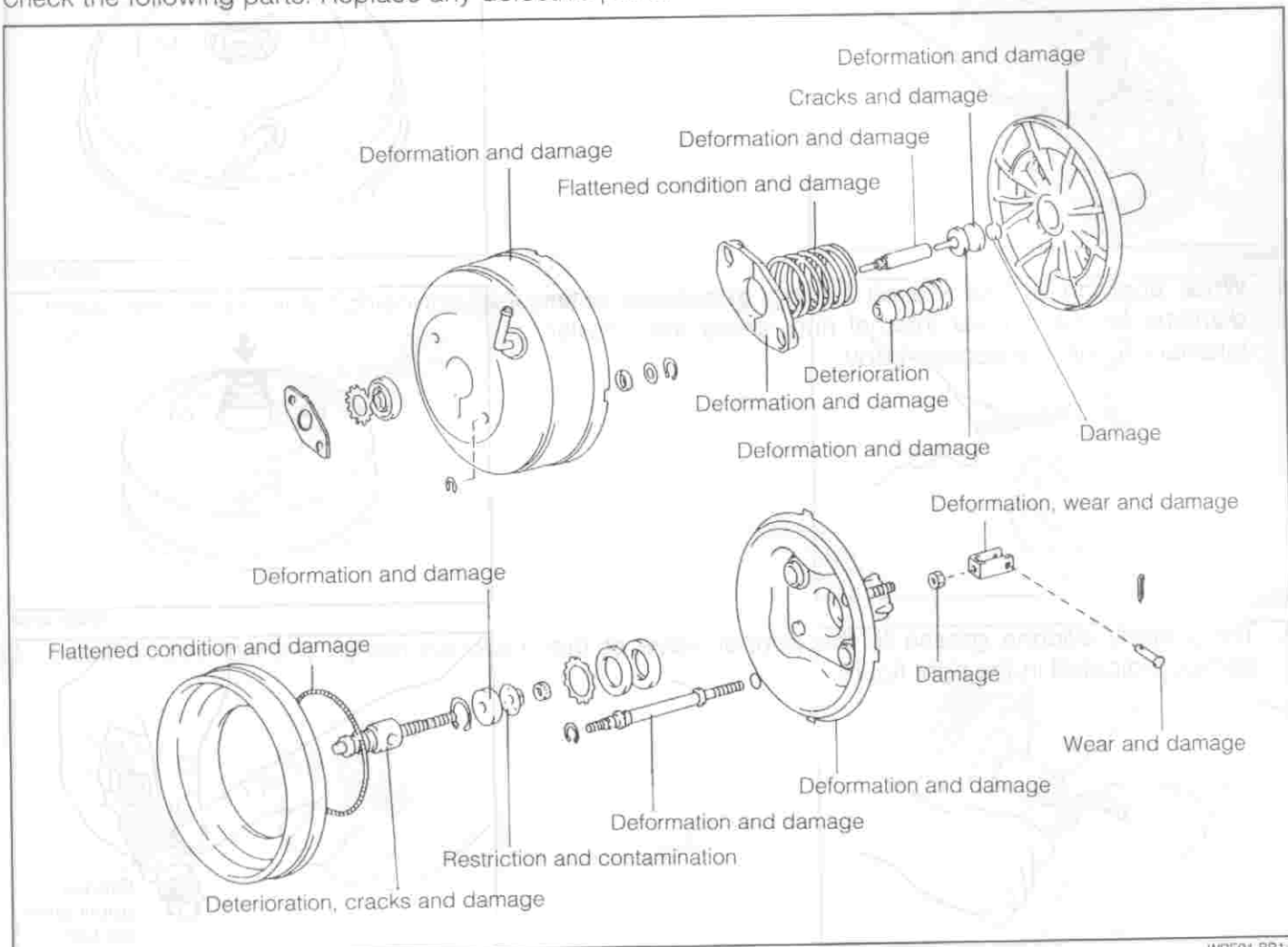


WRE91-BR142



INSPECTION

Check the following parts. Replace any defective parts.



WRE91-BR143

ASSEMBLY

NOTE:

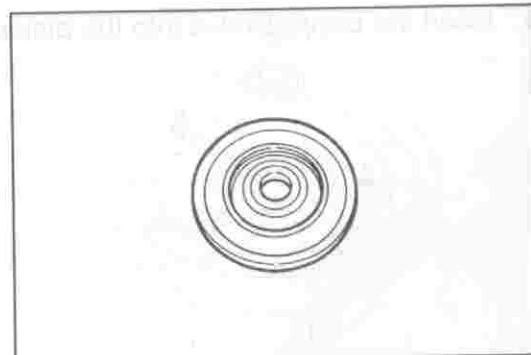
- Be sure to use the silicone grease furnished in the gasket kit.

1. Thinly apply silicone grease to the inner surfaces of the booster plate and seal.

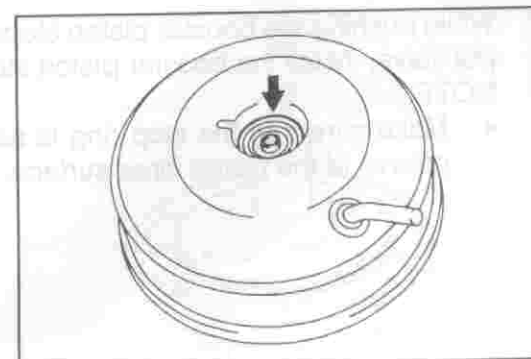
NOTE:

- Be sure to use a new booster plate and seal.
- If silicone grease has been already applied to those new parts, it is unnecessary to perform this step.

2. Install the booster plate and seal to the booster body.



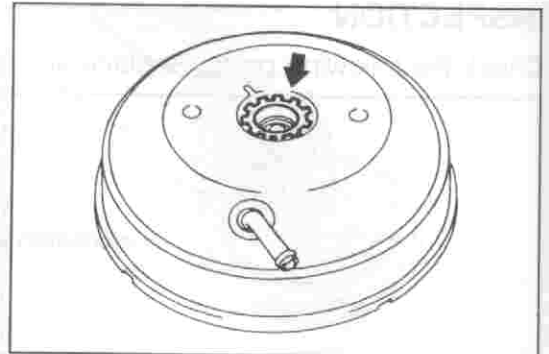
WRE91-BR144



WRE91-BR145

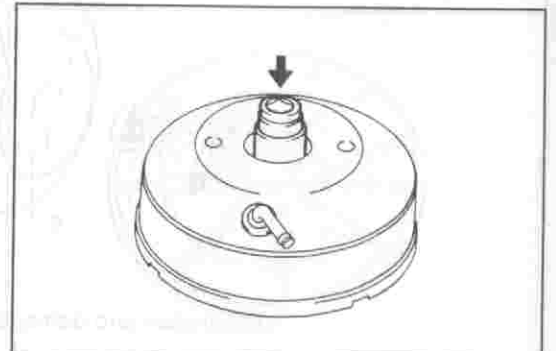
BRAKE

- Place the circular internal ring on the booster body.



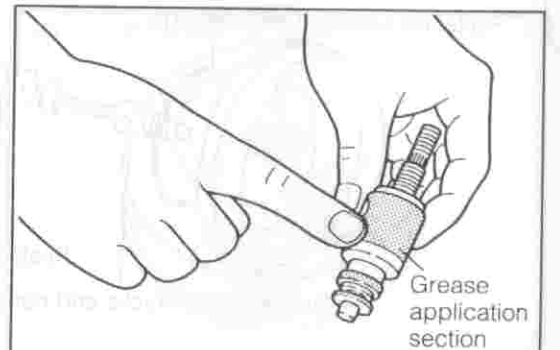
WRE91-BR146

- While applying a box wrench having a suitable outer diameter on the circular internal ring, press the circular internal ring into the booster body.



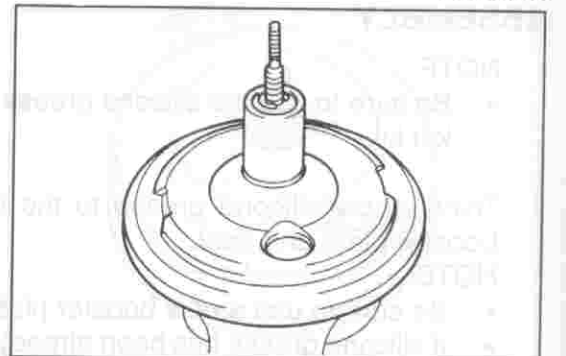
WRE91-BR147

- Thinly apply silicone grease to the poppet valve at the section indicated in the right figure.



WRE91-BR148

- Insert the poppet valve into the piston.

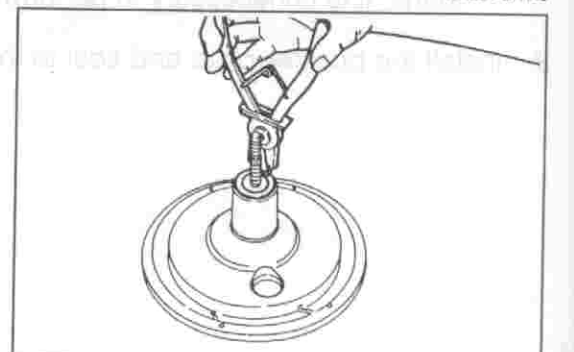


WRE91-BR149

- While pushing the booster piston stop ring toward the poppet valve, install the booster piston stop ring to the piston.

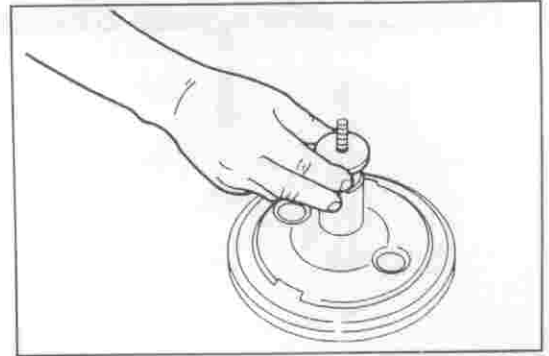
NOTE:

- Make sure that the stop ring is securely fitted into the groove of the piston inner surface.



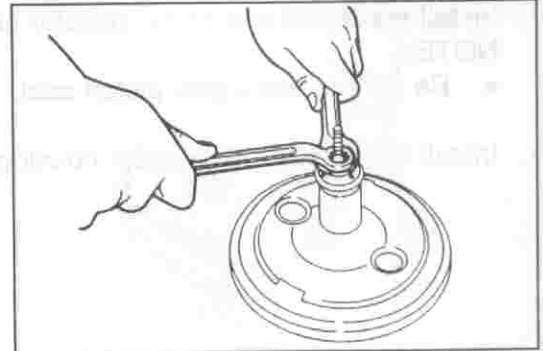
WRE91-BR150

8. Install the element to the booster piston.



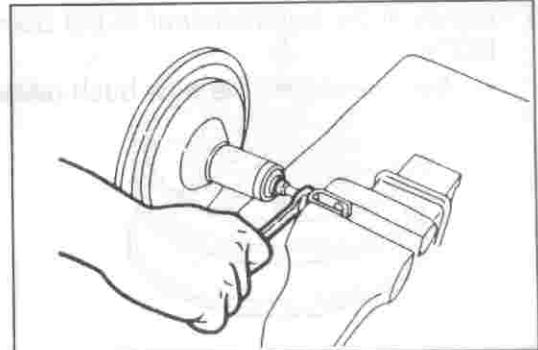
WRE91-BR151

9. Install and temporarily tighten the lock nut and adjusting nut.



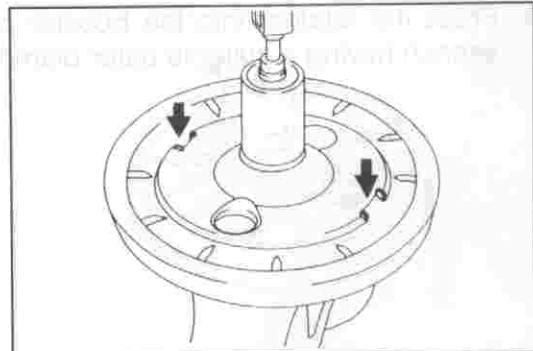
WRE91-BR152

10. Install and temporarily tighten the lock nut and clevis.



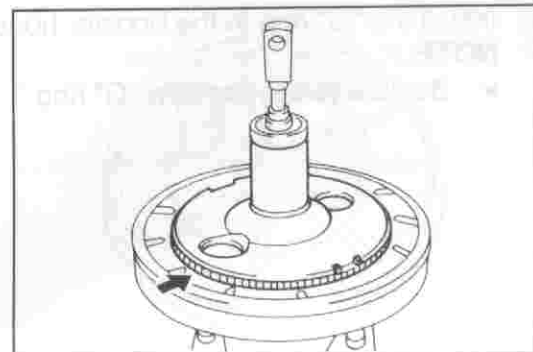
WRE91-BR153

11. Install the diaphragm to the piston while aligning the diaphragm with the cut-out section.



WRE91-BR154

12. Install the diaphragm stopper to the diaphragm in such a way that its connection may not be aligned with the cut-out section.



WRE91-BR155

BRAKE

13. Thinly apply silicone grease to the piston seal.



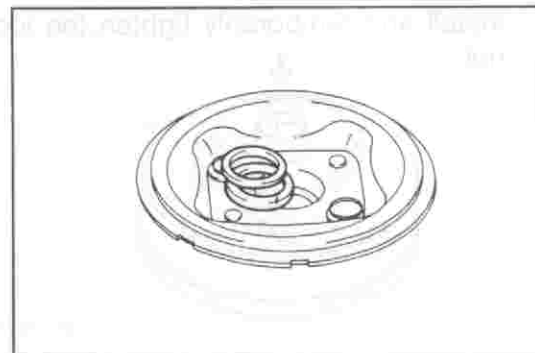
WRE91-BR156

14. Install the piston seal to the booster housing.

NOTE:

- Be sure to use a new piston seal.

15. Install the bush to the booster housing.

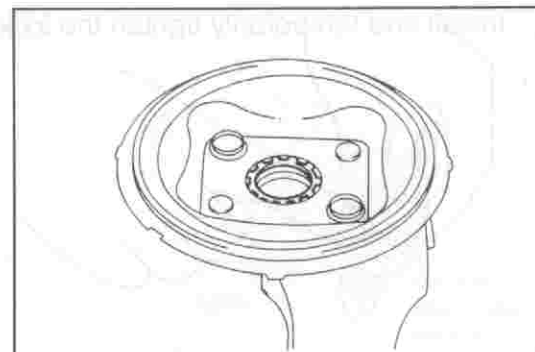


WRE91-BR157

16. Lightly fit the bush retainer to the booster housing.

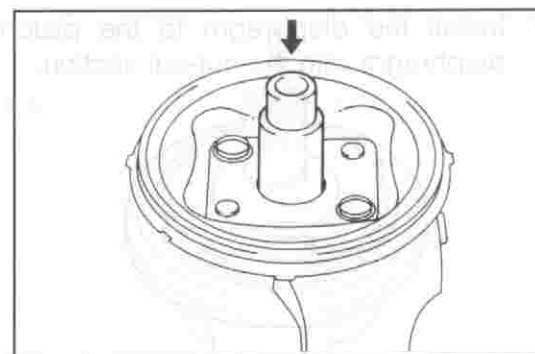
NOTE:

- Be sure to use the new bush retainer.



WRE91-BR158

17. Press the retainer into the booster housing, using a box wrench having a suitable outer diameter or the like.

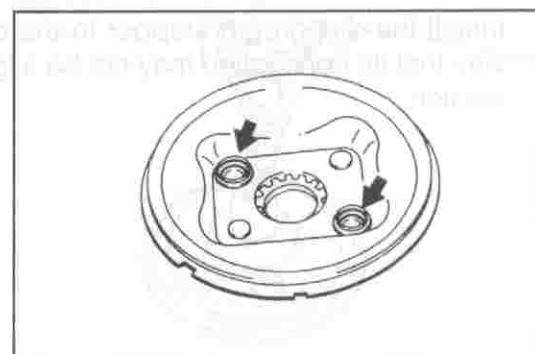


WRE91-BR159

18. Install the "O" ring to the booster housing.

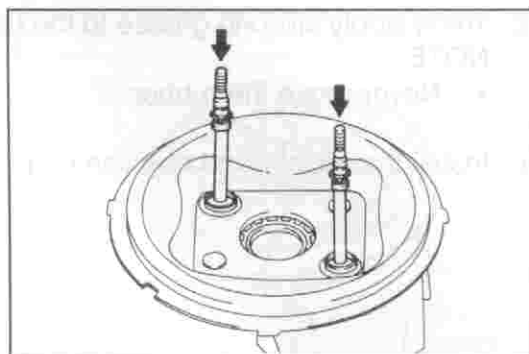
NOTE:

- Be sure to use the new "O" ring.



WRE91-BR160

19. Install the tie rod to the booster housing.

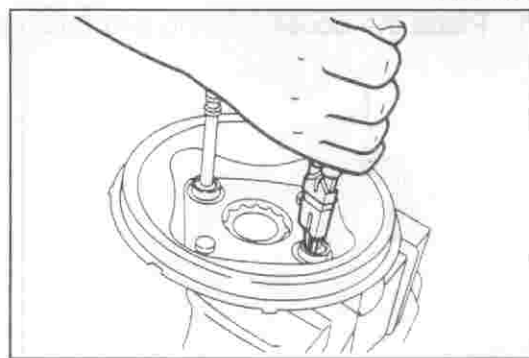


WRE91-BR161

20. Secure the tie rod to the booster housing with a snap ring.

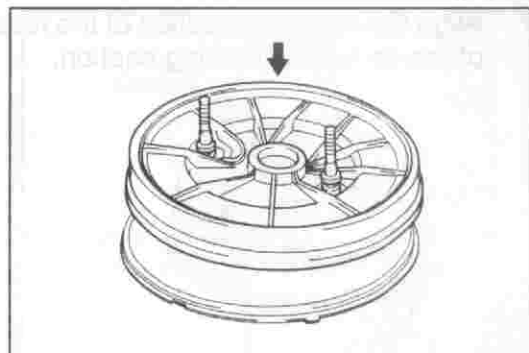
NOTE:

- Be sure to use a new snap ring.
- Make sure that the snap ring is securely fitted into the groove section of the booster housing.



WRE91-BR162

21. Install the booster piston to the booster housing while aligning the protruding section of the diaphragm with the cut-out section of the booster housing.

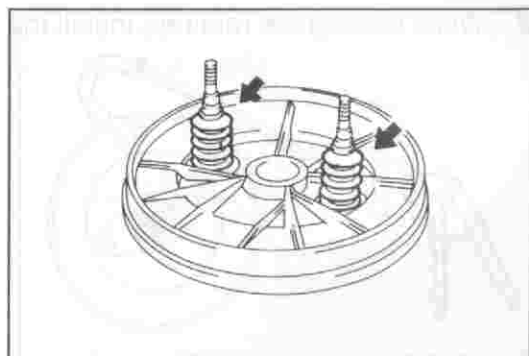


WRE91-BR163

22. Assemble the tie rod boot to the tie rod and piston.

NOTE:

- Be sure to use a new tie rod boots.
- Be very careful not to damage the rod boot by the threaded portion of tie rod.

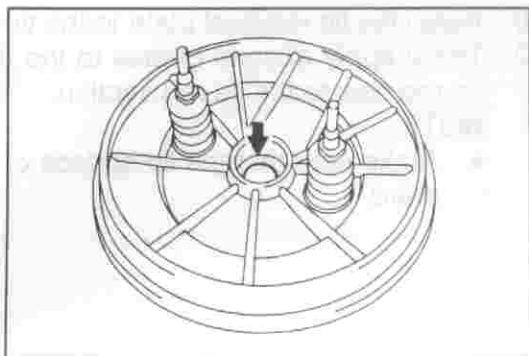


WRE91-BR164

23. Install the reaction plate to the booster piston.

NOTE:

- The reaction plate should be assembled in such a way that the recessed side may come at the piston side.



WRE91-BR165

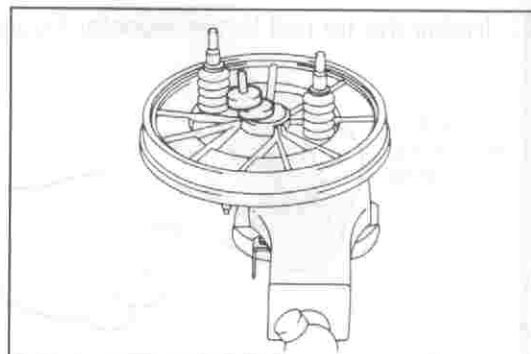
BRAKE

24. Thinly apply silicone grease to the rubber surface.

NOTE:

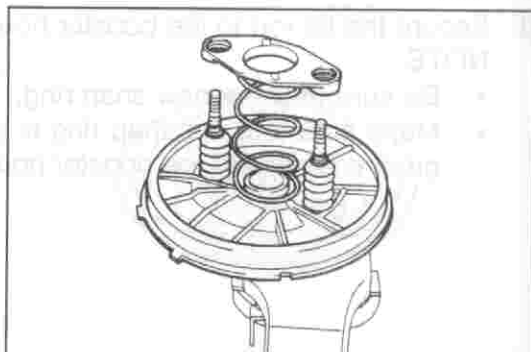
- Never reuse the rubber.

25. Install the rubber and reaction ring to the booster piston.



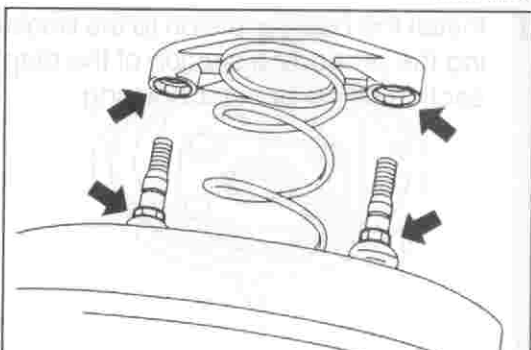
WRE91-BR166

26. Place the booster spring and retainer on the piston.



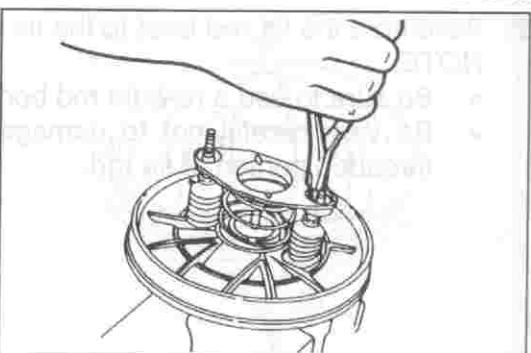
WRE91-BR167

27. Align the recessed section of the retainer with the direction of the tie rod connecting section.



WRE91-BR168

28. While holding the retainer, install the snap ring.



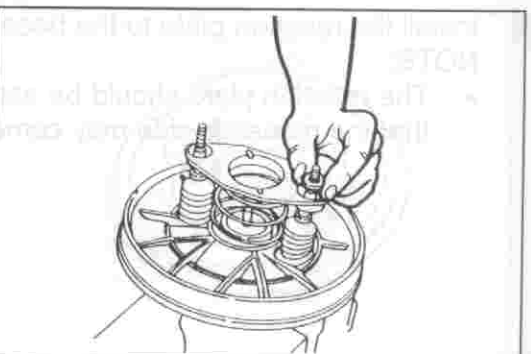
WRE91-BR169

29. Install the tie rod seal plate to the tie rod section.

30. Thinly apply silicone grease to the tie rod seal. Install the tie rod seal to the tie rod section.

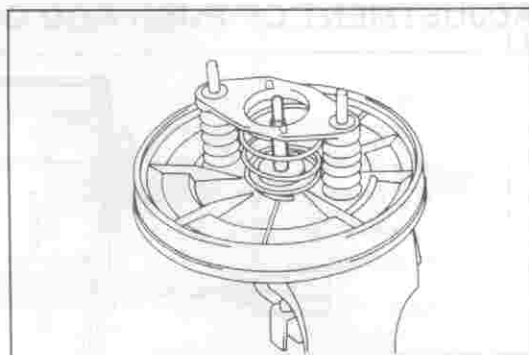
NOTE:

- Make sure that the lip surface of the oil seal faces upward.



WRE91-BR170

31. Apply a small amount of silicone grease to the forward end of the reaction ring shaft.
32. Install the booster piston rod. Apply a small amount of silicone grease to the forward end of the booster piston rod.

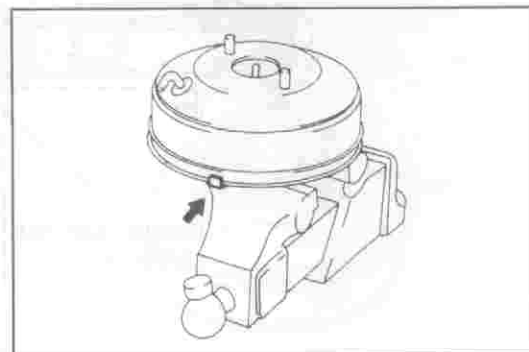


WRE91-BR171

33. Install the booster body to the booster housing while aligning the cut-out section.

NOTE:

- Slowly and completely fit the booster body with the housing.



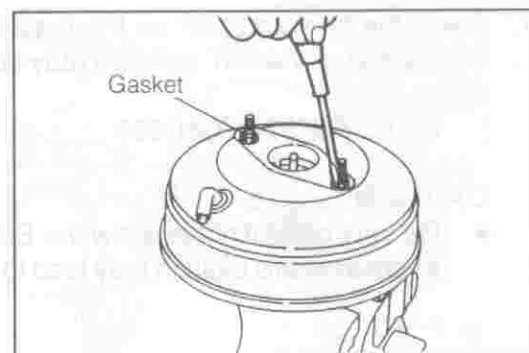
WRE91-BR172

34. Install the gasket to the booster body.

35. Install the new "E" rings.

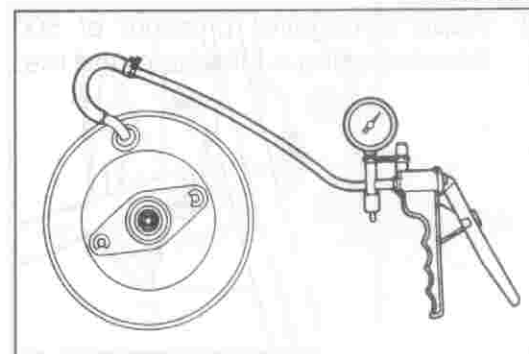
NOTE:

- Do not reuse the "E" rings.



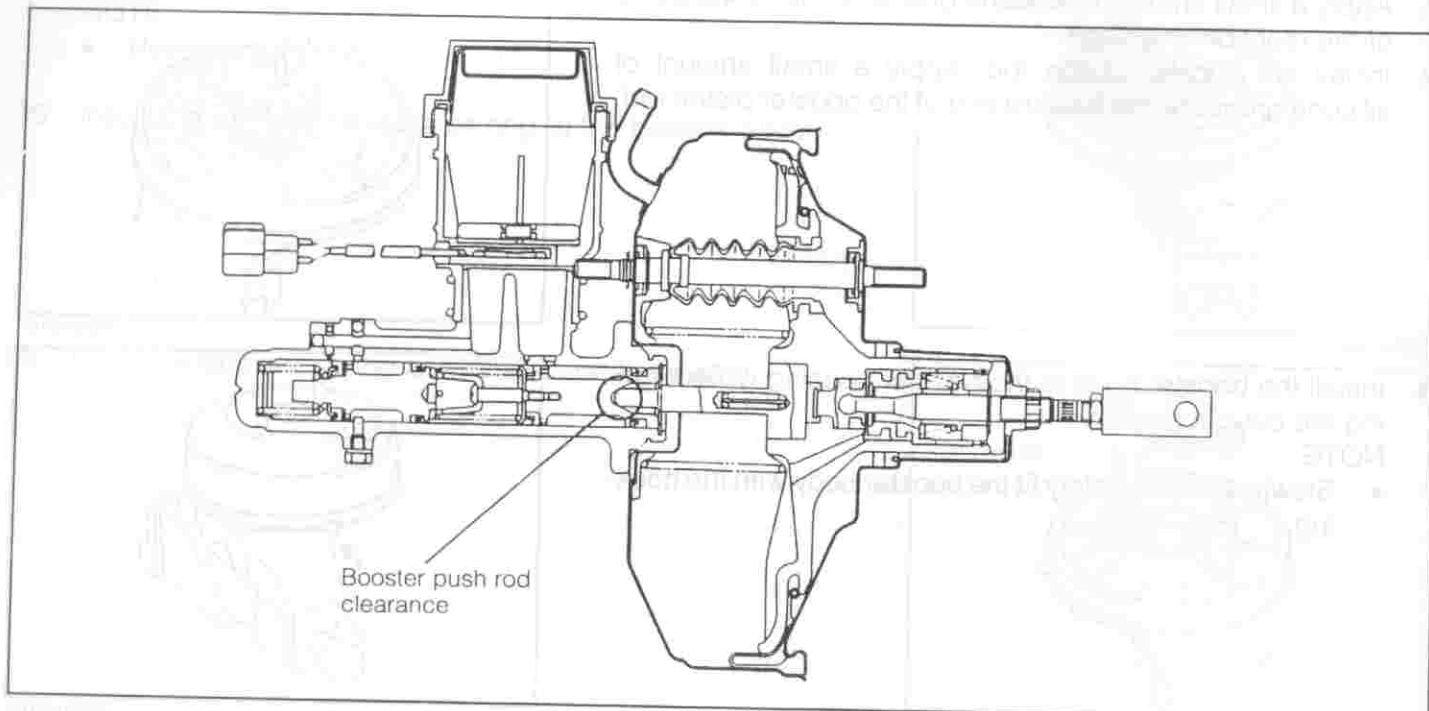
WRE91-BR173

36. Apply negative pressure to the brake booster, using a Mity-Vac. At this time, ensure that no air leakage is present.



WRE91-BR174

ADJUSTMENT OF PUSH ROD CLEARANCE



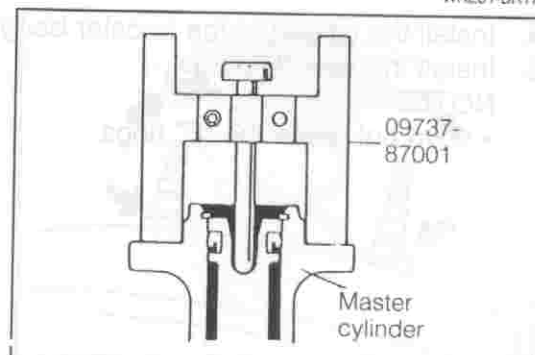
WRE91-BR175

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

SST: 09737-87001-000

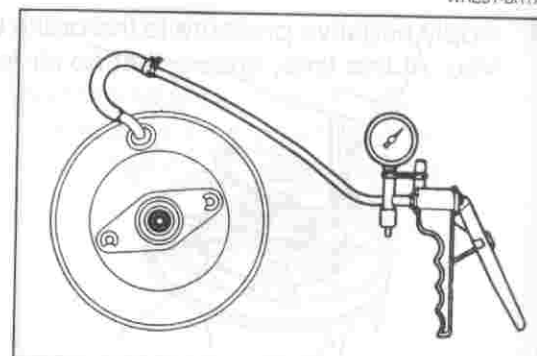
CAUTION:

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



WRE91-BR176

2. Apply a negative pressure of 500 mmHg to the brake booster, using a MityVac or the like.



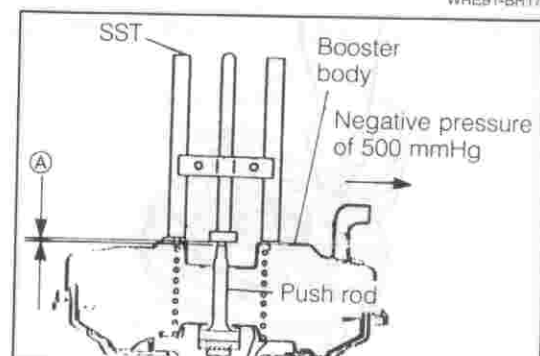
WRE91-BR177

3. Place the SST which was adjusted at the step 1 on the brake booster in a turned-over state, as shown in the right figure. Ensure that the clearance between the push rod and the SST is zero.

If not, adjust the push rod height.

NOTE:

- This operation should be performed with the gasket installed.



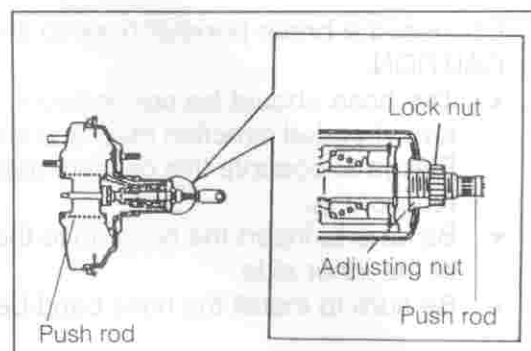
WRE91-BR178

4. Adjustment of push rod height

Loosen the lock nut. While preventing the push rod from turning, turn the adjusting nut, until the push rod height becomes the same height as at the step 3.

5. Tighten the lock nut, while preventing the adjusting nut from turning.

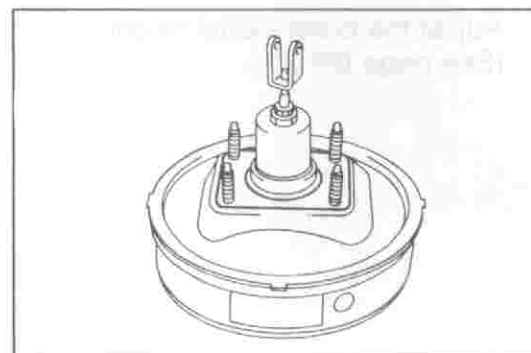
Tightening Torque: 20.4 - 30.6 N·m
(2.08 - 3.12 kgf-m, 15.1 - 22.5 ft-lb)



WRE91-BR179

INSTALLATION

1. Install a new gasket to the dash panel installation surface of the brake booster.

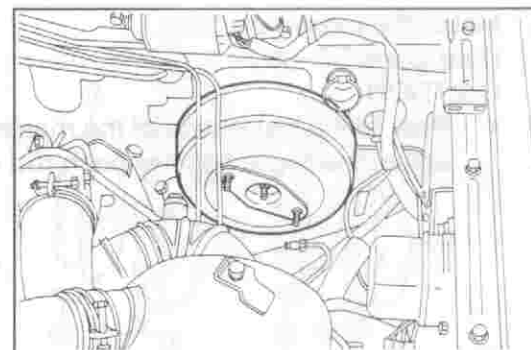


WRE91-BR180

2. Install the brake booster to the dash panel in such a way that the brake booster hose connection may be positioned as indicated in the right figure and that the clevis may be incorporated into the brake pedal.

NOTE:

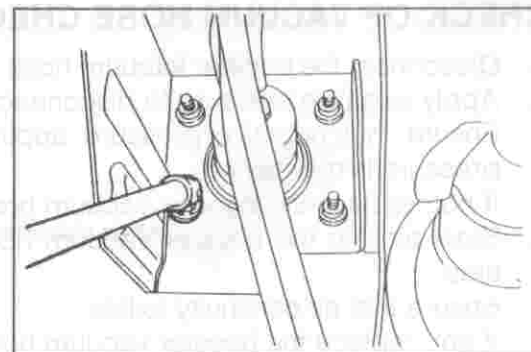
- Be very careful not to deform the brake pipe.



WRE91-BR181

3. Tighten the brake booster attaching nuts.

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

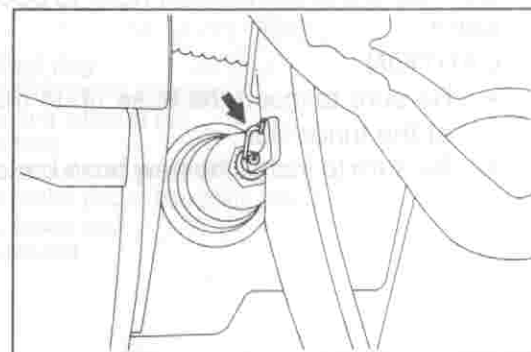


WRE91-BR182

4. Connect the clevis to the brake pedal by means of the clevis pin. Install the cotter pin to prevent the pin from dropping.

NOTE:

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



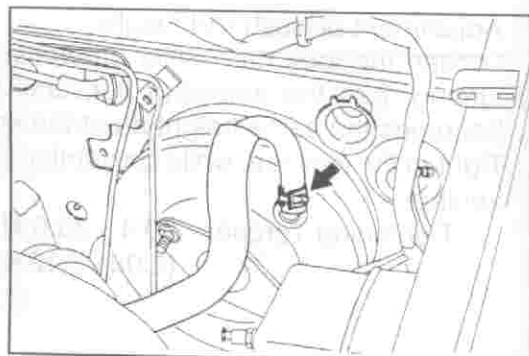
WRE91-BR183

BRAKE

5. Connect the brake booster hose to the brake booster.

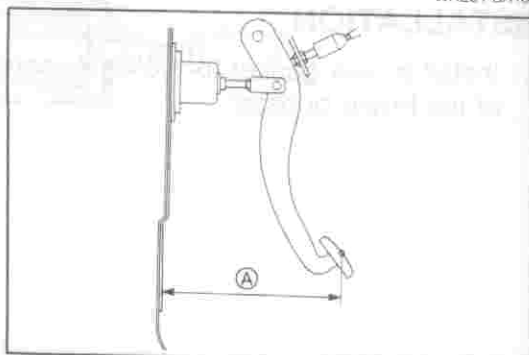
CAUTION:

- The hose should be connected in such a way that the arrowheaded direction may face toward the engine side. Failure to observe this caution may lead to booster malfunctioning.
- Be sure to insert the hose up to the bottom of the spool at the inner side.
- Be sure to install the hose band between the spools.



WRE91-BR184

6. Adjust the brake pedal height.
(See page BR-22.)

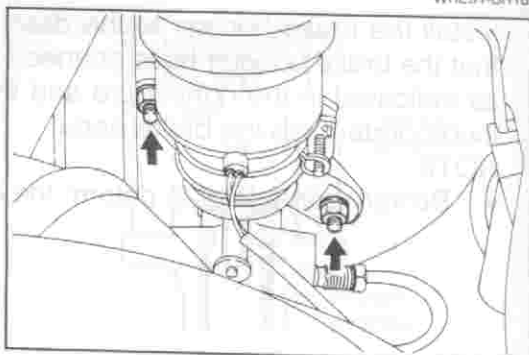


WRE91-BR185

7. Install the master cylinder.
(See page BR-36.)

CAUTION:

- Prior to the installation of the master cylinder, be sure to adjust the brake booster push rod clearance.



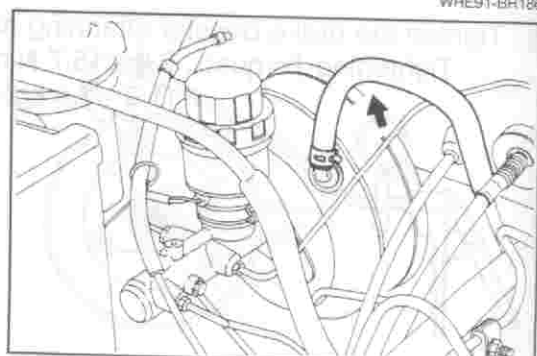
WRE91-BR186

CHECK OF VACUUM HOSE CHECK VALVE

1. Disconnect the booster vacuum hose from booster.
2. Apply negative pressure to disconnected hose.
Ensure that negative pressure applied and the applied pressure is maintained.
If not, replace the booster vacuum hose.
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 new hose band.

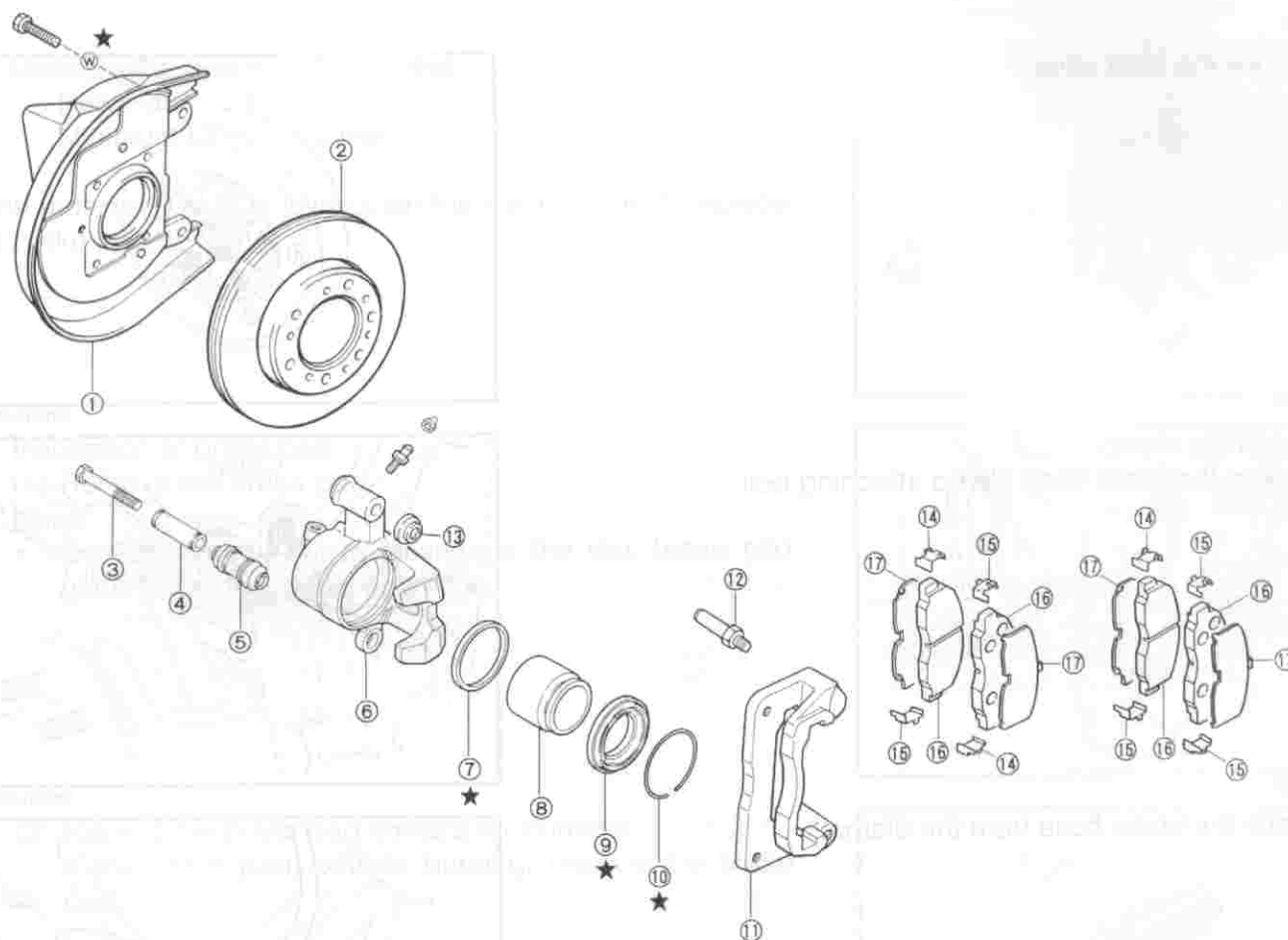
CAUTION:

- 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.



WRE91-BR187

FRONT BRAKE COMPONENTS



★ : Non-reusable parts

- ① Disc brake dust cover
- ② Front disc
- ③ Bolt
- ④ Cylinder slide bush
- ⑤ Bush dust boot
- ⑥ Brake caliper body
- ⑦ Piston seal
- ⑧ Piston
- ⑨ Rubber boot

- ⑩ Boot set ring
- ⑪ Brake mounting support
- ⑫ Mounting support pin
- ⑬ Dust boot
- ⑭ Disc brake pad guide plate
- ⑮ Disc brake pad guide plate No. 2
- ⑯ Disc brake pad
- ⑰ Anti-squeal

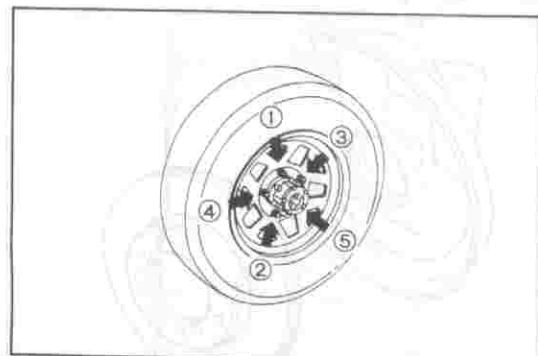
BRAKE

INSPECTION OF BRAKE PAD AND DISC

1. Jack up the vehicle and support it with rigid racks.
(As for the jack-up point and rigid rack supporting position, see GI section.)

WRE91-BR189

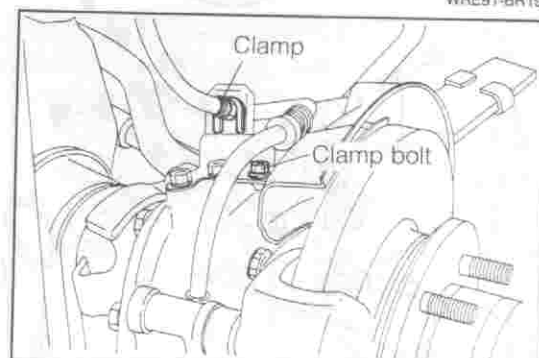
2. Remove the front wheel.



WRE91-BR190

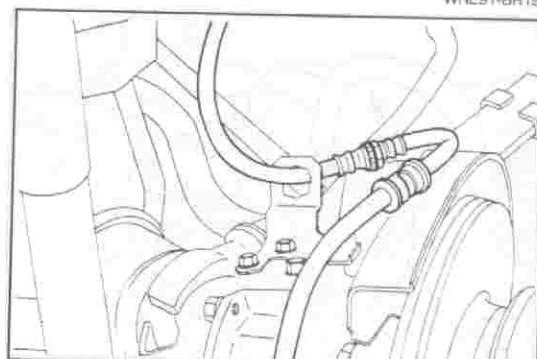
3. Detach the clamp.

4. Remove the brake hose clamp attaching bolt.



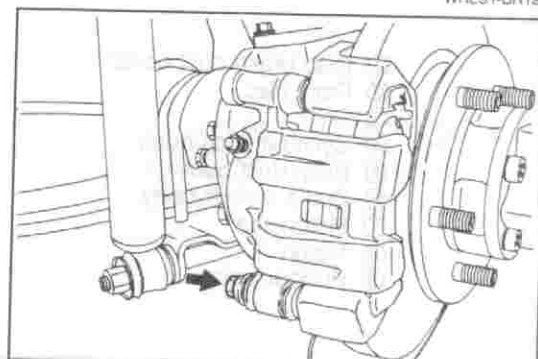
WRE91-BR191

5. Detach the brake hose from the clamp.



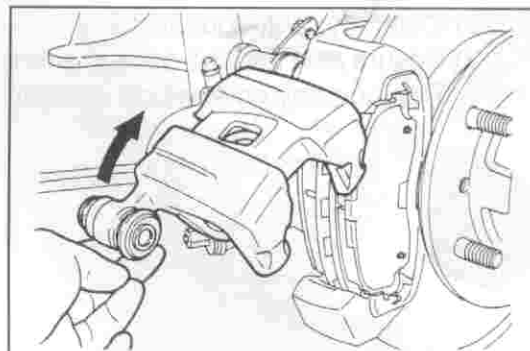
WRE91-BR192

6. Remove the caliper body attaching bolt.



WRE91-BR193

7. Lift the caliper body.



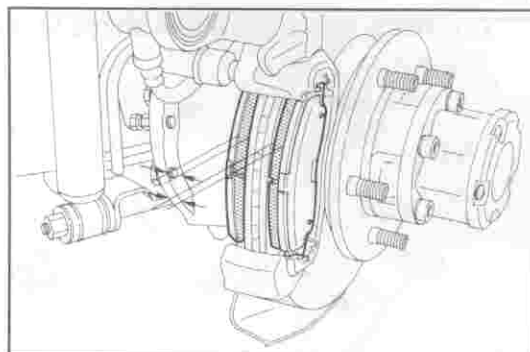
WRE91-BR194

8. Measure the brake pad thickness.

New Part: 9 mm

Minimum Limit: 1.0 mm

If the measure value is lower than the minimum limit, replace the brake pad.



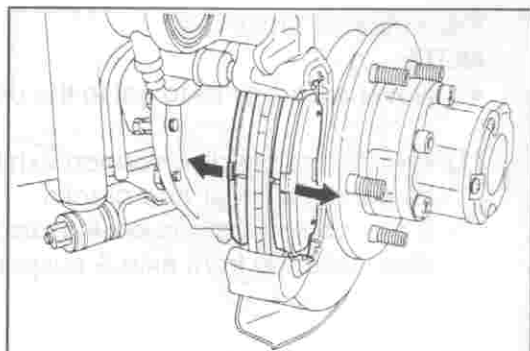
WRE91-BR195

9. Inspection of brake pad

- (1) Remove the brake pad.

Note:

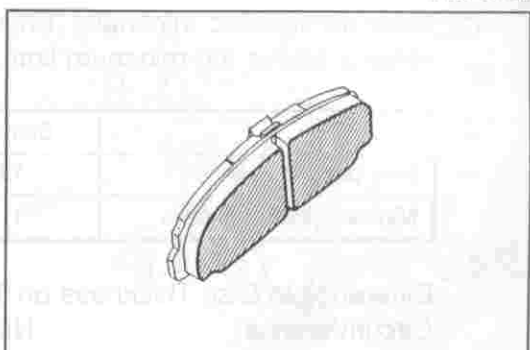
- Be very careful not to disengage the disc brake pad guide plate during this operation.



WRE91-BR196

- (2) Inspect the brake pad surface for burning.

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



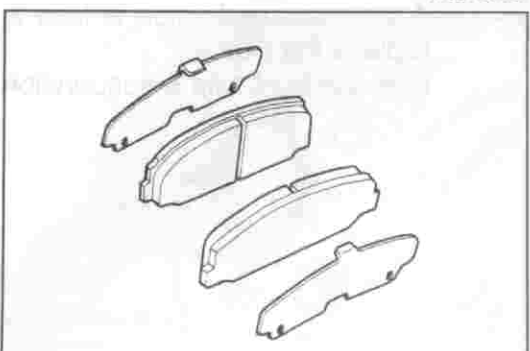
WRE91-BR197

10. Replacement of brake pad

NOTE:

- When replacing the brake pad be sure to replace the pads 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.

- (1) Remove the anti-squeal shims from the disc brake pad.



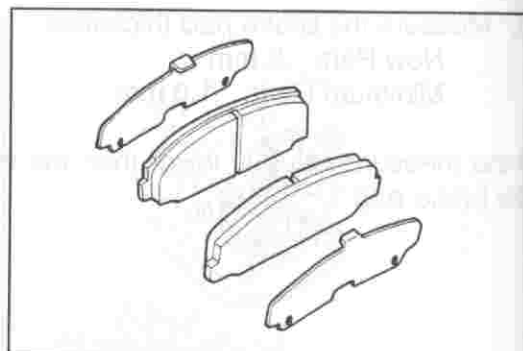
WRE91-BR198

BRAKE

- (2) Clean the anti-squeal shims.
- (3) Ensure that the anti-squeal shims exhibit no damage.
Replace any shim which exhibits damage.

WRE91-BR200

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



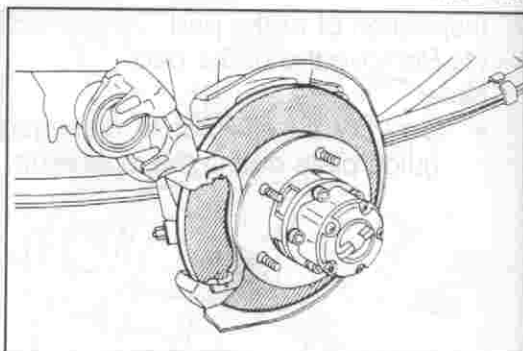
WRE91-BR203

11. Inspection of brake disc

NOTE:

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

- (1) Ensure that the disc surface exhibits no damage, such as abnormal wear and cracks.
If any damage exists on the disc surface, replace the disc. (See the front axle & suspension system.)

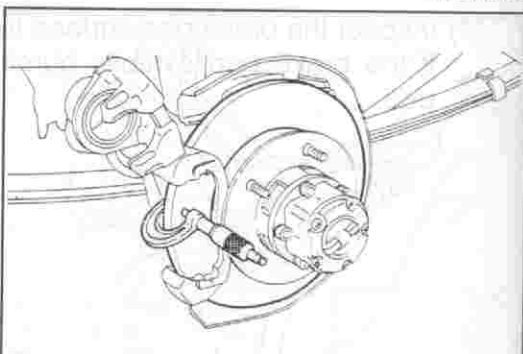


WRE91-BR204

- (2) Measure the disc thickness. Ensure that the measured value is above the minimum limit.

Unit: mm

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



WRE91-BR205

Difference in Disc Thickness on The Same
Circumference: Not to exceed 0.015 mm

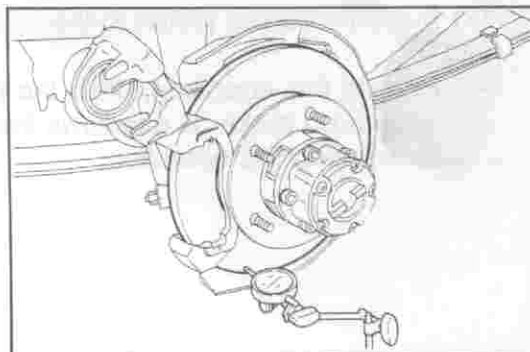
If the measured value is less than the minimum limit,
replace the disc.
(See the front axle & suspension system.)

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

Allowable Runout Limit: 0.15 mm

NOTE:

- Measuring point should be point 10 mm inward from outer periphery of rotor.

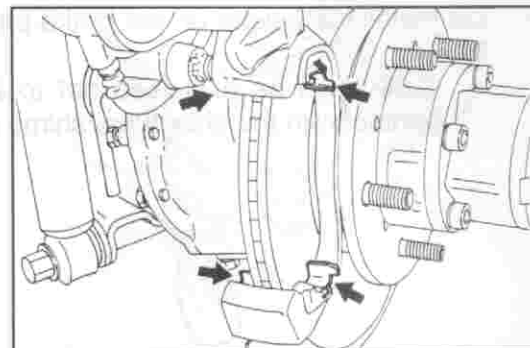


WRE91-BR206

12. Inspection of disc brake pad guide

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

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

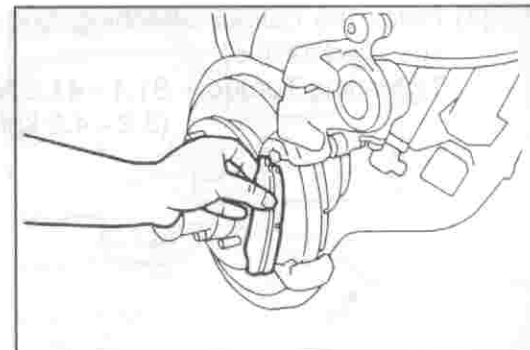


WRE91-BR207

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

NOTE:

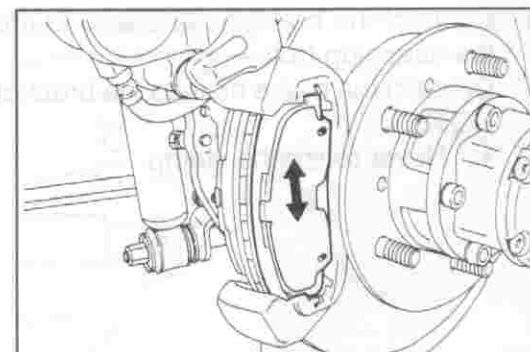
- The pad equipped with the warner should come at the inside of the vehicle.
- Never allow any oil to get to the pad.



WRE91-BR208

- (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.



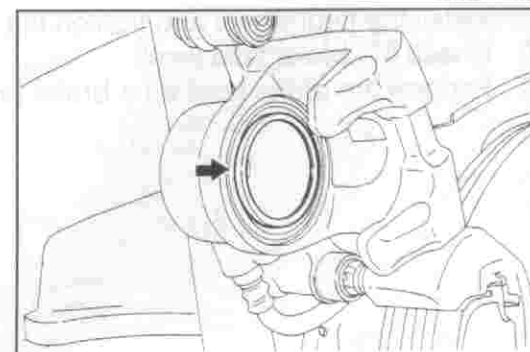
WRE91-BR209

13. Installation of caliper

- (1) Inspect the caliper piston for brake fluid leakage.

NOTE:

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



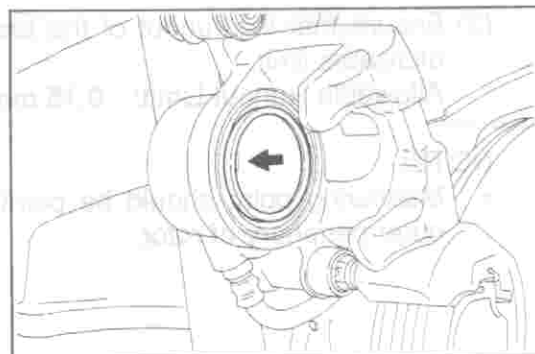
WRE91-BR210

BRAKE

(2) Push the caliper piston 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.

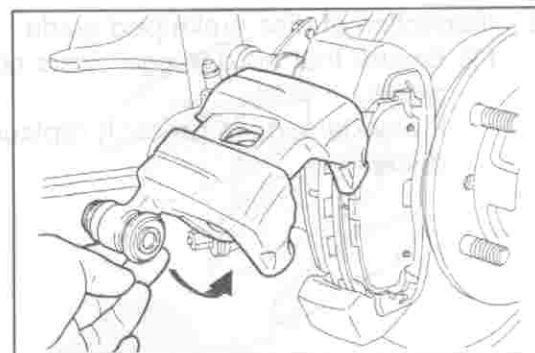


WRE91-BR211

(3) Install the caliper on the brake pad.

NOTE:

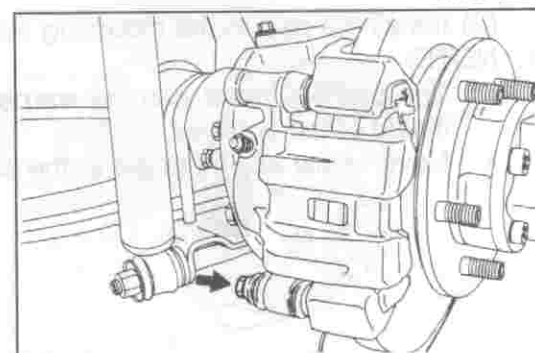
- Care must be exercised not to bring the caliper into contact with the antisqueal shims during this operation.



WRE91-BR212

(4) Install the caliper attaching bolt and tighten it to the specified torque.

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



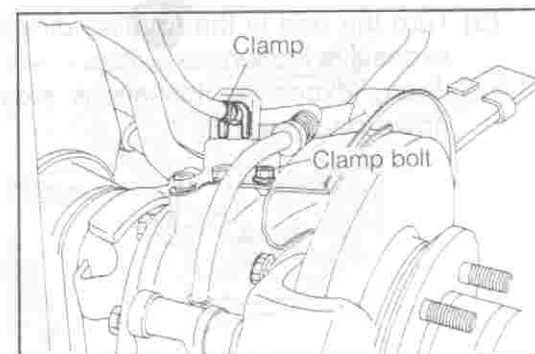
WRE91-BR213

14. Connect the brake hose clamp to the knuckle and tighten the attaching bolt.

15. Connect the brake hose to the bracket. Install a new clamp.

NOTE:

- Never reuse the clamp.

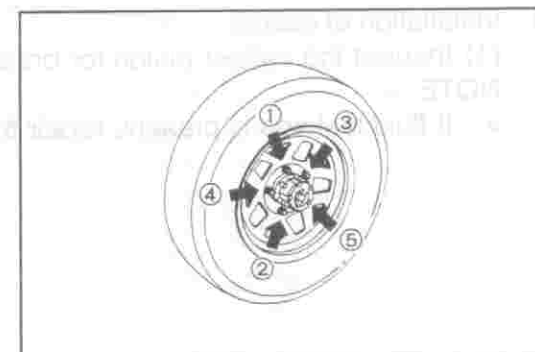


WRE91-BR214

16. Install the front wheel and tighten the attaching bolts.

17. Check the brake fluid level.

18. Perform the brake tests on a brake tester.



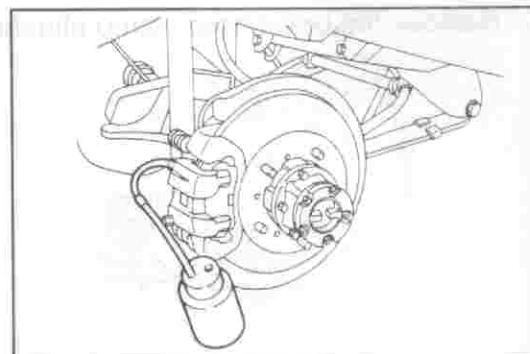
WRE91-BR215

REMOVAL OF BRAKE CALIPER

1. Jack up the vehicle and support it with safety stands. (As for the jacking-up points and supporting points for the safety stands, see page G1 section.)

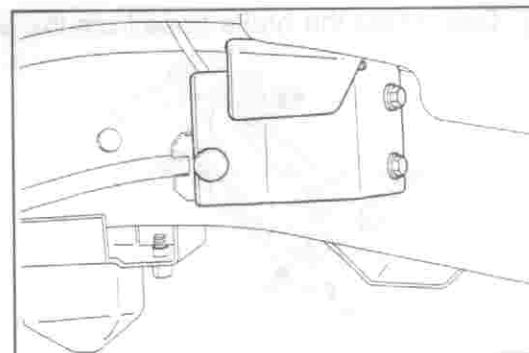
WRE91-BR216

2. Remove the front wheel.
3. Drain the brake fluid of the caliper from the air bleeder plug.



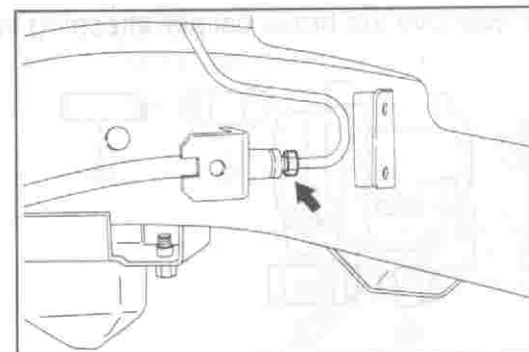
WRE91-BR217

4. Remove the brake pipe protector by removing bolts and clip.



WRE91-BR218

5. Disconnect the brake pipe from brake hose.

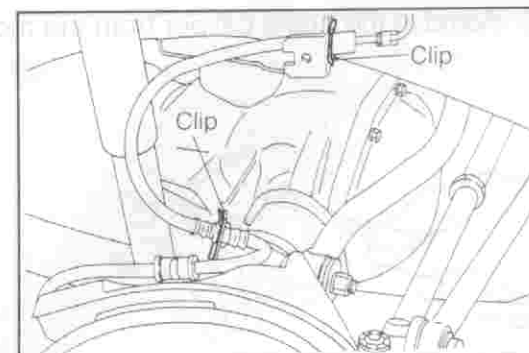


WRE91-BR219

6. Detach the clips.

NOTE:

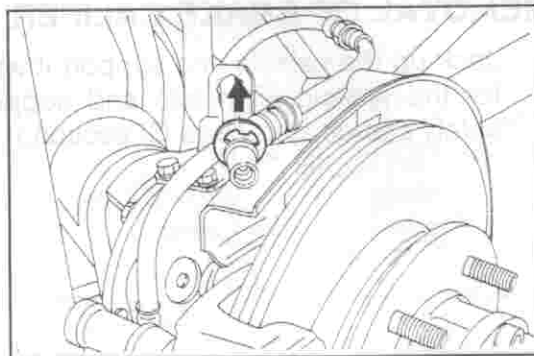
- Do not reuse the removed clips.



WRE91-BR220

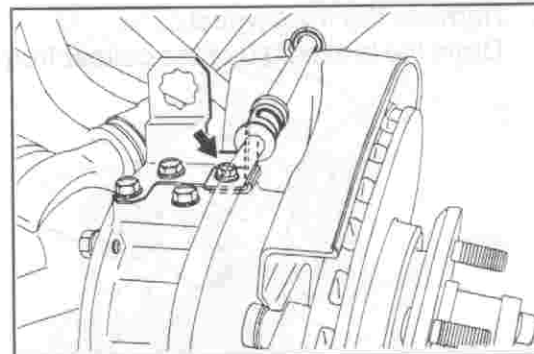
BRAKE

7. Remove the "E" ring from the brake pipe side of brake hose.



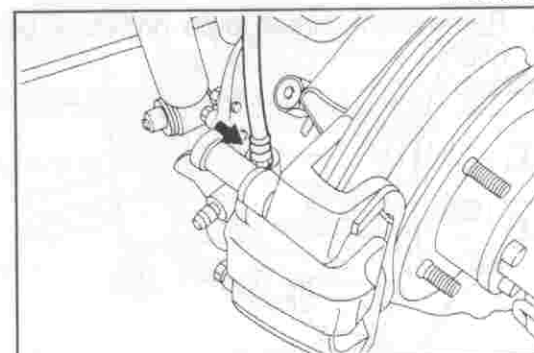
WRE91-BR221

8. Remove the brake hose clamp attaching bolt.



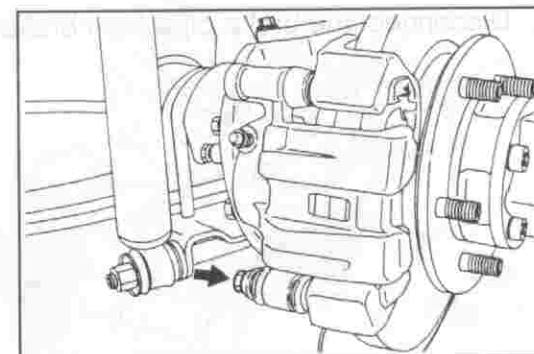
WRE91-BR222

9. Disconnect the brake hose from the disc brake caliper.



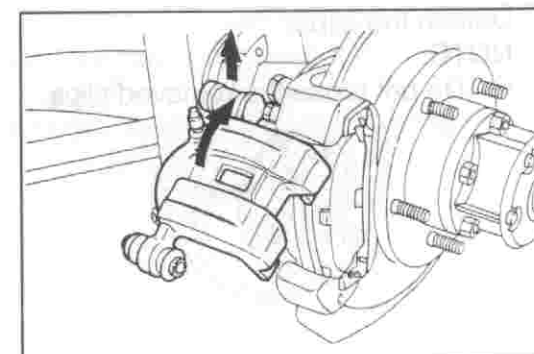
WRE91-BR223

10. Remove the brake caliper attaching bolt.



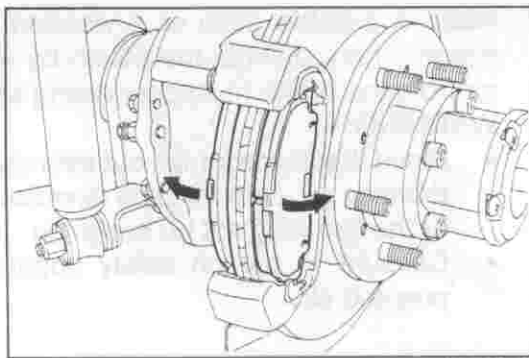
WRE91-BR224

11. Remove the brake caliper from the mounting support pin.



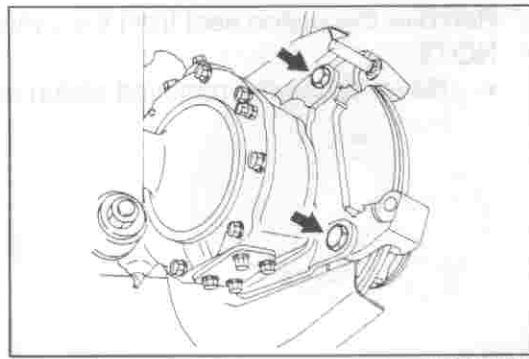
WRE91-BR225

12. Remove the brake pads.



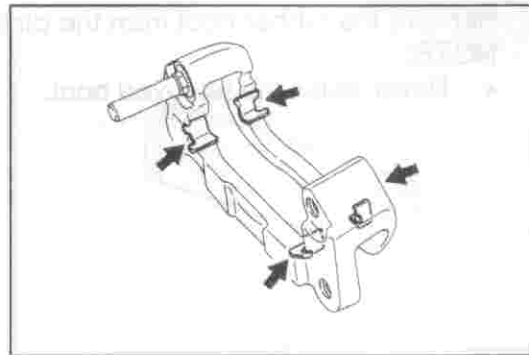
WRE91-BR226

13. Remove the brake mounting support.



WRE91-BR227

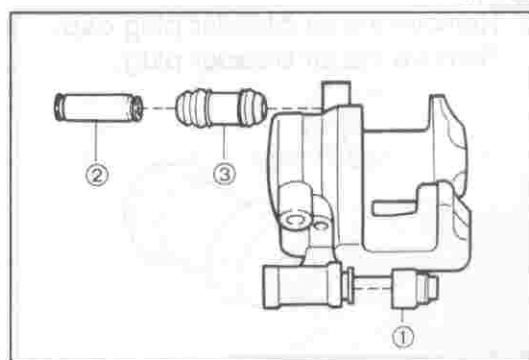
14. Remove the disc brake pad guide plates from the brake mounting support.



WRE91-BR228

DISASSEMBLY OF CALIPER

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

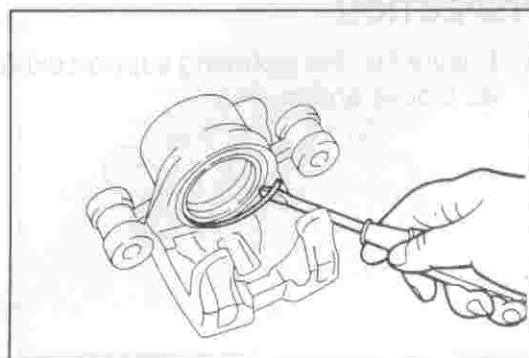


WRE91-BR229

4. Remove the boot set ring.

NOTE:

- Never reuse the removed set ring.



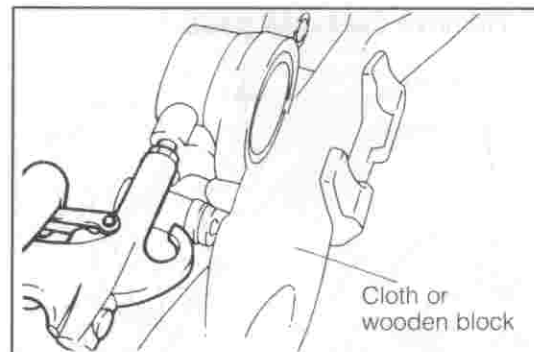
WRE91-BR230

BRAKE

5. Insert a 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.

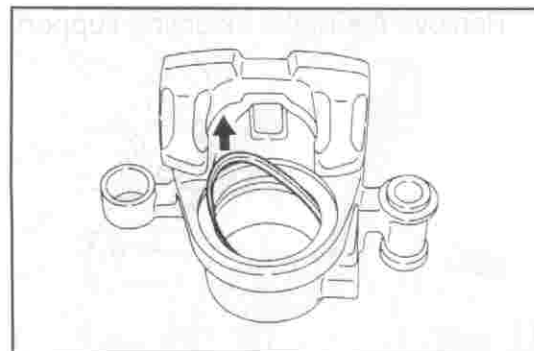


WRE91-BR231

6. Remove the piston seal from the cylinder section.

NOTE:

- Never reuse the removed piston seal.

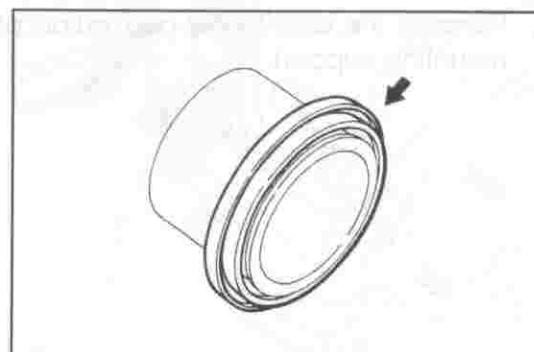


WRE91-BR232

7. Remove the rubber boot from the piston.

NOTE:

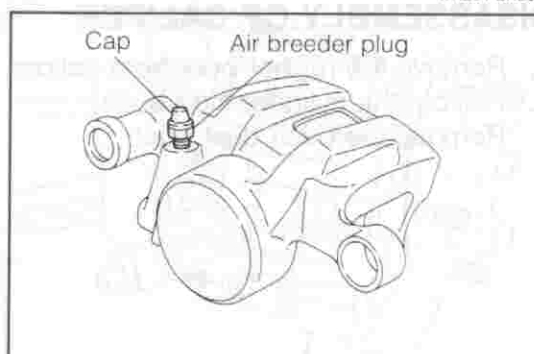
- Never reuse the removed boot.



WRE91-BR233

8. Remove the air bleeder plug cap.

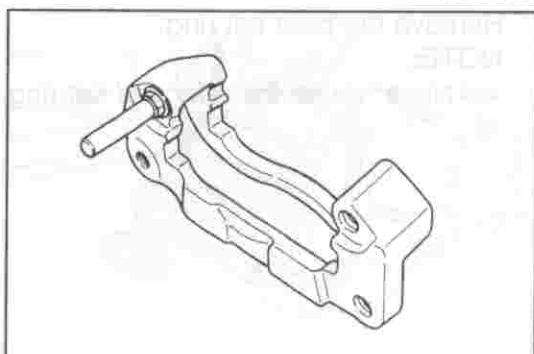
9. Remove the air bleeder plug.



WRE91-BR234

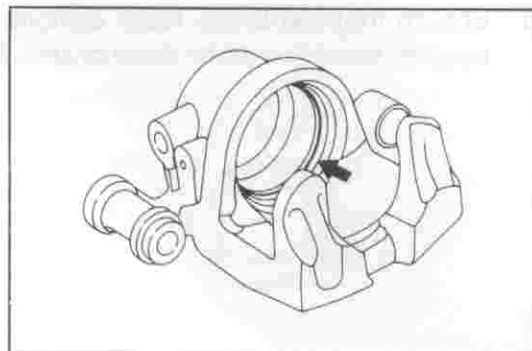
INSPECTION

1. Ensure that the mounting support exhibits no damage, such as cracks and/or wear.



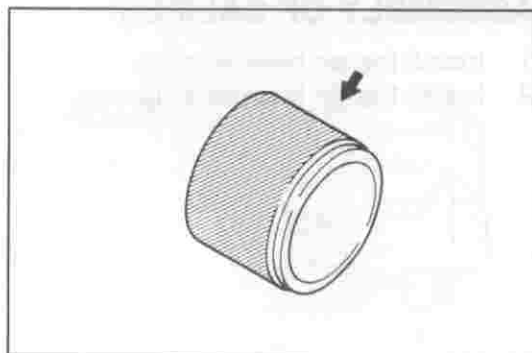
WRE91-BR235

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.



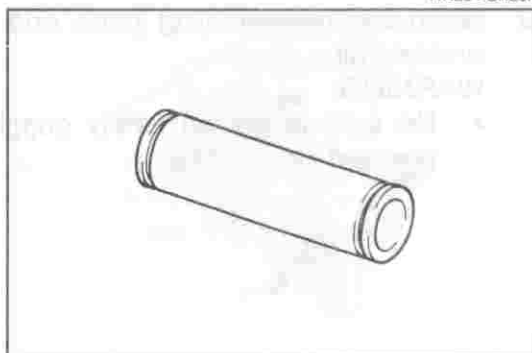
WRE91-BR236

4. Ensure that the piston exhibits no damage, such as rust and scratches.



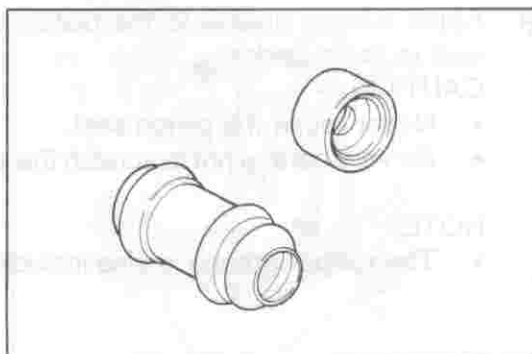
WRE91-BR237

5. Ensure that the cylinder slide bush exhibits no damage, such as rust and/or scratches.



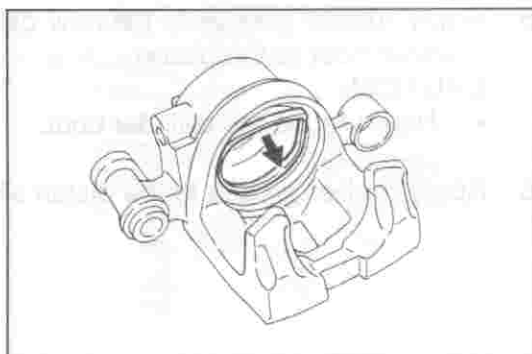
WRE91-BR238

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



WRE91-BR239

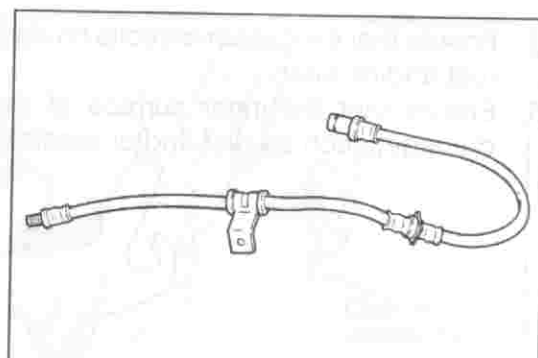
7. Ensure that the pad guide plate exhibits no wear or damage.



WRE91-BR240

BRAKE

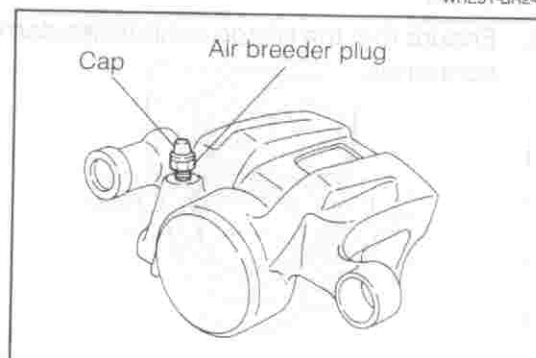
8. Ensure that the brake hose exhibits no damage, such as cracks, scratch and/or deterioration by oxidation.



WRE91-BR241

ASSEMBLY OF CALIPER

1. Install the air bleeder plug.
2. Install the air bleeder plug cap.

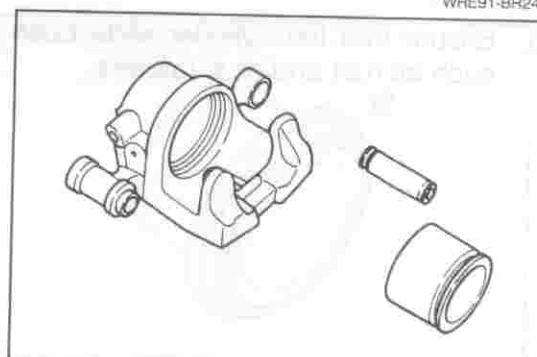
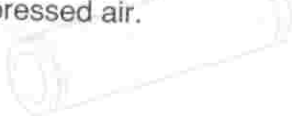


WRE91-BR242

3. Wash the reassembling parts and dry them with compressed air.

WARNING:

- Be sure to put on safety goggles when using compressed air.



WRE91-BR243

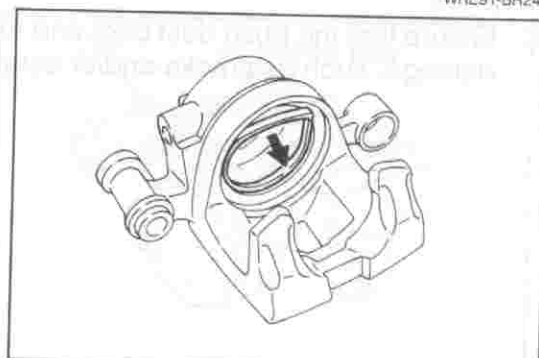
4. Apply rubber grease to the piston seal. Install the piston seal to the cylinder.

CAUTION:

- Never reuse the piston seal.
- Be very careful not to scratch the edge of the piston seal.

NOTE:

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



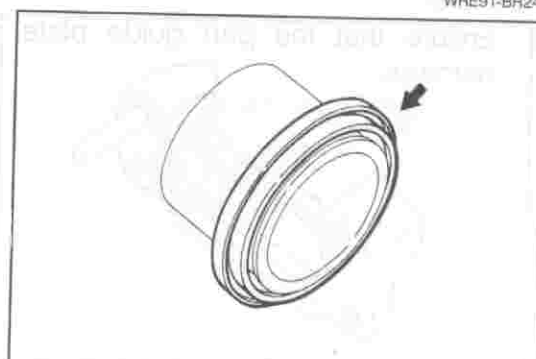
WRE91-BR244

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

CAUTION:

- Never reuse the cylinder boot.

6. Apply rubber grease to the piston sliding surface.



WRE91-BR245

7. Insert the piston into the cylinder.

NOTE:

- At this time, be very careful not to damage the rubber boot.

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

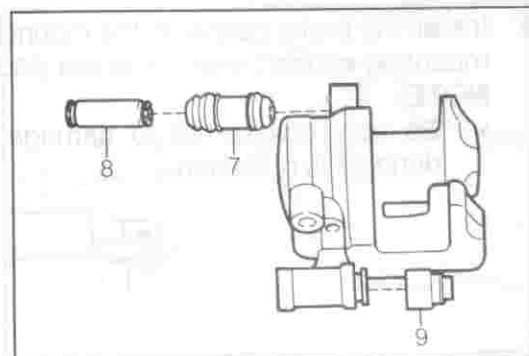
CAUTION:

- Never reuse the set rings.



WRE91-BR246

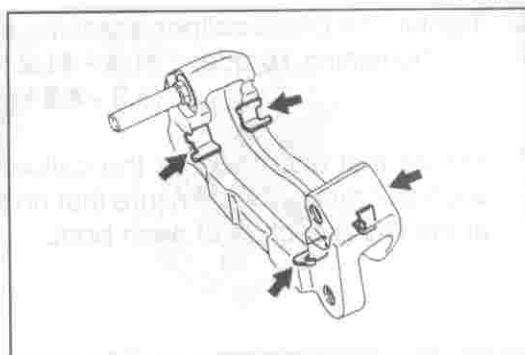
9. Insert the bush dust boot into the caliper.
10. Apply rubber grease to the cylinder slide bush. Insert the cylinder slide bush into the bush dust boot. Then, fit both edge sections of the bush dust boot into the groove sections of the cylinder slide bush.
11. Install the rubber boot to the caliper.



WRE91-BR247

INSTALLATION OF BRAKE CALIPER

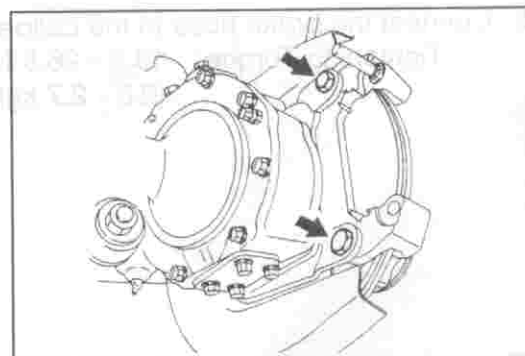
1. Install the disc brake pad guide plates to the brake mounting support.



WRE91-BR248

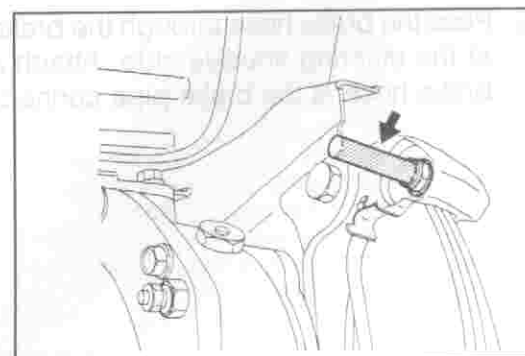
2. Install the brake mounting support to the steering knuckle by attaching bolts with new spring washers interposed.

Tightening Torque: 68.6 - 88.3 N·m
(7.0 - 9.0 kgf-m, 50.6 - 65.1 ft-lb)



WRE91-BR249

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



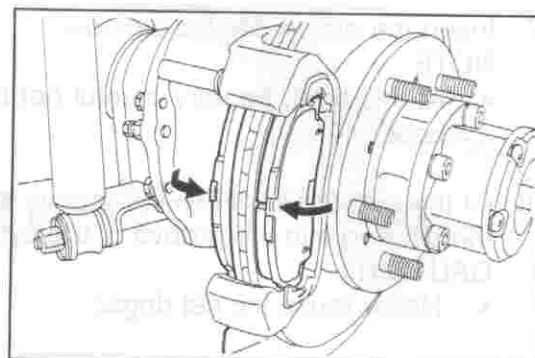
WRE91-BR250

BRAKE

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

NOTE:

- At this time, be very careful not to damage the disc brake pad guide plates.

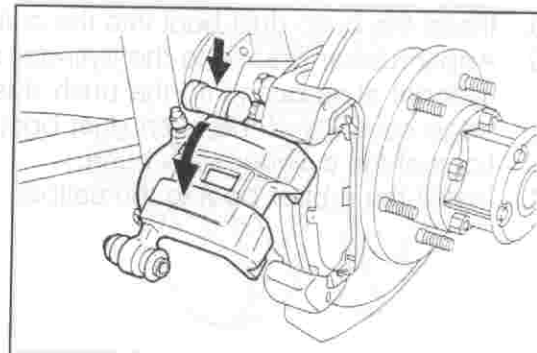


WRE91-BR251

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

NOTE:

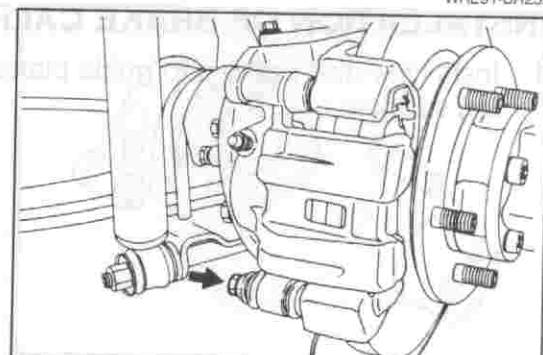
- Be very careful not to damage the antisqueal shim during this operation.



WRE91-BR252

6. Tighten the brake caliper attaching bolts.

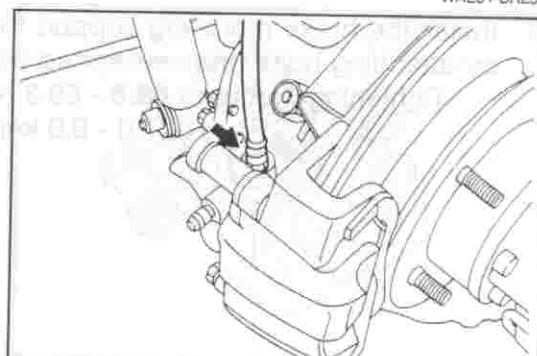
Tightening Torque: 31.4 - 41.2 N·m
(3.2 - 4.2 kgf-m, 23.1 - 30.4 ft-lb)



WRE91-BR253

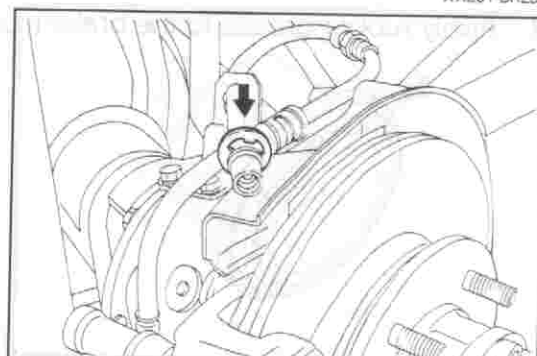
8. Connect the brake hose to the caliper.

Tightening Torque: 19.6 - 26.5 N·m
(2.0 - 2.7 kgf-m, 14.5 - 19.5 ft-lb)



WRE91-BR254

9. Pass the brake hose through the brake hose clamp bracket at the steering knuckle side. Attach a new "E" ring to the brake hose at the brake pipe connecting side.

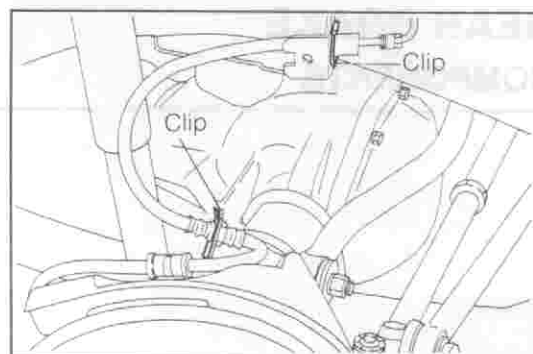


WRE91-BR255

10. Install the new clips.

NOTE:

- Do not reuse the clips.

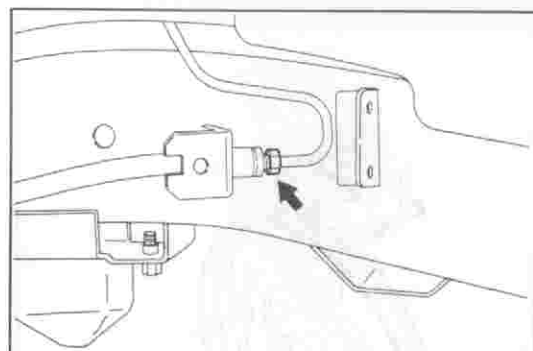


WRE91-BR256

11. Connect the brake pipe to brake hose.

Tightening Torque: 12.7 - 17.7 N·m

(1.3 - 1.8 kgf-m, 9.4 - 13.0 ft-lb)



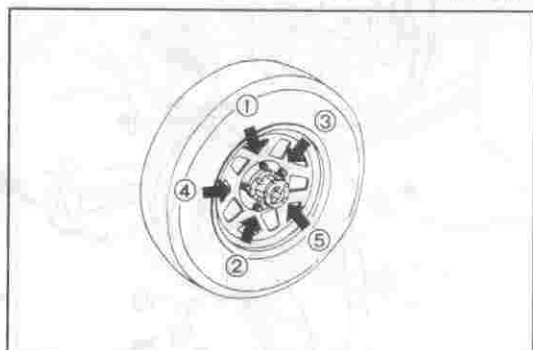
WRE91-BR257

12. Install the front wheel.

13. Perform brake air bleeding.

(See page BR-25.)

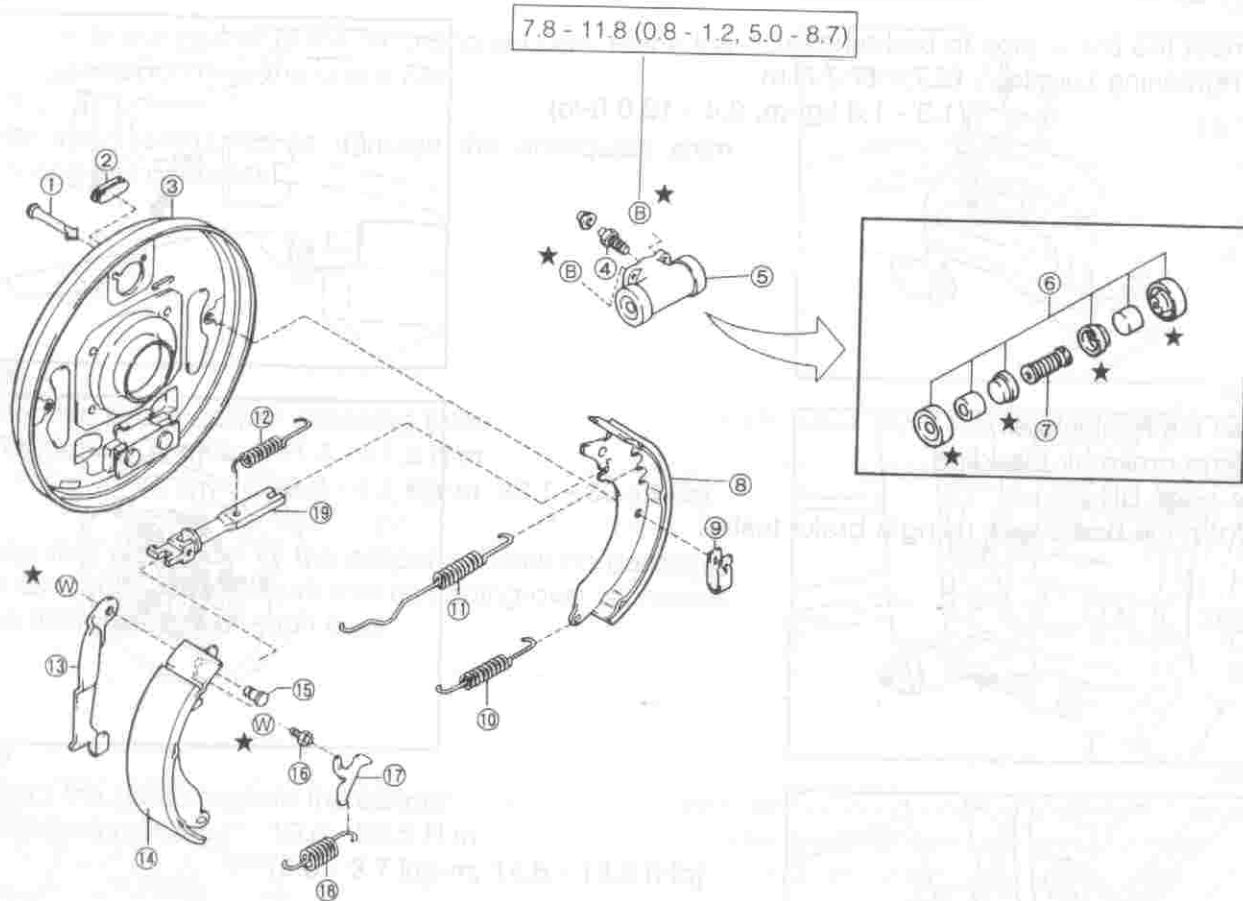
14. Perform the brake test, using a brake tester.



WRE91-BR258

BRAKE

REAR BRAKE COMPONENTS



- ① Shoe hold down spring pin
- ② Hole plug
- ③ Rear brake backing plate sub-assembly
- ④ Bleeder plug
- ⑤ Rear wheel brake cylinder assembly
- ⑥ Rear wheel cylinder cap kit
- ⑦ Compression spring
- ⑧ Rear brake shoe
- ⑨ Shoe hold down spring
- ⑩ Tension spring

- ⑪ Tension spring
- ⑫ Tension spring No. 2
- ⑬ Parking brake shoe lever sub-assembly
- ⑭ Rear brake shoe
- ⑮ Parking brake lever pin
- ⑯ Bolt
- ⑰ Automatic adjust lever
- ⑱ Tension spring
- ⑲ Parking brake shoe strut

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

DISASSEMBLY

CAUTION:

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

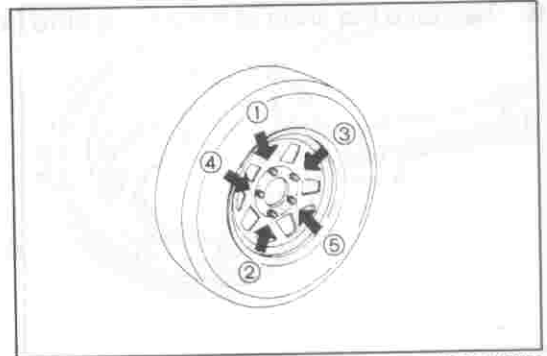
1. Jack up the vehicle and support it with safety stands.
(As for the jacking-up points and supporting points for the safety stands, see page G1 section.)

WRE91-BR260

2. Remove the rear wheel.

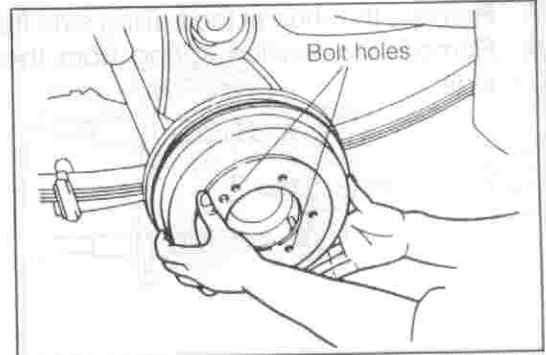
NOTE:

- Be sure to loosen the attaching bolts evenly over two or three stages in the sequence indicated in the right figure.



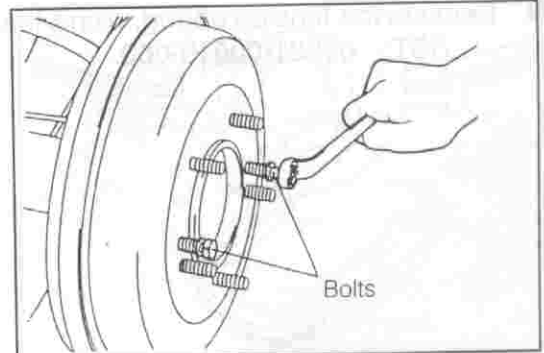
WRE91-BR261

3. Removal of the brake drum.
(1) Release the parking brake.
(2) Remove the brake drum.



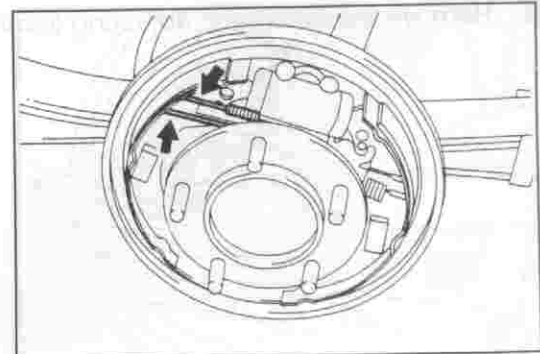
WRE91-BR262

If any difficulty is encountered in removing the brake drum, install the bolts (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.



WRE91-BR263

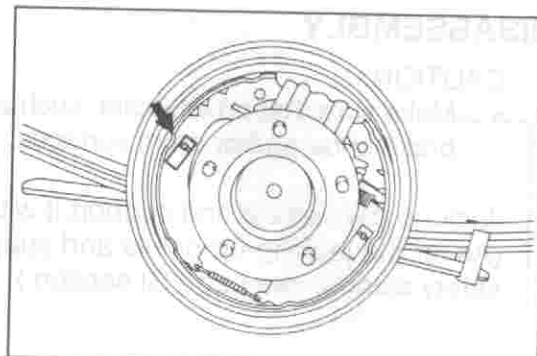
4. Detach the tension springs from the trailing side shoe, using the following SST and remove the tension springs.
SST: 09921-00010-000



WRE91-BR264

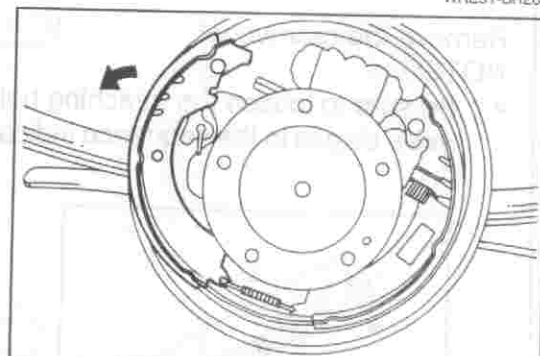
BRAKE

5. Detach the shoe hold down spring pin and hold down spring at the trailing side.



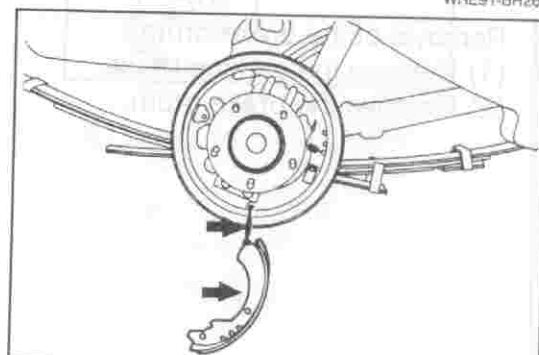
WRE91-BR265

6. Remove the shoe at the trailing side from the backing plate.



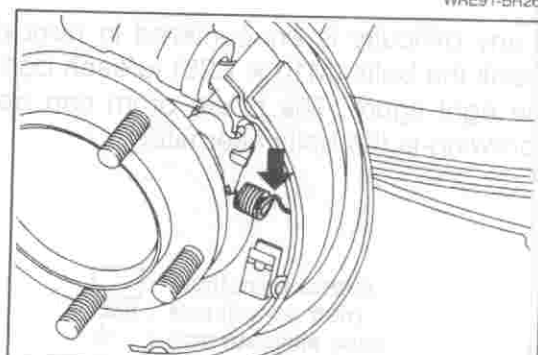
WRE91-BR266

7. Remove the shoe at the trailing side from the tension spring.
8. Remove the tension spring from the shoe at the leading side.



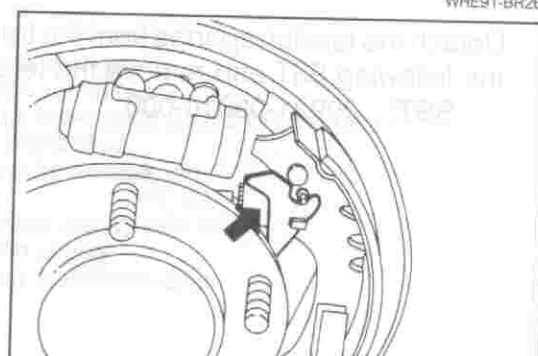
WRE91-BR267

9. Remove the tension spring, using the following SST.
SST: 09921-00010-000



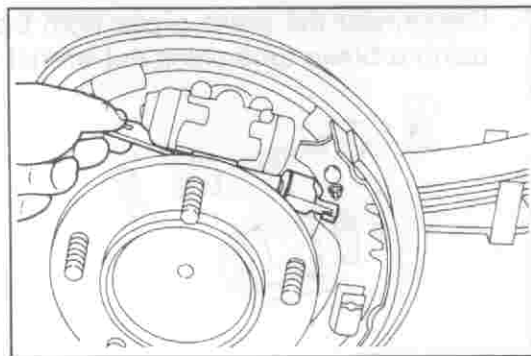
WRE91-BR268

10. Remove the automatic adjusting lever.



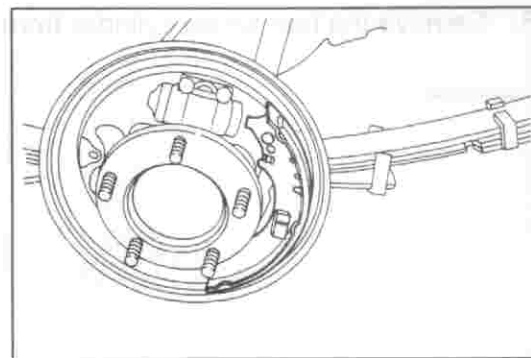
WRE91-BR269

11. Remove the parking brake shoe strut.



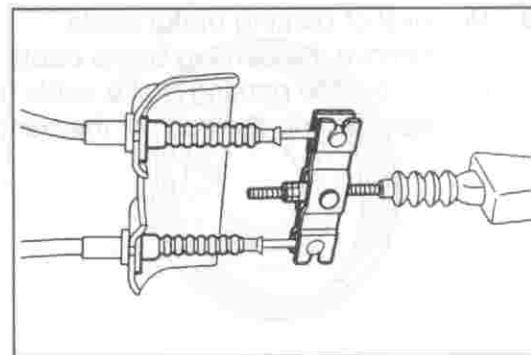
WRE91-BR270

12. Remove the hold-down spring and pin of the leading side shoe.
13. Remove the leading side shoe from the backing plate.



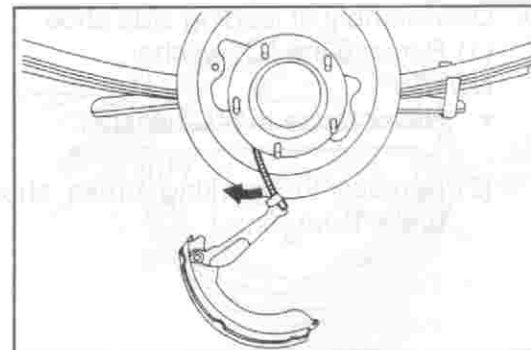
WRE91-BR271

14. Loosen the lock nut of the parking brake lever adjusting screw. Fully loosen the adjusting screw.



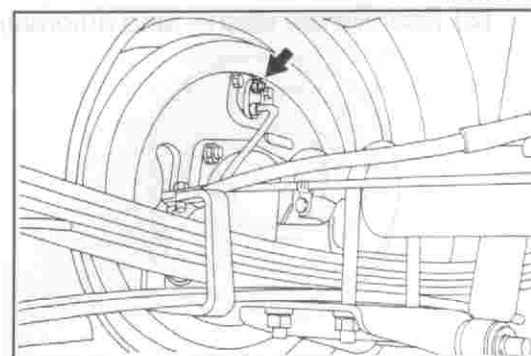
WRE91-BR272

15. Disconnect the parking brake cable from the parking brake shoe lever.



WRE91-BR273

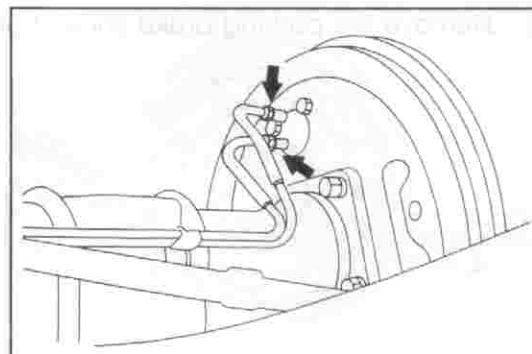
16. Drain the brake fluid by loosening the rear wheel cylinder air bleeder plug.



WRE91-BR274

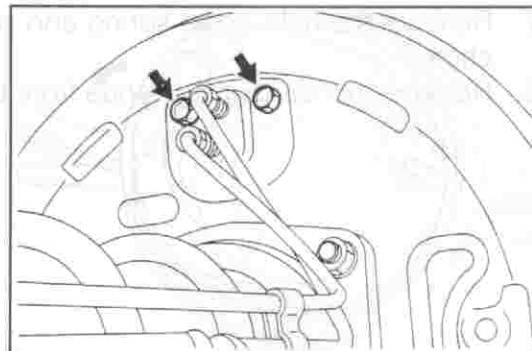
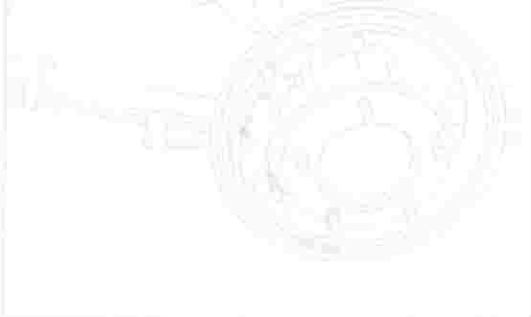
BRAKE

17. Disconnect the brake pipes from the rear wheel cylinder, using a brake tube union nut wrench.



WRE91-BR275

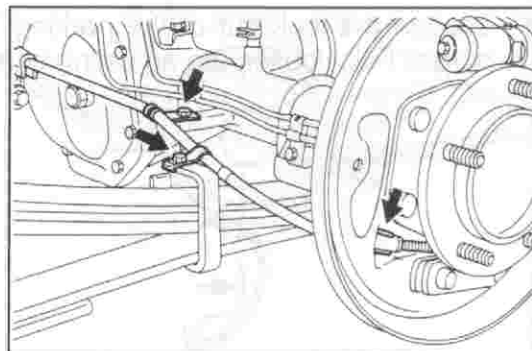
18. Remove the rear wheel cylinder from the backing plate.



WRE91-BR276

19. Removal of parking brake cable

- (1) Remove the parking brake cable clamp bolts.
- (2) Pull out the parking brake cable from the backing plate by retracting the pawl of the parking brake cable.



WRE91-BR277

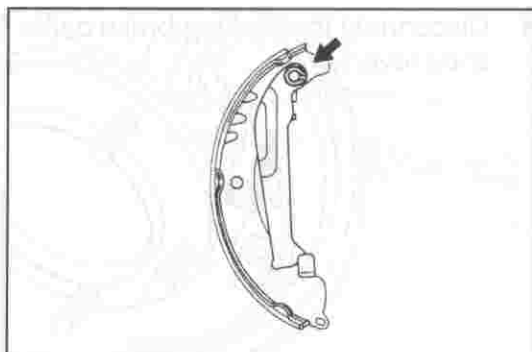
20. Disassembly of leading side shoe

- (1) Remove the "C" washer.

NOTE:

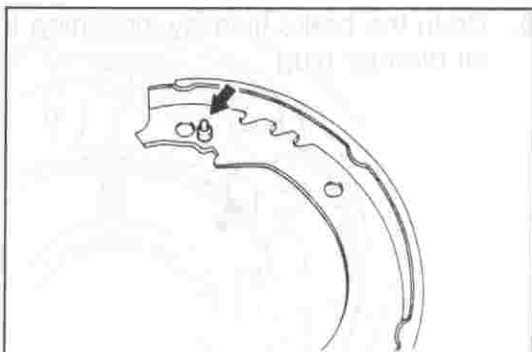
- Never reuse the "C" washer.

- (2) Remove the parking brake shoe lever and parking brake lever pin.



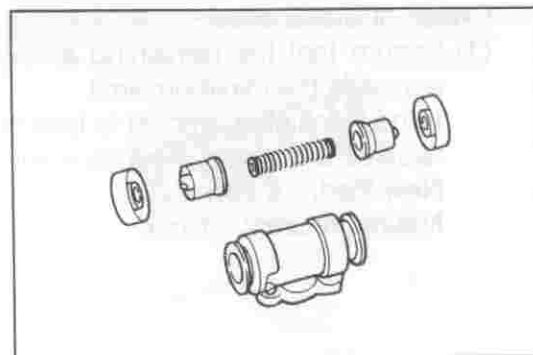
WRE91-BR278

- (3) Remove the washer and automatic adjusting lever pin.



WRE91-BR279

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



WRE91-BR280

22. Removal of brake backing plate
(See the Rear Axle section if necessary.)

WRE91-BR281

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

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

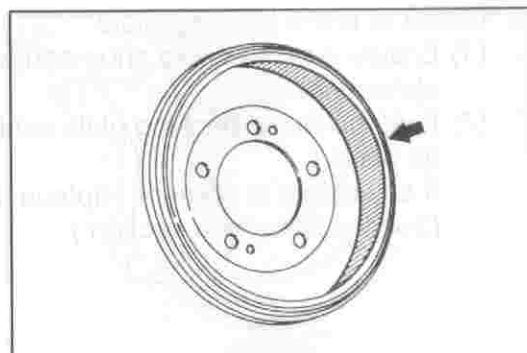
- (2) Measure the inner diameter of the brake drum. Ensure that the measured value is less than the maximum limit. If the measured value is greater than the maximum limit, replace the brake drum with a new one.

New Part: 254.00 mm

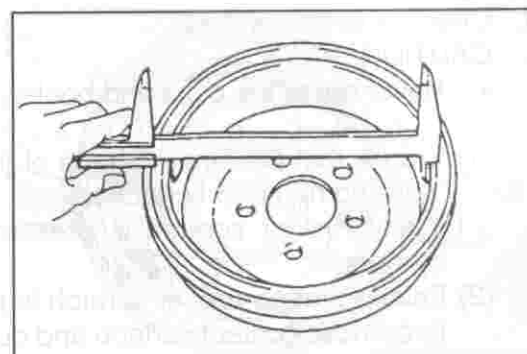
Maximum Limit: 256.00 mm

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

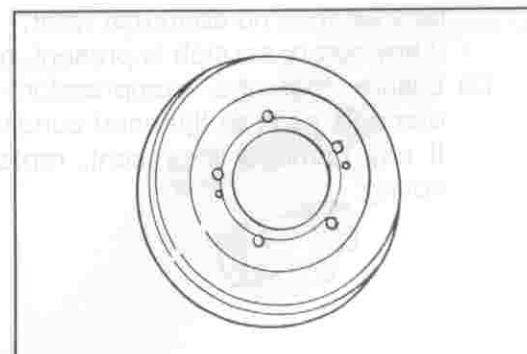
If any damage is present, replace the brake drum.



WRE91-BR282



WRE91-BR283



WRE91-BR284

BRAKE

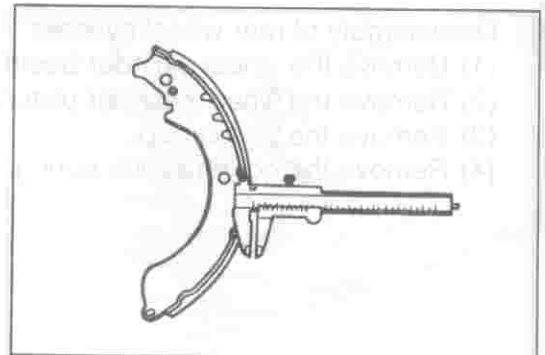
2. Check of brake shoe

- (1) Ensure that the remaining amount of the brake lining exceeds the minimum limit.

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

New Part: 5 mm

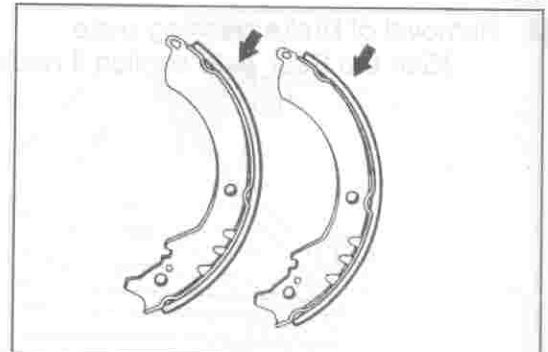
Minimum Limit: 1 mm



WRE91-BR285

- (2) Ensure that each brake shoe contact surface exhibits no defect, such as abnormal wear and cracks.

If any defect is present, replace the brake shoe as a set.



WRE91-BR286

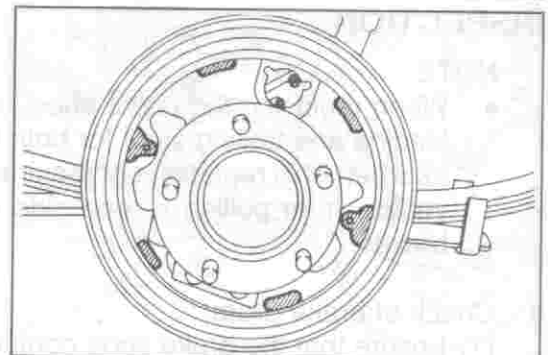
3. Check of brake backing plate

- (1) Ensure that the brake shoe contact surface exhibits no abnormal wear.

- (2) Ensure that the backing plate exhibits no damage, such as bend.

If any defect is present, replace the backing plate.

(See the Rear Axle section.)



WRE91-BR287

4. Check of wheel cylinder

CAUTION:

- Never reuse the cups and boots.

- (1) Ensure that the inner surface of the wheel cylinder exhibits no rust and scratches.

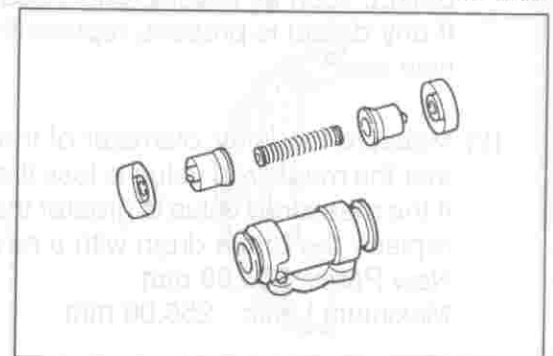
If any rust or scratch is present, replace the wheel cylinder.

- (2) Ensure that no rust or scratch is present at the piston-to-cylinder contact surface and cup-to-cylinder contact surface. Also, ensure that the brake shoe contact surface exhibits no abnormal wear.

If any rust or scratch is present, replace the piston.

- (3) Ensure that the compression spring exhibits no damage, such as flattened condition.

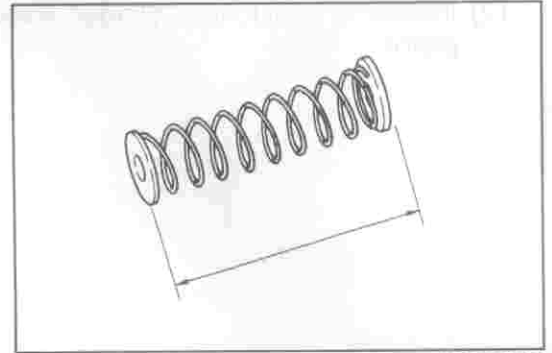
If any damage is present, replace the compression spring.



WRE91-BR288

- (4) Ensure that the free length of the compression spring is within standard value.

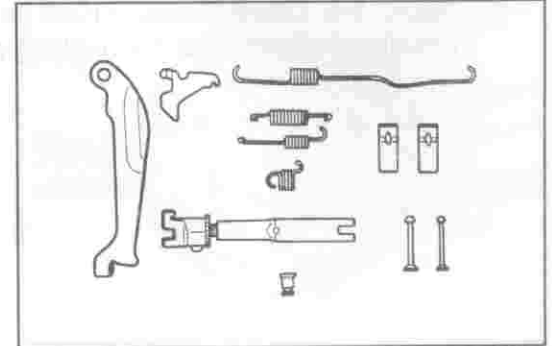
Standard: 57 ± 1.5 mm



WRE91-BR289

5. Check of related parts

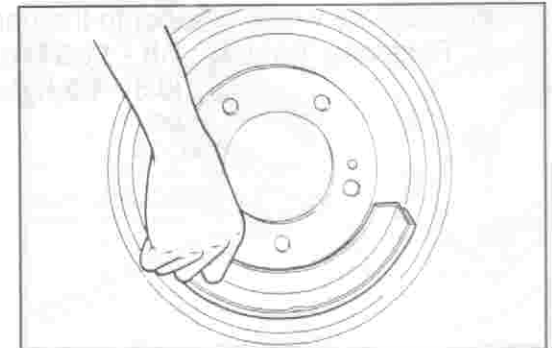
- (1) Ensure that the tension springs exhibit no damage, such as wear and flattened condition.
 - (2) Ensure that the parking brake strut exhibits no wear and rust. Also, ensure that the connecting section of parking brake strut turns smoothly.
 - (3) Ensure that each of the levers, pins and so forth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



WRE91-BR290

6. 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. If the brake linings show a poor contact, correct the brake linings, using a shoe grinder.



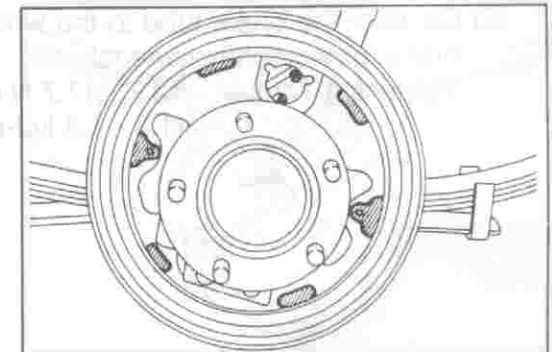
WRE91-BR291

ASSEMBLY

CAUTION:

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

1. Clean the backing plate.



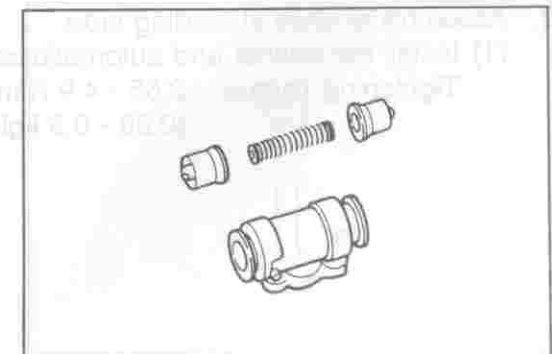
WRE91-BR292

2. Installation of wheel cylinder

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

CAUTION:

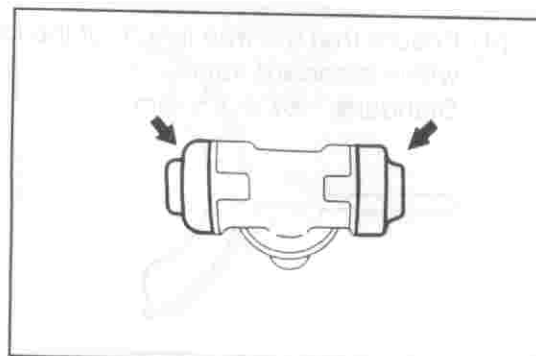
- Make sure that the cup is installed in the correct direction. The cup should be assembled so that its protruding surface may face toward the piston.



WRE91-BR293

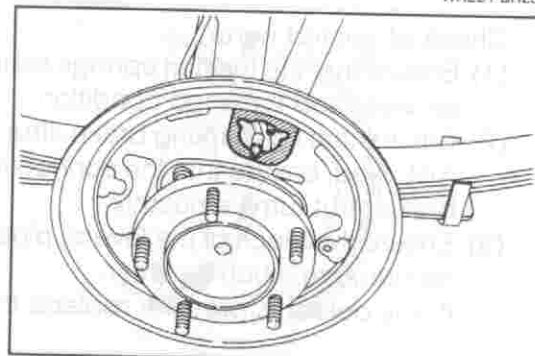
BRAKE

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



WRE91-BR294

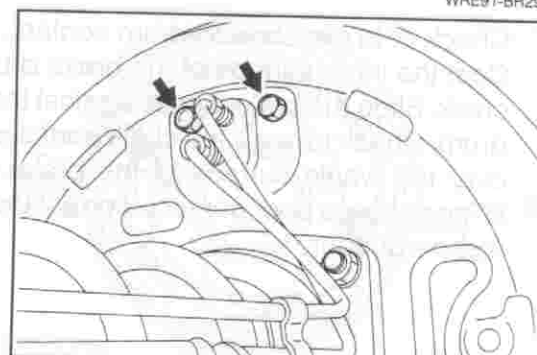
- (3) Apply the Three Bond® 1105B to the wheel cylinder installation surface of the backing plate.



WRE91-BR295

- (4) Install the wheel cylinder to the backing plate.

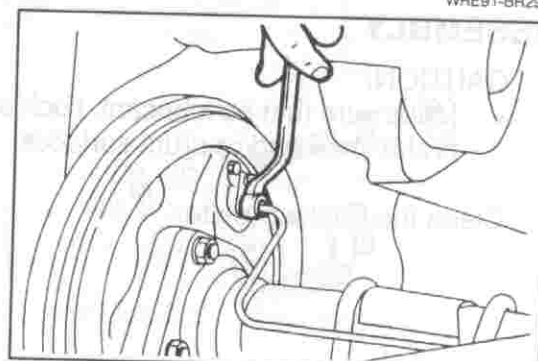
Tightening Torque: 7.8 - 11.8 N·m
(0.8 - 1.2 kgf-m, 5.8 - 8.7 ft-lb)



WRE91-BR296

- (5) Connect the brake tube to the wheel cylinder, using a brake tube union nut wrench.

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

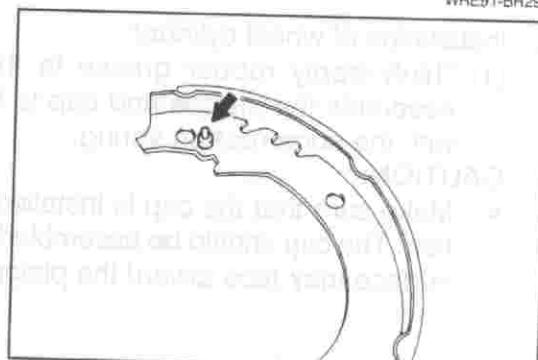


WRE91-BR297

3. Assembly of shoe at leading side

- (1) Install the washer and automatic adjusting lever pin.

Tightening Torque: 2.55 - 4.9 N·m
(0.26 - 0.5 kgf-m, 1.88 - 3.62 ft-lb)

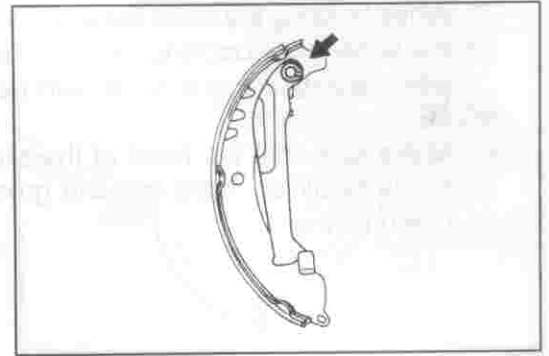


WRE91-BR298

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

NOTE:

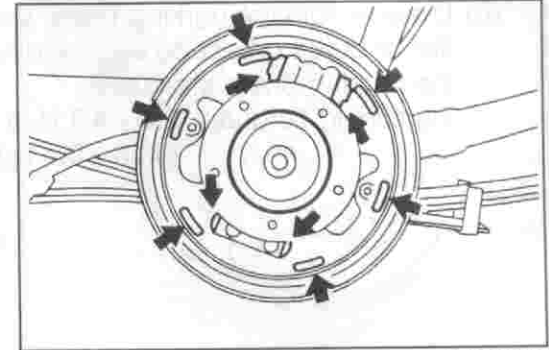
- NEVER reuse the "C" washer.



WRE91-BR299

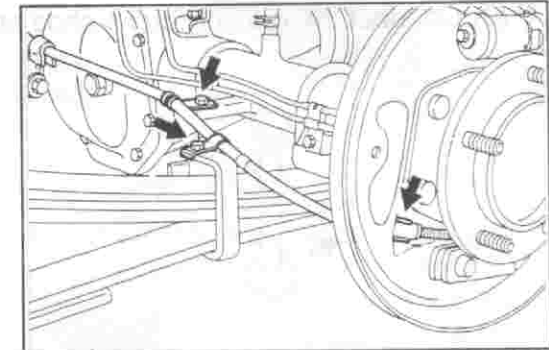
4. Assembly of brake shoe at leading side

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



WRE91-BR300

- (3) Connect the parking brake cable to the backing plate.
- (4) Install the cable clamp.

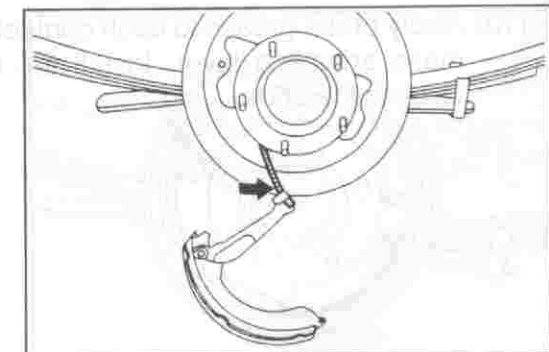


WRE91-BR301

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

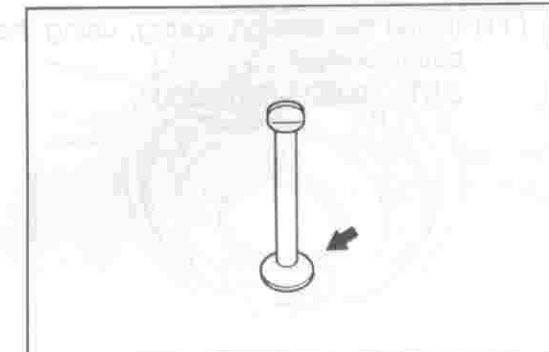
NOTE:

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



WRE91-BR302

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



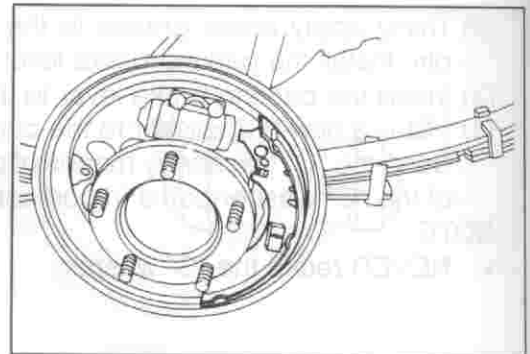
WRE91-BR303

BRAKE

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

NOTE:

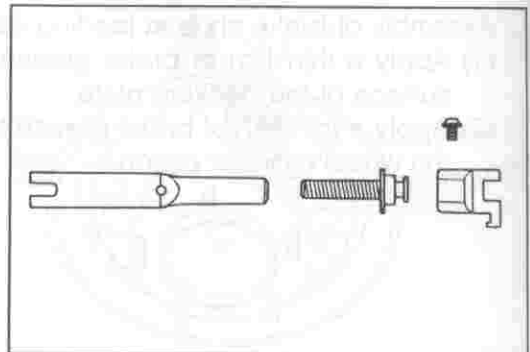
- Make sure that the head of the shoe hold down spring pin is positively fitted into the groove of the shoe hold down spring.



WRE91-BR304

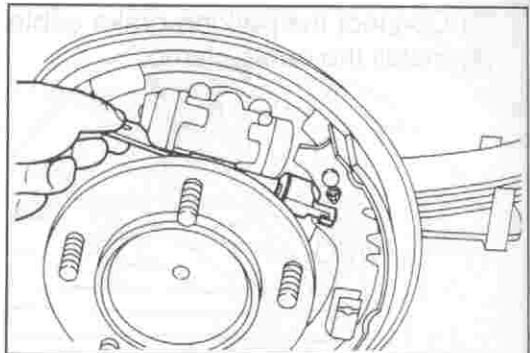
- (8) Disassemble the parking brake shoe strut. Apply a thin film of brake grease to each sliding section. Assemble the parking brake shoe strut.

Tightening Torque: 2.6 - 3.9 N·m
(0.26 - 0.4 kgf-m, 1.88 - 2.9 ft-lb)



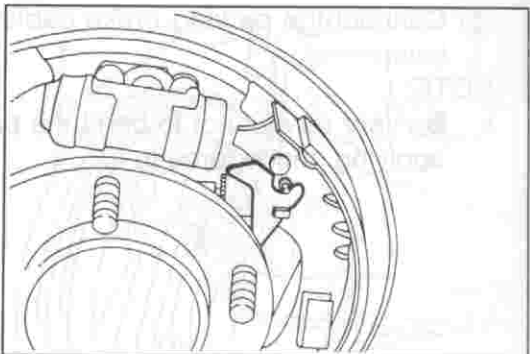
WRE91-BR305

- (9) Connect the parking brake shoe strut to the shoe.



WRE91-BR306

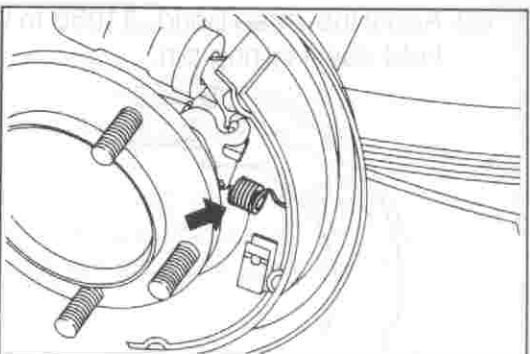
- (10) Apply brake grease to each contact surface of the automatic adjusting lever. Install the automatic adjusting lever to the shoe.



WRE91-BR307

- (11) Install the tension spring, using the following SST or a suitable lever.

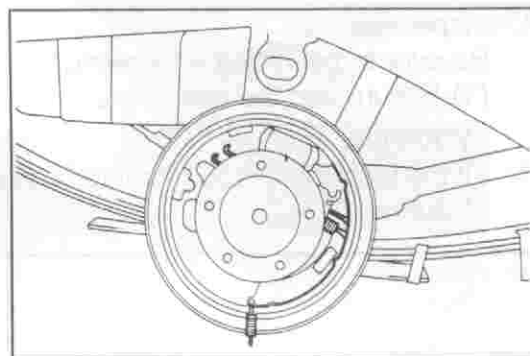
SST: 09921-0001-000



WRE91-BR308

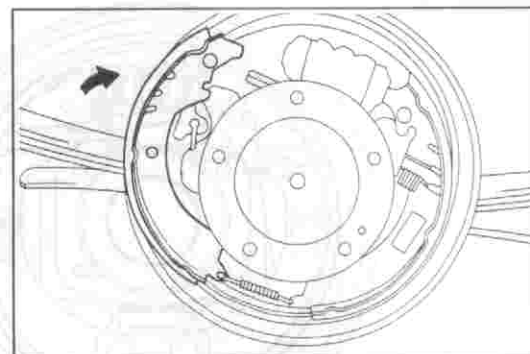
5. Installation of shoe at trailing side

- (1) Install the tension spring to the shoe at the leading side.
- (2) Install the shoe at the trailing side to the tension spring.



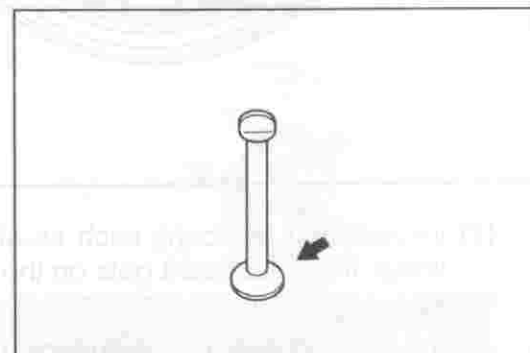
WRE91-BR309

- (3) Lift the shoe at the trailing side over the backing plate.



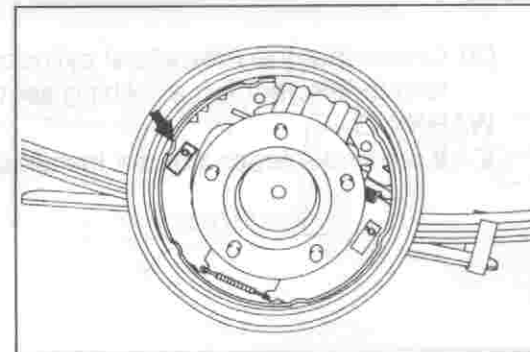
WRE91-BR310

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



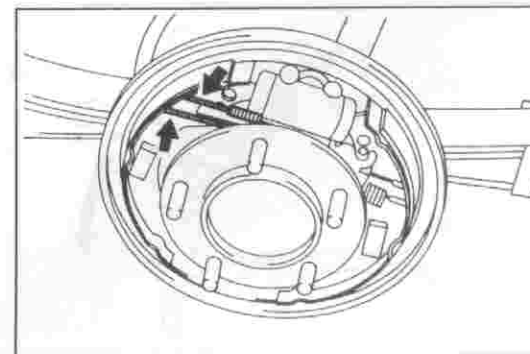
WRE91-BR311

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



WRE91-BR312

- (6) Install the tension springs.



WRE91-BR313

BRAKE

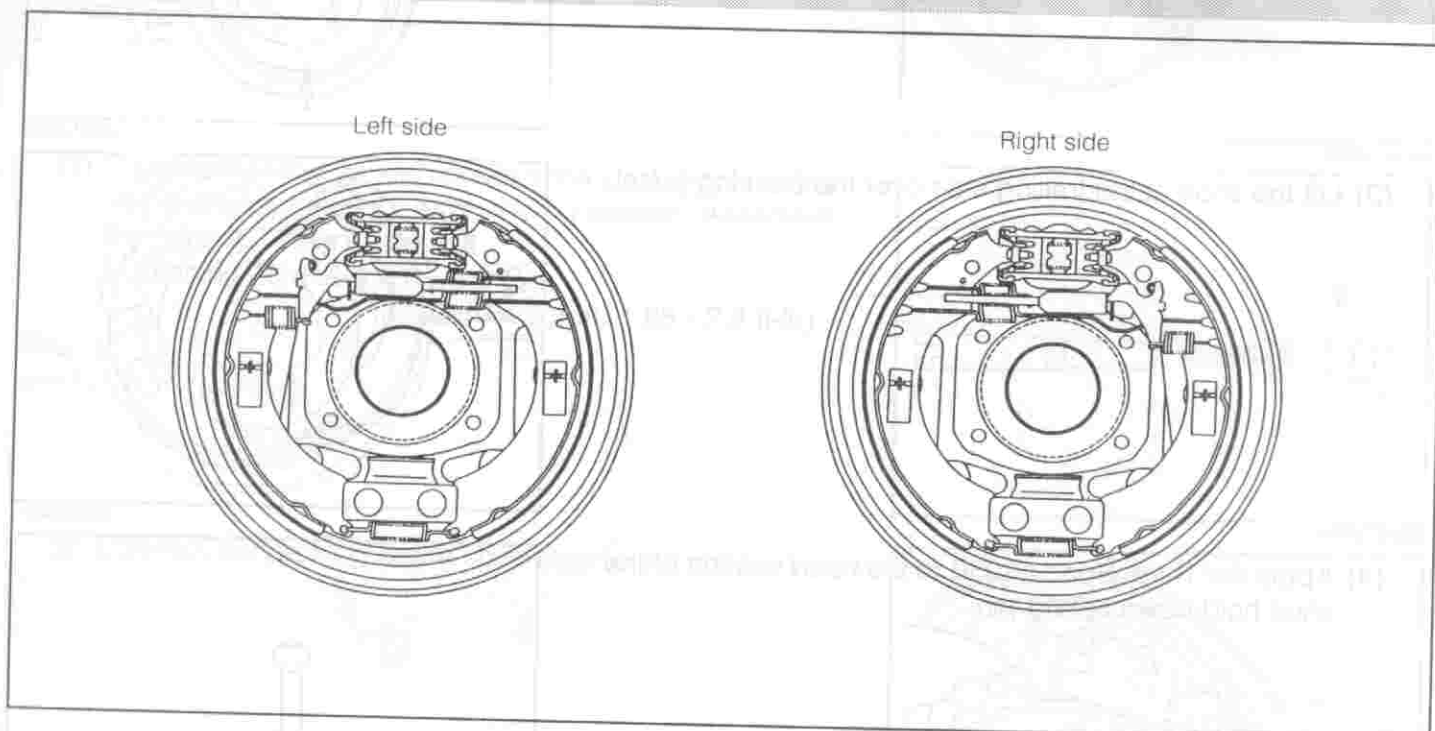
6. Inspection

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

- (1) Ensure that the rear brake is mounted correctly as indicated in the figure below.

WARNING:

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



WRE91-BR314

- (2) Inspect that 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 inadequate 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 leakage.

WARNING:

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

WRE91-BR315

7. Install the brake drum.

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

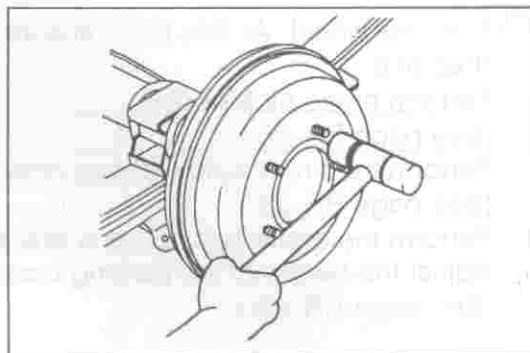
WARNING:

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 inadequate braking.

NOTE:

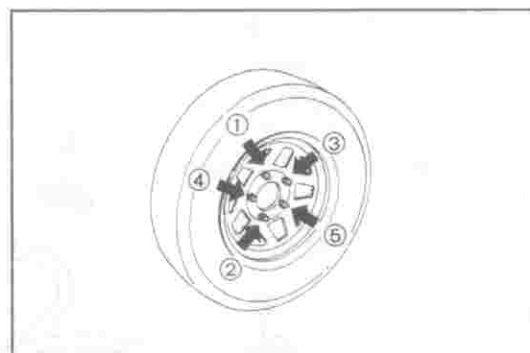
- When assembling the axle shaft, never apply impact strong enough to produce traces inside the bearing. Moreover, be very careful not to damage the oil seal provided at the housing end.
- If paint was removed during the installation, be sure to apply chassis black to such areas to prevent rust formation.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



WRE91-BR316

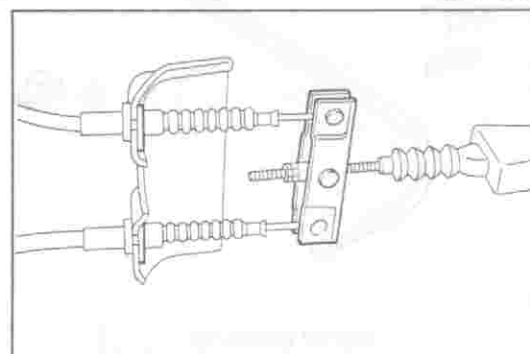
8. Install the wheel. Tighten the attaching bolts to the specified torque evenly over two or three stages in the sequence indicated in the right figure.

Tightening Torque: 88.3 - 118 N·m
(9.0 - 12 kgf-m, 65.1 - 87.0 ft-lb)



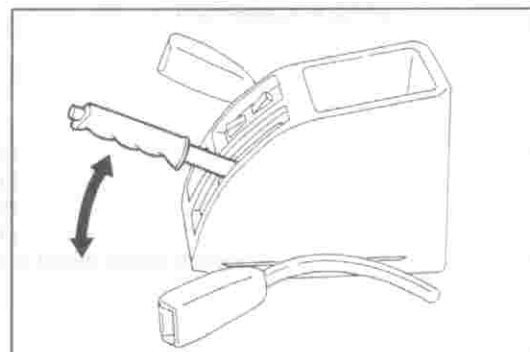
WRE91-BR317

9. Screw in the parking brake lever adjusting screw lock nut about halfway.



WRE91-BR318

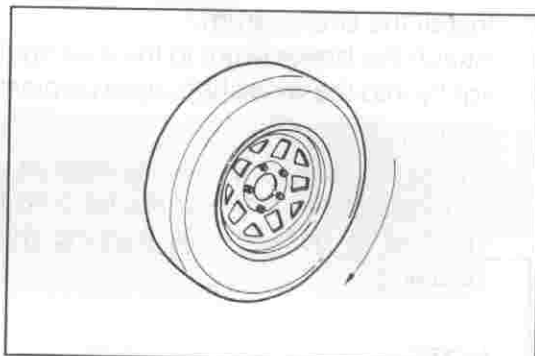
10. Repeat the pulling/returning operation of the parking brake lever, until no clicking noise is emitted from the brake drum.



WRE91-BR319

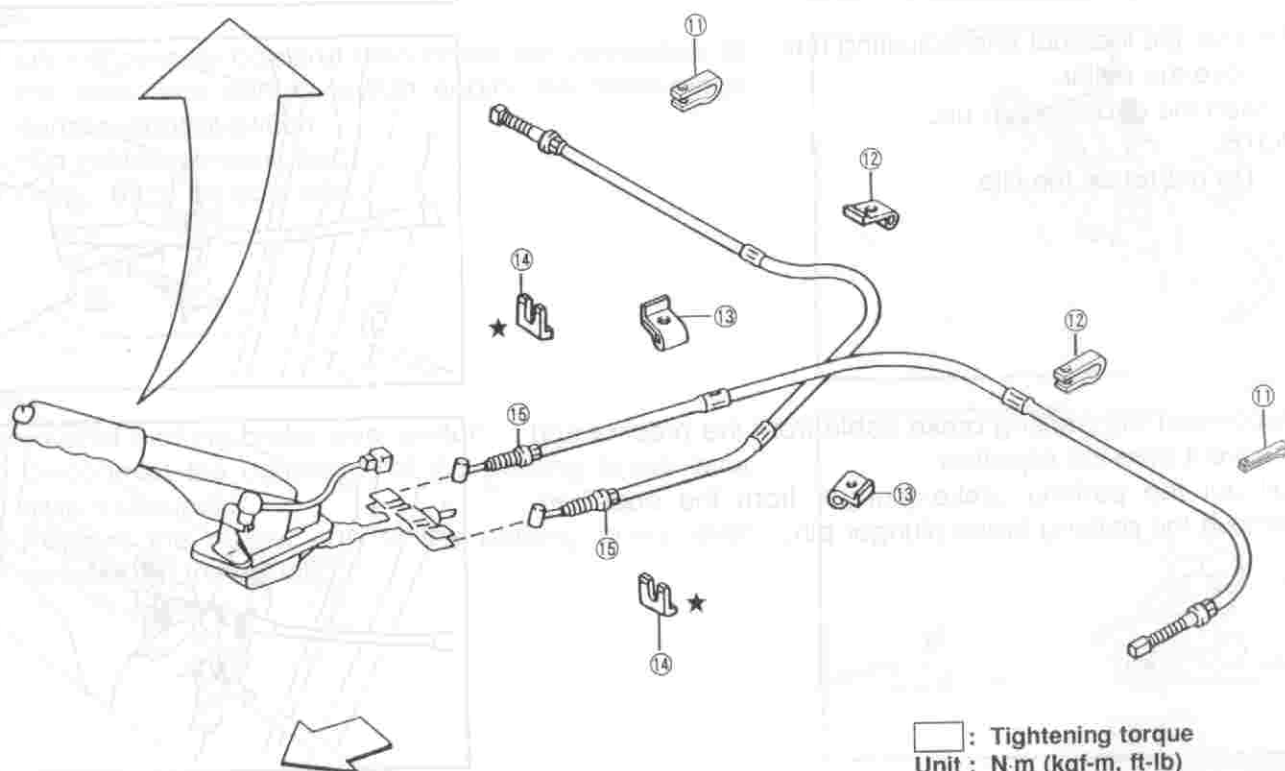
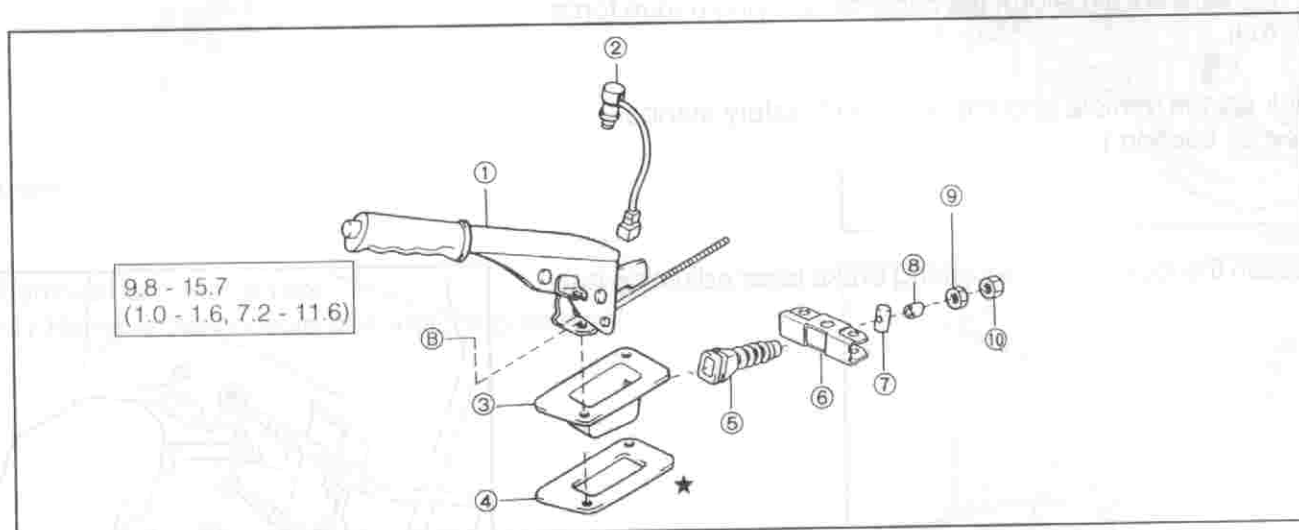
BRAKE

11. Turn the wheel. At this time, ensure that the brake is not dragging.
12. Perform brake air bleeding.
(See page BR-25.)
13. Perform the brake fluid leakage check.
(See page BR-23.)
14. Perform the brake test, using a brake tester.
15. Adjust the height of the parking brake lever.
(See page BR-93.)



WRE91-BR320

PARKING BRAKE COMPONENTS



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

- ① Parking brake control handle assembly
- ② Parking brake switch
- ③ Parking brake hole 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 Clamp
- ⑫ Clamp
- ⑬ Clamp
- ⑭ Clamp
- ⑮ Parking brake cable assembly

BRAKE

REMOVAL

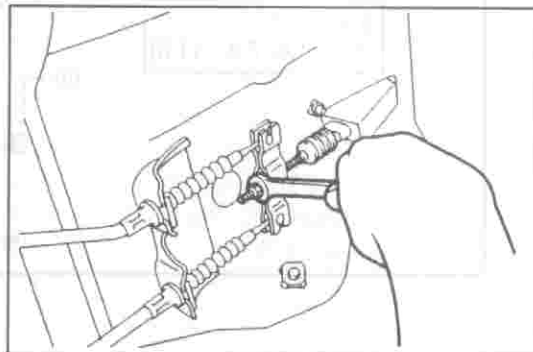
CAUTION:

- Be very careful not to damage the cable.
- Be sure not to deform the cable by applying undue force to it.

1. Jack up the vehicle and support it with safety stands.
(See GI section.)

WRE91-BR322

2. Loosen the lock nut of the parking brake lever adjusting nut.

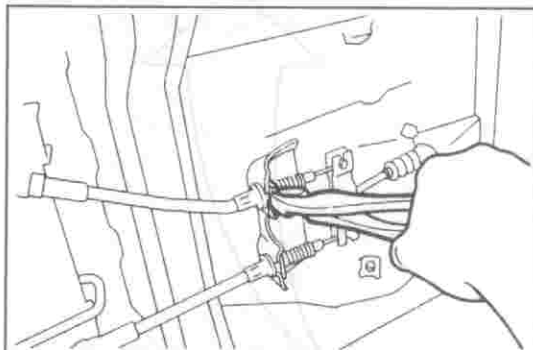


WRE91-BR323

3. Remove the lock nut and adjusting nut.
4. Remove the collar.
5. Detach the cable clamp clip.

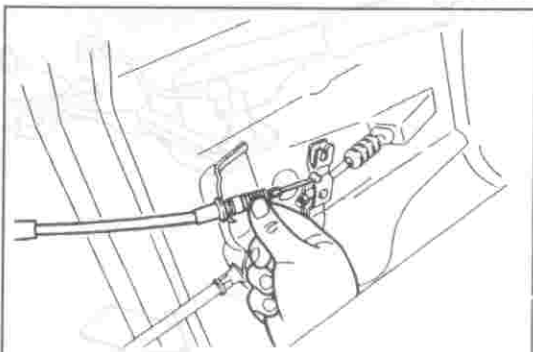
NOTE:

- Do not reuse the clip.



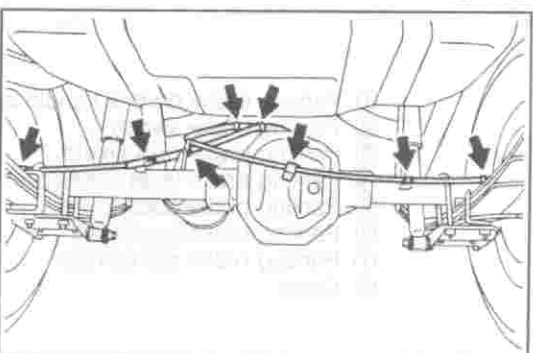
WRE91-BR324

6. Disconnect the parking brake cable from the bracket and remove it from the equalizer.
7. Pull out the parking brake plunger from the equalizer. Remove the parking brake plunger pin.



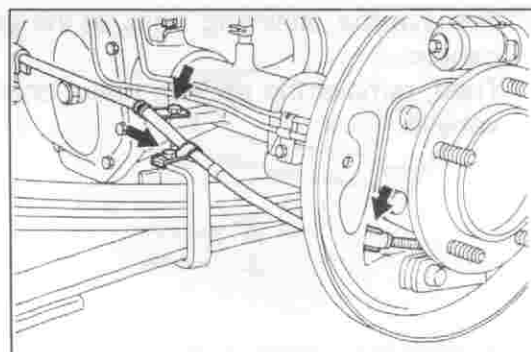
WRE91-BR325

8. Remove the parking brake cable clamps and bolts.



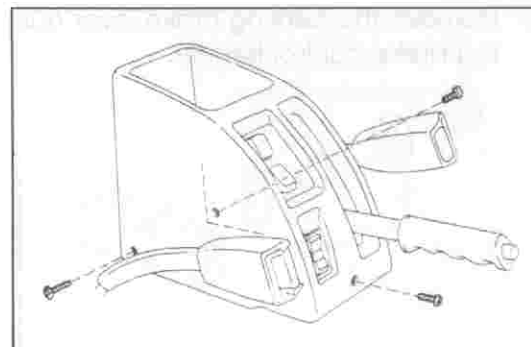
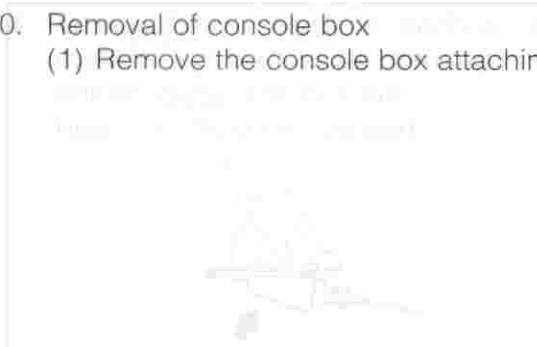
WRE91-BR326

9. Disconnect the parking cable from the brake backing plate.
(See the Rear Brake section.)



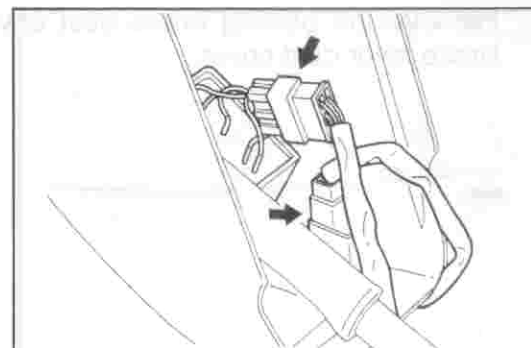
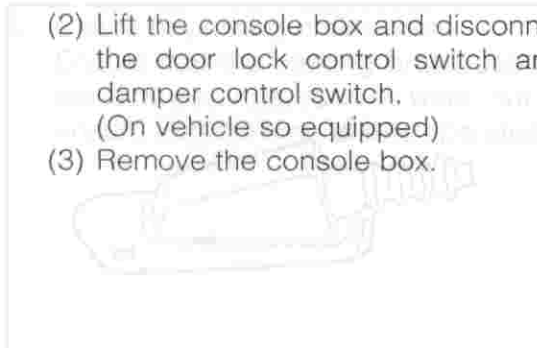
WRE91-BR327

10. Removal of console box
(1) Remove the console box attaching screws.



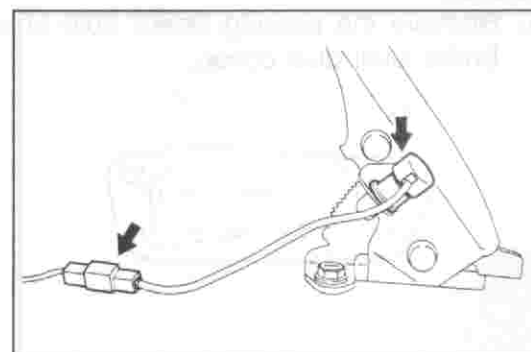
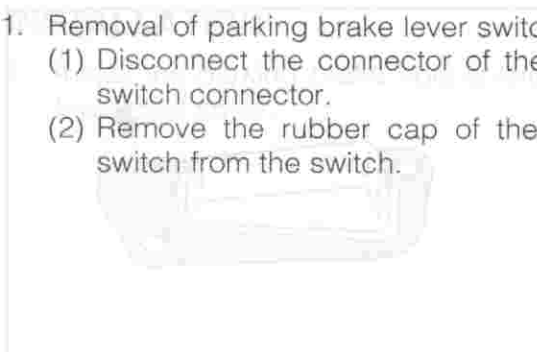
WRE91-BR328

- (2) Lift the console box and disconnect the connectors of the door lock control switch and/or the three-stage damper control switch.
(On vehicle so equipped)
(3) Remove the console box.



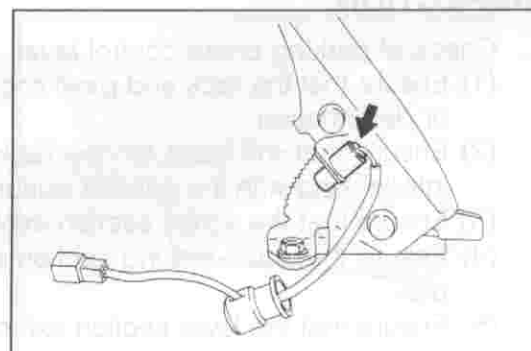
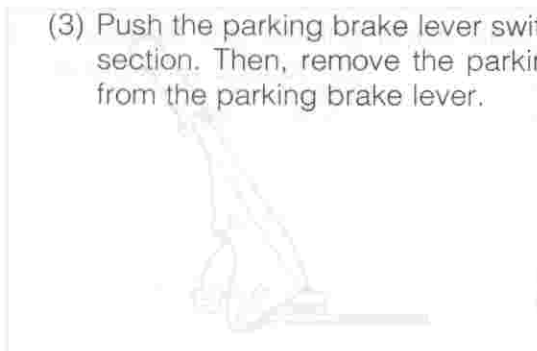
WRE91-BR329

11. Removal of parking brake lever switch
(1) Disconnect the connector of the parking brake lever switch connector.
(2) Remove the rubber cap of the parking brake lever switch from the switch.



WRE91-BR330

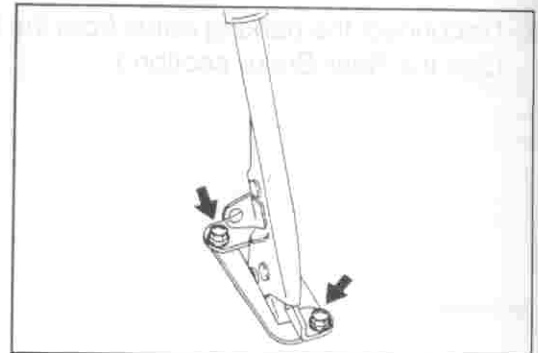
- (3) Push the parking brake lever switch to release the lock section. Then, remove the parking brake lever switch from the parking brake lever.



WRE91-BR331

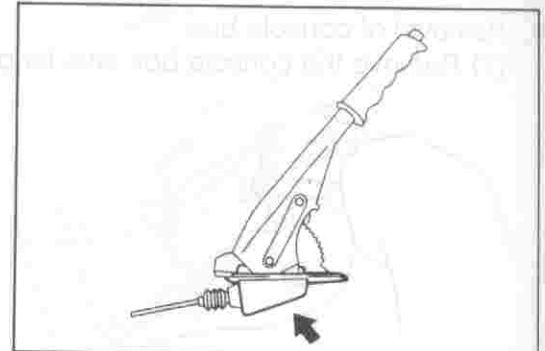
BRAKE

12. Remove the attaching bolts of the parking brake control handle.
Then, remove the parking brake control handle from the vehicle.



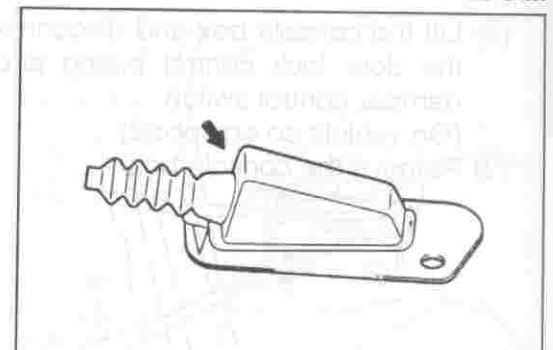
WRE91-BR332

13. Remove the parking brake lever dust cover from the parking brake control handle.



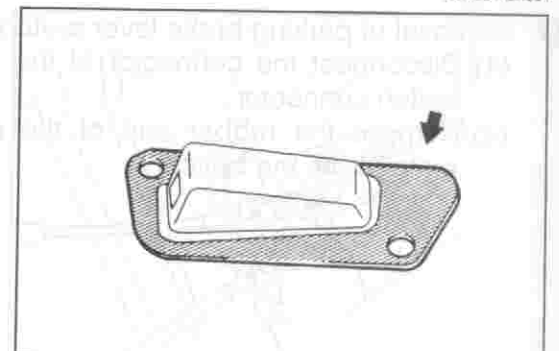
WRE91-BR333

14. Remove the parking brake dust cover from the parking brake lever dust cover.



WRE91-BR334

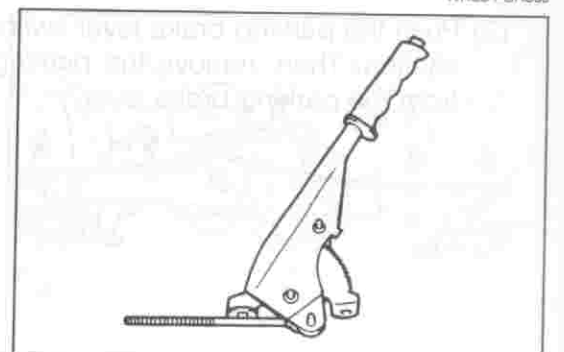
15. Remove the parking brake hole shield from the parking brake lever dust cover.



WRE91-BR335

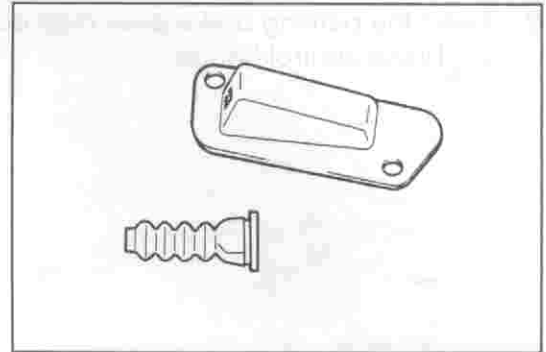
INSPECTION

1. Check of parking brake control lever
 - (1) Ensure that the rack and pawl sections exhibit no wear or deformation.
 - (2) Ensure that the pawl for the rack operates smoothly, interlocking with the release button.
 - (3) Ensure that the screw section exhibits no damage.
 - (4) Ensure that each staking section exhibits no excessive play.
 - (5) Ensure that the lever section exhibits no damage, such as deformation.



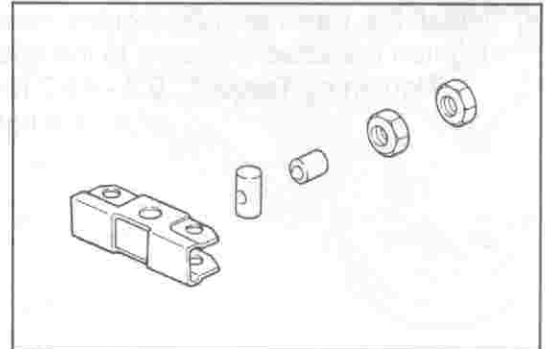
WRE91-BR336

2. Inspection of parking brake lever dust cover
Ensure that the parking brake lever dust cover exhibits no damage, such as cracks.
3. Inspection of parking brake dust cover
Ensure that the parking brake dust cover exhibits no damage, such as wear and cracks.



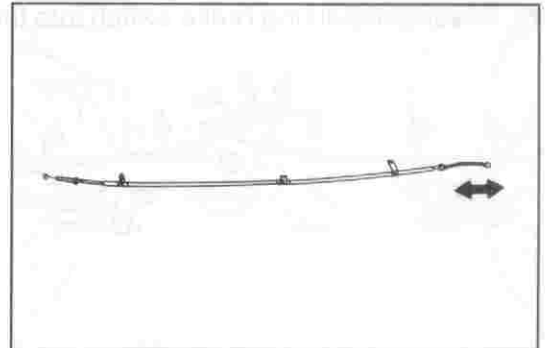
WRE91-BR337

4. Ensure that no damage, such as wear, is present at the parking brake equalizer, parking brake plunger pin, collar, adjusting nut and lock nut.
Replace any defective part.



WRE91-BR338

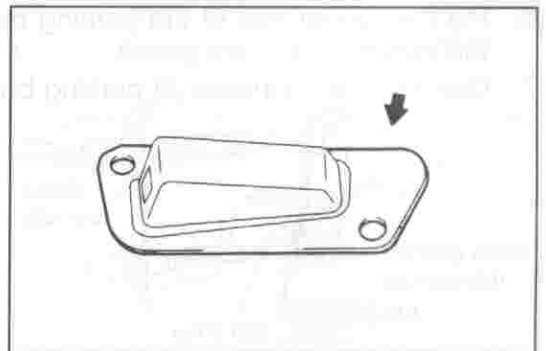
5. Check of parking brake cable
Ensure that the parking brake cable and rubber boot exhibits no damage, such as wear, cut and deformation. Also, ensure that the inner cable operates smoothly.



WRE91-BR339

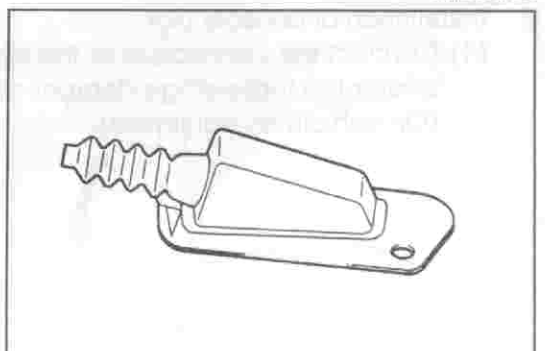
INSTALLATION

1. Install the parking brake hole shield to the parking brake lever dust cover.



WRE91-BR340

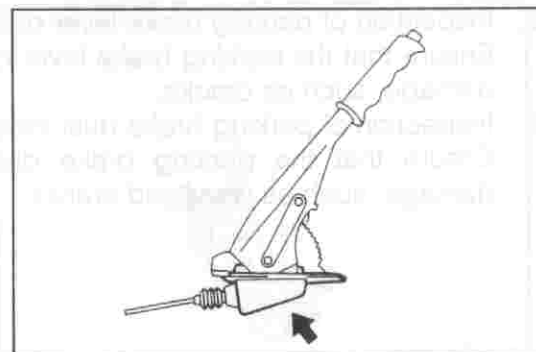
2. Assemble the parking brake dust cover to the parking brake lever dust cover.



WRE91-BR341

BRAKE

3. Insert the parking brake lever dust cover through the parking brake control handle.

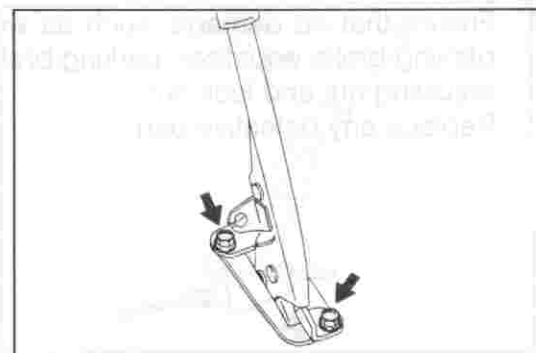


WRE91-BR342

4. Install the parking brake control handle to the floor panel. Tighten the attaching bolts to the specified torque.

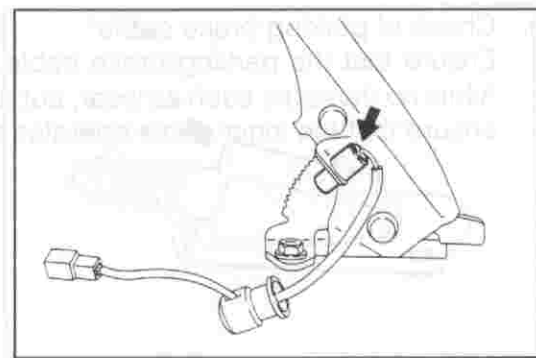
Tightening Torque: 9.8 - 15.7 N·m

(1.0 - 1.6 kgf-m, 7.2 - 11.6 ft-lb)



WRE91-BR343

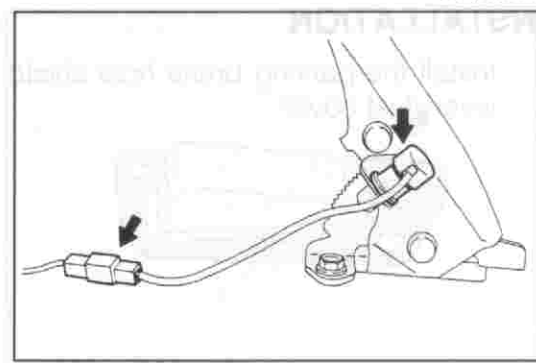
5. Insert the parking brake switch into the parking brake lever.



WRE91-BR344

6. Put the rubber cap of the parking brake lever switch over the switch.

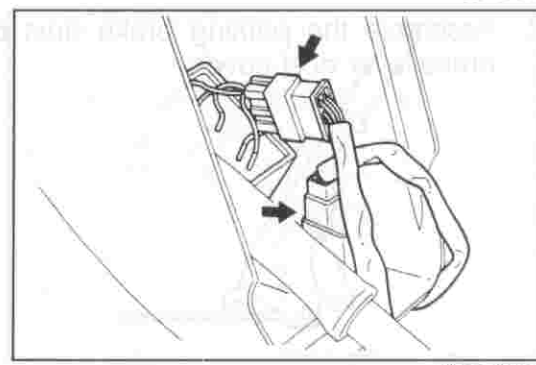
7. Connect the connector of parking brake lever switch.



WRE91-BR345

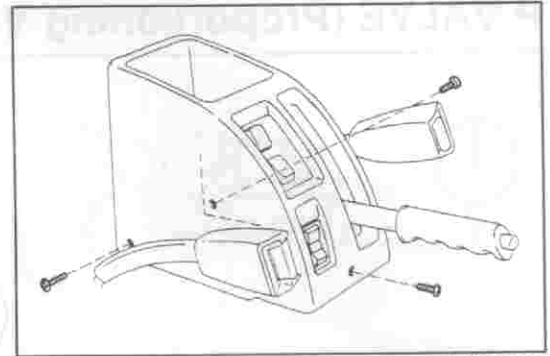
8. Installation of console box

- (1) Connect the connectors of the door lock control switch and/or the three-stage damper control switch.
(On vehicle so equipped)



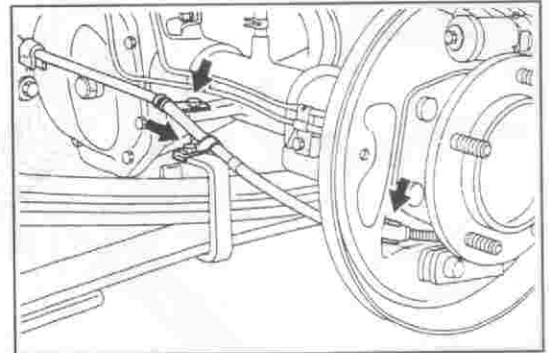
WRE91-BR346

- (2) Install the console box and tighten the attaching screws.



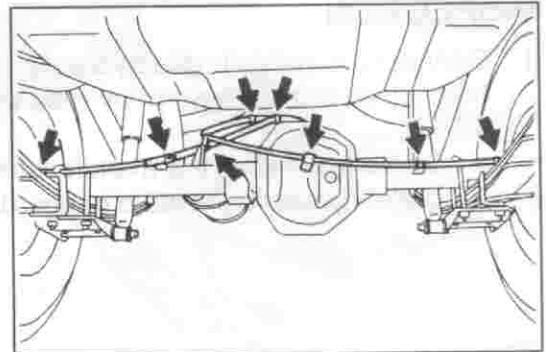
WRE91-BR347

9. Connect the parking brake cable to the brake backing plate.
(See the Rear Brake section.)
10. Assemble the rear brake.
(See the Rear Brake section.)



WRE91-BR348

11. Secure the parking brake cable clamps by installing the attaching bolts.



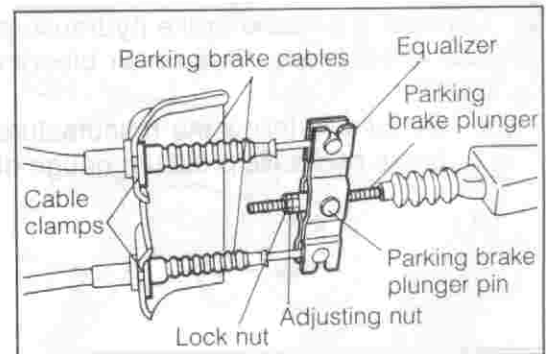
WRE91-BR349

12. Connect the parking brake cable to the equalizer.
13. Install the parking brake plunger pin to the equalizer. Pass the parking brake plunger in place.
14. Install the adjusting nut and lock nut to the plunger.
15. Insert the parking brake cable to the bracket. Clamp the parking brake cable with new cable clamp clips.

NOTE:

- Never reuse the cable clamp clips.

16. Remove the slack of the parking brake cable by pulling the parking brake lever with a force of around 30 - 40 kgf.



WRE91-BR350

17. Adjust the adjusting nut so that the working travel of the parking brake lever may become the specified value when the lever is pulled with a force of 25 kgf.

Specified Working Travel of Parking Lever:

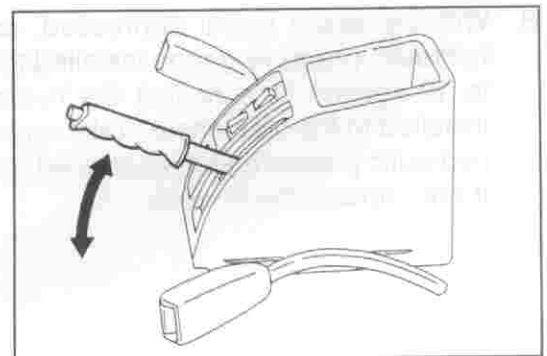
4 - 6 notches

(with an operating force of 25 kgf applied)

18. While preventing the adjusting nut from turning, tighten the lock nut to the specified torque.

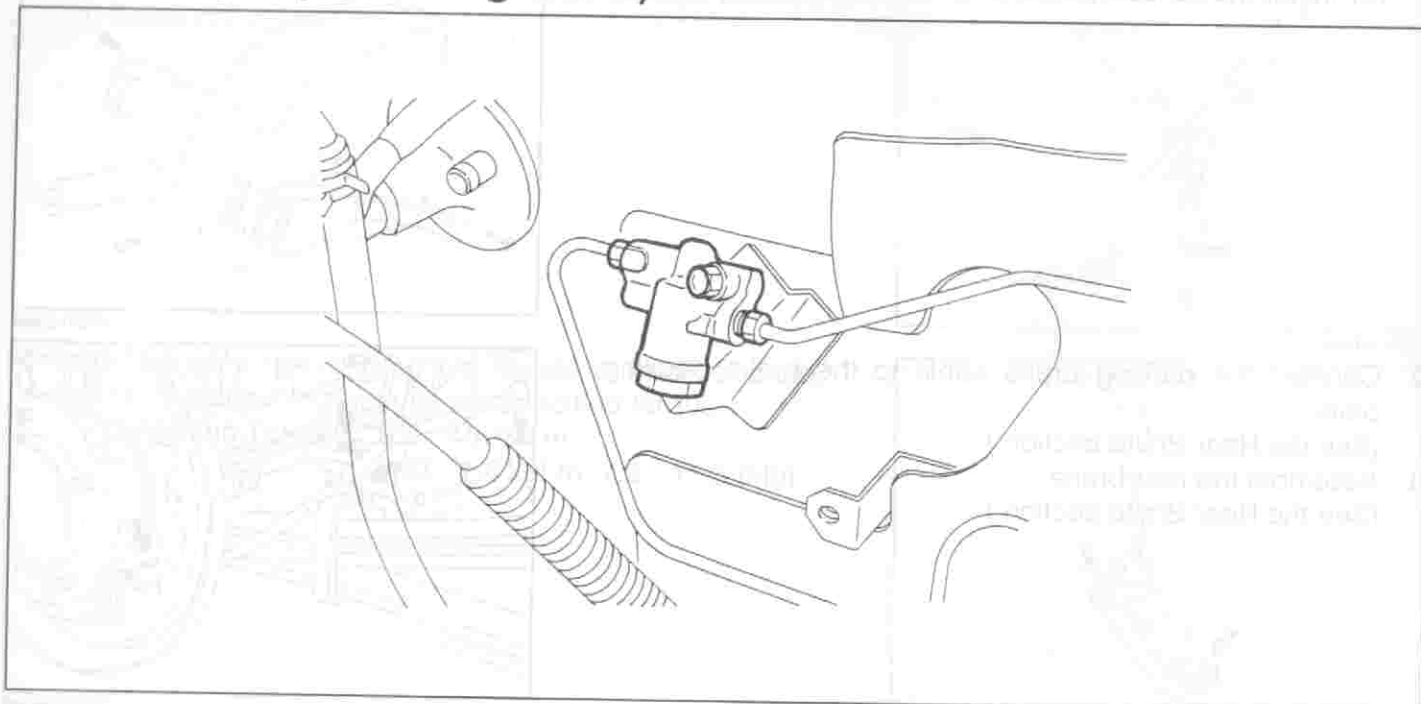
Tightening Torque: 3.9 - 6.9 N·m

(0.4 - 0.7 kgf-m, 2.9 - 5.1 ft-lb)



WRE91-BR351

P VALVE (Proportioning Valve)

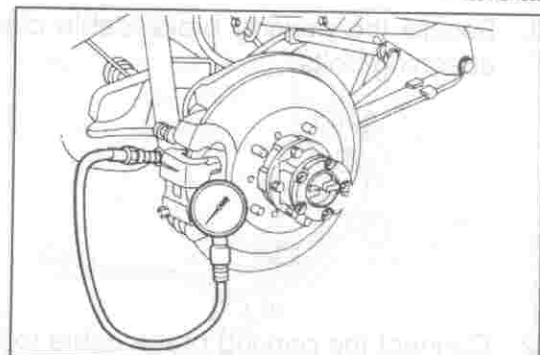


INSPECTION

1. Connect a suitable brake hydraulic pressure gauge to the front wheel brake. Perform air bleeding.

NOTE:

- Be sure to follow the manufacturer's instructions of the brake hydraulic pressure gauge during the connection.

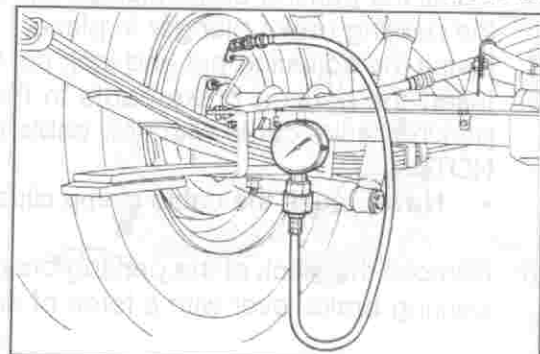


WRE91-BR352

2. Connect a suitable brake hydraulic pressure gauge to the rear wheel brake. Perform air bleeding.

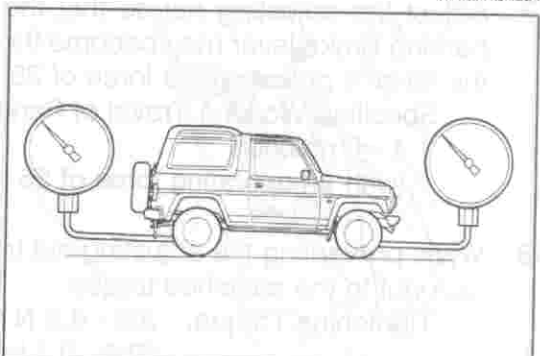
NOTE:

- Be sure to follow the manufacturer's instructions of the brake hydraulic pressure gauge during the connection.



WRE91-BR353

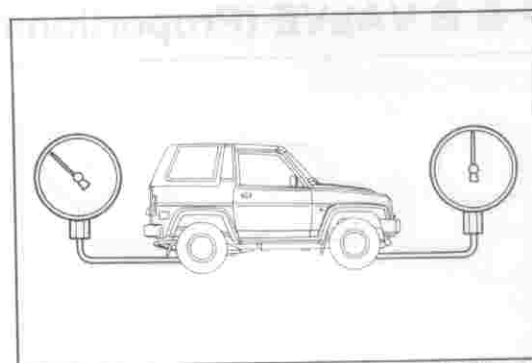
3. With the brake pedal depressed, set the reading of the hydraulic pressure gauge installed to the front wheel brake to 10 kgf/cm². Ensure that the hydraulic pressure gauge installed to the rear wheel brake registers almost the same hydraulic pressure as that applied to the front wheel. If not, replace the P valve.



WRE91-BR354

WRE91-BR355

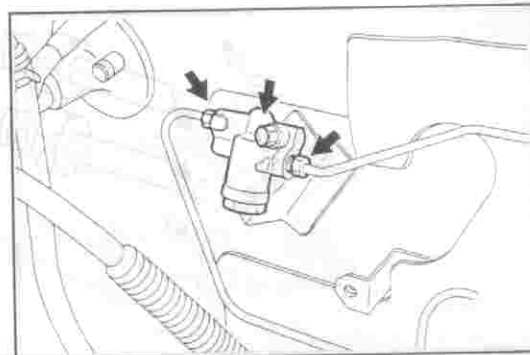
4. Apply a hydraulic pressure of 30 kg/cm² or more to the front wheel brake by depressing the brake pedal. Ensure that the hydraulic pressure applied to the rear wheel brake is lower than that applied to the front wheel.
If not, replace the P valve.
5. Remove the brake hydraulic pressure gauge. Perform air bleeding.



WRE91-BR356

REMOVAL

1. Drain the brake fluid from the front and rear brake bleeder plugs.
2. Remove the brake pipe from the P valve, using a brake tube union nut wrench.
3. Remove the P valve by removing the P valve attaching bolt.



WRE91-BR357

INSTALLATION

1. Install the P valve and tighten the attaching bolt.

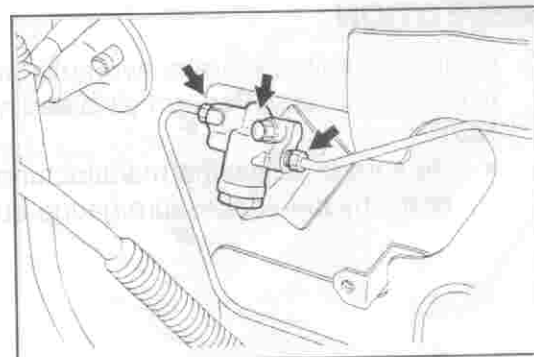
Tightening Torque: 5.9 - 9.8 N·m
(0.6 - 1.0 kgf-m, 4.3 - 7.2 ft-lb)

NOTE:

- On air conditioner-equipped vehicles, be sure to tighten the drain hose clamp together with the valve.

2. Connect the brake pipes to the P valve.

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

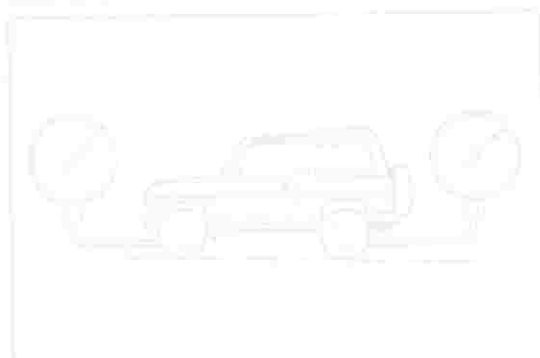


WRE91-BR358

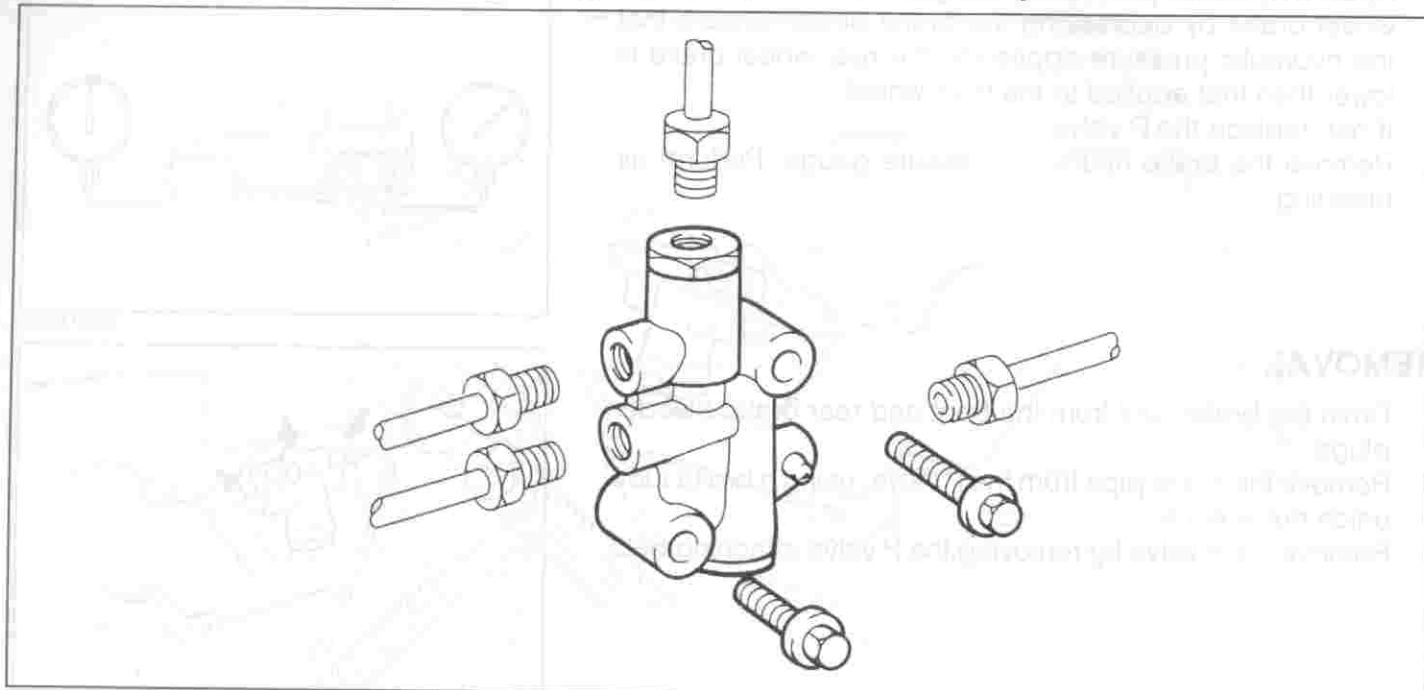
3. Fill brake fluid to the master cylinder. Perform air bleeding. (See page BR-25.)
4. Perform the brake fluid leakage test.
5. Perform the in-vehicle inspection.
6. Perform the brake test on a brake tester.



WRE91-BR359



P & B VALVE (Proportioning and By-PASS Valve)



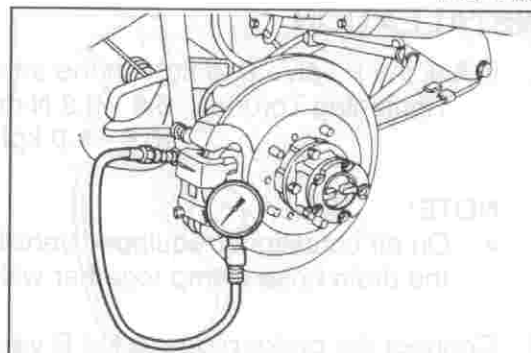
WRE91-BR360

INSPECTION

1. Connect a suitable brake hydraulic pressure gauge to the front wheel brake. Perform air bleeding.

NOTE:

- Be sure to follow the manufacturer's instructions of the brake hydraulic pressure gauge during the connection.

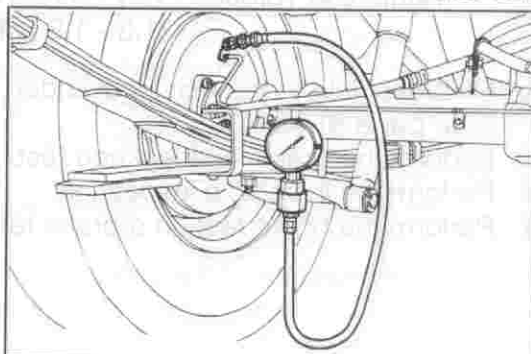


WRE91-BR361

2. Connect a suitable brake hydraulic pressure gauge to the rear wheel brake. Perform air bleeding.

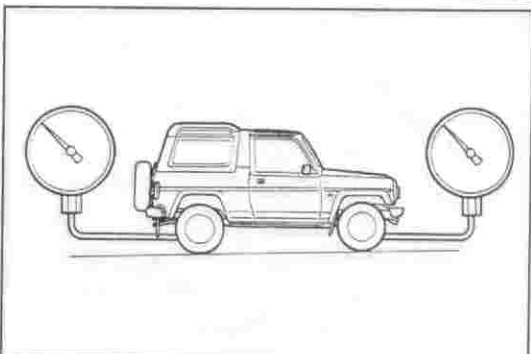
NOTE:

- Be sure to follow the manufacturer's instructions of the brake hydraulic pressure gauge during the connection.



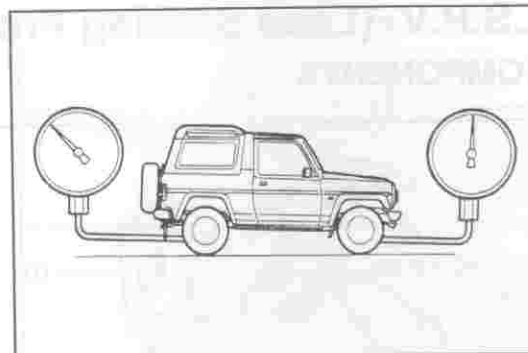
WRE91-BR362

3. With the brake pedal depressed, set the reading of the hydraulic pressure gauge installed to the front wheel brake to 10 kgf/cm². Ensure that the hydraulic pressure gauge installed to the rear wheel brake registers almost the same hydraulic pressure as that applied to the front wheel. If not, replace the P & B valve.



WRE91-BR363

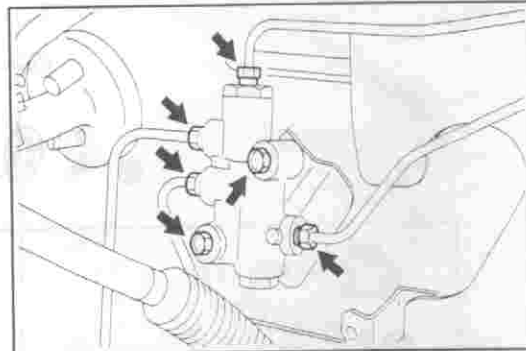
4. Apply a hydraulic pressure of 30 kg/cm² or more to the front wheel brake by depressing the brake pedal. Ensure that the hydraulic pressure applied to the rear wheel brake is lower than that applied to the front wheel. If not, replace the P & B valve.
5. Remove the brake hydraulic pressure gauge. Perform air bleeding.
(See page BR-25.)



WRE91-BR364

REMOVAL

1. Drain the brake fluid from the front and rear brake bleeder plugs.
2. Remove the brake pipe from the P & B valve, using a brake tube union nut wrench.
3. Remove the P & B valve by removing the P & B valve attaching bolts.



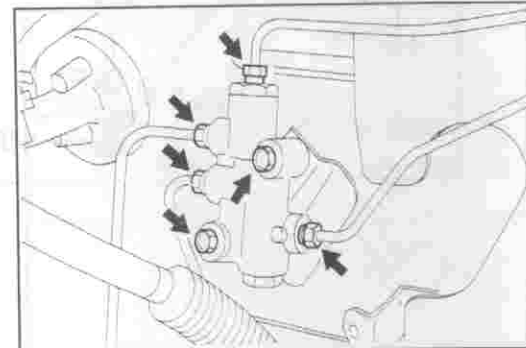
WRE91-BR365

INSTALLATION

1. Install the P & B valve and tighten the attaching bolts.
Tightening Torque: 5.9 - 9.8 N·m
(0.6 - 1.0 kgf-m, 4.3 - 7.2 ft-lb)

NOTE:

- On air conditioner-equipped vehicles, be sure to tighten the drain hose clamp together with the valve.



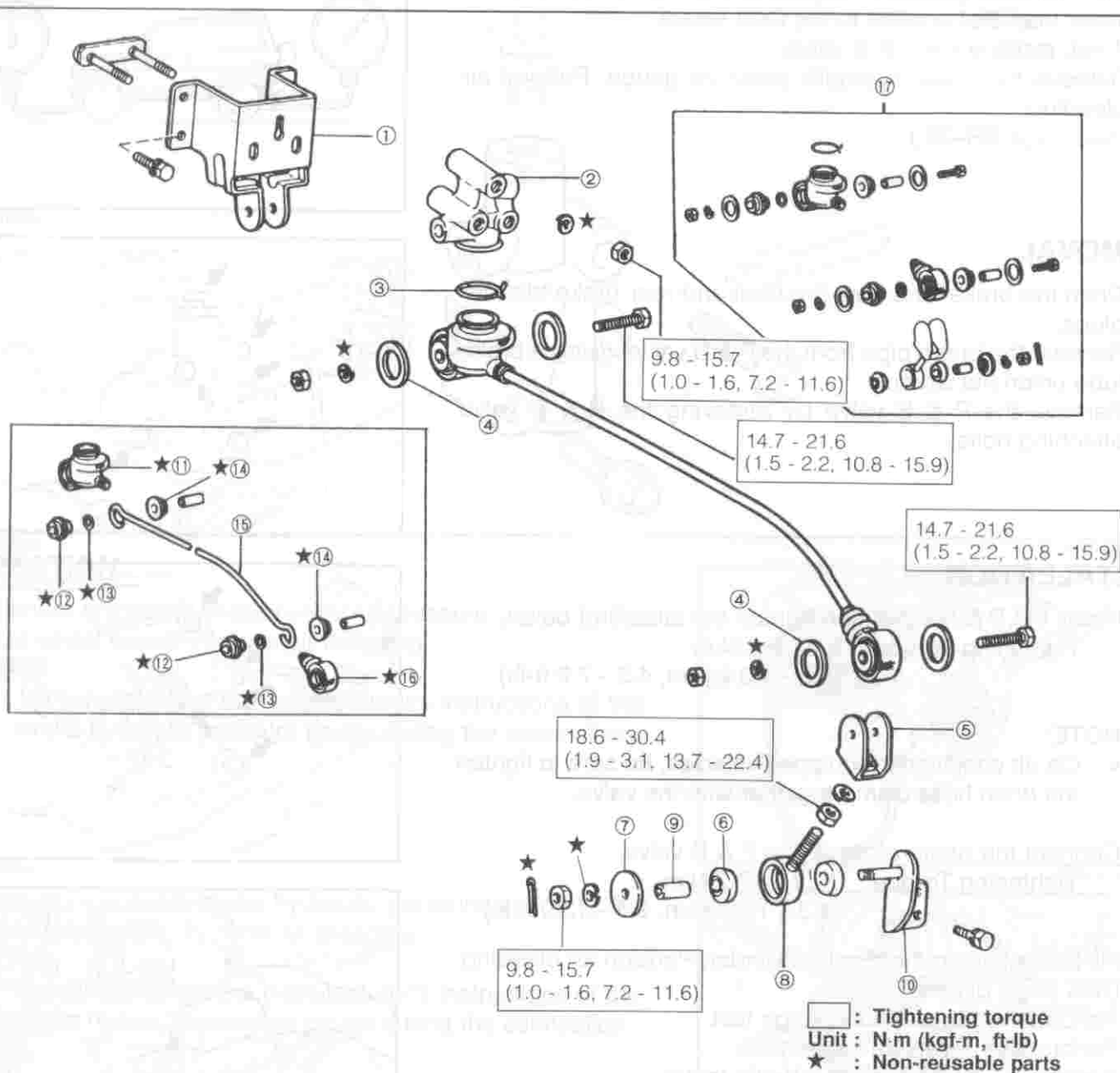
WRE91-BR366

2. Connect the brake pipes to the P & B valve.
Tightening Torque: 12.7 - 17.7 N·m
(1.3 - 1.8 kgf-m, 9.4 - 13.0 ft-lb)
3. Fill brake fluid to the master cylinder. Perform air bleeding.
(See page BR-25.)
4. Perform the brake fluid leakage test.
5. Perform the in-vehicle inspection.
6. Perform the brake test on a brake tester.



WRE91-BR367

L.S.P.V. (Load Sensing Proportioning Valve) COMPONENTS

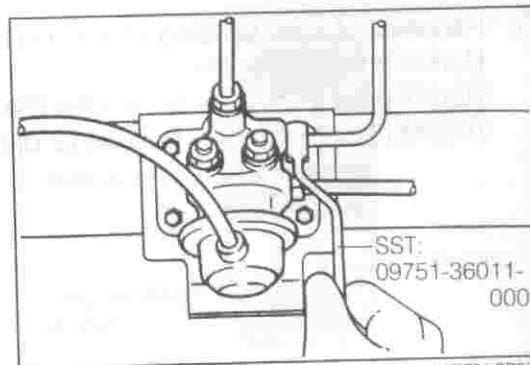


- ① Load sensing valve bracket
- ② Load sensing valve assembly
- ③ Clip
- ④ Plate washer
- ⑤ Load sensing spring shackle No. 1
- ⑥ Cushion retainer
- ⑦ Bush
- ⑧ Load sensing spring shackle No. 2
- ⑨ Collar
- ⑩ Load sensing shackle bracket No. 1

- ★⑪ Load sensing valve boot
- ★⑫ Load sensing spring bush No. 1
- ★⑬ Plate washer
- ★⑭ Load sensing spring bush No. 2
- ⑮ Load sensing spring
- ★⑯ Load sensing spring boot
- ⑰ Bush & boot kit

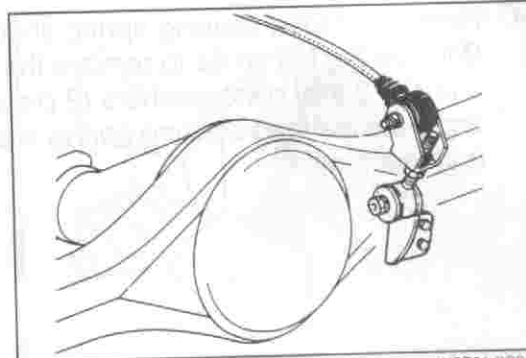
REMOVAL

1. Remove the brake tube.
SST: 09751-36011-000



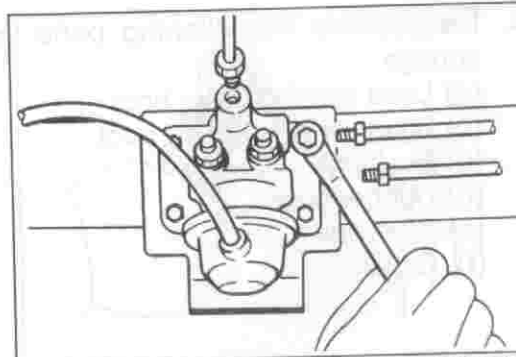
WRE91-BR369

2. Disconnect the shackle No. 2 from the bracket.



WRE91-BR370

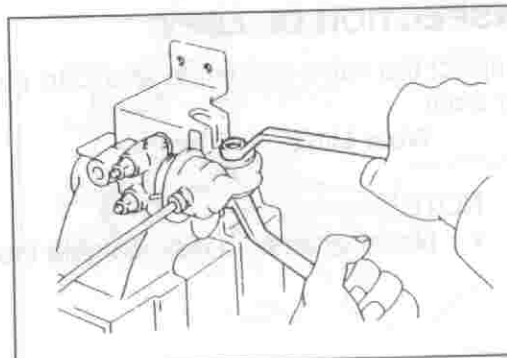
3. Removal of LSPV assembly
Remove the valve bracket attaching bolts.
Remove the LSPV assembly.



WRE91-BR371

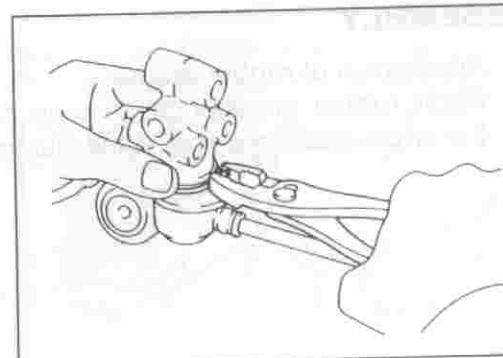
DISASSEMBLY

1. Removal of load valve bracket
Remove the three nuts so as to remove the load sensing valve bracket.



WRE91-BR372

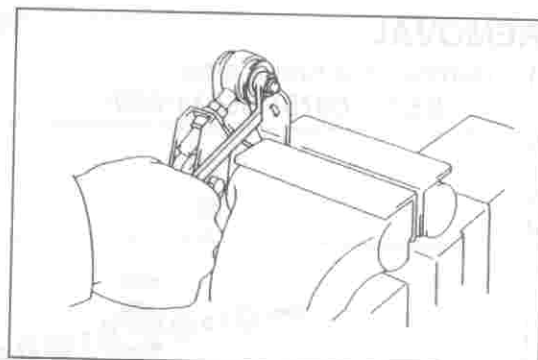
2. Removal of LSPV
Detach the clip to remove the LSPV



WRE91-BR373

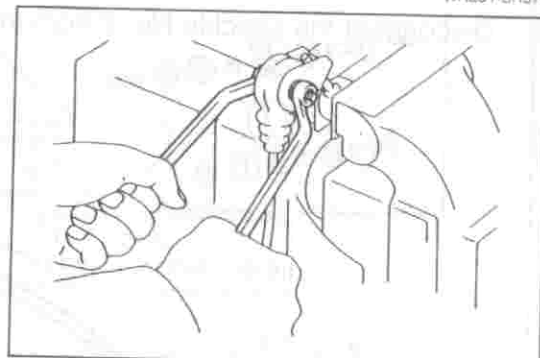
BRAKE

3. Removal of load sensing shackle bracket No.1
Remove the cotter pin.
Remove the nut so as to remove the load sensing shackle bracket No.1, retainer, bushes (2 pieces) and collar.



WRE91-BR374

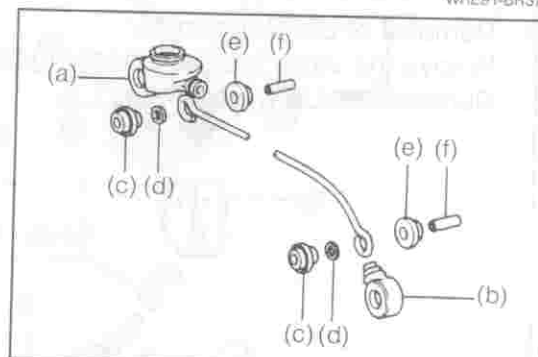
4. Removal of load sensing spring shackles No.1 and No.2
Remove the nut so as to remove the spring shackles No.1 and No.2 and plate washers (2 pieces).
Separate the load sensing spring shackles No.1 and No.2 from each other.



WRE91-BR375

5. Disassemble the following parts from the load sensing springs:

- (a) Load sensing valve boot
- (b) Load sensing spring boot
- (c) Bushings
- (d) Rubber plates
- (e) Bushings
- (f) Collars



WRE91-BR376

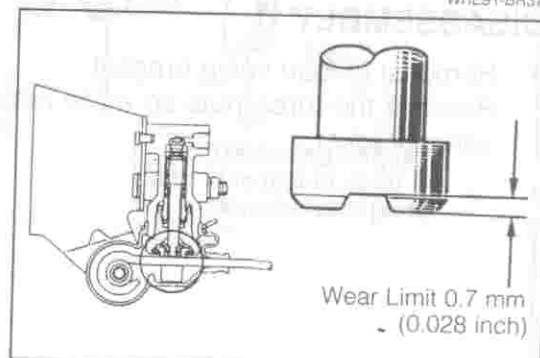
INSPECTION OF LSPV

Inspect the valve piston pin and load sensing contact surface for wear.

Wear Limit: 0.7 mm

NOTE:

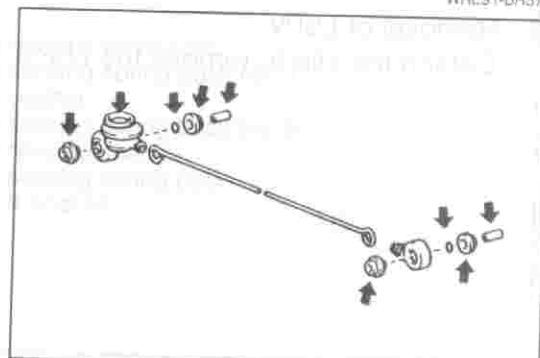
- Never attempt to disassemble the LSPV.



WRE91-BR377

ASSEMBLY

1. Application of rubber grease
Apply rubber grease (lithium soap base glycol grease) to the arrow-headed points in the illustration.



WRE91-BR378

2. Assembly of load sensing spring assembly

- (1) Assemble a new valve boot and a new spring boot in the road sensing spring.

NOTE:

- Do not mistake the valve side of the load sensing spring for the shackle side of the said spring.

- (2) Assemble new load sensing spring bushings No.1 and No. 2, collars and plate washers.

NOTE:

- The plate washers (rubber) should be assembled to the bushings while these washers are in a condition assembled to the collars.

3. Assembly of Shackle No.1 and No. 2

- (1) Assemble the nut, washer and shackle No.1 in the load sensing spring shackle No. 2.
- (2) Assemble the spring shackle by means of the nut, with two plate washers interposed.

Tightening Torque: 14.7 - 21.6 N·m
(1.5 - 2.2 kgf-m, 10.8 - 15.9 ft-lb)

4. Assembly of load sensing shackle bracket No.1

- (1) Assemble two bushings and collar in the load sensing spring shackle.
- (2) Assemble the load sensing spring assembly in the shackle bracket No.1 by means of the nut, with two retainers interposed.

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

5. Assembly of LSPV

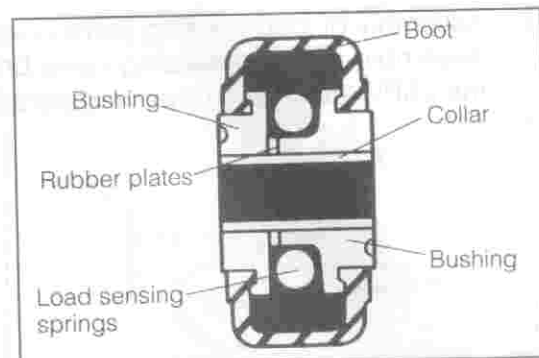
Assemble the LSPV in the load sensing spring assembly and secure them with the clip.



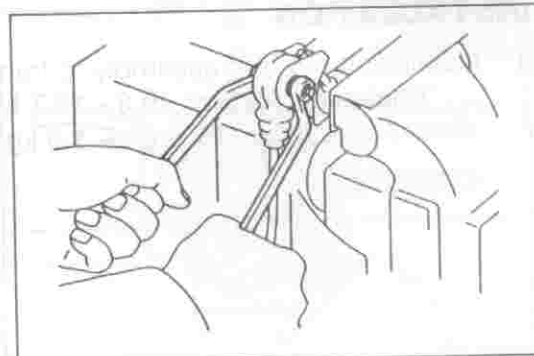
6. Assembly of load sensing valve boot

Assemble the load sensing valve boot in the valve bracket by means of the nut and bolt, with two plate washers interposed.

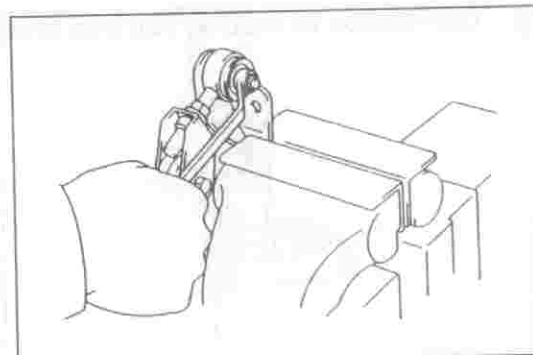
Tightening Torque: 9.8 - 15.7 N·m
(1.0 - 1.6 kgf-m, 7.2 - 11.6 ft-lb)



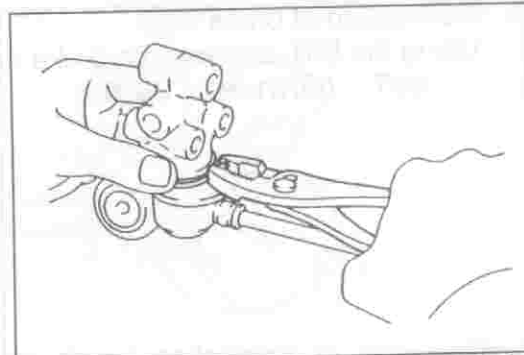
WRE91-BR379



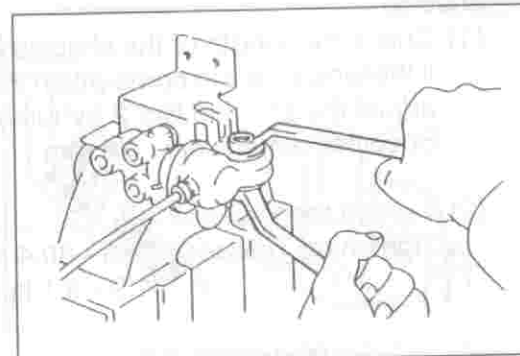
WRE91-BR380



WRE91-BR381



WRE91-BR382

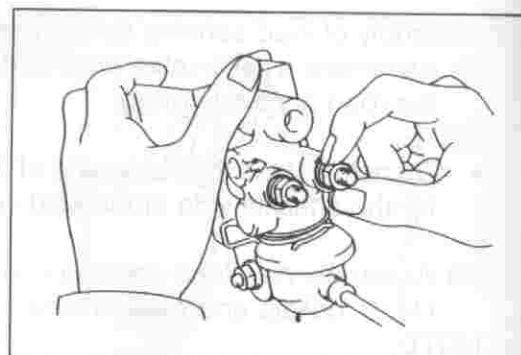


WRE91-BR383

BRAKE

7. Assembly of load sensing valve bracket

Assemble the load sensing valve bracket and set plate in the LSPV and tighten them temporarily with two nuts.



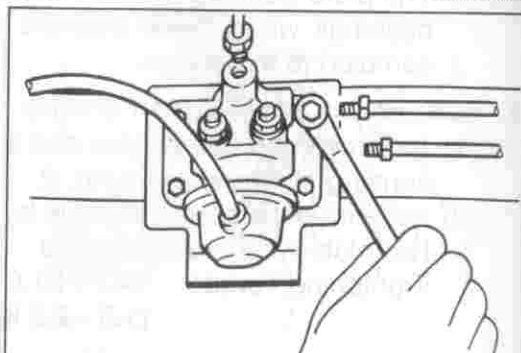
WRE91-BR384

INSTALLATION

1. Installation of LSPV assembly to frame

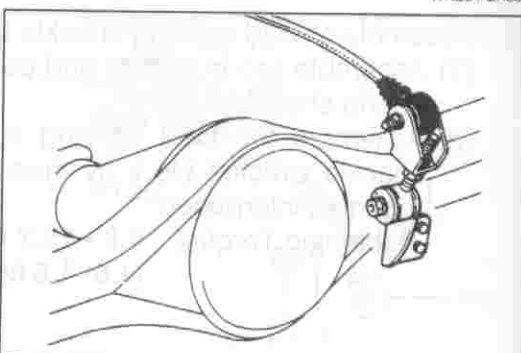
Tightening Torque: 9.8 - 15.7 N·m

(1.0 - 1.6 kgf-m, 7.2 - 11.6 ft-lb)



WRE91-BR385

2. Connection of shackle No. 2 to bracket.

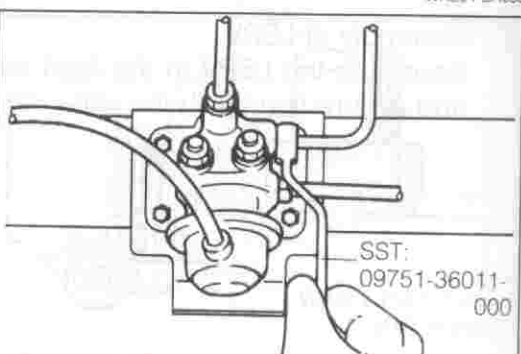


WRE91-BR386

3. Connection of brake tube

Using the SST, connect the brake tubes. Tighten the nut.

SST: 09751-36011-000



SST:
09751-36011-
000

WRE91-BR387

4. Checking of installation length of load sensing spring shackle

(1) Check the length of the shackle No. 2(A)

If the length fails to come within the specified dimension, adjust the shackle No. 2 by turning it.

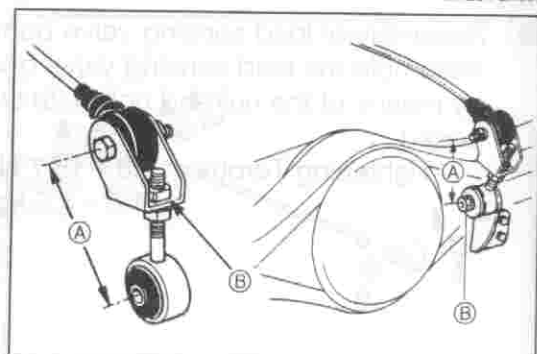
Specified dimension: 78 mm

(2) Tighten the lock nut(B)

Tightening Torque: 18.6 - 30.4 N·m

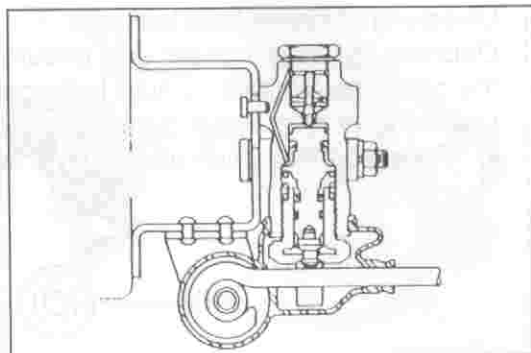
(1.9 - 3.1 kgf-m, 13.7 - 22.4 ft-lb)

(3) Install a new cotter pin.



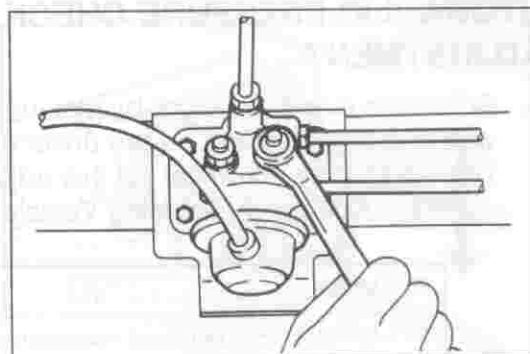
WRE91-BR388

5. Adjustment of rear axle weight
Refer to the section under "Hydraulic Pressure Adjusting Procedure."



WRE91-BR399

6. Tightening of LSPV attaching nut
- (1) Ensure that the valve piston moves down smoothly when the load sensing spring is depressed.
 - (2) Install the LSPV in such a way that it is brought into contact with the load sensing spring.
 - (3) Tighten two nuts.
- Tightening Torque: 9.8 - 15.7 N·m
(1.0 - 1.6 kgf-m, 7.2 - 1.6 ft-lb)



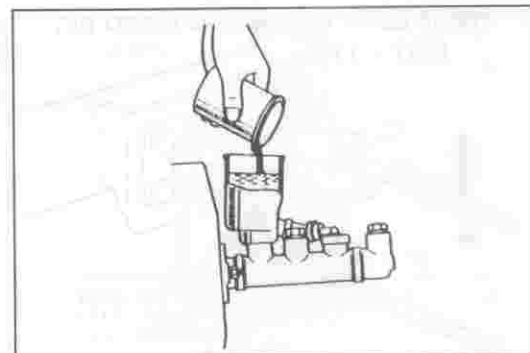
WRE91-BR390

7. Air bleeding for brake system

- (1) Pouring of brake fluid

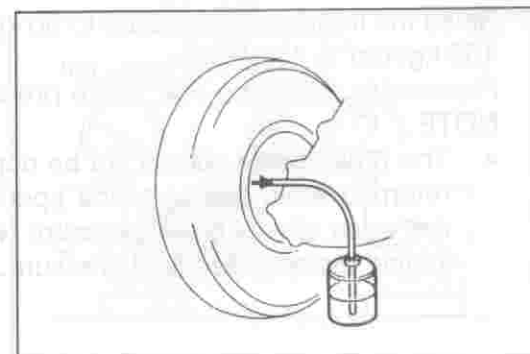
NOTE:

- If the brake fluid is spilled over the paint-finish surfaces of the motor vehicle inadvertently, quickly wipe off the brake fluid.
Then, clean the area using white gasoline or the like.
- The air bleeding operation should be started at the wheel cylinder which is located at the farthest point from the master cylinder.



WRE91-BR391

- (2) Connection of vinyl hose to bleeder plug of wheel cylinder
Submerge one end of the vinyl hose in a container filled with the brake fluid. Connect the other end of the vinyl hose to the wheel cylinder bleeder plug of the motor vehicle.

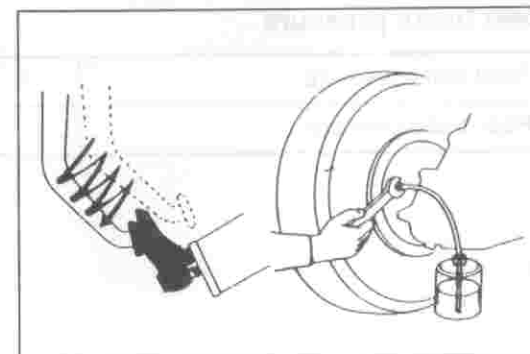


WRE91-BR392

- (3) Air bleeding

The following points must be observed for the motor vehicle equipped with the LSPV.

- 1) Perform the operation by two persons. Be sure to always keep the brake fluid tank full.
- 2) The other worker slackens the bleeder plug 1/3 through 1/2 turn at a time. Be certain to firmly depress the pedal for each operation.
- 3) At this time, keep the bleeder plug slackened.
- 4) Repeat the 1) and 2) steps above, until you no longer observe bubbles in the fluid.



WRE91-BR393

BRAKE

8. Checking of brake fluid leakage
Depress the brake pedal and ensure that each section of the pipe line exhibits no fluid leakage.
9. Checking of rear wheel cylinder hydraulic pressure
 - Refer to the section under "Hydraulic Pressure Check."

WRE91-BR394

HYDRAULIC PRESSURE CHECK AND ADJUSTMENT

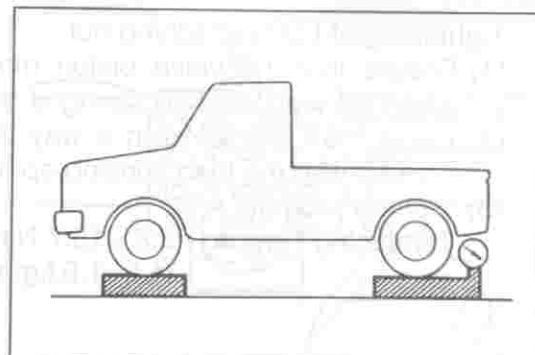
1. Adjust the rear axle weight by placing weights on the deck, with one person riding on the driver's seat.
Use an axle weight meter for this adjustment.

Rear Axle Load (Including Vehicle Weight)

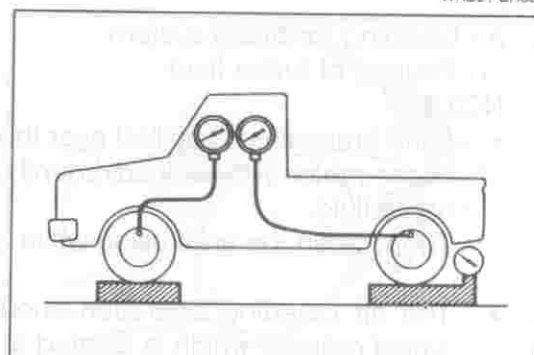
Unit: kg

F77-MPR	718
F77-MPRW(ECE & EEC and Australian spec)	733

2. Install LSPV gauge and bleed air.
BBT - 1TB



WRE91-BR395



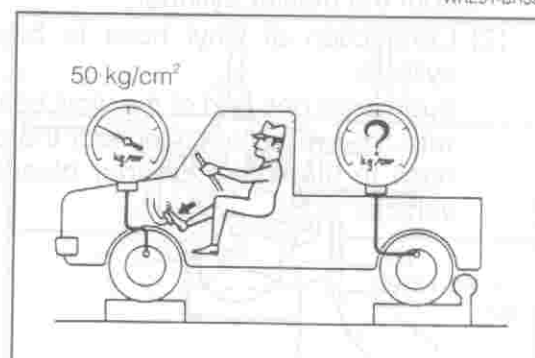
WRE91-BR396

3. Raise the front brake pressure to $50 \text{ kg/cm}^2 \pm 5 \text{ kg/cm}^2$ or $100 \text{ kg/cm}^2 \pm 7 \text{ kg/cm}^2$.

Proceed to check the rear brake pressure.

NOTE:

- The brake pedal should not be depressed twice and/or returned while setting to the specified pressure. Read the value of rear brake pressure two seconds after adjusting the specified fluid pressure.



WRE91-BR397

Rear brake pressure

Front brake pressure	$50 \text{ kg/cm}^2 \pm 5 \text{ kg/cm}^2$	$100 \text{ kg/cm}^2 \pm 7 \text{ kg/cm}^2$
Rear brake pressure	25 kg/cm^2 to 35 kg/cm^2	37 kg/cm^2 to 49 kg/cm^2

WRE91-BR398

4. If the brake pressure is incorrect, adjust the hydraulic pressure as follows:

- (1) Adjust the length of the shackle No.2.
 Too low pressure Lengthen A.
 Too high pressure.....Shorten A.

Model	Initial set:
F77	78 mm (3.071 inch)

- (2) If the pressure can not be adjusted by the shackle No.2, raise or lower the valve body.
 Too low pressure: Lower the valve body.
 Too high pressure:.....Raise the valve body.

Adjust the length of the shackle No. 2 again.
 If the specified hydraulic pressure still can not be attained, inspect the LSPV assembly.

5. Unit inspection of LSPV assembly

- (1) Slacken the valve body attaching bolts. Raise the valve body as far as it will go upward. Temporarily tighten the valve body at this position, where the load sensing spring remains inoperative.

- (2) Under this condition, check the hydraulic pressure of the rear wheel cylinder and compare it against the reference value in the table below.

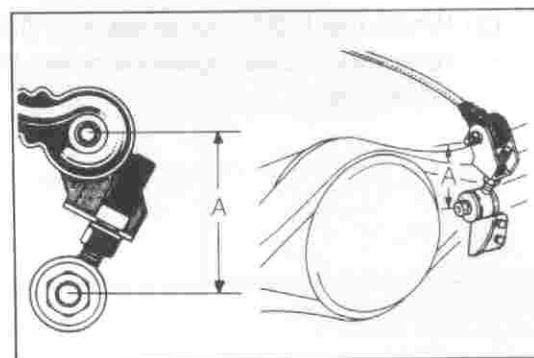
If the hydraulic pressure fails to come within the reference value, replace the unit of LSPV.

NOTE:

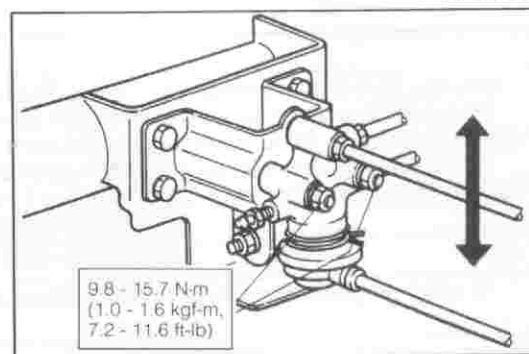
- Never attempt to disassemble the LSPV.

LSPV unit hydraulic pressure reference value

Front wheel cylinder hydraulic pressure	Rear wheel cylinder hydraulic pressure
5 kgf/cm ² (71.12 psi)	About 5 kgf/cm ² (71.12 psi)
25 kgf/cm ² (355.58 psi)	10 kg/cm ² ± 3 kg/cm ² (142.2 psi ± 42.7 psi)
60 kgf/cm ² (853.38 psi)	10 kg/cm ² ± 3.5 kg/cm ² (142.2 psi ± 49.8 psi)

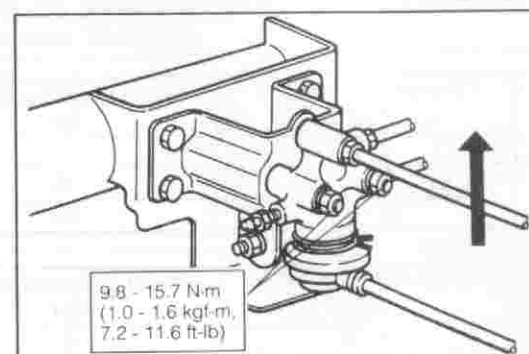


WRE91-BR399



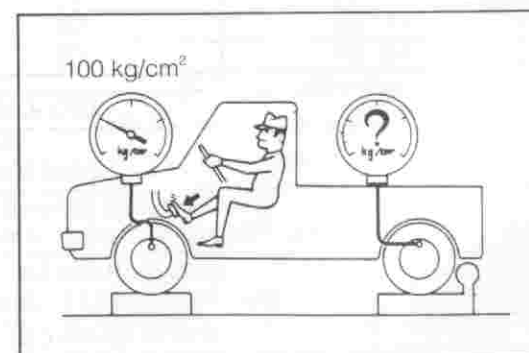
9.8 - 15.7 N·m
(1.0 - 1.6 kgf·m,
7.2 - 11.6 ft·lb)

WRE91-BR400



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

WRE91-BR401



WRE91-BR402