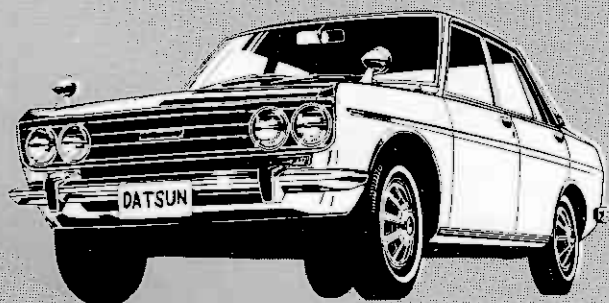


# SERVICE MANUAL

## *Datsun*

MODEL 510 SERIES

CHASSIS and BODY



## **SECTION BR**

### **BRAKE**

**BR**

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# BRAKE

## BRAKE

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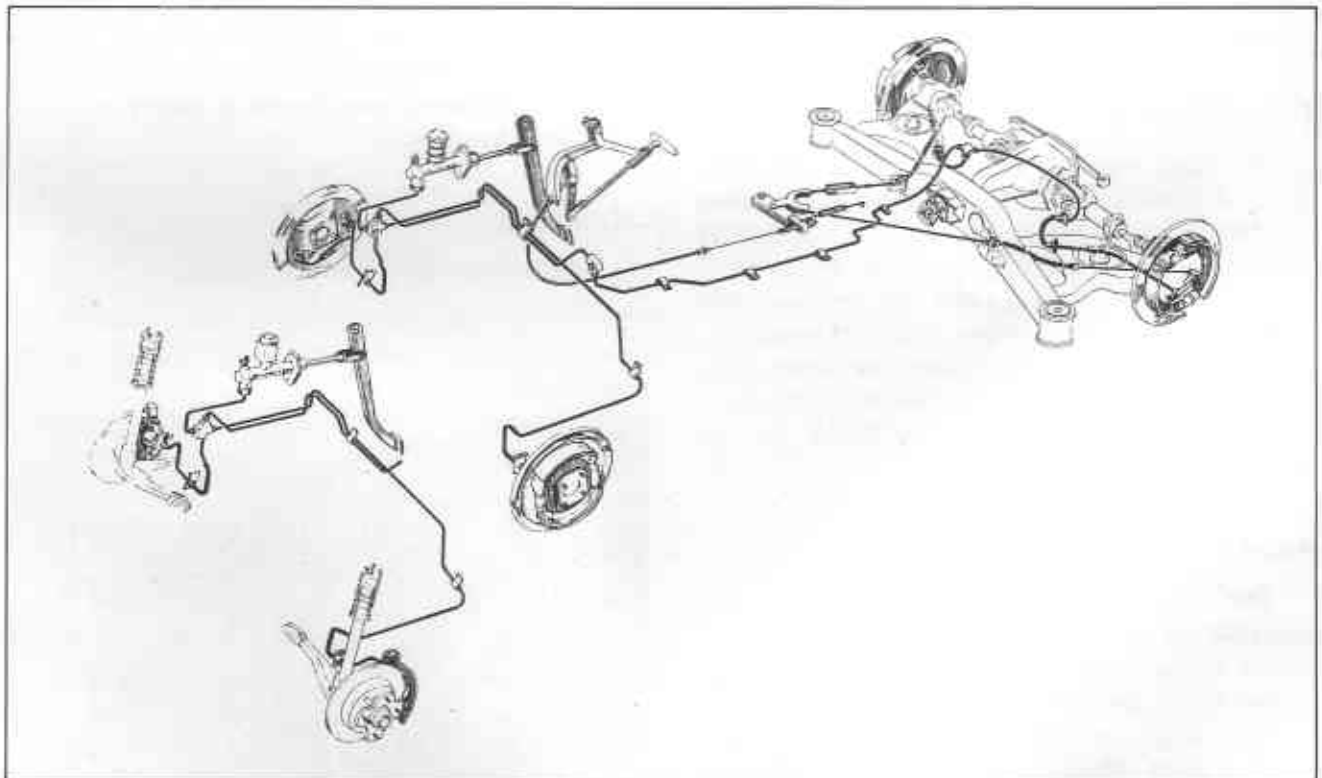
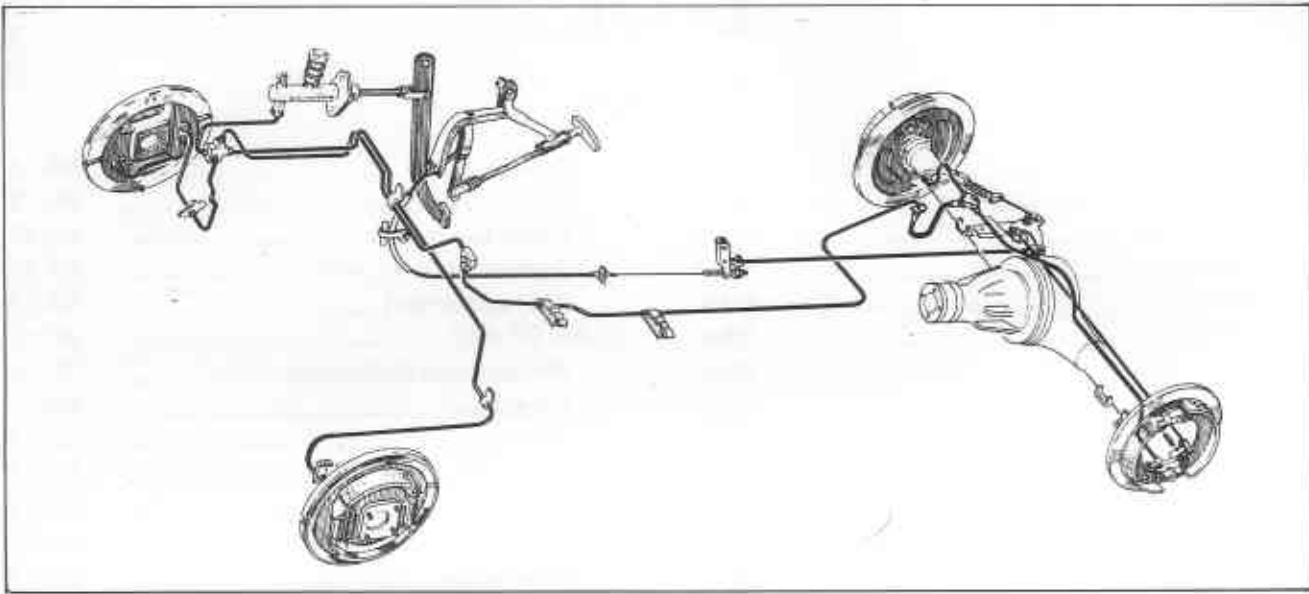


Fig. BR-1 Sedan

## CHASSIS



*Fig. BR-2 Wagon*

### DESCRIPTION

The vehicle is equipped with two distinct brake systems; a hydraulic service brake system on four wheels and a mechanical hand brake system on rear wheels.

AKEBONO-LOCKHEED SC type front disc brakes is available as optional equipment on all P(L)510 series (1600 cc engine).

### Hydraulic service brake

For the standard model, the front brakes are two leading type brake and the rear brakes are leading and trailing type brake and both of them having the linings of "DON NBK 233".

When install optional front disc brakes, rear wheel cylinders are changed to larger ones.

These service brakes that work effectively on all four wheels at the slightest pedal pressure provide greater safety and stability at high speed.

### Hand brake

For all model mechanical hand brake operates on the rear wheels only and the mechanism is operated by a stick type handle installed under the instrument panel.

The handle is linked to the rear wheel cylinder bodies through a system of rods and wires.

The linkage should not require any attention under normal maintenance.

### BRAKE PEDAL

The brake pedal is suspended with sintered bushings at the pivots of the brake pedal mounting bracket which is attached to the dash. A brake-light switch is attached to the brake pedal mounting bracket.

### Removal

1. Remove the pedal return spring.
2. Remove the clevis pin on the push rod and disconnect the brake pedal from the master cylinder.



*Fig. BR-3 Brake pedal mounting*

## BRAKE

3. Remove the fulcrum pin and then the pedal assembly is ready for removal.

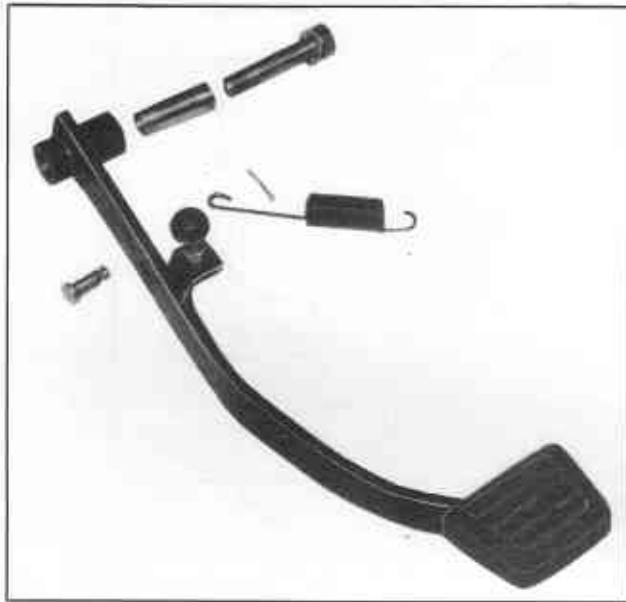


Fig. BR-4 Brake pedal components

### Inspection

1. Check the pedal shaft sleeves for wear deforming and damages.
2. Check the pedals for distortion, bend and cracks.
3. Check other parts for wear, distortion and damage.

### Installation

Installation can be accomplished in the reverse order of removal.

1. Apply sufficient amount of brake grease to pedal shaft sleeves and push rod clevis pin.
2. Tightening torque for fulcrum pin is 3.5 to 4.0 kg-m (25.3 to 28.9 ft-lb.).

## MASTER CYLINDER

There are two kinds of master cylinders on account of the difference of reservoir tank capacity.

For the vehicle with the optional front disc brake, master cylinder with larger reservoir tank is used.

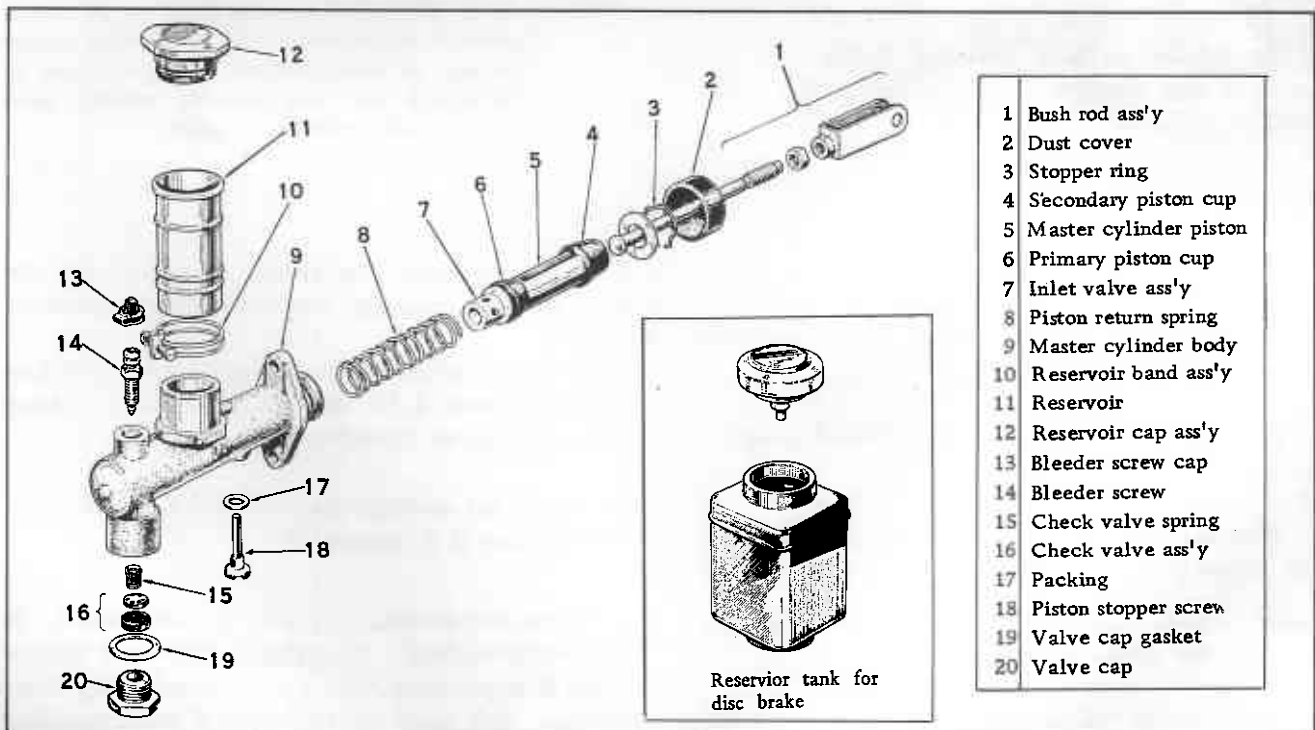
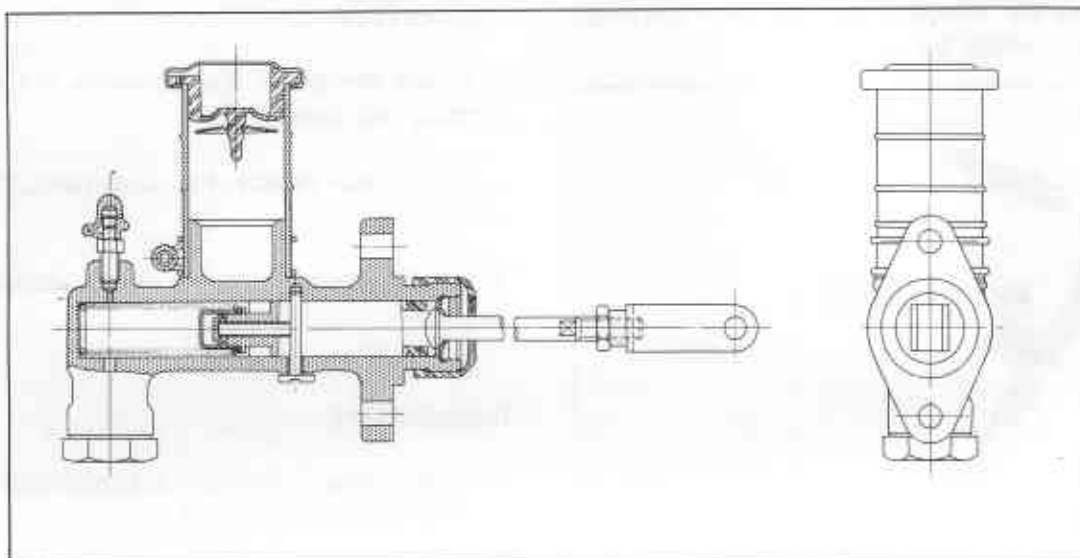


Fig. BR-5 Master cylinder

## CHASSIS



*Fig. BR-6 Sectional view of master cylinder*

### Removal

1. Remove the clevis pin of the push rod connecting with the brake pedal and disengage the master cylinder from the pedal.
2. Disconnect the brake tube from the master cylinder.
3. Screw out master cylinder fixing nuts and remove the master cylinder from the dash board.

### Disassembly

1. Take off the reservoir cap. Drain out brake fluid.
2. Remove the dust cover and piston stopper screw.
3. Remove the stopper ring of the push rod and all other parts are ready to be disassembled.

**Note:** When removing, be careful not to damage the piston and cups.

4. Remove the valve cap and take out the check valve.

### Inspection and repair

Clean all parts and thoroughly check them for wear, damage and other abnormal condition.

If any abnormal conditions should be detected on them, replace them with new ones.

**Note:** After disassembly, immersion of all metal parts in clean brake fluid or a brake system cleaner is recommended. Use air hose to blow out dirt and cleaning solvent from recesses and internal passages.

1. Check cylinder and piston for abnormal one side wear and damage and replace if necessary.
2. If the clearance between cylinder and piston is more than 0.13 mm (0.0051 in.), replace either piston or cylinder.
3. Check all springs for weakness and damage and replace it if necessary.
4. When the master cylinder is overhauled, it is recommendable to replace cups and valves even if apparently they are in satisfactory conditions, and must be replaced if deformed due to swelling, wear and ageing.

## BRAKE

5. Damaged dust cover, oil reservoir and cap should be replaced.

### Assembly

Assembly can be accomplished in the reverse order of disassembly, but the following points should be observed.

1. Prior to assembly piston cap should be soaked in brake fluid. Install piston cup taking care it is correctly faced.

2. Coat the cylinder bore and piston assemblies with clean brake fluid before installing any parts in the cylinder.

### Installation

Installation is a reversal of the removal procedure, but the following operation should be added.

1. Adjust the pedal height by changing the push rod length of the master cylinder.

2. Bleed air out of the master cylinder.

### BRAKE PIPING

If such abnormal conditions as damage, deforming and fluid leakage should be found in brake tubes and brake hoses, replace them.

Brake tubes are made of double wall construction steel tubing. Therefore it can be said that there are hardly failure in brake tubes through the service life of the vehicle. But if they should be cracked or damaged due to undue external forces, replace them with new ones.

If fluid leakage from the tube connection is detected, tighten down connections or replace them. The securing torque for the connections is from 1.5 to 1.7 kg-m (10.8 to 12.3 ft-lb.).

When installing the front brake hoses, be careful that they do not touch the wheels, links and so forth when the wheels move up and down, and to the left and right. In the case that the brake tubes and brake hoses are removed or replaced, air bleeding must be done.

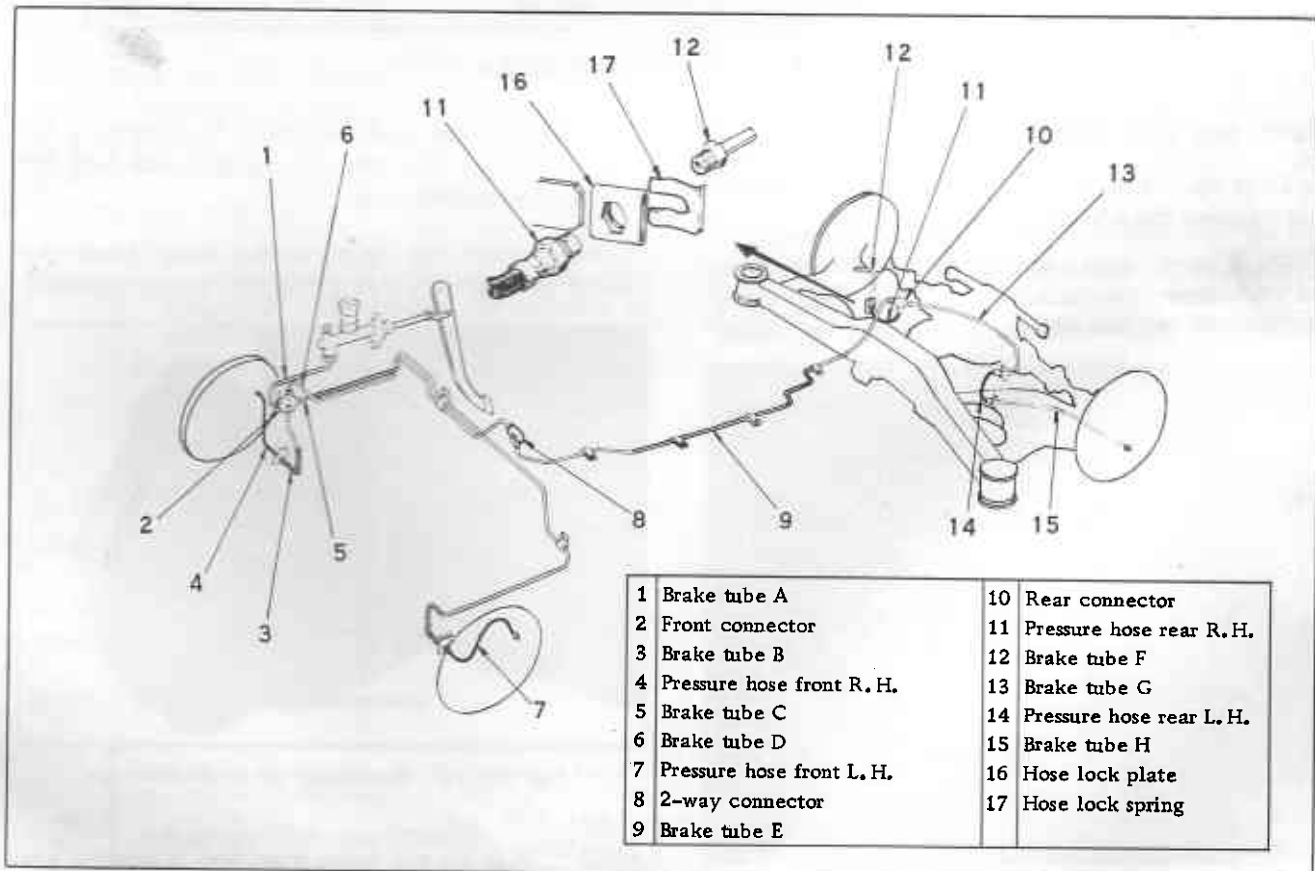


Fig. BR-7 Brake piping - sedan

# CHASSIS

## FRONT DRUM BRAKE

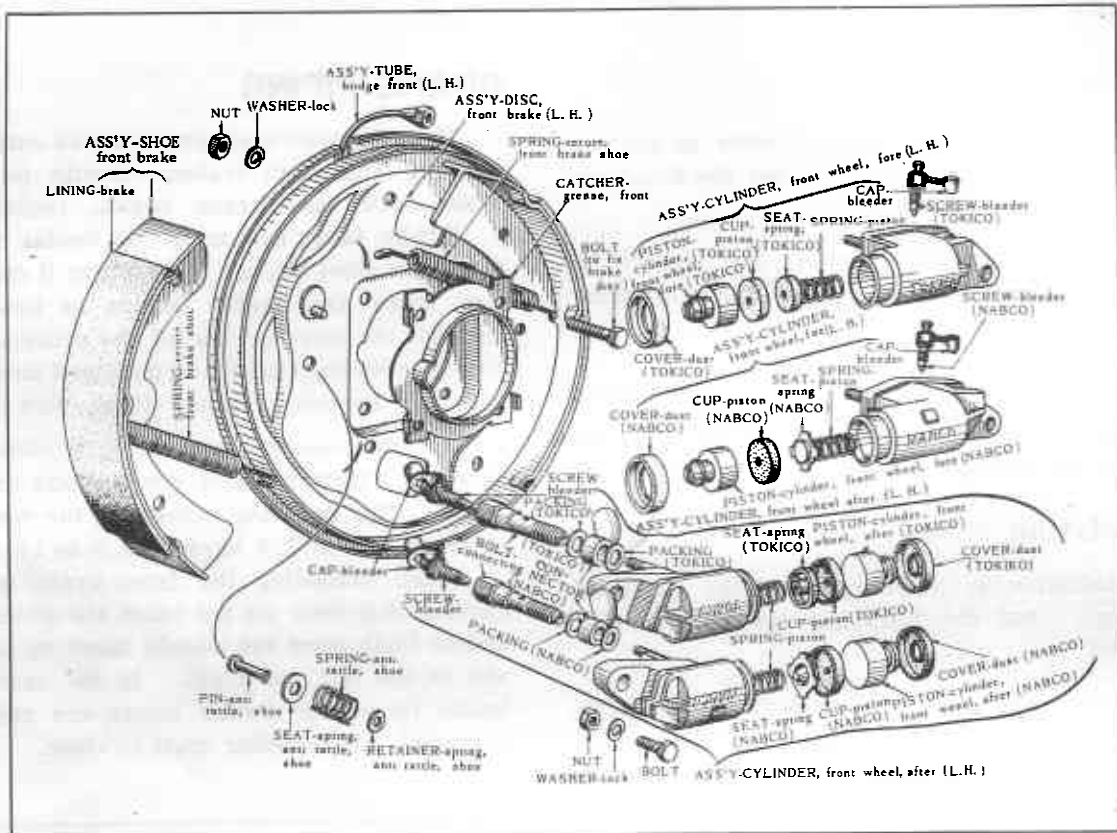


Fig. BR-8 Front brake (L.H.)

### Removal and disassembly

1. Jack up the vehicle and support it on stands and remove the wheel.
2. Remove the brake drum.
3. Remove the hub cap.
4. Draw out the hub assembly by removing the cotter pin at the knuckle spindle end and removing the spindle nut.
5. Disconnect the front brake hose from the wheel cylinder by removing the connector bolt.

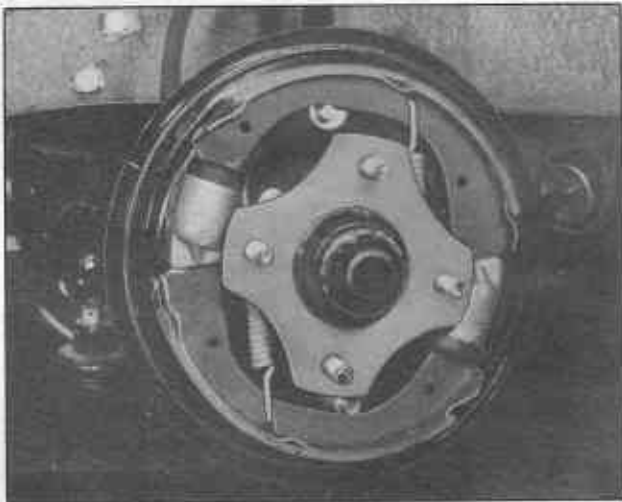


Fig. BR-9 Front drum brake

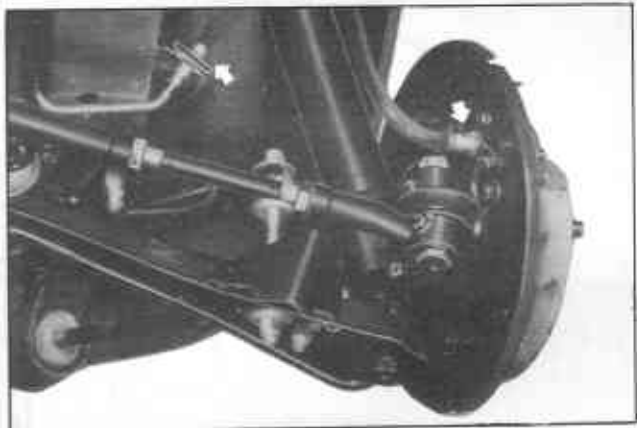


Fig. BR-10 Removing front brake hose

**Note:** Plug up the brake hose with a wooden peg to avoid spilling fluid during sequent work.



## BRAKE

6. Remove the return springs and take out the brake shoe assemblies.
7. Remove the bridge tube which joints between the fore and after wheel cylinder.
8. Remove the fore and after cylinder by removing the fixing bolts.
9. Remove the dust cover of wheel cylinder. Then all other parts are ready to be disassembled.

### Inspection

1. Drums; If they show score, excessive out of round and so forth, reconditioning by machining is required.

Drum inside out of roundness below	0.05 mm (0.0020 in.)
Nominal inner diameter of the drum is	228.6 mm (8.999 in.)
Limit of reconditioning in diameter is	229.6 mm (9.040 in.)

2. Linings; If shoe linings are incompletely seated, soiled or greasy or deteriorated due to excess heating, repair or replace them. If the thickness of the lining is found less than 1.5 mm (0.0591 in.), replace it.

- Note:**
- a. If oil or grease is found on linings, clean thoroughly with carbon tetrachloride or gasoline.
  - b. After lining installation and bonding, grind the lining face to a diameter equal that of the brake drum.

3. Check the adjust cams for their smooth operation.
4. Springs; If they are considerably weak, replace them.

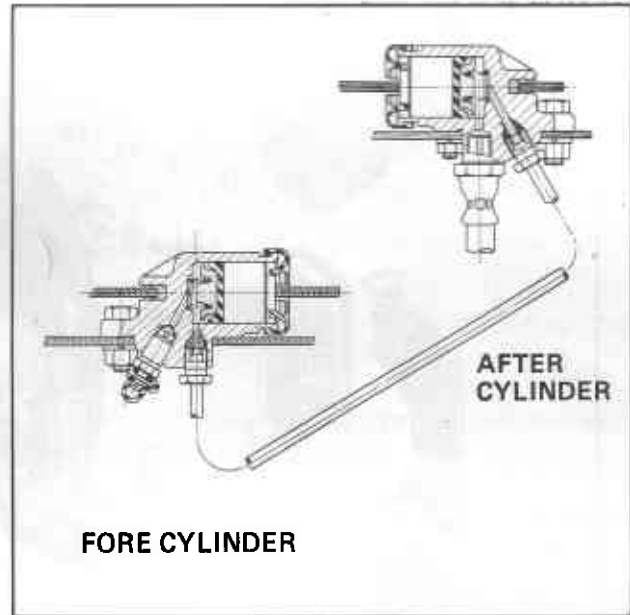
**Note:** Return spring dimension.

Wire dia. x free length - turns	Load x length
3.5 m/m x 77.5 m/m - 21.5	70 ± 5 kg x 140.2 mm

5. Check the brake disc for distortion.

6. Check the bore of the wheel cylinder for wear, sign of rust and damage.

7. If the clearance between the cylinder and the piston exceed 0.15 mm (0.0059 in.), replace them.



*Fig. BR-11 Sectional view of front wheel cylinder*

8. When the wheel cylinder is overhauled, it is recommendable to replace cups even if apparently they are in satisfactory conditions and must be replaced if deformed due to damage, crack, corrosion, smelling and ageing.

### Assembly

Assemble in the reverse order of disassembly.

1. Be careful not to smear the brake linings with oil or grease.
2. Apply grease thinly to the sliding areas such as shoes and discs, cam adjuster stud and spacer.
3. Adjust the shoe clearance and bleed the hydraulic system.



## CHASSIS

### FRONT DISC BRAKE (Optional part)

#### Operation

With an automatic adjuster equipped, SC type disc brake ensures proper travel of the

brake pedal. Due to self energizing effect, soft touch to the pedal is enough to stop the car.

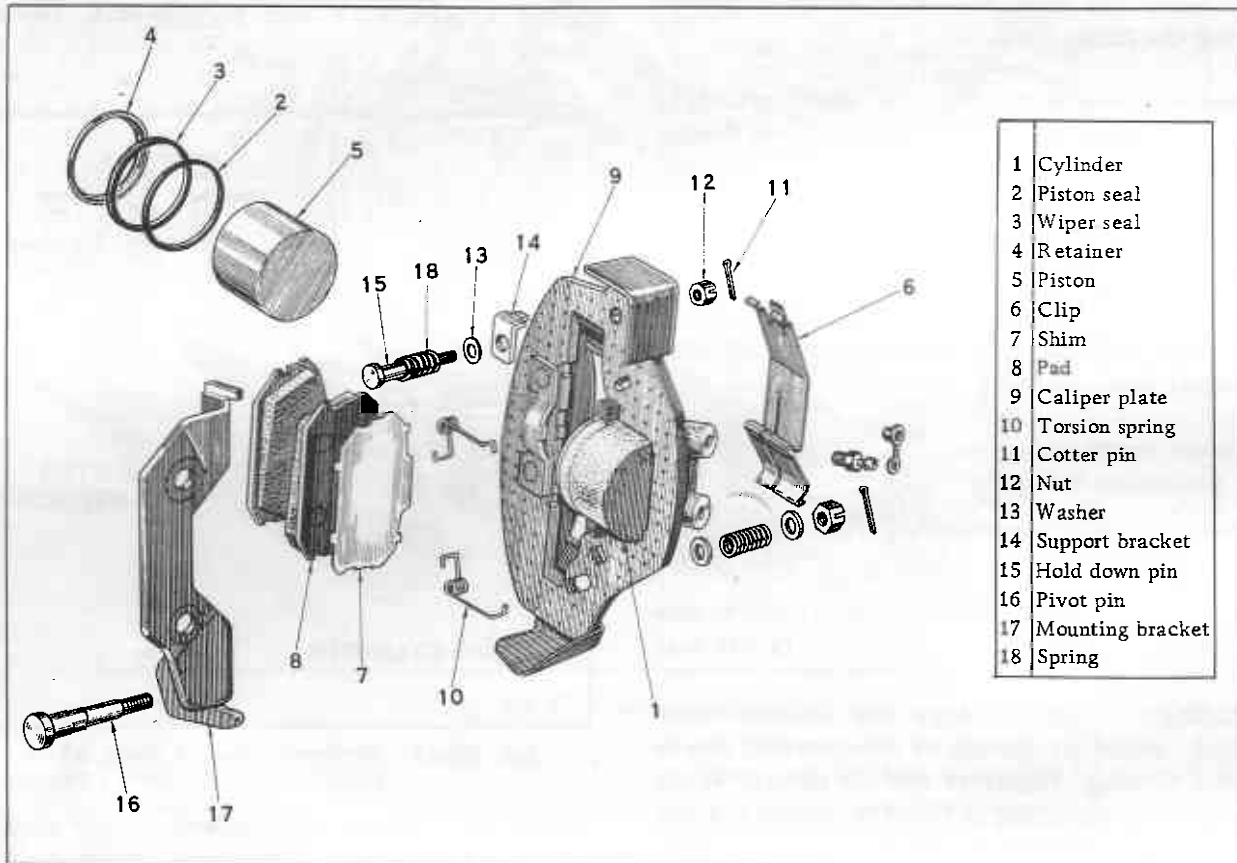


Fig. BR-12 Front disc brake

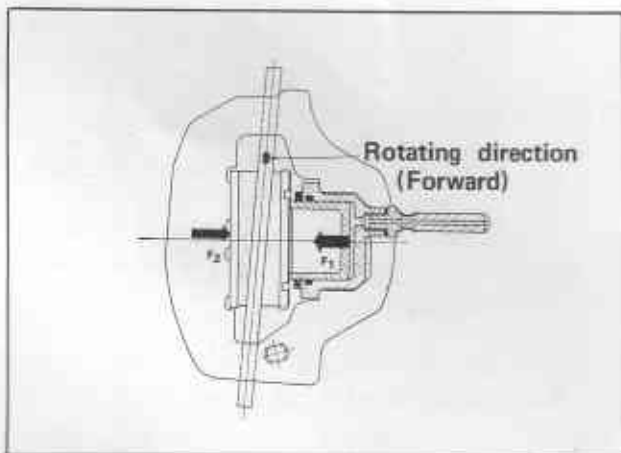


Fig. BR-13 Sectional view of front disc brake

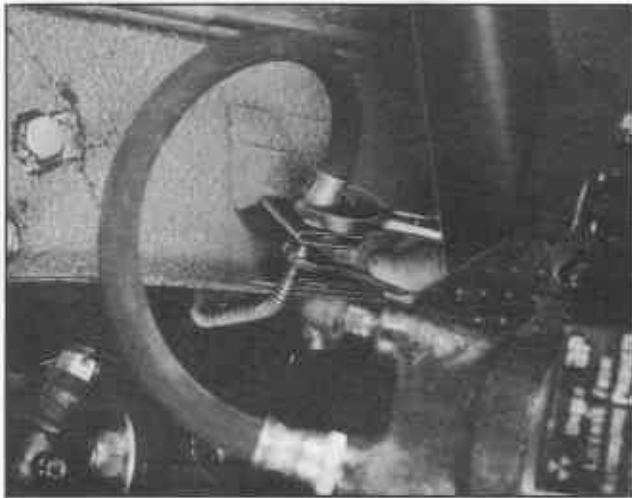
Figure BR-13 shows the relation of force's working. As brake pedal is depressed, hydraulic pressure from the master cylinder forces the piston of wheel cylinder out of the caliper bore and thrusts inner pad forward until it contacts disc, and simultaneously pushes outer pad by reaction force  $F_2$ . These forces cause rotating moment, which increase reaction force  $F_2$ . This is called self energizing action. In this SC brake, it is around 5%.

As pad wears, movement of piston is increased, and when seal is deflected more than its elastic deformation, piston will slide outward causing slip between seal and piston, thus assuring constant clearance between pad and disc.

## BRAKE

### Removal

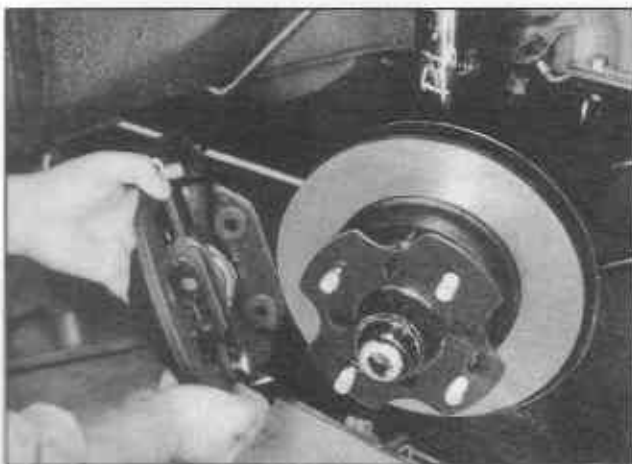
1. Jack up the vehicle and support it on stands and remove the wheel.
2. Disconnect the front brake hose from the brake tube.



*Fig. BR-14 Removing front brake hose*

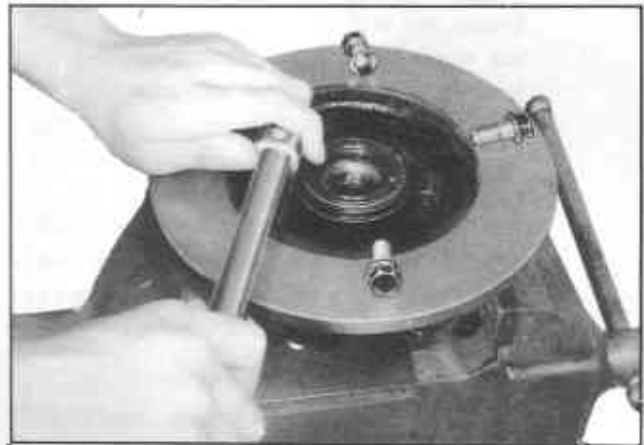
**Note:** Plug up the brake tube with a wooden peg to avoid spilling fluid during sequent work.

3. Screw out the bolts fixing the caliper to the knuckle flange and remove the caliper assembly.



*Fig. BR-15 Removing caliper assembly*

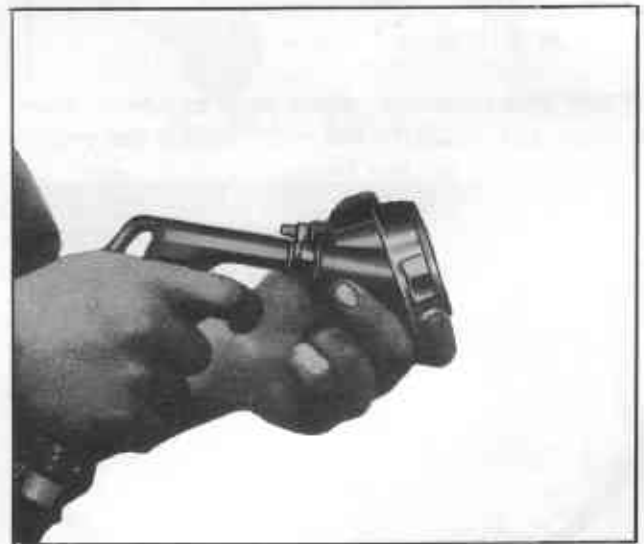
4. Remove the spindle nut and the disc hub, and separate the rotor from the hub assembly.



*Fig. BR-16 Removing brake disc*

### Disassembly

1. Remove the anti-rattle clip from the caliper plate and then pick up the pad.
2. Remove the tension springs and pull the cylinder out of the caliper plate.
3. To take out piston, apply air or hydraulic pressure from inlet hole. Remove the rubber seal from the groove on the cylinder. Remove the retainer and wiper seal, them, it can be easily taken out.



### Inspection and repair

1. Check the cylinder assembly for oil leakage and any damage, replace the cylinder assembly if any abnormal conditions be detected on it.

## CHASSIS

**Note:** Unlike the wheel cylinder cup of drum brakes, the piston seal of SC type disc brake has three important functions, sealing, retracting piston and automatic adjusting. If piston-seal is damaged, replace hole cylinder assembly as a unit. However if it is necessary to replace piston seal, replace wiper seal, at the same time. When pads are replaced two or three times, cylinder assembly (or seal) should be replaced though they still seems to be in good condition.

2. Check the pad for wear and crack, replace if it is damaged or become worn to less than 1 mm (0.04 in.) in thickness (not including the metal backing plate).

3. Check the caliper for damages, replace it if any damage is detected.

4. Check the rotor and if it shows score, excessive out of round and so forth, reconditioning by machining is required.

Limit of reconditioning in thickness is 8.4 mm (0.331 in.).

Standard rotor thickness; 10 mm  
(0.0394 in.)

Run out of the rotor should be less than 0.06 mm (0.0024 in.)

If any abnormal conditions such as crack, distortion and excessive run out, replace the rotor.



*Fig. BR-18 Measuring run out of disc*

### Piston seal replacement

If oil leakage is only found on the piston seal, it should be replaced, paying attention to the following point.

1. After disassembly, rinse the cylinder bore with brake fluid. Insert new seal into the groove taking great care not to damage the seal. Attach the wiper seal. Apply specified grease lightly to the cylinder bore.

2. Clean the piston. Check that no damage exists on piston surface. Insert the piston. Take care that the relieved position of the piston faces pivot pin. Insert first two inches gently preventing tilting.



*Fig. BF-19 Assembling piston, seals and retainer*

### Assembly and installation

1. Clean the mounting surface and disc surface. Attach the disc to the hub.

2. Install the hub to the knuckle spindle.

3. Insert the piston into the cylinder till the face of piston head become almost flush with the face of the retainer of the wiper seal. Install the cylinder into the caliper plate and secure in place by two torsion springs. Assemble the hold down pin, spring washer and nut in this order to support bracket. Insert a cotter pin to the nut.

4. Assemble the mounting bracket and caliper plate with the pivot pin which assembled with a

## BRAKE

washer spring, the washer and nut in this order. Tighten nut completely and set a cotter pin.

5. Pry up the hold down bracket by a screw driver and hook up to the upper end of the mounting bracket. Turn the caliper plate to make sure that it can slide smoothly.

6. Install the caliper assembly to the knuckle flange.

7. Attach a shim to inner pad for noise proof and heat insulation.

8. Be sure to set the inner pad first. Draw the caliper plate enough toward inside (toward center of chassis).

Insert lower cuts on both ends of the pad to the mounting bracket, then push the pad until the pad contacts the piston.

9. Draw the caliper plate toward outside. Insert upper cuts and center indentation of outer pad to the caliper plate.

10. Attach the anti-rattle clip. Be sure the direction coincides as indicated by the sticker on the clip.

### Pad replacement

Pad wear should be checked because the clearance between the pad and rotor is adjusted automatically.

This should be done after the first 6,000 km (4,000 mile) and every 5,000 km (3,000 mile) thereafter.

Pad thickness is easily checked by removing the anti-rattle clip. When linings become worn to less than 1 mm (0.04 in.) in thickness (not including the metal backing plate), replace all pads.

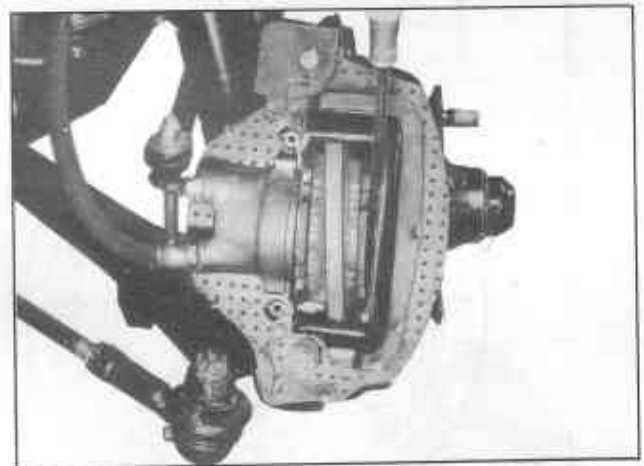
**Note:** Always replace the pads in full sets of four, using genuine parts.

1. Remove the road wheel. Remove the anti-rattle clip from the caliper plate.



*Fig. BR-20 Removing anti-rattle clip*

2. Loosen the bleed screw. Pull the caliper plate outwards (outward of chassis). Push the piston in by 3 to 4 mm (0.118 to 0.157 in.).



*Fig. BR-21 Pushing piston*

3. Outer pad is loosened and can be easily pulled out.



*Fig. BR-22 Removing pad*

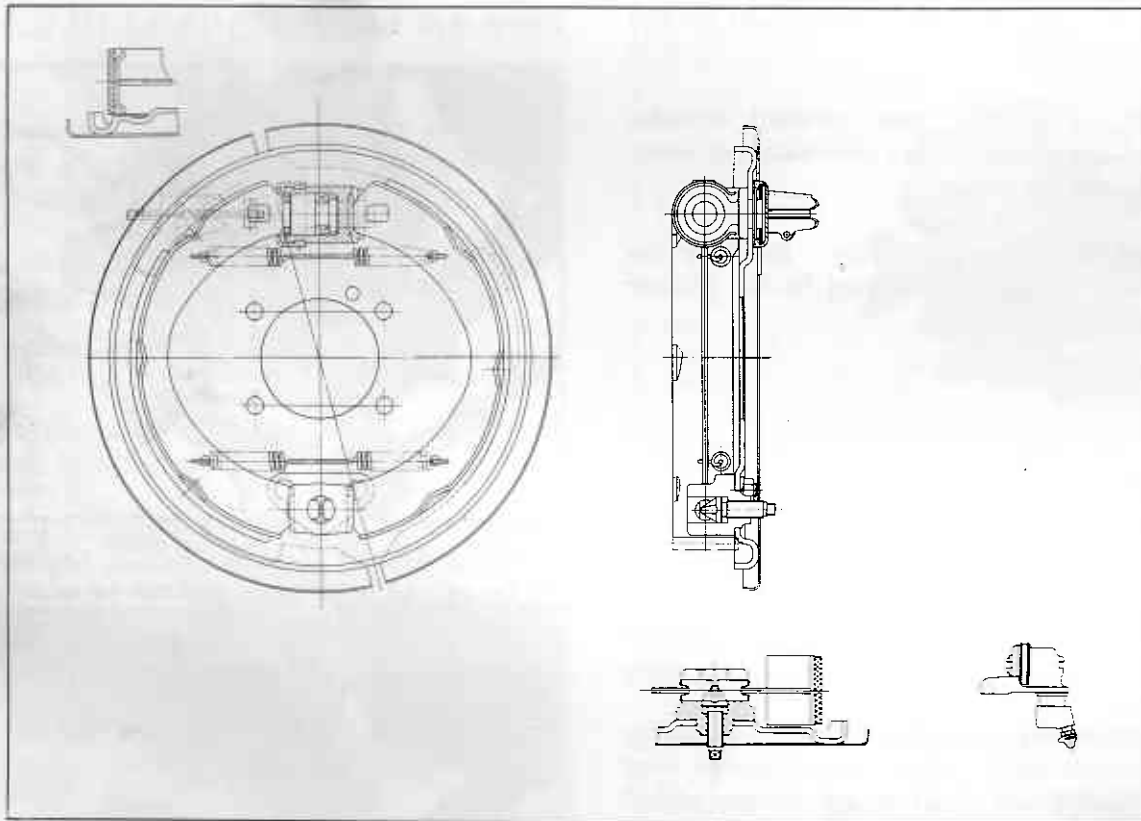
## CHASSIS

4. Draw the caliper plate inwards and remove inner pad. Wipe exposed surface of the piston thoroughly. Push the piston enough into the cylinder bore. Insert new pad into the caliper plate.

Note:

Part No.	Pad material (Make)	Remark
41060/70-16508	M78S (SUMITOMO)	Standard
41060/70-16509	S16D (AKEBONO)	Optional for service
41060/70-16506	DS11 (FERODO)	Optional for race

## REAR BRAKE



*Fig. BR-23 Sectional view of rear brake*

### Removal and disassembly

1. Jack up the vehicle and support it on stands and remove the wheels.
2. Release the parking brake and disconnect the

cross rod from the lever of the rear wheel cylinder.

3. Remove the brake drum.

## BRAKE

4. Remove the return springs and then take out the brake shoe assemblies.



*Fig. BR-23 Sectional view of rear brake*

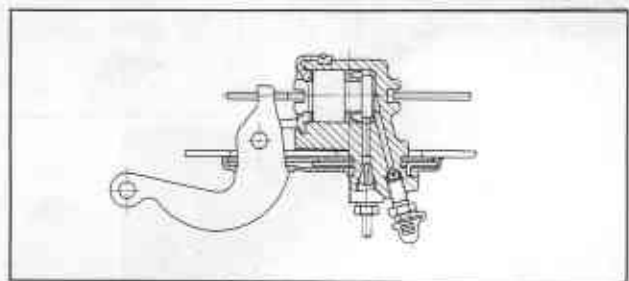
5. Disconnect the brake tube from the wheel cylinder.

6. Remove the wheel cylinder by removing components as following sequence; dust cover, plates, adjust shims, then it is ready to remove the wheel cylinder from the brake disc.

The wheel cylinder is easily disassembled by removing the snap ring and dust cover.

7. Remove the adjuster assembly.

8. Remove and reinstall the brake disc as outlined under "Rear Axle".



*Fig. BR-25 Sectional view of rear wheel cylinder*

### Inspection

The items to be inspected are similar to the front brake.

**Note:** Return spring dimension.

## CHASSIS

	Wire dia. x free length - effective turns	Load x length
Cylinder side	2.0 mm x 120.7 mm - 36	7.5 + 0.5 kg x 131.5 mm
Adjuster side	2.0 mm x 113.4 mm - 32	12.0 + 1.0 kg x 131.5 mm

### Assembly

Assembly can be accomplished in the reverse order of disassembly. Care should be taken to assembling as outlined under "Front drum brake".

### HAND BRAKE

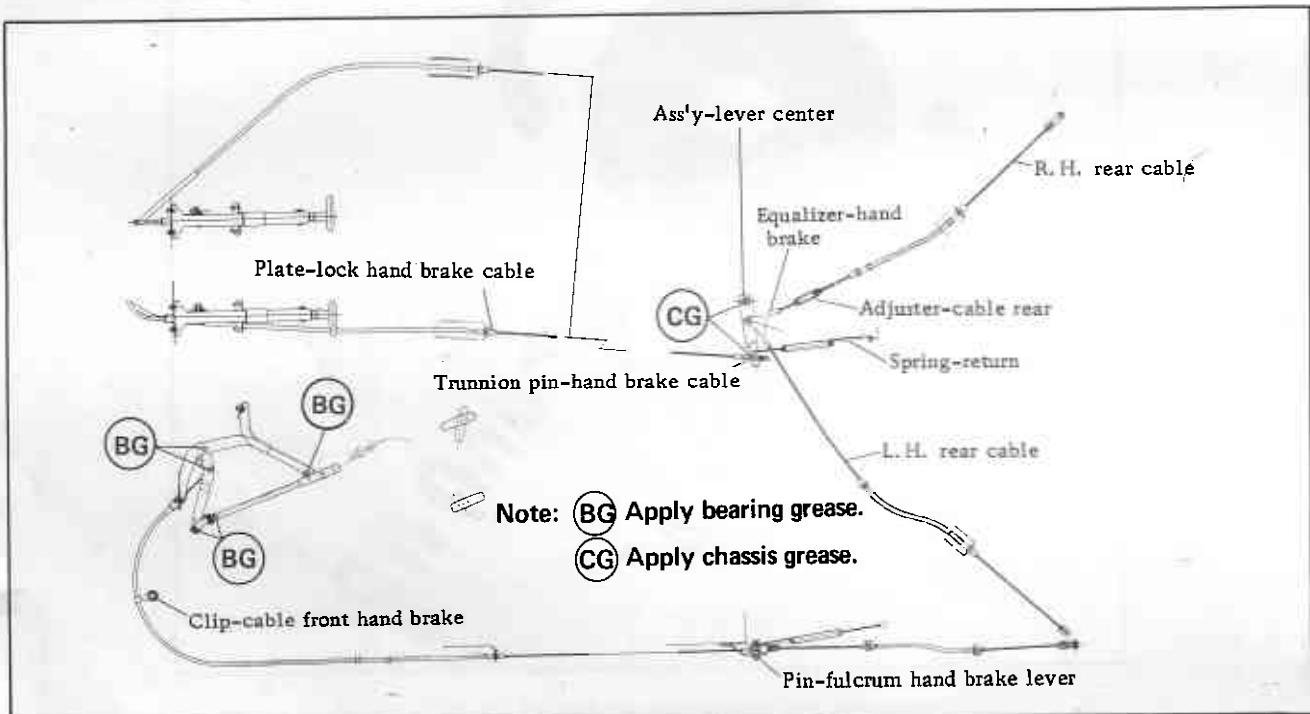


Fig. BR-26 Hand brake linkage - sedan

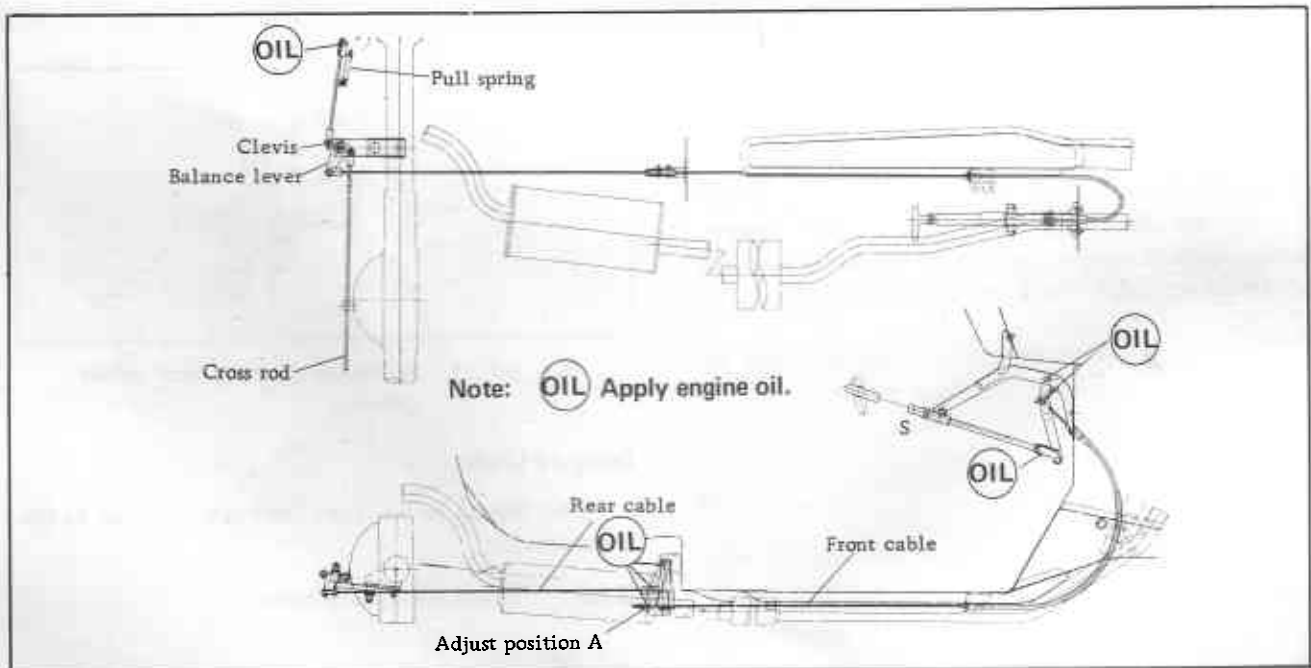


Fig. BR-27 Hand brake linkage - wagon

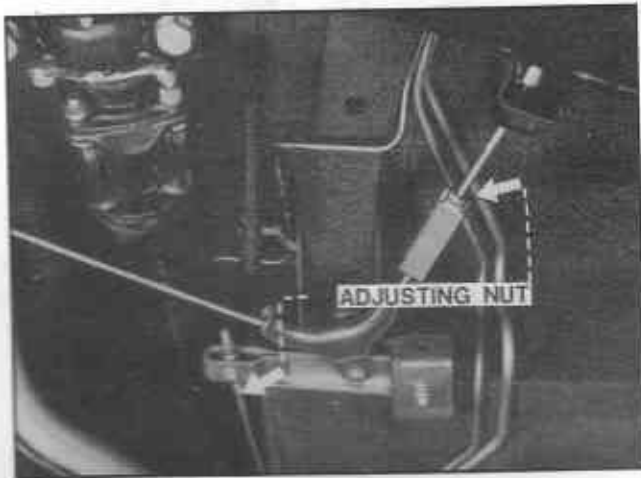


## BRAKE

### Removal

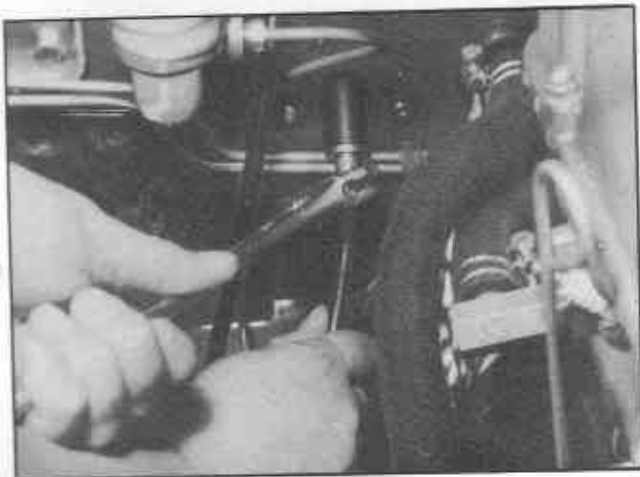
#### 1. Front cable

- (1) Release the hand brake thoroughly and disconnect the front cable by removing the clevis pin which connects with the hand brake lever.
- (2) Screw out the adjusting nut from the rear end of the front cable and disconnect it from the hand brake lever.



*Fig. BR-28 Removing adjusting nut - sedan*

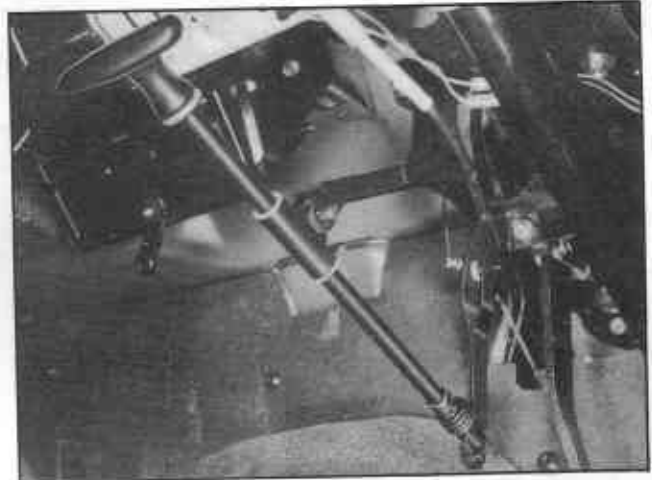
- (3) Remove the clamp of the hand brake cable from the under body. Pull out the lock plate fixing the front cable to the front cable retainer and extract the front cable.
- (4) Pull out the front cable by unfastening its outer casing, press-fitted into the hand brake control bracket.



*Fig. BR-29 Removing outer casing of front cable*

#### 2. Control stem

- (1) Remove the clevis pin which connects the lever yoke with lever assembly.
- (2) Remove the clevis pin which connects the control guide with control bracket, and then taken down the control stem assembly.

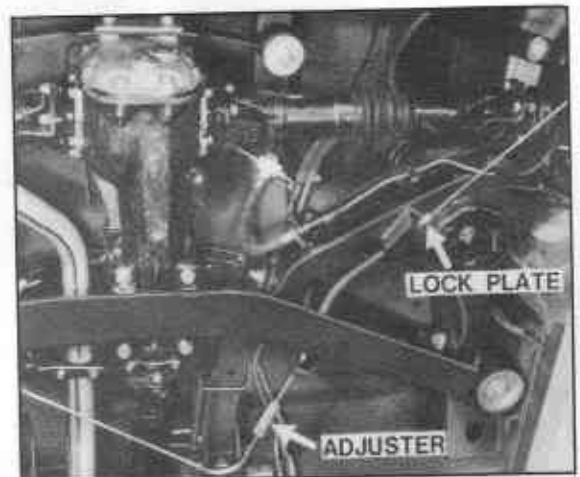


*Fig. BR-30 Control stem*

#### 3. Rear cable

##### (1) Sedan car

Remove the adjusting nut from the adjuster and then disconnect left hand rear cable from the hand brake adjuster. Pull out the lock plates and then remove the clevis pins which connect the rear cables with the levers of rear wheel cylinders.



*Fig. BR-31 Rear cable - sedan*

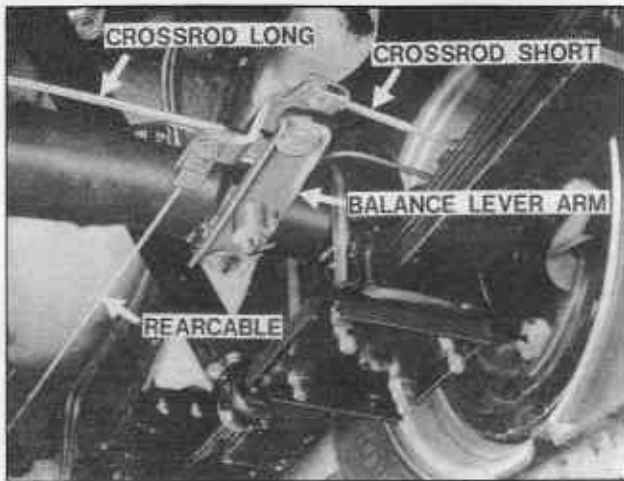
## CHASSIS

### (2) Station wagon

Rear cable can be detachable by removing the both ends clevis pins of the rear cable.

### 4. Cross rods - station wagon

- (1) Remove the pull off springs.
- (2) Extract each clevis pin and remove the cross rod.



*Fig. BR-32 Cross rod - station wagon*

## Inspection

### 1. Cables

If braid include some broken wires or wire is unadjustable due to excess elongation, replace the cable.

### 2. Control stem

- (1) Set spring; If any weakness is found, replace it with new one.
- (2) Ratchet nail; If it is worn, replace it with new one.
- (3) Ratchet nail spring; If it is weakned or broken, replace it with new one.

3. Return spring or pull off spring; If any weakness is found, replace it with new one.

4. Check the balance lever, balance lever arm and arm bushing for wear and out of round, replace them if abnormal conditions are found.

## Installation

Install in reversed removing order.

Apply grease to sliding parts and adjust the hand brake.

# BRAKE

## ADJUSTMENT

### Adjustment of brake pedal

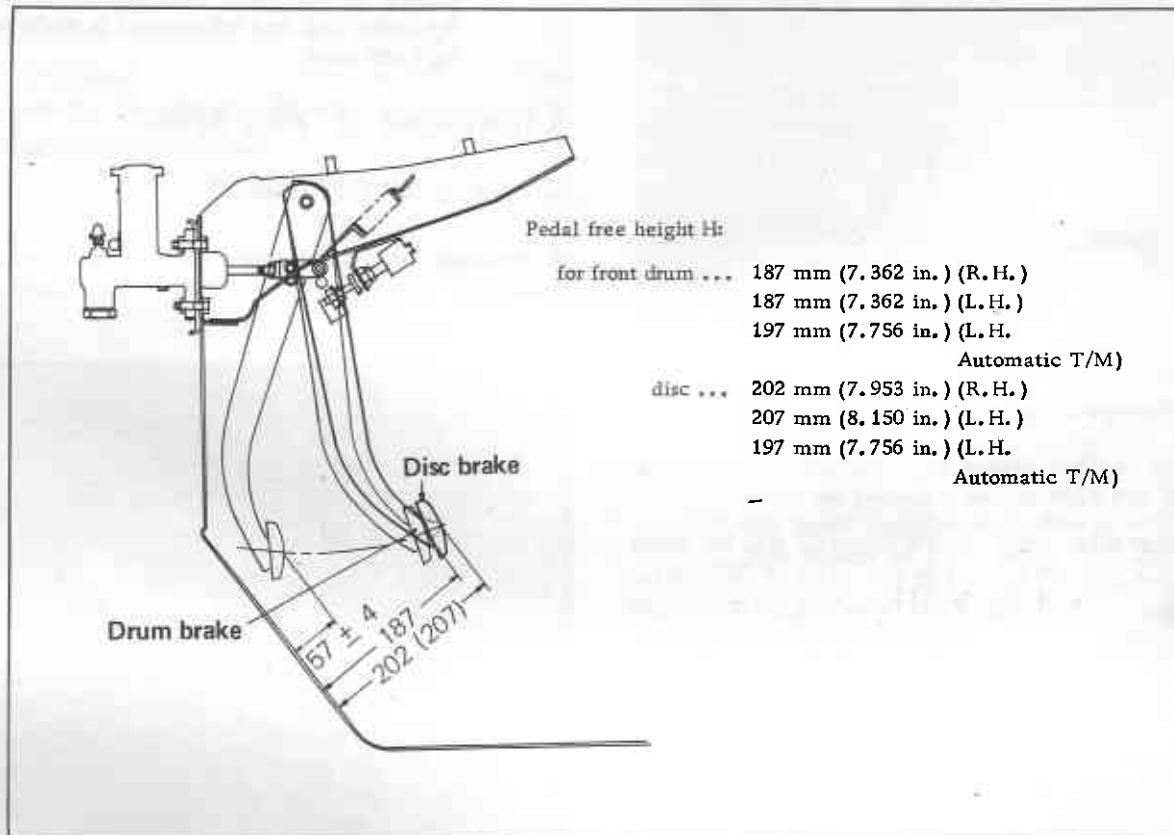


Fig. BR-33 Pedal adjustment

#### Method of the brake pedal adjustment

- 1 Adjust the adjusting screw of the master cylinder push rod so that the height of the assembled pedal pad comes to the \*mark H [ 187 mm (7.362 in.) for R/L hand drive front drum brake, 202 mm (7.952 in.) for R.H. drive disc brake, 207 mm (8.150 in.) for L.H. drive disc brake, 197 mm (7.756 in.) for L.H. drive automatic transmission ] without the brake light switch and free from pedal stopper. Then lock it completely with the lock nut.

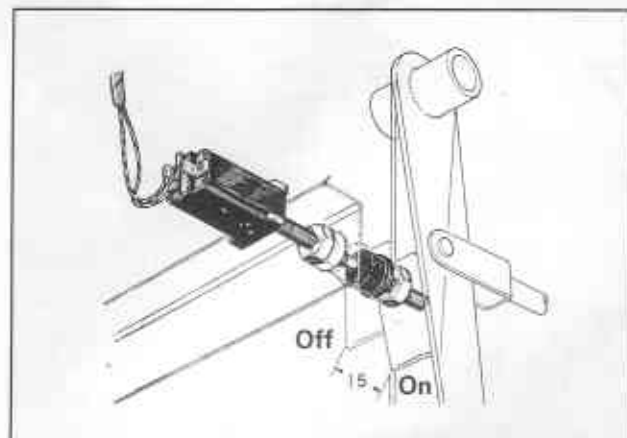


Fig. BR-34 Setting of brake light switch

## CHASSIS

2. Screw in the brake light switch until the screw part of the switch is faced the front side of the stopper bracket as shown in figure.

Then lock it firmly with the lock nut.

3. After the above process, screw in the brake stopper bolt until the movable part of the switch is completely pushed in by the pedal. Then lock it firmly with the lock nut.

4. After the processes 1, 2 and 3 are over, make sure that the lamp is on when the pedal is pushed down by 1.5 m/m (0.0591 in.) at the place of the brake pedal pad and it is off when the pedal is released. Repeat it for several times.

### Oiling

Since this pedal assembly will not be oiled after the line off except in the case of dismantling, make sure that the places with the BG mark are oiled without fail.

Apply sufficient amount of the brake grease to the BG mark.

### Adjustment of front drum brake

1. Jack up the front wheel.
2. After depressing the brake pedal several times to have the shoes adhere against the drum, turn the adjusting cams to forward until the drum is locked.



Fig. BR-35 Adjusting front brake

3. Rotate the cams in opposite direction a little until the shoes becomes just free from the drum.

**Note:** There are two adjuster cams which are located at the lower and upper position of the brake disc and adjustment is made by using both cams.

### Adjustment of rear brake

1. Jack up the rear wheel.
2. Release the hand brake lever thoroughly to eliminate the possibility of the brake shoe drag due to misadjusted hand brakes.



Fig. BR-36-a Adjusting rear brake - sedan



Fig. BR-36-b Adjusting rear brake - station wagon

3. Depress the brake pedal several times and turn the adjusting screw to clockwise until the drum is locked.

## BRAKE

4. Return it two or three notches until the shoes becomes just free from the drum.

### Adjustment of front disc brake (Optional part)

Adjustment of disc brake is not required because the clearance between the pad and disc is adjusted automatically.

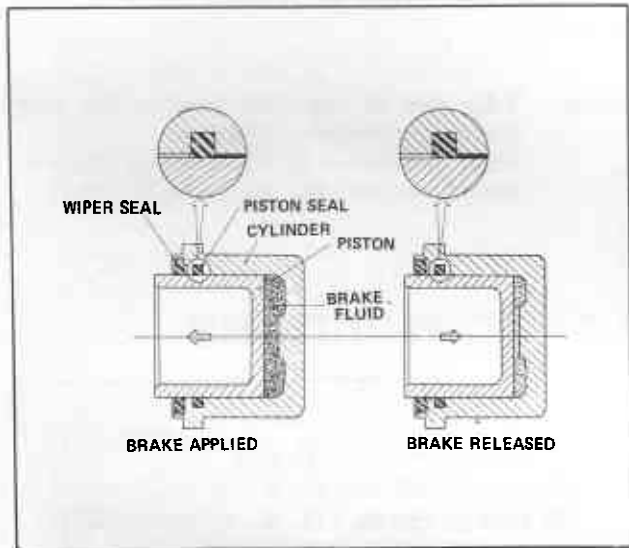


Fig. BR-37 Sectional view of piston

As shown in Fig. BR-37 a rubber seal is fitted in groove in the caliper bore. When hydraulic pressure generated in the wheel cylinder thrusts the piston forward against the inner pad, the seal tends to be deflected owing to the movement of piston.

When pressure is released, the seal returns to its original shape causing the piston to retract into the cylinder bore. This movement maintains normal running clearance between pad and disc (clearance is around 0.1 mm (0.004 in.) in total).

### Adjustment of hand brake

1. Release the hand brake lever thoroughly and adjust rear brakes as previously outlined.
2. Adjust the front and rear hand brakes cable by adjusting nuts so that the stroke of the hand brake control stem is 85 to 95 mm (3.346 to 3.740 in.).

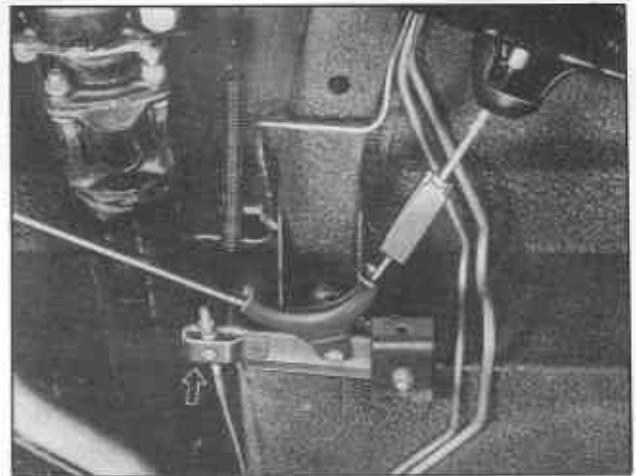


Fig. BR-38 Adjustment of hand brake cable - sedan

**Note:** For Wagon type vehicle, adjust the front cable by adjusting nut so that the stroke of the hand brake control stem is 110 to 120 mm (4.330 to 4.724 in.)

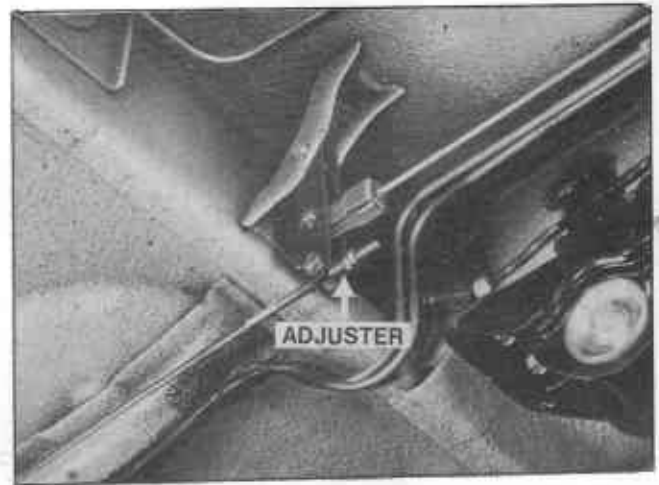


Fig. BR-39 Adjustment of hand brake cable - station wagon

### Bleeding hydraulic system

Bleeding the hydraulic brake system deserves much attention as it is an essential factor for regular service brake operation.

As a matter of fact, during the brake service, air is likely to creep into the circuit with the result that the fluid action is altered and the brake pedal becomes spongy at the travel end.

Bleeding should be carried out at first the master cylinder, then from the longest line from the master cylinder, and then finish up with the shortest.

## CHASSIS

**Note:** Always clear away any dirt around master cylinder reservoir cover before removing cover for any reason. Never depress pedal while brake drums are removed unless bleeder valve is open.

1. Top up the reservoir master cylinder with fluid of the recommended type.
2. Thoroughly wipe the bleeder screw end from any mud or dust present, so that the outlet hole is free from foreign matter.
3. Attach a vinyl hose to the wheel cylinder bleeder screw. Dip the end of the vinyl hose in a jar containing some brake fluid.

4. Open the bleeder screw by turning about three-quarters of a turn and operate the brake pedal, when pedal reaches floor close bleeder screw. Allow the pedal return slowly with valve closed. Repeat this operation until no air bubbles emerges from bleeder hose.

5. Keeping pedal pressed down, retighten the bleeder screw and remove the vinyl hose, and proceed one brake at a time to remaining wheels.

**Note:** Take care of the fluid level in the reservoir during bleeding operation. Fluid withdrawn in the bleeding operation should not be used again for refilling.

## SERVICE DATA AND SPECIFICATIONS

### Brake pedal

Pedal free height	for front drum	.....	187 mm (7.362 in.) (R. H.) 187 mm (7.362 in.) (L. H.) 197 mm (7.756 in.) (L. H. automatic T/M)
	disc	.....	202 mm (7.953 in.) (R. H.) 207 mm (8.150 in.) (L. H.) 197 mm (7.756 in.) (L. H. automatic T/M)

### Full stroke of pedal head

	for front drum	.....	130 ± 4 mm (5.118 ± 0.158 in.) (R. H.) 145 ± 4 mm (5.709 ± 0.158 in.) (L. H.)
	disc	.....	145 ± 4 mm (5.709 ± 0.158 in.) (R. H.) 145 ± 4 mm (5.709 ± 0.158 in.) (L. H.)

### Master cylinder

Inner dia. of master cylinder	.....	19.05 mm (3/4 in.)
Allowable max. clearance between cylinder and piston	.....	0.13 mm (0.0051 in.)

### Wheel cylinder

Inner dia. of wheel cylinder		
	Front (drum)	..... 22.22 mm (7/8 in.)
	(disc)	..... 50.8 mm (2.000 in.)
	Rear	..... 22.22 mm (7/8 in.)
	(front disc)	..... 20.64 mm (13/16 in.)
Allowable max. clearance between cylinder and piston	.....	0.18 mm (0.709 in.)

### Brake drum and rotor (disc)

Drum brake inner dia.	.....	228.6 mm (9.000 in.)
Rotor (disc) outer dia.	.....	232 mm (9.130 in.)
Drum inside out of roundness	.....	below 0.05 mm (0.002 in.)
Limit of reconditioning drum in dia.	.....	229.6 mm (9.039 in.)

## BRAKE

Run out of the rotor ..... below 0.06 mm (0.0024 in.)

Limit of reconditioning rotor in thickness ..... 8.4 mm (0.331 in.)

### Lining dimension

Front (width x thickness x length) ..... 40 × 4.5 × 219.5 mm (1.575×1.772×8.642 in.)

Rear (width x thickness x length) ..... 40 × 4.5 × 219.5 mm (1.575×1.772×8.642 in.)

Material ..... DON NBK 223 (NISSHINBO)

Pad (width x thickness x length) ..... 39.7 × 9 × 86 mm (1.563×0.354×3.386 in.)

Pad material ..... standard M78S (SUMITOMO DENKO)

### Total braking area

Front drum brake ..... 351 cm<sup>2</sup> (54.4 in<sup>2</sup>)

disc brake ..... 114.2 cm<sup>2</sup> (17.7 in<sup>2</sup>)

Rear ..... 351 cm<sup>2</sup> (54.4 in<sup>2</sup>)

### Tightening torque

Fulcrum pin of brake pedal ..... 3.5 ~ 4.0 kg-m (25.3 ~ 28.9 ft-lb)

Connection of brake tube ..... 1.5 ~ 1.7 kg-m (10.8 ~ 12.3 ft-lb)

Rotor fixing bolts ..... 3.9 ~ 5.3 kg-m (28.2 ~ 38.3 ft-lb)

Wheel cylinder fixing bolts Studs side ..... 0.5 ~ 0.7 kg-m (3.6 ~ 5.1 ft-lb)

Hexagon side ..... 1.5 ~ 2.1 kg-m (10.8 ~ 15.2 ft-lb)

Bridge tube ..... 1.7 ~ 2.0 kg-m (12.3 ~ 14.5 ft-lb)

Brake hose to wheel cylinder ..... 1.7 ~ 2.0 kg-m (12.3 ~ 14.5 ft-lb)

Caliper to knuckle flange ..... 7.3 ~ 9.0 kg-m (52.8 ~ 65.1 ft-lb)

Disc to knuckle flange ..... 2.7 ~ 3.7 kg-m (19.5 ~ 26.8 ft-lb)

Spindle nut ..... 3.0 ~ 3.5 kg-m (21.7 ~ 25.3 ft-lb)

## TROUBLE DIAGNOSES AND CORRECTIONS

Troubles	Possible causes	Remedies
Spongy pedal          Pedal yields under slight pressure	Air in brake lines.	Bleed thoroughly.
	Swollen hose because of deterioration or use of poor quality.	Replace hose and bleed the system.
	Use of a brake fluid which boiling point is too low.	Change with the specified brake fluid and bleed system.
	Reservoir filler cap vent hole clogged. This promotes a vacuum in master cylinder that sucks in air through rear seal.	Clean reservoir filler cap and bleed the system.
	Deteriorated check valve.	Fit a new check valve and bleed the system.
	External leaks.	Check master cylinder, piping and wheel cylinder for leaks and make necessary repairs.
	Master cylinder leaks past primary cap.	Overhaul master cylinder.



## CHASSIS

Excessive pedal travel	<p>System has not been bled.</p> <p>Misadjusted shoes.</p> <p>Fluid low in master cylinder.</p> <p>Thermal expansion of drums because of excessive overheating.</p>	<p>Bleed the system.</p> <p>Adjust shoe-to-drum clearance.</p> <p>Full up with specified brake fluid. bleed the system if required.</p> <p>Allow drums to cool off. Check brake shoe linings and drums.</p> <p>Replace damaged parts.</p>
All brakes drag	<p>Insufficient shoe-to-drum clearance.</p> <p>Weak shoe return springs.</p> <p>Brake shoe return no free travel.</p> <p>Seized master cylinder piston.</p>	<p>Adjust clearance.</p> <p>Replace-the-springs.</p> <p>Adjust pedal height.</p> <p>Service the master cylinder replace the piston and bleed the system.</p>
One brake drags	<p>Loose or damaged wheel bearings.</p> <p>Weak, broken or unhooked brake shoe return springs.</p> <p>Insufficient clearance between brake shoe and drum.</p>	<p>Adjust or replace wheel bearings.</p> <p>Replace spring.</p> <p>Adjust brakes.</p>
Unbalanced brakes	<p>Grease or oil on linings.</p> <p>seized piston in wheel cylinder.</p> <p>Tires improperly inflated.</p> <p>Loose wheel bearing.</p> <p>Front suspension faulty.</p>	<p>Clean brake mechanism; replace lining and correct cause of grease or oil getting on lining.</p> <p>Service the wheel cyl. and bleed the system.</p> <p>Inflate tires to correct pressure.</p> <p>Adjust wheel bearing.</p> <p>Thoroughly check and adjust all front suspension components.</p>
Excessive pedal pressure required, poor brakes.	<p>Grease, mud or water on linings.</p> <p>Full area of linings not contacting drums.</p> <p>Scored brake drums.</p>	<p>Remove drums. Clean and dry linings or replace.</p> <p>Replace shoes.</p> <p>Reface drums and install new linings.</p>
Brake chatter, squeak or squeal	<p>Dust on drums or oil soiled linings.</p> <p>Weak shoe return springs.</p> <p>Drum out of round.</p> <p>Worn linings.</p>	<p>Remove and clean drums thoroughly. Eliminate oil leaks.</p> <p>Check springs and replace as required.</p> <p>Turn drums on lathe.</p> <p>Replace linings.</p>

SERVICE JOURNAL OR BULLETIN REFERENCE

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