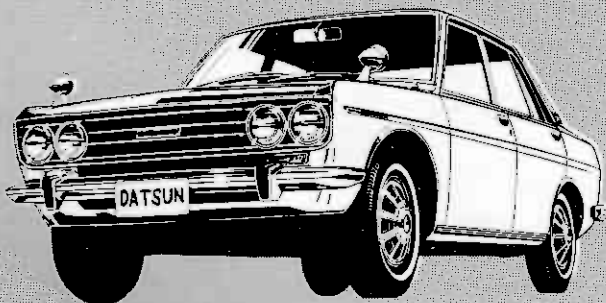


SERVICE MANUAL

Datsun

MODEL 510 SERIES
CHASSIS and BODY



SECTION BR

BRAKE

BR

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BRAKE

BRAKE

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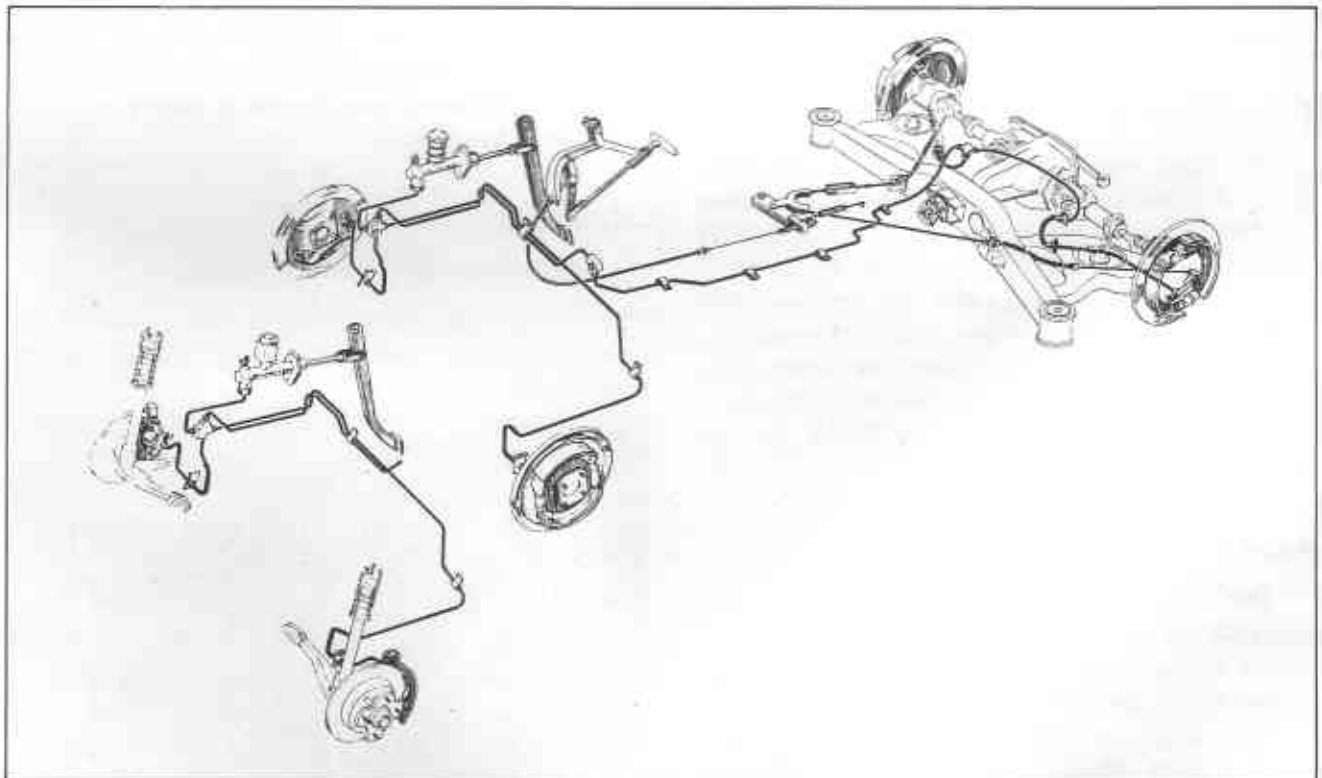


Fig. BR-1 Sedan

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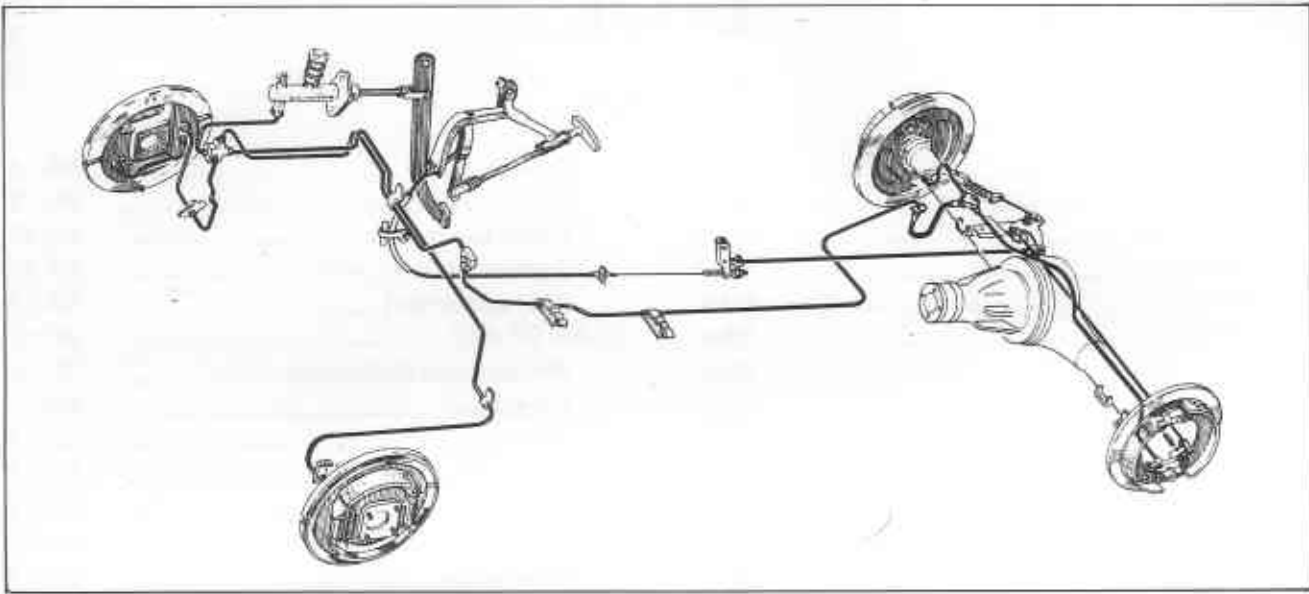


Fig. BR-2 Wagon

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.

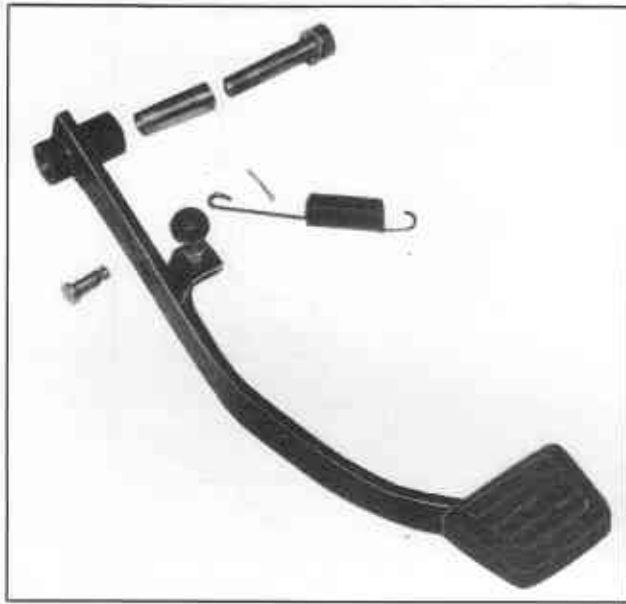


Fig. BR-4 Brake pedal components

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.

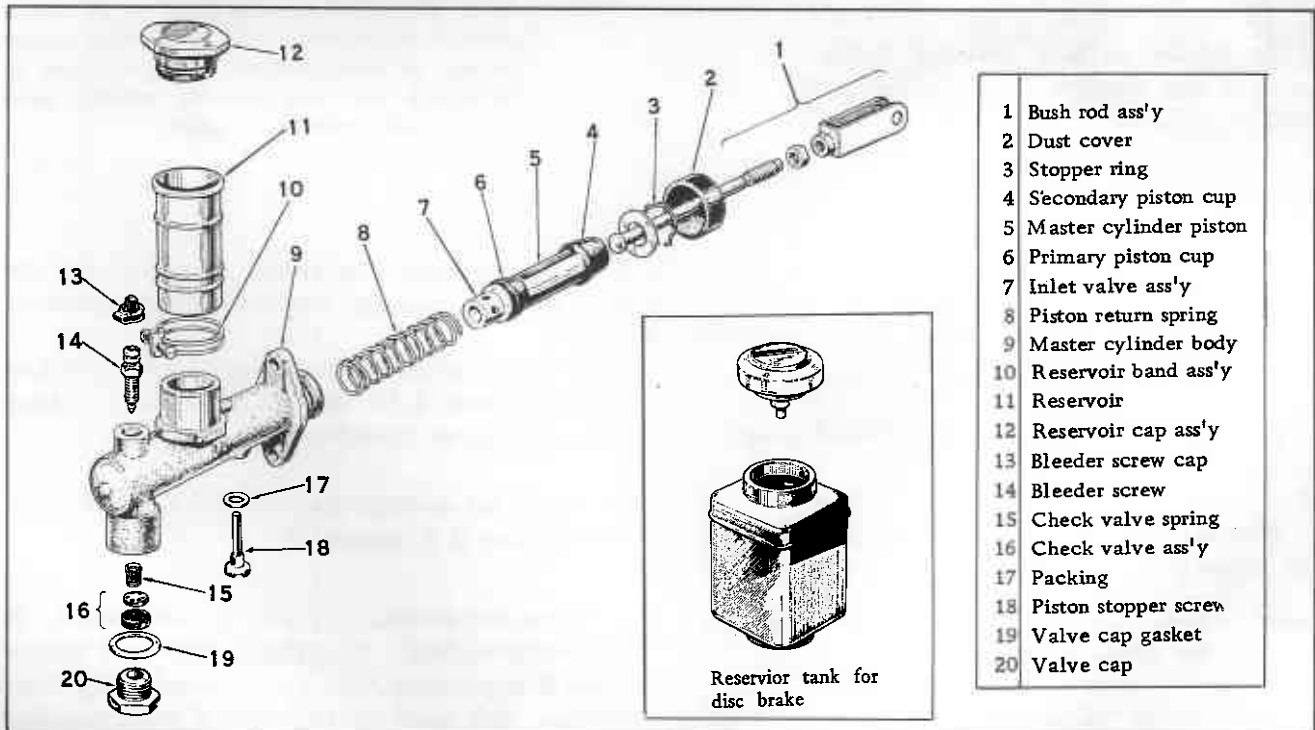


Fig. BR-5 Master cylinder

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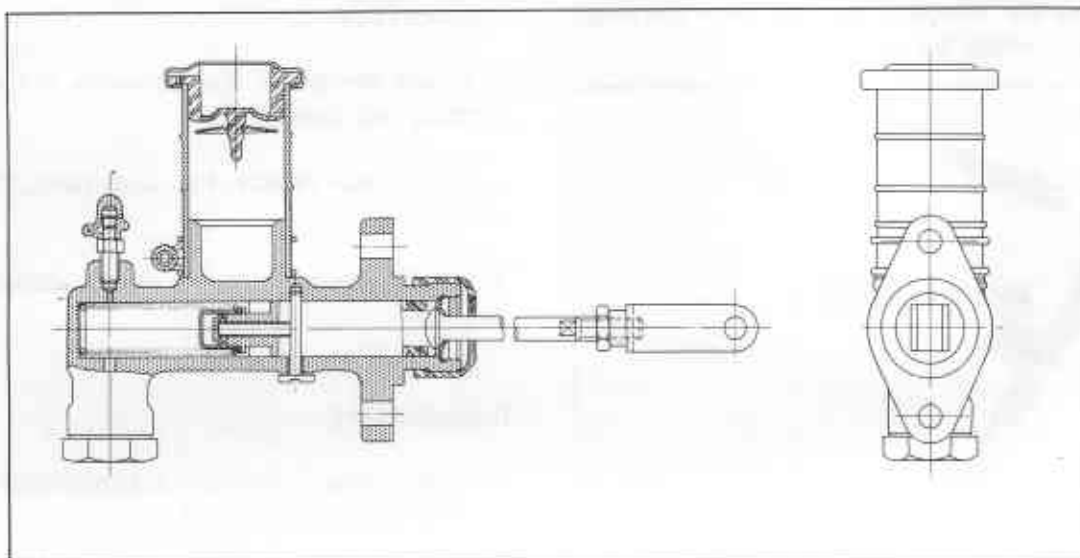


Fig. BR-6 Sectional view of master cylinder

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.

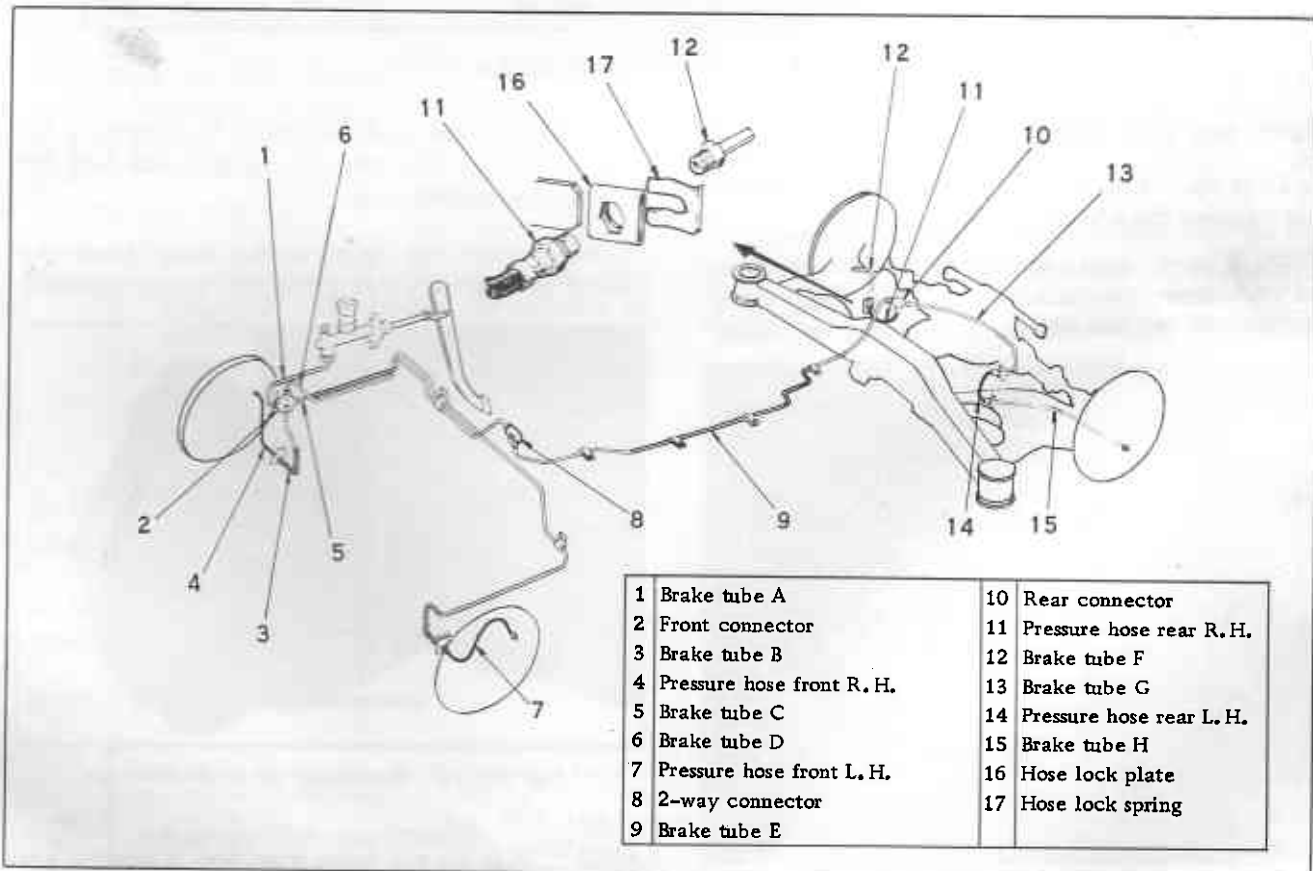


Fig. BR-7 Brake piping - sedan

CHASSIS

FRONT DRUM BRAKE

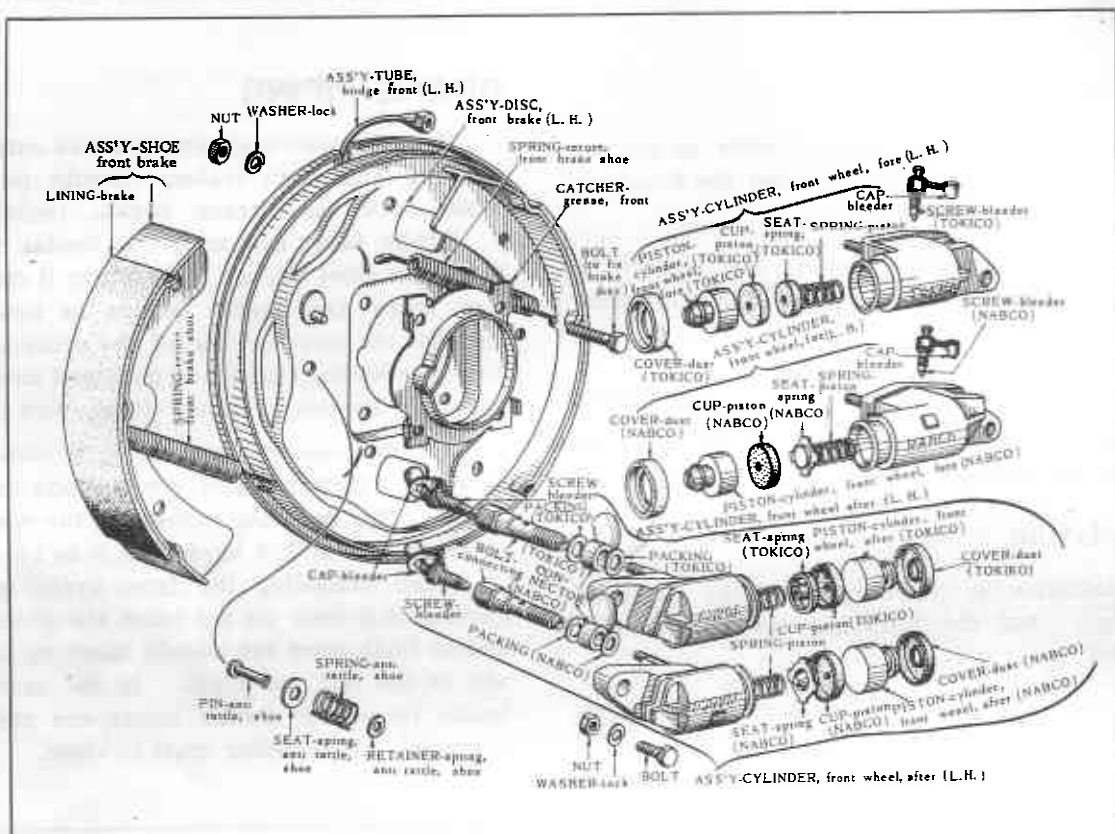


Fig. BR-8 Front brake (L.H.)

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.

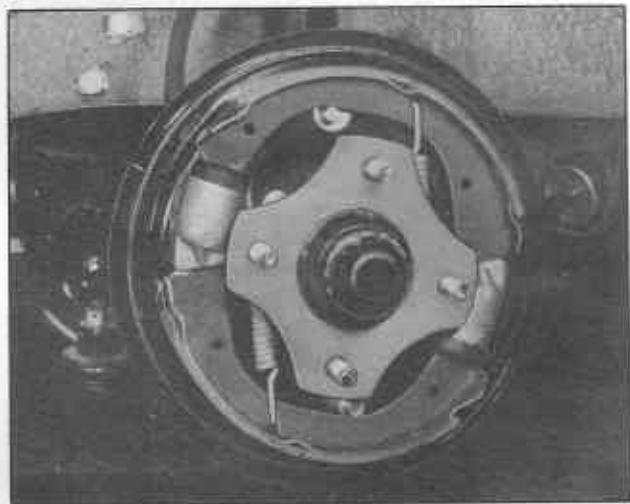


Fig. BR-9 Front drum brake

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.

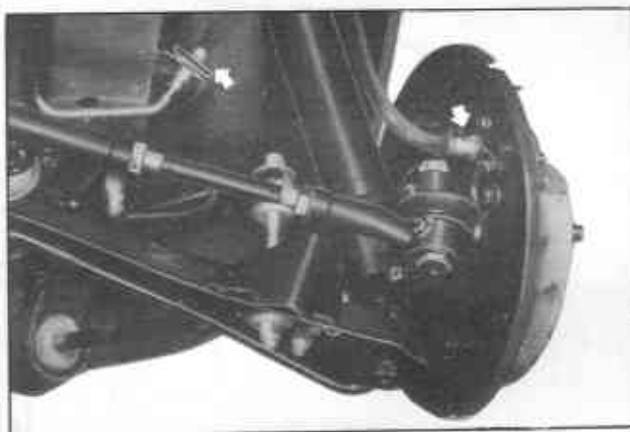


Fig. BR-10 Removing front brake hose

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.

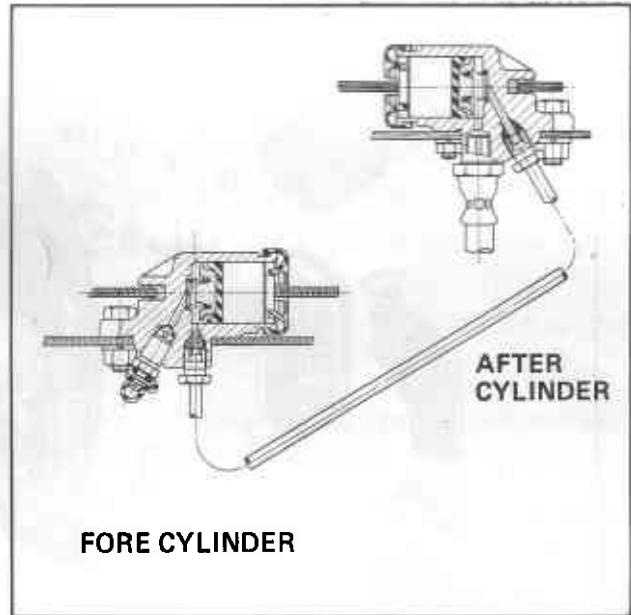


Fig. BR-11 Sectional view of front wheel cylinder

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.

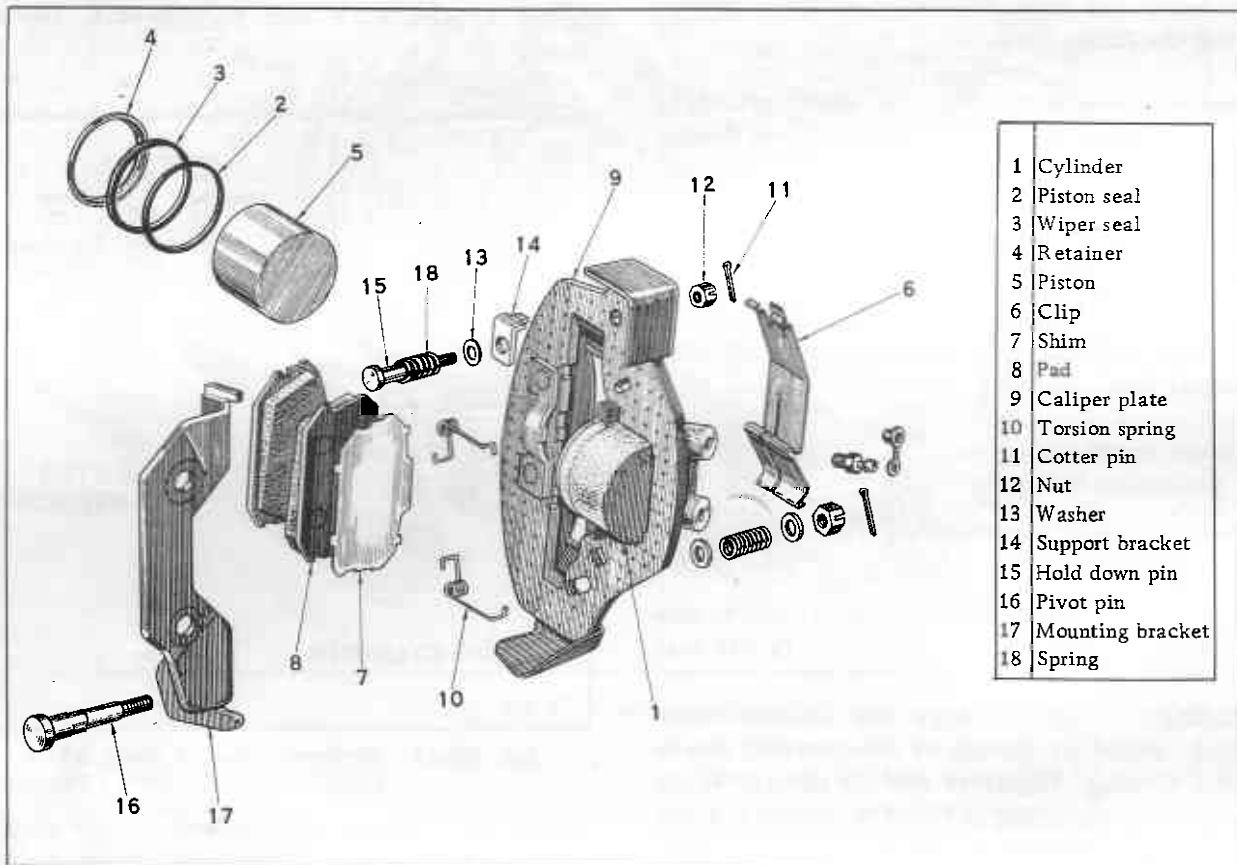


Fig. BR-12 Front disc brake

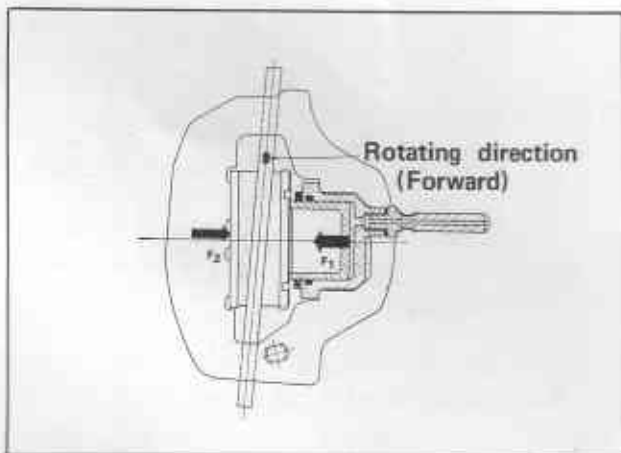


Fig. BR-13 Sectional view of front disc brake

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.

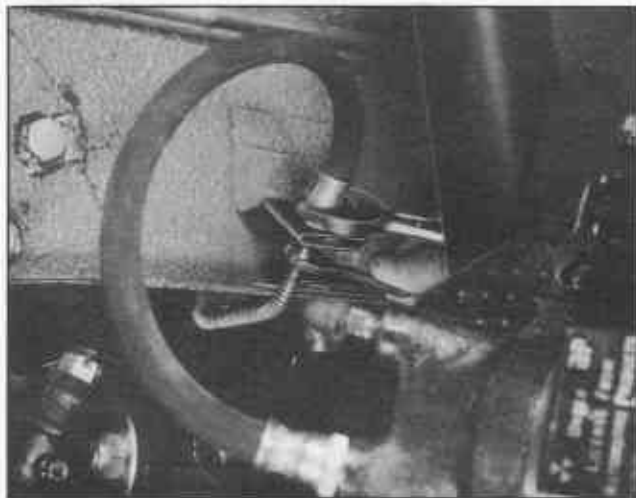


Fig. BR-14 Removing front brake hose

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.

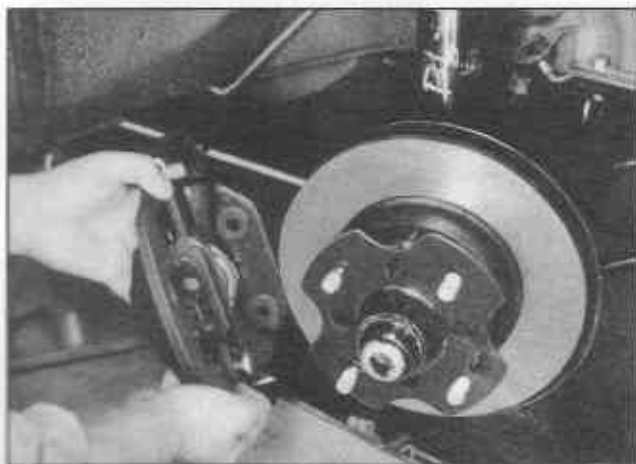


Fig. BR-15 Removing caliper assembly

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

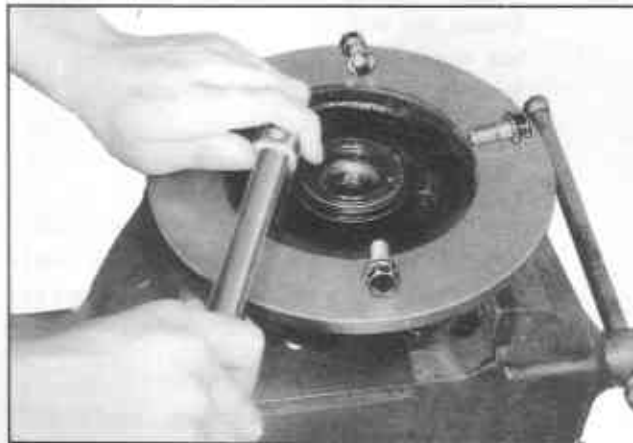
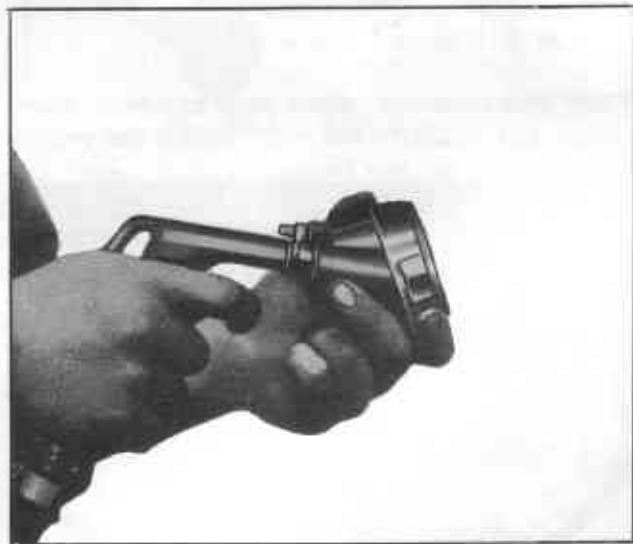


Fig. BR-16 Removing brake disc

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.).

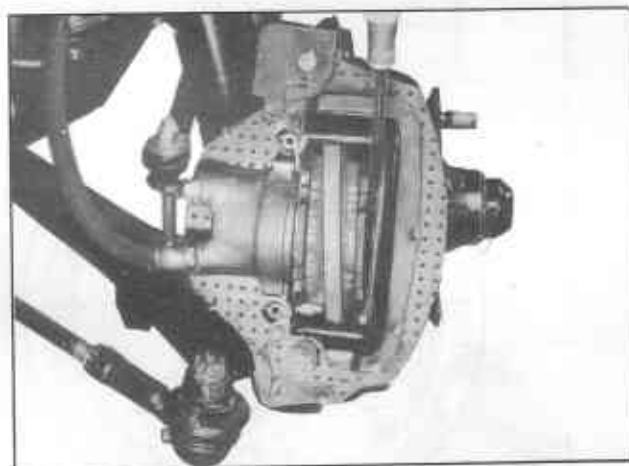


Fig. BR-21 Pushing piston

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

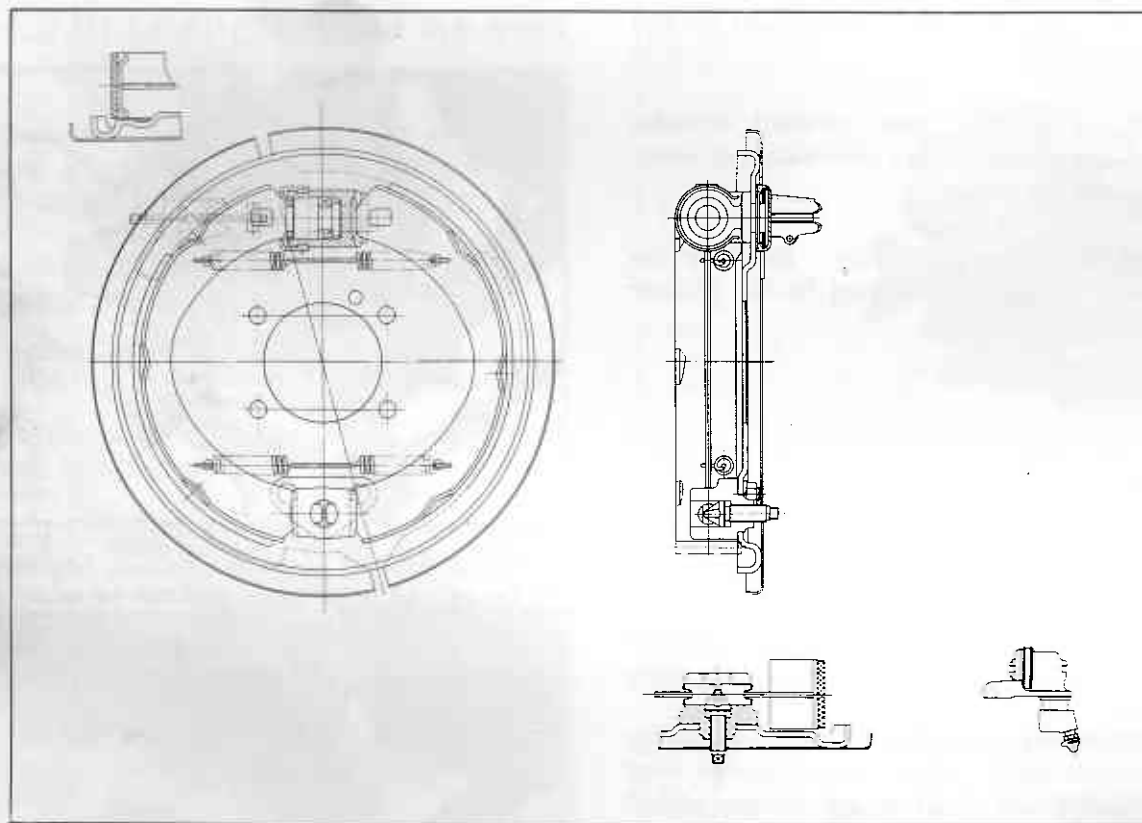


Fig. BR-23 Sectional view of rear brake

Removal and disassembly

1. Jack up the vehicle and support it on stands and remove the wheels.

cross rod from the lever of the rear wheel cylinder.

2. Release the parking brake and disconnect the

3. Remove the brake drum.