

SECTION 17

BRAKES

CONTENTS

17-1. GENERAL DESCRIPTION	17- 2
MASTER CYLINDER, DISC BRAKE CALIPER (FRONT) AND DRUM BRAKE (REAR)	
17-2. FRONT DISC BRAKE REMOVAL	17- 8
17-3. REAR DRUM BRAKE REMOVAL	17- 9
17-4. INSPECTION OF COMPONENTS	17-10
17-5. PRECAUTIONS ON INSTALLATION	17-14
17-6. MAINTENANCE SERVICE	17-20
17-7. TORQUE SPECIFICATION	17-26

NOTICE:

All brake fasteners are important attaching parts in that they could affect the performance of vital parts and systems, and/or could result in major repair expense. They must be replaced with one of same part number or with an equivalent part if replacement becomes necessary. Do not use a replacement part of lesser quality or substitute design. Torque values must be used as specified during reassembly to assure proper retention of all parts. There is to be no welding as it may result in extensive damage and weakening of the metal.

IMPORTANT:

When servicing wheel brake parts, do not create dust by grinding, sanding brake linings, or by cleaning wheel brake parts with a dry brush or with compressed air. Many wheel brake parts contain asbestos fibers which can become airborne if dust is created during servicing. Breathing dust containing asbestos fibers may cause serious bodily harm. A water dampened cloth or water based solution should be used to remove any dust on brake parts. Equipment is commercially available to perform this washing function. These wet methods will prevent asbestos fibers from becoming airborne.

If any hydraulic component is removed or brake line disconnected, bleed the brake system. The torque values specified are for dry, unlubricated fasteners.

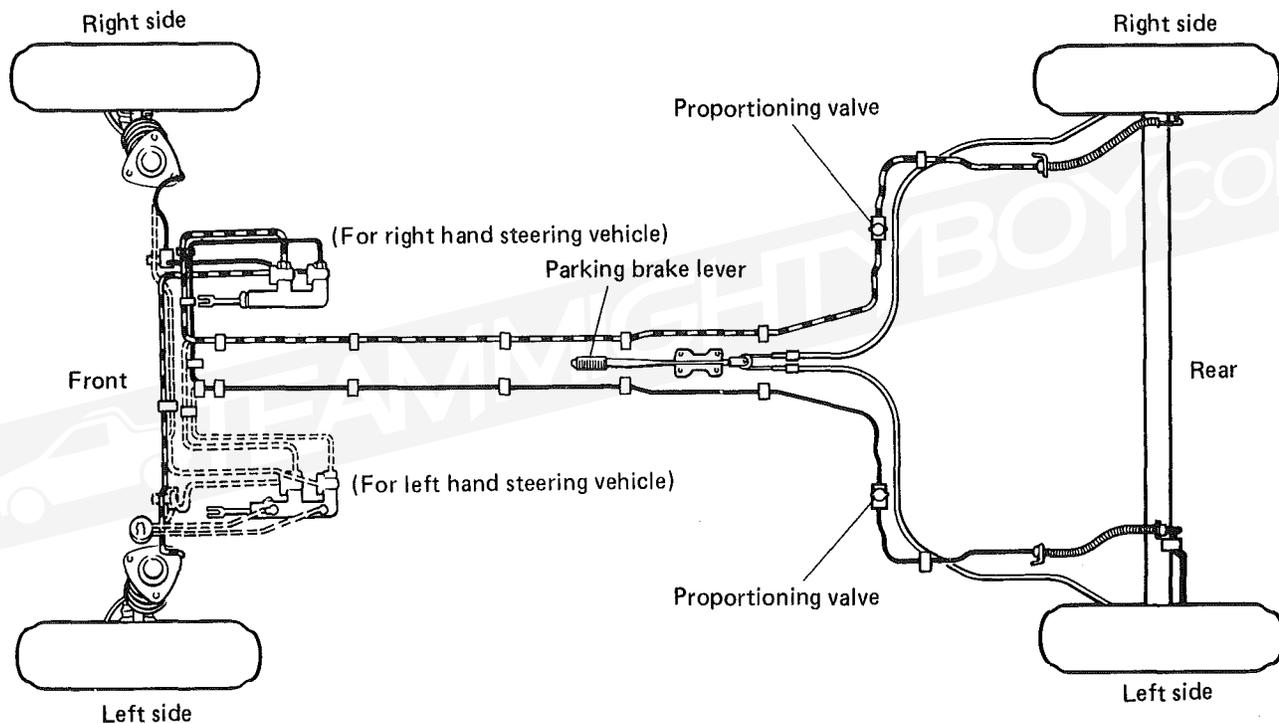
17-1. GENERAL DESCRIPTION

When the foot brake pedal is depressed, hydraulic pressure is developed in the master cylinder to actuate pistons (front and rear brake).

The master cylinder is a tandem master cylinder. Four brake pipes are connected to the master cylinder and they make two independent circuits. One connects the front right & rear left brakes and the other connects the front left & rear right brakes.

The proportioning valve (P valve) is included in these circuits between the master cylinder and rear wheels. The parking brake system is mechanical. It applies brake force to only rear wheels by means of the cable and mechanical linkage system. The same brake shoes are used for both parking and foot brakes.

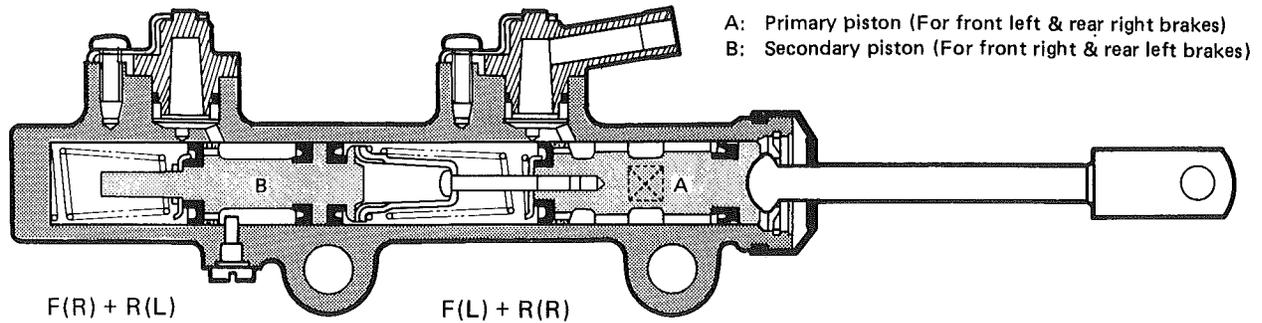
The front wheel brake system is of the disc brake type, and a drum type brake (leading-trailing shoes) is employed for the rear wheel brakes.



MASTER CYLINDER ASSEMBLY

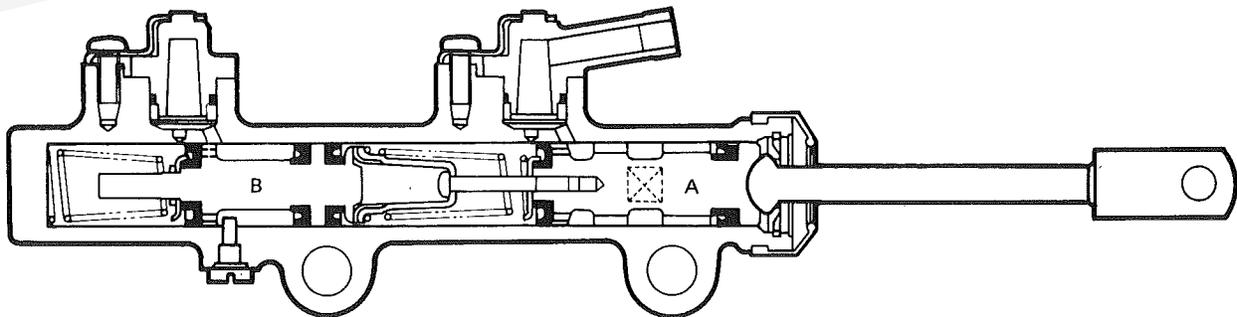
[GENERAL DESCRIPTION]

The tandem master cylinder is similar in construction to an ordinary master cylinder, the principal differences being that it has two pistons and four piston cups and that hydraulic pressure is developed in two chambers, one for front left & rear right brakes and the other for front right & rear left brakes.



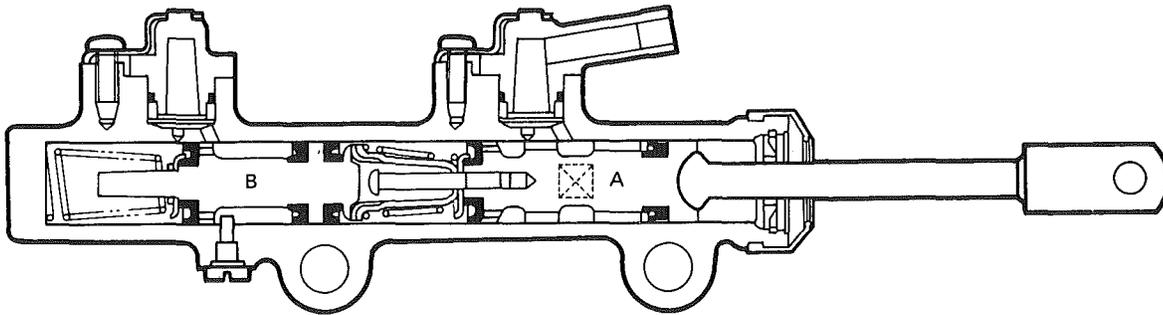
Normal operation

Depressing the brake pedal forces primary piston "A" toward the left (in figure) to pressurize the fluid immediately ahead for front left & rear right brakes. By this pressure and by the force of return spring, secondary piston "B" moves similarly to pressurize the fluid for front right & rear left brakes.



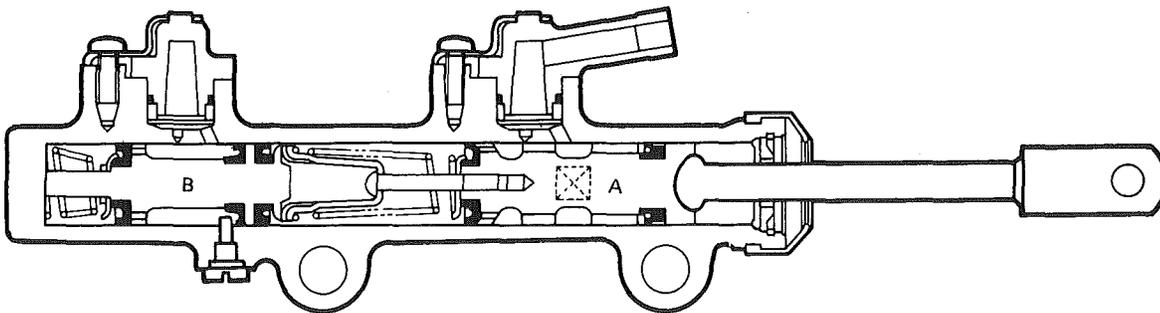
One-circuit operation (front left & rear right brakes circuit failure)

Depressing the brake pedal causes primary piston "A" to move as described previously but, because the front left & rear right brakes circuit cannot hold pressure, the fluid immediately ahead of this piston does not get pressurized. Piston "A" keeps moving, compressing the spring and when it reaches the piston "B" retainer, it begins to push piston "B". From this point on, piston "B" moves to pressurize the fluid ahead and thus actuate the front right & rear left brakes.



One-circuit operation (front right & rear left brakes circuit failure)

In this case, the leftward movement of piston "A" has but little effect in pressurizing its fluid (for front left & rear right brakes) at first, because the initial rise in fluid pressure causes piston "B" to promptly yield and move toward the left. Very soon the forward end of piston "B" comes to and bears against the head of the cylinder. From this point on, the leftward movement of piston "A" becomes effective to pressurize the fluid ahead of it for the front left & rear right brakes. The below figure shows secondary piston "B" at halt.



FRONT DISC BRAKE CALIPER ASSEMBLY

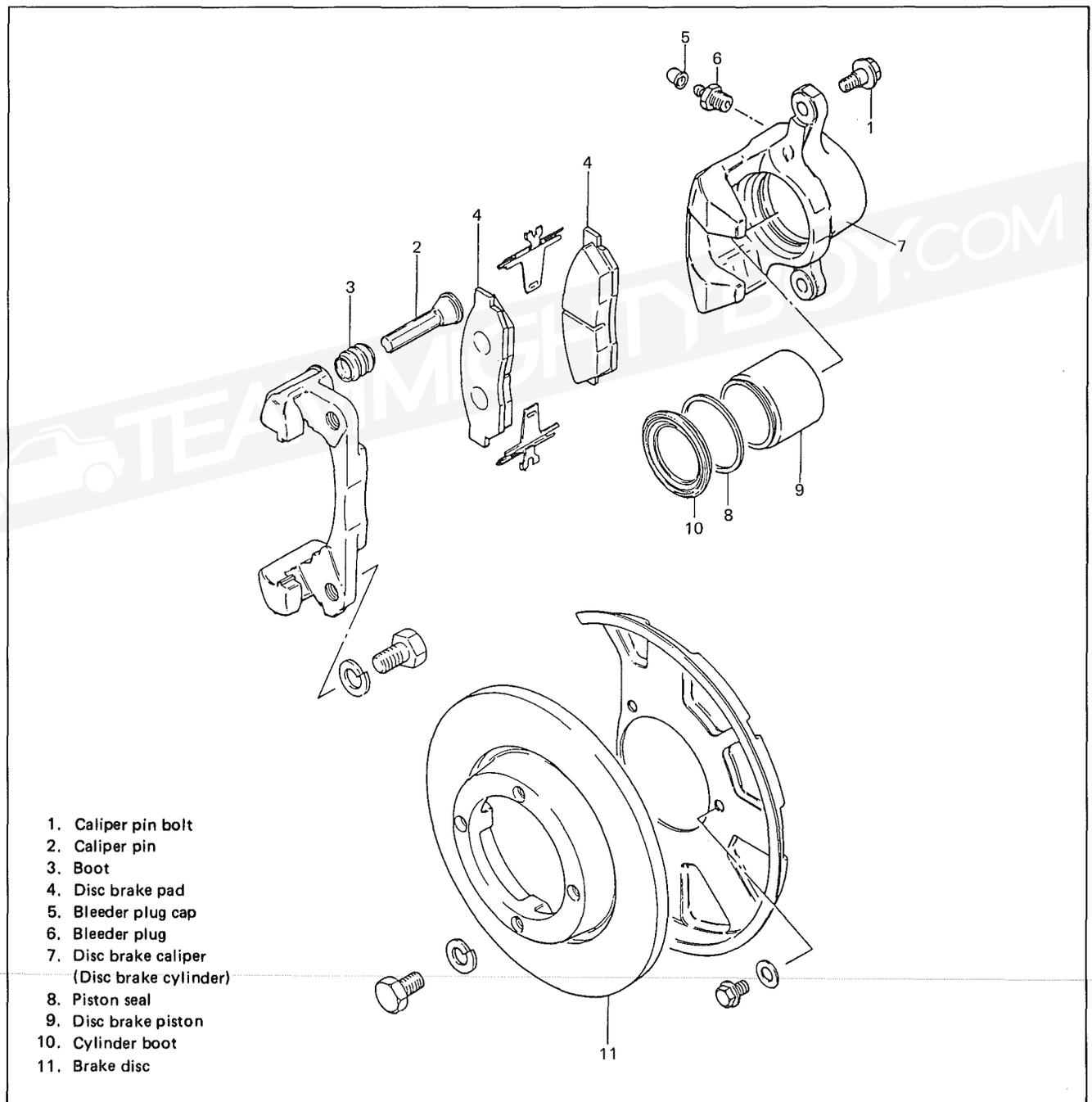
[GENERAL DESCRIPTION]

This caliper has a single 51.1 mm (2.012 in.) bore and is mounted to the brake caliper holder with two mounting bolts. Hydraulic force, created by applying force to the brake pedal, is converted by the caliper to friction. The hydraulic force acts equally against the piston and the bottom of the caliper bore to move the piston outward and to move (slide) the caliper inward, resulting in a clamping action on the disc. This clamping action forces the pads (linings) against the disc, creating friction to stop the car.

For details, refer to OPERATION in the next page.

NOTICE:

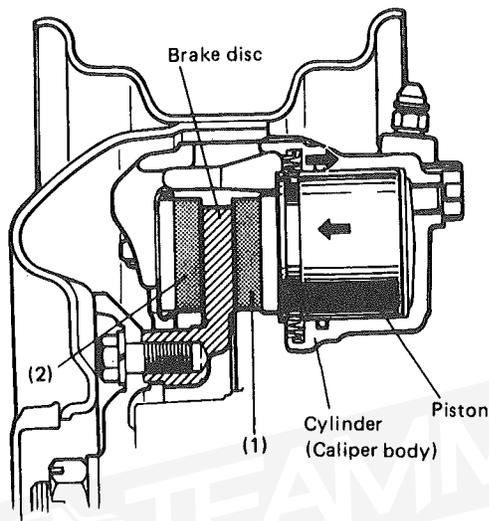
Lubricate parts as specified. Do not use lubricated shop air on brake parts as damage to rubber components may result. If any component is removed or line disconnected, bleed the brake system. Replace pads in axle sets only. The torque values specified are for dry, unlubricated fasteners.



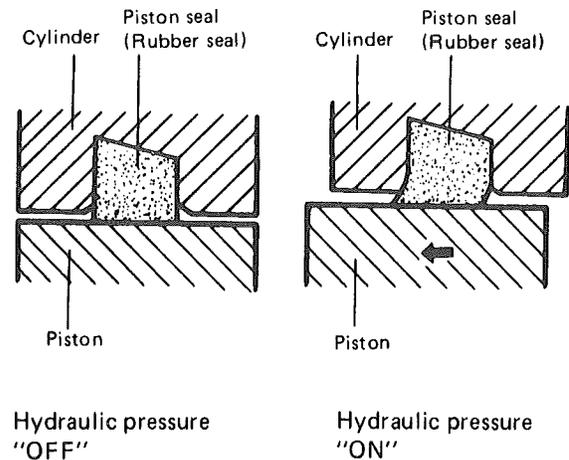
[Caliper OPERATION]

Single piston floating caliper type

The single piston floating caliper type brake is employed in this model. One cylinder and one piston are used for this type. (The cylinder is constructed as a monoblock with the caliper.) Fluid pressure generated in the cylinder causes the pad (1) on the piston side to press against the disc. At the same time, the floating type caliper body is moved to the right by the cylinder pressure, as shown in the below figure, which pulls pad (2) against the disc and so brakes the wheel.



The disc brake has no servo assistance as in drum braking, and it is necessary to increase the working pressure of the piston and pad. For this purpose, the wheel cylinder has a large bore. Even only a little change in clearance between the disc and pad has therefore a large influence on the brake pedal stroke. It is necessary to have the clearance adjusted to the minimum at all times, by means of the piston (rubber) seal.



Clearance correction

When oil pressure is applied to the piston, the piston moves forward. The rubber seal, which exerts considerable pressure against the piston, moves with the cylinder. However, as a part of the rubber seal has been fixed into a groove in the cylinder, the shape of the rubber seal is distorted toward internal end of the cylinder, as shown in the above figure. When pressure is taken off from the foot brake pedal and fluid pressure is released from the piston, a restoring force is generated at the seal and pushes the piston back. As the pads wear away and the clearance between the disc and pads becomes larger, the piston moves a larger distance. The seal then could change in shape further .but, since the end of the seal is fixed into the groove in the cylinder, the distortion is limited to the same amount as previously described. The piston moves further to cover the distance of clearance. The piston returns by the same distance and the rubber seal recovers its shape as described above and thus the clearance between the disc and pads are maintained in adjustment.

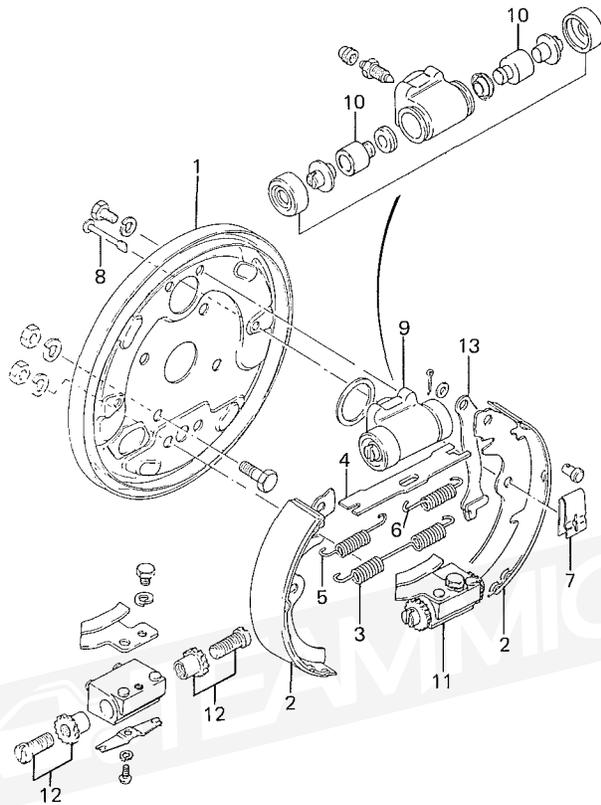
REAR DRUM BRAKE ASSEMBLY

[GENERAL DESCRIPTION]

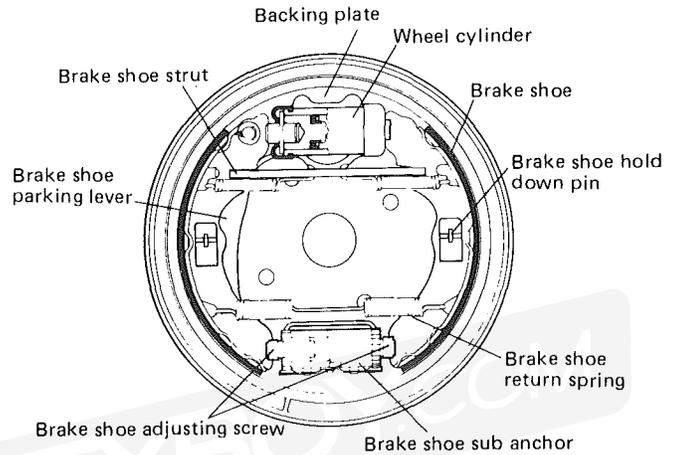
The rear brake has a double-piston type wheel cylinder interposed between the leading end of one shoe and the trailing end of the other. The other ends of these shoes pivot on the adjuster sleeve complete with an adjusting screw.

When hydraulic pressure applies to the wheel cylinder, which is bolted to the backing plate, the two pushrods of this cylinder move out to spread the shoes apart against the force of two return springs.

Brake adjustment is to be effected by turning the notched screw of the adjuster sleeve. This screw is accessible through a hole provided in the brake drum.



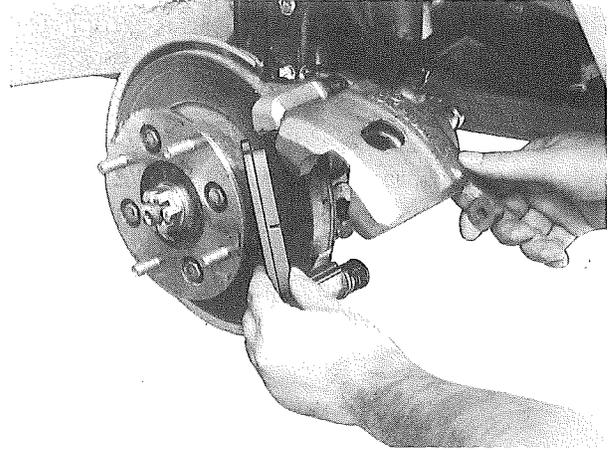
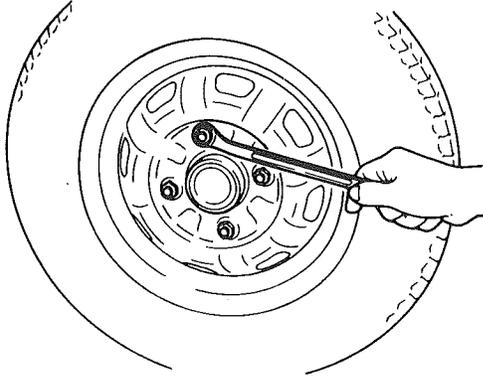
- | | |
|---------------------------|--------------------------------|
| 1. Brake back plate | 8. Shoe hold down pin |
| 2. Brake shoe | 9. Wheel cylinder |
| 3. Shoe return spring (A) | 10. Wheel cylinder piston |
| 4. Brake strut | 11. Brake shoe sub anchor |
| 5. Shoe return spring (B) | 12. Brake shoe adjusting screw |
| 6. Shoe return spring (C) | 13. Parking brake lever |
| 7. Shoe hold down spring | |



17-2. FRONT DISC BRAKE REMOVAL

PAD REMOVAL

Lift front end of vehicle by jacking after loosening wheel nuts, and support it on safety stands. Take off wheel.

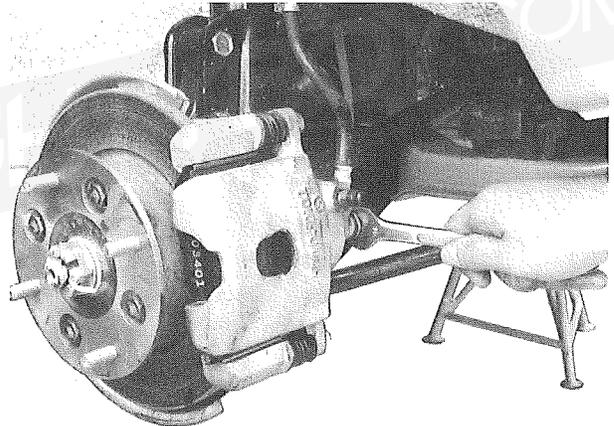
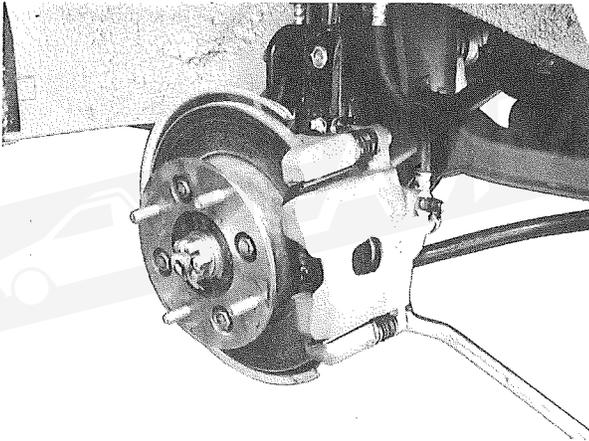


PISTON & PISTON SEAL REMOVAL

After removing wheel, remove piston and piston seal according to the following procedure.

- 1) Wipe caliper clean.
- 2) Detach brake flexible hose from caliper body (cylinder).

Remove under side bolt of caliper pin bolt.

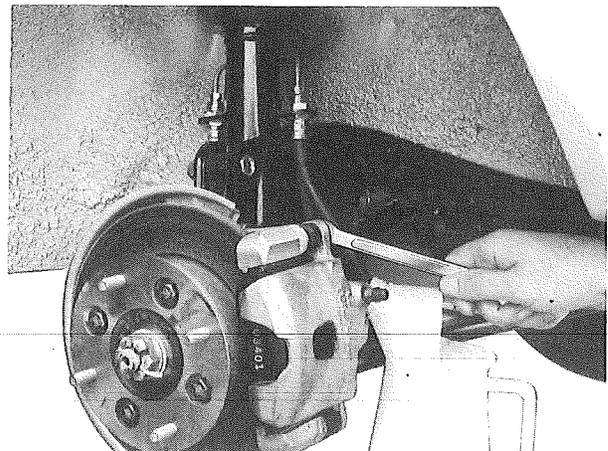


Remove pads (2 pcs.) while lifting caliper end by hand.

NOTICE:

At this time, be careful not to damage brake flexible hose.

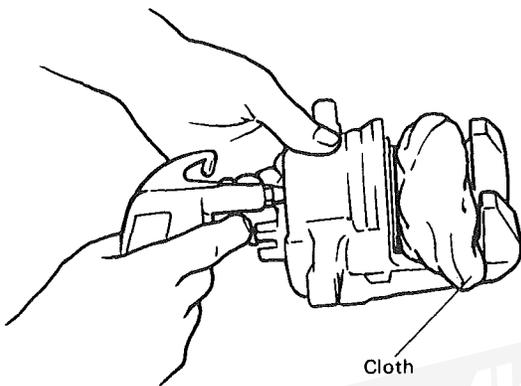
- 3) Remove caliper pin bolts (2 pcs).



- 4) Blow compressed air into cylinder through bolt hole where flexible hose was fitted. With this air pressure, piston can be pushed out of cylinder.

WARNING:

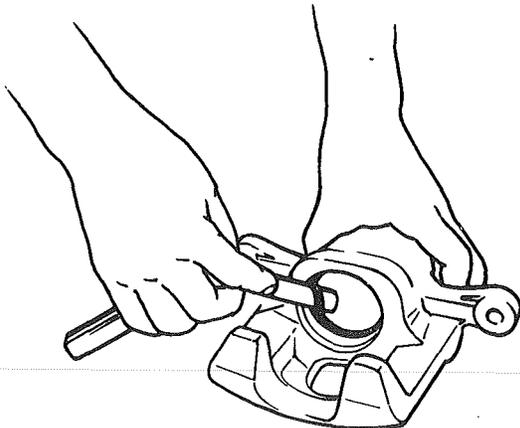
Do not apply too highly compressed air which will cause piston to jump out of cylinder. It should be taken out gradually with moderately compressed air. Do not place your fingers in front of piston when using compressed air to push it out.



- 5) Remove piston seal using a thin blade like thickness gauge, etc.

CAUTION:

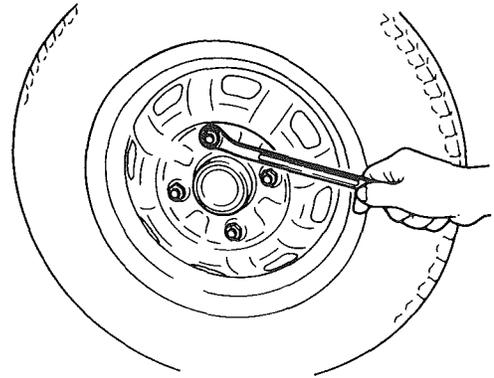
Be careful not to damage inside (bore side) of cylinder.



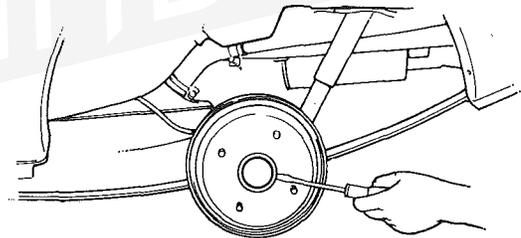
17-3. REAR DRUM BRAKE REMOVAL

Lift rear axle of vehicle by jacking after loosening wheel nuts, and support it on safety stands.

Take off wheel.



Remove spindle cap.

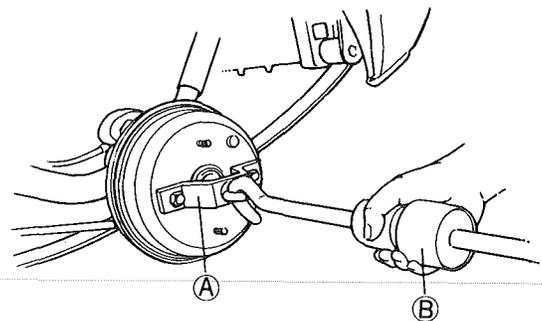


Check to ensure that parking brake lever is not pulled up.

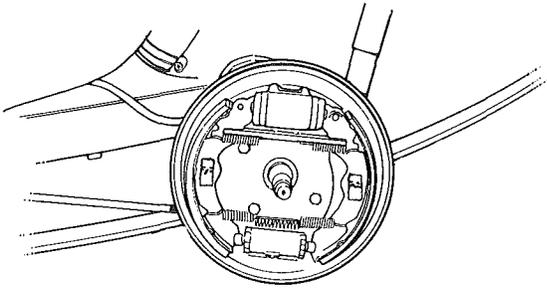
Remove nut securing brake drum to spindle, and pull drum off by using these special tools:

Front wheel hub remover (A) (09943-17910)

Sliding hammer (B) (09942-15510)



Remove brake shoe hold down pins.



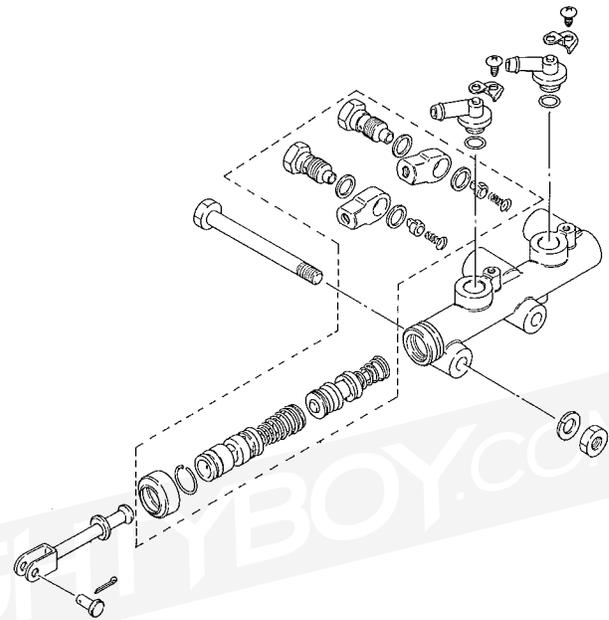
17-4. INSPECTION OF COMPONENTS

MASTER CYLINDER INNER PARTS

Inspect all disassembled parts for wear or damage, and replace parts if necessary.

NOTICE:

- Wash disassembled parts with brake fluid.
- Do not reuse piston cups.



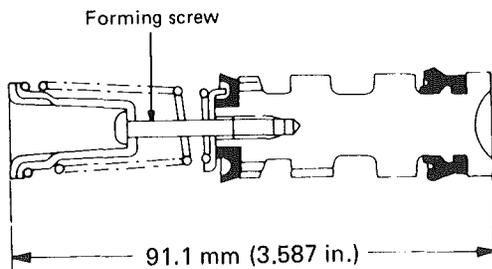
Inspect master cylinder bore for scoring or corrosion. It is best to replace corroded cylinder. Corrosion can be identified as pits or excessive roughness.

NOTICE:

Polishing bore of master cylinder with cast aluminum body with anything abrasive is prohibited, as damage to cylinder bore may occur.

Rinse cylinder in clean brake fluid. Shake excess rinsing fluid from cylinder. Do not use cloth to dry cylinder, as lint from cloth will remain on cylinder bore surfaces.

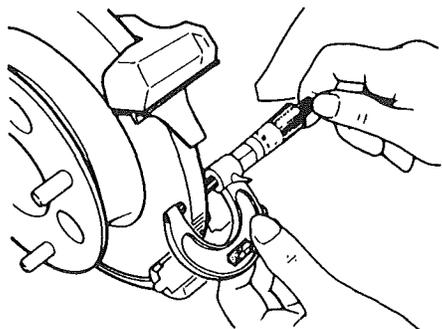
Overall length of primary piston sub-assembly is specified to be 91.1 mm (3.587 in.). This specification assumes great importance in the function of master cylinder. When rebuilding this sub-assembly after its disassembly for overhaul or for replacement of piston cups, be sure to set overall length to the specification by means of forming screw.



FRONT BRAKE DISC

Check disc surface for scratches in wearing parts. Scratches on disc surface noticed at the time of specified inspection or replacement are normal and the disc is not defective if these are not serious. But when there are deep scratches or scratches all over its surface, replace disc. When only one side is scratched, polish and correct that side.

	Standard	Limit
Disc thickness	11 mm (0.433 in.)	9.5 mm (0.374 in.)

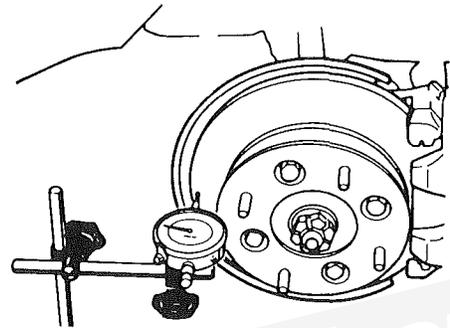


To check disc deflection, measure at 2 points on its periphery and center with a dial gauge, while rotating the disc.

Limit on disc deflection	0.15 mm (0.006 in.)
--------------------------	---------------------

NOTICE:

Check front wheel bearing for looseness before measurement.



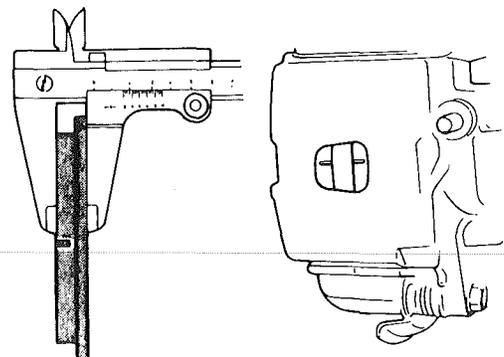
FRONT BRAKE PAD

Check pad lining for wear. When wear exceeds limit, replace with a new one.

Timing for pad replacement can be determined with the line of groove which is provided on each pad lining also. When it has disappeared, replace with a new pad.

CAUTION:

Never polish pad lining with sandpaper. If lining is polished with sandpaper, hard particles of sandpaper will be deposited in lining and may damage disc. When it is required to correct pad lining, replace it with a new one.



Pad thickness (lining + pad rim)	Standard	Limit
	15.5 mm (0.610 in.)	"A" 6.5 mm (0.256 in.)

Data marked with "B" is applicable to only European market.

Distinction

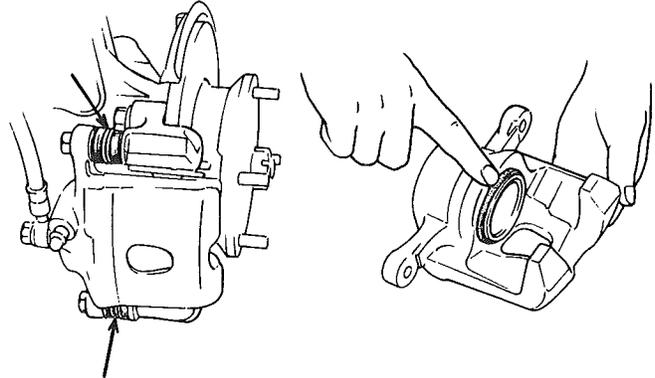
- ("A" marked brake pad rim is painted black.)
- ("B" marked brake pad rim is painted brown.)

NOTICE:

When pads are removed, visually inspect caliper for brake fluid leak. Correct leaky point, if any.

BUSH DUST BOOT AND CYLINDER BOOT

Check boots for breakage, crack and damage. If defective, replace.



FRONT BRAKE RUBBER SEAL

(Piston seal)

Excessive or uneven wear of pad lining may indicate unsmooth return of piston. In such case, replace rubber seal.



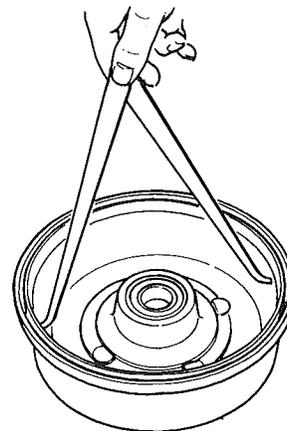
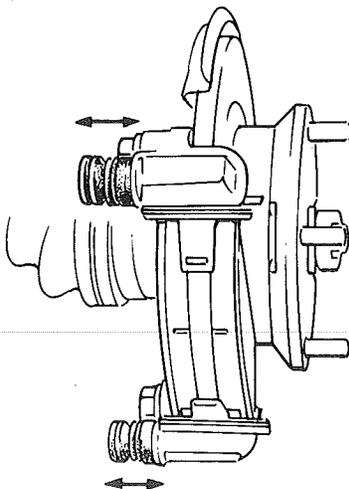
REAR BRAKE DRUM

Inspect drum for cleanliness. Check its braking surface for wear by measuring its inside diameter.

Item	Standard	Service limit
Brake drum I.D.	180 mm (7.09 in.)	182 mm (7.16 in.)

FRONT CYLINDER SLIDE BUSH

Check bush for smooth movement as shown. If it is found faulty, correct or replace. Apply rubber grease to bush outer surface. Rubber grease should be the one whose viscosity is less affected by such low temperature as -40°C (-40°F)



Whenever brake drums are removed, they should be thoroughly cleaned and inspected for cracks, scores, deep grooves.

Cracked, Scored, or Grooved Drum

A cracked drum is unsafe for further service and must be replaced. Do not attempt to weld a cracked drum. Smooth up any slight scores. Heavy or extensive scoring will cause excessive brake lining wear and it will probably be necessary to resurface drum braking surface.

If brake linings are slightly worn and drum is grooved, drum should be polished with fine emery cloth but should not be cut.

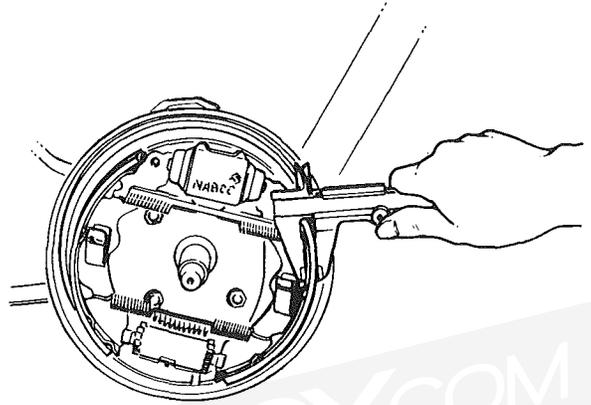
NOTICE:

When drum is removed, visually inspect wheel cylinder for brake fluid leak. Correct leaky point, if any.

REAR BRAKE SHOE AND RIM

If lining is worn out beyond service limit, replace shoe.

Brake lining	Standard	Service limit
Thickness (lining + shoe rim)	7.0 mm (0.28 in.)	3.0 mm (0.12 in.)



If one of brake linings is worn to or beyond service limit, all linings must be replaced at the same time.

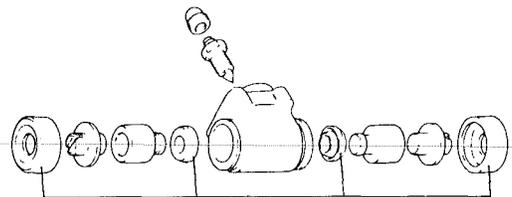
NOTICE:

Never polish lining with sandpaper. If lining is polished with sandpaper, hard particles of sandpaper will be deposited in lining and may damage drum. When it is required to correct lining, replace it with a new one.

REAR WHEEL CYLINDER

When removing brake drum, check wheel cylinder for oil leakage. If any leakage is found, replace wheel cylinder inner parts.

Inspect wheel cylinder disassembled parts for wear, cracks, corrosion or damage.



Rear wheel cylinder piston cup kit

17-5. PRECAUTIONS ON INSTALLATION

FRONT BRAKE

Reassemble front brake by reversing disassembly procedure, noting the following.

CAUTION:

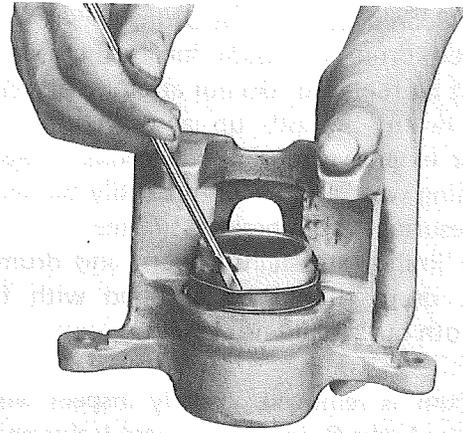
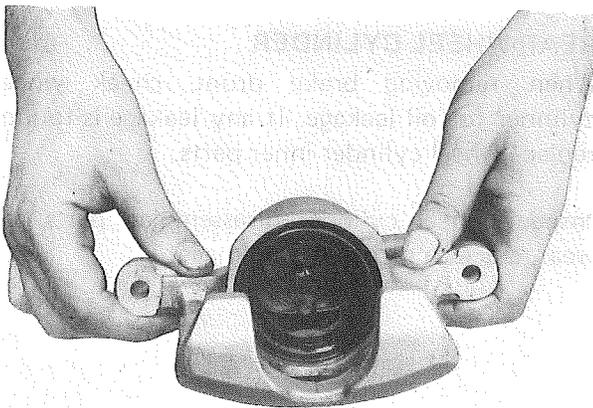
- Wash each part cleanly before installation in the same fluid as the one used in master cylinder reservoir.
- Never use other fluid or thinner.
- Before installing piston and piston seal to cylinder, apply fluid to them.
- After reassembling brake line, bleed air from lines.

1) Piston Seal

Piston seal is used to seal piston and cylinder and to adjust clearance between pad and disc. Replace with a new one at every overhaul. Fit piston seal into groove in cylinder taking care not to twist it.

2) Piston and Boot

Before inserting piston into cylinder, boot must be fitted in cylinder. Push boot outside as shown in figure. When inserting piston, and work can be done easily. At this time, be careful not to damage piston, cylinder or boot.

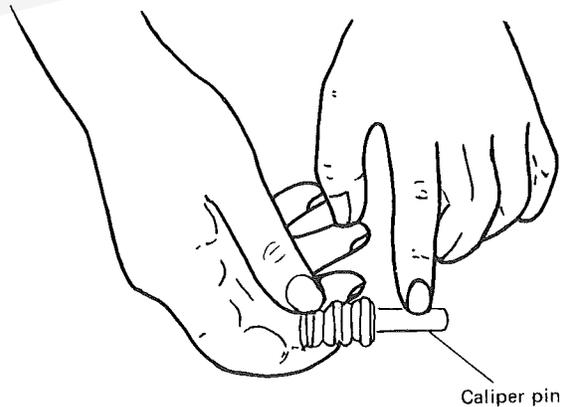


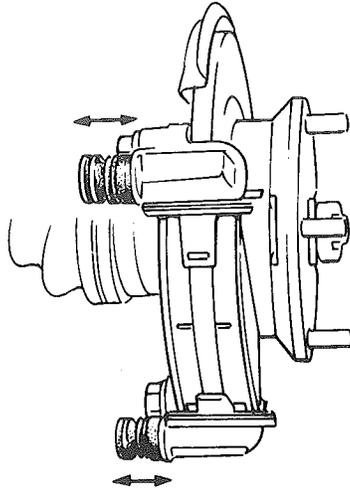
3) Caliper

- ① Before installing caliper (cylinder body) to the carrier, check to ensure that guide pins (2 pcs) are greased and that guide pin inserted in each carrier hole can be moved smoothly in thrust direction.

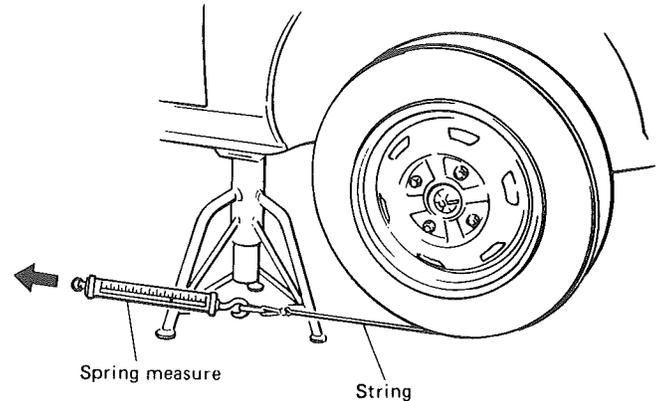
NOTICE:

Where temperature gets as low as -30°C in cold weather, use rubber grease whose viscosity varies very little even at -40°C (-40°F).





5) Mount tires and make certain that they rotate smoothly with a force of less than 3.5 kg (7.70 lb).



② When installing caliper (cylinder body) to carrier, tighten caliper pin bolts ② (2 pcs) to specified torque given below. Also, check carrier bolts ① (2 pcs) for tightness to below specified torque.

Tightning torque

	N·m	kg·m	lb·ft
Carrier bolt ①	70 – 100	7.0 – 10.0	51.0 – 72.5
Caliper pin bolt ②	22 – 32	2.2 – 3.2	16.0 – 23.0
Flexible hose bolt	20 – 25	2.0 – 2.5	14.5 – 18.0

NOTICE:

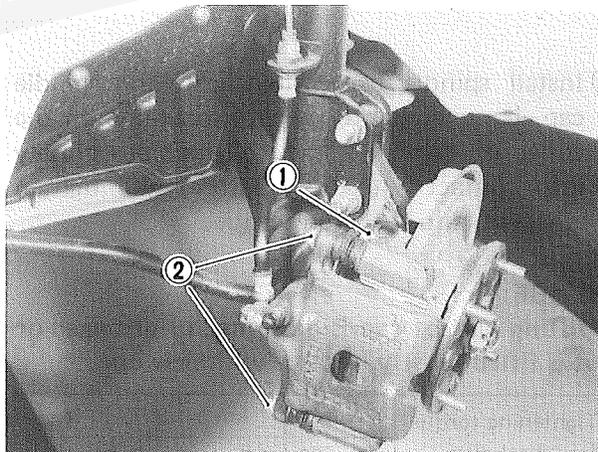
For above check, the following must be observed.

- 1) Jack up front wheels, both right and left, off the ground.
- 2) Above figure shows outer periphery of tire.
- 3) Be careful not to depress brake pedal when checking tire for rotation.

If tire rotation is heavy, check the following:

- Wheel bearings for breakage.
- Disc for flatness (Improper flatness brings disc into contact with lining during rotation and makes rotation heavy).

To check this, measure disc deflection.

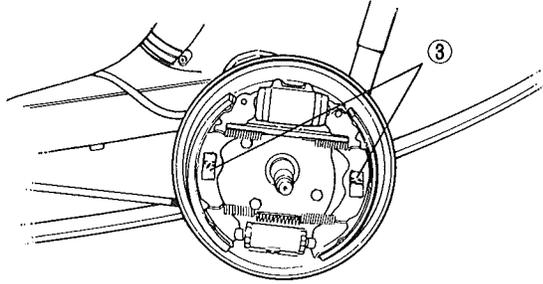


4) After completing installation, fill reservoir with brake fluid and bleed brake system. Perform brake test and check each installed part for oil leakage.

REAR BRAKE

Rear brake shoe hold down pin

When installing the brake shoe, ensure correct installation of the shoe holding springs ③ .

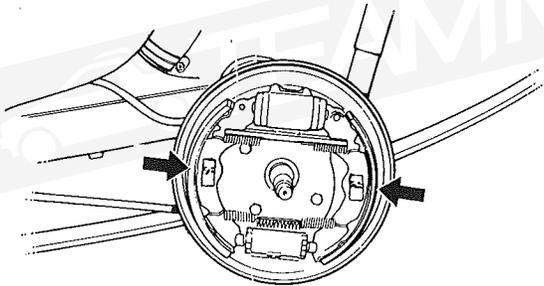


NOTICE:

After installing hold down pins, apply SEALING COMPOUND 366E (99000-31090) around pins from outside of backing plate.

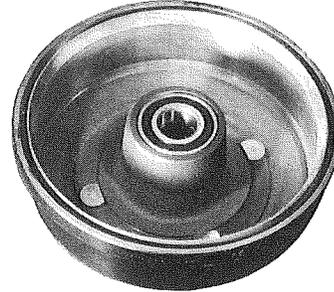
Rear brake shoe

Check brake shoe to be sure that it is free from oil or water before installing it.

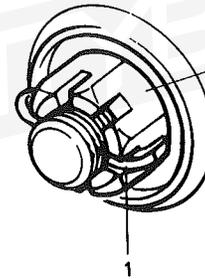


Rear brake drum

① Install brake drum after making sure that inside of brake drum and brake shoes are free from dirt and oil.



- ② Install washer and brake drum castle nut.
- ③ Torque castle nut to specification.
- ④ Bend split pin securely as shown.



80 – 120 N·m
(8.0 – 12.0 kg·m)
(58.0 – 86.5 lb-ft)

1. Split pin

⑤ Install spindle cap (when installing spindle cap, hammer lightly several locations on the collar of cap until the collar comes closely into contact with brake drum) and tighten wheel nuts to specified torque.

NOTICE:

If fitting part of cap is deformed or damaged or if it is fitted loosely, replace with new one.

Tightening torque for wheel nuts	N·m	kg·m	lb-ft
	40 – 70	4.0 – 7.0	29.0 – 50.5

NOTICE:

If brake backing plate was removed from wheel cylinder or brake pipe was disconnected from wheel cylinder. Bleed air from brake system. (For bleeding operation, refer to p. 17-24.)

- ⑥ Upon completion of all jobs, adjust drum to shoe clearance (For adjustment, see page 17-23).
- ⑦ Check to ensure that brake drum is free from dragging and proper braking is obtained. Then remove car from hoist and perform brake test.

CAUTION:

After replacing any of brake pipes or hoses, fill and maintain brake fluid level in reservoir. Bleed brake system.

BRAKE HOSE AND PIPE

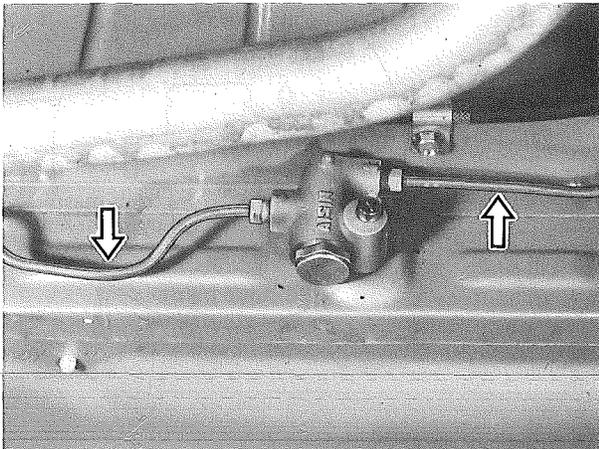
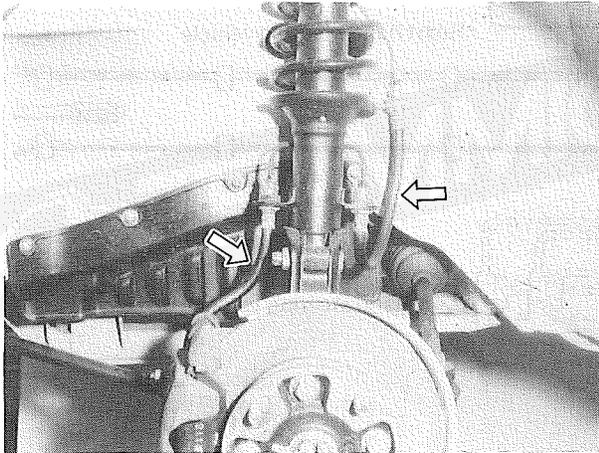
Brake flexible hose

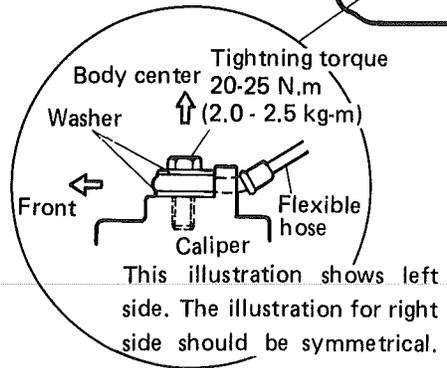
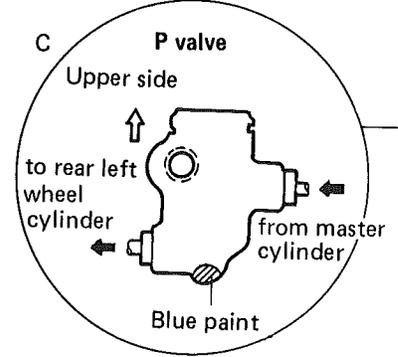
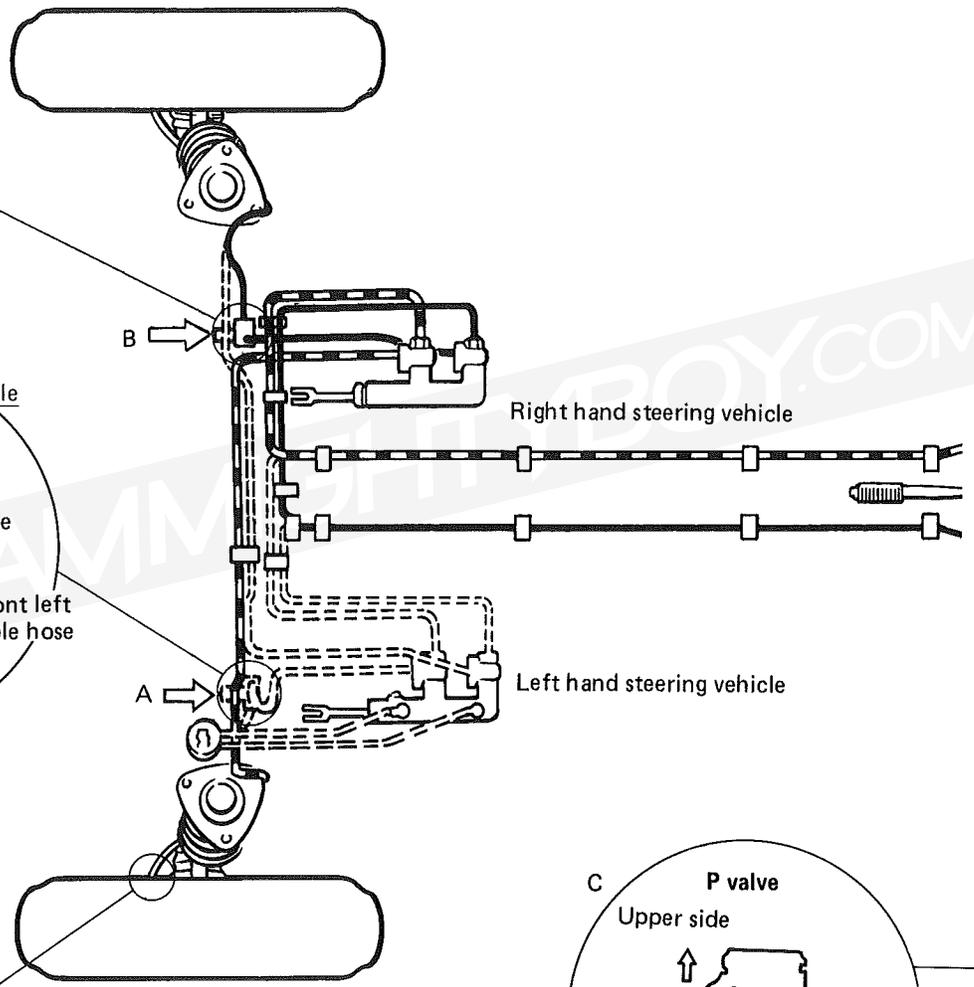
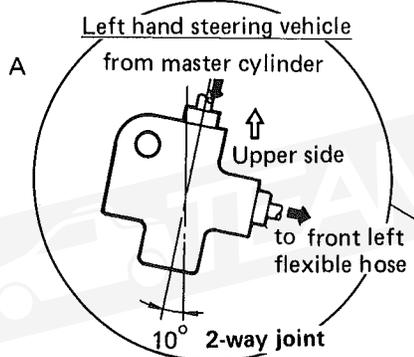
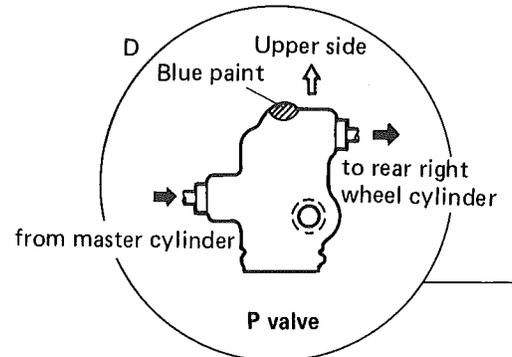
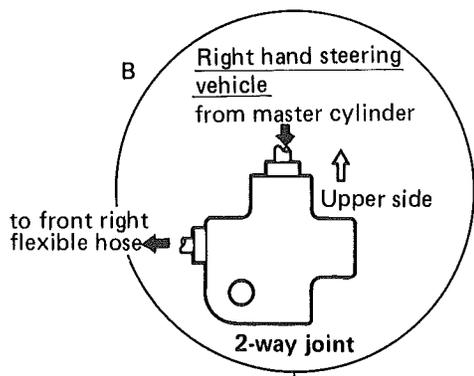
In case of front hose, fit its body side first and in case of rear hose, its housing side first.

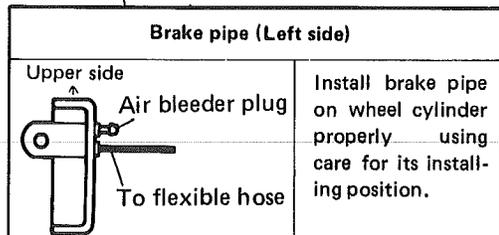
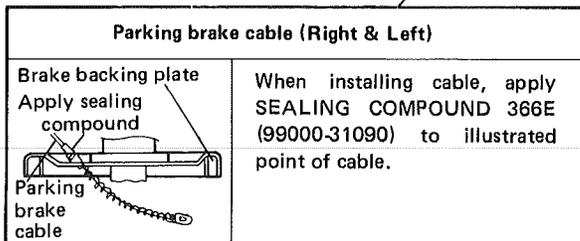
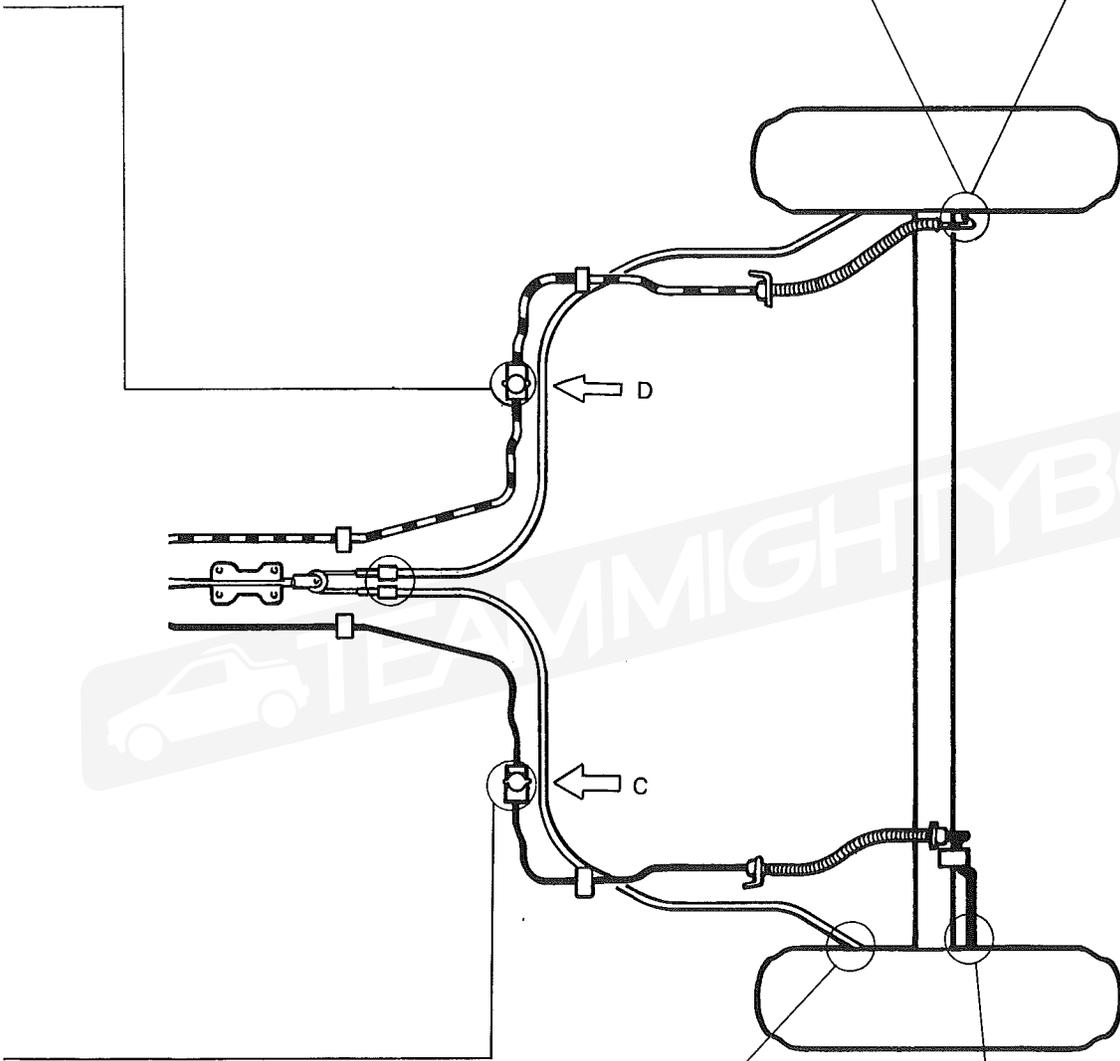
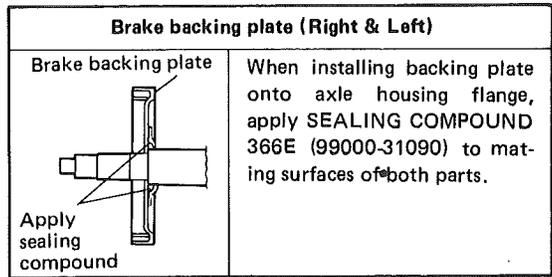
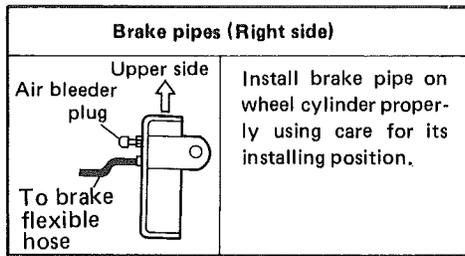
When tightening hose nuts, hold nuts on hose side with a wrench using care not to twist hose.

CAUTION:

Make sure that front brake hoses are not twisted when steering wheel is steered for straight ahead direction.







17-6. MAINTENANCE SERVICE

ROAD TESTING BRAKES

Brakes should be tested on dry, clean, smooth and reasonably level roadway which is not crowned. Road test brakes by making brake applications with both light and heavy pedal forces at various speeds to determine if car stops evenly and effectively.

Also drive car to see if it leads to one side or the other without brake application. If it does, check tire pressure, front end alignment and front suspension attachments for looseness. See diagnosis chart for other causes.

BRAKE FLUID LEAKS

Check master cylinder fluid levels. While a slight drop in reservoir level does result from normal lining wear, abnormally low level indicates leak in the system. In such case, check entire brake system for leakage. If even a slight evidence of leakage is noted, the cause should be corrected or defective parts should be replaced.

BRAKE FLUID LEVEL INSPECTION

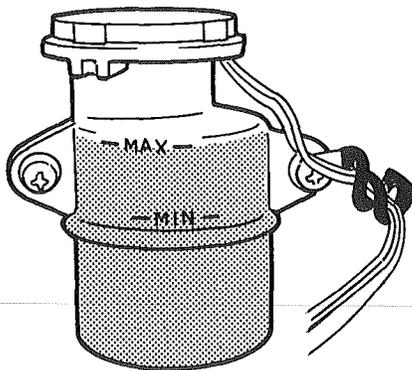
Be sure to use particular brake fluid either as marked on reservoir cap of that car or recommended in owner's manual which comes along with that car.

Use of any other fluid is strictly prohibited.

Fluid level should be between MIN and MAX lines marked on reservoir.

When warning light lights sometimes during driving, replenish fluid to MAX line.

When fluid decreases quickly, inspect brake system for leakage. Correct leaky points and then refill to specified level.

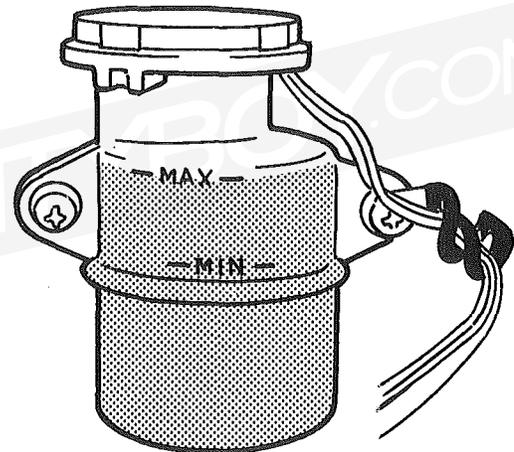


FILL RESERVOIR

NOTICE:

Do not use shock absorber fluid or any other fluid which contains mineral oil. Do not use a container which has been used for mineral oil or a container which is wet from water. Mineral oil will cause swelling and distortion of rubber parts in the hydraulic brake system and water will mix with brake fluid, lowering the fluid boiling point. Keep all fluid containers capped to prevent contamination.

Fluid to fill reservoir is indicated on reservoir cap of the car with embossed letters or in owner's manual supplied with the car. Add fluid up to MAX line.



BRAKE PEDAL FREE HEIGHT ADJUSTMENT

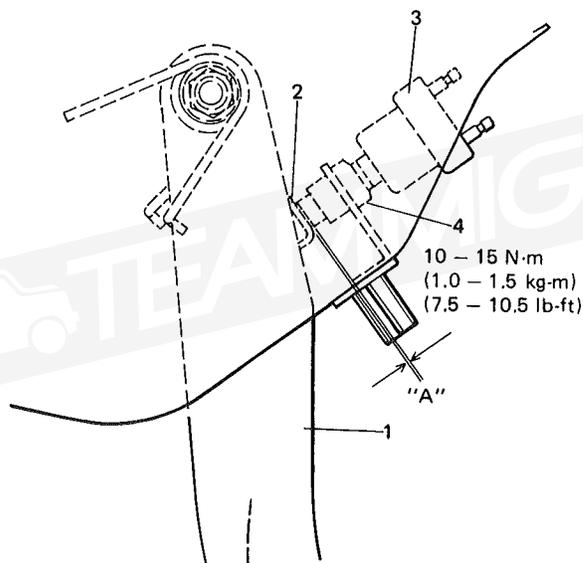
Brake pedal height is normal if brake pedal is as high as clutch pedal.

When stop light switch has been removed, refer to following STOP LIGHT SWITCH ADJUSTMENT for proper installation.

STOP LIGHT SWITCH ADJUSTMENT

Adjustment should be made as follows when installing switch.

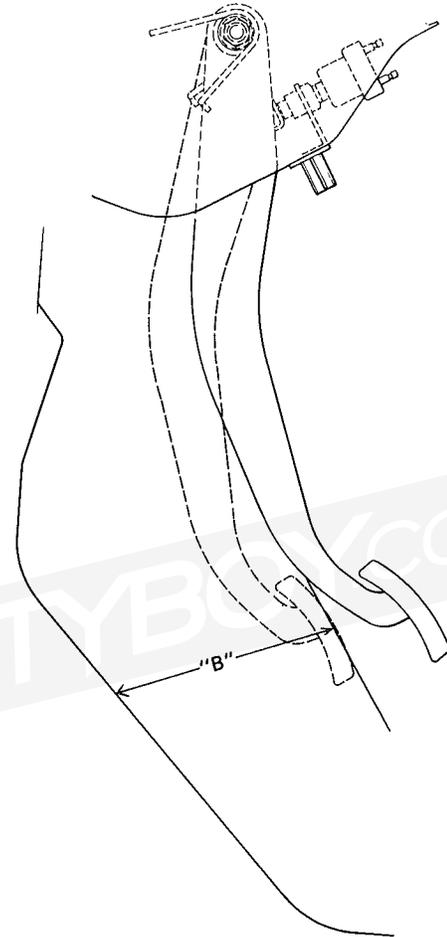
Pull up brake pedal toward you and while holding it there, adjust switch position so that clearance between end of thread and brake pedal contact plate (shown as "A" in figure) is within 0.5 – 1.0 mm (0.02 – 0.04 in.). Then tighten lock nut to specified torque.



1. Brake pedal
2. Contact plate
3. Stop light switch
4. Lock nut

EXCESSIVE PEDAL TRAVEL CHECK

- 1) With brake pedal depressed with approximately 30 kg (66 lbs) load, measure pedal arm to wall clearance "B". It mustn't be less than 75 mm (2.95 in.).



- 2) If clearance "B" is less than 75 mm (2.95 in.), adjust rear brake shoe-to-drum clearance to obtain specified value. (Refer to p. 17-23)

CAUTION:

- If specified clearance cannot be obtained, or feel is spongy when pedal is depressed, check shoes for excessive wear and brake system for air entered.
- After reassembling brake oil line, bleed air from line.

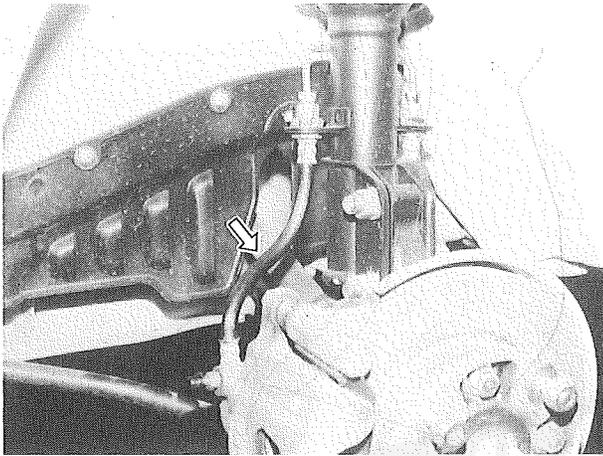
NOTICE:

Inspect pedal clearance daily, as well as at periodically scheduled inspection.

BRAKE HOSE AND PIPE INSPECTION

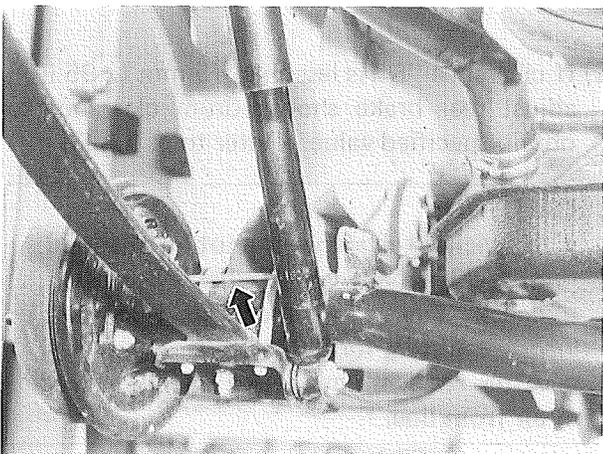
Hose

Flexible hydraulic brake hose, which transmits hydraulic pressure from steel brake line on the body to rear cylinders and to front calipers, should be inspected at least twice a year. Brake hose assembly should be checked for road hazard damage, for cracks and chafing of outer cover, for leaks and blisters. A light and mirror may be needed for an adequate inspection. If any of the above conditions are observed on brake hose, it will be necessary to replace it.



Pipe

Inspect tube for damage, cracks, dents and corrosion. If any defect is found, replace it.



PAD LINING INSPECTION

Inspect pad linings periodically according to maintenance schedule and whenever wheels are removed (for tire rotation or other reason).

For wear check of pad linings, refer to p. 17-11.

DISC INSPECTION

Inspect disc periodically according to maintenance schedule.

For more information, refer to p. 17-11.

REAR BRAKE SHOE & LINING INSPECTION

Inspect brake shoe & lining according to maintenance schedule.

For shoe and lining inspection, refer to p. 17-13.

REAR BRAKE DRUM INSPECTION

Inspect brake drum according to maintenance schedule.

For more information, refer to p. 17-12.

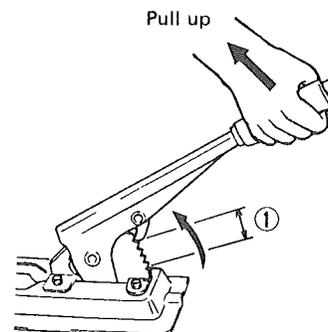
PARKING BRAKE INSPECTION AND ADJUSTMENT

1) Parking brake lever inspection.

Pull up parking lever all the way with one hand to apply brake fully, and see how many notches of ratchet lever has traversed. If number of traversed notches is more than 5 (five), adjust parking brake cable.

NOTICE:

Check tooth tip of each notch for damage or wear. If any damage or wear is found, replace parking lever.



2) Parking brake lever stroke adjustment

- a) Hold center of parking brake lever grip, pull it up with about 20 kg force and check if parking brake stroke is as specified below.
- b) If out of specification, adjust parking brake cable.

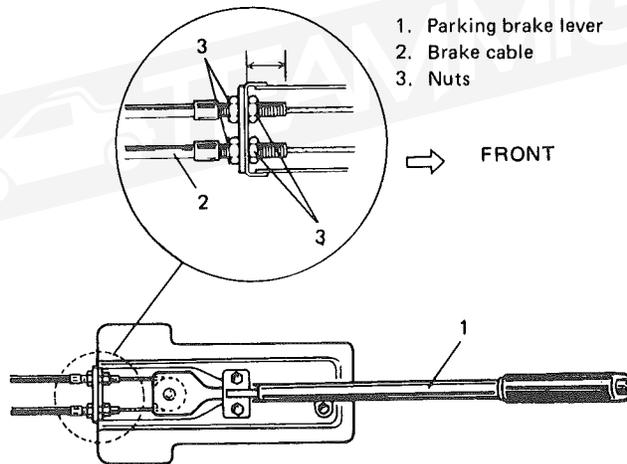
NOTICE:

Make sure for following conditions before cable adjustment.

- Rear brake shoes are not worn beyond limit and rear brake shoe-to-drum clearance is adjusted properly.

- c) Adjust to specification by loosening adjust nuts indicated below.
Right and left outer cables should be adjusted equal.
Check brake drum for dragging after adjustment.

Parking brake stroke ①; when lever is pulled up at 20 kg (44 lb)	Within 2 – 5 notches
---	----------------------



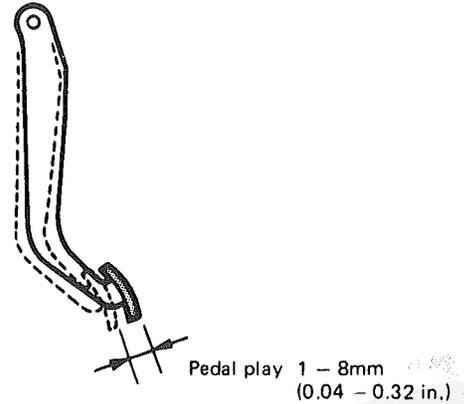
3) Parking brake cable inspection

Check brake cable for damage and also for smooth movement. Replace if deteriorated.

BRAKE PEDAL PLAY INSPECTION

Pedal play should be within below specification. If out of specification, check stop light switch for proper installation position and adjust if necessary.

Also check pedal shaft bolt and master cylinder pin installation for looseness and replace if defective.



REAR DRUM BRAKE SHOE ADJUSTMENT

Hole for gaining access to adjusting wheel or screw is provided in brake drum. Through this hole, insert a screwdriver to turn adjusting wheel or screw.

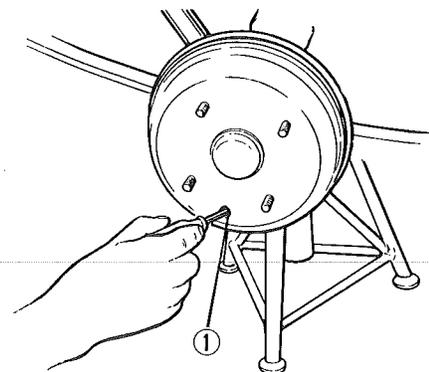
Turn wheel or screw to expand shoe all the way, locking hard brake drum, and then turn it back 3 to 6 notches to introduce a drum-to-shoe clearance. Leave adjusting wheel or screw right there.

Carry out the above method for another shoe.

NOTICE:

Also adjust each shoe of the other brake according to above method.

Brake shoe clearance adjustment	Back away 3 to 6 notches
---------------------------------	--------------------------



BLEEDING BRAKES

NOTICE:

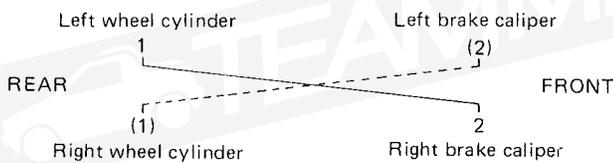
Brake fluid is extremely damaging to paint. If fluid should accidentally touch painted surface, immediately wipe fluid from paint and clean painted surface.

A bleeding operation is necessary to remove air whenever it is introduced into hydraulic brake system.

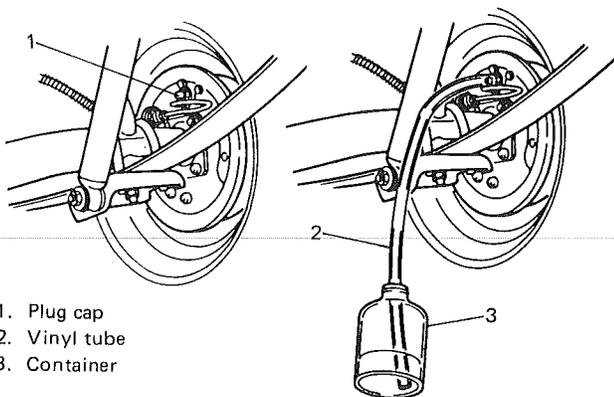
Hydraulic lines of this brake system are based on diagonal split system. When brake pipe or hose was disconnected at wheel, bleeding operation must be performed at both ends of the line of removed pipe or hose. When any joint part of master cylinder or other joint part between master cylinder and each brake (wheel) was removed, hydraulic brake system must be bled at all 4 wheel brakes.

NOTICE:

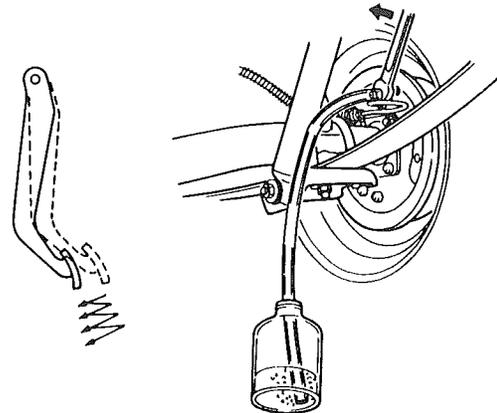
Perform bleeding operation starting with wheel cylinder farthest from master cylinder and then at front caliper of the same brake line. Do the same on the other brake line.



- 1) Fill master cylinder reservoir with brake fluid and keep at least one-half full of fluid during bleeding operation.
- 2) Remove bleeder plug cap.
Attach a vinyl tube to bleeder plug of wheel cylinder, and insert the other end into a container.

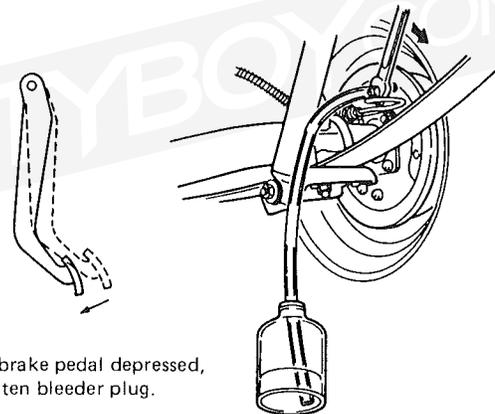


- 3) Depress brake pedal several times, and then while holding it depressed, loosen bleeder plug about one-third to one-half turn.



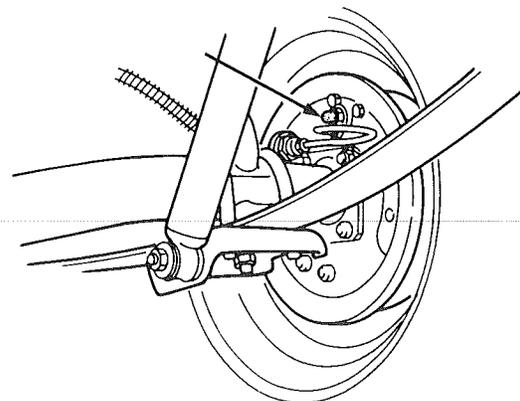
Depress brake pedal several times and with pedal depressed, loosen bleeder plug a little.

- 4) When fluid pressure in cylinder is almost depleted, retighten bleeder plug.

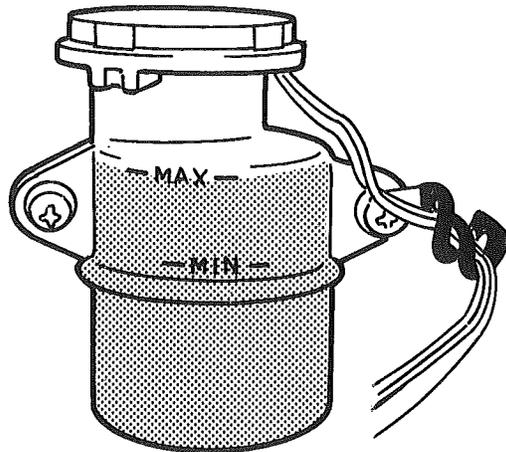


With brake pedal depressed, retighten bleeder plug.

- 5) Repeat this operation until there are no more air bubbles in hydraulic line.
- 6) When bubbles stop, depress and hold brake pedal and tighten bleeder plug.
- 7) Then attach bleeder plug cap.



- 8) After completing bleeding operation, apply fluid pressure to pipe line and check for leakage.
- 9) Replenish fluid into reservoir up to specified level.



- 10) Check brake pedal for "sponginess". If found spongy, repeat entire procedure of bleeding.

17-7. TORQUE SPECIFICATION

Fastening parts	Tightening torque		
	N·m	kg-m	lb-ft
1. Brake disc bolt	40 – 60	4.0 – 6.0	29.0 – 43.0
2. Brake caliper bolt	70 – 100	7.0 – 10.0	51.0 – 72.0
3. Brake caliper pin bolt	22 – 32	2.2 – 3.2	16.0 – 23.0
4. Brake nut (Brake back plate nut)	18 – 28	1.8 – 2.8	13.5 – 20.0
5. Master cylinder nut	25 – 40	2.5 – 4.0	18.5 – 28.5
6. Drive shaft castle nut	150 – 270	15.0 – 27.0	108.5 – 195.0
7. Brake pipe 2-way (or 4-way) joint bolt	6 – 10	0.6 – 1.0	4.5 – 7.0
8. Proportioning valve bolt	8 – 10	0.8 – 1.0	6.0 – 7.0
9. Brake flare nut	14 – 18	1.4 – 1.8	10.5 – 13.0
10. Stop lamp switch nut	10 – 15	1.0 – 1.5	7.5 – 10.5
11. Brake flexible hose bolt	20 – 25	2.0 – 2.5	14.5 – 18.0
12. Wheel nut	40 – 70	4.0 – 7.0	29.0 – 50.5
13. Wheel cylinder bolt	10 – 12	1.0 – 1.2	7.5 – 8.5
14. Rear brake drum castle nut	80 – 120	8.0 – 12.0	58.0 – 86.5
15. Brake bleeder plug	9 – 10	0.9 – 1.0	6.5 – 7.0