BRAKE SYSTEM

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GENERAL

SPECIFICATION

Master cylinder	
Type	Tandem type
I.D.	28.0 mm (1.024 in.)
Fluid level sensor	Provided
Brake. booster	
Type	Vacuum type with tandem booster
Effective dia.	2.05 mm (8.071 in.)
Boosting ratio	6.2 : 1
Proportioning valve	
Cut-in pressure (Split point)	2.07 MPa (21.10 kg/cm^2, 300 psi)
Decompression ratio	2.9:1
Front brake	
Type	Floating type with ventilated disc
Disc O.D.	257 mm (10.116 in.)
Disc thickness	22 mm (0.866 in.)
Pad thickness	11 mm (0.433 in.)
Cylinder I.D.	57.2 mm (2.252 in.)
Rear brake	
Type	Disc type with built-in drum type parking brake
Disc O.D.	263 mm (10.354 in.)
Disc thickness	12 mm (0.472 in.)
Pad thickness	8.5 mm (0.335‘in.)
Cylinder I.D.	38 mm (1.496 in.)
Clearance adjustment	Manual
Parking brake	
Type	Mechanical brake acting on rear wheels
Braking type	Lever type
Cable arrangement	V type

SERVICE STANDARD

Standard value	
Brake pedal height	177^{+5}_{0} mm ($6.97^{+0.20}_{0}$ in.)
Stop light switch outer case to pedal arm clearance	0.5-1.0 mm (0.020-0.040 in.)
Brake pedal free play	4-10 mm (0.157-0.394 in.)
Brake pedal to floorboard clearance	44 mm (1.732 in.) or more
Parking brake lever stroke (when lever assembly is pulled with 196 N (20 Kg, 44 lb) force)	8-9 clicks
Service limit	
Front disc brake pad thickness	2.0 mm (0.079 in.)
Front disc thickness (minimum)	20 mm (0.787 in.)
Front disc runout	0.1 mm (0.004 in.)
Rear disc brake pad thickness	0.8 mm (0.031 in.)
Rear disc thickness (minimum)	10.5 mm (0.413 in.)
Rear disc runout	0.13 mm (0.005 in.)
Brake disc drum I.D. (maximum)	185 mm (7.283 in.)
Parking brake lining thickness	0.8 mm (0.079 in.)
Wheel cylinder to piston clearance	0.15 mm (0.006 in.)

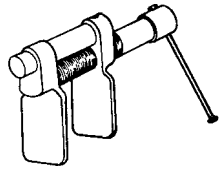
TIGHTENING TORQUE

	Nm	Kg.cm	lb.ft
Master cylinder to booster mounting nut	13.6-21.7	136-217	10-16
Brake booster mounting nut	21-28	210-280	15-21
Brake booster hose fitting to manifold	15-18	150-180	11-13
Bleeder screw (front)	7-13	70-130	5-9
Bleeder screw (rear)	8-20	80-200	5.9-14.7
Brake tube flare nut, brake hose	13-17	130-170	9-12
Proportioning valve to master cylinder	13-22	130-220	9-16
Caliper guide rod bolt	22-32	220-320	16-24
Caliper assembly to knuckle	69-85	690-850	51-63
Brake hose to front caliper	25-30	250-300	18-22
Backing plate installation bolt	50-60	500-600	36-43
Wheel cylinder mounting bolt	12-18	120-180	8.8-13

LUBRICANTS

	Recommended lubricant	Quantity
Brake fluid	DOT 3 or equivalent	As required
Brake pedal bushing and brake pedal bolt	Chassis grease SAE J310, NLGI No.0	As required
Clevis pin	Wheel bearing grease SAE J310, NLGI No.2	As required
Parking brake shoe and backing plate contact surfaces	Bearing grease, NLGI No.0~1	As required

SPECIAL TOOLS

Tool (Number and Name)	Illustration	Use
09581-11000 Piston expander		Retraction of the front disc brake piston

TROUBLESHOOTING

Symptom	Probable cause	Remedy
Vehicle pulls to one side when brakes are applied	Grease or oil on pad or lining surface	Replace
	Inadequate contact of pad or lining	Correct
	Auto adjuster malfunction	Adjust
	Drum eccentricity or uneven wear	Repair or replace as necessary
Insufficient braking power	Low or deteriorated brake fluid	Refill or change
	Air in brake system	Bleed air
	Overheated brake rotor due to dragging of pad or lining	Correct
	Grease or oil on pad or lining surface	Replace
	Inadequate contact of pad or lining	Correct
	Brake booster malfunction	Correct
	Auto adjuster malfunction	Adjust
	Clogged brake line	Correct
	Proportioning valve malfunction	Replace
Increased pedal stroke (Reduced pedal to floor-board clearance)	Air in the brake system	Bleed air
	Worn lining or pad	Replace
	Broken vacuum hose	Replace
	Brake fluid leaks	Correct
	Auto adjuster malfunction	Adjust
	Excessive push rod to master cylinder clearance	Replace
	Faulty master cylinder	Replace
Brake drag	Incomplete release of parking brake	Correct
	Incorrect parking brake adjustment	Adjust
	Worn brake pedal return spring	Replace
	Broken rear drum brake shoe return spring	Replace
	Lack of lubrication in sliding parts	Lubricate
	Improper push rod to master cylinder clearance	Adjust
	Faulty master cylinder piston return spring	Replace
	Clogged master cylinder return port	Correct

Symptom	Probable cause	Remedy
Insufficient parking brake function	Worn brake lining or pad	Replace
	Excessive parking brake lever stroke	Adjust the parking brake lever stroke or check the parking brake cable routing
	Grease or oil on lining or pad surface	Replace
	Auto adjuster malfunction	Adjust
	Parking brake cable sticking	Replace
Scraping or grinding noise when brakes are applied	Worn brake lining or pad	Replace
	Caliper to wheel interference	Correct or replace
	Dust cover to disc interference	Correct or replace
	Bent brake backing plate	Correct or replace
	Cracked drums or brake disc	Correct or replace
Squealing, groaning or chattering noise when brakes are applied	Worn brake pad anti-squeak shim	Replace
	Brake drums and linings, discs and pads worn or scored	Correct or replace
	Improper lining parts	Correct or replace
	Disc brake-burred or rusted calipers	Clean or deburr
	Dirty, greased, contaminated or glazed linings	Clean or replace
	Drum brakes-weak, damaged or incorrect shoe hold-down springs, loose or damaged shoe hold-down pins and springs	Correct or replace
Squealing noise when brakes are not applied	Bent or warped backing plate causing interference with drum	Replace
	Improper machining of drum causing interference with backing plate or shoe	Replace drum
	Disc brakes-rusted, stuck	Lubricate or replace
	Drum brakes-weak-damaged or incorrect shoe-to-shoe spring	Replace
	Loose or extra parts in brakes	Retighten
	Improper positioning of pads in caliper	Correct
	Improper installation of support mounting to caliper body	Correct

Symptom	Probable cause	Remedy
Squealing noise when brakes are not applied	Poor return of brake booster or master cylinder or wheel cylinder	Replace
	Incorrect brake pedal or booster push-rod	Adjust
Groaning, clicking or rattling noise when brakes are not applied	Stones or foreign substances trapped inside wheel covers	Remove foreign substances
	Loose wheel nuts	Retighten
	Disc brakes-failure of shim	Replace
	Disc brakes-loose installation bolt	Retighten
	Worn, damaged or dry wheel bearings	Lubricate or replace
	Disc brakes-wear on guide rod	Replace
	Incorrect brake pedal or booster push-rod	Adjust

SERVICE ADJUSTMENT PROCEDURE

SERVICE BRAKE PEDAL INSPECTION AND ADJUSTMENT

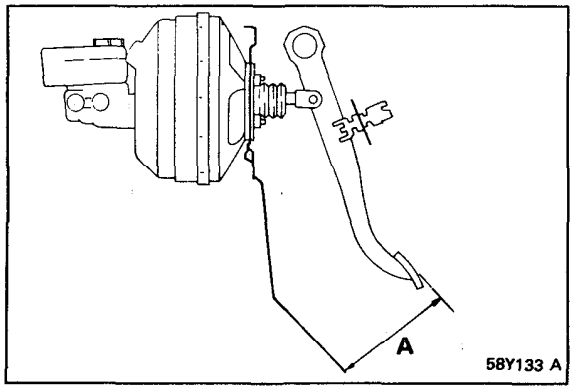
1. Pedal height

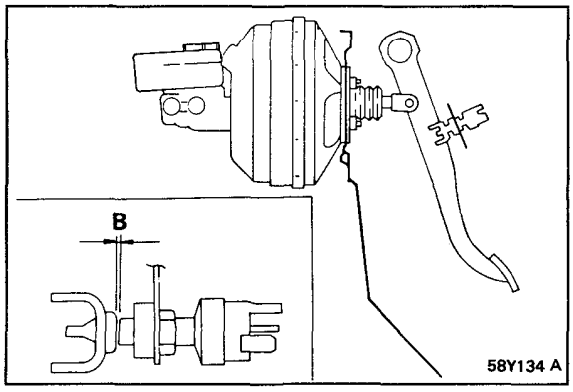
Pedal height (from top of pedal to toeboard) "A" . . . . . 177 $^{+}$: mm (6.97 $^{+\ 0.2}_{0}$ in.)

If the pedal height is out of specification, adjust by the following procedure.

1) **Unscrew the stop lamp switch to a position where it does not contact the pedal arm.**
2) **Screw the stop lamp switch in until the clearance between switch outer case and the pedal arm reaches the specified clearance. Secure the stop lamp switch with the lock nut.**

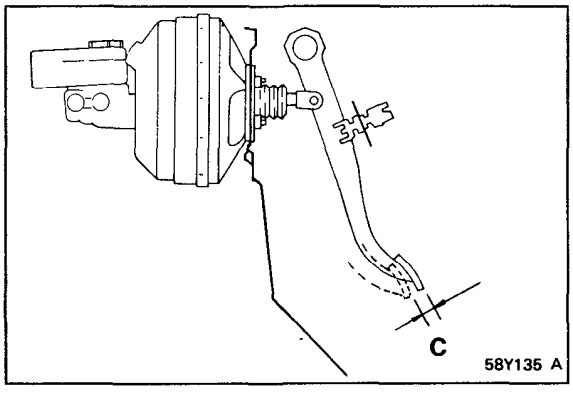
Clearance between pedal and stop lamp switch "B" . . . . . 0.5-1.0 mm (0.02-0.039 in.)





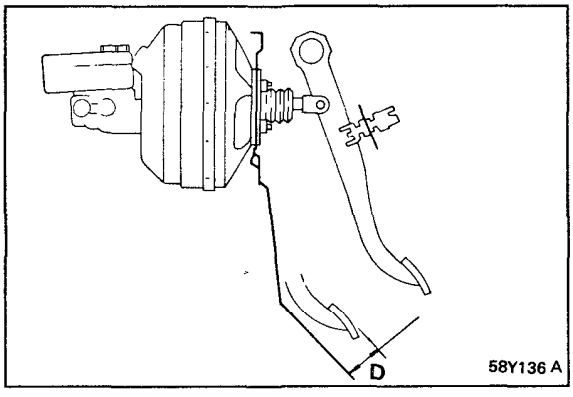
2. Brake pedal free play.

Free play of brake pedal "C" . . . . . 4-10 mm (0.157-0.394 in.)



3. Start the engine, apply the brake pedal with approximately 500 N (50kg. 110 lbs) of force, and measure the clearance between the brake pedal and the floor board.

Pedal to floor board clearance "D"
when pedal is depressed 50 kg (500 N, 110 lb.) force. 71 mm (2.795 in.) or more
when pedal is fully depressed without brake fluid . . . . . 35 mm (1.378 in.) or more



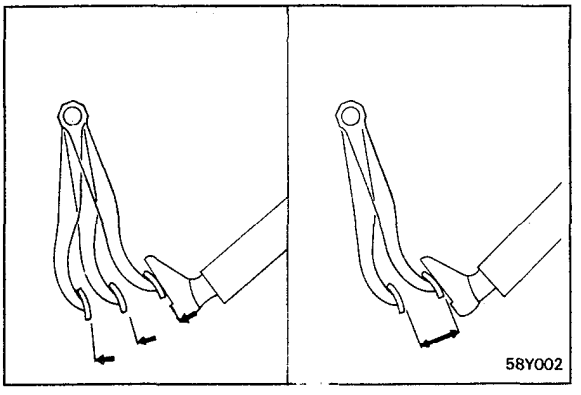
BRAKE BOOSTER OPERATION TEST

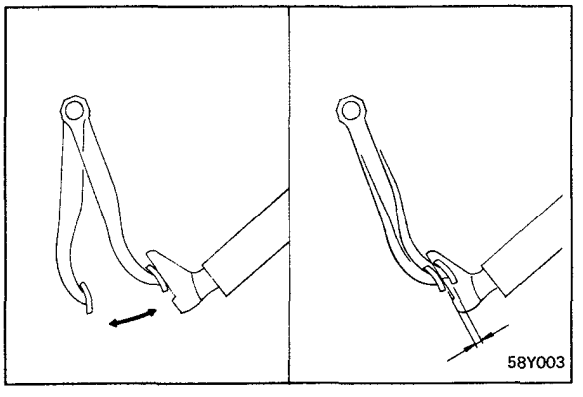
TEST WITHOUT A TESTER

For a simple check of brake booster operation, make the following tests.

1. **Run the engine for one or two minutes, and then stop it. Depress the brake pedal several times at normal foot pressure. If the pedal goes down deepest the first time, but gradually rises after the second or third time, the brake booster is functioning properly. Go to step 2.**
2. **With the engine stopped, depress the brake pedal several times.**
   Depress the brake pedal and start the engine.
   If the pedal goes down slightly, the booster is in good condition. Go to step 3.
3. **With the engine running, depress the brake pedal and then stop the engine.**
   Hold the pedal depressed for 30 seconds. If the pedal height does not change, the booster is in good condition.

If one of the above three tests is not okay, check the check valve, vacuum hoses, and the brake booster, and make any necessary corrections. If all tests OK, unit is good.



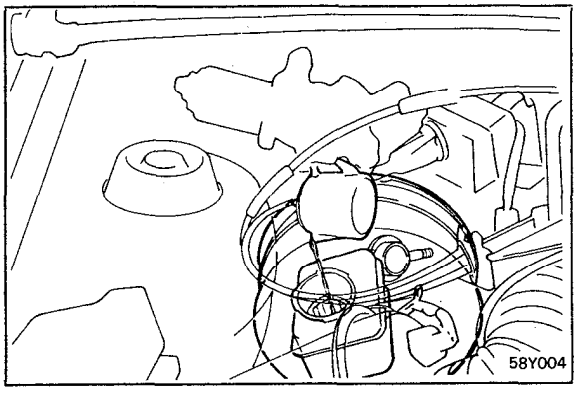


BLEEDING OF BRAKE SYSTEM

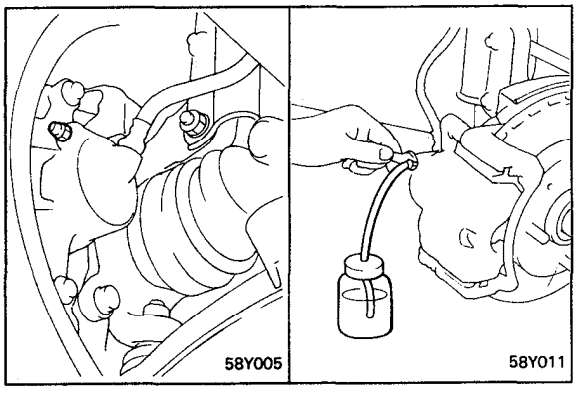
1. **Remove the reservoir cap and fill the brake reservoir with brake fluid.**

   CAUTION
   Do not allow brake fluid to remain on a painted surface. Remove immediately.

   NOTE
   When bleeding by pressurized fluid, do not depress the brake pedal.



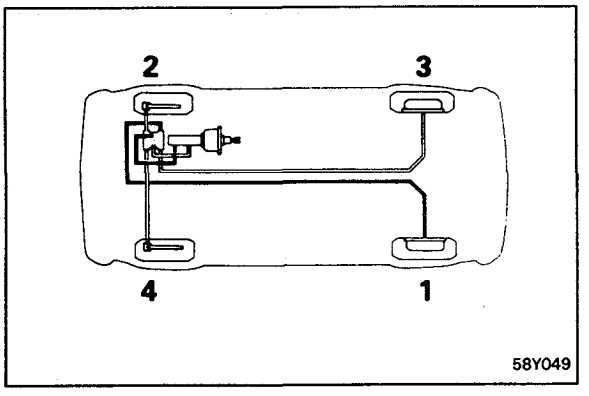
2. **Connect the vinyl tube to the wheel cylinder bleeder screw, and insert the other end in a half full container of brake fluid.**
3. **Slowly pump the brake pedal several times.**
4. **While depressing the brake pedal fully, loosen the bleeder screw until fluid starts to flow out. Then close the bleeder screw.**



5. Repeat steps 3 and 4 until there are no more bubbles in the fluid.
6. Tighten the bleeder plug screw.

Bleeder screw tightening torque . . . . . .
Front : 7-13 Nm (70-130 kg.cm, 5-9 lb.ft)
Rear : 8-20 Nm (80-200 kg.cm, 5.9-14.7 lb.ft)

7. Repeat the above procedure for each wheel in the sequence shown in the illustration.

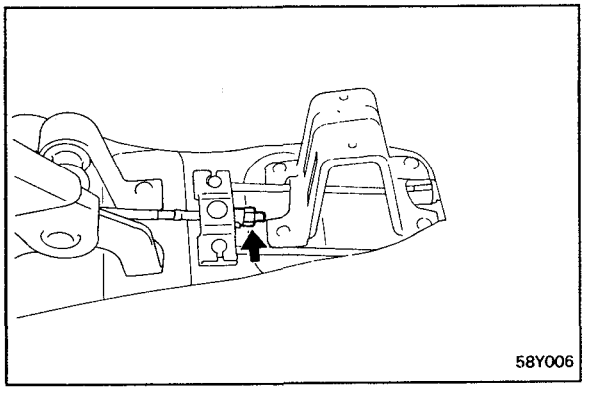


PARKING BRAKE STROKE ADJUSTMENT

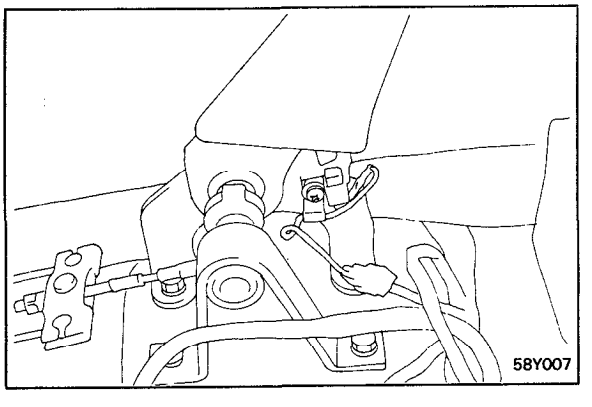
1. Pull the brake lever with a force of approx. 196 N (20 kg, 44 lbs), and count the number of clicks.

Parking brake lever stroke [Standard value]. . . . . .
8-9 clicks

2. If the number of clicks are greater than the standard value, adjust the cable length with the adjusting nut of the equalizer.

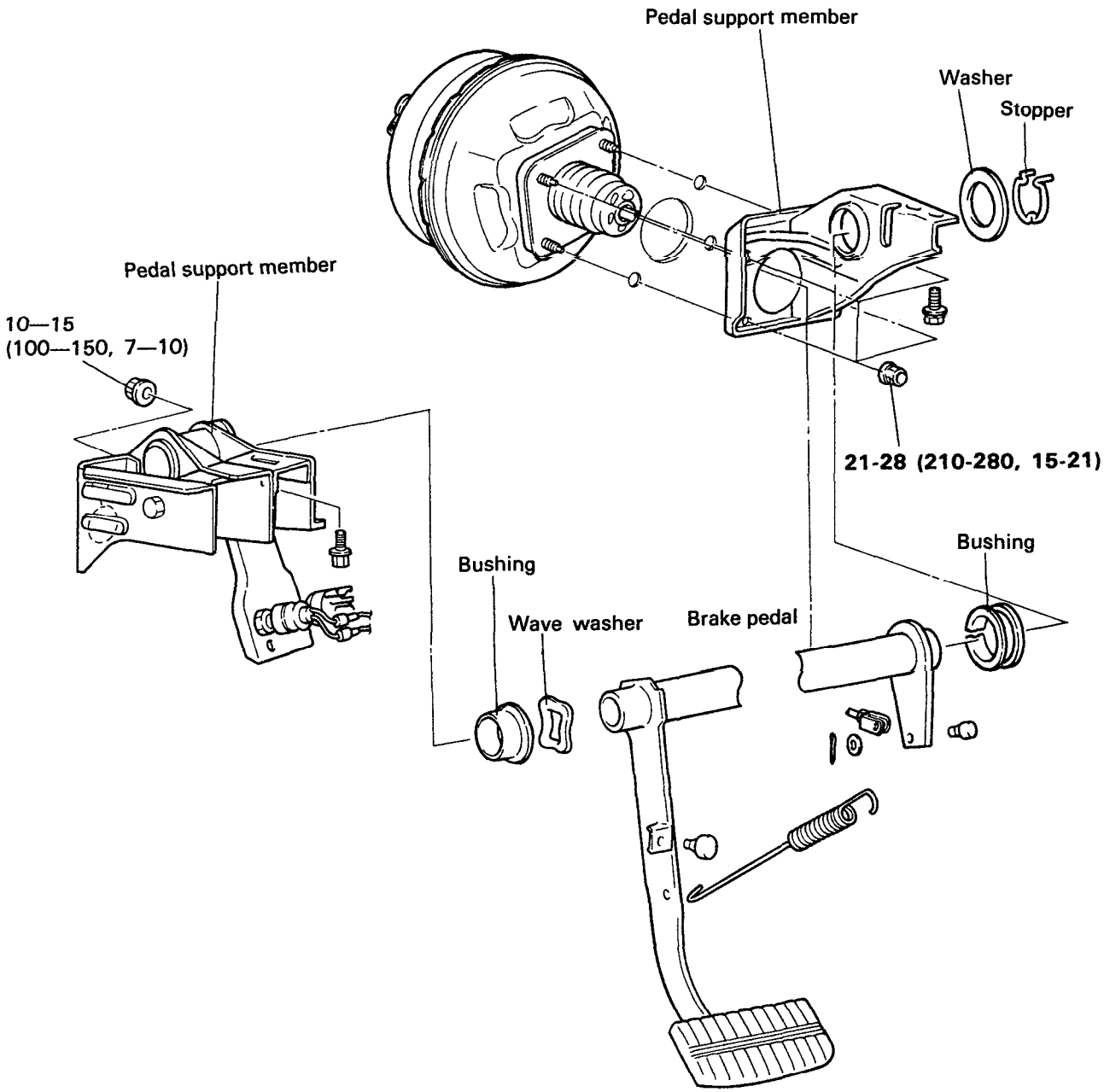


3. The indicator light will go out when the brake lever is fully released, and will light with the lever pulled one notch. If it does not operate, replace it.
4. After the adjustment, check that the rear brakes do not drag with the parking brake lever released.



BRAKE PEDAL

COMPONENTS



TORQUE : Nm (kg.cm, lb.ft)

REMOVAL

1. Remove the lower crash pad assembly (Refer to Body Group)
2. Remove the steering column assembly (Refer to Steering Group)
3. Remove the blower housing assembly (Refer to Air conditioning System Group)
4. Remove the brake pedal return spring.
5. Remove the steering support member.
6. Remove the stop lamp switch connector.
7. Remove the split pin and clevis pin.
8. Detach the stopper and washer from the right side pedal support member.
9. Loosen the booster mounting nut and remove the right side pedal support member.
10. Remove the brake pedal in the driver's compartment. Remove the pedal rod bushing and wave washer.
11. Loosen the pedal support member installation bolt and nut, then remove the left side pedal support member.

INSPECTION

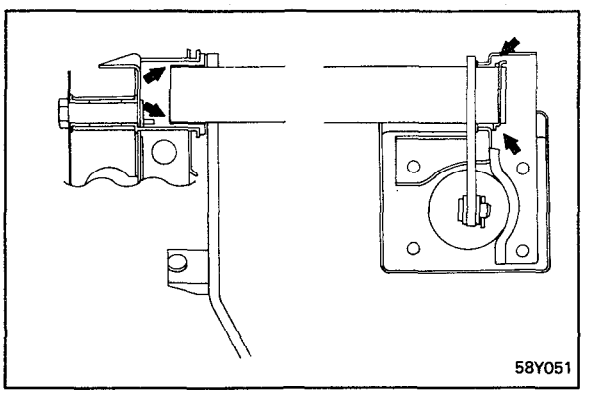
1. Check the bushing for wear.
2. Check the brake pedal for bending or twisting.
3. Check the brake pedal return spring for damage.

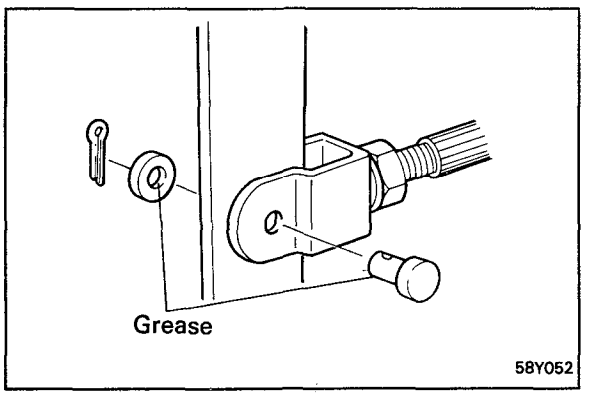
INSTALLATION

1. Installation is the reverse of removal procedure.

   NOTE

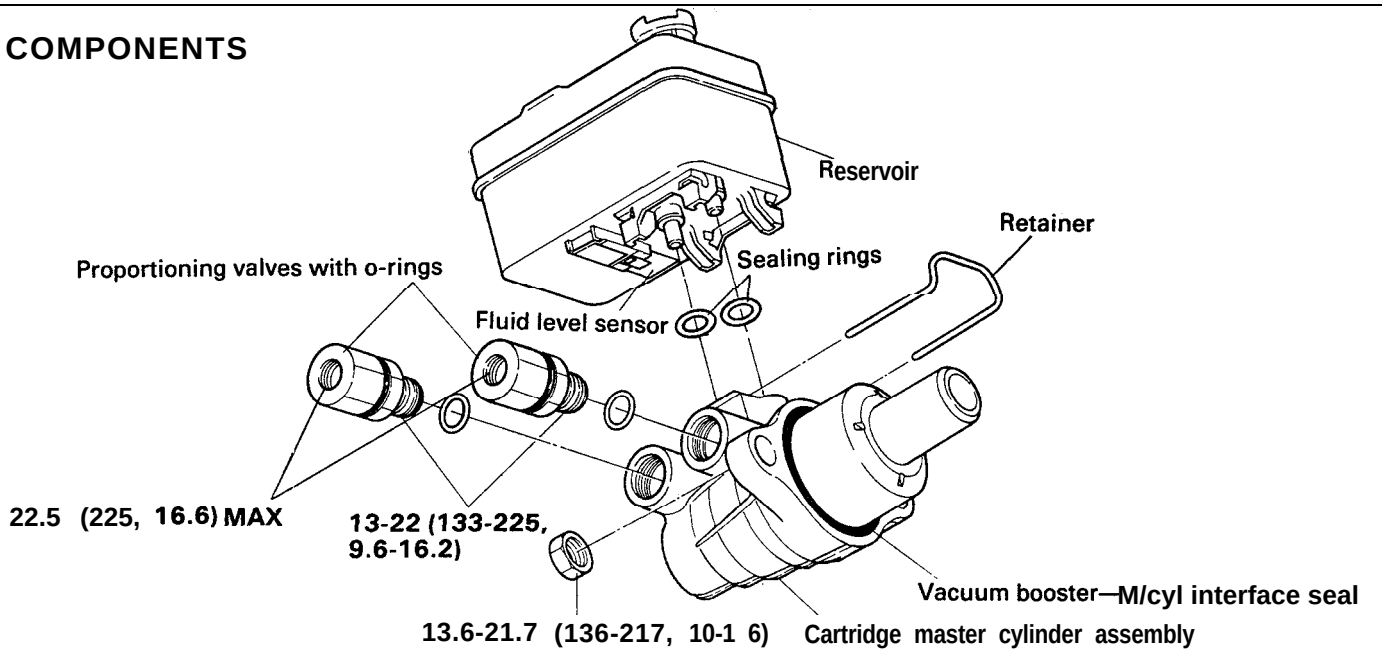
   1) Coat the specified grease to the inner surface of the bushings.
      Specified grease : Chassis grease SAE J310, NLGI No.0
   2) Before inserting the clevis pin, apply the specified grease to the clevis pin and washer.
      Specified grease : Wheel bearing grease SAE J310a. NLGI No.2





MASTER CYLINDER

COMPONENTS



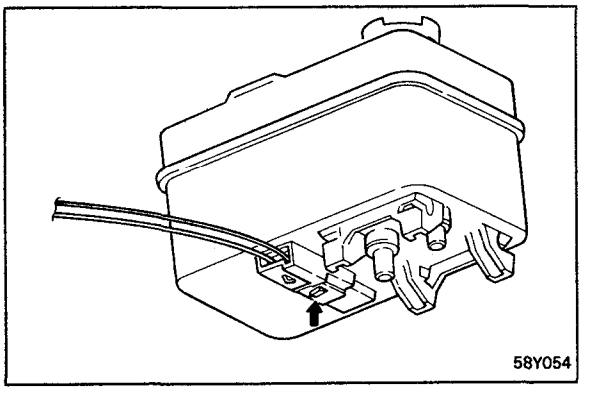
TORQUE : Nm (kg.cm, lb.ft)

NOTE

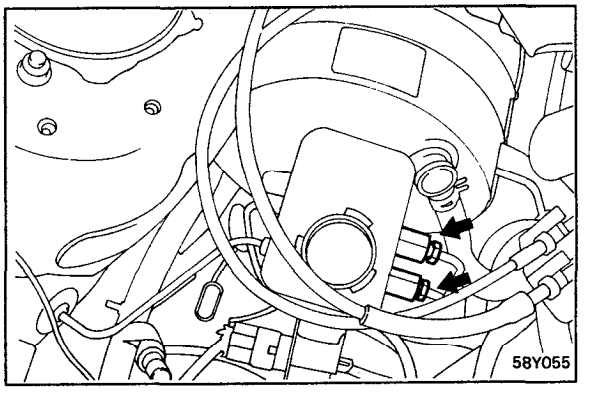
Before replacing the master cylinder, it is important to perform a thorough investigation to determine the specific cause of the problem. In the case of units which do not appear functional, proper bleeding must be verified before replacement is considered.

REMOVAL

1. **Disconnect the wiring connector from the fluid level sensor.**



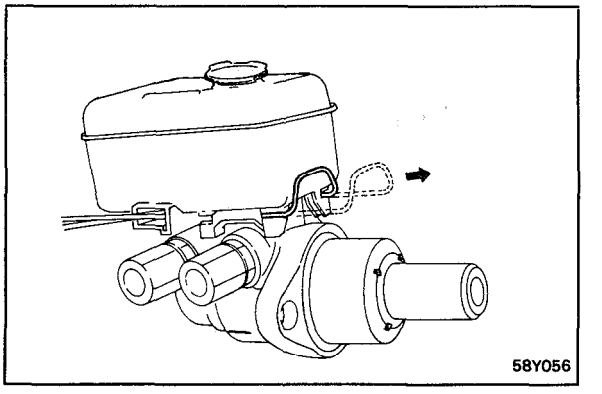
2. **Remove the tube nuts and detach the brake tubes from the master cylinder without removing the proportioning valves.**
3. **Remove the master cylinder to brake booster nuts and remove the master cylinder.**



DISASSEMBLY

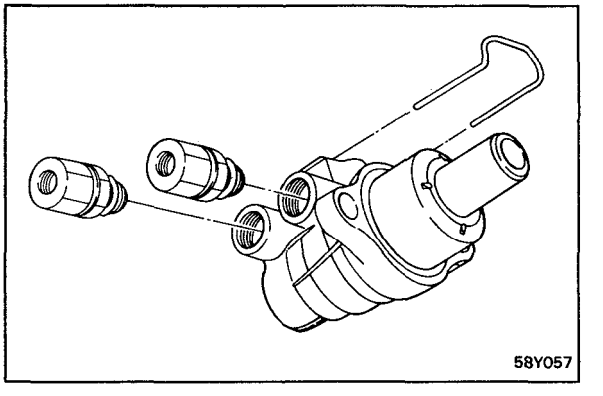
1. Remove the fluid from the master cylinder and reservoir and reserve for proper disposal.
2. Remove the reservoir by pulling out the retainer.
3. Remove the screw-in proportioning valves.

NOTE
Further disassembly of the master cylinder is not recommended. Master cylinder replacement is to be done only as a complete unit.



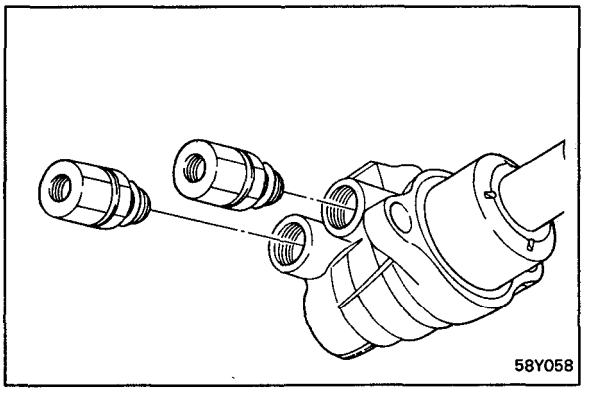
INSPECTION

1. Check the master cylinder to booster interface seal. Replace if damaged.
2. Visually inspect the proportioning valve external o-rings. Replace if damaged.

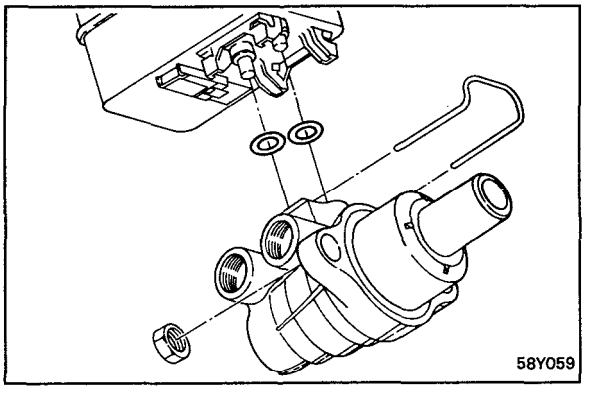


ASSEMBLY

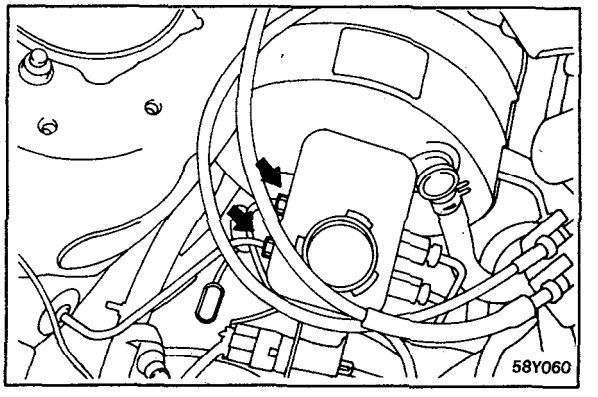
1. Install the screw-in proportioning valves in the master cylinder, being careful not to nick or otherwise damage the master cylinder piston.



2. With the reservoir seals in place on the reservoir outlets, apply a film of clean brake fluid to the seals.
3. Insert the reservoir into the master cylinder and install the retainer.



4. Assemble the master cylinder and the brake booster.



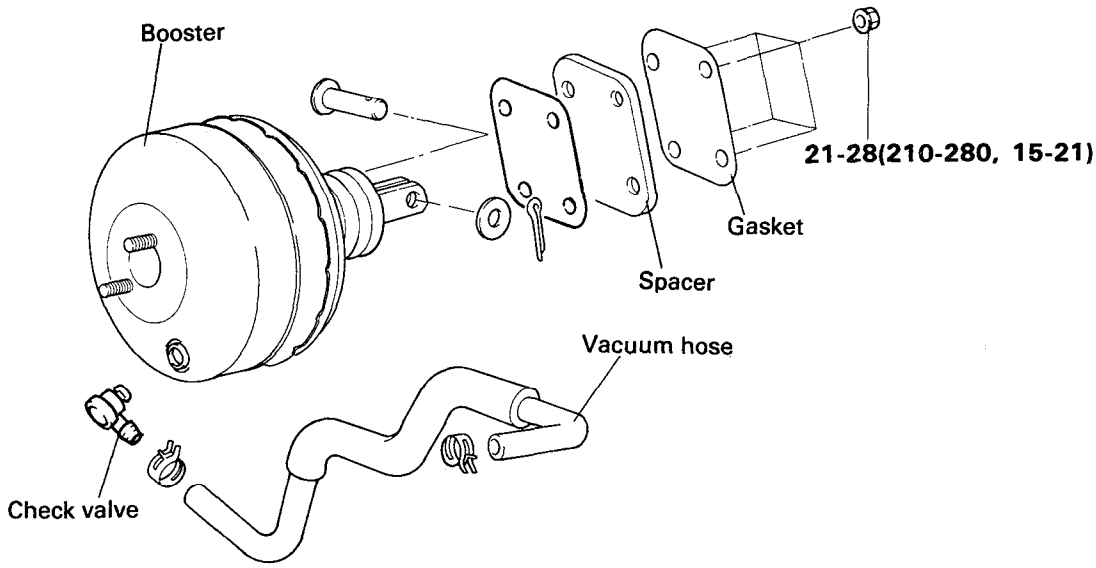
NOTE
When installing, use new lock nut.

5. Connect the brake tubes to the master cylinder. The tube nut torque should not exceed the specified value.

6. Perform the following vacuum leak check to insure the interface seal is properly installed.
   1) Disconnect the vacuum hose from the booster check valve.
   2) Connect a vacuum source with the appropriate shut-off valve and vacuum gauge to the check valve.
   3) Evacuate the booster to 500 mmHg and isolate the gauge and booster from the vacuum source.
   4) Vacuum decay must be less than 0.22 mmHg in 30±1 seconds or equivalent.
   5) Disconnect the vacuum source and reinstall the vehicle vacuum hose to the check valve.
7. Connect the wiring connector to the fluid level sensor.
8. Fill the reservoir with the specified brake fluid. Bleed the system. Top-off the fluid to the “MAX” fill line.

BRAKE BOOSTER

COMPONENTS



TORQUE : Nm (kg.cm, lb.ft)

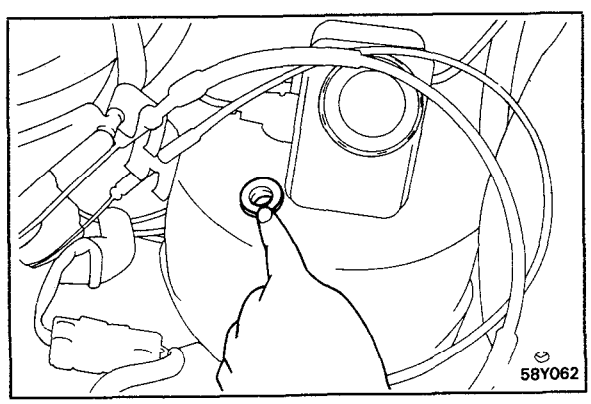
CHECK VALVE OPERATING TEST

Remove the check valve from the booster

Start the engine.

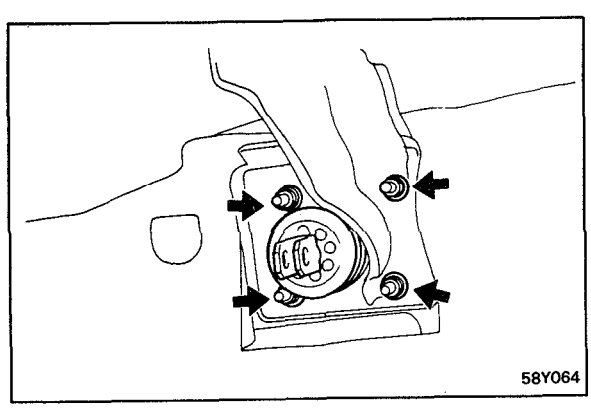
Plug the check valve hole with a finger.

Check that a vacuum is present and is maintained.



REMOVAL

1. Remove the master cylinder. (Refer to page 58-13)
2. Remove the vacuum hose.
3. Remove the operating rod from the brake pedal.
4. Loosen the booster mounting nuts to remove the booster assembly.



INSTALLATION

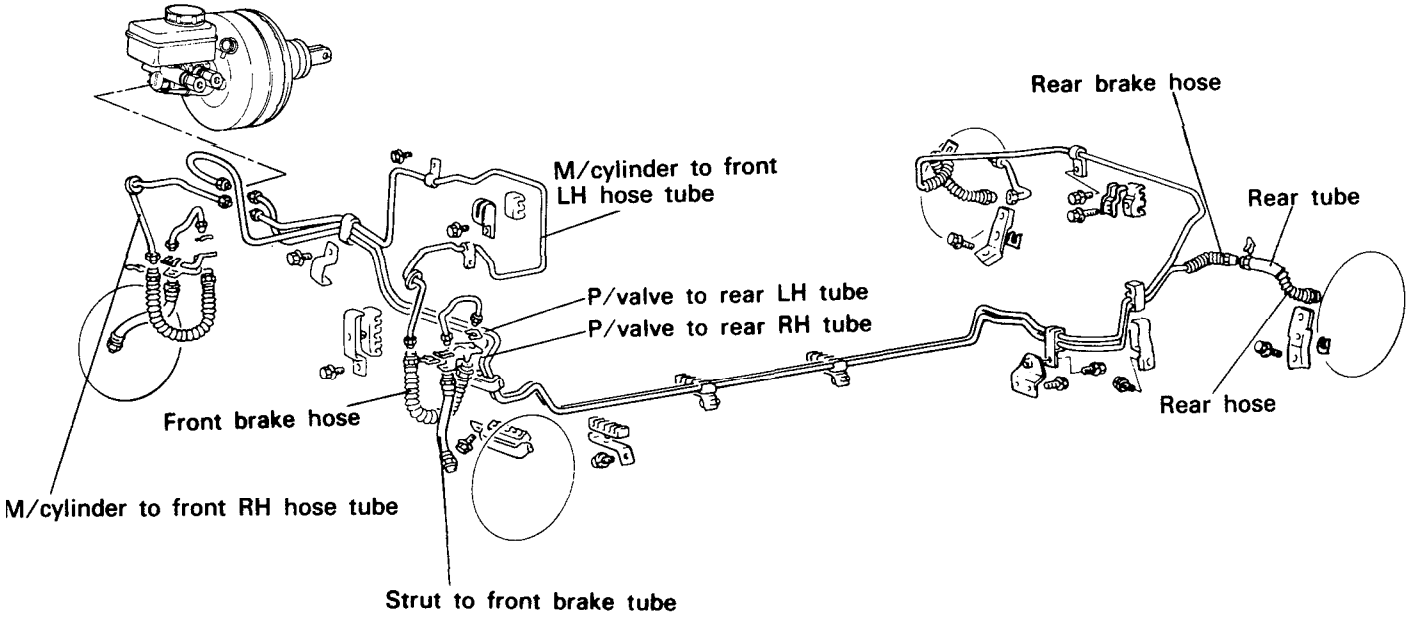
1. Install the master cylinder (the booster push rod requires no adjustment).
2. Attach the booster/master cylinder to the dash panel.
3. Reinstall the vacuum hose securely to prevent vacuum leaks.
4. Couple the operating rod with the brake pedal.
5. Bleed the system.

NOTE

Do not attempt to disassemble the brake booster. It's not serviceable.

BRAKE LINE

COMPONENTS



INSPECTION

1. Check the brake tubes for cracks, crimps and corrosion.
2. Check the brake hoses for cracks, damage and leakage.
3. Check the brake tube flare nuts for damage and leakage.

INSTALLATION

1. Install the brake hoses without twisting them.
2. The brake tubes should be installed away from edges, weld beads or moving parts.
3. Tighten the connections to the specified torque.

Flare nuts	13-17 Nm (130-170 kg.cm, 9-12 lb.ft)
Brake hose to front caliper	25-30 Nm (250-300 kg.cm, 18-22 lb.ft)

PROPORTIONING VALVE

Do not disassemble the proportioning valve. The proportioning valve makes the ideal distribution of a fluid pressure to the front and rear brakes to prevent the brakes from skidding in the event of rear wheel lock and to obtain a higher brake efficiency within the range of service brake application.

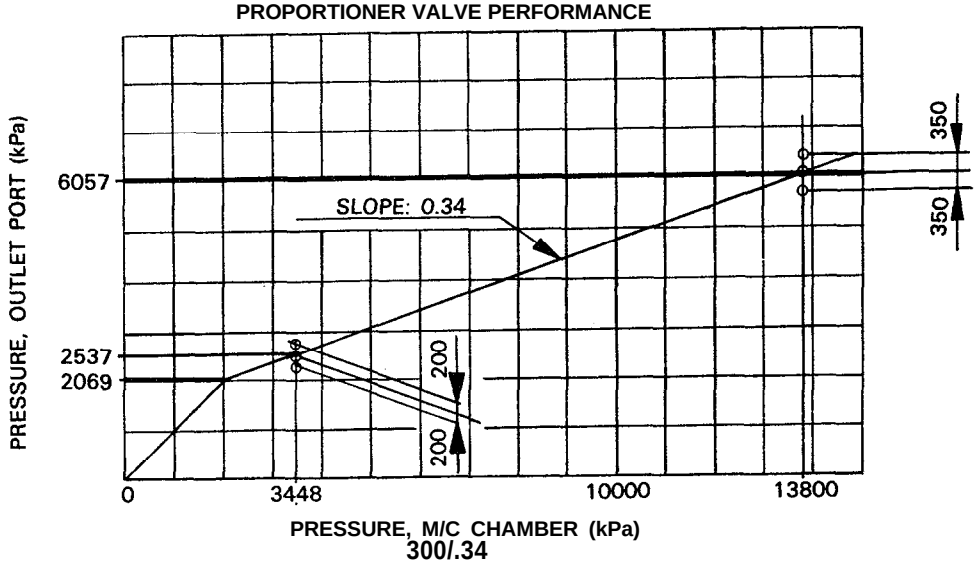
PROPORTIONING VALVE FUNCTION TEST

1. **Connect two pressure gauges, one each to the input side and output side of the proportioning valve.**

   NOTE
   Be sure to bleed the system after you connect the pressure gauges.

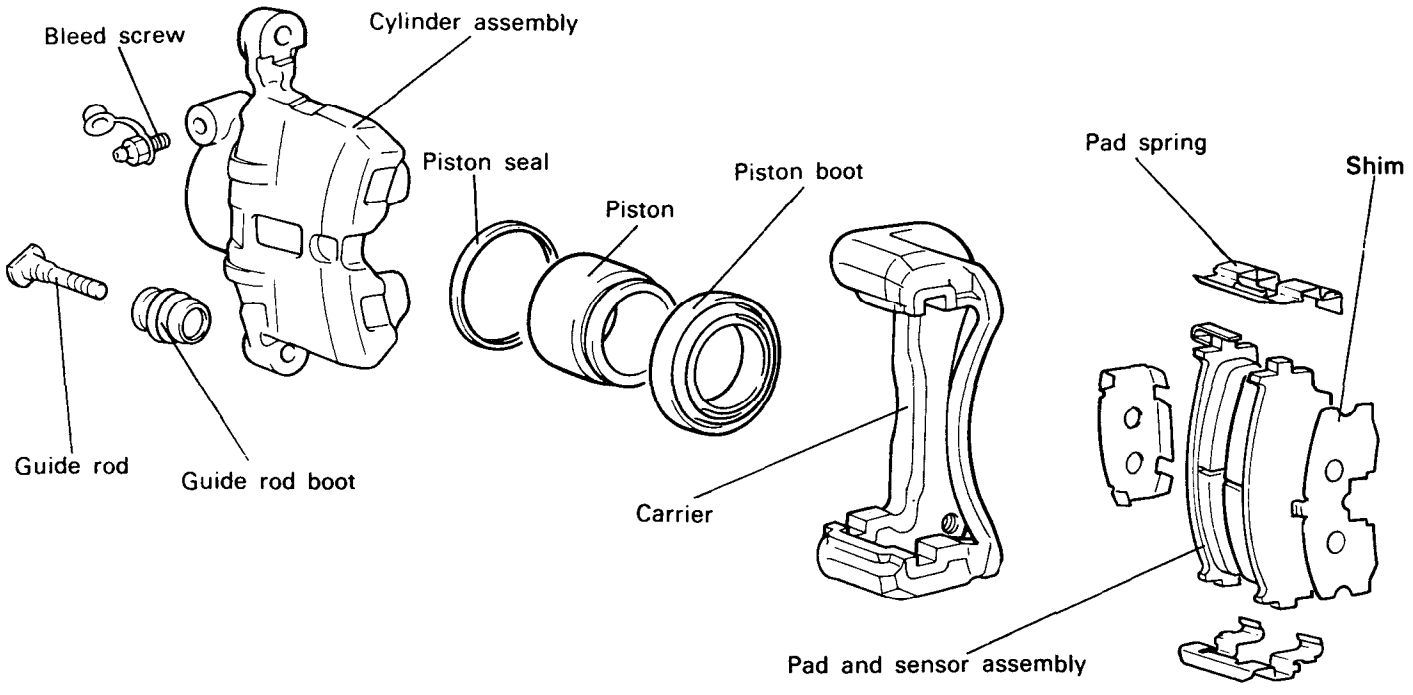
2. **With the brakes applied, measure the input pressure and the output pressure. If the measured pressures are within the permissible ranges as below illustrated, the proportioning valve is good.**
3. **Reconnect the brake lines in original position and bleed the system.**

   NOTE
   This figure shows characteristics of the proportioning valve during pressure increase.



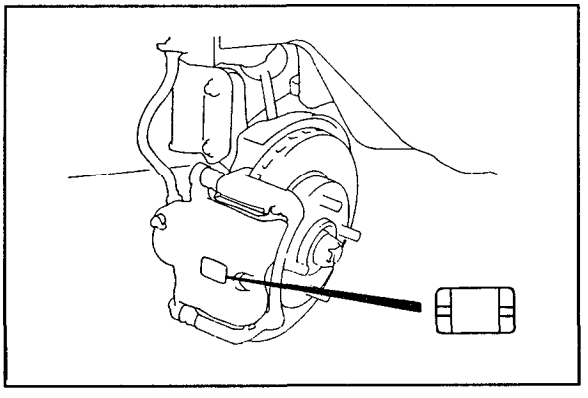
FRONT DISC BRAKE

COMPONENTS



REPLACEMENT OF BRAKE PADS

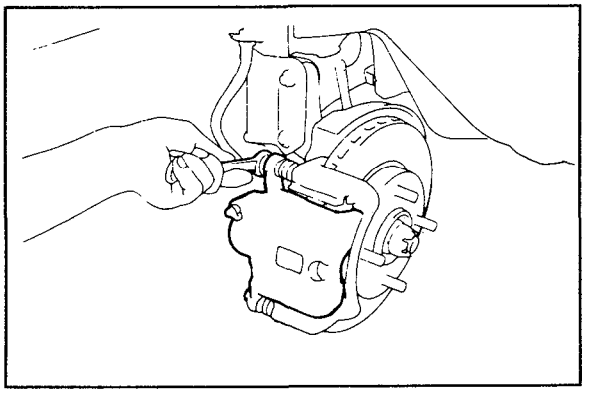
If a squeaking noise occurs from the front brake while driving and braking, inspect the brake pads.



REMOVAL

1. **Remove the wheel and tire.**
2. **Check the pad thickness through the cylinder inspection hole. If the pad lining thickness is out of specification, replace the pads.**

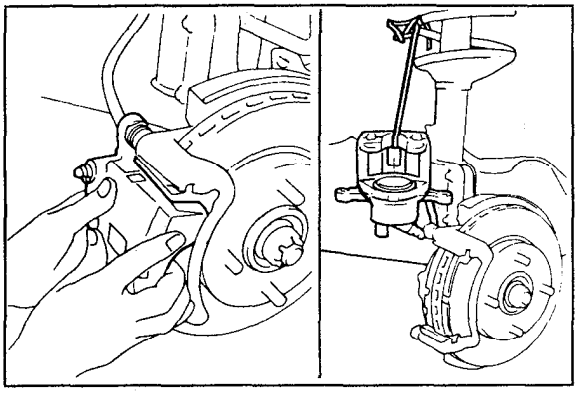
	Standard value	Service limit
Pas lining thickness mm (in.)	11 (0.433)	2.0 (0.079)



3. **Remove two bolts from the torque plate and remove the brake cylinder.**

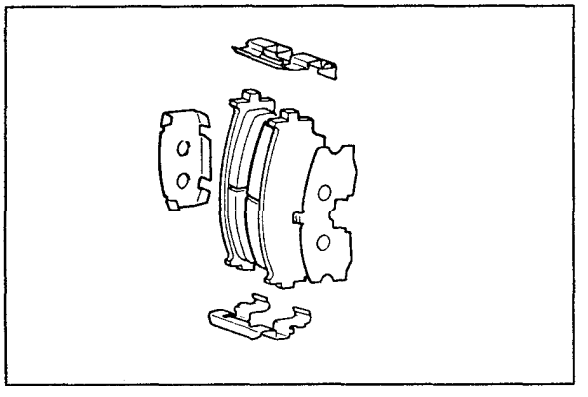
4. Remove the brake cylinder and suspend it with wire.

NOTE
Do not disconnect the brake hose.



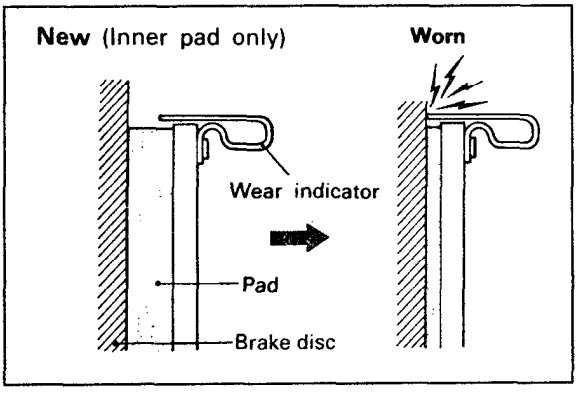
5. Remove the pads.

CAUTION
Be careful not to depress the brake pedal while disassembling the pads.



INSPECTION

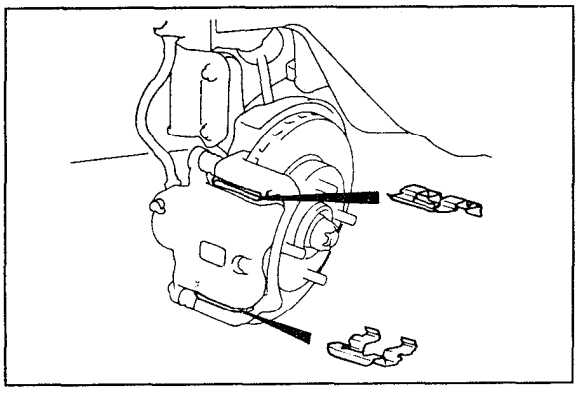
1. Check the pads for wear or oil contamination.
   Replace or correct if necessary.
2. Check the shims for damaged or deformed.



INSTALLATION

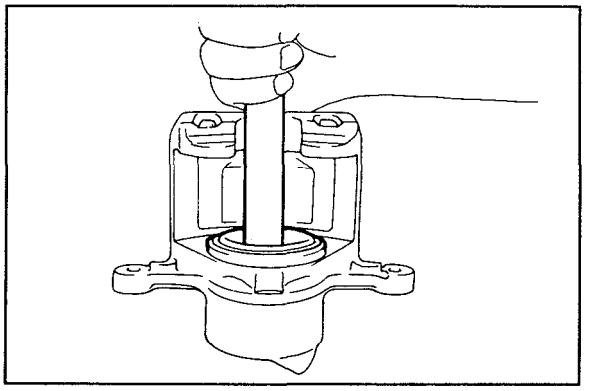
1. Install the pad clips.
2. Install the pads onto each pad clip.

NOTE
1) All four pads must be replaced as a complete set.
2) Position the pad with its pad wear sensor to the piston side and to the upward.



3. Press in piston with a hammer handle or equivalent.
4. Lower and insert the brake cylinder carefully so as not to damage the boot.
5. Install the two guide rod bolts and tighten.

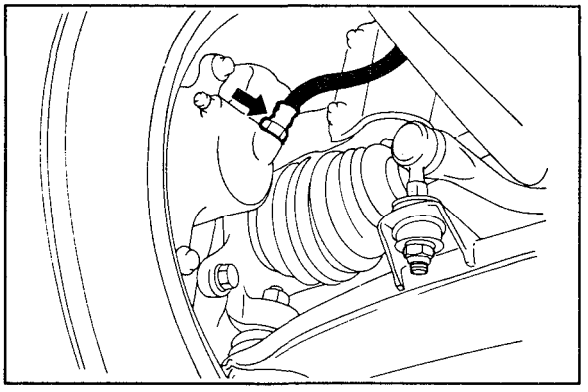
Guide rod bolt	22-32 Nm (220-320 kg.cm, 16-24 lb.ft)



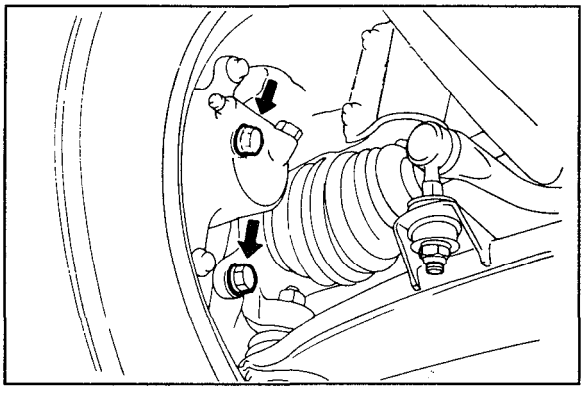
CALIPER ASSEMBLY

REMOVAL

1. Remove the wheel and tire.
2. Remove the brake hose from the caliper.

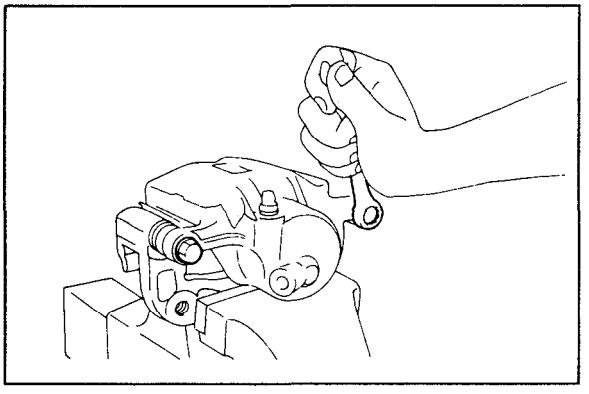


3. Remove the caliper assembly by removing the torque plate.

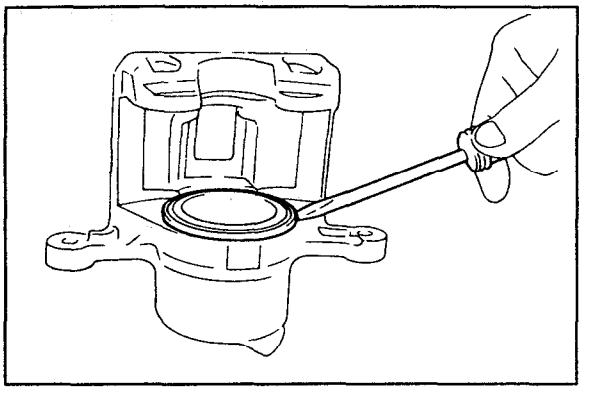


DISASSEMBLY

1. Loosen the caliper attaching guide bolts and separate the caliper.

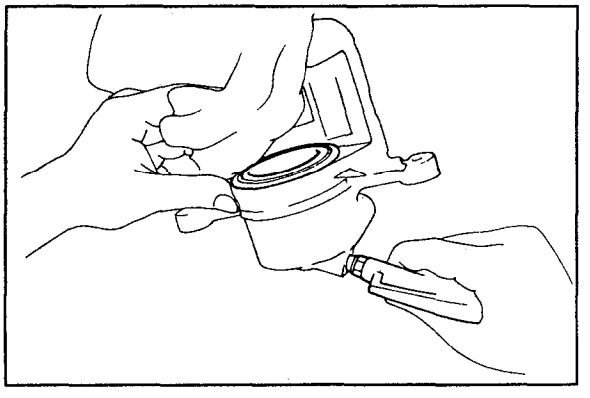


2. Remove the boot ring using a flat blade screwdriver.
3. Remove the piston boot.

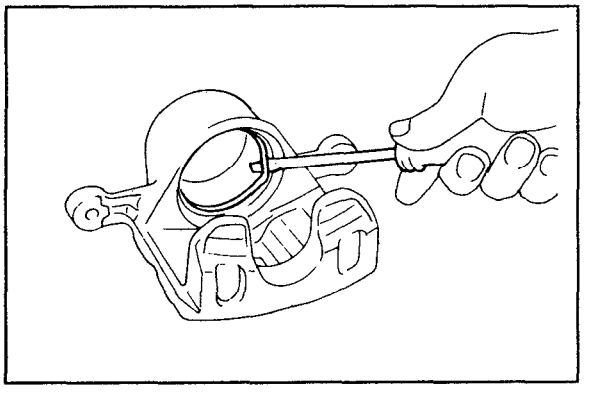


4. Remove the piston by appling compressed air through the brake hose fitting hole.

   CAUTION
   Do not place your fingers in front of the piston when using compressed air.



5. Using a screwdriver, remove the piston seal carefully so as not to damage the cylinder wall.
6. Clean the outer surface of the piston and the inner surface of the cylinder with the specified brake fluid.

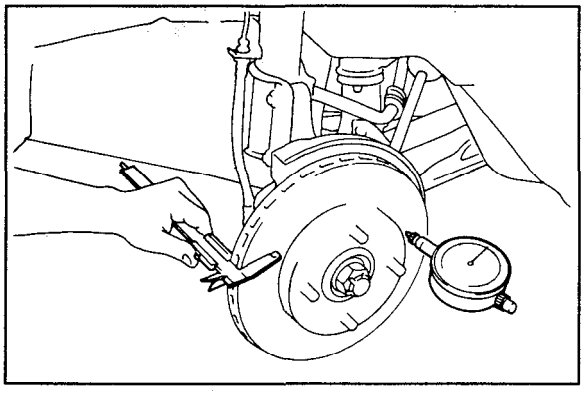


INSPECTION

1. Check the caliper body cylinder inner surface for wear, damage and/or corrosion.
2. Check the piston for wear, damage and/or corrosion.
3. Check the caliper body and sleeve for wear.
4. Check pads for deformation, metal backing for damage, and for oil on the pads.
5. Check the wear indicator for damage.

6. Inspect the brake disc using a dial indicator and micrometer. Machine or replace as necessary.

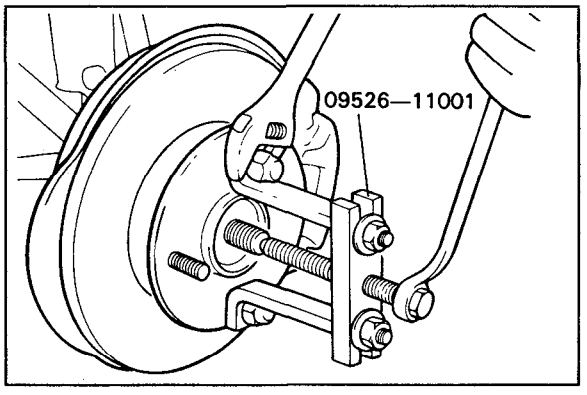
	Standard value	Service limit
Thickness of disc mm (in.)	22 (0.876)	20 (0.797)
Runout of disc mm (in.)	-	0.1 (0.004)



7. If necessary, replace the brake disc.
   1) Remove the torque plate from the knuckle and suspend it with a wire.
   2) Using special tool (09526-11001), disconnect the driveshaft from the hub, and remove the brake disc and hub.
   3) Install the brake disc and hub assembly to the axle shaft.
   4) Install the drive shaft nut and washer, then tighten the drive shaft nut.

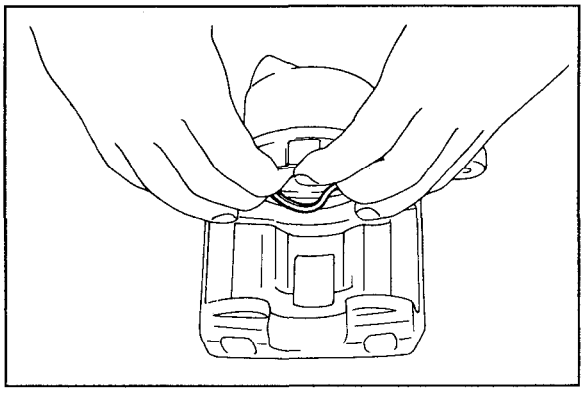
   Tightening torque .....
   196-255 Nm (2000-2600 kg.cm, 145-188 lb.ft)

   5) Install the 'torque plate onto the knuckle.

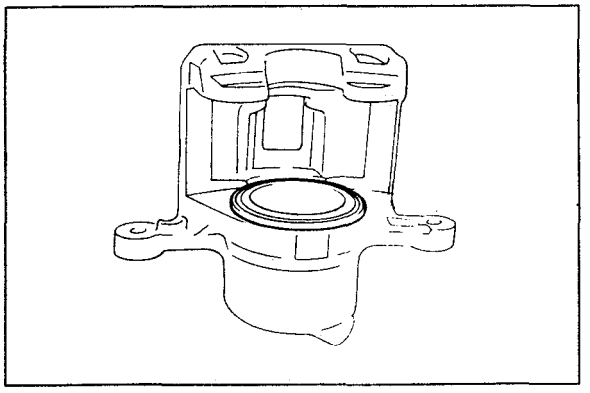


ASSEMBLY

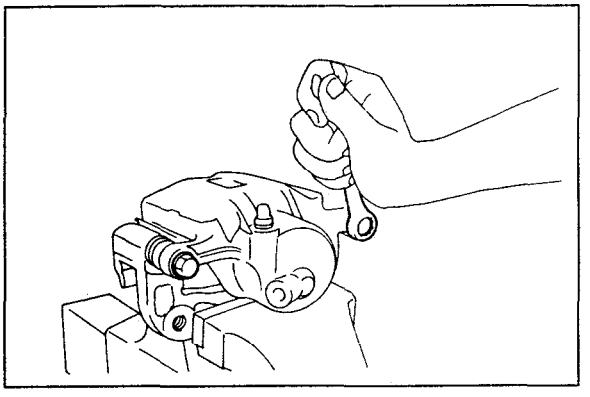
1. Clean the components with isopropyl alcohol except pad and shim.
2. Install the piston seal.
3. After applying specified brake fluid to the piston outer surface, install the piston into the cylinder.



4. Install the piston boot and boot ring.



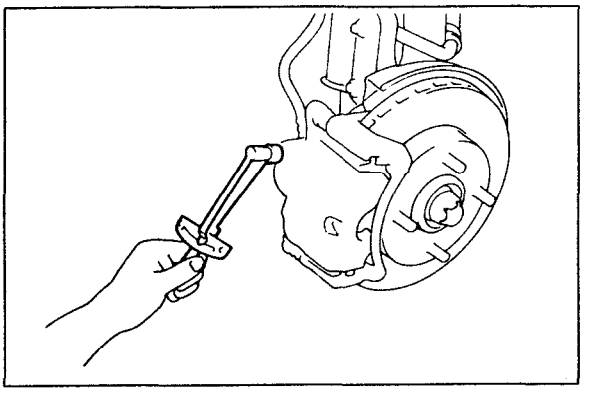
5. Install the guide pin boots and guide pin.



INSTALLATION

1. Install the pads and brake cylinder. (Refer to page 58-21).
2. Install the brake hose to the caliper.

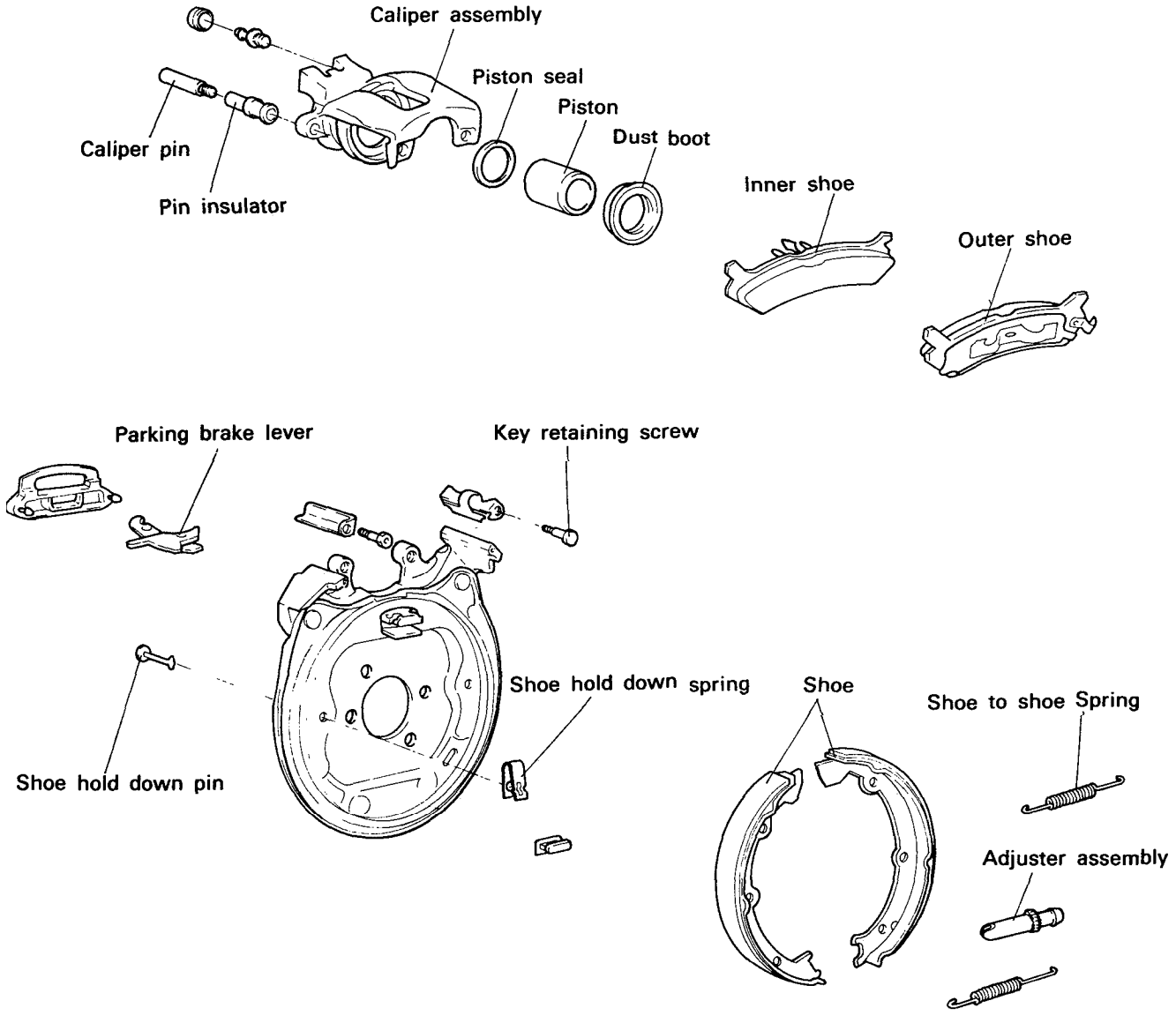
Bleeder screw tightening torque	7-13 Nm (70-130 kg.cm, 5-9 lb.ft)



3. Fill brake reservoir with brake fluid.
4. Bleed the system. (Refer to page 58-9)

REAR DISC BRAKE

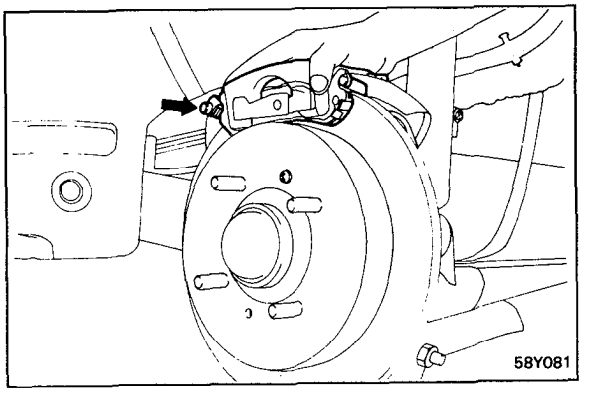
COMPONENTS



DISC BRAKE PAD

REMOVAL

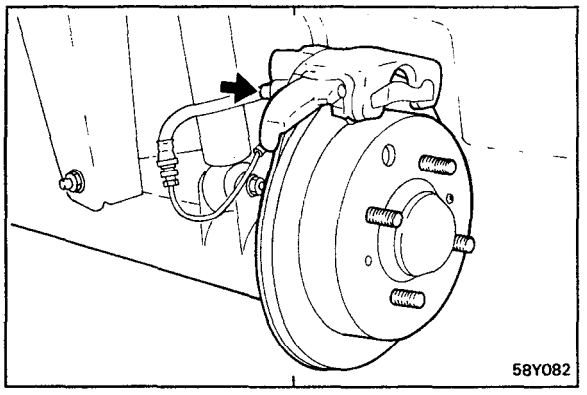
1. Remove the wheel.
2. Remove the screw which holds the trailing shoe key onto the anchor plate.
3. Bias the caliper assembly against the other (thin) key and slide the trailing shoe key outward.



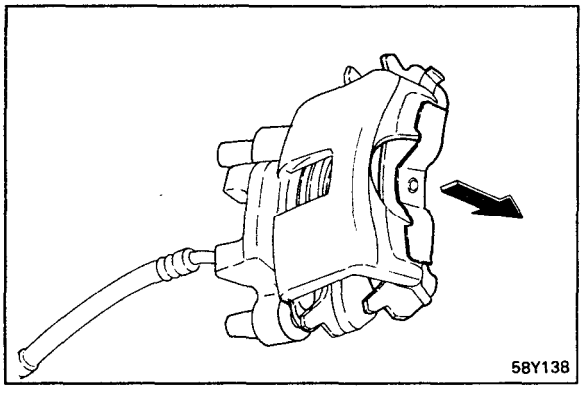
4. Remove both caliper support pins which hold the caliper to the anchor plate,
5. While biasing the caliper assembly against the leading shoe key, swing the front end of the caliper up and past the anchor plate rail. The caliper should now be free.

NOTE

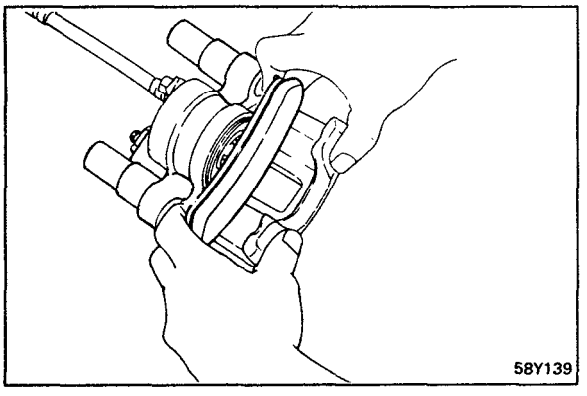
Support the caliper with a wire or some other means to prevent damage to the brake hose.



6. To remove the outer shoe, push the outer shoe inward (off of the caliper legs). The locater buttons must clear the slots in the housing before the shoes can be removed. Slide the shoe down and off the caliper housing.



7. To remove the inner shoe, pull the shoe outward until the inner spring clears the piston.



INSPECTION

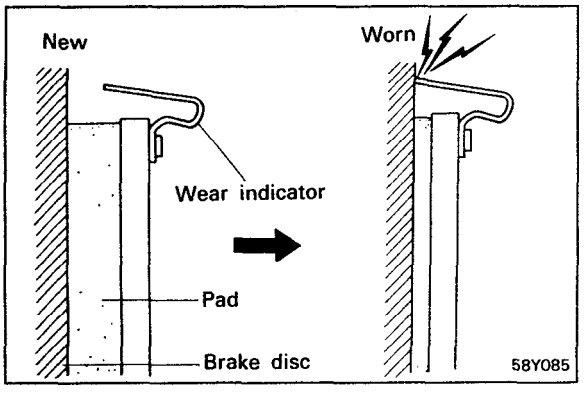
1. Check the pads for wear or oil contamination and replace if necessary.

NOTE

The pads for the right and left wheels should be replaced at the same time.

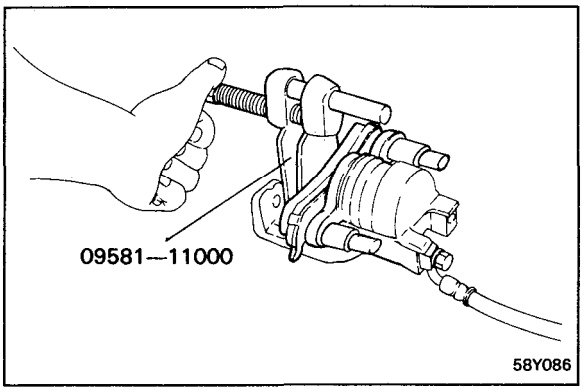
Pad thickness wear limit	0.8 mm

2. Check the leading and trailing shoe keys and retaining screw for damage, or wear. Replace the keys and retaining screw at the same time the pads are replaced.
3. Check for worn or damaged dust boots If dust or mud has entered the caliper assembly through this seal, the caliper assembly must be replaced or rebuilt.

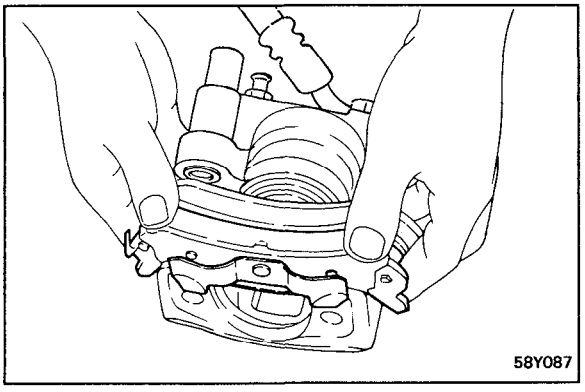


INSTALLATION

1. Before replacing the brake pads, remove brake fluid from the master cylinder reservoir until it is half full.
2. To replace the brake pads, return the piston into the housing assembly. Special tool (09581-11000) can be used to move the piston.



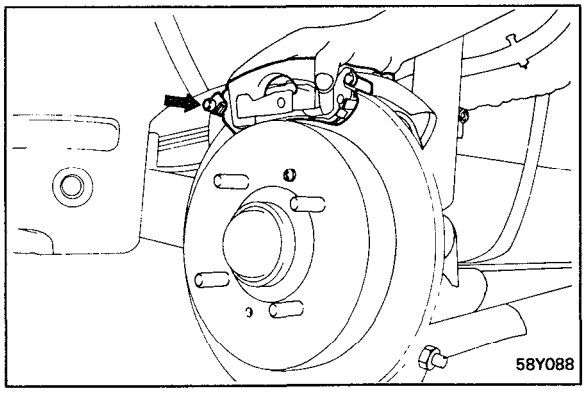
3. Install the inner shoe by pressing the shoe inward until the inner spring is located inside the piston and the backside of the shoe is seated firmly against the piston face.
4. Install the outer shoe by locating the backside of the shoe on the inside of the caliper legs such that the outer spring rides on the outer side of the legs. Push the shoe upward toward the top of the caliper until the locater buttons snap into place.



5. Install the leading shoe key (the thinner of the two) on the anchor plate rail nearer the rear of the vehicle. Be sure the key is positioned and seated properly on the anchor plate rail surface.
6. Position the caliper assembly with the piston and hose routing toward the inboard side of the vehicle. Seat the "V" of the shoes against the leading shoe key while the shoes are straddling the rotor. Bias the assembly to compress the leading shoe key spring and swing the assembly down past the anchor plate rail. Align the "V's of the shoes and the rail and slide the trailing shoe key inboard until it is seated fully. Install the shoulder screw to hold the key in place.
7. Install both caliper support pins. Torque to 24-34 Nm (240-340 kg.cm, 18-25 lb.ft)
8. Refill the master cylinder reservoir and bleed the hydraulic system.

Recommended Brake Fluid..	DOT 3 or Equivalent

9. Pump brake pedal several times prior to moving the vehicle.



CALIPER

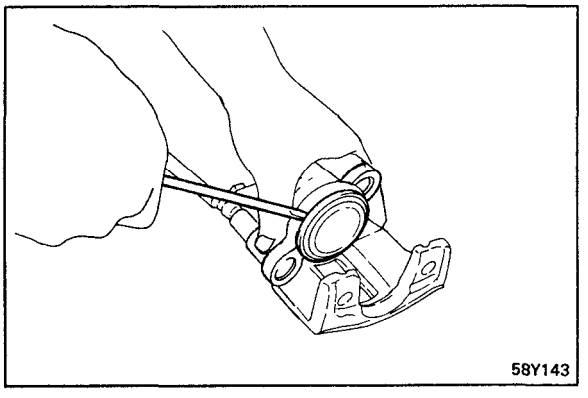
REMOVAL

1. Remove the rear wheel.
2. Remove the caliper assembly. (Refer to page 58-26, 58-27).
3. Remove the brake hose from the caliper.

DISASSEMBLY

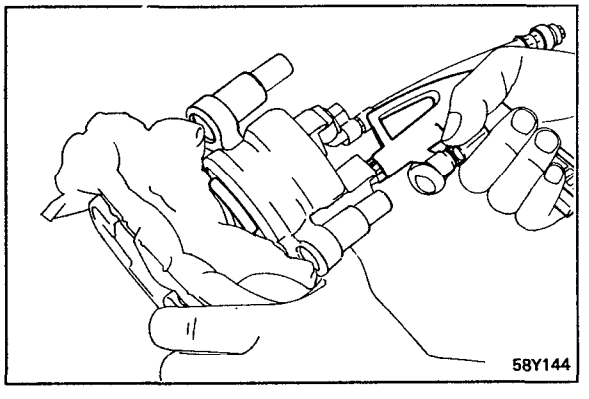
1. Remove the shoes. (Refer to page 58-27)
2. Remove the piston boot by prying it away from the housing and slipping it off the piston.

   NOTE:
   Take care to support the caliper with a wire hanger or some other means so as to prevent damage to the brake hose.



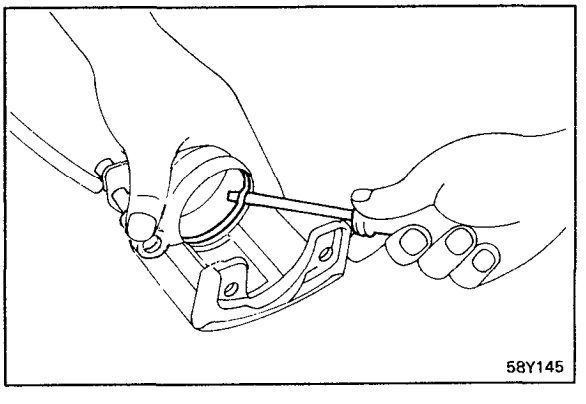
3. Remove the piston by applying compressed air at the brake hose fitting.

   CAUTION
   Do not apply pressure suddenly, otherwise the piston may pop out, injuring your fingers.



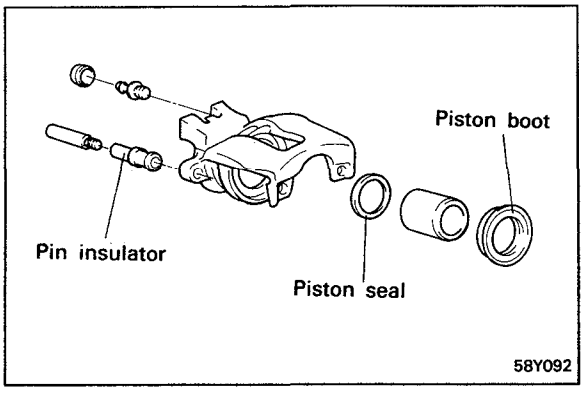
4. Remove the piston seal, being careful not to damage the cylinder inner surface.
5. Clean all removed parts in the specified liquid.
   - Metal parts . . Trichloroethylene, alcohol or brake fluid.
   - Piston seal.. . . . . Brake fluid or alcohol.
   - Piston boot and other rubber parts.. . . . . Alcohol

   CAUTION
   All rubber parts should be replaced with new ones. If they must be reused, do not soak them in alcohol over 30 seconds.



INSPECTION

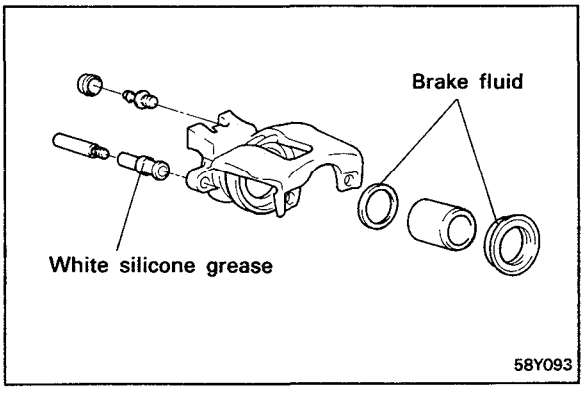
1. Check for worn, damaged, or rusted piston bore and piston. Replace the caliper assembly if necessary.
2. Check for damaged or torn piston seal, boot, and pin insulators.



ASSEMBLY

1. Use a new piston seal and boot whenever the caliper assembly has been disassembled.
2. Apply a recommended lubricant to the piston seal and the piston sliding parts. Insert the piston seal into the seal groove in the caliper bore carefully so that the seal will not be twisted.

	Recommended lubricant	Quantity
Piston seal	Brake fluid (Dot 3)	As required
Piston cylinder bore	Brake fluid (Dot 3)	As required
Piston boot	Brake fluid (Dot 3)	As required
Locating pin Insulators	White silicone grease	As required



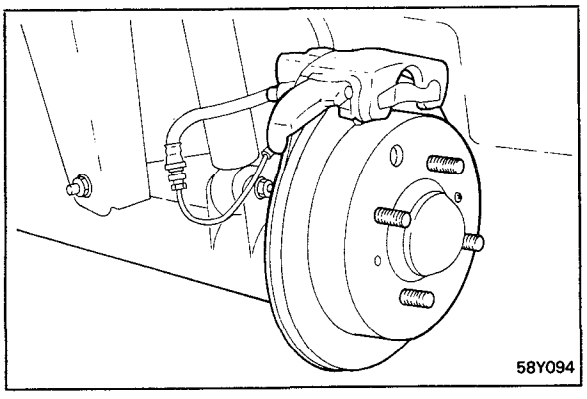
3. Install the piston boot on the piston. Be sure the hollow portion of the piston is facing outward and the boot is fully seated in the groove of the piston.
4. Install the piston and boot into the caliper housing. Press fit the boot flange into the caliper housing. Check to see that the boot is firmly seated in the groove around the piston face.
5. Apply recommended lubricant inside pin insulators.

INSTALLATION

1. Refer to the disc brake pad installation (Page 58-28).
2. Road test vehicle.

NOTE

The presence of even a small amount of air will seriously affect the brake pedal stroke. Bleeding, therefore, should be performed carefully and thoroughly.



CAUTION

When the piston seal is replaced. check the pedal stroke. If the pedal stroke increases too much, it may be caused by excessive return stroke due to insufficient fit between the piston and piston seal. In such a case, correct the pedal stroke as follows:

1) Remove the pad from the piston. Insert a steel plate [thickness x length: approx. 1 x 300 mm (0.04 x 12 in.)] or the end of a prying tool between the piston and the disc with great care not to damage the disc sliding surface or the piston end. Push the piston 3 to 5 mm (0.12 to 0.20 in.) into the cylinder.

2) Install the pad. Stroke the brake pedal 2 to 3 times to return the piston to the original position.
3) Repeat the above operation five times or more, forcing the piston in and out to obtain better fit between the piston and the piston seal.
4) Pump brake pedal several times prior to moving the vehicle.
5) Road test vehicle.

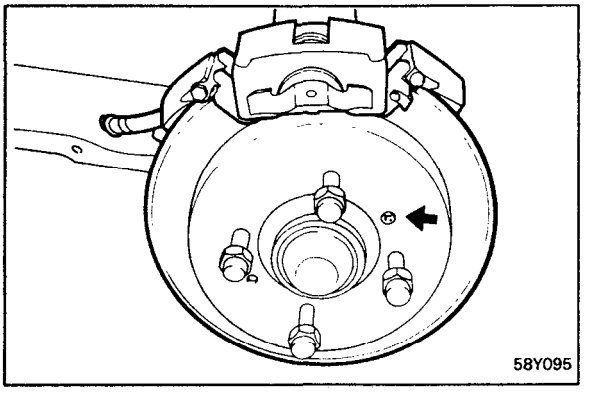
BRAKE DISC

REMOVAL

1. Remove the rear wheels.
2. Measure the disc run-out for reference at inspection.

Disc run-out (standard value)	0.13 mm (0.005 in.) or less

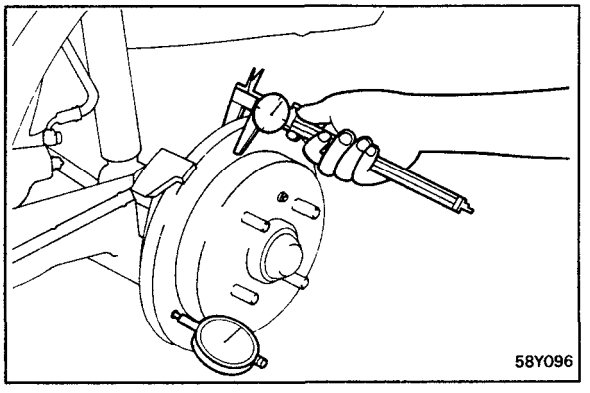
3. Remove the caliper assembly from the anchor plate and support it properly to prevent damage.
4. Remove the set screw from the rotor mounting face and remove the disc rotor.



INSPECTION

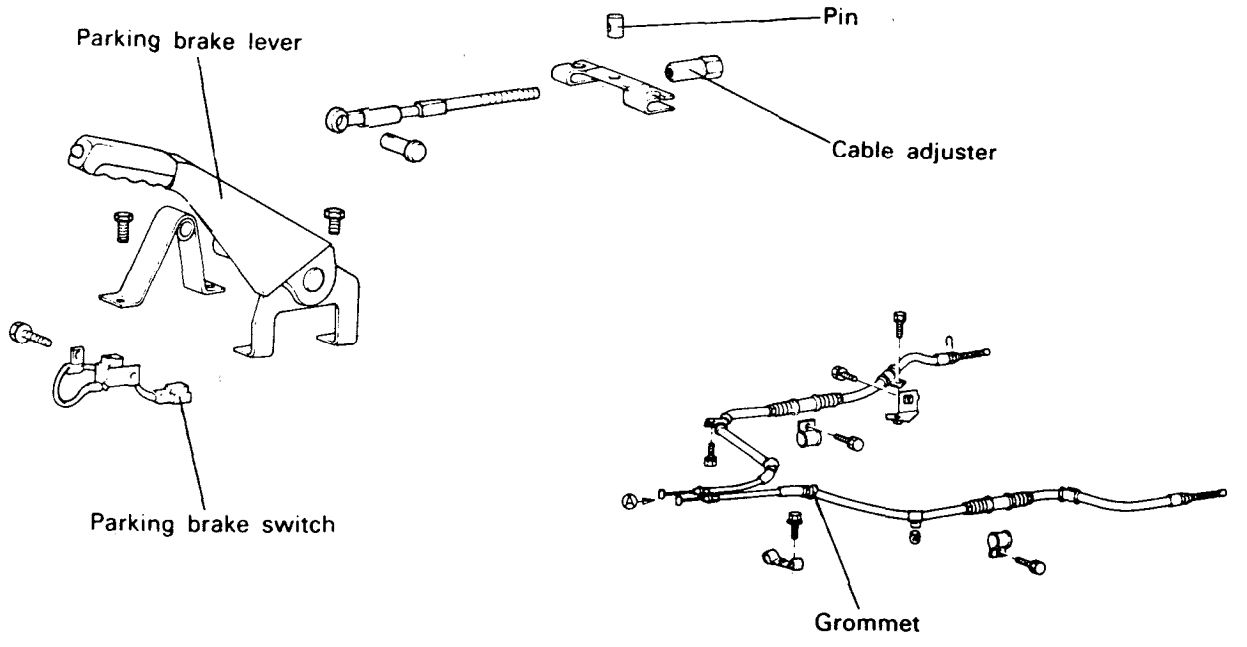
1. Check the disc for wear or damage and correct or replace as necessary.

	Standard value	Service limit
Disc thickness mm (in.)	12 (0.472)	10.5 (0.413)
Disc runout mm (in.)	-	0.13 (0.005)



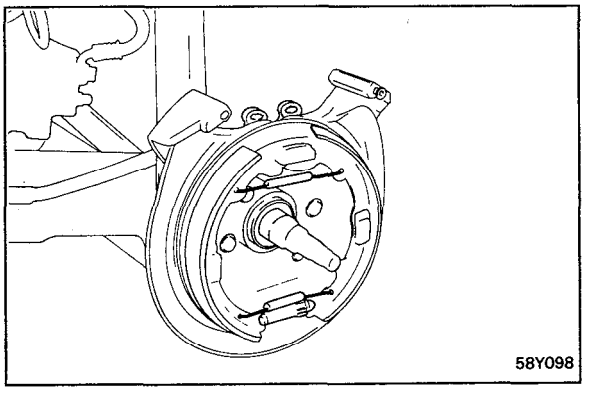
PARKING BRAKE

COMPONENTS

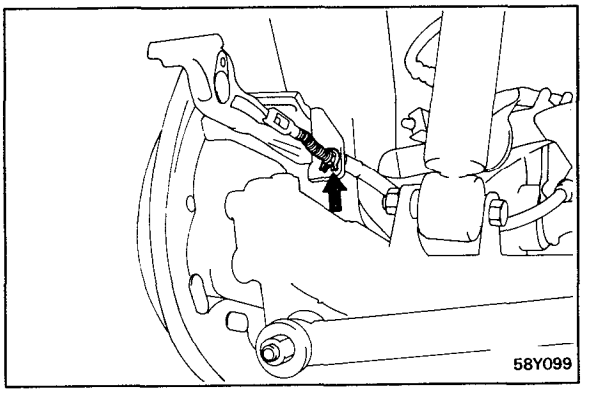


REMOVAL

1. Remove the rear wheel.
2. Remove the rear caliper assembly.
3. Remove the rear disc rotor.
4. Remove the hub assembly and bearings.
5. Remove the lower shoe-to-shoe spring.
6. Remove the adjuster assembly.
7. Remove the upper shoe-to-shoe spring.



8. Disconnect the shoe hold down pin and spring.
9. Being careful not to tear the boot, remove the parking brake cable clevis from the lever. Pull the lever and slider assembly out toward the outboard side of the brake.
10. Remove the clip.
11. Remove the mounting bolts and remove the backing plate from the suspension arm.

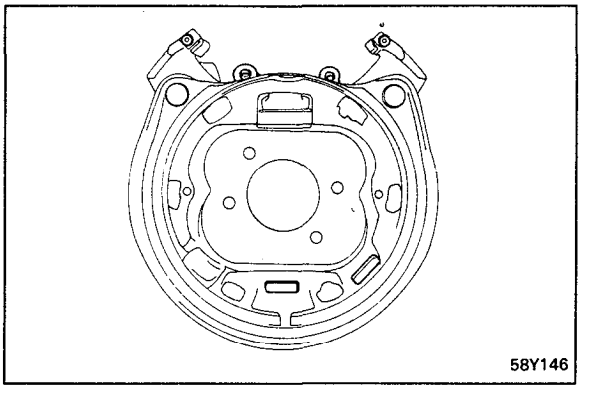


INSPECTION

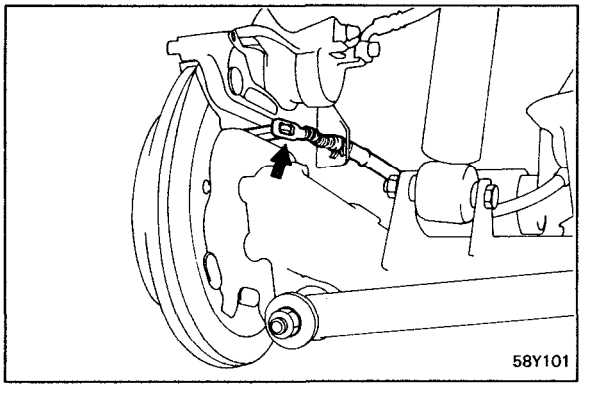
1. Check the linings for wear and oil or grease contamination.
2. Check the shoe web for brinneling or bending.
3. Check the adjuster assembly for bending and adjustment.
4. Check the springs for breaks, overbent hook ends, or over extension.
5. Check the lever and slider for cracks, bending and wear.
6. Check the drum surface for scoring, wear or contamination.
7. Check the boot for rips, tears, and cracks.
8. Replace any worn or damage components if necessary.

INSTALLATION

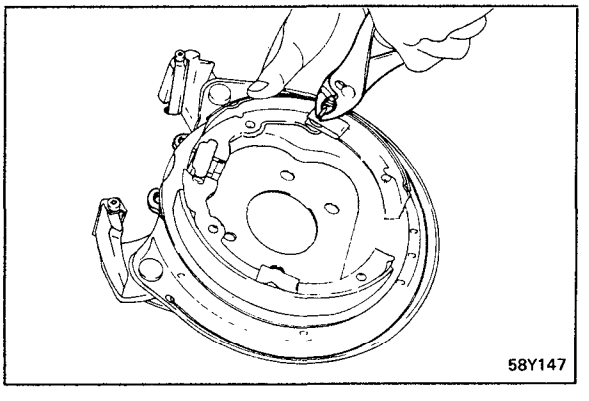
1. Mount the backing plate to the mounting flange, and tighten the bolts diagonally. Torque 50-60 Nm (500-600 kg.cm, 36-43 lb.ft).
2. Apply Wolfracote grease to the backing plate ledges. Apply bearing grease between the lever and slider and on the slider arms where it contacts the backing plate.



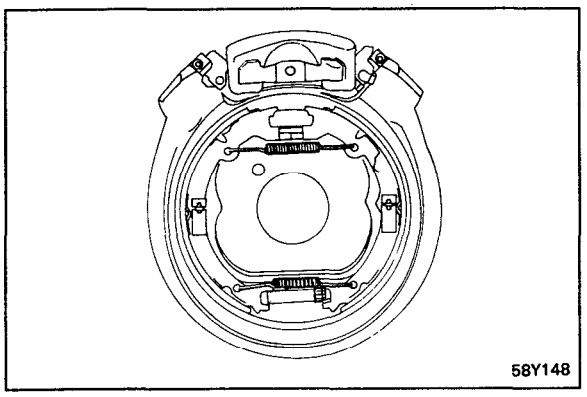
3. Being careful not to tear the boot, install the lever assembly through the window in the backing plate. The lever should be positioned with the long portion going into the backing plate first with the indent for the cable clevis facing toward the rear of the car. The slider should be positioned on top of the lever and should be greased for easy rotation. The long arm of the slider should go on the back side of the backing plate. The assembly should slide and rotate freely. Connect the clevis of the parking brake cable to the indent in the lever.



4. Position the secondary shoes in its proper location. Make sure the upper portion of the web abutts against the anchor block in the slot. Push the hold down pin through the hole in the back of the backing plate. Using a pair of pliers, compress the hold down spring against the shoe web until the wing end of the pin comes through. Rotate the pin 90° and release the spring slowly. Ensure proper seating of the wing end in the spring slot.



5. Repeat for the primary shoe. The tab ends of the lever and slider should be touching a shoe web.
6. Collapse adjuster assembly to its shortest length. Back off one turn so the nut is free to turn. Install the assembly between the slots in the bottom part of the shoes. Make sure the adjuster assembly is oriented as illustrated.
7. Using a pair of pliers, install the lower shoe-to-shoe spring.
8. Using a pair of pliers, install the upper shoe-to-shoe spring.
9. The upper portion of the shoe web should contact the anchor block. Adjust the parking brake cable if necessary.



CAUTION

Check the function of the lever assembly by pusing the end of the, lever (by the cable clevis) and watch the movement of the shoes. The tab end of the lever should move against the shoe and the slider tab end should have full contact against the other shoe.

10. Install the hub.
11. Measure the inside diameter of the drum portion of the rotor.
12. Adjust the outside diameter of the brake shoes at the center to 0.5 mm or 0.020 in. under the inside diameter of the drum. Rotate adjuster nut in the appropriate direction as illustrated. The adjuster assembly is the same part for left or right hand brakes.
13. Install the rotor and set screw.