BRAKE SYSTEM

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PRECAUTIONS

1. **Care must be taken to replace each part properly as it could affect the performance of the brake system and result in a driving hazard. Replace the parts with parts of the same part number or equivalent.**
2. **It is very important to keep parts and the area clean when repairing the brake system.**

TROUBLESHOOTING

Problem	Possible cause	Remedy	Page
Low or spongy pedal	Linings worn	Replace brake shoes or pads	BR-18, 24, 31
	Leak in brake system	Locate and repair	
	Master cylinder faulty	Repair or replace master cylinder	BR-8
	Air in brake system	Bleed brake system	BR-6
	Wheel cylinder faulty	Repair wheel cylinder	BR-31
	Piston seals worn or damaged	Repair brake calipers	BR-18, 24
	Rear brake automatic adjuster faulty	Repair or replace adjuster	BR-31
Brakes drag	Parking brake out of adjustment	Adjust parking brake	BR-7
	Linkage binding	Repair as necessary	
	Booster push rod out of adjustment	Adjust push rod	BR-16
	Return spring faulty	Replace spring	BR-31
	Brake line restricted	Repair as necessary	
	Lining cracked or distorted	Replace brake shoes and pads	BR-18, 24, 31
	Wheel cylinder or caliper piston sticking	Repair as necessary	BR-18, 24, 31
	Automatic adjuster broken	Replace adjuster	BR-31
	Master cylinder faulty	Repair or replace master cylinder	BR-8
Brakes pull	Tires improperly inflated	Inflate tiers to proper pressure	FA-3
	Oil or grease on linings	Check for cause/Replace shoes	BR-18, 24, 31
	Brake shoes distorted, linings worn or glazed	Replace brake shoes	BR-31
	Drum or disc out of round	Replace drum or disc	BR-18, 24, 31
	Return spring faulty	Replace spring	BR-31
	Wheel cylinder faulty	Repair wheel cylinder	BR-31
	Piston frozen in caliper	Repair caliper	BR-18, 24
	Disc brake pad stickig	Replace pads	BR-18, 24
Brakes grab/ chatter	Oil or grease on linings	Check for cause/Replace shoes	BR-18, 24, 31
	Drum or disc scored or out of round	Replace drum or disc	BR-18, 24, 31
	Brake shoes distorted, linings worn or glazed	Replace brake shoes	BR-31
	Wheel cylinder faulty	Repair wheel cylinder	BR-31
	Disc brake pad sticking	Replace pads	BR-18, 24
	Brake booster faulty	Replace booster	BR-14

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TROUBLESHOOTING (Cont'd)

Problem	Possible cause	Remedy	Page
Hard pedal but brakes inefficient	Oil or grease on linings	Check for cause. Replace shoes	BR-18, 24, 31
	Brake shoes distorted, linings worn or glazed, drums worn	Replace brake shoes	BR-31
	Disc brake pads worn	Replace pads	BR-18, 24
	Piston frozen in caliper	Repair caliper	BR-18, 24
	Brake booster faulty	Repair booster	BR-14
	Brake line restricted	Repair as necessary	
Snapping or clicking noise when brakes are applied	Drum brakes—brake shoes binding at backing plate ledges	Lubricate	BR-31
	Drum brakes—backing plate ledges worn	Replace and lubricate ledges	BR-31
	Drum brakes—loose or missing hold-down spring	Replace	BR-31
	Drum brakes—loose set bolt at backing plate	Tighten	BR-31
	Disc brakes—rust on front edge of inboard shoes	Inspect, lubricate or replace if necessary	BR-18, 24
	Disc brakes—loose or missing pad support plate	Replace	BR-18, 24
	Disc brakes—loose installation bolt	Tighten	BR-18, 24
	Disc brakes—wear on slide bushing	Replace	BR-18, 24
Scraping or grinding noise when brakes are applied	Worn brake linings	Replace, refinish drums or rotors if heavily scored	BR-31
	Caliper to wheel or rotor interference	Replace as required	BR-18, 24
	Dust cover to rotor or drum interference	Correct or replace	
	Other brake system components: Warped or bent brake backing plate, cracked drum or rotor	Inspect and repair	BR-18, 24, 31
	Tires rubbing against chassis and body	Inspect and repair	
Squealing, groaning or chattering noise when brakes are applied NOTE: Brake friction materials inherently generate noise and heat in order to dissipate energy. As a result, occasional squeal is normal and is aggravated by severe environmental conditions such as cold, heat, wetness, snow, salt, mud, etc. This occasional squeal is not a functional problem and does not indicate any loss of brake effectiveness	Brake drums and linings, rotors and pads worn or scored	Inspect, repair or replace	BR-18, 24, 31
	Disk brakes—missing or damaged brake pad anti-squeal shim	Replace	BR-18, 24
	Disc brakes—burred or rusted calipers	Clean or deburr	BR-18, 24
	Dirty, greased, contaminated or glazed linings	Clean or replace	BR-31
	Improper lining parts	Check for correct parts/Replace	BR-31
	Maladjustment of brake pedal or booster push rod	Inspect and adjust	BR-5, 16
	Drum brakes—weak damaged or incorrect shoe hold-down springs, loose or damaged shoe hold-down pins and springs and grooved backing plate ledges	Inspect, repair or replace	BR-31

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TROUBLESHOOTING (Cont'd)

Problem	Possible cause	Remedy	Page
Squealing noise when brakes are not applied	Bent or warped backing plate causing interference with drum	Repair or replace	BR-31
	Improper machining of drum causing interference with backing plate or shoe	Replace drum	BR-31
	Maladjustment of brake pedal or booster push rod	Inspect and adjust	BR-5, 16
	Poor return of brake booster or master cylinder or wheel cylinder	Inspect, repair or replace	BR-8, 14, 18, 31
	Disc brakes — rusted, stuck	Inspect. Lubricate if necessary	BR-18, 24
	Other brake system components: Loose or extra parts in brakes Rear drum adjustment too tight causing lining to glaze Worn, damaged or insufficiently lubricated wheel bearings	Inspect, repair or replace as required	BR-31
	Drum brakes — weak, damaged or incorrect shoe return springs	Inspect, repair or replace	BR-31
	Drum brakes — grooved backing plate ledges		BR-31
	Improper positioning of pads in caliper	Inspect and service	BR-18, 24
	Outside diameter of rotor rubbing caliper housing	Inspect, correct or replace	BR-18, 24
	Housing installation of disc brake pad support plate	Correct	BR-18, 24
Groaning, clicking or rattling noise when brakes are not applied	Stones or foreign material trapped inside wheel covers	Remove foreign material	
	Loose wheel hub nuts	Tighten to correct torque. Replace if stud holes are elongated	
	Disc brakes—failure of shim	Inspect. Replace if necessary	BR-18, 24
	Disc brakes—wear on slide bushing	Inspect. Replace if necessary	BR-18, 24
	Disc brakes—loose installation bolt	Inspect. Tighten if necessary	BR-18, 24
	Maladjustment of brake pedal or booster push rod	Inspect and adjust	BR-5, 16
	Disc brakes—poor return of piston	Inspect, repair or replace	BR-18, 24
	Drum brakes—loose or extra parts	Inspect, remove or repair	BR-31
	Worn, damaged or dry wheel bearings	Inspect, lubricate or replace	FA-8, 52 RA-3

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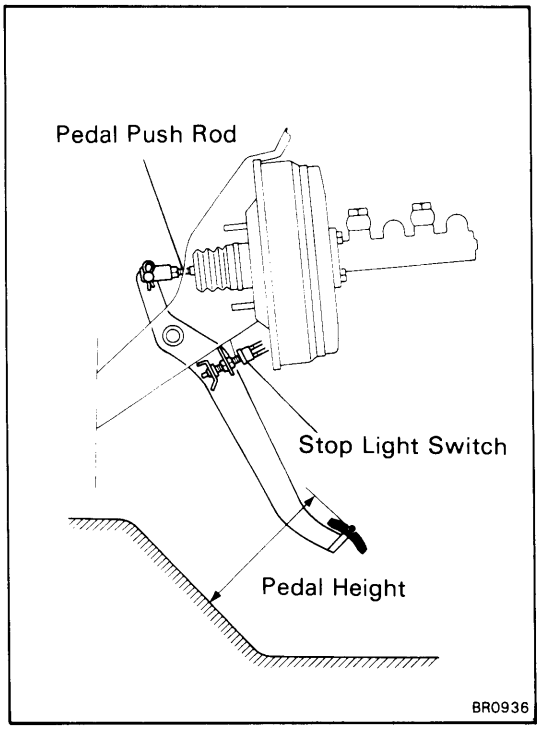


CHECKS AND ADJUSTMENTS

CHECK AND ADJUSTMENT OF BRAKE PEDAL

1. CHECK THAT PEDAL HEIGHT IS CORRECT

Pedal height from asphalt sheet: 148 — 158 mm (5.83 — 6.22 in.)

If incorrect, adjust the pedal height.

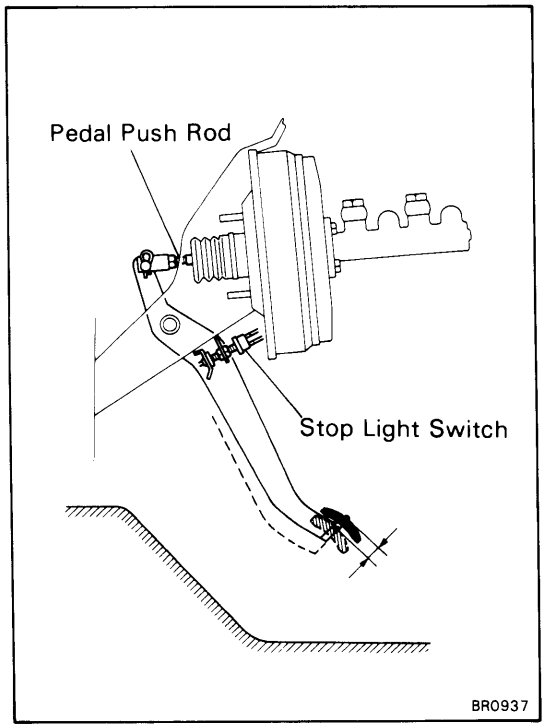
2. IF NECESSARY, ADJUST PEDAL HEIGHT

(a) Sufficiently loosen the stop light switch and the brake cancel switch for the cruise control.

(b) Adjust the pedal height by turning the pedal push rod.

(c) Return the stop light switch until its body lightly contacts the pedal stopper.

(d) After adjusting the pedal height, check and adjust the pedal freeplay.



3. CHECK PEDAL FREEPLAY

(a) Stop the engine and depress the brake pedal several times until there is no more vacuum left in the booster.

(b) Push in the pedal until the beginning of resistance is felt. Measure the distance, as shown.

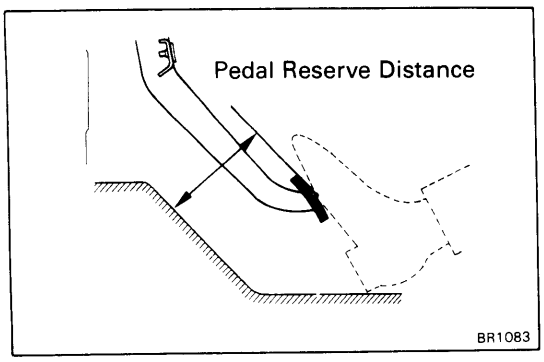
Pedal freeplay: 1 — 3.5 mm (0.04 — 0.138 in.)

4. IF NECESSARY, ADJUST PEDAL FREEPLAY

(a) Check that the pedal height is correct.

(b) If incorrect, adjust by turning the pedal push rod.

(c) Adjust the stop light switch position until its body slightly contacts with the stopper rubber.



5. CHECK THAT PEDAL RESERVE DISTANCE IS CORRECT

Release the parking brake. With the engine running, depress the pedal and measure the pedal reserve distance, as shown.

Pedal reserve distance from floor panel at 50 kg (110.2 lb, 490 N): More than 60 mm (2.36 in.)

If incorrect, troubleshoot the brake system.

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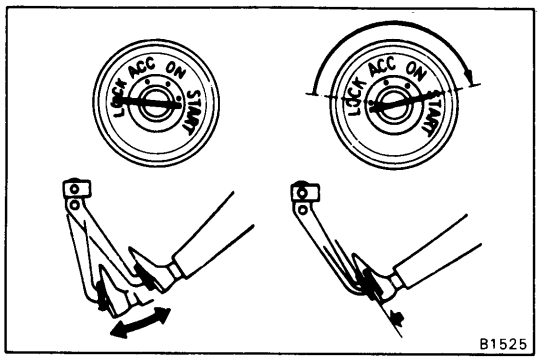


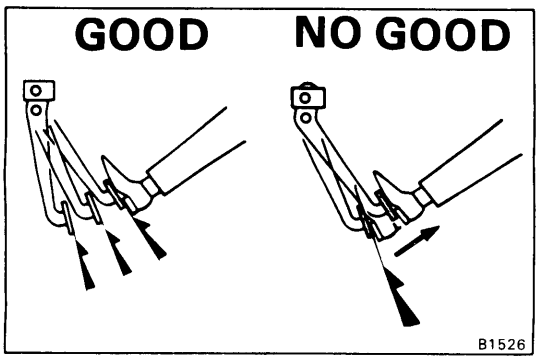
OPERATIONAL TEST OF BRAKE BOOSTER

NOTE: If the booster leaks or lacks vacuum, repair before testing.

1. OPERATING CHECK

(a) Depress the brake pedal several times with the engine off, and check that there is no change in the pedal reserve distance.

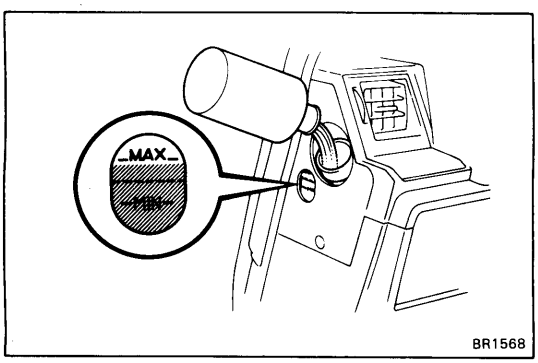
(b) Depress the brake pedal and start the engine. If the pedal goes down slightly, operation is normal.



2. AIR TIGHTNESS

(a) Start the engine and stop it after one or two minutes. Depress the brake pedal several times slowly. If the pedal goes fartherest down the first time, and gradually rises after the second or third time, the booster is air tight.

(b) Depress the brake pedal while the engine is running, and stop it with the pedal depressed. If there is no change in pedal reserve travel after holding the pedal for thirty seconds, the booster is air tight.



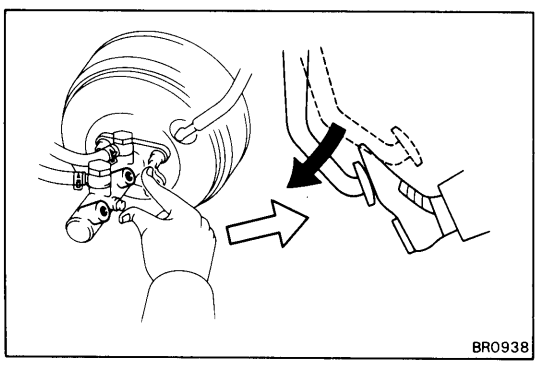
BLEEDING OF BRAKE SYSTEM

NOTE: If any work is done on the brake system or if air is suspected in the brake lines, bleed the system of air.

CAUTION: Do not let brake fluid remain on a painted surface. Wash it off immediately.

1. FILL BRAKE RESERVOIR WITH BRAKE FLUID

Check the reservoir after bleeding each wheel. Add fluid, if necessary.

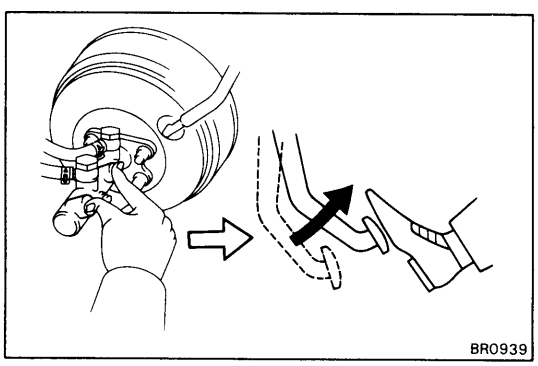


2. BLEED MASTER CYLINDER

NOTE: If the master cylinder was disassembled or if the reservoir becomes empty, bleed the air from the master cylinder.

(a) Disconnect the brake tubes from the master cylinder.

(b) Depress the brake pedal and hold it.



(c) Block off the outlet holes with your fingers, and release the brake pedal.

(d) Repeat (b) and (c) three or four times.

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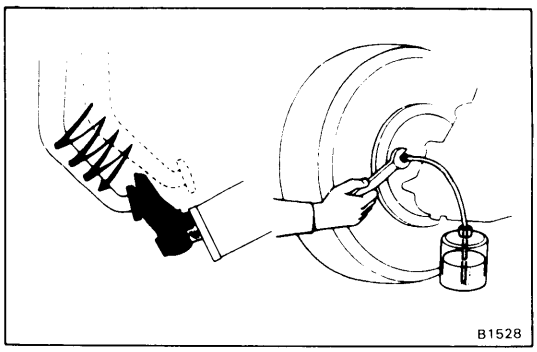


3. CONNECT VINYL TUBE TO WHEEL CYLINDER BLEEDER PLUG

Insert other end of the tube in a half-full container of brake fluid.

NOTE: Begin air bleeding from the wheel cylinder with the longest hydraulic line.

4. BLEED BRAKE LINE

(a) Slowly pump the brake pedal several times.

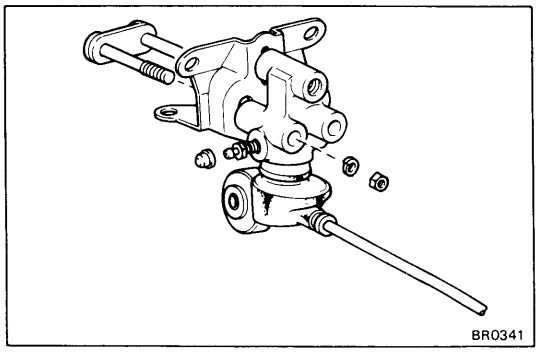
(b) While an assistant depresses the pedal, loosen the bleeder plug until fluid starts to run out. Then close the bleeder plug.

(c) Repeat this procedure until there are no more air bubbles in the fluid.

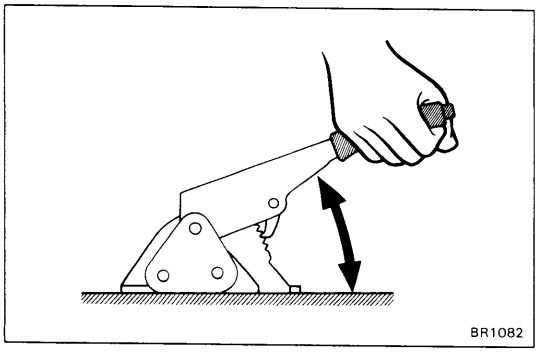
Bleeder plug tightening torque:

Front cylinder	**85 kg-cm (74 in.-lb, 8.3 N·m)**
LSP & BV	**85 kg-cm (74 in.-lb, 8.3 N·m)**
Rear cylinder	**110 kg-cm (8 ft-lb, 11 N·m)**

5. REPEAT PROCEDURE FOR EACH WHEEL



6. BLEED LOAD SENSING PROPORTIONING AND BY-PASS VALVE



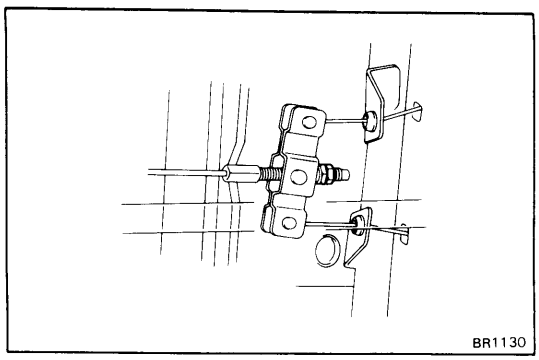
CHECK AND ADJUSTMENT OF PARKING BRAKE

1. CHECK THAT PARKING BRAKE LEVER TRAVEL IS CORRECT

Pull the parking brake lever all the way up, and count the number of clicks.

Parking brake lever travel at 20 kg (44.1 lb, 196 N):

YR 22, 31, 32 series:	**7 — 9 clicks**
YR 29 series:	**6 — 8 clicks**



2. IF NECESSARY, ADJUST PARKING BRAKE

NOTE: The rear brake shoe clearance should be adjusted before adjusting the parking brake.

For shoe clearance adjustment, see step 9 on page BR-39.

Adjust the parking brake lever travel by turning the adjusting nut.

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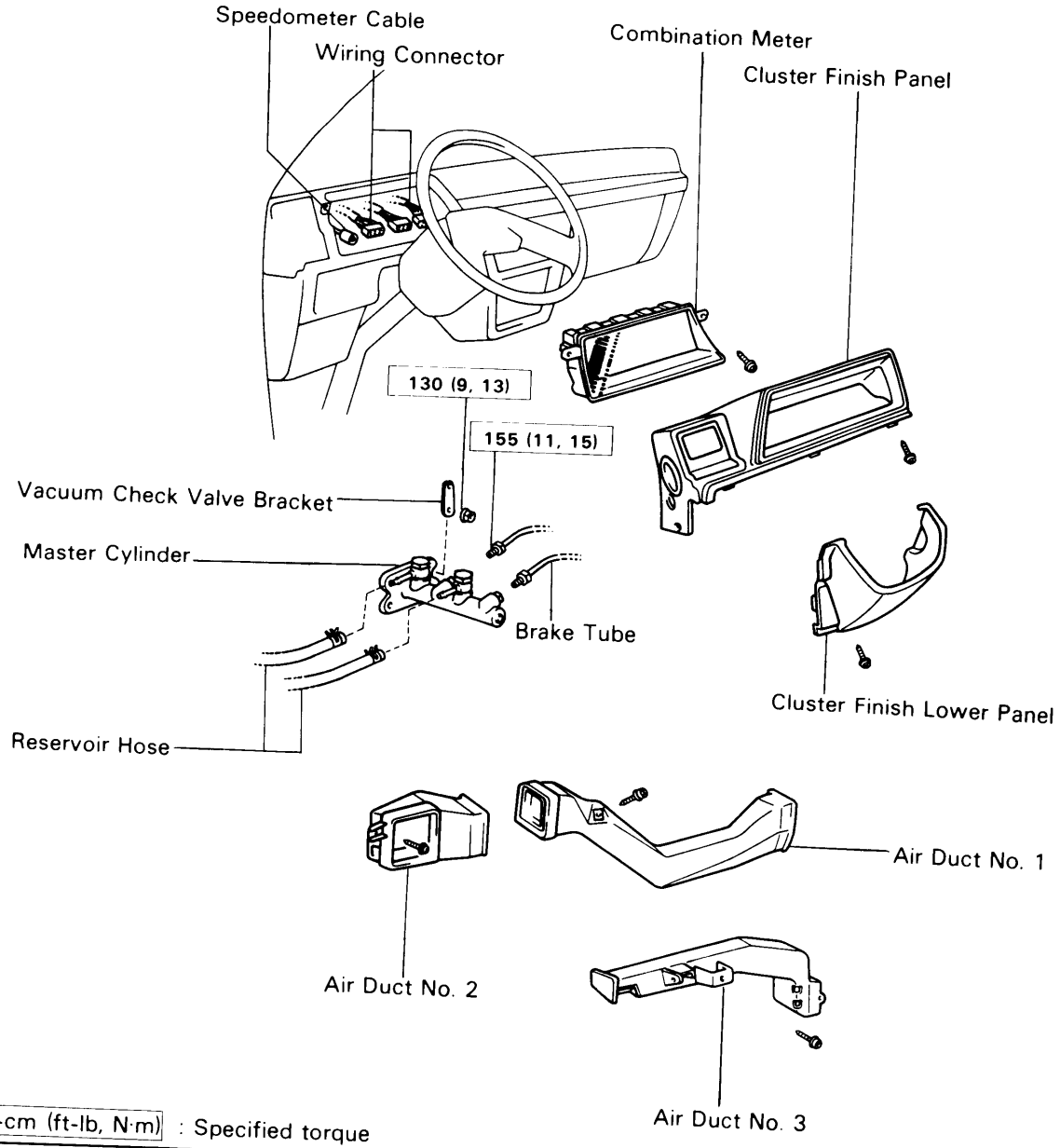
MASTER CYLINDER

REMOVAL OF MASTER CYLINDER



1. **DISCONNECT NEGATIVE CABLE FROM BATTERY TERMINAL**

2. **REMOVE FOLLOWING PARTS:**
   (a) Cluster finish panel (See page CL-4)
   (b) Combination meter
   (c) Cluster finish lower panel
   (d) Air duct No. 3
   (e) Air duct No. 1 and No. 2

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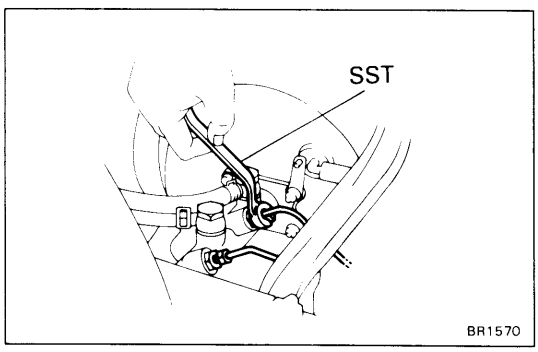
3. TAKE OUT FLUID WITH SYRINGE

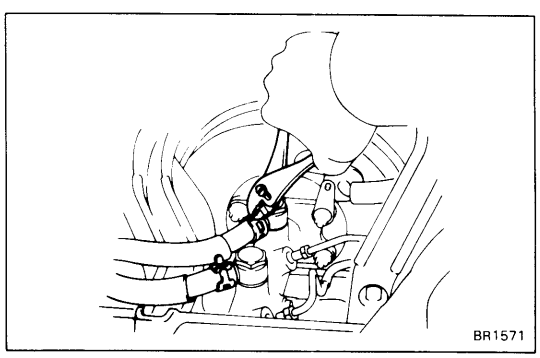
CAUTION: Do not let brake fluid remian on a painted surface. Wash it off immediately.



4. DISCONNECT TWO BRAKE TUBES

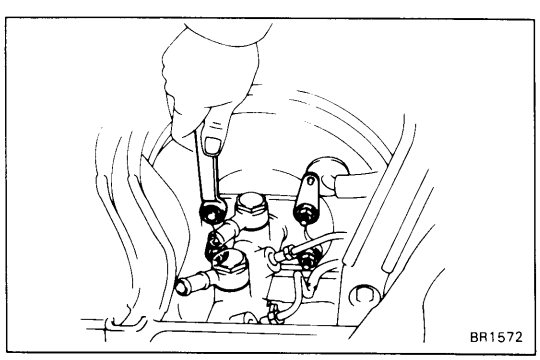
Using SST, disconnect the two brake tubes from the master cylinder.

SST 09751-36011



5. DISCONNECT TWO RESERVOIR HOSES FROM MASTER CYLINDER

Using pliers, disconnect the two reservoir hoses from the master cylinder.



6. REMOVE BRAKE MASTER CYLINDER

Remove the mounting nuts and vacuum check valve bracket, and then pull out the master cylinder.

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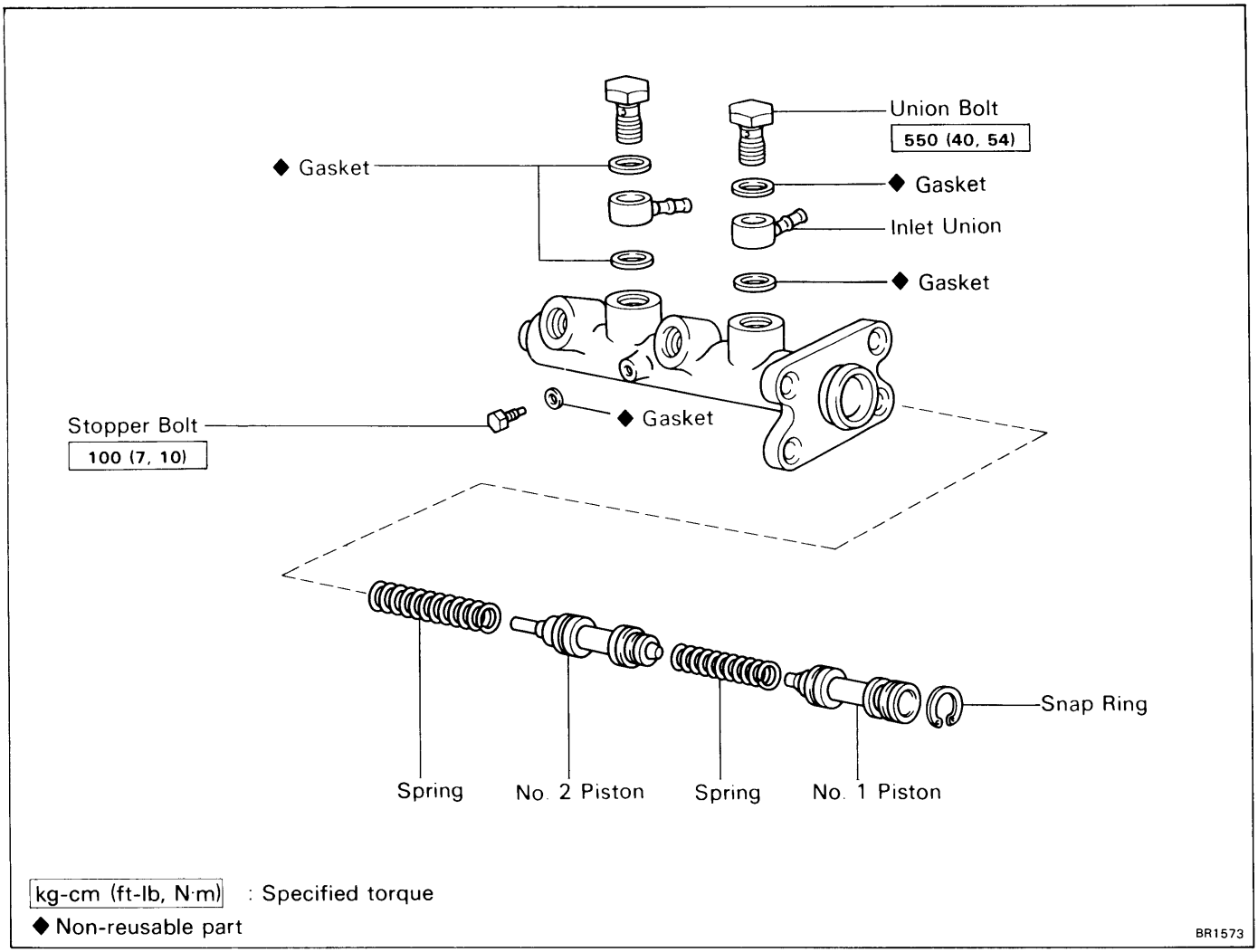
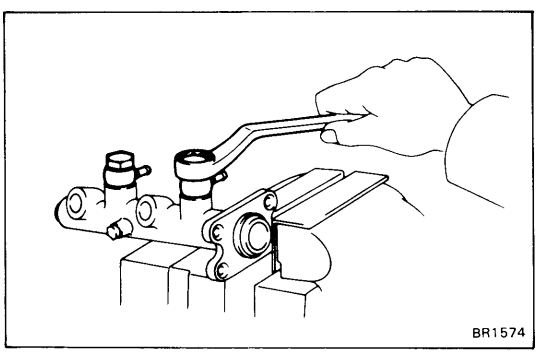
COMPONENTS



kg-cm (ft-lb, N·m) : Specified torque
◆ Non-reusable part

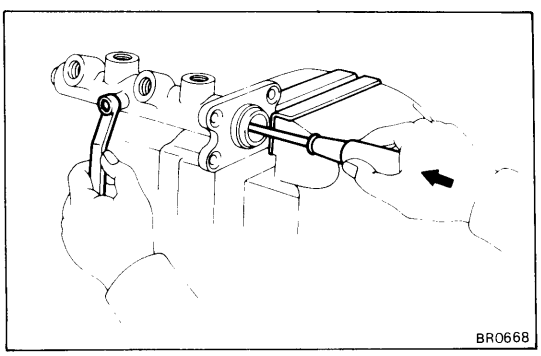
BR1573



BR1574

DISASSEMBLY OF MASTER CYLINDER

1. **PLACE CYLINDER IN VISE**
2. **REMOVE INLET UNIONS**



BR0668

3. **REMOVE PISTON STOPPER BOLT**

   Using a screwdriver, push the pistons in all the way and remove the piston stopper bolt.

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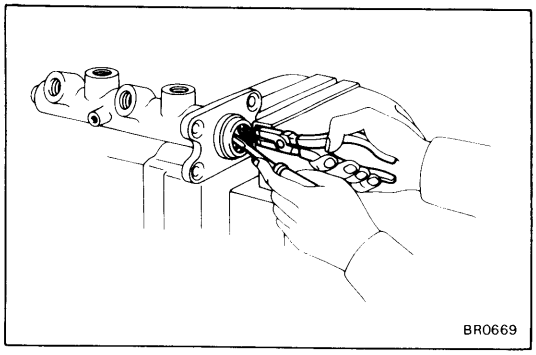
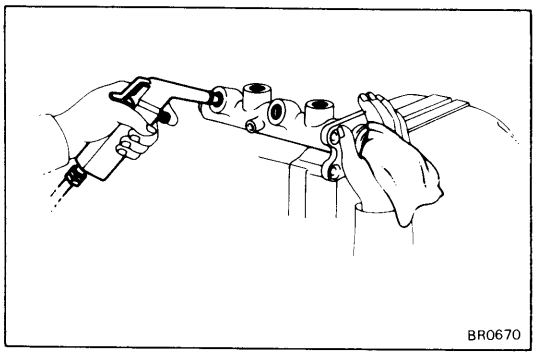

BR0669

4. REMOVE TWO PISTONS AND SPRINGS

(a) Using snap ring pliers, remove the snap ring.


BR0670

(b) Remove two pistons and springs from the master cylinder.

NOTE: It may be necessary to inject compressed air in the hole to force out the No. 2 piston, as shown.

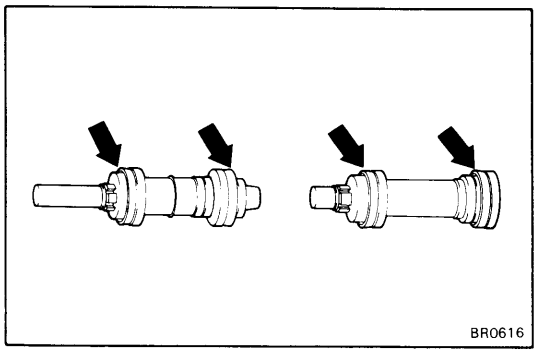
INSPECTION OF MASTER CYLINDER

NOTE: Clean the disassembled parts with compressed air.

1. INSPECT CYLINDER BORE FOR RUST AND SCORING

2. INSPECT CYLINDER FOR WEAR OR DAMAGE

If necessary, clean or replace the cylinder.


BR0616

ASSEMBLY OF MASTER CYLINDER

(See page BR-9)

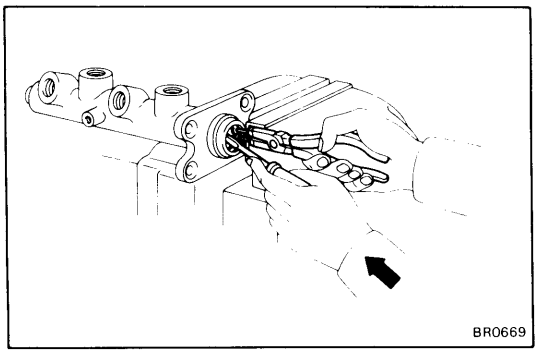
1. APPLY LITHIUM SOAP BASE GLYCOL GREASE TO RUBBER PARTS OF PISTON

2. INSTALL TWO SPRINGS AND PISTONS

CAUTION: Be careful not to damage the rubber lips on the pistons.

(a) Insert two springs and pistons in the master cylinder housing as shown.

(b) Using snap ring pliers, install the snap ring.


BR0669

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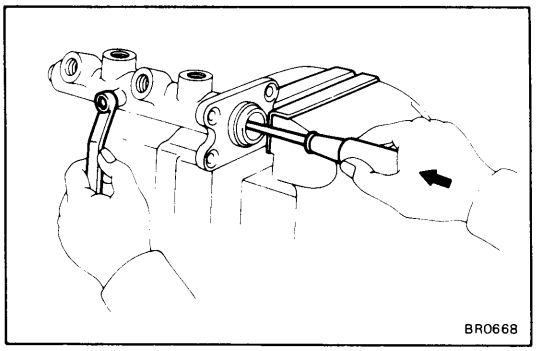
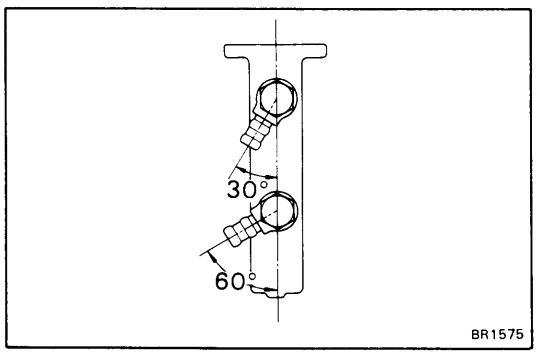


3. INSTALL PISTON STOPPER BOLT

Using screwdriver, push the pistons in all the way and install the piston stopper bolt over the gasket.
Torque the bolt.

Torque: 100 kg-cm (7 ft-lb, 10 N·m)



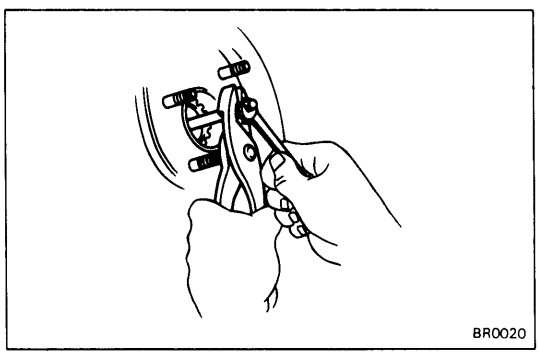
4. INSTALL TWO INLET UNIONS

Install the inlet union over the gaskets.

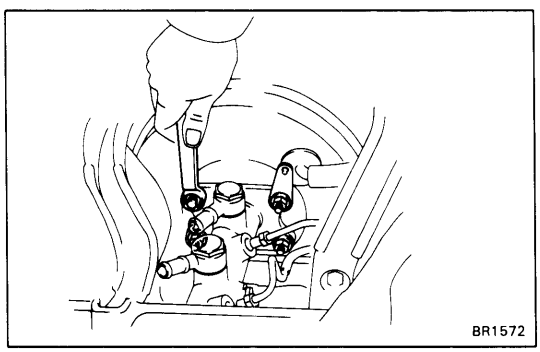
Torque: 550 kg-cm (40 ft-lb, 54 N·m)

INSTALLATION OF MASTER CYLINDER

(See page BR-8)



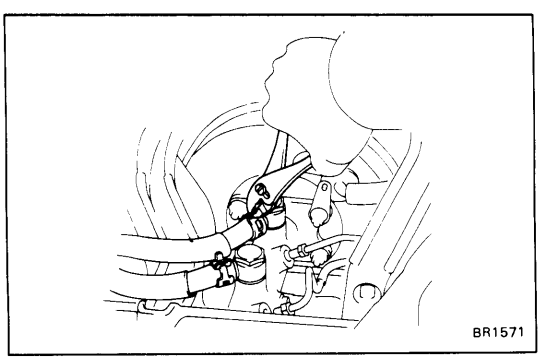
1. ADJUST LENGTH OF BRAKE BOOSTER PUSH ROD BEFORE INSTALLING MASTER CYLINDER
(See step 1 on page BR-16)



2. INSTALL MASTER CYLINDER

Install the master cylinder to the brake booster with four nuts. Torque the nuts.

Torque: 130 kg-cm (9 ft-lb, 13 N·m)



3. CONNECT TWO RESERVOIR HOSES TO MASTER CYLINDER

Using pliers, connect the two reservoir hoses to the master cylinder.

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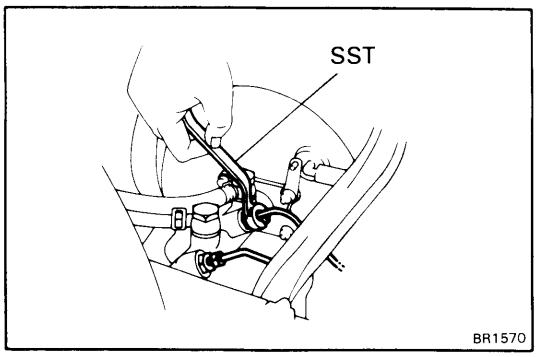

4. **CONNECT TWO BRAKE TUBES**

First, tighten the nuts by finger, then with SST.

SST 09751-36011

Torque: 155 kg-cm (11 ft-lb, 15 N·m)

5. **INSTALL FOLLOWING PARTS**

(a) Air duct No. 1 and No. 2

(b) Air duct No. 3

(c) Combination meter

(d) Cluster finish panel

(e) Cluster finish lower panel

6. **CONNECT NEGATIVE CABLE TO BATTERY**

7. **FILL BRAKE RESERVOIR WITH BRAKE FLUID AND BLEED BRAKE SYSTEM (See page BR-6)**

8. **CHECK FOR LEAKES**

9. **CHECK AND ADJUST BRAKE PEDAL (See page BR-5)**

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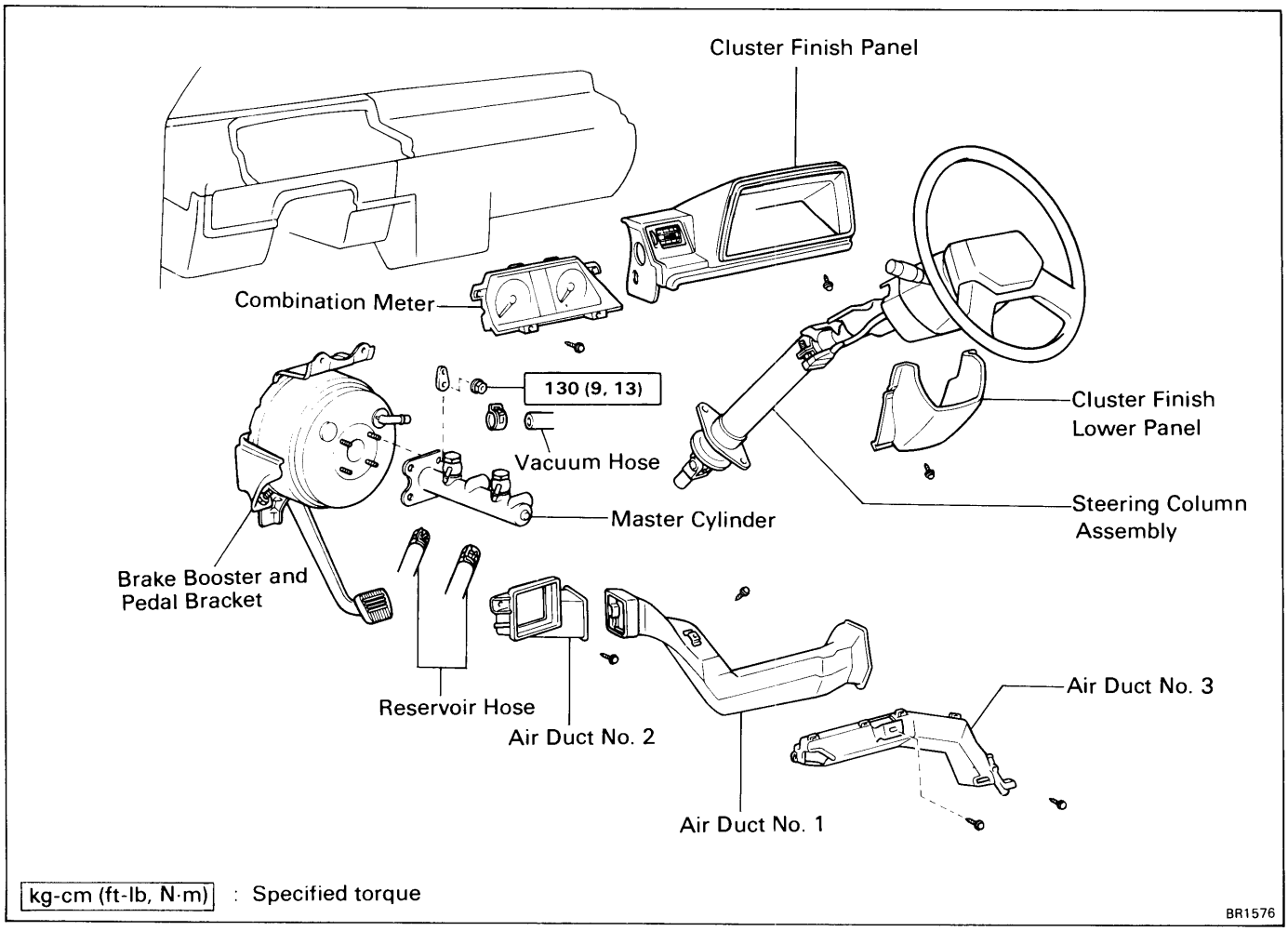
BRAKE BOOSTER

REMOVAL OF BRAKE BOOSTER



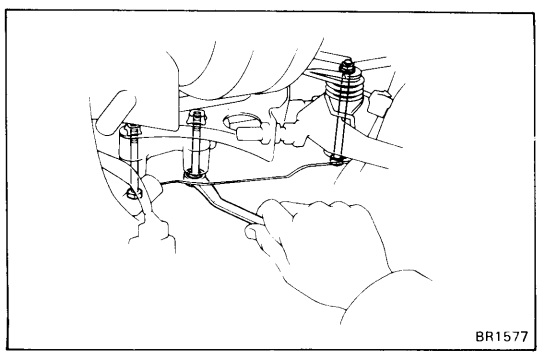
1. **REMOVE MASTER CYLINDER**
(See page BR-8)

2. **DISCONNECT VACUUM HOSE FROM BRAKE BOOSTER**

3. **REMOVE STEERING COLUMN ASSEMBLY**
   (a) Remove the cluster finish lower panel.
   (b) Remove the steering column assembly.
(See page SR-4)

4. **DISCONNECT CONNECTORS**
   Disconnect the four connectors.

5. **PERFORM FOLLOWING STEPS**
   (a) Loosen the clutch pedal installation nut and bolt. Remove the nut and pull out the bolt until the bolt head goes in.
   (b) Loosen the two clutch master cylinder installation bolts and pull out them until brake pedal bracket is free from the clutch master cylinder.
   (c) Pull out the throttle cable from the cable hook.



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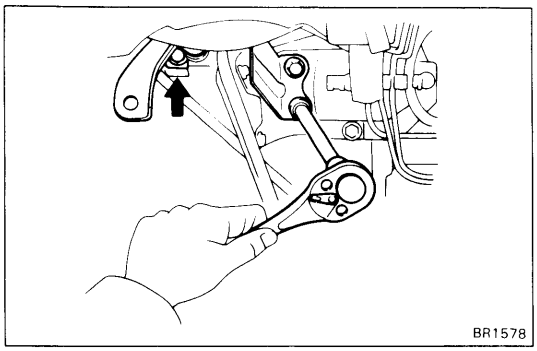
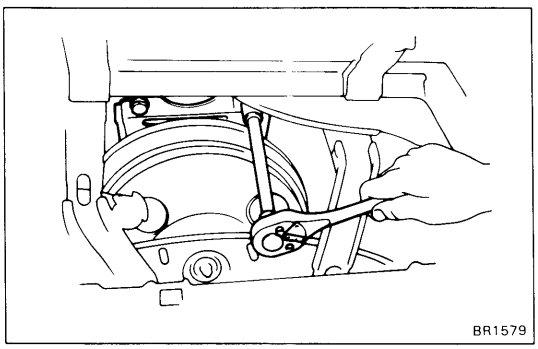


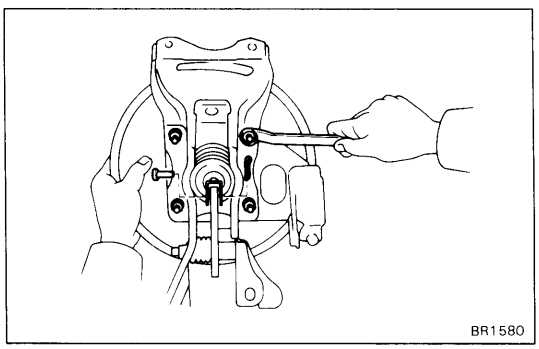
6. REMOVE BRAKE BOOSTER WITH PEDAL BRACKET

(a) Remove the three mounting bolts of the pedal bracket lower side.



(b) Remove the two mounting bolts of the pedal bracket upper side.

(c) Pull out the brake booster with bracket to underside.



7. REMOVE BRAKE BOOSTER FROM PEDAL BRACKET

(a) Remove the cotter pin and clevis pin.

(b) Remove the four nuts and remove the booster from the bracket.

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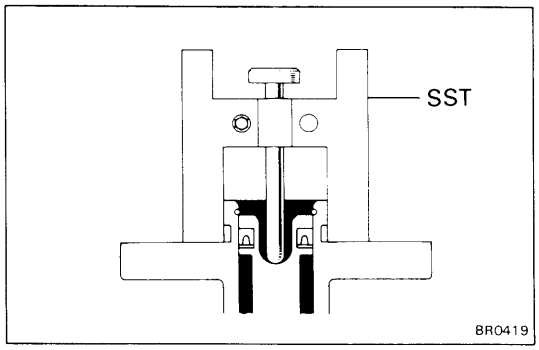


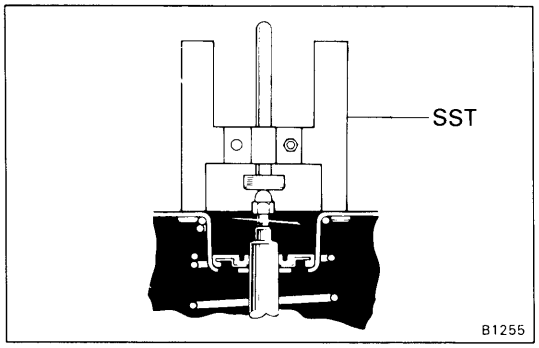
INSTALLATION OF BRAKE BOOSTER

(See page BR-14)

1. ADJUST LENGTH OF BOOSTER PUSH ROD

(a) Set SST on the master cylinder, and lower the pin until its tip slightly touches the piston.

SST 09737-00010

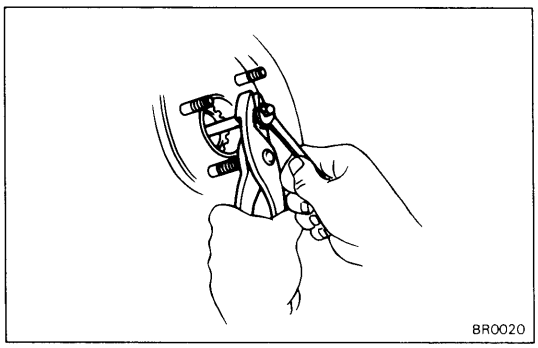


(b) Turn SST upside down, and position it on the booster.

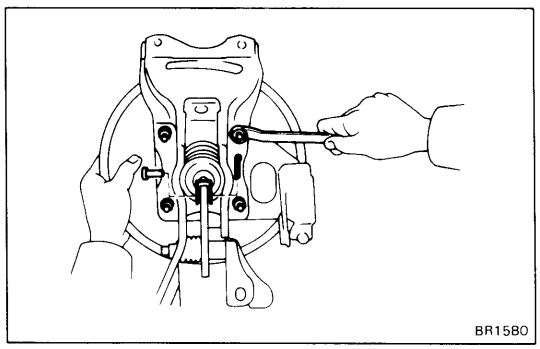
SST 09737-00010

(c) Measure for clearance between the booster push rod and pin head (SST).

Clearance: 0 mm (0 in.)



(d) Adjust the booster push rod length until the push rod lightly touches the pin head.

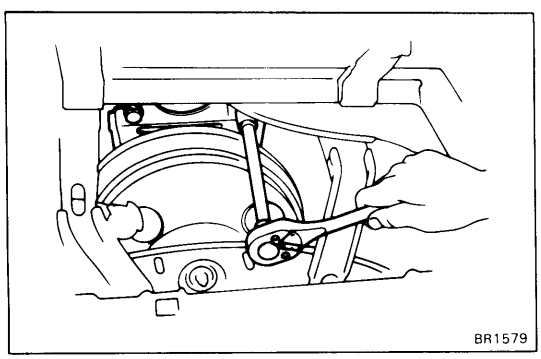


2. INSTALL BRAKE BOOSTER TO PEDAL BRACKET

(a) Install the brake booster to the pedal bracket with the four nuts.

Torque: 130 kg-cm (9 ft-lb, 13 N·m)

(b) Connect the brake pedal and clevis with the clevis pin and new cotter pin.



3. INSTALL BRAKE BOOSTER WITH PEDAL BRACKET

(a) Insert the booser with bracket from the underside.

(b) Tighten the two mounting bolts of the pedal bracket upperside.

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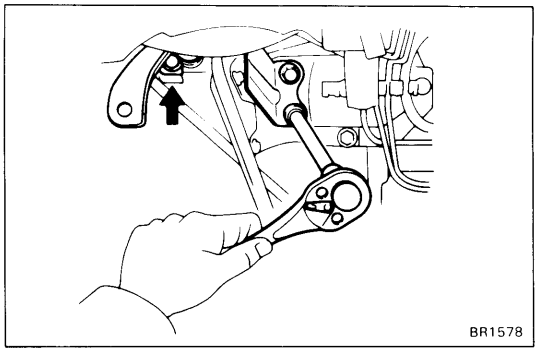
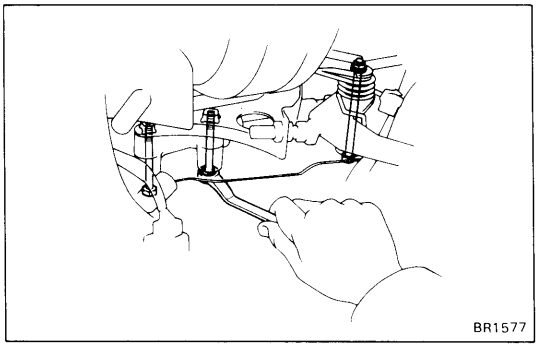


(c) Tighten the three mounting bolts of the pedal bracket lowerside.



4. **PERFORM FOLLOWING STEPS**

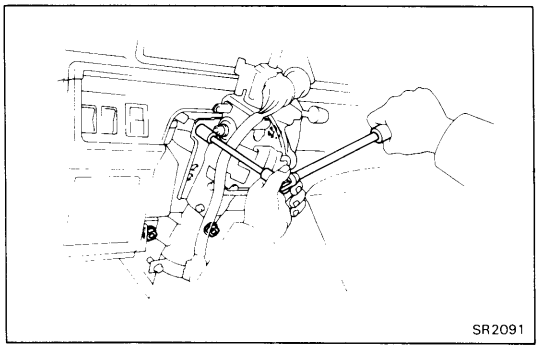
(a) Tighten the clutch master cylinder installation bolts.

Torque: 120 kg-cm (9 ft-lb, 12 N·m)

(b) Install the clutch pedal return spring and tighten the pedal installation bolt and nut.

Torque: 330 kg-cm (24 ft-lb, 32 N·m)

(c) Hook the throttle cable to the cable hook.



5. **CONNECT CONNECTORS**

Connect the four connectors.

6. **INSTALL STEERING COLUMN ASSEMBLY**

(a) Install the steering column assembly. (See page SR-13)

(b) Install the cluster finish lower panel.

7. **INSTALL MASTER CYLINDER (See page BR-12)**

8. **CONNECT VACUUM HOSE TO BRAKE BOOSTER**

9. **FILL BRAKE RESERVOIR WITH BRAKE FLUID AND BLEED BRAKE SYSTEM (See page BR-6)**

10. **CHECK FLUID LEAKAGE**

11. **CHECK AND ADJUST BRAKE PEDAL (See page BR-5)**

12. **PERFORM OPERATIONAL CHECK (See page BR-6)**

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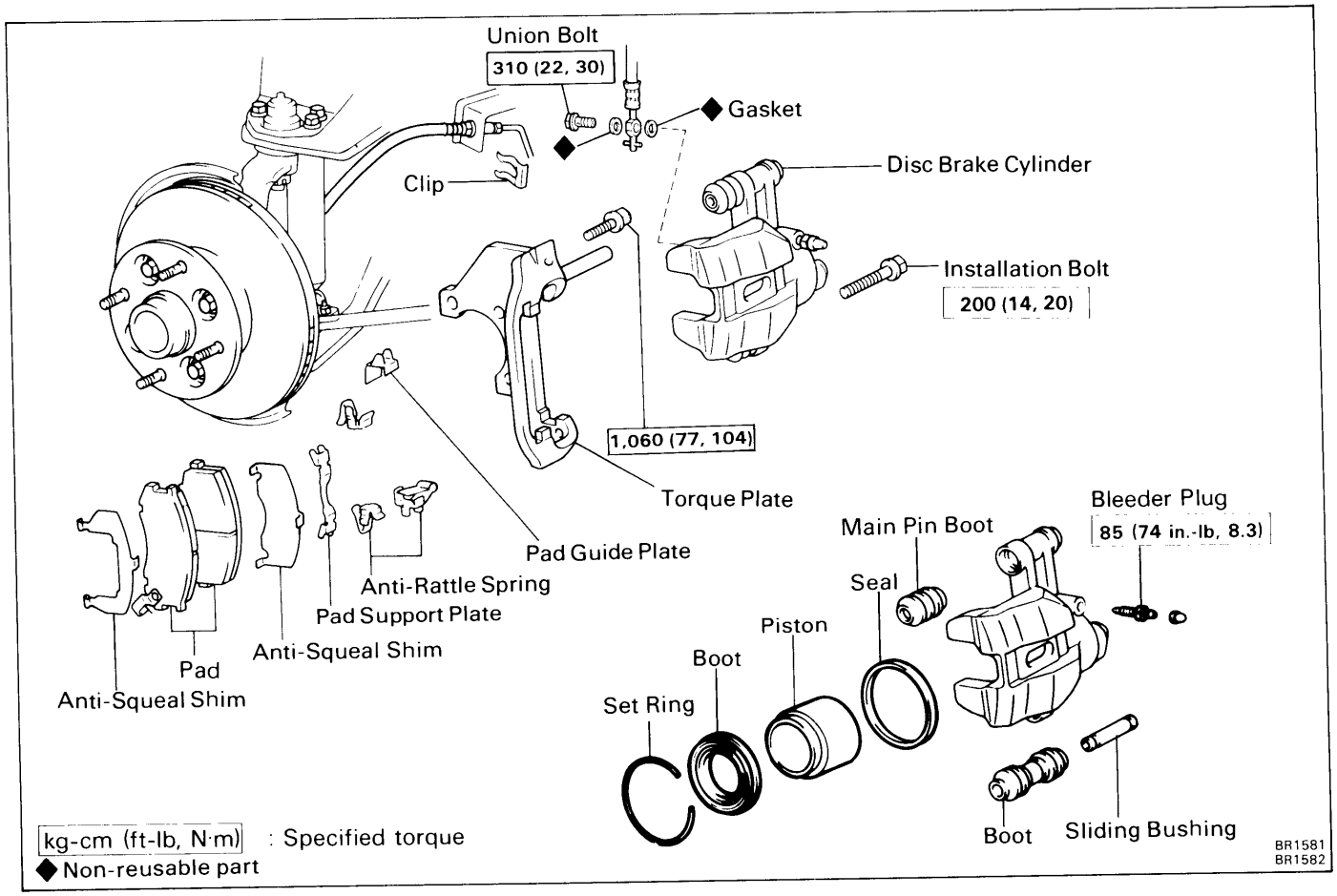
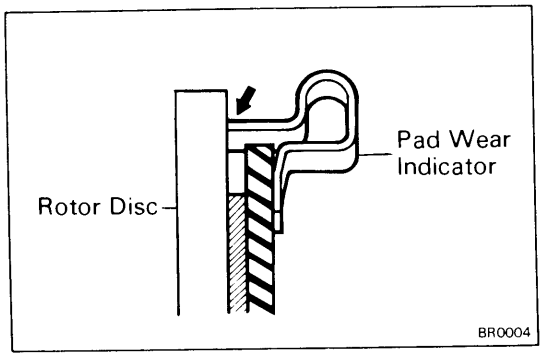
FRONT BRAKE (2WD)

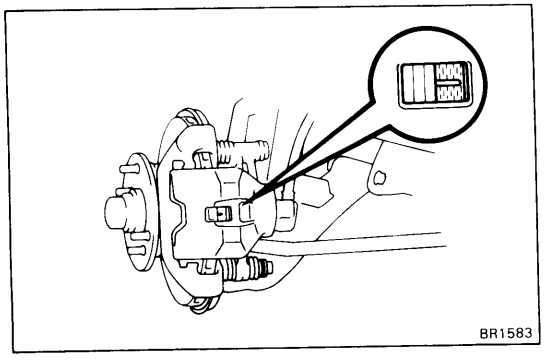
COMPONENTS





REPLACEMENT OF BRAKE PADS

NOTE: If a squealing noise occurs from the front brakes while driving, check the pad wear indicator. If there are traces of the indicator contacting the rotor disc, the brake pad should be replaced.



1. INSPECT PAD LINING THICKNESS

Check the pad thickness through the cylinder inspection hole and replace the pads if not within specification.

Minimum thickness: 1.0 mm (0.039 in.)

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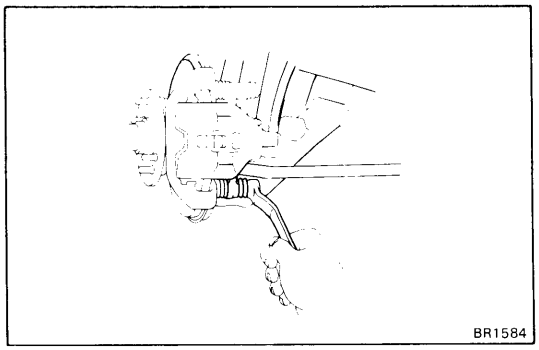
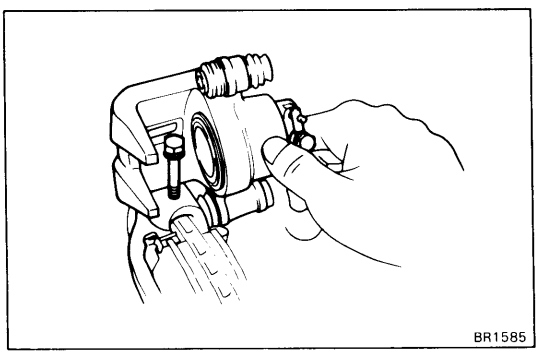


2. REMOVE CYLINDER INSTALLATION BOLT

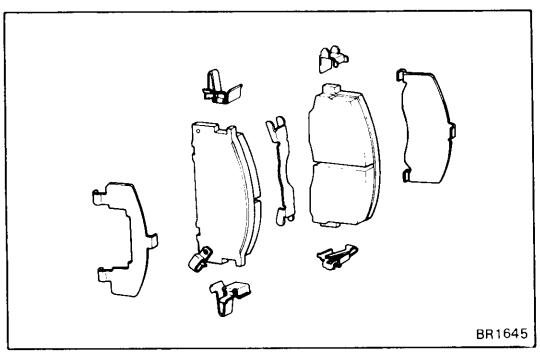
Hold the sliding bushing and remove the bolt.



3. LIFT UP CYLINDER

(a) Lift up the cylinder.

(b) Insert a bolt into the torque plate hole to secure the cylinder.



4. REMOVE FOLLOWING PARTS

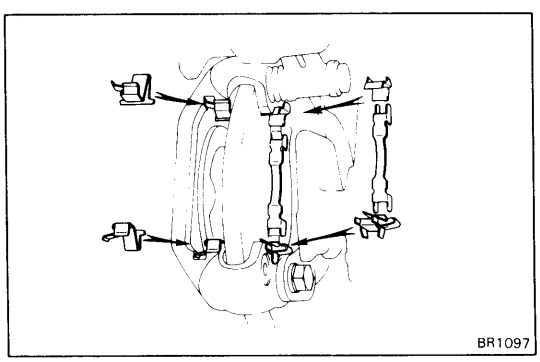
(a) Two anti-squeal shims

(b) Two brake pads

(c) Three anti-rattle springs

(d) Pad guide plate

(e) Pad support plate

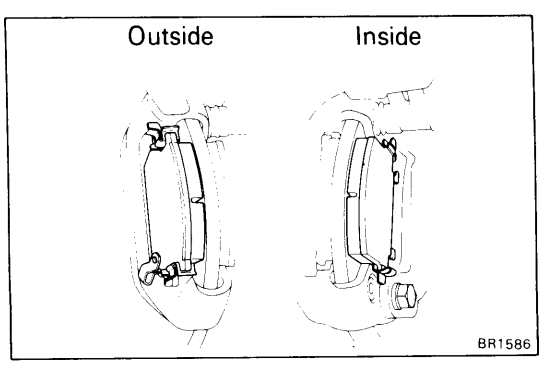


5. INSTALL PAD SUPPORT PLATE, PAD GUIDE PLATE AND ANTI-RATTLE SPRINGS

(a) Pad support plate

(b) Pad guide plate

(c) Three anti-rattle springs



6. INSTALL NEW PADS AND ANTI-SQUEAL SHIMS

(a) Install the pads onto each spring or plate.

NOTE: Install the outside pad so the wear indicator is at the lower side.

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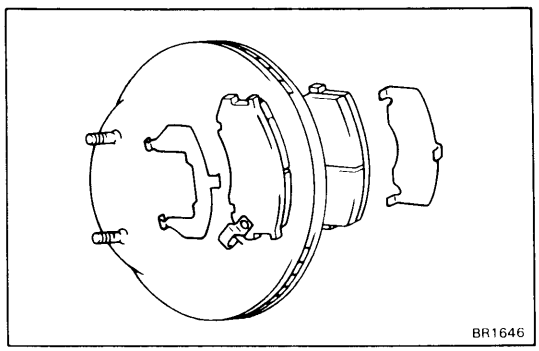
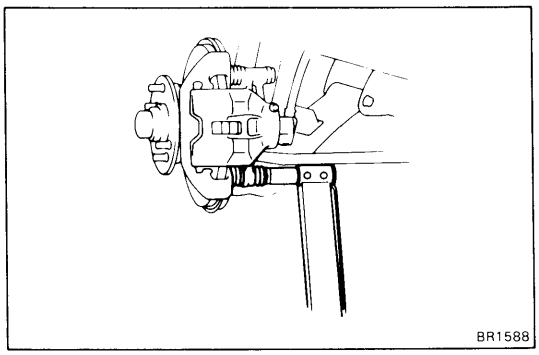

BR1646

(b) Install the anti-squeal shims to the pads as shown.


BR1588

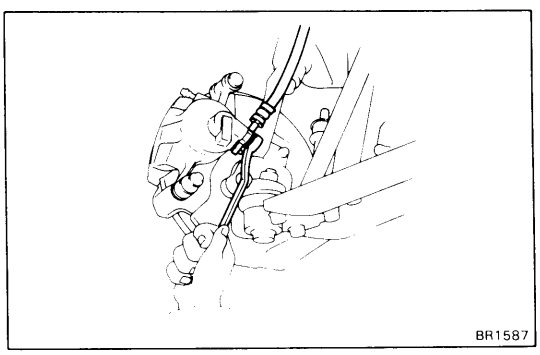
7. LOWER CYLINDER

NOTE: Insert the cylinder carefully so the boot is not wedged.

8. INSTALL CYLINDER INSTALLATION BOLT

Install and torque the cylinder installation bolt.

Torque: 200 kg-cm (14 ft-lb, 20 N·m)

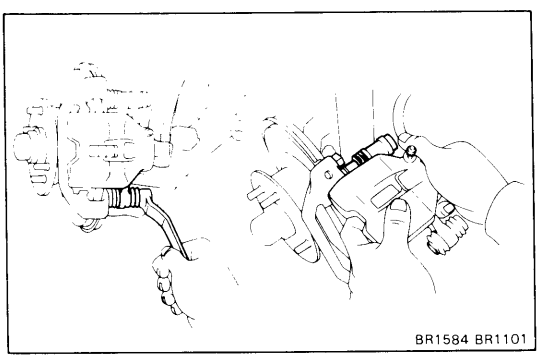

BR1587

REMOVAL OF CYLINDER

(See page BR-18)

1. DISCONNECT BRAKE LINE

Remove the union bolt and disconnect the brake line.
Use a container to catch the brake fluid.

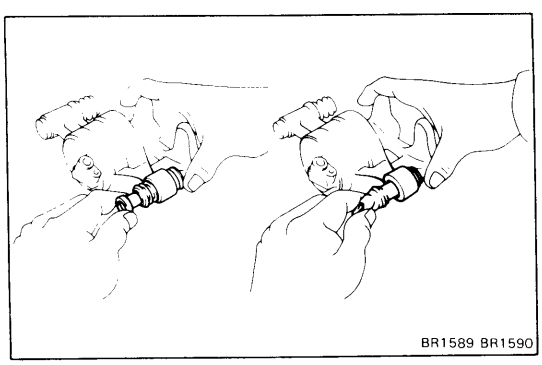

BR1584 BR1101

2. REMOVE CYLINDER

Remove the cylinder installation bolt.
Remove the cylinder from the main pin of the torque plate.

3. REMOVE PADS AND ANTI-SQUEAL SHIMS
(See page BR-19)

4. REMOVE ANTI-RATTLE SPRINGS, PAD GUIDE PLATE AND SUPPORT PLATE


BR1589 BR1590

DISASSEMBLY OF CYLINDER

(See page BR-18)

1. REMOVE SLIDING BUSHING AND BOOT

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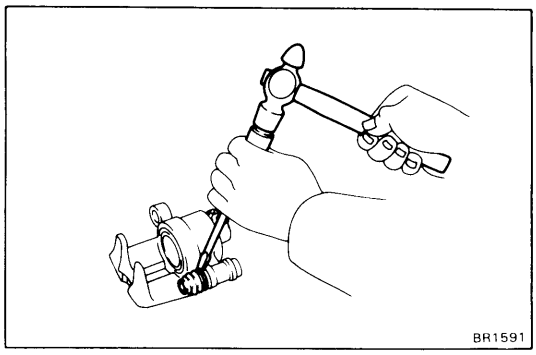
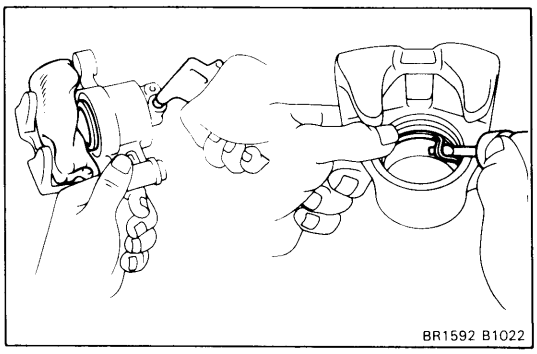

BR1591

2. REMOVE MAIN PIN BOOT

Using a chisel and hammer, remove the main pin boot.

3. REMOVE SET RING AND CYLINDER BOOT FROM CYLINDER


BR1592 B1022

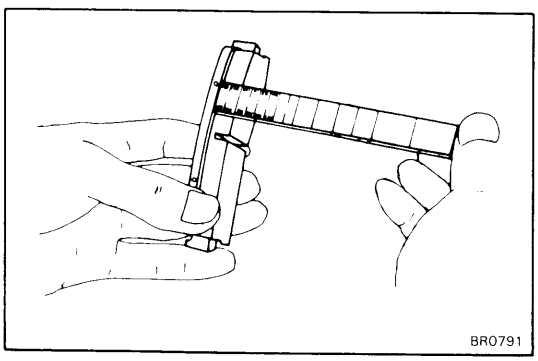
4. REMOVE PISTON FROM CYLINDER

Use compressed air to remove the piston from the cylinder.

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

5. REMOVE PISTON SEAL FROM CYLINDER

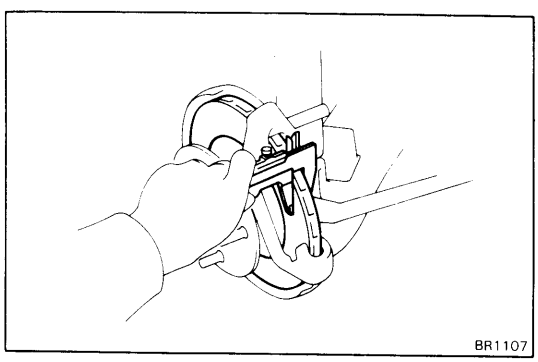
INSPECTION OF FRONT BRAKE COMPONENTS


BR0791

1. MEASURE PAD LINING THICKNESS

Standard thickness: 10.0 mm (0.394 in.)
Minimum thickness: 1.0 mm (0.039 in.)

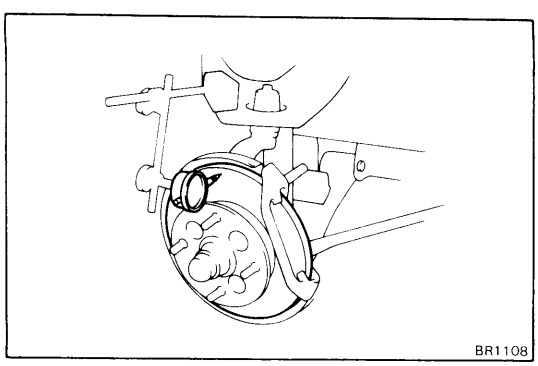
Replace the pad if the thickness is less than the minimum (the 1.0 mm slit is no longer visible) or if it shows sign of uneven wear.


BR1107

2. MEASURE ROTOR DISC THICKNESS

Standard thickness: 20.0 mm (0.787 in.)
Minimum thickness: 19.0 mm (0.748 in.)

If the disc thickness is less than minimum, replace the disc.


BR1108

3. MEASURE ROTOR DISC RUNOUT

Measure the rotor disc runout at 10 mm (0.39 in.) from the outer edge of the rotor disc.

Maximum disc runout: 0.15 mm (0.0059 in.)

If the runout is greater than the maximum, replace the disc.

NOTE: Make sure the front bearing is adjusted correctly before measuring the runout.

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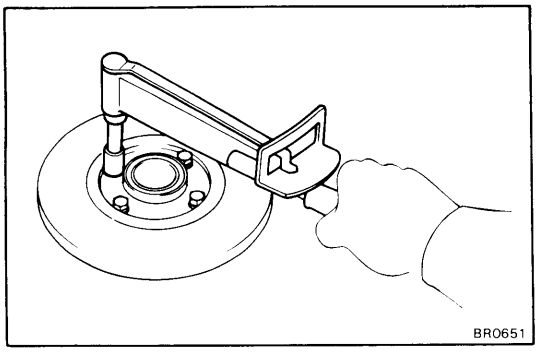


4. IF NECESSARY, REPLACE ROTOR DISC

(a) Remove the torque plate from the knuckle.

(b) Remove the axle hub. (See page FA-7)

(c) Remove the disc from the axle hub.

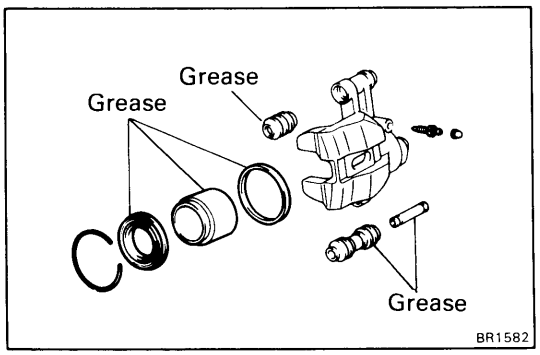
(d) Install a new rotor disc. Torque the four bolts.

Torque: 900 kg-cm (65 ft-lb, 88 N·m)

(e) Install the axle hub and adjust the front bearing preload. (See page FA-8)

(f) Install the torque plate onto the knuckle.

Torque: 1,060 kg-cm (77 ft-lb, 104 N·m)



ASSEMBLY OF CYLINDER

(See page BR-18)

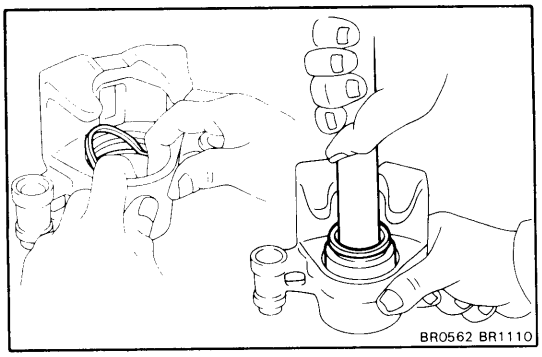
1. APPLY LITHIUM SOAP BASE GLYCOL GREASE TO FOLLOWING PARTS

(a) Main pin boot

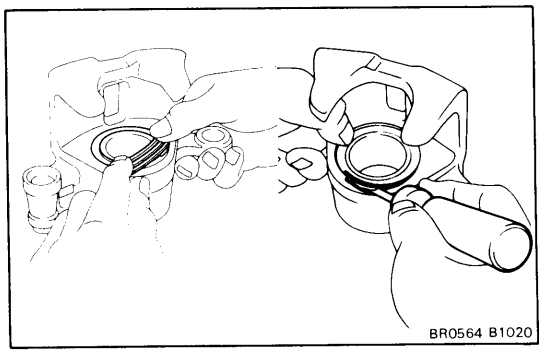
(b) Sliding bushing and boot

(c) Piston seal and piston

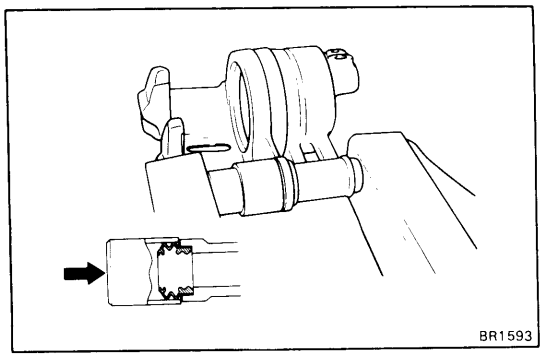
(d) Dust boot



2. INSTALL PISTON SEAL AND PISTON IN CYLINDER



3. INSTALL CYLINDER BOOT AND SET RING IN CYLINDER



4. INSTALL MAIN PIN BOOT

Using a 22-mm socket, install the boot.

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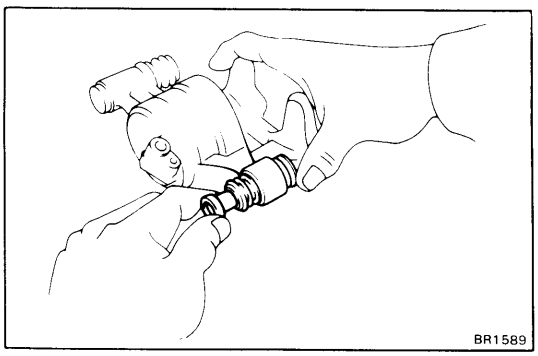
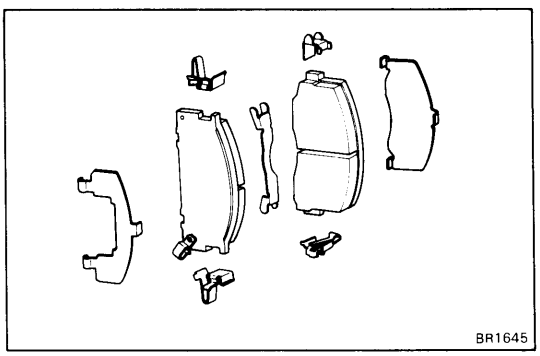


5. INSTALL DUST BOOT AND SLIDING BUSHING

(a) Install the dust boot.

NOTE: Be careful that the seal does not fold under.

(b) Install the bushing into the boot, facing the flange toward the inside.



INSTALLATION OF CYLINDER

(See page BR-18)

1. INSTALL FOLLOWING PARTS

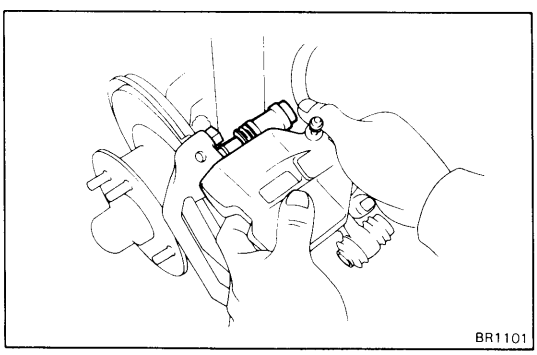
(a) Pad support plate

(b) Pad guide plate

(c) Three anti-rattle springs

(d) Two brake pads

(e) Two anti-squeal shims

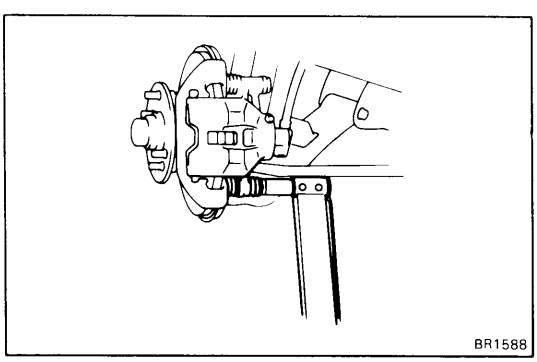


2. INSTALL CYLINDER

(a) Install the cylinder onto the main pin.

NOTE: Make sure that the boot end is installed into the groove of the main pin.

(b) Install the cylinder over the brake pads.

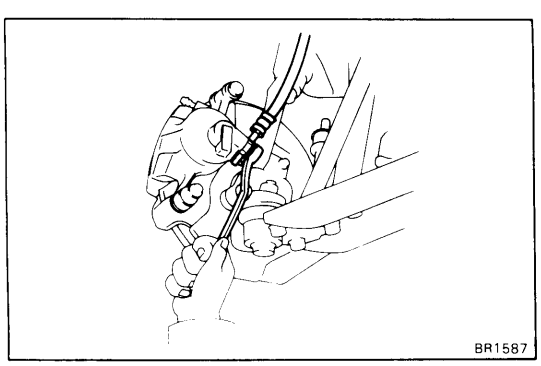


3. INSTALL CYLINDER INSTALLATION BOLT

Install the cylinder installation bolt and torque it.

Torque: 200 kg-cm (14 ft-lb, 20 N·m)

NOTE: Insert the installation bolt into the cylinder carefully so as not to wedge the boot.



4. INSTALL FLEXIBLE HOSE TO BRAKE CYLINDER

Set the flexible hose and new gaskets in position and install the union bolt.

Torque: 310 kg-cm (22 ft-lb, 30 N·m)

5. FILL BRAKE RESERVOIR WITH BRAKE FLUID AND BLEED BRAKE SYSTEM (See page BR-6)

6. CHECK FOR FLUID LEAKAGE

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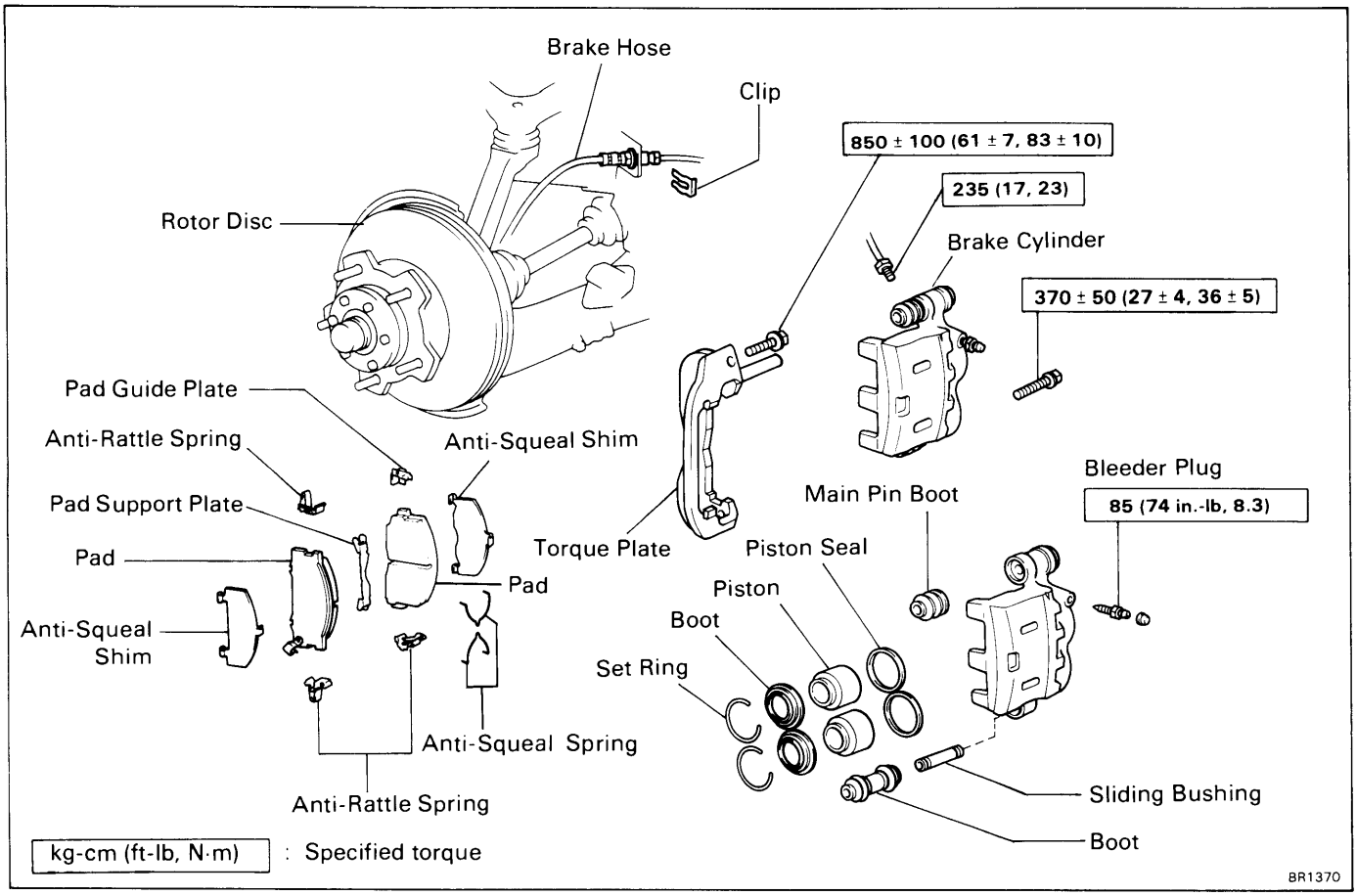
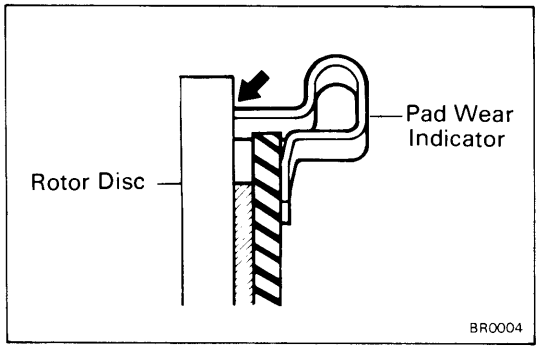
FRONT BRAKE (4WD)

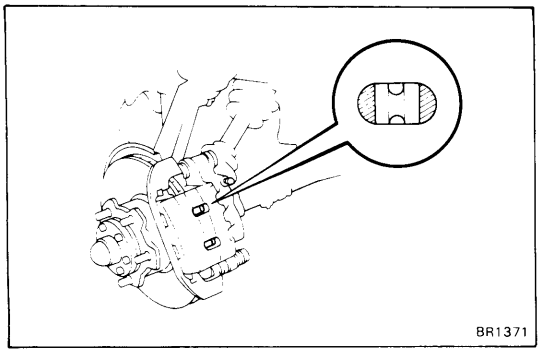
COMPONENTS





REPLACEMENT OF BRAKE PADS

NOTE: If a squealing noise occurs from the front brakes while driving, check the pad wear indicator plate. If there are traces of the indicator contacting the rotor disc, the brake pad should be replaced.



1. INSPECT PAD LINING THICKNESS

Check the pad thickness through the cylinder inspection hole and replace pads if not within specification.

Minimum thickness: 3.0 mm (0.118 in.)

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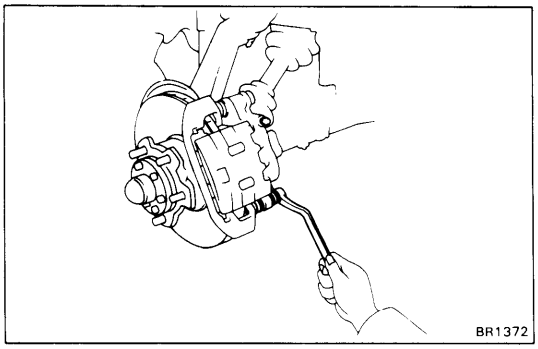
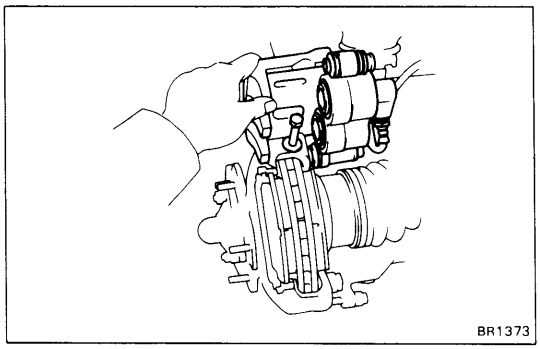


2. REMOVE CYLINDER INSTALLATION BOLT

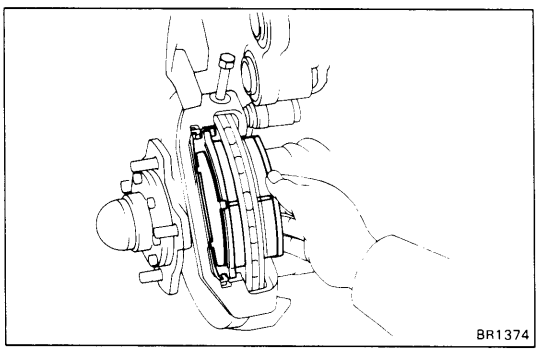
Hold the sliding bushing and remove the bolt.



3. LIFT UP CYLINDER

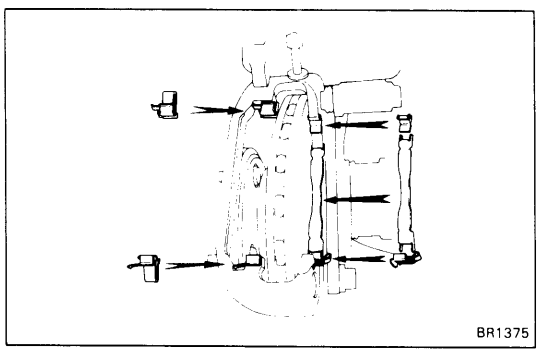
(a) Lift up the cylinder.

(b) Insert a bolt into the torque plate hole to secure the cylinder.



4. REMOVE ANTI-SQUEAL SPRINGS, PADS AND ANTI-SQUEAL SHIMS

5. REMOVE ANTI-RATTLE SPRINGS, PAD GUIDE PLATE AND SUPPORT PLATE

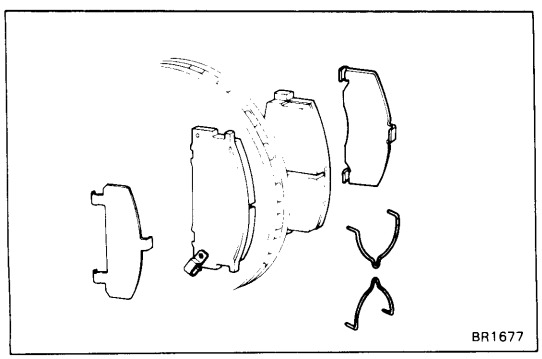


6. INSTALL FOLLOWING PARTS

(a) Pad support plate

(b) Pad guide plate

(c) Three anti-rattle springs



7. INSTALL NEW PADS AND ANTI-SQUEAL SHIMS

(a) Install the pads onto each spring or plate.

(b) Install the anti-squeal shims as shown.

(c) Install the anti-squeal springs.

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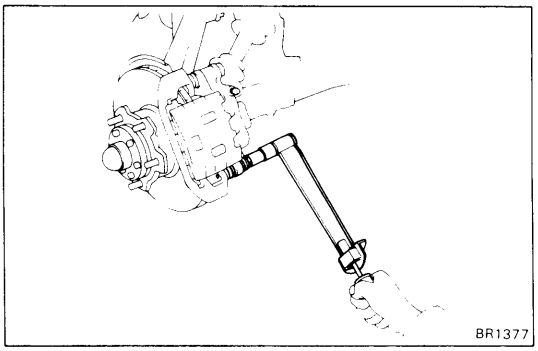


8. LOWER CYLINDER

NOTE: Insert the cylinder carefully so the boot is not wedged, and check that the dust boot is not folded into the bushing groove.

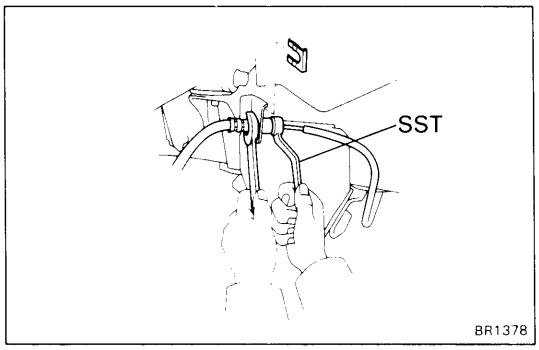
9. INSTALL CYLINDER INSTALLATION BOLT

Install and torque the cylinder installation bolt.

Torque: 370 ± 50 kg-cm (27 ± ft-lb, 36 ±5 N·m)

REMOVAL OF CYLINDER

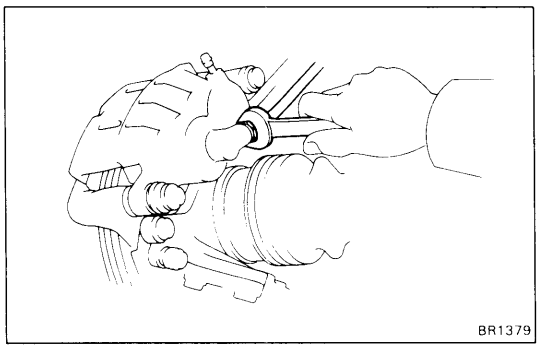
(See page BR-24)



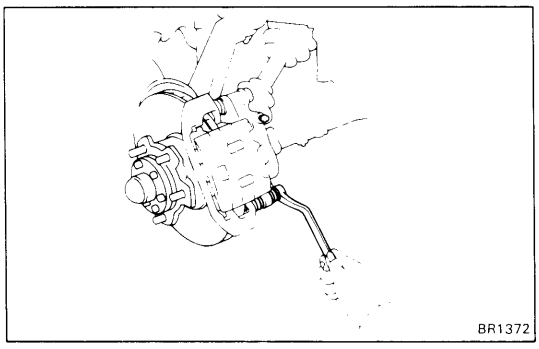
1. DISCONNECT BRAKE HOSE

(a) Disconnect the clip.

(b) Using SST to hold the tube, and a wrench to hold the hose, disconnect the tube and hose.



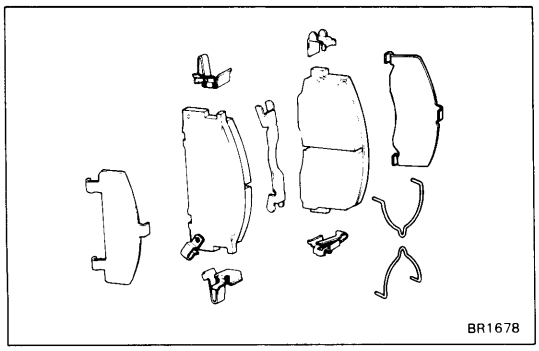
(c) Disconnect the brake hose from the brake cylinder.



2. REMOVE CYLINDER

(a) Remove the cylinder installation bolt.

(b) Remove the cylinder from the main pin of the torque plate.



3. REMOVE FOLLOWING PARTS

(a) Two anti-squeal springs

(b) Two anti-squeal shims

(c) Two brake pads

(d) Three anti-rattle springs

(e) Pad guide plate

(f) Pad support plate

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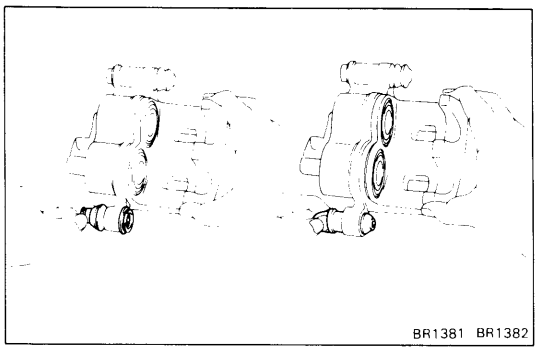
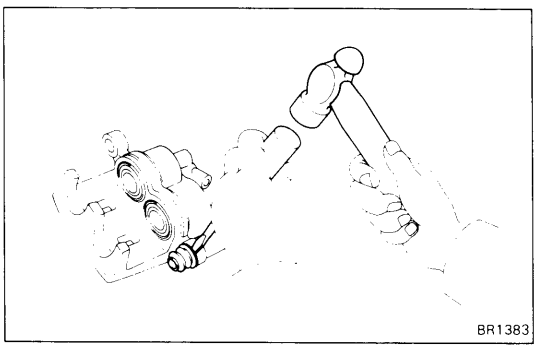

BR1381 BR1382

DISASSEMBLY OF CYLINDER

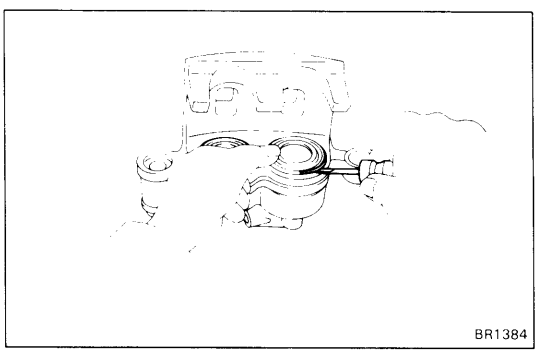
(See page BR-24)

1. REMOVE SLIDING BUSHING AND BOOT


BR1383

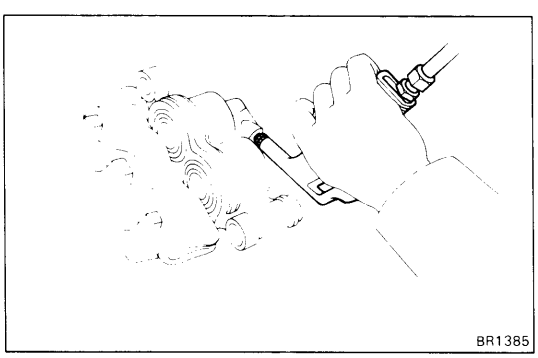
2. REMOVE MAIN PIN BOOT

Using a chisel and hammer, remove the main pin boot.


BR1384

3. REMOVE SET RINGS FROM CYLINDER

Using a screwdriver, remove the two set rings.

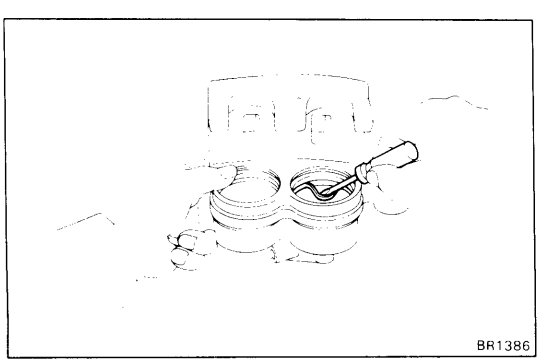

BR1385

4. REMOVE PISTONS FROM CYLINDER

Use compressed air to remove the pistons from the cylinder.

WARNING: Do not plate your fingers in front of the piston when using compressed air.

5. REMOVE CYLINDER BOOTS FROM EACH PISTON


BR1386

6. REMOVE PISTON SEALS FROM CYLINDER

Using a screwdriver, remove the two piston seals from the brake cylinder.

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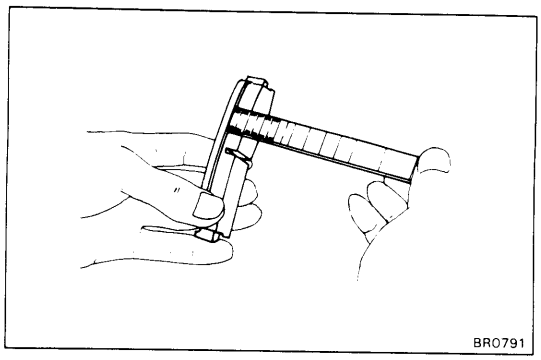
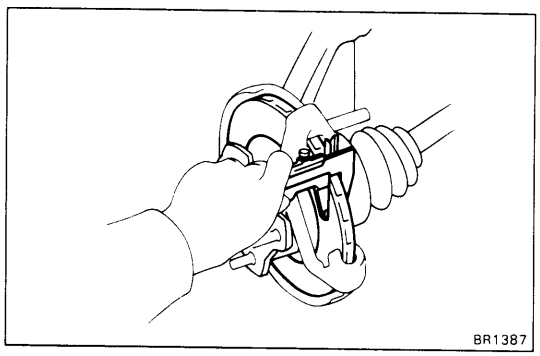

BR0791

INSPECTION OF FRONT BRAKE COMPONENTS

1. MEASURE PAD LINING THICKNESS

Minimum thickness: 3.0 mm (0.118 in.)
Standard thickness: 10.0 mm (0.394 in.)

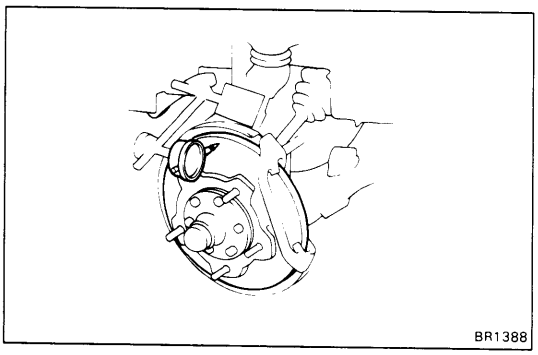
Replace the pad if the thickness is less than the minimum (the 1.0 mm slit is no longer visible) or if shows signs of uneven wear.


BR1387

2. MEASURE ROTOR DISC THICKNESS

Minimum thickness: 24.0 mm (0.945 in.)
Standard thickness: 25.0 mm (0.984 in.)

If the disc thickness is less than minimum, replace the disc.


BR1388

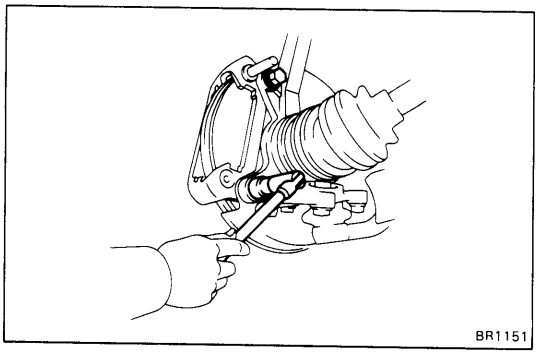
3. MEASURE ROTOR DISC RUNOUT

Measure the rotor disc runout at 10 mm (0.39 in.) from the outer edge of rotor disc.

Maximum disc runout: 0.15 mm (0.0059 in.)

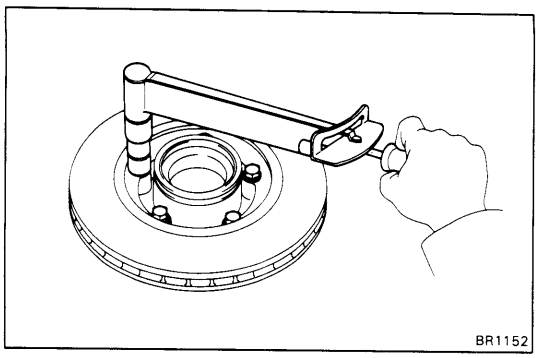
If the runout is greater than the maximum, replace the disc.

NOTE: Make sure the front bearing is adjusted correctly before measuring the runout.


BR1151

4. IF NECESSARY, REPLACE ROTOR DISC

(a) Remove the torque plate from the knuckle.
(b) Remove the axle hub.
(c) Remove the disc from the axle hub.


BR1152

(d) Install a new rotor disc. Torque the five bolts.

Torque: 650 ± 100 kg-cm (47 ± 7 ft-lb, 64 ± 10 N·m)

(e) Install the axle hub and adjust the front bearing preload.
(f) Install the torque plate onto the knuckle.

Torque: 850 ± 100 kg-cm (61 ± 7 ft-lb, 83 ± 10 N·m)

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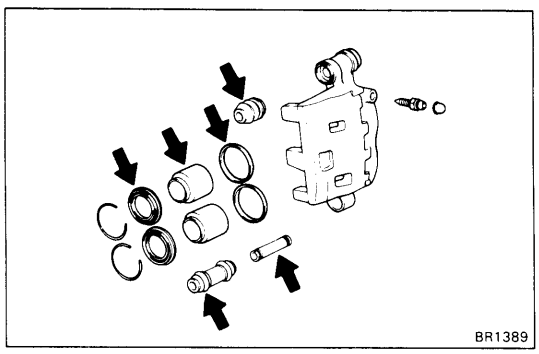

BR1389

ASSEMBLY OF CYLINDER

(See page BR-24)

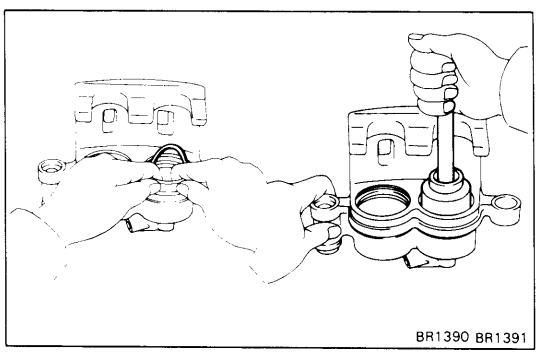
1. APPLY LITHIUM SOAP BASE GLYCOL GREASE TO FOLLOWING PARTS

(a) Main pin boot

(b) Sliding bushing and boot

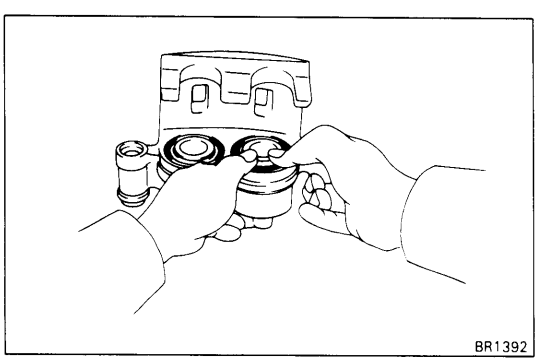
(c) Piston seals and pistons

(d) Cylinder boots


BR1390 BR1391

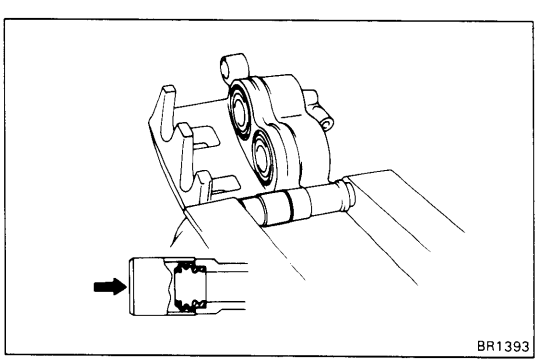
2. INSTALL PISTON SEALS AND PISTONS IN CYLINDER

Install the two piston seals and two pistons into the brake cylinder.


BR1392

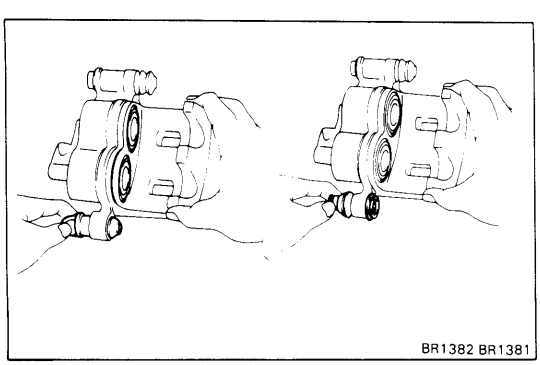
3. INSTALL CYLINDER BOOTS AND SET RINGS IN CYLINDER

Install the cylinder boot and set ring to each piston.


BR1393

4. INSTALL MAIN PIN BOOT

Using a 22 mm socket wrench, press in the boot.


BR1382 BR1381

5. INSTALL DUST BOOT AND SLIDING BUSHING

(a) Install the dust boot.

NOTE: Be careful that the seal does not fold under.

(b) Install the bushing into the boot facing the flange toward the inside.

NOTE: Check that the dust boot is not folded into the bushing groove.

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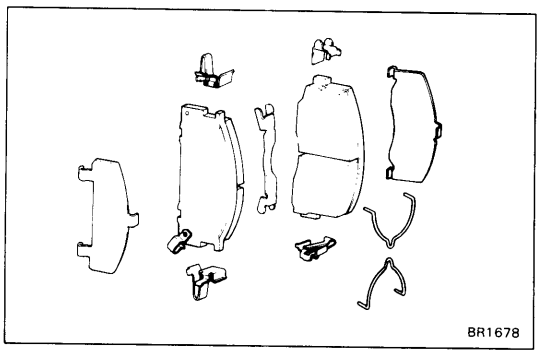
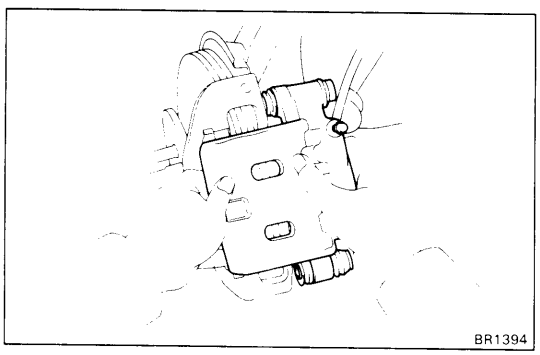


INSTALLATION OF CYLINDER

(See page BR-24)

1. **INSTALL FOLLOWING PARTS**
   - (a) Pad support plate
   - (b) Pad guide plate
   - (c) Three anti-rattle springs
   - (d) Two brake pads
   - (e) Two anti-squeal shims
   - (f) Two anti-squeal springs

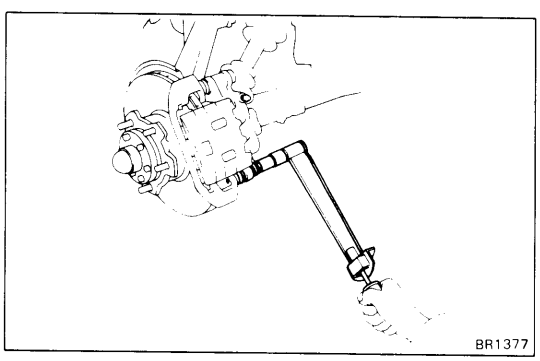


2. **INSTALL CYLINDER**
   - (a) Install the cylinder onto the main pin.

   NOTE: Make sure that the boot end is installed into the groove of the main pin.

   - (b) Install the cylinder over the brake pads.

   NOTE: Check that the dust boot is not folded into the bushing groove.

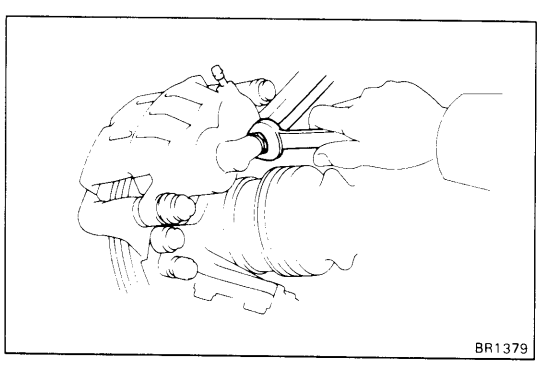


3. **INSTALL CYLINDER INSTALLATION BOLT**

   Install the cylinder installation bolt and torque the bolt.

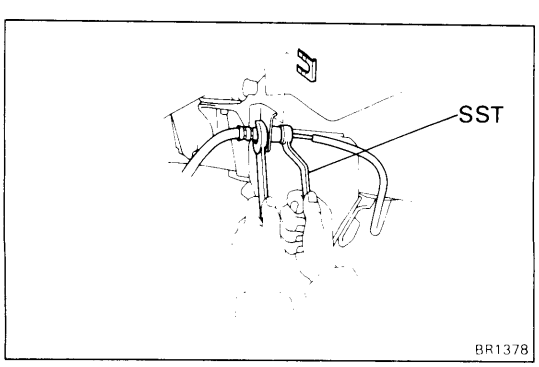
   Torque: 370 ± 50 kg-cm (27 ± 4 ft-lb, 36 ± 5 N·m)

   NOTE: Insert the installation bolt into the cylinder carefully so as not to wedge the boot.



4. **CONNECT BRAKE HOSE**
   - (a) Connect the brake hose to the brake cylinder.

   Torque: 235 kg-cm (17 ft-lb, 23 N·m)



   - (b) Connect the hose and tube by hand.
   - (c) Using SST to hold the tube, and a wrench to hold the hose, torque the connection.

   SST 09751-36011

5. **FILL BRAKE RESERVOIR WITH BRAKE FLUID AND BLEED BRAKE SYSTEM (See page BR-6)**

6. **CHECK FLUID LEAKAGE**

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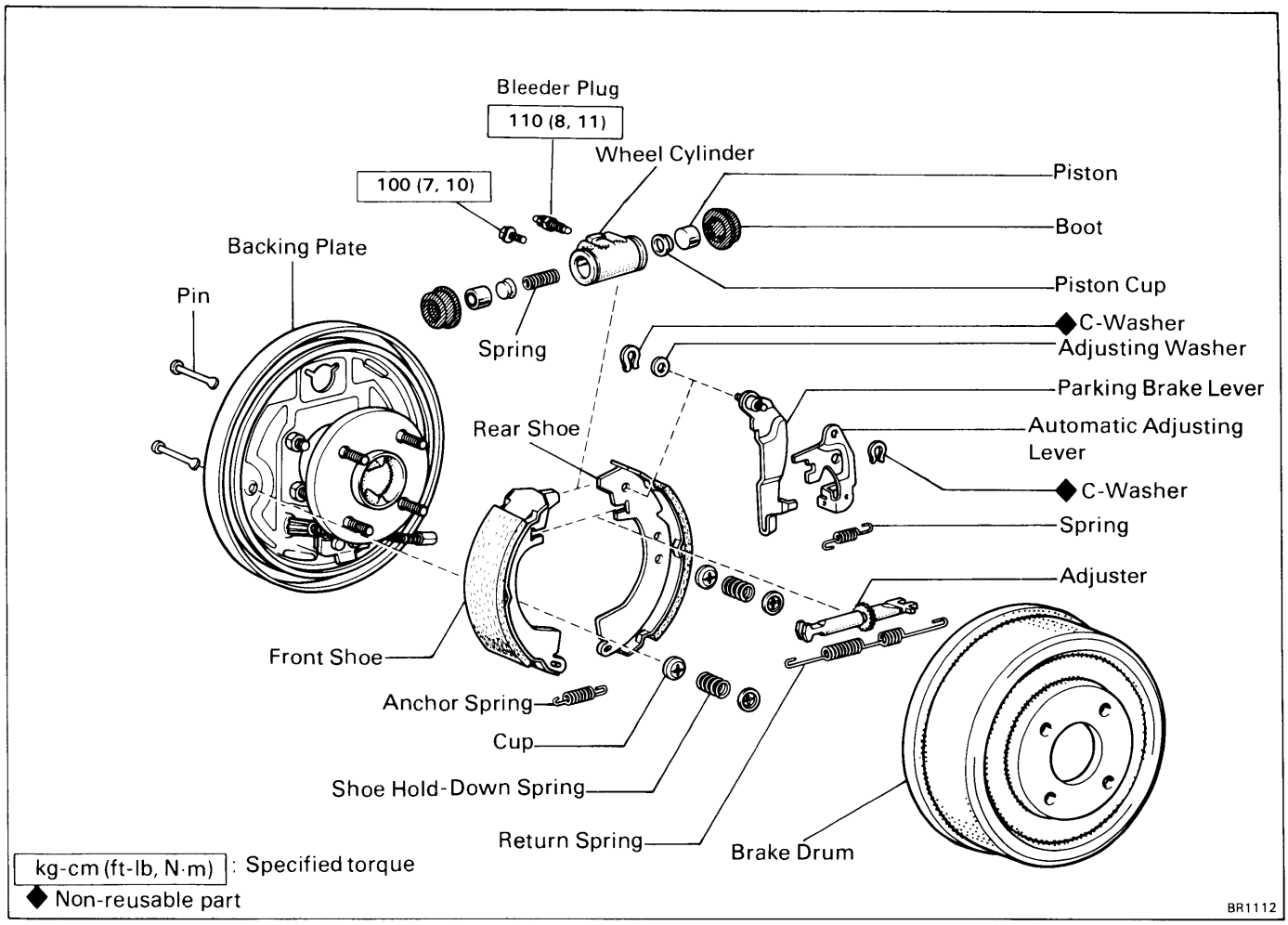
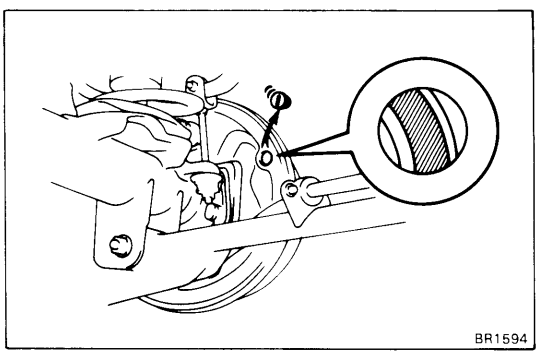
REAR BRAKE

COMPONENTS





REMOVAL OF REAR BRAKE

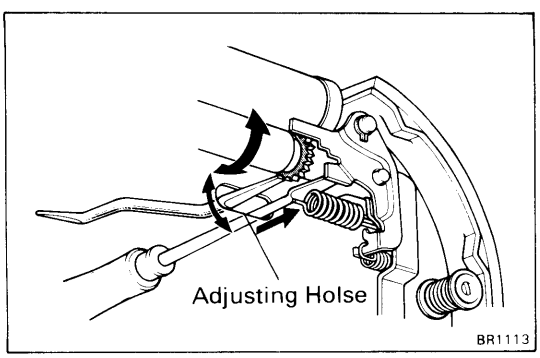
1. INSPECT SHOE LINING THICKNESS

Remove the inspection hole plug, and check the shoe lining thickness through the hole.

If less than minimum, replace the shoes.

Minimum thickness: 1.0 mm (0.039 in.)

2. REMOVE REAR WHEEL



3. REMOVE BRAKE DRUM

NOTE: If the brake drum cannot be removed easily, perform the following steps.

(a) Insert a screwdriver through the adjusting hole in the backing plate, and hold the automatic adjusting lever away from the adjuster.

(b) Using another screwdriver, reduce the brake shoe adjustment by turning the front shoe.

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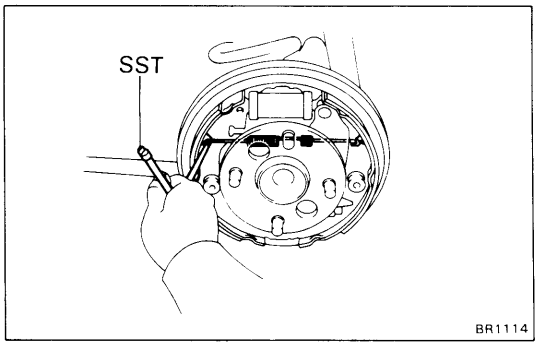
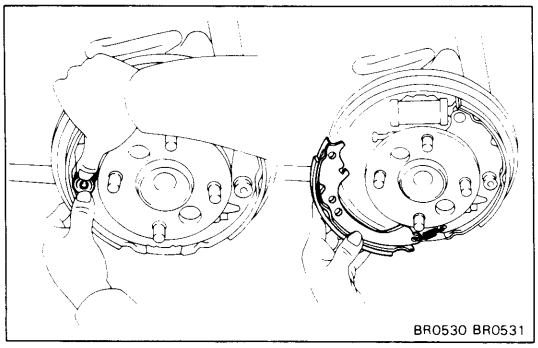


4. REMOVE FRONT SHOE

(a) Using SST, remove the return spring.

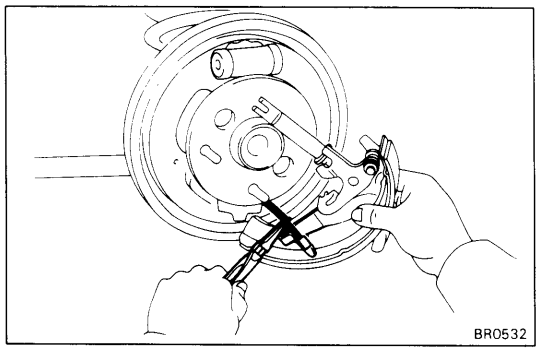
SST 09703-30010



(b) Remove the shoe hold-down spring, cups and pin.

(c) Disconnect the anchor spring from the front shoe and remove the front shoe.

(d) Remove the anchor spring from the rear shoe.

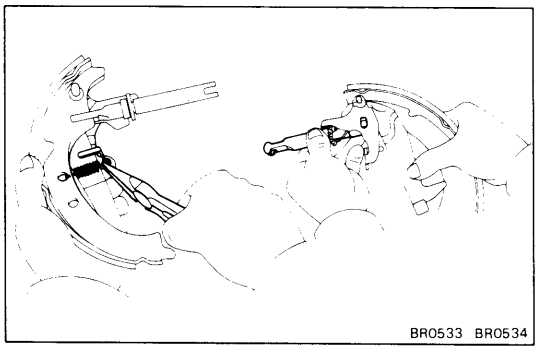


5. REMOVE REAR SHOE

(a) Remove the shoe hold-down spring, cups and pin.

(b) Using a screwdriver, disconnect the parking brake cable from the anchor plate.

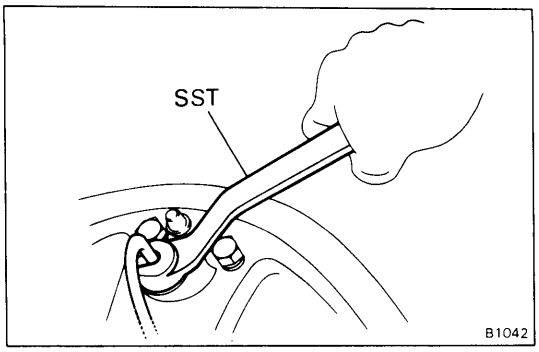
(c) Using pliers, disconnect the parking brake cable from the lever and remove the rear shoe together with the adjuster.



6. REMOVE ADJUSTER FROM REAR SHOE

(a) Remove the adjusting lever spring.

(b) Remove the adjuster.



7. DISCONNECT BRAKE TUBE FROM WHEEL CYLINDER

Using SST, disconnect the brake line. Use a container to catch the brake fluid.

SST 09751-36011

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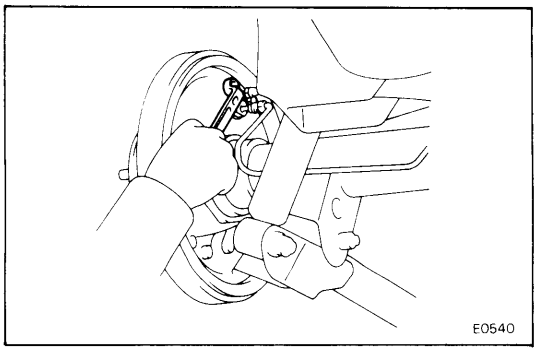
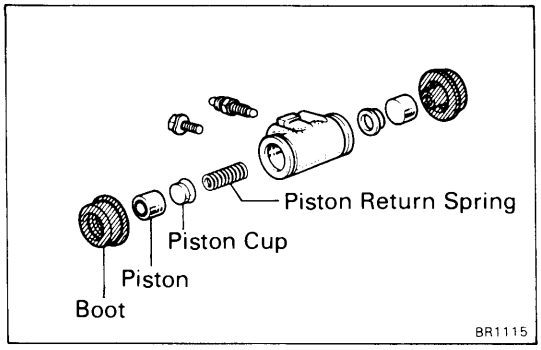


8. REMOVE WHEEL CYLINDER

Remove the two bolts and the wheel cylinder.



9. IF NECESSARY, DISASSEMBLE WHEEL CYLINDER

Remove the following parts from the wheel cylinder.

- Two boots
- Two pistons
- Two piston cups
- Spring

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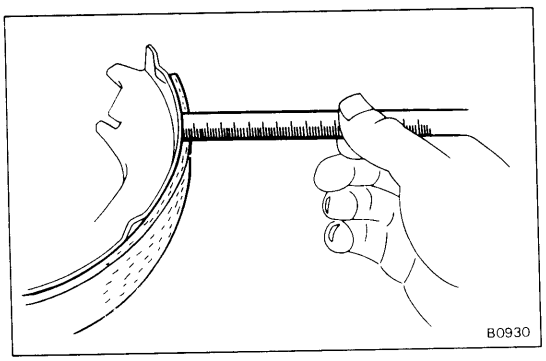
INSPECTION AND REPAIR OF REAR BRAKE COMPONENTS

1. INSPECT DISASSEMBLED PARTS

Inspect the disassembled parts for wear, rust or damage.

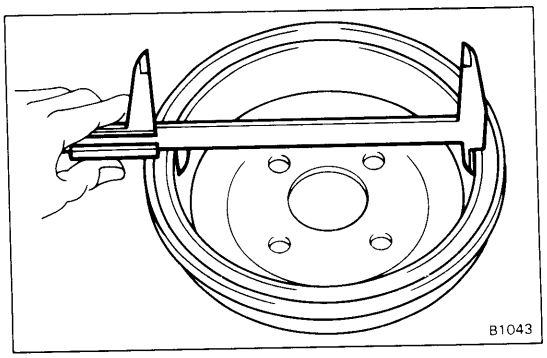


2. MEASURE BRAKE SHOE LINING THICKNESS

Standard thickness: 5.0 mm (0.197 in.)
Minimum thickness: 1.0 mm (0.039 in.)

If the shoe lining is less than minimum or shows signs of uneven wear, replace the brake shoes.

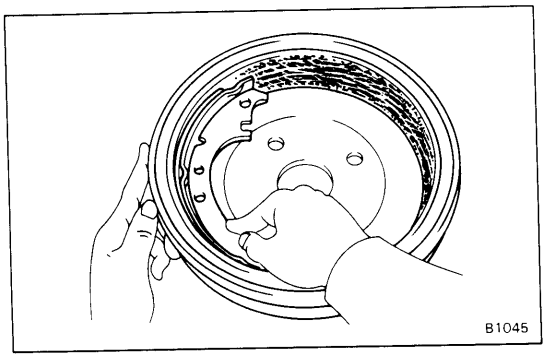
NOTE: If any of the brake shoes have to be replaced, replace all of the rear shoes in order to maintain even braking.



3. MEASURE BRAKE DRUM INSIDE DIAMETER

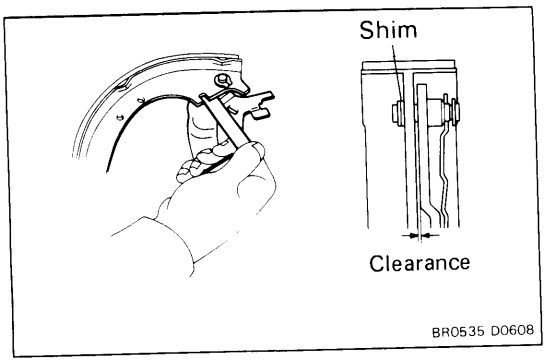
Standard inside diameter: 254.0 mm (10.000 in.)
Maximum inside diameter: 256.0 mm (10.079 in.)

If the drum is scored or worn, the brake drum may be lathed to the maximum inside diameter.



4. INSPECT REAR BRAKE LINING AND DRUM FOR PROPER CONTACT

If the contact between the brake lining and drum is improper, repair the lining with a brake shoe grinder, or replace the brake shoe assembly.



5. MEASURE CLEARANCE BETWEEN BRAKE SHOE AND LEVER

Using a feeler gauge, measure the clearance.

Standard clearance: Less than 0.35 mm (0.0138 in.)

If the clearance is not within specification, replace the shim with one of the correct size.

Thickness	mm (in.)
0.2 (0.008) 0.3 (0.012) 0.4 (0.016)	0.5 (0.020) 0.6 (0.024) 0.9 (0.035)

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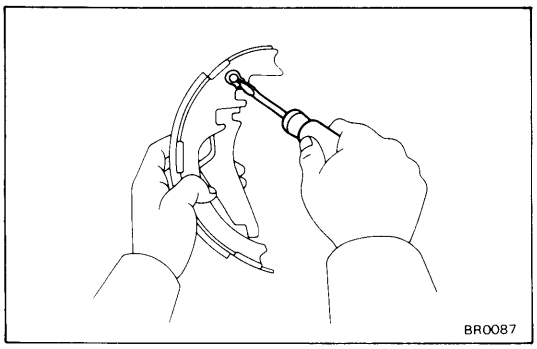
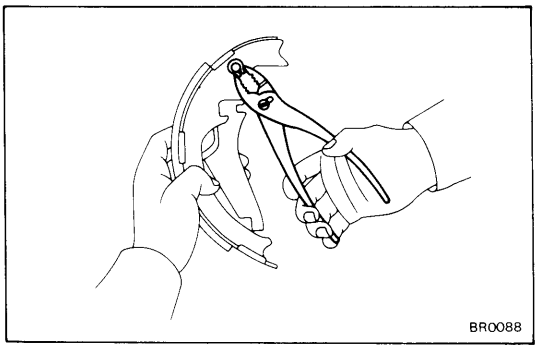


6. IF NECESSARY, REPLACE SHIM

(a) Remove the parking brake lever, and install the correct size shim.



(b) Install the parking brake lever with a new C-washer.

(c) Remeasure the clearance.

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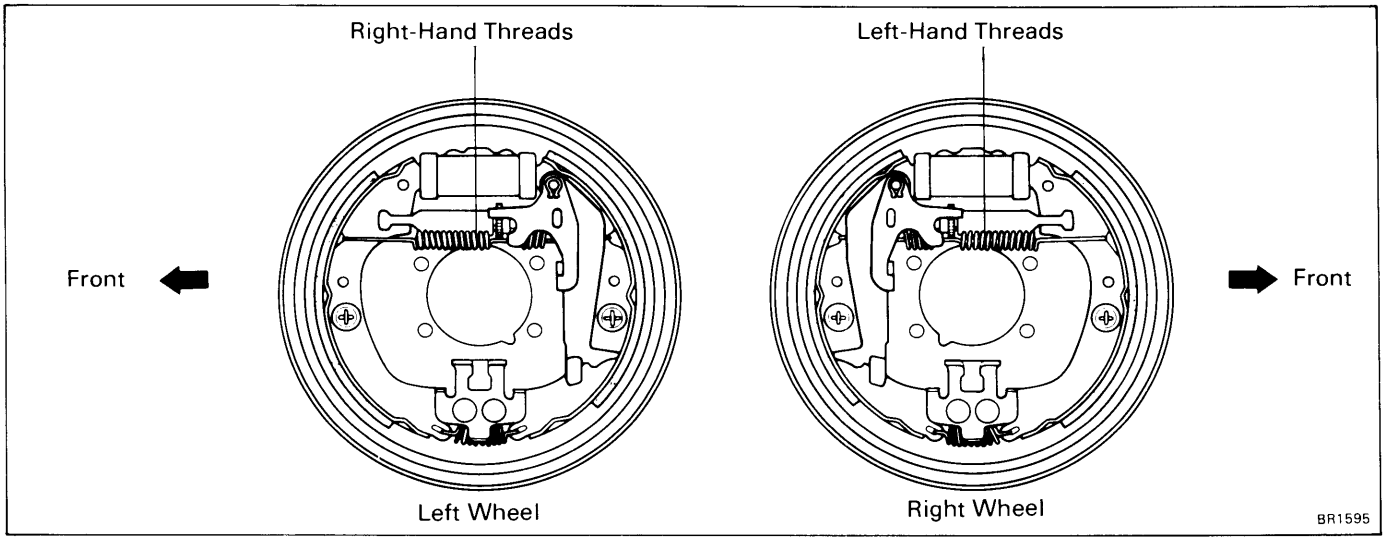
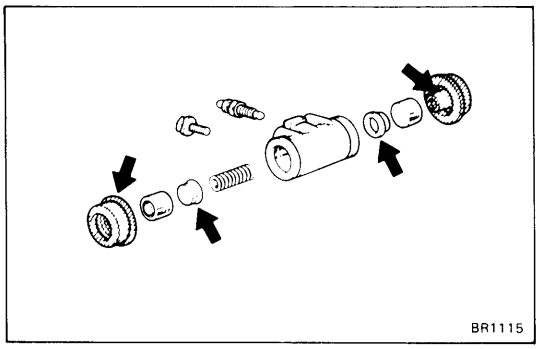
INSTALLATION OF REAR BRAKE

(See page BR-37)

NOTE: Assemble the parts in the correct direction as shown.





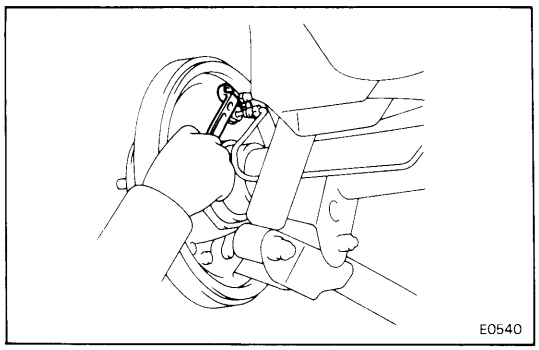
1. ASSEMBLE WHEEL CYLINDER

(a) Apply lithium soap base glycol grease to the cups and pistons as shown.

(b) Assemble the wheel cylinder.

NOTE: Install in proper direction only.

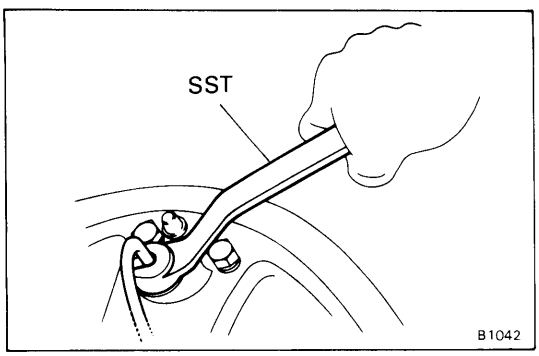
- Spring
- Two cups
- Two pistons
- Two boots



2. INSTALL WHEEL CYLINDER

Install the wheel cylinder on the backing plate with two bolts.

Torque: 100 kg-cm (7 ft-lb, 10 N·m)



3. CONNECT BRAKE TUBE TO WHEEL CYLINDER

Using SST, connect the brake tube.

SST 09751-36011

Torque: 155 kg-cm (11 ft-lb, 15 N·m)

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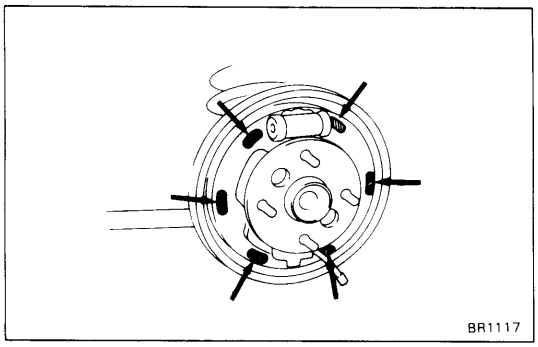
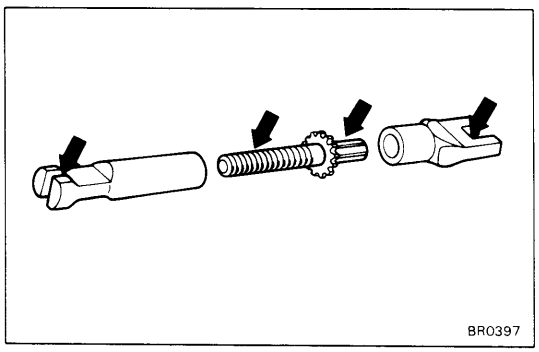
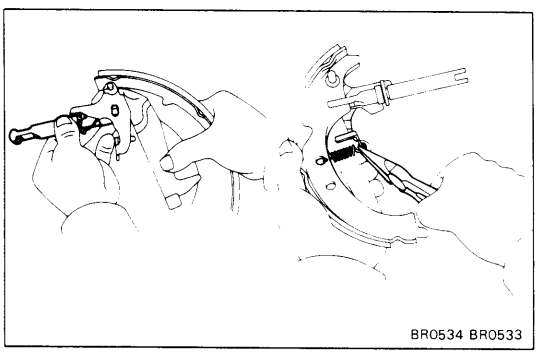

BR1117

4. APPLY HIGH TEMPERATURE GREASE TO BACKING PLATE AND ADJUSTER

(a) Apply high temperature grease to the brake shoe contact surfaces as shown.

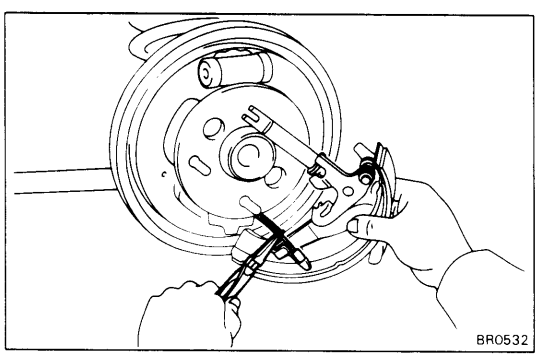

BR0397

(b) Apply high temperature grease to the adjuster bolt threads and ends.


BR0534 BR0533

5. INSTALL ADJUSTER ONTO REAR SHOE

Set the adjuster in place and install the adjusting lever spring.

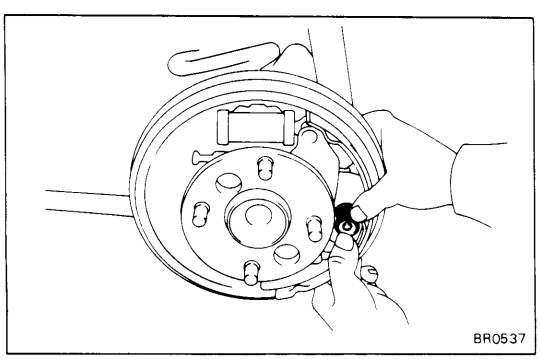

BR0532

6. INSTALL REAR SHOE

(a) Using pliers, connect the parking brake cable to the lever.

(b) Pass the parking brake cable through the notch in the anchor plate.

(c) Set the rear shoe in place with the end of the shoe inserted in the wheel cylinder and the other end in the anchor plate.


BR0537

(d) Install the shoe hold-down spring, cups and pin.

CAUTION: Do not allow oil or grease to get on the rubbing face.

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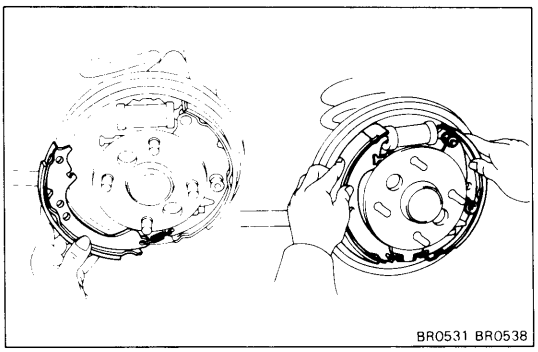
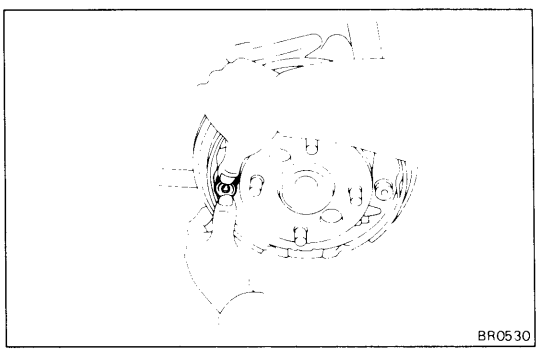

BR0531 BR0538

7. INSTALL FRONT SHOE

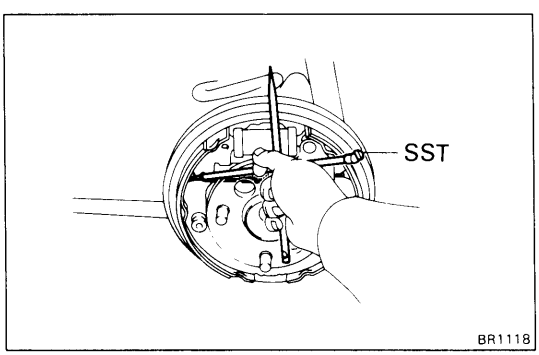
(a) Install the anchor spring between the front and rear shoes.

(b) Set the front shoe in place with the end of the shoe inserted in the wheel cylinder and the adjuster in place.


BR0530

(c) Install the shoe hold-down spring, cups and pin.

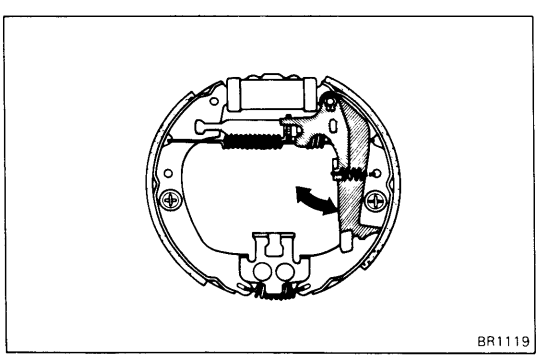
CAUTION: Do not allow oil or grease to get on the rubbing face.



BR1118

(d) Using SST, install the return spring.

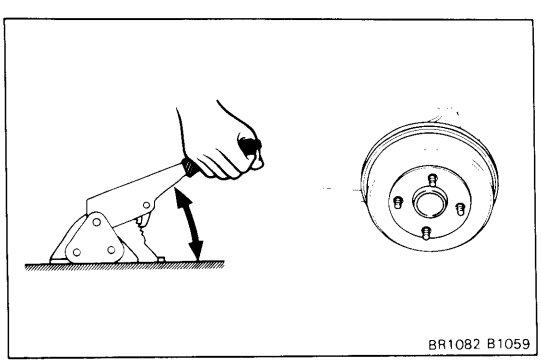
SST 09703-30010


BR1119

8. CHECK OPERATION OF AUTOMATIC ADJUSTING MECHANISM

(a) Move the parking brake lever of the rear shoe back and forth, as shown. Check that the adjuster turns.

If the adjuster does not turn, check for incorrect installation of the rear brakes.


BR1082 B1059

(b) Adjust the adjuster length to the shortest possible amount.

(c) Install the brake drum.

(d) Pull the parking brake lever all the way up until a cliking sound can no longer be heard.

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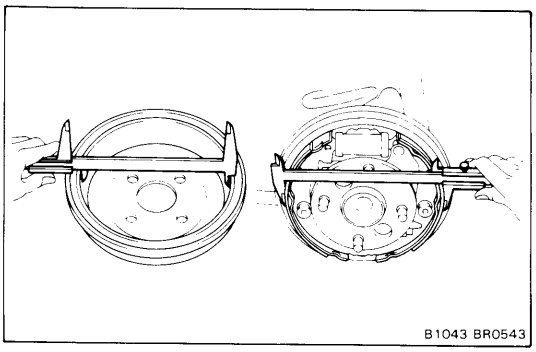

9. **CHECK CLEARANCE BETWEEN BRAKE SHOES AND DRUM**

   (a) Remove the brake drum.

   (b) Measure the brake drum inside diameter and diameter of the brake shoes. Check that the difference between the diameters is the correct shoe clearance.

   Shoe clearance: 0.6 mm (0.024 in.)

   If incorrect, check the parking brake system.

10. **INSTALL BRAKE DRUM**

11. **INSTALL REAR WHEEL**

12. **FILL BRAKE RESERVOIR WITH BRAKE FLUID AND BLEED BRAKE SYSTEM**
    (See page BR-6)

13. **CHECK FOR FLUID LEAKAGE**

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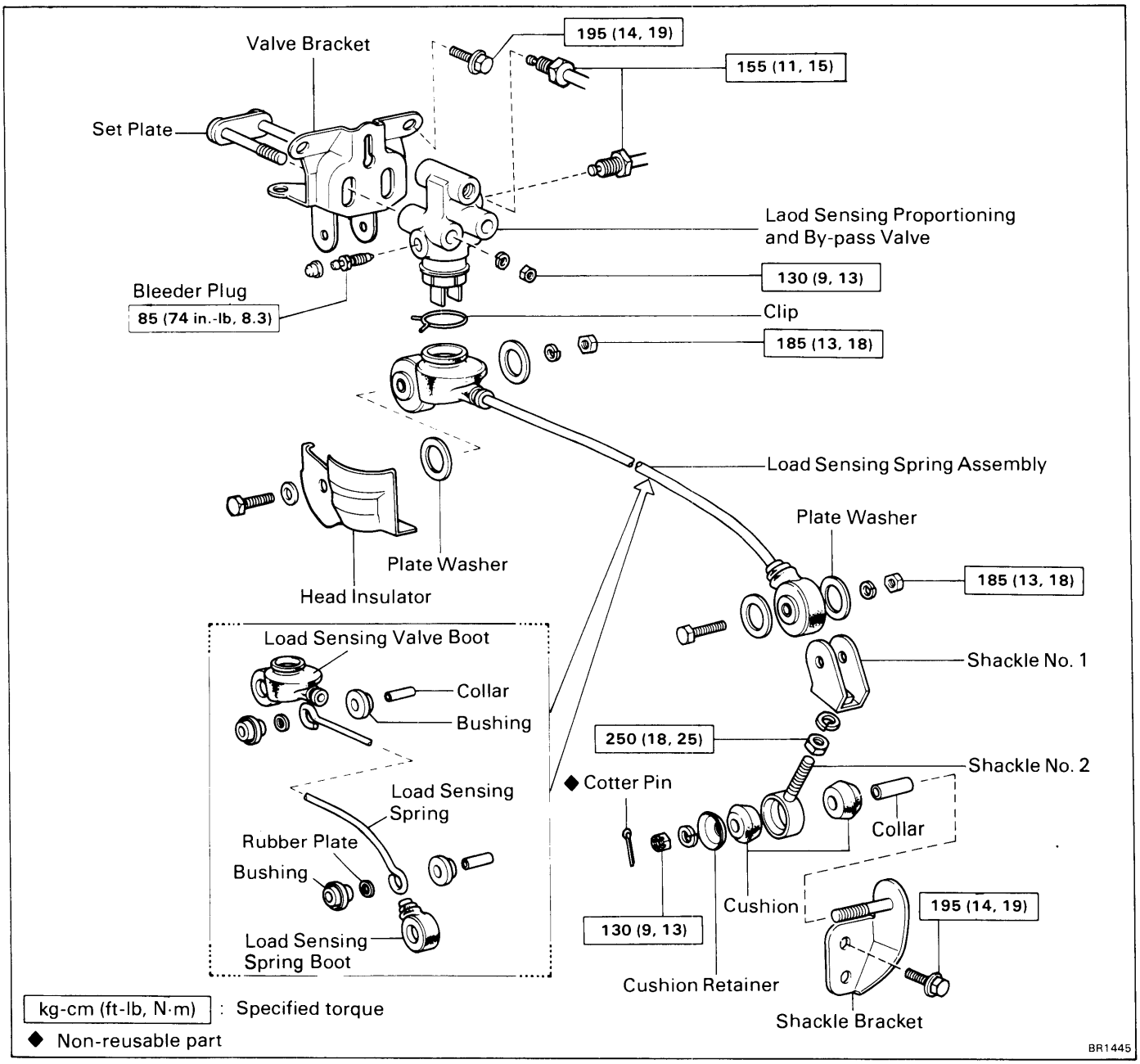
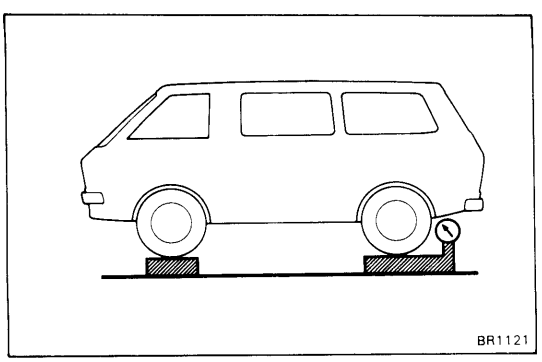
LOAD SENSING PROPORTIONING AND BY-PASS VALVE (LSP & BV)

COMPONENTS





CHECK AND ADJUSTMENT OF FLUID PRESSURE

1. SET REAR AXLE LOAD

Rear axle load (include vehicle weight):

2WD 950 kg (2,094 lb)
4WD 900 kg (1,984 lb)

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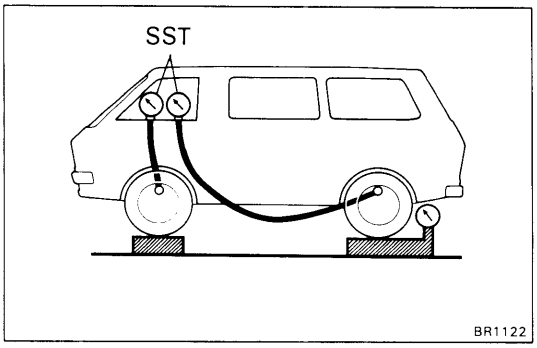
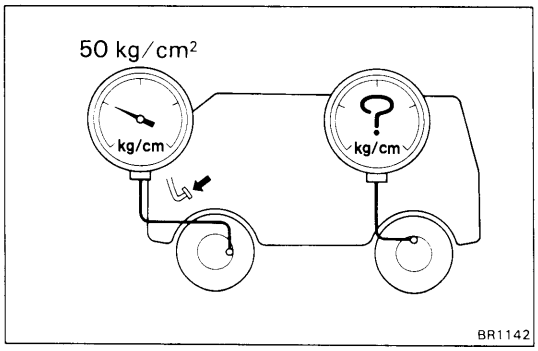


2. **INSTALL LSPV GAUGE (SST) AND BLEED AIR**

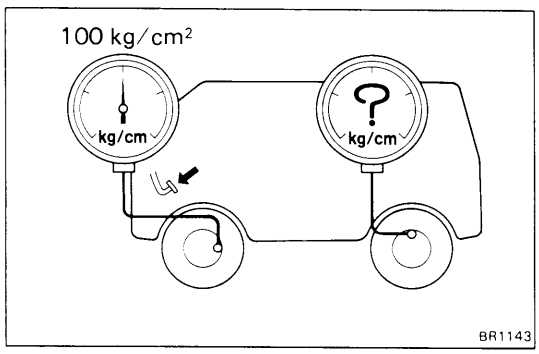
SST 09709-29017



3. **RAISE FRONT BRAKE PRESSURE TO 50 kg/cm (711 psi, 4,903 kPa) AND CHECK REAR BRAKE PRESSURE**

Rear brake pressure: 29.0 ± 5 kg/cm² (412 ± 71 psi, 2,844 ± 490 kPa)

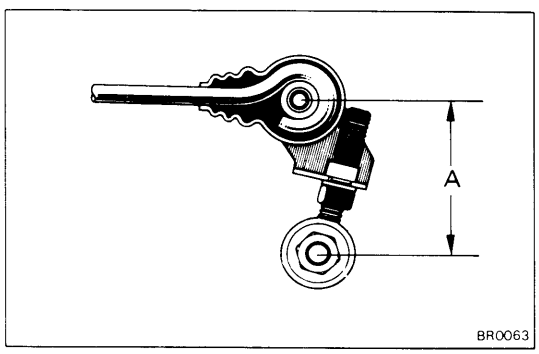
NOTE: The brake pedal should not be depressed twice and/or returned while setting to the specified pressure. Read the value of rear pressure two seconds after adjusting the specified fluid pressure.



4. **RAISE FRONT BRAKE PRESSURE TO 100 kg/cm² (1,422 psi, 9.807 kPa) AND CHECK REAR BRAKE PRESSURE**

Rear brake pressure: 34.0 ± 7 kg/cm² (484 ± 100 psi, 3,334 ± 686 kPa)

If the brake pressure is incorrect, adjust the fluid pressure.



5. **IF NECESSARY, ADJUST FLUID PRESSURE**

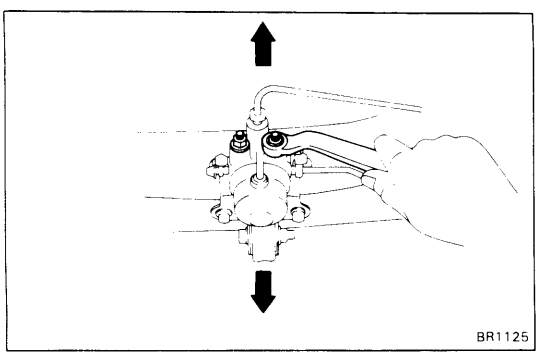
(a) Adjust the length of the No. 2 shackle.

Low pressure — Lengthen A
High pressure — Shorten A

Initial set: 78 mm (3.07 in.)

Adjusting range: 72 — 84 mm (2.83 — 3.31 in.)

NOTE: One turn of the No. 2 shackle changes the fluid pressure about 1.0 kg/cm² (14.2 psi, 98 kPa).



(b) In event pressure cannot be adjusted by the No. 2 shackle, raise or lower the valve body.

Low pressure — Lower
High pressure — Raise

(c) Torque the nuts.

Torque: 130 kg-cm (9 ft-lb, 13 N·m)

(d) Adjust the length of the No. 2 shackle again.

If it cannot be adjusted, inspect the valve housing.

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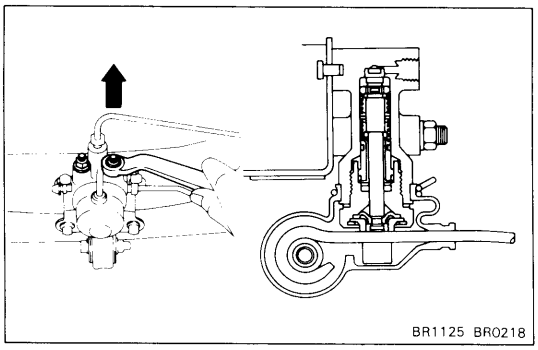
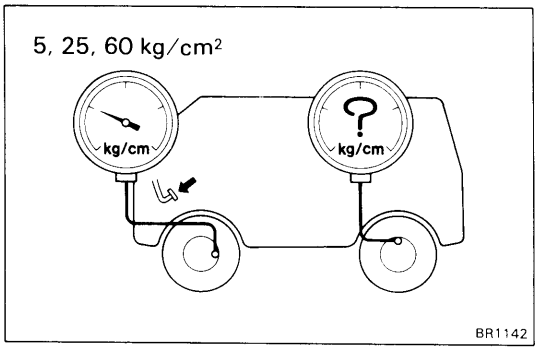
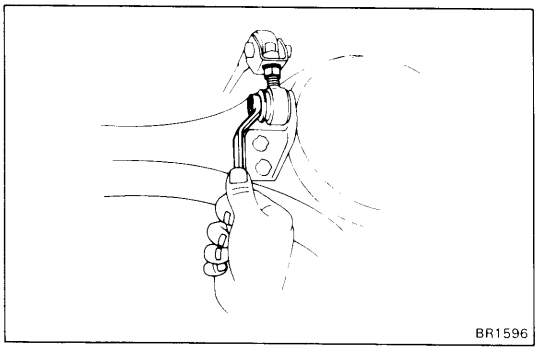
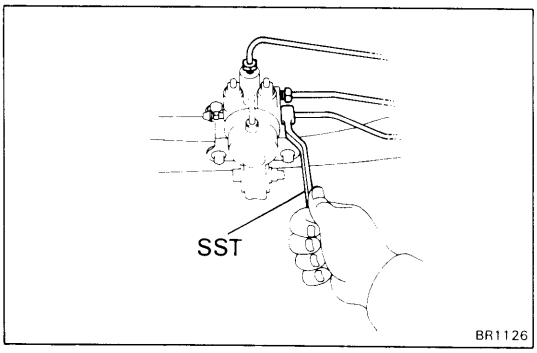

BR1125 BR0218

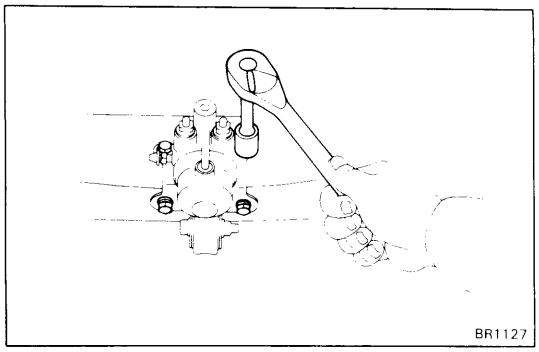


BR1142


BR1596



BR1126


BR1127

6. IF NECESSARY, CHECK VALVE BODY

(a) Assemble the valve body in the upper most position.

NOTE: When the brakes are applied, the piston will move down about 1 mm (0.04 in.). Even at this time, the piston should not make contact with or move the load sensing spring.

(b) In this position, check the rear brake pressure

kg/cm² (psi, kPa)

Front brake pressure	Rear brake pressure
5 (71, 490)	5 (71, 490)
25 (356, 2,452)	5.0 — 9.0 (71 — 128, 490 — 883)
60 (853, 5,884)	7.0 — 14.0 (100 — 199, 686 — 1,373)

If the measured value is not within standard, replace the valve body.

REMOVAL OF LSP & BV

(See page BR-40)

1. DISCONNECT SHACKLE NO. 2 FROM BRACKET

(a) Remove the cotter pin.

(b) Remove the nut and disconnect the shackle No. 2 from the bracket.

(c) Remove the retainer, two bushings and collar.

2. REMOVE LSP & BV ASSEMBLY

(a) Using SST, disconnect the brake tubes from the valve body.

SST 09751-36011

(b) Remove the valve bracket mounting bolts and remove the LSP & BV assembly.

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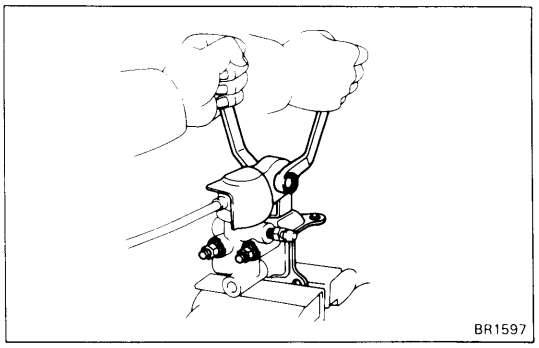
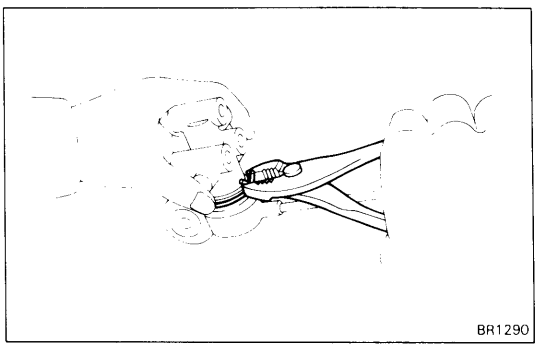

BR1597

DISASSEMBLY OF LSP & BV ASSEMBLY

1. REMOVE VALVE BRACKET

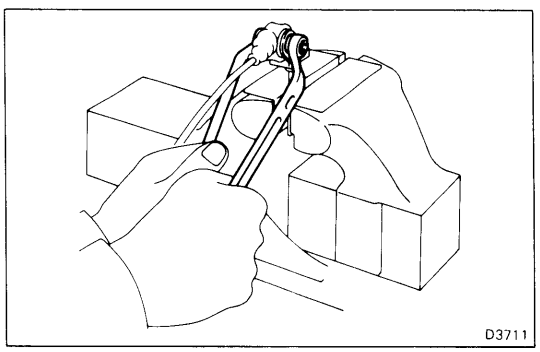
(a) Remove the nut and bolt as shown.

(b) Remove the two nuts, and remove the bracket and set plate from the valve body.


BR1290

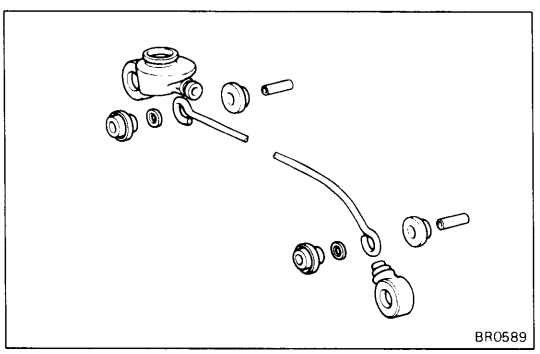
2. DISCONNECT SPRING FROM VALVE

Using a pliers, remove the clip, and remove the spring from the valve.


D3711

3. REMOVE SHACKLE NO. 1 AND NO. 2

Remove the nut and bolt, and then remove the shackle No. 1 and No. 2 and two plate washers from the load sensing spring assembly.


BR0589

4. DISASSEMBLE LOAD SENSING SPRING

Disassemble the following parts.

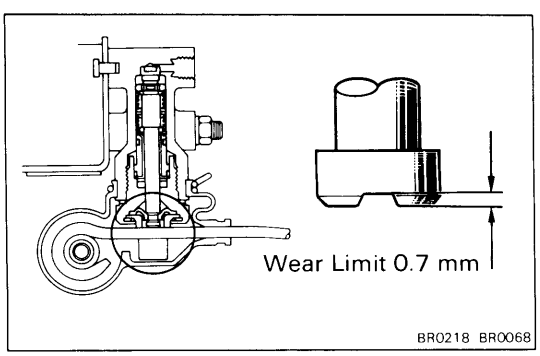
(a) Bushings

(b) Collars

(c) Rubber plates

(d) Load sensing valve boot

(e) Load sensing spring boot



BR0218 BR0068

INSPECTION OF LSP & BV

INSPECT VALVE PISTON PIN AND LOAD SENSING SPRING CONTACT SURFACE FOR WEAR

Wear limit: 0.7 mm (0.028 in.)

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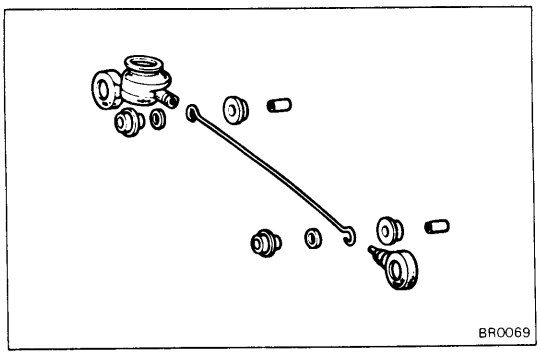

BR0069

ASSEMBLY OF LSP & BV ASSEMBLY

(See page BR-40)

1. ASSEMBLE FOLLOWING PARTS TO LOAD SENSING SPRING

(a) Load sensing valve boot

(b) Load sensing spring boot

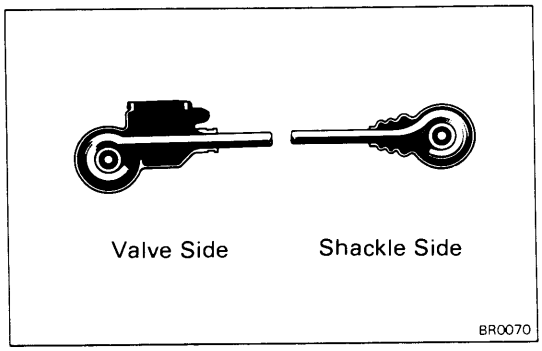
(c) Collars

(d) Rubber plates

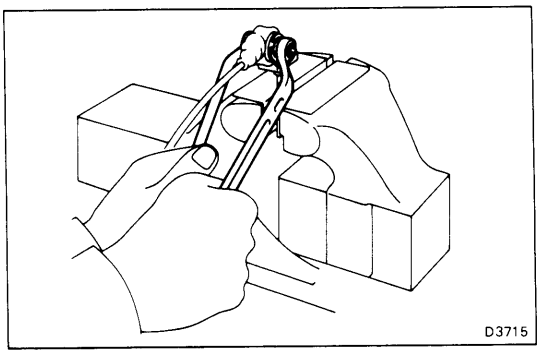
(e) Bushings

NOTE: Apply lithium soap base glycol grease to all rubbing areas.

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



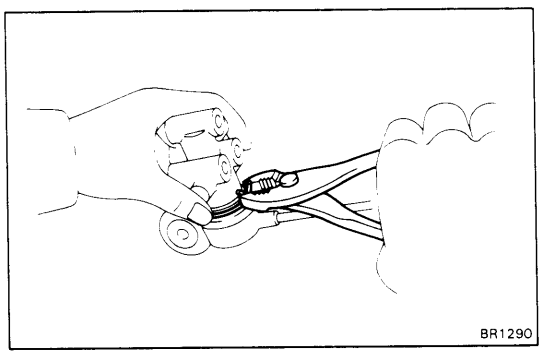
BR0070


D3715

2. INSTALL SHACKLE NO. 1 AND NO. 2 TO LOAD SENSING SPRING

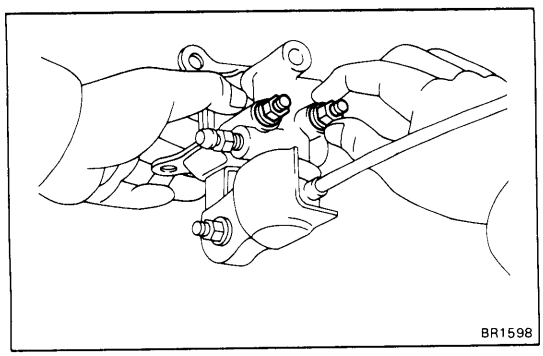
Install the shackle to the load sensing spring through the two plate washers.

Torque: 185 kg-cm (13 ft-lb, 18 N·m)


BR1290

3. INSTALL LOAD SENSING SPRING TO VALVE BODY

Install the load sensing spring assembly to the valve body with a clip.


BR1598

4. INSTALL VALVE BRACKET

(a) Install the set plate to the valve assembly and temporarily tighten the two valve body mounting nuts.

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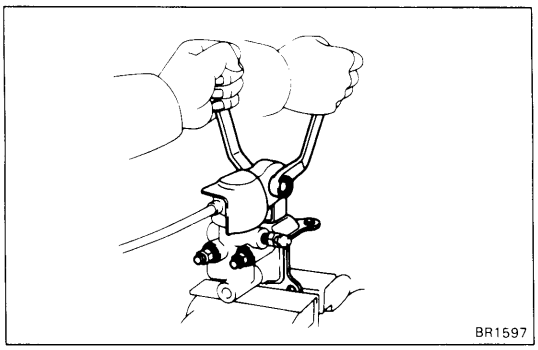


(b) Install the valve assembly to the bracket and torque the bolt and nut of load sensing spring boot through the two plate washers.

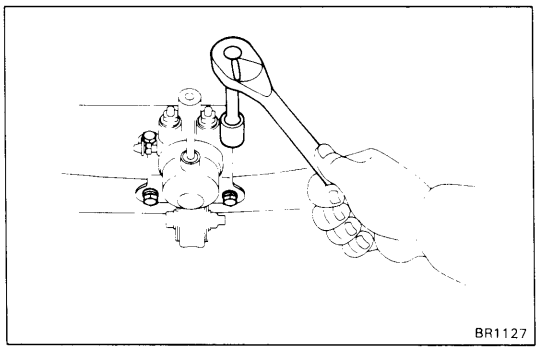
Torque: 185 kg-cm (13 ft-lb, 18 N·m)

INSTALLATION OF LSP & BV

1. INSTALL LSP & BV ASSEMBLY

Install the LSP & BV assembly to the frame with four bolts.

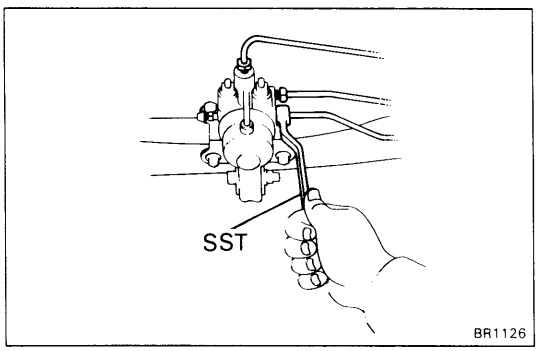
Torque: 195 kg-cm (14 ft-lb, 19 N·m)



2. CONNECT BRAKE TUBES

Using SST, connect the brake tubes.

Torque: 155 kg-cm (11 ft-lb, 15 N·m)



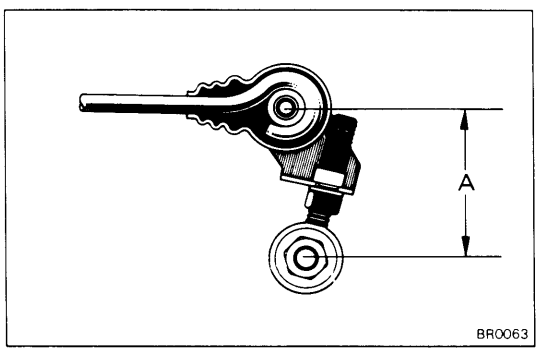
3. CONNECT SHACKLE NO. 2 TO BRACKET

(a) Set the dimension A by turning shackle No. 2.

Initial set: 78 mm (3.07 in.)

(b) Tighten the lock nut.

Torque: 250 kg-cm (18 ft-lb, 25 N·m)

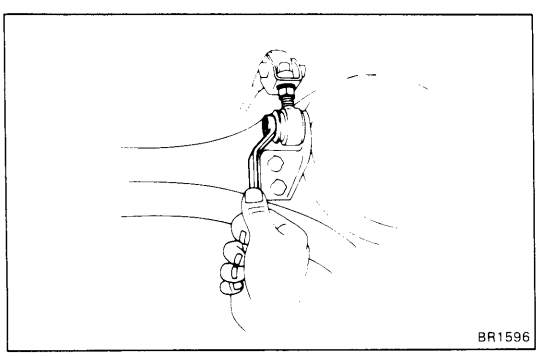


(c) Install the two bushings and a collar to the load sensing spring shackle.

(d) Install the load sensing spring to the shackle bracket with a retainer and nut.

Torque: 130 kg-cm (9 ft-lb, 13 N·m)

(e) Install the new cotter pin.



4. SET REAR AXLE LOAD

(See page BR-40)

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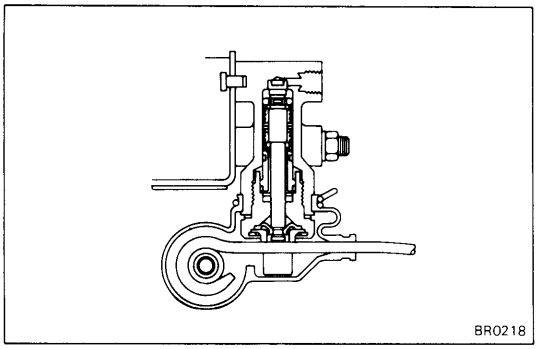
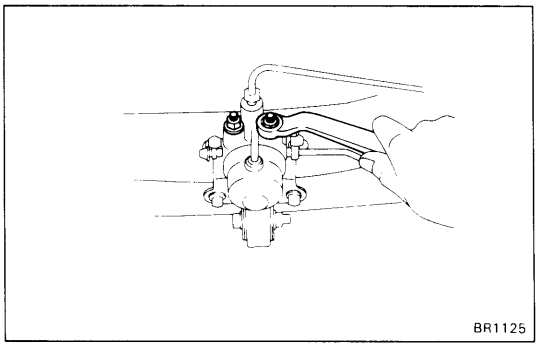


5. SET VALVE BODY

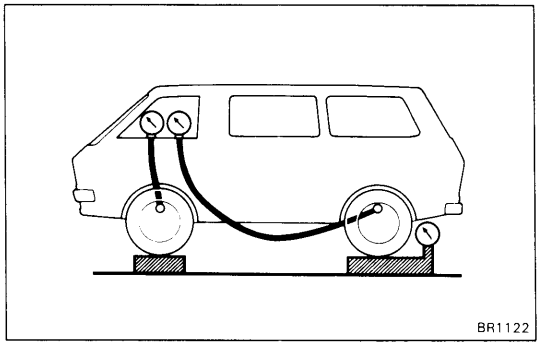
(a) When pulling down the load sensing spring, confirm that the valve piston moves down smoothly.

(b) Position the valve body so that the valve piston lightly contacts the load sensing spring.



(c) Tighten the valve body mounting nuts.

Torque: 130 kg-cm (9 ft-lb, 13 N·m)



6. BLEED BRAKE SYSTEM
(See page BR-6)

7. CHECK FLUID LEAKAGE

8. CHECK AND ADJUST LSP & BV FLUID PRESSURE
(See page BR-41)

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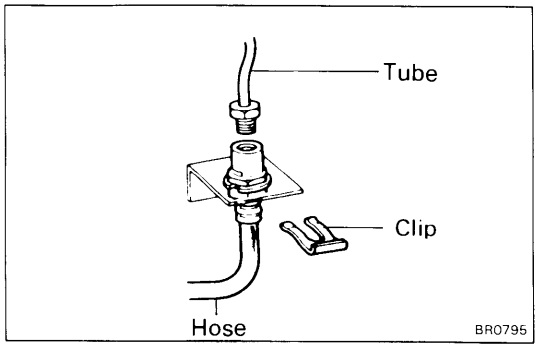


BRAKE HOSES AND TUBES

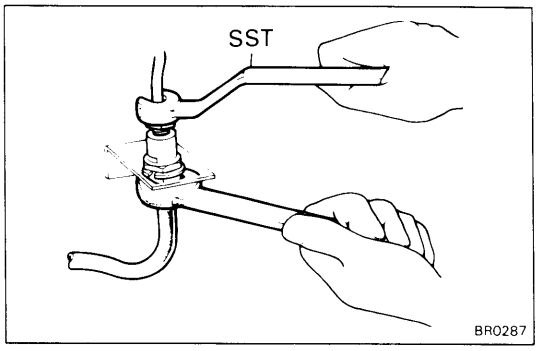
DISCONNECT AND CONNECT HOSE AND TUBE

1. DISCONNECT HOSE AND TUBE

(a) Remove the clip.

(b) Using SST to hold the tube and a wrench to hold the hose, disconnect the tube and hose.

SST 09751-36011



2. CONNECT HOSE AND TUBE

(a) Connect the hose and tube by hand.

(b) Using SST to hold the tube and a wrench to hold the hose, torque the connection.

SST 09751-36011

Torque: 155 kg-cm (11 ft-lb, 15 N·m)

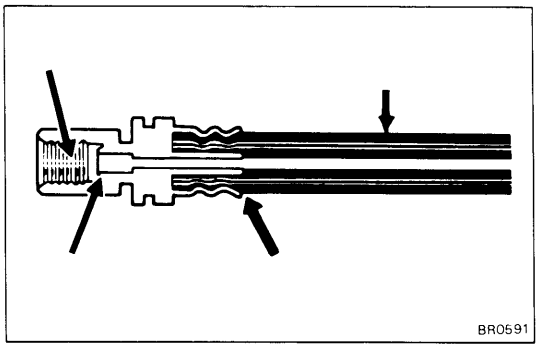
(c) Install a hose clip.

INSEPCTION OF BRAKE HOSES AND TUBES

1. INSPECT BRAKE HOSES

(a) Inspect the hose for damage, cracks or swelling.

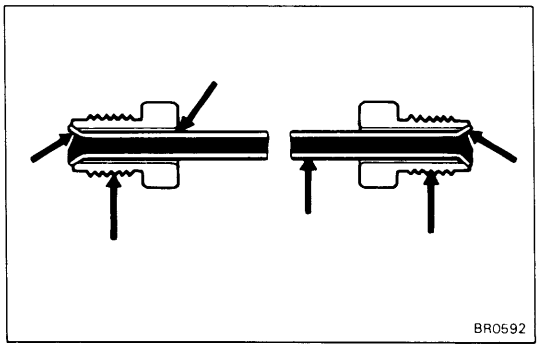
(b) Inspect the threads for damage.



2. INSPECT BRAKE TUBES

(a) Inspect the tube for damage, cracks, dents or corrosion.

(b) Inspect the threads for damage.



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