

BRAKE SYSTEM

BR02F-04

PRECAUTION

- 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 having the same part number or equivalent.
- It is very important to keep parts and the area clean when repairing the brake system.
- If the vehicle is equipped with a mobile communication system, refer to the precaution in the IN section.

TROUBLESHOOTING

PROBLEM SYMPTOMS TABLE

BR02G-04

Use the table below to help you find the cause of the problem. The numbers indicate the priority of the likely cause of the problem. Check each part in order. If necessary, replace these parts.

Symptom	Suspect Area	See page
Lower pedal or spongy pedal	1. Brake system (Fluid leaks) 2. Brake system (Air in) 3. Piston seals (Worn or damaged) 4. Rear Brake shoe clearance (Out of adjustment) 5. Master cylinder (Faulty) 6. Booster push rod (Out of adjustment)	DI-282 – BR-23 BR-33 BR-9 BR-19
Brake drag	1. Brake pedal freeplay (Minimal) 2. Parking brake lever travel (Out of adjustment) 3. Parking brake wire (Sticking) 4. Rear brake shoe clearance (Out of adjustment) 5. Pad or lining (Cracked or distorted) 6. Piston (Stuck) 7. Piston (Frozen) 8. Anchor or return spring (Faulty) 9. Booster push rod (Out of adjustment) 10. Booster system (Vacuum leaks) 11. Master cylinder (Faulty)	BR-6 BR-8 – BR-33 BR-20 BR-29 BR-23 BR-23 BR-29 BR-29 BR-19 BR-16 BR-9
Brake pull	1. Piston (Stuck) 2. Pad or lining (Oily) 3. Piston (Frozen) 4. Disc (Scored) 5. Pad or lining (Cracked or distorted)	BR-23 BR-20 BR-29 BR-23 BR-29 BR-20 BR-20 BR-29

BRAKE – TROUBLESHOOTING

Hard pedal but brake inefficient	1. Brake system (Fluid leaks) 2. Brake system (Air in) 3. Pad or lining (Worn) 4. Pad or lining (Cracked or distorted) 5. Rear brake shoe clearance (Out of adjustment) 6. Pad or lining (Oily) 7. Pad or lining (Glazed) 8. Disc (Scored) 9. Booster push rod (Out of adjustment) 10. Booster system (Vacuum leaks)	DI-282 – BR-20 BR-29 BR-20 BR-29 BR-33 BR-20 BR-29 BR-20 BR-29 BR-23 BR-19 BR-16
Noise from brake	1. Pad or lining (Cracked or distorted) 2. Installation bolt (Loose) 3. Disc (Scored) 4. Pad support plate (Loose) 5. Sliding pin (Worn) 6. Pad or lining (Dirty) 7. Pad or lining (Glazed) 8. Anchor or return spring (Faulty) 9. Anti-squeal shim (Damage) 10. Hold-down spring (Damage)	BR-20 BR-29 BR-23 BR-23 BR-23 BR-20 BR-29 BR-20 BR-29 BR-29 BR-20 BR-29



BRAKE FLUID BLEEDING

BR02H-02

HINT:

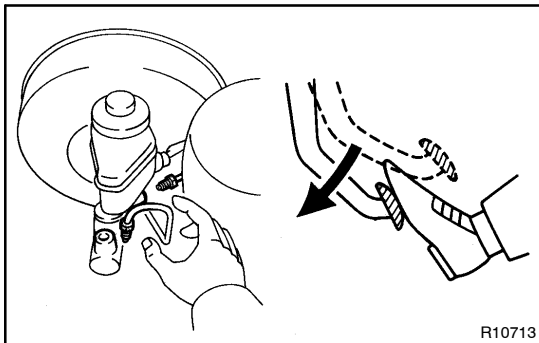
If any work is done on the brake system or air in the brake lines is suspected, bleed the system of air.

NOTICE:

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

1. FILL BRAKE RESERVOIR WITH BRAKE FLUID

Fluid: SAEJ1703 or FMVSS No. 116 DOT3

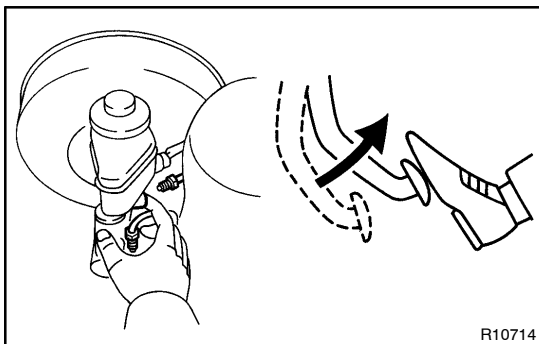


2. BLEED MASTER CYLINDER

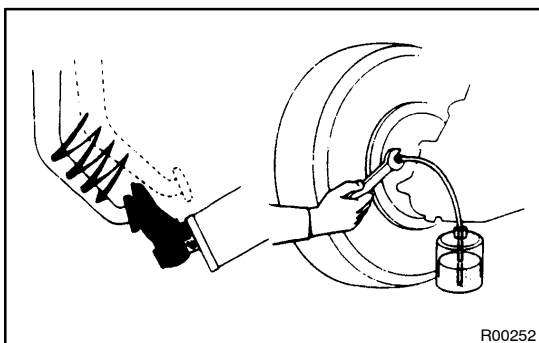
HINT:

If the master cylinder has been disassembled or if the reservoir becomes empty, bleed the master cylinder of the air.

- Disconnect the brake lines from the master cylinder.
- Slowly depress the brake pedal and hold it.



- Block off the outlet plug with your finger and release the brake pedal.
- Repeat (b) and (c) 3 or 4 times.



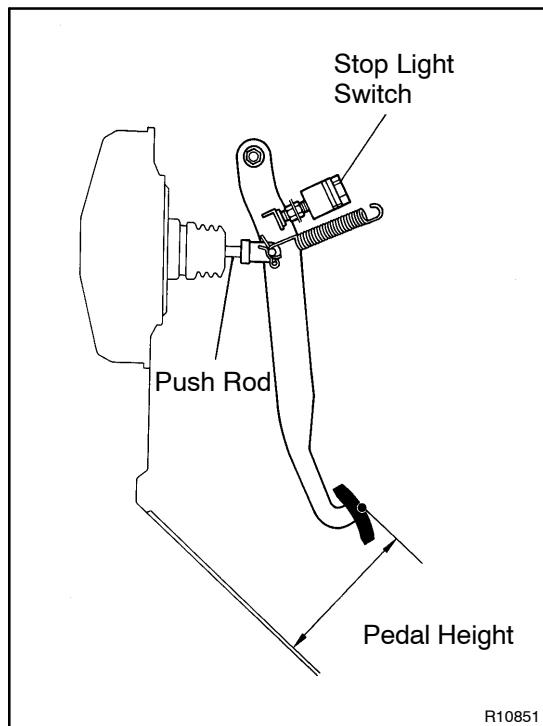
3. BLEED BRAKE LINE

- Connect the vinyl tube to the caliper or wheel cylinder.
- Depress the brake pedal several times, then loosen the bleeder plug with the pedal held down.
- At the point when fluid stops coming out, tighten the bleeder plug, then release the brake pedal.
- Repeat (b) and (c) until all the air in the fluid has been bled out.
- Repeat the above procedure to bleed the brake line of the air for each wheel.

4. CHECK FLUID LEVEL IN RESERVOIR

Check the fluid level and add fluid if necessary.

Fluid: SAEJ1703 or FMVSS No.116 DOT3



BRAKE PEDAL ON-VEHICLE INSPECTION

BR1DV-01

1. CHECK PEDAL HEIGHT

Pedal height from asphalt sheet:

157.1 – 167.1 mm (6.185 – 6.579 in.)

If the pedal height is incorrect, adjust it.

2. IF NECESSARY, ADJUST PEDAL HEIGHT

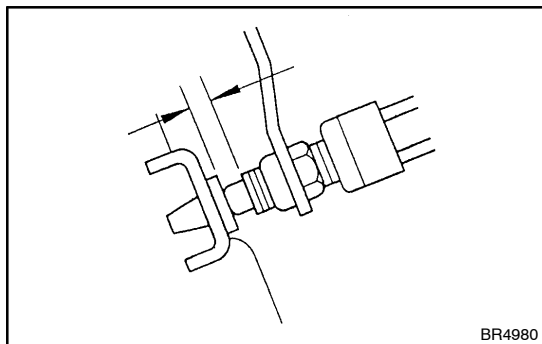
- Disconnect the connector from the stop light switch.
- Loosen the stop light switch lock nut and remove the stop light switch.
- Loosen the push rod lock nut.
- Adjust the pedal height by turning the pedal push rod.
- Tighten the push rod lock nut.

Torque: 25 N·m (260 kgf·cm, 19 ft·lbf)

- Install the stop light switch and turn it until it lightly contacts with the pedal stopper.
- Turn the stop light switch back one turn.
- Check the clearance (A) between stop light switch and pedal.

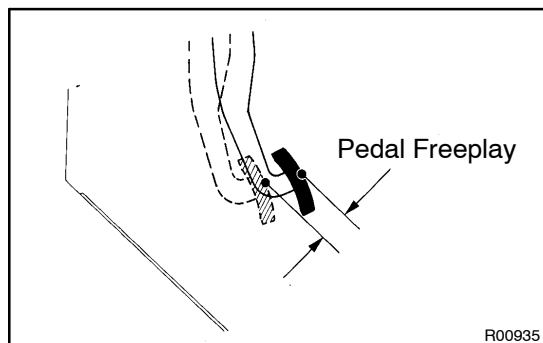
Clearance: 0.5 – 2.4 mm (0.020 – 0.094 in.)

- Tighten the stop light switch lock nut.
- Connect the connector to the stop light switch.
- Check that the stop lights come on when the brake pedal is depressed, and go off when the brake pedal is released.
- After adjusting the pedal height, check the pedal freeplay.



HINT:

If clearance (A) between the stop light switch and the brake pedal stopper has been adjusted correctly, the pedal freeplay will meet the specifications.



3. CHECK PEDAL FREEPLAY

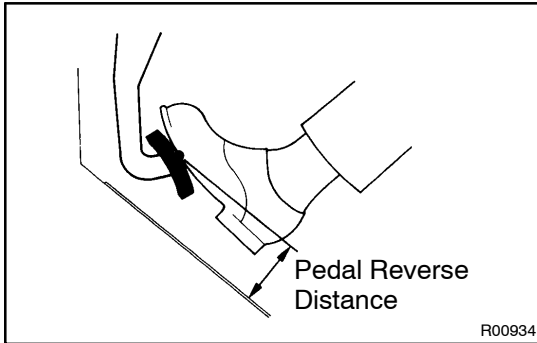
- Stop the engine and depress the brake pedal several times until there is no more vacuum left in the booster.
- Push in the pedal by hand until the resistance begins to be felt, then measure the distance, as shown.

Pedal freeplay: 1 – 6 mm (0.04 – 0.24 in.)

HINT:

The freeplay to the 1st point of resistance is due to the play between the clevis and pin. It is 1 – 3 mm (0.04 – 0.12 in.) on the pedal.

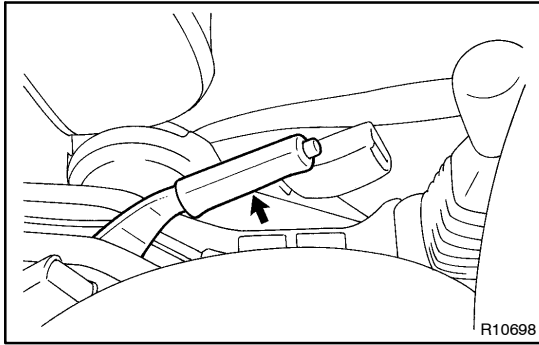
If incorrect, check the stop light switch clearance. If the clearance is OK, then troubleshoot the brake system.

**4. CHECK PEDAL RESERVE DISTANCE**

- (a) Release the parking brake.
- (b) With the engine running, depress the pedal and measure the pedal reserve distance, as shown.

Pedal reserve distance from asphalt sheet at 490 N (50 kgf, 110.2 lbf): More than 75 mm (2.95 in.)

If the reserve distance is incorrect, troubleshoot the brake system.



PARKING BRAKE LEVER ON-VEHICLE INSPECTION

BR02J-10

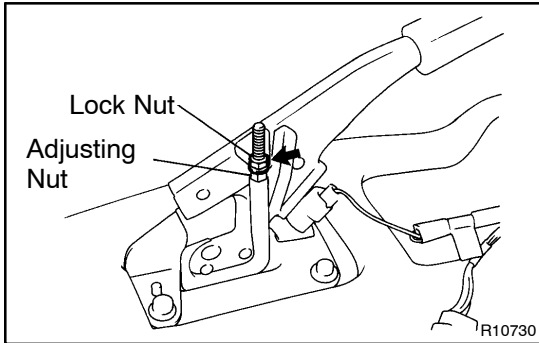
1. CHECK PARKING BRAKE LEVER TRAVEL

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

Parking brake lever travel at 196 N (20 kgf, 44 lbf):

5 – 8 clicks

If incorrect, adjust the parking brake.



2. IF NECESSARY, ADJUST PARKING BRAKE

HINT:

Before adjusting the parking brake, make sure that the rear brake shoe clearance has been adjusted. For shoe clearance adjustment, see page [BR-33](#).

- Remove the rear console box.
- Loosen the lock nut and turn the adjusting nut until the lever travel is correct.
- Tighten the lock nut.

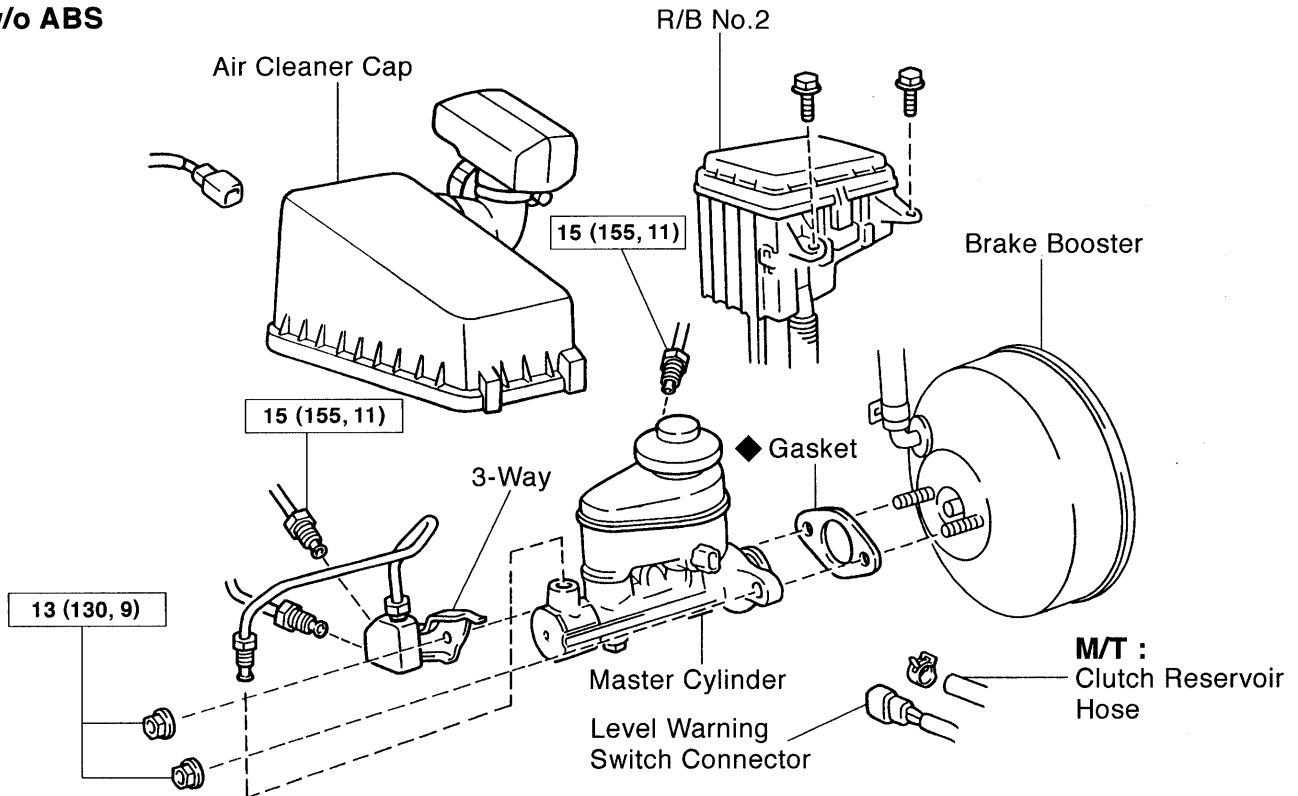
Torque: 5.4 N·m (55 kgf·cm, 48 in·lbf)

- Install the rear console box.

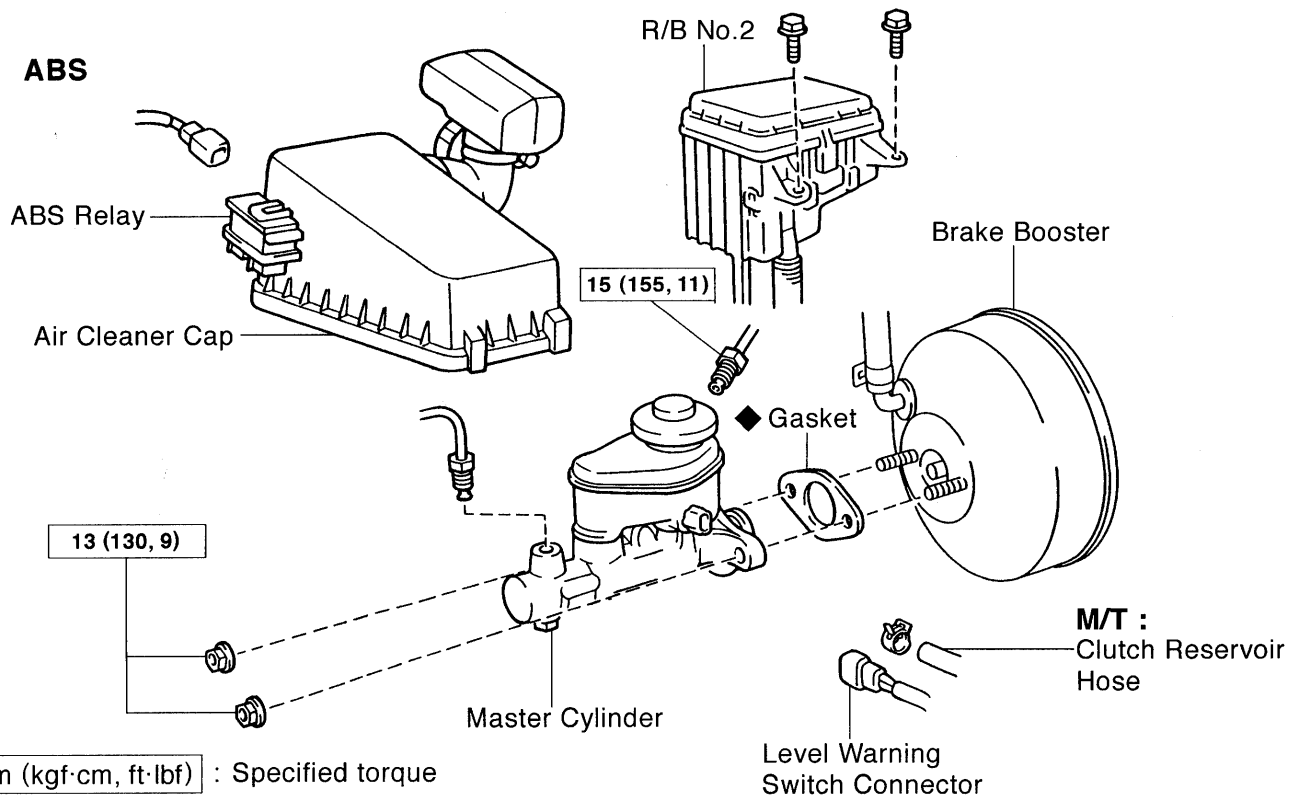
BRAKE MASTER CYLINDER COMPONENTS

BROM2-02

w/o ABS



w/ ABS

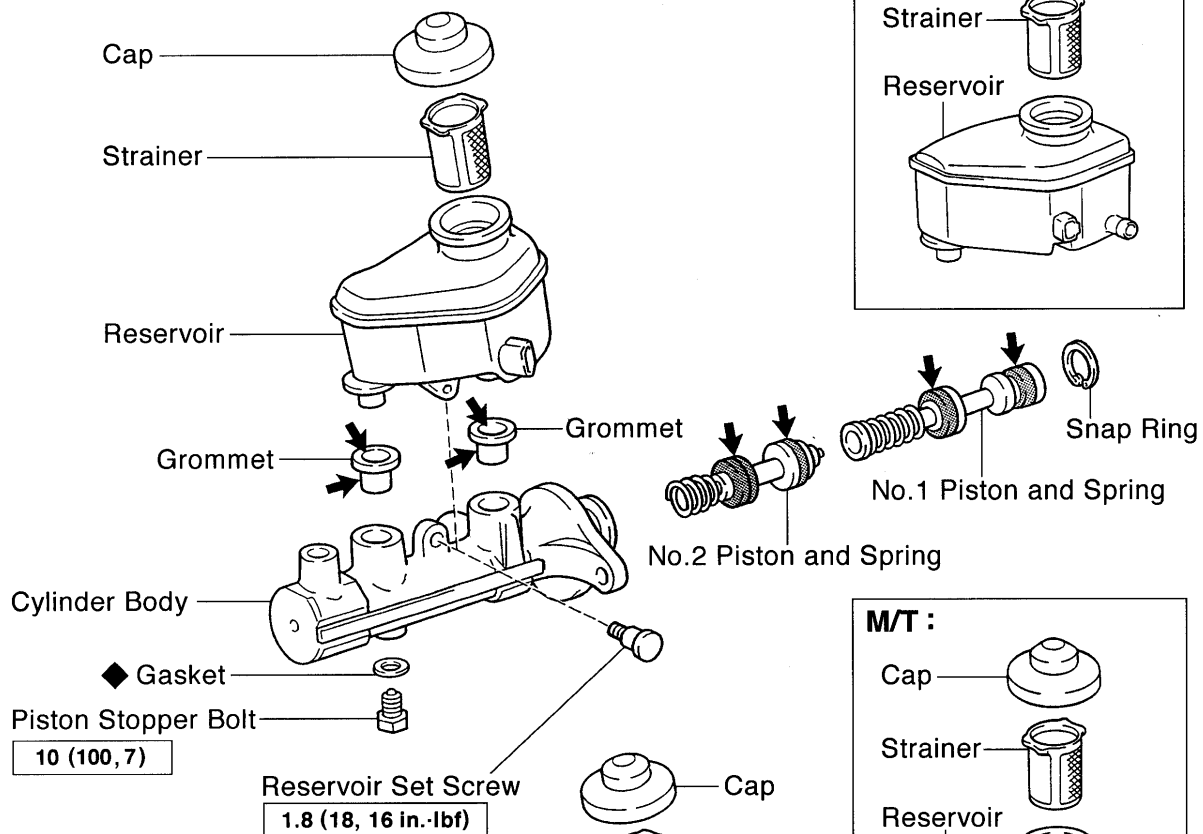


N·m (kgf·cm, ft·lbf) : Specified torque

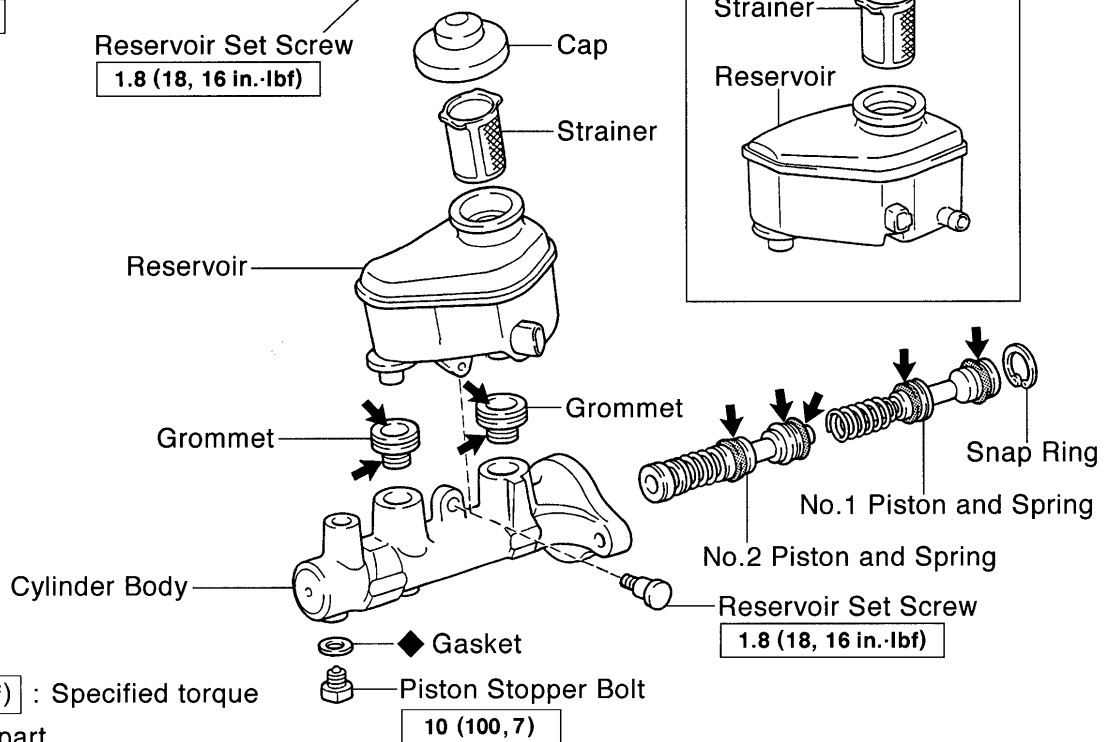
◆ Non-reusable part

W01345

w/o ABS
A/T :



w/ ABS
A/T :



N·m (kgf·cm, ft·lbf) : Specified torque

◆ Non-reusable part

← Lithium soap base glycol grease

W01346

W01346

REMOVAL

1. **DISCONNECT LEVEL WARNING SWITCH CONNECTOR**
2. **DRAW OUT FLUID WITH SYRINGE**

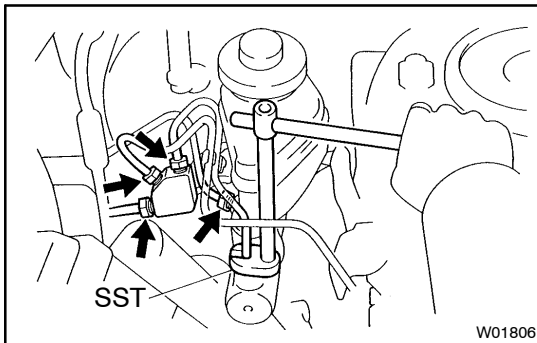
NOTICE:

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

3. **DISCONNECT R/B NO.2**

Remove the 2 bolts and disconnect R/B No.2.

4. **REMOVE AIR CLEANER CAP WITH AIR CLEANER HOSE**



5. **w/o ABS:**
DISCONNECT BRAKE LINES

Using SST, disconnect the 5 brake lines from the master cylinder and 3-way.

SST 09023-00100

Torque: 15 N·m (155 kgf·cm, 11 ft·lbf)

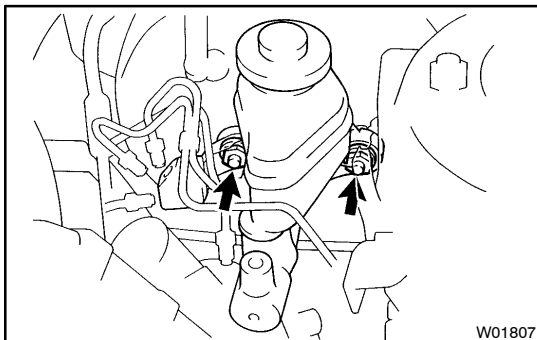
6. **w/ ABS:**
DISCONNECT BRAKE LINES

Using SST, disconnect the 2 brake lines from the master cylinder.

SST 09023-00100

Torque: 15 N·m (155 kgf·cm, 11 ft·lbf)

7. **M/T:**
DISCONNECT CLUTCH RESERVOIR HOSE



8. **w/o ABS:**
REMOVE MASTER CYLINDER

Remove the 2 nuts and pull out the master cylinder, 3-way and gasket.

Torque: 13 N·m (130 kgf·cm, 9 ft·lbf)

9. **w/ ABS:**
REMOVE MASTER CYLINDER

Remove the 2 nuts, and pull out the master cylinder and gasket.

Torque: 13 N·m (130 kgf·cm, 9 ft·lbf)

DISASSEMBLY

1. REMOVE RESERVOIR

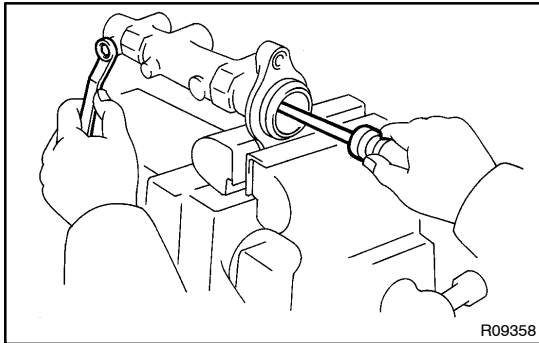
- (a) Remove the set screw and pull out the reservoir.

Torque: 1.8 N·m (18 kgf·cm, 16 in·lbf)

- (b) Remove the cap and strainer from the reservoir.

2. REMOVE 2 GROMMETS

3. PLACE CYLINDER IN VISE



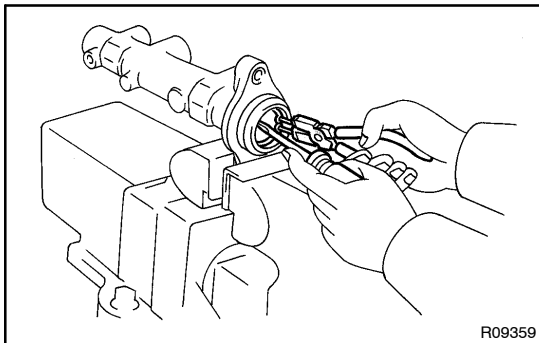
4. REMOVE PISTON STOPPER BOLT

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

HINT:

Tape the screwdriver tip before use.

Torque: 10 N·m (100 kgf·cm, 7 ft·lbf)



5. REMOVE 2 PISTONS AND SPRINGS

- (a) Push in the piston with a screwdriver and remove the snap ring with snap ring pliers.

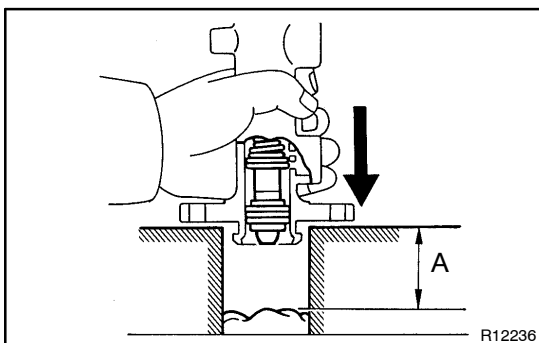
HINT:

Tape the screwdriver tip before use.

- (b) Remove the No.1 piston and spring by hand, pulling straight out, not at an angle.

NOTICE:

- If pulled out and installed at an angle, there is a possibility that the cylinder bore could be damaged.
- At the time of reassembly, be careful not to damage the rubber lips on the pistons.



- (c) Place a rag and 2 wooden blocks on the work table and lightly tap the cylinder flange against the block edges until the piston drops out of the cylinder.

HINT:

Make sure the distance (A) from the rag to the top of the blocks is at least 100 mm (3.94 in.).

INSPECTION

HINT:

Clean the disassembled parts with compressed air.

- 1. INSPECT CYLINDER BORE FOR RUST OR SCORING**
- 2. INSPECT CYLINDER FOR WEAR OR DAMAGE**

If necessary, clean or replace the cylinder.

REASSEMBLY

Reassembly is in the reverse order of disassembly (See page [BR-12](#)).

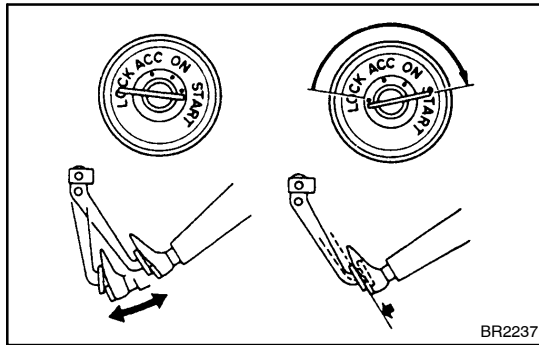
NOTICE:

Apply lithium soap base glycol grease to the rubber parts indicated by the arrows
(See page [BR-9](#)).

INSTALLATION

Installation is in the reverse order of removal (See page [BR-11](#)).

1. BEFORE INSTALLATION, ADJUST LENGTH OF BRAKE BOOSTER PUSH ROD
(See page [BR-19](#))
2. AFTER INSTALLATION, FILL BRAKE RESERVOIR WITH BRAKE FLUID, BLEED BRAKE SYSTEM (See page [BR-4](#)) AND CHECK FOR LEAKS
3. CHECK AND ADJUST BRAKE PEDAL (See page [BR-6](#))
4. M/T:
AFTER INSTALLATION, BLEED CLUTCH SYSTEM

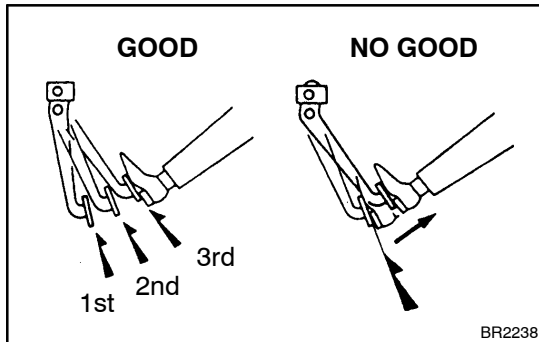


BRAKE BOOSTER ASSEMBLY ON-VEHICLE INSPECTION

BR02Q-02

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 CHECK

- (a) Start the engine and stop it after 1 or 2 minutes. Depress the brake pedal several times slowly.

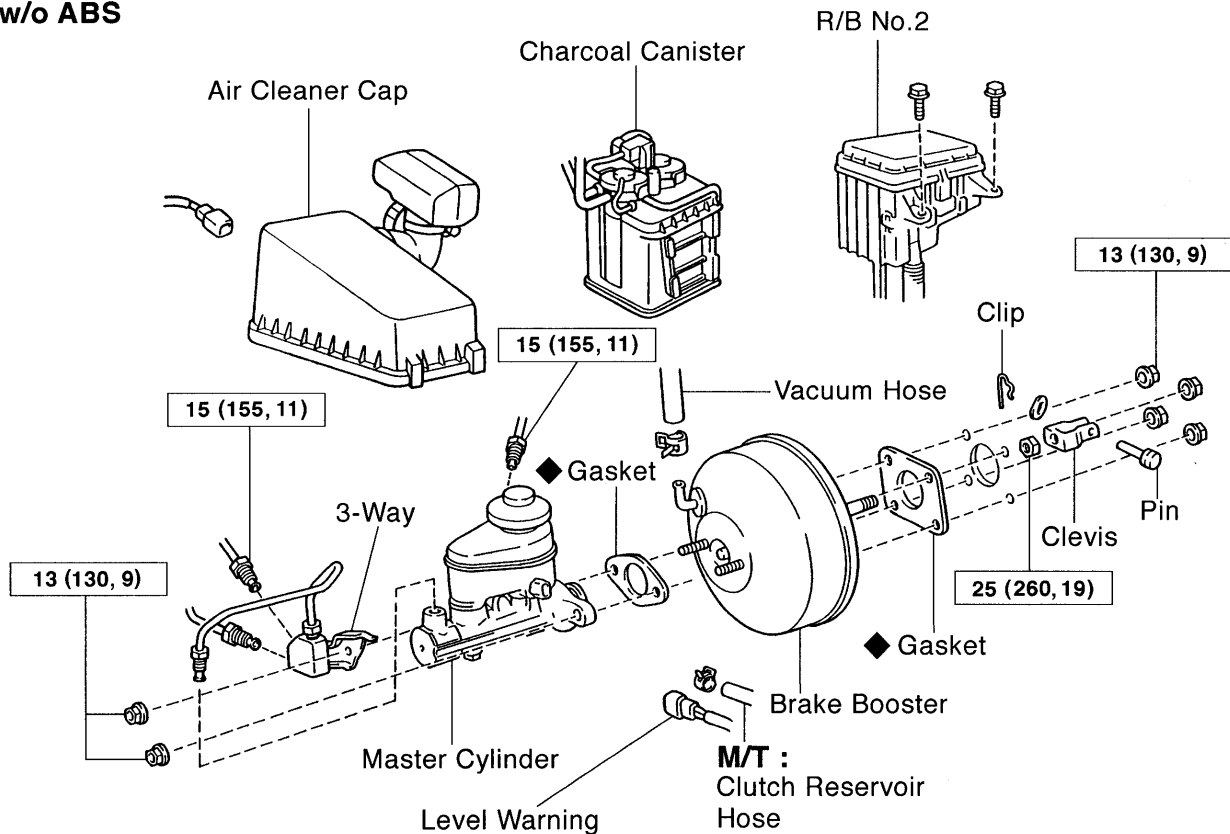
If the pedal goes down farthest at the 1st time, but gradually rises after at the 2nd or 3rd time, the booster is air tight.

- (b) Depress the brake pedal while the engine is running, and stop the engine with the pedal depressed.

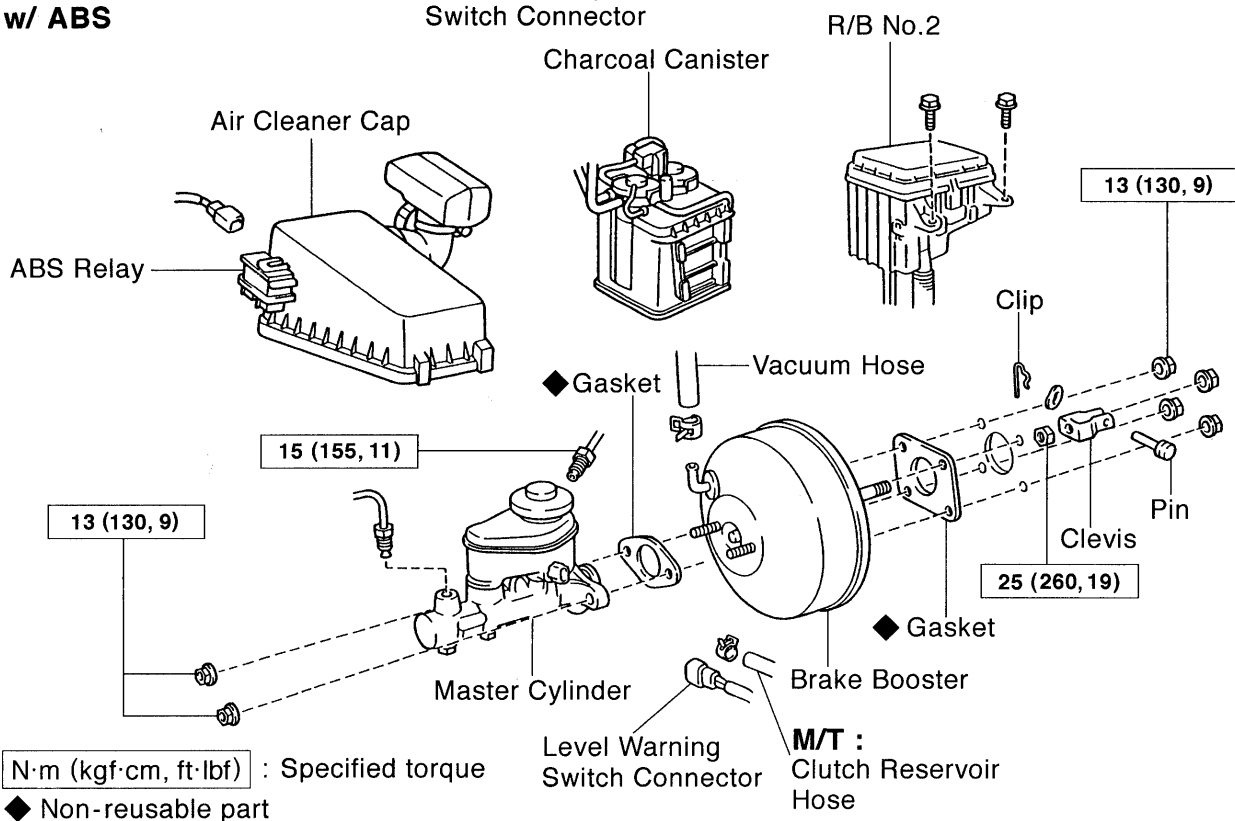
If there is no change in the pedal reserve travel after holding the pedal for 30 seconds, the booster is air-tight.

COMPONENTS

w/o ABS



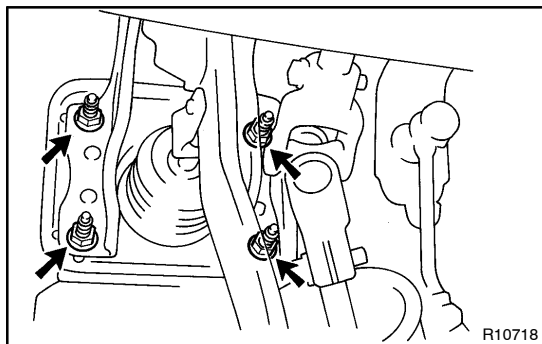
w/ ABS



W01347

REMOVAL

1. REMOVE MASTER CYLINDER (See page [BR-9](#))
2. REMOVE CHARCOAL CANISTER
3. DISCONNECT VACUUM HOSE FROM BRAKE BOOSTER
4. REMOVE PEDAL RETURN SPRING
5. REMOVE CLIP AND CLEVIS PIN

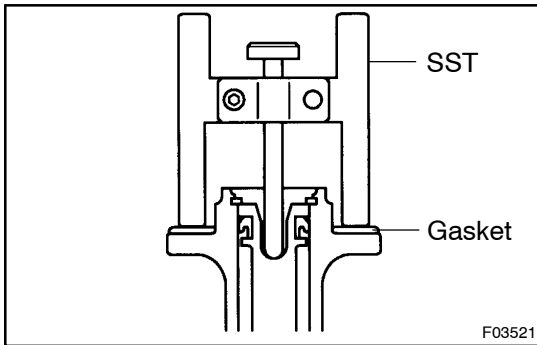


6. REMOVE BRAKE BOOSTER
 - (a) Remove the 4 nuts and clevis.
 - (b) Pull out the brake booster and gasket.

INSTALLATION

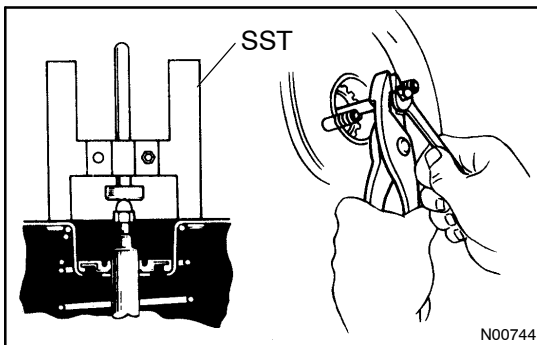
1. INSTALL BRAKE BOOSTER

- Install the booster and a new gasket.
- Install the clevis to the operating rod.
- Install and torque the booster installation nuts.
Torque: 13 N·m (130 kgf·cm, 9 ft·lbf)
- Insert the clevis pin into clevis, brake pedal, and install the clip to the clevis pin.
- Install the pedal return spring.



2. ADJUST LENGTH OF BOOSTER PUSH ROD

- Install a new gasket on the master cylinder.
- Set the SST on the gasket, and lower the pin until its tip slightly touches the piston.
SST 09737-00010



- Turn the SST upside down, and set it on the booster.
SST 09737-00010
 - Measure the clearance between the booster push rod and pin head (SST).
Clearance: 0 mm (0 in.)
 - Adjust the booster push rod length until the push rod slightly touches the pin head.
- INSTALL CHARCOAL CANISTER TO ORIGINAL POSITION**
 - INSTALL MASTER CYLINDER**
 - CONNECT VACUUM HOSE TO BRAKE BOOSTER**
 - FILL BRAKE RESERVOIR WITH BRAKE FLUID AND BLEED BRAKE SYSTEM (See page BR-4)**
 - M/T:**
BLEED CLUTCH SYSTEM
 - CHECK FOR LEAKS**
 - CHECK AND ADJUST BRAKE PEDAL (See page BR-6)**

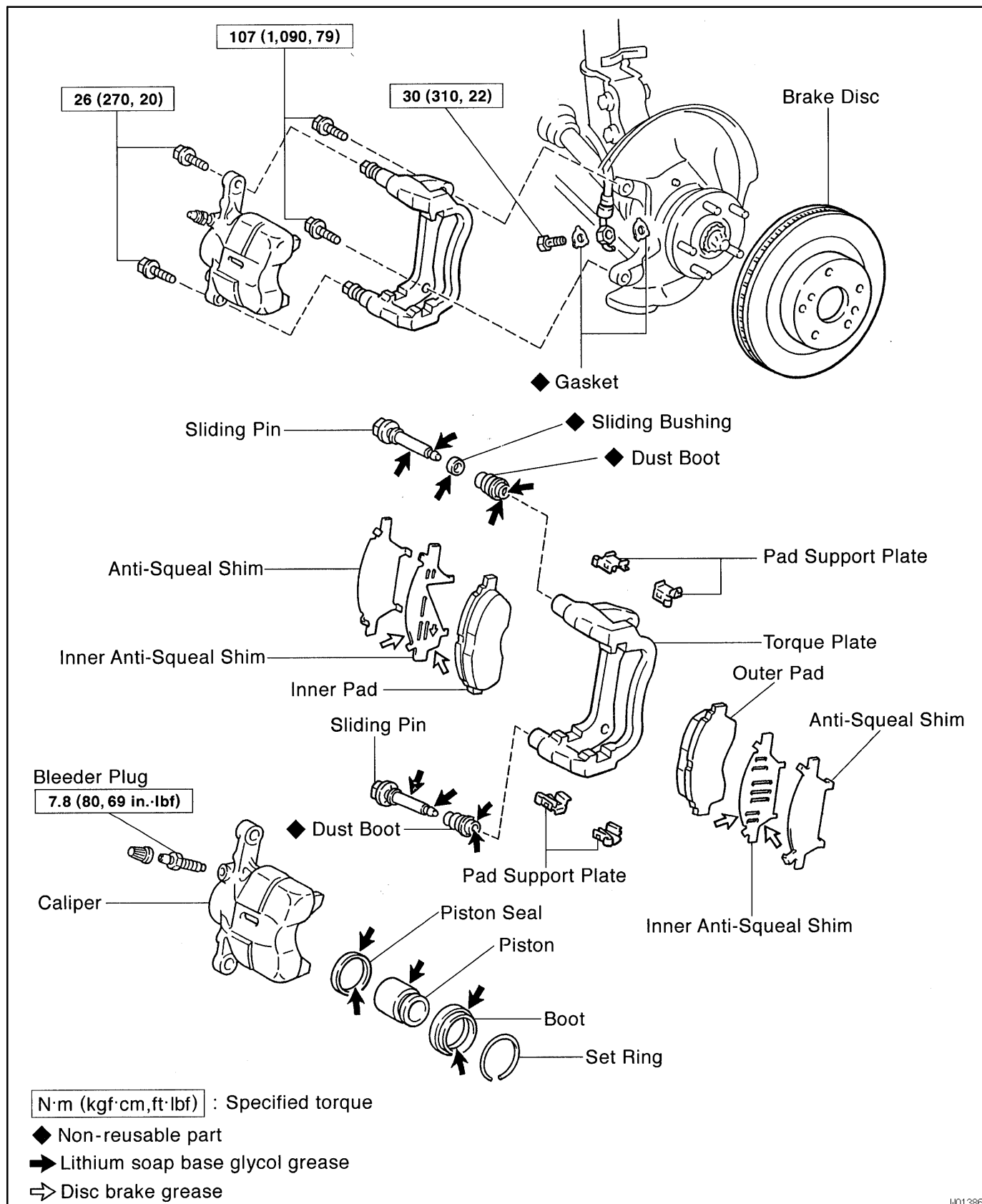
Check and adjust the brake pedal, then tighten the clevis lock nut.

Torque: 25 N·m (260 kgf·cm, 19 ft·lbf)

- DO OPERATIONAL CHECK (See page BR-16)**

FRONT BRAKE PAD COMPONENTS

BR02Y-11

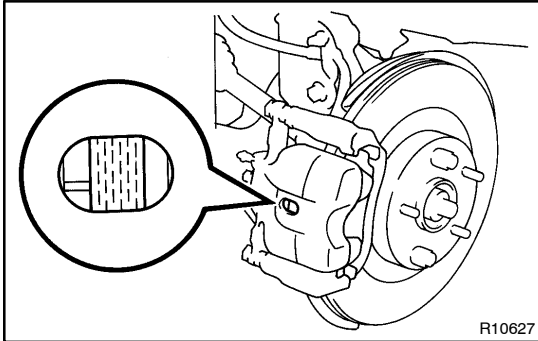


W01386

REPLACEMENT

1. REMOVE FRONT WHEEL

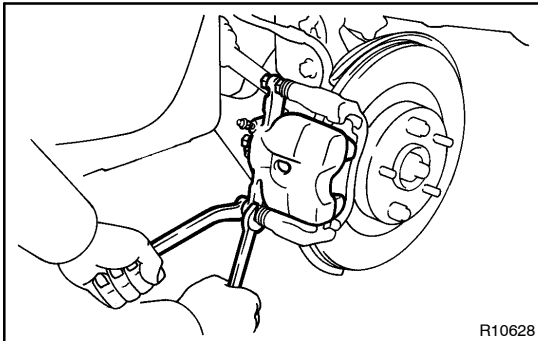
Remove the wheel and temporarily fasten the disc with the hub nuts.



2. INSPECT PAD LINING THICKNESS

Check the pad thickness through the caliper inspection hole and replace the pads if they are not within the specification.

Minimum thickness: 1.0 mm (0.039 in.)



3. LIFT UP CALIPER

- (a) Remove the flexible hose from the shock absorber bracket.
- (b) Hold the sliding pin on the bottom and loosen the installation bolt.
- (c) Remove the installation bolt.
- (d) Lift up the caliper and suspend it securely.

HINT:

Do not disconnect the flexible hose from the caliper.

4. REMOVE THESE PARTS:

- 2 brake pads
- 4 anti-squeal shims
- 4 pad support plates

NOTICE:

The support plates can be used again provided that they have sufficient rebound, no deformation, cracks or wear, and have had all rust, dirt and foreign particles cleaned off.

5. CHECK DISC THICKNESS AND RUNOUT

(See page [BR-26](#))

6. INSTALL 4 PAD SUPPORT PLATES

7. INSTALL NEW PADS

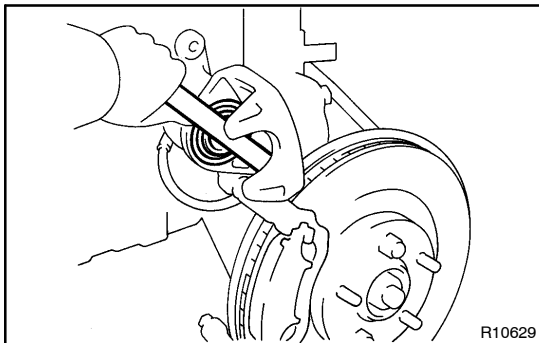
NOTICE:

When replacing worn pads, the anti-squeal shims must be replaced together with the pads.

- (a) Apply disc brake grease to both side of the inner anti-squeal shims (See page [BR-20](#)).
- (b) Install the anti-squeal shim to the inner pad.
- (c) Install the inner pad with pad wear indicator plate facing upward.
- (d) Install the outer pad.

NOTICE:

There should be no oil or grease adhering to the friction surfaces of the pads or the disc.



8. INSTALL CALIPER

- (a) Draw out a small amount of brake fluid from the reservoir.
- (b) Press in the piston with a hammer handle or an equivalent.

HINT:

If the piston is difficult to push in, loosen the bleeder plug and push in the piston while letting some brake fluid escape.

- (c) Install the caliper.
- (d) Hold the sliding pin and torque the installation bolt.

Torque: 26 N·m (270 kgf·cm, 20 ft·lbf)

- (e) Install the flexible hose bracket.

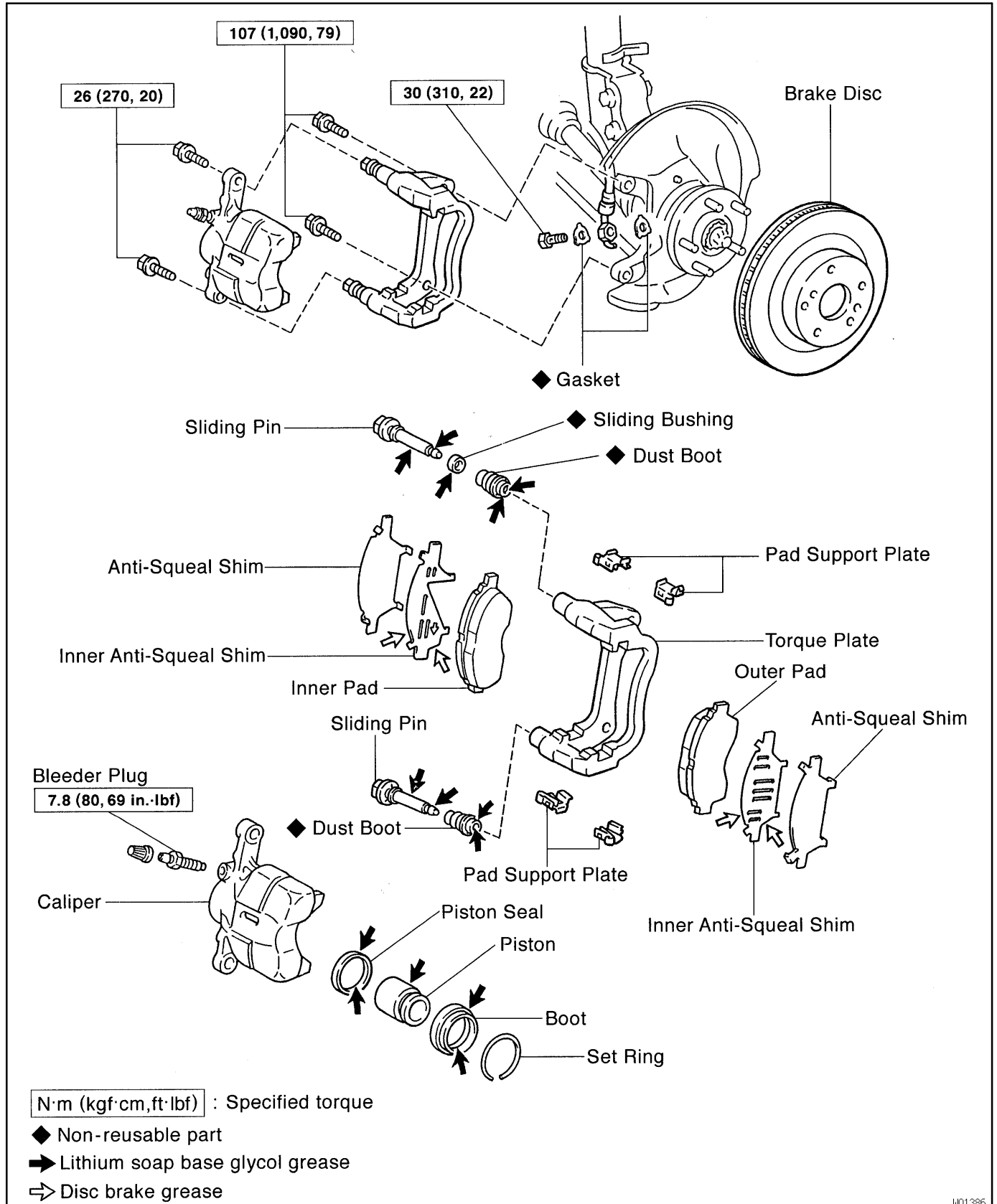
Torque: 33 N·m (340 kgf·cm, 25 ft·lbf)

9. INSTALL FRONT WHEEL

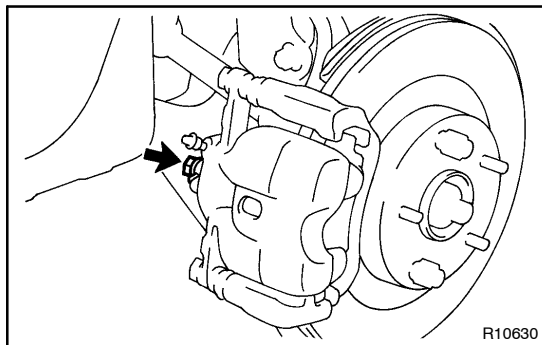
10. CHECK THAT FLUID LEVEL IS AT MAX LINE

FRONT BRAKE CALIPER COMPONENTS

BR032-14



W01386



REMOVAL

1. DISCONNECT FLEXIBLE HOSE

- (a) Remove the union bolt and 2 gaskets from the caliper, then disconnect the flexible hose from the caliper.

Torque: 30 N·m (310 kgf·cm, 22 ft·lbf)

HINT:

At the time of installation, please refer to the following item. Install the flexible hose lock securely in the lock hole in the caliper.

- (b) Use a container to catch the brake fluid as it drains out.

2. REMOVE CALIPER

- (a) Hold the sliding pin and loosen the 2 installation bolts.

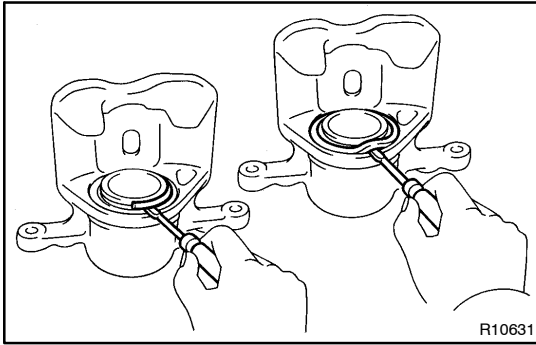
Torque: 26 N·m (270 kgf·cm, 20 ft·lbf)

- (b) Remove the 2 installation bolts.

- (c) Remove the caliper from the torque plate.

3. REMOVE THESE PARTS:

- 2 brake pads with anti-squeal shims
- 4 pad support plates



DISASSEMBLY

1. REMOVE CYLINDER BOOT SET RING AND CYLINDER BOOT

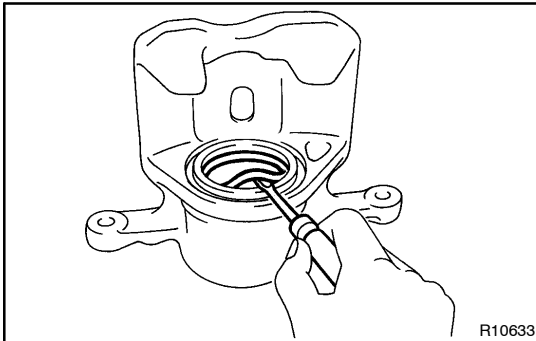
Using a screwdriver, remove the cylinder boot set ring and cylinder boot.

2. REMOVE PISTON

- Put a piece of cloth or equivalent between the piston and the caliper.
- Use compressed air to remove the piston from the cylinder.

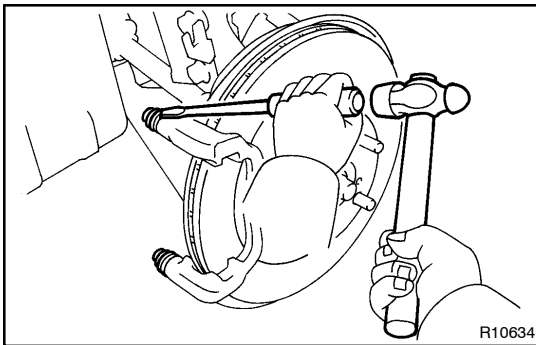
CAUTION:

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



3. REMOVE PISTON SEAL

Using a screwdriver, remove the piston seal.



4. REMOVE SLIDING PINS AND DUST BOOTS

- Remove the 2 sliding pins from the torque plate.

NOTICE:

At the time of reassembly, please refer to the following item.

Insert the sliding pin with the sliding bushing into the upper side.

- Using a screwdriver and a hammer, tap out the 2 dust boots.

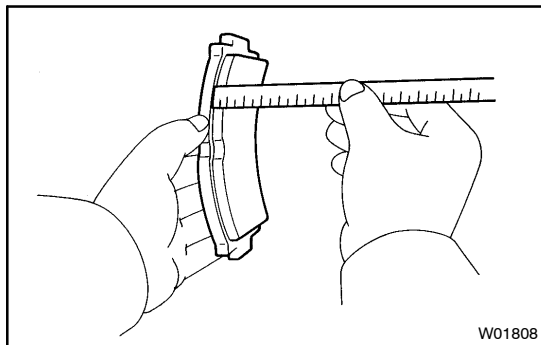
HINT:

At the time of reassembly, please refer to the following item. Use a 21 mm socket and tap in 2 new dust boots into the torque plate.

NOTICE:

At the time of reassembly, please refer to the following item.

Confirm that the metal plate portion of the dust boot fits snugly in the torque plate.



INSPECTION

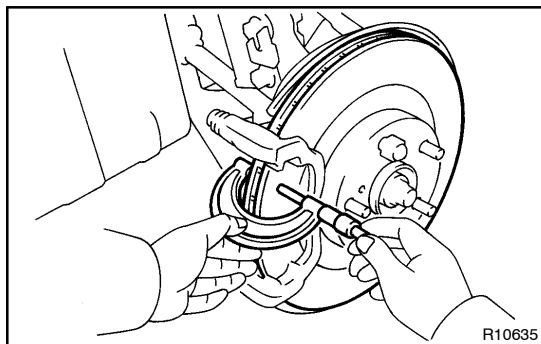
1. MEASURE PAD LINING THICKNESS

Using a ruler, measure the pad lining thickness.

Standard thickness: 12.0 mm (0.472 in.)

Minimum thickness: 1.0 mm (0.039 in.)

Replace the pad if the pad's thickness is at the minimum thickness or less, or if the pad has severe and uneven wear.



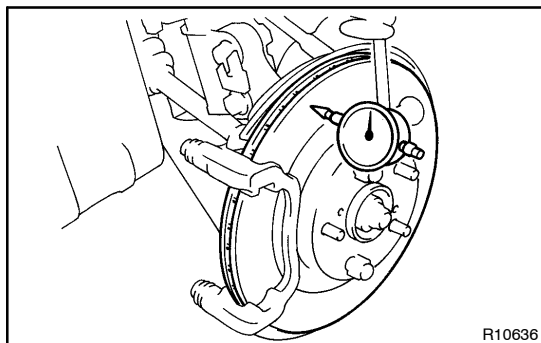
2. MEASURE DISC THICKNESS

Using a micrometer, measure the disc thickness.

Standard thickness: 18.0 mm (0.709 in.)

Minimum thickness: 16.0 mm (0.630 in.)

Replace the disc if the thickness of the disc is at the minimum thickness or less. Replace the disc or grind it on a lathe if it is scored or is worn unevenly.

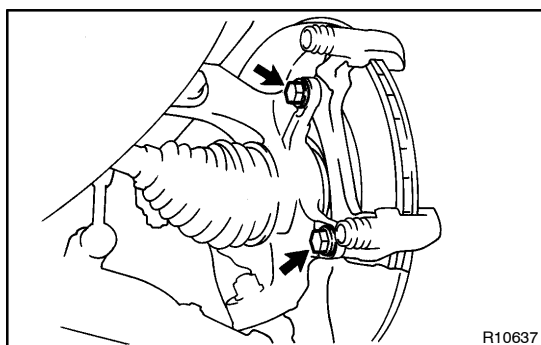


3. MEASURE DISC RUNOUT

Using a dial indicator, measure the disc runout at a position 10 mm (0.39 in.) from the outside edge.

Maximum disc runout: 0.05 mm (0.0020 in.)

If the disc's runout is at the maximum value or greater, check the bearing play in the axial direction and check the axle hub runout (See page [SA-10](#)). If the bearing play and axle hub runout are not abnormal, adjust the disc runout or grind it on a "On-Car" brake lathe.



4. IF NECESSARY, ADJUST DISC RUNOUT

- (a) Remove the 2 bolts and torque plate from the knuckle.
- (b) Remove the hub nuts and the disc. Reinstall the disc in the position turned 1/5 from its original position on the hub. Install and torque the hub nuts.

Torque: 103 N·m (1,050 kgf·cm, 76 ft·lbf)

- (c) Remeasure the disc runout. Make a note of the runout and the disc's position on the hub.
- (d) Repeat (b) and (c) until the disc is installed on the 3 remaining hub positions.

- If the minimum runout recorded in (b) and (c) is less than 0.05 mm (0.0020 in.), install the disc in that position.
- If the minimum runout recorded in (b) and (c) is greater than 0.05 mm (0.0020 in.), replace the disc and repeat step 3.

- (e) Install the torque plate and torque the mounting bolts.

Torque: 107 N·m (1,090 kgf·cm, 79 ft·lbf)

REASSEMBLY

Reassembly is in the reverse order of disassembly (See page [BR-25](#)).

NOTICE:

Apply lithium soap base glycol grease to the parts indicated by the arrows (See page [BR-23](#)).

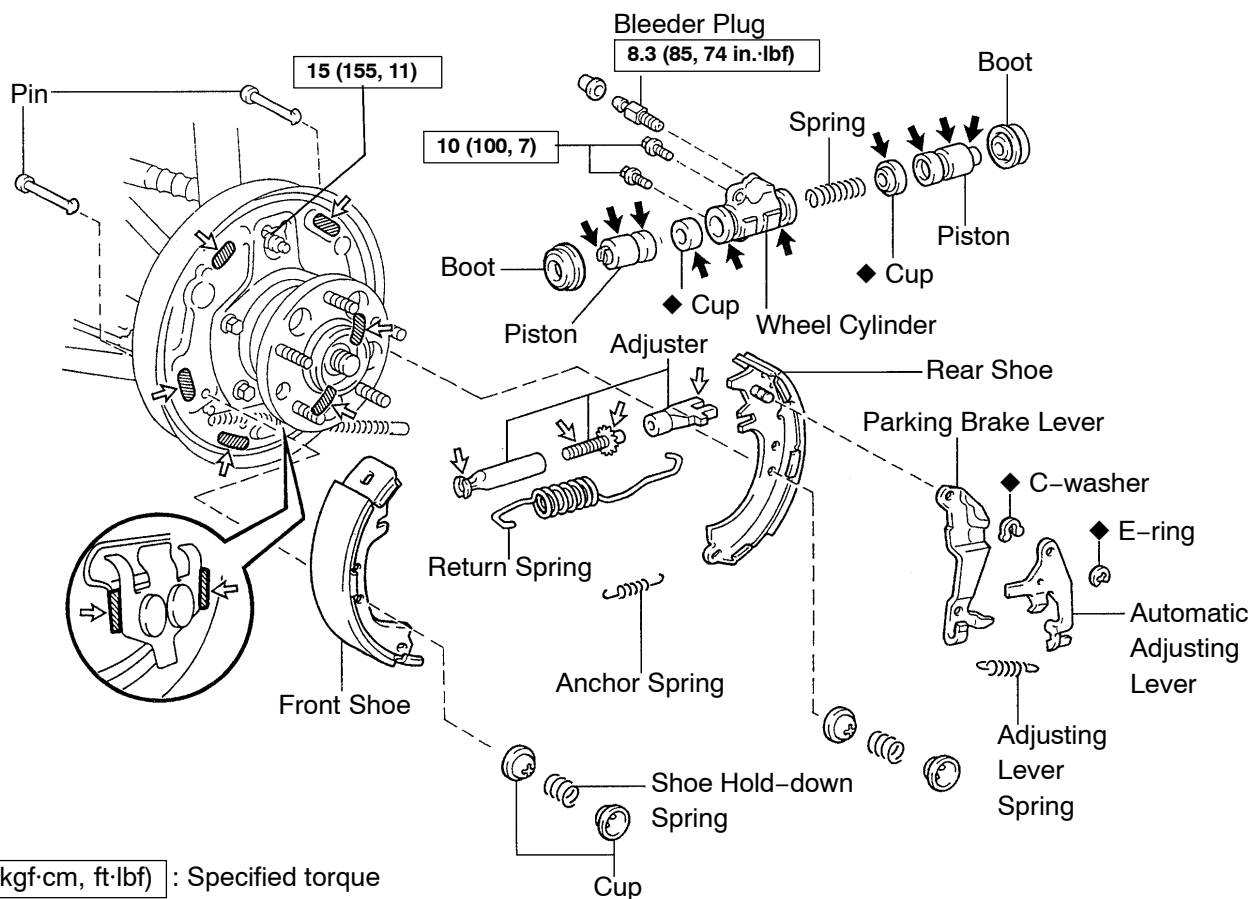
INSTALLATION

Installation is in the reverse order of removal (See page [BR-24](#)).

**AFTER INSTALLATION, FILL BRAKE RESERVOIR WITH BRAKE FLUID, BLEED BRAKE SYSTEM
(See page [BR-4](#)) AND CHECK FOR LEAKS**

REAR DRUM BRAKE COMPONENTS

BR03E-02



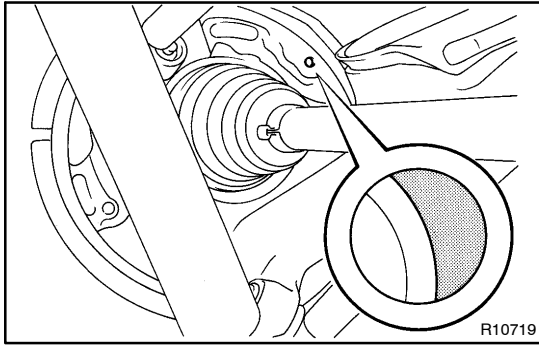
N·m (kgf·cm, ft·lbf) : Specified torque

◆ Non-reusable part

➡ Lithium soap base glycol grease

⇒ High temperature grease

W01385



REMOVAL

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.

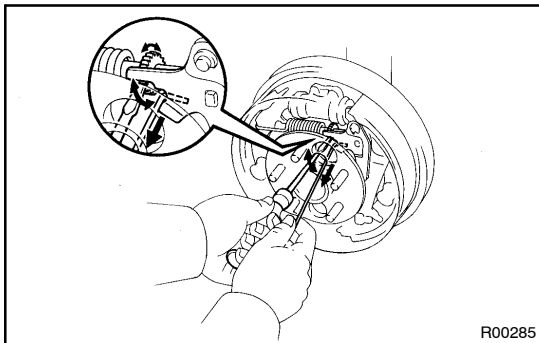
Minimum thickness: 1.0 mm (0.039 in.)

2. REMOVE REAR WHEEL

3. REMOVE BRAKE DRUM

HINT:

If the brake drum cannot be removed easily, do the following steps.



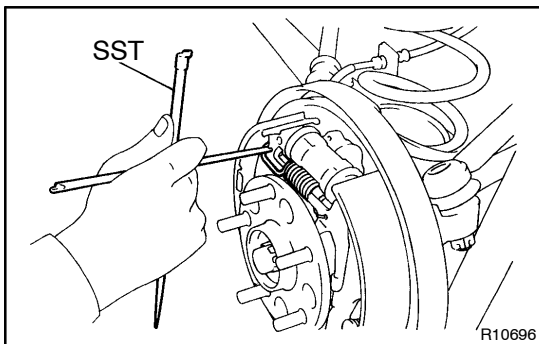
(a) Insert a bent wire or an equivalent through the hole in the brake drum, and hold the automatic adjusting lever away from the adjuster.

(b) Using a screwdriver, reduce the brake shoe adjustment by turning the adjuster.

HINT:

At the time of installation, please refer to the following item.

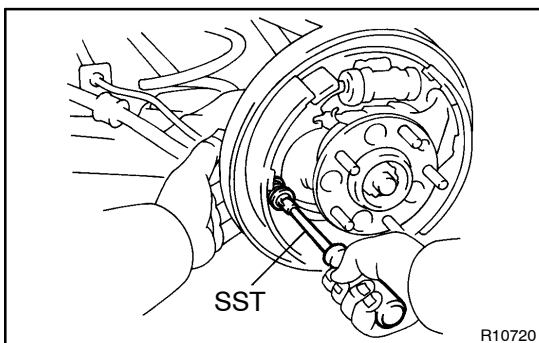
Align the hub's large hole next to the small hole in the clockwise direction with the drum's plug hole.



4. REMOVE FRONT SHOE

(a) Using SST, remove the return spring.

SST 09703-30010

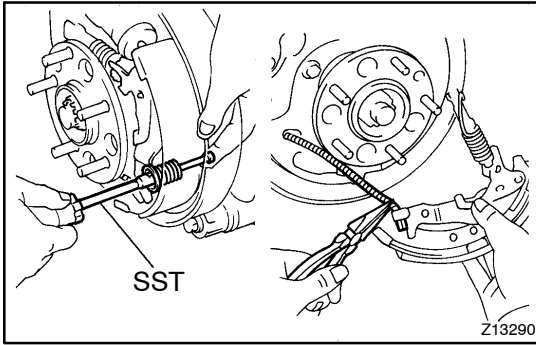


(b) Using SST, remove the shoe hold-down spring, cups and pin.

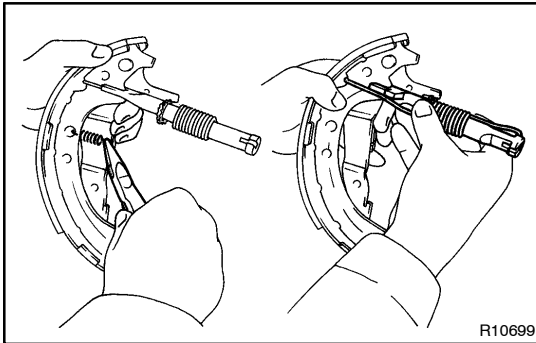
SST 09718-00010

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

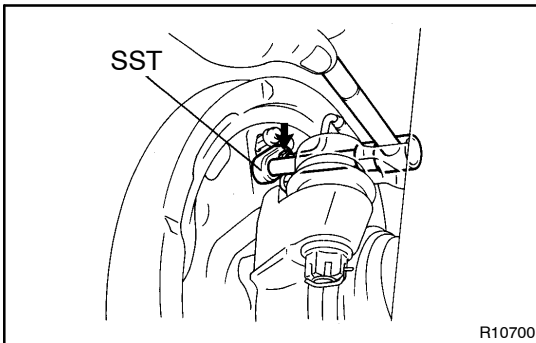
(d) Remove the anchor spring from the rear shoe.

**5. REMOVE REAR SHOE**

- (a) Using SST, remove the shoe hold-down spring, cups and pin.
SST 09718-00010
- (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 together with the return spring.

**7. DISCONNECT BRAKE LINE FROM WHEEL CYLINDER**

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

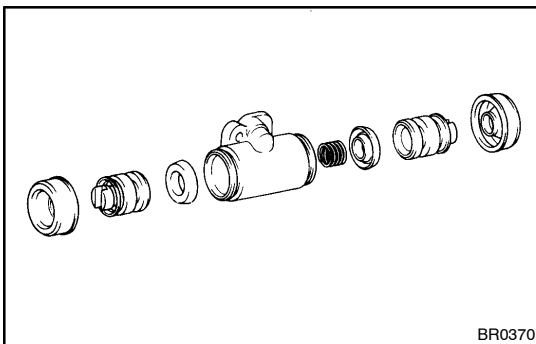
SST 09023-00100

Torque: 15 N·m (155 kgf·cm, 11 ft·lbf)

8. REMOVE WHEEL CYLINDER

Remove the 2 bolts and the wheel cylinder.

Torque: 10 N·m (100 kgf·cm, 7 ft·lbf)

**9. DISASSEMBLE WHEEL CYLINDER**

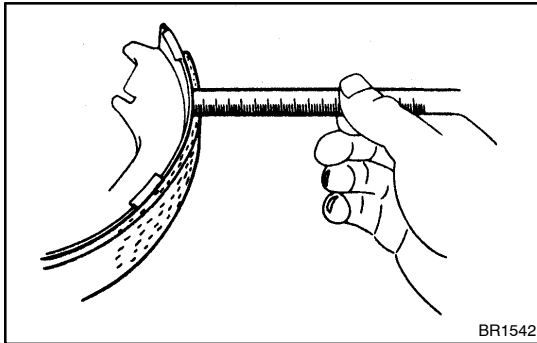
Remove these parts from the wheel cylinder.

- 2 boots
- 2 pistons
- 2 piston cups
- Spring

INSPECTION

1. INSPECT DISASSEMBLED PARTS

Inspect the disassembled parts for wear, rust or damage.



2. MEASURE BRAKE SHOE LINING THICKNESS

Using a ruler, measure the shoe lining thickness.

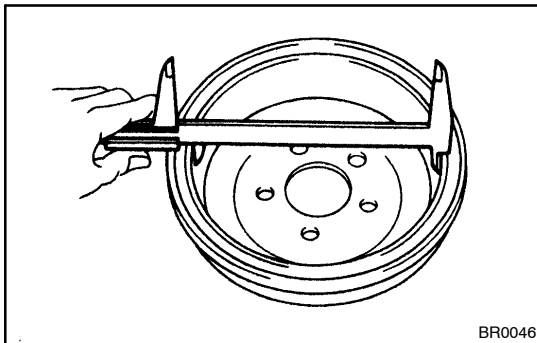
Standard thickness: 5.0 mm (0.197 in.)

Minimum thickness: 1.0 mm (0.039 in.)

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

HINT:

If a brake shoe needs replacing, the brake shoes must be replaced as a set.



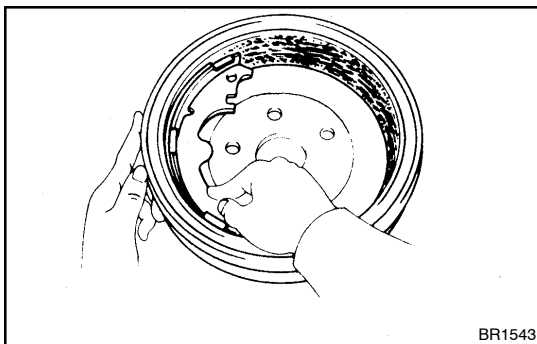
3. MEASURE BRAKE DRUM INSIDE DIAMETER

Using a vernier calipers, measure the inside diameter of the drum.

Standard inside diameter: 228.6 mm (9.000 in.)

Maximum inside diameter: 230.6 mm (9.079 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.

INSTALLATION

Installation is in the reverse order of removal (See page [BR-30](#)).

1. AFTER INSTALLATION, FILL BRAKE RESERVOIR WITH BRAKE FLUID, BLEED BRAKE SYSTEM (See page [BR-4](#)) AND CHECK FOR LEAKS

NOTICE:

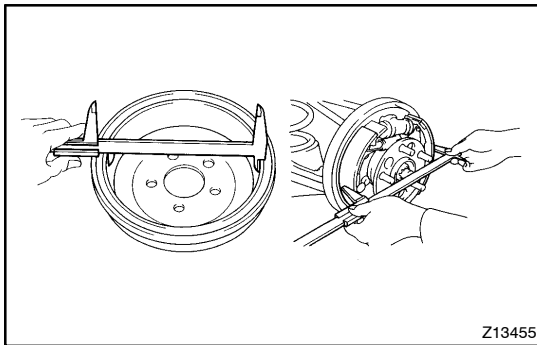
Apply lithium soap base glycol grease and high temperature grease to the parts indicated by the arrows (See page [BR-29](#)).

2. CHECK OPERATION OF AUTOMATIC ADJUSTING MECHANISM

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

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

- (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 clicking sound can no longer be heard.



3. 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.)

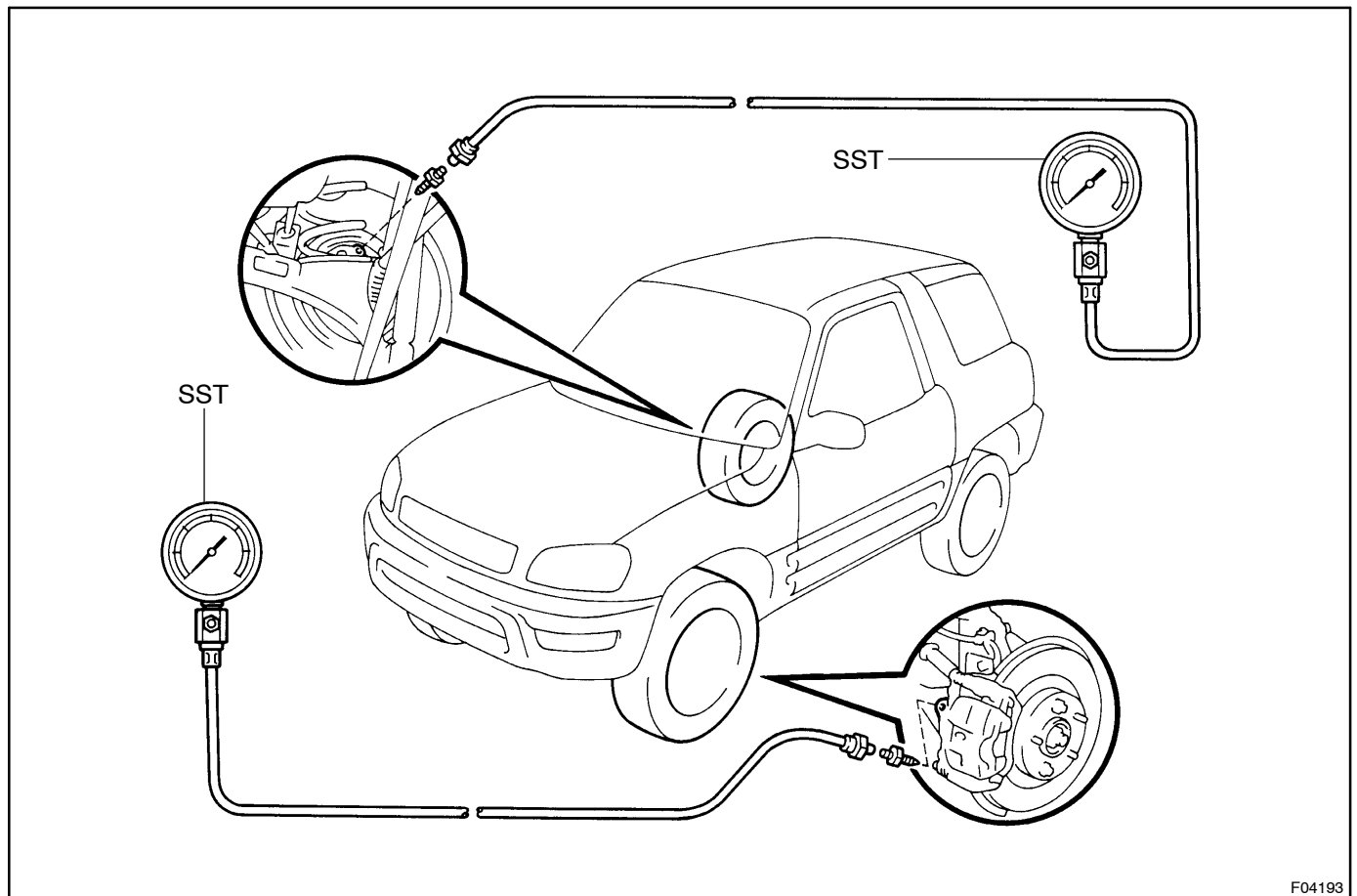
If incorrect, check the parking brake system.

PROPORTIONING VALVE (P VALVE) ON-VEHICLE INSPECTION

BR031-02

1. INSTALL LSPV GAUGE (SST) AND BLEED AIR

SST 09709-29018



F04193

2. RAISE MASTER CYLINDER PRESSURE AND CHECK REAR WHEEL CYLINDER PRESSURE

Master cylinder pressure	Rear wheel cylinder pressure
2,452 kPa (25 kgf/cm ² , 356 psi)	2,452 kPa (25 kgf/cm ² , 356 psi)
7,845 kPa (80 kgf/cm ² , 1,138 psi)	3,800 kPa (38.75 kgf/cm ² , 551 psi)

When inspecting the fluid pressure, inspect the left front and right rear together, and the right front and left rear together.

If the rear wheel cylinder pressure is incorrect, replace the P valve assembly.

3. BLEED BRAKE SYSTEM (See page [BR-4](#))

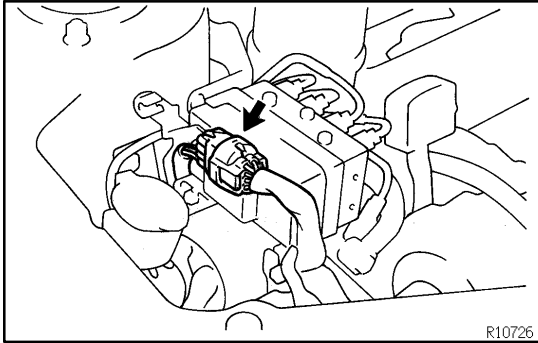
4. CHECK FOR LEAKS

ABS ACTUATOR ON-VEHICLE INSPECTION

BR03N-04

1. INSPECT BATTERY POSITIVE VOLTAGE

Battery positive voltage: 10 - 14 V

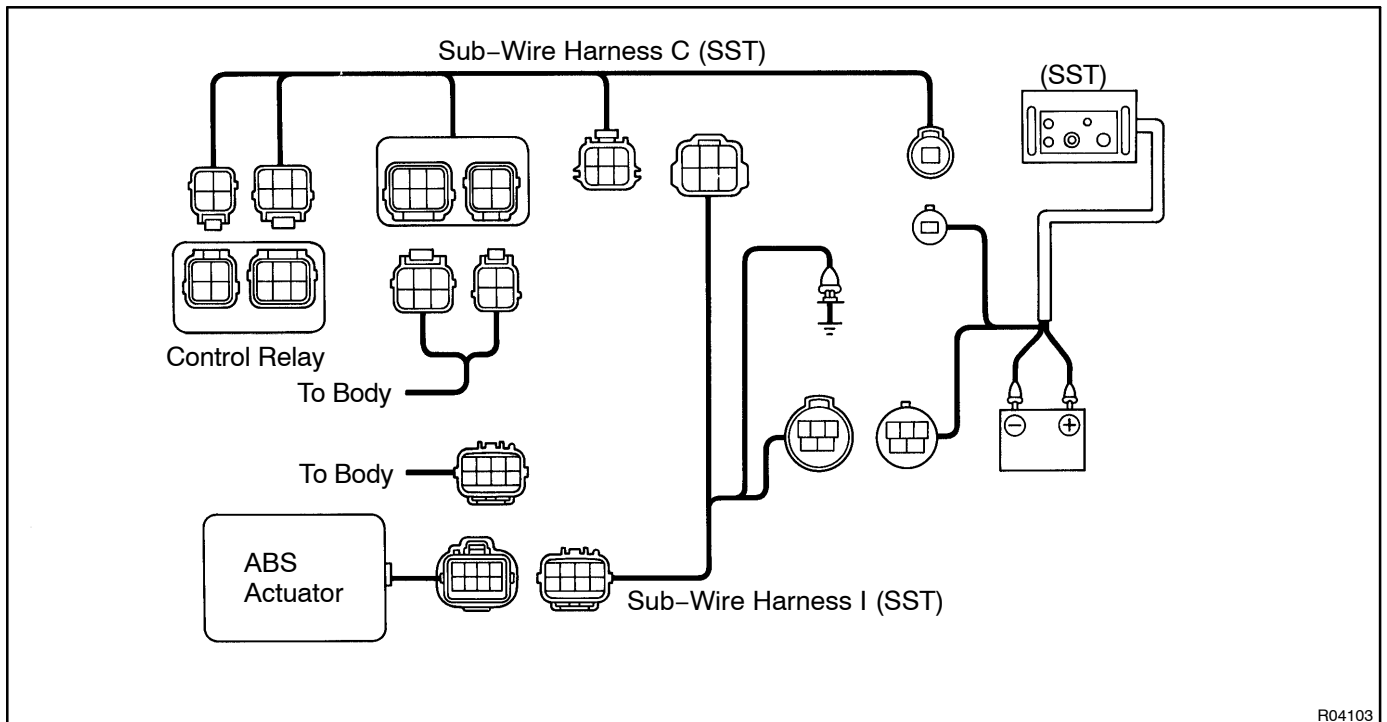


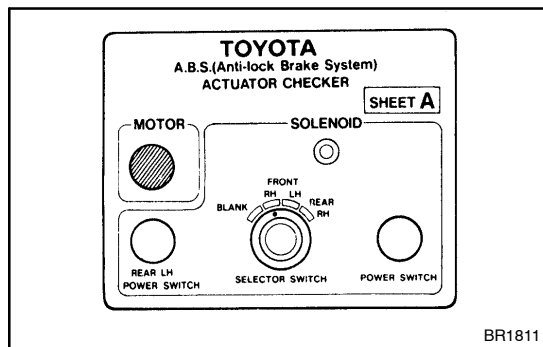
2. DISCONNECT CONNECTORS

- (a) Disconnect the 2 connectors from the control relay.
- (b) Disconnect the connector from the actuator.

3. CONNECT ACTUATOR CHECKER (SST) TO ACTUATOR

- (a) Connect the actuator checker (SST) to the actuator, control relay and body side wire harness through the sub-wire harness C and I (SST) as shown.
SST 09990-00150, 09990-00200, 09990-00300
- (b) Connect the red cable of the checker to the battery positive (+) terminal and black cable to the negative (-) terminal. Connect the black cable of the sub-wire harness to the battery negative (-) terminal or body ground.

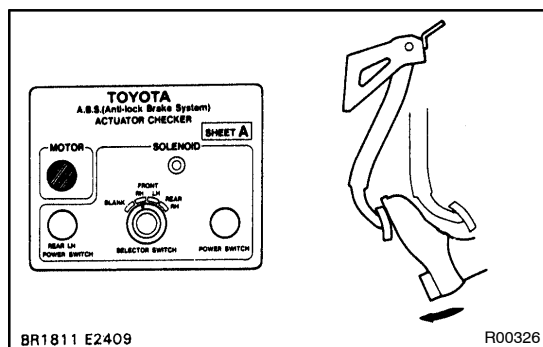




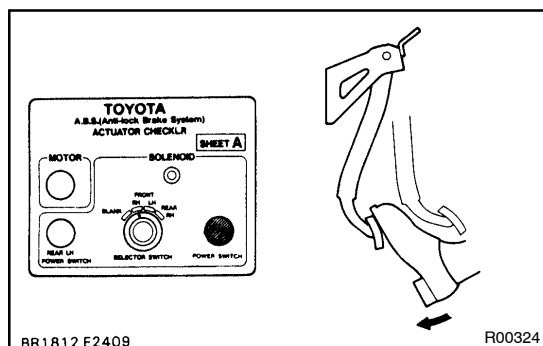
- (c) Place the "SHEET A" (SST) on the actuator checker.
SST 09990-00163

4. INSPECT BRAKE ACTUATOR OPERATION OF FRONT RH WHEEL

- (a) Start the engine, and run it at idle.
(b) Turn the selector switch of the actuator checker to "FRONT RH" position.
(c) Push and hold in the MOTOR switch for a few seconds. Make sure that you can hear the motor running.



- (d) Depress the brake pedal and hold it for about 15 seconds, and check that the brake pedal does not go down.
(e) With your foot still applying onto the brake pedal, push MOTOR switch and check that the pedal does not pulsate.

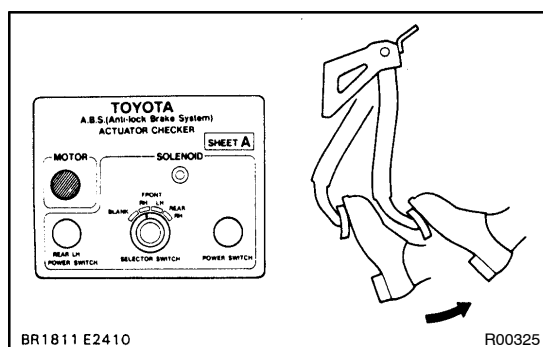


- (f) Depress the brake pedal and hold it. As you hold the pedal down, push and hold in the POWER SWITCH for a few seconds. Check that the pedal does not go down.

NOTICE:

Do not keep the POWER SWITCH pushed for more than 10 seconds.

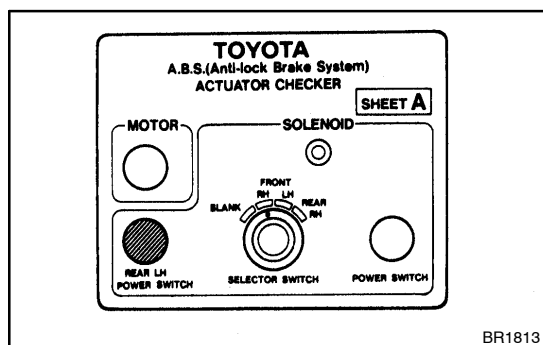
- (g) With your foot still applying onto the brake pedal, release the POWER SWITCH and check that the pedal goes down.



- (h) With your foot still applying onto the brake pedal, push the MOTOR switch and check that the brake pedal returns.
(i) Release the brake pedal.

5. INSPECT FRONT LH WHEEL

- (a) Turn the selector switch to "REAR RH" position.
(b) Repeating (c) to (i) in the step 4, check the actuator operating similarly.



6. INSPECT REAR RH WHEEL

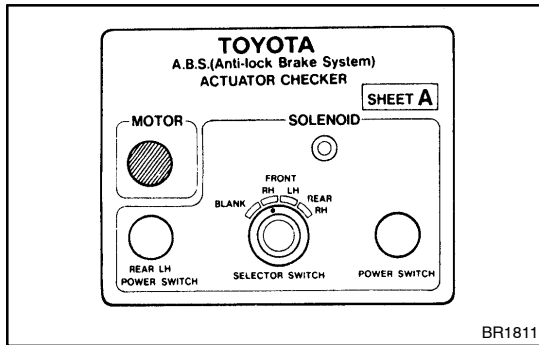
- (a) Turn the selector switch to "FRONT LH" position.
(b) Repeating (c) to (i) in the step 4, check the actuator operation similarly.

7. INSPECT REAR LH WHEEL

Repeating (c) to (i) in the step 4, check the actuator operation similarly.

HINT:

When inspecting the "REAR LH" position, push the REAR LH switch instead of the POWER SWITCH. This makes it possible to inspect wherever the selector switch position indicates.

**8. PUSH MOTOR SWITCH**

- (a) Push and hold in the MOTOR switch for a few seconds.
- (b) Stop the engine.

9. DISCONNECT ACTUATOR CHECKER (SST) FROM ACTUATOR

Remove the "SHEET A" (SST) and disconnect the actuator checker (SST) and sub-wire harness (SST) from the actuator, control relay and body side wire harness.

SST 09990-00150, 09990-00163, 09990-00200,
09990-00300

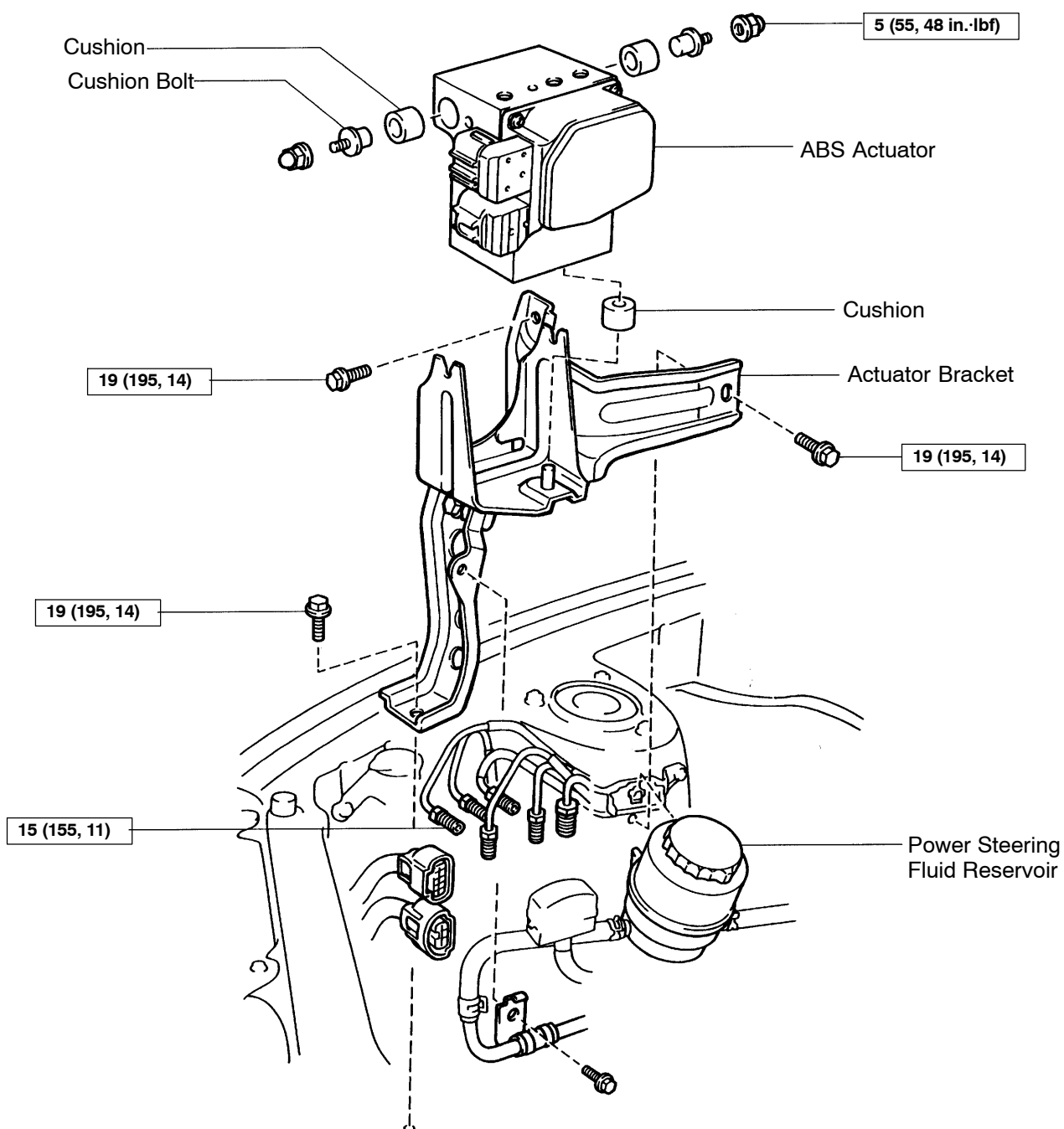
10. CONNECT CONNECTORS

- (a) Connect the connector to the actuator.
- (b) Connect the 2 connectors to the control relay.

11. CLEAR DTC (See page [DI-234](#))

COMPONENTS

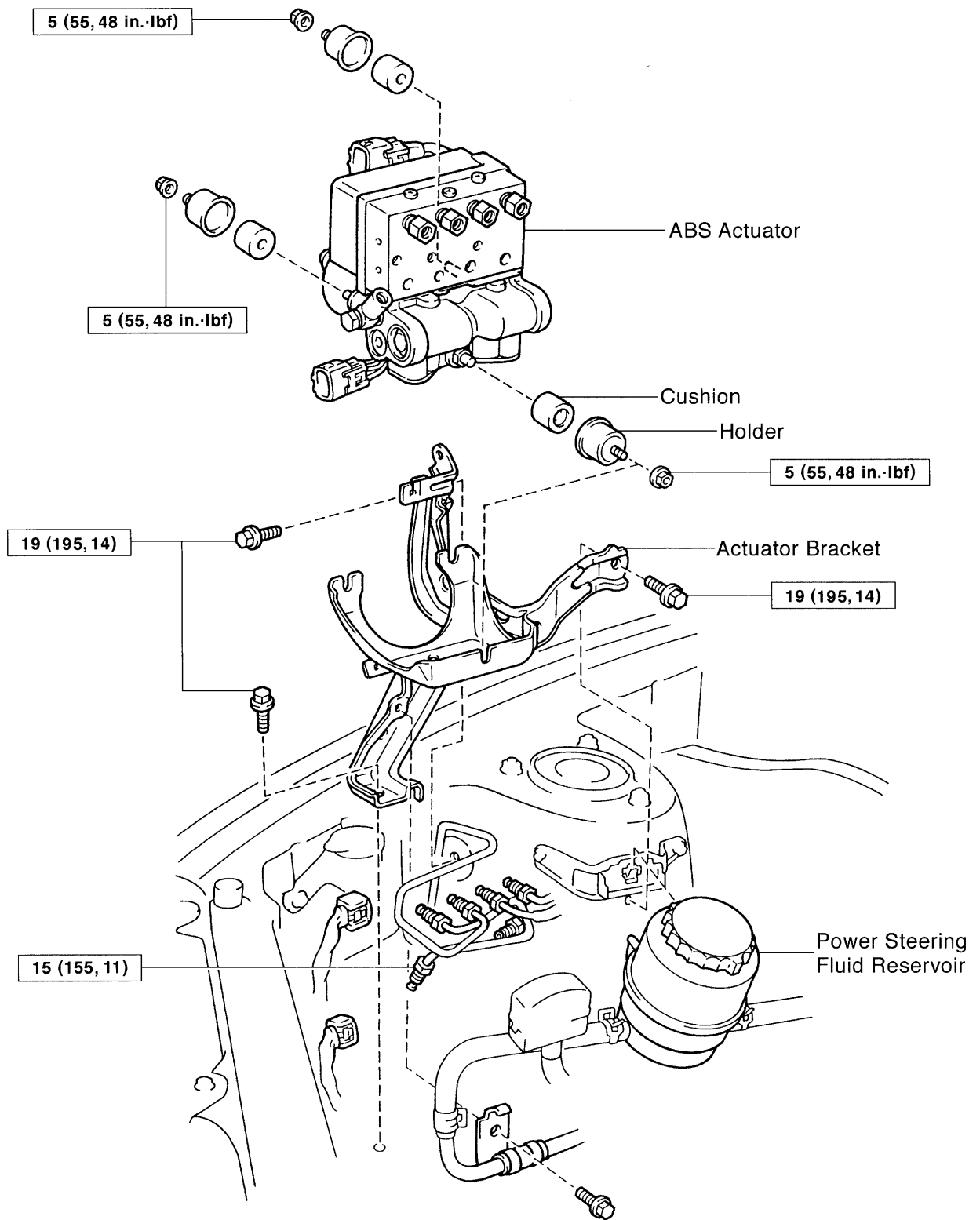
2WD



N·m (kgf·cm, ft·lbf) : Specified torque

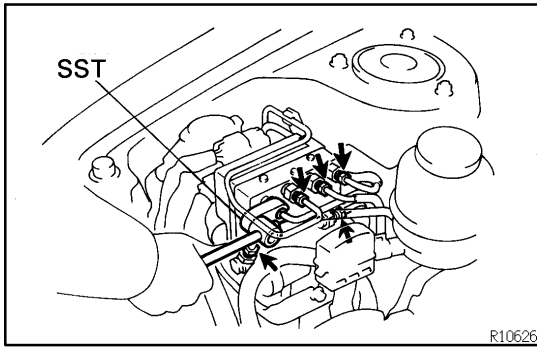
W04219

4WD



N·m (kgf·cm, ft·lbf) : Specified torque

W01388



REMOVAL

1. DISCONNECT BRAKE LINES

Using SST, disconnect the 6 brake lines from the ABS actuator.

SST 09023-00100

Torque: 15 N·m (155 kgf·cm, 11 ft·lbf)

2. DISCONNECT POWER STEERING FLUID RESERVOIR

(a) Remove the bolt and disconnect the PS hose from the actuator bracket.

(b) Disconnect the PS fluid reservoir.

3. REMOVE ABS ACTUATOR ASSEMBLY

(a) Disconnect the 2 connectors.

(b) Remove the 3 bolts and ABS actuator assembly.

Torque: 19 N·m (195 kgf·cm, 14 ft·lbf)

4. 2WD

REMOVE ABS ACTUATOR

Remove the 2 nuts and actuator from the actuator bracket.

Torque: 5 N·m (55 kgf·cm, 48 in·lbf)

5. 4WD

REMOVE ABS ACTUATOR

Remove the 3 nuts and actuator from the actuator bracket.

Torque: 5 N·m (55 kgf·cm, 48 in·lbf)

6. 2WD

REMOVE 2 CUSHION BOLTS AND 3 CUSHIONS

7. 4WD

REMOVE 3 HOLDERS AND 3 CUSHIONS

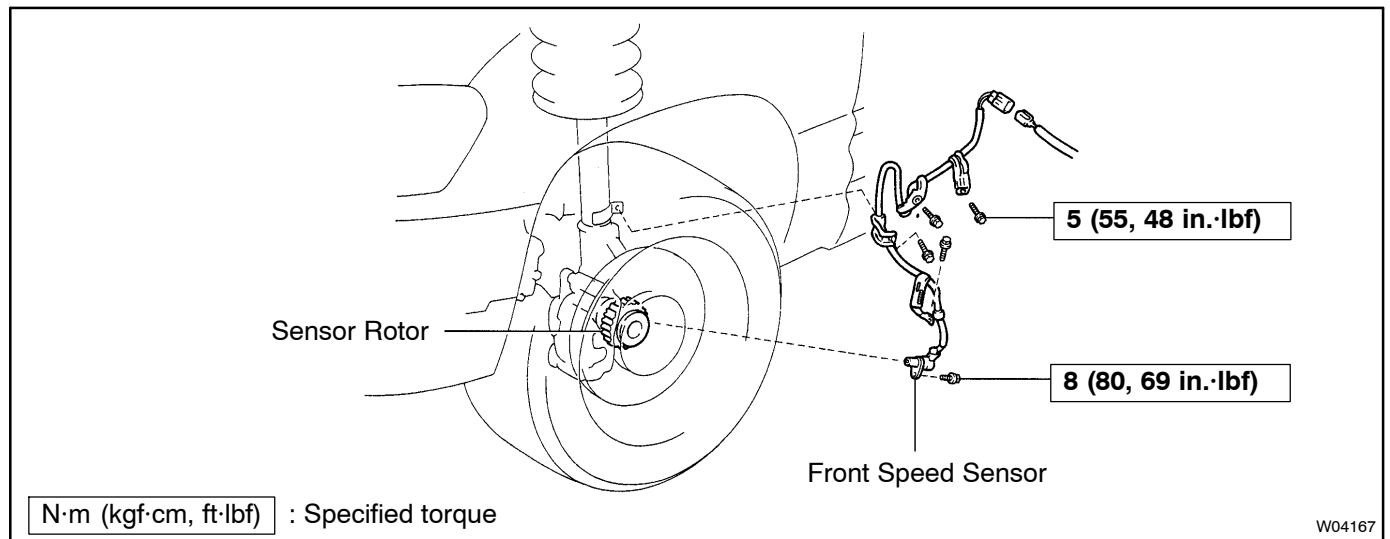
INSTALLATION

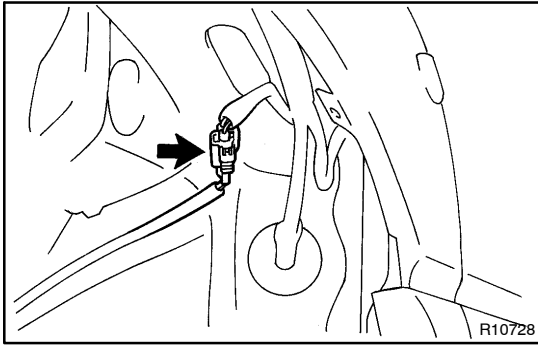
Installation is in the reverse order of removal (See page [BR-41](#)).

**AFTER INSTALLATION, FILL BRAKE RESERVOIR WITH BRAKE FLUID, BLEED BRAKE SYSTEM
(See page [BR-4](#)) AND CHECK FOR LEAKS**

FRONT SPEED SENSOR COMPONENTS

BR03V-08

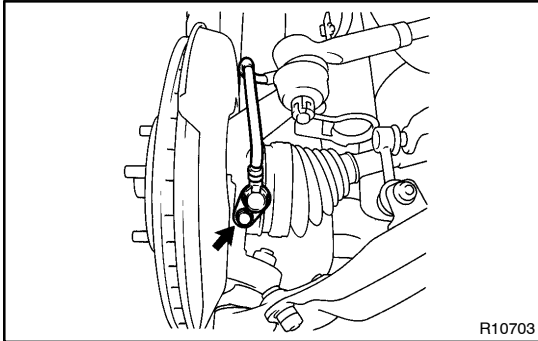




REMOVAL

1. DISCONNECT SPEED SENSOR CONNECTOR

- (a) Remove the fender liner.
- (b) Disconnect the speed sensor connector.



2. REMOVE SPEED SENSOR

- (a) Remove the 4 clamp bolts holding the sensor harness to the body, shock absorber and steering knuckle.
Torque: 5 N·m (55 kgf·cm, 48 in·lbf)
- (b) Remove the speed sensor from the steering knuckle.
Torque: 8 N·m (80 kgf·cm, 69 in·lbf)

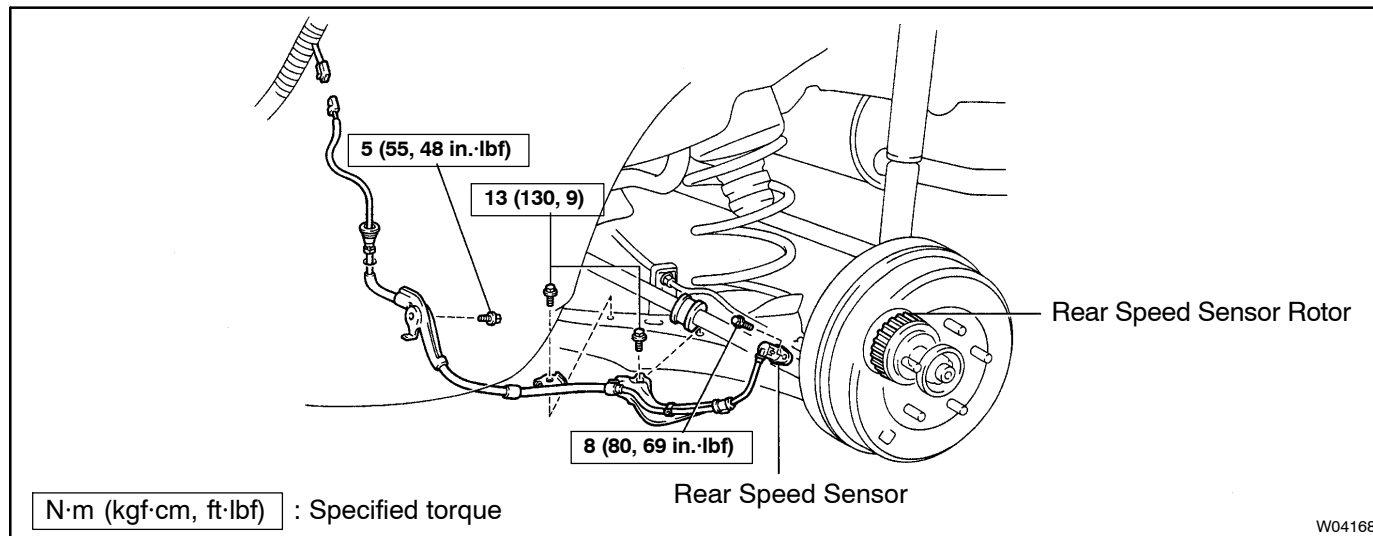
INSTALLATION

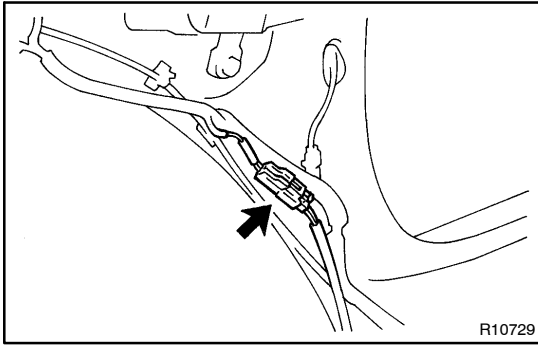
Installation is in the reverse order of removal (See page [BR-43](#)).

AFTER INSTALLATION, CHECK SPEED SENSOR SIGNAL (See page [DI-234](#))

REAR SPEED SENSOR COMPONENTS

BR03Y-07





REMOVAL

1. DISCONNECT SPEED SENSOR CONNECTOR

- Remove the seat cushion and rear side trim.
- Disconnect the speed sensor connector, and pull out the sensor wire harness with grommet.
- Disconnect the parking brake cable from the suspension arm.
- Remove the 3 clamp bolts holding the sensor wire harness to the body and suspension arm.

Torque:

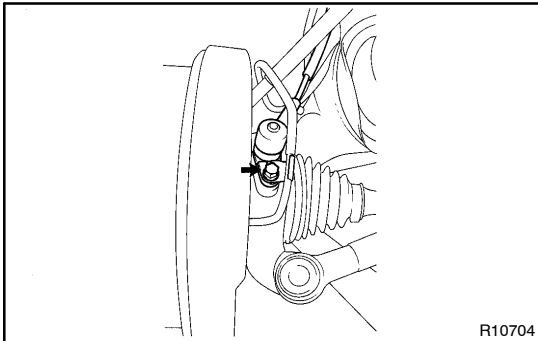
To body: 5.0 N·m (55 kgf·cm, 49 in·lbf)

To suspension arm: 13 N·m (130 kgf·cm, 9 ft·lbf)

2. 2WD:

REMOVE SPEED SENSOR WITH AXLE HUB

(See page [SA-52](#))



3. 4WD:

REMOVE SPEED SENSOR

Remove the speed sensor from the axle carrier.

Torque: 8.0 N·m (80 kgf·cm, 69 in·lbf)

INSTALLATION

Installation is in the reverse order of removal (See page [BR-46](#)).

AFTER INSTALLATION, CHECK SPEED SENSOR SIGNAL (See page [DI-234](#))