

BRAKE SYSTEM

BR0J9-01

GENERAL DESCRIPTION

- 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.
- 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 precautions in the IN section.

TROUBLESHOOTING

PROBLEM SYMPTOMS TABLE

BR0JA-02

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
Low pedal or spongy pedal	1. Fluid leaks for brake system 2. Air in brake system 3. Piston seals (Worn or damaged) 4. Hydraulic brake booster (Faulty)	DI-351 BR-4 BR-18 BR-27 BR-38
Brake drag	1. Brake pedal freeplay (Minimum) 2. Parking brake pedal travel (Out of adjustment) 3. Parking brake wire (Sticking) 4. Parking brake (Shoe clearance out of adjustment) 5. Pad (Cracked or distorted) 6. Piston (Stuck) 7. Piston (Frozen) 8. Tension or return spring (Faulty) 9. Hydraulic brake booster (Faulty)	BR-9 BR-11 – BR-37 BR-18 BR-24 BR-18 BR-27 BR-18 BR-27 BR-33 BR-38
Brake pull	1. Piston (Stuck) 2. Pad (Cracked or distorted) 3. Piston (Frozen) 4. Disc (Scored) 5. Pad (Cracked or distorted) 6. Hydraulic brake booster (Faulty)	BR-18 BR-27 BR-18 BR-24 BR-18 BR-27 BR-18 BR-27 BR-18 BR-24 BR-38
Hard pedal but brake inefficient	1. Fluid leaks for brake system 2. Air in brake system 3. Pad (Worn) 4. Pad (Cracked or distorted) 5. Pad (Oily) 6. Pad (Glazed) 7. Disc (Scored) 8. Hydraulic brake booster (Faulty)	DI-351 BR-4 BR-18 BR-24 BR-18 BR-24 BR-18 BR-24 BR-18 BR-24 BR-18 BR-27 BR-38

Noise from brakes	1. Pad (Cracked or distorted) 2. Installation bolt (Loose) 3. Disc (Scored) 4. Pad support plate (Loose) 5. Sliding pin (Worn) 6. Pad (Dirty) 7. Pad (Glazed) 8. Tension or return spring (Faulty) 9. Anti-squeal shim (Damaged) 10. Shoe hold-down spring (Damaged)	BR-19 BR-24 BR-19 BR-24 BR-19 BR-27 BR-19 BR-19 BR-19 BR-24 BR-19 BR-24 BR-33 BR-19 BR-27 BR-33
Noise from hydraulic brake booster (Abnormal pump motor operation noise)	1. Accumulator bracket clearance (Out of adjustment)	BR-56
Brake warning light lights up* ¹ (Parking brake pedal released)	1. Brake fluid level 2. Hydraulic brake booster power supply system (Faulty)	BR-38
Brake warning light lights up and brake warning buzzer sounds* ²	1. Hydraulic brake booster power supply system (Faulty)	BR-38
ABS warning light lights up* ³	1. Anti-lock brake system (Faulty) 2. Hydraulic brake booster power supply system (Faulty)	BR-38

*¹, *³: The light may stay on for about 60 seconds after the engine is started. It is normal if it goes out after a while.

*², *³: Depressing the brake pedal repeatedly may turn on the warning light and buzzer. It is normal if the light goes out and the buzzer stops sounding after a few seconds.

*³: While ABS warning light is ON, both VSC warning light and VSC OFF indicator light come on.

BRAKE FLUID BLEEDING

HINT:

- If any work is done on the brake system or if air in the brake lines is suspected, bleed the air from the system.
- When bleeding, keep the amount of the fluid within the line of reservoir between Min. and Max.

NOTICE:

- **Do not let brake fluid remain on painted surfaces. Wash it off immediately.**
- **With the reservoir cap removed, when depressing the brake pedal, the fluid will spray.**

1. **FILL RESERVOIR WITH BRAKE FLUID**
Fluid: SAE J1703 or FMVSS NO.116 DOT3

2. **BLEED HYDRAULIC BRAKE BOOSTER WITH HAND-HELD TESTER**

HINT:

If the hydraulic brake booster has been disassembled, disconnect the brake line from the hydraulic brake booster or if the reservoir becomes empty, bleed the hydraulic brake booster.

- (a) Turn the ignition switch OFF, depress the brake pedal more than 40 times.
- (b) Turn the ignition switch ON, check that the pump stops after 30 to 40 seconds.

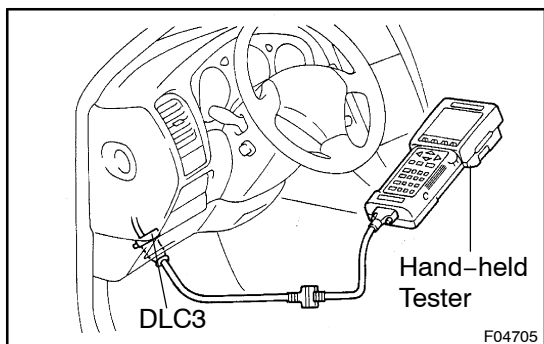
NOTICE:

When the pump does not stop, repeat step (a) and (b) again.

- (c) With the ignition switch remained ON, depress the brake pedal more than 20 times.
- (d) Observe the procedure in step 4 and bleed the right and left front brake caliper.
- (e) Holding the brake pedal depressed, bleed the right and left rear brake caliper.

HINT:

It is not necessary to depress the pedal continuously, as brake fluid flows out by first depressing.



- (f) Connect hand-held tester.
 - (1) Turn the ignition switch OFF, connect the hand-held tester to DLC3.
 - (2) Turn the ignition switch ON and select "AIR BLEEDING" on the hand-held tester.

HINT:

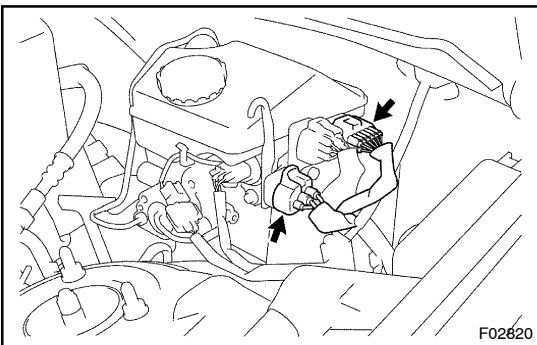
Please refer to the hand-held tester operator's manual for further details.

- (g) Bleed right front brake line.
 - (1) Select "FR LINE" on the hand-held tester.
 - (2) With "FR LINE" turned ON with the hand-held tester, depress the brake pedal and hold it to bleed the right front brake caliper.
- (h) Bleed left front brake line.
 - (1) Select "FL LINE" on the hand-held tester.
 - (2) With "FL LINE" turned ON with the hand-held tester, depress the brake pedal and hold it to bleed the left front brake caliper.
 - (3) Repeat step (2) until there are no more air bubbles in the fluid.
- (i) Bleed rear brake line.
 - (1) Select "RR LINE" on the hand-held tester.
 - (2) With "RR LINE" turned ON with the hand-held tester, bleed the left and right rear brake caliper.
- (j) Disconnect the hand-held tester from DLC3.
- (k) Clear the DTC (See page DI-210).

3. BLEED HYDRAULIC BRAKE BOOSTER WITH ACTUATOR CHECKER (SST)

HINT:

If the hydraulic brake booster has been disassembled, disconnect the brake line from the hydraulic brake booster or if the reservoir becomes empty, bleed the hydraulic brake booster.



- (a) Disconnect the 2 connectors from the hydraulic brake booster.

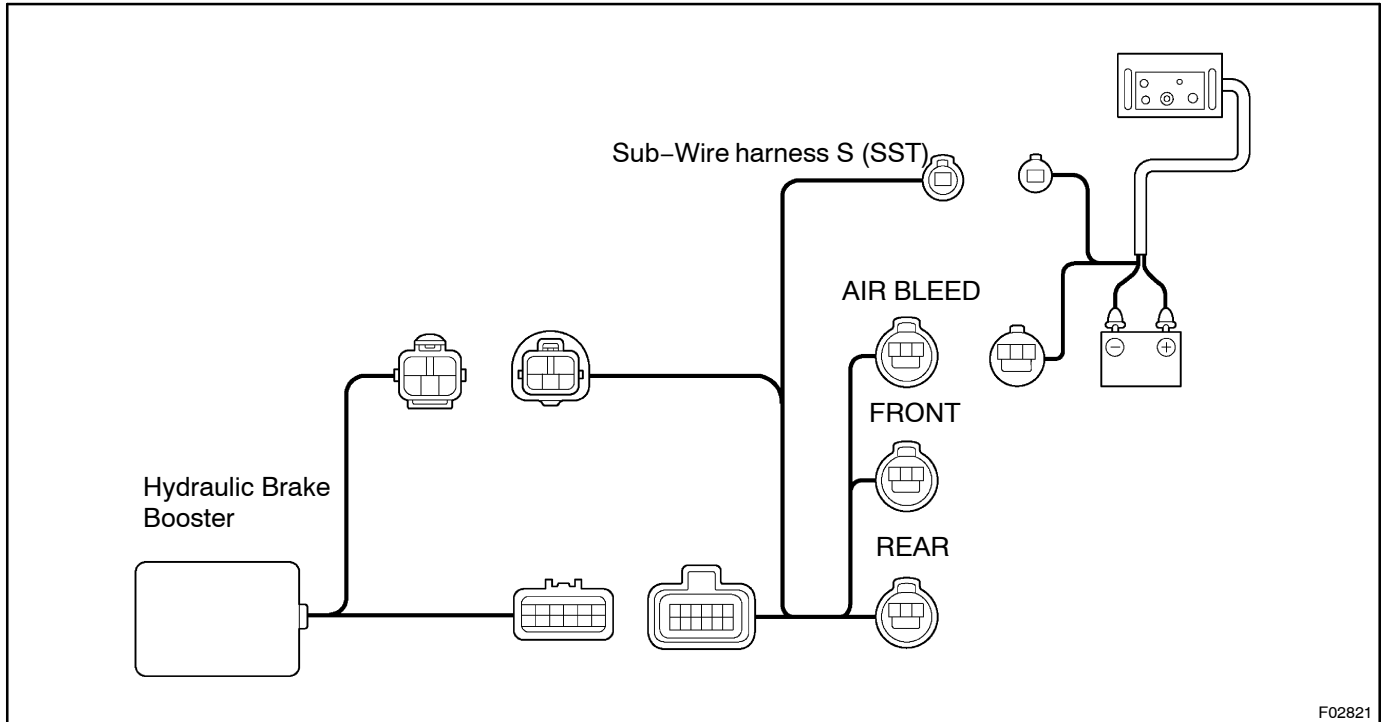
- (b) Connect the actuator checker (SST) to the hydraulic brake booster side wire harness via the sub-wire harness (SST), as shown in the chart below.

SST 09990-00150, 09990-00480

HINT:

Connect the connector with the label of "AIR BLEED" attached to the connector of actuator checker.

- (c) Connect the red cable of the checker to the battery positive (+) terminal and the black cable to the negative (-) terminal.



- (d) Turn the ignition switch OFF, depress the brake pedal more than 40 times.
- (e) Turn the ignition switch ON, check that the pump stops after 30 to 40 seconds.

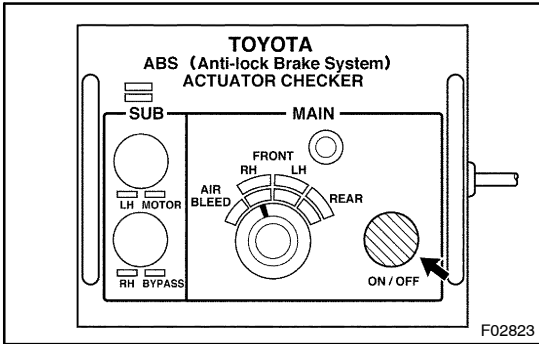
NOTICE:

When the pump does not stop, repeat step (d) and (e) again.

- (f) With the ignition switch remained ON, depress the brake pedal more than 20 times.
- (g) Observe the procedure in step 4 and bleed the right and left front brake caliper.
- (h) Holding the brake pedal depressed, bleed the right and left rear brake caliper.

HINT:

It is not necessary to depress the pedal continuously, as brake fluid flows out by first depressing.

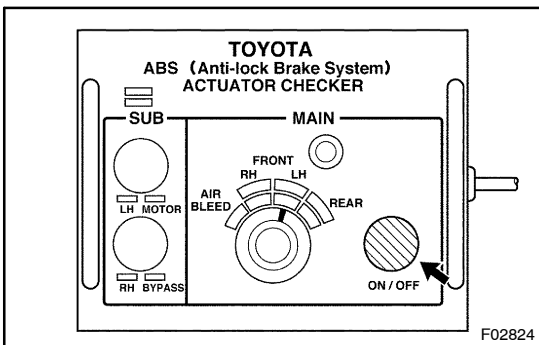


- (i) Bleed right front brake line.
- (1) Turn the selector switch of the actuator checker to the "FRONT RH" position.
 - (2) Push and hold in MAIN push switch, depress the brake pedal and hold it to bleed the right front brake caliper.

NOTICE:

Do not keep the MAIN switch pushed in for more than 10 seconds. When operating it continuously, set the interval of more than 20 seconds.

- (3) Repeat step (2) until there are no more air bubbles in the fluid.

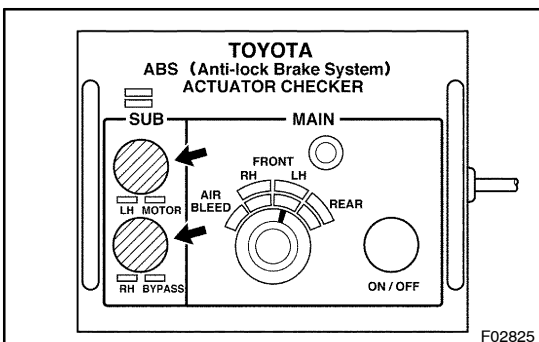


- (j) Bleed left front brake line.
- (1) Turn the selector switch of the actuator checker to the "FRONT LH" position.
 - (2) Push and hold in the MAIN push switch, depress the brake pedal and hold it to bleed the left front brake caliper.

NOTICE:

Do not keep the MAIN switch pushed in for more than 10 seconds. When operating it continuously, set the interval of more than 20 seconds.

- (3) Repeat step (2) until there are no more air bubbles in the fluid.



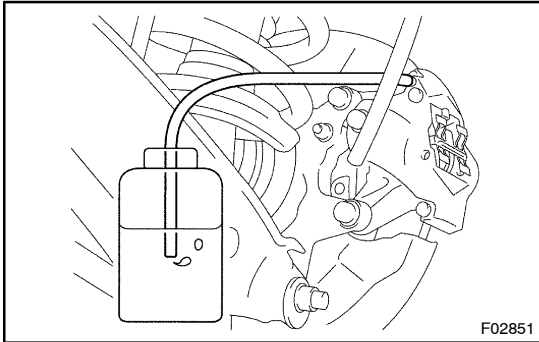
- (k) Bleed right rear brake line.
- (1) Push and hold in the "SUB LH" and "SUB RH" switches, bleed the right rear brake caliper.

NOTICE:

Do not keep the "SUB LH" and "SUB RH" switches pushed in for more than 10 seconds. When operating it continuously, set the interval of more than 20 seconds.

- (2) Repeat step (1) until there are no more air bubbles in the fluid.

- (l) Observe the procedure in step (k) and bleed left rear brake line.
- (m) Disconnect the actuator checker (SST) and sub-wire harness (SST) from the actuator.
SST 09990-00150, 09990-00480
- (n) Connect the 2 connectors to the hydraulic brake booster.
- (o) Clear the DTC (See page DI-210)



4. BLEED BRAKE LINE

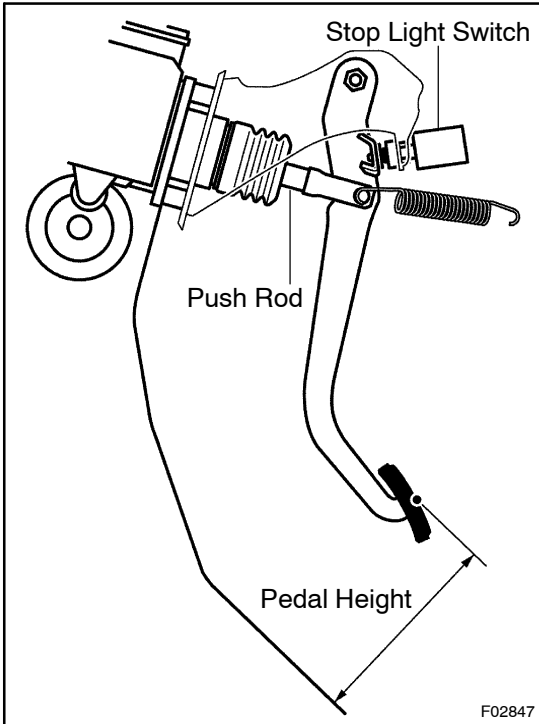
- (a) Connect the vinyl tube to the brake caliper.
- (b) Depress the brake pedal several times, then loosen the bleeder plug with the pedal held down.
- (c) At the point when fluid stops coming out, tighten the bleeder plug, then release the brake pedal.
- (d) Repeat (b) and (c) until all the air in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

Torque: 11 N·m (110 kgf·cm, 8 ft·lbf)

5. CHECK FLUID LEVEL IN RESERVOIR

- (a) With the ignition switch OFF, depress the brake pedal more than 40 times.
- (b) Remove the reservoir cap. Add brake fluid up to the "MAX" line.

Fluid: SAE J1703 or FMVSS NO.116 DOT3



BRAKE PEDAL ON-VEHICLE INSPECTION

BRQJB-02

1. CHECK PEDAL HEIGHT

Pedal height from asphalt sheet:
149.0 – 159.0 mm (5.866 – 6.260 in.)

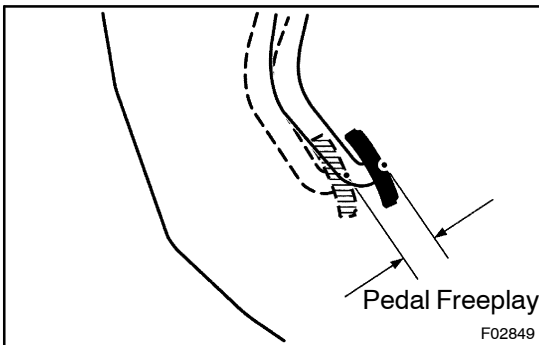
If the pedal height is incorrect, adjust it.

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.
- Push in the brake pedal 5 – 15 mm (0.20 – 0.59 in.), turn the stop light switch to lock the nut in the position where the stop light goes off.
- Connect the connector to the stop light switch.
- After installation, push in the brake pedal 5 – 15 mm (0.20 – 0.59 in.), check that stop light lights up.
- After adjusting the pedal height, check the pedal freeplay.



3. CHECK PEDAL FREEPLAY

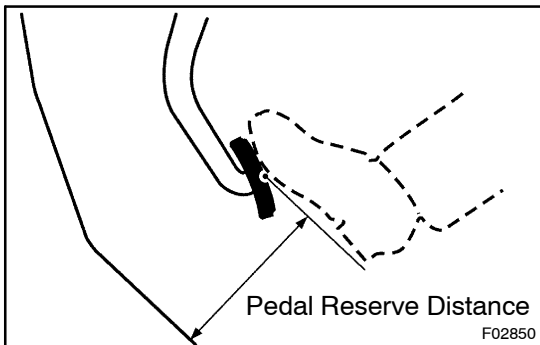
- Stop the engine and depress the brake pedal more than 40 times until there is no more pressure left in the booster.
- Push in the pedal by hand until the second point of resistance begins to be felt, then measure the distance, as shown.

Pedal freeplay: 0.2 – 2.0 mm (0.008 – 0.079 in.)

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

HINT:

The freeplay to the 1st point of resistance is due to the play between the clevis and pin. It is 0.2 – 2.0 mm (0.008 – 0.079 in.) on the pedal.

**4. CHECK PEDAL RESERVE DISTANCE**

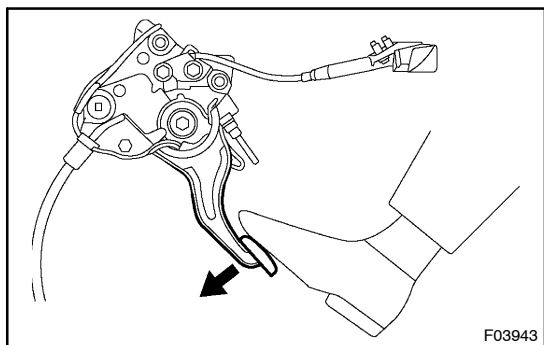
- (a) Remove the floor carpet.
- (b) Release the parking brake.

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

Pedal reserve distance at 196 N (20 kgf, 44.1 lbf):

More than 93 mm (3.66 in.)

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



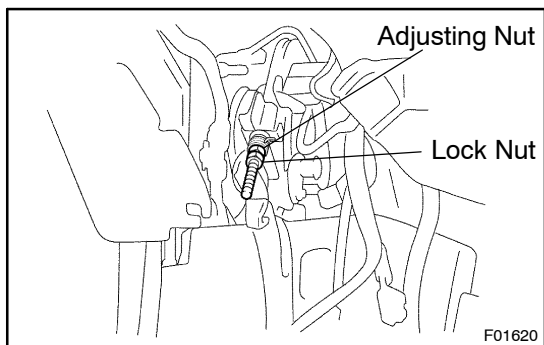
PARKING BRAKE PEDAL ON-VEHICLE INSPECTION

BRQJD-02

1. CHECK PARKING BRAKE PEDAL TRAVEL

Depress the parking brake pedal all the way and count the number of clicks.

**Parking brake lever travel at 294 N (30 kgf, 66.1 lbf):
7 - 9 clicks**

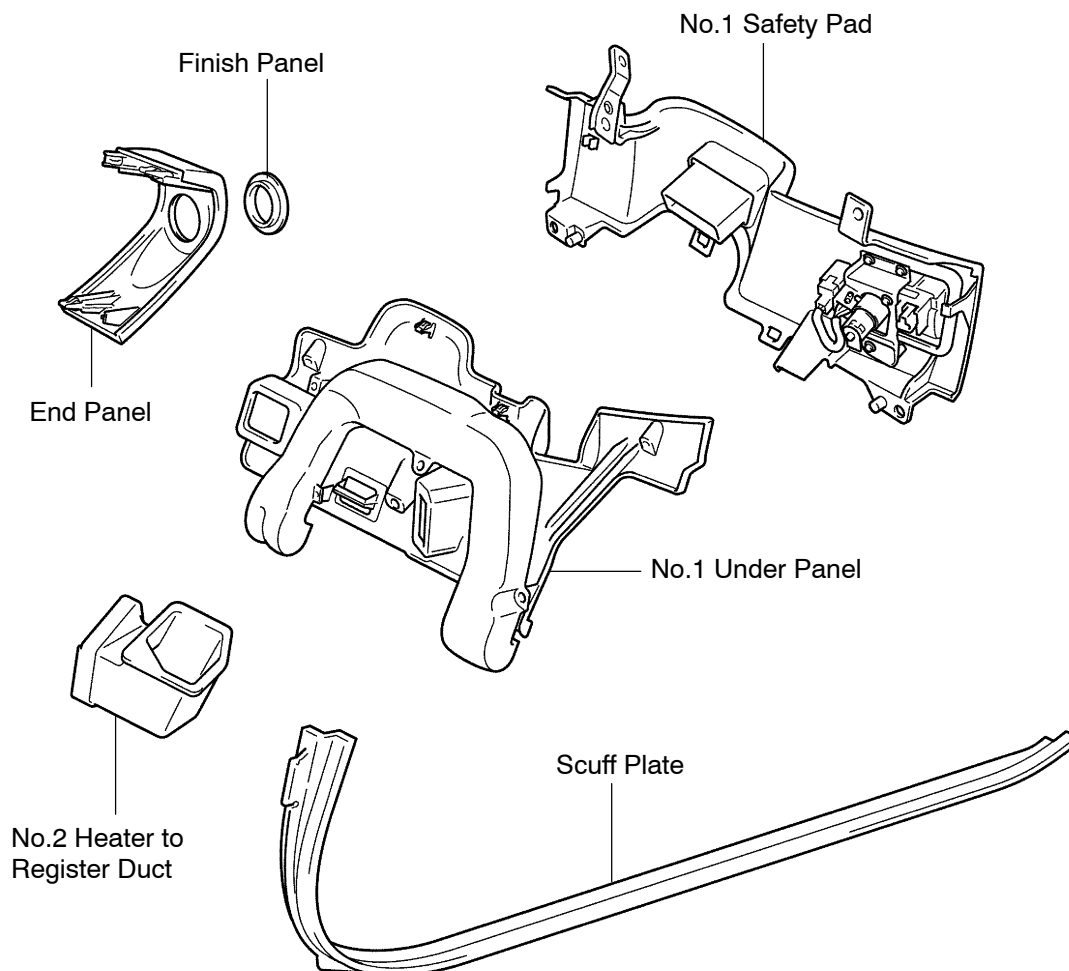


2. IF NECESSARY, ADJUST PARKING BRAKE

- (a) Adjust the parking brake shoe clearance.
- (b) Remove the lock nut.
- (c) Using the socket wrench, tighten the adjusting nut until it turns freely.

COMPONENTS

Reference: LHD



LHD

Parking Brake Switch

13 (130, 9)

5.4 (55, 48 in.·lbf)

Lock Nut

Adjusting Nut

Parking Brake Wire

Parking Brake Pedal Assembly

RHD

Parking Brake Wire

Parking Brake Switch

13 (130, 9)

5.4 (55, 48 in.·lbf)

Clip

Parking Brake Pedal Assembly

13 (130, 9)

Clip

Lock Nut

Adjusting Nut

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

F03305

REMOVAL

1. REMOVE THESE PARTS:

(See page BO-91)

- (a) No.1 Under panel
- (b) End panel
- (c) Finish panel
- (d) No.1 safety pad
- (e) No.2 heater to register duct
- (f) Scuff plate

2. REMOVE PARKING BRAKE PEDAL ASSEMBLY

- (a) Disconnect the parking brake switch connector.
- (b) Remove the 2 bolts, and disconnect the parking brake release lever from the safety pad.

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

- (c) Remove the lock nut, adjusting nut and the clip (RHD only) from the parking brake wire.
- (d) RHD:
Using needle-nose pliers, remove the clip from the parking brake pedal.
- (e) Remove the parking brake wire.
- (f) Remove the 2 bolts, 2 nuts and parking brake pedal assembly.

Torque: 13 N·m (130 kgf·cm, 9 ft·lbf)

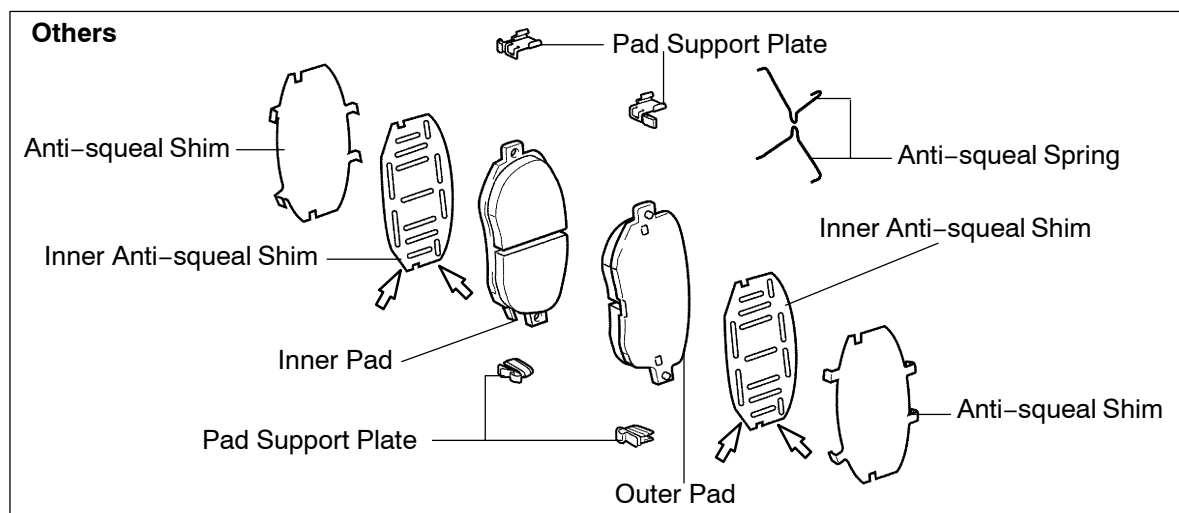
3. REMOVE PARKING BRAKE SWITCH

INSTALLATION

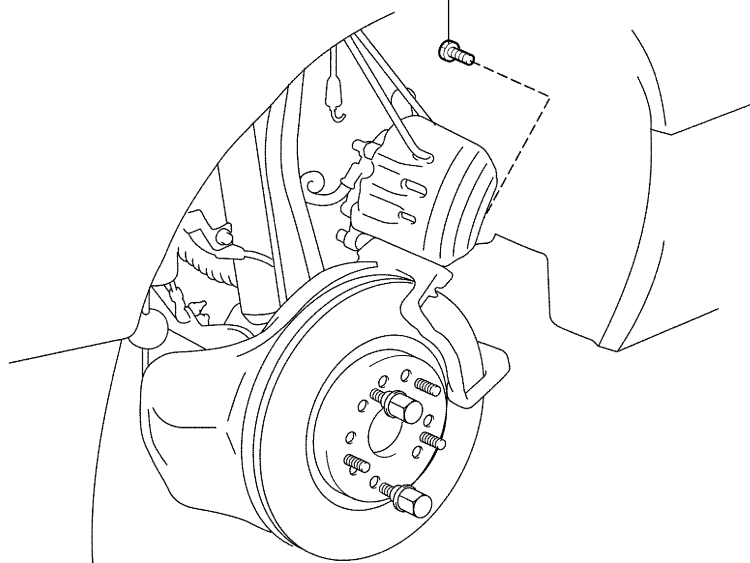
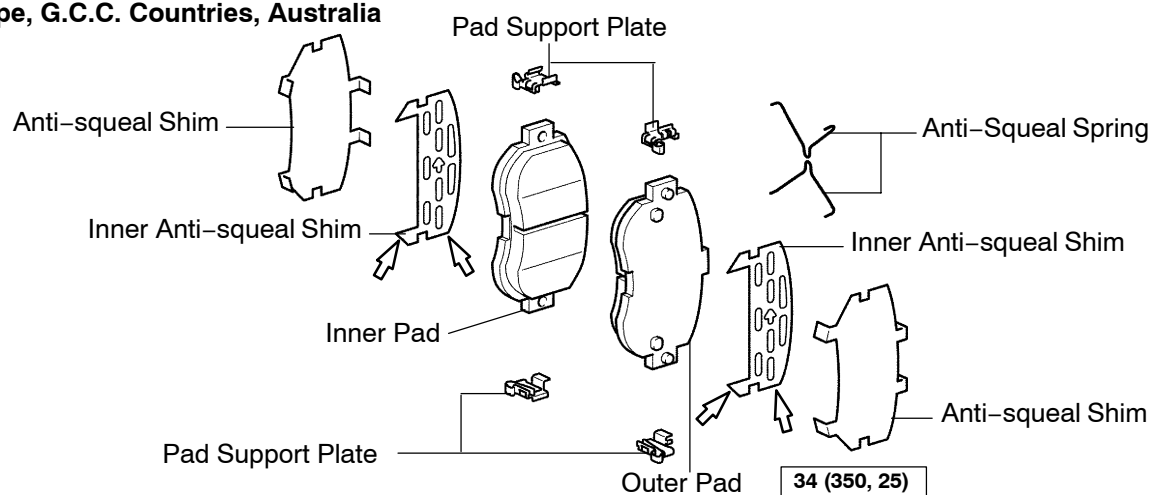
Installation is in the reverse order of removal (See page BR-13).

FRONT BRAKE PAD COMPONENTS

BR0JH-02



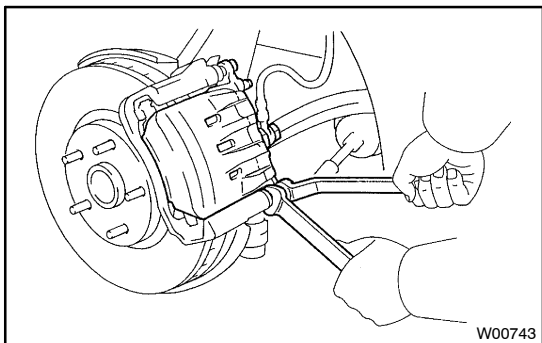
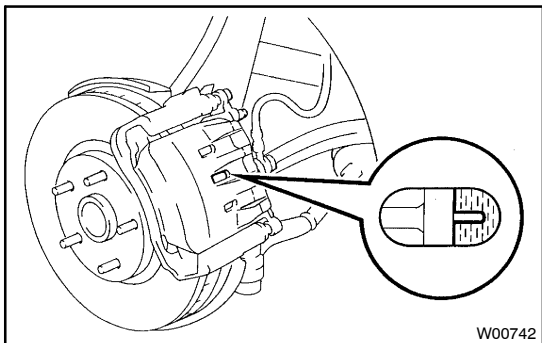
Europe, G.C.C. Countries, Australia



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

Disc brake grease

F03299



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

- Hold the sliding pin on the bottom and loosen the installation bolt.
- Remove the installation bolt.
- Lift up the caliper and suspend it securely.

HINT:

Do not disconnect the flexible hose from the caliper.

4. REMOVE THESE PARTS:

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

NOTICE:

The anti-squeal springs and 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-21)

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 pad.

- Install the 2 anti-squeal shims to each pad.

HINT:

Apply disc brake grease to both sides of the inner anti-squeal shims (See page BR-15)

- Install the inner pad with the pad wear indicator plates facing downward.
- Install the outer pad.

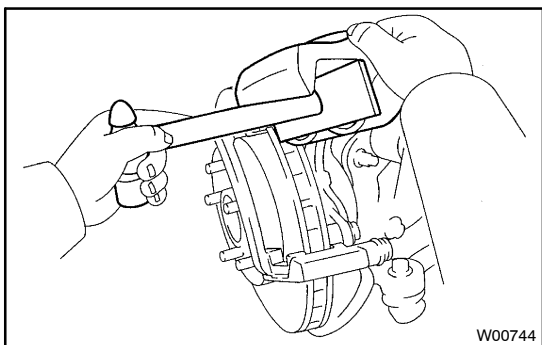
NOTICE:

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

- Install the 2 anti-squeal springs.

8. INSTALL CALIPER

- Draw out a small amount of brake fluid from the reservoir.



- (b) Press in the pistons with a hammer handle or similar implement.

HINT:

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

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

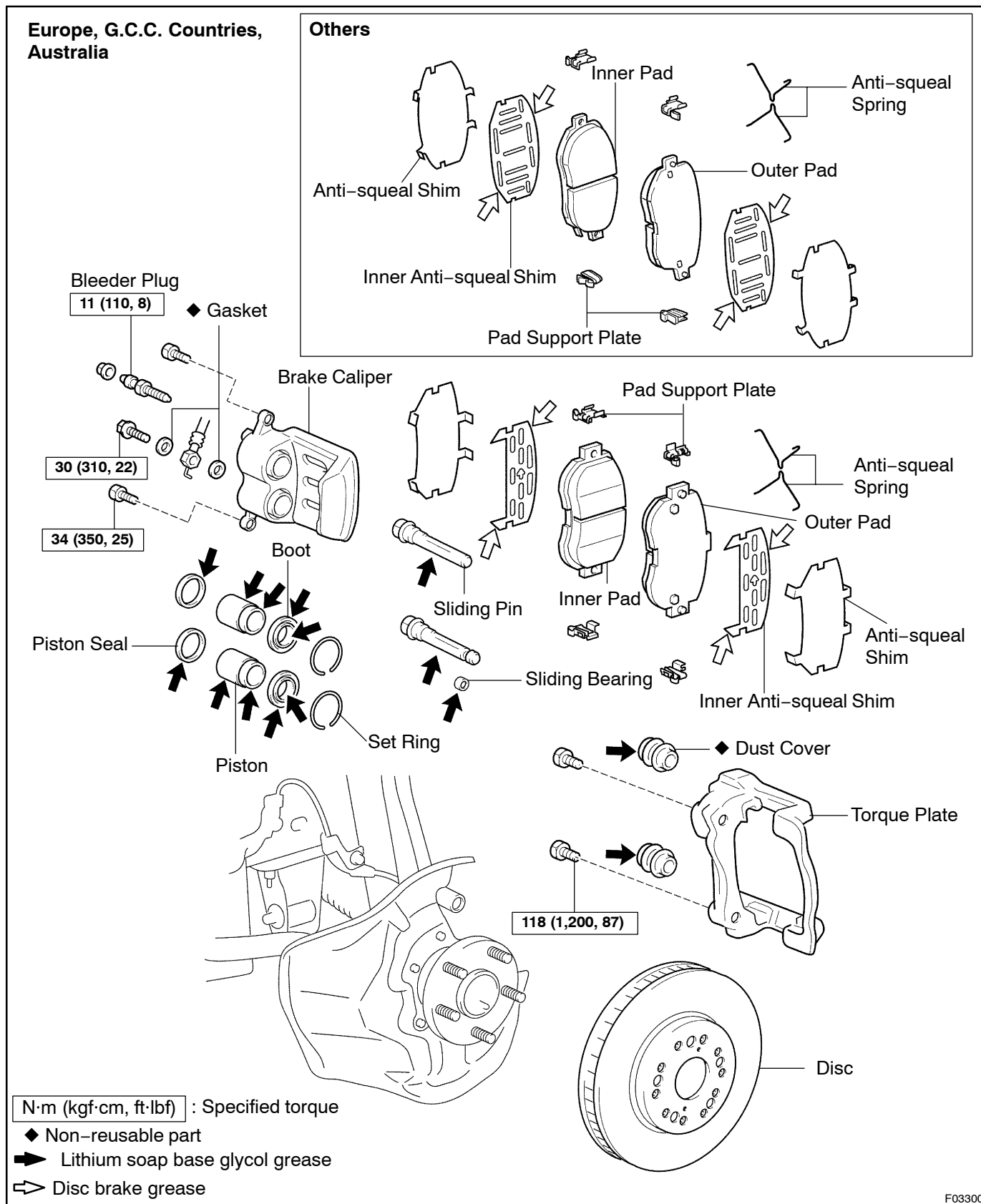
Torque: 34 N·m (350 kgf·cm, 25 ft·lbf)

9. INSTALL FRONT WHEEL

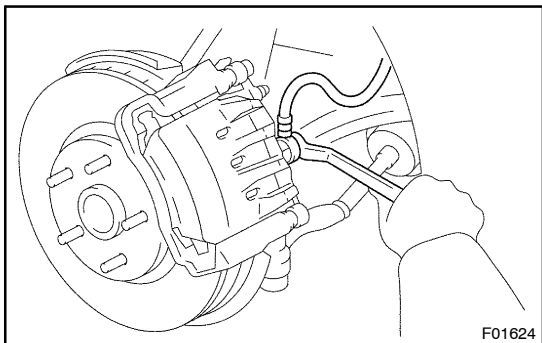
10. CHECK THAT FLUID LEVEL IS AT MAX LINE

FRONT BRAKE CALIPER COMPONENTS

BR0JJ-02



F03300



REMOVAL

1. DISCONNECT FLEXIBLE HOSE

Remove the union bolt and 2 gaskets from the caliper, then disconnect the flexible hose from the caliper. Use a container to catch brake fluid as it drains out.

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

HINT:

At the time of installation, install the flexible hose lock securely in the lock hole in the caliper.

2. REMOVE CALIPER

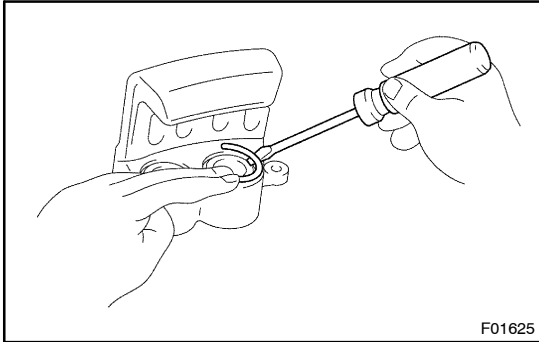
- (a) Hold the sliding pin and loosen the 2 installation bolts.

Torque: 34 N·m (350 kgf·cm, 25 ft·lbf)

- (b) Remove the 2 installation bolts.
(c) Remove the caliper from the torque plate.

3. REMOVE THESE PARTS:

- (a) 2 anti-squeal springs
(b) 2 brake pads with anti-squeal shims
(c) 4 pad support plates

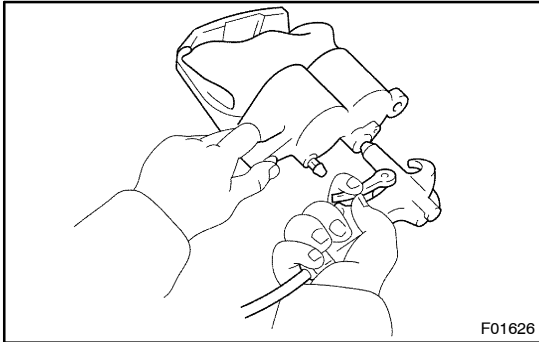


F01625

DISASSEMBLY

1. REMOVE CYLINDER BOOT SET RINGS AND CYLINDER BOOTS

Using a screwdriver, remove the 2 cylinder boot set rings and cylinder boots.



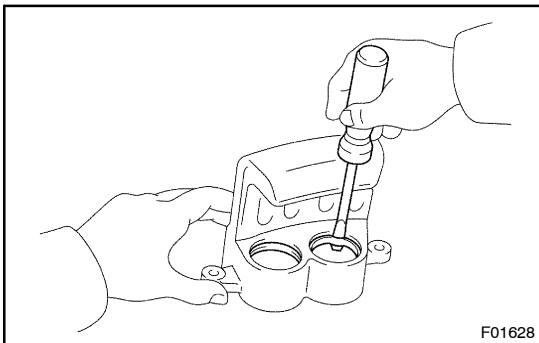
F01626

2. REMOVE PISTONS

- (a) Put a piece of cloth or an equivalent between the piston and caliper.
- (b) Use compressed air to remove the 2 pistons from the cylinder.

CAUTION:

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



F01628

3. REMOVE PISTON SEALS FROM BRAKE CYLINDER

Using a screwdriver, remove the 2 piston seals.

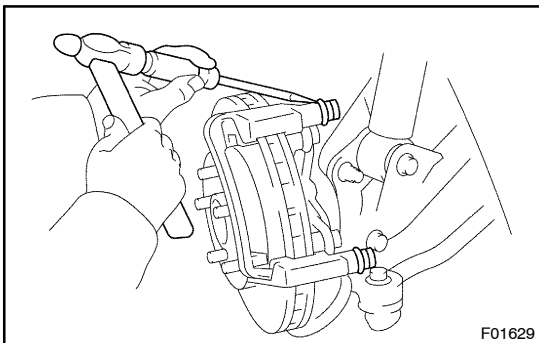
4. REMOVE SLIDING PINS AND DUST BOOTS

- (a) 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 bottom side.



F01629

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

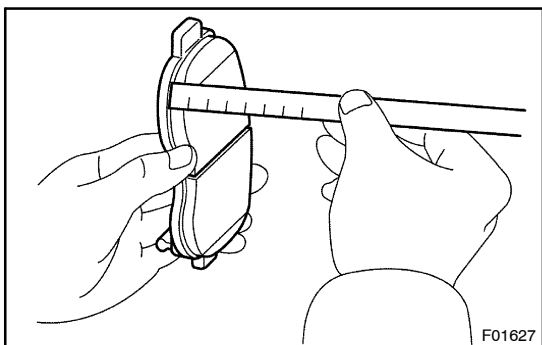
NOTICE:

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.

HINT:

At the time of reassembly, use a 21 mm socket and tap in new dust boots into the torque plate.



F01627

INSPECTION

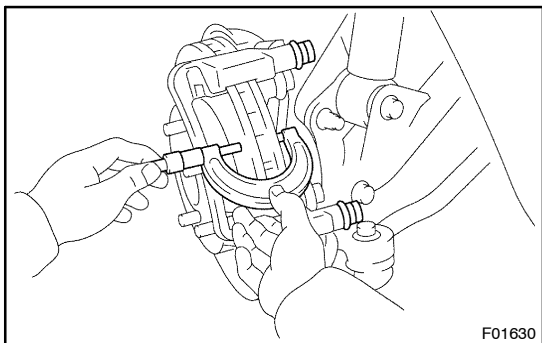
1. MEASURE PAD LINING THICKNESS

Using a ruler, measure the pad lining thickness.

Standard thickness: 11.0 mm (0.433 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 signs of uneven wear.



F01630

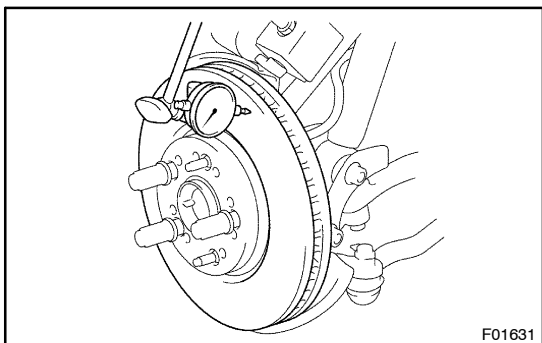
2. MEASURE DISC THICKNESS

Using a micrometer, measure the disc thickness.

Standard thickness: 32.0 mm (1.260 in.)

Minimum thickness: 30.0 mm (1.181 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.



F01631

3. MEASURE DISC RUNOUT

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

Maximum disc runout: 0.035 mm (0.0014 in.)

If the disc's runout is 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.

(b) Remove the 3 hub nuts and disc. Turn the disc 1/5 turn and reinstall the disc. Install and torque the 3 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) until the disc has been installed on the 3 remaining hub positions.

(e) If the minimum runout recorded in (b) and (c) is less than 0.05 mm (0.0020 in.), install the disc in that position.

(f) 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.

(g) Install the torque plate and torque the 2 bolts.

Torque: 118 N·m (1,200 kgf·cm, 87 ft·lbf)

REASSEMBLY

Reassembly is in the reverse order of disassembly (See page BR-20).

NOTICE:

Apply lithium soap base glycol grease to the parts indicated by the arrows (See page BR-18).

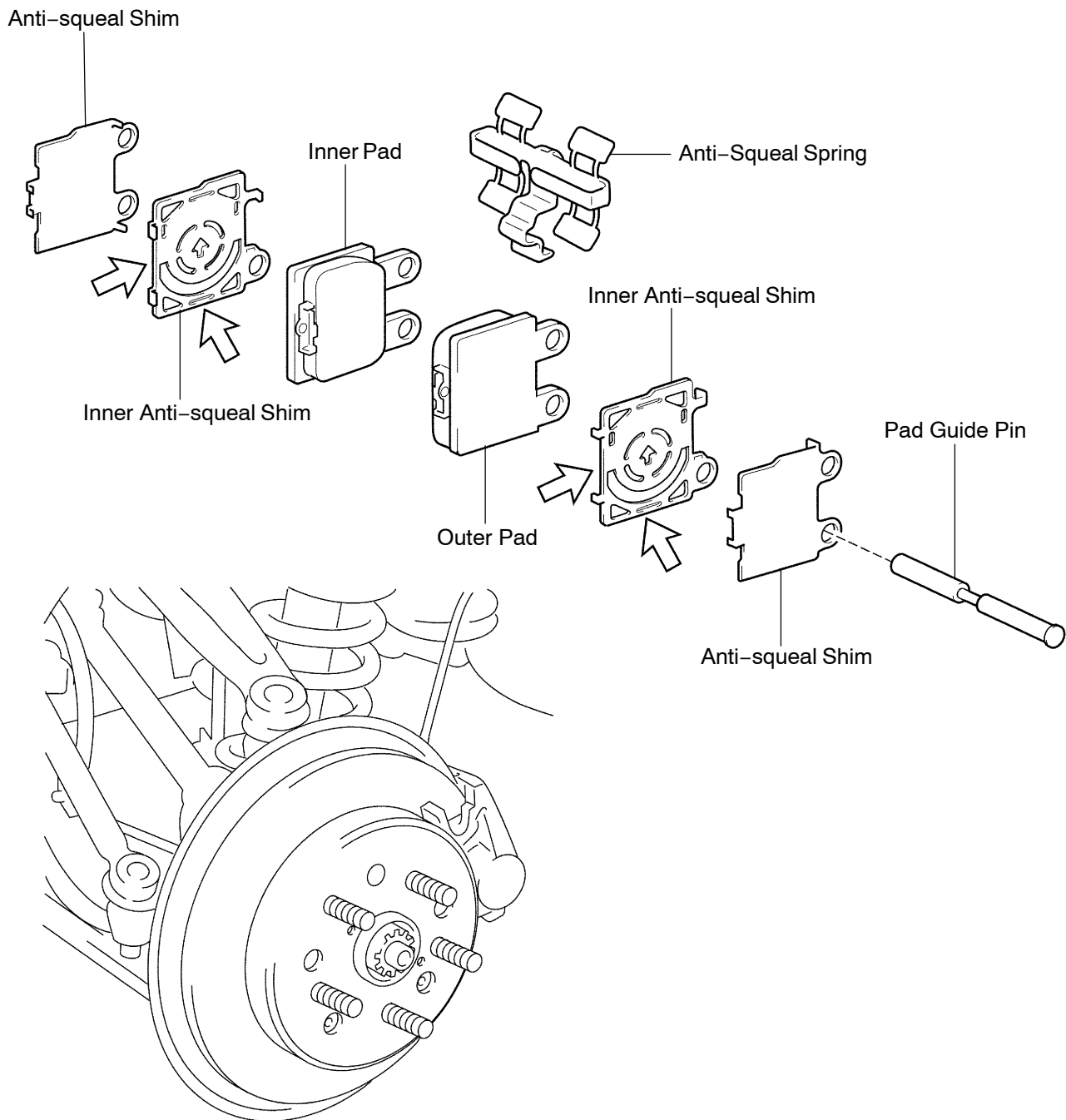
INSTALLATION

Installation is in the reverse order of removal (See page BR-19).

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

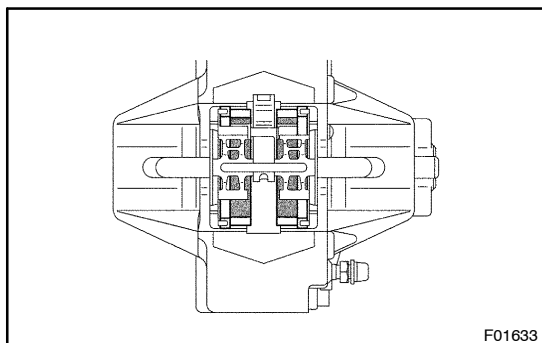
REAR BRAKE PAD COMPONENTS

BR0JP-02



↩ Disc brake grease

F03944



F01633

REPLACEMENT

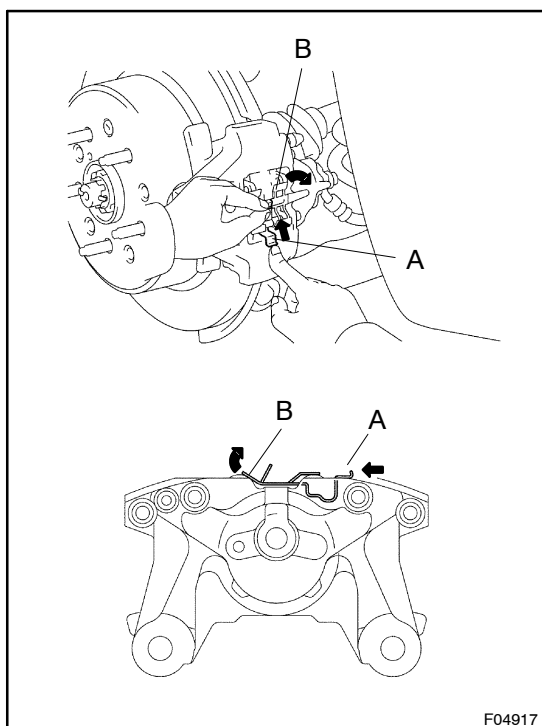
1. REMOVE REAR WHEEL

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 pads if the thickness is not within the specification.

Minimum thickness: 1.0 mm (0.039 in.)



F04917

3. REMOVE ANTI-SQUEAL SPRING AND PAD GUIDE PIN

(a) Raise the "B" portion with hand, push up the "A" portion and remove the fixation of the anti-squeal spring and brake caliper.

(b) Remove the anti-squeal spring.

NOTICE:

- Do not deform the anti-squeal spring.
- The anti-squeal spring 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.

(c) Remove the pad guide pin.

4. REMOVE PADS AND ANTI-SQUEAL SHIMS

(a) Remove the 2 pads.

(b) Remove the 4 anti-squeal shims from each pad.

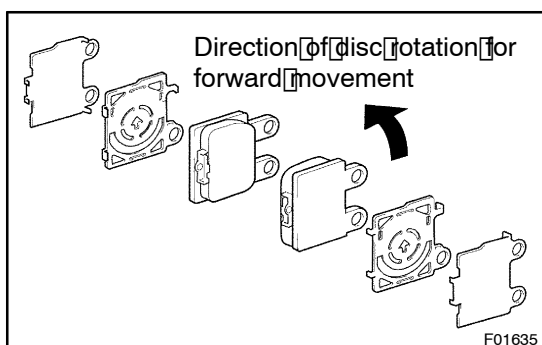
5. CHECK DISC THICKNESS AND RUNOUT (See page BR-30)

6. 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 sides of inner anti-squeal shims (See page BR-24).



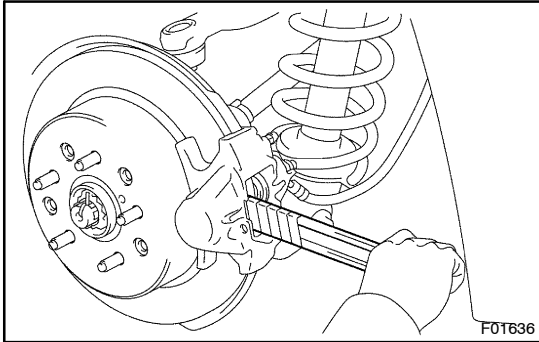
F01635

(b) Install the 2 anti-squeal shims on each pad.

HINT:

Make sure the arrows on the inner anti-squeal shims facing to the direction of disc rotation as shown in the illustration.

(c) Draw out a small amount of brake fluid from the reservoir.



- (d) Press in the pistons with a monkey wrench handle or equivalent.

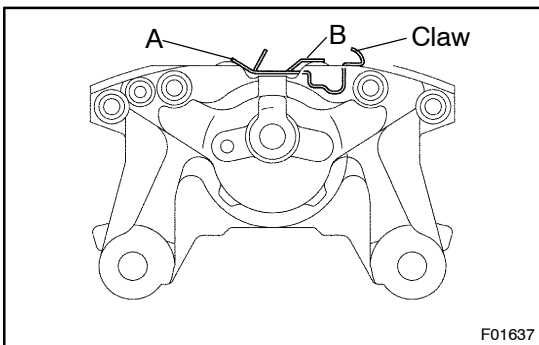
HINT:

- Tape the monkey wrench handle before use.
- If the piston is difficult to push in, loosen the bleeder plug and push in the piston while letting some brake fluid escape.

- (e) Install the 2 pads.

7. INSTALL PAD GUIDE PIN AND ANTI-SQUEAL SPRING

- (a) Install the pad guide pin.



- (b) Install the anti-squeal spring.

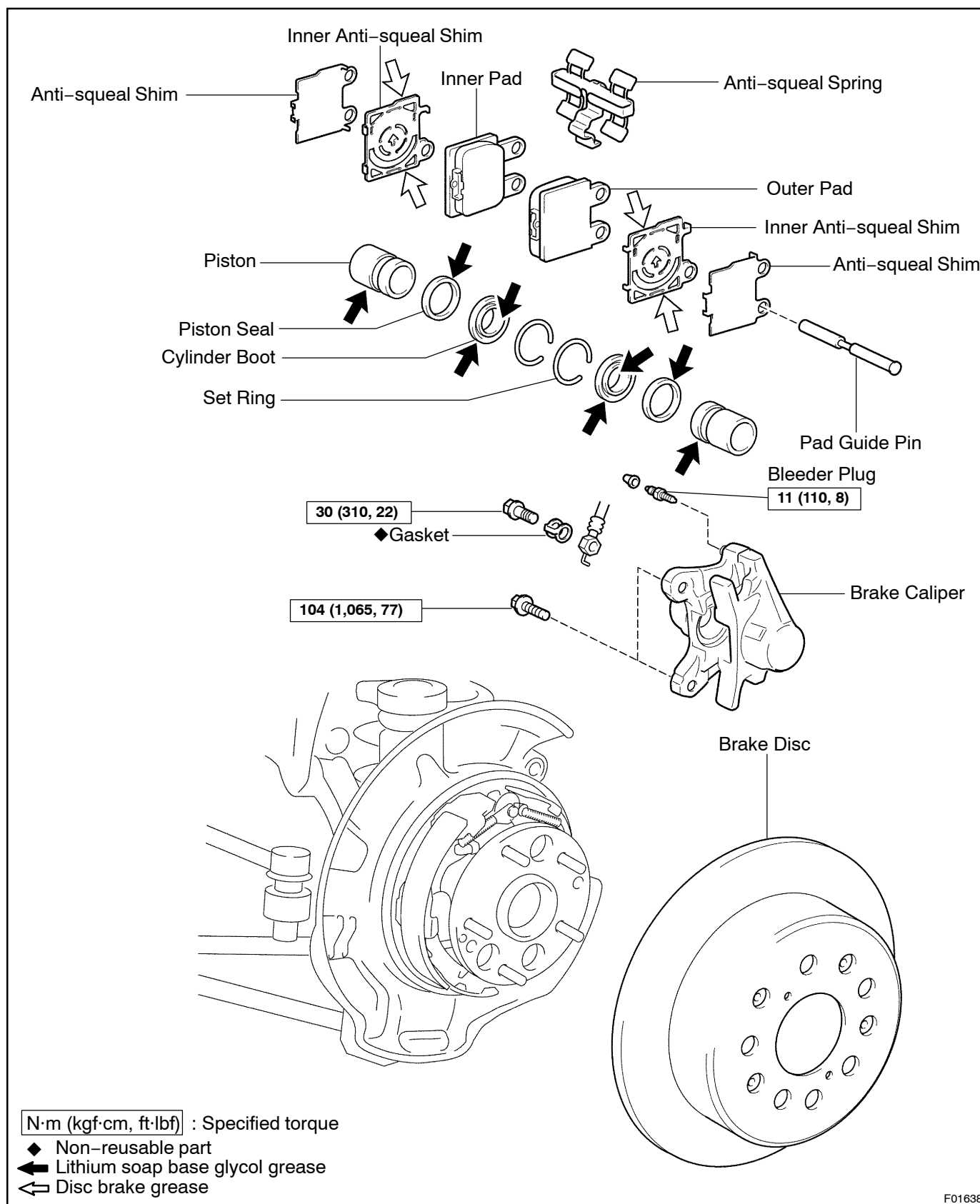
HINT:

- Ensure that the claw of the anti-squeal spring is raised up on the caliper securely.
- Ensure that there is no gap between the pad guide pin and anti-squeal spring.
- Ensure that "A" and "B" portions of anti-squeal spring are attached to the pad.

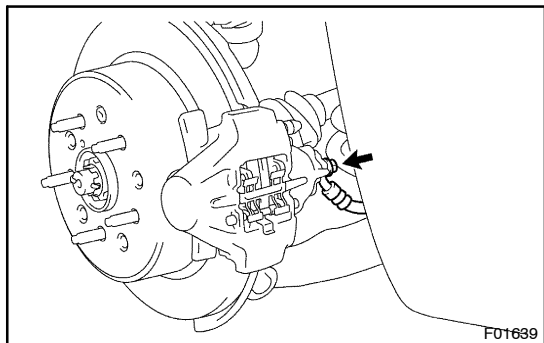
8. INSTALL FRONT WHEEL

REAR BRAKE CALIPER COMPONENTS

BR0JR-02



F01638



REMOVAL

1. DISCONNECT FLEXIBLE HOSE

Remove the union bolt and gasket from the caliper, then disconnect the flexible hose from the caliper. Use a container to catch brake fluid as it drains out.

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.

2. REMOVE CALIPER

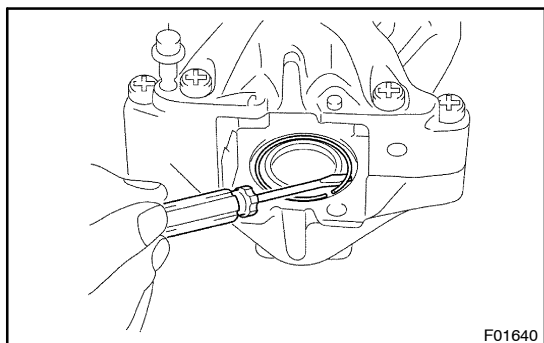
- (a) Remove the 2 installation bolts.

Torque: 104 N·m (1,065 kgf·cm, 77 ft·lbf)

- (b) Remove the caliper.

3. REMOVE BRAKE PADS (See page BR-25)

- (a) Remove the anti-squeal spring.
(b) Remove the pad guide spring.
(c) Remove the 2 pads with the 4 anti-squeal shims.

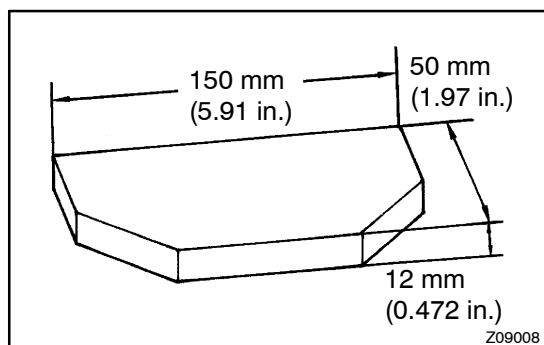


F01640

DISASSEMBLY

1. REMOVE CYLINDER BOOT SET RINGS AND BOOTS

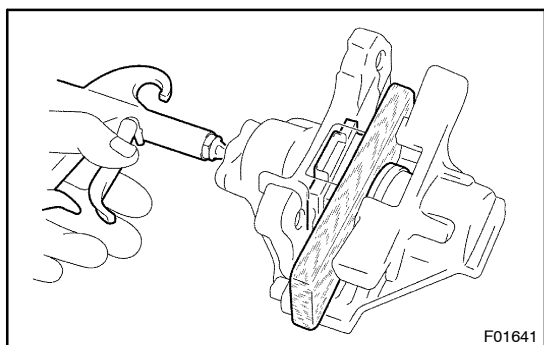
Using a screwdriver, remove the 2 cylinder boot set rings and 2 boots.



Z09008

2. REMOVE PISTONS FROM CYLINDER

(a) Prepare a wooden plate to hold the pistons.



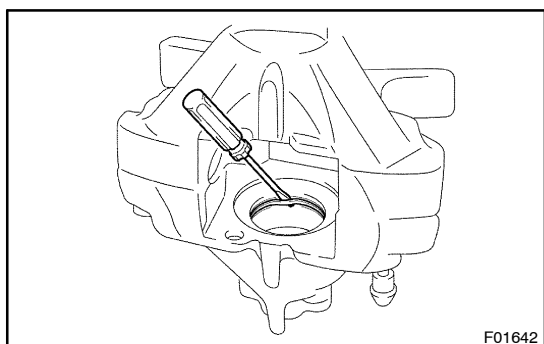
F01641

(b) Place the plate between the pistons and insert a pad on one side.

(c) Use compressed air to remove the pistons alternately from the caliper.

CAUTION:

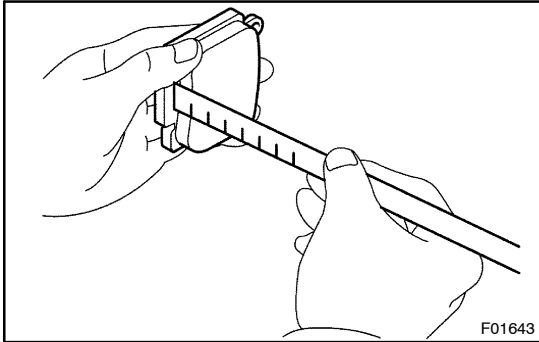
Do not place your fingers in front of the piston when using compressed air.



F01642

3. REMOVE PISTON SEALS

Using a screwdriver, remove the 2 piston seals from the caliper.



INSPECTION

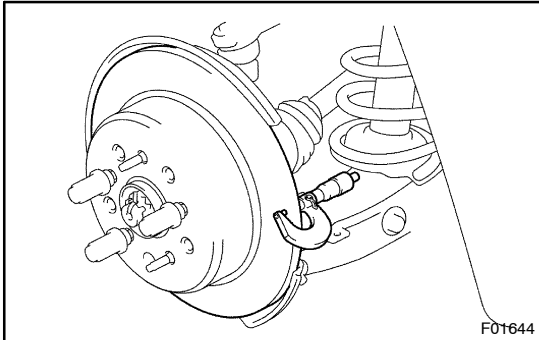
1. MEASURE PAD LINING THICKNESS

Using a ruler, measure the pad lining thickness.

Standard thickness: 10.5 mm (0.413 in.)

Minimum thickness: 1.0 mm (0.039 in.)

Replace the pads if the thickness is less than the minimum or if it shows signs of uneven wear.



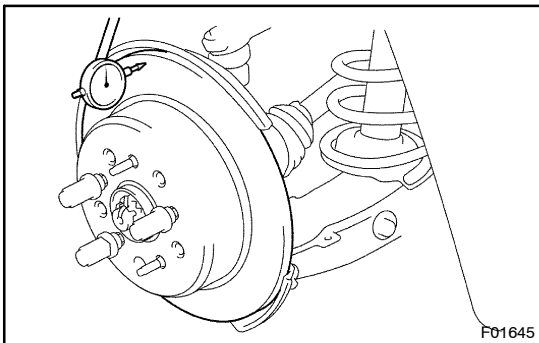
2. MEASURE DISC THICKNESS

Using a micrometer, measure the disc thickness.

Standard thickness: 12.0 mm (0.472 in.)

Minimum thickness: 10.5 mm (0.413 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 badly scored or worn unevenly.



3. MEASURE DISC RUNOUT

Using a dial indicator, measure the disc runout at a position 10 mm (0.394 in.) away from the outside edge.

Maximum disc runout: 0.05 mm (0.0020 in.)

If the disc's runout is maximum value or greater, check the bearing play in the axial direction and check the axle hub runout (See page SA-44). 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 3 hub nuts and disc. Turn the disc 1/5 and reinstall the disc. Install and torque the 3 hub nuts.

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

(b) Remeasure the disc runout. Make a note of the runout and the disc's position on the hub.

(c) Repeat (b) until the disc has been installed on the 3 remaining hub positions.

(d) If the minimum runout recorded in (b) and (c) is less than 0.05 mm (0.0020 in.), install the disc in that position.

(e) 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.

REASSEMBLY

Reassembly is in the reverse order of disassembly (See page BR-29).

NOTICE:

Apply lithium soap base glycol grease to the parts indicated by the arrows (See page BR-27).

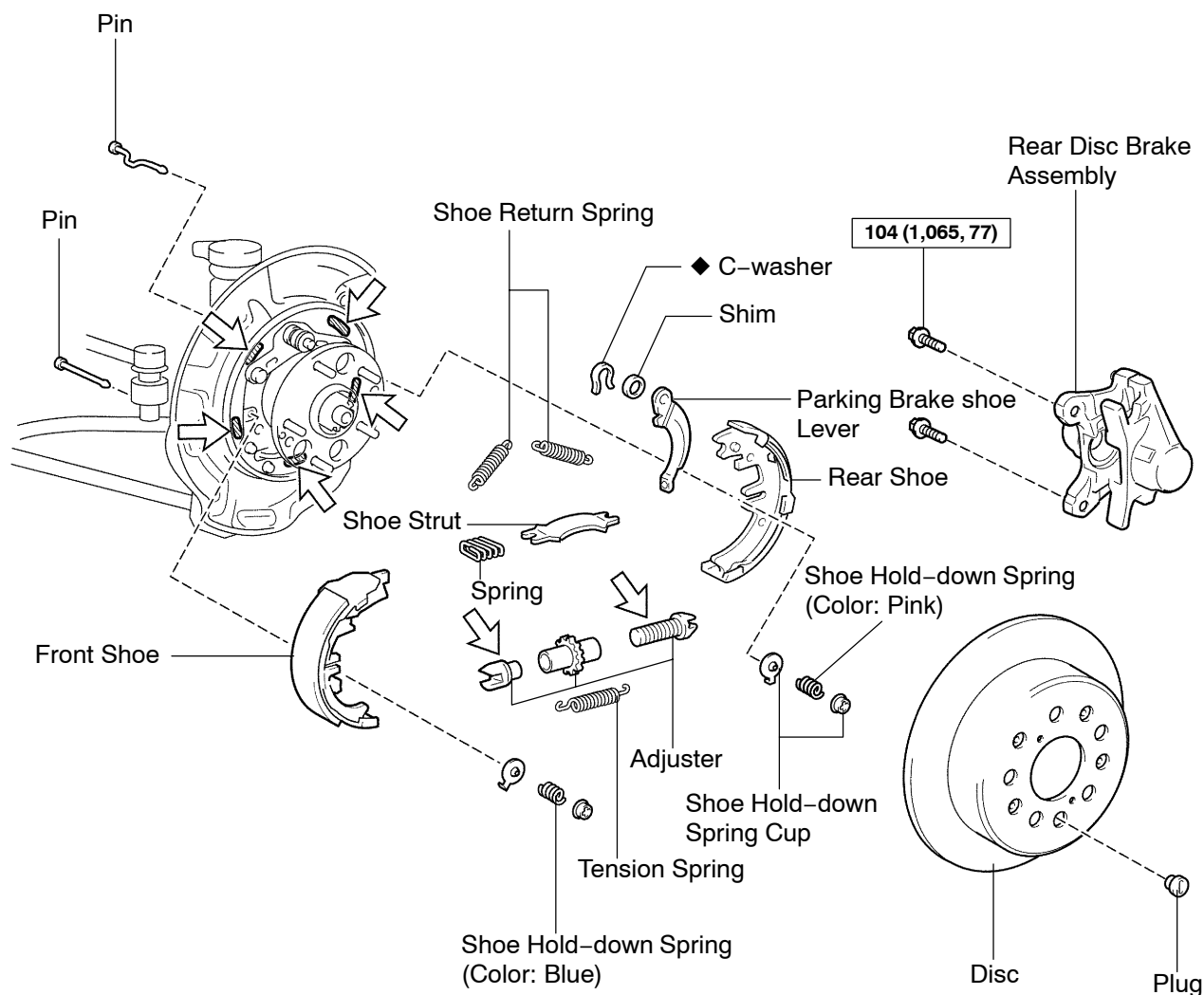
INSTALLATION

Installation is in the reverse order of removal (See page BR-28).

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

PARKING BRAKE COMPONENTS

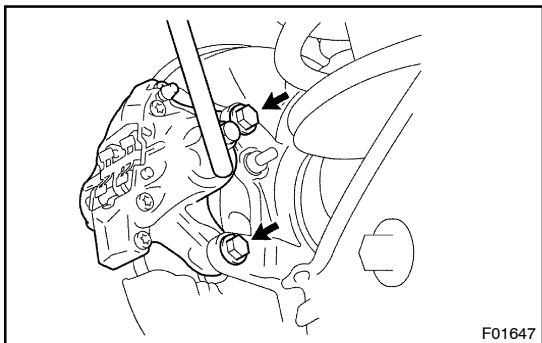
BR0NY-01



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

➞ High temperature grease

F03945



F01647

DISASSEMBLY

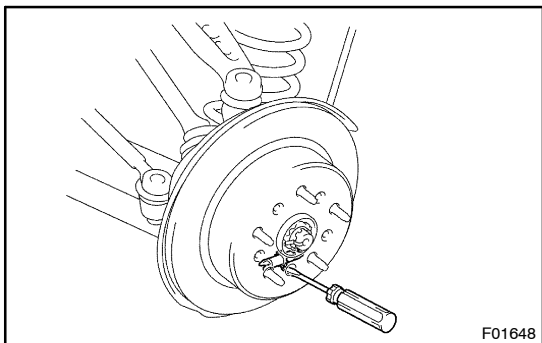
1. REMOVE REAR WHEEL

2. REMOVE REAR DISC BRAKE ASSEMBLY

- (a) Remove the 2 mounting bolts and remove the disc brake assembly.

Torque: 104 N·m (1,065 kgf·cm, 77 ft·lbf)

- (b) Suspend the disc brake securely and so the hose is not stretched.



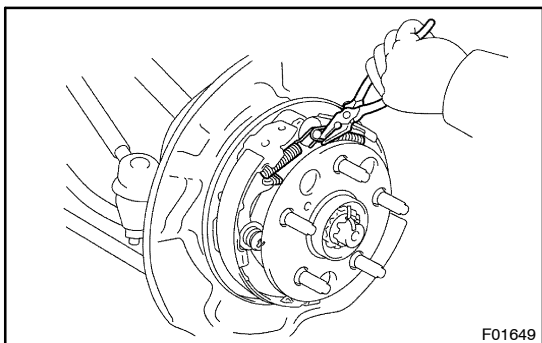
F01648

3. REMOVE DISC

- (a) Place matchmarks on the disc and rear axle hub.
(b) Remove the disc.

HINT:

- If the disc cannot be removed easily, turn the shoe adjuster until the wheel turns freely.
- If there are no matchmarks, temporarily install the disc, then measure the disc runout and install the disc in position (See page BR-30).



F01649

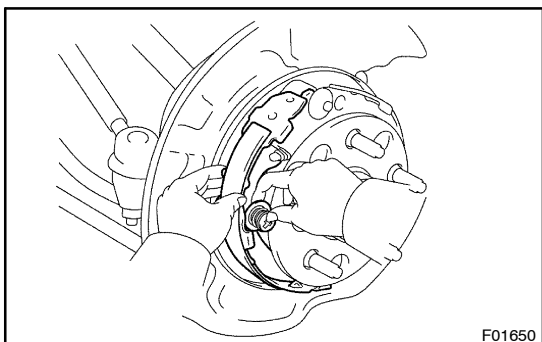
4. REMOVE SHOE RETURN SPRINGS

Using needle-nose pliers, remove the 2 shoe return springs.

5. REMOVE SHOE STRUT WITH SPRING

HINT:

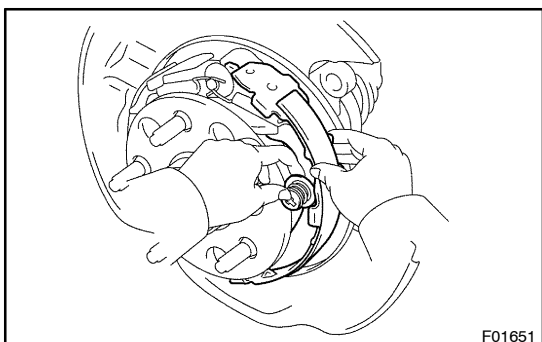
At the time of reassembly, install the strut with the spring forward.



F01650

6. REMOVE FRONT SHOE AND ADJUSTER

- (a) Slide out the front shoe and remove the shoe adjuster.
(b) Disconnect the tension spring and remove the front shoe.



F01651

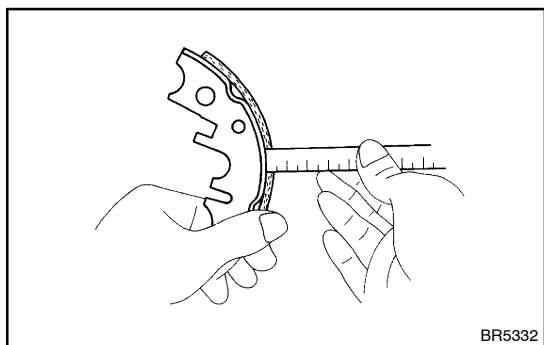
7. REMOVE REAR SHOE AND TENSION SPRING

- (a) Slide out the rear shoe.
(b) Remove the tension spring from the rear shoe.
(c) Disconnect the parking brake cable from the parking brake shoe lever.
(d) Remove the shoe hold-down spring cups, springs and pins.

INSPECTION

1. INSPECT DISASSEMBLED PARTS

Inspect the disassembled parts for wear, rust or damage.



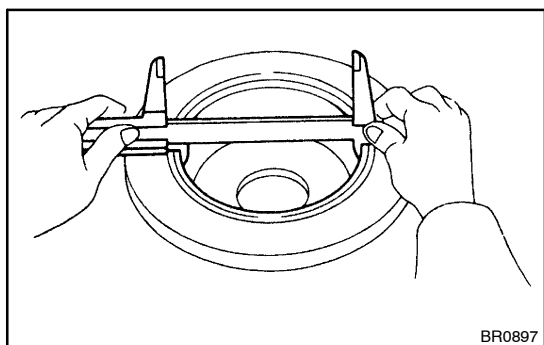
2. MEASURE BRAKE SHOE LINING THICKNESS

Using a ruler, measure the thickness of the shoe lining.

Standard thickness: 2.5 mm (0.098 in.)

Minimum thickness: 1.0 mm (0.039 in.)

If the lining thickness is at the minimum thickness or less, or if there is severe and uneven wear, replace the brake shoe.



3. MEASURE BRAKE DISC INSIDE DIAMETER

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

Standard inside diameter: 190 mm (7.48 in.)

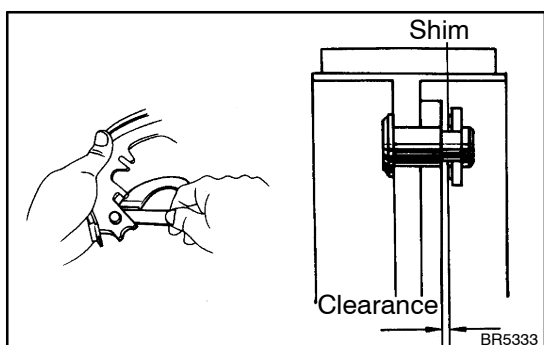
Maximum inside diameter: 191 mm (7.52 in.)

Replace the disc if the inside diameter is at the maximum value or more.

Replace the disc or grind it with a lathe if the disc is scored or worn unevenly.

4. INSPECT PARKING BRAKE SHOE LINING AND DISC FOR PROPER CONTACT

Apply chalk to the inside surface of the disc, then grind down the brake shoe lining to fit. If the contact between the disc and the brake shoe lining is improper, repair it using a brake shoe grinder or replace the brake shoe assembly.



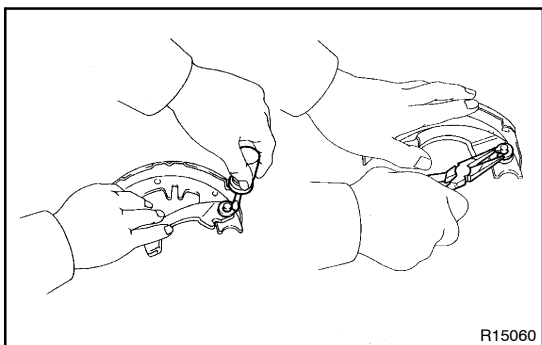
5. MEASURE CLEARANCE BETWEEN PARKING BRAKE SHOE AND LEVER

Using a feeler gauge, measure the clearance.

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

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

Thickness	Thickness
0.3 mm (0.012 in.)	0.9 mm (0.035 in.)
0.6 mm (0.024 in.)	–

**6. IF NECESSARY, REPLACE SHIM**

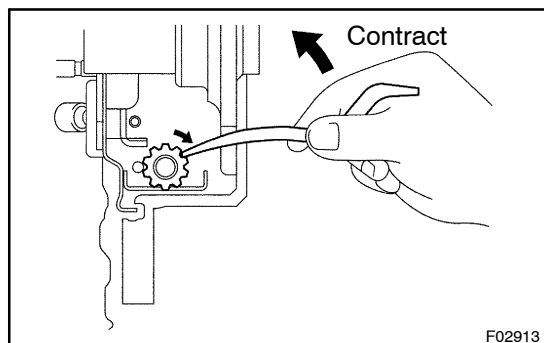
- (a) Using a screwdriver, remove the C-washer and shim.
- (b) Install the correct size shim.
- (c) Install a new C-washer.
- (d) Remeasure the clearance.

REASSEMBLY

Reassembly is in the reverse order of disassembly (See page BR-34).

NOTICE:

Apply high temperature grease to the parts indicated by the arrows (See page BR-33).



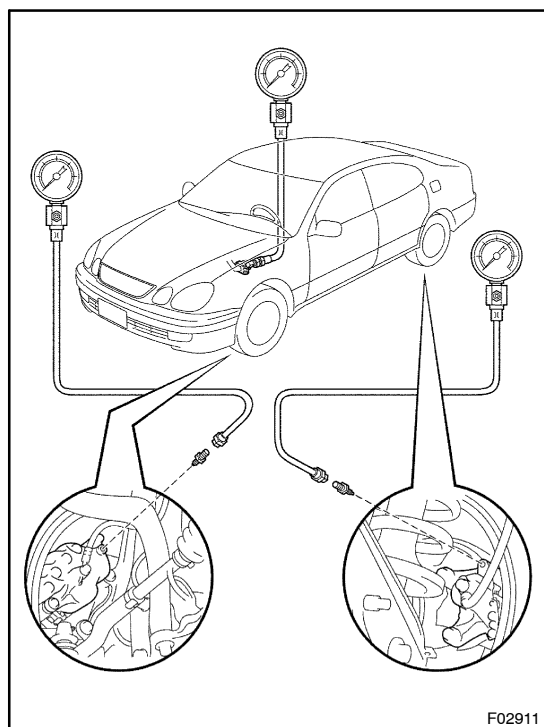
1. ADJUST PARKING BRAKE SHOE CLEARANCE

- (a) Temporarily install the hub nuts.
- (b) Remove the hole plug.
- (c) Turn the adjuster and expand the shoes until the disc locks.
- (d) Return the adjuster 3 notches.
- (e) Install the hole plug.

2. SETTLING PARKING BRAKE SHOES AND DISC

- (a) Depress the parking brake pedal with a force of 147 N (15 kgf, 33 lbf).
- (b) Drive the vehicle at about 50 km/h (31 mph) on a safe, level and dry road.
- (c) Drive the vehicle for about 400 meters (0.25 mile) in this condition.
- (d) Repeat this procedure 2 or 3 times.

3. CHECK AND ADJUST PARKING BRAKE PEDAL TRAVEL (See page BR-11)



HYDRAULIC BRAKE BOOSTER ON-VEHICLE INSPECTION

BR0K7-02

1. HYDRAULIC BRAKE BOOSTER OPERATION INSPECTION

- (a) Inspect the battery voltage.
Battery voltage: 10 – 14 V
- (b) Turn the ignition switch OFF, depress the brake pedal more than 40 times.
- (c) Install LSPV gauge (SST) and brake pedal effort gauge, bleed air.
SST 09709-29018
- (d) When booster does not operate.
Depress the brake pedal and check fluid pressure.

At 245 N (25 kgf, 55 lbf):

Front brake pressure	Rear brake pressure
1,470 kPa (15 kgf/cm ² , 213 psi) or more	0 kPa (0 kgf/cm ² , 0 psi)

At 343 N (35 kgf, 77 lbf):

Front brake pressure	Rear brake pressure
2,059 kPa (21 kgf/cm ² , 299 psi) or more	0 kPa (0 kgf/cm ² , 0 psi)

- (e) When booster operate.
 - (1) Turn the ignition switch ON and wait until the pump motor has stopped.
 - (2) Depress the brake pedal and check fluid pressure.

At 49 N (5 kgf, 11 lbf):

Front brake pressure	Rear brake pressure
1,255 – 1,814 kPa (12.8 – 18.5 kgf/cm ² , 182 – 263 psi)	1,285 – 2,148 kPa (13.1 – 21.9 kgf/cm ² , 186 – 311 psi)

At 98 N (10 kgf, 22 lbf):

Front brake pressure	Rear brake pressure
2,765 – 4,021 kPa (28.2 – 41.0 kgf/cm ² , 401 – 583 psi)	3,128 – 4,482 kPa (31.9 – 45.7 kgf/cm ² , 454 – 650 psi)

At 147 N (15 kgf, 33 lbf):

Front brake pressure	Rear brake pressure
4,266 – 6,139 kPa (43.5 – 62.6 kgf/cm ² , 619 – 890 psi)	4,599 – 6,541 kPa (46.9 – 66.7 kgf/cm ² , 667 – 949 psi)

At 196 N (20 kgf, 44 lbf):

Front brake pressure	Rear brake pressure
5,982 – 8,100 kPa (61.0 – 82.6 kgf/cm ² , 868 – 1,175 psi)	6,296 – 8,414 kPa (64.2 – 85.8 kgf/cm ² , 913 – 1,220 psi)

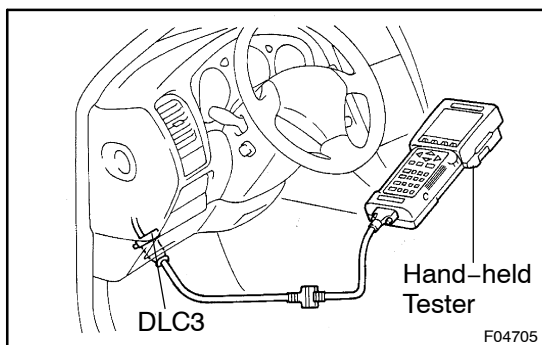
2. IN CASE OF USING HAND-HELD TESTER

- (a) Inspect the battery voltage.

Battery voltage: 10 – 14 V

- (b) Turn the ignition switch OFF, depress the brake pedal more than 40 times.
- (c) Check that the brake pedal becomes heavy to depress. If the pedal does not become to be heavy to depress, check and replace the brake line and hydraulic brake booster.
- (d) Turn the ignition switch ON, check the pump motor operation noise.

If the pump motor does not operate, check and replace the wire harness and pump motor.



- (e) Connect the hand-held tester.
- (1) Connect the hand-held tester to the DLC3.
 - (2) Turn the ignition switch ON.
 - (3) Select the "ACTIVE TEST" mode on the hand-held tester.

HINT:

- Please refer to the hand-held tester operator's manual for further details.
- To protect the solenoids, hand-held tester turns OFF automatically 2 secs. after every solenoid has been turned ON.

- (f) Inspect the front TRC & VSC solenoid operation.
- (1) Select "SA1" and "SA2" on the hand-held tester.
 - (2) With "SA1" and "SA2" turned ON simultaneously with the hand-held tester, depress the brake pedal with stable force and check that the pedal cannot be depressed.

HINT:

To protect the solenoids, hand-held tester turns OFF automatically 2 secs. after has been turned ON.

If the pedal can be depressed, replace the hydraulic brake booster.

NOTICE:

When operating it continuously, set the interval of more than 20 seconds.

- (3) Once, release the brake pedal.

- (4) When the solenoids are OFF, after depressing the pedal again and check that the pedal can be depressed.

If the pedal cannot be depressed, replace the hydraulic brake booster.

- (g) Inspect the front ABS solenoid operation.
 - (1) Select "SFRH" and "SFLH" on the hand-held tester.
 - (2) With "SFRH" and "SFLH" turned ON simultaneously with the hand-held tester, depress the brake pedal with stable force and check that the pedal cannot be depressed.

HINT:

To protect the solenoids, hand-held tester turns OFF automatically 2 secs. after has been turned ON.

If the pedal can be depressed, replace the hydraulic brake booster.

- (3) When the solenoids are OFF, check that the pedal can be depressed.

If the pedal cannot be depressed, replace the hydraulic brake booster.

- (4) Once, release the brake pedal. After depressing and holding the pedal with stable force, turn the SFRH and SFRR solenoids ON simultaneously.

HINT:

To protect the solenoids, hand-held tester turns OFF automatically 2 secs. after has been turned ON.

- (5) When the solenoids are OFF, check that the pedal can be depressed.

If the pedal cannot be depressed, replace the hydraulic brake booster.

- (6) Once, release the brake pedal. After depressing the pedal with stable force, turn the SFLH and SFLR solenoids ON simultaneously.

HINT:

To protect the solenoids, hand-held tester turns OFF automatically 2 secs. after has been turned ON.

- (7) When the solenoids are OFF, check that the pedal can be depressed.

If the pedal cannot be depressed, replace the hydraulic brake booster.

- (h) Jack up and support the vehicle.
- (i) Release the parking brake pedal.
- (j) Inspect the rear TRC & VSC solenoid operation.
 - (1) Select the "SA3" and "STR" on the hand-held tester.

- (2) Turn the "SA3" and "STR" ON simultaneously with the hand-held tester, and check that the rear wheels by stopping them by hand.

HINT:

When rotating the wheel fast, the fail-safe function is activated and judgement cannot be made properly. So rotate the wheel as slowly as possible.

If the rear wheels rotate, replace the hydraulic brake booster.

- (3) Turn the "SA3" and "STR" OFF simultaneously, and check that the rear wheels by rotating them by hand.

HINT:

- To protect the solenoids, hand-held tester turns OFF automatically 2 secs. after has been turned ON.
- When rotating the wheel fast, the fail-safe function is activated and judgement cannot be made properly. So rotate the wheel as slowly as possible.

NOTICE:

When operating it continuously, set the interval of more than 20 secs.

If the rear wheels stop, replace the hydraulic brake booster.

- (k) Inspect the right rear ABS solenoid.
 - (1) Select the "SA3", "STR" and "SRRH", on the hand-held tester.
 - (2) Turn the "SA3", "STR" and "SRRH" ON simultaneously with the hand-held tester, and check that the right rear wheel by rotating them by hand.

HINT:

- To protect the solenoids, hand-held tester turns OFF automatically 2 secs. after has been turned ON.
- When rotating the wheel fast, the fail-safe function is activated and judgement cannot be made properly. So rotate the wheel as slowly as possible.
- When solenoid is OFF, the wheel might stop temporarily. However if the wheel rotates again, the function works normally.

If the rear wheels stop, replace the hydraulic brake booster.

- (3) Turn the "SA3", "STR" and "SRRH" OFF, and check that the rear wheel by stopping them by hand.

HINT:

- To protect the solenoids, hand-held tester turns OFF automatically 2 secs. after has been turned ON.
- When rotating the wheel fast, the fail-safe function is activated and judgement cannot be made properly. So rotate the wheel as slowly as possible.

If the rear wheels rotate, replace the hydraulic brake booster.

- (4) Depress the pedal with stable force, then turn the "SRRH" and "SRRR" ON simultaneously.
- (5) When the solenoids are ON, check that the right rear wheel by rotating them by hand.

- (l) Inspect the left rear ABS solenoid operation.
 - (1) Select the "SA3", "STR" and "SRLH" on the hand-held tester.
 - (2) Turn the "SA3", "STR" and "SRLH" ON with hand-held tester, and check that the left rear wheel by rotating them by hand.

HINT:

When rotating the wheel fast, the fail-safe function is activated and judgement cannot be made properly. So rotate the wheel as slowly as possible.

If the rear wheels stop, replace the hydraulic brake booster.

- (3) Turn the "SA3", "STR" and "SRLH" OFF and check that the rear wheels by rotating them by hand.

HINT:

- To protect the solenoids, hand-held tester turns OFF automatically 2 secs. after has been turned ON.
- When rotating the wheel fast, the fail-safe function is activated and judgement cannot be made properly. So rotate the wheel as slowly as possible.
- When solenoid is OFF, the wheel might stop temporarily. However if the wheel rotates again, the function works normally.

If the rear wheels rotate, replace the hydraulic brake booster.

- (4) Depress the pedal with stable force, then turn the "SRLH" and "SRLR" ON simultaneously.

HINT:

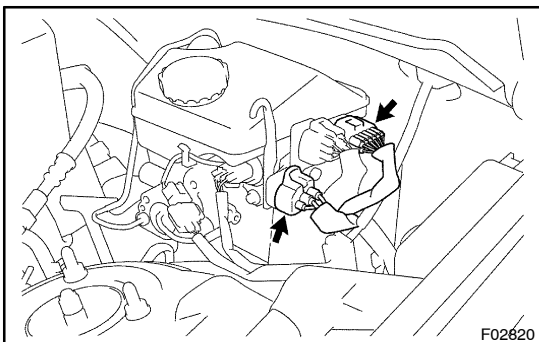
To protect the solenoids, hand-held tester turns OFF automatically 2 secs. after has been turned ON.

- (5) When the solenoids are ON, check that the right rear wheel by rotating them by hand.

HINT:

When rotating the wheel fast, the fail-safe function is activated and judgement cannot be made properly. So rotate the wheel as slowly as possible.

- (m) Lower the vehicle.
- (n) Disconnect the hand-held tester.

**3. IN CASE OF USING ABS ACTUATOR CHECKER**

- (a) Inspect the battery voltage.
Battery voltage: 10 – 14 V
- (b) Disconnect the 2 connectors from hydraulic brake booster.

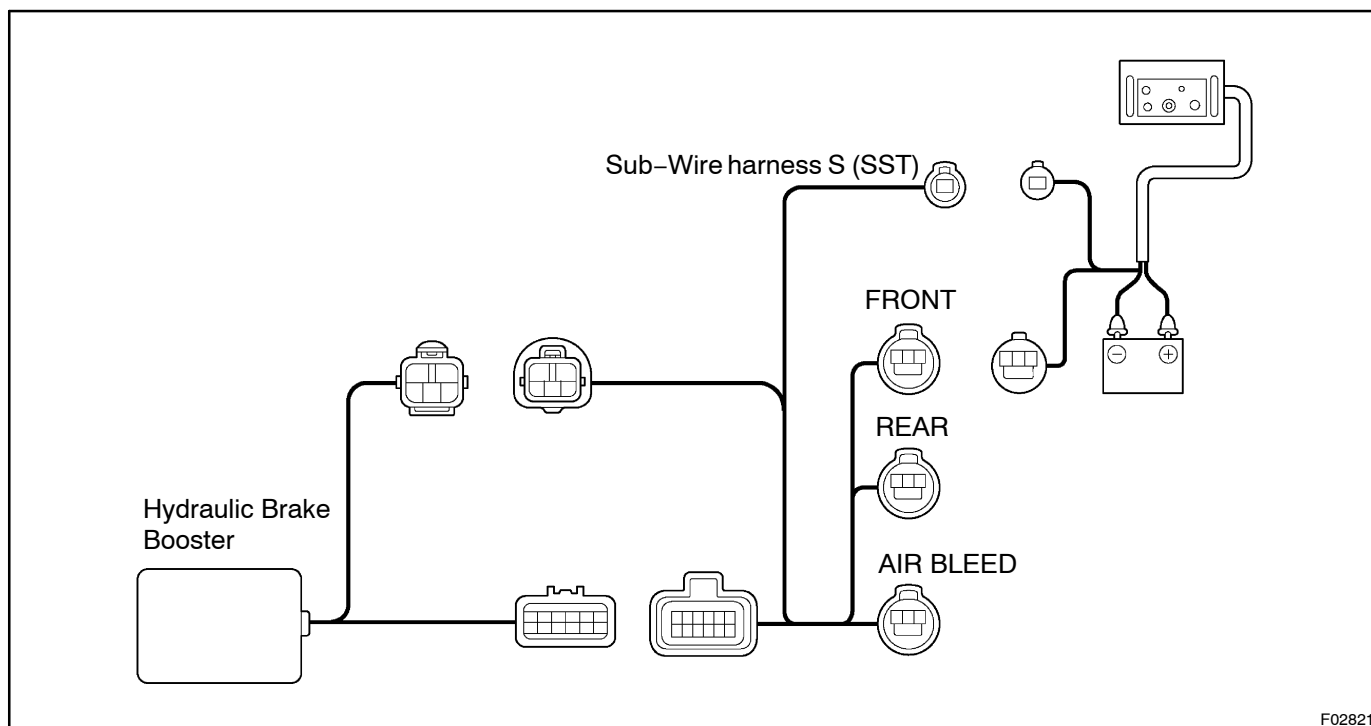
- (c) Connect the actuator checker (SST) to the hydraulic brake booster side wire harness via the sub-wire harness (SST), as shown in the chart below.

SST 09990-00150, 09990-00480

HINT:

Connect the connector with the label of "FRONT" attached to the connector of actuator checker.

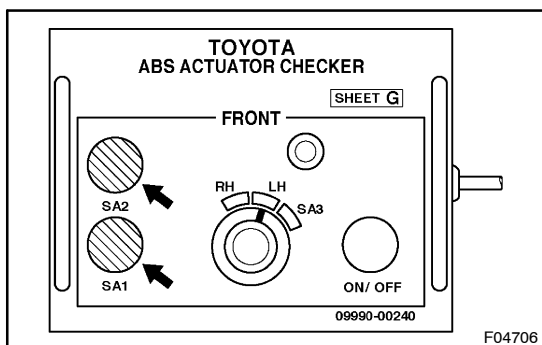
- (d) Connect the red cable of the checker to the battery positive (+) terminal and the black cable to the negative (-) terminal.



F02821

- (e) Place "SHEET G" (SST) of "FRONT" on actuator checker.
SST 09990-00240
- (f) Turn the ignition switch OFF, depress the brake pedal more than 40 times.
- (g) Check that the brake pedal becomes heavy to depress. If the pedal does not become to be heavy to depress, check and replace the brake line and hydraulic brake booster.
- (h) Turn the ignition switch ON, check the pump motor operation noise.

If the pump motor does not operate, check and replace the wire harness and pump motor.



- (i) Inspect the front TRC & VSC solenoid operation.
- (1) Push in and hold the "SA1" and "SA2" switches simultaneously, depress strongly and hold the brake pedal with stable force.

NOTICE:

Do not keep the "SA1" and "SA2" pushed down for more than 10 seconds. When operating it continuously, set the interval of more than 20 seconds.

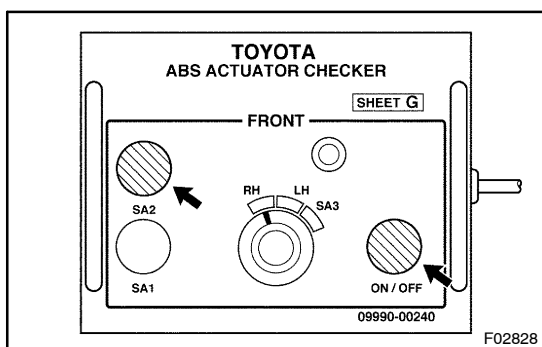
- (2) Check that the brake pedal cannot be depressed. If the pedal can be depressed, replace the hydraulic brake booster.

- (3) Release the "SA1" switch and check that the pedal can be depressed.

If the pedal can be depressed, replace the hydraulic brake booster.

- (4) Release the "SA2" switch and check that the pedal can be depressed.

If the pedal can be depressed, replace the hydraulic brake booster.



- (j) Inspect the right front ABS solenoid operation.
- (1) Turn the selector switch to "RH" position.
 - (2) Push and hold in the MAIN push switch and "SA2" switch simultaneously depress and hold the brake pedal with stable force.

NOTICE:

Do not keep the MAIN push switch and "SA2" switch pushed down for more than 10 seconds. When operating it continuously, set the interval of more than 20 seconds.

- (3) Check that the brake pedal cannot be depressed. If the pedal can be depressed, replace the hydraulic brake booster.

- (4) Release the MAIN push switch and "SA2" switch simultaneously and check that the pedal can be depressed.

If the pedal cannot be depressed, replace the hydraulic brake booster.

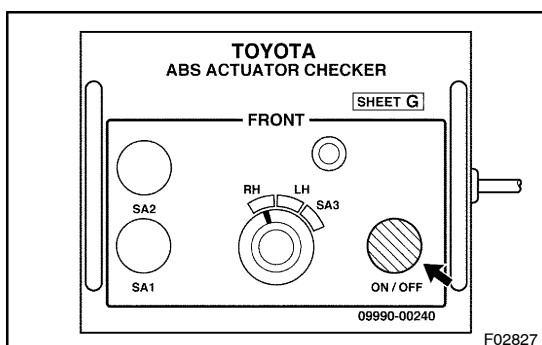
- (5) Release the brake pedal.

- (6) Depress and hold the brake pedal with stable force, push and hold in MAIN push switch.

NOTICE:

Do not keep the MAIN push switch pushed down for more than 10 seconds. When operating it continuously, set the interval of more than 20 seconds.

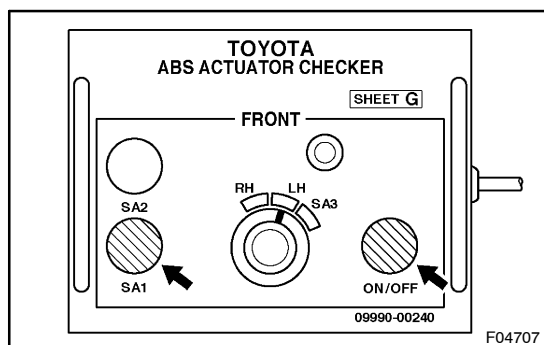
- (7) Check that the brake pedal cannot be depressed. If the pedal can be depressed, replace the hydraulic brake booster.



- (8) Release the MAIN push switch and check that the pedal can be depressed.

If the pedal cannot be depressed, replace the hydraulic brake booster.

- (9) Release the brake pedal.



- (k) Inspect the left front ABS solenoid operation.

- (1) Turn the selector switch to "LH" position.
- (2) Push and hold in the MAIN push switch and "SA1" switch simultaneously, depress and hold the brake pedal with stable force.

NOTICE:

Do not keep the MAIN push switch and "SA1" switch pushed down for more than 10 seconds. When operating it continuously, set the interval of more than 20 seconds.

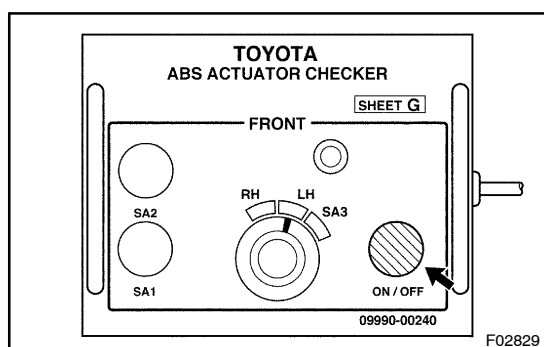
- (3) Check that the brake pedal cannot be depressed.

If the pedal can be depressed, replace the hydraulic brake booster.

- (4) Release the MAIN push switch and "SA1" switch simultaneously, and check that the pedal can be depressed.

If the pedal cannot be depressed, replace the hydraulic brake booster.

- (5) Release the brake pedal.



- (6) Depress and hold the brake pedal with stable force, push and hold in MAIN push switch.

NOTICE:

Do not keep the MAIN push switch pushed down for more than 10 seconds. When operating it continuously, set the interval of more than 20 seconds.

- (7) Check that the brake pedal cannot be depressed.

If the pedal can be depressed, replace the hydraulic brake booster.

- (8) Release the MAIN push switch and check that the pedal can be depressed.

If the pedal cannot be depressed, replace the hydraulic brake booster.

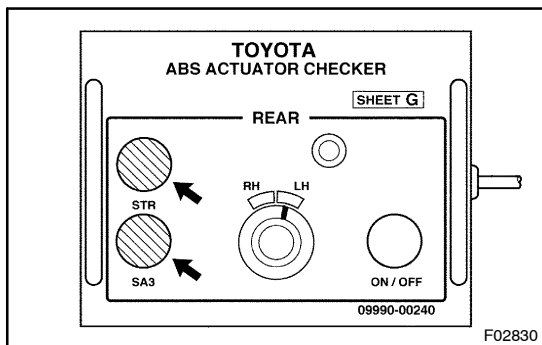
- (9) Release the brake pedal.

- (l) Turn the ignition switch OFF, then reconnect the connector of sub-wire harness from the one with label of "FRONT" to "REAR".

- (m) Place "SHEET G" of "REAR" on the actuator checker.

- (n) Jack up and support the vehicle.

- (o) Start the engine and run it at idle.

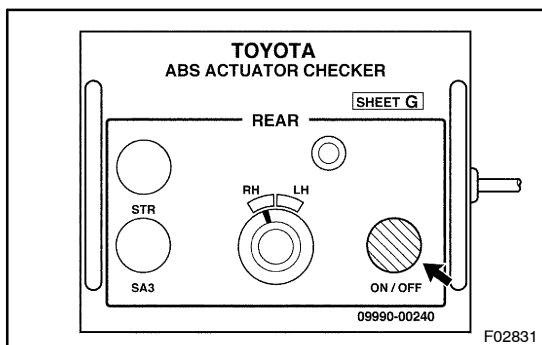


- (p) Inspect the rear TRC & VSC solenoid.
- (1) Release the parking brake pedal and shift the shift lever to "L" position.
 - (2) Push and hold the "SA3" switch and "STR" switch simultaneously.

NOTICE:

- **Do not keep the "STR" switch pushed down for more than 10 seconds.**
 - **Do not keep the "SA3" switch pushed down for more than 5 seconds.**
 - **When operating it continuously, set the interval of more than 20 seconds.**
- (3) Check that the rear wheels stop.
- If the rear wheels rotate, replace the hydraulic brake booster.
- (4) Release the "SA3" switch and "STR" switch simultaneously.
 - (5) Check that the rear wheels rotate.

If the rear wheels stop, replace the hydraulic brake booster.

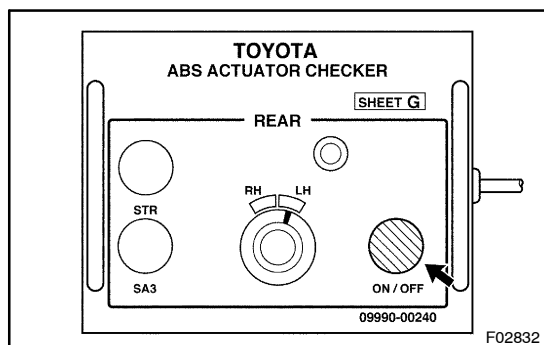


- (q) Inspect the right rear ABS solenoid.
- (1) Turn the selector switch to "RH" position.
 - (2) Depress the brake pedal several times the release the pedal after the pump has begun to operate, and wait until the pump stops.
 - (3) Turn the ignition switch OFF.
 - (4) With push and hold in the MAIN push switch, depress the pedal with force of 196 N (20 kgf, 44 lbf) and hold it 6 times for 10 secs.

NOTICE:

When operating it continuously, set the interval of more than 20 seconds.

- (5) Check that pedal is not hard to depress.
- If pedal is hard to depress, replace the hydraulic brake booster.
- (6) Start the engine and run it at idle.
 - (7) Depress the brake pedal.
 - (8) Release the parking brake pedal and shift the shift lever to "L" position.
 - (9) Once, release the brake pedal. After depressing the brake pedal with stable force, then push and hold MAIN push switch.
 - (10) Check that the right rear wheel rotate.
- If the right rear wheels stop, replace the hydraulic brake booster.



- (r) Inspect the left rear ABS solenoid.
- (1) Turn the selector switch to "LH" position.
 - (2) Depress the brake pedal several times, release the pedal after the pump has begun to operate, and wait until the pump stops.
 - (3) Turn the ignition switch OFF.
 - (4) With push and hold in the MAIN push switch, depress the pedal with force of 196 N (20 kgf, 44 lbf) and hold it 6 times for 10 secs.

NOTICE:

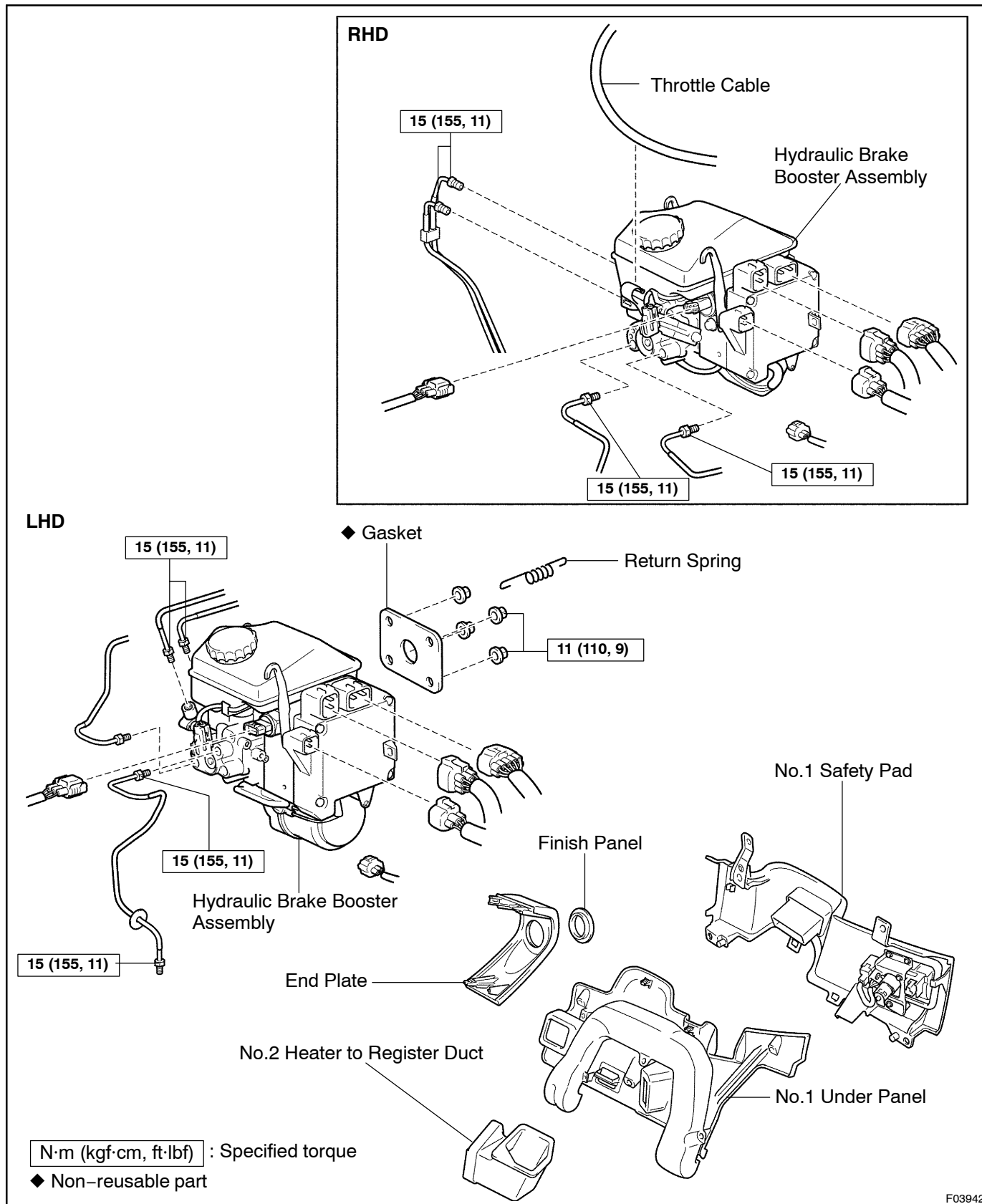
When operating it continuously, set the interval of more than 20 seconds.

- (5) Check that pedal is not hard to depress.
- If pedal is hard to depress, replace the hydraulic brake booster.
- (6) Start the engine and run it at idle.
 - (7) Depress the brake pedal.
 - (8) Release the parking brake pedal and shift the shift lever to "L" position.
 - (9) Once, release the brake pedal. After depressing the brake pedal with stable force, then push and hold MAIN push switch.
 - (10) Check that the left rear wheel rotate.
- If the left rear wheels stop, replace the hydraulic brake booster.
- (s) Stop the engine and lower the vehicle.
 - (t) Remove the "SHEET G" (SST) and disconnect the actuator checker (SST) and sub-wire harness (SST) from the hydraulic brake booster.

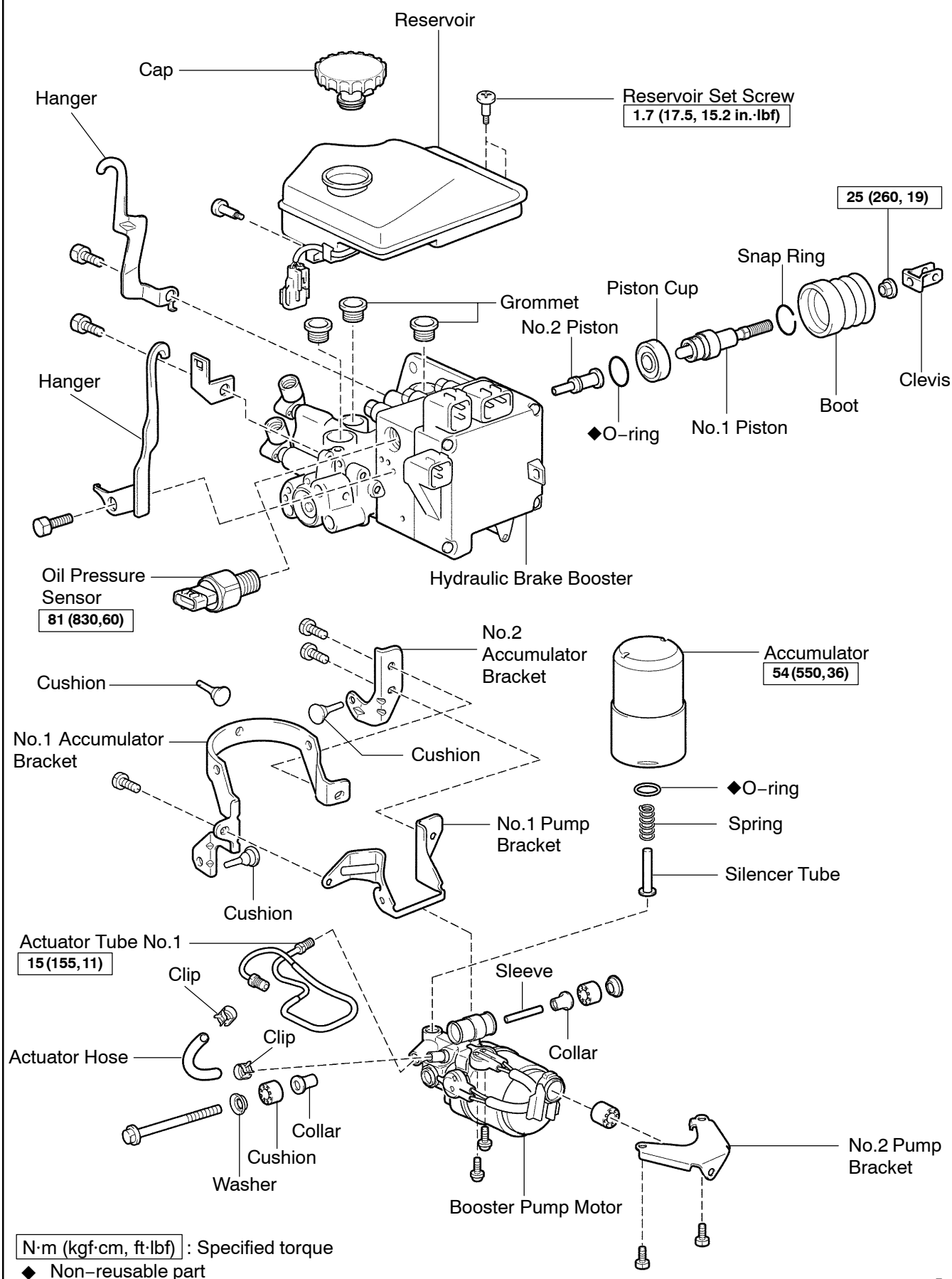
SST 09990-00150, 09990-00240, 09990-00480

- (u) Connect the 2 connectors to the actuator.
- (v) Clear the DTC (See page DI-210).

COMPONENTS



Reference: LHD



F02812

REMOVAL

NOTICE:

- Before starting the work, make sure that the ignition switch is OFF and depress the brake pedal more than 40 times.
- As high pressure is applied to the brake actuator tube No.1, never deform it.
- Until the work is over, do not turn the ignition switch ON.

1. DRAW OUT FLUID WITH SYRINGE

NOTICE:

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

2. REMOVE THESE PARTS (See page BO-91):

- End panel and finish panel
- No.1 under panel
- No.2 heater to register duct
- No.1 safety pad

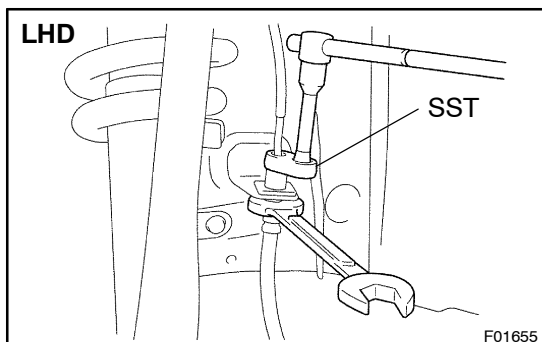
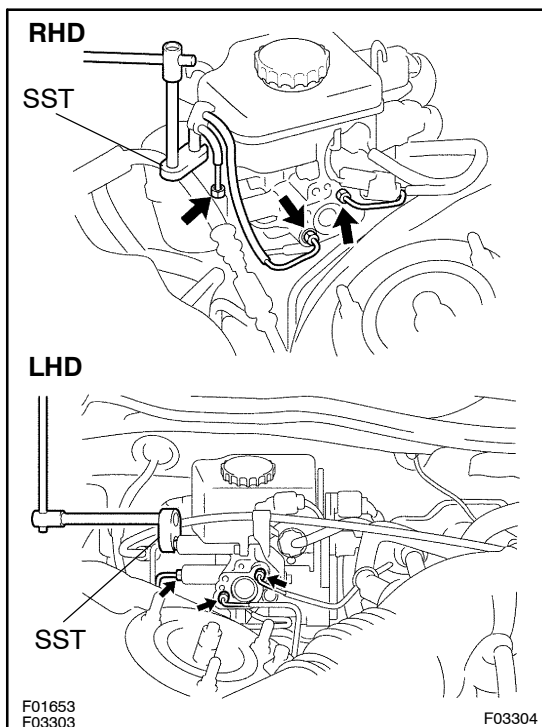
3. DISCONNECT LEVEL WARNING SWITCH CONNECTOR

4. DISCONNECT BRAKE LINES

Using SST, disconnect the 4 brake lines.

SST 09023-00100

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



5. LHD:

DISCONNECT LEFT FRONT WHEEL BRAKE LINE

Using SST, disconnect the left front wheel brake line from the flexible hose.

SST 09023-00100

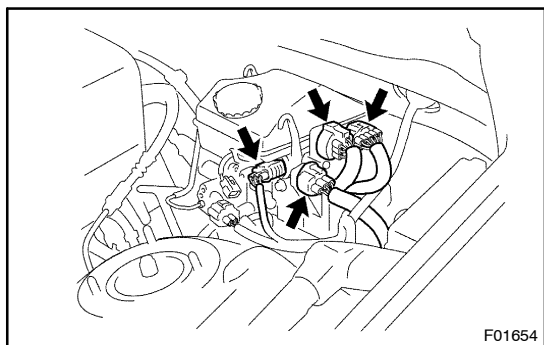
Torque: 15 N·m (155 kgf·cm, 11 ft·lbf)

6. LHD:

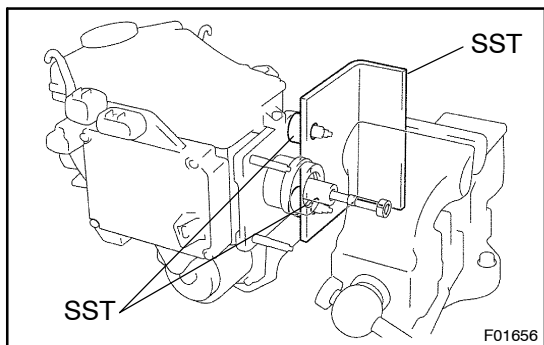
REMOVE 2 BRAKE LINE CLAMPS

7. RHD:

DISCONNECT THROTTLE CABLE FROM CLAMP



8. **DISCONNECT 4 CONNECTORS**
9. **REMOVE PEDAL RETURN SPRING, CLIP AND CLEVIS PIN**
10. **REMOVE HYDRAULIC BRAKE BOOSTER ASSEMBLY**
 - (a) Remove the clevis from push rod.
Torque: 25 N·m (260 kgf·cm, 19 ft·lbf)
 - (b) Remove the 4 booster installation nuts.
Torque: 13 N·m (130 kgf·cm, 9 ft·lbf)
 - (c) Remove the booster assembly and gasket.



DISASSEMBLY

1. PLACE HYDRAULIC BRAKE BOOSTER IN VISE

Using SST, set the hydraulic brake booster in vise.

SST 09630-00014 (09631-00142),
09950-60010 (09951-00180, 09951-00190)

2. REMOVE RESERVOIR AND GROMMETS

- (a) Remove reservoir cap.
- (b) Remove the 3 set screws and pull out the reservoir.

Torque: 1.7 N·m (17.5 kgf·cm, 15.2 in·lbf)

- (c) Remove the 3 grommets.

3. REMOVE CLEVIS AND CYLINDER BOOT

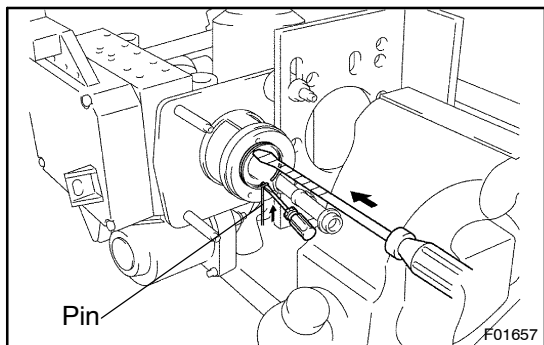
- (a) Loosen the lock nut, then remove the clevis and lock nut.

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

- (b) Remove the cylinder boot.

4. REMOVE OIL PRESSURE SENSOR

Torque: 81 N·m (830 kgf·cm, 60 ft·lbf)



5. REMOVE PISTONS

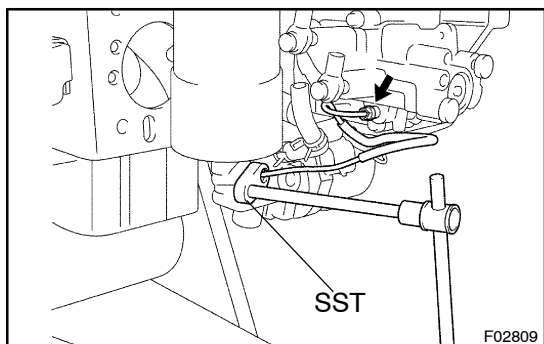
- (a) Pressing the piston in with a screwdriver, use a pin or an equivalent to push the snap ring from the hole in the body then remove it with another screwdriver.
- (b) Remove the No.1 and No.2 piston, pulling straight out, not at an angle.
- (c) Remove the O-ring and piston cup from No.1 piston.

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.

6. REMOVE ACTUATOR HOSE

7. REMOVE 2 BOLTS AND HANGERS



8. REMOVE BRAKE ACTUATOR TUBE NO.1

Using SST, remove the brake actuator tube No.1.

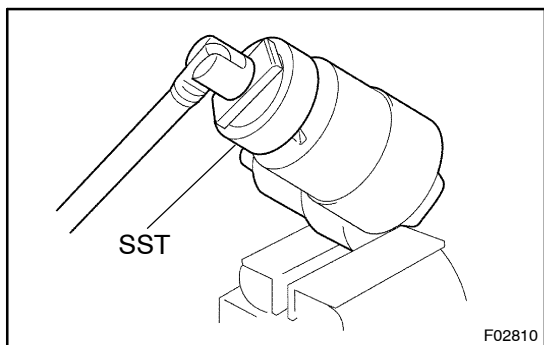
SST 09023-00100

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

9. REMOVE BOOSTER PUMP AND ACCUMULATOR

- (a) Remove the 2 screws and disconnect the wire harness connector from the booster assembly.

- (b) Remove the 3 bolts, No.1 accumulator bracket, No.2 accumulator bracket and booster pump and accumulator with the No.1 pump bracket.
- (c) Remove the bolt and No.1 pump bracket, and remove the 2 washers, 3 cushions, 2 collars and sleeve.
- (d) Remove the 2 bolts and No.2 pump bracket.

**10. REMOVE ACCUMULATOR FROM BOOSTER PUMP**

- (a) Using SST, remove the accumulator.
SST 09318-12010
Torque: 54 N·m (550 kgf·cm, 36 ft·lbf)
- (b) Remove the silencer tube, spring and O-ring.

DISPOSAL

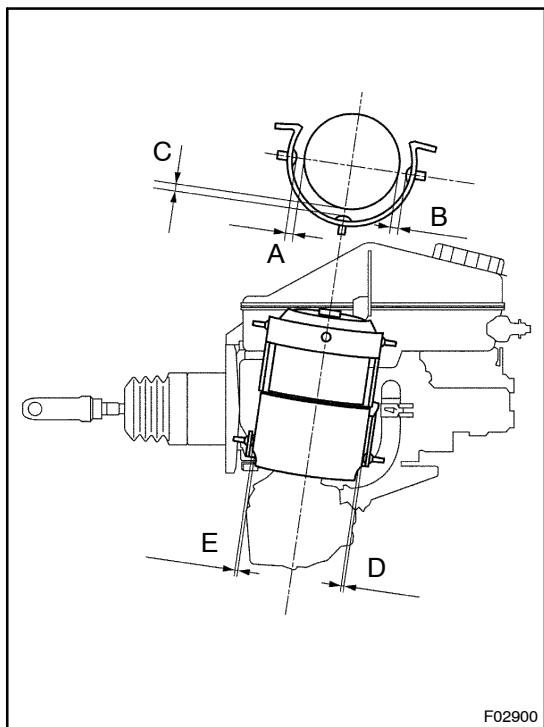
DISPOSAL METHOD OF ACCUMULATOR

- (a) Follow the procedures described below and drain the high pressure fluid from the accumulator.
- (b) Place the accumulator in a vise, cover it with a cloth over a saw then cut the accumulator body slowly.

CAUTION:

Never cut at a stretch.

- (c) When the outer body of the accumulator is cut, gas discharges.



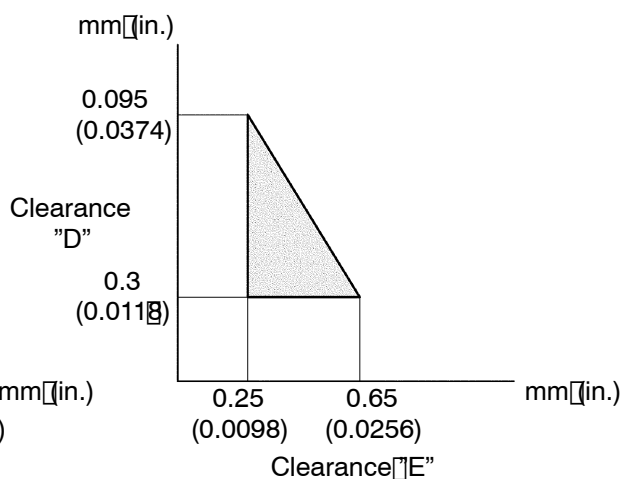
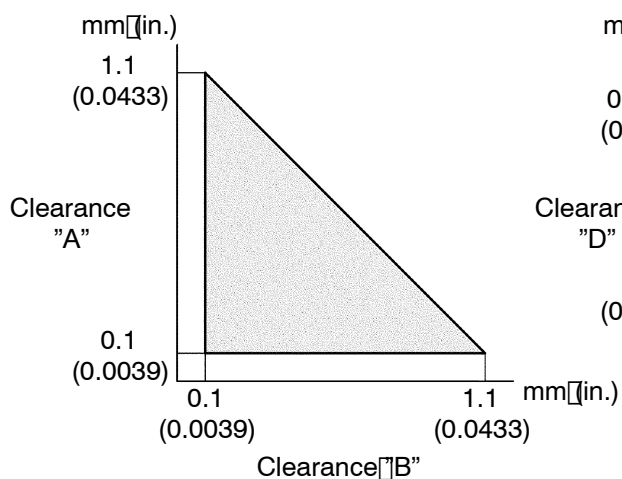
REASSEMBLY

Reassembly is in the reverse order of disassembly (See page BR-52).

INSTALL ACCUMULATOR BRACKET

When installing the accumulator bracket, adjust to ensure that clearance (A, B, D and E) shown in the illustration on the left corresponds to each value in the graphs below and are within the C range, using a thickness gauge.

C Range: 0.1 – 0.4 mm (0.004 – 0.016 in.)



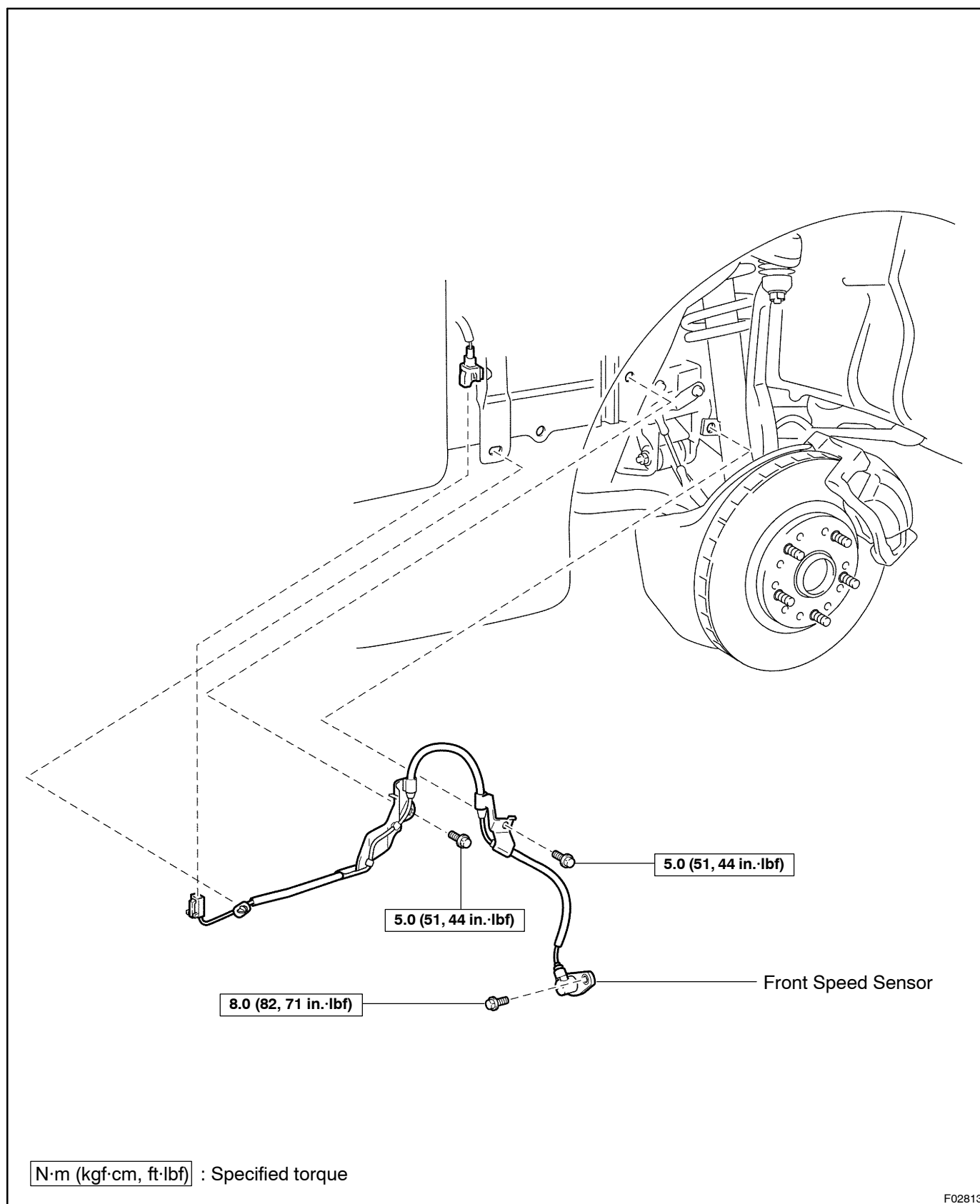
F02901

INSTALLATION

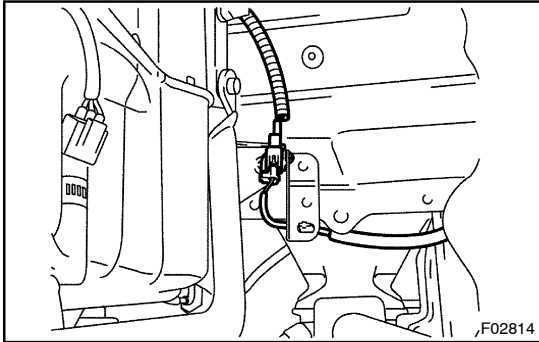
Installation is in the reverse order of removal (See page BR-50).

FRONT SPEED SENSOR COMPONENTS

BR0K1-02

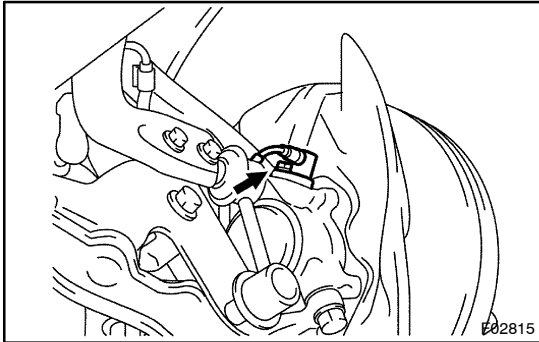


F02813



REMOVAL

1. DISCONNECT SPEED SENSOR CONNECTOR



2. REMOVE SPEED SENSOR

- (a) Remove the resin clip and 2 clamp bolts holding the sensor harness to the body.

Torque: 5.0 N·m (51 kgf·cm, 44 in·lbf)

- (b) Remove the bolt and speed sensor from the steering knuckle.

Torque: 8.0 N·m (82 kgf·cm, 71 in·lbf)

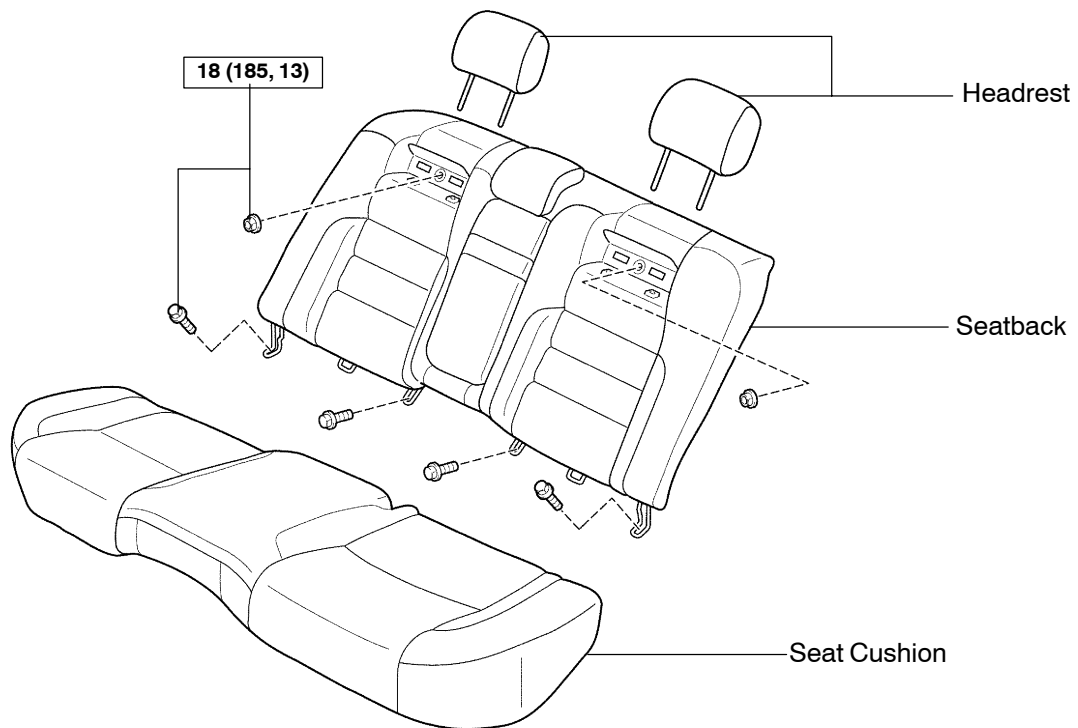
INSTALLATION

Installation is in the reverse order of removal (See page BR-58).

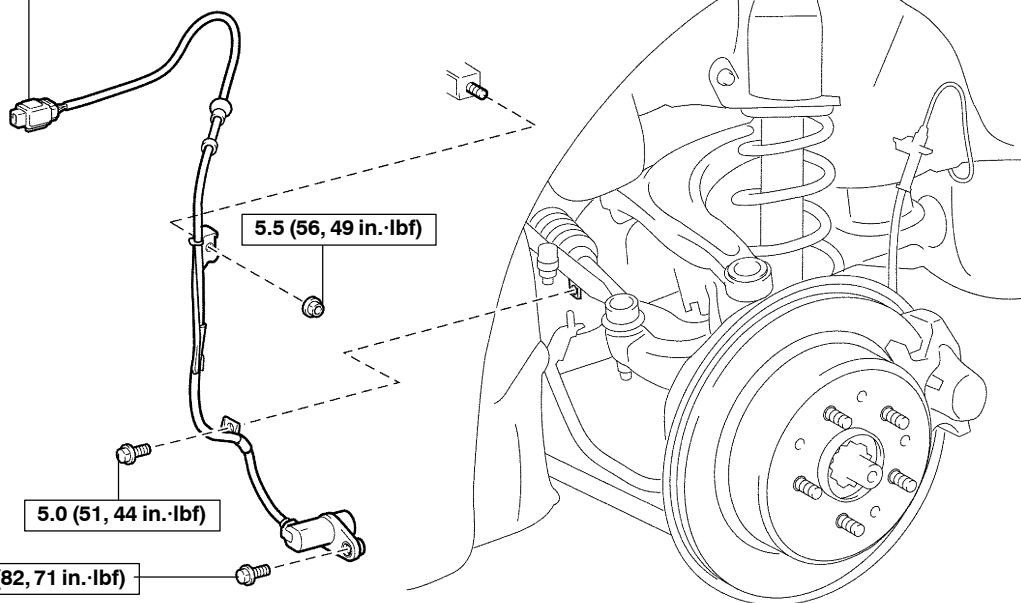
AFTER INSTALLATION, CHECK SPEED SENSOR SIGNAL (See page DI-210)

REAR SPEED SENSOR COMPONENTS

BR0K4-02

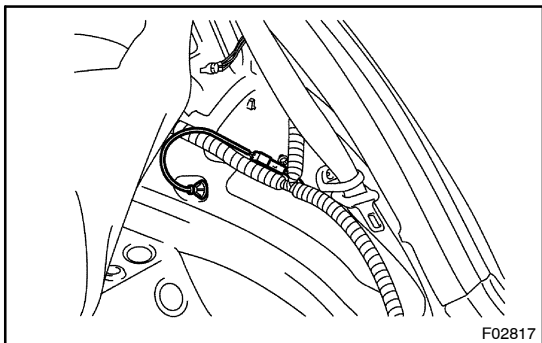


Rear Speed Sensor



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

F02816



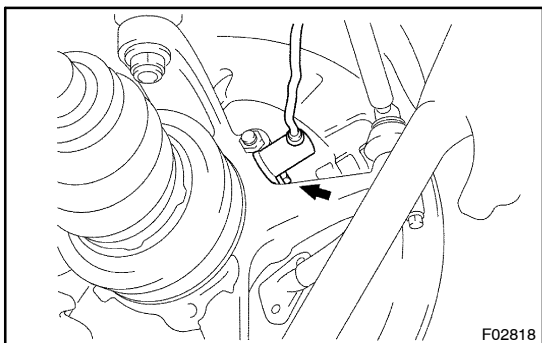
REMOVAL

1. DISCONNECT SPEED SENSOR CONNECTOR

- (a) Remove the seat cushion and 2 headrests.
- (b) Remove the 4 bolts, 2 nuts and seatback.
Torque: 18 N·m (185 kgf·cm, 13 in·lbf)
- (c) Disconnect the speed sensor connector and pull out the sensor wire harness with the grommet.

2. REMOVE SPEED SENSOR

- (a) Remove the clamp bolt holding the sensor wire harness to the suspension arm No.1.
Torque: 5.0 N·m (51 kgf·cm, 44 in·lbf)
- (b) Remove the clamp nut holding the sensor wire harness to the body.
Torque: 5.5 N·m (56 kgf·cm, 49 in·lbf)



- (c) Remove the sensor installation bolt and speed sensor from axle carrier.
Torque: 8.0 N·m (82 kgf·cm, 71 in·lbf)

INSTALLATION

Installation is in the reverse order of removal (See page BR-61).

AFTER INSTALLATION, CHECK SPEED SENSOR SIGNAL (See page DI-210).