
BRAKE

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BRAKE SYSTEM

BROKF-01

GENERAL DESCRIPTION

1. Care must be taken to replace each part properly as it could affect the performance of the brake system and result in a driving hazard. Replace the parts with parts of the same part number or equivalent.
2. It is very important to keep parts and the area clean when repairing the brake system.
3. If the vehicle is equipped with a mobile communication system, refer to the precaution in the IN section.

TROUBLESHOOTING PROBLEM SYMPTOMS TABLE

BROKIG-03

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. Fluid leaks for brake system	—
	2. Air in brake system	—
	3. Piston seals (Worn or damaged)	BR-24
	4. Master cylinder (Faulty)	BR-30 BR-8
Brake drag	1. Brake pedal freeplay (Minimal)	BR-5
	2. Parking brake pedal travel (Out of adjustment)	BR-7
	3. Parking brake wire (Sticking)	—
	4. Rear brake shoe clearance (Out of adjustment)	BR-34
	5. Pad or lining (Cracked or distorted)	BR-27
		BR-30
	6. Piston (Stuck)	BR-24
		BR-30
	7. Piston (Frozen)	BR-24
		BR-30
Brake pull	8. Tension or return spring (Faulty)	BR-30
	9. Vacuum leaks for booster system	BR-15
	10. Master cylinder (Faulty)	BR-8
	1. Piston (Stuck)	BR-24
	2. Pad or lining (Oily)	BR-30 BR-24
Hard pedal but brake inefficient	3. Piston (Frozen)	BR-30 BR-24
	4. Disc (Scored)	BR-30
	5. Pad or lining (Cracked or distorted)	BR-24
		BR-30
	1. Fluid leaks for brake system	—
Noise from brake	2. Air in brake system	—
	3. Piston (Stuck)	BR-24
	4. Pad or lining (Cracked or distorted)	BR-30 BR-24
	5. Pad or lining (Oily)	BR-30
	6. Pad or lining (Glazed)	BR-24
		BR-30
	7. Disc (Scored)	BR-24
	8. Vacuum leaks for booster system	BR-15
Noise from brake	1. Pad or lining (Cracked or distorted)	BR-24
		BR-30
	2. Installation bolt (Loosened)	BR-24
	3. Disc (scored)	BR-24
	4. Pad or lining (Dirty)	BR-24
		BR-30
	5. Pad or lining (Glazed)	BR-24
		BR-30
	6. Tension or return spring (Faulty)	BR-30
	7. Hold-down spring (Damage)	BR-30

BRAKE FLUID BLEEDING

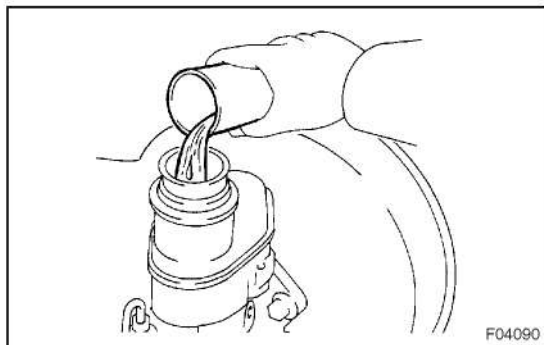
BR0KH-02

HINT:

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

NOTICE:

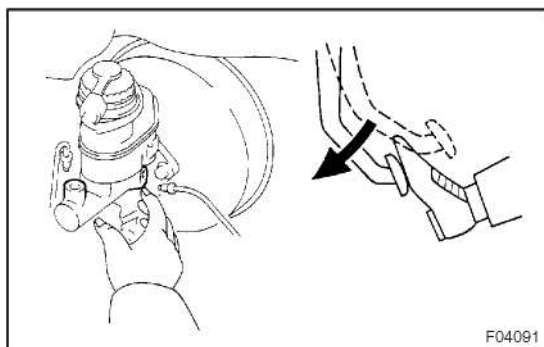
Do not let brake fluid remain on a painted surface. Wash it off immediately.



1. FILL BRAKE RESERVOIR WITH BRAKE FLUID

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

Fluid: SAE J1703 or FMVSS No.116 DOT3

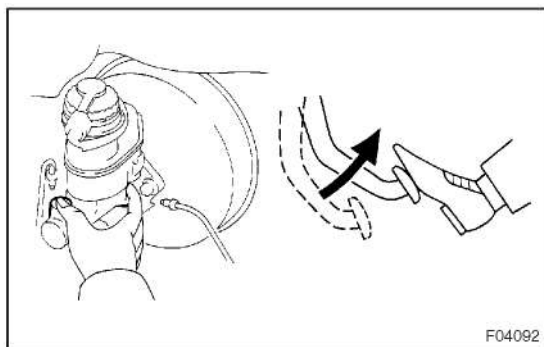


2. BLEED MASTER CYLINDER

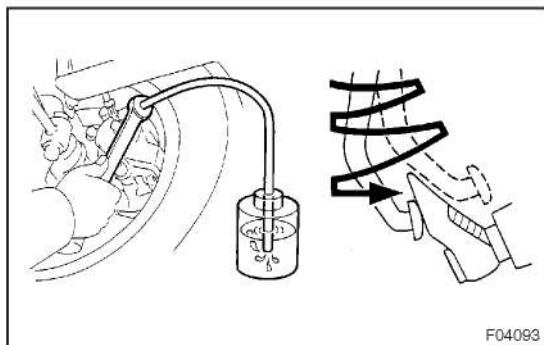
HINT:

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

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



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



3. CONNECT VINYL TUBE TO BRAKE CALIPER BLEEDER PLUG

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

NOTICE:

Bleed air of the rear brake first. If front brake is bled first, rear brake air cannot be bled.

4. BLEED BRAKE LINE

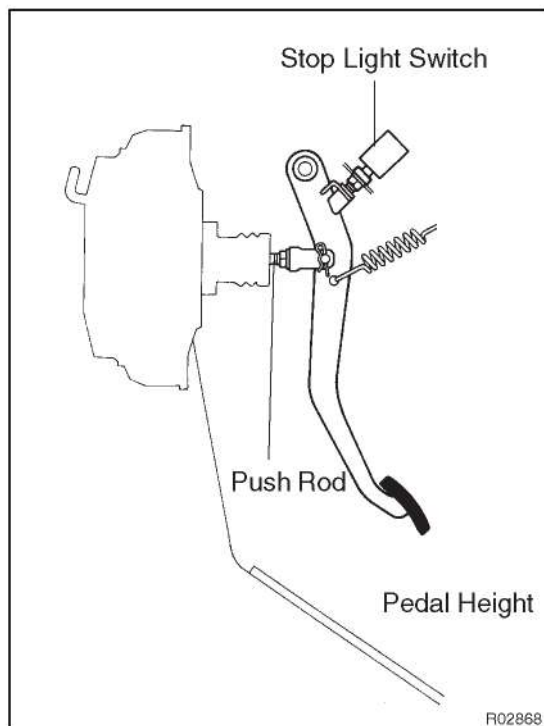
- Slowly depress the brake pedal several times.

- (b) While an assistant depresses the pedal, loosen the bleeder plug until fluid starts to run out. Then tighten the bleeder plug.
- (c) Repeat this procedure until there are no more air bubbles in the fluid.

Bleeder plug tightening torque:

8.3 N·m (85 kgf·cm, 74 in·lbf)

5. REPEAT PROCEDURE FOR EACH WHEEL



BRAKE PEDAL ON-VEHICLE INSPECTION

BR03-02

1. CHECK PEDAL HEIGHT

Pedal height from asphalt sheet:

(LHD)

139.8 – 149.8 mm (5.504 – 5.598 in.)

(RHD)

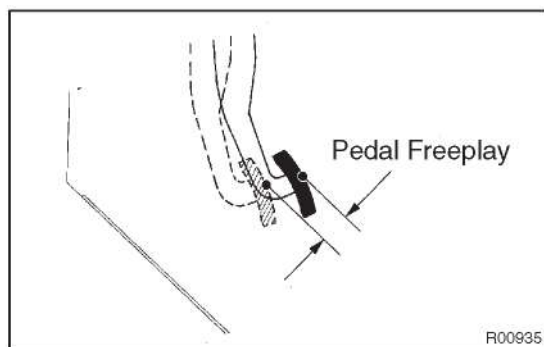
149.5 – 159.5 mm (5.886 – 6.280 in.)

If the pedal height is incorrect, adjust it.

2. RHD:

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: 15 N·m (155 kgf·cm, 11 ft·lbf)**
- Install the stop light switch.
 - Push the brake pedal in 5 – 15 mm (0.20 – 0.59 in.), turn the stop light switch and lock the nut in the position where the stop light goes off.
 - Connect the connector to the stop light switch.
 - After installation, push the brake pedal in 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

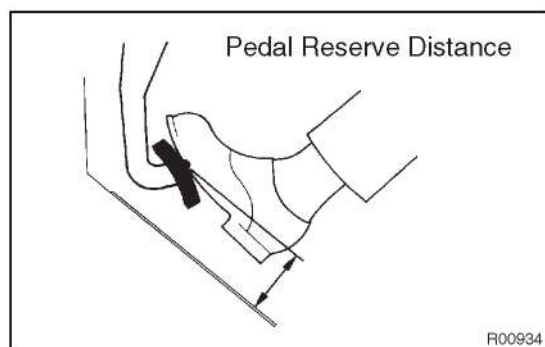
- Stop the engine and depress the brake pedal several times until there is no more vacuum left in the booster.
- Push in the pedal by hand until the resistance begins to be felt, then measure the distance.

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

HINT:

The freeplay to the 1st resistance is due to the play between the clevis and pin. This is magnified up to 1 – 3 mm (0.04 – 0.12 in.) at 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

Release the parking brake. 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):

LHD Gasoline engine (w/o ABS)

More than 75 mm (2.95 in.)

LHD others

More than 70 mm (2.76 in.)

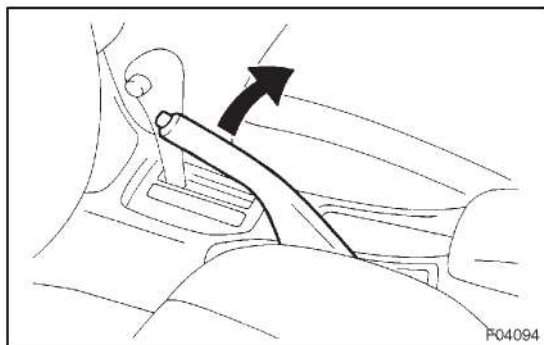
RHD Gasoline engine (w/o ABS)

More than 85 mm (3.35 in.)

RHD others

More than 80 mm (3.15 in.)

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



BR0PA-01

PARKING BRAKE LEVER ON-VEHICLE INSPECTION

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, 44.1 lbf):
4 – 7 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 step 2 on page BR-34.

- (a) Remove the rear console box.
- (b) Loosen the lock nut and turn the adjusting nut until the lever travel is correct.
- (c) Tighten the lock nut.

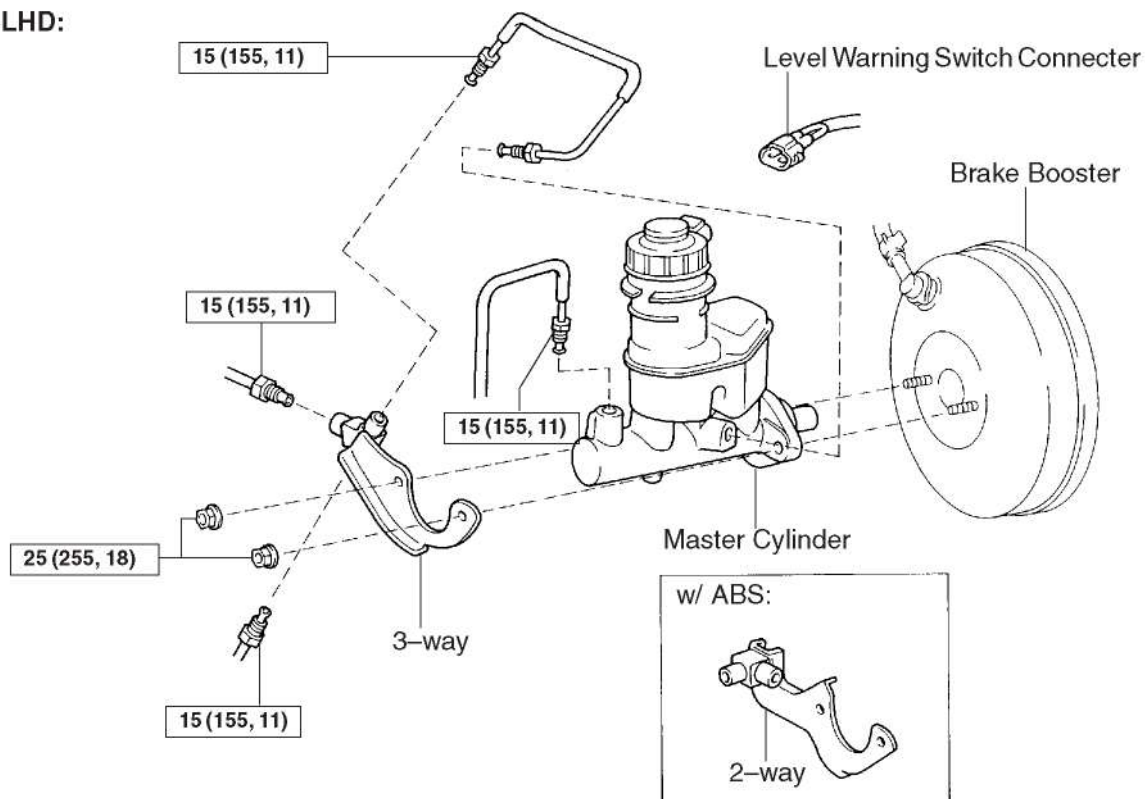
Torque: 5.4 N·m (55 kgf·cm, 48 in·lbf)

- (d) Install the rear console box.

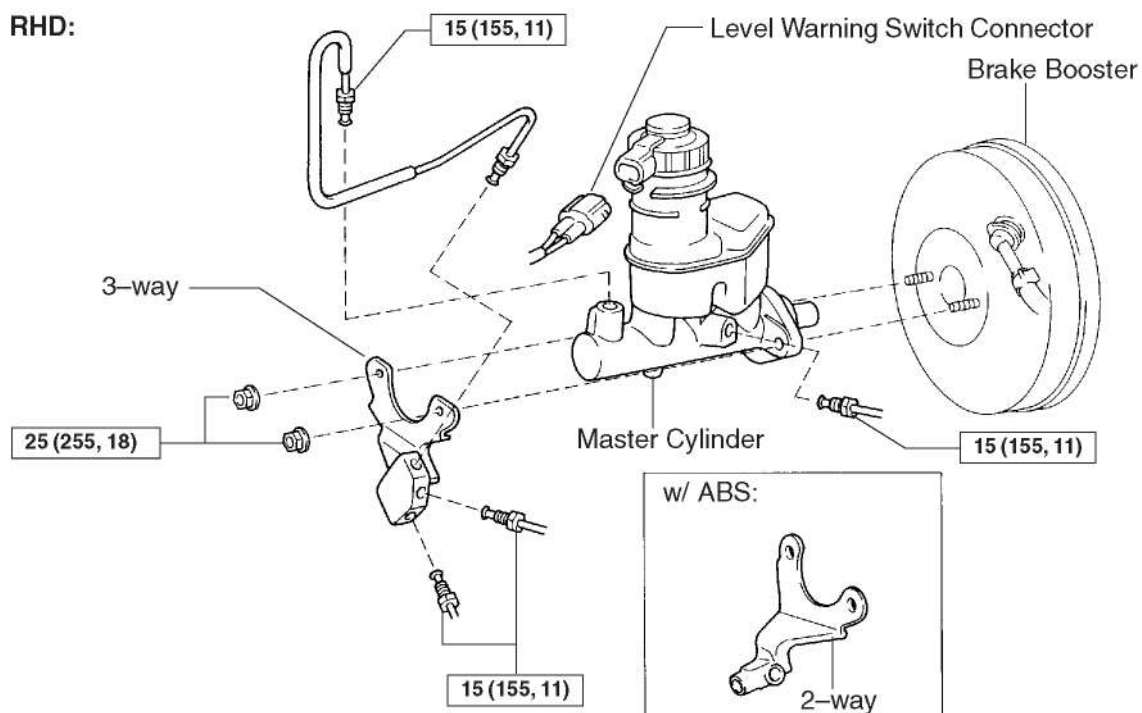
BRAKE MASTER CYLINDER COMPONENTS

BR0PB-01

LHD:

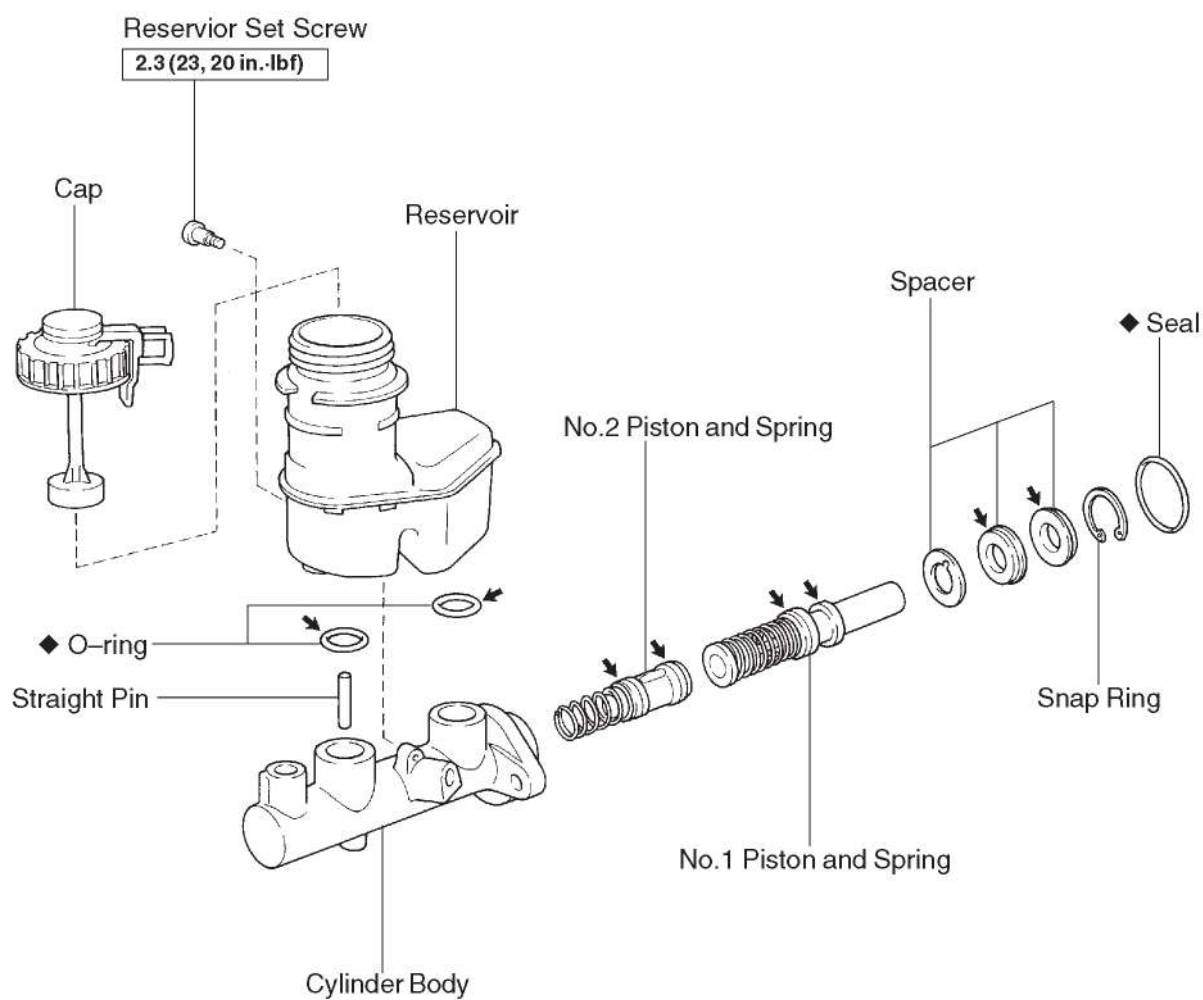


RHD:



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

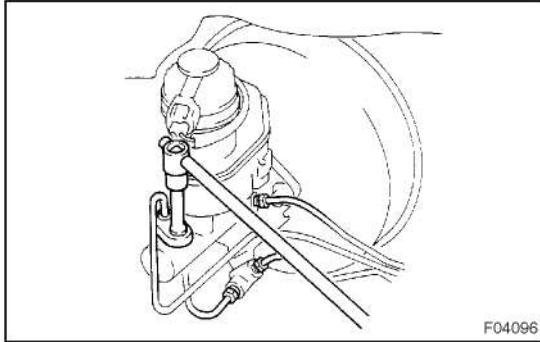
F04095



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

◆ Non reusable part

➡ Lithium soap base glycol grease



REMOVAL

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

NOTICE:

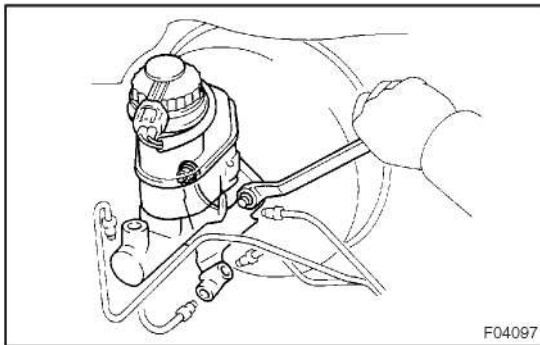
Do not let brake fluid remain on a painted surface. Wash it off immediately.

3. DISCONNECT BRAKE LINES

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

SST 09023-00100

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



4. REMOVE MASTER CYLINDER

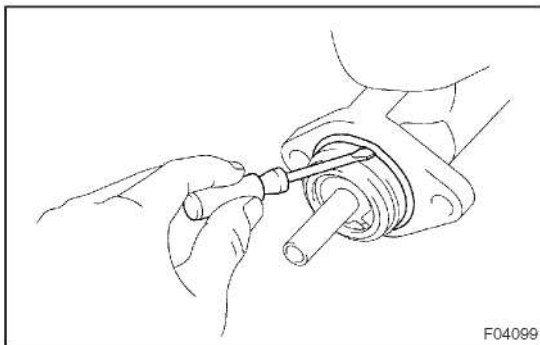
w/o ABS:

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

w/ ABS:

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

Torque: 25 N·m (255 kgf·cm, 18 ft·lbf)



5. REMOVE SEAL

Using a screwdriver, remove the seal.

DISASSEMBLY

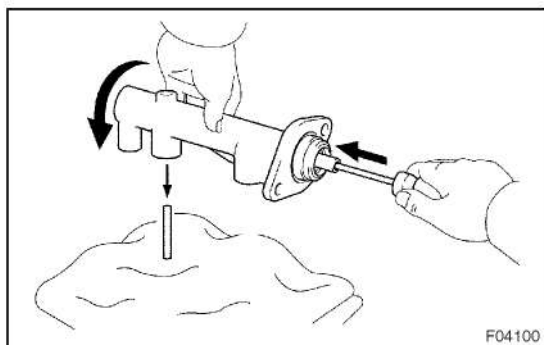
1. REMOVE RESERVOIR

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

Torque: 2.3 N·m (23 kgf·cm, 20 in.·lbf)

- (b) Remove the cap from the reservoir.

2. REMOVE 2 O-RINGS

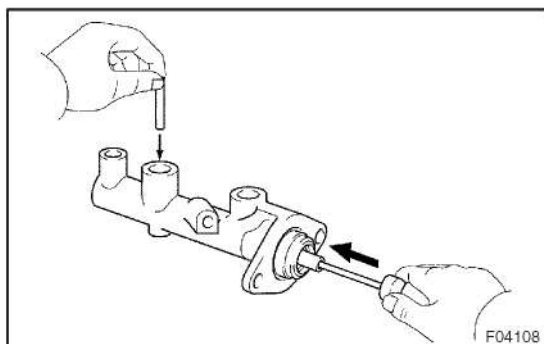


3. REMOVE 2 PISTONS

- (a) Push in the piston with a screwdriver, and remove the straight pin by turning over the cylinder body.

HINT:

Tape the screwdriver tip before use.

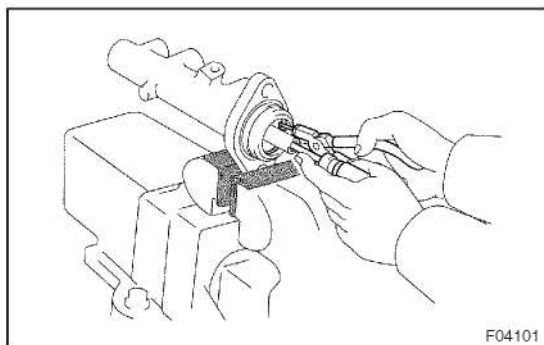


NOTICE:

At the time of reassembly, be careful not to damage the rubber lips on the pistons.

HINT:

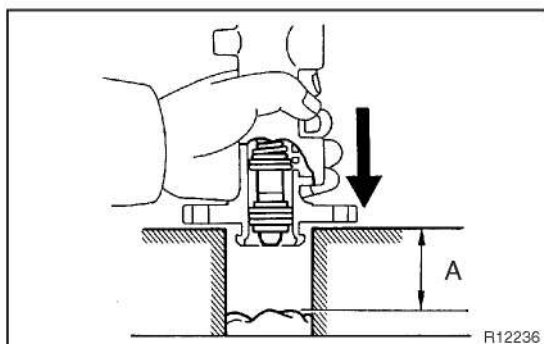
At the time of reassembly, insert the piston with elliptic hole facing vertically.



- (b) Push in the piston with a screwdriver, and remove the snap ring with snap ring pliers.
- (c) Remove the 3 spacers.
- (d) Remove the 2 pistons and springs 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.



- (e) Place a rag and 2 wooden blocks on the work table and lightly tap the cylinder flange against the blocks until the No.2 piston and spring drop 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-11).

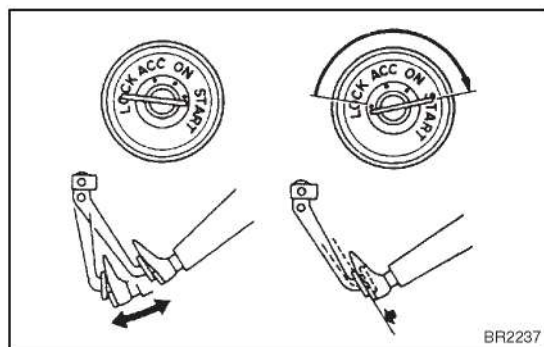
NOTICE:

Apply lithium soap base glycol grease to the rubber parts indicated by the arrows
(See page BR-8).

INSTALLATION

Installation is in the reverse order of removal (See page BR-10).

1. AFTER INSTALLATION, FILL BRAKE RESERVOIR WITH BRAKE FLUID, BLEED BRAKE SYSTEM (See page BR-3), CHECK FOR LEAKS
2. CHECK AND ADJUST BRAKE PEDAL (See page BR-5)

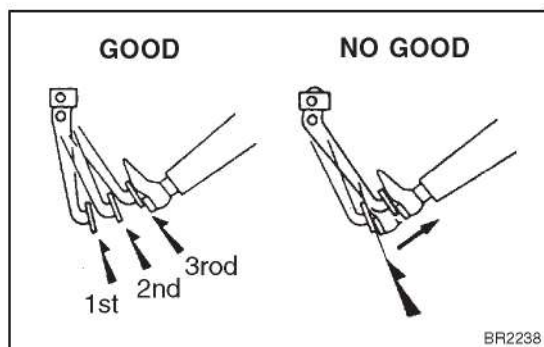


BRAKE BOOSTER ASSEMBLY ON-VEHICLE INSPECTION

BR0KW-02

1. OPERATING CHECK

- Depress the brake pedal several times with the engine off and check that there is no change in the pedal reserve distance.
- Depress the brake pedal and start the engine. If the pedal goes down slightly, operation is normal.



2. AIR TIGHTNESS CHECK

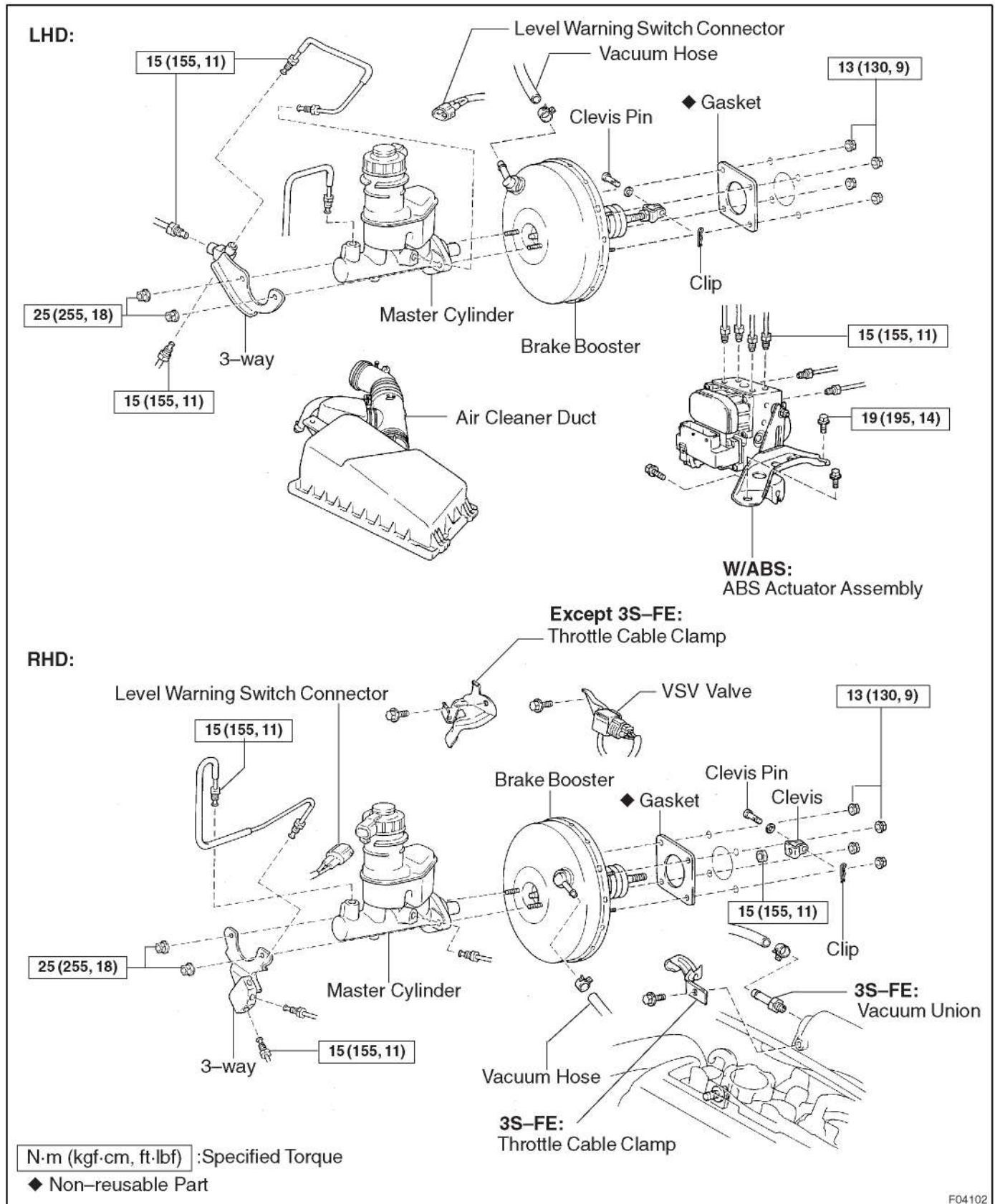
- Start the engine and stop it after 1 or 2 minutes. Depress the brake pedal several times slowly.

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

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

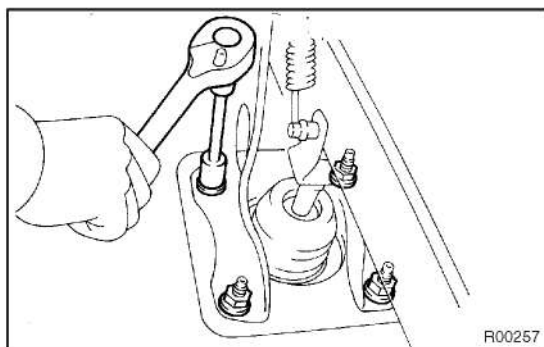
If there is no change in the pedal reverse travel after holding the pedal for 30 seconds, the booster is air-tight.

COMPONENTS



REMOVAL

1. REMOVE MASTER CYLINDER (See page BR-10)
2. LHD:
REMOVE AIR CLEANER DUCT
3. LHD w/ ABS:
REMOVE ABS ACTUATOR ASSEMBLY (See page BR-37)
4. RHD M/T:
REMOVE CLUTCH MASTER CYLINDER (See page CL-6)
5. RHD
REMOVE THESE PARTS
 - (a) Vacuum union (3S-FE)
 - (b) Throttle cable clamp
 - (c) Engine hanger
6. DISCONNECT VACUUM HOSE FROM BRAKE BOOSTER
7. REMOVE PEDAL RETURN SPRING
8. REMOVE CLIP AND CLEVIS PIN
9. REMOVE BRAKE BOOSTER, GASKET AND CLEVIS
 - (a) Remove the 4 nuts and clevis.
 - (b) Pull out the brake booster and gasket.



INSTALLATION

1. INSTALL BRAKE BOOSTER

- (a) Install the booster and a new gasket.
- (b) Install the clevis to the operating rod.
- (c) Install and torque the booster installation nuts.
Torque: 25 N·m (255 kgf·cm, 18 ft·lbf)
- (d) Install the clevis pin into the clevis and brake pedal, and install the clip to the clevis pin.
- (e) Install the pedal return spring.

2. LHD:

INSTALL AIR CLEANER DUCT

3. LHD w/ ABS:

INSTALL ABS ACTUATOR ASSEMBLY (See page BR-40)

4. RHD M/T:

INSTALL CLUTCH MASTER CYLINDER (See page CL-9)

5. RHD 3S-FE Engine:

INSTALL THESE PARTS

- (a) Vacuum union
- (b) Throttle cable clamp
- (c) Engine hanger

6. INSTALL MASTER CYLINDER (See page BR-14)

7. CONNECT VACUUM HOSE TO BRAKE BOOSTER

8. FILL BRAKE RESERVOIR WITH BRAKE FLUID AND BLEED BRAKE SYSTEM (See page BR-3)

9. CHECK FOR LEAKS

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

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

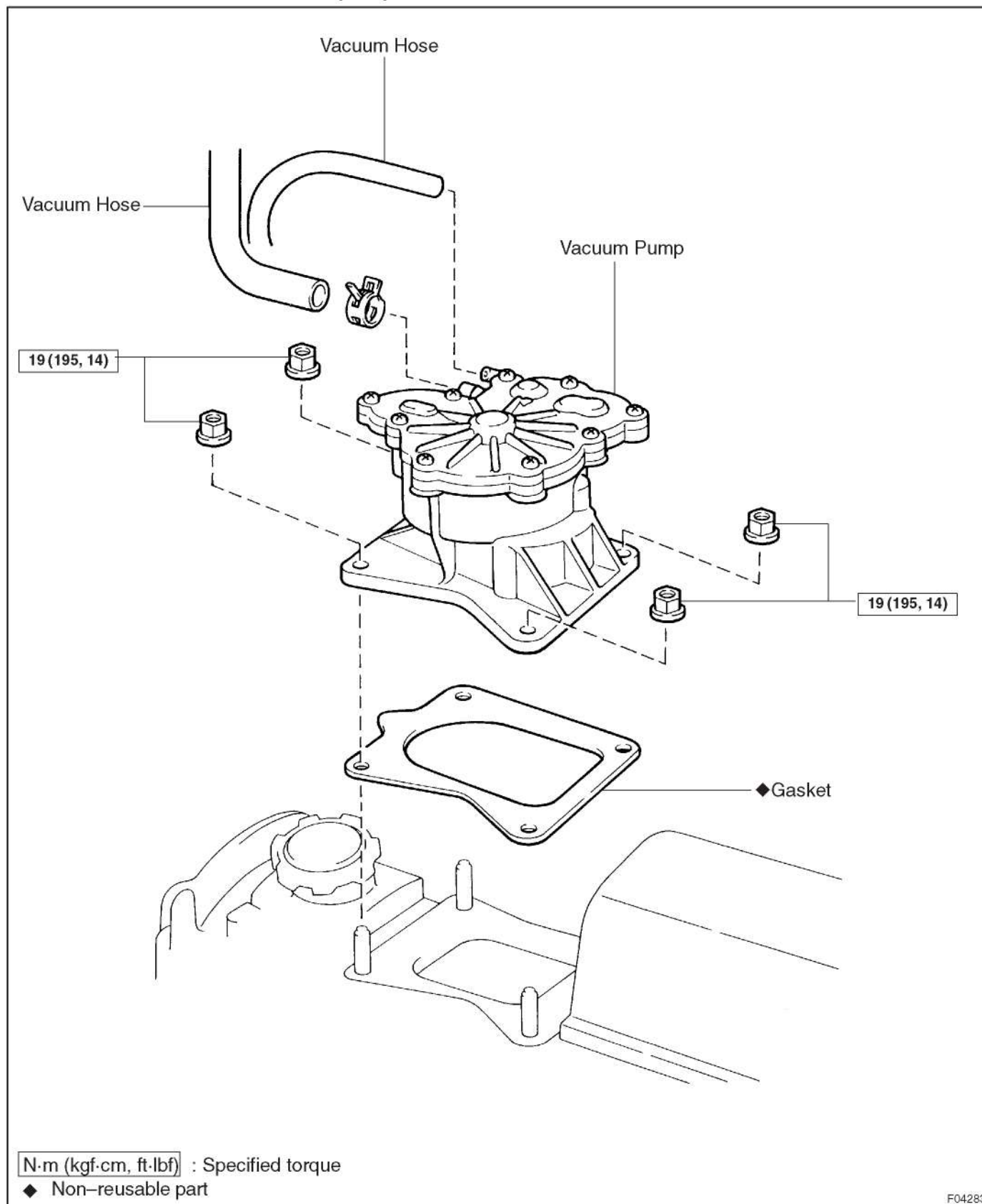
11. DO OPERATIONAL CHECK (See page BR-15)

VACUUM PUMP COMPONENTS

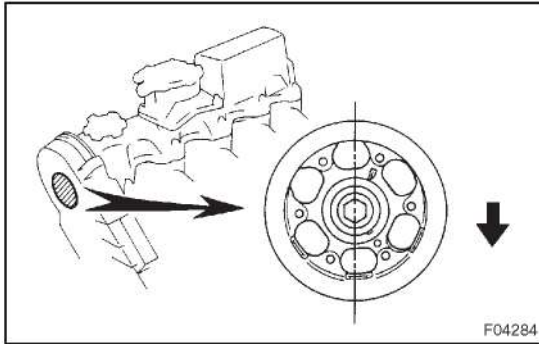
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NOTICE:

Do not disassemble the vacuum pump.

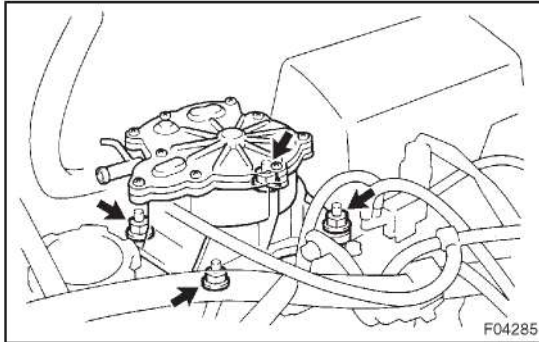


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REMOVAL

1. REMOVE PLUG FROM NO.2 TIMING BELT COVER
2. TURN NOTCH ON CAMSHAFT TIMING PULLEY DOWN BY TURNING CRANKSHAFT PULLEY
3. DISCONNECT VACUUM HOSES FROM PUMP



4. REMOVE VACUUM PUMP
 - (a) Remove the 4 set nuts.
 - (b) Remove the vacuum pump and gasket.

INSTALLATION

1. MAKE SURE THAT VACUUM PUMP CAM LOBE IS AT BOTTOM DEAD CENTER
2. INSTALL VACUUM PUMP

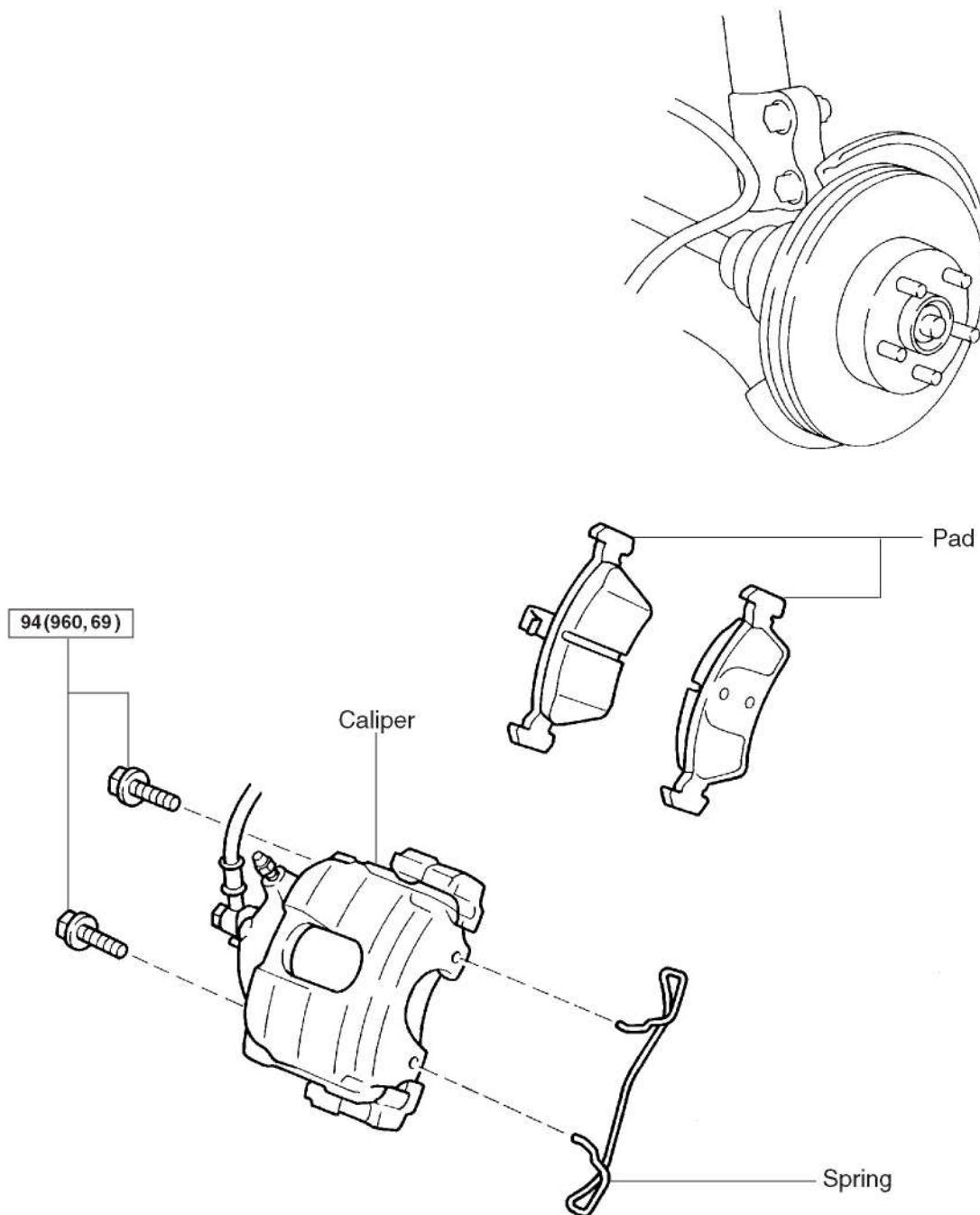
Install the vacuum pump with a new gasket.

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

3. CONNECT VACUUM HOSES
4. INSTALL PLUG TO NO.2 TIMING BELT COVER

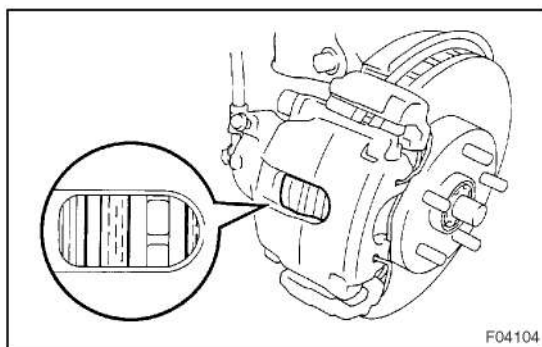
FRONT BRAKE PAD COMPONENTS

BR0PJ-01



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

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REPLACEMENT

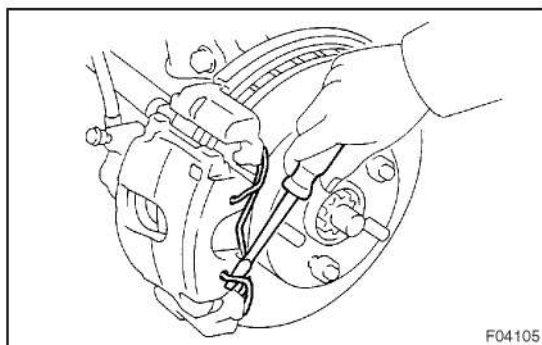
1. REMOVE FRONT WHEEL

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

2. INSPECT PAD LINING THICKNESS

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

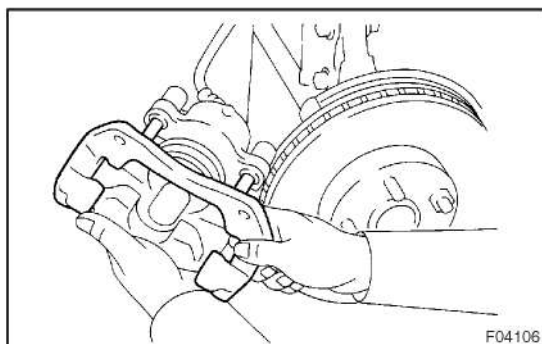
Minimum thickness: 1.0 mm (0.039 in.)



F04105

3. REMOVE SPRING

Using a screwdriver, remove the spring from the caliper.



F04106

4. REMOVE BRAKE CALIPER ASSEMBLY

Remove the 2 bolts and caliper assembly.

HINT:

Do not disconnect the flexible hose from the caliper.

5. REMOVE 2 PADS

6. CHECK DISC THICKNESS AND RUNOUT

(See page BR-27)

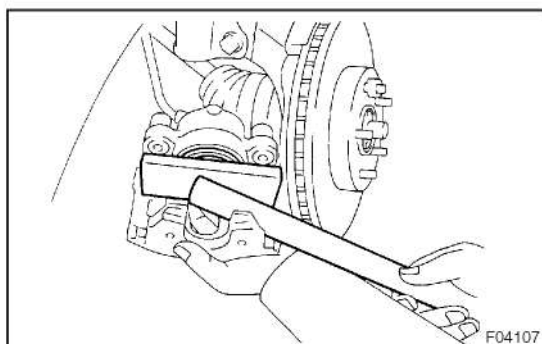
7. INSTALL NEW PADS

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.



F04107

(b) Press in the piston with a hammer handle and wooden plate or similar implement.

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 assembly with 2 bolts.

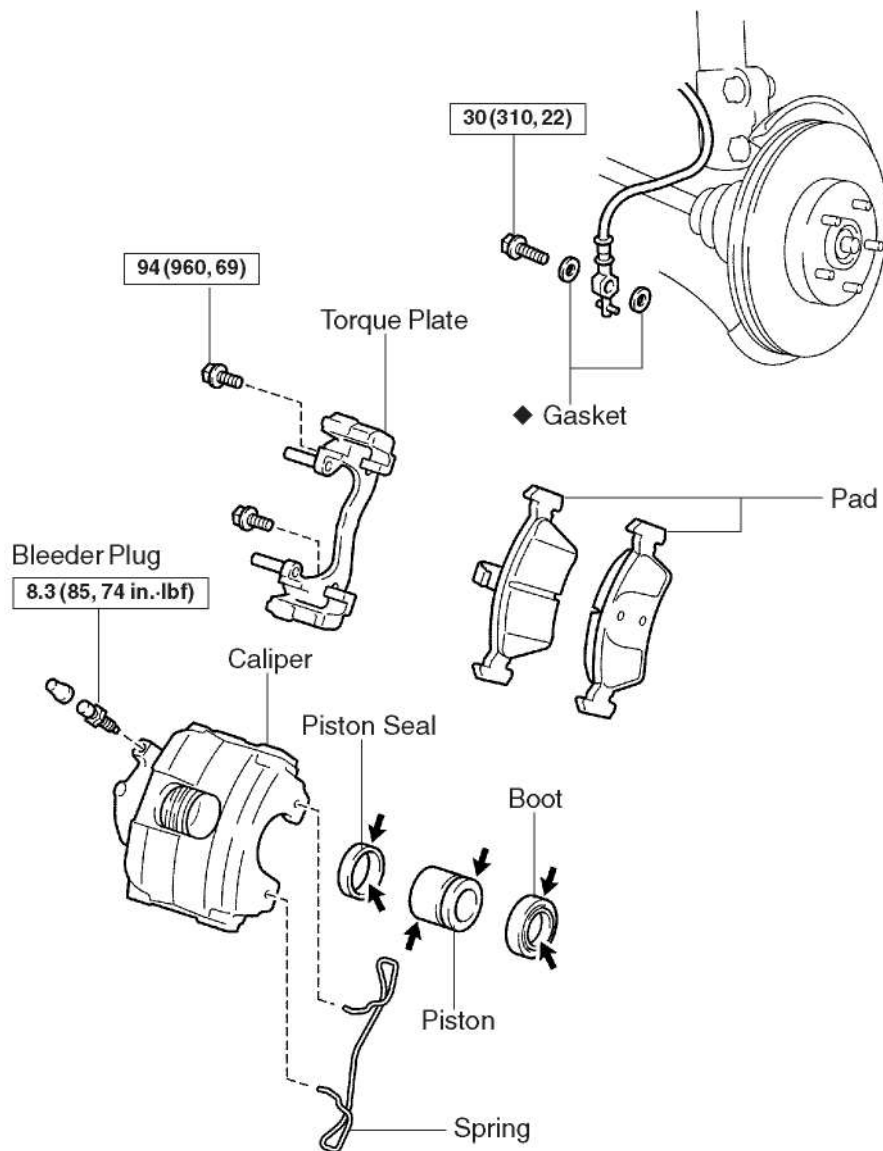
Torque: 94 N·m (960 kgf·cm, 69 ft·lbf)

9. INSTALL FRONT WHEEL

10. CHECK THAT FLUID LEVEL IS AT MAX LINE

FRONT BRAKE CALIPER COMPONENTS

BR0PL-01

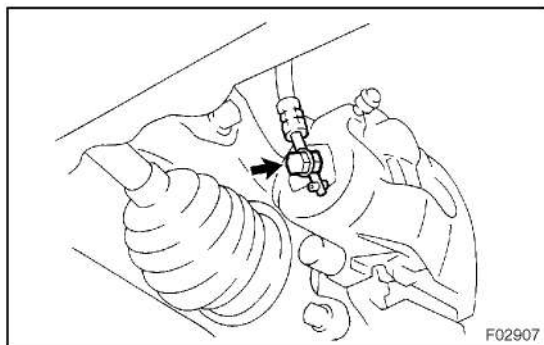


N·m (kgf·cm, ft·lbf) : Specified Torque

◆ Non-reusable Part

➡ Lithium soap base glycol grease

F04103



REMOVAL

1. REMOVE FRONT WHEEL

2. DISCONNECT FLEXIBLE HOSE

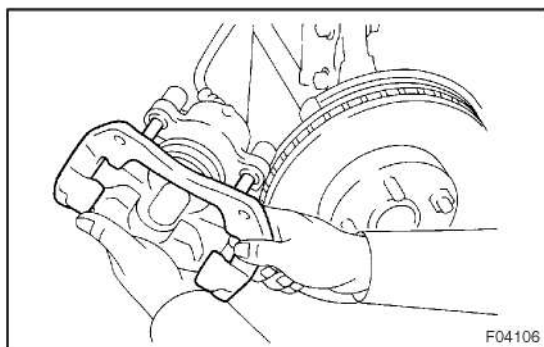
- (a) Remove the union bolt and 2 gaskets from the caliper, then disconnect the flexible hose from the caliper.

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

HINT:

At the time of installation, 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.



3. REMOVE CALIPER

- (a) Remove the 2 installation bolts.

Torque: 94 N·m (960 kgf·cm, 69 ft·lbf)

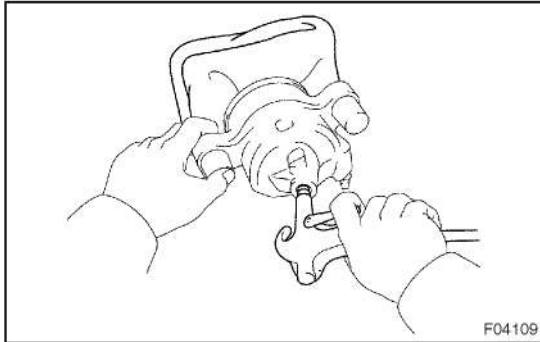
- (b) Remove the 2 pads.

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

DISASSEMBLY

1. REMOVE CYLINDER BOOT

Using a screwdriver, remove the cylinder boot from the caliper.

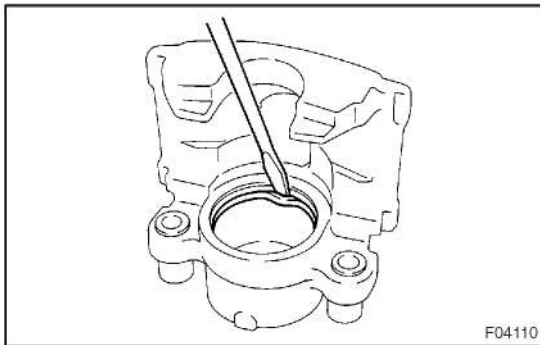


2. REMOVE PISTON

- (a) Place a piece of cloth, or similar, between the piston and the caliper.
- (b) Use compressed air to remove the piston from the cylinder.

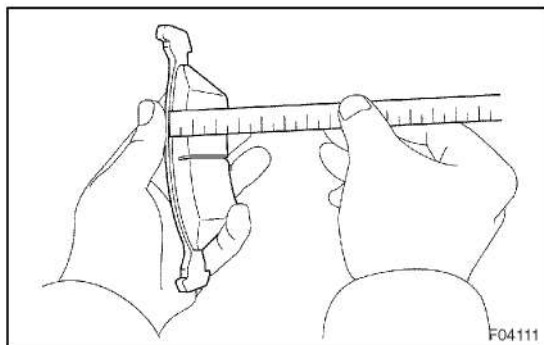
CAUTION:

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



3. REMOVE PISTON SEAL

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



INSPECTION

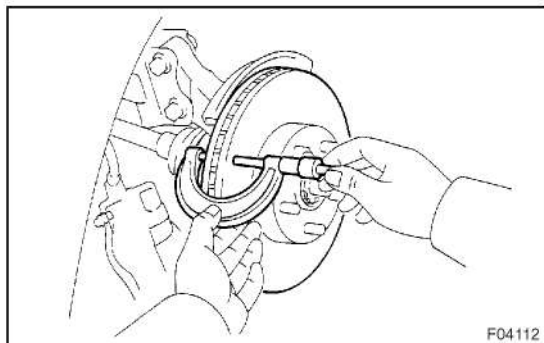
1. MEASURE PAD LINING THICKNESS

Using a ruler, measure the pad lining thickness.

Standard thickness: 12.0 mm (0.472 in.)

Minimum thickness: 2.0 mm (0.079 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.



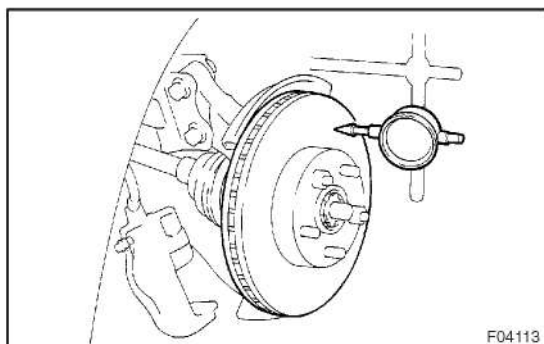
2. MEASURE DISC THICKNESS

Using a micrometer, measure the disc thickness.

Standard thickness: 25.0 mm (0.984 in.)

Minimum thickness: 23.0 mm (0.906 in.)

Replace the disc if the disc's thickness 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 10 mm (0.39 in.) away from the outer edge of the disc.

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-11). 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 hub nuts and the disc. Reinstall the disc rotating 1/5 of a turn from its original position on the hub. Install and torque the hub nuts.

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

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

- (b) Repeat (a) until the disc has been installed on the 3 remaining hub positions.
- (c) If the minimum runout recorded in (a) and (b) is less than 0.05 mm (0.0020 in.), install the disc in that position.
- (d) If the minimum runout recorded in (a) and (b) 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-26).

NOTICE:

Apply lithium soap base glycol grease to the parts indicated by arrows (See page BR-24).

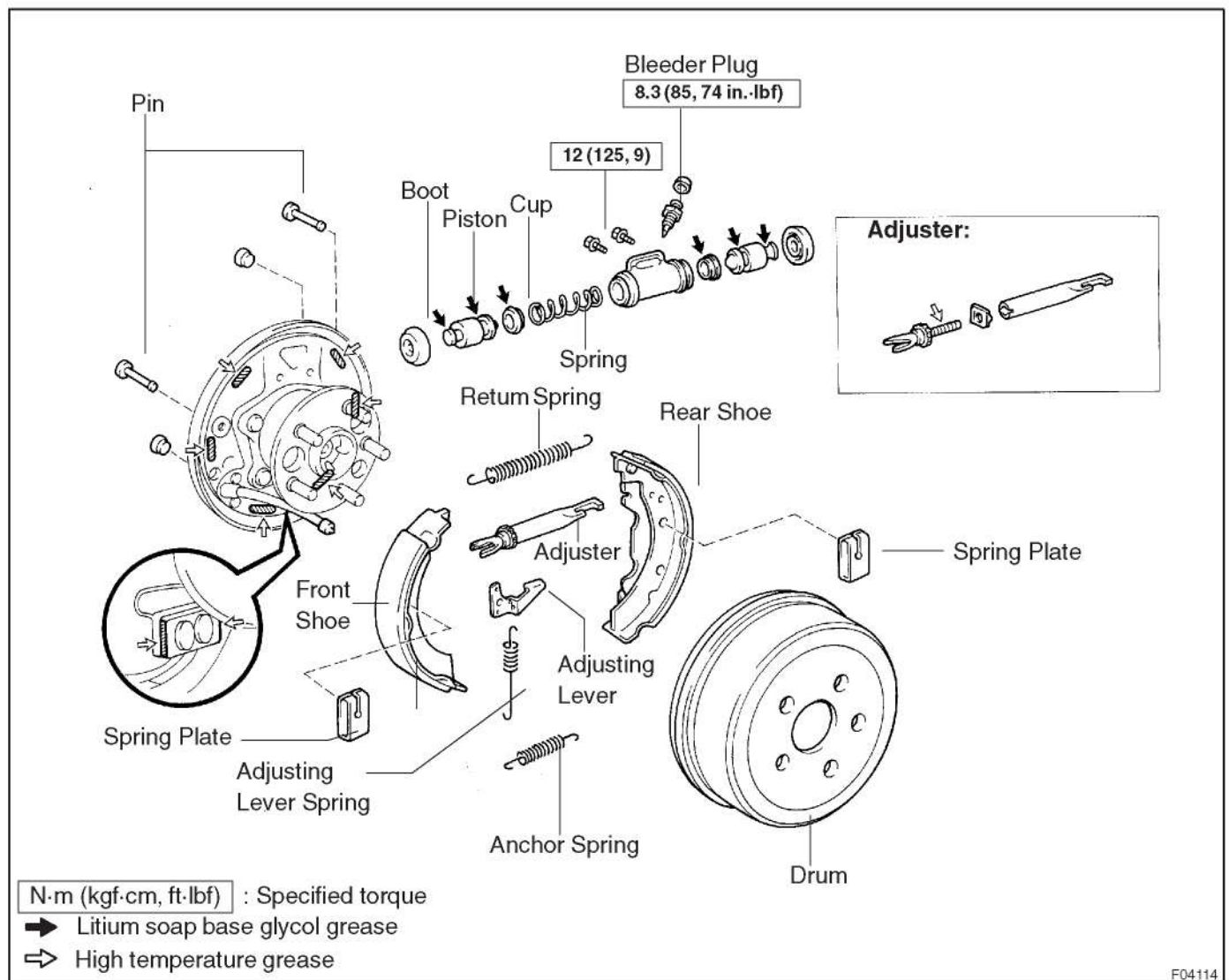
INSTALLATION

Installation is in the reverse order of removal (See page BR-25).

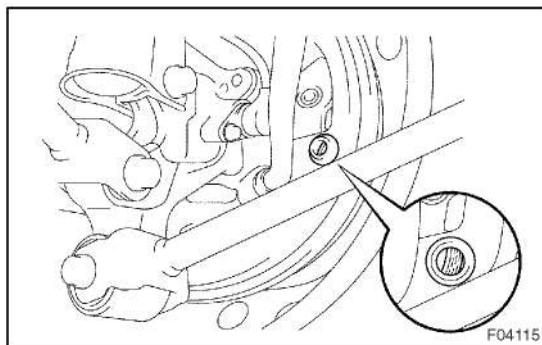
AFTER INSTALLATION, FILL BRAKE RESERVOIR WITH BRAKE FLUID, BLEED BRAKE SYSTEM (See page BR-3) AND CHECK FOR LEAKS

REAR DRUM BRAKE COMPONENTS

BR0PP-01



F04114



REMOVAL

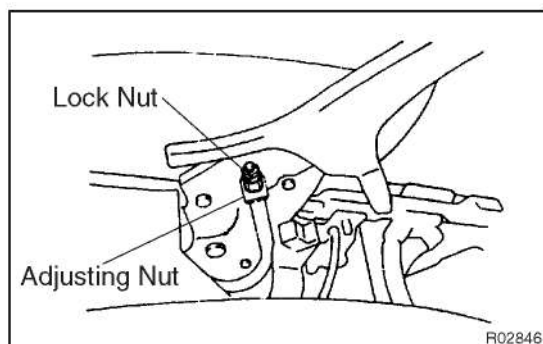
1. INSPECT SHOE LINING THICKNESS

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

If less than minimum, replace the shoes.

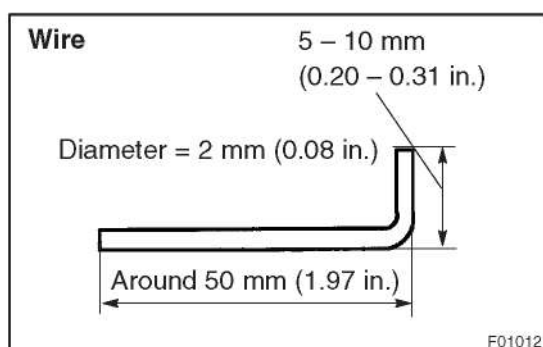
Minimum thickness: 1.0 mm (0.039 in.)

2. REMOVE REAR WHEEL



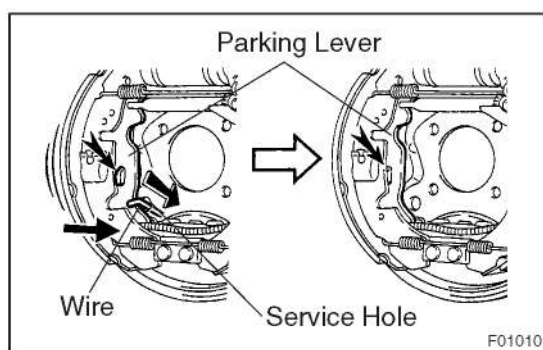
3. RELEASE PARKING BRAKE CABLE TENSION

- Remove the console box.
- Loosen the lock nut.
- Loosen the adjusting nut until the tension of the parking brake cable is released.

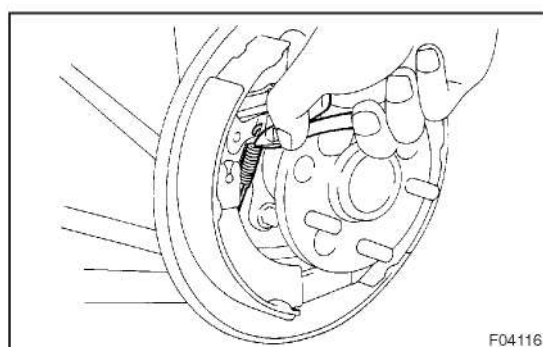


4. REMOVE REAR BRAKE DRUM

- Prepare a bent wire as shown in the illustration.
- Remove the service hole plug from the rear brake backing plate.

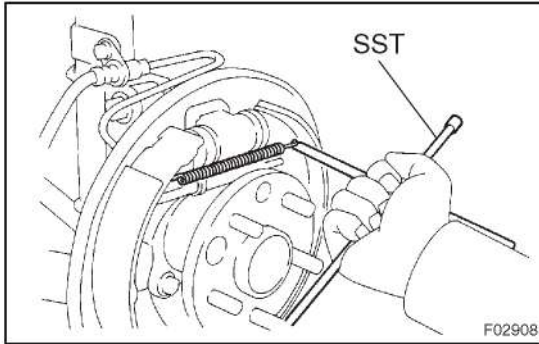


- Using the wire, pull the parking lever through vice hole to disengage the claw from the rear shoe.
- Remove the rear brake drum.

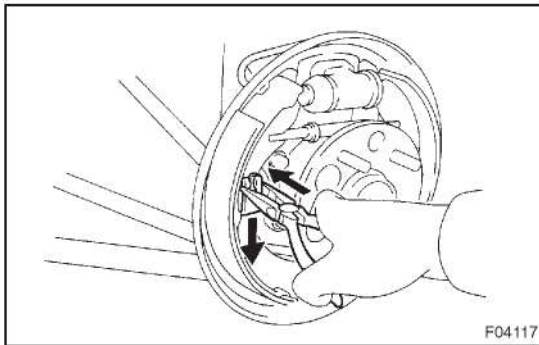


5. REMOVE FRONT SHOE

- Using needle-nose pliers, remove the adjusting lever spring.



- (b) Using SST, remove the shoe return spring.
SST 09703-30010

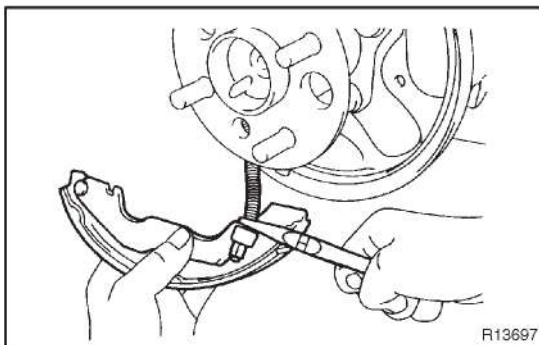


- (c) Using needle-nose pliers, remove the spring plate and pin.
(d) Using needle-nose pliers, remove the anchor spring and front shoe.

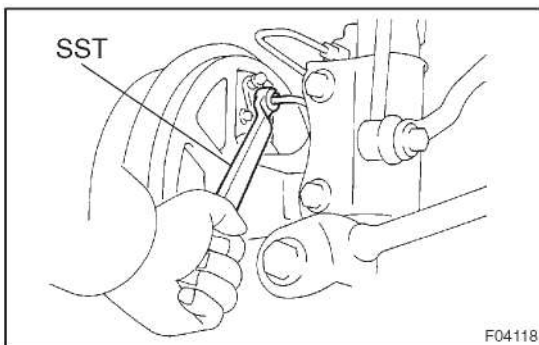
6. REMOVE ADJUSTER

7. REMOVE REAR SHOE

- (a) Using needle-nose pliers, remove the spring plate and pin.



- (b) Using needle-nose pliers, disconnect the parking brake cable from the lever and remove the rear shoe.



8. REMOVE WHEEL CYLINDER

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

SST 09751-36011

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

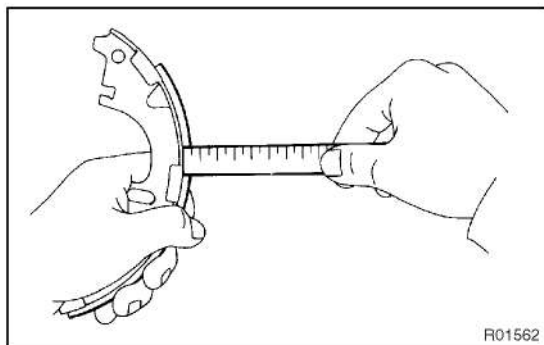
- (b) Remove the bolt and the wheel cylinder.

Torque: 12 N·m (125 kgf·cm, 9 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.

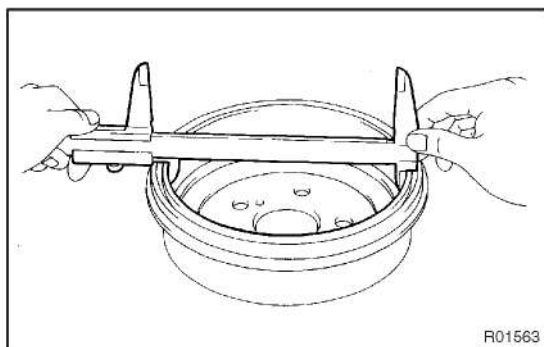
Standard thickness: 4.0 mm (0.157 in.)

Minimum thickness: 1.0 mm (0.039 in.)

If the thickness is less than the minimum or the shoe lining 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.



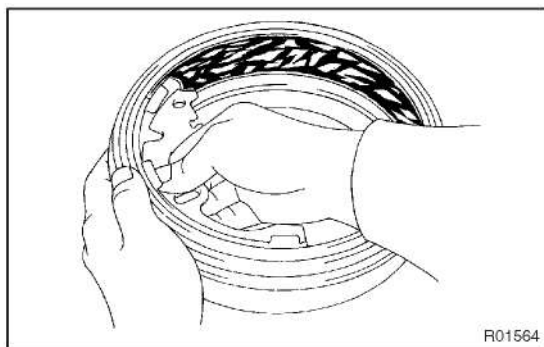
3. MEASURE BRAKE DRUM INSIDE DIAMETER

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

Standard inside diameter: 228.6 mm (9.000 in.)

Maximum inside diameter: 229.6 mm (9.039 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.

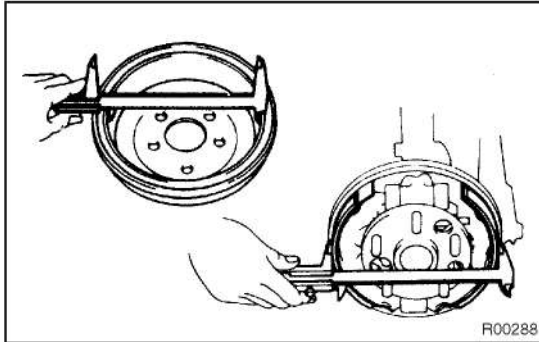
INSTALLATION

Installation is in the reverse order of removal (See page BR-31).

NOTICE:

Apply lithium soap base glycol grease and high temperature grease to the parts indicated by the arrows (See page BR-30).

1. **PUT BACK PARKING BRAKE LEVER TO ORIGINAL POSITION**



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

- (a) Remove the brake drum.
- (b) Hook the claw of the parking lever on the rear shoe.
- (c) Measure the brake drum inside diameter and diameter of the brake shoes. Check that the difference between the diameters is the correct shoe clearance.

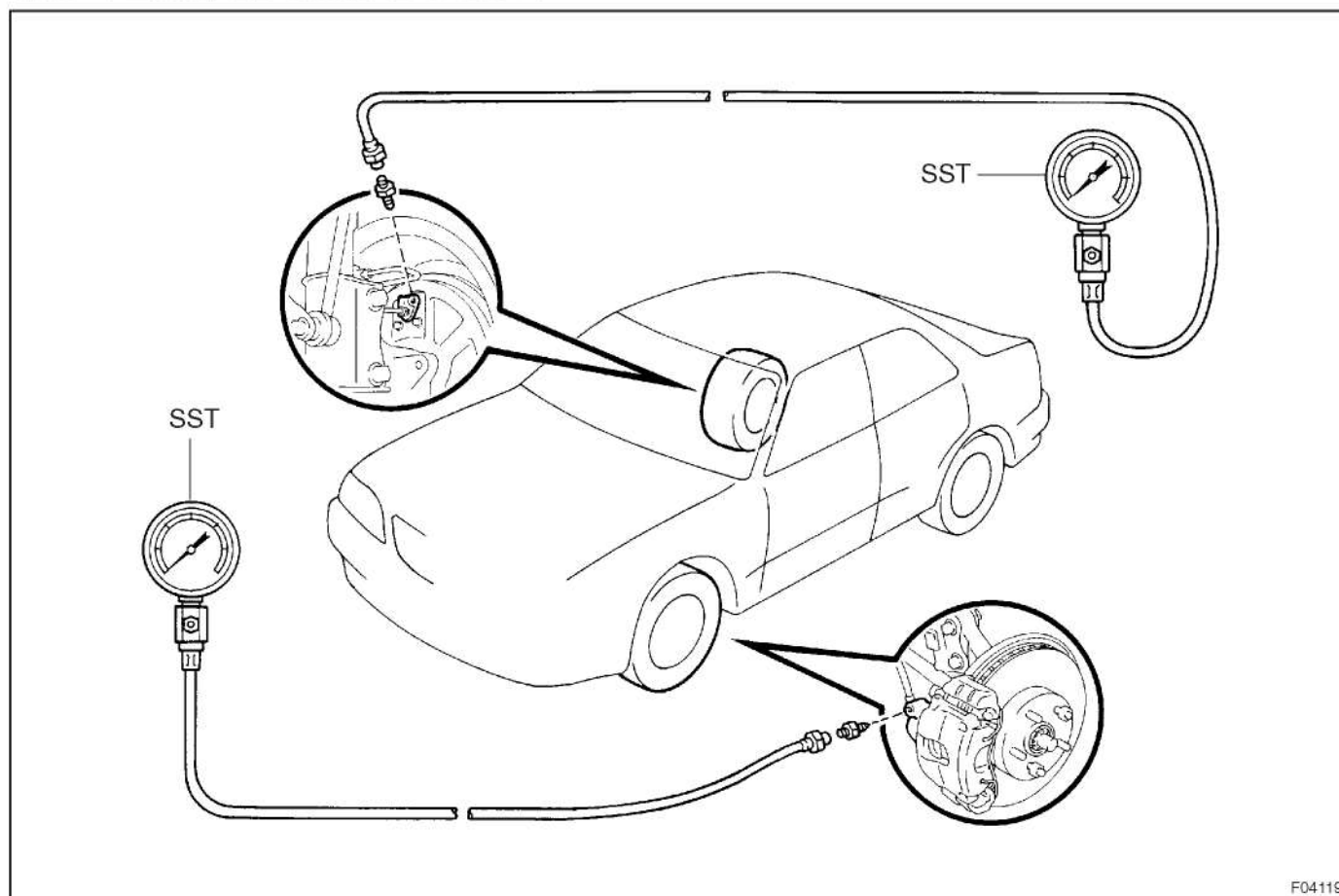
Shoe clearance: 0.6 mm (0.024 in.)

If incorrect, check the parking brake system.

3. **FILL BRAKE RESERVOIR WITH BRAKE FLUID**
4. **BLEED BRAKE SYSTEM (See page BR-3)**
5. **CHECK FOR LEAKS**

PROPORTIONING VALVE (P VALVE) ON-VEHICLE INSPECTION

BR0LK-03



F04119

1. **INSTALL LSPV GAUGE (SST) AND BLEED AIR**
SST 09709-29018
2. **RAISE MASTER CYLINDER PRESSURE AND CHECK
REAR WHEEL CYLINDER PRESSURE**

w/o ABS:

Master cylinder fluid pressure	Rear wheel cylinder fluid pressure
3,432 kPa (35 kgf/cm ² , 498 psi)	3,432 kPa (35 kgf/cm ² , 498 psi)
7,845 kPa (80 kgf/cm ² , 1,138 psi)	4,540 kPa (46.3 kgf/cm ² , 659 psi)

w/ ABS:

Master cylinder fluid pressure	Rear brake caliper fluid pressure
2,942 kPa (30 kgf/cm ² , 426 psi)	2,942 kPa (30 kgf/cm ² , 426 psi)
7,845 kPa (80 kgf/cm ² , 1,138 psi)	6,982 kPa (61 kgf/cm ² , 868 psi)

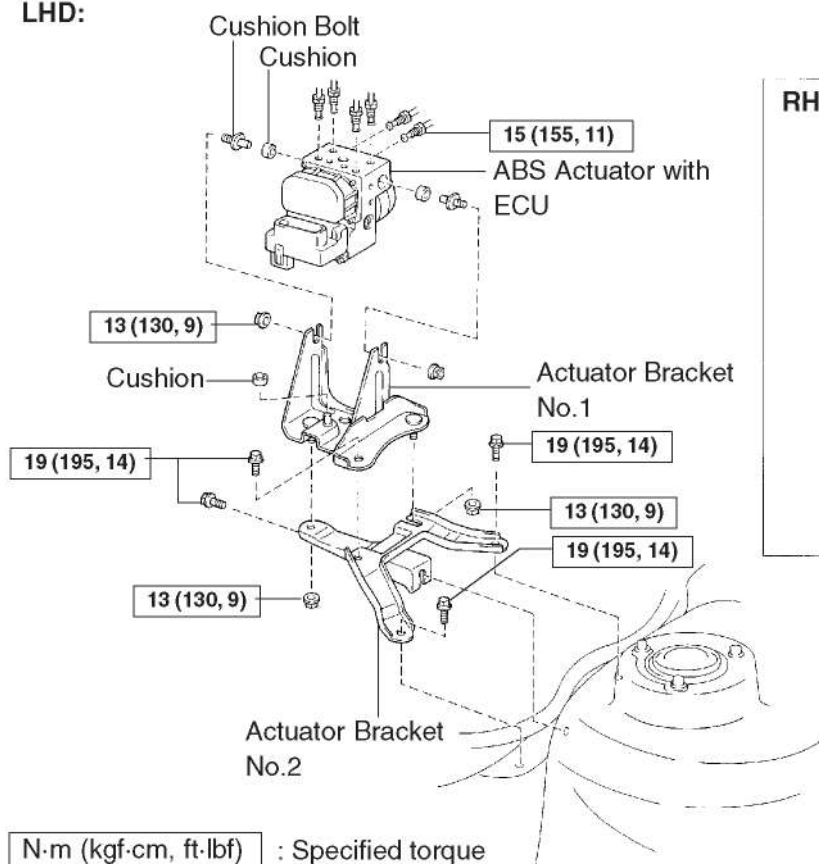
When inspecting the fluid pressure, inspect the left front and right rear together, and the right front and left rear together. If the rear wheel cylinder pressure is incorrect, replace the P valve assembly.

3. **BLEED BRAKE SYSTEM (See page BR-3)**
4. **CHECK FOR LEAKS**

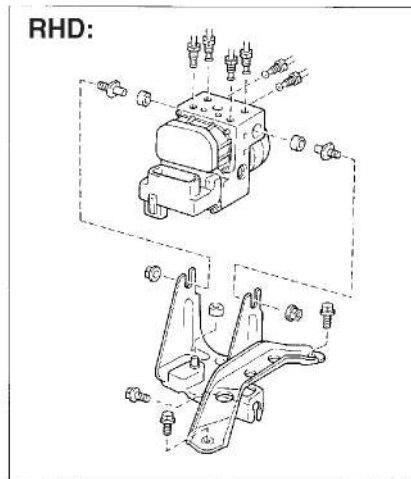
BRAKE ACTUATOR COMPONENTS

BROLL-02

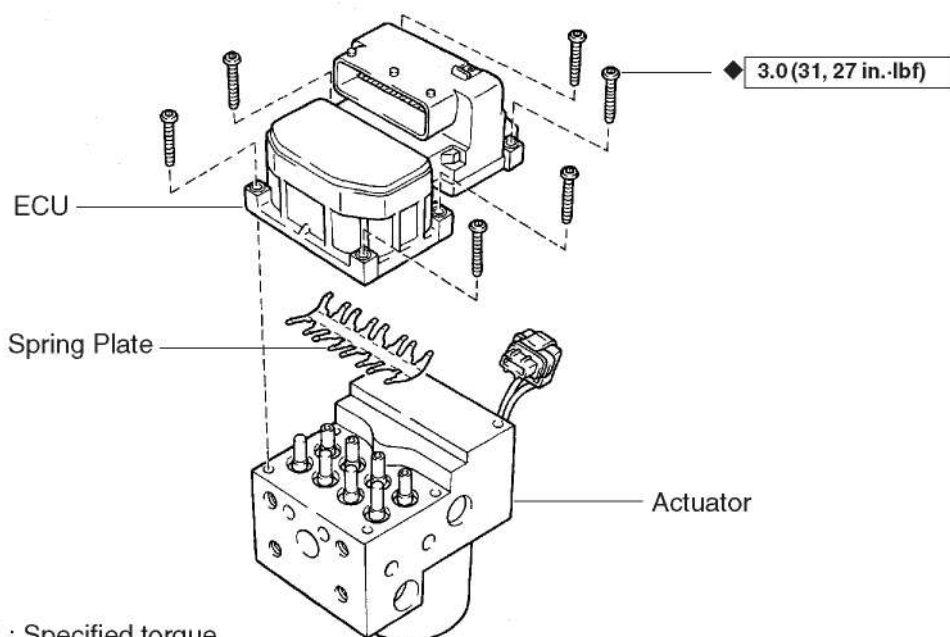
LHD:



RHD:

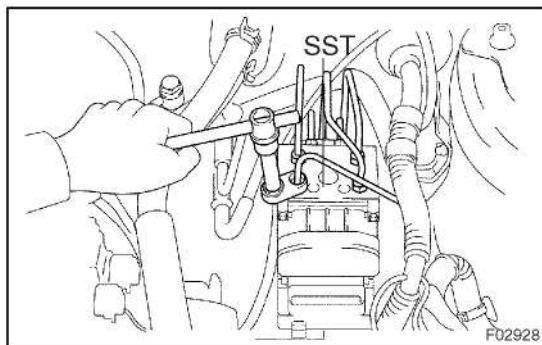


F04277



◆ Non-reusable part

W03328



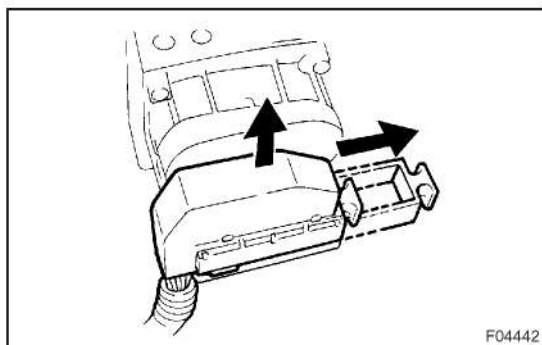
REMOVAL

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 CONNECTOR

Pull out the release bar, and disconnect the connector.

3. REMOVE ABS ACTUATOR ASSEMBLY

Remove the 3 bolts and ABS actuator assembly.

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

4. REMOVE ABS ACTUATOR

(a) Remove the 2 nuts and ABS actuator.

Torque: 13 N·m (130 kgf·cm, 9 ft·lbf)

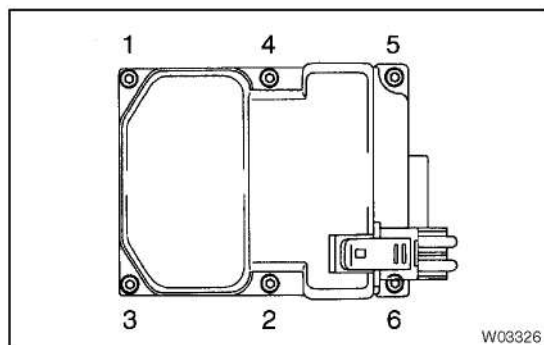
(b) Remove the 2 cushion bolts and 3 cushions from the ABS actuator.

5. LHD:

SEPARATE ACTUATOR BRACKET

Remove the 2 nuts and bolt.

Torque: 13 N·m (130 kgf·cm, 9 ft·lbf)



DISASSEMBLY

1. DISCONNECT CONNECTOR

2. REMOVE ECU

- (a) Using a T20 torx wrench, loosen the 6 screws.

Torque: 3.0 N·m (31 kgf·cm, 27 in·lbf)

NOTICE:

At the time of reassembly, tighten the screws according to the order shown on the left.

- (b) Remove the ECU and spring plate from the actuator.

NOTICE:

Protect the actuator in order to prevent sealing surface from getting dirty and causing damage on the valve body. If the dirt and the like is stuck to the sealing surface, use plastic tools or soft objects to remove the dirt. Do not use chemical solvents.

REASSEMBLY

Reassembly is in the reverse order of disassembly (See page BR-38).

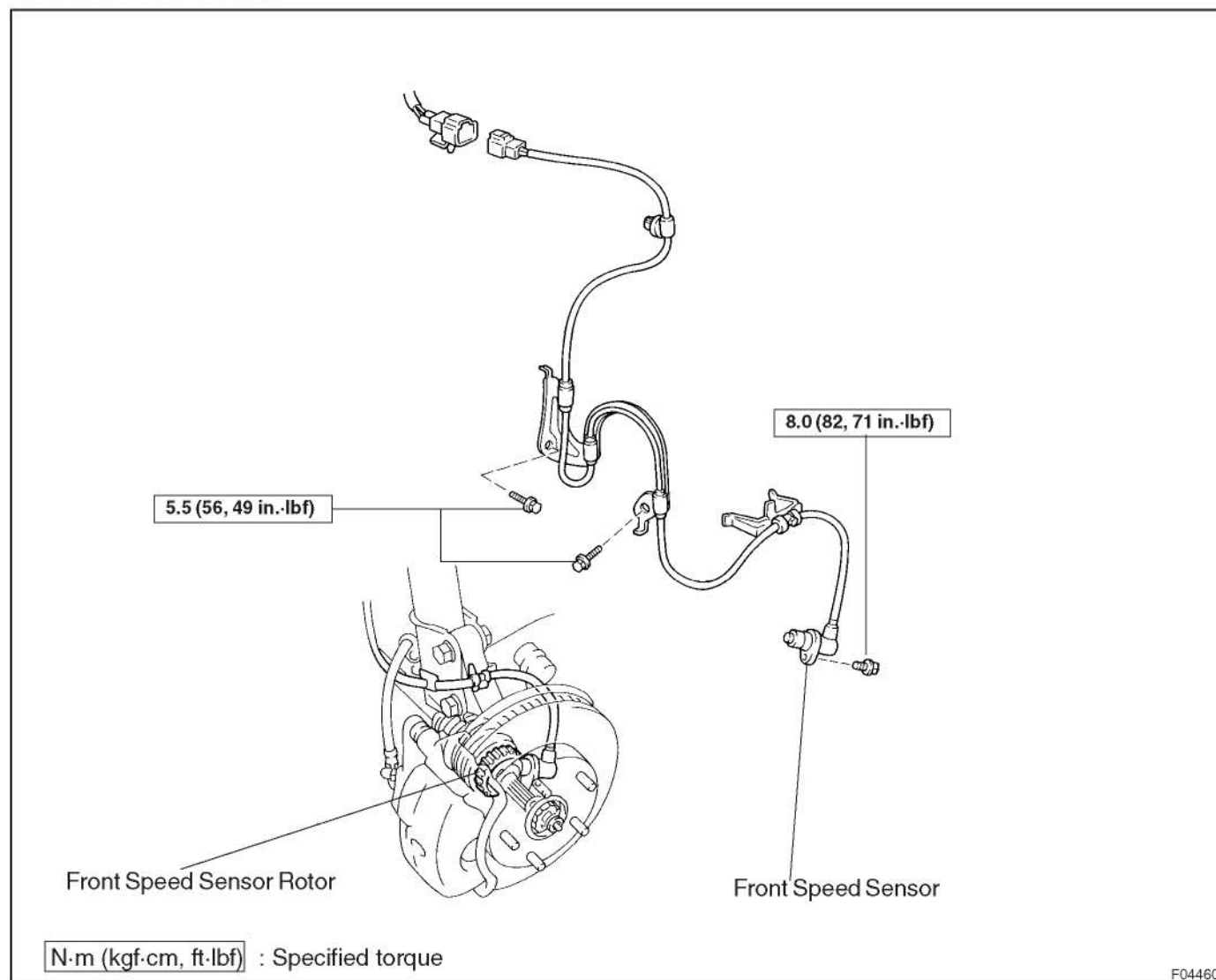
INSTALLATION

Installation is in the reverse order of removal (See page BR-37).

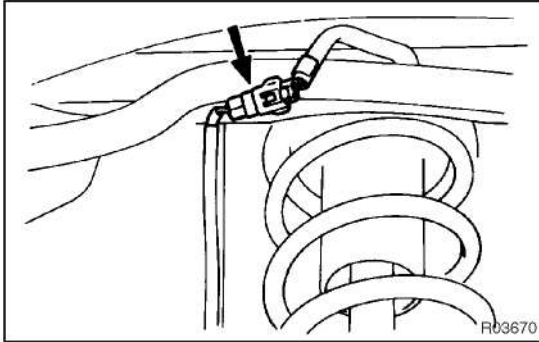
AFTER INSTALLATION, FILL BRAKE RESERVOIR WITH BRAKE FLUID, BLEED BRAKE SYSTEM (See page BR-3) AND CHECK FOR LEAKS

FRONT SPEED SENSOR COMPONENTS

BR0PT-01



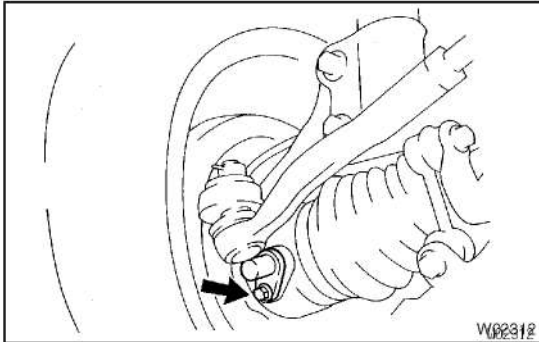
F04460



REMOVAL

1. DISCONNECT SPEED SENSOR CONNECTOR

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



2. REMOVE SPEED SENSOR

- (a) Remove the 3 clamp bolts holding the sensor harness to the body and shock absorber.

Torque: 5.5 N·m (55 kgf·cm, 48 in.·lbf)

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

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

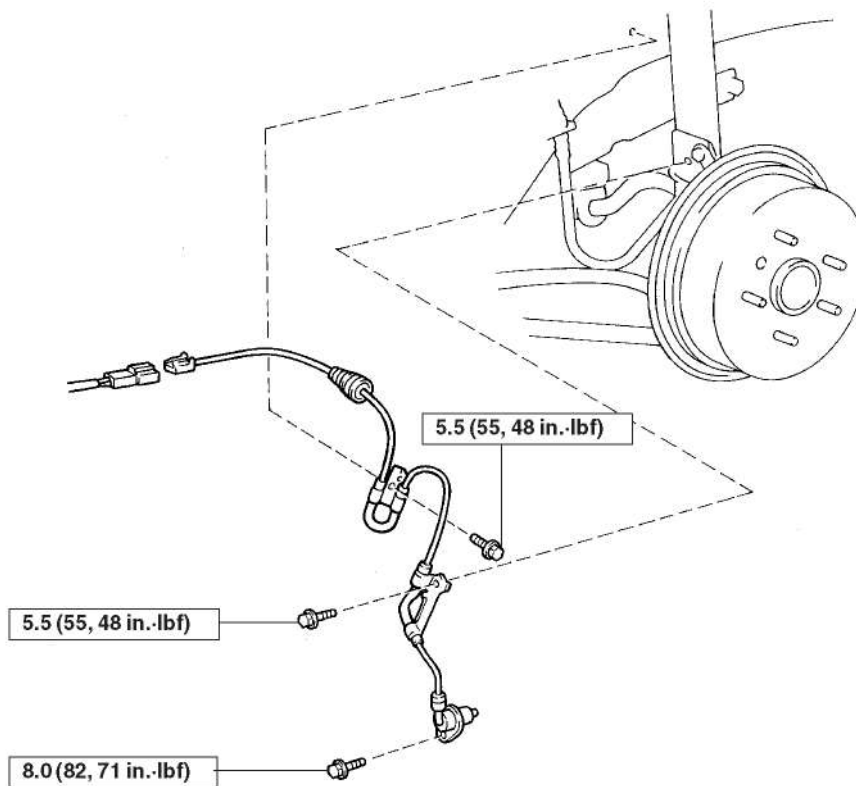
INSTALLATION

Installation is in the reverse order of removal (See page BR-42).

AFTER INSTALLATION, CHECK SPEED SENSOR SIGNAL (See page DI-115)

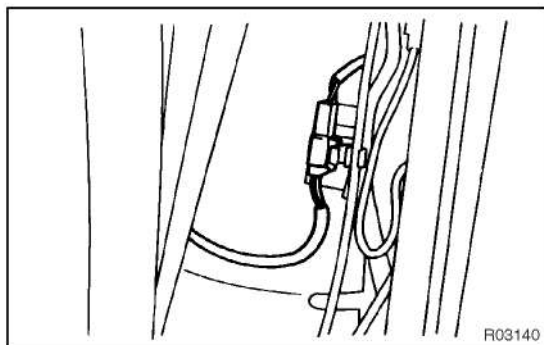
REAR SPEED SENSOR COMPONENTS

BR0PU-01



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

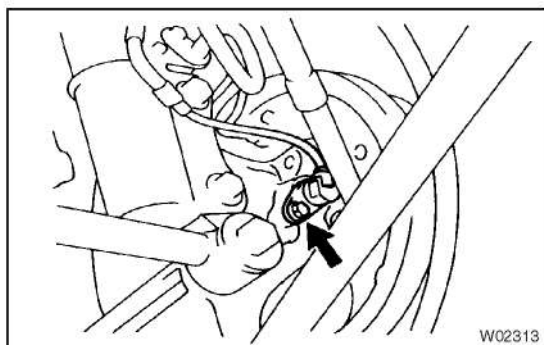
F04475



REMOVAL

1. DISCONNECT SPEED SENSOR CONNECTOR

- (a) Remove the seat cushion and seat back.
- (b) Disconnect the speed sensor connector, and pull out the sensor wire harness with the grommet.



2. REMOVE SPEED SENSOR

- (a) Remove the bolt and speed sensor from the axle carrier.
Torque: 8.0 N·m (82 kgf·cm, 71 in.·lbf)
- (b) Remove the 2 clamp bolts holding the sensor wire harness to the body and shock absorber.
Torque: 5.5 N·m (55 kgf·cm, 48 in.·lbf)

INSTALLATION

Installation is in the reverse order of removal (See page BR-45).

AFTER INSTALLATION, CHECK SPEED SENSOR SIGNAL (See page DI-115)