

CHASSIS SECTION

This service manual has been prepared to provide SUBARU service personnel with the necessary information and data for the correct maintenance and repair of SUBARU vehicles.

This manual includes the procedures for maintenance, disassembling, reassembling, inspection and adjustment of components and diagnostics for guidance of experienced mechanics.

Please peruse and utilize this manual fully to ensure complete repair work for satisfying our customers by keeping their vehicle in optimum condition. When replacement of parts during repair work is needed, be sure to use SUBARU genuine parts.

All information, illustration and specifications contained in this manual are based on the latest product information available at the time of publication approval.

FRONT SUSPENSION	FS
REAR SUSPENSION	RS
WHEEL AND TIRE SYSTEM	WT
DIFFERENTIALS	DI
TRANSFER CASE	TC
DRIVE SHAFT SYSTEM	DS
ABS	ABS
ABS (DIAGNOSTICS)	ABS(diag)
VEHICLE DYNAMICS CONTROL (VDC)	VDC
VEHICLE DYNAMICS CONTROL (VDC) (DIAGNOSTICS)	VDC(diag)
BRAKE	BR
PARKING BRAKE	PB
POWER ASSISTED SYSTEM (POWER STEERING)	PS

PARKING BRAKE

PB

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General Description

PARKING BRAKE

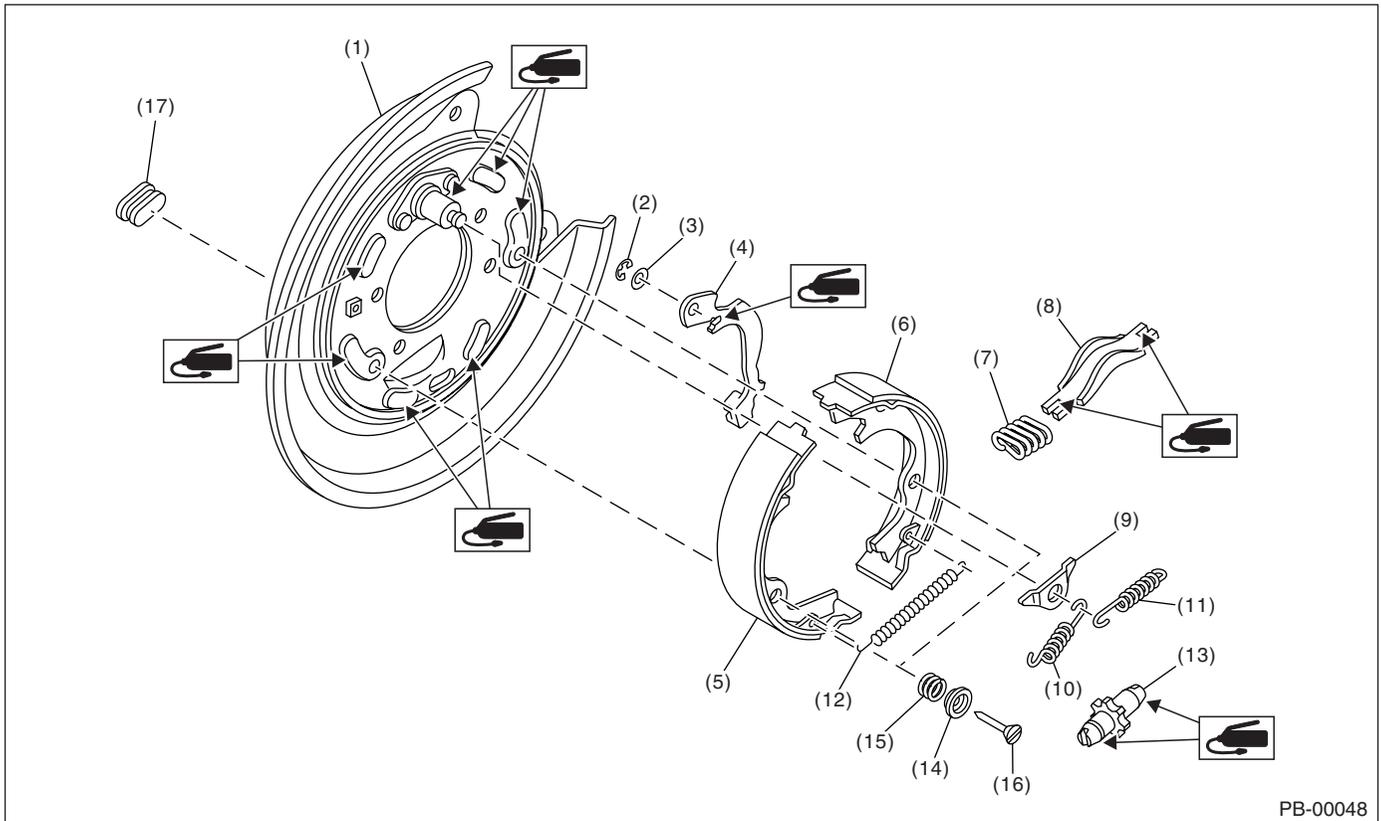
1. General Description

A: SPECIFICATION

Type		Mechanical on rear brakes, drum in disc
Effective drum diameter	mm (in)	170 (6.69)
Lining dimensions (length × width × thickness)	mm (in)	163.1 × 30.0 × 3.2 (6.421 × 1.181 × 0.126)
Clearance adjustment		Manual adjustment
Lever stroke	notches/N (kgf, lb)	5 to 6/200 (20.4, 45)

B: COMPONENT

1. PARKING BRAKE (REAR DISC BRAKE)



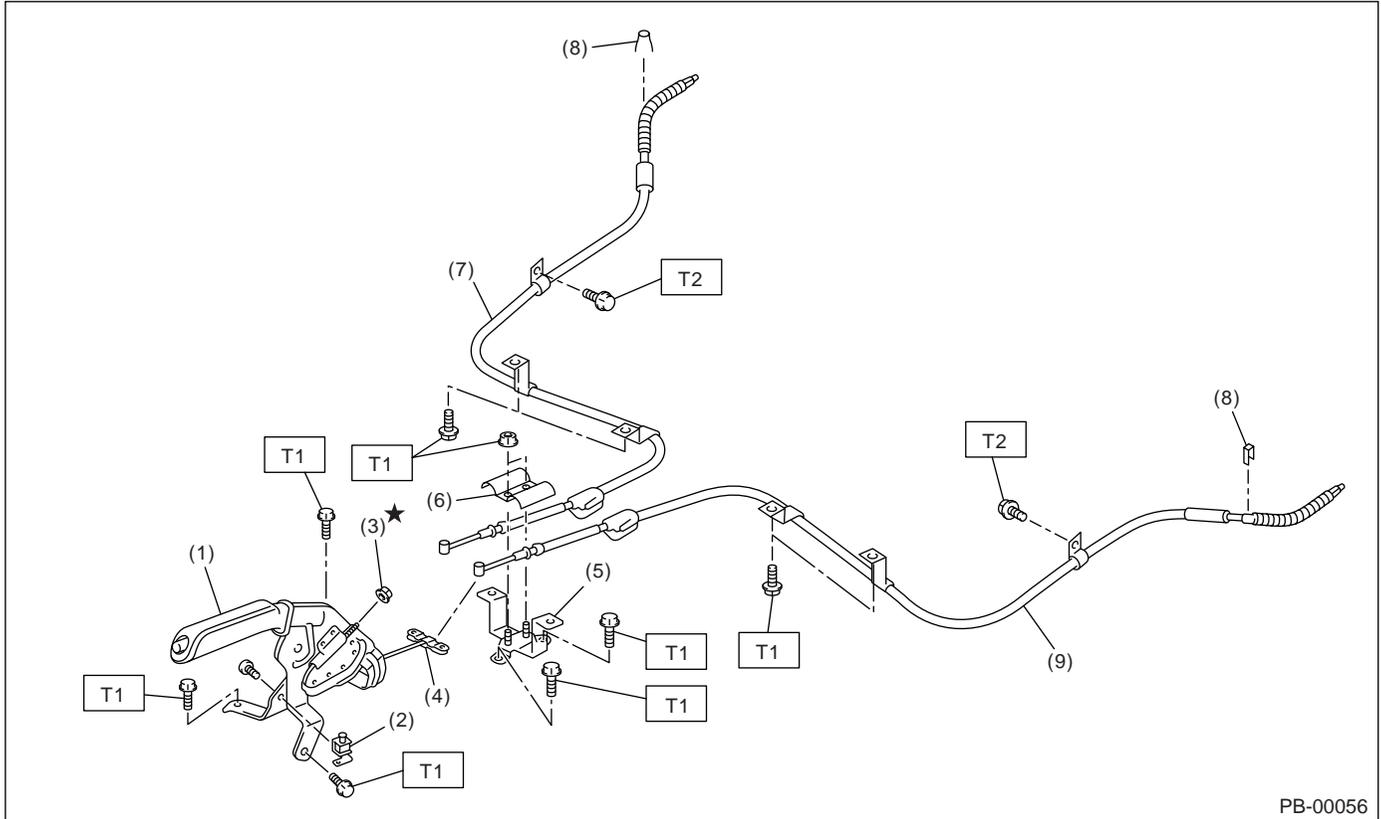
PB-00048

- | | | |
|------------------------------------|------------------------------|----------------------------|
| (1) Back plate | (7) Strut spring | (13) Adjuster |
| (2) Retainer | (8) Strut | (14) Shoe hold-down cup |
| (3) Spring washer | (9) Shoe guide plate | (15) Shoe hold-down spring |
| (4) Lever | (10) Primary return spring | (16) Shoe hold-down pin |
| (5) Parking brake shoe (Primary) | (11) Secondary return spring | (17) Adjusting hole cover |
| (6) Parking brake shoe (Secondary) | (12) Adjusting spring | |

General Description

PARKING BRAKE

2. PARKING BRAKE CABLE



PB-00056

- | | |
|--------------------------------------|----------------------------|
| (1) Parking brake lever | (6) Clamp |
| (2) Parking brake switch | (7) Parking brake cable RH |
| (3) Adjusting nut (Self-locking nut) | (8) Clamp |
| (4) Equalizer | (9) Parking brake cable LH |
| (5) Bracket | |

Tightening torque: N·m (kgf·m, ft·lb)

T1: 18 (1.8, 13.0)

T2: 33 (3.4, 24.3)

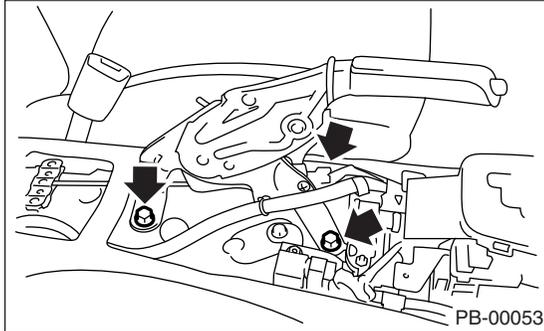
C: CAUTION

- Wear work clothing, including a cap, protective goggles, and protective shoes during operation.
- Before removal, installation or disassembly, be sure to clarify the failure. Avoid unnecessary removal, installation, disassembly and replacement.
- Be careful not to burn your hands, because each part on the vehicle is hot after running.
- Use SUBARU genuine grease etc. or the equivalent. Do not mix grease etc. with that of another grade or from other manufacturers.
- Be sure to tighten fasteners including bolts and nuts to the specified torque.
- Place shop jacks or rigid racks at the specified points.
- Before securing a part on a vice, place cushioning material such as wood blocks, aluminum plate, or shop cloth between the part and the vice.
- Keep grease etc. away from parking brake shoes.

2. Parking Brake Lever

A: REMOVAL

- 1) Set the wheel stoppers to tires.
- 2) Remove the console box.
- 3) Disconnect the parking brake switch connector.
- 4) Remove the parking cable adjusting nut (self-locking nut).
- 5) Remove the parking brake lever.



B: INSTALLATION

- 1) Install in the reverse order of removal.

Tightening torque:

Parking brake lever

18 N·m (1.8 kgf·m, 13.0 ft·lb)

- 2) Install a new adjusting nut (self-locking nut).
- 3) Adjust the lever stroke. <Ref. to PB-5, ADJUSTMENT, Parking Brake Lever.>

C: INSPECTION

- 1) Operate the parking brake lever 3 to 4 times and return the lever fully.
- 2) While pulling the parking brake lever upward, count the notches.

Lever stroke:

5 to 6 notches when pulled with a force of 200 N (20.4 kgf, 45 lb)

If it is not within the specified value, adjust the parking brake. <Ref. to PB-9, ADJUSTMENT, Parking Brake Assembly (Rear Disc Brake).>

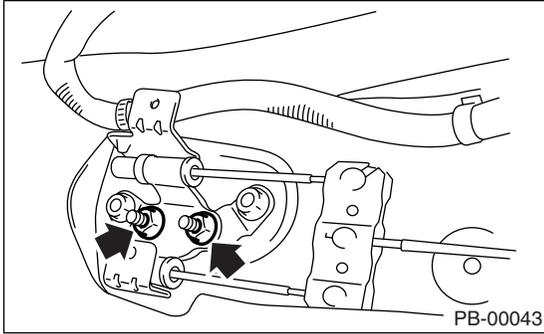
D: ADJUSTMENT

Adjust the parking lever stroke. <Ref. to PB-9, LEVER STROKE, ADJUSTMENT, Parking Brake Assembly (Rear Disc Brake).>

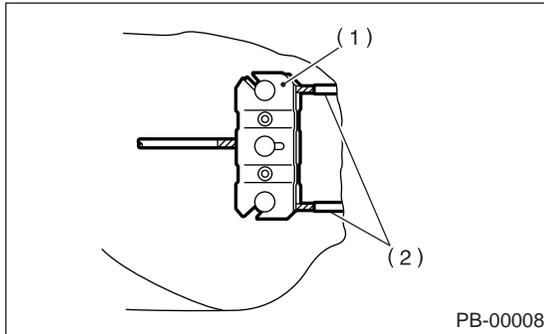
3. Parking Brake Cable

A: REMOVAL

- 1) Remove the rear seat cushion.
- 2) Remove the console box.
- 3) Remove the parking cable adjusting nut (self-locking nut).
- 4) Remove the parking brake lever. <Ref. to PB-5, REMOVAL, Parking Brake Lever.>
- 5) Roll up the floor mat and remove the clamps.

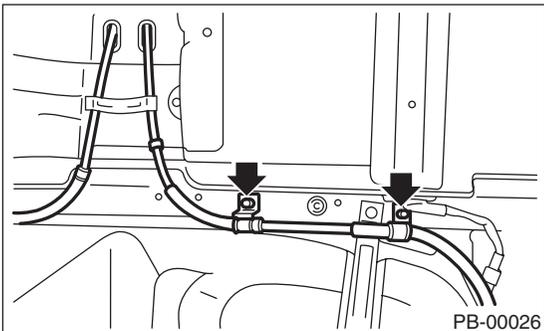


- 6) Remove the inner cable end from equalizer.



- (1) Equalizer
- (2) Inner cable end

- 7) Lift-up the vehicle, and then remove the rear wheels.
- 8) Remove the parking brake cable from rear brake. <Ref. to PB-7, REMOVAL, Parking Brake Assembly (Rear Disc Brake).>
- 9) Remove the clamp from rear brake.
- 10) Remove the cable clamp from rear arm bracket.
- 11) Remove the cable clamp from rear floor.



- 12) Remove the cable assembly.

B: INSTALLATION

- 1) Install in the reverse order of removal.

NOTE:

Be sure to pass the cable through the cable guide inside tunnel.

- 2) Adjust the lever stroke. <Ref. to PB-5, ADJUSTMENT, Parking Brake Lever.>

C: INSPECTION

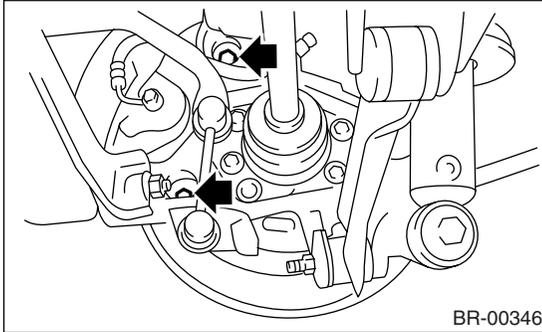
Check and replace the removed cable if damaged, rusty or faulty.

- 1) Check the cable for smooth operation.
- 2) Check the inner cable for damage and rust.
- 3) Check the outer cable for damage, bends and cracks.
- 4) Check the boot for damage, cracks and corrosion.

4. Parking Brake Assembly (Rear Disc Brake)

A: REMOVAL

- 1) Release the parking brake.
- 2) Remove the two mounting bolts and remove the brake caliper assembly.

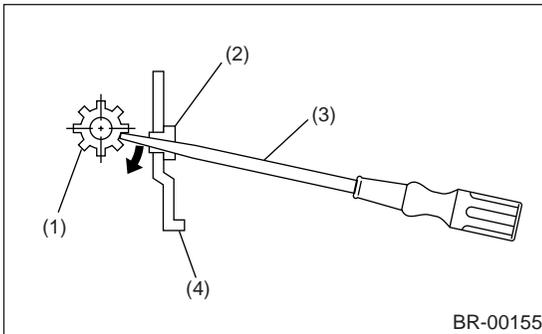


- 3) Suspend the brake caliper assembly so that the hose is not stretched.
- 4) Remove the disc rotor.

NOTE:

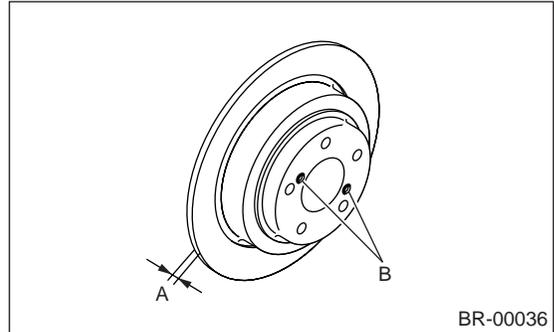
If the disc rotor is difficult to remove, try the following two methods in order.

- (1) Turn the adjusting screw using a flat tip screwdriver until the brake shoe gets away enough from the disc rotor.

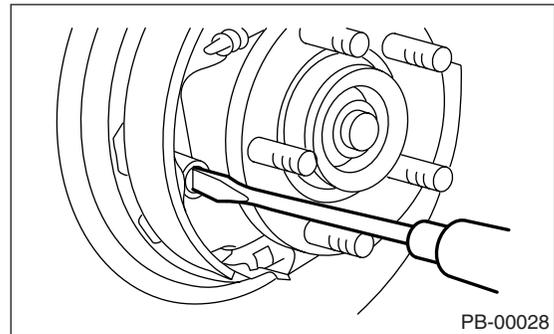


- (1) Adjuster
- (2) Adjusting hole cover (rubber)
- (3) Flat tip screwdriver
- (4) Back plate

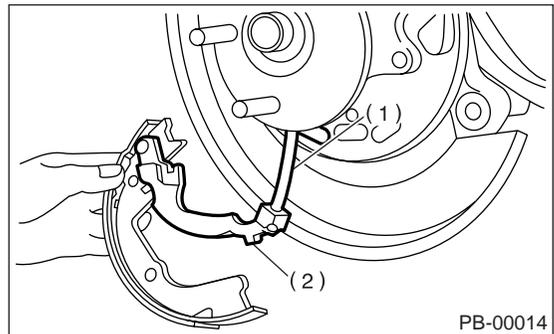
- (2) If the disc rotor seizes up within hub, drive out the disc rotor by pushing two 8 mm bolts in holes B on rotor.



- 5) Remove the shoe return spring from parking brake assembly.
- 6) Remove the front shoe hold down spring and pin.



- 7) Remove the strut and strut spring.
- 8) Remove the adjuster assembly from parking brake assembly.
- 9) Remove the brake shoe.
- 10) Remove the rear shoe hold down spring and pin with pliers.
- 11) Remove the parking brake cable from lever.



- (1) Parking brake cable
- (2) Lever

- 12) Using a flat tip screwdriver, raise the retainer. Remove the parking lever and washer from brake shoe.

Parking Brake Assembly (Rear Disc Brake)

PARKING BRAKE

B: INSTALLATION

CAUTION:

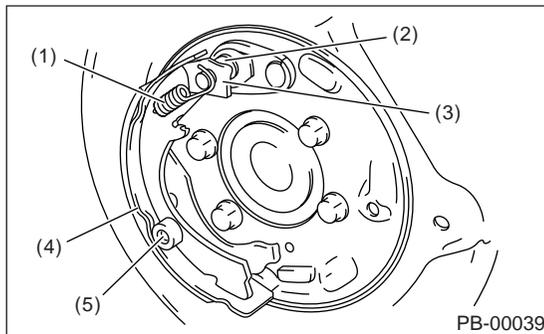
Be sure the lining surface is free from oil and grease contamination.

1) Apply brake grease to the following places.

Brake grease:

Brake Grease (Part No. 003602002)

- Six contact surfaces of shoe rim and back plate packing
 - Contact surface of shoe wave and anchor pin
 - Contact surface of lever and strut
 - Contact surface of shoe wave and adjuster assembly
 - Contact surface of shoe wave and strut
 - Contact surface of lever and shoe wave
- 2) Insert the primary side brake shoe into anchor pin groove.
- 3) Secure the brake shoe with the shoe hold-down pin and cup.
- 4) Install the plate to anchor pin, and then assemble the primary return spring to anchor pin.



- (1) Primary return spring
- (2) Anchor pin
- (3) Plate
- (4) Primary shoe
- (5) Shoe hold-down pin and shoe hold-down cup

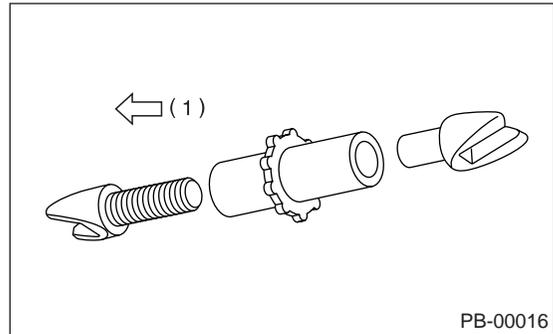
5) Install the parking brake cable to parking brake lever.

6) Assemble the strut and adjuster, and then secure the secondary side brake shoe with shoe hold-down pin and cup.

NOTE:

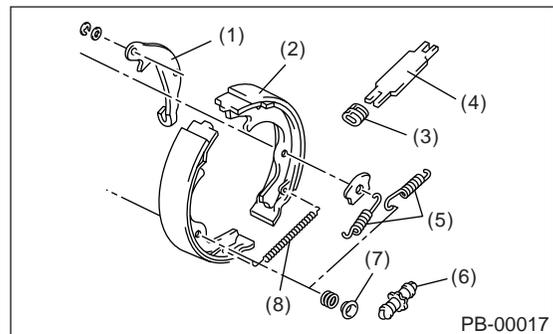
- Install the strut spring of both right and left wheel facing vehicle front.

- Install the adjuster assembly with screw on left side.



(1) LH

7) Install the secondary return spring and adjusting spring.



- (1) Lever
- (2) Secondary brake shoe
- (3) Strut spring
- (4) Strut
- (5) Return spring
- (6) Adjuster
- (7) Shoe hold-down cup
- (8) Adjusting spring

8) Adjust the parking brake. <Ref. to PB-9, ADJUSTMENT, Parking Brake Assembly (Rear Disc Brake).>

9) Drive the vehicle for parking brake lining "break-in".

(1) Drive the vehicle at about 35 km/h (22 MPH).

(2) With the parking brake release button pushed in, pull the parking brake lever gently.

(3) Drive the vehicle for about 200 m (0.12 mile) in this condition.

(4) Wait 5 to 10 minutes for the parking brake to cool down.

Repeat once more from step (1).

(5) After breaking-in, re-adjust the parking brakes.

C: INSPECTION

1) Measure the brake disc rotor inside diameter. If the disc is scored or worn, replace the brake disc rotor.

Disc rotor inside diameter:

Standard:

170 mm (6.69 in)

Service limit:

171 mm (6.73 in)

2) Measure the lining thickness. If it exceeds the limit, replace shoe assembly.

Lining thickness:

Standard:

3.2 mm (0.126 in)

Service limit:

1.5 mm (0.059 in)

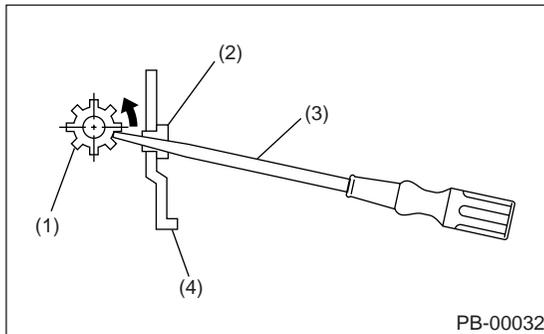
NOTE:

Replace the right and left brake shoe as a set.

D: ADJUSTMENT

1. SHOE CLEARANCE

- 1) Return the parking brake lever fully.
- 2) Remove the adjusting hole cover from back plate.
- 3) Turn the adjusting screw using a flat tip screwdriver until the brake shoe is in close contact with disc rotor.



- (1) Adjusting screw
- (2) Adjusting hole cover (rubber)
- (3) Flat tip screwdriver
- (4) Back plate

4) Turn back (downward) the adjusting screw 3 to 4 notches.

CAUTION:

Check there is no brake drag.

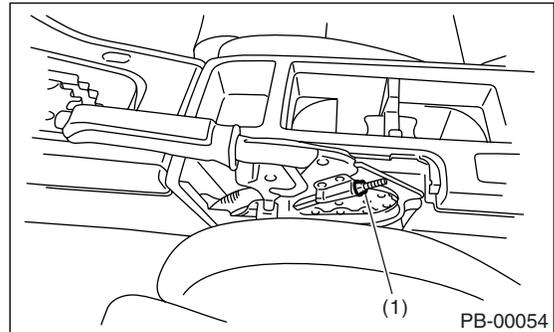
- 5) Install the adjusting hole cover to back plate.
- 6) Adjust the parking lever stroke. <Ref. to PB-9, LEVER STROKE, ADJUSTMENT, Parking Brake Assembly (Rear Disc Brake).>

2. LEVER STROKE

- 1) Adjust the shoe clearance before lever stroke adjustment. <Ref. to PB-9, SHOE CLEARANCE, ADJUSTMENT, Parking Brake Assembly (Rear Disc Brake).>
- 2) Remove the parking lever cover.
- 3) Operate the parking brake lever 3 to 4 times.
- 4) Turn the adjusting nut until lever stroke is at the specification.

Lever stroke:

5 to 6 notches when pulled with a force of 200 N (20.4 kgf, 45 lb)



(1) Adjusting nut (Self-locking nut)

- 5) Check there is no brake drag.
- 6) Install the parking lever cover.

General Diagnostic Table

PARKING BRAKE

5. General Diagnostic Table

A: INSPECTION

Symptom	Possible cause	Remedy
Brake drag	Parking brake lever is maladjusted.	Adjustment.
	Parking brake cable does not move.	Repair or replace.
	Parking brake shoe clearance is maladjusted.	Adjustment.
	Return spring is faulty.	Replace.
Noise from brake	Return spring is faulty.	Replace.
	Shoe hold-down spring is faulty.	Replace.