

## GROUP 36

## PARKING BRAKES

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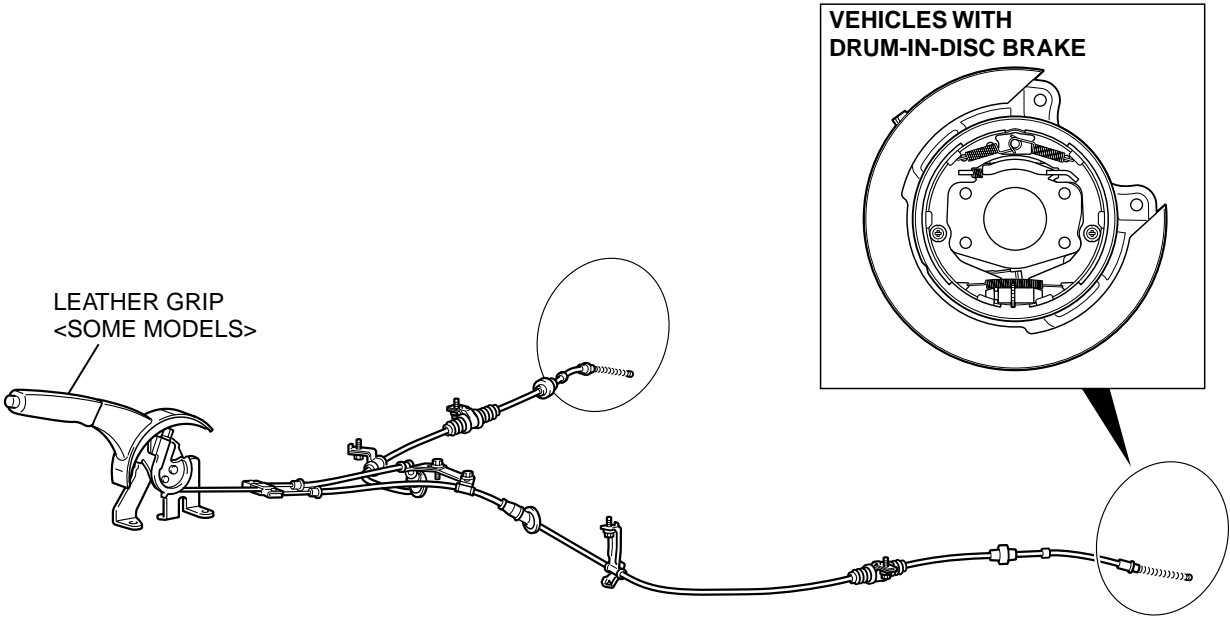
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GENERAL DESCRIPTION

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The parking brakes are a mechanical rear wheel brake design and controlled by a lever.

CONSTRUCTION DIAGRAM



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PARKING BRAKE DIAGNOSIS

INTRODUCTION TO PARKING BRAKES DIAGNOSIS

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If the parking brake is faulty, parking brake effort will become insufficient.

The cause will malfunction of parking brake parts or parking brake lever out of adjustment.

PARKING BRAKES DIAGNOSTIC TROUBLESHOOTING STRATEGY

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Use these steps to plan your diagnostic strategy. If you follow them thoroughly, you will be sure that you have exhausted most of the possible ways to find a parking brakes fault.

1. Gather Information from the customer.

- 2. Verify that the condition described by the customer exists.
- 3. Find the malfunction by following the Symptom Chart.
- 4. Verify malfunction is eliminated.

SYMPTOM CHART

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SYMPTOM	INSPECTION PROCEDURE	REFERENCE PAGE
Brake drag	—	Refer to GROUP 35A, Basic Brake System Diagnosis – Symptom Chart <a href="#">P.35A-12</a> .
Insufficient parking brake function	1	<a href="#">P.36-3</a>

## SYMPTOM PROCEDURES

### INSPECTION PROCEDURE 1: Insufficient Parking Brake Function

#### DIAGNOSIS

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##### STEP 1. Check the excessive parking brake lever stroke.

Refer to [P.36-4](#).

##### Q: Is the parking brake lever stroke adjusted properly?

**YES** : Go to Step 2.

**NO** : Adjust the parking brake lever stroke or check the parking brake cable routing. Then go to Step 5.

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##### STEP 2. Check the parking brake cable for sticking.

##### Q: Is the parking brake cable stuck?

**YES** : Replace the cable. Then go to Step 5.

**NO** : Go to Step 3.

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##### STEP 3. Check the brake lining and brake drum for wear.

<Vehicles with rear drum brake>

Refer to GROUP 35A, On-vehicle Service – Brake Lining Thickness Check [P.35A-32](#) and Brake Drum Inside Diameter Check [P.35A-32](#).

<Vehicles with rear disc brake>

Refer to [P.36-11](#).

##### Q: Is the brake lining thickness or brake drum inside diameter outside of specification?

**YES** : Replace the rear brake shoe assembly or rear brake disc (Refer to [P.36-9](#)). Then go to Step 5.

**NO** : Go to Step 4.

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##### STEP 4. Check for oil, water, etc., on the lining contact surfaces.

##### Q: Is oil, water, etc., on the lining contact surface?

**YES** : Replace the part and determine and repair source/cause of foreign material. Then go to Step 5.

**NO** : Carry out the parking brake lining seating (Refer to [P.36-5](#)) and then go to Step 5.

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##### STEP 5. Retest the system.

##### Q: Is the malfunction eliminated?

**YES** : The procedure is complete.

**NO** : Recheck from Step 1.

**ON-VEHICLE SERVICE****PARKING BRAKE LEVER STROKE CHECK AND ADJUSTMENT**

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**<Vehicles with rear drum brakes>**

1. Pull the parking brake lever with a force of approximately 200 N (45 pounds) and count the number of notches.

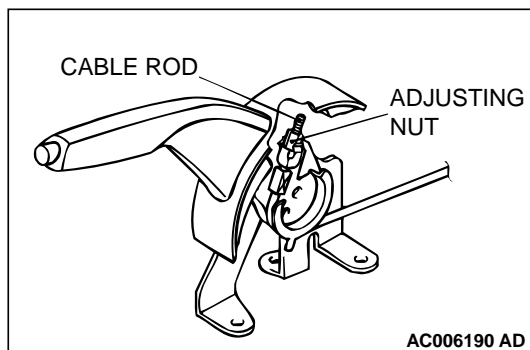
**Standard value: 4 – 5 notches**

2. If the parking brake lever stroke is not the standard value, adjust as described below.

- (1) Remove the floor console assembly. (Refer to GROUP 52A, Rear Floor Console [P.52A-9](#).)
- (2) Loosen the adjusting nut to move it to the cable rod end so that the cable will be free.
- (3) Depress the brake pedal repeatedly until the lever has no change in its stroke.

*NOTE: Depressing the brake pedal repeatedly adjusts shoe clearance correctly.*

- (4) Turn the adjusting nut to adjust the parking brake lever stroke to the standard value. After adjusting, check that there is no space between the adjusting nut and the parking brake lever. Check that the adjusting nut is secured with the nut holder.

**⚠ CAUTION**

**If the parking brake lever stroke is below the standard value and the braking is too firm, the rear brakes may drag.**

- (5) After adjusting the parking brake lever stroke, jack up the rear end of the vehicle, and then release the parking brake and turn the rear wheels to check that the rear brakes are not dragging.

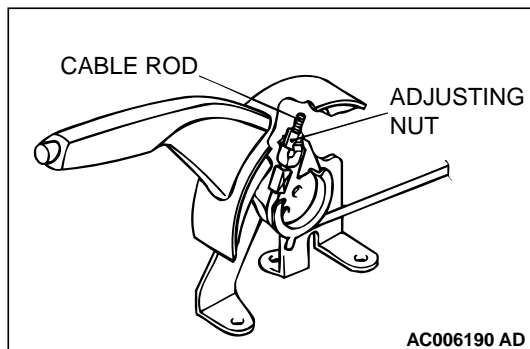
**<Vehicles with rear drum-in disc brakes>**

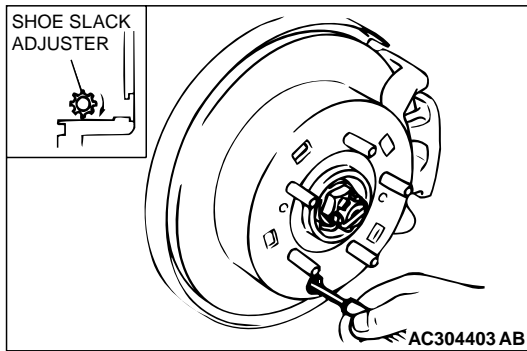
1. Pull the parking brake lever with a force of approximately 200 N (45 pounds) and count the number of notches.

**Standard value: 4 – 5 notches**

2. If the parking brake lever stroke is not the standard value, adjust as described below.

- (1) Remove the rear console assembly (Refer to GROUP 52A, Rear Floor Console Assembly [P.52A-9](#)).
- (2) Loosen the adjusting nut to move it to the cable rod end so that the cable will be free.
- (3) Remove the wheels.
- (4) Complete air bleeding of brake circuit. (Refer to GROUP 35A, On-vehicle Service, Bleeding [P.35A-24](#)).





- (5) Remove the rear wheel hub plug, and then use a flat-tipped screwdriver to turn the shoe slack adjuster in the direction of the arrow (the direction which expands the shoe) so that the disc will not rotate.  
Return the shoe slack adjuster 4 notches in the direction opposite to the direction of the arrow.
- (6) Turn the adjusting nut to adjust the parking brake lever stroke to the standard value. After adjusting, check that there is no space between the adjusting nut and the parking brake lever. Check that the adjusting nut is secured with the nut holder.

**⚠ CAUTION**

**If the parking brake lever stroke is below the standard value and the braking is too firm, the rear brakes may drag.**

- (7) Release the parking brake and turn the rear wheels to check that the rear brakes are not dragging.

**LINING RUNNING-IN <VEHICLES WITH REAR DRUM-IN DISC BRAKES>**

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**⚠ CAUTION**

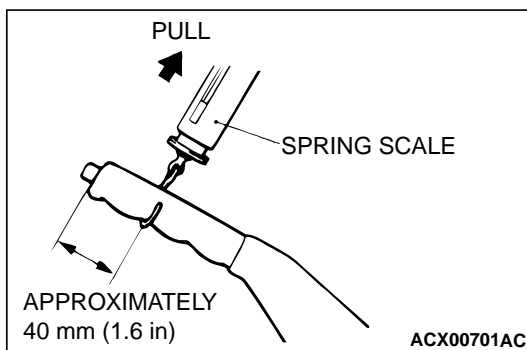
**Carry out running-in in a place with good visibility, and pay careful attention to safety.**

Carry out running-in by the following procedure when replacing the parking brake linings or the rear brake disc rotors, or when brake performance is insufficient.

1. Adjust the parking brake lever stroke to the standard value.

**Specified value: 4 – 5 notches <Operation force:  
Approximately 200 N (45 pounds)>**

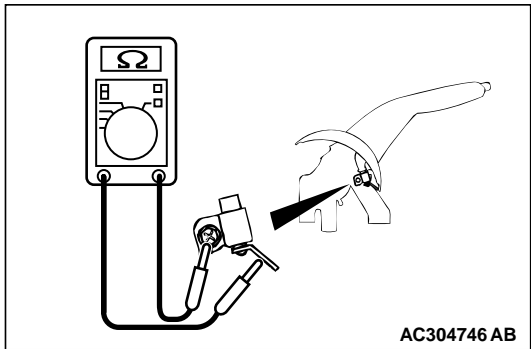
2. Hook a spring scale onto the center of the parking brake lever grip and pull it with a force of 98 – 147 N (22 – 33 pounds) in a direction perpendicular to the handle.
3. Drive the vehicle at a constant speed of 35 – 50 km/h (22 – 31 mph) for 100 meters (328 feet).
4. Release the parking brake and let the brakes cool for five to ten minutes.
5. Repeat the procedure in steps 2 to 4, four or five times.



PARKING BRAKE SWITCH CHECK

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- 1. Remove the rear console assembly (Refer to GROUP 52A, Rear Floor Console Assembly [P.52A-9](#)).
- 2. Remove the front seat assembly (RH). (Refer to GROUP 52A, Front Seat Assembly [P.52A-21](#)).
- 3. Check for continuity between the parking brake switch terminal and the switch mounting bolt.



When parking brake lever is pulled	Less than 2 $\Omega$
When parking brake lever is released	Open circuit

# PARKING BRAKE LEVER

## REMOVAL AND INSTALLATION

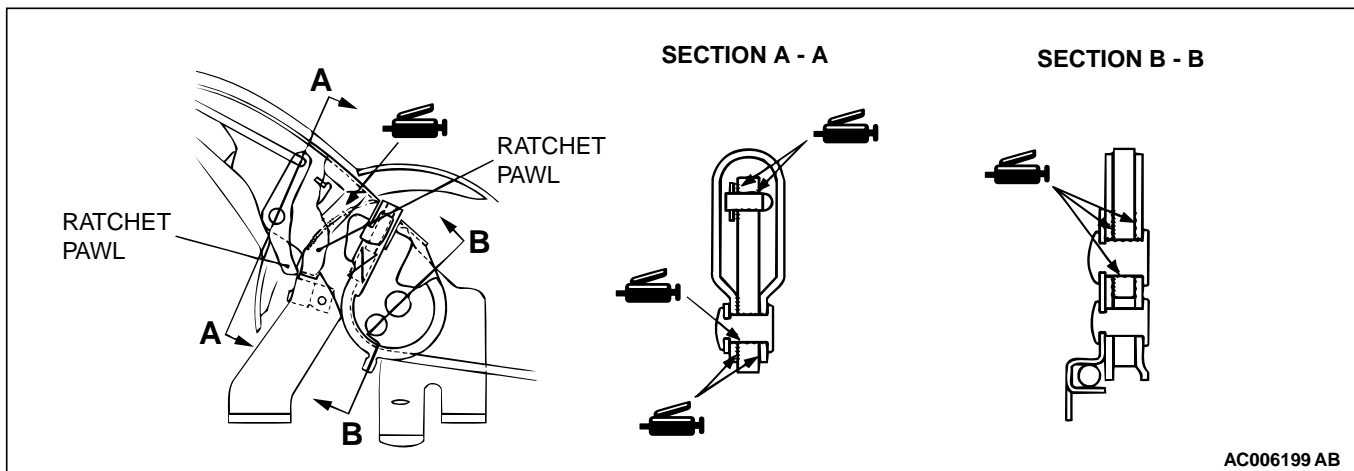
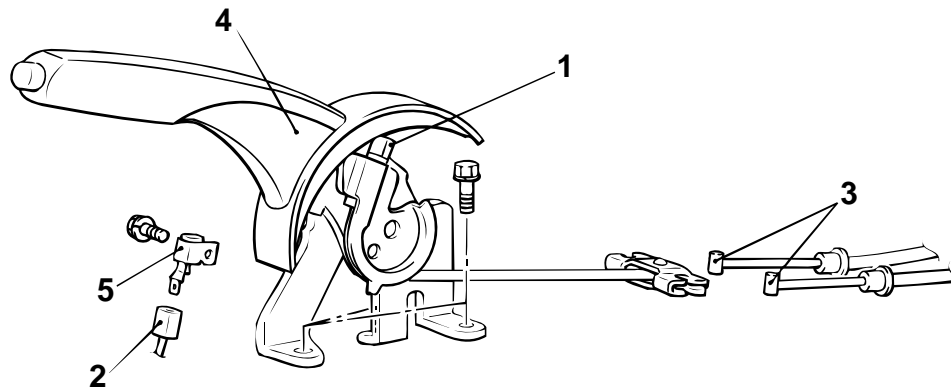
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### Pre-removal Operation

Rear Console Assembly and Rear Console Bracket Removal (Refer to GROUP 52A, Rear Floor Console Assembly P.52A-9).

### Post-installation Operation

- Parking Brake Lever Stroke Adjustment (Refer to P.36-4).
- Rear Console Bracket and Rear Console Assembly Installation (Refer to GROUP 52A, Rear Floor Console Assembly P.52A-9).



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### REMOVAL STEPS

1. ADJUSTING NUT
2. PARKING BRAKE SWITCH CONNECTOR
3. PARKING BRAKE CABLE CONNECTION
4. PARKING BRAKE LEVER ASSEMBLY
5. PARKING BRAKE SWITCH

## PARKING BRAKE CABLE

## REMOVAL AND INSTALLATION

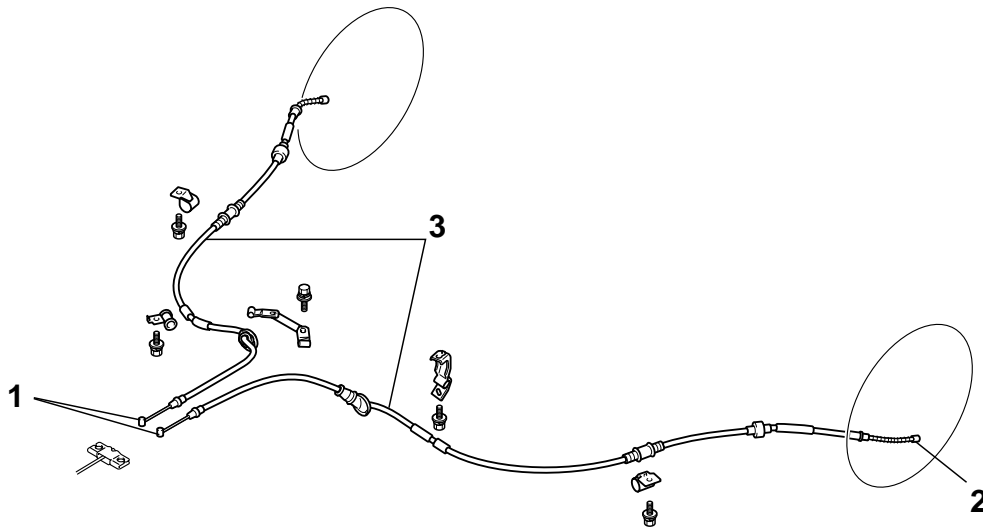
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**Pre-removal Operation**

- Rear Console Assembly and Rear Console Bracket Removal (Refer to GROUP 52A, Rear Floor Console Assembly [P.52A-9](#)).
- Rear Seat Cushion Assembly Removal (Refer to GROUP 52A, Rear Seat Assembly [P.52A-23](#)).

**Post-installation Operation**

- Parking Brake Lever Stroke Adjustment (Refer to [P.36-4](#)).
- Rear Seat Cushion Assembly Installation (Refer to GROUP 52A, Rear Seat Assembly [P.52A-23](#)).
- Rear Console Bracket and Rear Console Assembly Installation (Refer to GROUP 52A, Rear Floor Console Assembly [P.52A-9](#)).



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**REMOVAL STEPS**

- SHOE AND LINING ASSEMBLY (REFER TO GROUP 35A, REAR DRUM BRAKE [P.35A-48](#)). <VEHICLES WITH REAR DRUM BRAKES>
- REAR BRAKE SHOE ASSEMBLY (Refer to [P.36-9](#)). <VEHICLES WITH REAR DRUM-IN DISC BRAKES>

**REMOVAL STEPS (Continued)**

- LOOSEN THE PARKING BRAKE LEVER STROKE ADJUSTING NUT.
1. PARKING BRAKE CABLE CONNECTION
  2. PARKING BRAKE CABLE CONNECTION
  3. PARKING BRAKE CABLE



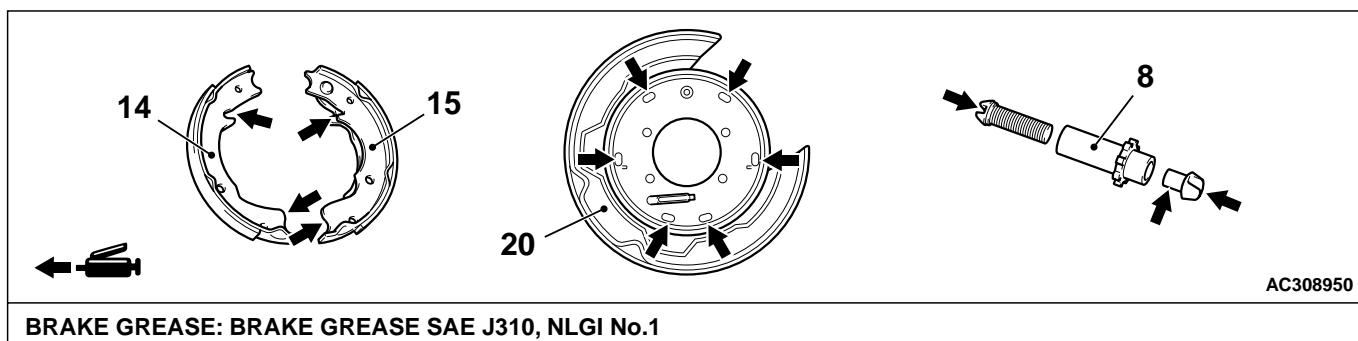
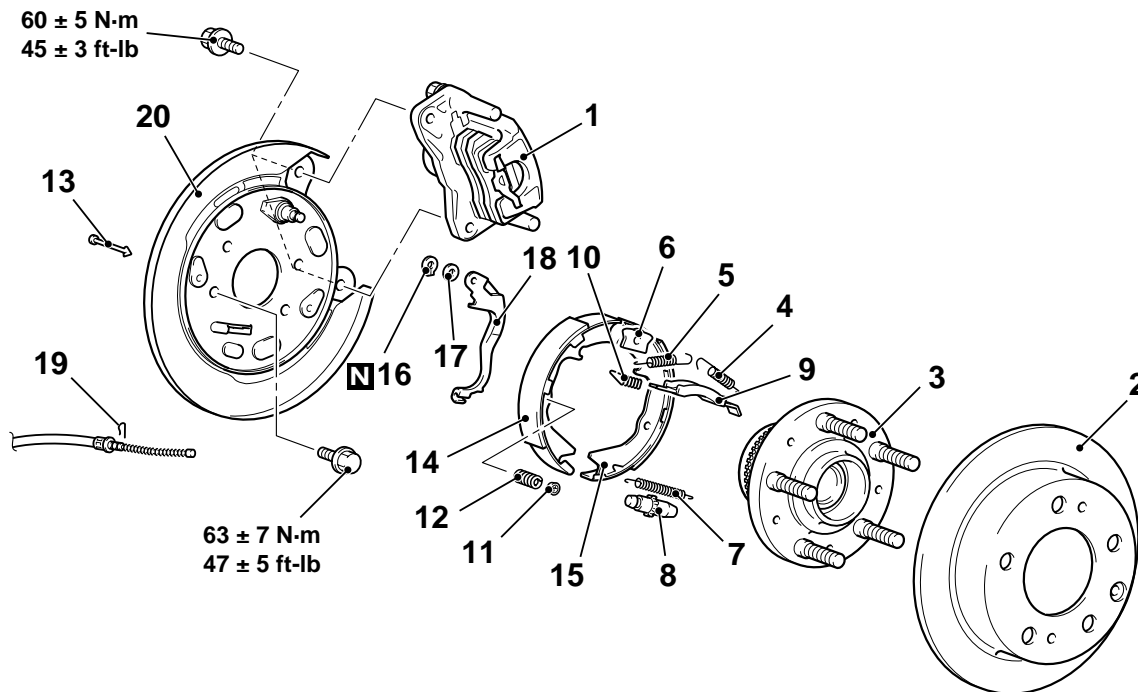
# PARKING BRAKE LINING AND DRUM <VEHICLES WITH REAR DISC BRAKE>

## REMOVAL AND INSTALLATION

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### Post-installation Operation

- Parking Brake Lever Stroke Check and Adjustment (Refer to P.36-4).
- Lining Running-in (Refer to P.36-5).



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<<A>>

### REMOVAL STEPS

1. REAR BRAKE ASSEMBLY
2. REAR BRAKE DISC
3. REAR HUB ASSEMBLY (REFER TO GROUP 27A, REAR HUB ASSEMBLY P.27-9).
- >>D<< 4. SHOE RETURN SPRING
- >>D<< 5. SHOE RETURN SPRING
6. SHOE GUIDE PLATE
7. SHOE AUTO ADJUSTER SPRING
- >>C<< 8. SHOE SLACK ADJUSTER
9. PARKING BRAKE OPERATING LEVER STRUT

### REMOVAL STEPS (Continued)

10. SHOE TO STRUT SPRING
11. SHOE SPRING CUP
12. SHOE HOLD-DOWN SPRING
13. REAR BRAKE PIN
14. REAR BRAKE PRIMARY SHOE ASSEMBLY
15. REAR BRAKE SECONDARY SHOE ASSEMBLY
- <<B>> >>B<< 16. REAR BRAKE CHAMBER RETAINER
- >>A<< 17. REAR BRAKE WASHER

**REMOVAL STEPS (Continued)**

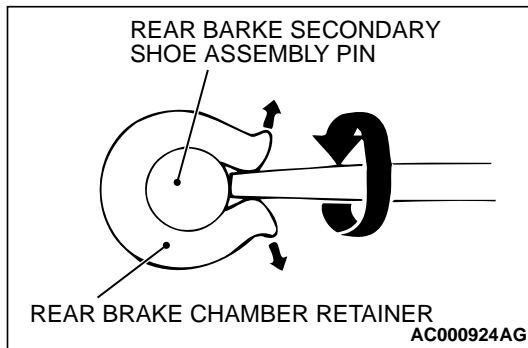
18. PARKING BRAKE OPERATING LEVER
19. PARKING BRAKE CABLE CLIP
20. REAR BRAKE BACKING PLATE

**REMOVAL SERVICE POINTS****<<A>> REAR BRAKE ASSEMBLY REMOVAL**

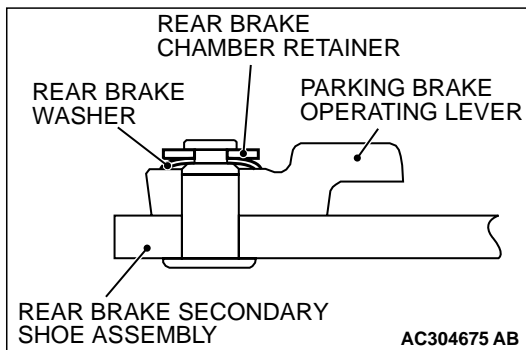
Remove the rear brake assembly and support it with wire or something similar.

**<<B>> REAR BRAKE CHAMBER RETAINER REMOVAL**

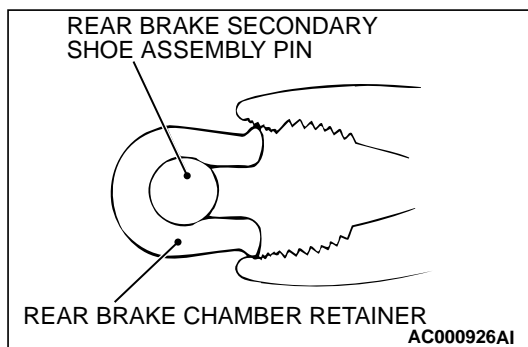
Use a flat-tipped screwdriver or a similar tool to open up the rear brake chamber retainer joint. Then remove the rear brake chamber retainer.

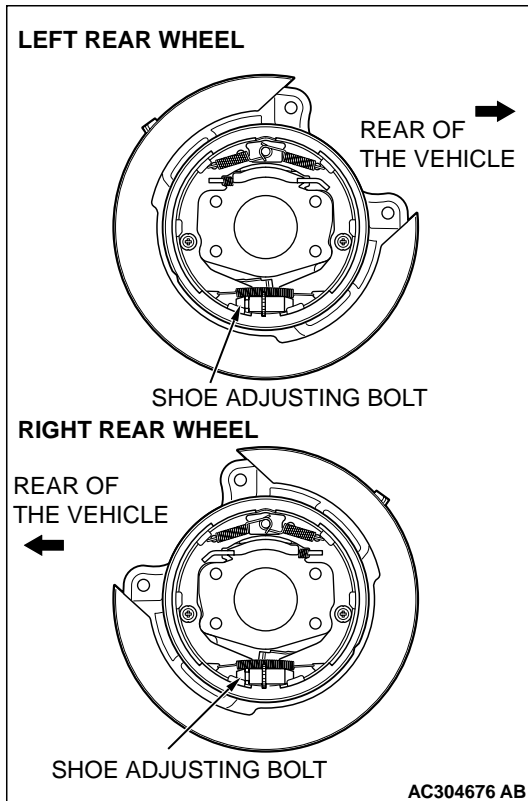
**INSTALLATION SERVICE POINTS****>>A<< REAR BRAKE WASHER INSTALLATION**

Install the rear brake washer in the direction shown in the illustration.

**>>B<< REAR BRAKE CHAMBER RETAINER INSTALLATION**

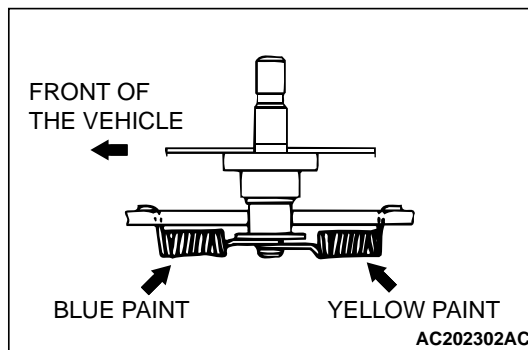
Use pliers or a similar tool to close the rear brake chamber retainer end onto the pin.





### >>C<< SHOE SLACK ADJUSTER INSTALLATION

Install the shoe slack adjuster so that the shoe adjusting bolt for the left rear wheel is attached towards the front of the vehicle, and the shoe adjusting bolt for the right rear wheel is towards the rear of the vehicle.



### >>D<< SHOE RETURN SPRINGS INSTALLATION

The shoe return springs are not interchangeable as their constants are different. The one with blue paint mark should be install at the front of the vehicle, and the other with yellow paint at the rear of the vehicle, respectively.

*NOTE: The illustration shows the left rear wheel. The right rear wheel is symmetrical to that.*

## INSPECTION

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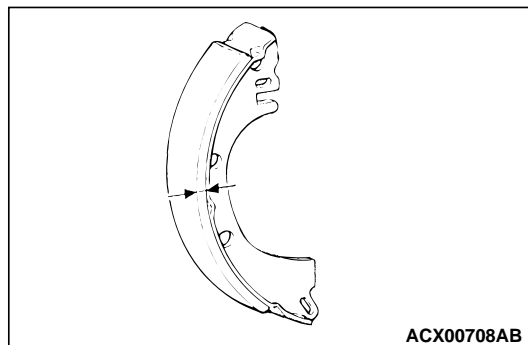
### PARKING BRAKE LINING AND DRUM CHECK

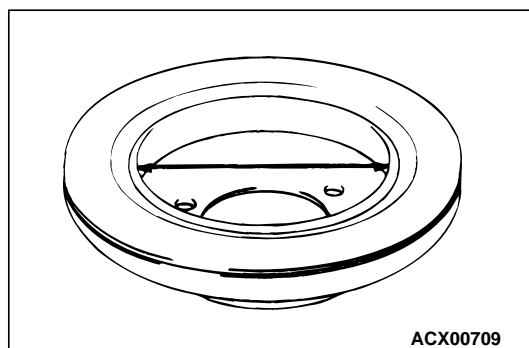
1. Measure the thickness of the brake lining at several places.

**Standard value: 2.8 mm (0.11 inch)**

**Minimum limit: 1.0 mm (0.04 inch)**

2. If the thickness of the brake lining is below the limit, replace the shoe assemblies on both sides of the vehicle. Never replace only one side.





3. Measure the inside diameter of the brake disc in two places or more.

**Standard value: 168.0 mm (6.61 inches)**

**Limit: 169.0 mm (6.65 inches)**

4. If the inside diameter exceeds the limit, or if it is excessively worn on one side, replace the rear brake disc.

## SPECIFICATIONS

### FASTENER TIGHTENING SPECIFICATIONS <VEHICLES WITH REAR DRUM-IN DISC BRAKES>

M1361003500299

ITEM	SPECIFICATION
<b>Parking brake lining and drum</b>	
Rear brake bolt (rear brake caliper assembly mounting bolt)	$60 \pm 5$ N·m ( $45 \pm 3$ ft-lb)
Rear brake backing plate mounting bolt	$63 \pm 7$ N·m ( $47 \pm 5$ ft-lb)

### SERVICE SPECIFICATION

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ITEM	STANDARD VALUE	Limit
Parking brake lever stroke	4 – 5 notches	–
Rear brake lining thickness mm (in) <vehicles with rear drum-in disc brakes>	2.8 (0.11)	Minimum 1.0 (0.04)
Rear drum inside diameter mm (in) <vehicles with rear drum-in disc brakes>	168.0 (6.61)	169.0 (6.65)

### LUBRICANT <VEHICLES WITH REAR DRUM-IN DISC BRAKES>

M1361000400334

ITEM	SPECIFIED LUBRICANT
Rear brake shoe slack adjuster	Brake grease SAE J310, NLGI No.1
Backing plate	
Rear brake shoe assembly	