

**GROUP 36**

**PARKING BRAKES**

**CONTENTS**

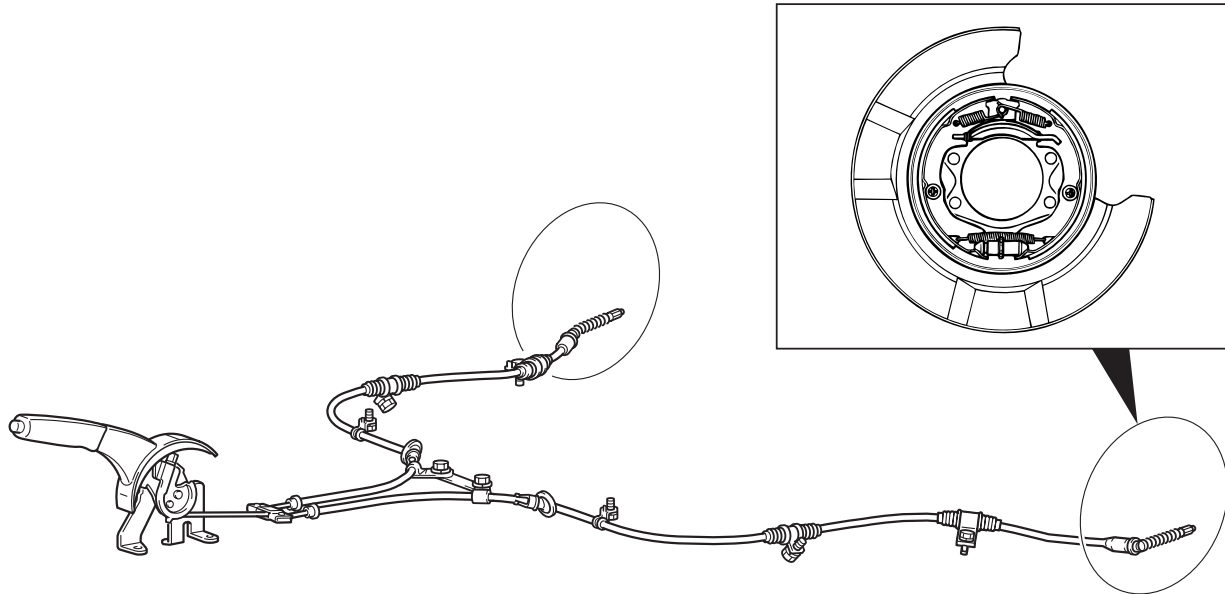
<b>GENERAL DESCRIPTION.....</b>	<b>36-2</b>	<b>PARKING BRAKE LEVER.....</b>	<b>36-6</b>
		REMOVAL AND INSTALLATION .....	36-6
<b>PARKING BRAKE DIAGNOSIS ....</b>	<b>36-2</b>	<b>PARKING BRAKE CABLE.....</b>	<b>36-7</b>
INTRODUCTION TO PARKING BRAKES		REMOVAL AND INSTALLATION .....	36-7
DIAGNOSIS .....	36-2	<b>PARKING BRAKE LINING AND DRUM</b>	<b>36-8</b>
PARKING BRAKES DIAGNOSTIC		REMOVAL AND INSTALLATION .....	36-8
TROUBLESHOOTING STRATEGY .....	36-2	INSPECTION.....	36-10
SYMPTOM CHART.....	36-2	<b>SPECIFICATIONS .....</b>	<b>36-10</b>
SYMPTOM PROCEDURES .....	36-3	FASTENER TIGHTENING SPECIFICATIONS	36-10
<b>ON-VEHICLE SERVICE.....</b>	<b>36-4</b>	SERVICE SPECIFICATIONS .....	36-10
PARKING BRAKE LEVER STROKE CHECK		LUBRICANTS .....	36-10
AND ADJUSTMENT .....	36-4		
PARKING BRAKE SWITCH CHECK .....	36-5		
LINING RUNNING-IN .....	36-5		

# GENERAL DESCRIPTION

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The parking brake is of a mechanical control type acting on the rear wheels. A lever is used to apply the parking brake.

## CONSTRUCTION DIAGRAM



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# PARKING BRAKE DIAGNOSIS

## INTRODUCTION TO PARKING BRAKES DIAGNOSIS

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

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

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## PARKING BRAKES DIAGNOSTIC TROUBLESHOOTING STRATEGY

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

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

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## SYMPTOM CHART

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SYMPTOM	INSPECTION PROCEDURE	REFERENCE PAGE
Brake drag	1	P.36-3
Insufficient parking brake function	2	P.36-3

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## SYMPTOM PROCEDURES

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### INSPECTION PROCEDURE 1: Brake Drag

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#### DIAGNOSIS

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**STEP 1. Check for incomplete release of parking brake.**

**Q: Is there a fault?**

**YES :** Correct it. Then go to Step 5.

**NO :** Go to step 2.

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**STEP 2. Check for incorrect parking brake adjustment.**

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

**Q: Is there a fault?**

**YES :** Adjust the parking brake. Then go to Step 5.

**NO :** Go to Step 3.

---

**STEP 3. Check the parking break cable routing condition.**

**Q: Is there a fault?**

**YES :** Correct it. Then go to Step 5.

**NO :** Go to Step 4.

---

**STEP 4. Check the brake lining and brake drum for wear.**

Refer to [P.36-10](#).

**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.36-8](#)). Then go to Step 5.

**NO :** 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.

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### INSPECTION PROCEDURE 2: Insufficient Parking Brake Function

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#### DIAGNOSIS

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**STEP 1. Check for excessive parking brake lever stroke.**

**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.

---

**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.

---

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

Refer to [P.36-10](#).

**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.36-8](#)). Then go to Step 5.

**NO :** Go to Step 4.

---

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

**Q: Is there 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 running-in (Refer to [P.36-5](#)). Then go to Step 5.

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

**Standard value: 5 –7 notches**

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

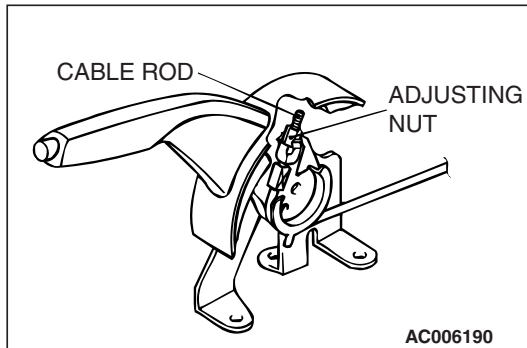
- (1) Remove the rear floor console assembly. (Refer to GROUP 52A, Rear Floor Console P.52A-8.)
- (2) Loosen the adjusting nut to move it to the cable rod end so that the cable will be free.
- (3) Depress the brake pedal repeatedly until the lever has no change in its stroke.

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

**⚠ CAUTION**

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

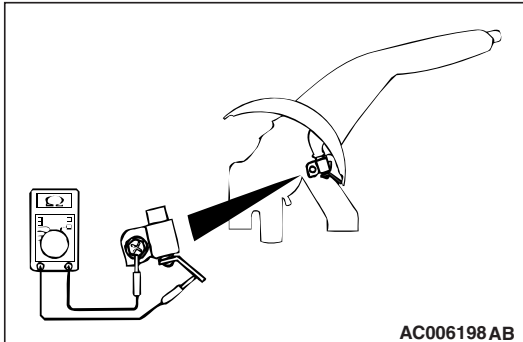
- (4) Turn the adjusting nut to adjust the parking brake lever stroke to the standard value. After adjusting, check that there is no space between the adjusting nut and the parking brake lever. Check that the adjusting nut is secured with the nut holder.
- (5) After adjusting the parking brake lever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



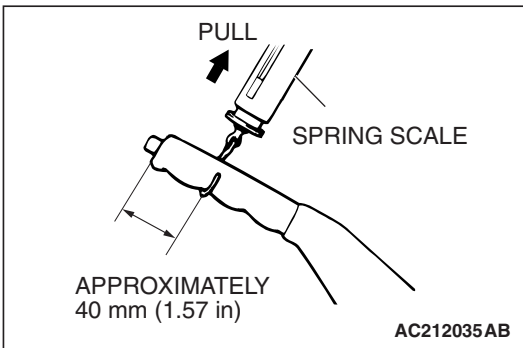
### PARKING BRAKE SWITCH CHECK

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1. Remove the rear floor console assembly. (Refer to GROUP 52A, Rear Floor Console P.52A-8.)
2. Remove the front seat assembly (RH). (Refer to GROUP 52A, Front Seat P.52A-20.)
3. Check for continuity between the parking brake switch terminal and the switch mounting bolt.



When parking brake lever is pulled	Less than 2 ohms
When parking brake lever is released	Open circuit



### LINING RUNNING-IN

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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.

#### **CAUTION**

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

1. Adjust the parking brake stroke to the standard value.  
**Standard value [Operation force: Approximately 200 N (45 pounds)]: 5 - 7 notches**
2. Hook a spring scale onto the center of the parking brake lever grip and pull it with a force of 100 – 150 N (22 – 34 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 5 - 10 minutes.
5. Repeat the procedure in steps 2 to 4, four or five times.

# PARKING BRAKE LEVER

## REMOVAL AND INSTALLATION

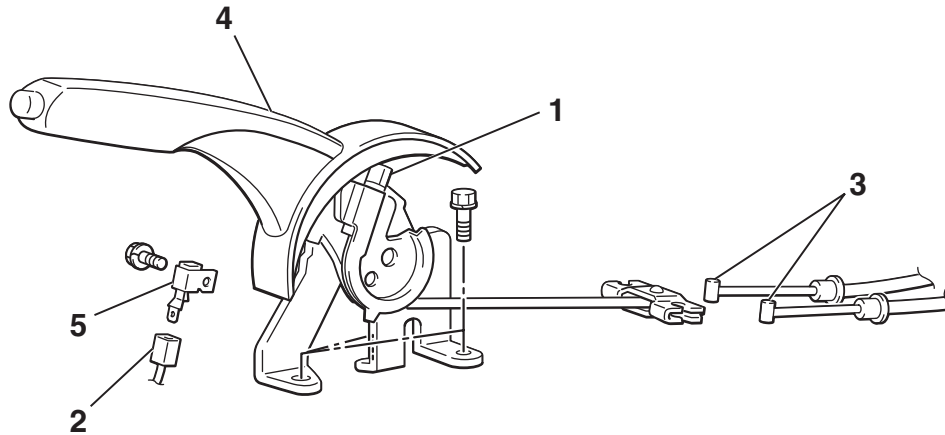
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**Pre-removal Operation**

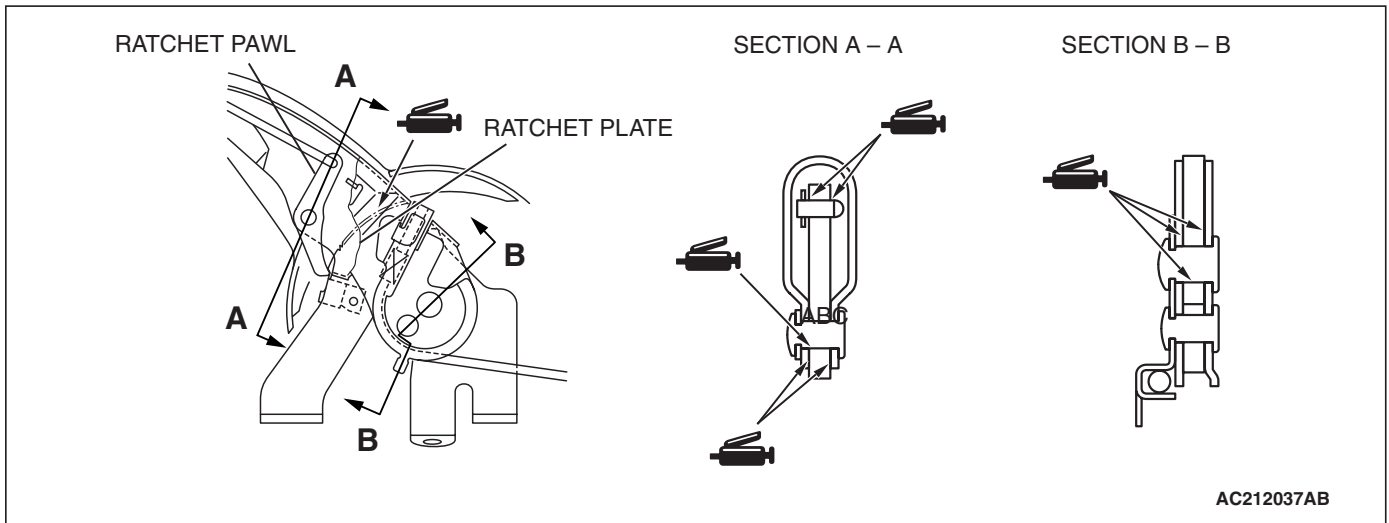
Rear Floor Console Assembly and Rear Console Bracket Removal (Refer to GROUP 52A, Rear Floor Console P.52A-8.)

**Post-installation Operation**

- Parking Brake Lever Stroke Adjustment (Refer to P.36-4.)
- Rear Floor Console Assembly and Rear Console Bracket Installation (Refer to GROUP 52A, Rear Floor Console P.52A-8.)



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**REMOVAL STEPS**

1. ADJUSTING NUT
2. PARKING BRAKE SWITCH CONNECTOR
3. PARKING BRAKE CABLE CONNECTION

**REMOVAL STEPS (Continued)**

4. PARKING BRAKE LEVER ASSEMBLY
5. PARKING BRAKE SWITCH

## PARKING BRAKE CABLE

### REMOVAL AND INSTALLATION

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#### **CAUTION**

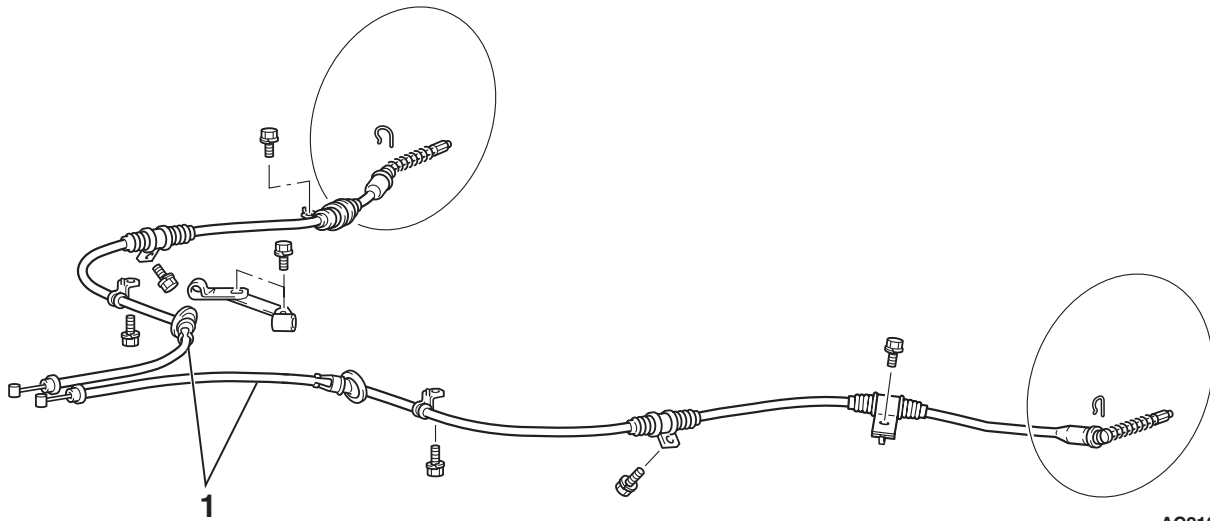
During maintenance, take care not to contact the parts or tools to the caliper because the paint of caliper will be scratched. And if there is brake fluid on the caliper, wipe it off quickly.

#### Pre-removal Operation

- Rear Floor Console Assembly and Rear Console Bracket Removal (Refer to GROUP 52A, Rear Floor Console P.52A-8.)
- Rear Seat Cushion Assembly Removal (Refer to GROUP 52A - Rear Seat P.52A-22.)

#### Post-installation Operation

- Parking Brake Lever Stroke adjustment (Refer to P.36-4.)
- Rear Seat Cushion Installation (Refer to GROUP 52A, Rear Seat P.52A-22.)
- Rear Floor Console Assembly and Rear Console Bracket Installation (Refer to GROUP 52A, Rear Floor Console P.52A-8.)



#### REMOVAL STEPS

- SHOE AND LINING ASSEMBLY (REFER TO P.36-8.)

#### REMOVAL STEPS (Continued)

- PARKING BRAKE CABLE CONNECTION (REFER TO P.36-6.)
1. PARKING BRAKE CABLE

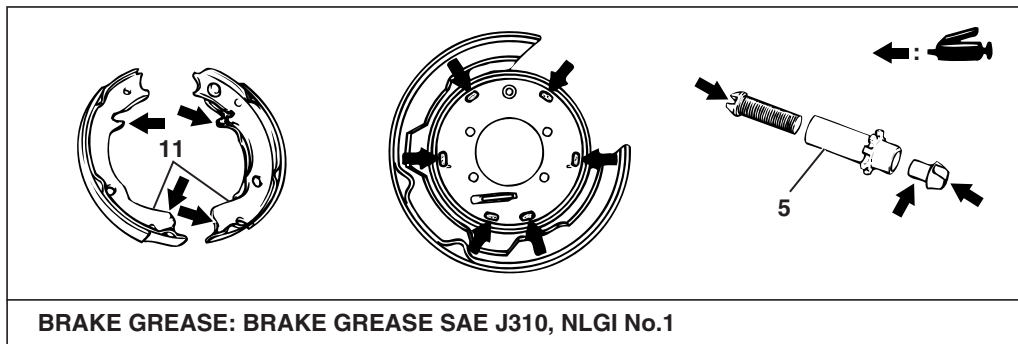
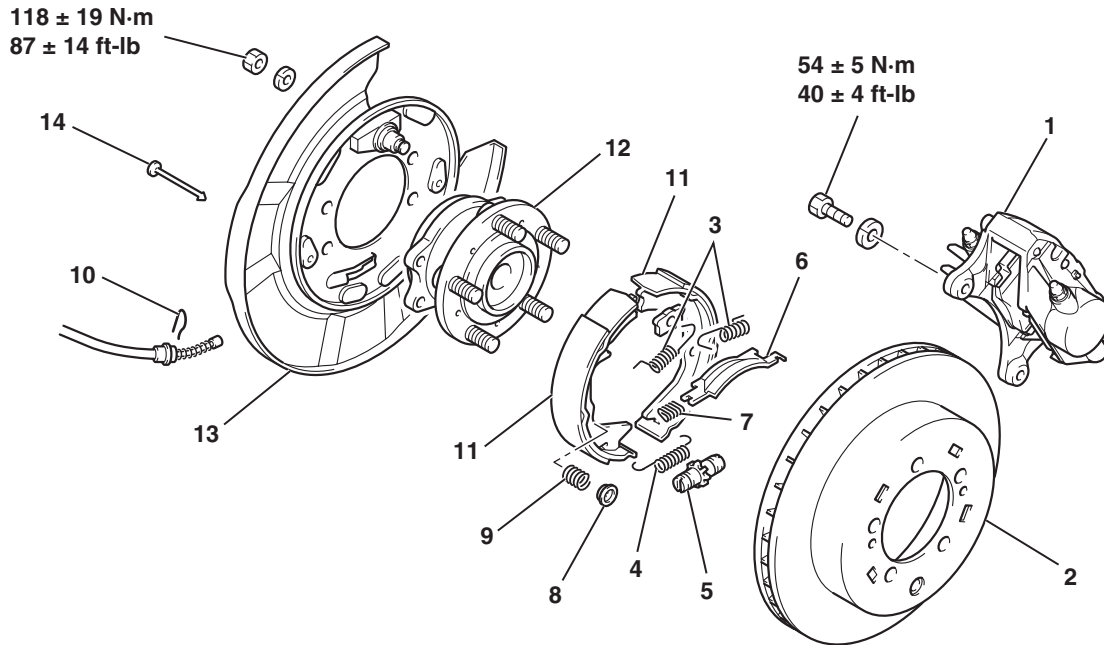
## PARKING BRAKE LINING AND DRUM

## REMOVAL AND INSTALLATION

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**CAUTION**

During maintenance, take care not to contact the parts or tools to the caliper because the paint of caliper will be scratched. And if there is brake fluid on the caliper, wipe it off quickly.



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- REMOVAL STEPS**
- <<A>> 1. REAR DISC BRAKE ASSEMBLY  
2. REAR BRAKE DISC  
>>B<< 3. REAR BRAKE SHOE RETURN SPRING  
4. REAR BRAKE SHOE AUTO ADJUSTER SPRING  
>>A<< 5. REAR BRAKE SHOE SLACK ADJUSTER  
6. PARKING BRAKE OPERATING LEVER STRUT  
7. REAR BRAKE SHOE-TO-STRUT SPRING

- REMOVAL STEPS (Continued)**
8. REAR BRAKE SHOE SPRING CUP  
9. REAR BRAKE SHOE HOLD-DOWN SPRING  
10. PARKING BRAKE CABLE CLIP  
11. REAR BRAKE SHOE ASSEMBLY  
12. REAR HUB ASSEMBLY (REFER TO GROUP 27, REAR HUB ASSEMBLY P.27-16.)  
13. REAR BRAKE BACKING PLATE  
14. REAR BRAKE PIN



## DISASSEMBLY SERVICE POINTS

### <<A>> REAR DISC BRAKE CALIPER ASSEMBLY REMOVAL

#### CAUTION

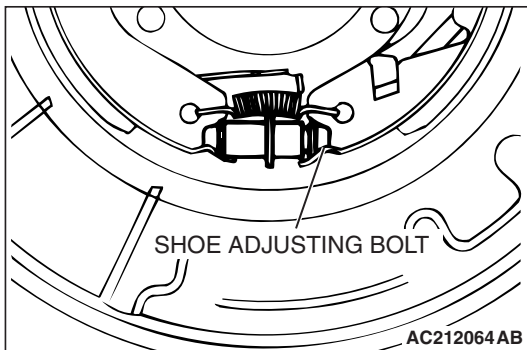
Take care not to contact the parts or tools to the caliper because the paint of caliper will be scratched. And if there is brake fluid on the caliper, wipe it off quickly.

Remove the rear brake caliper assembly and support it with a wire or similar material.

## INSTALLATION SERVICE POINT

### >>A<< SHOE SLACK ADJUSTER INSTALLATION

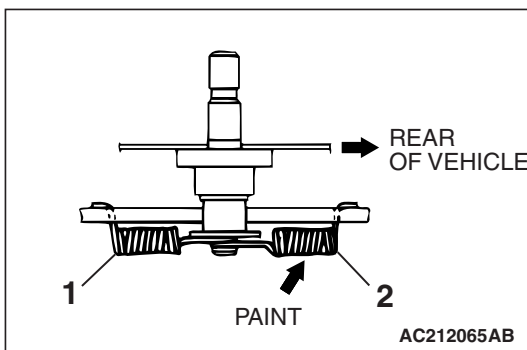
Install the rear brake adjuster so that the shoe adjusting bolt of left hand wheel is attached towards the rear of the vehicle, and the shoe adjusting bolt of right hand wheel is towards the front of the vehicle.



### >>B<< REAR BRAKE SHOE RETURN SPRING INSTALLATION

Install the rear brake shoe return springs in the order shown in the illustration.

*NOTE: The figure shows the left wheel; for the right wheel, the position is symmetrical.*



INSPECTION

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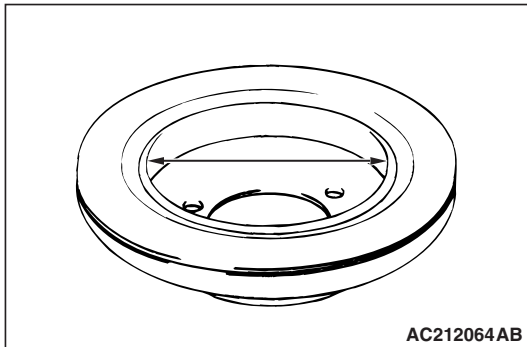
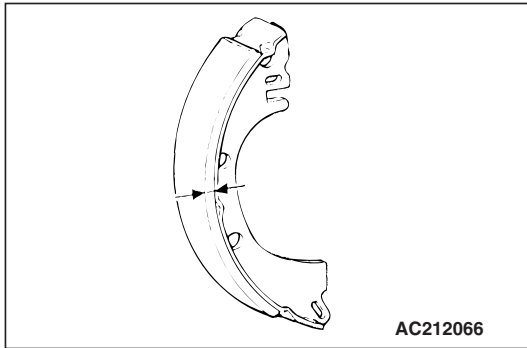
**BRAKE LINING AND BRAKE DRUM CHECK**

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

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

**Limit: 1.0 mm (0.04 inch)**

2. If the thickness of the brake lining has worn down to the limit value or more, replace the rear brake shoe assemblies on both sides of the vehicle.



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

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

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

4. If the inside of the brake disc has worn down to the limit value or more, or if it is excessively worn on one side, replace the brake disc.

**SPECIFICATIONS**

**FASTENER TIGHTENING SPECIFICATIONS**

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ITEM	SPECIFICATION
<b>Parking brake lining and drum</b>	
Rear disc brake assembly mounting bolt	54 ± 5 N· m (40 ± 4 ft-lb)
Rear hub assembly mounting nut	118 ± 19 N· m (87 ± 14 ft-lb)

**SERVICE SPECIFICATIONS**

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ITEM	STANDARD VALUE	Limit
Parking brake lever stroke	5 – 7 notches	–
Rear brake lining thickness mm (in)	2.8 (0.11)	Minimum 1.0 (0.04)
Rear drum inside diameter mm (in)	168.0 (6.61)	169.0 (6.65)

**LUBRICANTS**

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ITEM	SPECIFIED LUBRICANT
Backing plate	Brake grease SAE J310, NLGI No.1
Shoe and lining assembly	
Adjuster	