
GROUP 27A**REAR AXLE <FWD>****CONTENTS**

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GENERAL INFORMATION

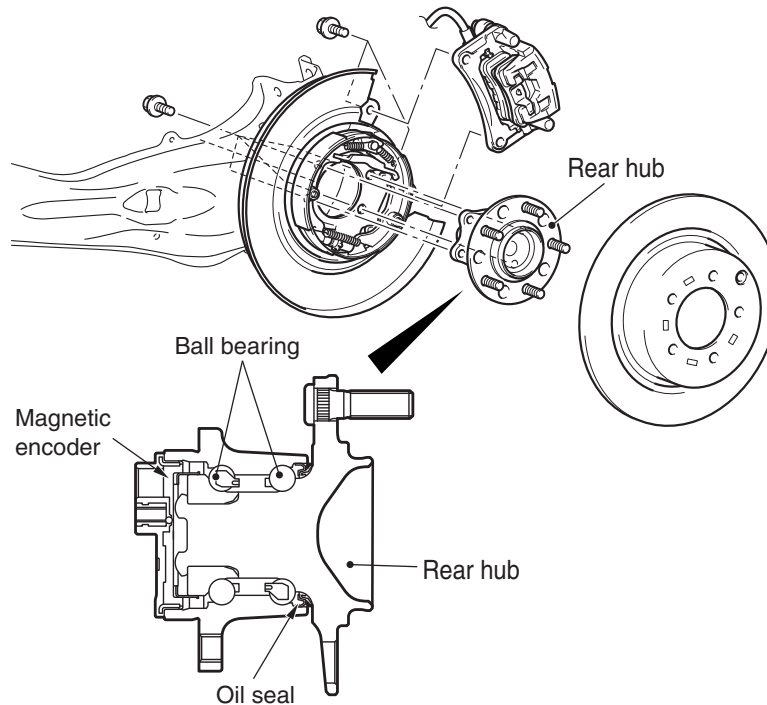
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The rear axle has the following features:

- The wheel bearing is a unit ball bearing (double-row angular contact ball bearing) which incorporates the oil seals and is highly resistant to a thrust load.
- Rear sensor cover is added to the trailing arm part. <Vehicles with 2.4 L engine: 7 persons seat, 3.0 L engine>
- The number of parts has been reduced by integrating the magnetic encoder for ABS wheel speed detection into the wheel bearing.

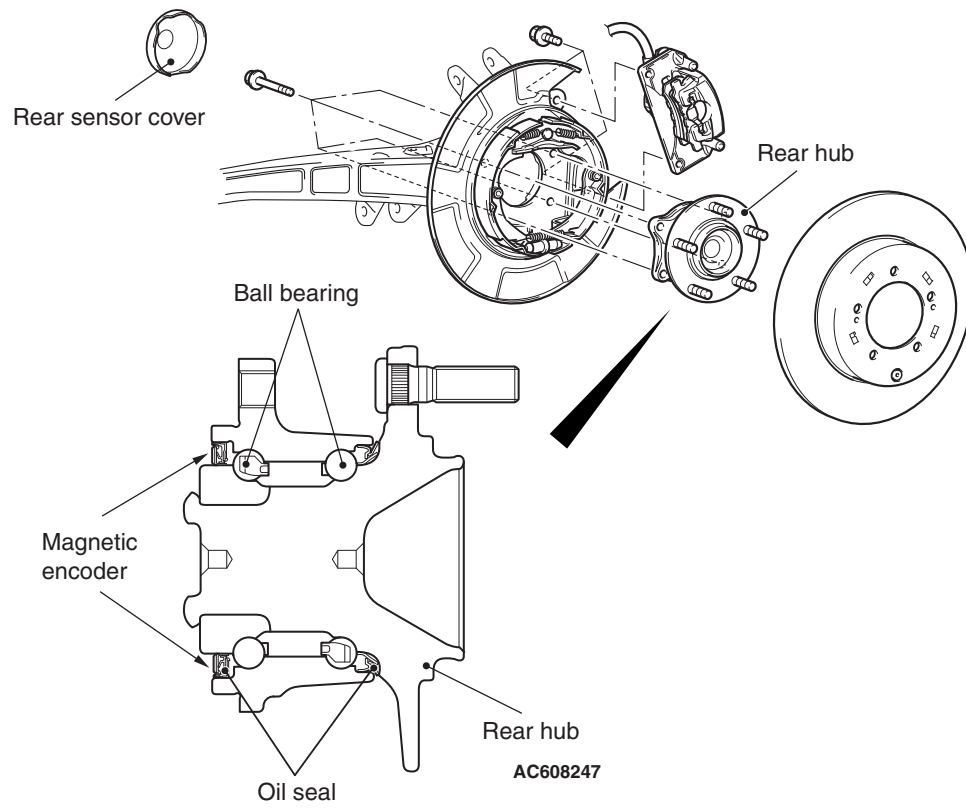
CONSTRUCTION DIAGRAM

<Vehicles with 2.4L Engine:
5 persons seat>



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<Vehicles with 2.4L Engine: 7 persons seat,
3.0L Engine>



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SERVICE SPECIFICATIONS

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Item		Limit
Wheel bearing end play mm (in)		0.05 (0.002)
Rear hub rotary-sliding resistance N (lb)	2.4L Engine: 5 persons seat	19.2 (4.32)
	2.4L Engine: 7 persons seat, 3.0L Engine	24.5 (5.51)

REAR AXLE DIAGNOSIS

INTRODUCTION TO REAR AXLE DIAGNOSIS

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Noise from the rear axle may be caused by defects in the components.

REAR AXLE DIAGNOSTIC TROUBLESHOOTING STRATEGY

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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 rear axle 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
Abnormal noise	1	P.27A-4

SYMPTOM PROCEDURES

INSPECTION PROCEDURE 1: Abnormal Noise

DIAGNOSIS

STEP 1. Check the rear hub assembly installation bolts for looseness.

Q: Are the rear hub assembly installation bolts loosened?

YES : Tighten the rear hub assembly installation bolts to the specified torque $95 \pm 14 \text{ N} \cdot \text{m}$ ($70 \pm 10 \text{ ft} \cdot \text{lb}$). Then go to Step 3.

NO : Go to Step 2.

STEP 2. Check the wheel bearing end play.

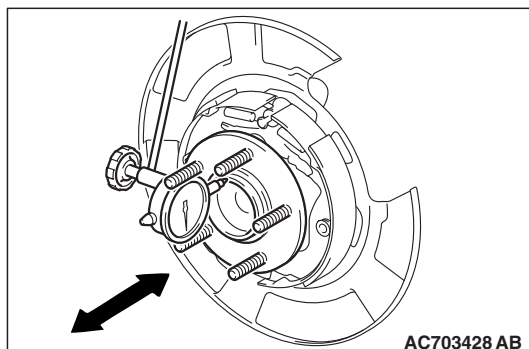
- (1) Remove the caliper assembly, and suspend the caliper assembly with a wire and remove the brake disk.
- (2) Check the bearing's end play. Place a dial gauge against the hub surface, then move the hub in the axial direction and check whether or not there is end play.

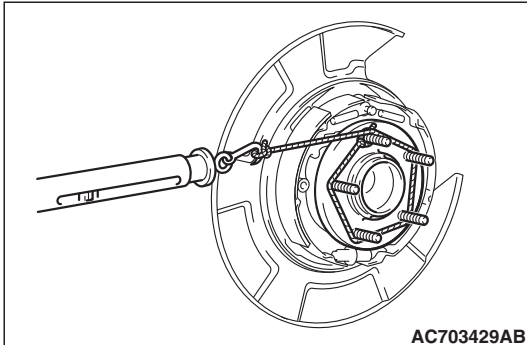
Limit: 0.05 mm (0.002 inch)

Q: Is the wheel bearing end play within the limit?

YES : Go to Step 3.

NO : Replace the rear hub assembly, then go to Step 4.





STEP 3. Check the rear hub rotary-sliding resistance.

- (1) Remove the caliper assembly, and suspend the caliper assembly with a wire and remove the brake disk.
- (2) Turn the hub a few times to seat the bearing.
- (3) Wind a rope around the hub bolt and turn the hub by pulling at a 90 degree angle with a spring balance. Measure to determine whether or not the rotary-sliding resistance of the rear hub is at the limit value.

Limit: 19.2 N (4.32 lb) <2.4L Engine: 5 persons seat>

Limit: 24.5 N (5.51 lb) <2.4L Engine: 7 persons seat, 3.0L Engine>

Q: Is the rear hub rotary-sliding resistance within the limit?

YES : Go to Step 4.

NO : Replace the rear hub assembly if an adjustment cannot be made to within the limit. Then go to Step 4.

STEP 4. Retest the systems.

Q: Are abnormal noises generated?

YES : Return to Step 1.

NO : The procedure is complete.

SPECIAL TOOLS

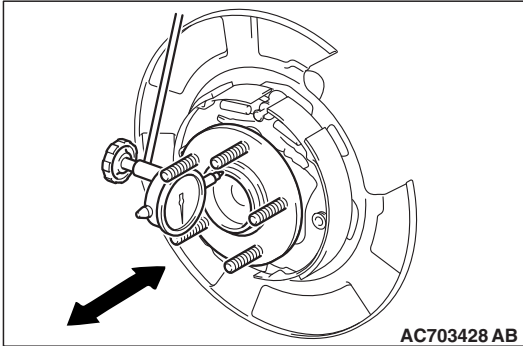
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Tool	Tool number and name	Supersession	Application
<p>B990767</p>	MB990767 Front hub and flange yoke holder	MB990767-01	Hub fixing
<p>MB991618</p>	MB991618 Hub bolt remover	General service tool	Hub bolt removal

ON-VEHICLE SERVICE

WHEEL BEARING END PLAY CHECK

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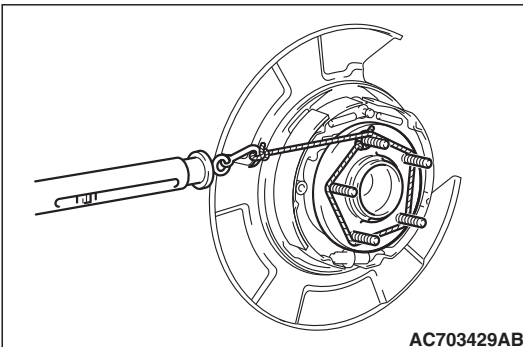
1. Remove the caliper assembly and the brake disc. Retain the caliper assembly with a wire and the like to prevent from falling.
2. Check the bearing's end play. Place a dial gauge against the hub surface; then move the hub in the axial direction and check whether or not there is end play.

Limit: 0.05 mm (0.002 inch)

3. Replace the rear hub assembly if an adjustment cannot be made to within the limit.
4. After checking, install the brake disc and the caliper assembly, and tighten the caliper mounting bolt to the specified torque (Refer to [P.27A-8](#)).

REAR HUB ROTARY-SLIDING RESISTANCE CHECK

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1. Remove the caliper assembly and the brake disc. Retain the caliper assembly with a wire and the like to prevent from falling.
2. Turn the hub a few times to seat the bearing.
3. Wind a rope around the hub bolt and turn the hub by pulling at a 90 degree angle with a spring balance. Measure to determine whether or not the rotary-sliding resistance of the rear hub is at the limit value.

Limit: 19.2 N (4.32 lb) <2.4L Engine: 5 persons seat>

Limit: 24.5 N (5.51 lb) <2.4L Engine: 7 persons seat, 3.0L Engine>

4. Replace the rear hub assembly if the rotary-sliding resistance cannot be made to within the limit.
5. After having finished the inspection, install the brake disk, caliper assembly and tighten the caliper assembly mounting bolts to the specified torque (Refer to [P.27A-8](#)).

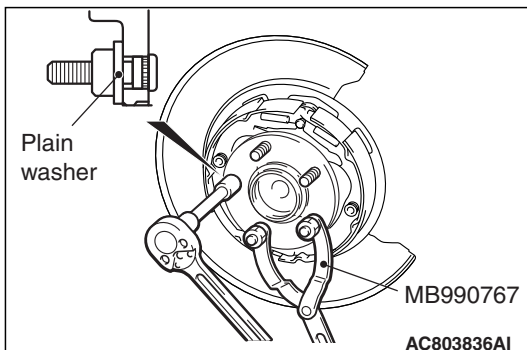
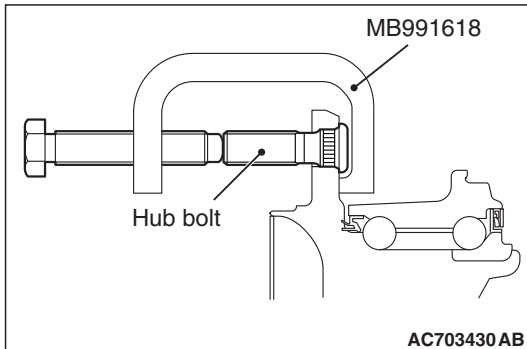
HUB BOLT REPLACEMENT

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Required Special Tools:

- MB990767: Front Hub and Flange Yoke Holder
- MB991618: Hub Bolt Remover

1. Remove the caliper assembly and the brake disc. Retain the caliper assembly with a wire and the like to prevent from falling.
2. Use special tool MB991618 to remove the hub bolts.



3. Install the plain washer to the new hub bolt, and install the bolt with a nut while holding the hub with special tool MB990767.
4. Install the brake disc, caliper assembly and tighten the caliper assembly mounting bolts to the specified torque (Refer to [P.27A-8](#)).

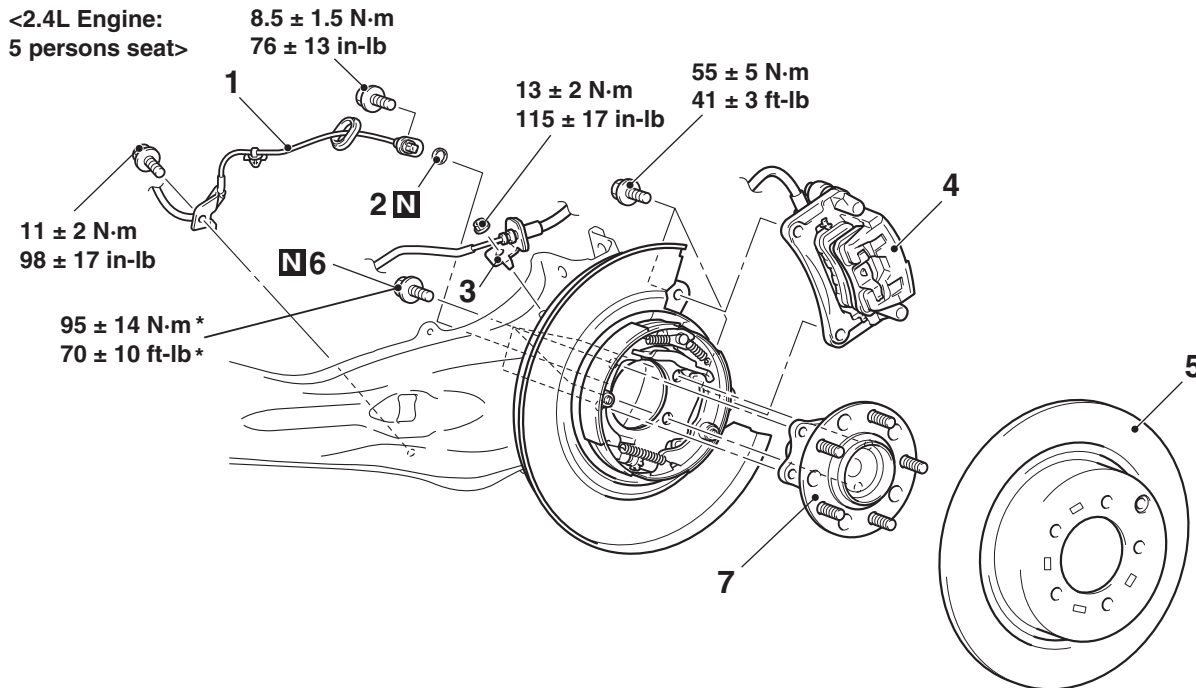
REAR AXLE HUB ASSEMBLY

REMOVAL AND INSTALLATION

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⚠ CAUTION

- Do not disassemble the rear wheel hub assembly.
- The magnetic encoder collects metallic particles easily, because it is magnetized. Make sure that the magnetic encoder should not collect metallic particles. Check that there is no trouble prior to reassembling it.
- When the rear wheel hub assembly is removed/installed, make sure that the magnetic encoder (integrated with inner oil seal) does not contact with surrounding parts to avoid damage.
- When removing and installing the rear wheel speed sensor, make sure that its pole piece at the end does not contact with surrounding parts to avoid damage.
- The part indicated with * is the bolt with friction coefficient stabilizer. In removal, replace it with a new one.



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Removal steps

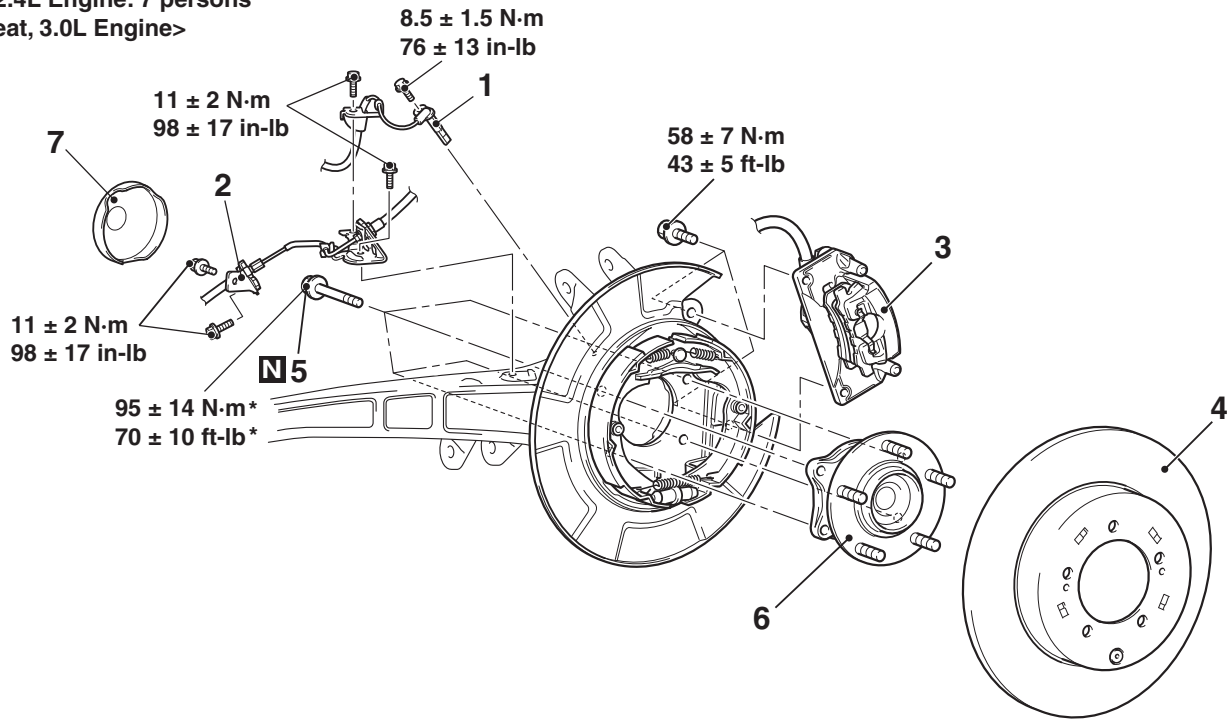
1. Rear wheel speed sensor (Refer to GROUP 35B –Wheel speed sensor [P.35B-191](#))
2. O ring
3. Brake hose bracket

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Removal steps (Continued)

4. Caliper assembly
5. Brake disc
6. Rear wheel hub assembly mounting bolt
7. Rear wheel hub assembly

<2.4L Engine: 7 persons
seat, 3.0L Engine>



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Removal steps

1. Rear wheel speed sensor
2. Brake hose bracket
3. Caliper assembly
4. Brake disc

Removal steps (Continued)

5. Rear wheel hub assembly mounting bolt
6. Rear wheel hub assembly
7. Rear sensor cover

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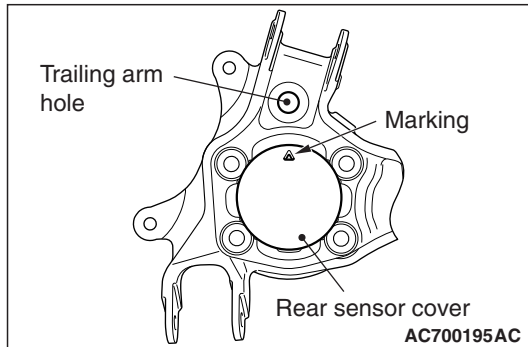
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REMOVAL SERVICE POINTS**<<A>> CALIPER ASSEMBLY REMOVAL**

1. Remove the caliper assembly with brake hose.
2. Secure the removed caliper assembly with a wire or other similar material at a position where it will not interfere with the removal and installation of the rear wheel hub assembly.

INSTALLATION SERVICE POINT**>>A<< REAR SENSOR COVER INSTALLATION**

Align the marking with the trailing arm hole as shown in the figure and install it.

**INSPECTION**

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- Check the oil seal of the rear hub wheel bearing for crack or damage.
- Check the rear hub wheel bearing for wear or damage.