

AXLE 09

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FRONT AXLE

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GENERAL INFORMATION

Description

This vehicle is equipped with an unequal length half shaft system consisting of short left and long right half shafts. The half shafts consist of a fixed Constant Velocity (CV) joint at the outboard end connected by a solid shaft to a plunging CV joint on the inboard end. The inner CV joint has a splined end and is attached to the transaxle and is retained with a snap ring. The outer joint has a splined connection to the wheel hub and is retained with a lock nut.

Operation

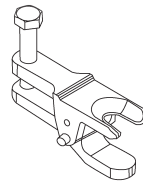
The front axle transmits torque from the transaxle to the wheels. In order to allow vertical and horizontal movement of the wheels, the axle shafts have plunging CV joints on the inboard ends of the axle shafts.

Specifications

Torque Specifications

DESCRIPTION	TORQUE (N·m)
Axle Shaft Hub Nut	135
Brake Caliper Adapter To Steering Knuckle Bolts	85
Brake Caliper To Adapter Bolts	20
Dust Shield Bolts	10
Hub And Bearing Mounting Bolts	65
Outer Tie Rod End To Steering Knuckle Nut	35
Lower Strut Mounting Nut	110
Wheel Mounting Nuts	110

Special Tools

Ball Joint Separator CH-10002	 besm020086
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DIAGNOSIS & TESTING

Vehicle Inspection

Inspect the following for leaks or damage:

- Check for grease in the vicinity of the inboard tripod joint and outboard CV joint.
- Check the inner or outer joint seal boot or seal boot clamp for damage.

Noise Or Vibration On Turns

A clicking noise or a vibration in turns could be caused by one of the following conditions:

- Damaged outer CV joint or damaged CV seal boot or seal boot clamps.
- Damaged inner CV joint or damaged CV seal boot or seal boot clamps.
- Noise may also be caused by another component of the vehicle coming in contact with the half shafts.

NOTE :

If the CV seal boot is damaged, this will result in the loss and/or contamination of the joint grease, resulting in inadequate lubrication of the joint.

Clunking Noise During Acceleration

This noise may be a result of one of the following conditions:

- A torn seal boot on the inner or outer joint of the half shaft assembly.
- A loose or missing clamp on the inner or outer joint of the half shaft assembly.
- A damaged or worn half shaft CV joint.

Shudder Or Vibration During Acceleration

This problem could be a result of:

- A worn or damaged half shaft inner tripod joint.
- Improper wheel alignment.

Vibration At Highway Speeds

This problem could be a result of:

- Foreign material (mud, etc.) packed on the backside of the wheel(s).
- Out of balance tires or wheels.
- Improper tire or wheel runout

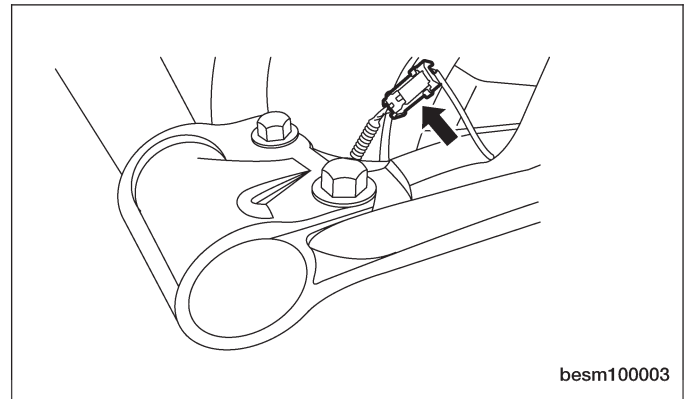


ON-VEHICLE SERVICE

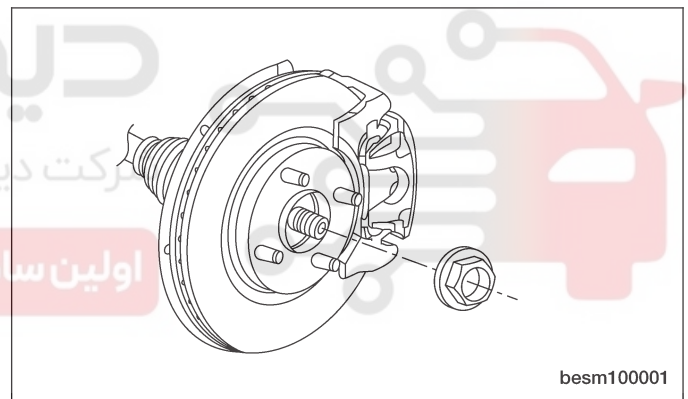
Front Hub and Bearing

Removal & Installation

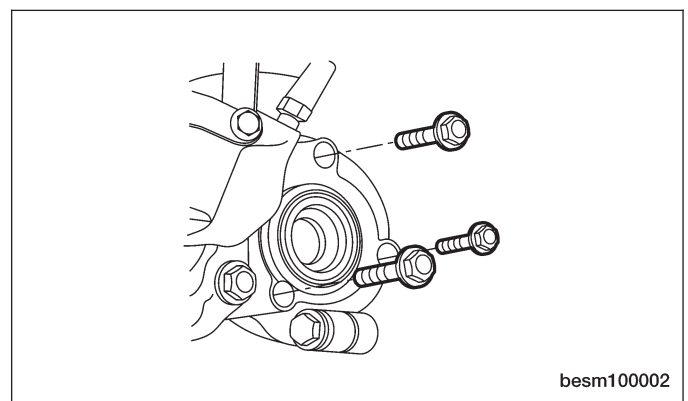
1. Raise and support the vehicle.
2. Remove the wheel mounting nuts and the tire and wheel assembly.
(Tighten: Wheel mounting nuts to 110 N·m)
3. Disconnect the ABS wheel speed sensor electrical connector.



4. While an assistant applies the brakes (to keep the hub from rotating), remove the hub nut from the axle half shaft.
(Tighten: Hub nut to 135 N·m)



5. Remove the front brake rotor (See Brake Rotor Removal & Installation in Section 12 Brakes).
6. Remove the front axle shaft (See Front Axle Shaft Removal & Installation in Section 09 Axle).
7. Remove the hub and bearing mounting bolts from the steering knuckle.
(Tighten: Hub and bearing mounting bolts to 65 N·m)



8. Slide the hub and bearing off the half shaft and out of the steering knuckle.
9. Installation is in the reverse order of the removal.

ON-VEHICLE SERVICE

Front Axle Shaft

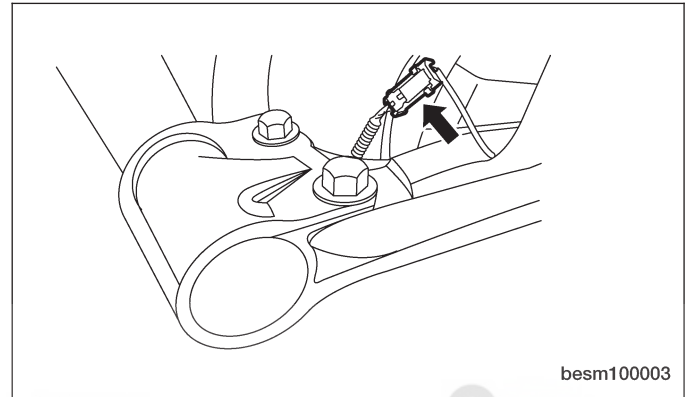
Removal & Installation

NOTE :

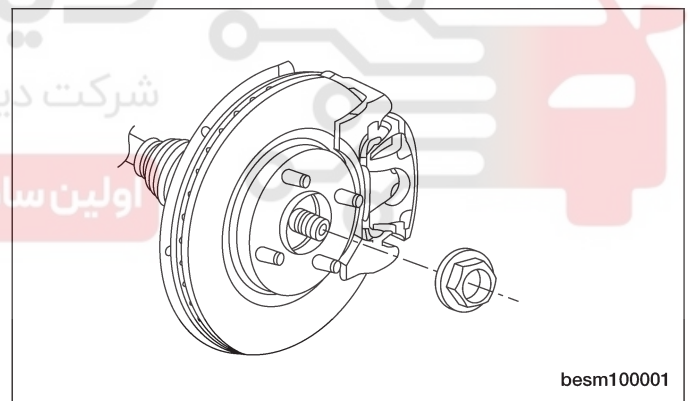
The following special tools are required to perform the repair procedure:

- CH-10002 - Ball Joint Separator

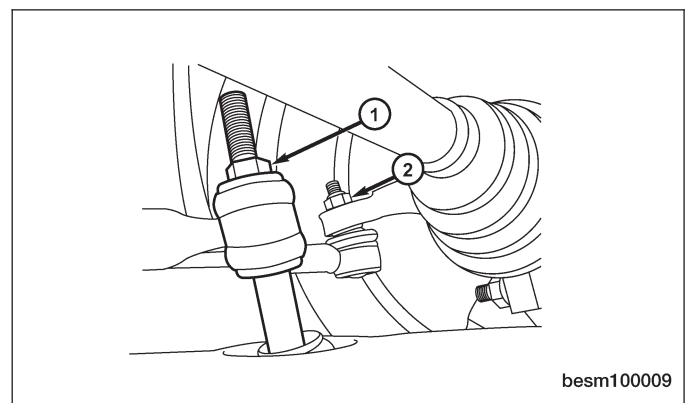
1. Raise and support the vehicle.
2. Remove the wheel mounting nuts and the tire and wheel assembly.
(Tighten: Wheel mounting nuts to 110 N·m)
3. Disconnect the Antilock Brake System (ABS) wheel speed sensor electrical connector.



4. While an assistant applies the brakes (to keep the hub from rotating), remove the axle shaft hub nut from the axle half shaft.
(Tighten: Axle shaft hub nut to 135 N·m)

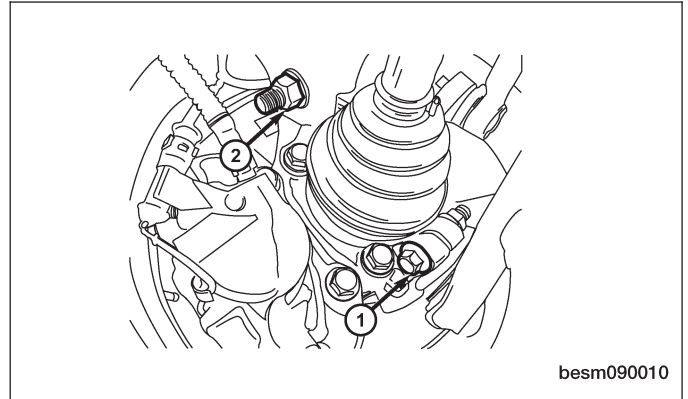


5. Remove the brake caliper adapter to steering knuckle mounting bolts and remove the brake caliper adapter (with the brake caliper still attached).
(Tighten: Brake caliper adapter mounting bolts to 85 N·m)
6. Remove the nut (2) attaching the outer tie rod end to the steering knuckle.
(Tighten: Outer tie rod end nut to 35 N·m)
7. Using special tool CH-10002, separate the tie rod from the steering knuckle.



ON-VEHICLE SERVICE

8. Remove the pinch bolt (1) from the steering knuckle.
(Tighten: Steering knuckle pinch bolt to 110 N·m)
9. Remove the lower strut mounting nuts (2).
(Tighten: Lower strut mounting nuts to 110 N·m)

**CAUTION:**

When removing the front axle shaft, do not subject the constant velocity joint to an excessive angle. Also, be careful not to excessively extend the slide joint.

10. Remove the front axle shaft from the transaxle using a suitable tool.
11. Installation is in the reverse order of removal.

Installation Notes:

- Move joint up/down, left/right, and in axial direction, check for any rough movement or significant looseness.
- Check boot for cracks or other damage, and for grease leakage.
- If damaged, disassemble axle shaft to verify damage, and repair or replace as necessary.

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REAR AXLE

GENERAL INFORMATION

Description
Operation
Specifications
Special Tools

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DIAGNOSIS & TESTING

Vehicle Inspection
Vibration At Highway Speeds

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ON-VEHICLE SERVICE

Rear Hub and Bearing
Removal & Installation

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09

GENERAL INFORMATION

Description

The rear axle utilizes an independent design. This suspension system incorporates a separate wheel knuckle for each wheel and allows the wheels to react to road imperfections independent of each other. This independent action offers improved isolation from the effects of jounce and rebound.

The rear axle consists of the following components:

- Wheel hub
- Wheel studs
- Wheel bearing
- Knuckle

Operation

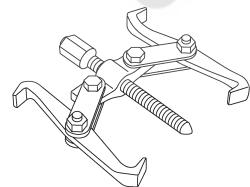
The rear axle utilizes a sealed wheel bearing housed in the rear knuckle assembly.

Specifications

Torque Specifications

DESCRIPTION	TORQUE (N·m)
Brake Caliper Adapter To Rear Knuckle Bolts	85
Rear Axle Hub Nut	135
Brake Caliper To Adapter Bolts	20
Wheel Mounting Nuts	110

Special Tools

Bearing Puller	 besm090009
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DIAGNOSIS & TESTING

Vehicle Inspection

Inspect the rear axle for the following:

- Check the rear axle for loose bearings.
- Check the rear axle hub for any damage or excessive runout.

Vibration At Highway Speeds

This problem could be a result of:

- Foreign material (mud, etc.) packed on the backside of the wheel(s).
- Out of balance tires or wheels.
- Improper tire or wheel runout.

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ON-VEHICLE SERVICE

Rear Hub and Bearing

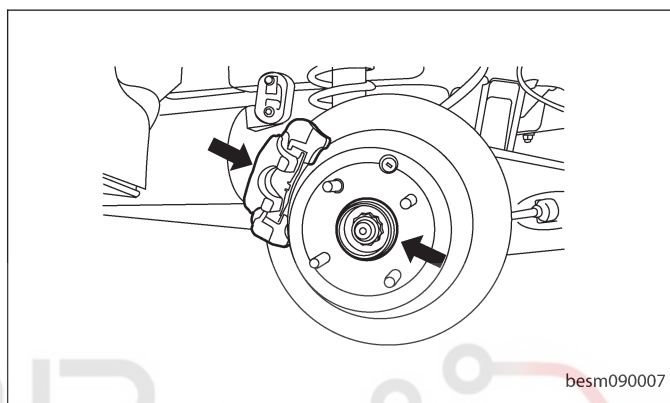
Removal & Installation

NOTE :

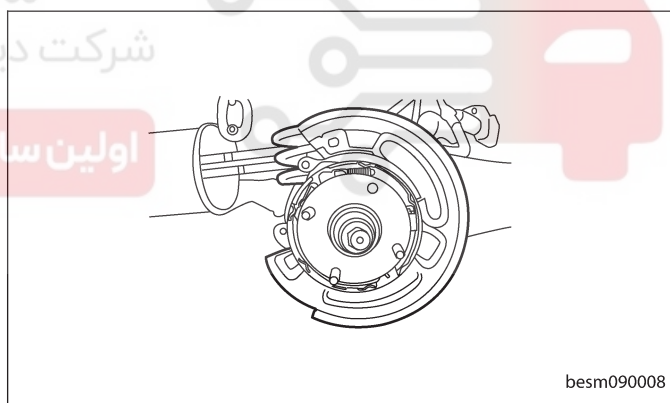
The following special tools are required to perform the repair procedure:

- Bearing Puller

1. Raise and support the vehicle.
2. Remove the wheel mounting nuts and the tire and wheel assembly.
(Tighten: Wheel mounting nuts to 110 N·m)
3. Remove the rear axle hub nut cover.
4. Remove the rear axle hub nut from the rear knuckle.
(Tighten: Rear axle hub nut to 135 N·m)
5. Remove the rear brake rotor (See Rear Brake Rotor Removal & Installation in Section 12 Brakes).



6. Using the bearing puller, remove the wheel hub bearing from the rear knuckle.



7. Installation is in the reverse order of removal.