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## SECTION 3B

# MANUAL TRANSAXLE DRIVE AXLE

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## DESCRIPTION AND OPERATION

### FRONT DRIVE AXLE

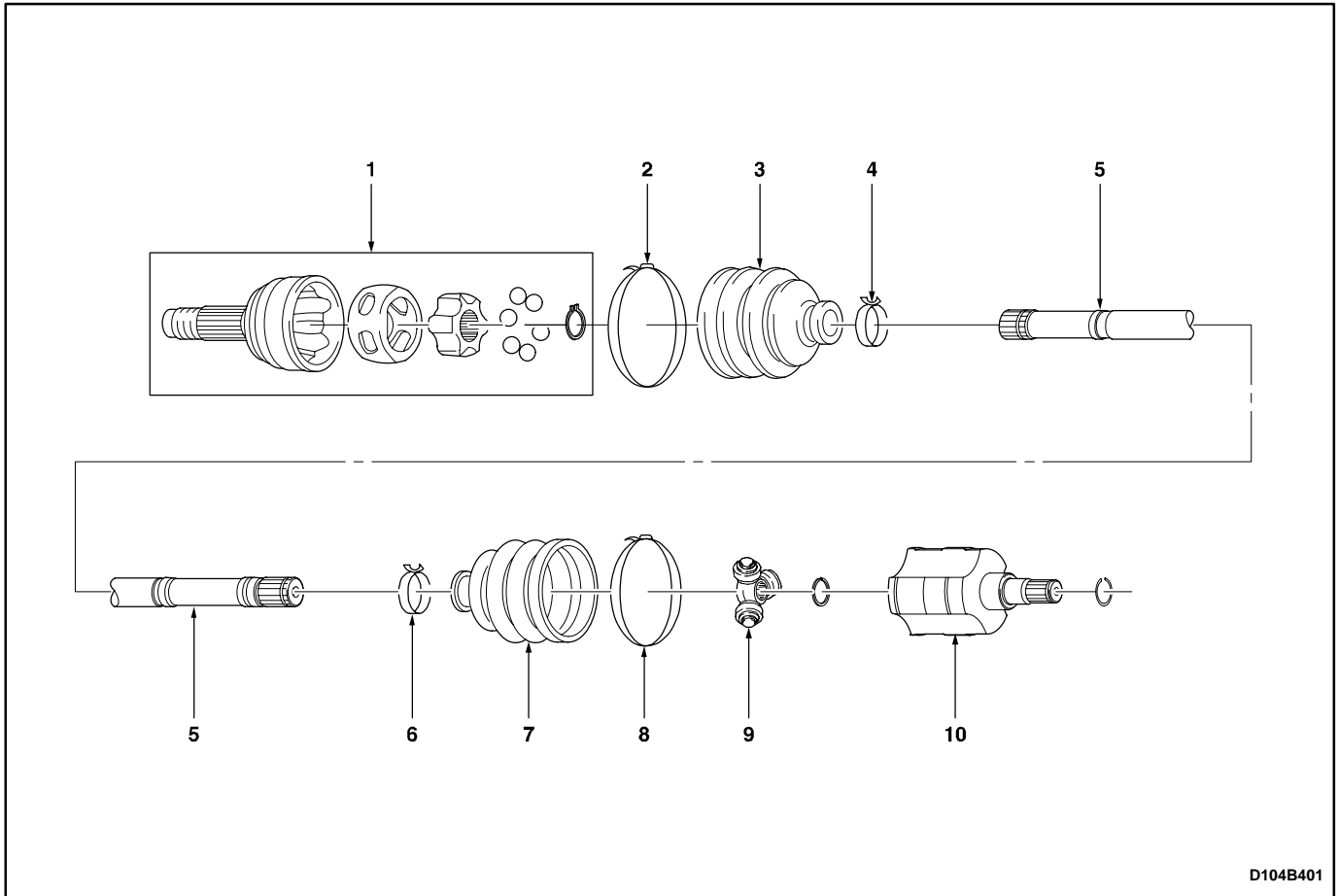
Drive axles are flexible shaft assemblies that transmit a rotational force from the transaxle to the front wheel assemblies. Each axle assembly consists of an inner constant-velocity joint and an outer constant-velocity joint connected to an axle shaft. The inner joint is com-

pletely flexible and has the ability to move in and out. The outer joint is also flexible, but it cannot move in and out.

The drive axles use a Rzeppa-style joint on the outboard side and a Tripot-style joint on the inboard side.

# COMPONENT LOCATOR

## DRIVE AXLE ASSEMBLY



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1. Outer Joint (Rzeppa)
2. Outer Large Boot Clamp
3. Outer Boot
4. Outer Small Boot Clamp
5. Drive Axle Shaft

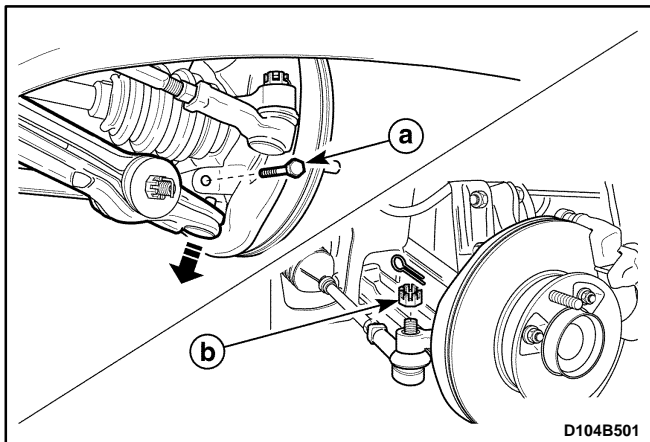
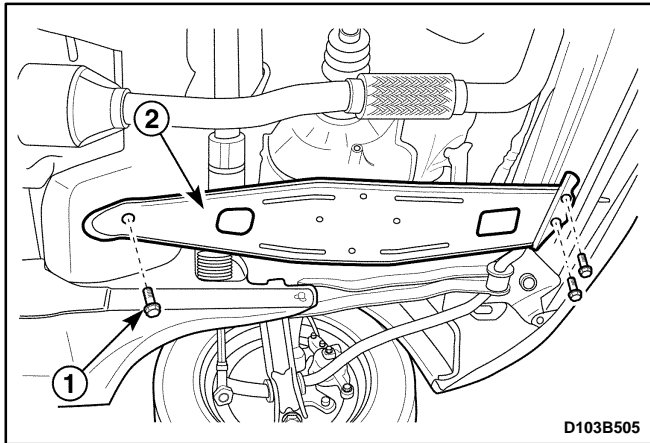
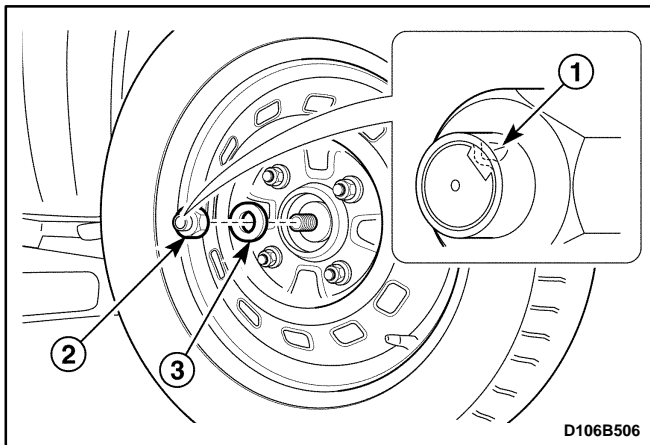
6. Inner Small Boot Clamp
7. Inner Boot
8. Inner Large Boot Clamp
9. Inner Joint (Tripot)
10. Inner Joint Housing

**DIAGNOSTIC INFORMATION AND PROCEDURES**

<b>Condition</b>	<b>Probable Cause</b>	<b>Correction</b>
Noise	• Bent drive axle shaft.	• Replace drive axle.
	• Worn the spline of drive axle shaft or joint shaft.	• Replace drive axle.
	• Worn joint by grease leakage.	• Replace drive axle.
Steering Wheel Vibration	• Bent drive axle shaft.	• Replace drive axle.
	• Worn the spline of drive axle shaft or joint shaft.	• Replace drive axle.
Car Lead / Pull	• Worn joint by grease leakage.	• Replace drive axle.
Boot Leak	• Poor assembly of boot clamp.	• Replace boot clamp.
	• Torn boot.	• Replace Boot.

# REPAIR INSTRUCTIONS

## ON-VEHICLE SERVICE



### DRIVE AXLE ASSEMBLY

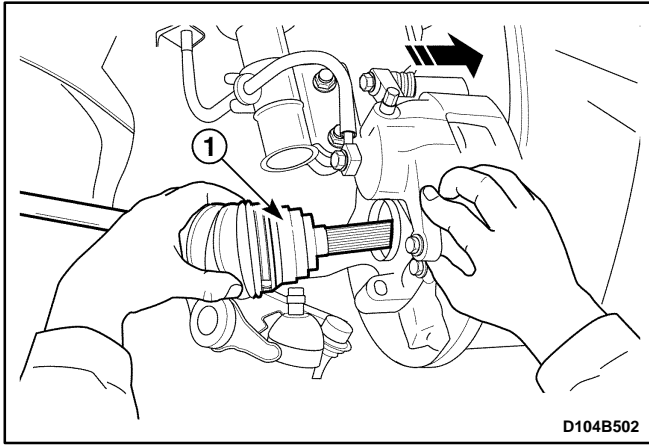
#### Tool Required

KM-507-B Tie Rod End Joint Remover

#### Removal Procedure

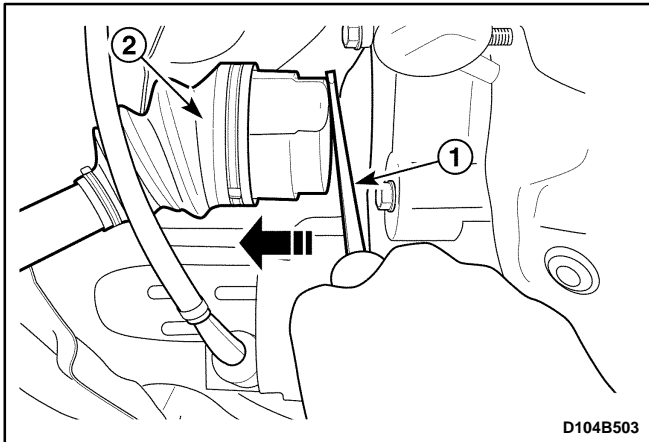
1. Remove the drive axle shaft nut.
  - Fix the hub not to rotate by pressing the brake pedal.
  - Loosen the caulking (1).
  - Remove the nut (2).
  - Discard the nut.
  - Remove the washer (3).
  
2. Remove the wheels. Refer to *Section 2E, Tires and Wheels*.
3. Remove the transaxle under cover.
  - Remove the bolts (1).
  - Remove the under cover (2).
  
4. Drain the transaxle fluid through the drain plug.
5. Remove the stabilizer bar. Refer to *Section 2C, Front Suspension*.
6. Separate the control arm ball joint and the tie rod end from the knuckle. Refer to *Section 6D, Manual Steering gear* and *Section 2C, Front Suspension*.
  - a. Control arm ball joint bolt.
  - b. Tie rod end joint castellated nut.

**Notice:** Use only the recommended tool for separating the tie rod from the knuckle/strut assembly. Failure to use the recommended tool may cause damage to the knuckle/strut assembly or the tie rod end.



7. Pull the drive axle shaft (1) from the wheel hub.

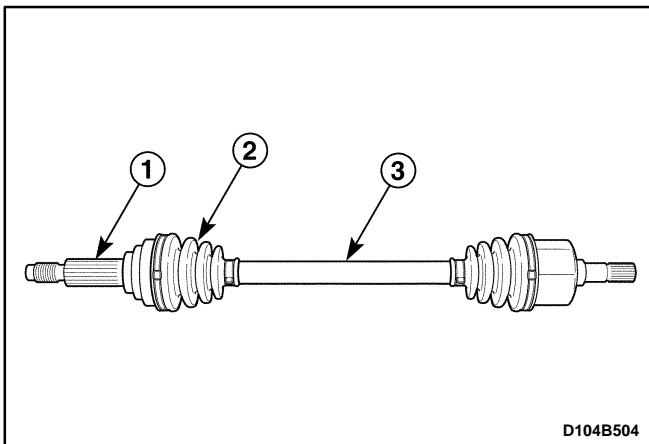
**Important:** Support the unfastened end of the drive axle. Do not allow the drive axle to dangle freely from the transaxle for any length of time after it has been removed from the wheel hub.



8. Remove the drive axle from the transaxle.

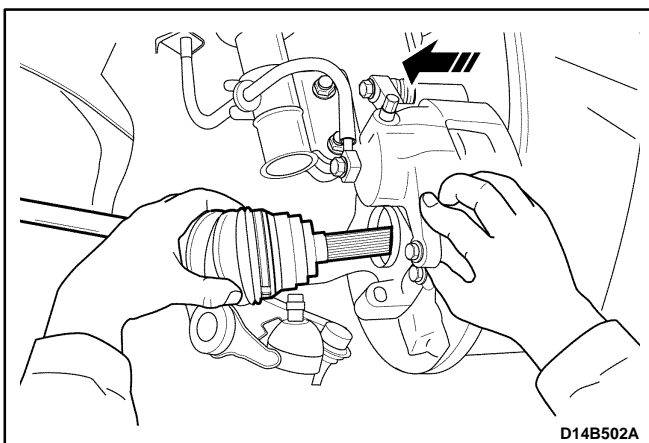
- Insert a flathead screwdriver between the transaxle case and the drive axle joint case (1).
- Remove the drive axle (2).

**Important:** Cap the transaxle drive opening after the drive axle has been removed to keep any contamination out.



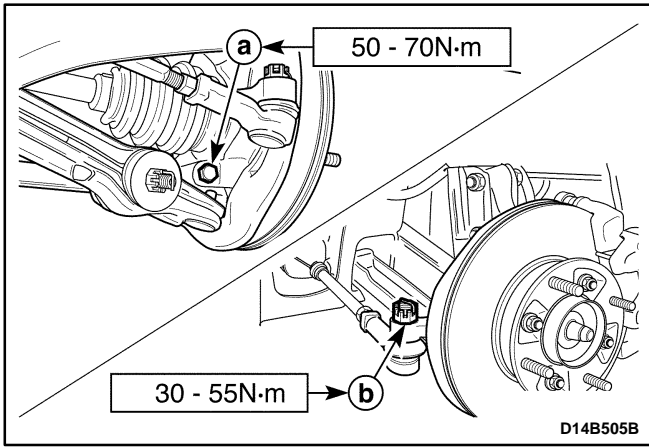
### Inspection Procedure

1. Inspect for worn or damaged spline of drive axle (1).
2. Inspect for a leaking boot (2).
3. Inspect for a bent shaft (3).



### Installation Procedure

1. Clean the transaxle seal.
2. Install the drive axle into the transaxle.
3. Install the wheel hub onto the drive axle shaft.
4. Mount the knuckle onto the control arm ball joint.



5. Install the control arm ball joint bolt.

**Tighten**

Tighten the control arm ball joint bolt to 50–70 N•m (36–52 lb-ft).

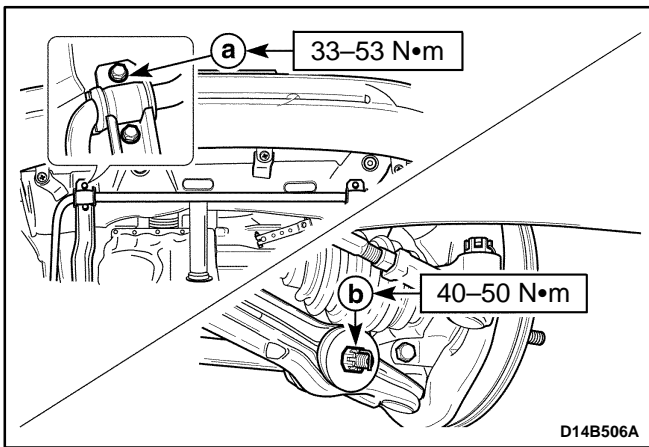
a. Control arm ball joint bolt

6. Install the tie rod into the knuckle and install the tie rod end joint castellated nut.

**Tighten**

Tighten the tie rod end joint castellated nut to 30–55 N•m (21–41 lb-ft).

b. Tie rod end joint castellated nut.



7. Install the stabilizer bar.

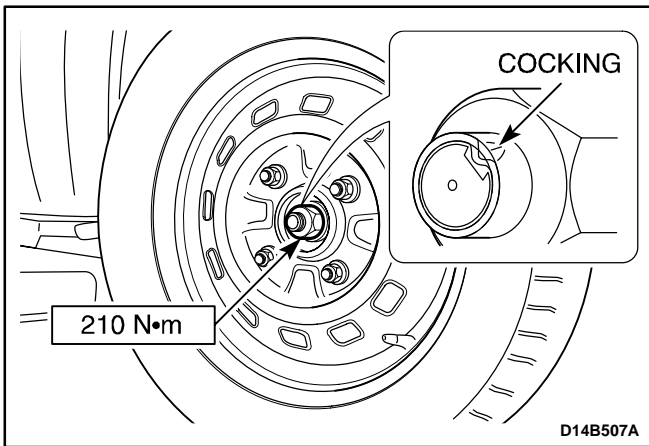
**Tighten**

- Tighten the stabilizer bar mounting bolts 33–53 N•m (24–39 lb-ft).

- Tighten the stabilizer bar castellated nut to 40–50 N•m (30–36 lb-ft).

a. Stabilizer bar mounting bolt.

b. Stabilizer bar castellated nut.



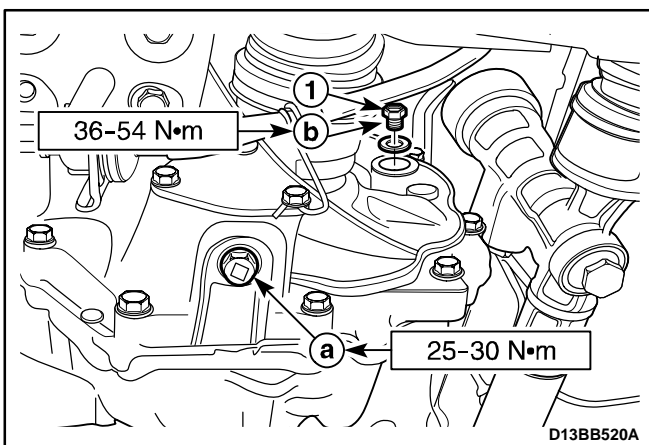
8. Install the drive axle shaft nut.

**Tighten**

Tighten the drive axle shaft nut to 210 N•m (155 lb-ft)

**Notice:** Always use a new nut. Alwayspeen the caulking nut with a punch and a hammer until the nut is locked into place on the wheel hub.

9. Install the wheels. Refer to *Section 2E, Tires and wheels.*



10. Refill the transaxle fluid to the proper level.

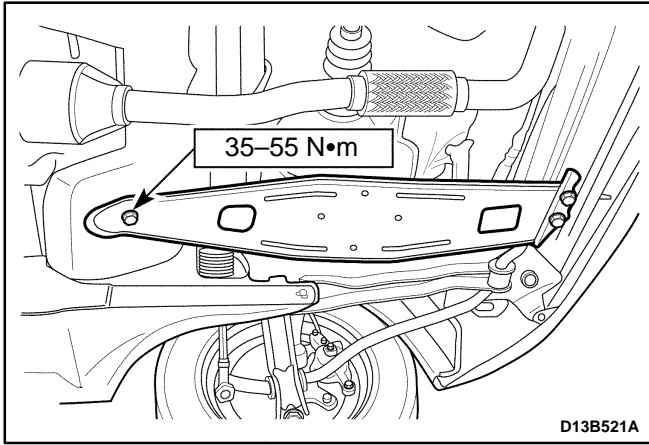
- Tighten the drain plug to 25-30 N•m (18-22 lb-ft) (a).

- Remove the oil level plug (1).

- Refill recommended fluid to the proper level.

- Tighten the oil level plug to 36-54 N•m (26-40 lb-ft) (b).

Classification	75W-85 (GL-4)
Capacity	2.1L (2.21 qt)



11. Install the transaxle under cover.

**Tighten**

Tighten the transaxle under cover bolts to 35-55 N·m (25-41 lb-ft)

## UNIT REPAIR

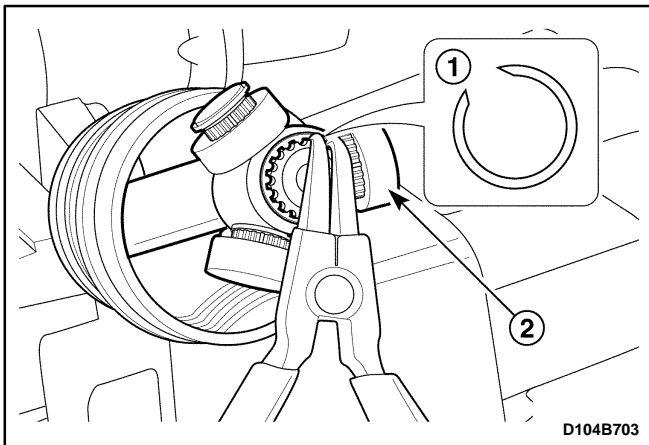
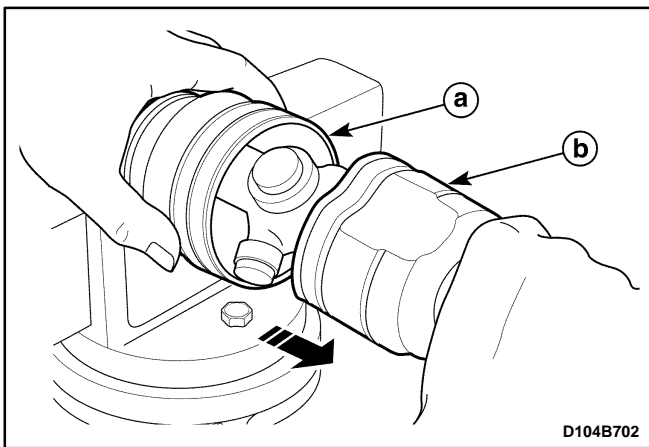
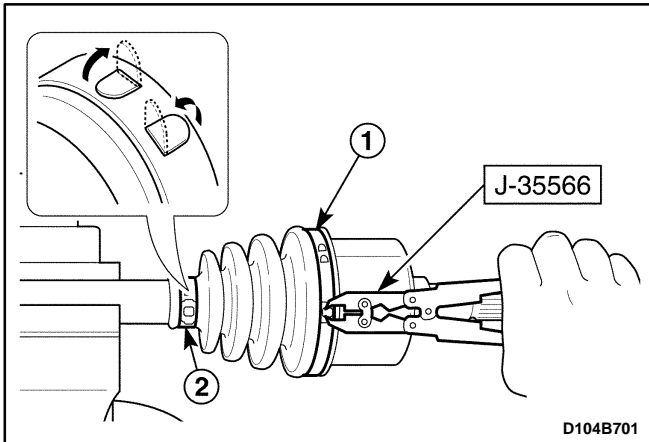
### INNER JOINT (TRANSAXLE SIDE)

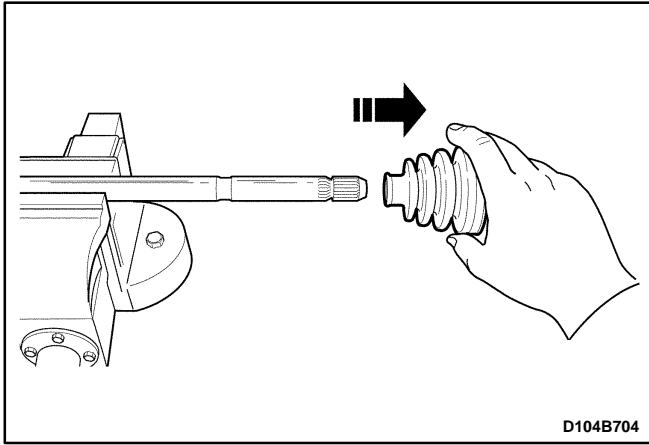
#### Tool Required

J-35566 Boot Clamp Pliers

#### Disassembly Procedure

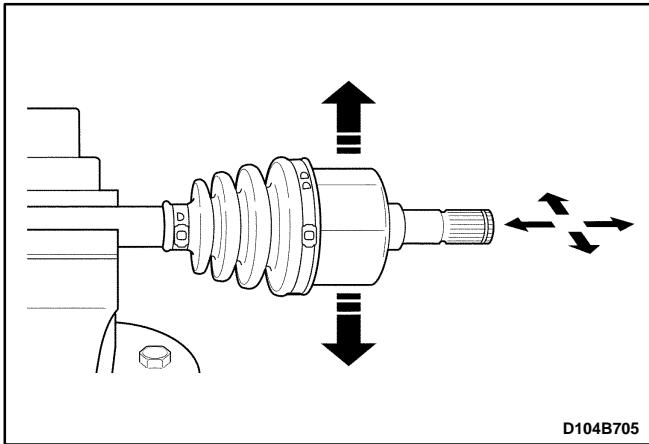
1. Remove the drive axle. Refer to "Drive Axle Assembly" in this section.
2. Remove the clamps on the joint boot.
  - Remove the boot clamp (large) using the boot clamp pliers J-35566 (1).
  - Remove the boot clamp (small) (2).
3. Remove the joint housing from boot.
  - a. Boot.
  - b. Joint housing.
4. Degrease the joint assembly.
5. Remove the tripot joint.
  - Remove the circlip (1).
  - Remove the tripot joint (2).





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6. Remove the drive axle shaft boot.



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**Assembly Procedure**

1. Install in the reverse order of removal.
2. Fill the joint housing with recommended grease when installing.

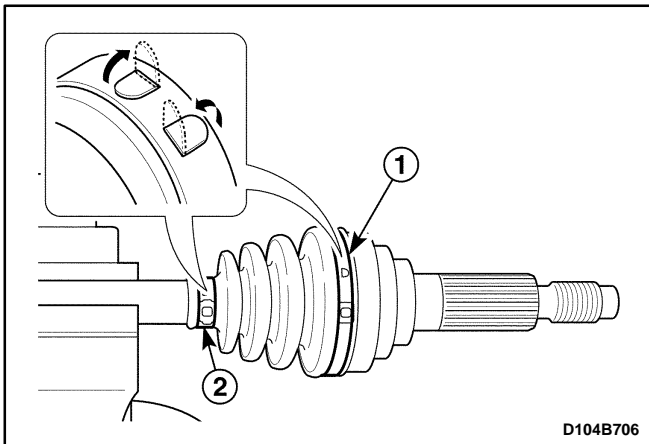
Capacity	90–100 g (3.2–3.5 ounces)
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**Notice:** Always use the recommended grease. If not, joint and boot can be damaged.

**Important:** Always use new clamps.

**Inspection Procedure**

1. Inspect the operation of joint.
2. Inspect for a leaking boot through the clamp side.

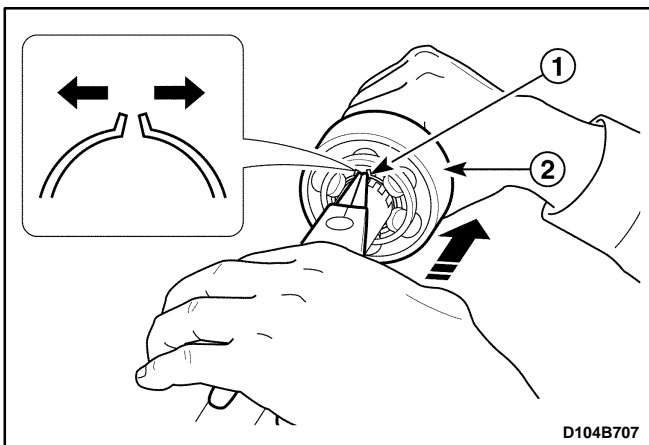


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**OUTER JOINT (WHEEL SIDE)**

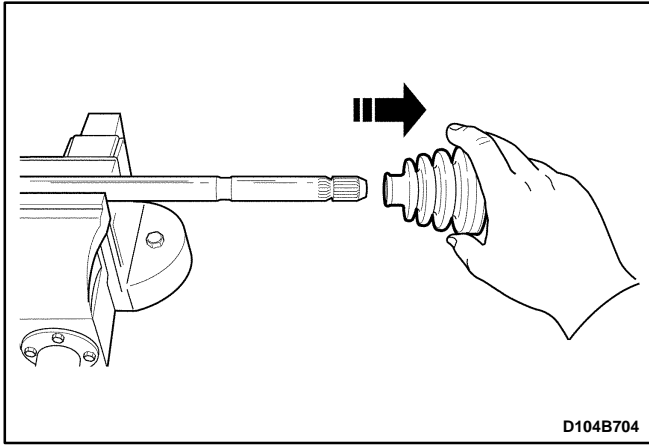
**Disassembly Procedure**

1. Remove the drive axle. Refer to “Drive Axle Assembly” in this section.
2. Remove the clamps on the joint boot.
  - Remove the boot clamps (1,2).

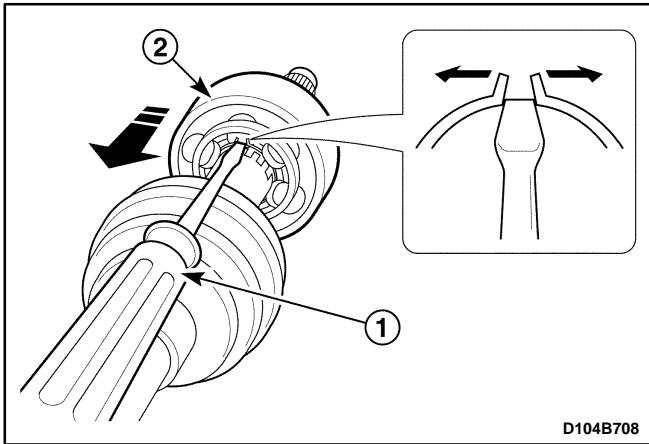


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3. Degrease the joint assembly.
4. Remove the joint assembly.
  - Widen the circlip (1).
  - Remove the joint assembly while widening the circlip (2).

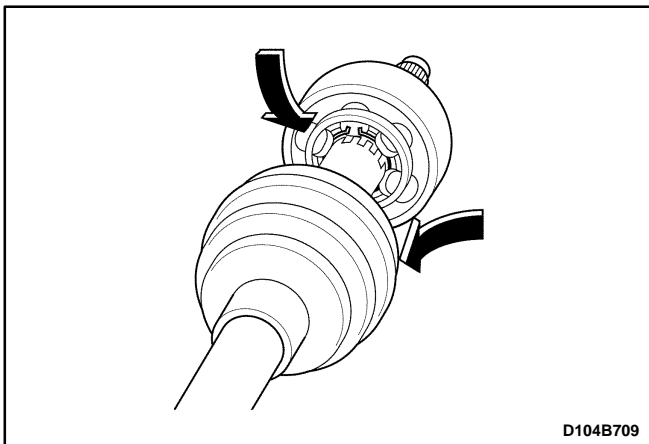


5. Remove the drive axle shaft boot.



### Assembly Procedure

1. Install in the reverse order of removal.
2. Install the joint assembly.
  - Pre-install the joint assembly by pushing to the drive axle shaft to widen the circlip.
  - Keep the circlip widened (1).
  - Push the joint assembly to the drive axle shaft (2).

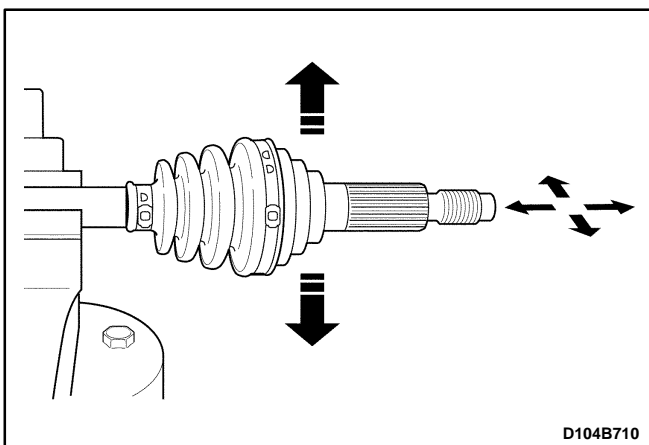


3. Fill the joint housing with recommended grease when installing.

Capacity	80-90 g (2.8-3.2 ounces)
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**Notice:** Always use the recommended grease. If not, joint and boot can be damaged.

**Important:** Always use new clamps.



### Inspection Procedure

1. Inspect the operation of joint.
2. Inspect for a leaking boot through the clamp side.

**Important:** Do not disassemble the outer joint assembly. Parts are match fit and can not be serviced separately. Improper reassembly will adversely affect both performance and safety.

# SPECIFICATIONS

## GENERAL SPECIFICATIONS

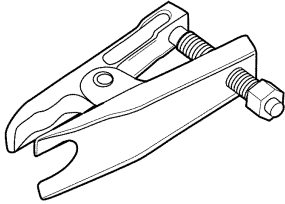
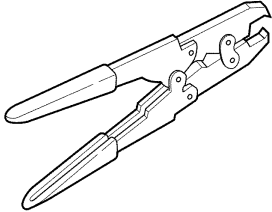
Application	Description		Unit	Standard	Limit
Drive Axle	Type	Inner	–	Tripot Joint	–
		Outer	–	Rzeppa Joint	–
	Length	Right	mm (in.)	553.5(21.79)	–
		Left	mm (in.)	386.5(15.22)	–
	Shaft Diameter		mm (in.)	22 (0.87)	–
	Grease Capacity	Inner	g (ounce)	90 – 100 (3.2 – 3.5)	–
		Outer	g (ounce)	80 – 90 (2.8 – 3.2)	–

## FASTENER TIGHTENING SPECIFICATIONS

Application	N•m	Lb-Ft	Lb-In
Control Arm Ball Joint Bolt	50 – 70	36 – 52	–
Tie Rod End Joint castellated Nut	30 – 55	21 – 41	–
Stabilizer Bar Bolt	33 – 53	24 – 39	–
Stabilizer Bar Castellated Nut	40 – 50	30 – 36	–
Drive Axle Shaft Nut	210	155	–
Wheel Nut	90 – 110	66 – 81	–
Transaxle Under Cover Bolt	35 – 55	25 – 41	–
Oil Drain Plug	25 – 30	18 – 22	–
Oil Level Plug	36 – 54	26 – 40	–

# SPECIAL TOOLS AND EQUIPMENT

## SPECIAL TOOLS TABLE

 <p>D104B101</p>	<p><b>KM-507-B Tie Rod End Joint Remover</b></p>	 <p>D105B101</p>	<p><b>J-35566 Boot Clamp Pliers</b></p>
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