

## SECTION : 3B

# MANUAL TRANSAXLE DRIVE AXLE

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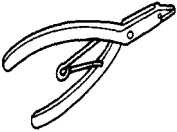
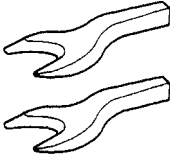
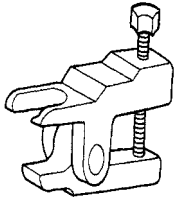
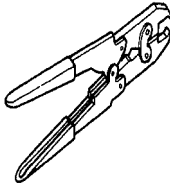
## SPECIFICATIONS

### FASTENER TIGHTENING SPECIFICATIONS

Application	N•m	Lb-Ft	Lb-In
Axle Shaft Caulking Nut	300	221	–
Lower Ball Joint Pinch Bolt and Nut	60	44	–
Tie Rod Nut	55	41	–
Wheel Nuts	100	74	–

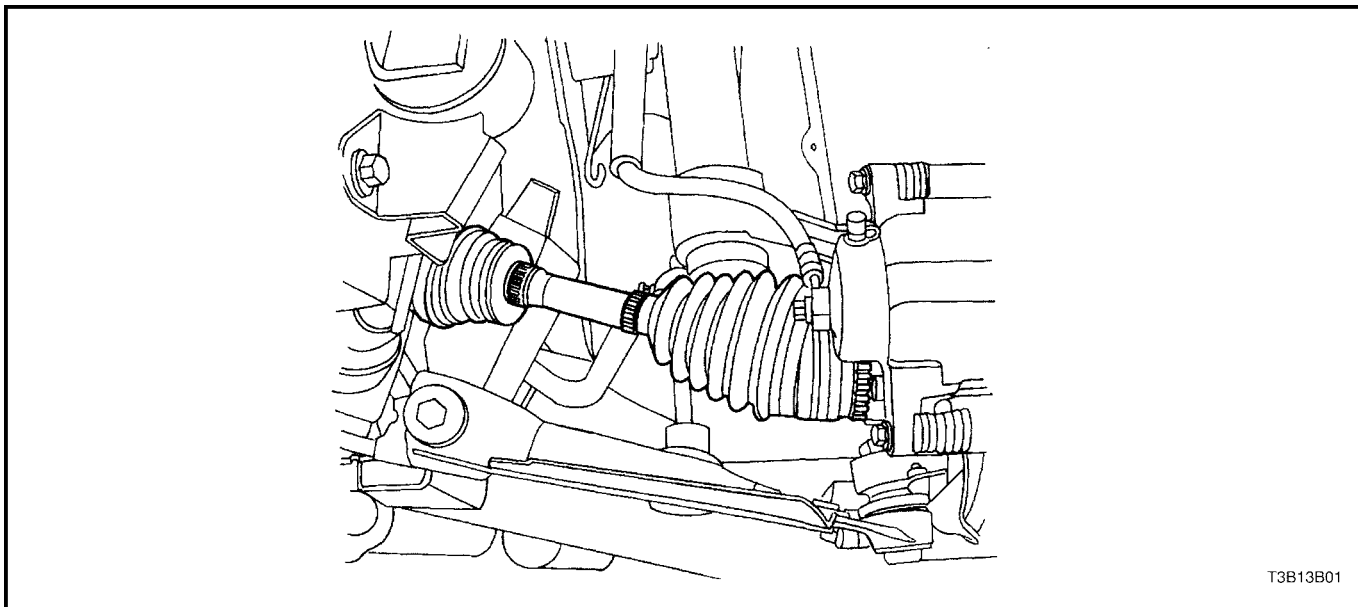
# SPECIAL TOOLS

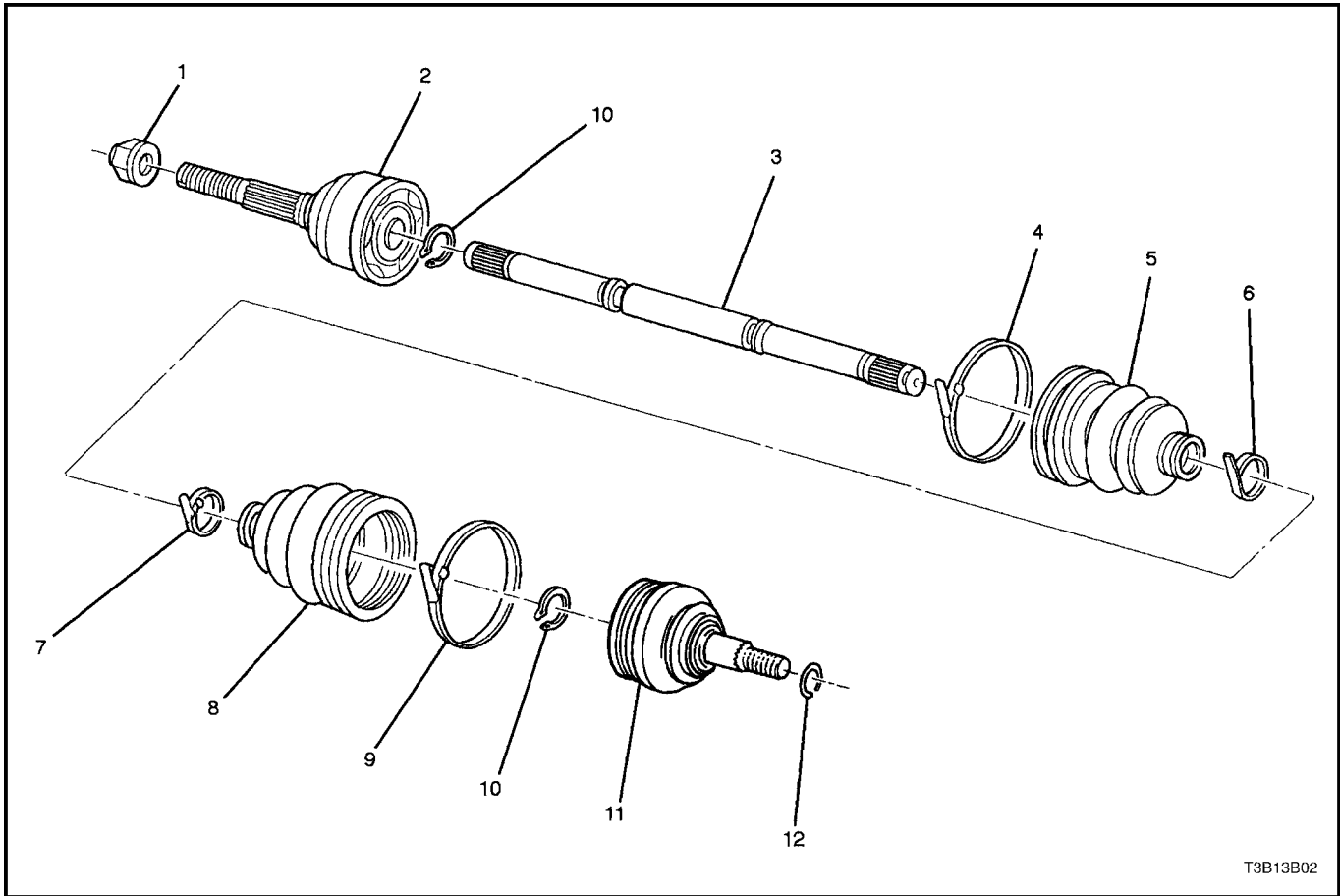
## SPECIAL TOOLS TABLE

 <p>J8059</p>	<p>J-8059 Snap Ring Pliers</p>	 <p>KM460A</p>	<p>KM-460-A Axle Shaft Remover</p>
 <p>KM507B</p>	<p>KM-507-B Ball Joint Remover</p>	 <p>J35566</p>	<p>J-35566 Seal Clamp Pliers</p>

## COMPONENT LOCATOR

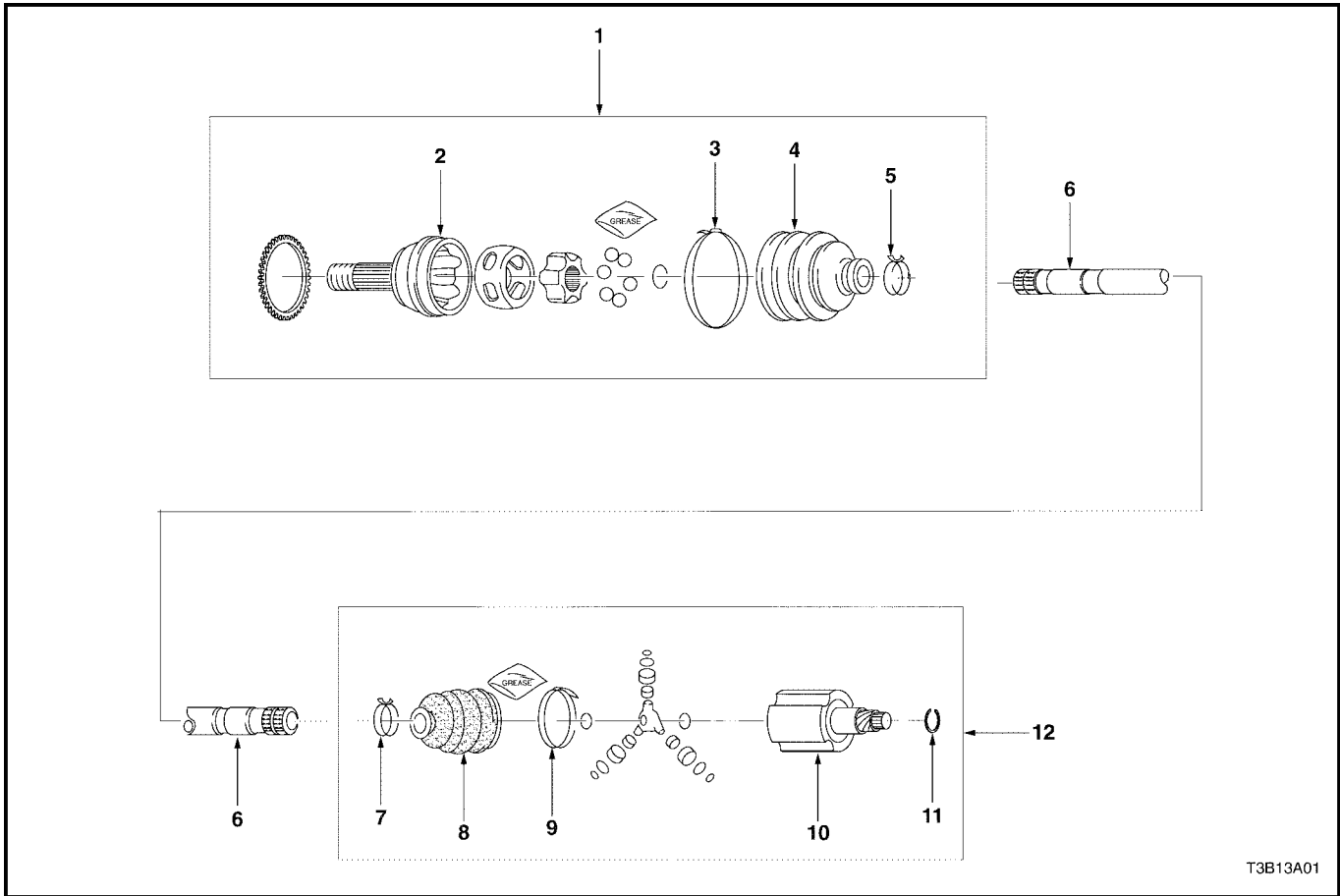
### FRONT DRIVE AXLE





- |                             |                            |
|-----------------------------|----------------------------|
| 1. Caulking Nut             | 7. Seal Retaining Clamp    |
| 2. C/V Joint                | 8. Drive Axle Inboard Seal |
| 3. Axle Shaft               | 9. Seal Retaining Clamp    |
| 4. Seal Retaining Clamp     | 10. Race Retaining Ring    |
| 5. Drive Axle Outboard Seal | 11. Cross Groove Joint     |
| 6. Seal Retaining Clamp     | 12. Retaining Ring         |

# 3B – 4 MANUAL TRANSAXLE DRIVE AXLE

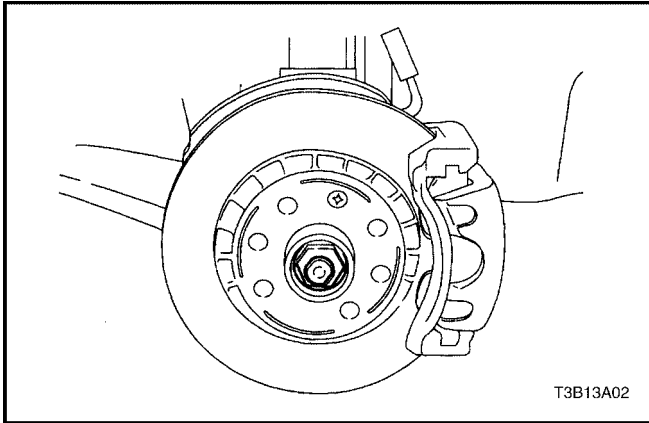


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- |                             |                            |
|-----------------------------|----------------------------|
| 1. C/V Joint Assembly       | 7. Seal Retaining Clamp    |
| 2. C/V Joint                | 8. Drive Axle Inboard Seal |
| 3. Seal Retaining Clamp     | 9. Seal Retaining Clamp    |
| 4. Drive Axle Outboard Seal | 10. Tripot Housing         |
| 5. Seal Retaining Clamp     | 11. Snap Ring              |
| 6. Axle Shaft               | 12. Tripot Joint Assembly  |

# MAINTENANCE AND REPAIR

## ON-VEHICLE SERVICE



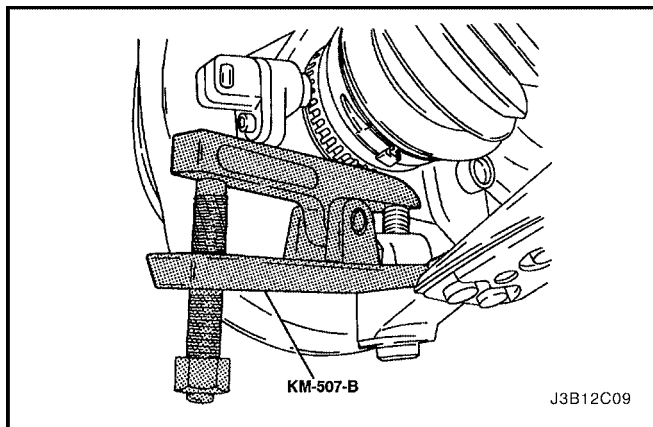
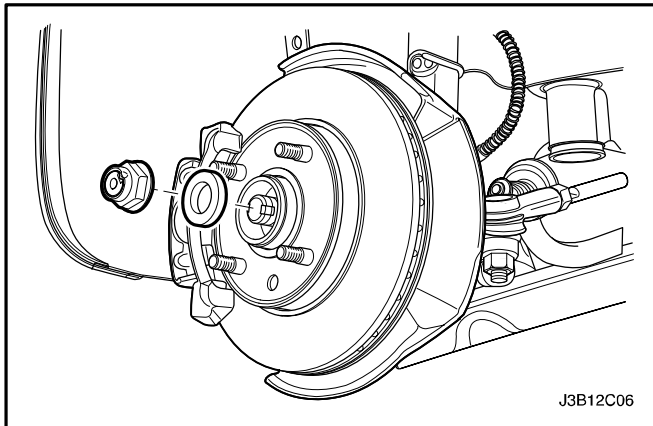
### DRIVE AXLE ASSEMBLY

#### Tools Required

KM-507-B Ball Joint Separator  
 KM-460-A Axle Shaft Remover

#### Removal Procedure

1. Raise and suitably support the vehicle.
2. Remove the wheels. Refer to *Section 2E, Tires and Wheels*.
3. Remove the axle shaft caulking nut. Discard the nut.

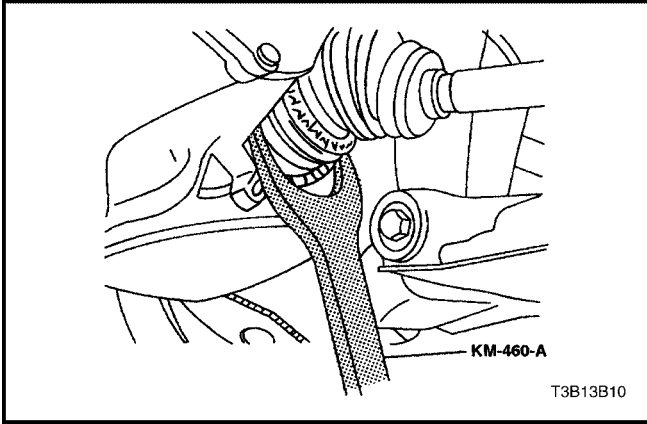


**Notice :** Use only the recommended tool for separating the lower ball joint. Failure to use the recommended tool may cause damage to the ball joint and the seal.

4. Remove the lower ball joint pinch bolt and nut.
5. Separate the steering knuckle from the lower ball joint using the ball joint separator KM-507-B.
6. Remove the tie rod 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.

7. Separate the tie rod end using the ball joint separator KM-507-B.



8. Push the drive axle shaft 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.

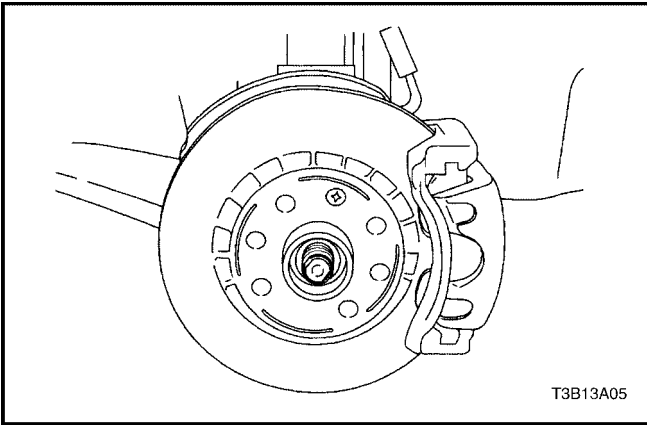
**Important :** Place a drain pan below the transaxle to catch the escaping fluid. Cap the transaxle drive opening after the drive axle has been removed to keep the fluid in and any contamination out.

9. Remove the drive axle from the transaxle using the axle shaft remover KM-460-A.

### Installation Procedure

**Notice :** Do not damage the seals.

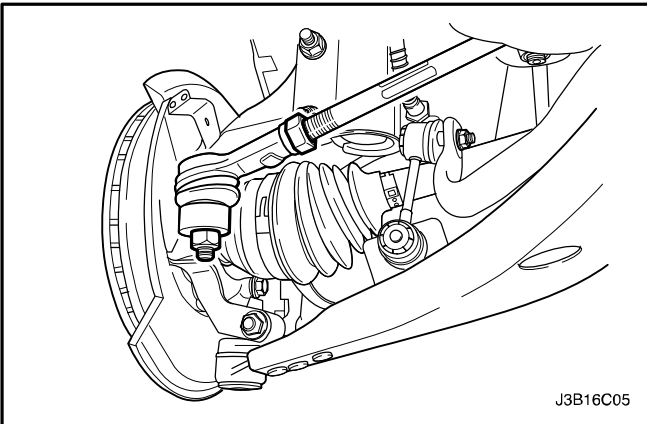
1. Clean the hub seal and the transaxle seal.
2. Install the drive axle into the transaxle.
3. Install the wheel hub onto the axle shaft.



4. Install the tie rod into the knuckle/strut and install the tie rod nut.

#### Tighten

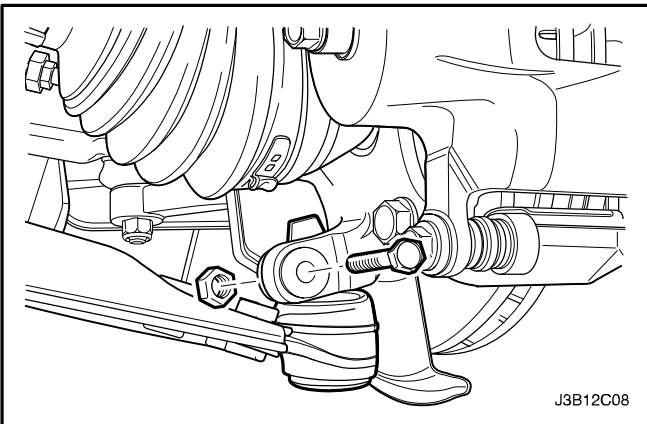
Tighten the tie rod nut to 55 N•m (41 lb-ft).

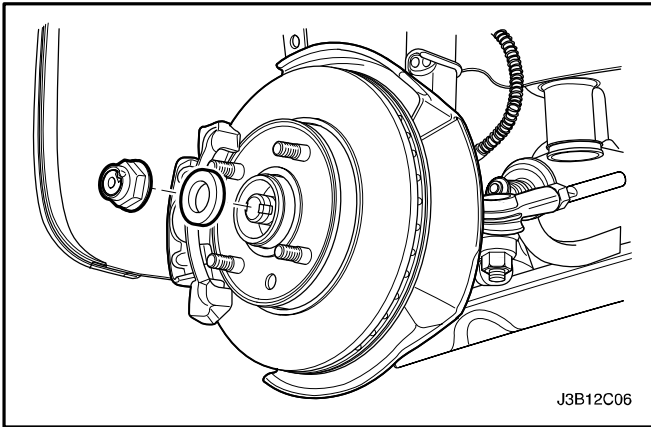


5. Install the lower ball joint pinch bolt and nut.

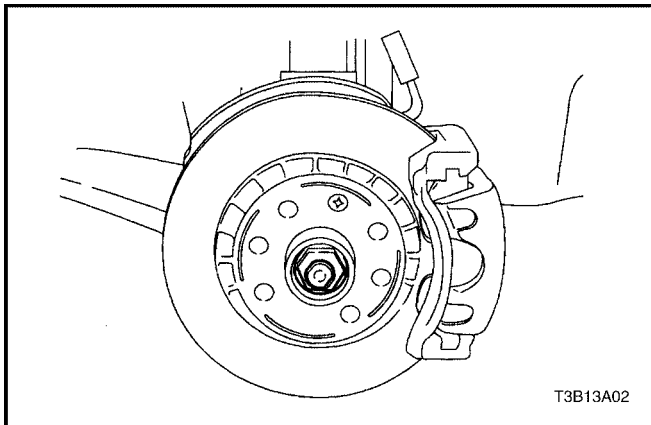
#### Tighten

Tighten the lower ball joint pinch bolt and nut to 60 N•m (44 lb-ft).





6. Loosely install a new axle shaft caulking nut. Always use a new nut.



7. Install the wheels. Loosely install the nuts. Refer to *Section 2E, Tires and Wheels*.
8. Lower the vehicle to the floor.

### **Tighten**

Tighten the wheel nuts to 100 N•m (74 lb–ft).

9. Tighten the axle shaft caulking nut to 300 N•m (221 lb–ft).
10. Peen the caulking nut with a punch and a hammer until the nut is locked into place on the axle shaft hub.
11. Refill the transaxle fluid to the proper level. Refer to *Section 5B, Five-Speed Manual Transaxle*.

## UNIT REPAIR

### OUTER JOINT SEAL

#### Tools Required

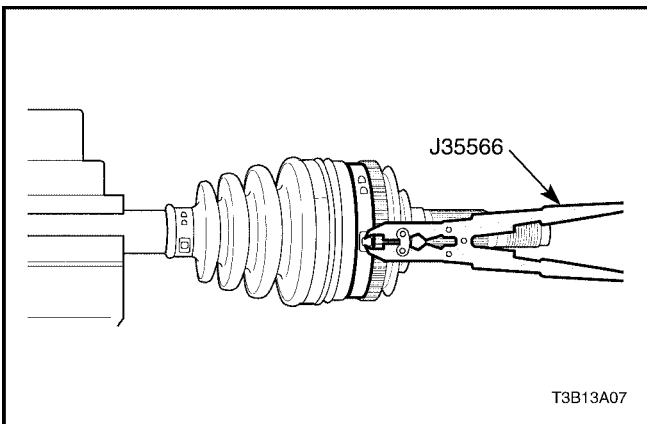
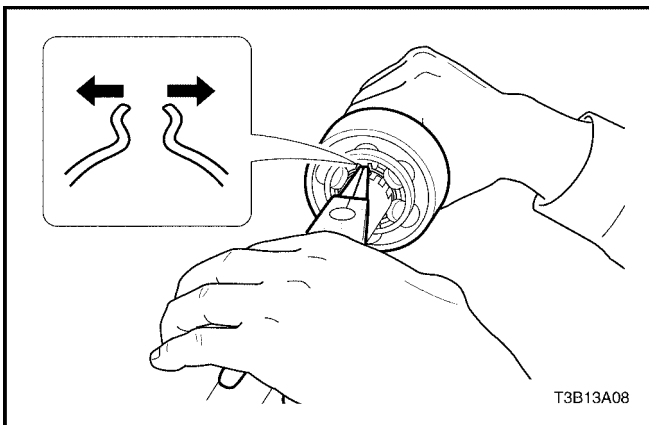
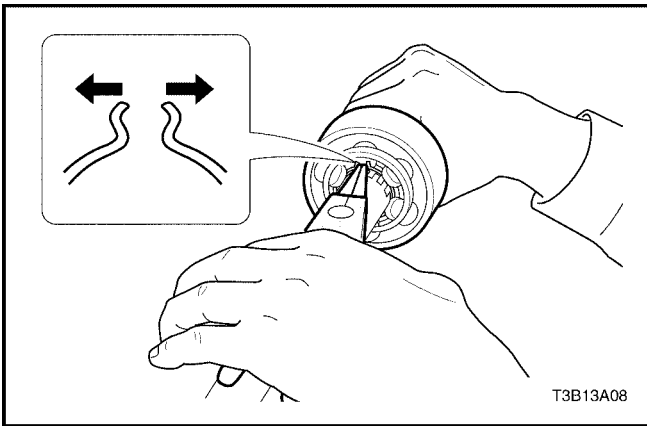
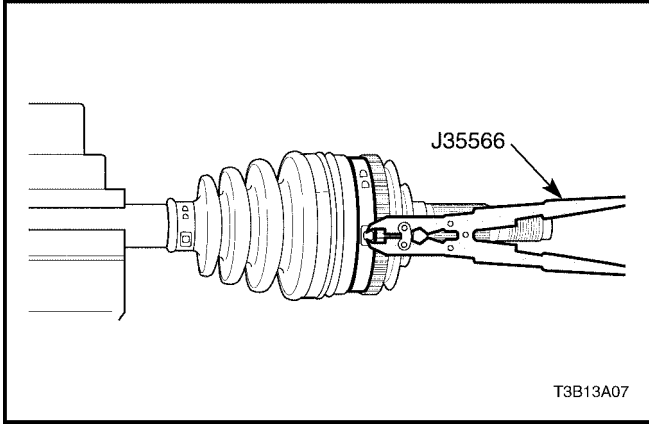
- J-8059 Snap Ring Pliers
- J-35566 Seal Clamp Pliers

#### Removal Procedure

1. Remove the drive axle from the vehicle. Refer to "Drive Axle Assembly" in this section.
2. Remove the large seal retaining clamp. Discard the clamp.
3. Remove the small seal retaining clamp. Discard the clamp.
4. Degrease the joint.
5. Spread the snap ring using the snap ring pliers J-8059 and remove the outer joint the axle shaft.

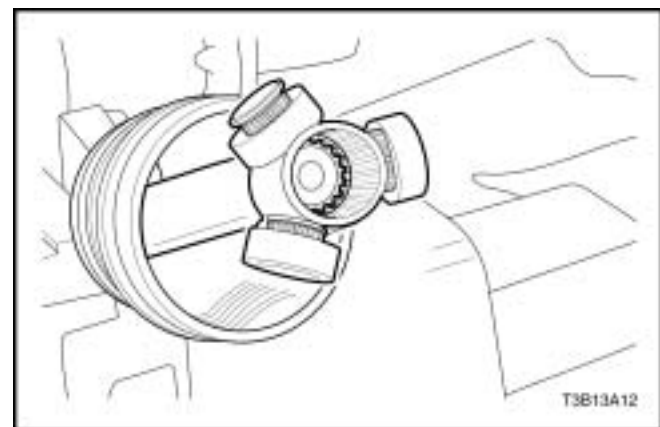
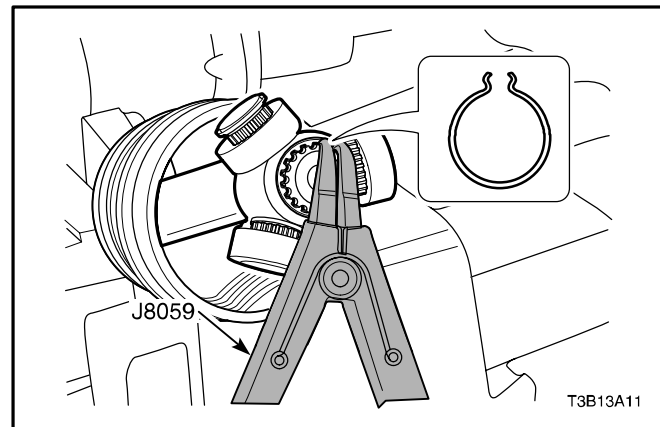
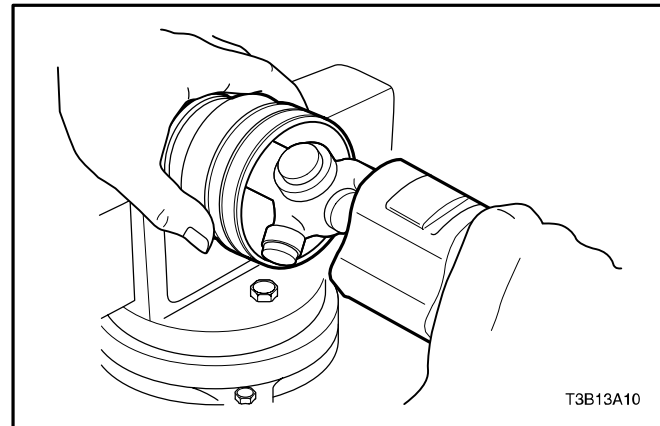
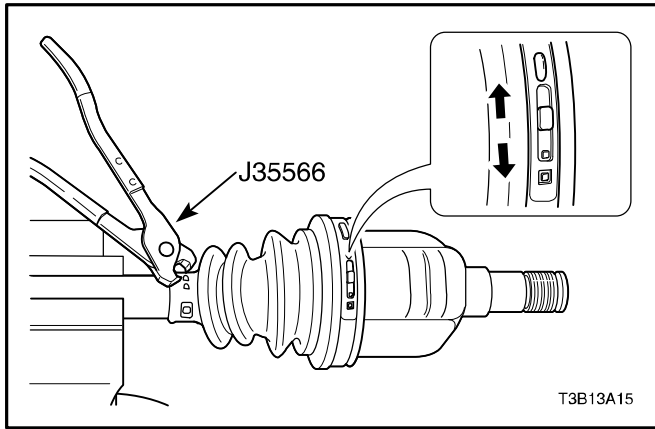
**CAUTION : Do not remove the axle shaft from the outer joint assembly or disassemble the outer joint assembly. Parts are match fit and cannot be serviced separately. Improper reassembly will adversely affect both performance and safety.**

6. Remove the seal from the joint assembly.



#### Installation Procedure

1. Install the seal onto the axle shaft.
2. Spread the snap ring using the snap ring pliers J-8059 and remove the outer joint the axle shaft.
3. Fill the joint seal with 110 to 130 g (3.9 to 4.6 ounces) of the recommended grease. Repack the joint with 110 to 130 g (3.9 to 4.6 ounces) of the recommended grease.
  - 1.8 DOHC : 120 to 140g (4.2 to 4.9 ounces)
4. Install a new large seal retaining clamp and a new small seal retaining clamp.
5. Crimp the new small seal retaining clamp and the new large seal retaining clamp using the seal clamp pliers J-35566.
6. Install the drive axle shaft to the vehicle. Refer to "Drive Axle Assembly" in this section.



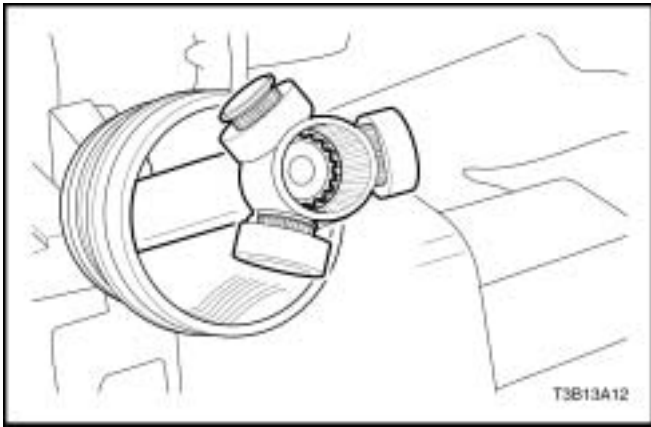
## INNER TRIPOT SEAL

### Tools Required

- J-35566 Snap Ring Pliers
- J-8059 Snap Ring Pliers

### Removal Procedure

1. Remove the drive axle from the vehicle. Refer to "Drive Axle" in this section.
2. Remove the large seal retaining clamp. Discard the clamp.
3. Remove the small seal retaining clamp. Discard the clamp.
4. Separate the joint housing from the boot.
5. Degrease the tripot assembly.
6. Remove the shaft retaining ring using the snap ring pliers J-8059.
7. Remove the tripot and the tripot joint retaining ring from the axle shaft.
8. Remove the tripot joint seal from the axle shaft.



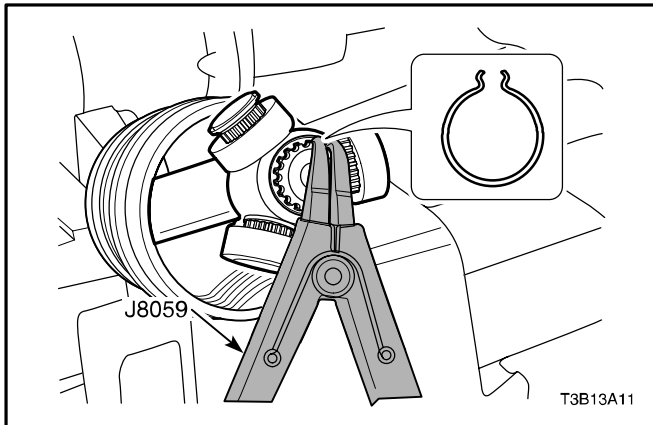
## Installation Procedure

### Tools Required

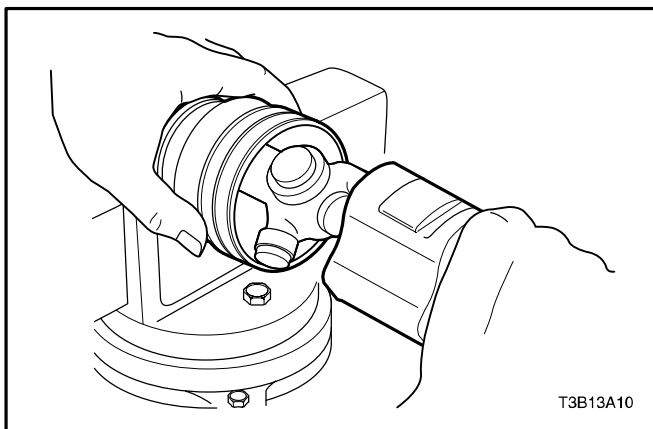
J-8059 Snap Ring Pliers

J-35566 Seal Clamp Pliers

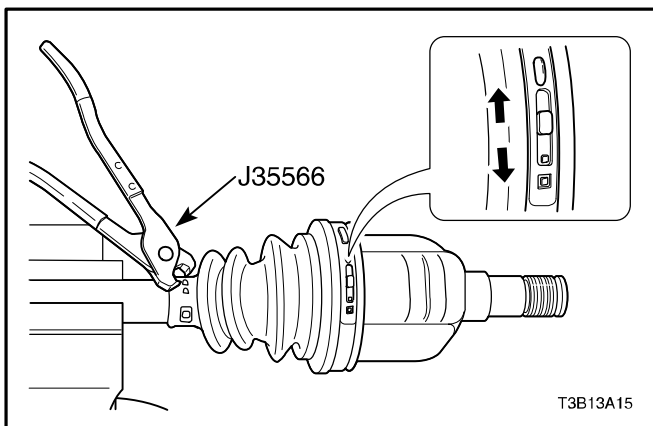
1. Install a new small seal retaining clamp onto the seal.
2. Install the seal onto the axle shaft.



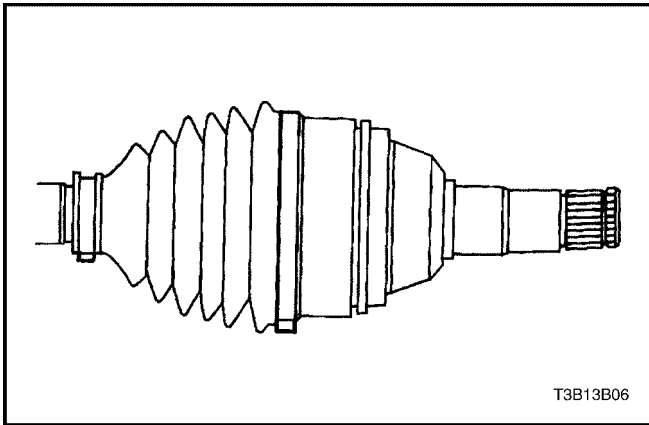
3. Install the shaft retaining ring onto the axle shaft using the snap ring pliers J-8059.



4. Fill the tripot housing with 195 to 215 g (6.9 to 7.6 ounces) of the recommended grease. Repack the tripot with 195 to 215 g (6.9 to 7.6 ounces) of the recommended grease.
5. Install the boot to the joint housing.



6. Install a new large seal retaining clamp. Crimp the large seal retaining clamp using the seal clamp pliers J-35566.
7. Crimp the new small seal retaining clamp using the seal clamp pliers J-35566.
8. Install the drive axle shaft to the vehicle. Refer to "Drive Axle Assembly" in this section.



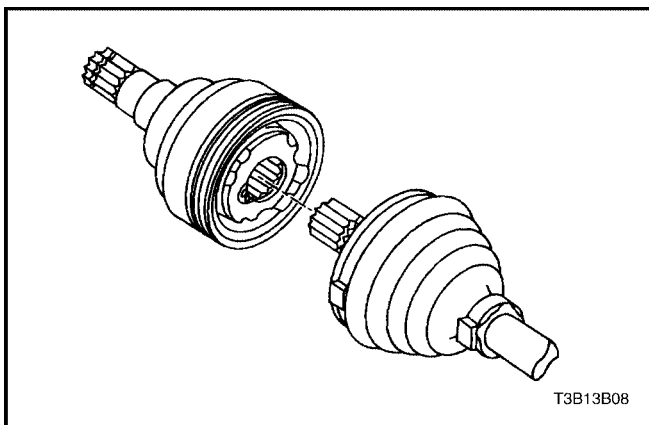
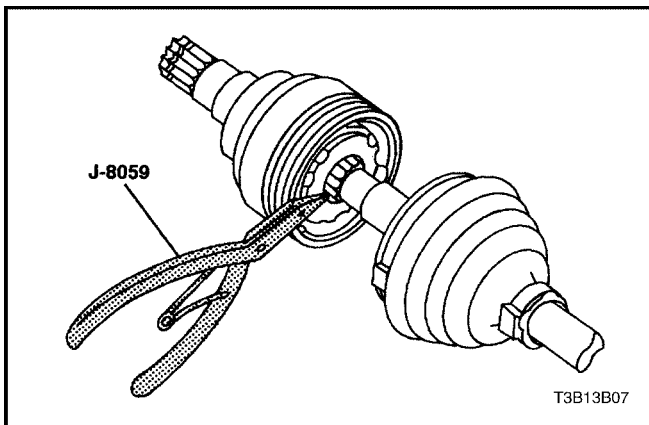
## CROSS GROOVE JOINT SEAL

### Tools Required

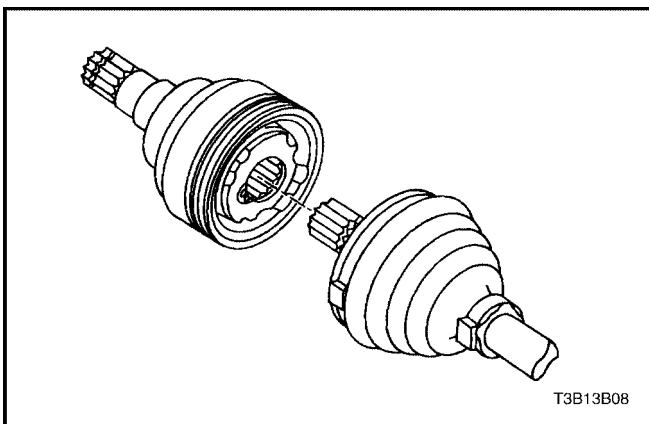
- J-35566 Seal Clamp Pliers
- J-8059 Snap Ring Pliers

### Removal Procedure

1. Remove the large seal retaining clamp. Discard the clamp.
2. Remove the small seal retaining clamp. Discard the clamp.
3. Degrease the joint.
4. Remove the shaft retaining ring using the snap ring pliers J-8059.

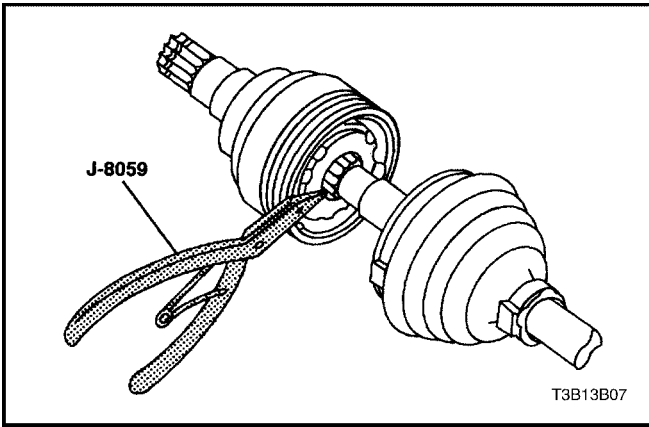


5. Remove the axle shaft from the joint assembly.  
**CAUTION : The ball retainer is staked in position and must not be disassembled. Cross groove joint internal parts are match fit and cannot be serviced separately. Improper reassembly will adversely affect both performance and safety.**
6. Remove the seal from the joint assembly.

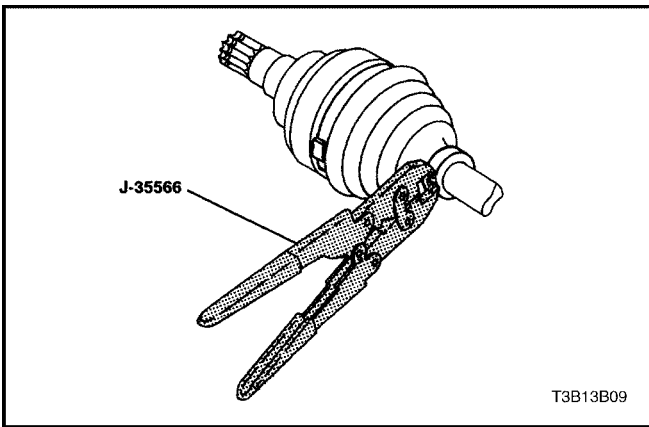


### Installation Procedure

1. Install a new small seal retaining clamp onto the seal. Do not crimp.
2. Install the seal onto the axle shaft.
3. Install the joint assembly onto the axle shaft.



4. Install the shaft retaining ring using the snap ring pliers J-8059.



5. Fill the joint assembly with 120 to 140 g (4.2 to 4.9 ounces) of the recommended grease. Repack the tripot with 120 to 140 g (4.2 to 4.9 ounces) of the recommended grease.
6. Install the a new large seal retaining clamp.
7. Crimp the new large seal retaining clamp using the seal clamp pliers J-35566.
8. Crimp the new small retaining clamp using the seal clamp pliers J-35566.

# GENERAL DESCRIPTION AND SYSTEM OPERATION

## FRONT DRIVE AXLE

### General Description

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 completely 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 one type of outboard joint and two types of inboard joints.