
SECTION 3B

MANUAL TRANSAXLE DRIVE AXLE

TABLE OF CONTENTS

Specifications	3B-1	Drive Axle Assembly	3B-4
Fastener Tightening Specifications	3B-1	Unit Repair	3B-8
Special Tools	3B-2	Outer Joint Seal	3B-8
Special Tools Table	3B-2	Inner Tripot Seal	3B-9
Component Locator	3B-2	General Description and System	
Front Drive Axle	3B-2	Operation	3B-13
Maintenance and Repair	3B-4	Front Drive Axle	3B-13
On-Vehicle Service	3B-4		

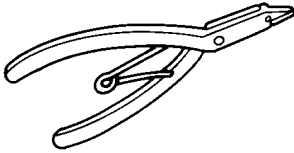
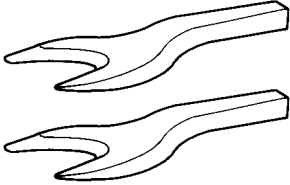
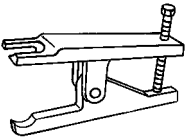
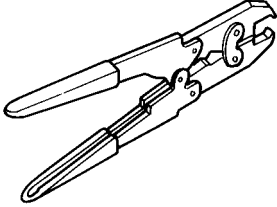
SPECIFICATIONS

FASTENER TIGHTENING SPECIFICATIONS

Application	N•m	Lb•Ft	Lb•In
Axle Shaft Caulking Nut Initial Torque	180	133	-
Axle Shaft Caulking Nut Final Torque	50 + 60°	37 + 60°	-
Lower Ball Joint Nut and Bolt	90	66	-
Tie Rod Nut	60	44	-
Wheel Bolts	90	66	-

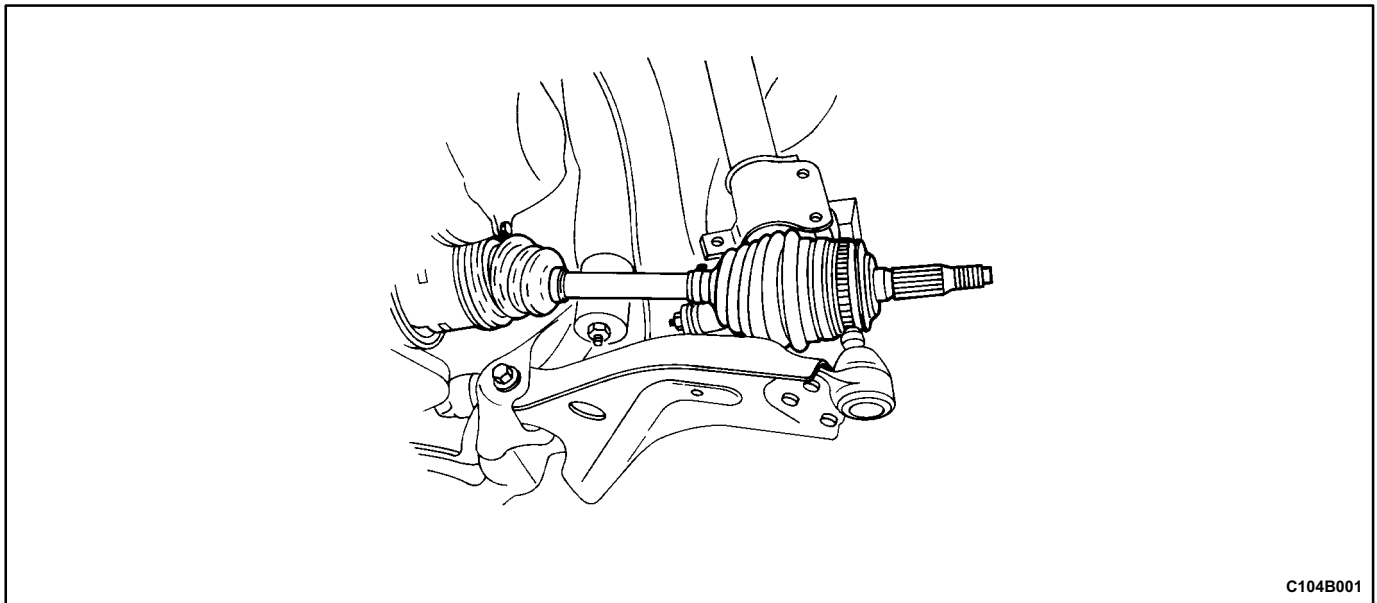
SPECIAL TOOLS

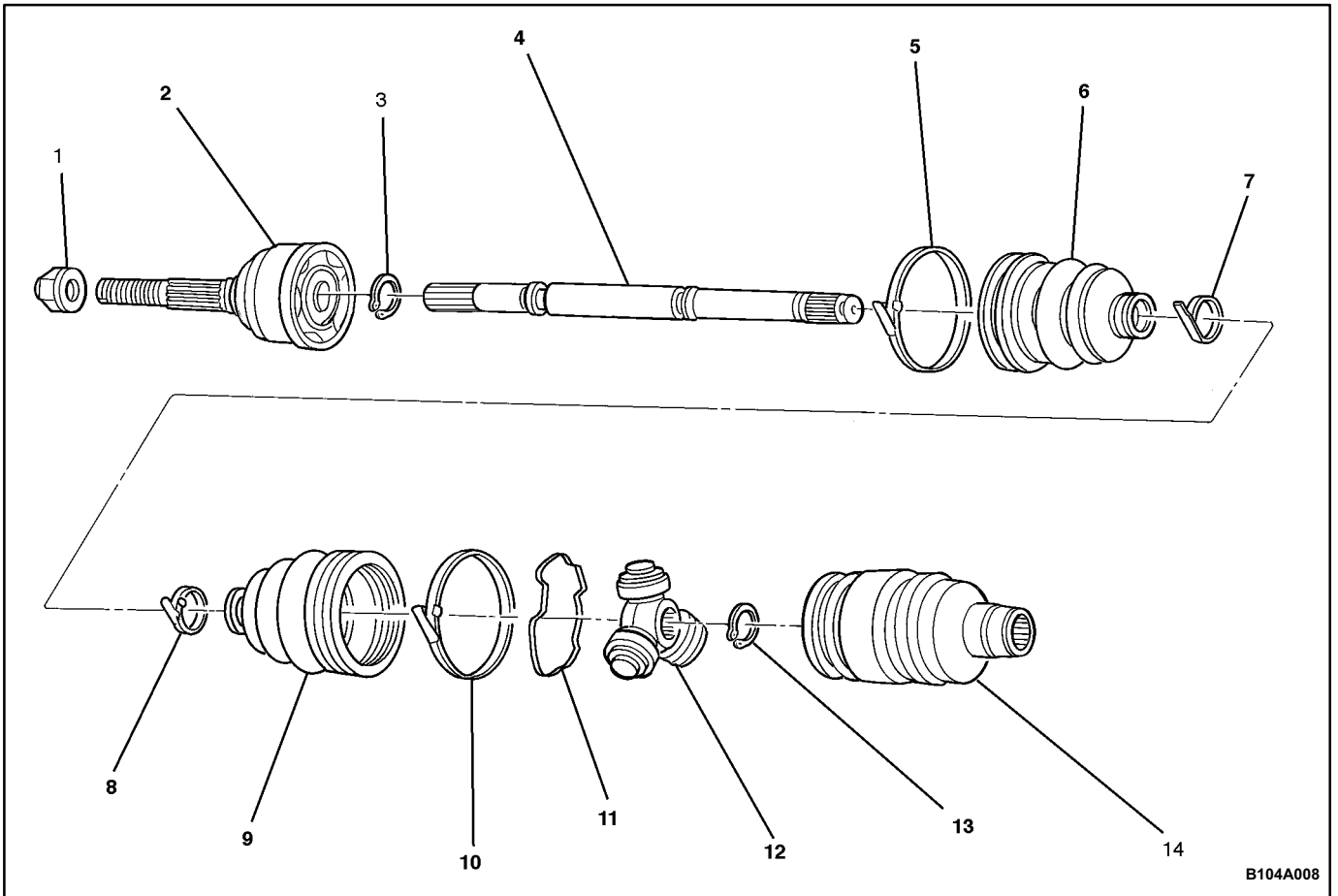
SPECIAL TOOLS TABLE

 <p>A104A001</p>	<p>J-8059 Snap Ring Pliers</p>	 <p>A106C032</p>	<p>KM-460-A Axle Shaft Remover</p>
 <p>C106C034</p>	<p>KM-333 Ball Joint Separator</p>	 <p>A104A008</p>	<p>J-35566 Seal Clamp Pliers</p>

COMPONENT LOCATOR

FRONT DRIVE AXLE





B104A008

- | | |
|--|--------------------------------|
| 1 Caulking Nut | 8 Seal Retaining Clamp |
| 2 C/V Joint | 9 Drive Axle Inboard Seal |
| 3 Snap Ring | 10 Seal Retaining Clamp |
| 4 Axle Shaft (righthand shown, lefthand similar) | 11 Tripot Joint Retaining Ring |
| 5 Seal Retaining Clamp | 12 Tripot Joint |
| 6 Drive Axle Outboard Seal | 13 Shaft Retaining Ring |
| 7 Seal Retaining Clamp | 14 Tripot Housing |

MAINTENANCE AND REPAIR

ON-VEHICLE SERVICE

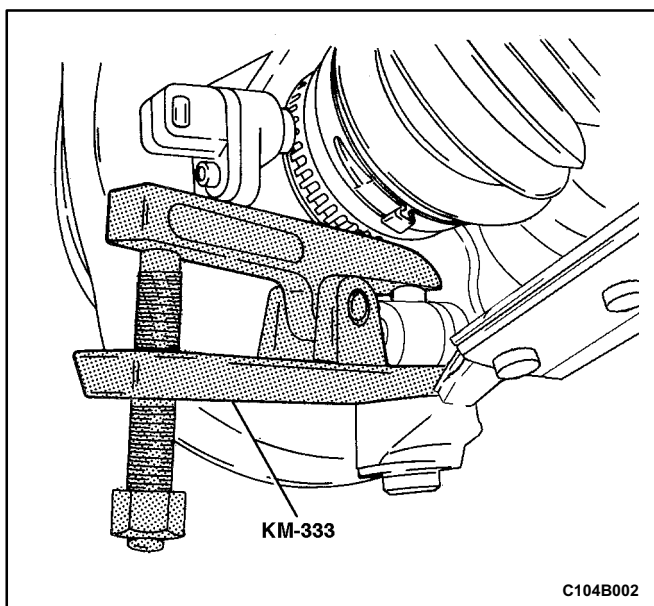
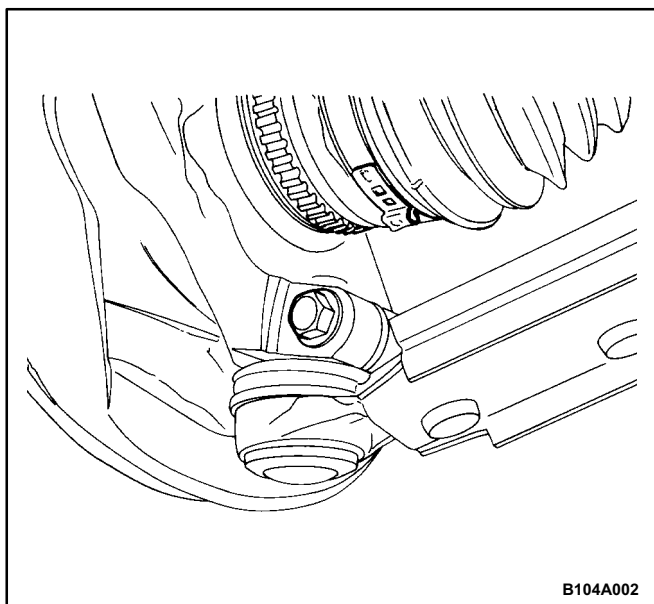
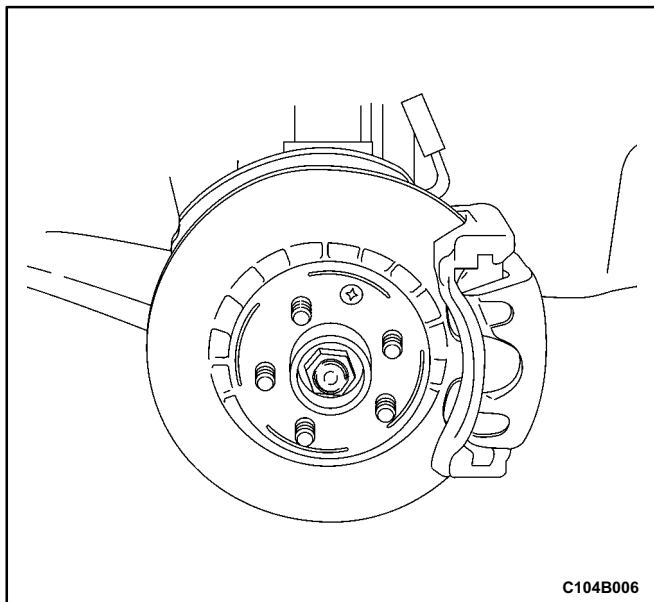
DRIVE AXLE ASSEMBLY

Tools Required

KM-333 Ball Joint Separator
KM-460-A Axle Shaft Remover

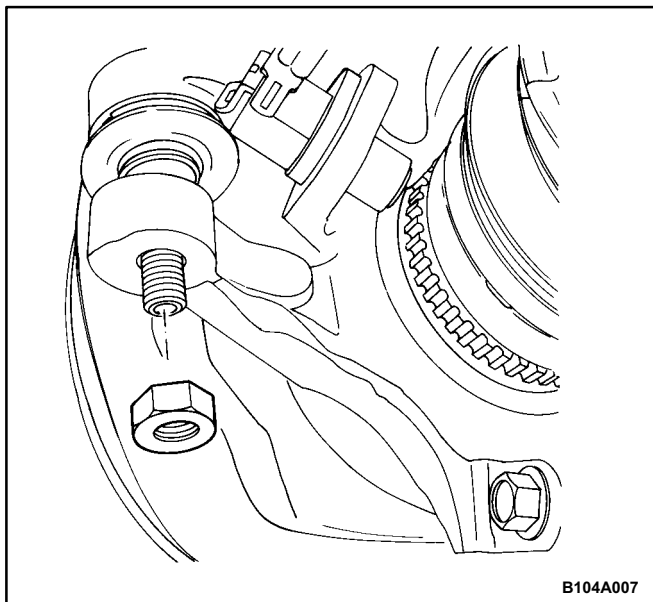
Removal Procedure

1. Raise and suitably support the vehicle.
2. Remove the wheels. Refer to *Section 2E, Tires and Wheels*.
3. Remove the engine under covers. Refer to *Section 9N, Frame and Underbody*.
4. Remove the axle shaft caulking nut. Discard the nut.
5. Remove the lower ball joint nut and bolt.



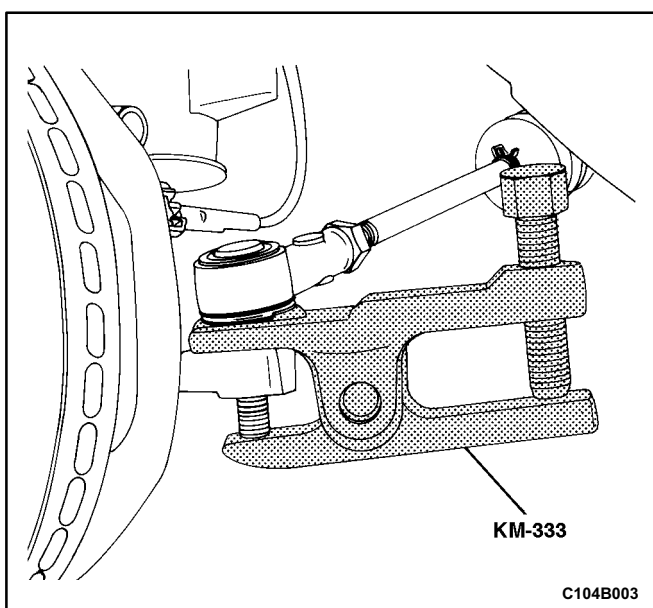
Notice: Use only the recommended tool for separating the lower ball joint. Failure to use the recommended tool may damage the ball joint and the seal.

6. Separate the steering knuckle from the lower ball joint using the ball joint separator KM-333.

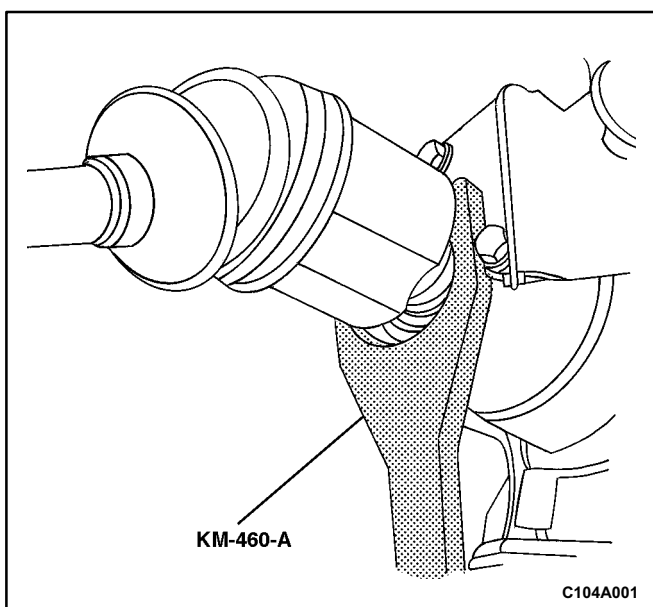


7. Remove the tie rod nut.

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



8. Separate the tie rod end using the ball joint separator KM-333.

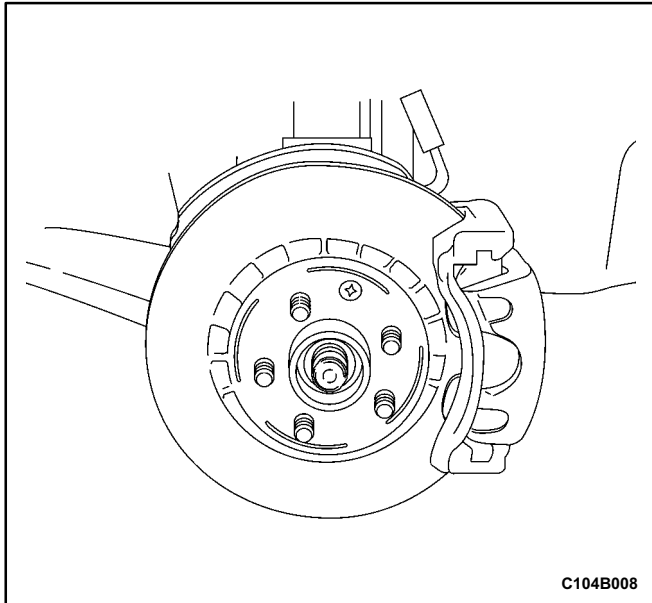


9. Push the drive axle shaft from the wheel hub.

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.

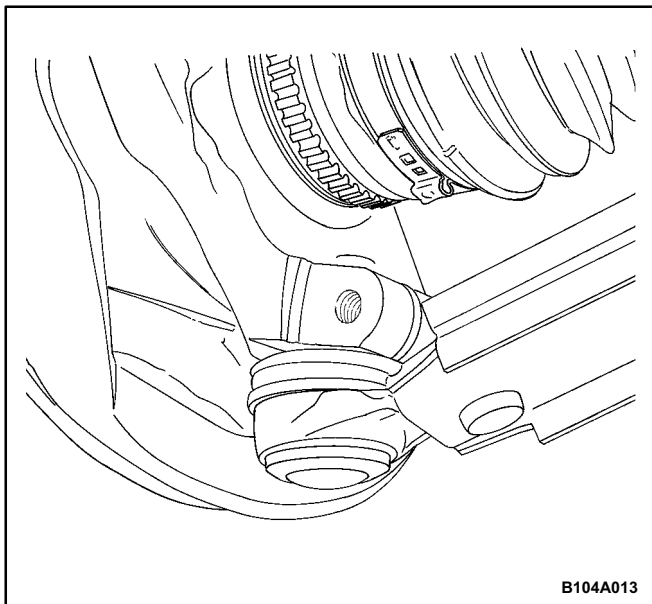
10. Remove the drive axle from the transaxle using the axle shaft remover KM-460-A.



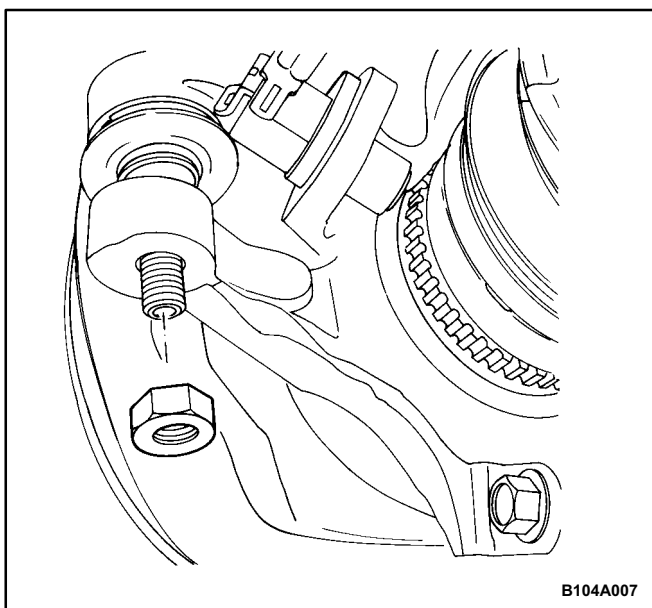
Installation Procedure

Notice: Do not damage the seal.

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



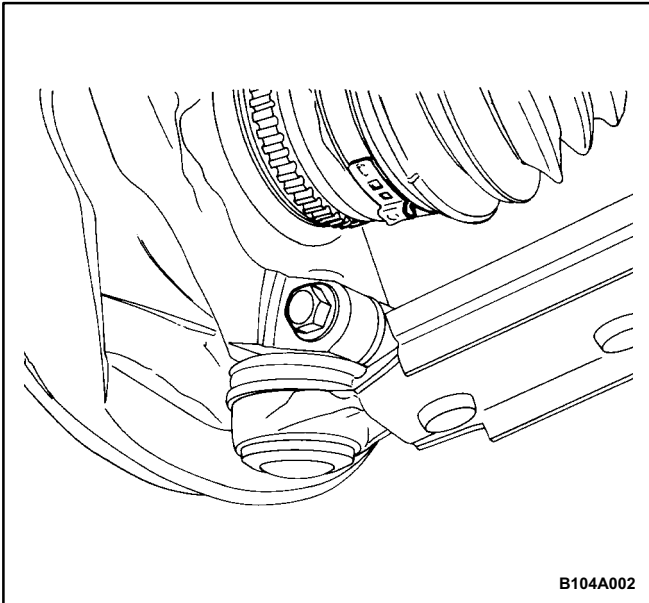
4. Mount the steering knuckle onto the lower ball joint.



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

Tighten

Tighten the tie rod nut to 60 N•m (44 lb•ft).

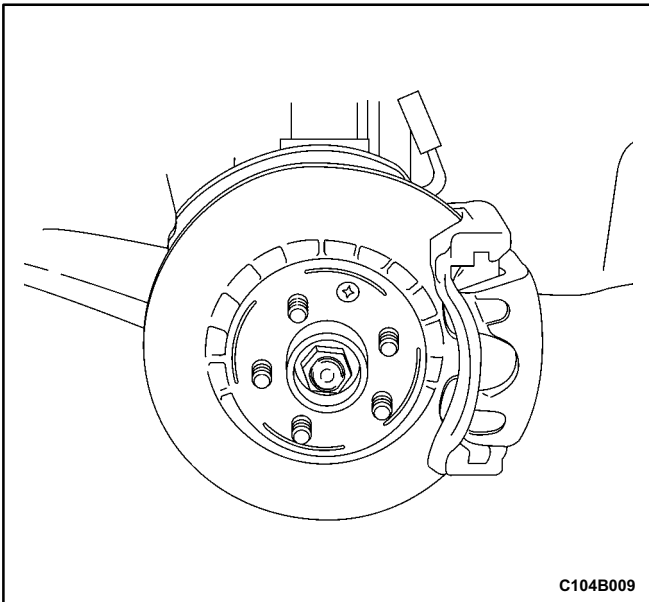


B104A002

6. Install the lower ball joint nut and bolt.

Tighten

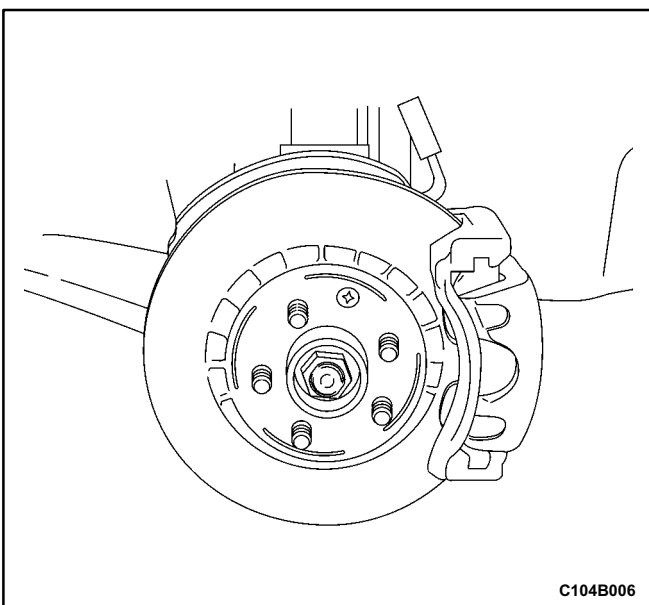
Tighten the lower ball joint nut and bolt to 90 N•m (66 lb•ft).



C104B009

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

8. Install the wheels. Loosely install the bolts. Refer to *Section 2E, Tires and Wheels*.



C104B006

9. Lower the vehicle to the floor.

Tighten

Tighten the wheel bolts to 90 N•m (66 lb•ft).

Tighten

Tighten the axle shaft caulking nut to 180 N•m (133 lb•ft). Loosen the nut and re-tighten the nut to 50 N•m (37 lb•ft). Then tighten the nut further by 60 degrees.

10. Peen the caulking nut with a punch and a hammer until the nut is locked into place on the axle shaft hub.

11. Install the engine under covers. Refer to *Section 9N, Frame and Underbody*.

12. 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

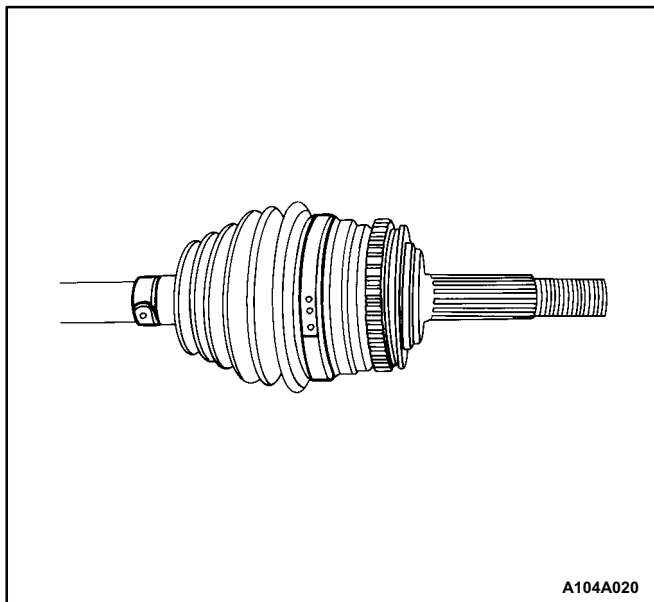
1. Remove the drive axle shaft from the vehicle. ``Refer to ``Drive Axle Assembly" in this section.
2. Remove the large seal retaining clamp. Discard the clamp.
3. Remove the small seal retaining clamp. Discard the clamp.

4. Degrease the joint.

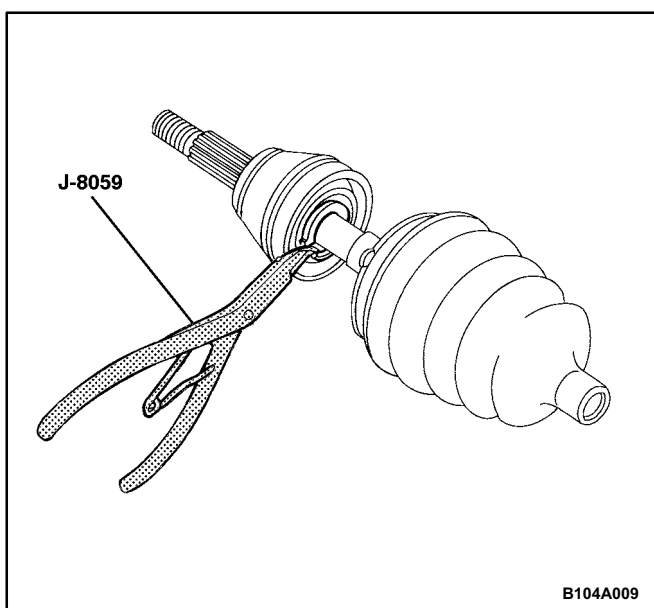
5. Spread the snap ring using the snap ring pliers J-8059 and remove the outer joint from the axle shaft.

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

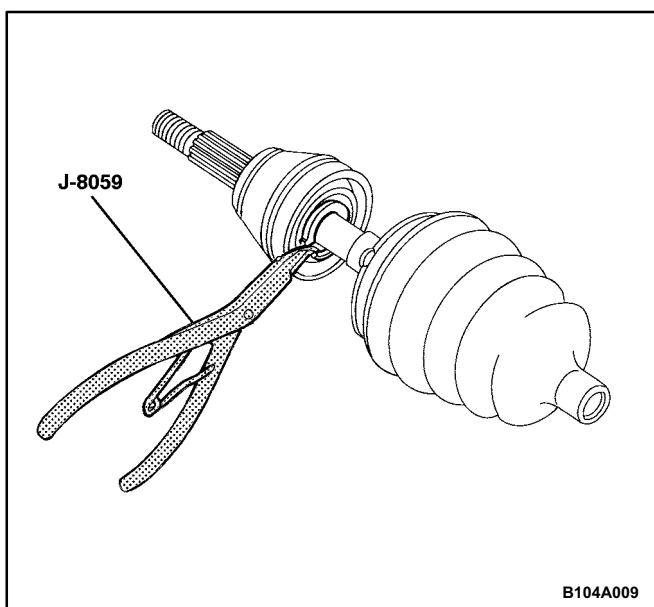
6. Remove the seal from the joint assembly.



A104A020



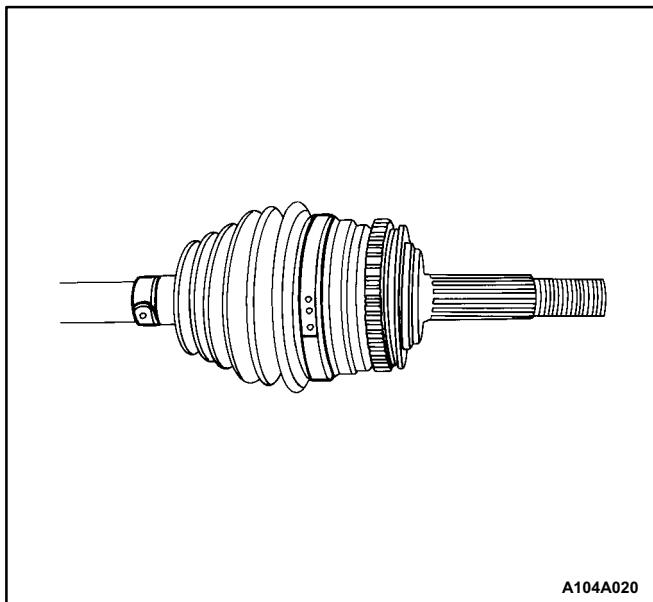
B104A009



B104A009

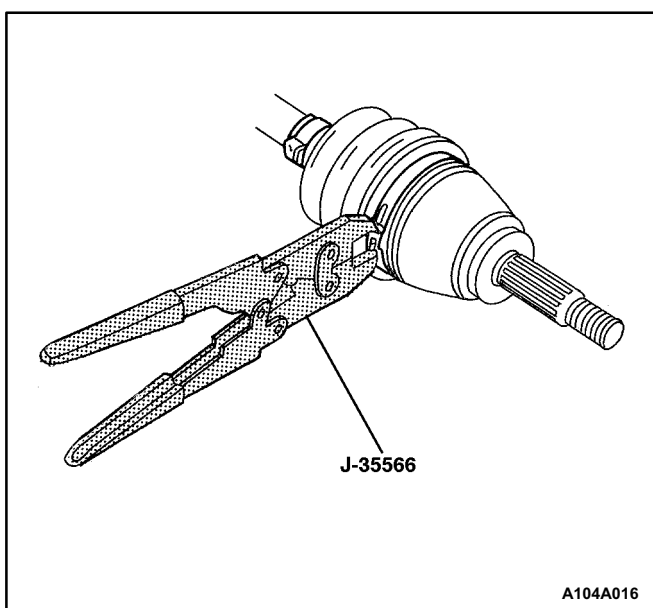
Installation Procedure

1. Install the seal onto the axle shaft.
2. Spread the snap ring using the snap ring pliers J-8059 and install the outer joint onto the axle shaft.
3. Fill the joint seal with 175 to 195 g (6.2 to 6.9 ounces) of the recommended grease. Repack the joint with 175 to 195 g (6.2 to 6.9 ounces) of the recommended grease.



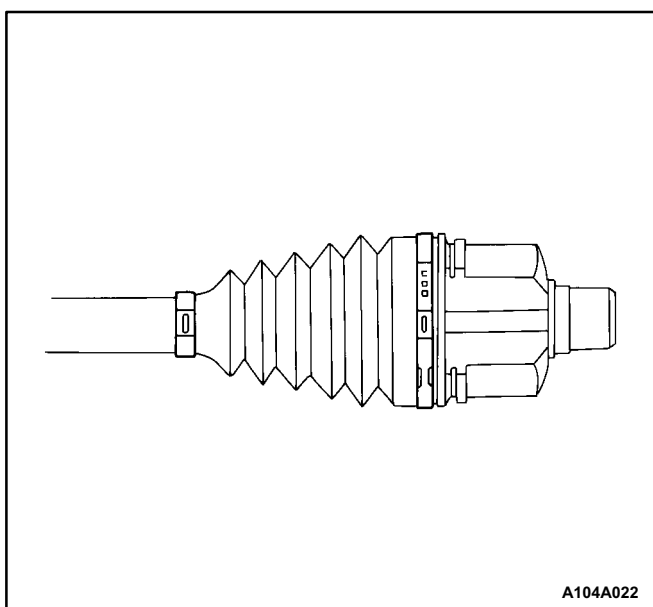
A104A020

4. Install a new large seal retaining clamp and a new small seal retaining clamp.



A104A016

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 onto the vehicle. Refer to "Drive Axle Assembly" in this section.



A104A022

INNER TRIPOT SEAL

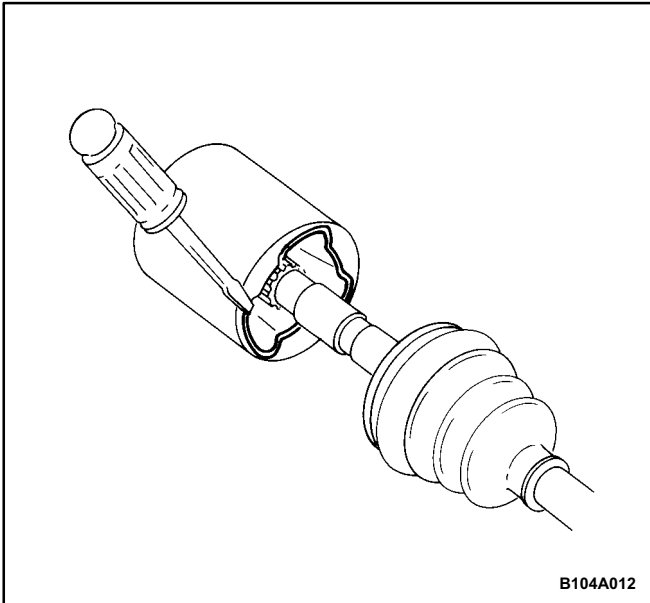
Tools Required

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

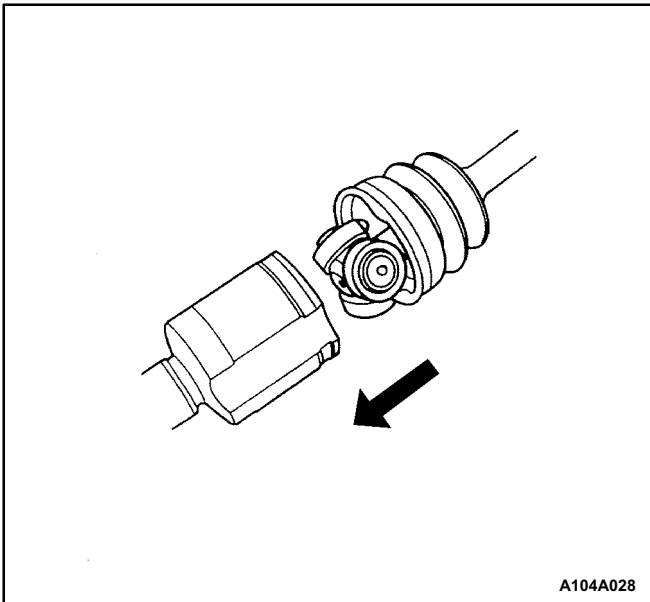
Removal Procedure

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.

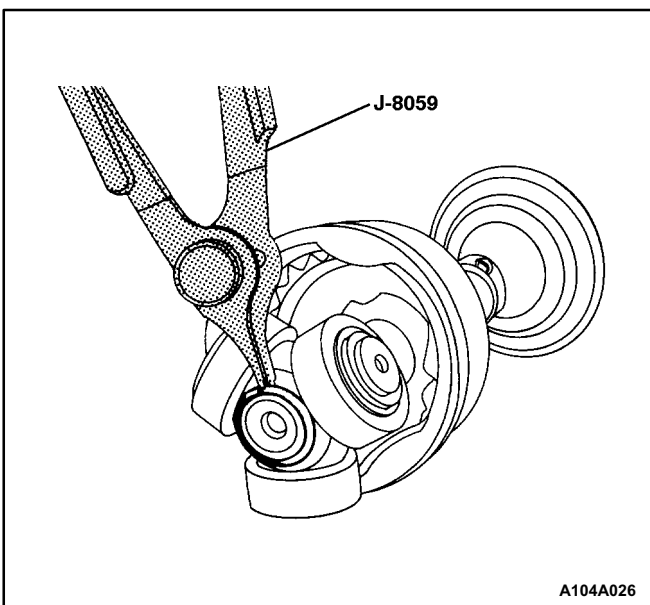
4. Pry the tripot joint retaining ring from the tripot housing.

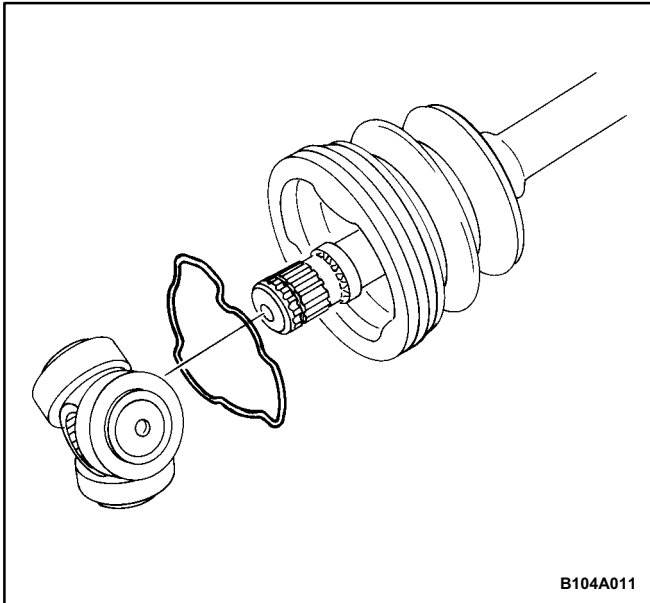


5. Remove the tripot housing from the seal.



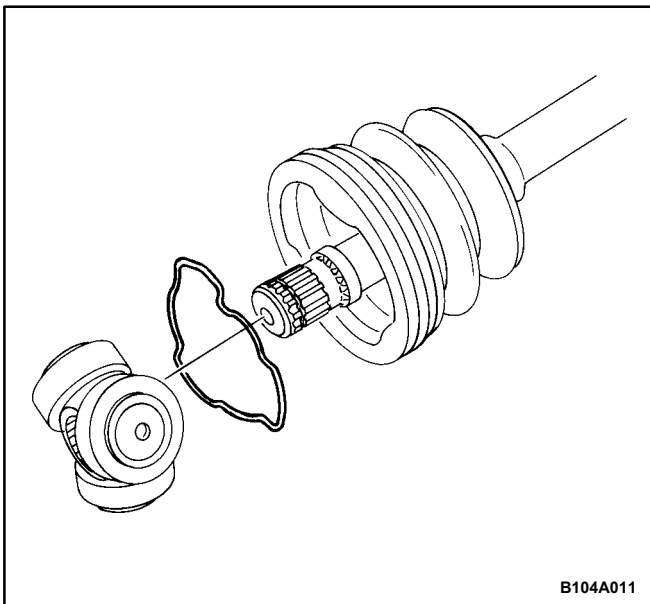
6. Degrease the tripot assembly.
7. Remove the shaft retaining ring using the snap ring pliers J-8059.





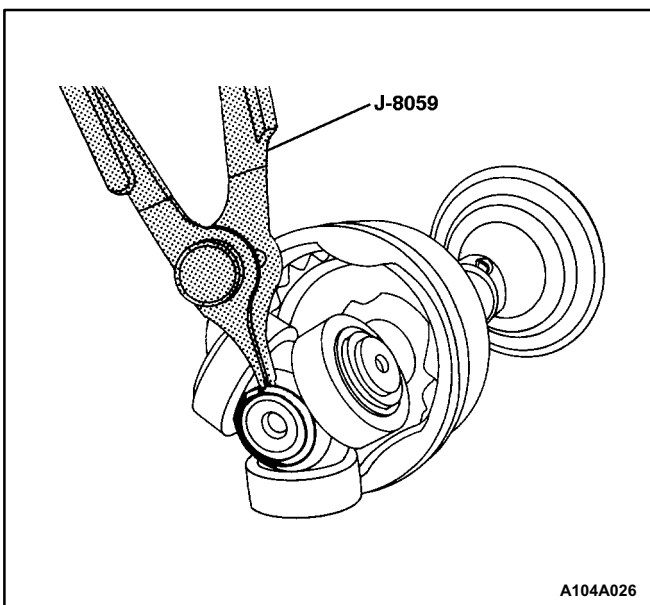
8. Remove the tripot and the tripot joint retaining ring from the axle shaft.

9. Remove the tripot joint seal from the axle shaft.

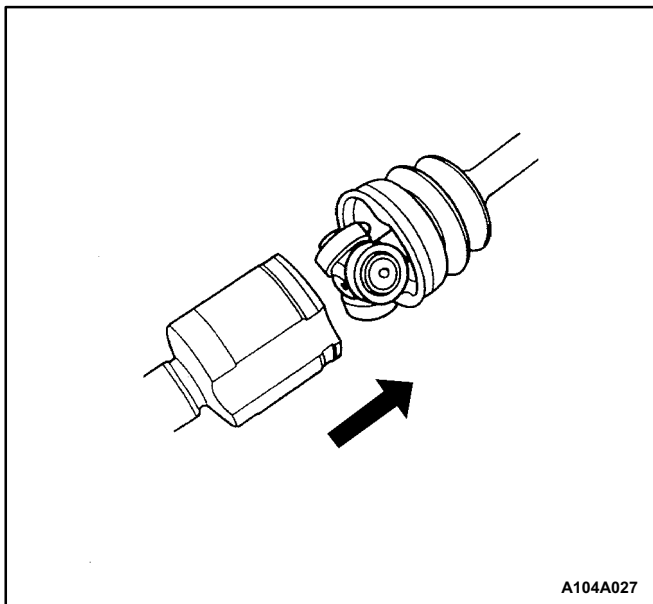


Installation Procedure

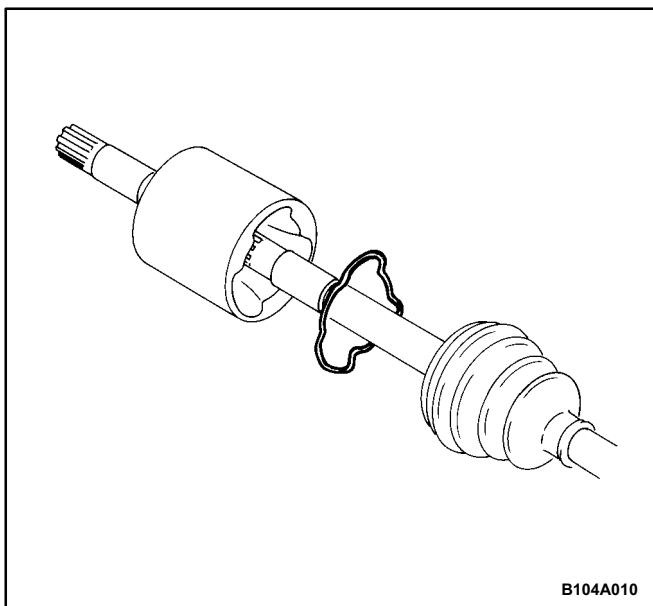
1. Install a new small seal retaining clamp onto the seal. Do not crimp the seal retaining clamp.
2. Install the seal onto the axle shaft.
3. Install the tripot joint retaining ring and the tripot onto the axle shaft.



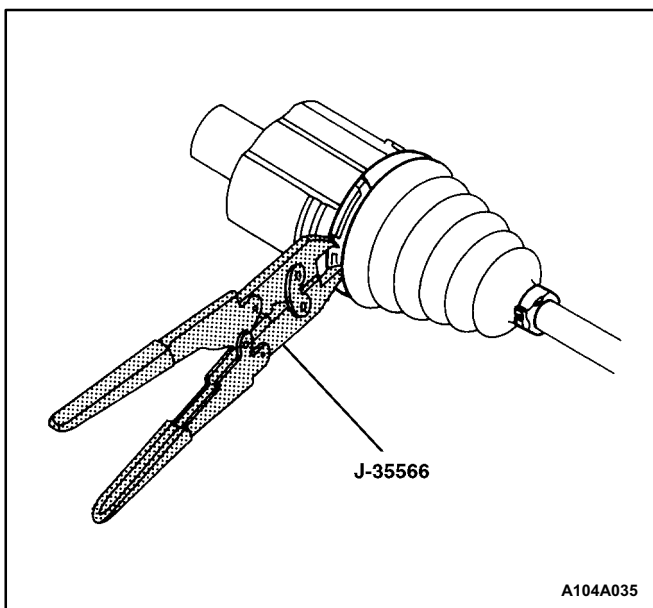
4. Install the shaft retaining ring onto the axle shaft using the snap ring pliers J-8059.



5. 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.
6. Install the tripot housing onto the tripot assembly.



7. Install the tripot joint retaining ring into the tripot housing.



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

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 a Rzeppa style joint on the outboard side and a tripod style joint on the inboard side.