

## SECTION 2D

# REAR SUSPENSION

## TABLE OF CONTENTS

Specifications .....	2D-1	Springs and Insulators .....	2D-5
General Specifications .....	2D-1	Rear Axle Assembly .....	2D-6
Fastener Tightening Specifications .....	2D-1	Hub and Bearing Assembly without ABS .....	2D-8
Special Tools .....	2D-2	Hub and Bearing Assembly with ABS .....	2D-12
Special Tools Table .....	2D-2	Unit Repair .....	2D-13
Diagnosis .....	2D-2	Control Arm Bushings .....	2D-13
Excessive Friction Test .....	2D-2	Rear Axle without ABS .....	2D-15
Maintenance and Repair .....	2D-3	Rear Axle with ABS .....	2D-15
On-Vehicle Service .....	2D-3	General Description and System	
Wheel Bearing Adjustment .....	2D-3	Operation .....	2D-16
Shock Absorber .....	2D-3	Rear Suspension .....	2D-16
Stabilizer .....	2D-4		

## SPECIFICATIONS

### GENERAL SPECIFICATIONS

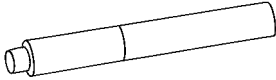
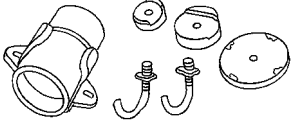
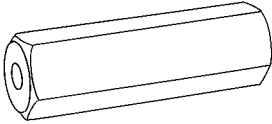
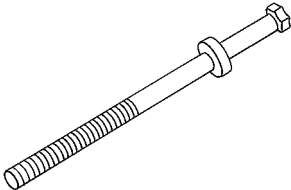
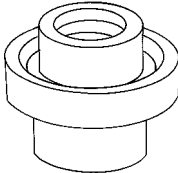
Application	Description
Shock Absorber Stud Thread Above Upper Mounting Nut	9.0 mm (0.36 in.)
Lubrication	Wheel Bearing Lubricant GM P/N 1051344

### FASTENER TIGHTENING SPECIFICATIONS

Application	N•m	Lb-Ft	Lb-In
Brake Anchor Plate-to-Rear Axle Arm Bolts	28	21	-
Rear Axle-to-Body Bracket Nuts	105	78	-
Shock Absorber-to-Axle Bolt	70	52	-
Stabilizer Shaft-at-Axle Nuts	80	59	-
Wheel Bearing Spindle Nut	25 - 180° + 2	18 - 180° + 1.5	-
Wheel Hub and Bearing Assembly Nuts	40 + 60° + 15°	30 + 60° + 15°	-

SPECIAL TOOLS

SPECIAL TOOLS TABLE

 A106D020	<b>KM-266-A Remover</b>	 A106D031	<b>J-29376-A, Rear Control Arm Bushing Service Set. Includes:</b> <ul style="list-style-type: none"><li>• J-29376-6A Rear Control Arm Bushing Remover/Installer</li><li>• J-29376-7 Rear Control Arm Bushings Plate</li><li>• J-29376-A Rear Control Arm Bushing Housing</li></ul>
 A106D029	<b>J-21474-18 Nut</b>		
 A106D030	<b>J-21474-19 Puller Bolt/ Thrust Washer</b>	 A106D028	<b>J-36791 Installer</b>

DIAGNOSIS

EXCESSIVE FRICTION TEST

Check excessive friction in the rear suspension as follows:

1. With the aid of a helper, lift up on the rear bumper and raise the vehicle as high as possible. Slowly release the bumper and allow the car to assume normal trim height.
2. Measure the distance from the floor to the center of the bumper.

3. Push down on the bumper, release slowly, and allow the car to assume normal trim height.
4. Measure the distance from the floor to the center of the bumper.

The difference between the two measurements should be less than 12.7 mm (0.50 inch). If the difference exceeds this limit, inspect the control arms for damage or wear.

## MAINTENANCE AND REPAIR

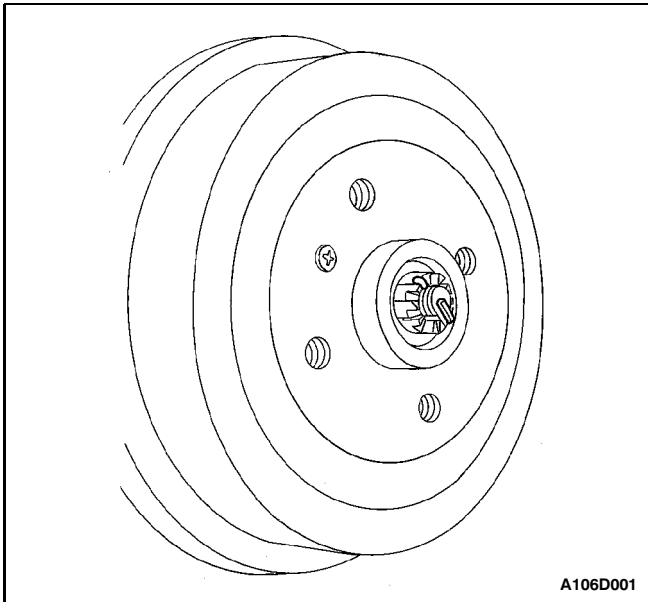
### ON-VEHICLE SERVICE

#### WHEEL BEARING ADJUSTMENT

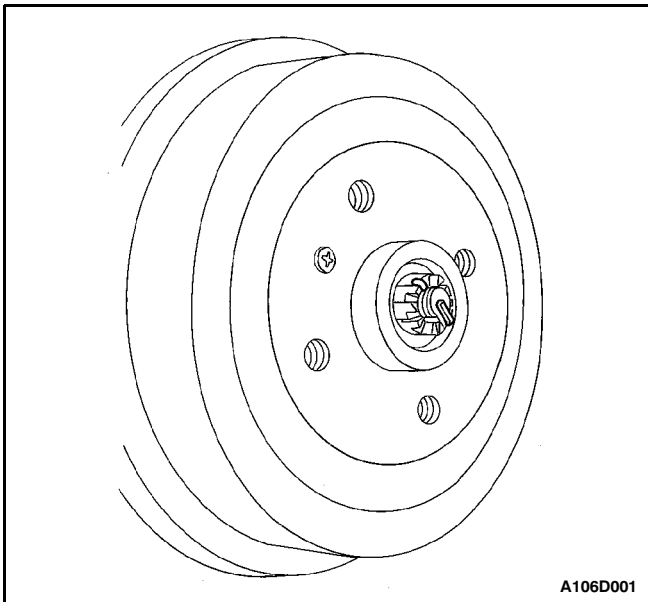
##### Adjustment Procedure

**Notice:** The wheel bearings can only be adjusted on cars without the anti-lock braking system.

1. Remove the dust cap from the hub and the cotter pin from the spindle.



A106D001



A106D001

##### Tighten

Tighten the wheel bearing spindle nut to 25 N•m (18 lb-ft) while turning the wheel assembly forward by hand to fully seat the bearings. This will remove any grease or burrs which could cause excessive wheel bearing play. Loosen the wheel bearing spindle nut 180 degrees. Tighten the wheel bearing spindle nut to 2 N•m (18 lb-in).

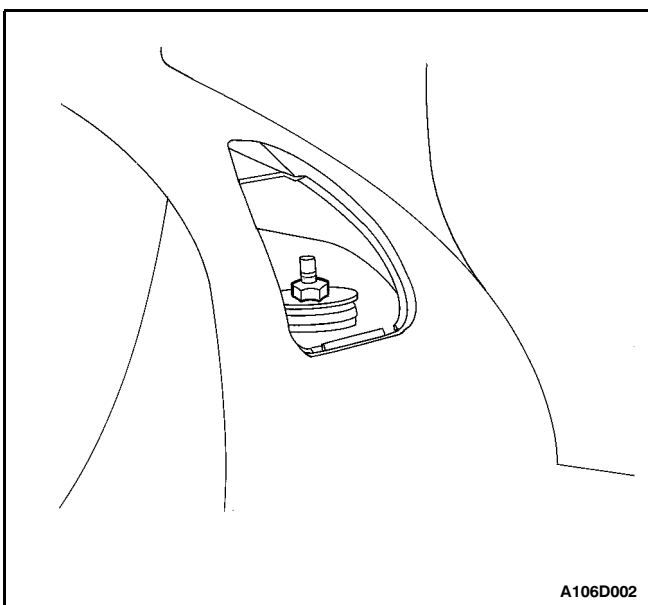
2. Install the new cotter pin and bend the ends.
3. Measure the end play. There will be from 0.03 to 0.13mm (0.001 to 0.005 inch) end play when properly adjusted.
4. Install the dust cap on the hub.

#### SHOCK ABSORBER

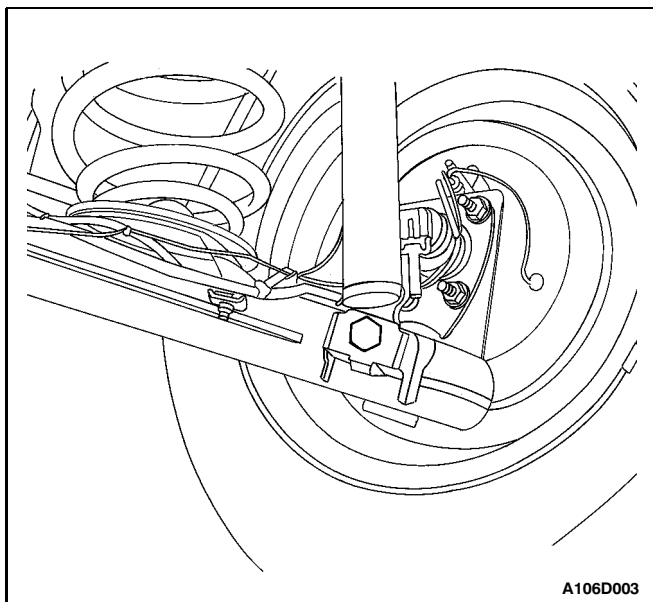
##### Removal Procedure

**Notice:** Remove only one shock at a time when both shocks are being replaced. Suspending the rear axle at full length can result in damage to brake lines and hoses.

1. Open the trunk and remove the section of the trim cover covering the upper mount nut.
2. Counterhold the threaded shock absorber shaft and remove the upper mounting nut.

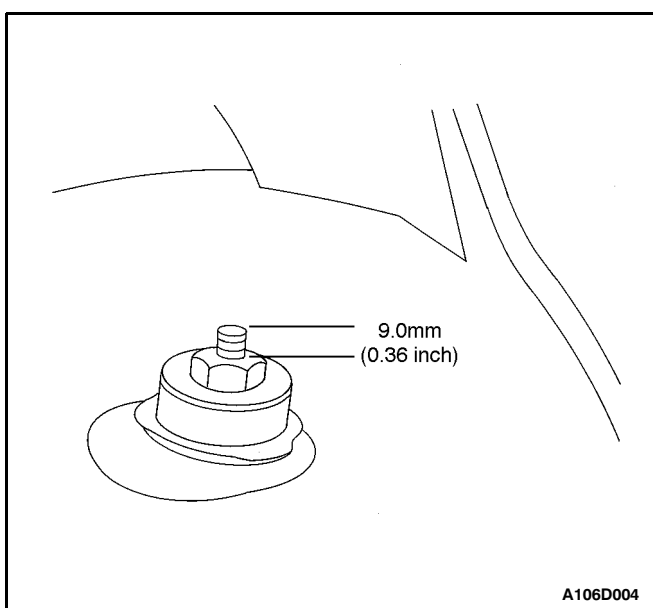


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**Important:** When lifting the vehicle with a body hoist, it will be necessary to support the rear axle with adjustable jack stands.

3. Raise the vehicle and support the rear axle assembly.
4. Remove the lower shock absorber-to-axle nut and the bolt. Remove the shock.



### Installation Procedure

**Important:** It will be necessary to bring the axle assembly to trim height prior to tightening the shock absorber attachment bolts.

1. Insert the lower shock absorber-to-axle bolt through the shock absorber lower attachment bracket and into the axle. Loosely attach the nut.
2. Lower the vehicle enough to guide the upper shock stud through the body opening and loosely install the attaching nut.

#### Tighten

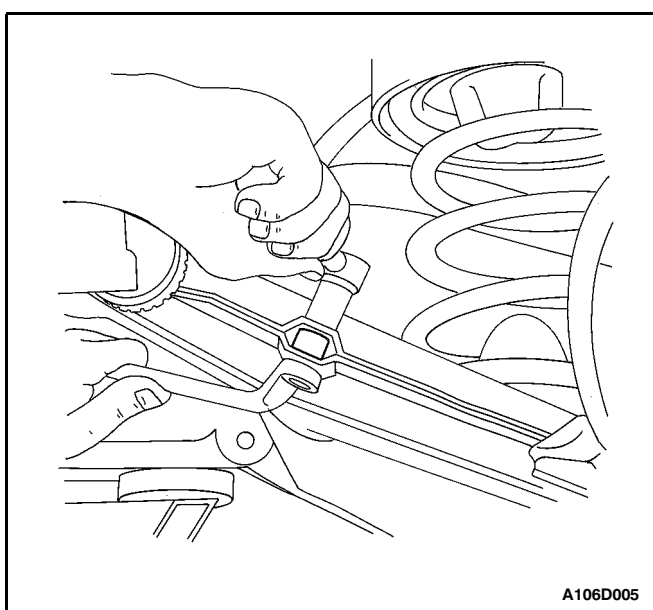
Tighten the lower shock absorber-to-axle bolt to 70 N•m (52 lb-ft).

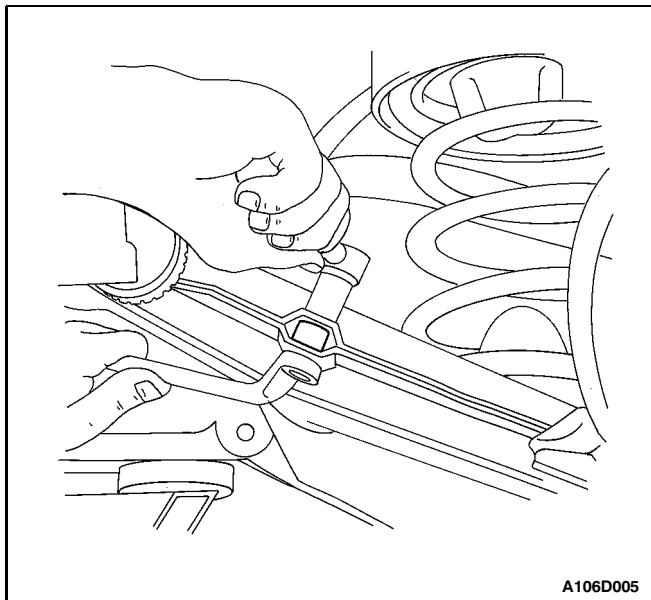
3. Remove the axle support, lower the vehicle all the way, and tighten the upper nut until 9.0 mm (0.36 inch) of thread is visible.
4. Replace the trim cover.

### STABILIZER

#### Removal Procedure

1. Raise and suitably support the vehicle.
2. Remove the rear wheel. Refer to Section 2E, Tires and Wheels.
3. Remove the nut, the washer, and the bolt at both sides of the axle.
4. Remove the insulator and the stabilizer shaft.
5. Pull the stabilizer toward the side of the car without the wheel.





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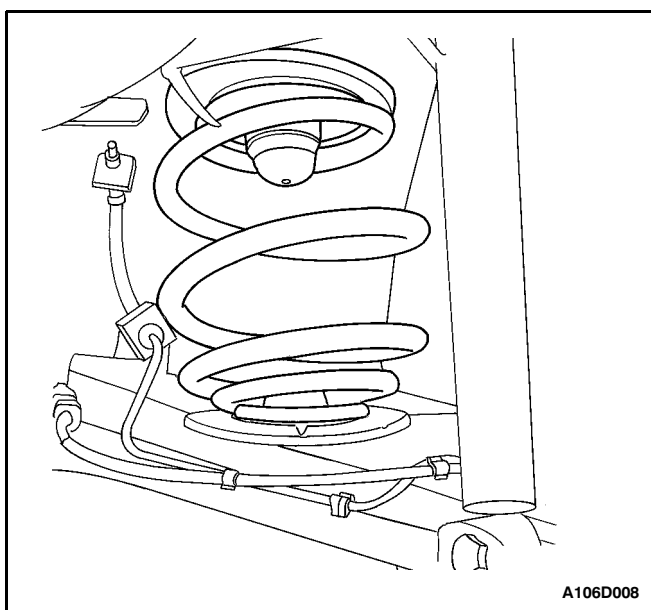
## Installation Procedure

1. Install the stabilizer shaft inside the axle.
2. Install the bolts with the washers through the control arms of the axle and the stabilizer shaft. Attach the nuts onto the bolts.

## Tighten

Tighten the stabilizer shaft-at-axle nuts to 80 N•m (59 lb-ft).

3. Coat the insulators with lubricant and insert them into the rear axle.
4. Replace the rear wheel. Refer to Section 2E, Tires and Wheels.
5. Lower the vehicle.



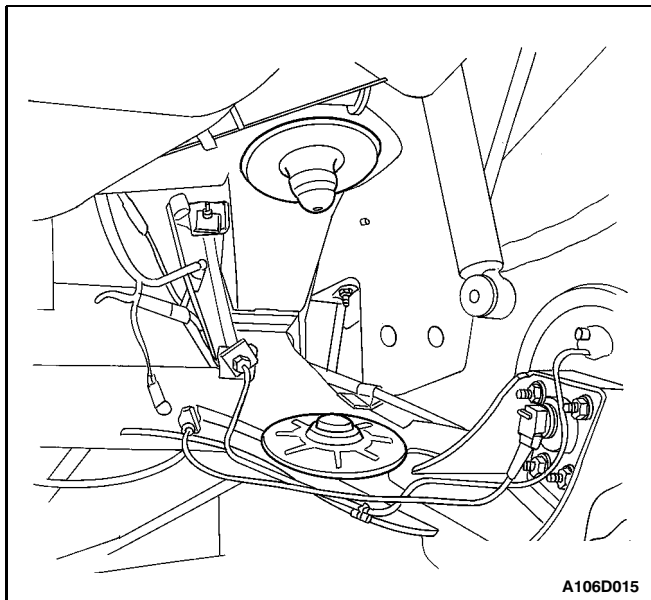
A106D008

## SPRINGS AND INSULATORS

**Caution:** When removing the rear springs, do not use a twin-post type hoist. The tendency of the rear axle assembly to swing when certain fasteners are removed may cause it to slip from the hoist. This may result in personal injury. Perform the operation on the floor if necessary.

## Removal Procedure

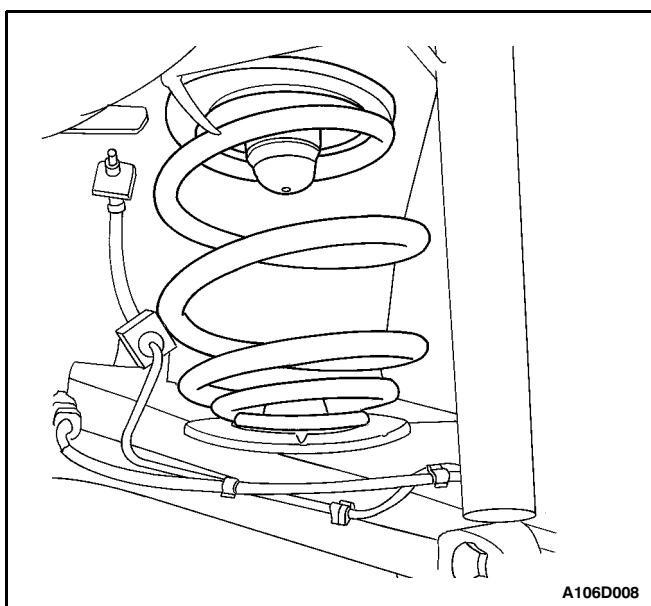
1. Raise and suitably support the vehicle. Use a frame contact hoist if possible and support the rear control arms with jack stands. If it becomes necessary to lift the vehicle with a twin-post hoist, lift the body and support the control arms with jack stands.
2. Remove the wheel. Refer to Section 2E, Tires and Wheels.
3. Remove the right and the left shock absorber bolts. Refer to "Shock Absorber" in this section.
4. Lower the rear axle and remove the springs and the top insulator.



### Installation Procedure

**Important:** Prior to installing the springs, it will be necessary to install the upper insulators to the body with adhesive to keep them in position while raising the axle assembly and the springs.

1. Install the upper insulator and seat the lower bumper.



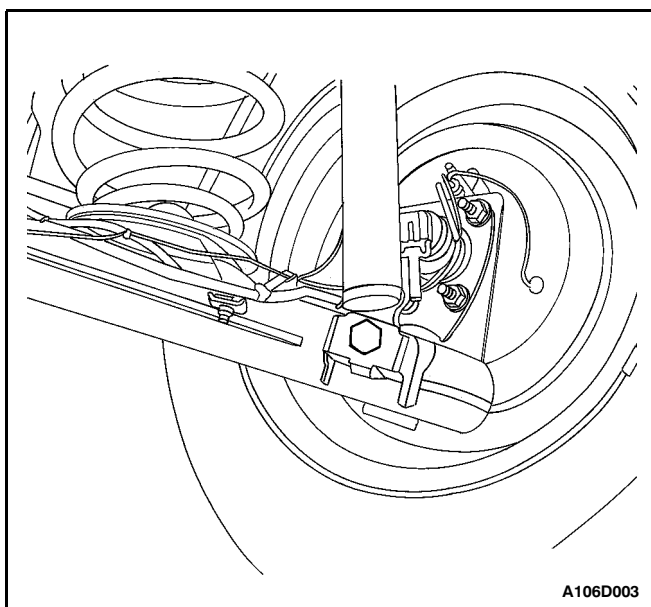
2. Install the springs and raise the axle.

3. Install the shock absorbers. Refer to "Shock Absorber" in this section.

**Important:** It will be necessary to bring the axle assembly to trim height prior to tightening the shock absorber attachment bolts.

4. Install the wheel. Refer to Section 2E, Tires and Wheels.

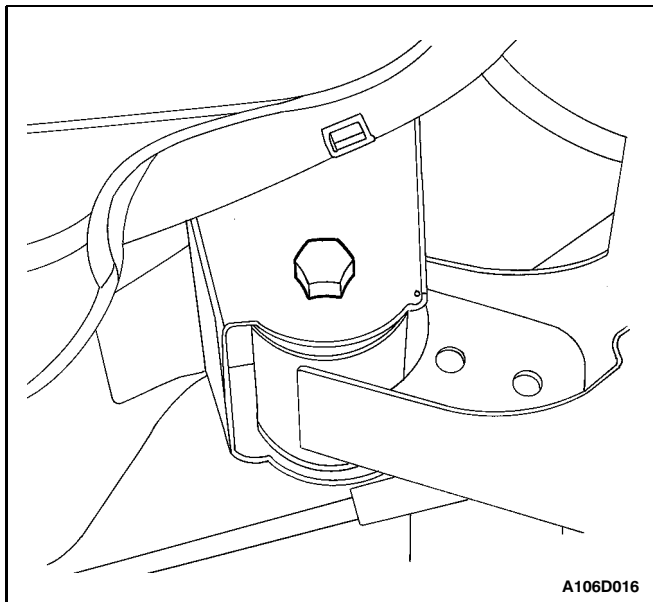
5. Remove the jack stands and lower the vehicle.



### REAR AXLE ASSEMBLY

#### Removal Procedure

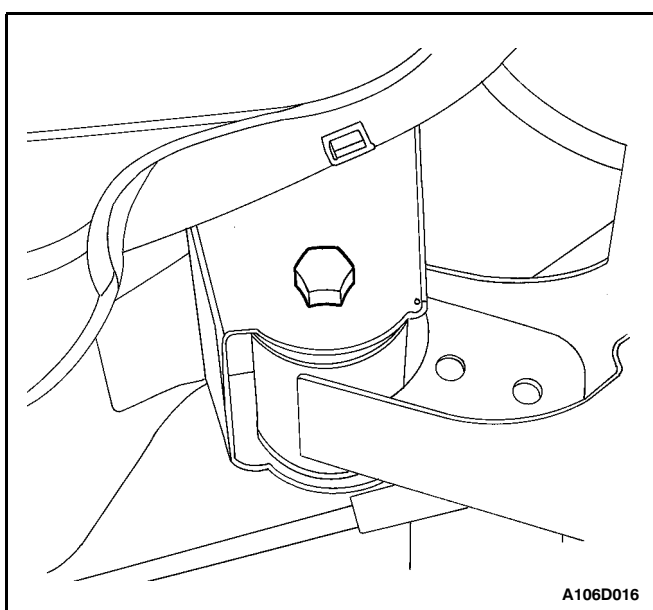
1. Raise and suitably support the vehicle.
2. Remove the rear wheels. Refer to Section 2E, Tires and Wheels.
3. Disconnect the parking brake. Refer to Section 4G, Parking Brake.
4. Disconnect the ABS sensor line.



5. Disconnect the brake pipes from the brake hoses at the rear axle brackets by removing the cap screws and the retaining clip. Cap or tape the brake hose openings to prevent entry of foreign matter. Unclip the brake hose from the rear axle brackets. Refer to Section 4E, Rear Drum Brakes.
6. Place support jacks under the arms of the rear axle and raise the rear axle arms slightly.
7. Remove the shock absorbers. Refer to "Shock Absorbers" in this section.
8. Lower the support jacks and remove the rear springs. Refer to "Springs and Insulators" in this section.
9. Remove the rear axle support bolts and nuts from the underbody. Pry the rear axle slightly with a screwdriver, if required.
10. Remove the rear axle.

### Installation Procedure

1. Raise the rear axle and loosely fasten it to the vehicle underbody mountings with the rear axle-to-body bracket nuts and bolts.
2. Install the rear springs and insulators. Refer to "Springs and Insulators" in this section.
3. Raise the rear axle arm with the support jacks. Attach the shock absorber to the axle with the lower attachment bolt. Refer to "Shock Absorbers" in this section.
4. Connect the brake pressure hoses into the bracket on the rear axle. Mount the retaining clips. Connect the brake pipes to the brake hoses. Bleed the brakes. Refer to Section 4E, Rear Drum Brakes.
5. Install the parking brake. Refer to Section 4G, Parking Brake.

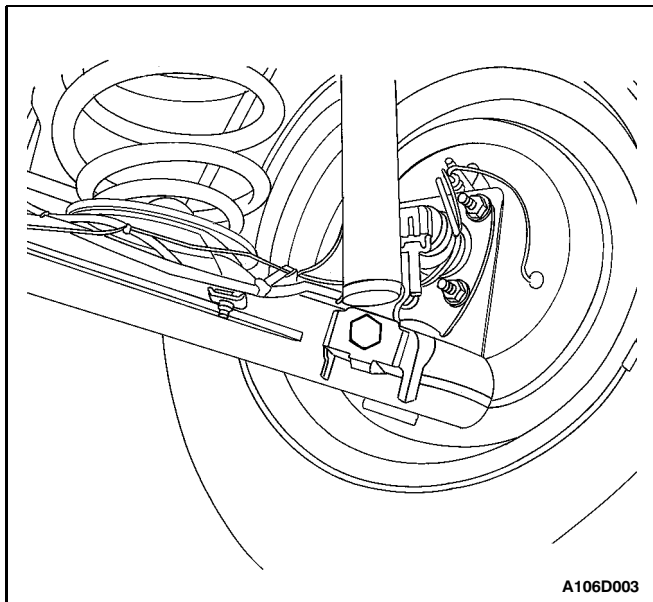


6. Lower the vehicle slightly and install the rear wheels. Refer to Section 2E, Tires and Wheels.
7. Adjust the wheel bearing (if applicable). Refer to "Wheel Bearing Adjustment" in this section.
8. At curb height, tighten the rear axle-to-body bracket nuts

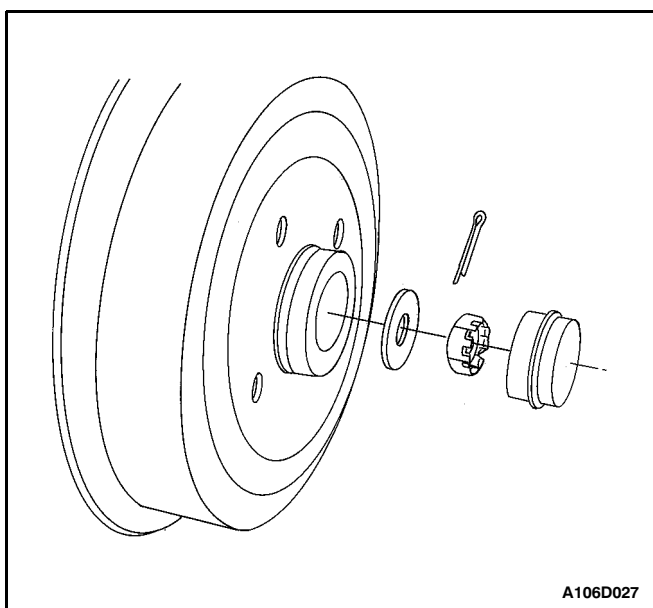
### Tighten

Tighten the rear axle-to-body bracket nuts to 105 N•m (78 lb-ft).

9. Adjust the rear wheel brakes. Bleed the brake system and check for leaks. Refer to Section 4E, Rear Drum Brakes.



10. Connect the ABS sensor line.
11. Adjust the parking brake. Refer to Section 4G, Parking Brake.
12. Lower the vehicle completely.



### HUB AND BEARING ASSEMBLY WITHOUT ABS

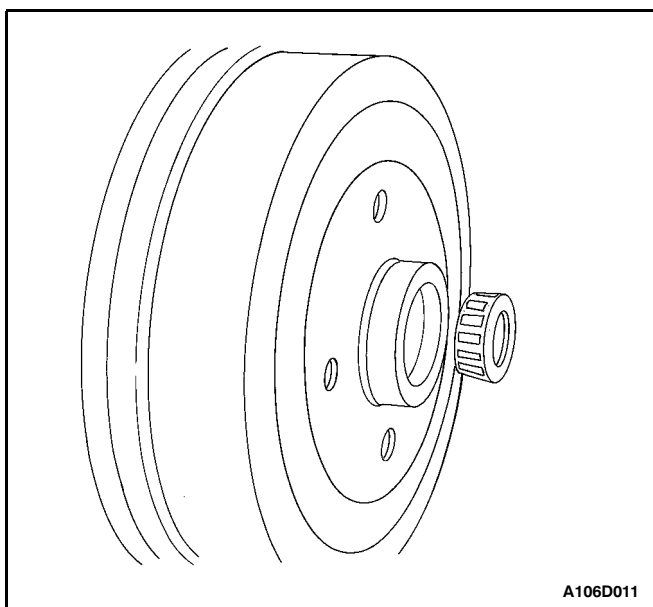
#### Tools Required

J-36791 Installer

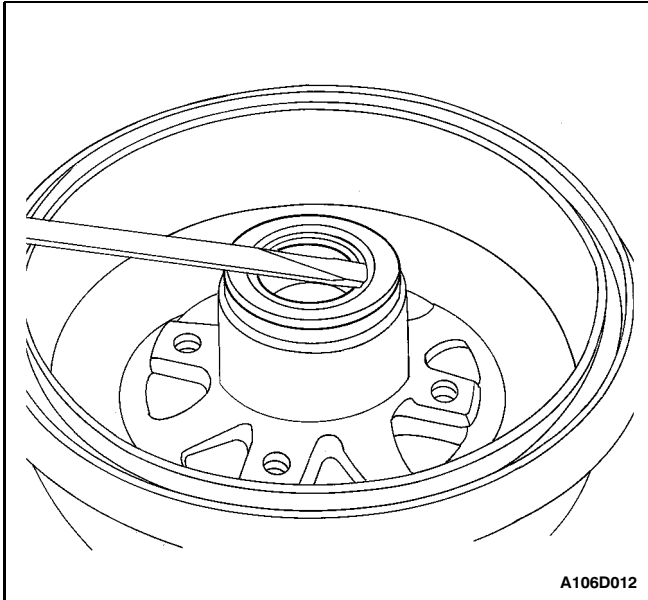
KM-266-A Installer

#### Removal Procedure

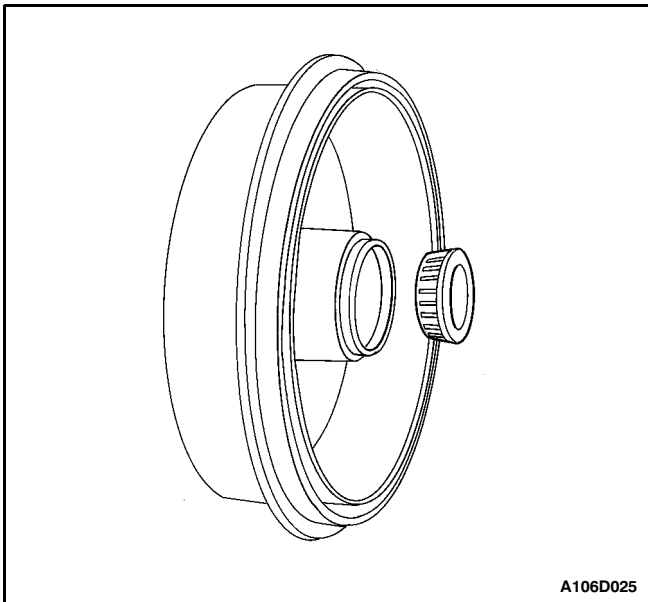
1. Raise and suitably support the vehicle.
2. Remove the wheel. Refer to Section 2E, Tires and Wheels.
3. Loosen the parking brake cable. Refer to Section 4G, Parking Brake.
4. Remove the dust cap, the cotter pin, the spindle nut and the lock washer.
5. Remove the wheel hub and the outer tapered roller bearing.



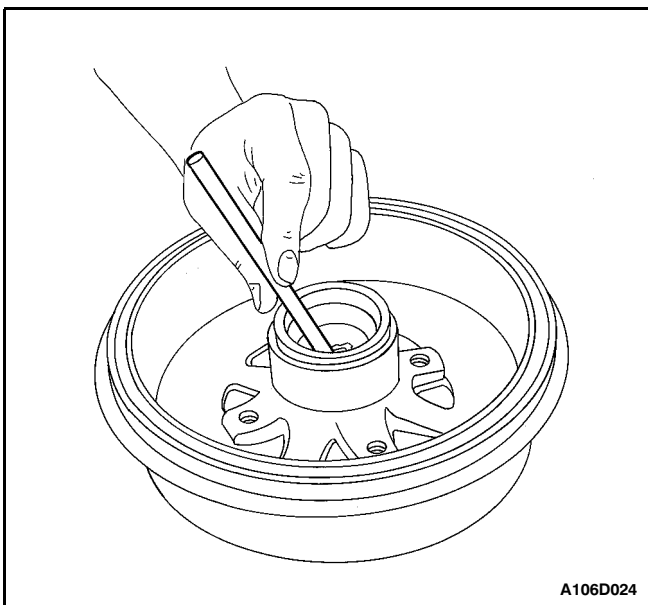




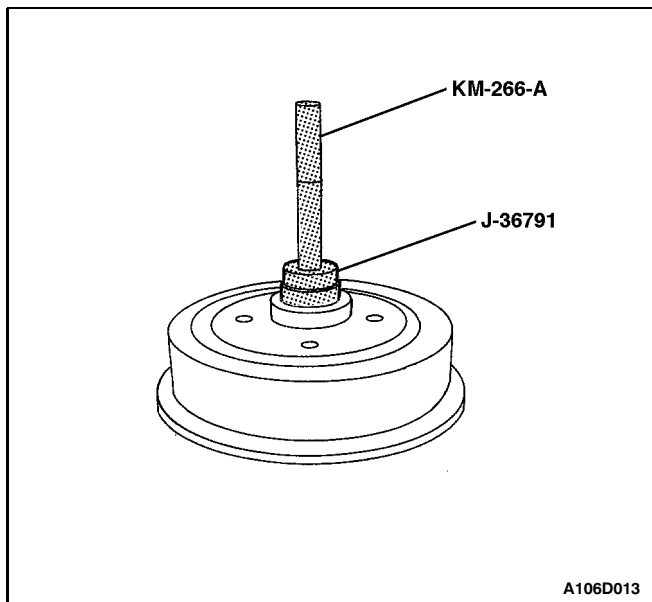
6. Pry the seal ring from the inside of the wheel hub with a screwdriver.



7. Remove the inner tapered roller bearing from the wheel hub.

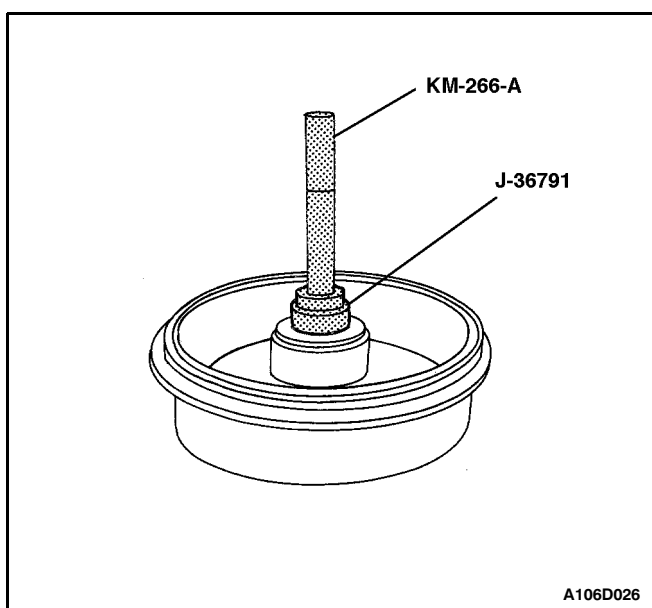


8. Remove the races of the inner and the outer bearings from the wheel hub using a drift.  
9. Clean the spindle and check it for damage.

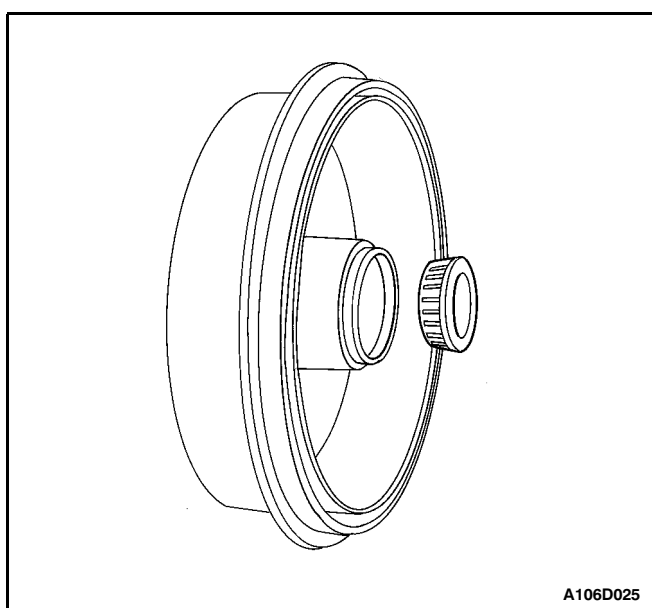


### Installation Procedure

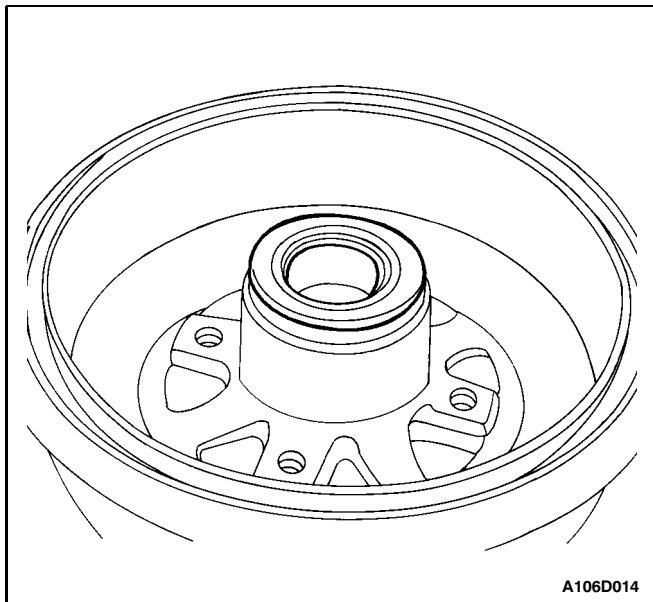
1. Press the outer race of the outer bearing into the wheel hub using installers J-36791 and KM-266-A.



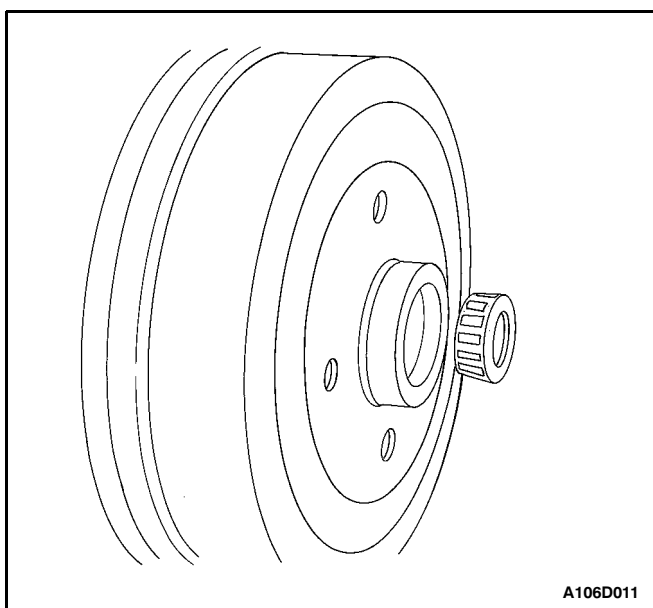
2. Press the outer race of the inner bearing into the wheel hub using installers J-36791 and KM-266-A.



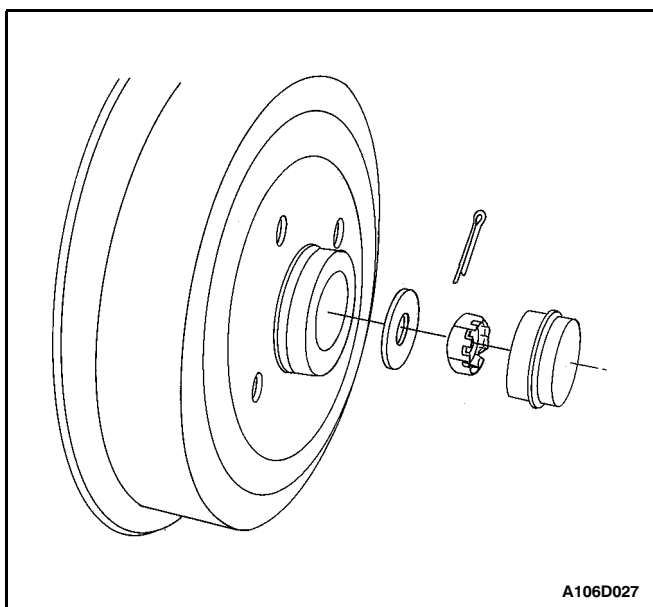
3. Install the inner tapered roller bearing.



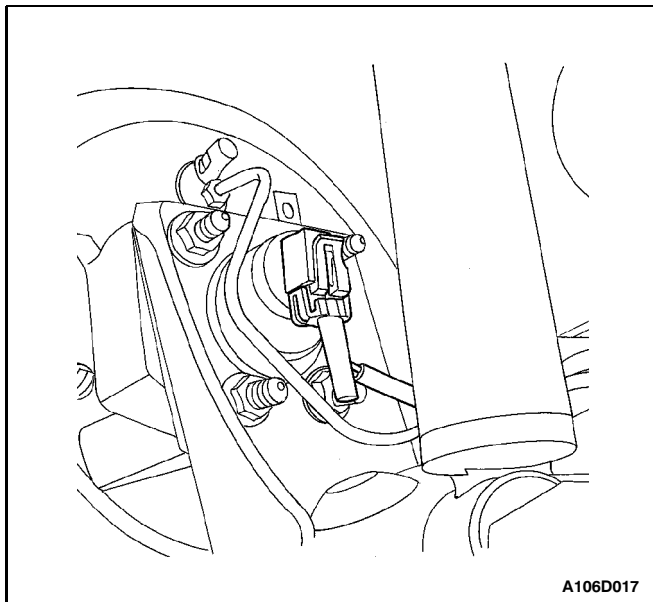
4. Coat or fill all the hollow spaces of both wheel bearings, the ring seal lip, and the wheel hub with anti-friction grease. Press the seal into the hub.



5. Install the hub and bearing assembly onto the rear axle spindle.



6. Install the lock washer and spindle nut. Hand tighten the spindle nut.
7. Install the brake drum detent screw. Refer to Section 4E, Rear Drum Brakes.
8. Mount the rear wheel. Refer to Section 2E, Tires and Wheels.
9. Adjust the wheel bearing. Refer to "Wheel Bearing Adjustment" in this section.
10. Adjust the parking brake. Refer to Section 4G, Parking Brake.
11. Install the dust cap.
12. Lower the vehicle.



### HUB AND BEARING ASSEMBLY WITH ABS

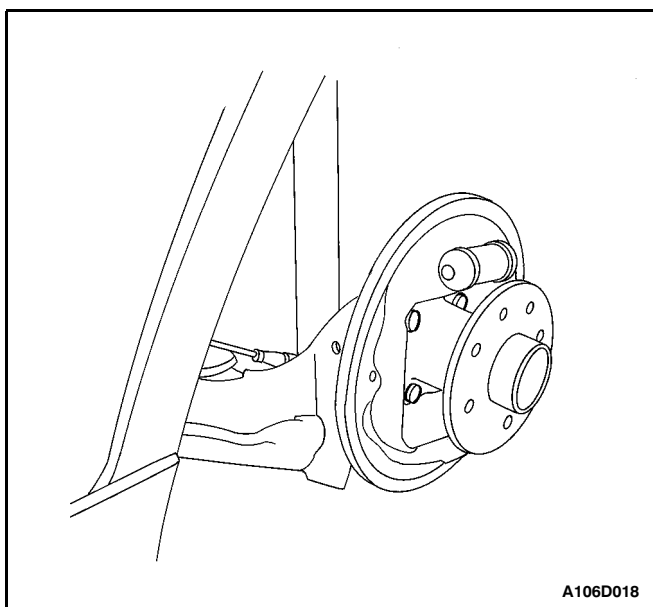
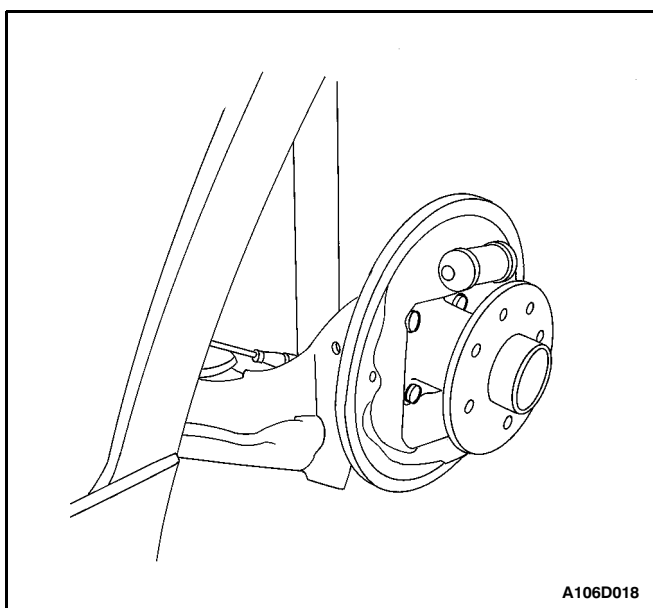
#### Removal Procedure

1. Raise and suitably support the vehicle.
2. Remove the wheel. Refer to Section 2E, Tires and Wheels.

**Notice:** Do not hammer on the brake drum. Damage to the bearing could result.

3. Remove the brake drum and the detent screw. Refer to Section 4E, Rear Drum Brakes.
4. Loosen the parking brake cable. Refer to Section 4G, Parking Brake.
5. Disconnect the ABS sensor line.

6. Remove the wheel hub and bearing assembly by removing the bolts and the nuts.



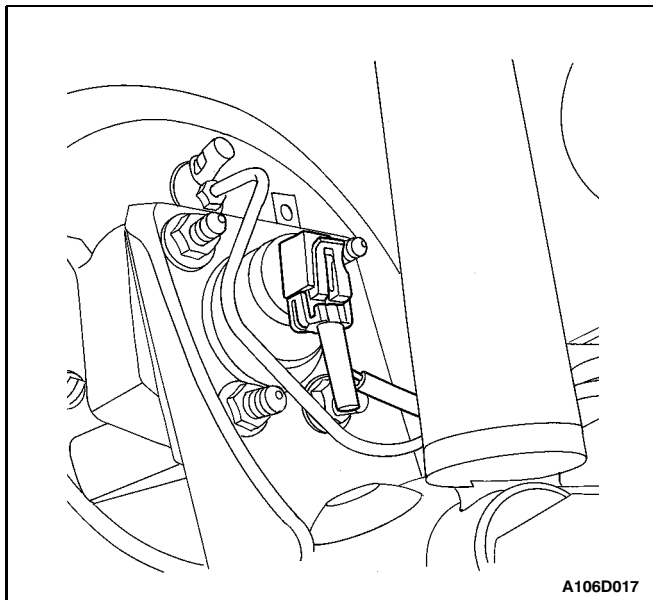
#### Installation Procedure

**Notice:** The wheel hub and bearing assembly is not to be serviced. The assembly must be replaced.

1. Install the wheel hub and bearing assembly with the bolts and the nuts.

#### Tighten

Tighten the wheel hub and bearing assembly nuts to 40 N·m (30 lb-ft). Turn the nut an additional 60 degrees followed by an additional 15 degrees.



2. Connect the ABS sensor line.
3. Install the brake drum and tighten the brake detent screw. Refer to Section 4E, Rear Drum Brakes.
4. Mount the rear wheel. Refer to Section 2E, Tires and Wheels.
5. Adjust the parking brake. Refer to Section 4G, Parking Brake.
6. Lower the vehicle.

## UNIT REPAIR

### CONTROL ARM BUSHINGS

#### Tools Required

KM-266-A Remover

J-21474-18 Nut

J-21474-19 Puller Bolt/Thrust Washer

J-29376-A Control Arm Bushing Housing

J-29376-6A Rear Control Arm Bushing Remover/Installer

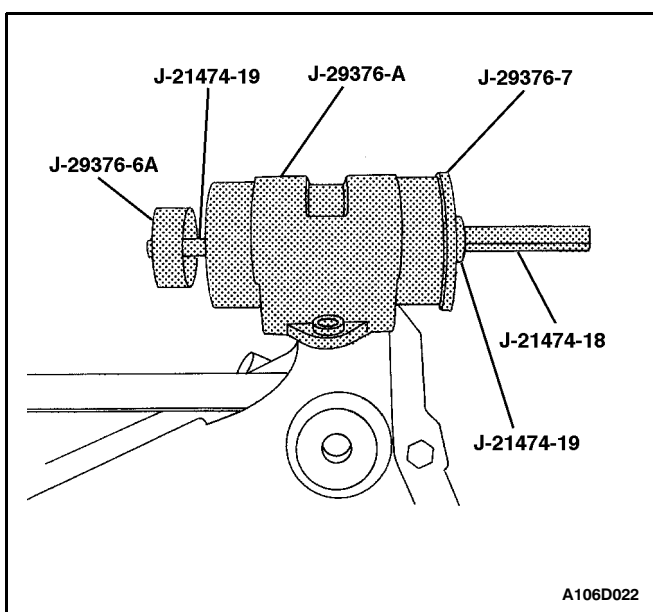
J-29376-7 Rear Control Arm Bushing Plate

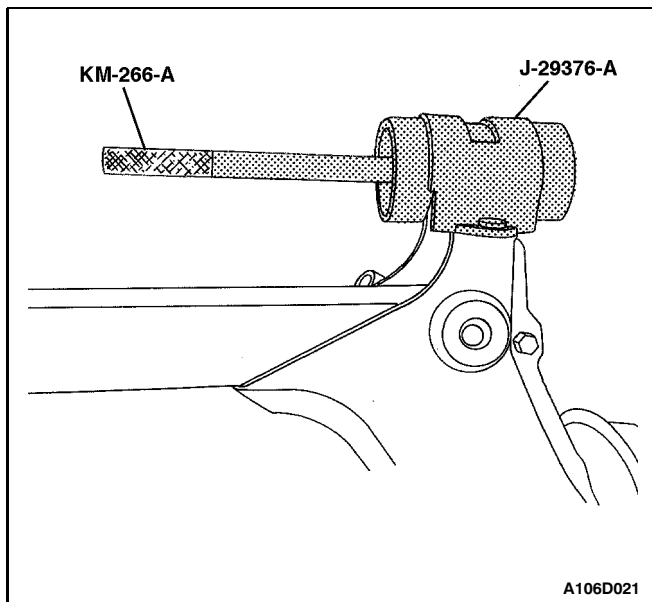
#### Disassembly Procedure

1. Raise and suitably support the vehicle.
2. Remove the rear axle and secure it to a workbench. Refer to "Rear Axle Assembly" in this section.

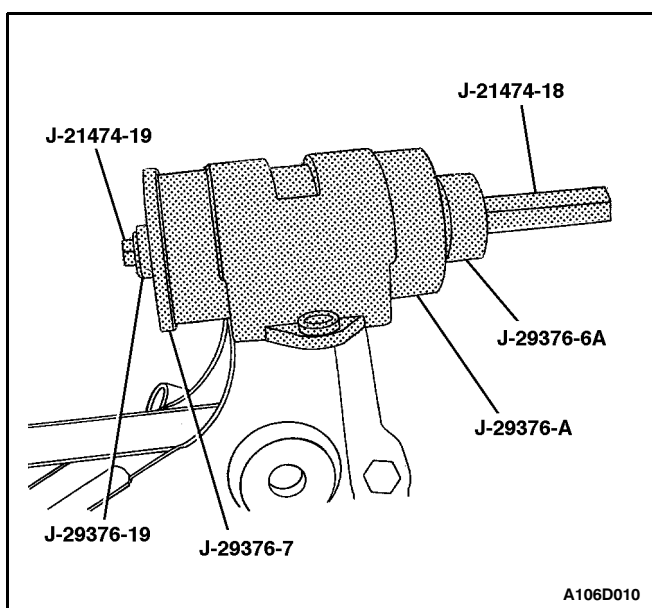
**Notice:** To facilitate removal of damping bushings, warm the rear axle in the area of the bushings to approximately 50 to 75°C (122 to 158°F) using an industrial hot air dryer.

3. Place the control arm bushing housing J-29376-A on the rear axle. Slide the puller bolt/thrust washer J-21474-19 through the control arm bushing remover/installer J-29376-6A, the rear control arm bushing, the control arm bushing plate J-29376-7 and into the nut J-21474-18.
4. Partially remove the rear axle bushing by turning the nut J-21474-18 and counterholding the puller bolt J-21474-19.



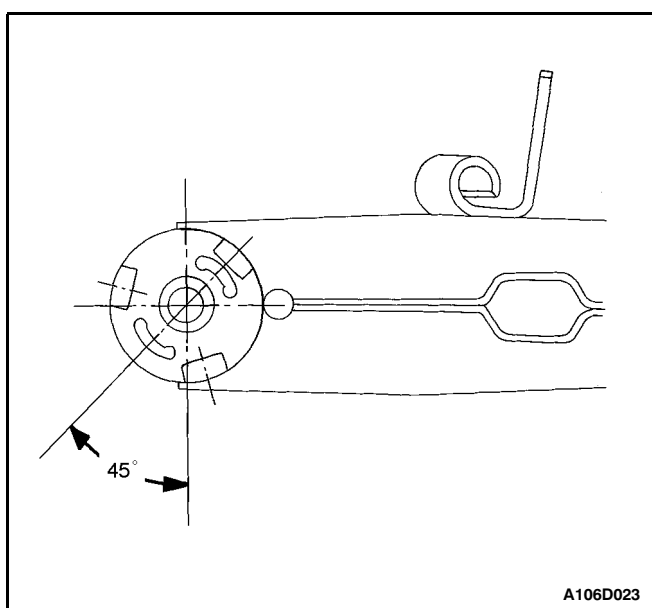


5. Remove the rear axle bushing completely by striking the control arm bushing remover/installer J-29376-6A with the remover KM-266-A.



### Assembly Procedure

1. Place the control arm bushing housing J-29376-A on the rear axle. Slide the puller bolt J-21474-19 through the thrust washer J-1474-19, the control arm bushing plate J-29376-7, the rear control arm bushing, the control arm bushing remover/installer J-29376-6A and into the nut J-21474-18.
2. Install the rear axle bushing by turning the nut J-21474-18 and counterholding the puller bolt J-21474-19.



3. Be sure the bushing angle is 40 to 50 degrees to the axis of the rear axle.
4. Install the rear axle. Refer to "Rear Axle Assembly" in this section.
5. Lower the vehicle.

## REAR AXLE WITHOUT ABS

### Disassembly Procedure

1. Remove the rear axle. Refer to "Rear Axle Assembly" in this section.
2. Remove the hub and bearing assembly. Remove the spindle from the rear axle. Refer to "Hub and Bearing Assembly Without ABS" in this section.
3. Remove the rear brake assembly. Refer to Section 4E, Rear Drum Brakes.
4. Remove the stabilizer shaft. Refer to "Stabilizer" in this section.
5. Remove the rear control arm bushings. Refer to "Control Arm Bushings" in this section.

### Assembly Procedure

1. Install the rear control arm bushings. Refer to "Control Arm Bushings" in this section.
2. Install the stabilizer shaft. Refer to "Stabilizer" in this section.
3. Install the rear brake assembly. Refer to Section 4E, Rear Drum Brakes.
4. Thinly coat the wheel spindle with antifriction bearing grease in the area of the brake anchor plate. Install the spindle and the hub and bearing assembly. Refer to "Hub and Bearing Assembly Without ABS" in this section.
5. Install the rear axle. Refer to "Rear Axle Assembly" in this section.
6. Adjust the wheel bearing. Refer to "Wheel Bearing Adjustment" in this section.

## REAR AXLE WITH ABS

### Disassembly Procedure

1. Remove the rear axle. Refer to "Rear Axle Assembly" in this section.
2. Remove the hub and bearing assembly. Refer to "Hub and Bearing Assembly" in this section.
3. Remove the rear brake assembly. Refer to Section 4E, Rear Drum Brakes.
4. Remove the stabilizer shaft. Refer to "Stabilizer" in this section.
5. Remove the rear control arm bushings. Refer to "Control Arm Bushings" in this section.

### Assembly Procedure

1. Install the rear control arm bushings. Refer to "Control Arm Bushings" in this section.
2. Insert the stabilizer shaft into new rear axle and screw the shaft into place. Refer to "Stabilizer" in this section.
3. Install the rear brake assembly. Refer to Section 4E, Rear Drum Brakes.
4. Install the hub and bearing assembly. Refer to "Hub and Bearing Assembly" in this section.
5. Install the rear axle. Refer to "Rear Axle Assembly with ABS" in this section.

## GENERAL DESCRIPTION AND SYSTEM OPERATION

### REAR SUSPENSION

#### General Description

The rear suspension consists of an axle with trailing arms and a twisting cross beam, two coil springs, two shock absorbers, two upper spring insulators, and two spring compression bumper. The axle support assembly attaches to the underbody through a rubber bushing lo-

cated at the front of each of the control arms. The brackets are integral with the underbody side rails. The axle structure maintains the relationship of the wheels to the body. A serviceable stabilizer shaft, incorporated with the axle beam, attaches to each of the control arms.

Each coil spring is retained between a seat in the underbody and a seat welded to the top of the rear axle control arm. The coil spring lower end rests on a compression bumper in the welded bracket on top of the rear axle, while a rubber insulator is used to isolate the coil spring upper end from the vehicle underbody seat.