

# AXLE SHAFTS - FRONT

1998 Pontiac Bonneville

1998-99 DRIVE AXLES  
FWD Axle Shafts - Cars - "C", "G" & "H" Bodies  
GM

Aurora, Bonneville, Eighty Eight, LeSabre, LSS, Park Avenue,  
Regency, Riviera

## MODEL IDENTIFICATION

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Body Code (1)	Model
C .....	Park Avenue
G .....	Aurora & Riviera
H .....	Bonneville, Eighty Eight, LeSabre, LSS & Regency

(1) - Vehicle body code is fourth character of VIN.

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## DESCRIPTION & OPERATION

Power is transferred to drive wheels by 2 axle shafts. Axle shafts have inner and outer Constant Velocity (CV) joints. Inner CV joint is a tripot/free-motion or cross-groove type joint that can slide in and out. Outer joint is a Rzeppa type that is flexible but does not move in and out. Axle shafts, except left inner axle shaft on A/T models, use a male splined end which interlocks with transaxle gears and is held in place by a circlip.

Left inner axle shaft on A/T models uses a female splined end and interlocks with protruding stub shaft. Some models use an intermediate shaft between axle shaft and transaxle. Models with Anti-Lock Brake System (ABS) have a toothed exciter ring on outer CV joint housing.

All models use tripot/free-motion type inner joint.

## TROUBLE SHOOTING

NOTE: See appropriate table in TROUBLE SHOOTING article in GENERAL INFORMATION.

## REMOVAL & INSTALLATION

**\* PLEASE READ THIS FIRST \***

CAUTION: When battery is disconnected, vehicle computer and memory systems may lose memory data. Driveability problems may exist until computer systems have completed a relearn cycle. See COMPUTER RELEARN PROCEDURES article in GENERAL INFORMATION before disconnecting battery.

## HUB & BEARING ASSEMBLY

NOTE: Hub and bearing must be replaced as an assembly.

Removal

1) Raise and support vehicle. Remove wheel. Clean and

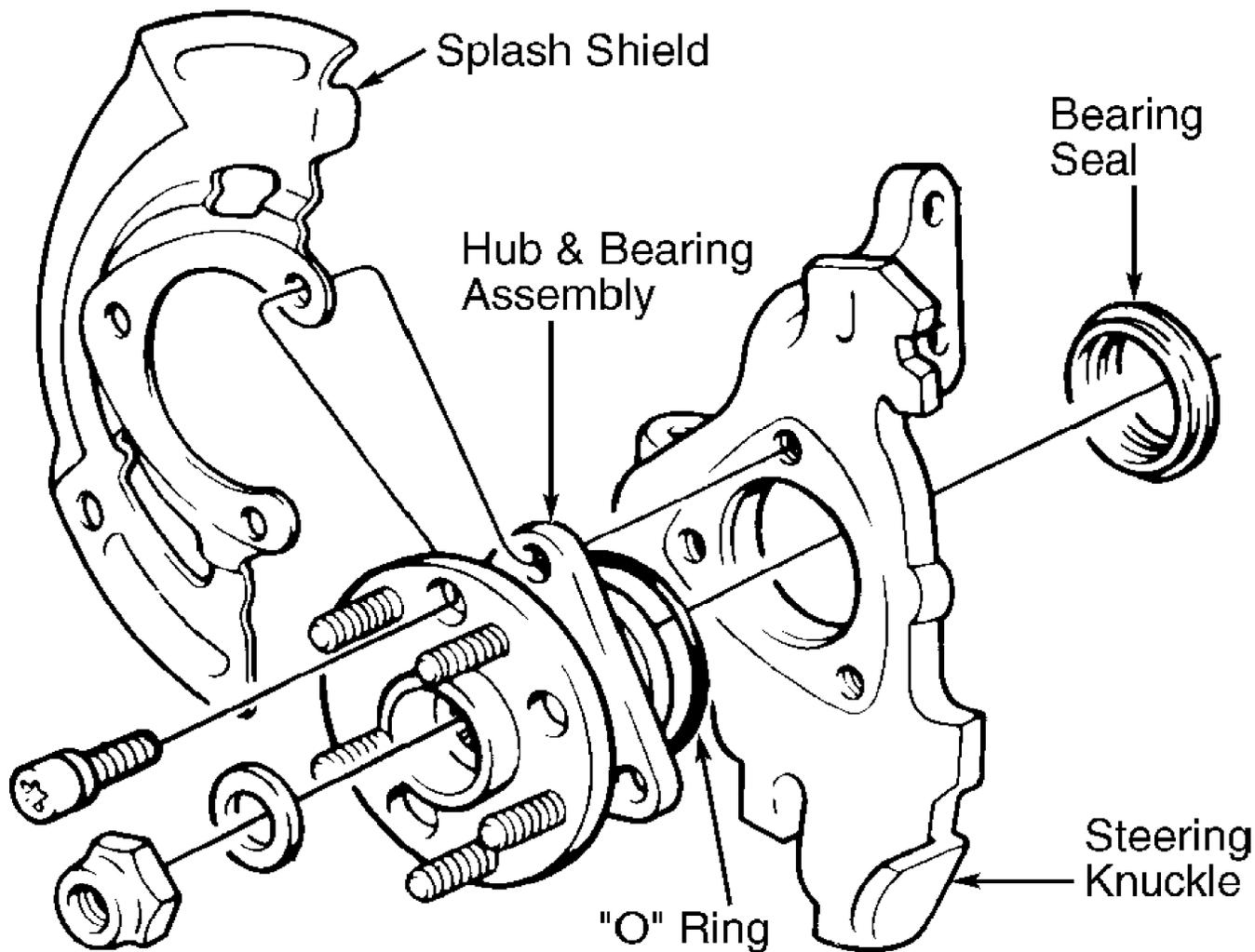
lubricate axle threads. Insert drift in brake rotor to prevent it from turning. Remove axle shaft nut and washer.

2) Remove caliper and wire aside. Remove rotor. Disconnect ABS speed sensor connector and sensor from dust shield. Remove bolts, splash shield, and hub and bearing assembly. See Fig. 1.

3) Place transaxle in Park. Use Front Hub Spindle Remover (J-28733-B) to force axle away from hub. See Fig. 2. Turn screw on remover until axle splines are just loose. Remove hub and bearing assembly.

#### Installation

To install, reverse removal procedure. See Fig. 1. Apply a light coat of grease to knuckle bore. Remove protective plastic cover (if equipped) and install hub and bearing assembly. Place transaxle in Neutral. Install and tighten hub and bearing assembly bolts to specification. See TORQUE SPECIFICATIONS table.



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Fig. 1: Exploded View Of Hub & Bearing Assembly (Typical)  
Courtesy of General Motors Corp.

**CAUTION:** Protect CV joint boots to prevent damage. Keep axle shaft straight during removal and installation.

#### Removal

1) Raise and support vehicle. Remove wheel. Install shop towels underneath outer CV joint boot to protect it from sharp edges.

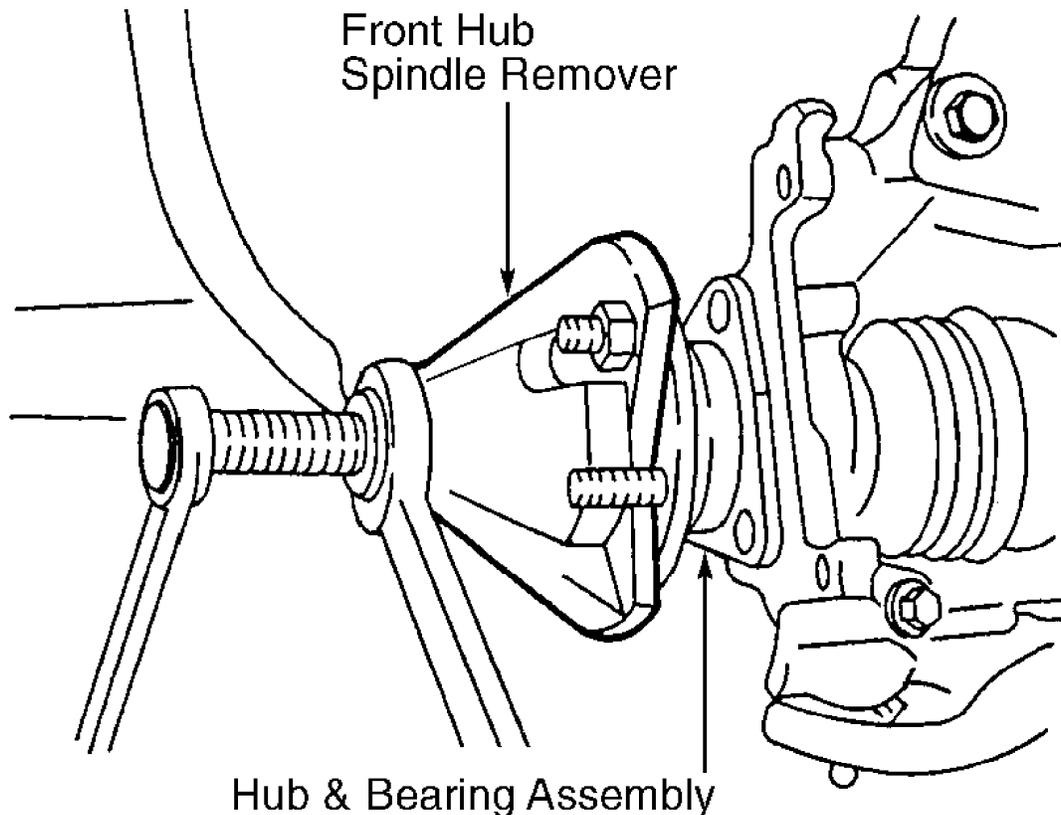
2) Loosen or remove stabilizer shaft link assembly bolt. Insert drift in brake rotor to prevent it from turning. Remove axle shaft nut and washer.

3) Remove bolt/nut attaching ball joint to steering knuckle. Use Ball Joint Separator (J-36226) to free ball joint from knuckle. Separate ball joint by prying down on control arm. Use Front Hub Spindle Remover (J-28733) to force axle away from hub. See Fig. 2. Turn screw on remover until axle splines are just loose.

4) Pull knuckle assembly away from axle shaft. Position knuckle assembly to rear. Using slide hammer and Axle Shaft Remover (J-33008), remove FWD axle shaft from transaxle or intermediate shaft. See Fig. 3.

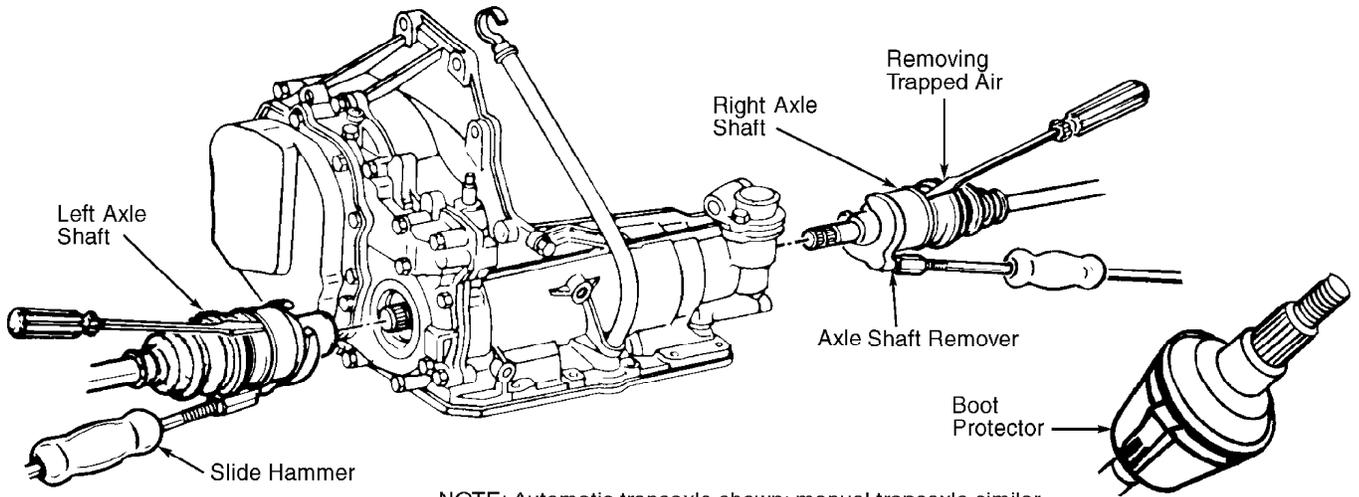
#### Installation

To install, reverse removal procedure. Place Axle Seal Protector (J-37292-B) to right side of transaxle, with handle between 5 and 7 o'clock position, so protector can be pulled out after axle shaft is installed. See Fig. 4. Remove and discard seal protector. Ensure no pieces of protector are left inside transaxle.



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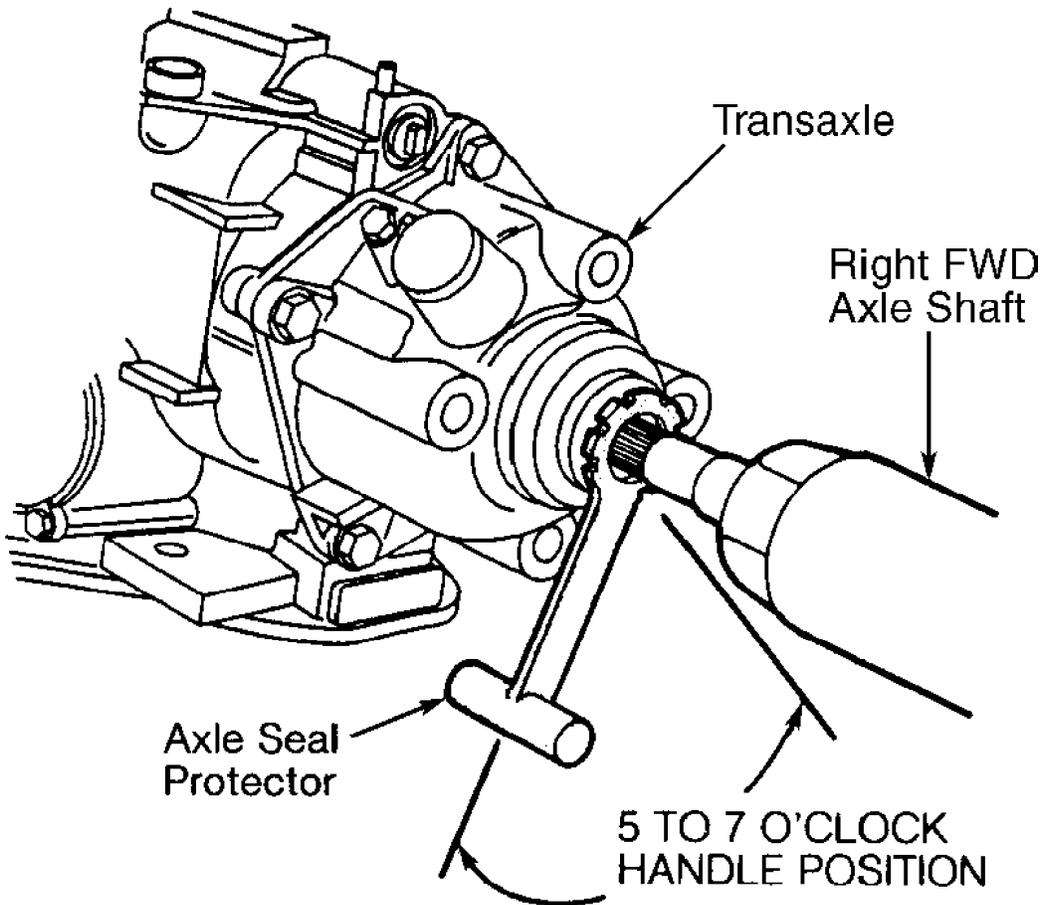
Fig. 2: Removing FWD Axle Shaft  
Courtesy of General Motors Corp.



NOTE: Automatic transaxle shown; manual transaxle similar.

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Fig. 3: Removing Axle Shaft From Transaxle  
 Courtesy of General Motors Corp.



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Fig. 4: Installing Axle Seal Protector  
 Courtesy of General Motors Corp.

**OVERHAUL**

## FWD AXLE SHAFTS

NOTE: On models with ABS, protect toothed exciter ring on outer CV joint.

### Disassembly (Tripot Type)

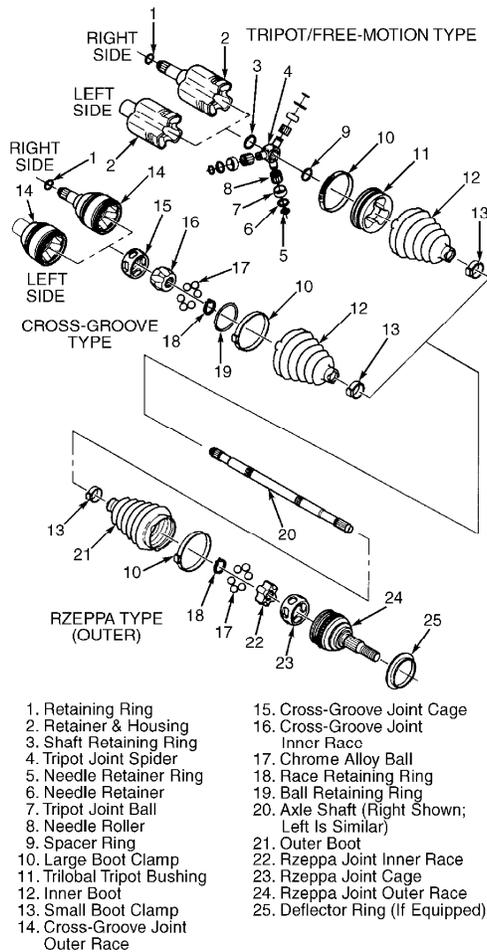
1) Place axle shaft in vise with protective jaws. Cut boot clamps and remove. See Fig. 5. Slide boot away from CV joint. Mark CV joint-to-housing position for reassembly reference. Pull CV joint housing off tripot/axle assembly.

2) Slide spacer ring back away from tripot joint, and slide tripot away from retaining ring. Remove tripot retaining ring. Mark tripot-to-axle shaft position for installation reference. Slide tripot off axle shaft. Remove spacer ring. Remove boot (if replacing).

WARNING: Wear safety glasses when using compressed air to dry parts.

### Inspection

Wash all parts (except boots) in solvent and dry with compressed air. Wash boots with soap and water. Inspect races for excessive wear and scoring. Inspect splined areas of shafts for wear, cracks and twists. Inspect balls for pitting, cracking or scoring. Check for cracks, chips or heavy dents on cage windows.



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Fig. 5: Exploded View Of FWD Axle (Tripot/Free-Motion, Cross-Groove & Rzeppa Type CV Joints)

Courtesy of General Motors Corp.

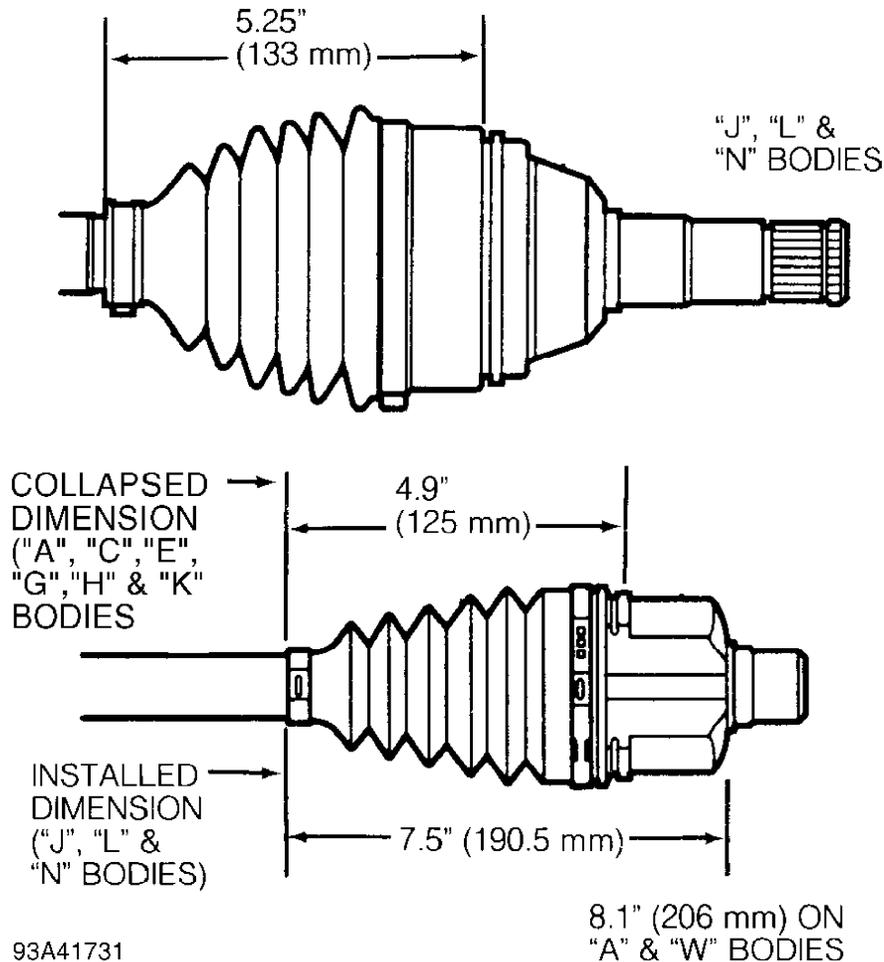
Reassembly

1) Pack CV joint housing with approximately one-half amount of grease supplied in rebuild kit. Apply remaining grease in boot. Install small clamp and boot on axle shaft (if removed). Slide spacer ring on axle shaft past groove. Slide tripod onto axle shaft. Install tripod in original location (marked during disassembly).

2) Install tripod retaining snap ring. Slide tripod against snap ring, and install spacer ring in groove. Slide CV joint housing on tripod assembly. Position boot over housing. Remove trapped air using a blunt screwdriver to lift large end of boot off sealed area. See Fig. 3.

3) Measure length of boot. See Fig. 6. Ensure length is as specified before clamping boots. Move CV joint housing in or out as necessary. When length is within specification, position clamps on boot.

4) Use Boot Clamp Installer (J-35910) and torque wrench to install boot clamps. Tighten boot clamps to specification. See TORQUE SPECIFICATIONS table. Recheck boot length. To complete reassembly, reverse disassembly procedure.



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Fig. 6: Measuring Inner CV Boot Length  
Courtesy of General Motors Corp.

NOTE: Due to complexity of cross-groove type joint construction, disassembly of joint chrome alloy balls and races is not

recommended. Replace joint as a complete assembly.

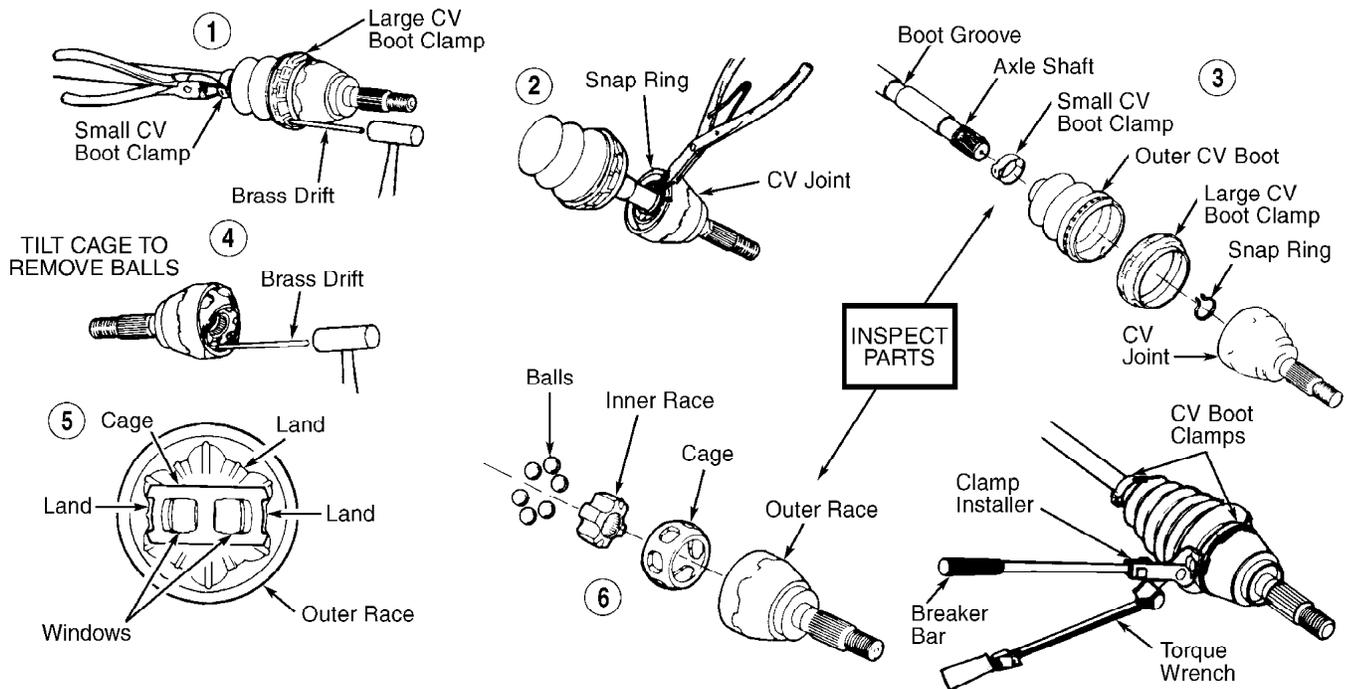
#### Disassembly (Rzeppa Type Outer CV Joints)

1) Place axle shaft in vise with protective jaws. Cut and remove boot clamps. Slide boot away from CV joint assembly.

2) Remove CV joint-to-axle shaft snap ring. Pull CV joint and housing assembly off axle shaft. Remove boot (if replacing). Using a brass drift and hammer, gently tap on cage until tilted enough to remove first ball. See Fig. 7.

3) Repeat procedure for remaining balls. Pivot cage and inner race. Align cage windows with lands of outer race. See Fig. 7. Remove inner race and cage. Rotate inner race, and align land with cage window. Remove inner race.

4) Remove steel deflector ring from end of stub shaft using hammer and brass drift. Remove rubber deflector ring by stretching ring out of its groove.



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Fig. 7: Disassembling Outer CV Joint (Rzeppa Type)  
Courtesy of General Motors Corp.

#### Reassembly

1) Apply light coat of grease on all mating surfaces. Install small boot clamp and boot on axle shaft. To reassemble inner race, cage and balls, reverse disassembly procedure. See Fig. 7. Ensure retaining ring side of inner race faces axle shaft.

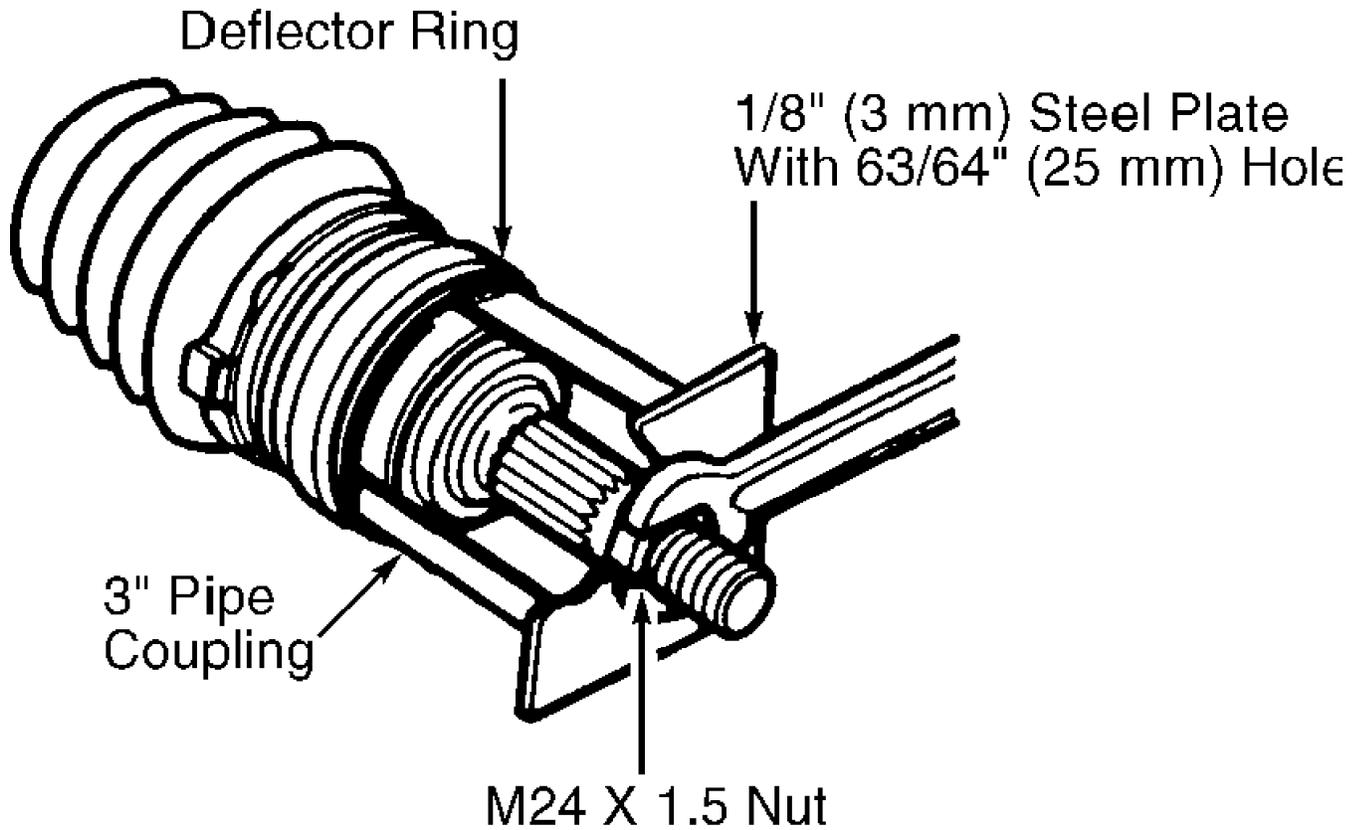
2) Pack CV joint with one-half amount of grease supplied in rebuild kit. Spread remaining grease evenly in boot. Install NEW retaining ring in CV joint. Slide CV joint assembly onto axle shaft. Ensure retaining ring seats in groove on axle shaft. Position large end of boot over housing, and install boot clamp.

3) Use Boot Clamp Installer (J-35910) and torque wrench to install boot clamps. Tighten boot clamps to specification. See TORQUE SPECIFICATIONS table.

4) Install NEW steel deflector ring (if equipped) with flange toward CV joint. See Fig. 8. Tighten nut until deflector bottoms against shoulder of CV joint outer race.

5) Install rubber deflector rings (flange toward hub

assembly) by stretching ring over housing and seating in groove. To complete reassembly, reverse disassembly procedure.



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Fig. 8: Installing Steel Deflector Ring  
 Courtesy of General Motors Corp.

**TORQUE SPECIFICATIONS**

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Application	Ft. Lbs. (N.m)
Axle Shaft Hub Nut	107 (145)
Ball Joint-To-Steering Knuckle Nut	(1)
Brake Caliper Bolt	
Except "H" Body	63 (85)
"H" Body	38 (52)
CV Boot Clamp	
Large Boot Clamp	130 (176)
Small Boot Clamp	130 (176)
Hub & Bearing Assembly Bolts	70 (95)
Stabilizer Shaft Link Bolt	13 (18)
Wheel Lug Nut	100 (136)

(1) - Tighten to 89 INCH lbs. (10 N.m), then turn nut additional 120 degrees (2 flats). Minimum torque of 41 ft. lbs. (56 N.m) must be obtained. To align cotter pin slot, tighten nut up to one more flat.

