

## 1991 Mazda MX-5 Miata

1990-93 DRIVE AXLES Axle Shafts - MX-5 Miata

### 1990-93 DRIVE AXLES

#### Axle Shafts - MX-5 Miata

## DESCRIPTION

The axle shaft is a double offset, constant velocity joint type.

## TROUBLE SHOOTING

**NOTE:** See **TROUBLE SHOOTING - BASIC PROCEDURES** article in **GENERAL INFORMATION**.

Check dust boot on axle shaft for cracks, damage, leaking grease, and loose boot bands. Check axle shaft for bending, cracks, and wear of joints or splines. Repair or replace axle shaft if necessary.

## REMOVAL & INSTALLATION

### AXLE SHAFTS

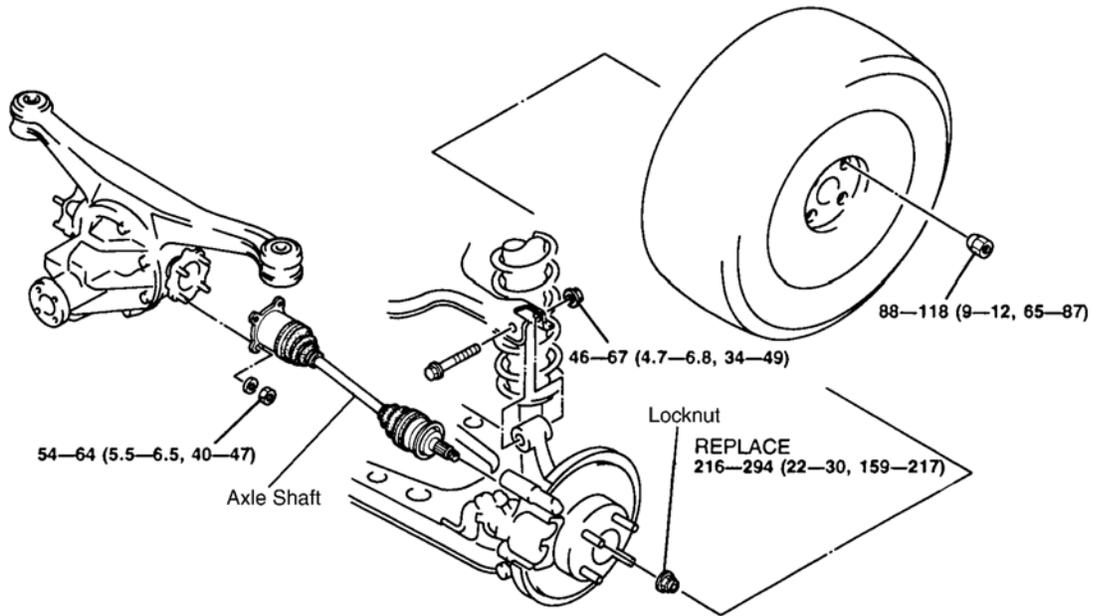
#### Removal

1. Raise vehicle and support with safety stands. Remove wheel and tire assembly. See **Fig. 1** . Loosen axle shaft lock nut until flush with end of axle shaft. Mark differential and axle shaft flanges for installation reference. See **Fig. 2** . Remove axle shaft flange nuts.

**NOTE:** **Manufacturer recommends using new axle shaft lock nut during installation.**

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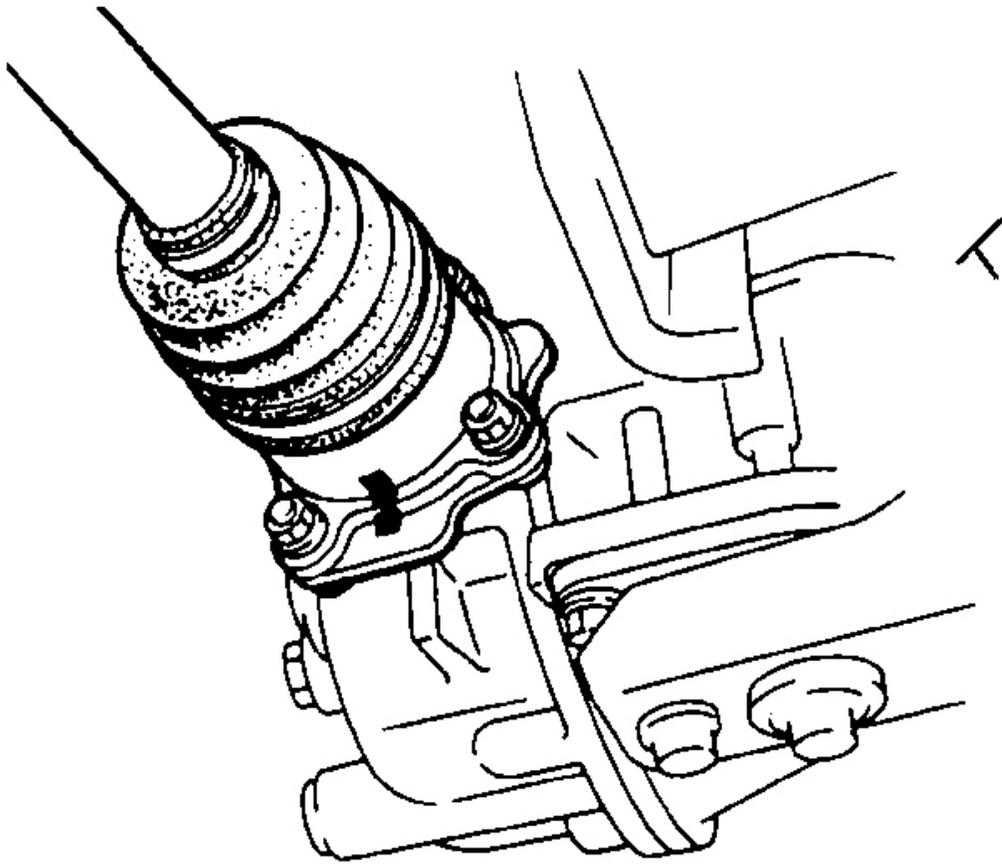


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**Fig. 1: Removing Axle Shaft**  
Courtesy of MAZDA MOTORS CORP.

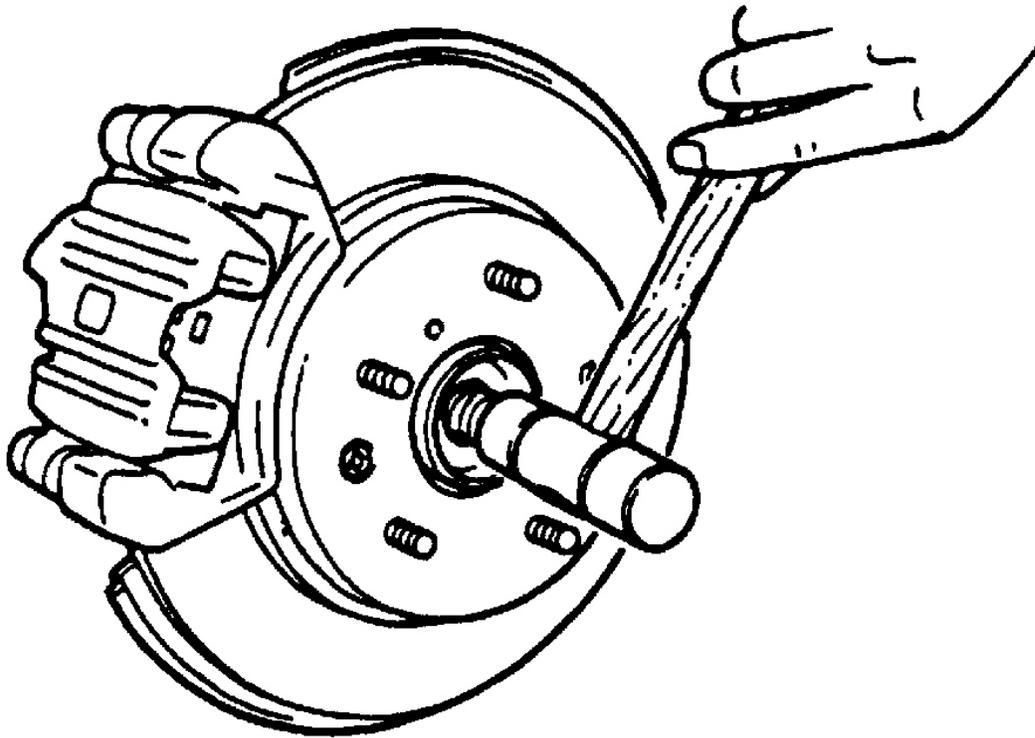
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**Fig. 2: Identifying Differential-To-Axle Shaft Flange Mark**  
Courtesy of MAZDA MOTORS CORP.



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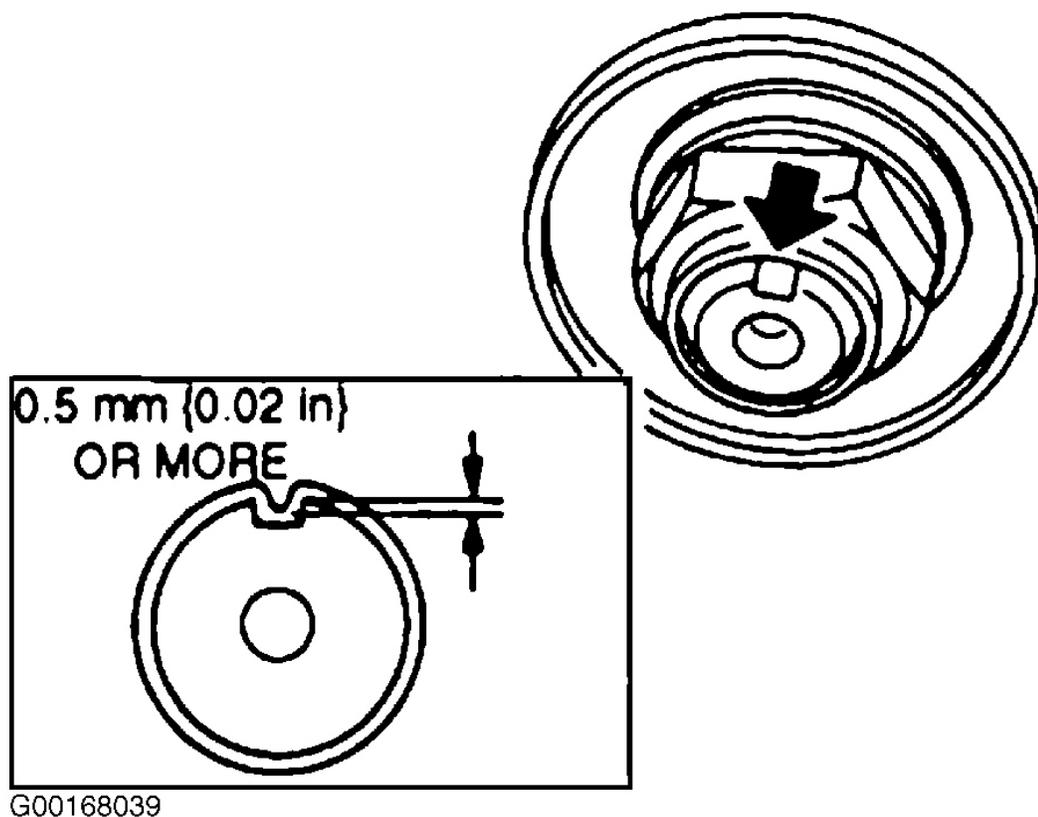
**Fig. 3: Removing Axle Shaft From Hub Assembly**  
Courtesy of MAZDA MOTORS CORP.

2. Remove upper control arm bolt, and pull knuckle/hub assembly outward. Remove inner CV joint from differential flange. Remove axle shaft from knuckle/hub assembly. If axle shaft is stuck in knuckle/hub assembly, use plastic or soft-faced hammer to tap axle shaft from knuckle/hub assembly. See **Fig. 3**. Remove axle shaft lock nut.

#### Installation

**NOTE:** Manufacturer recommends using new axle shaft lock nut during installation.

To install, reverse removal procedure. Align marks on differential and axle shaft flanges. Check rear wheel alignment. See appropriate article in WHEEL ALIGNMENT. Tighten all bolts and nuts to specification. See **TORQUE SPECIFICATIONS**. Stake axle shaft lock nut. See **Fig. 4**.



**Fig. 4: Installing Axle Shaft Lock Nut**  
Courtesy of MAZDA MOTORS CORP.

## OVERHAUL

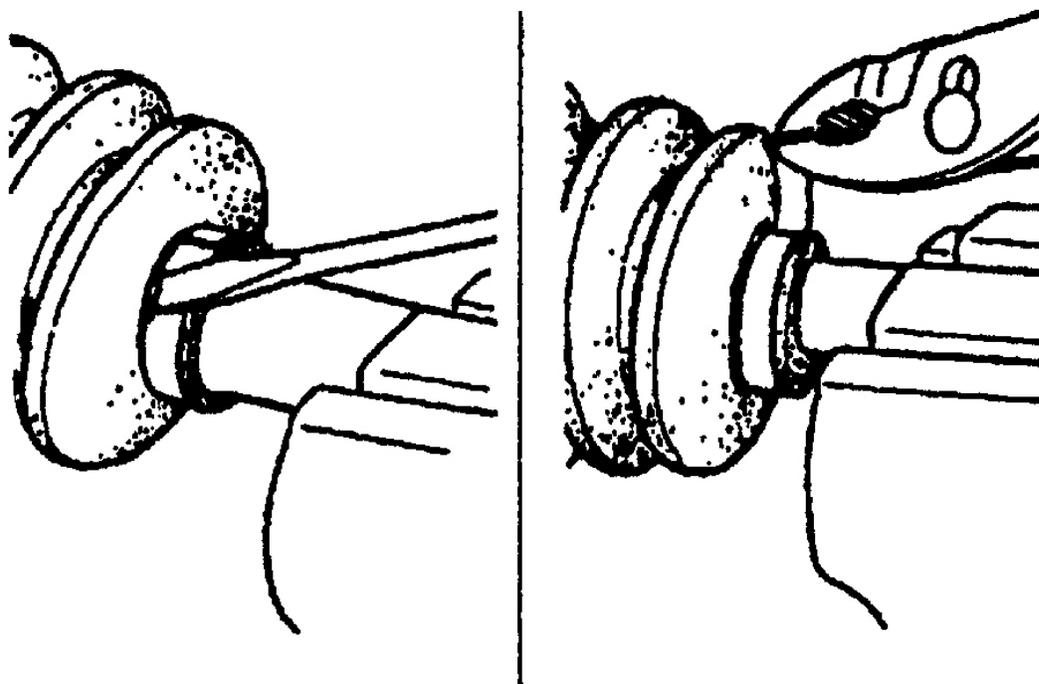
### AXLE SHAFTS

**NOTE:** Before disassembling axle shaft, verify that joint moves smoothly. If a problem is found, repair parts or replace axle shaft.

**NOTE:** DO NOT wash joint unless it is being disassembled.

#### Disassembly

1. Place axle shaft assembly in soft-jawed vise. Keep axle shaft assembly clean during disassembly and reassembly. To remove boot bands, pry up locking clip by using a screwdriver, then raise end of band. See **Fig. 5**.

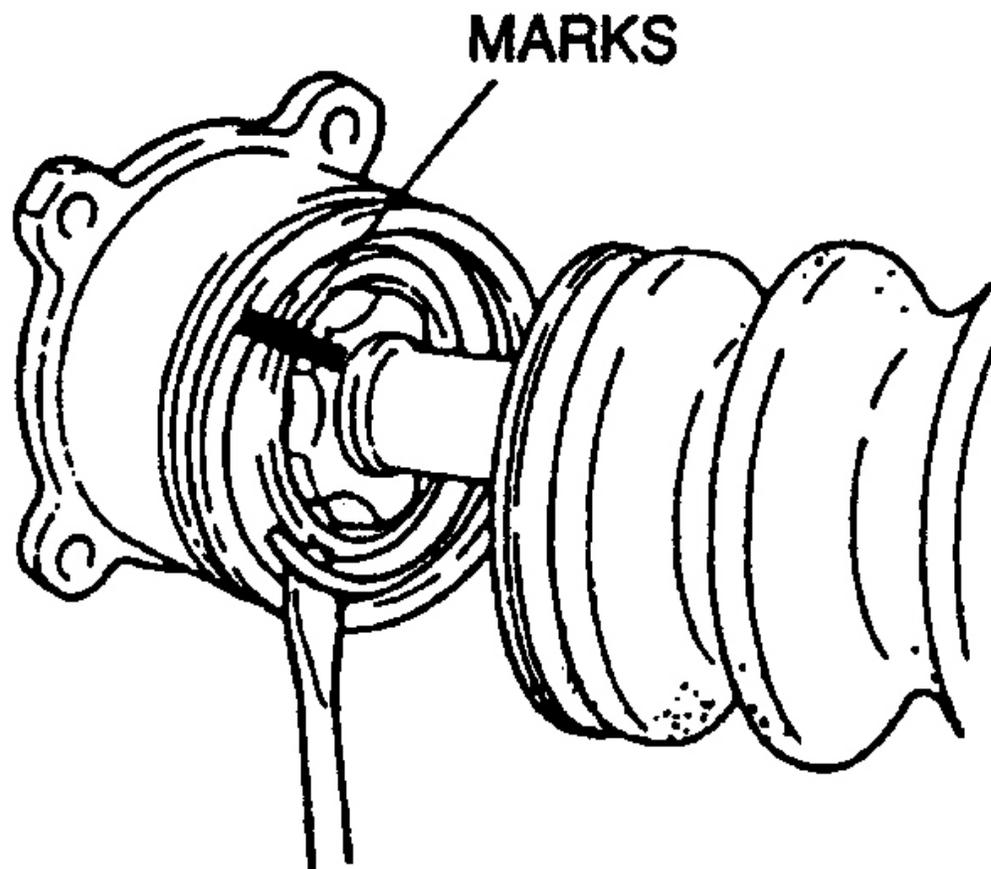


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**Fig. 5: Removing Boot Band**

**Courtesy of MAZDA MOTORS CORP.**

2. Mark axle shaft and outer ring with paint as shown. See **Fig. 6** . Using a screwdriver, remove clip. Mark axle shaft end and inner ring with paint as show. See **Fig. 7** . Remove snap ring by using snap ring pliers. See **Fig. 8** .

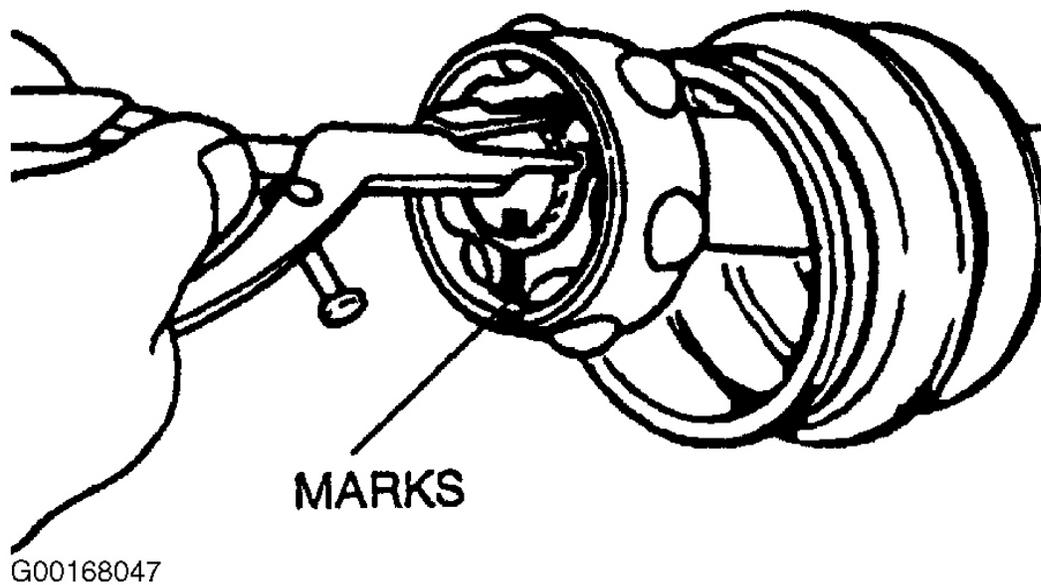


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**Fig. 6: Identifying Outer Ring-To-Axle Shaft Marks**  
Courtesy of MAZDA MOTORS CORP.

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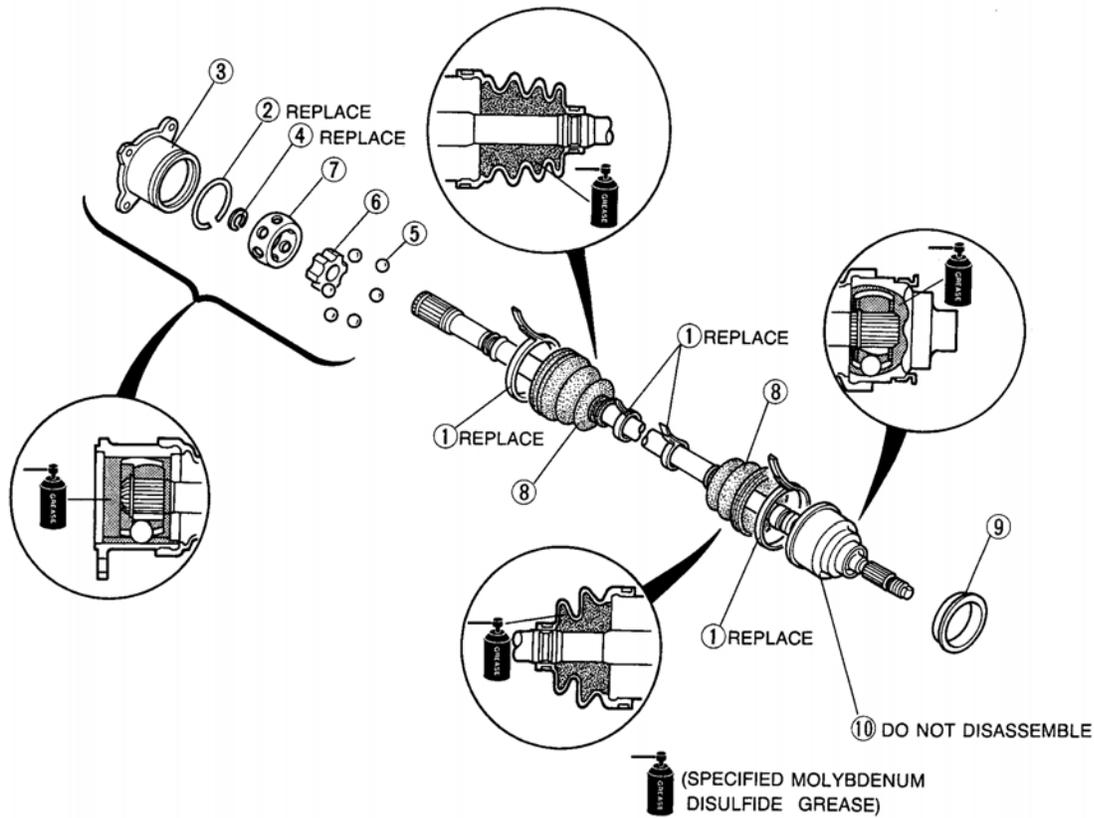
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**Fig. 7: Removing Snap Ring**  
Courtesy of MAZDA MOTORS CORP.

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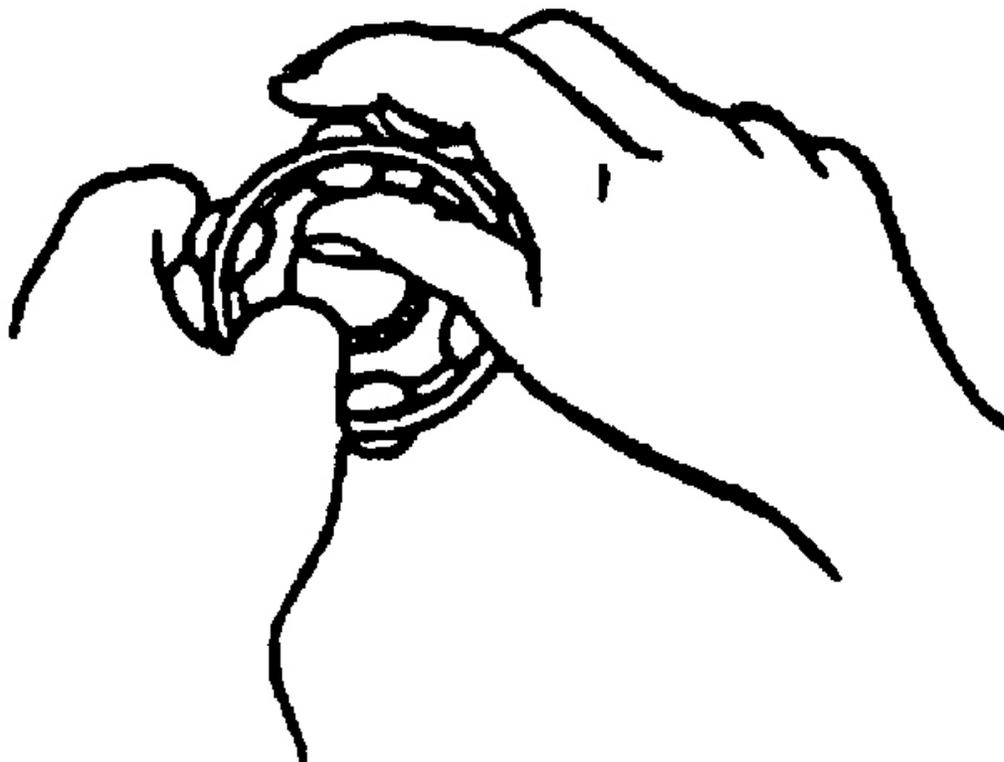


- |               |                                   |
|---------------|-----------------------------------|
| 1. Boot bands | 6. Inner ring                     |
| 2. Clip       | 7. Cage                           |
| 3. Outer ring | 8. Boots                          |
| 4. Snap ring  | 9. Dust cover                     |
| 5. Balls      | 10. Shaft and ball joint assembly |

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**Fig. 8: Exploded View Of Axle Shaft Assembly**  
Courtesy of MAZDA MOTORS CORP.

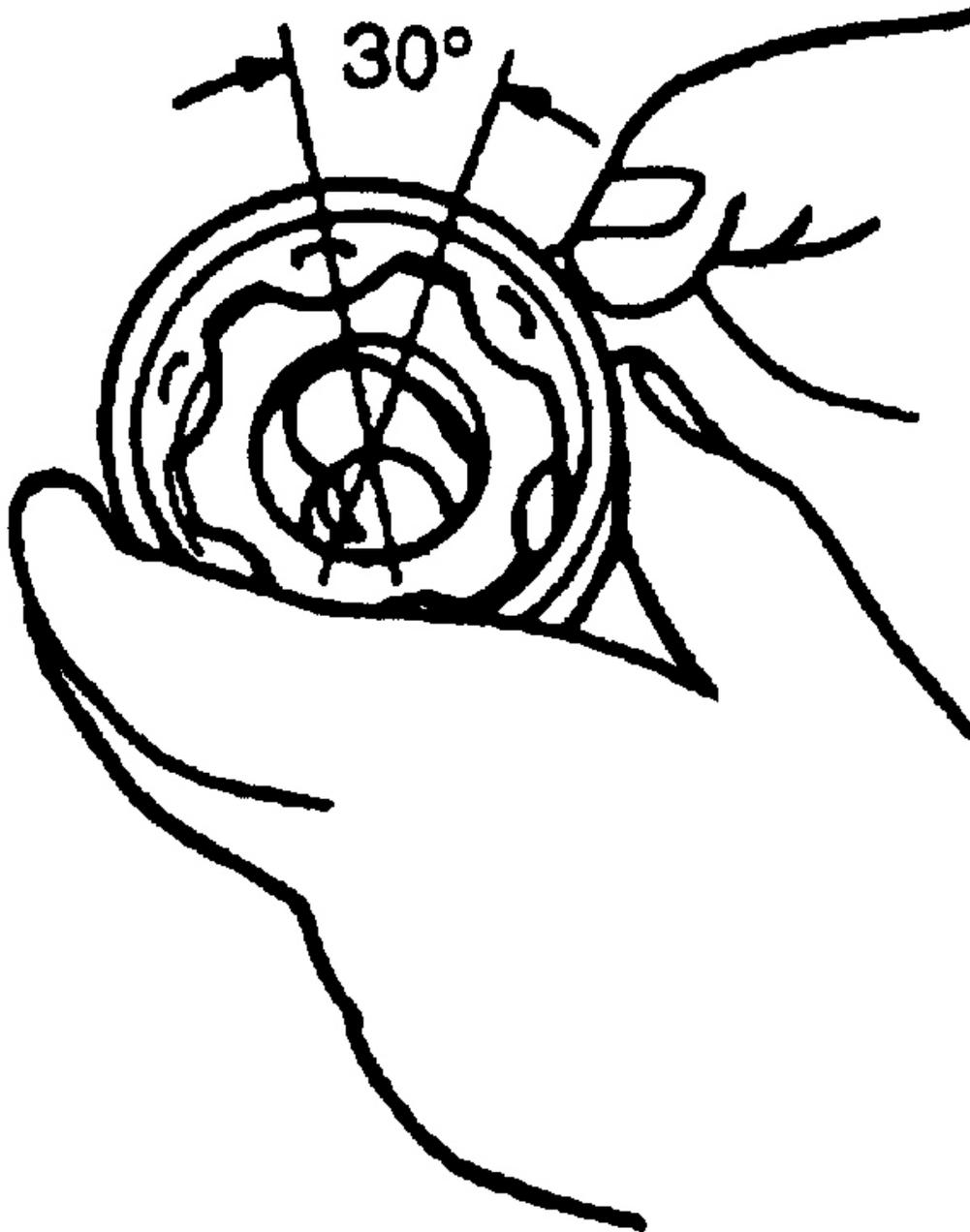
3. Insert a screwdriver between inner ring and cage to remove balls. See **Fig. 9** . Mark inner ring and cage with paint.



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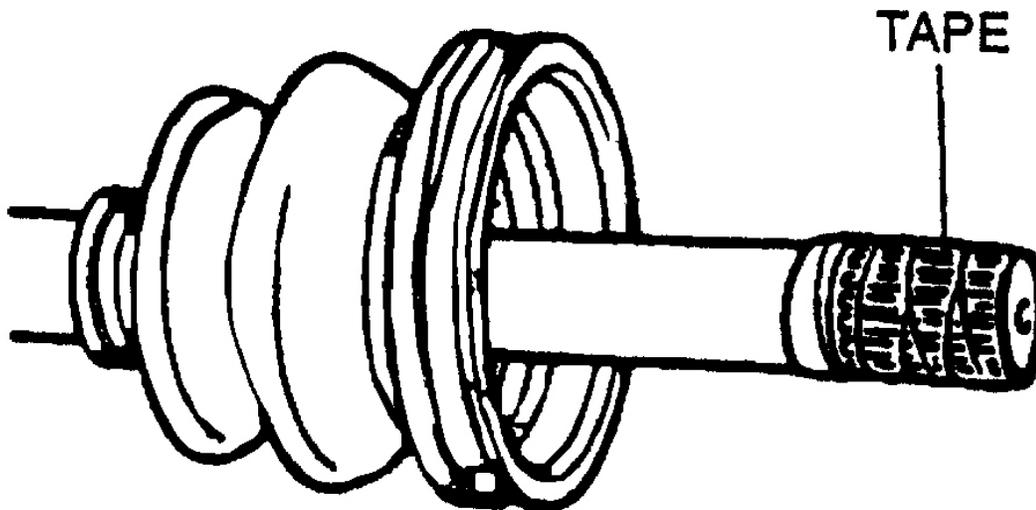
**Fig. 9: Removing Balls From Inner Ring**  
Courtesy of MAZDA MOTORS CORP.

4. Turn cage approximately 30 degrees and pull it away from inner ring. See **Fig. 10** . Wrap shaft splines with tape and remove boot. See **Fig. 11** .



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**Fig. 10: Separating Inner Ring From Cage**  
Courtesy of MAZDA MOTORS CORP.



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**Fig. 11: Removing CV Joint Boot**  
Courtesy of MAZDA MOTORS CORP.

**Reassembly**

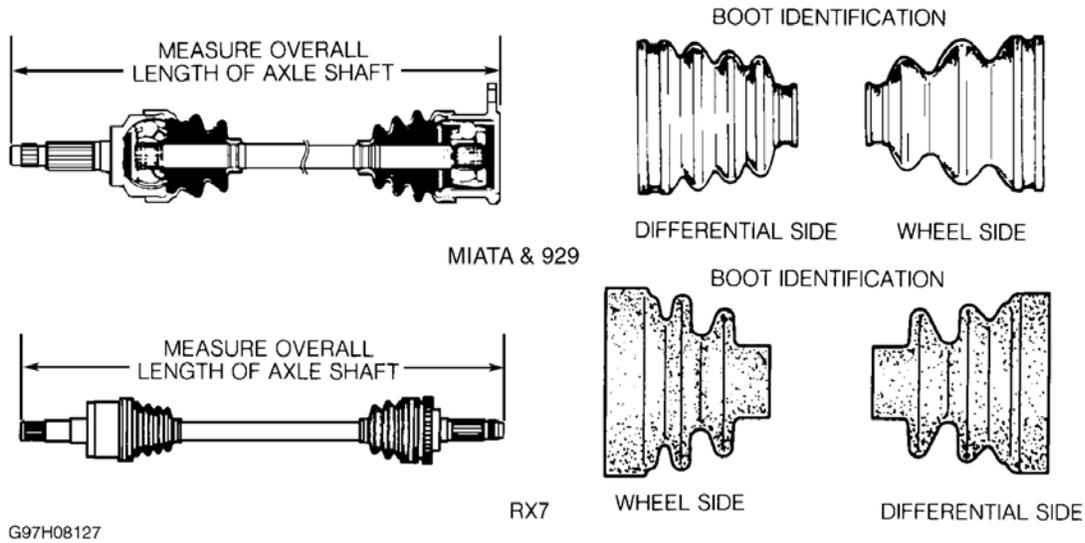
**CAUTION:** When reassembling axle shaft, ensure to install cage with larger diameter facing snap ring groove. If incorrectly installed, axle shaft may become disengaged.

**NOTE:** Inner and outer CV joint boots differ in design and/or diameter. Ensure correct boot is installed at proper end when reassembling axle shaft. See [Fig. 12](#) . See [REAR AXLE SHAFT BOOT IDENTIFICATION](#) .

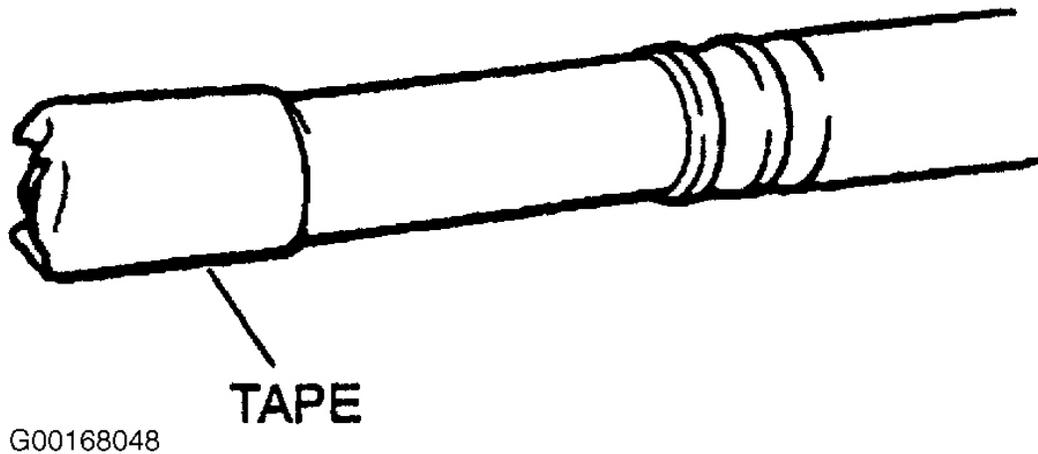
1. To reassemble, reverse disassembly procedure. Wrap tape around drive axle shaft ends before sliding CV joint boots onto drive axle shaft. See [Fig. 13](#) .
2. Align marks on cage and inner ring. Install balls to inner ring. Install cage, inner ring and ball assembly to axle shaft in direction shown. See [Fig. 14](#) . Larger diameter of cage should be facing snap ring groove.

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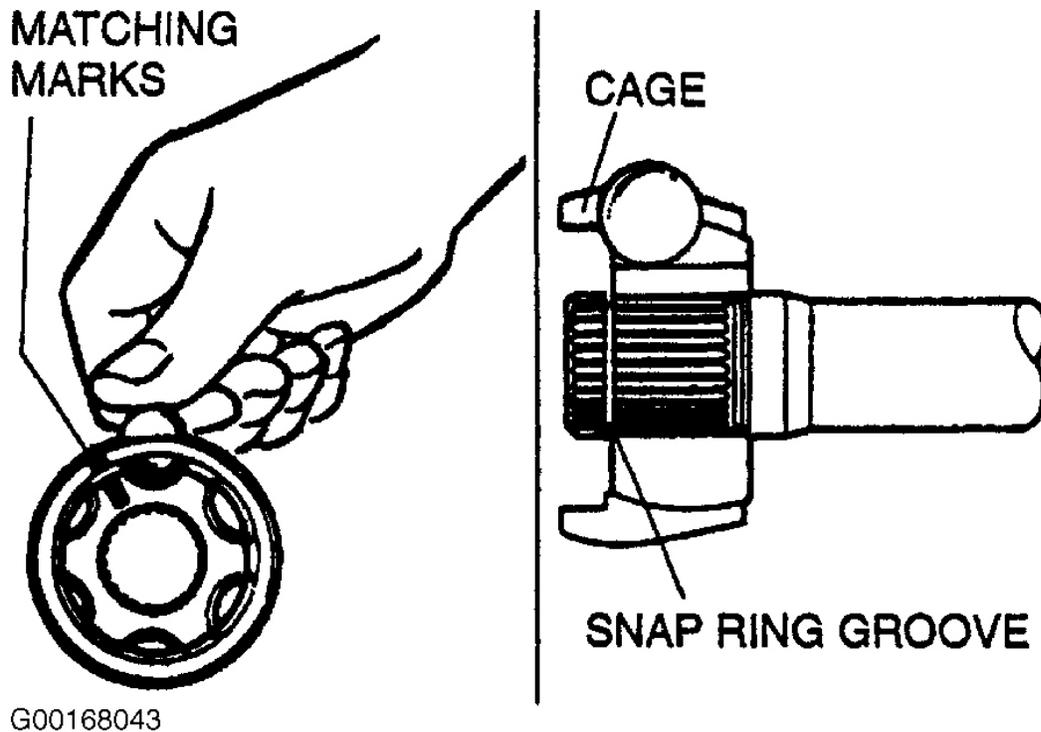
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**Fig. 12: Measuring Axle Shaft & Identifying Boots**  
Courtesy of MAZDA MOTORS CORP.



**Fig. 13: Installing CV Joint Boot**  
Courtesy of MAZDA MOTORS CORP.



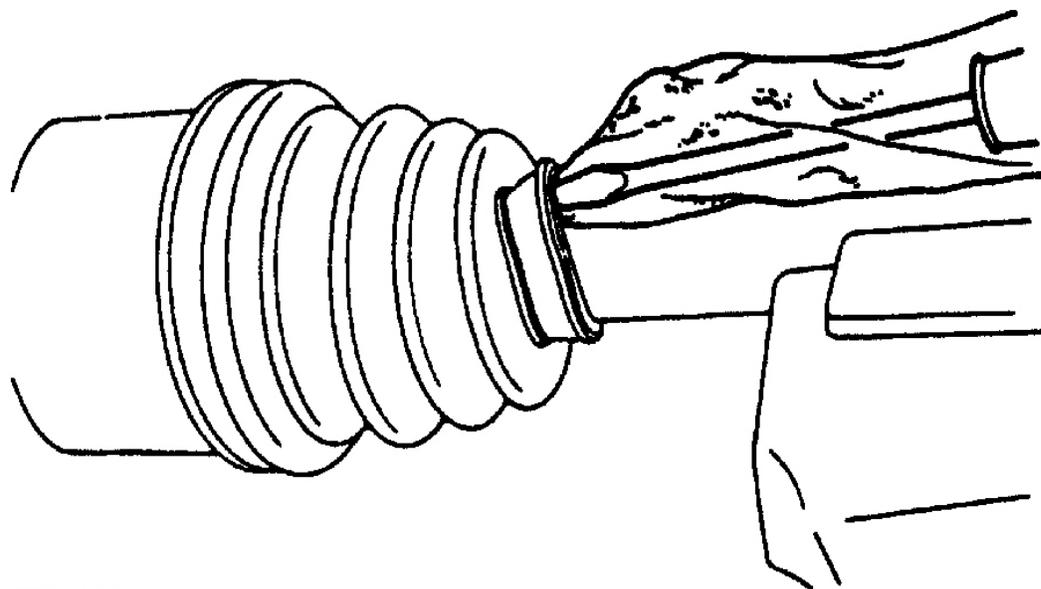
**Fig. 14: Installing Balls In To Inner Ring**  
Courtesy of MAZDA MOTORS CORP.

3. Install a NEW snap ring in axle shaft snap ring groove. Apply specified amount of grease to joints and boots. See **LUBRICATION SPECIFICATION** table. Aling marks and install NEW clip.

#### LUBRICATION SPECIFICATION

Application	Quantity
Wheel Side CV Joint Boot	1.9-2.7 oz. (55-75 g)
Differential Side CV Joint Boot	2.7-3.4 oz. (75-95 g)

4. Ensure that boots are not dented or twisted. Set axle shaft to standard length. See **AXLE SHAFT LENGTH** table. Release any trapped air from boots by carefully lifting up small end of each boot with a cloth-wrapped screwdriver. See **Fig. 15** . Ensure that axle shaft length is within standard. If drive shaft length is not within standard, repeat this step.



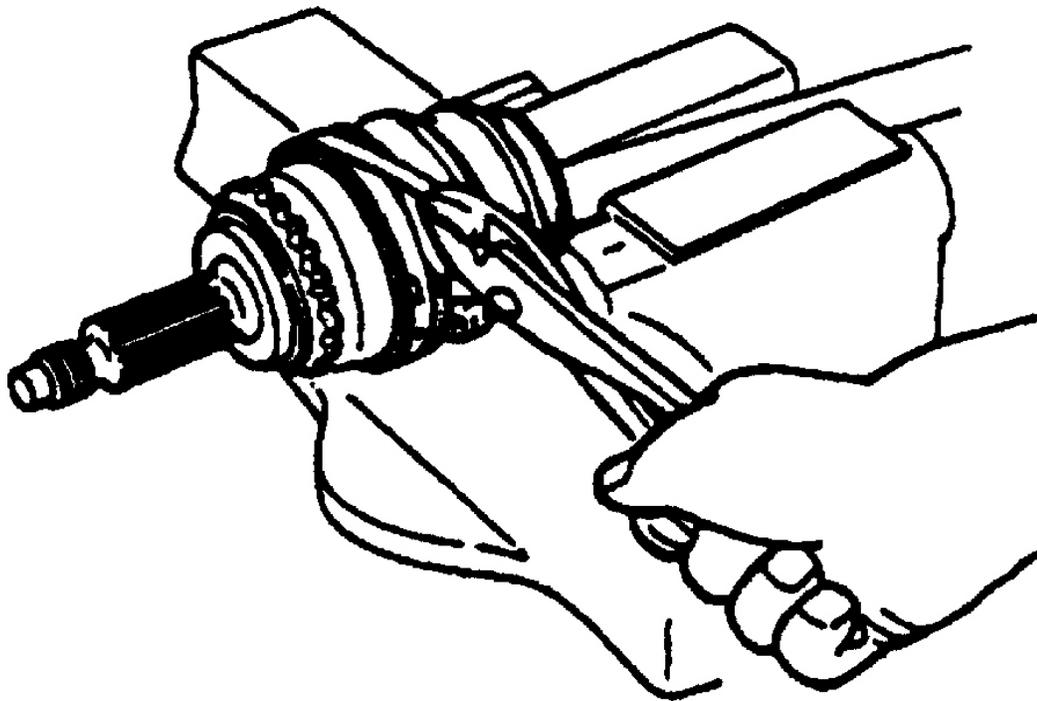
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**Fig. 15: Releasing Trapped Air**  
Courtesy of MAZDA MOTORS CORP.

5. Fold NEW band back by pulling on end with pliers. See **Fig. 16** . Band should be folded in direction opposite forward revolving direction of axle shaft. Lock end of band by bending locking clips.

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**Fig. 16: Installing Boot Band**  
Courtesy of MAZDA MOTORS CORP.

### AXLE SHAFT LENGTH

Application	In. (mm)
1990	
On Vehicle	25.96 (659.3)
Off Vehicle	25.97-26.37 (695.7-669.7)
1991-93	
On Vehicle	25.87 (657)
Off Vehicle	25.30-26.68 (642.6-677.7)

### REAR AXLE SHAFT BOOT IDENTIFICATION

Application	In. (mm)
Wheel Side Diameter	3.58 (90.8)
Differential Side Diameter	3.44 (87.4)

### TORQUE SPECIFICATIONS

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<b>Application</b>	<b>Ft. Lbs. (N.m)</b>
Axle Shaft Lock Nut <sup>(1)</sup>	159-217 (216-294)
Differential-To-Axle Shaft Flange Nuts (4)	40-47 (54-64)
Upper Control Arm Bolt/Nut	34-49 (46-66)
Wheel Lug Nuts	65-87 (88-118)

(1) Non-reuseable part. Manufacturer recommends replacing axle shaft lock nut on installation.