

1997 Mazda MX-5 Miata

1997-2001 DRIVE AXLES Axle Shafts - MX-5 Miata

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TROUBLE SHOOTING

NOTE: See **DRIVE AXLE NOISE DIAGNOSIS** article in **GENERAL INFORMATION**.

Inspect CV joint boot on axle shaft for cracks, damage, leaking, grease, and looseness in boot band. Inspect axle shaft for bending, cracks, and wear of joint splines. Repair or replace as necessary.

REMOVAL & INSTALLATION

CAUTION: If vehicle is equipped with ABS, before performing following procedure, remove ABS wheel speed sensor (axle side) and fix it to an appropriate place where sensor will not be pulled by mistake while servicing vehicle.

AXLE SHAFTS

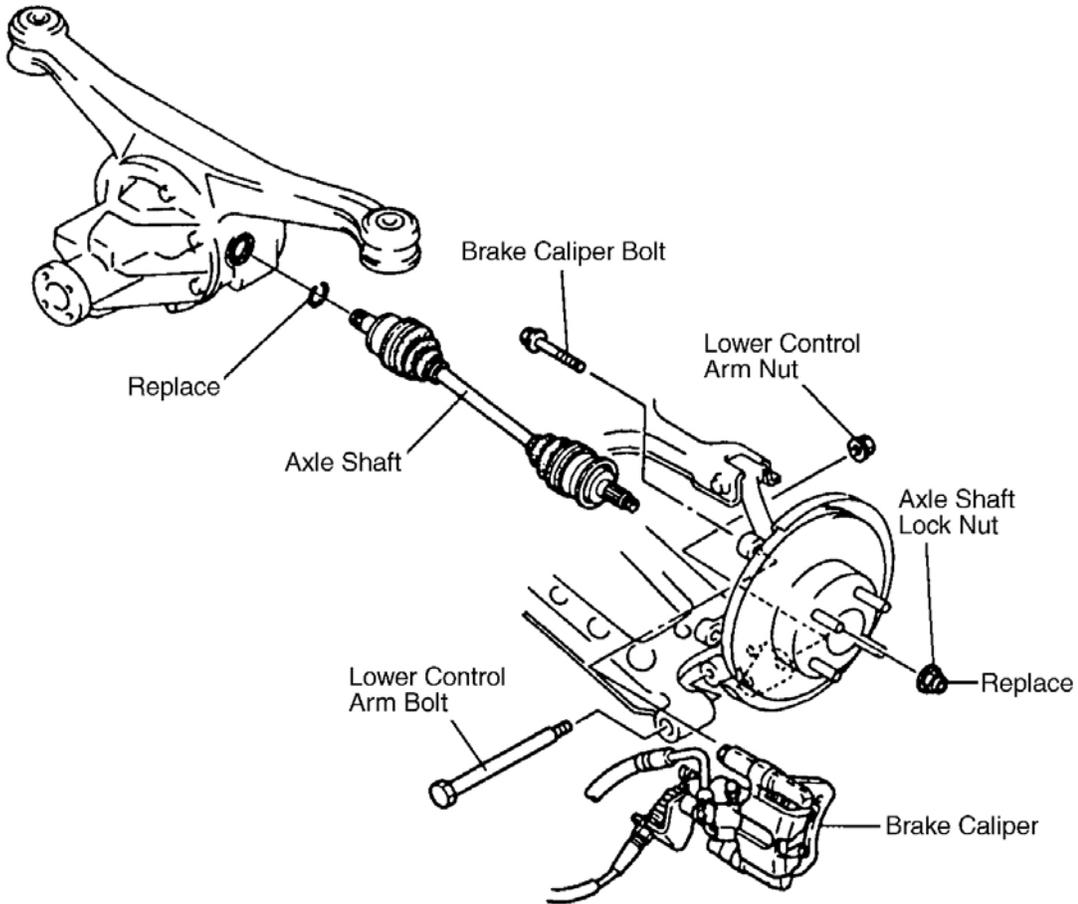
NOTE: If axle shaft will not come out of rear hub support easily, install a discarded nut onto axle shaft so that nut is flush with end of axle shaft. Tap nut with a copper hammer to loosen axle shaft from wheel hub.

Removal

1. Raise vehicle and support with safety stands. Remove wheel and tire assembly. Remove axle shaft lock nut. See [Fig. 1](#).
2. Remove brake caliper assembly. Remove lower control arm bolt at knuckle, and pull knuckle/hub assembly outward. Using pry bar between differential housing and inner CV joint, remove inner CV joint from differential. See [Fig. 2](#). Remove axle shaft from knuckle/hub assembly.

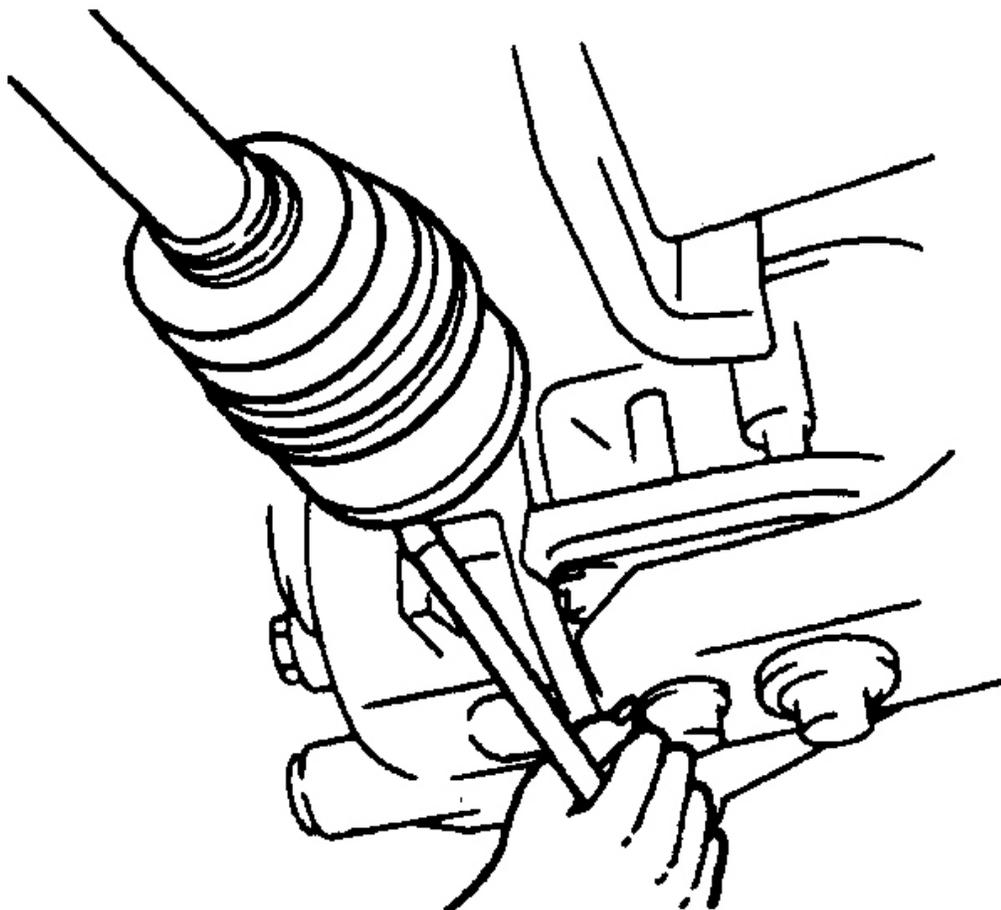
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Fig. 1: Removing Axle Shaft
Courtesy of MAZDA MOTORS CORP.



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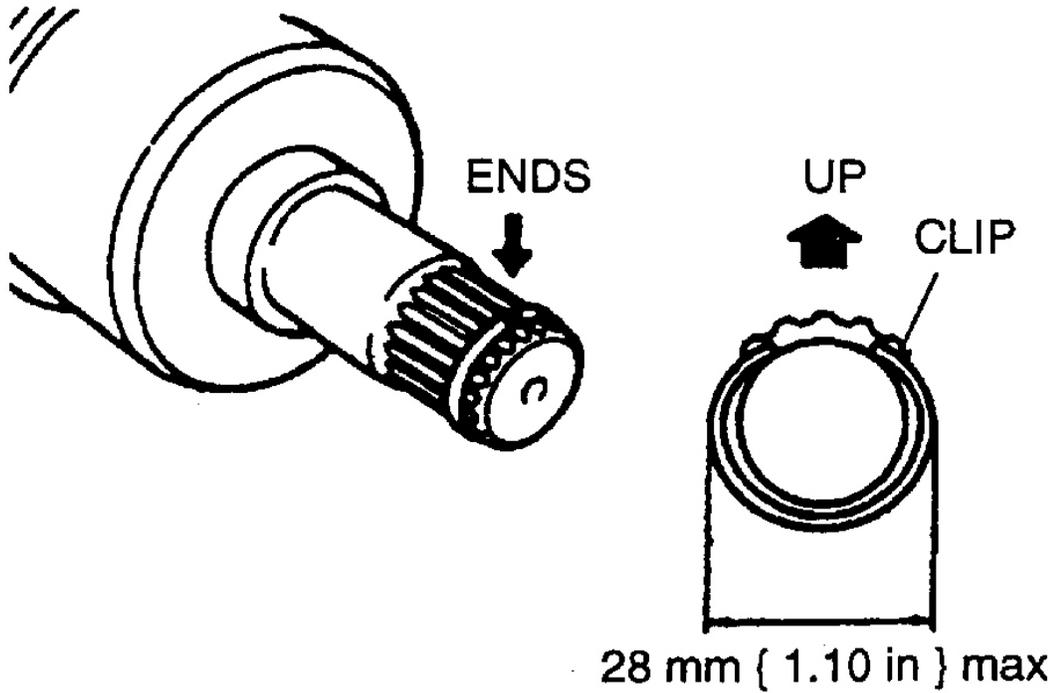
Fig. 2: Prying Out Axle Shaft
Courtesy of MAZDA MOTORS CORP.

Installation

CAUTION: Sharp edges of axle shaft snap ring can slice or puncture oil seal. Be careful when installing axle shaft to differential.

To install, reverse removal procedure. Install NEW clip. Measure outer diameter of clip after installing. See **Fig. 3** . Replace clip if it exceeds specification. With the ends of clip facing upward, push axle shaft into differential. After installation, pull outward on double offset joint outer ring and verify that axle shaft is securely held by clip. Install NEW locknut and stake it as shown. See **Fig. 4** . Tighten all bolts and nuts to specification. See **TORQUE SPECIFICATIONS** .

NOTE: For rear axle shaft length, see REAR AXLE SHAFT LENGTH table.



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Fig. 3: Measuring Clip Outer Diameter
Courtesy of MAZDA MOTORS CORP.

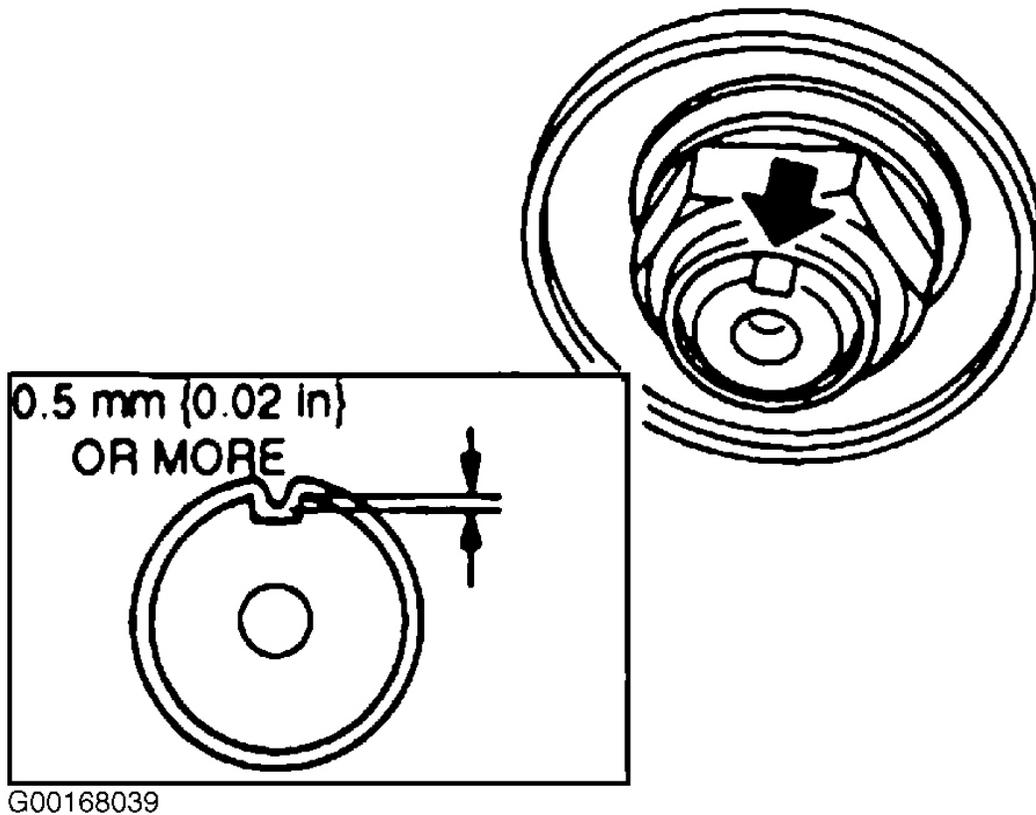


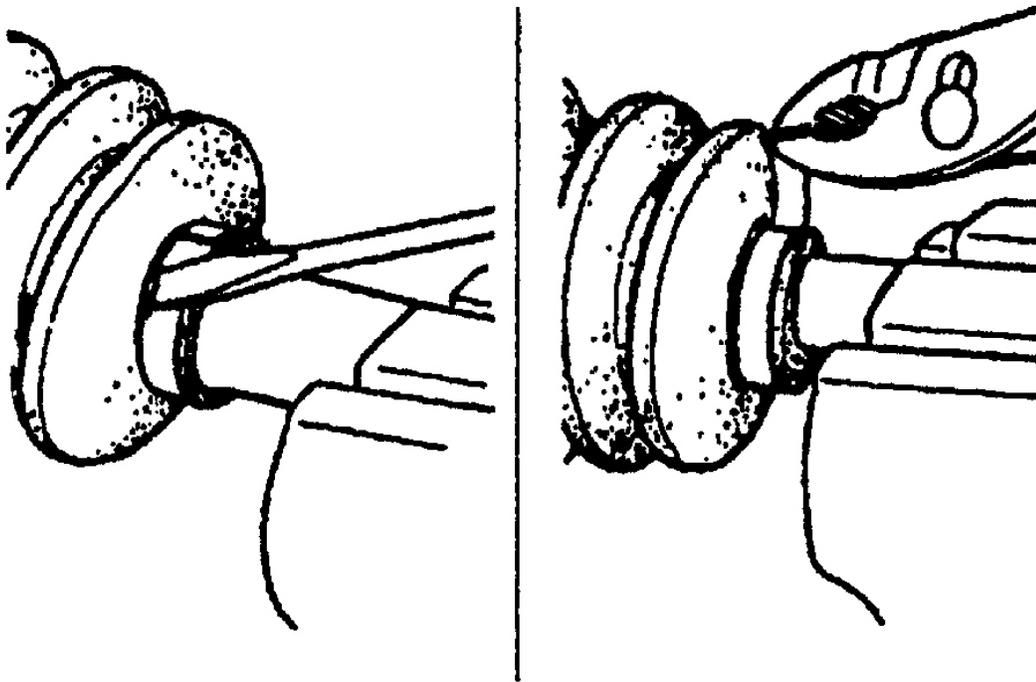
Fig. 4: Installing Axle Shaft Locknut
 Courtesy of MAZDA MOTORS CORP.

OVERHAUL

AXLE SHAFTS

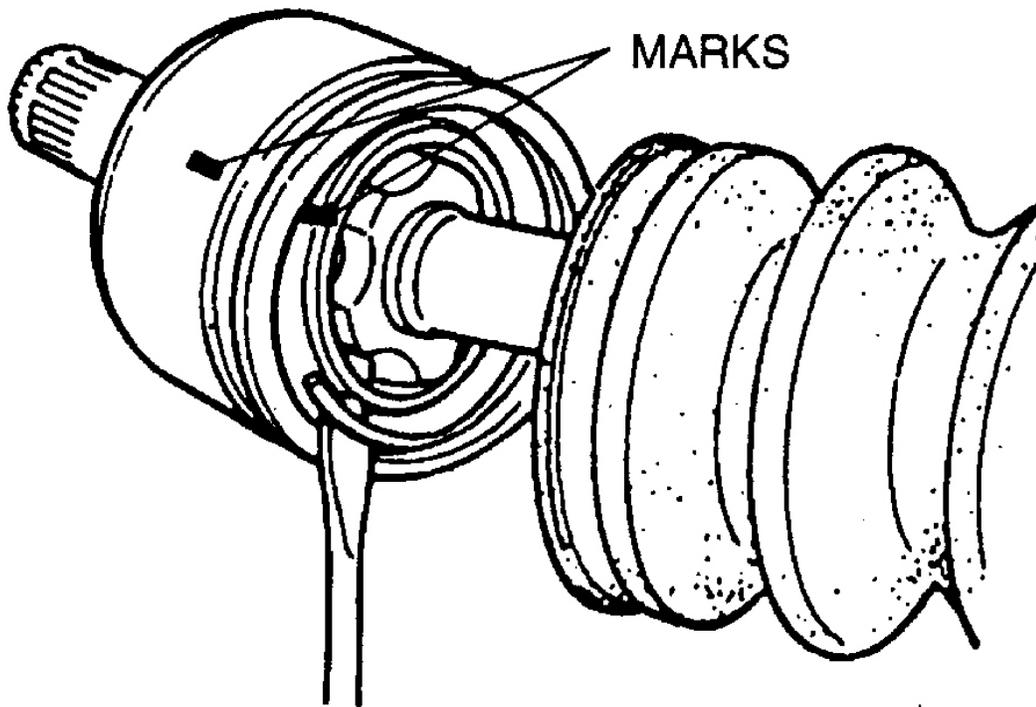
Disassembly

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**.
2. Mark axle shaft and outer ring with paint as shown. See **Fig. 6**. Remove clip. Remove outer ring. Mark axle shaft end and inner ring with paint as show. See **Fig. 7**. Remove snap ring by using snap ring pliers.
3. Insert a screwdriver between inner ring and cage to remove balls. See **Fig. 8**. Mark inner ring and cage with paint. Turn cage approximately 30 degrees and pull it away from inner ring. See **Fig. 9**. Wrap shaft splines with tape and remove boot. See **Fig. 10**.



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Fig. 5: Removing Boot Band
Courtesy of MAZDA MOTORS CORP.



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Fig. 6: Marking Axle Shaft & Outer Ring
Courtesy of MAZDA MOTORS CORP.

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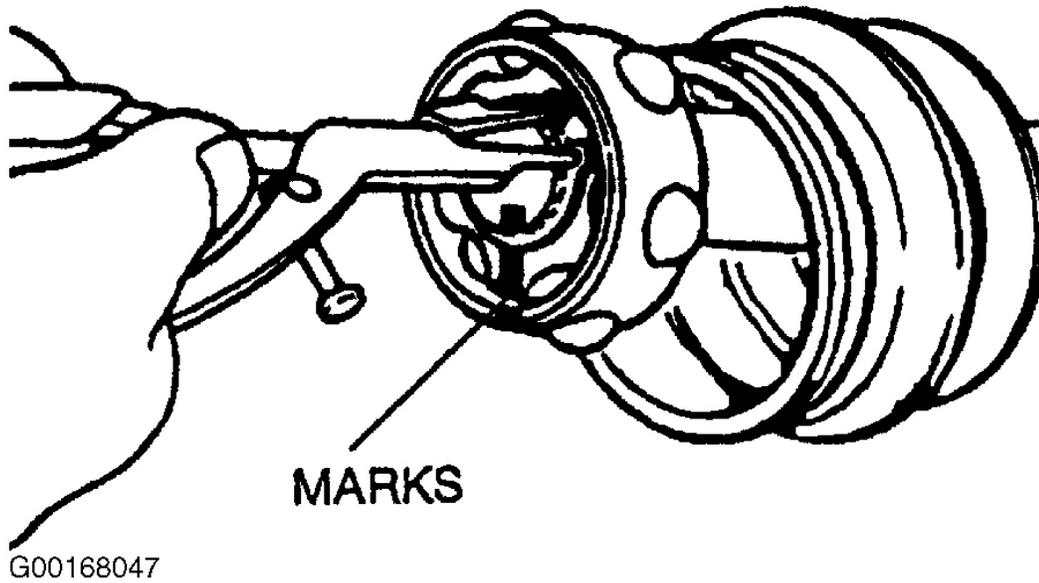
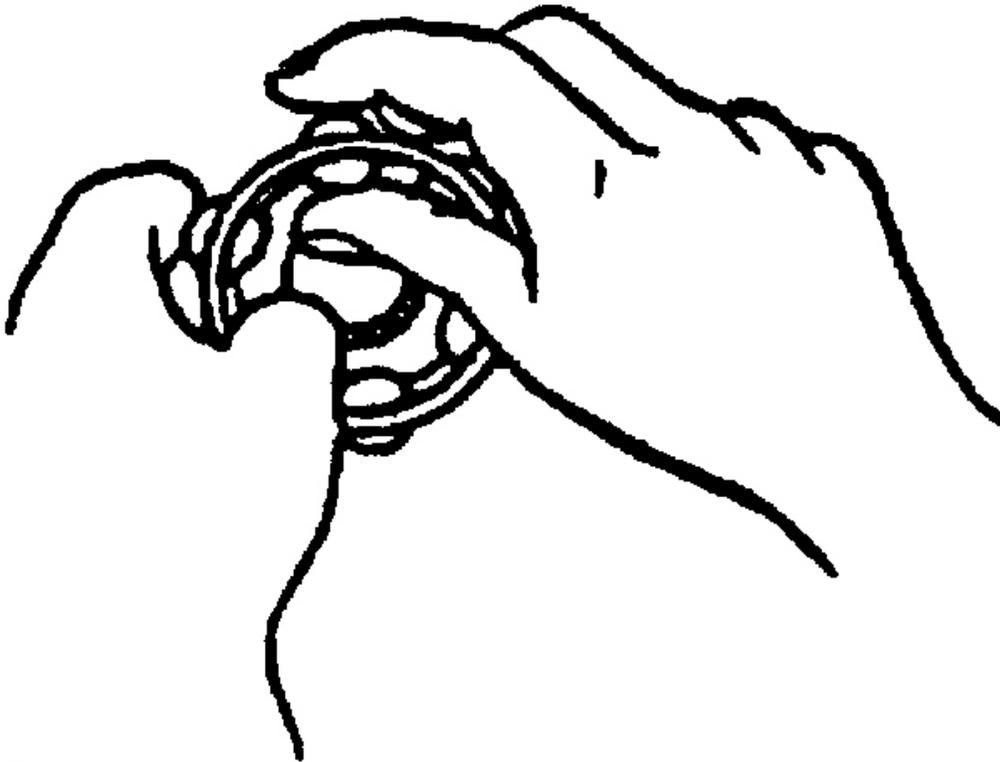


Fig. 7: Removing Snap Ring
Courtesy of MAZDA MOTORS CORP.

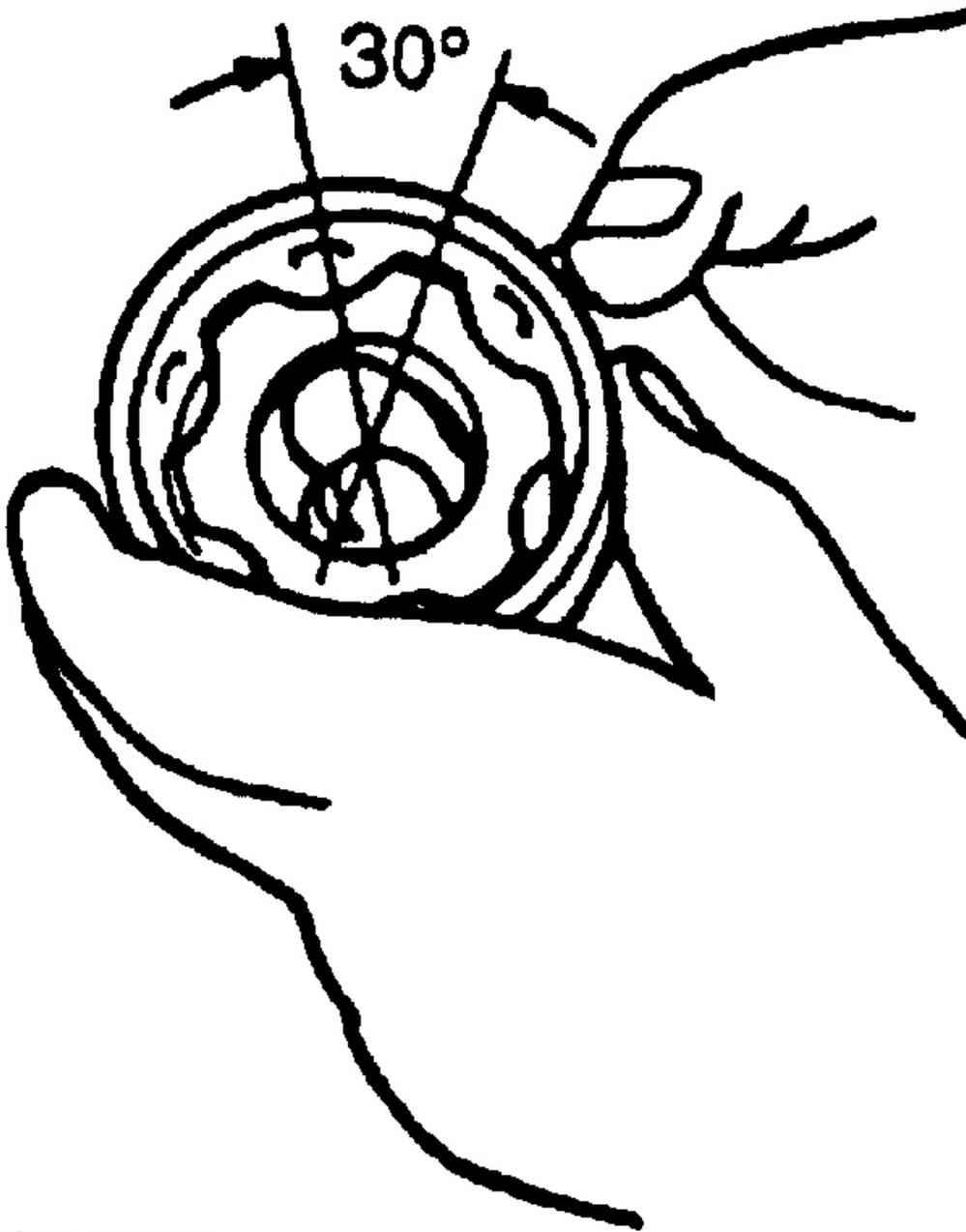
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Fig. 8: Removing Balls From Inner Ring
Courtesy of MAZDA MOTORS CORP.

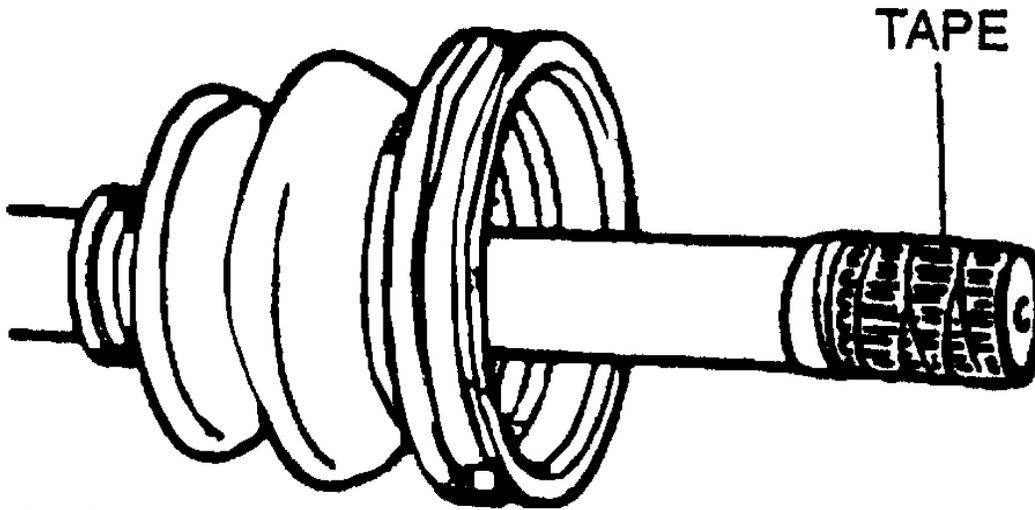


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Fig. 9: Separating Inner Ring From Cage
Courtesy of MAZDA MOTORS CORP.

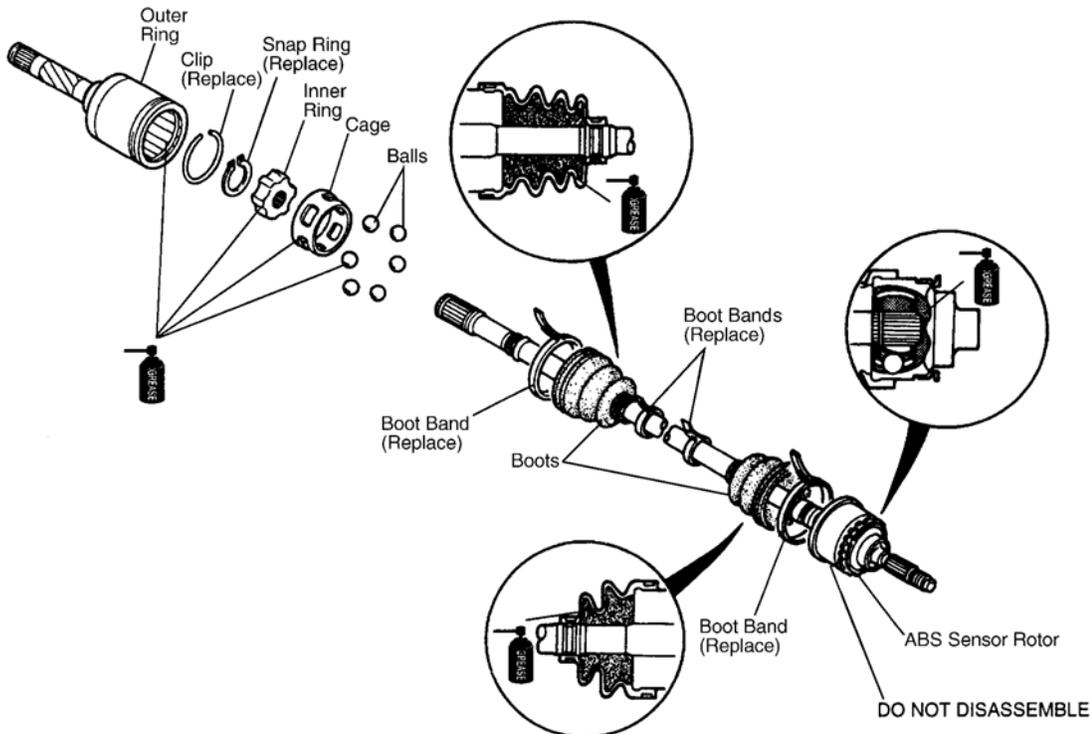
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Fig. 10: Removing CV Joint Boot
Courtesy of MAZDA MOTORS CORP.



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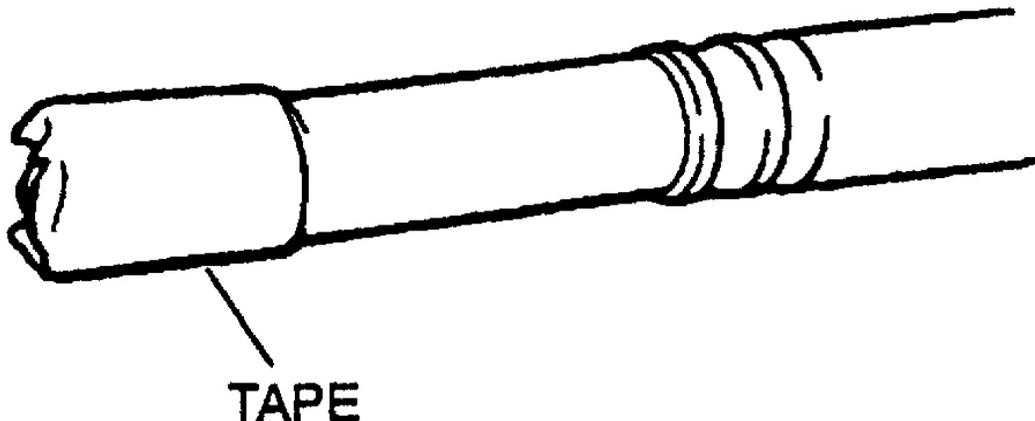
Fig. 11: Exploded View Of Axle Shaft Assembly

Courtesy of MAZDA MOTORS CORP.

Reassembly

NOTE: Inner and outer CV joint boots differ in design and/or diameter. CV joint boots are stamped DOJ (wheel side) and BJ (differential side). Ensure correct boot is installed at proper end when reassembling axle shaft. See REAR AXLE SHAFT BOOT IDENTIFICATION table. See Fig. 13 .

1. To reassemble, reverse disassembly procedure. Wrap tape around drive axle shaft ends before sliding CV joint boots onto drive axle shaft. See Fig. 12 .
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.
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. Align marks and install NEW clip.
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. Ensure that axle shaft length is within standard. If drive shaft length is not within standard, repeat this step.
5. Fold NEW band back by pulling on end with pliers. See Fig. 15 . Band should be folded in direction opposite forward revolving direction of axle shaft. Lock end of band by bending locking clips.

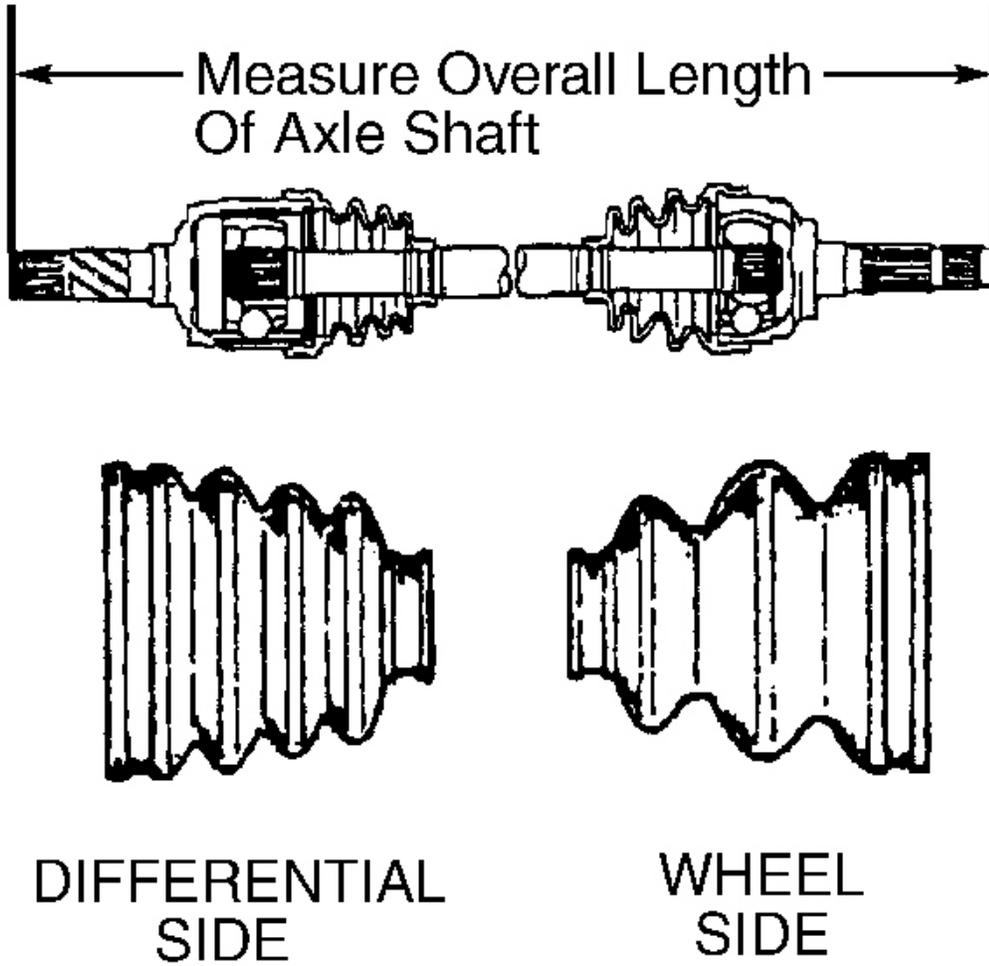


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Fig. 12: Installing CV Joint Boot
Courtesy of MAZDA MOTORS CORP.

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Fig. 13: Measuring Axle Shaft & Identifying Boots
Courtesy of MAZDA MOTORS CORP.

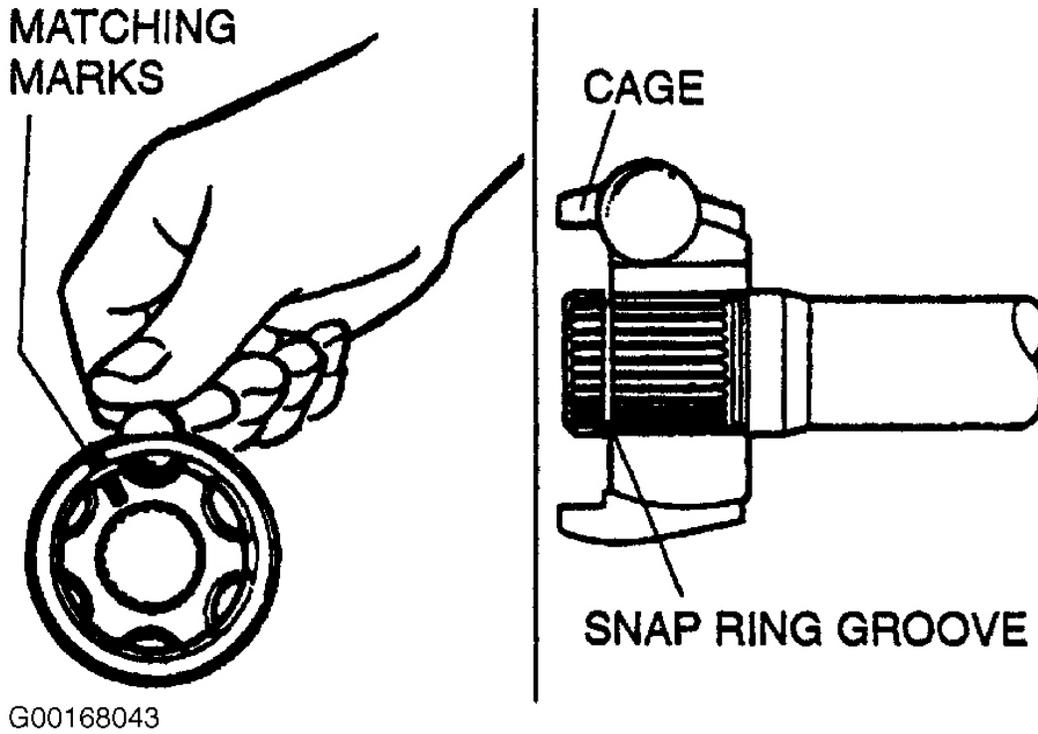
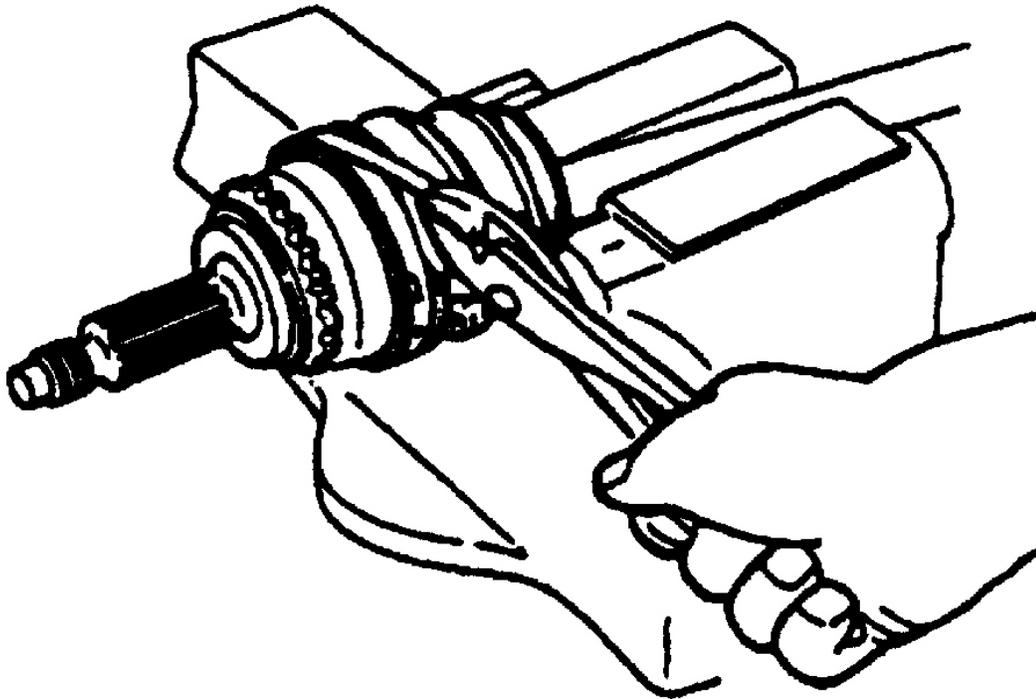


Fig. 14: Installing Balls In To Inner Ring
Courtesy of MAZDA MOTORS CORP.

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Fig. 15: Installing Boot Band
Courtesy of MAZDA MOTORS CORP.

AXLE SHAFT BOOT IDENTIFICATION

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

LUBRICATION SPECIFICATION

Application	Quantify
Differential Side CV Joint Boot	3-3.71 oz. (85-105 g)
Wheel Side CV Joint Boot	1.94-2.65 oz. (55-75 g)

AXLE SHAFT LENGTH

Application	In. (mm)
1997	30.21-30.60 (767.3-777.3)
1999-2001	30.42-30.81 (772.6-782.6)

TORQUE SPECIFICATIONS

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TORQUE SPECIFICATIONS

Application	Ft. Lbs. (N.m)
Axle Shaft Lock Nut	
1997	160-216 (216-294)
1999-2001	174-235 (236-318)
Brake Caliper Mounting Bolt	37-50 (50-68)
Lower Control Arm Bolt/Nut	47-54 (64-73)
Wheel Lug Nuts	66-86 (89-117)