

1994 Mazda MX-5 Miata

1994 DRIVE AXLES Axle Shaft - MX-5 Miata

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DESCRIPTION

CV JOINT IDENTIFICATION

Application	Joint Type
Miata	DOJ

TROUBLE SHOOTING

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

REMOVAL, DISASSEMBLY, REASSEMBLY & INSTALLATION

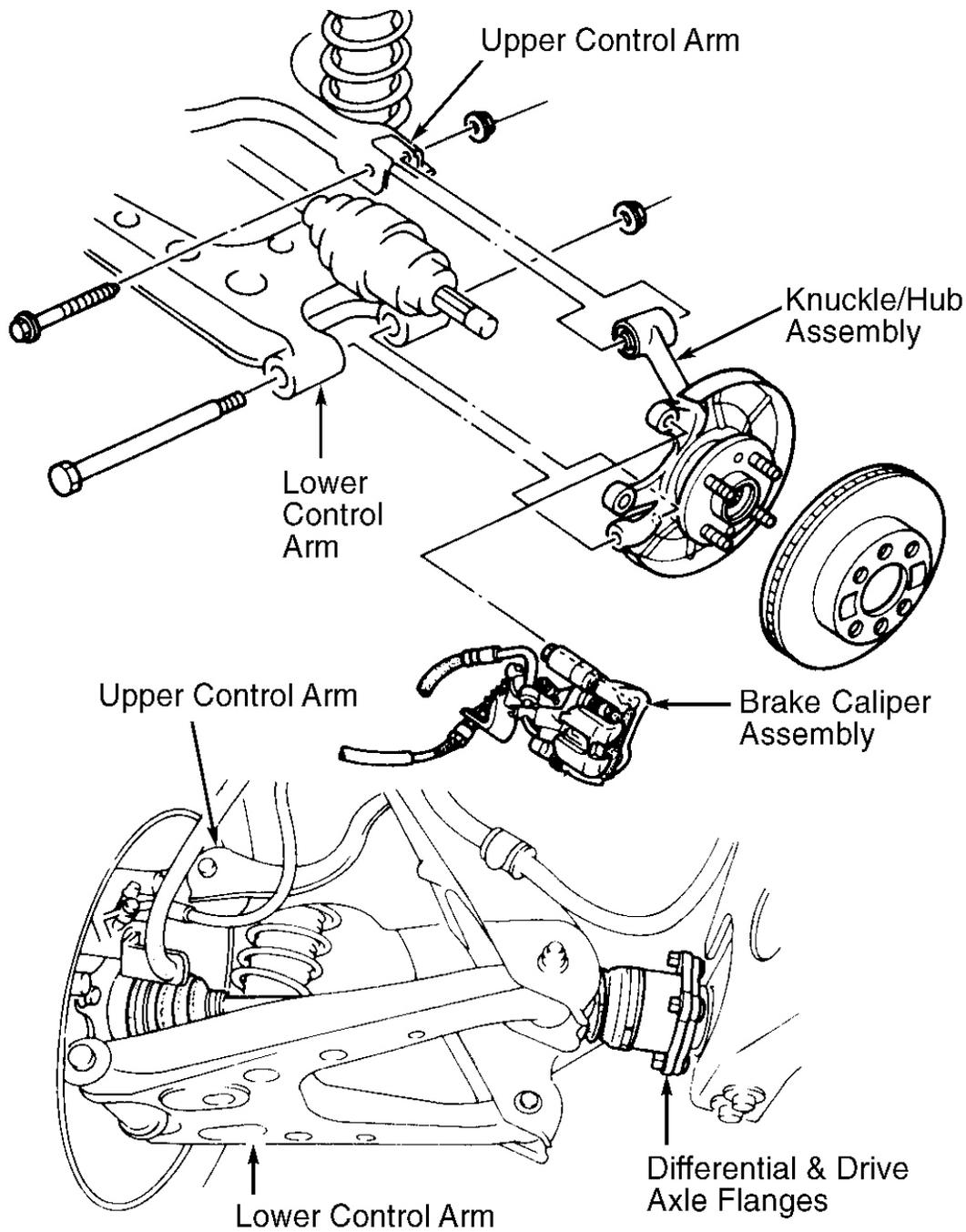
RWD AXLE SHAFT

Removal

1. Raise vehicle and support with safety stands. Remove wheel and tire assembly. Loosen drive axle shaft lock nut until flush with end of drive axle shaft. Mark differential and drive axle shaft flanges for installation reference. See **Fig. 1** . Remove drive axle shaft flange nuts.
2. Remove upper control arm bolt, and pull knuckle/hub assembly outward. Remove inner CV joint from differential flange. Remove drive axle shaft from knuckle/hub assembly. If drive axle shaft is stuck in knuckle/hub assembly, use plastic or soft-faced hammer to tap drive axle shaft from knuckle/hub assembly. Remove drive axle shaft lock nut.

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Fig. 1: Removing Rear Drive Axle & Knuckle/Hub Assembly
Courtesy of MAZDA MOTORS CORP.

NOTE: DO NOT disassemble outer CV joint. Replace outer drive axle shaft and CV joint

as an assembly. Service outer boot only after inner CV joint has been removed.

Disassembly (DOJ Type)

1. Place drive axle shaft assembly in soft-jawed vise. Keep drive axle shaft assembly clean during disassembly and reassembly. Remove CV joint boot bands and slide boot away from CV joint housing. Index mark CV joint housing, inner race and drive axle shaft for reassembly reference. Using screwdriver, remove large circlip ring from inner race groove in CV joint housing. See **Fig. 2**.
2. Remove CV joint housing from ball, inner race and cage assembly. Remove snap ring retaining ball, inner race and cage assembly to drive axle shaft. Remove ball, inner race and cage assembly from drive axle shaft. Insert screwdriver between inner race and cage, and remove balls. Index mark inner race and cage for reassembly reference. Turn cage about 30 degrees to inner race and separate cage from inner race.
3. Wrap drive axle shaft end with tape. Remove inner CV joint boot. Remove outer CV joint boot bands and remove boot by sliding it off inner CV joint end. Clean and inspect all parts. Ensure drive axle shaft is not bent, twisted or damaged. Check splines for wear. Inspect bearing inner race, cage and balls for abnormal wear and replace as an assembly if necessary.

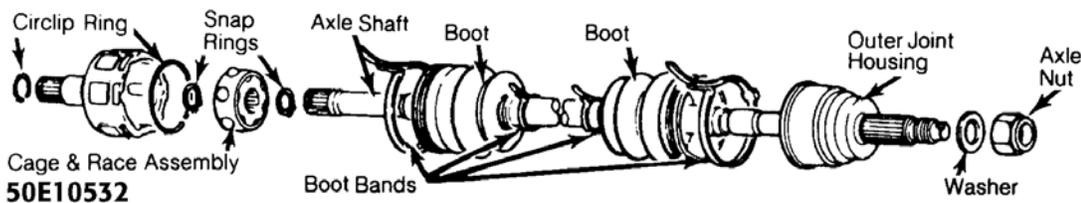


Fig. 2: Exploded View Of Axle Shaft Assemblies (DOJ)

Courtesy of MAZDA MOTORS CORP.

NOTE: Inner and outer CV joint boots differ in design and/or diameter. Ensure correct boot is installed at proper end when reassembling drive axle shaft. See **Fig. 3**. See **REAR AXLE SHAFT BOOT IDENTIFICATION**.

Reassembly (DOJ Type)

1. Pack outer CV joint assembly with grease. Wrap tape around drive axle shaft end and slide outer boot onto drive axle shaft (if removed). Slide inner CV joint boot onto drive axle shaft.
2. Install inner race into cage and turn cage approximately 30 degrees to inner race aligning marks made during disassembly. Insert balls through cage and seat them in grooves of inner race. Pack ball, inner race and cage assembly with grease. Align marks on inner race and drive axle shaft. Install ball, inner race and cage assembly on drive axle shaft with large side of cage facing drive axle shaft end. Install snap ring.
3. Apply grease to CV joint housing. Align marks on inner race, drive axle shaft and CV joint housing. Position housing onto ball, inner race and cage assembly and install large circlip ring. Using NEW boot bands, position bands so when folded down, the direction is opposite drive axle shaft direction of rotation. Fold boot band back by pulling on end of band with pliers. Lock end of band by bending locking clip.

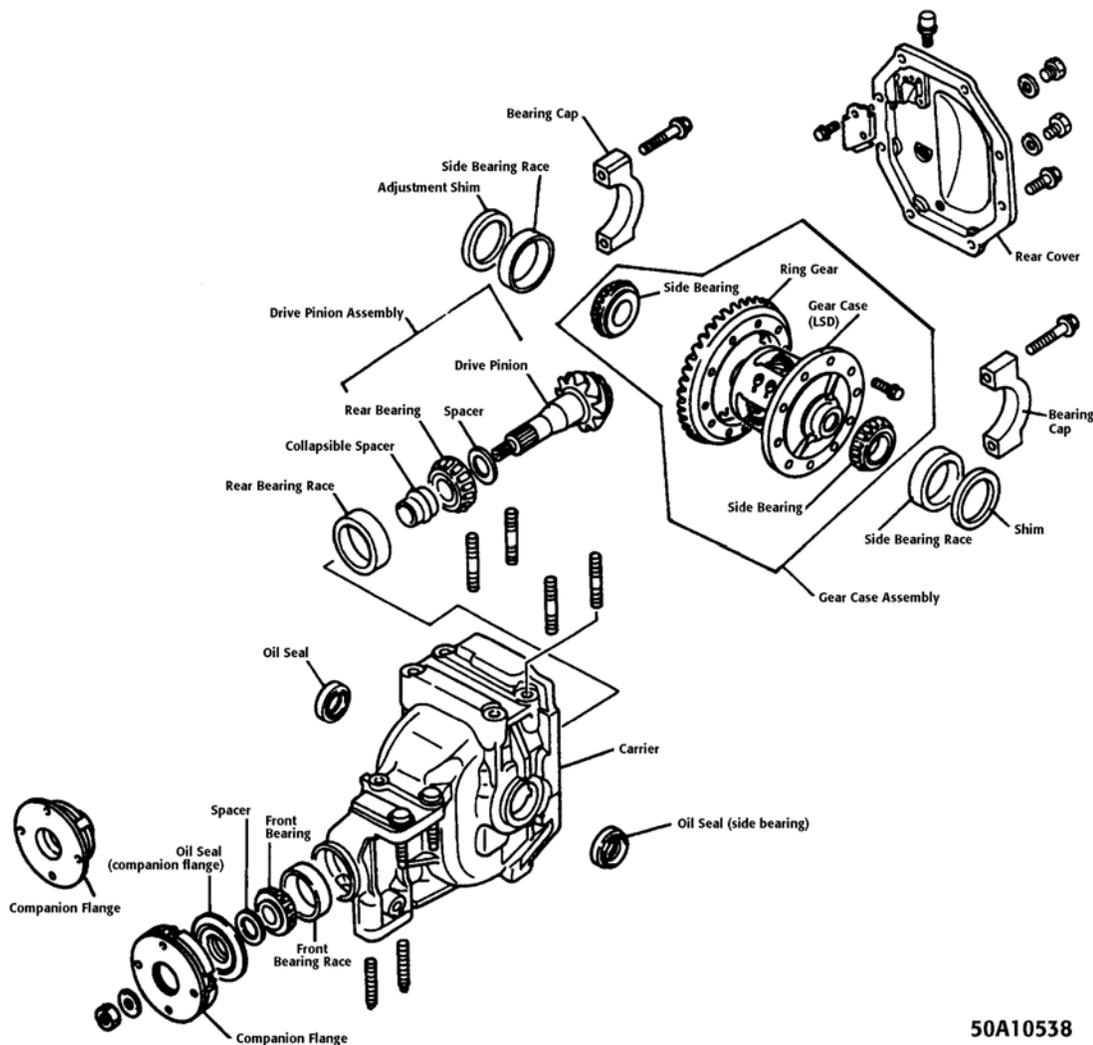
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Installation

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

NOTE: For rear axle shaft lengths, see **REAR AXLE SHAFT LENGTHS** .



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Fig. 3: Measuring Axle Shaft & Identifying Boots
Courtesy of MAZDA MOTORS CORP.

REAR AXLE SHAFT BOOT IDENTIFICATION

Application	Wheel Side Diameter - In. (mm)	Differential Side Diameter - In. (mm)

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Miata	3.58 (90.8)	3.44 (87.4)
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REAR AXLE SHAFT LENGTHS

Application	In. (mm)
Miata	24.56-25.94 (623.7-658.8)

REAR HUB ASSEMBLY

Removal & Disassembly

1. Raise vehicle and support with safety stands. Remove wheel and tire assembly. Remove brake caliper and support aside. See **Fig. 1** . Remove rotor from hub.
2. Mount dial indicator on hub and measure wheel bearing play by pulling and pushing on hub. Wheel bearing play should be a maximum of .002" (.05 mm). Check and adjust drive axle shaft lock nut torque or replace wheel bearing if measurement exceeds specification.
3. Remove drive axle shaft lock nut. Remove ABS speed sensor and bracket from knuckle/hub assembly. Remove upper and lower control arm bolts retaining knuckle/hub assembly. Remove knuckle/hub assembly from vehicle. If drive axle shaft is stuck in hub, use plastic or soft-faced hammer to tap drive axle shaft from hub assembly.
4. Pry inner seal from knuckle/hub assembly. See **Fig. 4** . Using Puller (49-F026-103), Handle (49-G033-102) and Attachment (49-G030-727), remove hub from knuckle. Remove snap ring retaining bearing. Using Puller (49-F026-103), Handle (49-G030-797) and Attachment (49-F027-005), press bearing from knuckle.
5. Move inner bearing race away from hub using chisel and hammer. Using Puller (49-0636-145), Handle (49-G033-102) and Attachment (49-G030-727), press inner bearing race from hub. **DO NOT** reuse wheel bearing.
6. Inspect all components for cracks, wear and damage. Replace components as necessary. **DO NOT** reuse dust cover (if removed). If replacing dust cover, mark location on knuckle and original dust cover for NEW dust cover installation reference.

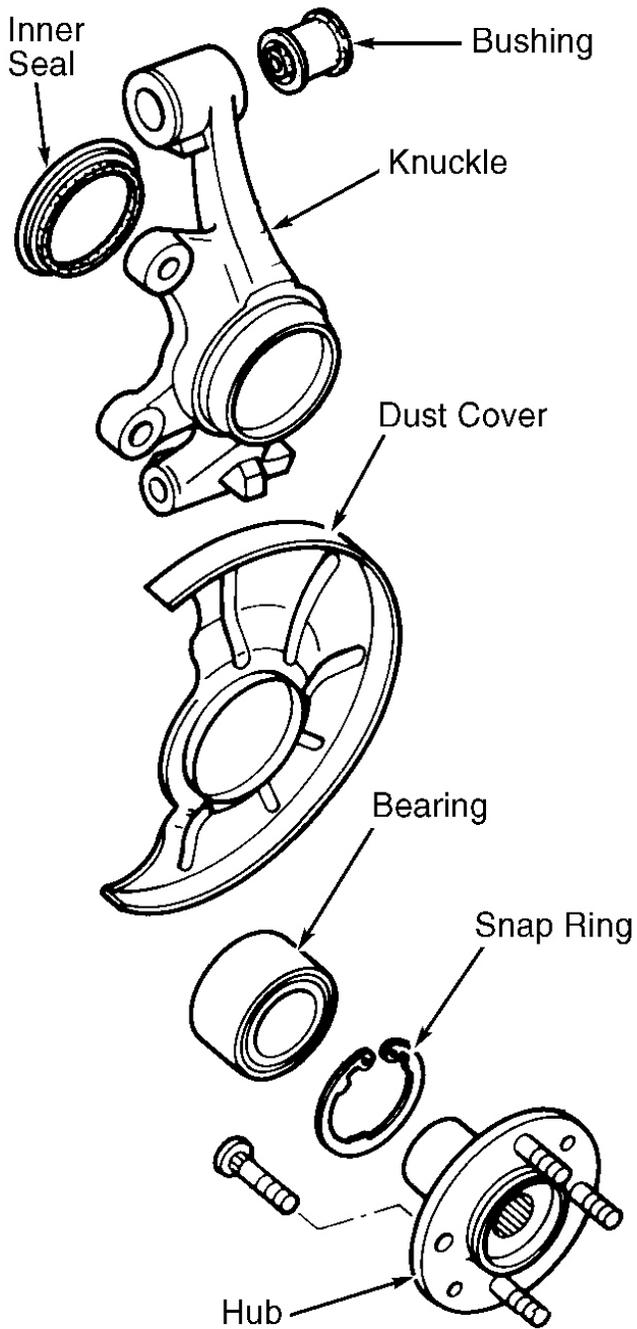
NOTE: **Never press or chisel brake dust cover from knuckle/hub unless replacing cover. DO NOT reuse wheel bearing if it is removed from knuckle/hub.**

Reassembly & Installation

1. Press NEW dust cover onto knuckle using Installer (49-G033-107) and Attachment (49-F027-009); align reference marks made from original dust cover. Press NEW wheel bearing into knuckle using Handle (49-G030-797) and Attachments (49-F027-009 and 49-F027-007). Install snap ring.
2. Apply grease to inner bearing race. Press hub into knuckle and install inner seal. Lubricate inner seal lip. Reverse removal procedure to install knuckle/hub assembly.
3. Check rear wheel alignment. See the **WHEEL ALIGNMENT SPECIFICATIONS & PROCEDURES** article in the WHEEL ALIGNMENT section. Tighten all bolts and nuts to specification. See **TORQUE SPECIFICATIONS** . Stake drive axle shaft lock nut.

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Fig. 4: Exploded View Of Rear Knuckle/Hub Assembly
Courtesy of MAZDA MOTORS CORP.

TORQUE SPECIFICATIONS

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TORQUE SPECIFICATIONS

Application	Ft. Lbs. (N.m)
ABS Speed Sensor Bolt	12-17 (16-23)
Brake Caliper Mounting Bolts	36-51 (49-69)
Differential-To-Drive Axle Flange Nuts (4)	40-47 (54-64)
Drive Axle Shaft Lock Nut	159-217 (216-294)
Lower Control Arm Bolt/Nut	46-55 (62-75)
Upper Control Arm Bolt/Nut	34-49 (46-66)
Wheel Lug Nuts	65-87 (88-118)