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**ARTICLE BEGINNING**

1993 Clutch

RX7

**DESCRIPTION**

Clutch assembly uses a diaphragm spring type disc. Clutch is hydraulically-operated.

**ADJUSTMENTS**

**CLUTCH PEDAL FREE PLAY**

Check clutch pedal free play. See Fig. 1. See CLUTCH PEDAL FREE PLAY table. If free play is not within specification, check hydraulic and mechanical system components. If pedal free play adjustment is required, loosen lock nut and turn master cylinder push rod to obtain specified free play. Tighten lock nut.

CLUTCH PEDAL FREE PLAY TABLE (1)

Application	In. (mm)
RX7	.20-.55 (5.1-14)

(1) - See Fig. 1.

**CLUTCH PEDAL HEIGHT**

Measure clutch pedal height from firewall to front side of pedal pad. See Fig. 1. See CLUTCH PEDAL HEIGHT table.

CLUTCH PEDAL HEIGHT TABLE (1)

Application	In. (mm)
RX7	6.52-6.97 (166-177)

(1) - Measure to carpet on firewall. See Fig. 1.

**CLUTCH DISENGAGEMENT HEIGHT**

Measure clutch disengagement height, where clutch disengages, from pedal pad to firewall. See Fig. 1. See CLUTCH DISENGAGEMENT HEIGHT (MINIMUM) table.

CLUTCH DISENGAGEMENT HEIGHT (MINIMUM) TABLE (1)

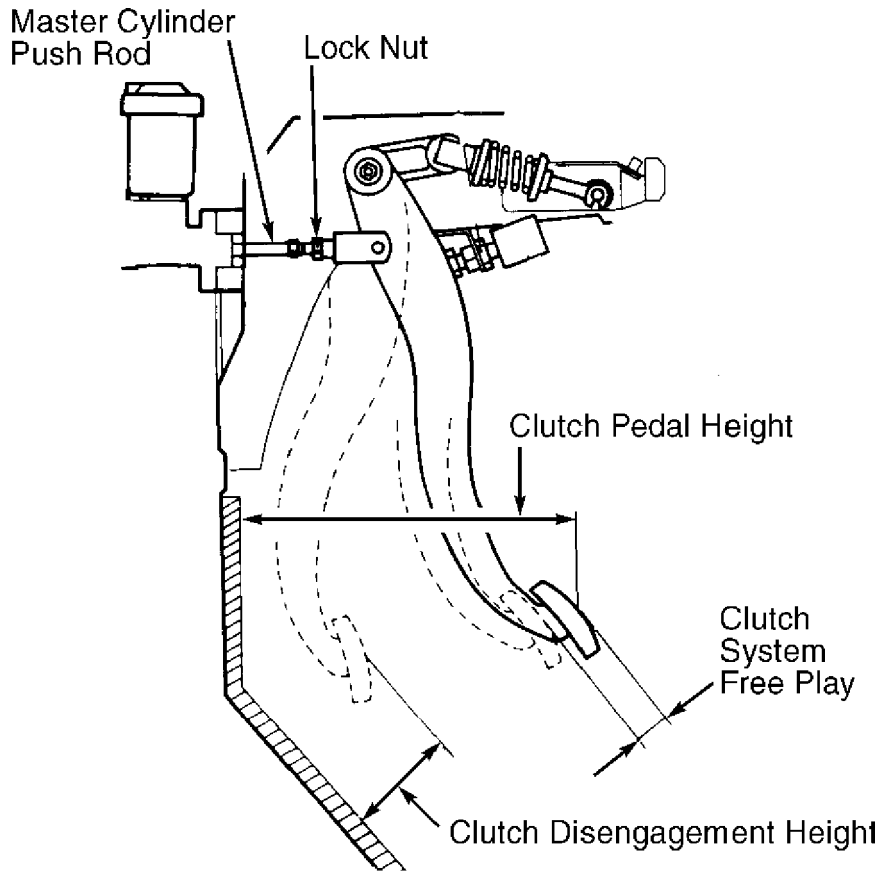
**CLUTCH**  
**Article Text (p. 2)**  
 1993 Mazda RX7

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Application In. (mm)

RX7 ..... 1.89 (48)

(1) - Measure to carpet on firewall. See Fig. 1.



90E09842  
 Fig. 1: Measuring Clutch Pedal Adjustment & Position  
 Courtesy of Mazda Motors Corp.

**HYDRAULIC SYSTEM BLEEDING**

- 1) Fill reservoir with DOT 3 brake fluid. Place hose on bleeder screw to prevent brake fluid from entering bellhousing. Loosen bleeder screw and maintain fluid level in reservoir.
- 2) Close bleeder screw when fluid stream is free of air bubbles. Ensure proper fluid level, and install reservoir cap.

**REMOVAL & INSTALLATION**

**CLUTCH ASSEMBLY**

Removal

**CLUTCH**  
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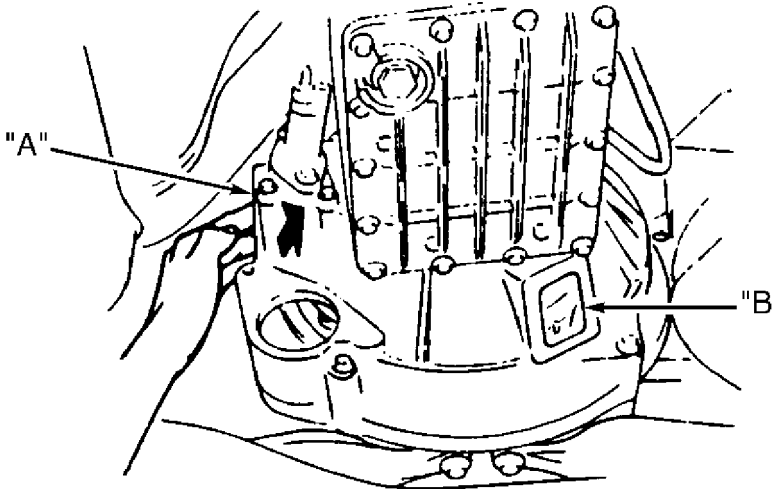
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1) Disconnect negative battery cable. Remove console, gear shift knob and insulator. Remove gear shift lever assembly. Remove transmission cover.

2) Raise and support vehicle. Remove right and left under covers. Leave fluid pipe connected to clutch release cylinder. Remove clutch release cylinder from bell housing and secure aside with wire. Remove starter and center tunnel reinforcement. Remove secondary air injection pipe and catalytic converter. Remove front and rear tunnel reinforcement.

3) Mark position of drive shaft flange for reassembly reference. Remove drive shaft. Insert Main Shaft Holder (49-S120-440) into extension housing. Support engine and differential. Remove Power Plant Frame (PPF) from transmission and differential. Remove back up light switch from transmission.

4) Remove service access covers "A" and "B". See Fig. 2. Through service hole "A", swing clutch fork forward and hold release collar against pressure plate. Insert a screwdriver through service hole "B" into space between release collar and wedge collar. Pry and separate release from pressure plate.



93F84546

Fig. 2: Identifying Clutch Housing Service Access Holes  
Courtesy of Mazda Motors Corp.

NOTE: If release collar cannot be separated from clutch cover, remove cover-to-flywheel bolts through service hole "B". Remove clutch cover and disc with transmission.

5) Secure transmission jack under transmission. Remove transmission-to-engine bolts. Remove transmission. If clutch disc and clutch cover were removed with transmission, remove wire ring from release collar. Separate release collar from clutch cover. Remove clutch cover and disc.

CLUTCH RUNOUT (MAXIMUM) TABLE

AA

Application

In. (mm)

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Disc ..... 0.024 (0.6)  
Flywheel ..... 0.008 (.20)  
AA

### Inspection

1) Check disc for loose rivets, worn springs and oil contamination. Minimum lining height above rivet heads is .012" (.30 mm). Inspect flywheel and clutch cover for burns, scoring and grooves.

2) Check flywheel and clutch cover runout. Resurface or replace flywheel and clutch cover if beyond specification. See CLUTCH RUNOUT (MAXIMUM) table. If flywheel ring gear is replaced, ensure chamfer on flywheel teeth faces engine.

3) Check clutch disc runout using dial indicator. Replace disc if it is not to specification. See CLUTCH RUNOUT (MAXIMUM) table. Check disc hub and input shaft splines for excessive wear. Hub must slide smoothly on input shaft splines.

4) Check pilot bearing/bushing for wear. If equipped with roller bearing, apply inward pressure and turn pilot bearing from side to side. If bearing sticks or has excessive resistance, replace bearing. If equipped with a pilot bushing, check for abnormal wear or roughness in pilot hole. Check for tight fit in crankshaft. Replace as necessary. Check release bearing for smooth operation, and inspect it for wear, damage and looseness. Replace bearing as necessary.

### Installation

1) Lightly coat input shaft splines, release bearing and fork contact areas with molybdenum disulfide grease. Align clutch disc on flywheel. Install NEW wedge collar and wire ring on clutch cover. Place clutch cover on flywheel and align reference marks. Tighten bolts evenly in a crisscross sequence.

2) Raise transmission into position. Install transmission-to-engine bolts. Tighten bolts to specification. See TORQUE SPECIFICATIONS TABLE at the end of this article. To complete installation, reverse removal procedure.

## RELEASE BEARING & FORK

### Removal & Installation

1) Remove transmission. See CLUTCH ASSEMBLY under REMOVAL & INSTALLATION. Remove release bearing and fork. Turn release bearing in both directions. Replace bearing if rough or noisy.

2) Inspect release fork for wear and damage. Replace if necessary. Apply molybdenum disulfide grease to release bearing contact and sliding surfaces. To complete installation, reverse removal procedure.

## CLUTCH MASTER CYLINDER

### Removal & Installation

Disconnect hydraulic line and master cylinder mounting nuts. Unhook clutch pedal from push rod. Remove master cylinder. To install,

# CLUTCH

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reverse removal procedure and bleed hydraulic system.

### CLUTCH RELEASE CYLINDER

#### Removal & Installation

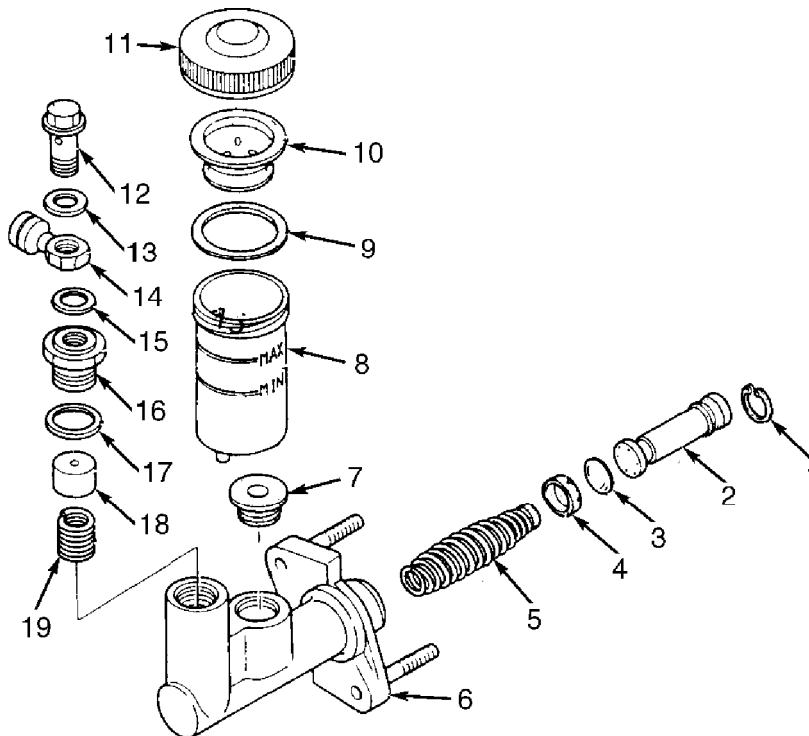
Raise and support vehicle. Disconnect and plug fluid hose. Remove release cylinder-to-clutch housing nuts. Remove release cylinder. To install, reverse removal procedure. Bleed hydraulic system.

### OVERHAUL

NOTE: Overhaul procedures for Navajo are not available.

### CLUTCH MASTER CYLINDER

NOTE: For exploded view of clutch master cylinder, see Fig. 3.



- |                  |                   |                    |
|------------------|-------------------|--------------------|
| 1. Snap Ring     | 8. Reservoir      | 15. Washer         |
| 2. Piston        | 9. Gasket         | 16. Outlet Fitting |
| 3. Spacer        | 10. Strainer      | 17. Gasket/Washer  |
| 4. Cup           | 11. Cap           | 18. One-Way Valve  |
| 5. Return Spring | 12. Bolt          | Piston             |
| 6. Cylinder Body | 13. Washer        | 19. Spring         |
| 7. Bushing       | 14. Banjo Fitting |                    |

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Fig. 3: Exploded View Of Clutch Master Cylinder  
Courtesy of Mazda Motors Corp.

**CLUTCH**  
**Article Text (p. 6)**

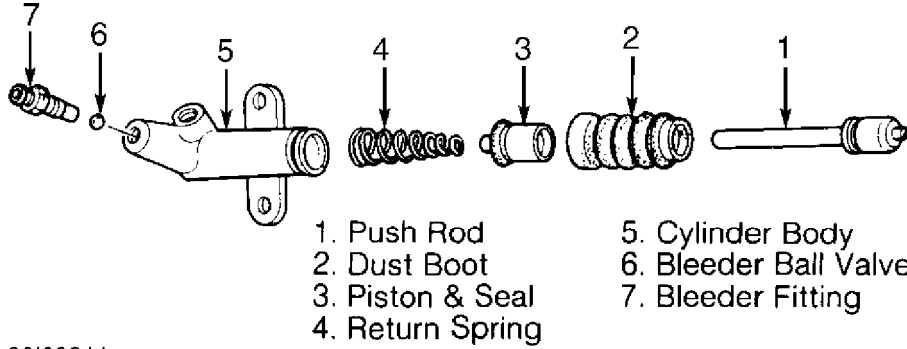
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**CLUTCH RELEASE CYLINDER**

NOTE: For exploded view of clutch release cylinder, see Fig. 4.



90109844  
 Fig. 4: Exploded View Of Clutch Release Cylinder  
 Courtesy of Mazda Motors Corp.

**TORQUE SPECIFICATIONS**

TORQUE SPECIFICATIONS TABLE

Application	Ft. Lbs. (N.m)
Clutch Cover Bolts (1)	13-19 (18-26)
Clutch Housing-To-Engine Block Bolts	28-38 (38-51)
Flywheel-To-Crankshaft Nut	290-361 (393-490)
Tunnel Reinforcement	13-19 (18-26)

(1) - Tighten in a crisscross pattern.

**END OF ARTICLE**

**DRIVE AXLE**  
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**ARTICLE BEGINNING**

1993 DRIVE AXLES  
 Mazda - Differentials & Axle Shafts  
  
 RX7

NOTE: For models with independent suspension, see the  
 DRIVE AXLE - REAR article in the DRIVE AXLES section.

**DESCRIPTION**

A Limited Slip Differential (LSD) is standard on RX7. Rear  
 axle uses CV joints to connect differential to axle hubs.

**AXLE RATIO & IDENTIFICATION**

See AXLE RATIO SPECIFICATIONS table. To determine axle ratio,  
 divide number of ring gear teeth by number of pinion teeth.

AXLE RATIO SPECIFICATIONS TABLE  
 ~~~~~  

| Application | Number Of Teeth<br>Pinion/Ring Gear | Ratio  |
|-------------|-------------------------------------|--------|
| A/T .....   | 11/43 .....                         | 3.91:1 |
| M/T .....   | 10/41 .....                         | 4.10:1 |

 ~~~~~

**LUBRICATION**

**CAPACITY**

DIFFERENTIAL CAPACITY SPECIFICATIONS TABLE (1)  
 ~~~~~  

| Application | Qts. (L)    |
|-------------|-------------|
| RX7 .....   | 1.40 (1.30) |

 ~~~~~

(1) - Fill to lower edge of filler plug hole.  
 ~~~~~

**FLUID TYPE**

DIFFERENTIAL LUBRICATION SPECIFICATIONS TABLE (1)  
 ~~~~~  

Application	Specification
Warmer Than 0°F (-18°C) .....	GL-5/SAE 90W
Cooler Than 0°F (-18°C) .....	GL-5/SAE 80W

 ~~~~~



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(1) - Fill to lower edge of filler plug hole.

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**TROUBLE SHOOTING**

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

**REMOVAL & INSTALLATION**

**DIFFERENTIAL ASSEMBLY**

Removal

1) Raise and support vehicle. Remove wheel and tire assembly. Drain differential. Mark drive shaft flange for reassembly reference and remove drive shaft from differential carrier. Remove tunnel reinforcement bracket. See Fig. 1. Remove Power Plant Frame (PPF)-to-differential bolts and remove PPF. Remove I-arm bolt, and pull knuckle/hub assembly outward.

2) Using pry bar, separate CV joint drive axles from differential assembly, and support aside. Support differential assembly and remove differential mount-to-chassis mounting bolts. Remove differential assembly from vehicle. Remove differential mount from differential. Remove differential carrier-to-housing bolts. Remove differential carrier.

Installation

1) To install, reverse removal procedure. Apply sealant to carrier mating flange. Align marks made during removal. Measure outside diameter of snap ring on inner drive axle shaft. Diameter should be a maximum of 1.26" (32.0 mm). Replace snap ring if measurement exceeds specification. Ensure ends of snap ring are facing upward when installing drive axle shaft into differential.

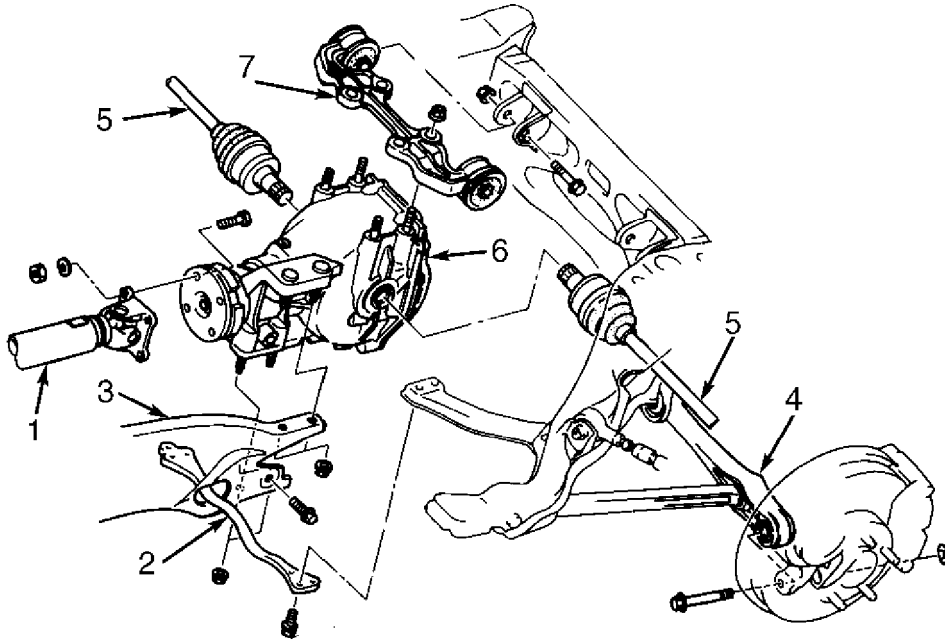
2) Carefully install drive axle assembly into differential so as not to damage oil seal. Pull drive axle assembly outward to ensure drive axle assembly is properly seated in differential. Refill differential with lubricant. Tighten all nuts and bolts to specification. See TORQUE SPECIFICATIONS TABLE at the end of this article.

## DRIVE AXLE Article Text (p. 3)

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- |                                 |                       |
|---------------------------------|-----------------------|
| 1. Drive Shaft                  | 5. Drive Axle         |
| 2. Tunnel Reinforcement Bracket | 6. Differential       |
| 3. Power Plant Frame (PPF)      | 7. Differential Mount |
| 4. I-Arm                        |                       |

93H83045

Fig. 1: Exploded View Of Differential Components  
Courtesy of Mazda Motors Corp.

### OVERHAUL

#### DIFFERENTIAL

NOTE: Mark positions of all components before disassembly.

NOTE: Overhaul of Limited Slip Differential (LSD) unit is not recommended. Replace if defective. Overhaul procedures listed below are for carrier assembly only.

#### Disassembly

1) Mount carrier in Differential Carrier Hanger (49-M005-561). Mark side bearing caps for reassembly reference. Remove adjuster lock plates (if equipped). See Fig. 2.

2) Loosen side bearing cap bolts and slightly back off adjusters. Remove side bearing caps. Remove differential assembly from carrier. Mark side bearing races for reassembly reference. Remove adjusters and side bearing races from differential.

3) Remove drive pinion lock nut and washer. Remove companion flange using Puller (49-0839-425C). Remove oil seal, spacer, front bearing and collapsible spacer from carrier. Remove drive pinion, spacer and rear bearing assembly from carrier. Remove bearing races using a drift and hammer in slots provided on inner lip (as

# DRIVE AXLE

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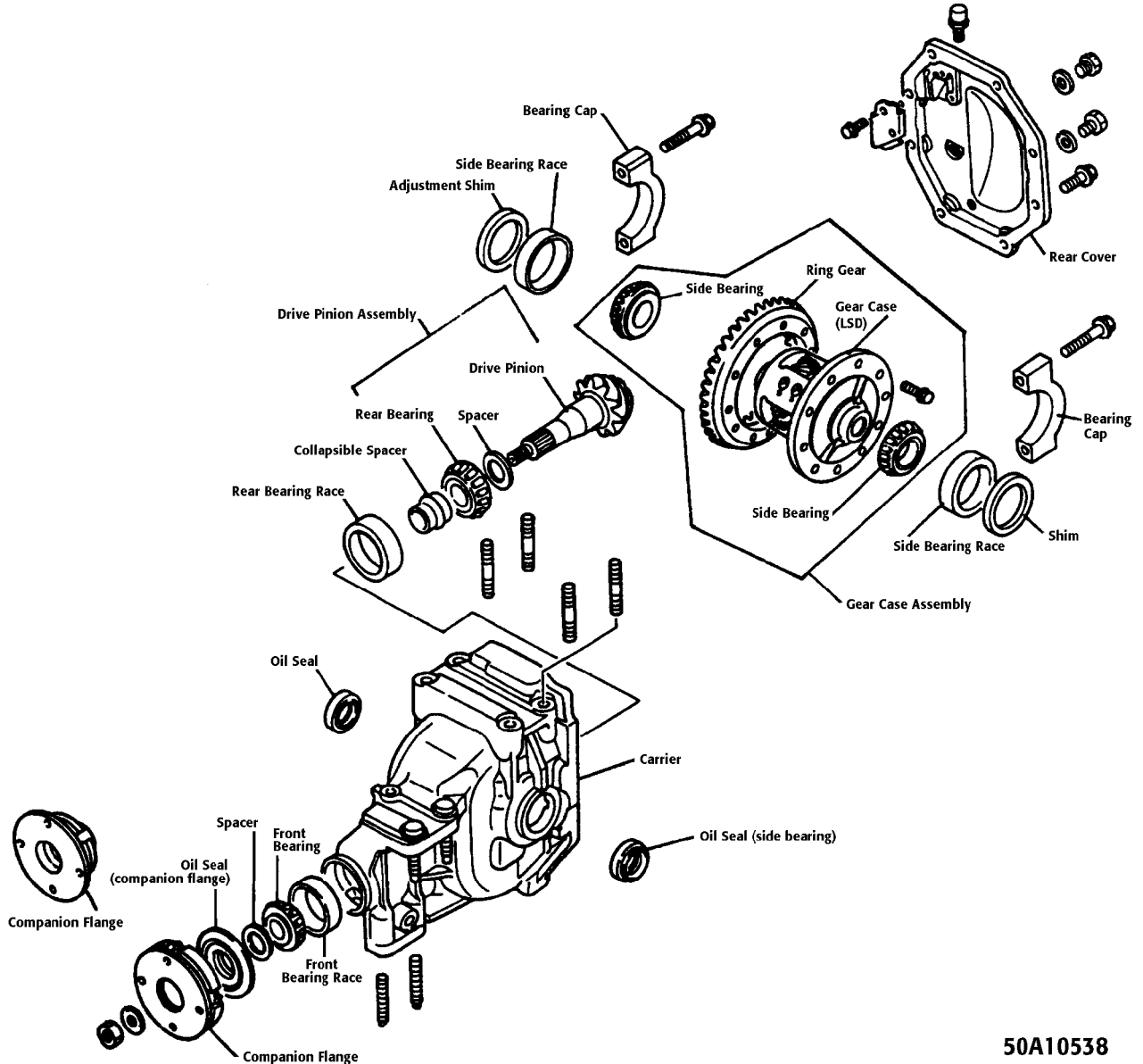
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necessary).

4) Remove ring gear retaining bolts. Separate ring gear from differential case. Mark side bearings for reassembly reference. Using Puller (49-0839-425C), remove side bearings from differential case. Remove knock pin. Remove pinion shaft, pinion gears, thrust washers, side gears, and thrust block (if equipped). See Fig. 2.



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Fig. 2: Exploded View Of Differential & Carrier Assembly  
Courtesy of Mazda Motors Corp.

### Reassembly & Adjustment

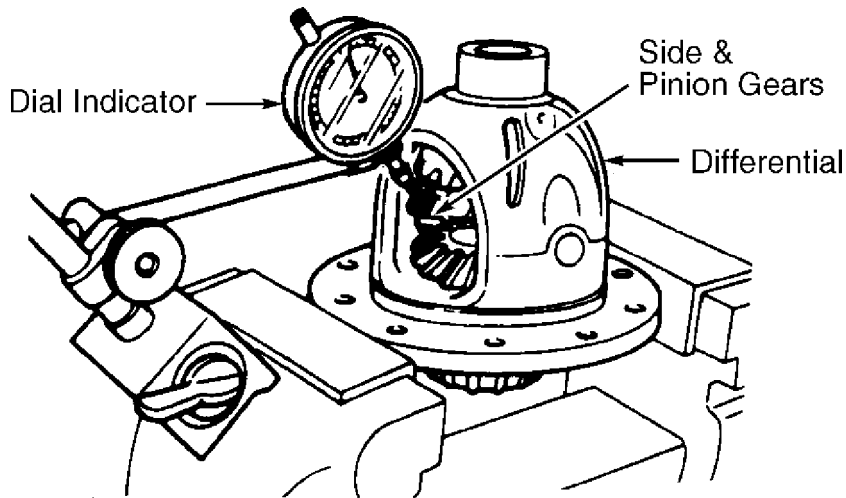
1) Install thrust block (if equipped), side gears, thrust washers, pinion gears, pinion shaft and knock pin. Stake knock pin. Position dial indicator against pinion gear. See Fig. 3. Secure one side gear.

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91B01528

Fig. 3: Measuring Side Gear & Pinion Gear Backlash  
 Courtesy of Mazda Motors Corp.

2) Check side gear and pinion gear backlash. If backlash exceeds .004" (.10 mm), replace thrust washers. See THRUST WASHER SPECIFICATIONS table. Noting marks made during disassembly, press side bearings onto differential assembly using Bearing Installer (49-F401-337A, 49-G030-338 or 49-UB71-525) and Body (49-F401-331). Apply locking compound to rear face of ring gear. Install ring gear and tighten ring gear retaining bolts to 51-61 ft. lbs. (69-83 N.m).

THRUST WASHER SPECIFICATIONS TABLE

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

| Identifying Mark | Thickness - In. (mm) |
|------------------|----------------------|
| 0 .....          | .0787 (2.000)        |
| 05 .....         | .0807 (2.050)        |
| 1 .....          | .0827 (2.100)        |
| 15 .....         | .0846 (2.150)        |
| 2 .....          | .0866 (2.200)        |

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

3) Use Bearing Installer (49-J027-001) for rear bearing race installation, and Attachment (49-F027-007) for front bearing race installation.

4) On all models, put original spacer, rear bearing and Collar (49-J027-002) on Dummy Drive Pinion (49-8531-565). See Fig. 4. Secure collar with "O" ring. Install assembly into differential carrier.

5) Install front bearing and collar on dummy drive pinion. See COLLAR SELECTION table. Install companion flange, washer and original drive pinion lock nut. Tighten drive pinion lock nut so dummy drive pinion assembly can be turned by hand.

COLLAR SELECTION TABLE

**DRIVE AXLE**  
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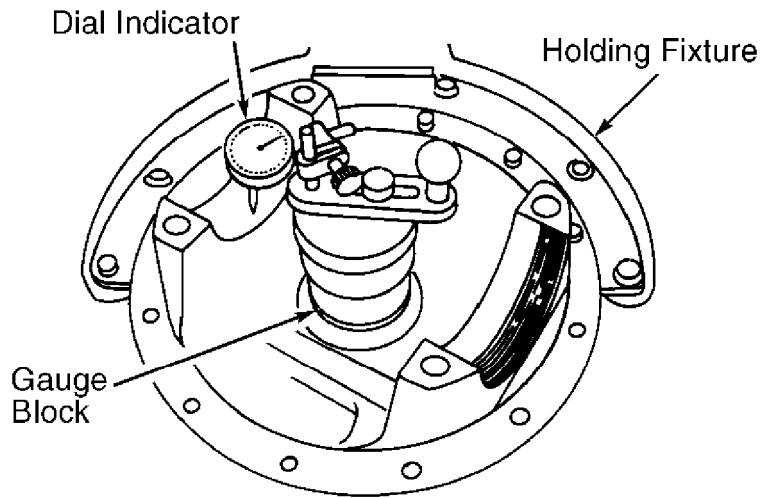
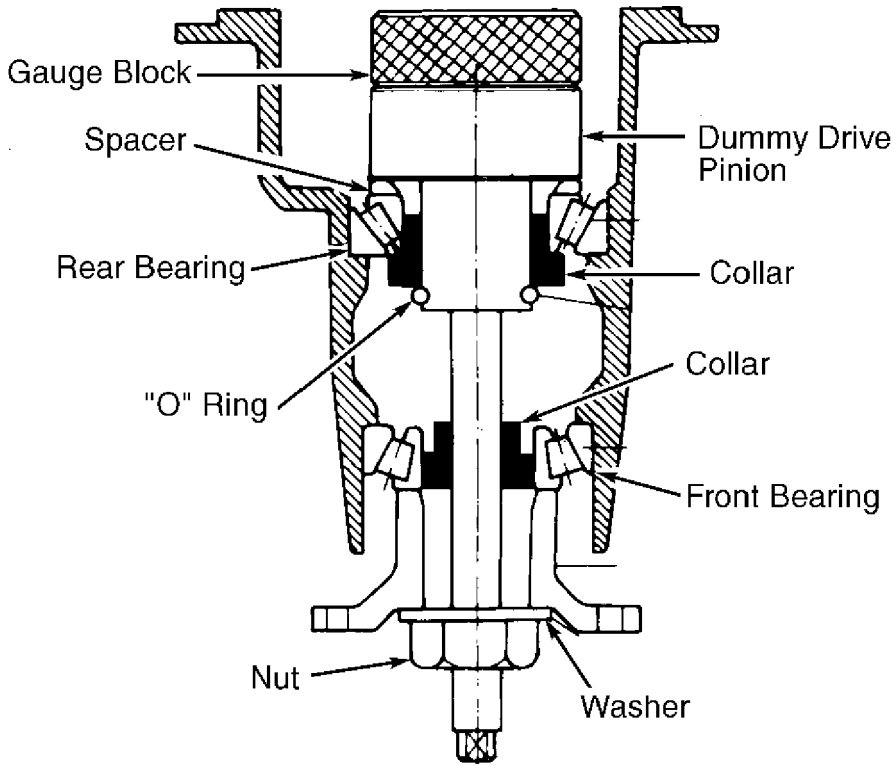
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Application Collar No.

RX7 ..... 49-8531-567



91J01532

Fig. 4: Checking Drive Pinion Installation & Position  
Courtesy of Mazda Motors Corp.

6) Install dial indicator on Pinion Height Gauge (49-0727-570). Place pinion height gauge on a flat surface and zero dial

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indicator. Position gauge block on top of dummy drive pinion assembly. See GAUGE BLOCK SELECTION table.

GAUGE BLOCK SELECTION TABLE

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

Application Gauge Block No.

Rear Differential ..... 49-0660-555

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

7) Place pinion height gauge on top of gauge block. Position dial indicator to measure distance to a point where side bearing sits. Measure lowest point. See Fig. 4. Measure both sides. Add both measurements together and divide by 2.

8) If result is not zero, replace pinion spacer. Spacers are available in a range of .1213-.1366" (3.080-3.470 mm) in .001" (.03 mm) increments. Remove dummy drive pinion. Press rear bearing on drive pinion.

9) Install drive pinion, spacer, front bearing, collapsible spacer and companion flange in differential carrier. DO NOT install pinion oil seal yet. DO NOT exceed one-ton force; collapsible spacer will be damaged.

10) Install washer and drive pinion lock nut. Temporarily tighten drive pinion lock nut. Turn companion flange by hand to seat bearing. Using torque wrench, tighten drive pinion lock nut to specification. See TORQUE SPECIFICATIONS TABLE at the end of this article. Check pinion bearing preload at drive pinion lock nut. See PINION PRELOAD SPECIFICATIONS table. If pinion bearing preload is not as specified, replace collapsible spacer and recheck preload.

PINION PRELOAD SPECIFICATIONS TABLE

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

Application INCH Lbs. (N.m)

RX7 ..... 11.3-15.6 (1.3-1.8)

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

11) Remove drive pinion lock nut, washer and companion flange. Install pinion oil seal. Lubricate oil seal lip with differential oil. Install companion flange and washer. Install NEW drive pinion lock nut and tighten it to specification. See TORQUE SPECIFICATIONS TABLE at the end of this article. Recheck pinion bearing preload. Lubricate end of companion flange with grease.

12) Position differential assembly into differential carrier. Install side bearing adjusters. Position side bearing caps. Align marks made during disassembly. Install side bearing cap bolts and hand-tighten bolts.

13) Tighten side bearing adjusters equally until adjusters contact bearing races. Mark ring gear in 4 locations, 90 degrees apart. Position dial indicator against ring gear to check ring gear backlash.

14) Check backlash at all 4 locations. Tighten side bearing

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adjusters equally until backlash is .0035-.0043" (.09-.11 mm). Minimum backlash at any point is .002" (.05 mm). Difference between minimum and maximum backlash should not exceed .0028" (.07 mm).

15) To set differential bearing preload, tighten adjusters equally until distance between measuring points on carrier bearing caps is within specification. See Fig. 5. See DIFFERENTIAL CARRIER DIMENSIONS table.

16) Ensure backlash did not change when preload was set. Tighten side bearing cap bolts to specification. See TORQUE SPECIFICATIONS TABLE at the end of this article. Check ring gear tooth patterns. See GEAR TOOTH CONTACT PATTERNS article in GENERAL INFORMATION.

17) To complete reassembly, reverse disassembly procedure. Tighten all nuts and bolts to specification. See TORQUE SPECIFICATIONS TABLE at the end of this article.

DIFFERENTIAL CARRIER DIMENSIONS TABLE

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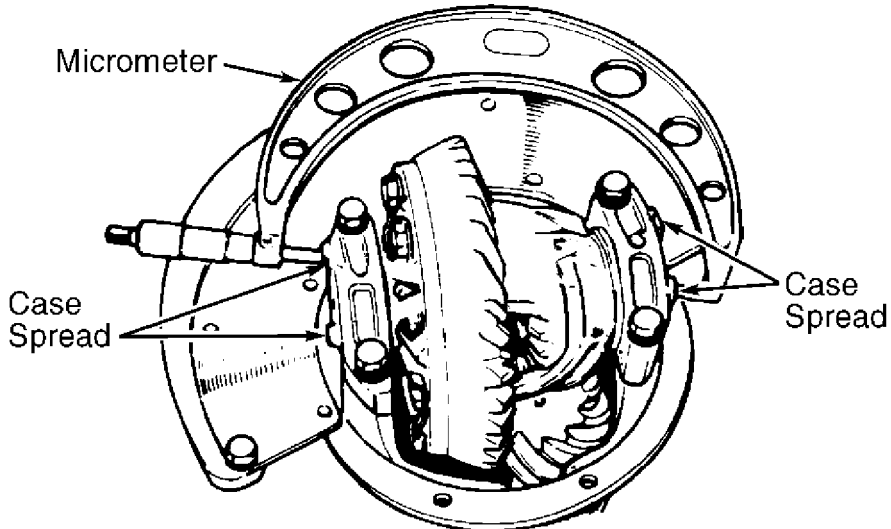
Application (1) In. (mm)

RX7 ..... (2)

(1) - See illustration for measuring point. See Fig. 5.

(2) - Information is not available from manufacturer.

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91D01529  
Fig. 5: Measuring Carrier Case Spread  
Courtesy of Mazda Motors Corp.

**TORQUE SPECIFICATIONS**

TORQUE SPECIFICATIONS TABLE

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

Application Ft. Lbs. (N.m)

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|                                                                          |       |         |           |
|--------------------------------------------------------------------------|-------|---------|-----------|
| Differential Carrier Bearings Cap Bolts                                  | ...   | 54-79   | (73-107)  |
| Differential Carrier-To-Housing Bolts                                    | ..... | 27-38   | (37-52)   |
| Differential Mount-To-Chassis Nuts                                       | ..    | 69-86   | (94-117)  |
| Differential-To-Differential Mount Nuts                                  | ...   | 69-86   | (94-117)  |
| Drive Pinion Lock Nut                                                    | ..... | 94-210  | (127-284) |
| Drive Shaft Companion Flange Nuts                                        | ..... | 36-43   | (49-58)   |
| Filler Plug                                                              | ..... | 29-40   | (39-54)   |
| I-Arm-To-Knuckle/Hub Assembly Bolt                                       | ..... | 44-54   | (60-73)   |
| Power Plant Frame-to-                                                    |       |         |           |
| Differential Nuts                                                        | ..... | 109-130 | (148-176) |
| Ring Gear Retaining Bolts                                                | ..... | 51-61   | (69-83)   |
| Tunnel Reinforcement Bracket Bolts                                       | ..... | 13-19   | (18-26)   |
| Wheel Lug Nuts                                                           | ..... | 65-87   | (88-118)  |
| AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA |       |         |           |

**END OF ARTICLE**



# DRIVE AXLE - REAR

## Article Text

1993 Mazda RX7

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### ARTICLE BEGINNING

1993 DRIVE AXLES  
Mazda RWD Axle Shafts

Mazda; RX7

NOTE: Information in this article applies only to models with independent rear suspension. For other information, see DRIVE AXLE article.

### DESCRIPTION

#### CV JOINT IDENTIFICATION TABLE

| Application | Joint Type |
|-------------|------------|
| RX7         | Tripod     |

### TROUBLE SHOOTING

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

### REMOVAL, DISASSEMBLY, REASSEMBLY & INSTALLATION

#### RWD AXLE SHAFT

##### Removal

1) Raise vehicle and support with safety stands. Remove wheel and tire assembly. Loosen drive axle lock nut until flush with end of drive axle shaft.

2) Remove I-arm bolt, and pull knuckle/hub assembly outward. See Fig. 1. Remove inner CV joint from differential. 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 lock nut and washer.

## DRIVE AXLE - REAR

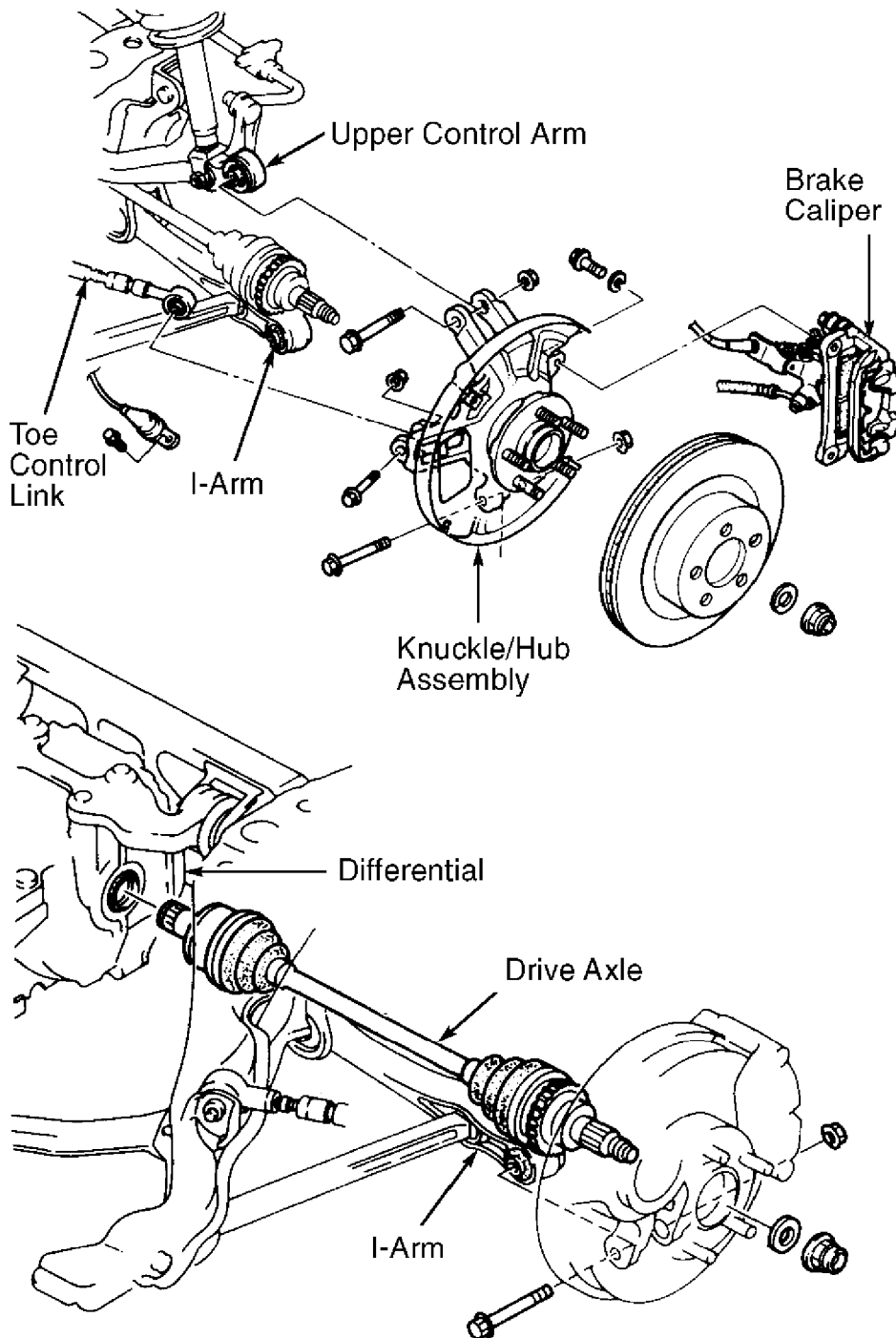
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93H82997

Fig. 1: Removing Rear Drive Axle & Knuckle/Hub Assembly  
Courtesy of Mazda Motors Corp.

### Disassembly (Tripod Type)

1) Place drive axle assembly in soft-jawed vise. Keep drive axle assembly clean during disassembly and reassembly. Remove CV joint boot bands and slide boot away from CV joint housing. Index mark CV

## DRIVE AXLE - REAR

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joint housing, tripod assembly and drive axle shaft for reassembly reference. Using screwdriver, remove circlip ring from inner race groove in CV joint housing. See Fig. 2.

2) Remove CV joint housing from tripod assembly. Remove snap ring retaining tripod to drive axle shaft. Using a hammer and soft drift, drive tripod assembly from drive axle shaft. 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.

3) Clean and inspect all parts. Ensure drive axle shaft is not bent, twisted or damaged. Check splines for wear. Inspect tripod bearings for abnormal wear, excessive looseness, seizure, rust or other damage. Replace as necessary.

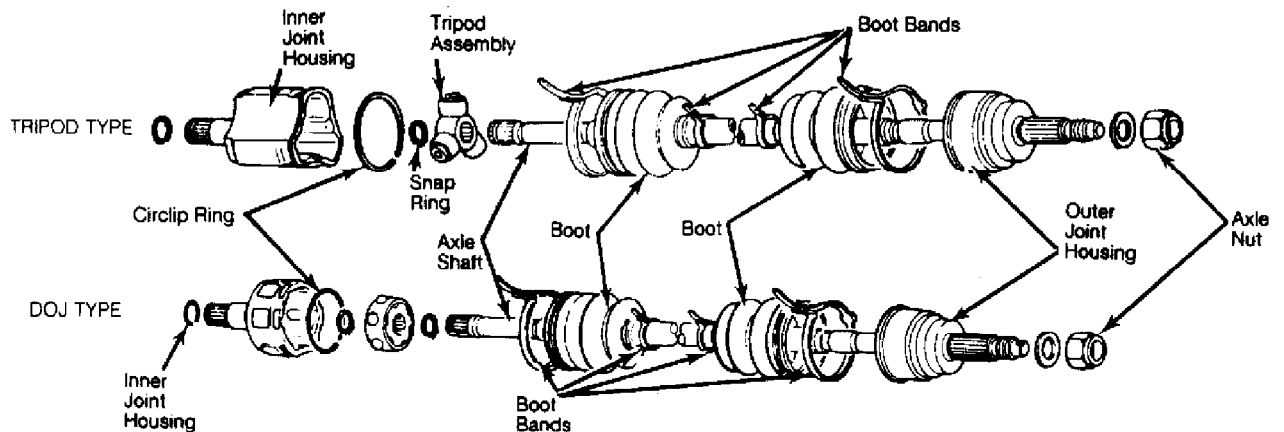


Fig. 2: Exploded View Of Axle Assemblies (DOJ & Tripod)  
Courtesy of Mazda Motors Corp.

**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 BOOT IDENTIFICATION table.

#### Reassembly (Tripod Type)

1) Pack outer CV joint assembly with grease. Wrap tape around drive axle shaft end and slide outer boot on drive axle shaft (if removed). Slide inner CV joint boot on drive axle shaft.

2) Align marks on tripod assembly and drive axle shaft. Install tripod assembly on drive axle shaft using hammer and soft drift. Install snap ring. Apply grease to tripod housing assembly. Align marks on tripod, drive axle shaft and CV joint housing. Position housing onto tripod assembly and install circlip ring.

3) 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.

**DRIVE AXLE - REAR**

**Article Text (p. 4)**

1993 Mazda RX7

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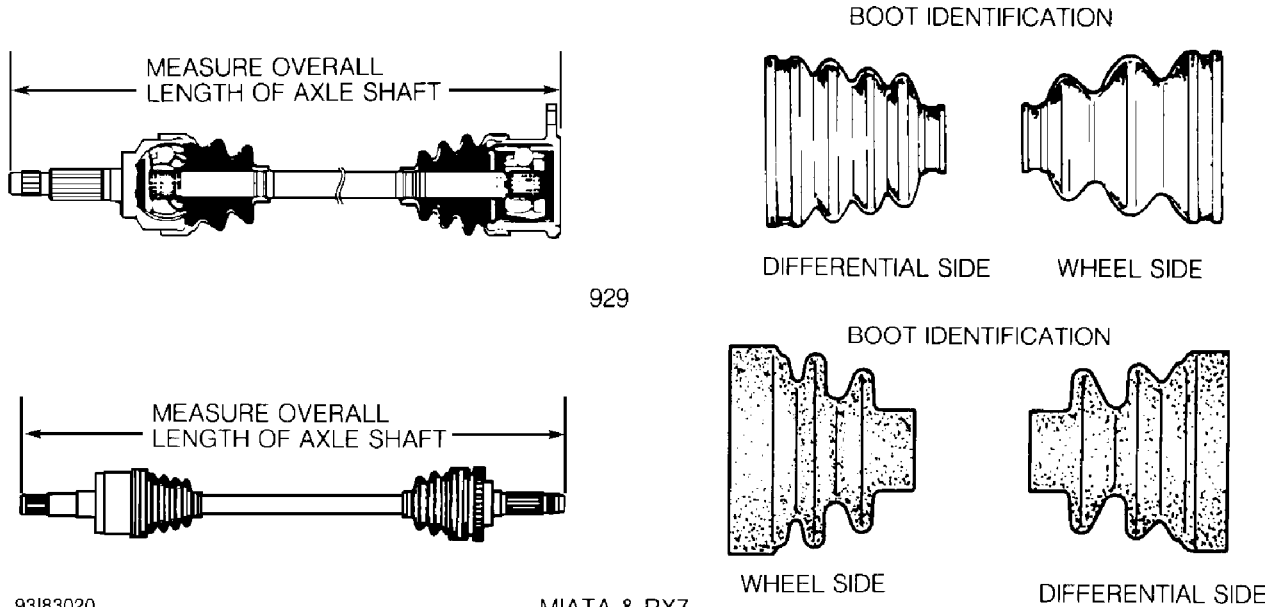


Fig. 3: Measuring Axle & Identifying Boots  
 Courtesy of Mazda Motors Corp.

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

Installation

1) To install, reverse removal procedure. Measure outside diameter of snap ring on inner drive axle shaft. Diameter should be a maximum of 1.26" (32 mm). Replace snap ring if measurement exceeds specification. Ensure ends of snap ring are facing upward when installing drive axle shaft into differential.

2) Carefully install drive axle assembly into differential so as not to damage oil seal. Pull drive axle assembly outward to ensure drive axle assembly is properly seated in differential. Check rear wheel alignment. See SPECIFICATIONS & PROCEDURES article in WHEEL ALIGNMENT. Tighten all bolts and nuts to specification. See TORQUE SPECIFICATIONS TABLE at the end of this article. Stake drive axle lock nut.

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

REAR AXLE BOOT IDENTIFICATION TABLE

| Application | Wheel Side<br>Diameter - In. (mm) | Differential Side<br>Diameter - In. (mm) |
|-------------|-----------------------------------|------------------------------------------|
| RX7         | 4.15 (105.3)                      | 3.96 (100.7)                             |

REAR AXLE SHAFT LENGTHS TABLE

| Application | Length - In. (mm) |
|-------------|-------------------|
| RX7         | 41.5 (1053)       |

# DRIVE AXLE - REAR

## Article Text (p. 5)

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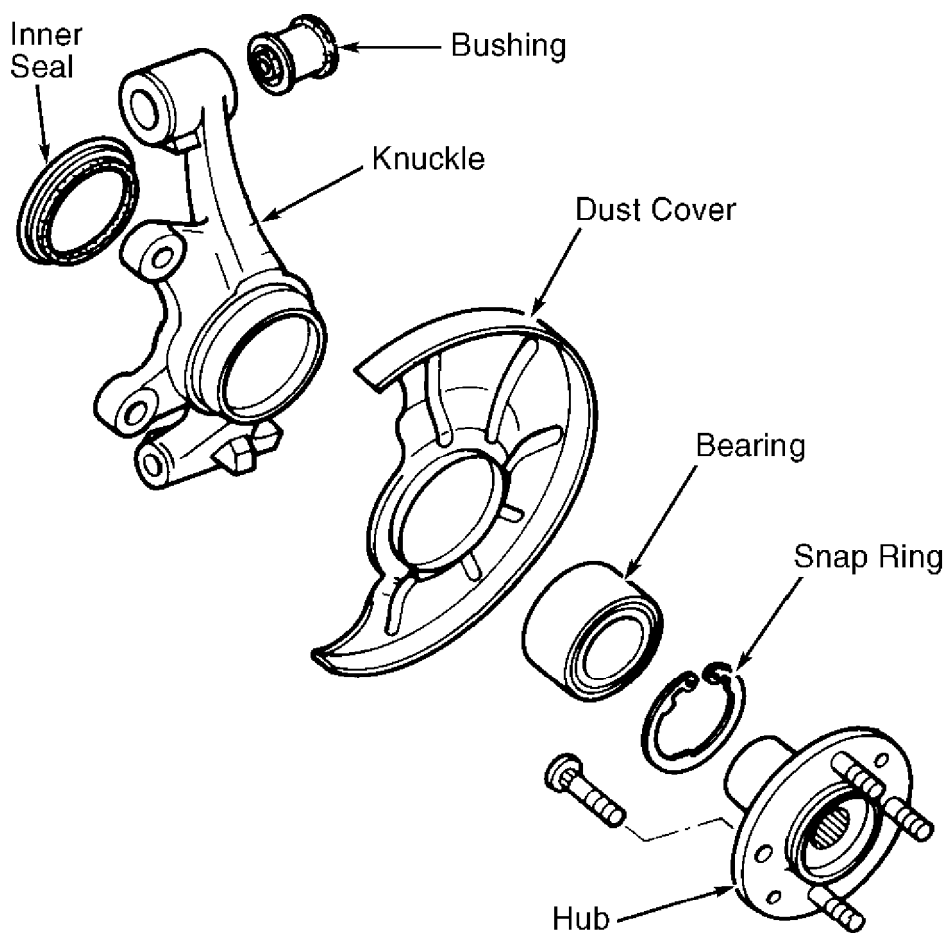
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| Application | Right<br>In. (mm) | Left<br>In. (mm) |
|-------------|-------------------|------------------|
| RX7 .....   | (1) .....         | (1) .....        |

(1) - Length of right and left rear axle shafts should be 31.15-31.54 In. (791.2-801.2 mm). See Fig. 3.

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

### REAR HUB ASSEMBLY



91E01860  
Fig. 4: Exploded View Of Rear Knuckle/Hub Assembly (RX7 Is Similar)  
Courtesy of Mazda Motors Corp.

#### 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 lock nut torque or replace wheel bearing if measurement exceeds specification.

3) Remove drive axle lock nut and washer. Remove ABS speed

**DRIVE AXLE - REAR**

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sensor from knuckle/hub assembly. Remove upper control arm, I-arm and toe control link bolts retaining knuckle/hub assembly. Remove knuckle/hub assembly from vehicle. If drive axle is stuck in hub, use plastic or soft-faced hammer to tap drive axle from hub assembly.

4) Using Puller (49-F026-103), Handle (49-G033-102) and Attachment (49-G033-105), remove hub from knuckle. See Fig. 4. Remove snap ring retaining bearing. Using Support Block (49-H034-201) and Attachment (49-F027-005), press bearing from knuckle.

5) Grind inner bearing race to a thickness of .02" (0.5 mm). Using chisel, cut remaining inner bearing race from hub. DO NOT reuse wheel bearing. Inspect all components for cracks, wear and damage. Replace components as necessary.

**Reassembly & Installation**

1) Press NEW wheel bearing into knuckle using Support Block (49-H034-201) and Attachment (49-F027-004). Install snap ring. Apply grease to inner bearing race. Press hub into knuckle. Reverse removal procedure to install knuckle/hub assembly.

2) Check rear wheel alignment. See SPECIFICATIONS & PROCEDURES article in WHEEL ALIGNMENT. Tighten all bolts and nuts to specification. See TORQUE SPECIFICATIONS TABLE at the end of this article. Stake drive axle lock nut.

**TORQUE SPECIFICATIONS**

**TORQUE SPECIFICATIONS TABLE**

| Application                  | Ft. Lbs. (N.m)    |
|------------------------------|-------------------|
| ABS Speed Sensor Bolt        | 14-18 (19-25)     |
| Brake Caliper Mounting Bolts | 34-49 (46-66)     |
| Drive Axle Lock Nut          | 174-231 (236-313) |
| I-Arm Bolt/Nut               | 44-55 (59-74)     |
| Toe Control Link Bolt/Nut    | 47-57 (64-77)     |
| Upper Control Arm Bolt/Nut   | 44-55 (59-74)     |
| Wheel Lug Nuts               | 65-87 (88-118)    |

**END OF ARTICLE**