

2005 DRIVELINE/AXLE

Propeller Shaft - RAV4

TROUBLESHOOTING

PROBLEM SYMPTOMS TABLE

Use the table below to help you find the cause of the problem. The numbers indicate the priority of the likely cause of the problem. Check each part in order. If necessary, replace these parts.

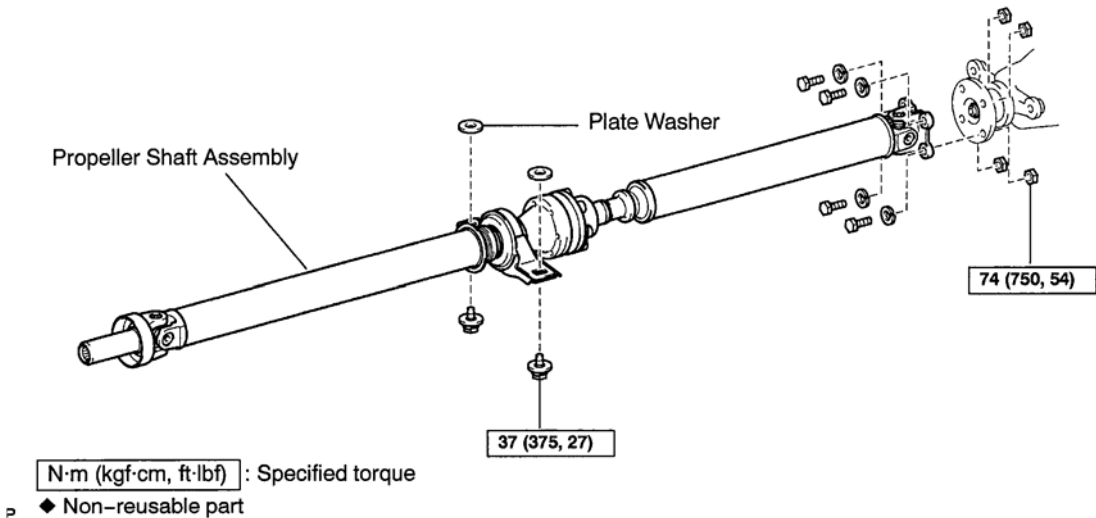
| Symptom   | Suspect Area                                                                                                                                                                                             |
|-----------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Noise     | 1. Sleeve yoke spline (Worn)<br>2. Center support bearing (Worn)<br>3. Spider bearing (Worn or stuck)                                                                                                    |
| Vibration | 1. Rear propeller and intermediate shafts (Runout)<br>2. Propeller shafts (Imbalance)<br>3. Universal joint flange (Runout)<br>4. Cross groove joint (Stuck or damaged)<br>5. Sleeve yoke spline (Stuck) |

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**Fig. 1: Problem Symptoms Table**  
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

PROPELLER SHAFT ASSEMBLY

COMPONENTS



## 2005 Toyota RAV4

2005 DRIVELINE/AXLE Propeller Shaft - RAV4

**Fig. 2: Identifying Propeller Shaft Assembly Components & Torque Specifications (1 Of 2)**  
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

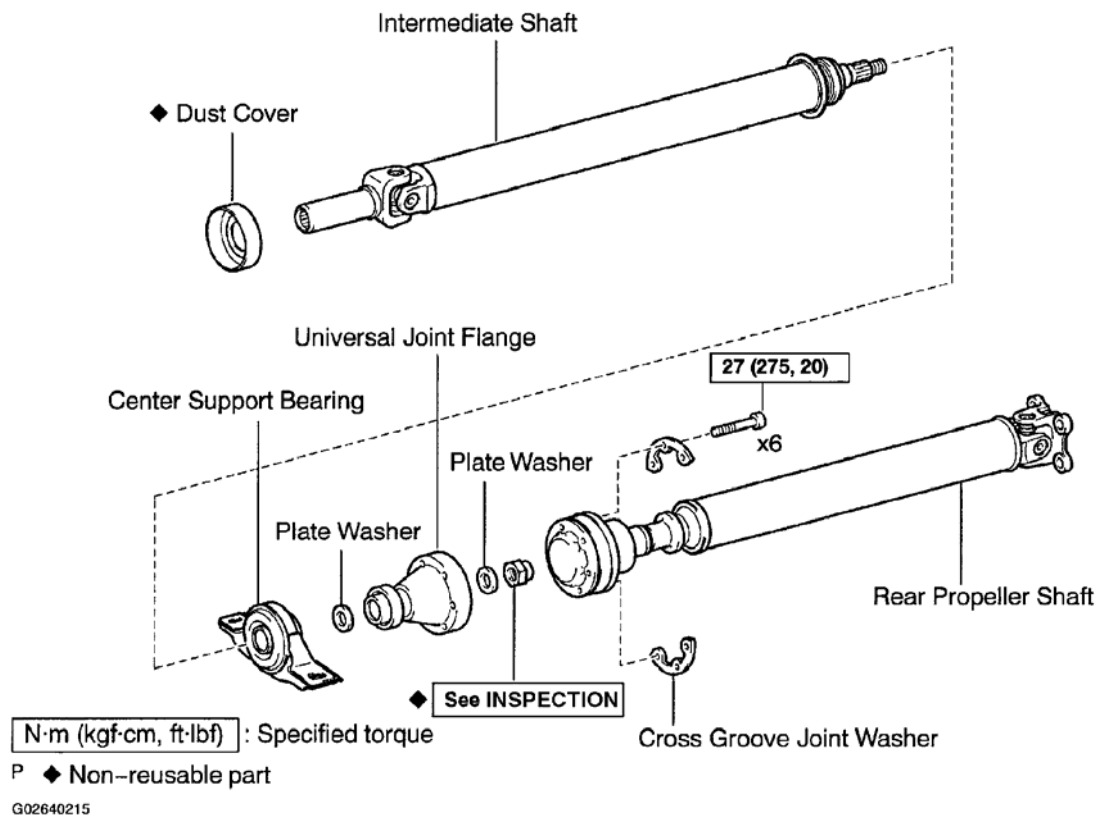


**Fig. 3: Identifying Propeller Shaft Assembly Components & Torque Specifications (2 Of 2)**  
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

### REMOVAL

#### 1. LOOSEN CROSS GROOVE JOINT SET BOLT

- Depress the brake pedal and hold it.
- Using a hexagon wrench, loosen the cross groove joint set bolts 1/2 turn.

#### HINT:

Put a piece of cloth or equivalent into the inside of the cross groove joint cover so that the boot does not touch the inside of the cross groove joint cover.

- Loosen the 2 bolts of the center support bearing.

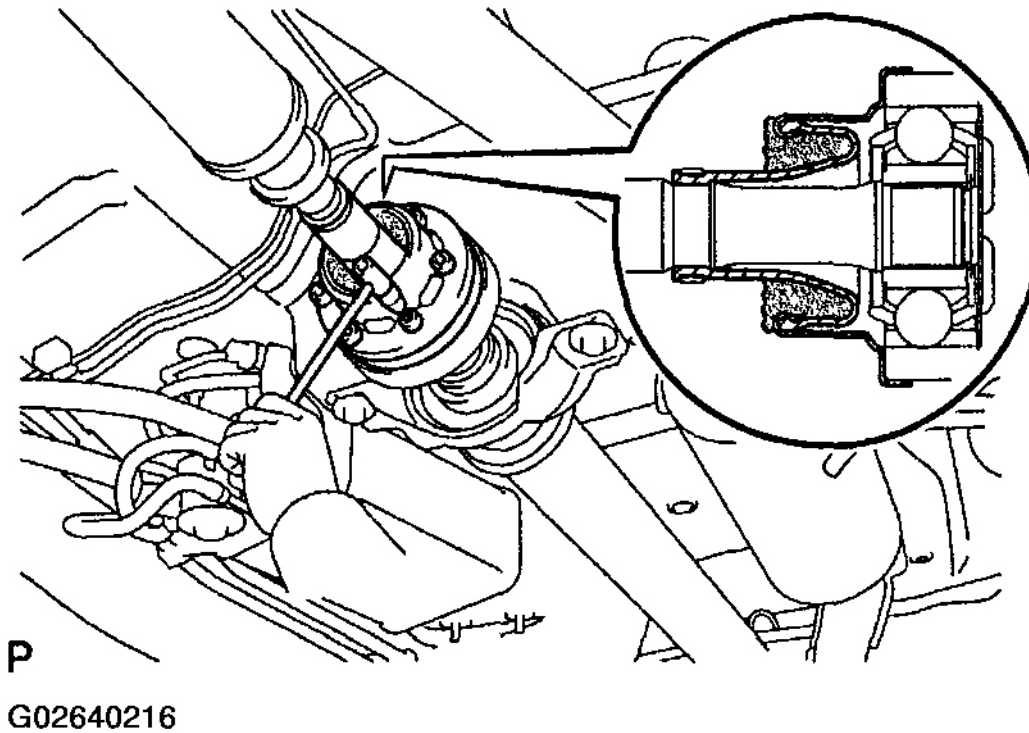


**Fig. 4: Loosening Cross Groove Joint Set Bolts**

Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

**2. DISCONNECT PROPELLER SHAFT FROM DIFFERENTIAL**

- a. Place matchmarks on the propeller shaft flange and differential companion flange.
- b. Remove the 4 bolts, nuts and washers.

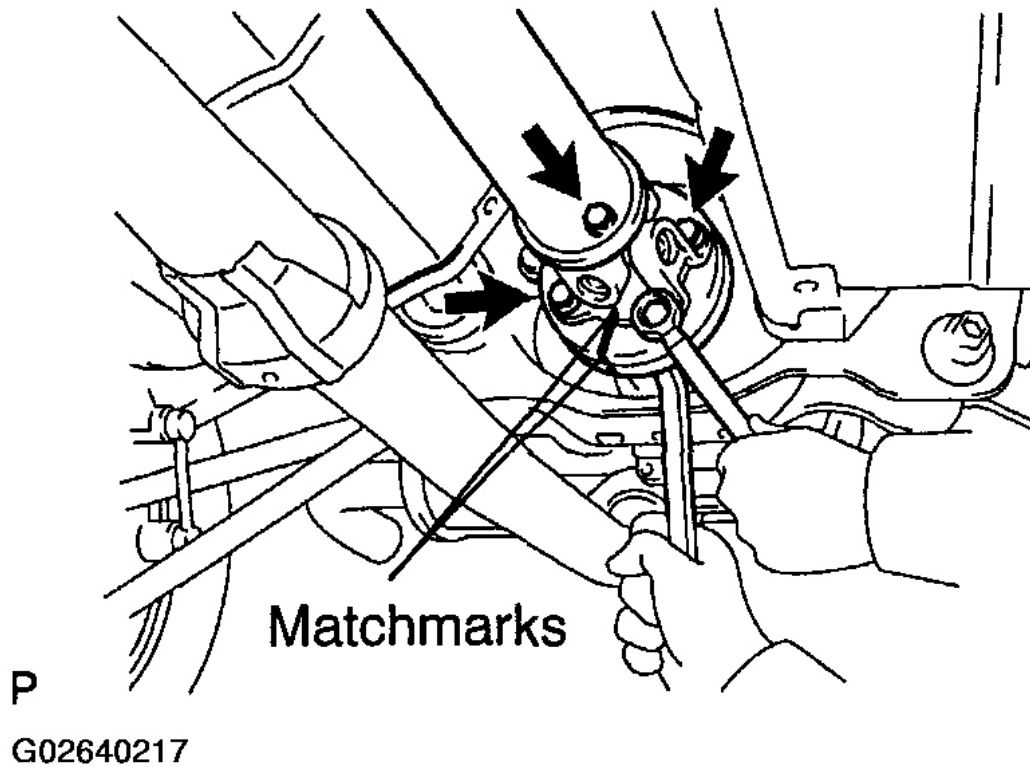


**Fig. 5: Mark & Disconnect Propeller Shaft From Differential**  
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

**3. REMOVE PROPELLER SHAFT FROM TRANSAXLE**

- a. Remove the 2 bolts, 2 plate washers and center support bearing.
- b. Pull out the propeller shaft yoke from the transaxle.

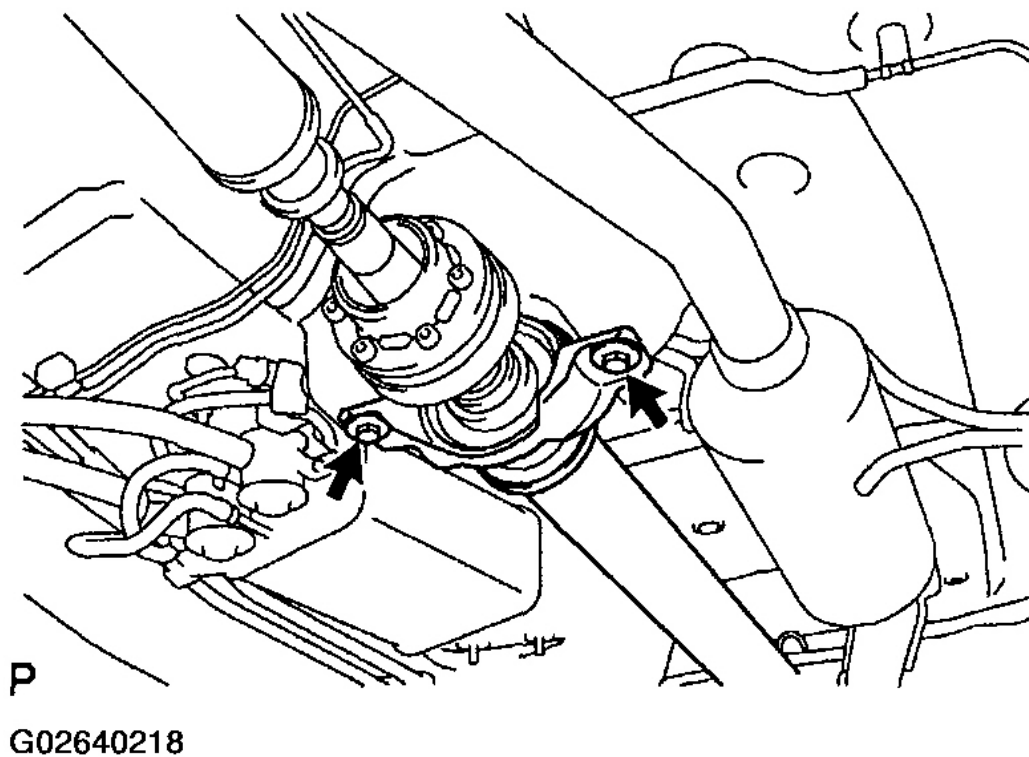


**Fig. 6: Removing Center Support Bearing**

Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- c. Insert SST in the transaxle to prevent oil leakage.

SST 09325-20010

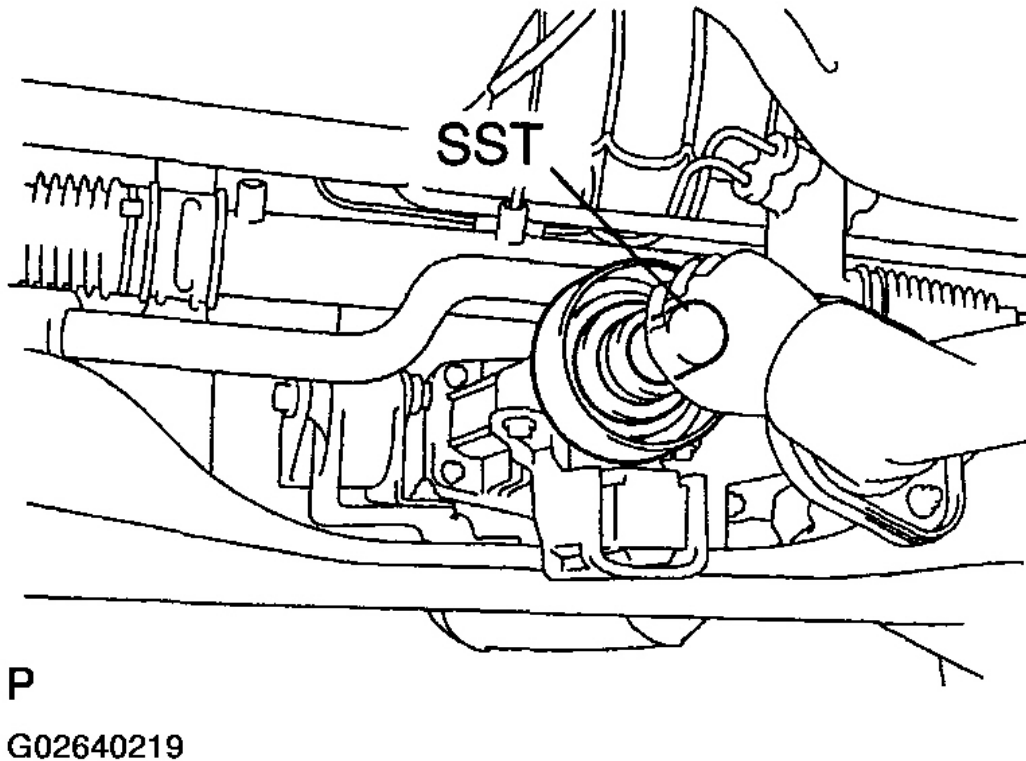


**Fig. 7: Inserting SST In Transaxle To Prevent Oil Leakage**  
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

**4. SEPARATE INTERMEDIATE SHAFT AND REAR PROPELLER SHAFT**

- a. Place matchmarks on the cross groove joint and universal joint flange.

**NOTE:** Do not place the matchmarks with a punch.

- b. Using a hexagon wrench, remove the 6 bolts and 3 washers to separate intermediate shaft and rear propeller shaft.

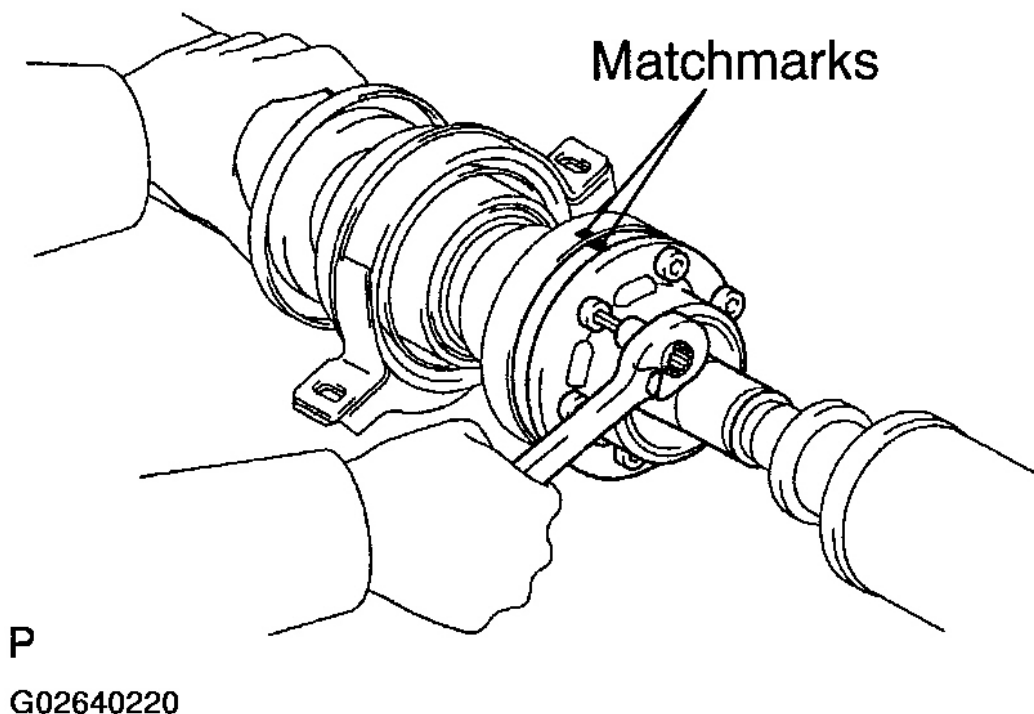


**Fig. 8: Placing Matchmarks On Cross Groove Joint And Universal Joint Flange**  
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

## INSPECTION

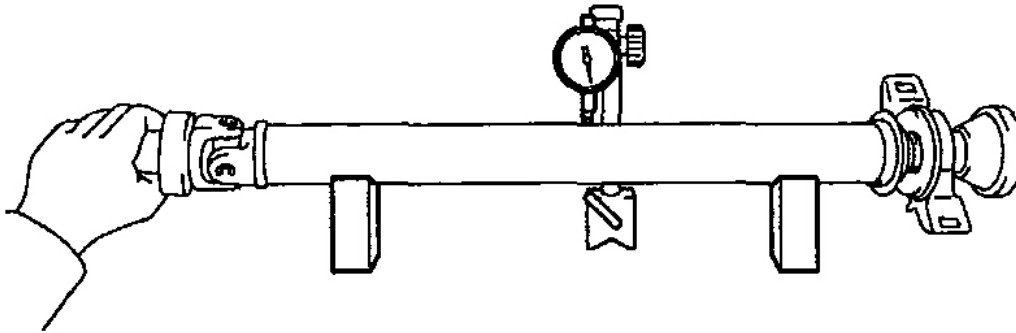
**NOTE:** Be careful not to grip the propeller shaft tube too tightly in a vise this will cause deformation.

### 1. INSPECT INTERMEDIATE AND REAR PROPELLER SHAFTS RUNOUT

Using a dial indicator, inspect the intermediate shaft and propeller shaft.

**Maximum runout: 0.8 mm (0.031 in.)**

If the shaft runout is greater than the maximum, replace the shaft.



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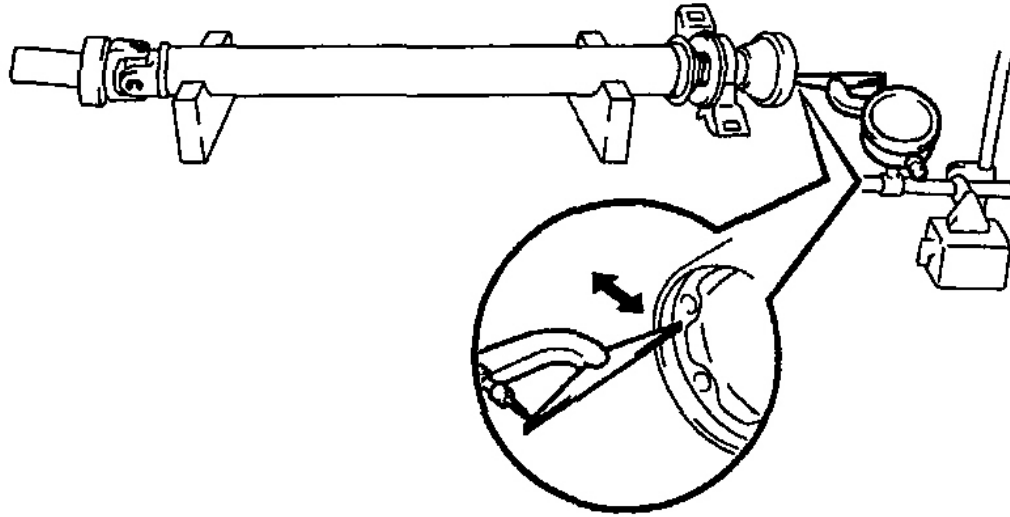
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**Fig. 9: Inspecting Intermediate Shaft And Propeller Shaft Runout**  
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

**2. INSPECT INTERMEDIATE SHAFT UNIVERSAL JOINT FLANGE RUNOUT**

- a. Using a dial indicator, inspect the rear side of universal joint flange runout in the horizontal direction.

**Maximum runout: 0.1 mm (0.004 in.)**



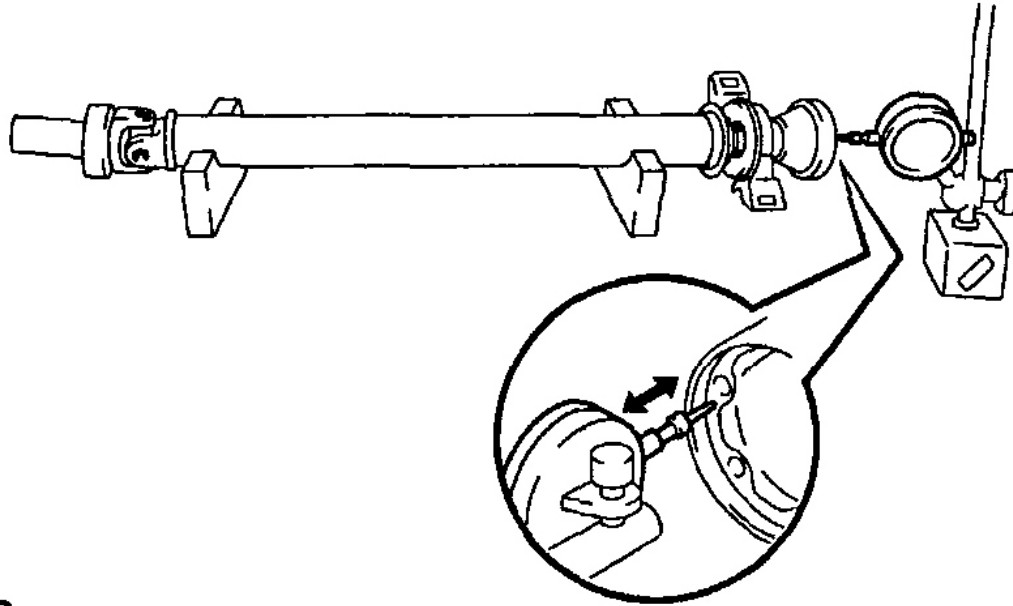
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**Fig. 10: Inspecting Rear Side Of Universal Joint Flange Runout In Horizontal Direction**  
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- b. Using a dial indicator, inspect the rear side of universal joint flange runout in the vertical direction.

**Maximum runout: 0.1 mm (0.004 in.)**



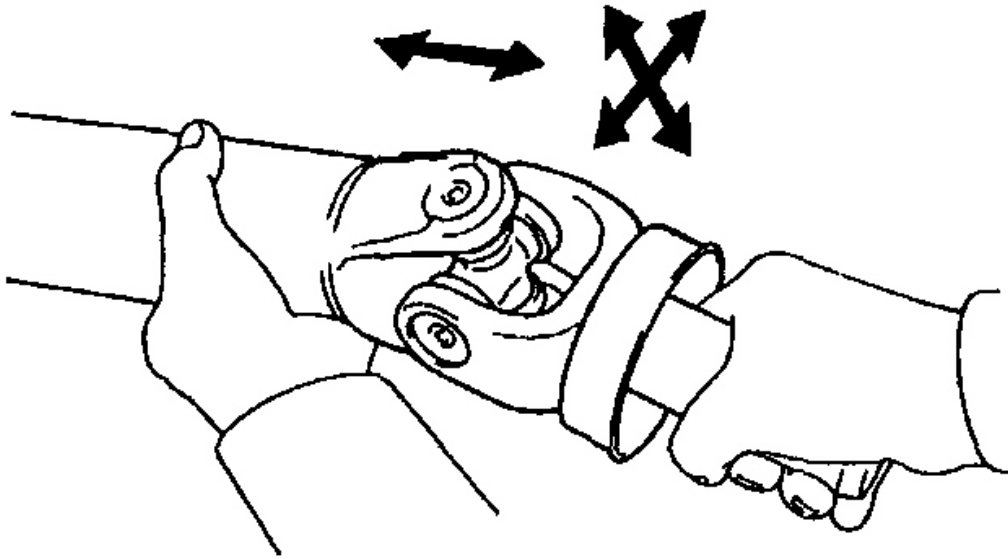
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**Fig. 11: Inspecting Rear Side Of Universal Joint Flange Runout In Vertical Direction**  
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

### 3. INSPECT SPIDER BEARING

Check the spider bearing axial play by turning the flange with holding the shaft tightly.



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**Fig. 12: Inspecting Spider Bearing**

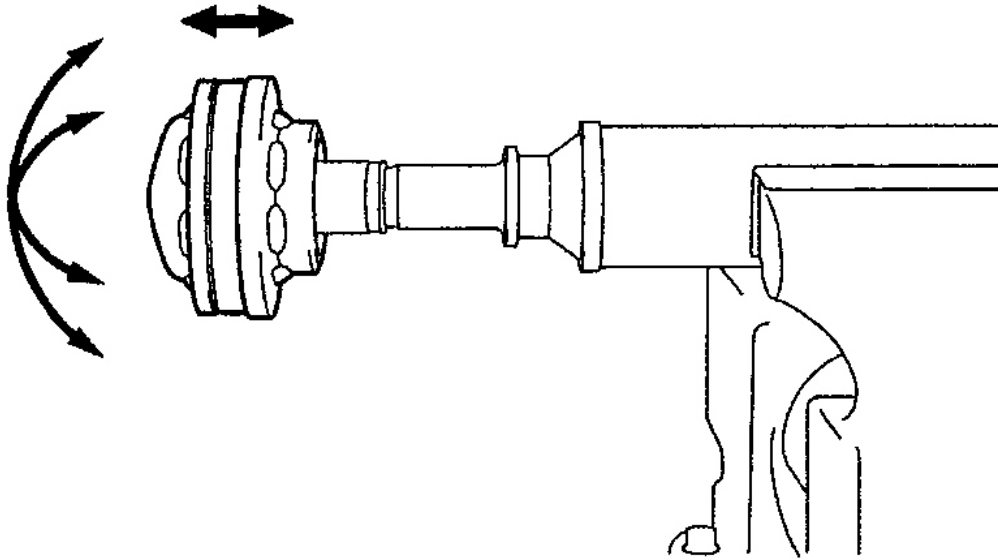
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

#### 4. INSPECT CROSS GROOVE JOINT

Check that the joint turns smoothly in the directions as shown.

Check for damage or grease leakage from the boot.

If a problem is found, replace the rear propeller shaft.



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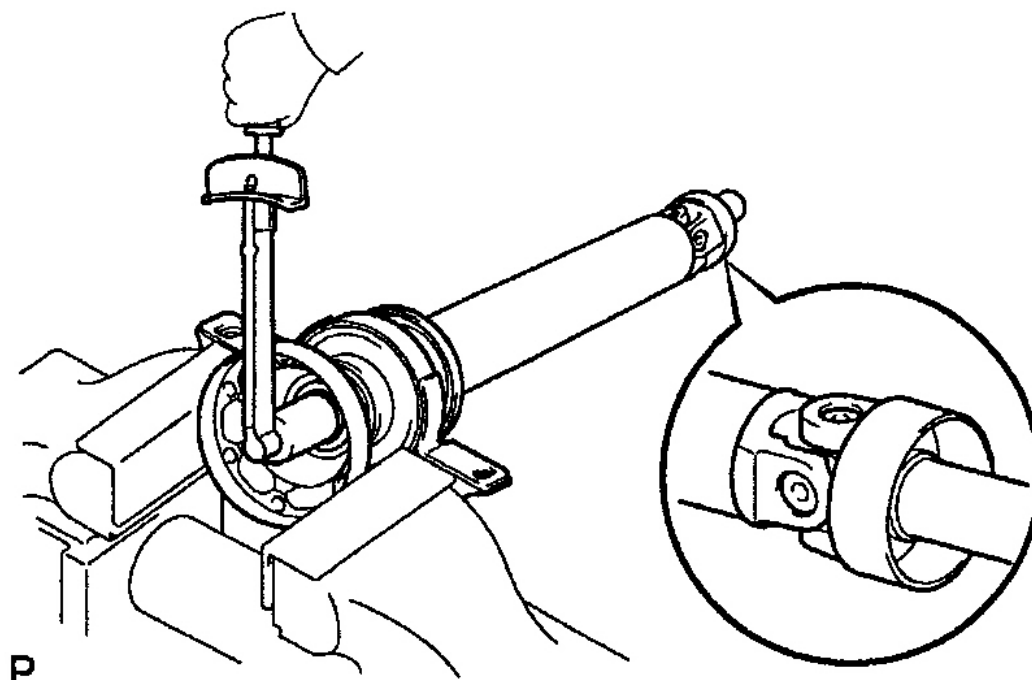
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**Fig. 13: Inspecting Cross Groove Joint**

Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

**5. INSPECT CENTER SUPPORT BEARING**

- a. Remove the universal joint flange.
  1. Using a hammer and chisel, loosen the staked part of the nut.
  2. Using a vise to hold the front flange, remove the nut and plate washer.

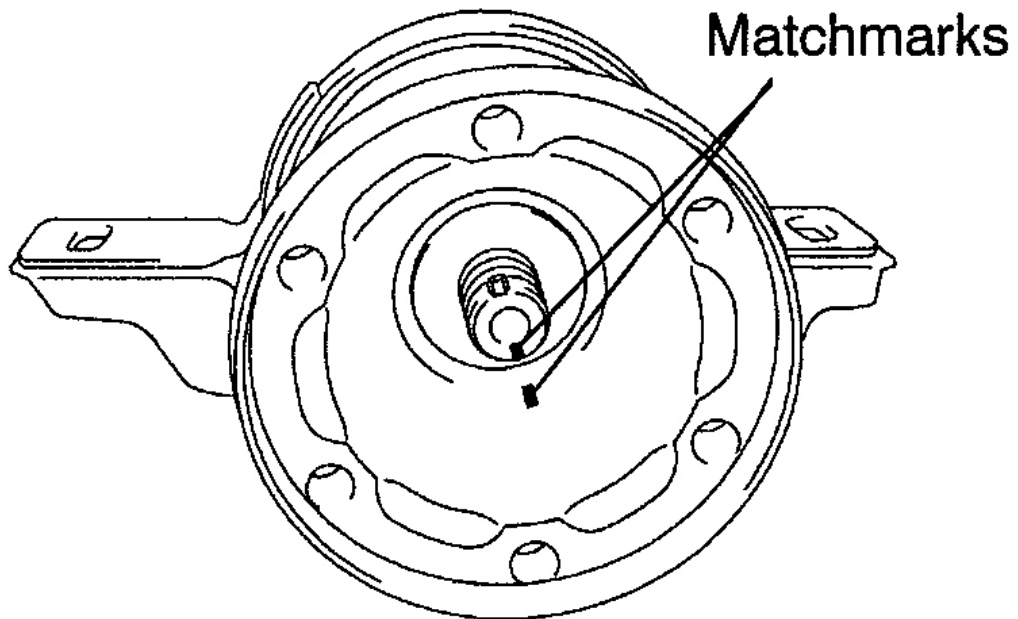


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**Fig. 14: Removing Universal Joint Flange**  
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

3. Place matchmarks on the universal joint flange and intermediate shaft.



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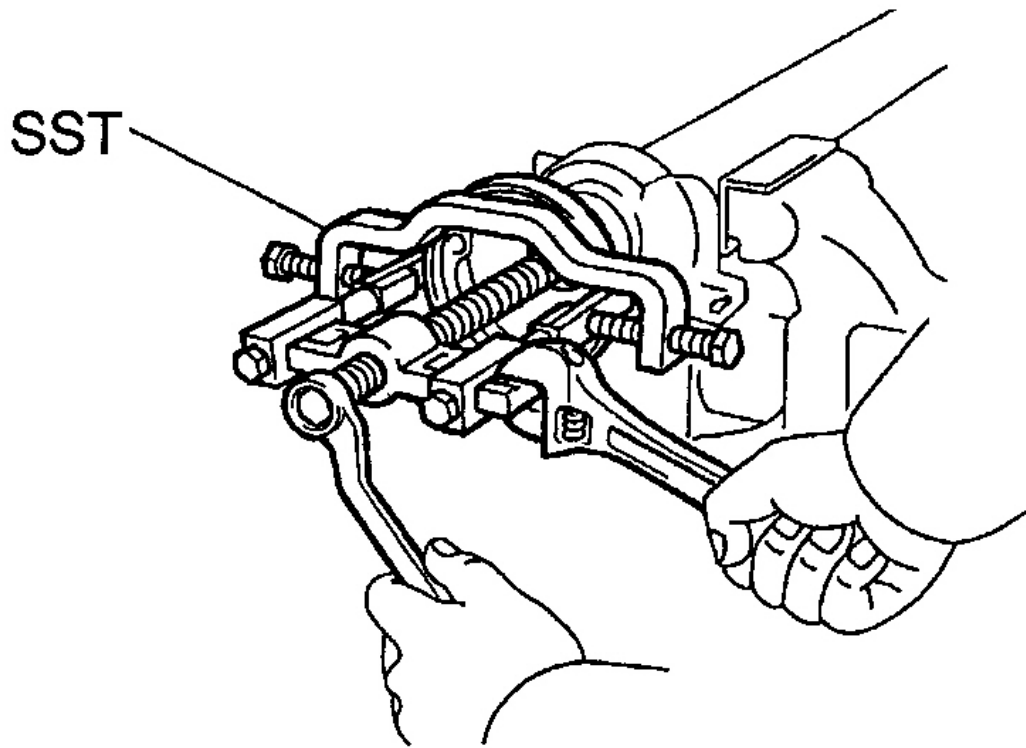
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**Fig. 15: Placing Matchmarks On Universal Joint Flange And Intermediate Shaft**  
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

4. Using SST, remove the universal joint flange.

SST 09950-40011 (09951-04020, 09952-04010, 09953-04030, 09954-04010, 09955-04061, 09958-04011)

- b. Remove the center support bearing and plate washer.

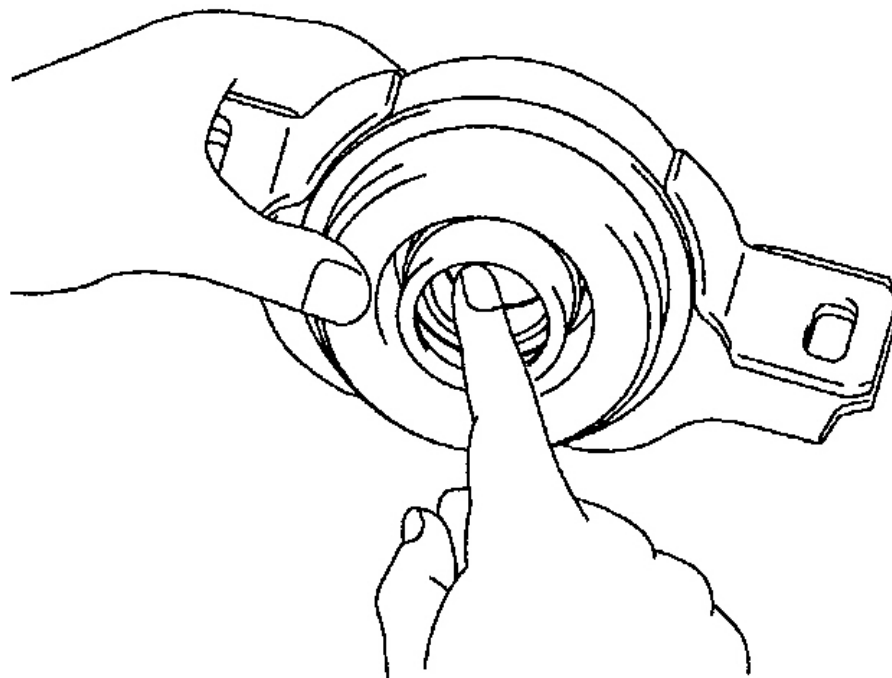


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**Fig. 16: Removing Center Support Bearing And Plate Washer**  
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- c. Inspect the center support bearing.
  - 1. Turn the bearing by hand with applying force in the rotation direction. Check the bearing turns smoothly.
  - 2. Check that the seals are not cracked or damaged.

If the bearing is damaged, worn, or does not turn freely, replace it.



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**Fig. 17: Inspecting Center Support Bearing**  
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- d. Install the center support bearing and plate washer.
  - 1. Set the center support bearing on the intermediate shaft as shown in the illustration.
  - 2. Install the plate washer to the intermediate shaft.
- e. Install the universal joint flange.
  - 1. Align the matchmarks on the universal joint flange and intermediate shaft and place the flange on the shaft.
  - 2. Using a vise to hold the universal joint flange, press the bearing into position by tightening down a new nut and washer.

**Torque:** 181 N.m (1,850 kgf.cm, 134 ft.lbf)

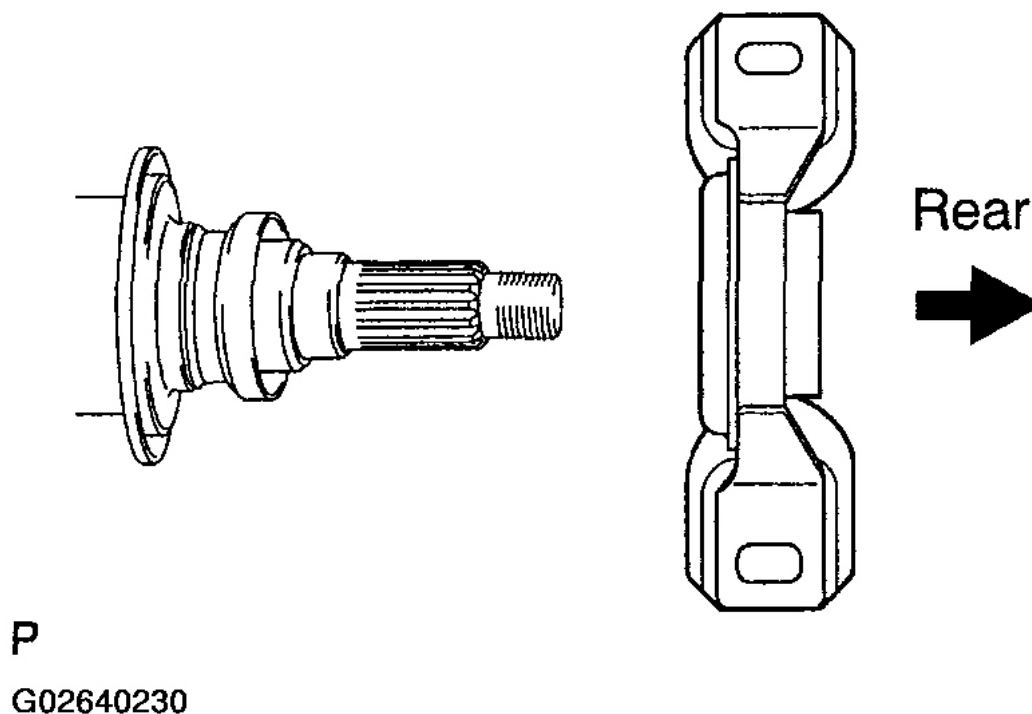


**Fig. 18: Installing Universal Joint Flange**  
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

3. Loosen the nut.
4. Torque the nut again.

**Torque:** 69 N.m (700 kgf.cm, 51 ft.lbf)

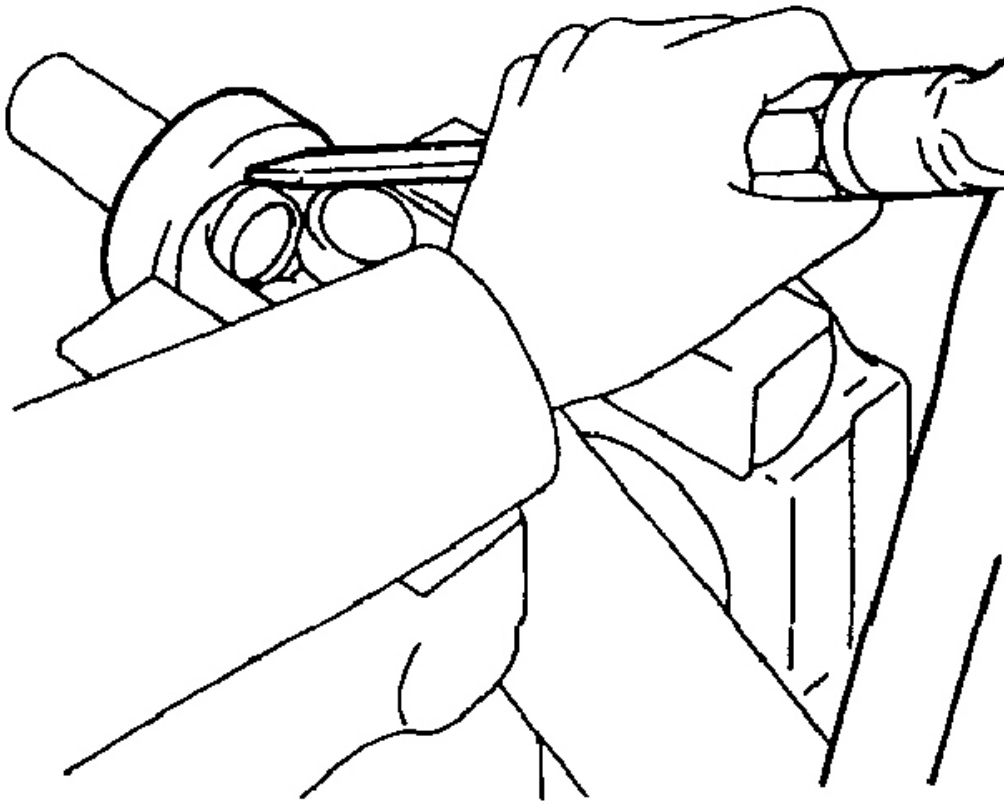
5. Using a hammer and chisel, stake the nut.
- f. Inspect the cross groove joint (See step 4).

## REPLACEMENT

**NOTE:** Be careful not to grip the propeller shaft tube too tightly in a vise this will cause deformation.

### Replace Dust Cover

- a. Using a screwdriver and hammer, remove the dust cover.



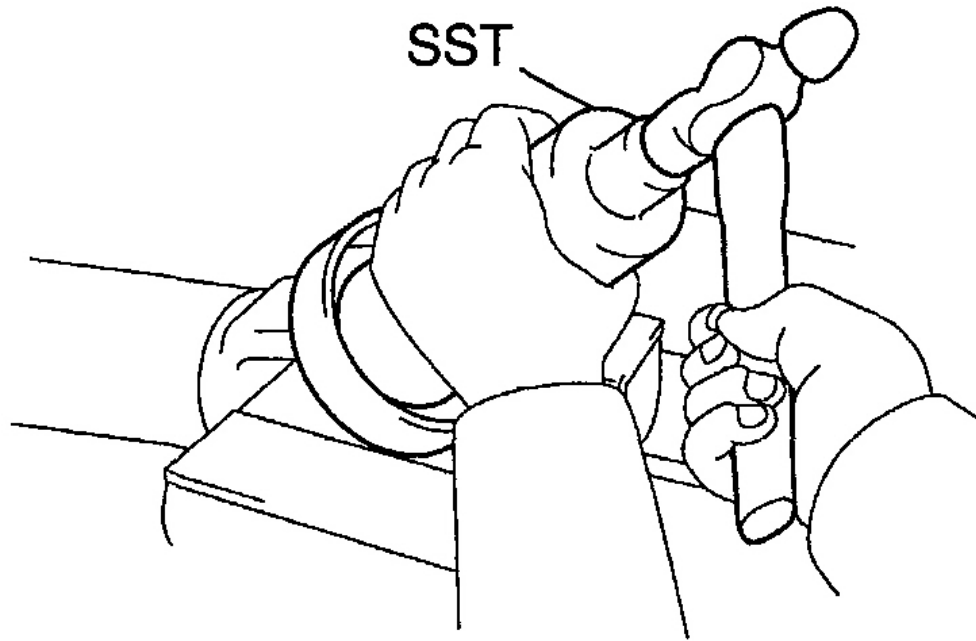
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**Fig. 19: Removing Dust Cover Using Screwdriver And Hammer**  
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- b. Using SST and a hammer, tap in the new dust cover.

SST 09226-10010

**NOTE:** Be careful not to damage the dust cover.



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**Fig. 20: Taping In Dust Cover**

Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

## INSTALLATION

### 1. CONNECT INTERMEDIATE SHAFT WITH REAR PROPELLER SHAFT

- Align the matchmarks on the intermediate shaft and rear propeller shaft, then install the 3 washers and 6 bolts.
- Using a hexagon wrench, tighten the 6 bolts temporarily.

#### HINT:

Put a piece of cloth or an equivalent into the inside of the universal joint cover.

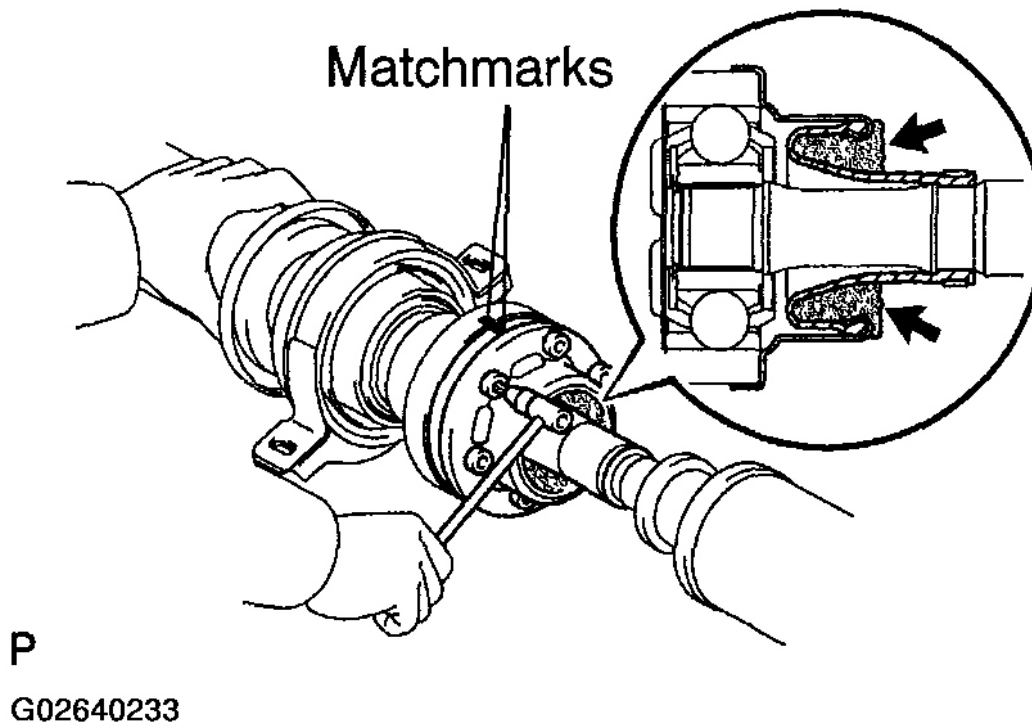


**Fig. 21: Connecting Intermediate Shaft With Rear Propeller Shaft**  
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

**2. INSTALL INTERMEDIATE SHAFT**

- a. Remove SST from the tranaxle.

SST 09325-20010

- b. Insert the yoke into the tranaxle.

**3. INSTALL CENTER SUPPORT BEARING TEMPORARILY**

**4. INSTALL PROPELLER SHAFT**

- a. Align the matchmarks on the propeller shaft flange and differential companion flange, and connect the shaft with the 4 bolts, washers and nuts.
- b. Torque the 4 nuts.

**Torque:** 74 N.m (750 kgf.cm, 54 ft.lbf)

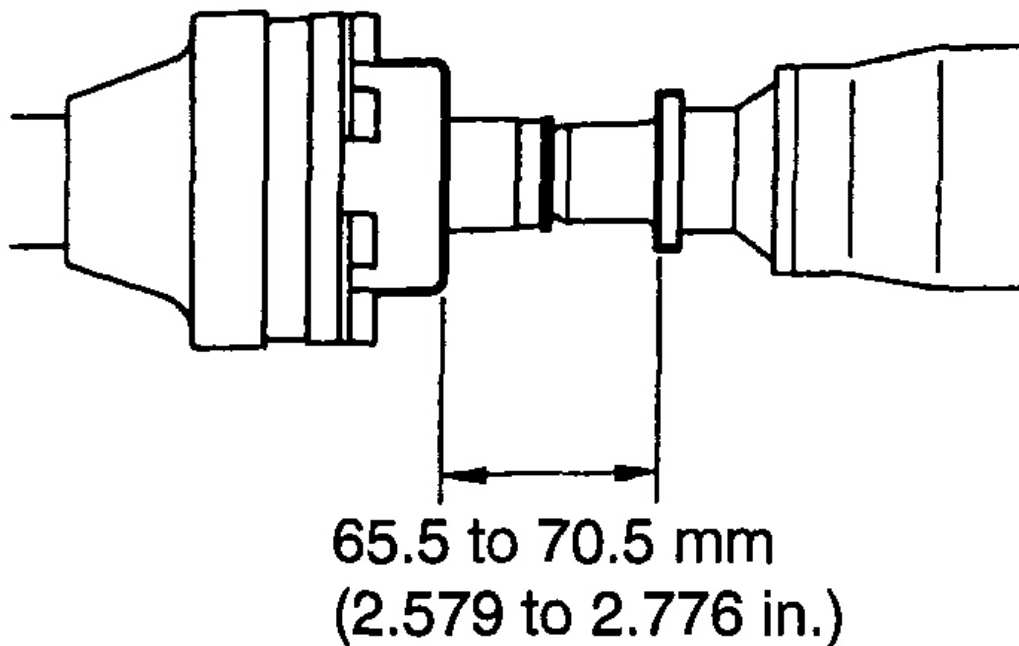
**5. TIGHTEN CROSS GROOVE JOINT SET BOLT**

- a. Depress the brake pedal and hold it.
- b. Using a hexagon wrench, tighten the cross groove joint set bolts.

**Torque:** 27 N.m (275 kgf.cm, 20 ft.lbf)

## 6. INSTALL CENTER SUPPORT BEARING

- a. With the vehicle in the unladen condition, adjust the dimension between the rear side of cover and the shaft, as shown in the illustration.



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**Fig. 22: Adjusting Dimension Between Rear Side Of Cover And Shaft**  
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

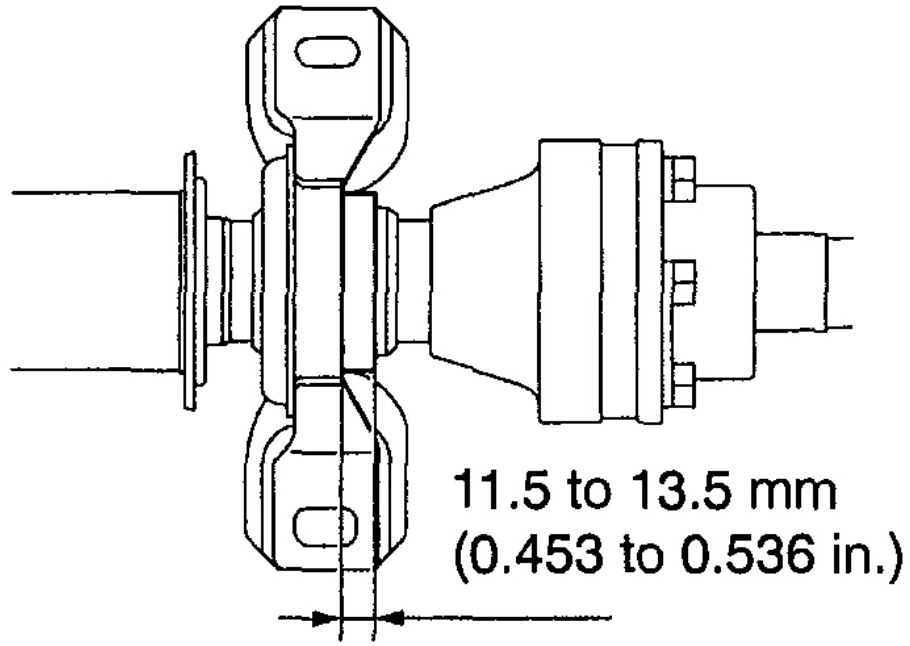
- b. With the same condition, adjust the dimension between the rear side of center bearing housing and the rear side of cushion at 11.5 - 13.5 mm (0.4528 - 0.5315 in.), as shown on the left, then torque the bolts.

**Torque:** 37 N.m (375 kgf.cm, 27 ft.lbf)

- c. Check that the center line of the bracket is at right angles at the shaft axial direction.

**2005 Toyota RAV4**

2005 DRIVELINE/AXLE Propeller Shaft - RAV4



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**Fig. 23: Adjusting Dimension Between Rear Side Of Center Bearing Housing And Rear Side Of Cushion**

Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.