

2002 DRIVELINE/AXLE

Propeller Shaft - RAV4

TROUBLESHOOTING

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.

PROBLEM SYMPTOMS

Symptom/Suspected Area	Go To
Noise	
Sleeve Yoke Spline (Worn)	INSPECTION
Center Support Bearing (Worn)	INSPECTION
Spider Bearing (Worn Or Stuck)	INSPECTION
Vibration	
Rear Propeller And Intermediate Shafts (Runout)	INSPECTION
Propeller Shafts (Imbalance)	INSPECTION
Universal Joint Flange (Runout)	INSPECTION
Cross groove Joint (Stuck Or Damaged)	INSPECTION
Sleeve Yoke Spline (Stuck)	INSPECTION

PROPELLER SHAFT ASSEMBLY

COMPONENTS

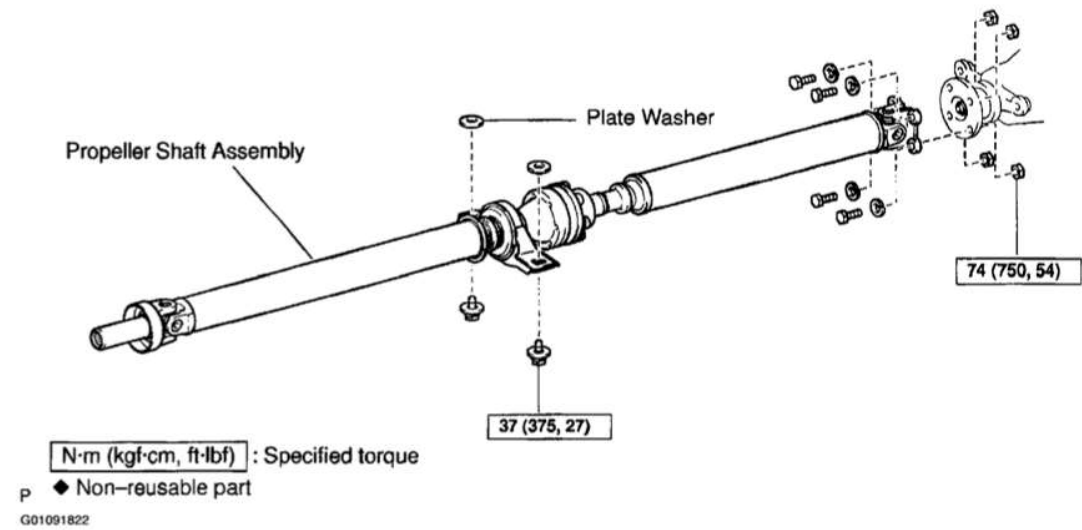


Fig. 1: Displaying Propeller Shaft Assembly Components (1 Of 2)

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

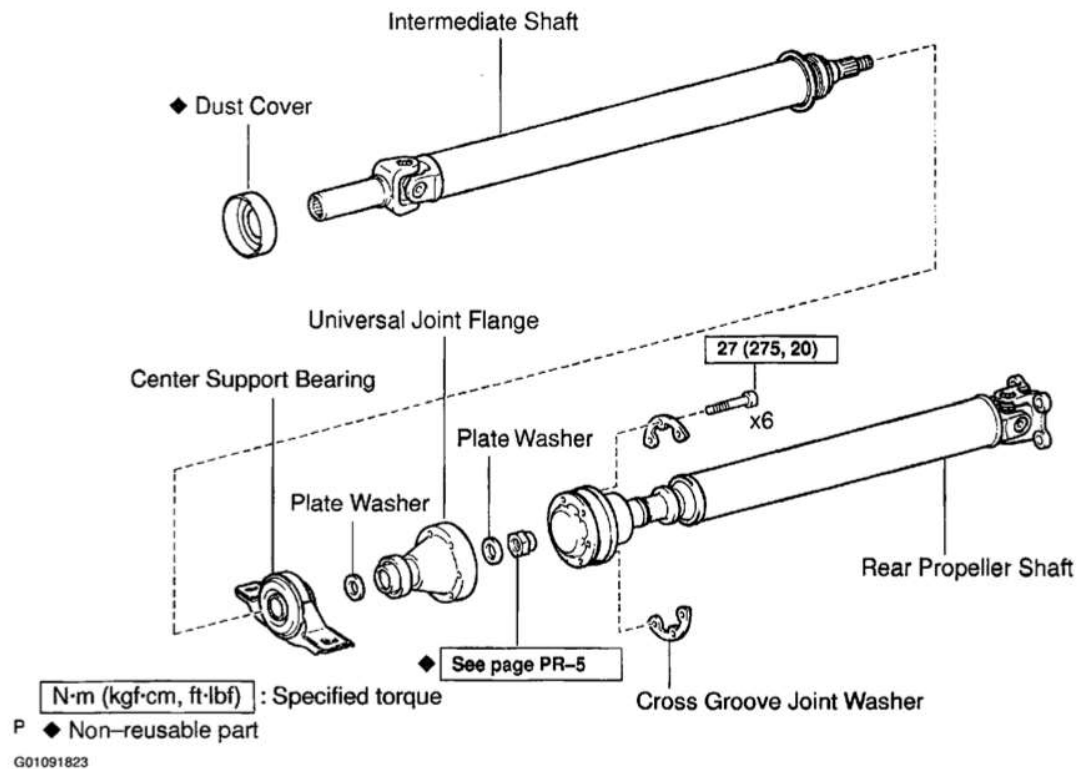


Fig. 2: Displaying Propeller Shaft Assembly Components (2 Of 2)
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

REMOVAL

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

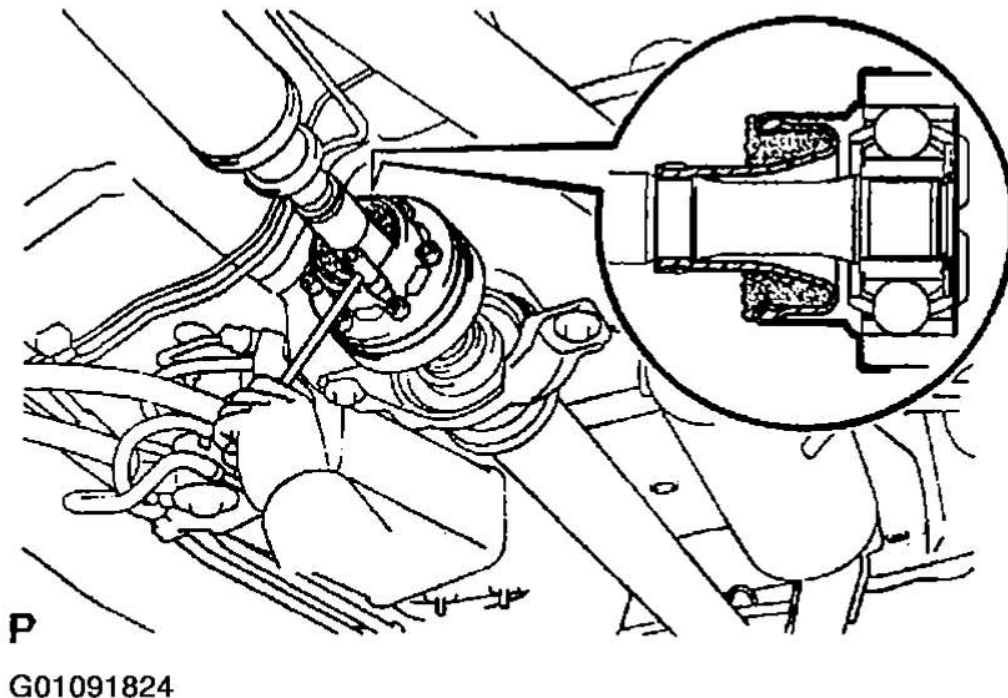


Fig. 3: Loosening Cross Groove Joint Set Bolt
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

NOTE: 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.

- c. Loosen the 2 bolts of the center support bearing.
- 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.

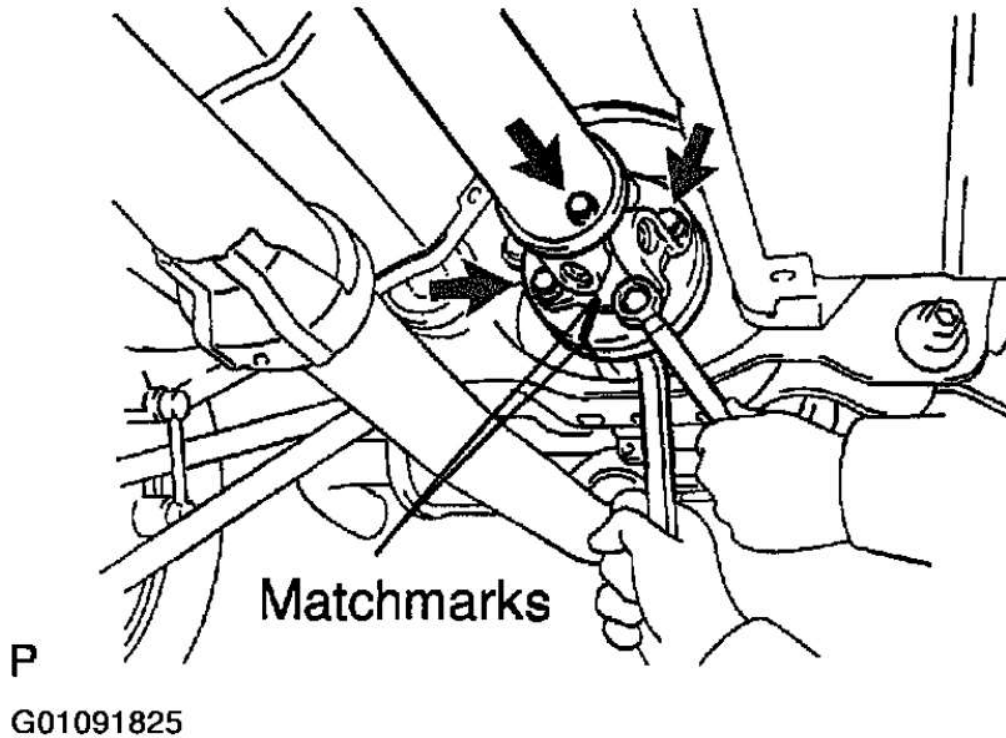
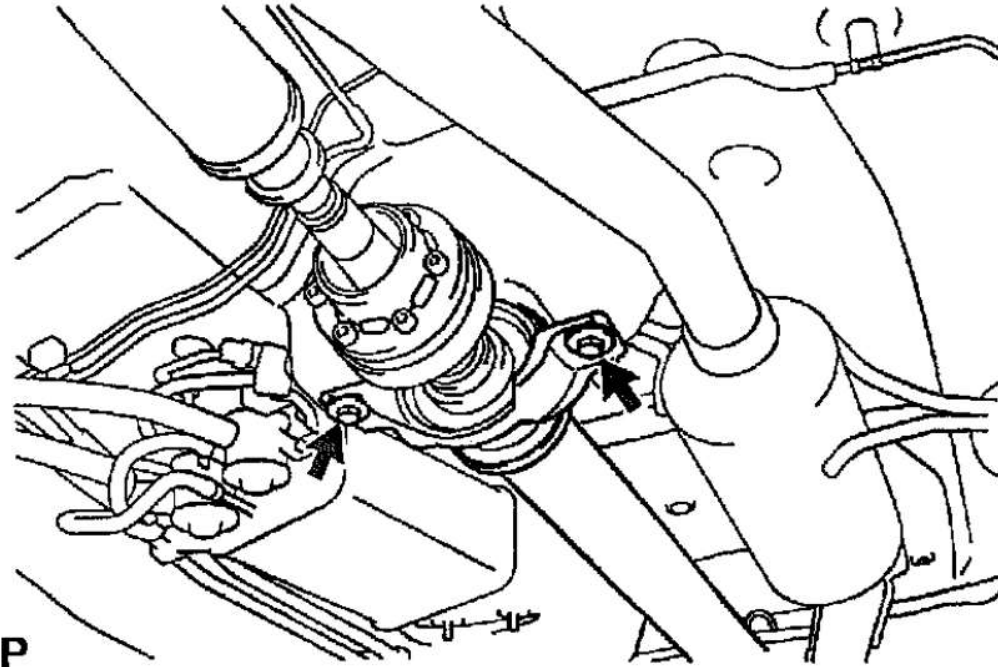


Fig. 4: Placing Matchmarks

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.

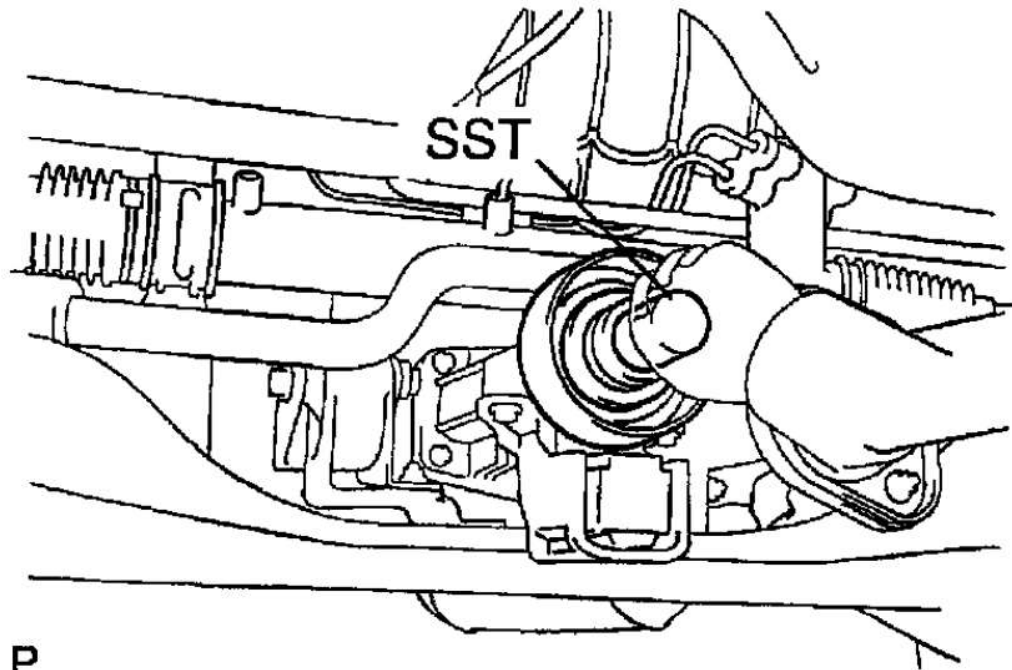


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Fig. 5: Locating Bolts & Plate Washers

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

- c. Insert SST in the transaxle to prevent oil leakage.
SST 09325-20010



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Fig. 6: Inserting Special Service Tool In Transaxle
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.

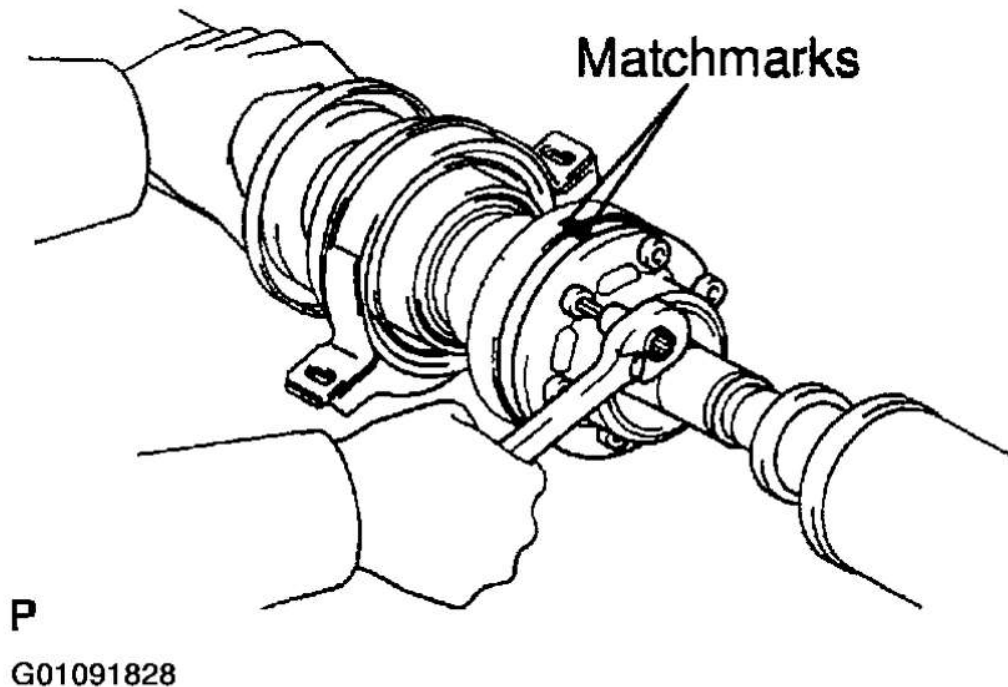


Fig. 7: Locating Matchmark Position

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.)

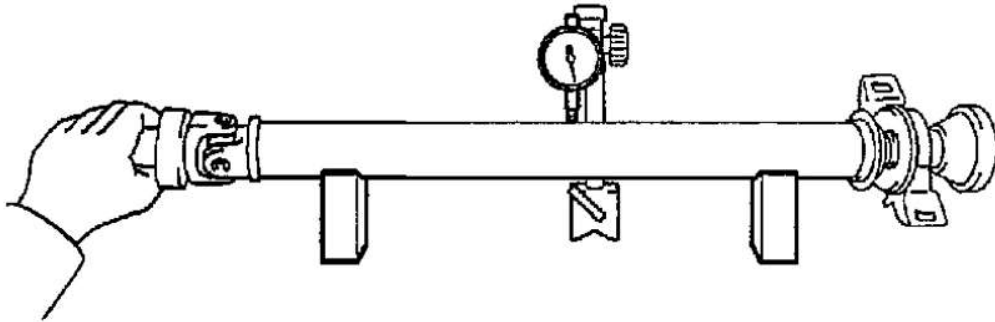
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Fig. 8: Inspecting Intermediate & Propeller Shaft
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

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

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.)

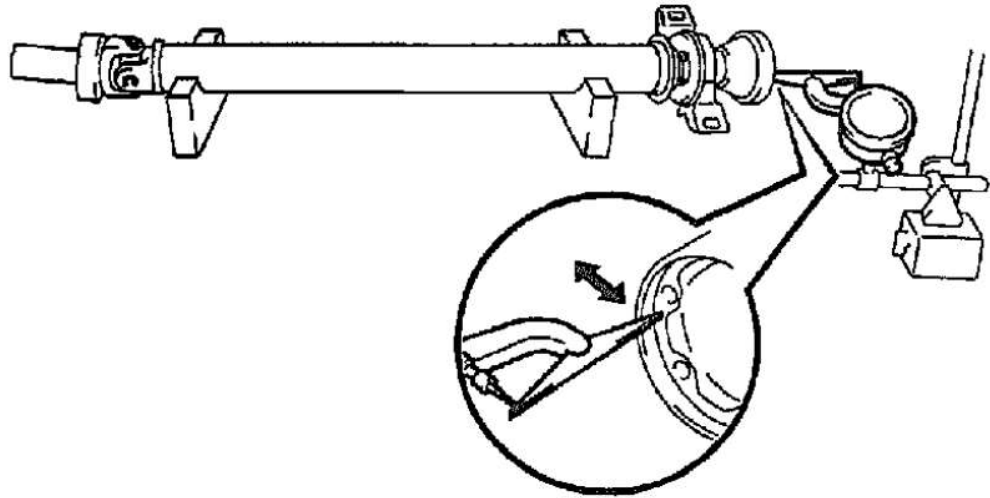
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Fig. 9: Inspecting Horizontally Universal Joint Flange Runout
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- 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.)

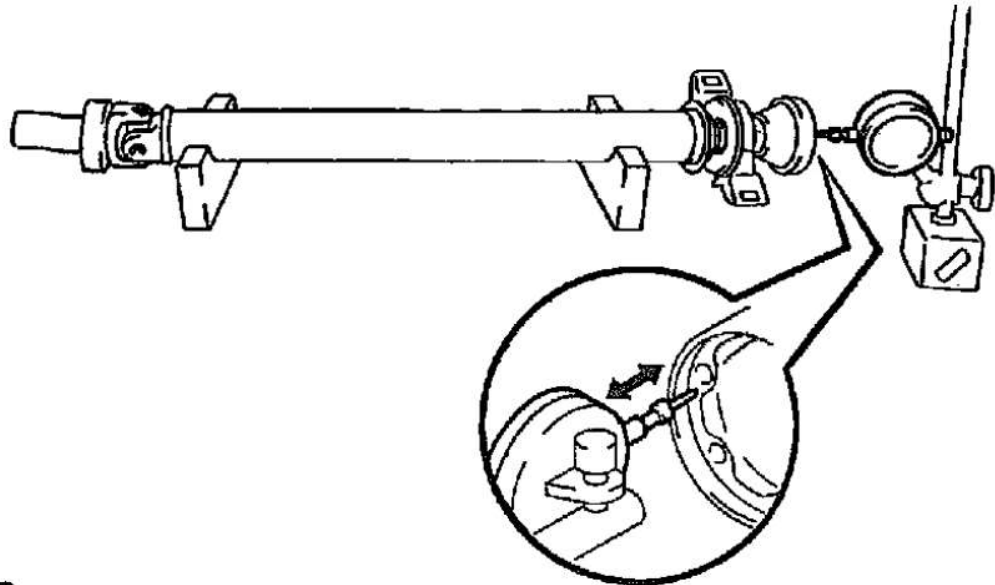
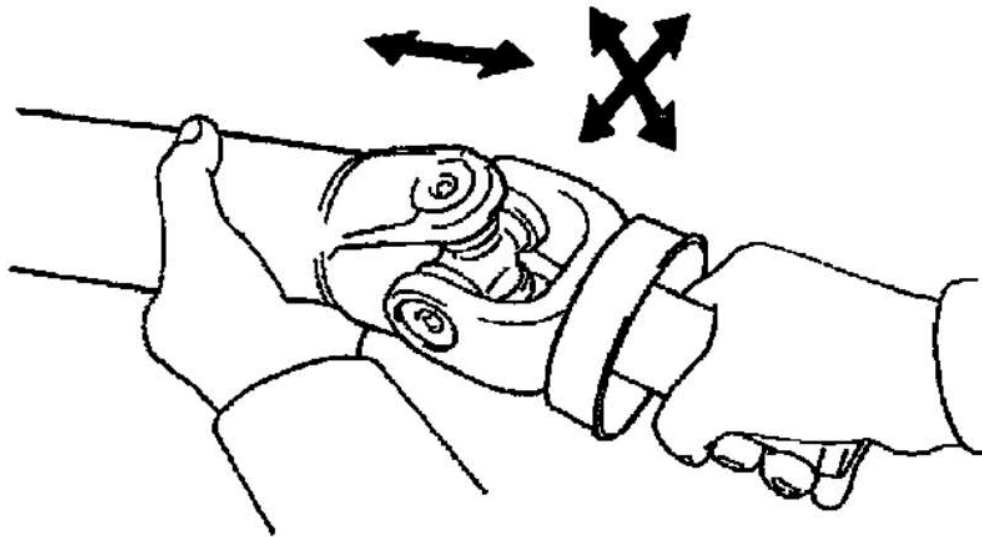
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Fig. 10: Inspecting Vertically Universal Joint Flange Runout
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

3. Inspect spider bearing .

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



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Fig. 11: Checking Spider Bearing Axial Play
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.

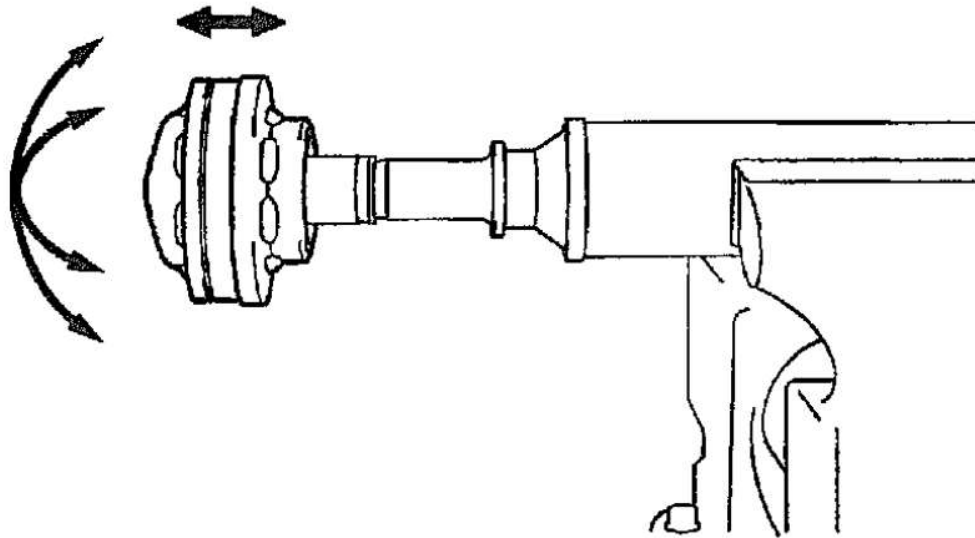
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Fig. 12: Checking Joint Turns Properly

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.

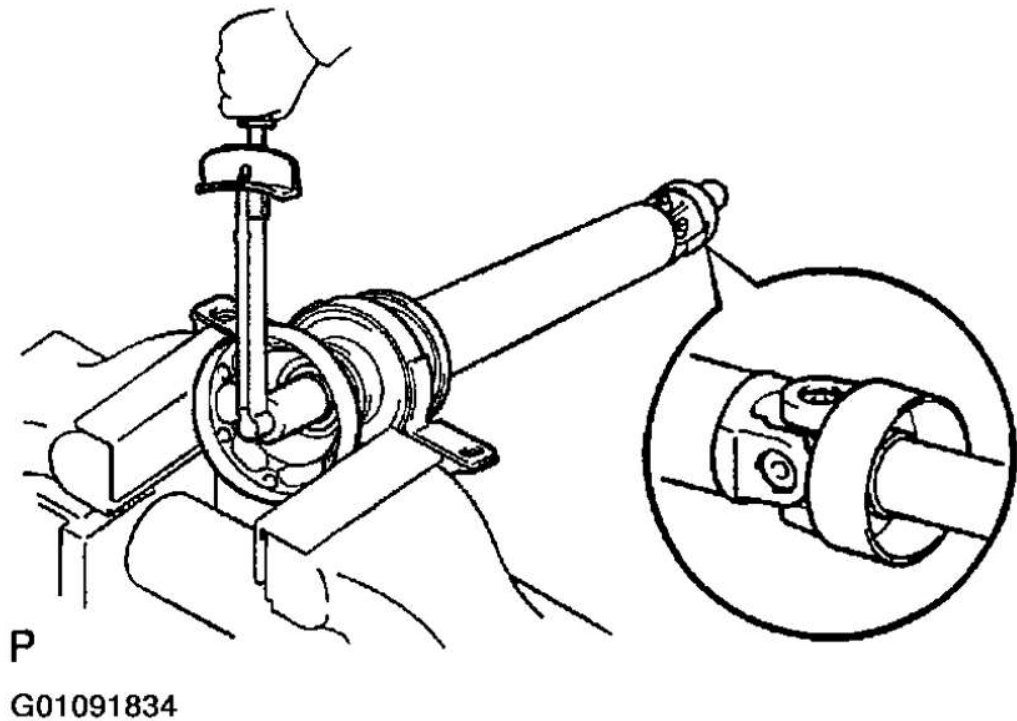


Fig. 13: Identifying Universal Joint Flange
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

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

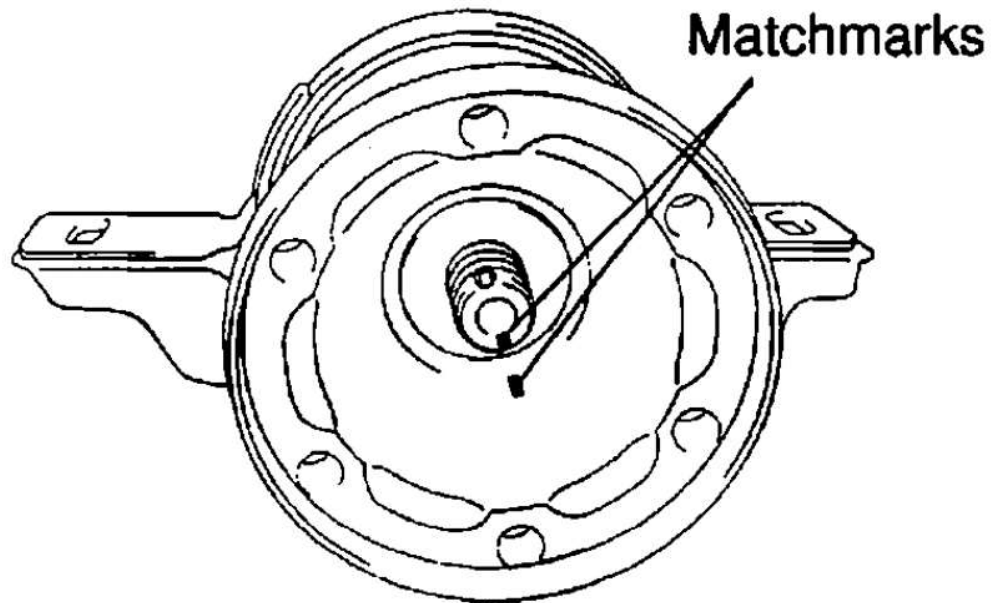
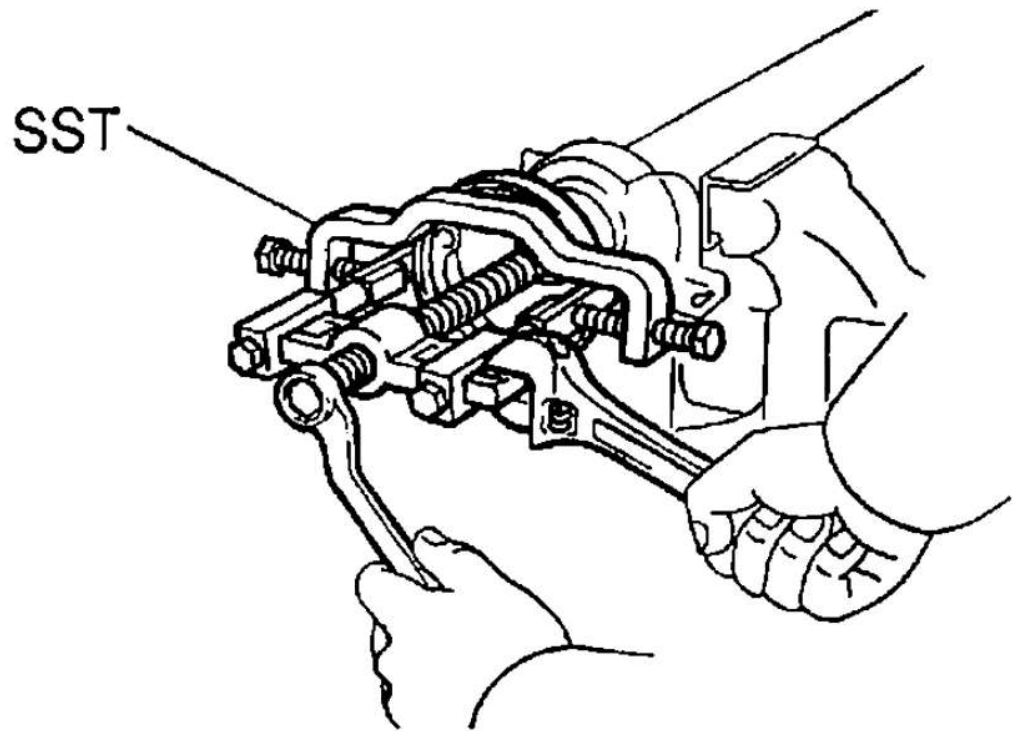
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Fig. 14: Locating Matchmarks Placement
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

4. Using SST, remove the universal joint flange.
Special Service Tools 09950-40011 (09951-04020, 09952-04010, 09953-04030, 09954-04010, 09955-04061, 09958-04011)



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Fig. 15: Removing Universal Joint Flange
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- b. Remove the center support bearing and plate washer.
- c. Inspect the center support bearing.
 - 1. Turn the bearing by hand with applying force in the rotation direction. Check the bearing turns smoothly.

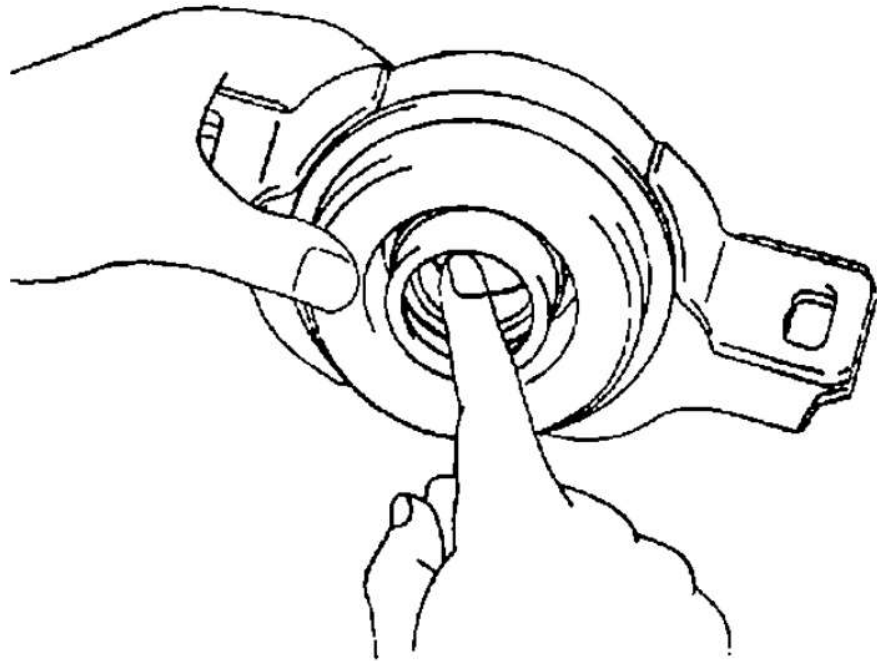
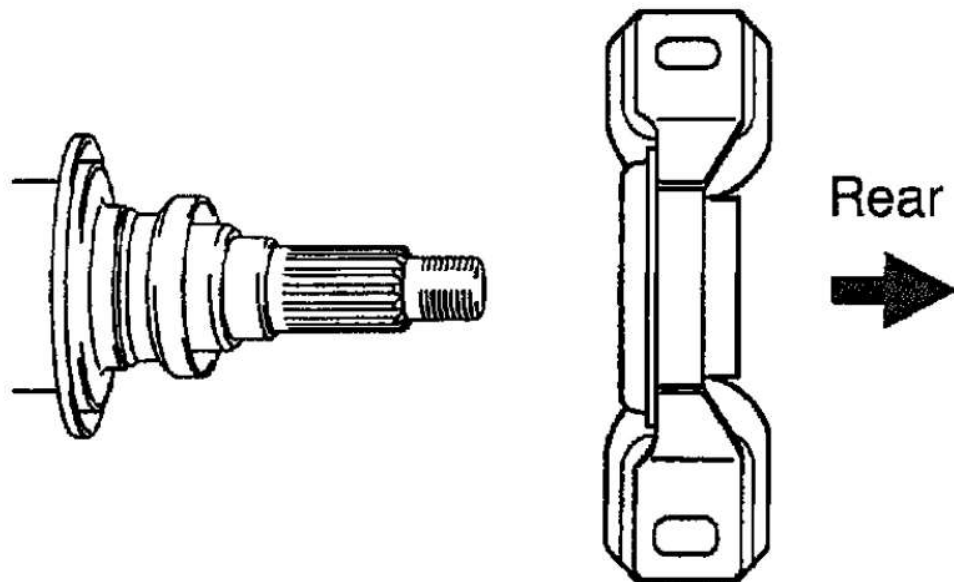
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Fig. 16: Inspecting Center Support Bearing
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

2. Check that the seals are not cracked or damaged.

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

- d. Install the center support bearing and plate washer.
 1. Set the center support bearing on the intermediate shaft as shown.

**P****G01091838****Fig. 17: Set Center Support Bearing****Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.**

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)

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

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

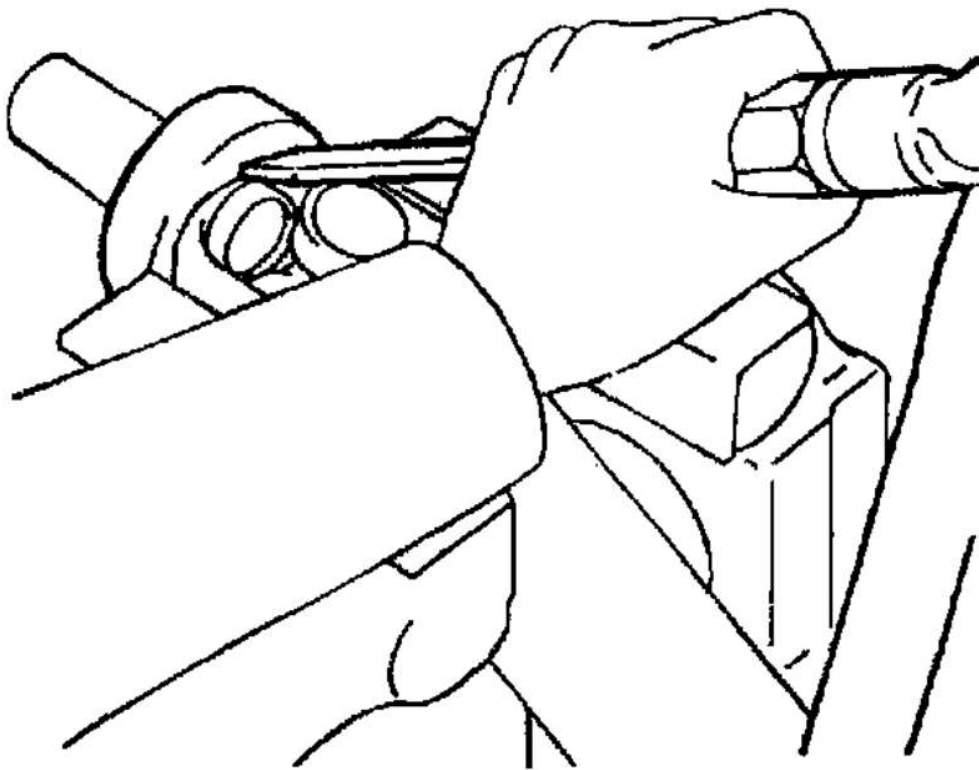
5. Using a hammer and chisel, stake the nut.
- f. Inspect the cross groove joint (See Step4).

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. 18: Removing Dust Cover

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.

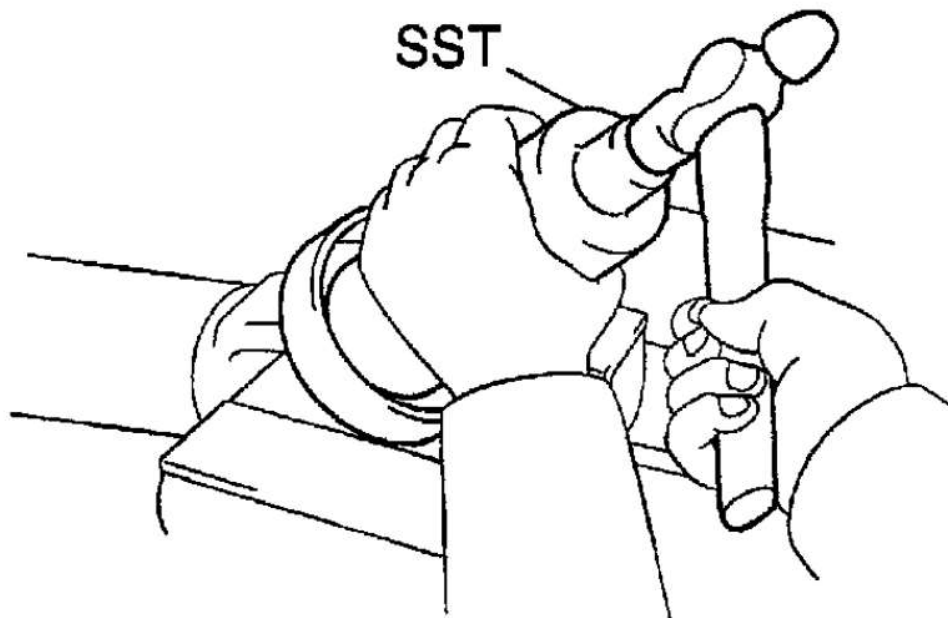
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Fig. 19: Tapping In New Dust Cover
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

INSTALLATION

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

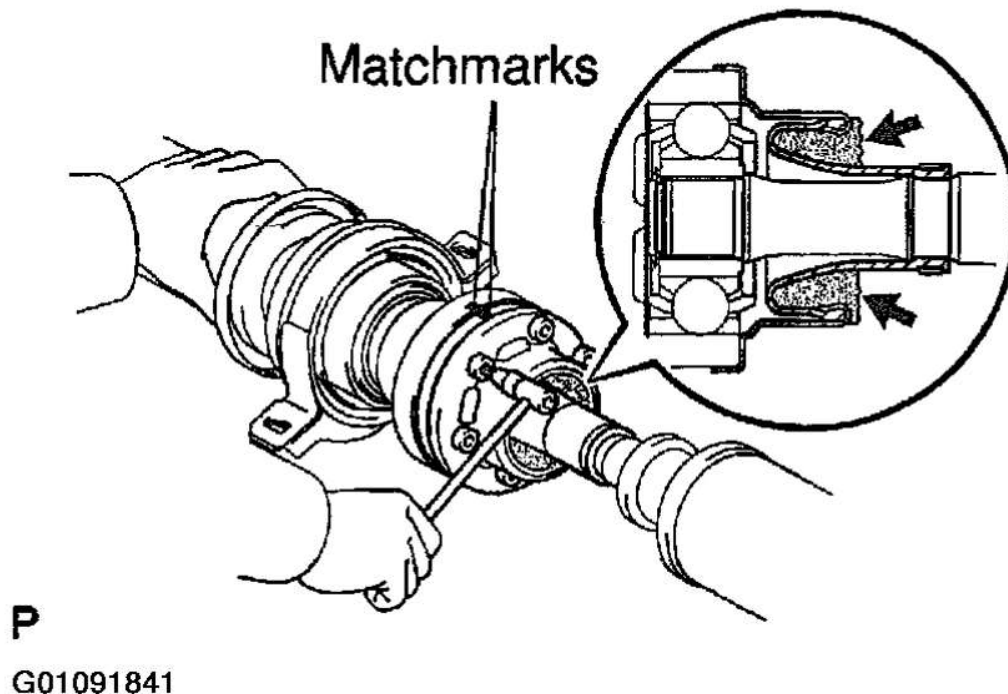


Fig. 20: Locating Matchmarks & Tightening Bolts
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

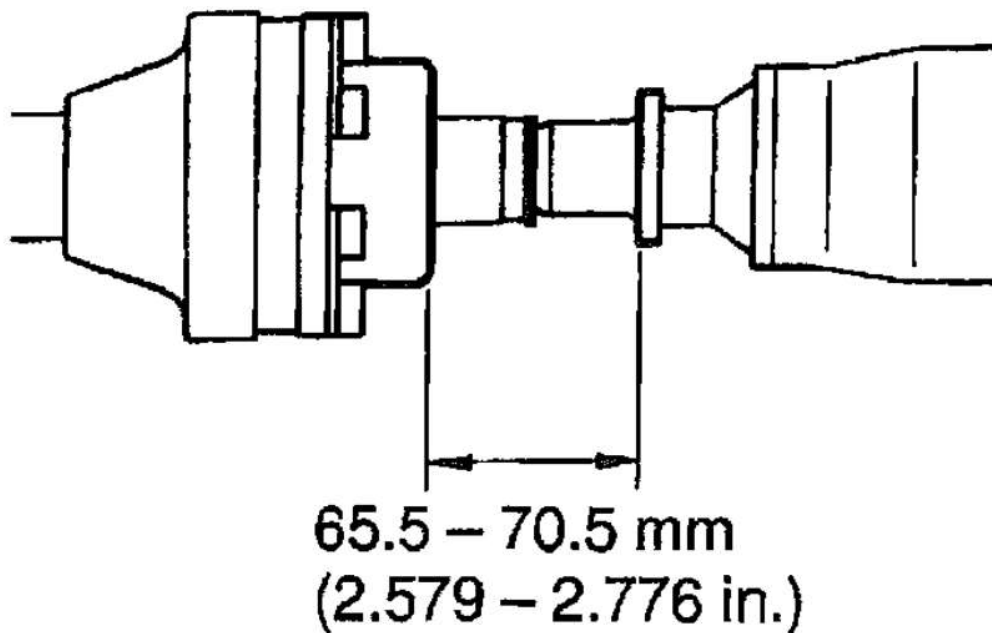
NOTE: Put a piece of cloth or an equivalent into the inside of the universal joint cover.

2. **Install intermediate shaft .**
 - a. Remove SST from the transaxle.
 SST 09325-20010
 - b. Insert the yoke into the transaxle.
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.



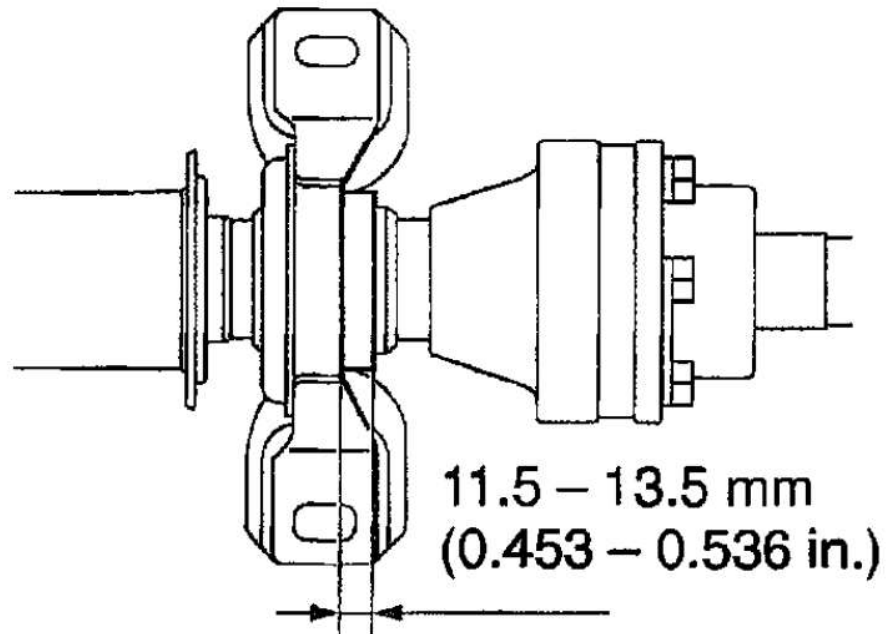
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Fig. 21: Displaying Adjustment Dimensions

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 in the illustration below, then torque the bolts.

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

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Fig. 22: Displaying Adjustment Specifications
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

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