

PROPELLER SHAFT

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PRECAUTION

Be careful not to grip the propeller shaft tube too tightly in the vise as this will cause deformation. PR02L-06

PREPARATION

SST (SPECIAL SERVICE TOOLS)

PR02A-03

	09332-25010 Universal Joint Bearing Remover & Replacer	Spider bearing replacement
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EQUIPMENT

PR02B-06

Torque wrench	
Dial indicator	

PR

TROUBLESHOOTING

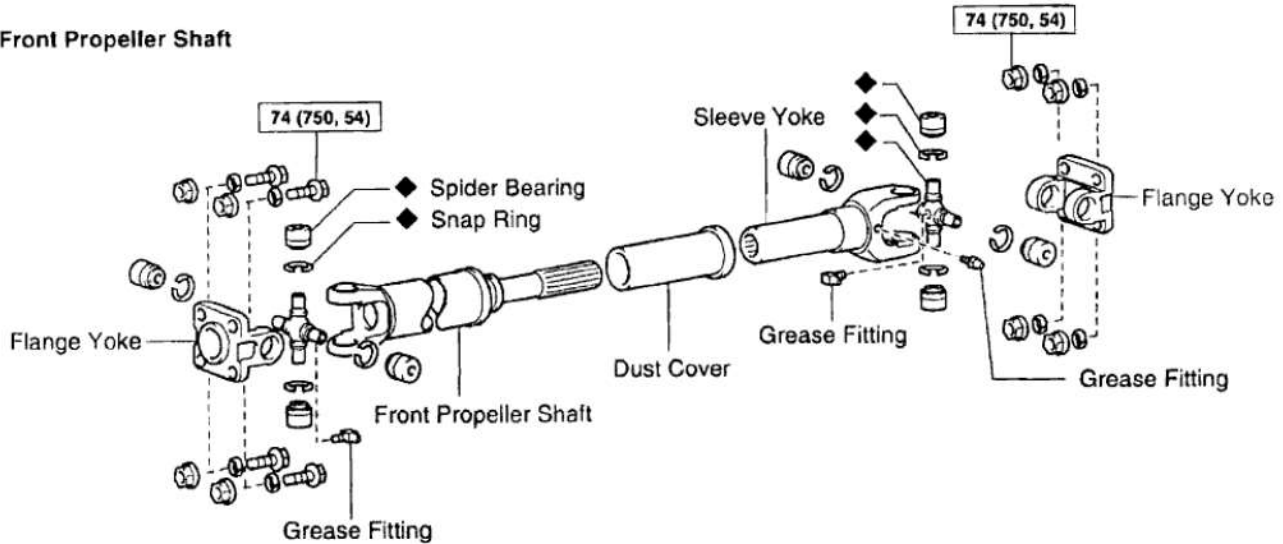
Use the table below to help you find the cause of the problem. The numbers indicate the priority of the likely cause of the problem. Check each part in order. If necessary, replace these parts. PR02M-04

See Page Parts Name Trouble	PR-4	PR-4	—	PR-4	PR-4
	Sleeve yoke spline worn	Propeller shaft runout	Propeller shaft imbalance	Sleeve yoke spline stuck	Spider bearing worn or stuck
Noise	1				2
Vibration		2	3	1	

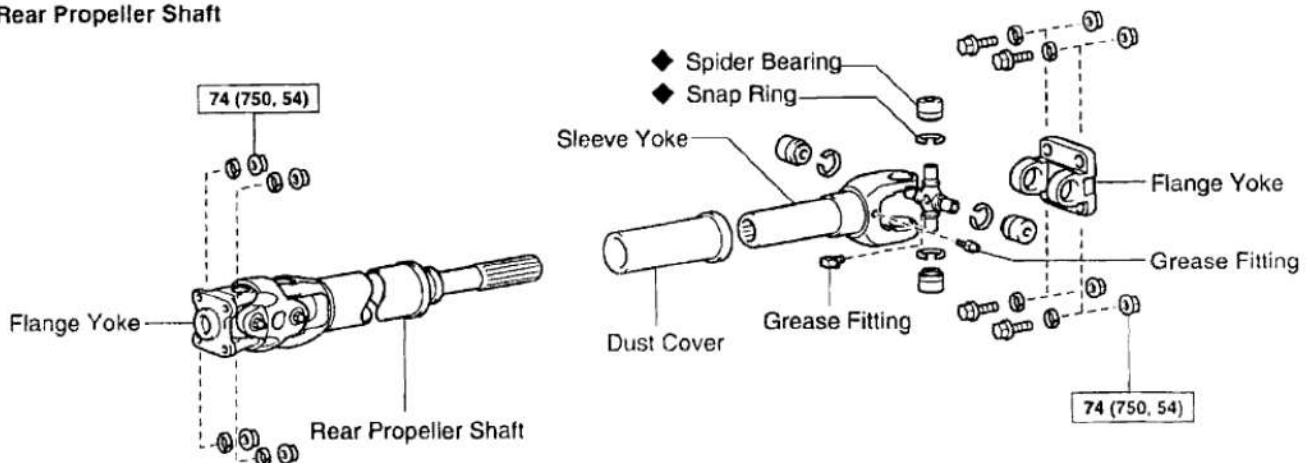
PROPELLER SHAFT COMPONENTS

PR02C-06

Front Propeller Shaft



Rear Propeller Shaft



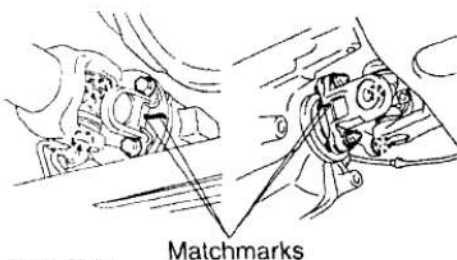
Q08978

N·m (kgf·cm, ft·lbf) : Specified torque

◆ Non-reusable part

Y Z18402

Front Propeller Shaft



Q07225 Q07226

Matchmarks

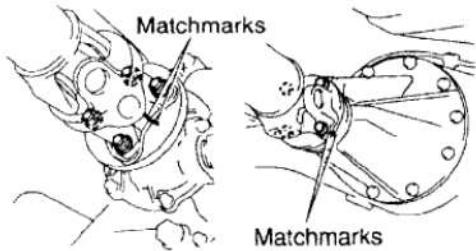
Y Z18483

PROPELLER SHAFT REMOVAL

PR08B-02

1. **DISCONNECT FRONT PROPELLER SHAFT FROM TRANSFER**
 - (a) Place matchmarks on the propeller shaft flange and transfer.
 - (b) Remove the 4 nuts and washers.
Torque: 74 N·m (750 kgf·cm, 54 ft·lbf)

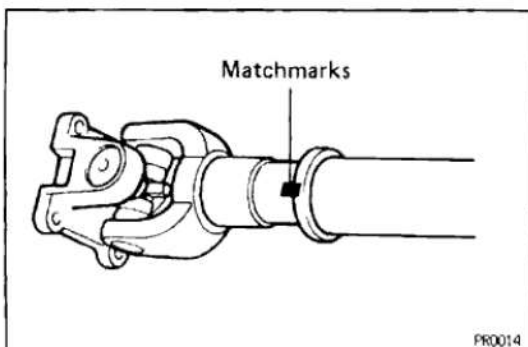
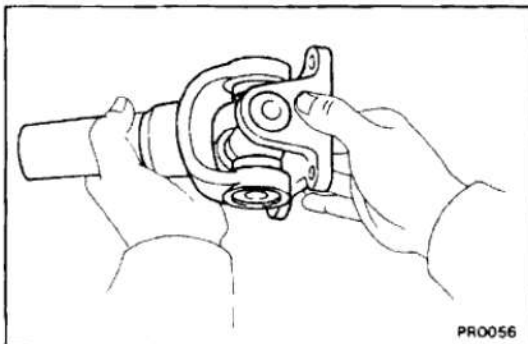
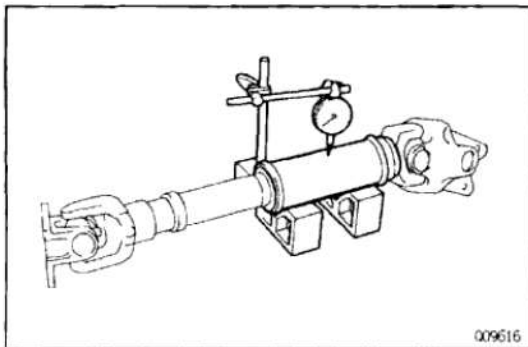
Rear Propeller Shaft



Q09134 Q06725

Y 218403

PR



2. DISCONNECT FRONT PROPELLER SHAFT FROM DIFFERENTIAL

- (a) Place matchmarks on the propeller shaft flange and differential.

- (b) Remove the 4 nuts, bolts and washers.

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

- (c) Remove the front propeller shaft.

3. DISCONNECT REAR PROPELLER SHAFT FROM TRANSFER

- (a) Place matchmarks on the propeller shaft flange and transfer.

- (b) Remove the 4 nuts and washers.

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

4. DISCONNECT REAR PROPELLER SHAFT FROM DIFFERENTIAL

- (a) Place matchmarks on the propeller shaft flange and differential.

- (b) Remove the 4 nuts, bolts and washers.

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

- (c) Remove the rear propeller shaft.

PRO2E-06

PROPELLER SHAFT INSPECTION

1. INSPECT FRONT AND REAR PROPELLER SHAFTS FOR DAMAGE OR RUNOUT

Using a dial indicator, check the run out of the shafts.

Maximum runout: 0.8 mm (0.031 in.)

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

2. INSPECT SPIDER BEARING

- Check the spider bearings for wear or damage.
- Check the spider bearing axial play by turning the yoke while holding the shaft tightly.

Maximum bearing axial play: 0.05 mm (0.0020 in.)

If necessary, replace the spider bearing.

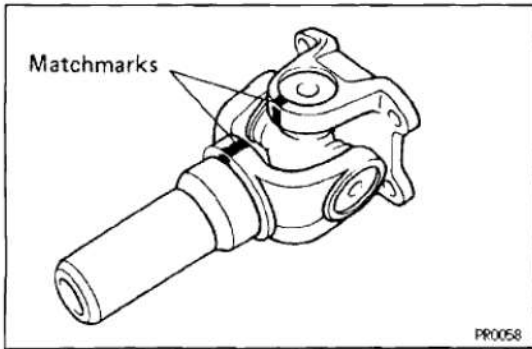
PRO47-01

PROPELLER SHAFT DISASSEMBLY

1. REMOVE SLEEVE YOKE FROM PROPELLER SHAFT

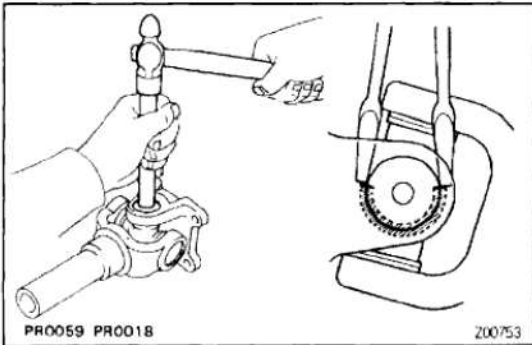
- (a) Place matchmarks on the sleeve yoke and shaft.

- (b) Pull out the sleeve yoke from the shaft.

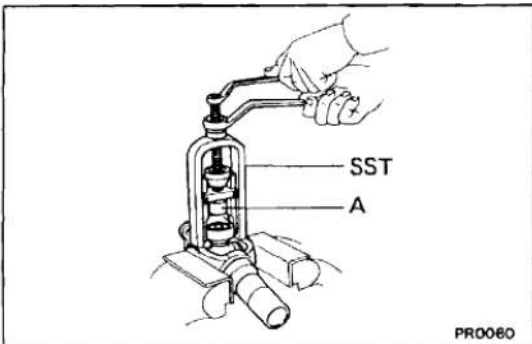


2. REMOVE SPIDER BEARING

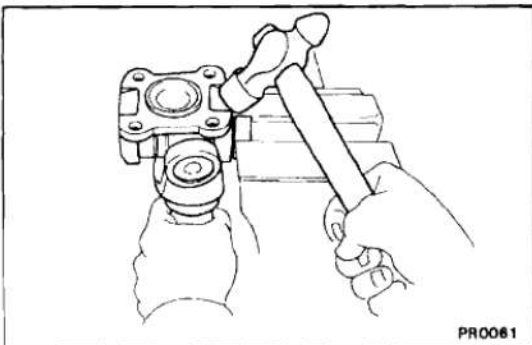
- (a) Place matchmarks on the sleeve yoke and flange.



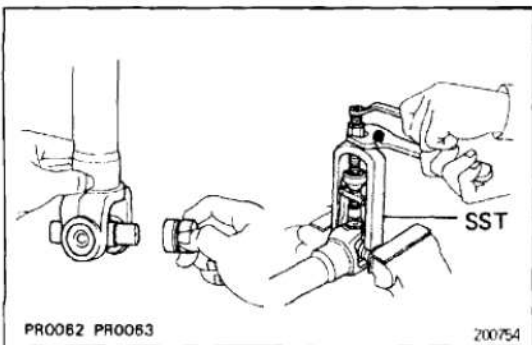
- (b) Using a brass bar and hammer, slightly tap in the bearing outer races.
- (c) Using 2 screwdrivers, remove the 4 snap rings from the grooves.



- (d) Using SST, push out the bearing from the flange.
SST 09332-25010
HINT: Sufficiently raise the part indicated by A so that it does not come into contact with the bearing.



- (e) Clamp the bearing outer race in a vise and tap off the flange with a hammer.
HINT: Remove the bearing on the opposite side by the same procedure.

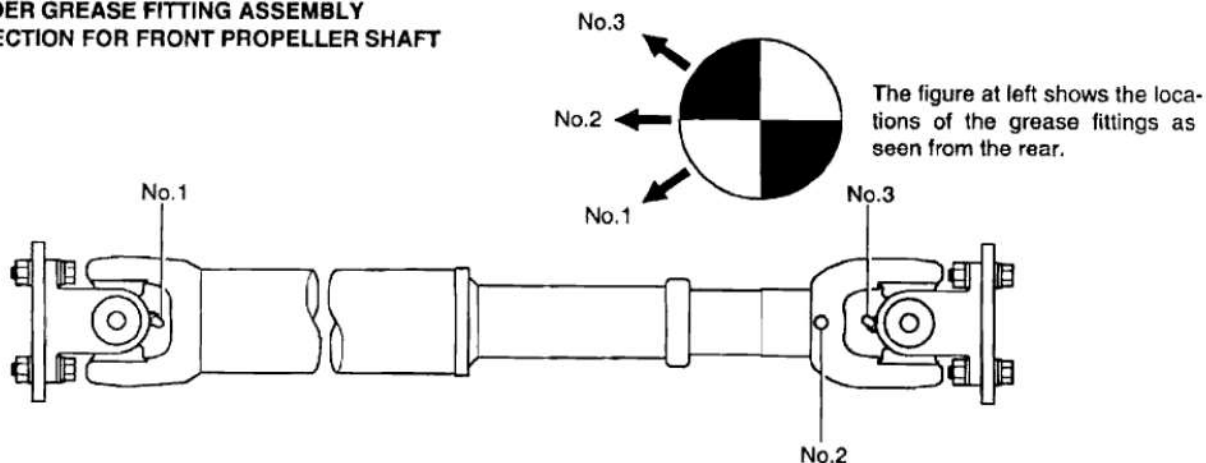


- (f) Install the 2 removed bearing outer races to the spider.
- (g) Using SST, push out the bearing from the yoke.
SST 09332-25010
- (h) Clamp the outer bearing race in a vise and tap off the yoke with a hammer.
HINT: Remove the bearing on the opposite side in the same procedure.

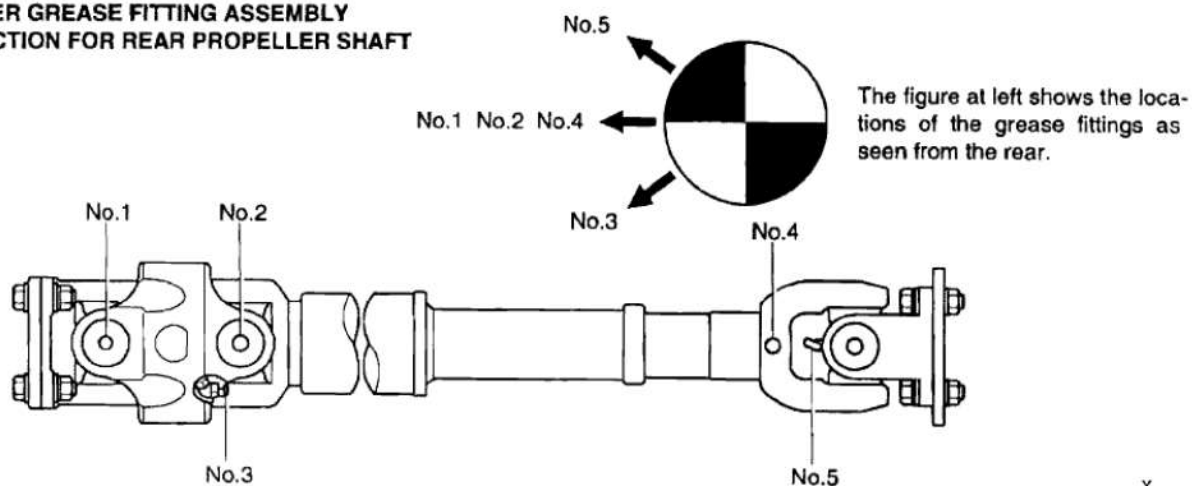
PROPELLER SHAFT ASSEMBLY

HINT: When replacing the spider, be sure that the grease fitting assembly hole is facing in the direction shown in the illustration.

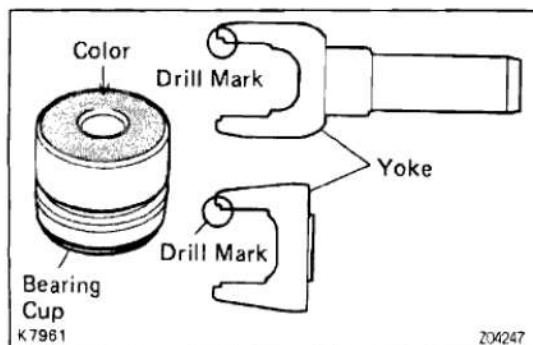
SPIDER GREASE FITTING ASSEMBLY DIRECTION FOR FRONT PROPELLER SHAFT



SPIDER GREASE FITTING ASSEMBLY DIRECTION FOR REAR PROPELLER SHAFT



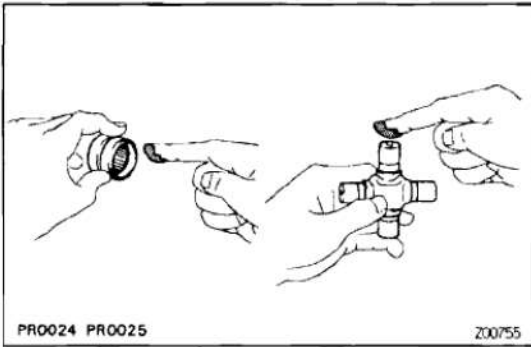
008990



1. SELECT SPIDER BEARING

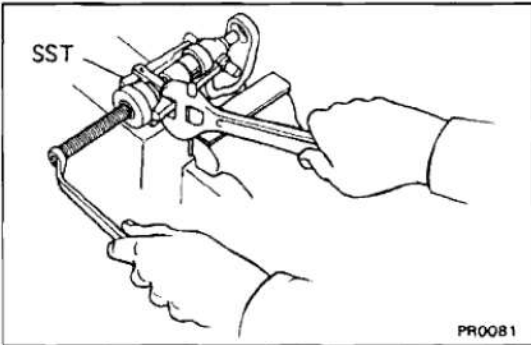
Select the bearing according to whether or not there is a drill mark on the yoke section.

Yoke	Bearing
With drill mark	With color mark (Red)
No drill mark	No color mark

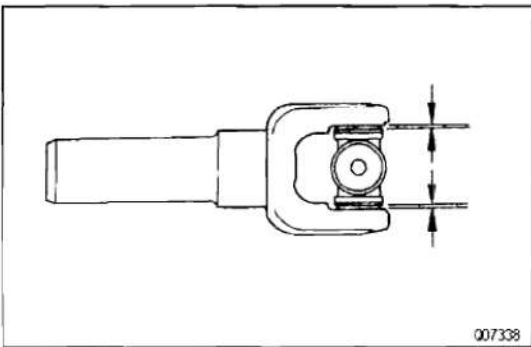


2. INSTALL SPIDER BEARING

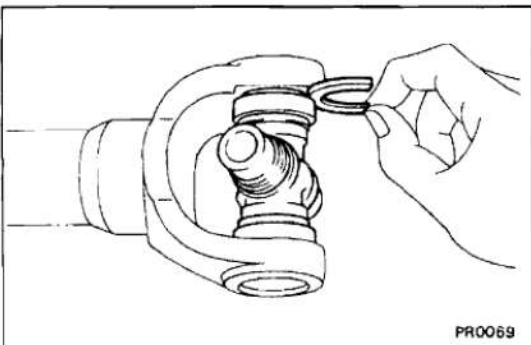
- (a) Apply MP grease to the a new spider and bearings.
NOTICE: Be careful not to apply too much grease.
- (b) Align the matchmarks on the yoke and flange.



- (c) Fit the spider into the yoke.
- (d) Using SST, install the bearings on the spider.
SST 09332—25010



- (e) Using SST, adjust both bearings so that the snap ring grooves are at maximum and equal widths.

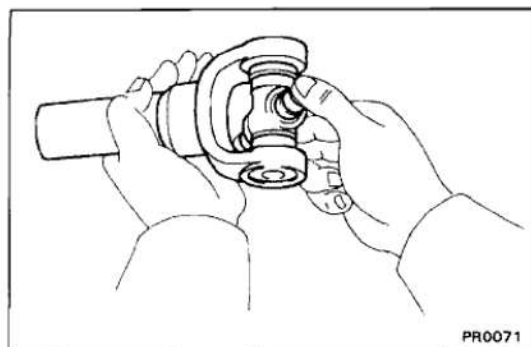


- (f) Install 2 new snap rings of equal thickness which will allow 0–0.05 mm (0–0.0020 in.) axial play.

HINT: Do not reuse the snap rings.

Thickness of snap ring

Color	Mark	Thickness mm (in.)
—	1	2.100–2.150 (0.0827–0.0846)
—	2	2.150–2.200 (0.0846–0.0866)
—	3	2.200–2.250 (0.0866–0.0886)
Brown	—	2.250–2.300 (0.0886–0.0906)
Blue	—	2.300–2.350 (0.0906–0.0925)
—	6	2.350–2.400 (0.0925–0.0945)
—	7	2.400–2.450 (0.0945–0.0965)
—	8	2.450–2.500 (0.0965–0.0984)



- (g) Using a hammer, tap the yoke until there is no clearance between the bearing outer race and snap ring.
- (h) Check that the spider bearing moves smoothly.
- (i) Check the spider bearing axial play.

Maximum bearing axial play: 0.05 mm (0.0020 in.)

HINT: Install a new spider bearing on the flange side in the procedure described above.

3. INSERT SLEEVE YOKE INTO PROPELLER SHAFT

- (a) Apply MP grease to the propeller shaft spline and sleeve yoke sliding surface.
- (b) Align the matchmarks on the sleeve yoke propeller shaft.
- (c) Install the propeller shaft into the sleeve yoke.

PROPELLER SHAFT INSTALLATION

PR080-02

Installation is in the reverse order of removal.

HINT: After installation, pump MP grease into each fitting with a grease gun until the grease begins to flow around the oil seal.

SERVICE SPECIFICATIONS

SERVICE DATA

PR02J-06

Propeller shaft runout	Max.	0.8 mm (0.031 in.)
Spider bearing axial play	Max.	0.05 mm (0.0020 in.)
Snap ring thickness	Mark	Color
	1	—
	2	—
	3	—
	—	Brown
	—	Blue
	6	—
	7	—
	8	—

TORQUE SPECIFICATIONS

PR02K-04

Part tightened	N·m	kgf·cm	ft·lbf
Front propeller shaft x Front differential	74	750	54
Front propeller shaft x Transfer	74	750	54
Rear propeller shaft x Rear differential	74	750	54
Rear propeller shaft x Transfer	74	750	54