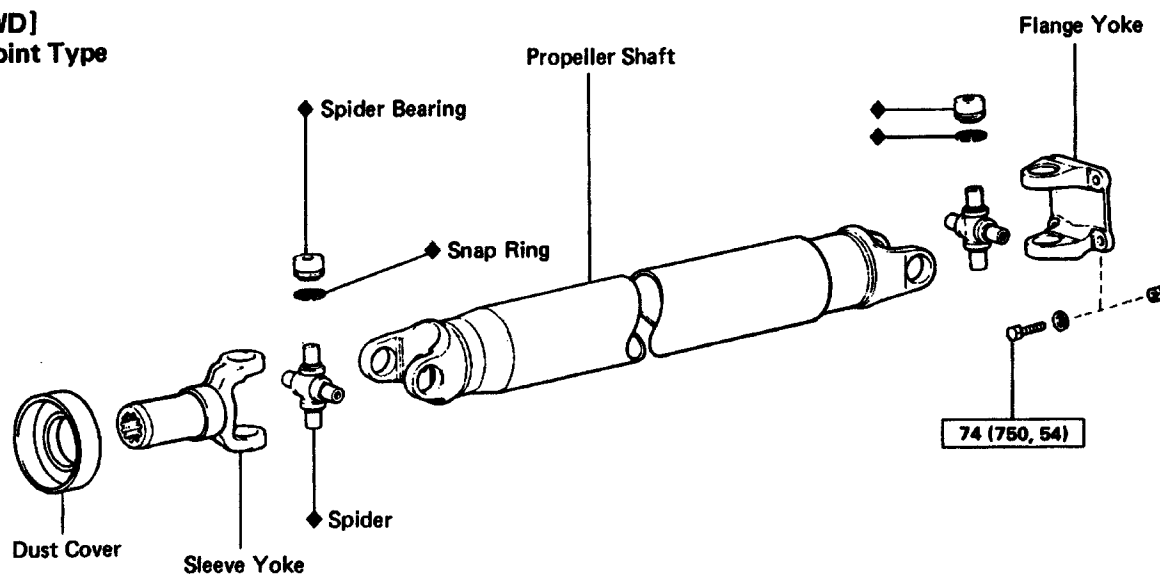


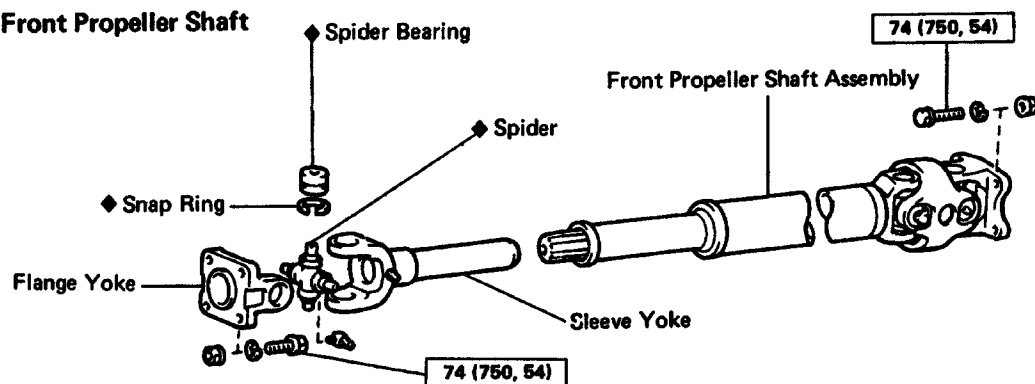
PROPELLER SHAFT COMPONENTS

[2WD] 2-Joint Type

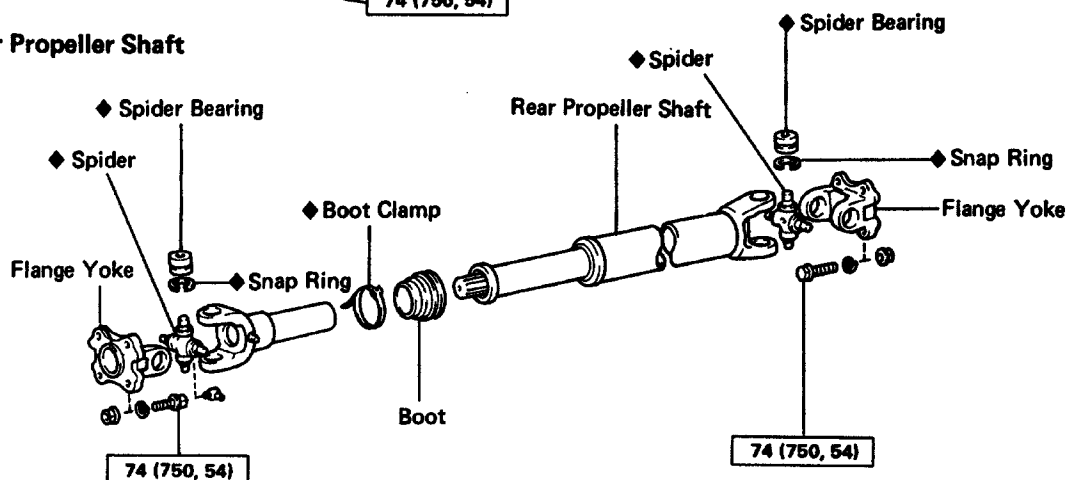


[4WD] w/ Boot for 3VZ-FE, 2L-TE Engine Automatic Transmission

Front Propeller Shaft



Rear Propeller Shaft

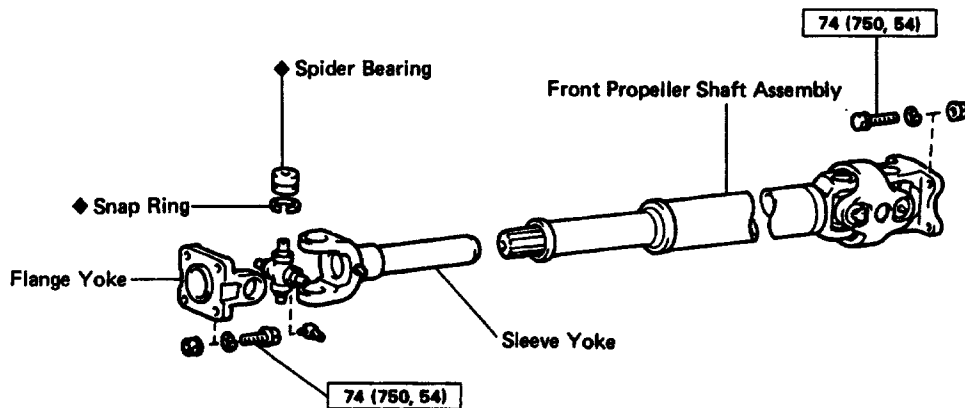


N·m (kgf·cm, ft·lbf) : Specified torque

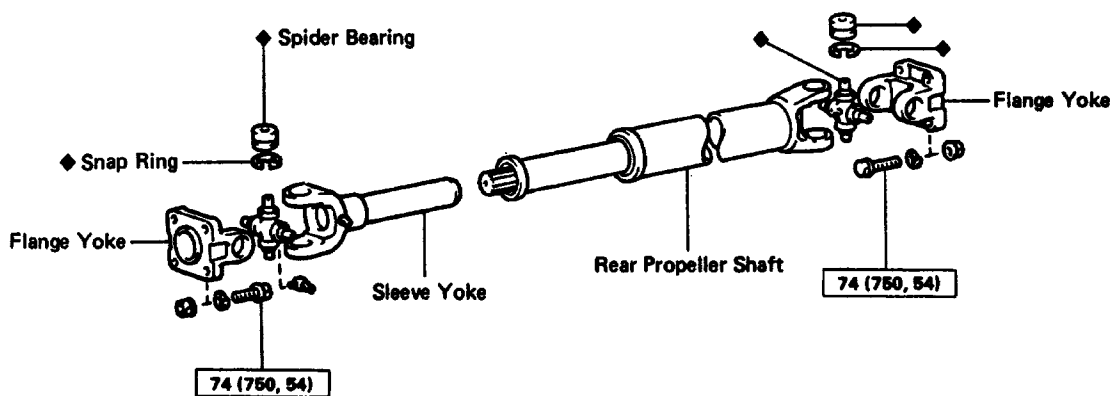
◆ Non-reusable part

PRO221
PRO219
R01155

[4WD]
Others
Front Propeller Shaft



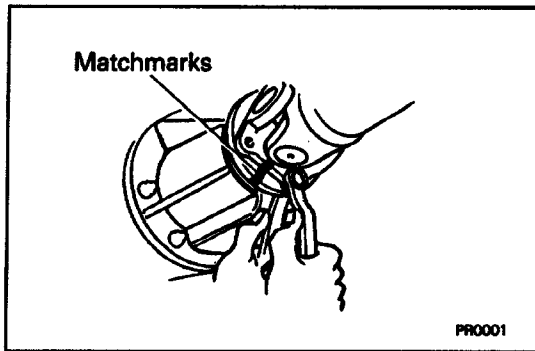
Rear Propeller Shaft



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

◆ Non-reusable part

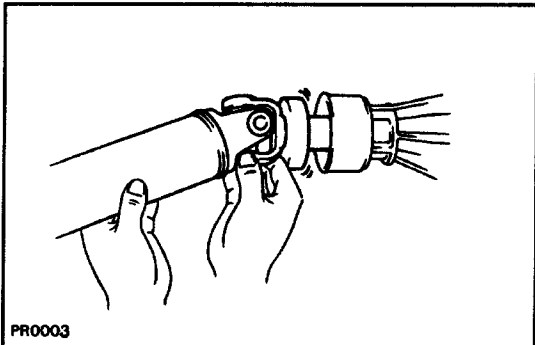
PR0219
PR0220



2WD: PROPELLER SHAFT REMOVAL

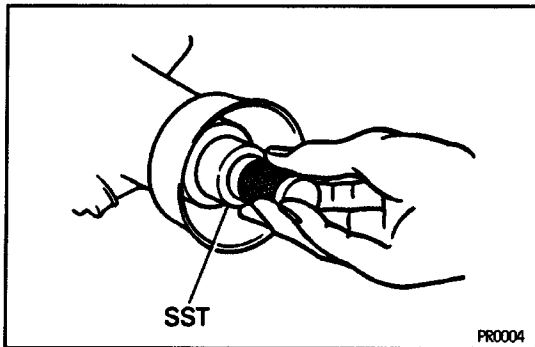
1. DISCONNECT PROPELLER SHAFT FLANGE FROM COMPANION FLANGE ON DIFFERENTIAL

- (a) Place matchmarks on the flanges.
- (b) Remove the 4 bolts and nuts.

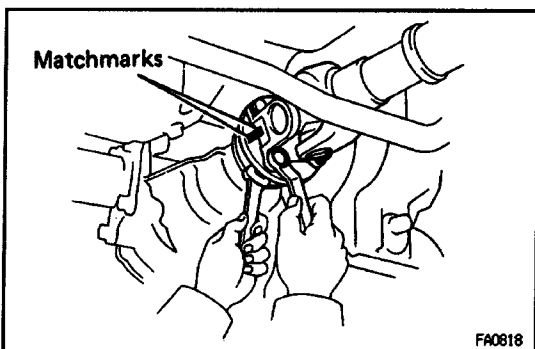


2. REMOVE PROPELLER SHAFT FROM TRANSMIS- SION

- (a) Pull the yoke from the transmission.



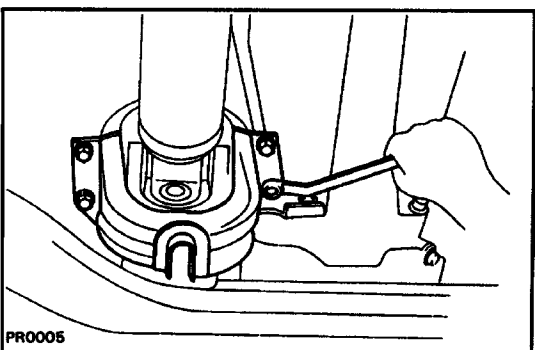
- (b) Insert SST in the transmission to prevent oil leakage.
SST 08325-20010 (22R-E engine)
09325-40010 (3VZ-E engine)



4WD: PROPELLER SHAFT REMOVAL

1. DISCONNECT PROPELLER SHAFT FLANGE FROM COMPANION FLANGE ON FRONT DIFFERENTIAL

- (a) Place matchmarks on the flanges.
- (b) Remove the 4 bolts and nuts.



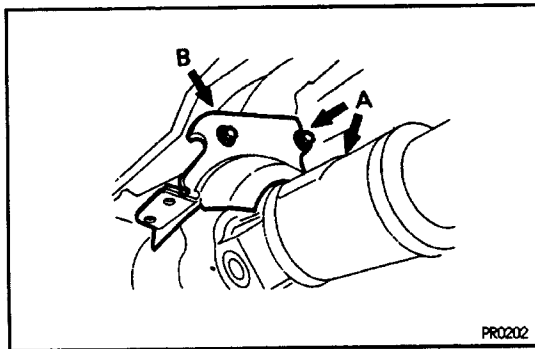
2. REMOVE FRONT PROPELLER SHAFT NO.2 DUST COVER

w/ A.D.D. and 3VZ – E engine:

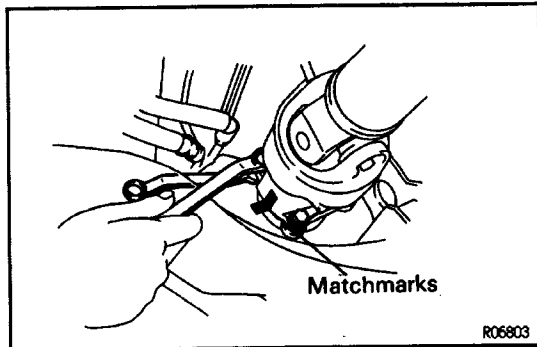
Remove the 2 bolts, nuts and cover.

Other:

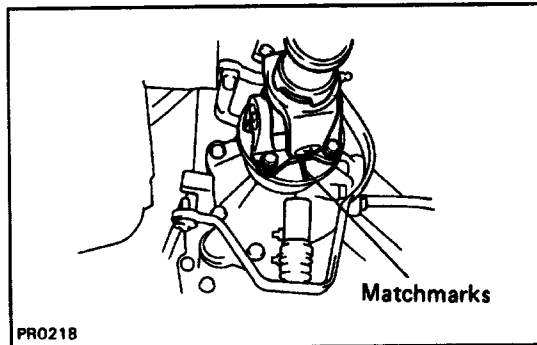
Remove the 4 bolts and cover.



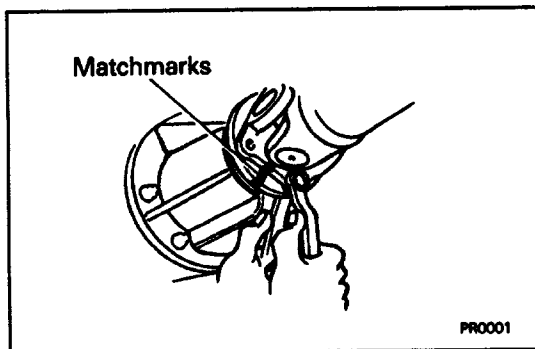
- 3. 3VZ– E and 22R– E w/ A.D.D.:
REMOVE FRONT PROPELLER SHAFT DUST COVER
SUBASSEMBLY**
Remove the 3 bolts and cover.



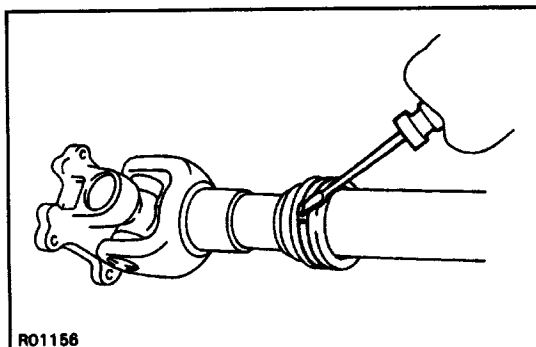
- 4. REMOVE FRONT PROPELLER SHAFT**
- Suspend the front side of the propeller shaft.
 - Place matchmarks on the flanges.
 - Remove the 4 nuts.
 - Remove the front propeller shaft.



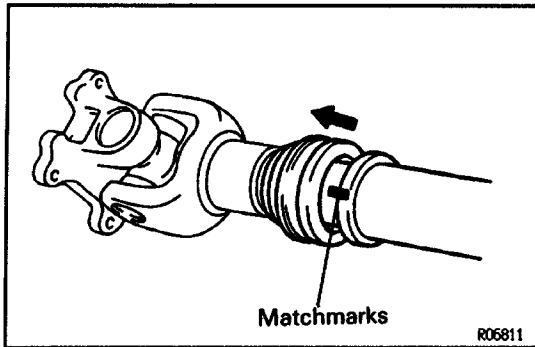
- 5. DISCONNECT PROPELLER SHAFT FLANGE FROM
COMPANION FLANGE ON TRANSFER**
- Place matchmarks on the flanges.
 - Remove the 4 bolts and nuts.



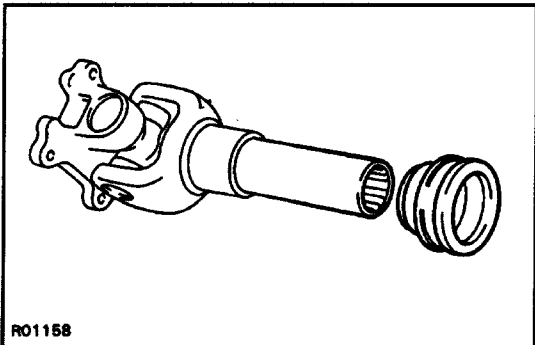
- 6. 4WD:**
REMOVE REAR PROPELLER SHAFT
- Place matchmarks on the flanges.
 - Remove the 4 bolts and nuts.
 - Remove the rear propeller shaft.



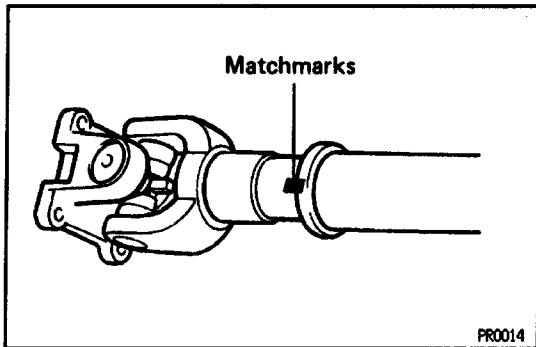
- 4WD:**
PROPELLER SHAFT DISASSEMBLY
- w/ Boot 3VZ–FE, 22R–E Engine Automatic Transmission:
**REMOVE SLEEVE YOKE FROM REAR PROPELLER
SHAFT**
 - Using a screwdriver, remove the boot clamp.



- (b) Slide the boot to sleeve yoke.
 - (c) Place matchmarks on the sleeve yoke and shaft.
- NOTICE: Be careful not to damage the boot.**



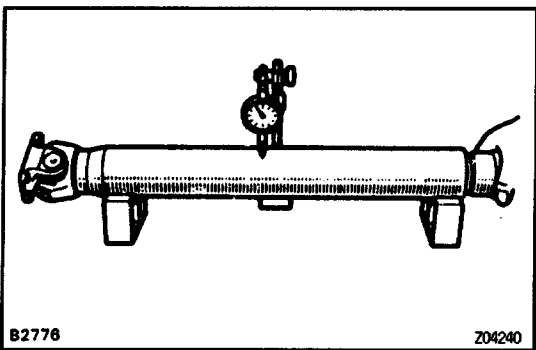
- (d) Pull out the sleeve yoke from the shaft.
- (e) Remove the boot.



2. 4WD:

REMOVE SLEEVE YOKE FROM PROPELLER SHAFT

- (a) Place matchmarks on the sleeve yoke and shaft.
- (b) Pull out the sleeve yoke from the shaft.

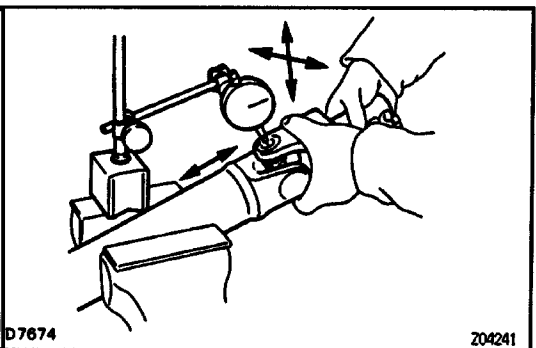


PROPELLER SHAFT INSPECTION COMPONENTS

1. INSPECT REAR PROPELLER SHAFT FOR DAMAGE OR RUNOUT

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

Maximum runout:
0.8 mm (0.031 in.)



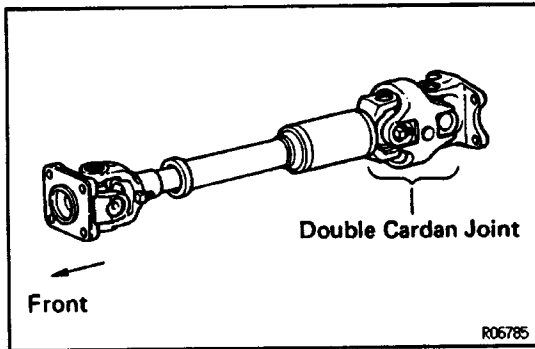
2. INSPECT SPIDER BEARINGS

- (a) Inspect the spider bearings for wear or damage.
- (b) Using a dial indicator, check the spider bearing axial play by turning the yoke while holding the shaft tightly.

Bearing axial play:

Maximum 0.05 mm (0.0020 in.)

If necessary, replace the spider bearing.



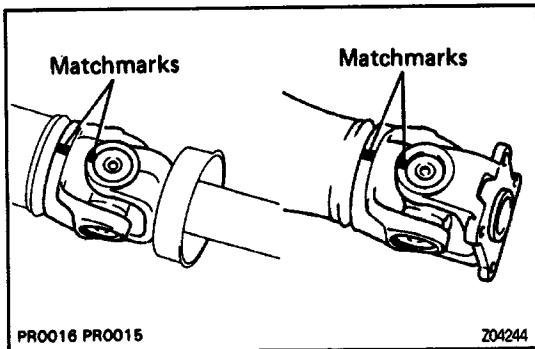
3. 4WD:

INSPECT FRONT PROPELLER SHAFT

- (a) Inspect the shaft for wear or damage.
 - (b) Inspect the double cardan joint for wear or damage.
- HINT: If any problem is found, replace the propeller shaft assembly.

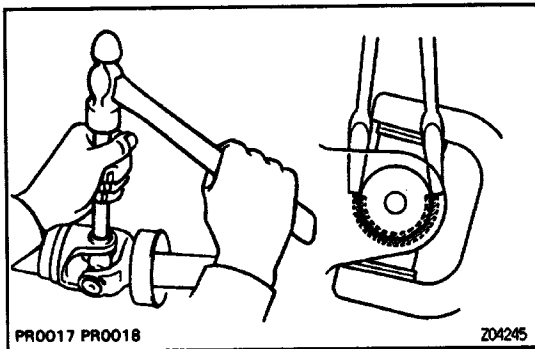
SPIDER BEARING REPLACEMENT

1. PLACE MATCHMARKS ON SHAFT AND YOKE



2. REMOVE SNAP RINGS

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

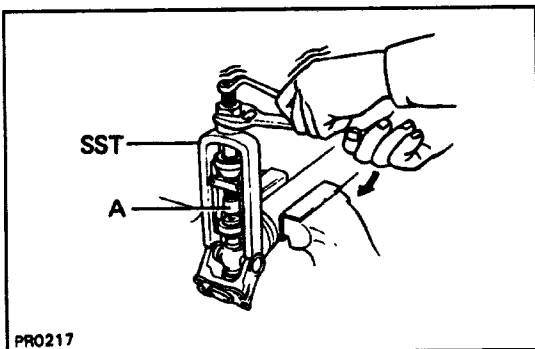


3. REMOVE SPIDER BEARINGS

- (a) Using SST, push out the bearing from the propeller shaft.

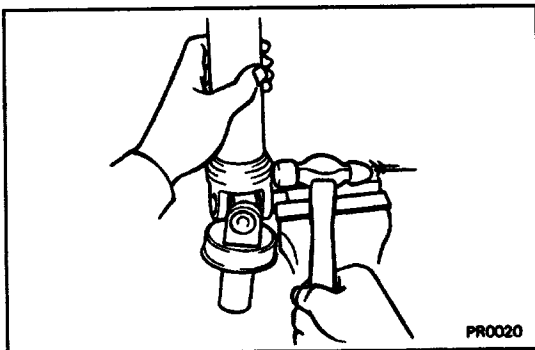
SST 09332-25010

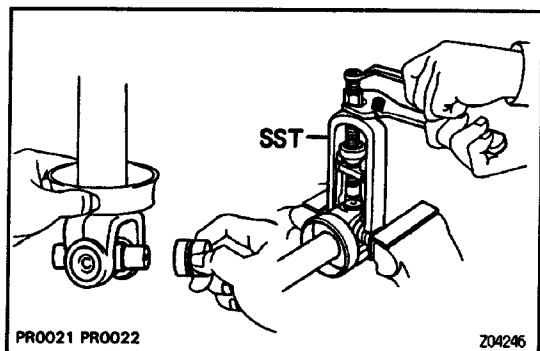
HINT: Sufficiently raise the part indicated by A so that it does not come into contact with the bearing.



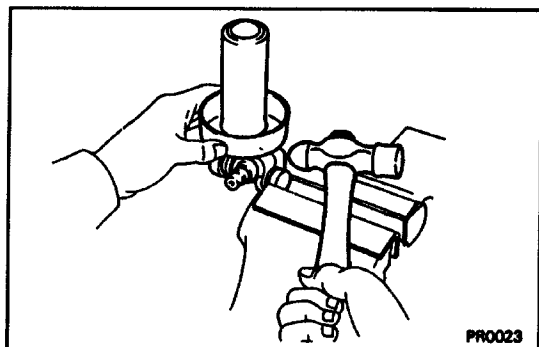
- (b) Clamp the bearing outer race in a vise and tap off the propeller shaft with a hammer.

HINT: Remove the bearing on the opposite side in the same procedure.

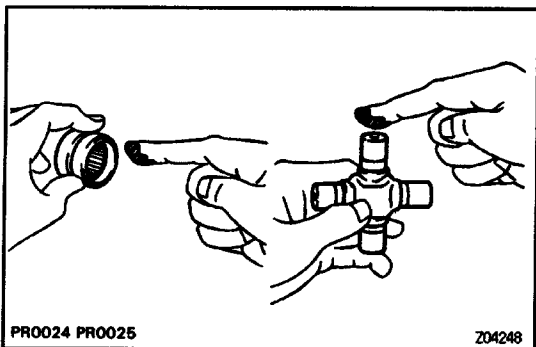




- (c) Install the 2 removed bearings outer races to the spider.
 (d) Using SST, push out the bearing from the yoke.
 SST 09332-25010

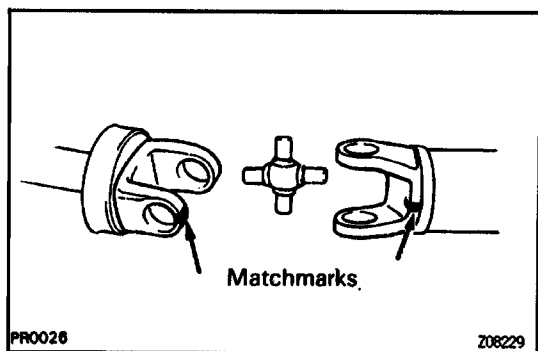


- (e) Clamp the outer bearing race in a vise and tap off the yoke with a hammer.
 HINT: Remove the bearing on the opposite side in the same procedure.

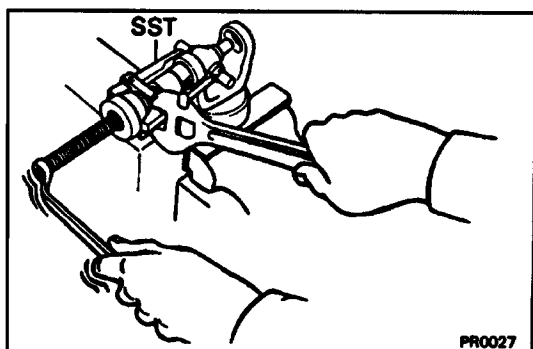


4. INSTALL SPIDER BEARINGS

- (a) Apply MP grease to a new spider and 4 new bearings.
NOTICE: Be careful not to apply too much grease.

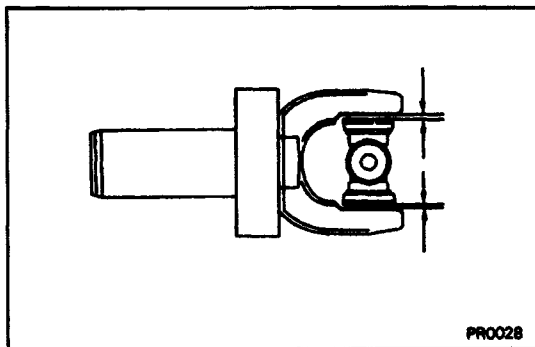


- (b) Align the matchmarks on the yoke and shaft.

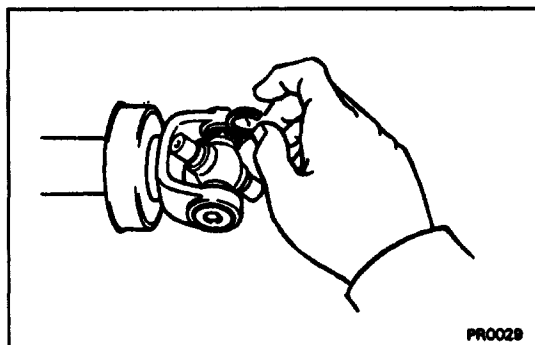


- (c) Fit a spider into the yoke.
 (d) Using SST, install the 2 bearings on the spider.
 SST 09332-25010

HINT: Install the 2 bearings on the opposite side in the same procedure.



HINT: Adjust both bearings so that the snap ring grooves are at maximum and equal widths.



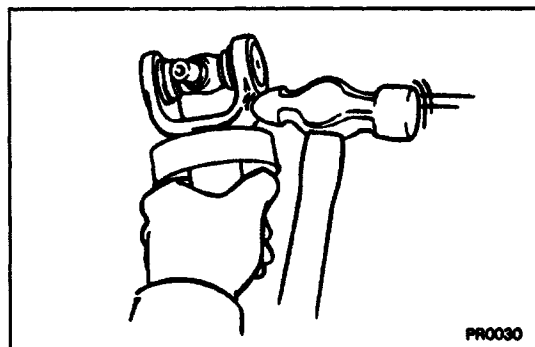
5. INSTALL SNAP RINGS

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

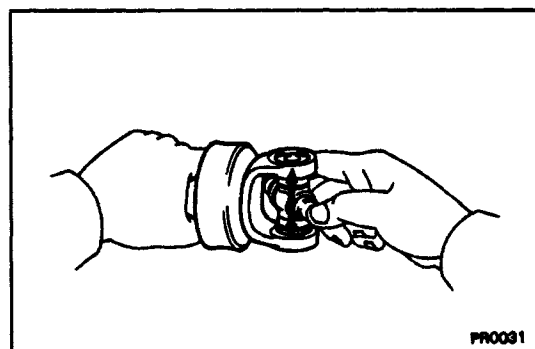
HINT: Do not reuse the 2 snap rings.

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)



- (b) Using a hammer, tap the yoke until there is no clearance between the bearing outer race and snap ring.



6. CHECK SPIDER BEARING

- (a) Check that the spider bearing moves smoothly.
 (b) Check the spider bearing axial play.

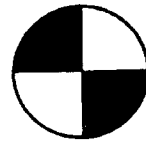
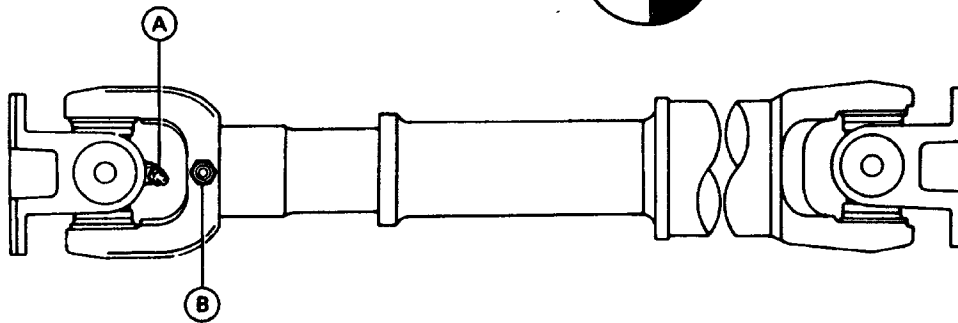
Bearing axial play:

Maximum 0.05 mm (0.020 in.)

HINT: Install spider bearings on the shaft side using the procedure described above.

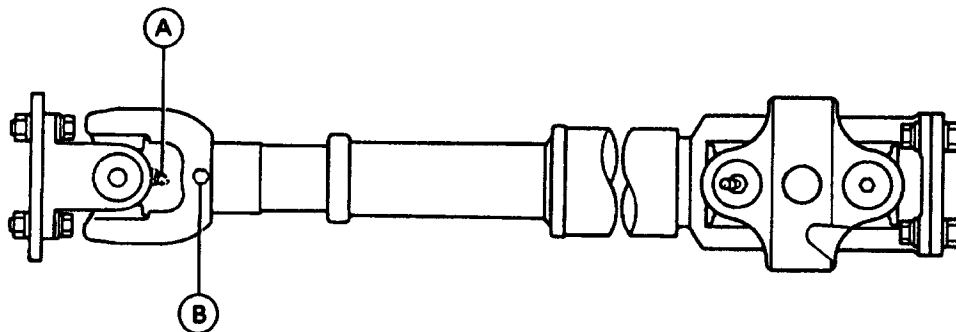
HINT: When replacing the rear and front propeller shaft spider on 4WD vehicles, be sure that the grease fitting assembly hole is facing in the direction shown in the illustration.

**SPIDER GREASE FITTING ASSEMBLY DIRECTION FOR
4WD REAR PROPELLER SHAFT**



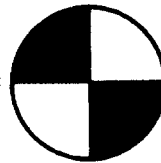
The figure at left show: the locations of the grease fittings as seen from the rear.

**SPIDER GREASE FITTING ASSEMBLY DIRECTION FOR
4WD FRONT PROPELLER SHAFT**



(B)

(A)

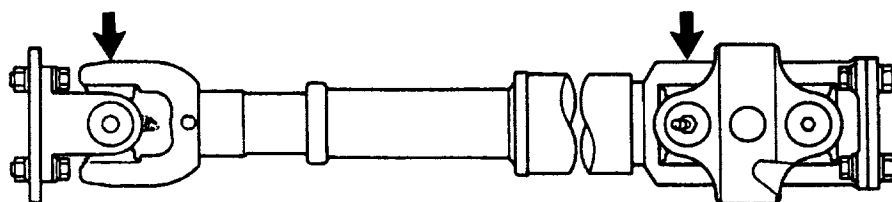


The figure at left shows the locations of the grease fittings as seen from the rear.

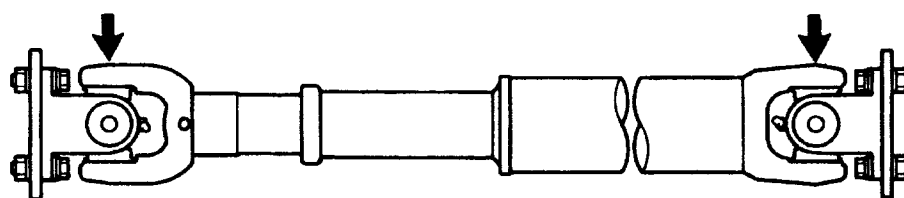
PROPELLER SHAFT ASSEMBLY

When removing or installing and part, make sure that each joint is facing the correct direction, as shown in the illustration above.

[4WD] Front

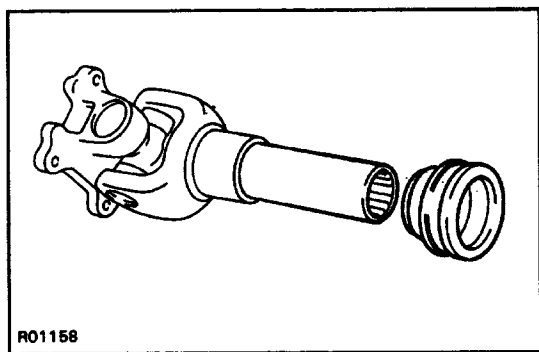


[4WD] Rear



PRO216
PRO187

Z08208

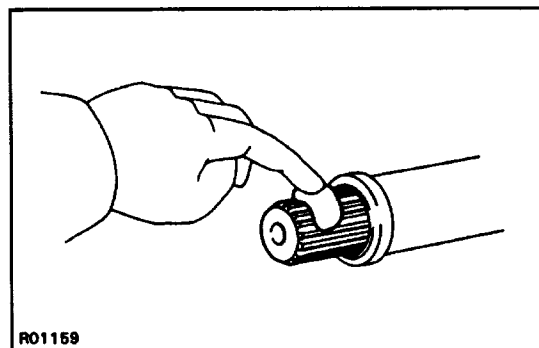


R01158

1. w/ Boot for 3 VZ – FE, 2 L – TE Engine Automatic Transmission:
INSERT SLEEVE YOKE INTO PROPELLER SHAFT

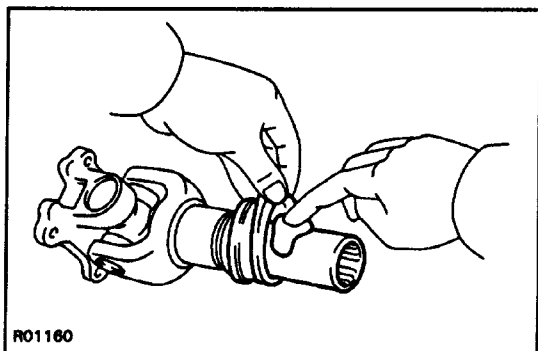
(a) Insert the boot to sleeve yoke.

NOTICE: Be careful not to damage the boot.

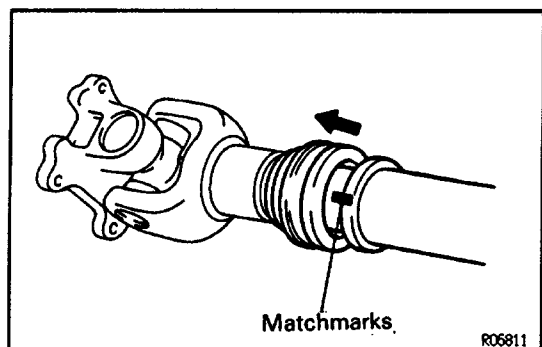


R01159

(b) Apply MP grease to the propeller shaft spline.

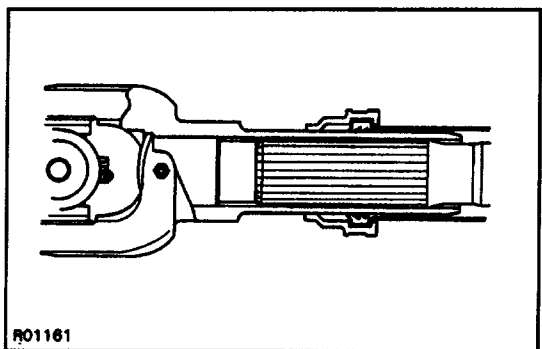


(c) Pack in MP grease to the sleeve yoke sliding surface and boot.

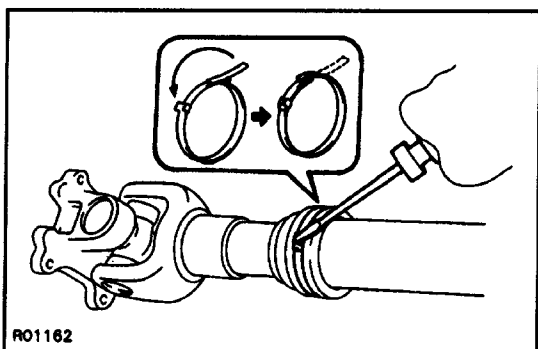


(d) Align the matchmarks on the sleeve yoke and propeller shaft.

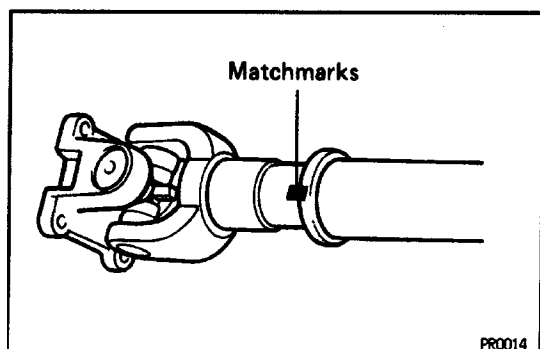
(e) Insert the sleeve yoke into the propeller shaft.



(f) Set the boot, as shown in the illustration.



(g) Using screwdriver, bend the clamp and lock it, as shown in the illustration.



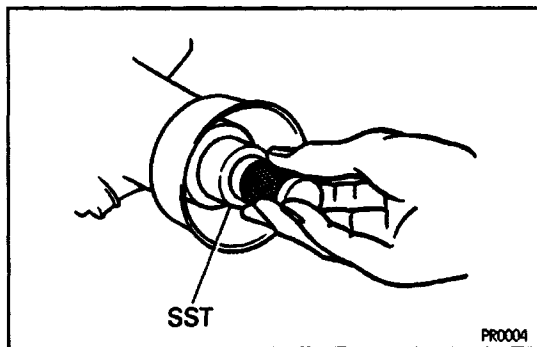
2. 4WD:

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 and propeller shaft.

(c) Insert the sleeve yoke into the propeller shaft.

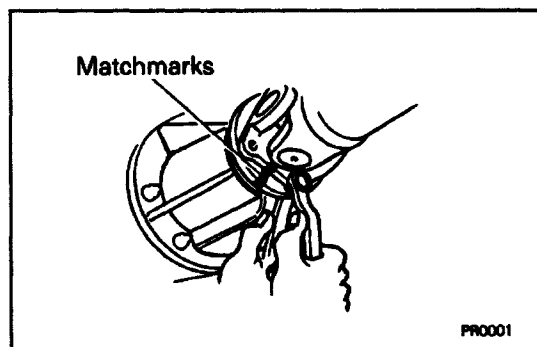
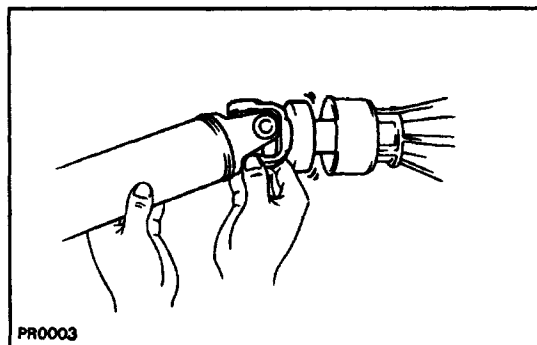


2WD: PROPELLER SHAFT INSTALLATION

1. INSERT YOKE IN TRANSMISSION

(a) Remove SST.

(b) Push the yoke into the transmission.

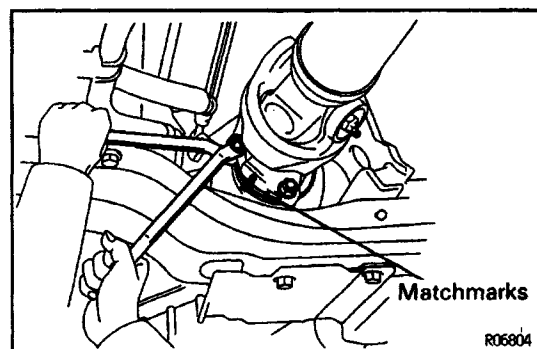


2. CONNECT PROPELLER SHAFT FLANGE TO COMPANION FLANGE ON DIFFERENTIAL

(a) Align the matchmarks on the flanges and connect the flanges with 4 bolts and nuts.

(b) Torque the 4 bolts and nuts.

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



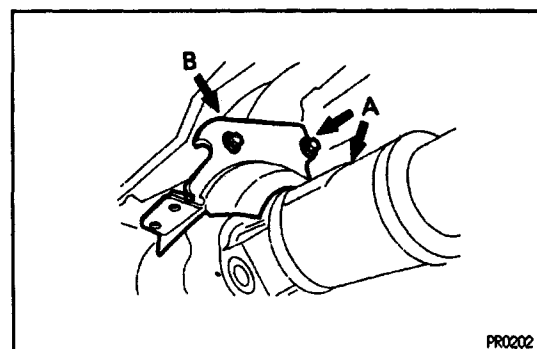
4WD: PROPELLER SHAFT INSTALLATION

1. CONNECT FRONT PROPELLER SHAFT FLANGE TO COMPANION FLANGE ON TRANSFER

(a) Align the matchmarks on the flanges and connect the flanges with 4 bolts and nuts.

(b) Torque the 4 bolts and nuts.

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



2. 3VZ-E and 22R-E w/ A.D.D.:

INSTALL FRONT PROPELLER SHAFT DUST COVER SUBASSEMBLY

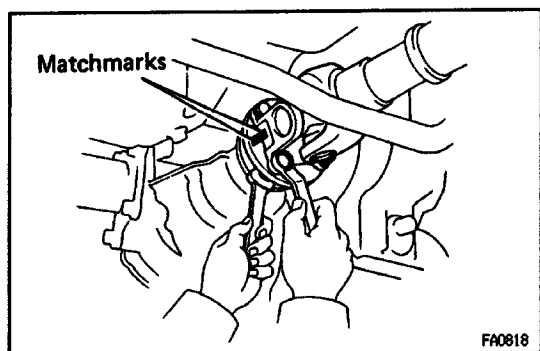
(a) Install the cover.

(b) Install and torque the 3 bolts.

Torque:

A bolts (14 mm): 36 N-m (370 kgf-cm, 27 ft-lbf)

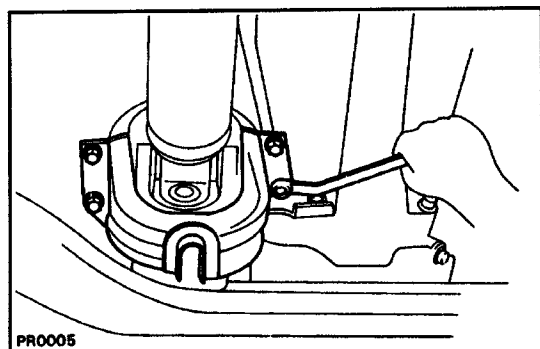
B bolts (12 mm): 23 N-m (230 kgf-cm, 17 ft-lbf)



3. CONNECT PROPELLER SHAFT FLANGE TO COMPANION FLANGE ON FRONT DIFFERENTIAL

- (a) Align the matchmarks on the flanges and connect the flanges with 4 bolts and nuts.
- (b) Torque the 4 bolts and nuts.

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



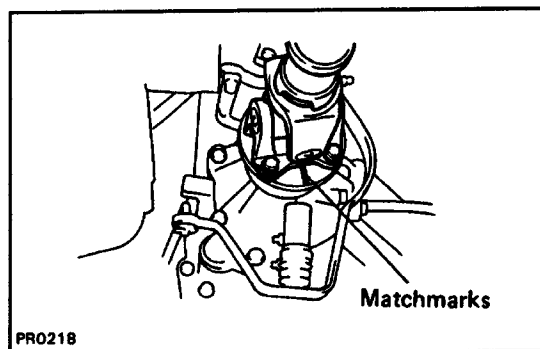
4. INSTALL FRONT PROPELLER SHAFT NO.2 DUST COVER

- (a) Install the cover.
- (b) Install and torque the 4 bolts and nuts.

Torque:

Bolts: 17 N-m (175 kgf-cm, 13 ft-lbf)

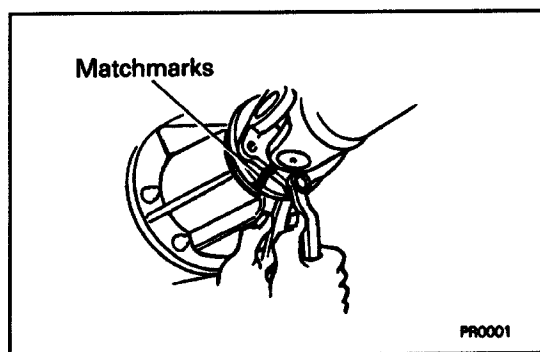
Nuts: 13 N-m (135 kgf-cm, 10 ft-lbf)



6. CONNECT REAR PROPELLER SHAFT FLANGE TO COMPANION FLANGE ON TRANSFER

- (a) Align the matchmarks on the flanges and connect the flanges with 4 bolts and nuts.
- (b) Torque the 4 bolts and nuts.

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



6. CONNECT PROPELLER SHAFT FLANGE TO COMPANION FLANGE ON REAR DIFFERENTIAL

- (a) Align the matchmarks on the flanges and connect the flanges with 4 bolts and nuts.
- (b) Torque the 4 bolts and nuts.

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