

TROUBLESHOOTING (2WD)

PR013-03

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	See page
Noise	8. Sleeve yoke spline (Worn) 9. Spider bearing (Worn or stuck)	PR-5 PR-12
Vibration	1. Sleeve yoke spline (Stuck) 2. Propeller shaft (Runout) 3. Propeller shaft (Imbalance)	PR-5 PR-5 PR-5

TROUBLESHOOTING (4WD)

PR014-03

PROBLEM SYMPTOMS TABLE

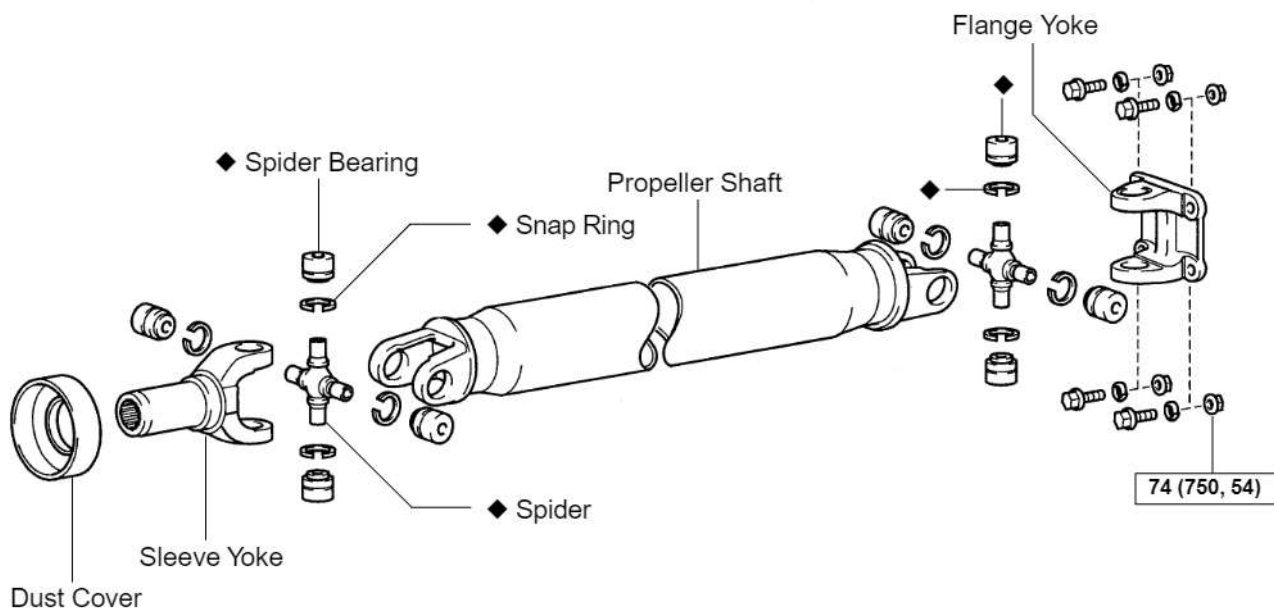
Use the table below to help you find the cause of the problem. The numbers indicate the priority of the likely cause of the problem. Check each part in order. If necessary, replace these parts.

Symptom	Suspect Area	See page
Noise	1. Sleeve yoke spline (Worn) 2. Spider bearing (Worn or stuck)	PR-9 PR-12
Vibration	1. Sleeve yoke spline (Stuck) 2. Propeller shaft (Runout) 3. Propeller shaft (Imbalance)	PR-9 PR-9 PR-9

PROPELLER SHAFT ASSEMBLY(2WD)

COMPONENTS

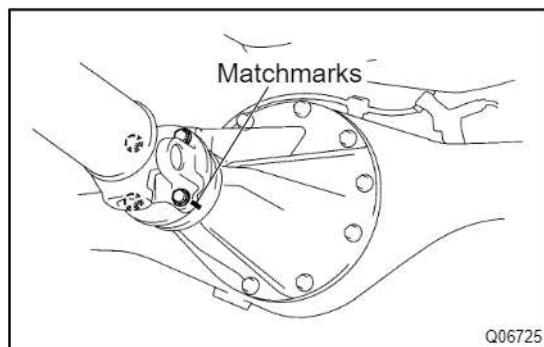
PR015-01



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

◆ Non-reusable part

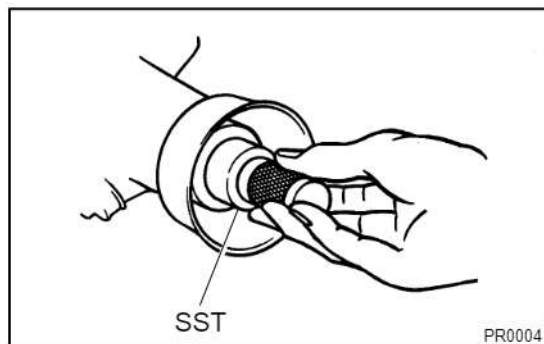
Q08977

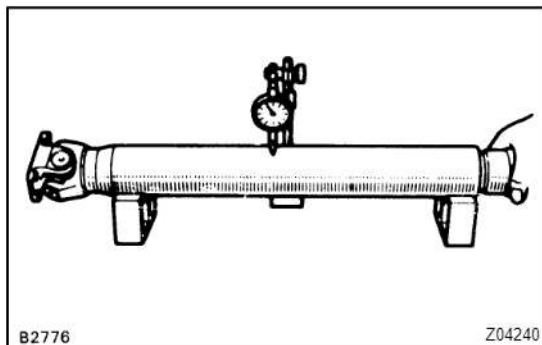


REMOVAL

REMOVE PROPELLER SHAFT

- (a) Place matchmarks on the propeller shaft and differential flange.
- (b) Remove the 4 nuts, bolts and washers.
Torque: 74 N·m (750 kgf·cm, 54 ft·lbf)
- (c) Pull the yoke from the transmission.
- (d) Insert SST in the transmission to prevent oil leakage.
SST 09325-20010





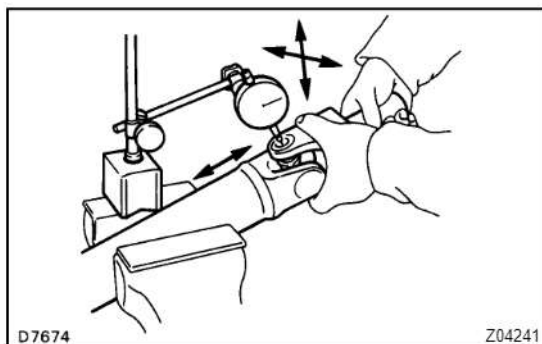
INSPECTION

1. INSPECT PROPELLER SHAFT AND INTERMEDIATE SHAFTS FOR DAMAGE OR RUNOUT

Using a dial indicator, check the runout of shafts.

Maximum runout: 0.8 mm (0.031 in.)

If the shaft runout exceeds the maximum, replace the shaft.



2. INSPECT SPIDER BEARINGS

NOTICE:

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

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

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

If the bearing axial play exceeds the maximum, replace the spider bearing.

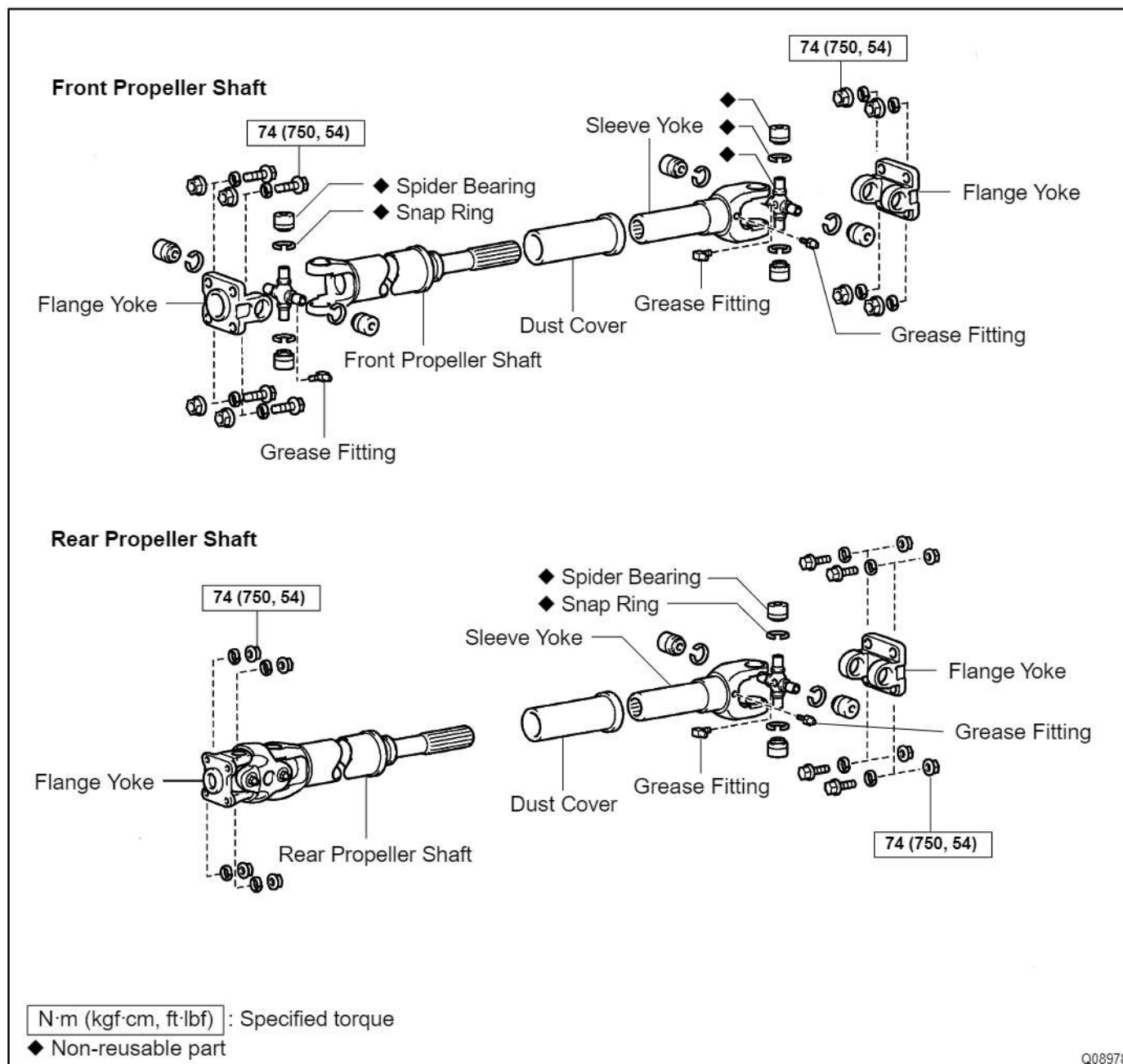
INSTALLATION

Installation is in the reverse order of removal (See page [PR-4](#)).

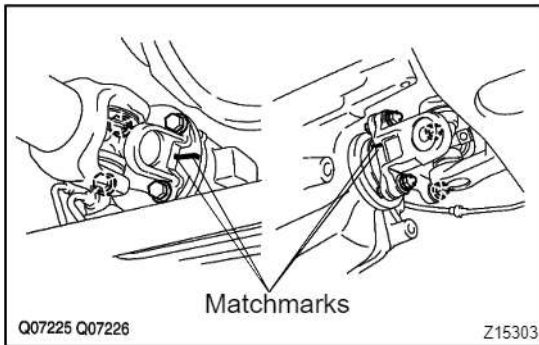
PROPELLER SHAFT ASSEMBLY(4WD)

COMPONENTS

PR019-01



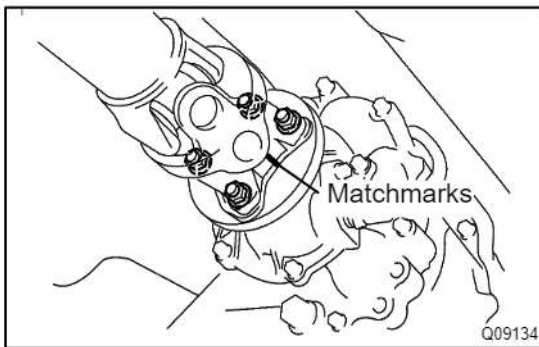
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REMOVAL

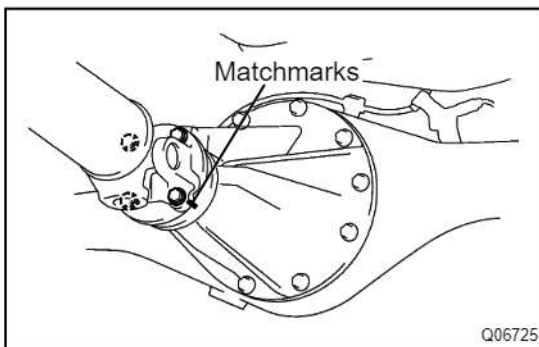
1. REMOVE FRONT PROPELLER SHAFT

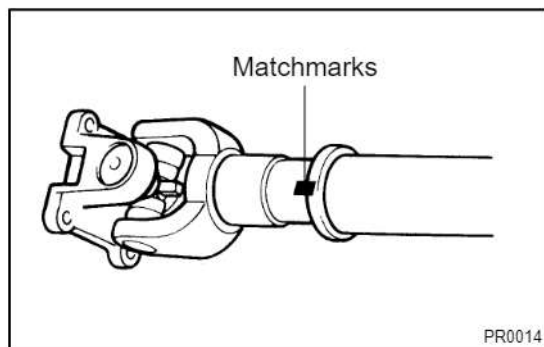
- (a) Place matchmarks on the propeller shaft and front differential flanges.
- (b) Remove the 4 nuts, bolts and washers.
Torque: 74 N·m (750 kgf·cm, 54 ft·lbf)
- (c) Suspend the front side of the propeller shaft.
- (d) Place matchmarks on the propeller shaft and transfer flanges.
- (e) Remove the 4 nuts and washers.
Torque: 74 N·m (750 kgf·cm, 54 ft·lbf)
- (f) Remove the front propeller shaft.



2. REMOVE REAR PROPELLER SHAFT

- (a) Place matchmarks on the propeller shaft and transfer flanges.
- (b) Remove the 4 nuts and washers.
Torque: 74 N·m (750 kgf·cm, 54 ft·lbf)
- (c) Place matchmarks on the propeller shaft and rear differential flanges.
- (d) Remove the 4 nuts, bolts and washers.
Torque: 74 N·m (750 kgf·cm, 54 ft·lbf)
- (e) Remove the rear propeller shaft.

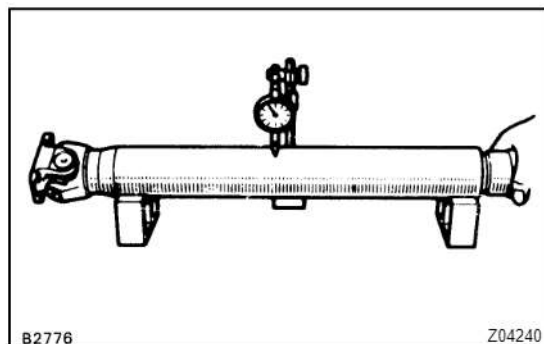




INSPECTION

1. REMOVE SLEEVE YOKE FROM PROPELLER SHAFT

- Place matchmarks on the sleeve yoke and shaft.
- Pull out the sleeve yoke from the shaft.
- Remove the dust cover from the shaft.

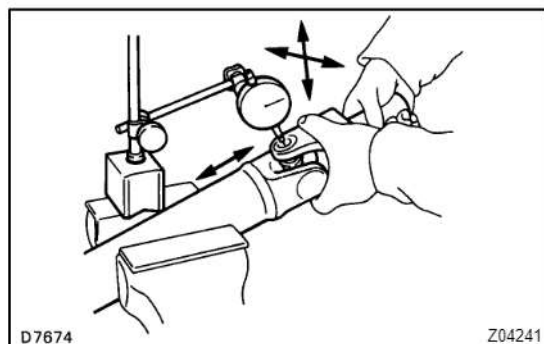


2. INSPECT PROPELLER SHAFT AND INTERMEDIATE SHAFTS FOR DAMAGE OR RUNOUT

Using a dial indicator, check the runout of shafts.

Maximum runout: 0.8 mm (0.031 in.)

If the shaft runout exceeds the maximum, replace the shaft.



3. INSPECT SPIDER BEARINGS

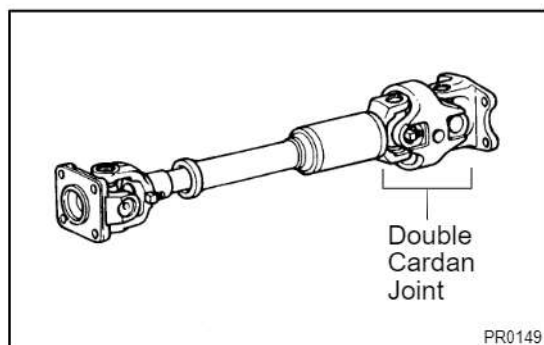
NOTICE:

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

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

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

If the bearing axial play exceeds the maximum, replace the spider bearing (w/o double cardan joint) / propeller shaft (w/ double cardan joint).



4. INSPECT WITH DOUBLE CARDAN JOINT PROPELLER SHAFT

HINT:

Double cardan joint is used on 4WD rear propeller shafts.

- Inspect the shaft for wear or damage.
- Inspect the double cardan joint for wear or damage.

If any problem is found, replace the propeller shaft assembly.

5. INSERT SLEEVE YOKE INTO PROPELLER SHAFT

- (a) Apply grease to the propeller shaft spline and sleeve yoke sliding surface.

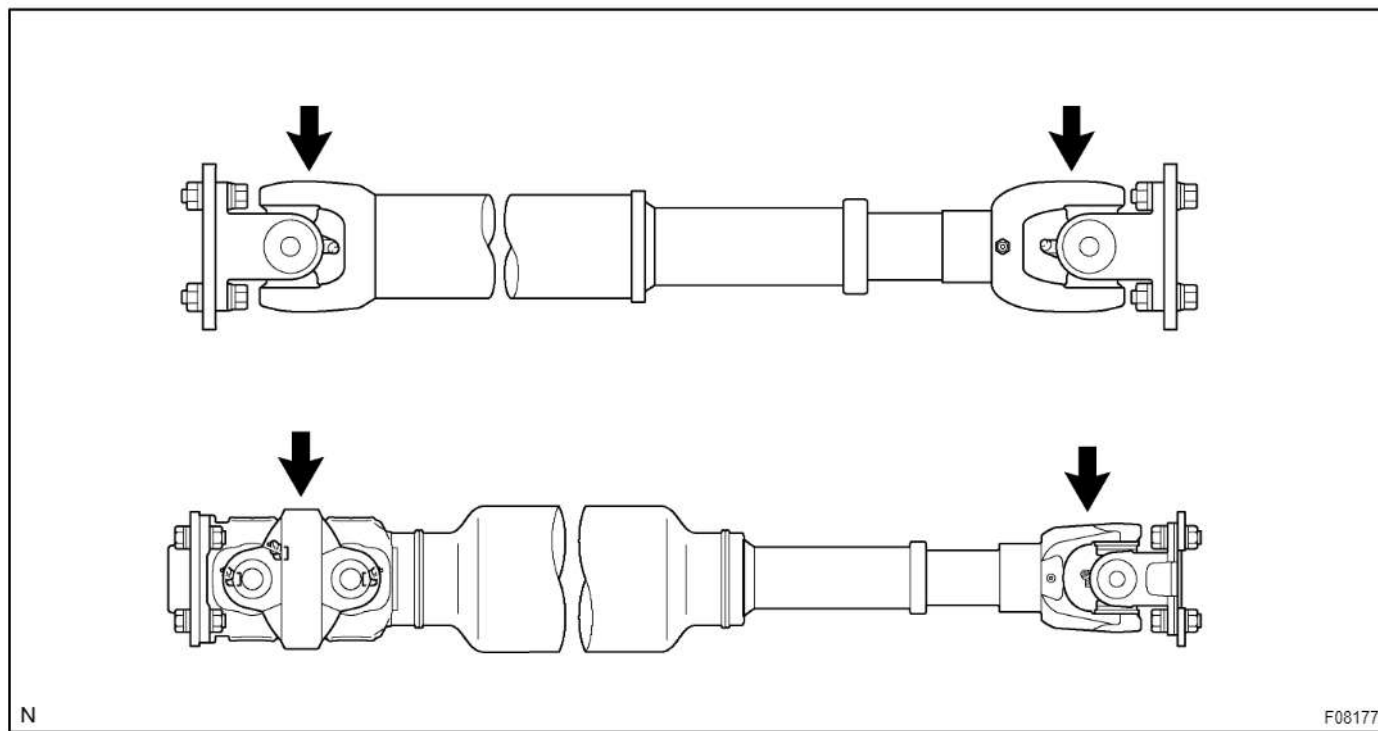
Grease:

Molybdenum disulfide lithium base chassis grease, NLGI No.2

- (b) Install the dust cover to the shaft.
(c) Align the matchmarks on the yoke and propeller shaft.

HINT:

When replacing the propeller shaft, install the new parts facing, as shown in the following illustration.

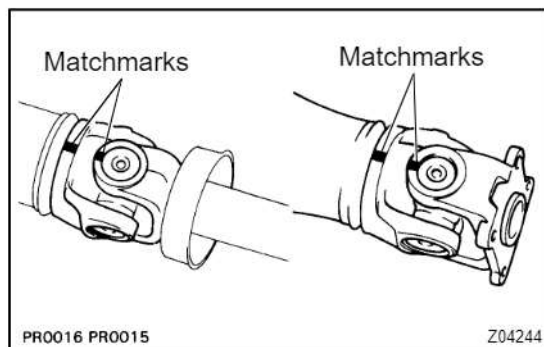


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INSTALLATION

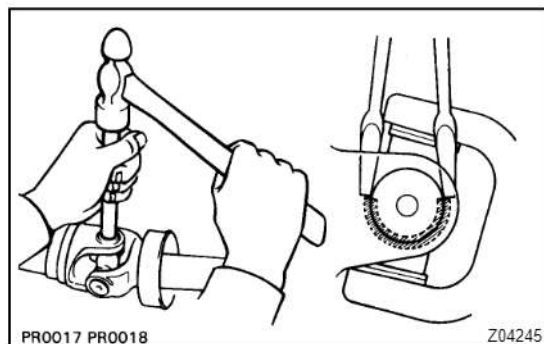
Installation is in the reverse order of removal (See page [PR-8](#)).



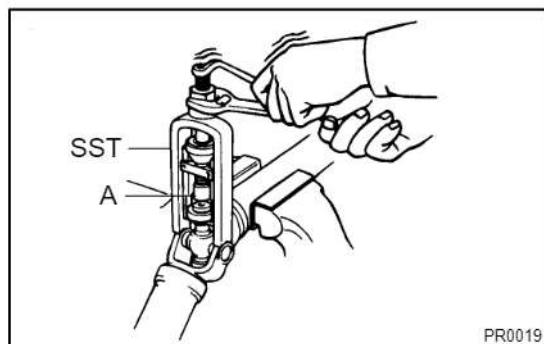
SPIDER BEARING REPLACEMENT

PR010-02

1. REMOVE PROPELLER SHAFT
2WD: (See page [PR-4](#))
4WD: (See page [PR-8](#))
2. PLACE MATCHMARKS ON SHAFT AND YOKE



3. 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 from the grooves.



4. REMOVE SPIDER BEARINGS

NOTICE:

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

- (a) Using SST, push out the bearing from the propeller shaft.
SST 09332-25010

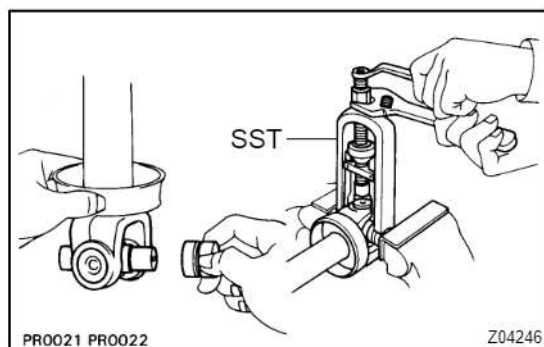
HINT:

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:

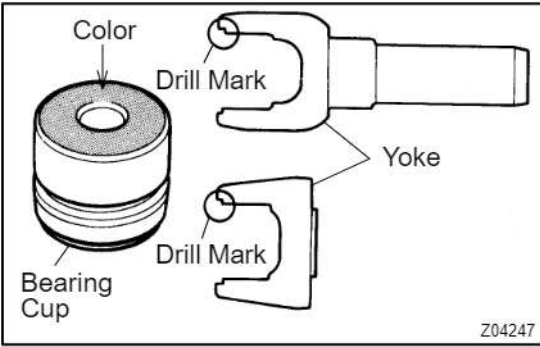
Remove the bearing on opposite side in the same procedure.



- (c) Install the 2 removed bearing 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:

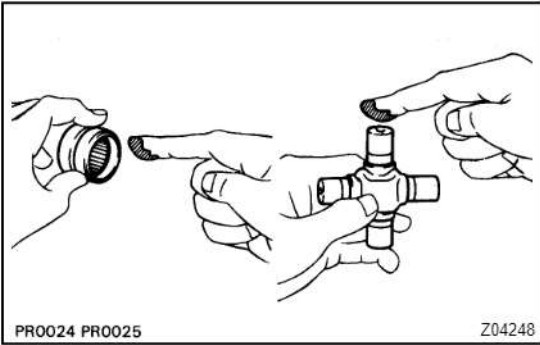
Remove the bearing on the opposite side in the same procedure.



5. 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



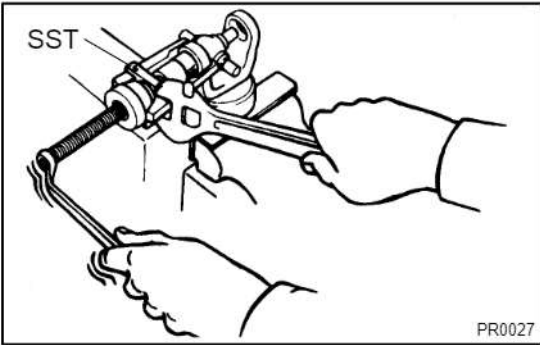
6. INSTALL SPIDER BEARINGS

(a) Apply MP grease to a new spider and bearings.

NOTICE:

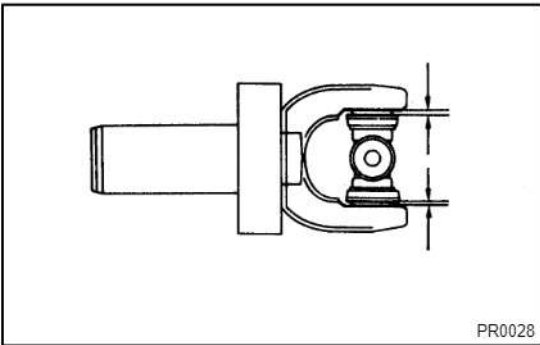
Be careful not to apply too much grease.

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

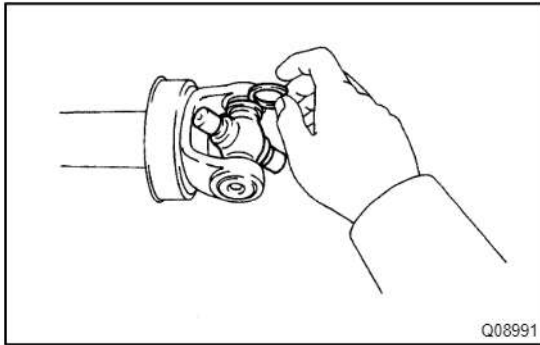


(c) Fit the spider into the yoke.

(d) Using SST, install new 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.



7. INSTALL SNAP RINGS

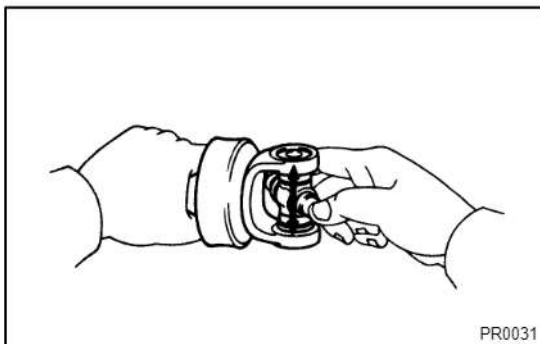
- (a) Install 2 new snap rings of equal thickness which will allow 0 - 0.05 mm (0 - 0.0020 in.) axial play.

HINT:

Do not reuse the snap rings.

Color or 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.



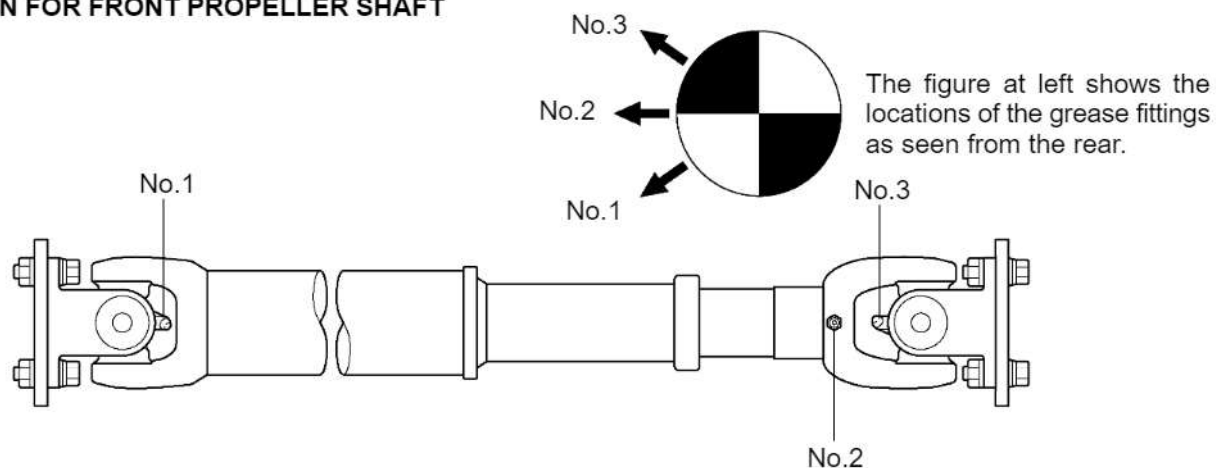
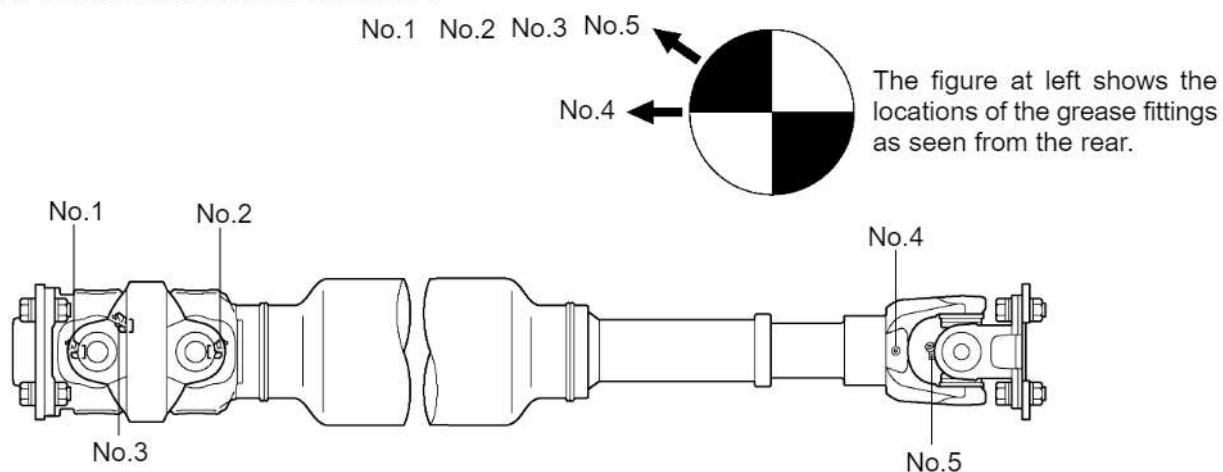
8. CHECK SPIDER BEARING

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

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

HINT:

- Install new spider bearings on the shaft side in the procedure described above.
- When replacing the propeller shaft spider on 4WD vehicles, be sure that the grease fitting assembly hole is facing in the direction shown in the illustrations.

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

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


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