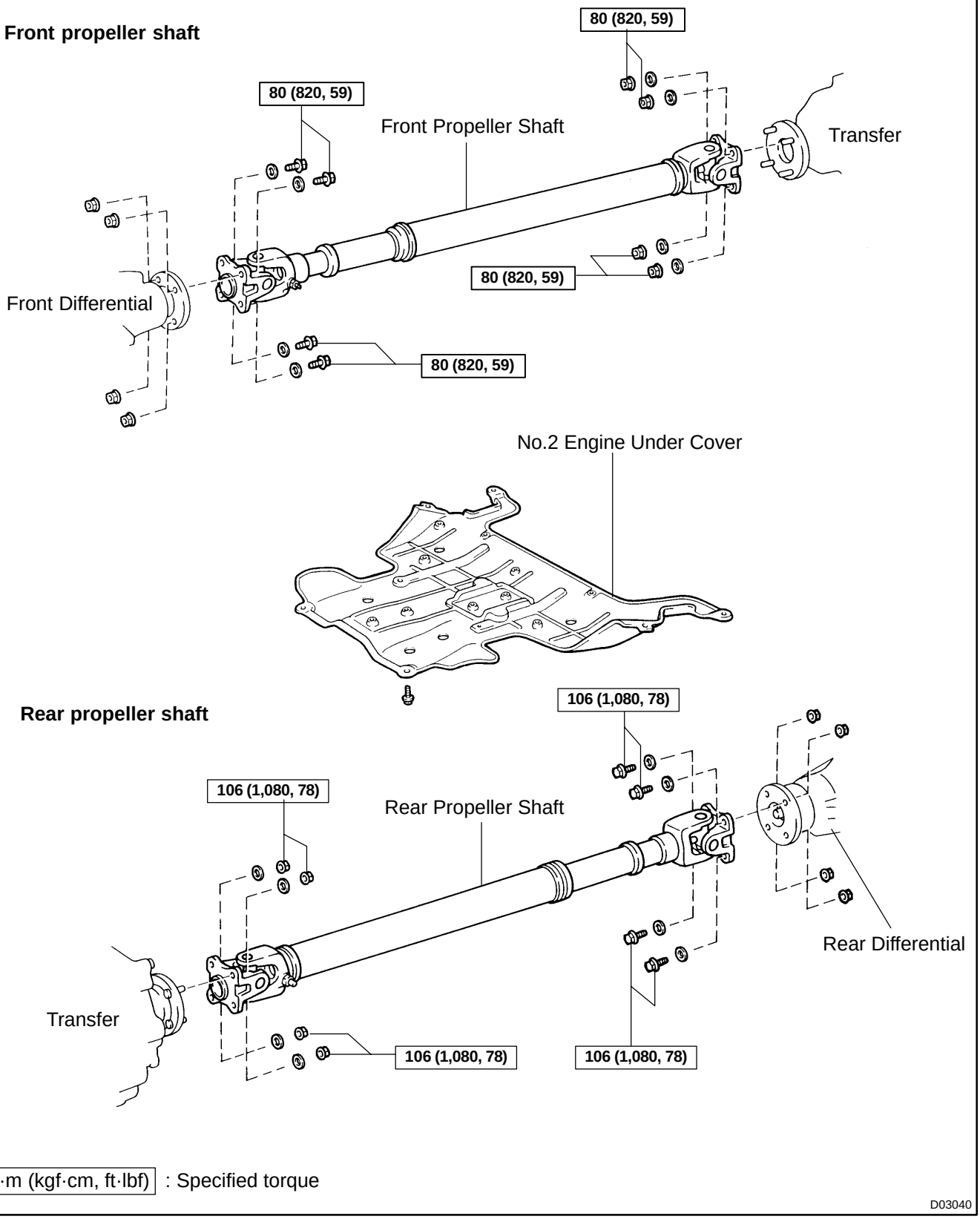
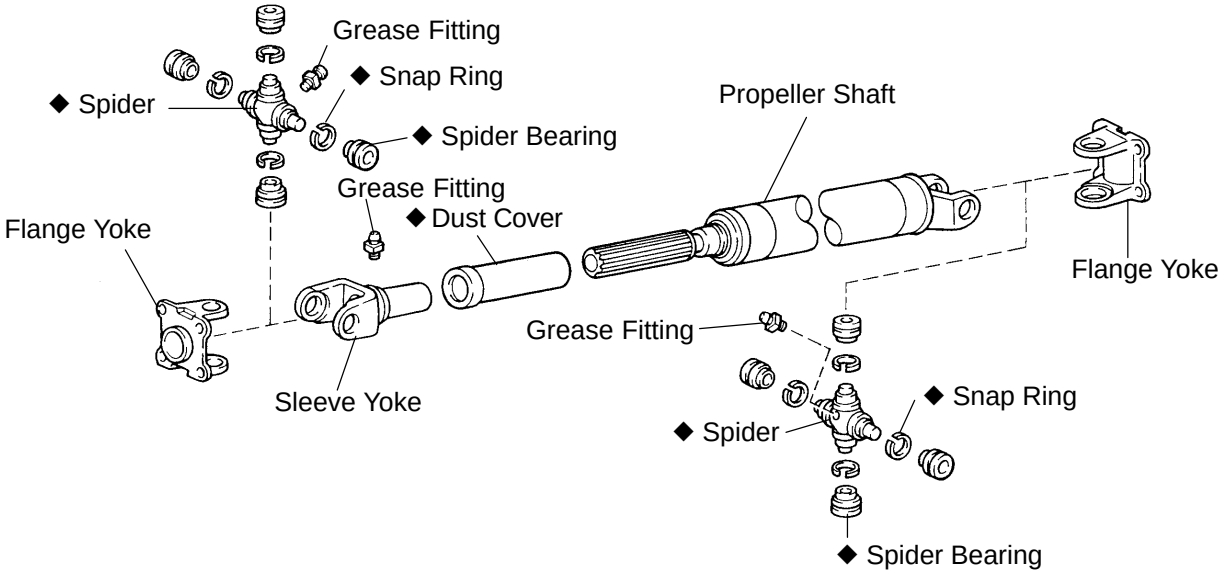
PROPELLER SHAFT ASSEMBLY

COMPONENTS

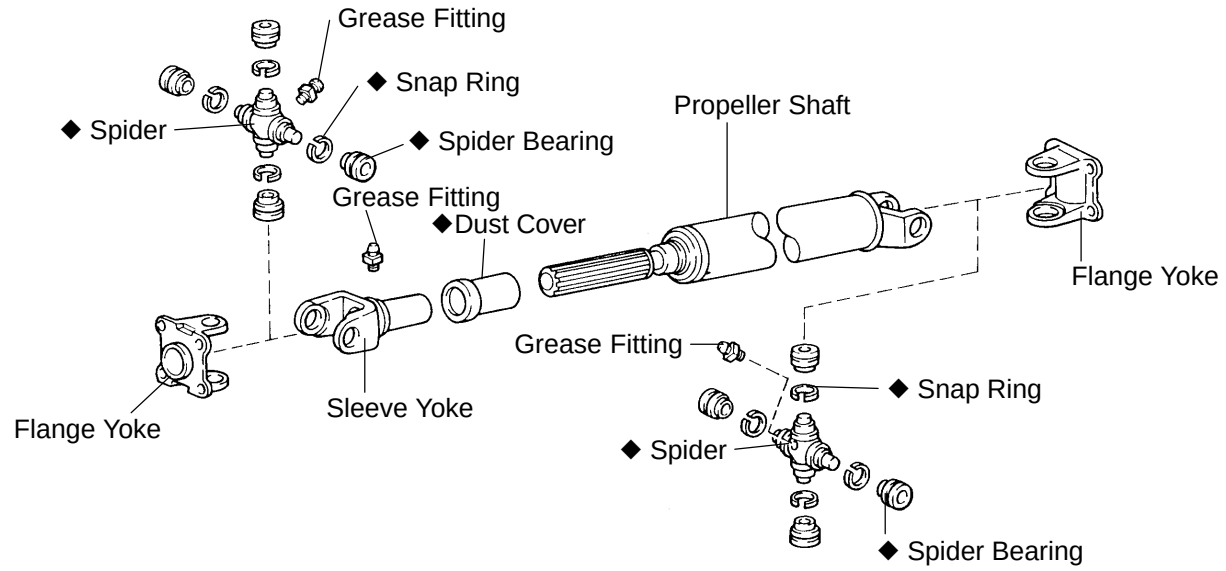
PR03I-02



Front propeller shaft



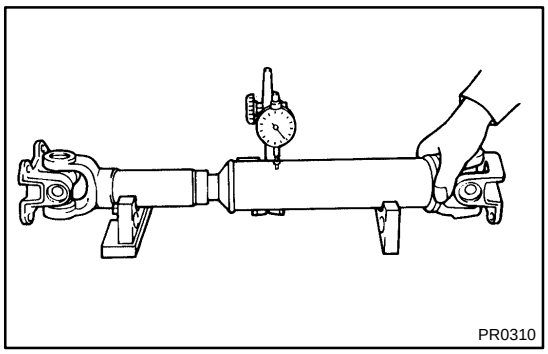
Rear propeller shaft



◆ Non-reusable part

D03041

PR03K-02


PR0310

INSPECTION

NOTICE:

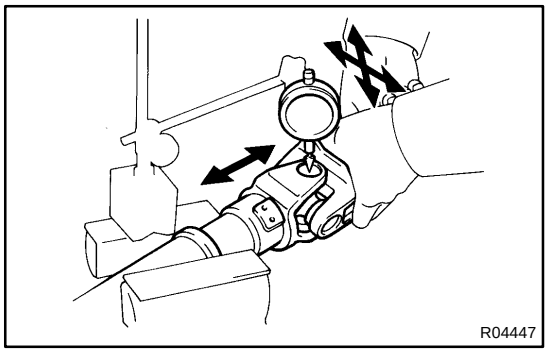
Be careful not to grip the propeller shaft tube too tightly in a vise as this will cause deformation.

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

Using a dial indicator, check the runout of shafts.

Maximum runout: 0.8 mm (0.031 in.)

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


R04447

2. INSPECT SPIDER BEARING

(a) Check the spider bearings for wear or damage.

(b) Check the spider bearing axial play by turning the yoke with holding the shaft tightly.

Maximum bearing axial play: 0 mm (0 in.)

If necessary, replace the spider bearing.

PR03M-02

INSTALLATION

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

HINT:

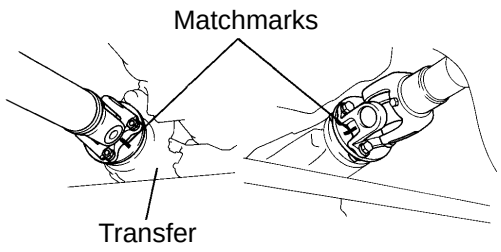
After installation, pump MP grease into each fitting with a grease gun until the grease begins to flow around the oil seal.

PR03J-02

REMOVAL

1. REMOVE ENGINE NO. 2 UNDER COVER

Front Propeller Shaft



2. REMOVE FRONT PROPELLER SHAFT

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

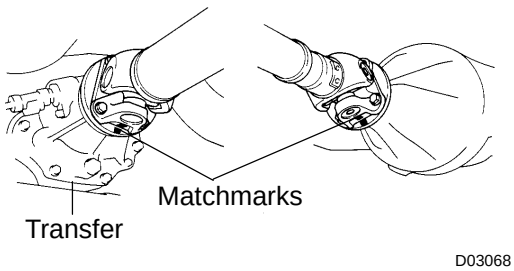
(b) Remove the 4 nuts and washers.
Torque: 80 N·m (820 kgf·cm, 59 ft·lbf)

(c) Place matchmarks on the propeller shaft flange and front differential.

(d) Remove the 4 nuts, bolts and washers.
Torque: 80 N·m (820 kgf·cm, 59 ft·lbf)

(e) Remove the front propeller shaft.

Rear Propeller Shaft



3. REMOVE REAR PROPELLER SHAFT

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

(b) Remove the 4 nuts and washers.
Torque: 106 N·m (1,080 kgf·cm, 78 ft·lbf)

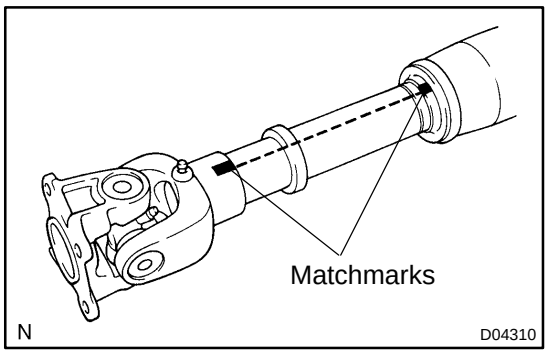
(c) Place matchmarks on the propeller shaft flange and rear differential.

(d) Remove the 4 nuts, bolts and washers.
Torque: 106 N·m (1,080 kgf·cm, 78 ft·lbf)

(e) Remove the rear propeller shaft.

PR03L-02

REPLACEMENT

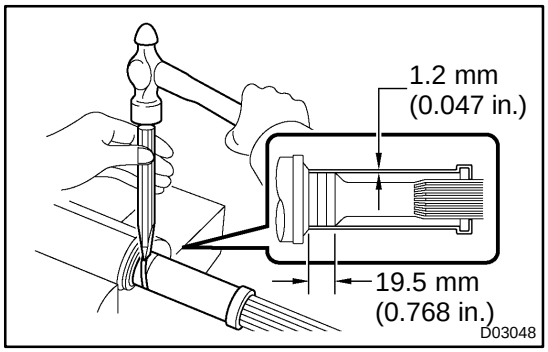


NOTICE:

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

REPLACE DUST COVER

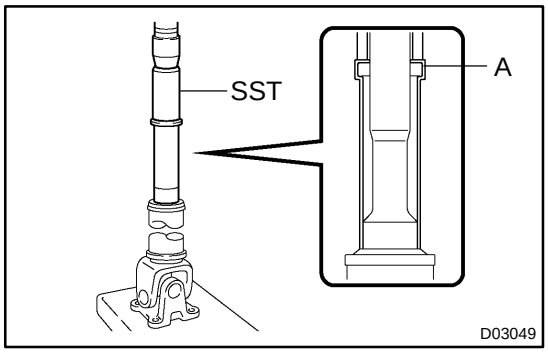
(a) Remove the sleeve yoke from the propeller shaft.
  (1) Place matchmarks on the sleeve yoke and shaft.
  (2) Pull out the sleeve yoke from the shaft.



(b) Remove the dust cover.
  Cut the dust cover spirally at the pressing-in part with a saw and pry it off with a chisel and hammer.

NOTICE:

Do not damage the propeller shaft. If damaged, replace the shaft with a new one.



(c) Install a new dust cover.
  Using SST and press, press in a new dust cover.
  SST 09636-20010

NOTICE:

Place the universal joint straight when pressing in the dust cover. Apply MP grease to the "A" part.

(d) Insert the sleeve yoke into the propeller shaft.
  (1) Apply MP grease to the propeller shaft spline and sleeve yoke sliding surface.
  (2) Align the matchmarks on the sleeve yoke and propeller shaft.
  (3) Install the propeller shaft into the sleeve yoke.

SPIDER BEARING

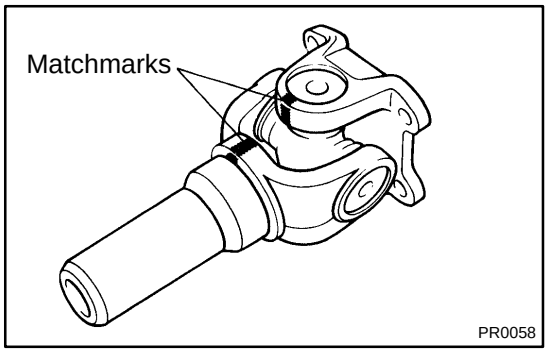
PR04M-01

REPLACEMENT

NOTICE:

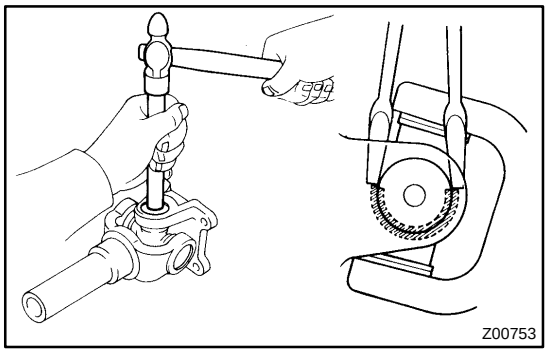
Be careful not to grip the propeller shaft tube too tightly in a vise as this will cause deformation.

1. REMOVE PROPELLER SHAFT (See page PR-4)



2. PLACE MATCHMARKS ON SHAFT AND FLANGE YOKE OR FLANGE YOKE AND SLEEVE YOKE

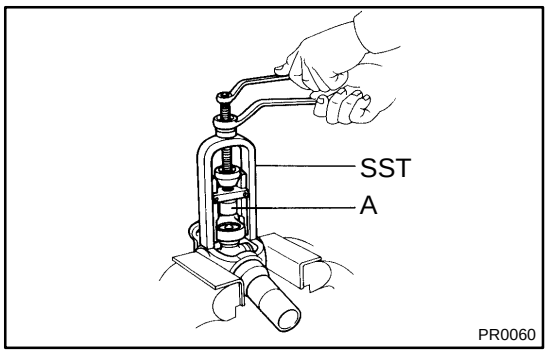
3. REMOVE SLEEVE YOKE FROM PROPELLER SHAFT



4. 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.

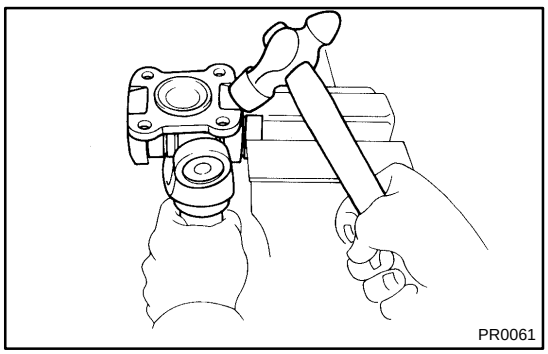


5. REMOVE SPIDER BEARINGS

(a) 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.

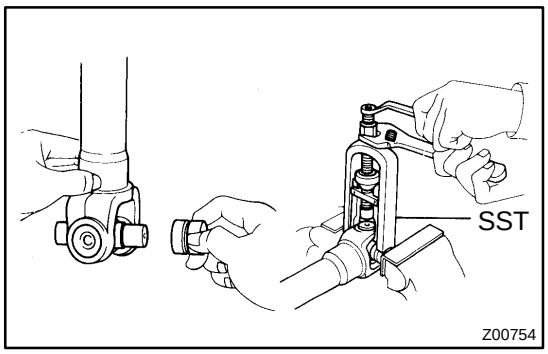


(b) Clamp the bearing outer race in a vise and tap off the flange with a hammer.

HINT:

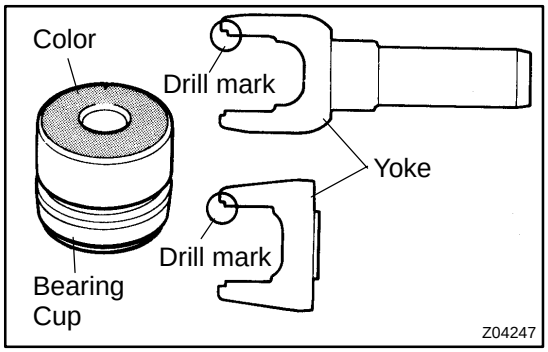
Remove the bearing on the opposite side in the same procedure.

(c) Remove the flange yoke from the sleeve yoke (or propeller shaft).



(d) Install the 2 removed bearing outer races to the spider.
(e) Using SST, push out the bearing from the yoke.
SST 09332-25010
(f) Clamp the outer bearing race in a vise and tap off the yoke with a hammer.

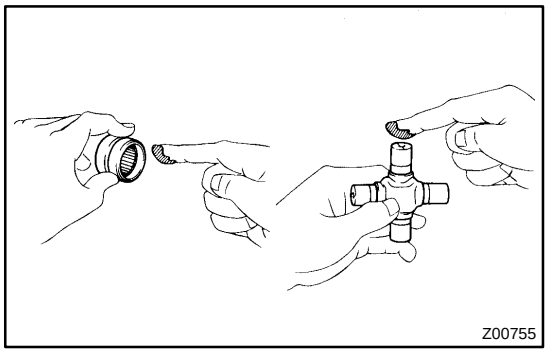
HINT:
Remove the bearing on the opposite side in the same procedure.



6. SELECT SPIDER BEARING

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

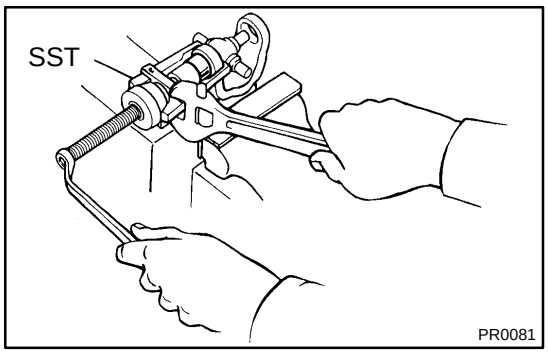
Yoke	Bearing
w/ drill mark	w/ color mark (Red)
No drill mark	No color mark



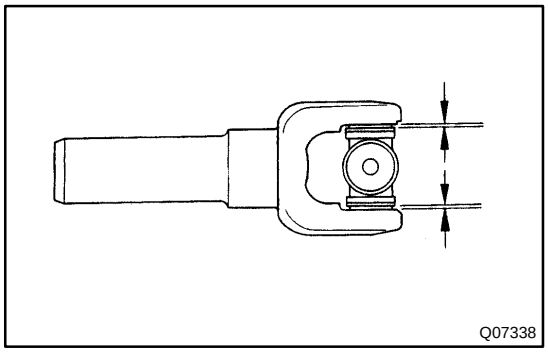
7. INSTALL SPIDER BEARING

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

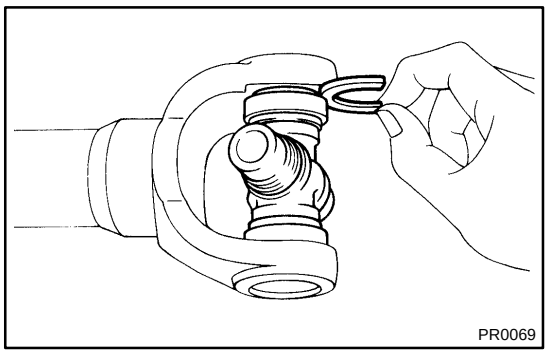
NOTICE:
Be careful not to apply too much grease.



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



(d) Using SST, adjust both bearings so that the snap ring grooves are at maximum and equal in width.


PR0069

8. INSTALL SNAP RING

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

HINT:

Do not reuse the snap rings.

Thickness of snap ring:

Color	Mark	Thickness mm (in.)
–	1	2.28 - 2.30 mm (0.0898 - 0.0906 in.)
–	2	2.30 - 2.32 mm (0.0906 - 0.0913 in.)
–	–	2.32 - 2.34 mm (0.0913 - 0.0921 in.)
Brown	–	2.34 - 2.36 mm (0.0921 - 0.0929 in.)
Blue	–	2.36 - 2.38 mm (0.0929 - 0.0937 in.)
–	6	2.38 - 2.40 mm (0.0937 - 0.0945 in.)
–	7	2.40 - 2.42 mm (0.0945 - 0.0953 in.)
–	8	2.42 - 2.44 mm (0.0953 - 0.0961 in.)
–	九	2.44 - 2.46 mm (0.0961 - 0.0969 in.)
–	10	2.46 - 2.48 mm (0.0969 - 0.0976 in.)

M00056

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

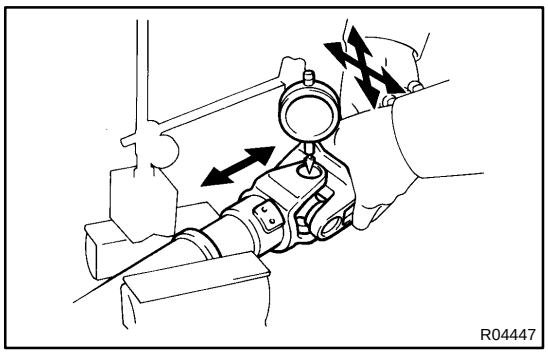
9. INSTALL FLANGE YOKE TO SLEEVE YOKE (OR PROPELLER SHAFT)

(a) Align the matchmarks on the propeller shaft and flange yoke or flange yoke and sleeve yoke.

(b) Install the flange yoke to the sleeve yoke (or propeller shaft).

HINT:

Install 2 new spider bearings and snap ring on the flange yoke side in the procedure described above.



10. CHECK SPIDER BEARING (See page PR-5)

(a) Check that the spider bearing moves smoothly.

(b) Check the spider bearing axial play.

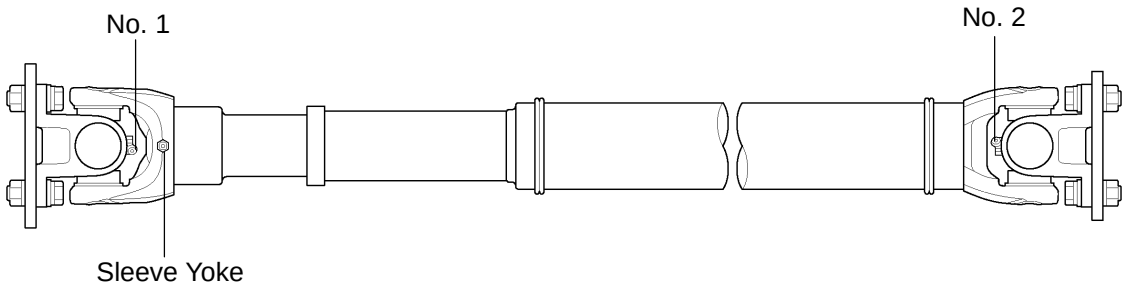
Maximum bearing axial play: 0 mm (0 in.)

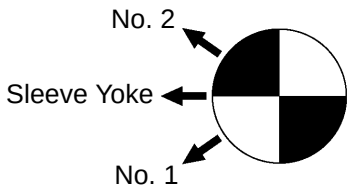
HINT:

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

SPIDER GREASE FITTING ASSEMBLY DIRECTION

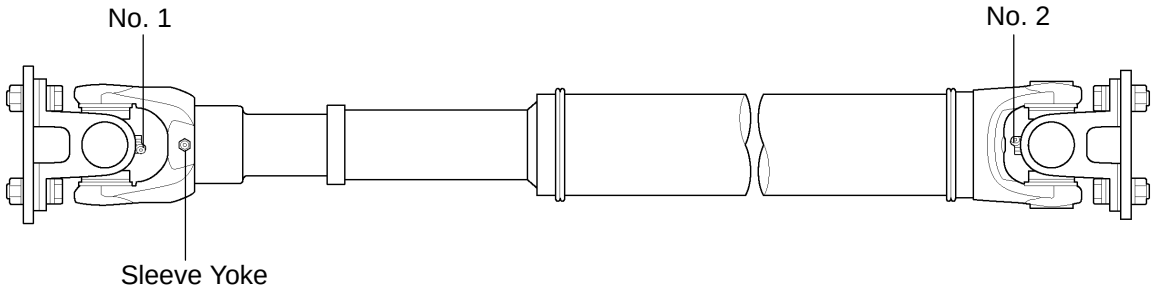
Front propeller shaft





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

Rear propeller shaft



D01633

TROUBLESHOOTING

PR03H-02

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.

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