

PROPELLER SHAFT SYSTEM

PROBLEM SYMPTOMS TABLE

HINT:

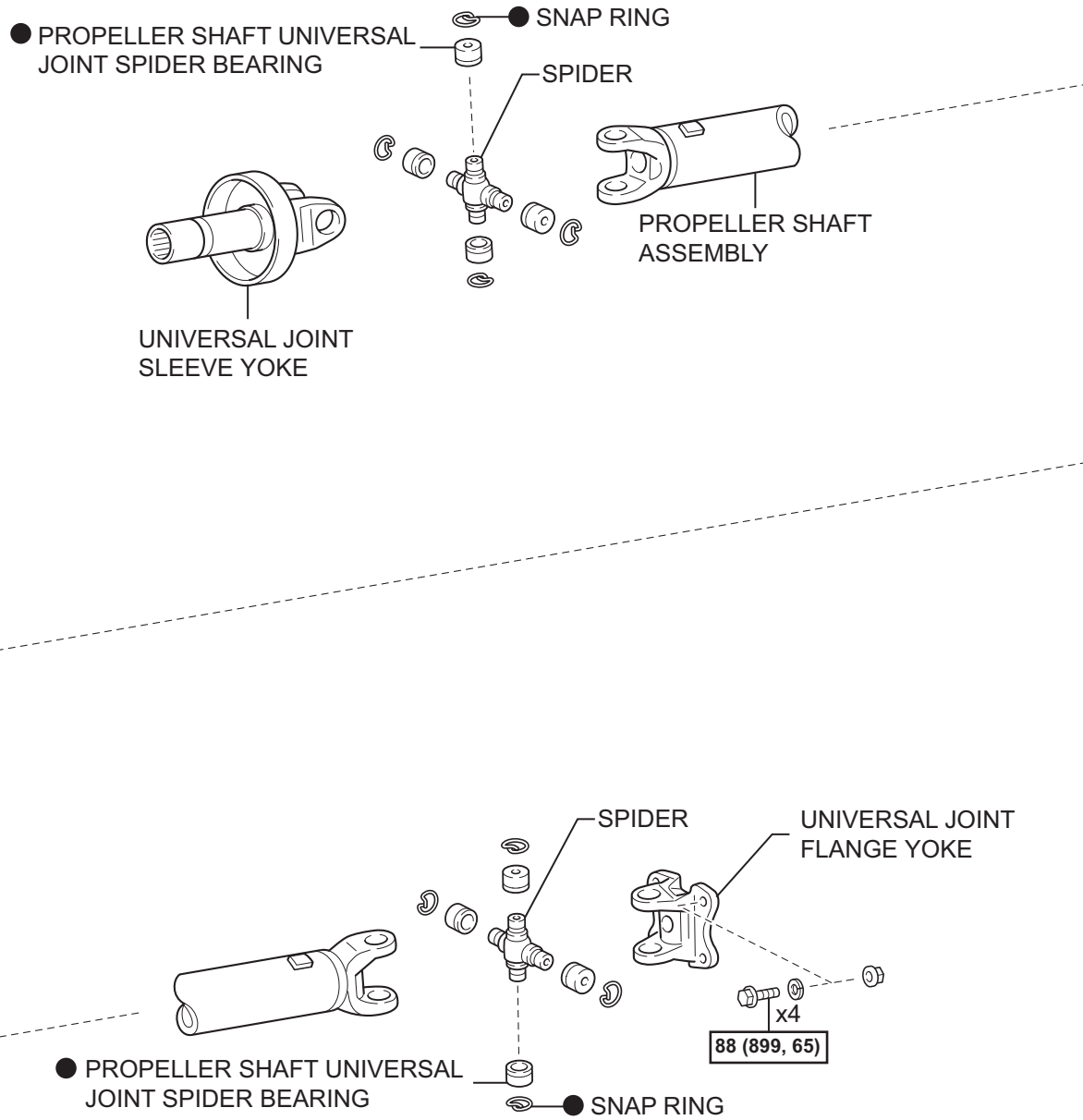
Use the table below to help you find the cause of the problem. The numbers indicate the ranked order of probability of each of the possible causes. Check each part in order. If necessary, replace these parts.

Symptom	Suspected area	See page
Noise	1. Propeller shaft universal joint spider bearing (Regular Cab 2WD)	PR-3
	2. Propeller shaft universal joint spider bearing (Access Cab 2WD and Double Cab 2WD)	PR-8
	3. Front propeller shaft universal joint spider bearing (4WD)	PR-16
	4. Propeller shaft universal joint spider bearing (Regular Cab 4WD)	PR-22
	5. Propeller shaft universal joint spider bearing (Access Cab 4WD and Double Cab 4WD)	PR-27
Vibration	1. Propeller shaft (Runout) (Regular Cab 2WD)	PR-4
	2. Propeller shaft (Runout) (Access Cab 2WD and Double Cab 2WD)	PR-11
	3. Front propeller shaft (Runout) (4WD)	PR-18
	4. Rear propeller shaft (Runout) (Regular Cab 4WD)	PR-23
	5. Rear propeller shaft (Runout) (Access Cab 4WD and Double Cab 4WD)	PR-29
	6. Propeller shaft (Imbalance)	-

PR

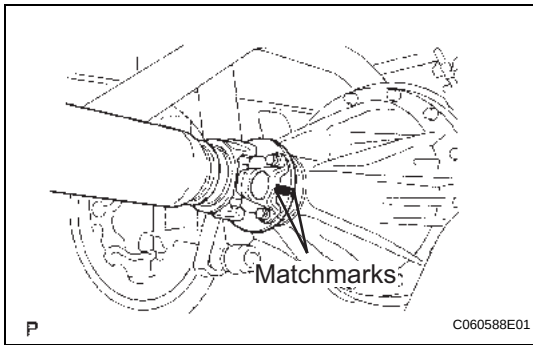
PROPELLER SHAFT ASSEMBLY (for Regular Cab 2WD)

COMPONENTS



$\boxed{\text{N*m (kgf*cm, ft*lb)}} : \text{Specified torque}$

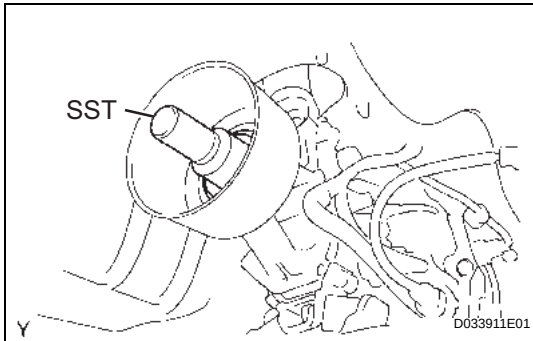
● Non-reusable part



REMOVAL

1. REMOVE PROPELLER SHAFT ASSEMBLY

- (a) Place matchmarks on the propeller shaft flange and differential flange.
- (b) Remove the 4 nuts, 4 bolts, 4 washers and front propeller shaft.



- (c) Remove the propeller shaft.
- (d) Insert SST into the transmission to prevent oil leakage.

SST 09325-40010

DISASSEMBLY

1. INSPECT PROPELLER SHAFT UNIVERSAL JOINT SPIDER BEARING

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

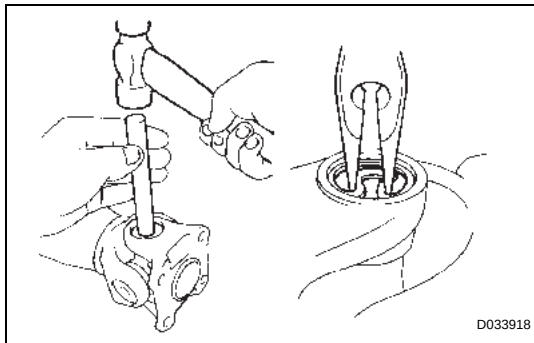
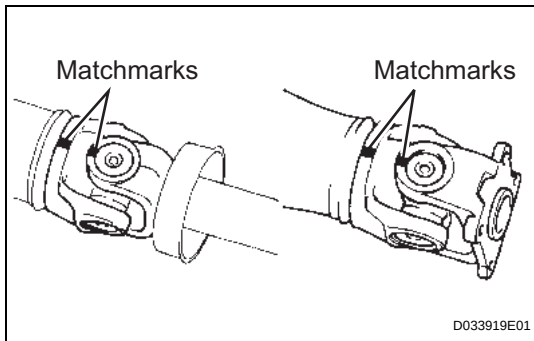
Maximum bearing axial play:

0 to 0.05 mm (0 to 0.002 in.)

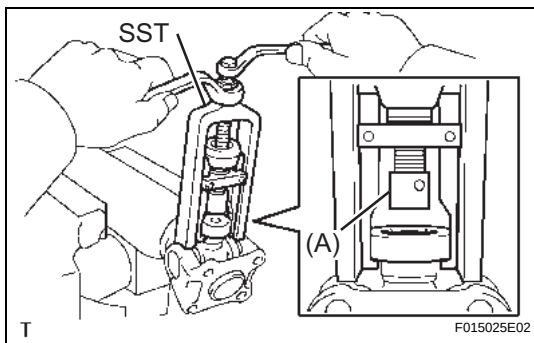
If the bearing axial play is greater than the maximum, replace the spider bearing.

2. REMOVE PROPELLER SHAFT UNIVERSAL JOINT SPIDER BEARING

- Place matchmarks on the propeller shaft and yoke.



- Using a brass bar and a hammer, slightly tap in the spider bearing outer races.
- Using needle-nose pliers, remove the 4 snap rings from the grooves.

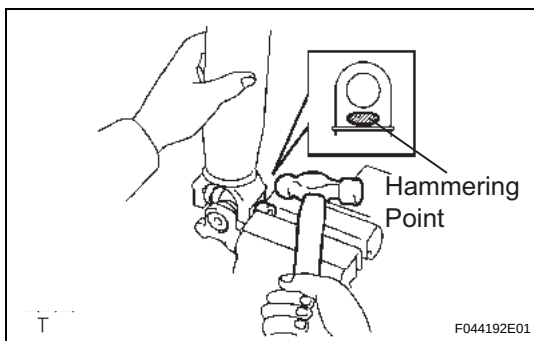


- Using SST, push the spider bearing out of the propeller shaft.

SST 09332-25010

HINT:

Sufficiently raise the part indicated by (A) so that it does not come into contact with the spider bearing.



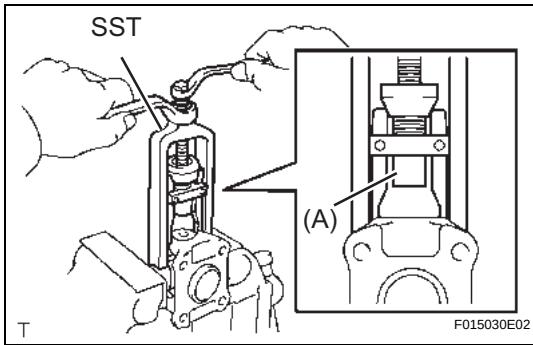
- Clamp the spider bearing outer race in a vise and tap off the propeller shaft with a hammer.

NOTICE:

Do not tap the shaft.

HINT:

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

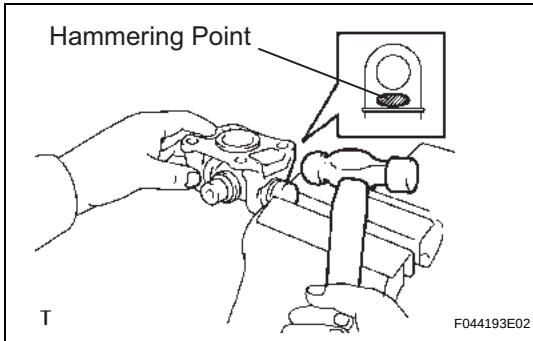


- (f) Install the 2 removed spider bearing outer races onto the spider, and clamp them in a vise.
- (g) Using SST, push the bearing out of the yoke.

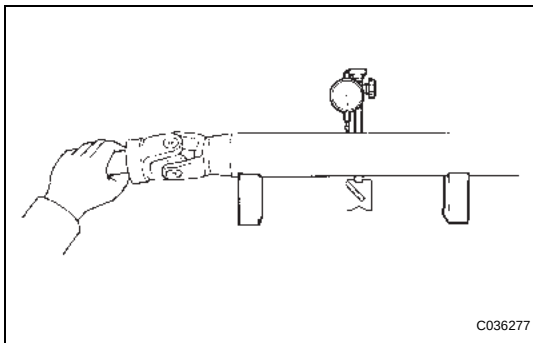
SST 09332-25010

HINT:

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



- (h) Clamp the outer bearing race in a vise and tap off the yoke with a hammer.
- (i) Remove the spider.



INSPECTION

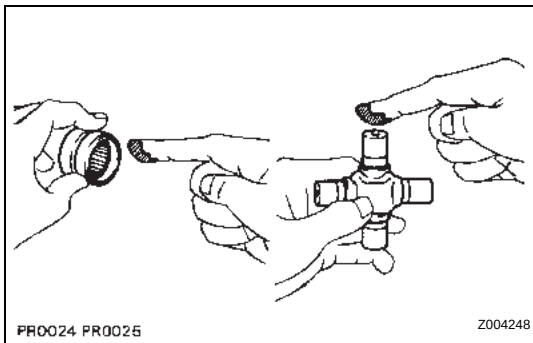
1. INSPECT PROPELLER SHAFT ASSEMBLY

- (a) Using a dial indicator, check the propeller shaft runout.

Maximum runout:

0.6 mm (0.024 in.)

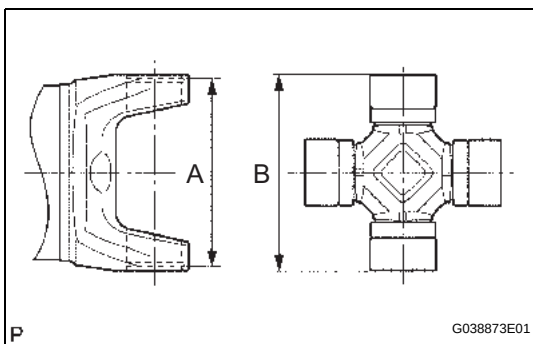
If the shaft runout is greater than the maximum, replace the shaft.



REASSEMBLY

1. INSTALL PROPELLER SHAFT UNIVERSAL JOINT SPIDER BEARING

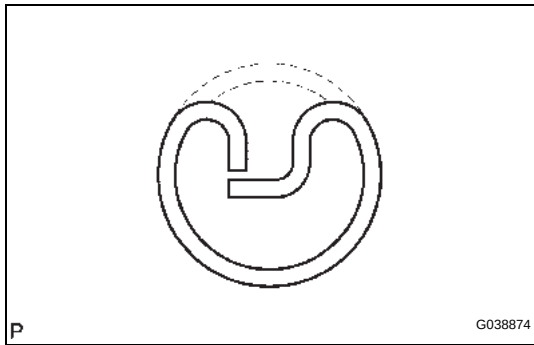
- (a) Apply MP grease No. 2 to a new spider and bearings.
- (b) Fit the spider into the flange yoke.



- (c) Measure dimension A between the snap ring grooves.
- (d) Insert the spider bearing into the spider journal portion, and then measure dimension B of the universal joint.

NOTICE:

When measuring dimension B, fix the spider and spider bearings in a vise and hold them firmly together.



- (e) Select snap rings to make dimensions A and B the same.

Snap Ring Type

Color	Thickness mm (in.)
Green	1.384 (0.0545)
Red	1.435 (0.0565)
Black	1.486 (0.0585)
Copper	1.511 (0.0595)
Silver	1.537 (0.0605)
Yellow	1.588 (0.0625)
Blue	1.638 (0.0645)

NOTICE:

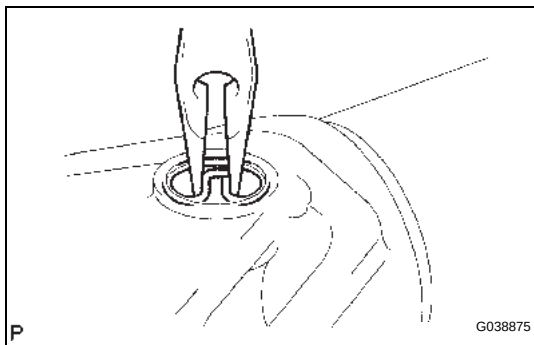
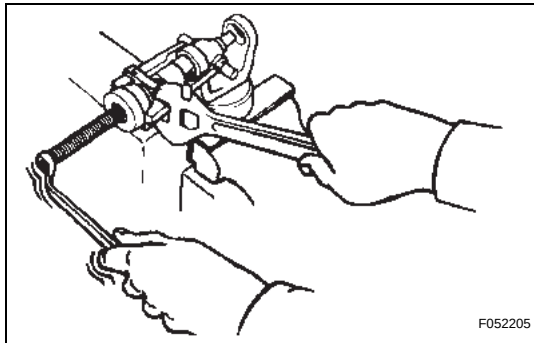
- Use new snap rings.
- If possible, use snap rings of the same thickness for both edges.

- (f) Insert the spider into the yoke, and then using SST, press the spider bearing into the snap ring groove.
- (g) Press in the spider bearing on the opposite side in the same way.

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NOTICE:

When pressing in the spider bearing, be careful not to damage its lip.



- (h) Using needle-nose pliers, install new snap rings into the grooves of the yoke.

2. INSPECT PROPELLER SHAFT UNIVERSAL JOINT SPIDER BEARING

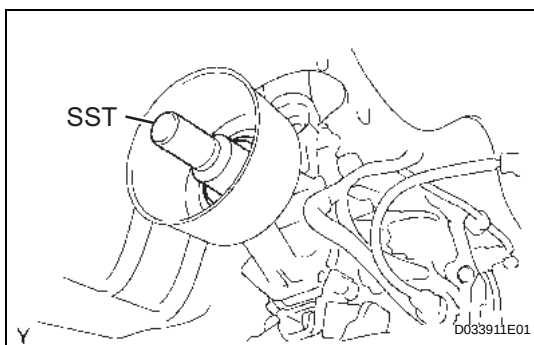
- (a) Check the spider bearings for wear and damage.
- (b) Check each spider bearing's axial play by turning the yoke while holding the shaft tightly.

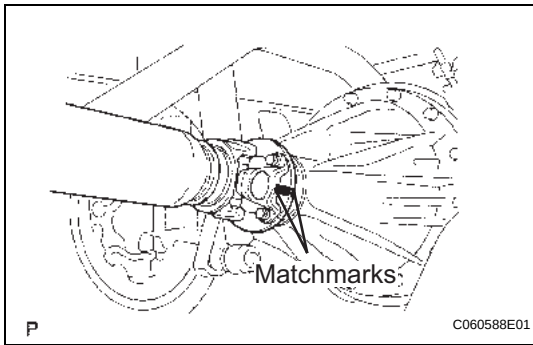
Maximum bearing axial play:
0 to 0.05 mm (0 to 0.002 in.)

INSTALLATION

1. INSTALL PROPELLER SHAFT ASSEMBLY

- (a) Remove SST from the extension housing.
- (b) Install the propeller shaft assembly into the extension housing.





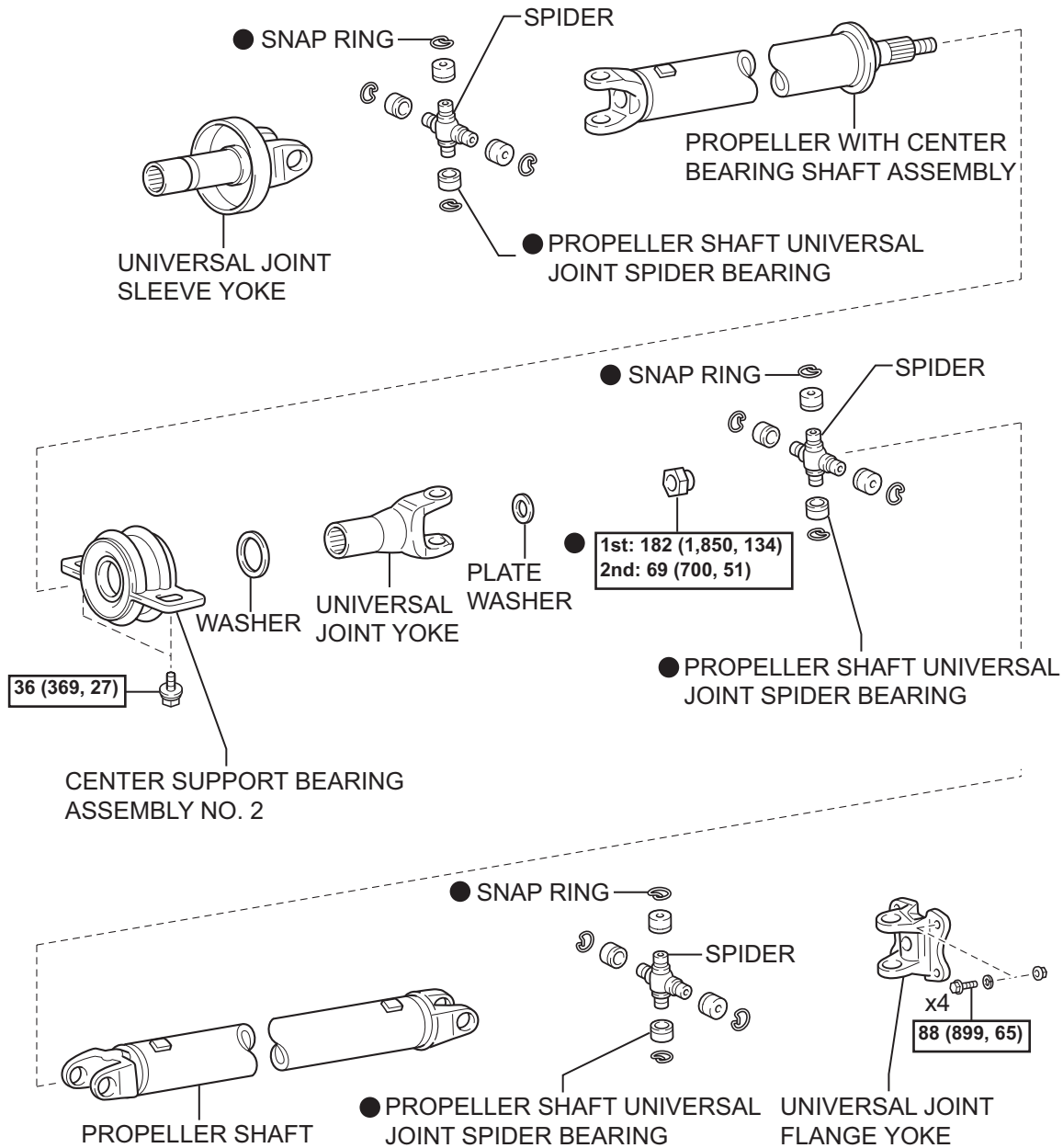
- (c) Align the matchmarks on the propeller shaft flange and differential flange.
- (d) Install the propeller shaft assembly with the 4 bolts, 4 nuts and 4 washers.

Torque: 88 N*m (899 kgf*cm, 65 ft.*lbf)

2. INSPECT TRANSMISSION OIL LEAKAGE

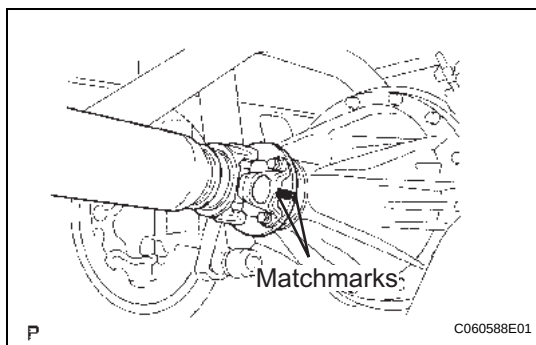
PROPELLER SHAFT ASSEMBLY (for Access Cab 2WD and Double Cab 2WD)

COMPONENTS



N*m (kgf*cm, ft*lb) : Specified torque

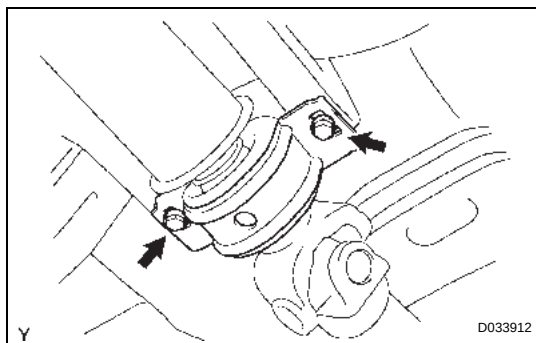
● Non-reusable part



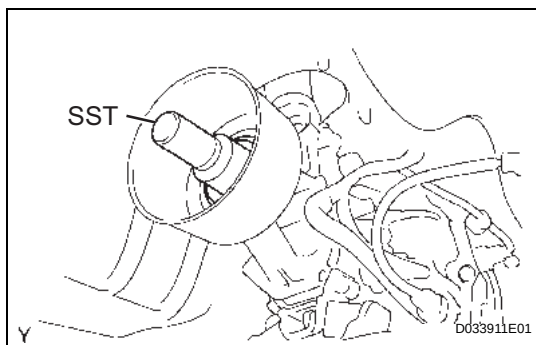
REMOVAL

1. REMOVE PROPELLER WITH CENTER BEARING SHAFT ASSEMBLY

- Place matchmarks on the propeller shaft flange and differential flange.
- Remove the 4 nuts, 4 bolts and 4 washers, and remove the propeller shaft.



- Remove the 2 center support bearing bolts from the frame crossmember.



- Pull out the propeller shaft.
- Insert SST into the transmission to prevent oil leakage.

SST 09325-40010

DISASSEMBLY

1. INSPECT PROPELLER SHAFT UNIVERSAL JOINT SPIDER BEARING

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

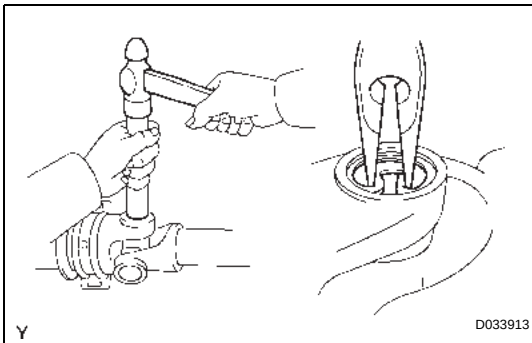
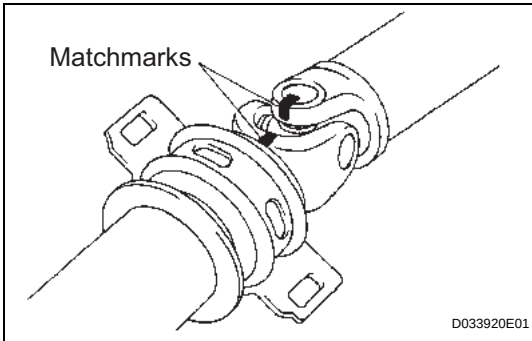
Maximum bearing axial play:

0 to 0.05 mm (0 to 0.002 in.)

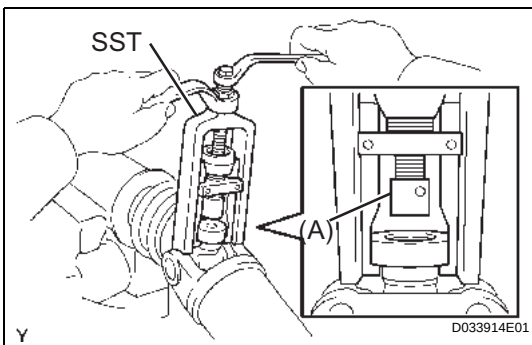
If the bearing axial play is greater than the maximum, replace the spider bearing.

2. REMOVE PROPELLER SHAFT UNIVERSAL JOINT SPIDER BEARING

- Place matchmarks on the propeller shaft and universal joint yoke.



- Using a brass bar and hammer, slightly tap in the spider bearing.
- Using needle-nose pliers, remove the 4 snap rings from the grooves.

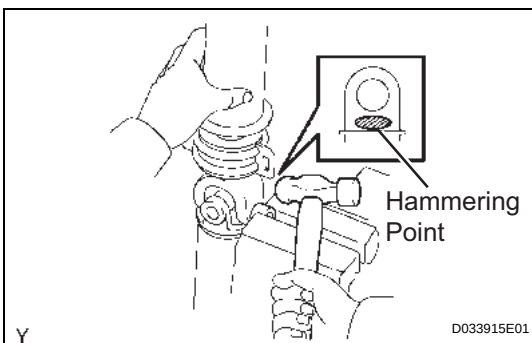


- Clamp the propeller shaft in a vise between aluminum plates.
- Using SST, push the spider bearing out of the propeller shaft.

SST 09332-25010

HINT:

Sufficiently raise the part indicated by (A) so that it does not come into contact with the spider bearing.



- Clamp the removed spider bearing outer race in a vise and tap the propeller shaft to remove the spider bearing.

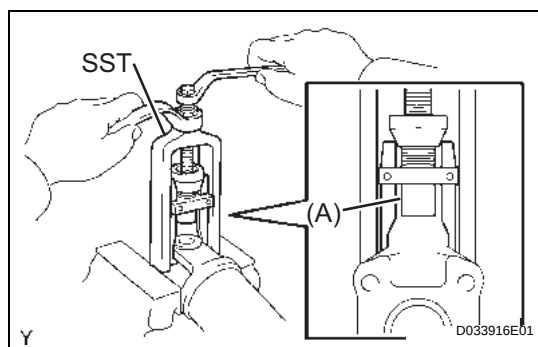
NOTICE:

Do not tap the shaft tube.

HINT:

Remove the spider bearing from the opposite side of the spider using the same procedure.

- Separate the propeller with center bearing shaft assembly from the propeller shaft assembly.

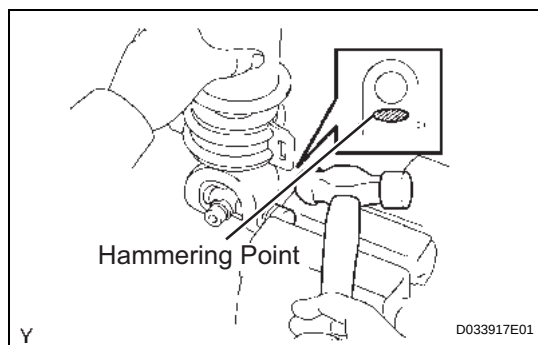


- (h) Reinstall the 2 removed spider bearings onto the spider and clamp the spider bearings in a vise.
- (i) Using SST, push the bearing out of the yoke.

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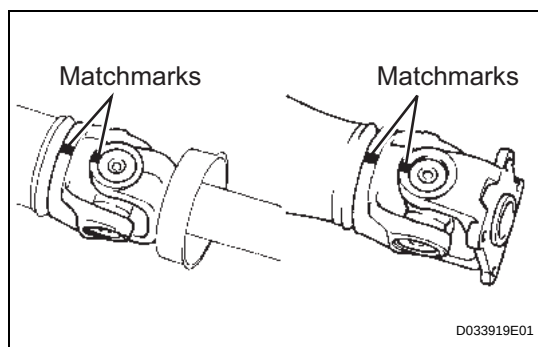
HINT:

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



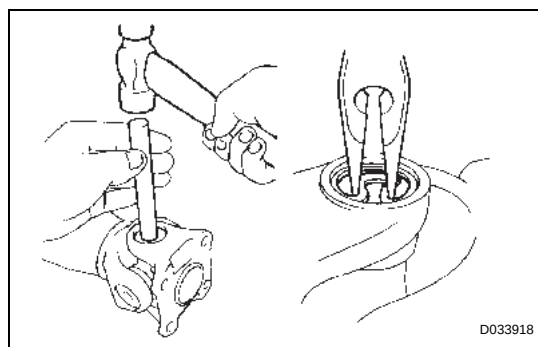
- (j) Clamp the outer bearing race in a vise and tap off the yoke with a hammer.
- (k) Remove the spider.

PR

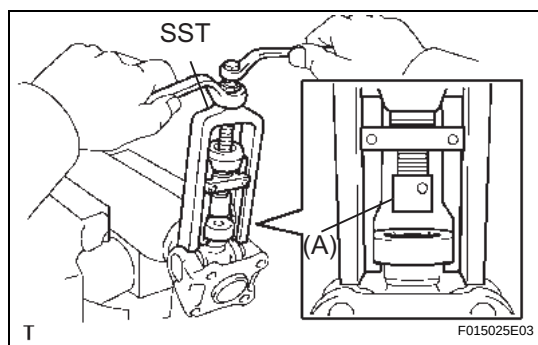


3. REMOVE PROPELLER SHAFT UNIVERSAL JOINT SPIDER BEARING

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



- (b) Using a brass bar and hammer, slightly tap in the spider bearing.
- (c) Using 2 needle-nose pliers, remove the 4 snap rings from the grooves.

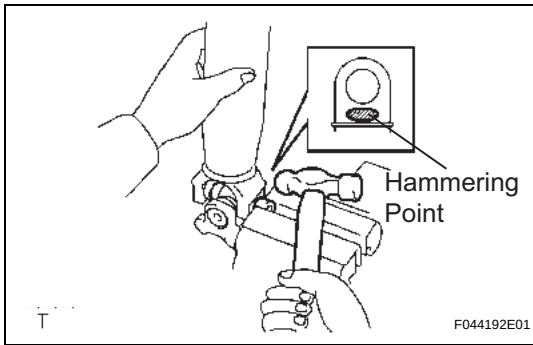


- (d) Clamp the propeller shaft in a vise between the aluminum plates.
- (e) Using SST, push the spider bearing out of the propeller shaft.

SST 09332-25010

HINT:

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



- (f) Clamp the removed spider bearing outer race in a vise and tap the propeller shaft to remove the spider bearing.

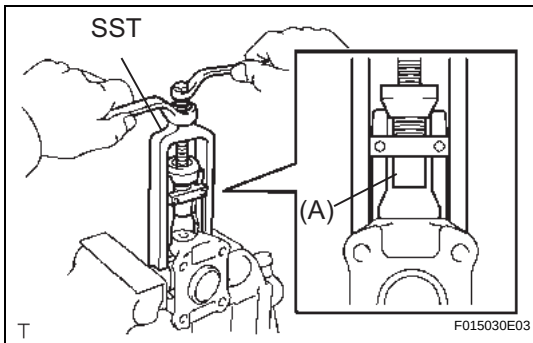
NOTICE:

Do not tap the shaft tube.

HINT:

Remove the spider bearing from the opposite side of the spider using the same procedure.

- (g) Separate the flange yoke and spider from the propeller shaft.



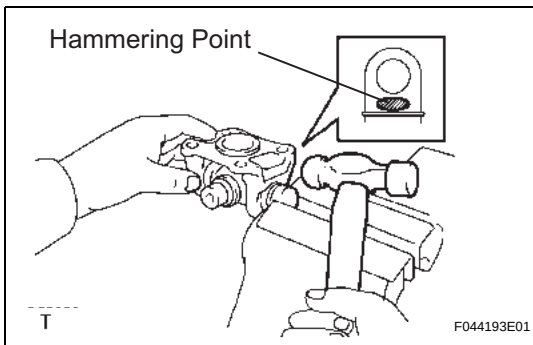
- (h) Reinstall the 2 removed spider bearings onto the spider and clamp the spider bearings in a vise.

- (i) Using SST, push the bearing out of the yoke.

SST 09332-25010

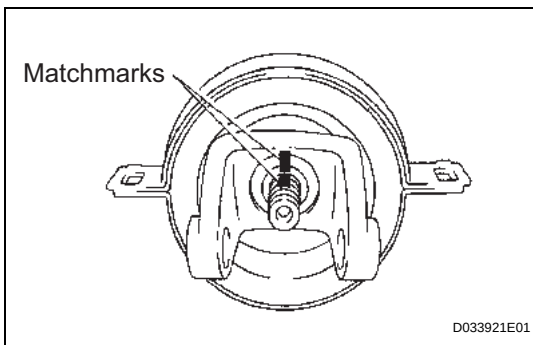
HINT:

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



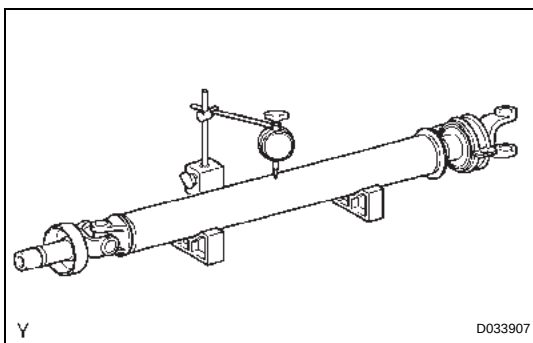
- (j) Clamp the outer bearing race in a vise and tap off the yoke with a hammer.

- (k) Remove the spider.



4. REMOVE CENTER SUPPORT BEARING ASSEMBLY NO. 2

- (a) Fix the yoke at the center bearing section in a vice.
 (b) Using a chisel and a hammer, loosen the staked part of the lock nut.
 (c) Place matchmarks on the yoke and shaft.
 (d) Using a brass bar and hammer, remove the center yoke, spacer and center support bearing from the intermediate shaft.



INSPECTION

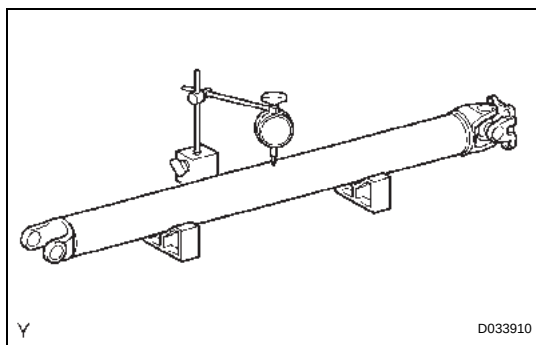
1. INSPECT PROPELLER WITH CENTER BEARING SHAFT ASSEMBLY

- (a) Using a dial indicator, check the propeller shaft runout.

Maximum runout:

0.6 mm (0.024 in.)

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



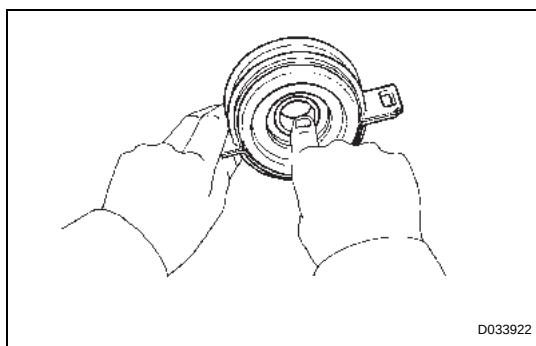
2. INSPECT PROPELLER SHAFT

- (a) Using a dial indicator, check the propeller shaft runout.

Maximum runout:

0.6 mm (0.024 in.)

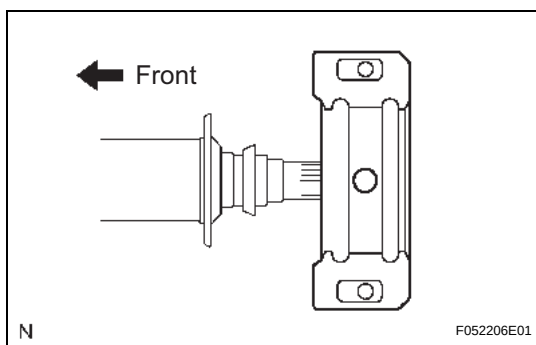
If the shaft runout is greater than the maximum, replace the shaft.



REASSEMBLY

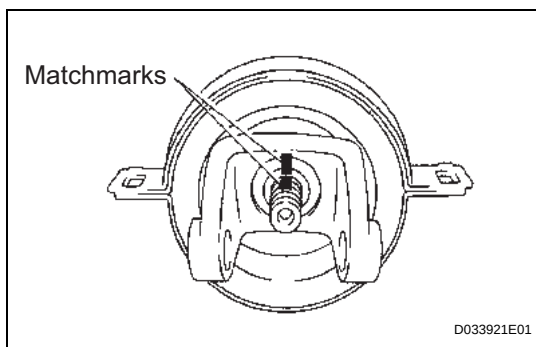
1. INSPECT CENTER SUPPORT BEARING ASSEMBLY NO. 2

- (a) When turning the center bearing with your hand, check that it turns smoothly without catching and that there are no cracks or damage. If there are any defects, replace it.



2. INSTALL CENTER SUPPORT BEARING ASSEMBLY NO. 2

- (a) Install the center support bearing onto the intermediate shaft.



- (b) Coat the splines of the intermediate shaft with MP grease No. 2.

- (c) Align the matchmarks on the center yoke and intermediate shaft.

HINT:

If replacing either the center yoke or intermediate shaft, reassemble them so that the front side yoke of the intermediate shaft and the center yoke are facing in the same direction.

- (d) Install the spacer.
(e) Fix the yoke at the center bearing section in a vice.
(f) Clamp the yoke in a vise, and press the bearing into position by tightening a new nut.

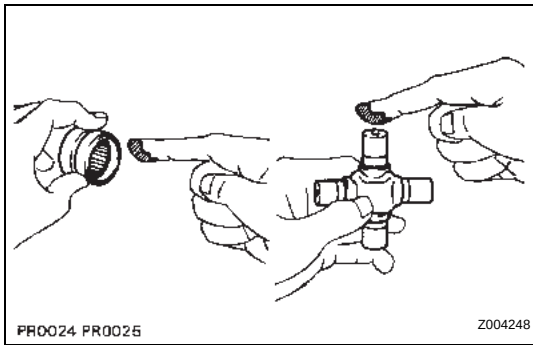
Torque: 182 N*m (1,850 kgf*cm, 134 ft.*lbf)

- (g) Loosen the nut.

- (h) Torque the nut again.

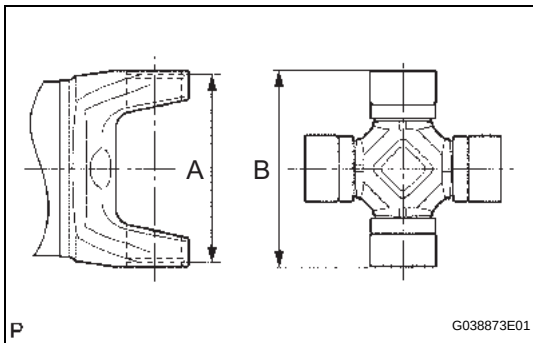
Torque: 69 N*m (700 kgf*cm, 51 ft.*lbf)

- (i) Using a chisel and hammer, stake the lock nut.



3. INSTALL PROPELLER SHAFT UNIVERSAL JOINT SPIDER BEARING

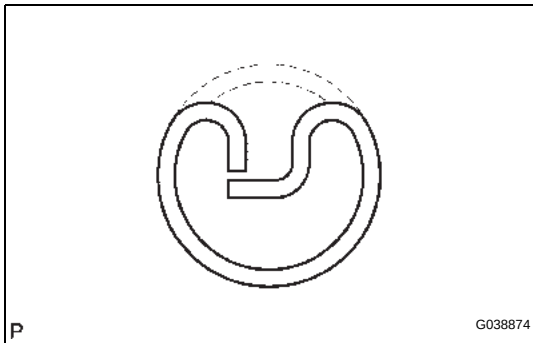
- Apply MP grease No. 2 to a new spider and bearings.
- Fit the spider into the flange yoke.



- Measure dimension A between the snap ring grooves.
- Insert the spider bearing into the spider journal portion, and then measure dimension B of the universal joint.

NOTICE:

When measuring dimension B, fix the spider and spider bearings in a vise and hold them firmly together.



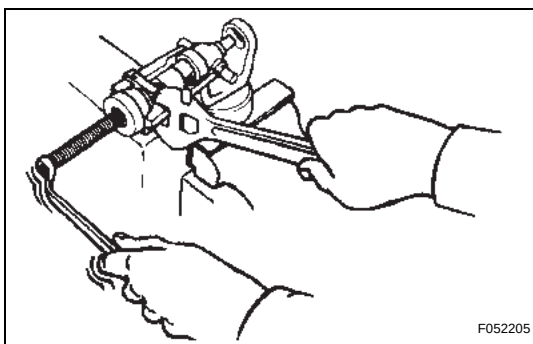
- Select snap rings to make dimensions A and B the same.

Snap Ring Type

Color	Thickness mm (in.)
Green	1.384 (0.0545)
Red	1.435 (0.0565)
Black	1.486 (0.0585)
Copper	1.511 (0.0595)
Silver	1.537 (0.0605)
Yellow	1.588 (0.0625)
Blue	1.638 (0.0645)

NOTICE:

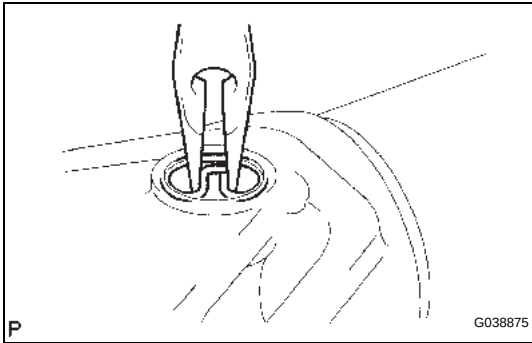
- Use new snap rings.
- If possible, use snap rings of the same thickness for both edges.



- Insert the spider into the yoke, and then using SST, press the spider bearing into the snap ring groove.
- Press in the spider bearing on the opposite side in the same way.

NOTICE:

When pressing in the spider bearing, be careful not to damage its lip.



- (h) Using needle-nose pliers, install new snap rings into the grooves of the yoke.

4. INSPECT PROPELLER SHAFT UNIVERSAL JOINT SPIDER BEARING

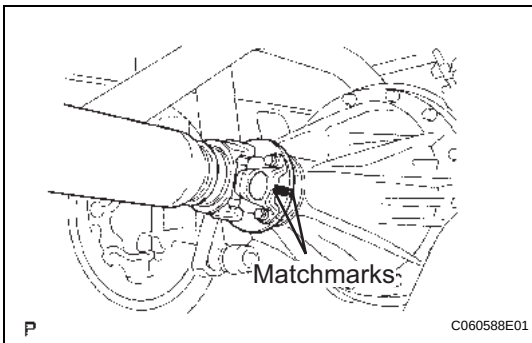
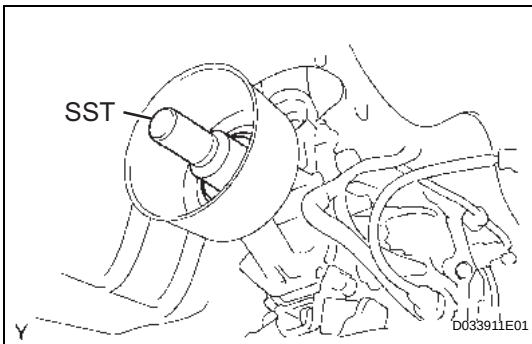
- (a) Check the spider bearings for wear and damage.
 (b) Check each spider bearing's axial play by turning the yoke while holding the shaft tightly.

Maximum bearing axial play:
0 to 0.05 mm (0 to 0.002 in.)

INSTALLATION

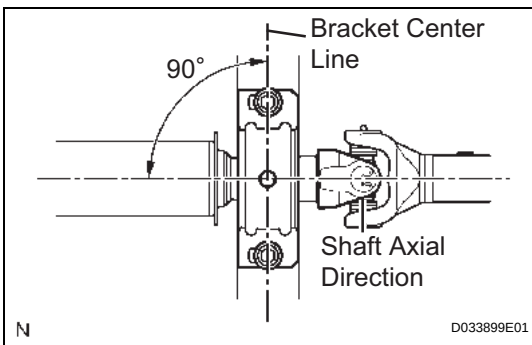
1. INSTALL PROPELLER WITH CENTER BEARING SHAFT ASSEMBLY

- (a) Remove SST from the extension housing.
 (b) Install the propeller shaft into the extension housing.



- (c) Align the matchmarks on the propeller shaft flange and differential flange.
 (d) Install the propeller shaft with the 4 bolts, 4 nuts and 4 washers.

Torque: 88 N*m (899 kgf*cm, 65 ft.*lbf)



- (e) Provisionally install the center support bearing with the 2 mounting bolts.

HINT:

Make sure the bearing is installed with the drain hole facing downwards.

DISASSEMBLY

1. INSPECT PROPELLER SHAFT UNIVERSAL JOINT SPIDER BEARING

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

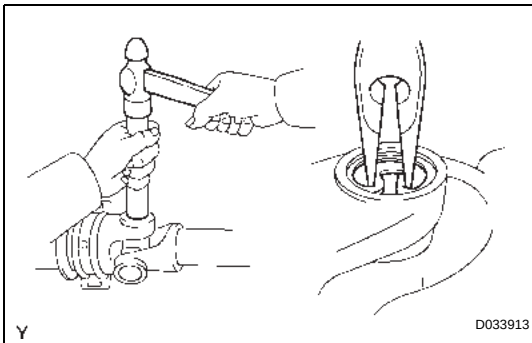
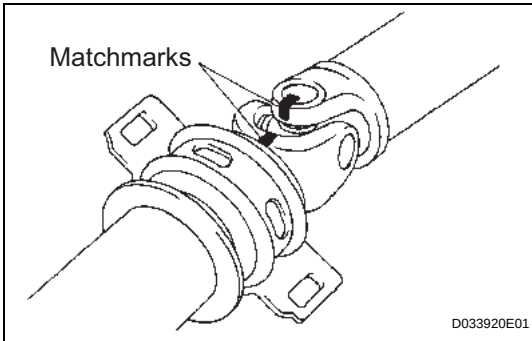
Maximum bearing axial play:

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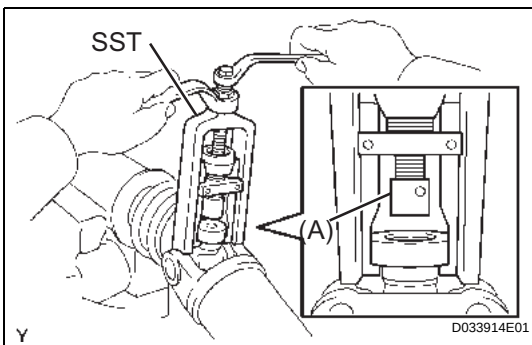
If the bearing axial play is greater than the maximum, replace the spider bearing.

2. REMOVE PROPELLER SHAFT UNIVERSAL JOINT SPIDER BEARING

- Place matchmarks on the propeller shaft and universal joint yoke.



- Using a brass bar and hammer, slightly tap in the spider bearing.
- Using needle-nose pliers, remove the 4 snap rings from the grooves.

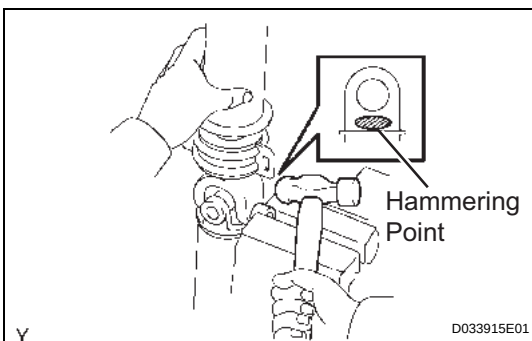


- Clamp the propeller shaft in a vise between aluminum plates.
- Using SST, push the spider bearing out of the propeller shaft.

SST 09332-25010

HINT:

Sufficiently raise the part indicated by (A) so that it does not come into contact with the spider bearing.



- Clamp the removed spider bearing outer race in a vise and tap the propeller shaft to remove the spider bearing.

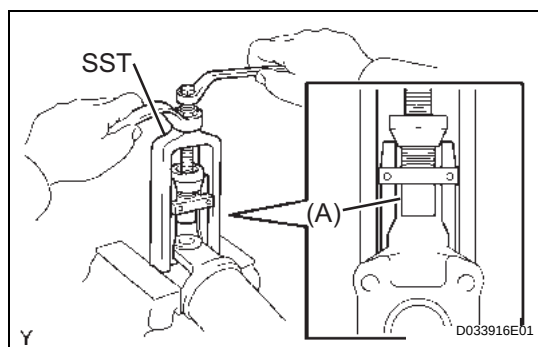
NOTICE:

Do not tap the shaft tube.

HINT:

Remove the spider bearing from the opposite side of the spider using the same procedure.

- Separate the propeller with center bearing shaft assembly from the propeller shaft assembly.

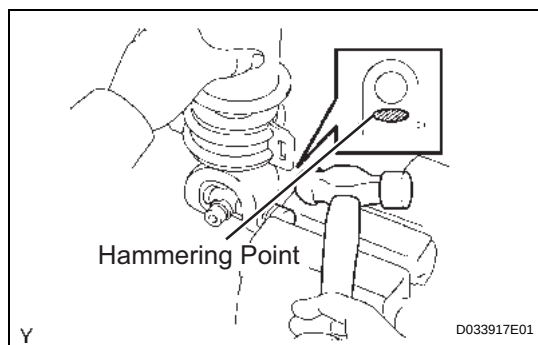


- (h) Reinstall the 2 removed spider bearings onto the spider and clamp the spider bearings in a vise.
- (i) Using SST, push the bearing out of the yoke.

SST 09332-25010

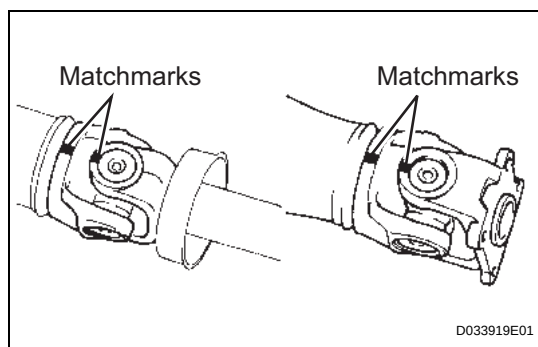
HINT:

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



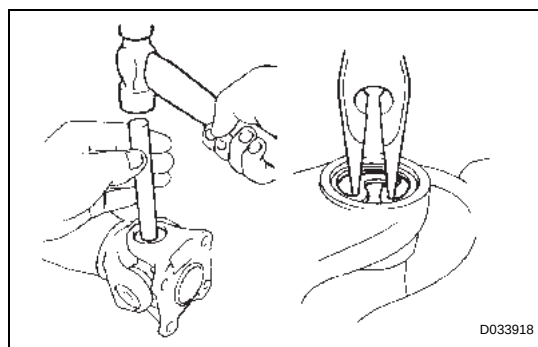
- (j) Clamp the outer bearing race in a vise and tap off the yoke with a hammer.
- (k) Remove the spider.

PR

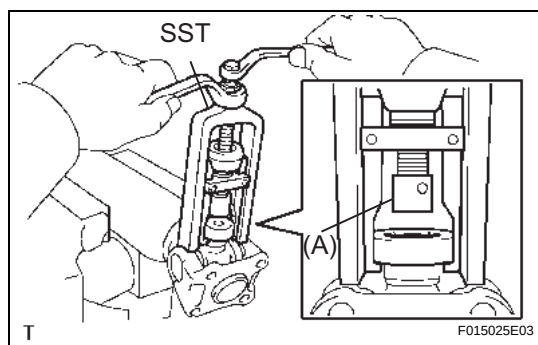


3. REMOVE PROPELLER SHAFT UNIVERSAL JOINT SPIDER BEARING

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



- (b) Using a brass bar and hammer, slightly tap in the spider bearing.
- (c) Using 2 needle-nose pliers, remove the 4 snap rings from the grooves.

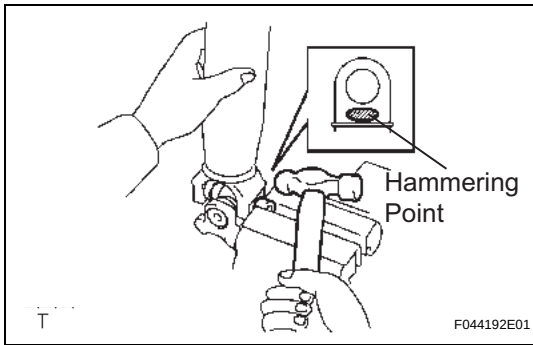


- (d) Clamp the propeller shaft in a vise between the aluminum plates.
- (e) Using SST, push the spider bearing out of the propeller shaft.

SST 09332-25010

HINT:

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



- (f) Clamp the removed spider bearing outer race in a vise and tap the propeller shaft to remove the spider bearing.

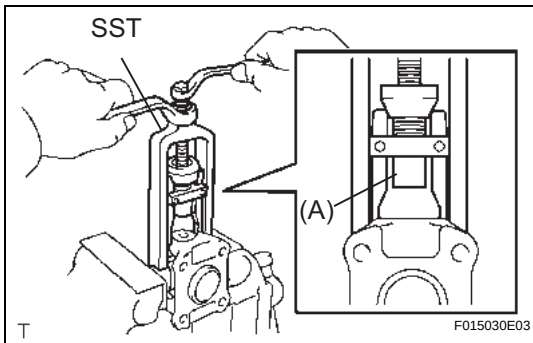
NOTICE:

Do not tap the shaft tube.

HINT:

Remove the spider bearing from the opposite side of the spider using the same procedure.

- (g) Separate the flange yoke and spider from the propeller shaft.



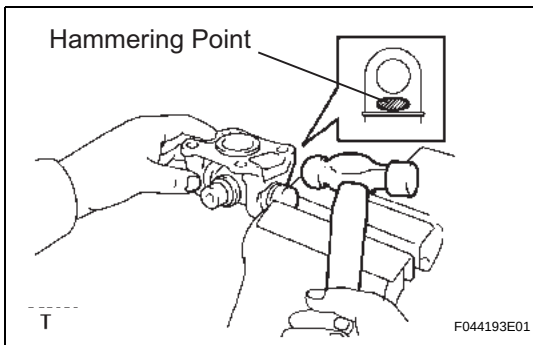
- (h) Reinstall the 2 removed spider bearings onto the spider and clamp the spider bearings in a vise.

- (i) Using SST, push the bearing out of the yoke.

SST 09332-25010

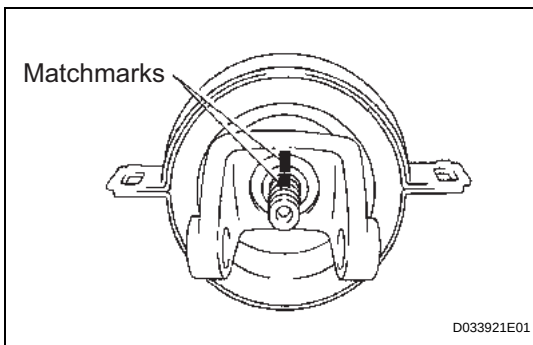
HINT:

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



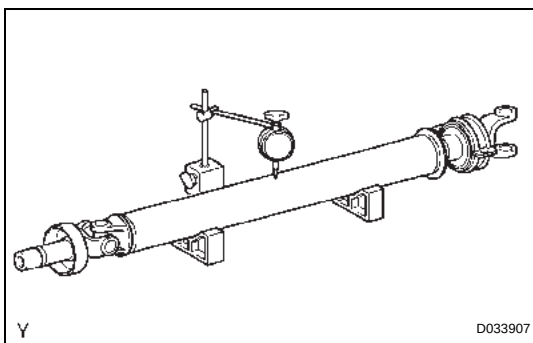
- (j) Clamp the outer bearing race in a vise and tap off the yoke with a hammer.

- (k) Remove the spider.



4. REMOVE CENTER SUPPORT BEARING ASSEMBLY NO. 2

- (a) Fix the yoke at the center bearing section in a vice.
 (b) Using a chisel and a hammer, loosen the staked part of the lock nut.
 (c) Place matchmarks on the yoke and shaft.
 (d) Using a brass bar and hammer, remove the center yoke, spacer and center support bearing from the intermediate shaft.



INSPECTION

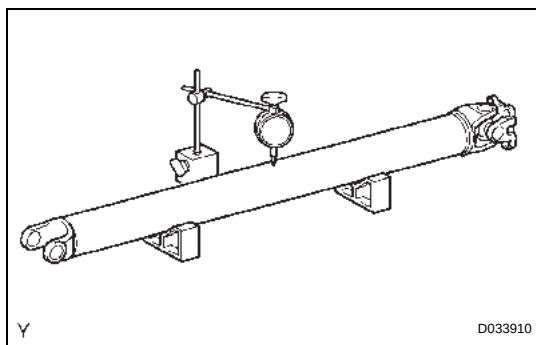
1. INSPECT PROPELLER WITH CENTER BEARING SHAFT ASSEMBLY

- (a) Using a dial indicator, check the propeller shaft runout.

Maximum runout:

0.6 mm (0.024 in.)

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



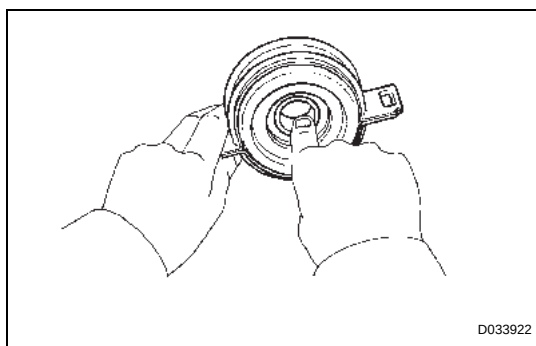
2. INSPECT PROPELLER SHAFT

- (a) Using a dial indicator, check the propeller shaft runout.

Maximum runout:

0.6 mm (0.024 in.)

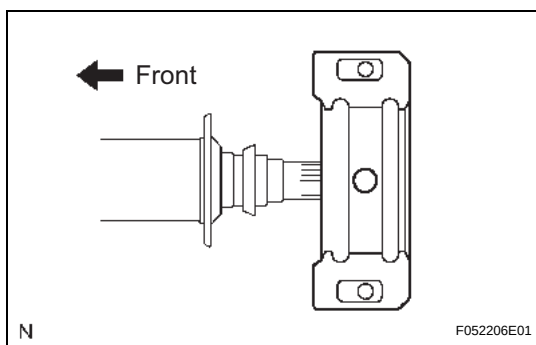
If the shaft runout is greater than the maximum, replace the shaft.



REASSEMBLY

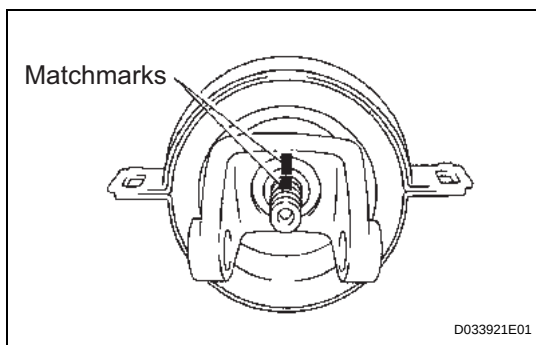
1. INSPECT CENTER SUPPORT BEARING ASSEMBLY NO. 2

- (a) When turning the center bearing with your hand, check that it turns smoothly without catching and that there are no cracks or damage. If there are any defects, replace it.



2. INSTALL CENTER SUPPORT BEARING ASSEMBLY NO. 2

- (a) Install the center support bearing onto the intermediate shaft.



- (b) Coat the splines of the intermediate shaft with MP grease No. 2.

- (c) Align the matchmarks on the center yoke and intermediate shaft.

HINT:

If replacing either the center yoke or intermediate shaft, reassemble them so that the front side yoke of the intermediate shaft and the center yoke are facing in the same direction.

- (d) Install the spacer.
 (e) Fix the yoke at the center bearing section in a vice.
 (f) Clamp the yoke in a vise, and press the bearing into position by tightening a new nut.

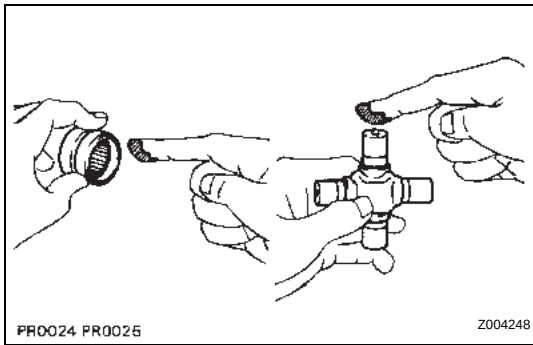
Torque: 182 N*m (1,850 kgf*cm, 134 ft.*lbf)

- (g) Loosen the nut.

- (h) Torque the nut again.

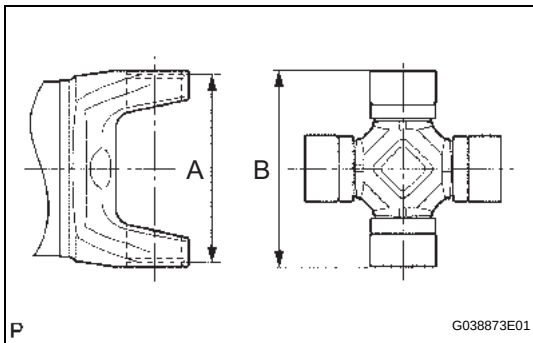
Torque: 69 N*m (700 kgf*cm, 51 ft.*lbf)

- (i) Using a chisel and hammer, stake the lock nut.



3. INSTALL PROPELLER SHAFT UNIVERSAL JOINT SPIDER BEARING

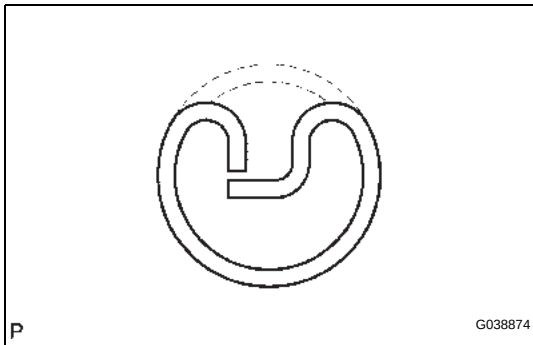
- Apply MP grease No. 2 to a new spider and bearings.
- Fit the spider into the flange yoke.



- Measure dimension A between the snap ring grooves.
- Insert the spider bearing into the spider journal portion, and then measure dimension B of the universal joint.

NOTICE:

When measuring dimension B, fix the spider and spider bearings in a vise and hold them firmly together.



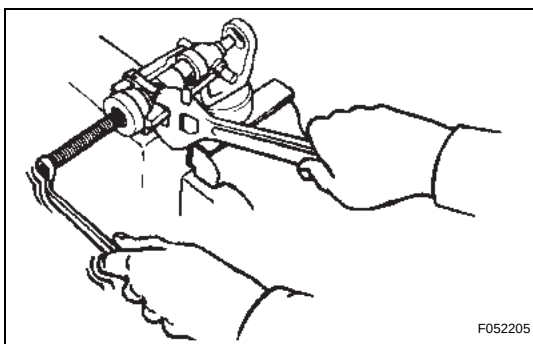
- Select snap rings to make dimensions A and B the same.

Snap Ring Type

Color	Thickness mm (in.)
Green	1.384 (0.0545)
Red	1.435 (0.0565)
Black	1.486 (0.0585)
Copper	1.511 (0.0595)
Silver	1.537 (0.0605)
Yellow	1.588 (0.0625)
Blue	1.638 (0.0645)

NOTICE:

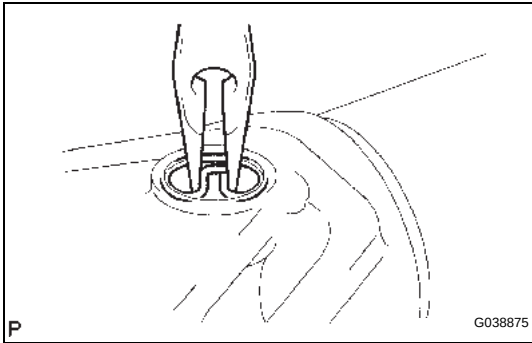
- Use new snap rings.
- If possible, use snap rings of the same thickness for both edges.



- Insert the spider into the yoke, and then using SST, press the spider bearing into the snap ring groove.
- Press in the spider bearing on the opposite side in the same way.

NOTICE:

When pressing in the spider bearing, be careful not to damage its lip.



- (h) Using needle-nose pliers, install new snap rings into the grooves of the yoke.

4. INSPECT PROPELLER SHAFT UNIVERSAL JOINT SPIDER BEARING

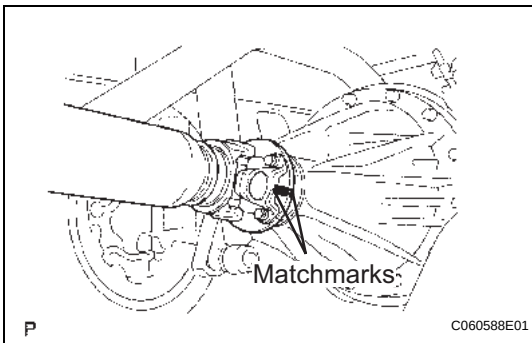
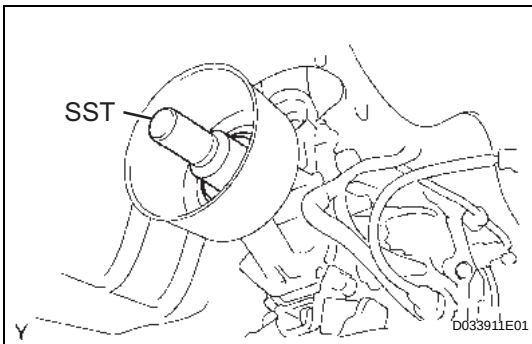
- (a) Check the spider bearings for wear and damage.
 (b) Check each spider bearing's axial play by turning the yoke while holding the shaft tightly.

Maximum bearing axial play:
0 to 0.05 mm (0 to 0.002 in.)

INSTALLATION

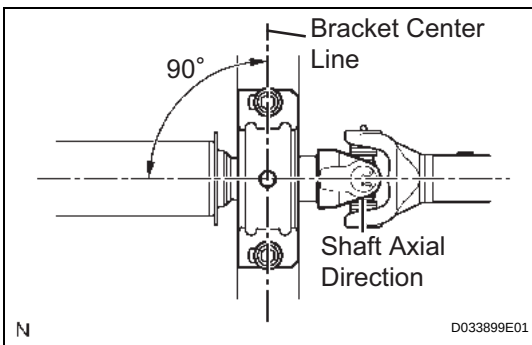
1. INSTALL PROPELLER WITH CENTER BEARING SHAFT ASSEMBLY

- (a) Remove SST from the extension housing.
 (b) Install the propeller shaft into the extension housing.



- (c) Align the matchmarks on the propeller shaft flange and differential flange.
 (d) Install the propeller shaft with the 4 bolts, 4 nuts and 4 washers.

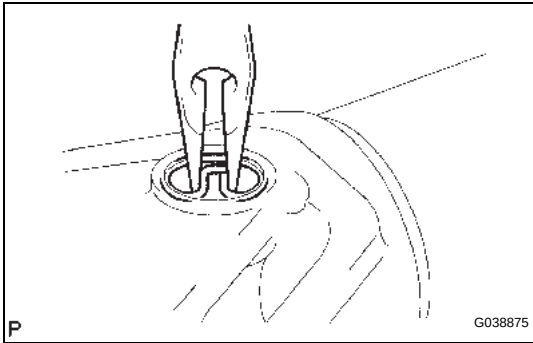
Torque: 88 N*m (899 kgf*cm, 65 ft.*lbf)



- (e) Provisionally install the center support bearing with the 2 mounting bolts.

HINT:

Make sure the bearing is installed with the drain hole facing downwards.



- (h) Using needle-nose pliers, install new snap rings into the grooves of the yoke.

4. INSPECT PROPELLER SHAFT UNIVERSAL JOINT SPIDER BEARING

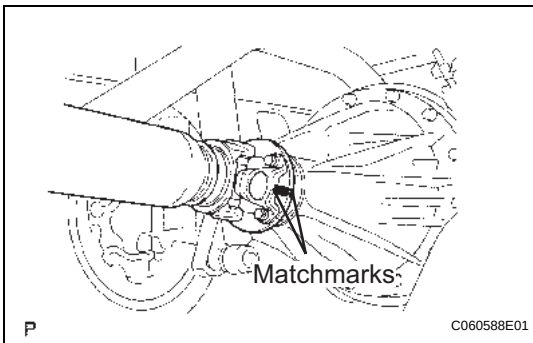
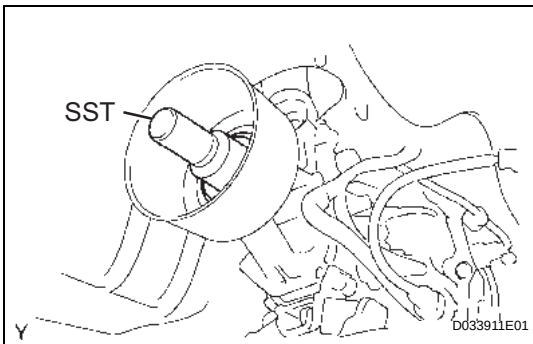
- (a) Check the spider bearings for wear and damage.
 (b) Check each spider bearing's axial play by turning the yoke while holding the shaft tightly.

Maximum bearing axial play:
0 to 0.05 mm (0 to 0.002 in.)

INSTALLATION

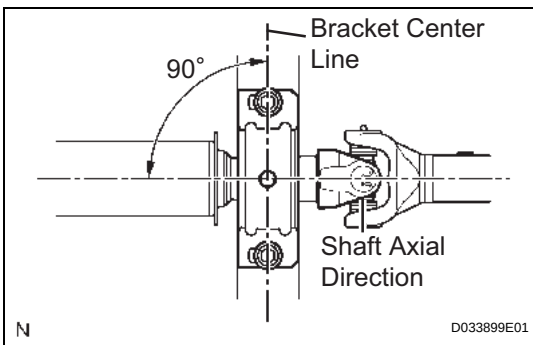
1. INSTALL PROPELLER WITH CENTER BEARING SHAFT ASSEMBLY

- (a) Remove SST from the extension housing.
 (b) Install the propeller shaft into the extension housing.



- (c) Align the matchmarks on the propeller shaft flange and differential flange.
 (d) Install the propeller shaft with the 4 bolts, 4 nuts and 4 washers.

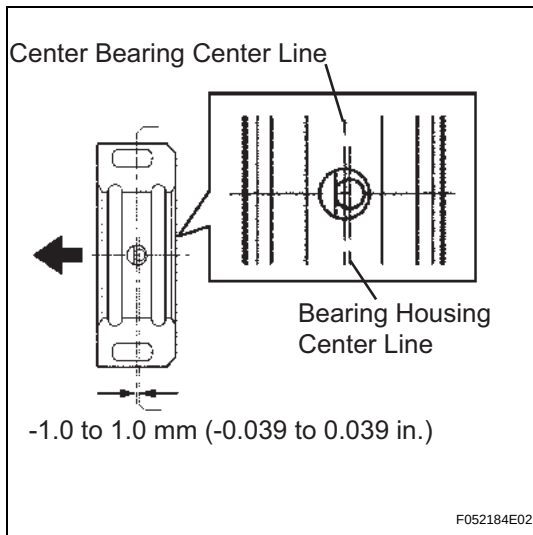
Torque: 88 N*m (899 kgf*cm, 65 ft.*lbf)



- (e) Provisionally install the center support bearing with the 2 mounting bolts.

HINT:

Make sure the bearing is installed with the drain hole facing downwards.



- (f) Adjust the center support bearing.

HINT:

- With the vehicle unladen, adjust the center support bearing to keep the intervals, as shown.
- In the same condition, check the center line in the axial direction. Adjust the bearing if necessary.
- The center bearing center line and center bearing housing center line must be adjusted to within -1.0 to 1.0 mm (-0.039 to 0.039 in.) of each other in the vehicle's longitudinal direction when the vehicle is unladen.

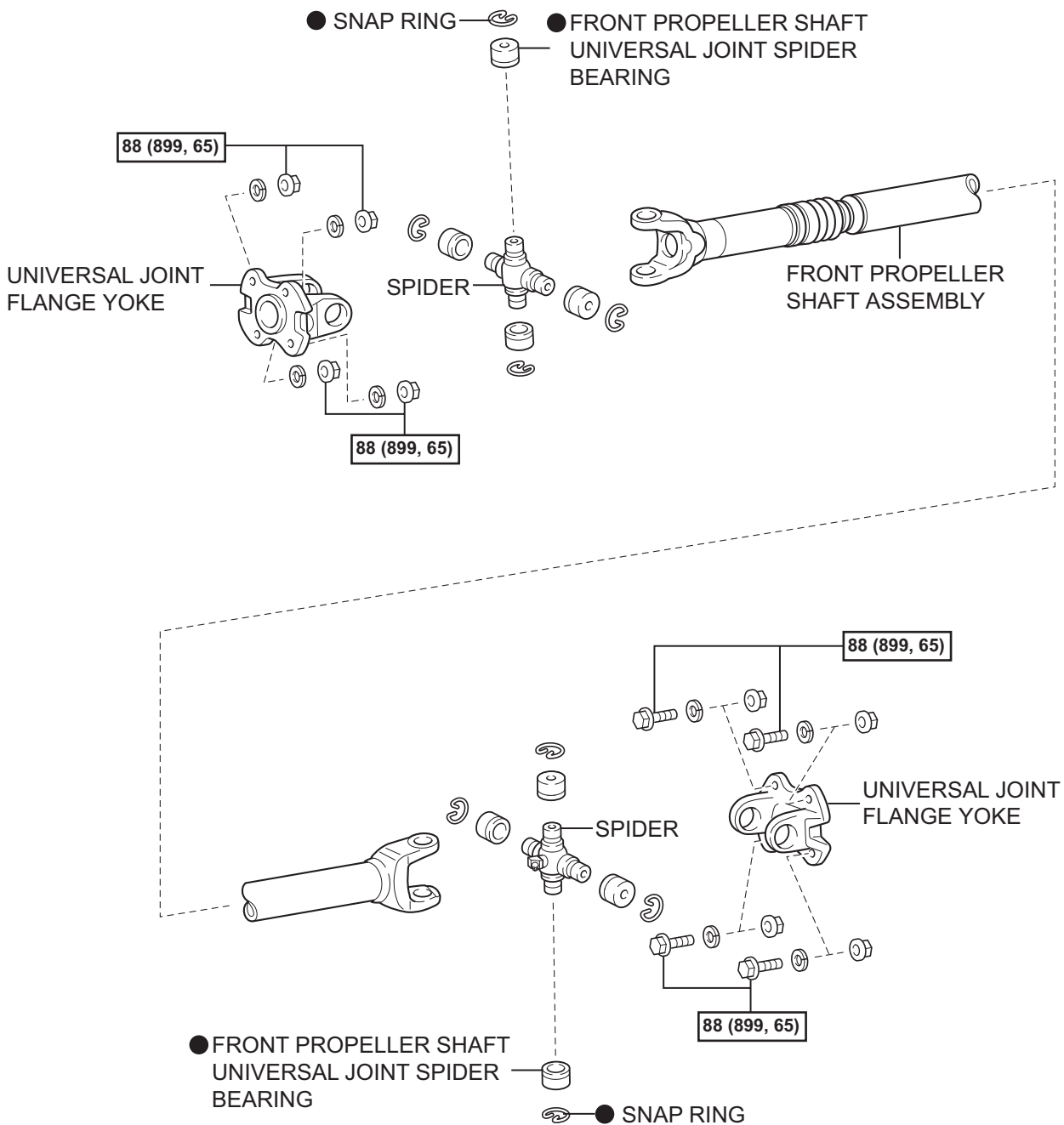
- (g) Torque the 2 bolts.

Torque: 36 N*m (369 kgf*cm, 27 ft.*lbf)

2. INSPECT TRANSMISSION OIL LEAKAGE

FRONT PROPELLER SHAFT ASSEMBLY (for 4WD)

COMPONENTS



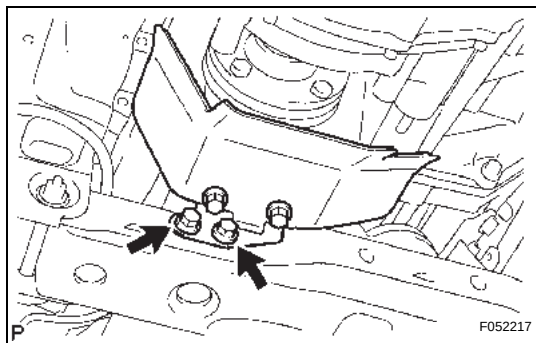
PR

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

● Non-reusable part

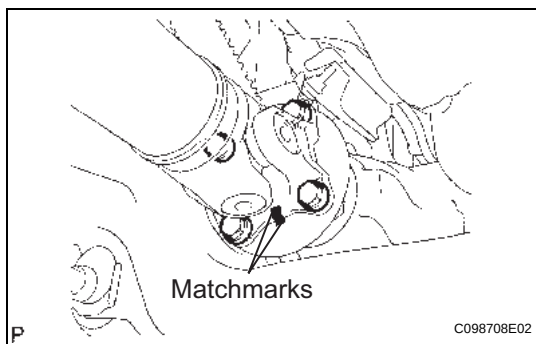
REMOVAL

1. REMOVE EXHAUST FRONT PIPE ASSEMBLY NO. 2 (for 1GR-FE) (See page [EX-3](#))



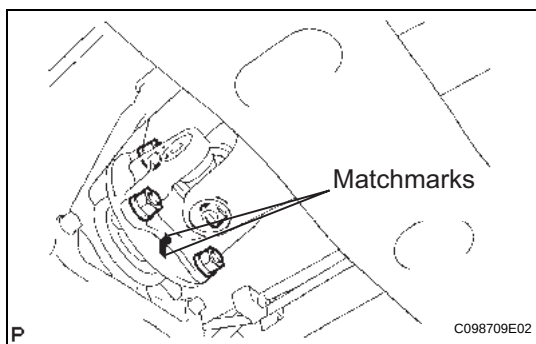
2. REMOVE PROPELLER SHAFT HEAT INSULATOR BRACKET SUB-ASSEMBLY

- (a) Remove the 2 bolts and propeller shaft heat insulator bracket.



3. REMOVE FRONT PROPELLER SHAFT ASSEMBLY

- (a) Place matchmarks on the propeller shaft flange and differential flange.
- (b) Remove the 4 nuts, 4 bolts, 4 washers and front propeller shaft.



- (c) Place matchmarks on the propeller shaft flange and transfer flange.
- (d) Remove the 4 nuts, 4 washers and front propeller shaft.

DISASSEMBLY

1. INSPECT FRONT PROPELLER SHAFT UNIVERSAL JOINT SPIDER BEARING

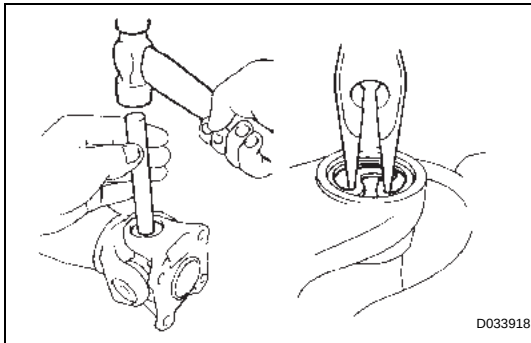
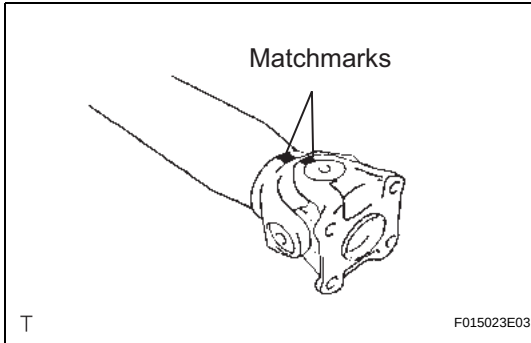
- Check the spider bearings for wear and damage.
- Check each spider bearing's axial play by turning the yoke while holding the shaft tightly.

Maximum bearing axial play:

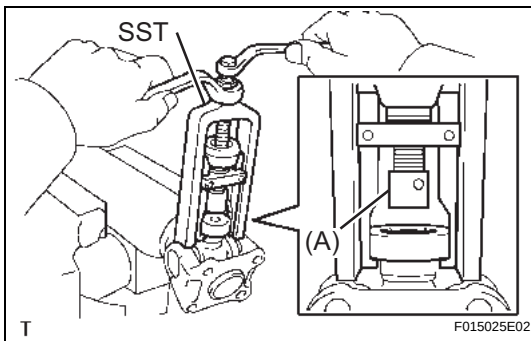
0 to 0.05 mm (0 to 0.002 in.)

2. REMOVE FRONT PROPELLER SHAFT UNIVERSAL JOINT SPIDER BEARING

- Place matchmarks on the propeller shaft and flange yoke.



- Using a brass bar and a hammer, slightly tap in the spider bearing outer races.
- Using needle-nose pliers, remove the 4 snap rings from the grooves.

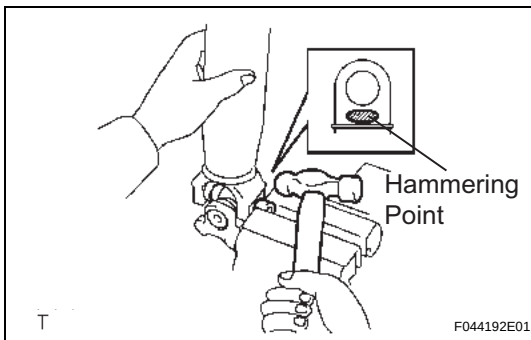


- Using SST, push the spider bearing out of the propeller shaft.

SST 09332-25010

HINT:

Sufficiently raise the part indicated by (A) so that it does not come into contact with the spider bearing.



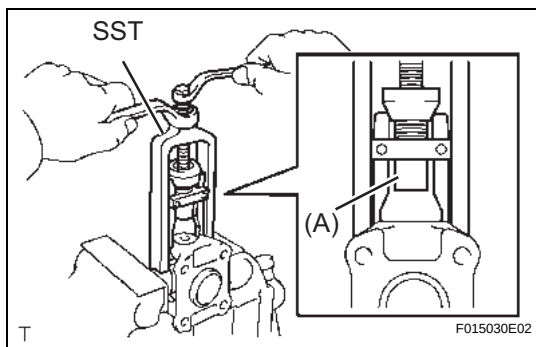
- Clamp the spider bearing outer race in a vise and tap off the propeller shaft with a hammer.

HINT:

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

NOTICE:

Do not tap the shaft.

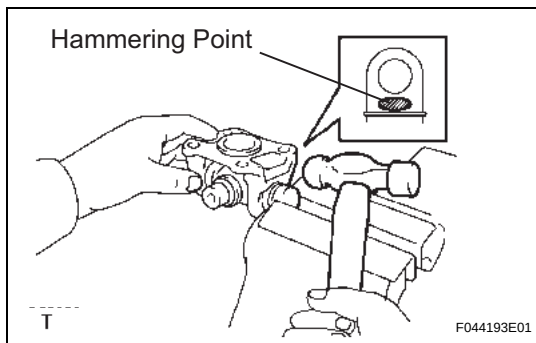


- (f) Install the 2 removed spider bearing outer races onto the spider, and clamp them in a vise.
- (g) Using SST, push the bearing out of the yoke.

SST 09332-25010

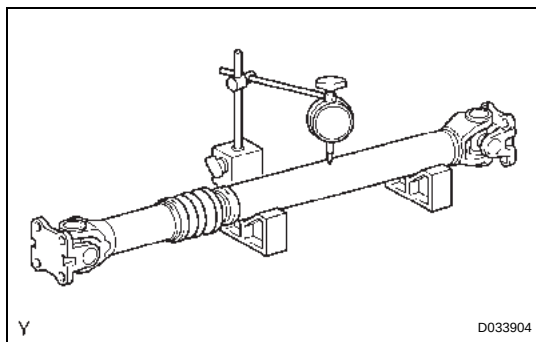
HINT:

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



- (h) Clamp the outer bearing race in a vise and tap off the flange yoke with a hammer.
- (i) Remove the spider.

PR



INSPECTION

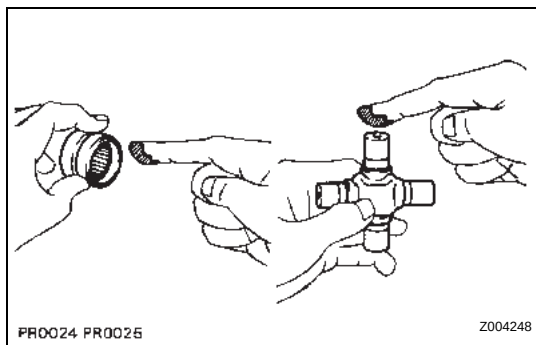
1. INSPECT FRONT PROPELLER SHAFT ASSEMBLY

- (a) Using a dial indicator, check the propeller shaft runout.

Maximum runout:

0.6 mm (0.024 in.)

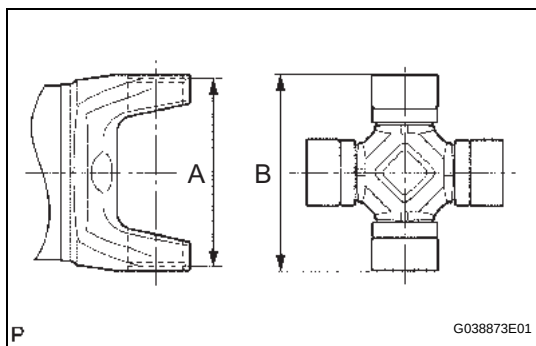
If the shaft runout is greater than the maximum, replace the propeller shaft.



REASSEMBLY

1. INSTALL FRONT PROPELLER SHAFT UNIVERSAL JOINT SPIDER BEARING

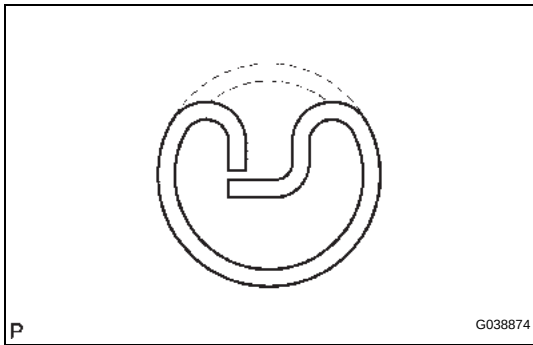
- (a) Apply MP grease No. 2 to a new spider and spider bearing.
- (b) Fit the spider into the flange yoke.



- (c) Measure dimension A between the snap ring grooves.
- (d) Insert the spider bearing into the spider journal portion, and then measure dimension B of the universal joint.

NOTICE:

When measuring dimension B, fix the spider and needle roller bearings in a vise and hold them firmly together.



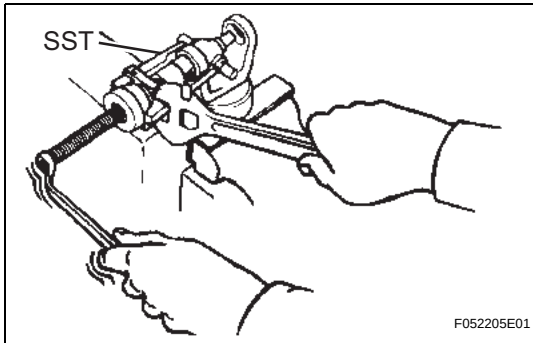
- (e) Select snap rings to make dimensions A and B the same.

Snap Ring Type

Color	Thickness mm (in.)
Green	1.384 (0.0545)
Red	1.435 (0.0565)
Black	1.486 (0.0585)
Copper	1.511 (0.0595)
Silver	1.537 (0.0605)
Yellow	1.588 (0.0625)
Blue	1.638 (0.0645)

NOTICE:

- Use new snap rings.
- If possible, use snap rings of the same thickness for both edges.



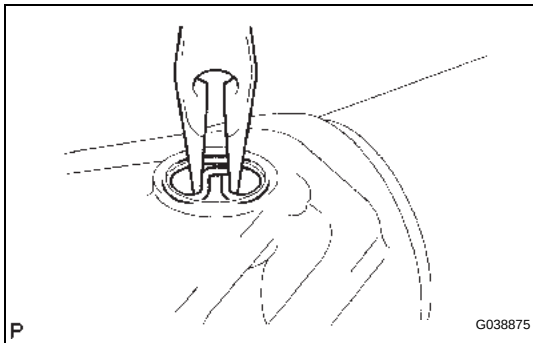
- (f) Insert the spider into the yoke, and then using SST, press in the spider bearing into the snap ring groove.

SST 09332-25010

- (g) Press in the spider bearing on the opposite side in the same way.

NOTICE:

When pressing in the spider bearing, be careful not to damage its lip.



- (h) Using needle-nose pliers, install new snap rings into the grooves of the yoke.

2. INSPECT FRONT PROPELLER SHAFT UNIVERSAL JOINT SPIDER BEARING

- (a) Check the spider bearings for wear and damage.
 (b) Check each spider bearing's axial play by turning the yoke while holding the shaft tightly.

Maximum bearing axial play:

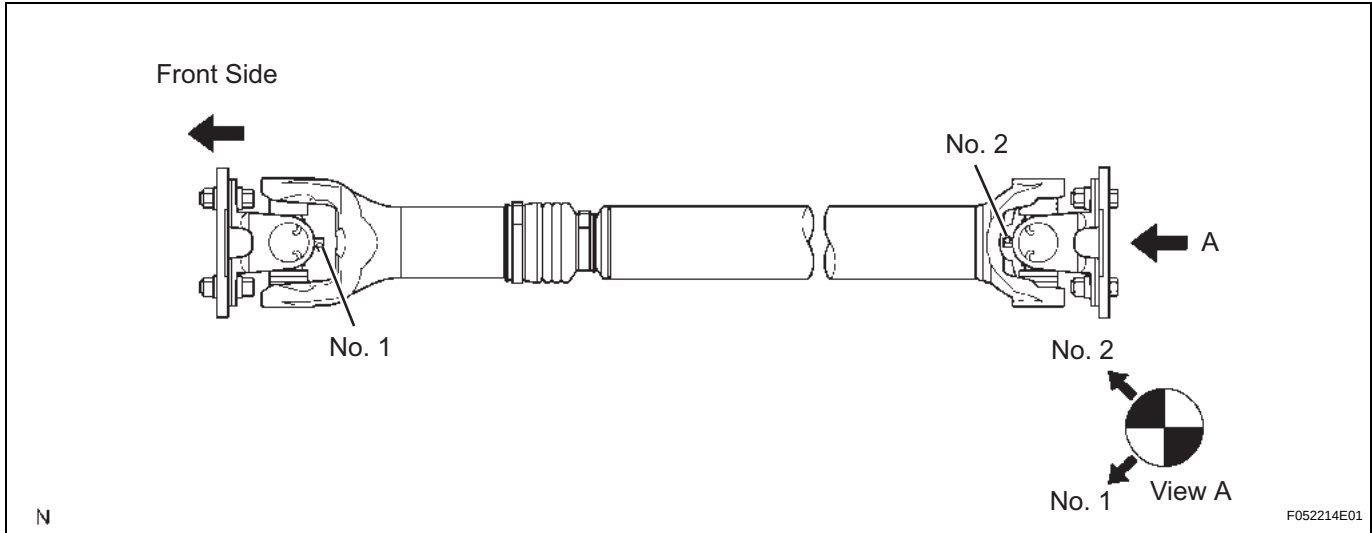
0 to 0.05 mm (0 to 0.002 in.)

INSTALLATION

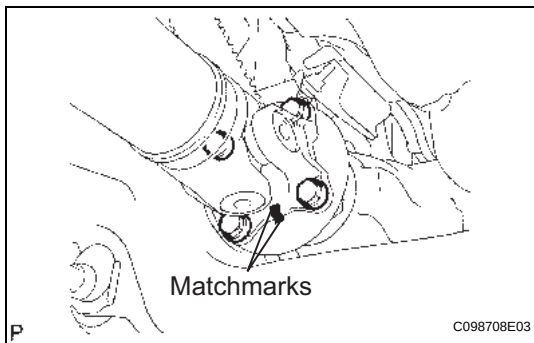
1. INSPECT FRONT PROPELLER SHAFT ASSEMBLY

HINT:

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



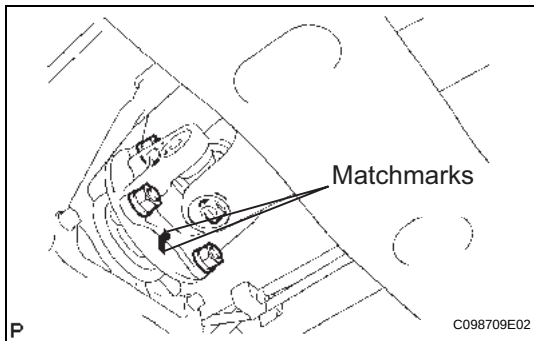
PR



2. INSTALL FRONT PROPELLER SHAFT ASSEMBLY

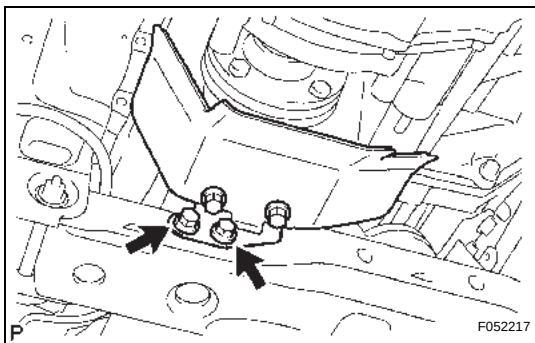
- Align the matchmarks on the yoke and differential flange.
- Install the propeller shaft with the 4 bolts, 4 nuts and 4 washers.

Torque: 88 N*m (899 kgf*cm, 65 ft.*lbf)



- Align the matchmarks on the yoke and transfer flange.
- Install the propeller shaft with the 4 nuts and 4 washers.

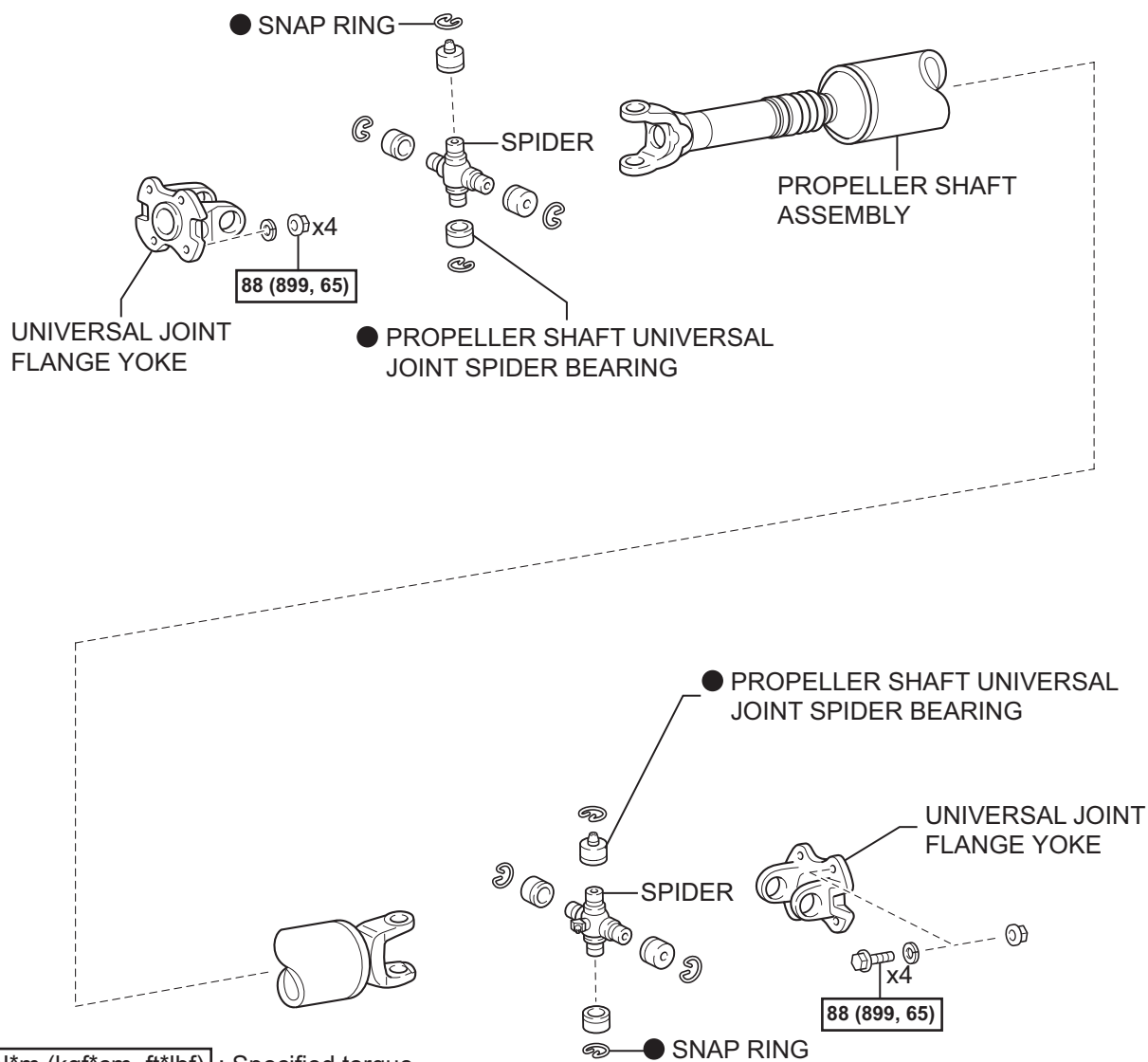
Torque: 88 N*m (899 kgf*cm, 65 ft.*lbf)



3. **REMOVE PROPELLER SHAFT HEAT INSULATOR BRACKET SUB-ASSEMBLY**
 - (a) Install the propeller shaft heat insulator bracket with the 2 bolts.
Torque: 16 N*m (160 kgf*cm, 12 ft.*lbf)
4. **REMOVE EXHAUST FRONT PIPE ASSEMBLY NO. 2 (for 1GR-FE) (See page [EX-3](#))**

REAR PROPELLER SHAFT ASSEMBLY (for Regular Cab 4WD)

COMPONENTS



N*m (kgf*cm, ft*lb) : Specified torque

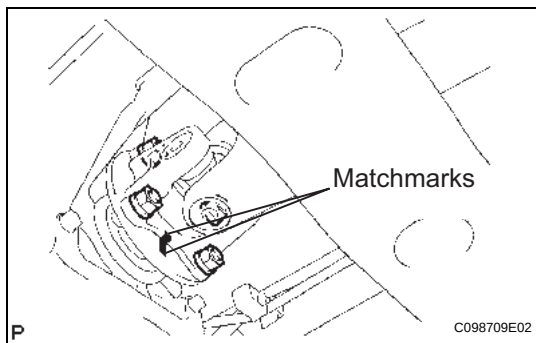
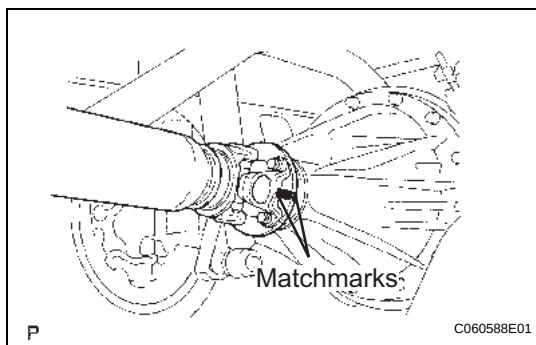
● Non-reusable part

PR

REMOVAL

1. REMOVE PROPELLER SHAFT ASSEMBLY

- (a) Place matchmarks on the propeller shaft flange and differential flange.
- (b) Remove the 4 nuts, 4 bolts, 4 washers and front propeller shaft.



- (c) Place matchmarks on the propeller shaft flange and transfer flange.
- (d) Remove the 4 nuts, 4 washers and front propeller shaft.

DISASSEMBLY

1. INSPECT PROPELLER SHAFT UNIVERSAL JOINT SPIDER BEARING

- Check the spider bearings for wear and damage.
- Check each spider bearing's axial play by turning the yoke while holding the shaft tightly.

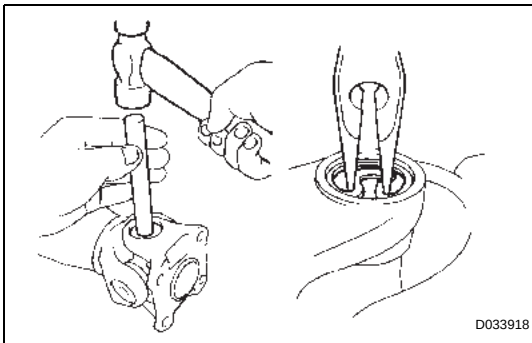
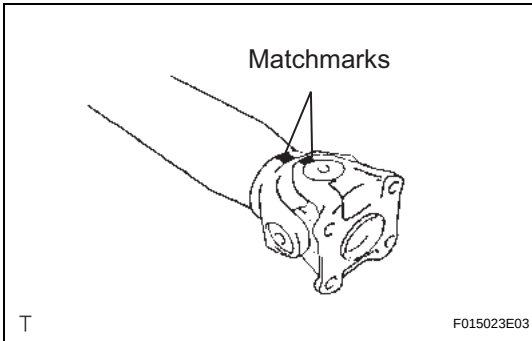
Maximum bearing axial play:

0 to 0.05 mm (0 to 0.002 in.)

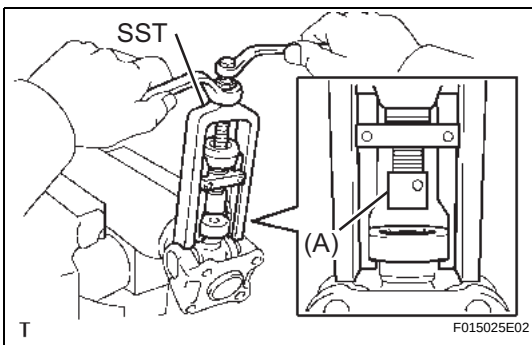
If the bearing axial play is greater than the maximum, replace the spider bearing.

2. REMOVE PROPELLER SHAFT UNIVERSAL JOINT SPIDER BEARING

- Place matchmarks on the flange yoke and sleeve yoke.



- Using a brass bar and a hammer, slightly tap in the spider bearing outer races.
- Using needle-nose pliers, remove the 4 snap rings from the grooves.

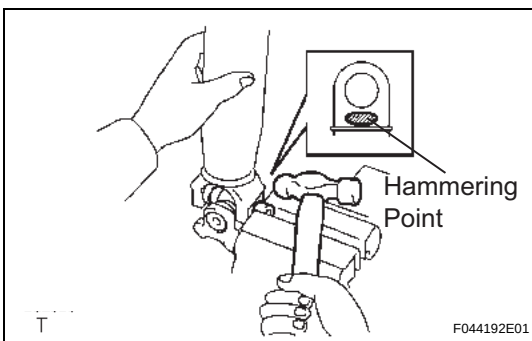


- Using SST, push the spider bearing out of the propeller shaft.

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HINT:

Sufficiently raise the part indicated by (A) so that it does not come into contact with the spider bearing.



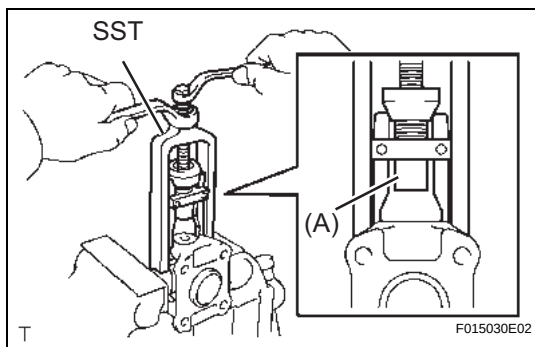
- Clamp the spider bearing outer race in a vise and tap off the propeller shaft with a hammer.

HINT:

Remove the bearing on opposite side in the same procedure.

NOTICE:

Do not tap the shaft.

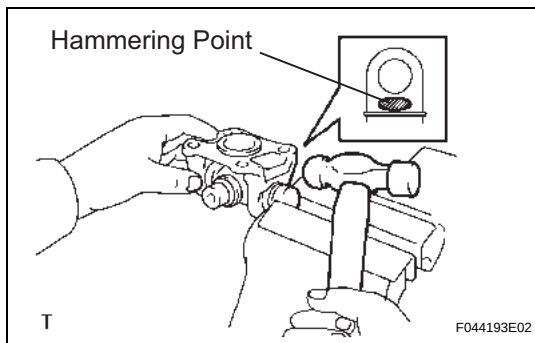


- (f) Install the 2 removed spider bearing outer races onto the spider, and clamp them in a vise.
- (g) Using SST, push the bearing out of the yoke.

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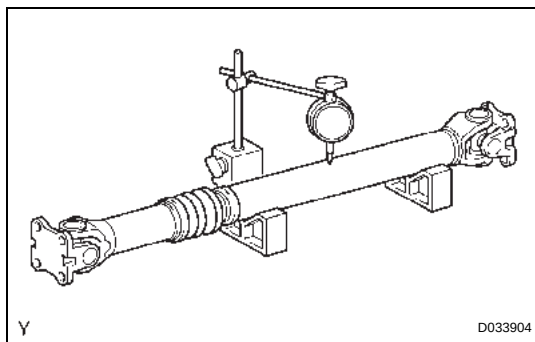
HINT:

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



- (h) Clamp the outer bearing race in a vise and tap off the flange yoke with a hammer.
- (i) Remove the spider.

PR



INSPECTION

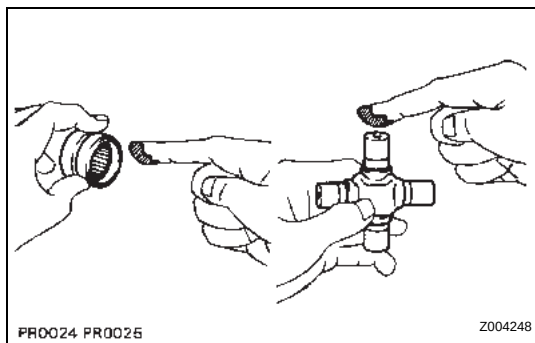
1. INSPECT PROPELLER SHAFT ASSEMBLY

- (a) Using a dial indicator, check the propeller shaft runout.

Maximum runout:

0.6 mm (0.024 in.)

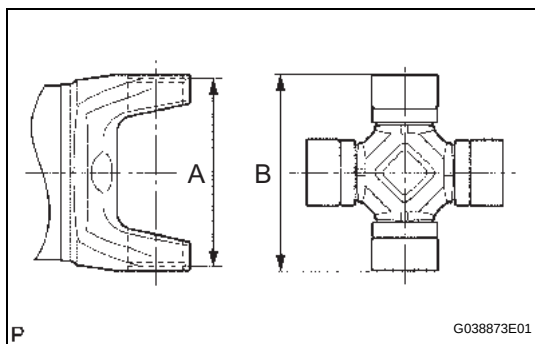
If the shaft runout is greater than the maximum, replace the propeller shaft.



REASSEMBLY

1. INSTALL PROPELLER SHAFT UNIVERSAL JOINT SPIDER BEARING

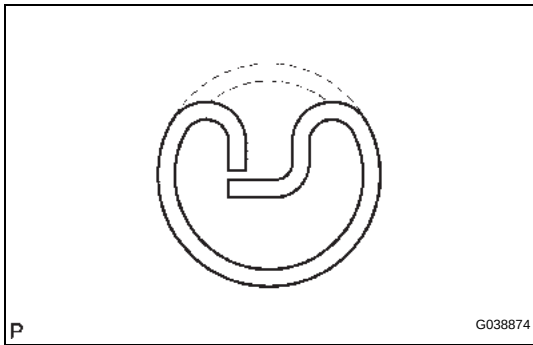
- (a) Apply MP grease No. 2 to a new spider and spider bearing.
- (b) Fit the spider into the flange yoke.



- (c) Measure dimension A between the snap ring grooves.
- (d) Insert the thrust washer and spider bearing into the spider journal portion, and then measure dimension B of the universal joint.

NOTICE:

When measuring dimension B, fix the spider and spider bearings in a vise and hold them firmly together.



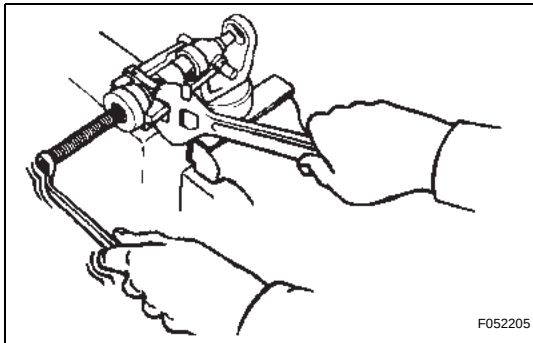
- (e) Select snap rings to make dimensions A and B the same.

Snap Ring Type

Color	Thickness mm (in.)
Green	1.384 (0.0545)
Red	1.435 (0.0565)
Black	1.486 (0.0585)
Copper	1.511 (0.0595)
Silver	1.537 (0.0605)
Yellow	1.588 (0.0625)
Blue	1.638 (0.0645)

NOTICE:

- Use new snap rings.
- If possible, use snap rings of the same thickness for both edges.

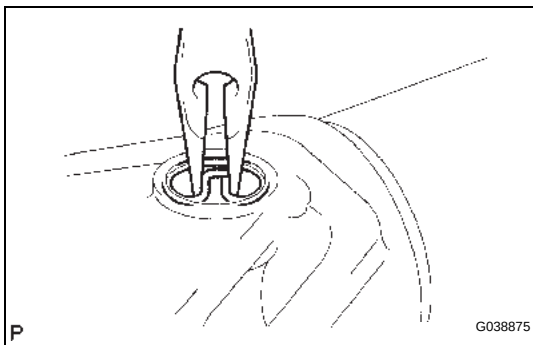


- (f) Insert the spider into the yoke, and then using SST, press the spider bearing into the snap ring groove.
- (g) Press in the spider bearing on the opposite side in the same way.

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NOTICE:

When pressing in the spider bearing, be careful not to damage its lip.



- (h) Using needle-nose pliers, install new snap rings into the grooves of the yoke.

2. INSPECT PROPELLER SHAFT UNIVERSAL JOINT SPIDER BEARING

- (a) Check the spider bearings for wear and damage.
- (b) Check each spider bearing's axial play by turning the yoke while holding the shaft tightly.

Maximum bearing axial play:

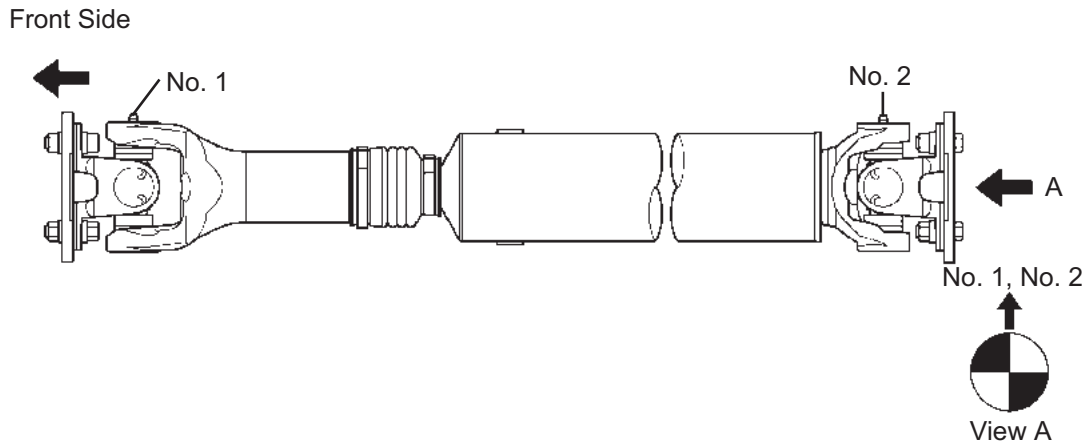
0 to 0.05 mm (0 to 0.002 in.)

INSTALLATION

1. INSPECT PROPELLER SHAFT ASSEMBLY

HINT:

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

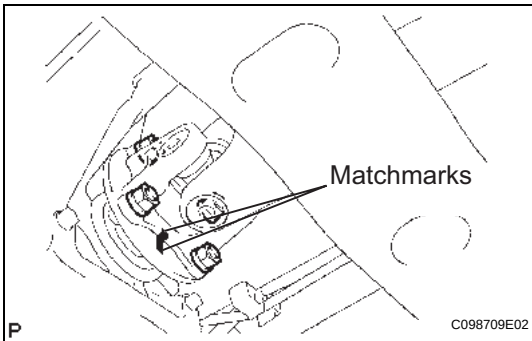


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2. INSTALL PROPELLER SHAFT ASSEMBLY

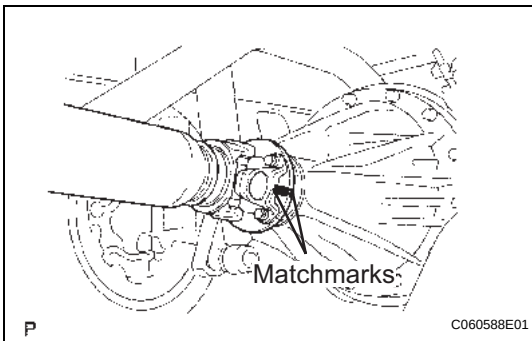
- Align the matchmarks on the yoke and transfer flange.
- Install the propeller shaft with the 4 nuts and 4 washers.

Torque: 88 N*m (899 kgf*cm, 65 ft.*lbf)



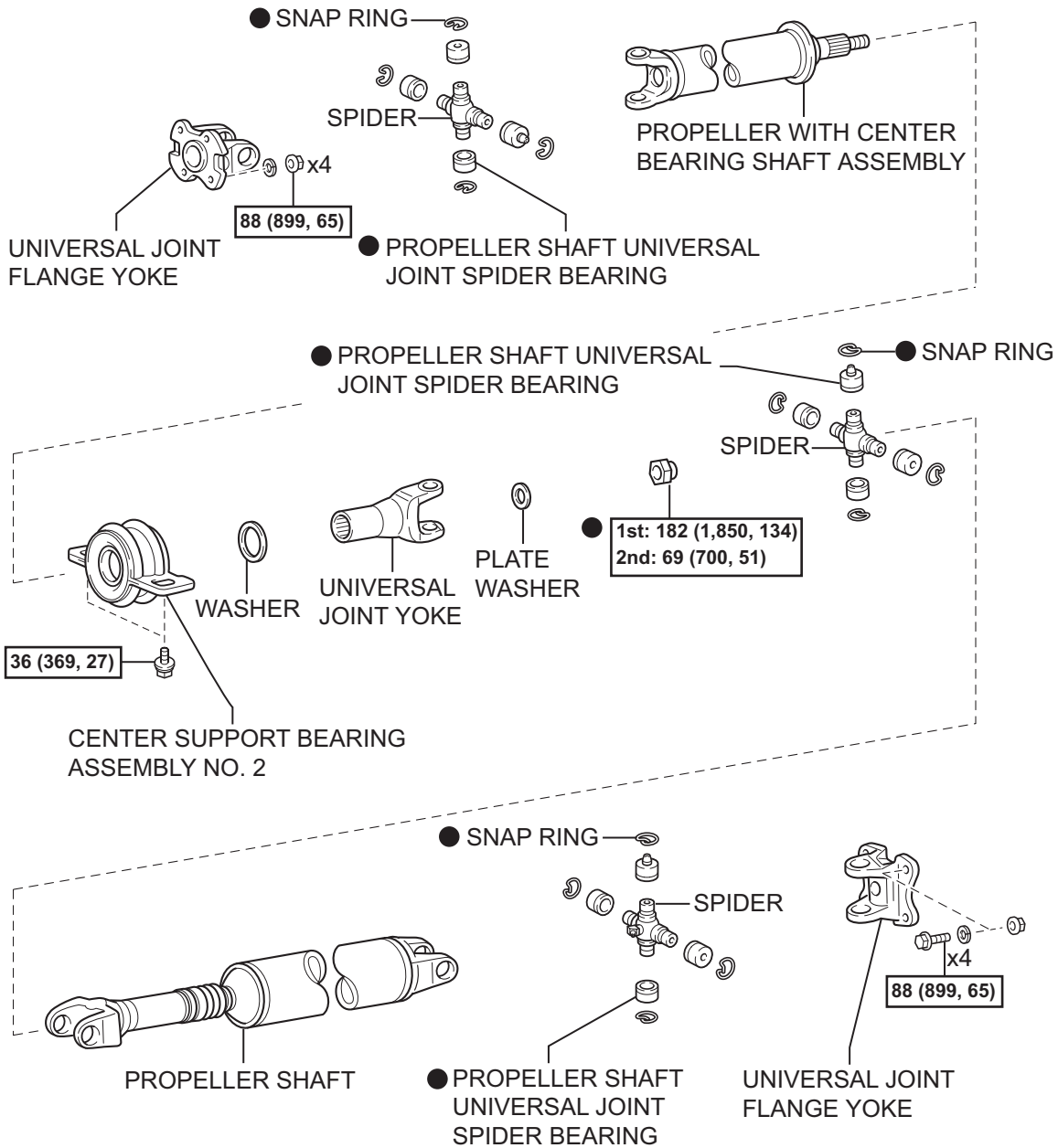
- Align the matchmarks on the yoke and differential flange.
- Install the propeller shaft with the 4 bolts, 4 nuts and 4 washers.

Torque: 88 N*m (899 kgf*cm, 65 ft.*lbf)



REAR PROPELLER SHAFT ASSEMBLY (for Access Cab 4WD and Double Cab 4WD)

COMPONENTS



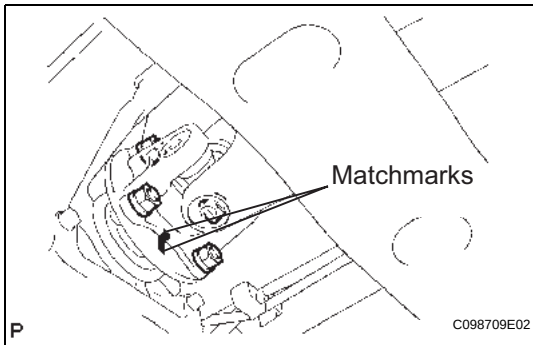
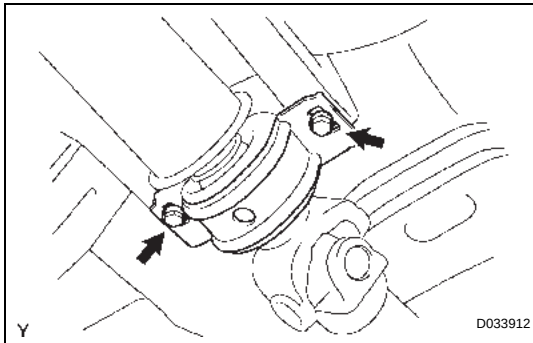
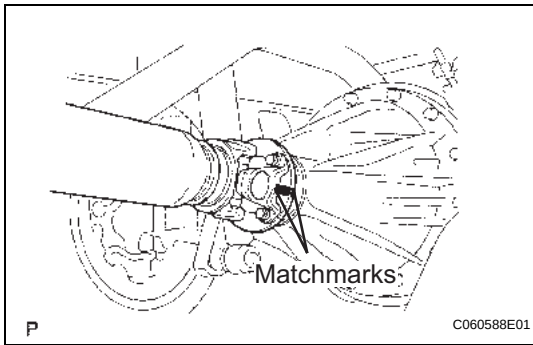
N*m (kgf*cm, ft*lb) : Specified torque

● Non-reusable part

REMOVAL

1. REMOVE PROPELLER WITH CENTER BEARING SHAFT ASSEMBLY

- (a) Place matchmarks on the propeller shaft flange and differential.
- (b) Remove the 4 nuts, 4 bolts, 4 washers and front propeller shaft.



- (c) Remove the 2 center support bearing bolts from the frame crossmember.

- (d) Place matchmarks on the propeller shaft flange and transfer flange.
- (e) Remove the 4 nuts, 4 washers and front propeller shaft.

DISASSEMBLY

1. INSPECT PROPELLER SHAFT UNIVERSAL JOINT SPIDER BEARING

- Check the spider bearings for wear and damage.
- Check each spider bearing's axial play by turning the yoke while holding the shaft tightly.

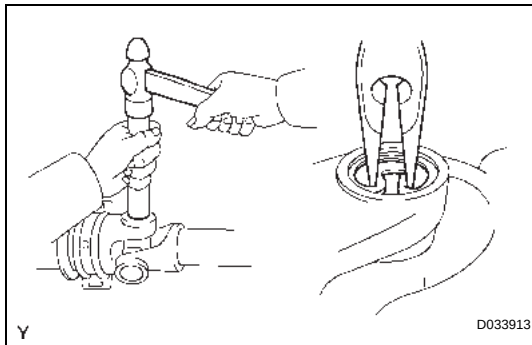
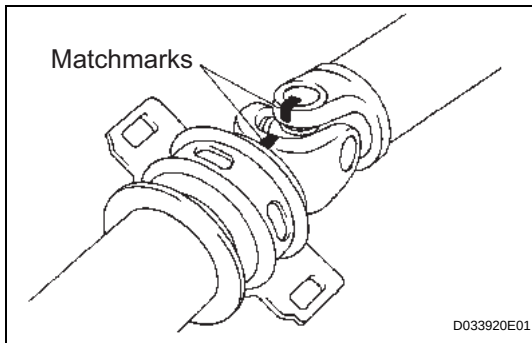
Maximum bearing axial play:

0 to 0.05 mm (0 to 0.002 in.)

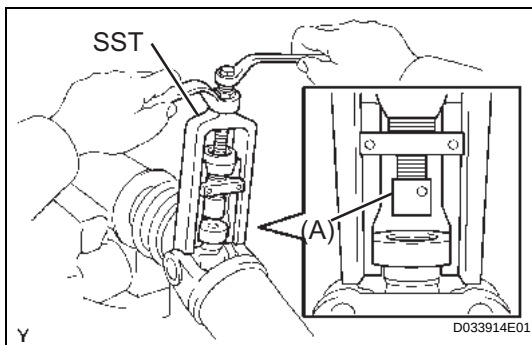
If the bearing axial play is greater than the maximum, replace the spider bearing.

2. REMOVE PROPELLER SHAFT UNIVERSAL JOINT SPIDER BEARING

- Place matchmarks on the propeller shaft and universal joint yoke.



- Using a brass bar and hammer, slightly tap in the spider bearing.
- Using needle-nose pliers, remove the 4 snap rings from the grooves.

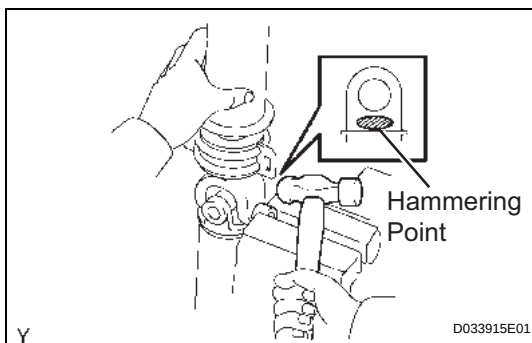


- Clamp the propeller shaft in a vise between aluminum plates.
- Using SST, push the spider bearing out of the propeller shaft.

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HINT:

Sufficiently raise the part indicated by (A) so that it does not come into contact with the spider bearing.



- Clamp the removed spider bearing outer race in a vise and tap the propeller shaft to remove the spider bearing.

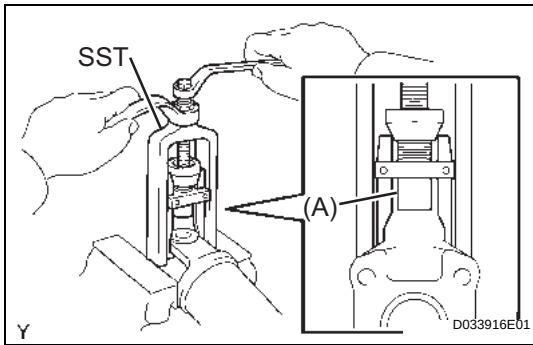
NOTICE:

Do not tap the shaft tube.

HINT:

Remove the spider bearing from the opposite side of the spider using the same procedure.

- Separate the propeller with center bearing shaft.

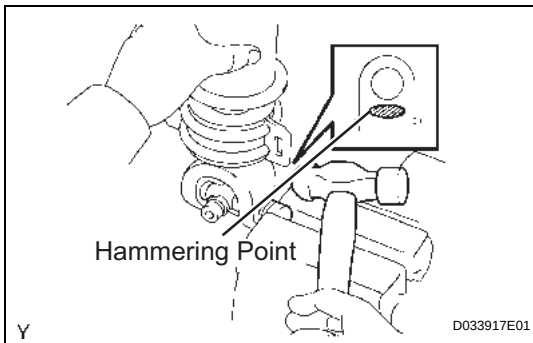


- (h) Reinstall the 2 removed spider bearings onto the spider and clamp the spider bearings in a vise.
- (i) Using SST, push the bearing out of the yoke.

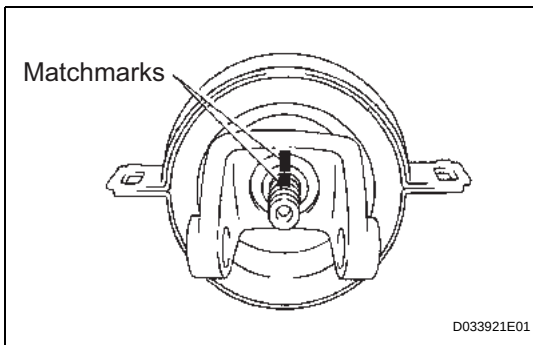
SST 09332-25010

HINT:

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

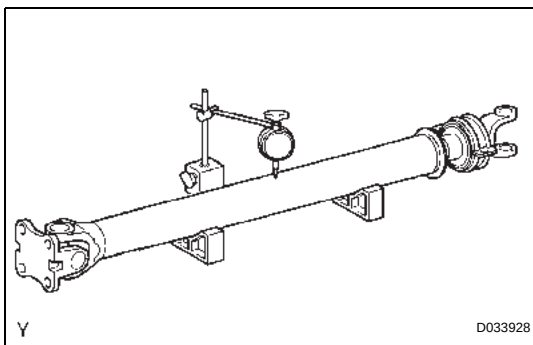


- (j) Clamp the outer bearing race in a vise and tap off the yoke with a hammer.
- (k) Remove the spider.



3. REMOVE CENTER SUPPORT BEARING ASSEMBLY NO. 2

- (a) Fix the yoke at the center bearing section in a vise.
- (b) Using a chisel and a hammer, loosen the staked part of the lock nut.
- (c) Place matchmarks on the yoke and shaft.
- (d) Using a brass bar and hammer, remove the center yoke, spacer and center support bearing from the intermediate shaft.



INSPECTION

1. INSPECT PROPELLER WITH CENTER BEARING SHAFT ASSEMBLY

- (a) Using a dial indicator, check the propeller shaft runout.

Maximum runout:

0.6 mm (0.024 in.)

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

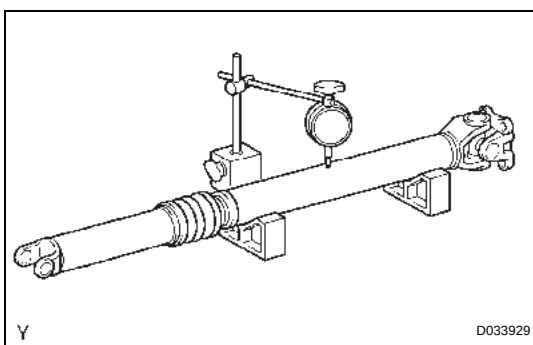
2. INSPECT PROPELLER SHAFT

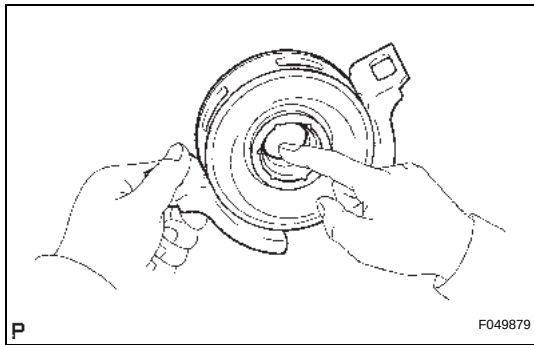
- (a) Using a dial indicator, check the propeller shaft runout.

Maximum runout:

0.6 mm (0.024 in.)

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

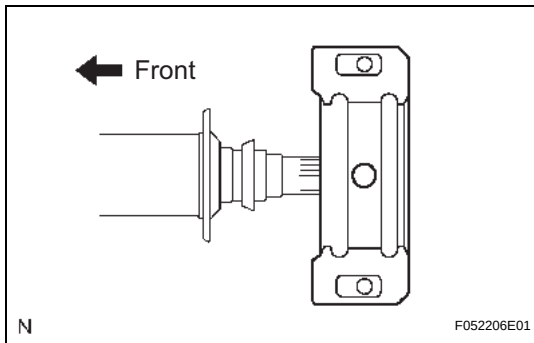




REASSEMBLY

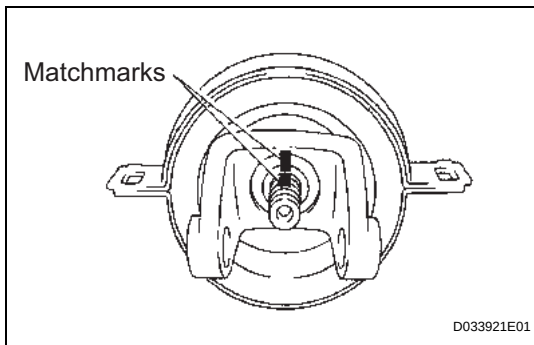
1. INSPECT CENTER SUPPORT BEARING ASSEMBLY NO. 2

- (a) When turning the center bearing with your hand, check that it turns smoothly without catching and that there are no cracks or damage. If there are any defects, replace it.



2. INSTALL CENTER SUPPORT BEARING ASSEMBLY NO. 2

- (a) Install the center support bearing onto the intermediate shaft.



- (b) Coat the splines of the intermediate shaft with MP grease.

- (c) Align the matchmarks on the center yoke and intermediate shaft.

HINT:

If replacing either the center yoke or intermediate shaft, reassemble them so that the front side yoke of the intermediate shaft and the center yoke are facing in the same direction.

- (d) Install the spacer.
- (e) Fix the yoke at the center bearing section in a vice.
- (f) Clamp the yoke in a vise, and press the bearing into position by tightening a new nut.

Torque: 182 N*m (1,850 kgf*cm, 134 ft.*lbf)

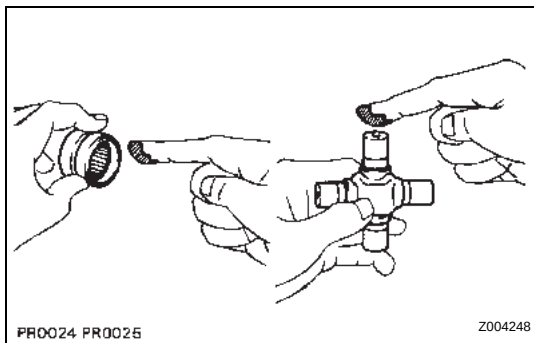
- (g) Loosen the nut.
- (h) Torque the nut again.

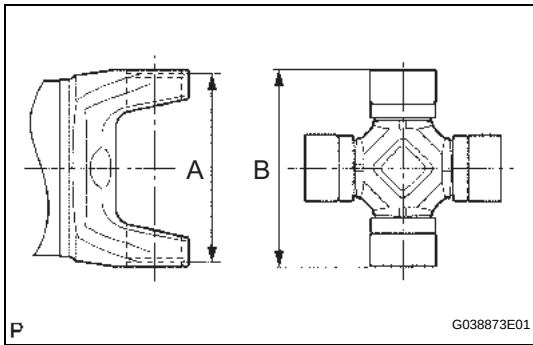
Torque: 69 N*m (700 kgf*cm, 51 ft.*lbf)

- (i) Using a chisel and hammer, stake the lock nut.

3. INSTALL PROPELLER SHAFT UNIVERSAL JOINT SPIDER BEARING

- (a) Apply MP grease No. 2 to a new spider and bearings.
- (b) Fit the spider into the flange yoke.

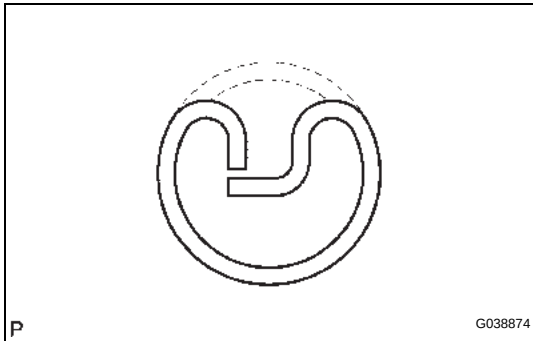




- (c) Measure dimension A between the snap ring grooves.
- (d) Insert the spider bearing into the spider journal portion, and then measure dimension B of the universal joint.

NOTICE:

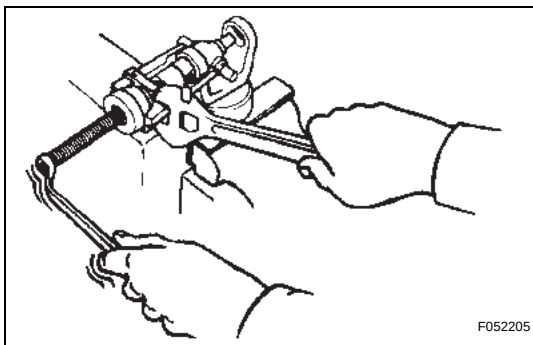
When measuring dimension B, fix the spider and needle roller bearings in a vise and hold them firmly together.



- (e) Select snap rings to make dimensions A and B the same.

Snap Ring Type

Color	Thickness mm (in.)
Green	1.384 (0.0545)
Red	1.435 (0.0565)
Black	1.486 (0.0585)
Copper	1.511 (0.0595)
Silver	1.537 (0.0605)
Yellow	1.588 (0.0625)
Blue	1.638 (0.0645)



NOTICE:

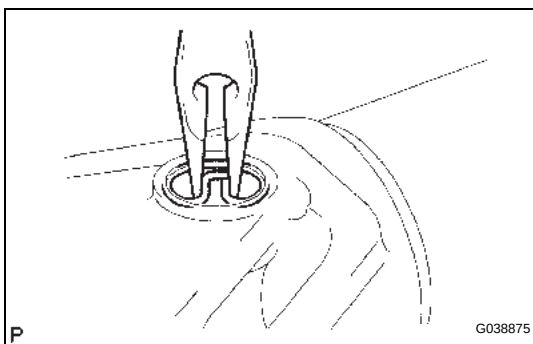
- Use new snap rings.
- If possible, use snap rings of the same thickness for both edges.

- (f) Insert the spider into the yoke, and then using SST, press the spider bearing into the snap ring groove.
- (g) Press in the spider bearing on the opposite side in the same way.

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NOTICE:

When pressing in the spider bearing, be careful not to damage its lip.



- (h) Using needle-nose pliers, install new snap rings into the grooves of the yoke.

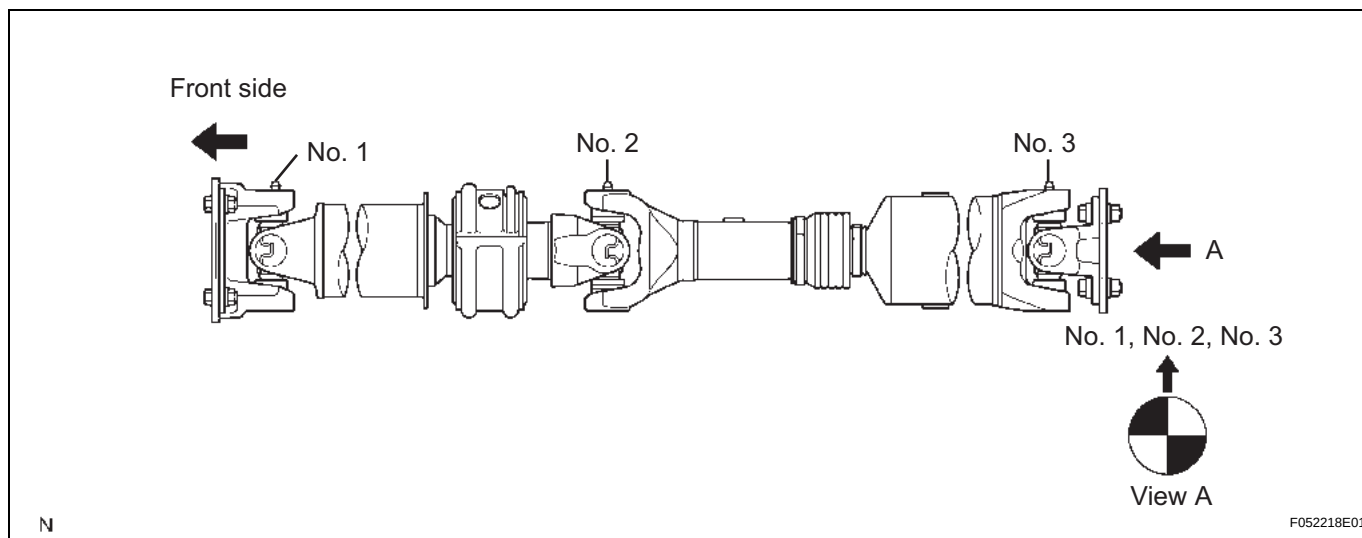
4. INSPECT PROPELLER SHAFT UNIVERSAL JOINT SPIDER BEARING

- (a) Check the spider bearings for wear and damage.
- (b) Check each spider bearing's axial play by turning the yoke while holding the shaft tightly.

Maximum bearing axial play:
0 to 0.05 mm (0 to 0.002 in.)

INSTALLATION

1. INSPECT PROPELLER WITH CENTER BEARING SHAFT ASSEMBLY



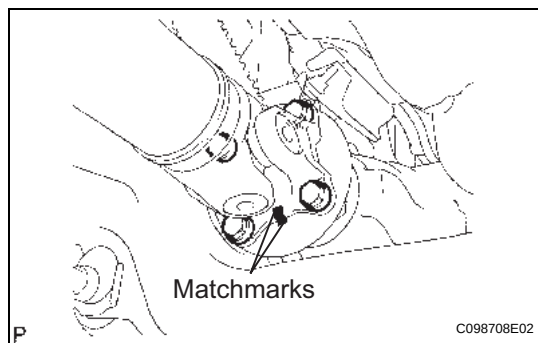
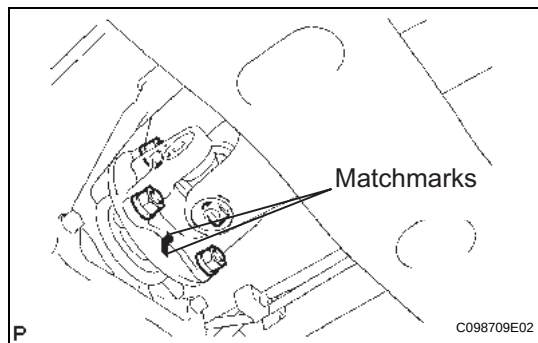
HINT:

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

2. INSTALL PROPELLER WITH CENTER BEARING SHAFT ASSEMBLY

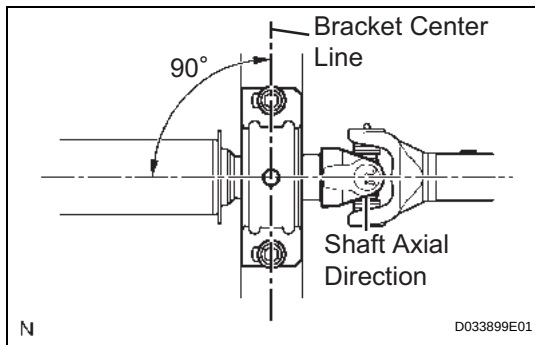
- Align the matchmarks on the yoke and transfer flange.
- Install the propeller shaft with the 4 nuts and 4 washers.

Torque: 88 N*m (899 kgf*cm, 65 ft.*lbf)



- Align the matchmarks on the yoke and differential flange.
- Install the propeller shaft with the 4 bolts, 4 nuts and 4 washers.

Torque: 88 N*m (899 kgf*cm, 65 ft.*lbf)



- (e) Provisionally install the center support bearing with 2 mounting bolts.

HINT:

Make sure the bearing is installed with the drain hole facing downwards.

- (f) Torque the 2 bolts.

Torque: 36 N*m (369 kgf*cm, 27 ft.*lbf)