| | | |
|---|---|---|
| **Last Modified:** 5-10-2010 | 6.4 T | **From:** 200908 |
| **Model Year:** 2010 | **Model:** 4Runner | **Doc ID:** RM0000029Y600RX |
| **Title:** DRIVE SHAFT / PROPELLER SHAFT: DRIVE SHAFT SYSTEM: PROBLEM SYMPTOMS TABLE (2010 4Runner) | | |

# PROBLEM SYMPTOMS TABLE

**HINT:**

**Use the table below to help determine the cause of the problem symptom. The potential causes of the symptoms are listed in order of probability in the "Suspected Area" column of the table. Check each symptom by checking the suspected areas in the order they are listed. Replace parts as necessary.**

**Drive Shaft System**

| SYMPTOM | SUSPECTED AREA | SEE PAGE |
|---|---|---|
| Front wheel shimmy | Front drive shaft (worn) | INFO |

| | | |
|---|---|---|
| **Last Modified:** 5-10-2010 | 6.4 T | **From:** 200908 |
| **Model Year:** 2010 | **Model:** 4Runner | **Doc ID:** RM00000290D00HX |
| **Title:** DRIVE SHAFT / PROPELLER SHAFT: PROPELLER SHAFT SYSTEM: PROBLEM SYMPTOMS TABLE (2010 4Runner) | | |

# PROBLEM SYMPTOMS TABLE

**HINT:**

**Use the table below to help determine the cause of the problem symptom. The potential causes of the symptoms are listed in order of probability in the "Suspected Area" column of the table. Check each symptom by checking the suspected areas in the order they are listed. Replace parts as necessary.**

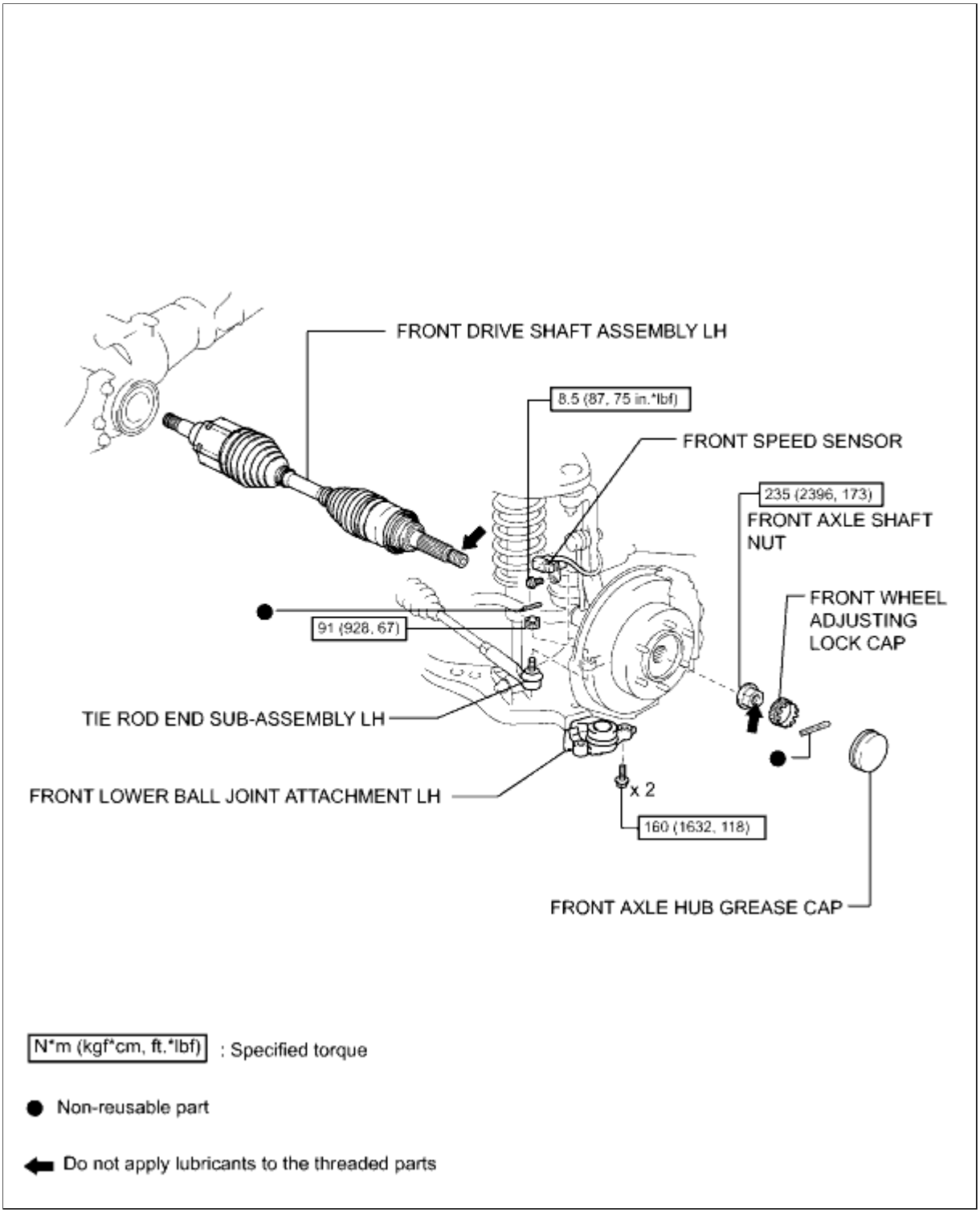
**Propeller Shaft System**

| SYMPTOM | SUSPECTED AREA | SEE PAGE |
|---|---|---|
| Noise | Spider bearing (Worn or stuck) (2WD) | INFO |
| | Spider bearing (Worn or stuck) (4WD) | INFO |
| Vibration | Propeller shaft (Runout) (2WD) | INFO |
| | Propeller shaft (Runout) (4WD) | INFO |
| | Propeller shaft (Imbalance) | - |

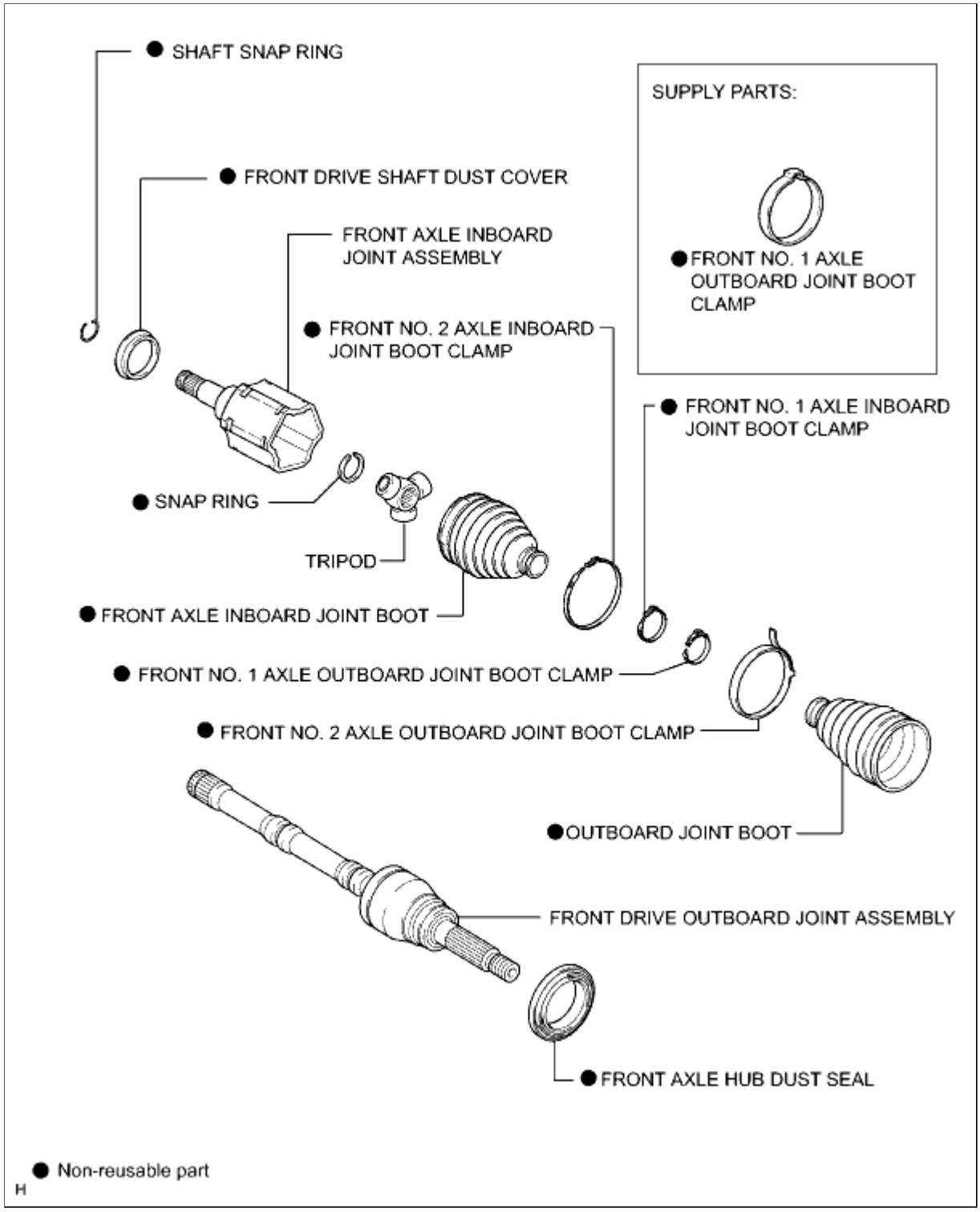
| | | |
|---|---|---|
| **Last Modified:** 5-10-2010 | 6.4 K | **From:** 200908 |
| **Model Year:** 2010 | **Model:** 4Runner | **Doc ID:** RM0000016WU012X |
| **Title:** DRIVE SHAFT / PROPELLER SHAFT: FRONT DRIVE SHAFT ASSEMBLY: COMPONENTS (2010 4Runner) | | |

## COMPONENTS

## ILLUSTRATION




## ILLUSTRATION

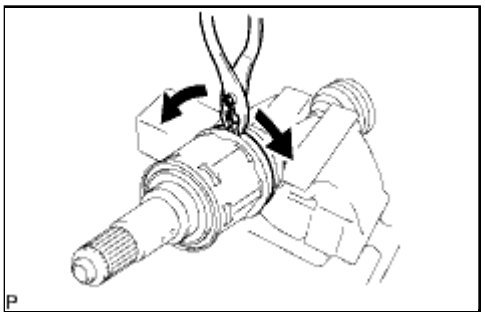


| | | |
|---|---|---|
| **Last Modified:** 5-10-2010 | 6.4 A | **From:** 200908 |
| **Model Year:** 2010 | **Model:** 4Runner | **Doc ID:** RM0000016WW013X |
| **Title:** DRIVE SHAFT / PROPELLER SHAFT: FRONT DRIVE SHAFT ASSEMBLY: DISASSEMBLY (2010 4Runner) | | |

# DISASSEMBLY

### 1. REMOVE FRONT NO. 2 AXLE INBOARD JOINT BOOT CLAMP

(a) Hold the drive shaft lightly in a vise between aluminum plates.




(b) Using pliers, remove the front No. 2 axle inboard joint boot clamp as shown in the illustration.

### 2. REMOVE FRONT NO. 1 AXLE INBOARD JOINT BOOT CLAMP

(a) Remove the front axle inboard joint boot clamp.

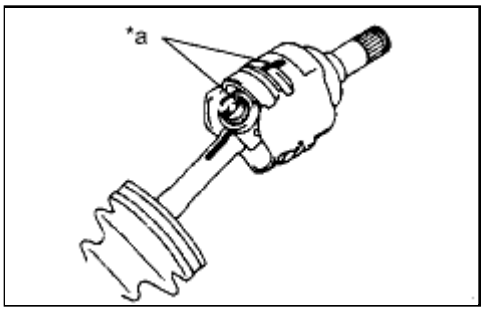
**HINT:**

**Perform the same procedures as for the front No. 2 axle inboard joint boot clamp.**

### 3. REMOVE FRONT AXLE INBOARD JOINT BOOT

### 4. REMOVE FRONT AXLE INBOARD JOINT SET

(a) Place matchmarks on the tripod and the inboard and outboard joint shafts.




## Text in Illustration

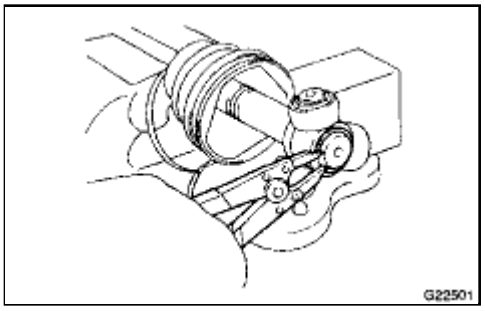
| | |
|---|---|
| *a | Matchmark |

**NOTICE:**

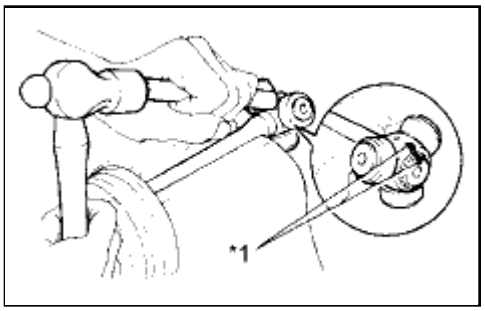
**Do not punch the marks.**

(b) Remove the inboard joint from the outboard joint shaft.

(c) Using a snap ring expander, remove the snap ring.




(d) Place matchmarks on the outboard joint shaft and tripod.




## Text in Illustration

| | |
|---|---|
| *a | Matchmark |

**NOTICE:**

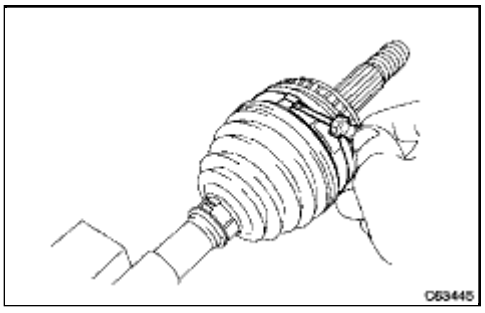
**Do not punch the marks.**

(e) Using a brass bar and hammer, remove the tripod from the drive shaft.

**NOTICE:**

**Do not tap the roller.**

### 5. REMOVE FRONT NO. 2 AXLE OUTBOARD JOINT BOOT CLAMP



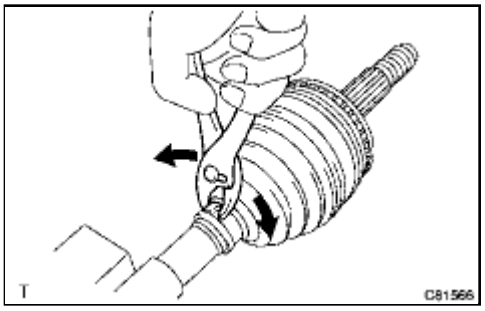

(a) Using a screwdriver, remove the outboard joint boot clamps.

**HINT:**

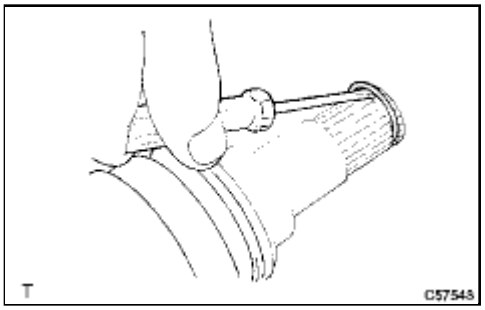
**If the outboard joint boot clamps that have been replaced are installed to the drive shaft, use a side cutter to remove them.**

### 6. REMOVE FRONT NO. 1 AXLE OUTBOARD JOINT BOOT CLAMP

(a) Using pliers, remove the boot clamp, as shown in the illustration.

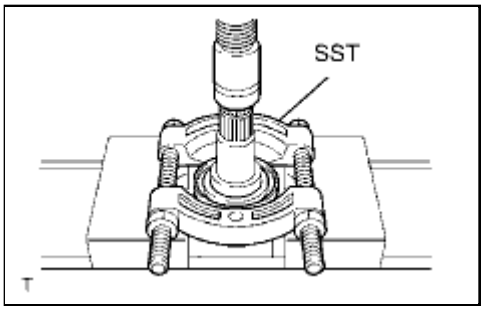



**7. REMOVE OUTBOARD JOINT BOOT**




**8. REMOVE SHAFT SNAP RING**

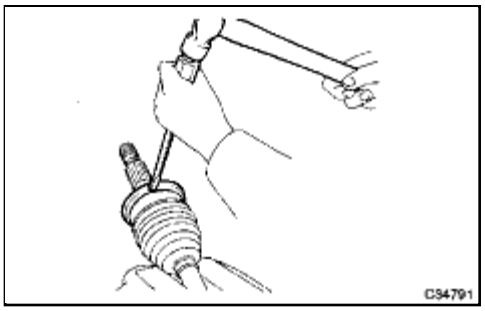
(a) Using a screwdriver, remove the snap ring.




**9. REMOVE FRONT DRIVE SHAFT DUST COVER**

(a) Using SST and a press, remove the dust cover.

**SST: 09950-00020**

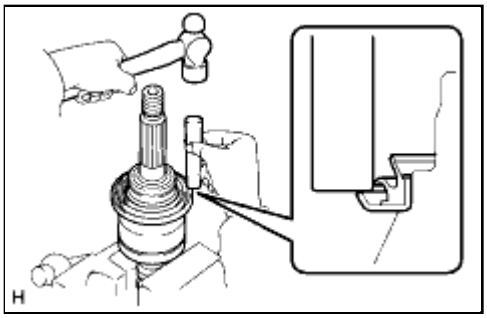



**10. REMOVE FRONT AXLE HUB DUST SEAL**

(a) Using a screwdriver and hammer, remove the dust seal.

| | | |
|---|---|---|
| **Last Modified:** 5-10-2010 | 6.4 A | **From:** 200908 |
| **Model Year:** 2010 | **Model:** 4Runner | **Doc ID:** RM0000016WX013X |
| **Title:** DRIVE SHAFT / PROPELLER SHAFT: FRONT DRIVE SHAFT ASSEMBLY: REASSEMBLY (2010 4Runner) | | |

# REASSEMBLY

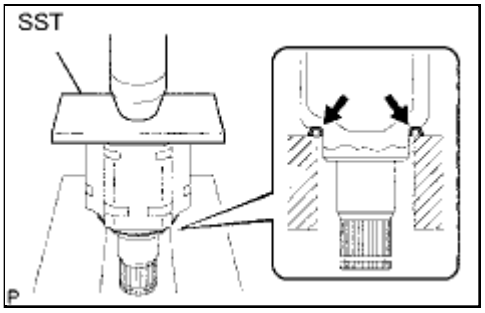



### 1. INSTALL FRONT AXLE HUB DUST SEAL LH

(a) Using a brass bar and hammer, install a new dust seal.

**NOTICE:**

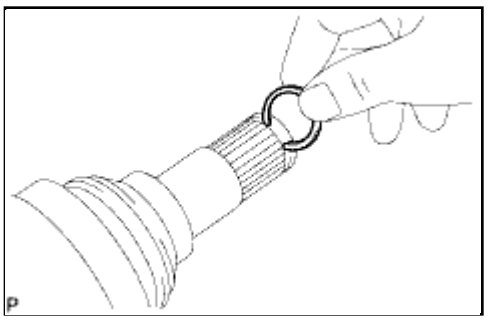
**Do not damage the dust seal.**




### 2. INSTALL FRONT DRIVE SHAFT DUST COVER

(a) Using SST and a press, install a new dust cover.

**SST: 09527-10011**




### 3. INSTALL SHAFT SNAP RING

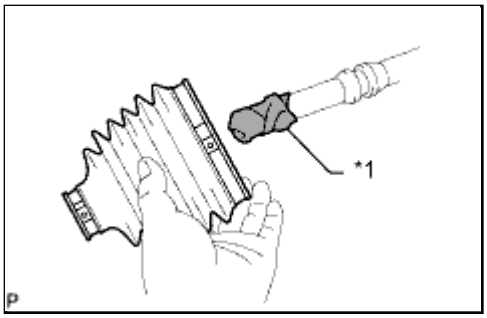
(a) Install a new snap ring.

### 4. INSTALL OUTBOARD JOINT BOOT

**HINT:**

**Before installing the boot, wrap vinyl tape around the spline of the shaft to prevent damage to the boot.**

## Text in Illustration



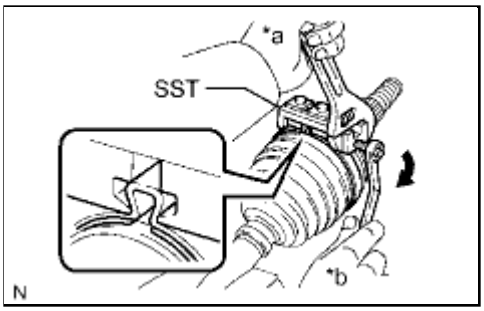

| | |
|---|---|
| *1 | Vinyl Tape |

(a) Temporarily install a new outboard joint boot with 2 new clamps to the outboard joint shaft.

(b) Pack the outboard joint and boot with grease from the boot kit.

Standard grease capacity:
266 to 276 g (9.4 to 9.7 oz.)

### 5. INSTALL FRONT NO. 2 AXLE OUTBOARD JOINT BOOT CLAMP




(a) Place SST to the front No. 2 axle outboard joint boot clamp.

**SST: 09521-24010**

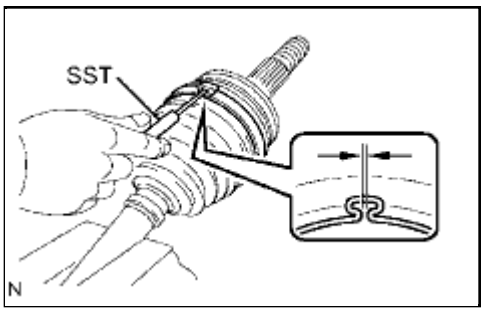
**Text in Illustration**

| | |
|---|---|
| *a | Hold |
| *b | Turn |

(b) Tighten SST so that the No. 2 front axle outboard joint boot clamp is pinched.

**NOTICE:**

**Do not overtighten SST.**




(c) Using SST, measure the clearance of the No. 2 front axle out board joint boot clamp.

**SST: 09240-00020**

Standard Clearance:
2.1 mm (0.0827 in.) or less

**CAUTION:**

**If the measured value is more than the specified value, retighten the clamp.**

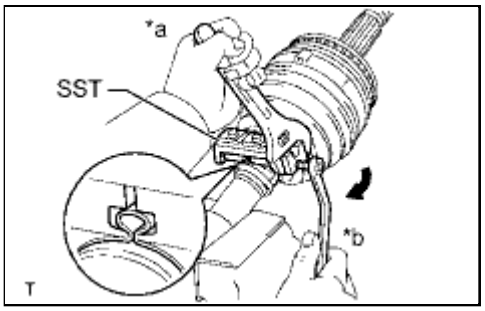
### 6. INSTALL FRONT NO. 1 AXLE OUTBOARD JOINT BOOT CLAMP

(a) Hold the drive shaft lightly in a vise between aluminum plates.

**NOTICE:**

**Do not overtighten the vise.**

(b) Secure the outboard joint boot clamp onto the boot.




(c) Place SST onto the outboard joint boot clamp.

**SST: 09521-24010**

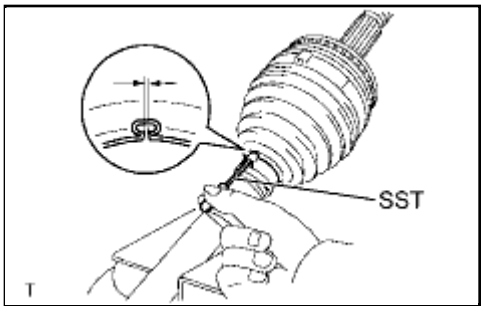
## Text in Illustration

| | |
|---|---|
| *a | Hold |
| *b | Turn |

(d) Tighten SST so that the front axle outboard joint boot clamp is pinched.

**NOTICE:**

**Do not overtighten SST.**




(e) Using SST, measure the clearance of the front axle outboard joint boot clamp.

**SST: 09240-00020**

Clearance:

1.3 mm (0.0512 in.) or less

**NOTICE:**

**If the measured value is more than the specified value, retighten the clamp.**

### 7. INSTALL INBOARD JOINT BOOT

(a) Temporarily install a new inboard joint boot to the outboard joint shaft.

### 8. INSTALL FRONT AXLE INBOARD JOINT SHAFT

(a) Install new parts to the outboard joint shaft in the following order.

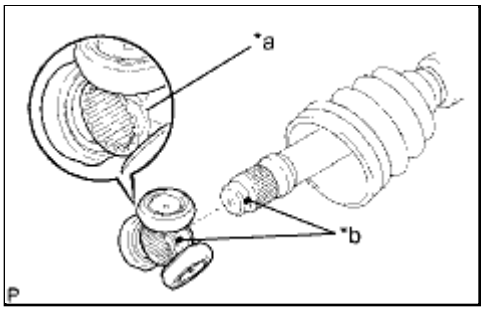
| | |
|---|---|
| 1. | Front axle inboard joint boot clamp |
| 2. | Front axle inboard joint boot |
| 3. | Front No. 2 axle inboard joint boot clamp |

(b) Fix the outboard joint shaft in a vise between aluminum plates.

**NOTICE:**

**Do not overtighten the vise.**

(c) Align the matchmarks and install the tripod joint onto the outboard joint shaft.




**NOTICE:**

**Place the beveled side of the tripod toward the inboard joint.**

## Text in Illustration

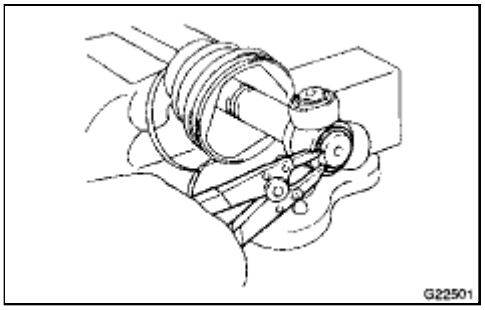
| | |
|---|---|
| *a | Beveled |
| *b | Matchmark |

(d) Align the matchmarks and install the tripod to the inboard joint.

(e) Using a brass bar and hammer, tap the tripod onto the drive shaft.

**NOTICE:**

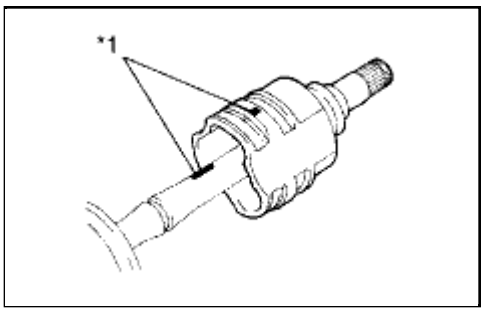
- Do not hit the roller portion.
- Keep the tripod joint free of foreign matter.




(f) Using a snap ring expander, install a new snap ring.

(g) Pack the inboard joint assembly and boot with grease from the boot kit.

Standard Grease capacity:
239 to 249 g (8.4 to 8.7 oz.)




(h) Align the matchmarks and install the inboard joint onto the outboard joint shaft.

## Text in Illustration

| | |
|---|---|
| *1 | Matchmark |

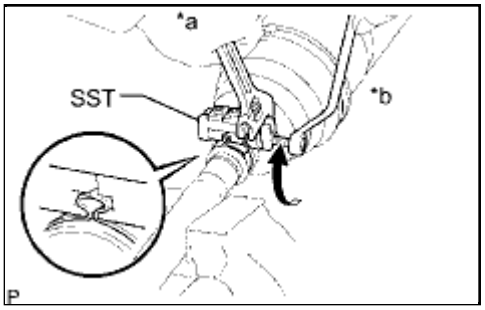
### 9. INSTALL FRONT NO. 1 AXLE INBOARD JOINT BOOT CLAMP

(a) Hold the drive shaft lightly in a vise between aluminum plates.

**NOTICE:**

**Do not overtighten the vise.**

(b) Secure the inboard joint boot clamp onto the boot.




(c) Place SST onto the inboard joint boot clamp.

**SST: 09521-24010**

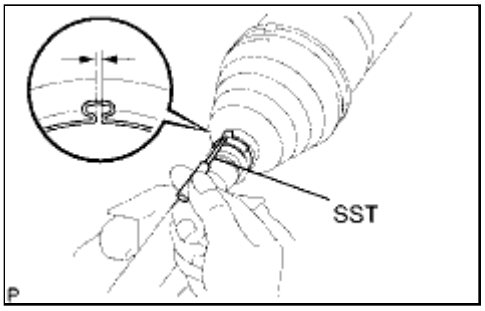
## Text in Illustration

| | |
|---|---|
| *a | Hold |
| *b | Turn |

(d) Tighten SST so that the front axle inboard joint boot clamp is pinched.

**NOTICE:**

**Do not overtighten SST.**




(e) Using SST, measure the clearance of the front axle inboard joint boot clamp.

**SST: 09240-00020**

Clearance:

1.3 mm (0.0512 in.) or less

**NOTICE:**

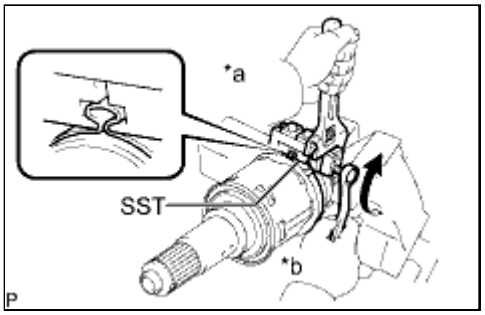
**If the measured value is greater than the specified value, retighten the clamp.**

### 10. INSTALL FRONT NO. 2 AXLE INBOARD JOINT BOOT CLAMP

(a) Hold the inboard joint shaft assembly in a vise between aluminium plates.

**NOTICE:**

**Do not overtighten the vise.**




(b) Place SST onto the No. 2 front axle inboard joint boot clamp.

**SST: 09521-24010**

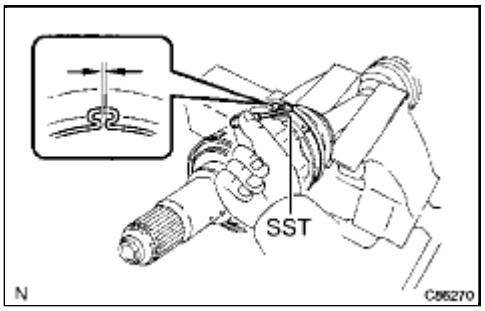
## Text in Illustration

| | |
|---|---|
| *a | Hold |
| *b | Turn |

(c) Tighten SST so that the No. 2 front axle inboard joint boot clamp is pinched.

**NOTICE:**

**Do not overtighten SST.**




(d) Using SST, measure the clearance of the No. 2 front axle inboard joint boot clamp.

**SST: 09240-00020**

Clearance:

2.1 mm (0.0827 in.) or less

**NOTICE:**

**If the measured value is greater than the specified value, retighten the clamp.**

| | | |
|---|---|---|
| **Last Modified:** 5-10-2010 | 6.4 A | **From:** 200908 |
| **Model Year:** 2010 | **Model:** 4Runner | **Doc ID:** RM0000016WV013X |
| **Title:** DRIVE SHAFT / PROPELLER SHAFT: FRONT DRIVE SHAFT ASSEMBLY: REMOVAL (2010 4Runner) | | |

# REMOVAL

**HINT:**

- Use the same procedure for the RH and LH sides.
- The procedure listed below is for the LH side.

**1. REMOVE FRONT WHEEL**

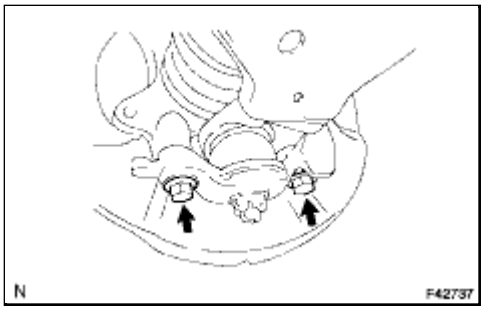
**2. DRAIN DIFFERENTIAL OIL** INFO

**3. REMOVE FRONT AXLE HUB GREASE CAP** INFO

**4. REMOVE FRONT AXLE SHAFT NUT** INFO

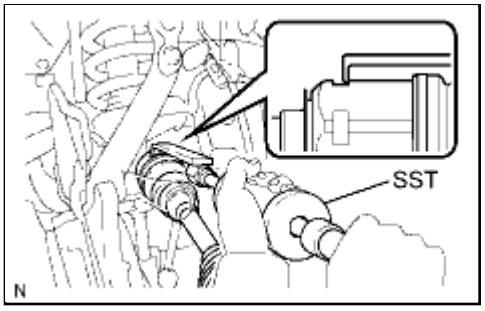
**5. REMOVE FRONT SPEED SENSOR** INFO

**6. DISCONNECT TIE ROD END SUB-ASSEMBLY LH** INFO




**7. DISCONNECT FRONT LOWER BALL JOINT ATTACHMENT LH**

(a) Remove the 2 bolts and disconnect the lower ball joint attachment from the steering knuckle.




**8. REMOVE FRONT DRIVE SHAFT ASSEMBLY LH**

(a) Using SST, remove the front drive shaft.

**SST: 09520-01010**

**SST: 09520-24010**

*09520-32040*

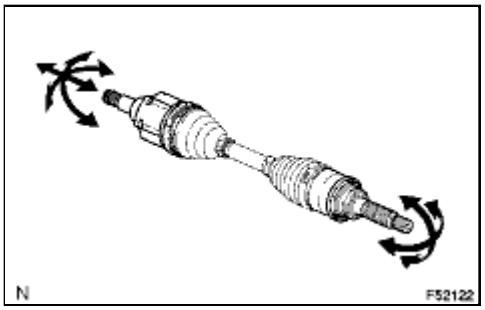
**NOTICE:**

- Be careful not to damage the dust cover or oil seal.
- Keep the drive shaft level while handling it.

| | | |
|---|---|---|
| **Last Modified:** 5-10-2010 | 6.4 G | **From:** 200908 |
| **Model Year:** 2010 | **Model:** 4Runner | **Doc ID:** RM0000029YF00OX |
| **Title:** DRIVE SHAFT / PROPELLER SHAFT: FRONT DRIVE SHAFT ASSEMBLY: INSPECTION (2010 4Runner) | | |

# INSPECTION

### 1. INSPECT FRONT DRIVE SHAFT ASSEMBLY




**NOTICE:**

**Keep the drive shaft level while handling it.**

(a) Check if there is excessive play in the outboard joint.

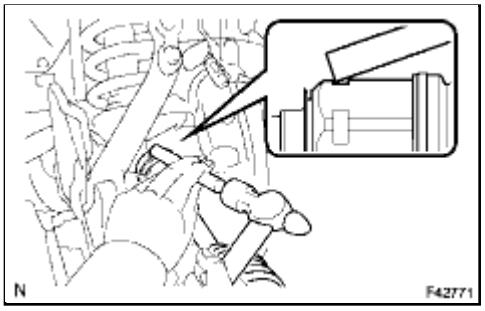
(b) Check if the inboard joint shaft slides smoothly in the thrust direction.

(c) Check if there is excessive play in the radial direction of the inboard joint shaft.

(d) Check the boots for damage.

| | | |
|---|---|---|
| **Last Modified:** 5-10-2010 | 6.4 A | **From:** 200908 |
| **Model Year:** 2010 | **Model:** 4Runner | **Doc ID:** RM0000016WT013X |
| **Title:** DRIVE SHAFT / PROPELLER SHAFT: FRONT DRIVE SHAFT ASSEMBLY: INSTALLATION (2010 4Runner) | | |

# INSTALLATION




### 1. INSTALL FRONT DRIVE SHAFT ASSEMBLY

(a) Coat the spline of the inboard joint shaft assembly with ATF.

(b) Align the shaft splines and install the drive shaft with a brass bar and hammer.

**NOTICE:**

- Set the snap ring with the opening facing downward.
- Be careful not to damage the oil seal, boot or dust cover.

**HINT:**

**Whether the inboard joint shaft is in contact with the pinion shaft or not can be confirmed from the sound or feeling when tapping in the shaft.**

### 2. INSTALL FRONT SPEED SENSOR INFO

### 3. INSTALL LOWER BALL JOINT ATTACHMENT LH

(a) Install the lower ball joint attachment with the 2 bolts.

**Torque: 160 N·m (1631 kgf·cm, 118ft·lbf)**

### 4. CONNECT TIE ROD END SUB-ASSEMBLY LH INFO

### 5. INSTALL FRONT AXLE SHAFT NUT INFO

### 6. INSTALL FRONT GREASE HUB CAP INFO

### 7. ADD DIFFERENTIAL OIL INFO

### 8. INSPECT DIFFERENTIAL OIL INFO

### 9. INSTALL FRONT WHEEL

**Torque: 112 N·m (1142 kgf·cm, 83ft·lbf)**

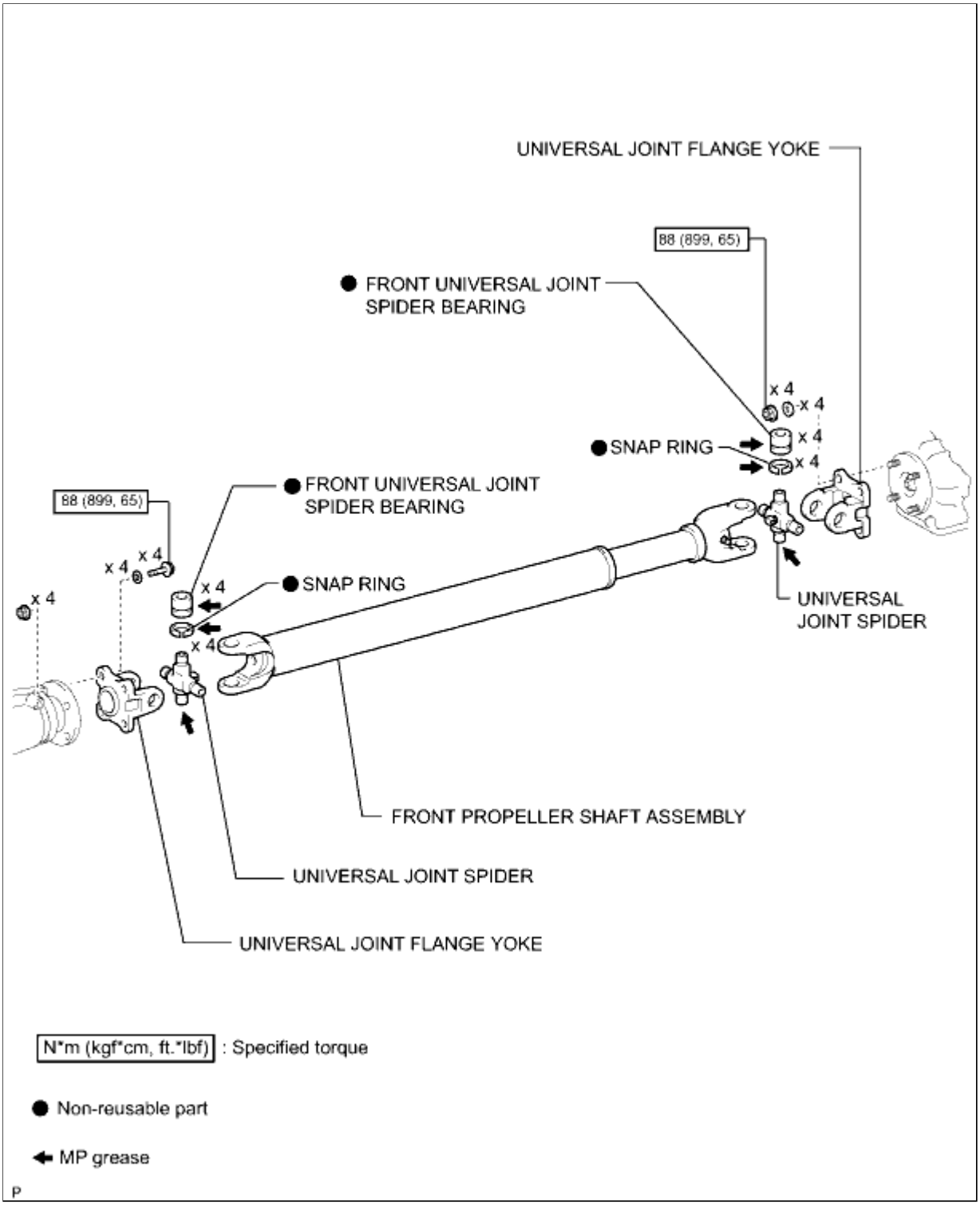
### 10. CHECK FRONT SPEED SENSOR SIGNAL

(a) Check the front speed sensor signal INFO .

| | | |
|---|---|---|
| **Last Modified:** 5-10-2010 | 6.4 K | **From:** 200908 |
| **Model Year:** 2010 | **Model:** 4Runner | **Doc ID:** RM00000291Q008X |
| **Title:** DRIVE SHAFT / PROPELLER SHAFT: FRONT PROPELLER SHAFT ASSEMBLY: COMPONENTS (2010 4Runner) | | |

## COMPONENTS

## ILLUSTRATION



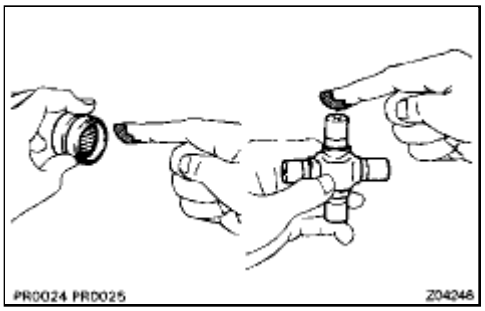
| | | |
|---|---|---|
| **Last Modified:** 5-10-2010 | 6.4 A | **From:** 200908 |
| **Model Year:** 2010 | **Model:** 4Runner | **Doc ID:** RM00000291T00BX |
| **Title:** DRIVE SHAFT / PROPELLER SHAFT: FRONT PROPELLER SHAFT ASSEMBLY: REASSEMBLY (2010 4Runner) | | |

# REASSEMBLY

### 1. INSTALL FRONT PROPELLER SHAFT UNIVERSAL JOINT SPIDER BEARING

**HINT:**

**Use the same procedure for all propeller shaft universal joint spider bearing.**

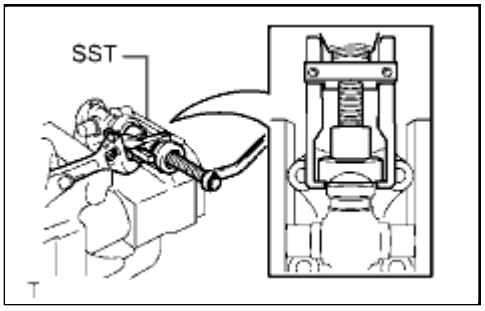



(a) Apply MP grease to a new spider and spider bearing.

**NOTICE:**

**Be careful not to apply too much grease.**

(b) Install the universal joint spider to the propeller shaft.



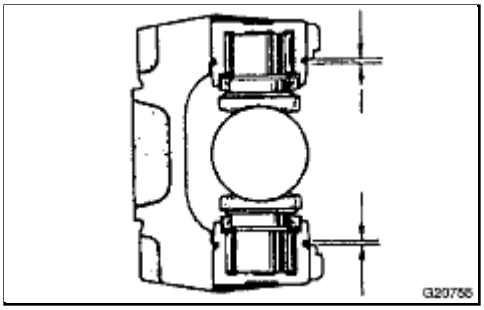

(c) Using SST, install 2 of the spider bearings to the universal joint spider.

**SST: 09332-25010**

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

**SST: 09332-25010**

(e) Install 4 new snap rings of equal thickness which will allow no axial play.




**HINT:**

**Do not reuse the snap rings.**

Thickness of snap ring:

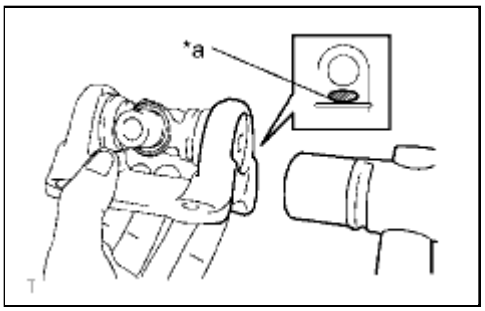
| PARTS NO. | SPECIFIED CONDITION | MARK |
|---|---|---|
| 90520-25039 | 2.28 to 2.30 mm (0.0898 to 0.0906 in.) | 1 |
| 90520-25040 | 2.30 to 2.32 mm (0.0906 to 0.0913 in.) | 2 |
| 90520-25041 | 2.32 to 2.34 mm (0.0913 to 0.0921 in.) | - |
| 90520-25042 | 2.34 to 2.36 mm (0.0921 to 0.0929 in.) | Brown |
| 90520-25043 | 2.36 to 2.38 mm (0.0929 to 0.0937 in.) | Blue |
| 90520-25044 | 2.38 to 2.40 mm (0.0937 to 0.0945 in.) | 6 |
| 90520-25045 | 2.40 to 2.42 mm (0.0945 to 0.0953 in.) | 7 |
| 90520-25046 | 2.42 to 2.44 mm (0.0953 to 0.0961 in.) | 8 |
| 90520-25047 | 2.44 to 2.46 mm (0.0961 to 0.0969 in.) | 九 |
| 90520-25048 | 2.46 to 2.48 mm (0.0969 to 0.0976 in.) | 10 |
| 90520-25049 | 2.48 to 2.50 mm (0.0976 to 0.0984 in.) | A |
| 90520-25050 | 2.50 to 2.52 mm (0.0984 to 0.0992 in.) | B |
| 90520-25051 | 2.52 to 2.54 mm (0.0992 to 0.1000 in.) | C |

| PARTS NO. | SPECIFIED CONDITION | MARK |
|---|---|---|
| 90520-25052 | 2.54 to 2.56 mm (0.1000 to 0.1008 in.) | D |
| 90520-25053 | 2.56 to 2.58 mm (0.1008 to 0.1016 in.) | E |
| 90520-25054 | 2.18 to 2.20 mm (0.858 to 0.0866 in.) | J |
| 90520-25055 | 2.20 to 2.22 mm (0.0866 to 0.0874 in.) | K |
| 90520-25056 | 2.22 to 2.24 mm (0.0874 to 0.0882 in.) | F |
| 90520-25057 | 2.24 to 2.26 mm (0.0882 to 0.0889 in.) | G |
| 90520-25058 | 2.26 to 2.28 mm (0.0889 to 0.0898 in.) | H |

**NOTICE:**

- Must use a new retainer ring.
- Must use retainer rings of the same thickness as possible on both ends.

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




## Text in Illustration

| | |
|---|---|
| *a | Hammering Point |

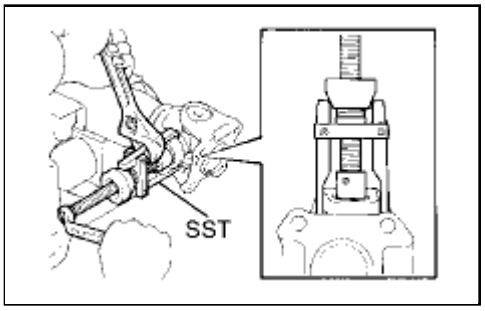
**HINT:**

**Install a new spider bearing on the sleeve side in the procedure described above.**

(g) Align the matchmarks on the flange yoke and the sleeve yoke.

(h) Using SST, install the spider bearings on the universal joint spider.

**SST: 09332-25010**




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

**SST: 09332-25010**

(j) Install 4 new snap rings of equal thickness which will allow 0 mm (0 in.) of axial play.

**HINT:**

**Do not reuse the snap rings.**

Thickness of snap ring:

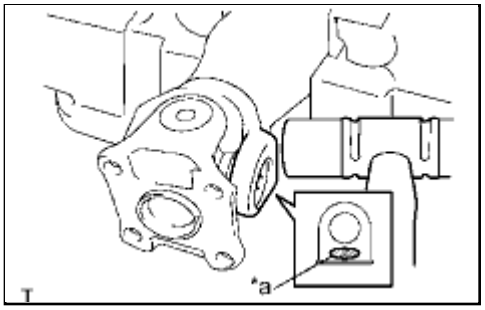
| PARTS NO. | SPECIFIED CONDITION | MARK |
|---|---|---|
| 90520-25039 | 2.28 to 2.30 mm (0.0898 to 0.0906 in.) | 1 |
| 90520-25040 | 2.30 to 2.32 mm (0.0906 to 0.0913 in.) | 2 |
| 90520-25041 | 2.32 to 2.34 mm (0.0913 to 0.0921 in.) | - |
| 90520-25042 | 2.34 to 2.36 mm (0.0921 to 0.0929 in.) | Brown |
| 90520-25043 | 2.36 to 2.38 mm (0.0929 to 0.0937 in.) | Blue |
| 90520-25044 | 2.38 to 2.40 mm (0.0937 to 0.0945 in.) | 6 |
| 90520-25045 | 2.40 to 2.42 mm (0.0945 to 0.0953 in.) | 7 |
| 90520-25046 | 2.42 to 2.44 mm (0.0953 to 0.0961 in.) | 8 |
| 90520-25047 | 2.44 to 2.46 mm (0.0961 to 0.0969 in.) | 九 |
| 90520-25048 | 2.46 to 2.48 mm (0.0969 to 0.0976 in.) | 10 |
| 90520-25049 | 2.48 to 2.50 mm (0.0976 to 0.0984 in.) | A |

| PARTS NO. | SPECIFIED CONDITION | MARK |
|---|---|---|
| 90520-25050 | 2.50 to 2.52 mm (0.0984 to 0.0992 in.) | B |
| 90520-25051 | 2.52 to 2.54 mm (0.0992 to 0.1000 in.) | C |
| 90520-25052 | 2.54 to 2.56 mm (0.1000 to 0.1008 in.) | D |
| 90520-25053 | 2.56 to 2.58 mm (0.1008 to 0.1016 in.) | E |
| 90520-25054 | 2.18 to 2.20 mm (0.0858 to 0.0866 in.) | J |
| 90520-25055 | 2.20 to 2.22 mm (0.0866 to 0.0874 in.) | K |
| 90520-25056 | 2.22 to 2.24 mm (0.0874 to 0.0882 in.) | F |
| 90520-25057 | 2.24 to 2.26 mm (0.0882 to 0.0890 in.) | G |
| 90520-25058 | 2.26 to 2.28 mm (0.0890 to 0.0898 in.) | H |

**NOTICE:**

- Must use a new retainer ring.
- Must use retainer rings of the same thickness as possible on both ends.

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




## Text in Illustration

| | |
|---|---|
| *a | Hammering Point |

**HINT:**

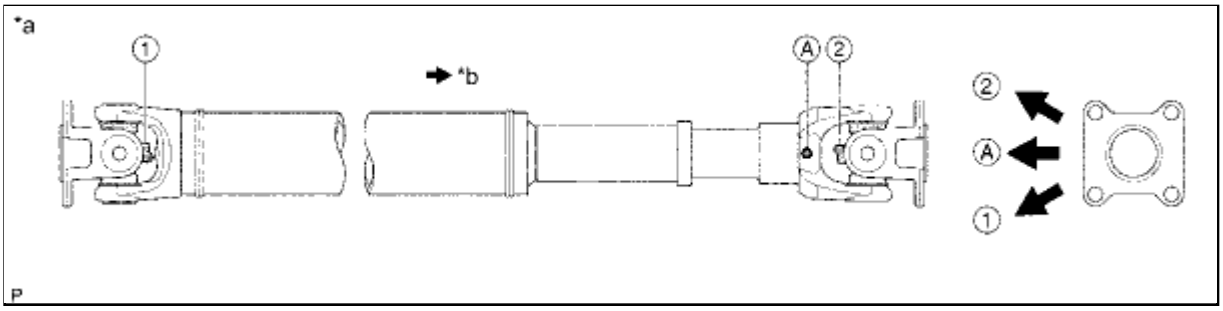
**Install a new spider bearing on the sleeve side in the procedure described above.**

### 2. INSPECT PROPELLER SHAFT ASSEMBLY

**HINT:**

**When replacing the spider bearing, be sure that the grease fitting assembly hole is facing to the direction**

**shown in the illustration.**




**Text in Illustration**

| | | | |
|---|---|---|---|
| *a | Spider grease fitting assembly direction for front propeller shaft assembly | *b | Rear Side |

### 3. INSPECT FRONT PROPELLER SHAFT UNIVERSAL JOINT SPIDER BEARING

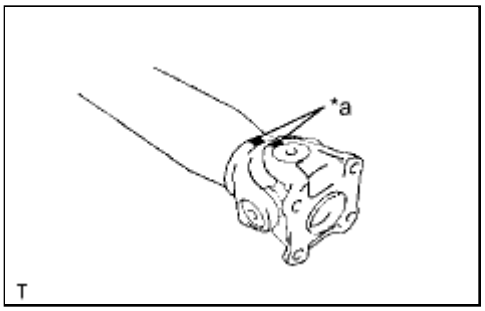
| | | |
|---|---|---|
| **Last Modified:** 5-10-2010 | 6.4 A | **From:** 200908 |
| **Model Year:** 2010 | **Model:** 4Runner | **Doc ID:** RM00000291S00BX |
| **Title:** DRIVE SHAFT / PROPELLER SHAFT: FRONT PROPELLER SHAFT ASSEMBLY: DISASSEMBLY (2010 4Runner) | | |

# DISASSEMBLY

### 1. REMOVE FRONT UNIVERSAL JOINT SPIDER BEARING

**HINT:**

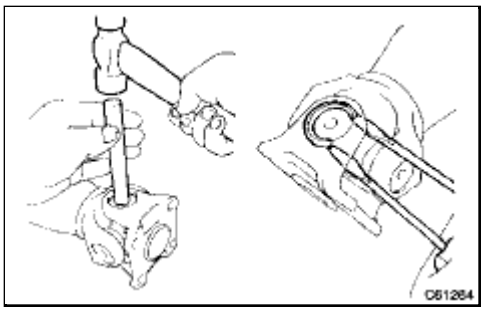
**Use the same procedure for all front propeller shaft universal joint spider bearing.**




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

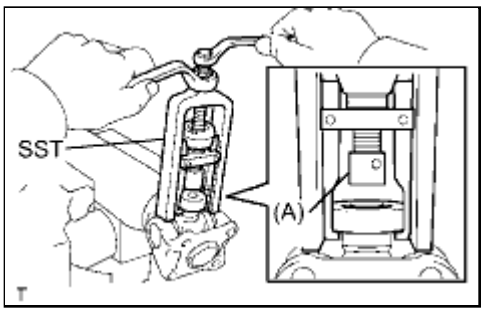
## Text in Illustration

| | |
|---|---|
| *a | Matchmark |




(b) Using a brass bar and hammer, slightly tap in the spider bearing outer races.

(c) Using 2 screwdrivers, remove the 4 snap rings from the grooves.



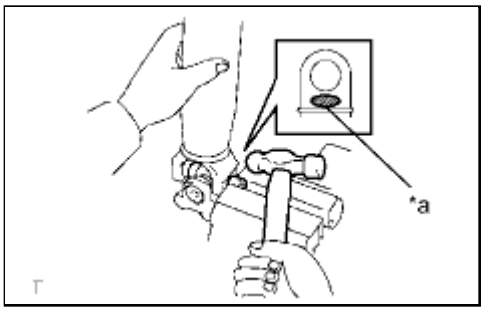

(d) Using SST, remove the spider bearing from the propeller shaft.

**SST: 09332-25010**

**HINT:**

**Before installing SST, sufficiently raise the part labeled A. If the part labeled A is too low, it may be difficult to install SST.**

(e) Clamp the spider bearing outer race in a vise between aluminum plates and tap off the propeller shaft with a hammer.




## Text in Illustration

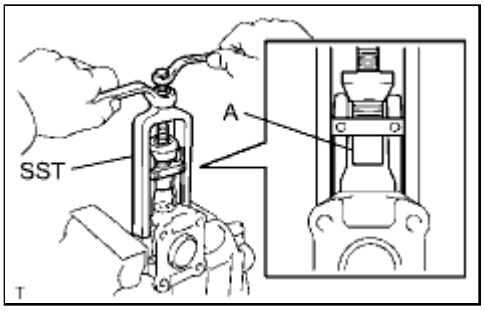
| | |
|---|---|
| *a | Hammering Point |

**HINT:**

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

**NOTICE:**

**Do not tap the shaft.**



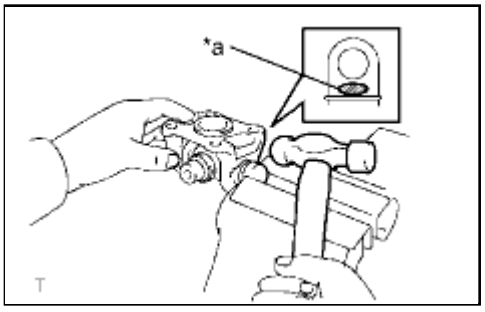

(f) Install the 2 removed spider bearing outer races to the universal joint spider.

(g) Using SST, remove the bearing from the yoke.

**SST: 09332-25010**

**HINT:**

**Before installing SST, sufficiently raise the part labeled A. If the part labeled A is too low, it may be difficult to install SST.**




(h) Clamp the outer bearing race in a vise between aluminum plates and tap off the flange yoke with a hammer.

## Text in Illustration

| | |
|---|---|
| *a | Hammering Point |

(i) Remove the universal joint spider.

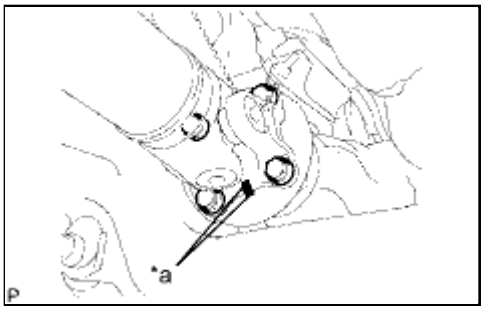
| | | |
|---|---|---|
| **Last Modified:** 5-10-2010 | 6.4 A | **From:** 200908 |
| **Model Year:** 2010 | **Model:** 4Runner | **Doc ID:** RM00000291R008X |
| **Title:** DRIVE SHAFT / PROPELLER SHAFT: FRONT PROPELLER SHAFT ASSEMBLY: REMOVAL (2010 4Runner) | | |

# REMOVAL

### 1. REMOVE FRONT EXHAUST PIPE

(a) Remove the front exhaust pipe INFO .

### 2. REMOVE FRONT PROPELLER SHAFT ASSEMBLY

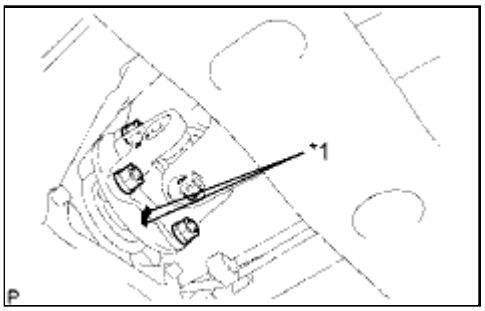



(a) Place matchmarks on the propeller shaft flange and differential.

## Text in Illustration

| | |
|---|---|
| *a | Matchmark |

(b) Remove the 4 nuts and 4 bolts.




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

## Text in Illustration

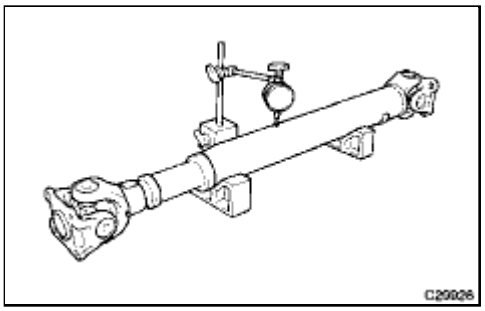
| | |
|---|---|
| *a | Matchmark |

(d) Remove the 4 nuts, 4 washers and front propeller shaft assembly.

| | | |
|---|---|---|
| **Last Modified:** 5-10-2010 | 6.4 G | **From:** 200908 |
| **Model Year:** 2010 | **Model:** 4Runner | **Doc ID:** RM00000291P008X |
| **Title:** DRIVE SHAFT / PROPELLER SHAFT: FRONT PROPELLER SHAFT ASSEMBLY: INSPECTION (2010 4Runner) | | |

# INSPECTION

### 1. INSPECT FRONT PROPELLER SHAFT ASSEMBLY




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

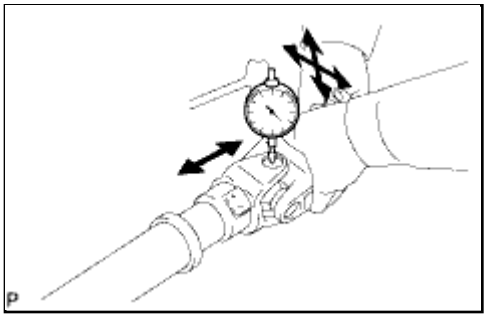
Maximum runout:
0.3 mm (0.0118 in.)

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

### 2. INSPECT FRONT PROPELLER SHAFT UNIVERSAL JOINT SPIDER BEARING

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

If necessary, replace the spider bearing.



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

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

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

| | | |
|---|---|---|
| **Last Modified:** 5-10-2010 | 6.4 A | **From:** 200908 |
| **Model Year:** 2010 | **Model:** 4Runner | **Doc ID:** RM00000291O008X |
| **Title:** DRIVE SHAFT / PROPELLER SHAFT: FRONT PROPELLER SHAFT ASSEMBLY: INSTALLATION (2010 4Runner) | | |

# INSTALLATION

### 1. INSTALL FRONT PROPELLER SHAFT ASSEMBLY

(a) Align the matchmarks on the yoke and differential flange.

(b) Install the propeller shaft assembly with the 4 washers, 4 bolts and 4 nuts.

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

(c) Align the matchmarks on the yoke and transfer flange.

(d) Install the propeller shaft assembly with the 4 washers and 4 nuts.

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

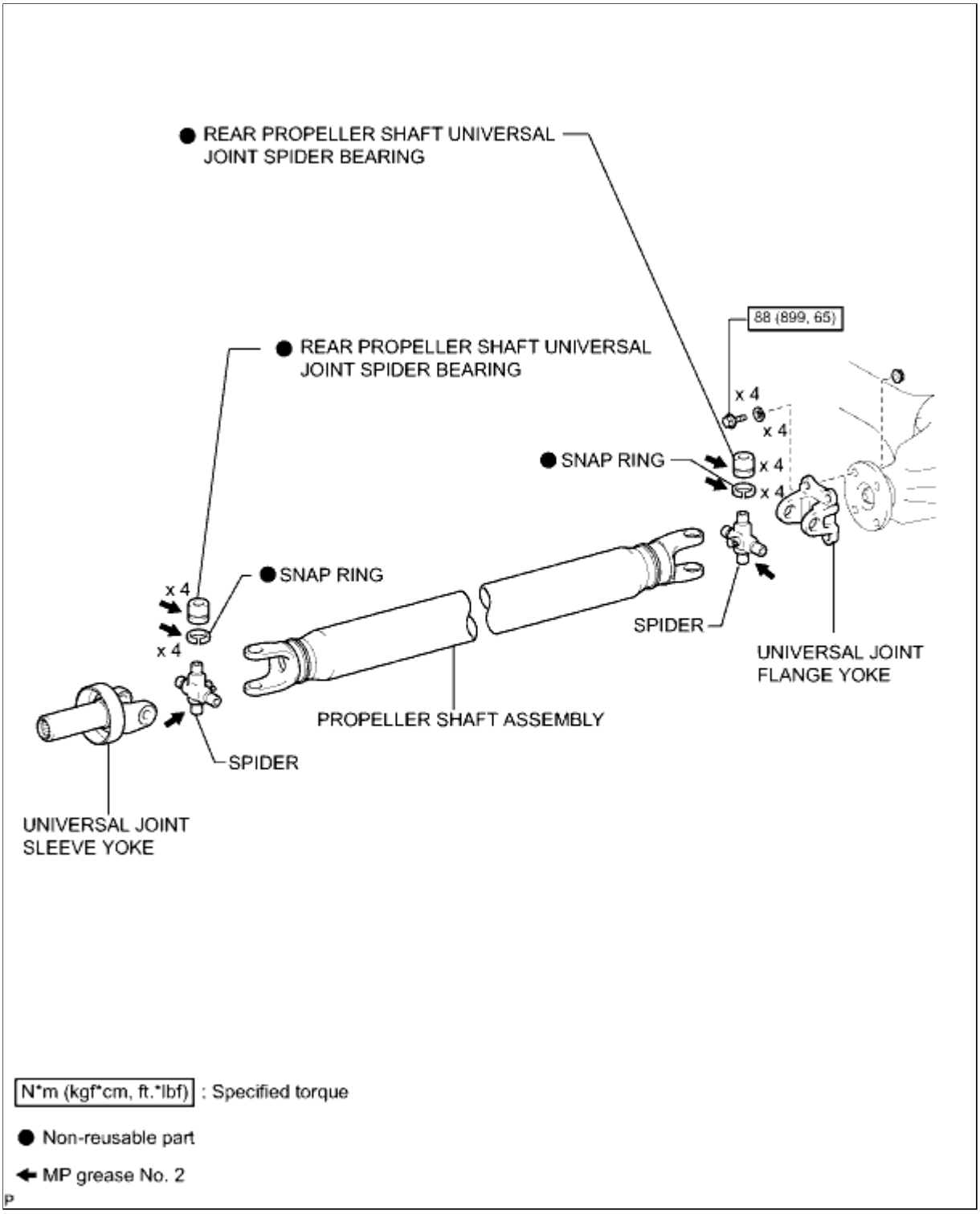
### 2. INSTALL FRONT EXHAUST PIPE

(a) Install the front exhaust pipe INFO .

| | | |
|---|---|---|
| **Last Modified:** 5-10-2010 | 6.4 K | **From:** 200908 |
| **Model Year:** 2010 | **Model:** 4Runner | **Doc ID:** RM00000290H00DX |
| **Title:** DRIVE SHAFT / PROPELLER SHAFT: PROPELLER SHAFT ASSEMBLY (for 2WD): COMPONENTS (2010 4Runner) | | |

## COMPONENTS

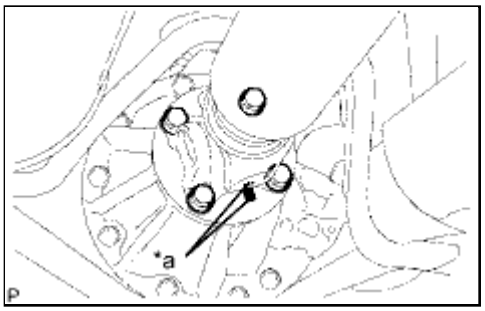
## ILLUSTRATION



| | | |
|---|---|---|
| **Last Modified:** 5-10-2010 | 6.4 A | **From:** 200908 |
| **Model Year:** 2010 | **Model:** 4Runner | **Doc ID:** RM0000029OI00DX |
| **Title:** DRIVE SHAFT / PROPELLER SHAFT: PROPELLER SHAFT ASSEMBLY (for 2WD): REMOVAL (2010 4Runner) | | |

# REMOVAL

### 1. REMOVE PROPELLER SHAFT ASSEMBLY

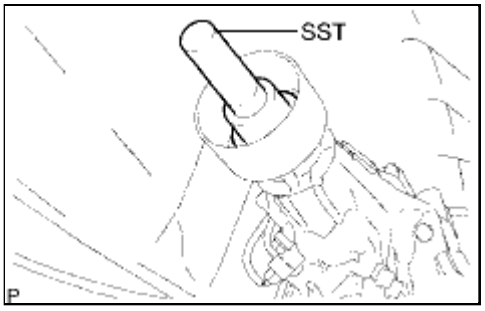



(a) Place matchmarks on the propeller shaft flange and differential flange.

## Text in Illustration

| | |
|---|---|
| *a | Matchmark |

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




(c) Remove the propeller shaft.

(d) Insert SST into the transmission to prevent oil leakage.

**SST: 09325-40010**

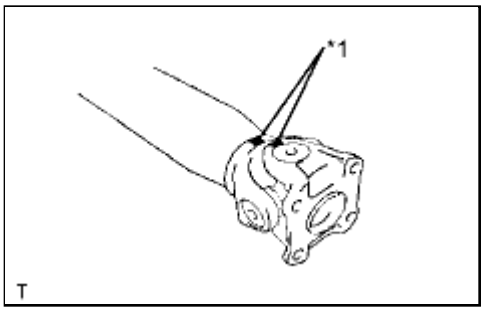
| | | |
|---|---|---|
| **Last Modified:** 5-10-2010 | 6.4 A | **From:** 200908 |
| **Model Year:** 2010 | **Model:** 4Runner | **Doc ID:** RM0000090J00HX |
| **Title:** DRIVE SHAFT / PROPELLER SHAFT: PROPELLER SHAFT ASSEMBLY (for 2WD): DISASSEMBLY (2010 4Runner) | | |

# DISASSEMBLY

### 1. REMOVE REAR PROPELLER SHAFT UNIVERSAL JOINT SPIDER BEARING

**HINT:**

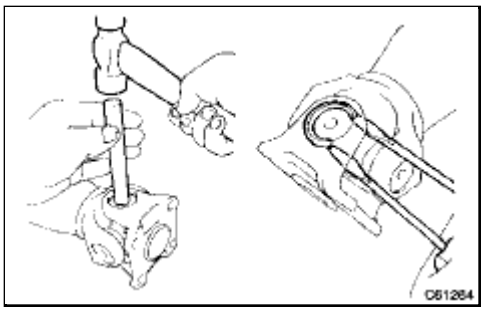
**Use the same procedure for all rear propeller shaft universal joint spider bearing.**




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

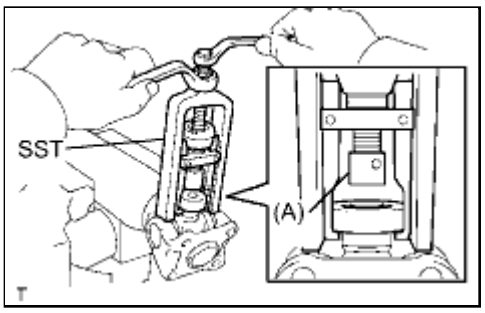
## Text in Illustration

| | |
|---|---|
| *a | Matchmark |




(b) Using a brass bar and hammer, slightly tap in the spider bearing outer races.

(c) Using 2 screwdrivers, remove the 4 snap rings from the grooves.



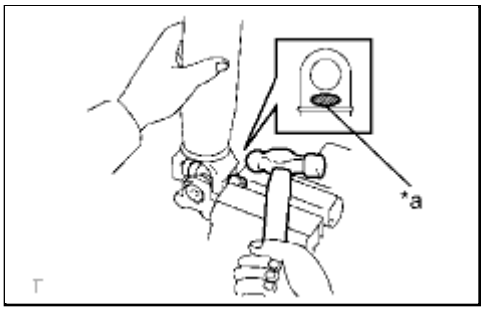

(d) Using SST, remove the spider bearing from the propeller shaft.

**SST: 09332-25010**

**HINT:**

**Before installing SST, sufficiently raise the part labeled A. If the part labeled A is too low, it may be difficult to install SST.**

(e) Clamp the spider bearing outer race in a vise between aluminum plates and tap off the propeller shaft with a hammer.




## Text in Illustration

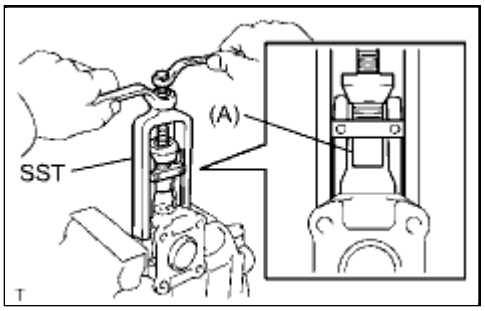
| | |
|---|---|
| *a | Hammering Point |

**HINT:**

**Remove the spider bearing on the opposite side using the same procedure.**

**NOTICE:**

**Do not tap the shaft.**



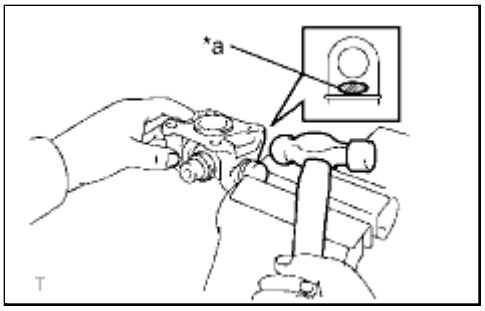

(f) Install the 2 removed spider bearing outer races to the universal joint spider.

(g) Using SST, remove the bearing from the yoke.

**SST: 09332-25010**

**HINT:**

**Before installing SST, sufficiently raise the part labeled A. If the part labeled A is too low, it may be difficult to install SST.**




(h) Clamp the outer bearing race in a vise between aluminum plates and tap off the yoke with a hammer.

## Text in Illustration

| | |
|---|---|
| *a | Hammering Point |

(i) Remove the universal joint spider.

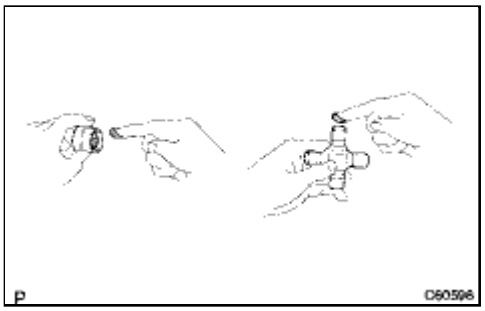
| | | |
|---|---|---|
| **Last Modified:** 5-10-2010 | 6.4 A | **From:** 200908 |
| **Model Year:** 2010 | **Model:** 4Runner | **Doc ID:** RM00000290K005X |
| **Title:** DRIVE SHAFT / PROPELLER SHAFT: PROPELLER SHAFT ASSEMBLY (for 2WD): REASSEMBLY (2010 4Runner) | | |

# REASSEMBLY

### 1. INSTALL REAR PROPELLER SHAFT UNIVERSAL JOINT SPIDER BEARING

**HINT:**

**Use the same procedure for all rear propeller shaft universal joint spider bearing.**

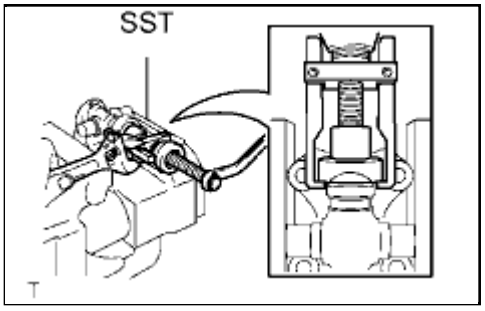



(a) Apply MP grease No. 2 to a new spider and bearings.

**NOTICE:**

**Be careful not to apply too much grease.**

(b) Install the spider to the propeller shaft.



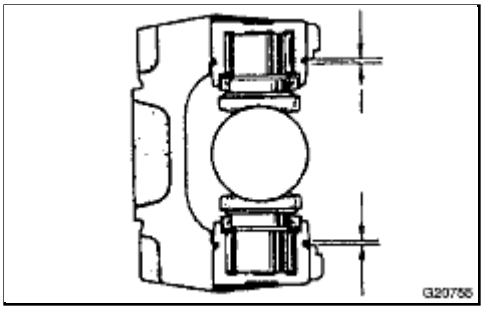

(c) Using SST, install 2 of the bearings to the spider.

**SST: 09332-25010**

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

**SST: 09332-25010**

(e) Install 4 new snap rings of equal thickness which will allow no axial play.




**HINT:**

**Do not reuse the snap rings.**

Thickness of snap ring (Both ends thin type):

| PARTS NO. | SPECIFIED CONDITION | MARK |
|---|---|---|
| 90520-25039 | 2.28 to 2.30 mm (0.0898 to 0.0906 in.) | 1 |
| 90520-25040 | 2.30 to 2.32 mm (0.0906 to 0.0913 in.) | 2 |
| 90520-25041 | 2.32 to 2.34 mm (0.0913 to 0.0921 in.) | - |
| 90520-25042 | 2.34 to 2.36 mm (0.0921 to 0.0929 in.) | Brown |
| 90520-25043 | 2.36 to 2.38 mm (0.0929 to 0.0937 in.) | Blue |
| 90520-25044 | 2.38 to 2.40 mm (0.0937 to 0.0945 in.) | 6 |
| 90520-25045 | 2.40 to 2.42 mm (0.0945 to 0.0953 in.) | 7 |
| 90520-25046 | 2.42 to 2.44 mm (0.0953 to 0.0961 in.) | 8 |
| 90520-25047 | 2.44 to 2.46 mm (0.0961 to 0.0969 in.) | 九 |
| 90520-25048 | 2.46 to 2.48 mm (0.0969 to 0.0976 in.) | 10 |
| 90520-25049 | 2.48 to 2.50 mm (0.0976 to 0.0984 in.) | A |
| 90520-25050 | 2.50 to 2.52 mm (0.0984 to 0.0992 in.) | B |
| 90520-25051 | 2.52 to 2.54 mm (0.0992 to 0.1000 in.) | C |

| PARTS NO. | SPECIFIED CONDITION | MARK |
|---|---|---|
| 90520-25052 | 2.54 to 2.56 mm (0.1000 to 0.1008 in.) | D |
| 90520-25053 | 2.56 to 2.58 mm (0.1008 to 0.1016 in.) | E |
| 90520-25054 | 2.18 to 2.20 mm (0.0858 to 0.0866 in.) | J |
| 90520-25055 | 2.20 to 2.22 mm (0.0866 to 0.0874 in.) | K |
| 90520-25056 | 2.22 to 2.24 mm (0.0874 to 0.0882 in.) | F |
| 90520-25057 | 2.24 to 2.26 mm (0.0882 to 0.0890 in.) | G |
| 90520-25058 | 2.26 to 2.28 mm (0.0890 to 0.0898 in.) | H |

**NOTICE:**

- Use a new retainer ring.
- Use retainer rings with as close to the same thickness as possible on both ends.

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

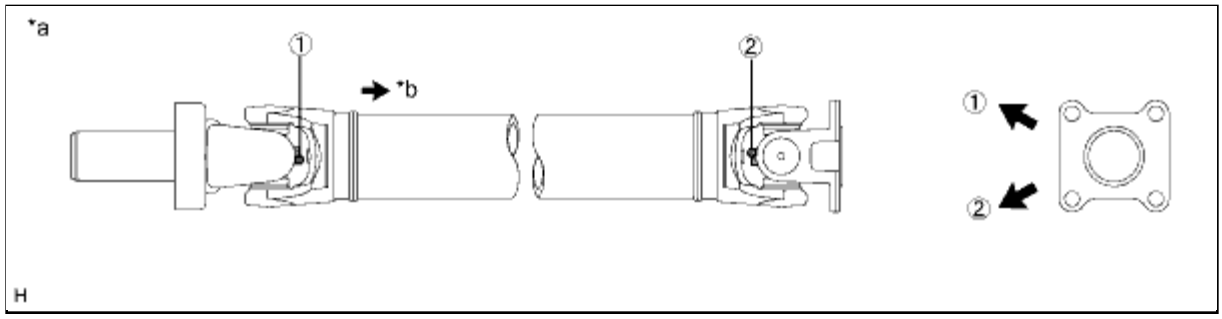
**HINT:**

**Install a new spider bearing on the sleeve side using the procedure described above.**

### 2. INSPECT PROPELLER SHAFT ASSEMBLY

**HINT:**

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




**Text in Illustration**

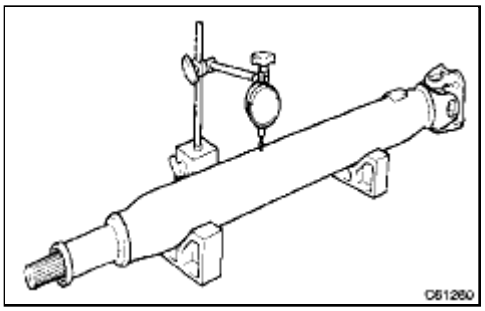
| | | | |
|---|---|---|---|
| *a | Spider grease fitting assembly direction for front propeller shaft assembly | *b | Rear Side |

### 3. INSPECT REAR PROPELLER SHAFT UNIVERSAL JOINT SPIDER BEARING INFO

| | | |
|---|---|---|
| **Last Modified:** 5-10-2010 | 6.4 G | **From:** 200908 |
| **Model Year:** 2010 | **Model:** 4Runner | **Doc ID:** RM00000290G00DX |
| **Title:** DRIVE SHAFT / PROPELLER SHAFT: PROPELLER SHAFT ASSEMBLY (for 2WD): INSPECTION (2010 4Runner) | | |

# INSPECTION

### 1. INSPECT PROPELLER SHAFT ASSEMBLY




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

Maximum runout:
0.4 mm (0.0157 in.)

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

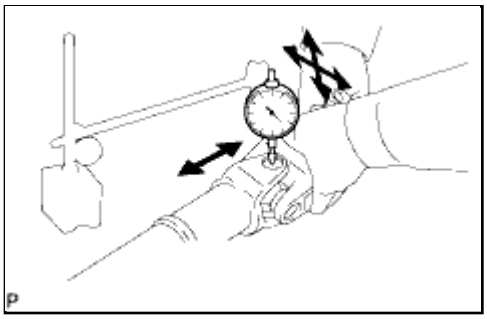
### 2. INSPECT REAR PROPELLER SHAFT UNIVERSAL JOINT SPIDER BEARING

**NOTICE:**

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

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

If necessary, replace the spider bearing.




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

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

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

| | | |
|---|---|---|
| **Last Modified:** 5-10-2010 | 6.4 A | **From:** 200908 |
| **Model Year:** 2010 | **Model:** 4Runner | **Doc ID:** RM00000290F005X |
| **Title:** DRIVE SHAFT / PROPELLER SHAFT: PROPELLER SHAFT ASSEMBLY (for 2WD): INSTALLATION (2010 4Runner) | | |

# INSTALLATION

### 1. INSTALL PROPELLER SHAFT ASSEMBLY

(a) Remove SST from the extension housing.

**SST: 09325-40010**

(b) Install the propeller shaft assembly to the extension housing.

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

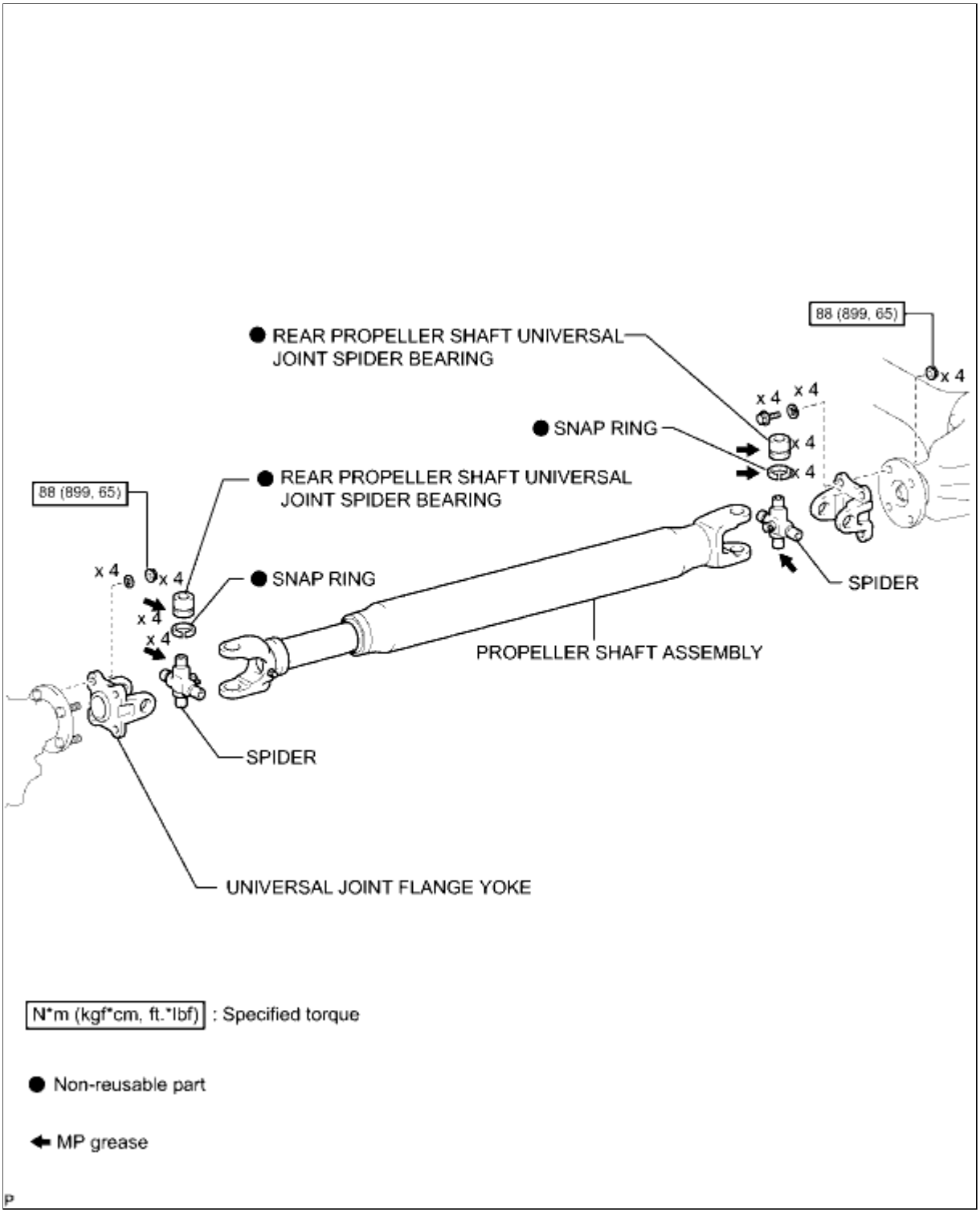
(d) Install the propeller shaft assembly with the 4 washers, 4 bolts and 4 nuts.

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

| | | |
|---|---|---|
| **Last Modified:** 5-10-2010 | 6.4 K | **From:** 200908 |
| **Model Year:** 2010 | **Model:** 4Runner | **Doc ID:** RM0000029X0008X |
| **Title:** DRIVE SHAFT / PROPELLER SHAFT: PROPELLER SHAFT ASSEMBLY (for 4WD): COMPONENTS (2010 4Runner) | | |

## COMPONENTS

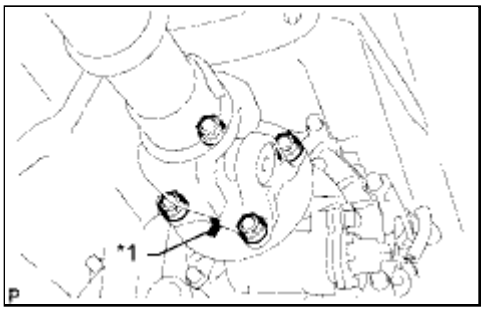
## ILLUSTRATION



| | | |
|---|---|---|
| **Last Modified:** 5-10-2010 | 6.4 A | **From:** 200908 |
| **Model Year:** 2010 | **Model:** 4Runner | **Doc ID:** RM0000029WP008X |
| **Title:** DRIVE SHAFT / PROPELLER SHAFT: PROPELLER SHAFT ASSEMBLY (for 4WD): REMOVAL (2010 4Runner) | | |

# REMOVAL

### 1. REMOVE PROPELLER SHAFT ASSEMBLY

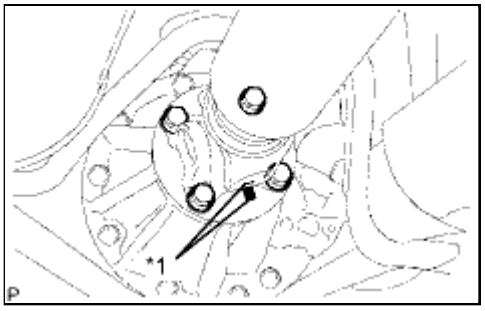



(a) Place matchmarks on the propeller shaft flange and transfer flange.

## Text in Illustration

| | |
|---|---|
| *a | Matchmark |

(b) Remove the 4 nuts, 4 washers and propeller shaft assembly.




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

## Text in Illustration

| | |
|---|---|
| *a | Matchmark |

(d) Remove the 4 nuts, 4 bolts and 4 washers.

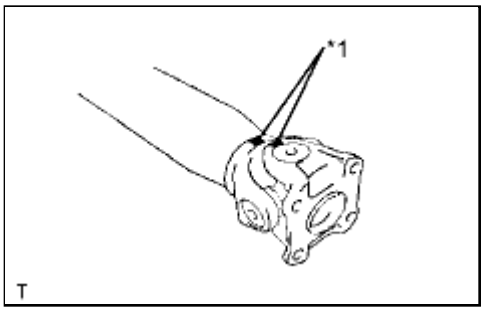
| | | |
|---|---|---|
| **Last Modified:** 5-10-2010 | 6.4 A | **From:** 200908 |
| **Model Year:** 2010 | **Model:** 4Runner | **Doc ID:** RM0000029WQ00CX |
| **Title:** DRIVE SHAFT / PROPELLER SHAFT: PROPELLER SHAFT ASSEMBLY (for 4WD): DISASSEMBLY (2010 4Runner) | | |

# DISASSEMBLY

### 1. REMOVE REAR PROPELLER SHAFT UNIVERSAL JOINT SPIDER BEARING

**HINT:**

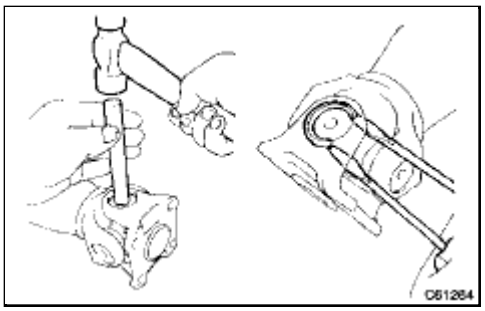
**Use the same procedure for all rear propeller shaft universal joint spider bearing.**




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

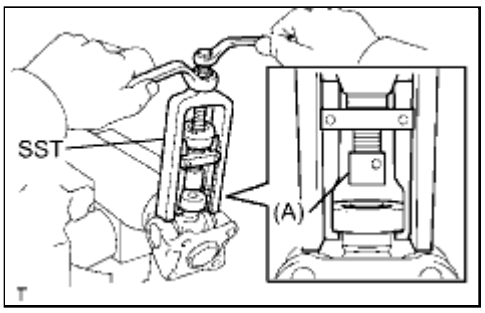
## Text in Illustration

| | |
|---|---|
| *a | Matchmark |




(b) Using a brass bar and a hammer, slightly tap in the spider bearing outer races.

(c) Using 2 screwdrivers, remove the 4 snap rings from the grooves.



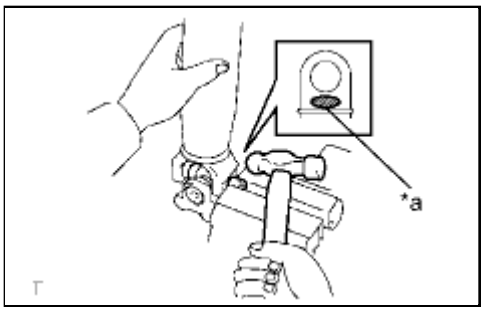

(d) Using SST, remove the spider bearing from the sleeve yoke.

**SST: 09332-25010**

**HINT:**

**Before installing SST, sufficiently raise the part labeled A. If the part labeled A is too low, it may be difficult to install SST.**

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




## Text in Illustration

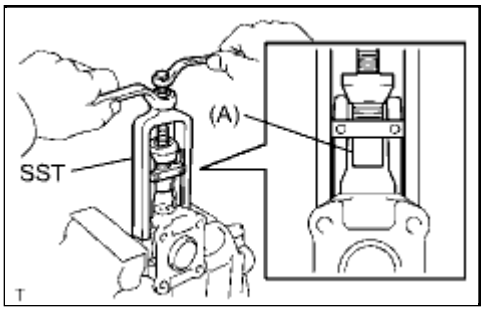
| | |
|---|---|
| *a | Hammering Point |

**HINT:**

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

**NOTICE:**

**Do not tap the shaft.**



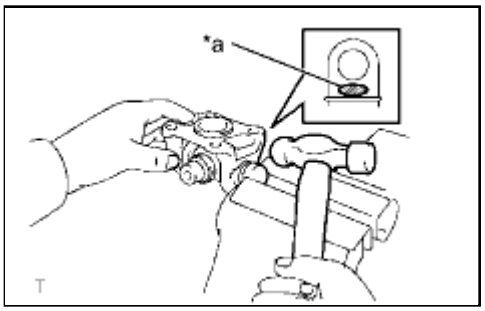

(f) Install the 2 removed spider bearing outer races to the universal joint spider.

(g) Using SST, remove the bearing from 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 between aluminum plates and tap off the yoke with a hammer.

## Text in Illustration

| | |
|---|---|
| *a | Hammering Point |

(i) Remove the universal joint spider.

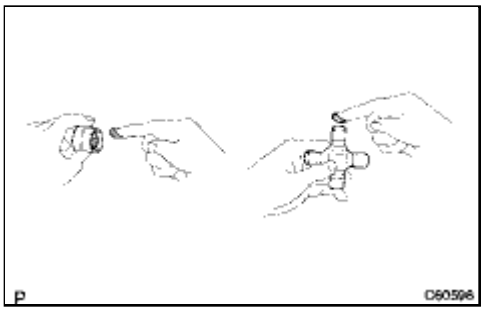
| | | |
|---|---|---|
| **Last Modified:** 5-10-2010 | 6.4 A | **From:** 200908 |
| **Model Year:** 2010 | **Model:** 4Runner | **Doc ID:** RM0000029WR00CX |
| **Title:** DRIVE SHAFT / PROPELLER SHAFT: PROPELLER SHAFT ASSEMBLY (for 4WD): REASSEMBLY (2010 4Runner) | | |

# REASSEMBLY

### 1. INSTALL REAR PROPELLER SHAFT UNIVERSAL JOINT SPIDER BEARING

**HINT:**

**Use the same procedure for all rear propeller shaft universal joint spider bearing.**

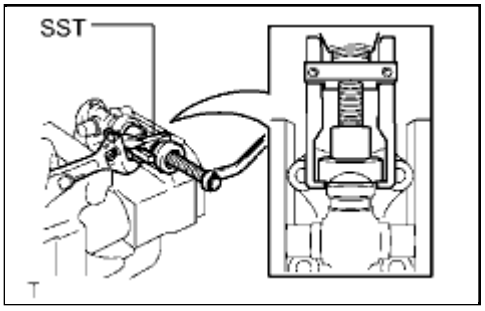



(a) Apply MP grease to the universal joint spider and new bearings.

**NOTICE:**

**Be careful not to apply too much grease.**

(b) Install the universal joint spider to the propeller shaft.



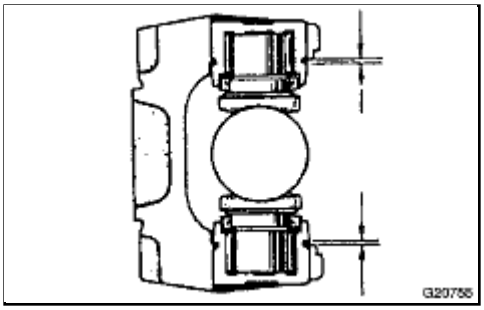

(c) Using SST, install 2 of the bearings to the universal joint spider.

**SST: 09332-25010**

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

**SST: 09332-25010**

(e) Install 4 new snap rings of equal thickness which will allow no axial play.




**HINT:**

**Do not reuse the snap rings.**

Thickness of snap ring (Both ends thin type):

| PARTS NO. | SPECIFIED CONDITION | MARK |
|---|---|---|
| 90520-25039 | 2.28 to 2.30 mm (0.0898 to 0.0906 in.) | 1 |
| 90520-25040 | 2.30 to 2.32 mm (0.0906 to 0.0913 in.) | 2 |
| 90520-25041 | 2.32 to 2.34 mm (0.0913 to 0.0921 in.) | - |
| 90520-25042 | 2.34 to 2.36 mm (0.0921 to 0.0929 in.) | Brown |
| 90520-25043 | 2.36 to 2.38 mm (0.0929 to 0.0937 in.) | Blue |
| 90520-25044 | 2.38 to 2.40 mm (0.0937 to 0.0945 in.) | 6 |
| 90520-25045 | 2.40 to 2.42 mm (0.0945 to 0.0953 in.) | 7 |
| 90520-25046 | 2.42 to 2.44 mm (0.0953 to 0.0961 in.) | 8 |
| 90520-25047 | 2.44 to 2.46 mm (0.0961 to 0.0969 in.) | 九 |
| 90520-25048 | 2.46 to 2.48 mm (0.0969 to 0.0976 in.) | 10 |
| 90520-25049 | 2.48 to 2.50 mm (0.0976 to 0.0984 in.) | A |
| 90520-25050 | 2.50 to 2.52 mm (0.0984 to 0.0992 in.) | B |
| 90520-25051 | 2.52 to 2.54 mm (0.0992 to 0.1000 in.) | C |

| PARTS NO. | SPECIFIED CONDITION | MARK |
|---|---|---|
| 90520-25052 | 2.54 to 2.56 mm (0.1000 to 0.1008 in.) | D |
| 90520-25053 | 2.56 to 2.58 mm (0.1008 to 0.1016 in.) | E |
| 90520-25054 | 2.18 to 2.20 mm (0.0858 to 0.0866 in.) | J |
| 90520-25055 | 2.20 to 2.22 mm (0.0866 to 0.0874 in.) | K |
| 90520-25056 | 2.22 to 2.24 mm (0.0874 to 0.0882 in.) | F |
| 90520-25057 | 2.24 to 2.26 mm (0.0882 to 0.0890 in.) | G |
| 90520-25058 | 2.26 to 2.28 mm (0.0890 to 0.0898 in.) | H |

**NOTICE:**

- Must use a new retainer ring.
- Must use retainer rings of the same thickness as possible on both ends.

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

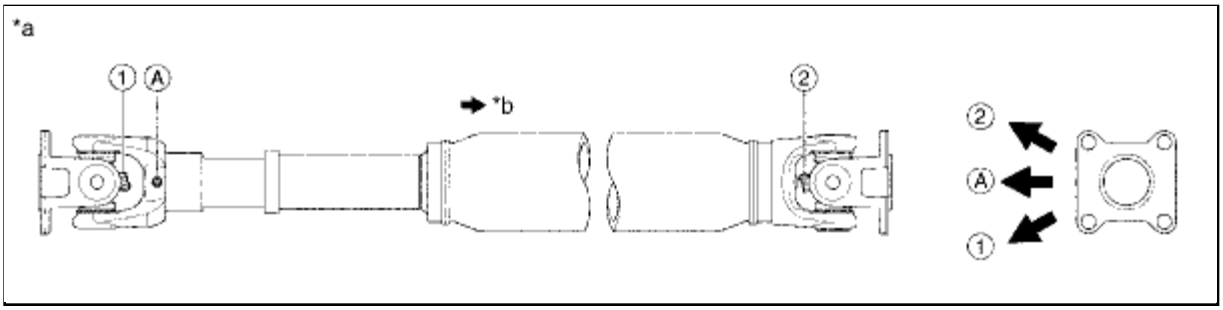
**HINT:**

**Install a new spider bearing on the sleeve side in the procedure described above.**

### 2. INSPECT PROPELLER SHAFT ASSEMBLY

**HINT:**

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




**Text in Illustration**

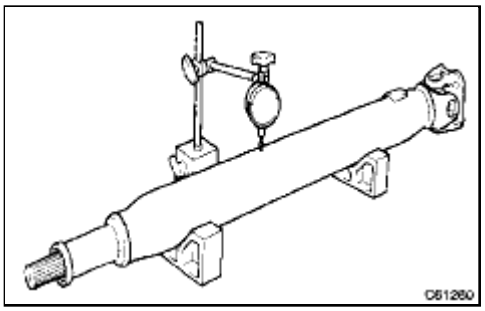
| | | | |
|---|---|---|---|
| *a | Spider grease fitting assembly direction for propeller shaft assembly | *b | Rear Side |

### 3. INSPECT REAR PROPELLER SHAFT UNIVERSAL JOINT SPIDER BEARING INFO

| | | |
|---|---|---|
| **Last Modified:** 5-10-2010 | 6.4 G | **From:** 200908 |
| **Model Year:** 2010 | **Model:** 4Runner | **Doc ID:** RM0000029WO008X |
| **Title:** DRIVE SHAFT / PROPELLER SHAFT: PROPELLER SHAFT ASSEMBLY (for 4WD): INSPECTION (2010 4Runner) | | |

# INSPECTION

### 1. INSPECT PROPELLER SHAFT ASSEMBLY




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

Maximum runout:
0.4 mm (0.0157 in.)

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

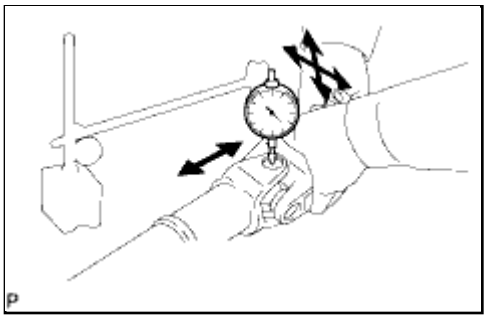
### 2. INSPECT REAR PROPELLER SHAFT UNIVERSAL JOINT SPIDER BEARING

**NOTICE:**

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

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

If necessary, replace the spider bearing.




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

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

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

| | | |
|---|---|---|
| **Last Modified:** 5-10-2010 | 6.4 A | **From:** 200908 |
| **Model Year:** 2010 | **Model:** 4Runner | **Doc ID:** RM0000029WN008X |
| **Title:** DRIVE SHAFT / PROPELLER SHAFT: PROPELLER SHAFT ASSEMBLY (for 4WD): INSTALLATION (2010 4Runner) | | |

# INSTALLATION

### 1. INSTALL PROPELLER SHAFT ASSEMBLY

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

(b) Install the propeller shaft assembly with the 4 washers, 4 bolts and 4 nuts.

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

(c) Align the matchmarks on the propeller shaft flange and transfer flange.

(d) Install the propeller shaft assembly with the 4 washers and 4 nuts.

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