

DRIVE SHAFT SYSTEM

PROBLEM SYMPTOMS TABLE

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

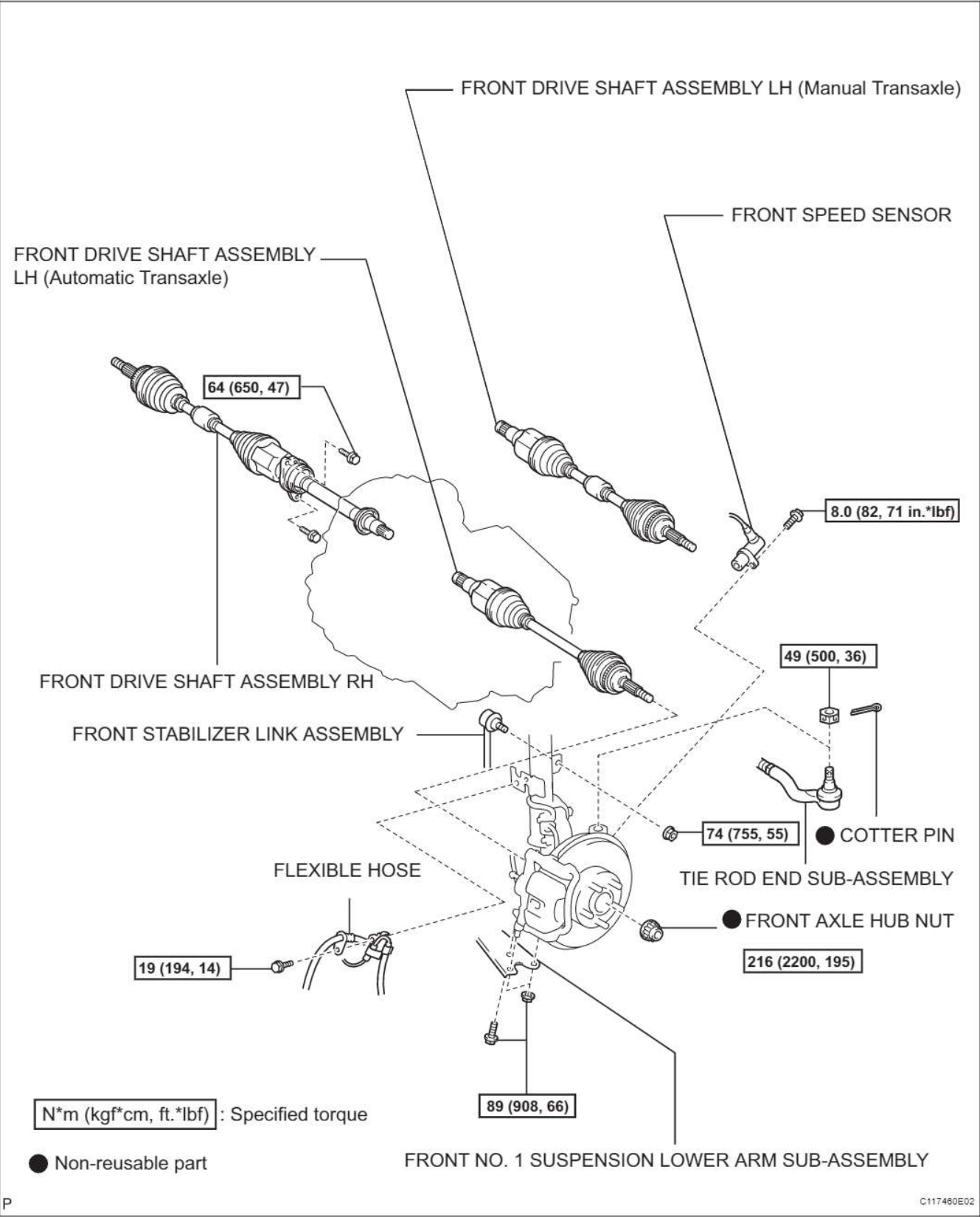
Symptom	Suspected Area	See page
Front wheel shimmy	Front drive shaft (worn)	DS-11

DS-2

DRIVE SHAFT – FRONT DRIVE SHAFT

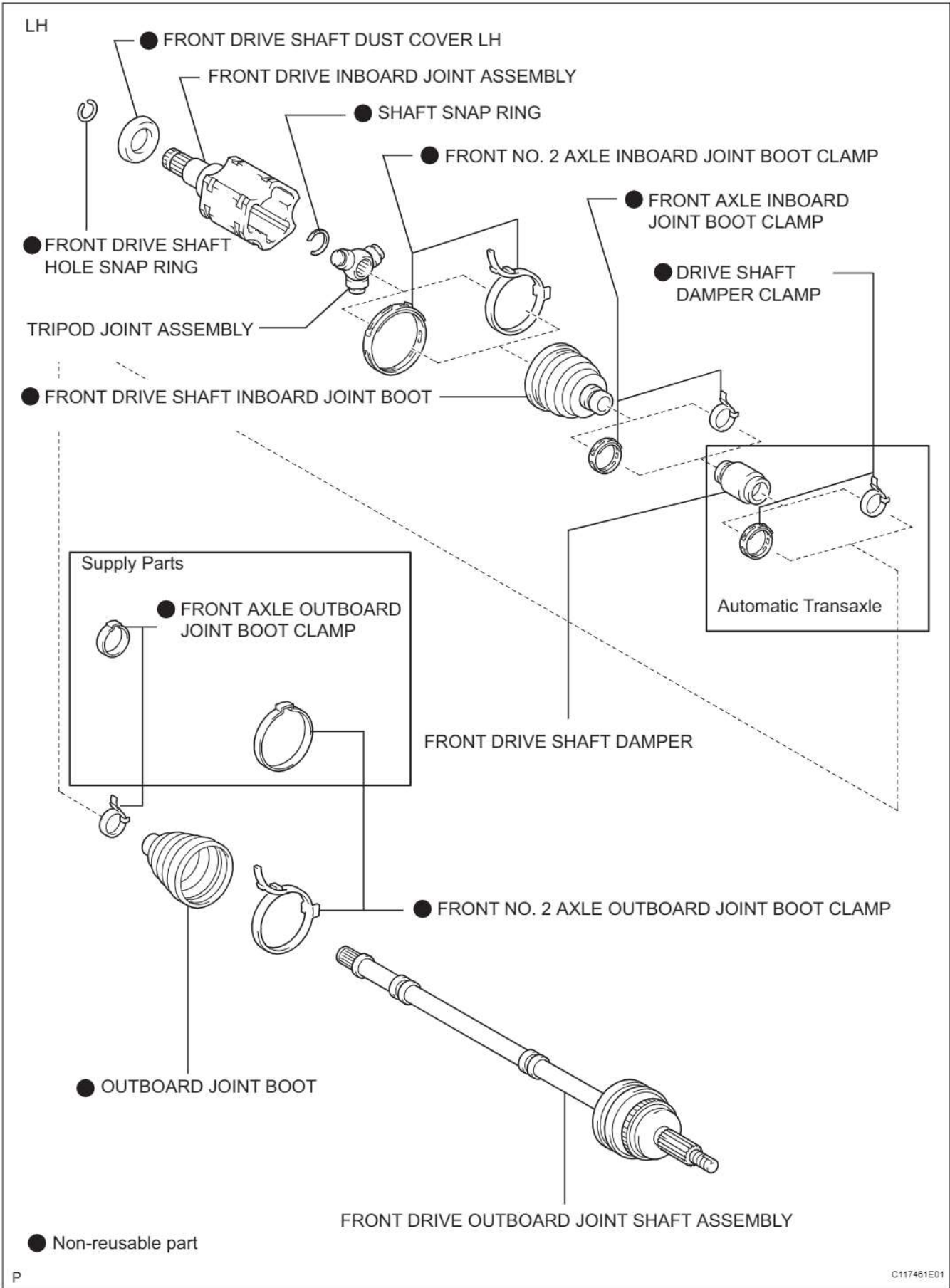
FRONT DRIVE SHAFT

COMPONENTS



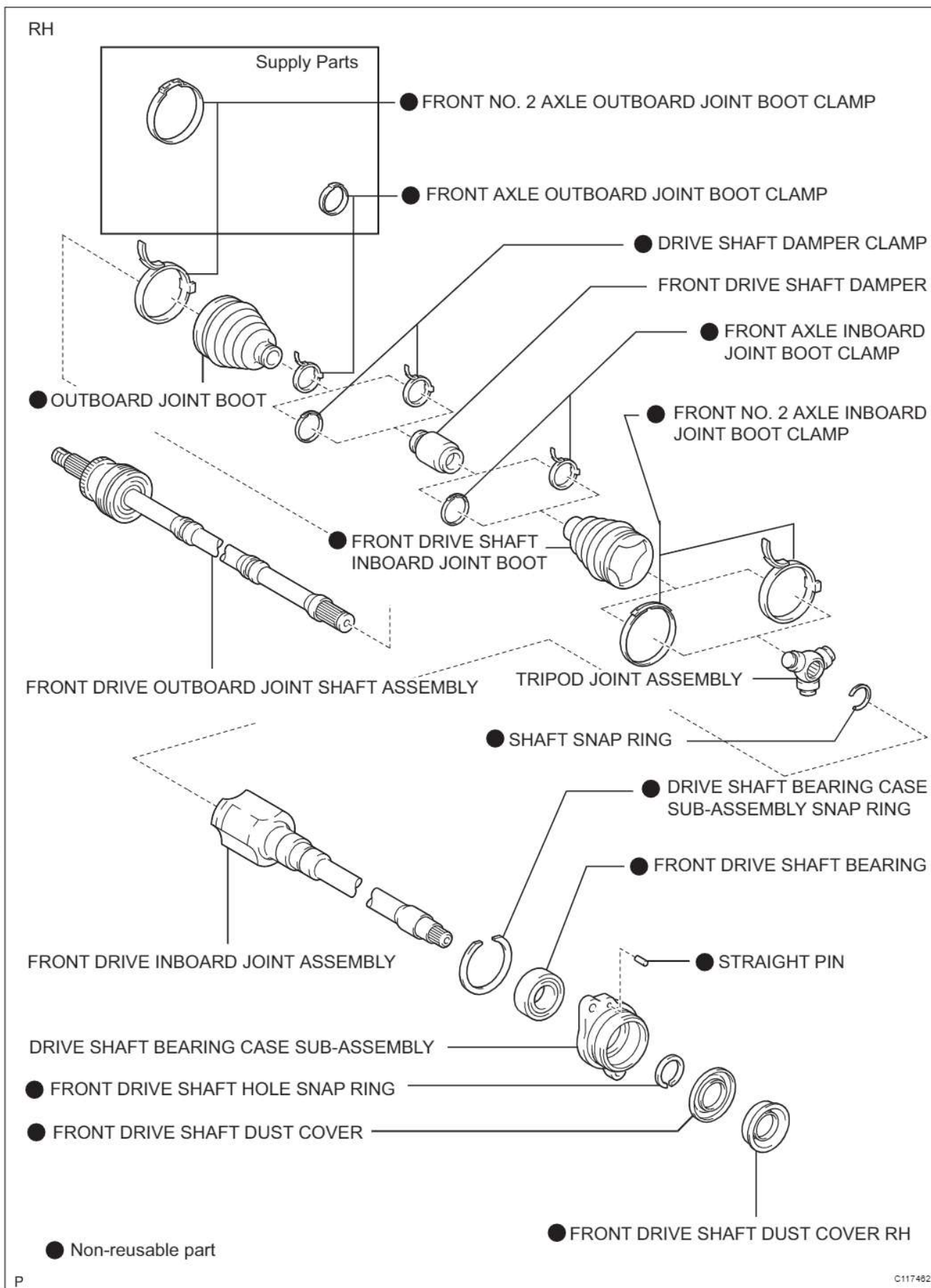
DRIVE SHAFT – FRONT DRIVE SHAFT

DS-3



DS-4

DRIVE SHAFT – FRONT DRIVE SHAFT



REMOVAL

HINT:

- Use the same procedures for the RH side and LH side.
- The procedures listed below are for the LH side.

1. DRAIN AUTOMATIC TRANSAXLE FLUID (for Automatic Transaxle)

- (a) Drain automatic transaxle fluid (see page [AX-104](#)).

2. DRAIN MANUAL TRANSAXLE OIL (for Manual Transaxle)

- (a) Drain manual transaxle oil (see page [MX-2](#)).

3. REMOVE FRONT WHEEL

4. REMOVE ENGINE UNDER COVER

5. REMOVE FRONT AXLE HUB NUT

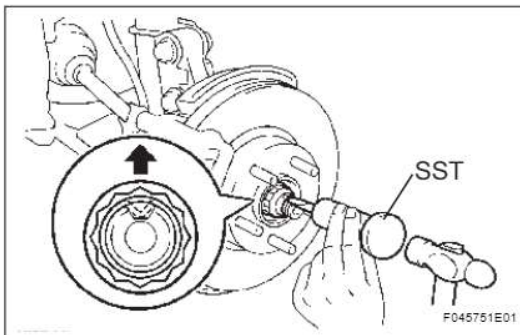
- (a) Using SST and a hammer, unstake the staked part of the nut.

SST 09930-00010

NOTICE:

Loosen the staked part of the nut completely, otherwise the screw of the drive shaft may be damaged.

- (b) While applying the brakes, remove the lock axle hub nut.

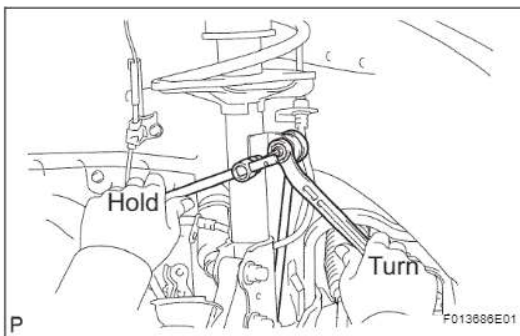


6. DISCONNECT FRONT STABILIZER LINK ASSEMBLY

- (a) Remove the nut and disconnect the stabilizer link assembly.

HINT:

If the ball joint turns together with the nut, use a 6 mm hexagon wrench to hold the stud in place.

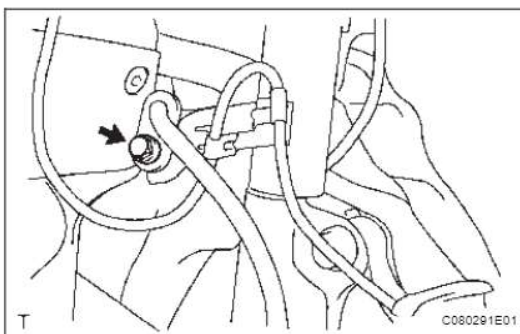


7. DISCONNECT FRONT SPEED SENSOR

- (a) Remove the bolt, and disconnect the speed sensor wire and flexible hose from the shock absorber.

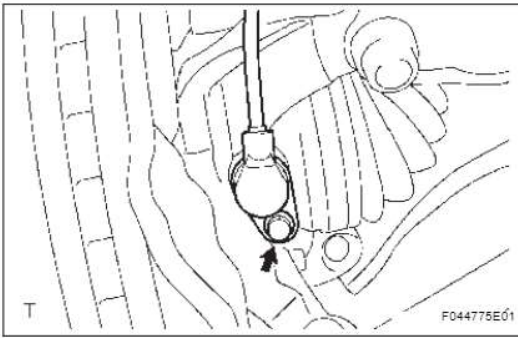
NOTICE:

Be careful not to damage the speed sensor.


DS

DS-6

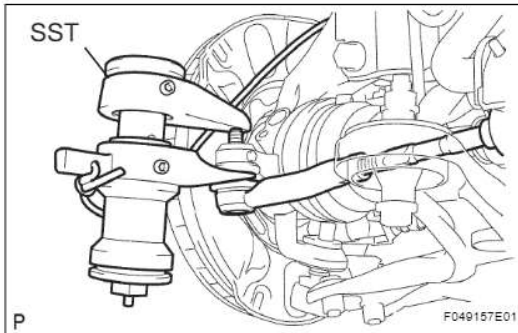
DRIVE SHAFT – FRONT DRIVE SHAFT



- (b) Remove the bolt, and disconnect the front speed sensor from the steering knuckle.

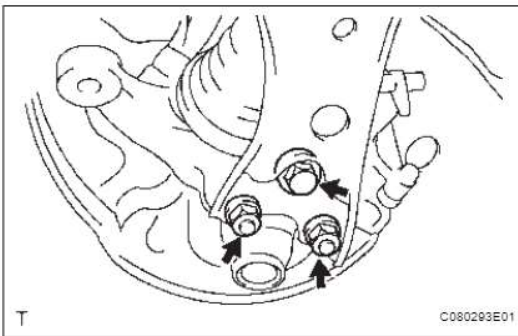
NOTICE:

- Be careful not to damage the speed sensor.
- Prevent foreign matter from attaching to the speed sensor.

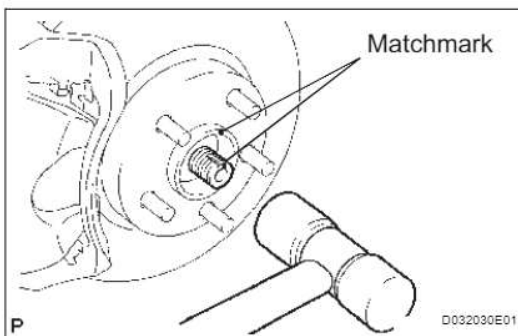
**8. DISCONNECT TIE ROD END SUB-ASSEMBLY**

- (a) Remove the cotter pin and nut.
 (b) Using SST, disconnect the tie rod end from the steering knuckle.

SST 09628-00011

**9. DISCONNECT FRONT NO. 1 SUSPENSION LOWER ARM SUB-ASSEMBLY**

- (a) Remove the bolt and 2 nuts, and separate the front suspension lower arm from the lower ball joint.

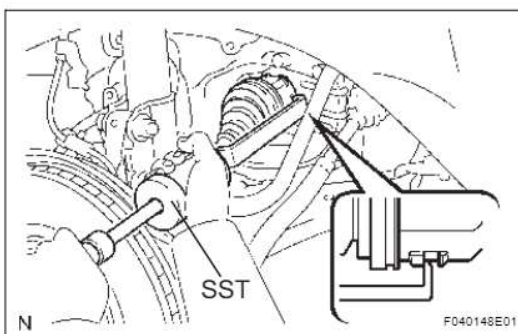
**10. REMOVE FRONT AXLE ASSEMBLY**

- (a) Put matchmarks on the drive shaft and the axle hub.
 (b) Using a plastic-faced hammer, separate the drive shaft from the axle hub.

NOTICE:

Be careful not to damage the boot and speed sensor rotor.

Do not excessively push out the drive shaft from the axle assembly.

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

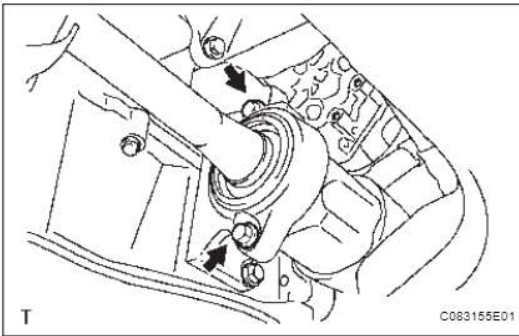
- (a) Using SST, remove the front drive shaft.

SST 09520-01010, 09520-24010 (09520-32040)

NOTICE:

- Be careful not to damage the transaxle case oil seal, inboard joint boot and drive shaft dust cover.
- Be careful not to drop the drive shaft assembly.

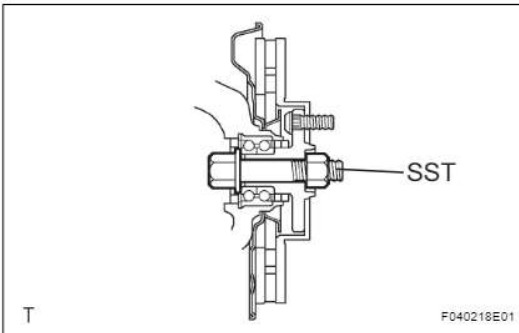
DS

DRIVE SHAFT – FRONT DRIVE SHAFT**DS-7****12. REMOVE FRONT DRIVE SHAFT ASSEMBLY RH**

- (a) Remove the 2 bolts and pull out the drive shaft together with the drive shaft bearing case.
- (b) Remove the drive shaft from the transaxle.

NOTICE:

- Be careful not to damage the inboard joint boot and drive shaft dust cover.
- Be careful not to drop the drive shaft assembly.

**13. FIX FRONT AXLE ASSEMBLY****NOTICE:**

The hub bearing could be damaged if it is subjected to the vehicle weight, such as when moving the vehicle with the drive shaft removed.

Therefore, if it is absolutely necessary to place the vehicle weight on the hub bearing, first support it with SST.

SST 09608-16042 (09608-02021, 09608-02041)

DS

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DRIVE SHAFT – FRONT DRIVE SHAFT

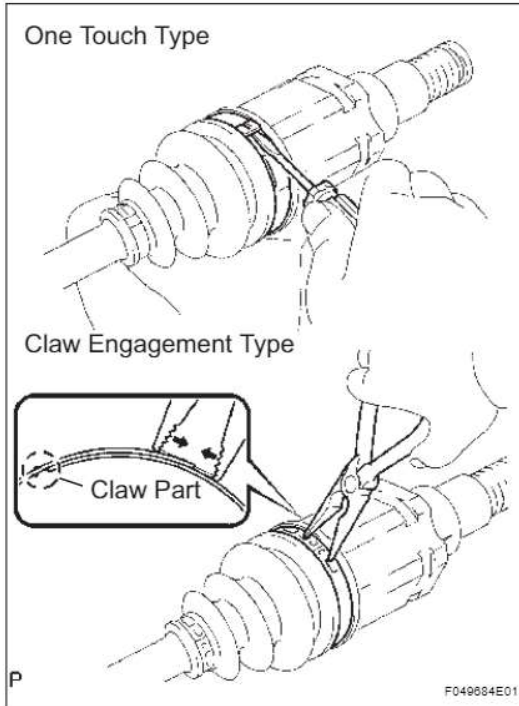
DISASSEMBLY

HINT:

- Use the same procedures for the RH side and LH side.
- The procedures listed below are for the LH side.

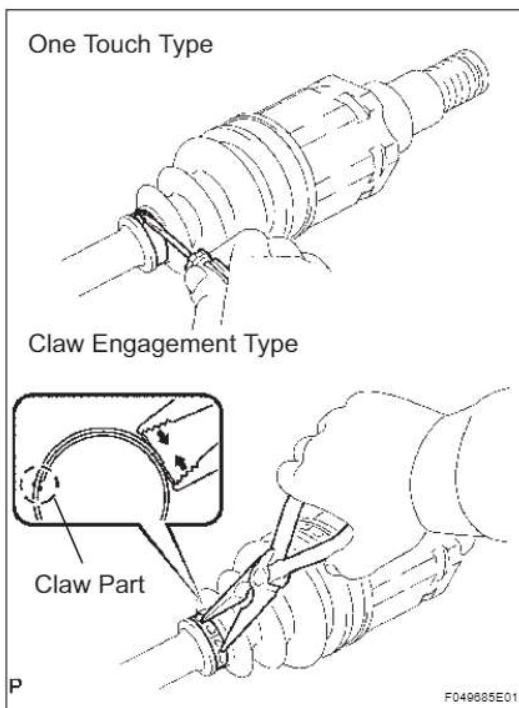
1. REMOVE FRONT NO. 2 AXLE INBOARD JOINT BOOT CLAMP

- One touch type:
Using a screwdriver, remove the No. 2 inboard joint boot clamp, as shown in the illustration.
- Claw engagement type:
Using needle-nose pliers, remove the No. 2 inboard joint boot clamp, as shown in the illustration.



2. REMOVE FRONT AXLE INBOARD JOINT BOOT CLAMP

- One touch type:
Using a screwdriver, remove the inboard joint boot clamp, as shown in the illustration.
- Claw engagement type:
Using needle-nose pliers, remove the inboard joint boot clamp, as shown in the illustration.



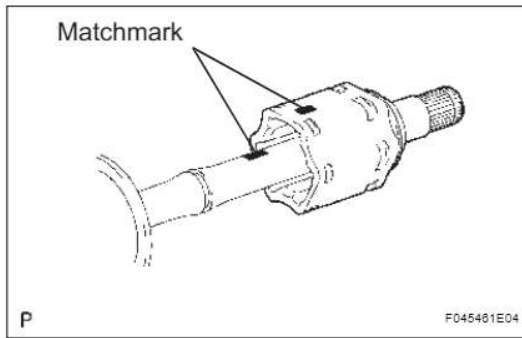
3. REMOVE FRONT DRIVE SHAFT INBOARD JOINT BOOT

- Remove the inboard joint boot from the inboard joint assembly.

DS

DRIVE SHAFT – FRONT DRIVE SHAFT

DS-9



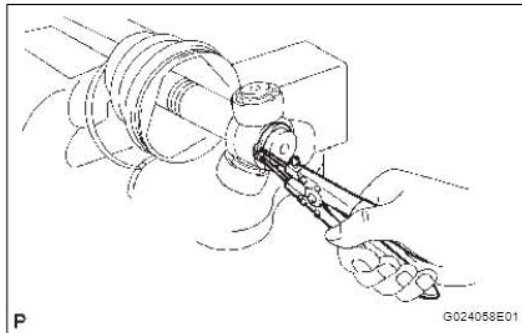
4. REMOVE FRONT DRIVE INBOARD JOINT ASSEMBLY

- Remove the old grease from the inboard joint.
- Put matchmarks on the inboard joint and outboard joint shaft assembly.

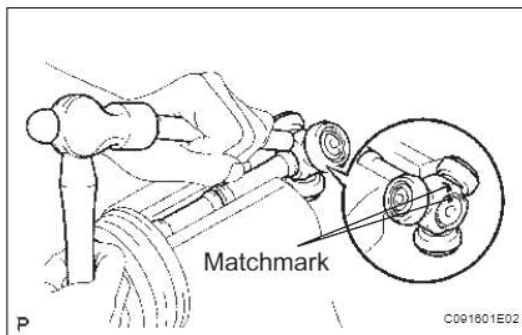
NOTICE:

Do not punch the marks.

- Remove the inboard joint from the outboard joint shaft.



- Using a snap ring expander, remove the shaft snap ring.



- Put matchmarks on the outboard joint shaft and tripod joint.

NOTICE:

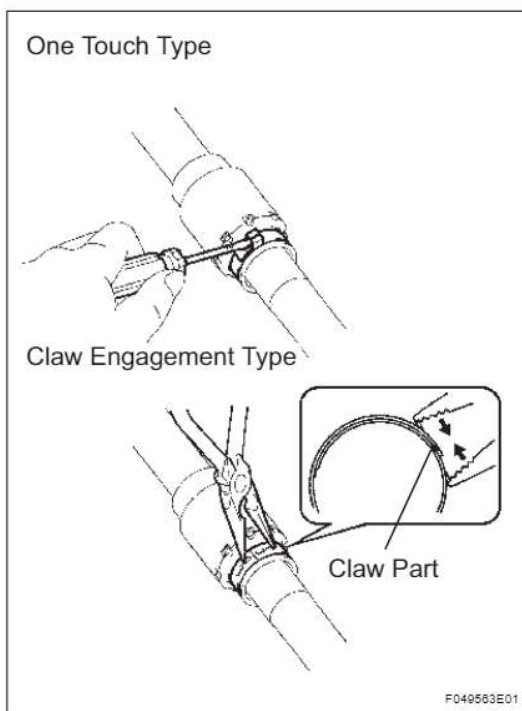
Do not punch the marks.

- Using a brass bar and hammer, tap out the tripod joint from the outboard joint shaft.

NOTICE:

Do not tap the rollers.

- Remove the inboard joint boot.



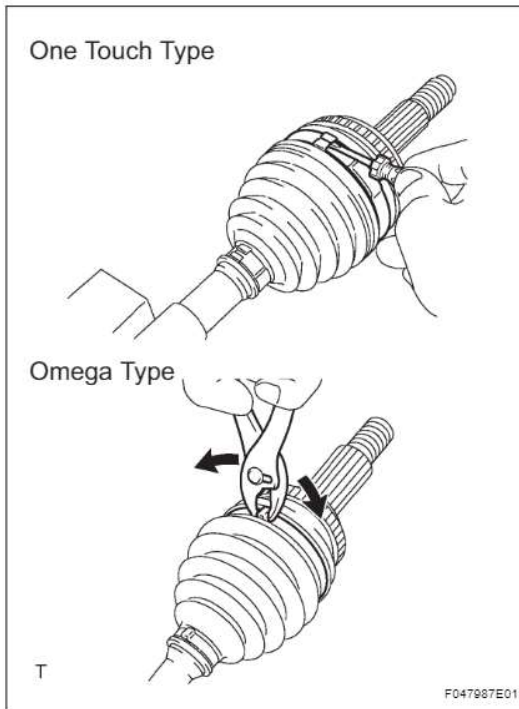
5. REMOVE FRONT DRIVE SHAFT DAMPER (for Automatic Transaxle)

- One touch type:
Using a screwdriver, remove the drive shaft damper clamp, as shown in the illustration.
- Claw engagement type:
Using needle-nose pliers, remove the drive shaft damper clamp, as shown in the illustration.
- Remove the front drive shaft damper.

DS

DS-10

DRIVE SHAFT – FRONT DRIVE SHAFT

**6. REMOVE FRONT NO. 2 AXLE OUTBOARD JOINT BOOT CLAMP**

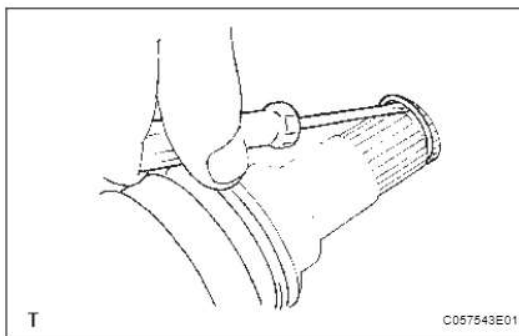
- (a) One touch type:
Using a screwdriver, remove the No. 2 outboard joint boot clamp, as shown in the illustration.
- (b) Omega type:
Using pliers, remove the No. 2 outboard joint boot clamp, as shown in the illustration.

7. REMOVE FRONT AXLE OUTBOARD JOINT BOOT CLAMP

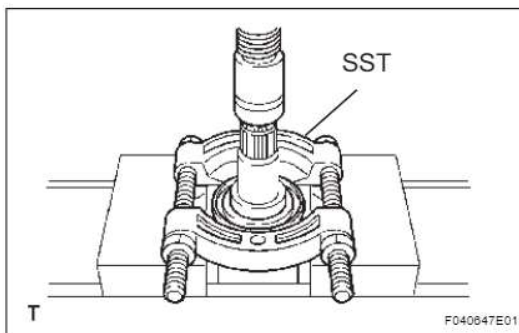
- (a) One touch type:
Using a screwdriver, remove the outboard joint boot clamp, as shown in the illustration.
- (b) Omega type:
Using pliers, remove the outboard joint boot clamp, as shown in the illustration.

8. REMOVE OUTBOARD JOINT BOOT

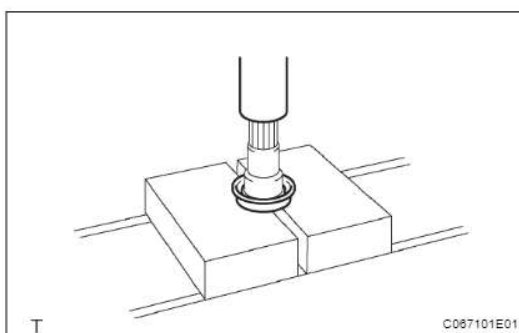
- (a) Remove the outboard joint boot from the outboard joint shaft.
- (b) Remove the old grease from the outboard joint.

**9. REMOVE FRONT DRIVE SHAFT HOLE SNAP RING**

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

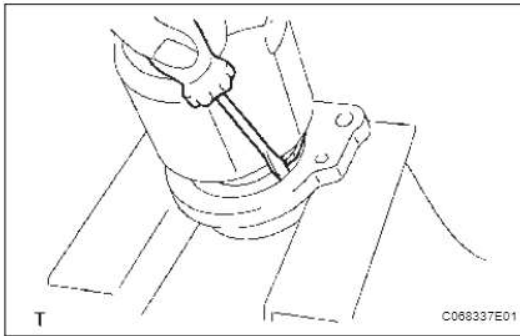
**10. REMOVE FRONT DRIVE SHAFT DUST COVER LH**

- (a) Using SST and a press, press out the front drive shaft dust cover.

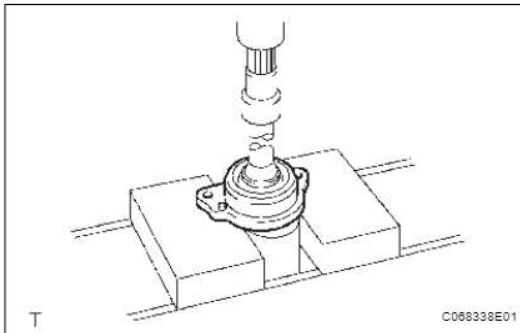
SST 09950-00020**NOTICE:****Be careful not to drop the inboard joint assembly.****11. REMOVE FRONT DRIVE SHAFT DUST COVER RH**

- (a) Using a press, press out the drive shaft dust cover.

DS

DRIVE SHAFT – FRONT DRIVE SHAFT**DS-11****12. REMOVE DRIVE SHAFT BEARING CASE SUB-ASSEMBLY SNAP RING**

- (a) Using a screwdriver, remove the bearing case snap ring.

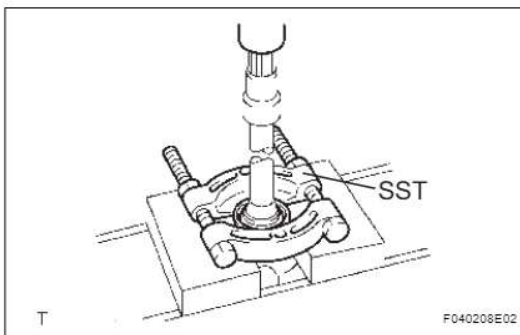
**13. REMOVE DRIVE SHAFT BEARING CASE SUB-ASSEMBLY**

- (a) Using a press, press out the drive shaft bearing case.

NOTICE:

Be careful not to drop the inboard joint assembly.

- (b) Remove the straight pin.

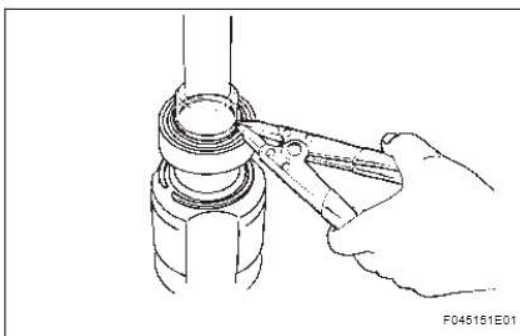
**14. REMOVE FRONT DRIVE SHAFT DUST COVER**

- (a) Using SST and a press, press out the drive shaft dust cover.

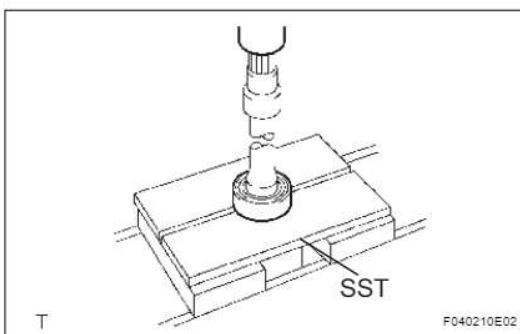
SST 09950-00020

NOTICE:

Be careful not to drop the inboard joint assembly.

**15. REMOVE FRONT DRIVE SHAFT BEARING**

- (a) Using a snap ring expander, remove the drive shaft hole snap ring.



- (b) Using SST and a press, press out the drive shaft bearing.

SST 09527-10011

- (c) Remove the snap ring.

DS

DS-12

DRIVE SHAFT – FRONT DRIVE SHAFT

REASSEMBLY

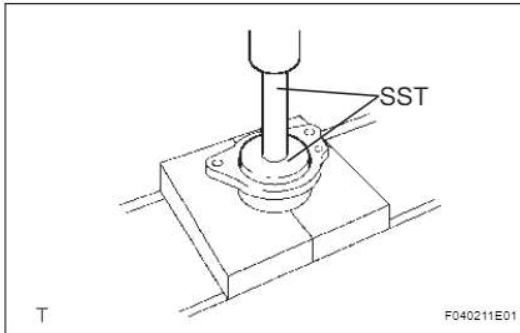
HINT:

- Use the same procedures for the RH and LH side.
- The procedures listed below are for the LH side.

1. INSTALL FRONT DRIVE SHAFT BEARING

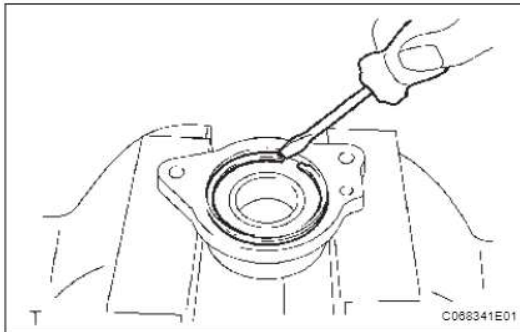
- (a) Using SST and a press, press in a new drive shaft bearing.

SST 09950-60020 (09951-00710), 09950-70010 (09951-07100)



2. INSTALL DRIVE SHAFT BEARING CASE SUB-ASSEMBLY SNAP RING

- (a) Using a screwdriver, install a new bearing case snap ring.



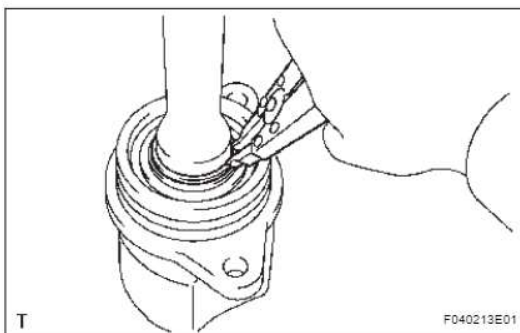
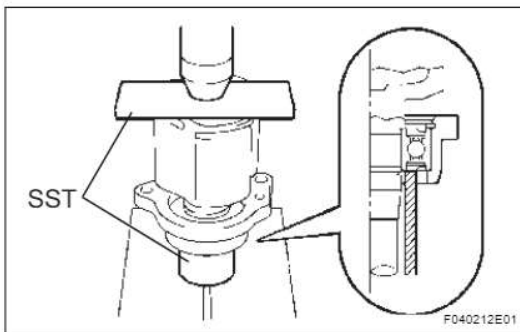
3. INSTALL DRIVE SHAFT BEARING CASE SUB-ASSEMBLY

- (a) Using SST and a press, press in the drive shaft bearing case to the inboard joint RH.

SST 09527-10011, 09710-04081

NOTICE:

Bearing should be installed completely.

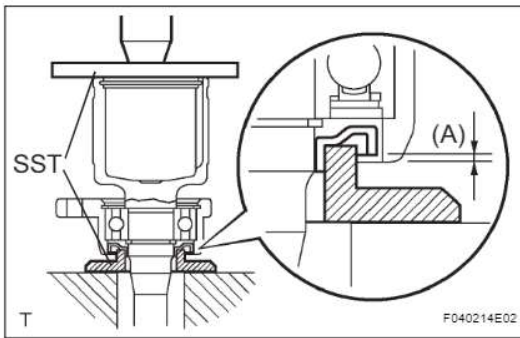


- (b) Using a snap ring expander, install a new drive shaft hole snap ring.

DS

DRIVE SHAFT – FRONT DRIVE SHAFT

DS-13

**4. INSTALL FRONT DRIVE SHAFT DUST COVER**

- (a) Using SST and a press, press in a new drive shaft dust cover.

SST 09726-40010, 09527-10011

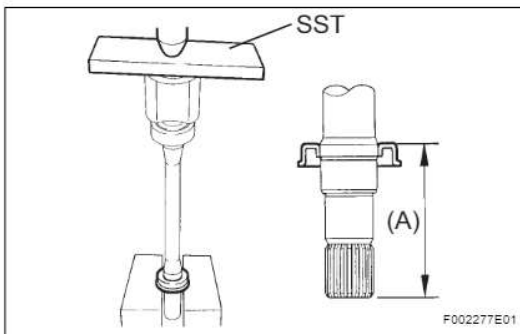
Standard distance (A):

0 to 1.0 mm (0 to 0.039 in.)

NOTICE:

Be careful not to damage the dust cover.

- (b) Install the straight pin.

**5. INSTALL FRONT DRIVE SHAFT DUST COVER RH**

- (a) Using SST and a press, press in a new drive shaft dust cover until the distance from the tip of the center drive shaft to the drive shaft dust cover reaches the specification, as shown in the illustration.

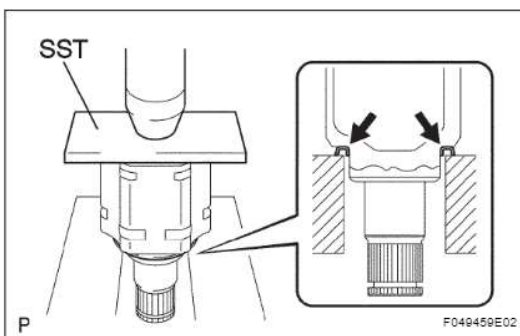
SST 09527-10011

Standard distance (A):

91.0 to 92.0 mm (3.582 to 3.622 in.)

NOTICE:

- The dust cover should be installed completely.
- Be careful not to damage the dust cover.

**6. INSTALL FRONT DRIVE SHAFT DUST COVER LH**

- (a) Using SST and a press, press in a new drive shaft dust cover.

SST 09527-10011

NOTICE:

- The dust cover should be installed completely.
- Be careful not to damage the dust cover.

7. INSTALL FRONT DRIVE SHAFT HOLE SNAP RING

- (a) Install a new hole snap ring.

8. INSTALL OUTBOARD JOINT BOOT

HINT:

Before installing the boots, wrap the spline of the drive shaft with vinyl tape to prevent the boots from being damaged.

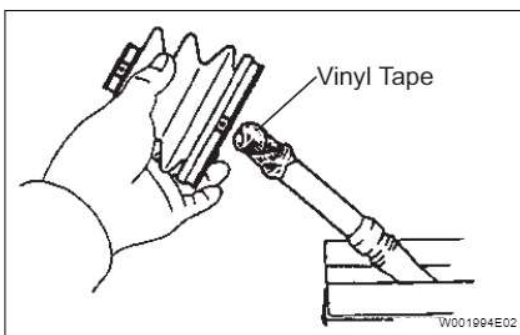
- (a) Install new parts to the outboard joint shaft assembly in the following order.

- (1) No. 2 outboard joint boot clamp
- (2) Outboard joint boot
- (3) Outboard joint boot clamp

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

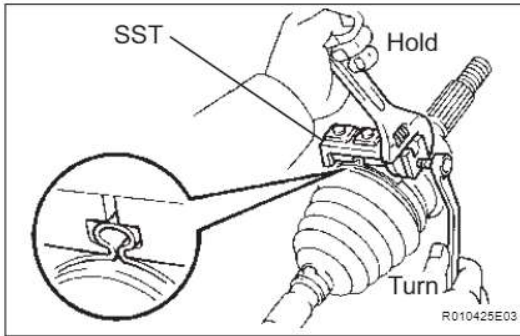
Standard grease capacity:

190 to 200 g (6.7 to 7.1 oz.)

**DS**

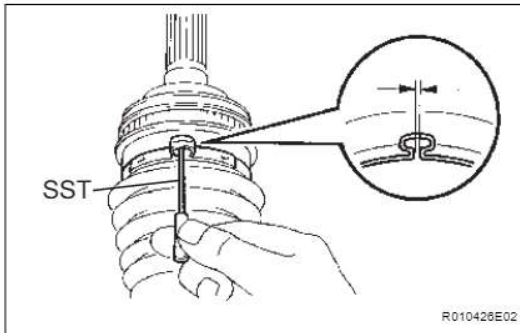
DS-14

DRIVE SHAFT – FRONT DRIVE SHAFT

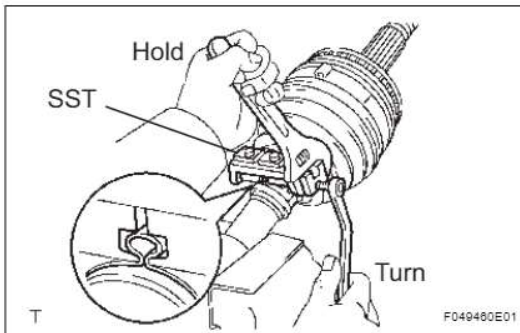


9. INSTALL FRONT NO. 2 AXLE OUTBOARD JOINT BOOT CLAMP

- Secure the No. 2 outboard joint boot clamp onto the boot.
- Place SST onto the No. 2 outboard joint boot clamp.
SST 09521-24010
- Tighten SST so that the No. 2 outboard joint boot clamp is pinched.

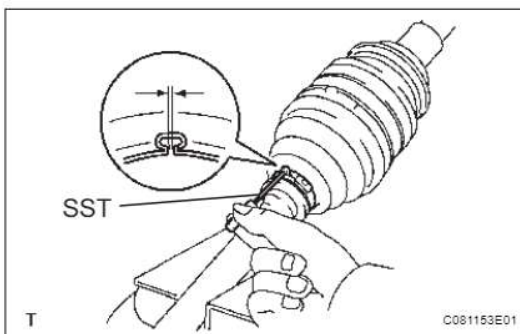
NOTICE:**Do not overtighten SST.**

- Using SST, measure the clearance of the outboard joint boot clamp.

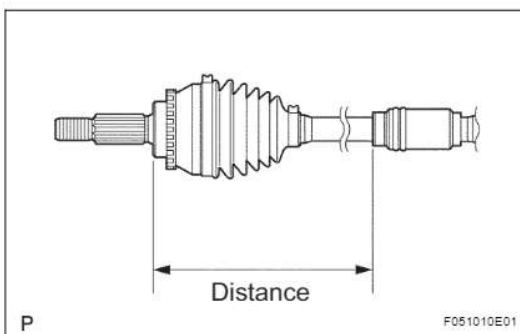
SST 09240-00020**Standard clearance:****0.8 mm (0.031 in.) or less****NOTICE:****When the measured value is greater than the specified value, retighten the clamp.**

10. INSTALL FRONT AXLE OUTBOARD JOINT BOOT CLAMP

- Secure the outboard joint boot clamp onto the boot.
- Place SST onto the outboard joint boot clamp.
SST 09521-24010
- Tighten SST so that the outboard joint boot clamp is pinched.

NOTICE:**Do not overtighten SST.**

- Using SST, measure the clearance of the outboard joint boot clamp.

SST 09240-00020**Standard clearance:****0.8 mm (0.031 in.) or less****NOTICE:****When the measured value is greater than the specified value, retighten the clamp.**

11. INSTALL FRONT DRIVE SHAFT DAMPER

HINT:

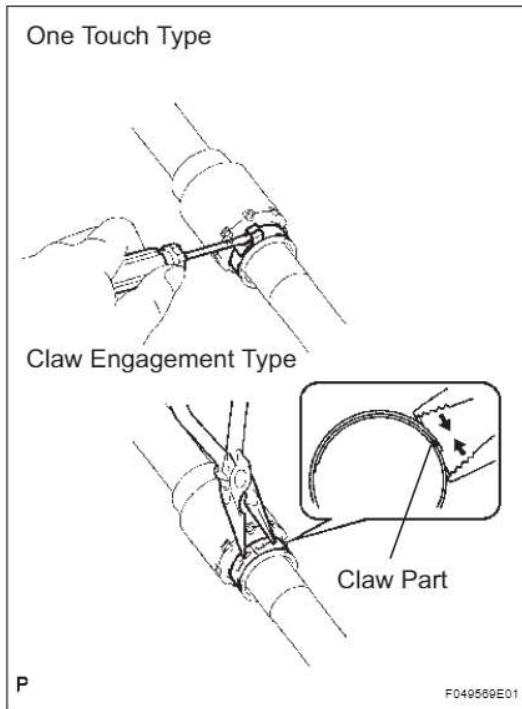
Install the damper clamp to outboard joint side.

- Install a new drive shaft damper clamp and the drive shaft damper to the drive shaft.
- Make sure that the damper is on the shaft groove.
- Set the distance, as described below.

Distance:**202.4 to 206.4 mm (7.969 to 8.126 in.)****DS**

DRIVE SHAFT – FRONT DRIVE SHAFT

DS-15



- (d) Hold the front drive shaft lightly in a soft vise.
- (e) Install the drive shaft damper clamp to the damper.

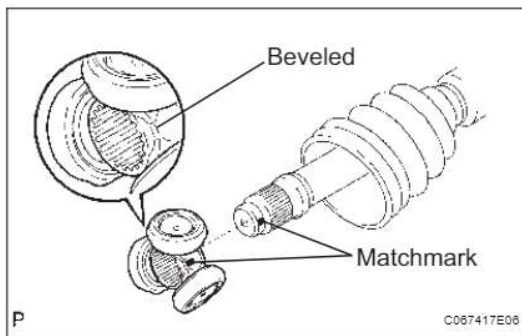
NOTICE:

Be sure to install the clamp in the correct position.

- (f) One touch type:
Using a screwdriver, install the drive shaft damper clamp, as shown in the illustration.
- (g) Claw engagement type:
Using needle-nose pliers, install the drive shaft damper clamp, as shown in the illustration.

12. INSTALL FRONT DRIVE INBOARD JOINT ASSEMBLY

- (a) Wrap the spline of the outboard joint shaft with vinyl tape to prevent the boots from being damaged.
- (b) Install new parts to the outboard joint shaft in the following order.
 - (1) Inboard joint boot clamp
 - (2) No. 2 inboard joint boot clamp
 - (3) Inboard joint boot



- (c) Place the beveled side of the tripod axial spline toward the outboard joint.
- (d) Align the matchmarks placed before removal.
- (e) Using a brass bar and hammer, tap the tripod joint onto the drive shaft.

NOTICE:

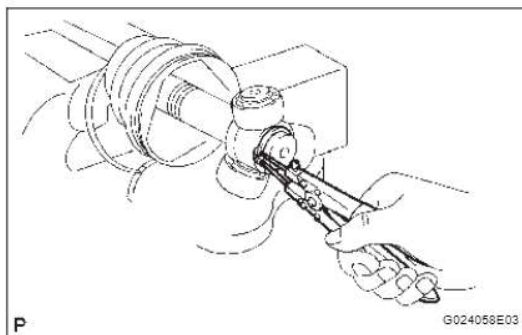
- **Do not tap the rollers.**
- **Be sure to install the tripod joint in the correct direction.**

- (f) Pack the inboard joint shaft and boot with grease from the boot kit.

Standard grease capacity:

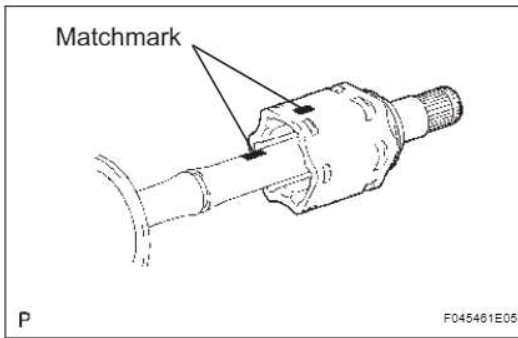
175 to 185 g (6.2 to 6.5 oz.)

- (g) Using a snap ring expander, install a new shaft snap ring.

**DS**

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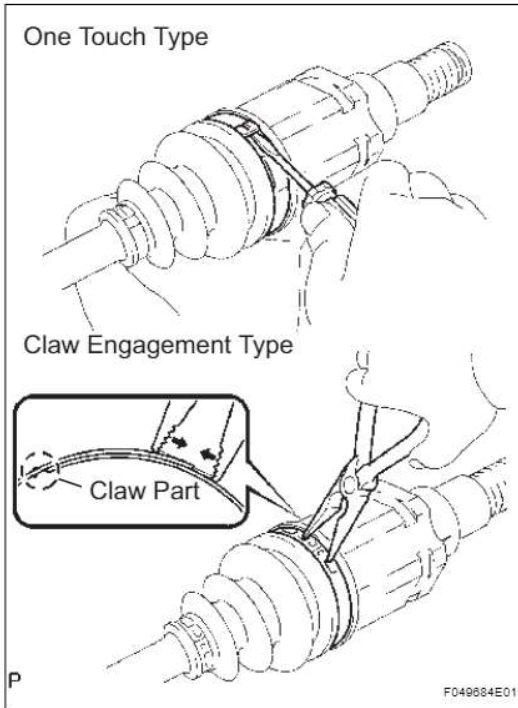
DRIVE SHAFT – FRONT DRIVE SHAFT



- (h) Aligning the matchmarks, and install the inboard joint to the outboard joint shaft.

13. INSTALL FRONT DRIVE SHAFT INBOARD JOINT BOOT

- (a) Install the inboard joint boot to the inboard joint and outboard joint shaft.



14. INSTALL FRONT NO. 2 AXLE INBOARD JOINT BOOT CLAMP

- (a) One touch type:
Using a screwdriver, install the No. 2 inboard joint boot clamp, as shown in the illustration.

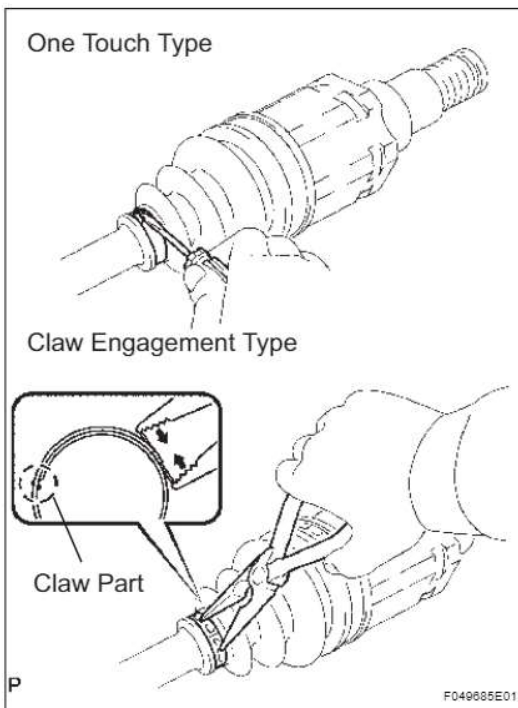
NOTICE:

Be careful not to damage the boot.

- (b) Claw engagement type:
Using needle-nose pliers, install the No. 2 inboard joint boot clamp, as shown in the illustration.

NOTICE:

Be careful not to damage the boot.



15. INSTALL FRONT AXLE INBOARD JOINT BOOT CLAMP

- (a) One touch type:
Using a screwdriver, install the inboard joint boot clamp, as shown in the illustration.

NOTICE:

Be careful not to damage the boot.

- (b) Claw engagement type:
Using needle-nose pliers, install the inboard joint boot clamp, as shown in the illustration.

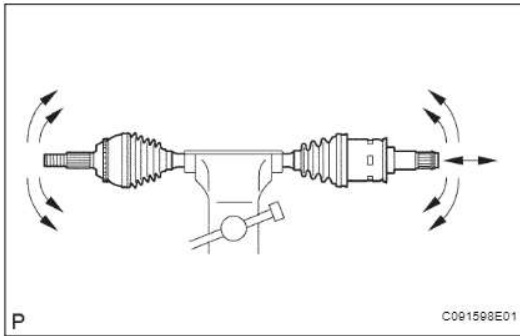
NOTICE:

Be careful not to damage the boot.

DS

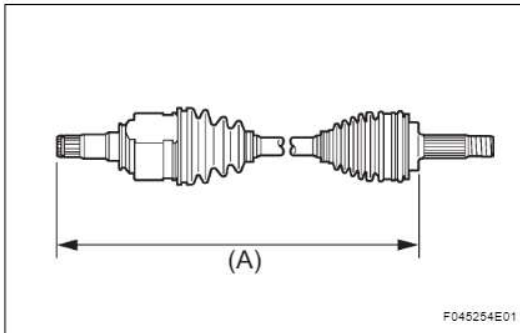
DRIVE SHAFT – FRONT DRIVE SHAFT

DS-17



16. INSPECT FRONT DRIVE SHAFT

- (a) Check that there is no severe play in the radial direction of the outboard joint.
- (b) Check that the inboard joint slides smoothly in the thrust direction.
- (c) Check that there is no severe play in the radial direction of the inboard joint.



- (d) Check the boots for damage.

NOTICE:

Keep the drive shaft assembly level during inspection.

HINT:

For dimension (A), refer to the following values.

Reference value:

873.0 to 883.0 mm (34.370 to 34.764 in.) for RH side

556.2 to 566.2 mm (21.898 to 22.291 in.) for LH side

DS

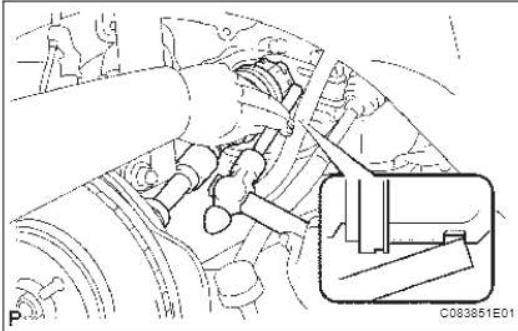
DS-18

DRIVE SHAFT – FRONT DRIVE SHAFT

INSTALLATION

HINT:

- Use the same procedures for the RH side and LH side.
- The procedures listed below are for the LH side.
- A bolt without a torque specification is shown in the standard bolt chart (see page [SS-2](#)).

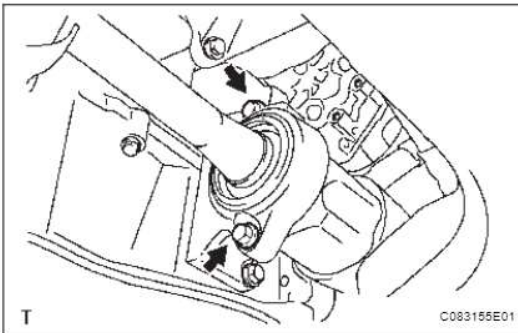


1. INSTALL FRONT DRIVE SHAFT ASSEMBLY LH

- Coat the spline of the inboard joint shaft with gear oil.
- Align the shaft splines drive in the drive shaft. Using a brass bar and hammer.

NOTICE:

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



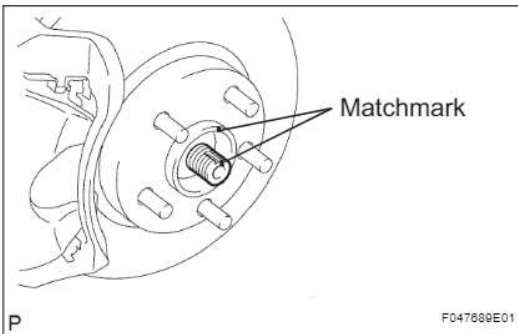
2. INSTALL FRONT DRIVE SHAFT ASSEMBLY RH

- Coat the spline of the inboard joint shaft with gear oil.
- Align the shaft splines and install the drive shaft with the 2 bolts.

Torque: 64 N*m (650 kgf*cm, 47 ft.*lbf)

NOTICE:

Do not damage the oil seal, boot and dust cover.



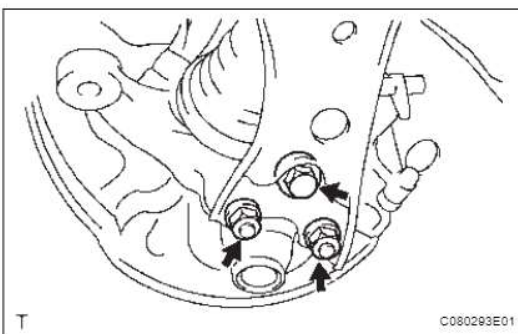
3. INSTALL FRONT AXLE ASSEMBLY

- Align the matchmarks and install the drive shaft to the front axle.

NOTICE:

Be careful not to damage the outboard joint boot and speed sensor rotor.

DS



4. CONNECT FRONT NO. 1 SUSPENSION LOWER ARM SUB-ASSEMBLY

- Install the lower ball joint to the suspension lower arm with the bolt and 2 nuts.

Torque: 89 N*m (908 kgf*cm, 66 ft.*lbf)

5. CONNECT TIE ROD END SUB-ASSEMBLY

- Install the tie rod end to the steering knuckle with the nut.

Torque: 49 N*m (500 kgf*cm, 36 ft.*lbf)

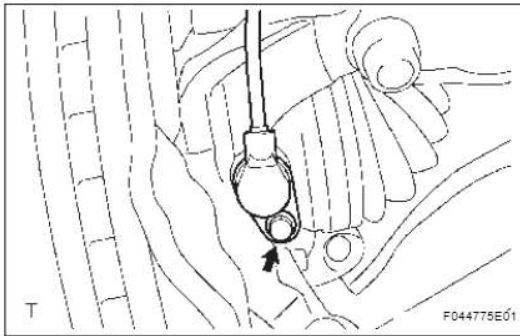
- Install a new cotter pin.

NOTICE:

If the holes for the cotter pin are not aligned, tighten the nut an additional 60°.

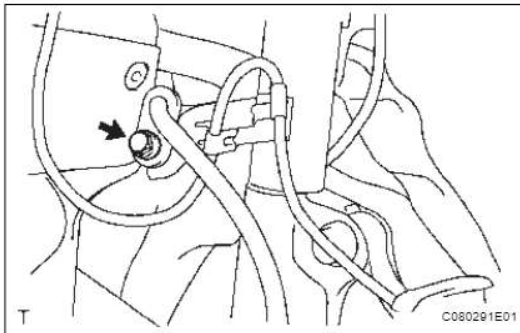
DRIVE SHAFT – FRONT DRIVE SHAFT

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**6. INSTALL SPEED SENSOR FRONT**

- (a) Install the speed sensor front to the steering knuckle with the bolt.

Torque: 8.0 N*m (82 kgf*cm, 71 in.*lbf)

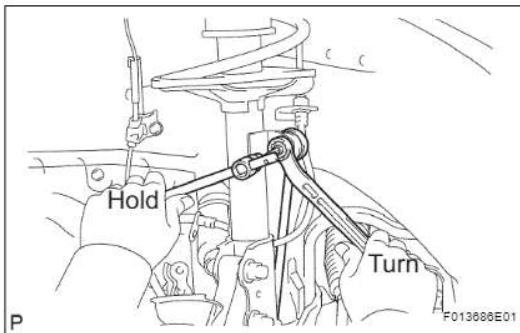


- (b) Connect the speed sensor wire and flexible hose to the shock absorber with the bolt.

Torque: 19 N*m (194 kgf*cm, 14 ft.*lbf)

NOTICE:

- Be careful not to damage the speed sensor.
- Prevent foreign matter from adhering to the speed sensor.
- Do not twist the sensor wire when installing the speed sensor.

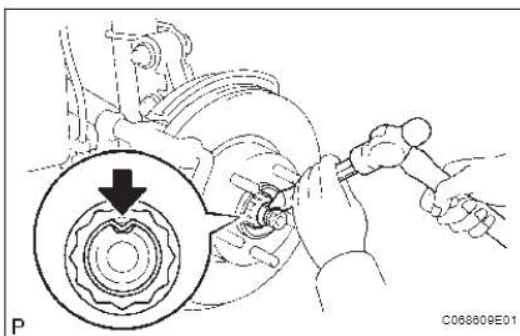
**7. INSTALL FRONT STABILIZER LINK ASSEMBLY**

- (a) Install the front stabilizer link with the nut.

Torque: 74 N*m (755 kgf*cm, 55 ft.*lbf)

HINT:

If the ball joint turns together with the nut, use a 6 mm hexagon wrench to hold the stud in place.

**8. INSTALL FRONT AXLE HUB NUT**

- (a) Install a new axle hub nut.

Torque: 216 N*m (2200 kgf*cm, 159 ft.*lbf)

- (b) Using a chisel and hammer, stake the axle hub nut.

9. INSTALL ENGINE UNDER COVER**10. INSTALL FRONT WHEEL**

Torque: 103 N*m (1050 kgf*cm, 76 ft.*lbf)

11. ADD AUTOMATIC TRANSAXLE FLUID (for Automatic Transaxle)**12. INSPECT AND ADJUST AUTOMATIC TRANSAXLE FLUID (for Automatic Transaxle)**

- (a) Inspect and adjust the automatic transaxle fluid (see page [AX-104](#)).

13. ADD MANUAL TRANSAXLE OIL (for Manual Transaxle)**14. INSPECT MANUAL TRANSAXLE OIL (for Manual Transaxle)**

- (a) Inspect the manual transaxle oil (see page [MX-2](#)).

DS

DS-20**DRIVE SHAFT – FRONT DRIVE SHAFT**

15. INSPECT AND ADJUST FRONT WHEEL ALIGNMENT

- (a) Inspect and adjust the front wheel alignment (see page [SP-2](#)).

16. CHECK ABS SPEED SENSOR SIGNAL

- (a) Check the ABS speed sensor signal (see page [BC-12](#)).