

# AXLE SYSTEM

## 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.

### Symptom

Symptom	Suspected area	See page
Wanders	1. Tire (improper air pressure, uneven wear)	-
	2. Wheel alignment (Front)	SP-2
	3. Wheel alignment (Rear)	SP-10
	4. Hub bearing	AH-4
	5. Front shock absorber with coil spring	SP-14
	6. Rear shock absorber with coil spring	SP-33
Front wheel shimmy	1. Wheel (unbalance)	-
	2. Hub bearing	AH-4
	3. Front lower ball joint	SP-24
	4. Front shock absorber with coil spring	SP-14
Noise (Front)	1. Front shock absorber with coil spring	SP-14
	2. Front drive shaft	DS-7
	3. Hub bearing	AH-4
	4. Front lower ball joint	SP-24
Noise (Rear)	1. Hub bearing	AH-4
	2. Rear shock absorber with coil spring	SP-33

# FRONT AXLE HUB BOLT

## REMOVAL

### HINT:

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

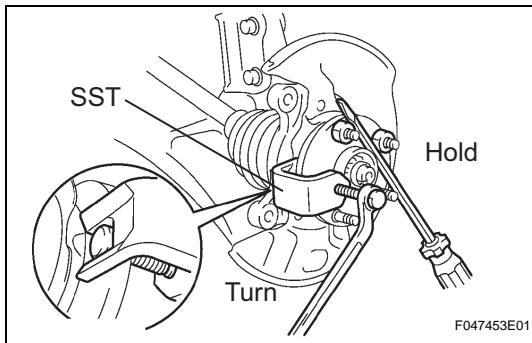
1. REMOVE FRONT WHEEL
2. DISCONNECT FRONT DISC BRAKE CALIPER ASSEMBLY LH (See page [AH-4](#))
3. REMOVE FRONT DISC

### HINT:

Put matchmarks on the front disc and front axle hub.

4. REMOVE FRONT AXLE HUB BOLT LH
  - (a) Temporarily install 2 nuts to any 2 hub bolts, except the hub bolt that you will replace.
  - (b) Using SST and a screwdriver or equivalent to hold the front axle, remove the hub bolt that needs to be replaced.

**SST 09628-10011**



## INSTALLATION

### HINT:

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

#### 1. INSTALL FRONT AXLE HUB BOLT LH

- (a) Insert a new hub bolt into the bolt hole. Set a plate washer and nut on the hub bolt end.
- (b) Using a screwdriver or equivalent to hold the front axle, install the hub bolt by tightening the nut. Then remove the nut and plate washer.
- (c) Remove the 2 temporary nuts.

### HINT:

A plate washer of 5 mm (0.21 in.) or more in thickness is preferable.

#### 2. INSTALL FRONT DISC

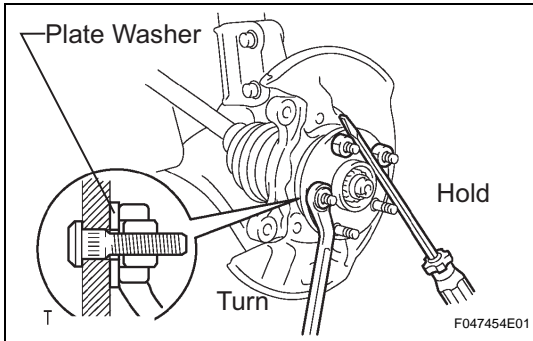
### HINT:

Align the matchmarks of the front disc and front axle hub before installing them.

#### 3. INSTALL FRONT DISC BRAKE CALIPER ASSEMBLY LH (See page [AH-7](#))

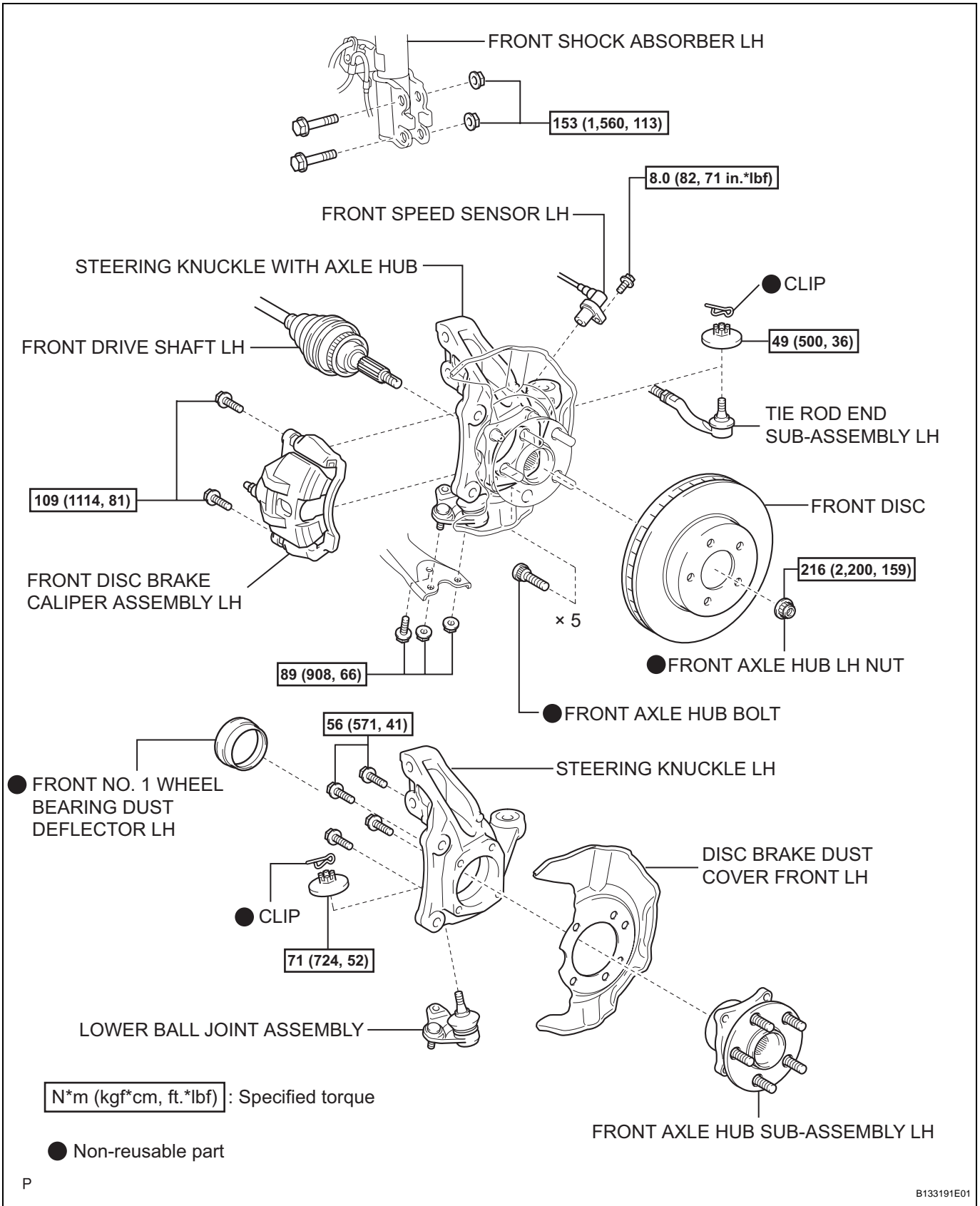
#### 4. INSTALL FRONT WHEEL

Torque: 103 N\*m (1,050 kgf\*cm, 76 ft.\*lbf)

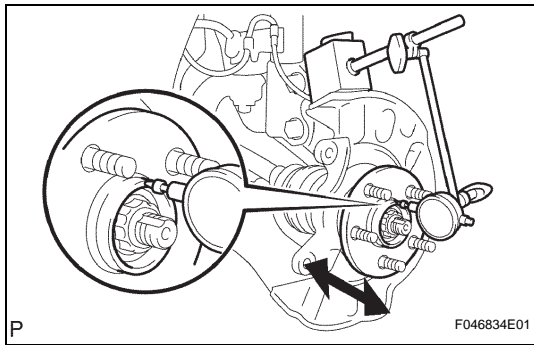


# FRONT AXLE HUB

## COMPONENTS



AH



## ON-VEHICLE INSPECTION

### 1. INSPECT FRONT AXLE HUB BEARING LOOSENESS

- (a) Remove the front wheel.
- (b) Remove the front disc brake caliper.
- (c) Remove the front disc.

HINT:

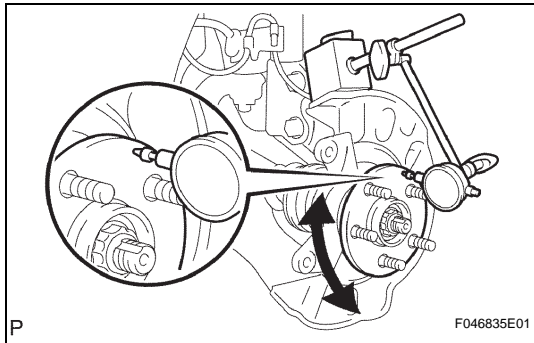
Put matchmarks on the front disc and front axle hub.

- (d) Using a dial indicator, check for looseness at the center of the axle hub.

**Maximum looseness:**

**0.05 mm (0.0020 in.)**

If the looseness exceeds the maximum, replace the axle hub.



### 2. INSPECT FRONT AXLE HUB RUNOUT

- (a) Using a dial indicator, check for runout of the axle hub.

**Maximum runout:**

**0.05 mm (0.0020 in.)**

If the runout exceeds the maximum, replace the axle hub.

- (b) Install the front disc.

HINT:

Align the matchmarks of the front disc and front axle hub before installing them.

- (c) Install the front disc brake caliper.

**Torque: 109 N\*m (1,114 kgf\*cm, 81 ft.\*lbf)**

- (d) Install the front wheel.

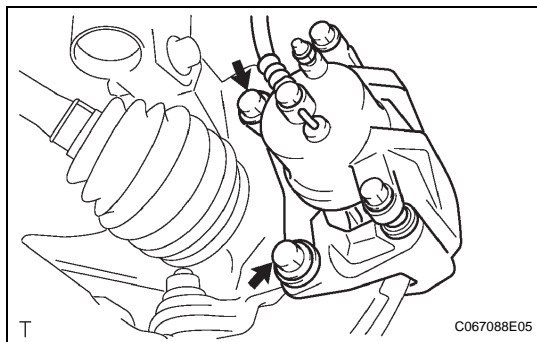
**Torque: 103 N\*m (1,050 kgf\*cm, 76 ft.\*lbf)**

## REMOVAL

### HINT:

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

1. REMOVE FRONT WHEEL
2. REMOVE FRONT AXLE HUB NUT LH (See page [DS-5](#))
3. DISCONNECT FRONT SPEED SENSOR LH (See page [BC-218](#))



4. DISCONNECT FRONT DISC BRAKE CALIPER ASSEMBLY LH

- (a) Remove the 2 bolts and disconnect the disc brake caliper from the steering knuckle.

### NOTICE:

Hang down the disc brake caliper with a wire or equivalent.

5. REMOVE FRONT DISC

### NOTICE:

Ensure no oil attaches to the disc surface.

6. DISCONNECT TIE ROD END SUB-ASSEMBLY LH (See page [DS-6](#))

7. DISCONNECT NO. 1 FRONT SUSPENSION ARM SUB-ASSEMBLY LOWER LH (See page [DS-6](#))

8. REMOVE FRONT AXLE ASSEMBLY LH

- (a) Using a plastic-faced hammer, tap the end of the front drive shaft and disengage the fitting between the front drive shaft and front axle.

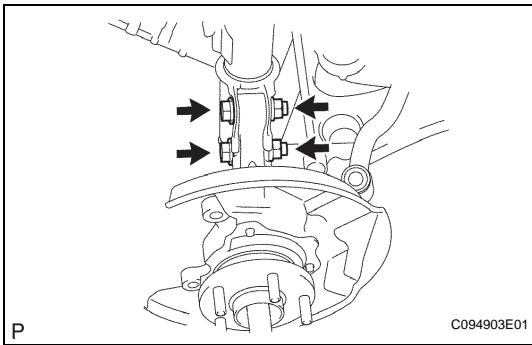
### HINT:

If it is difficult to disengage, tap the end of the front drive shaft with a brass bar and hammer.

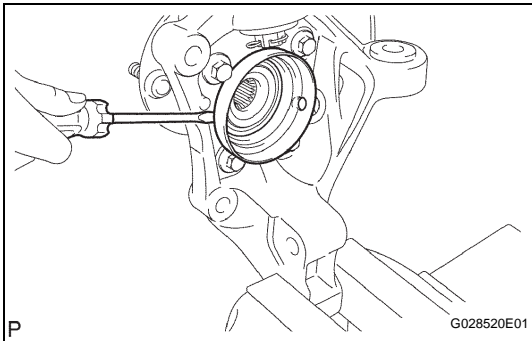
- (b) Push the front axle outward from the vehicle to remove the front drive shaft from the front axle.

### NOTICE:

- Be careful not to push the front axle outward from the vehicle more than is necessary to remove it.
- Be careful not to damage the drive shaft outboard joint boot.
- Be careful not to damage the speed sensor rotor.
- Hang the front drive shaft down with a string or equivalent.



- (c) Remove the 2 bolts and 2 nuts, and remove the front axle from the front shock absorber.

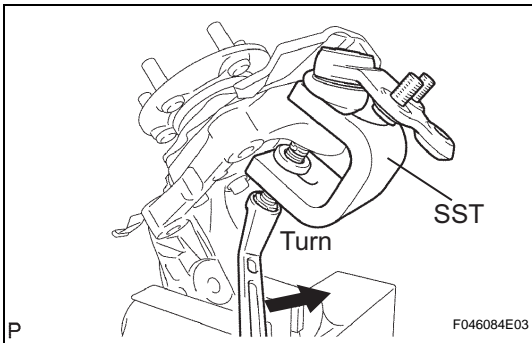


**9. REMOVE FRONT NO. 1 WHEEL BEARING DUST DEFLECTOR LH**

- (a) Mount the steering knuckle in a soft vise.  
 (b) Using a screwdriver, remove the deflector from the steering knuckle.

**NOTICE:**

**Be careful not to damage the steering knuckle.**



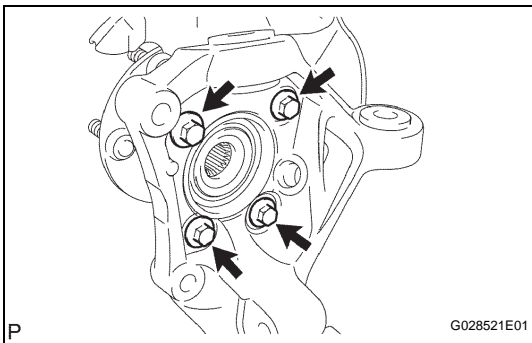
**10. REMOVE LOWER BALL JOINT ASSEMBLY**

- (a) Remove the clip and castle nut.  
 (b) Using SST, remove the lower ball joint.

**SST 09611-36020**

**NOTICE:**

- Do not damage the steering knuckle.
- Securely hang SST to the spacer of the steering knuckle.
- Replace the steering knuckle with a new one if the spacer comes off the steering knuckle.



**11. REMOVE FRONT AXLE HUB SUB-ASSEMBLY LH**

- (a) Remove the 4 bolts, dust cover and front axle hub.

## INSTALLATION

### HINT:

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

### 1. INSTALL FRONT AXLE HUB SUB-ASSEMBLY LH

- (a) Install the axle hub and dust cover with the 4 bolts.  
**Torque: 56 N\*m (571 kgf\*cm, 41 ft.\*lbf)**

### 2. INSTALL LOWER BALL JOINT ASSEMBLY

- (a) Install the lower ball joint to the steering knuckle, and install the castle nut.

**Torque: 71 N\*m (724 kgf\*cm, 52 ft.\*lbf)**

#### NOTICE:

- Be careful that grease does not adhere to the threads or tapered part.
- The clip hole alignment should be done after tightening the castle nut up to 60° beyond the torque specification.

- (b) Install a new clip.

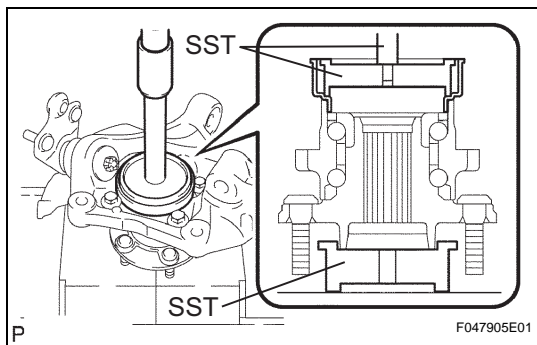
### 3. INSTALL FRONT NO. 1 WHEEL BEARING DUST DEFLECTOR LH

- (a) Using SST and a press, press in a new dust deflector.

**SST 09950-70010 (09951-07150), 09608-32010, 09950-60020 (09951-00720)**

#### NOTICE:

**Align the dust deflector hole and the steering knuckle hole.**



### 4. INSTALL FRONT AXLE ASSEMBLY LH

- (a) Install the front axle to the shock absorber, insert the 2 bolts from the front of the vehicle and tighten the 2 nuts.

**Torque: 153 N\*m (1,560 kgf\*cm, 113 ft.\*lbf)**

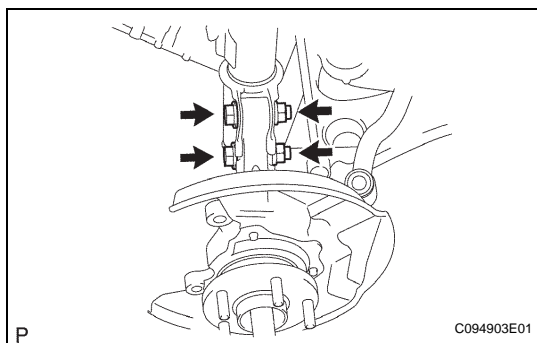
#### NOTICE:

**Apply engine oil to the nut threads or the seating surface only when reusing the bolt and nuts.**

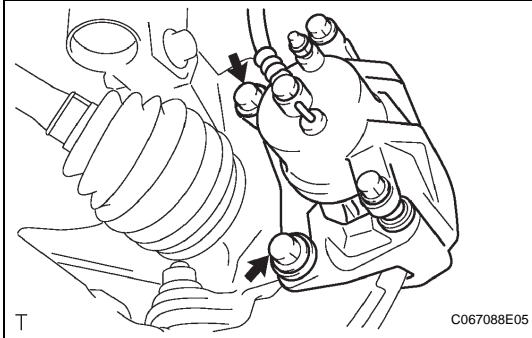
- (b) Push the front axle outward from the vehicle to engage the spline of the drive shaft and insert it to the front axle.

#### NOTICE:

- Be careful not to push the front axle outward from the vehicle more than is necessary to remove it.
- Be careful not to damage the drive shaft outboard joint boot.
- Be careful not to damage the speed sensor rotor.
- Check for any foreign matter on the speed sensor rotor and insertion part.







5. **CONNECT FRONT NO. 1 SUSPENSION ARM SUB-ASSEMBLY LOWER LH** (See page [DS-16](#))
6. **CONNECT TIE ROD END SUB-ASSEMBLY LH** (See page [DS-16](#))
7. **INSTALL FRONT DISC**
8. **INSTALL FRONT DISC BRAKE CALIPER ASSEMBLY LH**
  - (a) Install the disc brake caliper to the steering knuckle with the 2 bolts.  
**Torque: 109 N\*m (1,114 kgf\*cm, 81 ft.\*lbf)**
9. **INSTALL FRONT AXLE HUB LH NUT**
  - (a) Using a 30 mm socket wrench, install a new hub nut.  
**Torque: 216 N\*m (2,200 kgf\*cm, 159 ft.\*lbf)**
10. **DISCONNECT FRONT DISC BRAKE CALIPER ASSEMBLY LH**
11. **REMOVE FRONT DISC**
12. **INSPECT FRONT AXLE HUB BEARING LOOSENESS** (See page [AH-4](#))
13. **INSPECT FRONT AXLE HUB BEARING RUNOUT** (See page [AH-4](#))
14. **INSTALL FRONT DISC** (See page [BR-43](#))
15. **INSTALL FRONT DISC BRAKE CALIPER ASSEMBLY LH**  
**Torque: 109 N\*m (1,114 kgf\*cm, 81 ft.\*lbf)**
16. **INSTALL FRONT SPEED SENSOR LH** (See page [BC-218](#))
17. **INSTALL FRONT AXLE HUB NUT LH**
  - (a) Using a chisel and hammer, stake the hub nut.
18. **INSTALL FRONT WHEEL**  
**Torque: 103 N\*m (1,050 kgf\*cm, 76 ft.\*lbf)**
19. **INSPECT AND ADJUST FRONT WHEEL ALIGNMENT** (See page [SP-3](#))
20. **CHECK ABS SPEED SENSOR SIGNAL** (See page [BC-219](#))

## REAR AXLE HUB BOLT

### REMOVAL

#### HINT:

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

#### 1. REMOVE REAR WHEEL

#### 2. REMOVE REAR BRAKE DRUM SUB-ASSEMBLY

#### HINT:

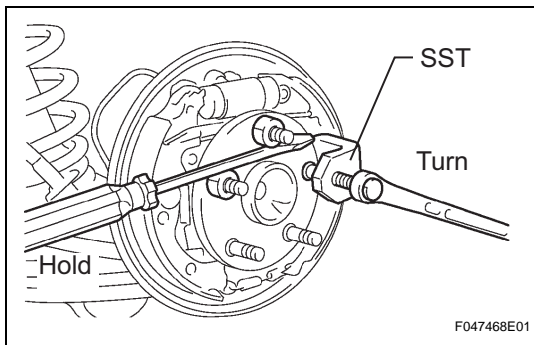
Put matchmarks on the brake drum and hub.

#### 3. REMOVE REAR AXLE HUB BOLT LH

(a) Temporarily install 2 nuts to any 2 hub bolts, except hub bolt that you will replace.

(b) Using SST and a screwdriver or equivalent to hold the front axle, remove the hub bolt that needs to be replaced.

**SST 09628-10011**



## INSTALLATION

### HINT:

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

### 1. INSTALL REAR AXLE HUB BOLT LH

- (a) Insert a new hub bolt into the bolt hole. Set a plate washer and nut on the hub bolt end.
- (b) Using a screwdriver or equivalent to hold the front axle, install the hub bolt by tightening the nut. Then remove the nut and plate washer.
- (c) Remove the 2 temporary nuts.

### HINT:

A plate washer of 5 mm (0.20 in.) or more in thickness is preferable.

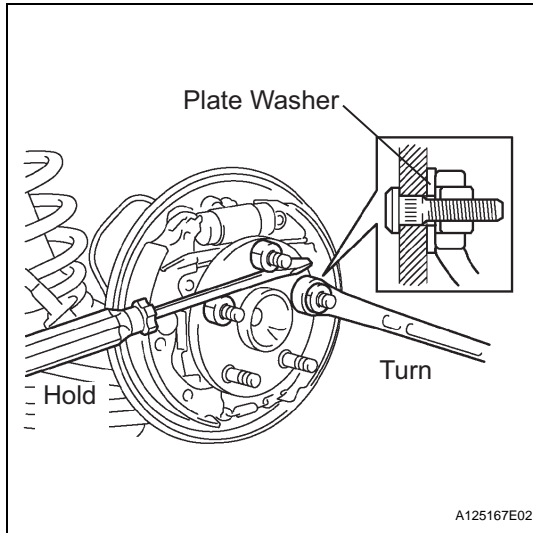
### 2. INSTALL REAR BRAKE DRUM SUB-ASSEMBLY

#### HINT:

Align the matchmarks of the brake drum and axle hub before installing them.

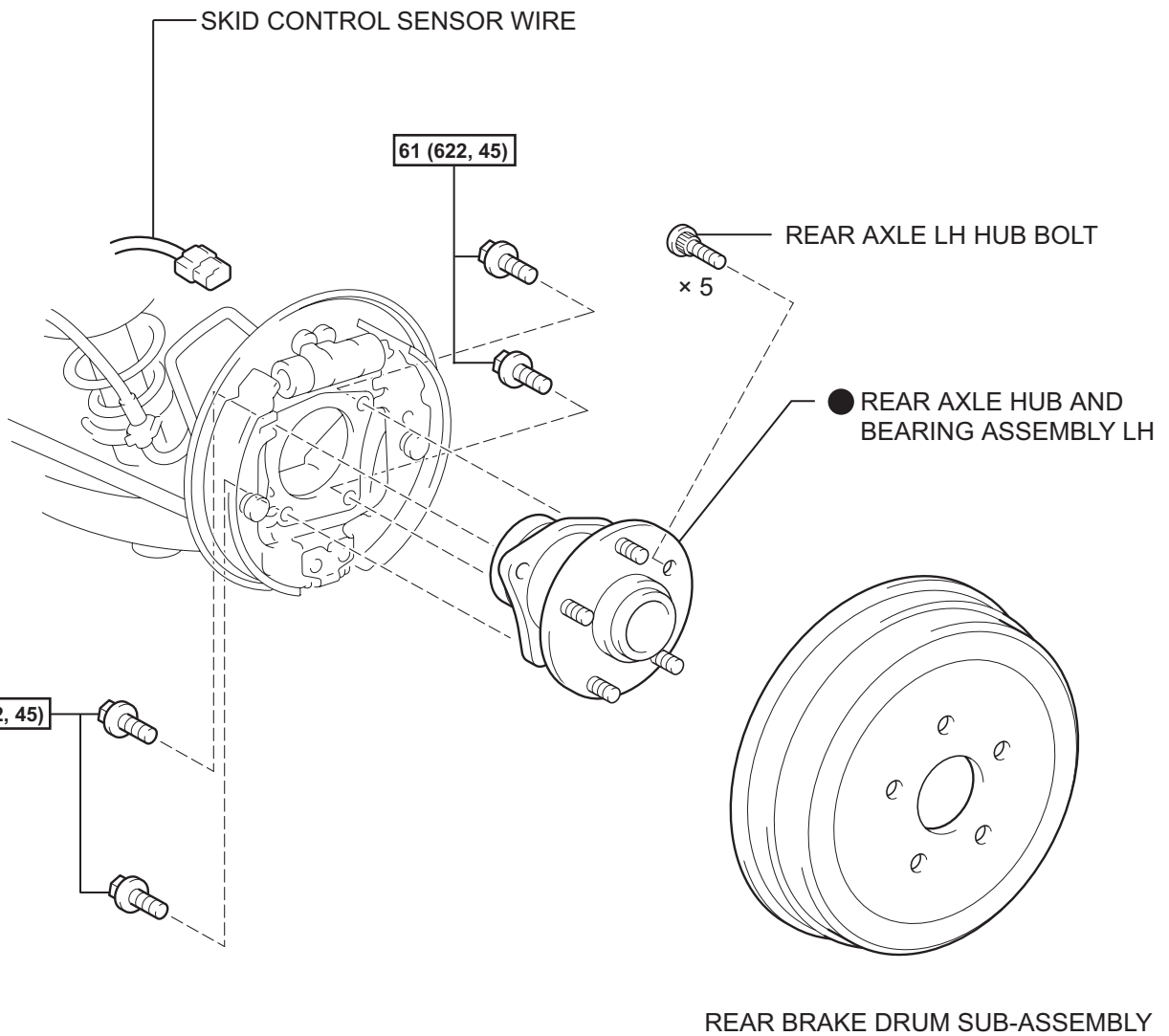
### 3. INSTALL REAR WHEEL

**Torque: 103 N\*m (1,050 kgf\*cm, 76 ft.\*lbf)**



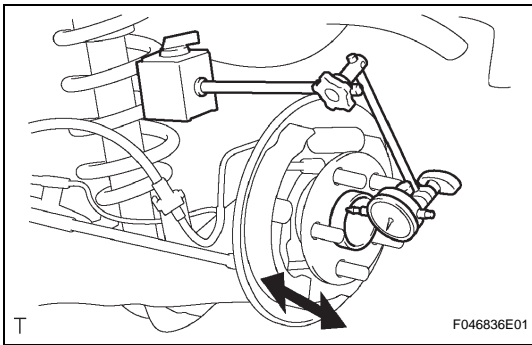
# REAR AXLE HUB AND BEARING

## COMPONENTS



**61 (622, 45)** : Specified torque

**AH**



## ON-VEHICLE INSPECTION

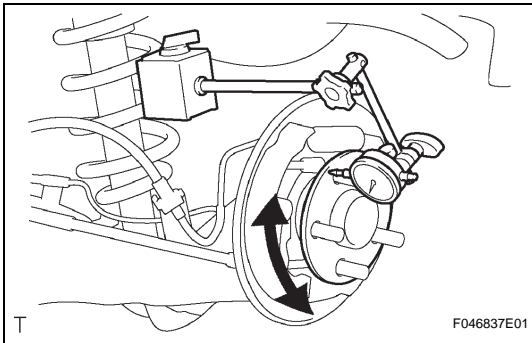
### 1. INSPECT REAR AXLE HUB BEARING LOOSENESS

- (a) Remove the rear wheel.
  - (b) Remove the rear brake drum.
- HINT:  
Put matchmarks on the rear brake drum and hub bolt.
- (c) Using a dial indicator, check for looseness at the center of the axle hub.

#### Maximum looseness:

**0.05 mm (0.0020 in.)**

If the looseness exceeds the maximum, replace the axle hub.



### 2. INSPECT REAR AXLE HUB BEARING RUNOUT

- (a) Using a dial indicator, check for runout of the axle hub.

#### Maximum runout:

**0.07 mm (0.0028 in.)**

If the runout exceeds the maximum, replace the axle hub.

- (b) Install the rear brake drum.

#### HINT:

Align the matchmarks of the rear brake drum and hub bolt before installing them.

- (c) Install the rear wheel.

**Torque: 103 N\*m (1,050 kgf\*cm, 76 ft.\*lbf)**

## REMOVAL

### HINT:

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

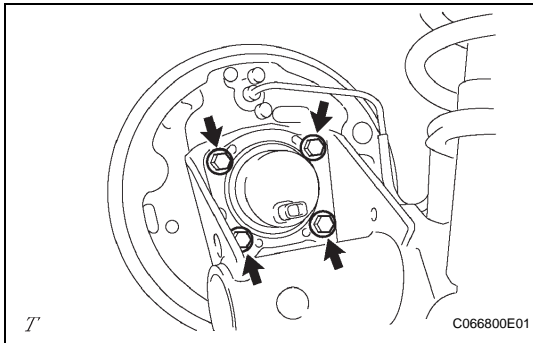
1. REMOVE REAR WHEEL
2. REMOVE REAR BRAKE DRUM SUB-ASSEMBLY
3. DISCONNECT SKID CONTROL SENSOR CONNECTOR

### NOTICE:

Be careful that foreign matter does not attach to the inside of the skid control sensor connector and on the installation portion.

4. REMOVE REAR AXLE HUB AND BEARING ASSEMBLY LH

- (a) Remove the 4 bolts and then remove the axle hub and bearing.



## INSTALLATION

### HINT:

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

#### 1. INSTALL REAR AXLE HUB AND BEARING ASSEMBLY LH

- (a) Install the axle hub and bearing LH on the axle beam with the 4 bolts.

**Torque: 61 N\*m (622 kgf\*cm, 45 ft.\*lbf)**

#### 2. CONNECT SKID CONTROL SENSOR CONNECTOR

#### 3. INSPECT REAR AXLE HUB BEARING LOOSENESS (See page [AH-10](#))

#### 4. INSPECT REAR AXLE HUB BEARING RUNOUT (See page [AH-10](#))

#### 5. INSTALL REAR BRAKE DRUM SUB-ASSEMBLY

#### 6. INSTALL REAR WHEEL

**Torque: 103 N\*m (1,050 kgf\*cm, 76 ft.\*lbf)**

#### 7. INSPECT REAR WHEEL ALIGNMENT (See page [SP-10](#))

#### 8. CHECK ABS SPEED SENSOR SIGNAL