

AXLE SYSTEM

PROBLEM SYMPTOMS TABLE

Use the table below, with suspected areas listed in numerical order, to determine the cause of the problem. Inspect and repair parts as necessary according to the steps on the following pages.

AXLE SYSTEM

Symptom	Suspected area	See page
Wander	1.Wheel alignment (Front)	SP-9
	2.Wheel alignment (Rear)	SP-16
	3.Steering linkage (Loosen or worn)	-
	4.Hub bearing (Worn)	AH-1
	5.Stabilizer bar	SP-28
Front wheel shimmy	1.Wheel balance	TW-4
	2.Shock absorber	SP-19
	3.Ball joint (Worn)	SP-25
	4.Hub bearing (Worn)	AH-1
Noise (Front drive shaft)	Inboard or outboard joint (Worn)	DS-9

AH

AH-2

AXLE – AXLE SYSTEM

ON-VEHICLE INSPECTION

1. REMOVE FRONT WHEEL

2. INSPECT FRONT AXLE HUB BEARING BACKLASH

- (a) Remove the 2 bolts, brake caliper and disc.
- (b) Securely support the brake caliper.
- (c) Using a dial indicator, check for backlash near the center of the axle hub.

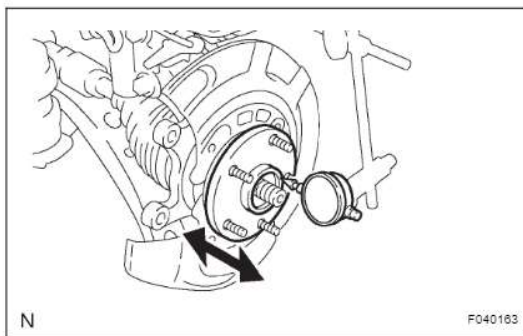
Maximum:**0.05 mm (0.0020 in.)**

If backlash exceeds the maximum, replace the bearing.

- (d) Install the disc, brake caliper and 2 bolts.

Torque: 107 N*m (1,090 kgf*cm, 79 ft.*lbf)**NOTICE:**

Ensure that the dial indicator is set at right angles to the measurement surface.



3. INSPECT FRONT AXLE HUB BEARING DEVIATION

- (a) Remove the 2 bolts, brake caliper and disc.
- (b) Securely support the brake caliper.
- (c) Using a dial indicator, check for deviation in the surface of the axle hub outside the hub bolt.

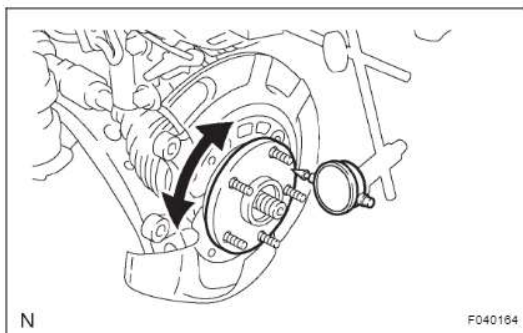
Maximum:**0.05 mm (0.0020 in.)**

If deviation exceeds the maximum, replace the axle hub.

- (d) Install the disc, brake caliper and 2 bolts.

Torque: 107 N*m (1,090 kgf*cm, 79 ft.*lbf)**NOTICE:**

Ensure that the dial indicator is set at right angles to the measurement surface.



4. REMOVE REAR WHEEL

5. INSPECT REAR AXLE HUB BEARING BACKLASH

- (a) Remove the 2 bolts, brake caliper and disc.
- (b) Securely support the brake caliper.
- (c) Using a dial indicator, check for backlash near the center of the axle hub.

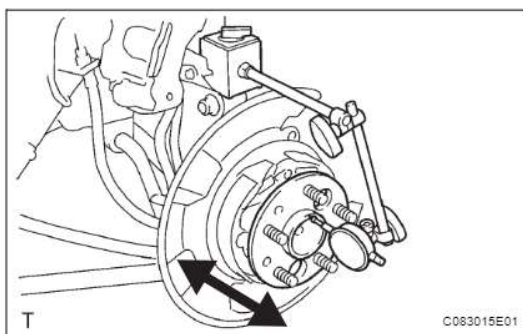
Maximum:**0.05 mm (0.0020 in.)**

If backlash exceeds the maximum, replace the axle hub assembly.

- (d) Install the disc, brake caliper and 2 bolts.

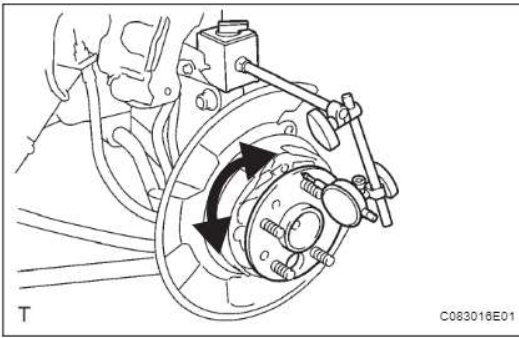
Torque: 62 N*m (630 kgf*cm, 46 ft.*lbf)**NOTICE:**

Ensure that the dial indicator is set at right angles to the measurement surface.



6. INSPECT REAR AXLE HUB BEARING DEVIATION

- (a) Remove the 2 bolts, brake caliper and disc.
- (b) Securely support the brake caliper.

AXLE – AXLE SYSTEM**AH-3**

- (c) Using a dial indicator, check for deviation in the surface of the axle hub outside the hub bolt.

Maximum:

0.07 mm (0.0027 in.)

If deviation exceeds the maximum, replace the axle hub assembly.

- (d) Install the disc, brake caliper and 2 bolts.

Torque: 62 N*m (630 kgf*cm, 46 ft.*lbf)

NOTICE:

Ensure that the dial indicator is set at right angles to the measurement surface.

AH

FRONT AXLE HUB BOLT

REMOVAL

HINT:

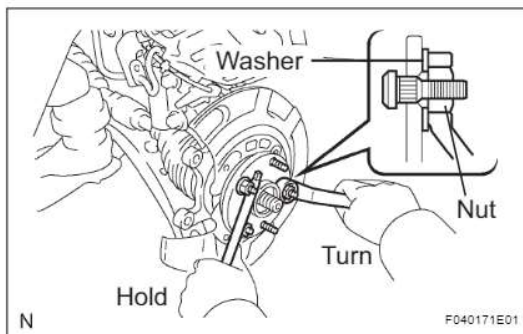
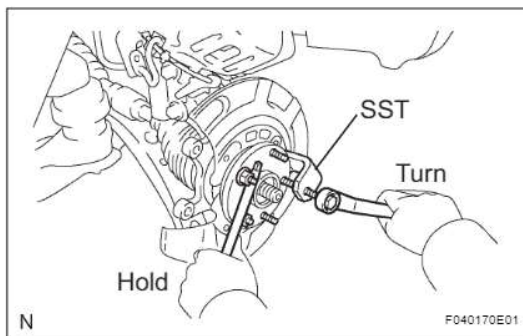
COMPONENTS: See page [AH-4](#)

- 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. SEPARATE FRONT DISC BRAKE CALIPER ASSEMBLY LH
3. REMOVE FRONT DISC
4. REMOVE FRONT AXLE LH HUB BOLT

- (a) Temporarily install the 2 nuts and 2 washers to the front axle LH hub bolt as shown in the illustration.
- (b) Using SST and a screwdriver or an equivalent to hold the front axle, remove the front axle LH hub bolt.

SST 09628-10011



INSTALLATION

1. INSTALL FRONT AXLE LH HUB BOLT
 - (a) Install a washer and nut to a new front axle LH hub bolt as shown in the illustration.
 - (b) Using a screwdriver to hold the front axle, install a new hub bolt by tightening the nut.
2. INSTALL FRONT DISC
3. INSTALL FRONT DISC BRAKE CALIPER ASSEMBLY LH
4. INSTALL FRONT WHEEL

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

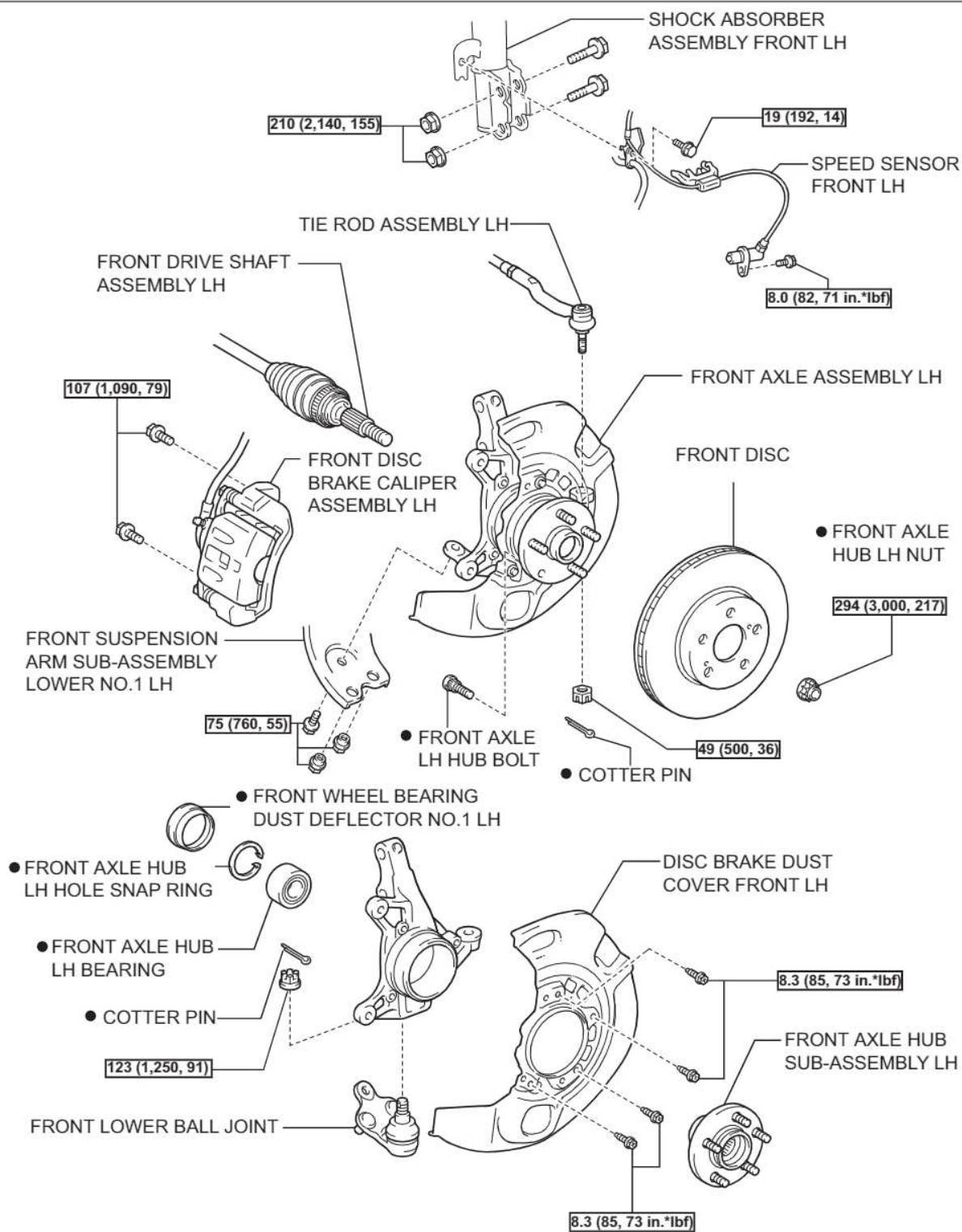
AH

AH-4

AXLE – FRONT AXLE HUB

FRONT AXLE HUB COMPONENTS

AH



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

● Non-resusable part

P

C109880E01

REMOVAL

HINT:

COMPONENTS: See page [AH-4](#)

- 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 LH NUT
SST 09930-00010
3. SEPARATE SPEED SENSOR FRONT LH
4. SEPARATE FRONT DISC BRAKE CALIPER ASSEMBLY LH

- (a) Remove the 2 bolts and separate the front disc brake caliper assembly LH from the steering knuckle LH.

NOTICE:

Use a string or similar device to keep the brake caliper from hanging down by the flexible hose.

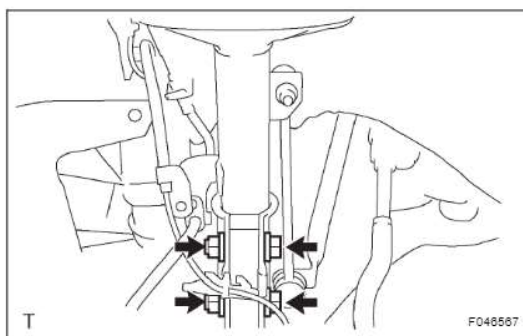
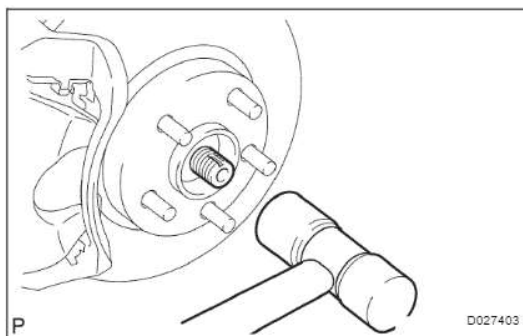
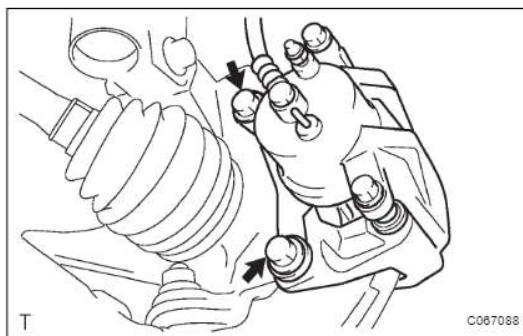
5. REMOVE FRONT DISC
6. SEPARATE TIE ROD ASSEMBLY LH
SST 09628-62011
7. SEPARATE FRONT SUSPENSION ARM SUB-ASSEMBLY LOWER NO.1 LH
8. REMOVE FRONT AXLE ASSEMBLY LH

- (a) Using a plastic hammer, separate the front drive shaft assembly LH from the front axle hub sub-assembly LH.

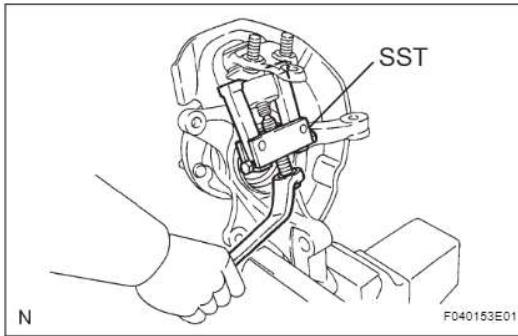
NOTICE:

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

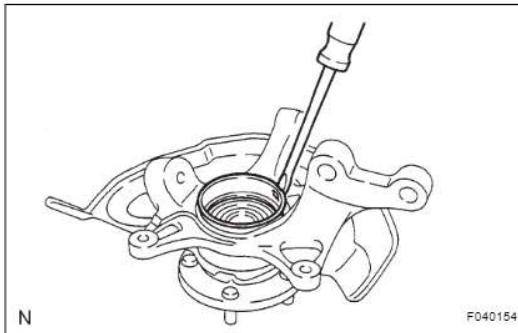
- (b) Remove the 2 bolts, nuts and steering knuckle LH with the front axle hub sub-assembly LH.



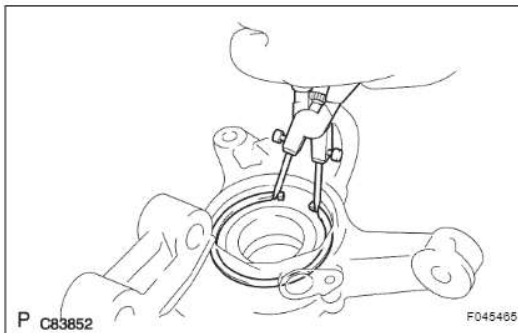
AH

AH-6**AXLE – FRONT AXLE HUB****9. REMOVE FRONT LOWER BALL JOINT**

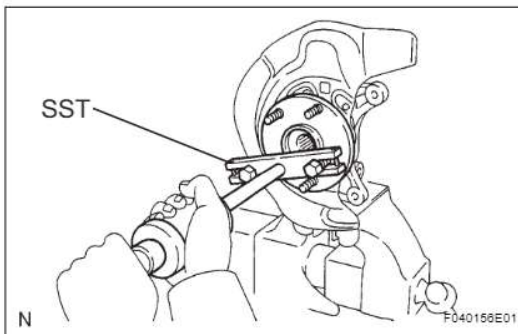
- (a) Remove the cotter pin and nut.
- (b) Using SST, remove the lower ball joint assembly front LH.

SST 09628-62011**10. REMOVE FRONT WHEEL BEARING DUST DEFLECTOR NO.1 LH**

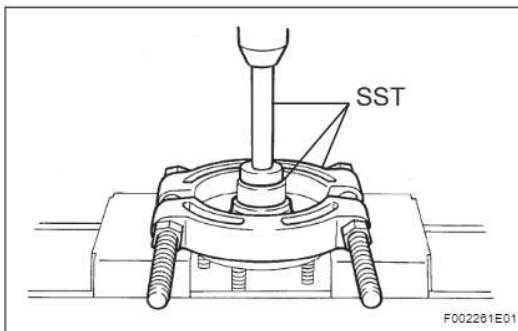
- (a) Using a screwdriver, remove the bearing dust deflector No.1 LH.

**11. REMOVE FRONT AXLE HUB LH HOLE SNAP RING**

- (a) Using snap ring pliers, remove the front axle hub LH hole snap ring.

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

- (a) Using SST, remove the front axle hub sub-assembly LH.

SST 09520-00031

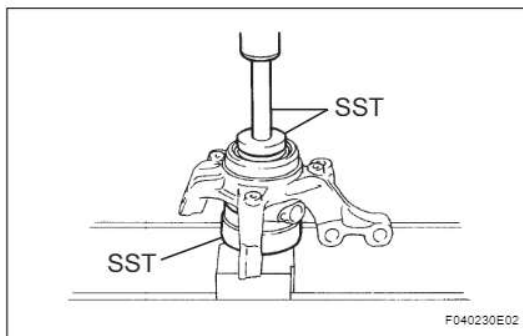
- (b) Using SST and a press, remove the bearing inner race (outside) from the front axle hub sub-assembly LH.

SST 09950-00020, 09950-60010 (09951-00430), 09950-70010 (09951-07100)**13. REMOVE DISC BRAKE DUST COVER FRONT LH**

- (a) Using a torx wrench (T30), remove the 4 bolts and disc brake dust cover front LH.

AXLE – FRONT AXLE HUB

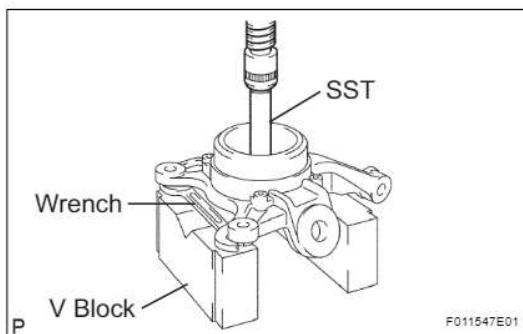
AH-7



14. REMOVE FRONT AXLE HUB LH BEARING

- (a) Place the bearing inner race (outside) on the front axle hub LH bearing.
- (b) Using SST and a press, press the front axle hub LH bearing until it comes into contact with the SST.

SST 09527-17011, 09950-60010 (09951-00600), 09950-70010 (09951-07100)



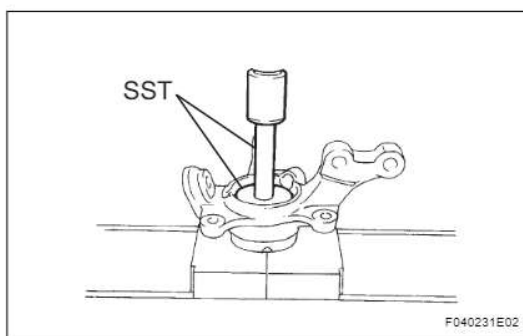
- (c) Using a wrench to make the steering knuckle LH horizontal, fix it to the V block, as shown in the illustration.

NOTICE:

Be sure the steering knuckle is horizontally positioned.

- (d) Using SST and a press, remove the front axle hub LH bearing.

SST 09950-60010 (09951-00600), 09950-70010 (09951-07100)



INSTALLATION

1. INSTALL FRONT AXLE HUB LH BEARING

- (a) Using SST and a press, install a new front axle hub LH bearing to the steering knuckle LH.

SST 09950-60020 (09951-00810), 09950-70010 (09951-07100)

2. INSTALL DISC BRAKE DUST COVER FRONT LH

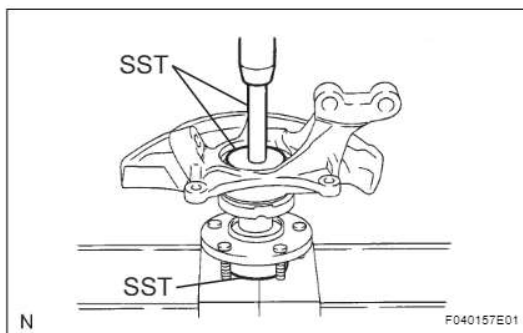
- (a) Place the disc brake dust cover front LH and use a torx wrench (T30) to torque the 4 bolts.

Torque: 8.3 N*m (85 kgf*cm, 73 in.*lbf)

3. INSTALL FRONT AXLE HUB SUB-ASSEMBLY LH

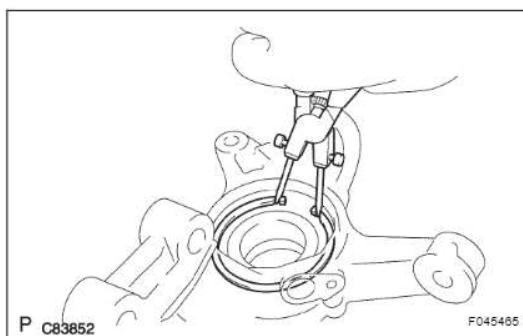
- (a) Using SST and a press, install the front axle hub sub-assembly LH.

SST 09608-32010, 09950-60020 (09951-00810), 09950-70010 (09951-07100)



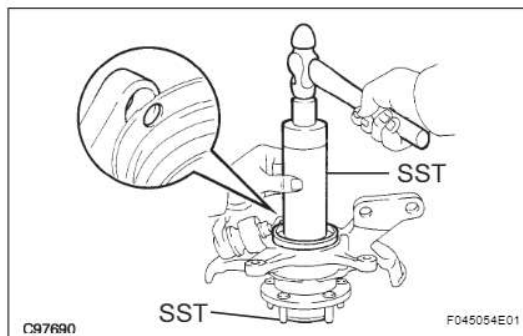
4. INSTALL FRONT AXLE HUB LH HOLE SNAP RING

- (a) Using snap ring pliers, install a new front axle hub LH hole snap ring.



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AXLE – FRONT AXLE HUB



5. INSTALL FRONT WHEEL BEARING DUST DEFLECTOR NO.1 LH

- (a) Using SST and a hammer, install a new bearing dust deflector No.1 LH.

SST 09316-60011 (09316-00011, 09316-00031), 09608-32010

HINT:

Align the hole for the speed sensor in the bearing dust deflector No.1 LH with the steering knuckle.

6. INSTALL FRONT LOWER BALL JOINT

- (a) Install the lower ball joint assembly front LH and tighten the nut.

Torque: 123 N*m (1,250 kgf*cm, 91 ft.*lbf)

- (b) Install a new cotter pin.

NOTICE:

If the holes for the cotter pin are not aligned, tighten the nut up to 60°C further.

7. INSTALL FRONT AXLE ASSEMBLY LH

- (a) Install the front axle assembly LH to the shock absorber assembly front LH with the 2 bolts and 2 nuts.

Torque: 210 N*m (2,140 kgf*cm, 155 ft.*lbf)

NOTICE:

- Only when reusing the bolts and nuts, apply a small amount of engine oil to the screw part of the nuts.
- Do not excessively push out the front axle assembly LH.
- Be careful not to damage the outboard joint boot.
- Be careful not to damage the speed sensor rotor.

8. INSTALL FRONT SUSPENSION ARM SUB-ASSEMBLY LOWER NO.1 LH

9. INSTALL TIE ROD ASSEMBLY LH

10. INSTALL FRONT DISC

11. INSTALL FRONT DISC BRAKE CALIPER ASSEMBLY LH

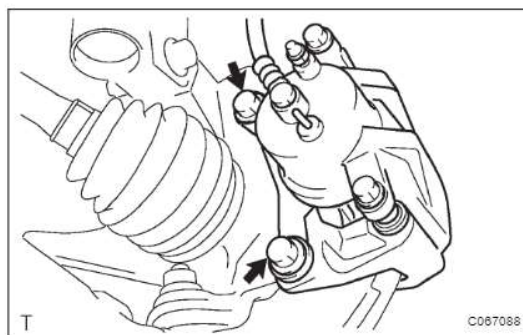
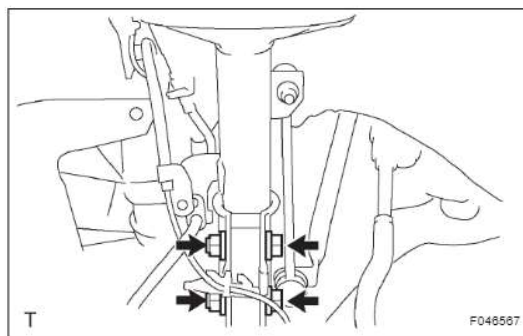
- (a) Install the front disc brake caliper assembly LH with the 2 bolts to the steering knuckle LH.

Torque: 107 N*m (1,090 kgf*cm, 79 ft.*lbf)

12. INSTALL FRONT AXLE HUB LH NUT

- (a) Using a socket wrench (30 mm), install a new axle hub LH nut.

Torque: 294 N*m (3,000 kgf*cm, 217 ft.*lbf)



AH

AXLE – FRONT AXLE HUB

AH-9

13. SEPARATE FRONT DISC BRAKE CALIPER ASSEMBLY LH

- (a) Remove the 2 bolts and separate the front disc brake caliper assembly LH from the steering knuckle LH.

NOTICE:

Use a string or similar device to keep the brake caliper from hanging down by the flexible hose.

14. REMOVE FRONT DISC**15. INSPECT BEARING BACKLASH****16. INSPECT AXLE HUB DEVIATION****17. INSTALL FRONT DISC****18. INSTALL FRONT DISC BRAKE CALIPER ASSEMBLY LH**

- (a) Install the front disc brake caliper assembly LH with the 2 bolts to the steering knuckle LH.

Torque: 107 N*m (1,090 kgf*cm, 79 ft.*lbf)

19. INSTALL SPEED SENSOR FRONT LH**HINT:**

See page

20. INSTALL FRONT AXLE HUB LH NUT

- (a) Using a socket wrench (30 mm), install a new axle hub LH nut.

Torque: 294 N*m (3,000 kgf*cm, 217 ft.*lbf)

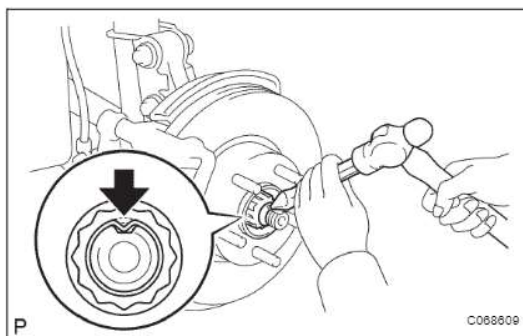
- (b) Using a chisel and hammer, stake the axle hub LH nut.

21. INSTALL FRONT WHEEL

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

22. INSPECT AND ADJUST FRONT WHEEL ALIGNMENT**23. CHECK ABS SPEED SENSOR SIGNAL**

- (a) ABS WITH EBD SYSTEM (See page [BC-1](#))
 (b) ABS WITH EBD & BA & TRAC & VSC SYSTEM
 (See page [BC-70](#))

**AH**

AH-10

AXLE – REAR AXLE HUB BOLT

REAR AXLE HUB BOLT

REMOVAL

HINT:

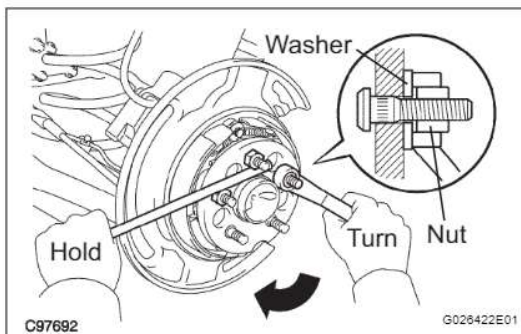
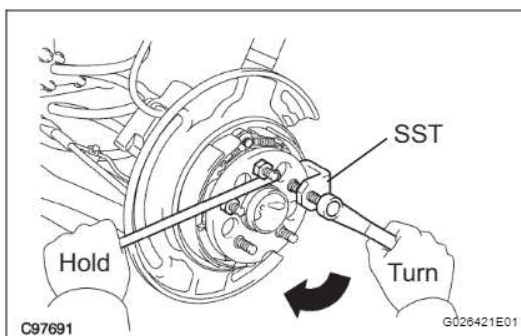
COMPONENTS: See page [AH-13](#)

- 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. SEPARATE REAR DISC BRAKE CALIPER ASSEMBLY LH
3. REMOVE REAR DISC
4. REMOVE REAR AXLE LH HUB BOLT

- (a) Temporarily install the 2 nuts and 2 washers to the front axle LH hub bolt as shown in the illustration.
- (b) Using SST and a screwdriver or an equivalent to hold the front axle, remove the front axle LH hub bolt.

SST 09628-10011



INSTALLATION

1. INSTALL REAR AXLE LH HUB BOLT
 - (a) Install a washer and nut to a new front axle LH hub bolt as shown in the illustration.
 - (b) Using a hammer, handle or an equivalent to hold the hub & bearing assembly, install a new rear axle LH hub bolt by tightening the nut.
2. INSTALL REAR DISC
3. INSTALL REAR DISC BRAKE CALIPER ASSEMBLY LH
4. INSTALL REAR WHEEL

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

AH

REAR AXLE HUB AND BEARING

REMOVAL

HINT:

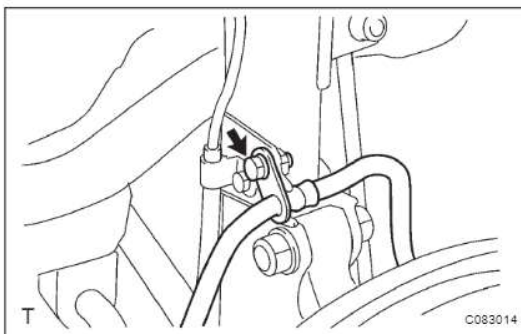
COMPONENTS: See page [AH-13](#)

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

1. REMOVE REAR WHEEL

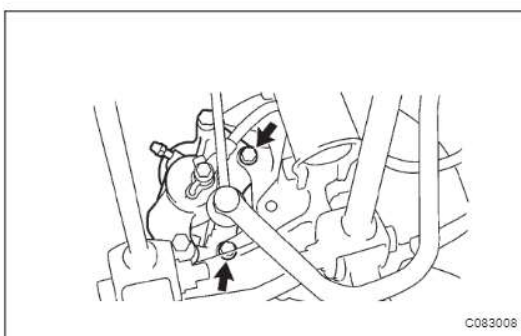
2. DISCONNECT REAR DISC BRAKE CALIPER ASSEMBLY LH

- (a) Remove the bolt and separate the flexible hose from the shock absorber.



2. DISCONNECT REAR DISC BRAKE CALIPER ASSEMBLY LH

- (a) Remove the bolt and separate the flexible hose from the shock absorber.



- (b) Remove the 2 bolts and separate the rear disc brake caliper assembly.

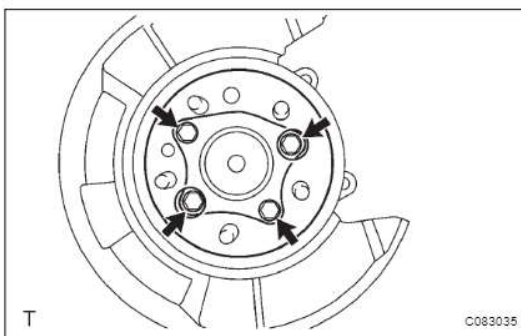
NOTICE:

Use a string or similar device to keep the brake caliper from hanging down by the flexible hose.

3. REMOVE REAR DISC

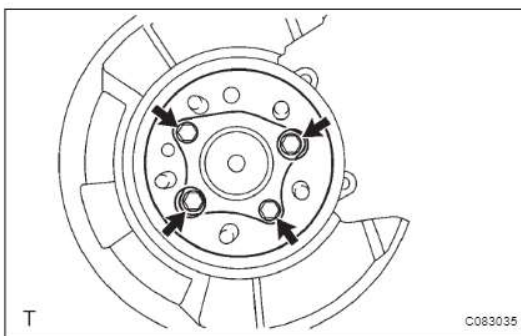
4. DISCONNECT SKID CONTROL SENSOR

- (a) Disconnect the connector.



5. REMOVE REAR AXLE HUB AND BEARING ASSEMBLY LH

- (a) Remove the 4 bolts and hub & bearing assembly LH.



INSTALLATION

1. INSTALL REAR AXLE HUB AND BEARING ASSEMBLY LH

- (a) Install the hub & bearing assembly LH with the 4 bolts.

Torque: 80 N*m (816 kgf*cm, 59 ft.*lbf)

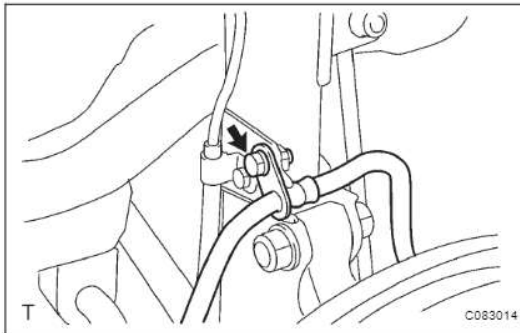
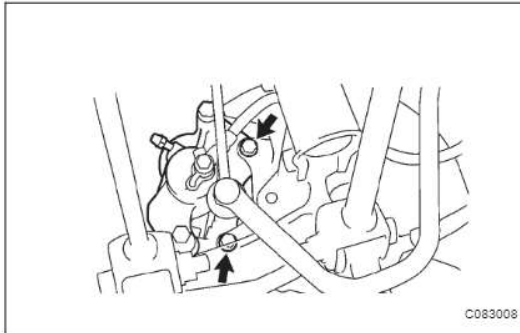
2. CONNECT SKID CONTROL SENSOR

- (a) Connect the connector.

NOTICE:

Do not twist the sensor wire when connecting it.

3. INSPECT BEARING BACKLASH

AH-12**AXLE – REAR AXLE HUB AND BEARING****AH****4. INSPECT AXLE HUB DEVIATION****5. INSTALL REAR DISC****6. INSTALL REAR DISC BRAKE CALIPER ASSEMBLY LH**

- (a) Install the rear disc brake caliper assembly LH with the 2 bolts.

Torque: 62 N*m (630 kgf*cm, 46 ft.*lbf)

- (b) Install the rear flexible hose with the bolt.

Torque: 19 N*m (192 kgf*cm, 14 ft.*lbf)

7. INSTALL REAR WHEEL

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

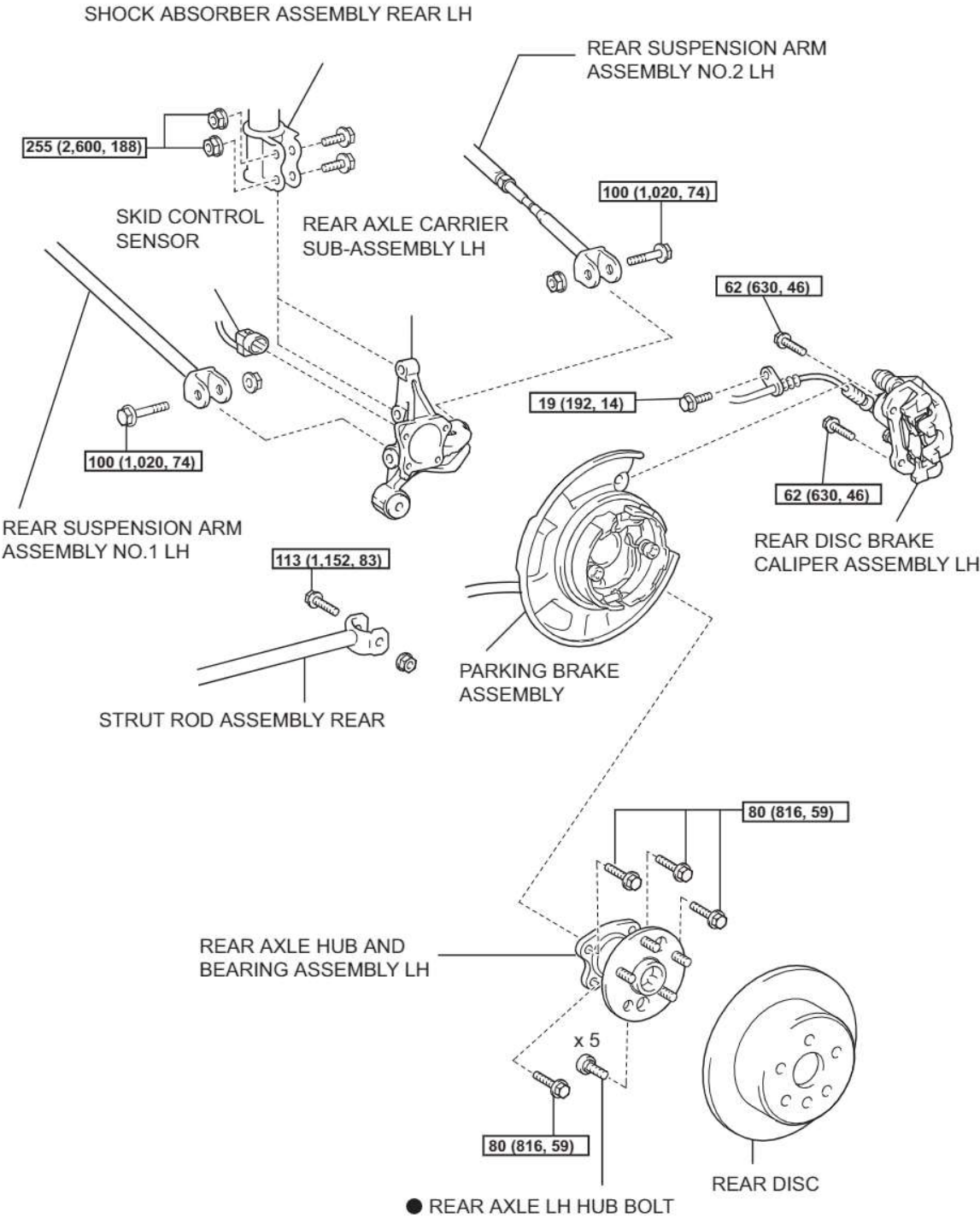
8. INSPECT AND ADJUST REAR WHEEL ALIGNMENT**9. CHECK ABS SPEED SENSOR SIGNAL**

- (a) ABS WITH EBD SYSTEM (See page [BC-6](#))
 (b) ABS WITH EBD & BA & TRAC & VSC SYSTEM (See page [BC-70](#))

REAR AXLE CARRIER

COMPONENTS

AH



N*m (kgf*cm, ft.*lbf) : Specified torque
● Non-reusable part

P

C109061E01

AH-14

AXLE – REAR AXLE CARRIER

REMOVAL

HINT:

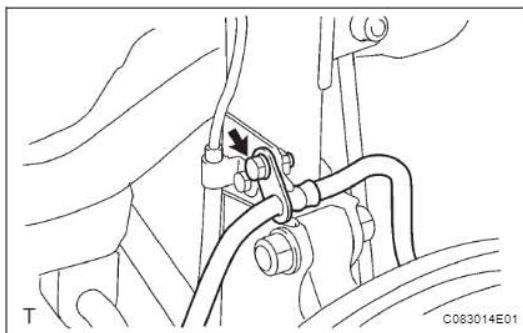
COMPONENTS: See page [AH-13](#)

- 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. SEPARATE REAR DISC BRAKE CALIPER ASSEMBLY LH

- (a) Remove the bolt, and separate the flexible hose from the shock absorber.



- (b) Remove the 2 bolts and separate the rear disc brake caliper assembly.

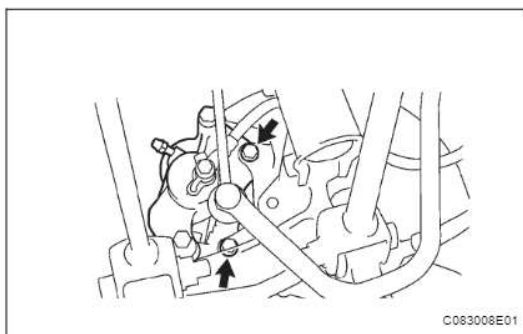
NOTICE:

Use a string or similar device to keep the brake caliper from hanging down by the flexible hose.

3. REMOVE REAR DISC

4. SEPARATE SKID CONTROL SENSOR

- (a) Disconnect the connector.



5. REMOVE REAR AXLE HUB AND BEARING ASSEMBLY LH

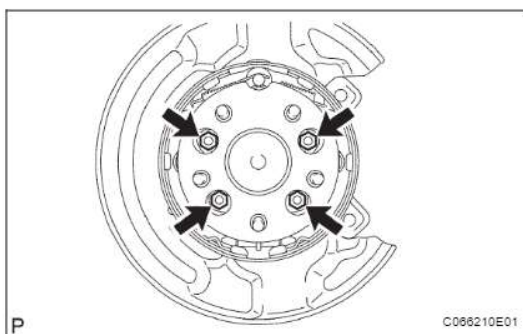
- (a) Remove the 4 bolts and hub & bearing assembly LH.

6. SEPARATE STRUT ROD ASSEMBLY REAR

- (a) Remove the bolt and nut, and the strut rod assembly rear (rear axle carrier side) from the rear axle carrier.

HINT:

When removing the bolt, keep the nut from rotating.

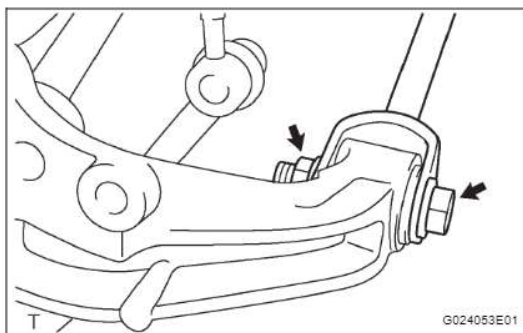


7. REMOVE REAR SUSPENSION ARM ASSEMBLY NO.2 LH

- (a) Remove the bolt and nut, and separate the rear suspension arm assembly No.2 (rear axle carrier side) from the rear axle carrier.

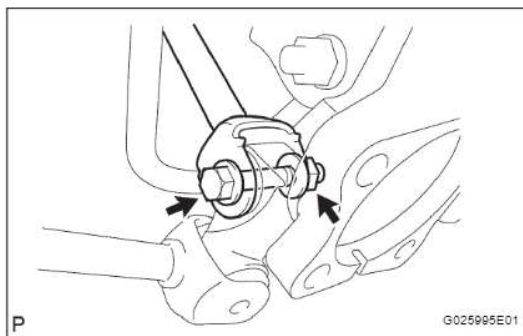
HINT:

When removing the bolt, keep the nut from rotating.



AXLE – REAR AXLE CARRIER

AH-15

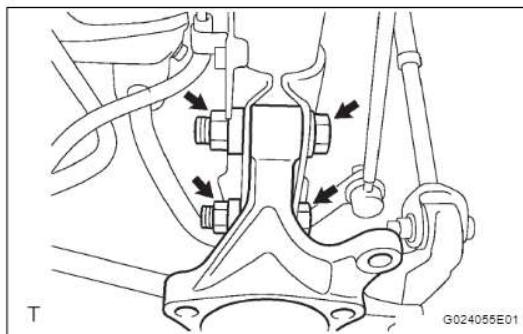


8. SEPARATE REAR SUSPENSION ARM ASSEMBLY NO.1 LH

- (a) Remove the bolt and nut, separate the rear suspension arm assembly No.1 (rear axle carrier side) from the rear axle carrier.

HINT:

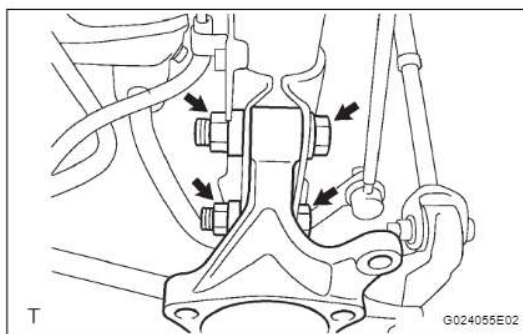
When removing the bolt, keep the nut from rotating.



9. REMOVE REAR AXLE CARRIER SUB-ASSEMBLY LH

- (a) Remove the 2 bolts and 2 nuts, and remove the rear axle carrier from the shock absorber.

AH

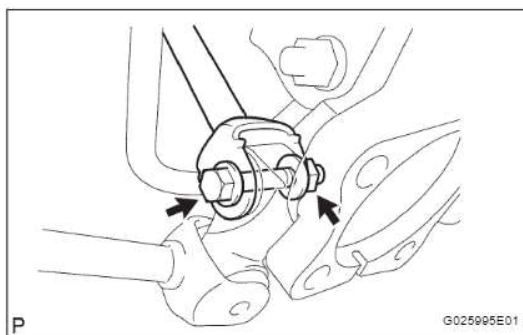


INSTALLATION

1. INSTALL REAR AXLE CARRIER SUB-ASSEMBLY LH

- (a) Install the rear axle carrier sub-assembly with the 2 bolts and 2 nuts to the shock absorber.

Torque: 255 N*m (2,600 kgf*cm, 188 ft.*lbf)

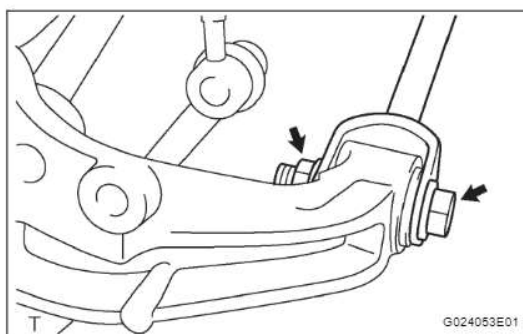


2. TEMPORARILY TIGHTEN REAR SUSPENSION ARM ASSEMBLY NO.1 LH

- (a) Temporarily tighten the rear suspension arm assembly No.1 LH with the bolt and nut.

HINT:

Insert the bolt from the rear side of the vehicle and temporarily tighten the bolt.



3. TEMPORARILY TIGHTEN REAR SUSPENSION ARM ASSEMBLY NO.2 LH

- (a) Temporarily tighten the rear suspension arm assembly No.2 LH with the bolt and nut.

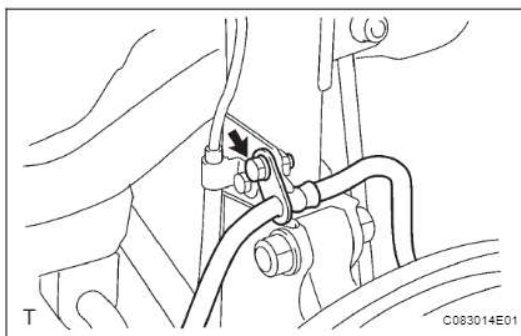
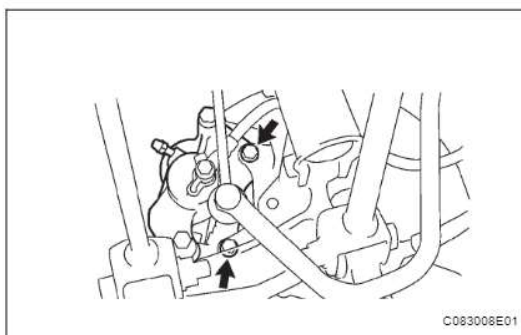
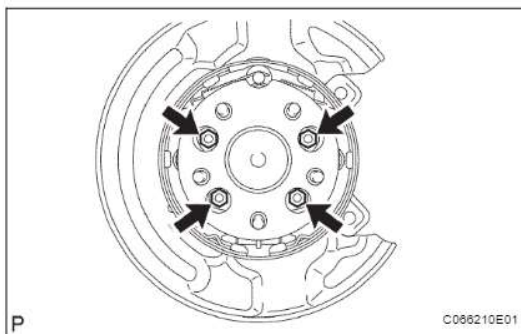
HINT:

Insert the bolt from the rear side of the vehicle and temporarily tighten the bolt.

AH-16

AXLE – REAR AXLE CARRIER

AH



4. TEMPORARILY TIGHTEN STRUT ROD ASSEMBLY REAR

- (a) Temporarily tighten the strut rod assembly rear with the bolt and nut.

HINT:

Insert the bolt from the inside of the vehicle and temporarily tighten the bolt.

5. INSTALL REAR AXLE HUB AND BEARING ASSEMBLY LH

- (a) Install the hub & bearing assembly LH with the 4 bolts.

Torque: 80 N*m (816 kgf*cm, 59 ft.*lbf)

6. INSPECT BEARING BACKLASH

7. INSPECT AXLE HUB DEVIATION

8. CONNECT SKID CONTROL SENSOR

- (a) Connect the connector.

NOTICE:

Do not twist the sensor wire when connecting it.

9. INSTALL REAR DISC

10. INSTALL REAR DISC BRAKE CALIPER ASSEMBLY LH

- (a) Install the rear disc brake caliper with the 2 bolts.

Torque: 62 N*m (630 kgf*cm, 46 ft.*lbf)

- (b) Install the bolt with flexible hose to the shock absorber.

Torque: 19 N*m (192 kgf*cm, 14 ft.*lbf)

11. INSTALL REAR WHEEL

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

12. INSTALL STABILIZE SUSPENSION

13. FULLY TIGHTEN REAR SUSPENSION ARM ASSEMBLY NO.1 LH

14. FULLY TIGHTEN REAR SUSPENSION ARM ASSEMBLY NO.2 LH

15. FULLY TIGHTEN STRUT ROD ASSEMBLY REAR

16. INSPECT AND ADJUST REAR WHEEL ALIGNMENT

17. CHECK ABS SPEED SENSOR SIGNAL

- (a) ABS WITH EBD SYSTEM (See page [BC-6](#))
 (b) ABS WITH EBD & BA & TRAC & VSC SYSTEM (See page [BC-70](#))