

AXLE SYSTEM

PROBLEM SYMPTOMS TABLE

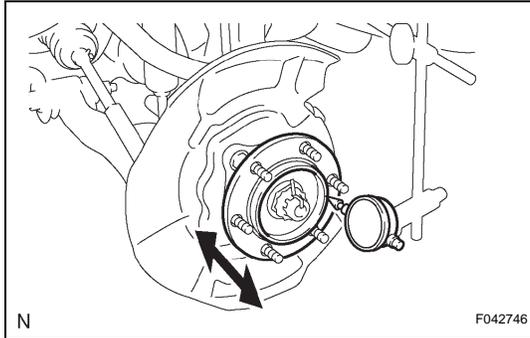
HINT:

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

Symptom	Suspected area	See page
Vehicle unstable	1. Tire (Worn or improperly inflated)	TW-1
	2. Wheel alignment (Incorrect)	SP-2
	3. Steering linkage (Loosen or worn)	-
	4. Hub bearing (Worn)	AH-1
	5. Steering gear (Out of adjustment or broken)	-
	6. Suspension parts (Worn)	-
Front wheel shimmy	1. Tire (Worn or improperly inflated)	TW-1
	2. Wheel (Out of balance)	TW-1
	3. Front shock absorber (Worn)	SP-11
	4. Wheel alignment (Incorrect)	SP-2
	5. Upper ball joint (Worn)	SP-17
	6. Lower ball joint (Worn)	SP-22
	7. Hub bearing (Worn)	AH-1
	8. Steering linkage (Loose or worn)	-
Rear wheel shimmy	1. Tire (Worn or improperly inflated)	TW-1
	2. Wheel (Out of balance)	TW-1
	3. Rear shock absorber (Worn)	SP-32
	4. Hub bearing (Worn)	AH-2

ON-VEHICLE INSPECTION

1. REMOVE FRONT WHEEL
2. REMOVE FRONT DISC BRAKE CALIPER ASSEMBLY (See page [AH-7](#))
3. REMOVE FRONT DISC (See page [BR-42](#))
4. REMOVE FRONT AXLE HUB GREASE CAP (for 4WD) (See page [DS-3](#))
5. INSPECT FRONT AXLE HUB BEARING

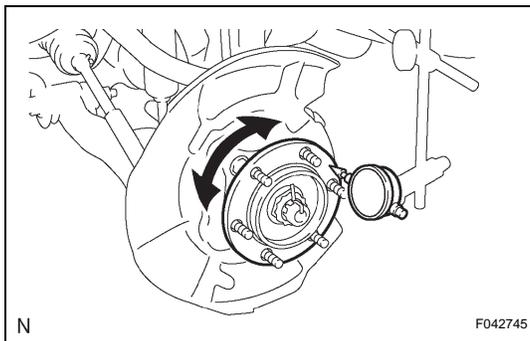


- (a) Inspect the axle hub backlash.
 - (1) Using a dial indicator, check the backlash near the center of the axle hub.

Maximum:

0.05 mm (0.0020 in.)

If the backlash is greater than the maximum, replace the bearing.



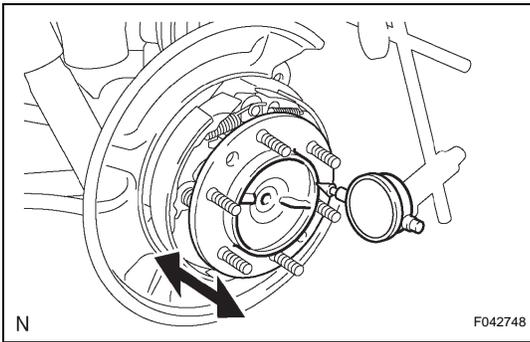
- (b) Inspect the axle hub runout.
 - (1) Using a dial indicator, check the runout of the surface of the axle hub.

Maximum:

0.05 mm (0.0020 in.)

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

6. INSTALL FRONT AXLE HUB GREASE CAP (for 4WD)
7. INSTALL FRONT DISC (See page [BR-45](#))
8. INSTALL FRONT DISC BRAKE CALIPER ASSEMBLY (See page [AH-11](#))
9. FILL RESERVOIR WITH BRAKE FLUID (See page [BR-5](#))
10. BLEED BRAKE LINE (See page [BR-5](#))
11. CHECK FLUID LEVEL IN RESERVOIR (See page [BR-7](#))
12. INSTALL FRONT WHEEL
Torque: 112 N*m (1,137 kgf*cm, 82 ft.*lbf)
13. REMOVE REAR WHEEL
14. SEPARATE REAR DISC BRAKE CALIPER ASSEMBLY (See page [PB-17](#))
15. REMOVE REAR DISC (See page [PB-17](#))



16. INSPECT REAR AXLE SHAFT BEARING

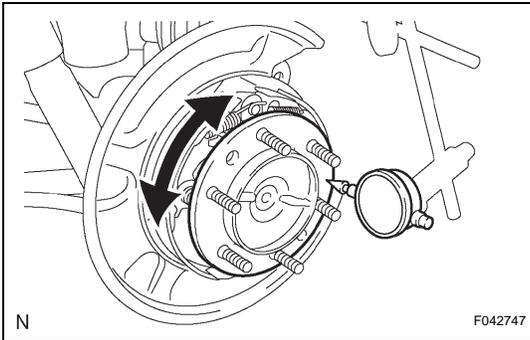
(a) Inspect the axle shaft backlash.

- (1) Using a dial indicator, check the backlash near the center of the axle shaft.

Maximum:

0.05 mm (0.0020 in.)

If the backlash is greater than the maximum, replace the bearing.



(b) Inspect the axle shaft runout.

- (1) Using a dial indicator, check the runout of the surface of the axle shaft.

Maximum:

0.05 mm (0.0020 in.)

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

17. INSTALL REAR DISC (See page PB-20)

18. ADJUST PARKING BRAKE SHOE CLEARANCE (See page PB-20)

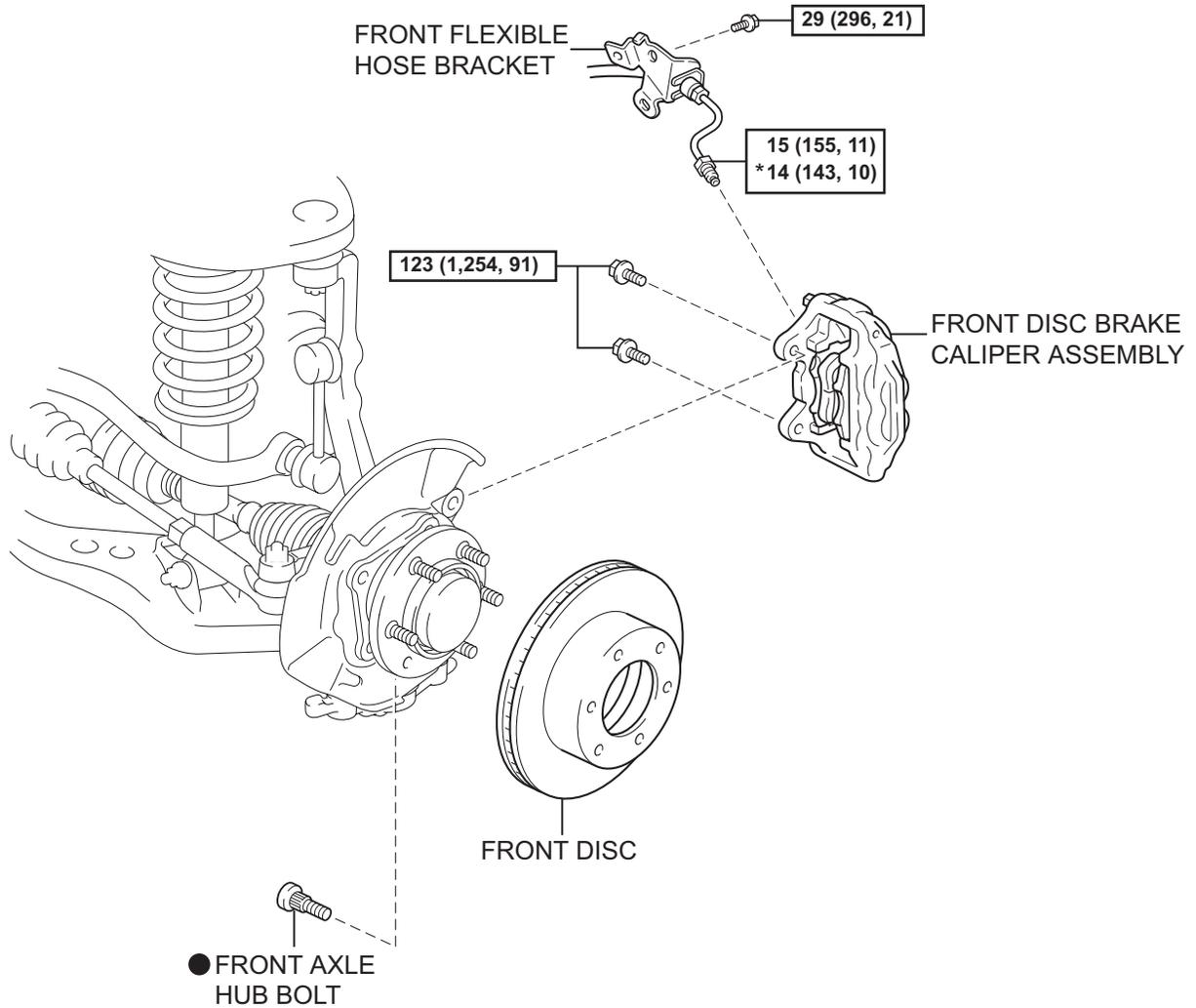
19. INSTALL REAR DISC BRAKE CALIPER ASSEMBLY (See page PB-20)

20. INSTALL REAR WHEEL

Torque: 112 N*m (1,137 kgf*cm, 82 ft.*lbf)

FRONT AXLE HUB BOLT

COMPONENTS



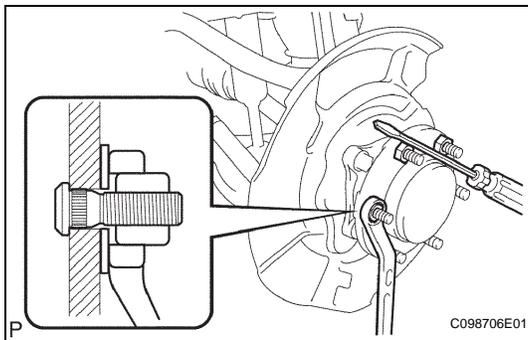
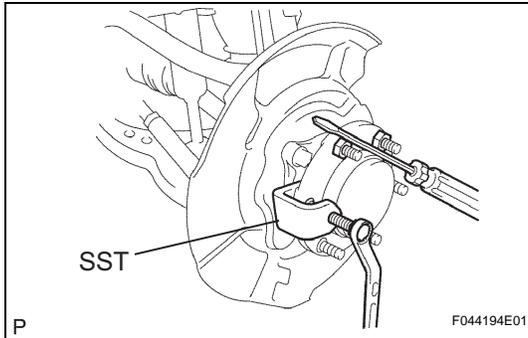
N*m (kgf*cm, ft*lbf) : Specified torque

● Non-reusable part

* For use with SST

REMOVAL

1. REMOVE FRONT WHEEL
2. DRAIN BRAKE FLUID
NOTICE:
Immediately wash off any brake fluid that comes into contact with painted surfaces.
3. REMOVE FRONT DISC BRAKE CALIPER ASSEMBLY (See page [AH-7](#))
4. REMOVE FRONT DISC (See page [BR-42](#))
5. REMOVE FRONT AXLE HUB BOLT
(a) Using SST and a screwdriver or the equivalent to hold the axle hub, remove the hub bolt.
SST 09650-17011

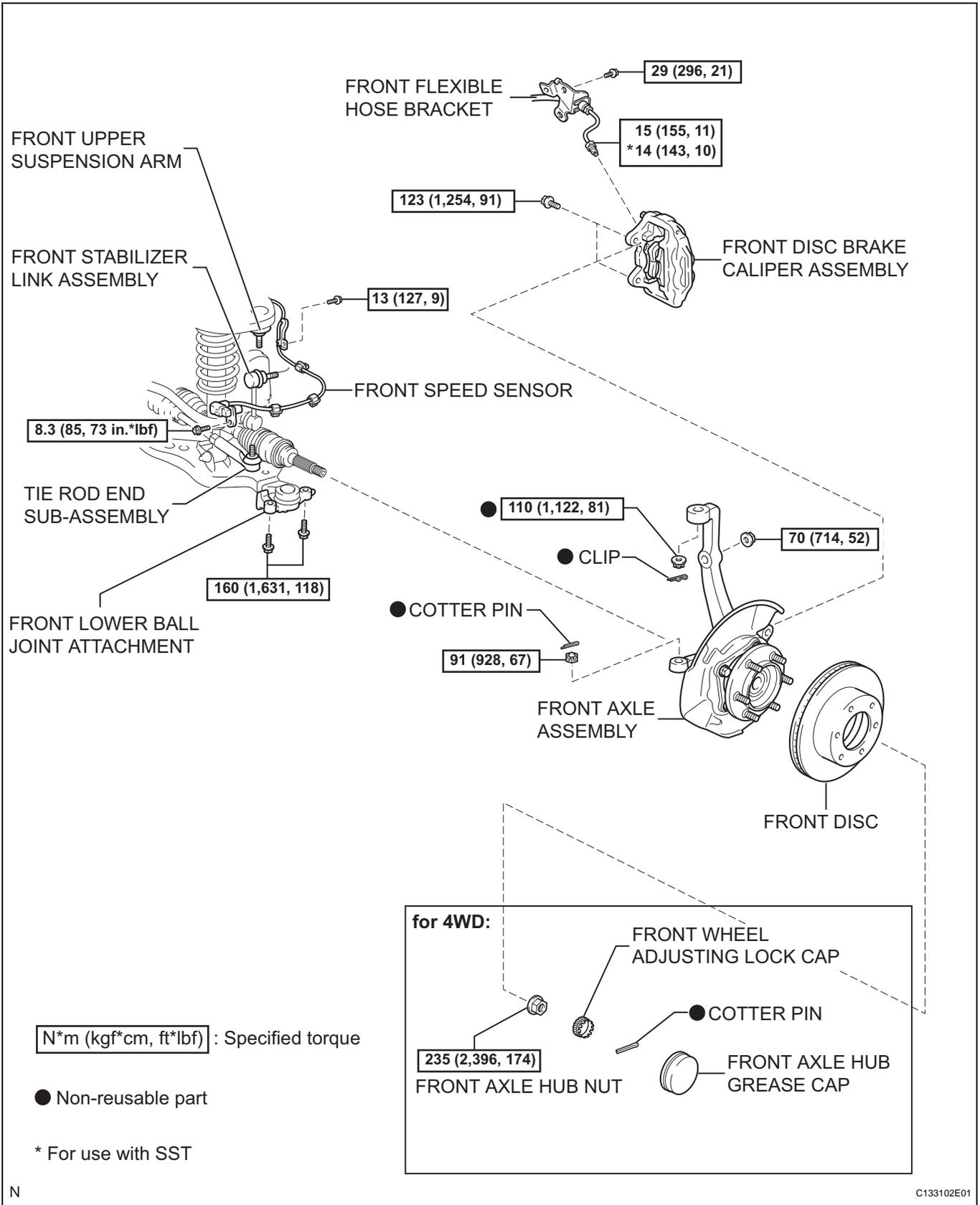


INSTALLATION

1. INSTALL FRONT AXLE HUB BOLT
(a) Install the washer and the nut onto a new hub bolt, as shown in the illustration.
(b) Using a screwdriver or the equivalent to hold the axle hub, install the hub bolt by tightening the nut.
2. INSTALL FRONT DISC (See page [BR-45](#))
3. INSTALL FRONT DISC BRAKE CALIPER ASSEMBLY (See page [AH-11](#))
4. INSTALL FRONT WHEEL
Torque: 112 N*m (1,137 kgf*cm, 82 ft.*lbf)
5. FILL RESERVOIR WITH BRAKE FLUID (See page [BR-5](#))
6. BLEED BRAKE LINE (See page [BR-5](#))
7. CHECK FLUID LEVEL IN RESERVOIR (See page [BR-7](#))
8. CHECK FOR BRAKE FLUID LEAKAGE

FRONT AXLE HUB

COMPONENTS



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

● Non-reusable part

* For use with SST

for 2WD:

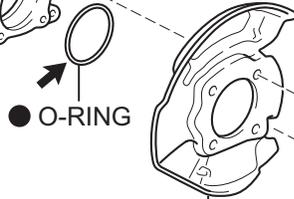
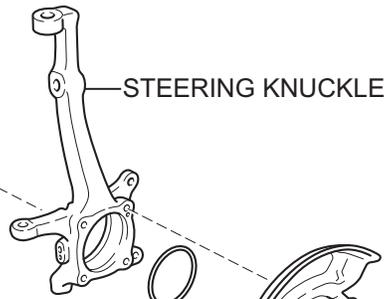


● KNUCKLE GREASE RETAINER CAP

for 4WD:



● STEERING KNUCKLE OIL SEAL

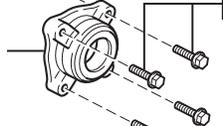


for 2WD:



● 275 (2,804, 203)
FRONT WHEEL ADJUSTING NUT

● FRONT AXLE WITH ABS ROTOR BEARING ASSEMBLY



80 (816, 59)

80 (816, 59)



● FRONT AXLE HUB OIL SEAL



FRONT AXLE HUB

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

● Non-reusable part

← MP grease

AH

REMOVAL

1. DISCONNECT CABLE FROM NEGATIVE BATTERY TERMINAL

2. REMOVE FRONT WHEEL

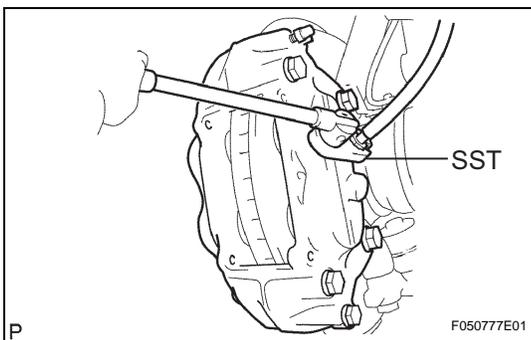
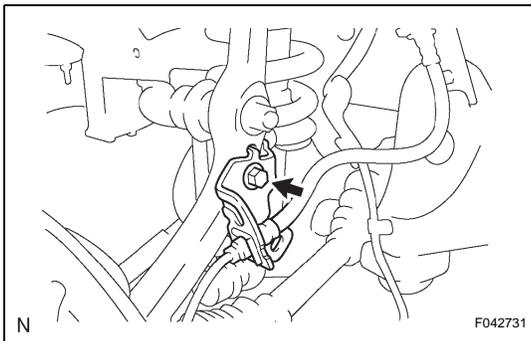
3. DRAIN BRAKE FLUID

NOTICE:

Immediately wash off any brake fluid that comes into contact with painted surfaces.

4. REMOVE FRONT DISC BRAKE CALIPER ASSEMBLY

- (a) Remove the bolt and separate the brake tube bracket from the steering knuckle.

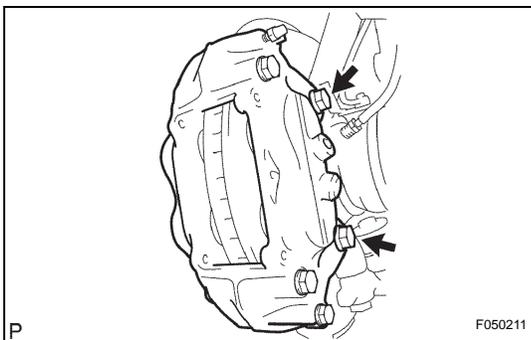


- (b) Using SST, separate the brake tube from the disc brake cylinder.

SST 09023-00101

HINT:

Use a container to collect the brake fluid as it drains out.



- (c) Remove the 2 bolts and disc brake caliper assembly.

5. REMOVE FRONT DISC (See page [BR-42](#))

6. SEPARATE FRONT SPEED SENSOR (See page [DS-3](#))

7. REMOVE FRONT AXLE HUB GREASE CAP (for 4WD) (See page [DS-3](#))

8. REMOVE FRONT AXLE HUB NUT (for 4WD) (See page [DS-3](#))

9. SEPARATE FRONT STABILIZER LINK ASSEMBLY (See page [SP-10](#))

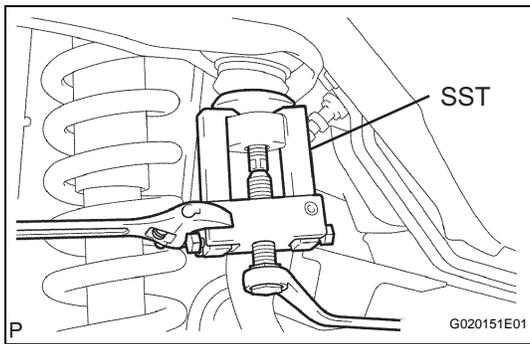
10. SEPARATE TIE ROD END SUB-ASSEMBLY (See page [DS-3](#))

11. SEPARATE FRONT LOWER BALL JOINT ATTACHMENT (See page [DS-4](#))

12. SEPARATE FRONT UPPER SUSPENSION ARM

- (a) Support the lower arm with a jack.

- (b) Remove the clip and nut.



- (c) Using SST, separate the upper ball joint from the steering knuckle.

SST 09628-62011

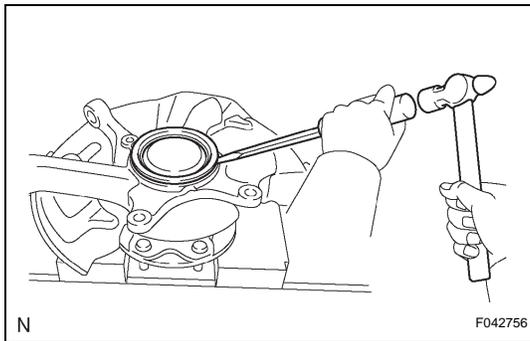
13. REMOVE FRONT AXLE ASSEMBLY

- (a) for 4WD:
 - (1) Using a plastic hammer, separate the front axle hub from the front drive shaft.
 - (b) Remove the front axle assembly.

DISASSEMBLY

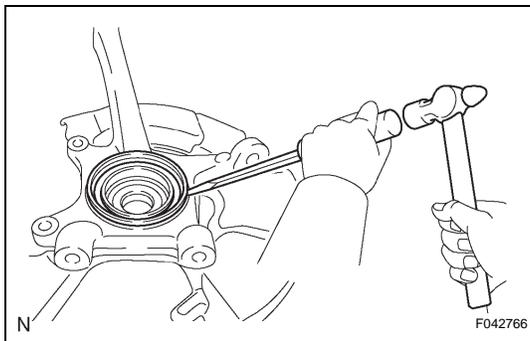
1. REMOVE KNUCKLE GREASE RETAINER CAP (for 2WD)

- (a) Using a screwdriver and hammer, remove the retainer cap.



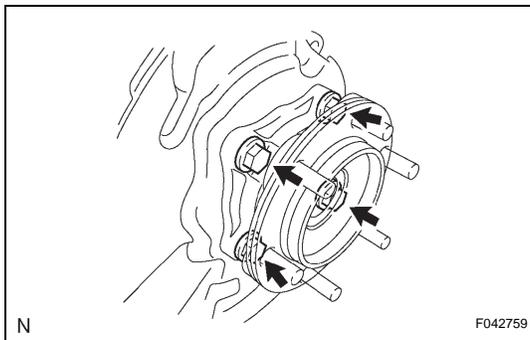
2. REMOVE STEERING KNUCKLE OIL SEAL (for 4WD)

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



3. REMOVE FRONT AXLE HUB

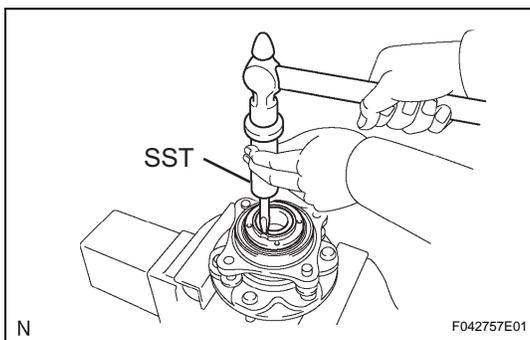
- (a) Remove the 4 bolts, axle hub and dust cover from the steering knuckle.
- (b) Remove the O-ring from the axle hub.

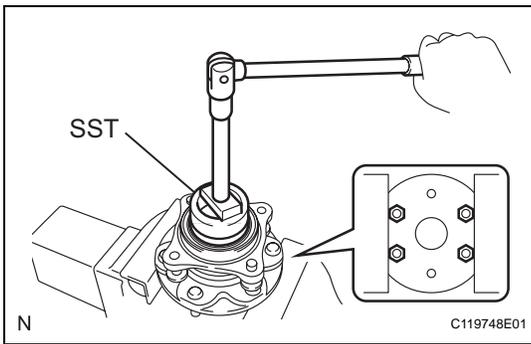


4. REMOVE FRONT WHEEL ADJUSTING NUT (for 2WD)

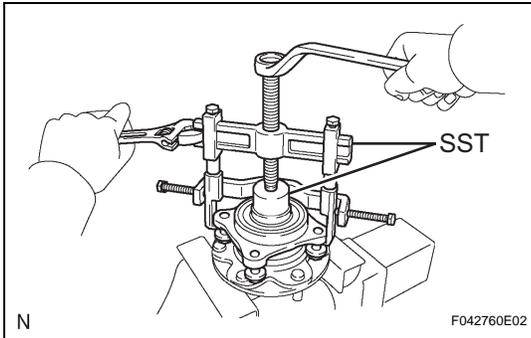
- (a) Using SST and a hammer, unstake the adjusting nut.

SST 09930-00010



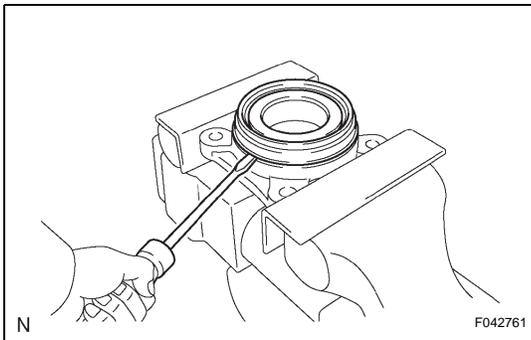


- (b) Using SST, remove the front wheel adjusting nut.
SST 09318-12010



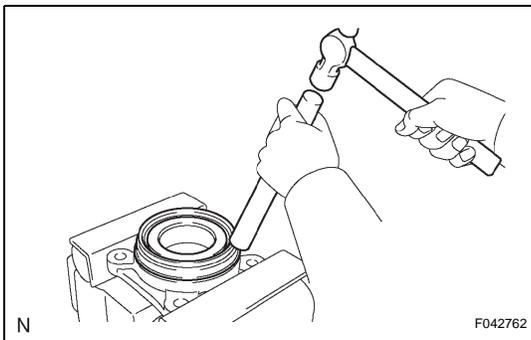
5. REMOVE FRONT AXLE WITH ABS ROTOR BEARING ASSEMBLY

- (a) Gently fix the front axle hub in a vise.
 (b) Using SST, remove the bearing.
SST 09710-30021 (09710-03051), 09950-40011 (09951-04020, 09952-04010, 09953-04020, 09954-04010, 09955-04061, 09957-04010, 09958-04011)



6. REMOVE FRONT AXLE HUB OIL SEAL

- (a) Using a screwdriver, remove the oil seal.



REASSEMBLY

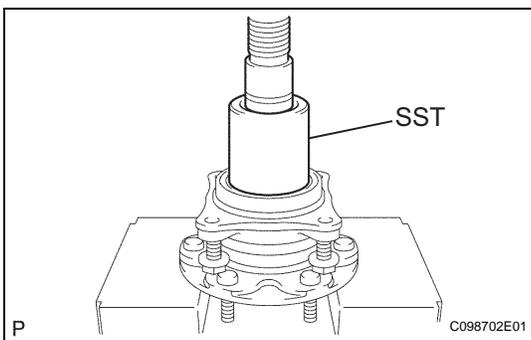
1. INSTALL FRONT AXLE HUB OIL SEAL

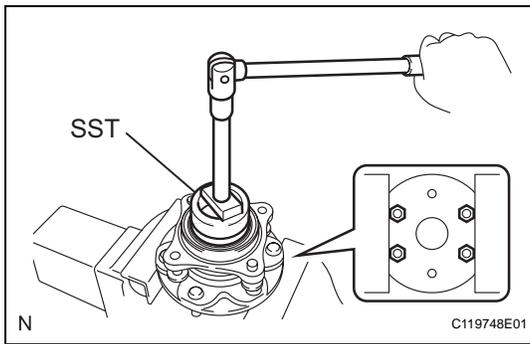
- (a) Using a brass bar and a hammer, install a new oil seal.

NOTICE:
Do not damage the oil seal.

2. INSTALL FRONT AXLE WITH ABS ROTOR BEARING ASSEMBLY

- (a) Using SST and a press, install a new bearing onto the axle hub.
SST 09649-17010





3. INSTALL FRONT WHEEL ADJUSTING NUT (for 2WD)

- (a) Using SST, install a new adjusting nut.

SST 09318-12010

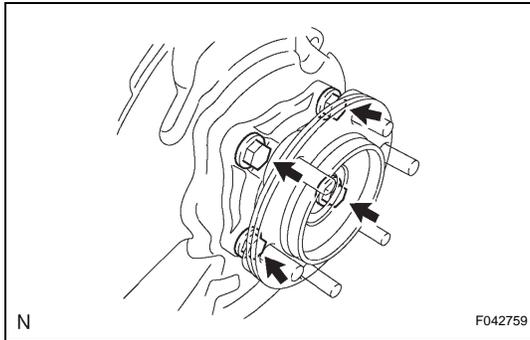
Torque: 275 N*m (2,804 kgf*cm, 203 ft.*lbf)

4. INSTALL FRONT AXLE HUB

- (a) Apply MP grease to a new O-ring.
 (b) Install the new O-ring onto the axle hub.

- (c) Install the dust cover and axle hub onto the steering knuckle with the 4 bolts.

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

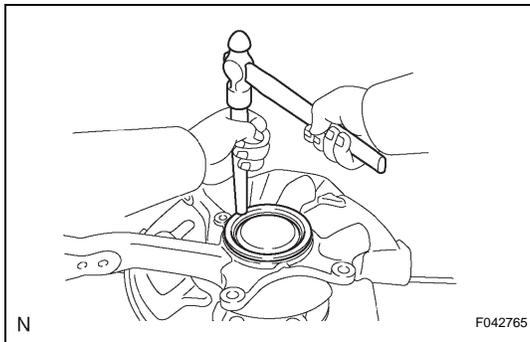


5. INSTALL KNUCKLE GREASE RETAINER CAP (for 2WD)

- (a) Using a brass bar and a hammer, install a new retainer cap.

NOTICE:

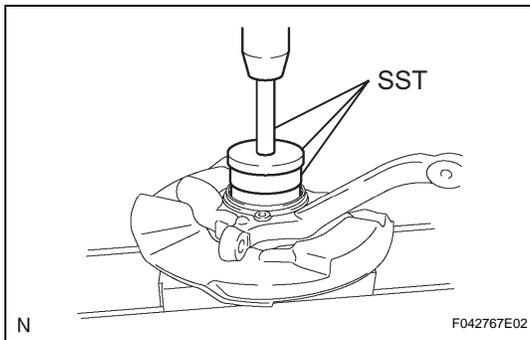
Do not damage the retainer cap.



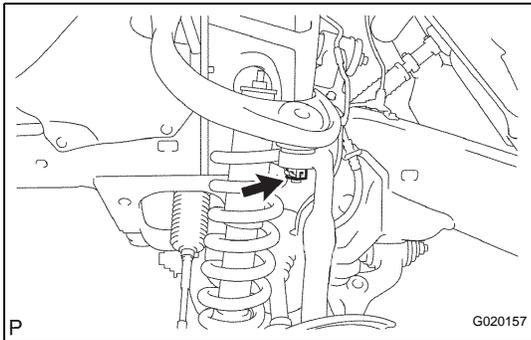
6. INSTALL STEERING KNUCKLE OIL SEAL (for 4WD)

- (a) Using SST and a press, install a new oil seal.

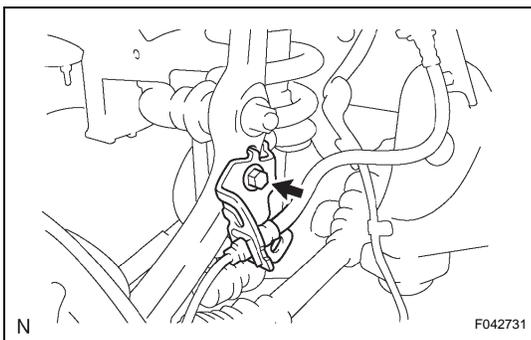
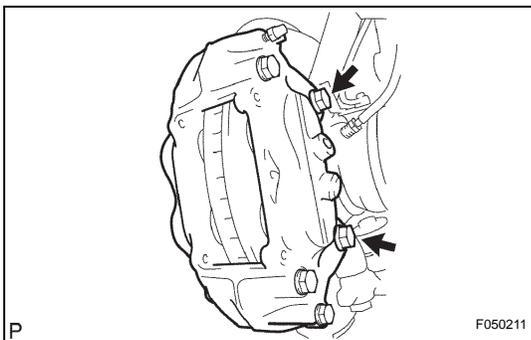
**SST 09527-17011, 09950-70010 (09951-07100),
 09951-01000**



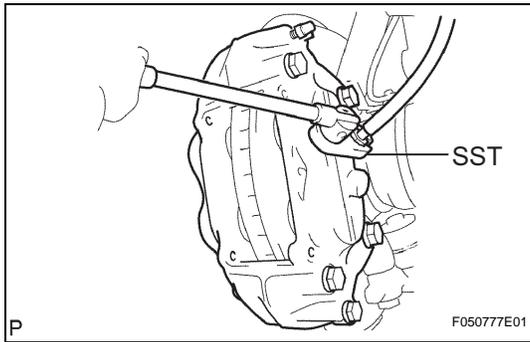
INSTALLATION



1. **INSTALL FRONT AXLE ASSEMBLY**
2. **INSTALL FRONT UPPER SUSPENSION ARM**
 - (a) Install a new nut and a new clip.
Torque: 110 N*m (1,122 kgf*cm, 81 ft.*lbf)
3. **INSTALL FRONT LOWER BALL JOINT ATTACHMENT** (See page [DS-10](#))
4. **INSTALL TIE ROD END SUB-ASSEMBLY** (See page [DS-10](#))
5. **INSTALL FRONT STABILIZER LINK ASSEMBLY** (See page [SP-13](#))
6. **INSTALL FRONT AXLE HUB NUT (for 4WD)** (See page [DS-10](#))
7. **INSPECT FRONT AXLE HUB BEARING** (See page [AH-1](#))
8. **INSTALL FRONT AXLE HUB GREASE CAP (for 4WD)**
9. **INSTALL FRONT SPEED SENSOR** (See page [DS-10](#))
10. **INSTALL FRONT DISC** (See page [BR-45](#))
11. **INSTALL FRONT DISC BRAKE CALIPER ASSEMBLY**
 - (a) Install the front disc brake caliper assembly with the 2 bolts.
Torque: 123 N*m (1,254 kgf*cm, 91 ft.*lbf)



- (b) Install the brake tube bracket onto the steering knuckle with the bolt.
Torque: 29 N*m (296 kgf*cm, 21 ft.*lbf)



- (c) Using SST, install the brake tube onto the disc brake cylinder.

SST 09023-00101

Torque: for use without SST

15 N*m (155 kgf*cm, 11 ft.*lbf)

for use with SST

14 N*m (143 kgf*cm, 10 ft.*lbf)

HINT:

- Use a torque wrench with a fulcrum length of 300 mm (11.81 in.).
- This torque value is effective when SST is parallel to the torque wrench.

12. INSTALL FRONT WHEEL

Torque: 112 N*m (1,137 kgf*cm, 82 ft.*lbf)

13. CONNECT CABLE TO NEGATIVE BATTERY TERMINAL

Torque: 3.9 N*m (40 kgf*cm, 35 in.*lbf)

14. FILL RESERVOIR WITH BRAKE FLUID (See page [BR-5](#))

15. BLEED BRAKE LINE (See page [BR-5](#))

16. CHECK FLUID LEVEL IN RESERVOIR (See page [BR-7](#))

17. CHECK FOR BRAKE FLUID LEAKAGE

18. CHECK VSC SENSOR SIGNAL

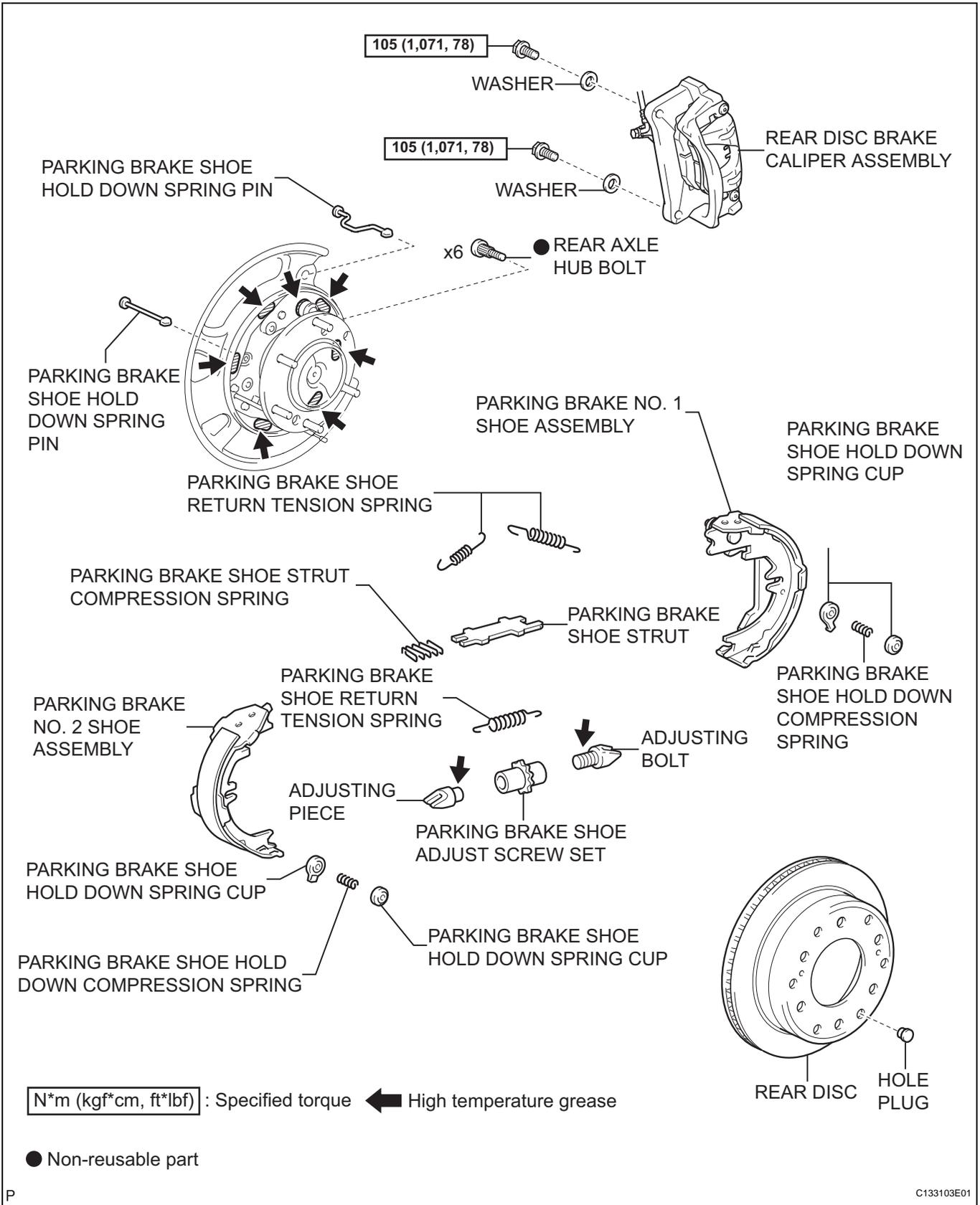
(See page [BC-28](#))

19. INSPECT AND ADJUST FRONT WHEEL ALIGNMENT

(See page [SP-2](#))

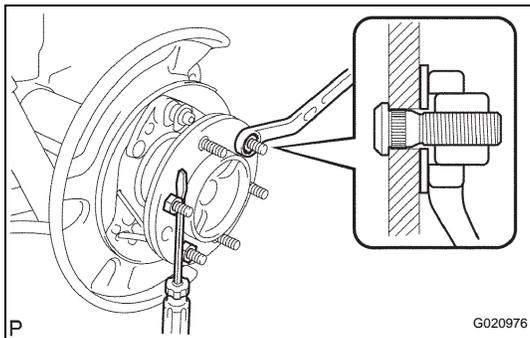
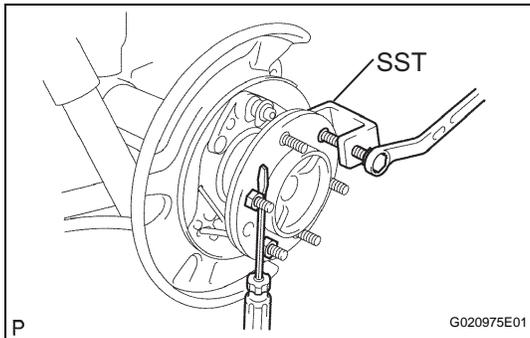
REAR AXLE HUB BOLT

COMPONENTS



REMOVAL

1. REMOVE REAR WHEEL
2. SEPARATE REAR DISC BRAKE CALIPER ASSEMBLY (See page [PB-17](#))
3. REMOVE REAR DISC (See page [PB-17](#))
4. REMOVE PARKING BRAKE SHOE RETURN TENSION SPRING (See page [PB-17](#))
5. REMOVE PARKING BRAKE SHOE STRUT (See page [PB-17](#))
6. REMOVE PARKING BRAKE SHOE (See page [PB-17](#))
7. REMOVE REAR AXLE HUB BOLT
 - (a) Using SST and a screwdriver or the equivalent to hold the axle hub, remove the hub bolt.
SST 09650-17011



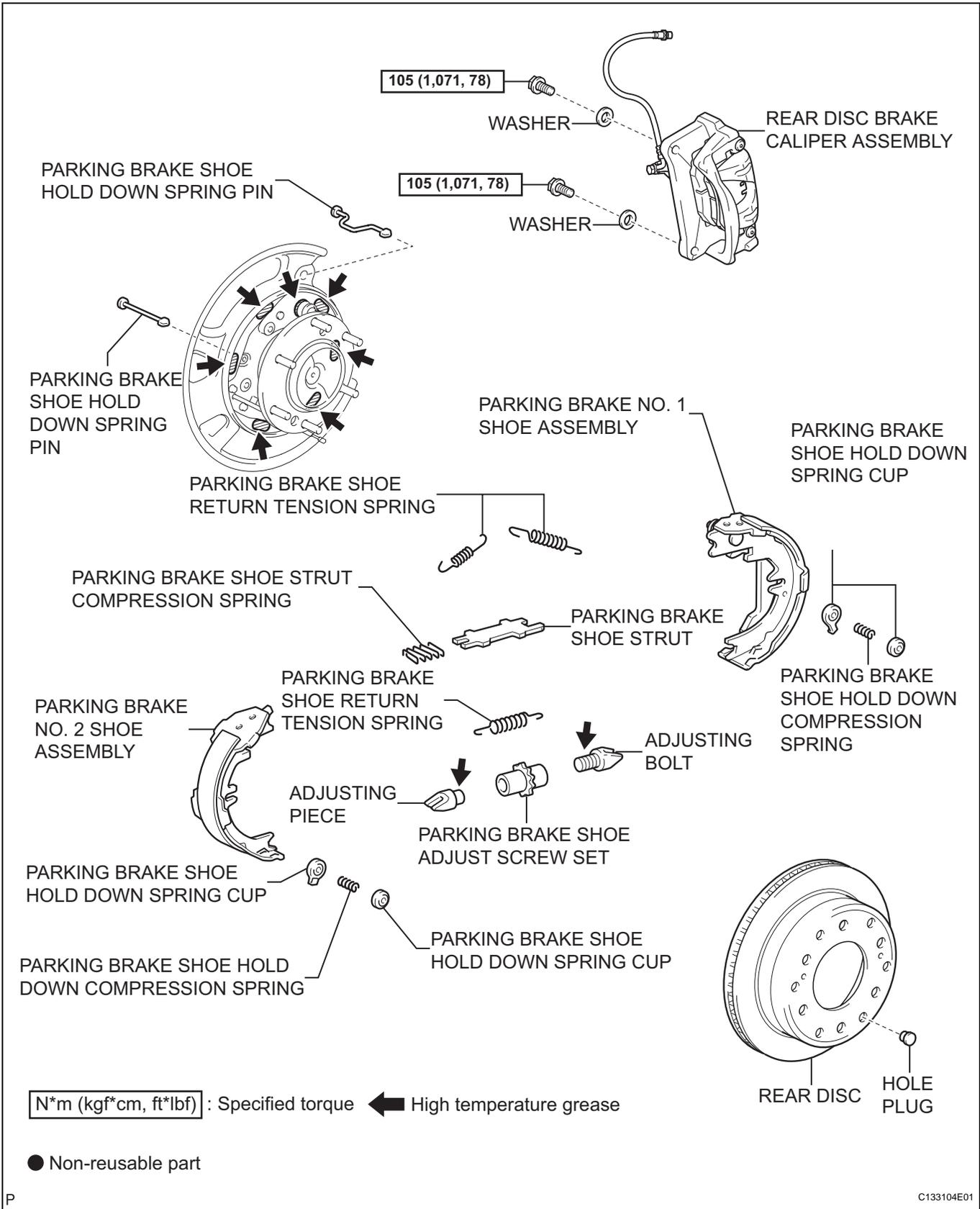
INSTALLATION

1. INSTALL REAR AXLE HUB BOLT
 - (a) Install the washer and the nut onto a new hub bolt, as shown in the illustration.
 - (b) Using a screwdriver or the equivalent to hold the axle hub, install the hub bolt by tightening the nut.
2. APPLY HIGH TEMPERATURE GREASE (See page [PB-19](#))
3. INSTALL PARKING BRAKE SHOE (See page [PB-19](#))
4. INSTALL PARKING BRAKE SHOE STRUT (See page [PB-19](#))
5. INSTALL PARKING BRAKE SHOE RETURN TENSION SPRING (See page [PB-19](#))
6. CHECK PARKING BRAKE INSTALLATION (See page [PB-20](#))
7. INSTALL REAR DISC (See page [PB-20](#))
8. ADJUST PARKING BRAKE SHOE CLEARANCE (See page [PB-20](#))
9. INSTALL REAR DISC BRAKE CALIPER ASSEMBLY (See page [PB-20](#))
10. INSTALL REAR WHEEL
Torque: 112 N*m (1,137 kgf*cm, 82 ft.*lbf)
11. INSPECT PARKING BRAKE LEVER TRAVEL (See page [PB-4](#))

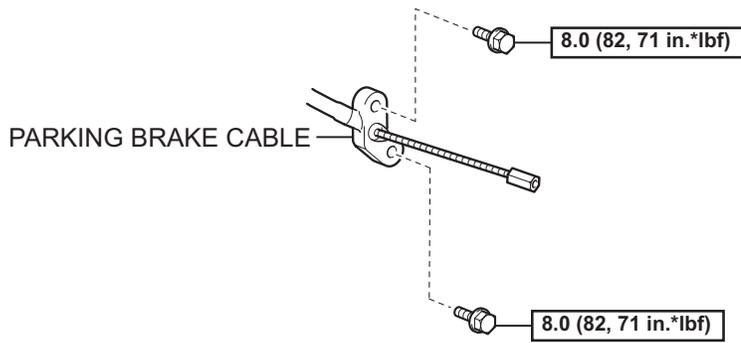
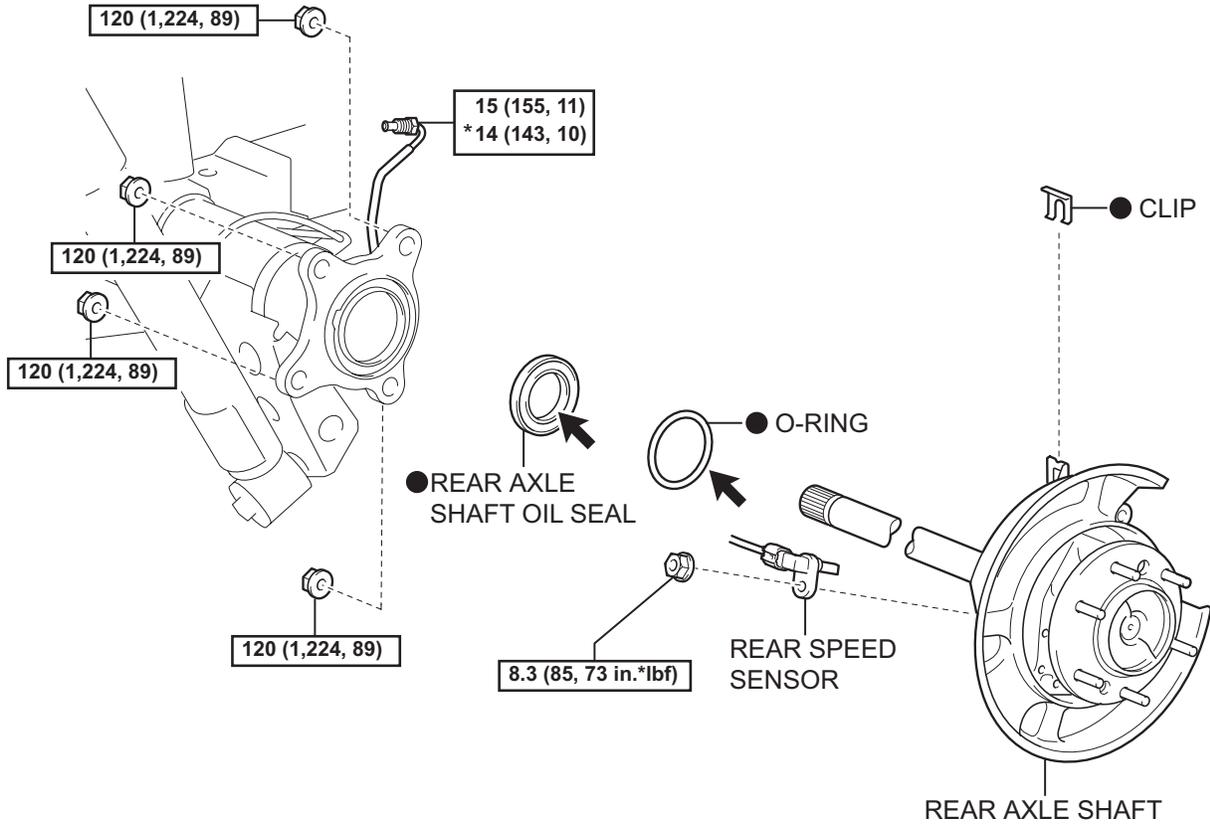
**12. ADJUST PARKING BRAKE LEVER TRAVEL (See
page [PB-4](#))**

REAR AXLE SHAFT

COMPONENTS



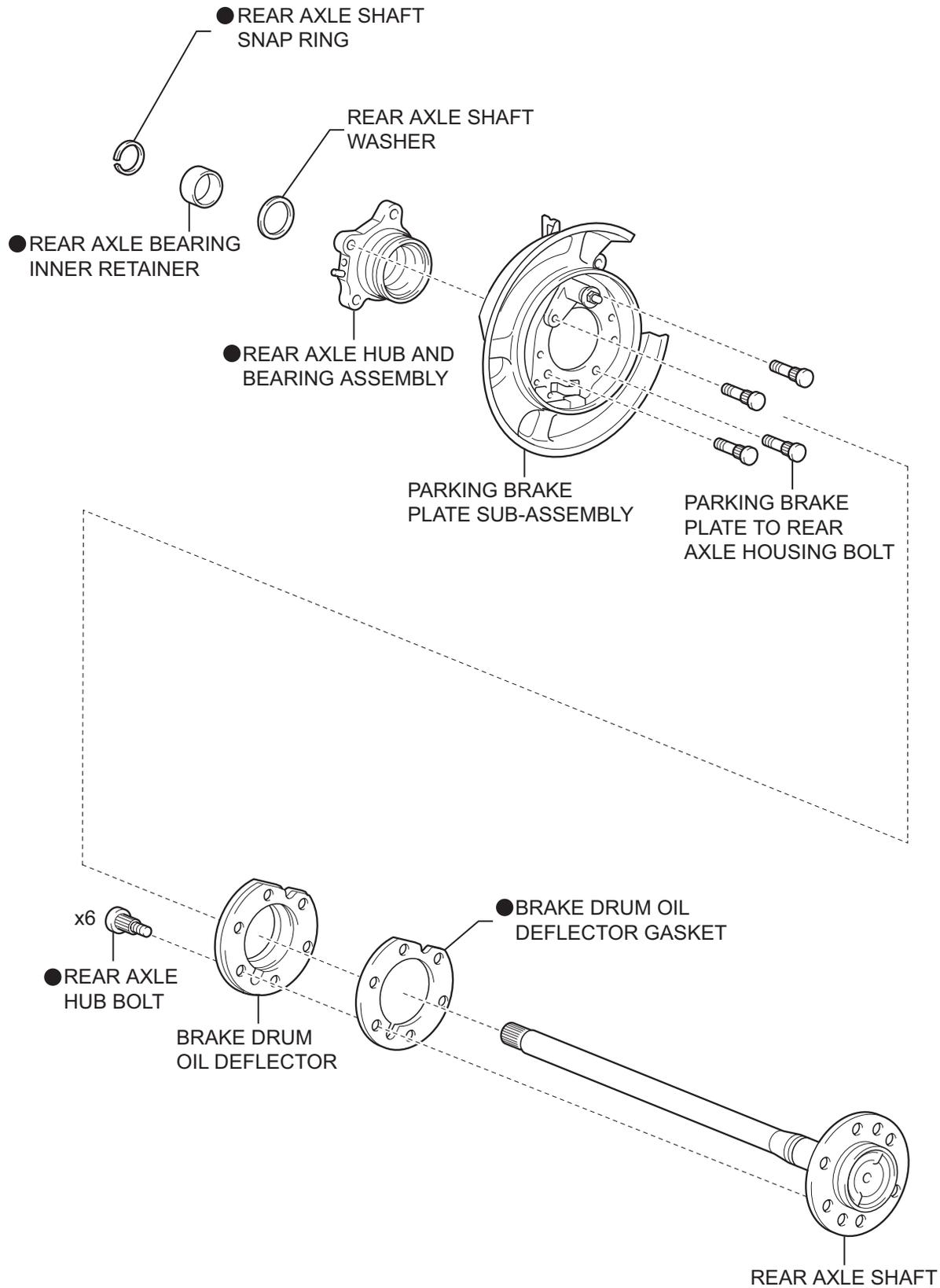
AH



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

● Non-reusable part

* For use with SST ← MP grease



● Non-reusable part

REMOVAL

1. **DISCONNECT CABLE FROM NEGATIVE BATTERY TERMINAL**

2. **REMOVE REAR WHEEL**

3. **DRAIN BRAKE FLUID**

HINT:

Immediately wash off any brake fluid that comes into contact with any painted surfaces.

4. **REMOVE REAR DISC BRAKE CALIPER ASSEMBLY**

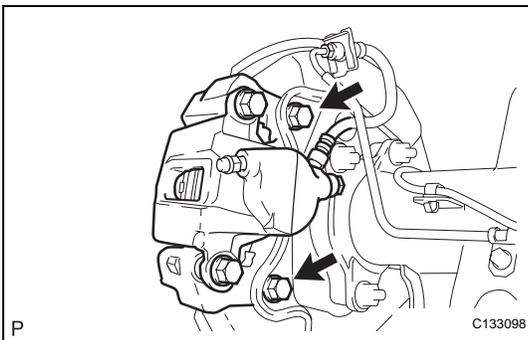
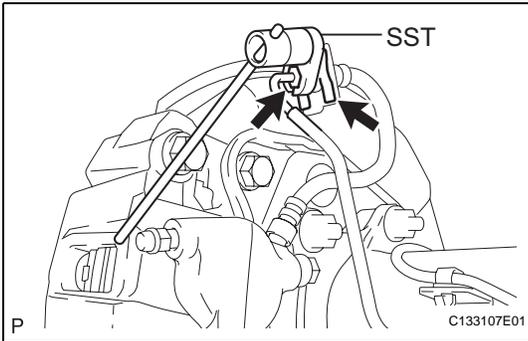
- (a) Using SST, separate the brake tube.

SST 09023-00101

HINT:

Use a container to catch the brake fluid.

- (b) Remove the clip and flexible hose.



- (c) Remove the 2 bolts and 2 washers and remove the disc brake caliper assembly.

5. **REMOVE REAR DISC (See page PB-17)**

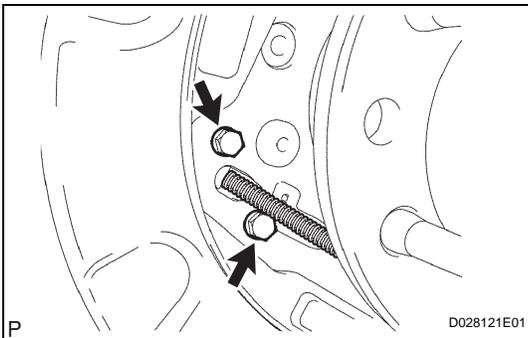
6. **REMOVE PARKING BRAKE SHOE RETURN TENSION SPRING (See page PB-17)**

7. **REMOVE PARKING BRAKE SHOE STRUT (See page PB-17)**

8. **REMOVE PARKING BRAKE SHOE (See page PB-17)**

9. **SEPARATE PARKING BRAKE CABLE**

- (a) Remove the 2 bolts and separate the parking brake cable from the parking brake plate.

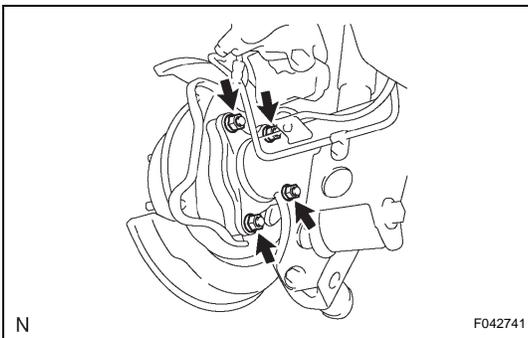


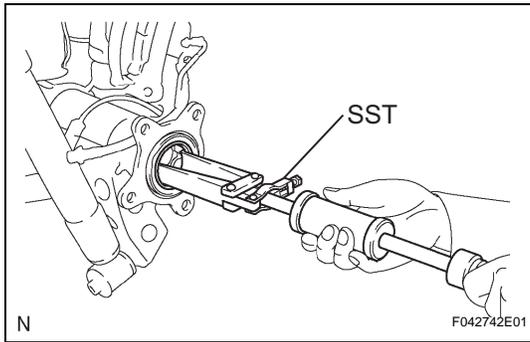
10. **REMOVE REAR SPEED SENSOR (See page BC-198)**

11. **REMOVE REAR AXLE SHAFT**

- (a) Remove the 4 nuts and rear axle shaft with parking brake plate.

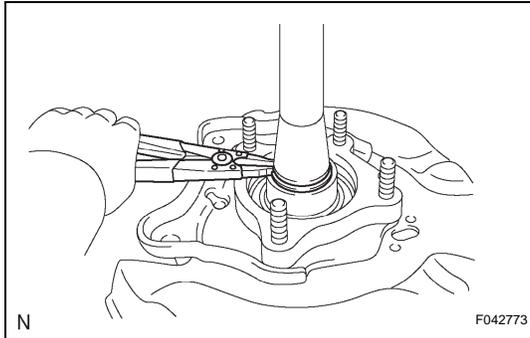
- (b) Remove the O-ring.





12. REMOVE REAR AXLE SHAFT OIL SEAL

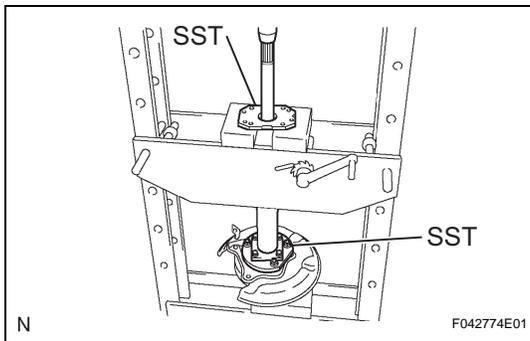
- (a) Using SST, remove the oil seal.
SST 09308-00010



DISASSEMBLY

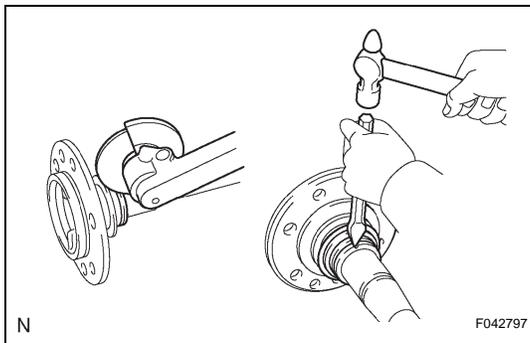
1. REMOVE REAR AXLE SHAFT SNAP RING

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

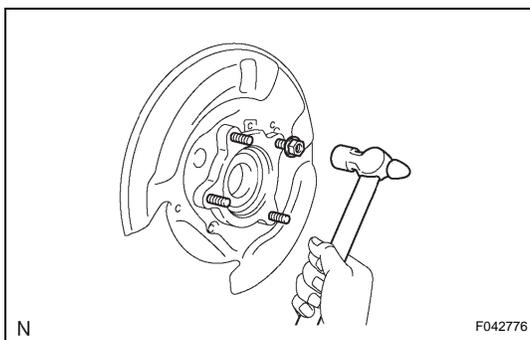


2. REMOVE REAR AXLE SHAFT

- (a) Using SST and press, remove the rear axle shaft.
SST 09521-25011, 09521-25021
 (b) Remove the rear axle bearing inner retainer from the axle hub.
 (c) Remove the rear axle shaft washer from the axle hub.



- (d) Grind the rear axle bearing inner race surface using a grinder, then remove it with a chisel.
 (e) Remove the rear axle shaft oil seal from the rear axle shaft.

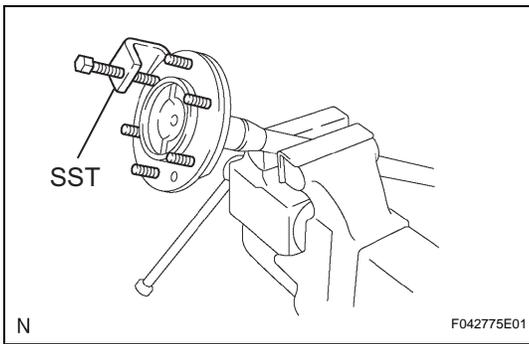


3. REMOVE REAR AXLE HUB AND BEARING ASSEMBLY

- (a) Attach the 4 nuts to the housing bolts.
 (b) Using a hammer, remove the 4 housing bolts and rear axle hub and bearing assembly.

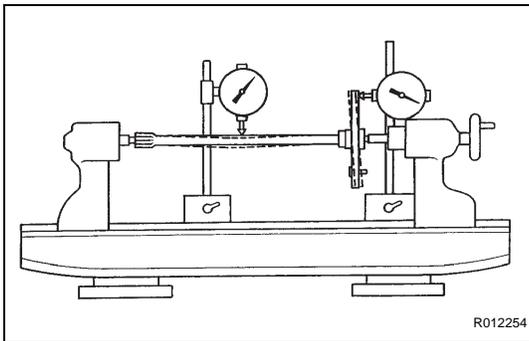
NOTICE:

Do not reuse the nuts previously removed from the vehicle.



4. REMOVE BRAKE DRUM OIL DEFLECTOR

- (a) Remove the deflector and deflector gasket to the rear axle shaft.
- (b) Using SST, remove the 6 hub bolts.
SST 09650-17011



INSPECTION

1. INSPECT REAR AXLE SHAFT

- (a) Using a dial indicator, measure the rear axle shaft runout and flange runout.

Maximum runout:

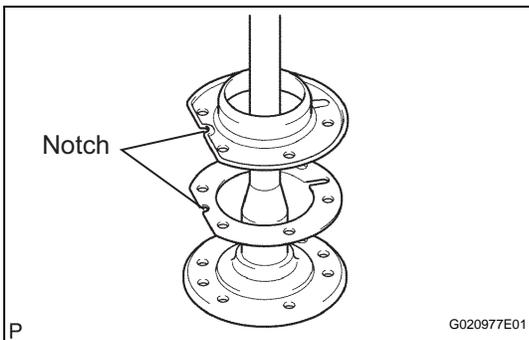
Shaft runout:

1.5 mm (0.0591 in.)

Flange runout:

0.05 mm (0.0020 in.)

If the rear axle shaft or flange is damaged or worn, or of runout of greater than the maximum, replace the rear axle shaft.



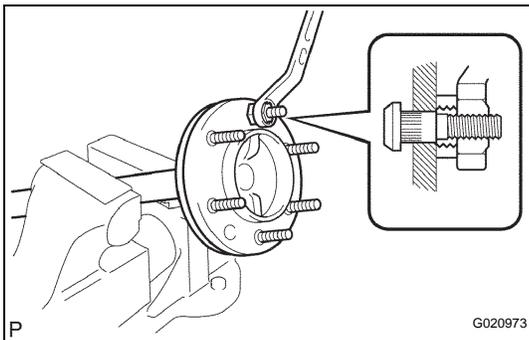
REASSEMBLY

1. INSTALL BRAKE DRUM OIL DEFLECTOR

- (a) Install a new deflector gasket and deflector onto the rear axle shaft.

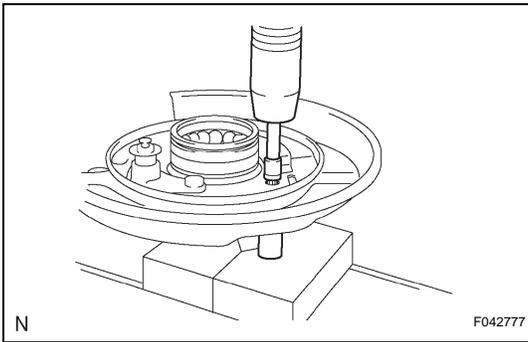
HINT:

Align the 2 notches.



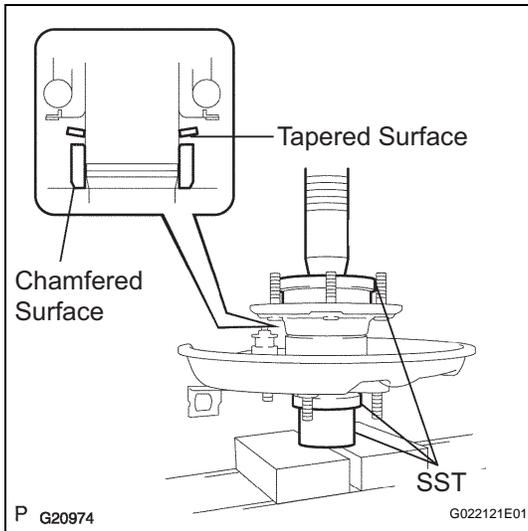
- (b) Install the washer and nut onto a new hub bolt, as shown in the illustration.

- (c) Install the hub bolt by tightening the nut.



2. INSTALL REAR AXLE HUB AND BEARING ASSEMBLY

- (a) Position the parking brake plate on a new rear axle hub and bearing assembly and install the 4 housing bolts using 2 socket wrenches and a press.



3. INSTALL REAR AXLE SHAFT

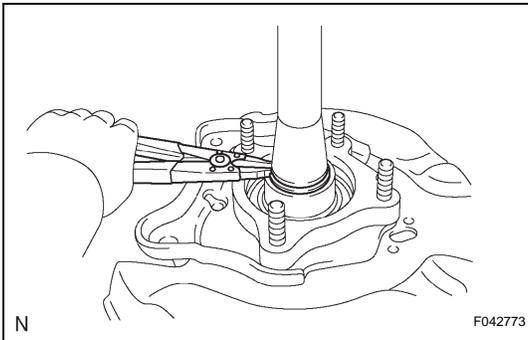
- (a) Install the washer and a new retainer onto the axle hub in the orientations shown in the illustration.

NOTICE:

- Install the washer with its tapered surface facing downward.
- Install the retainer with its chamfered surface facing downward.

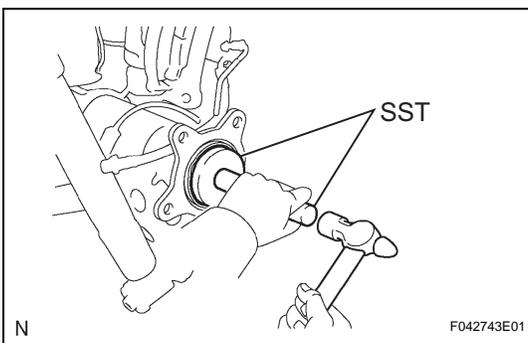
- (b) Using SST and a press, install the rear axle shaft onto the rear axle hub and bearing.

SST 09631-12090, 09726-40010, 09951-01100



4. INSTALL REAR AXLE SHAFT SNAP RING

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



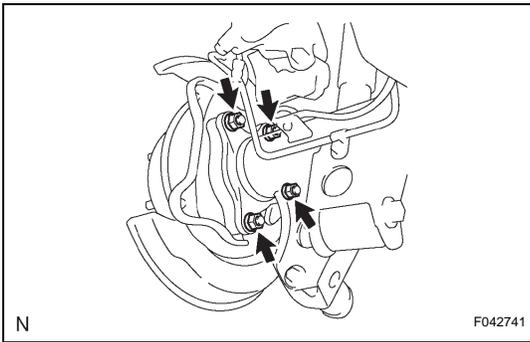
INSTALLATION

1. INSTALL REAR AXLE SHAFT OIL SEAL

- (a) Using SST and a hammer, install a new oil seal.
SST 09950-60020 (09951-00770), 09950-70010 (09951-07150)
- (b) Coat the lip of the oil seal with MP grease.

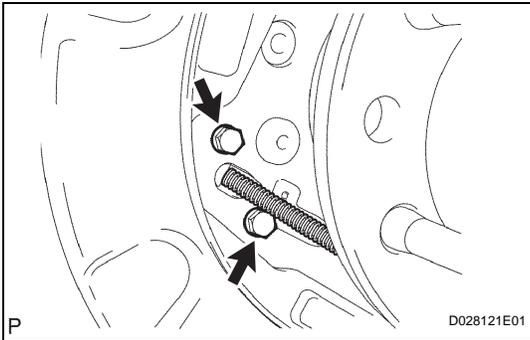
2. INSTALL REAR AXLE SHAFT

- (a) Coat a new O-ring with MP grease and install it.



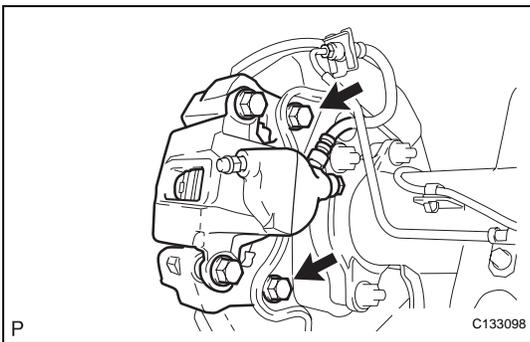
- (b) Install the rear axle shaft together with the parking brake plate with the 4 nuts.
Torque: 120 N*m (1,224 kgf*cm, 89 ft.*lbf)

3. **INSPECT REAR AXLE SHAFT BEARING** (See page [AH-2](#))
4. **INSTALL REAR SPEED SENSOR** (See page [BC-198](#))

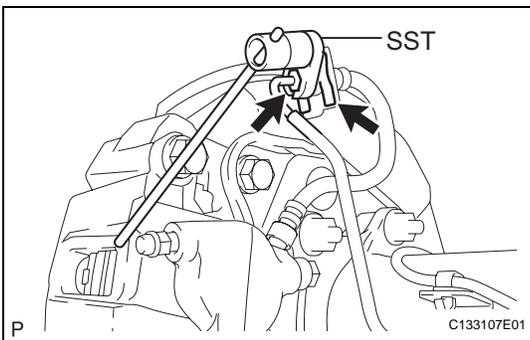


5. **INSTALL PARKING BRAKE CABLE**
 - (a) Install the parking brake cable onto the parking brake plate with the 2 bolts.
Torque: 8.0 N*m (82 kgf*cm, 71 in.*lbf)
6. **APPLY HIGH TEMPERATURE GREASE** (See page [PB-19](#))
7. **INSTALL PARKING BRAKE SHOE** (See page [PB-19](#))
8. **INSTALL PARKING BRAKE SHOE STRUT** (See page [PB-19](#))
9. **INSTALL PARKING BRAKE SHOE RETURN TENSION SPRING** (See page [PB-19](#))

10. **CHECK PARKING BRAKE INSTALLATION** (See page [PB-20](#))
11. **INSTALL REAR DISC** (See page [PB-20](#))
12. **ADJUST PARKING BRAKE SHOE CLEARANCE** (See page [PB-20](#))



13. **INSTALL REAR DISC BRAKE CALIPER ASSEMBLY**
 - (a) Install the disc brake caliper assembly with the 2 bolts and 2 washers.
Torque: 105 N*m (1,071 kgf*cm, 78 ft.*lbf)
 - (b) Install the flexible hose with a new clip.



- (c) Using SST, install the brake tube onto the flexible hose.
SST 09023-00101
Torque: for use without SST
15 N*m (155 kgf*cm, 11 ft.*lbf)
for use with SST
14 N*m (143 kgf*cm, 10 ft.*lbf)

HINT:

- Use a torque wrench with a fulcrum length of 300 mm (11.81 in.).
- This torque value is effective when SST is parallel to the torque wrench.

14. **INSTALL REAR WHEEL**
Torque: 112 N*m (1,137 kgf*cm, 82 ft.*lbf)
15. **CONNECT CABLE TO NEGATIVE BATTERY TERMINAL**
Torque: 3.9 N*m (40 kgf*cm, 35 in.*lbf)
16. **INSPECT DIFFERENTIAL OIL** (See page [DF-3](#))
17. **CHECK FOR DIFFERENTIAL OIL LEAKAGE**
18. **FILL RESERVOIR WITH BRAKE FLUID** (See page [BR-5](#))
19. **BLEED BRAKE LINE** (See page [BR-5](#))
20. **CHECK FLUID LEVEL IN RESERVOIR** (See page [BR-7](#))
21. **CHECK FOR BRAKE FLUID LEAKAGE**
22. **INSPECT PARKING BRAKE LEVER TRAVEL** (See page [PB-4](#))
23. **ADJUST PARKING BRAKE LEVER TRAVEL** (See page [PB-4](#))
24. **CHECK VSC SENSOR SIGNAL**
(See page [BC-28](#))