

SUSPENSION

Rear Suspension (Inspection) - Sienna

REAR SUSPENSION SYSTEM

PROBLEM SYMPTOMS TABLE

PROBLEM SYMPTOMS TABLE

HINT:

Use the table below to help determine the cause of problem symptoms. If multiple suspected areas are listed, 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.

REAR SUSPENSION SYSTEM

Symptom	Suspected Area	See
Vehicle pulls to one side while driving	Tire (worn or improperly inflated)	Refer to <u>INSPECTION</u>
	Rear wheel alignment (incorrect)	Refer to <u>INSPECTION</u>
	Rear shock absorber (worn)	Refer to <u>INSPECTION</u>
	Rear axle hub (worn)	Refer to <u>ON-VEHICLE INSPECTION</u>
	Suspension parts (worn)	-
Bottoming	Vehicle (overloaded)	-
	Rear coil spring (weak)	Refer to <u>REMOVAL</u>
	Rear shock absorber (worn)	Refer to <u>INSPECTION</u>
Sway/pitches	Tire (worn or improperly inflated)	Refer to <u>INSPECTION</u>
	Rear coil spring (weak)	Refer to <u>REMOVAL</u>
	Rear shock absorber (worn)	Refer to <u>INSPECTION</u>
Wheel shimmy	Tire (worn or improperly inflated)	Refer to <u>INSPECTION</u>
	Wheel (out of balance)	Refer to <u>INSPECTION</u>
	Rear wheel alignment (incorrect)	Refer to <u>INSPECTION</u>
	Rear shock absorber (worn)	Refer to <u>INSPECTION</u>
	Rear axle hub (worn)	Refer to <u>ON-VEHICLE INSPECTION</u>
Abnormal tire wear	Tire (worn or improperly inflated)	Refer to <u>INSPECTION</u>
	Wheel (out of balance)	Refer to <u>INSPECTION</u>

Rear wheel alignment (incorrect)	Refer to <u>INSPECTION</u>
Suspension parts (worn)	-

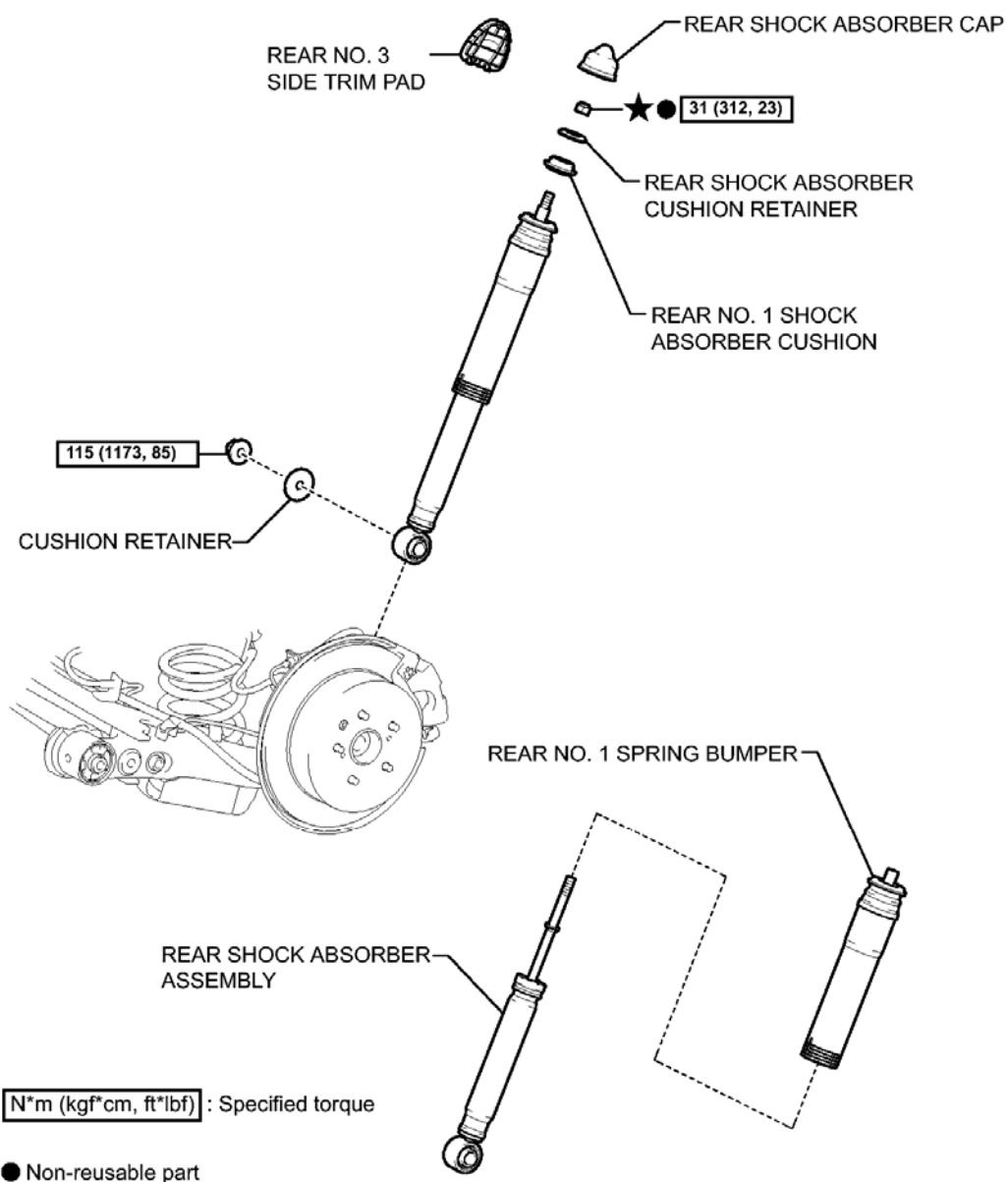
SUSPENSION

Rear Suspension (Service Information) - Sienna

REAR SHOCK ABSORBER

COMPONENTS

ILLUSTRATION



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Fig. 1: Rear Shock Absorber Replacement Components With Torque Specifications
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

REMOVAL

REMOVAL

HINT:

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

1. **REMOVE REAR WHEEL**

2. **REMOVE REAR SHOCK ABSORBER CAP**

- a. Disengage the claw and 2 guides and remove the rear No. 3 side trim pad.

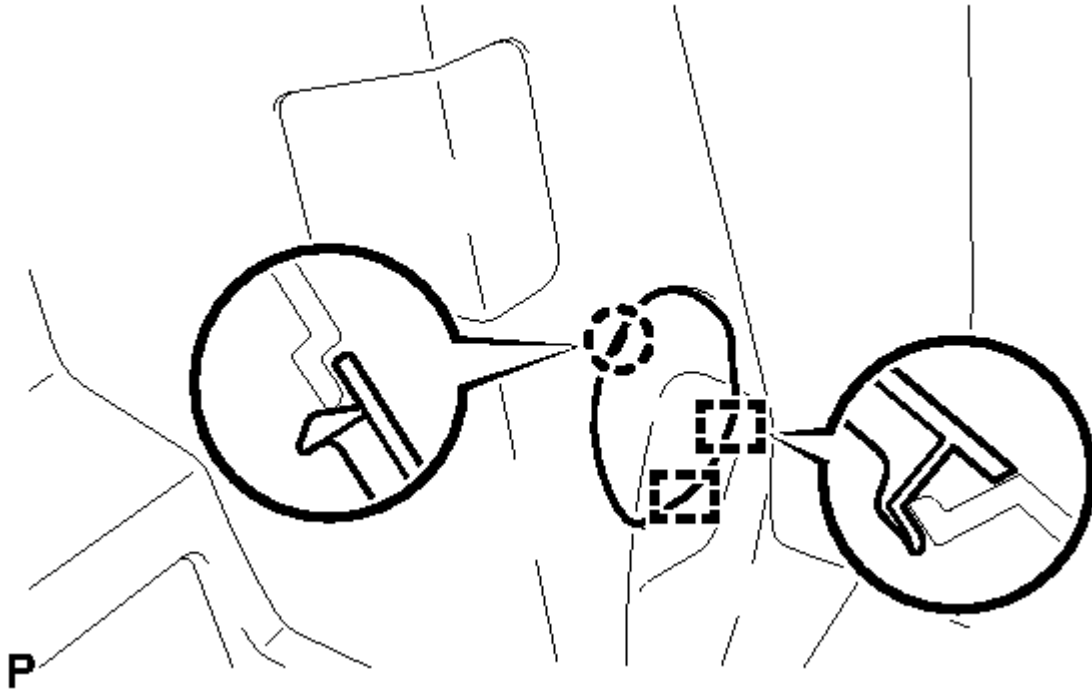
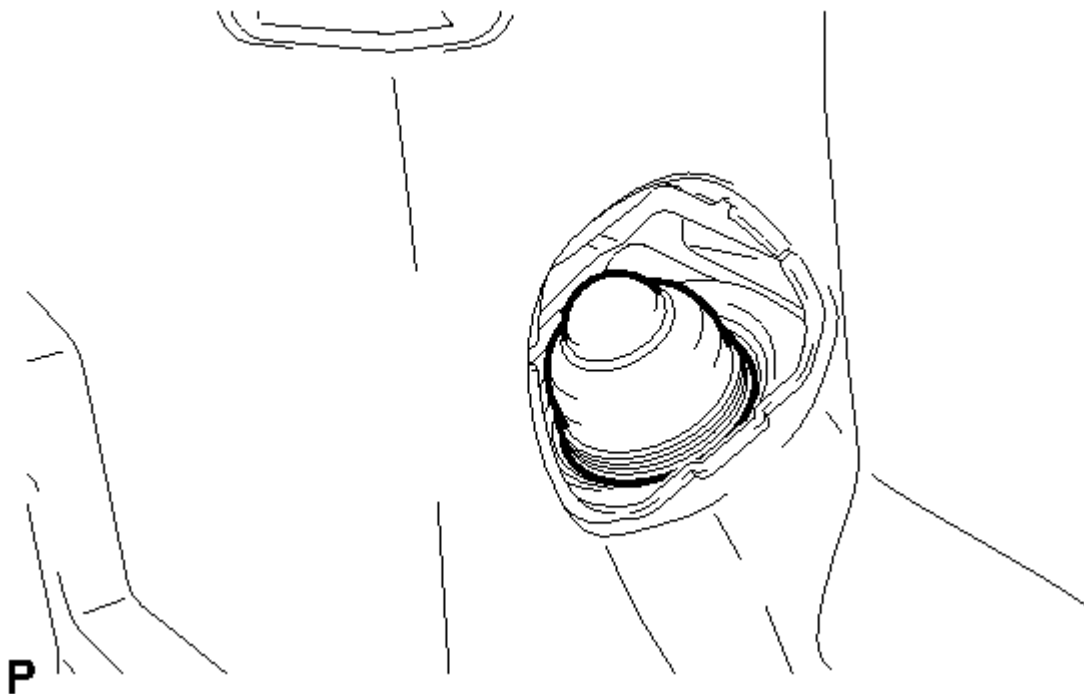


Fig. 2: Identifying No. 3 Side Trim Pad & Fasteners
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- b. Remove the rear shock absorber cap from the body.

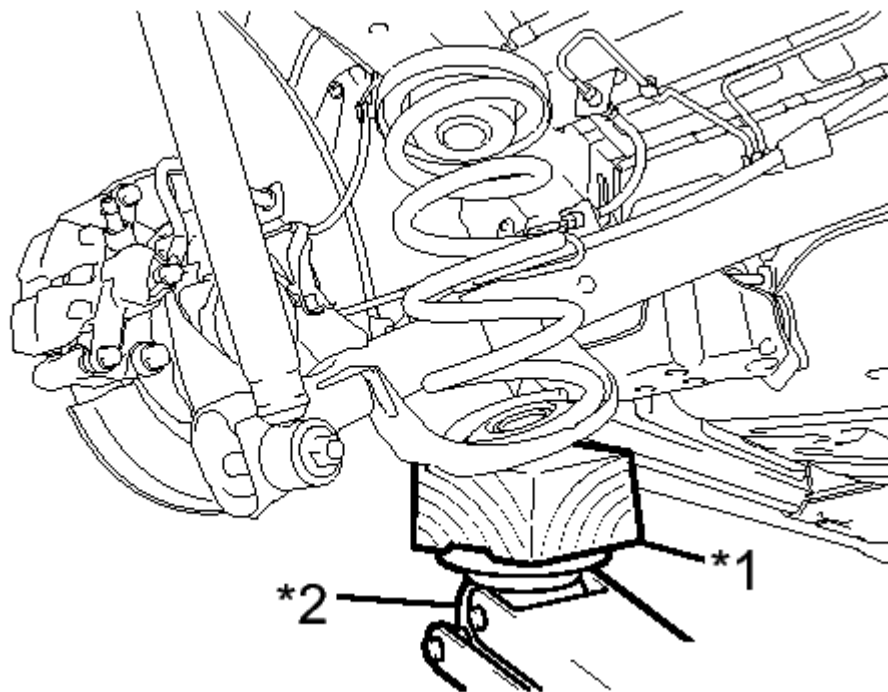


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Fig. 3: Identifying Rear Shock Absorber Cap
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

3. REMOVE REAR SHOCK ABSORBER ASSEMBLY

- a. Support the spring cup of the rear axle beam assembly with a jack using a wooden block.



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Fig. 4: Identifying Rear Axle Beam Assembly Spring Cup With Jack & Wooden Block

Support

Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

*1	Wooden Block
*2	Jack

WARNING: Do not jack up the rear axle beam assembly too high as the vehicle may fall.

NOTE: Keep supporting the rear axle beam assembly with a jack until the installation of the rear shock absorber assembly has been completed.

HINT:

Support the rear shock absorber assembly so that it is compressed by 20 to 30 mm (0.787 to 1.18 in.).

- b. Remove the lock nut while holding the rod of the rear shock absorber assembly with a hexagon wrench (6 mm).

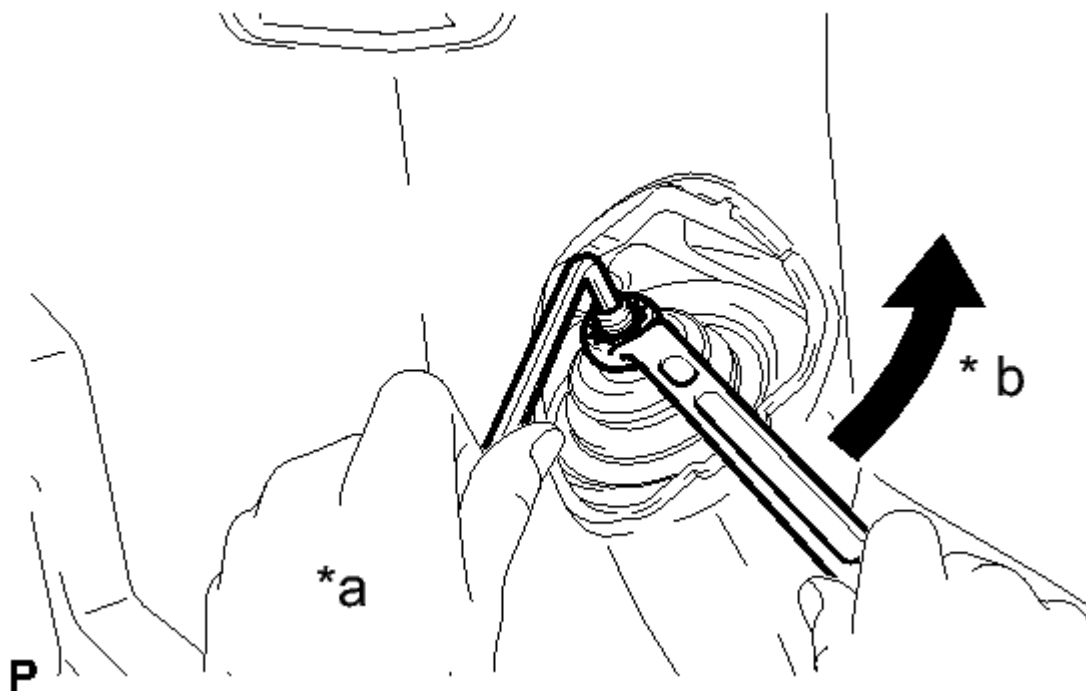


Fig. 5: Removing Rear Shock Absorber Fastener
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

*a	Hold
*b	Turn

NOTE: Securely insert the hexagon wrench to the rear shock absorber rod to prevent damage to the rear shock absorber assembly.

- c. Remove the rear shock absorber cushion retainer and rear No. 1 shock absorber cushion from the rear shock absorber assembly.

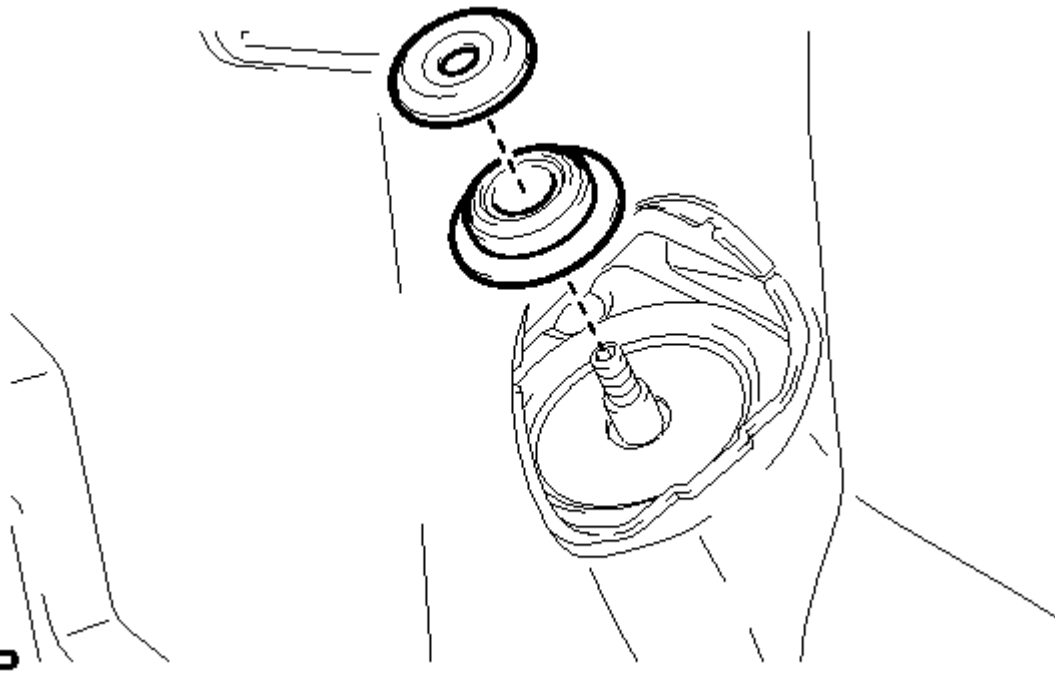
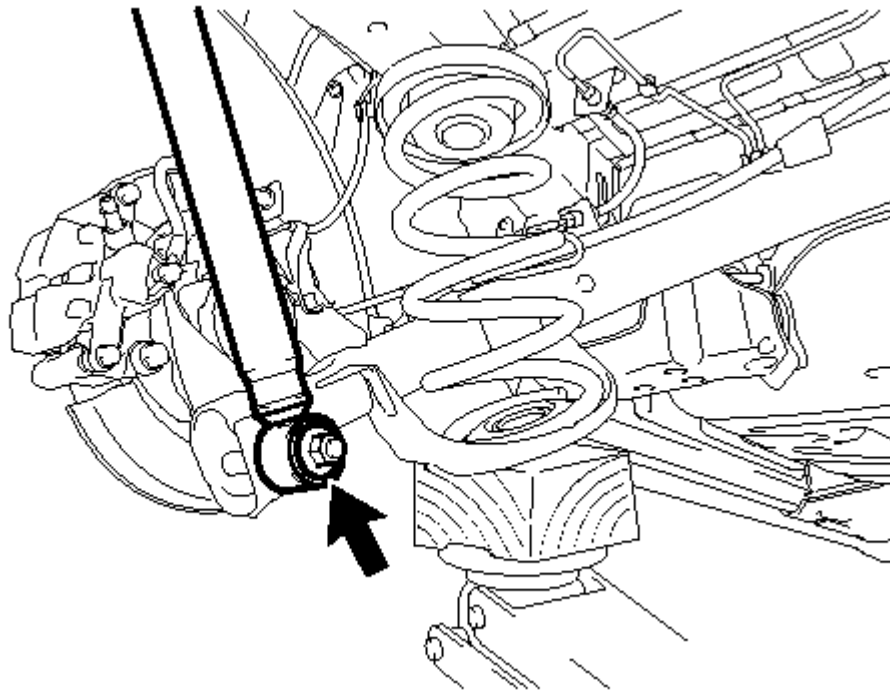


Fig. 6: Identifying Rear Shock Absorber Cushion Retainer & Rear No. 1 Shock Absorber Cushion

Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- d. Remove the nut, cushion retainer and rear shock absorber assembly.

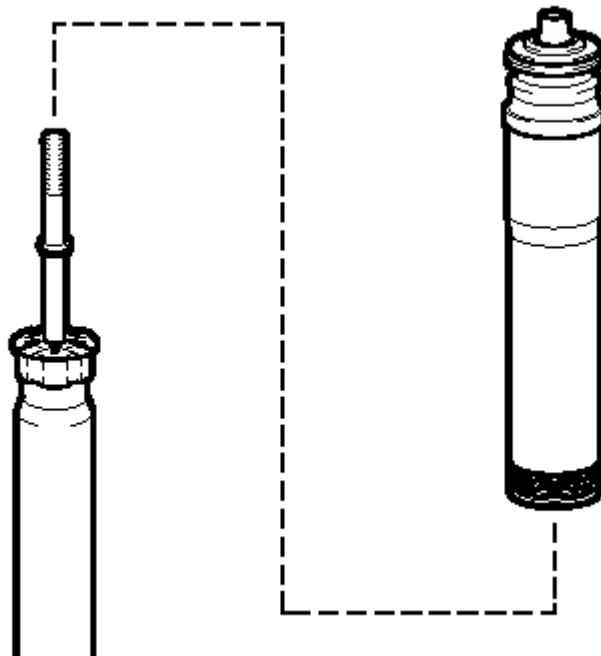


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Fig. 7: Identifying Rear Shock Absorber Assembly, Cushion Retainer & Fastener
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

4. REMOVE REAR NO. 1 SPRING BUMPER

- a. Remove the rear No. 1 spring bumper from the rear shock absorber assembly.



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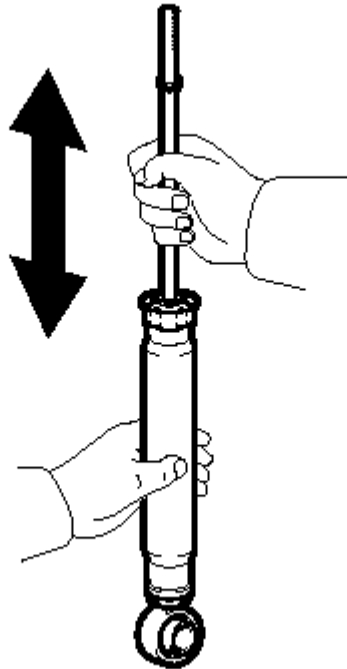
Fig. 8: Identifying Rear Shock Absorber Assembly & Rear No. 1 Spring Bumper

Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

INSPECTION

INSPECTION

1. INSPECT REAR SHOCK ABSORBER ASSEMBLY



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Fig. 9: Inspecting Rear Shock Absorber Assembly Operation
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- a. Compress and extend the shock absorber rod, and check that there is no abnormal resistance or unusual sound during operation.

If there is any abnormality, replace the shock absorber with a new one.

HINT:

When disposing of the shock absorber, rear, see "DISPOSAL" See step 1.

INSTALLATION

INSTALLATION

HINT:

- Use the same procedure for the RH side and LH side.

- The procedure listed below is for the LH side.

1. INSTALL REAR NO. 1 SPRING BUMPER

- a. Install the rear No. 1 spring bumper to the rear shock absorber assembly.

NOTE: Make sure that there is no dirt or foreign matter in the threads of the rear shock absorber assembly.

2. TEMPORARILY TIGHTEN REAR SHOCK ABSORBER ASSEMBLY

- a. Insert the upper end of the rear shock absorber assembly to the vehicle body.
- b. Temporarily install the rear shock absorber assembly and cushion retainer to the rear axle beam assembly with the nut.

HINT:

Fully tighten the nut after stabilizing the suspension.

- c. Install the rear No. 1 shock absorber cushion and rear shock absorber cushion retainer to the rear shock absorber assembly as shown in the illustration.

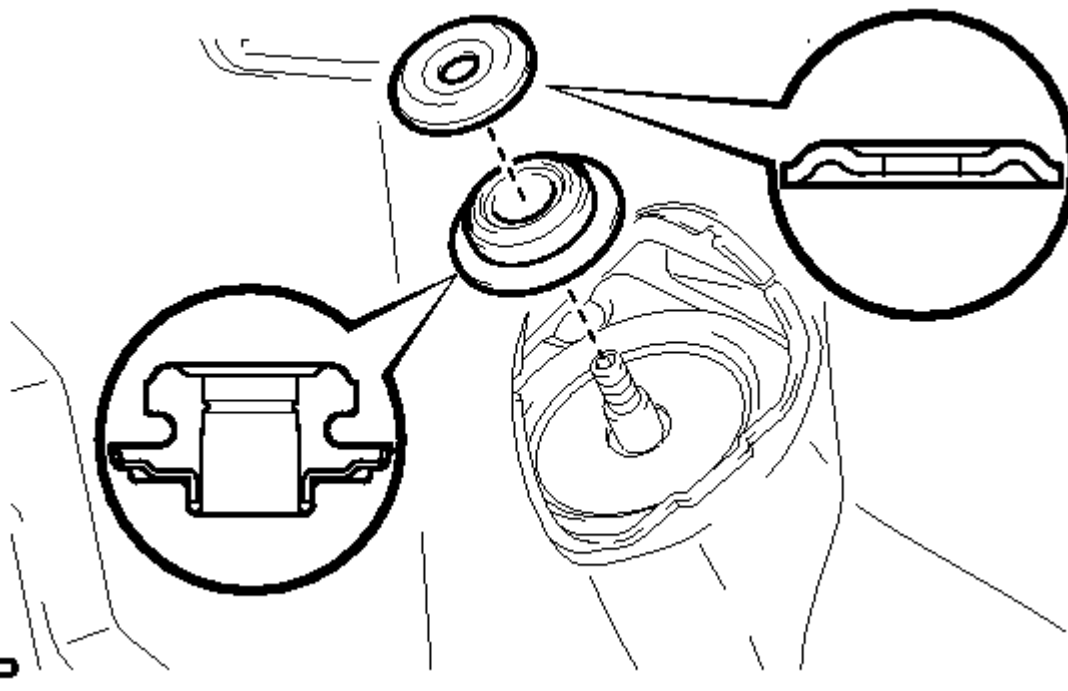
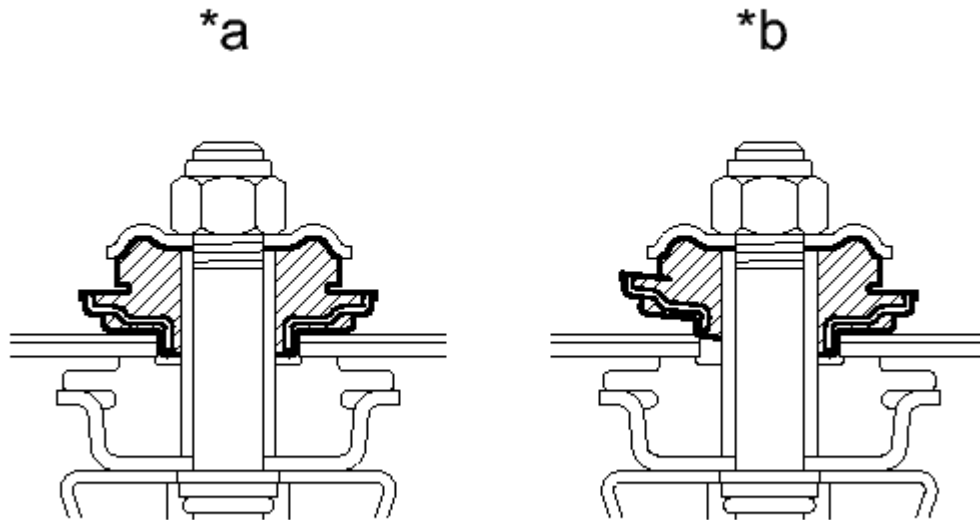


Fig. 10: Identifying Rear No. 1 Shock Absorber Cushion & Rear Shock Absorber Cushion Retainer

Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

NOTE: Make sure that the cushion and cushion retainer are installed in the correct direction.

- d. Temporarily install a new lock nut while holding the rod of the rear shock absorber assembly with a 6 mm hexagon wrench.



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Fig. 11: Identifying Cushion and Retainer Position
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

*a	Correct
*b	Incorrect

NOTE:

- Make sure that the bottom lip of the rear No. 1 shock absorber cushion is not stuck on the body.
- Securely insert the hexagon wrench to the rear shock absorber rod to prevent damage to the rear shock absorber assembly when tightening the nut.

- e. Using a union nut wrench (17 mm), fully tighten the lock nut while holding the rod of the rear shock absorber assembly with a hexagon wrench (6 mm).

Torque: 31 N*m (312 kgf*cm, 23 ft.*lbf)

NOTE:

- Securely insert the hexagon wrench to the rear shock absorber rod to prevent damage to the rear shock absorber assembly.
- Use the formula to calculate special torque values for situations where a union nut wrench is combined with a torque wrench.

Refer to PRECAUTION .

3. INSTALL REAR SHOCK ABSORBER CAP

- a. Fold up the lip of the rear shock absorber cap from the position illustrated by the dashed line.

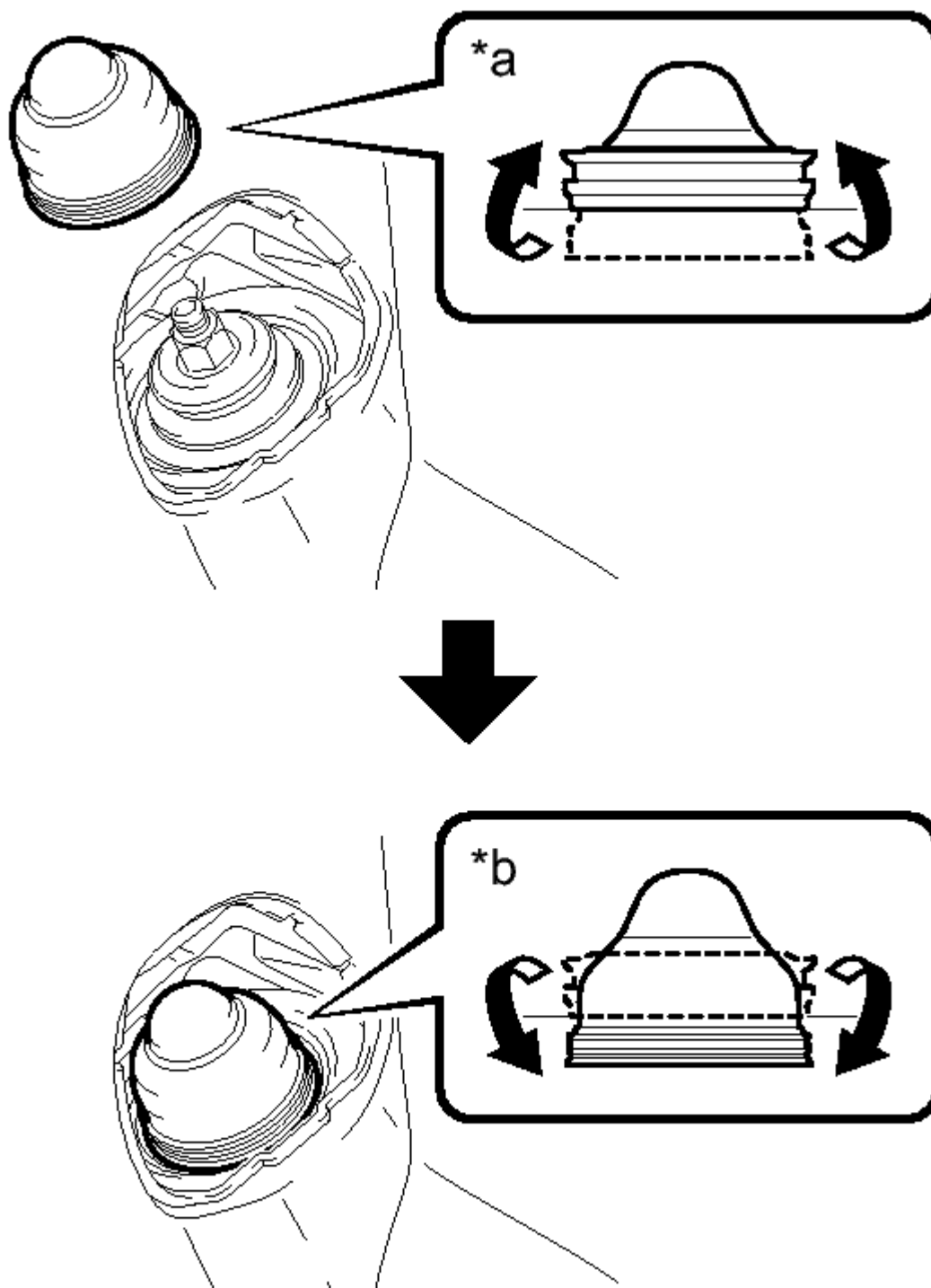


Fig. 12: Installing Rear Shock Absorber Cap
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

*a	Fold Lip Up
*b	Fold Lip Down

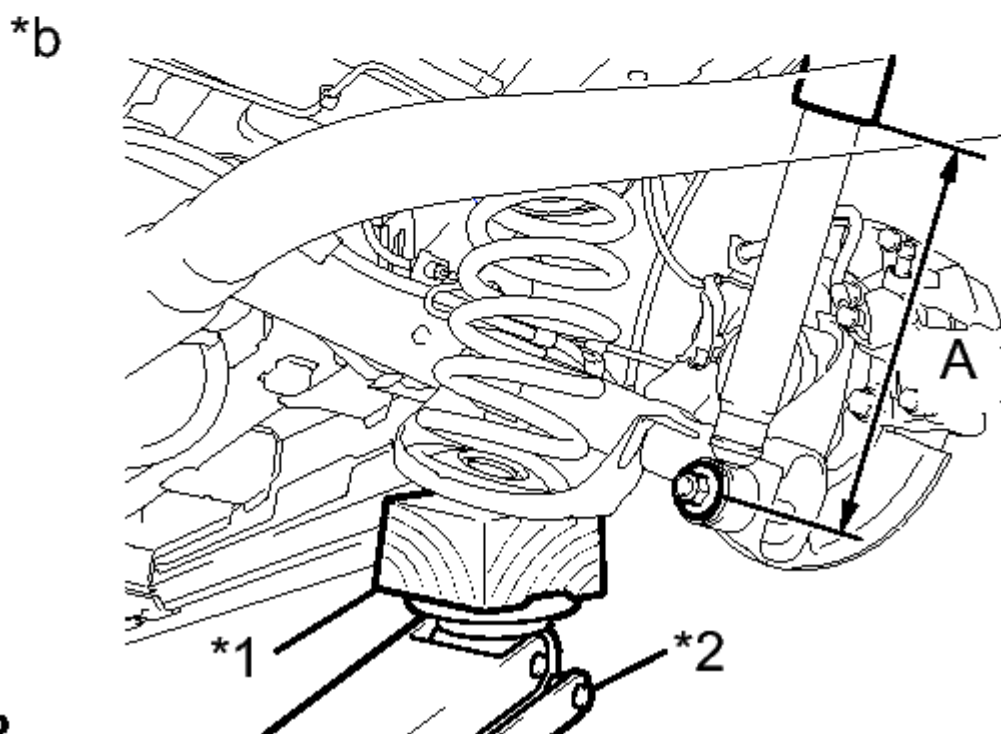
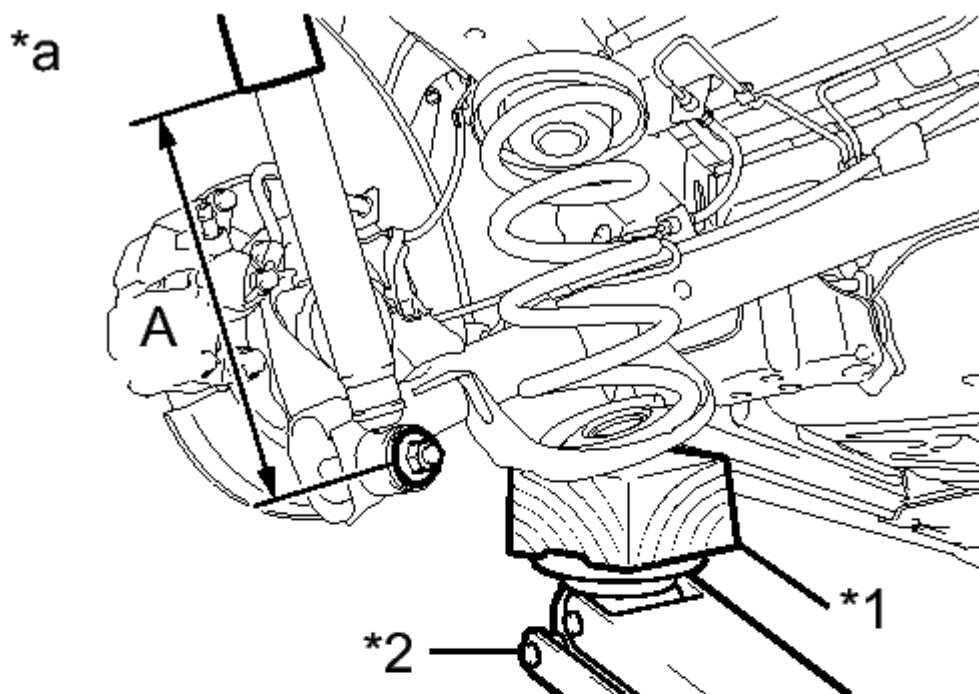
- b. Fold down the lip and install the rear shock absorber cap to the original position as shown in the illustration.
- c. Engage the 2 guides and claw to install the rear No. 3 side trim pad.

4. STABILIZE SUSPENSION

- a. Install the rear wheels.

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

- b. Lower the vehicle.
- c. Bounce the vehicle up and down several times to stabilize the suspension.
- d. Remove the rear wheels.
- e. Jack up the spring cup of the rear axle beam assembly, placing a wooden block underneath to avoid damage. Apply load to the suspension so that the rear shock absorber assembly is positioned as shown in the illustration.

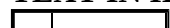


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Fig. 13: Inspecting Rear Shock Absorber Assembly Operation With Load Applied To Suspension

Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION



*1	Wooden Block
*2	Jack
*a	LH Side
*b	RH Side

Length A

Engine Type	Drive Type	Grade	Specification
2GR-FE	2WD	except SE	237.6 mm (9.35 in.)
		SE	226.1 mm (8.90 in.)
	AWD	-	261 mm (10.28 in.)
1AR-FE	-	-	261 mm (10.28 in.)

If the rear shock absorber assembly cannot be positioned as shown in the illustration even when the rear axle beam assembly is jacked up, apply additional load to the vehicle such as by having a person sit in the rear seat.

WARNING: Do not jack up the rear axle beam assembly too high as the vehicle may fall.

NOTE: Make sure to jack up both sides of the rear axle beam assembly evenly to prevent it from twisting.

5. FULLY TIGHTEN REAR SHOCK ABSORBER ASSEMBLY

- Fully tighten the nut on the rear shock absorber assembly (lower side).

Torque: 115 N*m (1173 kgf*cm, 85 ft.*lbf)

6. INSTALL REAR WHEELS

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

7. INSPECT REAR WHEEL ALIGNMENT

Refer to **INSPECTION**

DISPOSAL

DISPOSAL

1. DISPOSE OF REAR SHOCK ABSORBER

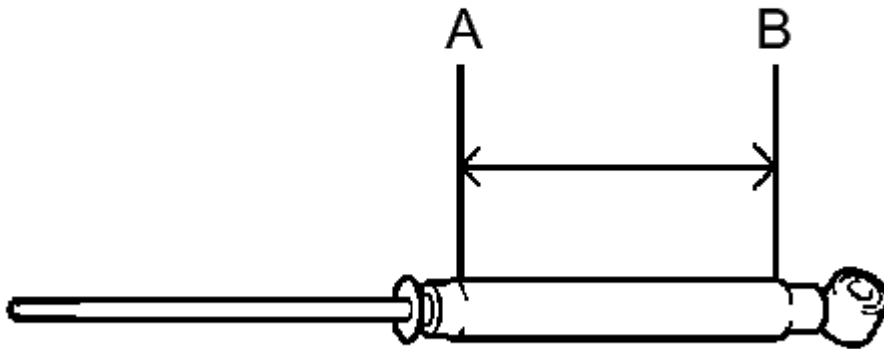


Fig. 14: Identifying Where To Drill Discharge Hole On Shock Absorber
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- a. Fully extend the piston rod and secure the rear shock absorber assembly at an angle in a vise.
- b. Using a drill, make a hole in the cylinder somewhere between A and B, as shown in the illustration, to discharge the gas inside.

WARNING: Be careful when drilling because shards of metal may fly about, so always use proper safety equipment.

HINT:

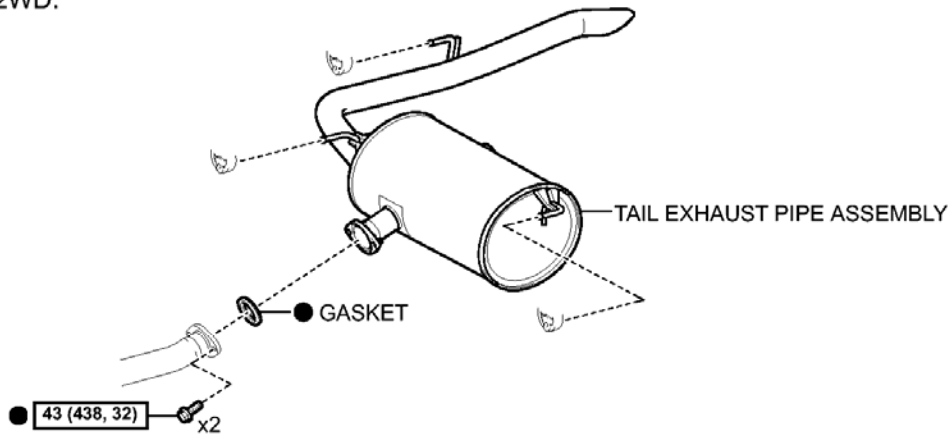
The gas is colorless, odorless and nontoxic.

REAR COIL SPRING

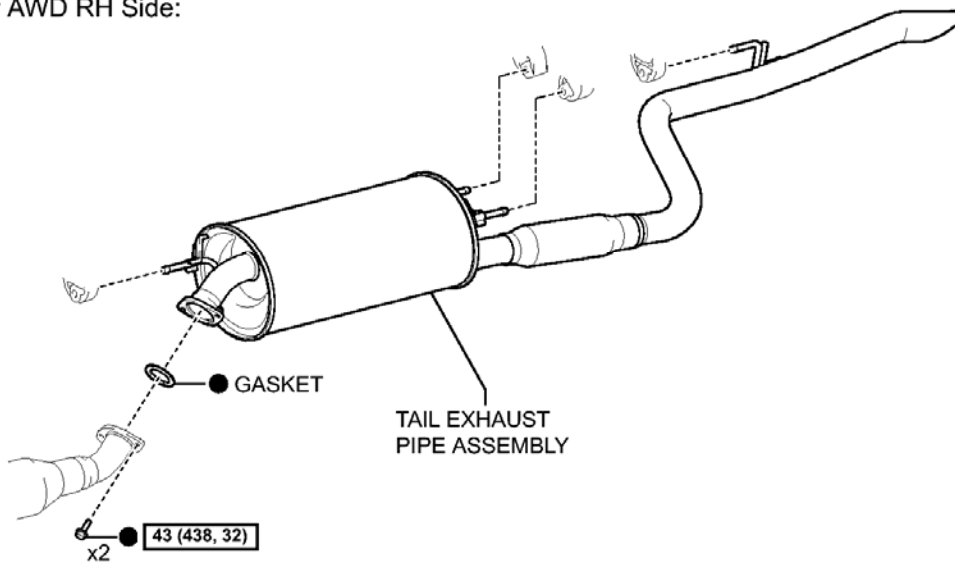
COMPONENTS

ILLUSTRATION

for 2WD:



for AWD RH Side:

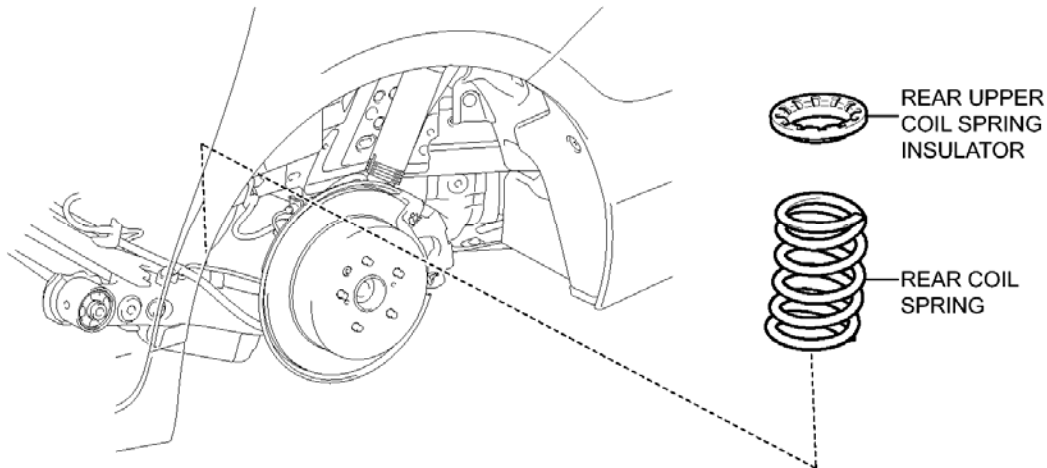


N*m (kgf*cm, ft*lbf) : Specified torque ● Non-reusable part

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Fig. 15: Rear Coil Spring Replacement Components With Torque Specifications (1 Of 2)
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

ILLUSTRATION



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Fig. 16: Rear Coil Spring Replacement Components (2 Of 2)

Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

REMOVAL

REMOVAL

HINT:

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

1. **REMOVE REAR WHEEL**
2. **REMOVE TAIL EXHAUST PIPE ASSEMBLY (for 2WD)**

Engine Type	See
2GR-FE	Refer to <u>REMOVAL - Step 2</u>
	Refer to

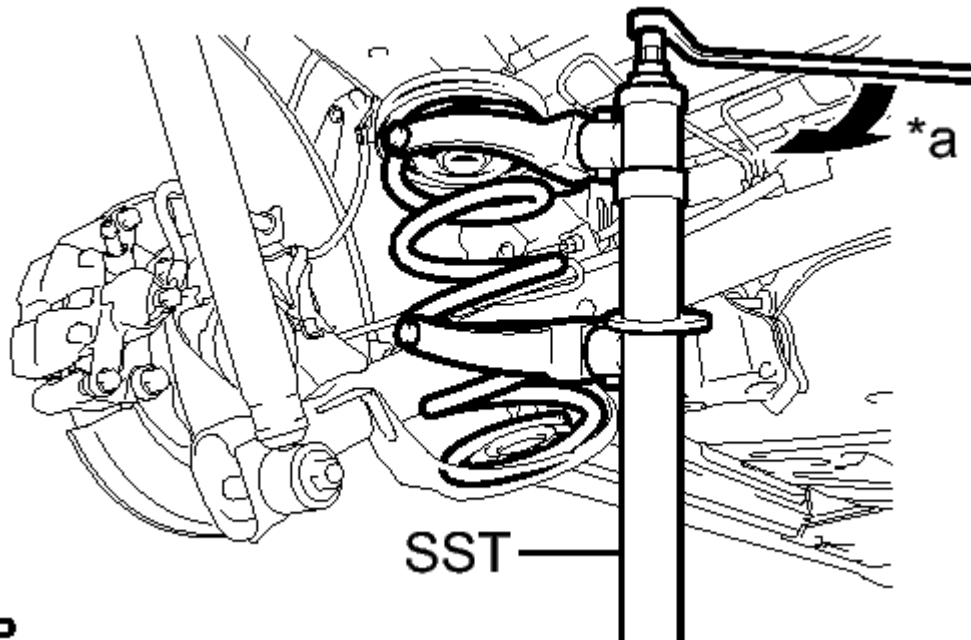
1AR- FE	REMOVAL - Step 2
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3. **REMOVE TAIL EXHAUST PIPE ASSEMBLY (for AWD RH Side)** . Refer to **REMOVAL - Step 2**
4. **REMOVE REAR DRIVE SHAFT ASSEMBLY (for AWD)**

Refer to **REMOVAL**

5. REMOVE REAR COIL SPRING

- a. Install SST to the rear coil spring so that the upper and lower hooks of SST are as far apart as possible.



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Fig. 17: Removing Rear Coil Spring Using SST
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- SST: 09727-30021

NOTE: Do not damage the coil spring surface.

TEXT IN ILLUSTRATION

*a Turn

- b. Using SST, compress the rear coil spring until it moves freely.

NOTE: Do not use an impact wrench. It will damage SST.

- c. Remove the rear coil spring with SST from the vehicle.
- d. Remove the rear upper coil spring insulator from the rear coil spring.

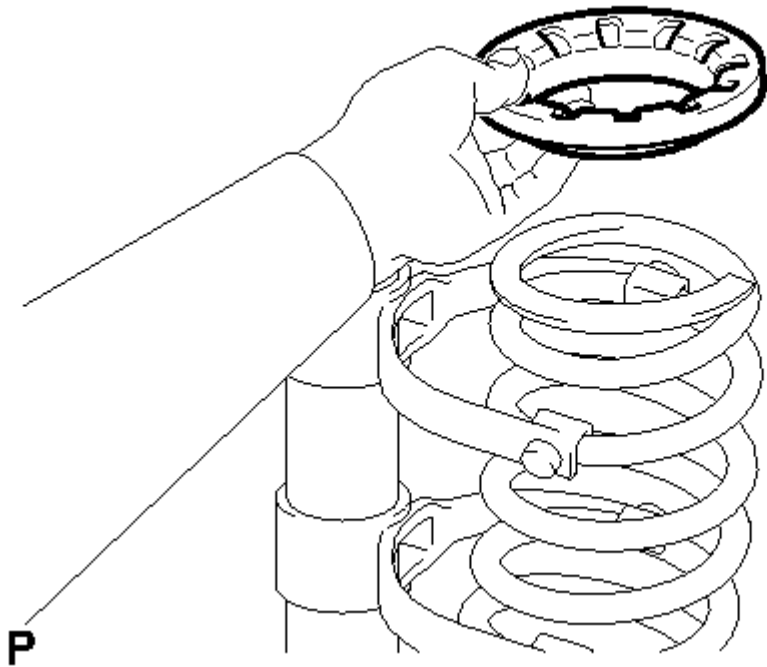
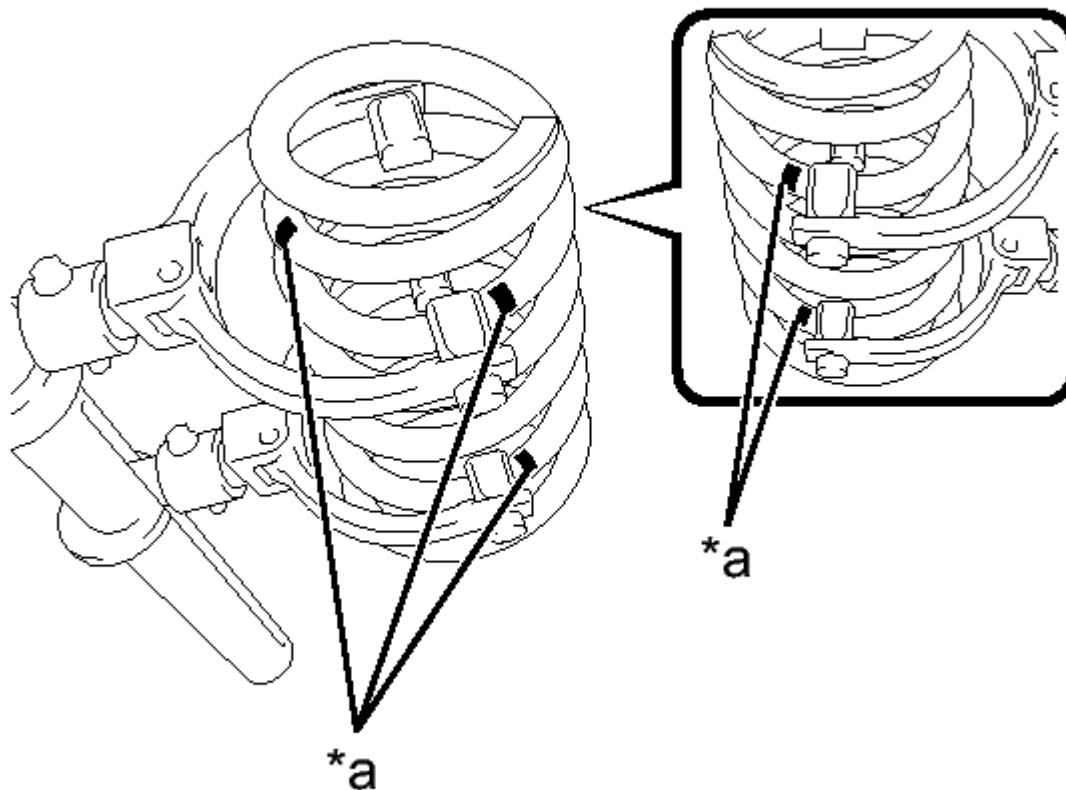


Fig. 18: Removing Rear Upper Coil Spring Insulator From Rear Coil Spring
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- e. Put matchmarks on the rear coil spring as shown in the illustration.



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Fig. 19: Identifying Rear Coil Spring Matchmarks

Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

*a Matchmark

HINT:

Put 4 matchmarks on the spring to show the position of the ends of the SST hooks and put 1 matchmark on the spring to show the mounting side of SST.

- f. Release SST and remove it from the rear coil spring.

NOTE: Do not use an impact wrench. It will damage SST.

INSTALLATION

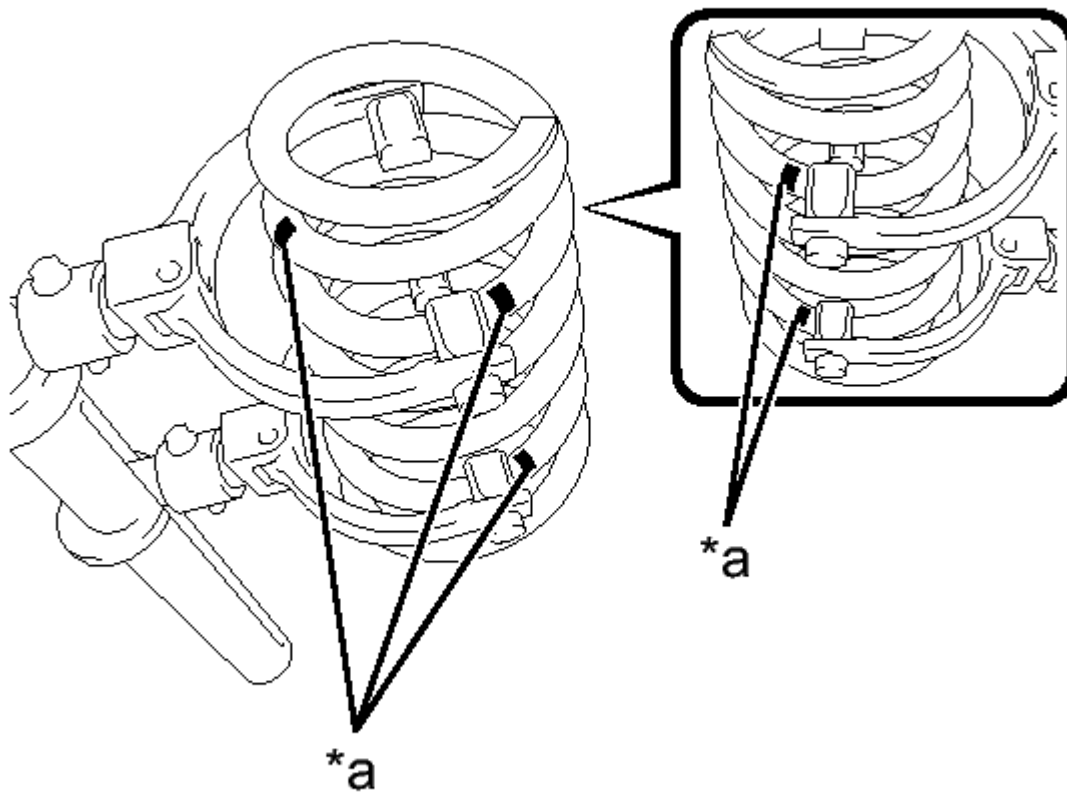
INSTALLATION

HINT:

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

1. INSTALL REAR COIL SPRING

- a. Align the matchmarks on the rear coil spring with the SST hooks and install SST to the rear coil spring as shown in the illustration.



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Fig. 20: Identifying Rear Coil Spring Matchmarks
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- SST: 09727-30021

TEXT IN ILLUSTRATION

*a	Matchmark
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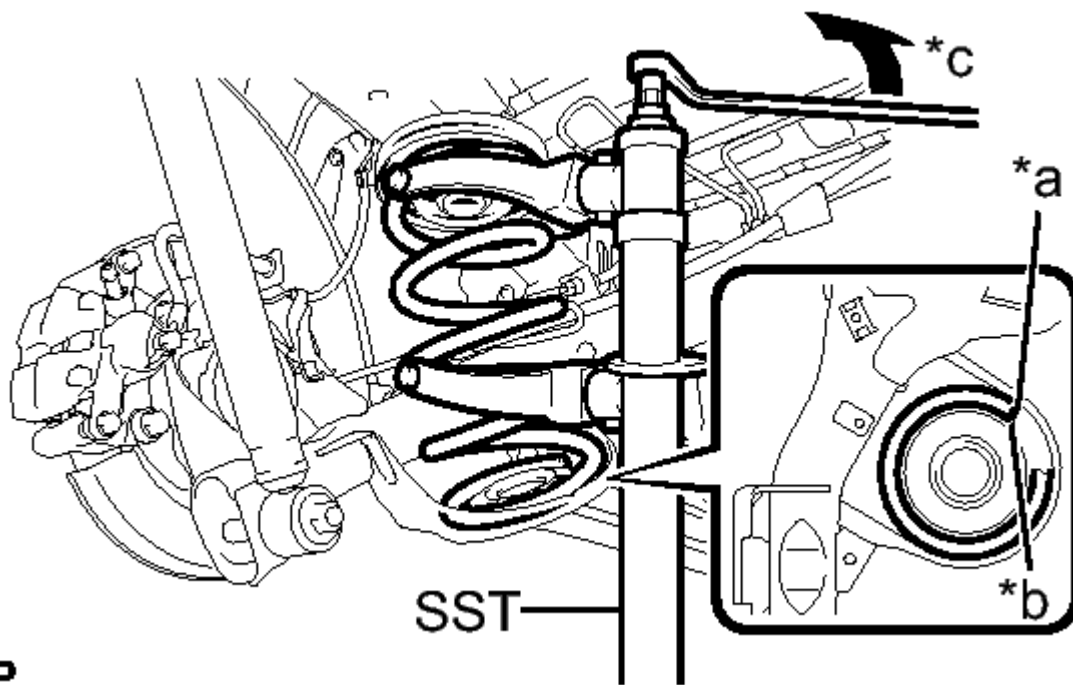
HINT:

When installing a new coil spring, adjust the SST installation position by using the matchmarks on the original spring as a reference.

- b. Using SST, compress the rear coil spring.

NOTE: Do not use an impact wrench. It will damage SST.

- c. Install the rear upper coil spring insulator to the rear coil spring.
d. Fit the lower end of the rear coil spring into the gap of the spring lower seat, and temporarily install the rear coil spring with SST and rear upper coil spring insulator to the vehicle.



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Fig. 21: Installing Rear Coil Spring Using SST

Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

*a	Lower End
*b	Gap
*c	Turn

- e. Release SST and install the rear coil spring to the vehicle.

NOTE:

- Do not use an impact wrench. It will damage SST.
- Make sure that the rear upper coil spring insulator is correctly aligned and does not fall out of position when installing the spring.

f. Remove SST from the rear coil spring.

2. INSTALL REAR DRIVE SHAFT ASSEMBLY (for AWD)

Refer to INSTALLATION

3. INSTALL TAIL EXHAUST PIPE ASSEMBLY (for 2WD)

Engine Type	See
2GR-FE	Refer to <u>INSTALLATION - Step 7</u>
1AR-FE	Refer to <u>INSTALLATION - Step 5</u>

- 4. INSTALL TAIL EXHAUST PIPE ASSEMBLY (for AWD RH Side) . Refer to INSTALLATION - Step 6**
- 5. INSPECT FOR EXHAUST GAS LEAK**
- 6. INSTALL REAR WHEEL**

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

7. STABILIZE SUSPENSION

- a. Lower the vehicle and bounce it up and down several times to stabilize the rear suspension.

8. INSPECT REAR WHEEL ALIGNMENT

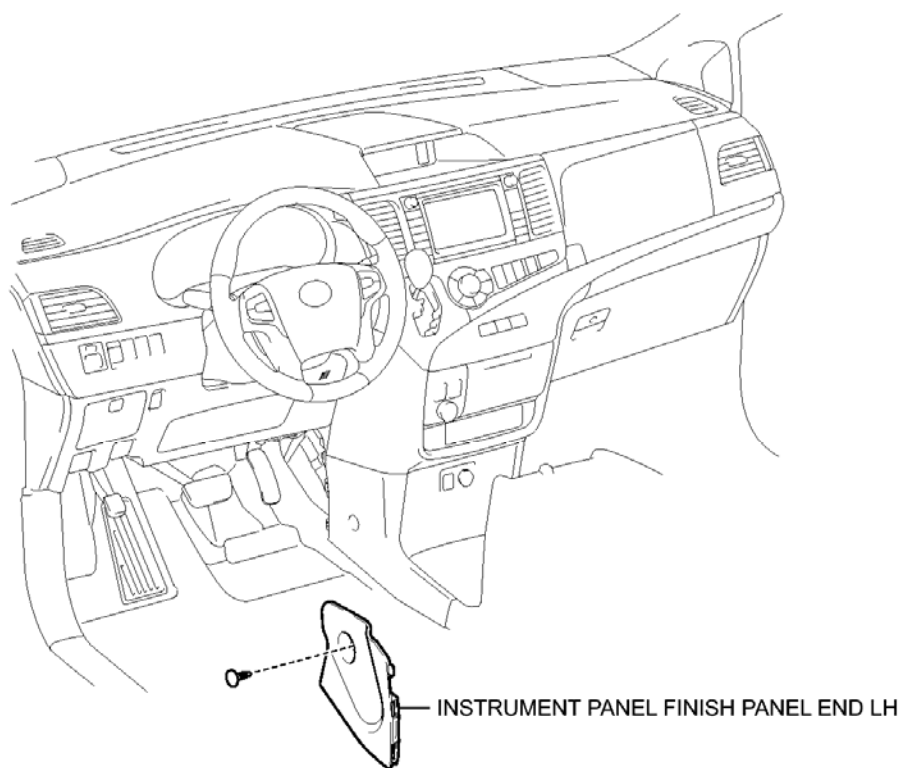
Refer to INSPECTION

REAR AXLE BEAM

COMPONENTS

ILLUSTRATION

for 1AR-FE:

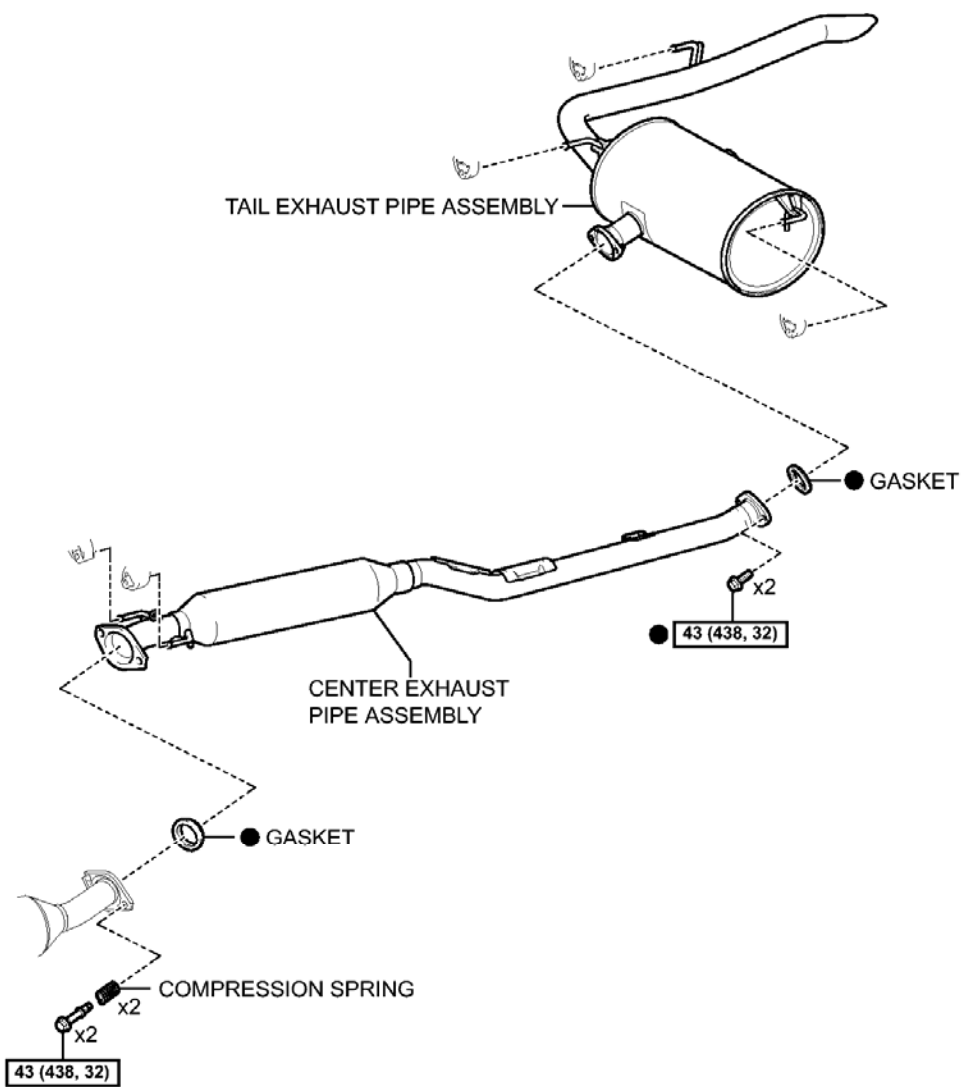


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Fig. 22: Rear Axle Beam Replacement Components (1 Of 6)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

ILLUSTRATION

for 2GR-FE 2WD:



$\boxed{\text{N}\cdot\text{m (kgf}\cdot\text{cm, ft}\cdot\text{lbf)}}$: Specified torque

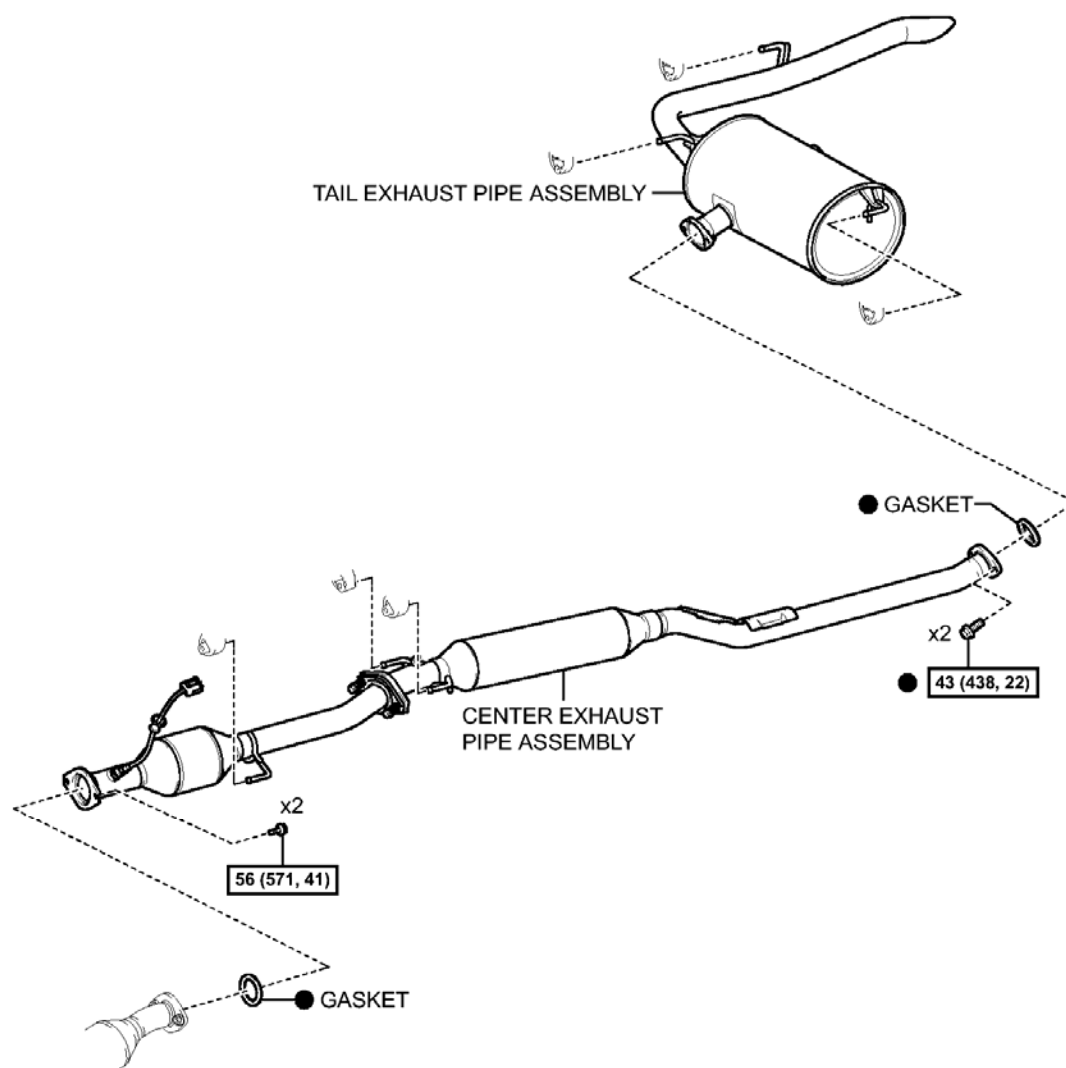
● Non-reusable part

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Fig. 23: Rear Axle Beam Replacement Components With Torque Specifications (2 of 6)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

ILLUSTRATION

for 1AR-FE:



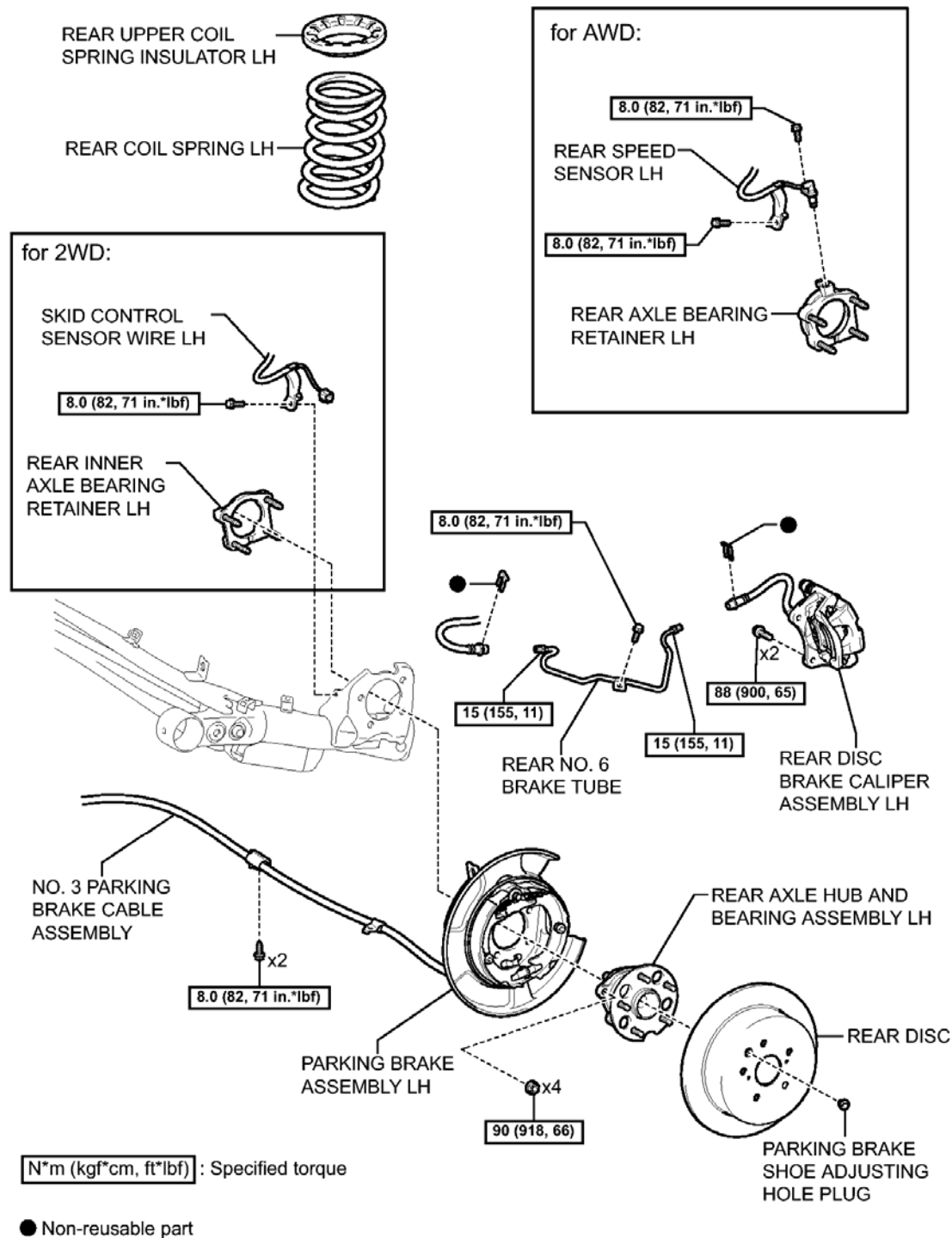
[N*m (kgf*cm, ft.*lbf)]: Specified torque

● Non-reusable part

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Fig. 24: Rear Axle Beam Replacement Components With Torque Specifications (3 of 6)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

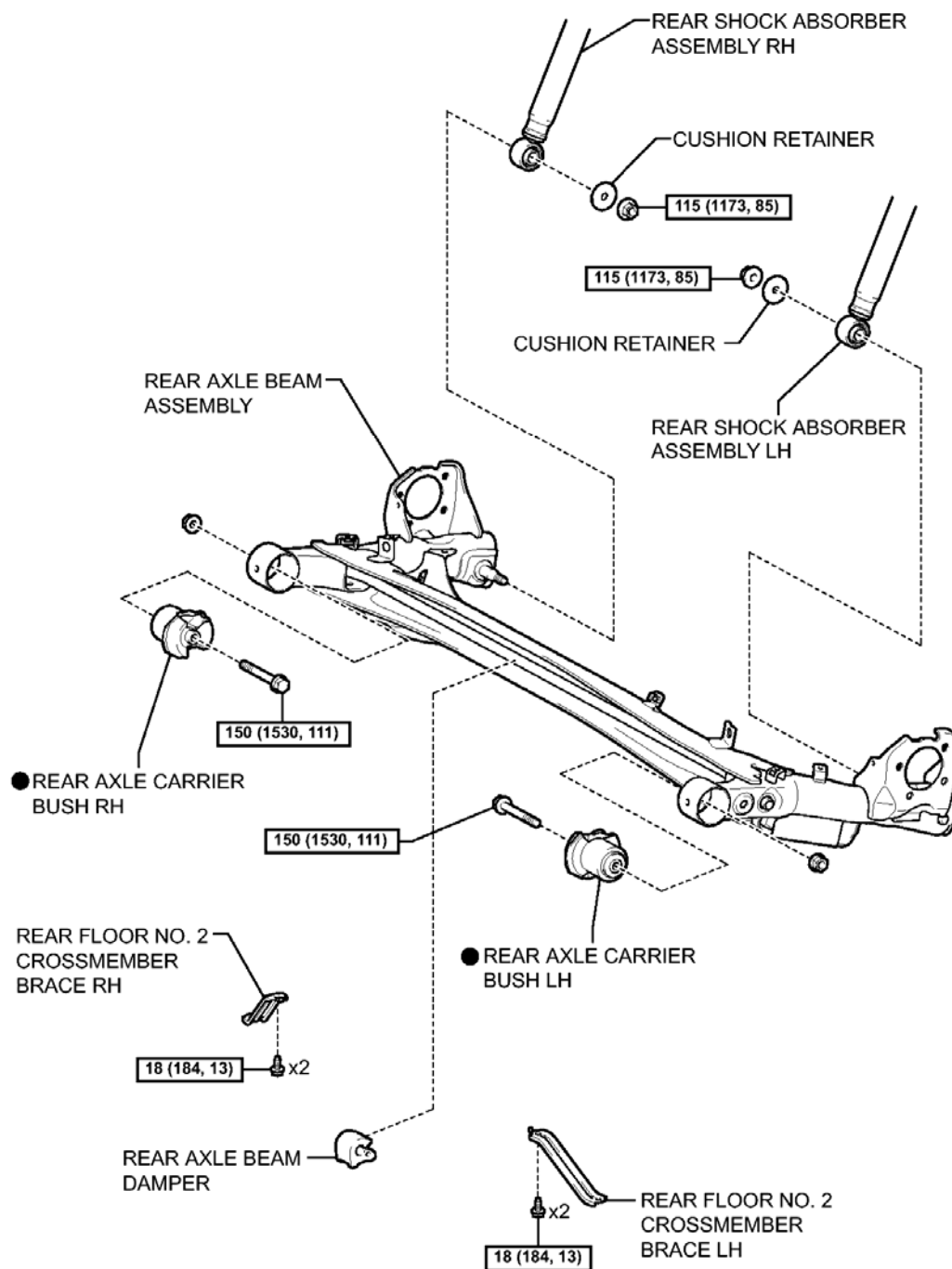
ILLUSTRATION



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Fig. 25: Rear Axle Beam Replacement Components With Torque Specifications (4 of 6)
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

ILLUSTRATION



[N*m (kgf*cm, ft*lb)] : Specified torque

● Non-reusable part

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Fig. 27: Rear Axle Beam Replacement Components With Torque Specifications (6 of 6)
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

REMOVAL

REMOVAL

1. **REMOVE REAR WHEELS**
2. **DRAIN BRAKE FLUID**
3. **REMOVE INSTRUMENT PANEL FINISH PANEL END LH (for 1AR-FE) . Refer to REMOVAL - Step 1**
4. **REMOVE REAR DIFFERENTIAL (for AWD)**

Refer to REMOVAL

5. **REMOVE TAIL EXHAUST PIPE ASSEMBLY (for 2WD)**

Engine Type	See
2GR-FE	Refer to <u>REMOVAL - Step 2</u>
1AR-FE	Refer to <u>REMOVAL - Step 2</u>

6. **REMOVE CENTER EXHAUST PIPE ASSEMBLY (for 2WD)**

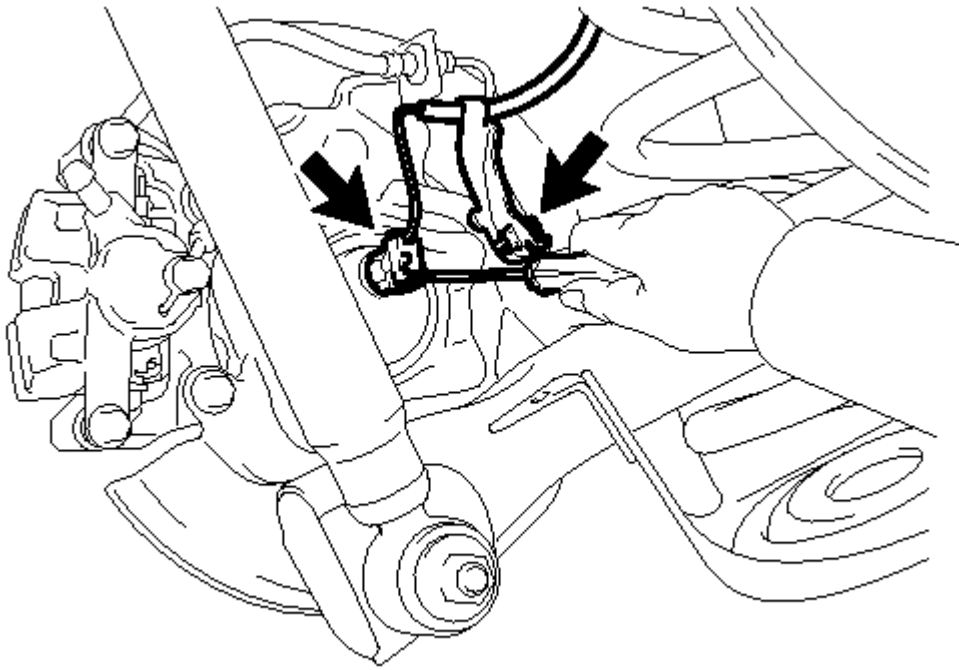
Engine Type	See
2GR-FE	Refer to <u>REMOVAL - Step 3</u>
1AR-FE	Refer to <u>REMOVAL - Step 3</u>

7. **REMOVE REAR COIL SPRING LH** See step 5
8. **REMOVE REAR COIL SPRING RH**

HINT:

Use the same procedure for the RH side as for the LH side.

9. **SEPARATE SKID CONTROL SENSOR WIRE LH (for 2WD)**
 - a. Using a screwdriver, disconnect the connector from the rear axle hub and bearing assembly.



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Fig. 28: Removing Skid Control Sensor Wire LH Connector & Fasteners (For 2WD)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

NOTE: Be careful not to damage the rear speed sensor.

- b. Remove the bolt and No. 1 bracket.

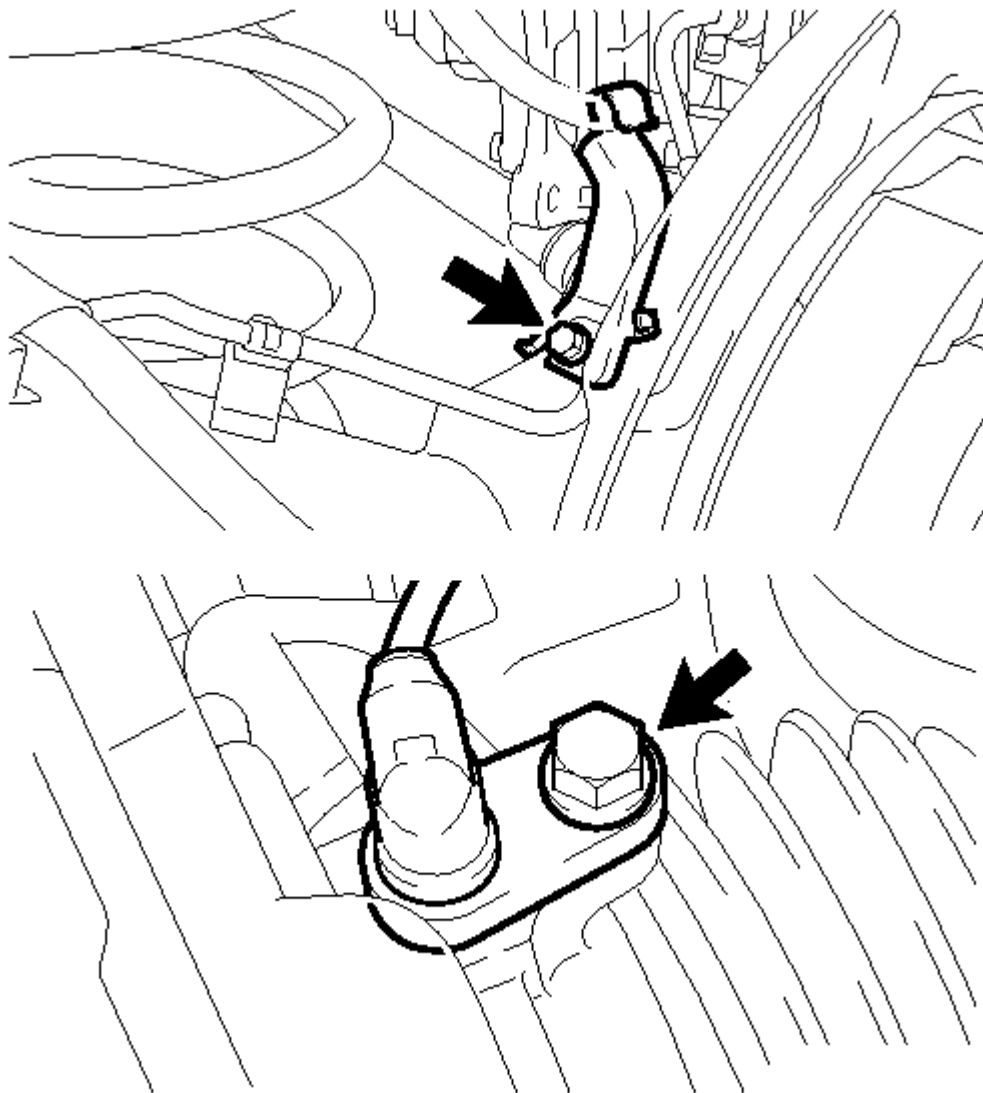
10. SEPARATE SKID CONTROL SENSOR WIRE RH (for 2WD)

HINT:

Use the same procedure for the RH side as for the LH side.

11. SEPARATE REAR SPEED SENSOR LH (for AWD)

- a. Remove the bolt and No. 1 bracket.



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Fig. 29: Identifying Rear Speed Sensor LH No. 1 Bracket & Fasteners (For AWD)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- b. Remove the bolt and separate the rear speed sensor from the rear axle bearing retainer.

NOTE:

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

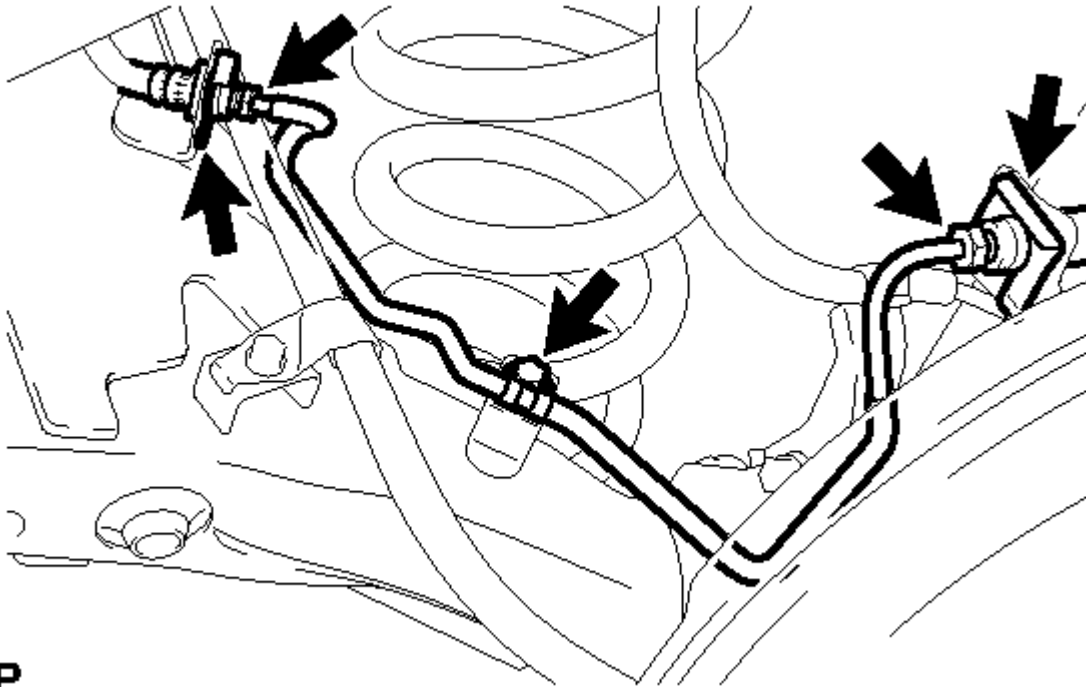
12. SEPARATE REAR SPEED SENSOR RH (for AWD)

HINT:

Use the same procedure for the RH side as for the LH side.

13. REMOVE REAR NO. 6 BRAKE TUBE

- a. Using a union nut wrench (10 mm), separate the rear brake tube while holding the rear brake tube flexible hose with a wrench.



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Fig. 30: Identifying Rear No. 6 Brake Tube & Fasteners
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

NOTE:

- Do not kink or damage the brake line.
- Do not allow any foreign matter such as dirt and dust to enter the brake line.

- b. Remove the 2 clips, bolt and rear brake tube from the rear axle beam assembly.

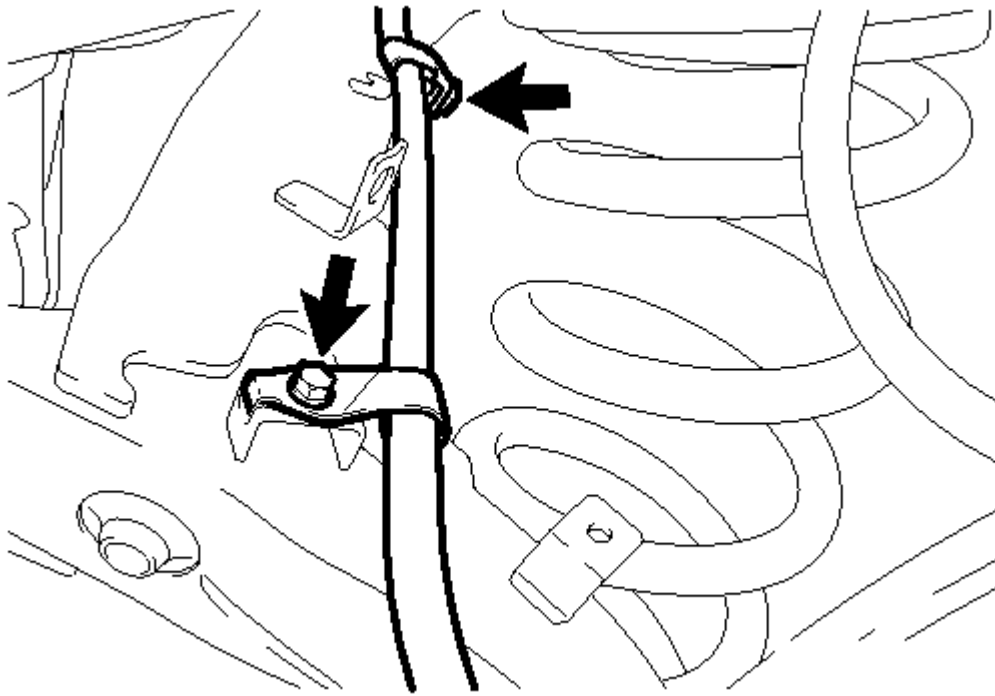
14. REMOVE REAR NO. 5 BRAKE TUBE

HINT:

Use the same procedure for the RH side as for the LH side.

15. SEPARATE NO. 3 PARKING BRAKE CABLE ASSEMBLY

- a. Remove the 2 bolts and separate the parking brake cable assembly from the rear axle beam assembly.



P

Fig. 31: Identifying No. 3 Parking Brake Cable Assembly & Fasteners
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

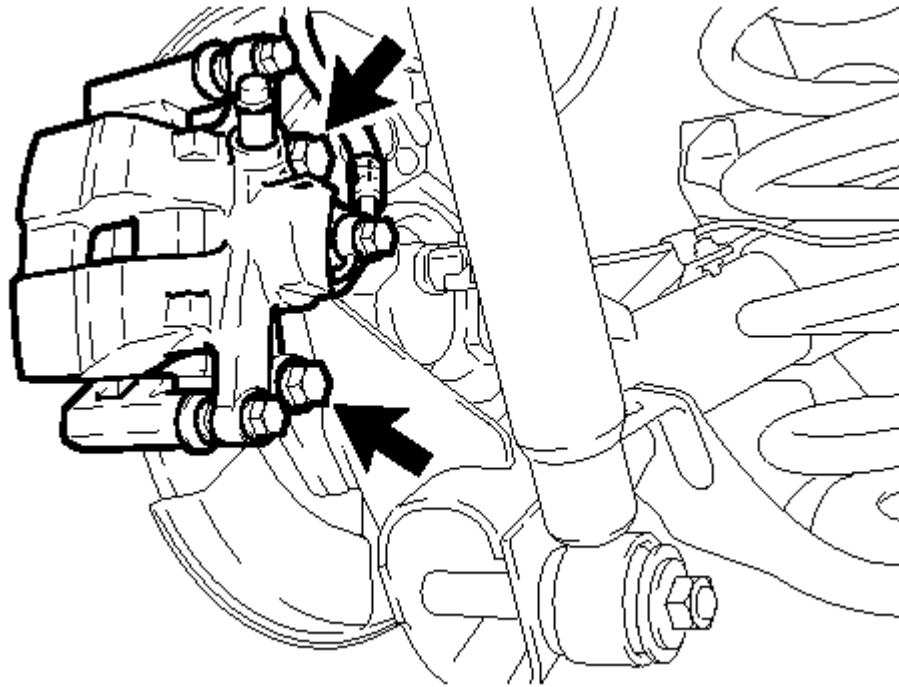
16. SEPARATE NO. 2 PARKING BRAKE CABLE ASSEMBLY

HINT:

Use the same procedure for the RH side as for the LH side.

17. REMOVE REAR DISC BRAKE CALIPER ASSEMBLY LH

- a. Removing the 2 bolts and the rear disc brake caliper assembly.



P

Fig. 32: Identifying Rear Disc Brake Caliper Assembly LH & Fasteners
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

18. REMOVE REAR DISC BRAKE CALIPER ASSEMBLY RH

HINT:

Use the same procedure for the RH side as for the LH side.

19. REMOVE PARKING BRAKE SHOE ADJUSTING HOLE PLUG

Refer to **REMOVAL - Step 14**

HINT:

Use the same procedure for the RH side as for the LH side.

20. REMOVE REAR DISC

Refer to **REMOVAL - Step 15**

HINT:

Use the same procedure for the RH side as for the LH side.

21. REMOVE REAR AXLE HUB AND BEARING ASSEMBLY LH . Refer to **REMOVAL - Step 9**

22. REMOVE REAR AXLE HUB AND BEARING ASSEMBLY RH

HINT:

Use the same procedure for the RH side as for the LH side.

23. REMOVE REAR INNER AXLE BEARING RETAINER LH (for 2WD)

- a. Remove the rear inner axle bearing retainer and parking brake assembly from the rear axle beam assembly.

24. REMOVE REAR INNER AXLE BEARING RETAINER RH (for 2WD)

HINT:

Use the same procedure for the RH side as for the LH side.

25. REMOVE REAR AXLE BEARING RETAINER LH (for AWD)

- a. Remove the rear axle bearing retainer and parking brake assembly from the rear axle beam assembly.

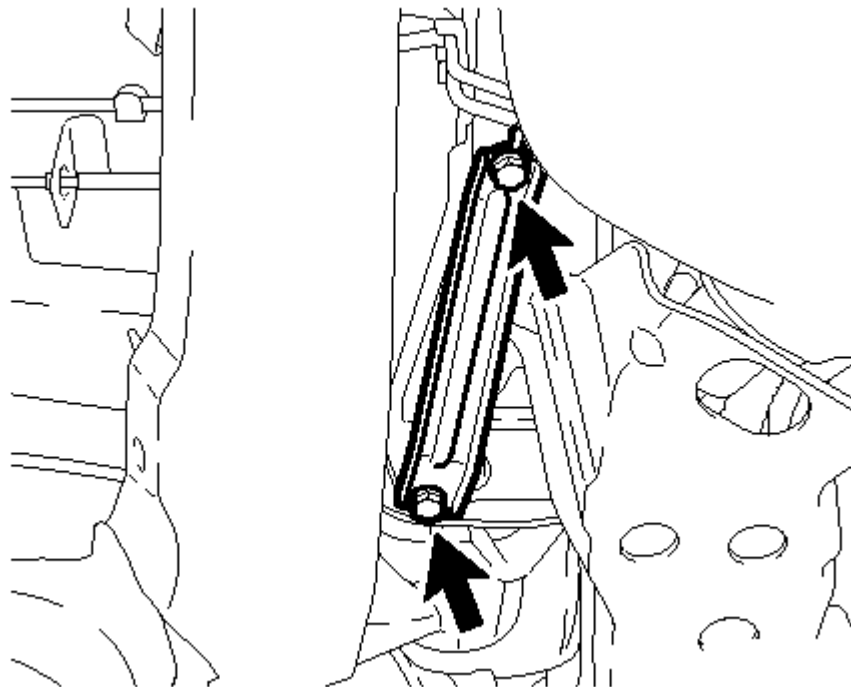
26. REMOVE REAR AXLE BEARING RETAINER RH (for AWD)

HINT:

Use the same procedure for the RH side as for the LH side.

27. REMOVE REAR FLOOR NO. 2 CROSSMEMBER BRACE LH

- a. Remove the 2 bolts and rear floor No. 2 crossmember brace.



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Fig. 33: Identifying Rear Floor No. 2 Crossmember Brace LH & Fasteners

Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

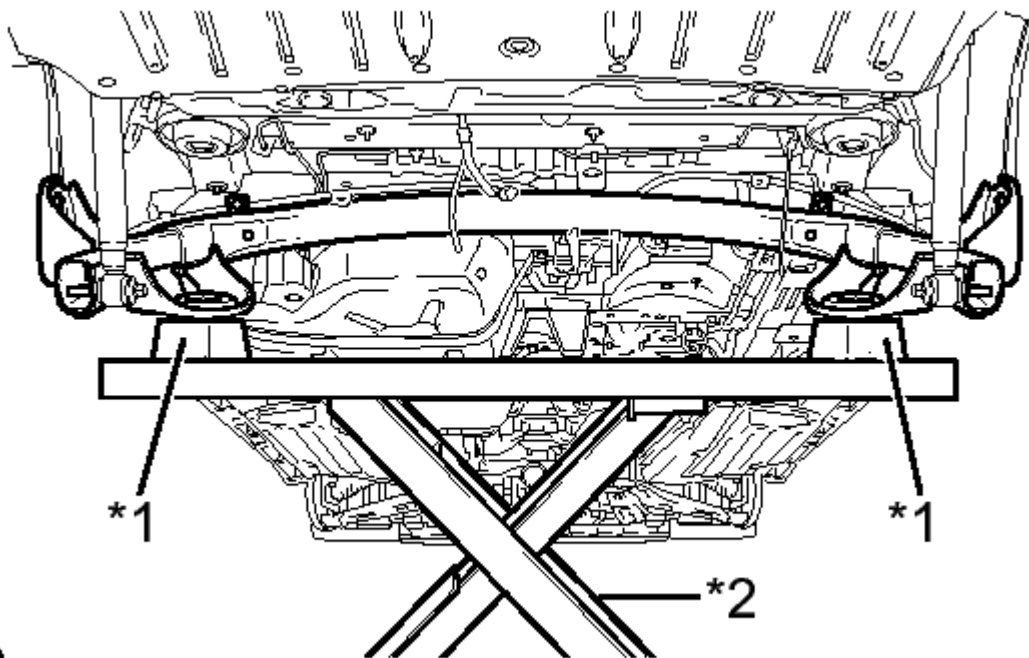
28. REMOVE REAR FLOOR NO. 2 CROSSMEMBER BRACE RH

HINT:

Use the same procedure for the RH side as for the LH side.

29. REMOVE REAR AXLE BEAM ASSEMBLY

- a. Support the rear axle beam assembly using a jack and 2 wooden blocks as shown in the illustration.



P

Fig. 34: Identifying Rear Axle Beam Assembly With Jack & Wooden Block Support
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

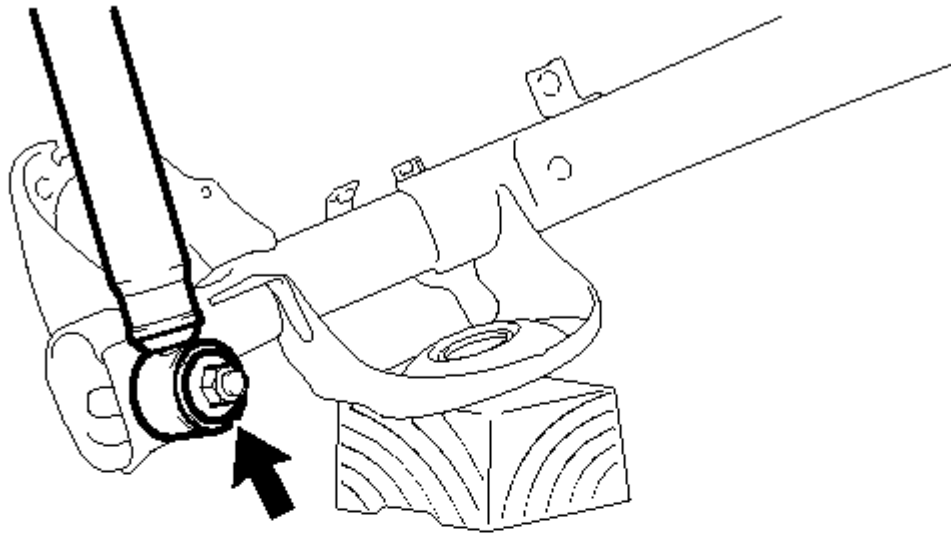
TEXT IN ILLUSTRATION

*1	Wooden Block
*2	Jack

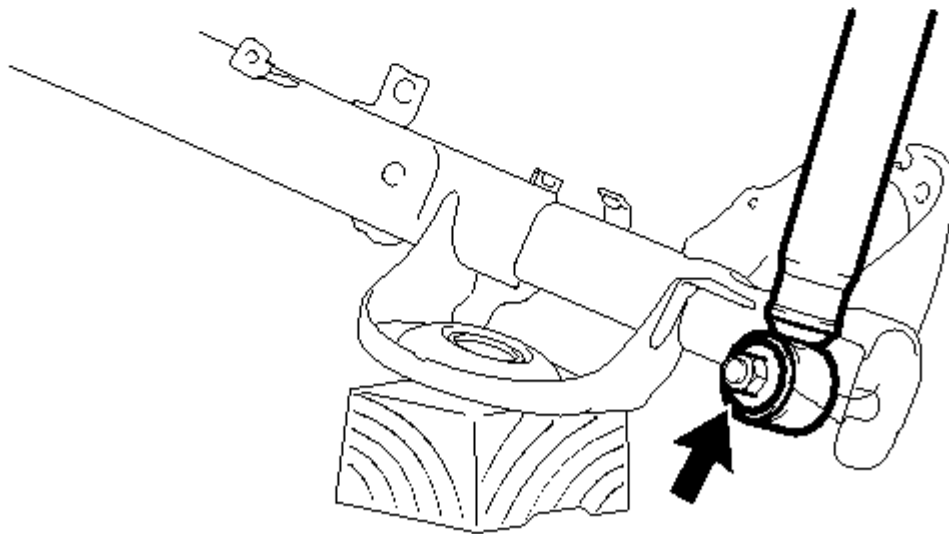
NOTE: Make sure to secure the rear axle beam assembly to prevent it from dropping.

- b. Remove the 2 nuts and 2 cushion retainers and separate the rear shock absorber assembly from the rear axle beam assembly.

*a



*b



P

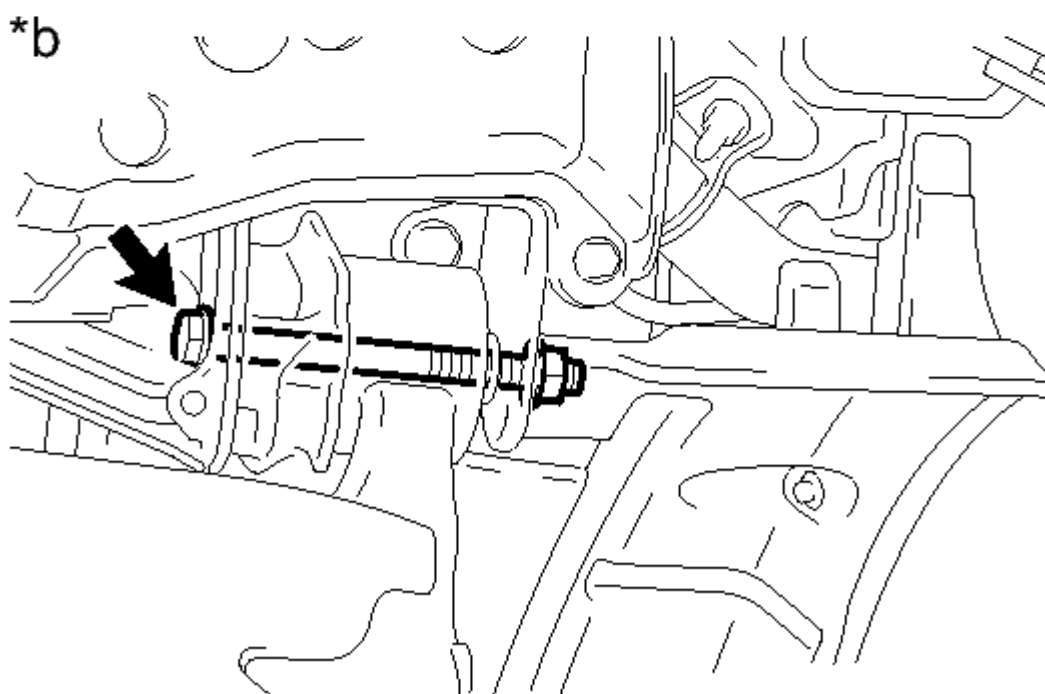
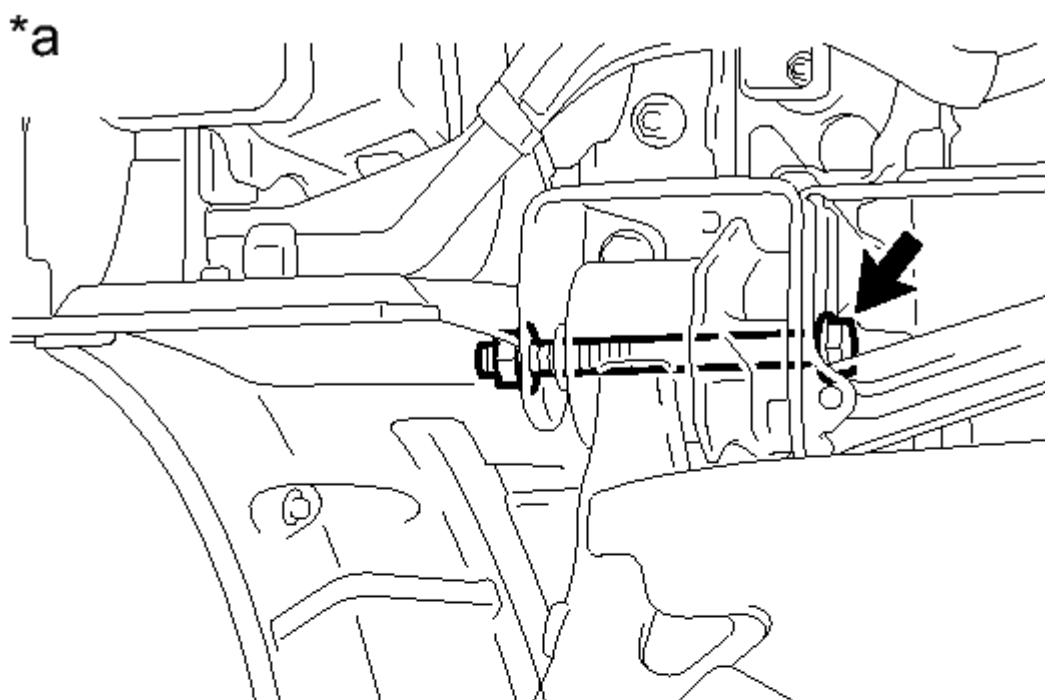
Fig. 35: Remove/Install Rear Shock Absorber Assembly & Fasteners
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

LH

*a	Side
*b	RH Side

- c. Remove the 2 bolts and 2 nuts, and separate the rear axle beam assembly from the body.



P

Fig. 36: Remove/Install Rear Axle Beam Fasteners
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

LH

*a	Side
*b	RH Side

NOTE: Since stopper nuts are used, loosen the bolts.

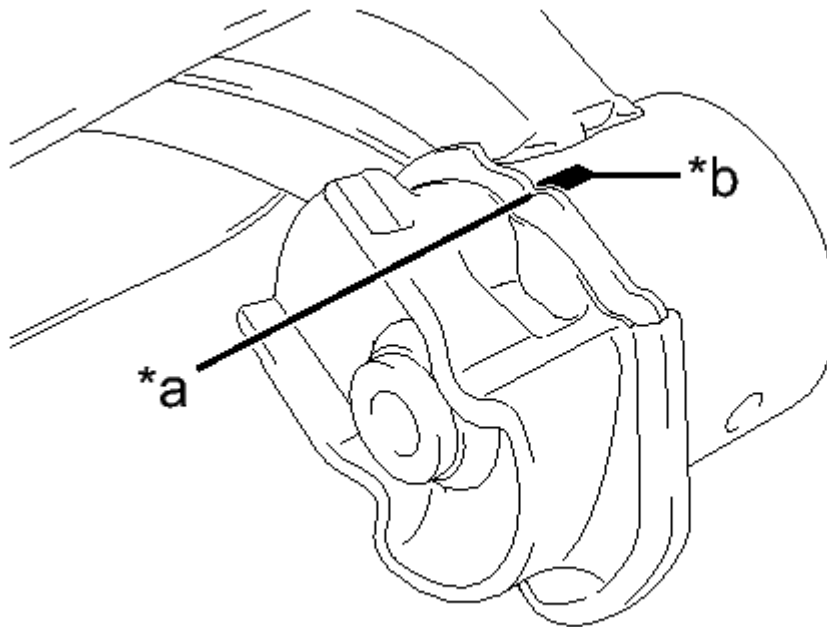
- d. Lower the rear axle beam assembly and remove it.

30. REMOVE REAR AXLE CARRIER BUSH LH

- a. Put a matchmark as shown in the illustration. (Perform this step when reusing the rear axle beam assembly.)

HINT:

Put a matchmark on the rear axle beam assembly where it aligns with the bush cutout.



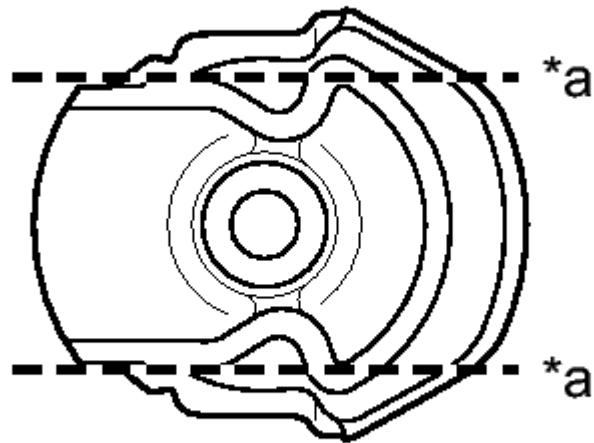
P

Fig. 37: Identifying Rear Axle Carrier Bush LH Matchmark & Cutout
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

*a	Cutout
*b	Matchmark

- b. Using a chisel and hammer, bend the 2 portions of the rear axle carrier bush rib.



P

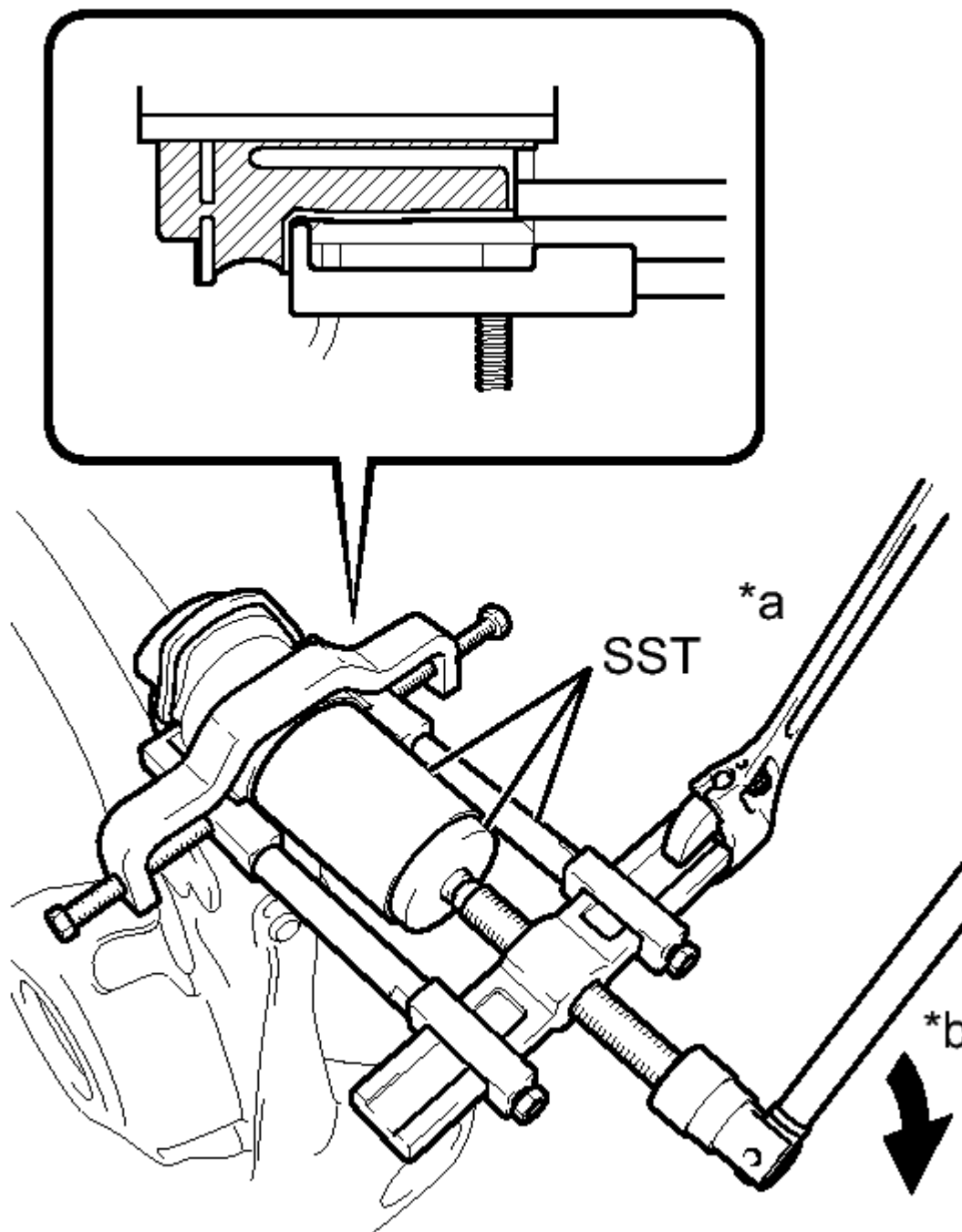
Fig. 38: Identifying Rear Axle Carrier Bush Rib Bend Portions
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

*a	Bend Portion
----	-----------------

NOTE: Make sure to bend the 2 portions of the bush rib until the claws of SST (09955-04051) can fit securely.

- c. Using SST, remove the rear axle carrier bush from the rear axle beam assembly as shown in the illustration.



P

Fig. 39: Removing Rear Axle Carrier Bush From Rear Axle Beam Assembly Using SST
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- SST: 09950-40011
09951-04020

09952-04010

09953-04030

09954-04020

09955-04051

09957-04010

09958-04011

- SST: **09612-30012**

- SST: **09950-60010**

09951-00590

TEXT IN ILLUSTRATION

*a	Hold
*b	Turn

NOTE:

- Apply a small amount of grease to the threads and tip of SST (center bolt) before use.
- Set SST to center the bolt in the bush.
- When removing the rear axle carrier bush, do not erase the matchmark on the rear axle beam assembly.
- If the rear axle beam assembly has been scratched, apply the paint to the rear axle beam assembly.

31. REMOVE REAR AXLE CARRIER BUSH RH

HINT:

Use the same procedure for the RH side as for the LH side.

32. REMOVE REAR AXLE BEAM DAMPER

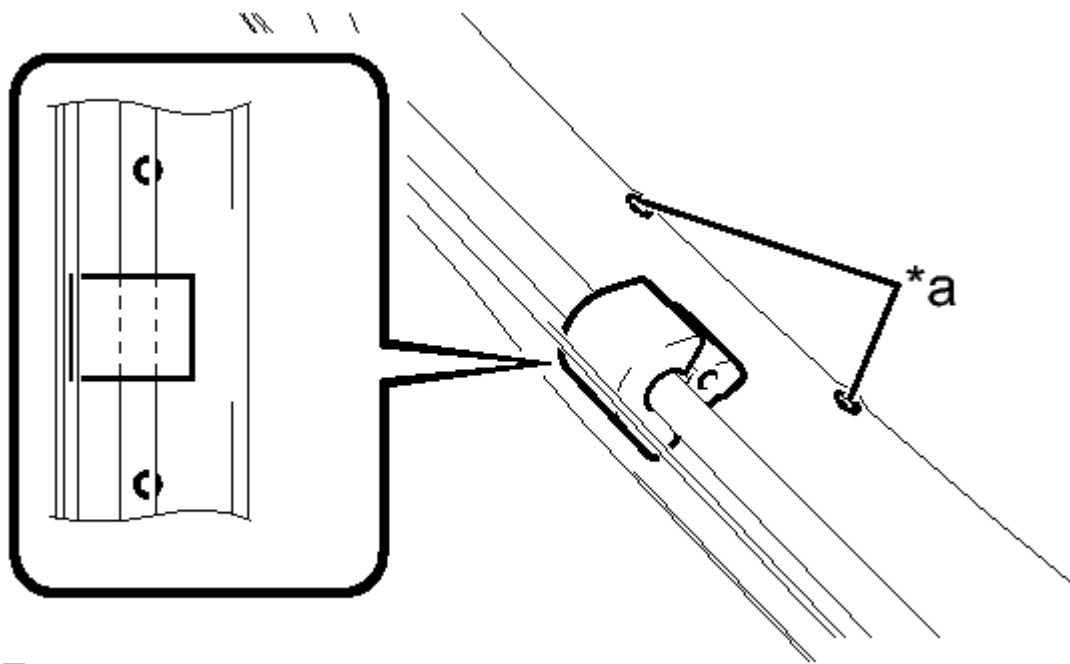
- a. Remove the rear axle beam damper from the rear axle beam assembly.

INSTALLATION

INSTALLATION

1. INSTALL REAR AXLE BEAM DAMPER

- a. Install the rear axle beam damper to the rear axle beam assembly between stamp marks.



P

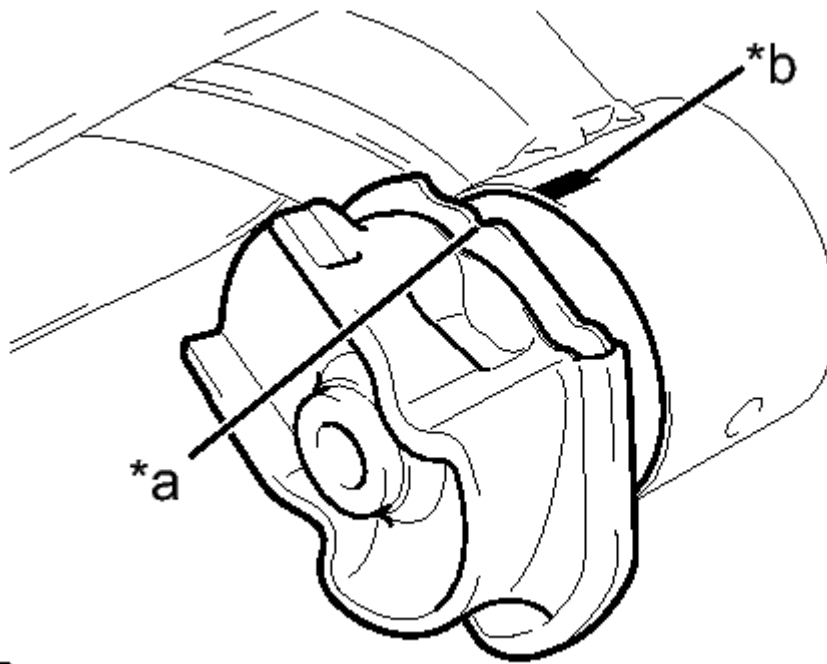
Fig. 40: Identifying Rear Axle Beam Damper To Rear Axle Beam Assembly Stamp Marks
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

*a	Stamp Mark
----	---------------

2. INSTALL REAR AXLE CARRIER BUSH LH

- a. Align the cutout of a new rear axle carrier bush and the matchmark on the rear axle beam assembly and then temporarily install the rear axle carrier bush to the rear axle beam assembly. (Perform this step when reusing the rear axle beam assembly.)



P

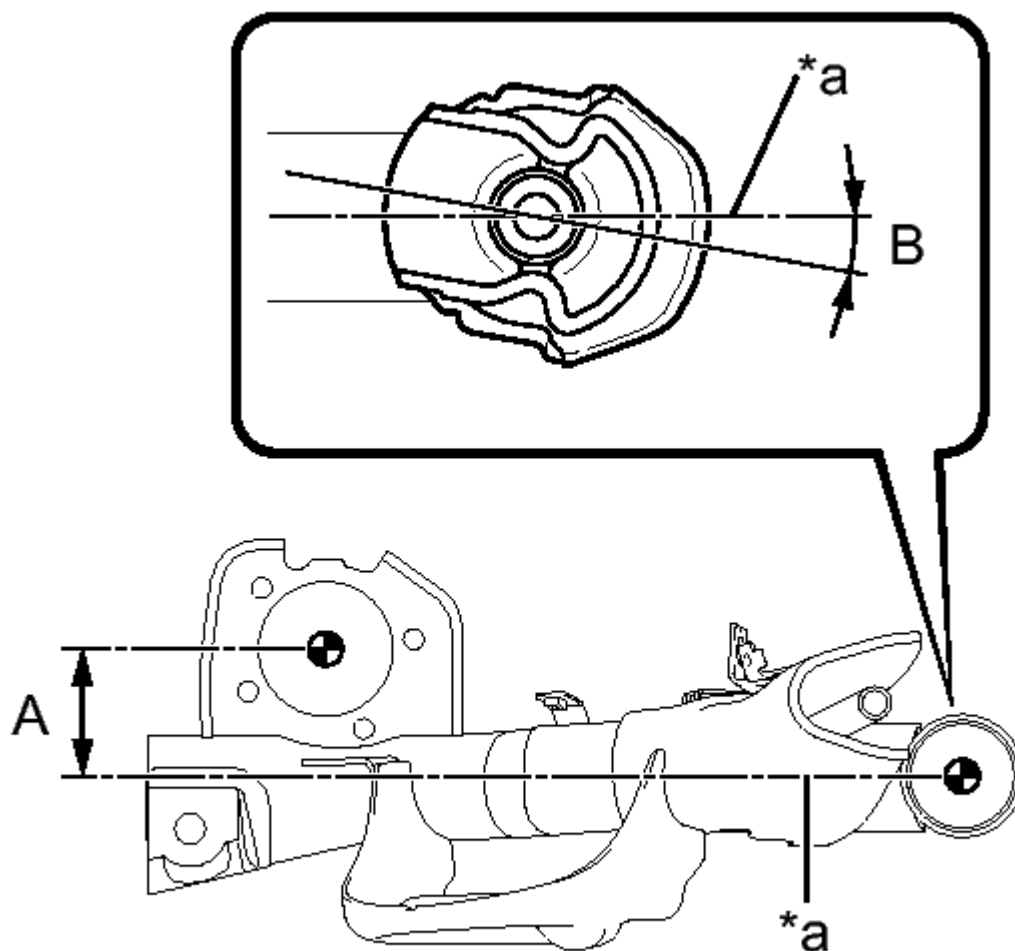
Fig. 41: Identifying Rear Axle Carrier Bush LH Cutout & Matchmark Alignment
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

*a	Cutout
*b	Matchmark

NOTE:

- Do not apply grease to the rear axle carrier bush or rear axle beam assembly.
 - Install the rear axle carrier bush in the same direction as the removed bush.
- b. Temporarily install a new rear axle carrier bush to the position as shown in the illustration. (Perform this step when installing a new rear axle beam assembly.)



P

Fig. 42: Identifying New Rear Axle Carrier Bush Position
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

*a Baseline

Standard (A)

78.9 mm (3.11 in.)

Standard (B)

10°+/- 3°

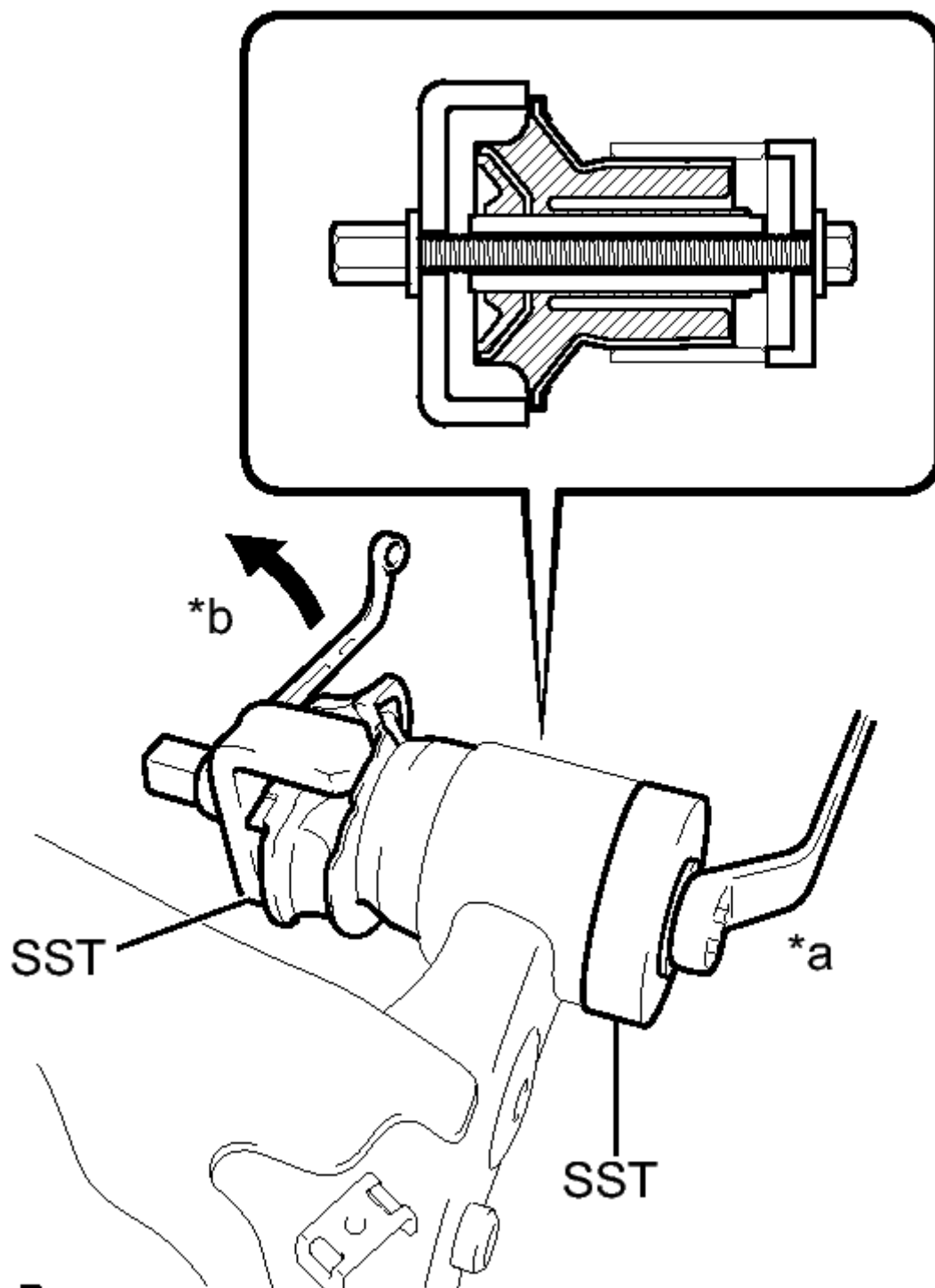
NOTE:

- Do not apply grease to the rear axle carrier bush or rear axle

beam assembly.

- **Install the rear axle carrier bush in the same direction as the removed bushing.**

c. Using SST, install the rear axle carrier bush to the rear axle beam assembly.



P
Fig. 43: Installing Rear Axle Carrier Bush To Rear Axle Beam Assembly Using SST
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- SST: 09710-28031
09711-02010

09711-02020

09711-02030

09711-02040

94622-51200

TEXT IN ILLUSTRATION

*a	Hold
*b	Turn

NOTE:

- Apply a small amount of grease to the threads and tip of SST (center bolt) before use.
- Apply a small amount of grease to the threads and tip of SST (2 washers) before use.
- Be careful not to damage the rubber part of the rear axle carrier bush when installing it.
- Do not deform the rear axle carrier bush rib.
- Do not apply grease to the rear axle carrier bush or rear axle beam assembly.

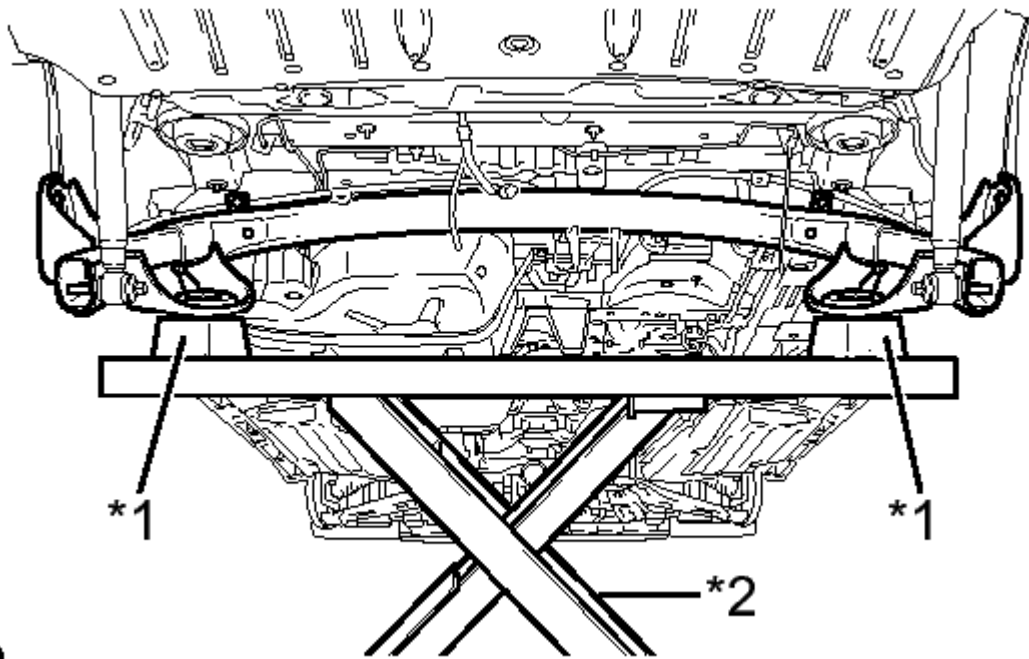
3. INSTALL REAR AXLE CARRIER BUSH RH

HINT:

Use the same procedure for the RH side as for the LH side.

4. TEMPORARILY TIGHTEN REAR AXLE BEAM ASSEMBLY

- a. Using wooden blocks and a jack as shown in the illustration, jack up the rear axle beam assembly to allow it to be installed.



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Fig. 44: Identifying Rear Axle Beam Assembly With Jack & Wooden Block Support
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

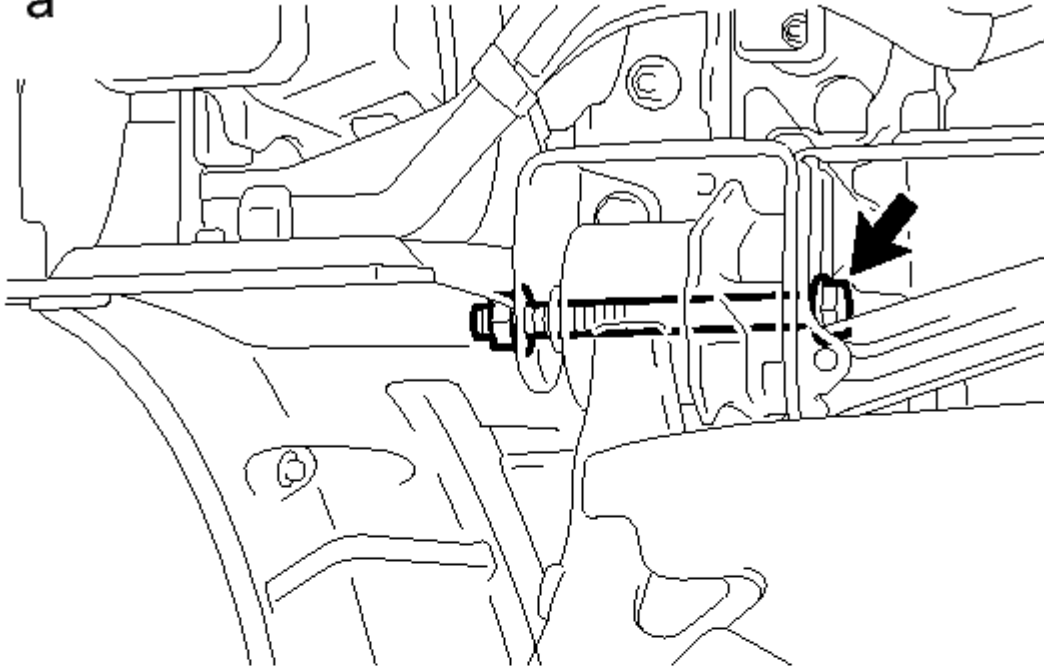
TEXT IN ILLUSTRATION

*1	Wooden Block
*2	Jack

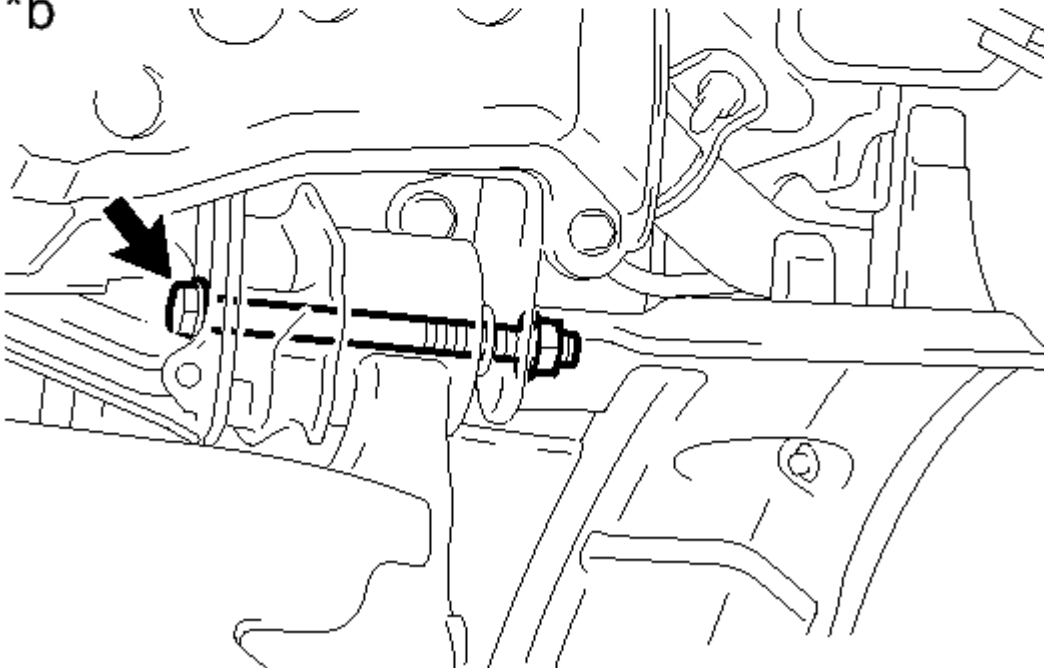
NOTE: **Make sure to secure the rear axle beam assembly to prevent it from dropping.**

- b. Temporarily install the rear axle beam assembly to the body with the 2 bolts and 2 nuts.

*a



*b



P

Fig. 45: Remove/Install Rear Axle Beam Fasteners
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

LH

*a	Side
*b	RH Side

NOTE:

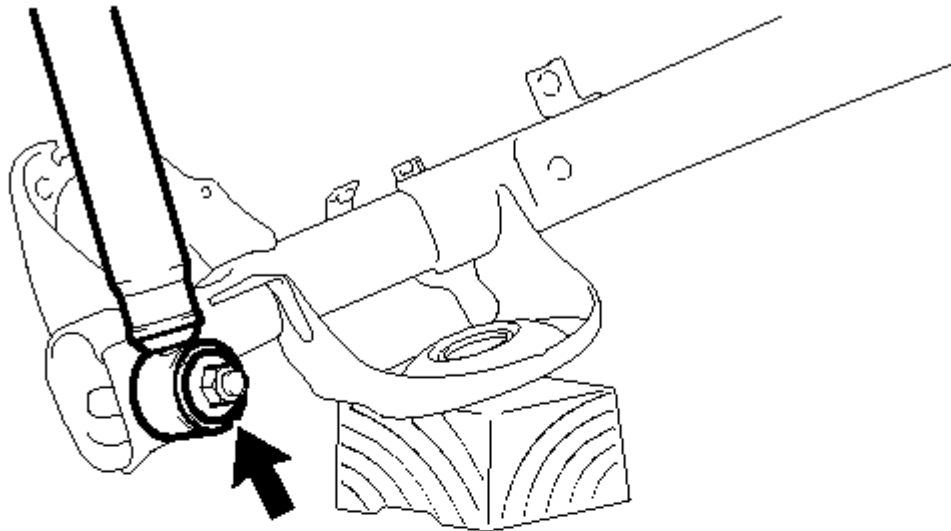
- Insert the bolts with the threaded ends facing the outside of the vehicle.
- Since stopper nuts are used, tighten the bolts.

HINT:

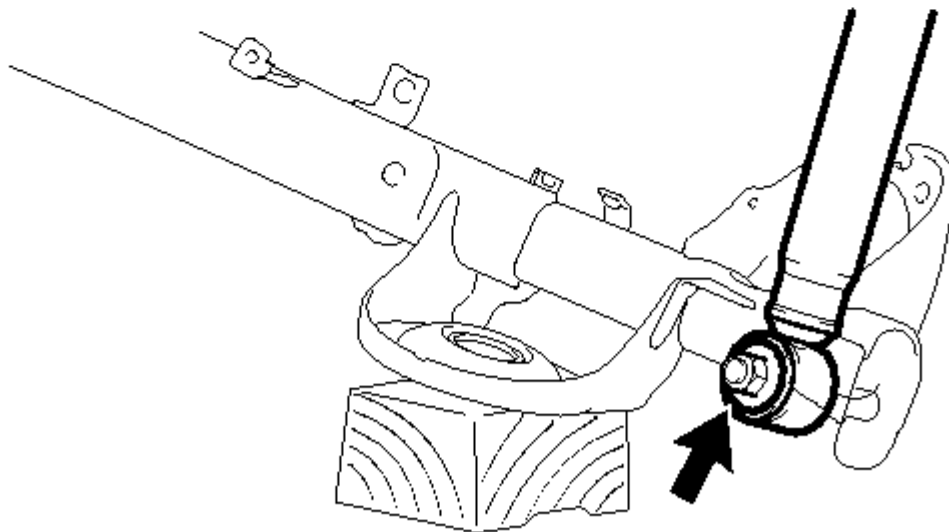
Fully tighten the nuts and bolts after stabilizing the suspension.

- c. Temporarily install the rear axle beam assembly to the rear shock absorber assembly with the 2 cushion retainers and 2 nuts.

*a



*b



P

Fig. 46: Remove/Install Rear Shock Absorber Assembly & Fasteners
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

LH

*a	Side
*b	RH Side

HINT:

Fully tighten bolts after stabilizing the suspension.

5. INSTALL REAR INNER AXLE BEARING RETAINER LH (for 2WD)

- a. Install the rear inner axle bearing retainer and parking brake assembly to the rear axle beam assembly.

6. INSTALL REAR INNER AXLE BEARING RETAINER RH (for 2WD)

HINT:

Use the same procedure for the RH side as for the LH side.

7. INSTALL REAR AXLE BEARING RETAINER LH (for AWD)

- a. Install the rear axle bearing retainer and parking brake assembly to the rear axle beam assembly.

8. INSTALL REAR AXLE BEARING RETAINER RH (for AWD)

HINT:

Use the same procedure for the RH side as for the LH side.

9. INSTALL REAR AXLE HUB AND BEARING ASSEMBLY LH . Refer to INSTALLATION - Step 2

10. INSTALL REAR AXLE HUB AND BEARING ASSEMBLY RH

HINT:

Use the same procedure for the RH side as for the LH side.

11. INSTALL REAR DISC

Refer to INSTALLATION - Step 1

HINT:

Use the same procedure for the RH side as for the LH side.

12. INSTALL PARKING BRAKE SHOE ADJUSTING HOLE PLUG

Refer to INSTALLATION - Step 2

HINT:

Use the same procedure for the RH side as for the LH side.

13. INSTALL REAR DISC BRAKE CALIPER ASSEMBLY LH

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

Torque: 88 N*m (900 kgf*cm, 65 ft.*lbf)

14. INSTALL REAR DISC BRAKE CALIPER ASSEMBLY RH

HINT:

Use the same procedure for the RH side as for the LH side.

15. INSTALL NO. 3 PARKING BRAKE CABLE ASSEMBLY

- a. Install the parking brake cable assembly to the rear axle beam assembly with the 2 bolts.

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

16. INSTALL NO. 2 PARKING BRAKE CABLE ASSEMBLY

HINT:

Use the same procedure for the RH side as for the LH side.

17. INSTALL REAR NO. 6 BRAKE TUBE

- a. Connect the rear brake tube to the rear brake tube flexible hose.

NOTE:

- Do not kink or damage the brake line.
- Do not allow any foreign matter such as dirt and dust to enter the brake line.

- b. Install the rear brake tube flexible hose with a new clip.

NOTE:

Install the clip as far as it will go.

- c. Install the rear brake tube to the rear axle beam assembly with the bolt.

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

- d. Using a union nut wrench (10 mm), fully tighten the rear brake tube to the rear brake tube flexible hose while holding the rear brake tube flexible hose with a wrench.

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

NOTE: Use the formula to calculate special torque values for situations where a union nut wrench is combined with a torque wrench. Refer to PRECAUTION .

18. INSTALL REAR NO. 5 BRAKE TUBE

HINT:

Use the same procedure for the RH side as for the LH side.

19. INSTALL SKID CONTROL SENSOR WIRE LH (for 2WD)

- a. Install the skid control sensor wire to the rear axle beam assembly with the bolt.

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

NOTE: Do not twist the skid control sensor wire.

- b. Connect the skid control sensor wire connector to the rear axle hub bearing assembly.

NOTE: Do not twist the skid control sensor wire.

20. INSTALL SKID CONTROL SENSOR WIRE RH (for 2WD)

HINT:

Use the same procedure for the RH side as for the LH side.

21. INSTALL REAR SPEED SENSOR LH (for AWD)

- a. Install the rear speed sensor wire to the rear axle beam assembly with the bolt.

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

NOTE: Do not twist the speed sensor wire.

- b. Install the rear speed sensor rear axle bearing retainer with the bolt.

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

NOTE:

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

22. INSTALL REAR SPEED SENSOR RH (for AWD)

HINT:

Use the same procedure for the RH side as for the LH side.

- 23. **INSTALL REAR COIL SPRING LH** See step 1
- 24. **INSTALL REAR COIL SPRING RH**

HINT:

Use the same procedure for the RH side as for the LH side.

- 25. **INSTALL CENTER EXHAUST PIPE ASSEMBLY (for 2WD)**

Engine Type	See
2GR-FE	Refer to <u>INSTALLATION</u> <u>- Step 6</u>
1AR-FE	Refer to <u>INSTALLATION</u> <u>- Step 4</u>

- 26. **INSTALL TAIL EXHAUST PIPE ASSEMBLY (for 2WD)**

Engine Type	See
2GR-FE	Refer to <u>INSTALLATION</u> <u>- Step 7</u>
1AR-FE	Refer to <u>INSTALLATION</u> <u>- Step 5</u>

- 27. **INSTALL REAR DIFFERENTIAL (for AWD)**

Refer to **INSTALLATION - Step 5**

- 28. **STABILIZE SUSPENSION** See step 4
- 29. **FULLY TIGHTEN REAR AXLE BEAM ASSEMBLY**
 - a. Fully tighten the 2 bolts on the rear axle beam assembly.

Torque: 150 N*m (1530 kgf*cm, 111 ft.*lbf)

NOTE:

- Since stopper nuts are used, tighten the bolts.

- The final torque must be applied under standard vehicle height conditions.

30. **FULLY TIGHTEN REAR SHOCK ABSORBER ASSEMBLY LH** See step 5

31. **FULLY TIGHTEN REAR SHOCK ABSORBER ASSEMBLY RH**

HINT:

Use the same procedure for the RH side as for the LH side.

32. **INSTALL REAR FLOOR NO. 2 CROSSMEMBER BRACE LH**

- a. Install the rear No. 2 crossmember brace with the 2 bolts.

Torque: 18 N*m (184 kgf*cm, 13 ft.*lbf)

33. **INSTALL REAR FLOOR NO. 2 CROSSMEMBER BRACE RH**

HINT:

Use the same procedure for the RH side as for the LH side.

34. **ADJUST PARKING BRAKE SHOE CLEARANCE AND PARKING BRAKE PEDAL TRAVEL .**
Refer to **ADJUSTMENT - Step 2**

35. **FILL RESERVOIR WITH BRAKE FLUID .** Refer to **REPLACEMENT - Step 2**

36. **BLEED BRAKE MASTER CYLINDER .** Refer to **BLEEDING - Step 3**

37. **BLEED BRAKE LINE .** Refer to **BLEEDING - Step 4**

38. **INSPECT FOR BRAKE FLUID LEAK**

39. **INSPECT FLUID LEVEL IN RESERVOIR .** Refer to **ON-VEHICLE INSPECTION - Step 1**

40. **INSPECT FOR EXHAUST GAS LEAK**

41. **INSTALL REAR WHEELS**

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

42. **INSPECT REAR WHEEL ALIGNMENT**

Refer to **INSPECTION**

43. **INSPECT SPEED SENSOR SIGNAL**

Refer to **TEST MODE PROCEDURE**

44. **INSTALL INSTRUMENT PANEL FINISH PANEL END LH (for 1AR-FE) .** Refer to **INSTALLATION - Step 6**