

SUSPENSION

Front Suspension (Inspection) - Sienna

FRONT 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.

FRONT SUSPENSION SYSTEM

Symptom	Suspected Area	See
Vehicle pulls to one side while driving	Tire (worn or improperly inflated)	Refer to <u>INSPECTION</u>
	Front wheel alignment (incorrect)	Refer to <u>ADJUSTMENT</u>
	Front hub bearing (worn)	Refer to <u>ON-VEHICLE INSPECTION</u>
	Front shock absorber (worn)	Refer to <u>INSPECTION</u>
	Front coil spring (broken or misaligned)	Refer to <u>ADJUSTMENT - Step 2</u>
	Steering gear (for 2GR-FE) (out of adjustment or broken)	Refer to <u>INSPECTION</u>
	Steering gear (for 1AR-FE) (out of adjustment or broken)	Refer to <u>INSPECTION</u>
	Suspension parts (worn)	-
Bottoming	Vehicle (overloaded)	-
	Front coil spring (weak)	Refer to <u>ADJUSTMENT - Step 2</u>
	Front spring bumper (worn)	Refer to <u>REMOVAL</u>
	Front shock absorber (worn)	Refer to <u>INSPECTION</u>
Sways/pitches	Tire (worn or improperly inflated)	Refer to <u>INSPECTION</u>
	Front stabilizer bar (for 2WD) (bent or broken)	Refer to <u>INSPECTION</u>
	Front stabilizer bar (for AWD) (bent or broken)	Refer to <u>INSPECTION</u>
	Front coil spring (weak)	Refer to <u>ADJUSTMENT - Step 2</u>
	Front 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>
	Front wheel alignment (incorrect)	Refer to <u>ADJUSTMENT</u>
	Front lower suspension arm (worn)	Refer to <u>REMOVAL</u>
	Front shock absorber (worn)	Refer to <u>INSPECTION</u>
	Front lower ball joint (worn)	Refer to <u>INSPECTION</u>
	Front hub bearing (worn)	Refer to <u>ON-VEHICLE INSPECTION</u>
	Steering gear (for 2GR-FE) (out of adjustment or broken)	Refer to <u>INSPECTION</u>
	Steering gear (for 1AR-FE) (out of adjustment or broken)	Refer to <u>INSPECTION</u>
Abnormal tire wear	Tire (worn or improperly inflated)	Refer to <u>INSPECTION</u>
	Wheel (out of balance)	Refer to <u>INSPECTION</u>
	Front wheel alignment (incorrect)	Refer to <u>ADJUSTMENT</u>
	Suspension parts (worn)	-

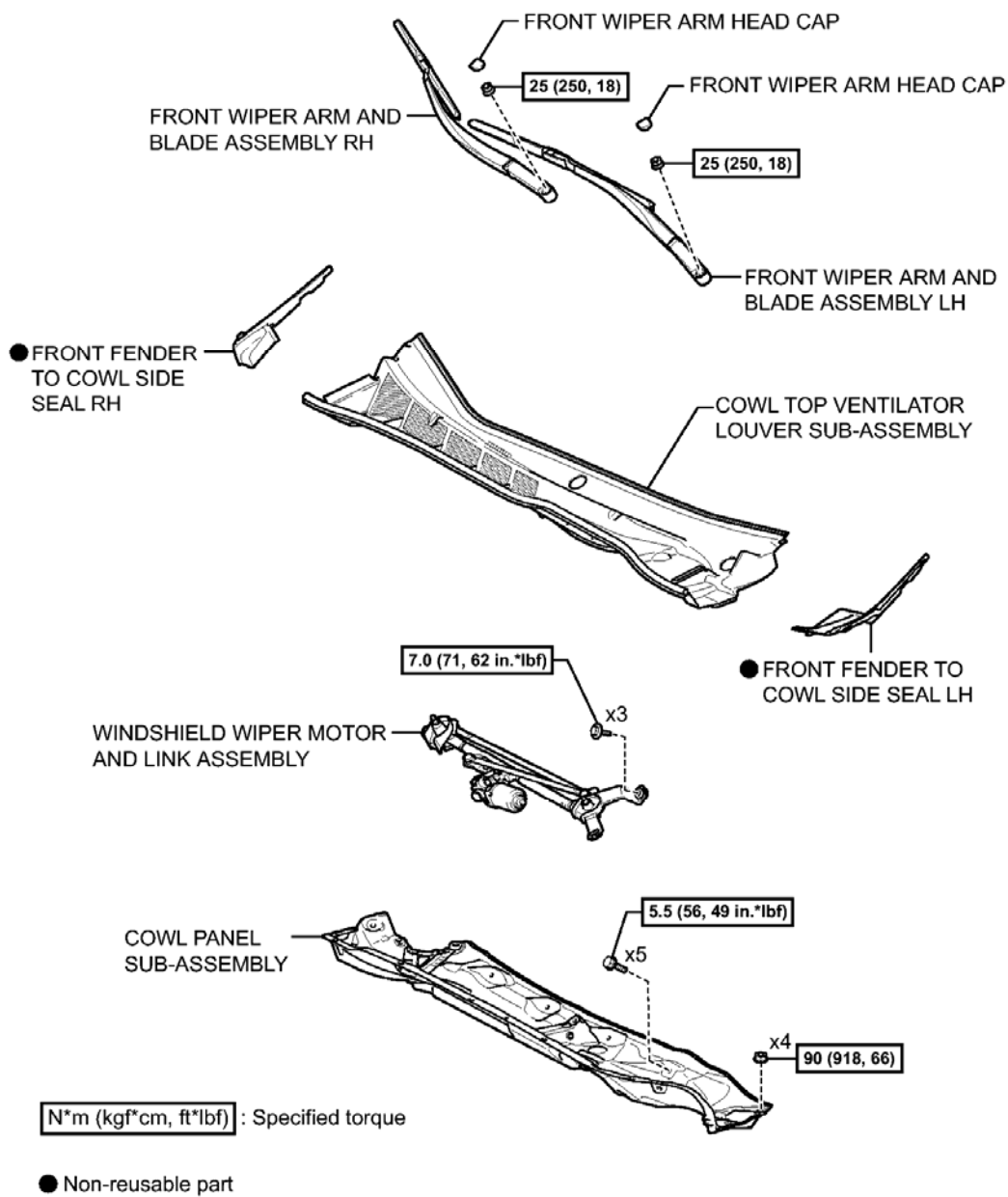
SUSPENSION

Front Suspension (Service Information) - Sienna

FRONT SHOCK ABSORBER

COMPONENTS

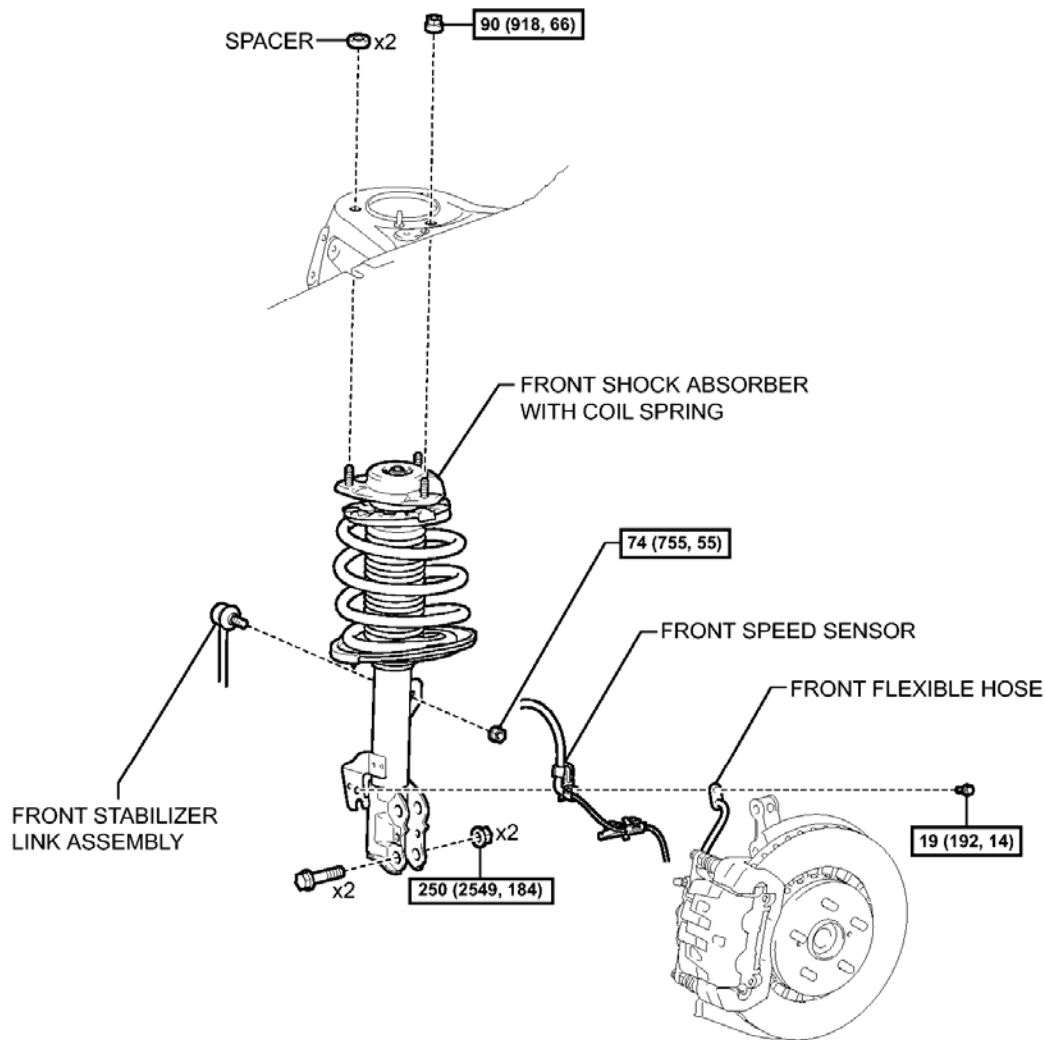
ILLUSTRATION



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Fig. 1: Front Shock Absorber Replacement Components With Torque Specifications (1 of 3)
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

ILLUSTRATION

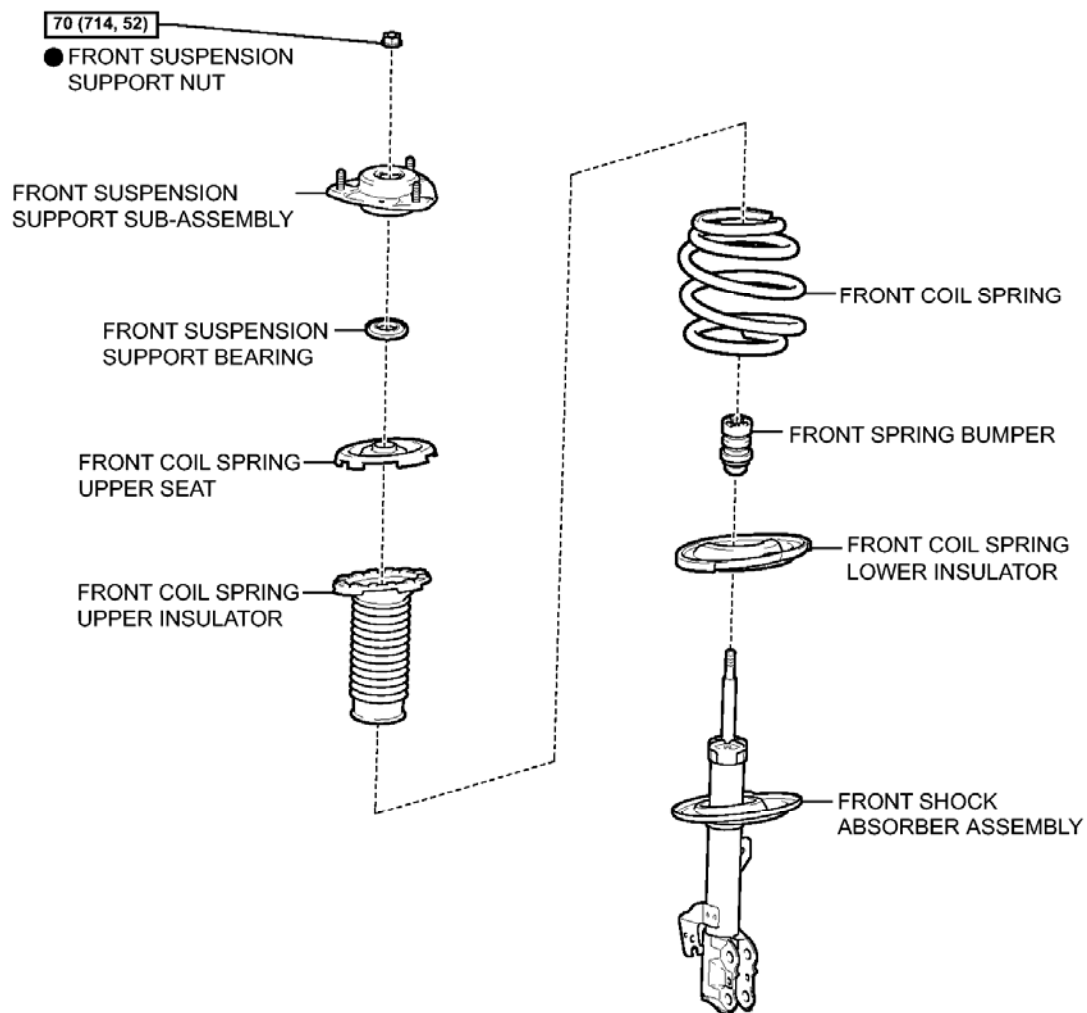


N*m (kgf*cm, ft*lb) : Specified torque

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Fig. 2: Front Shock Absorber Replacement Components With Torque Specifications (2 of 3)
 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. 3: Front Shock Absorber Replacement Components With Torque Specifications (3 of 3)
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

REMOVAL

REMOVAL

HINT:

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

1. **REMOVE FRONT WHEEL**
2. **REMOVE FRONT WIPER ARM HEAD CAP** . Refer to REMOVAL - Step 1
3. **REMOVE FRONT WIPER ARM AND BLADE ASSEMBLY LH** . Refer to REMOVAL - Step 2
4. **REMOVE FRONT WIPER ARM AND BLADE ASSEMBLY RH** . Refer to REMOVAL - Step 3
5. **REMOVE FRONT FENDER TO COWL SIDE SEAL LH** . Refer to REMOVAL - Step 4
6. **REMOVE FRONT FENDER TO COWL SIDE SEAL RH** . Refer to REMOVAL - Step 5
7. **REMOVE COWL TOP VENTILATOR LOUVER SUBASSEMBLY** . Refer to REMOVAL - Step 6
8. **REMOVE WINDSHIELD WIPER MOTOR AND LINK ASSEMBLY** . Refer to REMOVAL - Step 7
9. **LOOSEN FRONT SUSPENSION SUPPORT NUT**
 - a. Loosen the front suspension support nut of the front shock absorber.

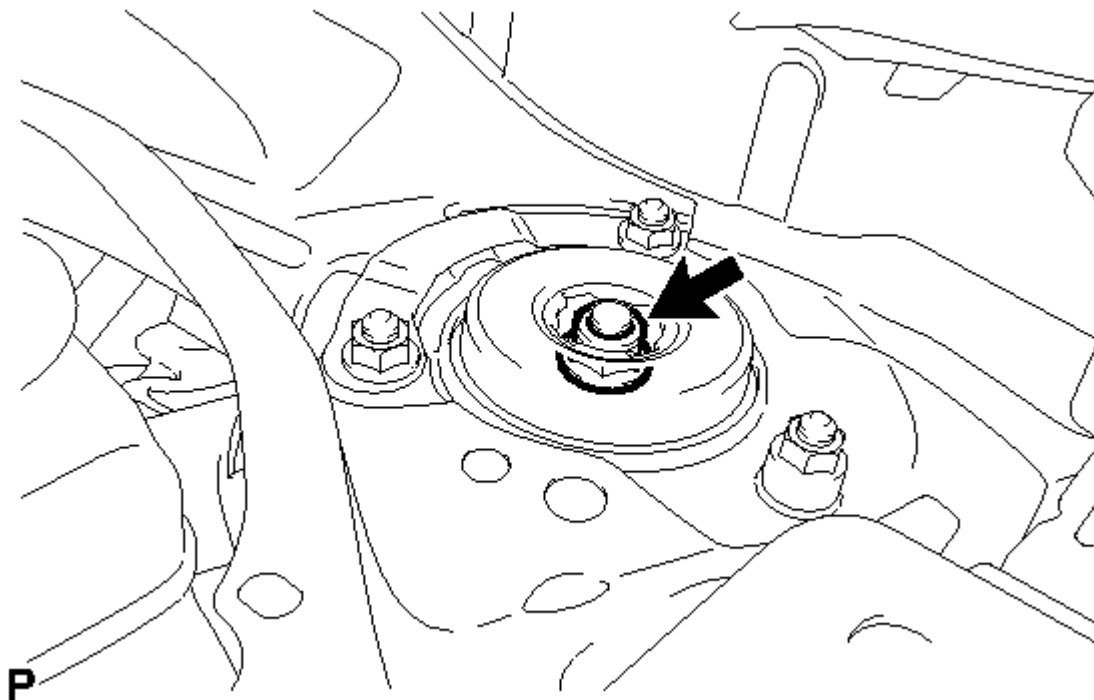


Fig. 4: Identifying Front Suspension Support Fastener
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

NOTE:

- Do not remove the front suspension support nut.
- Loosen the nut only when the front shock absorber with coil

spring needs to be disassembled.

10. REMOVE COWL PANEL SUB-ASSEMBLY

- a. for 2GR-FE:

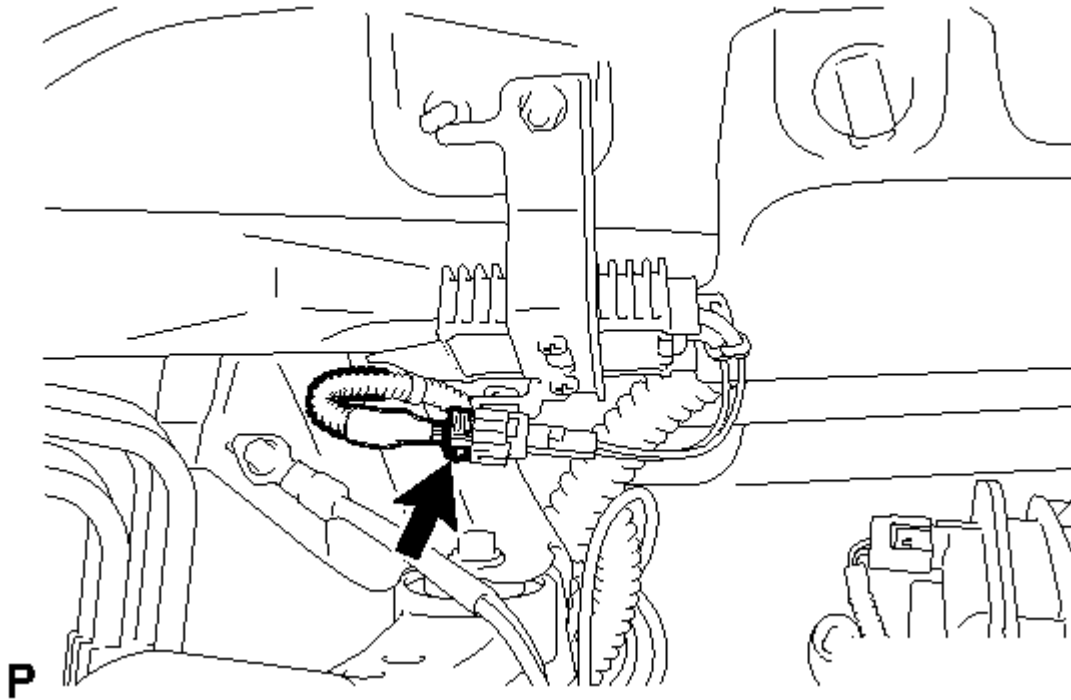
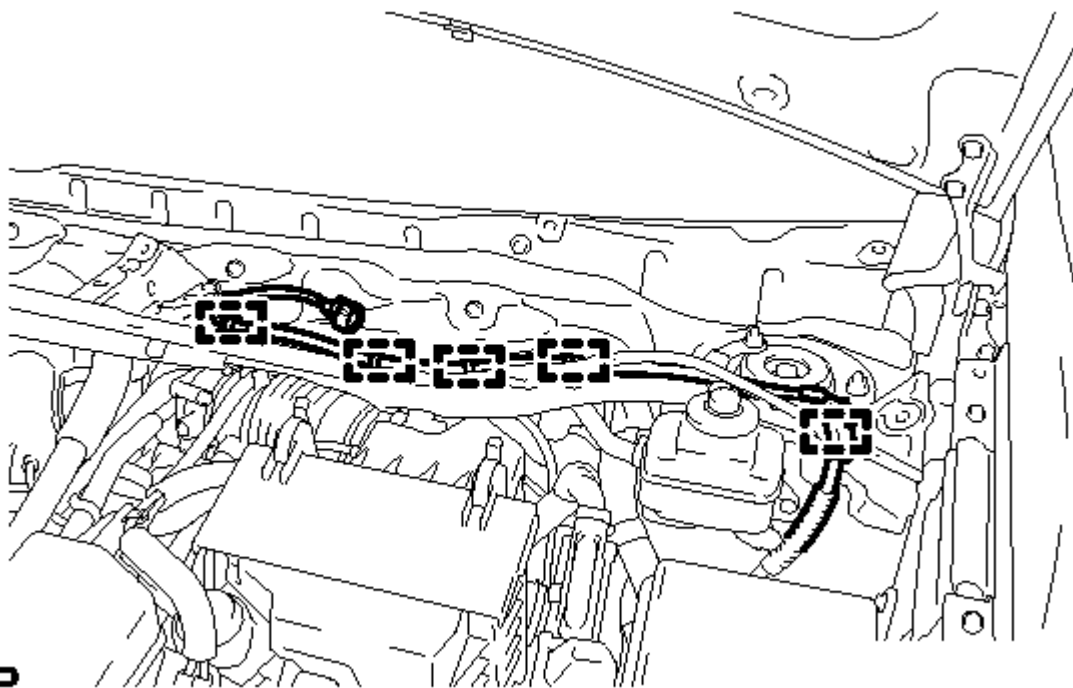


Fig. 5: Identifying Fuel Pump Resistor Connector (2GR-FE)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

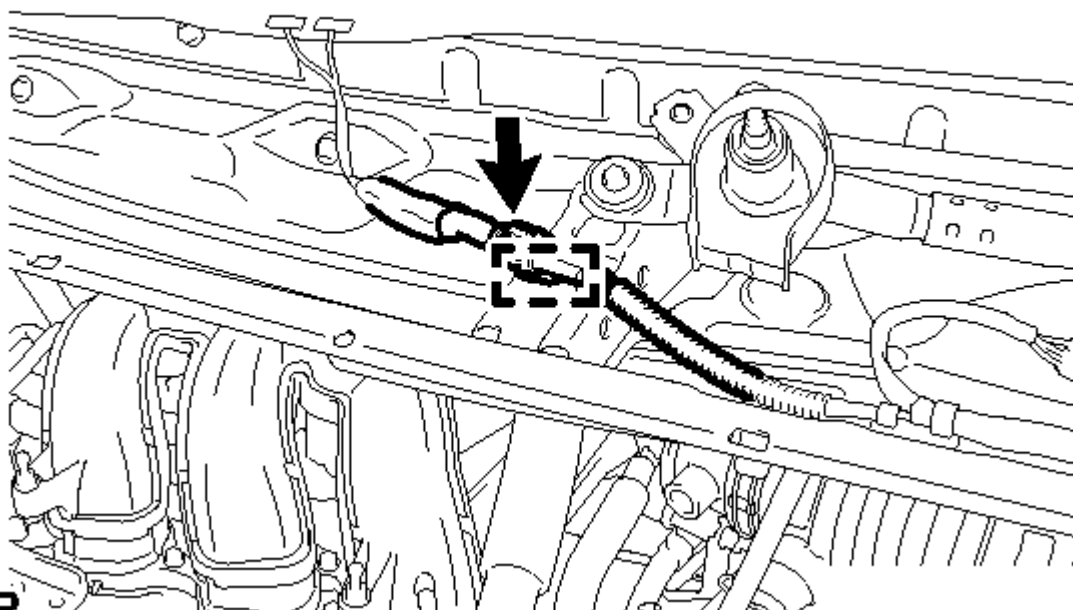
1. Disconnect the fuel pump resistor connector.
- b. Disengage the 5 clamps and separate the engine room main wire from the cowl panel sub-assembly.



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Fig. 6: Identifying Engine Room Main Wire & Clamps
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

c. w/ Windshield Deicer System:



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Fig. 7: Identifying Engine Room Main Wire Connector & Clamp (w/ Windshield Deicer System)

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

1. Disengage the clamp and disconnect the connector.
- d. Remove the 5 bolts, 4 nuts and cowl panel sub-assembly.

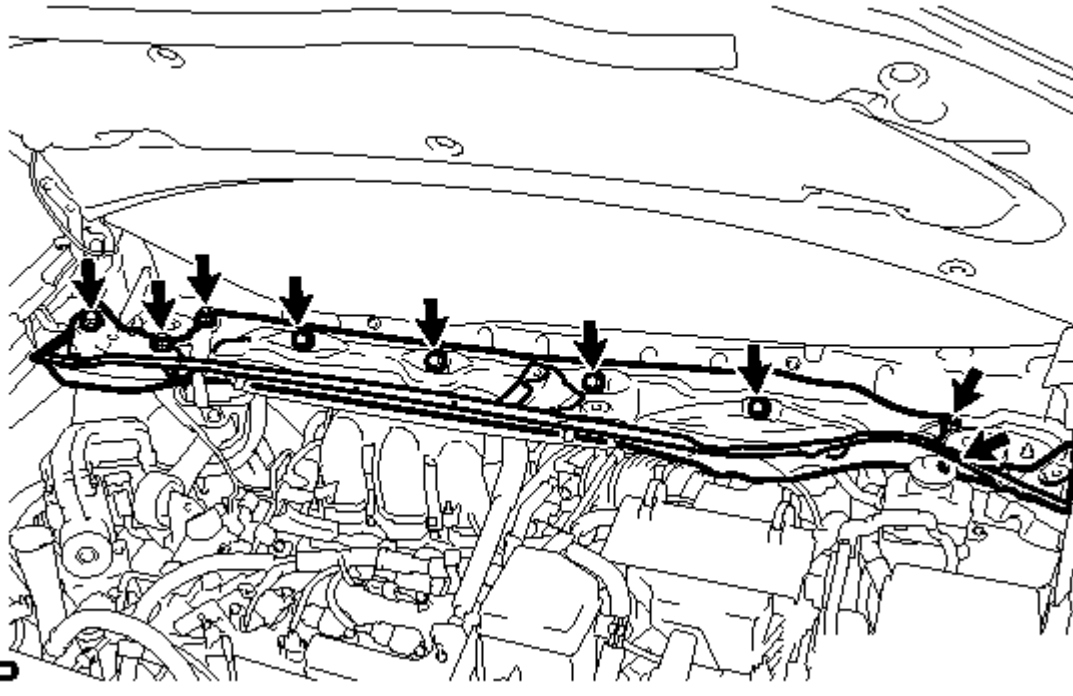
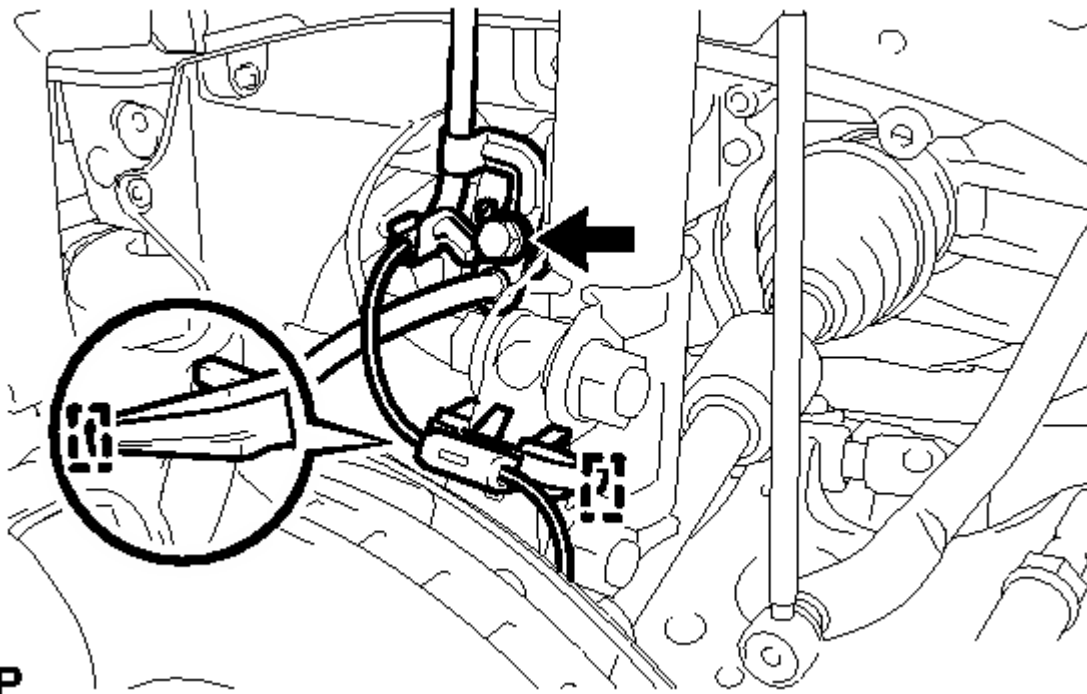


Fig. 8: Identifying Cowl Panel Sub-Assembly & Fasteners

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

11. SEPARATE FRONT SPEED SENSOR

- a. Remove the bolt and clamp, and separate the front speed sensor and front flexible hose.

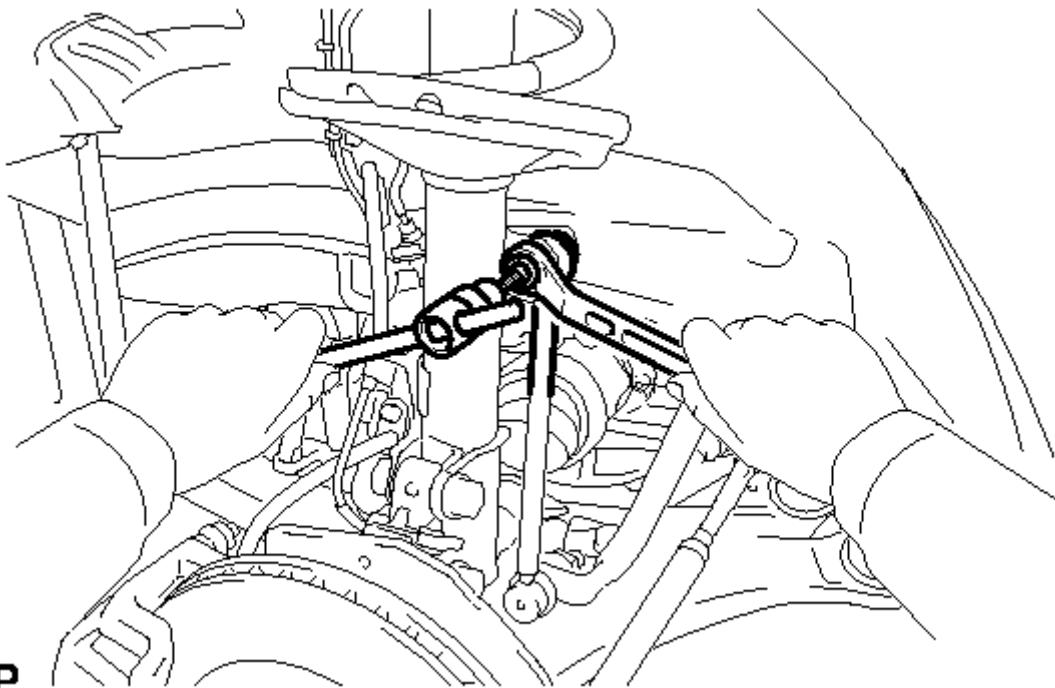


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Fig. 9: Identifying Front Speed Sensor, Flexible Hose & Fasteners
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

12. SEPARATE FRONT STABILIZER LINK ASSEMBLY

- a. Remove the nut and separate the front stabilizer link assembly from the front shock absorber.



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Fig. 10: Identifying Front Stabilizer Link Assembly & Front Shock Absorber

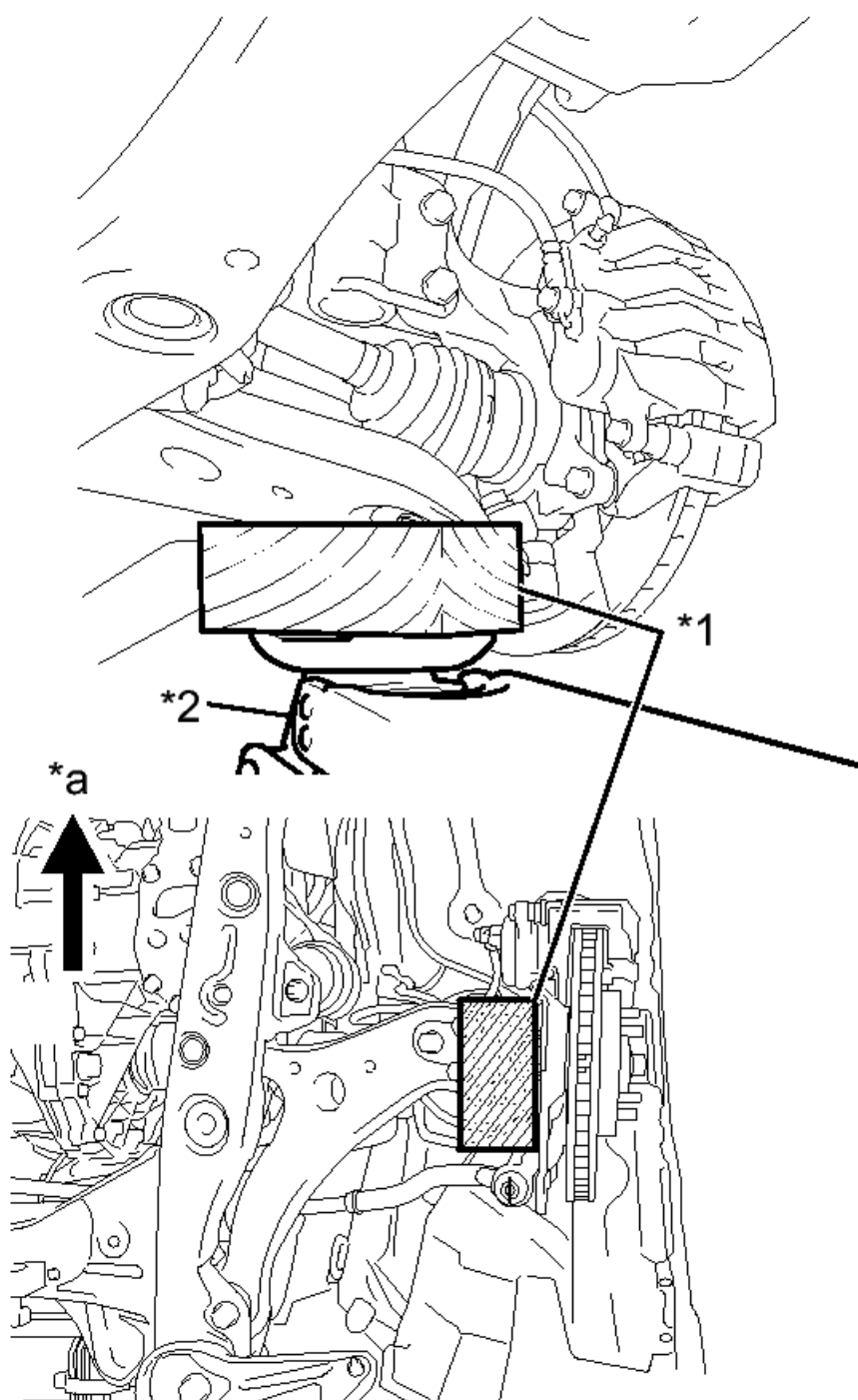
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

HINT:

If the ball joint turns together with the nut, use a hexagon wrench (6 mm) to hold the stud bolt.

13. REMOVE FRONT SHOCK ABSORBER WITH COIL SPRING

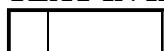
- a. Support the front axle using a jack and wooden block.



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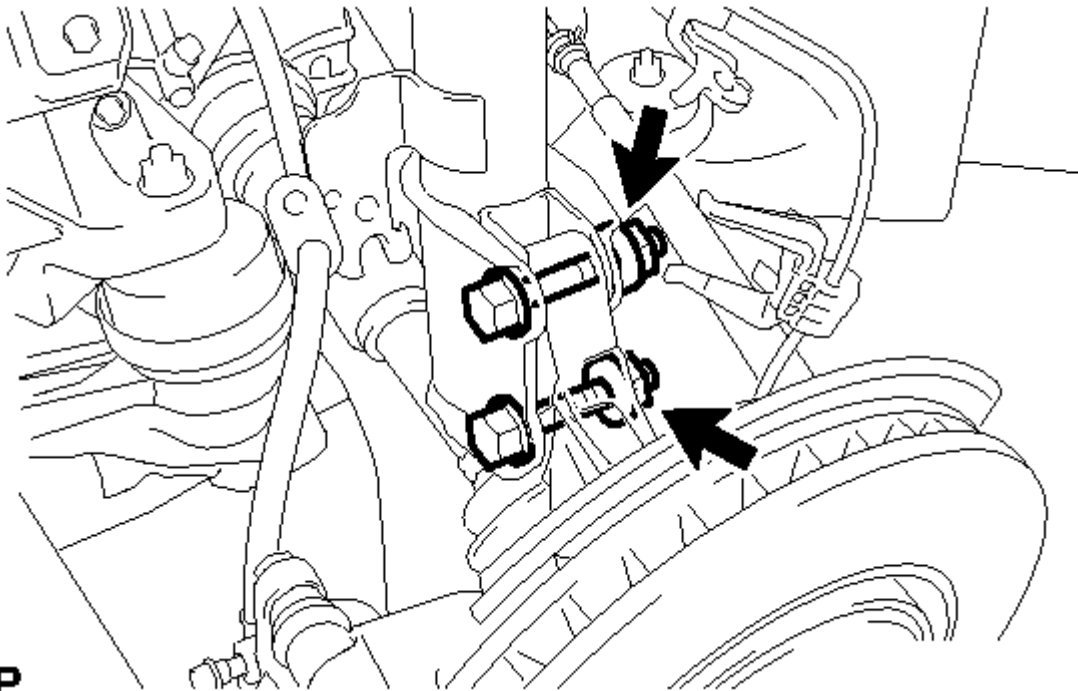
Fig. 11: Identifying Front Shock Absorber With Coil Spring Wooden Block & Jack
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION



*1	Wooden Block
*2	Jack
*a	Front of the Vehicle

- b. Remove the 2 nuts and 2 bolts and separate the front shock absorber with coil spring (lower side) from the steering knuckle.



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Fig. 12: Identifying Nuts On Lower Side Of Front Shock Absorber
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

NOTE: When removing the nuts, keep the bolts from rotating.

- c. Remove the nut and 2 spacers on the front shock absorber with coil spring (upper side).

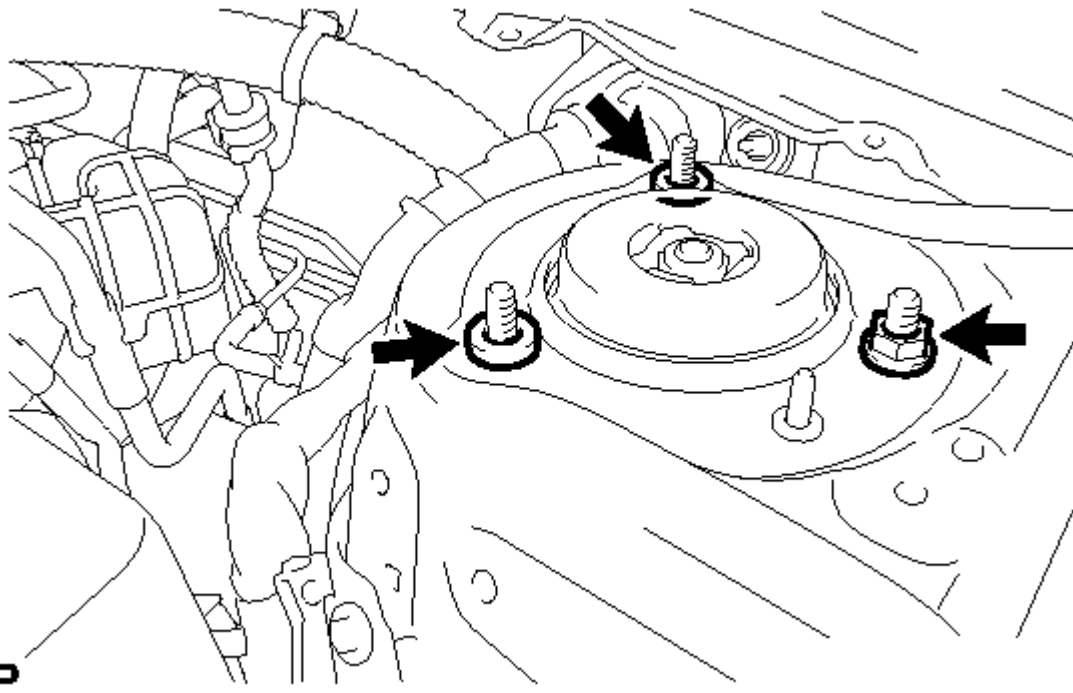
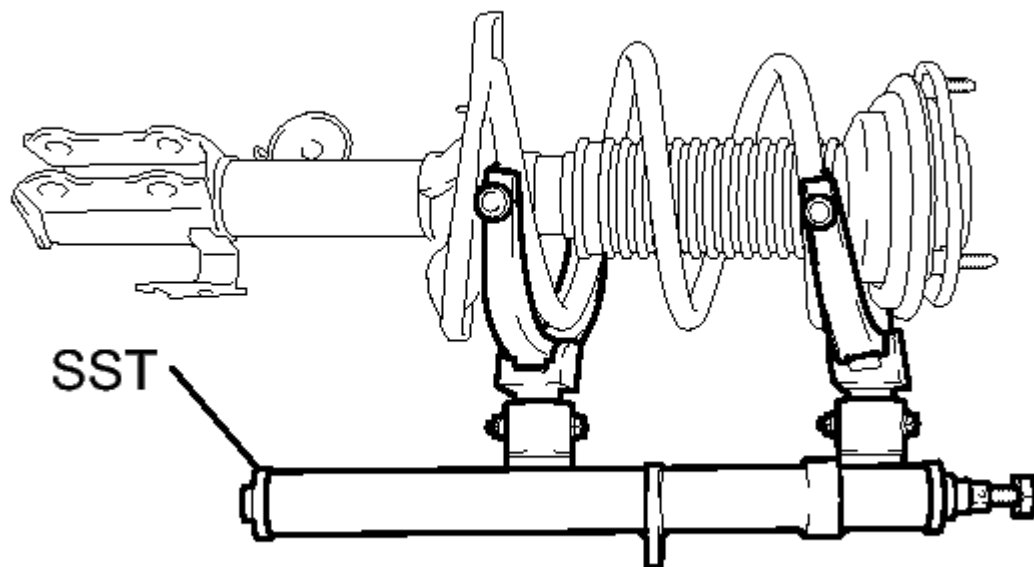


Fig. 13: Identifying Nut And Spacers On Upper Side Of Front Shock Absorber
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

NOTE: Make sure that the front speed sensor is completely separated from the front shock absorber with coil spring.

14. SECURE FRONT SHOCK ABSORBER WITH COIL SPRING

- a. Install SST to the front coil spring with the hooks spread as far apart as possible from each other.
 - SST: 09727-00050
 - SST: 09727-30021
 - 09727-00010
 - 09727-00031



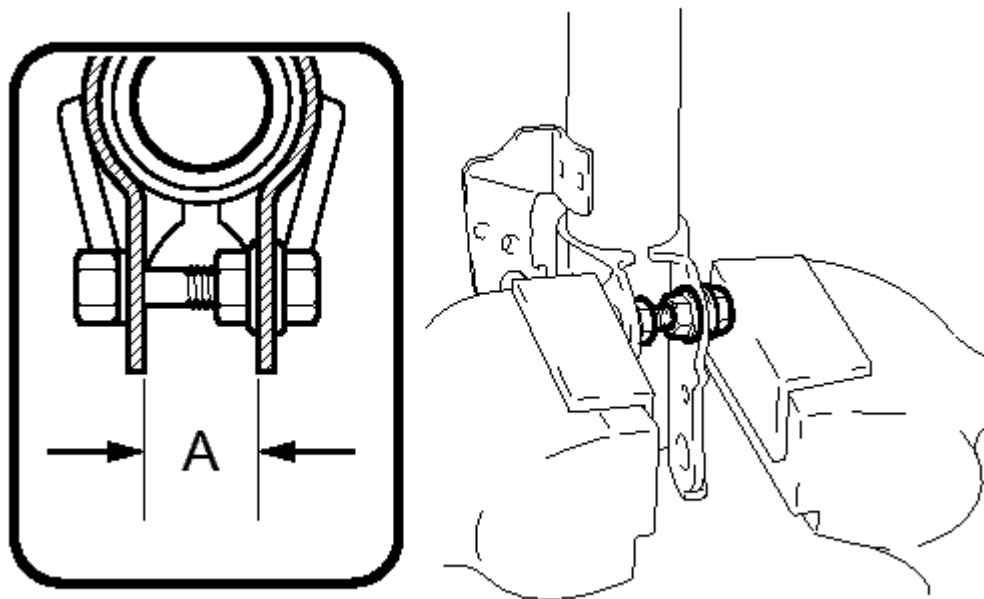
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Fig. 14: Identifying Front Coil Spring & SST

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

NOTE: **Make sure that the claws on the hooks are securely engaged to the spring.**

- b. Install the bolt and nut to the front shock absorber assembly as shown in the illustration and secure the front shock absorber assembly in a vise using aluminum plates.



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Fig. 15: Identifying Front Shock Absorber Assembly, Vise & Fasteners
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

A

28 mm (1.10 in.)

15. REMOVE FRONT SUSPENSION SUPPORT NUT

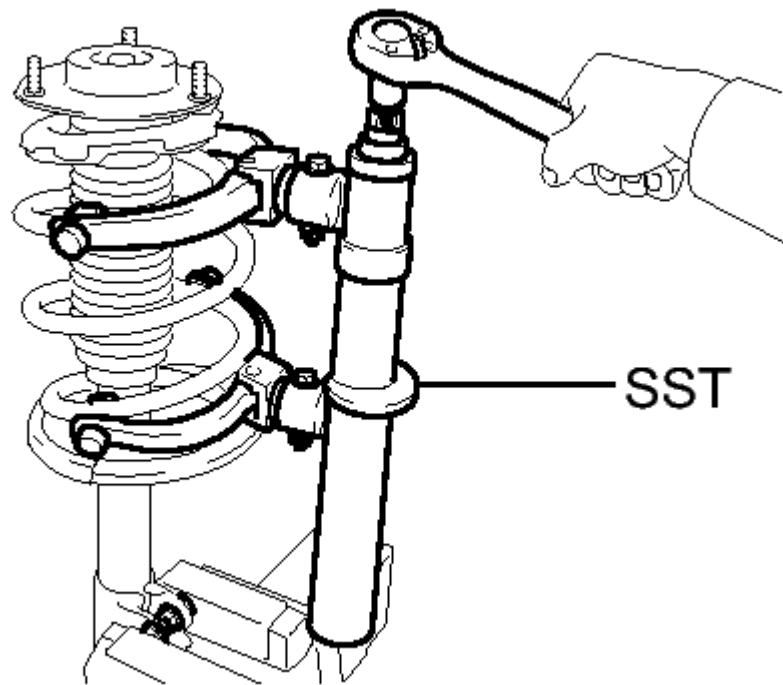
a. Using SST, compress the front coil spring.

- SST: **09727-00050**

- SST: **09727-30021**

09727-00010

09727-00031



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Fig. 16: Compressing Front Coil Spring

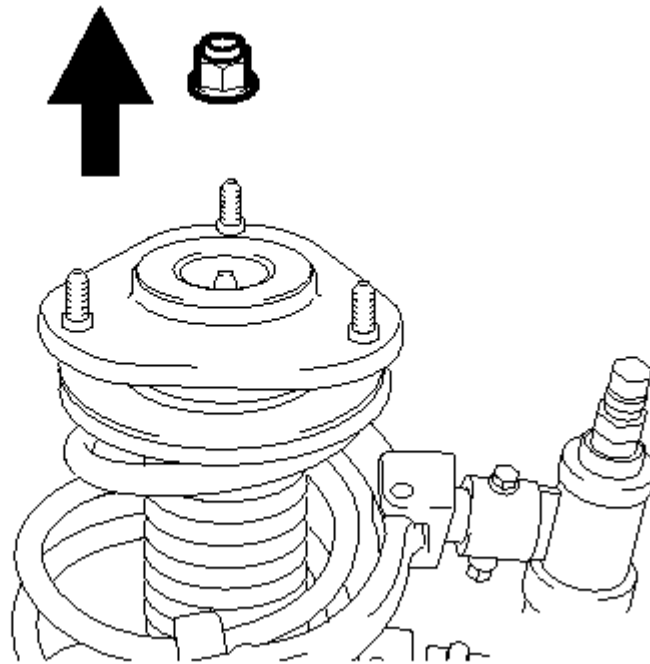
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

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

HINT:

If the front coil spring is compressed at an angle, using 2 SSTs will make the work easier.

- b. Check that the front coil spring is fully compressed.
- c. Remove the front suspension support nut.



P

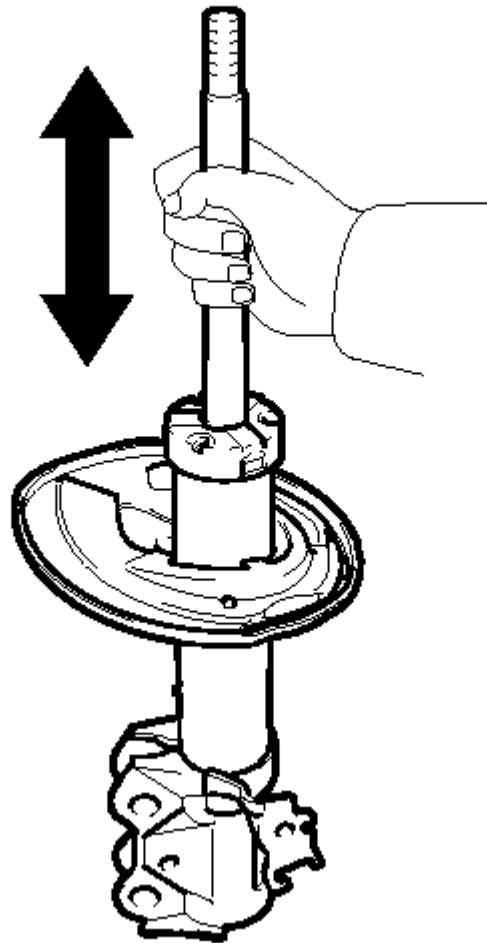
Fig. 17: Identifying Front Support To Front Shock Absorber Nut
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

16. REMOVE FRONT SUSPENSION SUPPORT SUB-ASSEMBLY
17. REMOVE FRONT SUSPENSION SUPPORT BEARING
18. REMOVE FRONT COIL SPRING UPPER SEAT
19. REMOVE FRONT COIL SPRING UPPER INSULATOR
20. REMOVE FRONT COIL SPRING
21. REMOVE FRONT SPRING BUMPER
22. REMOVE FRONT COIL SPRING LOWER INSULATOR

INSPECTION

INSPECTION

1. **INSPECT FRONT SHOCK ABSORBER ASSEMBLY**
 - a. Compress and extend the shock absorber rod 4 or more times.



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Fig. 18: Checking Front Shock Absorber Rod
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

OK

There is no abnormal resistance or sound and operation resistance is normal.

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

INSTALLATION

INSTALLATION

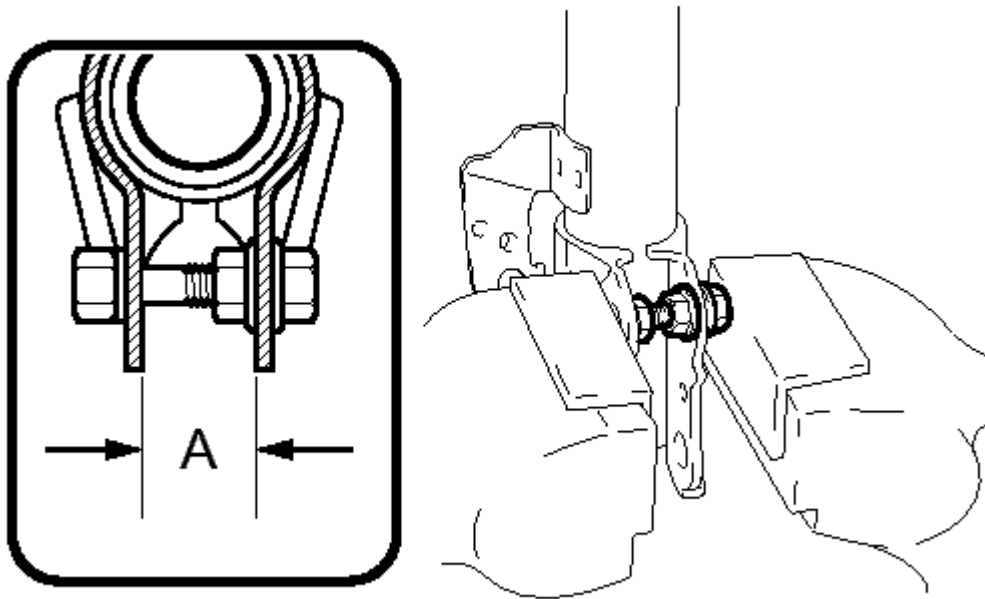
HINT:

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

- The following procedure listed below is for the LH side.

1. SECURE FRONT SHOCK ABSORBER ASSEMBLY

- a. Install the bolt and nut to the front shock absorber assembly as shown in the illustration and secure the front shock absorber assembly in a vise using aluminum plates.



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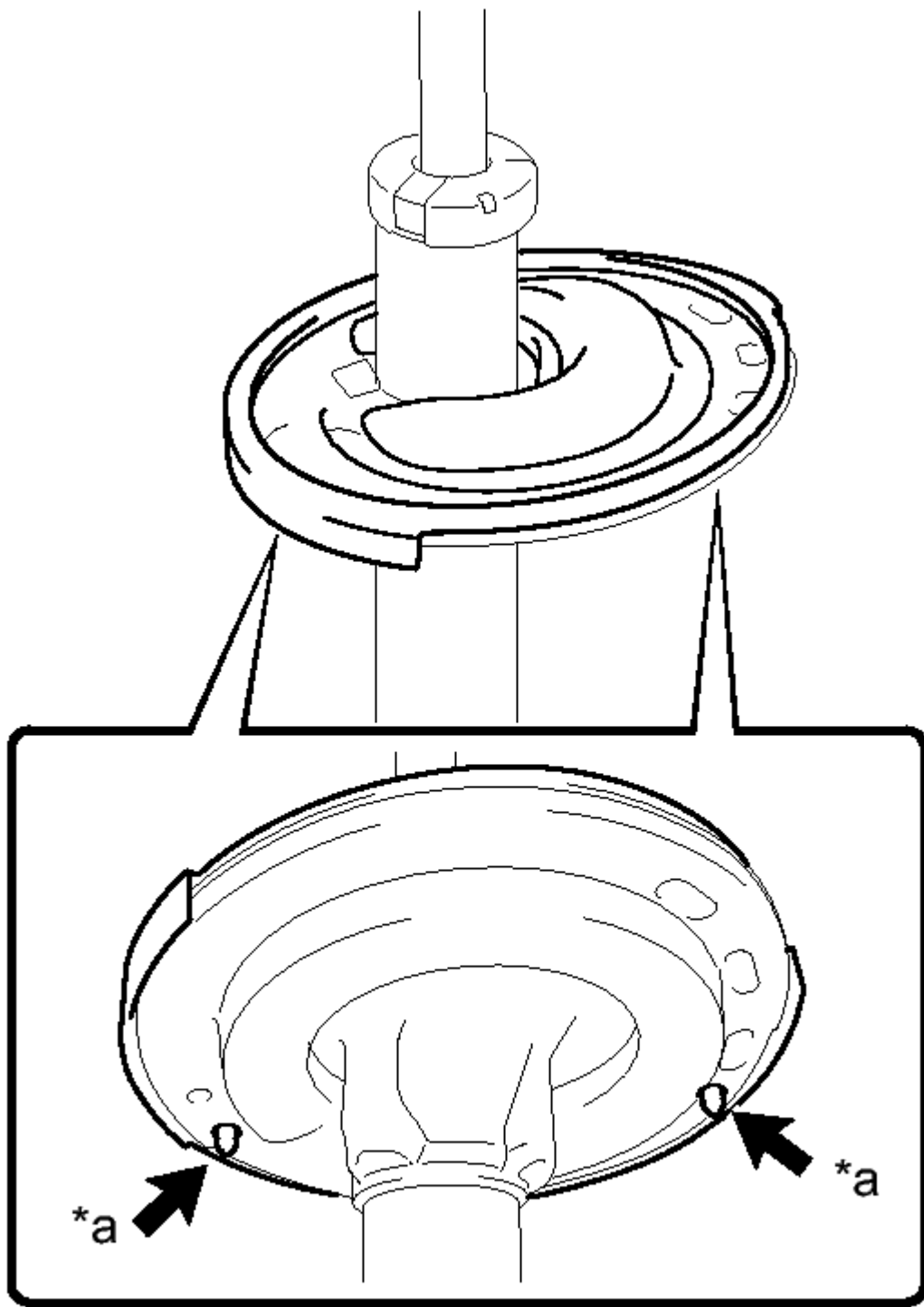
Fig. 19: Identifying Front Shock Absorber Assembly, Vise & Fasteners
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

A

28 mm (1.10 in.)

2. INSTALL FRONT COIL SPRING LOWER INSULATOR

- a. Install the front coil spring lower insulator to the front shock absorber.



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Fig. 20: Identifying Front Coil Spring Lower Insulator Positioning Pins
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

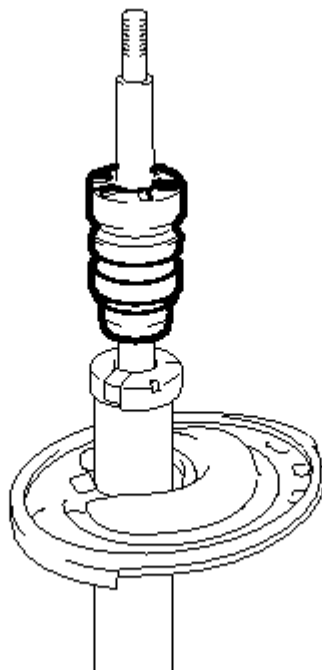
Positioning

*a|Pin

NOTE: Make sure that the positioning pins on the front coil spring lower insulator are inserted into the holes in the front shock absorber.

3. INSTALL FRONT SPRING BUMPER

- a. Install the front spring bumper to the front shock absorber.



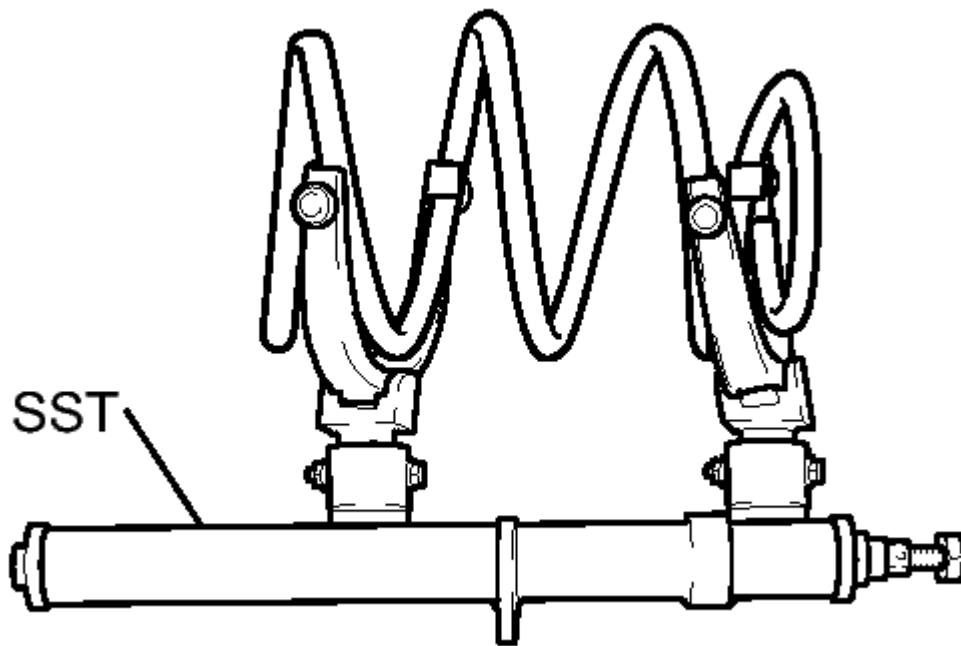
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Fig. 21: Identifying Front Spring Bumper

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

4. INSTALL FRONT COIL SPRING

- a. Install SST to the front coil spring with the hooks spread as far apart as possible from each other.
 - SST: 09727-00050
 - SST: 09727-30021
 - 09727-00010
 - 09727-00031



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Fig. 22: Identifying Front Coil Spring & SST

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

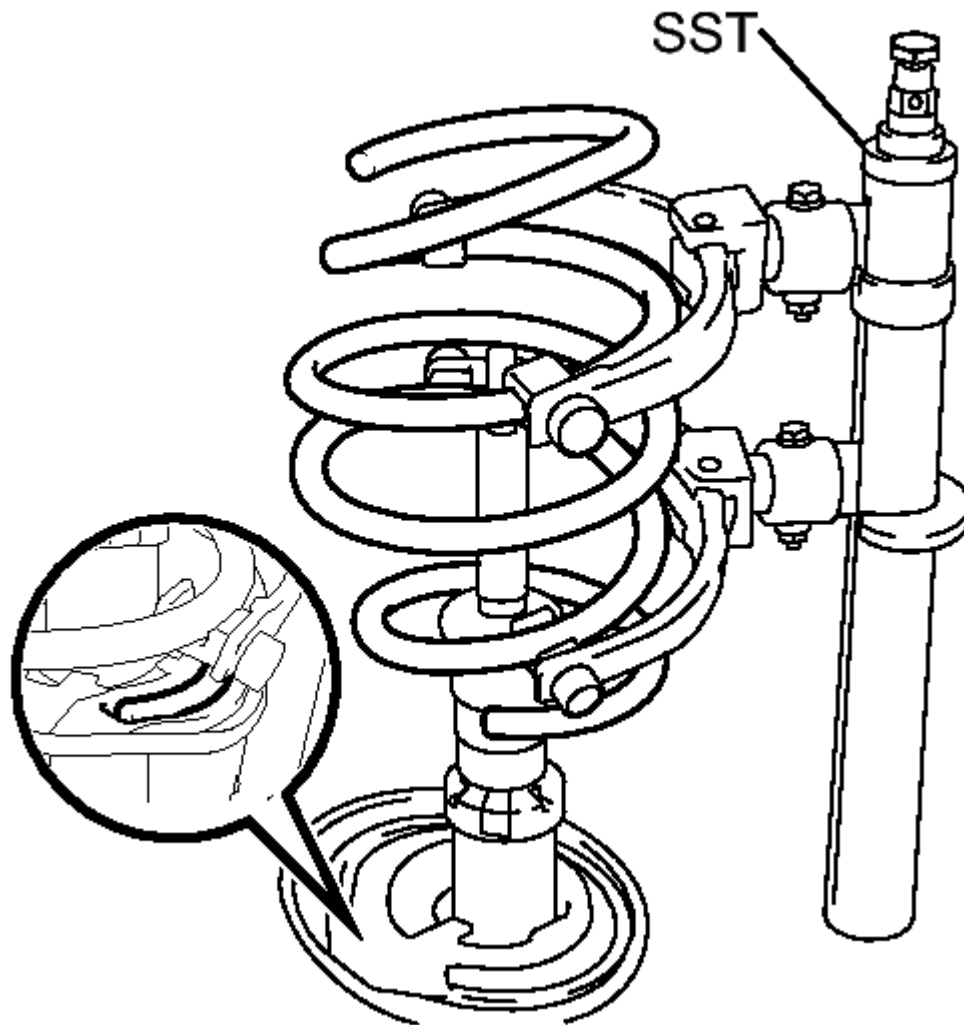
NOTE: Make sure that the claws on the hooks are securely engaged to the spring.

b. Using SST, compress the front coil spring.

- SST: 09727-00050
 - SST: 09727-30021
- 09727-00010
09727-00031

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

c. Install the front coil spring to the front shock absorber.



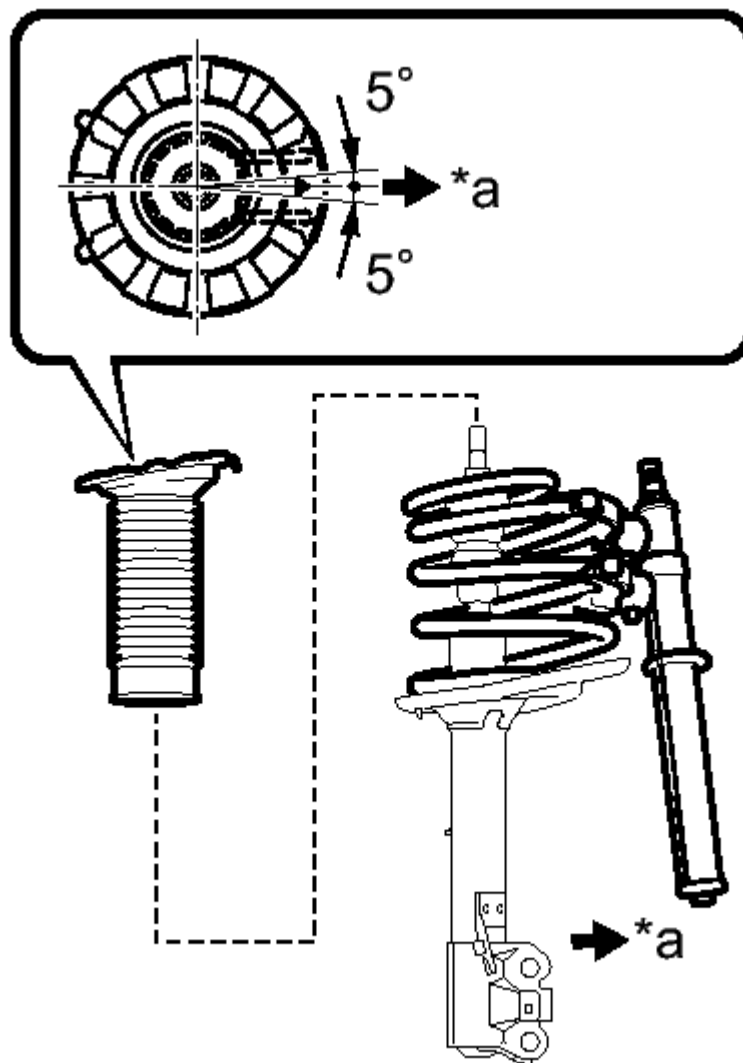
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Fig. 23: Identifying Front Coil Spring Position To Lower Spring Seat
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

NOTE: Make sure that the end of the front coil spring is positioned in the depression of the lower spring seat.

5. INSTALL FRONT COIL SPRING UPPER INSULATOR

- a. Install the front coil spring upper insulator as shown in the illustration.



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Fig. 24: Identifying Front Coil Spring Upper Insulator Alignment
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

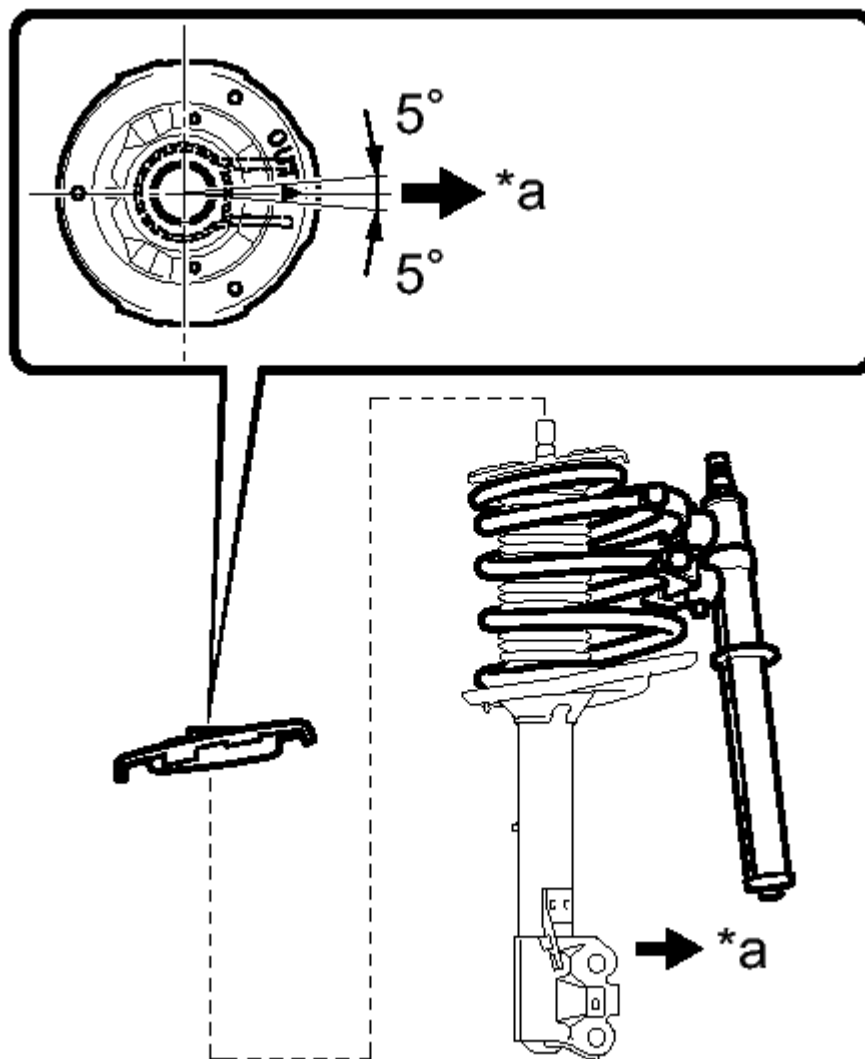
*a Outside

HINT:

Any misalignment between the front shock absorber lower bracket and the alignment mark must be $\pm 5^\circ$.

6. INSTALL FRONT COIL SPRING UPPER SEAT

- a. Install the front coil spring upper seat with the mark facing to the outside of the vehicle.



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Fig. 25: Identifying Front Coil Spring Upper Seat Alignment
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

*a Outside

HINT:

Any misalignment between the front shock absorber lower bracket and the alignment mark must be $\pm 5^\circ$.

7. INSTALL FRONT SUSPENSION SUPPORT BEARING

- a. Install the front suspension support bearing as shown in the illustration.

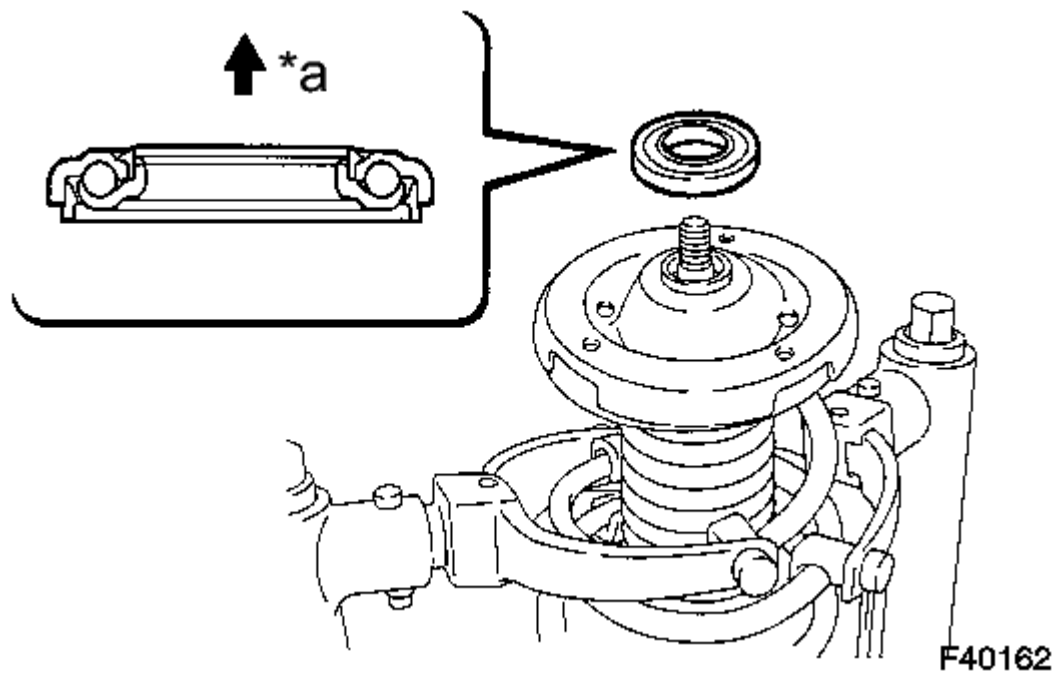


Fig. 26: Identifying Front Suspension Support Bearing Position
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

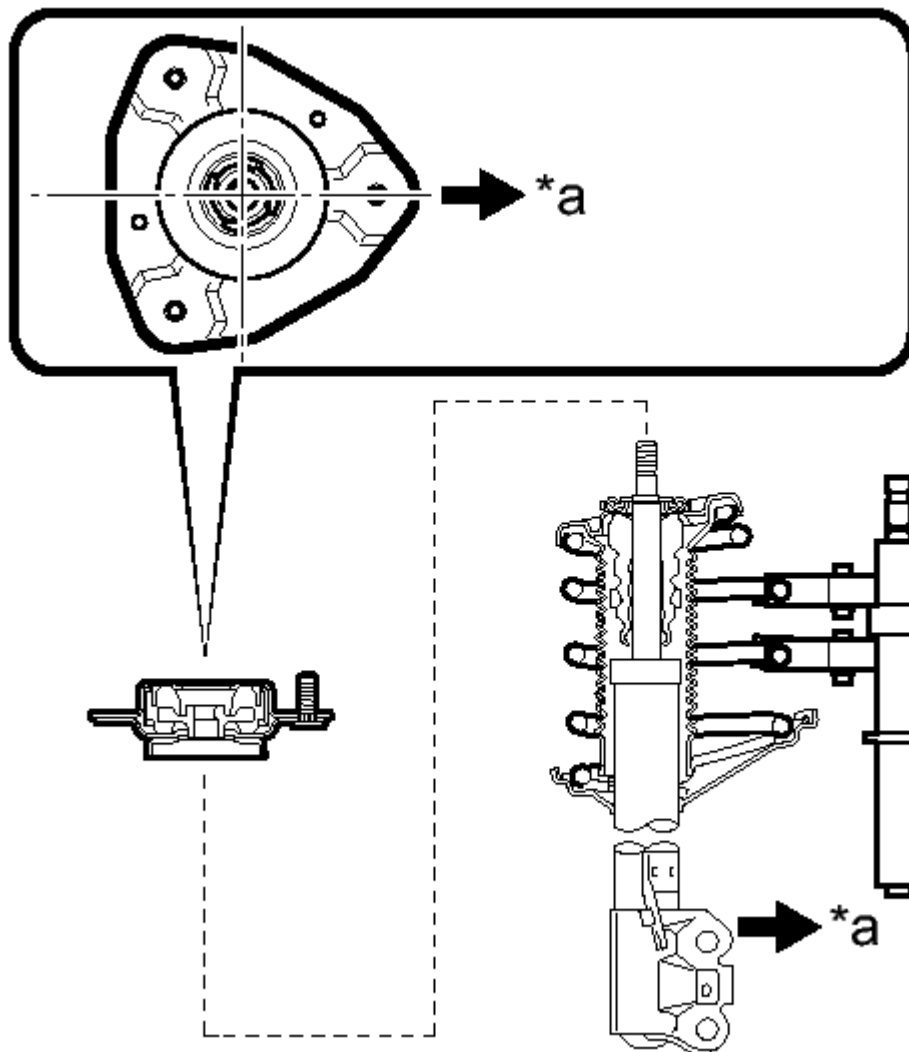
TEXT IN ILLUSTRATION

*a	Upper Side
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If there is foreign matter inside the front suspension support bearing, replace it with a new one.

8. INSTALL FRONT SUSPENSION SUPPORT SUB-ASSEMBLY

- a. Install the front suspension support sub-assembly as shown in the illustration.



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Fig. 27: Identifying Front Suspension Support Stud Bolt & Shock Absorber Lower Bracket Alignment

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

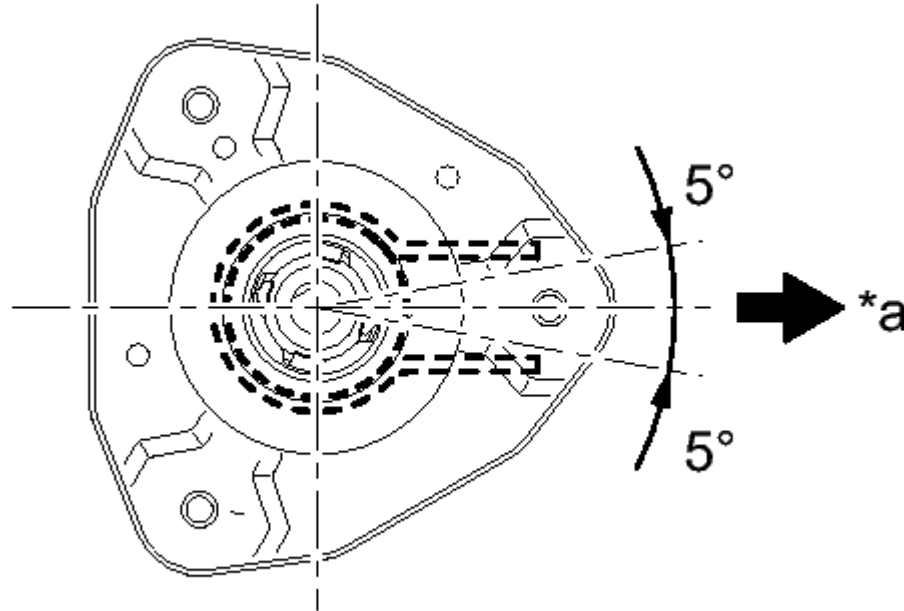
TEXT IN ILLUSTRATION

*a Outside

HINT:

Check that the slots on the piston rod and front suspension support sub-assembly are aligned.

- b. Temporarily tighten a new front suspension support nut.
- c. While aligning the stud bolt of the front suspension support and the shock absorber lower bracket, remove SST from the coil spring.



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Fig. 28: Inspecting Front Suspension Support Stud Bolt & Shock Absorber Lower Bracket Alignment

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

TEXT IN ILLUSTRATION

***a** Outside

NOTE:

- When reassembling the upper support, ensure that any misalignment between the absorber lower bracket and the stud bolt is within $\pm 5^\circ$. Use the stud bolt that is closest to the outside of the vehicle.
- Do not use an impact wrench.

9. INSTALL FRONT SHOCK ABSORBER WITH COIL SPRING

- a. Install the front shock absorber with coil spring (upper side) with the nut and 2 spacers.

Torque: 90 N*m (918 kgf*cm, 66 ft.*lbf)

- b. Install the front shock absorber with coil spring (lower side) to the steering knuckle and insert the 2 bolts and 2 nuts.

Torque: 250 N*m (2549 kgf*cm, 184 ft.*lbf)

NOTE: When installing the nuts, keep the bolts from rotating.

10. INSTALL FRONT STABILIZER LINK ASSEMBLY

- a. Install the front stabilizer link assembly to the front shock absorber with the nut.

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

HINT:

If the ball joint turns together with the nut, use a hexagon wrench (6 mm) to hold the stud bolt.

11. INSTALL FRONT SPEED SENSOR

- a. Install the front speed sensor and front flexible hose with the bolt.

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

NOTE: Do not twist the front speed sensor when installing it.

- b. Install the clamp.

12. INSTALL COWL PANEL SUB-ASSEMBLY

- a. Install the cowl panel sub-assembly with the 5 bolts and 4 nuts.

Bolt

Torque: 5.5 N*m (56 kgf*cm, 49 in.*lbf)

Nut

Torque: 90 N*m (918 kgf*cm, 66 ft.*lbf)

- b. Engage the 5 clamps and install the engine room main wire.
- c. w/ Windshield Deicer System:
 - 1. Connect the connector and engage the clamp.
- d. for 2GR-FE:
 - 1. Connect the fuel pump resistor connector.

13. FULLY TIGHTEN FRONT SUSPENSION SUPPORT NUT

- a. Fully tighten the front suspension support nut.

Torque: 70 N*m (714 kgf*cm, 52 ft.*lbf)

14. INSTALL WINDSHIELD WIPER MOTOR AND LINK ASSEMBLY . Refer to INSTALLATION - Step 2

15. INSTALL COWL TOP VENTILATOR LOUVER SUB-ASSEMBLY . Refer to INSTALLATION - Step 3

16. INSTALL FRONT FENDER TO COWL SIDE SEAL LH . Refer to INSTALLATION - Step 4

17. INSTALL FRONT FENDER TO COWL SIDE SEAL RH . Refer to INSTALLATION - Step 5

18. **INSTALL FRONT WIPER ARM AND BLADE ASSEMBLY LH** . Refer to INSTALLATION - Step 6
19. **INSTALL FRONT WIPER ARM AND BLADE ASSEMBLY RH** . Refer to INSTALLATION - Step 7
20. **INSTALL FRONT WIPER ARM HEAD CAP** . Refer to INSTALLATION - Step 8
21. **INSTALL FRONT WHEEL**

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

22. **INSPECT AND ADJUST FRONT WHEEL ALIGNMENT**

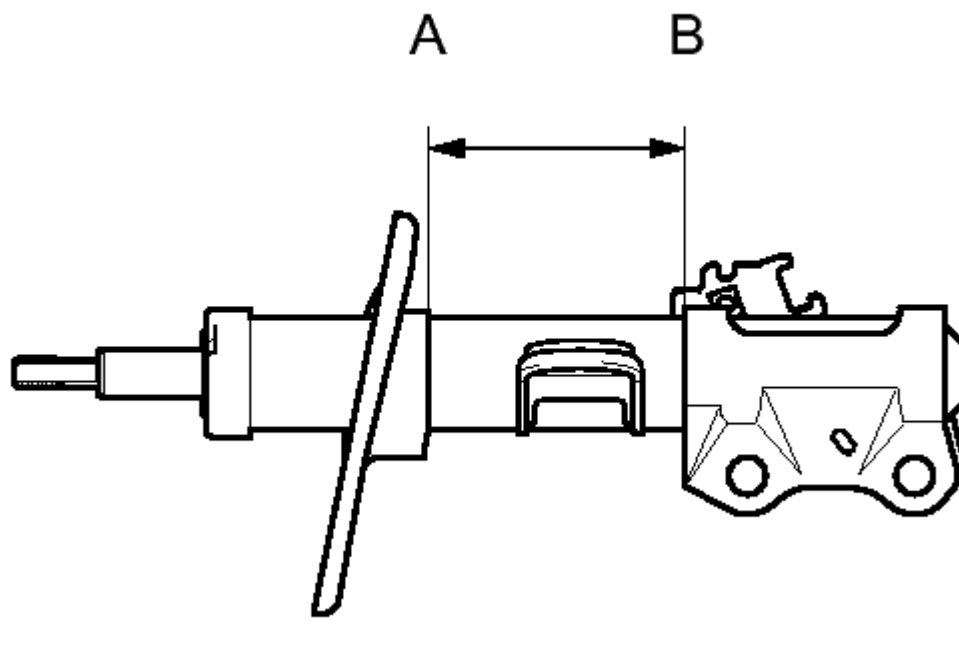
Refer to ADJUSTMENT

DISPOSAL

DISPOSAL

1. DISPOSE OF FRONT SHOCK ABSORBER ASSEMBLY

- a. Position the front shock absorber assembly level with the piston rod fully extended. Using a drill, make a hole in the cylinder between A and B as shown in the illustration to discharge the gas inside.



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Fig. 29: Identifying Where To Drill Hole In Cylinder Between A And B
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

WARNING: Be careful when drilling because shards of metal may fly about,

so always use the proper safety equipment.

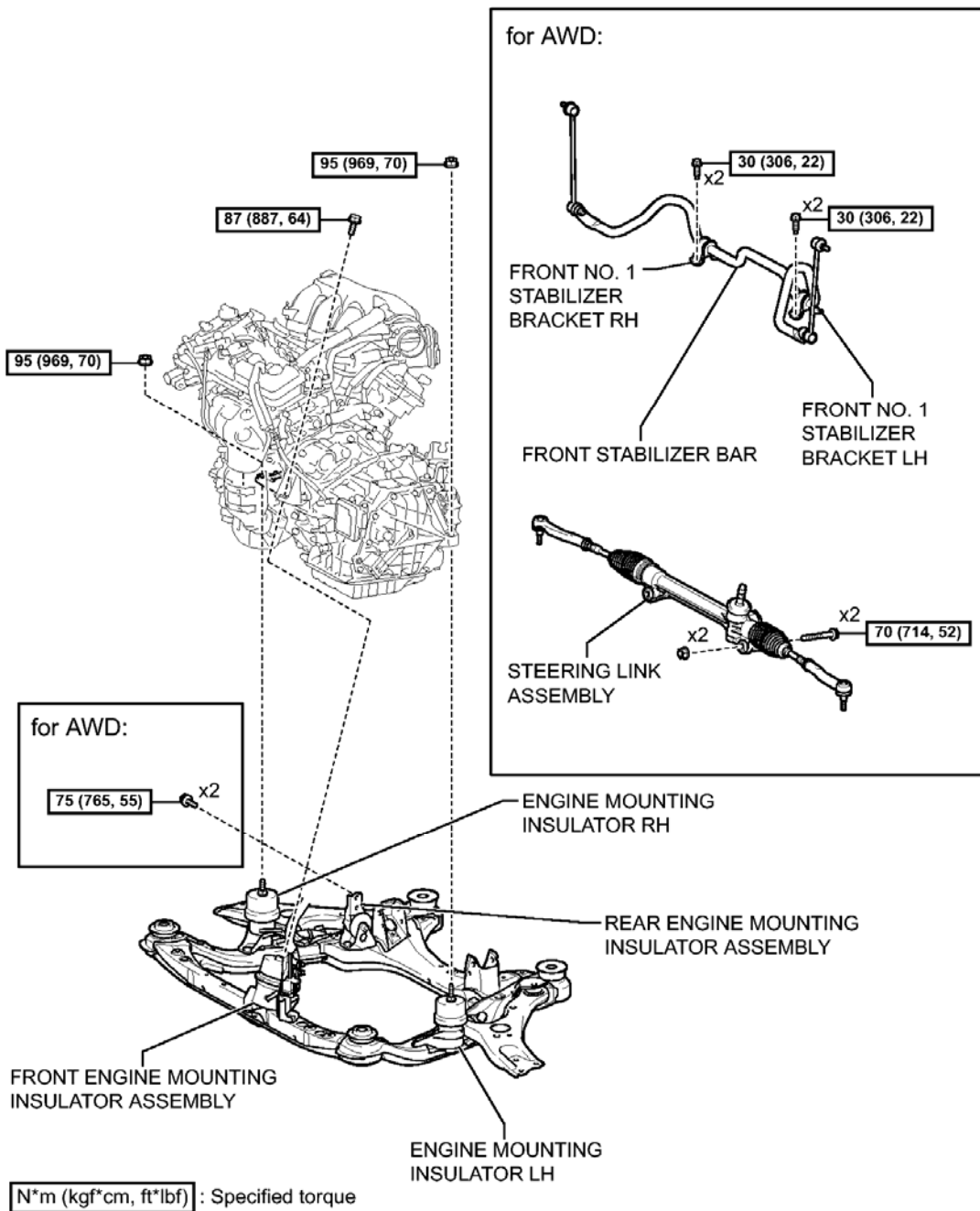
HINT:

The gas is colorless, odorless and nontoxic.

FRONT LOWER SUSPENSION ARM

COMPONENTS

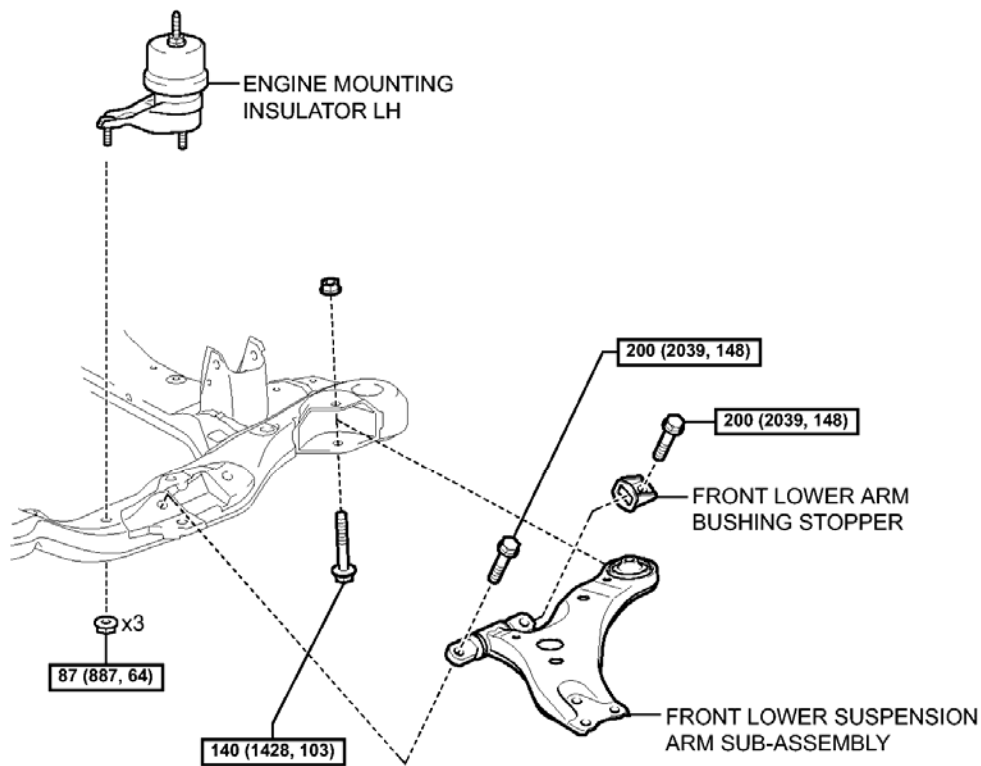
ILLUSTRATION



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Fig. 30: Front Lower Suspension Arm Replacement Components With Torque Specifications (1 of 2)
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

ILLUSTRATION



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

Fig. 31: Front Lower Suspension Arm Replacement Components With Torque Specifications (2 of 2)
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

REMOVAL

REMOVAL

HINT:

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

1. REMOVE ENGINE ASSEMBLY WITH TRANSAXLE (for 2GR-FE)

Refer to **REMOVAL**

2. REMOVE ENGINE ASSEMBLY WITH TRANSAXLE (for 1AR-FE)

Refer to **REMOVAL**

3. **REMOVE FRONT NO. 1 STABILIZER BRACKET LH (for AWD)** See step 7
4. **REMOVE FRONT NO. 1 STABILIZER BRACKET RH (for AWD)**

HINT:

Perform the same procedure as the LH side.

5. **REMOVE FRONT STABILIZER BAR (for AWD)**
6. **REMOVE STEERING LINK ASSEMBLY (for AWD)** . Refer to **REMOVAL - Step 5**
7. **SEPARATE FRONT ENGINE MOUNTING INSULATOR ASSEMBLY** . Refer to **REMOVAL - Step 76**
8. **SEPARATE ENGINE MOUNTING INSULATOR LH** . Refer to **REMOVAL - Step 77**
9. **SEPARATE ENGINE MOUNTING INSULATOR RH** . Refer to **REMOVAL - Step 78**
10. **SEPARATE REAR ENGINE MOUNTING INSULATOR ASSEMBLY (for AWD)** . Refer to **REMOVAL - Step 79**
11. **REMOVE ENGINE MOUNTING INSULATOR LH** See step 12
12. **REMOVE FRONT LOWER SUSPENSION ARM SUB-ASSEMBLY**
 - a. Remove the 3 bolts, nut and front lower suspension arm sub-assembly from the front frame assembly.

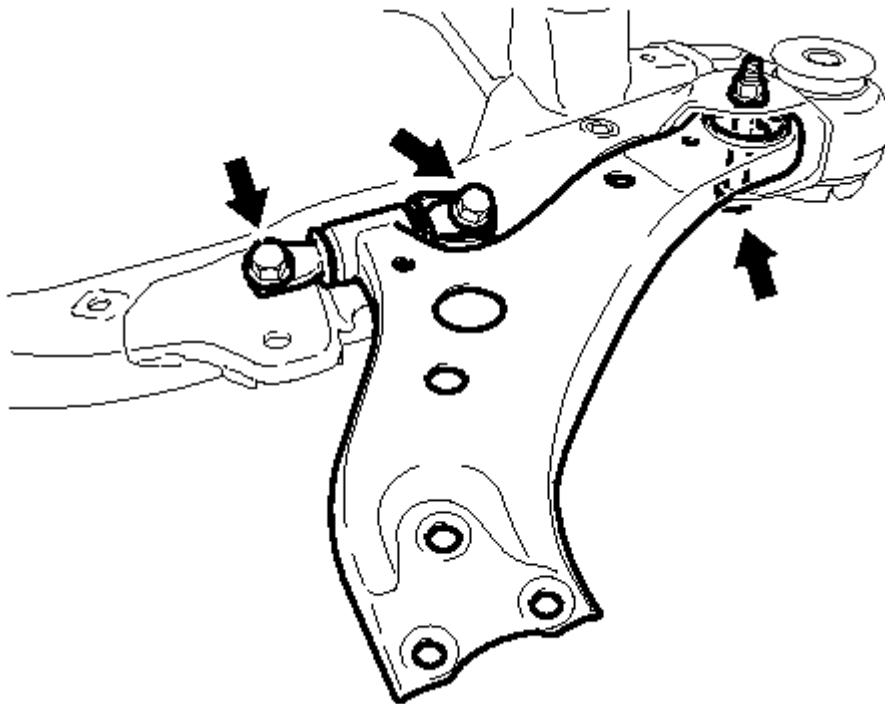


Fig. 32: Identifying Front Lower Suspension Arm Bolts And Nut
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- b. Remove the front lower arm bushing stopper from the front lower suspension arm sub-assembly.

INSTALLATION

INSTALLATION

HINT:

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

1. INSTALL FRONT LOWER SUSPENSION ARM SUB-ASSEMBLY

- a. Install the front lower arm bushing stopper to the front lower suspension arm sub-assembly.
- b. Temporarily tighten the front lower suspension arm sub-assembly to the front frame assembly with the 3 bolts and nut.
- c. Tighten the 3 bolts in the order shown in the illustration.

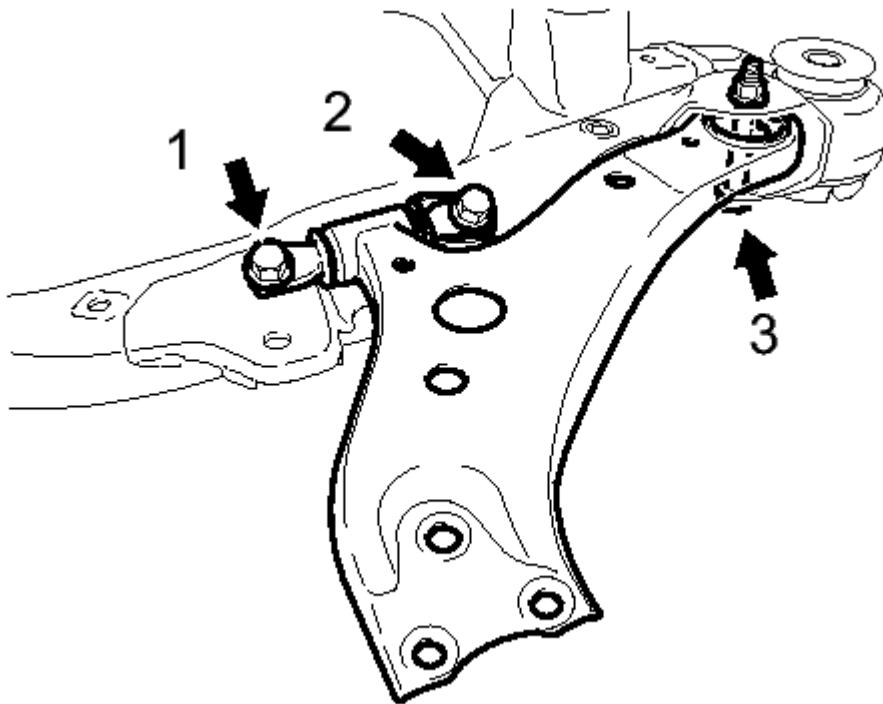


Fig. 33: Identifying Front Lower Suspension Arm Sub-Assembly Bolts With Tightening Sequence

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

Bolt 1, 2

Torque: 200 N*m (2039 kgf*cm, 148 ft.*lbf)

Bolt 3

Torque: 140 N*m (1428 kgf*cm, 103 ft.*lbf)

HINT:

Start installing the bolts from the front of the vehicle.

2. **INSTALL ENGINE MOUNTING INSULATOR LH** See step 11
3. **INSTALL REAR ENGINE MOUNTING INSULATOR ASSEMBLY (for AWD)** . Refer to **INSTALLATION - Step 11**
4. **INSTALL ENGINE MOUNTING INSULATOR RH** . Refer to **INSTALLATION - Step 12**
5. **INSTALL ENGINE MOUNTING INSULATOR LH** . Refer to **INSTALLATION - Step 13**
6. **INSTALL FRONT ENGINE MOUNTING INSULATOR ASSEMBLY** . Refer to **INSTALLATION - Step 14**
7. **INSTALL STEERING LINK ASSEMBLY (for AWD)** . Refer to **INSTALLATION - Step 3**
8. **INSTALL FRONT STABILIZER BAR (for AWD)**
9. **INSTALL FRONT NO. 1 STABILIZER BRACKET LH (for AWD)** See step 5
10. **INSTALL FRONT NO. 1 STABILIZER BRACKET RH (for AWD)**

HINT:

Perform the same procedure as the LH side.

11. **INSTALL ENGINE ASSEMBLY WITH TRANSAXLE (for 2GR-FE)**

Refer to **INSTALLATION - Step 24**

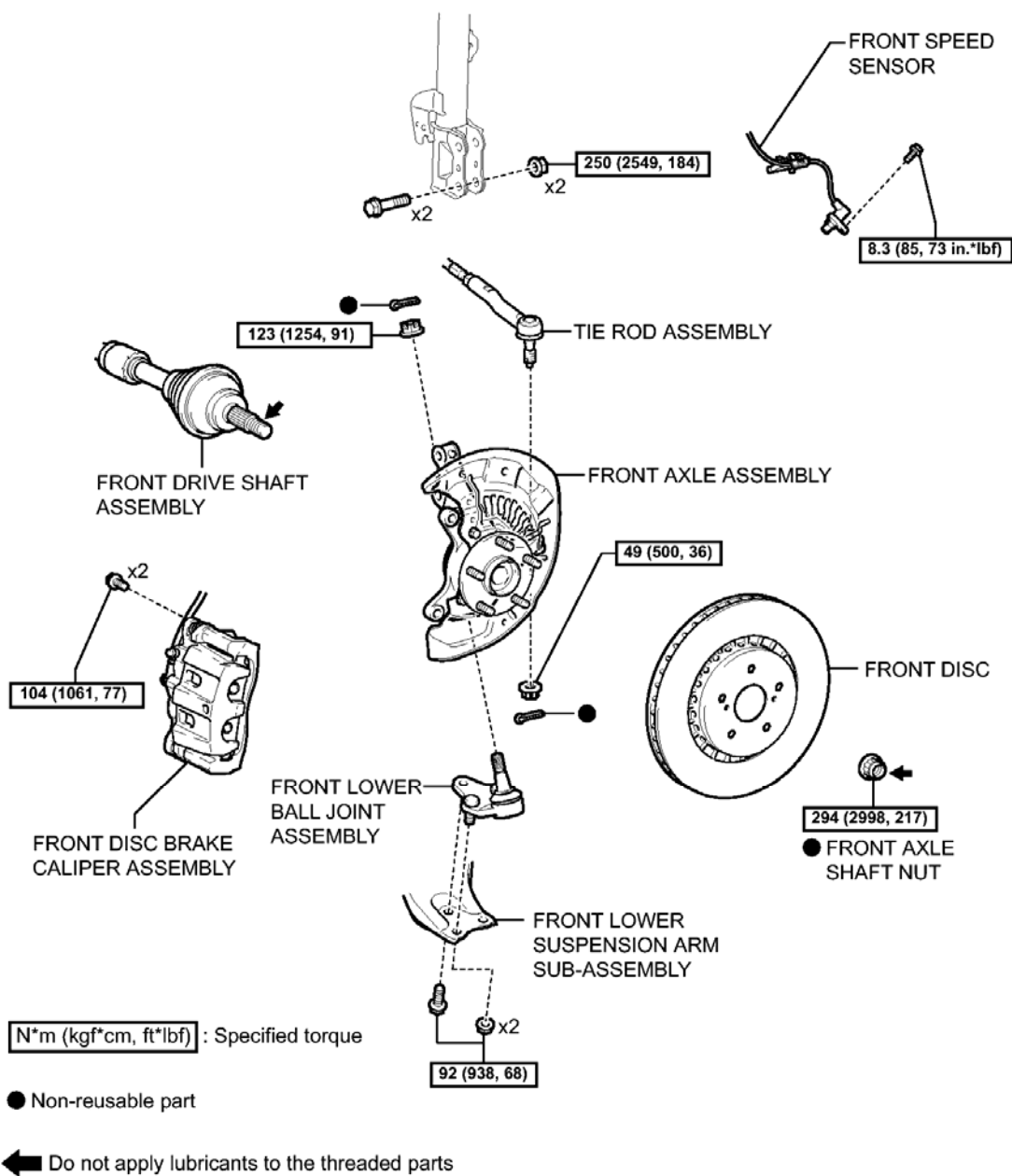
12. **INSTALL ENGINE ASSEMBLY WITH TRANSAXLE (for 1AR-FE)**

Refer to **INSTALLATION**

FRONT LOWER BALL JOINT

COMPONENTS

ILLUSTRATION



P

Fig. 34: Front Lower Ball Joint Replacement Components With Torque Specifications
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

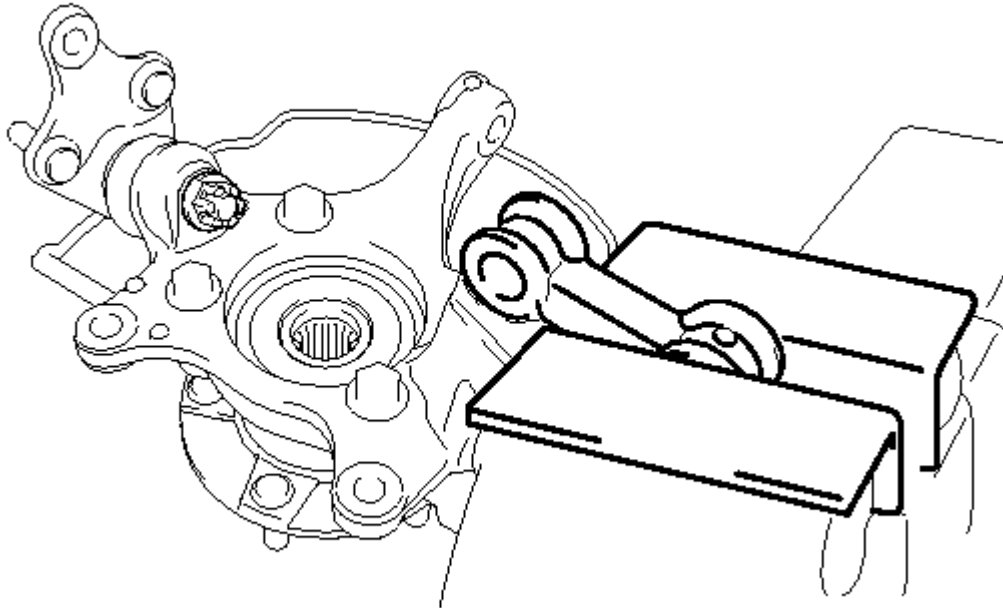
REMOVAL

REMOVAL

HINT:

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

1. **REMOVE FRONT WHEEL**
2. **REMOVE FRONT AXLE SHAFT NUT (for 2GR-FE)** . Refer to **REMOVAL - Step 6**
3. **REMOVE FRONT AXLE SHAFT NUT (for 1AR-FE)** . Refer to **REMOVAL - Step 3**
4. **SEPARATE FRONT SPEED SENSOR** . Refer to **REMOVAL - Step 4**
5. **SEPARATE FRONT DISC BRAKE CALIPER ASSEMBLY** . Refer to **REPLACEMENT - Step 2**
6. **REMOVE FRONT DISC** . Refer to **REMOVAL - Step 14**
7. **SEPARATE TIE ROD ASSEMBLY (for 2GR-FE)** . Refer to **REMOVAL - Step 9**
8. **SEPARATE TIE ROD ASSEMBLY (for 1AR-FE)** . Refer to **REMOVAL - Step 6**
9. **SEPARATE FRONT LOWER SUSPENSION ARM SUB-ASSEMBLY** . Refer to **REMOVAL - Step 9**
10. **SEPARATE FRONT DRIVE SHAFT ASSEMBLY** . Refer to **REMOVAL - Step 10**
11. **REMOVE FRONT AXLE ASSEMBLY** . Refer to **REMOVAL - Step 11**
12. **REMOVE FRONT LOWER BALL JOINT ASSEMBLY**
 - a. Secure the front axle assembly in a vise using aluminum plates.

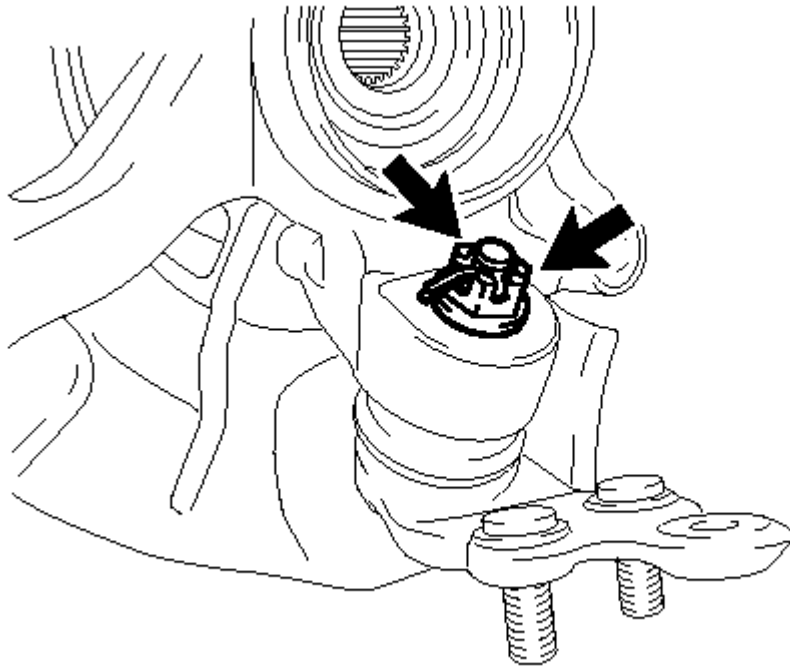


C

Fig. 35: Identifying Front Axle Assembly In Vise
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

NOTE: When using a vise, do not overtighten it.

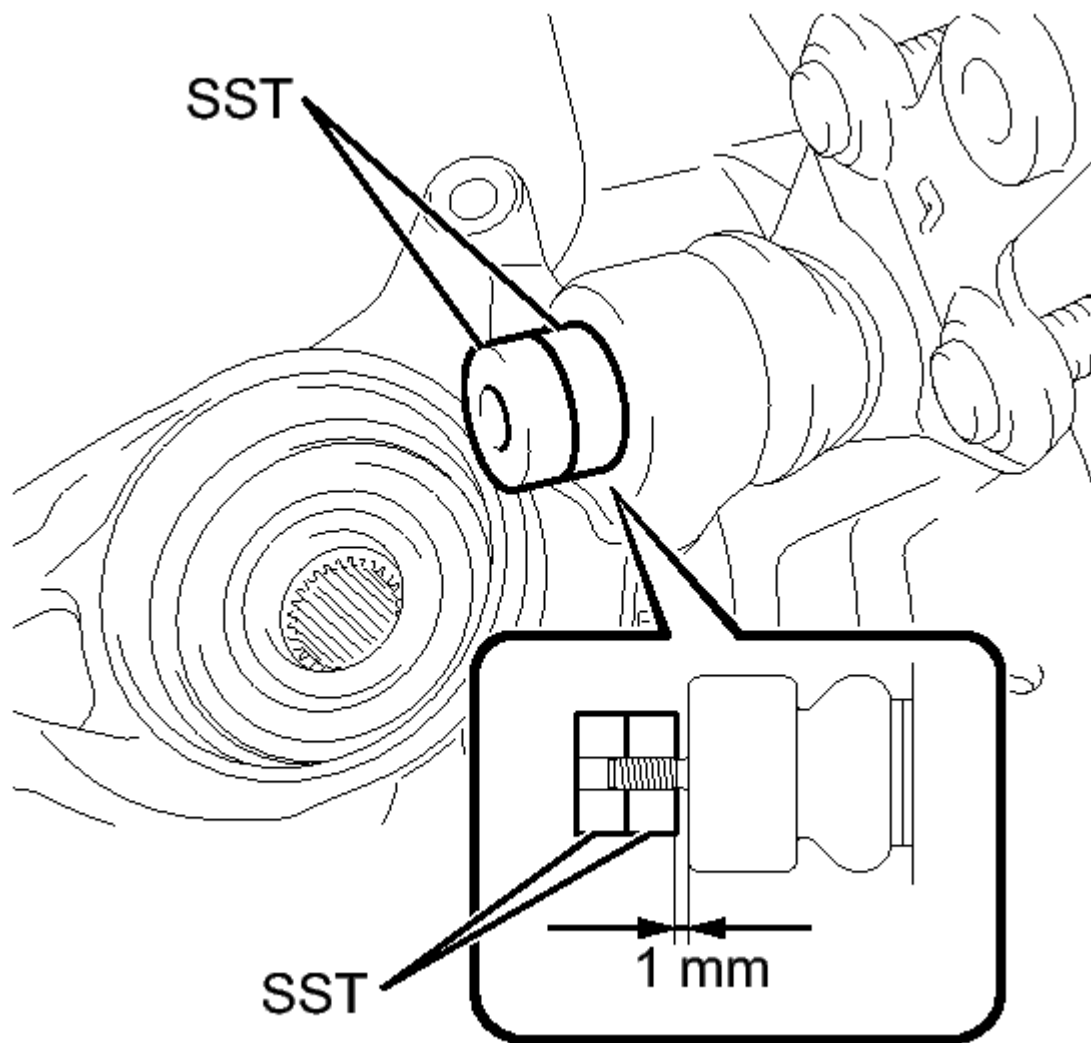
- b. Remove the cotter pin and nut.



C

Fig. 36: Identifying Front Lower Ball Joint Assembly Fasteners.
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- c. Install SST to the front lower ball joint as shown in the illustration.



P

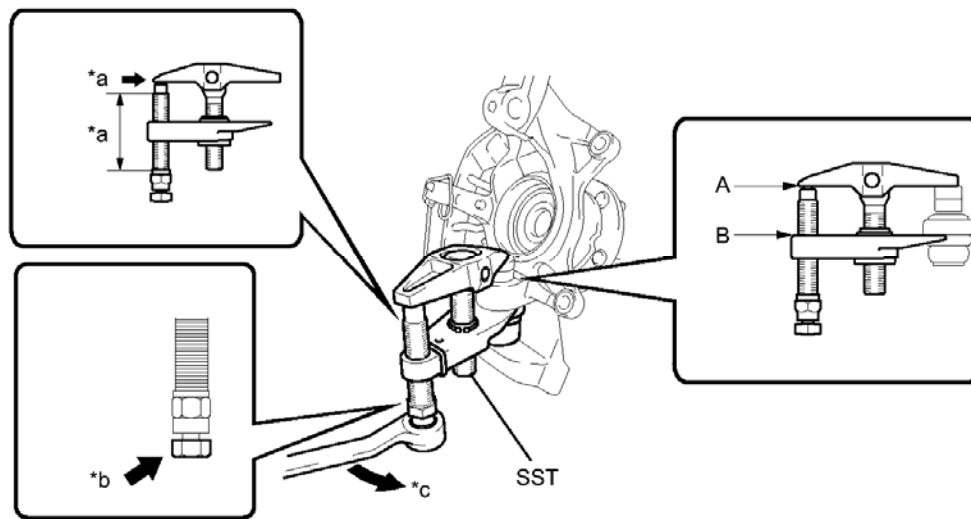
Fig. 37: Identifying Front Lower Ball Joint & SST
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- **SST: 09960-20010**
09961-02050
09961-02050

NOTE: Check that the clearance measurement between SST and the front axle assembly is 1 mm (0.0394 in.).

- d. Using SST, remove the front lower ball joint from the front axle assembly as shown in the illustration.

- **SST: 09960-20010**
09961-02010
09961-02050



c

Fig. 38: Removing Front Lower Ball Joint From Front Axle Assembly Using SST
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

*a	Apply grease	*b	Place the wrench here
*c	Turn	-	-

NOTE:

- Apply grease to the threads and end of the SST bolt.
- Install SST so that A and B are parallel.
- Be sure to place a wrench on the part indicated in the illustration.
- Do not damage the front lower ball joint dust cover, or steering knuckle.

INSPECTION

INSPECTION

1. INSPECT FRONT LOWER BALL JOINT ASSEMBLY

- a. Inspect the turning torque of the ball joint.

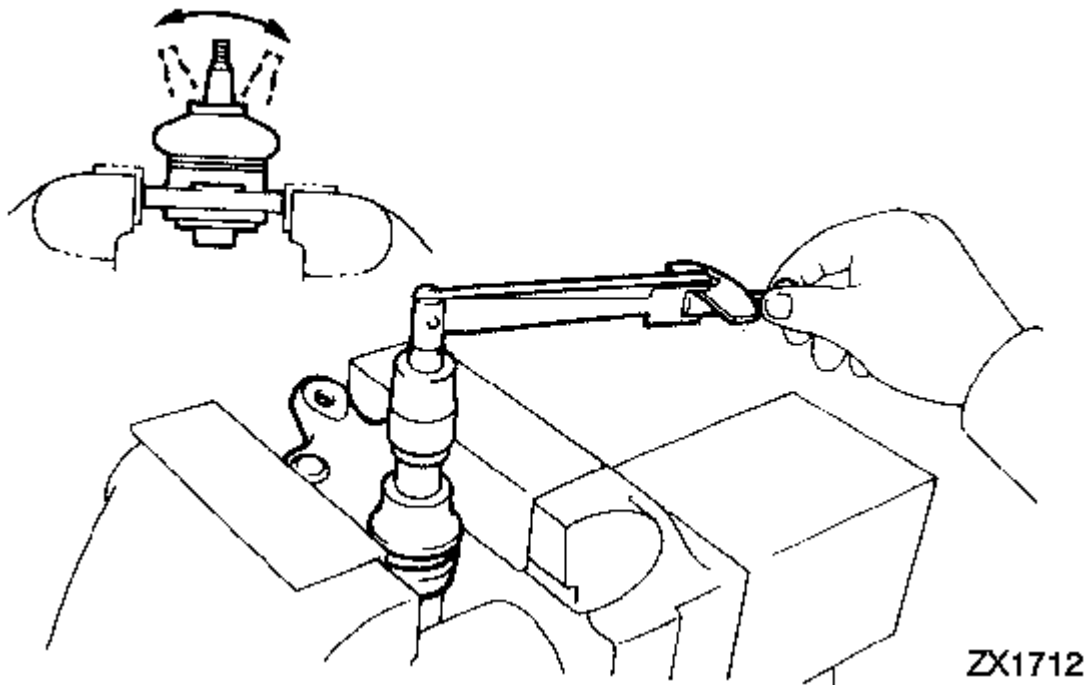


Fig. 39: Inspecting Lower Ball Joint Assembly Front LH
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

1. Secure the front lower ball joint in a vise using aluminum plates.
2. Install the nut to the front lower ball joint stud.
3. Using a torque wrench, turn the nut continuously at a rate of 3 to 5 seconds per turn and take the torque reading on the 5th turn.

Turning torque

0.7 to 4.5 N*m (7 to 46 kgf*cm, 6.2 to 40 in.*lbf)

If the turning torque is not within the specified range, replace the front lower ball joint with a new one.

b. Inspect the dust cover.

1. Check that the dust cover is not cracked and that there is no grease on it.

INSTALLATION

INSTALLATION

HINT:

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

1. INSTALL FRONT LOWER BALL JOINT ASSEMBLY

- a. Install the front lower ball joint to the front axle assembly with the nut.

Torque: 123 N*m (1254 kgf*cm, 91 ft.*lbf)

NOTE: Prevent oil from adhering to the screw and tapered parts.

- b. Install a new cotter pin.

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

2. INSTALL FRONT AXLE ASSEMBLY . Refer to INSTALLATION - Step 5
3. INSTALL FRONT DRIVE SHAFT ASSEMBLY . Refer to INSTALLATION - Step 6
4. INSTALL FRONT LOWER SUSPENSION ARM SUB-ASSEMBLY . Refer to INSTALLATION - Step 7
5. CONNECT TIE ROD ASSEMBLY (for 2GR-FE) . Refer to INSTALLATION - Step 9
6. CONNECT TIE ROD ASSEMBLY (for 1AR-FE) . Refer to INSTALLATION - Step 5
7. INSTALL FRONT DISC . Refer to INSTALLATION - Step 1
8. INSTALL FRONT DISC BRAKE CALIPER ASSEMBLY . Refer to REPLACEMENT - Step 7
9. INSTALL FRONT SPEED SENSOR . Refer to INSTALLATION - Step 20
10. INSTALL FRONT AXLE SHAFT NUT (for 2GR-FE) . Refer to INSTALLATION - Step 12
11. INSTALL FRONT AXLE SHAFT NUT (for 1AR-FE) . Refer to INSTALLATION - Step 8
12. INSTALL FRONT WHEEL

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

13. INSPECT SPEED SENSOR SIGNAL

Refer to TEST MODE PROCEDURE

14. INSPECT AND ADJUST FRONT WHEEL ALIGNMENT

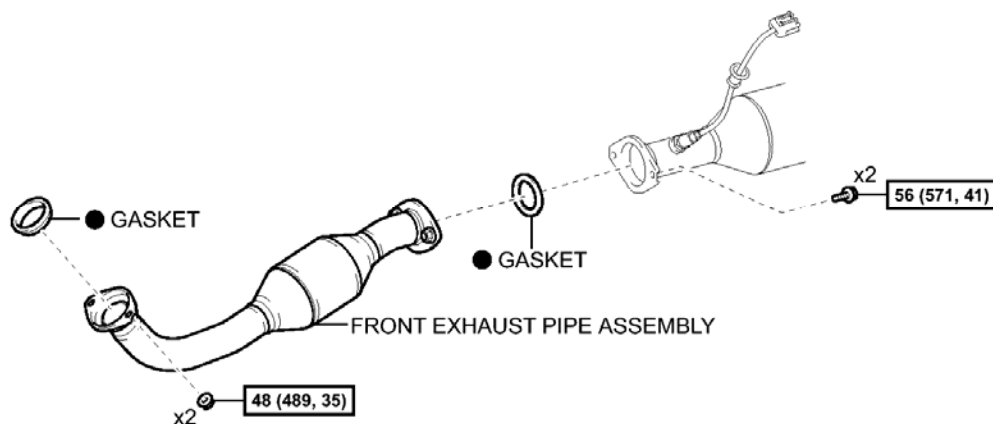
Refer to ADJUSTMENT

FRONT STABILIZER BAR (FOR 2WD)

COMPONENTS

ILLUSTRATION

for 1AR-FE:



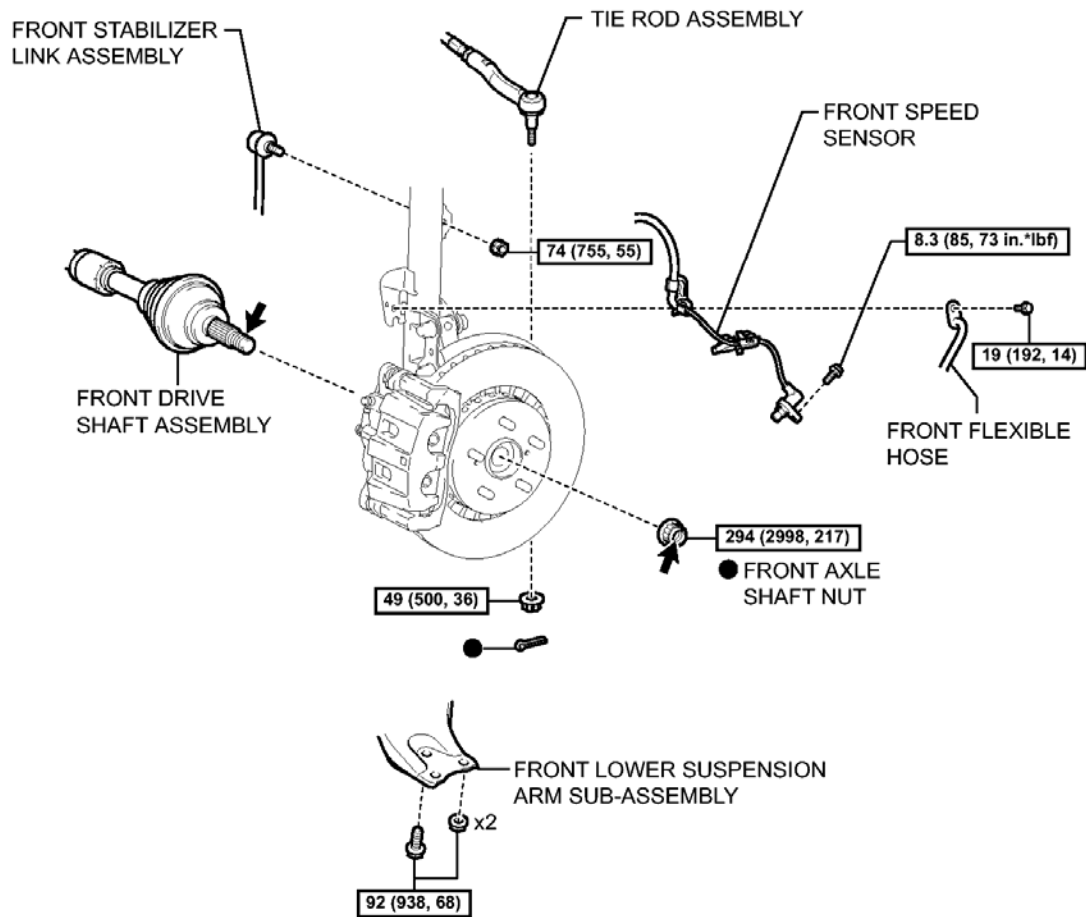
$\boxed{\text{N}\cdot\text{m (kgf}\cdot\text{cm, ft.}\cdot\text{lbf)}}$: Specified torque

● Non-reusable part

P

Fig. 40: Front Stabilizer Bar Replacement Components With Torque Specifications (1 of 4)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

ILLUSTRATION

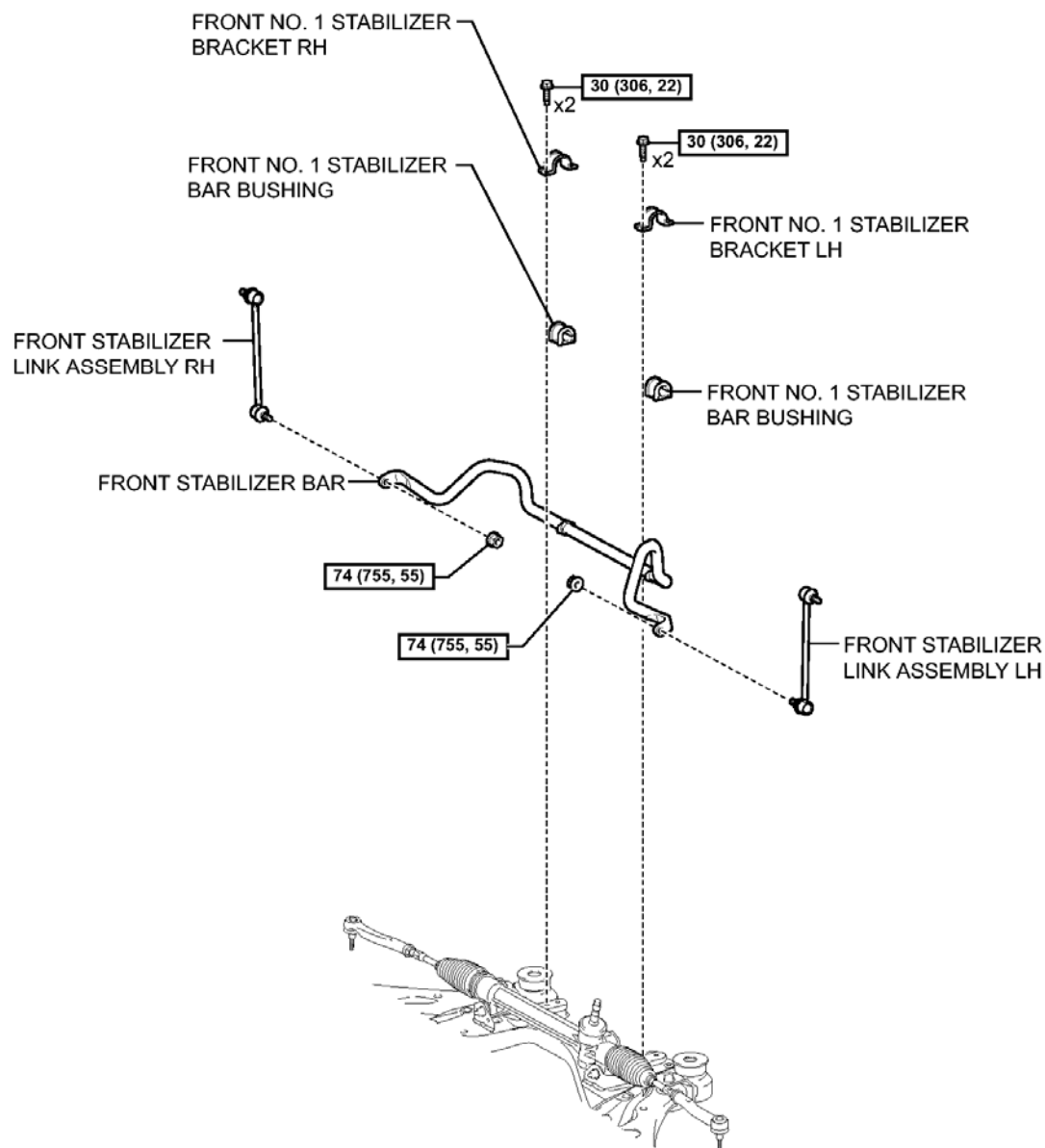


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Fig. 41: Front Stabilizer Bar Replacement Components With Torque Specifications (2 of 4)
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

ILLUSTRATION

for 2GR-FE:



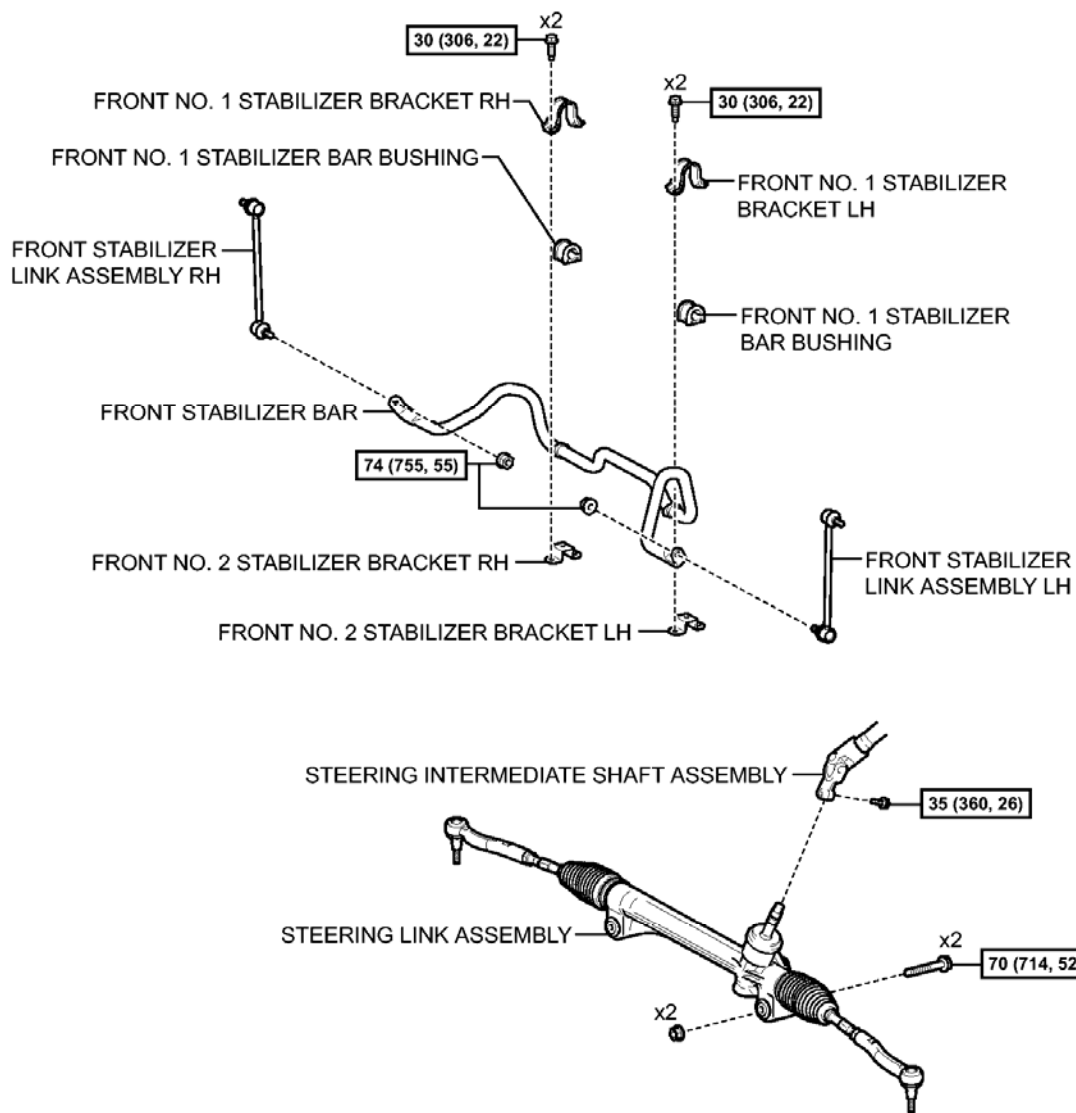
$\boxed{\text{N}\cdot\text{m (kgf}\cdot\text{cm, ft}\cdot\text{lb)}} : \text{Specified torque}$

P

Fig. 42: Front Stabilizer Bar Replacement Components With Torque Specifications (3 of 4)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

ILLUSTRATION

for 1AR-FE:



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

Fig. 43: Front Stabilizer Bar Replacement Components With Torque Specifications (4 of 4)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

REMOVAL

REMOVAL

NOTE: When disconnecting the steering intermediate shaft assembly and pinion shaft of steering link assembly, be sure to place matchmarks before servicing.

1. **SECURE STEERING WHEEL (for 1AR-FE)** . Refer to REMOVAL - Step 1
2. **REMOVE FRONT WHEELS**
3. **REMOVE FRONT EXHAUST PIPE ASSEMBLY (for 1AR-FE)** . Refer to REMOVAL - Step 2
4. **SEPARATE FRONT SPEED SENSOR LH** . Refer to REMOVAL - Step 8
5. **REMOVE FRONT AXLE SHAFT NUT LH** . Refer to REMOVAL - Step 6
6. **SEPARATE TIE ROD ASSEMBLY LH** . Refer to REMOVAL - Step 9
7. **SEPARATE TIE ROD ASSEMBLY RH (for 1AR-FE)**

HINT:

Perform the same procedure as the LH side.

8. **REMOVE FRONT STABILIZER LINK ASSEMBLY LH**
 - a. Remove the 2 nuts and front stabilizer link assembly LH.

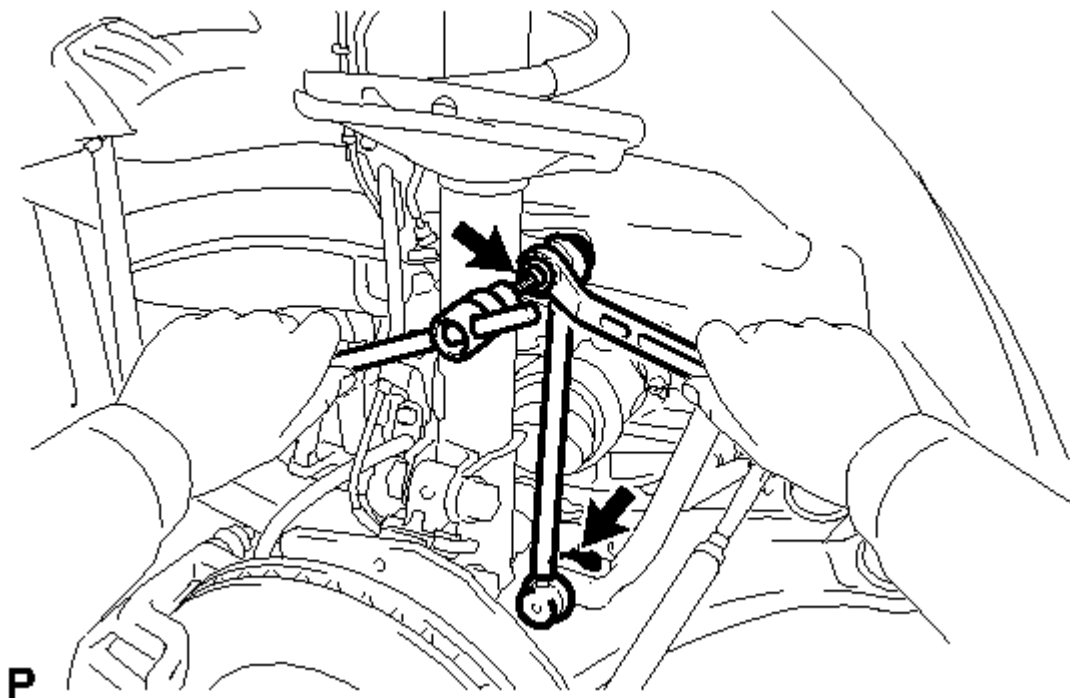


Fig. 44: Removing Front Stabilizer Link Assembly LH & Fasteners
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

HINT:

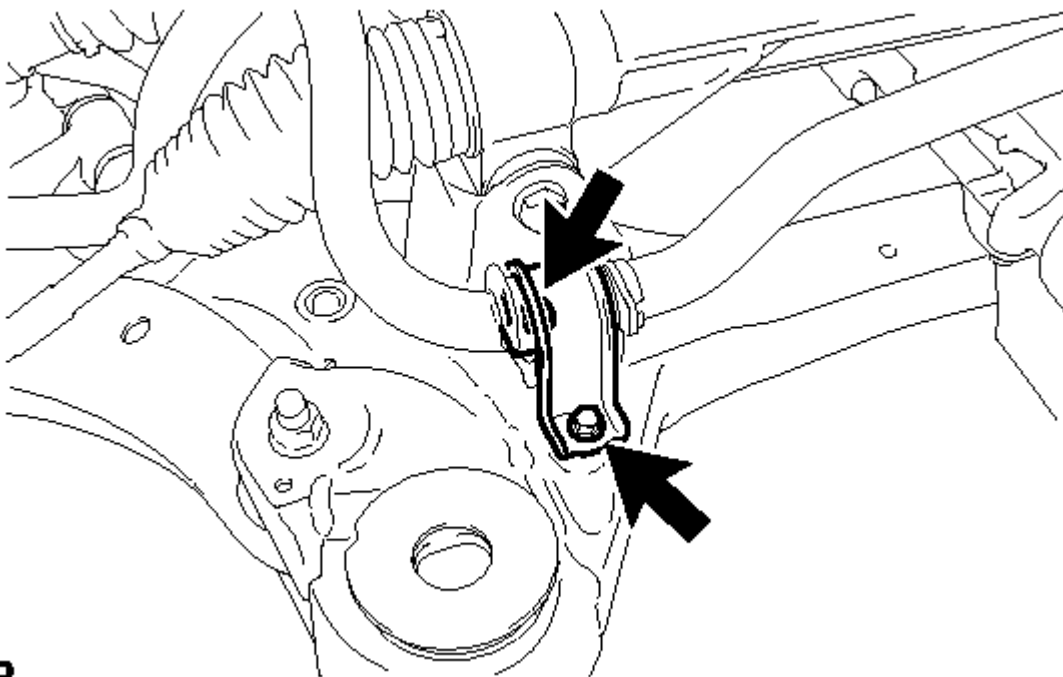
If the ball joint turns together with the nut, use a hexagon wrench (6 mm) to hold the stud bolt.

9. REMOVE FRONT STABILIZER LINK ASSEMBLY RH

HINT:

Perform the same procedure as the LH side.

10. **SEPARATE FRONT LOWER SUSPENSION ARM SUB-ASSEMBLY LH** . Refer to **REMOVAL - Step 9**
11. **SEPARATE FRONT DRIVE SHAFT ASSEMBLY LH** . Refer to **REMOVAL - Step 10**
12. **SEPARATE STEERING INTERMEDIATE SHAFT ASSEMBLY (for 1AR-FE)** . Refer to **REMOVAL - Step 12**
13. **REMOVE FRONT NO. 1 STABILIZER BRACKET LH**
 - a. Remove the 2 bolts and front No. 1 stabilizer bracket LH from the front frame assembly.



P

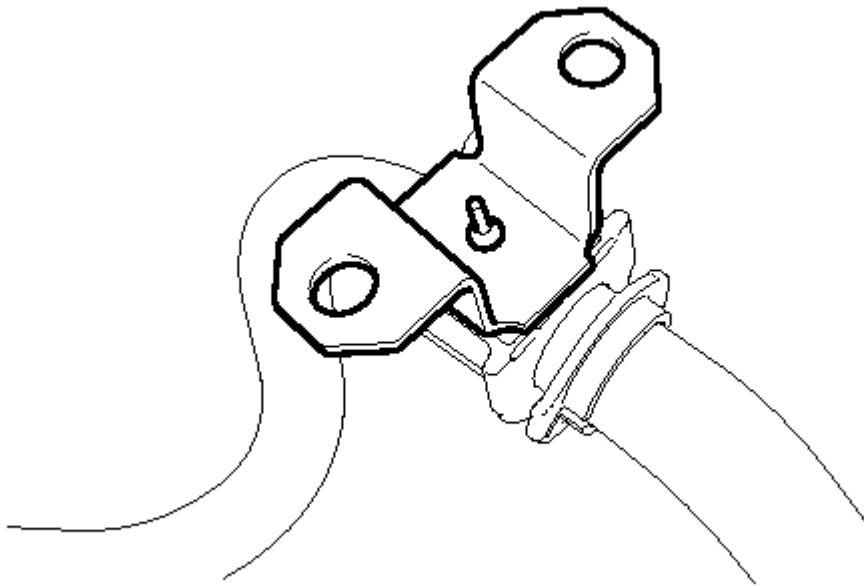
Fig. 45: Identifying Front No. 1 Stabilizer Bracket LH & Fasteners
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

14. REMOVE FRONT NO. 1 STABILIZER BRACKET RH

HINT:

Perform the same procedure as the LH side.

15. REMOVE FRONT NO. 2 STABILIZER BRACKET LH (for 1AR-FE)



C

Fig. 46: Identifying No. 2 Front Stabilizer Bracket
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- a. Remove the front No. 2 stabilizer bracket LH from the front No. 1 stabilizer bar bushing.

16. REMOVE FRONT NO. 2 STABILIZER BRACKET RH (for 1AR-FE)

HINT:

Perform the same procedure as the LH side.

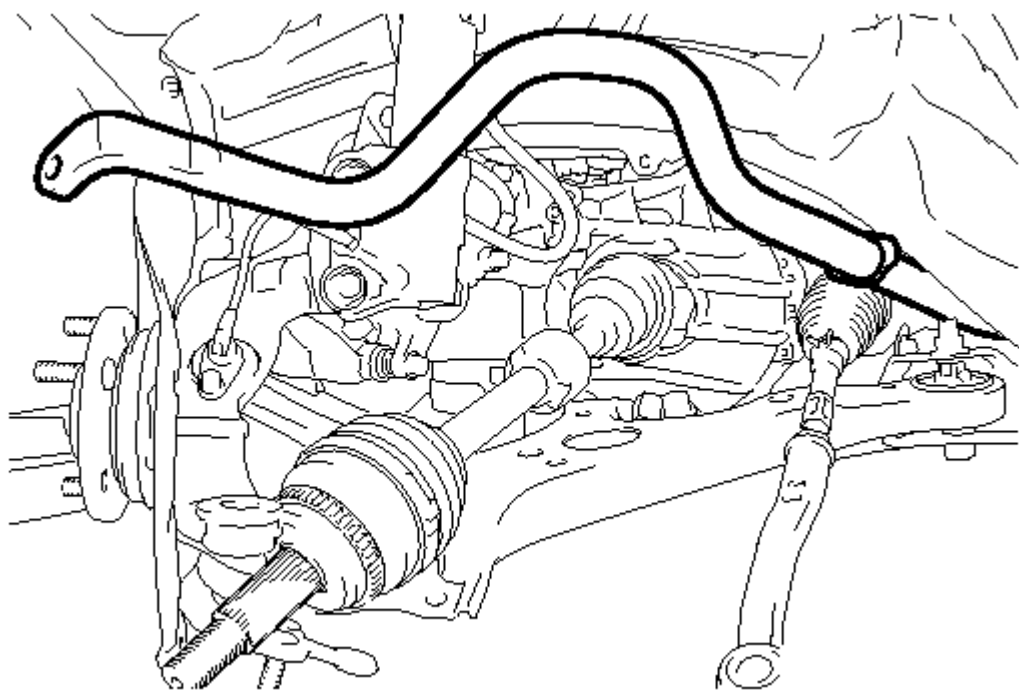
17. REMOVE FRONT NO. 1 STABILIZER BAR BUSHING

- a. Remove the 2 front No. 1 stabilizer bar bushings from the front stabilizer bar.

18. REMOVE STEERING LINK ASSEMBLY (for 1AR-FE) . Refer to REMOVAL - Step 18

19. REMOVE FRONT STABILIZER BAR

- a. Remove the front stabilizer bar from the left side of the vehicle.



P

Fig. 47: Identifying Front Stabilizer Bar From Left Side Of Vehicle
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

INSPECTION

INSPECTION

- 1. INSPECT FRONT STABILIZER LINK ASSEMBLY**
 - a. Inspect the turning torque of the ball joint.

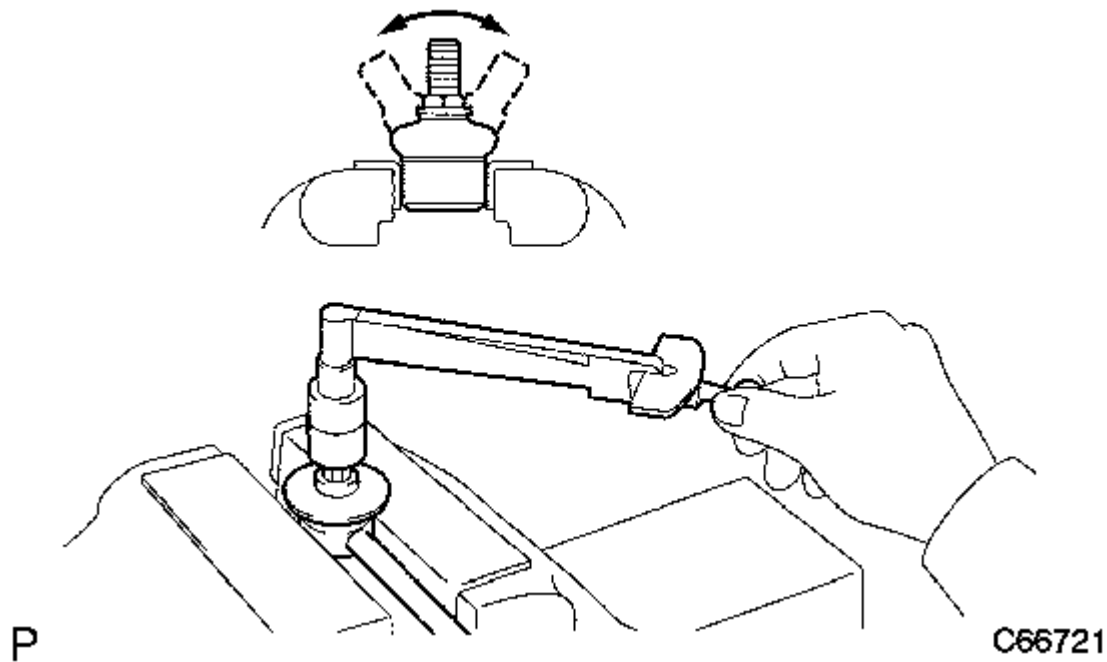


Fig. 48: Inspecting Front Stabilizer Link Assembly
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

1. Secure the front stabilizer link assembly in a vise using aluminum plates.
2. Install the nut to the front stabilizer link assembly stud.
3. Using a torque wrench, turn the nut continuously at a rate of 3 to 5 seconds per turn and take the torque reading on the 5th turn.

Turning torque

0.05 to 1.96 N*m (0.5 to 20 kgf*cm, 0.4 to 17 in.*lbf)

If the turning torque is not within the specified range, replace the front stabilizer link assembly with a new one.

- b. Inspect the dust cover.
 1. Check that the dust cover is not cracked and that there is no grease on it.

INSTALLATION

INSTALLATION

NOTE: When disconnecting the steering intermediate shaft assembly and pinion shaft of steering link assembly, be sure to place matchmarks before servicing.

1. INSTALL FRONT STABILIZER BAR

- a. Install the front stabilizer bar from the left side of the vehicle.

2. **INSTALL STEERING LINK ASSEMBLY (for 1AR-FE)** . Refer to **INSTALLATION - Step 3**
3. **INSTALL FRONT NO. 1 STABILIZER BAR BUSHING**
 - a. Install the 2 front No. 1 stabilizer bar bushings to the front stabilizer bar as shown in the illustration.

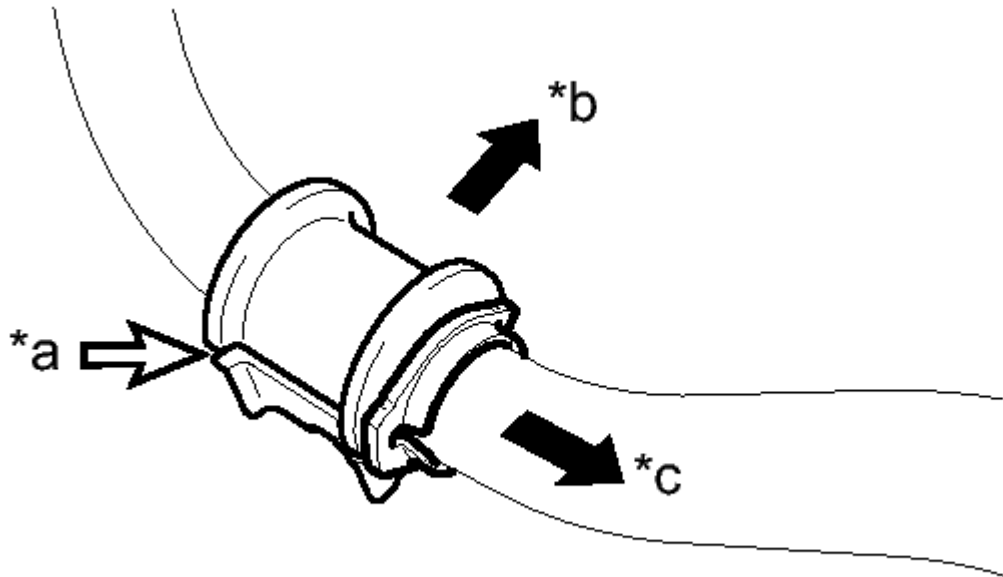


Fig. 49: Installing Front No. 1 Stabilizer Bar Bushing
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

*a	Cutout
*b	Front of the Vehicle
*c	Inside of the Vehicle

NOTE: When installing the front No. 1 stabilizer bar bushings, make sure that the cutout faces the rear of the vehicle.

4. **INSTALL FRONT NO. 2 STABILIZER BRACKET LH (for 1AR-FE)**
 - a. Install the front No. 2 stabilizer bracket LH to the front No. 1 stabilizer bar bushing.
5. **INSTALL FRONT NO. 2 STABILIZER BRACKET RH (for 1AR-FE)**

HINT:

Perform the same procedure as the LH side.

6. INSTALL FRONT NO. 1 STABILIZER BRACKET LH

- a. Install the front No. 1 stabilizer bracket LH to the front frame assembly with the 2 bolts.

Torque: 30 N*m (306 kgf*cm, 22 ft.*lbf)

7. INSTALL FRONT NO. 1 STABILIZER BRACKET RH

HINT:

Perform the same procedure as the LH side.

8. INSTALL STEERING INTERMEDIATE SHAFT ASSEMBLY (for 1AR-FE) . Refer to INSTALLATION - Step 9

9. INSTALL FRONT DRIVE SHAFT ASSEMBLY LH . Refer to INSTALLATION - Step 6

10. INSTALL FRONT LOWER SUSPENSION ARM SUB-ASSEMBLY LH . Refer to INSTALLATION - Step 7

11. INSTALL FRONT STABILIZER LINK ASSEMBLY LH

- a. Install the front stabilizer link assembly LH with the nut.

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

HINT:

If the ball joint turns together with the nut, use a hexagon wrench (6 mm) to hold the stud bolt.

12. INSTALL FRONT STABILIZER LINK ASSEMBLY RH

HINT:

Perform the same procedure as the LH side.

13. CONNECT TIE ROD ASSEMBLY LH . Refer to INSTALLATION - Step 9

14. CONNECT TIE ROD ASSEMBLY RH (for 1AR-FE)

HINT:

Perform the same procedure as the LH side.

15. INSTALL FRONT SPEED SENSOR LH . Refer to INSTALLATION - Step 10

16. INSTALL FRONT AXLE SHAFT NUT LH . Refer to INSTALLATION - Step 12

17. INSTALL FRONT EXHAUST PIPE ASSEMBLY (for 1AR-FE) . Refer to INSTALLATION - Step 8

18. INSTALL FRONT WHEELS

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

19. **INSPECT FOR EXHAUST GAS LEAK (for 1AR-FE)**
20. **INSPECT SPEED SENSOR SIGNAL**

Refer to **TEST MODE PROCEDURE**

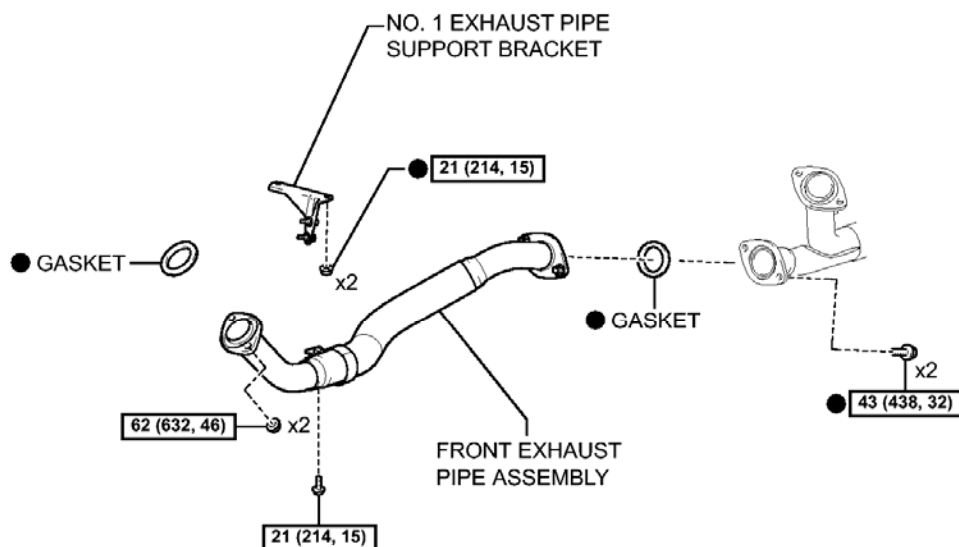
- ## 21. INSPECT AND ADJUST FRONT WHEEL ALIGNMENT

Refer to **ADJUSTMENT**

FRONT STABILIZER BAR (FOR AWD)

COMPONENTS

ILLUSTRATION



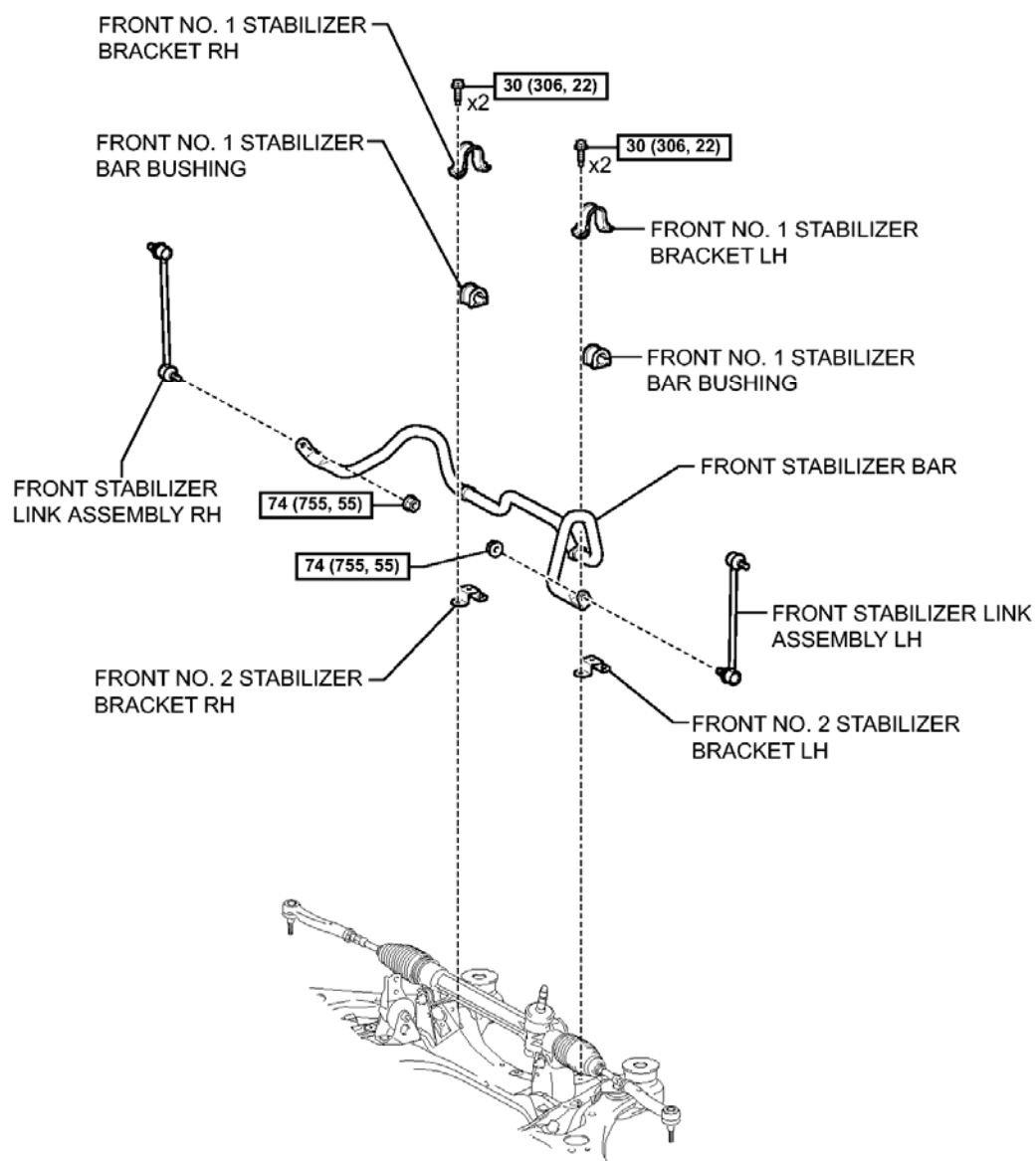
N*m (kgf*cm, ft*lbf) : Specified torque

- Non-reusable part

P

Fig. 50: Front Stabilizer Bar Replacement Components With Torque Specifications (1 of 2)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

ILLUSTRATION



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

P

Fig. 51: Front Stabilizer Bar Replacement Components With Torque Specifications (2 of 2)
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

REMOVAL

REMOVAL

1. REMOVE FRONT DRIVE SHAFT ASSEMBLY LH

Refer to **REMOVAL**

2. REMOVE EXHAUST MANIFOLD TO HEAD GASKET

Refer to **REMOVAL**

3. REMOVE NO. 1 EXHAUST PIPE SUPPORT BRACKET . Refer to **REMOVAL - Step 4**

4. REMOVE FRONT EXHAUST PIPE ASSEMBLY . Refer to **REMOVAL - Step 5**

5. REMOVE FRONT STABILIZER LINK ASSEMBLY LH

- a. Remove the 2 nuts and front stabilizer link assembly LH.

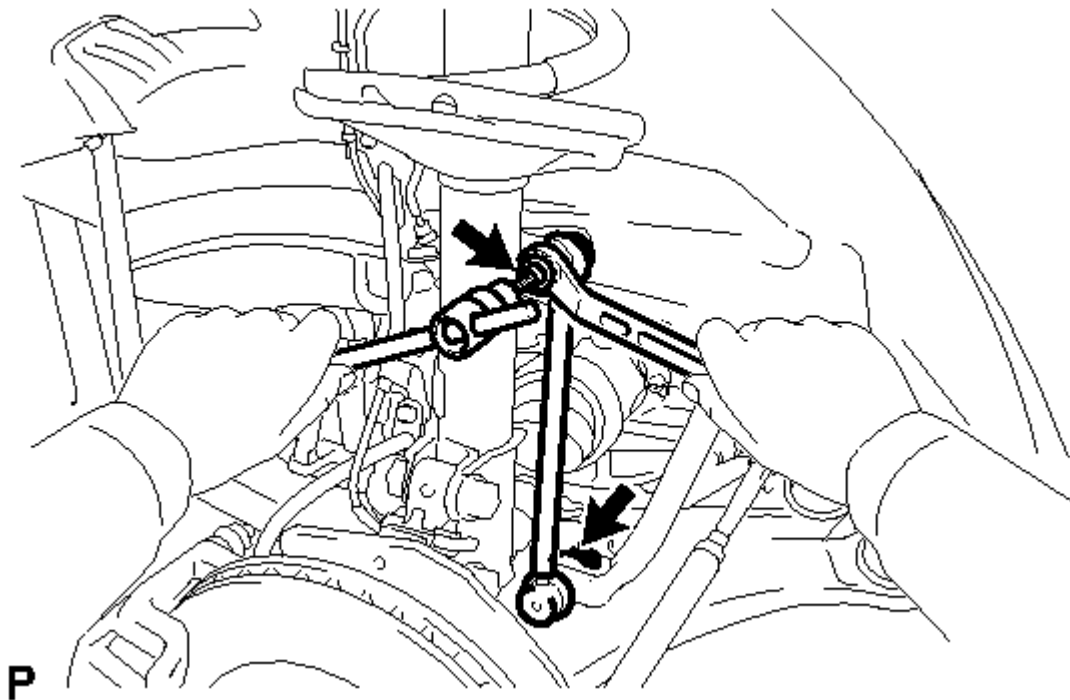


Fig. 52: Removing Front Stabilizer Link Assembly LH & Fasteners
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

HINT:

If the ball joint turns together with the nut, use a hexagon wrench (6 mm) to hold the stud bolt.

6. REMOVE FRONT STABILIZER LINK ASSEMBLY RH

HINT:

Perform the same procedure as the LH side.

7. REMOVE FRONT NO. 1 STABILIZER BRACKET LH

- a. Remove the 2 bolts and front No. 1 stabilizer bracket LH from the front frame assembly.

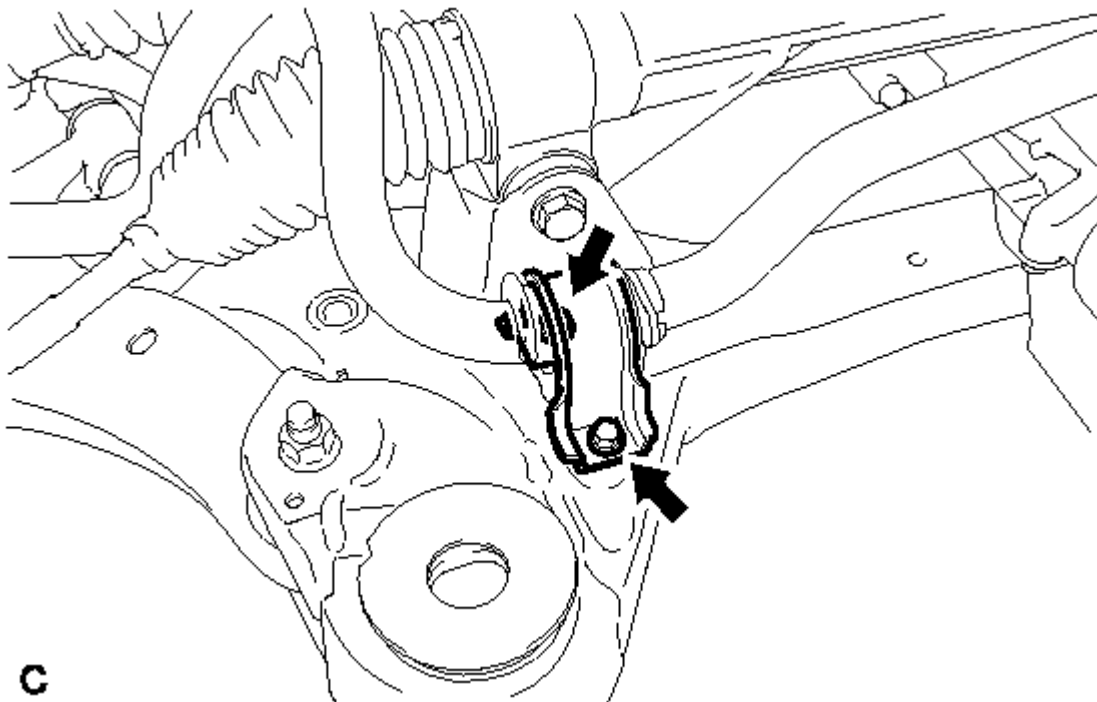


Fig. 53: Identifying Front No. 1 Stabilizer Bracket RH (For AWD)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

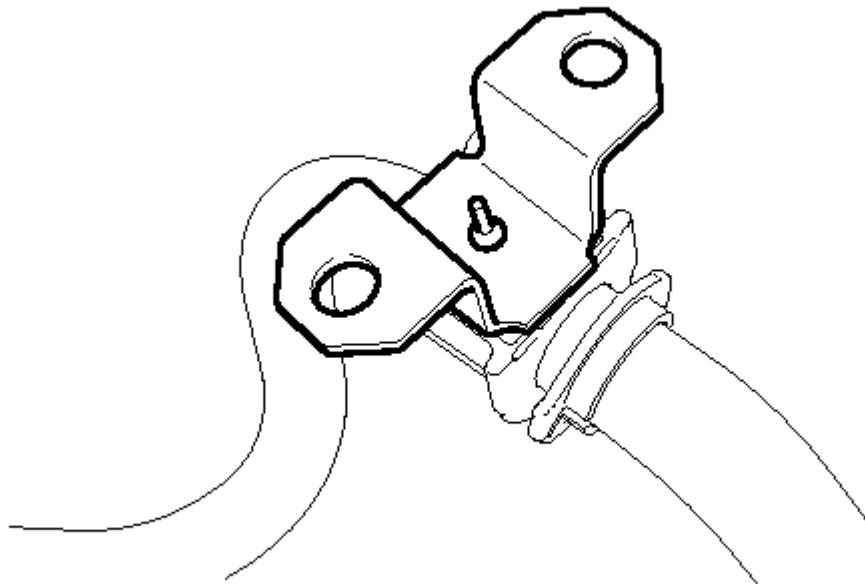
8. REMOVE FRONT NO. 1 STABILIZER BRACKET RH

HINT:

Perform the same procedure as the LH side.

9. REMOVE FRONT NO. 2 STABILIZER BRACKET LH

- a. Remove the front No. 2 stabilizer bracket LH from the front stabilizer bar bushing.



C

Fig. 54: Identifying No. 2 Front Stabilizer Bracket
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

10. REMOVE FRONT NO. 2 STABILIZER BRACKET RH

HINT:

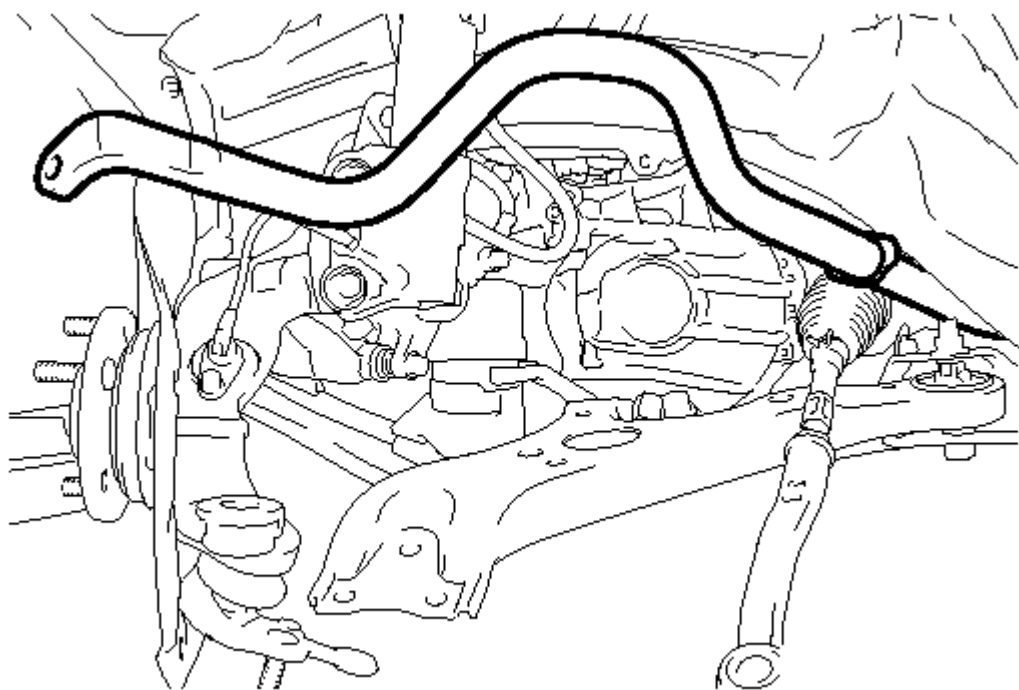
Perform the same procedure as the LH side.

11. REMOVE FRONT NO. 1 STABILIZER BAR BUSHING

- a. Remove the 2 front No. 1 stabilizer bar bushings from the front stabilizer bar.

12. REMOVE FRONT STABILIZER BAR

- a. Remove the front stabilizer bar from the left side of the vehicle.



P

Fig. 55: Identifying Front Stabilizer Bar From Left Side Of Vehicle
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

INSPECTION

INSPECTION

- 1. INSPECT FRONT STABILIZER LINK ASSEMBLY**
 - a. Inspect the turning torque of the ball joint.

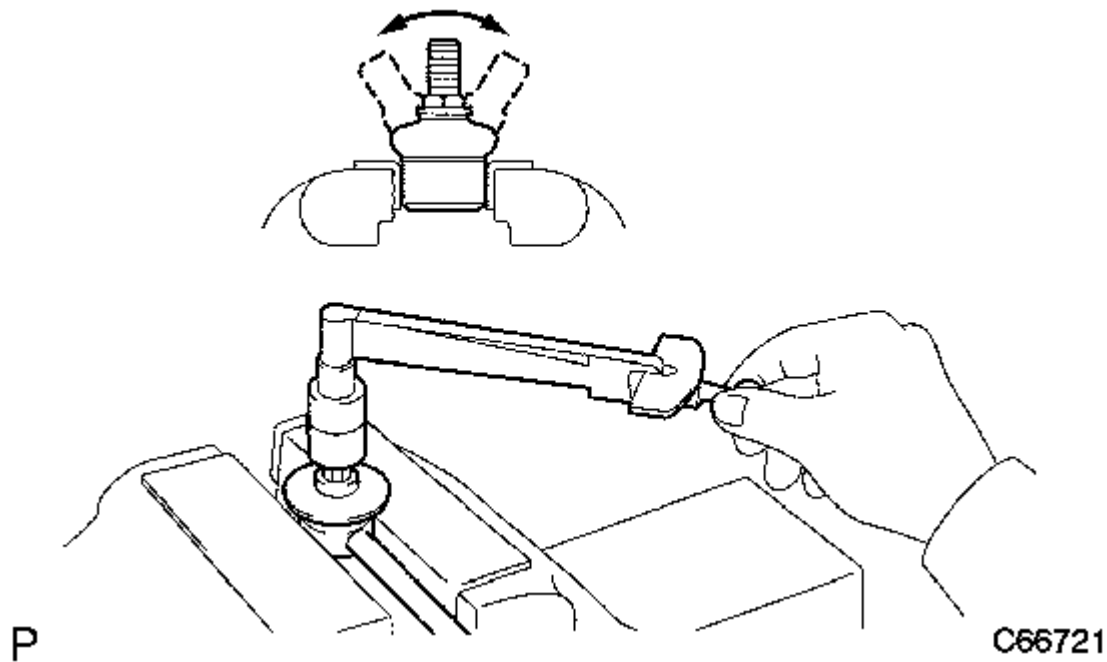


Fig. 56: Inspecting Front Stabilizer Link Assembly
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

1. Secure the front stabilizer link assembly in a vise using aluminum plates.
2. Install the nut to the front stabilizer link assembly stud.
3. Using a torque wrench, turn the nut continuously at a rate of 3 to 5 seconds per turn and take the torque reading on the 5th turn.

Turning torque

0.05 to 1.96 N*m (0.5 to 20 kgf*cm, 0.4 to 17 in.*lbf)

If the turning torque is not within the specified range, replace the front stabilizer link assembly with a new one.

b. Inspect the dust cover.

1. Check that the dust cover is not cracked and that there is no grease on it.

INSTALLATION

INSTALLATION

1. INSTALL FRONT STABILIZER BAR

- a. Install the front stabilizer bar from the left side of the vehicle.

2. INSTALL FRONT NO. 1 STABILIZER BAR BUSHING

- a. Install the 2 front No. 1 stabilizer bar bushings to the front stabilizer bar as shown in the

illustration.

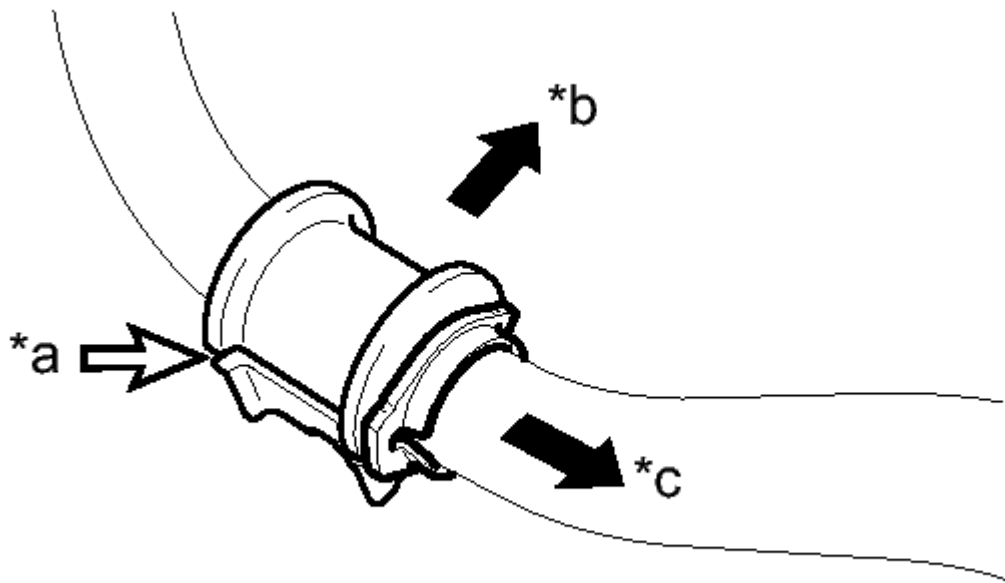


Fig. 57: Installing Front No. 1 Stabilizer Bar Bushing
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

*a	Cutout
*b	Front of the Vehicle
*c	Inside of the Vehicle

NOTE: When installing the front No. 1 stabilizer bar bushings, make sure that the cutout faces the rear of the vehicle.

3. INSTALL FRONT NO. 2 STABILIZER BRACKET LH

- a. Install the front No. 2 stabilizer bracket LH to the front No. 1 stabilizer bar bushing.

4. INSTALL FRONT NO. 2 STABILIZER BRACKET RH

HINT:

Perform the same procedure as the LH side.

5. INSTALL FRONT NO. 1 STABILIZER BRACKET LH

- a. Install the front No. 1 stabilizer bracket LH to the front frame assembly with the 2 bolts.

Torque: 30 N*m (306 kgf*cm, 22 ft.*lbf)

6. INSTALL FRONT NO. 1 STABILIZER BRACKET RH

HINT:

Perform the same procedure as the LH side.

7. INSTALL FRONT STABILIZER LINK ASSEMBLY LH

- a. Install the front stabilizer link assembly LH with the 2 nuts.

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

HINT:

If the ball joint turns together with the nut, use a hexagon wrench (6 mm) to hold the stud bolt.

8. INSTALL FRONT STABILIZER LINK ASSEMBLY RH

HINT:

Perform the same procedure as the LH side.

9. INSTALL FRONT EXHAUST PIPE ASSEMBLY . Refer to INSTALLATION - Step 3

10. INSTALL NO. 1 EXHAUST PIPE SUPPORT BRACKET . Refer to INSTALLATION - Step 4

11. INSTALL EXHAUST MANIFOLD TO HEAD GASKET

Refer to INSTALLATION

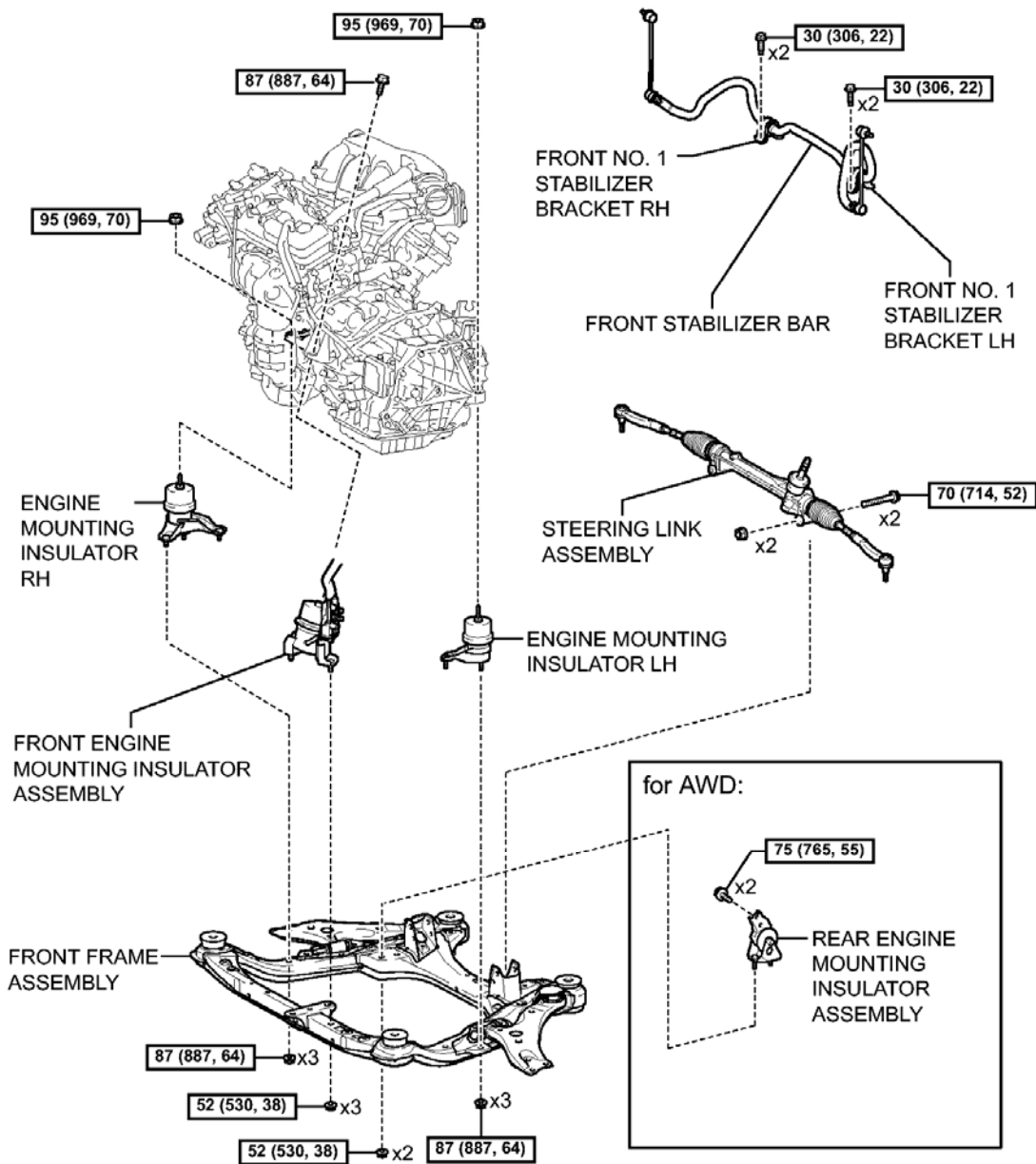
12. INSTALL FRONT DRIVE SHAFT ASSEMBLY LH

Refer to INSTALLATION

FRONT SUSPENSION MEMBER

COMPONENTS

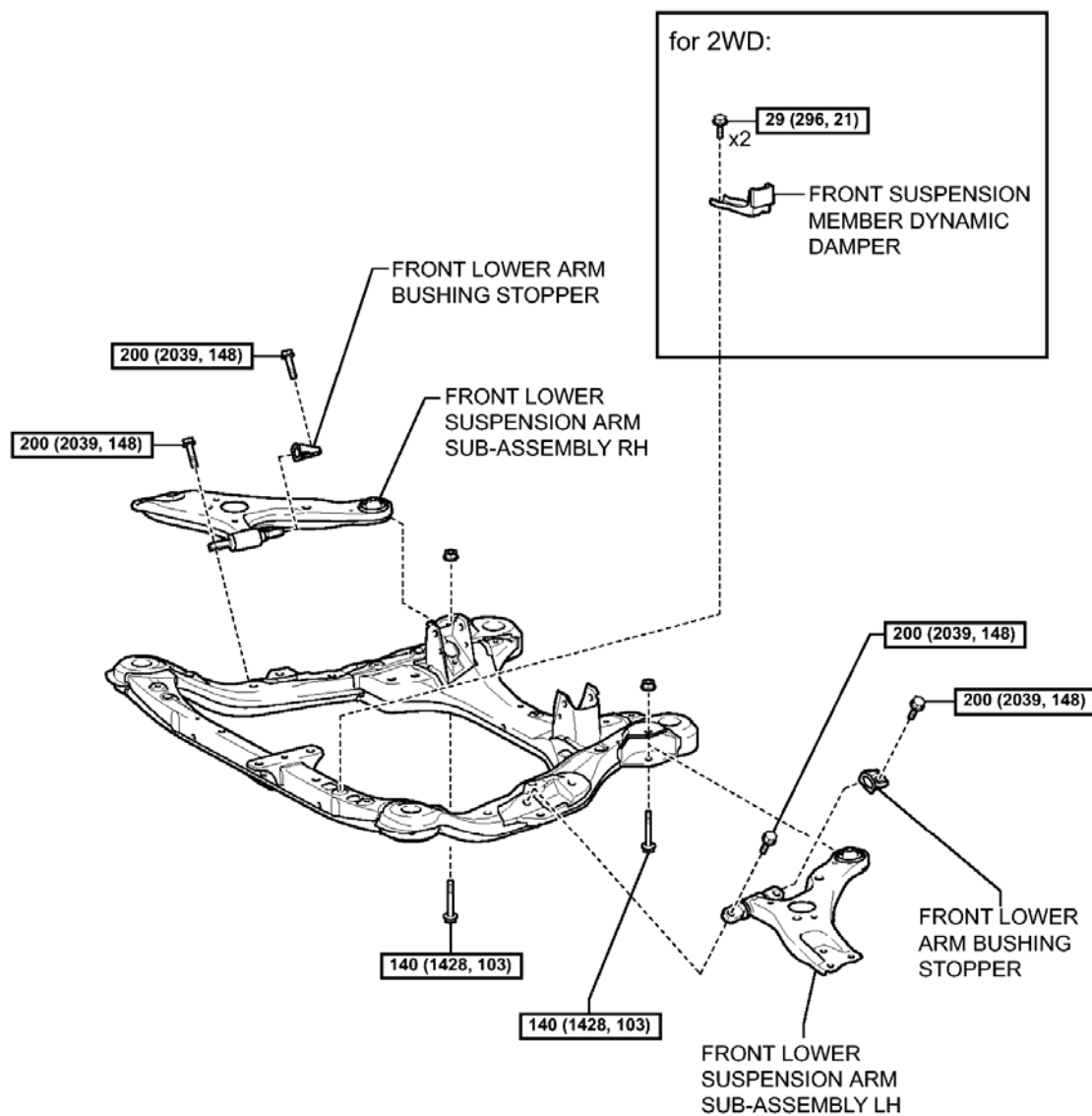
ILLUSTRATION



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

Fig. 58: Front Suspension Member Replacement Components With Torque Specifications (1 of 3)
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

ILLUSTRATION

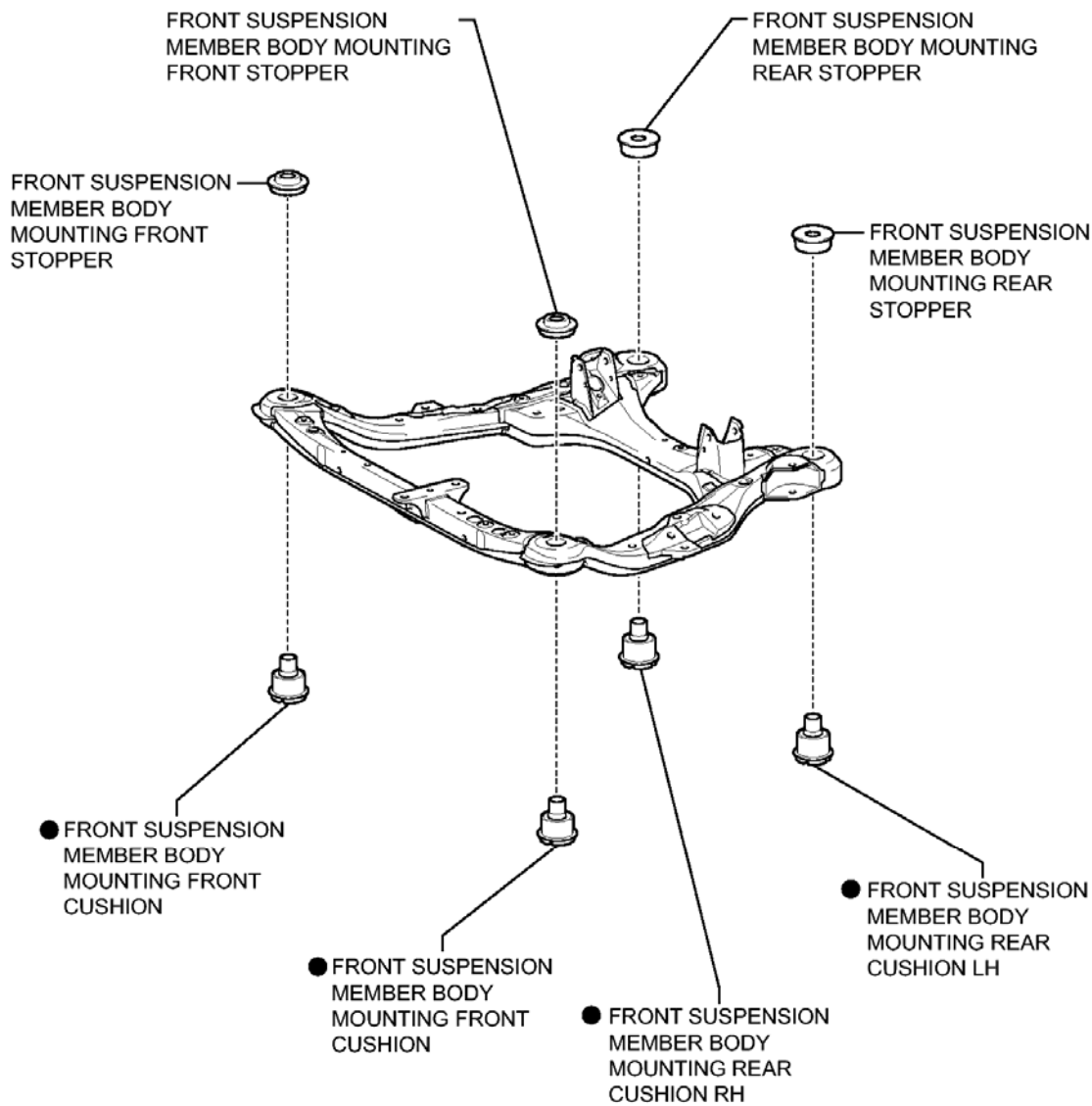


N*m (kgf*cm, ft*lbf) : Specified torque

P

Fig. 59: Front Suspension Member Replacement Components With Torque Specifications (2 of 3)
 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. 60: Front Suspension Member Replacement Components With Torque Specifications (3 of 3)
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

REMOVAL

REMOVAL

1. REMOVE ENGINE ASSEMBLY WITH TRANSAXLE (for 2GR-FE)

Refer to **REMOVAL**

2. REMOVE ENGINE ASSEMBLY WITH TRANSAXLE (for 1AR-FE)

Refer to **REMOVAL**

3. REMOVE FRONT NO. 1 STABILIZER BRACKET LH See step 7

4. REMOVE FRONT NO. 1 STABILIZER BRACKET RH

HINT:

Perform the same procedure as the LH side.

5. REMOVE FRONT STABILIZER BAR

6. REMOVE STEERING LINK ASSEMBLY . Refer to **REMOVAL - Step 5**

7. SEPARATE FRONT ENGINE MOUNTING INSULATOR ASSEMBLY . Refer to **REMOVAL - Step 76**

8. SEPARATE ENGINE MOUNTING INSULATOR LH . Refer to **REMOVAL - Step 77**

9. SEPARATE ENGINE MOUNTING INSULATOR RH . Refer to **REMOVAL - Step 78**

10. SEPARATE REAR ENGINE MOUNTING INSULATOR ASSEMBLY (for AWD) . Refer to **REMOVAL - Step 79**

11. REMOVE FRONT ENGINE MOUNTING INSULATOR ASSEMBLY

- a. Remove the hole plug.
- b. Remove the 3 nuts and front engine mounting insulator assembly.

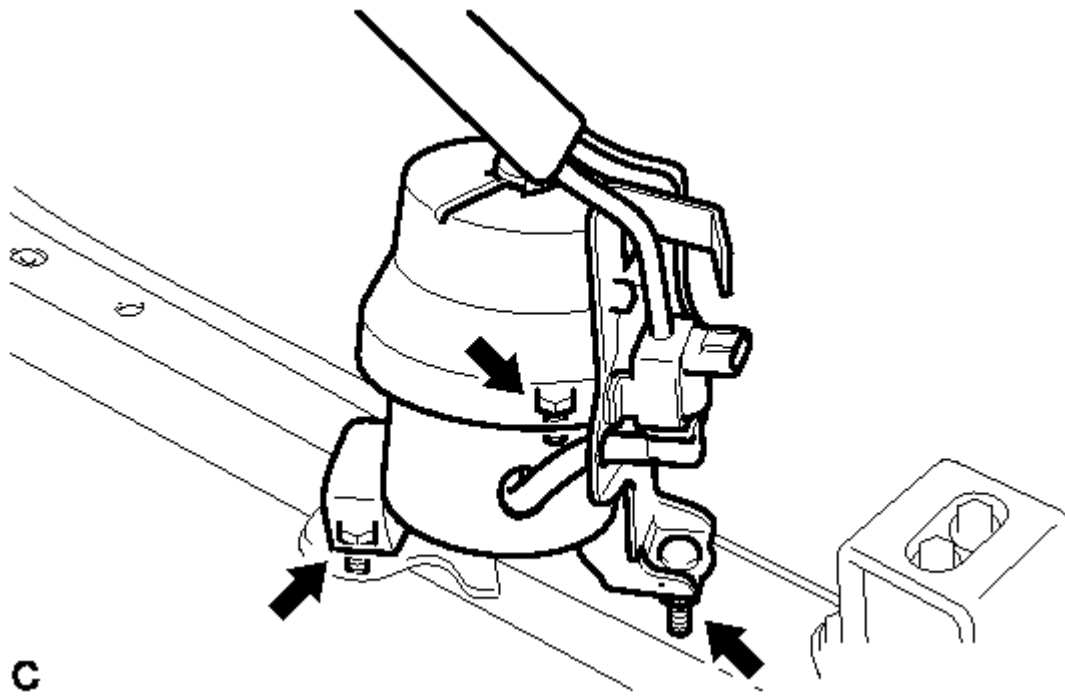


Fig. 61: Identifying Front Engine Mounting Insulator Assembly & Fasteners
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

12. REMOVE ENGINE MOUNTING INSULATOR LH

- a. Remove the 2 hole plugs.
- b. Remove the 3 nuts and engine mounting insulator LH.

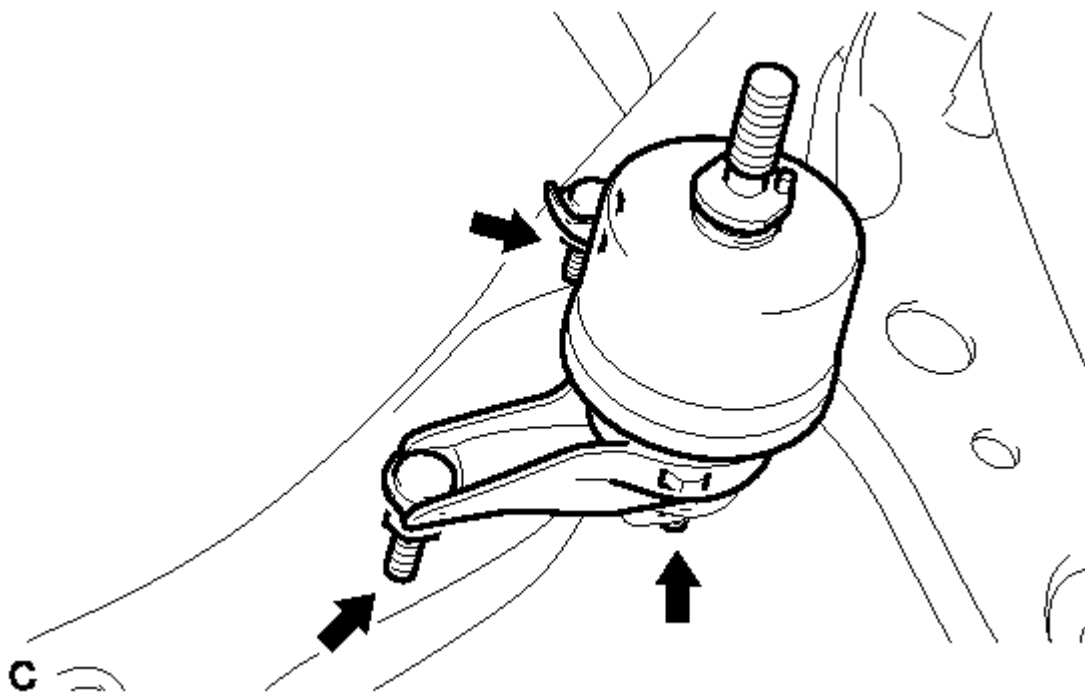


Fig. 62: Identifying Engine Mounting Insulator LH & Fasteners
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

13. REMOVE ENGINE MOUNTING INSULATOR RH

- a. Remove the 2 hole plugs.
- b. Remove the 3 nuts and engine mounting insulator RH.

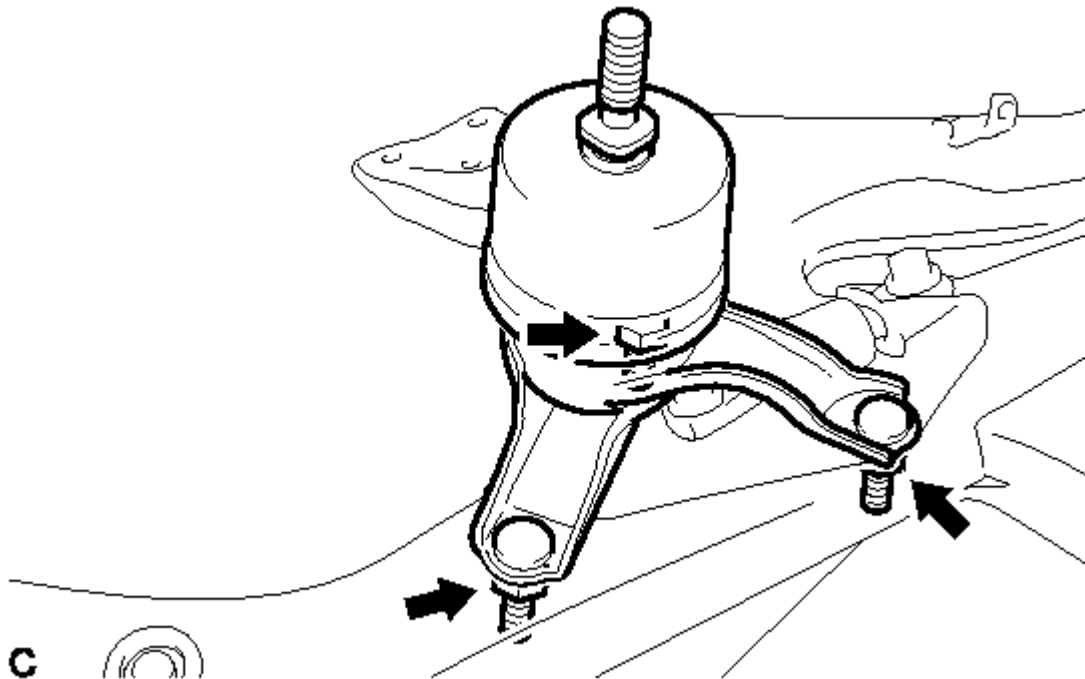
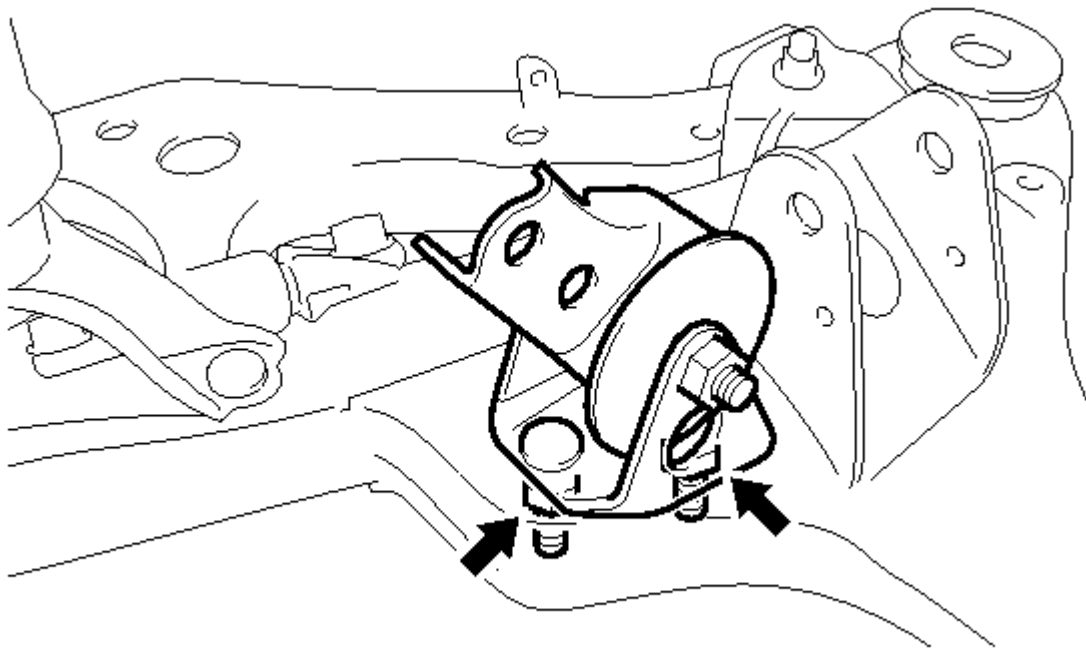


Fig. 63: Identifying Engine Mounting Insulator RH & Fasteners
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

14. REMOVE REAR ENGINE MOUNTING INSULATOR ASSEMBLY (for AWD)

- a. Remove the 2 hole plugs.
- b. Remove the 2 nuts and rear engine mounting insulator assembly.

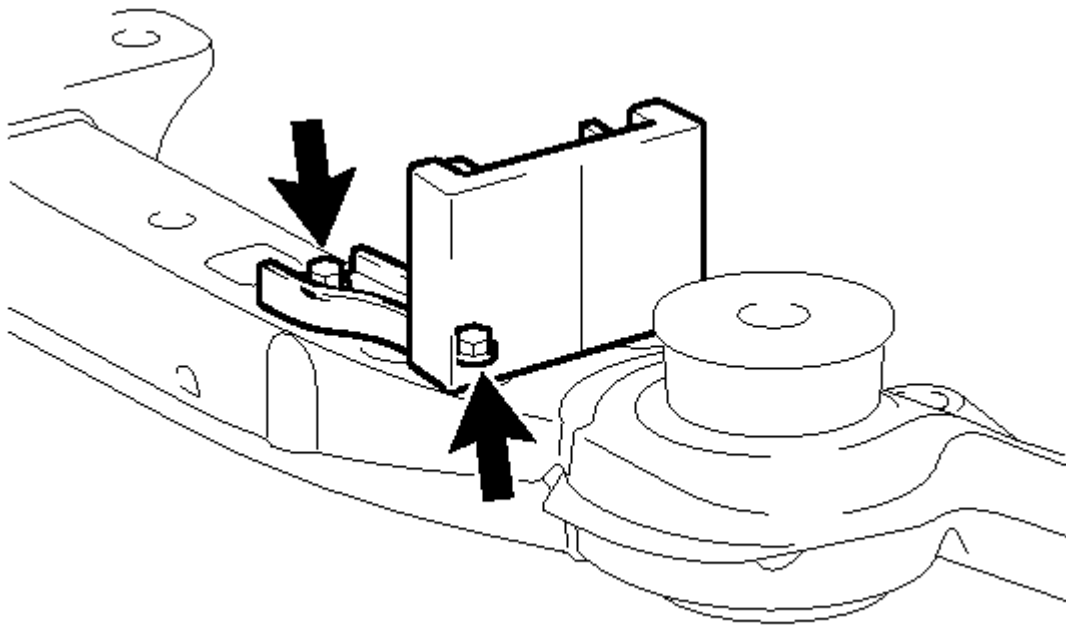


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Fig. 64: Identifying Rear Engine Mounting Insulator Assembly & Fasteners
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

NOTE: Do not remove the rear engine mounting insulator assembly through bolt. Doing so makes it difficult to install the rear engine mounting insulator assembly.

15. **REMOVE FRONT SUSPENSION MEMBER DYNAMIC DAMPER (for 2WD)**
 - a. Remove the 2 bolts and front suspension member dynamic damper.



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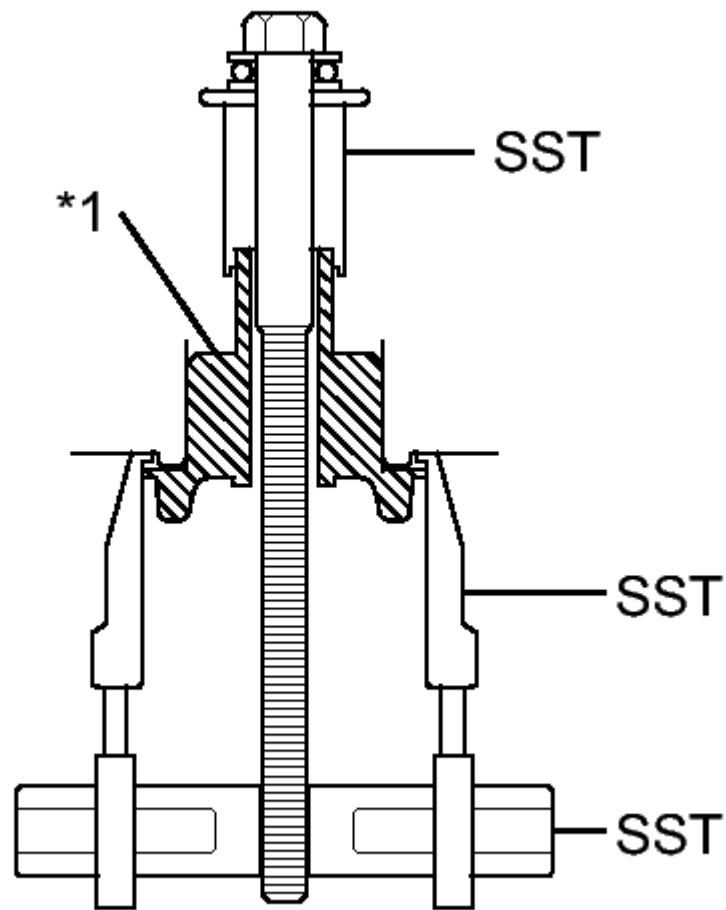
Fig. 65: Identifying Front Suspension Member Dynamic Damper & Fasteners
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

16. **REMOVE FRONT LOWER SUSPENSION ARM SUB-ASSEMBLY LH** See step 12
17. **REMOVE FRONT LOWER SUSPENSION ARM SUB-ASSEMBLY RH**

HINT:

Perform the same procedure as the LH side.

18. **REMOVE FRONT SUSPENSION MEMBER BODY MOUNTING FRONT STOPPER**
19. **REMOVE FRONT SUSPENSION MEMBER BODY MOUNTING REAR STOPPER**
20. **REMOVE FRONT SUSPENSION MEMBER BODY MOUNTING FRONT CUSHION**
 - a. Install SST as shown in the illustration.



C

Fig. 66: Identifying Front Suspension Member Body Mounting Front Cushion & SST
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

	Front Suspension Member
*1	Body Mounting Front Cushion

- **SST: 09830-10010**
 09830-01010
 09830-01040

09830-01050

- **SST: 09950-40011**

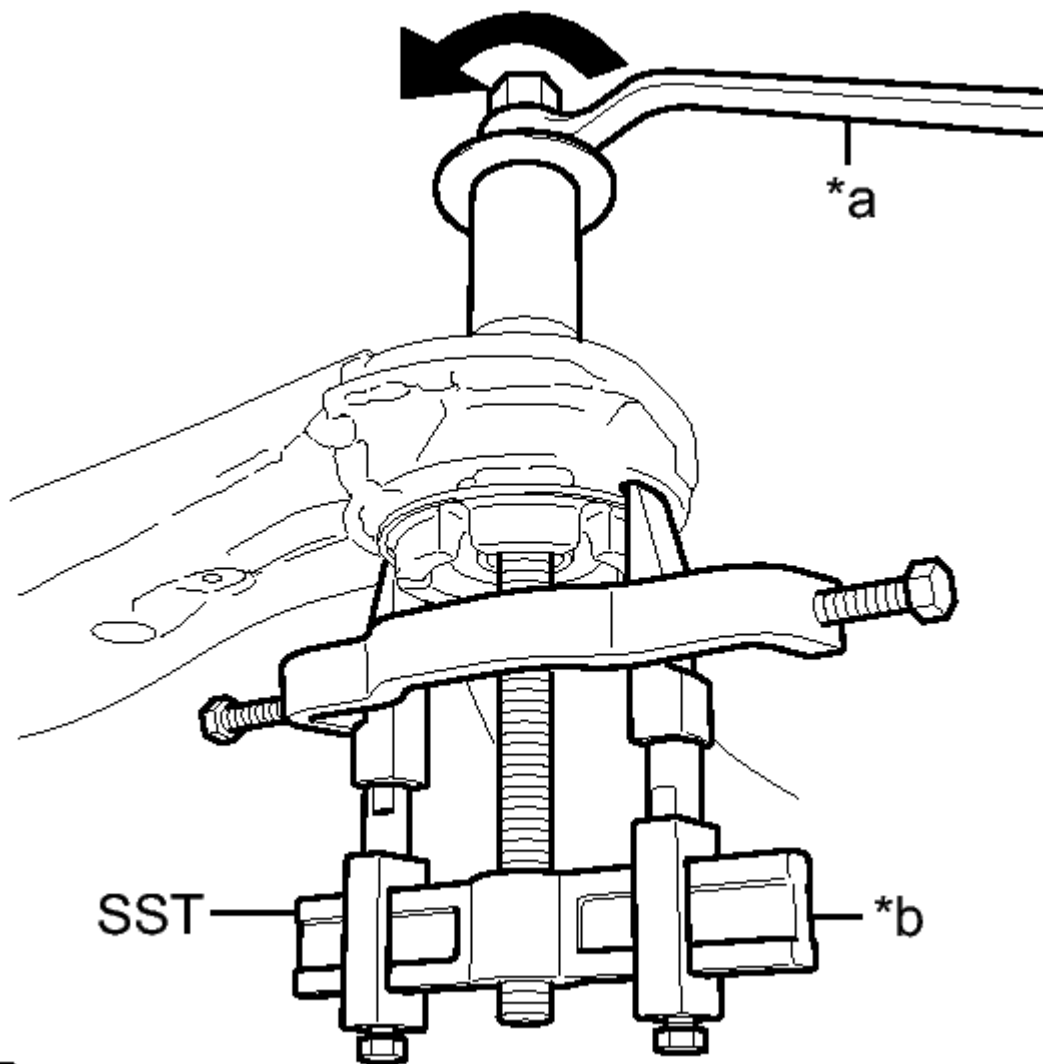
09951-04020

09952-04010

09954-04010

09955-04011

- b. Using SST, remove the front suspension member body mounting front cushion.



C

Fig. 67: Removing Front Suspension Member Body Mounting Front Cushion Using SST
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

*a	Turn
*b	Hold

NOTE:

- Make sure that the claws of SST are securely hung onto the mounting front cushion.
- Tighten SST slowly and evenly.
- Be careful as the mounting front cushion may fly out.
- The mounting front cushion cannot be reused.

21. REMOVE FRONT SUSPENSION MEMBER BODY MOUNTING REAR CUSHION LH

a. Install SST as shown in the illustration.

- **SST: 09830-10010**

09830-01010

09830-01040

09830-01050

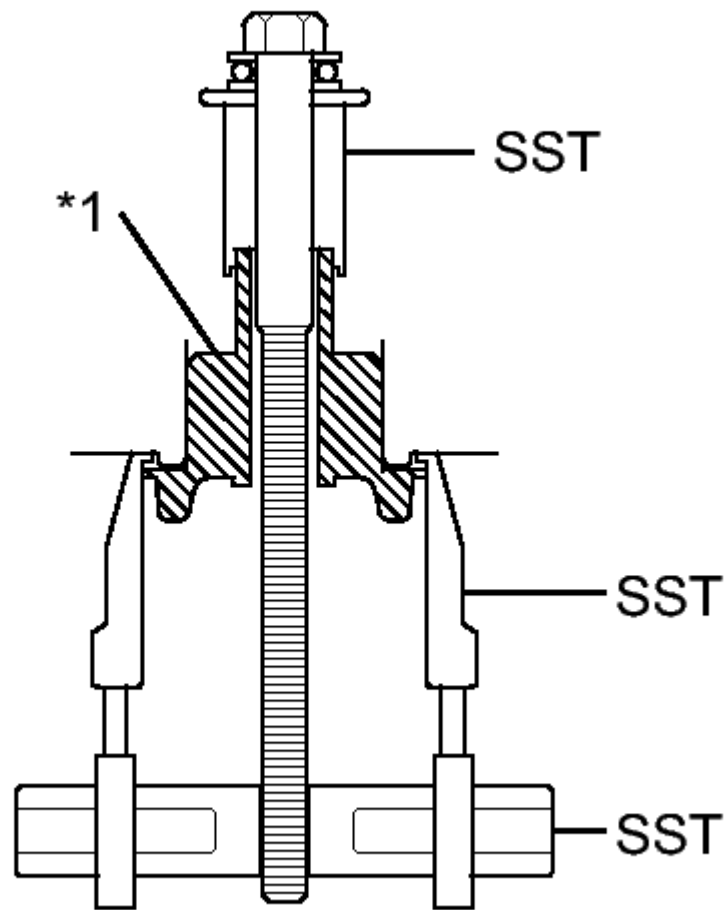
- **SST: 09950-40011**

09951-04020

09952-04010

09954-04010

09955-04011



C

Fig. 68: Identifying Front Suspension Member Body Mounting Front Cushion & SST
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

	Front Suspension Member
*1	Body Mounting Rear Cushion

- b. Using SST, remove the front suspension member body mounting rear cushion LH.

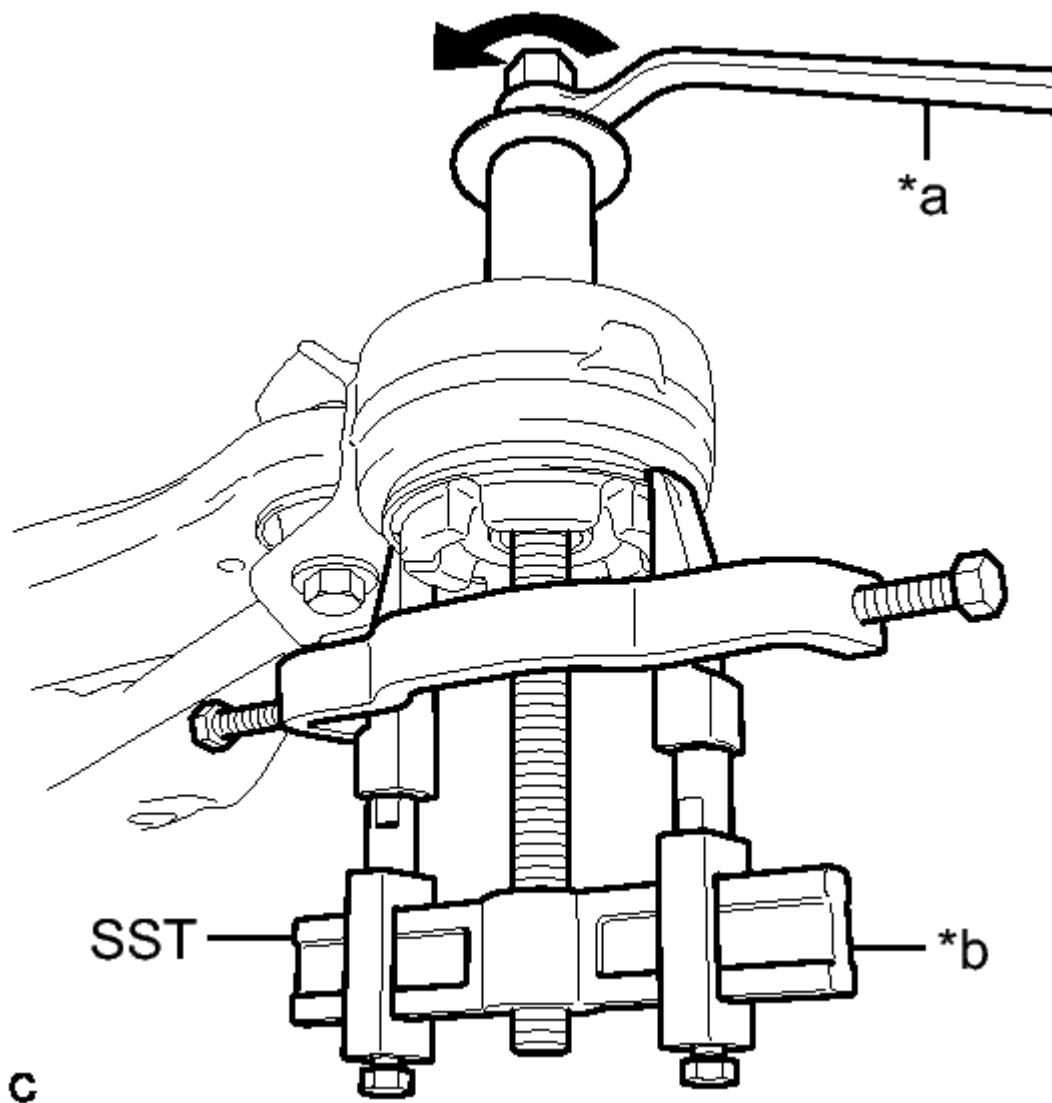


Fig. 69: Removing Front Suspension Member Body Mounting Rear Cushion LH Using SST
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

*a	Turn
*b	Hold

- **SST: 09830-10010**
 09830-01010
 09830-01040
 09830-01050
- **SST: 09950-40011**
 09951-04020
 09952-04010

09954-04010

09955-04011

NOTE:

- Make sure that the claws of SST are securely hung onto the mounting rear cushion.
- Tighten SST slowly and evenly.
- Be careful as the mounting rear cushion may fly out.
- The mounting rear cushion cannot be reused.

22. REMOVE FRONT SUSPENSION MEMBER BODY MOUNTING REAR CUSHION RH

HINT:

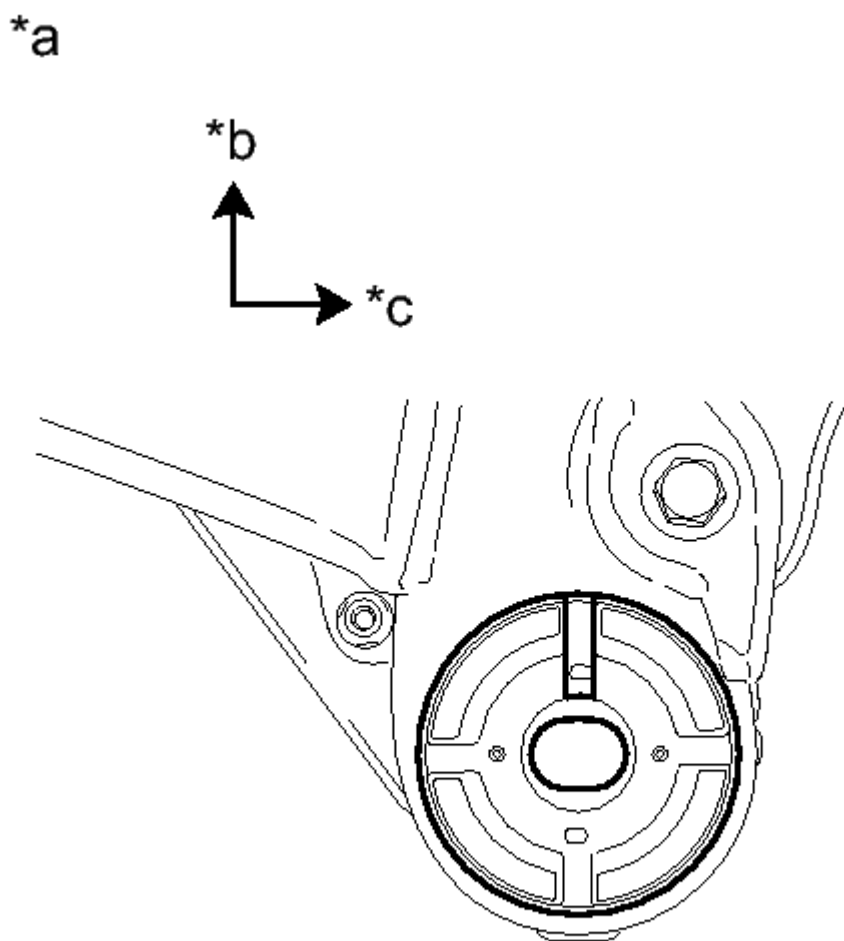
Perform the same procedure as the LH side.

INSTALLATION

INSTALLATION

1. INSTALL FRONT SUSPENSION MEMBER BODY MOUNTING REAR CUSHION LH

- a. Temporarily install a new front suspension member body mounting rear cushion LH while confirming the installation direction.



C

Fig. 70: Identifying Front Suspension Member Body Mounting Rear Cushion LH Installation Direction

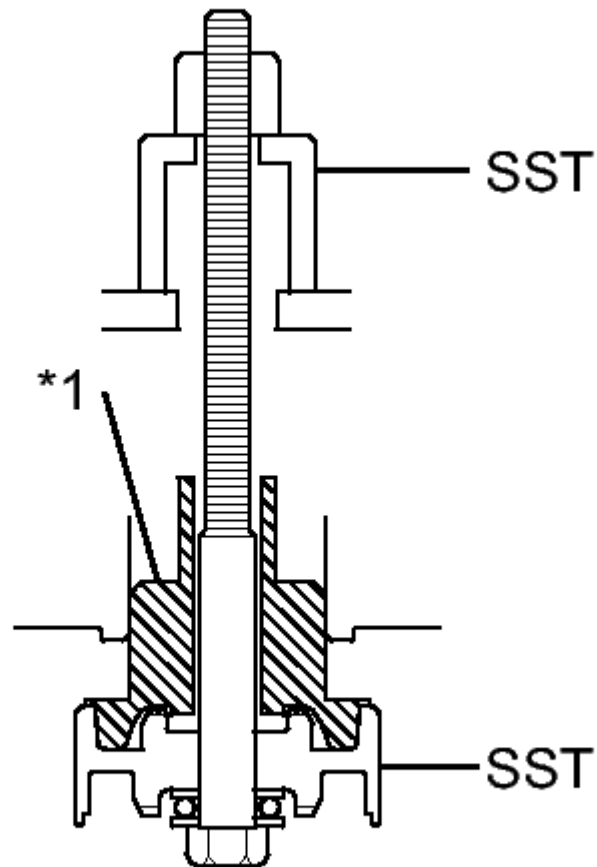
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

*a	View from Underneath
*b	Front of the Vehicle
*c	Left Side of the Vehicle

NOTE: Position the front suspension member body mounting rear cushion in the correct direction.

b. Install SST as shown in the illustration.



C

Fig. 71: Identifying Front Suspension Member Body Mounting Rear Cushion & SST
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

	Front Suspension Member
*1	Body Mounting Rear Cushion

- SST: 09830-10010

09830-01010

09830-01020

09830-01030

09830-01060

- c. Using SST, install the front suspension member body mounting rear cushion LH as shown in the illustration.

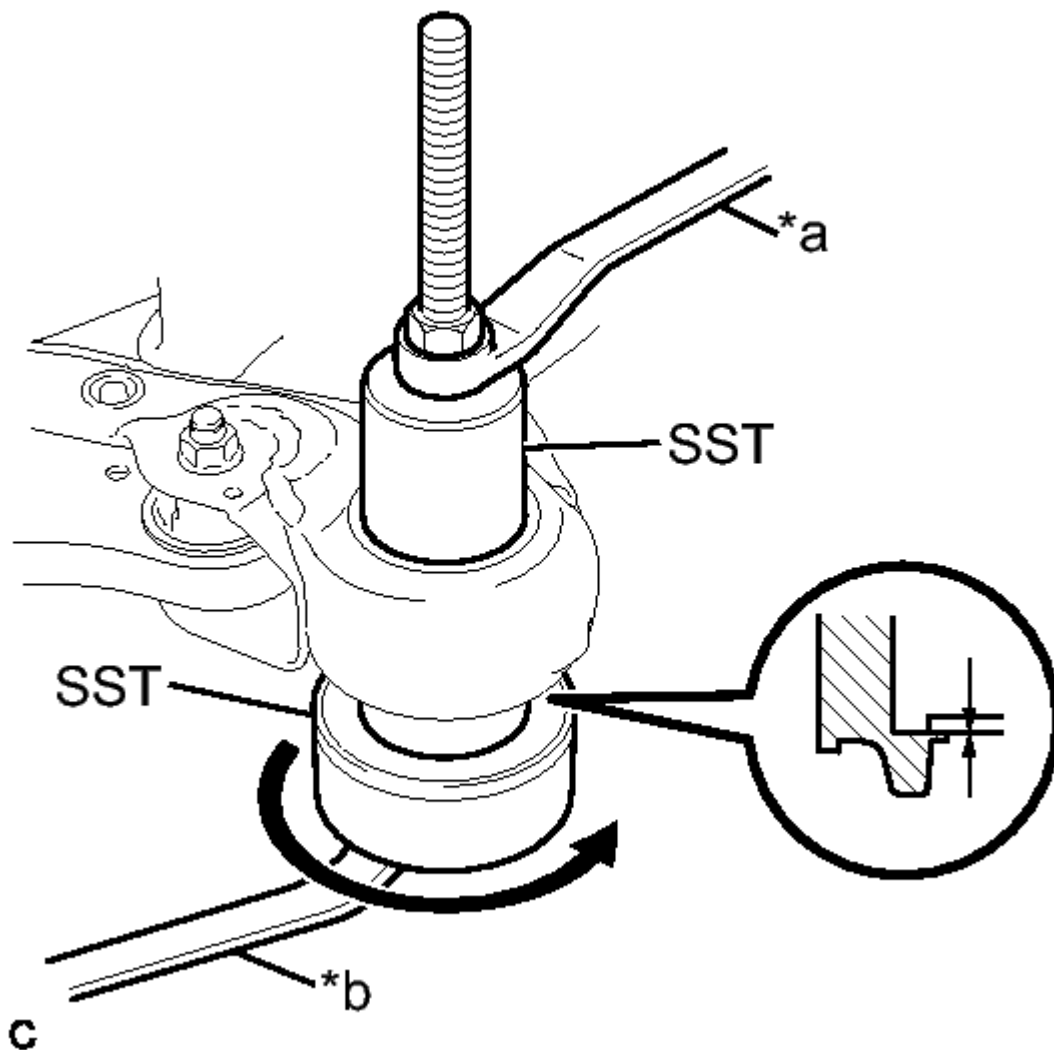


Fig. 72: Installing Front Suspension Member Body Mounting Rear Cushion LH Using SST
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

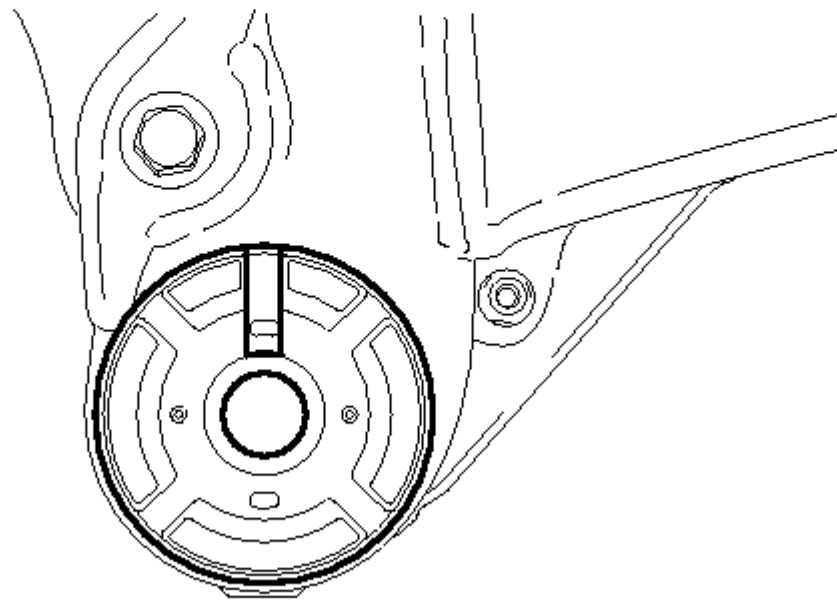
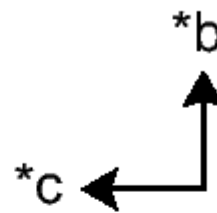
*a	Hold
*b	Turn

NOTE: Make sure that there is no clearance between the front suspension member and front suspension member body mounting rear cushion LH.

2. INSTALL FRONT SUSPENSION MEMBER BODY MOUNTING REAR CUSHION RH

- a. Temporarily install a new front suspension member body mounting rear cushion RH while confirming the installation direction.

***a**



C

Fig. 73: Identifying Front Suspension Member Body Mounting Rear Cushion RH Installation Direction

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

TEXT IN ILLUSTRATION

*a	View from Underneath

*b	Front of the Vehicle
*c	Right Side of the Vehicle

NOTE: **Position the front suspension member body mounting rear cushion in the correct direction.**

- b. Using SST, install the front suspension member body mounting rear cushion RH.

- **SST: 09830-10010**

09830-01010

09830-01020

09830-01030

09830-01060

HINT:

Perform the same procedure as the LH side.

3. INSTALL FRONT SUSPENSION MEMBER BODY MOUNTING FRONT CUSHION

- a. Temporarily install a new front suspension member body mounting front cushion while confirming the installation direction.

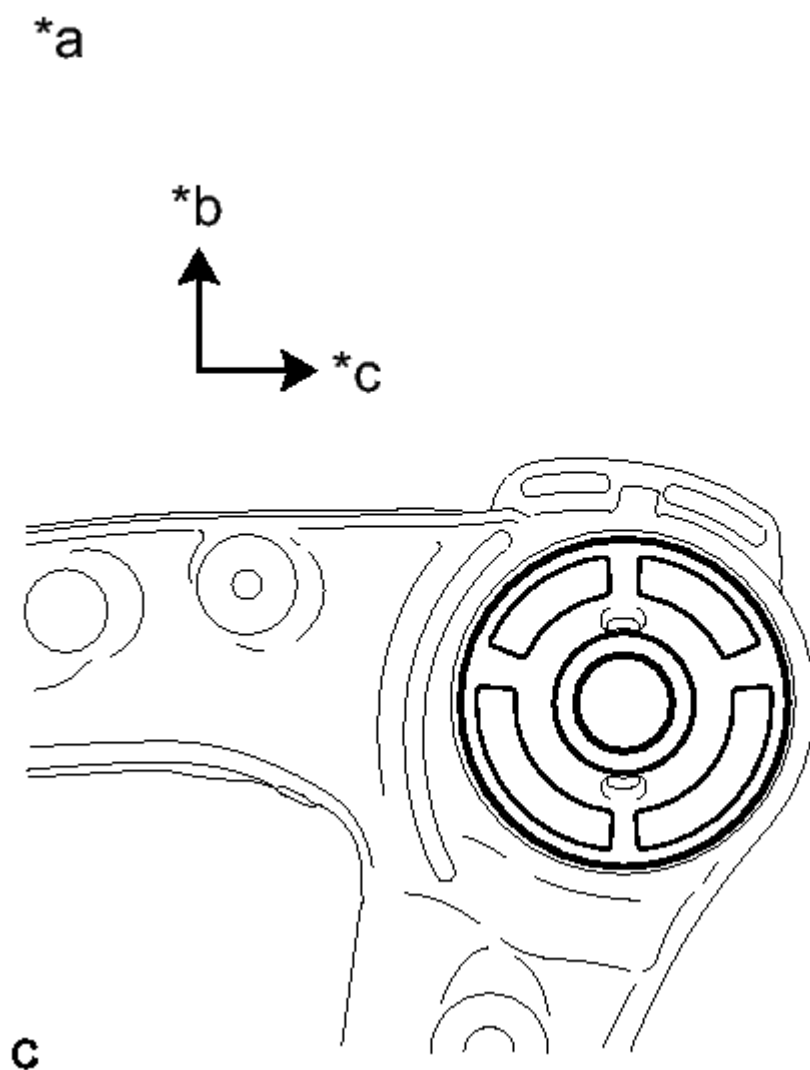


Fig. 74: Identifying Front Suspension Member Body Mounting Front Cushion Installation Direction

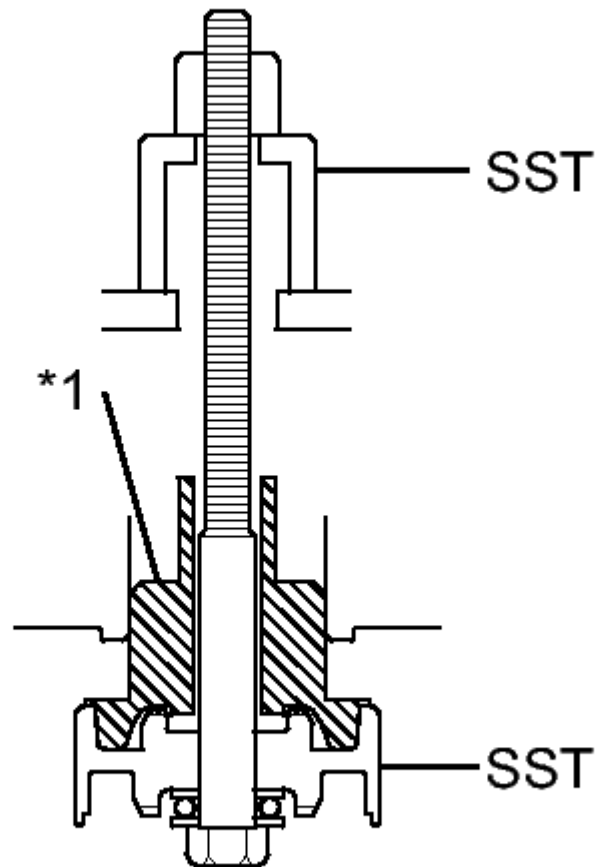
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

*a	View from Underneath
*b	Front of the Vehicle
*c	Outside of the Vehicle

NOTE: Position the front suspension member body mounting front cushion in the correct direction.

b. Install SST as shown in the illustration.



C

Fig. 75: Identifying Front Suspension Member Body Mounting Rear Cushion & SST
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

	Front Suspension Member
*1	Body Mounting Front Cushion

- SST: 09830-10010

09830-01010

09830-01020

09830-01030

09830-01060

- c. Using SST, install the front suspension member body mounting front cushion as shown in the illustration.

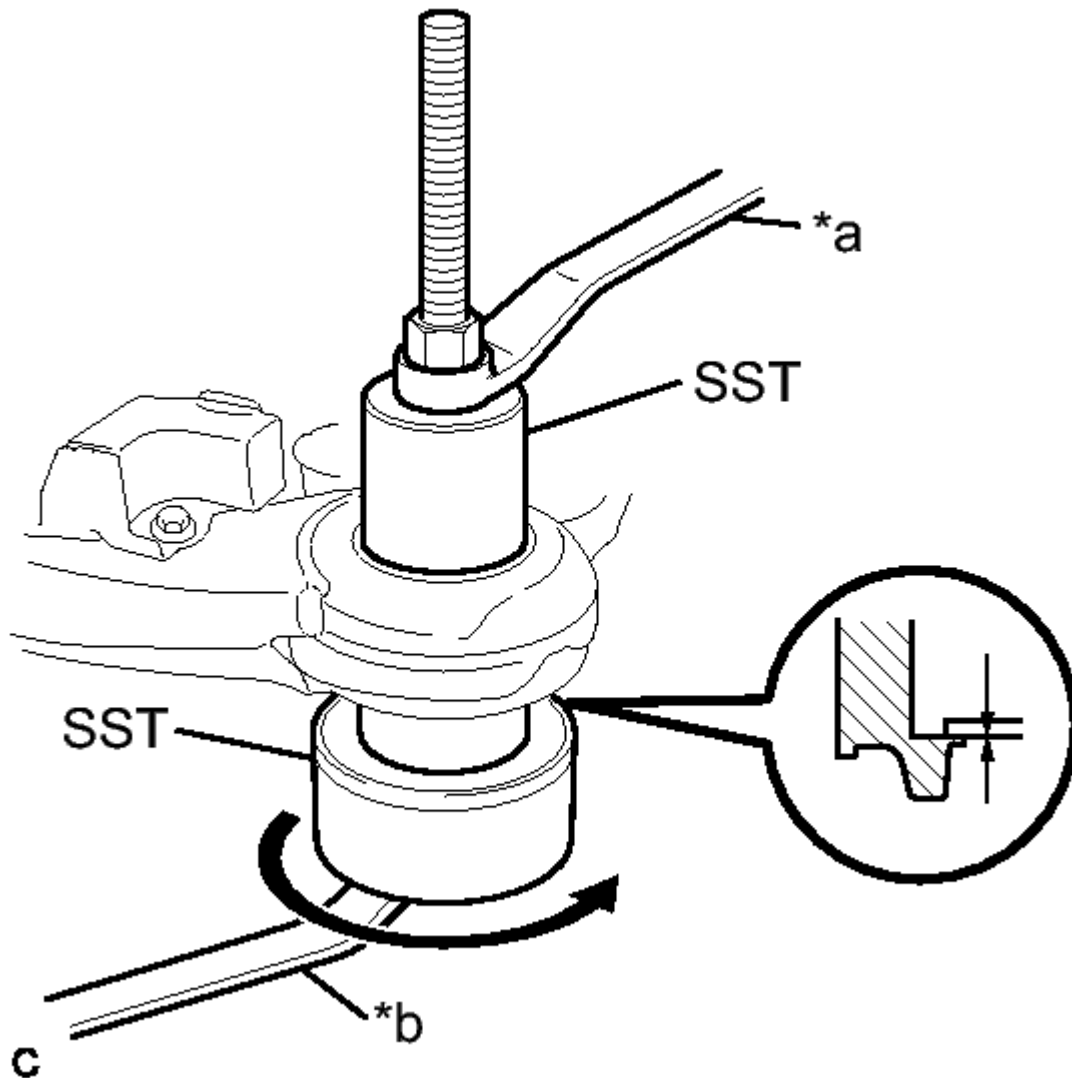


Fig. 76: Installing Front Suspension Member Body Mounting Front Cushion Using SST
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

*a	Hold
*b	Turn

NOTE: Make sure that there is no clearance between the front suspension member and front suspension member body mounting front cushion.

4. **INSTALL FRONT SUSPENSION MEMBER BODY MOUNTING REAR STOPPER**
5. **INSTALL FRONT SUSPENSION MEMBER BODY MOUNTING FRONT STOPPER**
6. **INSTALL FRONT LOWER SUSPENSION ARM SUB-ASSEMBLY LH** See step 1
7. **INSTALL FRONT LOWER SUSPENSION ARM SUB-ASSEMBLY RH**

HINT:

Perform the same procedure as the LH side.

8. **INSTALL FRONT SUSPENSION MEMBER DYNAMIC DAMPER (for 2WD)**
 - a. Install the front suspension member dynamic damper with the 2 bolts.

Torque: 29 N*m (296 kgf*cm, 21 ft.*lbf)

9. **INSTALL REAR ENGINE MOUNTING INSULATOR ASSEMBLY (for AWD)**
 - a. Install the rear engine mounting insulator assembly with the 2 nuts.

Torque: 52 N*m (530 kgf*cm, 38 ft.*lbf)

- b. Install the 2 hole plugs.

10. **INSTALL ENGINE MOUNTING INSULATOR RH**
 - a. Install the engine mounting insulator RH with the 3 nuts.

Torque: 87 N*m (887 kgf*cm, 64 ft.*lbf)

- b. Install the 2 hole plugs.

11. **INSTALL ENGINE MOUNTING INSULATOR LH**
 - a. Install the engine mounting insulator LH with the 3 nuts.

Torque: 87 N*m (887 kgf*cm, 64 ft.*lbf)

- b. Install the 2 hole plugs.

12. **INSTALL FRONT ENGINE MOUNTING INSULATOR ASSEMBLY**
 - a. Install the front engine mounting insulator assembly with the 3 nuts.

Torque: 52 N*m (530 kgf*cm, 38 ft.*lbf)

- b. Install the hole plug.

13. **INSTALL REAR ENGINE MOUNTING INSULATOR ASSEMBLY (for AWD) . Refer to INSTALLATION - Step 11**

14. **INSTALL ENGINE MOUNTING INSULATOR RH** . Refer to **INSTALLATION - Step 12**
15. **INSTALL ENGINE MOUNTING INSULATOR LH** . Refer to **INSTALLATION - Step 13**
16. **INSTALL FRONT ENGINE MOUNTING INSULATOR ASSEMBLY** . Refer to **INSTALLATION - Step 14**
17. **INSTALL STEERING LINK ASSEMBLY** . Refer to **INSTALLATION - Step 3**
18. **INSTALL FRONT STABILIZER BAR**
19. **INSTALL FRONT NO. 1 STABILIZER BRACKET LH** See step 5
20. **INSTALL FRONT NO. 1 STABILIZER BRACKET RH**

HINT:

Perform the same procedure as the LH side.

21. **INSTALL ENGINE ASSEMBLY WITH TRANSAXLE (for 2GR-FE)**

Refer to **INSTALLATION**

22. **INSTALL ENGINE ASSEMBLY WITH TRANSAXLE (for 1AR-FE)**

Refer to **INSTALLATION**