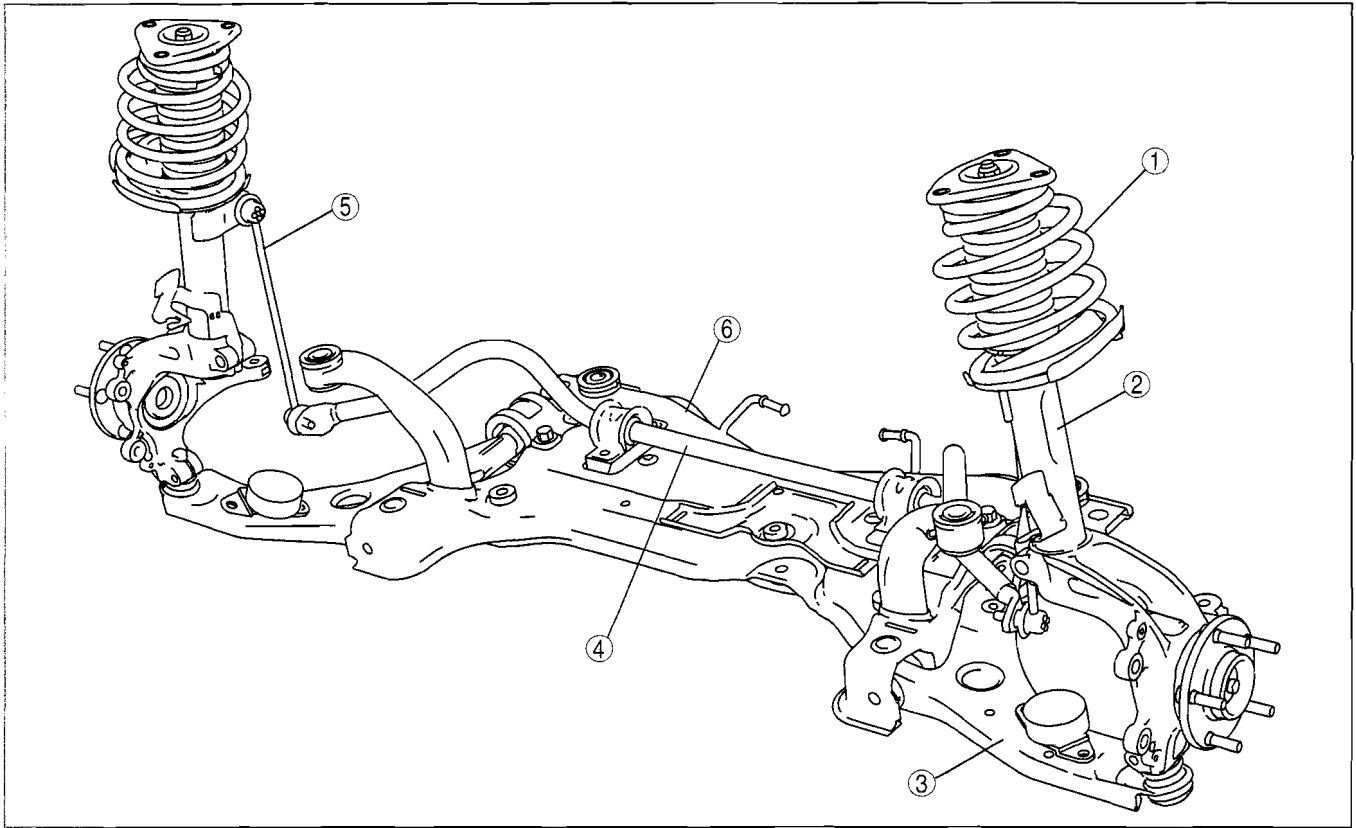


FRONT SUSPENSION

FRONT SUSPENSION LOCATION INDEX

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C3U0213W001

1	Front shock absorber and coil spring (See 02-13-3 FRONT SHOCK ABSORBER AND COIL SPRING REMOVAL/INSTALLATION.) (See 02-13-6 FRONT SHOCK ABSORBER AND COIL SPRING DISASSEMBLY/ASSEMBLY.)
2	Front shock absorber (See 02-13-8 FRONT SHOCK ABSORBER INSPECTION.) (See 02-13-8 FRONT SHOCK ABSORBER DISPOSAL.)

3	Front lower arm (See 02-13-9 FRONT LOWER ARM REMOVAL/INSTALLATION.) (See 02-13-10 FRONT LOWER ARM INSPECTION.)
4	Front stabilizer (See 02-13-11 FRONT STABILIZER REMOVAL/INSTALLATION.)
5	Stabilizer control link (See 02-13-14 STABILIZER CONTROL LINK INSPECTION.)
6	Front crossmember (See 02-13-14 FRONT CROSSMEMBER REMOVAL/INSTALLATION.)

FRONT SUSPENSION

FRONT SHOCK ABSORBER AND COIL SPRING REMOVAL/INSTALLATION

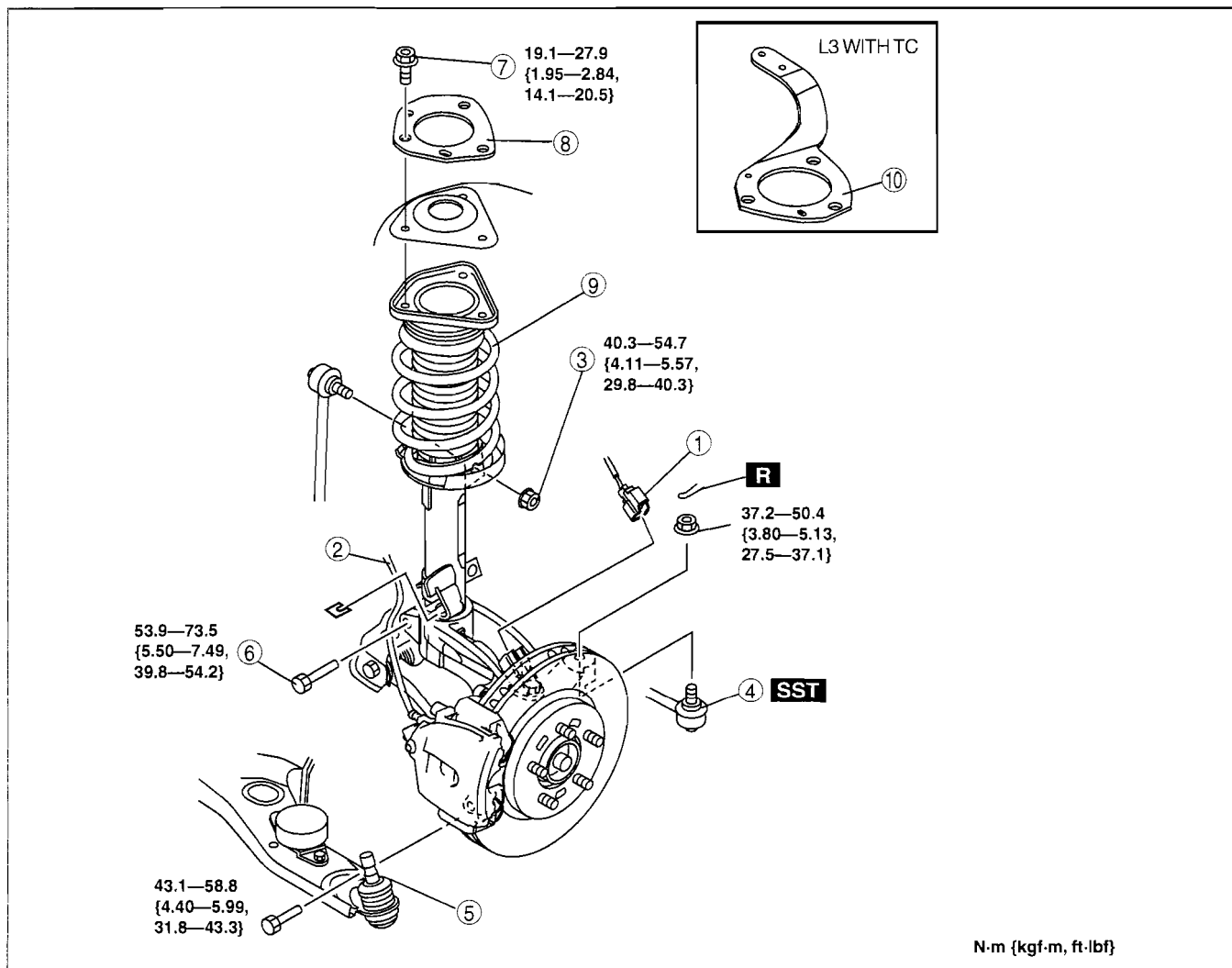
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Caution

- Performing the following procedures without first removing the ABS wheel-speed sensor may possibly cause an open circuit in the wiring harness if it is pulled by mistake. Before performing the following procedures, disconnect the ABS wheel-speed sensor wiring harness connector (axle side) and fix the wiring harness to an appropriate place where it will not be pulled by mistake while servicing the vehicle.

- Remove in the order indicated in the table.
- Install in the reverse order of removal.
- Inspect the total wheel alignment if necessary. (See 02-11-2 FRONT WHEEL ALIGNMENT.)

02-13



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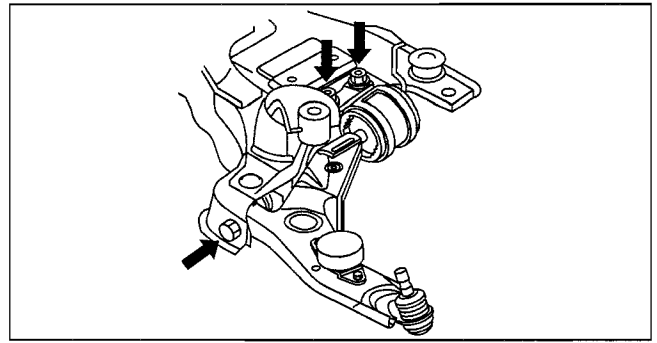
1	ABS wheel-speed sensor wiring harness connector
2	Brake hose
3	Stabilizer control link upper nut
4	Tie-rod end ball joint (See 02-13-14 FRONT CROSSMEMBER REMOVAL/INSTALLATION.)
5	Front lower arm ball joint (See 02-13-4 Front Lower Arm Ball Joint Removal Note.) (See 02-13-5 Front Lower Arm Ball Joint Installation Note.)
6	Shock absorber lower bolt

7	Shock absorber upper bolt
8	Stiffener (See 02-13-5 Stiffener Installation Note.)
9	Shock absorber and coil spring (See 02-13-4 Shock Absorber and Coil Spring Removal Note.) (See 02-13-4 Shock Absorber and Coil Spring Installation Note.)
10	Strut plate (L3 with TC)

FRONT SUSPENSION

Front Lower Arm Ball Joint Removal Note

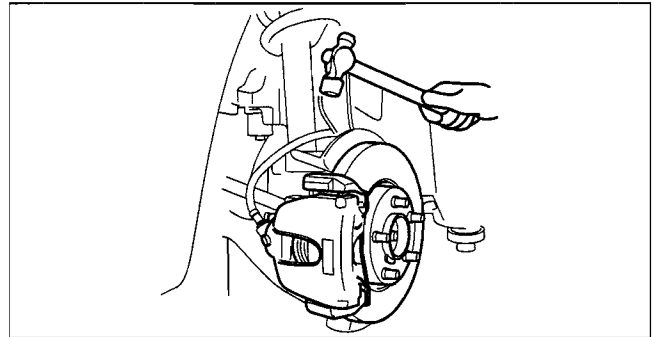
1. Loosen the installation bolt on the inner side of the front lower arm.
2. Separate the lower arm ball joint.



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Shock Absorber and Coil Spring Removal Note

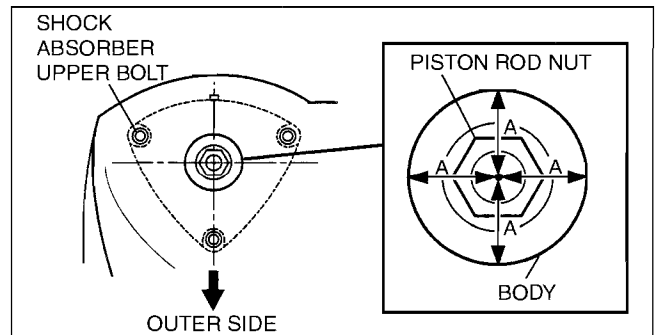
1. Loosen the front lower arm inner bolt.
2. Separate the front lower arm ball joint.
3. Separate the shock absorber from the wheel hub, steering knuckle component by tapping the upper part of the steering knuckle with a hammer.



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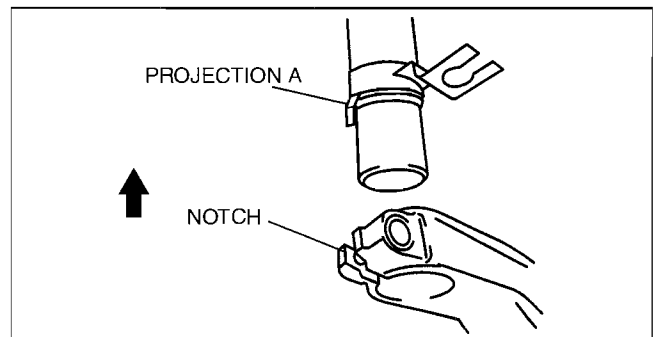
Shock Absorber and Coil Spring Installation Note

1. Align the piston rod nut with the center of the part where the shock absorber is installed by positioning the piston rod nut with lengths A all the same, and tighten the shock absorber upper bolts.
2. Align the knuckle notch with projection A on the lower side of the shock absorber.



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3. Raise the front lower arm using a jack and install the shock absorber and coil spring.

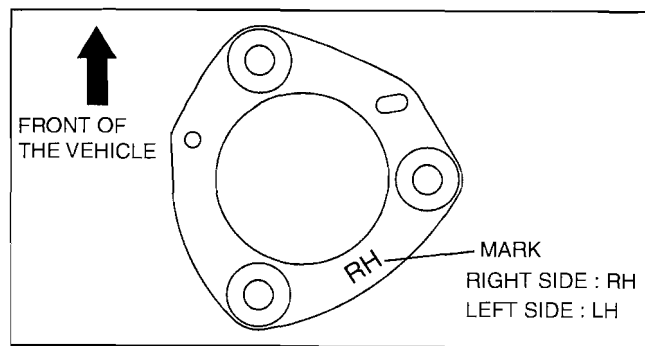


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FRONT SUSPENSION

Stiffener Installation Note

1. Install the stiffener so that the mark (RH or LH) faces upward.



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02-13

Front Lower Arm Ball Joint Installation Note

1. Tighten the installation bolts.

Tightening torque

- Front side: 130.0—150.0 N·m {13.26—15.29 kgf·m, 95.9—110.5 ft·lbf}
- Rear side: 75.5—102.0 N·m {7.70—10.4 kgf·m, 55.7—75.2 ft·lbf}

FRONT SUSPENSION

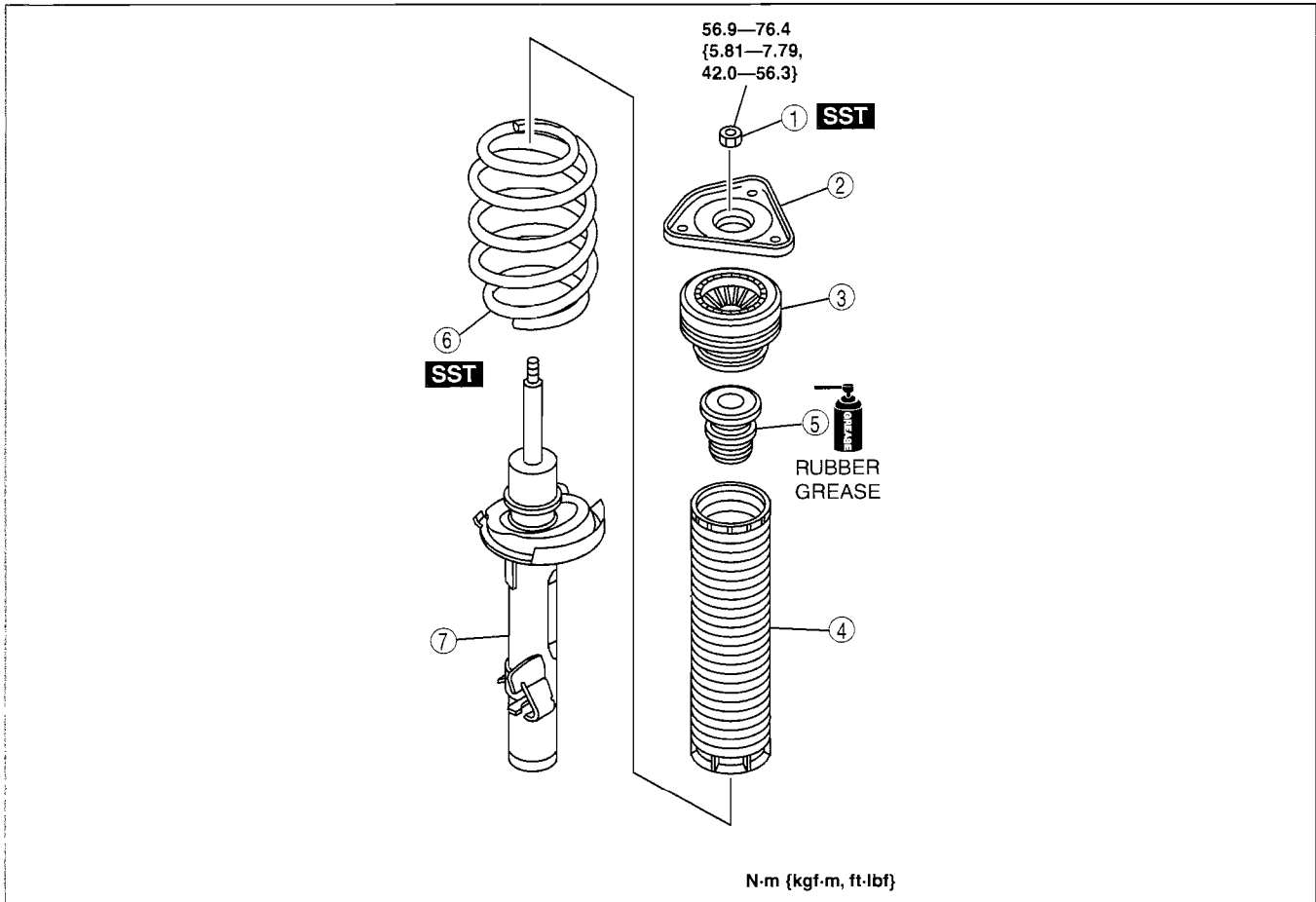
FRONT SHOCK ABSORBER AND COIL SPRING DISASSEMBLY/ASSEMBLY

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Warning

- Removing/installing the shock absorber and coil spring is dangerous. The shock absorber and coil spring could fly off and cause serious injury or death, and damage the vehicle.

1. Remove the front shock absorber and coil spring. (See 02-13-3 FRONT SHOCK ABSORBER AND COIL SPRING REMOVAL/INSTALLATION.)
2. Remove in the order indicated in the table.
3. Install in the reverse order of removal.



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1	Piston rod nut (See 02-13-7 Piston Rod Nut Removal Note.)
2	Mounting rubber
3	Bearing (See 02-13-8 Bearing Installation Note.)

4	Dust boot (See 02-13-7 Dust Boot Installation Note.)
5	Bound stopper
6	Coil spring (See 02-13-7 Coil Spring Installation Note.)
7	Front shock absorber

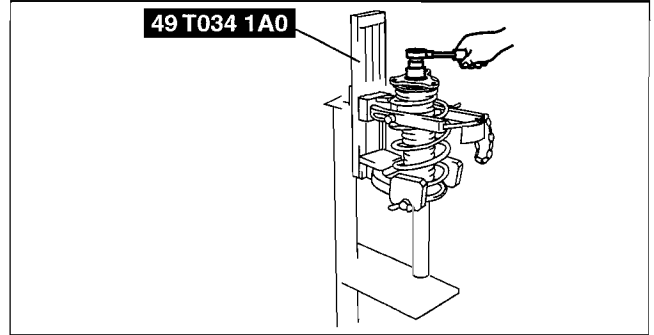
FRONT SUSPENSION

Piston Rod Nut Removal Note

Warning

- Before removing the piston rod nut, secure the shock absorber and coil spring in the SSTs. Otherwise, the coil spring could fly off under tremendous pressure and cause serious injury or death, or damage to vehicle parts.

1. Install the shock absorber and coil spring to the **SSTs** using a piece of cloth in order to prevent the coil spring from being scratched.
2. Compress the coil spring using the **SSTs** and remove the piston rod nut.

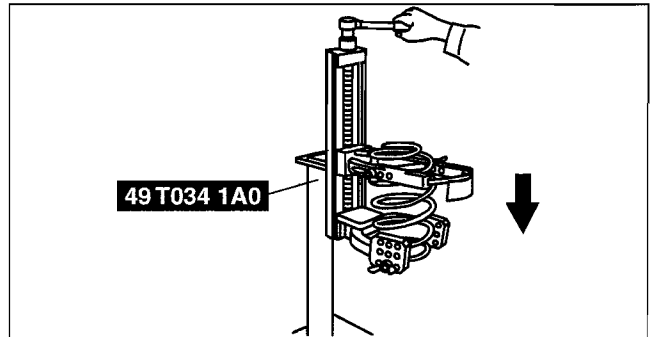


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02-13

Coil Spring Installation Note

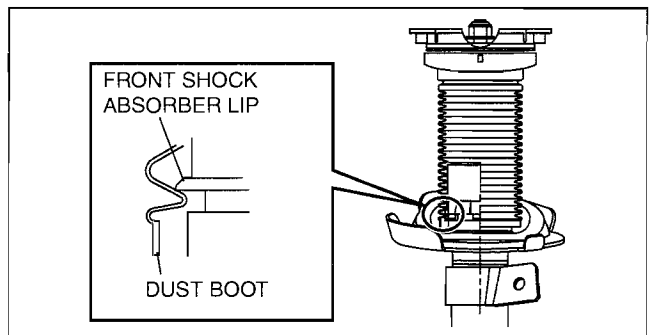
1. Compress the coil spring using the **SSTs**.
2. Install the shock absorber so that the lower end of the coil spring is seated on the step of the lower spring seat.



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Dust Boot Installation Note

1. Install the dust boot by hooking the bottom edge over the shock absorber lip.

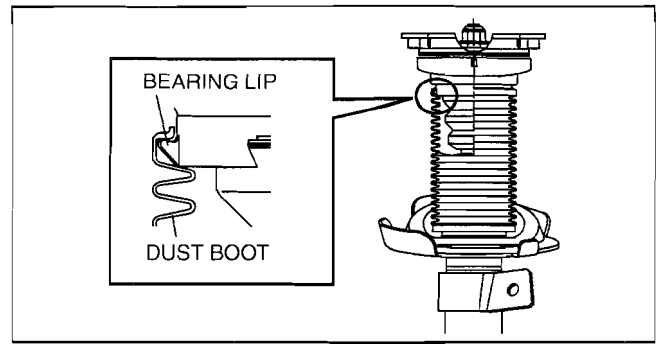


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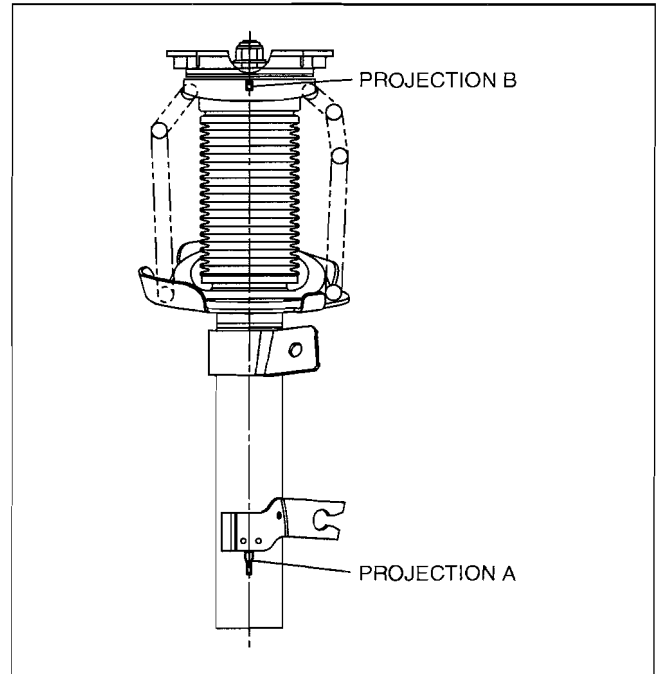
FRONT SUSPENSION

Bearing Installation Note

1. Install the bearing by hooking the upper end of the dust boot to the bearing lip.
2. Align the projection A on the lower part of the shock absorber with the bearing projection B.



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FRONT SHOCK ABSORBER INSPECTION

1. Remove the front shock absorber.
2. Inspect for damage and oil leakage.
3. Compress and extend the shock absorber piston rod **at least three times** at a steady rate. **From the fourth** compression stroke, verify that the operational force does not change and that there is no unusual noise.
 - If there is any malfunction, replace the shock absorber.

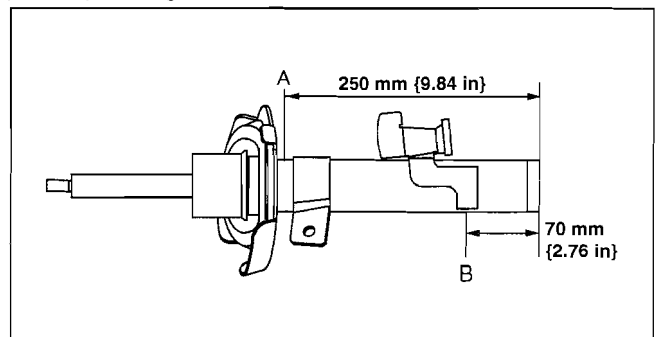
FRONT SHOCK ABSORBER DISPOSAL

1. Place the shock absorber on a level surface or with the piston pointing downwards.
2. Drill a **2—3 mm {0.08—0.11 in}** hole at the point A shown in the figure so that the gas can escape.

Warning

- **Whenever drilling into a shock absorber, wear protective eye wear. The gas in the shock absorber is pressurized and could spray metal chips into the eyes and face.**

3. Drill a **2—3 mm {0.08—0.11 in}** hole at the point B shown in the figure to drain the oil.
4. Turn the hole made in Step 3 downwards and drain the oil by pumping the piston rod up and down several times.
5. Cut off the end of the shock absorber.
6. Dispose of waste oil according to local waste disposal laws.



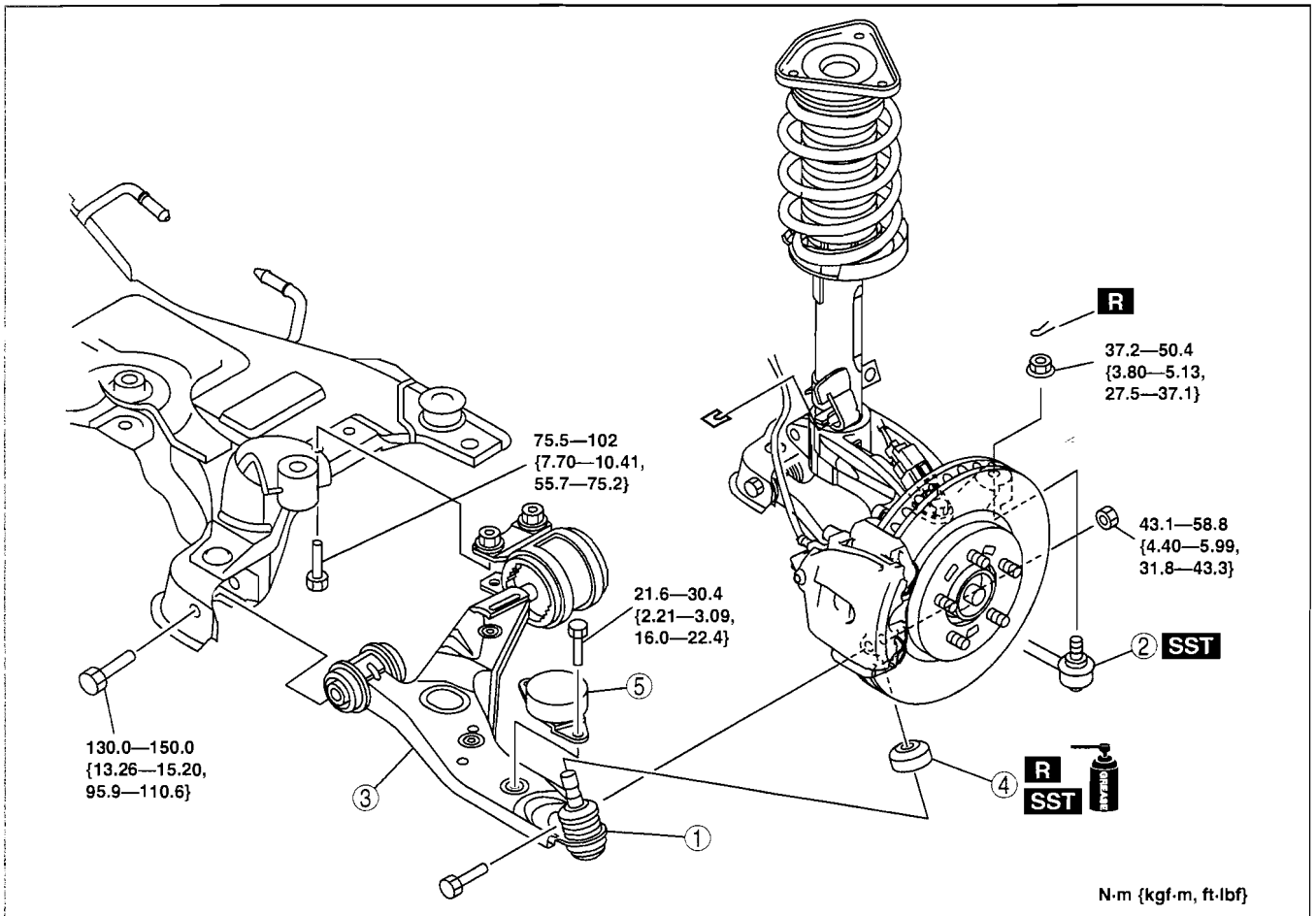
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FRONT SUSPENSION

FRONT LOWER ARM REMOVAL/INSTALLATION

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1. Remove in the order indicated in the table.
2. Install in the reverse order of removal.
3. Inspect the wheel alignment and adjust it if necessary. (See 02-11-2 FRONT WHEEL ALIGNMENT.)



02-13

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1	Front lower arm ball joint
2	Tie-rod end ball joint (See 02-13-14 FRONT CROSSMEMBER REMOVAL/INSTALLATION.)

3	Front lower arm (See 02-13-9 Front Lower Arm Removal Note.) (See 02-13-10 Front Lower Arm Installation Note.)
4	Dust boot (See 02-13-10 Dust Boot Installation Note.)
5	Dynamic damper

Front Lower Arm Removal Note

Note

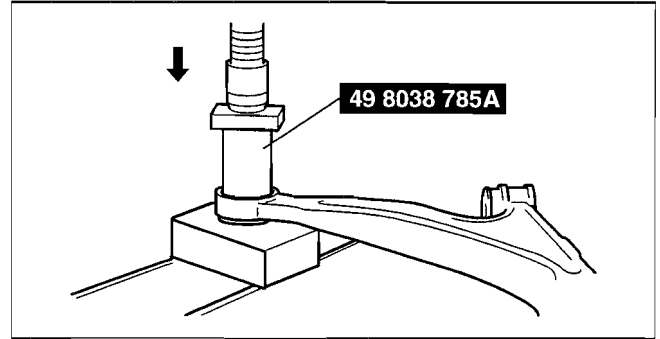
- When working on the right side of vehicles, move the engine and transaxle slightly towards the front side of the vehicle so that the engine does not interfere with the removal of the lower arm rear side bolt.

1. Remove the No.1 engine mount center bolt.
2. Move the engine and transaxle slightly towards the front side of the vehicle.
3. Remove the front lower arm rear side bolt.
4. Remove the front lower arm.

FRONT SUSPENSION

Dust Boot Installation Note

1. Wipe the grease off the ball stud.
2. Fill the inside of the new dust boot with grease.
3. Press the boot onto the ball joint using the **SST**.
4. Wipe away the excess grease.



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Front Lower Arm Installation Note

Caution

- Install the front lower arm according to the following procedures for optimal installation. Tighten the lower arm installation bolt properly when the vehicle is lifted.

1. Temporarily install the front lower arm.
2. install the No.1 engine mount.

Tightening torque

93.1—116.6 N·m {9.50—11.88 kgf·m, 68.67—85.99 ft·lbf}

3. Tighten the front lower arm rear side bolt.
4. Tighten the front lower arm front side bolt.
5. Tighten the nut (front lower arm ball joint).

FRONT LOWER ARM INSPECTION

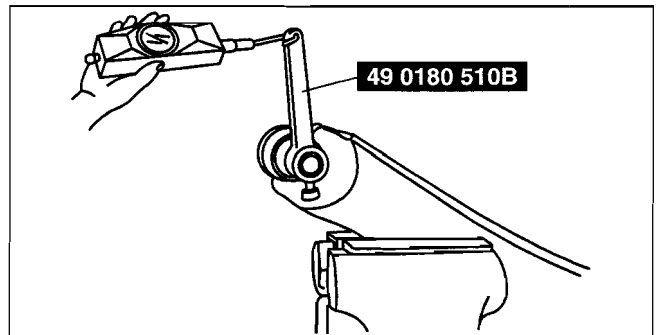
id021300800700

1. Remove the lower arm from the vehicle.
2. inspect the arm for bending or damage, and the ball joint for excessive looseness.
 - If there is any malfunction, replace the lower arm.
3. Rotate the ball joint stud **5 times**. Install the **SST** to the ball joint stud, measure the rotational torque using a pull scale.
 - If not within the specification, replace the lower arm.

Rotational torque

1.0—4.9 N·m {11—49 kgf·cm, 9—43 in·lbf}

Pull scale reading [10—49 N {1.1—4.9 kgf, 3—10 lbf}]



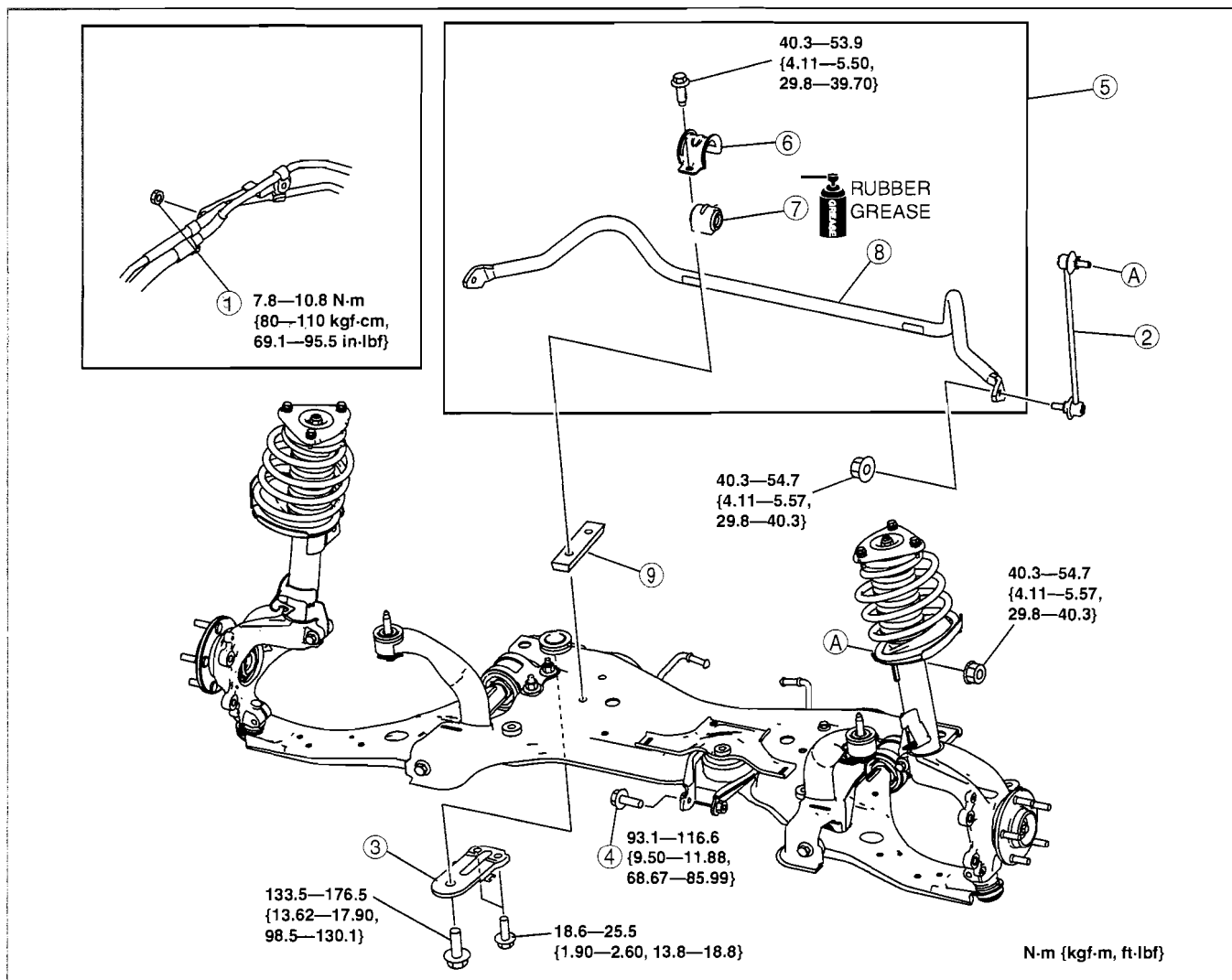
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FRONT SUSPENSION

FRONT STABILIZER REMOVAL/INSTALLATION

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1. Detach the steering shaft from the steering gear and linkage. (See 06-14-8 STEERING WHEEL AND COLUMN REMOVAL/INSTALLATION.)
2. Remove in the order indicated in the table.
3. Install in the reverse order of removal.
4. Inspect the wheel alignment and adjust it if necessary. (See 02-11-2 FRONT WHEEL ALIGNMENT.)



02-13

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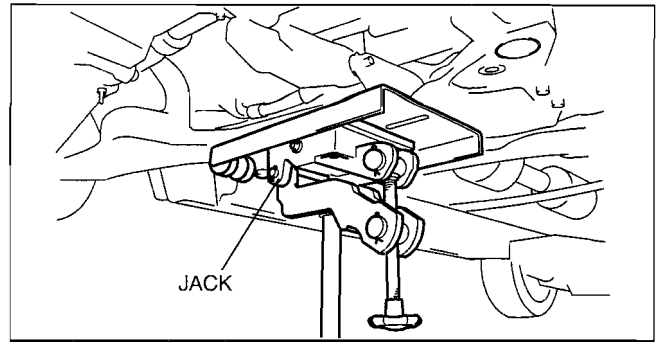
1	Power steering pipe bracket
2	Stabilizer control link
3	Front crossmember bracket (See 02-13-12 Front Crossmember Bracket Removal Note.)
4	No.1 engine mount center bolt
5	Front stabilizer component (See 02-13-12 Front Stabilizer Component Removal Note.) (See 02-13-14 Front Stabilizer Component Installation Note.)

6	Stabilizer bracket (See 02-13-12 Stabilizer Bracket Removal Note.) (See 02-13-13 Stabilizer Bracket Installation Note.)
7	Stabilizer bushing (See 02-13-13 Stabilizer Bushing Installation Note.)
8	Front stabilizer
9	Stabilizer plate

FRONT SUSPENSION

Front Crossmember Bracket Removal Note

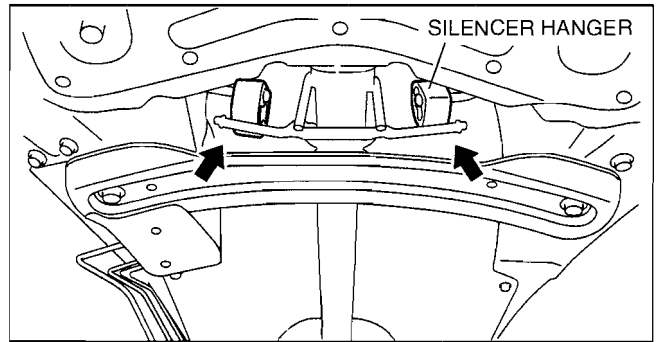
1. Support the front crossmember using a jack.
2. Remove the front crossmember brackets.



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Front Stabilizer Component Removal Note

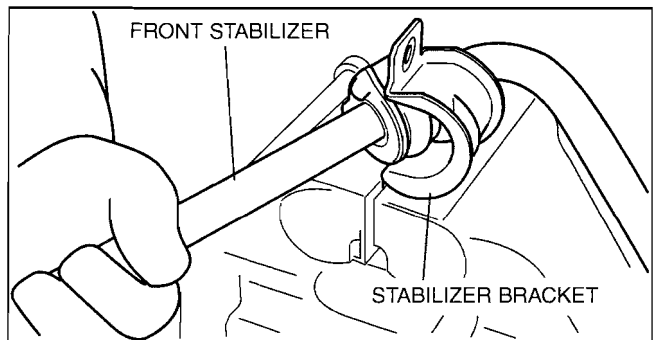
1. Detach the silencer hangers on the middle pipe from the front crossmember.
2. Lower the front crossmember slowly **approx. 90 mm {3.5 in}** and remove the front stabilizer component.



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Stabilizer Bracket Removal Note

1. Secure the stabilizer bracket flange using a vise.
2. Remove the front stabilizer.

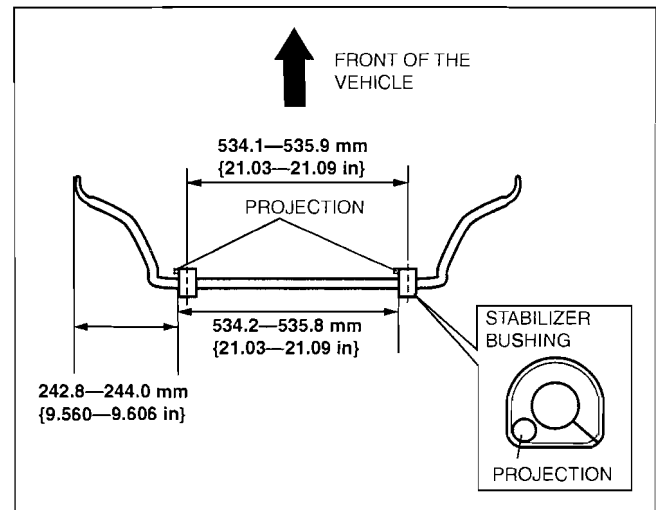


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FRONT SUSPENSION

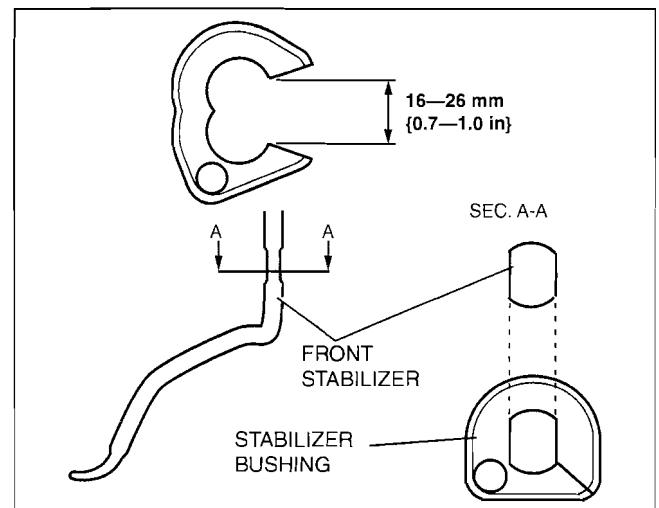
Stabilizer Bushing Installation Note

1. Verify the installation direction of the stabilizer bushing.



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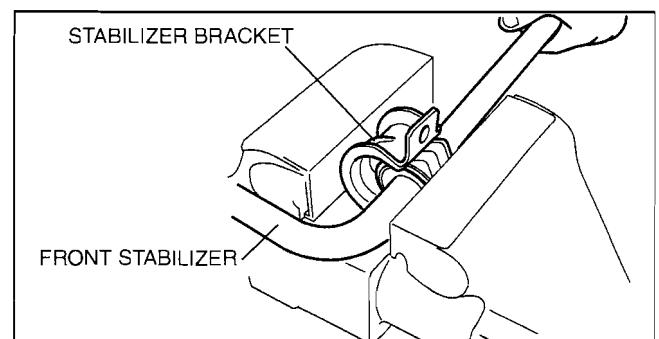
2. Widen the stabilizer bushing opening **16—26 mm {0.7—1.0 in}** and install the bushing to the front stabilizer as shown in the figure.



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Stabilizer Bracket Installation Note

1. Apply grease to the stabilizer bushing.
2. Install the stabilizer bracket using a vise.

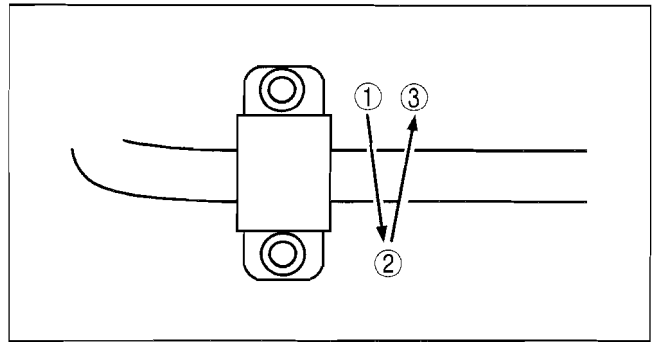


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FRONT SUSPENSION

Front Stabilizer Component Installation Note

1. Tighten the bolts in order indicated in the figure.



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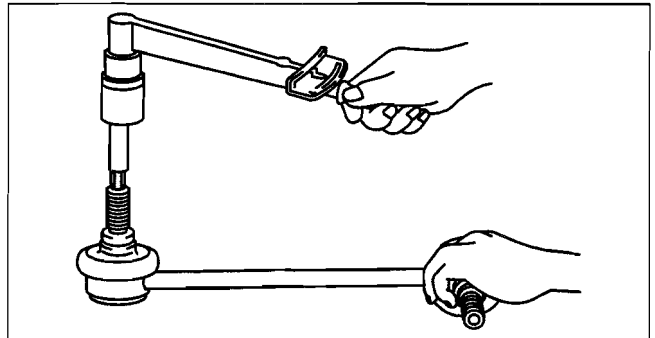
STABILIZER CONTROL LINK INSPECTION

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1. Remove the stabilizer control link from the vehicle.
2. Inspect for bending or damage. If there is any malfunction, replace the stabilizer control link.
3. Rotate the ball joint stud **10 times** and shake it side to side **10 times**.
4. Measure the ball-joint rotational torque using an Allen wrench and a torque wrench.

Stabilizer control link ball joint rotational torque
0.2—0.9 N·m {3—9 kgf·cm, 2—7 in·lbf}

- If not within the specification, replace the stabilizer control link.



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FRONT CROSSMEMBER REMOVAL/INSTALLATION

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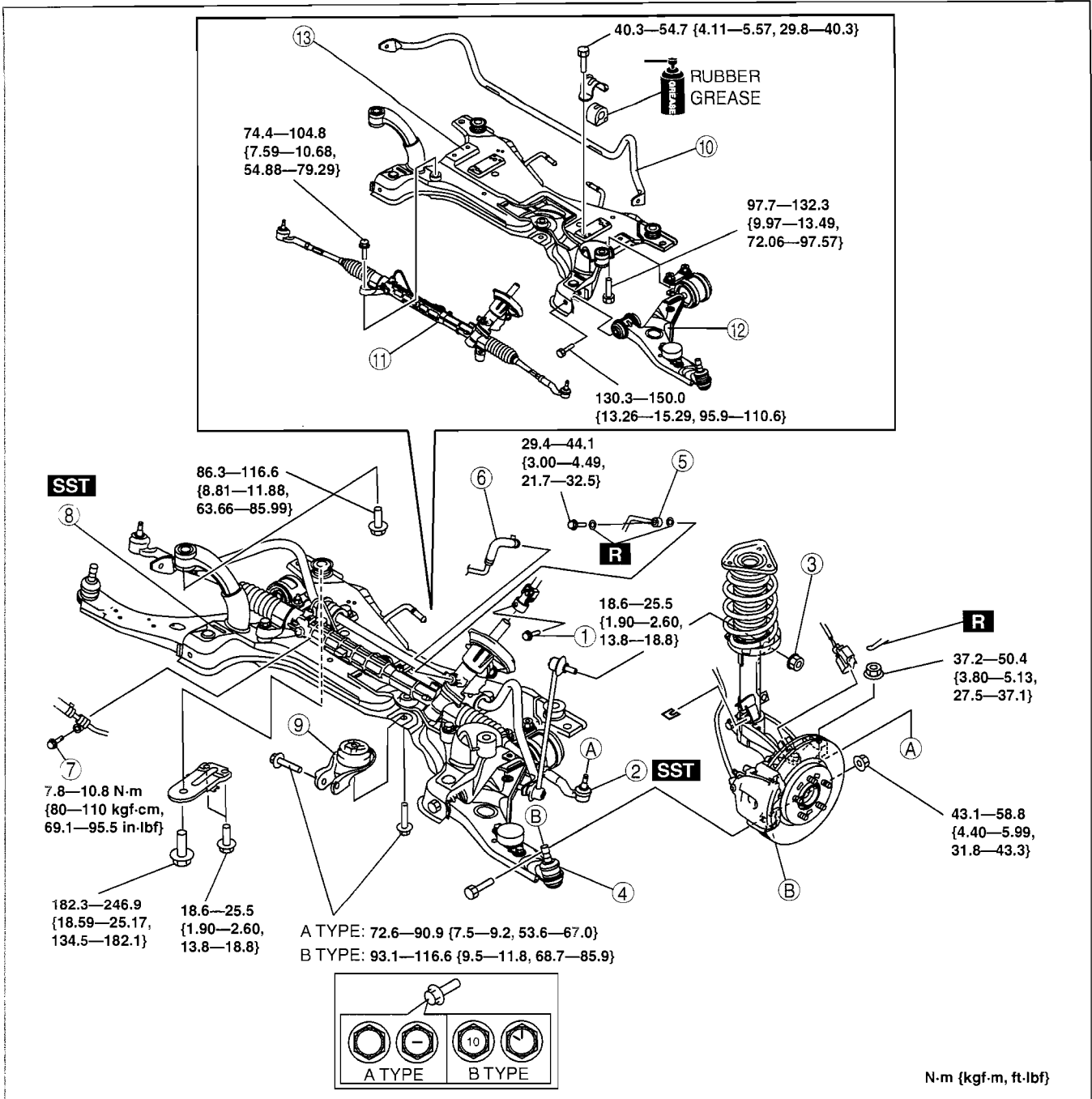
Caution

- Performing the following procedures without first removing the ABS wheel-speed sensor may possibly cause an open circuit in the wiring harness if it is pulled by mistake. Before performing the following procedures, disconnect the ABS wheel-speed sensor wiring harness connector (axle side) and fix the wiring harness to an appropriate place where it will not be pulled by mistake while servicing the vehicle.

1. Remove in the order indicated in the table.
2. Install in the reverse order of removal.
3. Inspect the wheel alignment and adjust it if necessary. (See 02-11-2 FRONT WHEEL ALIGNMENT.)

FRONT SUSPENSION

02-13



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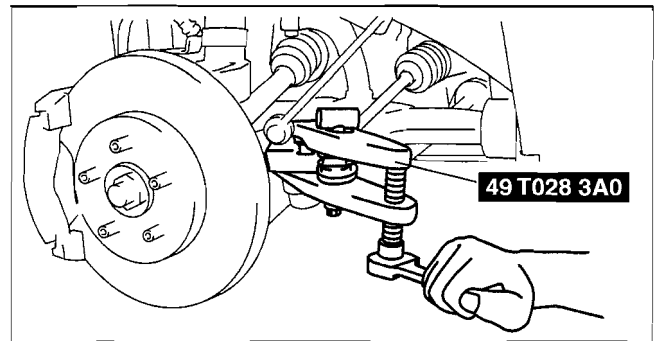
1	Bolt (intermediate shaft)
2	Tie-rod end ball joint (See 02-13-16 Tie-rod End Ball Joint Removal Note.)
3	Stabilizer control link upper nut
4	Lower arm ball joint
5	Pressure pipe (gear side)
6	Return hose (gear side)
7	Bolt

8	Front crossmember component, steering gear and linkage component (See 02-13-16 Front Crossmember Component, Steering Gear and Linkage Component Removal Note.) (See 02-13-16 Front Crossmember Component, Steering Gear and Linkage Component Installation Note.)
9	No.1 engine mount rubber
10	Front stabilizer
11	Steering gear and linkage
12	Front lower arm
13	Front crossmember

FRONT SUSPENSION

Tie-rod End Ball Joint Removal Note

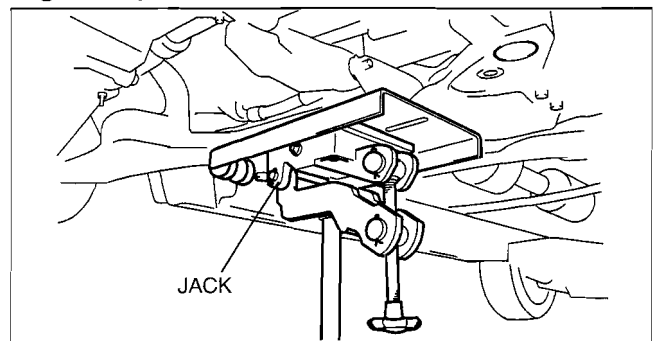
1. Remove the tie-rod end locknut.
2. Detach the tie-rod end from the steering knuckle using the **SST**.



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Front Crossmember Component, Steering Gear and Linkage Component Removal Note

1. Remove the front crossmember, front stabilizer, lower arm, and steering gear as a single unit using a transmission jack.



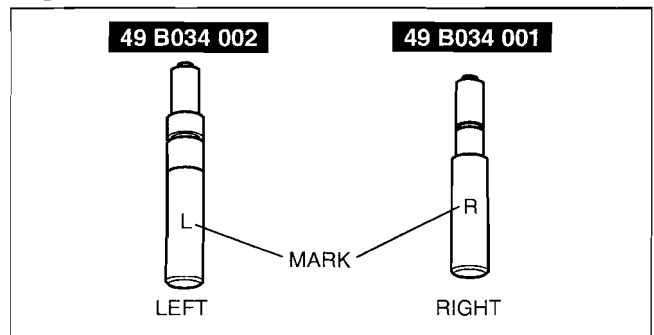
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Front Crossmember Component, Steering Gear and Linkage Component Installation Note

1. Verify the left and right identification marks and install the positioning **SST** to the front crossmember.

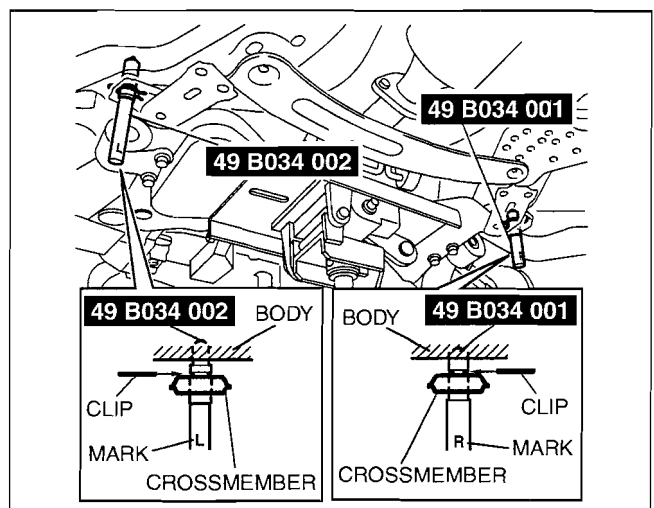
Note

- Verify the identification marks before installation because the left and right parts of the **SST** have different shapes.



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2. Raise the transmission jack gradually and install the front crossmember to the vehicle. At this point verify that the **SST** is securely inserted in the positioning holes on the body.
3. Tighten the front crossmember installation bolts and nuts.



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FRONT SUSPENSION

4. Tighten the No.1 engine mount rubber installation bolt.

Caution

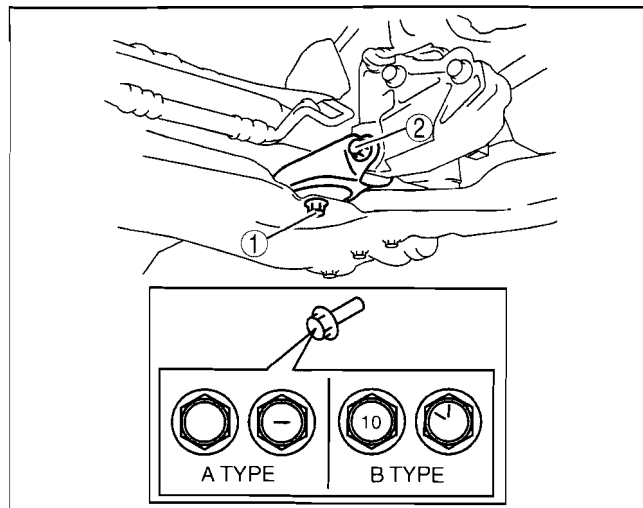
- When installing the No.1 engine mount, tighten the bolts in order shown in the figure to prevent abnormal noise and vibration after assembly.
- Tighten the bolts while being careful of their length to prevent interference between the steering gear housing and bolt.

Bolt length (measured from below the head)
Front crossmember side: 62 mm {2.441 in}
No.1 engine mount bracket side: 65 mm {2.559 in}

Tightening torque

A type: 72.6—90.9 N·m {7.5—9.2 kgf·m,
53.6—67.0 ft·lbf}

b type: 93.1—116.6 N·m {9.5—11.8 kgf·m, 68.7—85.9 ft·lbf}



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02-13

