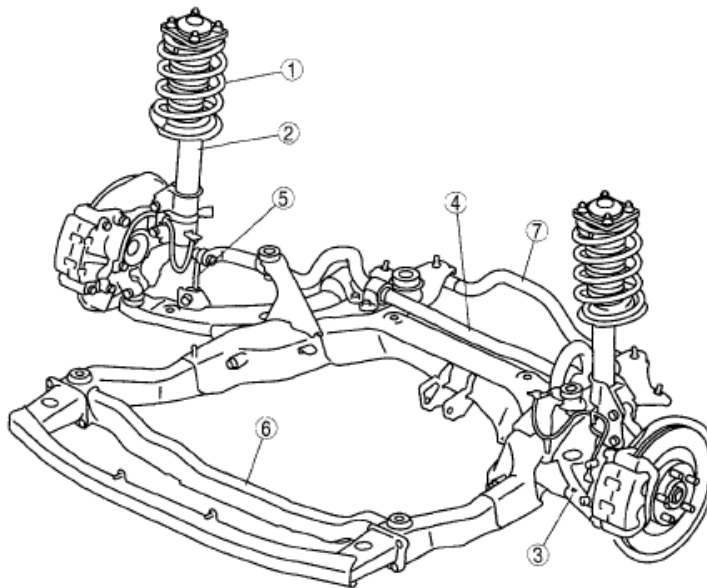


2008 SUSPENSION

Front Suspension - Mazda CX-9

FRONT SUSPENSION LOCATION INDEX



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1	Front shock absorber and coil spring (See 02-13-2 FRONT SHOCK ABSORBER AND COIL SPRING REMOVAL/INSTALLATION.) (See 02-13-4 FRONT SHOCK ABSORBER AND COIL SPRING DISASSEMBLY/ASSEMBLY.)
2	Front shock absorber (See 02-13-6 FRONT SHOCK ABSORBER INSPECTION.) (See 02-13-7 FRONT SHOCK ABSORBER DISPOSAL.)
3	Front lower arm (See 02-13-7 FRONT LOWER ARM REMOVAL/INSTALLATION.) (See 02-13-8 FRONT LOWER ARM INSPECTION.)

4	Front stabilizer (See 02-13-8 FRONT STABILIZER REMOVAL/INSTALLATION.)
5	Stabilizer control link (See 02-13-10 FRONT STABILIZER CONTROL LINK INSPECTION.)
6	Front crossmember (See 02-13-10 FRONT CROSSMEMBER REMOVAL/INSTALLATION.)
7	Transverse member (See 02-13-15 TRANSVERSE MEMBER REMOVAL/INSTALLATION.)

Fig. 1: Identifying Front Suspension Components

Courtesy of MAZDA MOTORS CORP.

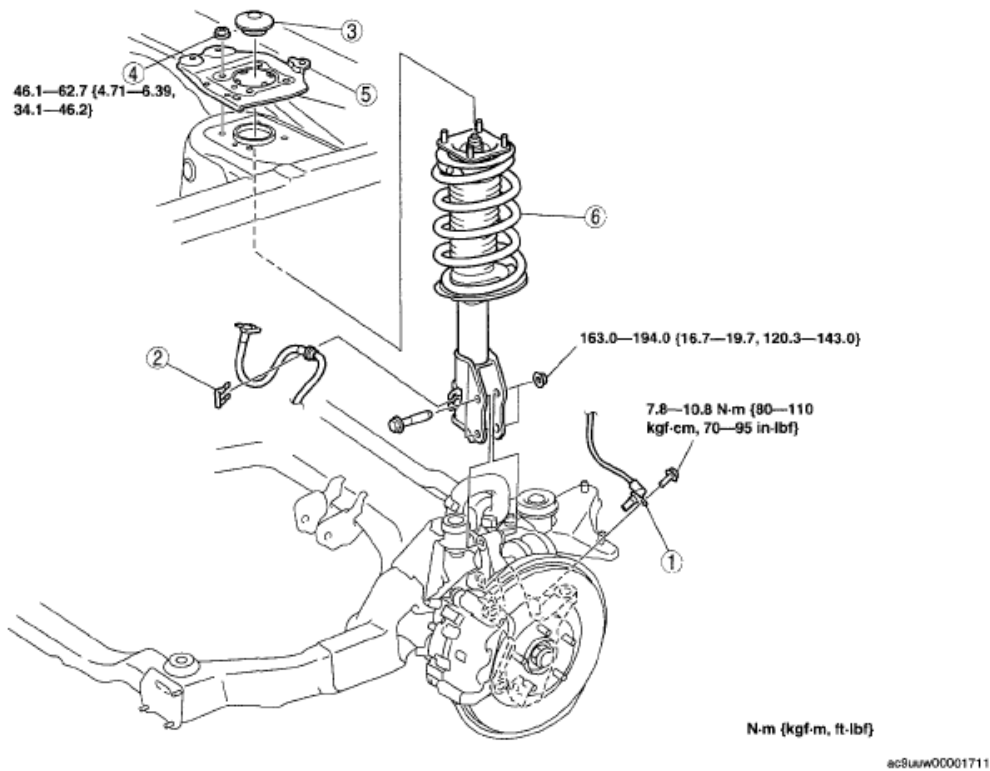
FRONT SHOCK ABSORBER AND COIL SPRING REMOVAL/INSTALLATION

CAUTION:

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

mistake while servicing the vehicle.

1. When working on the left side of the vehicle, remove the wiper arm (LH). (See **WINDSHIELD WIPER MOTOR REMOVAL/INSTALLATION** .)
2. When working on the left side of the vehicle, partially peel back the cowl grille (LH).
3. When working on the right side of the vehicle, partially peel back the cowl grille (RH).
4. Remove the front fender molding. (See **COWL GRILLE REMOVAL/INSTALLATION** .)
5. Remove in the order indicated in the table.
6. Install in the reverse order of removal.
7. Inspect for front wheel alignment, and adjust it as necessary. (See **FRONT WHEEL ALIGNMENT** .)



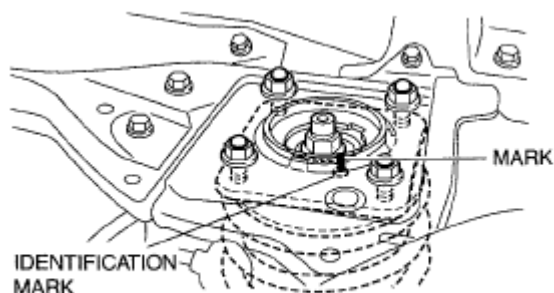
1	ABS wheel-speed sensor
2	Brake hose clip
3	Cap
4	Nut
5	Stiffener

6	Front shock absorber and coil spring (See 02-13-3 Front Shock Absorber and Coil Spring Removal Note.) (See 02-13-4 Front Shock Absorber and Coil Spring Installation Note.)
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Fig. 2: Identifying ABS-Wheel-Speed Sensor, Brake Hose Clip, Cap, Nut & Torque Specifications
 Courtesy of MAZDA MOTORS CORP.

FRONT SHOCK ABSORBER AND COIL SPRING REMOVAL NOTE

1. Make a mark on the body aligning the identification mark on the mounting rubber before removing the front shock absorber and coil spring.

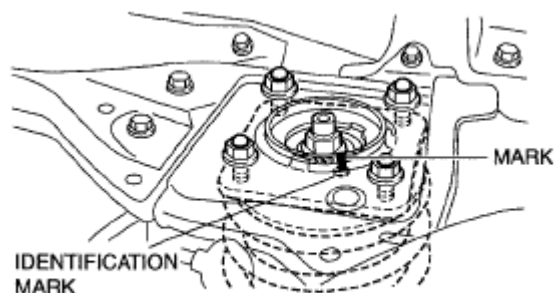


am8rw00001819

Fig. 3: Identifying Identification Mark On Mounting Rubber
Courtesy of MAZDA MOTORS CORP.

FRONT SHOCK ABSORBER AND COIL SPRING INSTALLATION NOTE

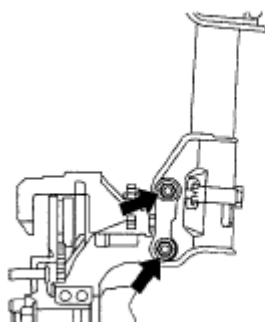
1. Align the identification mark on the mounting rubber with the mark on the body.



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Fig. 4: Aligning Identification Mark On Mounting Rubber With Mark On Body
Courtesy of MAZDA MOTORS CORP.

2. Install the front shock absorber installation bolts from the following directions.
 - LH: Insert the bolts from the vehicle rear
 - RH: Insert the bolts from the vehicle front



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Fig. 5: Locating Front Shock Absorber Installation Bolts

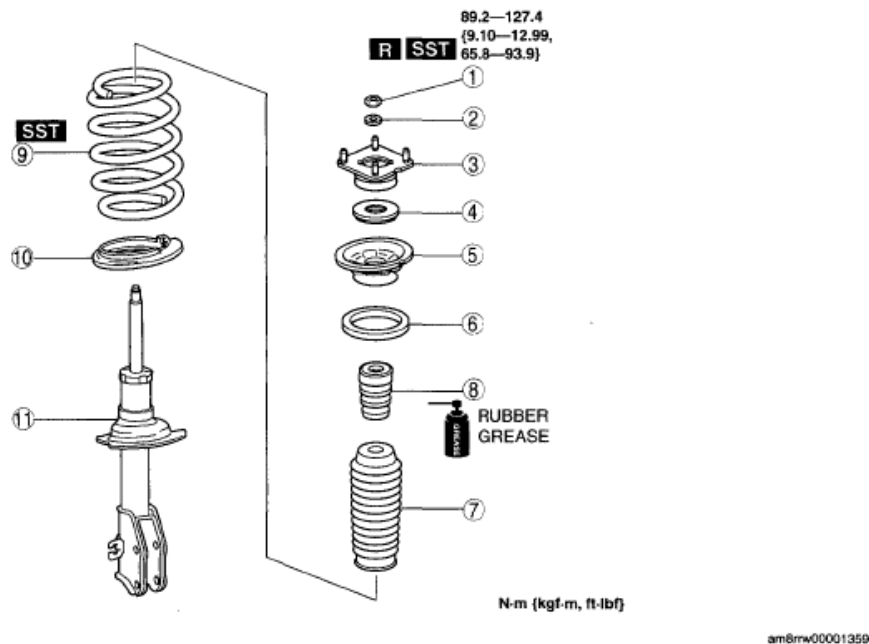
Courtesy of MAZDA MOTORS CORP.

FRONT SHOCK ABSORBER AND COIL SPRING DISASSEMBLY/ASSEMBLY

WARNING:

- Removing/installing the piston rod nut is dangerous. The shock absorber and spring could fly off under tremendous pressure and cause serious injury or death. Secure the shock absorber in the SSTs before removing the piston rod nut.

1. Remove the front shock absorber and coil spring. (See FRONT SHOCK ABSORBER AND COIL SPRING REMOVAL/INSTALLATION.)
2. Disassemble in the order indicated in the table.
3. Assemble in the reverse order of disassembly.



1	Piston rod nut (See 02-13-5 Piston Rod Nut Disassembly Note.)
2	Washer
3	Mounting rubber (See 02-13-6 Mounting Rubber Assembly Note.)
4	Bearing
5	Upper spring seat (See 02-13-6 Upper Spring Seat Assembly Note.)

6	Upper spring seat rubber
7	Dust boot
8	Bound stopper
9	Coil spring (See 02-13-6 Coil Spring Assembly Note.)
10	Lower spring seat
11	Front shock absorber

Fig. 6: View Of Front Shock Absorber Components & Torque Specifications
 Courtesy of MAZDA MOTORS CORP.

PISTON ROD NUT DISASSEMBLY NOTE

WARNING:

- Removing the piston rod nut is dangerous. The shock absorber and spring could fly off under tremendous pressure and cause serious injury or death. Secure the shock absorber in the SSTs before removing the piston rod nut.

1. Protect the coil spring using a piece of cloth, then set the SSTs.
2. Compress the coil spring using the SSTs , and remove the piston rod nut.

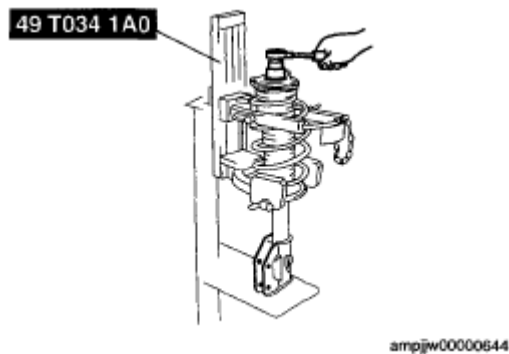


Fig. 7: Compressing Coil Spring
Courtesy of MAZDA MOTORS CORP.

COIL SPRING ASSEMBLY NOTE

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

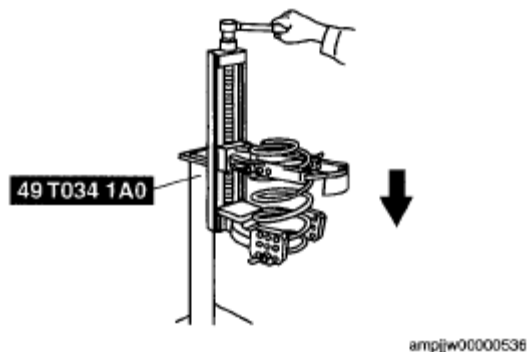
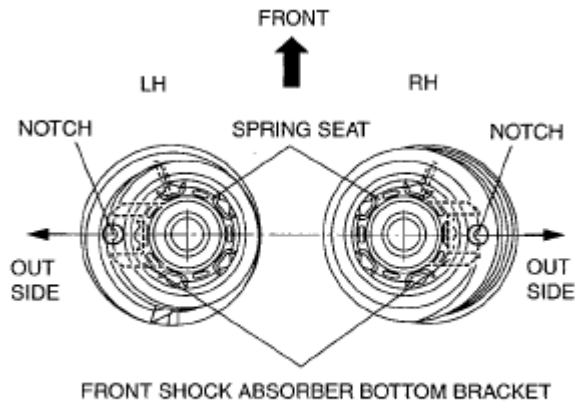


Fig. 8: Installing Shock Absorber
Courtesy of MAZDA MOTORS CORP.

UPPER SPRING SEAT ASSEMBLY NOTE

1. Install the upper spring seat so that the notch is facing to the out side of the vehicle.

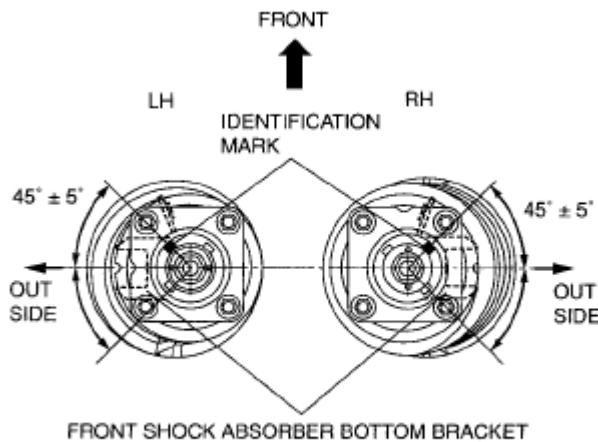


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Fig. 9: Installing Upper Spring Seat
 Courtesy of MAZDA MOTORS CORP.

MOUNTING RUBBER ASSEMBLY NOTE

1. Slide the mounting rubber identification mark away from the notch of the spring seat and install.



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Fig. 10: Sliding Mounting Rubber Identification Mark From Notch
 Courtesy of MAZDA MOTORS CORP.

FRONT SHOCK ABSORBER INSPECTION

1. Remove the front shock absorber. (See **FRONT SHOCK ABSORBER AND COIL SPRING REMOVAL/INSTALLATION.**) (See **FRONT SHOCK ABSORBER AND COIL SPRING DISASSEMBLY/ASSEMBLY.**)
2. Inspect for damage and oil leakage.
3. Compress and extend the shock piston at least three times. Verify that the operational force does not

change and that there is no unusual noise.

- If not as specified, replace the front shock absorber.

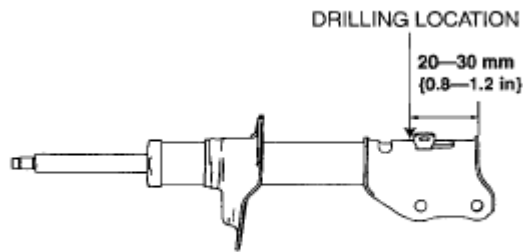
FRONT SHOCK ABSORBER DISPOSAL

1. Clamp a shock absorber on a flat surface or with the piston pointing downwards.
2. Drill a 2-3 mm {0.08-0.12 in} hole at a point 20-30 mm {0.8-1.2 in} from the bottom of the tube, 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 when drilling.

3. Turn the hole downwards.
4. The oil can be collected by moving the piston rod several times up and down and cutting the tube at the end.
5. Dispose of waste oil according to the waste disposal law.



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Fig. 11: Identifying Drilling Location
Courtesy of MAZDA MOTORS CORP.

FRONT LOWER ARM REMOVAL/INSTALLATION

1. Remove in the order indicated in the table.
2. Install in the reverse order of removal.
3. Inspect for front wheel alignment, and adjust it as necessary. (See **FRONT WHEEL ALIGNMENT** .)

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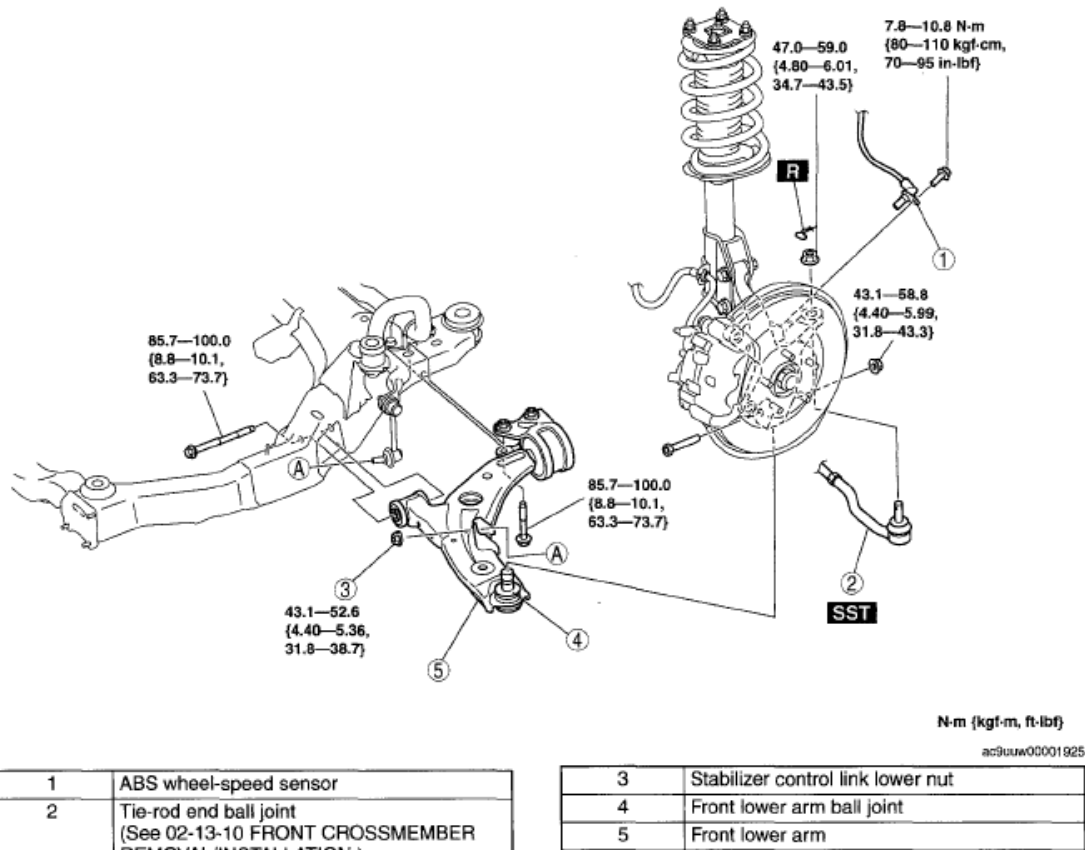


Fig. 12: Identifying Front Lower Arm Components & Torque Specifications
 Courtesy of MAZDA MOTORS CORP.

FRONT LOWER ARM INSPECTION

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** and M6 x 1.0 bolt (bolt length (measured from below the head): 20 mm {0.79 in}) to the ball joint stud, measure the rotational torque using a torque wrench.
 - If not within the specification, replace the lower arm.

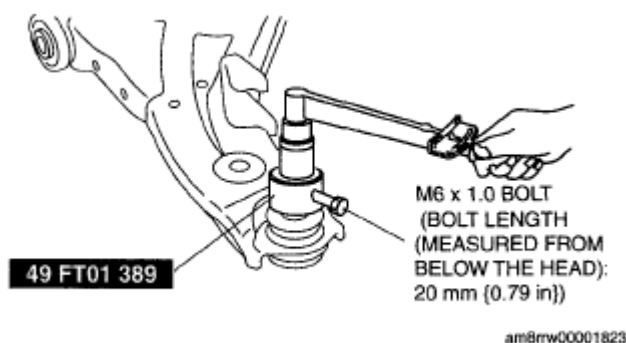


Fig. 13: Rotating Ball Joint Stud
Courtesy of MAZDA MOTORS CORP.

Front lower arm rotational torque

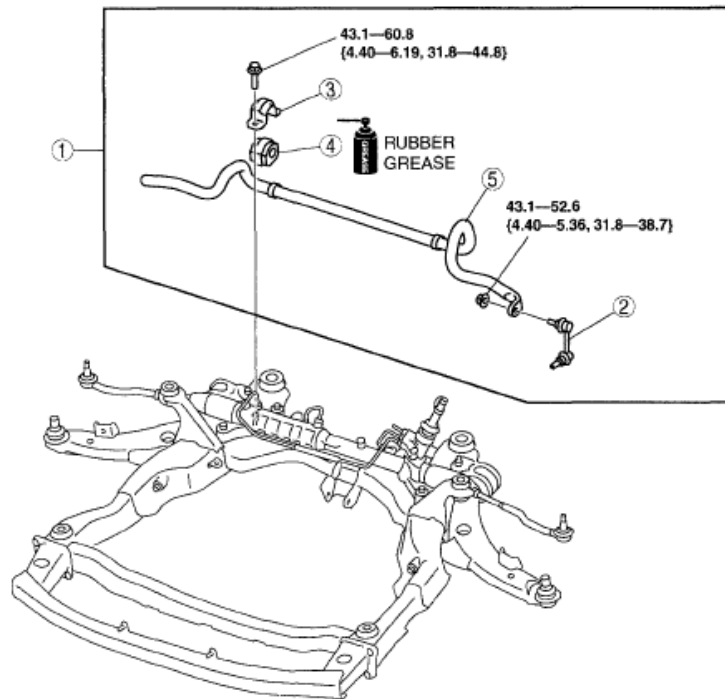
2.62 N.m {26.7 kgf.cm, 23.1 in.lbf} max.

FRONT STABILIZER REMOVAL/INSTALLATION

1. Drain the power steering fluid. (See **POWER STEERING FLUID INSPECTION** .)
2. Remove the front under cover A and front under cover B. (See **FRONT UNDER COVER REMOVAL/INSTALLATION** .)
3. Remove the middle pipe. (See **EXHAUST SYSTEM REMOVAL/INSTALLATION [MZI-3.7]** .)
4. Remove the transverse member. (See **TRANSVERSE MEMBER REMOVAL/INSTALLATION.**)
5. Remove the intermediate shaft installation bolt, and disconnect the steering shaft. (See **STEERING WHEEL AND COLUMN REMOVAL/INSTALLATION** .)
6. Remove the front crossmember component. (See **FRONT CROSSMEMBER REMOVAL/INSTALLATION.**)
7. Remove in the order indicated in the table.
8. Install in the reverse order of removal.
9. Inspect for front wheel alignment, and adjust it as necessary. (See **FRONT WHEEL ALIGNMENT** .)

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2008 SUSPENSION Front Suspension - Mazda CX-9



N-m (kgf-m, ft-lbf)

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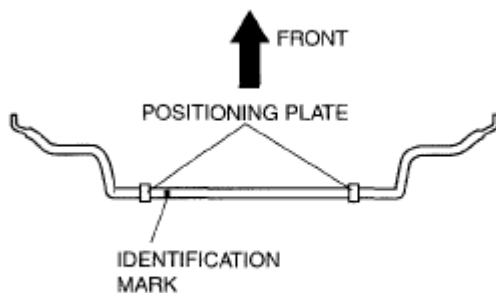
1	Front stabilizer component
2	Front stabilizer control link
3	Stabilizer bracket (See 02-13-9 Stabilizer Bracket Installation Note.)

4	Stabilizer bushing (See 02-13-9 Stabilizer Bushing Installation Note.)
5	Front stabilizer (See 02-13-9 Front Stabilizer Installation Note.)

Fig. 14: Identifying Front Stabilizer Bar Grease Applying Area & Torque Specifications
Courtesy of MAZDA MOTORS CORP.

FRONT STABILIZER INSTALLATION NOTE

1. Install the stabilizer bar so that the identification mark is on the left side of the vehicle.



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Fig. 15: Identifying Stabilizer Bar Identification Mark
Courtesy of MAZDA MOTORS CORP.

STABILIZER BUSHING INSTALLATION NOTE

1. Align the outer side of the positioning plate with the stabilizer bushing.

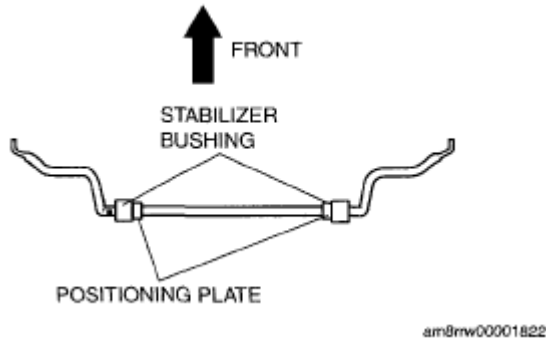


Fig. 16: Aligning Outer Side Of Positioning Plate With Stabilizer Bushing
Courtesy of MAZDA MOTORS CORP.

STABILIZER BRACKET INSTALLATION NOTE

1. Install the stabilizer bracket so that the arrow is pointed to the front.

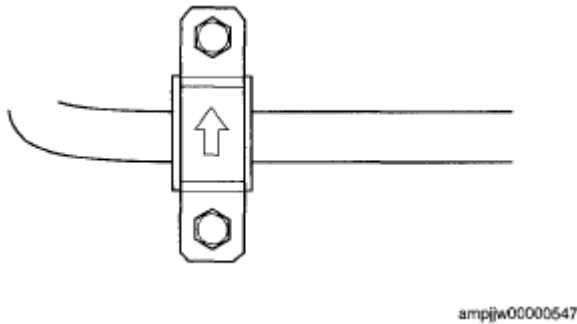


Fig. 17: Identifying Stabilizer Bracket Bolt
Courtesy of MAZDA MOTORS CORP.

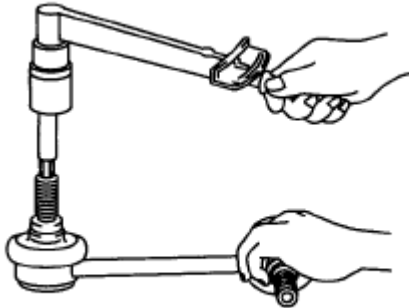
FRONT STABILIZER CONTROL LINK INSPECTION

1. Remove the stabilizer control link from the vehicle.
2. Inspect for bending and damage.
3. Measure the ball joint starting torque.
 1. Rock the ball joint stud side to side 10 times.
 2. Rotate the ball joint stud 10 times.
 3. Measure the starting torque using a suitable alien socket and a torque wrench.

Front stabilizer control link ball joint starting torque

0.2-2.0 N.m {3-20 kgf.cm, 2-17 in.lbf}

- If not as specified, replace the stabilizer control link.



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Fig. 18: Measuring Ball Joint Starting Torque
Courtesy of MAZDA MOTORS CORP.

FRONT CROSSMEMBER REMOVAL/INSTALLATION

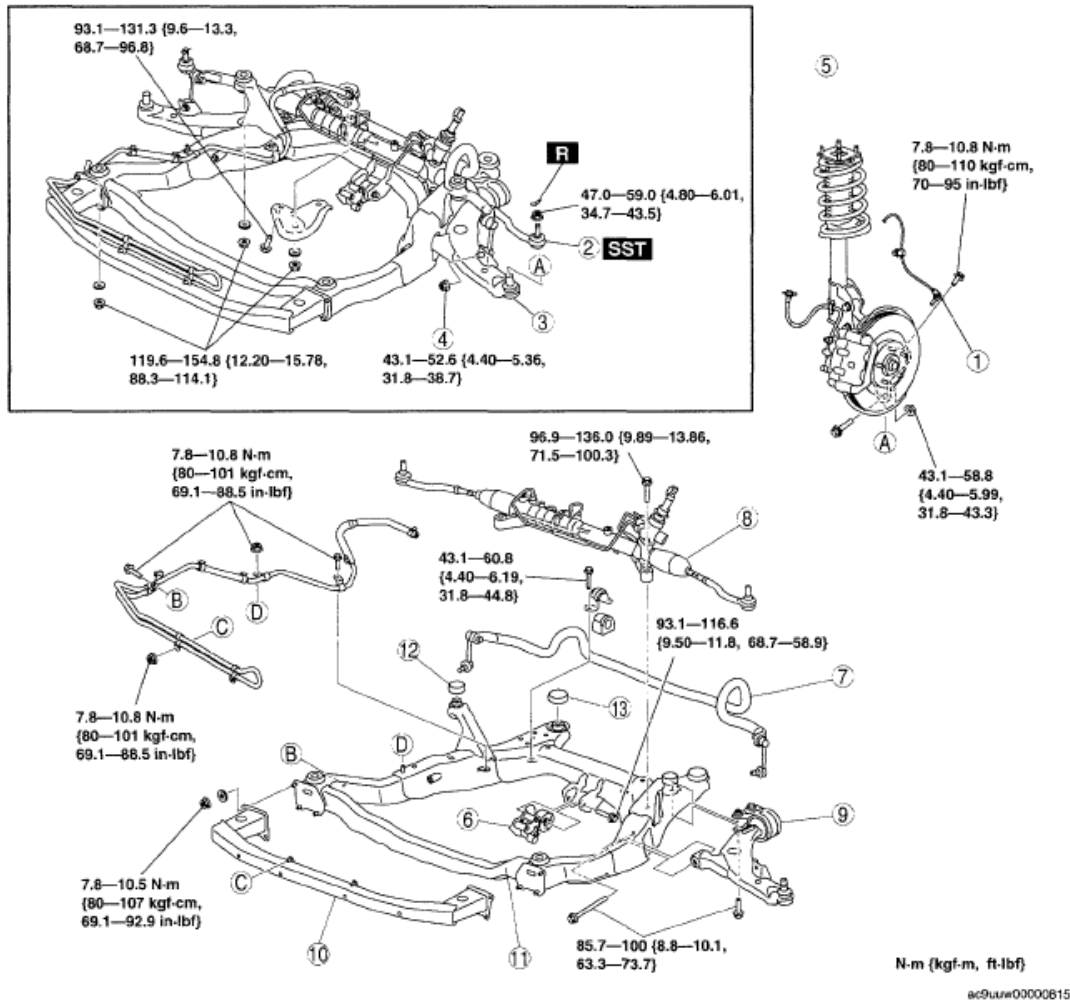
CAUTION:

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

1. Drain the power steering fluid. (See **POWER STEERING FLUID INSPECTION** .)
2. Remove the front under cover A and front under cover B. (See **FRONT UNDER COVER REMOVAL/INSTALLATION** .)
3. Remove the middle pipe. (See **EXHAUST SYSTEM REMOVAL/INSTALLATION [MZI-3.7]** .)
4. Remove the transverse member. (See **TRANSVERSE MEMBER REMOVAL/INSTALLATION**.)
5. Remove the intermediate shaft installation bolt, and disconnect the steering shaft. (See **STEERING WHEEL AND COLUMN REMOVAL/INSTALLATION** .)
6. Remove in the order indicated in the table.
7. Install in the reverse order of removal.
8. Inspect the front wheel alignment, and adjust it as necessary. (See **FRONT WHEEL ALIGNMENT** .)

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2008 SUSPENSION Front Suspension - Mazda CX-9



1	ABS wheel-speed sensor
2	Tie-rod end ball joint (See 02-13-12 Tie-rod End Ball Joint Removal Note.)
3	Front lower arm ball joint
4	Stabilizer control link lower side nut
5	Steering gear and linkage, front stabilizer, front lower arm and front crossmember component (See 02-13-12 Steering Gear And Linkage, Front Stabilizer, Front Lower Arm and Front Crossmember Component Removal Note.) (See 02-13-14 Steering Gear And Linkage, Front Stabilizer, Front Lower Arm and Front Crossmember Component Installation Note.)

6	No.1 engine mount
7	Front stabilizer
8	Steering gear and linkage
9	Front lower arm
10	Front crossmember extension
11	Front crossmember
12	Front crossmember mounting rubber (front) (See 02-13-13 Front Crossmember Mounting Rubber (Front) Installation Note)
13	Front crossmember mounting rubber (rear) (See 02-13-13 Front Crossmember Mounting Rubber (Rear) Installation Note)

Fig. 19: Identifying Front Cross Member Components & Torque Specifications
 Courtesy of MAZDA MOTORS CORP.

TIE-ROD END BALL JOINT REMOVAL NOTE

1. Remove the tie-rod end ball joint locknut.
2. Disconnect the tie-rod end ball joint using the SST.

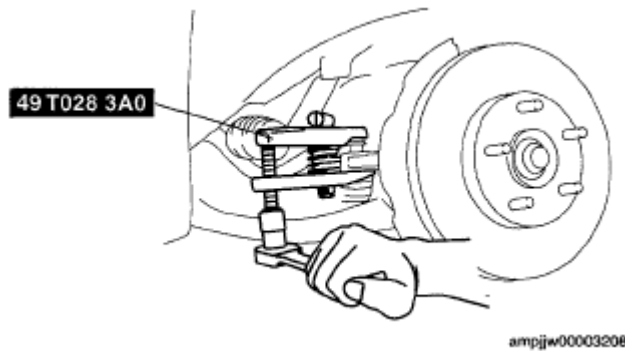


Fig. 20: Disconnecting Tie-Rod End Ball Joint
Courtesy of MAZDA MOTORS CORP.

STEERING GEAR AND LINKAGE, FRONT STABILIZER, FRONT LOWER ARM AND FRONT CROSSMEMBER COMPONENT REMOVAL NOTE

WARNING:

- Removing the crossmember component is dangerous. The crossmember component could fall and cause serious injury or death. Verify that the jack securely supports the crossmember component.

1. Support the crossmember component with a jack.

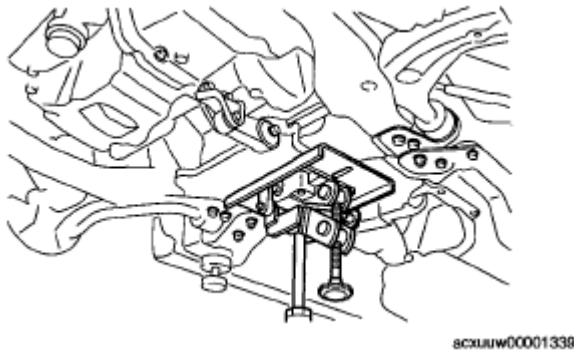
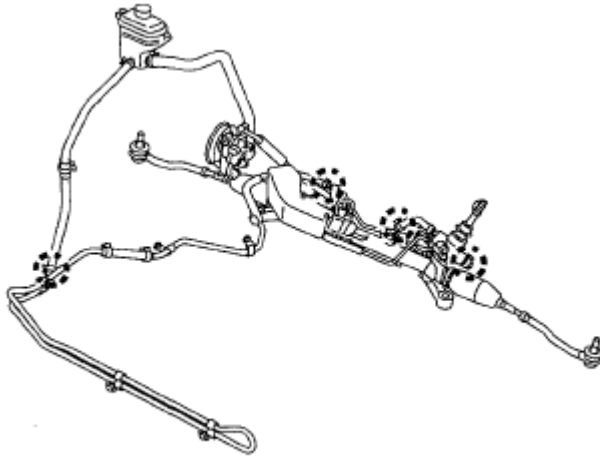


Fig. 21: Supporting Crossmember Component With Jack
Courtesy of MAZDA MOTORS CORP.

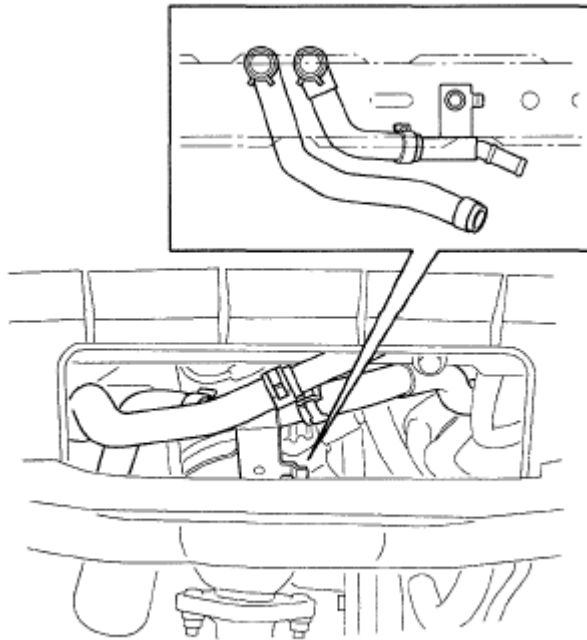
2. Disconnect the following parts.
 - Pressure hose eye connector
 - Return hose clamp (steering gear side)
 - Pressure hose bracket
 - Return hose clamp (tank side)



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Fig. 22: Identifying Pressure Hose Eye Connector & Return Hose Clamp
Courtesy of MAZDA MOTORS CORP.

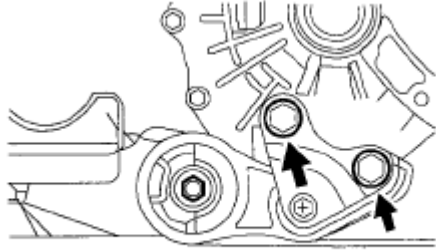
3. Disconnect the oil cooler bracket.



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Fig. 23: Identifying Oil Cooler Bracket
Courtesy of MAZDA MOTORS CORP.

4. Remove the No.1 engine mounting bracket bolts.
5. Lower the steering gear and linkage, front stabilizer, front lower arm and front crossmember component slightly.

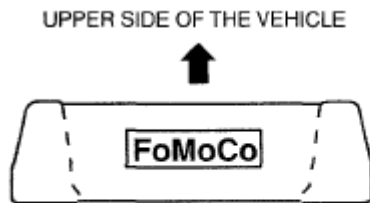


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Fig. 24: Locating No.1 Engine Mounting Bracket Bolts
Courtesy of MAZDA MOTORS CORP.

FRONT CROSSMEMBER MOUNTING RUBBER (FRONT) INSTALLATION NOTE

1. Install so that the smaller end of the outer diameter is pointing up.

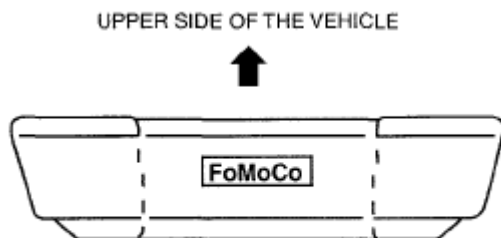


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Fig. 25: Identifying Front Crossmember Mounting Rubber (Front) Installation
Courtesy of MAZDA MOTORS CORP.

FRONT CROSSMEMBER MOUNTING RUBBER (REAR) INSTALLATION NOTE

1. Install so that the larger end of the outer diameter is pointing up.



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Fig. 26: Identifying Front Crossmember Mounting Rubber (Rear) Installation
Courtesy of MAZDA MOTORS CORP.

STEERING GEAR AND LINKAGE, FRONT STABILIZER, FRONT LOWER ARM AND FRONT CROSSMEMBER COMPONENT INSTALLATION NOTE

1. Using a jack, install steering gear and linkage, front stabilizer, and front crossmember component.

Tightening torque

119.6-154.8 N.m {12.20-15.78 kgf.m, 88.3-114.1 ft.lbf}

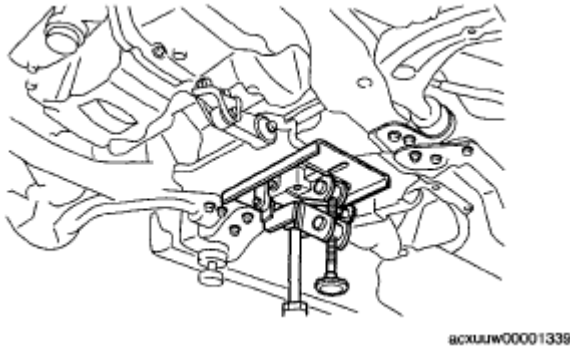


Fig. 27: View Of Steering Gear & Linkage
Courtesy of MAZDA MOTORS CORP.

2. Connect the following parts.
 - Pressure hose eye connector
 - Return hose clamp (steering gear side)
 - Pressure hose bracket
 - Return hose clamp (tank side)

Tightening torque

- **Pressure hose eye connector: 29.4-44.1 N.m {3.00-4.49 kgf.m, 21.7-32.5 ft.lbf}**

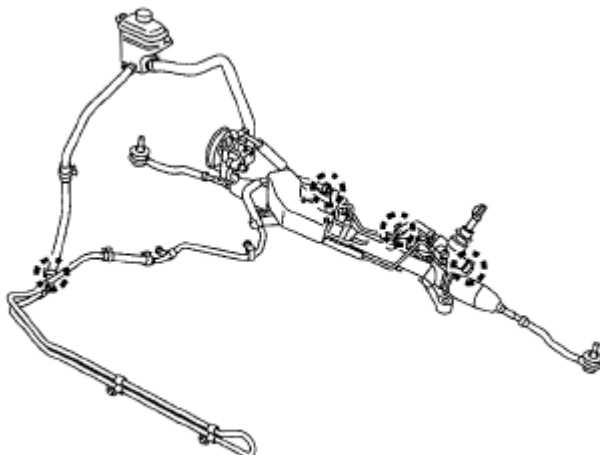


Fig. 28: Identifying Return Hose Clamp & Pressure Hose Bracket

Courtesy of MAZDA MOTORS CORP.

3. Tighten the bolts on the No.1 engine mounting bracket in the order of A, B.

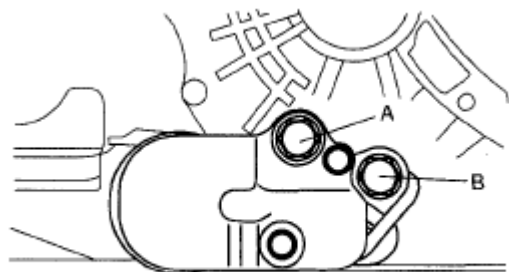
Tightening torque

93.1-116.6 N.m {9.50-11.8 kgf.m, 68.7-85.9 ft.lbf}

4. Tighten the No.1 engine mount bolt A at the specified torque.

Tightening torque

93.1-116.6 N.m {9.50-11.8 kgf.m, 68.7-85.9 ft.lbf}



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Fig. 29: Identifying No.1 Engine Mounting Bracket Bolts
Courtesy of MAZDA MOTORS CORP.

5. Install the steering gear and linkage, front stabilizer, front lower arm and front crossmember component.
6. Tighten the No.1 engine mount bolt (crossmember side).

Tightening torque 93.1-116.6 N.m {9.50-11.8 kgf.m, 68.7-85.9 ft.lbf}

TRANSVERSE MEMBER REMOVAL/INSTALLATION

1. Remove the transverse member.

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2008 SUSPENSION Front Suspension - Mazda CX-9

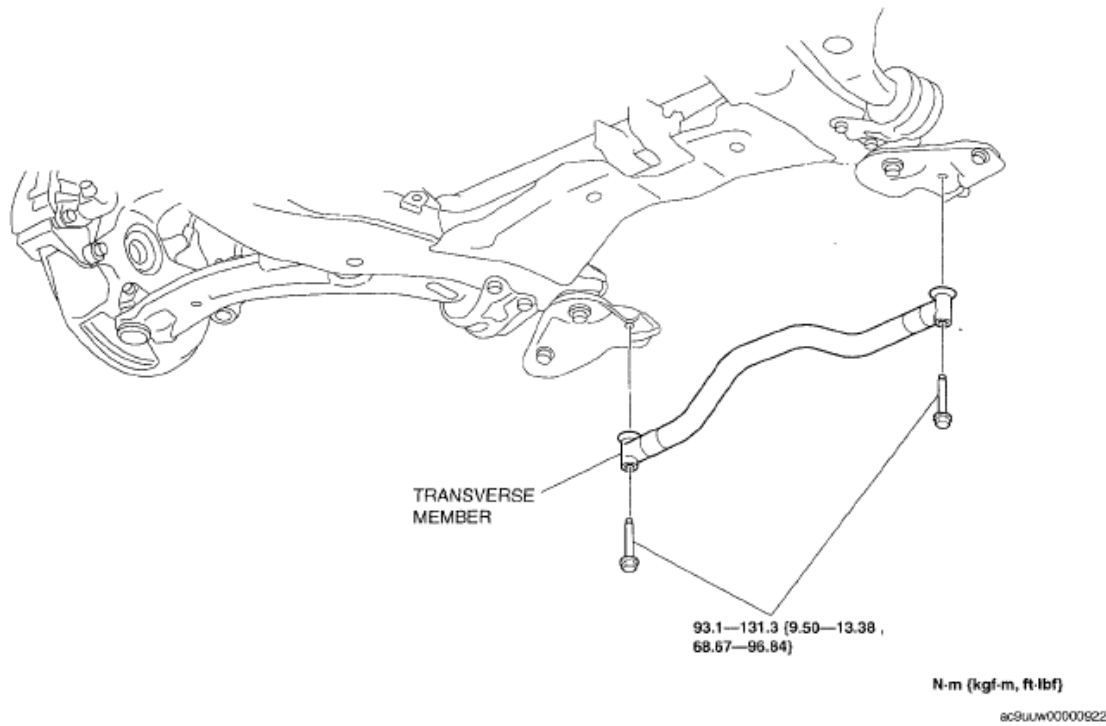


Fig. 30: Identifying Transverse Member & Torque Specifications
Courtesy of MAZDA MOTORS CORP.

2. Install the transverse member with the identification mark facing the rear right of the vehicle.

VIEW FROM REAR OF THE VEHICLE

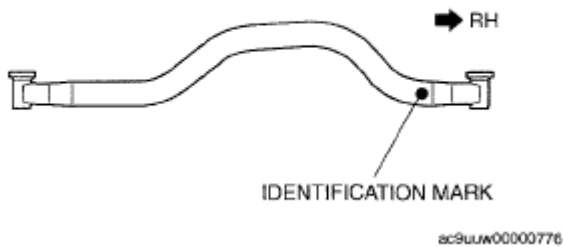


Fig. 31: Identifying Transverse Member With Identification Mark
Courtesy of MAZDA MOTORS CORP.