

GROUP 34

REAR SUSPENSION

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FASTENER TIGHTENING SPECIFICATIONS

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Item	Specification
Shock absorber assembly	
Shock absorber assembly and torsion axle arm assembly connection bolt	116 ± 11 N·m (86 ± 8 ft-lb)
Shock absorber self-locking nut	27 ± 2 N·m (20 ± 1 ft-lb)
Torsion axle arm assembly	
Torsion axle arm assembly connection bolt	82 ± 8 N·m (60 ± 6 ft-lb)
Plate connection bolt	12 ± 4 N·m (9 ± 3 ft-lb)
Parking brake cable connection bolt	12 ± 4 N·m (9 ± 3 ft-lb)

SERVICE SPECIFICATIONS

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Item	Standard value
Camber	-1°00' ± 0°45' *
Toe-in	At the center of tire tread mm (in) 2.5 ± 3 (0.10 ± 0.12)

NOTE: *: Difference between right and left wheels must be 0°30' or less.

REAR SUSPENSION DIAGNOSIS

INTRODUCTION TO REAR SUSPENSION DIAGNOSIS

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If the rear suspension is faulty, the vehicle will not run straightforward or noise will occur. Incorrect wheel alignment, malfunction of shock absorber, coil spring or worn or out-of-balance will cause these problems.

REAR SUSPENSION DIAGNOSTIC TROUBLESHOOTING STRATEGY

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Use these steps to plan your diagnostic strategy. If you follow them carefully, you will be sure that you have exhausted most of the possible ways to find a rear suspension fault.

1. Gather information from the customer.

2. Verify that the condition described by the customer exists.
3. Find the malfunction by following the Symptom Chart.
4. Verify malfunction is eliminated.

SYMPTOM CHART

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Symptom	Inspection procedure	Reference page
Squeaks or other abnormal noise	1	P.34-3
Poor ride	2	P.34-3
Body tilting	3	P.34-3

SYMPTOM PROCEDURES

INSPECTION PROCEDURE 1: Squeaks or other Abnormal Noise

DIAGNOSIS

STEP 1. Check for loose rear suspension installation bolts and nuts.

Q: Are the rear suspension installation bolts and nuts loose?

YES : Retighten them, then go to Step 4.

NO : Go to Step 2.

STEP 2. Check the malfunction of shock absorbers (worn bushings).

Q: Are the shock absorbers (bushings) in good condition?

YES : Go to Step 4.

NO : Replace the faulty part, then go to Step 3.

STEP 3. Check the torsion axle arm assembly for deformity or damage.

Q: Are the torsion axle arm assembly in good condition?

YES : Go to Step 4.

NO : Replace the faulty part, and then go to Step 4.

STEP 4. Retest the system.

Q: Is the malfunction eliminated?

YES : The procedure is complete.

NO : Return to Step 1.

INSPECTION PROCEDURE 2: Poor Ride

DIAGNOSIS

STEP 1. Check the excessive tire inflation pressure.

Refer to GROUP 31, On-vehicle Service –Tire Inflation Pressure Check [P.31-41](#).

Q: Is the tire inflation pressure in good condition?

YES : Go to Step 2.

NO : Adjust the pressure, then go to Step 3.

STEP 2. Check for malfunction of shock absorbers (weak or broken springs).

Q: Are the shock absorbers in good condition?

YES : Go to Step 3.

NO : Replace the faulty part, then go to Step 3.

STEP 3. Retest the system.

Q: Is the malfunction eliminated?

YES : The procedure is complete.

NO : Return to Step 1.

INSPECTION PROCEDURE 3: Body Tilting

DIAGNOSIS

STEP 1. Check for weak or deteriorated bushings.

Q: Are the bushings in good condition?

YES : Go to Step 2.

NO : Replace the faulty part, then go to Step 4.

STEP 2. Check for weak or broken springs.

Q: Are the springs in good condition?

YES : Go to Step 3.

NO : Replace the faulty part, then go to Step 4.

STEP 3. Check the torsion axle arm assembly for deformity or damage.

Q: Are the torsion axle arm assembly in good condition?

YES : Go to Step 4.

NO : Replace the faulty part, and then go to Step 4.

STEP 4. Retest the system.

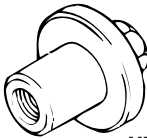
Q: Is the malfunction eliminated?

YES : The procedure is complete.

NO : Return to Step 1.

SPECIAL TOOLS

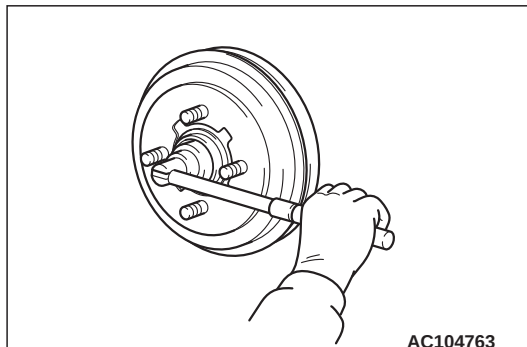
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Tool	Tool number and name	SUPERSESSON	Use
 MB991004	MB991004 Wheel alignment gauge attachment	MB991004-01 or General service tool	Measurement of wheel alignment <Vehicles with aluminum wheels>

ON-VEHICLE SERVICE

REAR WHEEL ALIGNMENT CHECK AND ADJUSTMENT

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⚠ CAUTION

- Do not apply the vehicle weight to the wheel bearing while loosening the self-locking nut, or the wheel bearing will be damaged.
- Use an manual tool only to remove the self-locking nut. (Do not use an electric or air tool).
- Do not loosen the self-locking nut more than eight turns per one minute.

Measure wheel alignment with an alignment equipment on level ground.

The rear suspension, wheels, and tires should be serviced to the normal condition prior to wheel alignment measurement.

TOE-IN

Standard value:

At the center of tire tread: 2.5 ± 3 mm (0.10 ± 0.12 inch)

NOTE:

The toe-in is pre-adjusted at factory and is not adjustable.

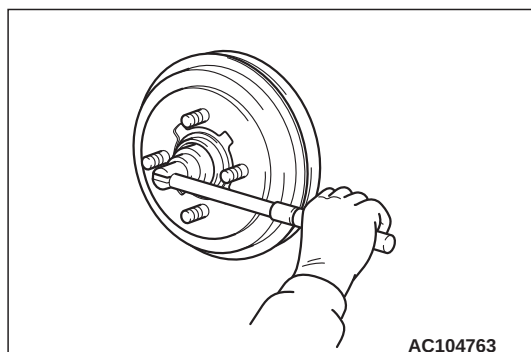
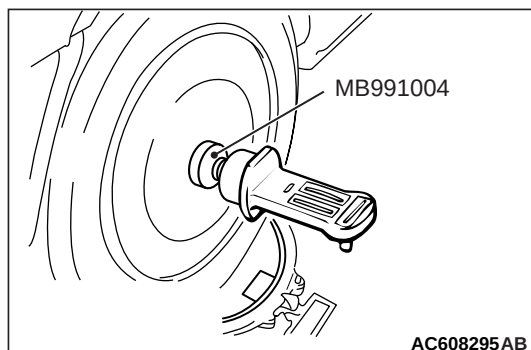
CAMBER

Required Special Tools:

- MB991004: Wheel Alignment Gauge Attachment

Standard value: $-1^{\circ}00' \pm 0^{\circ}45'$

NOTE:



- Difference between right and left wheels must be 0°30' or less.
- The camber is pre-adjusted at factory and is not adjustable.
- For vehicles with aluminum wheels, tighten special tool wheel alignment gauge attachment (MB991004) to the specified torque, then measure the camber.

⚠ CAUTION

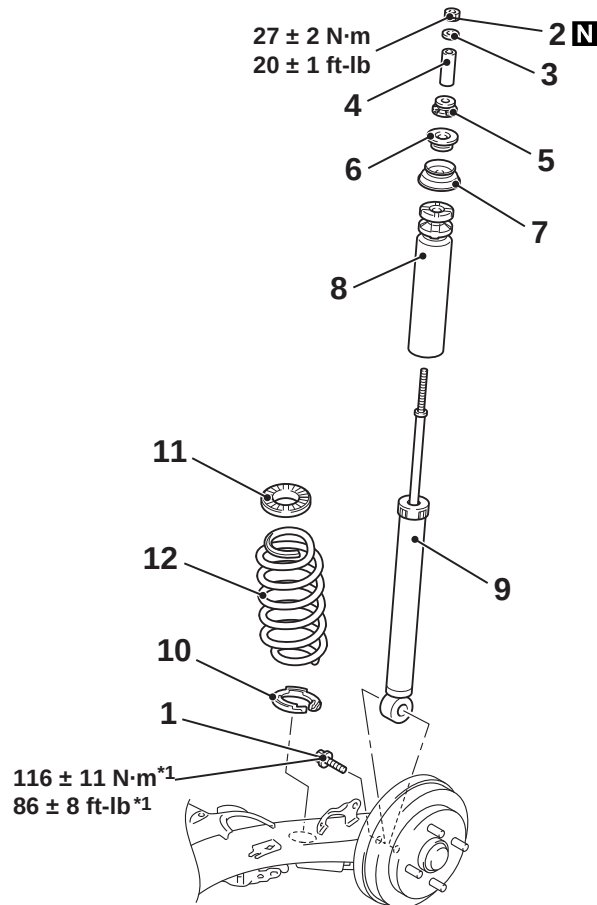
- Before securely tightening the self-locking nuts, make sure there is no load on the wheel bearings. Otherwise the wheel bearing will be damaged.
- Use an manual tool only to tighten the self-locking nut. (Do not use an electric or air tool).
- Do not tighten the self-locking nut more than eight turns per one minute.

REMOVAL AND INSTALLATION

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CAUTION

- The parts indicated by *1 should be temporarily tightened, and then fully tightened with the vehicle standing on the ground and the curb weight condition.



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<<A>>

Removal steps

1. Bolt (Securing the shock absorber assembly to the torsion axle arm assembly)
- Maintenance lid (refer to GROUP 52A – Interior Trim [P.52A-9](#)).
2. Self-locking nut
3. Washer
4. Collar

Removal steps (Continued)

5. Upper bushing
6. Lower bushing
7. Cup
8. Bump stopper
9. Shock absorber assembly
- >>A<< 10. Lower spring pad
- >>A<< 11. Upper spring pad
- >>A<< 12. Coil spring

REMOVAL SERVICE POINT

<<A>> BOLT REMOVAL

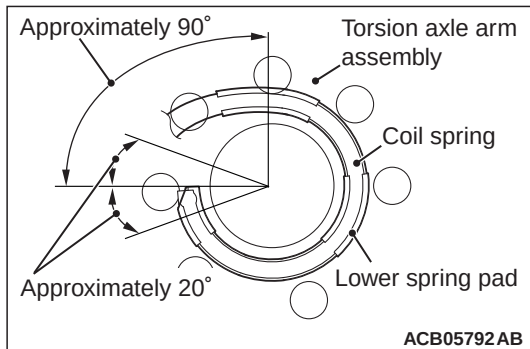
Jack up and support the torsion axle arm assembly, and remove the bolt.

NOTE: Do not support the torsion beam in order to prevent damage.

INSTALLATION SERVICE POINT

>>A<< COIL SPRING/UPPER SPRING PAD/LOWER SPRING PAD INSTALLATION

1. The identification color of the coil spring should be located at the lower side.
2. Fit the lower pad and the upper pad into the coil spring ends.
3. The lower end of the coil spring should be position $90 \pm 20^\circ$ counterclockwise away from the vehicle front direction.



TORSION AXLE ARM ASSEMBLY

REMOVAL AND INSTALLATION

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⚠ CAUTION

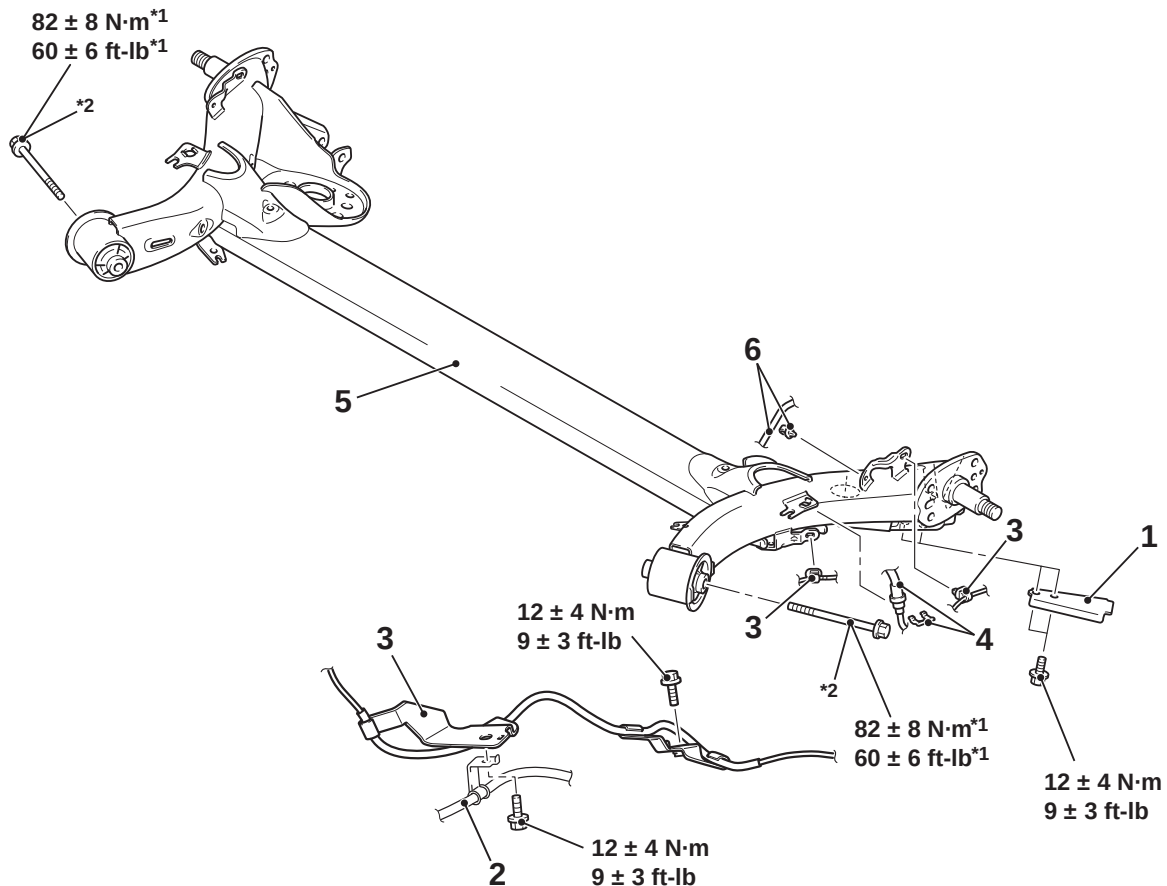
- The parts indicated by *¹ should be temporarily tightened, and then fully tightened with the vehicle standing on the ground and the curb weight condition.
- The parts indicated by *² are the bolts with friction coefficient stabilizer. In removal, ensure there is no damage, clean dust and soiling from the bearing and thread surfaces, and tighten them to the specified torque.

Pre-removal Operation

- Backing Plate Removal (Refer to GROUP 35A, Rear Drum Brake [P.35A-36](#)).
- Shock Absorber and Coil Spring Removal (Refer to [P.34-6](#)).

Post-installation Operation

- Shock Absorber and Coil Spring Installation (Refer to [P.34-6](#)).
- Backing Plate Installation (Refer to GROUP 35A, Rear Drum Brake [P.35A-36](#)).
- Parking Brake Pedal Stroke Adjustment (Refer to GROUP 36, On-vehicle Service – Parking Brake Pedal Stroke Check and Adjustment [P.36-5](#)).



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Removal steps

1. Plate
2. Parking brake cable (Refer to GROUP 36 – Parking brake cable Removal and Installation [P.36-9](#))

Removal steps (Continued)

3. Rear wheel speed sensor (Refer to GROUP 35C – Wheel Speed Sensor Removal and Installation [P.35C-139](#))
4. Brake hose and clamp
5. Torsion axle arm assembly
6. Brake tube and clip

INSPECTION

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- Check the rubber parts for cracks and wear.
- Check the shock absorber for malfunction, oil leakage, or abnormal noise.

NOTES