
FRONT SUSPENSION

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GENERAL INFORMATION

The front suspension is a Mcpherson strut with coil spring. The shock absorber is hydraulic double-acting type.

COIL SPRING

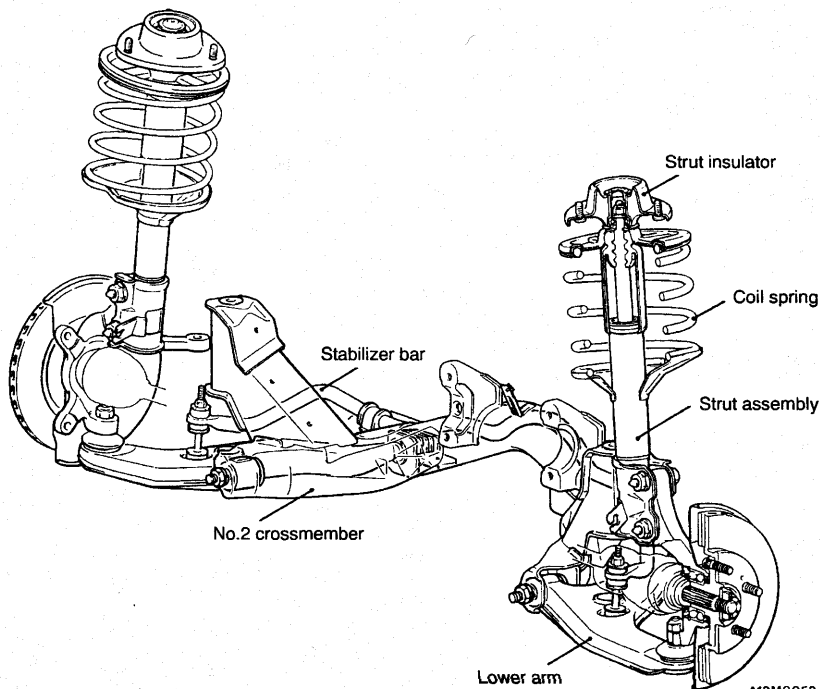
2-door models

Item	1.5L M/T 1.8L M/T	1.5L A/T 1.8L A/T
Wire diameter x free length mm (in.)	12 x 138 x 340 (.47 x 5.43 x 13.39)	12 x 138 x 350 (.47 x 5.43 x 13.78)

4-door models

Item	1.5L 1.8L without ABS	1.8L with ABS
Wire diameter x free length mm (in.)	12 x 138 x 350 (.47 x 5.43 x 13.78)	12 x 138 x 360 (.47 x 5.43 x 14.17)

CONSTRUCTION DIAGRAM



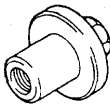
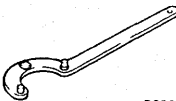
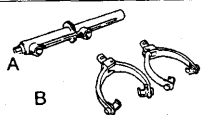
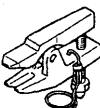

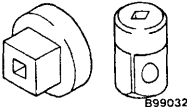
SERVICE SPECIFICATIONS

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Items		Specifications
Toe-in mm(in.)		0 ± 3 (0 ± .12)
Steering angle	Inner wheel	37°30' ± 2°00'
	Outer wheel	31°40'
Camber		0°00' ± 30' (Left/right deviation within 30')
Caster		2°51' ± 30' (Left/right deviation within 30')
Lower arm ball joint breakaway torque Nm (in.lbs.)		1.0 – 6.4 (9 – 56)
Protruding length of stabilizer bar mounting bolt mm (in.)		22 (.87)

SPECIAL TOOLS

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Tool	Tool number and name	Supersession	Application
 B991004	MB991004 Wheel alignment gauge attachment	MB991004-01 or General service tool	Wheel alignment measurement
 B990278	MB990278 or MB990775 Special spanner	MB990775-01	Strut assembly disassembly/assembly
 A B 00003796	A: MB991237 Spring compressor body B: MB991238 Arm set	MIT 62220	Front coil spring compression
 B991113	MB991113 Steering linkage puller	MB991113-01	Lower arm ball joint removal
 B990800	MB990800 Ball joint remover and installer	MB990800-01	Dust cover installation
 B990326	MB990326 Preload socket	General service tool	Lower arm ball joint breakaway torque measurement

TROUBLESHOOTING

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Symptom	Probable cause	Remedy
Steering wheel is heavy, vibrates or pulls to one side	Suspension malfunction Ball joint Coil spring Wheel alignment	Adjust or replace
	Unbalanced or worn tires	Adjust or replace
Excessive vehicle rolling	Broken or deteriorated stabilizer Shock absorber malfunction	Replace
Poor riding	Improper tire inflation pressure	Adjust
	Broken or deteriorated coil spring Shock absorber malfunction	Replace
Inclination of vehicle	Broken or deteriorated coil spring	Replace
Noise	Lack of lubrication	Lubricate
	Looseness and wear of each part	Replace
	Broken coil spring Shock absorber malfunction	Replace

ON-VEHICLE SERVICE

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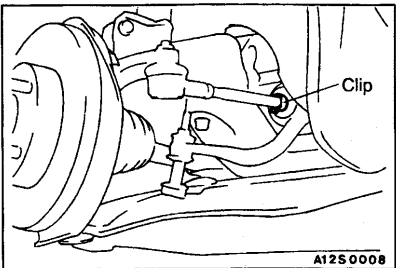
FRONT WHEEL ALIGNMENT CHECK AND ADJUSTMENT

Measure wheel alignment with alignment equipment on a level surface.

The front suspension, steering system, and wheels should be serviced to normal condition before measuring of wheel alignment.

TOE-IN

Standard value: 0 ± 3 mm ($0 \pm .12$ in.)

**NOTE**

1. If the toe-in is not within the standard value, adjust the toe-in by undoing the clips and turning the left and right tie rod turnbuckles by the same amount (in opposite directions).
2. The toe will move out as the left turnbuckle is turned toward the front of the vehicle and the right turnbuckle is turned toward the rear of the vehicle.
For each one turn of the left and right tie rods, the toe-in will be adjusted by approx. 1°05' (per wheel).

STEERING ANGLE

Standard value:

Inner wheel 37°30' ± 2°00'

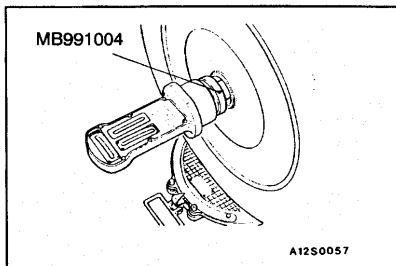
Outer wheel 31°40'

CAMBER AND CASTER

Standard value:

Camber 0°00' ± 30' (Left/right deviation within 30')

Caster 2°51' ± 30' (Left/right deviation within 30')

**NOTE**

1. Camber and caster are preset at the factory and cannot be adjusted.
2. If camber is not within the standard value, check and replace bent or damaged parts.
3. For vehicles with aluminum type wheels, attach the camber/caster/kingpin gauge to the drive shaft by using the special tool. Tighten the special tool to the same torque 177–275 Nm (130–203 ft.lbs.) as the drive shaft nut.

Caution

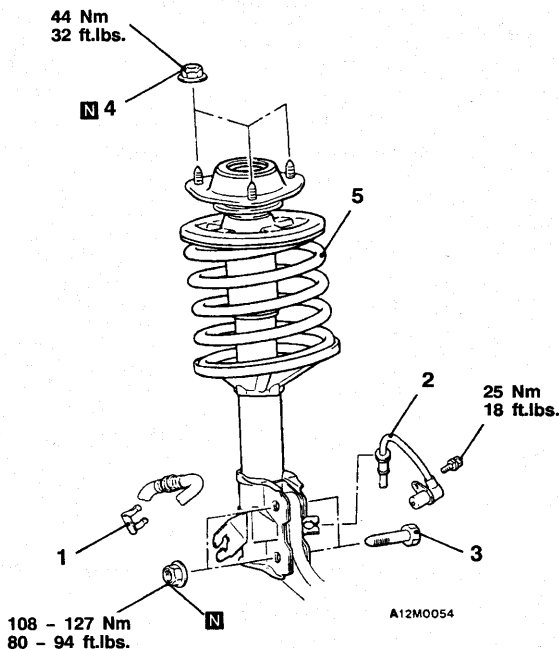
Never subject the wheel bearings to the vehicle load when the drive shaft nuts are loosened.

STRUT ASSEMBLY

REMOVAL AND INSTALLATION

Post-Installation Operation

- Front Wheel Alignment Adjustment
(Refer to P.33A-4.)

**Removal steps**

1. Brake hose clamp
2. Front speed sensor
<Vehicles with ABS>
3. Bolts
4. Self-locking nut
5. Strut assembly

Caution

For vehicles with ABS, be careful when handling the pole piece at the tip of the speed sensor so as not to damage it by striking against other parts.

REMOVAL SERVICE POINT**◀▶ BOLTS REMOVAL**

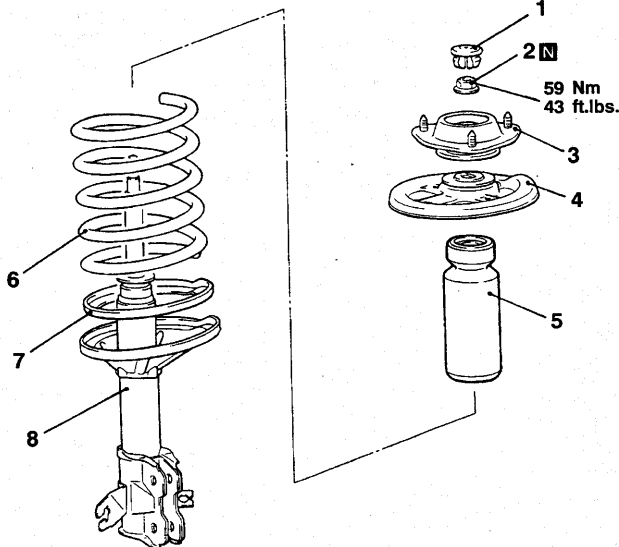
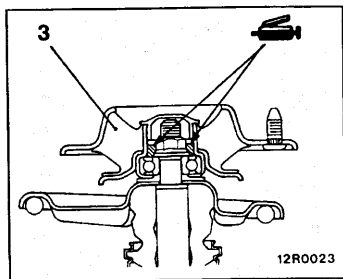
- (1) Suspend the lower arm from the vehicle with wire.
- (2) Remove the strut and knuckle connection.

INSPECTION

- Check for oil leaks from the strut assembly.
- Check the strut assembly for damage or deformation.

DISASSEMBLY AND REASSEMBLY

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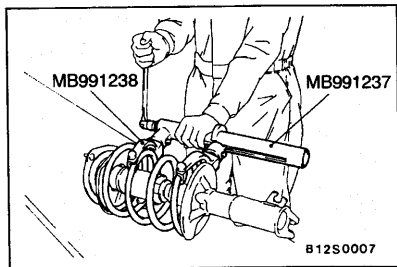
Disassembly steps



1. Dust cover
2. Self-locking nut
3. Strut insulator
4. Spring seat, upper



5. Bump rubber
6. Coil spring
7. Spring pad, lower
8. Strut assembly



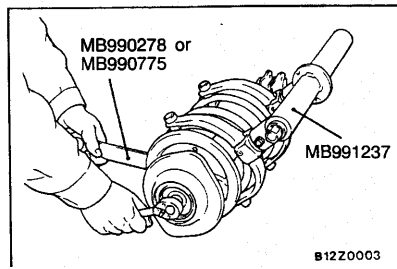
DISASSEMBLY SERVICE POINTS

◀A▶ SELF-LOCKING NUT REMOVAL

(1) Use the special tools to compress the coil spring.

Caution

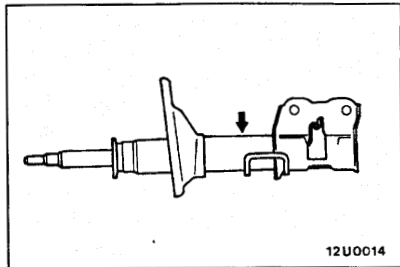
1. Install the special tools evenly, and so that the maximum length will be attained within the installation range.
2. Do not use an impact wrench to tighten the special tool bolt.



(2) Use the special tools to remove the self-locking nut.

Caution

Do not use an impact wrench.



◀B▶ STRUT ASSEMBLY REMOVAL

To discard the strut assembly, place the assembly horizontally with its piston rod extended. Then drill a hole of approx. 3 mm (.12 in.) in diameter at the location shown in the illustration and discharge the gas.

Caution

The gas itself is harmless but it may issue out of the hole together with chips generated by the drill. Therefore, be sure to wear goggles.

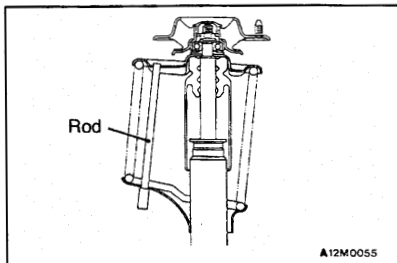
REASSEMBLY SERVICE POINT

▶A◀ SELF-LOCKING NUT INSTALLATION

- (1) With the coil spring held compressed by the special tools (MB991237 and MB991238), provisionally tighten the self-locking nut.

Caution

Do not use an impact wrench to tighten the special tool bolt.

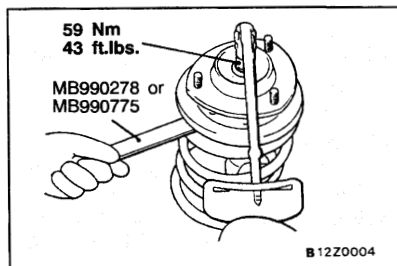


- (2) Line up the holes in the strut assembly spring lower seat with the hole in the spring upper seat.

NOTE

The alignment is easily accomplished with a rod.

- (3) Correctly align both ends of the coil spring with the grooves in the spring seat, and then loosen the special tools (MB991237 and MB991238).



- (4) Using the special tool, tighten the self-locking nut to the specified torque.

Caution

Do not use an impact wrench.

INSPECTION

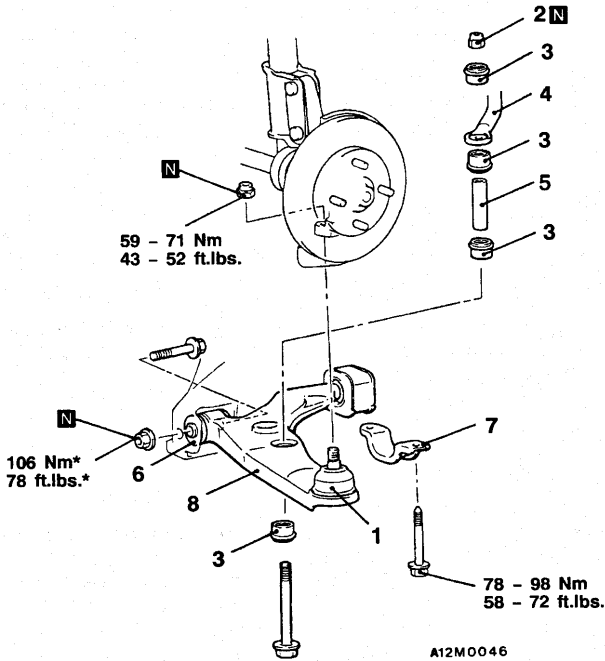
- Check the bearing for wear or rust.
- Check the rubber parts for damage or deterioration.
- Check the spring for deformation, deterioration or damage.
- Check the shock absorber for deformation.

LOWER ARM

REMOVAL AND INSTALLATION

Post-installation Operation

- Press the ball joint dust cover with a finger to check whether the dust cover is cracked or damaged.
- Front Wheel Alignment Adjustment (Refer to P.33A-4.)



Removal steps

1. Lower arm ball joint connection
2. Self-locking nut
3. Stabilizer rubber
4. Stabilizer bar
5. Collar
6. Lower arm front bushing connection
7. Support bracket
8. Lower arm assembly

Caution

*: Indicates parts which should be temporarily tightened, and then fully tightened with the vehicle on the ground in the unladen condition.

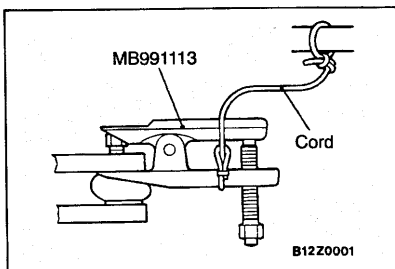
REMOVAL SERVICE POINT

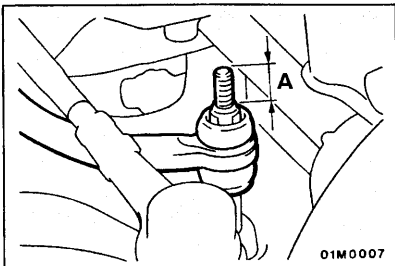
◀▶ LOWER ARM BALL JOINT DISCONNECTION

Use the special tool to disconnect the lower arm ball joint from the knuckle.

Caution

1. Using the special tool, loosen the tie rod end mounting nut. Only loosen the nut; do not remove it from the ball joint.
2. Support the special tool with a cord, etc. to prevent it from coming off.





INSTALLATION SERVICE POINT

▶A◀ SELF-LOCKING NUT INSTALLATION

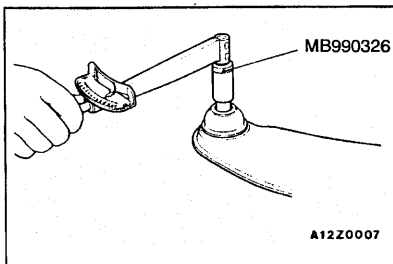
Tighten the self-locking nut so that the amount of protrusion of the end of the stabilizer bar mounting bolt is at the standard value.

Standard value (A): 22 mm (.87 in.)

INSPECTION

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- Check the bushing for wear and deterioration.
- Check the lower arm for bend or breakage.
- Check the support bracket for deterioration or damage.
- Check the ball joint dust cover for cracks.
- Check all bolts for condition and straightness.



BALL JOINT BREAKAWAY TORQUE CHECK

- (1) After shaking the ball joint stud several times, install the nut to the stud and use the special tool to measure the breakaway torque of the ball joint.

Standard value:

1.0 - 6.4 Nm (9 - 56 in.lbs.)

- (2) When the measured value exceeds the standard value, replace the ball joint.
- (3) When the measured value is lower than the standard value, check that the ball joint turns smoothly without excessive play. If so, it is possible to use that ball joint.

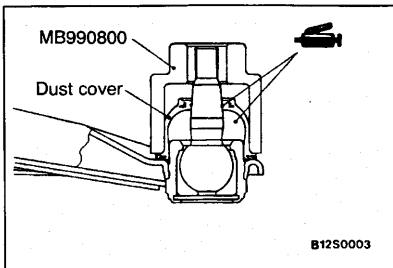
BALL JOINT DUST COVER CHECK

- (1) Press the dust cover with a finger to check whether the dust cover is cracked or damaged.

NOTE

If the dust cover is cracked, the ball joint could be damaged, so if the dust cover is damaged during maintenance work, replace it.

- (2) When dust cover is cracked or damaged, replace the lower arm ball joint assembly.

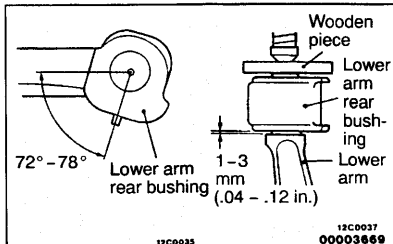


BALL JOINT DUST COVER REPLACEMENT

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Replace the dust cover only when it has been cracked or damaged by mistake during the maintenance work.

- (1) Remove the dust cover.
- (2) Apply multipurpose grease to the lip and inside of the dust cover.
- (3) Drive in the dust cover with special tool until it is fully seated.
- (4) Press the dust cover with a finger to check whether the dust cover is cracked or damaged.



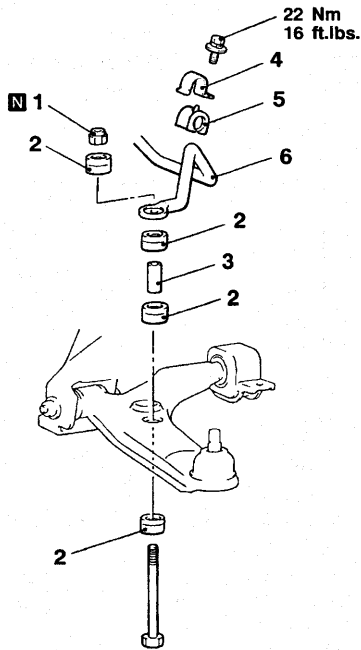
LOWER ARM REAR BUSHING REPLACEMENT

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- (1) Apply soapy water between the shaft and old bushing, and pry up bushing using a flat-tipped screwdriver.
- (2) Apply soapy water to the shaft and new bushing and install new bushing into the shaft at the angle shown in the illustration.
- (3) Press in the bushing as illustrated.

STABILIZER BAR**REMOVAL AND INSTALLATION****Pre-removal and Post-installation Operation**

- Crossmember Removal and Installation
(Refer to GROUP 32 - Crossmember.)



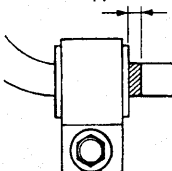
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Removal steps

- B◄
1. Self-locking nut
 2. Stabilizer rubber
 3. Collar

- A◄
4. Fixture
 5. Bushing
 6. Stabilizer bar

Approx. 10mm (.4 in.)



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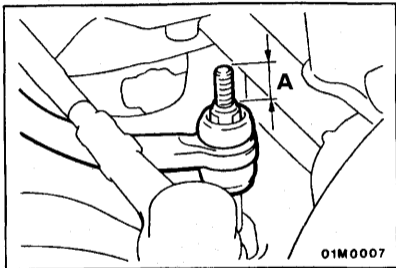
INSTALLATION SERVICE POINT**►A◄ BUSHING/FIXTURE INSTALLATION**

Place the identification mark of the stabilizer bar to the left, and install the bushing so that the identification mark protrudes approximately 10 mm (.4 in.) from the edge of the inside of the bushing.

▶B◀ SELF-LOCKING NUT INSTALLATION

Tighten the self-locking nut so that the amount of protrusion of the end of the stabilizer bar mounting bolt is at the standard value.

Standard value (A): 22 mm (.87 in.)

**INSPECTION**

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- Check the bushing for wear and deterioration.
- Check the stabilizer bar for deterioration or damage.