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# **REAR SUSPENSION**

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# REAR SUSPENSION

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## GENERAL INFORMATION

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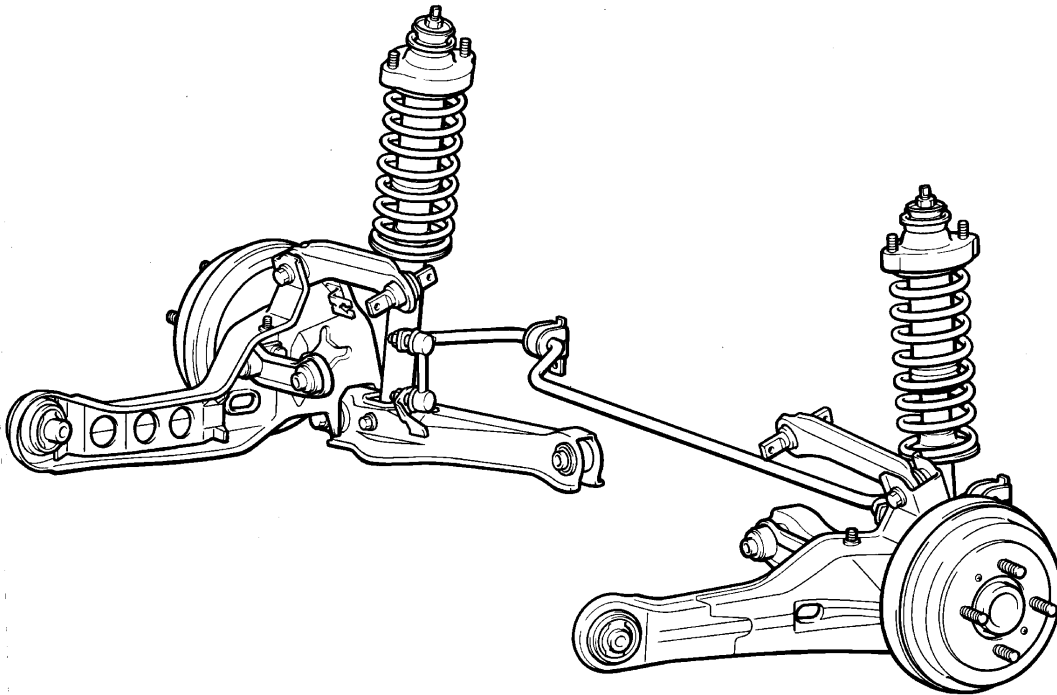
The rear suspension is a trailing arm type multi-link suspension. The shock absorber used on the strut

assembly is a hydraulic, cylindrical double-acting type.

## COIL SPRING

Items	Specifications
Wire dia. × O.D. × free length mm	10 × 96 × 400

## CONSTRUCTION DIAGRAMS



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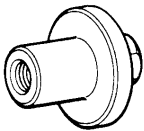
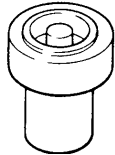
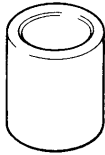
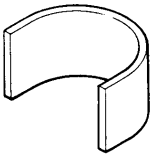
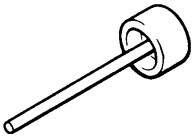

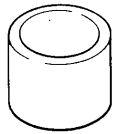
**SERVICE SPECIFICATIONS**

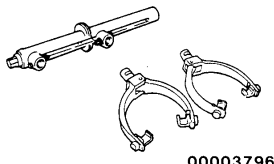
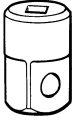

34100030211

Items		Specifications
Toe-in	At the centre of tyre tread mm	3 ± 2
	Toe-angle (per wheel)	0°09'±06'
Camber		-0°40'±30'
Stabilizer link ball joint turning torque Nm		1.7 – 3.1

**SPECIAL TOOLS**

34100060043

Tool	Number	Name	Use
	MB991004	Wheel alignment gauge attachment	Measurement of the wheel alignment (Vehicles with aluminium type wheels)
	MB991447	Bushing remover and installer	Driving out and press-fitting of lower arm bushing
	MB991448	Bushing remover and installer base	
	MB991449	Bushing remover and installer supporter	Driving out and press-fitting of trailing arm bushing
	MB991444	Bushing remover and installer arbor	
	MB991445	Bushing remover and installer base	Driving out and press-fitting of trailing arm bushing
	MB991446	Bushing remover and installer spacer	

Tool	Number	Name	Use
 <p>00003796</p>	<p>MB991237</p> <p>MB991239</p>	<p>Spring compressor body</p> <p>Arm set</p>	<p>Compression of the front coil spring</p>
	<p>MB990326</p>	<p>Preload socket</p>	<p>Checking of stabilizer link ball joint for turning torque</p>
	<p>MB990685</p>	<p>Torque wrench</p>	

## ON-VEHICLE SERVICE

33100100137

### REAR WHEEL ALIGNMENT CHECK AND ADJUSTMENT

Measure the wheel alignment with the vehicle parked on level ground.

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

#### TOE-IN

Standard value:

**At the centre of tyre tread  $3 \pm 2$  mm**

**Toe angle (per wheel)  $0^{\circ}09' \pm 06'$**

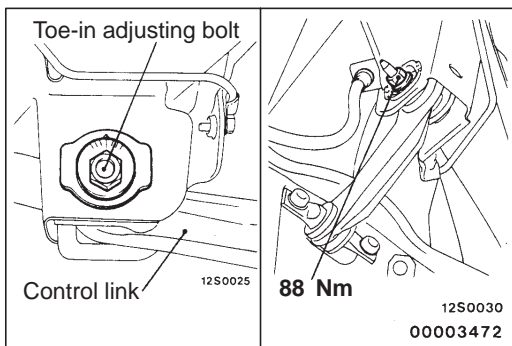
If outside the standard value, adjust by the following procedure.

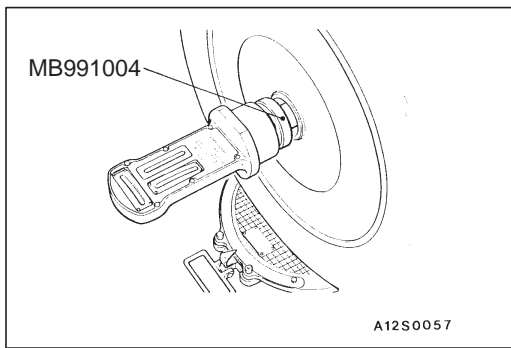
1. Be sure to adjust the camber before adjusting the toe-in.
2. Adjust by turning the toe adjusting bolt (mounting bolt on the inside of the control link).

LH: Turning clockwise → toe-in direction

RH: Turning clockwise → toe-out direction

The scale has gradations of approximately 2.6 mm (single side toe angle equivalent to 16')





**CAMBER**

**Standard value:  $-0^{\circ}40' \pm 30'$**

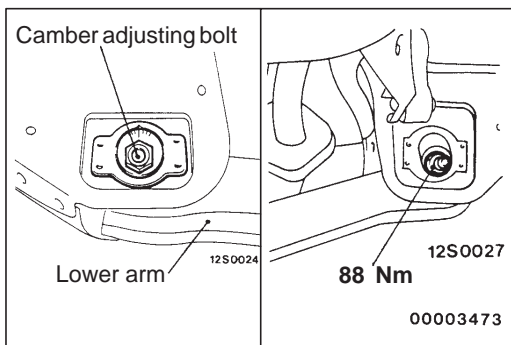
**(The difference between the left and right wheels should be 30' or less.)**

**NOTE**

For vehicles equipped with aluminium wheels, measure the camber after tightening the special tool (MB991004) to the specified torque 180 Nm.

**Caution**

**Do not apply full vehicle load to the wheel bearings when the flange nuts are loosened. Otherwise the wheel bearings will break..**



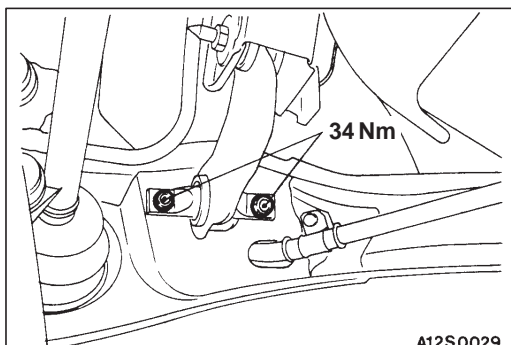
If outside the standard value, adjust by the following procedure.

1. Remove the connection between the control link and the trailing arm.
2. Adjust by turning the camber adjusting bolt (mounting bolt for the lower arm and rear crossmember).

Left wheel: clockwise + camber

Right wheel: clockwise – camber

The scale has gradations of approximately 14'



3. Tighten the control link to the trailing arm at the specified torque.
4. After adjusting the camber, be sure to adjust the toe-in.

**BALL JOINT DUST COVER CHECK**

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1. Check the dust cover for cracks or damage by pushing it with finger.
2. If the dust cover is cracked or damaged, replace the lower arm assembly.

**NOTE**

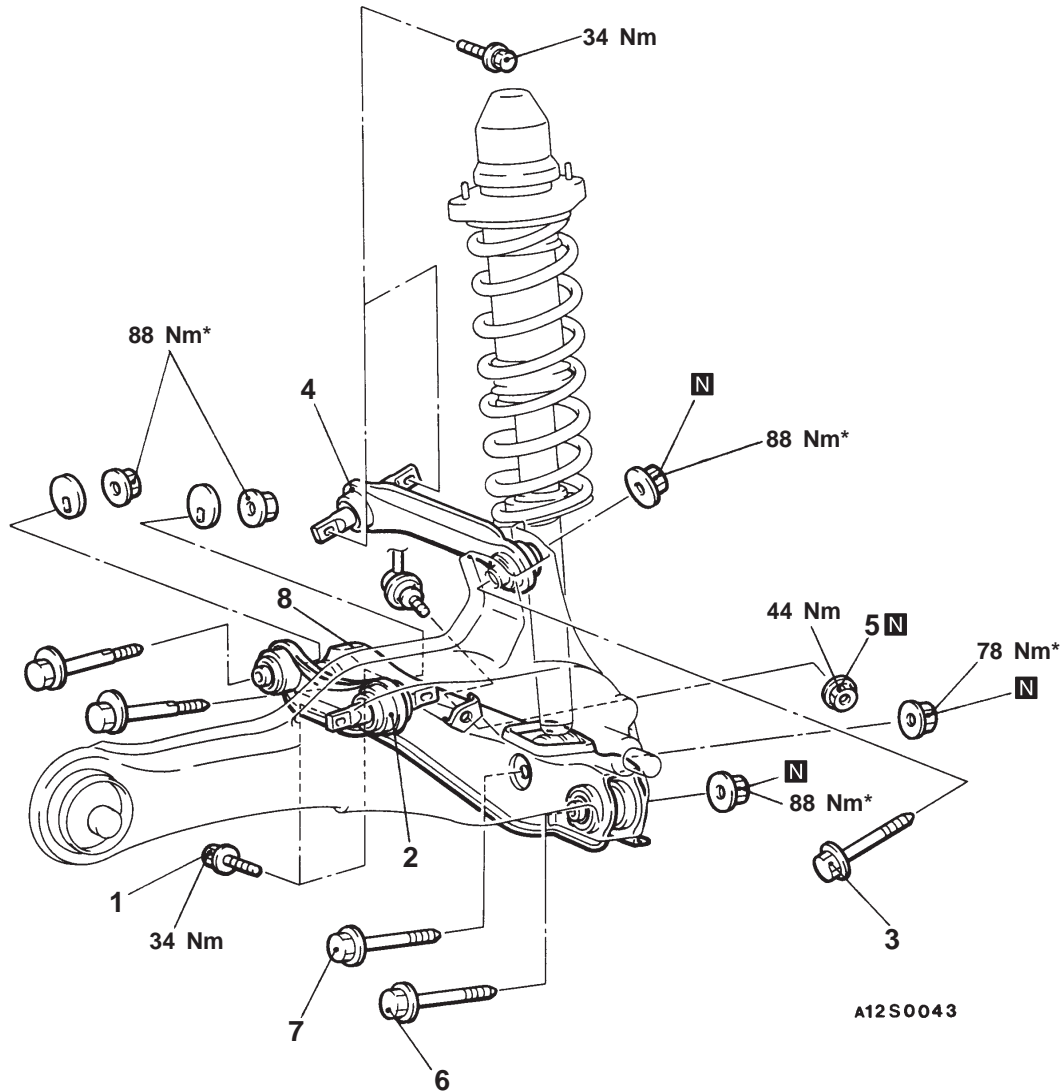
Cracks or damage of the dust cover may cause damage of the ball joint.

# CONTROL LINK, UPPER LINK AND LOWER ARM

## REMOVAL AND INSTALLATION

**Caution\*:** indicates parts which should be temporarily tightened, and then fully tightened with the vehicle on the ground in an unladen condition. Otherwise the bush will be damaged.

- Post-installation Operation**
- Check the Dust Cover for Cracks or Damage by Pushing it with Finger.
  - Wheel Alignment Check (Refer to P.34-4.)



**Control link removal steps**

1. Control link and trailing arm connection
2. Control link



**Upper link removal steps**

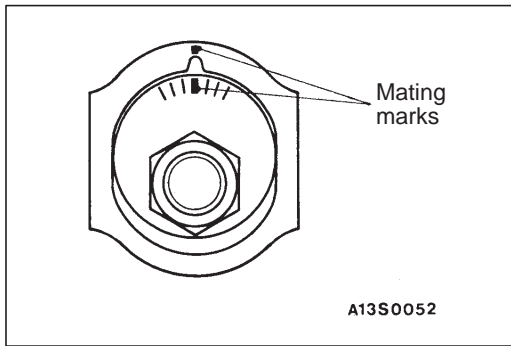
3. Upper link and trailing arm connection
4. Upper link



**Lower arm removal steps**

1. Control link and trailing arm connection
5. Stabilizer link and lower arm connection
6. Lower arm and trailing arm connection
7. Shock absorber assembly and lower arm connection
8. Lower arm

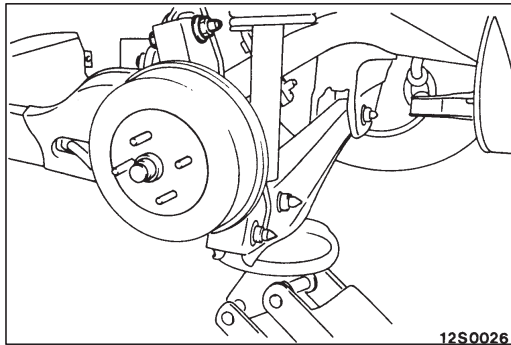




**REMOVAL SERVICE POINTS**

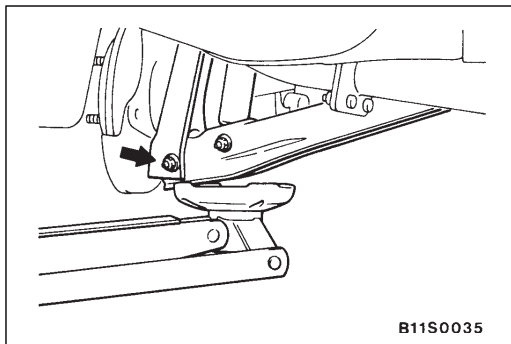
**◀A▶ CONTROL LINK/LOWER ARM REMOVAL**

After making a mating mark on the toe-in or camber adjusting bolt, remove the control link and lower arm.



**◀B▶ UPPER LINK AND TRAILING ARM DISCONNECTION**

After supporting the lower arm with a jack, separate the connection.



**◀C▶ LOWER ARM AND TRAILING ARM DISCONNECTION**

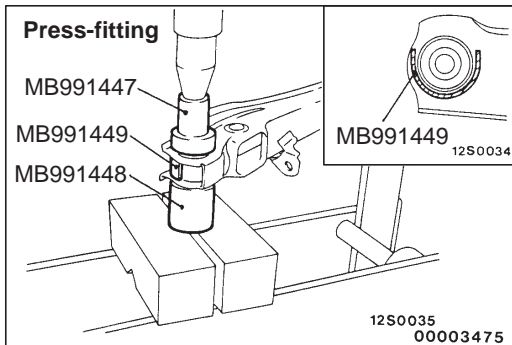
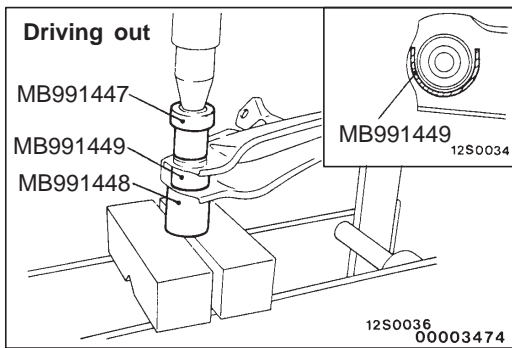
After supporting the lower arm with a jack, separate the connection.

**INSPECTION**

34100490026

- Check the bushing for wear and deterioration.
- Check the control link upper link and lower arm for bends or breakage.
- Check all bolts for condition and straightness.





## LOWER ARM BUSHING REPLACEMENT

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Use the special tools to drive out the press-fit the lower arm bushing.

### NOTE

If the special tool (MB991449) is hard to install, tap it with a plastic hammer.

### Caution

**Because the outside diameter of both edges of the bushing are different, be careful not to mistake the direction when driving out and press-fitting.**

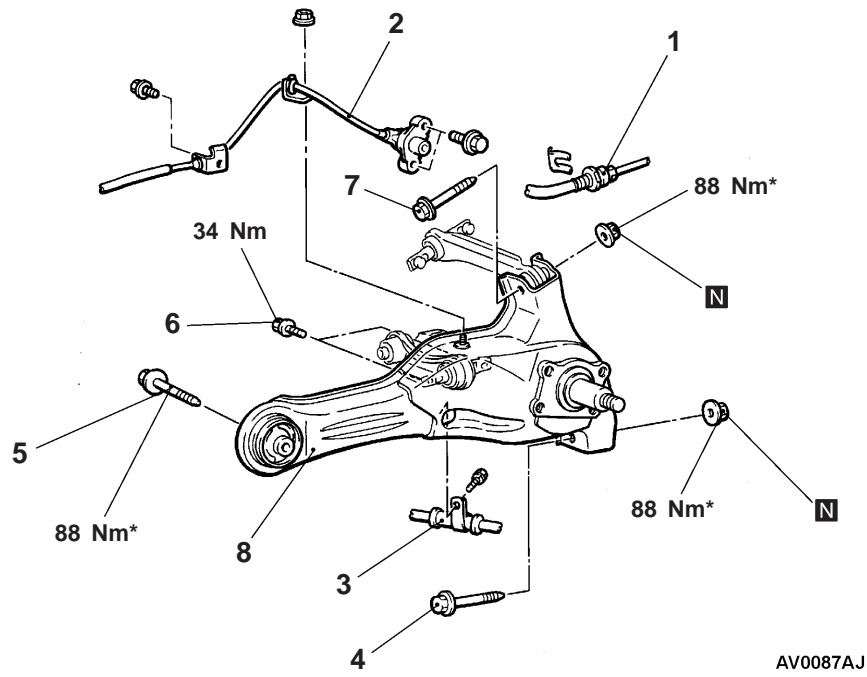
# TRAILING ARM

## REMOVAL AND INSTALLATION

**Caution\*:**

indicates parts which should be temporarily tightened, and then fully tightened with the vehicle on the ground in an unladen condition. Otherwise the bush will be damaged.

- Pre-removal and Post-installation Operation**
- Rear Brake Removal and Installation  
(Refer to GROUP 35A – Rear Brake.)
  - Rear Axle Hub Removal and Installation  
(Refer to GROUP 27 – Rear Axle Hub.)



**Removal steps**

◀A▶

- Lifting point

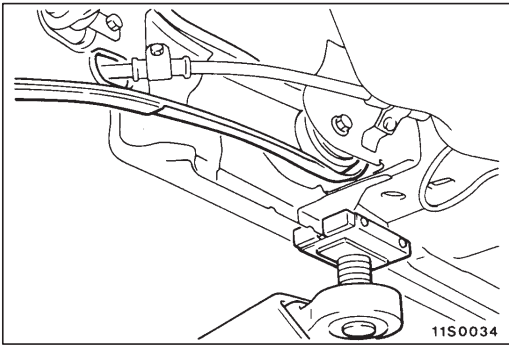
◀B▶ ▶A◀

1. Brake hose
2. Rear speed sensor  
<Vehicles with ABS>

◀C▶

3. Parking brake cable
4. Lower arm and trailing arm connection

5. Trailing arm and body connection
6. Control link and trailing arm connection
7. Upper link and trailing arm connection
8. Trailing arm



## REMOVAL SERVICE POINTS

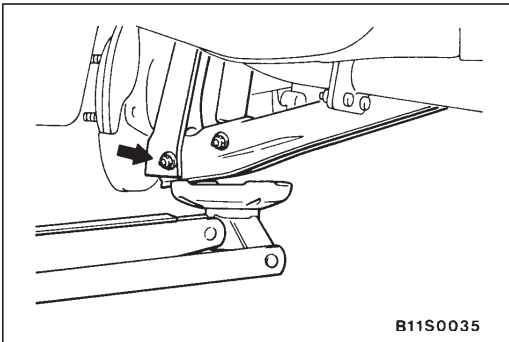
### ◀A▶ LIFTING POINT

When removing the trailing arm, move the lifting arm slightly towards the front of the vehicle so that it will not be in the way.

### ◀B▶ REAR SPEED SENSOR REMOVAL

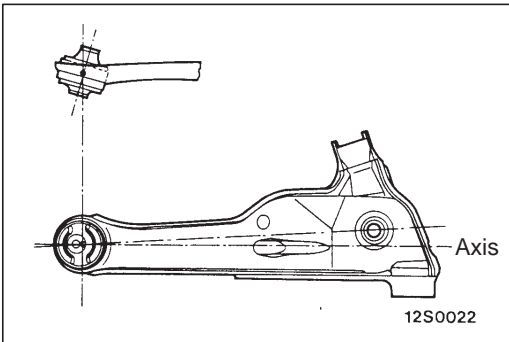
#### Caution

Do not strike the speed sensor against other parts when removing it. Otherwise the speed sensor will be damaged.

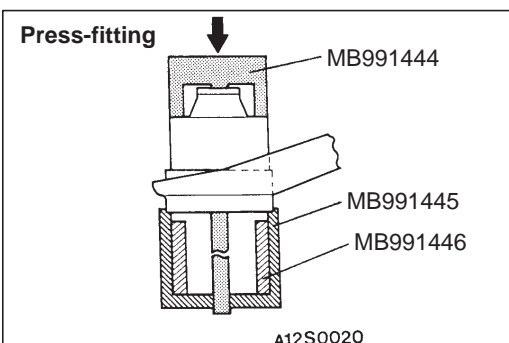


### ◀C▶ LOWER ARM AND TRAILING ARM DISCONNECTION

1. After supporting the lower arm with a jack, separate the lower arm and trailing arm connection.



2. Set the installation direction and installation location of the trailing arm bushing.
  - (1) Place the long projecting end of the trailing arm bushing inner pipe towards the inside of the vehicle.
  - (2) Set so that the trailing arm bushing is symmetrical to the axis between the centre of the trailing arm bushing and the centre of the spindle.

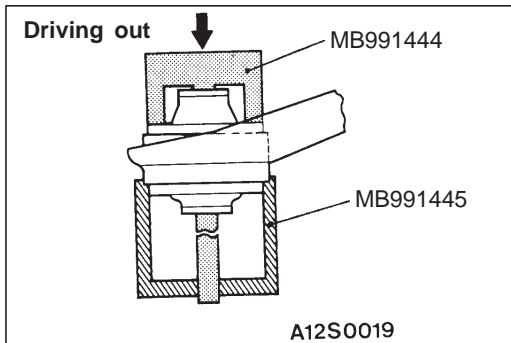


3. Use the special tools to press-fit the trailing arm bushing.

**INSPECTION**

34100430035

- Check trailing arm for cracks and deformation.
- Check bushing for cracks, deterioration and wear.



**TRAILING ARM BUSHING REPLACEMENT**

34101130057

Use the special tools to drive out the trailing arm bushing.

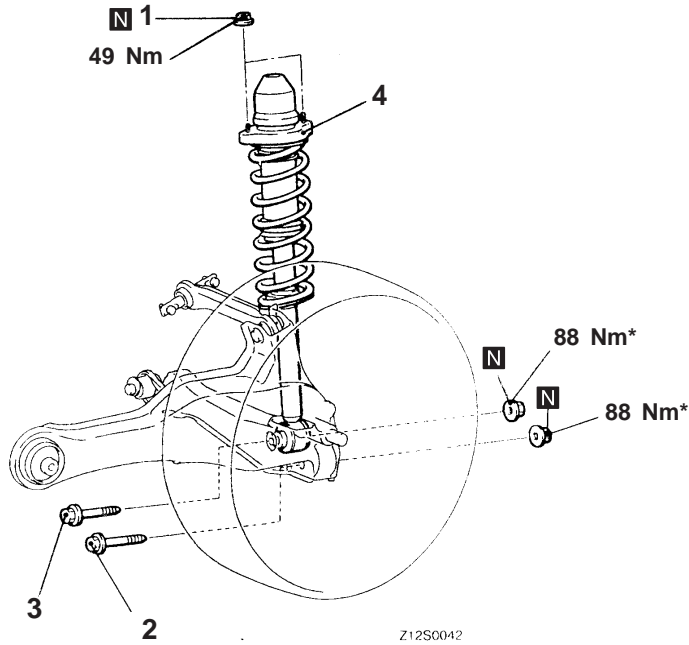
# STRUT ASSEMBLY

## REMOVAL AND INSTALLATION

### Caution

\*: indicates parts which should be temporarily tightened, and then fully tightened with the vehicle on the ground in an unladen condition. Otherwise the bush will be damaged.

**Pre-removal and Post-installation Operation**  
 Lower arm and trailing arm disconnection  
 (Refer to P.34-9.)



### Removal steps

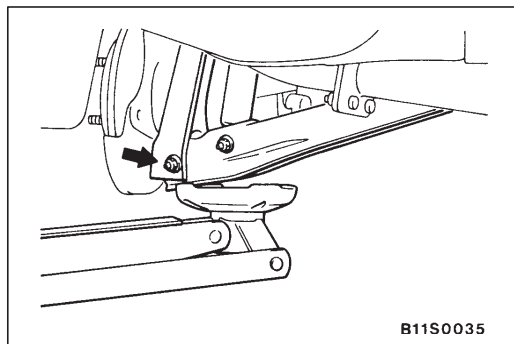


1. Self-locking flange nut
2. Lower arm and trailing arm connection
3. Shock absorber assembly and lower arm connection
4. Strut assembly

## REMOVAL SERVICE POINT

### ◀▶ LOWER ARM AND TRAILING ARM DISCONNECTION

After supporting the lower arm with a jack, separate the lower arm and trailing arm connection.

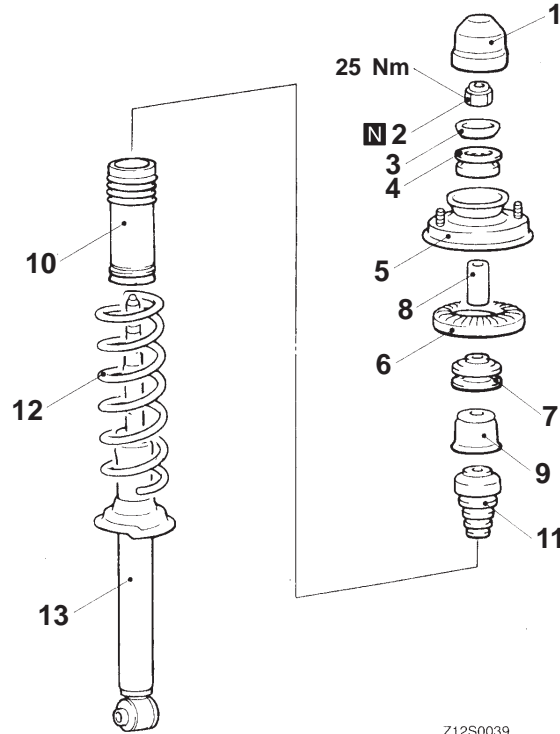


## INSPECTION

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

DISASSEMBLY AND REASSEMBLY

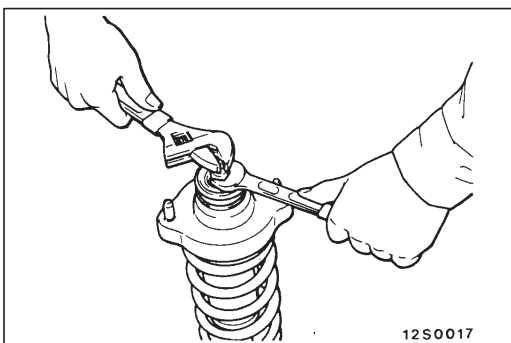
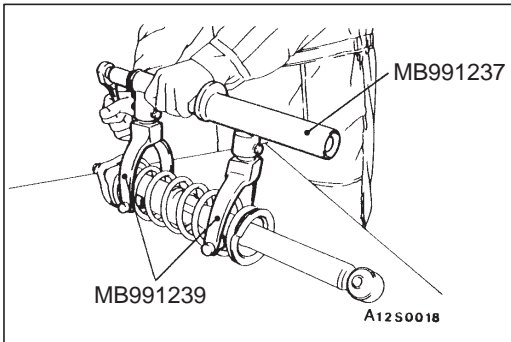
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Disassembly steps

- ◀A▶ ▶D▶ 1. Cap
- ▶D▶ 2. Self-locking nut
- ▶D▶ 3. Washer
- ▶D▶ 4. Upper bushing B
- ▶C▶ 5. Bracket
- ▶B▶ 6. Spring pad

- ▶A▶ 7. Upper bushing A
- ▶A▶ 8. Coller
- ▶A▶ 9. Cup
- ▶A▶ 10. Dust cover
- ▶A▶ 11. Bump rubber
- ▶B▶ 12. Coil spring
- ▶B▶ 13. Shock absorber



DISASSEMBLY SERVICE POINTS

◀A▶ SELF-LOCKING NUT REMOVAL

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

NOTE

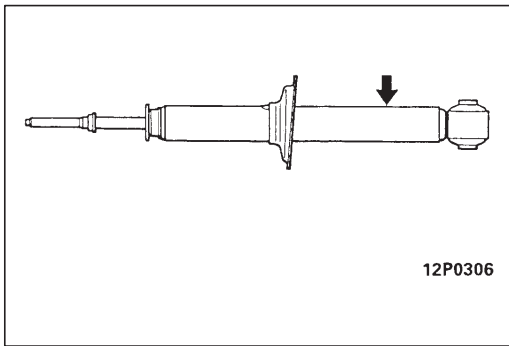
Install the special tools evenly, and so that the maximum length will be attained within the installation range.

Caution

1. To compress the coil spring fully, install the special tools evenly, and so that the space between both arms of the special tool will be maximum within the installation range.
  2. Do not use an impact wrench to tighten the special tool bolt, otherwise the special tool will break.
2. Holding the piston rod, remove the self-locking nut.

Caution

Do not use an impact wrench, otherwise the strut assembly internal parts will loose.



### ◀B▶ SHOCK ABSORBER REMOVAL

To discard the low pressure gas-filled shock absorber, place the assembly horizontally with its piston rod extended. Then drill a hole approx. 3 mm 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 POINTS

#### ▶A▶ COIL SPRING INSTALLATION

1. Use the special tools (MB991237, MB991239) to compress the coil spring, and install it to the shock absorber.

#### Caution

Do not use an impact wrench to tighten the special tool bolt, otherwise the special tool will break.

2. Align the end of the coil spring with the stepped section of the spring seat of the shock absorber.

#### ▶B▶ SPRING PAD INSTALLATION

Align the stepped section of the spring pad with the end of the coil spring, and install the spring pad.

#### ▶C▶ BRACKET INSTALLATION

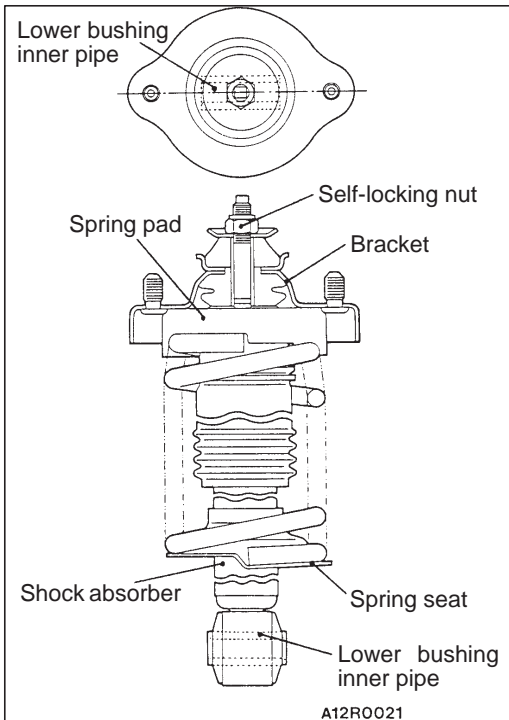
Install the bracket so that the lower bushing inner pipe of the shock absorber and the line between the bracket mounting bolts are straight when looking from above.

#### ▶D▶ SELF-LOCKING NUT INSTALLATION

1. Provisionally tighten the self-locking nut.
2. Remove the special tools (MB991237, MB991239), tighten the self-locking nut at the specified torque.

#### Caution

Do not use an impact wrench, otherwise the strut assembly internal parts will loose.



### INSPECTION

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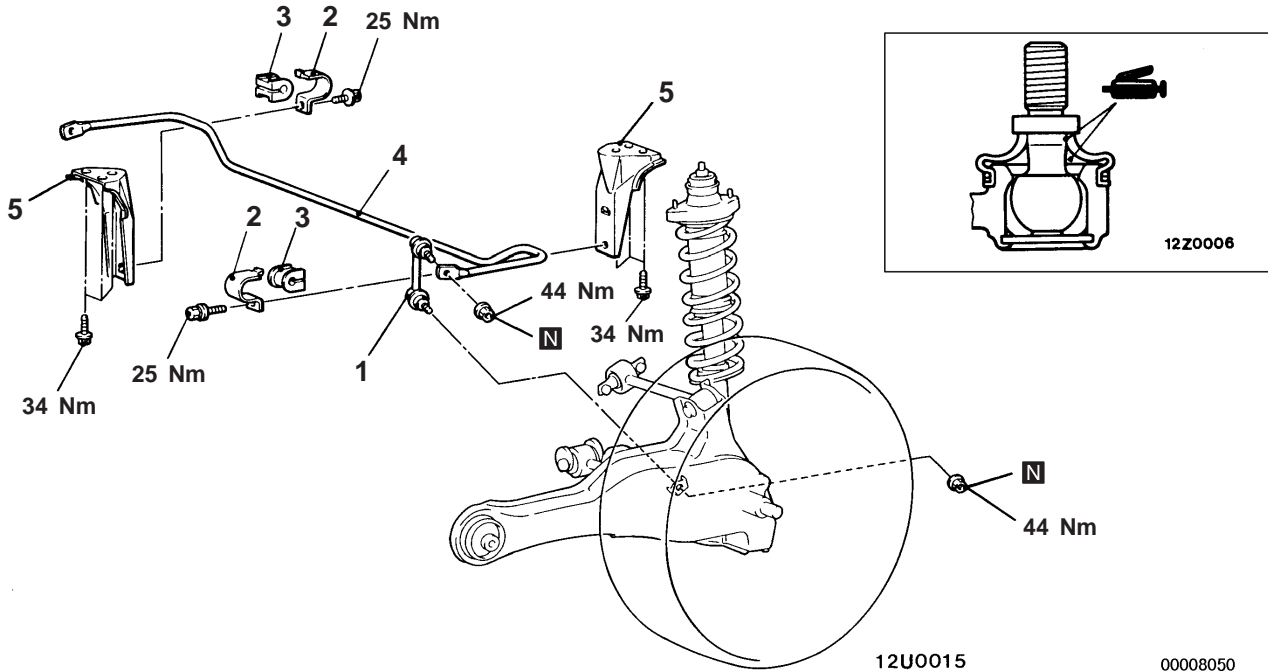
- Check the rubber parts for damage.
- Check the coil springs for crack, damage or deterioration.

# STABILIZER BAR

## REMOVAL AND INSTALLATION

**Post-installation Operation**

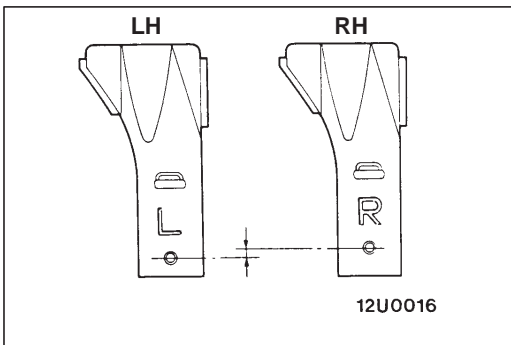
- Wheel Alignment Check (Refer to P.34-4.)



**Removal steps**

1. Stabilizer link
2. Fixture
3. Bushing

- ▶B◀ 4. Stabilizer bar
- ▶A◀ 5. Stabilizer bracket



### INSTALLATION SERVICE POINTS

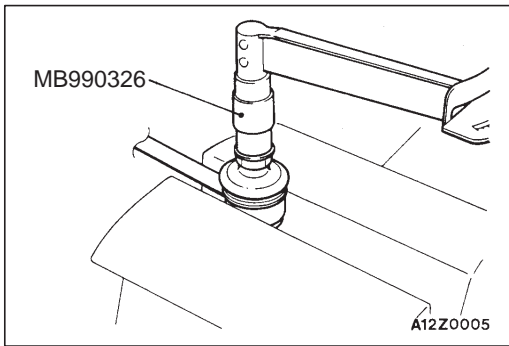
▶A◀ **STABILIZER BRACKET INSTALLATION**

Because the left and right installation positions of the fixtures are different, be careful not to make a mistake when installing the stabilizer bracket.

### INSPECTION

- Check the bushing for wear and deterioration.
- Check the stabilizer bar for deterioration or damage.
- Check all bolts for condition and straightness.





### STABILIZER LINK BALL JOINT TURNING TORQUE INSPECTION

34100570140

1. Shake the stabilizer link ball joint stud several times before installing the nut to the stud. Then use the special tool to measure the turning torque of the stabilizer link ball joint.

**Standard value: 1.7–3.1 Nm**

2. If the turning torque exceeds the standard value, replace the stabilizer link.
3. If the turning torque is lower than the standard value, check that the ball joint does not feel stiff. If it doesn't feel stiff, it is possible to use the ball joint.

### STABILIZER LINK BALL JOINT DUST COVER CHECK

34101300014

1. Check the dust cover for cracks or damage by pushing it with finger .
2. If the dust cover is cracks or damage, replace the stabilizer link.

#### NOTE

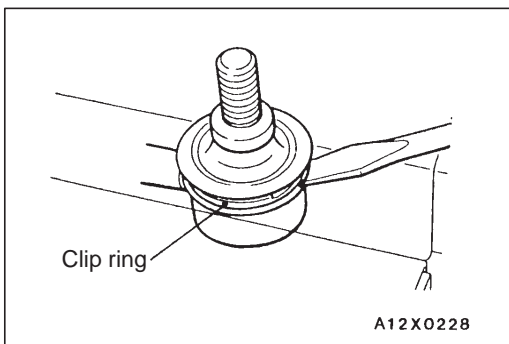
Cracks or damage of the dust cover may cause damage of the ball joint. When it is damaged during service work, replace the dust cover.

### STABILIZER LINK DUST COVER REPLACEMENT

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When the dust cover is damaged or the grease gushes out accidentally during service work, replace the dust cover as follows:

1. Remove the clip ring and the dust cover.
2. Apply multipurpose grease to the inside of the dust cover.
3. Wrap the threads of stabilizer link stud with plastic tape, and install the dust cover to the ball joint.
4. Secure the dust cover by the clip ring.
5. Check the dust cover for cracks or damage by pushing it with finger.



## GROUP 34 REAR SUSPENSION

### GENERAL

#### OUTLINE OF CHANGES

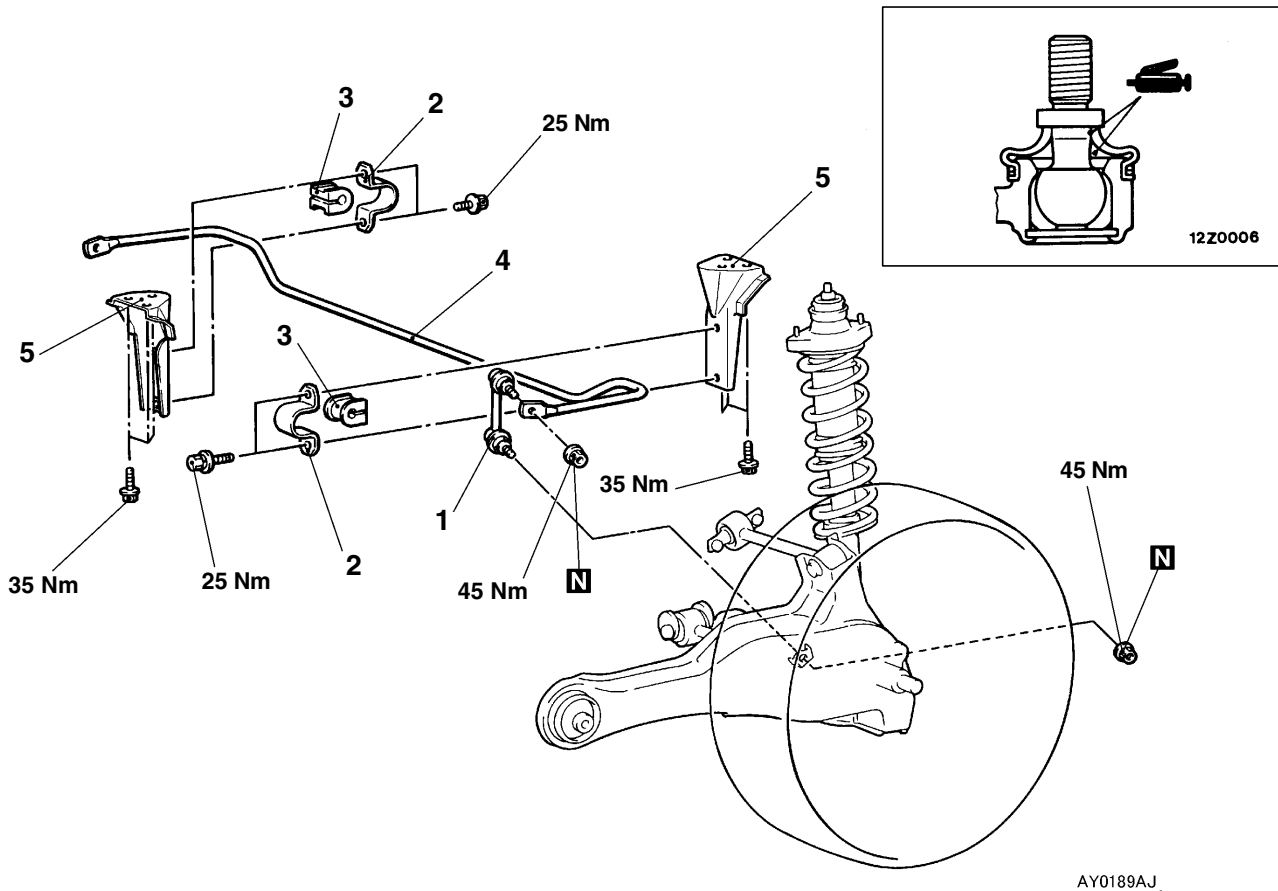
- The coil spring specifications have been changed.
- The removal and installation procedures have been established due to the change of the stabilizer bar mounting clamp.

#### COIL SPRING

Items	Specifications
Wire dia. × O.D. × free length mm	10 × 86 × 414

### STABILIZER BAR

The number of stabilizer bar mounting bolts has been changed from 1 to 2. The procedures other than those shown below are the same as before.



#### Removal steps

1. Stabilizer link
2. Clamp
3. Bushing
4. Stabilizer bar

▶◀ 5. Stabilizer bracket

#### NOTE

Points to note for installation are the same procedures as before.

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## NOTES