

## GENERAL INFORMATION

The front suspension is McPherson strut type with coil springs and compression rod. Anti-dive geometry ensures excellent driving stability whilst

negative offset geometry provides good braking stability. The offset coil spring ensures optimum riding comfort.

## COIL SPRINGS

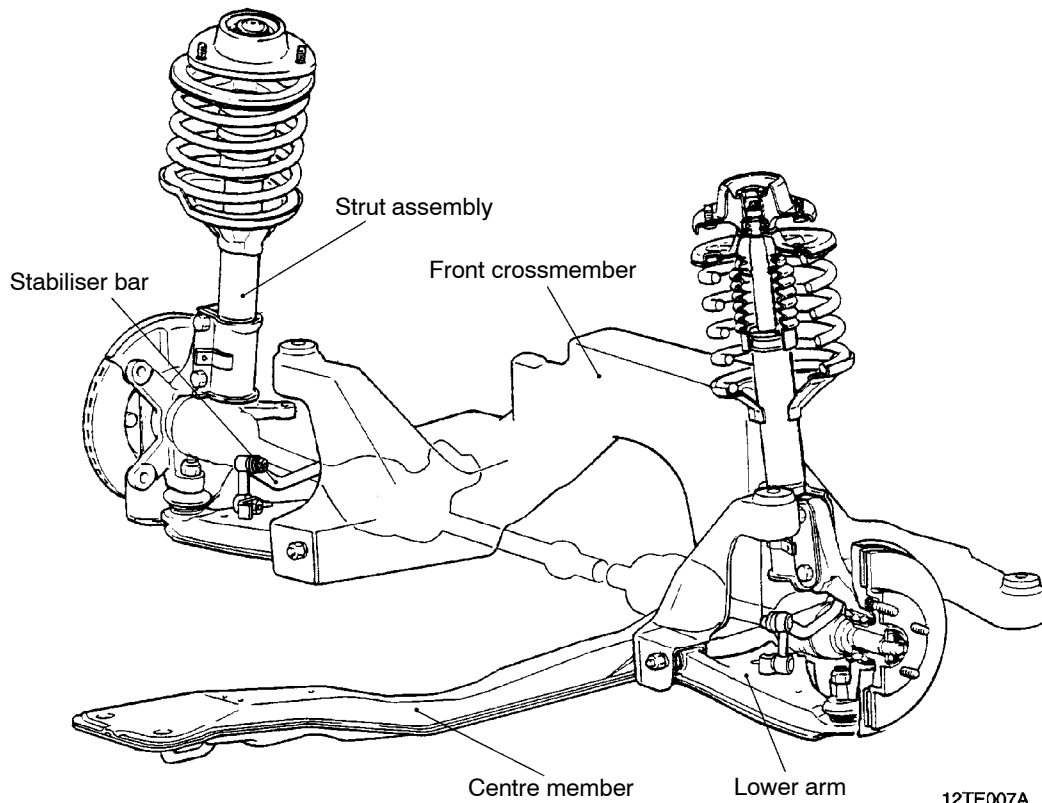
### NOTE:

**Worn springs are only to be fitted in pairs, according to the colour code.**

## SHOCK ABSORBER

|                 |                                |
|-----------------|--------------------------------|
| Type Hydraulic, | cylindrical double-acting type |
| Max. length     | 503.5 mm                       |
| Min. length     | 361 mm                         |
| Stroke          | 142.5 mm                       |
| Expansion N     | 980 mm                         |
| Contraction N   | 640 mm                         |

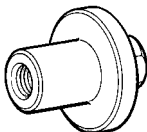
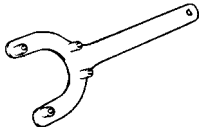
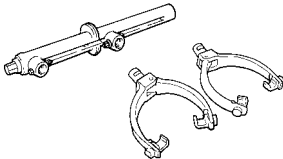
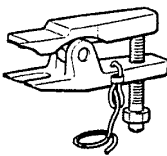


## CONSTRUCTION DIAGRAM



## SERVICE SPECIFICATIONS

| Items  |             | Specifications                              |
|--|-------------|---|
| Toe-in mm                                      |             | 0±3   |
| Steering angle                                 | Inner wheel | 36°00'±2°                                   |
|  | Outer wheel | 30°30'                                      |
| Camber   |             | 0°00'±30' (Left/right deviation within 30') |
| Caster   |             | 3°00'±30' (Left/right deviation within 30') |
| Lower arm ball joint starting torque Nm        |             | 10.0–22.0                                   |
| Stabiliser link ball joint breakaway torque Nm |             | 1.7–3.2                                     |

## SPECIAL TOOLS

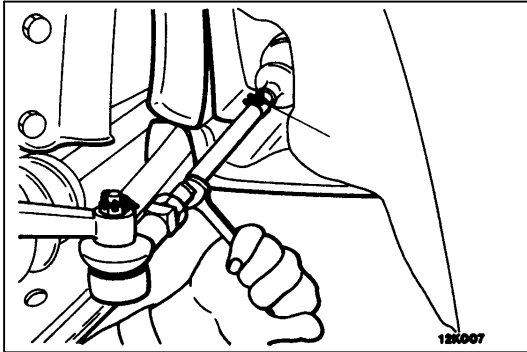
| Tool  | Tool number and name                                      | Supersession | Application   |
|---|---|--------------|---|
|    | MB991004<br>Wheel alignment gauge attachment              | –            | Wheel alignment measurement                               |
|   | MB991176<br>Spring seat holder                            | –            | Strut disassembly and assembly                            |
|  | MB991237<br>Spring compressor body<br>MB991238<br>Arm set | –<br>–       | Front coil spring compression                             |
|  | MB991113 or MB991217<br>Steering linkage puller           | 13–006       | Lower arm ball joint removal                              |
|  | MB990326<br>Preload socket                                | EMB990326    | Lower arm ball joint rotation starting torque measurement |
|  | MB990800<br>Ball joint remover and installer              | E2M15–2      | Dust cover installation                                   |

## ON-VEHICLE SERVICE

### 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 prior to measurement of wheel alignment.



#### TOE-IN

**Standard value:  $0 \pm 3$  mm**

##### 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.

#### STEERING ANGLE

**Standard value:**

**Inner wheel  $36^{\circ}00' \pm 2^{\circ}$**

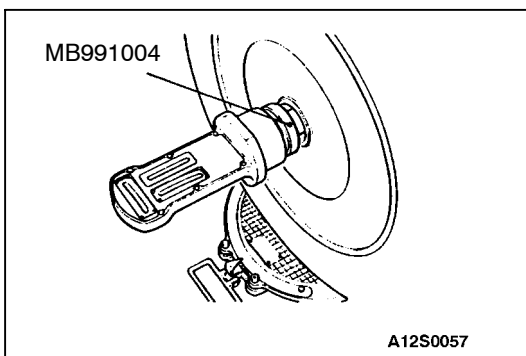
**Outer wheel  $30^{\circ}30'$**

#### CAMBER AND CASTER

**Standard value:**

**Camber  $0^{\circ}00' \pm 30'$  (Left/right deviation within  $30'$ )**

**Caster  $3^{\circ}00' \pm 0^{\circ}30'$  (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 aluminium 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 [196–255 Nm] as the drive shaft nut.

##### Caution

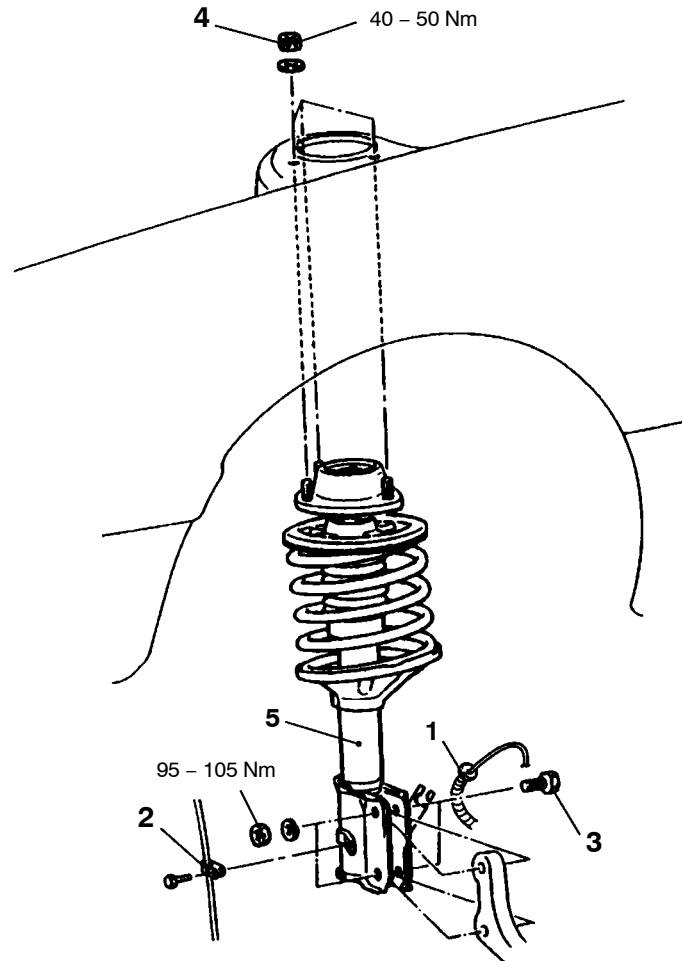
**Never subject the wheel bearings to the vehicle load when the drive shaft nuts are loosened.**

# STRUT ASSEMBLY

## REMOVAL AND INSTALLATION

### Post-installation Operation

- Front Wheel Alignment Adjustment  
(Refer [On vehicle service.](#))



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### Removal steps

1. Brake hose
2. Front speed sensor wiring clamp  
<Vehicles with ABS>

- ▶A◀
3. Strut lower mounting bolt
  4. Strut upper mounting nuts
  5. Strut assembly

## REMOVAL SERVICE POINT

### ▶A◀ BOLT REMOVAL

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

## INSPECTION

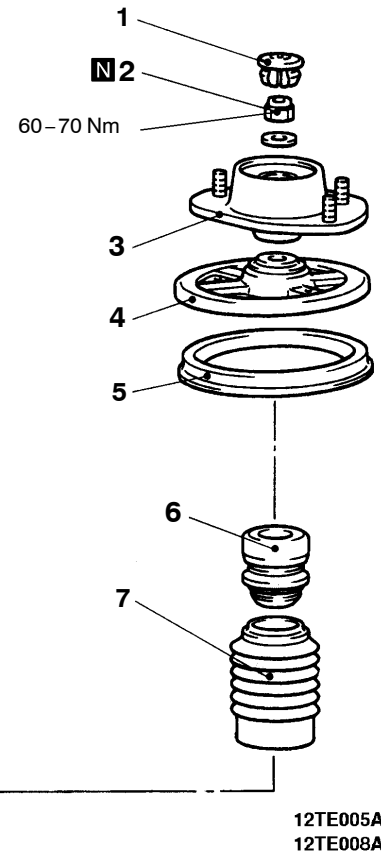
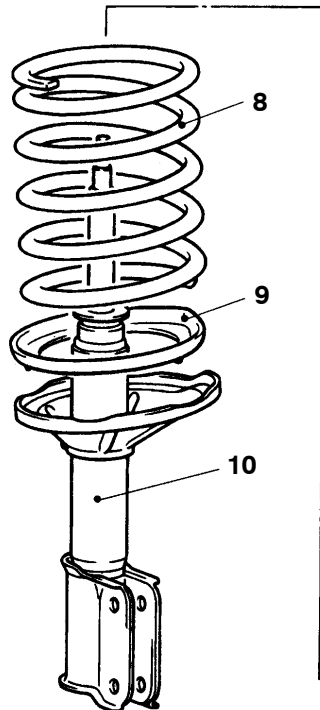
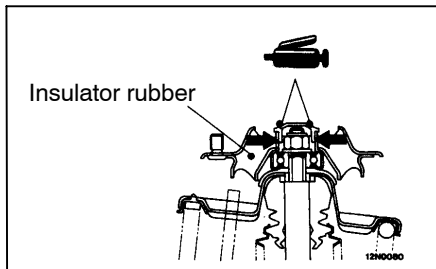
- Check for oil leaks from the strut assembly.
- Check the strut assembly shock absorber for damage or deformation.

# STRUT ASSEMBLY

## DISASSEMBLY AND REASSEMBLY

### Post-installation Operation

- Front Wheel Alignment Adjustment  
(Refer [On vehicle service.](#))



### NOTE:

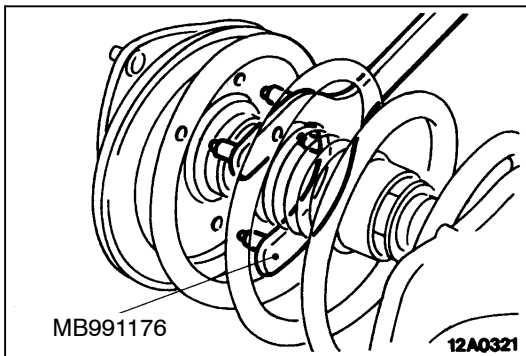
Worn springs and struts should always be replaced as pairs

### Disassembly steps



1. Dust cover
2. Self locking nut
3. Strut insulator
4. Upper spring seat
5. Upper spring pad

6. Bump rubber
7. Dust cover
8. Coil spring
9. Lower spring pad
10. Strut assembly



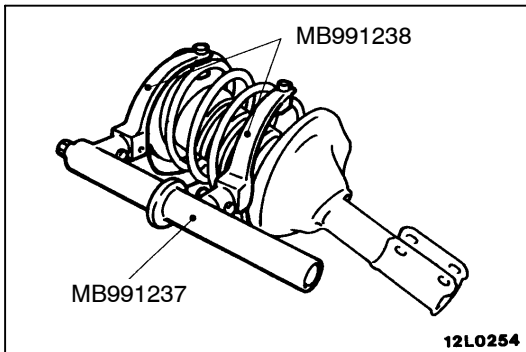
## DISASSEMBLY SERVICE POINTS

### ◀A▶ SELF-LOCKING NUT REMOVAL

1. Whilst holding the spring upper seat with the special tool loosen the self-locking nut.

#### Caution

The self-locking nut should be loosened only, not removed, and should never be loosened using an air tool.



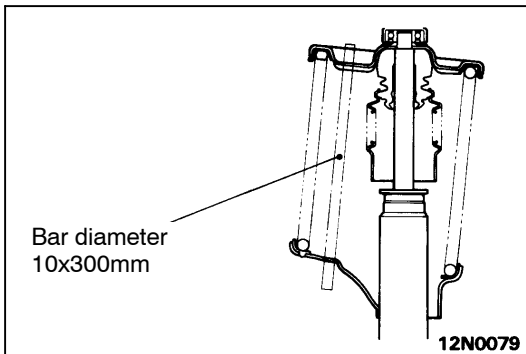
2. Using the special tools, compress the coil spring, and then remove the self-locking nut.

#### NOTE

1. Extend the special tool to the maximum length to which it is able to be fitted to the spring.
2. Ensure that the special tool is installed evenly.

#### Caution

Never use an air tool to tighten the special tool.



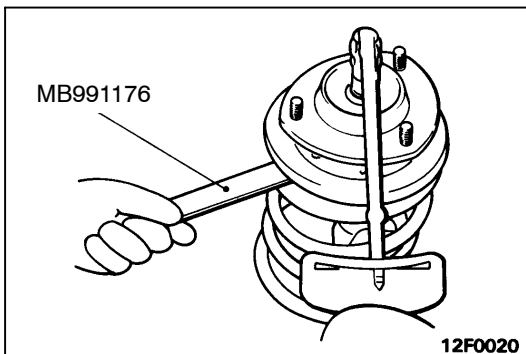
## REASSEMBLY SERVICE POINTS

### ▶A◀ SELF-LOCKING NUT INSTALLATION

1. Line up the holes in the strut assembly spring lower seat with the holes in the spring upper seat.

#### NOTE

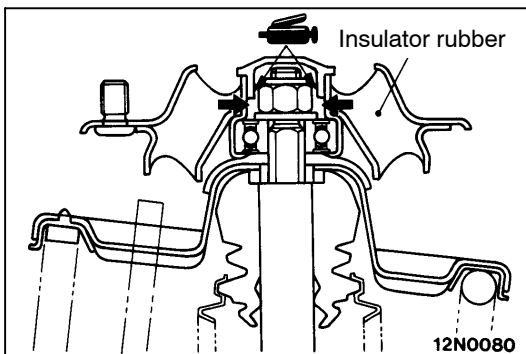
Aligning of the holes in the strut assembly can be easily achieved by using a steel bar 10mm x 300mm.



2. With the coil spring held compressed by the special tools (MB991237 and MB991238), temporarily tighten the self-locking nut.
3. Correctly align both ends of the coil spring with grooves in the spring seat, and then loosen the special tools MB991237 and MB991238.
4. Using the special tool, tighten the strut insulator to the specified torque [60–70 Nm].

#### NOTE

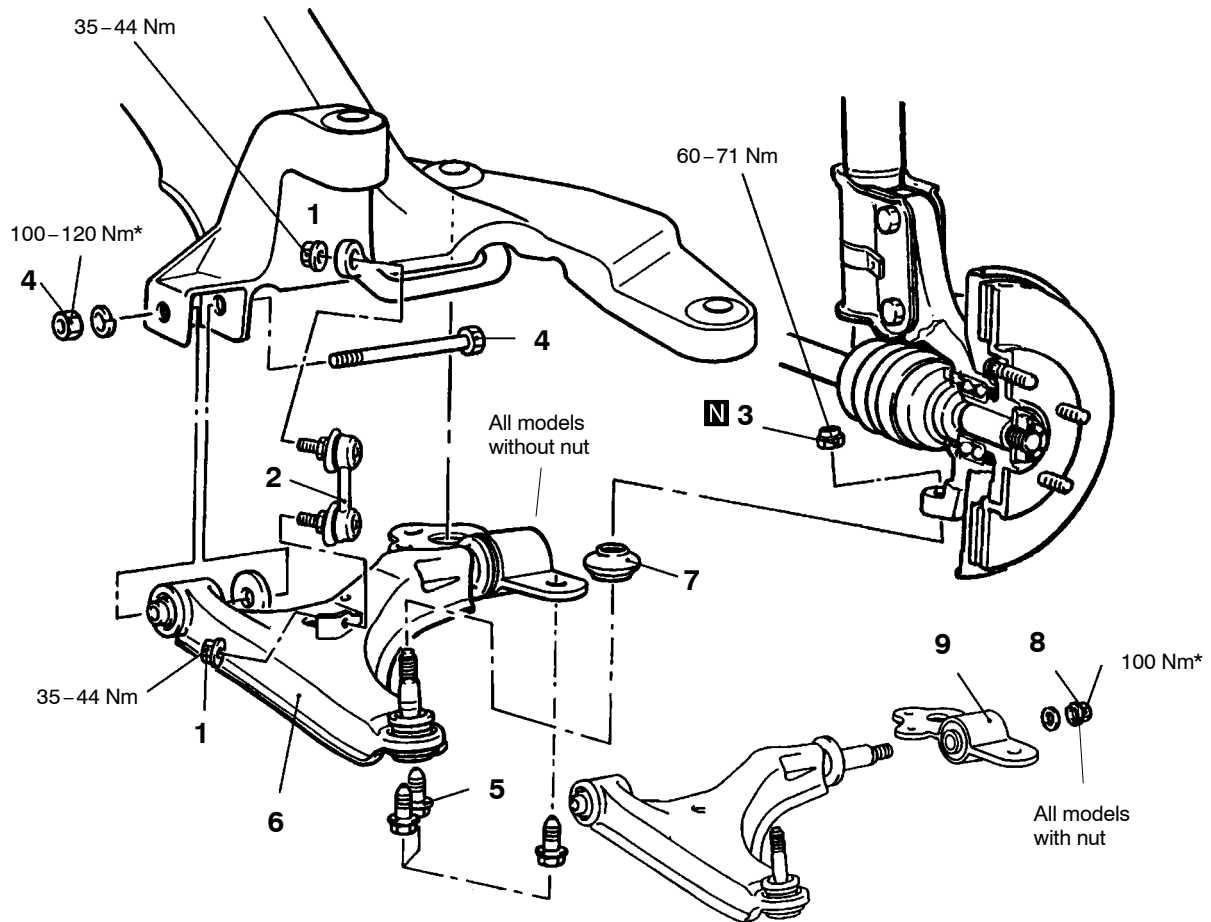
Do not use an air tool to tighten the strut insulator.



5. Apply multi-purpose grease to the bearing part of the strut insulator, and install the insulator cap.

#### Caution

When applying the grease, take care that grease does not come into contact with the insulator's rubber components as this will cause the rubber to deteriorate.

**LOWER ARM****REMOVAL AND INSTALLATION**

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**Removal steps**

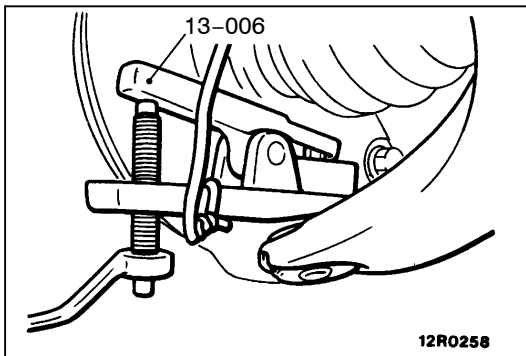
1. Stabiliser link mounting nuts
2. Stabiliser link
3. Self-locking nut
4. Lower arm mounting nut and bolt
5. Bolts
6. Lower arm assembly



7. Ball joint dust cover
8. Self-locking nut
9. Clamp

**Caution**

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

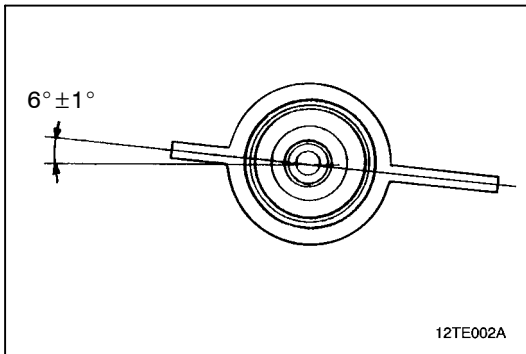


## REMOVAL SERVICE POINTS

### ◀A▶ DISCONNECTION OF LOWER ARM BALL JOINT AND KNUCKLE

#### Caution

1. Be sure to tie the cord of the special tool to a nearby part.
2. Loosen the nut but do not remove it.



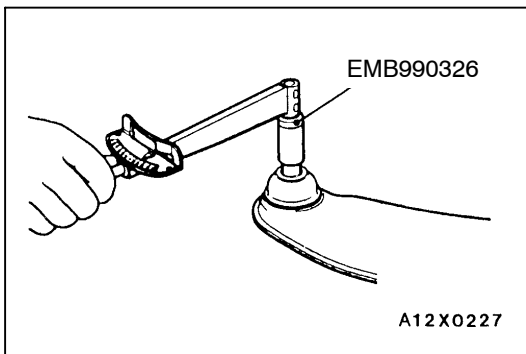
## INSTALLATION SERVICE POINTS

### ▶A◀ SELF-LOCKING NUT INSTALLATION

1. After positioning the clamp at the angle indicated, install the self-locking nut.

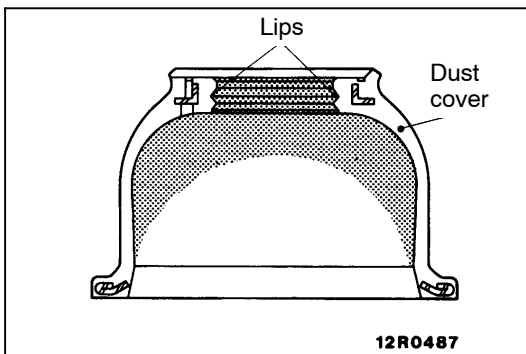
## INSPECTION

- Check the bushings for wear and deterioration.
- Check the lower arm for bends or damage.
- Check the ball joint dust cover for cracks.
- Check all bolts for condition and straightness.
- Check clamp for deterioration or damage.



## BALL JOINT STARTING TORQUE CHECK

Standard value: 10.0–22.0 Nm

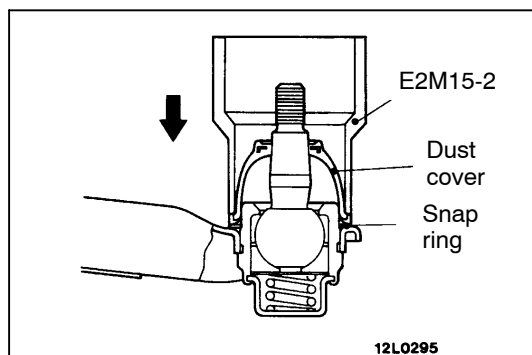


## BALL JOINT DUST COVER REPLACEMENT

1. Remove the dust cover.
2. Apply multipurpose grease to the lip and inside of the dust cover.



### 33 FRONT SUSPENSION – Lower Arm



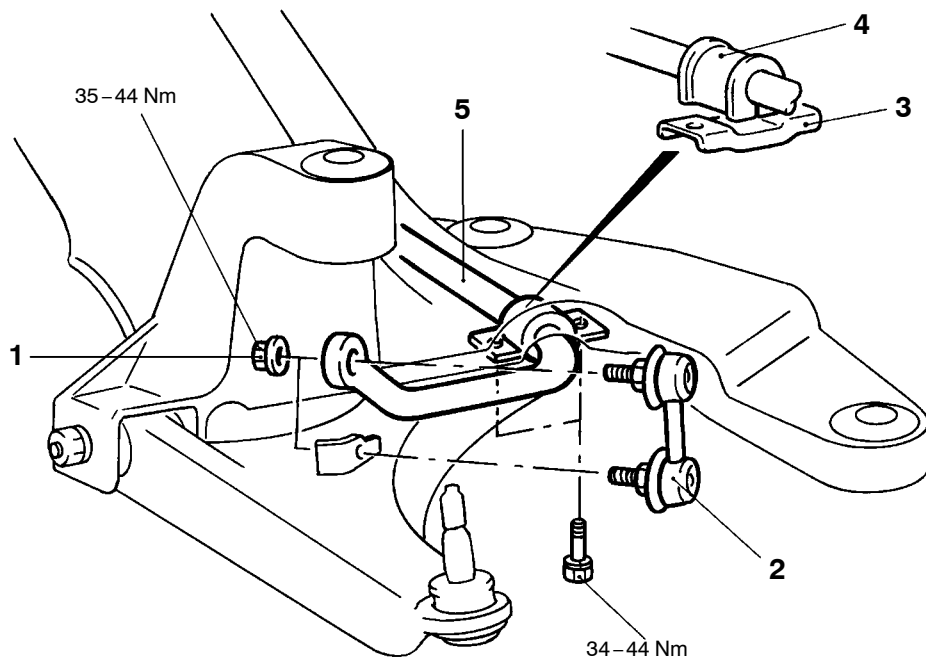
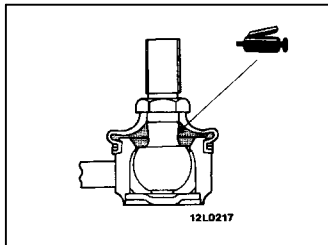
3. Using the special tool, drive in the dust cover to the position shown in the illustration.

# STABILISER BAR

## REMOVAL AND INSTALLATION

### Pre-removal Operations

- Removal of front exhaust pipe (Refer [Group 17.](#))
- Removal of lower arm (Refer [On vehicle service.](#))
- Removal of propeller shaft <AWD> (Refer [Group 25.](#))



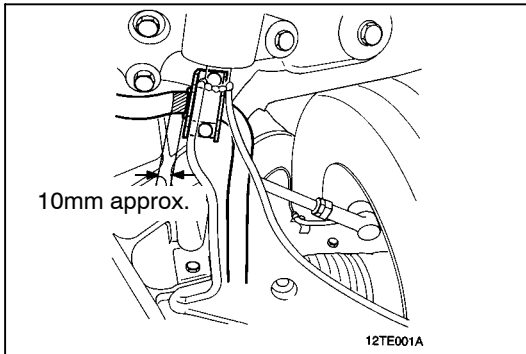
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### Removal steps

1. Stabiliser link mounting nut
2. Stabiliser link
3. Stabiliser bar bracket



4. Bushing
5. Stabiliser bar



## INSTALLATION SERVICE POINT

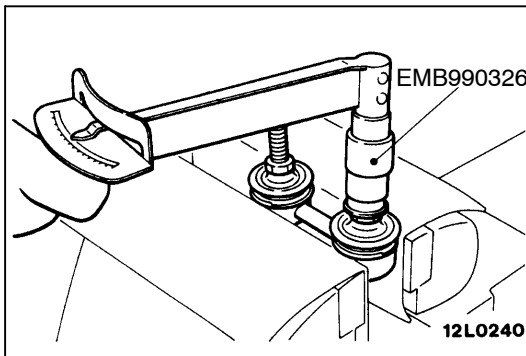
### ►A◄ STABILISER BAR BRACKET INSTALLATION

Position the stabiliser bar so that the marking on the stabiliser bar and the edge of the bracket becomes the reference value, and then tighten the stabiliser bar bracket mounting bolt.

**Reference value: Approx. 10 mm**

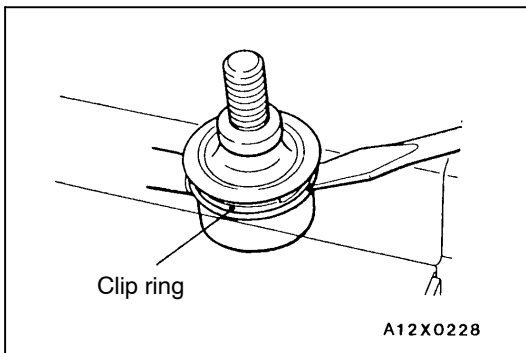
## INSPECTION

- Check the bushings for wear and deterioration.
- Check the stabiliser bar for deterioration or damage.
- Check the stabiliser link ball joint dust cover for cracks.
- Check all bolts for condition and straightness.



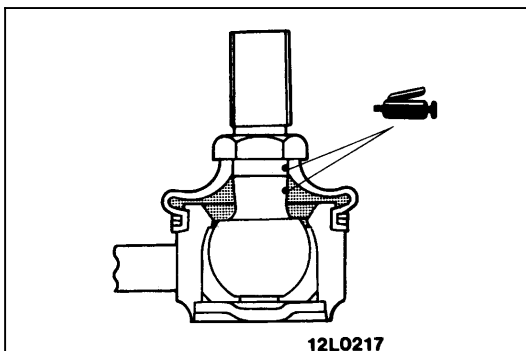
## STABILISER LINK BALL JOINT STARTING TORQUE CHECK

**Standard value: 1.7–3.2 Nm**



## BALL JOINT DUST COVER REPLACEMENT

1. Remove the clip ring and the dust cover.

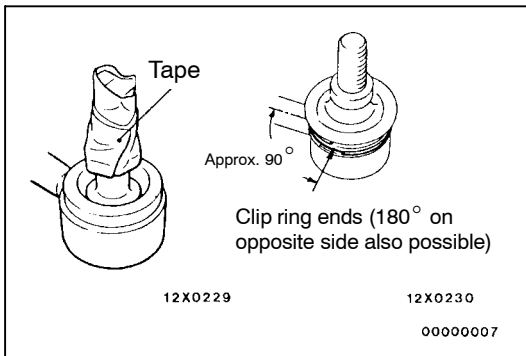


2. Apply multipurpose grease to the lip and inside of the dust cover.

### 33 FRONT SUSPENSION – Stabiliser Bar

Main  
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33  
Index



3. Use vinyl tape on the stabiliser link threads as shown in the illustration, and then install the dust cover to the stabiliser link.
4. Secure the dust cover by the clip ring.

#### NOTE

When installing the clip ring, align the ends at a 90° angle from the axis of the stabiliser link.