

# REAR SUSPENSION

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E34AA--

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## SPECIFICATIONS

## GENERAL SPECIFICATIONS

&lt;Vehicles built up to October, 1993&gt;

E34CA--

Items	V21C, V24C	V21W, V23C, V23W, V24W	V41W, V43W, V44W
Suspension system	Coil spring type 3-link rigid axle suspension	Coil spring type 3-link rigid axle suspension	Coil spring type 3-link rigid axle suspension
Coil spring Wire dia. × O.D. × free length mm (in.)	13.4–14.5 × 159.4–160.5 × 422.5 (0.53–0.57 × 6.28–6.32 × 16.63) [13.4–15.0 × 159.4–161 × 391 (0.53–0.59 × 6.28–6.34 × 15.39)]	13.4–14.5 × 159.4–160.5 × 435.5 or *424 (0.53–0.57 × 6.28–6.32 × 17.15 or *16.70) [13.4–15.0 × 159.4–161 × 401.5 or *390.5 (0.53–0.59 × 6.28–6.34 × 15.81 or *15.37)]	14.2–15.8 × 160.2–161.8 × 404.5 (0.56–0.62 × 6.31–6.37 × 15.93) [11.8–16.0 × 157.8–162 × 396.5 (0.46–0.63 × 6.21–6.38 × 15.61)]
Coil spring identification colour	Orange x 1 {Pink x 1}	Orange x 2 {Pink x 2}	Green x 1 {Light Blue x 1}
Spring constant N/mm (kg/mm, lbs./in.)	18–30 (1.8–3.0, 101–168) [22–40 (2.2–4.0, 123–224)]	18–30 (1.8–3.0, 101–168) [22–40 (2.2–4.0, 123–224)]	27–39 (2.7–3.9, 151–218) [27–45 (2.7–4.5, 151–252)]
Shock absorber			
Max. length mm (in.)	457 (18.0)	457 (18.0)	
Min. length mm (in.)	297 (11.7)	297 (11.7)	
Stroke mm (in.)	160 (6.3)	160 (6.3)	
Damping force [at 0.3 m/sec. (0.9 ft./sec.)]			
Expansion N (kg, lbs.)	2,450 (245, 540)	2,450 (245, 540) Hard: 3,350 (335, 739) Medium: 2,450 (245, 540) Soft: 1,750 (175, 386)	
Contraction N (kg, lbs.)	1,300 (130, 287)	1,300 (130, 287) Hard: 1,650 (165, 364) Medium: 1,300 (130, 287) Soft: 900 (90, 198)	

## NOTE

[ ] indicates option specifications.

\* : Diesel-powered vehicles for Switzerland and Finland built from July, 1993.

<Vehicles built from November, 1993>

Items	V24C
Suspension system	Coil spring type 3-link rigid axle suspension
Coil spring Wire dia: x O.D. x free length mm (in.)	13.4–14.5 x 159.4–160.5 x 411 (0.53–0.57 x 6.28–6.32 x 16.18) [13.4–15.0 x 159.4–161 x 380 (0.53–0.59 x 6.28–6.34 x 14.96)]
Coil spring identification colour	Yellow-green x 2 [Brown x 2]
Spring constant N/mm (kg/mm, lbs./in.)	18–30 (1.8–3.0, 101–168) [22–40 (2.2–4.0, 123–224)]
Shock absorber	
Max. length mm (in.)	457 (18.0)
Min. length mm (in.)	297 (11.7)
Stroke mm (in.)	160 (6.3)
Damping force [at 0.3 m/sec. (0.9 ft./sec.)]	
Expansion N (kg, lbs.)	2,450 (245, 540)
Contraction N (kg, lbs.)	1,300 (130, 287)

Items	V21W, V23C, V23W, V25W
Suspension system	Coil spring type 3-link rigid axle suspension
Coil spring Wire dia. x O.D. x free length mm (in.)	13.4–14.5 x 159.4–160.5 x 435.5 (0.53–0.57 x 6.28–6.32 x 17.15) [13.4–15.0 x 159.4–161 x 401.5 (0.53–0.59 x 6.28–6.34 x 15.81)]
Coil spring identification colour	Orange x 2 [Pink x 2]
Spring constant N/mm (kg/mm, lbs./in.)	18–30 (1.8–3.0, 101–168) [22–40 (2.2–4.0, 123–224)]
Shock absorber	
Max. length mm (in.)	457 (18.0)
Min. length mm (in.)	297 (11.7)
Stroke mm (in.)	160 (6.3)
Damping force [at 0.3 m/sec. (0.9 ft./sec.)]	
Expansion N (kg, lbs.)	2,450 (245, 540) Hard: 3,350 (335, 739) Medium: 2,450 (245, 540) Soft: 1,750 (175, 386)
Contraction N (kg, lbs.)	1,300 (130, 287) Hard: 1,650 (165, 364) Medium: 1,300 (130, 287) Soft: 900 (90, 198)

NOTE

[ ] indicates option specifications.

## 34-2-2

## REAR SUSPENSION – Specifications

Items	V24W, V26W	
Suspension system	Coil spring type 3-link rigid axle suspension	
Coil spring Wire dia. × O.D. × free length mm (in.)	13.4–14.5 × 159.4–160.5 × 424 (0.53–0.57 × 6.28–6.32 × 16.70) [13.4–15.0 × 159.4–161 × 390.5 (0.53–0.59 × 6.28–6.34 × 15.37)]	
Coil spring identification colour	Yellow-green × 1 [Brown × 1]	
Spring constant N/mm (kg/mm, lbs./in.)	18–30 (1.8–3.0, 101–168) [22–40 (2.0–4.0, 123–224)]	
Shock absorber		
Max. length	mm (in.)	457 (18.0)
Min. length	mm (in.)	297 (11.7)
Stroke	mm (in.)	160 (6.3)
Damping force [at 0.3 m/sec. (0.9 ft./sec.)]		
Expansion	N (kg, lbs.)	2,450 (245, 540) Hard: 3,350 (335, 739) Medium: 2,450 (245, 540) Soft: 1,750 (175, 386)
Contraction	N (kg, lbs.)	1,300 (130, 287) Hard: 1,650 (165, 364) Medium: 1,300 (130, 287) Soft: 900 (90, 198)

Items	V44W, V43W, V45W, V46W	
Suspension system	Coil spring type 3-link rigid axle suspension	
Coil spring Wire dia. × O.D. × free length mm (in.)	14.2–15.8 × 160.2–161.8 × 404.5 (0.56–0.62 × 6.31–6.37 × 15.93) [11.8–16.0 × 157.8–162 × 396.5 (0.46–0.63 × 6.21–6.38 × 15.61)] 10.5–15.7 × 156.5–161.7 × 418 (0.41–0.62 × 6.16–6.37 × 16.46)* [10.7–16.2 × 156.5–162.2 × 399 (0.42–0.64 × 6.16–6.39 × 15.71)]*	
Coil spring identification colour	Green × 1 [Light Blue × 1], Creme × 1 [Creme × 2]*	
Spring constant N/mm (kg/mm, lbs./in.)	27–39 (2.7–3.9, 151–218) [27–45 (2.7–4.5, 151–252)] 18–42 (1.8–4.2, 101–235) [20–50 (2.0–5.0, 112–280)]*	
Shock absorber		
Max. length	mm (in.)	457 (18.0)
Min. length	mm (in.)	297 (11.7)
Stroke	mm (in.)	160 (6.3)
Damping force [at 0.3 m/sec. (0.9 ft./sec.)]		
Expansion	N (kg, lbs.)	2,450 (245, 540) Hard: 3,350 (335, 739) Medium: 2,450 (245, 540) Soft: 1,750 (175, 386)
Contraction	N (kg, lbs.)	1,300 (130, 287) Hard: 1,650 (165, 364) Medium: 1,300 (130, 287) Soft: 900 (90, 198)

### NOTE

[ ] indicates option specifications.

\*: V44WVDFCL6, V46WVDFCL6, V46WVAFCL6 (built up to May, 1994)


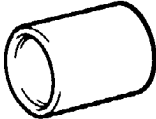
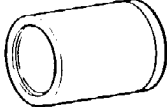

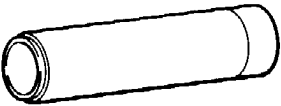

SERVICE SPECIFICATIONS

E34CB--

Items	Specifications
Standard value	
Toe-in	mm (in.) 0 (Non-adjustable)
Camber	0° (Non-adjustable)
Protruding length of stabilizer bar mounting bolt	mm (in.) 15–17 (0.59–0.67)
Protruding length of shock absorber mounting bolt	mm (in.) 1–2 (0.04–0.08)
Distance between actuator mounting surface and shock absorber stud end	mm (in.) 1.5–2.5 (0.06–0.10)

SPECIAL TOOLS

E34DA--

Tool	Number	Name	Use
	MB991293	Rear suspension bushing arbor	Removal and installation of lower arm rear bushing
	MB990891	Bushing remover/installer base	
	MB990971	Rear wheel bearing and hub installer joint	
	MB991318	Lower arm bushing arbor	
	MB991411	Rear wheel bearing and hub installer joint	
	MB990650	Lower arm bushing arbor	

## TROUBLESHOOTING

E34EAAC

Refer to GROUP 33 – Troubleshooting.

## SERVICE ADJUSTMENT PROCEDURES

E34FAAN

### REAR WHEEL ALIGNMENT

The rear suspension assembly must be free of worn, loose or damaged parts prior to measurement of rear wheel alignment.

**Standard value:**

<b>Toe-in</b>	<b>0mm (0 in.)</b>
<b>Camber</b>	<b>0°</b>

**NOTE**

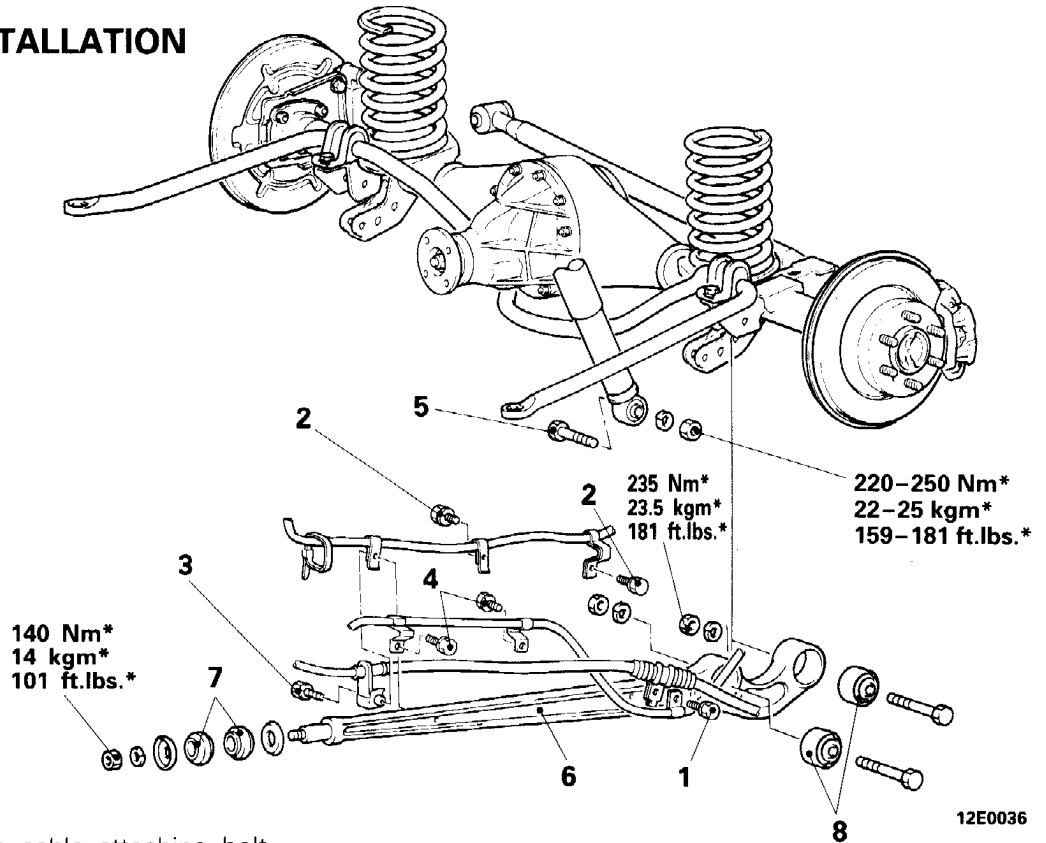
Toe-in and camber are set at the factory and cannot be adjusted.

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NOTES

**LOWER ARM  
REMOVAL AND INSTALLATION**

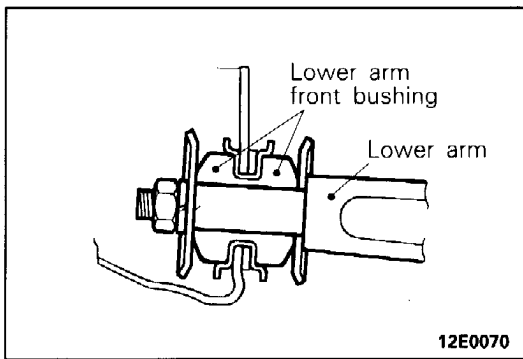
E34IA--



**Removal steps**

1. Parking brake cable attaching bolt
2. Rear differential lock position harness attaching bolt
3. Parking brake cable attaching bolt (Long wheelbase)
4. Rear sensor attaching bolt (Vehicles with A.B.S.)
5. Shock absorber mounting bolts (lower side)

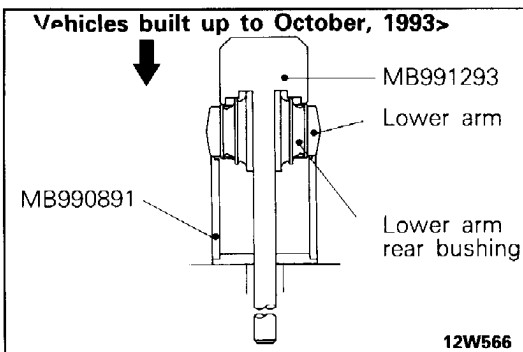
**Caution**  
\*: Indicates part which should be temporarily tightened, and then fully tightened with the vehicle on the ground in the unladen condition.



**SERVICE POINT OF INSTALLATION** E34IEAC

**7. INSTALLATION OF LOWER ARM FRONT BUSHING**

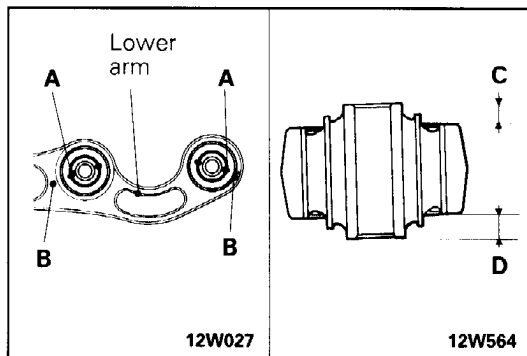
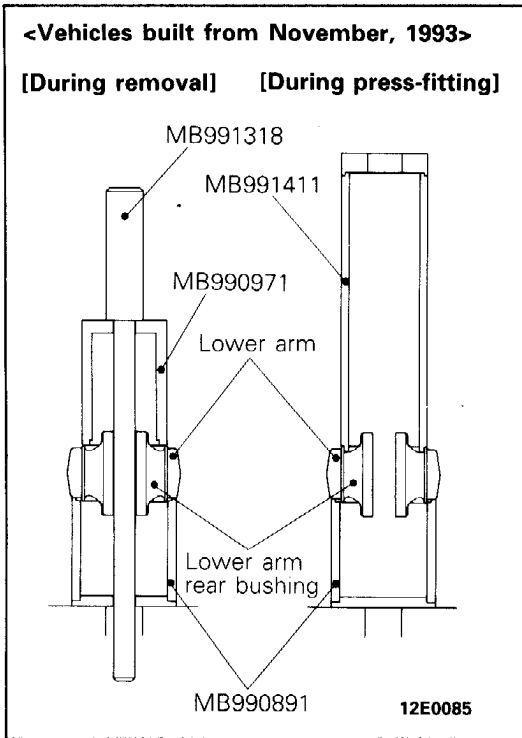
Install the lower arm front bushing so that its direction will be as shown in the figure.



**LOWER ARM REAR BUSHING REPLACEMENT** E34IDAH

- (1) Drive out the bushing by using the special tools.

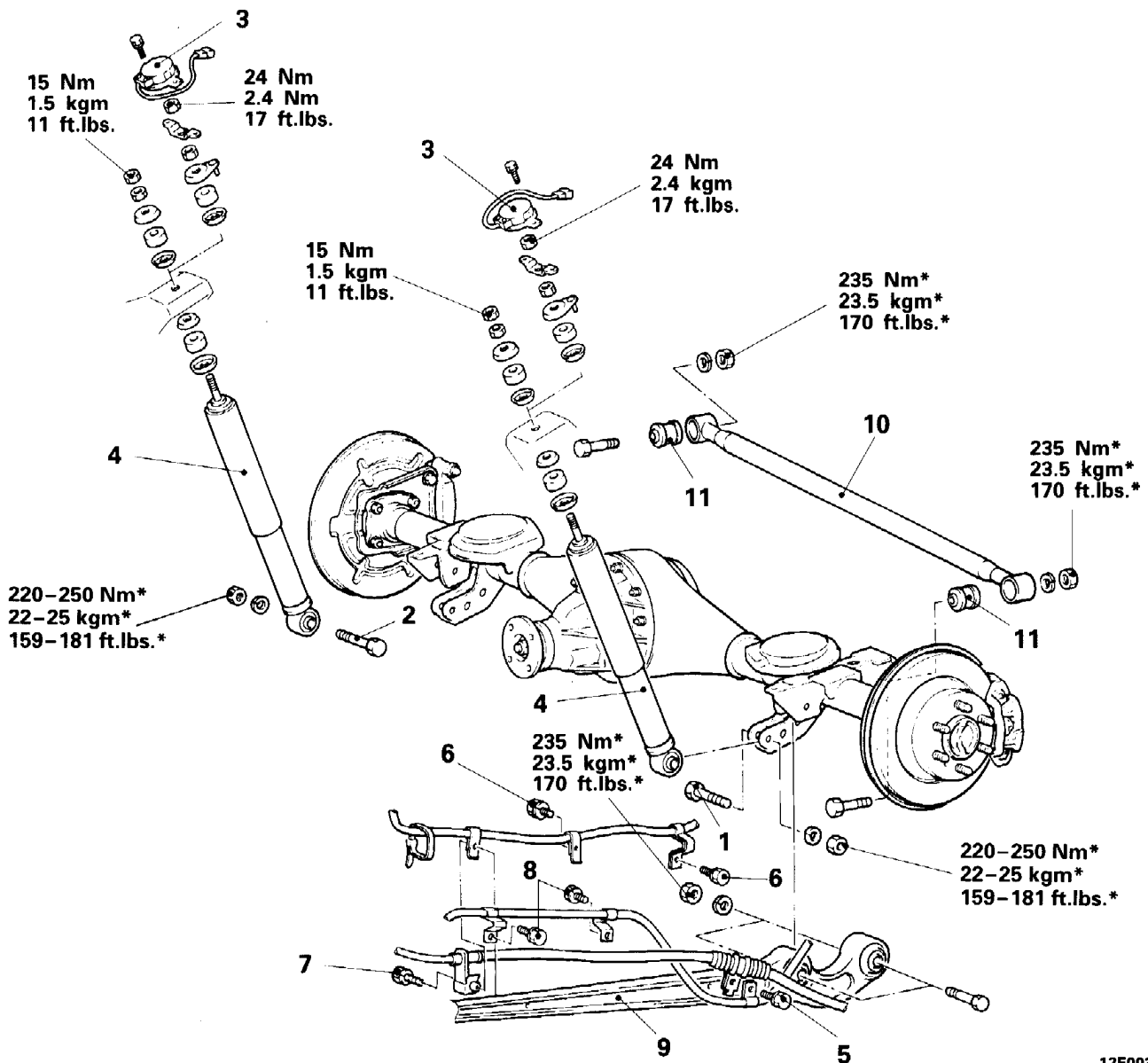




- (2) Align, as shown in the figure, the marked location (B) of the lower arm and the hole part (A) of the lower arm rear bushing, and then, by using the special tool, press the lower arm rear bushing onto the lower arm. Be sure that the difference between the projecting lengths (C - D) should be within 1 mm (0.04 in.)

# SHOCK ABSORBER AND LATERAL ROD REMOVAL AND INSTALLATION

E34HA--



12E0038

### Removal steps of shock absorber

1. Shock absorber mounting bolt (lower left side)
2. Shock absorber mounting bolt (lower right side)
- ◆◆ 3. Actuator (Vehicles with remote-controlled variable shock absorbers)
- ◆◆ 4. Shock absorber

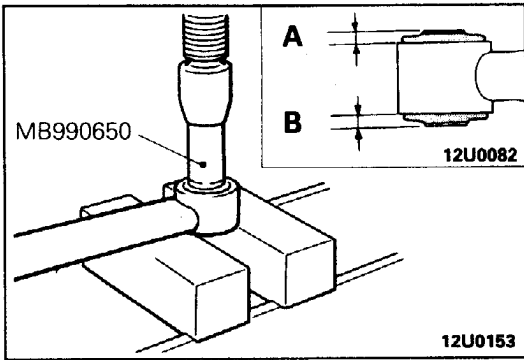
### Removal steps of lateral rod

1. Shock absorber mounting bolt (lower left side)
5. Parking brake cable attaching bolt (LH side)

6. Rear differential lock position harness attaching bolt
7. Parking brake cable attaching bolt (Long wheelbase-LH side)
8. Rear sensor attaching bolt (Vehicles with A.B.S.)
9. Lower arm
10. Lateral rod
11. Lateral rod bushing

### Caution

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



**LATERAL ROD BUSHING REPLACEMENT**

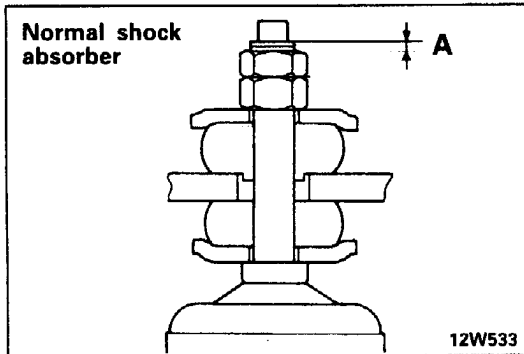
E34HEAD

- (1) Use the special tool to drive out and press in the lateral rod bushing.
- (2) Be careful that the difference (A – B) in bushing projection distances does not exceed the following value.

$$A - B = 0 \pm 1.0 \text{ mm } (0 \pm 0.04 \text{ in.})$$

**Caution**

When pressing in the bushing, apply a sufficient amount of liquid soap to the inside of the lateral rod eyes and the rubber area of the bushing.



**SERVICE POINTS OF INSTALLATION**

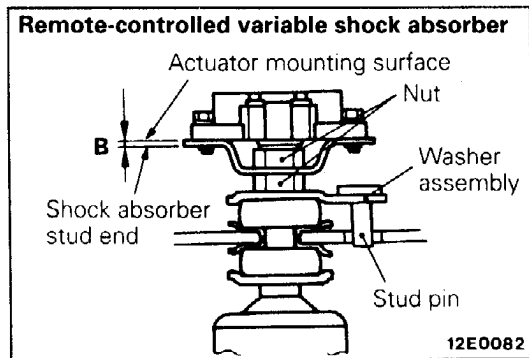
E34HDAE

**4. INSTALLATION OF SHOCK ABSORBER/3. ACTUATOR (VEHICLES WITH REMOTE-CONTROLLED VARIABLE SHOCK ABSORBERS)**

Tighten the nut so that the values shown in the figure (A and B) are at the standard value.

**Standard value A: 1–2 mm (0.04–0.08 in.)**

**B: 1.5–2.5 mm (0.06–0.10 in.)**



**Caution**

When tightening the nut, be careful not to bend the stud pin of the washer assembly.

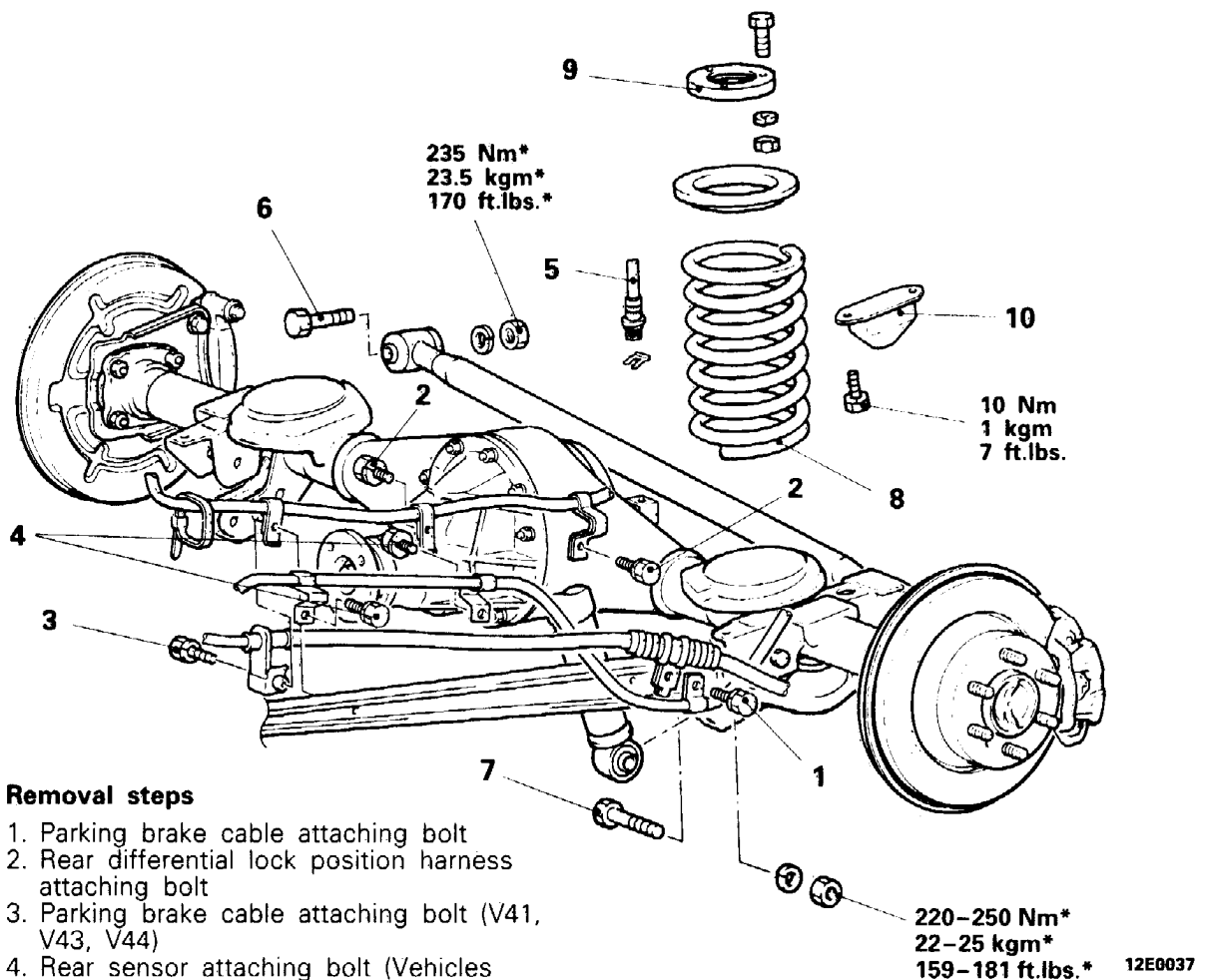
## COIL SPRING AND AXLE BUMPER

E34PA--

## REMOVAL AND INSTALLATION

**Post-installation Operation**

- Filling of Brake Fluid and Air Bleeding (Refer to GROUP 35 Service Adjustment Procedures.)

**Removal steps**

1. Parking brake cable attaching bolt
2. Rear differential lock position harness attaching bolt
3. Parking brake cable attaching bolt (V41, V43, V44)
4. Rear sensor attaching bolt (Vehicles with A.B.S.)
5. Brake hose connection
6. Lateral rod mounting bolt (body side only)
7. Shock absorber mounting bolt (lower side only)
8. Coil spring
9. Rear spring pad
10. Helper rubber

**NOTE**

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

**SERVICE POINT OF REMOVAL**

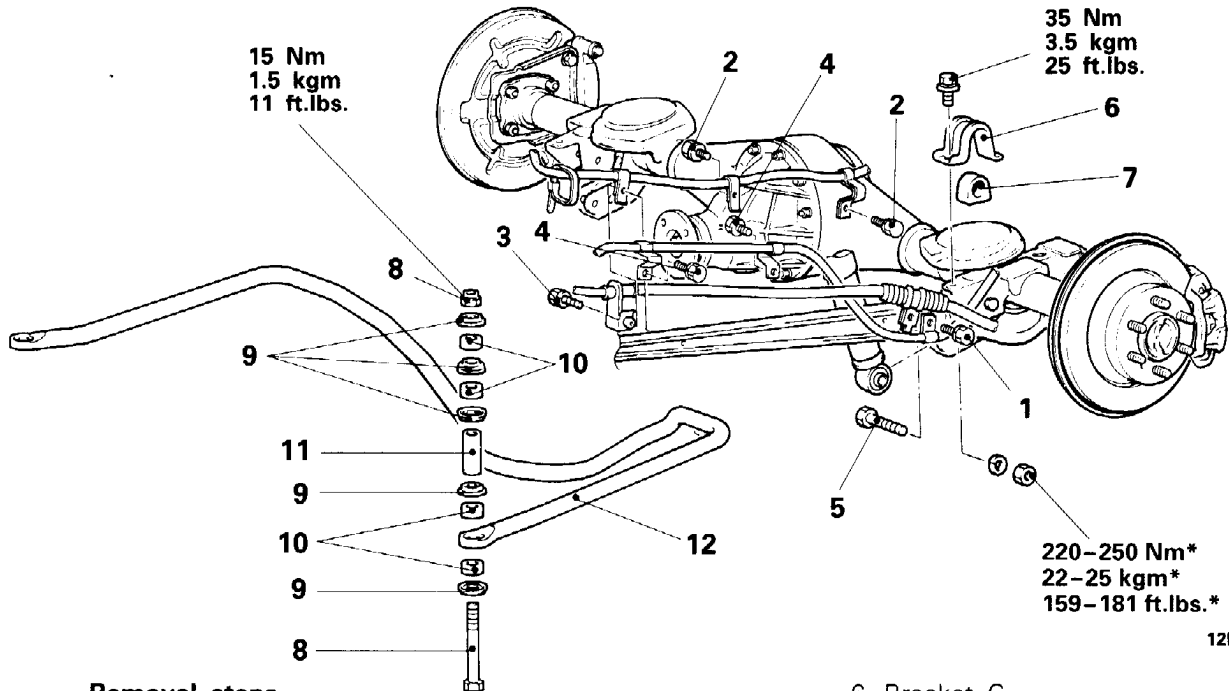
E34PBAB

**8. REMOVAL OF COIL SPRING**

Slowly lower the jack supporting the axle housing, and remove the coil spring and rear spring pad.

**STABILIZER BAR**

<Vehicles built up to October, 1993>  
**REMOVAL AND INSTALLATION**



12E0035

**Removal steps**

1. Parking brake cable attaching bolt
2. Rear differential lock position harness attaching bolt
3. Parking brake cable attaching bolt (Long wheelbase)
4. Rear sensor attaching bolt (Vehicles with A.B.S.)
5. Shock absorber mounting bolts (lower side)

- 6. Bracket C
- 7. Bushing B
- 8. Stabilizer bar mounting bolt and nut
- 9. Joint cup
- 10. Rubber bushing
- 11. Collar
- 12. Stabilizer bar

**Caution**

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

**SERVICE POINT OF REMOVAL**

E34KBAC

**12. REMOVAL OF STABILIZER BAR**

Slowly lower the jack and remove the stabilizer bar to the vehicle right side.

**Caution**

When lowering the jack, take care not to damage the rear brake pipe between the main brake pipe and the rear axle housing.

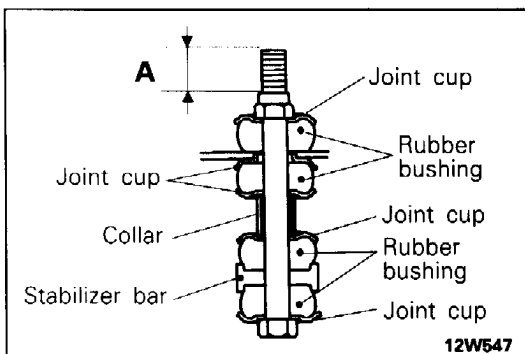
**SERVICE POINT OF INSTALLATION**

E34KDAH

**8. INSTALLATION OF STABILIZER BAR MOUNTING BOLT AND NUT**

- (1) To install the stabilizer bar, assemble the joint cups and rubber bushings by the order and the certain direction as shown in the figure.
- (2) Install the nut on the stabilizer bar mounting bolt to the specified dimensions.

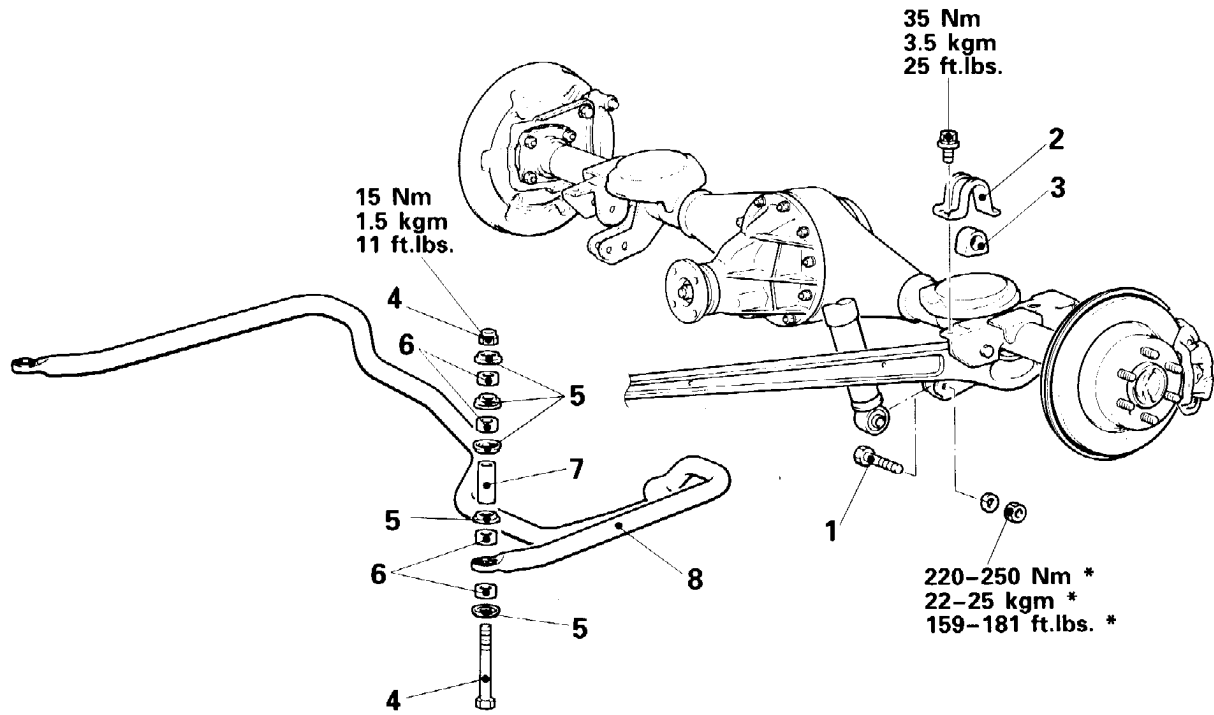
**Standard value (A): 15-17 mm (0.59-0.67 in.)**



12W547

<Vehicles built from November, 1993>

REMOVAL AND INSTALLATION



12E0089

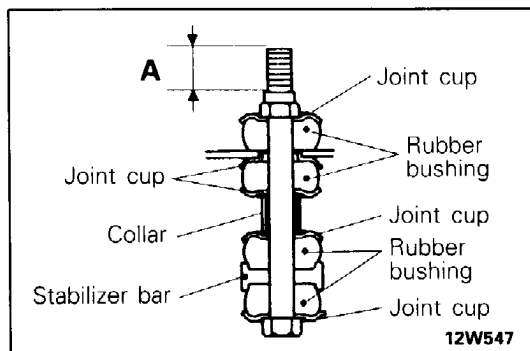
**Removal steps**

1. Shock absorber mounting bolts (lower side)
2. Bracket C
3. Bushing B
- ➡➡ 4. Stabilizer bar mounting bolt and nut
5. Joint cup
6. Rubber bushing

7. Collar
8. Stabilizer bar

**Caution**

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



**SERVICE POINT OF INSTALLATION**

E34KDAH

**4. INSTALLATION OF STABILIZER BAR MOUNTING BOLT AND NUT**

- (1) To install the stabilizer bar, assemble the joint cups and rubber bushings by the order and the certain direction as shown in the figure.
- (2) Install the nut on the stabilizer bar mounting bolt to the specified dimensions.

**Standard value (A): 15-17 mm (0.59-0.67 in.)**