

**Replacement Shock Absorbers**

Vehicle Types: **911 Carrera (993)/911 Carrera S (993)**  
**911 Carrera 4 (993)/911 Carrera 4S (993)**  
**911 Targa (993)**

Model Year: **As of 1994 up to 1998**

Subject: **Replacement shock absorbers** (strut inserts)

Information: Shock absorber for the respective chassis **no longer** available

Notes: During repairs, the faulty shock absorber will be replaced by a new shock absorber of similar design. The functional dimensions of the shock absorber are the same as the shock absorber that is installed as standard equipment.

The shock absorbers **MUST** always be replaced on both sides of the axle or completely (front and rear axle) in the case of the lowered chassis (M-no. 033).

The following tables show the respective vehicles with the possible chassis variants, and the corresponding shock absorbers required for replacement.

Please check this when ordering parts! For further information: see Porsche Electronic Parts Catalog (PET).

Standard: The standard chassis (M-no. M029)/touring suspension (M032 – **ONLY** for USA) was installed on the 911 Carrera 2/4 and 911 Targa.

Front axle Standard Part No. – Approved	Manu- facturer	Part numbers (replacement)
993.343.041.03/.042.03 – worldwide	Boge	993.343.041.40/.042.40 – shock absorber, left/right (1 x), color: green
993.343.041.37/.042.37 – worldwide	Monroe	

Rear axle		
993.333.051.00/.052.00 – worldwide	Boge	993.333.051.38 – shock absorber (2 x), color: green Also use: 993.333.073.04 – Suspension/stabilizer (2 x)
993.333.051.14/.052.14 – ONLY for USA	Boge	
993.333.051.34/.052.34 – worldwide	Monroe	

Sport: The sport suspension (M030; front axle: – 10 mm, rear axle: – 20 mm) was **ONLY** installed on the 911 Carrera, 911 Carrera S/4S coupés (M491 = Turbo Look).

Front axle Standard Part No. – Approved	Manu- facturer	Part numbers (replacement)
993.343.041.04/.042.04 – worldwide	Boge	993.343.041.39/.042.39 – shock absorber, left/right (1 x), color: red
993.343.041.35/.042.35 – worldwide	Monroe	

Rear axle		
993.333.051.12/.052.12 – Rest of the world (RoW)	Boge	993.333.051.39 – shock absorber (2 x), color: red Also use: 993.333.073.04 – Suspension/stabilizer (2 x)
993.333.051.13/.052.13 – USA	Boge	
993.333.051.35/.052.35 – RoW	Monroe	
993.333.051.36/.052.36 – USA	Monroe	

## Lowered:

The lowered chassis (M033; front axle: – 10 mm, rear axle: – 20 mm) was **ONLY** installed on the 911 Carrera and 911 Targa including the S models (M491) in the “Rest of World” market.

Front axle Standard Part No. – Approved	Manu- facturer	Part numbers (replacement)
993.343.041.07/.042.07 – RoW	Boge	993.343.041.39/.042.39 – shock absorber, left/right (1 x), color: red  <b>ONLY</b> together with:
993.343.041.38/.042.38 – RoW	Monroe	

- 965.343.531.02.504 – Coil spring (2 x for front axle)
- Parts included for rear axle (see below)

Rear axle		
993.343.051.02/.052.02 – RoW	Boge	993.333.051.39 – shock absorber (2 x), color: red  <b>ONLY</b> together with:
993.343.051.37/.052.37 – RoW	Monroe	

- 993.333.531.11.504 – Coil spring (2 x for rear axle)
- 993.333.073.04 – Suspension/stabilizer (2 x)
- Parts included for front axle (see above)

Parts list:

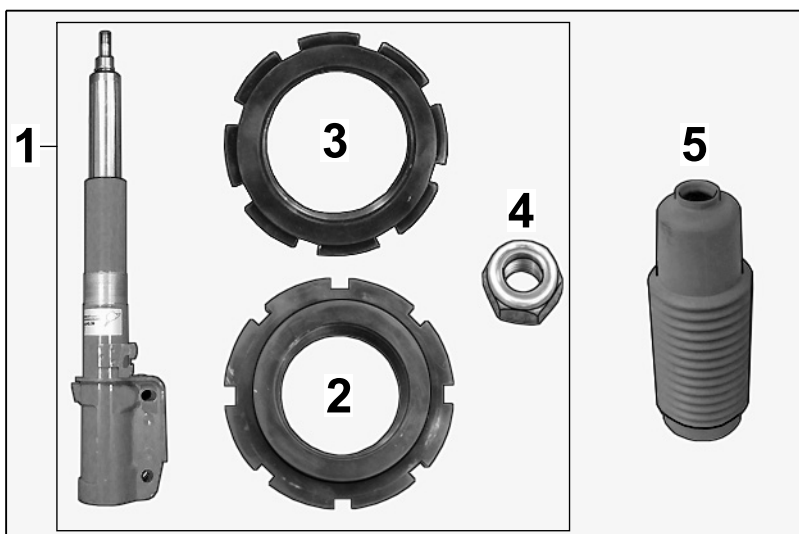


Figure 1

**Parts included for front axle:**

993.343.041.40 <sup>1</sup>	1 x	Shock absorber assembly, left - color: green (not shown)
993.343.042.40 <sup>1</sup>	1 x	Shock absorber assembly, right – color: green ⇒ <i>Figure 1 -1-</i>
993.343.041.39 <sup>2 3</sup>	1 x	Shock absorber assembly, left – color: red (not shown)
993.343.042.39 <sup>2 3</sup>	1 x	Shock absorber assembly, right – color: red ⇒ <i>Figure 1 -1-</i>
993.343.505.01	2 x	Bellows-type protective tube ⇒ <i>Figure 1 -5-</i>
900.380.005.09	8 x	Hexagon nut, M8 (supporting mount, not shown)
965.343.531.02.504 <sup>3</sup>	1 x	Coil spring, set – color coding: orange/green (not shown)

Front-axle Shock absorber assembly always comprises:

— — —	1 x	Shock absorber, left (not shown) or right (⇒ <i>Figure 1 -1-</i> )
964.343.502.03	1 x	Lock nut – lower (color: black) ⇒ <i>Figure 1 -2-</i>
964.343.503.02	1 x	Adjusting nut – upper (color: black) ⇒ <i>Figure 1 -3-</i>
999.084.441.09	1 x	Hexagon nut, M14 x 1.5 – DIN 985 ⇒ <i>Figure 1 -4-</i>

1 Standard chassis (M-no. M029)/touring suspension (M032 – **ONLY** for USA)

2 Sport suspension (M030)

3 Lowered chassis (M033)

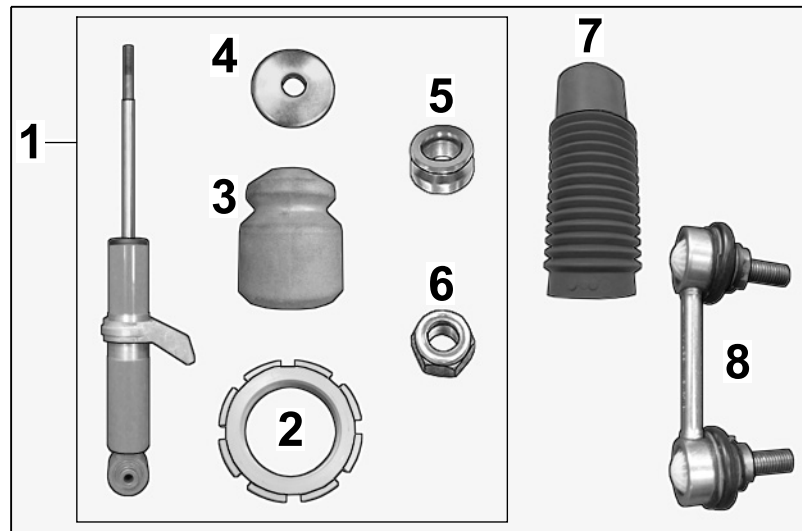


Figure 2

**Parts included for rear axle:**

993.333.051.38 <sup>1</sup>	2 x	Shock absorber assembly, left/right – color: green ⇒ <i>Figure 2-1-</i>
993.333.051.39 <sup>2 3</sup>	2 x	Shock absorber assembly, left/right – color: red (not shown)
993.343.505.01	2 x	Bellows-type protective tube ⇒ <i>Figure 2-7-</i>
993.333.073.04	2 x	Suspension/stabilizer ⇒ <i>Figure 2-8-</i>
993.333.531.11.504 <sup>3</sup>	2 x	Coil spring, set – color coding: brown (not shown)
900.380.005.09	8 x	Hexagon nut, M8 DIN EN 1664 (supporting mount, not shown)
900.380.008.01	4 x	Hexagon nut, M10 (suspension/stabilizer, not shown)

## Rear-axle shock absorber assembly always comprises:

— — —	1 x	Shock absorber (⇒ <i>Figure 2-1-</i> )
993.333.504.81	1 x	Concave washer (lock nut, silver) ⇒ <i>Figure 2-2-</i>
964.333.105.82	1 x	Additional spring, plastic ⇒ <i>Figure 2-3-</i>
999.025.230.03	1 x	Concave washer, 14 x 48 x 3.5 ⇒ <i>Figure 2-4-</i>
993.333.466.81	1 x	Sleeve ⇒ <i>Figure 2-5-</i>
999.084.445.0B	1 x	Hexagon nut, M12 x 1.25 – DIN 985 ⇒ <i>Figure 2-6-</i>

Spare parts: All parts specified with a Porsche part number in the Parts List are available separately as spare parts (see also Porsche Electronic Parts Catalog – PET).

Tools: **V.A.G 1752 - Tensioning device for spring struts** or commercially available tensioning device  
**V.A.G 1332 - Torque wrench, 40-200 Nm (30-148 ftlb.)**

**9647 - Hook wrench** or commercially available hook wrench  
Shop light

Work Procedure: 1 Preparatory work

- 1.1 Position the vehicle on the lifting platform and lift it.
- 1.2 Remove faulty spring strut including second spring strut on the other side of the vehicle.

1.2.1 Front axle ⇒ Workshop Manual 40 8519 Removing front spring strut.

**ONLY** for vehicles with lowered chassis (M033): Also remove spring struts on rear axle!

1.2.2 Rear axle ⇒ Workshop Manual 42 7119 Removing rear spring strut.

**ONLY** for vehicles with lowered chassis (M033): Also remove spring struts on front axle!

2 Convert and install spring strut for front axle.

2.1 Measure dimension X1 (top of adjusting nut/mounting point for shock absorber ⇒ *Figure 3-X1-*) on the standard spring strut.

- 1** – Standard shock absorber
- 2** – New shock absorber
- 3** – Adjusting nut
- 4** – Mounting point for shock absorber
- X1** – Dimension of top of adjusting nut/mounting point for shock absorber

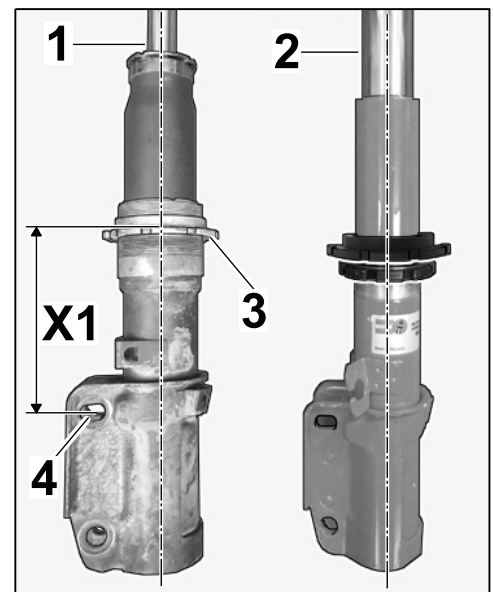


Figure 3

- 2.2 Adjust dimension X2 (top of adjusting nut/mounting point for shock absorber ⇒ *Figure 4 -X2-*) in accordance with dimension X1 (standard spring strut).

- 1 – Standard shock absorber
- 2 – New shock absorber
- 3 – Adjusting nut
- 4 – Mounting point for shock absorber
- 5 – Lock nut
- X1 – Dimension of top of adjusting nut/mounting point for shock absorber (standard spring strut)
- X2 – Dimension of top of adjusting nut/mounting point for shock absorber (new spring strut)

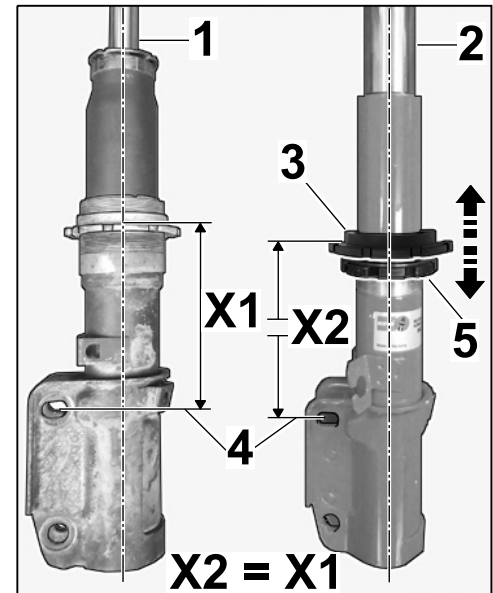


Figure 4

- 2.3 Secure lock nut (⇒ *Figure 4 -5-*) to adjusting nut (⇒ *Figure 4 -3-*).

**Tightening torque 50 Nm (37 ftlb.) +/- 5 Nm (+/- 3.5 ftlb.)**

- 2.4 Disassemble faulty spring strut (⇒ Workshop Manual 4085 Disassembling front spring strut) and assemble new spring strut as shown in *Figure 5* (⇒ *Figure 5*).

- 1 – Shock absorber (new)
- 2 – Lock nut (new)
- 3 – Adjusting nut (new)
- 4 – Concave washer (lower, re-use)
- 5 – Coil spring (re-use, ONLY for lowered chassis: new)
- 6 – Bellows-type protective tube (new)
- 7 – Concave washer (upper, re-use)
- 8 – Spacer sleeve (re-use)
- 9 – Supporting mount (re-use)
- 10 – Hexagon nut, M8 (new)
- 11 – Nut, M14 x 1.5 (new)
- 12 – Seal (perform visual inspection, use new seal if necessary)
- 13 – Push-on connector for ABS line (re-use)
- 14 – Wear indicator clip (re-use)

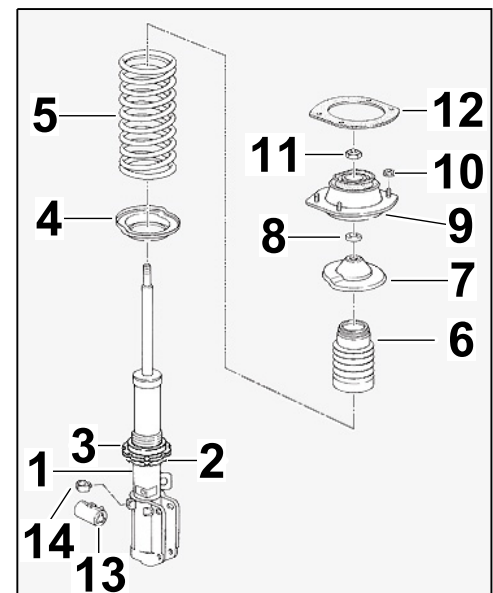


Figure 5

- 2.5 Convert new spring strut for the other side of the vehicle in the same way.

2.6 Install both spring struts ⇒ Workshop Manual 40 8519 Installing front spring strut (front axle, right: ⇒ *Figure 6*).

- 1 – Coil spring
- 2 – Bellows-type protective tube
- 3 – Shock absorber
- 4 – Concave washer (lower)
- 5 – Adjusting nut
- 6 – Lock nut

**ONLY** for vehicles with lowered chassis (M033): Also install spring struts on rear axle (see Step 3)!

3 Convert and install spring strut for rear axle.

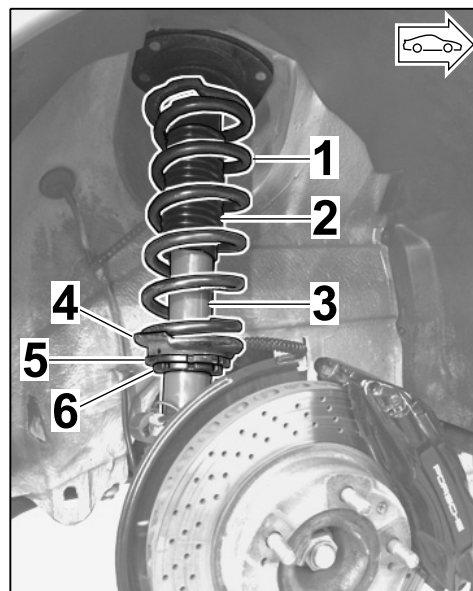


Figure 6

3.1 Measure dimension X1 (spring plate – lower/bushing for shock absorber ⇒ *Figure 7-X1-*) on the standard shock absorber.

- 1 – Standard shock absorber
- 2 – New shock absorber
- 3 – Spring plate – lower
- 4 – Bushing for shock absorber
- X1 – Dimension of spring plate (lower)/bushing for shock absorber

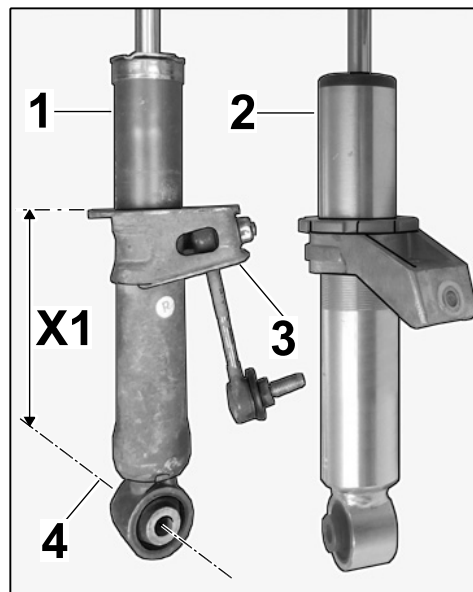


Figure 7

- 3.2 Adjust dimension X2 (spring plate – lower/bushing for shock absorber ⇒ *Figure 8-X2-*) in accordance with dimension X1 (standard spring strut).

- 1 – Standard shock absorber
- 2 – New shock absorber
- 3 – Spring plate – lower = Concave washer (lock nut, silver)
- 4 – Bushing for shock absorber
- 5 – Joint bearing
- X1 – Dimension of lower spring plate/bushing for shock absorber (standard spring strut)
- X2 – Dimension of lower spring plate/bushing for shock absorber (new spring strut)

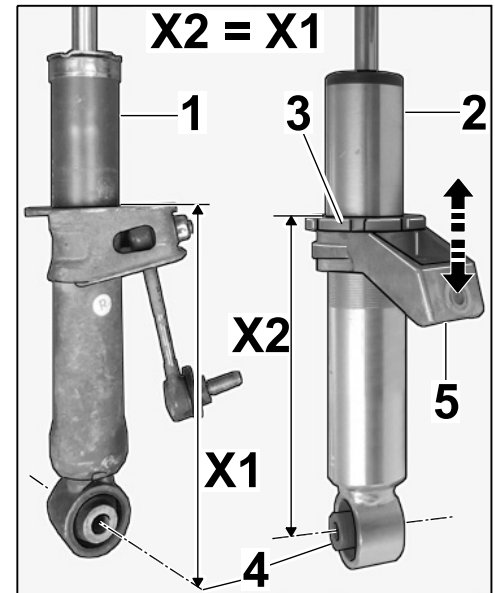


Figure 8

- 3.3 Prepare shock absorbers for installation (left/right side of vehicle ⇒ *Figure 9*).

- 1 – Joint bearing
- 2 – Spring plate – lower = Concave washer (lock nut, silver)
- 3 – Bushing for shock absorber
- X – Dimension = 21°

- 3.3.1 Loosen joint bearing slightly from the concave washer (lock nut, silver ⇒ *Figure 9-2-*).

- 3.3.2 Adjust dimension X = 21° as required (⇒ *Figure 9*).

- 3.3.3 Screw concave washer (lock nut, silver ⇒ *Figure 9-2-*) hand-tight to the joint bearing (⇒ *Figure 9-1-*).

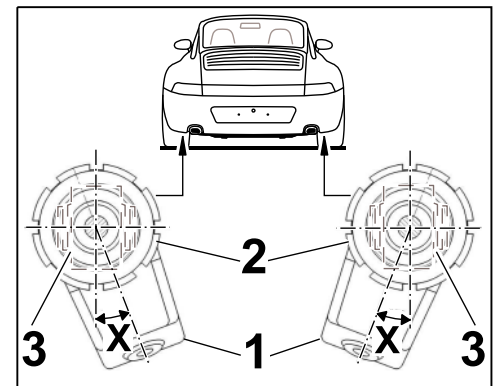


Figure 9



3.4 Disassemble faulty spring strut (⇒ Workshop Manual 4271 Disassembling rear spring strut) and assemble new spring strut as shown in Figure 10 (⇒ *Figure 10*).

- 1 – Shock absorber (new)
- 2 – Concave washer (lock nut, silver – new)
- 3 – Coil spring (re-use, ONLY for lowered chassis: new)
- 4 – Additional spring, plastic (new)
- 5 – Bellows (new)
- 6 – Concave washer, 14 x 48 x 3.5 (new)
- 7 – Sleeve (new)
- 8 – Plate (re-use)
- 9 – Intermediate piece, 3.0/5.5/8.0 mm (re-use)
- 10 – Supporting mount (re-use)
- 11 – Hexagon nut, M8, DIN EN 1664 (new)
- 12 – Stop plate (re-use)
- 13 – Hexagon nut, M12 x 1.25 (new)
- 14 – Suspension/stabilizer (new)
- 15 – Hexagon nut, M10 (new)

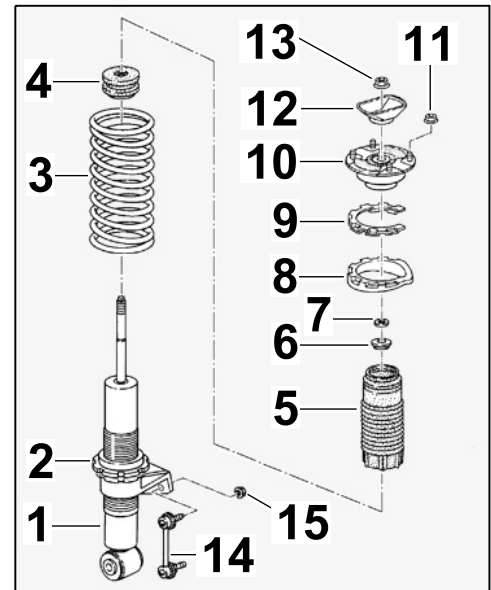


Figure 10

3.5 Convert new spring strut for the other side of the vehicle in the same way.

3.6 Install both spring struts, see also ⇒ Workshop Manual 42 7119 Installing rear spring strut.

- 1 – Coil spring
- 2 – Concave washer (lock nut, silver)
- 3 – Joint bearing
- 4 – Shock absorber
- 5 – Suspension/stabilizer
- 6 – Anti-roll bar

3.6.1 Loosely pre-fit left/right spring strut at the relevant installation position in the vehicle.

Loosen concave washer (lock nut) slightly if necessary and turn joint bearing/shock absorber slightly into position so that it is connected without tension to the body/steering knuckle.

3.6.2 Secure concave washer (lock nut) to joint bearing.

**Tightening torque 100 Nm (74 ftlb.)**

3.6.3 Fit new suspension/stabilizer as shown in Figure 11 (⇒ Figure 11).

4 Concluding work

4.1 Perform complete suspension alignment ⇒ Workshop Manual 440503 Suspension alignment, complete

Adjustment values ⇒ Workshop Manual 4405 Adjustment values for suspension alignment

4.2 Remove vehicle from lifting platform.

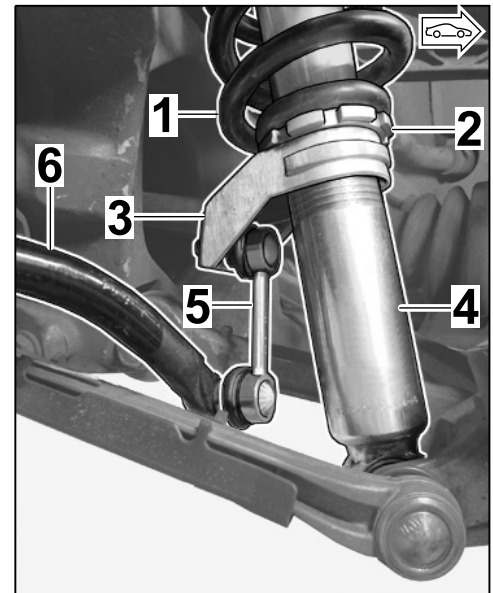


Figure 11

40 95 20 00:	–Removing and installing front spring strut (2 x)–	Labor time: <b>150 TU</b>
40 90 20 50:	–Removing and installing front shock absorber (2 x)–	Labor time: <b>90 TU</b>
42 71 20 00:	–Removing and installing rear spring strut (2 x)–	Labor time: <b>160 TU</b>
42 72 20 50:	–Removing and installing rear coil spring (2 x)–	Labor time: <b>80 TU</b>

44 95 03 00: –Performing suspension alignment at front and rear–

Labor time: **100 TU**

44 95 15 50: –Adjusting vehicle at front and rear–

Labor time: **200 TU**

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