

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 new 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	Manufacturer	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
993.333.051.14/.052.14 – ONLY for USA	Boge	
993.333.051.34/.052.34 – worldwide	Monroe	Also use: 993.333.073.04 – Suspension/stabilizer (2 x)

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	Manufacturer	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
993.333.051.13/.052.13 – USA	Boge	
993.333.051.35/.052.35 – RoW	Monroe	Also use: 993.333.073.04 – Suspension/stabilizer (2 x)
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 the world (RoW)” market.

Front axle Standard Part No. – Approved	Manufacturer	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
993.343.041.38/.042.38 – RoW	Monroe	
		ONLY together with: <ul style="list-style-type: none"> • 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
993.343.051.37/.052.37 – RoW	Monroe	
		ONLY together with: <ul style="list-style-type: none"> • 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:

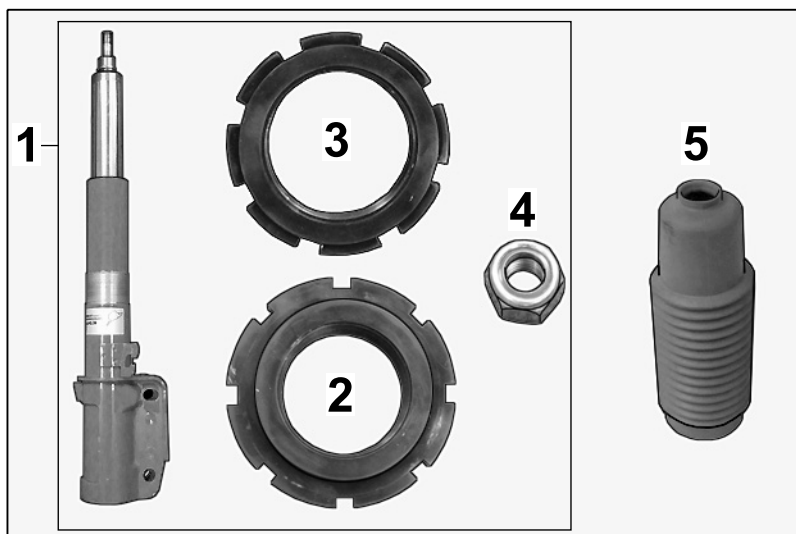


Figure 1

Parts required for front axle:

993.343.041.40 ¹	1 x	Shock absorber assembly, left - color: green (not shown)
993.343.042.40 ¹	1 x	Shock absorber assembly, right – color: green ⇒ <i>Figure 1-1-</i>
993.343.041.39 ^{2 3}	1 x	Shock absorber assembly, left – color: red (not shown)
993.343.042.39 ^{2 3}	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 ³	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>

* Must be ordered separately.

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

² Sport suspension (M030)

³ Lowered chassis (M033)

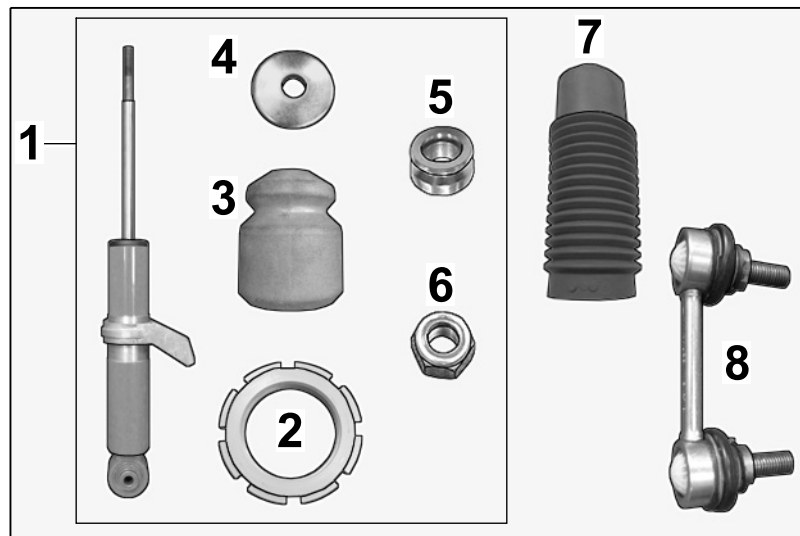


Figure 2

Parts required for rear axle:

993.333.051.38 ¹	2 x	Shock absorber assembly, left/right – color: green ⇒ Figure 2 -1-
993.333.051.39 ^{2 3}	2 x	Shock absorber assembly, left/right – color: red (not shown)
993.343.505.01	2 x	Bellows-type protective tube * ⇒ Figure 2 -7-
993.333.073.04	2 x	Suspension/stabiliser * ⇒ Figure 2 -8-
993.333.531.11.504 ³	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 (⇒ Figure 2 -1-)
993.333.504.81	1 x	Concave washer (lock nut, silver) ⇒ Figure 2 -2-
964.333.105.82	1 x	Additional spring, plastic ⇒ Figure 2 -3-
999.025.230.03	1 x	Concave washer, 14 x 48 x 3.5 ⇒ Figure 2 -4-
993.333.466.81	1 x	Sleeve ⇒ Figure 2 -5-
999.084.445.0B	1 x	Hexagon nut, M12 x 1.25 – DIN 985 ⇒ Figure 2 -6-

* Must be ordered separately.

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

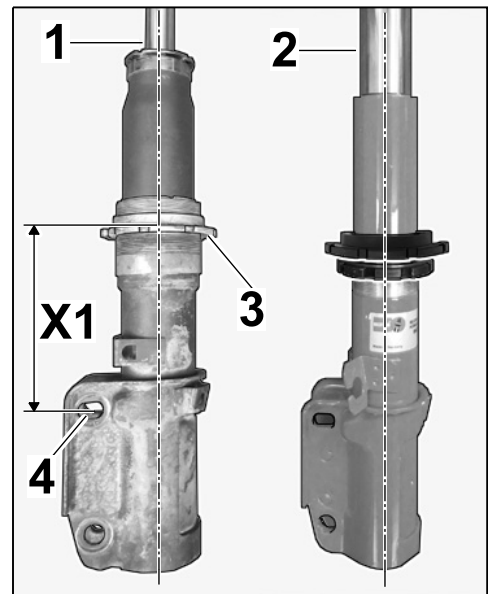


Figure 3

- 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)

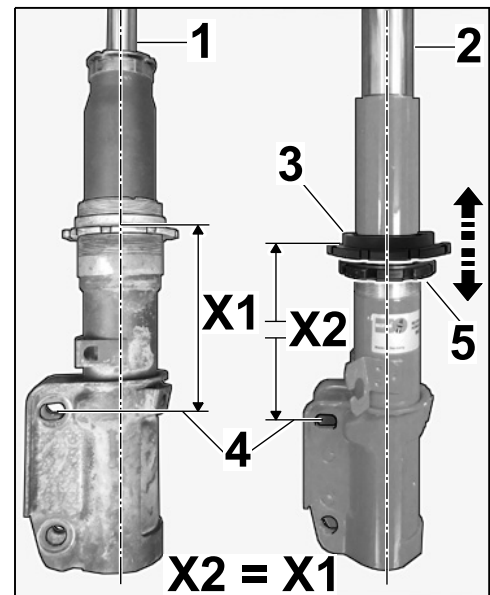


Figure 4

- 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)

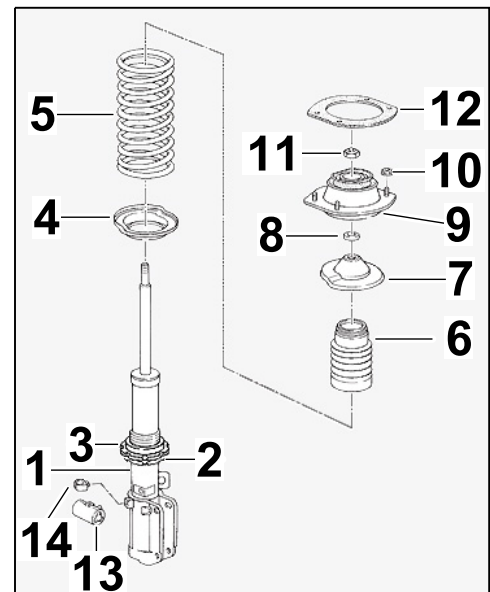


Figure 5

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



Information

Visually inspect supporting mount seal for damage/material properties and replace it if necessary.

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.

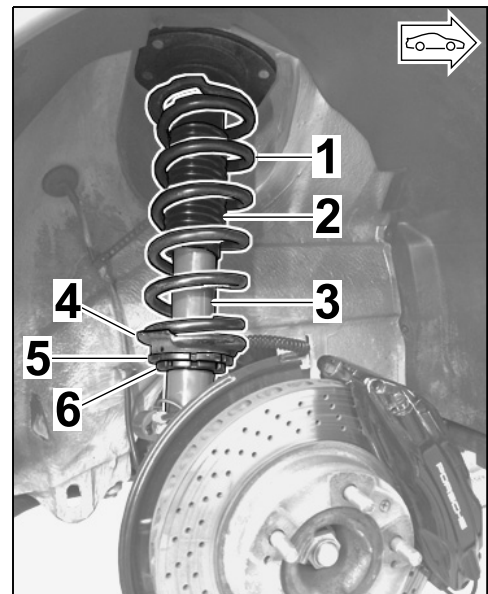


Figure 6

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

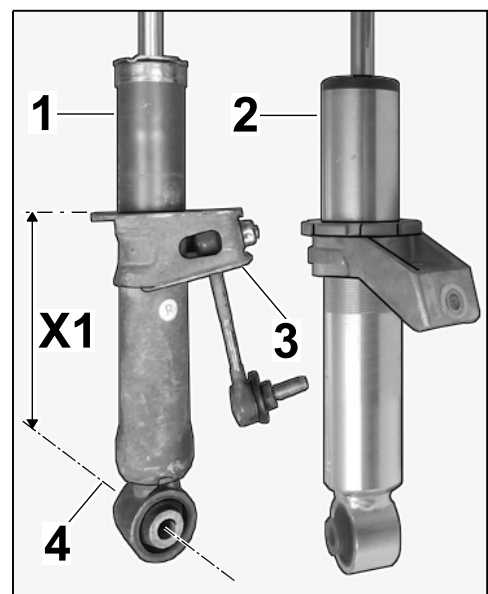


Figure 7

- 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/bush for shock absorber (standard spring strut)
- X2 – Dimension of lower spring plate/bush for shock absorber (new spring strut)

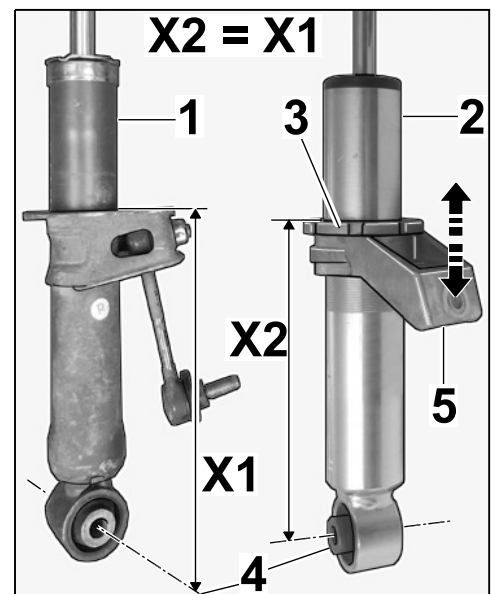


Figure 8

- 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-*).

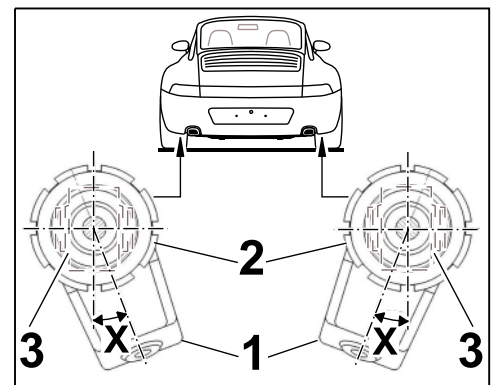


Figure 9

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)

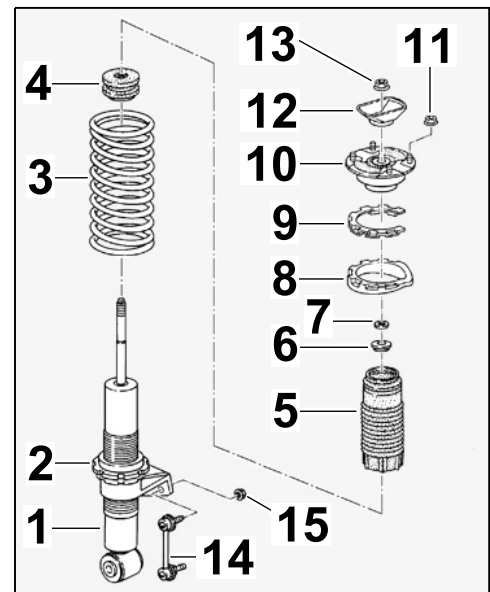


Figure 10

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

NOTICE

Incorrect adjustment of joint bearing for shock absorber on rear axle

- **Joint bearing can break**
 - **Joint bearing touching axle support**
- ⇒ **Check joint bearing settings (21° and height)!**
- ⇒ **Fit shock absorbers without tension in the vehicle.**
- ⇒ **Check that shock absorbers are working perfectly (compression/rebound) before driving!**

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.)

NOTICE

Suspension/stabilizer fitted incorrectly

- **Joint bearing can break**
- ⇒ **Always fit suspension/stabilizer in such a way that the threaded bolt is facing the other side of the vehicle.**

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.

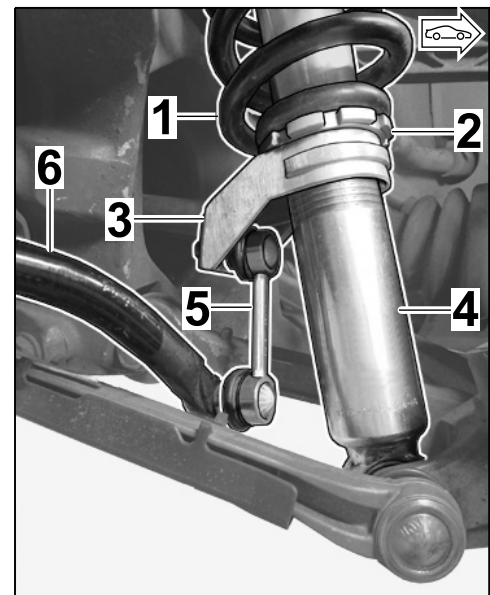


Figure 11

40 85 20 00: –Removing and installing front spring strut (2 x)–

Labor time: **150 TU**

40 90 20 50: –Removing and installing front shock absorber (2 x)–

Labor time: **90 TU**

42 71 20 00:	-Removing and installing rear spring strut (2 x)-	Labor time: 160 TU
42 72 20 50:	-Removing and installing rear coil spring (2 x)-	Labor time: 80 TU
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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