

Replacement Shock Absorbers

Vehicle type: **911 Turbo (993)**

Model Year: **As of 1996 up to 1998**

Subject: **Replacing 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.

The components **MUST** always be replaced on both sides of axle.

The following table shows 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 was installed on the 911 Turbo and 911 Turbo with Turbo Look (M491).

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
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	

Parts list:

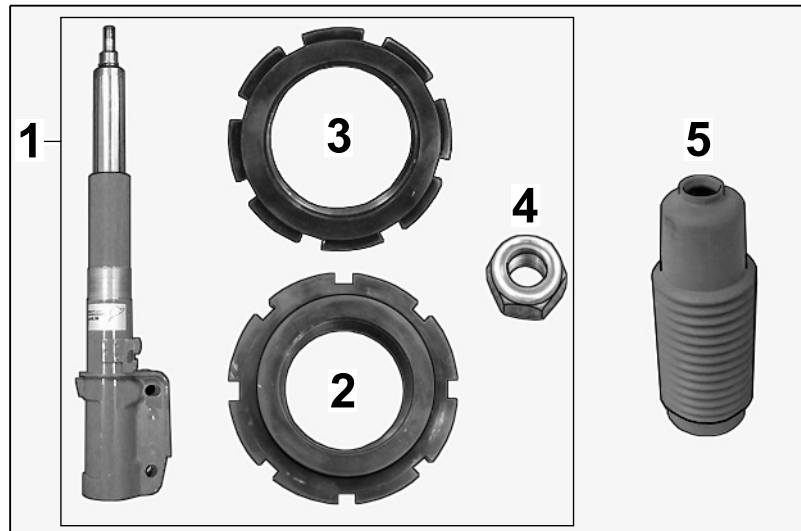


Figure 1

Parts included for front axle:

993.343.041.39	1 x	Shock absorber assembly, left – color: red (not shown)
993.343.042.39	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)

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>

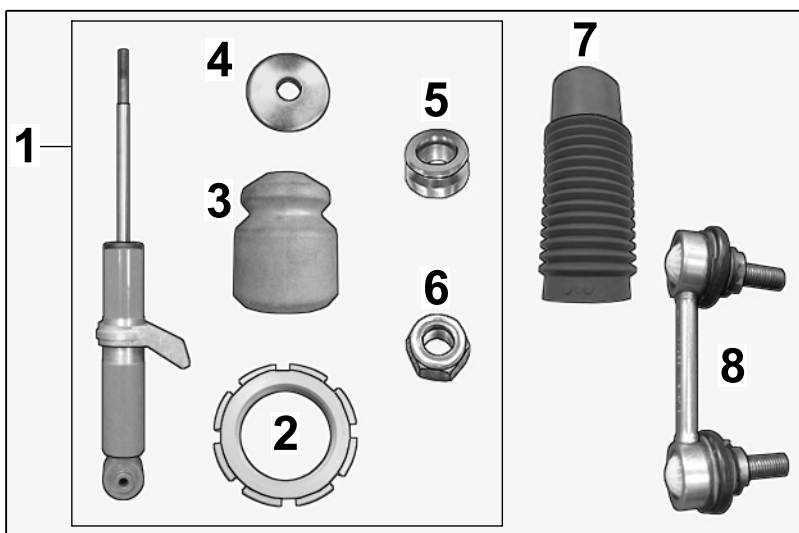


Figure 2

Parts included for rear axle:

993.333.051.39	2 x	Shock absorber assembly, left/right – color: red ⇒ <i>Figure 2-1-</i>
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>
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

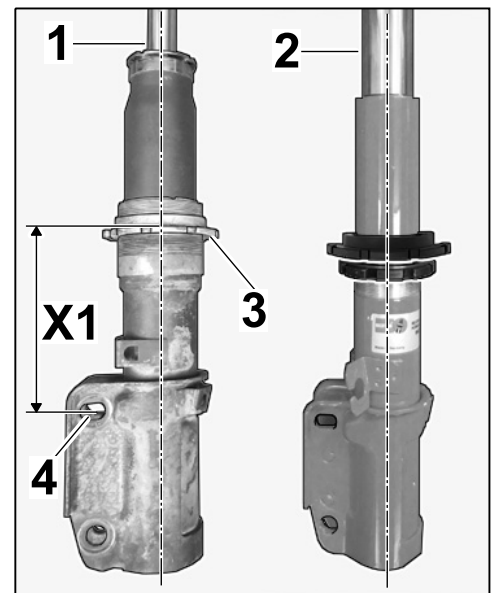
Work Procedure: 1 Preparatory work

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

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)

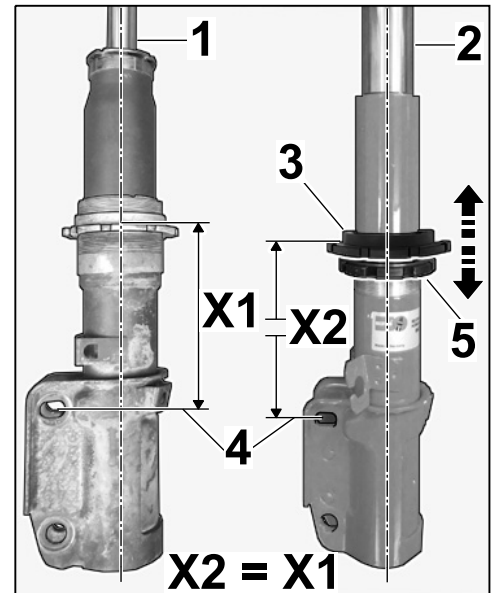


Figure 4

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)

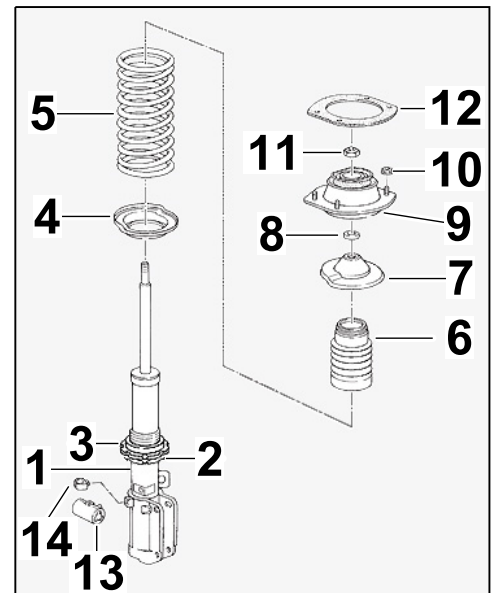


Figure 5

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 – Vibration damper
- 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.

3.1 Measure dimension X1 (spring plate – lower/bush 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)/bush for shock absorber

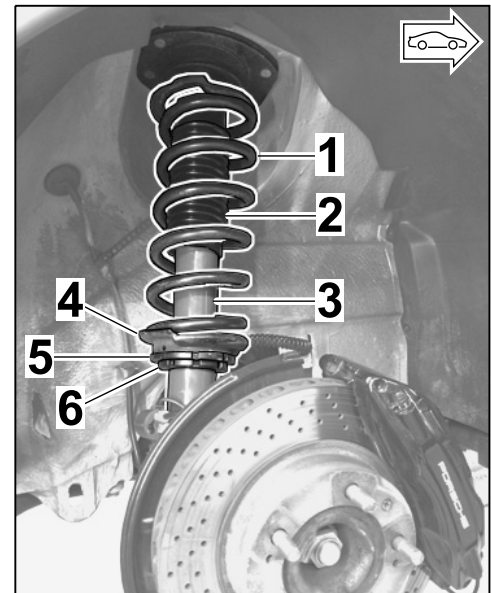


Figure 6

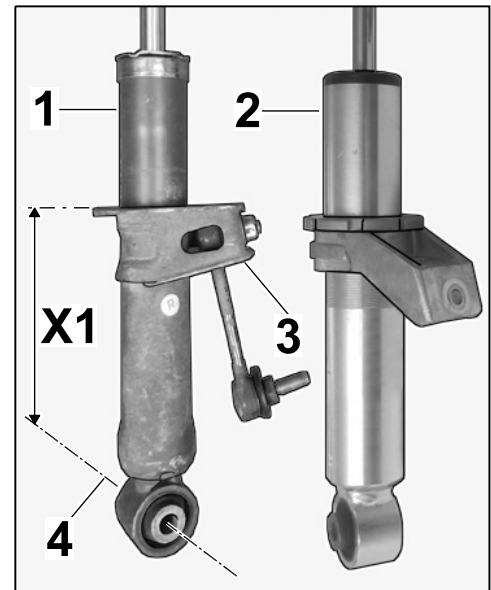


Figure 7

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)

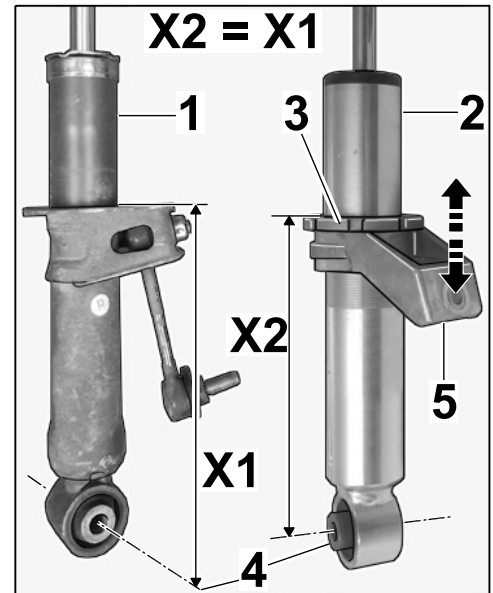


Figure 8

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-*).

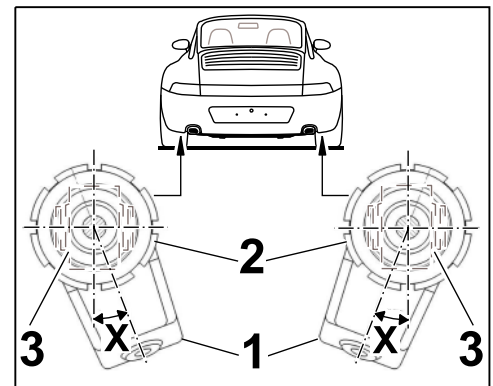


Figure 9

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)

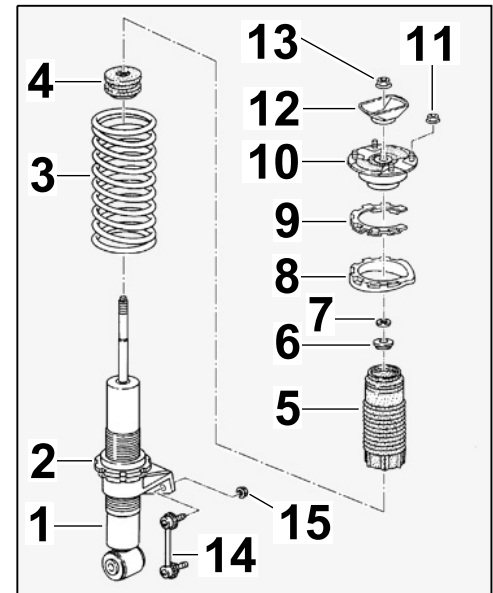


Figure 10

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).

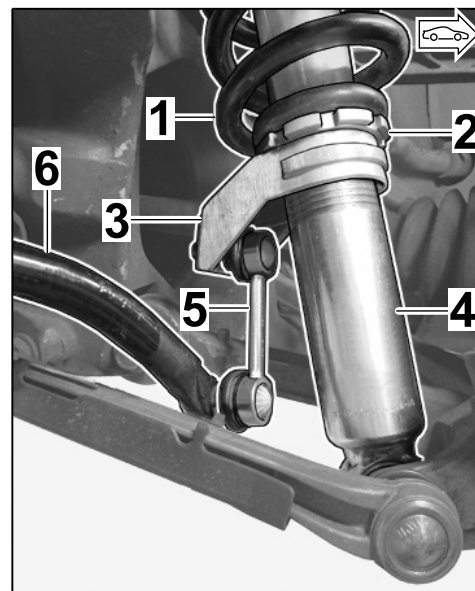


Figure 11

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.

40 95 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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