

2009 Audi S6 Quattro

SUSPENSION Suspension, Wheels, Steering

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00 - GENERAL, TECHNICAL DATA

TECHNICAL DATA

Suspension

Front axle	Four link suspension - front axle, top and bottom transverse links, stabilizer bar, twin-tube gas-filled shock absorbers or suspension struts (air spring suspension) with variable height settings and damping characteristics
Rear axle	Self-tracking trapezoidal links-axle, stabilizer bar, individual wheel suspension, twin-tube gas-filled shock absorbers with coil springs or air springs with variable height settings and damping characteristics

	Front and All Wheel Drive								
	Standard suspension 1BA	Sport suspension 1BE	Rough terrain suspension 1BR	Urban suspension 1BB	Sport suspension quattro GmbH 1BV	Sport suspension S6 1BD	Air spring suspension 1BK	Air spring suspension allroad 1BY	
Wheelbase	mm	approx. 2845 ¹	approx. 2850 ¹	approx. 2841 ¹ approx. 2945 ²	approx. 2845 ¹ approx. 2950 ²	approx. 2853 ¹	approx. 2848 ¹	approx. 2846 ¹ approx. 2950 ²	approx. 2846 ¹
Front track width	mm	approx. 1613 ³	approx. 1616 ³	approx. 1610 ³	approx. 1613 ³	approx. 1616 ³	approx. 1630 ³	approx. 1614 ^{3,4}	approx. 1608 4.5
Rear track width	mm	approx. 1621 ³	approx. 1625 ³	approx. 1617 ³	approx. 1621 ³	approx. 1627 ³	approx. 1612 ³	approx. 1622 ^{3,4}	approx. 1605 4.5
Max. steering angle at inside wheel	Degrees	38 ° 12'	38 ° 18'	38 ° 30'	38 ° 12'	38 ° 18'	38 ° 18'	38 ° 18'	38 ° 18'

1 - Vehicles with "short" wheelbase.

2 - Vehicles with "long" wheelbase.

3 - Specifications correspond to a rim offset (ET) of 35 mm.

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4 - Specified values correspond to the standard level on an air spring suspension.

5 - Specifications correspond to a rim offset (ET) of 38 mm.

NOTE:

- Specified values valid for all engine versions.
- Track widths change when using wheels with different rim offset.

Steering

Steering gear	Maintenance-free rack-and-pinion steering with speed-dependent power assist
Turning circle diameter	Approx. 11.90 m * See note Approx. 12.30 m * See note

* Vehicles with "short" wheelbase.

* Vehicles with "short" wheelbase.

ENVIRONMENTALLY SAFE DISPOSAL OF OIL- AND GAS-FILLED COMPONENTS

Front gas-filled shock absorber, release gas and draining

A - Venting by drilling

- Secure gas-filled strut vertically in vise, with piston rod facing down.

CAUTION: Always wear eye protection when performing this procedure.

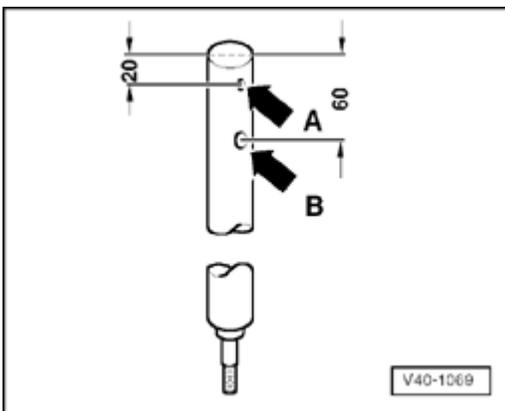


Fig. 1: Venting Through Drill Holes

Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Drill a 3 mm diameter hole - **arrow A** - through outer tube of strut.

NOTE:

- **Gas will escape while drilling.**

- Continue to drill through inner tube (approx. 25 mm deep).
- Drill a second hole 6 mm in diameter - **arrow B** - through outer and inner tubes of strut.
- Hold strut over an appropriate container for catching oil and move piston rod repeatedly through its entire stroke until no more oil flows out.

B - Opening with a pipe cutter

Special tools, testers and auxiliary items required

- Pipe cutter, commercially available

CAUTION: Always wear eye protection when performing this procedure.

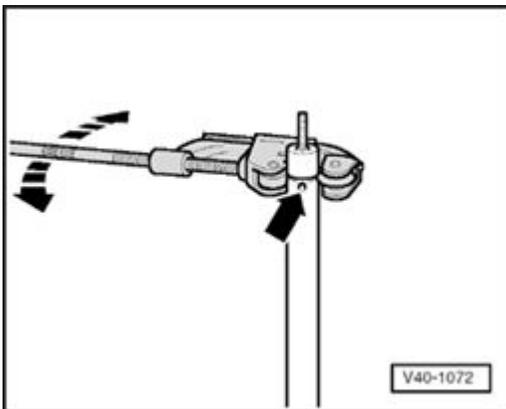


Fig. 2: Cutting Through Outer Tube Using Pipe Cutter
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Drill a 3 mm in diameter hole - **arrow** - through outer tube of strut or saw through tube wall.

NOTE:

- **Gas will escape while drilling or cutting.**

- Attach a pipe cutter (commercially available), as shown in illustration, and cut through outer tube.
- Pull piston rod upward, hold inner tube with pliers during this and press it downward so that it stays in outer tube when piston rod is pulled up slowly.
- Remove piston rod from inner tube.
- Empty strut tube.

Rear gas-filled struts, venting

A - Venting by drilling

- Secure gas-filled strut vertically in vise, with piston rod facing down.

CAUTION: Always wear eye protection when performing this procedure.

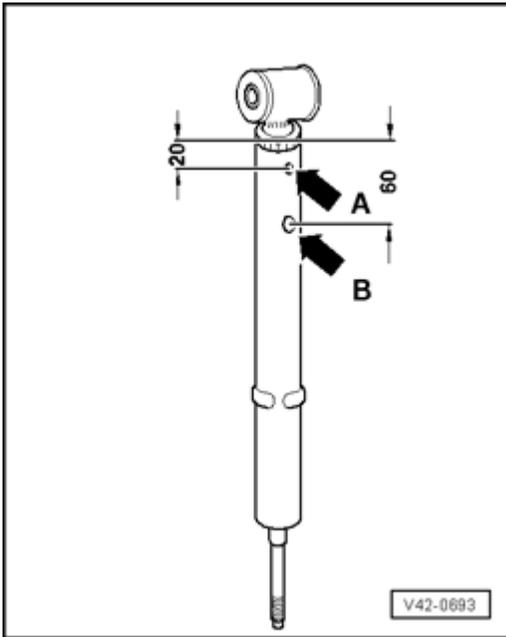


Fig. 3: Emptying Rear Gas-Filled Struts
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Drill a 3 mm in diameter hole - **arrow A** - through outer tube of strut.

NOTE: • **Gas will escape while drilling.**

- Continue to drill through inner tube (approx. 25 mm deep).
- Drill a second hole 6 mm in diameter - **arrow B** - through outer and inner tubes of strut.
- Hold strut over an appropriate container for catching oil and move piston rod repeatedly through its entire stroke until no more oil flows out.

B - Opening with a pipe cutter

Special tools, testers and auxiliary items required

- Pipe cutter, commercially available

CAUTION: Always wear eye protection when performing this procedure.

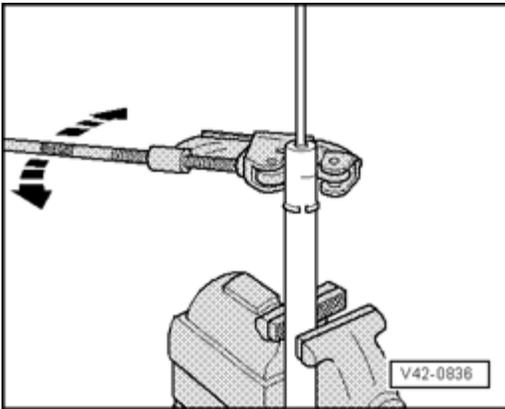


Fig. 4: Cutting Through Outer Tube Using Pipe Cutter
 Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Drill a 3 mm in diameter hole through outer tube of strut or saw through tube wall - **arrow** -.

NOTE:

- **Gas will escape while drilling or cutting.**

- Attach a pipe cutter (commercially available), as shown in illustration, and cut through outer tube.
- Pull piston rod upward, hold inner tube with pliers during this and press it downward so that it stays in outer tube when piston rod is pulled up slowly.
- Remove piston rod from inner tube.
- Empty strut tube.

Front suspension strut (air spring suspension), draining

Removing front suspension strut (air spring suspension) --> **Suspension strut (air spring suspension) with mounting bracket, removing and installing.**

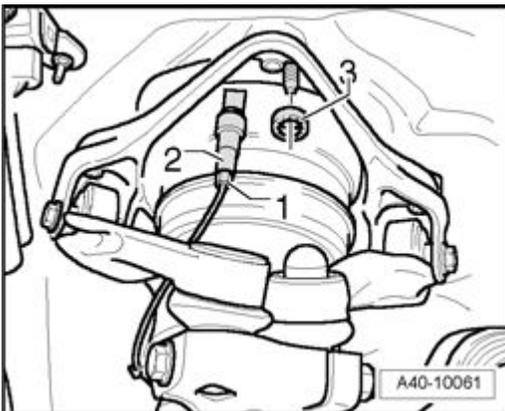


Fig. 5: Identifying Residual Pressure Valve And Connecting Piece
 Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Slowly loosen residual pressure valve - **2** - on front suspension strut (air spring suspension) and allow air

pressure to dissipate.

A - Opening by drilling

Illustration shows a conventional shock absorber. The procedure for the suspension strut (air spring suspension) is identical.

- Secure suspension strut (air spring suspension) vertically in vise, with piston rod facing down.

CAUTION: Always wear eye protection when performing this procedure.

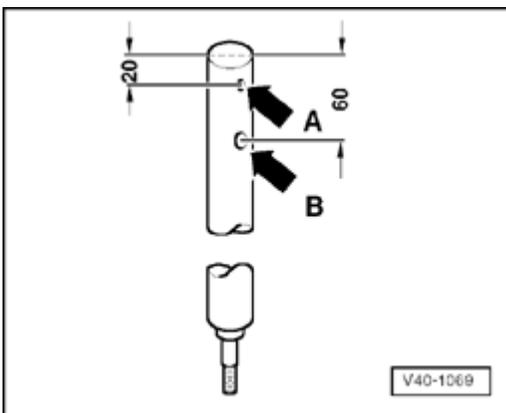


Fig. 6: Venting Through Drill Holes

Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Drill a 3 mm in diameter hole - **arrow A** - through outer tube of strut.
- Continue to drill through inner tube (approx. 25 mm deep).
- Drill a second hole 6 mm in diameter - **arrow B** - through outer and inner tubes of strut.
- Hold strut over an appropriate container for catching oil and move piston rod repeatedly through its entire stroke until no more oil flows out.

Pressure reservoir, draining

- Perform system bleed using VAS 5051 A --> **System bleeding or charging.**

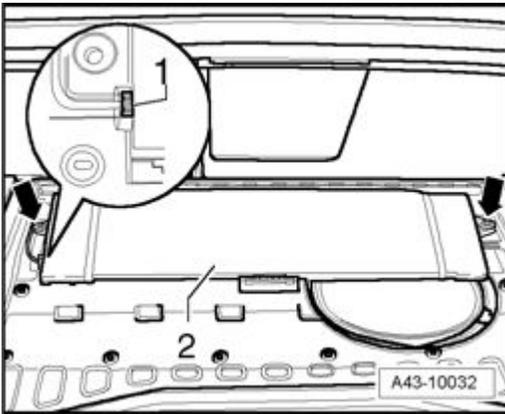


Fig. 7: Loosening Air Line On Pressure Reservoir And Letting Air Pressure Dissipate
 Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Slowly loosen air line - **1** - on pressure reservoir - **2** - and let air pressure dissipate. Once air pressure has dissipated, remove air line - **1** -.

Power steering gear, emptying

NOTE:

- Room temperature must be at least 20 ° C when emptying steering gear.

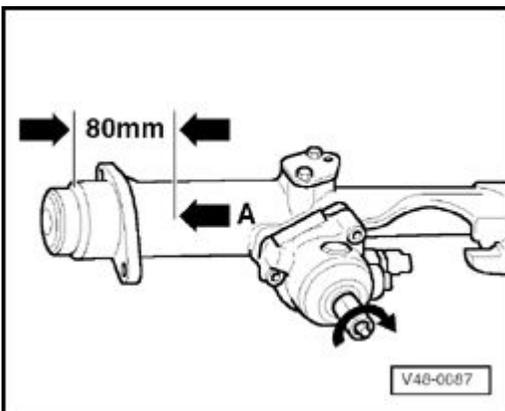


Fig. 8: Turning Steering Pinion
 Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Turn steering pinion in direction of - **arrow** - until stop.
- Secure steering gear horizontally in a vise.
- Place appropriate receptacle underneath steering gear.

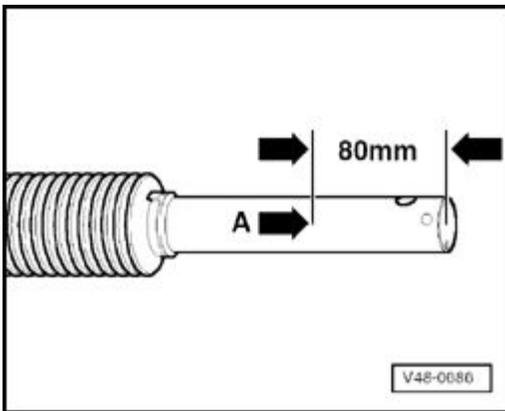


Fig. 9: Identifying Steering Gear Saw Dimensions
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Cut through steering gear where indicated with - **arrow A** -.
- Hold severed steering gear over oil receptacle and let hydraulic fluid run out. Turn steering pinion to stop in opposite direction if necessary.

SHOCK ABSORBERS, CHECKING

Leakages at shock absorbers

Shock absorbers are frequently thought to be leaking and are replaced. Examinations of test conditions and on vehicles have revealed that a large number of shock absorbers are replaced without justification.

Minor fluid excretion ("sweating") at the piston rod seal is not a legitimate reason to replace a shock absorber. An oil moistened shock absorber is OK under the following conditions:

- Oil leakage (shaded in illustration) is visible, but dull, matte and possibly dry due to dust.

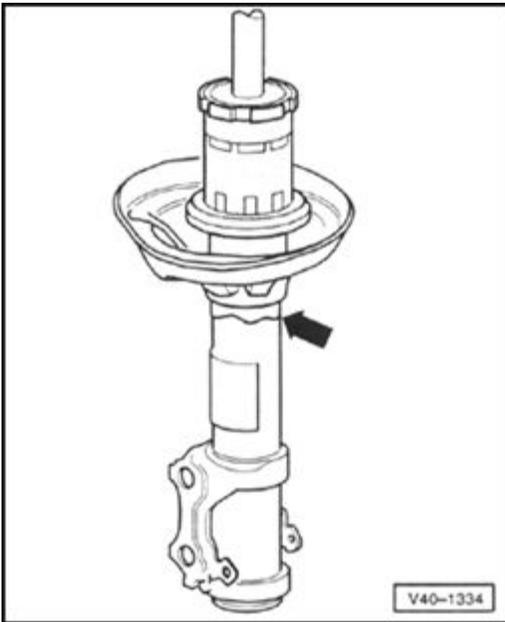


Fig. 10: Identifying Fluid Seepage

Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Oil leakage extends from upper strut connection (piston rod oil seal) no further than lower spring seat - arrow -.

NOTE:

- **Minor oil excretion is advantageous since the piston rod oil seal gets lubricated, which increases service life. This is true for front and rear shock absorbers.**

Shock absorbers noises

Shock absorbers are frequently replaced due to rattling noises. Examinations of test conditions and on vehicles have revealed that 70% of the shock absorbers at blame did not have any problems and that replacement was not justified.

Proceed as follows for complaints involving rattling or cracking noises:

- Determine where, when and how noises develop during a road test with the customer - if possible road test vehicle on a dry, uneven driving surface.

NOTE:

- **It is only in the rarest of cases that the shock absorber is at fault for the noises.**

Shock absorbers (removed from vehicle), checking

Faulty shock absorbers are noticeable during driving due to loud rattling noises - caused by wheel bouncing - particularly on rough driving surfaces. They can also be externally identified by large oil loss.