

2006 Porsche Cayenne
2003-2008 SUSPENSION Level Control

2003-2008 SUSPENSION

Level Control

43 IN POSITION OF AIR SUSPENSION COMPONENTS - AS OF MY 2003 (ALL MODELS EXCEPT CAYENNE S TIO TITAN)

POSITION OF AIR SUSPENSION COMPONENTS

The Cayenne Turbo and the optional Cayenne and Cayenne S are equipped with a level adjustment system with full-supporting air suspension on both axles and the electronically regulated damping of Porsche Active Suspension Management (PASM).

The air suspension with level adjustment makes it possible to actively adapt the ground clearance of the Cayenne to the situation in which the vehicle is being used or to its load. More ground clearance off-road by manual adjustment to off-road level or automatic lowering at high speed.

Depending on the load, by increasing or decreasing the air volume it is possible to achieve various vehicle heights with different suspension characteristics. The amount of air needed for each air spring strut is determined by means of a control unit and provided via an air supply consisting of compressor, a solenoid block and two accumulators.

Wheel acceleration sensors **-9-** are no longer fitted as of January 2004. Precise data and scopes can be found in the spares catalogue. If the air-spring struts have to be replaced, the wheel acceleration sensors (for vehicles before January 2004) will need to be installed on the new air-spring struts. See **Fig. 1**.

2006 Porsche Cayenne

2003-2008 SUSPENSION Level Control

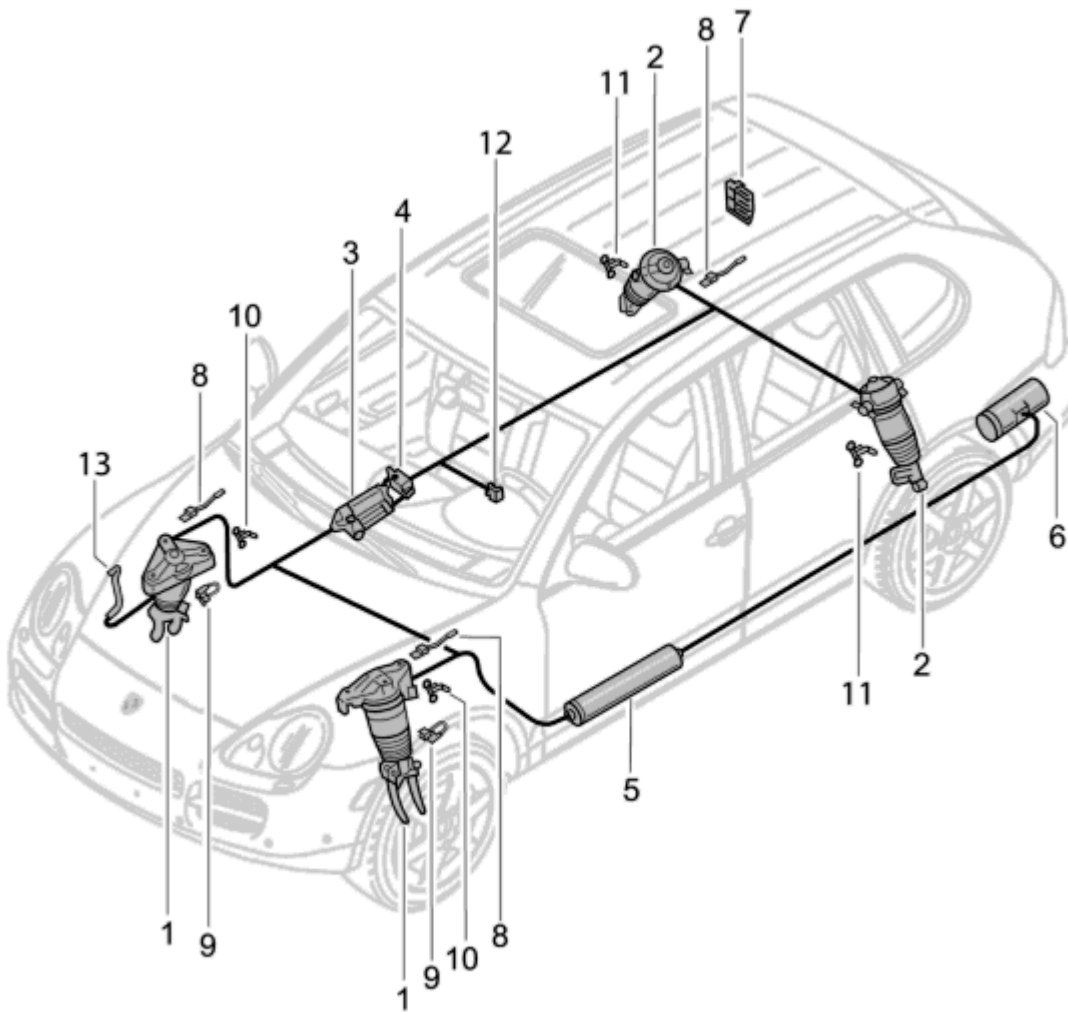


Fig. 1: Position of air suspension components

Courtesy of PORSCHE OF NORTH AMERICA, INC.

No.	Description of component	Number	Location
-1-	Air spring strut, front axle	2	Wheel housing/lower control arm
-2-	Air-spring strut, rear axle	2	Damper housing (cross member)/wheel bearing housing
-3-	Compressor	1	Underbody right
-4-	Valve block	1	Underbody right
-5-	Front accumulator, 5.21 litres	1	Underbody left
-6-	Rear accumulator 4.87 litres	1	Boot floor plate
-7-	Air suspension control unit	1	Luggage compartment right

2006 Porsche Cayenne

2003-2008 SUSPENSION Level Control

-8-	Body acceleration sensors (2x front and 1x rear)	3	Front wheel housing (right/left), boot floor plate right
-9-	Wheel acceleration sensors	2	Spring strut front
-10-	Self-levelling sensors, front axle	2	Control arm upper
-11-	Self-levelling sensors, rear axle	2	Control arm upper
-12-	Compressed air connection	1	Under seat frame front right
-13-	Suction line for compressor	1	Connection to air cleaner housing

43 K2 CALIBRATION - AS OF MY 2003 (ALL MODELS EXCEPT CAYENNE S TIO TITAN)

CALIBRATION

Calibration must be carried out if control unit and/or self-levelling sensors are replaced. When doing this, the self-levelling sensors are calibrated by determining a correction value (corresponding to the actual height of vehicle) and permanently storing it in the control unit.

Notes on calibration

NOTE:

- ***Prior to calibration, the normal level must be adjusted! --> Conditions for carrying out calibration .***
- ***Ensure that tire pressures have been adjusted to the respective tire specifications. Refer to 44 IN TIRES - AS OF MY 2003 (ALL MODELS) .***
- ***During calibration, the vehicle is raised and lowered!***
- ***When engine is running, switch air extraction system on.***
- ***The security code is displayed in the Porsche System Tester under menu >> Level adjustment >> Actual values.***

The nominal values for the nominal heights of the level sensors are stored in the control unit. The actual values of the respective axle heights, front left, front right, rear left, rear right, have to be measured manually and then entered with the Porsche System Tester. The actual values are to be measured on the two axle supports (front axle, rear axle), both on the right and left. --> **Conditions for carrying out calibration.**

Measuring point for rear axle

2006 Porsche Cayenne

2003-2008 SUSPENSION Level Control

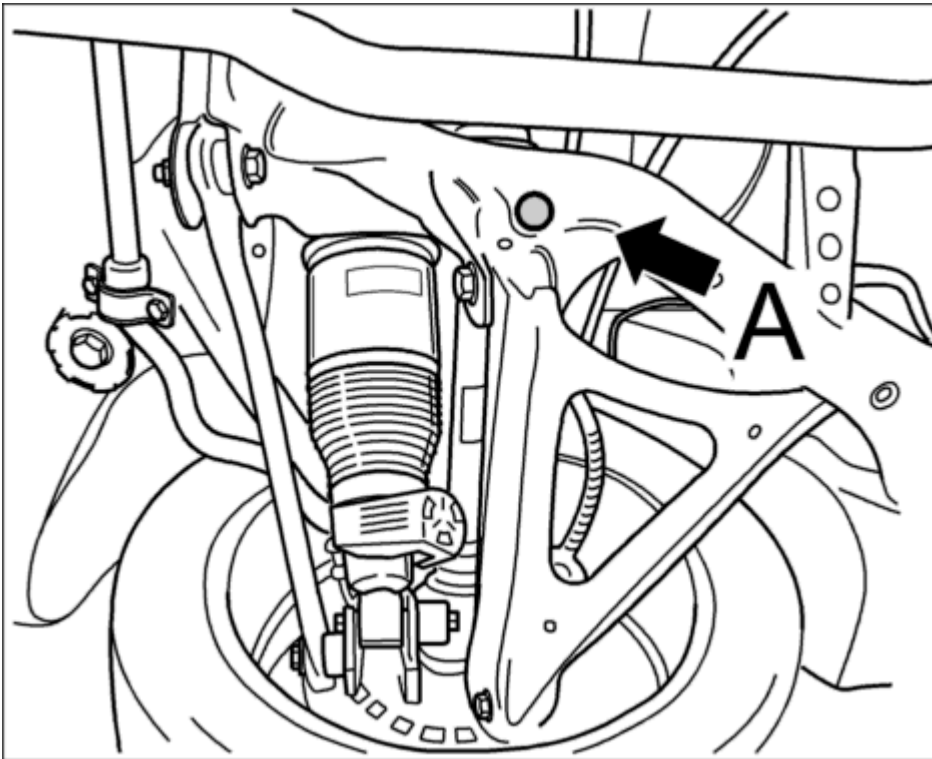


Fig. 2: Measuring point for rear axle

Courtesy of PORSCHE OF NORTH AMERICA, INC.

The distance (middle of wheel) between the road (wheel contact area on measuring platform) and the measuring point -A- on the axle support is measured. See **Fig. 2**.

Measuring point for front axle

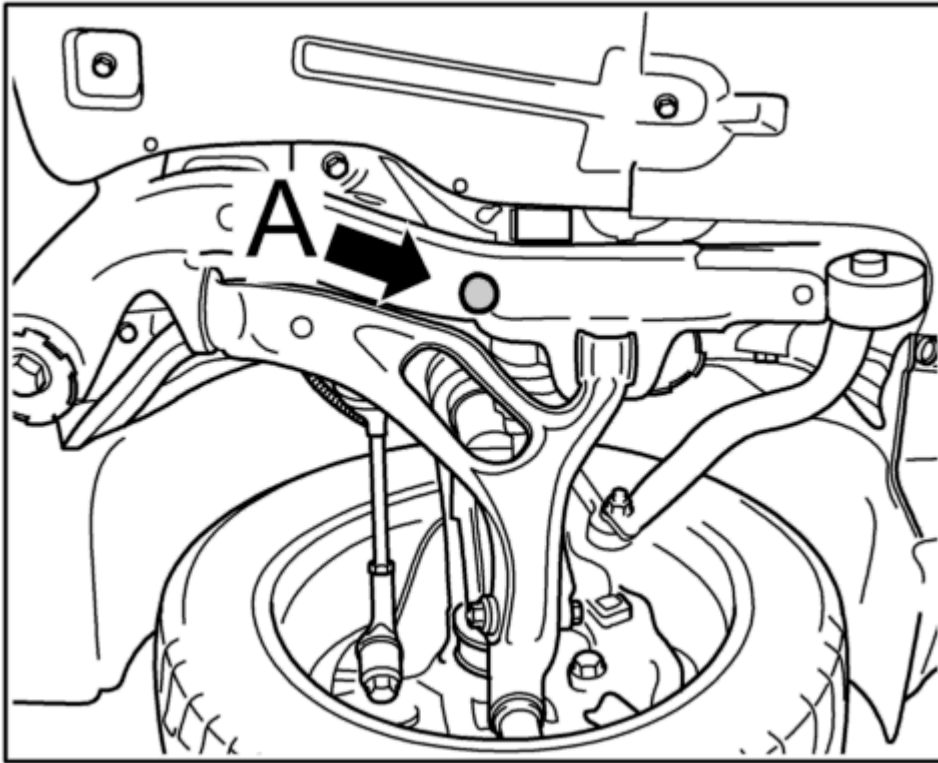


Fig. 3: Measuring point for front axle

Courtesy of PORSCHE OF NORTH AMERICA, INC.

The distance (middle of wheel) between the road (wheel contact area on measuring platform) and the measuring point -A- on the axle support is measured. See **Fig. 3**.

Conditions for carrying out calibration

Calibration can only be carried out while vehicle is stationary.

The vehicle must be on the measuring platform.

The foot-operated parking brake is to be operated.

The car is to be adjusted to normal level. --> **Conditions for carrying out calibration** and (**Adjusting car to normal level**).

If air suspension accumulators of the air suspension are filled, only the ignition has to be switched on. If air pressure in accumulators is too low, compressor comes on and loads battery. In this case, a constanter (charging unit) must be connected or the engine must be started.

Connect the Porsche System Tester. Select the test step Calibration in the Air suspension/level adjustment system.

When calibrating, the vehicle moves down first and then moves up to normal level.

2006 Porsche Cayenne

2003-2008 SUSPENSION Level Control

After normal level has been reached, determine the actual values of axle heights at measuring points.

If an implausible value is entered (actual value is not accepted), measure height again and enter value.

Adjusting car to normal level

Stop the vehicle and apply the brake.

Close vehicle doors.

Tap the right-hand rocker switch on the center console in the appropriate direction until vehicle has reached normal level. The middle indicator light next to the rocker switch is permanently on. If a further indicator light should come on, a different level is set.

43 TW TIGHTENING TORQUES - AS OF MY 2003 (CAYENNE TIP, CAYENNE MAN, CAYENNE S TIP, CAYENNE S MAN, CAYENNE TURBO)

TIGHTENING TORQUES

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Mount for compressor M8 x 50		Tightening torque	17 ftlb.		
Mount for compressor M8 x 70		Tightening torque	17 ftlb.		
Mount for valve block M6		Tightening torque	7.5 ftlb.		
Mount for pressure accumulator front M8 x 16		Tightening torque	17 ftlb.		
Mount for pressure accumulator rear M6 x 15		Tightening torque	7.5 ftlb.		
Mount for pressure accumulator rear M8 x 16		Tightening torque	17 ftlb.		
Pressure line to spring strut		Tightening torque	2 ftlb.		
Pressure line to valve block		Tightening torque	3 ftlb.		

43 01 IN FILLING SPECIFICATION FOR AIR-SPRING STRUT - AS OF MY 2003 (ALL MODELS EXCEPT CAYENNE S TIO TITAN)

TOOLS

Designation	Type	Number	Explanation	

2006 Porsche Cayenne

2003-2008 SUSPENSION Level Control

Compressed gas bottle with pressure gauge unit	commercially available tool	00000		
adapter	VW-tool	T10157/1		

FILLING SPECIFICATION FOR AIR-SPRING STRUT

Overview of air-spring strut

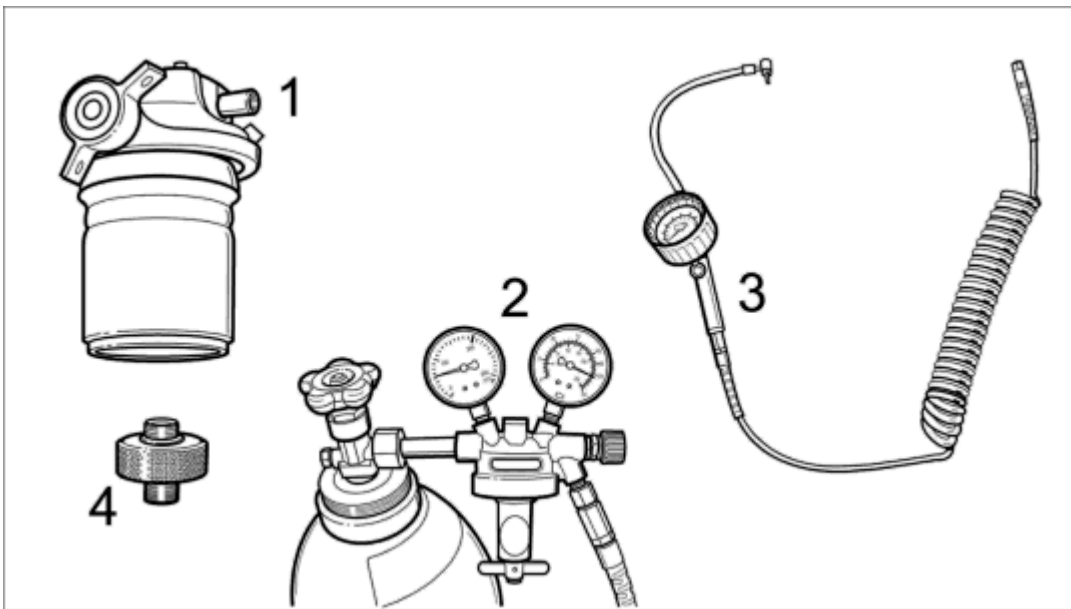


Fig. 4: Overview of air-spring strut

Courtesy of PORSCHE OF NORTH AMERICA, INC.

- 1- - Top part of air-spring strut with residual pressure retaining valve without plug connection (a/f 12). (The **adapter T10157/1** is fitted to the residual pressure retaining valve before the air-spring strut is filled.)
- 2- - **Compressed gas bottle with pressure gauge unit 00000** (The required pressure is set on the compressed gas bottle using the commercially available pressure gauge unit. The compressed gas bottle is filled with Argon or Corgon!)
- 3- - **Air-spring filling unit VAS 6231 00000** (The air-spring strut can be filled with individual pressure shots using the air-spring filling unit.)
- 4- - **Adapter T10157/1** (The **adapter T10157/1** is fitted to the residual pressure retaining valve before the air-spring strut is filled.)

General information on air-spring strut

2006 Porsche Cayenne

2003-2008 SUSPENSION Level Control

The air-spring struts are pre-filled to approx. 3 bar overpressure ex-works. If a new air-spring strut is installed, air can diffuse (escape) from the bellows of the air-spring strut as a result of storage times of varying duration. If the air-spring strut is removed from the transport packaging and installed without being filled, the bellows can fall into folds, thereby damaging the air-spring strut. For this reason, all air-spring struts must be re-filled prior to use! The procedure is described in detail in the course of the repair instructions.

Filling the air-spring strut

CAUTION: Increased risk of accident due to compressed gas bottles under high pressure (up to 200 bar).

- **Injuries and material damage are possible.**

--> Observe the relevant operating regulations for handling compressed air and gas filling units.

--> Observe accident prevention regulations.

NOTE:

- ***Do not remove air-spring strut from transport packaging until it has been filled. This will prevent damage to the inner bellows.***
- ***The air-spring strut must be screwed securely in the transport packaging during filling.***
- ***During assembly work, make sure that there are no pressure marks on the protective boot of the air-spring strut.***
- ***After installation, first set the high level, then go to normal level. Repeat this procedure once more. This procedure replaces most of the gas with the cleaned air from the air supply unit.***

1. Remove transport packaging lid.

2. Pull off protective cap on residual pressure retaining valve. Carefully remove any left-over packaging.

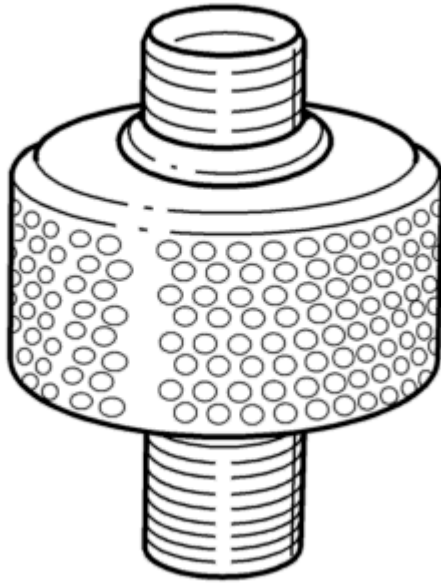


Fig. 5: Adapter T10157/1

Courtesy of PORSCHE OF NORTH AMERICA, INC.

3. Pull off plug connection on residual pressure retaining valve (a/f 12) and screw on the filling unit **adapter T10157/1** at the correct position on the residual pressure retaining valve.

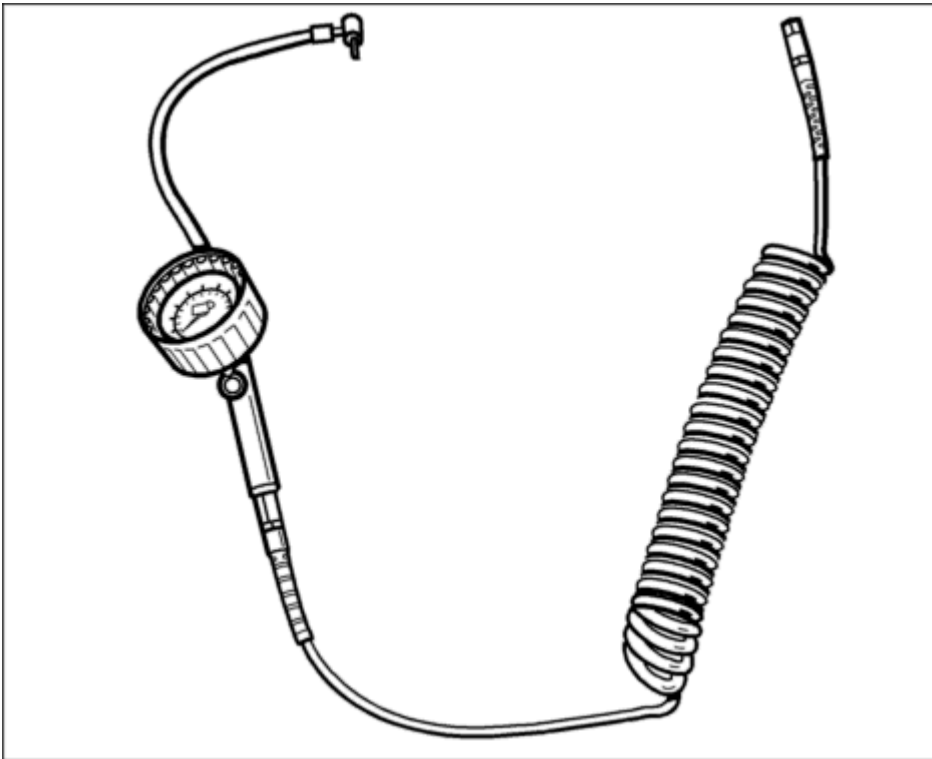


Fig. 6: Air-spring filling unit VAS 6231 00000

Courtesy of PORSCHE OF NORTH AMERICA, INC.

NOTE:

- *The air-spring strut must only be filled with the approved gasses, dual-process gasses Argon and Corgon.*
- *In isolated cases, up to 11 bar overpressure (upper tolerance, spring strut depressurised) is required to open the residual pressure retaining valve.*
- *Fill the air-spring strut using several individual pressure shots. Filling the air with individual pressure shots will prevent the air-spring strut from being filled with too much overpressure.*
- *Do not fill the air-spring strut with overpressure of more than 4.5 bar.*
- *The residual pressure retaining valve automatically reduces excessive overpressure to the minimum overpressure of approx. 3 bar.*

4. Fit the filling unit to the pressure gauge unit of the compressed air bottle. See **Fig. 6**.

2006 Porsche Cayenne

2003-2008 SUSPENSION Level Control

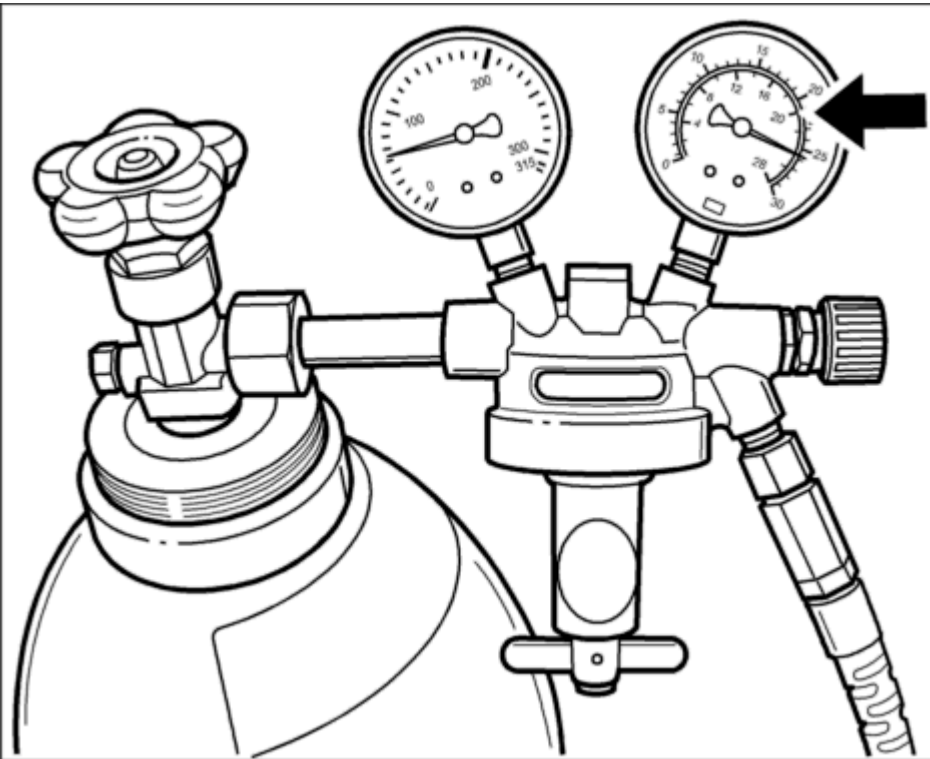


Fig. 7: Compressed gas bottle with pressure gauge unit 00000
Courtesy of PORSCHE OF NORTH AMERICA, INC.

5. Set the pressure gauge unit (flow limiter) to approx. 20 l/min -**arrow**-. See **Fig. 7**.

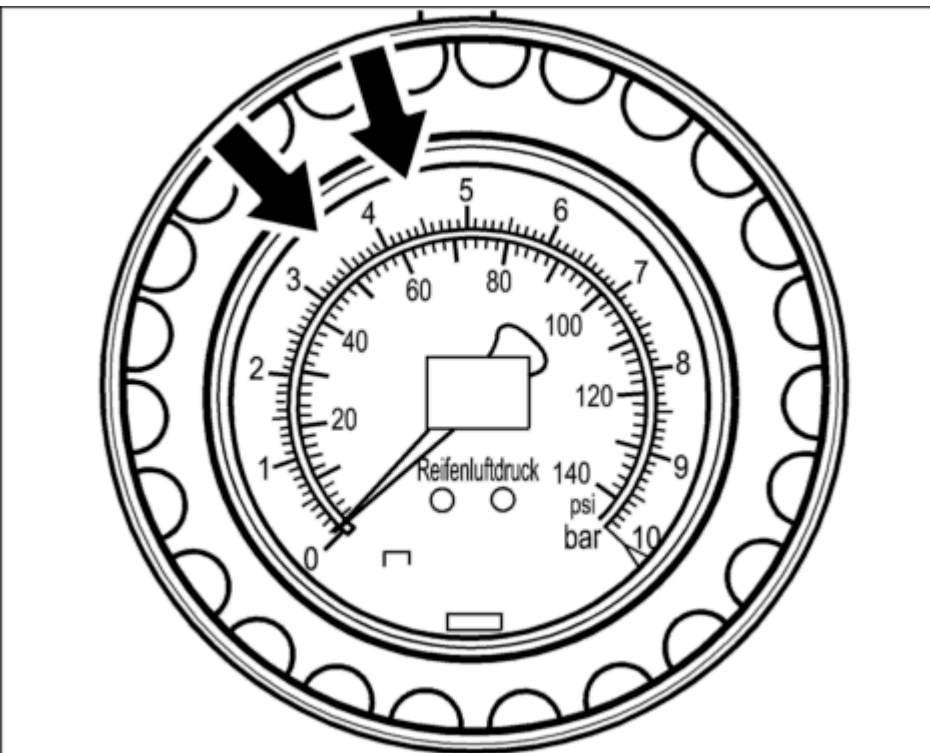


Fig. 8: Pressure gauge

Courtesy of PORSCHE OF NORTH AMERICA, INC.

6. Overcome the counter-pressure of the residual pressure retaining valve with several individual pressure shots and fill the air-spring strut. When sufficient air has been filled, between 2.5 and 4.5 bar **-arrows-** , pull off the connection from the residual pressure retaining valve. Do not exceed the maximum value of 4.5 bar. See **Fig. 8**.

7. Once the air-spring strut has been filled correctly, it can be removed from the transport packaging and fitted.

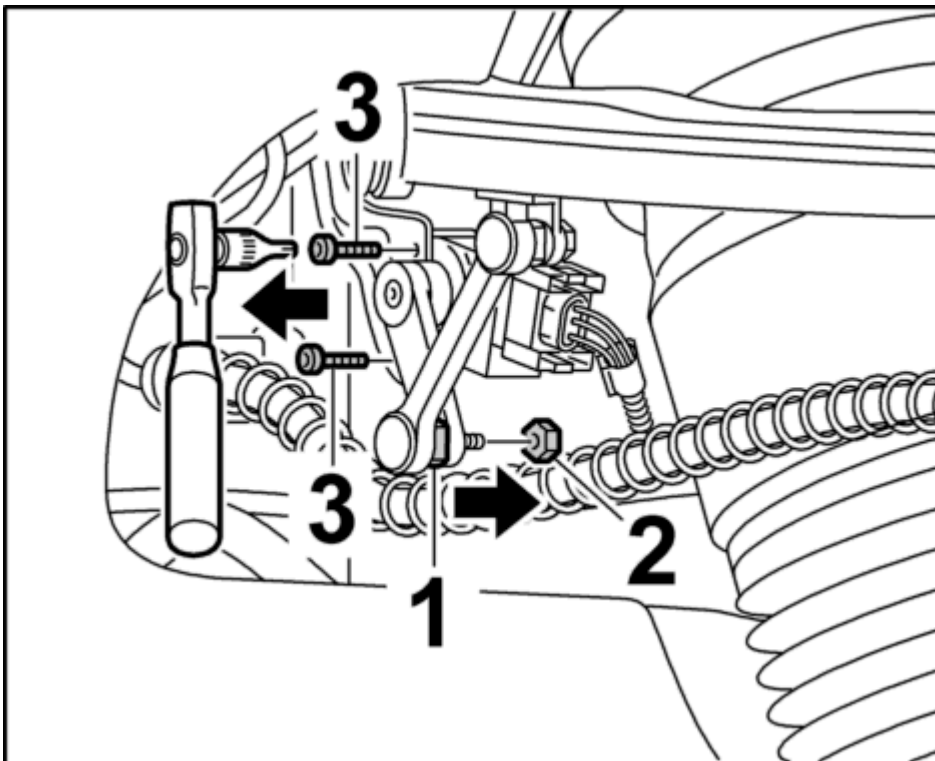
43 18 55 REPLACING FRONT LEVEL SENSOR - AS OF MY 2003 (ALL MODELS EXCEPT CAYENNE S TIO TITAN)

REMOVING FRONT LEVEL SENSOR

NOTE:

- *In running gear with level adjustment, a self-levelling sensor is installed on each spring strut.*
- *Removal and installation is described for the right spring strut.*
- *The self-levelling sensor is screwed to the bearing block and upper control arm.*

Turn steering until access to the self-levelling sensor is achieved.

**Fig. 9: Removing front level sensor**

Courtesy of PORSCHE OF NORTH AMERICA, INC.

1. Counter with an open-ended wrench on the two flats -1- and unscrew the fastening nuts -2- . See **Fig. 9**.
2. Unscrew both fastening screws -3- . See **Fig. 9**.

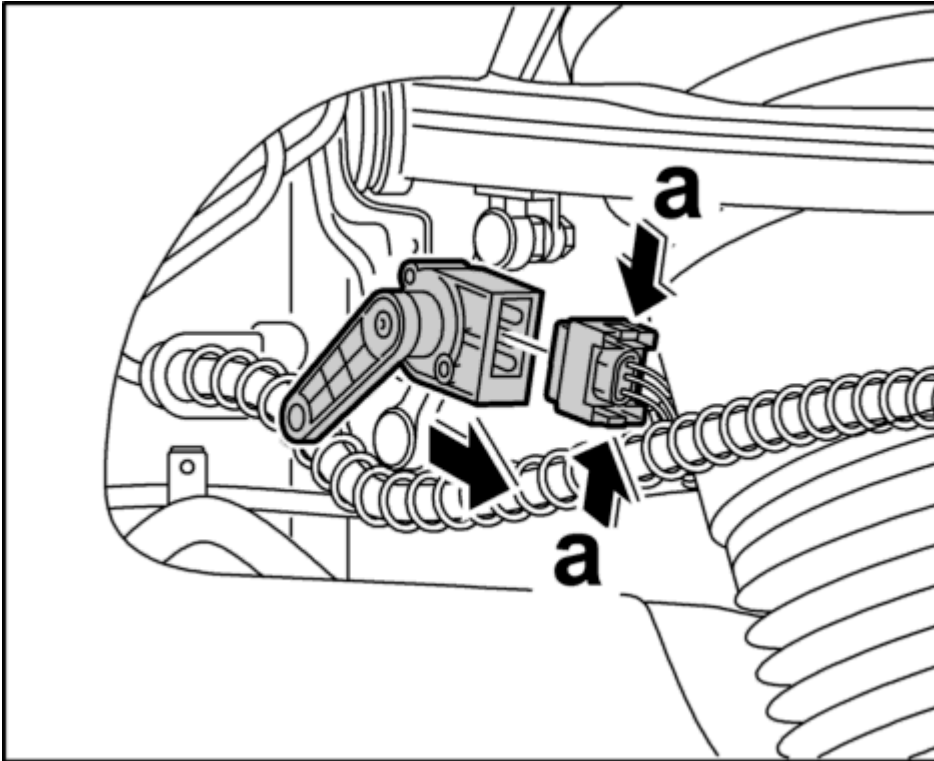


Fig. 10: Disengaging lever from self-levelling sensor
Courtesy of PORSCHE OF NORTH AMERICA, INC.

3. Disengage lever from self-levelling sensor, swivel it forwards and remove the sensor.
4. Press the electric connector together -a- and pull it off. See **Fig. 10**.

INSTALLING FRONT LEVEL SENSOR

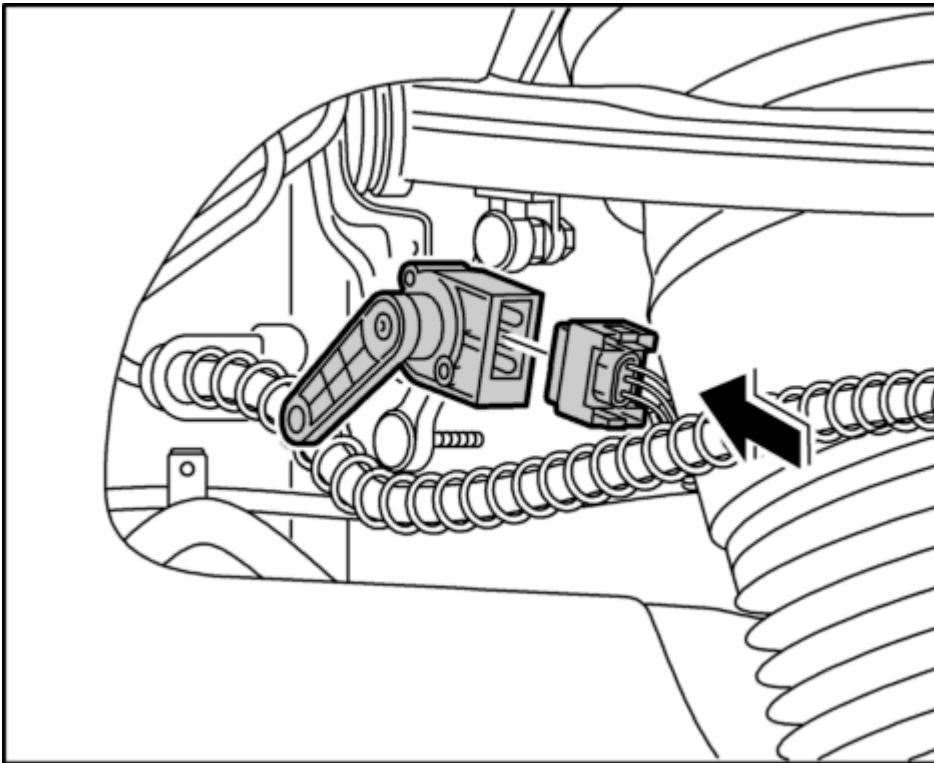


Fig. 11: Installing front level sensor

Courtesy of PORSCHE OF NORTH AMERICA, INC.

NOTE:

- *In running gear with level adjustment, a self-levelling sensor is installed on each spring strut.*
- *Removal and installation is described for the right spring strut.*
- *The self-levelling sensor is screwed to the bearing block and upper control arm.*

1. Press the electric connector onto the self-levelling sensor until it clicks into place.

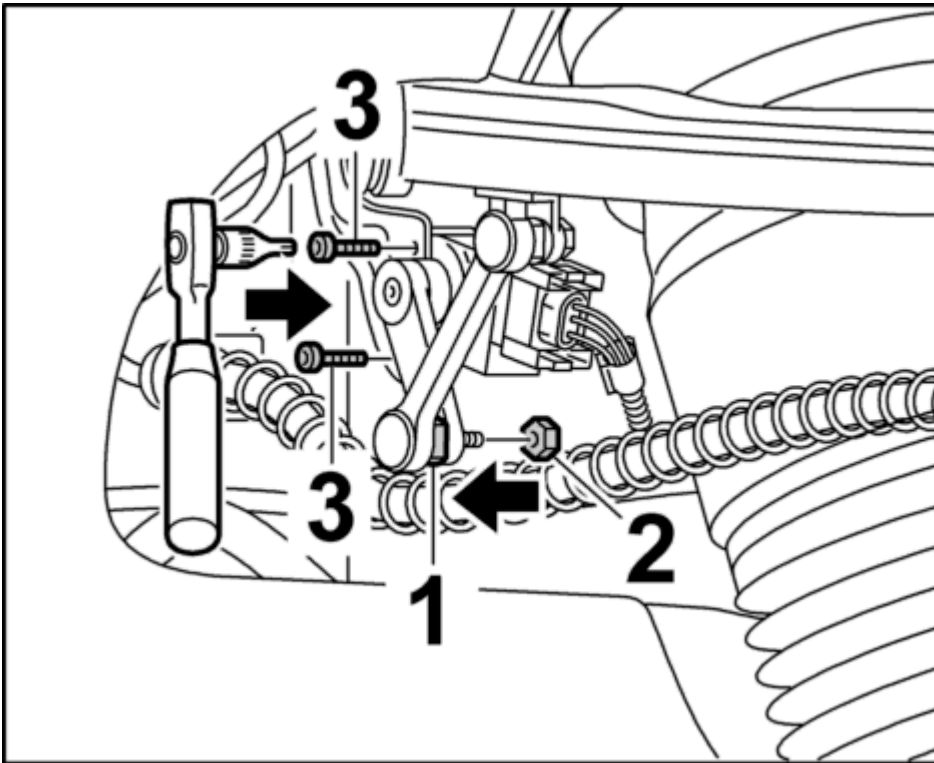


Fig. 12: Engaging lever of self-levelling sensor and positioning sensor
Courtesy of PORSCHE OF NORTH AMERICA, INC.

2. Tighten fastening screws -3- --> **43 TW Tightening torques - as of MY 2003 (Cayenne TIP, Cayenne MAN, Cayenne S TIP, Cayenne S MAN, Cayenne Turbo)**. See **Fig. 12**.
3. Engage lever of self-levelling sensor and position the sensor.
4. Position the fastening nut -2- , counter with an open-ended wrench on the two flats -1- and tighten the nut --> **43 TW Tightening torques - as of MY 2003 (Cayenne TIP, Cayenne MAN, Cayenne S TIP, Cayenne S MAN, Cayenne Turbo)**. See **Fig. 12**.

If a new self-levelling sensor is installed, then the control unit for level adjustment must be calibrated.

Calibrating control unit for level adjustment

Information, measuring points, procedure, and conditions for calibration: --> **43 K2 Calibration - as of MY 2003 (All Models Except Cayenne S TIO Titan)**.

1. Connect the Porsche System Tester to the vehicle and start the System Tester. Switch on ignition.
2. Select vehicle type using the cursor keys.
3. Select "Level adjustment" using the cursor keys.
4. Select the menu "Teach" and perform the calibration function.

5. Read out fault memory. If fault is present, proceed in accordance with Level adjustment diagnosis.

43 19 55 REPLACING REAR LEVEL SENSOR - AS OF MY 2003 (ALL MODELS EXCEPT CAYENNE S TIO TITAN)

REMOVING REAR LEVEL SENSOR

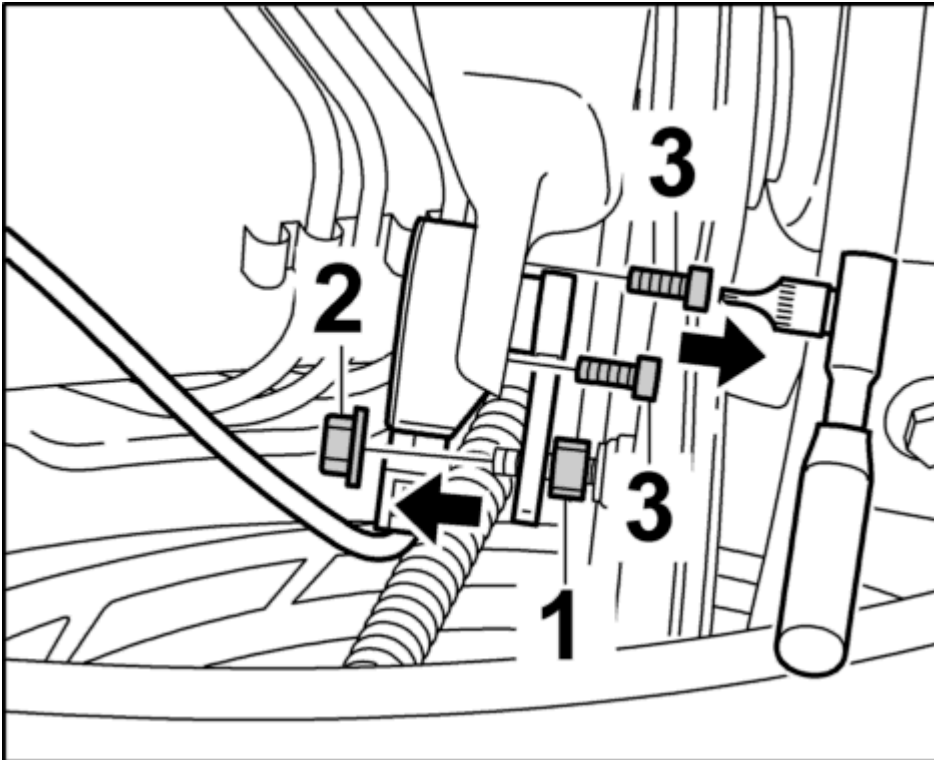


Fig. 13: Removing rear level sensor

Courtesy of PORSCHE OF NORTH AMERICA, INC.

NOTE:

- *In running gear with level adjustment, a self-levelling sensor is installed on each spring strut.*
- *Removal and installation is described for the right spring strut.*
- *The self-levelling sensor is screwed to the suspension subframe and upper control arm.*

1. Counter with an open-ended wrench on the two flats -1- and unscrew the fastening nuts. See **Fig. 13**.

2. Unscrew both fastening screws -2- . See **Fig. 13**.

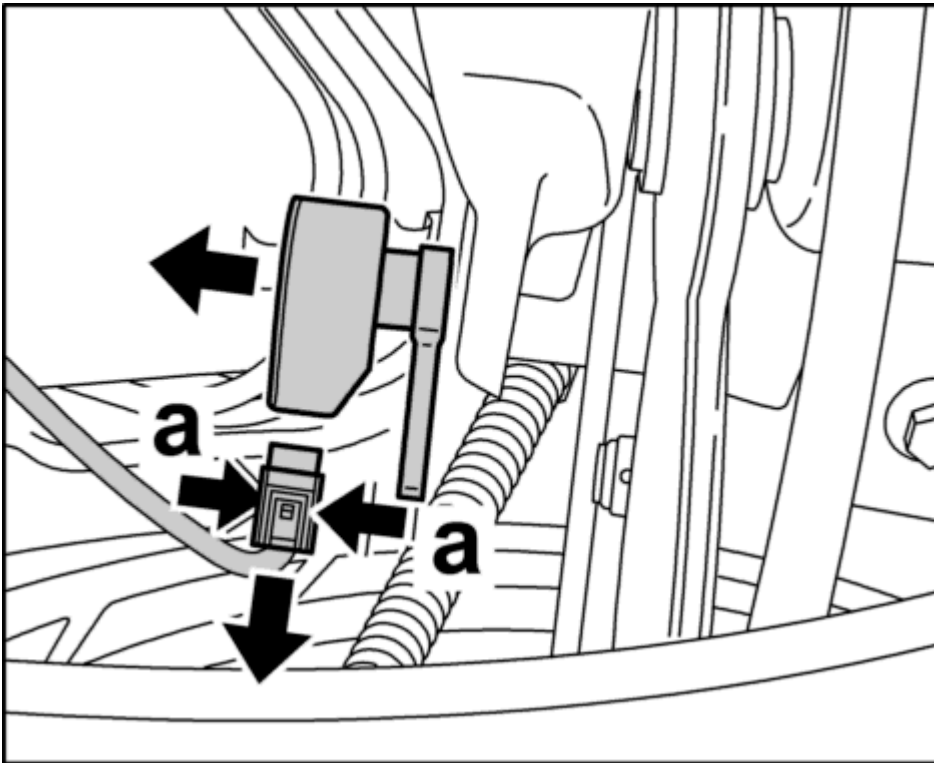


Fig. 14: Pressing electric connector together

Courtesy of PORSCHE OF NORTH AMERICA, INC.

3. Press the electric connector together -a- and pull it off. See **Fig. 14**.

INSTALLING REAR LEVEL SENSOR

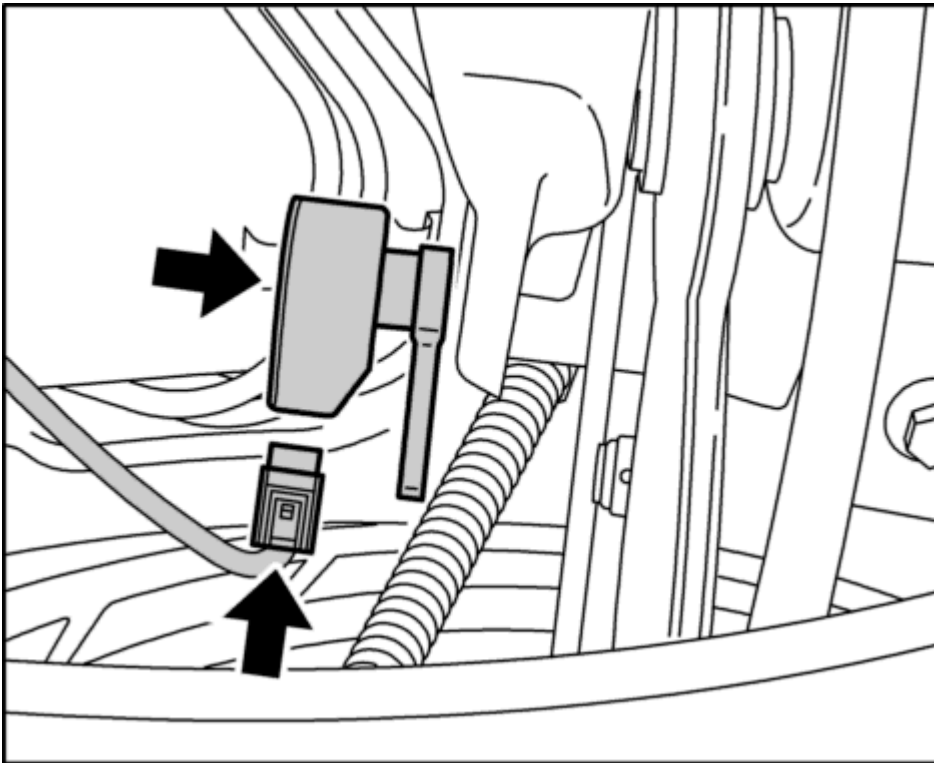


Fig. 15: Installing rear level sensor

Courtesy of PORSCHE OF NORTH AMERICA, INC.

NOTE:

- *In running gear with level adjustment, a self-levelling sensor is installed on each spring strut.*
- *Removal and installation is described for the right spring strut.*
- *The self-levelling sensor is screwed to the suspension subframe and upper control arm.*

1. Press the electric connector onto the self-levelling sensor until it clicks into place.

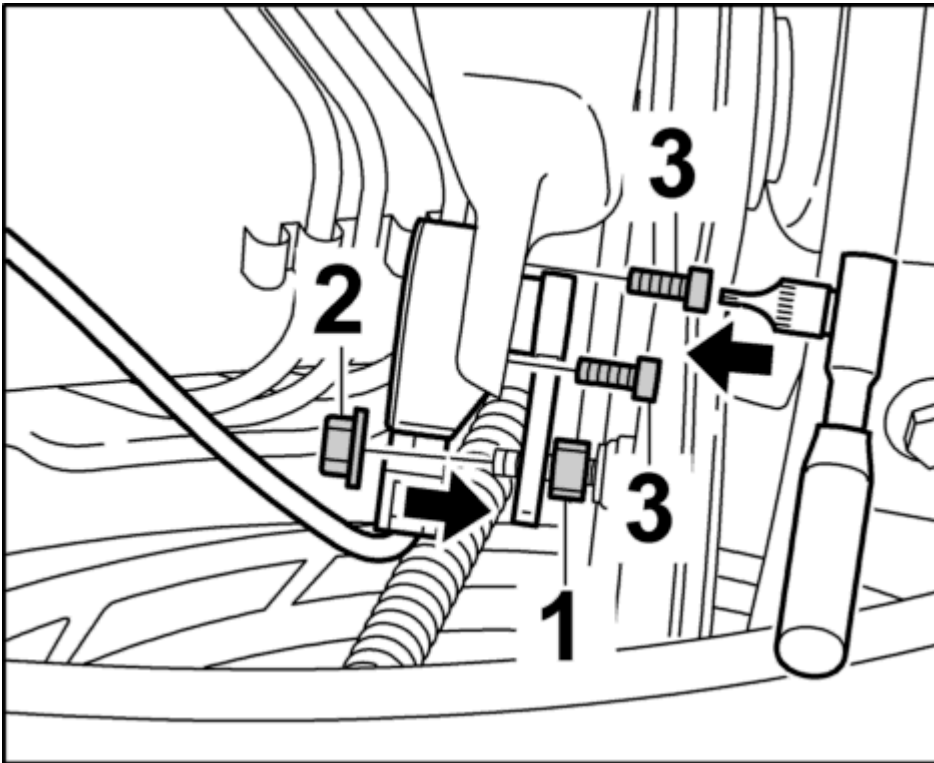


Fig. 16: Engaging lever of self-levelling sensor and positioning sensor
Courtesy of PORSCHE OF NORTH AMERICA, INC.

2. Tighten fastening screws -3- --> **43 TW Tightening torques - as of MY 2003 (Cayenne TIP, Cayenne MAN, Cayenne S TIP, Cayenne S MAN, Cayenne Turbo)**. See **Fig. 16**.

3. Engage lever of self-levelling sensor and position the sensor.

4. Position the fastening nut -2-, counter with an open-ended wrench on the two flats -1- and tighten the nut --> **43 TW Tightening torques - as of MY 2003 (Cayenne TIP, Cayenne MAN, Cayenne S TIP, Cayenne S MAN, Cayenne Turbo)**. See **Fig. 16**.

If a new self-levelling sensor is installed, then the control unit for level adjustment must be calibrated.

Calibrating control unit for level adjustment

Information, measuring points, procedure, and conditions for calibration: --> **43 K2 Calibration - as of MY 2003 (All Models Except Cayenne S TIO Titan)**.

1. Connect the Porsche System Tester to the vehicle and start the System Tester. Switch on ignition.

2. Select vehicle type using the cursor keys.

3. Select "Level adjustment" using the cursor keys.

4. Select the menu "Teach" and perform the calibration function.

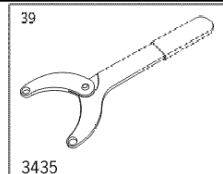
2006 Porsche Cayenne

2003-2008 SUSPENSION Level Control

5. Read out fault memory. If fault is present, proceed in accordance with Level adjustment diagnosis.

43 25 DISASSEMBLING AND ASSEMBLING REAR SPRING STRUT - AS OF MY 2003 (ALL MODELS EXCEPT CAYENNE S TIO TITAN)

TOOLS

Designation	Type	Number	Explanation	
Socket wrench insert	VW-tool	3353		
Arm bracket	special tool	P 9630		

INFORMATION

Notes on repairing air-spring struts

NOTE: As of a mileage of 200,000 Km it is recommended that the air springs be replaced per axle if there is damage to one air spring.

If the shock absorbers leak, the complete air spring strut is to be replaced. The oil of the shock absorber can damage the roller.

When depressurised, the air spring must not be twisted. There is the danger that the roller in the inside of the air spring will be damaged by bending or folding and thus significantly reduce the running time.

Air-spring strut

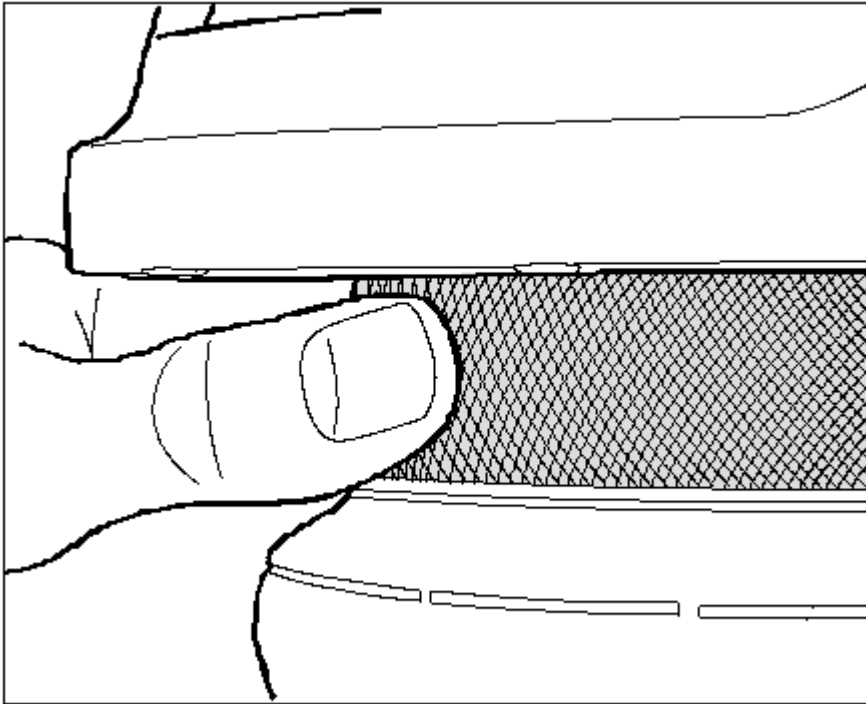


Fig. 17: Checking The Air Bellows

Courtesy of PORSCHE OF NORTH AMERICA, INC.

1. Before loosening the air lines in the installed state, check if the rolling boot is still filled with the residual pressure of approx. 3 bar. To do this, press on the rolling boot of the air spring with your thumb. The rolling boot must give perceptible resistance. If no significant resistance can be felt, the air spring is depressurised and must be replaced along with the residual pressure retaining valve.

The greatest possible care and cleanliness, as well as perfect tools are important requirements for carrying out perfect repairs on air-spring struts. The general and basic rules of safety apply. These are specifically listed here again for repairing air-spring struts.

- Thoroughly clean the connection points and their surroundings before loosening them.
- Do not use fibre-shedding cloths.
- Do not take spare parts out of the packaging until right before installation.
- Only use lubricants that have part numbers.
- Carefully cover open components or close them if the repair work will not be carried out immediately.
- Do not use an impact bolter.
- Observe correct tightening torques. --> **43 TW Tightening torques - as of MY 2003 (Cayenne TIP, Cayenne MAN, Cayenne S TIP, Cayenne S MAN, Cayenne Turbo).**

Gaskets, sealing rings and bellows

Always replace sealing rings and bellows.

After removing gaskets, examine the contact surfaces on housings for burrs and damage.

Always loosen and tighten screws or nuts crosswise for mounting covers and housing.

Residual pressure retaining valve

CAUTION: Lowering of the vehicle when loosening the air line. The residual pressure retaining valve can become loose when loosening the air line.

- **The vehicle lowers on the side on which the line/the residual pressure retaining valve is loosened. Risk of squashing.**

--> When loosening the residual pressure retaining valve, lift the vehicle on a platform lift.

--> Only leave the vehicle on the platform lift until a new residual pressure retaining valve is installed and the air-spring strut is filled.

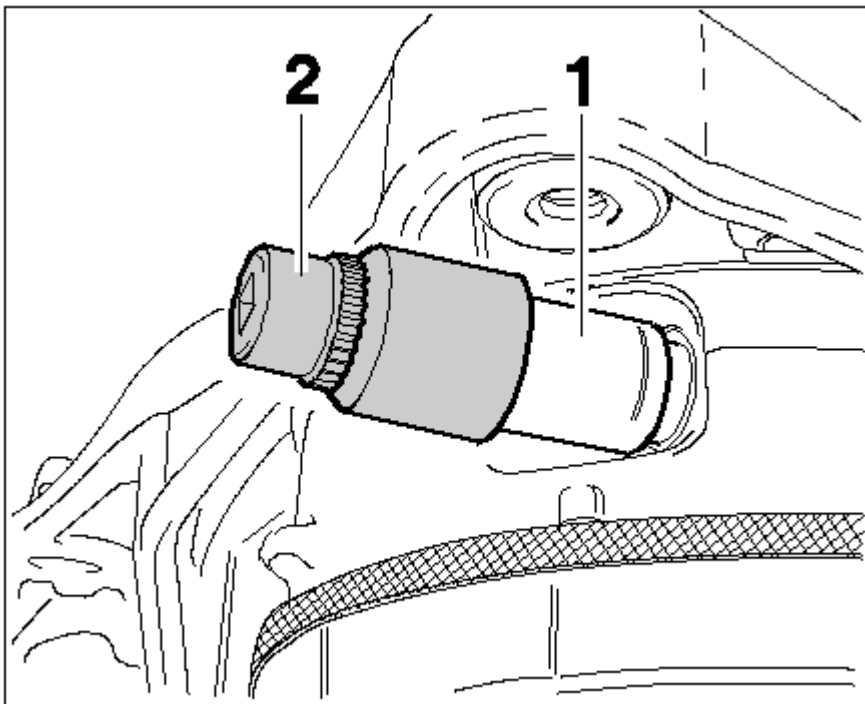


Fig. 18: Removing/Fitting Residual Pressure Retaining Valve
Courtesy of PORSCHE OF NORTH AMERICA, INC.

The residual pressure retaining valve may only be replaced if:

2006 Porsche Cayenne

2003-2008 SUSPENSION Level Control

1 - Residual pressure retaining valve

2 - Socket insert

- it was damaged during removal and installation,
- it was damaged while disassembling and assembling the air-spring strut,
- the sealing ring is faulty,
- it does not allow any more air to come out (valve jammed).

If the residual pressure retaining valve is jammed, the vehicle must be lifted for replacement on the platform lift and the wheels must be allowed to turn freely. It must not be compressed with an empty rolling boot.

TOOLS AND MATERIALS

Tools for repairing air-spring struts

Torque wrench 2-10 Nm (1.5-7.5 ftlb.)

Torque wrench 60-100 Nm (44-74 ftlb.)

Socket wrench insert 3353

Arm bracket P 9630

INFORMATION

Overview of rear air-spring strut

NOTE: **The components of the air spring -7- (figure shows component arrangement of rear air-spring strut), Items -2; 3; 4; 5- (figure shows rear air-spring strut), cannot be disassembled. See Fig. 20, Fig. 19.**

- **Always replace the complete air spring -7- (figure shows component arrangement of rear air-spring strut)! See Fig. 20.**

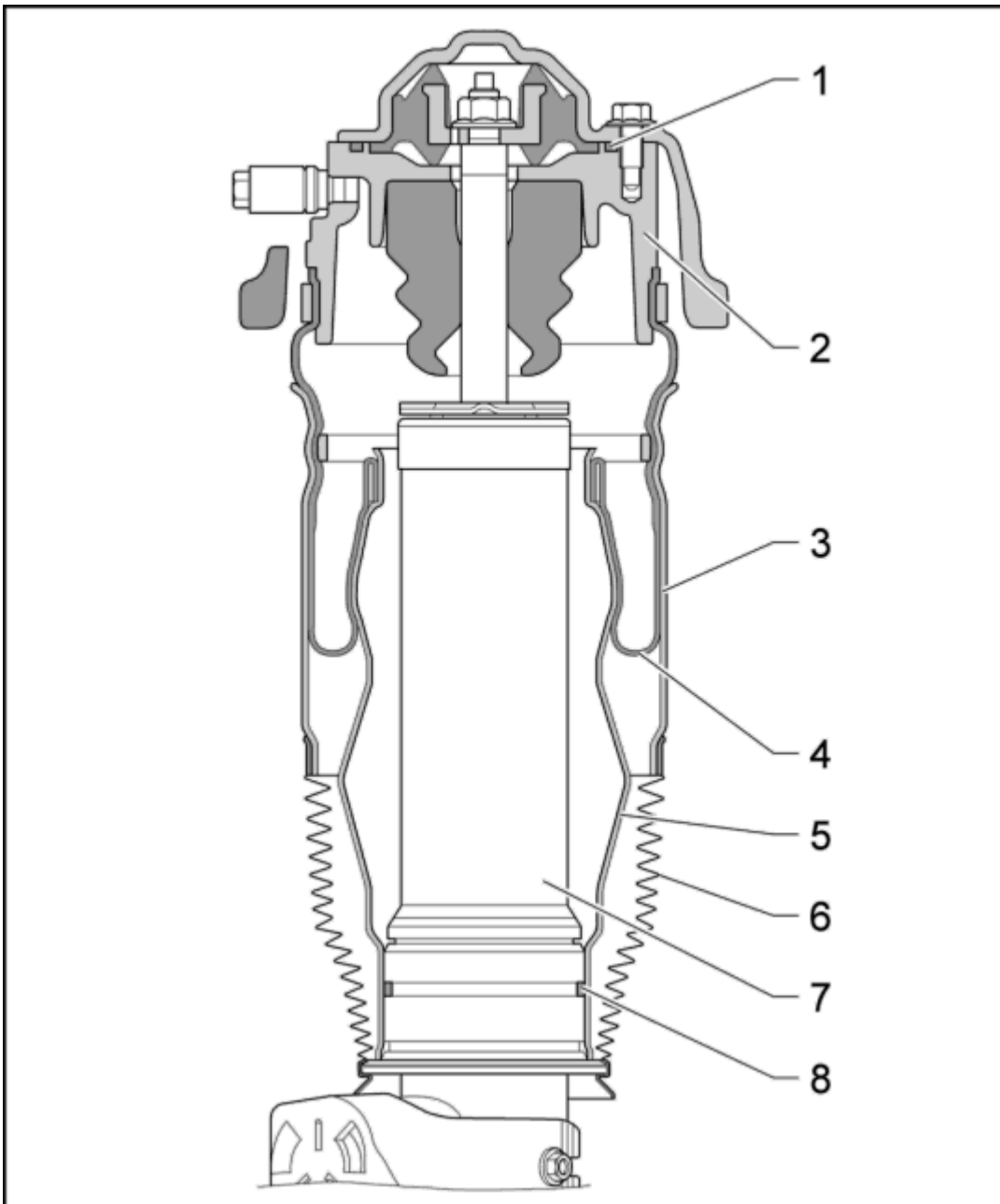


Fig. 19: Rear Air-Spring Strut

Courtesy of PORSCHE OF NORTH AMERICA, INC.

1 - Sealing ring

2 - Lid

3 - Outer guide

4 - Rolling boot

2006 Porsche Cayenne

2003-2008 SUSPENSION Level Control

5 - Rolling piston

6 - Bellows

7 - Shock absorber

8 - Sealing ring

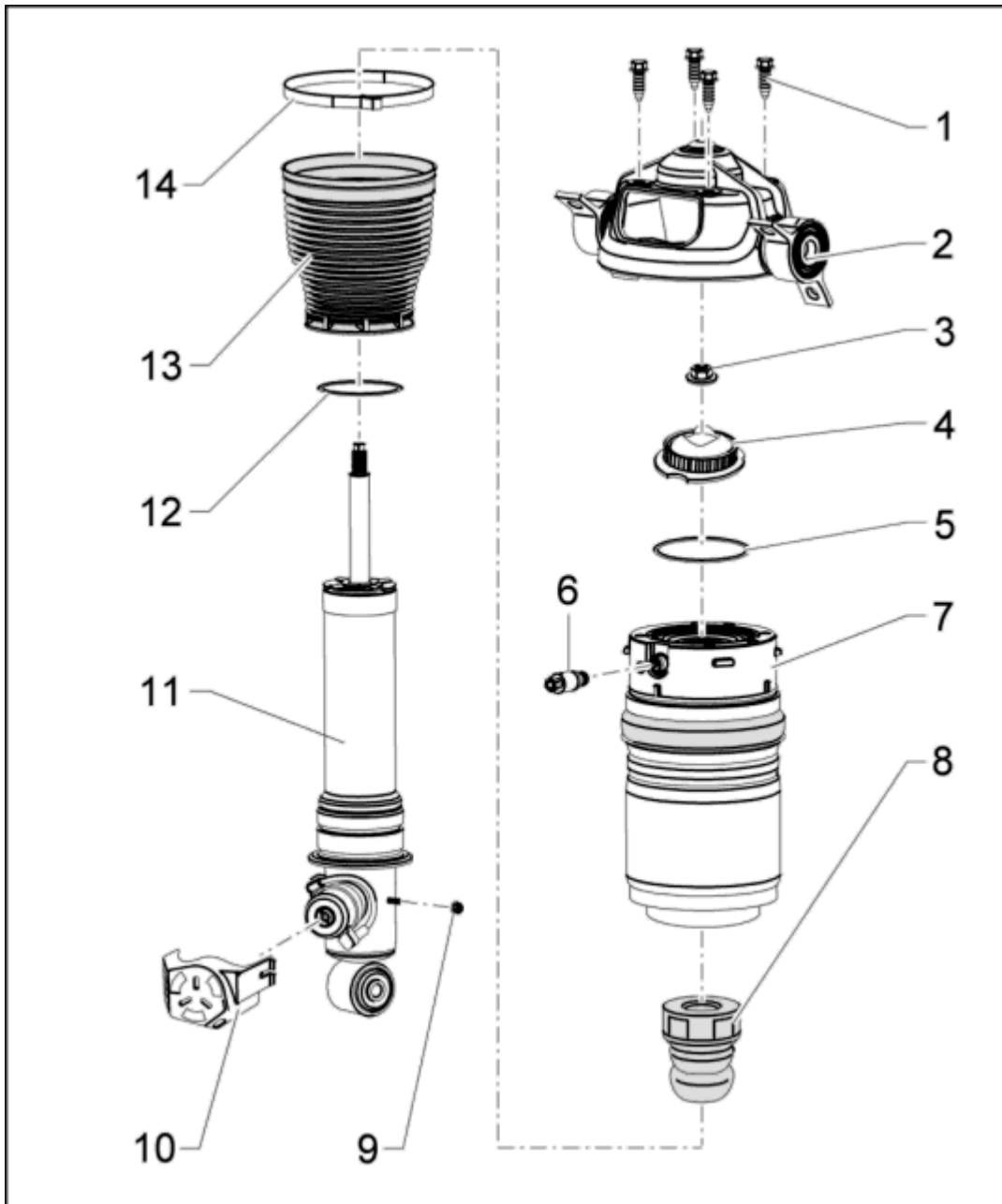


Fig. 20: Component Arrangement Of Rear Air-Spring Strut
Courtesy of PORSCHE OF NORTH AMERICA, INC.

2006 Porsche Cayenne

2003-2008 SUSPENSION Level Control

- 1 - Hexagon-head bolt
- 2 - Mounting saddle
- 3 - Hexagon nut
- 4 - Spring-strut mount
- 5 - Sealing ring
- 6 - Residual pressure retaining valve
- 7 - Air spring
- 8 - Rubber stop
- 9 - Hexagon nut
- 10 - Protective cap
- 11 - Shock absorber
- 12 - Sealing ring
- 13 - Boot/bellows
- 14 - Clamp

DISASSEMBLING AND ASSEMBLING

Disassembling spring strut

CAUTION: The air-spring strut is pressurised with approx. 3 bar residual pressure. Never use an impact bolter to loosen the fastening screws. Do not bend over the mounting saddle during disassembly.

- Risk of injury from the pressurised air-spring strut when loosening the screws.

--> Always unscrew the screws on the mounting saddle by one turn only, on alternating sides. During disassembly, allow the air to escape by tilting the mounting saddle slightly.

2006 Porsche Cayenne

2003-2008 SUSPENSION Level Control

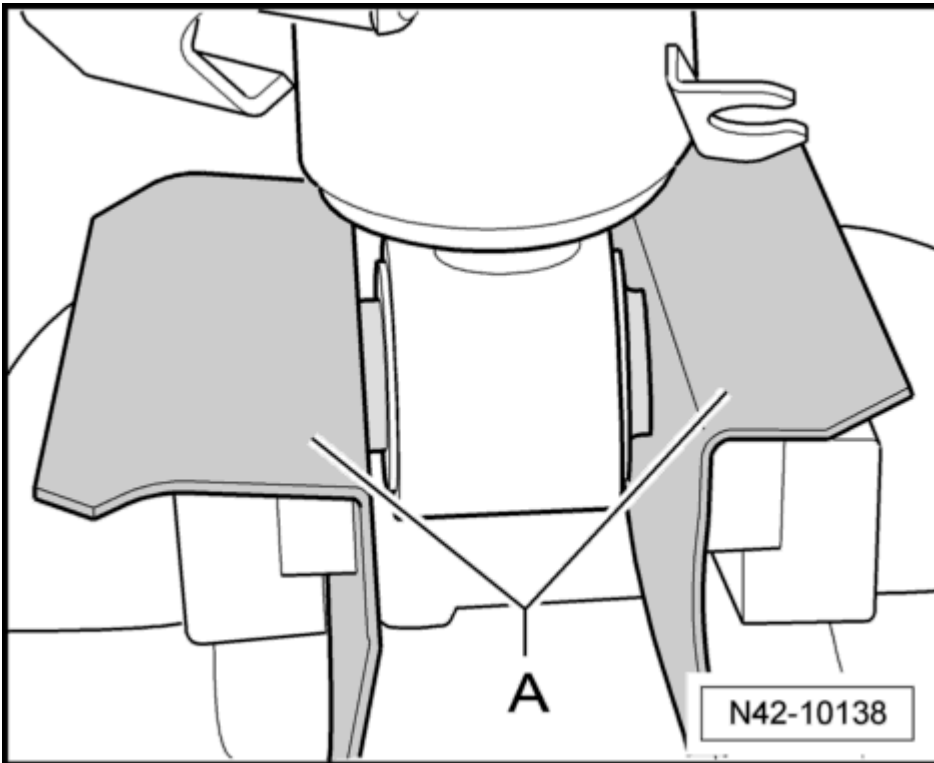


Fig. 21: Lower Mounting Point

Courtesy of PORSCHE OF NORTH AMERICA, INC.

1. Clamp the air-spring strut on the lower mounting point (use aluminum protective jaws -A- !). See **Fig. 21**.
2. Loosen the fastening screws on the mounting saddle.

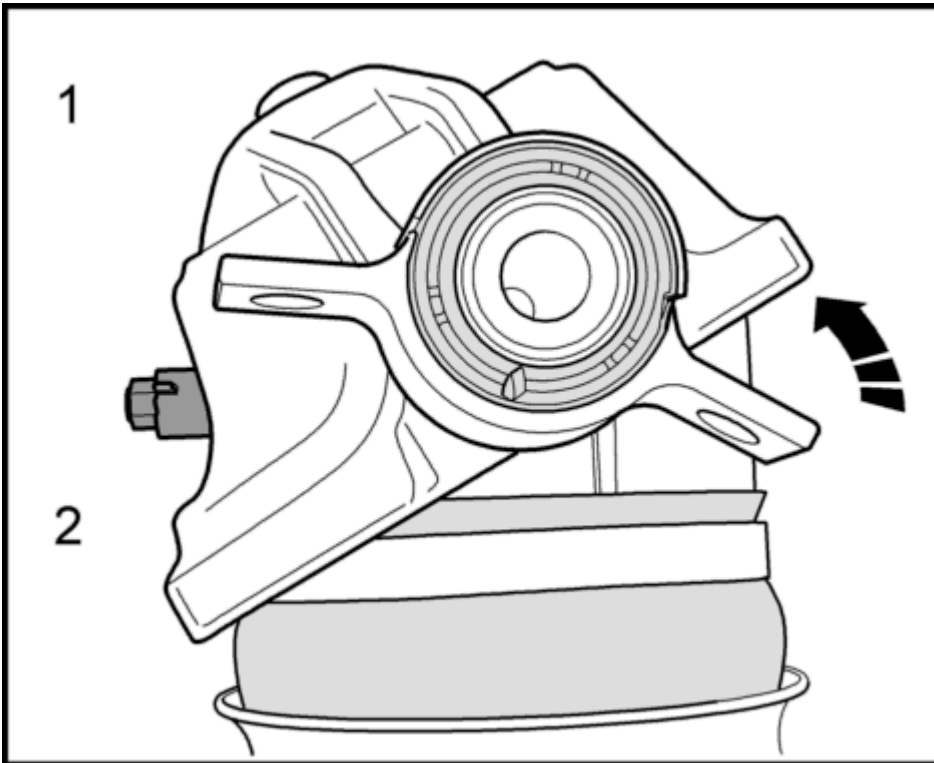


Fig. 22: Air-Spring Strut Mounting Saddle
Courtesy of PORSCHE OF NORTH AMERICA, INC.

3. Carefully remove the mounting saddle over the residual pressure retaining valve in direction of arrow.

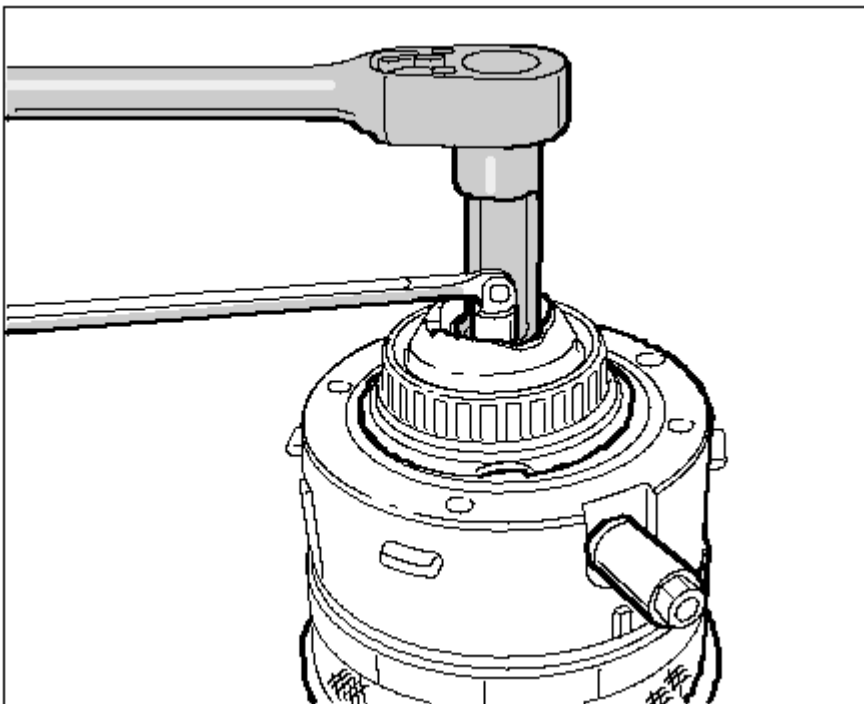


Fig. 23: Removing/fitting spring-strut mount

Courtesy of PORSCHE OF NORTH AMERICA, INC.

4. Remove spring-strut mount with socket wrench insert 3353 and arm bracket P9630.

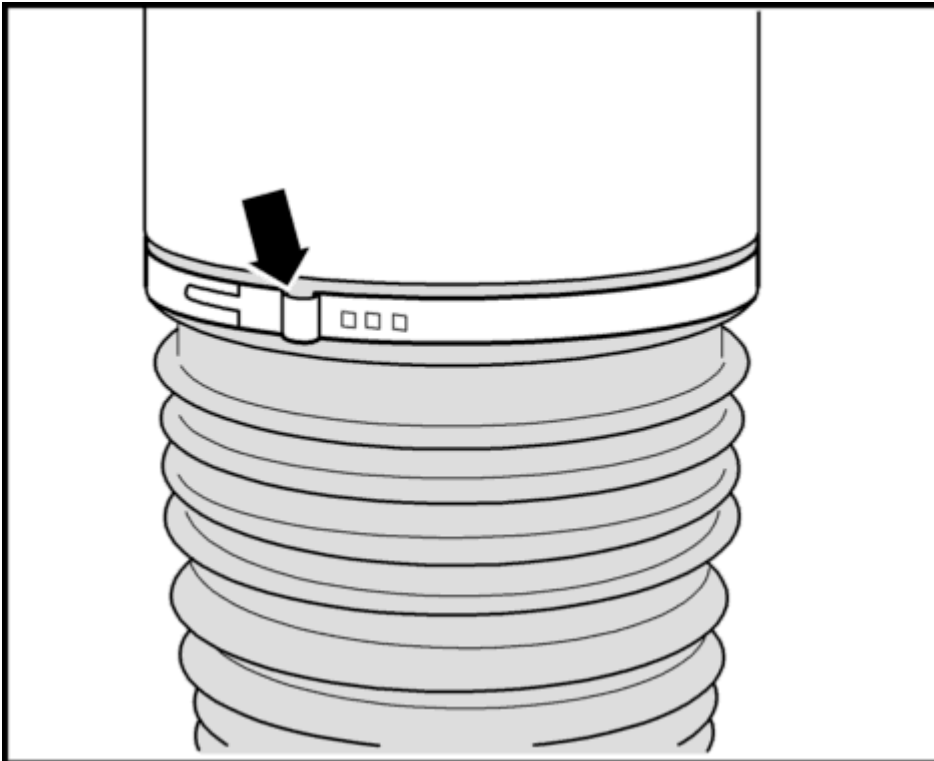


Fig. 24: Air-spring strut clamp

Courtesy of PORSCHE OF NORTH AMERICA, INC.

5. Remove clamp.

NOTE: When replacing the air spring, always replace the boot/bellows.

If the rolling piston slips out of the outer guide during disassembly, it must be correctly positioned again when assembling.

- *When sliding in the rolling piston, the roller must lie evenly between the outer guide and rolling piston (roll fold).*

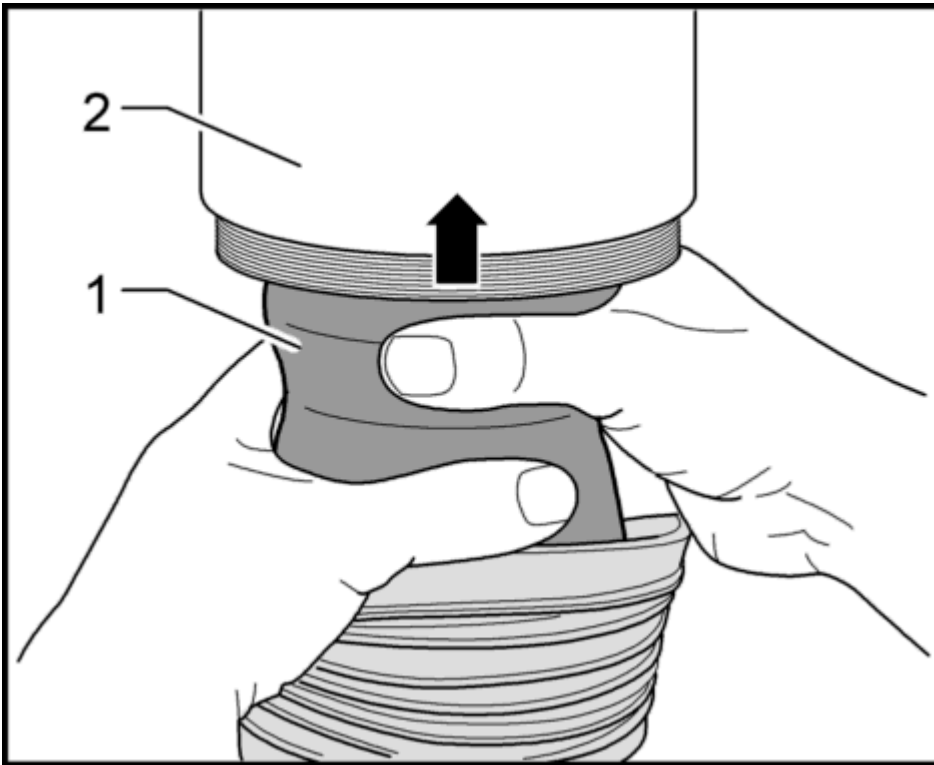


Fig. 25: Air-spring strut rolling piston

Courtesy of PORSCHE OF NORTH AMERICA, INC.

6. Push bellows downward and secure in this position (2nd worker required!). Grasp the rolling piston and remove it upward from the shock absorber by slightly turning to the left/right.

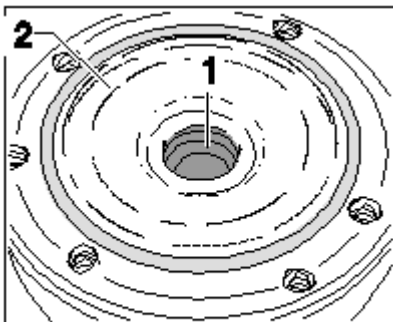


Fig. 26: Rubber stop

Courtesy of PORSCHE OF NORTH AMERICA, INC.

7. When replacing the air spring, push the rubber stop -1- out of the centring device. See **Fig. 26**.

8. Remove boot/bellows.

9. When replacing the shock absorber, remove the cap and fit it on the new shock absorber.

Assembling spring strut

NOTE: When replacing the air spring, always replace the boot/bellows.

If the rolling piston slips out of the outer guide during disassembly, it must be correctly positioned again.

- *When sliding in the rolling piston, the roller must lie evenly between the outer guide and rolling piston (roll fold).*
- *Make sure that everything remains absolutely clean. The smallest impurities can cause leakages.*
- *Clean the contact surfaces of the sealing rings with a lint-free cloth.*
- *Lightly grease sealing rings with Syntheso Glep 1 (ET No. 000.043.204.68).*

If the shock absorber is not replaced, the sealing ring must be replaced.

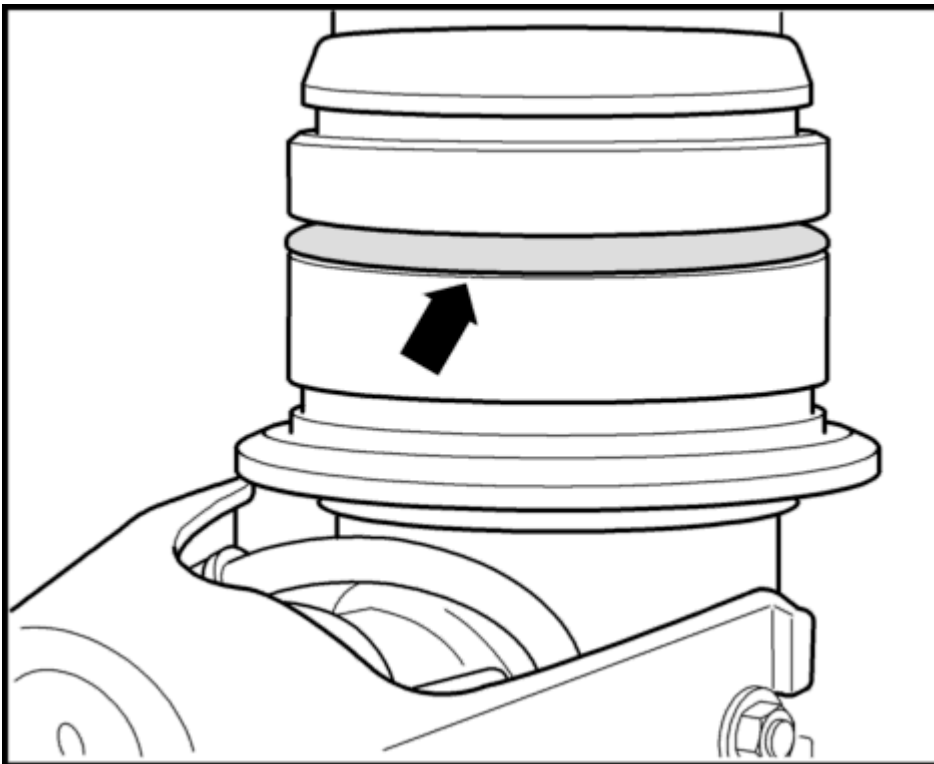


Fig. 27: Shock absorber sealing ring

Courtesy of PORSCHE OF NORTH AMERICA, INC.

1. Replace sealing ring on shock absorber -**Arrow**- . See **Fig. 27**.
2. Pull boot/bellows completely over the collar of the shock absorber so that it engages (small diameter downward, 2nd worker required).

3. Fit rubber stop (small diameter downward).

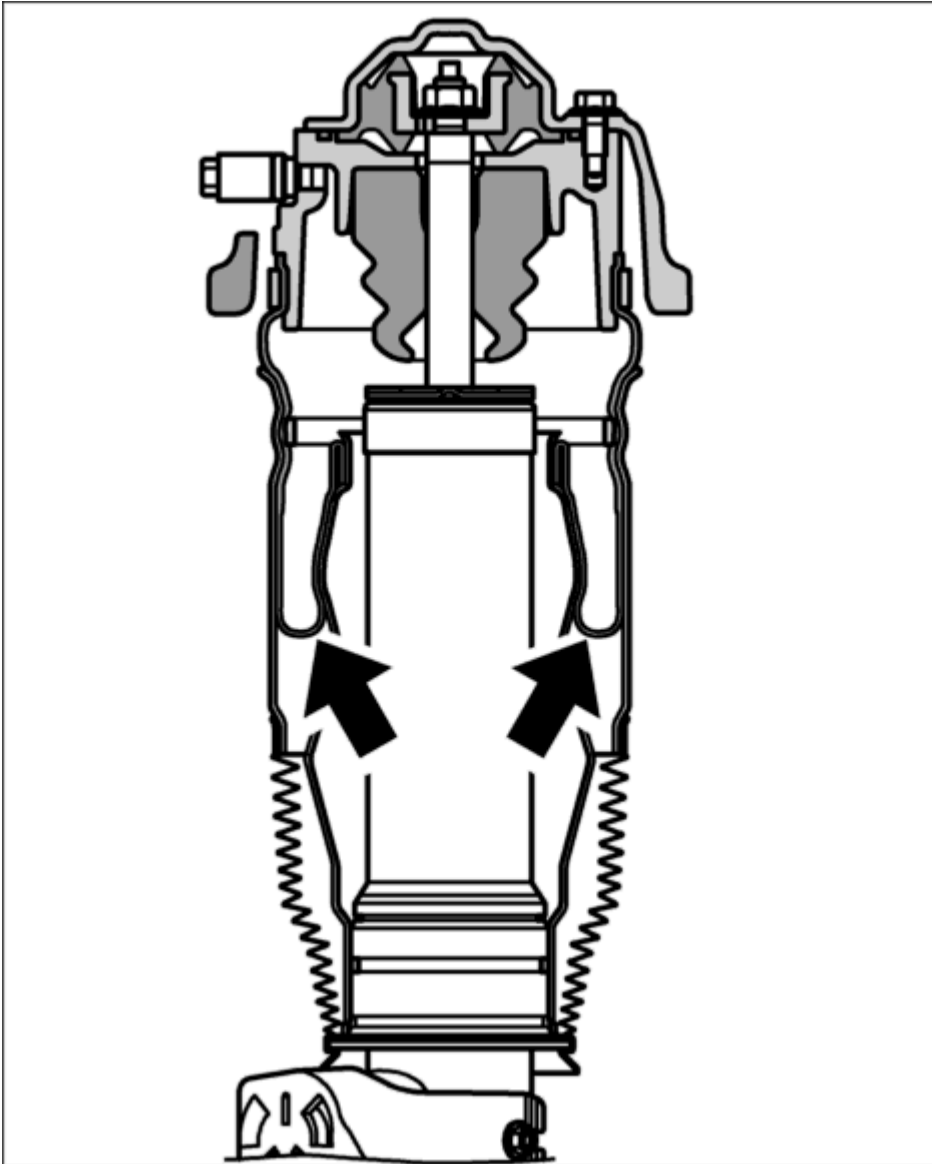


Fig. 28: Roll fold

Courtesy of PORSCHE OF NORTH AMERICA, INC.

4. Position the air spring on the shock absorber. Grasp the rolling piston and push downward by turning it slightly to the left and right. If the rolling piston has slipped out of the outer guide, it must be pushed back in again while forming a circumferential uniform roll fold on the rolling boot -**Arrows**- . See **Fig. 28**.

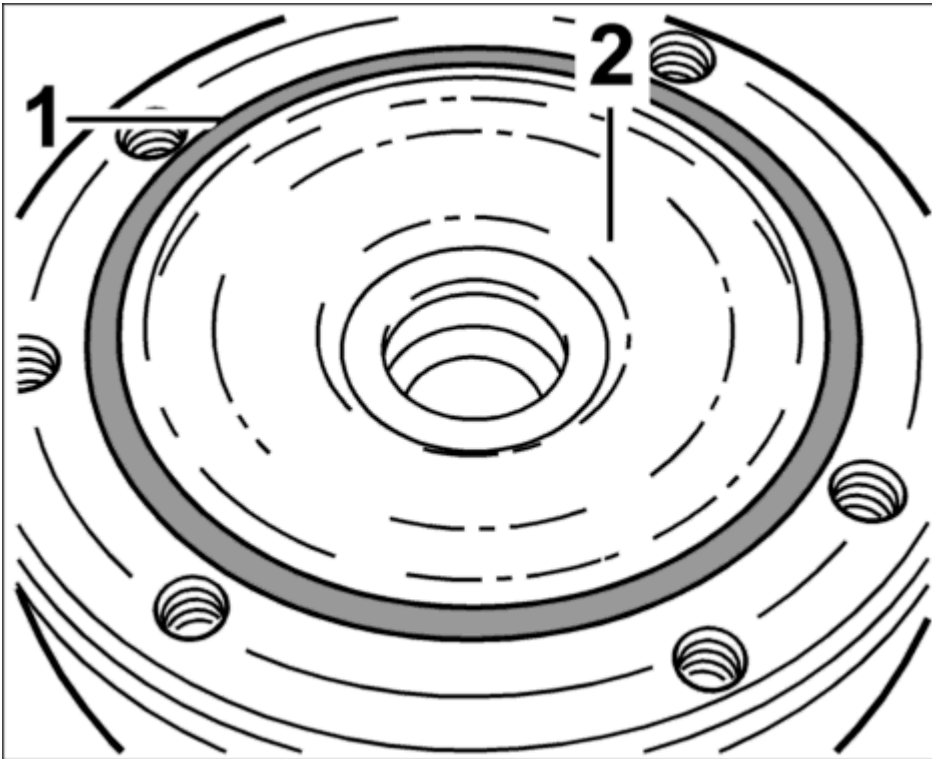


Fig. 29: Sealing ring

Courtesy of PORSCHE OF NORTH AMERICA, INC.

5. Clean the surfaces -2- on the mounting saddle and on the air spring with a lint-free cloth. Replace sealing ring -1- on the air spring. See **Fig. 29**.

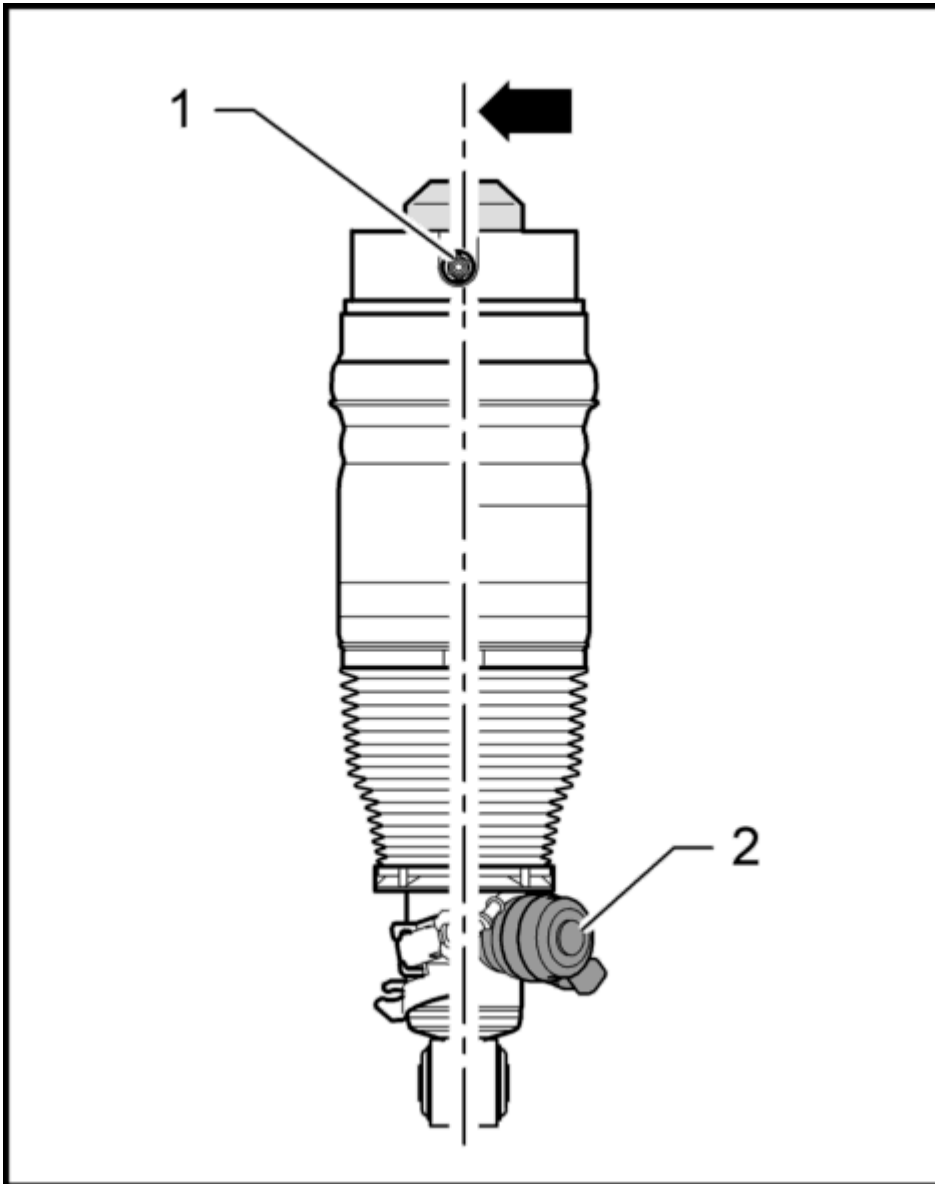


Fig. 30: Aligning the air spring

Courtesy of PORSCHE OF NORTH AMERICA, INC.

6. Align the air spring so that the residual pressure retaining valve is located close to the imaginary axis of symmetry (approx. 10° off-center) of the air-spring strut.

7. Fit bellows (large diameter up).

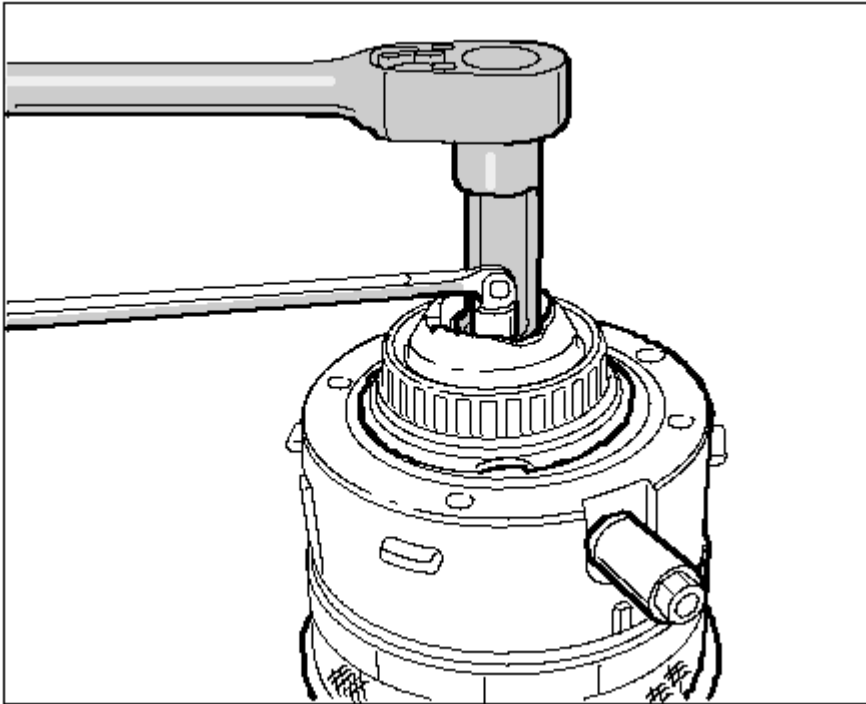
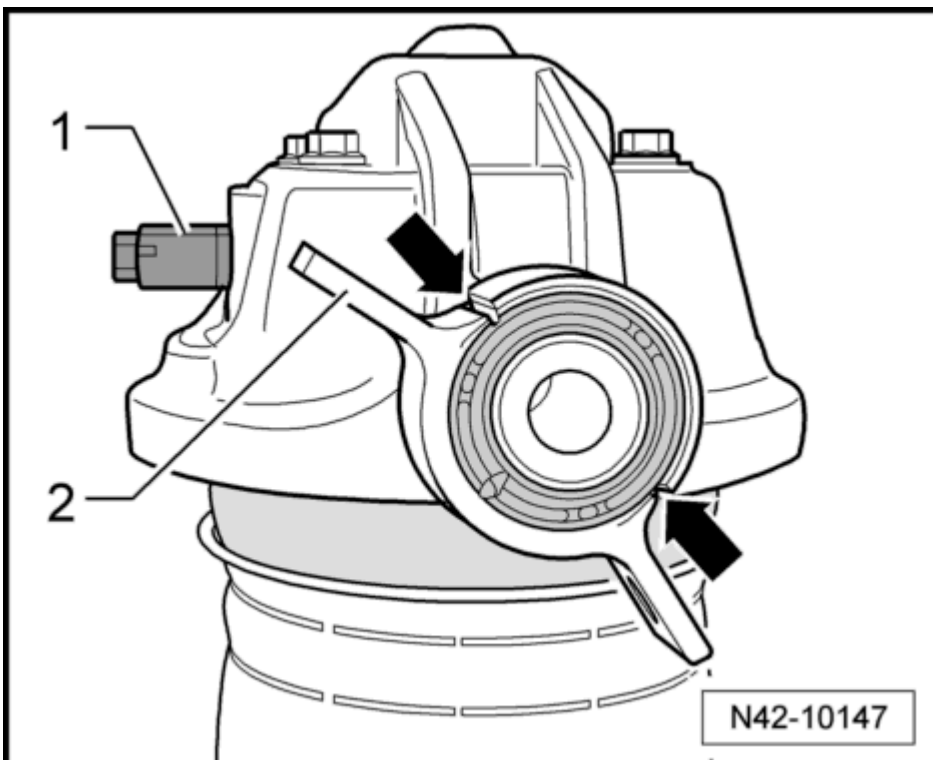


Fig. 31: Removing/fitting spring-strut mount
Courtesy of PORSCHE OF NORTH AMERICA, INC.

8. Fit spring-strut mount with socket wrench insert 3353 and arm bracket P9630.



2006 Porsche Cayenne

2003-2008 SUSPENSION Level Control

Fig. 32: Aligning the mounting saddle

Courtesy of PORSCHE OF NORTH AMERICA, INC.

9. Fit mounting saddle and while doing so align it so that the upper arm of the bearing points to the residual pressure retaining valve.

10. Fill the air-spring strut. --> **43 01 IN Filling specification for air-spring strut - as of MY 2003 (All Models Except Cayenne S TIO Titan).**

Checking the air-spring strut

Checking for leaks

1. Dip the filled air-spring strut completely into a water bath.

NOTE: Before fitting the air-spring strut in the vehicle, carefully blow out and dry all electrical connections and the residual pressure retaining valve with compressed air.

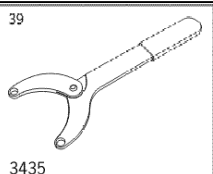
2. There must be no air bubbles rising in the water bath. If no air bubbles can be seen, the air-spring strut can be fitted in the vehicle.

3. If air bubbles appear in the water bath, the air-spring strut must be disassembled again. Replace all sealing rings again. Check the residual pressure retaining valve again visually.

4. Repeat the leak test in the water bath.

43 30 DISASSEMBLING AND ASSEMBLING FRONT SPRING STRUT - AS OF MY 2003 (ALL MODELS EXCEPT CAYENNE S TIO TITAN)

TOOLS

Designation	Type	Number	Explanation	
Socket wrench insert	VW-tool	3353		
Arm bracket	special tool	P 9630		

INFORMATION

Notes on repairing air-spring struts

NOTE: As of a mileage of 200,000 Km it is recommended that the air springs be

replaced per axle if there is damage to one air spring.

If the shock absorbers leak, the complete air spring strut is to be replaced. The oil of the shock absorber can damage the roller.

When depressurised, the air spring must not be twisted. There is the danger that the roller in the inside of the air spring will be damaged by bending or folding and thus significantly reduce the running time.

Air-spring strut

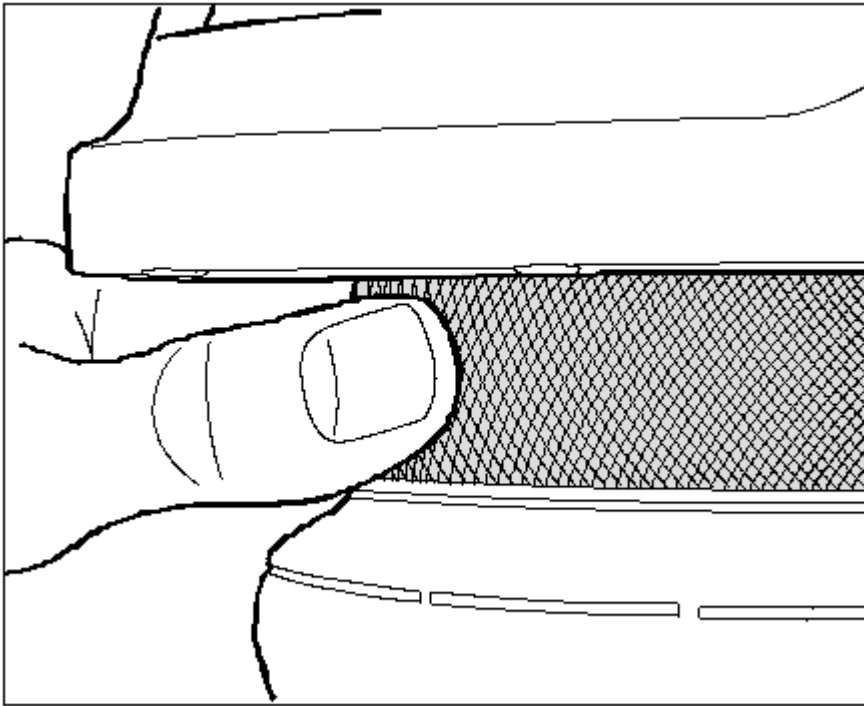


Fig. 33: Checking the air bellows

Courtesy of PORSCHE OF NORTH AMERICA, INC.

1. Before loosening the air lines in the installed state, check if the rolling boot is still filled with the residual pressure of approx. 3 bar. To do this, press on the rolling boot of the air spring with your thumb. The rolling boot must give perceptible resistance. If no significant resistance can be felt, the air spring is depressurised and must be replaced along with the residual pressure retaining valve.

The greatest possible care and cleanliness, as well as perfect tools are important requirements for carrying out perfect repairs on air-spring struts. The general and basic rules of safety apply. These are specifically listed here again for repairing air-spring struts.

- Thoroughly clean the connection points and their surroundings before loosening them.

2006 Porsche Cayenne

2003-2008 SUSPENSION Level Control

- Do not use fibre-shedding cloths.
- Do not take spare parts out of the packaging until right before installation.
- Only use lubricants that have part numbers.
- Carefully cover open components or close them if the repair work will not be carried out immediately.
- Do not use an impact bolter.
- Observe correct tightening torques. --> **43 TW Tightening torques - as of MY 2003 (Cayenne TIP, Cayenne MAN, Cayenne S TIP, Cayenne S MAN, Cayenne Turbo).**

Residual pressure retaining valve

CAUTION: Lowering of the vehicle when loosening the air line. The residual pressure retaining valve can become loose when loosening the air line.

- **The vehicle lowers on the side on which the line/the residual pressure retaining valve is loosened. Risk of squashing.**

--> When loosening the residual pressure retaining valve, lift the vehicle on a platform lift.

--> Only leave the vehicle on the platform lift until a new residual pressure retaining valve is installed and the air-spring strut is filled.

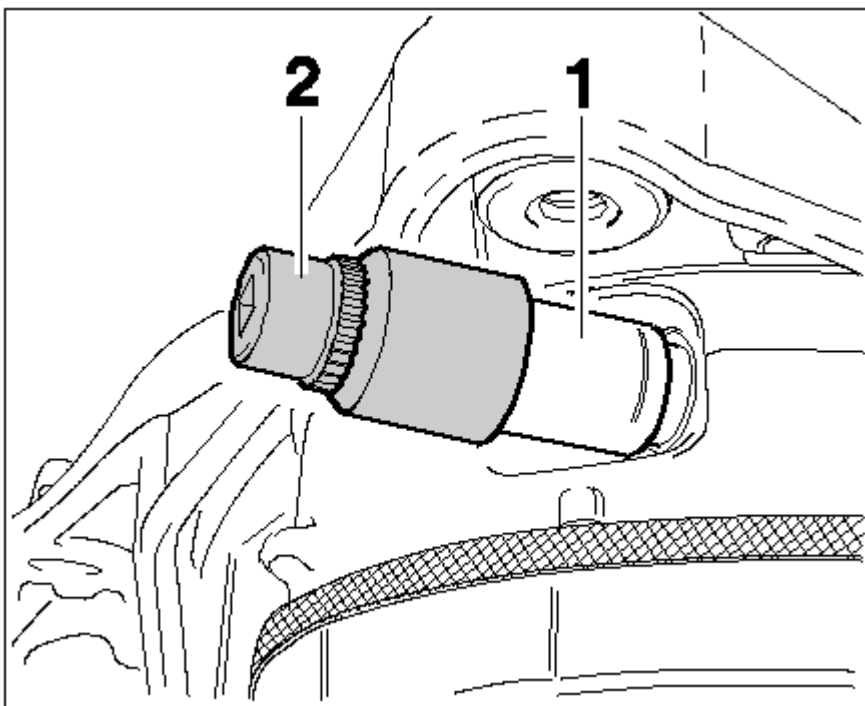


Fig. 34: Removing/fitting residual pressure retaining valve
Courtesy of PORSCHE OF NORTH AMERICA, INC.

The residual pressure retaining valve may only be replaced if:

- 1 - Residual pressure retaining valve
- 2 - Socket insert
- it was damaged during removal and installation,
- it was damaged while disassembling and assembling the air-spring strut,
- the sealing ring is faulty,
- it does not allow any more air to come out (valve jammed).

If the residual pressure retaining valve is jammed, the vehicle must be lifted for replacement on the platform lift and the wheels must be allowed to turn freely. It must not be compressed with an empty rolling boot.

Gaskets, sealing rings and bellows

Always replace sealing rings and bellows.

After removing gaskets, examine the contact surfaces on housings for burrs and damage.

Always loosen and tighten screws or nuts in diagonally opposite sequence for mounting covers and housing.

TOOLS AND MATERIALS

Tools for repairing air-spring struts

Torque wrench 2-10 Nm (1.5-7.5 ftlb.)

Torque wrench 60-100 Nm (44-74 ftlb.)

Socket wrench insert 3353

Arm bracket P 9630

INFORMATION

Overview of front air-spring strut

NOTE: The components of the air spring -7- (figure shows component arrangement of front air-spring strut), Items -2, 3, 4, 5- (figure shows front air-spring strut), cannot be disassembled. See Fig. 36, Fig. 35.

- Always replace the complete air spring -7- (figure shows component arrangement of front air-spring strut)! See [Fig. 36](#).

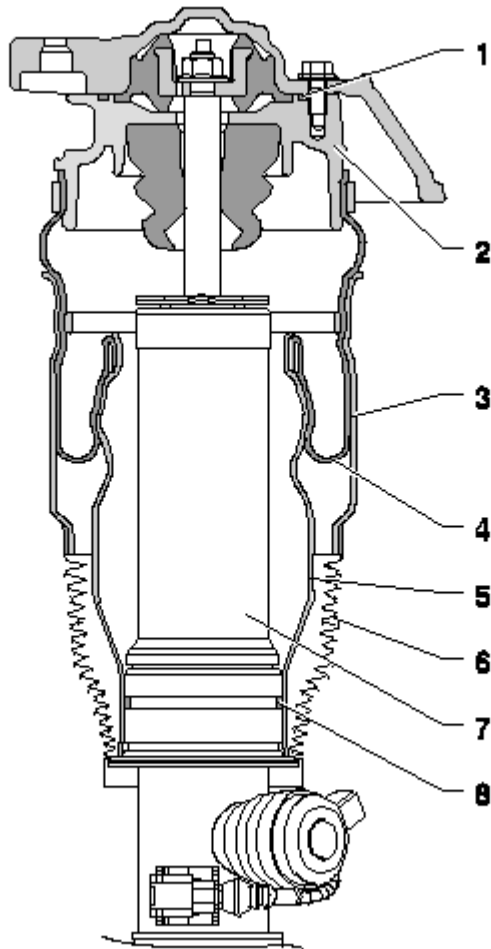


Fig. 35: Front air-spring strut

Courtesy of PORSCHE OF NORTH AMERICA, INC.

- 1 - Sealing ring
- 2 - Lid
- 3 - Outer guide
- 4 - Rolling boot
- 5 - Rolling piston
- 6 - Bellows

7 - Shock absorber

8 - Sealing ring

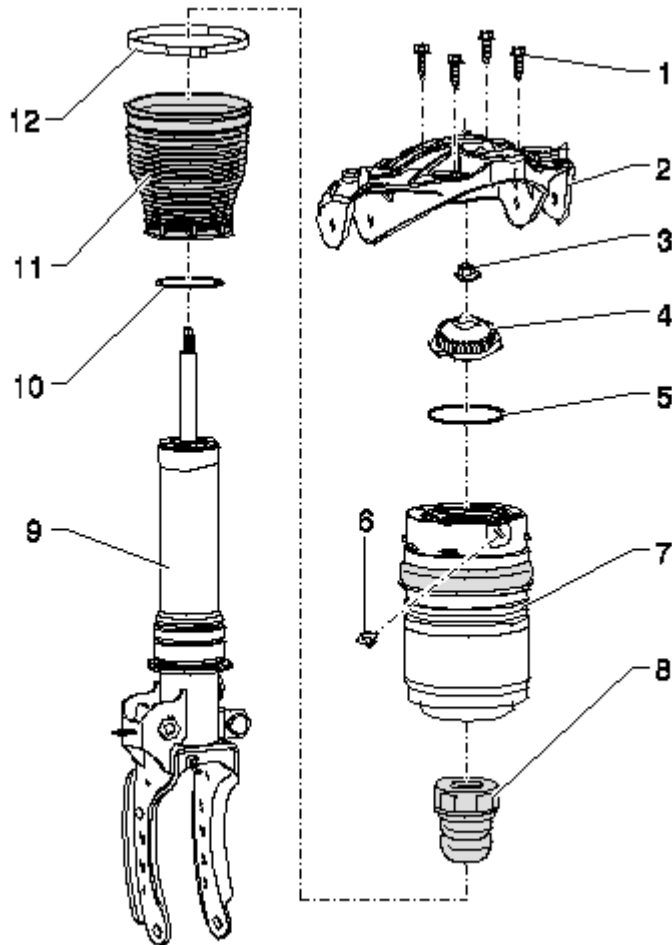


Fig. 36: Component arrangement of front air-spring strut
Courtesy of PORSCHE OF NORTH AMERICA, INC.

1 - Hexagon-head bolt

2 - Mounting saddle

3 - Hexagon nut

4 - Spring-strut mount

5 - Sealing ring

6 - Residual pressure retaining valve

2006 Porsche Cayenne

2003-2008 SUSPENSION Level Control

7 - Air spring

8 - Rubber stop

9 - Shock absorber

10 - Sealing ring

11 - Boot/bellows

12 - Clamp

DISASSEMBLING AND ASSEMBLING

Disassembling spring strut

CAUTION: The air-spring strut is pressurised with approx. 3 bar residual pressure. Never use an impact bolter to loosen the fastening screws. Do not bend over the mounting saddle during disassembly.

- Risk of injury from the pressurised air-spring strut when loosening the screws.

--> Always unscrew the screws on the mounting saddle by one turn only, on alternating sides. During disassembly, allow the air to escape by tilting the mounting saddle slightly.

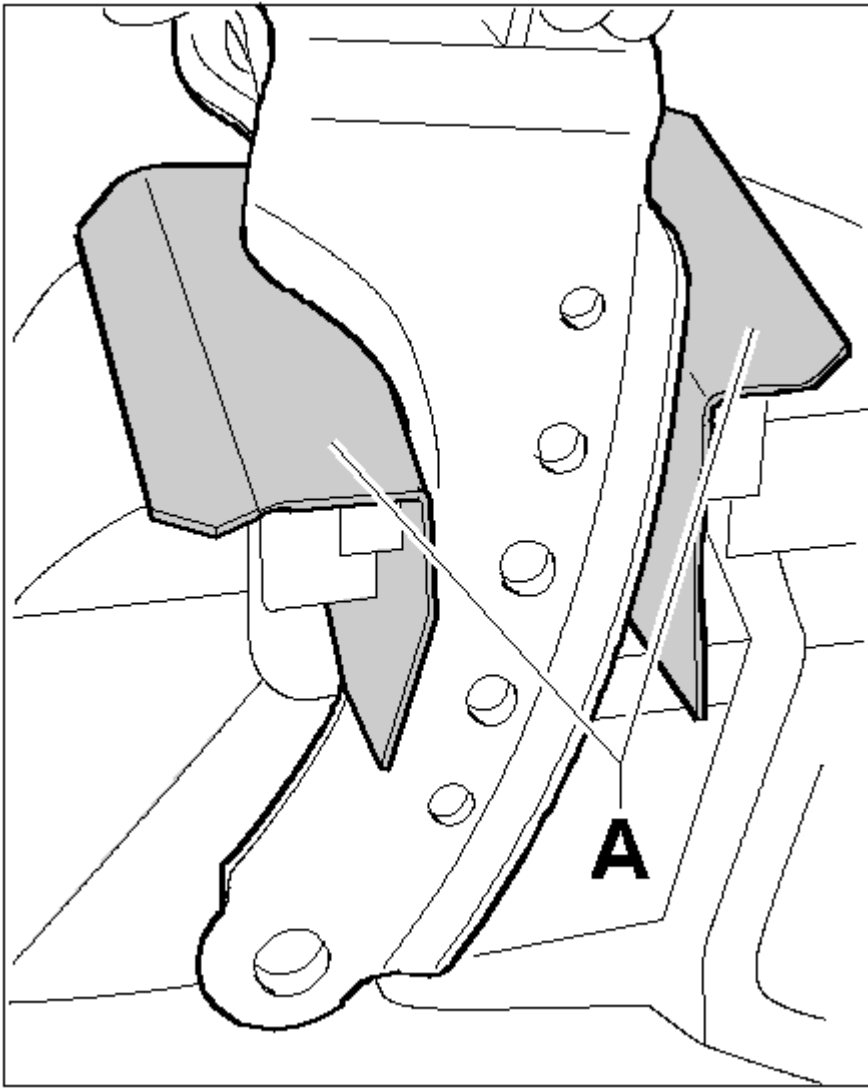


Fig. 37: Lower mounting point for air-spring strut
Courtesy of PORSCHE OF NORTH AMERICA, INC.

1. Clamp the air-spring strut on the lower mounting point (use aluminum protective jaws -A- !). See **Fig. 37**.
2. Loosen the fastening screws on the mounting saddle and carefully remove the mounting saddle.

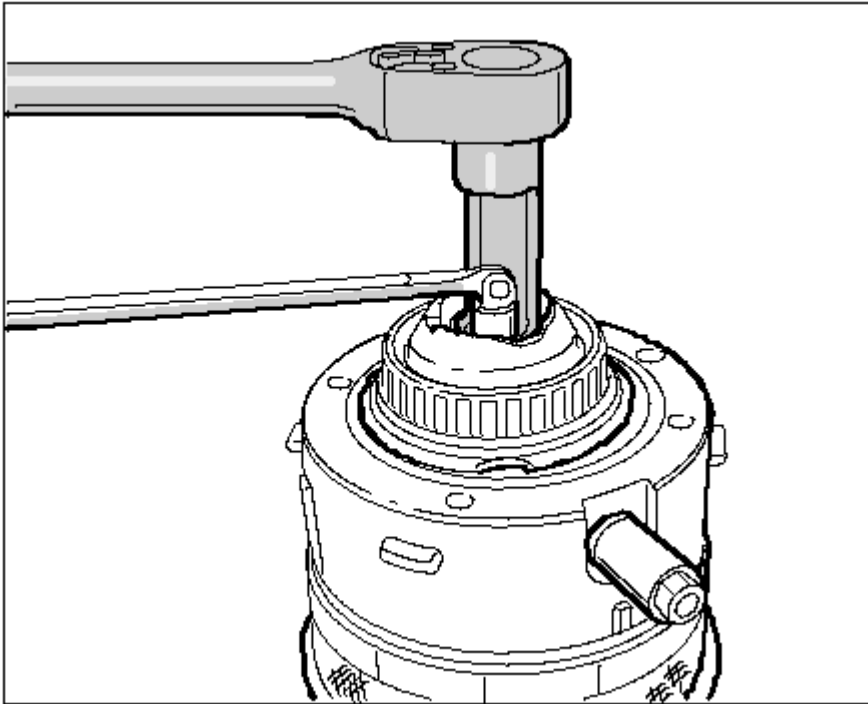


Fig. 38: Removing/fitting spring-strut mount

Courtesy of PORSCHE OF NORTH AMERICA, INC.

3. Remove spring-strut mount with socket wrench insert 3353 and arm bracket P 9630.

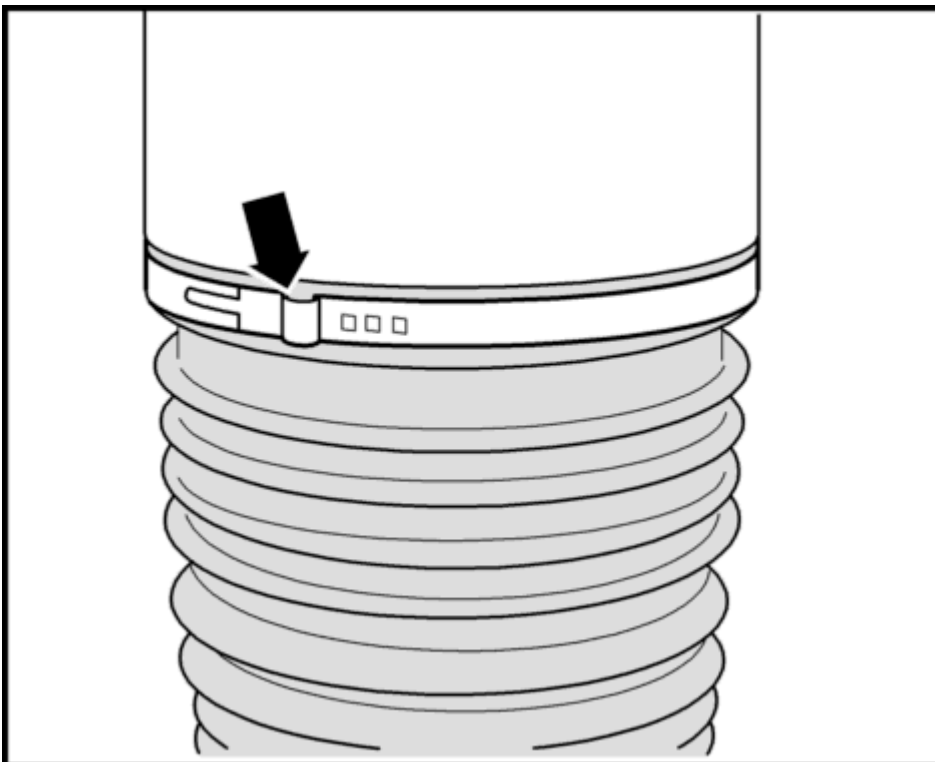


Fig. 39: Air-spring strut clamp

Courtesy of PORSCHE OF NORTH AMERICA, INC.

4. Remove clamp.

NOTE: When replacing the air spring, always replace the boot/bellows.

If the rolling piston slips out of the outer guide during disassembly, it must be correctly positioned again when assembling.

- *When sliding in the rolling piston, the roller must lie evenly between the outer guide and rolling piston (roll fold).*

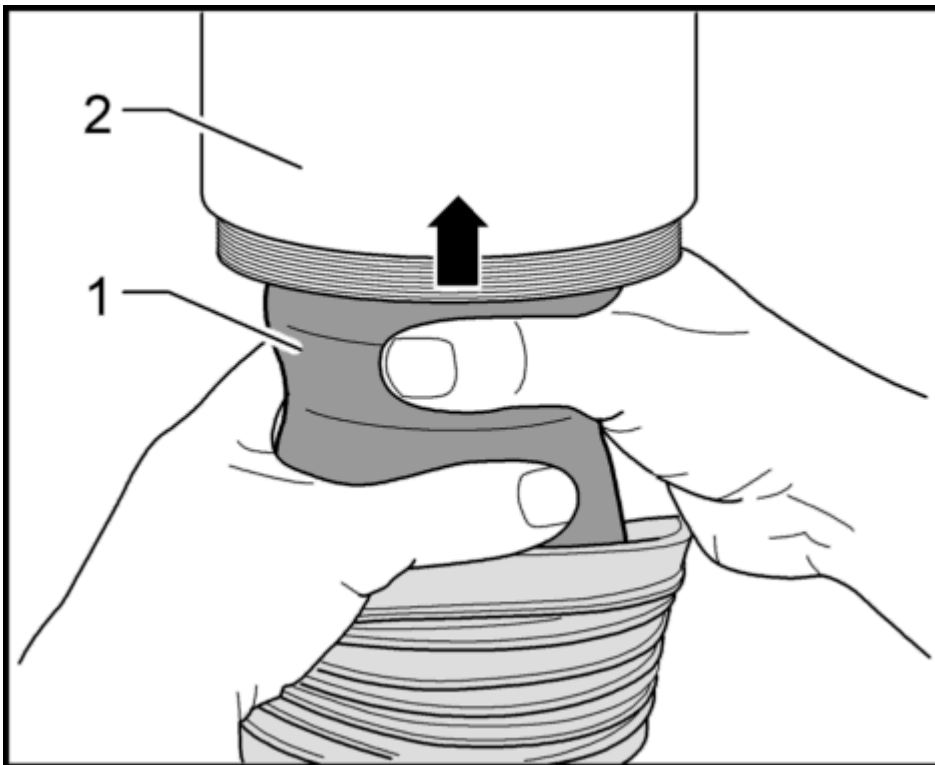


Fig. 40: Air-spring strut rolling piston

Courtesy of PORSCHE OF NORTH AMERICA, INC.

5. Push bellows downward and secure in this position (2nd worker required!). Grasp rolling piston -1- and remove it upward from the shock absorber by turning slightly to the left/right. See **Fig. 40**.

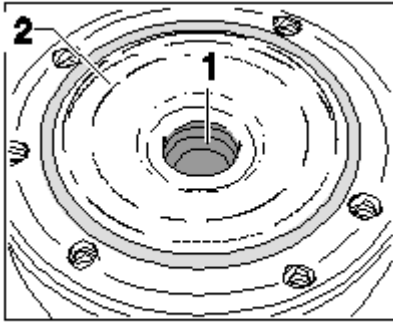


Fig. 41: Rubber stop

Courtesy of PORSCHE OF NORTH AMERICA, INC.

6. When replacing the air spring, push the rubber stop -1- out of the centring device. See **Fig. 41**.

7. Remove boot/bellows.

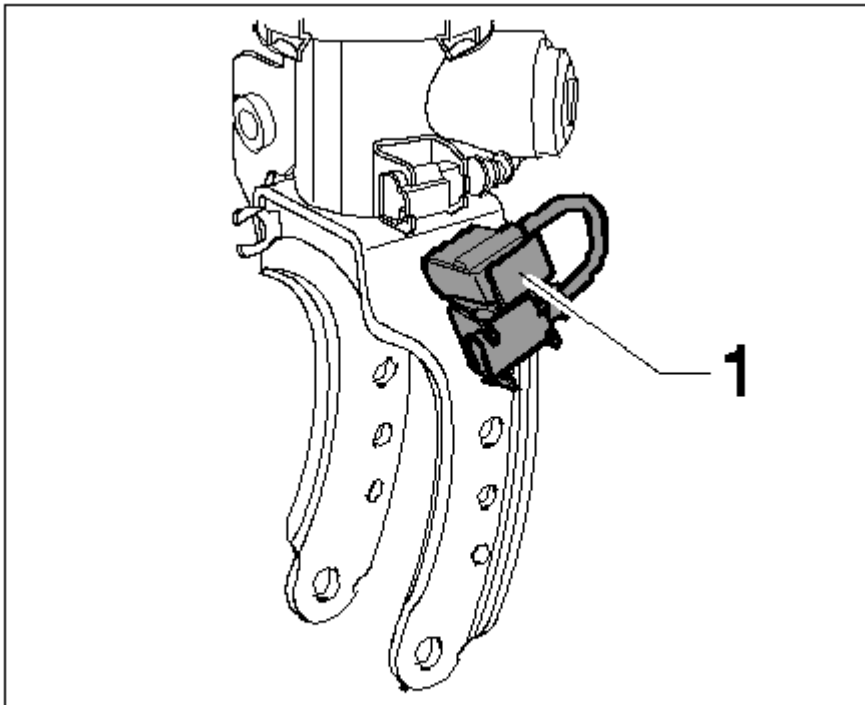


Fig. 42: Wheel acceleration sensor

Courtesy of PORSCHE OF NORTH AMERICA, INC.

8. When replacing the shock absorber, remove the wheel acceleration sensor -1- and fit it on the new shock

absorber. See **Fig. 42**.

Assembling spring strut

NOTE: When replacing the air spring, always replace the boot/bellows.

If the rolling piston slips out of the outer guide during disassembly, it must be correctly positioned again.

- *When sliding in the rolling piston, the roller must lie evenly between the outer guide and rolling piston (roll fold).*
- *Make sure that everything remains absolutely clean. The smallest impurities can cause leakages.*
- *Clean the contact surfaces of the sealing rings with a lint-free cloth.*
- *Lightly grease sealing rings with Syntheso Glep 1 (ET No. 000.043.204.68).*

If the shock absorber is not replaced, the sealing ring must be replaced.

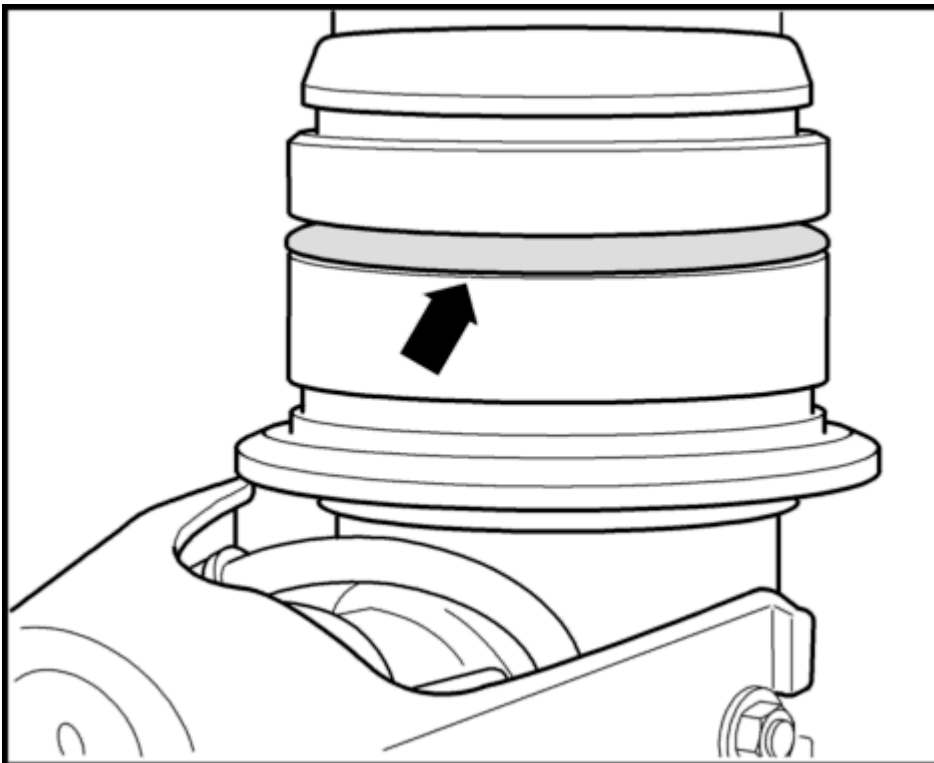


Fig. 43: Shock absorber sealing ring

Courtesy of PORSCHE OF NORTH AMERICA, INC.

1. Replace sealing ring on shock absorber -**Arrow**- (figure shows rear shock absorber). See **Fig. 43**.
2. Pull boot/bellows completely over the collar of the shock absorber, so that it engages (small diameter

downward, 2nd worker required).

3. Fit rubber stop (small diameter downward).

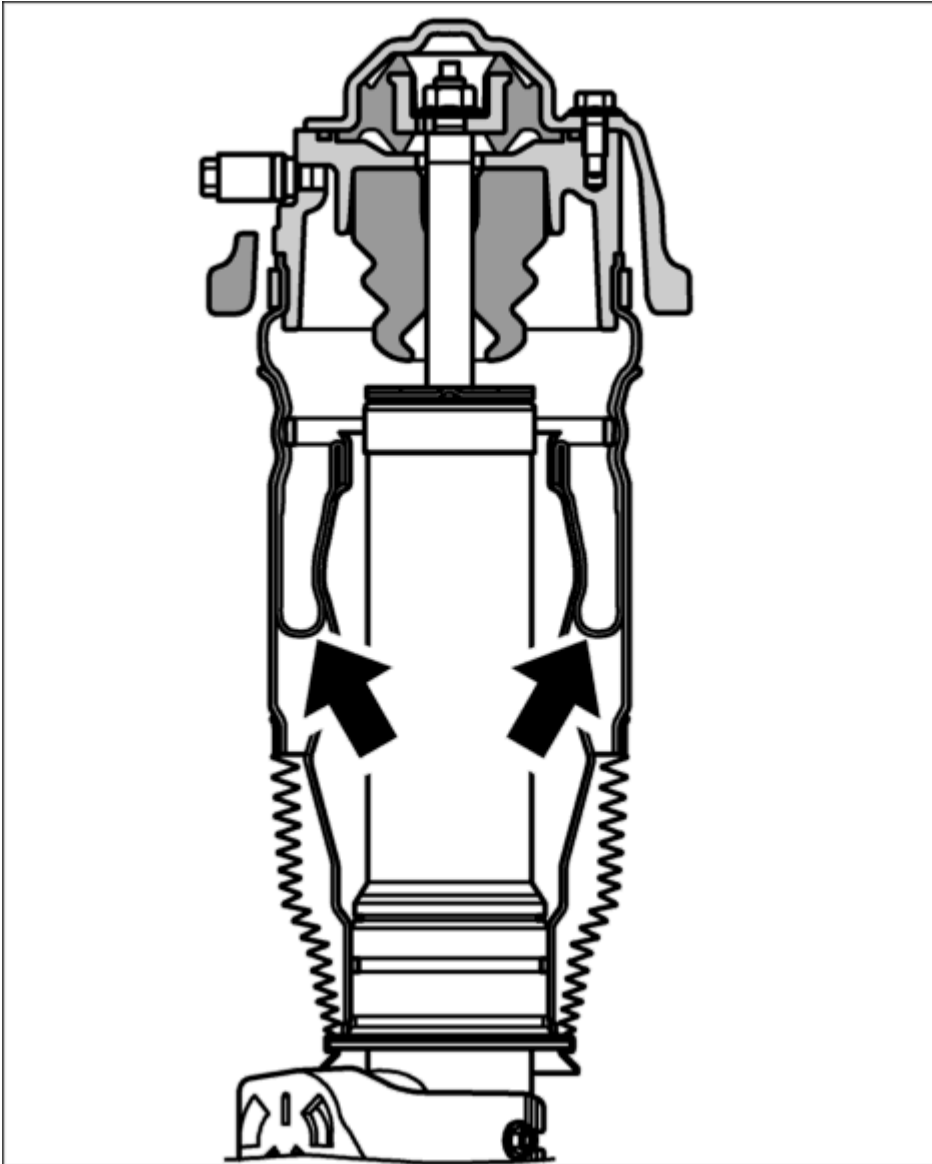


Fig. 44: Roll fold

Courtesy of PORSCHE OF NORTH AMERICA, INC.

4. Position the air spring on the shock absorber. Grasp the rolling piston and push it downward by turning it slightly to the left and right. If the rolling piston has slipped out of the outer guide, it must be pushed back in again while forming a circumferential uniform roll fold on the rolling boot -**Arrows**- . See **Fig. 44**.

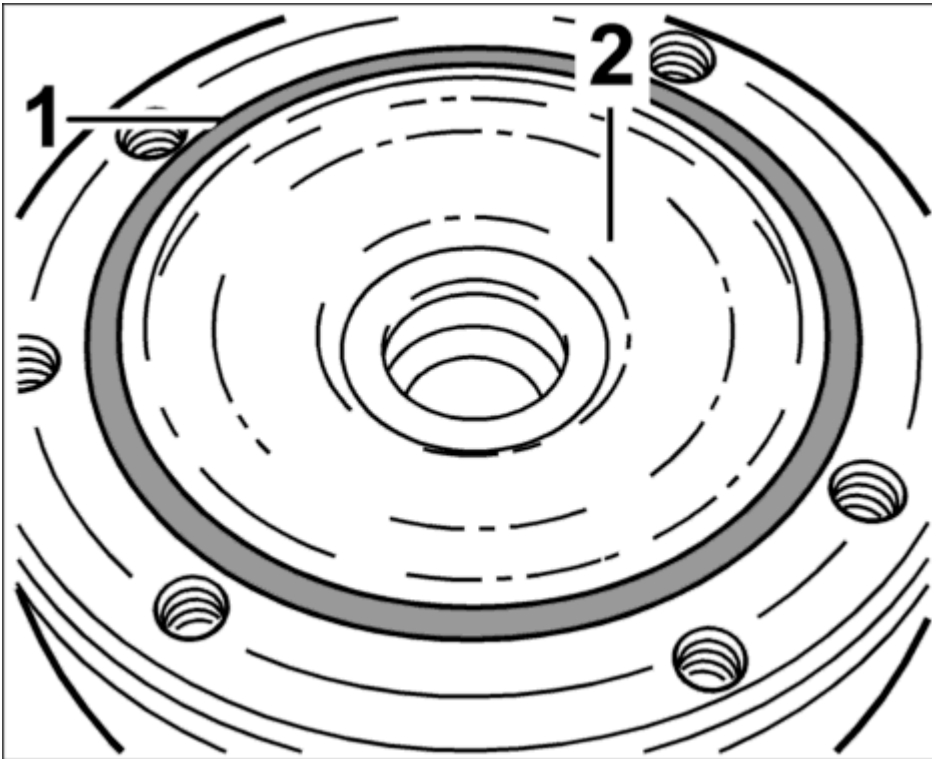


Fig. 45: Sealing ring

Courtesy of PORSCHE OF NORTH AMERICA, INC.

5. Clean the surfaces -2- on the mounting saddle and on the air spring with a lint-free cloth. Replace sealing ring -1- on the air spring. See **Fig. 45**.

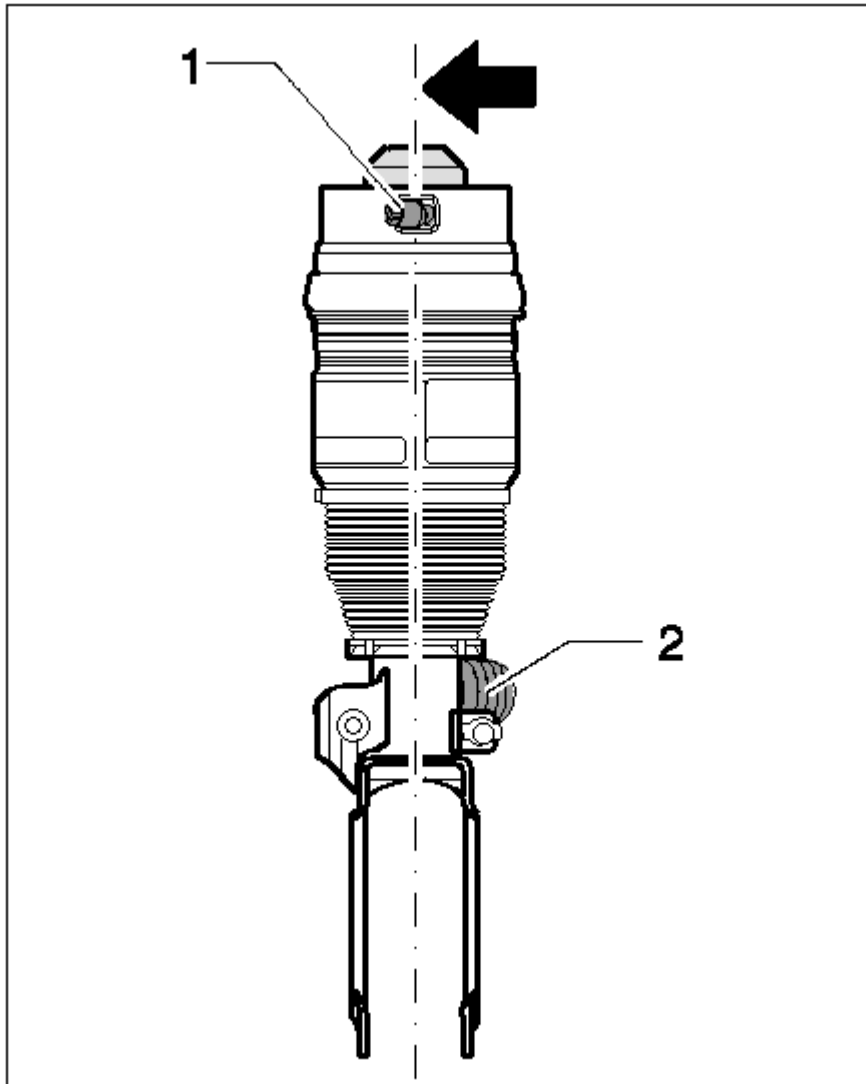


Fig. 46: Residual pressure retaining valve

Courtesy of PORSCHE OF NORTH AMERICA, INC.

NOTE: To align the air spring, carefully turn the rolling piston in order to not damage the roller.

6. Fit and align the air spring. While doing so, the residual pressure retaining valve -1- must be located exactly at the imaginary axis of symmetry -**Arrow**- of the air-spring strut. The residual pressure retaining valve must be facing in the opposite direction to the CDC valve. See **Fig. 46**.

7. Fit bellows at the top.

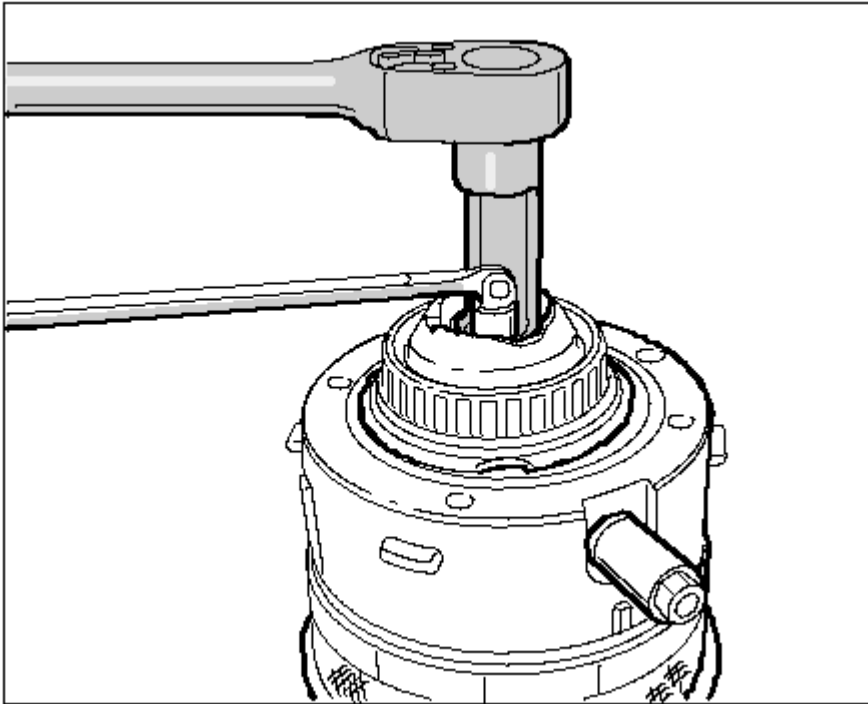


Fig. 47: Removing/fitting spring-strut mount
Courtesy of PORSCHE OF NORTH AMERICA, INC.

8. Fit spring-strut mount using socket wrench insert 3353 and arm bracket P9630.

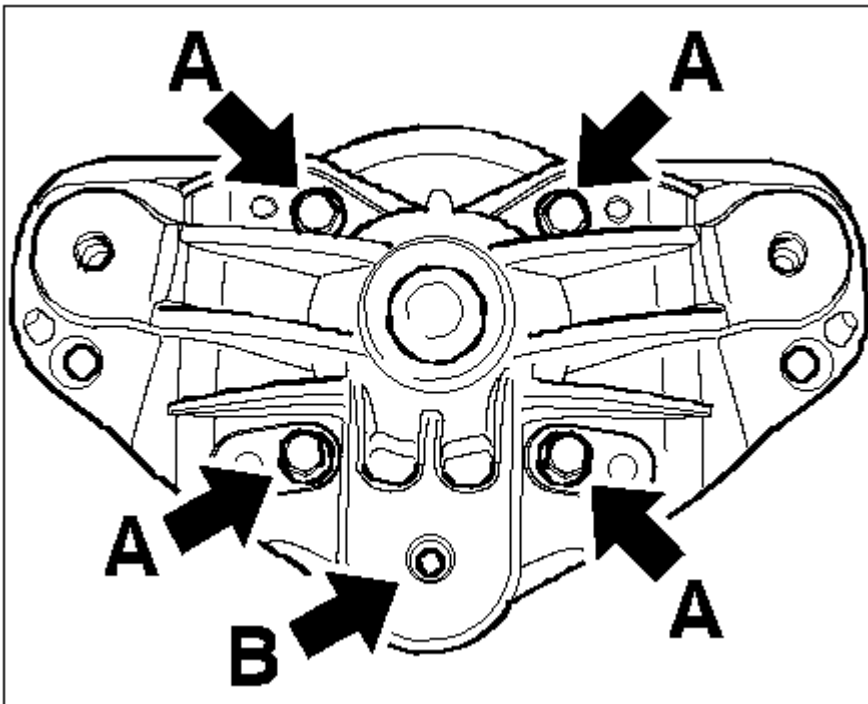


Fig. 48: Fitting mounting saddle

Courtesy of PORSCHE OF NORTH AMERICA, INC.

9. Fit mounting saddle -**Screws A**- and align it so that the upper arm of the bearing -**B**- points to the residual pressure retaining valve. See **Fig. 48**.

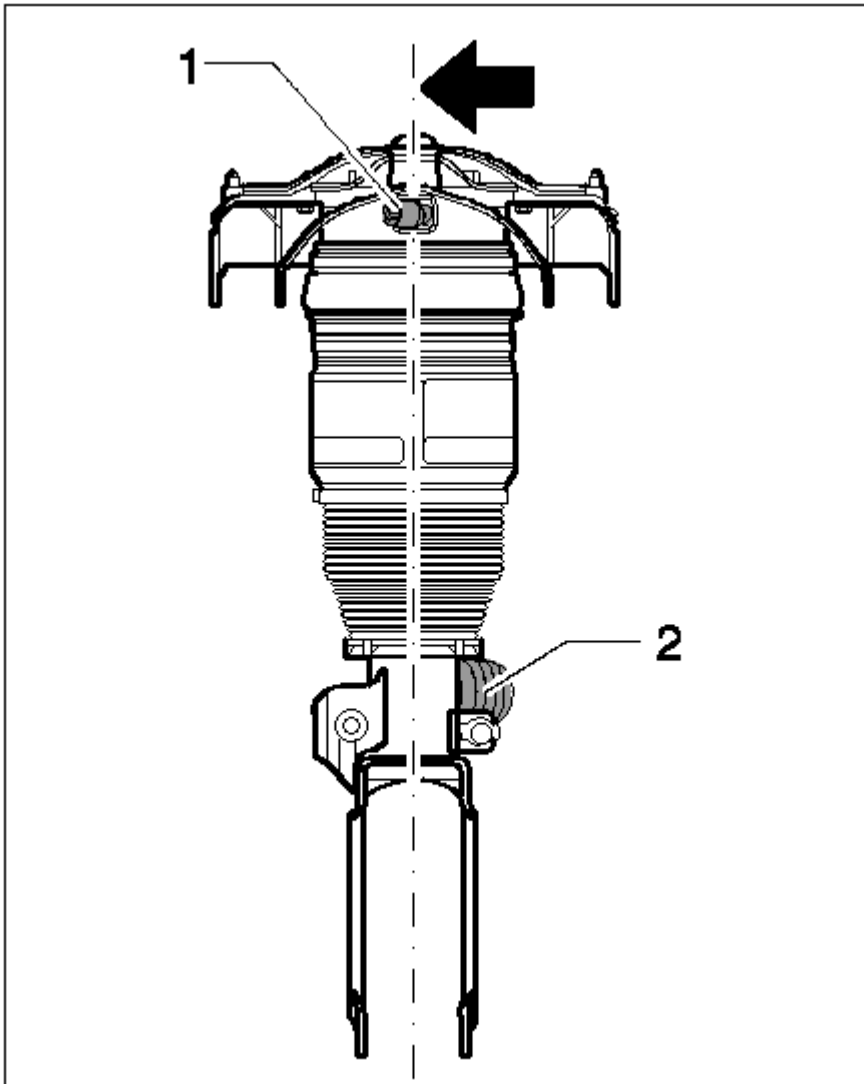


Fig. 49: Aligning the mounting saddle

Courtesy of PORSCHE OF NORTH AMERICA, INC.

10. Align the air spring again so that the residual pressure retaining valve is located exactly at the axis of symmetry -**Arrow**- of the air-spring strut. See **Fig. 49**.

11. Fill the air-spring strut. --> **43 01 IN Filling specification for air-spring strut - as of MY 2003 (All Models Except Cayenne S TIO Titan).**

Checking the air-spring strut

Checking for leaks

1. Dip the filled air-spring strut completely into a water bath.

NOTE: Before fitting the air-spring strut in the vehicle, carefully blow out and dry all electrical connections and the residual pressure retaining valve with compressed air.

2. There must be no air bubbles rising in the water bath. If no air bubbles can be seen, the air-spring strut can be fitted in the vehicle.
3. If air bubbles appear in the water bath, the air-spring strut must be disassembled again. Replace all sealing rings again. Check the residual pressure retaining valve again visually.
4. Repeat the leak test in the water bath.

43 15 19 REMOVING AND INSTALLING COMPRESSOR FOR THE LEVEL CONTROL SYSTEM - AS OF MY 2003 (ALL MODELS EXCEPT CAYENNE S TIO TITAN)

PRELIMINARY WORK

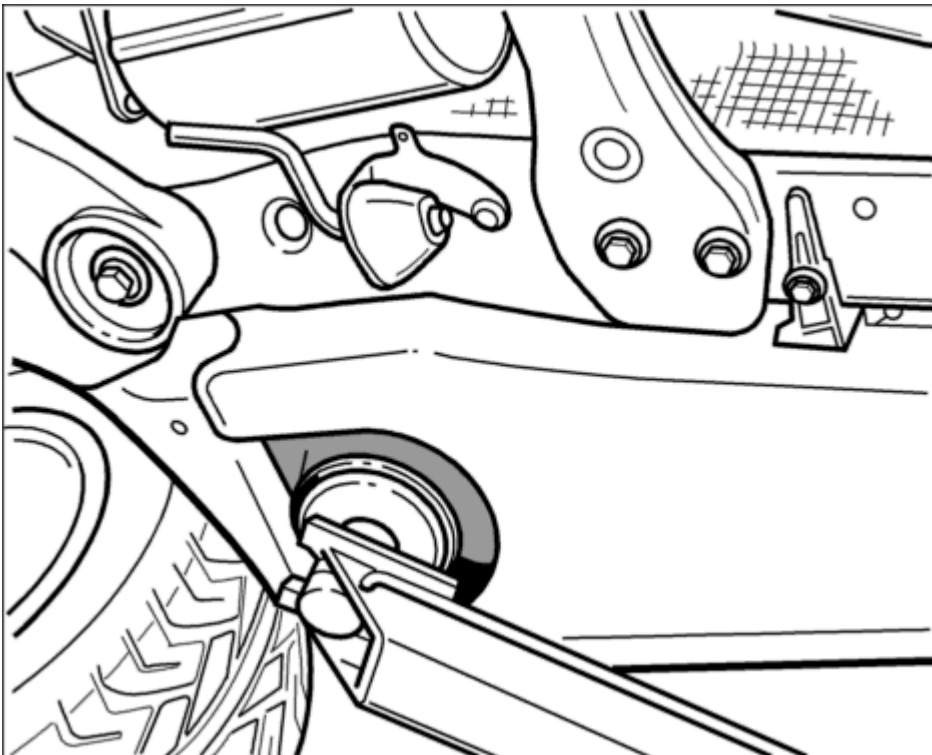


Fig. 50: Raise vehicle at the jacking points

Courtesy of PORSCHE OF NORTH AMERICA, INC.

2006 Porsche Cayenne

2003-2008 SUSPENSION Level Control

1. Raise vehicle at the jacking points provided --> **40 V0 LIFTING THE VEHICLE - AS OF MY 2003 (CAYENNE TURBO S, CAYENNE S TIO TITAN) or 40 V0 LIFTING THE VEHICLE - AS OF MY 2003 (CAYENNE TIP, CAYENNE MAN, CAYENNE S TIP, CAYENNE S MAN, CAYENNE TURBO) .**

2. Remove right cover. Refer to **51 93 19 Removing and installing middle cover - as of MY 2003 (All Models) .**

REMOVING THE COMPRESSOR

The compressor -3- is only installed for the level adjustment system and is attached as a compact air supply unit with valve block -4- on a vibration-insulated support to the right underbody. See **Fig. 51.**

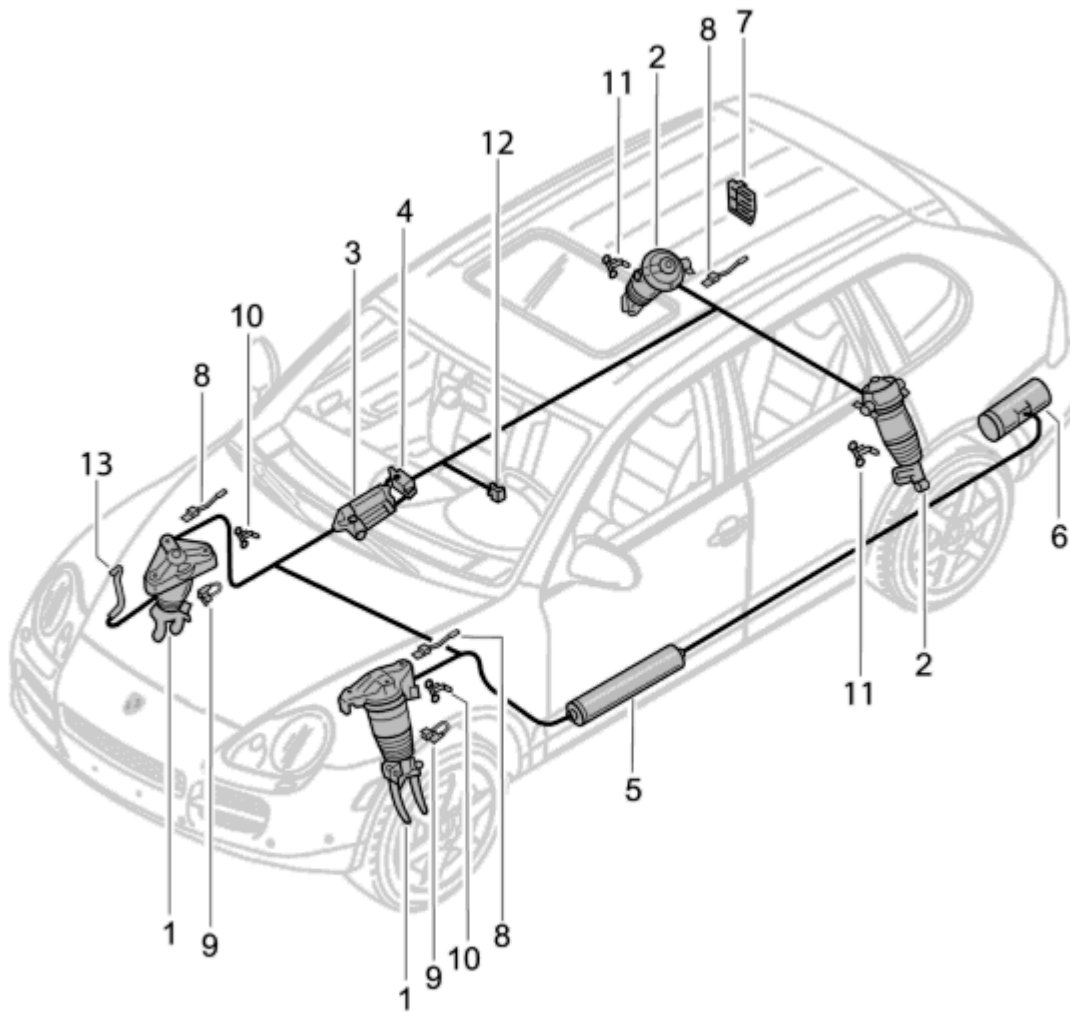


Fig. 51: Position of air suspension components

2006 Porsche Cayenne

2003-2008 SUSPENSION Level Control

Courtesy of PORSCHE OF NORTH AMERICA, INC.

- 1- - Air-spring strut, front axle
- 2- - Air-spring strut, rear axle
- 3- - Compressor
- 4- - Valve block

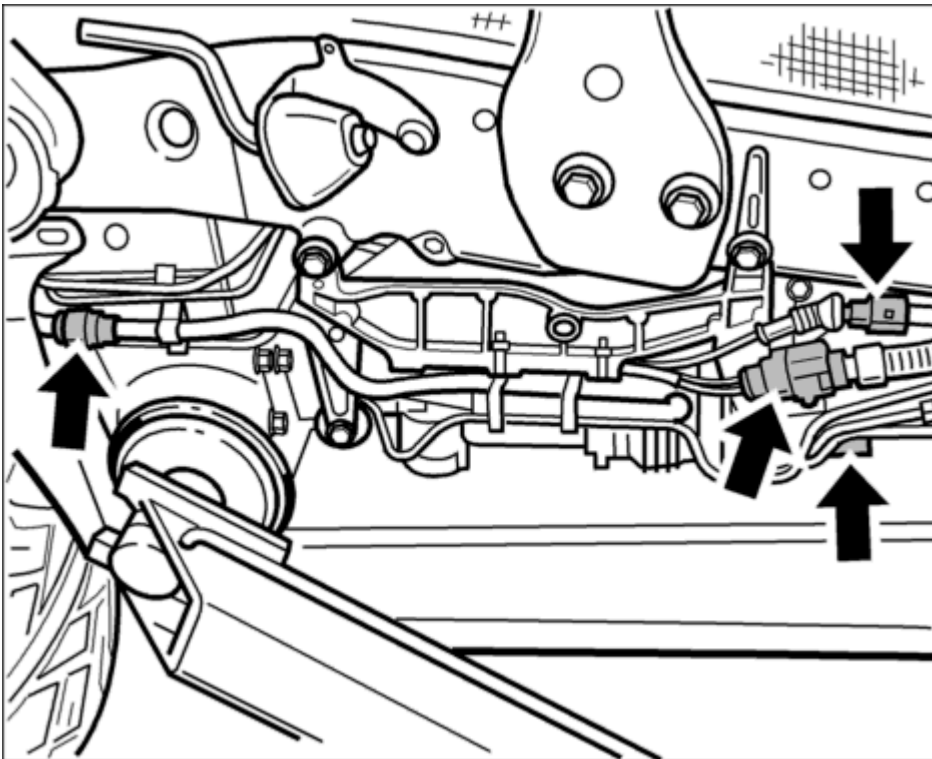


Fig. 52: Air lines plug connections

Courtesy of PORSCHE OF NORTH AMERICA, INC.

CAUTION: Residual air can escape when removing the air lines.

--> Wear protective goggles.

NOTE:

- *Place the take-up plates of the platform lift at the jacking points so that the fastening points of the underbody panel are accessible --> 40 V0 LIFTING THE VEHICLE - AS OF MY 2003 (CAYENNE TURBO S, CAYENNE S TIO TITAN) or 40 V0 LIFTING THE VEHICLE - AS OF MY 2003 (CAYENNE TIP, CAYENNE MAN, CAYENNE S TIP, CAYENNE S MAN, CAYENNE TURBO) (see Switching off level adjustment).*

2006 Porsche Cayenne

2003-2008 SUSPENSION Level Control

- *To bleed the level adjustment system (compressed air must be released from the system), use the Porsche System Tester. To do this, in the system >> Level adjustment >> select the menu item >>Bleed << and bleed the accumulator, and front and rear axles.*
- *Clean the screw connection of the lines from the valve block before removing.*
- *Protect the screw connection of the lines from dirt with suitable plugs.*

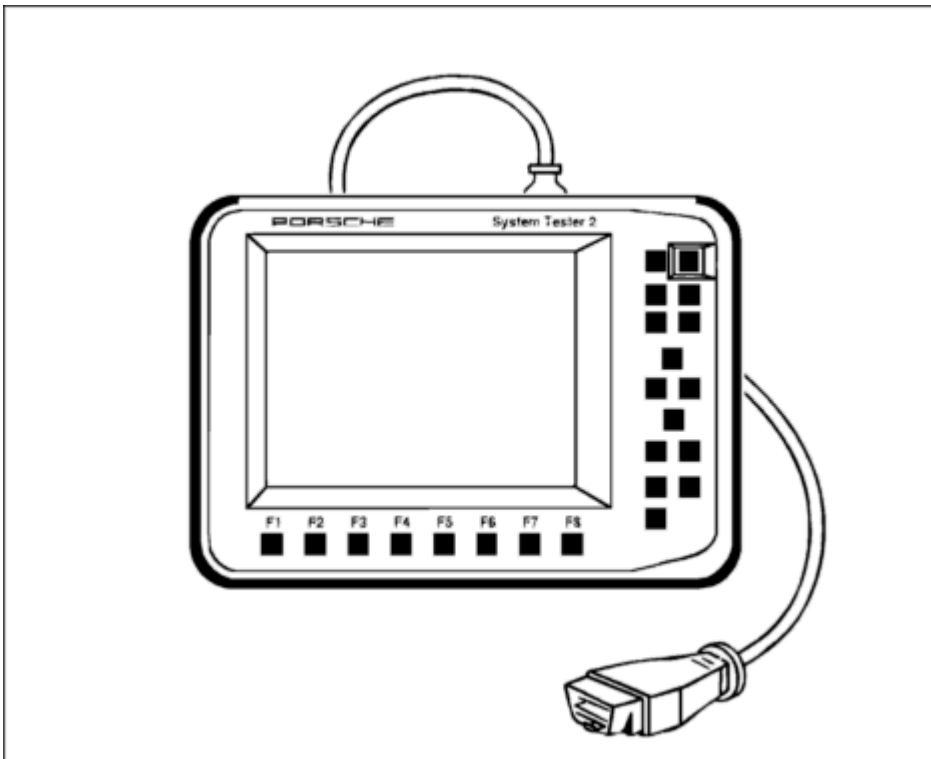


Fig. 53: Porsche System Tester

Courtesy of PORSCHE OF NORTH AMERICA, INC.

1. Unclip the suction line and the plug connections -arrows- . See **Fig. 52**.

2006 Porsche Cayenne

2003-2008 SUSPENSION Level Control

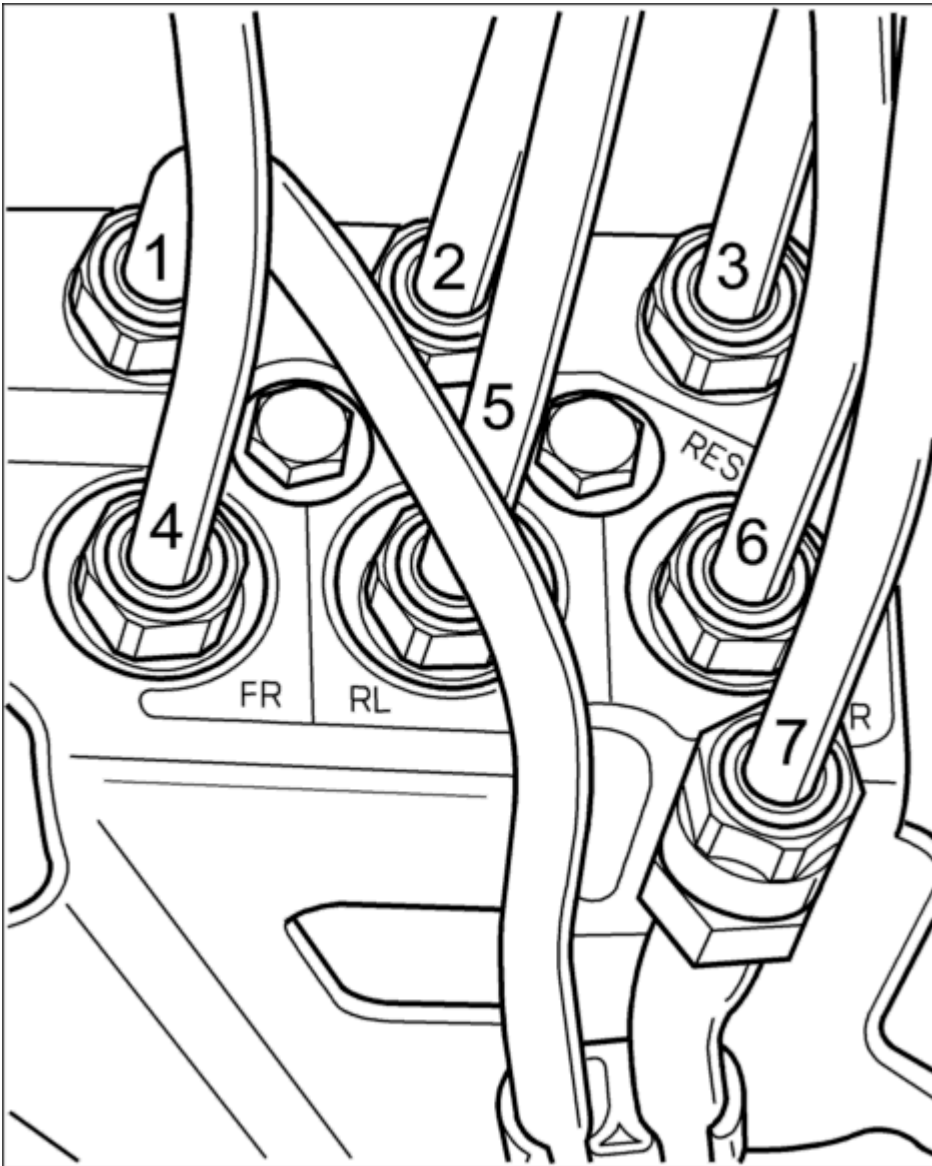


Fig. 54: Air lines for valve block

Courtesy of PORSCHE OF NORTH AMERICA, INC.

2. Remove the air lines (color-coded) from the valve unit and the brown air line (running under the valve unit).
See Fig. 54.

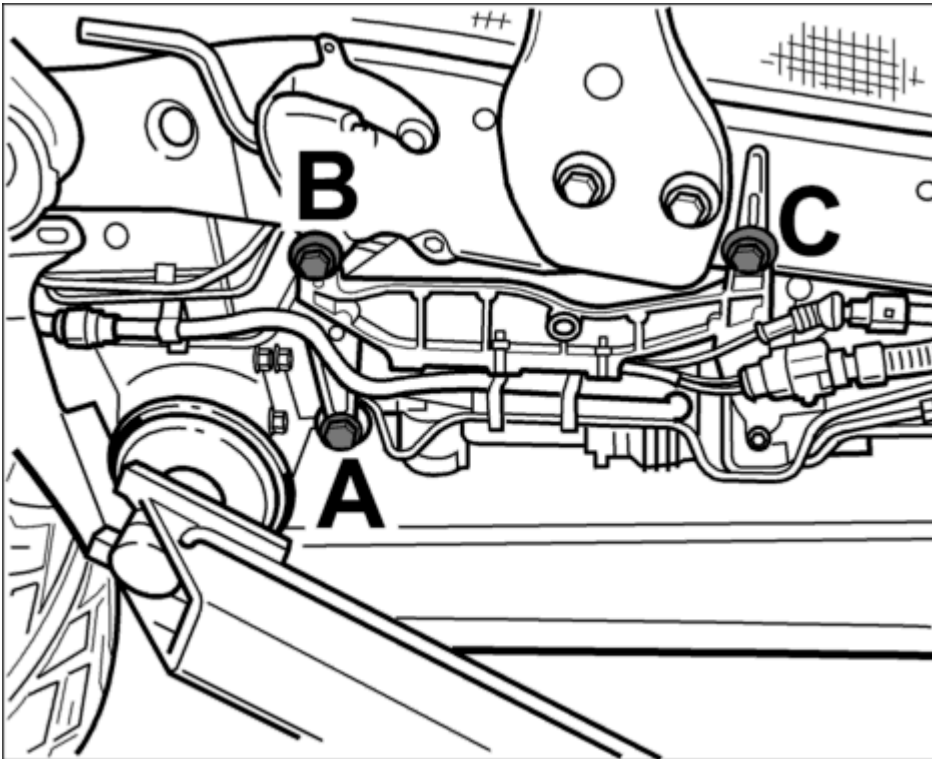


Fig. 55: Mounting points for compressor unit

Courtesy of PORSCHE OF NORTH AMERICA, INC.

3. Release the mounting points on the body -A, B & C- and remove the compressor unit (compressor, valve block). See **Fig. 55**.

Disconnect compressor from the valve unit:

- Release the tie-wrap and attachment at the support
- Unclip the air line and remove
- Remove the compressor from the support.

INSTALLING THE COMPRESSOR

NOTE:

- *Install in reverse order.*
- *The air lines are colored and designated with letters.*
- *Pay attention to cleanliness, if necessary clean the screw connections of the air lines with a lint-free cloth.*
- *Visually inspect all parts.*
- *Replace locking screws and nuts.*
- *Pay attention to tightening torques --> 43 TW Tightening torques - as of MY 2003 (Cayenne TIP, Cayenne MAN, Cayenne S TIP, Cayenne S MAN, Cayenne Turbo).*

2006 Porsche Cayenne

2003-2008 SUSPENSION Level Control

- **To fill the level adjustment system, use the Porsche System Tester. To do this, in the system >> Level adjustment >> select the menu item >> Fill <<; then fill the front and rear axles and the accumulator. Switch on level adjustment --> 40 V0 LIFTING THE VEHICLE - AS OF MY 2003 (CAYENNE TURBO S, CAYENNE S TIO TITAN) or 40 V0 LIFTING THE VEHICLE - AS OF MY 2003 (CAYENNE TIP, CAYENNE MAN, CAYENNE S TIP, CAYENNE S MAN, CAYENNE TURBO) (see Switching on level adjustment).**

1. Fit compressor on the support, clip in the line, and fasten the cable.

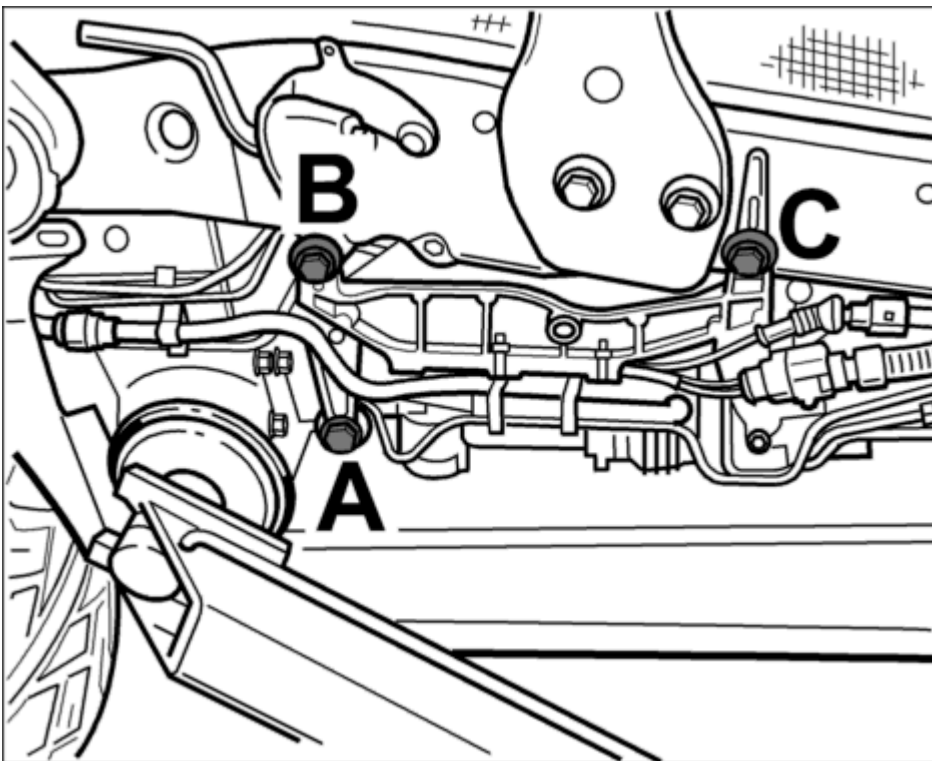


Fig. 56: Insert compressor unit and mount on the body
Courtesy of PORSCHE OF NORTH AMERICA, INC.

2. Insert compressor unit and mount on the body -(A, B & C)- . See **Fig. 56**.

2006 Porsche Cayenne

2003-2008 SUSPENSION Level Control

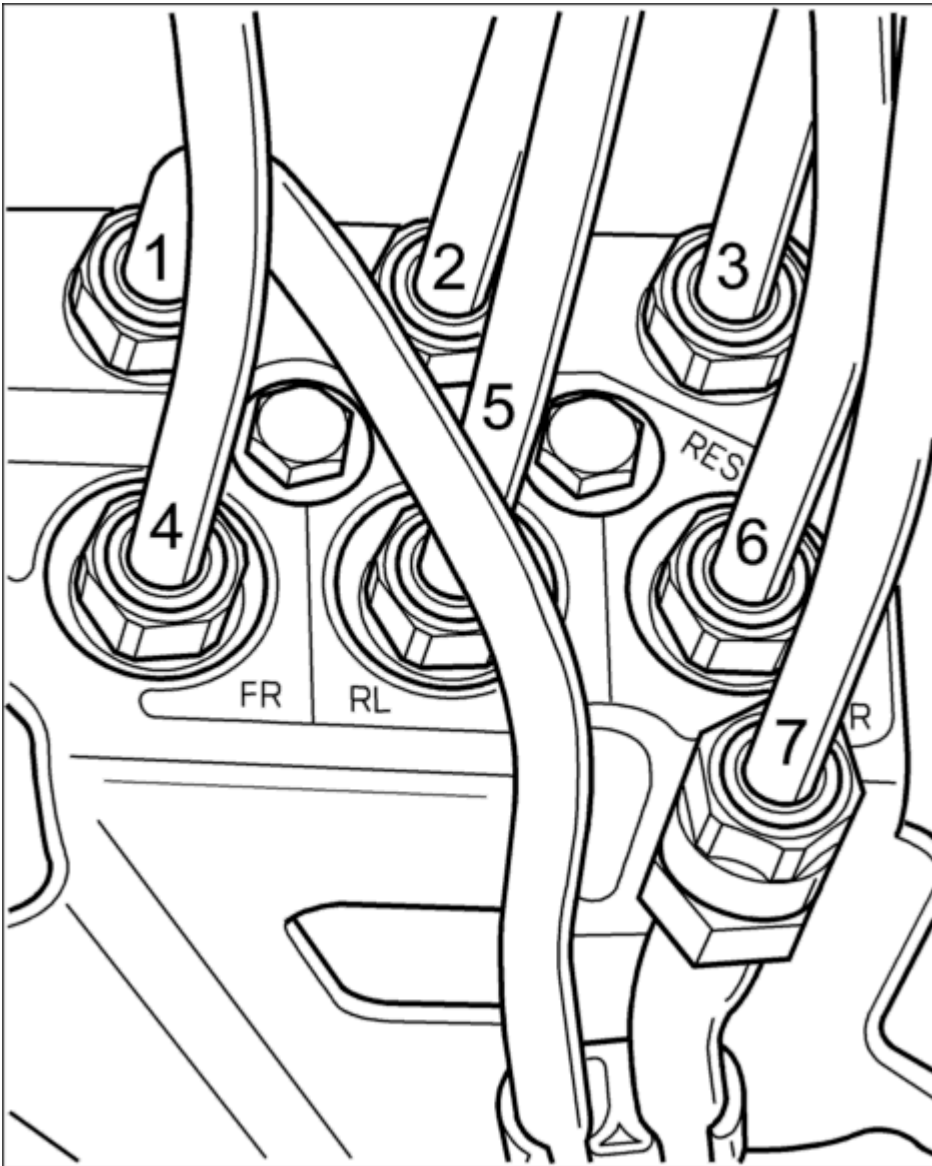


Fig. 57: Air lines for valve block

Courtesy of PORSCHE OF NORTH AMERICA, INC.

3. Fit the --> *Air lines for valve block* air lines to the valve block. See **Fig. 57**.

-1- - black

-2- - lilac

-3- - blue

-4- - green

-5- - red

2006 Porsche Cayenne

2003-2008 SUSPENSION Level Control

-6- - yellow

-7- - brown

4. Fit the suction lines and the plug connections.

5. Fill the pneumatic system using the Porsche System Tester.

SUBSEQUENT WORK

Fit right cover Refer to **51 93 19 Removing and installing middle cover - as of MY 2003 (All Models)** .

43 16 19 REMOVING AND INSTALLING LEVEL CONTROL MODULE - AS OF MY 2003 (ALL MODELS EXCEPT CAYENNE S TIO TITAN)

TOOLS

Designation	Type	Number	Explanation	
PIWIS Tester	special tool	P 9718		 The image shows a handheld electronic device, the PIWIS Tester, with a screen and a small antenna. It is labeled with the number 03 in the top left corner and 9718 000 721 971 80 at the bottom.

REMOVING LEVEL CONTROL MODULE

Removing level control module

WARNING: Risk of damage to electronic control modules.

- If care is not taken, electrical and electronic components may be destroyed.

--> Before removing the control module, switch off the ignition and remove the ignition key.

NOTE:

- *The control module is located behind the right rear side section trim.*

Installation Location:

2006 Porsche Cayenne

2003-2008 SUSPENSION Level Control

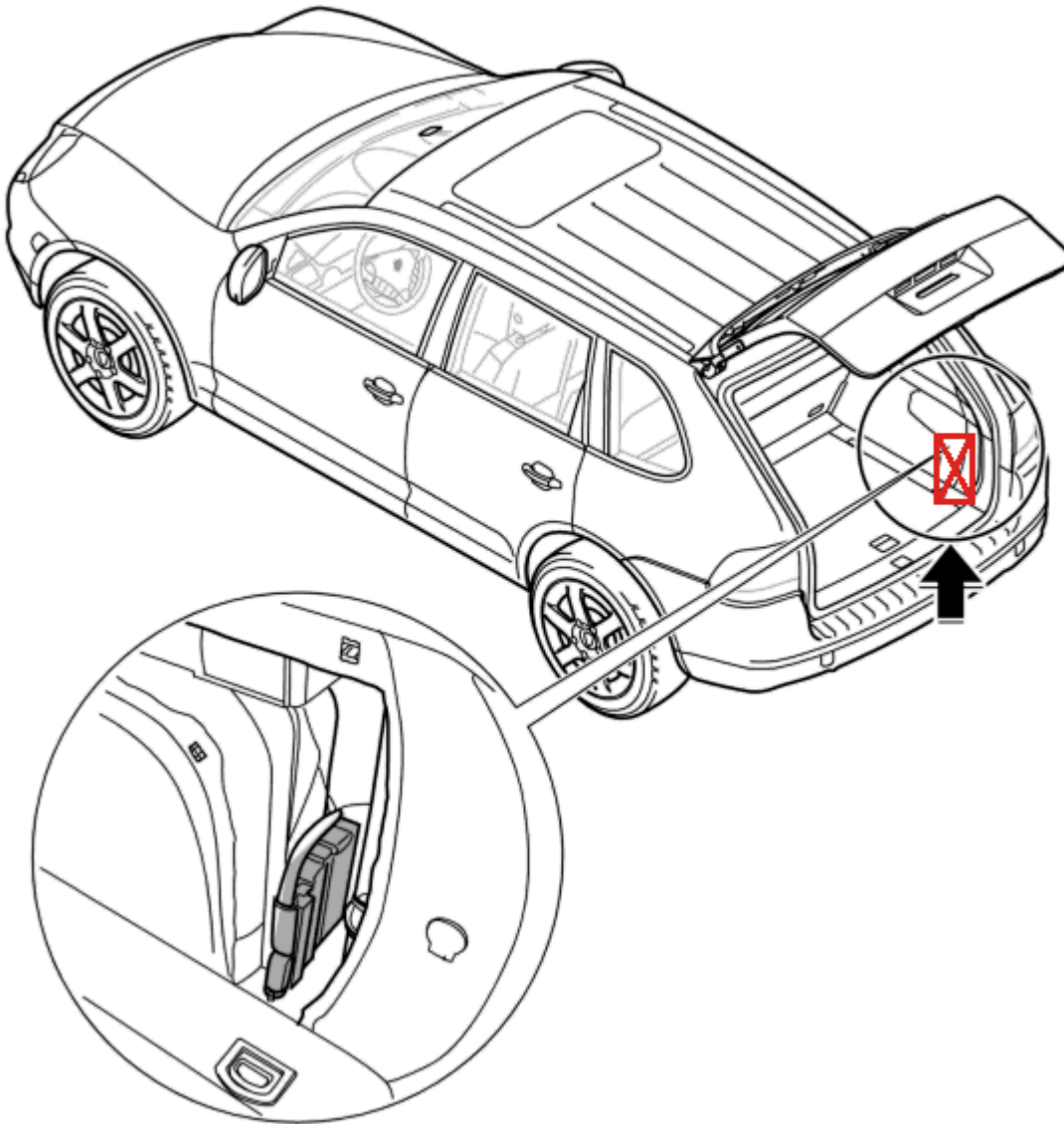


Fig. 58: Overview of level control module

Courtesy of PORSCHE OF NORTH AMERICA, INC.

1. Remove the cover of the right rear side section trim.
2. Remove warning triangle and emergency kit.

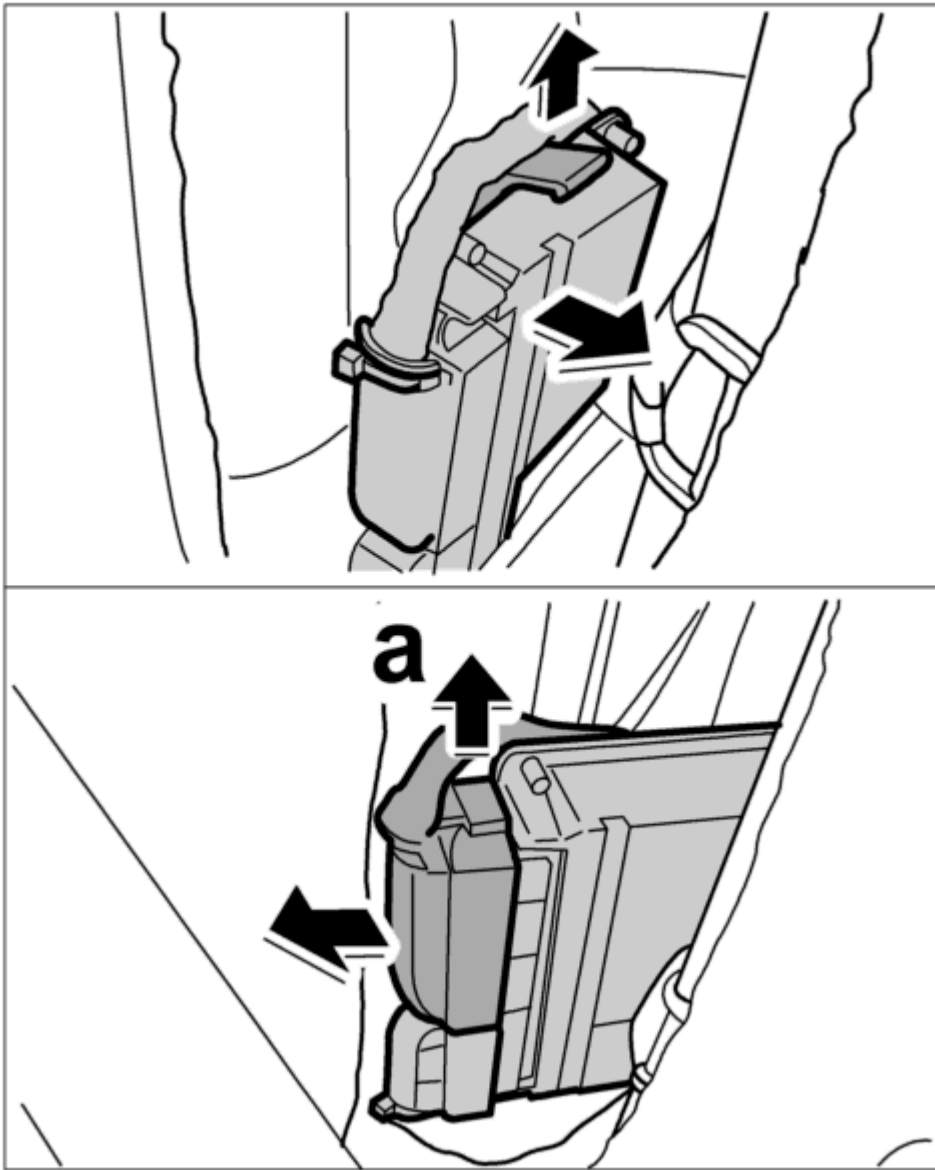


Fig. 59: Pull plug off at the top of the level control module.
Courtesy of PORSCHE OF NORTH AMERICA, INC.

3. Pull up the clip of the control module holder and tilt the control module out of the holder.
4. Pull the latch of the upper electrical plug upwards -a- and remove plug. See **Fig. 59**.

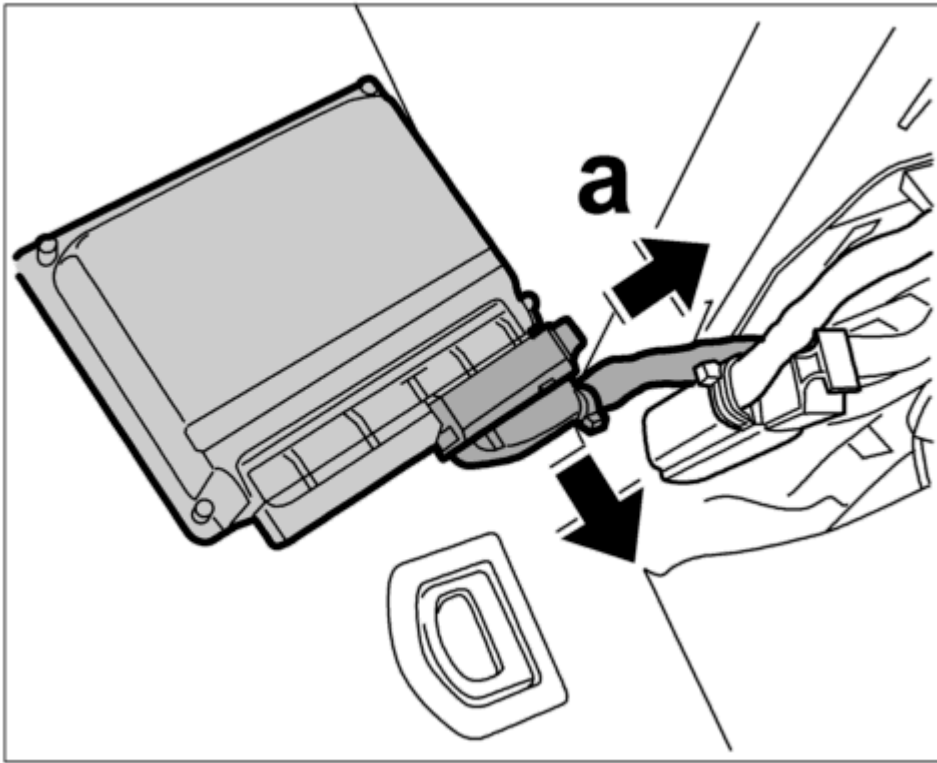


Fig. 60: Pull plug off at the bottom of the level control module.
Courtesy of PORSCHE OF NORTH AMERICA, INC.

5. Pull out control module and pull the latch on the electrical plug -a- and remove plug. See **Fig. 60.**

INSTALLING THE LEVEL CONTROL MODULE

Installing the level control module

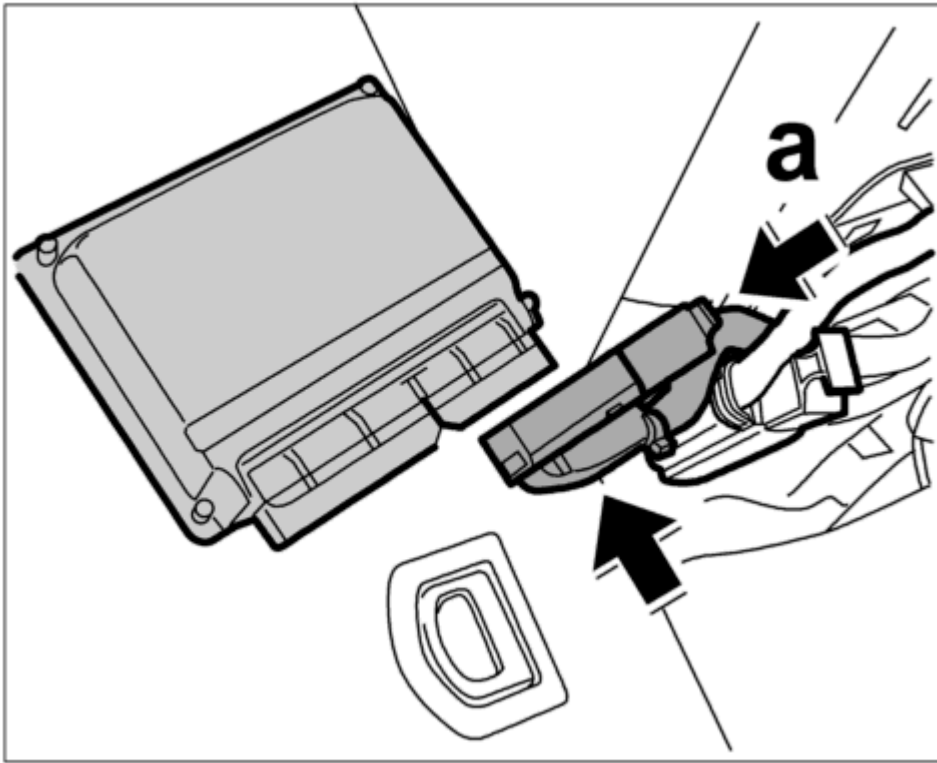


Fig. 61: Push plug on at the bottom of the level control module.
Courtesy of PORSCHE OF NORTH AMERICA, INC.

1. First place the smaller plug on the control module and slide in the latch -a- . See **Fig. 61.**

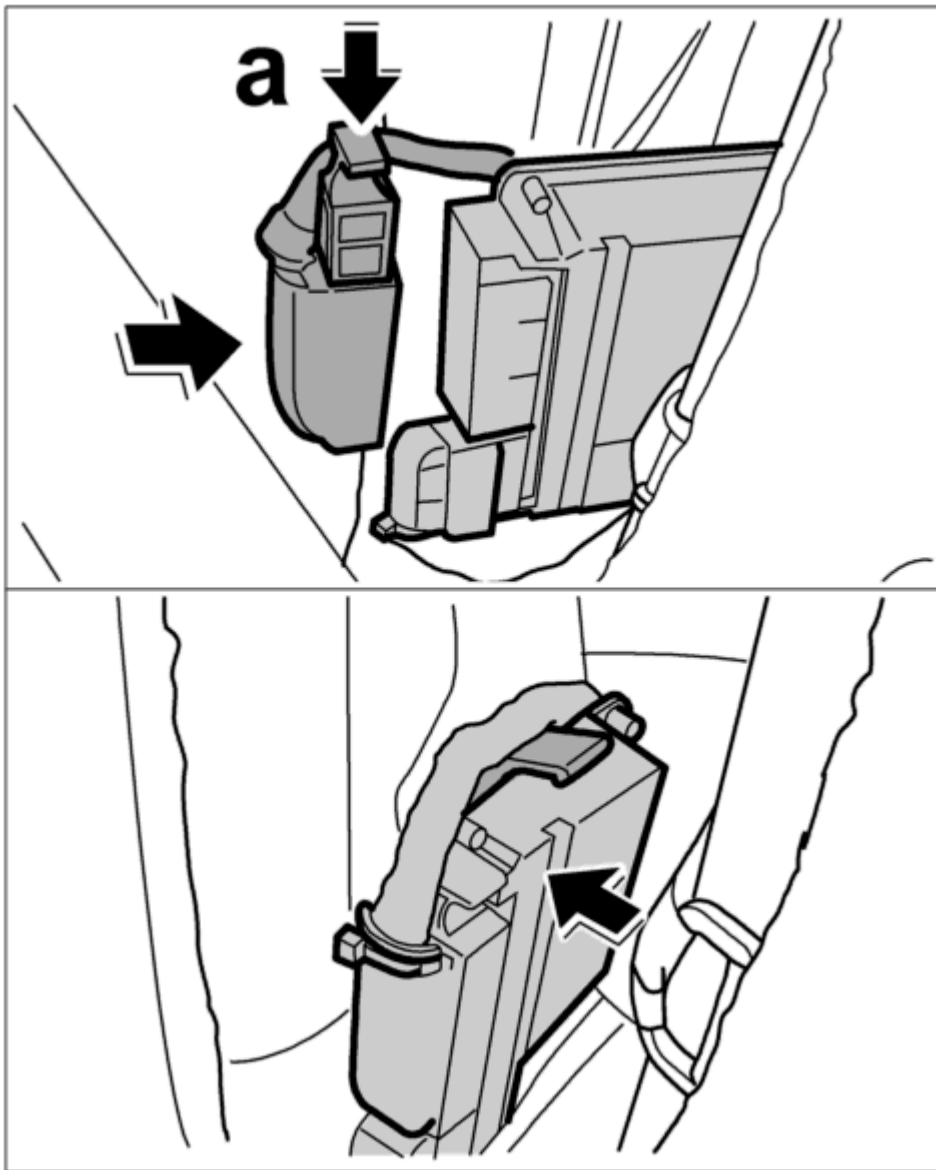


Fig. 62: Push plug on at the top of the level control module.

Courtesy of PORSCHE OF NORTH AMERICA, INC.

2. Position the control module in the installation position and insert the second plug on the control module and lock it -a- . See **Fig. 62.**
3. Code level control module. --> **431619 Removing and installing level control system control module - "Coding"**
4. Calibrate the level control module --> **431619 Removing and installing level control system control module - "Calibrating"**
5. Insert the control module into the holder and position with the clip.

2006 Porsche Cayenne

2003-2008 SUSPENSION Level Control

6. Store the emergency kit and warning triangle and place on the cover of the right rear side section trim.

CODING LEVEL CONTROL MODULE

Coding level control module

NOTE:

- *During coding, it is essential to guarantee the power supply for the*
- *The PIWIS Tester P 9718 instructions take precedence and in the event of a discrepancy these are the instructions that must be followed. Deviations may occur with later software versions.*
- *The procedure described here has been structured in general terms; different text or additions may appear in the PIWIS tester P 9718.*

PIWIS Tester P 9718. It is essential to connect a battery charger with a current rating of at least 40 A to the vehicle battery.

1. Connect the PIWIS tester P 9718 to the vehicle and start it. Switch on the ignition. >> Continue.
2. Select **vehicle type** using the cursor keys.
3. Using the >> key, move from the vehicle type to the list of control modules.
4. Select **Level control** and press the >>.
5. Select **Coding** and press the >>.
6. Select **Select country** and code with the F8.

Select country
Cayenne RoW
Cayenne Thailand

7. Read out fault memory and erase if required.

CALIBRATING THE LEVEL CONTROL MODULE

Calibrating the level control module

NOTE:

- *During coding, it is essential to guarantee the power supply for the*
- *The PIWIS Tester P 9718 instructions take precedence and in the event of a discrepancy these are the instructions that must be followed. Deviations may occur with later software versions.*
- *The procedure described here has been structured in general terms; different text or additions may appear in the PIWIS tester P 9718.*

2006 Porsche Cayenne

2003-2008 SUSPENSION Level Control

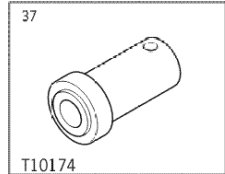
PIWIS Tester P 9718. It is essential to connect a battery charger with a current rating of at least 40 A to the vehicle battery.

Information, measuring points, procedure, and conditions for calibration: --> **Calibration.**

1. Connect the **PIWIS tester P 9718** to the vehicle and start it. Switch on the ignition. >> Continue.
2. Select **vehicle type** using the cursor keys.
3. Using the >> key, move from the vehicle type to the list of control modules.
4. Select **Level control** and press the >>.
5. Select **Actual values** and press the >>.
6. Select the **Actual values** menu and display the safety code. Then read out the safety code and make note of it.
7. Select the menu **Calibration** , enter the safety code and carry out the Calibration function. Follow the instructions on the PIWIS tester.
8. Read out fault memory and erase if required.

43 25 19 REMOVING AND INSTALLING REAR SPRING STRUT (AIR SPRINGS) - AS OF MY 2003 (ALL MODELS EXCEPT CAYENNE S TIO TITAN)

TOOLS

Designation	Type	Number	Explanation	
insert part	VW-tool	T10212		

PRELIMINARY WORK

Preliminary work

CAUTION: Increased risk of accidents due to raising the wheel carrier incorrectly.

- **Injury and material damage possible.**

--> Do not raise the wheel suspension higher than the normal vehicle position (vehicle resting on wheels). When raising the suspension, use a suitable intermediate layer (hard rubber).

2006 Porsche Cayenne

2003-2008 SUSPENSION Level Control

--> Do not damage the brake cover plate.

The relevant wheel must be removed when carrying out repairs to avoid damaging the drive shaft.

1. Remove wheel Refer to **44 05 19 Removing and installing wheel - as of MY 2003 (All Models)** .

REMOVING REAR SPRING STRUT

Removing rear spring strut

Installation Location:

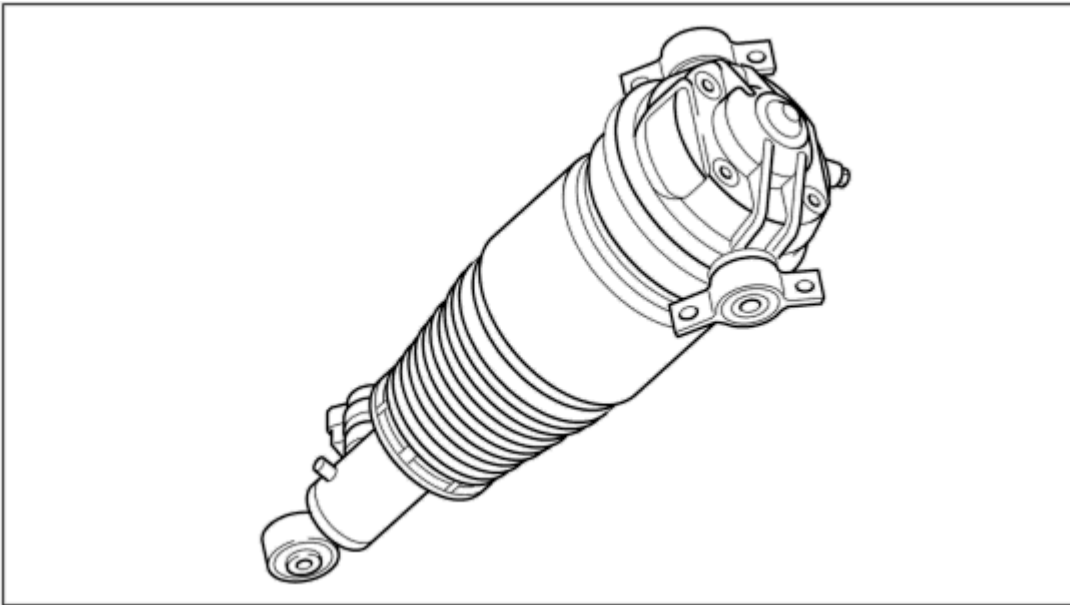


Fig. 63: Air-spring strut at rear

Courtesy of PORSCHE OF NORTH AMERICA, INC.

2006 Porsche Cayenne

2003-2008 SUSPENSION Level Control

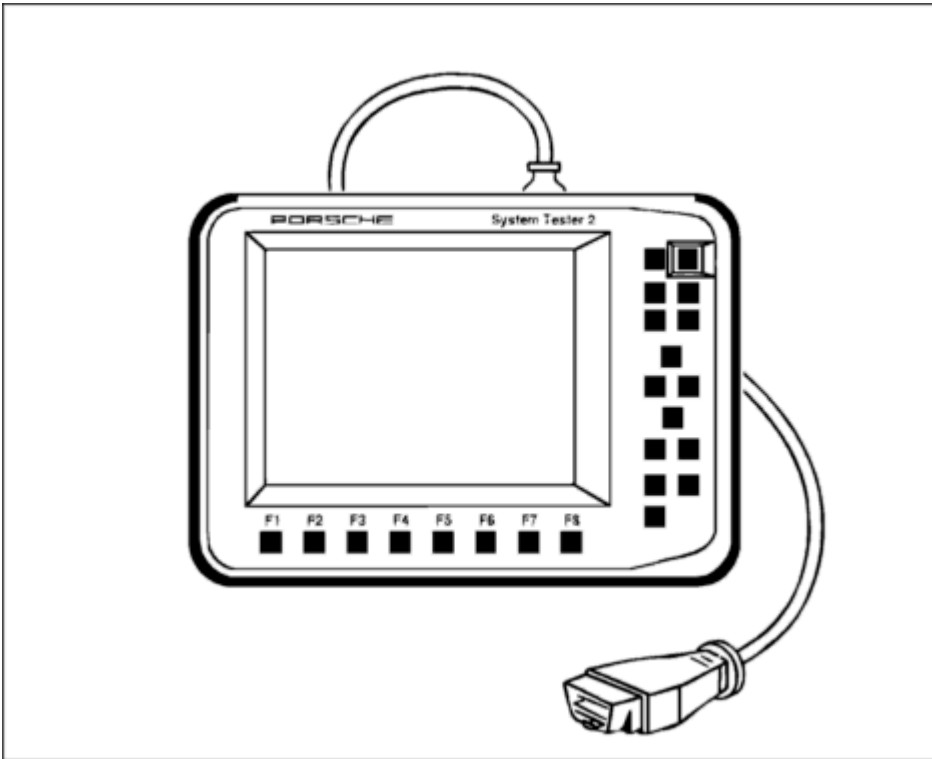


Fig. 64: Porsche System Tester

Courtesy of PORSCHE OF NORTH AMERICA, INC.

1. To bleed the level adjustment system (compressed air must be released from the system), use the Porsche System Tester. To do this, select the Bleed level adjustment menu item in the Level adjustment system.
2. Fit protective tube on drive shaft (shop-made to protect the drive shaft).

2006 Porsche Cayenne

2003-2008 SUSPENSION Level Control

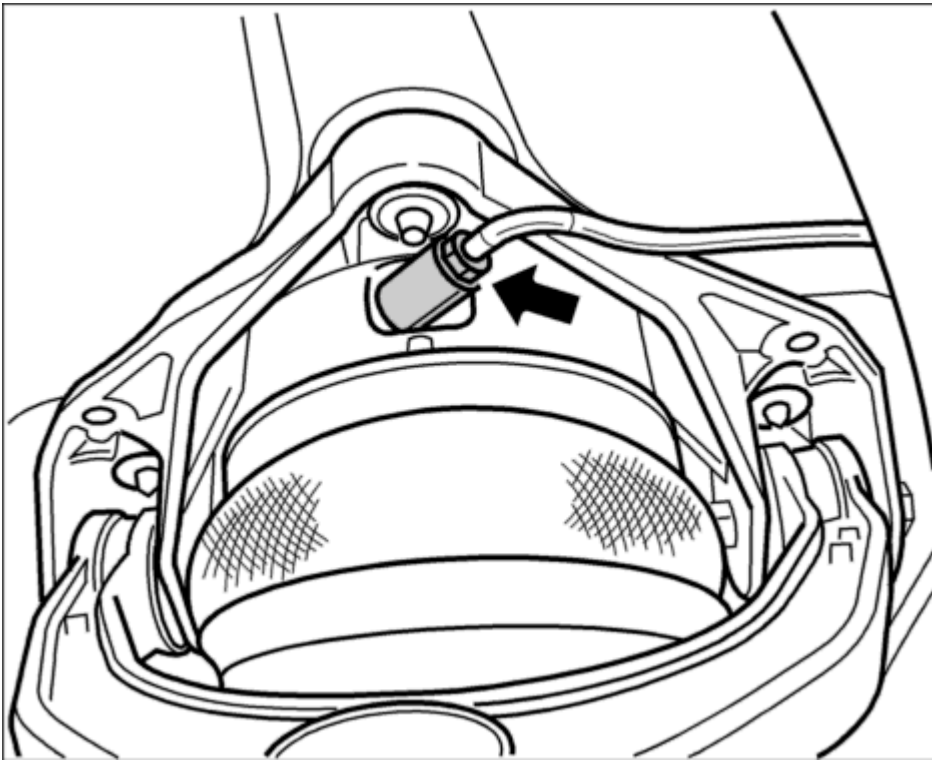


Fig. 65: Pressure line on residual pressure retaining valve
Courtesy of PORSCHE OF NORTH AMERICA, INC.

3. Loosen pressure line on residual pressure retaining valve -**arrow**- using **insert part T10212** (front spring strut connection in figure). Then, unclip the pressure line from the holders and set it aside. See **Fig. 65**.

2006 Porsche Cayenne

2003-2008 SUSPENSION Level Control

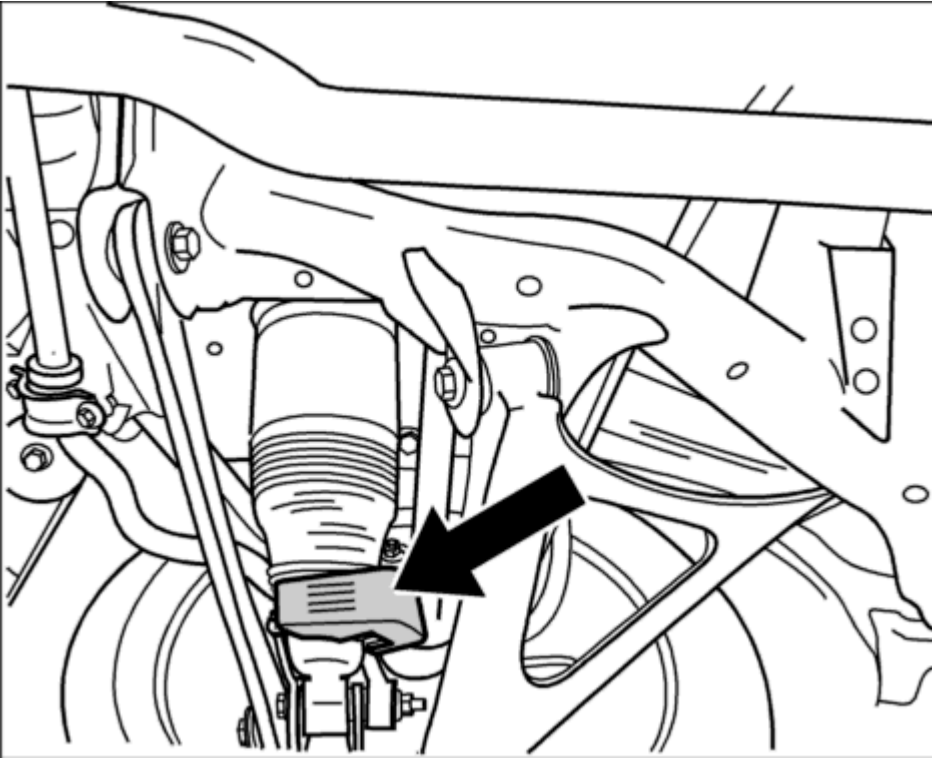


Fig. 66: Stone guard for CDC sensor

Courtesy of PORSCHE OF NORTH AMERICA, INC.

4. Remove stone guard for CDC sensor -**arrow**- . See **Fig. 66**.

2006 Porsche Cayenne

2003-2008 SUSPENSION Level Control

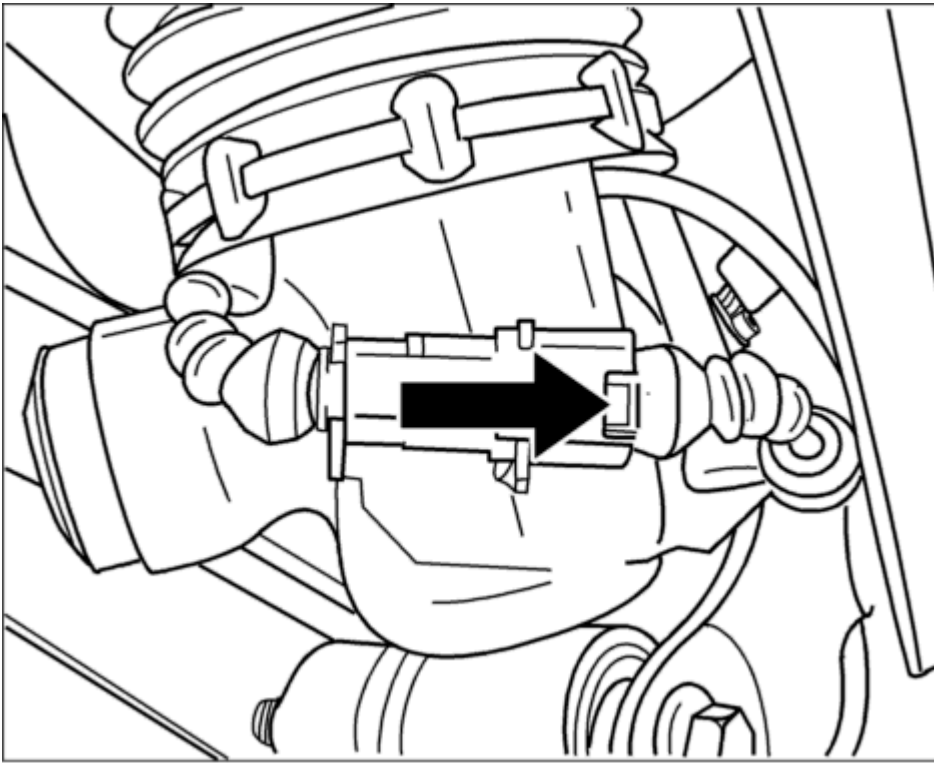


Fig. 67: CDC sensor plug connection

Courtesy of PORSCHE OF NORTH AMERICA, INC.

5. Disconnect CDC sensor plug connection -**arrow**- , remove the cable from the holder, and set the cable aside. See **Fig. 67**.

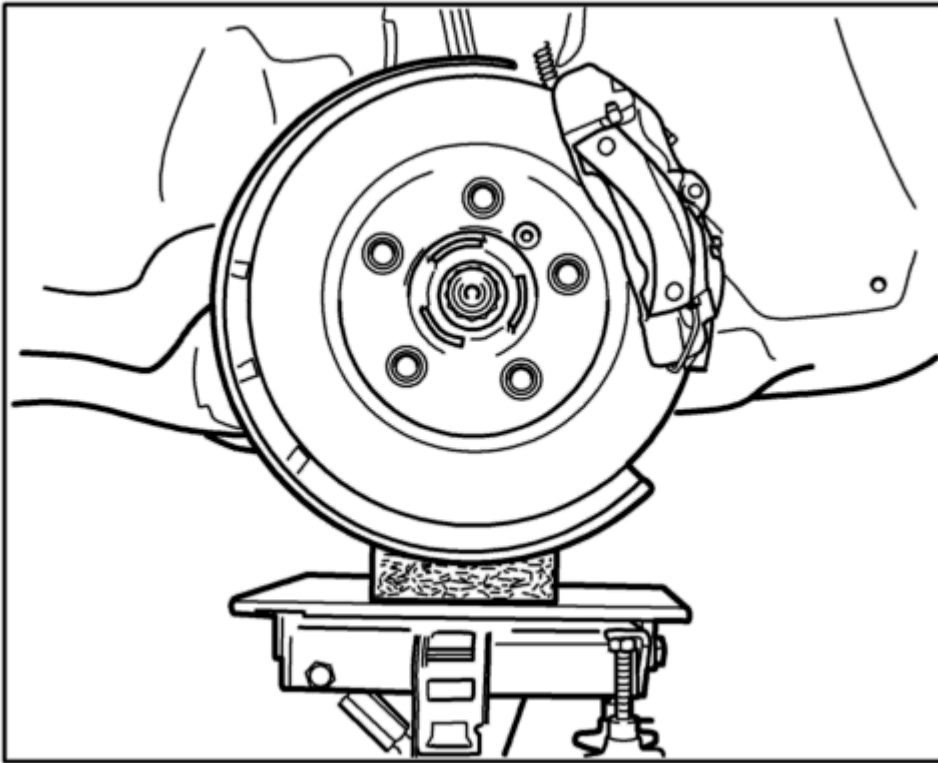


Fig. 68: Supporting wheel with rubber based lift (prevent slipping)
Courtesy of PORSCHE OF NORTH AMERICA, INC.

6. Remove the fastening screw for the connecting link/spring strut on the wheel carrier. To do this, use a suitable lift with rubber base in order to prevent slipping. Lay the connecting link aside. See **Fig. 68**.

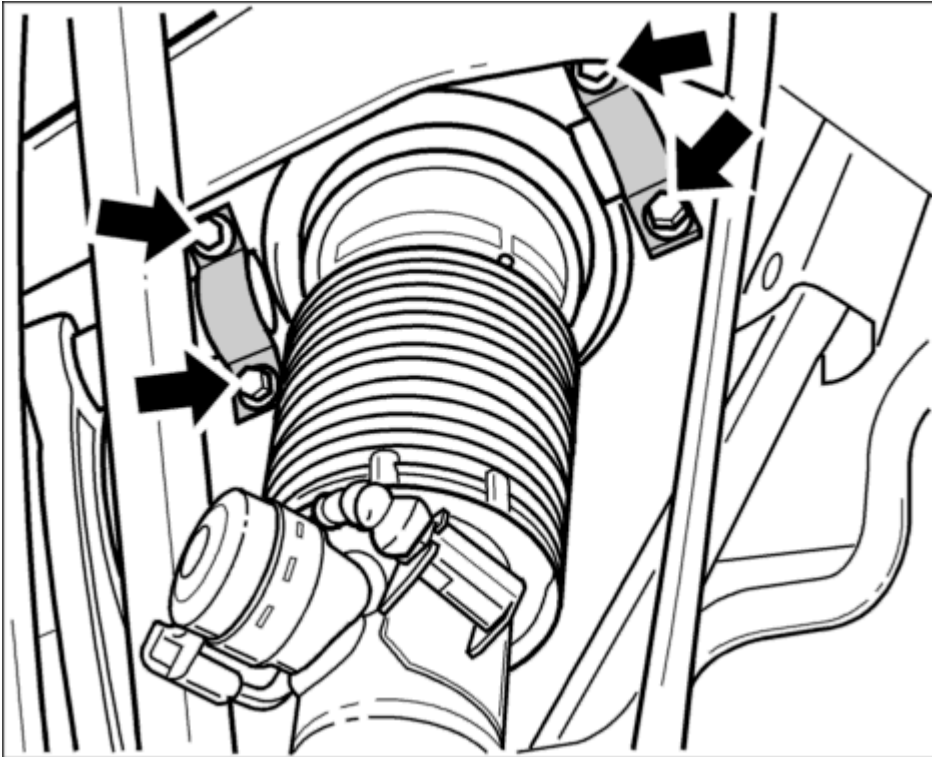


Fig. 69: Spring strut fastening screws (top)

Courtesy of PORSCHE OF NORTH AMERICA, INC.

7. Remove the four fastening screws (top) -arrows- . See **Fig. 69**.

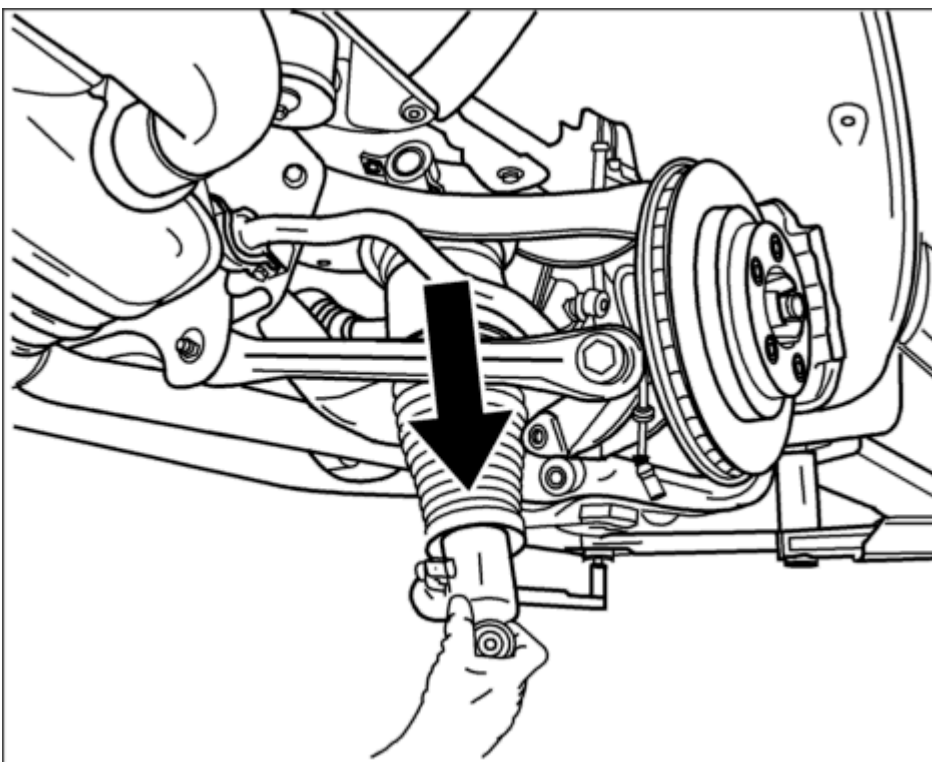


Fig. 70: Removing spring strut

Courtesy of PORSCHE OF NORTH AMERICA, INC.

8. Carefully remove spring strut downwards -**arrow**- . See **Fig. 70**.

INSTALLING REAR SPRING STRUT

Installing rear spring strut

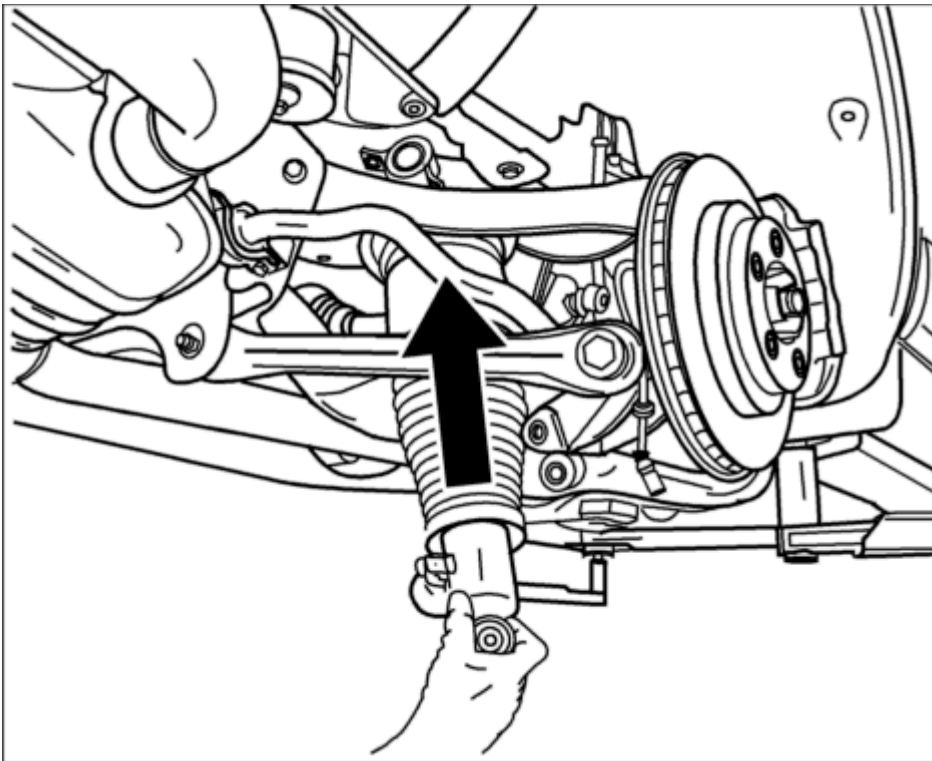


Fig. 71: Installing rear spring strut

Courtesy of PORSCHE OF NORTH AMERICA, INC.

CAUTION: Increased risk of accident due to raising the wheel carrier incorrectly.
When filling the air spring struts, the vehicle lifts.

- Injury and material damage possible.

--> Do not raise the wheel suspension higher than the normal vehicle position (vehicle resting on wheels). When raising the suspension, use a suitable intermediate layer (hard rubber).

--> Do not damage the brake cover plate.

NOTE:

- *Do not raise the wheel suspension higher than the normal vehicle position (vehicle resting on wheels). When raising the suspension, use a suitable intermediate layer (hard rubber).*

- *Do not damage the brake cover plate.*
- *The entire threaded parts of the axle must be tightened in vehicle position! Vehicle position means: vehicle standing on the wheels, or the wheel suspension is being raised with a universal vehicle lift! Dimension -X- , from lower edge of wing to middle of axle $506 \text{ mm} \pm 10 \text{ mm}$ corresponds to vehicle position! See Fig. 72.*
- *Carry out a visual inspection of all parts!*
- *Replace self-locking nuts!*
- *If a new spring strut is fitted, it must be pre-filled to 3 bar in its original packaging --> Filling specification for air-spring strut.*
- *Replace all expansion screws (screws which are fitted with torque angle tightening procedure)!*
- *Use correct tightening torques and torque angle! Refer to 42 TW Tightening torques for rear axle - as of MY 2003 (All Models) .*

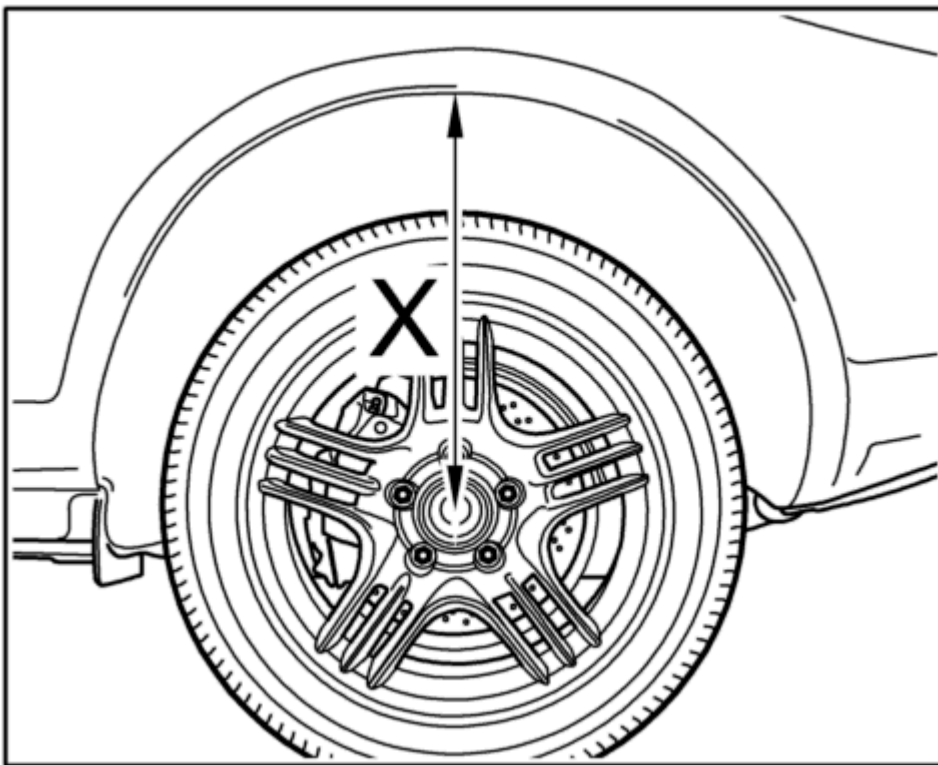


Fig. 72: Axle must be tightened in vehicle position (Dimension -X-)
Courtesy of PORSCHE OF NORTH AMERICA, INC.

1. Insert spring strut into vehicle.

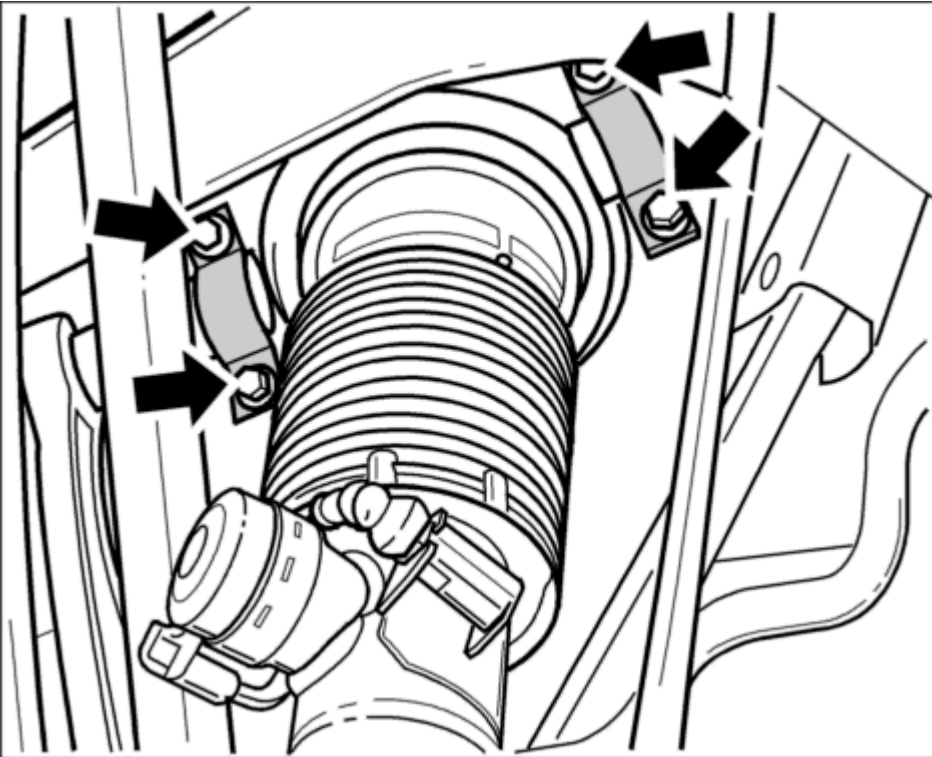


Fig. 73: Spring strut fastening screws (top)
Courtesy of PORSCHE OF NORTH AMERICA, INC.

2. Fit the four fastening screws -**arrows**- . See **Fig. 73**.

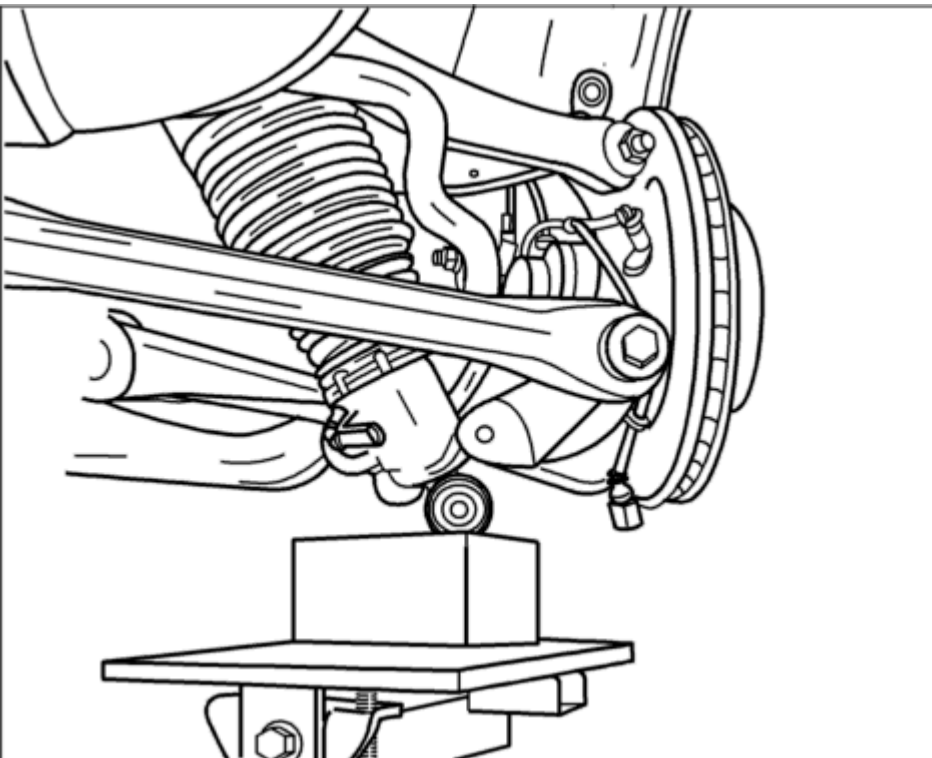


Fig. 74: Raising air spring strut using a suitable lift with rubber base
Courtesy of PORSCHE OF NORTH AMERICA, INC.

3. Carefully raise the air spring strut using a suitable lift with rubber base. Then, pull the wheel carrier downwards in order to fit the fastening screw. See **Fig. 74**.

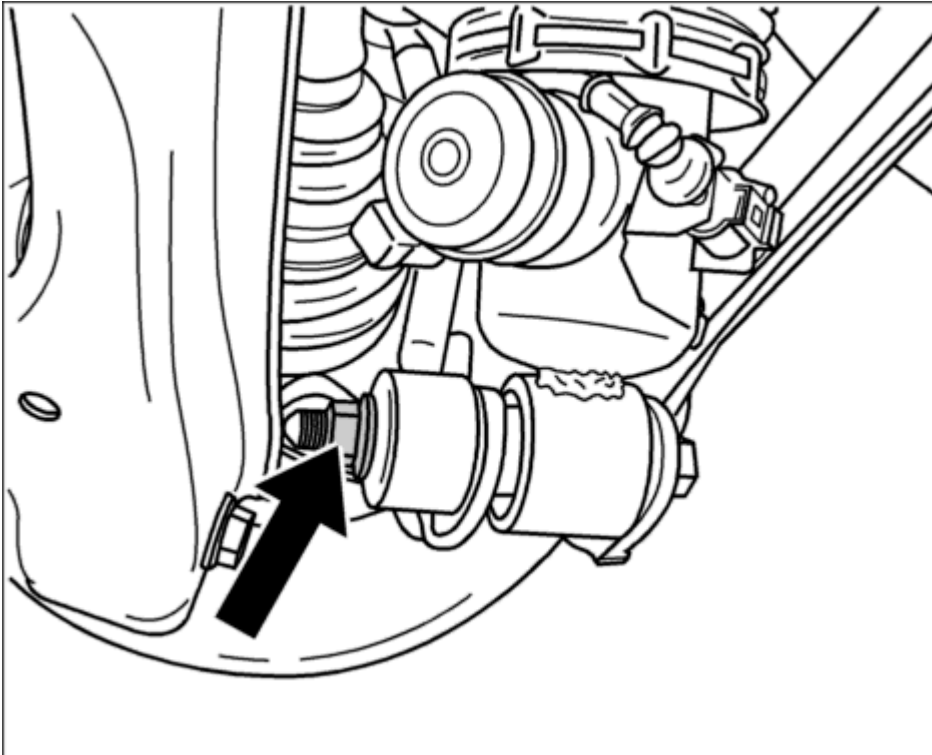


Fig. 75: Lower connecting link/spring strut fastener
Courtesy of PORSCHE OF NORTH AMERICA, INC.

4. Attach the fastening screw for the connecting link/spring strut -**arrow**- to the wheel carrier. See **Fig. 75**.

2006 Porsche Cayenne

2003-2008 SUSPENSION Level Control

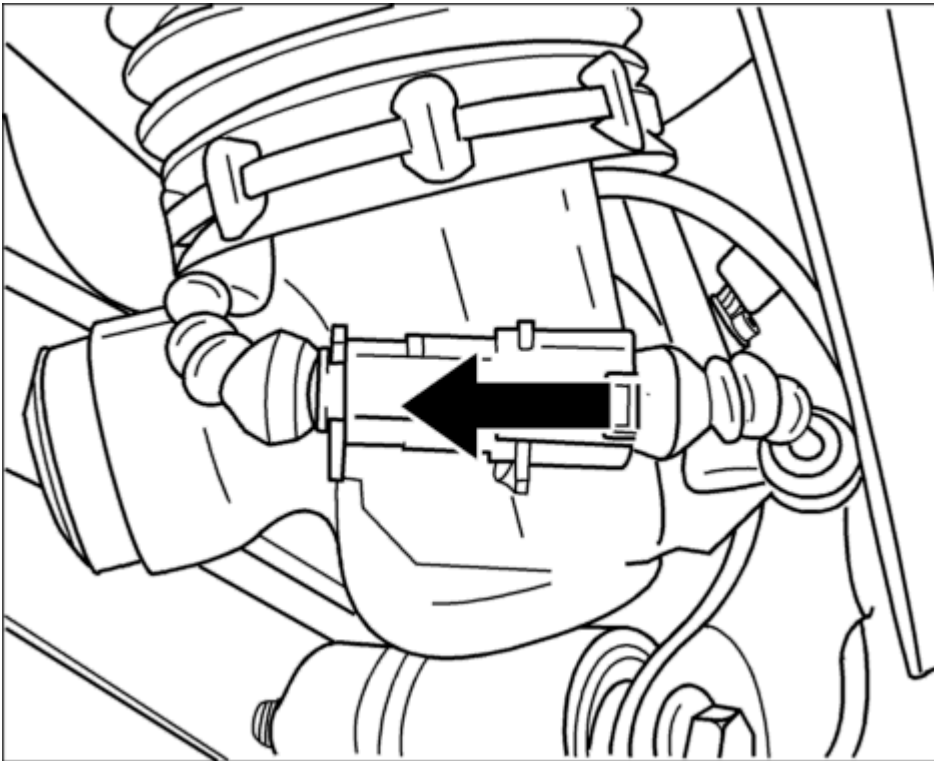


Fig. 76: Connecting CDC sensor plug connector

Courtesy of PORSCHE OF NORTH AMERICA, INC.

5. Connect the CDC sensor plug connection to the lower part of the spring strut **-(arrow)-** . Insert cable into the holders. See **Fig. 76**.

2006 Porsche Cayenne

2003-2008 SUSPENSION Level Control

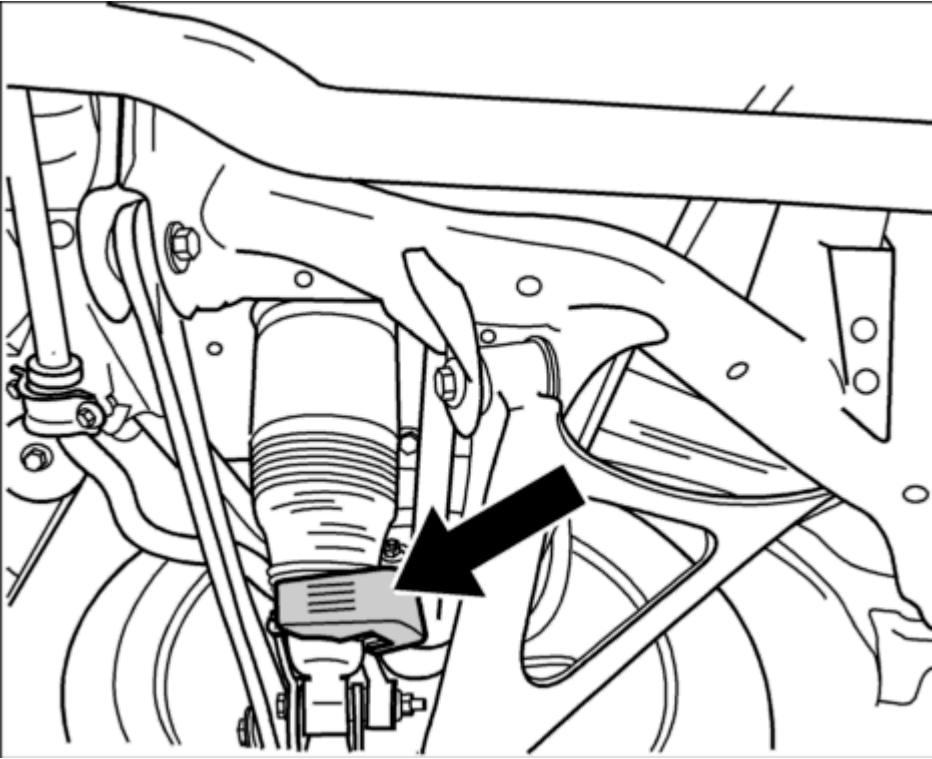
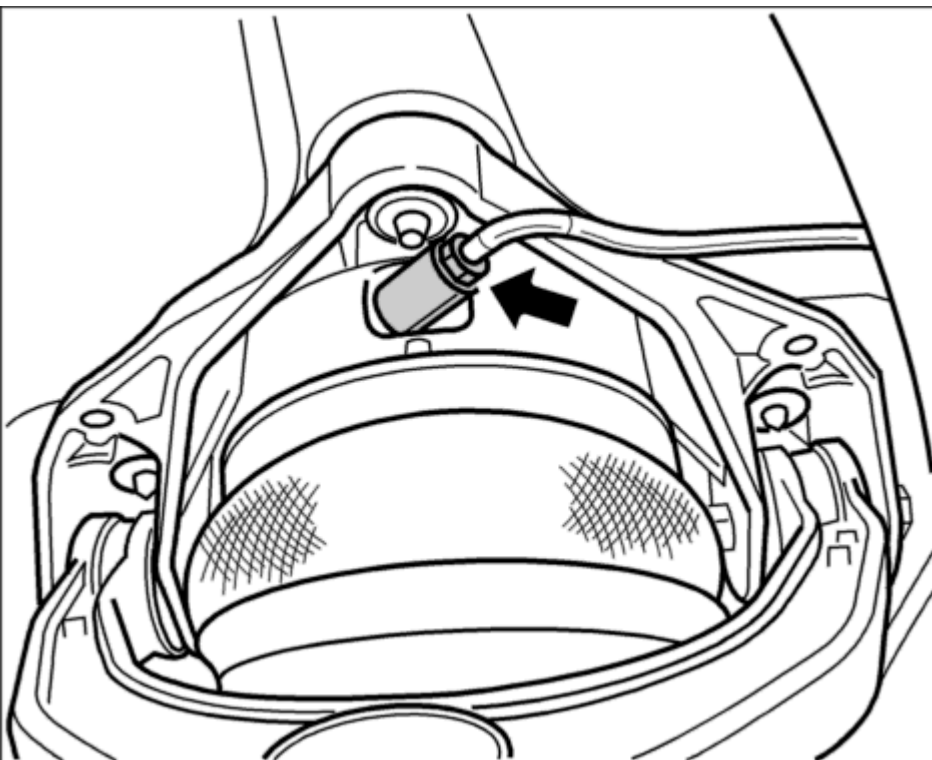


Fig. 77: Stone guard for CDC sensor

Courtesy of PORSCHE OF NORTH AMERICA, INC.

6. Fit stone guard for CDC sensor -**arrow**- . See **Fig. 77**.



2006 Porsche Cayenne

2003-2008 SUSPENSION Level Control

Fig. 78: Pressure line on residual pressure retaining valve

Courtesy of PORSCHE OF NORTH AMERICA, INC.

7. Fit pressure pipe to residual-pressure retaining valve using insert part T10212 --> **Tightening torques [9PAAD1 9PAAD7 9PAAE1 9PAAE7 9PAAF1]**. Then clip the pressure line into the retaining devices.
8. Remove protective tube from drive shaft.

SUBSEQUENT WORK

Subsequent work

1. Fit wheel Refer to **44 05 19 Removing and installing wheel - as of MY 2003 (All Models)** .

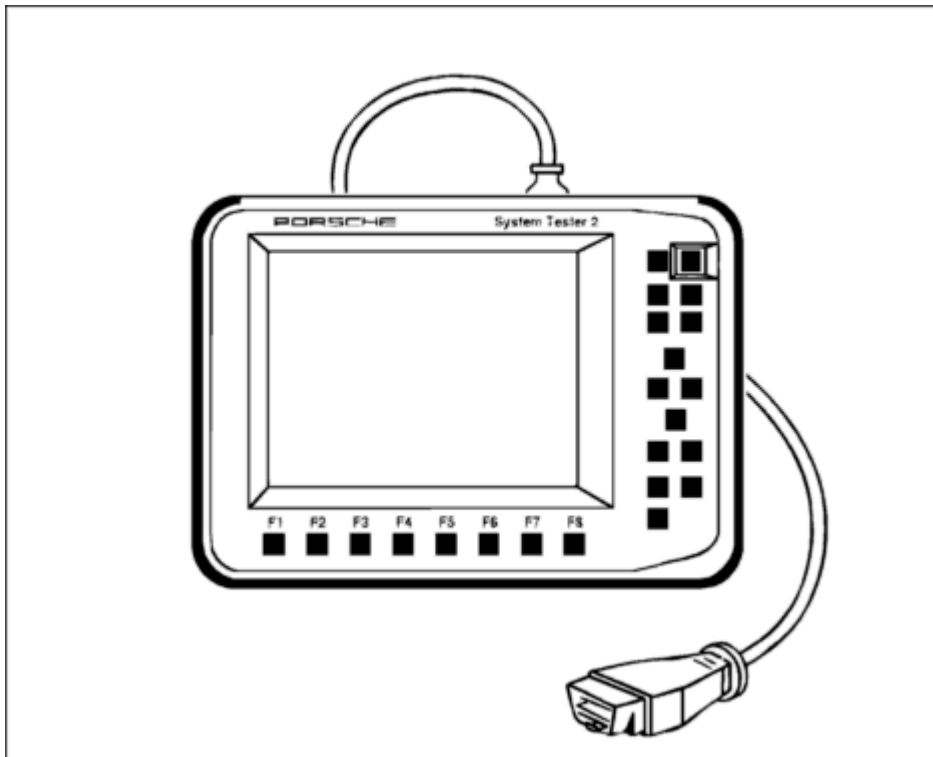


Fig. 79: Porsche System Tester

Courtesy of PORSCHE OF NORTH AMERICA, INC.

2. To fill the air suspension (the system must be filled with compressed air), use the **-Porsche System Tester-** . To do this, select the menu item Fill air suspension in the Air suspension system. See **Fig. 79**.
3. Switch on level adjustment Refer to **40 V0 Lifting the vehicle - as of MY 2003 (Cayenne Turbo S, Cayenne S TIO Titan)** . Refer to **40 V0 Lifting the vehicle - as of MY 2003 (Cayenne TIP, Cayenne MAN, Cayenne S TIP, Cayenne S MAN, Cayenne Turbo)** .

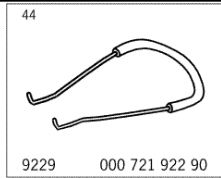
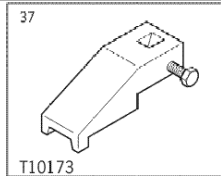
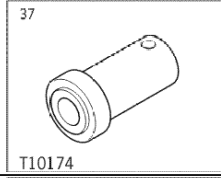
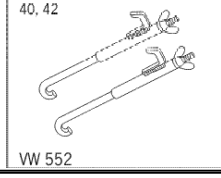
43 30 19 REMOVING AND INSTALLING FRONT SPRING STRUT (AIR

2006 Porsche Cayenne

2003-2008 SUSPENSION Level Control

SPRINGS) - AS OF MY 2003 (ALL MODELS EXCEPT CAYENNE S TIO TITAN)

TOOLS

Designation	Type	Number	Explanation	
protective tube (shop made)	commercially available tool	00000		
puller hook	special tool	9229		
universal drive shaft/wheel hub puller as of model '86	commercially available tool	NR.87-1		
press-out tool	VW-tool	T10187		
assembly fixture	VW-tool	T10206		
insert part	VW-tool	T10212		
spring compressor	VW-tool	VW 552		

PRELIMINARY WORK

Preliminary work

1. Remove cowl panel Refer to **66 44 19 Removing and installing cowl panel cover - as of MY 2003 (All Models)** .
2. Remove the relevant engine compartment side cover Refer to **70 02 19 Removing and installing front cover (engine compartment) - as of MY 2003 (All Models)** .

2006 Porsche Cayenne

2003-2008 SUSPENSION Level Control

3. Remove hub cap using **puller hook 9229** and undo drive shaft fastening at the side of the wheel before raising the vehicle. Operate the brake whilst doing so (second fitter required).

4. Remove wheel Refer to **44 05 19 Removing and installing wheel - as of MY 2003 (All Models)** .

REMOVING FRONT SPRING STRUT

Removing front spring strut

The air springs are installed as standard in the Cayenne Turbo and are optional in the Cayenne S. The steel springs are not applicable for the Cayenne Turbo.

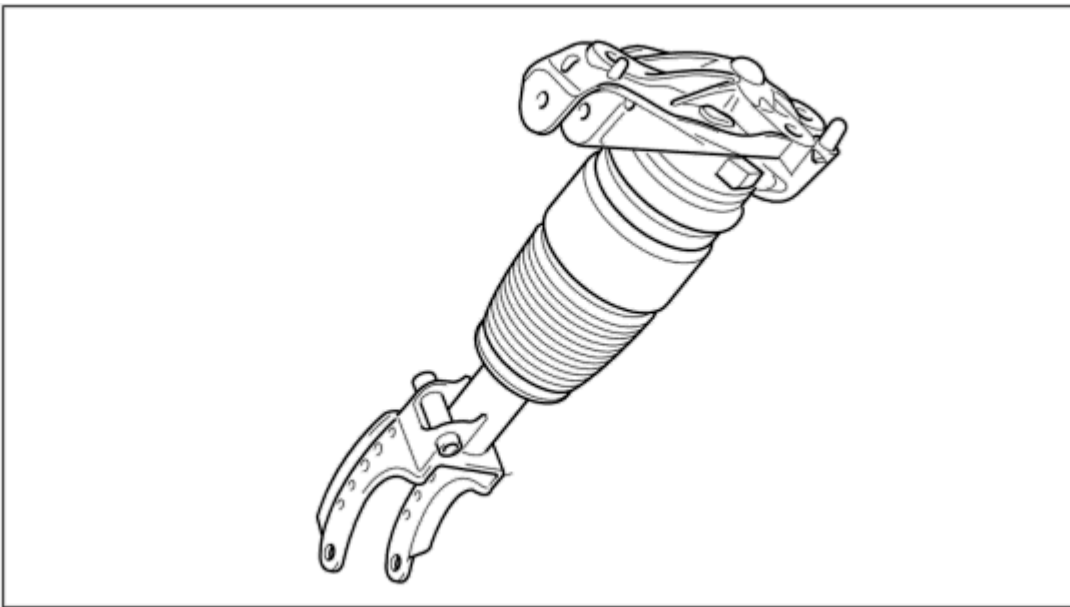


Fig. 80: Front spring strut

Courtesy of PORSCHE OF NORTH AMERICA, INC.

CAUTION: Increased risk of accident due to raising the wheel carrier incorrectly.

- **Injury and material damage possible.**

--> Do not raise the wheel suspension higher than the normal vehicle position (vehicle resting on wheels). When raising the suspension, use a suitable intermediate layer (hard rubber).

--> Do not damage the brake cover plate.

When fitting/removing the air spring strut, the drive shaft is removed and installed.

2006 Porsche Cayenne

2003-2008 SUSPENSION Level Control

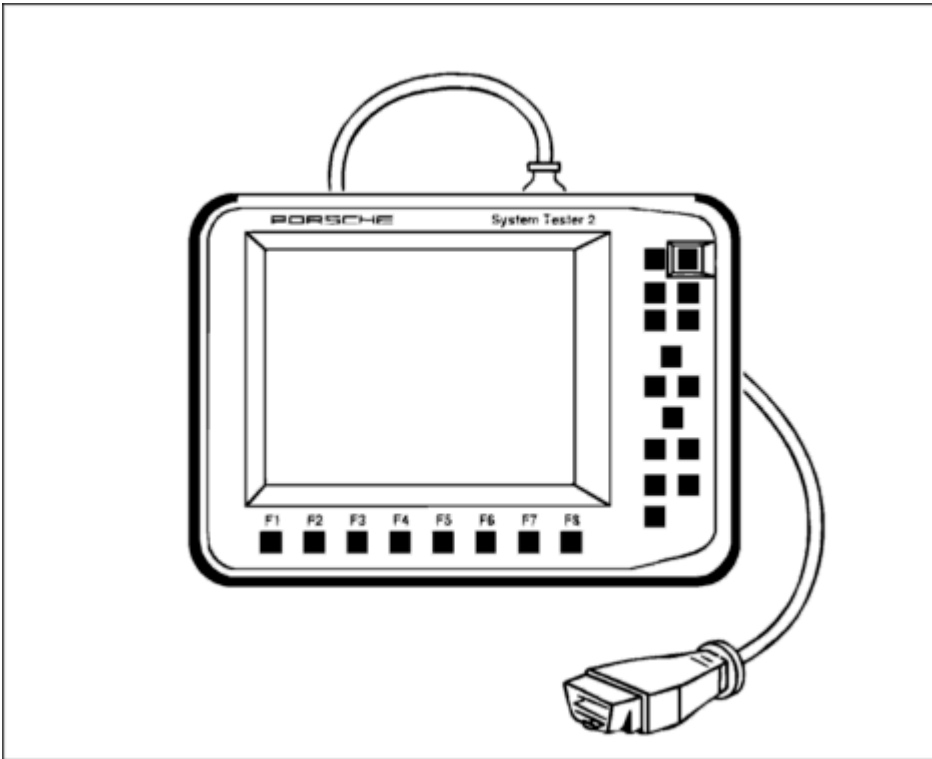


Fig. 81: Porsche System Tester

Courtesy of PORSCHE OF NORTH AMERICA, INC.

1. To bleed the level adjustment system (compressed air must be released from the system), use the Porsche System Tester. To do this, select the Bleed level adjustment menu item in the Level adjustment system.

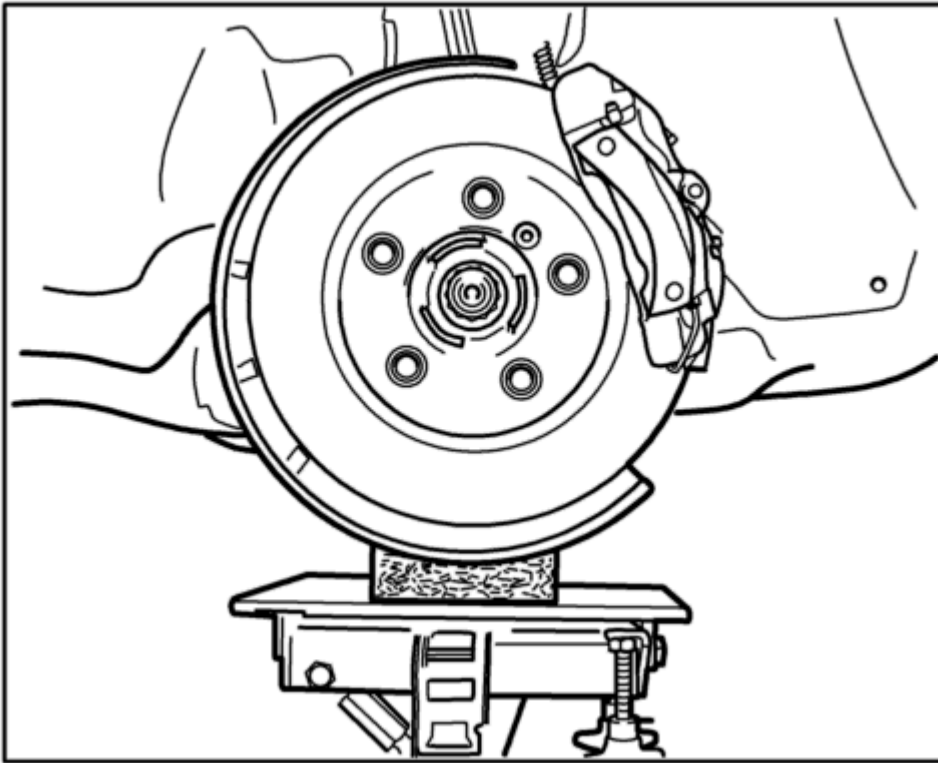


Fig. 82: Supporting wheel with rubber based lift (prevent slipping)
Courtesy of PORSCHE OF NORTH AMERICA, INC.

2. Lift wheel carrier carefully to facilitate removal. Use a suitable lift with rubber base in order to prevent slipping. See **Fig. 82**.

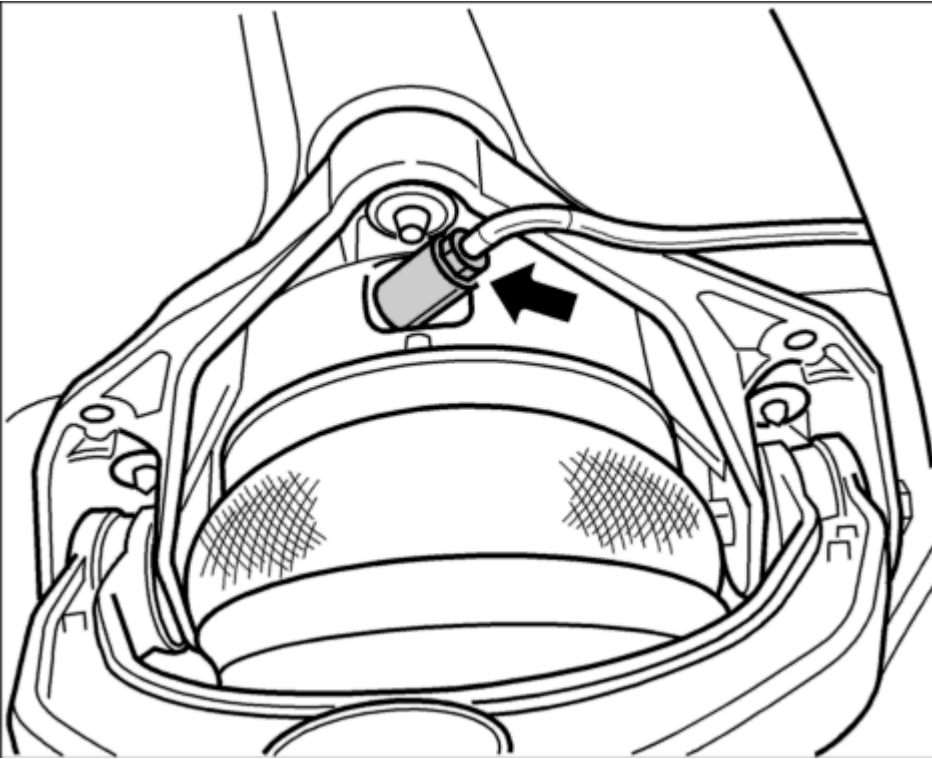


Fig. 83: Pressure line on residual pressure retaining valve
Courtesy of PORSCHE OF NORTH AMERICA, INC.

3. Loosen pressure line at the residual pressure retaining valve -**arrow**- using **insert part T10212**. See **Fig. 83**.

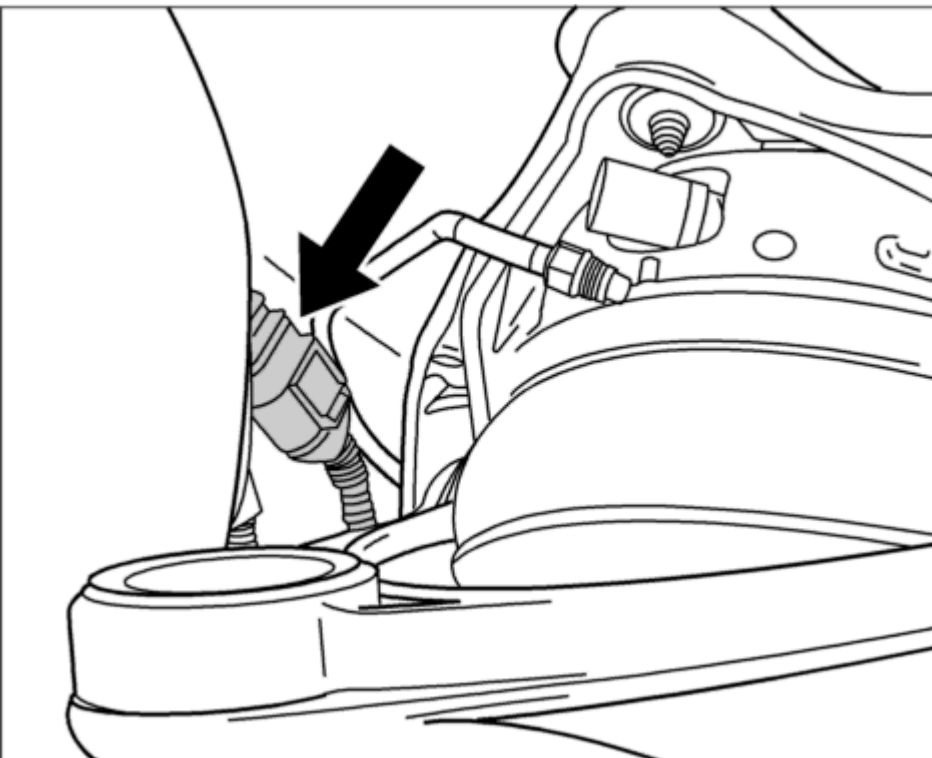


Fig. 84: Location of compact connector

Courtesy of PORSCHE OF NORTH AMERICA, INC.

4. Separate compact connector (in wheel housing on side member) -**arrow**- and the plug connections for the wheel acceleration sensor and self-levelling sensor. See **Fig. 84**.

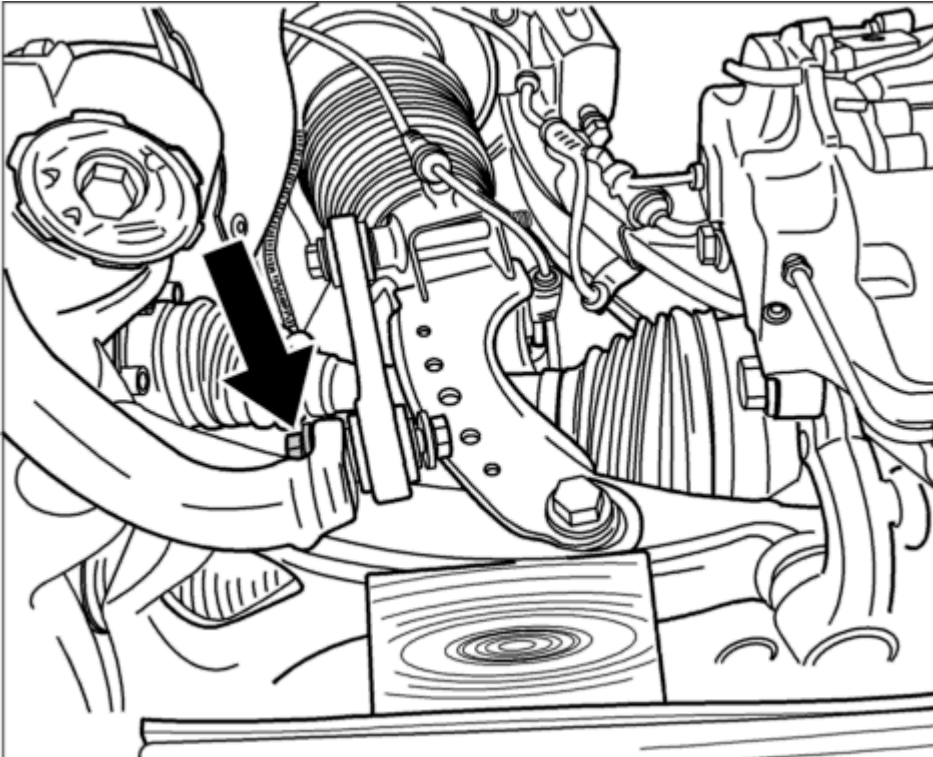


Fig. 85: Lower connecting link

Courtesy of PORSCHE OF NORTH AMERICA, INC.

5. Remove lower connecting link -**arrow**- using the lift to support the wheel carrier (assembly aid). See **Fig. 85**.

2006 Porsche Cayenne

2003-2008 SUSPENSION Level Control

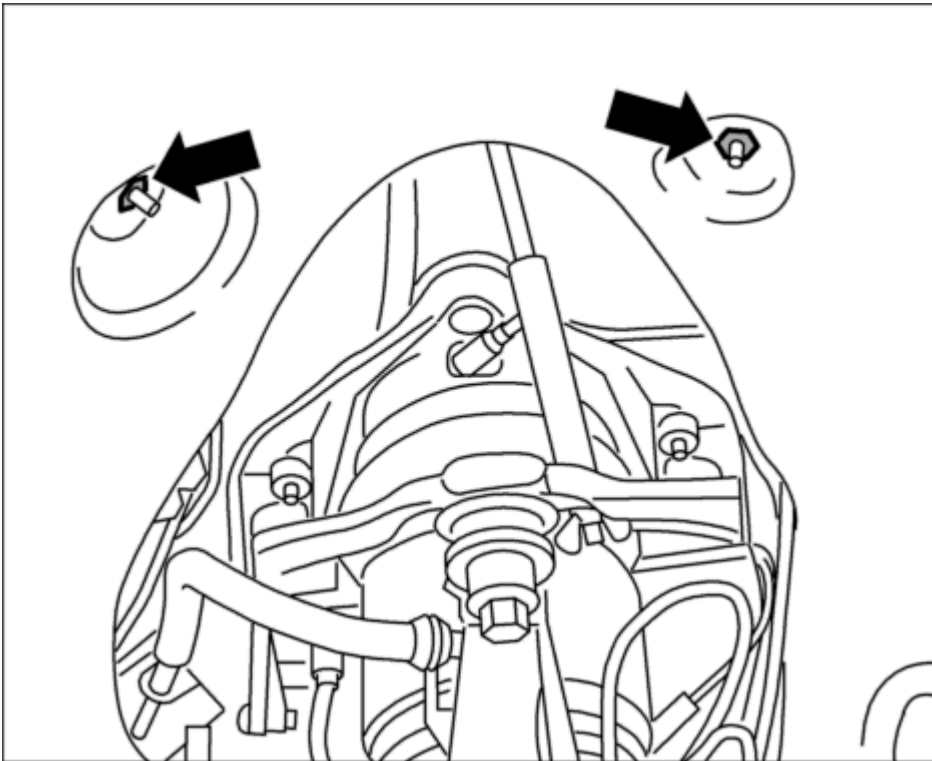


Fig. 86: Wheel housing liner plastic nut fasteners

Courtesy of PORSCHE OF NORTH AMERICA, INC.

6. Unscrew plastic nuts -**arrows**- on wheel housing liner. See **Fig. 86**.

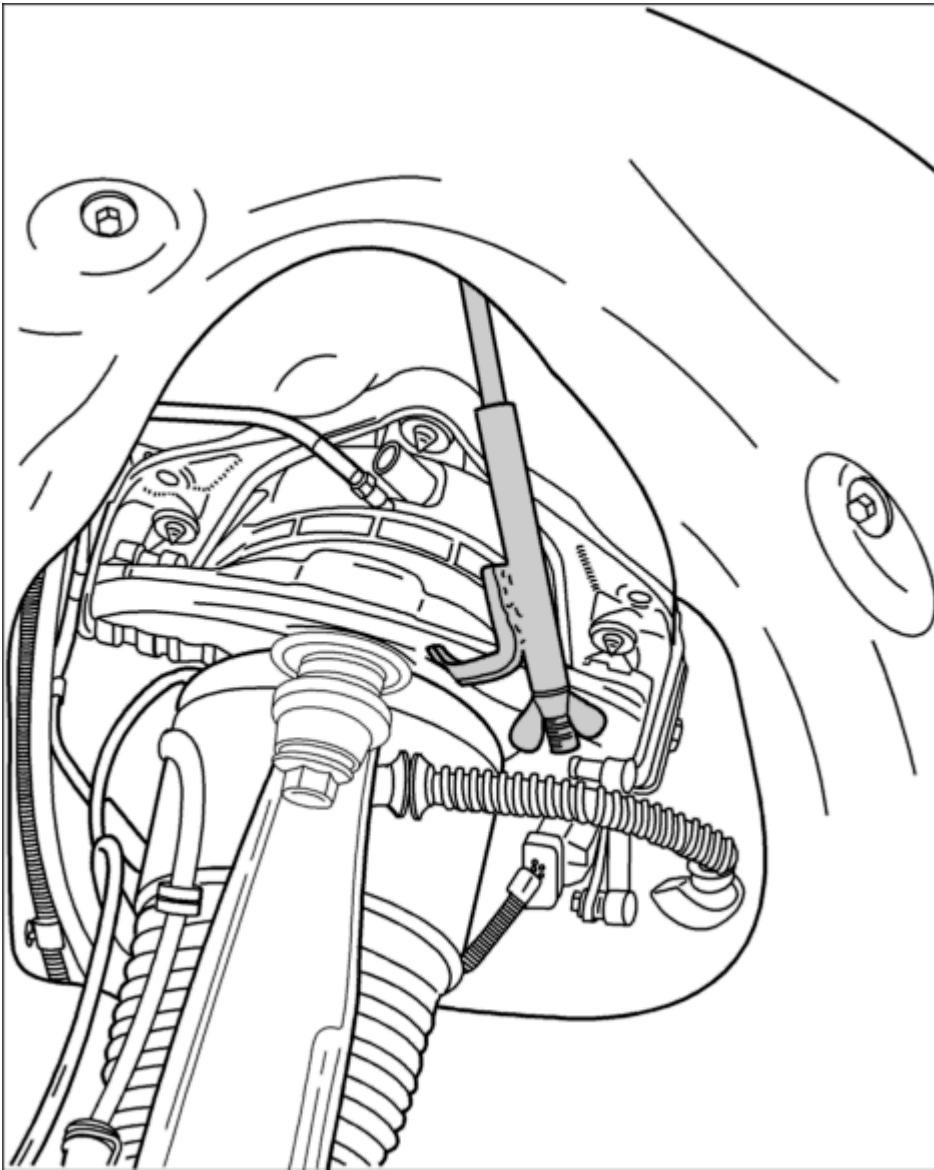


Fig. 87: Affix upper trailing arm using spring compressor VW 552
Courtesy of PORSCHE OF NORTH AMERICA, INC.

7. Fix upper trailing arm using **spring compressor VW 552**. This involves tensioning the trailing arm slightly because otherwise the top ball joint can be damaged. Insert the spring compressor into the top opening of the wheel housing (double panel under the wheel housing cover) and attach it to the trailing arm. This is only necessary if the same control arm is reinstalled. See **Fig. 87**.

2006 Porsche Cayenne

2003-2008 SUSPENSION Level Control

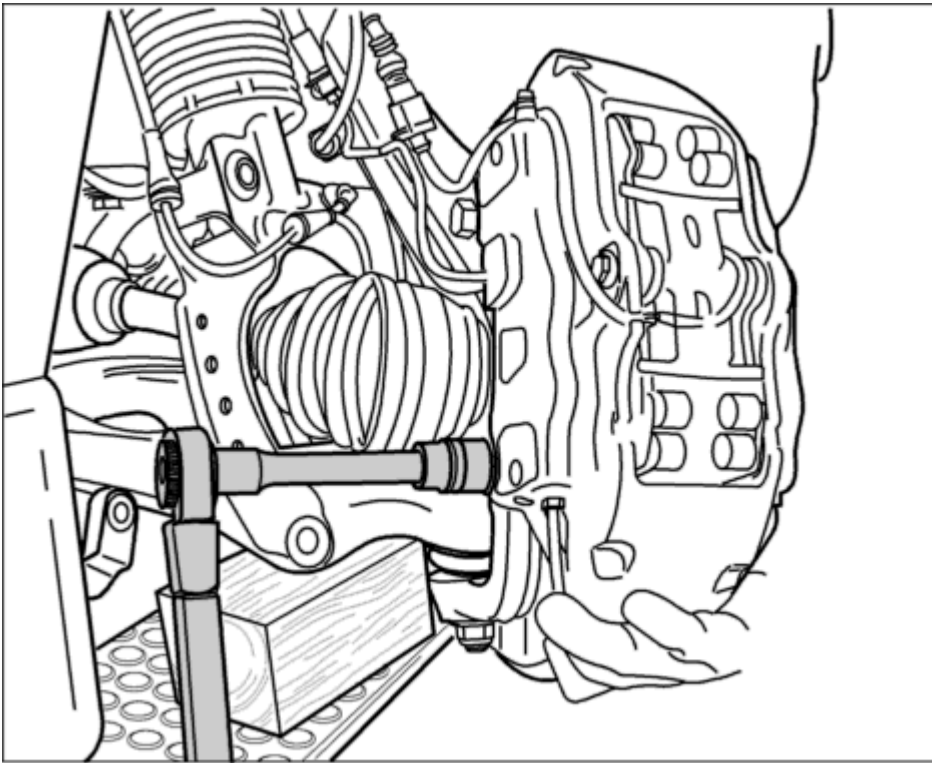


Fig. 88: Loosen brake calliper fasteners

Courtesy of PORSCHE OF NORTH AMERICA, INC.

8. Remove lower spring strut and undo brake calliper.
9. Slide **protective tube (shop made) 00000** over drive shaft. Release drive shaft at transmission flange and lay down carefully. Use a suitable base for the front axle carrier.

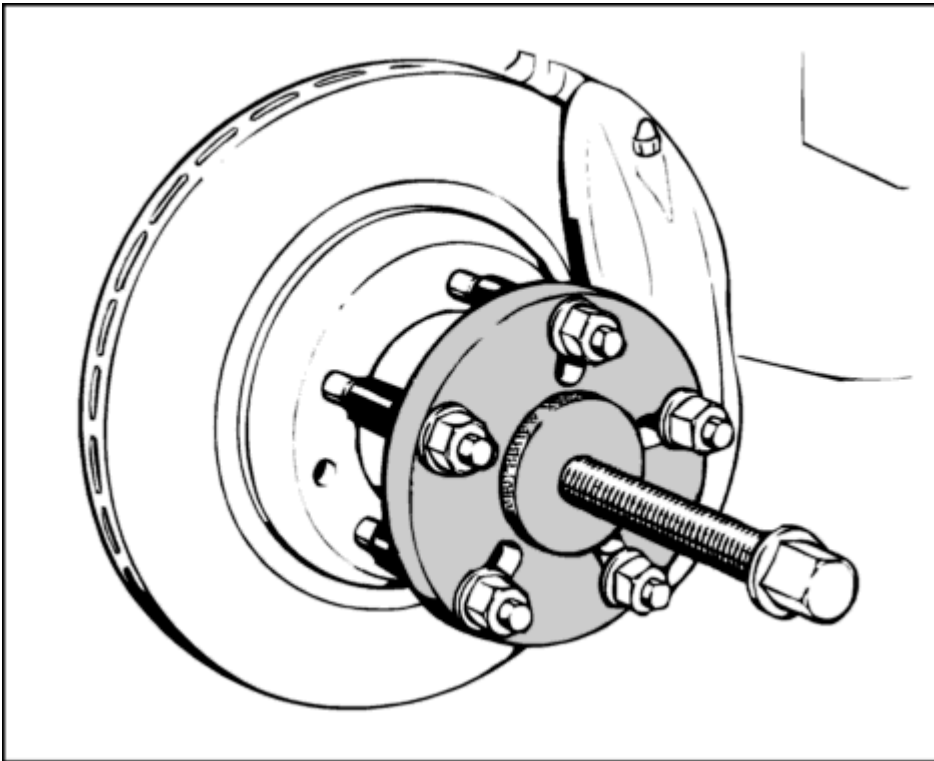


Fig. 89: Installing universal drive shaft/wheel hub puller
Courtesy of PORSCHE OF NORTH AMERICA, INC.

10. Using **universal drive shaft/wheel hub puller as of model '86 NR.87-1**, push (press through) peg of drive shaft by approx. 20 mm - 25 mm into the wheel hub.
11. Remove the two holders (brake hose, combination line) on wheel carrier and let them hang.
12. Disconnect ABS sensor plug connection.

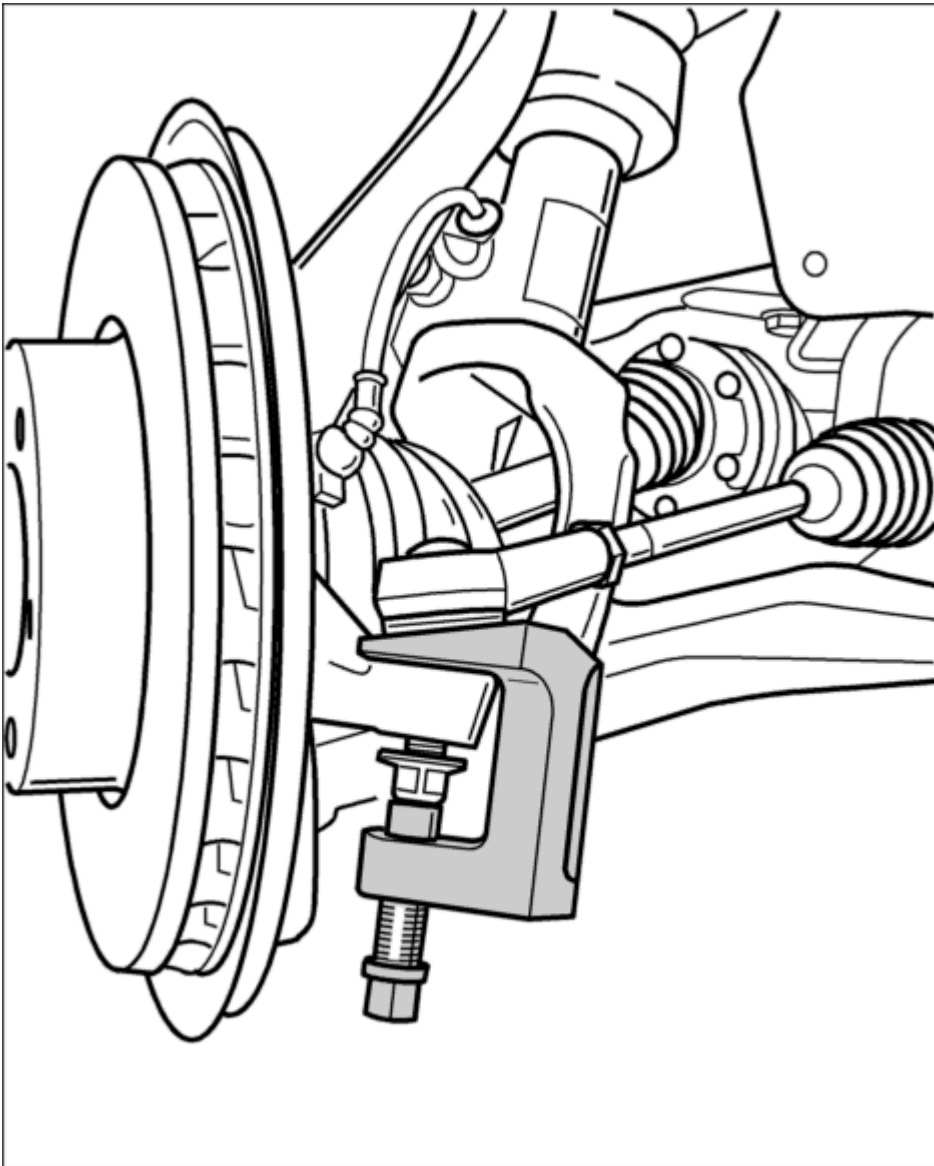


Fig. 90: Removing outer tie rod joint

Courtesy of PORSCHE OF NORTH AMERICA, INC.

13. Remove the relevant outer **-figure-** tie rod joint using the **press-out tool T10187**. When pressing out, screw fastening nut on flush (this protects the ball joint thread). See **Fig. 90**.

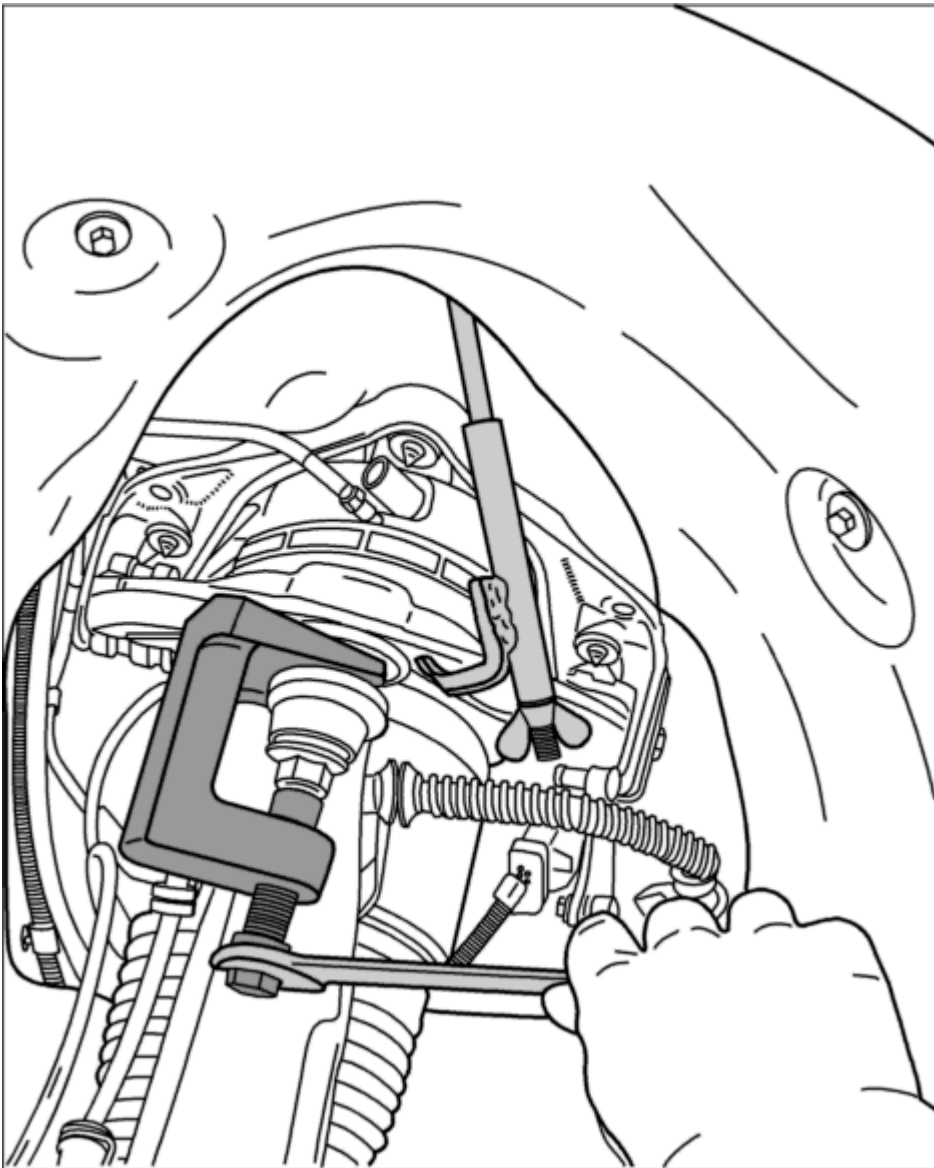


Fig. 91: Pressing out ball joint of upper trailing arm
Courtesy of PORSCHE OF NORTH AMERICA, INC.

14. Press out ball joint of upper trailing arm from wheel carrier using **press-out tool T10187**. See **Fig. 91**.
15. Remove the **spring compressor VW 552**.

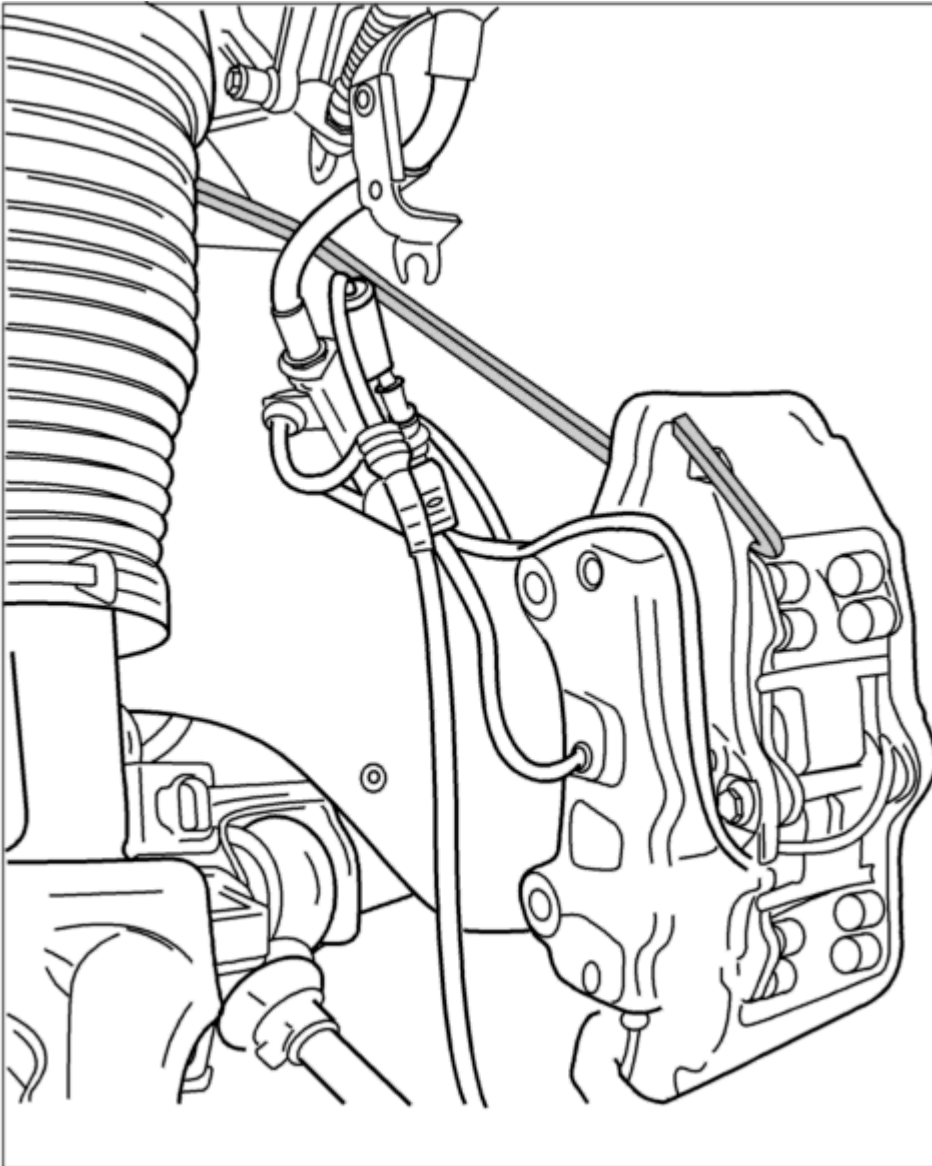


Fig. 92: Removing and support brake calliper
Courtesy of PORSCHE OF NORTH AMERICA, INC.

16. Remove brake calliper fastening screws and hang brake calliper in a suitable place in the wheel housing. See **Fig. 92.**

17. Remove drive shaft. To do this, the first fitter must carefully pull the top of the wheel carrier outwards and the second fitter must carefully guide out the drive shaft.

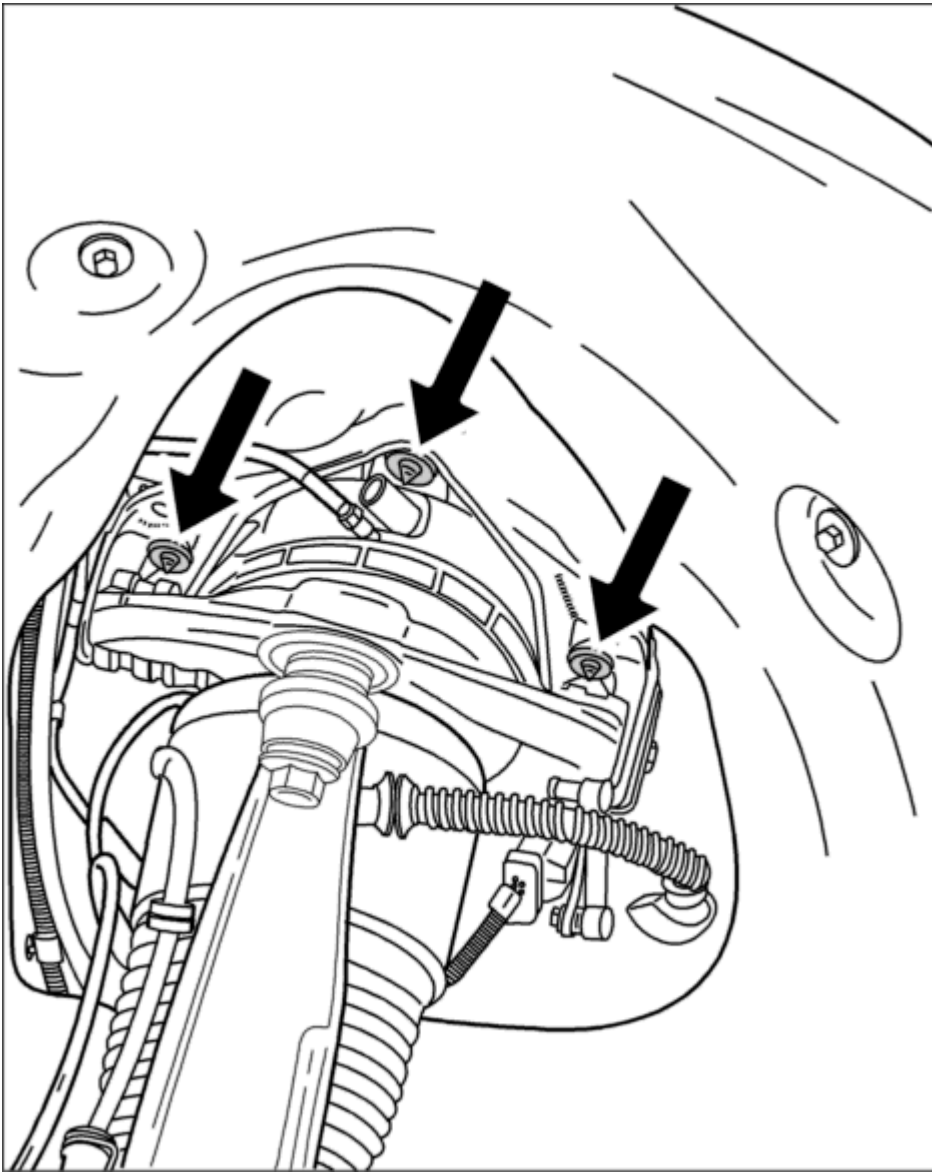


Fig. 93: Removing upper strut fasteners

Courtesy of PORSCHE OF NORTH AMERICA, INC.

18. Remove the three mounts for the spring strut in the engine compartment (two mounting points in front of plenum panel and one inside the plenum panel). The three mounting points **-(arrow)-** are shown here from inside the wheel housing (wheel carrier installed). See **Fig. 93**.

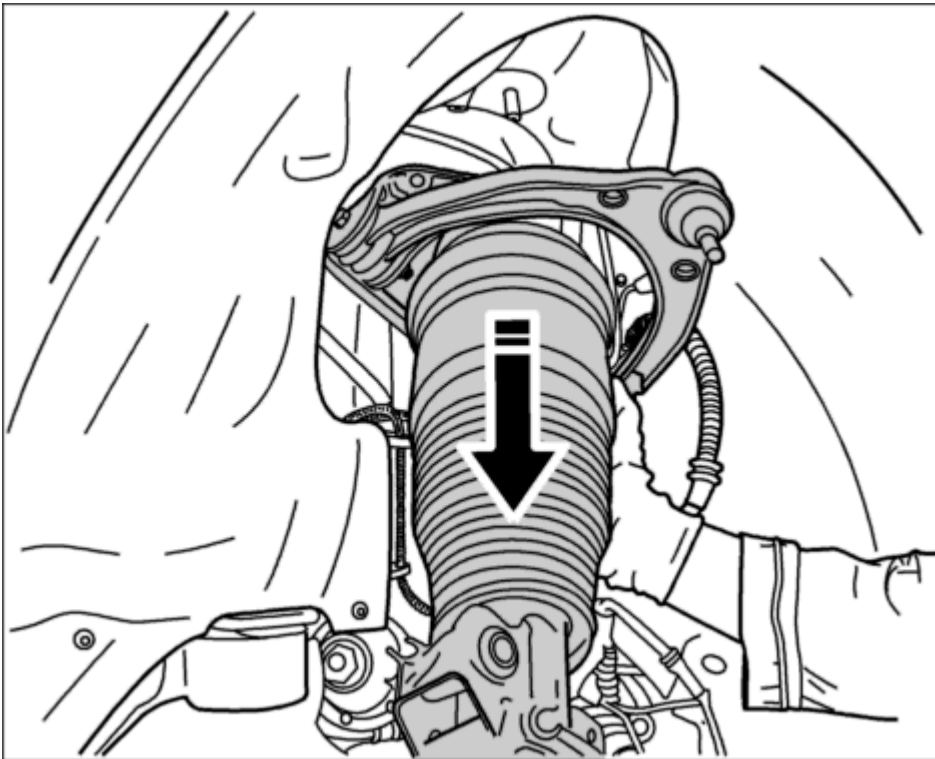


Fig. 94: Removing front spring strut from vehicle
Courtesy of PORSCHE OF NORTH AMERICA, INC.

19. Carefully guide out the spring strut.

INSTALLING FRONT SPRING STRUT

Installing front spring strut

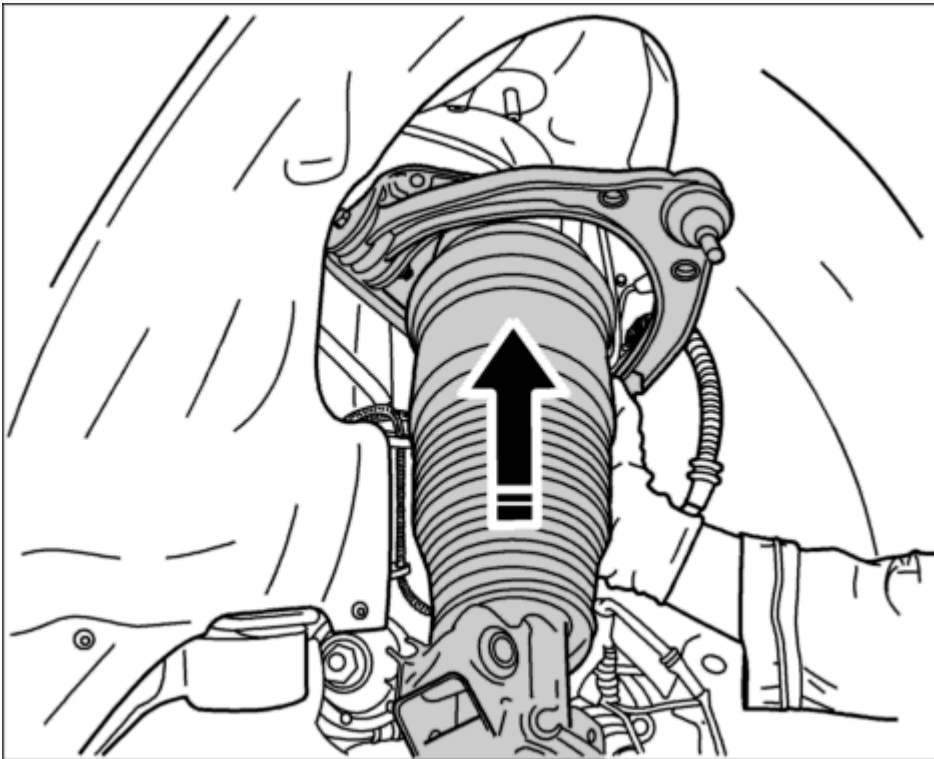


Fig. 95: Installing front spring strut

Courtesy of PORSCHE OF NORTH AMERICA, INC.

CAUTION: Increased risk of accident due to raising the wheel carrier incorrectly.
When filling the air spring struts, the vehicle lifts.

- Injury and material damage possible.

--> Do not raise the wheel suspension higher than the normal vehicle position (vehicle resting on wheels). When raising the suspension, use a suitable intermediate layer (hard rubber).

--> Do not damage the brake cover plate.

NOTE:

- *Visually inspect all parts.*
- *If a new spring strut is fitted, it must be pre-filled to 3 bar in its original packaging --> Filling specification for air-spring strut.*
- *Replace self-locking nuts.*
- *Replace all expansion screws (screws which are fitted with torque angle tightening procedure).*
- *The entire threaded parts of the axle must be tightened in vehicle position. Vehicle position means: vehicle standing on the wheels or the wheel suspension being raised using a universal vehicle lift. Dimension -X- , from lower edge of wing to middle of axle 502 mm $\pm$ 10 mm corresponds to vehicle position. See Fig. 96.*

2006 Porsche Cayenne

2003-2008 SUSPENSION Level Control

- **Use an intermediate layer --> see figure (hard rubber). Do not damage the brake cover plate. See Fig. 97.**
- **When fitting the ball joints, ensure that the bevel pinions are clean! Remove dirt or grease on bevel pinions, e. g. with a lint-free cloth. Do not use cleaning agent/solvent.**
- **Observe correct tightening torques. Refer to 40 TW Tightening torques for front axle - as of MY 2003 (All Models) .**

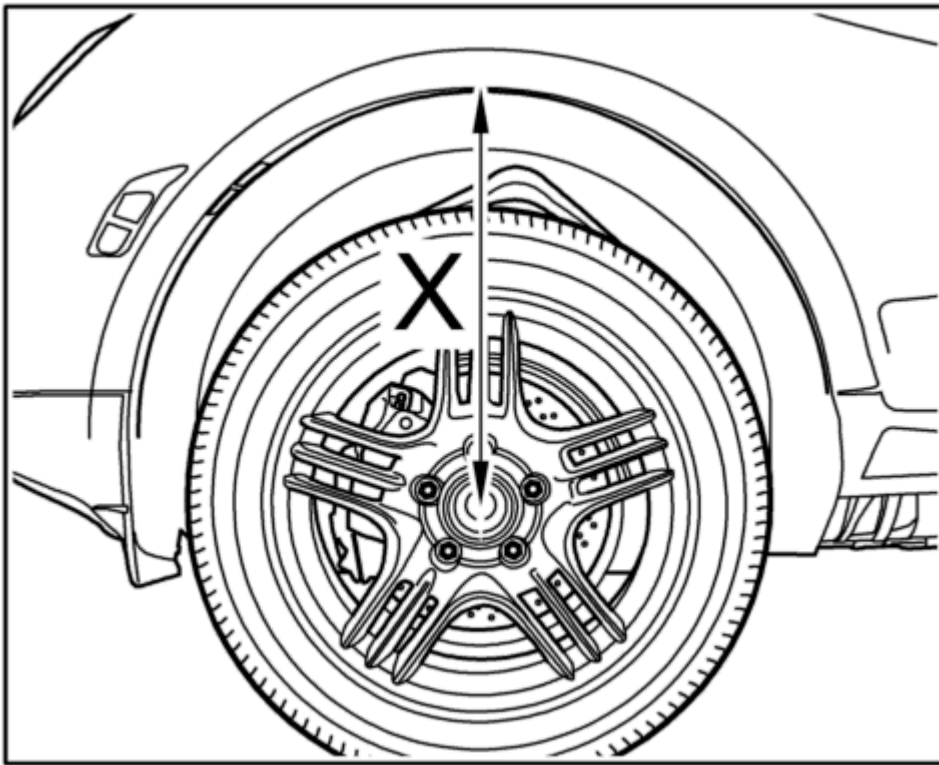


Fig. 96: Entire threaded parts of axle must be tightened in vehicle position (Dimension -X-)
Courtesy of PORSCHE OF NORTH AMERICA, INC.

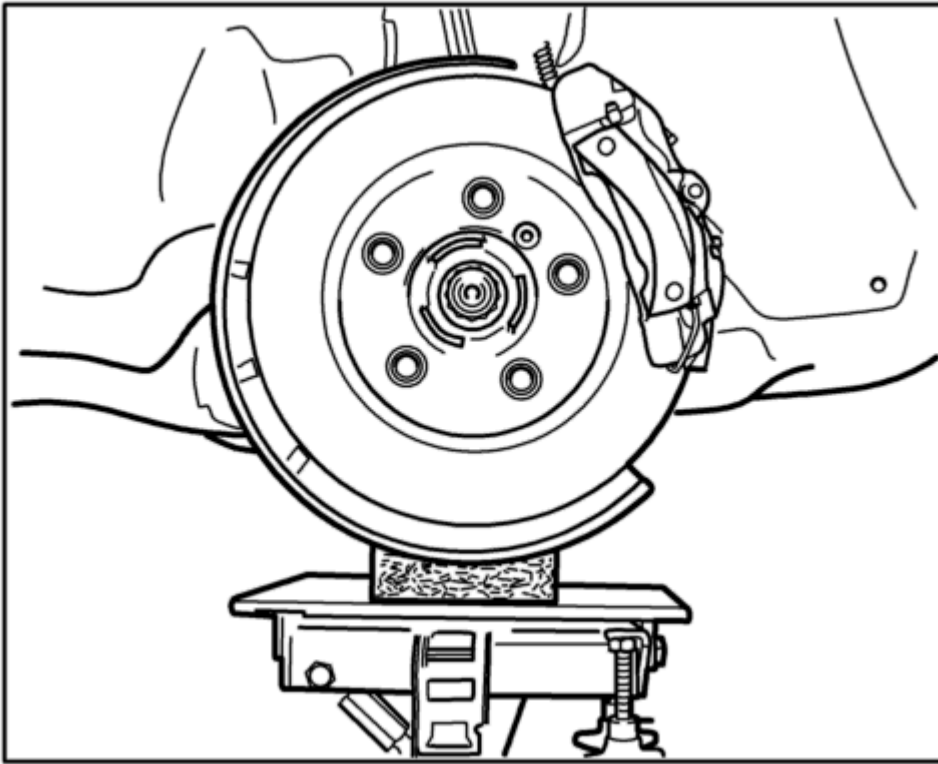


Fig. 97: Supporting wheel with rubber based lift (prevent slipping)
Courtesy of PORSCHE OF NORTH AMERICA, INC.

1. Carefully guide in spring strut -**arrow**- , position with the auxiliary pins and tighten at the mounting saddle with the specified tightening torque Refer to **40 TW Tightening torques for front axle - as of MY 2003 (All Models)** . See **Fig. 95**.
2. Fit drive shaft. To do this, first fitter must carefully pull the top of the wheel carrier outwards and the second fitter must carefully guide in the drive shaft.
3. Fit brake calliper on wheel carrier (do not tighten brake calliper fastening screws yet).

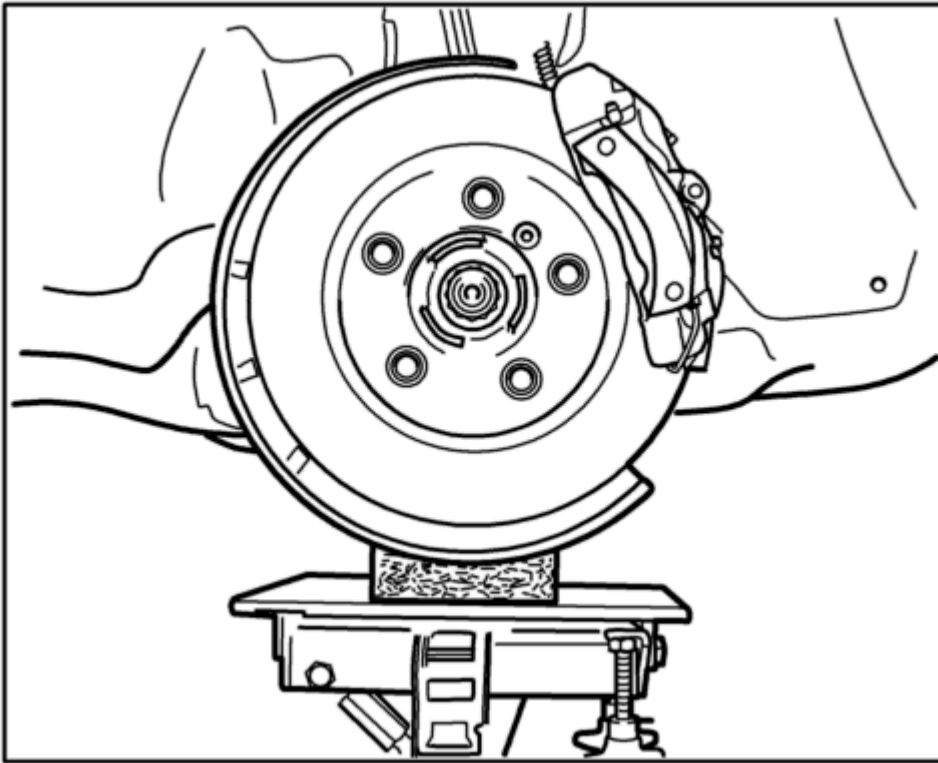


Fig. 98: Supporting wheel with rubber based lift (prevent slipping)
Courtesy of PORSCHE OF NORTH AMERICA, INC.

4. Mount wheel carrier on upper trailing arm. When doing this, observe drive shaft clearance (use suitable base). To facilitate assembly and avoid the upper ball pin falling into the stop, raise the wheel carrier slightly with a suitable lift so that the upper ball pin can be inserted. Use a --> *see figure* lift with rubber base in order to prevent slipping. See **Fig. 97**.

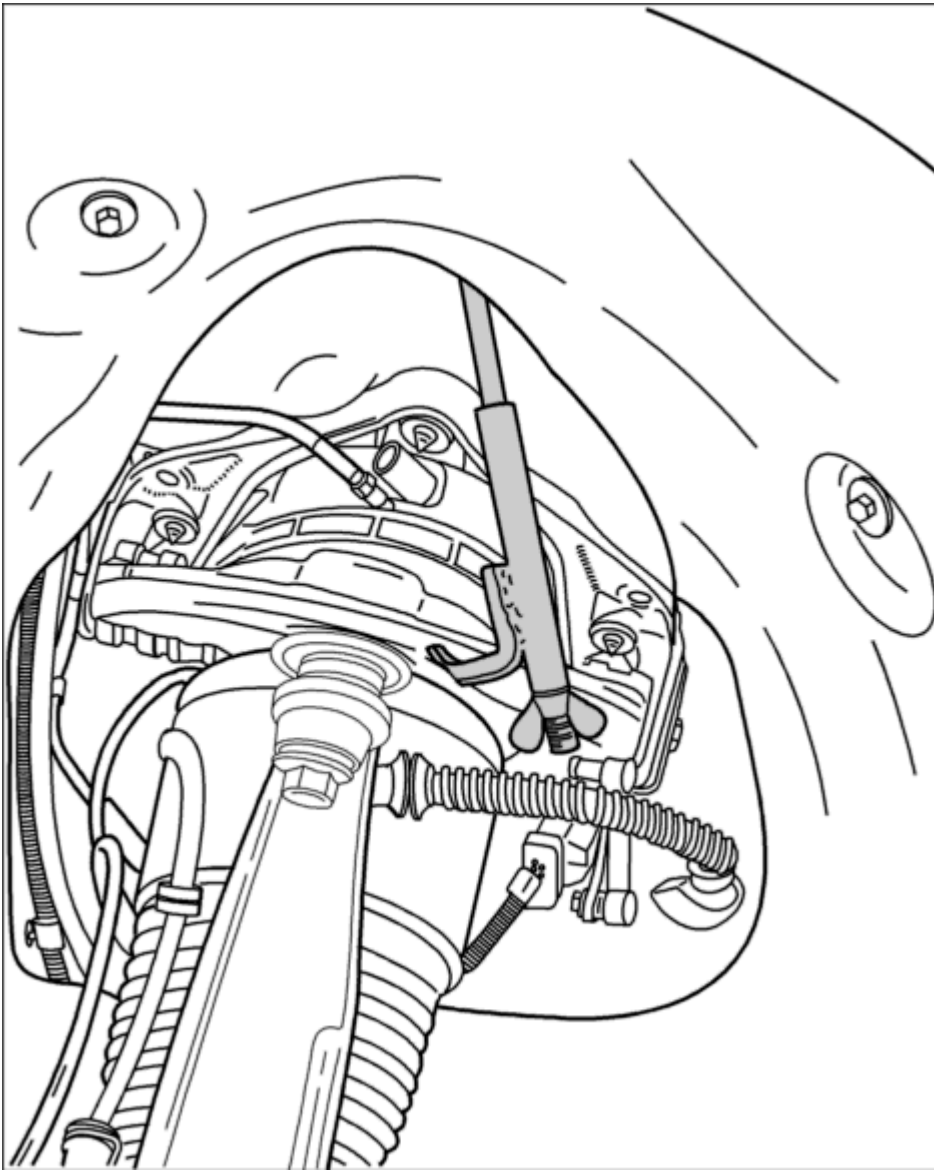


Fig. 99: Affix upper trailing arm using spring compressor VW 552
Courtesy of PORSCHE OF NORTH AMERICA, INC.

5. Insert **spring compressor VW 552** and slightly tension upper trailing arm.
6. Fit fastening bolt for lower spring strut. Remove **spring compressor VW 552** tension jack.

2006 Porsche Cayenne

2003-2008 SUSPENSION Level Control

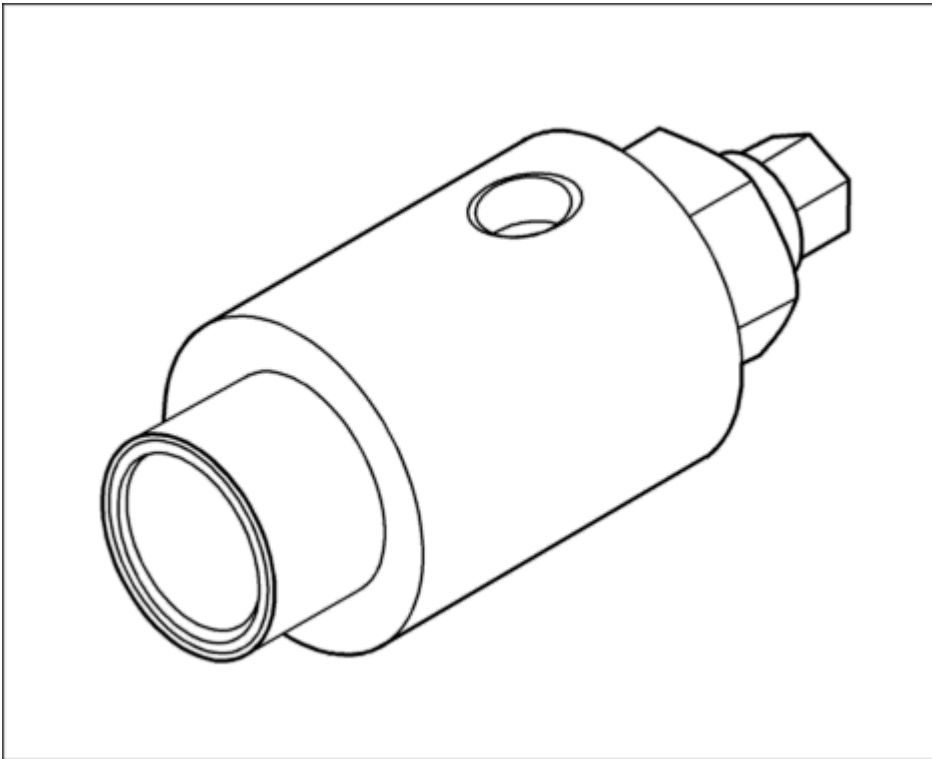


Fig. 100: Assembly fixture T10206

Courtesy of PORSCHE OF NORTH AMERICA, INC.

7. Grease mounting-face ring of axle nut with a little Optimoly TA aluminum paste. Screw on axle nut to prevent the shaft from slipping out. If the shaft cannot be pushed right in, use **assembly fixture T10206** to pull the drive shaft in. Remove **protective tube (shop made) 00000** and base.

8. Fit drive shaft to the transmission flange and tighten brake calliper fastening screw Refer to **40 TW Tightening torques for front axle - as of MY 2003 (All Models)** .

2006 Porsche Cayenne

2003-2008 SUSPENSION Level Control

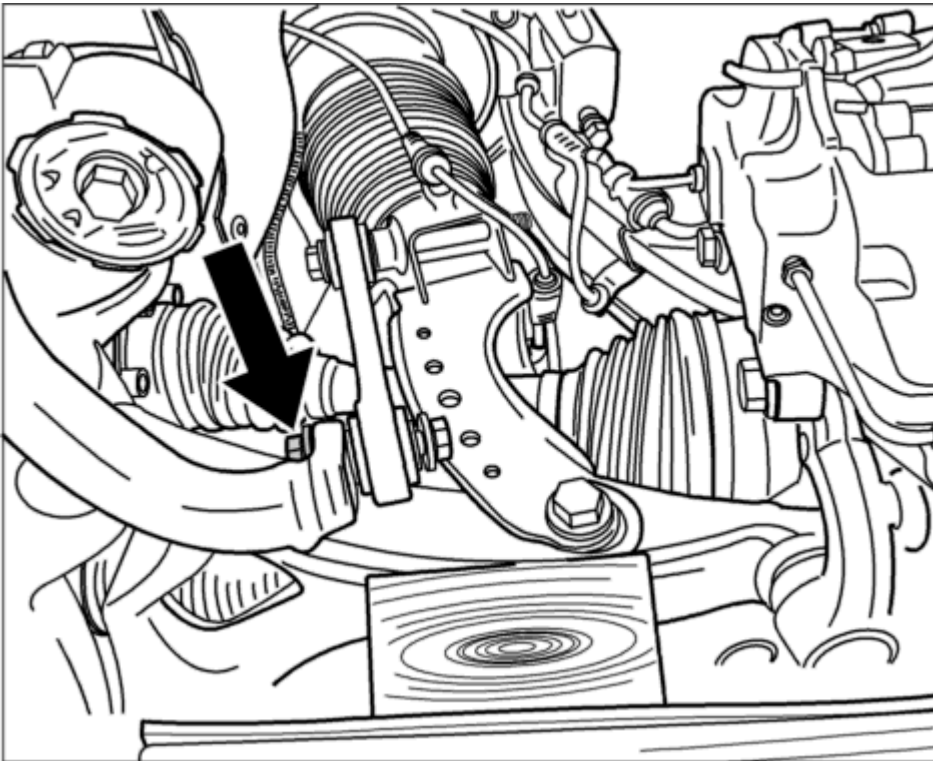
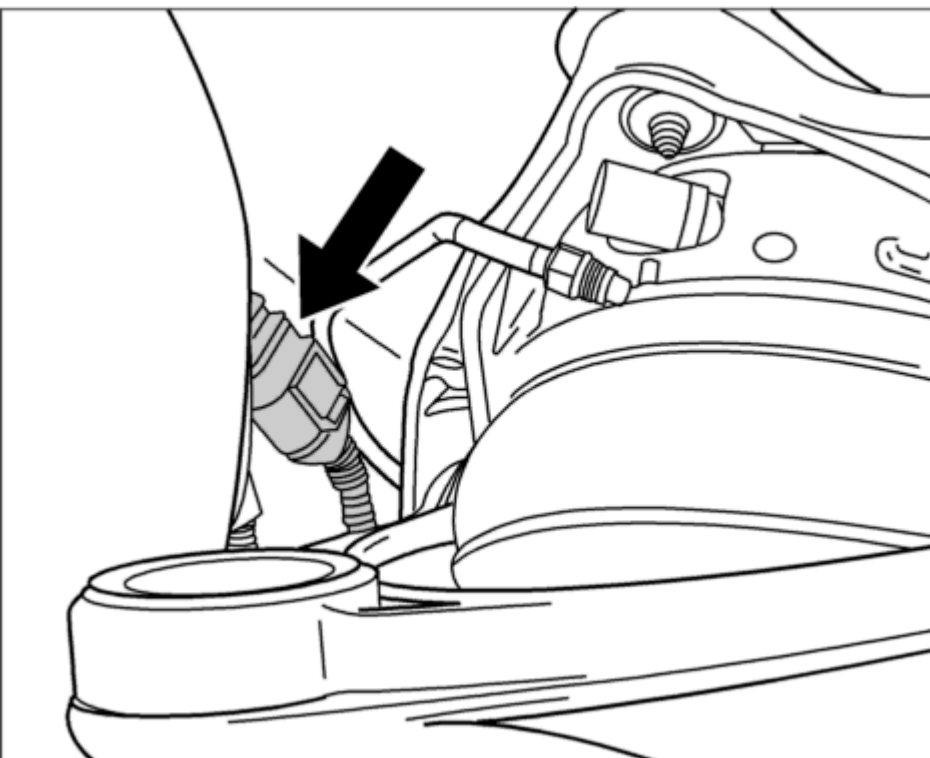


Fig. 101: Lower connecting link

Courtesy of PORSCHE OF NORTH AMERICA, INC.

9. Mount connecting link.



2006 Porsche Cayenne

2003-2008 SUSPENSION Level Control

Fig. 102: Location of compact connector

Courtesy of PORSCHE OF NORTH AMERICA, INC.

10. Connect compact connector in wheel housing -**arrow**- . Mount support for brake hose/combination line on top of wheel carrier. Connect sensor connectors. See **Fig. 102**.

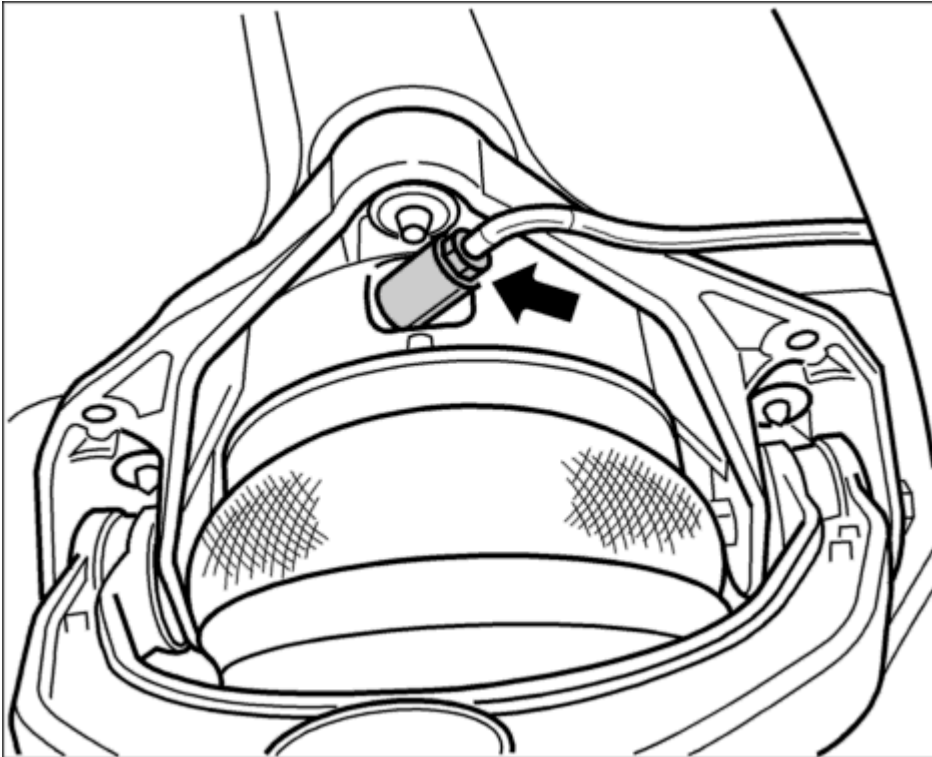


Fig. 103: Pressure line on residual pressure retaining valve

Courtesy of PORSCHE OF NORTH AMERICA, INC.

NOTE:

- *Observe torque on residual pressure retaining valve.*

11. Fit pressure line at residual pressure retaining valve -(**arrow**)- using insert part T10212. Note tightening torque. Refer to **40 TW Tightening torques for front axle - as of MY 2003 (All Models)** . See **Fig. 103**.

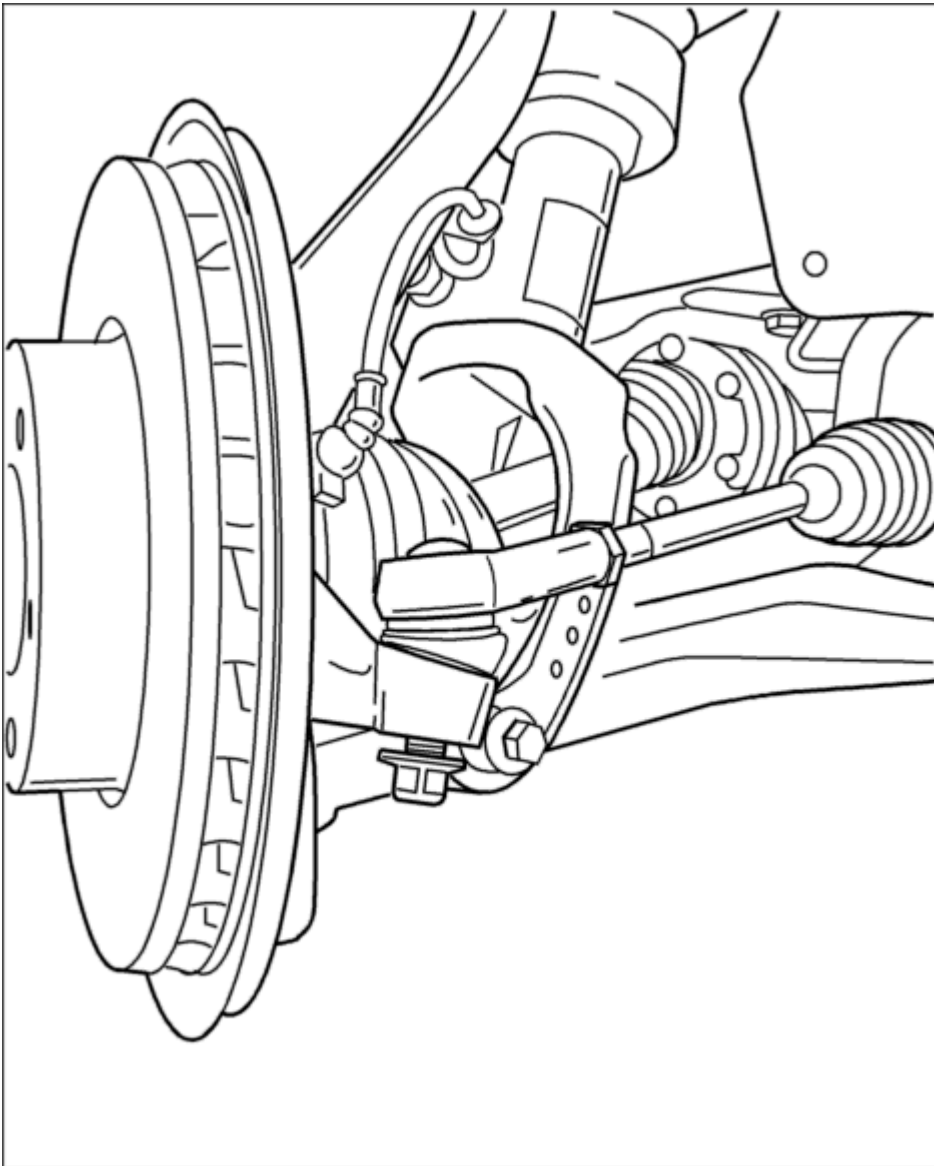


Fig. 104: Outer tie rod on wheel carrier

Courtesy of PORSCHE OF NORTH AMERICA, INC.

12. Mount ball joint of tie rod on wheel carrier. Tighten lock nut to specified tightening torque Refer to **40 TW**
Tightening torques for front axle - as of MY 2003 (All Models) . See **Fig. 104**.

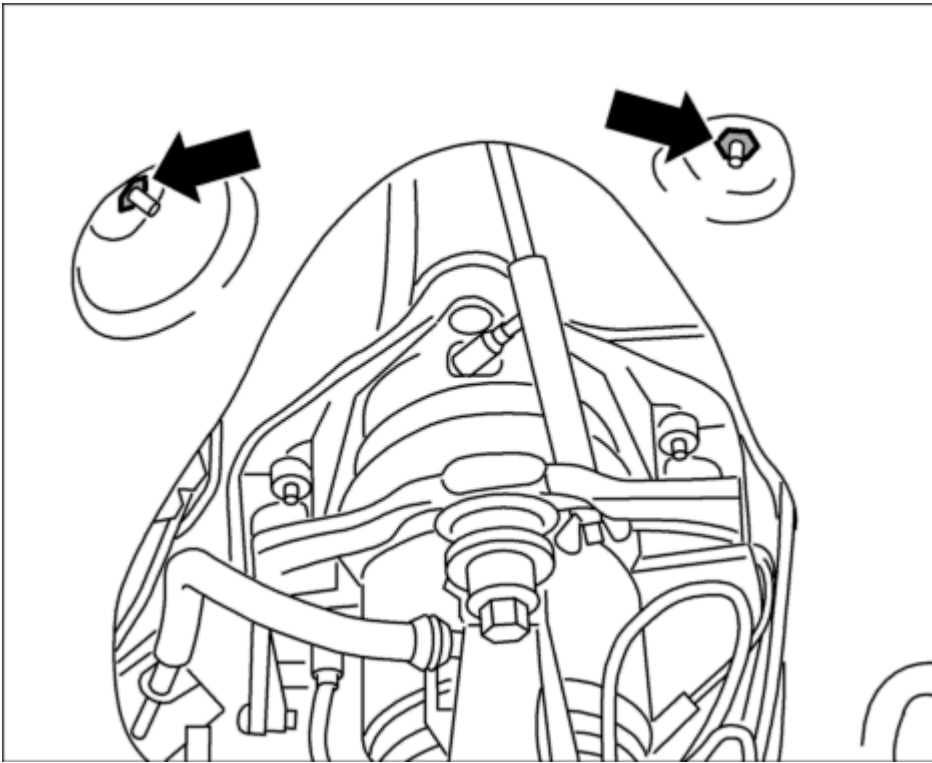


Fig. 105: Wheel housing liner plastic nut fasteners

Courtesy of PORSCHE OF NORTH AMERICA, INC.

13. Screw in plastic nuts -**arrows**- on wheel housing liner. See **Fig. 105**.

SUBSEQUENT WORK

Subsequent work

1. Fit wheel Refer to **44 05 19 Removing and installing wheel - as of MY 2003 (All Models)** .
2. Tighten axle nuts Refer to **40 TW Tightening torques for front axle - as of MY 2003 (All Models)** .
Operate the brake whilst doing so (second fitter required).
3. Fit the relevant engine compartment side cover Refer to **70 02 19 Removing and installing front cover (engine compartment) - as of MY 2003 (All Models)** .
4. Fit cowl panel Refer to **66 44 19 Removing and installing cowl panel cover - as of MY 2003 (All Models)** .
5. To fill the level adjustment system, use the Porsche System Tester. To do this, select the Fill level adjustment menu item in the Level adjustment system. Switch on level adjustment Refer to **40 V0 Lifting the vehicle - as of MY 2003 (Cayenne Turbo S, Cayenne S TIO Titan)** . Refer to **40 V0 Lifting the vehicle - as of MY 2003 (Cayenne TIP, Cayenne MAN, Cayenne S TIP, Cayenne S MAN, Cayenne Turbo)** .

43 34 19 REMOVING AND INSTALLING SENSOR FOR BODY - AS OF MY

2006 Porsche Cayenne
2003-2008 SUSPENSION Level Control

2003 (ALL MODELS EXCEPT CAYENNE S TIO TITAN)

PRELIMINARY WORK

Preliminary work

NOTE: **These instructions for removal and installation describe all the sensors for the body (two sensors at the front, one sensor at the rear).**

Installation position at front: Position 8, under the left and right wings.

Installation position at rear: Position 8, under the boot floor plate on the right (sensor can be accessed from the interior!).

2006 Porsche Cayenne

2003-2008 SUSPENSION Level Control

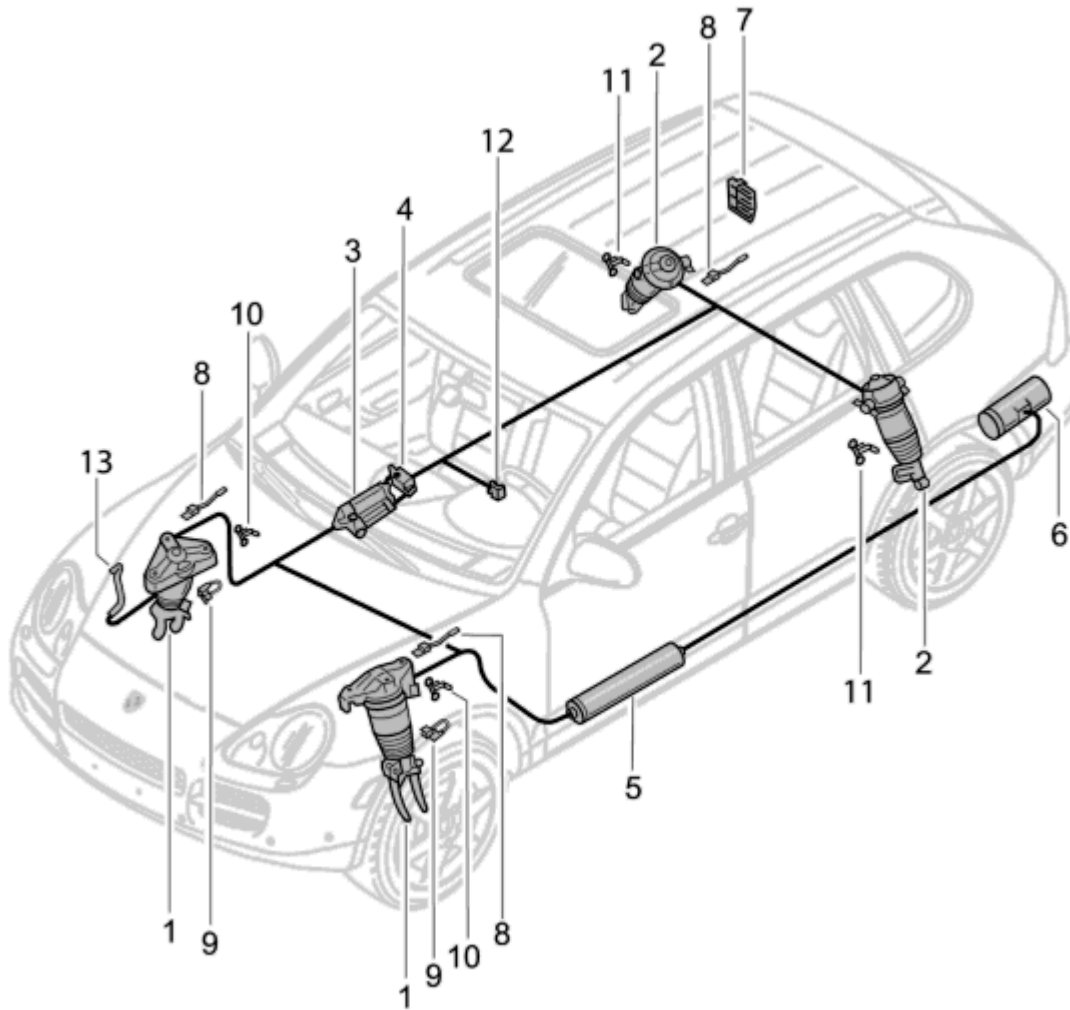


Fig. 106: Position of air suspension components

Courtesy of PORSCHE OF NORTH AMERICA, INC.

Front sensor

1. Lift the vehicle. --> **40 V0 LIFTING THE VEHICLE - AS OF MY 2003 (CAYENNE TURBO S, CAYENNE S TIO TITAN) or 40 V0 LIFTING THE VEHICLE - AS OF MY 2003 (CAYENNE TIP, CAYENNE MAN, CAYENNE S TIP, CAYENNE S MAN, CAYENNE TURBO) .**

2. Remove wheel housing liner. Refer to **50 56 19 Removing and installing front wheel housing liner - as of MY 2003 (All Models) .**

Rear sensor

2006 Porsche Cayenne

2003-2008 SUSPENSION Level Control

NOTE: For removing and installing the rear sensor, it is not necessary to lift the vehicle.

The rear sensor can be accessed from the interior.

1. Remove boot floor plate (center part) and remove only the right side cover. Refer to **70 06 19 Removing and installing luggage compartment trim (loadspace cover) - as of MY 2003 (All Models)** .

REMOVAL

Removing

Front sensor

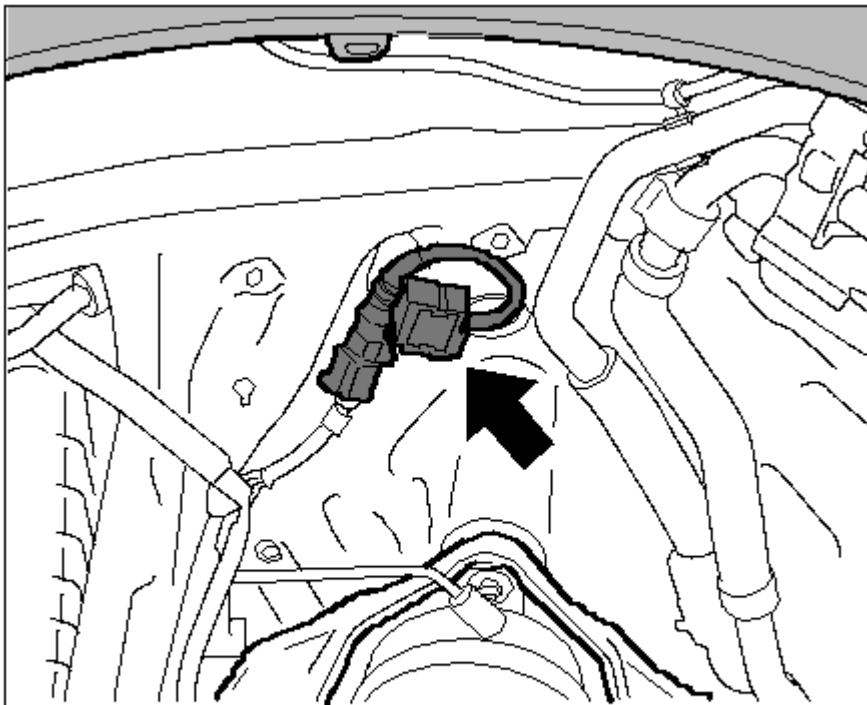


Fig. 107: Sensor for body at front

Courtesy of PORSCHE OF NORTH AMERICA, INC.

1. First push together the sensor connector -**arrow**- firmly (makes removal easier!). Lift connector lock and then remove connector! See **Fig. 107**.

2. Loosen screw of holder and remove sensor.

2006 Porsche Cayenne

2003-2008 SUSPENSION Level Control

Rear sensor

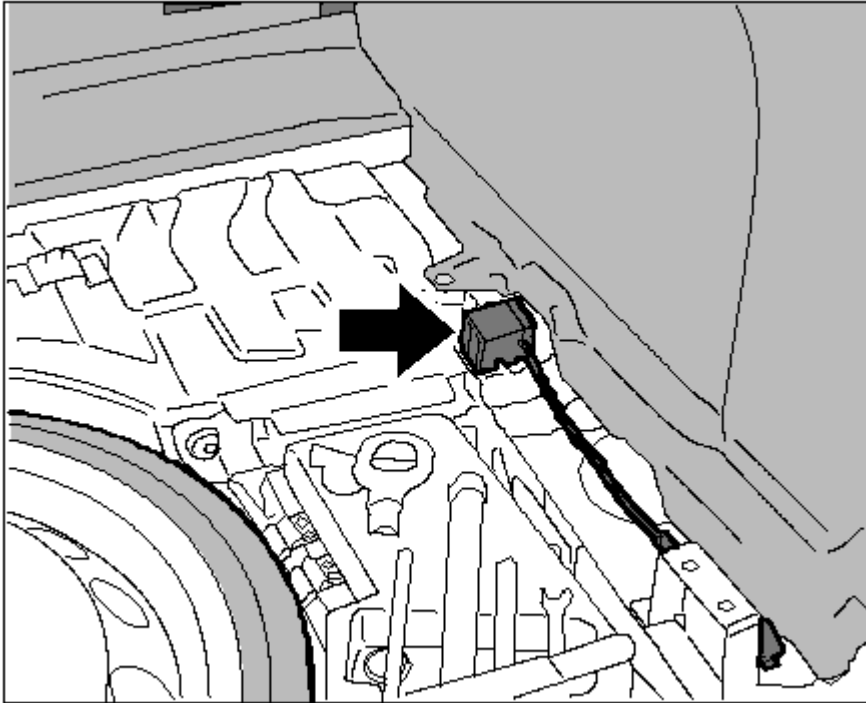


Fig. 108: Sensor for body at rear

Courtesy of PORSCHE OF NORTH AMERICA, INC.

1. First push together the sensor connector **-arrow-** firmly (makes removal easier!). Lift connector lock and then remove connector! See **Fig. 108**.
2. Loosen nut of holder and remove sensor.

INSTALLING

Installing

Front sensor

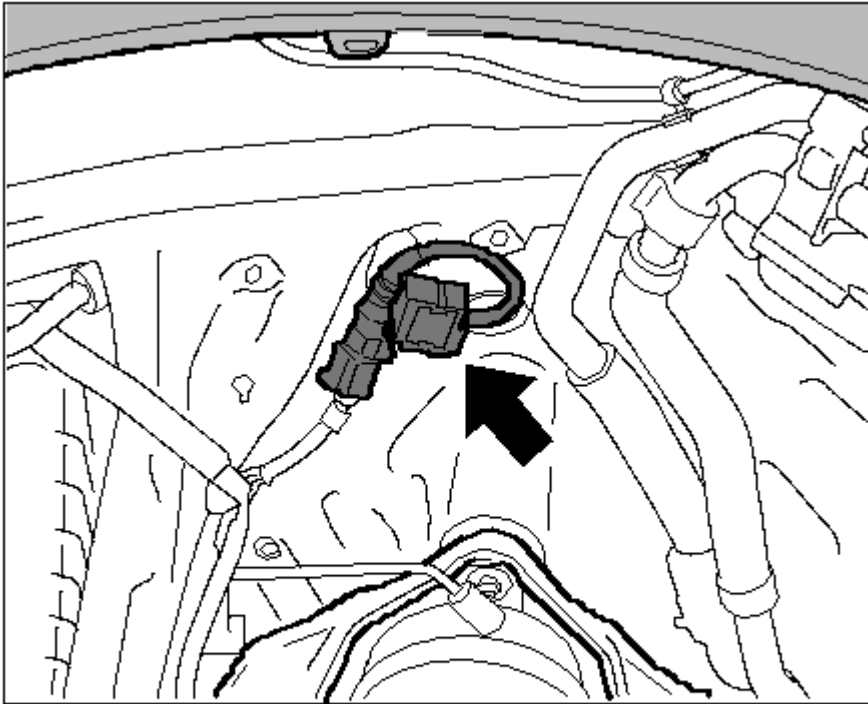


Fig. 109: Sensor for body at front

Courtesy of PORSCHE OF NORTH AMERICA, INC.

1. Insert sensor with holder in the correct position -**arrow**- and tighten the fastening screw. See **Fig. 109**.
2. Plug in connector. Pay attention to correct line routing.

Rear sensor

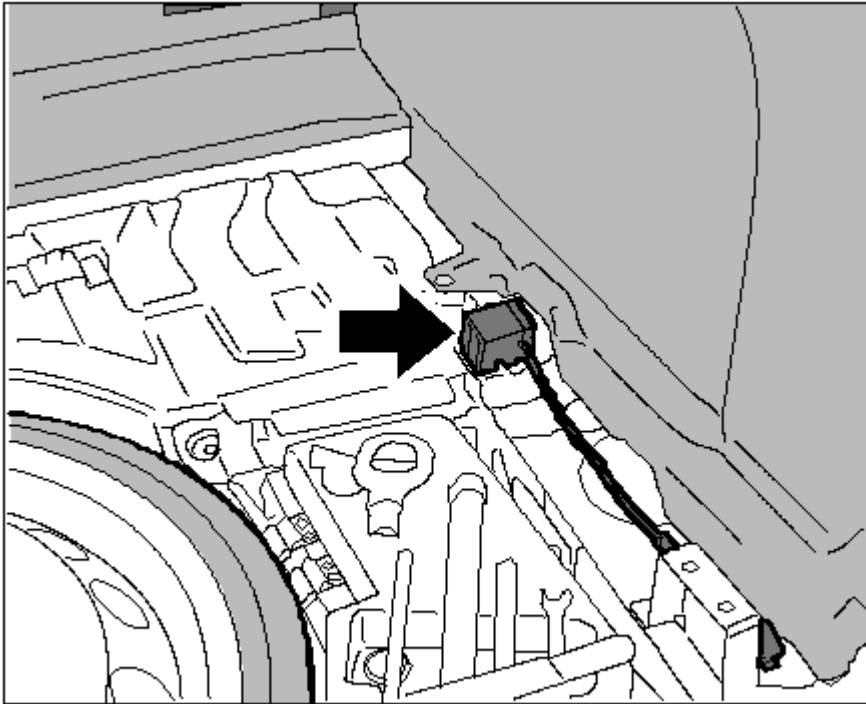


Fig. 110: Sensor for body at rear

Courtesy of PORSCHE OF NORTH AMERICA, INC.

1. Insert sensor with holder in the correct position -**arrow**- and tighten the fastening nut. See **Fig. 110**.
2. Plug in connector. Pay attention to correct line routing.

SUBSEQUENT WORK

Subsequent work

Front sensor

1. Install wheel housing liner. Refer to **50 56 19 Removing and installing front wheel housing liner - as of MY 2003 (All Models)** .

Rear sensor

2. Fit right side cover and install the boot floor plate (center part). Refer to **70 06 19 Removing and installing luggage compartment trim (loadspace cover) - as of MY 2003 (All Models)** .

43 85 41 REPAIRING PRESSURE HOSE - AS OF MY 2003 (ALL MODELS EXCEPT CAYENNE S TIO TITAN)

TOOLS

2006 Porsche Cayenne

2003-2008 SUSPENSION Level Control

Designation	Type	Number	Explanation	
Cutters VAS 6228	commercially available tool	00000		

REPAIRING PRESSURE HOSE

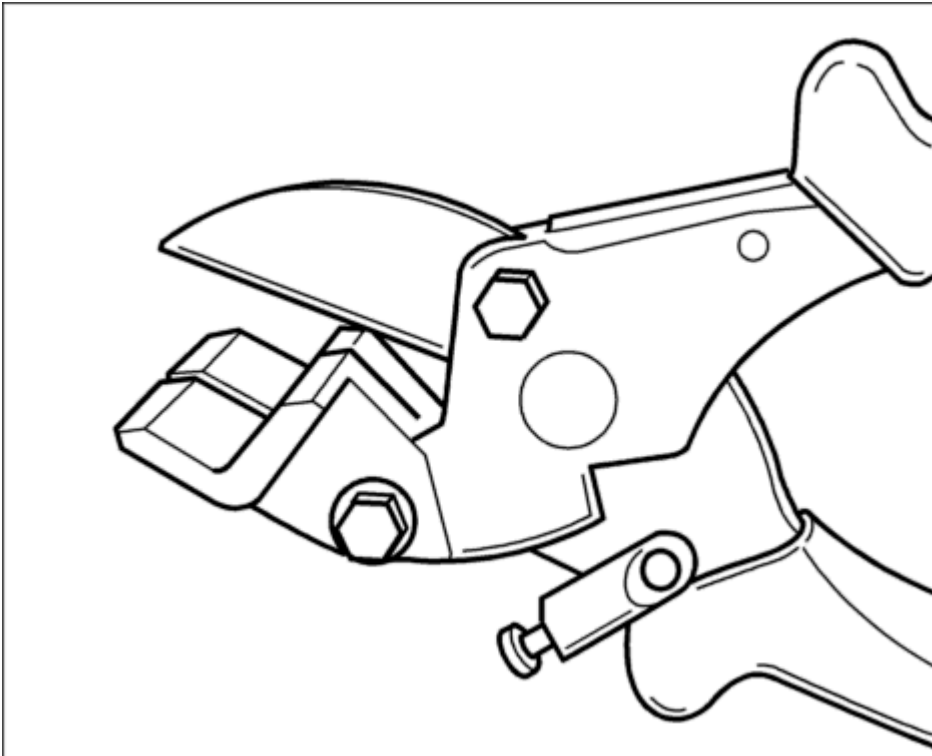


Fig. 111: Cutters VAS 6228

Courtesy of PORSCHE OF NORTH AMERICA, INC.

Cutters VAS 6228 00000 for cutting through pressure hose.

Notes on replacing pressure hoses

NOTE:

- *Faulty pressure hoses can be replaced in sections.*
- *Using a plug connection (see Spare Parts Catalogue), individual sections of pressure hoses can be safely joined again.*
- *The pressure hoses are correctly fitted when the first color marking (self applied) is no longer visible and the second color marking is still visible.*
- *To check that the pressure hose is fitted correctly, pull it slightly against the insertion direction. If it is fitted correctly, it cannot be pulled out or only pulls out when great force is applied.*

2006 Porsche Cayenne

2003-2008 SUSPENSION Level Control

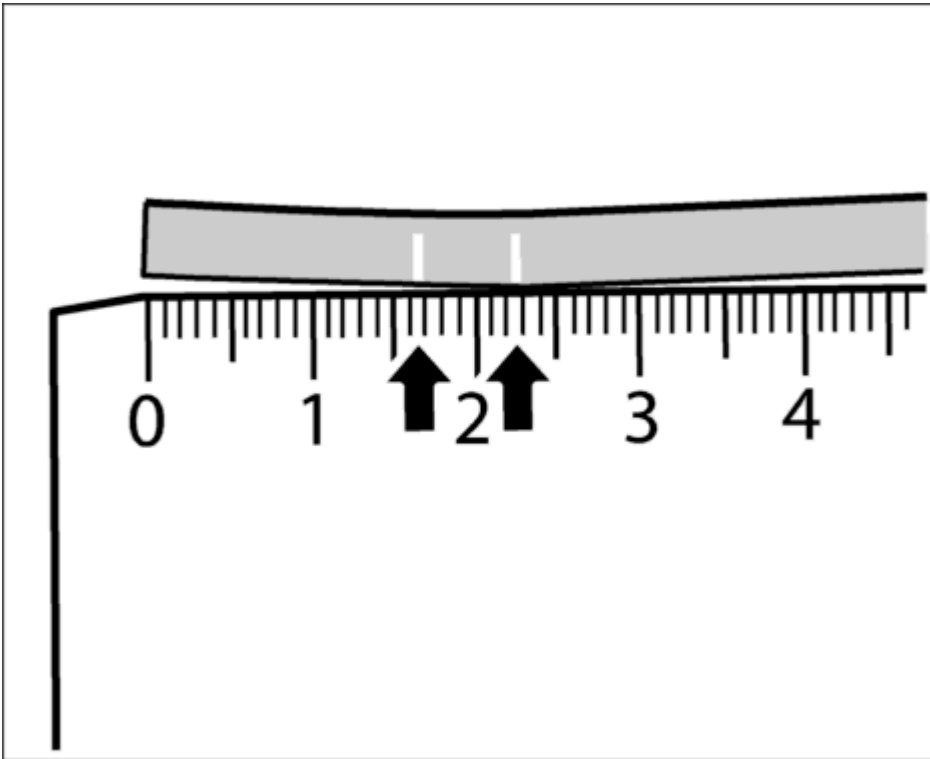


Fig. 112: Marking pressure hose to be replaced

Courtesy of PORSCHE OF NORTH AMERICA, INC.

The following points must be observed when choosing the repair point:

- The repair point must lie in an area protected from water spray
- The push-on connector must be fastened with tie-wraps to the structure or a cable guide
- Straight pipe sections should be chosen for the repair
- Position the pressure hose back in its original fastenings
- Insert the ends of the pressure hoses firmly into the push-on connector.

Repair

NOTE: When filling the air suspension, the vehicle lifts.

1. Lift the vehicle. --> **40 V0 LIFTING THE VEHICLE - AS OF MY 2003 (CAYENNE TURBO S, CAYENNE S TIO TITAN) or 40 V0 LIFTING THE VEHICLE - AS OF MY 2003 (CAYENNE TIP, CAYENNE MAN, CAYENNE S TIP, CAYENNE S MAN, CAYENNE TURBO) .**

2006 Porsche Cayenne

2003-2008 SUSPENSION Level Control

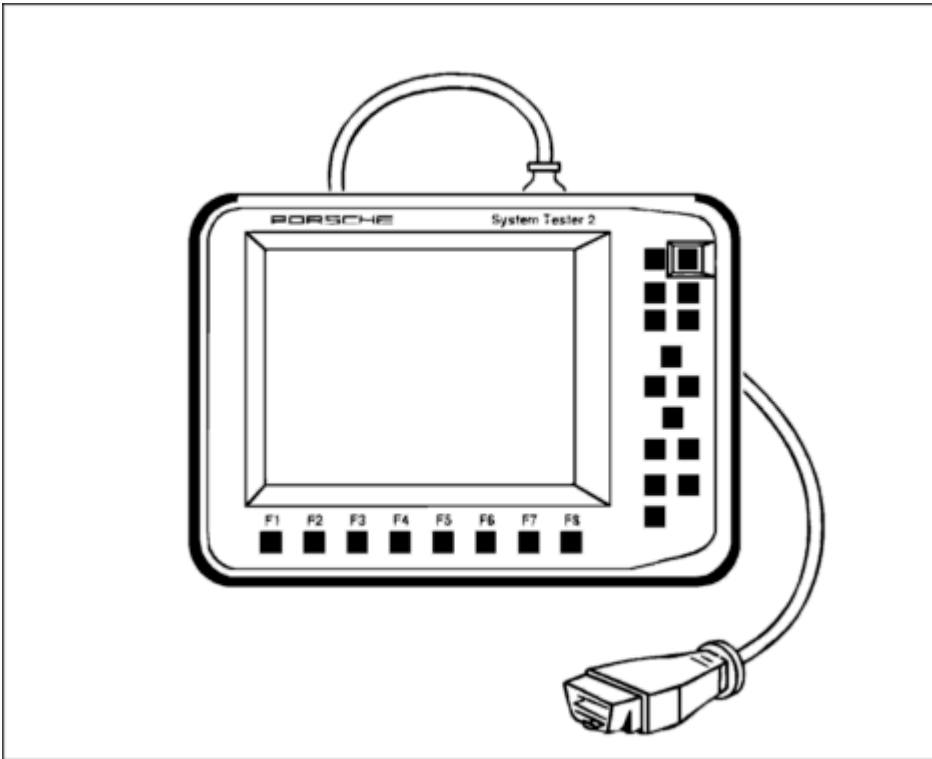


Fig. 113: Porsche System Tester

Courtesy of PORSCHE OF NORTH AMERICA, INC.

2. To bleed the air suspension (air pressure must be allowed to escape out of system - if this has not already happened due to the faulty line), use the Porsche System Tester. To do this, select the menu item Bleed air suspension in the Air suspension system.

2006 Porsche Cayenne

2003-2008 SUSPENSION Level Control

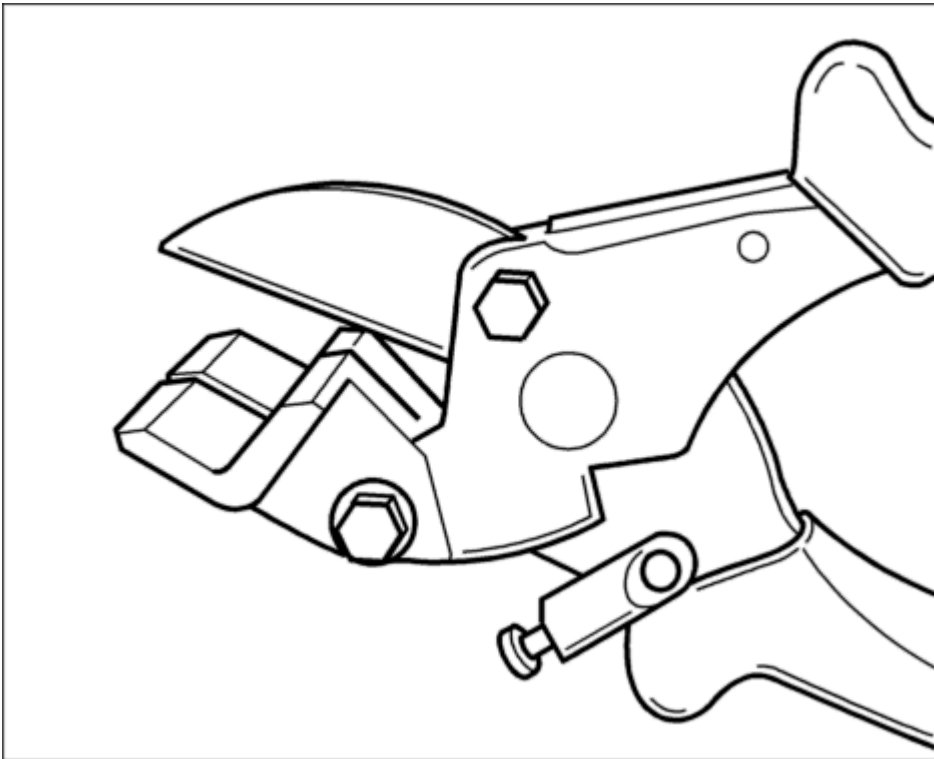


Fig. 114: Cutters VAS 6228

Courtesy of PORSCHE OF NORTH AMERICA, INC.

3. When repairing the pressure hose, cut off the damaged section squarely using the cutters **cutters VAS 6228 00000**.

2006 Porsche Cayenne

2003-2008 SUSPENSION Level Control

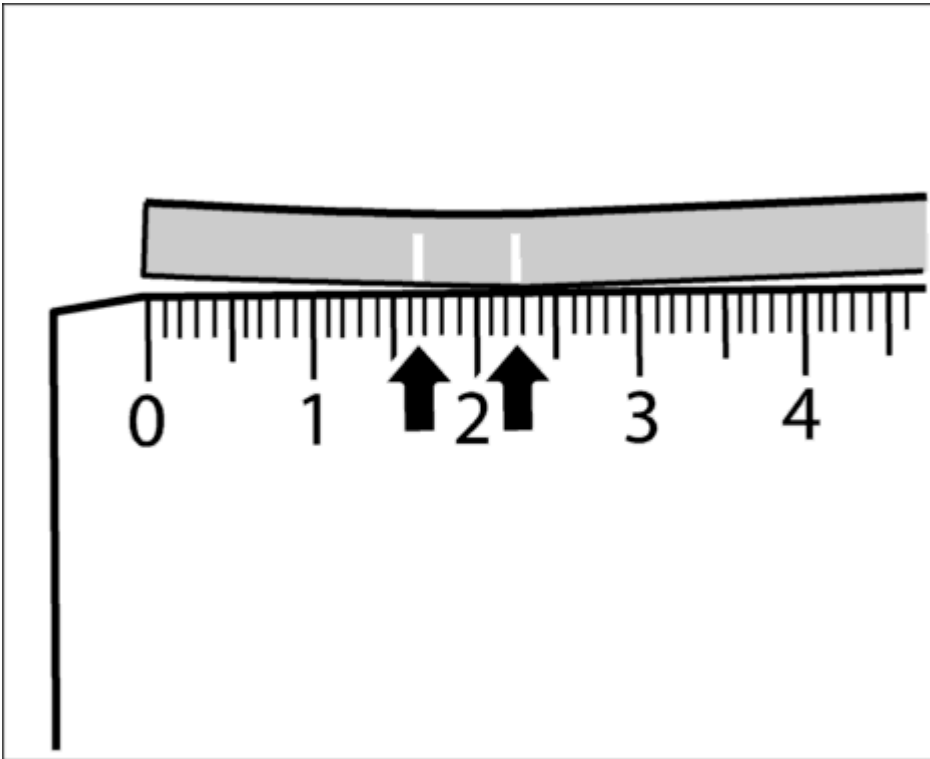


Fig. 115: Marking pressure hose to be replaced

Courtesy of PORSCHE OF NORTH AMERICA, INC.

4. Mark the pressure hose to be replaced in color (e. g. with a waterproof marker). Measured from the cut-off end of the hose, make two colored marks at 16 mm and 22 mm respectively **-(arrows)-** . See **Fig. 115**.

5. Insert the pipe until the range between the two color markings min. 16 mm up to max. 22 mm **-(arrows)-** has been reached. See **Fig. 115**.

To fill the air system, use the Porsche System Tester. To do this, select the menu item Fill air suspension in the Air suspension system. Switch on level adjustment --> **40 V0 LIFTING THE VEHICLE - AS OF MY 2003 (CAYENNE TURBO S, CAYENNE S TIO TITAN)** or **40 V0 LIFTING THE VEHICLE - AS OF MY 2003 (CAYENNE TIP, CAYENNE MAN, CAYENNE S TIP, CAYENNE S MAN, CAYENNE TURBO)** .