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WM 430149 Troubleshooting the levelling system

General warning notes

Safety notes and information for repairing the running gear

Safety notes and information for repairs to the running gear → *4X00IN Safety notes and information when repairing the running gear*

Information

Troubleshooting

Component arrangement - air suspension → *4300IN Component arrangement - air suspension*

1. Troubleshooting air-spring dampers and the levelling system

Symptom	Fault detection	Possible causes	Solution
Gradual loss of pressure – Vehicle lies to one side after a long time – Longer than average regulating times – No reaction to driver's request	Observe vehicle height over a long period of time and try to find leak using a commercially available leak detection spray	Leak in air-spring strut/air spring	Replace air-spring strut/air spring → <i>433019 Removing and installing front air-spring strut</i> → <i>434319 Removing and installing rear air spring</i> or carry out repairs
		Leak in air lines or valve unit	Check tightening torques for air line connections, check insertion depth of air lines (colour marking), replace air line

Symptom	Fault detection	Possible causes	Solution
		Vehicle level	

Vehicle lying to one side – No leaks in the system	Carry out guided troubleshooting using the Porsche System Tester	sensor defective	Replace vehicle level sensor → 431855 Replacing front level sensor → 431955 Replacing rear level sensor
		Linkage or holder for vehicle level sensor is bent	

Symptom	Fault detection	Possible causes	Solution
Vehicle is too high – Vehicle cannot be	1.) Check that the vehicle has sufficient ground clearance	Vehicle position is raised	Look for signs of damage and check clearance around the air-spring struts/air springs and anti-roll bars
	2.) Examine air line and line routing	Air line blocked, kinked or frozen	Replace kinked air lines; carefully blow out frozen and blocked air lines using compressed air
	3.) Valve unit blocked	Dirt in valve unit	Replace valve unit → 432355 Replacing valve unit (levelling system)
	4.) Compressor/valve block blocked	Dirt in compressor/valve block	Replace compressor → 431555 Replacing compressor for levelling system
		Check relays, plug contacts, wire harness and fuses in the vehicle electrical	Replace compressor → 431555 Replacing compressor for levelling system

lowered		system	
		Drain valve in the compressor faulty/leaking/open	
	5.) Carry out guided troubleshooting using the Porsche System Tester	Drain valve in compressor or control valves in valve block do not work Valve unit not functioning	Replace compressor → 431555 Replacing compressor for levelling system
	6.) Levelling system: Upper/lower limit value exceeded	Compressor fuse faulty	Replace compressor → 431519 Removing and installing compressor for levelling system
7.) If no faults were found after carrying out Step 6.), the compressor is faulty	Compressor faulty	Replace compressor → 431555 Replacing compressor for levelling system	

Symptom	Fault detection	Possible causes	Solution
	1.) Check that the vehicle has sufficient ground clearance	Vehicle position is raised	Look for signs of damage and check clearance around the air-spring dampers and anti-roll bars
	2.) Examine	Air line	Replace kinked air lines; carefully blow

<p>Vehicle is too low</p> <p>– Vehicle cannot be raised or can only be raised very slowly</p>	air line and line routing	blocked, kinked or frozen	out frozen and blocked air lines using compressed air
	3.) Valve unit blocked	Dirt in valve unit	Replace valve unit → 432355 Replacing valve unit (levelling system)
	4.) Compressor/valve block blocked	Dirt in compressor/valve block	Replace compressor → 431555 Replacing compressor for levelling system
	5.) Carry out guided troubleshooting using the Porsche System Tester	Check relays, plug contacts, wire harness and fuses in the vehicle electrical system	Replace compressor → 431555 Replacing compressor for levelling system
		Drain valve in the compressor faulty/leaking/open	Replace compressor → 431555 Replacing compressor for levelling system
	6.) If no faults were found after carrying out Step 5.), the compressor is faulty	Compressor faulty	Replace compressor → 431555 Replacing compressor for levelling system

Symptom	Fault	Possible	Solution
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	detection	causes	
Rapid loss of pressure	Vehicle lying to the left or right; when you try to switch to a different level, you can hear air coming from the defective air spring	Air-spring strut/air spring is faulty	Replace air-spring strut/air spring → 433019 Removing and installing front air-spring strut→ 434319 Removing and installing rear air spring or repairing → 43011N Bleeding and filling the levelling system
		Air line torn off	Replace air line → 43011N Bleeding and filling the levelling system

Symptom	Fault detection	Possible causes	Solution
Insufficient damping	Test drive: Adjust the damping level while the vehicle is in motion. You should feel a significant change in the damping effect when driving on uneven road surfaces. Also listen for “rumbling noises”	Damping adjustment valve faulty	Replace air-spring strut/air spring → 433019 Removing and installing front air-spring strut→ 434319 Removing and installing rear air spring or repair air-spring strut
		Vibration damper worn	Replace air-spring strut/air spring → 433019 Removing and installing front air-spring strut→ 434319 Removing and installing rear air spring or carry out repairs; clean air line system → 3.Clean air line system
	Test drive: Adjust the spring rate while		

<p>Insufficient cushioning</p>	<p>driving using the PASM button. You should notice an obvious change in the spring rate when switching between Comfort and Sport+.</p>	<p>Additional volume valve does not switch/faulty</p>	<p>Read out the fault memory. Perform drive link test using the Porsche System Tester. A switching noise should be heard coming from the area of the air spring during the switching process. Replace air-spring strut/air spring → 433019 Removing and installing front air-spring strut → 434319 Removing and installing rear air spring</p>
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2. Perform the following check under these conditions:

- The vehicle must be standing on a level surface.
- The vehicle must be cold and must not be moved during the check.
- The room temperature should be between 10°C and 30°C and must not fluctuate to any great extent.

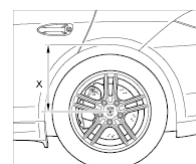
– Start the engine.

– Switch the vehicle to the high level using the high-level setting button (observe display in the instrument cluster). Then lower the vehicle to normal level again.

– Switch off the engine, ignition off.

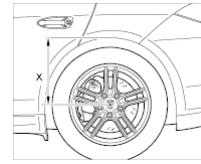
– Switch off system. To do this, press and hold high-level setting button for at least 10 s.

– Measure the vehicle height **-dimension X-** at all four wheels on the vehicle. → see figure → see figure



Dimension X = centre of wheel to lower edge of wing (rear axle shown)

– Measure the vehicle height **-dimension X-** → see figure → see figure again after two hours and compare it with the first measurement.



Dimension X = centre of wheel to lower edge of wing (rear axle shown)

If the vehicle is lying at an angle, there is a leak at the wheel suspension with the greatest difference between the first and second measurement.

Use commercially available leak detection spray to check the affected air-spring strut/air spring and the relevant air line one after the other.

If there is no difference after two hours, the vehicle height must be measured again after 24 hours. The difference must not be more than 5 mm after 24 hours.

The following components must also be checked:

- Air line connections
- Air-spring strut/air spring
- Valve unit

If the vibration dampers are defective, oil from the vibration damper may have entered the air supply system. To ensure that the air spring system works perfectly, it is absolutely essential that you clean the system after a fault is found and replace other components.

3. Procedure for repairing the air spring system after a fault is found on the vibration dampers:

- Screw off the affected line on the air-spring strut/air spring and solenoid valve block.
- Blow out the line several times until it is clean using compressed air by introducing the compressed air at the end of the line at the solenoid valve block.
- Check for traces of vibration damper oil in the solenoid valve block.
- If vibration damper oil has contaminated the valve unit, it must be replaced.
- Check the internal line from the compressor to the solenoid valve block.
- If there is oil in the line between the compressor and the pressure accumulator, the line and the pressure accumulator must be replaced.

If there is oil in the internal line, the compressor must be replaced.

92AAG1, 92AAG7, 92AAH1, 92AAI1, 92AAM1, 92AAP1, 92AAQ1, 92AAT1, 92AAU1, 92AAL1, 92AAN1, 92AAV1

Model year as of 2011

C00, C02, C05, C06, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C17, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C41, C45, C46, C96, C97, C98, C99