

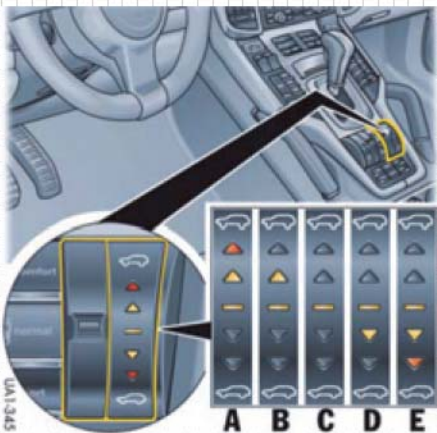
Air suspension

All air-spring struts on the front and rear axles are weight-optimized – the new design for connection to the chassis means that it was possible to omit the mounting saddle on the front axle. On the rear axle, axle mounting parts were integrated rigidly in the body (integrated wishbone) in order to improve torsional rigidity. This contributes to improved handling of the new Cayenne models.



The new air suspension is also designed as a closed system, where the air is stored temporarily in a pressure accumulator when the height level is changed. Intermediate storage of the air saves energy thanks to the use of a compressor that has been optimized for the new demands. In addition, changes in the height setting are performed more quickly after manual or automatic selection. The new air suspension system with PASM features new software programming to create a wider adjustment range for the three PASM modes Comfort, Normal and Sport.

In all Cayenne models, the driver can activate the different manually selectable levels by means of the separate rocker switch on the centre console. This makes it possible to further enhance the off-road suitability of the Cayenne by setting a greater fording depth as well as larger approach/departure angles.

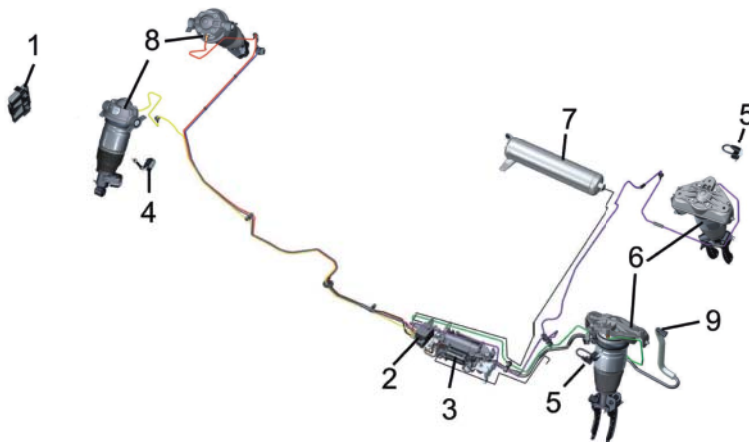


- A High Level II
- B High Level I
- C Normal Level
- D Low Level
- E Loading Level



Height level	Ground clearance with standard tires		Activation
	Cayenne, Cayenne S,	Cayenne Turbo	
High Level II	268 mm	273 mm	Manual up to 19 mph (30 km/h)
High Level I	238 mm	243 mm	Manual up to 50 mph (80 km/h)
Normal level	210 mm	215 mm	Manual
Low level	188 mm	193 mm	Manual / via Sport button and automatic as from 86 mph (138 km/h)
Low Level II	178 mm	183 mm	Automatic as from 130 mph (210 km/h)
Loading Level	158 mm	163 mm	Manual at standstill

Component overview



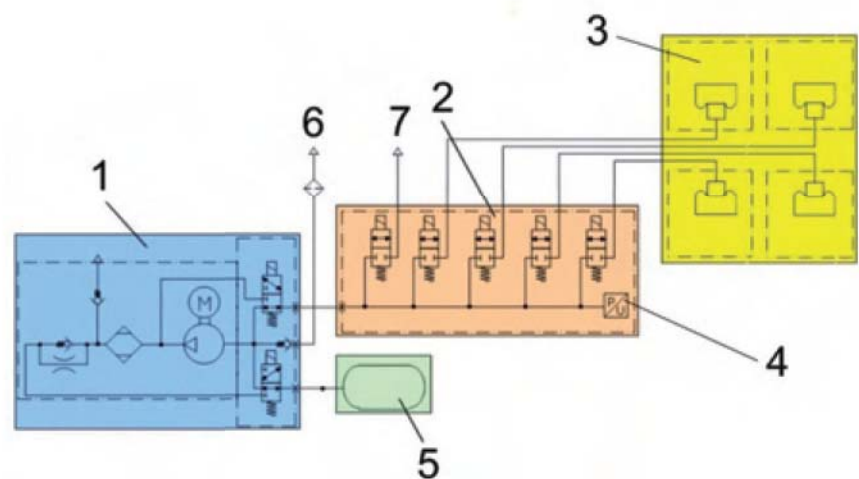
- 1 Control unit
- 2 Valve block
- 3 Compressor
- 4 Level sensor
- 5 Body acceleration sensor
- 6 Air-spring struts, front
- 7 Pressure accumulator (5.2 l)
- 8 Air-spring struts, rear
- 9 Intake line

The Cayenne features a closed air suspension system with a compressor, solenoid block with integrated pressure sensor and a pressure accumulator. To raise the vehicle, air is pumped into the spring units by the electric compressor. When lowering the vehicle, the excess air is not released to the outside, but is fed back into the 5.2-liter pressure accumulator by the compressor. This system makes the Cayenne particularly energy-efficient and also ensures fast suspension control.

The adaptive air suspension system includes the following components:

- Closed air supply system for better energy utilization and faster level adjustment
- Electrically driven compressor with air drier, isolated from the interior
- Solenoid valves for controlling the air-spring volume
- Light-alloy pressure accumulator
- 2 fully load-bearing air springs with outer guide and integrated dampers on the front and rear axles
- 4 level sensors (spring travel sensors) for detecting body movements
- PASM and air control integrated in one control unit

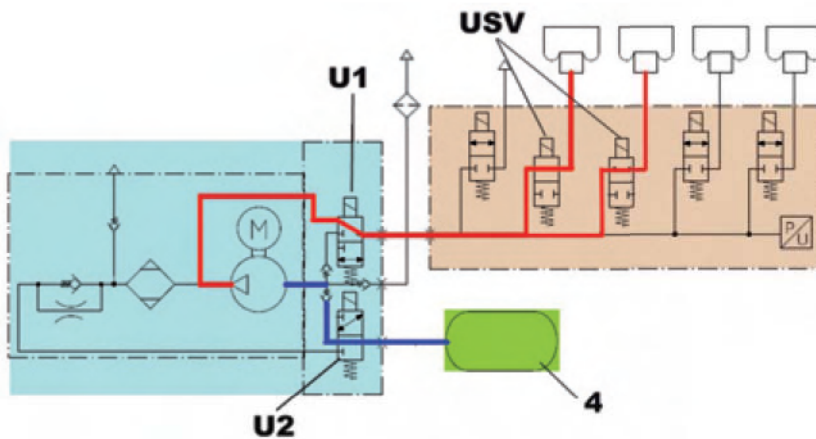
Schematic diagram



Control functions

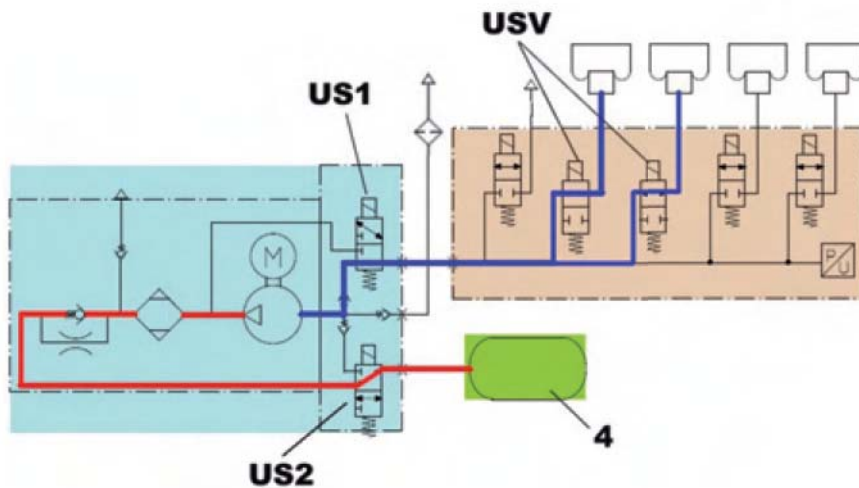
Raising the vehicle

The air springs on the front and rear axles are filled separately in order to raise the vehicle. Air is pumped out of the accumulator by the compressor and is routed to the air springs via pipes and valves. Change-over valve 1 and the corresponding air-spring change-over valves (e.g. USV) are switched for this purpose.



Lowering the vehicle

The air springs on the front and rear axles are switched separately in order to lower the vehicle. Air is pumped out of the air spring by the compressor via change-over valve 1. The air is routed through the air drier and change-over valve 2 into the accumulator. This circuit design means that any moisture is repeatedly eliminated from the system.





Control unit and sensors

