

2003-08 SUSPENSION

Level Control - Diagnostics - 9pa_Cayenne

LEVEL CONTROL

INTRODUCTION

NOTE: The basic equipment of the Cayenne includes the level control module. The PASM function (Porsche Active Suspension Management) can also be integrated into the level control module. This enhanced control module is known as the level control module with PASM. The assembly and service number are identical for both control modules. The following troubleshooting diagnosis can be applied to both control module types. To simplify matters, the control module is always referred to as the level control module in the following description. An independent check must therefore be made to ascertain which type of control module is installed. The difference between the two types of control module, from the point of view of diagnostics, is that the fault codes 0142, 0143, 0144 and 0145 cannot occur for the level control module. In addition, various menu and selection functions in the 9588 Porsche System Tester II are not used.

NOTE: The following troubleshooting diagnosis has been geared only towards left-hand drive vehicles and describes only these types of vehicles. In some cases, specified plugs and sockets may be assigned differently in right-hand drive vehicles, which can lead to incorrect interpretations during troubleshooting and to unforeseen accidents. Therefore, no work should be performed on right-hand drive vehicles without the correct wiring diagram and troubleshooting diagnosis description.

Level control

Level control diagnosis software number: from 0101

Cayenne as of model year 2003

Level control with PASM (Porsche Active Suspension Management)

Level control with PASM diagnosis software number: from 0201

Cayenne as of model year 2003

General instructions/safety instructions

The following points must be observed during vehicle diagnosis:

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- After the battery is connected, volatile memories must be reprogrammed. In the case of radio coding and tuning, the customer must be informed of decoding and the deleted tuner memory. Carry out work instruction after disconnecting the battery. Refer to **90 IN Work instructions after disconnecting the battery - as of MY 2003 (All Models Except Cayenne S TIO Titan)** must be observed.
- After troubleshooting or repairs, erase the fault memory with the 9588 Porsche System Tester II and carry out a test drive.
- After the test drive, read out the fault memory again with the 9588 Porsche System Tester II.

WARNING: *Danger of injury through triggering of driver's airbag*

- ***9588 Never hang the Porsche System Tester II over the steering wheel.***

WARNING: **Danger of injury and damage due to unusual vehicle handling when plugs or components are disconnected!**

- **Never disconnect plugs when the vehicle is in motion or drive the vehicle with plugs disconnected.**
- **Drive only with all parts fully installed and connected.**

WARNING: **Danger of personal injury from lowering vehicle independently when working on and underneath the vehicle!**

- **The normal level must always be set and the level control switched off when the vehicle is raised with the jack or platform lift.**

WARNING: **Danger of personal injury from moving vehicle independently with gear engaged and engine running!**

- **Before starting the engine in a vehicle with manual transmission, take the vehicle out of gear and put the hand brake on firmly.**
- **Before starting the engine in a vehicle with automatic transmission, move the selector lever to position V and put the hand brake on firmly.**

CAUTION: **Danger of injury and material damage if the wheel carrier is raised incorrectly!**

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

CAUTION: The vehicle rises when the air springs are filled!

CAUTION: Danger of damage due to improper handling of batteries and control module plug connections!

- **Never disconnect battery with engine running.**
- **Never start engine if battery terminal clamps are not connected securely.**
- **Never pull off or push on plug connections for the control modules or other electronic components when the ignition is switched on.**
- **Always disconnect the negative terminal of the battery and pull off all plug connections to the vehicle electrical system control module when carrying out welding work on the vehicle.**

NOTE: If a relay fault or multiple valve faults are recorded, check the system's plug connections for correct contacts.

Fault code setting conditions

Fault codes can be set in several circumstances, e.g.:

- battery disconnected
- plug connections disconnected
- faulty coding
- power failure
- etc.

In these circumstances, no fault is present in the system and the fault memory must be erased.

Troubleshooting procedure

Troubleshooting can only be performed when the fault is present. In other words, specific troubleshooting can only be performed in accordance with instructions (given under Diagnosis/troubleshooting for each fault code) if the entry has the status 'present' in the fault memory.

If the fault is currently 'not present', please check the following:

- Diagnosis conditions are met; if necessary perform a short test or test drive
- All plug connections and ground points of the affected current path are OK.
- Set all wiring harnesses of the affected current path to a state that corresponds to driving by pulling and shaking them (loose contact).

Diagnostic conditions

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NOTE: Important! Always connect a suitable battery charging device to the vehicle electrical system battery or to the designated jump-start terminal before starting diagnosis. All unnecessary loads must also be switched off.

NOTE: The fault can only be identified if the requirements listed under 'Diagnostic conditions' are met. For this reason, the specified procedure must be observed after a fault is repaired:

1. Erase fault memory.
2. Satisfy the requirements listed under 'Diagnostic conditions'.
3. Read out fault memory again.

Possible causes of fault

NOTE: The 'possible causes of fault' that are responsible for the fault are listed here. Please note that in certain circumstances further faults can be stored in the fault memory after troubleshooting (e.g. if plugs are disconnected). After carrying out repairs, read out the fault memory of all control modules and erase any faults.

Diagnosis/troubleshooting

NOTE: The fault memory Info key [F8] on the 9588 Porsche System Tester II can be used to access the 'extended fault memory'. The following information can be displayed:

Fault type

The following fault types are possible:

- no display
- upper limit value exceeded
- lower limit value not reached
- mechanical fault
- no signal/communication
- no or incorrect basic setting/adaptation
- short circuit to B+
- short circuit to ground
- implausible signal
- open circuit/short circuit to ground
- open circuit/short circuit to B+
- open circuit

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- electrical fault in electric circuit
- please read out fault memory
- faulty
- cannot be checked now

Fault status

The following status types are possible:

- present
- not present

This information should be saved using the Save key [F4] and printed out.

NOTE: **Visual inspection:** During troubleshooting, please check first that the affected pins on the level control module plug connection are neither damaged nor corroded. The wiring and plugs of the affected components must also be checked for external damage and correct contacts. Repair damaged or corroded pins if possible, otherwise replace affected pins. Repair or replace damaged wires.

NOTE: **Battery voltage and signals:** A battery voltage of between 11.4 and 14.5 V is required for troubleshooting. This must be checked and provided if necessary. Both signals and voltages as well as components or fuses (input side) must be guaranteed on the vehicle electrical system.

NOTE: **Specified resistance values are based on an ambient temperature of 20°C.**

TOOLS

WARNING: Danger of personal injury while working with special tools

- 9588 Never hang the Porsche System Tester II over the steering wheel

NOTE: **Plug contacts are optimally designed to suit the plug system. Operations on pins can cause contact problems. Always use suitable measurement tools for adapter plugs and test cables.**

BATTERY CHARGING DEVICE

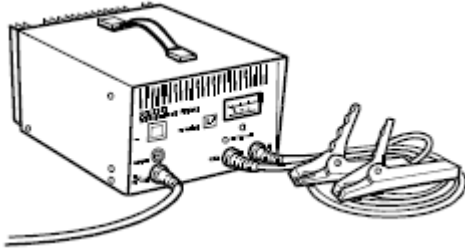


Fig. 1: Identifying Battery Charging Device
Courtesy of PORSCHE OF NORTH AMERICA, INC.

9588 PORSCHE SYSTEM TESTER II



Fig. 2: Identifying 9588 Porsche System Tester II
Courtesy of PORSCHE OF NORTH AMERICA, INC.

COMMERCIALLY AVAILABLE DIGITAL MULTIMETER



Fig. 3: Identifying Commercially Available Digital Multimeter
Courtesy of PORSCHE OF NORTH AMERICA, INC.

9684 MEASUREMENT TOOL SET

97



9684

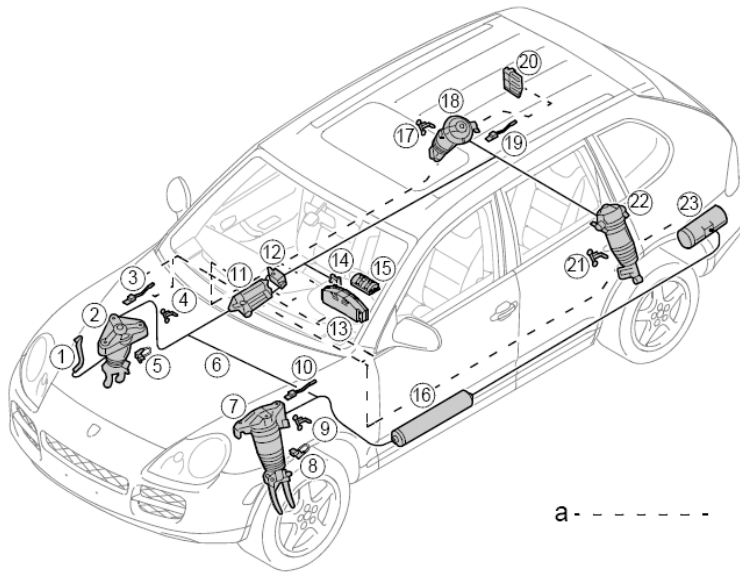
000 721 968 40

Fig. 4: Identifying 9684 Measurement Tool Set
Courtesy of PORSCHE OF NORTH AMERICA, INC.

COMPONENT ARRANGEMENT

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a - - - - -

a - CAN drive

- 1 - Suction line for compressor
- 2 - Air-spring strut, front axle, right
- 3 - Body acceleration sensor, front right
 - 2x front and 1x rear
- 4 - Vehicle level sensor, front right
 - At the top of the control arm
- 5 - Wheel acceleration sensor, front right
 - 1x on each air-spring strut on the front axle
- 6 - Pressure pipes
- 7 - Air-spring strut, front axle, left
- 8 - Wheel acceleration sensor, front left
 - 1x on each air-spring strut on the front axle
- 9 - Vehicle level sensor, front left
 - At the top of the control arm
- 10 - Body acceleration sensor, front left
 - 2x front and 1x rear
- 11 - Compressor
- 12 - Valve block
- 13 - Instrument cluster
- 14 - Compressed air connection
 - Installed below seat frame, front right
- 15 - Selector switch (level control module)
- 16 - Accumulator, front
- 17 - Vehicle level sensor, rear right
 - At the top of the control arm
- 18 - Air-spring strut, rear axle, right
- 19 - Body acceleration sensor, rear right
 - 2x front and 1x rear
- 20 - Level control module
 - Both control module types (with/without PASM) installed in the same location
- 21 - Vehicle level sensor, rear left
 - At the top of the control arm
- 22 - Air-spring strut, rear axle, left
- 23 - Accumulator, rear

Fig. 5: Identifying Component Arrangement Of Level Control
Courtesy of PORSCHE OF NORTH AMERICA, INC.

a. CAN drive

1. **Suction line for compressor**
2. **Air-spring strut, front axle, right**
3. **Body acceleration sensor, front right**
 - 2x front and 1x rear
4. **Vehicle level sensor, front right**
 - At the top of the control arm
5. **Wheel acceleration sensor, front right**
 - 1x on each air-spring strut on the front axle
6. **Pressure pipes**
7. **Air-spring strut, front axle, left**
8. **Wheel acceleration sensor, front left**
 - 1x on each air-spring strut on the front axle
9. **Vehicle level sensor, front left**
 - At the top of the control arm
10. **Body acceleration sensor, front left**
 - 2x front and 1x rear
11. **Compressor**
12. **Valve block**
13. **Instrument cluster**
14. **Compressed air connection**
 - Installed below seat frame, front right
15. **Selector switch (level control module)**
16. **Accumulator, front**
17. **Vehicle level sensor, rear right**
 - At the top of the control arm
18. **Air-spring strut, rear axle, right**
19. **Body acceleration sensor, rear right**
 - 2x front and 1x rear
20. **Level control module**
 - Both control module types (with/without PASM) installed in the same location
21. **Vehicle level sensor, rear left**
 - At the top of the control arm
22. **Air-spring strut, rear axle, left**
23. **Accumulator, rear**

CONNECTOR ASSIGNMENT

LEVEL CONTROL MODULE

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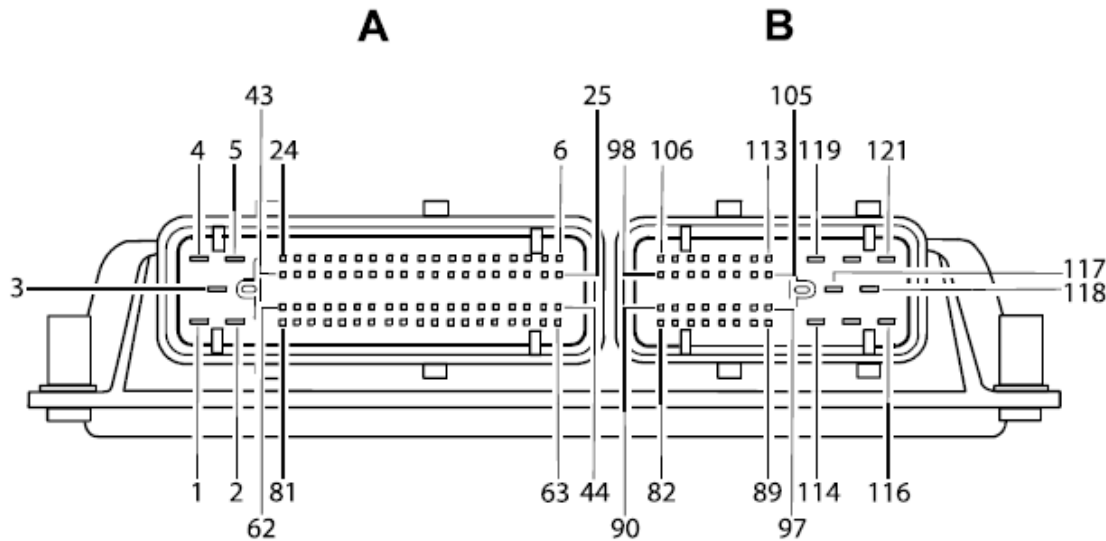


Fig. 6: Identifying Level Control Module Connector Assignments
 Courtesy of PORSCHE OF NORTH AMERICA, INC.

WIRING HARNESS PLUG A, 81-PIN, LEVEL CONTROL MODULE

CONNECTOR PINS REFERENCE

Pin	Designation	Pin	Designation
1	Terminal 31	2	Terminal 31
3	Terminal 15	4	Terminal 30
5	Terminal 30	6 to 16	Not used
17	Air-spring valve, rear right 'ground activation'	18	Air-spring valve, front left 'ground activation'
19	Air-spring valve, front right 'ground activation'	20	Air-spring valve, rear left 'ground activation'
21 to 24	Not used	25	Signal for headlight beam adjustment
26 to 30	Not used	31	Compressor relay 'ground activation'
32	Not used	33	Vent valve 'ground activation'
34	Accumulator valve 'ground activation'	35	Not used
36	Compressor relay 'B+ activation'	37	Solenoid block 'B+ activation'
38 to 42	Not used	43	Air-spring valve (vent) 'B+ activation'
44 to 45	Not used	46	Selector switch (level control module)
47 to 52	Not used	53	Door signal
54	Tyre filling connection 1	55	Tyre filling connection 2
56 to			

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60	Not used	61	CAN 'high'
62	Not used	63	Power supply for vehicle level sensor, front left
64	Power supply for vehicle level sensor, rear left	65	Power supply for vehicle level sensor, front right
66	Power supply for vehicle level sensor, rear right	67	Power supply for pressure sensor
68 to 73	Not used	74	Ground for vehicle level sensor, rear right
75	Ground for vehicle level sensor, rear left	76	Ground for vehicle level sensor, front right
77	Ground for vehicle level sensor, front left	78 to 79	Not used
80	Not used	81	CAN 'low'

WIRING HARNESS PLUG B, 40-PIN, LEVEL CONTROL MODULE (PIN ASSIGNMENT INCLUDES PASM)

CONNECTOR PINS REFERENCE

Pin	Designation	Pin	Designation
82	Signal for vehicle level sensor, front left	83	Signal for vehicle level sensor, front right
84	Signal for pressure sensor	85	Signal for temperature sensor
86	Signal for wheel acceleration sensor on air-spring strut, front left (only with PASM)	87	Signal for wheel acceleration sensor on air-spring strut, front right (only with PASM)
88	Not used	89	Not used
90	Signal for vehicle level sensor, rear left	91	Signal for vehicle level sensor, rear right
92	Ground for pressure sensor	93	Ground for temperature sensor
94	Signal for body acceleration sensor, front left (only with PASM)	95	Signal for body acceleration sensor, front right (only with PASM)
96	Signal for body acceleration sensor, rear (only with PASM)	97	Not used
98	Ground for wheel acceleration sensor on air-spring strut, front left (only with PASM)	99	Ground for wheel acceleration sensor on air-spring strut, front right (only with PASM)
100	Ground for tire filling connection on air-spring strut, rear left	101	Not used
102	Ground for body acceleration sensor, front left (only with PASM)	103	Ground for body acceleration sensor, front right (only with PASM)
104	Ground for body acceleration sensor, rear (only with PASM)	105	Not used
106	Power supply for body acceleration sensor, front right (only with PASM)	107	Power supply for wheel acceleration sensor on air-spring strut, front right (only with PASM)

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108	Not used	109	Power supply for body acceleration sensor, rear left (only with PASM)
110	Power supply for wheel acceleration sensor on air-spring strut, front right (only with PASM)	111	Power supply for body acceleration sensor, front left (only with PASM)
112	Not used	113	Not used
114	Air-spring strut, rear left 'low' (only with PASM)	115	Air-spring strut, front left 'high' (only with PASM)
116	Air-spring strut, front right 'high' (only with PASM)	117	Air-spring strut, front left 'low' (only with PASM)
118	Air-spring strut, front right 'low' (only with PASM)	119	Air-spring strut, rear left 'high' (only with PASM)
120	Air-spring strut, rear right 'low' (only with PASM)	121	Air-spring strut, rear right 'high' (only with PASM)

FAULT OVERVIEW

NOTE: If the fault code 0003 'Control unit faulty' is displayed in the 9588 Porsche System Tester II but the red warning 'Air spring warning' in the instrument cluster does not appear, the fault can be erased.

FAULT CODE REFERENCE CHART

Fault code	Fault text	Fault effects
0003	Control unit faulty	<ul style="list-style-type: none"> • Red warning in instrument cluster: 'Air spring warning' • Control not possible • Control not possible (PASM) • Vehicle lowered to lowest level wheel by wheel
0135	Wheel acceleration sensor, front left	<ul style="list-style-type: none"> • Yellow warning in instrument cluster: 'Air spring faulty, workshop' • Control not possible (PASM)
0136	Wheel acceleration sensor, front right	<ul style="list-style-type: none"> • Yellow warning in instrument cluster: 'Air spring faulty, workshop' • Control not possible (PASM)
0139	Body acceleration sensor, front left	<ul style="list-style-type: none"> • Yellow warning in instrument cluster: 'Air spring faulty, workshop' • Control not possible (PASM)
0140	Body acceleration sensor, front right	<ul style="list-style-type: none"> • Yellow warning in instrument cluster: 'Air spring faulty, workshop'

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		<ul style="list-style-type: none"> Control not possible (PASM)
<u>0141</u>	Rear body acceleration sensor	<ul style="list-style-type: none"> Yellow warning in instrument cluster: 'Air spring faulty, workshop' Control not possible (PASM)
<u>0142</u>	Damping adjustment valve, front left (only with PASM)	<ul style="list-style-type: none"> Yellow warning in instrument cluster: 'Air spring faulty, workshop' Control not possible (PASM)
<u>0143</u>	Damping adjustment valve, front right (only with PASM)	<ul style="list-style-type: none"> Yellow warning in instrument cluster: 'Air spring faulty, workshop' Control not possible (PASM)
<u>0144</u>	Damping adjustment valve, rear left (only with PASM)	<ul style="list-style-type: none"> Yellow warning in instrument cluster: 'Air spring faulty, workshop' Control not possible (PASM)
<u>0145</u>	Damping adjustment valve, rear right (only with PASM)	<ul style="list-style-type: none"> Yellow warning in instrument cluster: 'Air spring faulty, workshop' Control not possible (PASM)
<u>0146</u>	Power supply for front right/rear left body acceleration sensor	<ul style="list-style-type: none"> Yellow warning in instrument cluster: 'Air spring faulty, workshop' Control not possible (PASM)
<u>0147</u>	Power supply for front left body acceleration sensor	<ul style="list-style-type: none"> Yellow warning in instrument cluster: 'Air spring faulty, workshop' Control not possible (PASM)
<u>0149</u>	No or incorrect basic setting/coding or programming	<ul style="list-style-type: none"> Yellow warning in instrument cluster: 'Air spring faulty, workshop'
<u>0311</u>	Tyre filling connection	<ul style="list-style-type: none"> Yellow warning in instrument cluster: 'Air spring faulty, workshop' Cannot raise
<u>0532</u>	Power supply	<ul style="list-style-type: none"> Yellow warning in instrument cluster: 'Air spring faulty, workshop'
0668	Vehicle voltage, terminal 30	<ul style="list-style-type: none"> Red warning in instrument cluster: 'Air spring warning' Control not possible Inclination control not possible (PASM)
0774	Vehicle level sensor, rear left	<ul style="list-style-type: none"> Yellow warning in instrument cluster: 'Air spring faulty, workshop' Control not possible Inclination control not possible
		<ul style="list-style-type: none"> Yellow warning in instrument cluster: 'Air spring

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<u>0775</u>	Vehicle level sensor, rear right	<p>faulty, workshop'</p> <ul style="list-style-type: none"> • Control not possible • Inclination control not possible
<u>0776</u>	Vehicle level sensor, front left	<ul style="list-style-type: none"> • Yellow warning in instrument cluster: 'Air spring faulty, workshop' • Control not possible • Inclination control not possible
<u>0778</u>	Steering-angle sensor	<ul style="list-style-type: none"> • Yellow warning in instrument cluster: 'Air spring faulty, workshop' • Inclination control not possible (PASM)
<u>0805</u>	Spring strut valve, front left	<ul style="list-style-type: none"> • Red warning in instrument cluster: 'Air spring warning' • Control not possible
<u>0806</u>	Spring strut valve, front right	<ul style="list-style-type: none"> • Red warning in instrument cluster: 'Air spring warning' • Control not possible
<u>0807</u>	Spring strut valve, rear left	<ul style="list-style-type: none"> • Red warning in instrument cluster: 'Air spring warning' • Control not possible
<u>0808</u>	Spring strut valve, rear right	<ul style="list-style-type: none"> • Red warning in instrument cluster: 'Air spring warning' • Control not possible
<u>1042</u>	Control unit not coded	<ul style="list-style-type: none"> • Red warning in instrument cluster: 'Air spring warning' • Control not possible • Inclination control not possible (PASM)
<u>1312</u>	CAN drive	<ul style="list-style-type: none"> • Yellow warning in instrument cluster: 'Air spring faulty, workshop' • Lowering to lowest level • Inclination control not possible (PASM)
<u>1314</u>	DME control unit	<ul style="list-style-type: none"> • Yellow warning in instrument cluster: 'Air spring faulty, workshop'
<u>1316</u>	PSM control unit	<ul style="list-style-type: none"> • Yellow warning in instrument cluster: 'Air spring faulty, workshop' • Lowering to lowest level • Inclination control not possible (PASM)
1317	Instrument cluster	<ul style="list-style-type: none"> • Control not possible
1324	Transfer box control unit	<ul style="list-style-type: none"> • Control not possible

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<u>1397</u>	Vent solenoid valve	<ul style="list-style-type: none"> • Red warning in instrument cluster: 'Air spring warning' • Control not possible
<u>1398</u>	Doors/rear lid signal	<ul style="list-style-type: none"> • Control also incorrectly possible when doors/rear lid of stationary vehicle are open
<u>1399</u>	Compressor relay	<ul style="list-style-type: none"> • Yellow warning in instrument cluster: 'Air spring faulty, workshop' • Cannot raise
<u>1400</u>	Control position not adjustable	<ul style="list-style-type: none"> • Red warning in instrument cluster: 'Air spring warning' • Control not possible
<u>1437</u>	Control position not learned	<ul style="list-style-type: none"> • Manual control not possible (via the selector switch)
<u>1487</u>	System function test faulty	<ul style="list-style-type: none"> • Red warning in instrument cluster: 'Air spring warning' • Vehicle lowered onto to buffers wheel by wheel • Control not possible • Control not possible (PASM)
<u>1575</u>	Manual control switched off	<ul style="list-style-type: none"> • Yellow warning in instrument cluster: 'Air spring faulty, workshop'
<u>1577</u>	Overtemperature	<ul style="list-style-type: none"> • Cannot raise
<u>1598</u>	Vehicle voltage, terminal 30	<ul style="list-style-type: none"> • Red warning in instrument cluster: 'Air spring warning' • Control not possible • Inclination control not possible (PASM)
<u>1767</u>	Power supply for vehicle level sensors, left	<ul style="list-style-type: none"> • Red warning in instrument cluster: 'Air spring warning' • Control not possible
<u>1768</u>	Power supply for vehicle level sensors, right	<ul style="list-style-type: none"> • Red warning in instrument cluster: 'Air spring warning' • Control not possible
<u>1769</u>	Vehicle level sensor, front right	<ul style="list-style-type: none"> • Yellow warning in instrument cluster: 'Air spring faulty, workshop' • Control not possible • Inclination control not possible (PASM) • Inclination control not possible
<u>1770</u>	Compressor temperature sensor	<ul style="list-style-type: none"> • Shortened compressor operation time • Limited system availability

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<u>1772</u>	Pressure sensor signal lead	<ul style="list-style-type: none">• Yellow warning in instrument cluster: 'Air spring faulty, workshop'
<u>1773</u>	Accumulator valve	<ul style="list-style-type: none">• Yellow warning in instrument cluster: 'Air spring faulty, workshop'• Cannot raise
<u>1776</u>	Selector switch	<ul style="list-style-type: none">• Yellow warning in instrument cluster: 'Air spring faulty, workshop'
<u>1780</u>	Vehicle level sensor	<ul style="list-style-type: none">• Yellow warning in instrument cluster: 'Air spring faulty, workshop'
<u>1781</u>	Extreme vehicle inclination	<ul style="list-style-type: none">• Lowering to lowest level
<u>2250</u>	Valve operating time exceeded	<ul style="list-style-type: none">• Lowering to lowest level

FAULT CODE 0003

CONTROL UNIT FAULTY

NOTE:

- Only if the fault code 0003 'Control unit faulty' appears in the Porsche System Tester II No. 9588 in conjunction with the red warning in the instrument cluster 'Air spring warning', can a fault in the control unit be assumed.
- If no red warning is present in the instrument cluster or if the logo 'Air spring warning' is not displayed, then the fault can be erased without troubleshooting.

Diagnostic conditions

- Ignition on for at least 6 minutes
- Internal control unit (level control) function test

Possible cause of fault

- Incorrect interpretation in control unit software
- Control unit (level control) faulty

Affected pins

DIAGNOSIS/TROUBLESHOOTING

DIAGNOSIS/TROUBLESHOOTING PROCEDURE

Work instruction	Display OK	If not OK
1 Ignition on for at least 6 minutes	No warning in instrument cluster Go to Erase fault memory	Red warning in instrument cluster Go to Step 2

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	--> End
2 Replace control unit (level control)	--> End

FAULT CODE 0135

WHEEL ACCELERATION SENSOR, FRONT LEFT

Diagnostic conditions

- Ignition on
- Internal level control module function test

Possible cause of fault

- Open circuit in the wiring of pin 86 of the level control module
- Short circuit to ground in the wiring in pin 86 of the level control module
- Level control module receives implausible signal from wheel acceleration sensor
- Wheel acceleration sensor faulty
- Level control module faulty

Affected pins

Level control module, plug B:

- Pin 86

Wheel acceleration sensor, front left, plug B:

- Pin 2

Diagnosis/troubleshooting

DIAGNOSIS/TROUBLESHOOTING PROCEDURE

Work instruction		Display OK	If not OK
1 Check power supply for front left wheel acceleration sensor	<ul style="list-style-type: none">• Switch off ignition.• Pull off plug on front left wheel acceleration sensor.• Switch on ignition.• Measure voltage between plug B of front left wheel acceleration sensor 'pins 1 and 3'.	~ 5 V Go to Step 2	Repair or replace wiring harness. --> End
	<ul style="list-style-type: none">• Switch off ignition.		

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2	Check wiring between front left wheel acceleration sensor and level control module for short circuit to B+	<ul style="list-style-type: none"> • Pull plug B off level control module. • Pull plug B off front left wheel acceleration sensor. • Switch on ignition. • Measure voltage between level control module plug B 'pins 86, 98, 110' and ground. 	<p>< 0.3 V Go to Step 3</p>	<p>Repair or replace wiring harness. --> End</p>
3	Check wiring between front left wheel acceleration sensor and level control module for short circuit to ground	<ul style="list-style-type: none"> • Switch off ignition. • Measure resistance between level control module plug B 'pins 86, 98, 110' and ground. 	<p>infinity ohms Go to Step 4</p>	<p>Repair or replace wiring harness. --> End</p>
4	Check wiring between front left wheel acceleration sensor and level control module for open circuit	<ul style="list-style-type: none"> • Measure resistance between level control module plug B 'pins 86, 98, 110' and front left wheel acceleration sensor plug B 'pins 2, 3, 1'. 	<p>< 5 ohms Go to Step 5</p>	<p>Repair or replace wiring harness. --> End</p>
5	Check wiring between front left wheel acceleration sensor and level control module for short circuit with respect to each other	<ul style="list-style-type: none"> • Measure resistance in the individual level control module wires on plug B between 'pins 86 and 98', 'pins 86 and 110', and 'pins 98 and 110'. 	<p>infinity ohms Go to Step 6</p>	<p>Repair or replace wiring harness. --> End</p>
6	Replace front left wheel acceleration sensor		<p>--> End</p>	<p>Go to Step 7</p>
7	Replace level control module		<p>--> End</p>	

FAULT CODE 0136

WHEEL ACCELERATION SENSOR, FRONT RIGHT

Diagnostic conditions

- Ignition on
- Internal level control module function test

Possible cause of fault

- Open circuit in wire from control unit (level control) pin 87
- Short circuit to ground in wire from control unit (level control) pin 87
- Level control module receives implausible signal from wheel acceleration sensor
- Wheel acceleration sensor faulty
- Level control module faulty

Affected pins

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Level control module, plug B:

- Pin 87

Wheel acceleration sensor, front right, plug B:

- Pin 2

Diagnosis/troubleshooting

DIAGNOSIS/TROUBLESHOOTING PROCEDURE

Work instruction		Display OK	If not OK
1	Check power supply for front right wheel acceleration sensor	<ul style="list-style-type: none"> • Switch off ignition. • Pull off plug on front right wheel acceleration sensor. • Switch on ignition. • Measure voltage between plug B of front right wheel acceleration sensor 'pins 1 and 3'. 	<p>~ 5 V Go to Step 2</p> <p>Repair or replace wiring harness. --> End</p>
2	Check wiring between front right wheel acceleration sensor and level control module for short circuit to B+	<ul style="list-style-type: none"> • Switch off ignition. • Pull plug B off level control module. • Pull plug B off front right wheel acceleration sensor. • Switch on ignition. • Measure voltage between level control module plug B 'pins 87, 99, 107' and ground. 	<p>< 0.3 V Go to Step 3</p> <p>Repair or replace wiring harness. --> End</p>
3	Check wiring between front right wheel acceleration sensor and level control module for short circuit to ground	<ul style="list-style-type: none"> • Switch off ignition. • Measure resistance between level control module plug B 'pins 87, 99, 107' and ground. 	<p>infinity ohms Go to Step 4</p> <p>Repair or replace wiring harness. --> End</p>
4	Check wiring between front right wheel acceleration sensor and level control module for open circuit	<ul style="list-style-type: none"> • Measure resistance between level control module plug B 'pins 87, 99, 107' and front right wheel acceleration sensor plug B 'pins 2, 3, 1'. 	<p>< 5 ohms Go to Step 5</p> <p>Repair or replace wiring harness. --> End</p>
5	Check wiring between front right wheel acceleration sensor and level control module for short circuit with respect to each other	Measure resistance in the level control module wires on plug B between 'pins 87 and 99', 'pins 87 and 107', and 'pins 99 and 107'.	<p>infinity ohms Go to Step 6</p> <p>Repair or replace wiring harness. --> End</p>

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6	Replace front right wheel acceleration sensor	--> End	Go to Step 7
7	Replace level control module	--> End	

FAULT CODE 0139

BODY ACCELERATION SENSOR, FRONT LEFT

Diagnostic conditions

- Ignition on
- Internal level control module function test

Possible cause of fault

- Open circuit in the wiring in pin 94 of the level control module
- Short circuit to ground in the wiring in pin 94 of the level control module
- Level control module receives implausible signal from body acceleration sensor
- Body acceleration sensor faulty
- Level control module faulty

Affected pins

Level control module, plug B:

- Pin 94

Body acceleration sensor, front left:

- Pin 2

Diagnosis/troubleshooting

DIAGNOSIS/TROUBLESHOOTING PROCEDURE

Work instruction		Display OK	If not OK
1 Check power supply for front left body acceleration sensor	<ul style="list-style-type: none">• Switch off ignition.• Pull off plug on front left body acceleration sensor.• Switch on ignition.• Measure voltage between plug of front left body acceleration sensor 'pins 1 and 3'.	~ 5 V Go to Step 2	Repair or replace wiring harness. --> End
	<ul style="list-style-type: none">• Switch off ignition.		

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2	Check wiring between front left body acceleration sensor and level control module for short circuit to B+	<ul style="list-style-type: none"> • Pull plug B off level control module. • Pull off plug on front left body acceleration sensor. • Switch on ignition. • Measure voltage between level control module plug B 'pins 94, 102, 111' and ground. 	<p>< 0.3 V Go to Step 3</p>	<p>Repair or replace wiring harness. --> End</p>
3	Check wiring between front left body acceleration sensor and level control module for short circuit to ground	<ul style="list-style-type: none"> • Switch off ignition. • Measure resistance between level control module plug B 'pins 94, 102, 111' and ground. 	<p>infinity ohms Go to Step 4</p>	<p>Repair or replace wiring harness. --> End</p>
4	Check wiring between front left body acceleration sensor and level control module for open circuit	<ul style="list-style-type: none"> • Measure resistance between level control module plug B 'pins 94, 102, 111' and front left body acceleration sensor 'pins 2, 3, 1'. 	<p>< 5 ohms Go to Step 5</p>	<p>Repair or replace wiring harness. --> End</p>
5	Check wiring between front left body acceleration sensor and level control module for short circuit with respect to each other	<ul style="list-style-type: none"> • Measure resistance in the individual level control module wires on plug B between 'pins 94 and 102', 'pins 94 and 111', and 'pins 102 and 111'. 	<p>infinity ohms Go to Step 6</p>	<p>Repair or replace wiring harness. --> End</p>
6	Replace front left body acceleration sensor		<p>--> End</p>	<p>Go to Step 7</p>
7	Replace level control module		<p>--> End</p>	

FAULT CODE 0140

BODY ACCELERATION SENSOR, FRONT RIGHT

Diagnostic conditions

- Ignition on
- Internal level control module function test

Possible cause of fault

- Open circuit in the wiring of pin 95 of the level control module
- Short circuit to ground in the wiring of pin 95 of the level control module
- Level control module receives implausible signal from body acceleration sensor
- Body acceleration sensor faulty
- Level control module faulty

Affected pins

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Level control module, plug B:

- Pin 95

Body acceleration sensor, front right:

- Pin 2

Diagnosis/troubleshooting

DIAGNOSIS/TROUBLESHOOTING PROCEDURE

Work instruction		Display OK	If not OK
1	Check power supply for front right body acceleration sensor:	<ul style="list-style-type: none"> • Switch off ignition. • Pull off plug on front right body acceleration sensor. • Switch on ignition. • Measure voltage between plug of front right body acceleration sensor 'pins 1 and 3'. 	~ 5 V Go to Step 2 Repair or replace wiring harness. --> End
2	Check wiring between front right body acceleration sensor and level control module for short circuit to B+:	<ul style="list-style-type: none"> • Switch off ignition. • Pull plug B off level control module. • Pull off plug on front right body acceleration sensor. • Switch on ignition. • Measure voltage between level control module plug B 'pins 95, 103, 106' and ground. 	< 0.3 V Go to Step 3 Repair or replace wiring harness. --> End
3	Check wiring between front right body acceleration sensor and level control module for short circuit to ground:	<ul style="list-style-type: none"> • Switch off ignition. • Measure resistance between level control module plug B 'pins 95, 103, 106' and ground. 	infinity ohms Go to Step 4 Repair or replace wiring harness. --> End
4	Check wiring between front right body acceleration sensor and level control module for open circuit:	<ul style="list-style-type: none"> • Measure resistance between level control module plug B 'pins 95, 103, 106' and front right body acceleration sensor 'pins 2, 3, 1'. 	< 5 ohms Go to Step 5 Repair or replace wiring harness. --> End
5	Check wiring between front right body acceleration sensor and level control module for short circuit with respect to each other:	<ul style="list-style-type: none"> • Measure resistance in the individual level control module wires on plug B between 'pins 95 and 103', 'pins 95 and 106', and 'pins 103 and 106'. 	infinity ohms Go to Step 6 Repair or replace wiring harness. --> End
6	Replace front right body acceleration sensor.	--> End	Go to Step 7

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7| Replace level control module.

|--> End

FAULT CODE 0141

REAR BODY ACCELERATION SENSOR

Diagnostic conditions

- Ignition on
- Internal level control module function test

Possible cause of fault

- Open circuit in the wiring of pin 96 of the level control module
- Short circuit to ground in the wiring of pin 96 of the level control module
- Level control module receives implausible signal from body acceleration sensor
- Body acceleration sensor faulty
- Level control module faulty

Affected pins

Level control module, plug B:

- Pin 96

Rear body acceleration sensor:

- Pin 2

Diagnosis/troubleshooting

DIAGNOSIS/TROUBLESHOOTING PROCEDURE

Work instruction	Display OK	If not OK
1 Check power supply for rear body acceleration sensor:	• Switch off ignition. • Pull off plug on rear body acceleration sensor. • Switch on ignition. • Measure voltage between plug on rear body acceleration sensor 'pins 1 and 3'. ~ 5 V Go to Step 2	Repair or replace wiring harness. --> End
Check wiring between rear body	• Switch off ignition. • Pull plug B off level control module. • Pull off plug on rear body acceleration < 0.3 V	Repair or replace

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2003-08 SUSPENSION Level Control - Diagnostics - 9pa_Cayenne

2	acceleration sensor and level control module for short circuit to B+:	<p>sensor.</p> <ul style="list-style-type: none"> • Switch on ignition. • Measure voltage between level control module plug B 'pins 96, 104, 109' and ground. 	Go to Step 3	wiring harness. --> End
3	Check wiring between rear body acceleration sensor and level control module for short circuit to ground:	<ul style="list-style-type: none"> • Switch off ignition. • Measure resistance between level control module plug B 'pins 96, 104, 109' and ground. 	infinity ohms Go to Step 4	Repair or replace wiring harness. --> End
4	Check wiring between rear body acceleration sensor and level control module for open circuit:	<ul style="list-style-type: none"> • Measure resistance between level control module plug B 'pins 96, 104, 109' and rear body acceleration sensor 'pins 2, 3, 1'. 	< 5 ohms Go to Step 5	Repair or replace wiring harness. --> End
5	Check wiring between rear body acceleration sensor and level control module for short circuit with respect to each other:	<ul style="list-style-type: none"> • Measure resistance in the individual level control module wires on plug B between 'pins 96 and 104', 'pins 96 and 109', and 'pins 104 and 109'. 	infinity ohms Go to Step 6	Repair or replace wiring harness. --> End
6	Replace rear body acceleration sensor.		--> End	Go to Step 7
7	Replace level control module.		--> End	

FAULT CODE 0142

DAMPING ADJUSTMENT VALVE, FRONT LEFT

Diagnostic conditions

- Ignition on
- Internal level control module function test

Possible cause of fault

- Short circuit to ground or open circuit in the wiring of pin 115 of the level control module (electrical fault in electric circuit)
- Short circuit in pins 115 and 117 of the level control module wiring with respect to each other (electrical fault in electric circuit)
- Short circuit to B+ in the wiring of pin 115 of the level control module (electrical fault in electric circuit)
- Short circuit to B+ or open circuit in the wiring of pin 117 of the level control module (electrical fault in electric circuit)
- Short circuit to B+ in the wiring of pin 117 of the level control module (electrical fault in electric circuit)
- Damping adjustment valve faulty
- Level control module faulty

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2003-08 SUSPENSION Level Control - Diagnostics - 9pa_Cayenne

Affected pins

Level control module, plug B:

- Pin 115
- Pin 117

Front left damping adjustment valve, plug A:

- Pin 1
- Pin 2

Diagnosis/troubleshooting

DIAGNOSIS/TROUBLESHOOTING PROCEDURE

Work instruction		Display OK	If not OK
1	Check wiring between front left damping adjustment valve and level control module for short circuit to B+:	<ul style="list-style-type: none"> • Switch off ignition. • Pull plug B off level control module. • Pull plug A off front left damping adjustment valve. • Switch on ignition. • Measure voltage between level control module plug B 'pins 115, 117' and ground. 	< 0.3 V Go to Step 2 Repair or replace wiring harness. --> End
2	Check wiring between front left damping adjustment valve and level control module for short circuit to ground:	<ul style="list-style-type: none"> • Switch off ignition. • Measure resistance between level control module plug B 'pins 115, 117' and ground. 	infinity ohms Go to Step 3 Repair or replace wiring harness. --> End
3	Check wiring between front left damping adjustment valve and level control module for open circuit:	<ul style="list-style-type: none"> • Measure resistance between level control module plug B 'pins 115, 117' and front left damping adjustment valve 'pins 1, 2'. 	< 5 ohms Go to Step 4 Repair or replace wiring harness. --> End
4	Check wiring between front left damping adjustment valve and level control module for short circuit with respect to each other:	<ul style="list-style-type: none"> • Measure resistance of the individual level control module wires on plug B between 'pins 115 and 117'. 	infinity ohms Go to Step 5 Repair or replace wiring harness. --> End
5	Replace level control module.	--> End	Go to Step 6
6	Replace front left damper strut.	--> End	

FAULT CODE 0143

DAMPING ADJUSTMENT VALVE, FRONT RIGHT

Diagnostic conditions

- Ignition on
- Internal level control module function test

Possible cause of fault

- Short circuit to ground or open circuit in the wiring of pin 116 of the level control module (electrical fault in electric circuit)
- Short circuit in pins 116 and 118 of the level control module wires with respect to each other (electrical fault in electric circuit)
- Short circuit to B+ in the wiring of pin 116 of the level control module (electrical fault in electric circuit)
- Short circuit to B+ or open circuit in the wiring of pin 118 of the level control module (electrical fault in electric circuit)
- Short circuit to ground in the wiring of pin 118 of the level control module (electrical fault in electric circuit)
- Damping adjustment valve faulty
- Level control module faulty

Affected pins

Level control module, plug B:

- Pin 116
- Pin 118

Front right damping adjustment valve, plug A:

- Pin 1
- Pin 2

Diagnosis/troubleshooting

DIAGNOSIS/TROUBLESHOOTING PROCEDURE

Work instruction	Display OK	If not OK
Check wiring between front right	< 0.3 V	Repair or replace

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1	damping adjustment valve and level control module for short circuit to B+:	<ul style="list-style-type: none"> • Pull plug A off front right damping adjustment valve. • Switch on ignition. • Measure voltage between level control module plug B 'pins 116, 118' and ground. 	Go to Step 2	wiring harness. --> End
2	Check wiring between front right damping adjustment valve and level control module for short circuit to ground:	<ul style="list-style-type: none"> • Switch off ignition. • Measure resistance between level control module plug B 'pins 116, 118' and ground. 	infinity ohms Go to Step 3	Repair or replace wiring harness. --> End
3	Check wiring between front right damping adjustment valve and level control module for open circuit:	<ul style="list-style-type: none"> • Measure resistance between level control module plug B 'pins 116, 118' and front right damping adjustment valve 'pins 1, 2'. 	< 5 ohms Go to Step 4	Repair or replace wiring harness. --> End
4	Check wiring between front right damping adjustment valve and level control module for short circuit with respect to each other:	<ul style="list-style-type: none"> • Measure resistance of the individual level control module wires on plug B between 'pin 116' and 'pin 118'. 	infinity ohms Go to Step 5	Repair or replace wiring harness. --> End
5	Replace level control module.		--> End	Go to Step 6
6	Replace front right damper strut.		--> End	

FAULT CODE 0144

DAMPING ADJUSTMENT VALVE, REAR LEFT

Diagnostic conditions

- Ignition on
- Internal level control module function test

Possible cause of fault

- Short circuit to ground or open circuit in the wiring of pin 119 of the level control module (electrical fault in electric circuit)
- Short circuit in pins 114 and 119 of the level control module wiring with respect to each other (electrical fault in electric circuit)
- Short circuit to B+ in the wiring of pin 119 of the level control module (electrical fault in electric circuit)
- Short circuit to B+ or open circuit in the wiring of pin 114 of the level control module (electrical fault in electric circuit)
- Short circuit to ground in the wiring of pin 114 of the level control module (electrical fault in electric circuit)

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- Damping adjustment valve faulty
- Level control module faulty

Affected pins

Level control module, plug B:

- Pin 114
- Pin 119

Rear left damping adjustment valve, plug A:

- Pin 1
- Pin 2

Diagnosis/troubleshooting

DIAGNOSIS/TROUBLESHOOTING PROCEDURE

Work instruction		Display OK	If not OK
1	Check wiring between rear left damping adjustment valve and level control module for short circuit to B+:	<ul style="list-style-type: none"> • Switch off ignition. • Pull plug B off level control module. • Pull plug off rear left damping adjustment valve. • Switch on ignition. • Measure voltage between level control module plug B 'pins 114, 119' and ground. 	<p>< 0.3 V Go to Step 2</p> <p>Repair or replace wiring harness. --> End</p>
2	Check wiring between rear left damping adjustment valve and level control module for short circuit to ground:	<ul style="list-style-type: none"> • Switch off ignition. • Measure resistance between level control module plug B 'pins 114, 119' and ground. 	<p>infinity ohms Go to Step 3</p> <p>Repair or replace wiring harness. --> End</p>
3	Check wiring between rear left damping adjustment valve and level control module for open circuit:	<ul style="list-style-type: none"> • Measure resistance between level control module plug B 'pins 114, 119' and rear left damping adjustment valve 'pins 2, 1'. 	<p>< 5 ohms Go to Step 4</p> <p>Repair or replace wiring harness. --> End</p>
4	Check wiring between rear left damping adjustment valve and level control module for short circuit with respect to each other:	<ul style="list-style-type: none"> • Measure resistance of the individual level control module wires on plug B between 'pins 114 and 119'. 	<p>infinity ohms Go to Step 5</p> <p>Repair or replace wiring harness. --> End</p>

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5	Replace level control module.	--> End	Go to Step 6
6	Replace rear left damper strut.	--> End	

FAULT CODE 0145

DAMPING ADJUSTMENT VALVE, REAR RIGHT

Diagnostic conditions

- Ignition on
- Internal level control module function test

Possible cause of fault

- Short circuit to ground or open circuit in the wiring of pin 121 of the level control module (electrical fault in electric circuit)
- Short circuit in pins 120 and 121 of the level control module wiring with respect to each other (electrical fault in electric circuit)
- Short circuit to B+ in the wiring of pin 121 of the level control module (electrical fault in electric circuit)
- Short circuit to B+ or open circuit in the wiring of pin 120 of the level control module (electrical fault in electric circuit)
- Short circuit to ground in the wiring of pin 120 of the level control module (electrical fault in electric circuit)
- Damping adjustment valve faulty
- Level control module faulty

Affected pins

Level control module, plug B:

- Pin 120
- Pin 121

Rear right damping adjustment valve, plug A:

- Pin 1
- Pin 2

Diagnosis/troubleshooting

DIAGNOSIS/TROUBLESHOOTING PROCEDURE

Work instruction	Display OK	If not OK

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1	Check wiring between rear right damping adjustment valve and level control module for short circuit to B+:	<ul style="list-style-type: none"> • Switch off ignition. • Pull plug B off level control module. • Pull plug off rear right damping adjustment valve. • Switch on ignition. • Measure voltage between level control module plug B 'pins 120, 121' and ground. 	< 0.3 V Go to Step 2	Repair or replace wiring harness. --> End
2	Check wiring between rear right damping adjustment valve and level control module for short circuit to ground:	<ul style="list-style-type: none"> • Switch off ignition. • Measure resistance between level control module plug B 'pins 120, 121' and ground. 	infinity ohms Go to Step 3	Repair or replace wiring harness. --> End
3	Check wiring between rear right damping adjustment valve and level control module for open circuit:	<ul style="list-style-type: none"> • Measure resistance between level control module plug B 'pins 120, 121' and rear right damping adjustment valve 'pins 2, 1'. 	< 5 ohms Go to Step 4	Repair or replace wiring harness. --> End
4	Check wiring between rear right damping adjustment valve and level control module for short circuit with respect to each other:	<ul style="list-style-type: none"> • Measure resistance of the individual level control module wires on plug B between 'pins 120 and 121'. 	infinity ohms Go to Step 5	Repair or replace wiring harness. --> End
5	Replace level control module.		--> End	Go to Step 6
6	Replace rear right damper strut.		--> End	

FAULT CODE 0146

POWER SUPPLY FOR BODY AND WHEEL ACCELERATION SENSOR, FRONT RIGHT/REAR LEFT

Diagnostic conditions

- Ignition on
- Internal level control module function test

Possible cause of fault

- Short circuit to B+ in one or more wires in the level control module
- Short circuit to ground in one or more wires in the level control module
- Front right body acceleration sensor faulty
- Front right wheel acceleration sensor faulty

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- Rear left body acceleration sensor faulty
- Level control module faulty

Affected pins

Level control module, plug B:

- Pin 87 'signal for FR wheel acceleration sensor'
- Pin 95 'signal for FR body acceleration sensor'
- Pin 96 'signal for RL body acceleration sensor'
- Pin 99 'ground for FR wheel acceleration sensor'
- Pin 103 'ground for FR body acceleration sensor'
- Pin 104 'ground for RL body acceleration sensor'
- Pin 106 'supply for FR wheel acceleration sensor'
- Pin 107 'supply for FR body acceleration sensor'
- Pin 109 'supply for RL body acceleration sensor'

Diagnosis/troubleshooting

DIAGNOSIS/TROUBLESHOOTING PROCEDURE

Work instruction	Display OK	If not OK
1 Check power supply to sensors:	Measurement 1a <ul style="list-style-type: none">• Switch off ignition.• Pull off plug on front right body acceleration sensor.• Switch on ignition.• Measure voltage between front right body acceleration sensor 'pins 1 and 3' and 'pin 1 and ground'. Measurement 1b <ul style="list-style-type: none">• Switch off ignition.• Pull plug B off front right wheel acceleration sensor.• Switch on ignition.• Measure voltage between front right wheel acceleration sensor plug B 'pins 1 and 3' and plug B 'pin 1 and ground'.	~ 5 V Go to Step 5 Step 2

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	<p>Measurement 1c</p> <ul style="list-style-type: none"> • Switch off ignition. • Pull off plug on rear left body acceleration sensor. • Switch on ignition. • Measure voltage between rear left body acceleration sensor plug 'pins 1 and 3' and 'pin 1 and ground'. 			
2	<p>Check wiring between front right body acceleration sensor, front right wheel acceleration sensor, rear left body acceleration sensor and level control module for short circuit to B+:</p>	<ul style="list-style-type: none"> • Switch off ignition. • Pull plug B off level control module. • Pull off plug on front right body acceleration sensor. • Pull off plug on rear left body acceleration sensor. • Pull off plug B on front right wheel acceleration sensor. • Switch on ignition. • Measure voltage between level control module plug B 'pins 87, 95, 96, 106, 107, 109' and ground. 	<p>< 0.3 V Go to Step 3</p>	<p>Repair or replace wiring harness. --> End</p>
3	<p>Check wiring between front right body acceleration sensor, front right wheel acceleration sensor, rear left body acceleration sensor and level control module for short circuit to ground:</p>	<ul style="list-style-type: none"> • Switch off ignition. • Measure resistance between level control module plug B 'pins 87, 95, 96, 106, 107, 109' and ground. 	<p>infinity ohms Go to Step 4</p>	<p>Repair or replace wiring harness. --> End</p>
4	<p>Check wiring between front right body acceleration sensor, front right wheel acceleration sensor, rear left body acceleration sensor and level control module for open circuit:</p>	<ul style="list-style-type: none"> • Measure resistance between level control module plug B: • 'pin 99' and plug B of front right wheel acceleration sensor 'pin 3'. • 'pin 103' and plug of front right body acceleration sensor 'pin 3'. • 'pin 104' and plug of front right body acceleration sensor 'pin 3'. • 'pin 106' and plug of front 	<p>< 5 ohms Go to Step 5</p>	<p>Repair or replace wiring harness. --> End</p>

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		right body acceleration sensor 'pin 1'. <ul style="list-style-type: none">• 'pin 107' and plug B of front right wheel acceleration sensor 'pin 1'.• 'pin 109' and plug of rear left body acceleration sensor 'pin 1'.		
5	Replace front right and/or rear left body acceleration sensor and/or front right wheel acceleration sensor.	--> End	Go to Step 6	
6	Replace level control module.	--> End		

FAULT CODE 0147

POWER SUPPLY FOR BODY/WHEEL ACCELERATION SENSOR, FRONT LEFT

Diagnostic conditions

- Ignition on
- Internal level control module function test

Possible cause of fault

- Short circuit to B+ in one or more wires in the level control module
- Short circuit to ground in one or more wires in the level control module
- Front left body acceleration sensor faulty
- Front left wheel acceleration sensor faulty
- Level control module faulty

Affected pins

Level control module, plug B:

- Pin 86 'signal for FL wheel acceleration sensor'
- Pin 94 'signal for FL body acceleration sensor'
- Pin 98 'ground for FL wheel acceleration sensor'
- Pin 102 'ground for FL body acceleration sensor'
- Pin 110 'supply for FL wheel acceleration sensor'
- Pin 111 'supply for FL body acceleration sensor'

Diagnosis/troubleshooting

DIAGNOSIS/TROUBLESHOOTING PROCEDURE

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Work instruction		Display OK	If not OK
1 Check power supply to sensors:	<p>Measurement 1a</p> <ul style="list-style-type: none"> • Switch off ignition. • Pull off plug on front left body acceleration sensor. • Switch on ignition. • Measure voltage between front left body acceleration sensor plug 'pins 1 and 3' and 'pin 1 and ground'. <p>Measurement 1b</p> <ul style="list-style-type: none"> • Switch off ignition. • Pull plug B off front left wheel acceleration sensor. • Switch on ignition. • Measure voltage between front left wheel acceleration sensor plug B 'pins 1 and 3' and plug B 'pin 1 and ground'. 	~ 5 V Go to Step 5	Go to Step 2
2 Check wiring between front right body acceleration sensor, front right wheel acceleration sensor and level control module for short circuit to B+:	<ul style="list-style-type: none"> • Switch off ignition. • Pull plug B off level control module. • Pull off plug on front left body acceleration sensor. • Pull off plug on front left wheel acceleration sensor. • Switch on ignition. • Measure voltage between level control module plug B 'pins 86, 94, 98, 102, 110, 111' and ground. 	< 0.3 V Go to Step 3	Repair or replace wiring harness. --> End
3 Check wiring between front left body acceleration sensor, front left wheel acceleration sensor and level control module for short circuit to ground:	<ul style="list-style-type: none"> • Switch off ignition. • Measure resistance between level control module plug B 'pins 86, 94, 98, 102, 110, 111' and ground. 	infinity ohms Go to Step 4	Repair or replace wiring harness. --> End
	<ul style="list-style-type: none"> • Measure resistance between level control module plug B: 		

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4	Check wiring between front left body acceleration sensor, front left wheel acceleration sensor and level control module for open circuit:	<ul style="list-style-type: none">• 'pin 102' and body acceleration sensor plug 'pin 3'.• 'pin 111' and body acceleration sensor plug 'pin 1'.• 'pin 99' and plug B of wheel acceleration sensor 'pin 3'.• 'pin 110' and plug B of wheel acceleration sensor 'pin 1'.	< 5 ohms Go to Step 5	Repair or replace wiring harness. --> End
5	Replace front left body acceleration sensor and/or front left wheel acceleration sensor.		--> End	Go to Step 6
6	Replace level control module.		--> End	

FAULT CODE 0149

NO OR INCORRECT BASIC SETTING/CODING OR PROGRAMMING

Diagnostic conditions

- Ignition on
- Internal level control module function test

Possible cause of fault

- No end of production programming performed (or it was started but not finished)
- No or incorrect basic setting/adaptation
- Level control module faulty

Affected pins

Diagnosis/troubleshooting

DIAGNOSIS/TROUBLESHOOTING PROCEDURE

Work instruction	Display OK	If not OK
1 Replace level control module	--> End	

FAULT CODE 0311

TYRE FILLING CONNECTION

Diagnostic conditions

- Ignition on
- Internal level control module function test

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2003-08 SUSPENSION Level Control - Diagnostics - 9pa_Cayenne

Possible cause of fault

- Short circuit to ground in pin 54 and/or pin 55 of the level control module wiring (implausible signal)
- Open circuit in pin 54 and/or pin 55 and/or pin 100 of the level control module wiring
- Level control module faulty

Affected pins

Level control module, plug A:

- Pin 54
- Pin 55
- Level control module, plug B:
- Pin 100

Diagnosis/troubleshooting

DIAGNOSIS/TROUBLESHOOTING PROCEDURE

Work instruction		Display OK	If not OK
1 Check wiring between tire filling connection and level control module for short circuit to ground	<ul style="list-style-type: none"> • Switch off ignition. • Pull plugs A and B off level control module. • Pull plug off tire filling connection. • Measure resistance between level control module plug A 'pins 54, 55' and plug B 'pin 100' and ground. 	infinity ohms Go to Step 2	Repair or replace wiring harness. --> End
2 Check wiring between tire filling connection and level control module for open circuit	<ul style="list-style-type: none"> • Measure resistance between level control module plug A 'pins 54, 55' and tire filling connection plug 'pins 1, 3' and plug B 'pin 100' and tire filling connection plug 'pin 2'. 	< 5 ohms Go to Step 3	Repair or replace wiring harness. --> End
3 Check tire filling connection	<p>Measurement 3a</p> <ul style="list-style-type: none"> • Measure resistance between tire filling connection plug 'pins 1 and 2'. <p>Measurement 3b</p> <ul style="list-style-type: none"> • Connect tire filling hose 'included in tool kit' to tire filling connection. • Measure resistance between tire filling connection plug 'pins 2 and 3'. 	<p>~ 100 ohms Proceed to measurement 3b</p> <p>~ 100 ohms Go to Step 4</p>	<p>Replace tire filling connection. --> End</p> <p>Replace tire filling connection. --> End</p>
4 Replace level control module		--> End	

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FAULT CODE 0532

POWER SUPPLY

Diagnostic conditions

- Ignition on
- Internal function test on level adjustment control unit

Possible cause of fault

- Internal fault in the level adjustment control unit

Affected pins

- -

DIAGNOSIS/TROUBLESHOOTING

DIAGNOSIS/TROUBLESHOOTING PROCEDURE

Work instruction	Display OK	If not OK
1 Delete fault code 0532 in the level adjustment control unit	--> End	Go to Step 2
2 Replace level adjustment control unit.	--> End	

FAULT CODE 0668

VEHICLE VOLTAGE, TERMINAL 30

Diagnostic conditions

- Ignition on
- Internal level control module function test

Possible cause of fault

- Short circuit to ground or open circuit in pin 4 and/or pin 5 of the level control module wiring
- Fuse F27 (15A) in fuse carrier at right of dashboard faulty
- Level control module faulty

Affected pins

Level control module, plug A:

- Pin 4
- Pin 5

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Fuse in fuse carrier at right of dashboard: 'F27' (15A)

Diagnosis/troubleshooting

DIAGNOSIS/TROUBLESHOOTING PROCEDURE

Work instruction		Display OK	If not OK
1	Check fuse for level control module	<ul style="list-style-type: none">• Check fuse 'F27' in fuse carrier at right of dashboard. Fuse OK Go to Step 2	Replace fuse. --> End If fuse is once again faulty: Go to Step 4
2	Check power supply to level control module	<ul style="list-style-type: none">• Switch off ignition.• Pull plug A off level control module.• Measure voltage between level control module plug A 'pins 4, 5' and ground. 11.4 - 14.5 V Go to Step 3	Go to Step 4
3	Check ground supply to level control module	<ul style="list-style-type: none">• Measure voltage between level control module plug A 'pins 1, 2' and battery positive connection. 11.4 - 14.5 V Go to Step 6	Repair or replace wiring harness. --> End
4	Check wiring between fuse 'F27' and level control module for short circuit to ground	<ul style="list-style-type: none">• Switch off ignition.• Remove fuse 'F27' from fuse carrier at right of dashboard insert.• Pull plug A off level control module.• Measure resistance between level control module plug A 'pins 4, 5' and ground. infinity ohms Go to Step 5	Repair or replace wiring harness. --> End
5	Check wiring between fuse 'F27' and level control module for open circuit	<ul style="list-style-type: none">• Measure resistance between level control module plug A 'pins 4, 5' and output of fuse 'F27' in fuse carrier at right of dashboard. < 5 ohms Go to Step 6	Repair or replace wiring harness. --> End
6	Replace level control module	--> End	

FAULT CODE 0774

VEHICLE LEVEL SENSOR, REAR LEFT

Diagnostic conditions

- Ignition on
- Internal level control module function test

Possible cause of fault

- Short circuit to B+ in the wiring of pin 90 of the level control module (electrical fault in electric circuit)

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- Short circuit to ground in the wiring of pin 90 of the level control module (electrical fault in electric circuit)
- Open circuit in one or more wires connected to pins 90, 75 and 64 of the level control module (electrical fault in electric circuit)
- Level control module receives implausible signal from vehicle level sensor
- If implausible signal is received from vehicle level sensor, perform calibration, refer to **43 K2 CALIBRATION - AS OF MY 2003 (ALL MODELS EXCEPT CAYENNE S TIO TITAN)** .
- Vehicle level sensor faulty
- Level control module faulty

Affected pins

Level control module, plug A:

- Pin 64
- Pin 75

Level control module, plug B:

- Pin 90

Rear left vehicle level sensor, plug A:

- Pin 1
- Pin 5
- Pin 6

WARNING: Danger of personal injury from lowering vehicle independently when working on and underneath the vehicle!

- The normal level must always be set and the level control switched off when the vehicle is raised with the jack or platform lift.

Diagnosis/troubleshooting

NOTE: If a vehicle level sensor or the level control module is replaced, it must be calibrated using the 9588 Porsche System Tester II.

DIAGNOSIS/TROUBLESHOOTING PROCEDURE

Work instruction	Display OK	If not OK
<ul style="list-style-type: none">• Switch off ignition.• Pull plugs A and B off level control module.		

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1	Check wiring between rear left vehicle level sensor and level control module for short circuit to B+	<ul style="list-style-type: none"> • Pull plug off rear left vehicle level control sensor. • Switch on ignition. • Measure voltage between level control module plug A 'pins 64, 75' and ground and plug B 'pin 90' and ground. 	< 0.3 V Go to Step 2	Repair or replace wiring harness. --> End
2	Check wiring between rear left vehicle level sensor and level control module for short circuit to ground	<ul style="list-style-type: none"> • Switch off ignition. • Measure resistance between level control module plug A 'pins 64, 75' and ground and plug B 'pin 90' and ground. 	infinity ohms Go to Step 3	Repair or replace wiring harness. --> End
3	Check wiring between rear left vehicle level sensor and level control module for open circuit	<ul style="list-style-type: none"> • Measure resistance between level control module plug A 'pins 64, 75' and rear left vehicle level control sensor plug 'pins 5, 1' and plug B 'pin 90' and rear left level control sensor plug 'pin 6'. 	< 5 ohms Go to Step 4	Repair or replace wiring harness. --> End
4	Re-calibrate level control module Calibrating level control module, refer to <u>43 K2 CALIBRATION - AS OF MY 2003 (ALL MODELS EXCEPT CAYENNE S TIO TITAN)</u> .		--> End	Go to Step 5
5	Replace rear left vehicle level sensor See Note		--> End	Go to Step 6
6	Replace level control module See Note		--> End	

FAULT CODE 0775

VEHICLE LEVEL SENSOR, REAR RIGHT

Diagnostic conditions

- Ignition on
- Internal level control module function test

Possible cause of fault

- Short circuit to B+ in the wiring of pin 91 of the level control module (electrical fault in electric circuit)
- Short circuit to ground in the wiring of pin 91 of the level control module (electrical fault in electric circuit)
- Open circuit in one or more wires connected to pins 91, 74 and 66 of the level control module (electrical fault in electric circuit)
- Level control module receives implausible signal from vehicle level sensor
- If implausible signal is received from vehicle level sensor, perform calibration, refer to **43 K2 CALIBRATION - AS OF MY 2003 (ALL MODELS EXCEPT CAYENNE S TIO TITAN)**.

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- Vehicle level sensor faulty
- Level control module faulty

Affected pins

Level control module, plug A:

- Pin 66
- Pin 74

Level control module, plug B:

- Pin 91

Rear right vehicle level sensor, plug A:

- Pin 1
- Pin 5
- Pin 6

WARNING: Danger of personal injury from lowering vehicle independently when working on and underneath the vehicle!

- The normal level must always be set and the level control switched off when the vehicle is raised with the jack or platform lift.

Diagnosis/troubleshooting

NOTE: If a vehicle level sensor or the level control module is replaced, it must be calibrated using the 9588 Porsche System Tester II.

DIAGNOSIS/TROUBLESHOOTING PROCEDURE

Work instruction		Display OK	If not OK
1 Check wiring between rear right vehicle level sensor and level control module for short circuit to B+	<ul style="list-style-type: none">• Switch off ignition.• Pull plugs A and B off level control module.• Pull plug off rear right vehicle level control sensor.• Switch on ignition.• Measure voltage between level control module plug A 'pins 66, 74' and ground and plug B 'pin 91' and ground.	< 0.3 V Go to Step 2	Repair or replace wiring harness. --> End
Check wiring between rear	<ul style="list-style-type: none">• Switch off ignition.	infinity	Repair or

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2	right vehicle level sensor and level control module for short circuit to ground	<ul style="list-style-type: none"> Measure resistance between level control module plug A 'pins 66, 74' and ground and plug B 'pin 91' and ground. 	ohms Go to Step 3	replace wiring harness. --> End
3	Check wiring between rear right vehicle level sensor and level control module for open circuit	<ul style="list-style-type: none"> Measure resistance between level control module plug A 'pins 66, 74' and rear right vehicle level control sensor plug 'pins 5, 1' and plug B 'pin 91' and rear right level control sensor plug 'pin 6'. 	< 5 ohms Go to Step 5	Repair or replace wiring harness. --> End
4	Re-calibrate level control module Calibrating level control module, refer to <u>43 K2 CALIBRATION - AS OF MY 2003 (ALL MODELS EXCEPT CAYENNE S TIO TITAN)</u> .		--> End	Go to Step 5
5	Replace rear right vehicle level sensor See Note		--> End	Go to Step 6
6	Replace level control module See Note		--> End	

FAULT CODE 0776

VEHICLE LEVEL SENSOR, FRONT LEFT

Diagnostic conditions

- Ignition on
- Internal level control module function test

Possible cause of fault

- Short circuit to B+ in the wiring of pin 82 of the level control module (electrical fault in electric circuit)
- Short circuit to ground in the wiring of pin 82 of the level control module (electrical fault in electric circuit)
- Open circuit in one or more wires connected to pins 63, 77 and 82 of the level control module (electrical fault in electric circuit)
- Level control module receives implausible signal from vehicle level sensor
- If implausible signal is received from vehicle level sensor, perform calibration, refer to **43 K2 CALIBRATION - AS OF MY 2003 (ALL MODELS EXCEPT CAYENNE S TIO TITAN)**.
- Vehicle level sensor faulty
- Level control module faulty

Affected pins

Level control module, plug A:

- Pin 63
- Pin 77

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Level control module, plug B:

- Pin 82

Front left vehicle level sensor, plug A:

- Pin 1
- Pin 5
- Pin 6

WARNING: Danger of personal injury from lowering vehicle independently when working on and underneath the vehicle!

- The normal level must always be set and the level control switched off when the vehicle is raised with the jack or platform lift.

Diagnosis/troubleshooting

NOTE: If a vehicle level sensor or the level control module is replaced, it must be calibrated using the 9588 Porsche System Tester II.

DIAGNOSIS/TROUBLESHOOTING PROCEDURE

Work instruction		Display OK	If not OK
1 Check wiring between front left vehicle level sensor and level control module for short circuit to B+	<ul style="list-style-type: none"> • Switch off ignition. • Pull plugs A and B off level control module. • Pull plug off front left vehicle level control sensor. • Switch on ignition. • Measure voltage between level control module plug A 'pins 63, 77' and ground and plug B 'pin 82' and ground. 	< 0.3 V Go to Step 2	Repair or replace wiring harness. --> End
2 Check wiring between front left vehicle level sensor and level control module for short circuit to ground	<ul style="list-style-type: none"> • Switch off ignition. • Measure resistance between level control module plug A 'pins 63, 77' and ground and plug B 'pin 82' and ground. 	infinity ohms Go to Step 3	Repair or replace wiring harness. --> End
3 Check wiring between front left vehicle level sensor and level control module for open circuit	<ul style="list-style-type: none"> • Measure resistance between level control module plug A 'pins 63, 77' and front left vehicle level control sensor plug 'pins 5, 1' and plug B 'pin 82' and front left level control sensor plug 'pin 6'. 	< 5 ohms Go to Step 5	Repair or replace wiring harness. --> End
Re-calibrate level control module			

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4	Calibrating level control module, refer to 43 K2 CALIBRATION - AS OF MY 2003 (ALL MODELS EXCEPT CAYENNE S TIO TITAN) .	--> End	Go to Step 5
5	Replace front left vehicle level sensor See Note	--> End	Go to Step 6
6	Replace level control module See Note	--> End	

FAULT CODE 0778

STEERING-ANGLE SENSOR

CAUTION: The steering-angle sensor must always be initialized 'control lamp on' whenever the battery terminal is disconnected.

Diagnostic conditions

- Ignition on
- Internal level control module function test

Possible cause of fault

- Initialization/calibration not performed (no display/no or incorrect basic setting/adaptation)
- Mechanical fault
- The signal received from the control module (level control) via the CAN drive does not correspond to the expected signal (implausible signal)
- CAN drive faulty (no signal/communication)
- Steering-angle sensor faulty

Affected pins

Level control module, plug A:

- Pin 61 'CAN drive (high)'
- Pin 81 'CAN drive (low)'

DIAGNOSIS/TROUBLESHOOTING

Initializing

The steering-angle sensor in Cayenne must be initialized after the following work is carried out:

- Whenever the power supply is interrupted (NRA control lamp on).
- The steering-angle sensor must be calibrated after all work on the running gear.

NOTE: Calibration of the steering-angle sensor must be performed on a measuring

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platform. First, the level control module must be coded successfully and the steering-angle sensor must be initialized. The steering-angle sensor must be calibrated after work has been carried out on the running gear in the area of the front axle.

DIAGNOSIS/TROUBLESHOOTING PROCEDURE

Work instruction		Display OK	If not OK
1	Initialize steering-angle sensor <ul style="list-style-type: none"> • Switch on ignition. • Position wheels straight ahead. • From the straight-ahead position, turn the steering wheel approx. '15° to the left and '15° to the right (past the straight-ahead position). • Drive the vehicle straight ahead at a speed of '> 4 km/h for at least 1 second'. 	After successful initialization, the stored fault code is erased from the fault memory and the NRA control lamp goes out. --> End	Go to Step 2
2	Check steering-angle sensor calibration using 9588 Porsche System Tester II <ul style="list-style-type: none"> • Running gear set according to Porsche specifications. • Wheels in straight-ahead position and steering wheel horizontal. • Steering wheel may be turned by max. '± 2.0°' from the horizontal position for driving straight ahead. 	After successful calibration, the stored fault code is erased from the fault memory. --> End	Go to Step 3
3	Mechanical fault <ul style="list-style-type: none"> • Examine moving parts for damage and check mobility. 	Go to Step 4	The steering-angle sensor is integrated into the steering column switch and must be replaced along with this if its functionality is mechanically impaired. --> End
4	Read out steering column switch control module, fault memory and check circuit for short or open circuit <ul style="list-style-type: none"> • Eliminate faults in accordance with 'Diagnosis/troubleshooting' for steering column switch control module. 	If electric circuit is OK: Go to Step 5	Repair wiring harness circuit. --> End
5	Check CAN drive <ul style="list-style-type: none"> • Localize faults in accordance with CHECKING INSTRUCTIONS/CAN DATA 	If CAN drive is OK: Go to Step 6	Repair wiring harness. --> End

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	<u>BUS</u> .		
6	Replace steering-angle sensor	The steering-angle sensor can only be replaced together with the steering column switch. --> End	Go to Step 7
7	Replace level control module	--> End	

FAULT CODE 0805

SPRING STRUT VALVE, FRONT LEFT

Diagnostic conditions

- Ignition on
- Internal level control module function test

Possible cause of fault

- Short circuit to B+ in the wiring of pin 18 of the level control module
- Short circuit to ground in the wiring of pin 18 of the level control module
- Open circuit in the wiring of pin 18 of the level control module
- Spring strut valve faulty
- Level control module faulty

NOTE: If multiple valve faults (fault code 0806, 0807, 0808) or another relay fault (fault code 1399) are recorded, check the system's plug connections for correct contacts.

Affected pins

Level control module, plug A:

- Pin 18

Solenoid block, plug A:

- Pin 4

Diagnosis/troubleshooting

DIAGNOSIS/TROUBLESHOOTING PROCEDURE

Work instruction	Display	If not OK
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2003-08 SUSPENSION Level Control - Diagnostics - 9pa_Cayenne

		OK	
1	Check wiring between solenoid block and level control module for short circuit to B+:	<ul style="list-style-type: none"> • Switch off ignition. • Pull plug A off level control module. • Pull plug off solenoid block. • Switch on ignition. • Measure voltage between level control module plug A 'pin 18' and ground. 	<p>< 0.3 V Go to Step 2</p> <p>Repair or replace wiring harness. --> End</p>
2	Check wiring between solenoid block and level control module for short circuit to ground:	<ul style="list-style-type: none"> • Switch off ignition. • Measure resistance between level control module plug A 'pins 18, 37' and ground. 	<p>infinity ohms Go to Step 3</p> <p>Repair or replace wiring harness. --> End</p>
3	Check wiring between solenoid block and level control module for open circuit:	<ul style="list-style-type: none"> • Measure resistance between level control module plug A 'pins 18, 37' and solenoid block plug A 'pins 4, 5'. 	<p>< 5 ohms Go to Step 4</p> <p>Repair or replace wiring harness. --> End</p>
4	Check wiring between compressor relay and level control module for short circuit to ground:	<ul style="list-style-type: none"> • Switch off ignition. • Pull plug off compressor relay. • Measure resistance between level control module plug A 'pin 36' and ground. 	<p>infinity ohms Go to Step 5</p> <p>Repair or replace wiring harness. --> End</p>
5	Check wiring between compressor relay and level control module for open circuit:	<ul style="list-style-type: none"> • Measure resistance between level control module plug A 'pin 36' and compressor relay plug A 'pin 3D'. 	<p>< 5 ohms Go to Step 6</p> <p>Repair or replace wiring harness. --> End</p>
6	Replace level control module.		<p>--> End</p> <p>Go to Step 7</p>
7	Replace solenoid block.		<p>--> End</p>

FAULT CODE 0806

SPRING STRUT VALVE, FRONT RIGHT

Diagnostic conditions

- Ignition on
- Internal level control module function test

Possible cause of fault

- Short circuit to B+ in the wiring of pin 19 of the level control module
- Short circuit to ground in the wiring of pin 19 of the level control module
- Open circuit in the wiring of pin 19 of the level control module

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- Spring strut valve faulty
- Level control module faulty

NOTE: If multiple valve faults (fault code 0805, 0807, 0808) or another relay fault (fault code 1399) are recorded, check the system's plug connections for correct contacts.

Affected pins

Level control module, plug A:

- Pin 19
- Solenoid block, plug A:
- Pin 2

Diagnosis/troubleshooting

DIAGNOSIS/TROUBLESHOOTING PROCEDURE

Work instruction		Display OK	If not OK
1 Check wiring between solenoid block and level control module for short circuit to B+:	<ul style="list-style-type: none"> • Switch off ignition. • Pull plug A off level control module. • Pull plug off solenoid block. • Switch on ignition. • Measure voltage between level control module plug A 'pin 19' and ground. 	< 0.3 V Go to Step 2	Repair or replace wiring harness. --> End
2 Check wiring between solenoid block and level control module for short circuit to ground:	<ul style="list-style-type: none"> • Switch off ignition. • Measure resistance between level control module plug A 'pins 19, 37' and ground. 	infinity ohms Go to Step 3	Repair or replace wiring harness. --> End
3 Check wiring between solenoid block and level control module for open circuit:	<ul style="list-style-type: none"> • Measure resistance between level control module plug A 'pins 19, 37' and solenoid block plug A 'pins 2, 5'. 	< 5 ohms Go to Step 4	Repair or replace wiring harness. --> End
4 Check wiring between compressor relay and level control module for short circuit to ground:	<ul style="list-style-type: none"> • Switch off ignition. • Pull plug off compressor relay. • Measure resistance between level control module plug A 'pin 36' and ground. 	infinity ohms Go to Step 5	Repair or replace wiring harness. --> End
5 Check wiring between compressor relay and level	<ul style="list-style-type: none"> • Measure resistance between level control module plug A 'pin 36' and 	< 5 ohms Go to	Repair or replace wiring

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control module for open circuit:	compressor relay plug A 'pin 3D'.	Step 6	harness. --> End
6	Replace level control module.	--> End	Go to Step 7
7	Replace solenoid block.	--> End	

FAULT CODE 0807

SPRING STRUT VALVE, REAR LEFT

Diagnostic conditions

- Ignition on
- Internal level control module function test

Possible cause of fault

- Short circuit to B+ in the wiring of pin 20 of the level control module
- Short circuit to ground in the wiring of pin 20 of the level control module
- Open circuit in the wiring of pin 20 of the level control module
- Spring strut valve faulty
- Level control module faulty

NOTE: If multiple valve faults (fault code 0805, 0806, 0808) or another relay fault (fault code 1399) are recorded, check the system's plug connections for correct contacts.

Affected pins

Level control module, plug A:

- Pin 20

Solenoid block, plug A:

- Pin 1

Diagnosis/troubleshooting

DIAGNOSIS/TROUBLESHOOTING PROCEDURE

Work instruction	Display OK	If not OK
Check wiring between solenoid	< 0.3 V	Repair or

- Switch off ignition.
- Pull plug A off level control module.

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1	block and level control module for short circuit to B+:	<ul style="list-style-type: none">• Pull plug off solenoid block.• Switch on ignition.• Measure voltage between level control module plug A 'pin 20' and ground.	Go to Step 2	replace wiring harness. --> End
2	Check wiring between solenoid block and level control module for short circuit to ground:	<ul style="list-style-type: none">• Switch off ignition.• Measure resistance between level control module plug A 'pin 20' and ground.	infinity ohms Go to Step 3	Repair or replace wiring harness. --> End
3	Check wiring between solenoid block and level control module for open circuit:	<ul style="list-style-type: none">• Measure resistance between level control module plug A 'pins 20, 37' and solenoid block plug A 'pins 1, 5'.	< 5 ohms Go to Step 4	Repair or replace wiring harness. --> End
4	Check wiring between compressor relay and level control module for short circuit to ground:	<ul style="list-style-type: none">• Switch off ignition.• Pull plug off compressor relay.• Measure resistance between level control module plug A 'pin 36' and ground.	infinity ohms Go to Step 5	Repair or replace wiring harness. --> End
5	Check wiring between compressor relay and level control module for open circuit:	<ul style="list-style-type: none">• Measure resistance between level control module plug A 'pin 36' and compressor relay plug A 'pin 3D'.	< 5 ohms Go to Step 6	Repair or replace wiring harness. --> End
6	Replace level control module.		--> End	Go to Step 7
7	Replace solenoid block.		--> End	

FAULT CODE 0808

SPRING STRUT VALVE, REAR RIGHT

Diagnostic conditions

- Ignition on
- Internal level control module function test

Possible cause of fault

- Short circuit to B+ in the wiring of pin 17 of the level control module
- Short circuit to ground in the wiring of pin 17 of the level control module
- Open circuit in the wiring of pin 17 of the level control module
- Spring strut valve faulty
- Level control module faulty

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NOTE: If multiple valve faults (fault code 0805, 0806, 0807) or another relay fault (fault code 1399) are recorded, check the system's plug connections for correct contacts.

Affected pins

Level control module, plug A:

- Pin 17

Solenoid block, plug A:

- Pin 3

Diagnosis/troubleshooting

DIAGNOSIS/TROUBLESHOOTING PROCEDURE

Work instruction		Display OK	If not OK
1	Check wiring between solenoid block and level control module for short circuit to B+:	<ul style="list-style-type: none"> • Switch off ignition. • Pull plug A off level control module. • Pull plug off solenoid block. • Switch on ignition. • Measure voltage between level control module plug A 'pin 17' and ground. 	< 0.3 V Go to Step 2 --> End Repair or replace wiring harness.
2	Check wiring between solenoid block and level control module for short circuit to ground:	<ul style="list-style-type: none"> • Switch off ignition. • Measure resistance between level control module plug A 'pins 17, 37' and ground. 	infinity ohms Go to Step 3 --> End Repair or replace wiring harness.
3	Check wiring between solenoid block and level control module for open circuit:	<ul style="list-style-type: none"> • Measure resistance between level control module plug A 'pins 17, 37' and solenoid block plug A 'pins 3, 5'. 	< 5 ohms Go to Step 4 --> End Repair or replace wiring harness.
4	Check wiring between compressor relay and level control module for short circuit to ground:	<ul style="list-style-type: none"> • Switch off ignition. • Pull plug off compressor relay. • Measure resistance between level control module plug A 'pin 36' and ground. 	infinity ohms Go to Step 5 --> End Repair or replace wiring harness.
5	Check wiring between compressor relay and level control module for open circuit:	<ul style="list-style-type: none"> • Measure resistance between level control module plug A 'pin 36' and compressor relay plug A 'pin 3D'. 	< 5 ohms Go to Step 6 --> End Repair or replace wiring harness.

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6	Replace level control module.	--> End	Go to Step 7
7	Replace solenoid block.	--> End	

FAULT CODE 1042

CONTROL MODULE NOT CODED

Diagnostic conditions

- Ignition on
- Internal level control module function test

Possible cause of fault

- Level control module not coded (no display)

Affected pins

Diagnosis/troubleshooting

DIAGNOSIS/TROUBLESHOOTING PROCEDURE

Work instruction		Display OK	If not OK
1	Perform coding: <ul style="list-style-type: none">• Code level control module using 9588 Porsche System Tester II.• Re-code control module.	--> End	Go to Step 2
2	Replace level control module.	--> End	

FAULT CODE 1312

CAN DRIVE

Diagnostic conditions

- Ignition on
- Internal level control module function test

Possible cause of fault

- CAN drive faulty
- Please read out fault memory

Affected pins

Level control module, plug A:

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- Pin 61 'CAN drive (high)'
- Pin 81 'CAN drive (low)'

DIAGNOSIS/TROUBLESHOOTING

DIAGNOSIS/TROUBLESHOOTING PROCEDURE

Work instruction	Display OK	If not OK
1 Continue troubleshooting, refer to <u>CHECKING INSTRUCTIONS/CAN DATA BUS</u> .	--> End	

FAULT CODE 1314

DME CONTROL MODULE

Diagnostic conditions

- Ignition on
- Internal level control module function test

Possible cause of fault

- Level control module could not establish a connection with the DME control module (no signal/communication)
- Read out DME control module fault memory

Affected pins

Level control module, plug A:

- Pin 61 'CAN drive (high)'
- Pin 81 'CAN drive (low)'

DIAGNOSIS/TROUBLESHOOTING

DIAGNOSIS/TROUBLESHOOTING PROCEDURE

Work instruction	Display OK	If not OK
1 Read out DME control module fault memory.	Go to Step 2	Correct faults and read out fault memory in level control module again. If OK: --> End If not OK: --> Step 2

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2	Continue troubleshooting, refer to CHECKING INSTRUCTIONS/CAN DATA BUS .	--> End	Go to Step 3
3	Replace level control module.	--> End	

FAULT CODE 1316

PSM CONTROL MODULE

Diagnostic conditions

- Ignition on
- Internal level control module function test

Possible cause of fault

- Level control module could not establish a connection with the PSM control module (no signal/communication)
- Read out PSM control module fault memory

Affected pins

Level control module, plug A:

- Pin 61 'CAN drive (high)'
- Pin 81 'CAN drive (low)'

DIAGNOSIS/TROUBLESHOOTING

DIAGNOSIS/TROUBLESHOOTING PROCEDURE

Work instruction	Display OK	If not OK
1 Read out PSM control module fault memory.	Go to Step 2	Correct faults and read out fault memory in level control module again. If OK: --> End If not OK: --> Step 2
2 Continue troubleshooting, refer to CHECKING INSTRUCTIONS/CAN DATA BUS .	--> End	Go to Step 3
3 Replace level control module.	--> End	

FAULT CODE 1397

VENT SOLENOID VALVE

Diagnostic conditions

- Ignition on
- Internal level control module function test

Possible cause of fault

- Short circuit to B+ in the wiring of pin 33 of the level control module (identified only when activated)
- Short circuit to ground or open circuit in the wiring of pin 33 of the level control module
- Vent solenoid valve faulty
- Level control module faulty

NOTE: If multiple valve faults (fault code 0805, 0806, 0807, 0808) or another relay fault (fault code 1399) are recorded, check the system's plug connections for correct contacts.

Affected pins

Level control module, plug A:

- Pin 33 'vent solenoid valve (low)'
- Pin 43 'vent solenoid valve (high)'

Level control system compressor, plug A:

- Pin 1 'vent solenoid valve (high)'
- Pin 2 'vent solenoid valve (low)'

Diagnosis/troubleshooting

DIAGNOSIS/TROUBLESHOOTING PROCEDURE

Work instruction	Display OK	If not OK
1 Check wiring between level control system compressor and level control module for short circuit to B+:	<ul style="list-style-type: none"> • Switch off ignition. • Pull plug A off level control module. • Pull plug off level control system compressor. • Switch on ignition. • Measure voltage between level < 0.3 V Go to Step 2	Repair or replace wiring harness. --> End

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		control module plug A 'pins 33, 43' and ground.		
2	Check wiring between level control system compressor and level control module for short circuit to ground:	<ul style="list-style-type: none"> • Switch off ignition. • Measure resistance between level control module plug A 'pins 33, 37, 43' and ground. 	infinity ohms Go to Step 3	Repair or replace wiring harness. --> End
3	Check wiring between level control system compressor and level control module for open circuit:	<ul style="list-style-type: none"> • Measure resistance between level control module plug A 'pins 33, 43' and level control system compressor plug A 'pins 2, 1'. 	< 5 ohms Go to Step 4	Repair or replace wiring harness. --> End
4	Check wiring between solenoid block and level control module for open circuit:	<ul style="list-style-type: none"> • Pull plug A off solenoid block. • Measure resistance between level control module plug A 'pin 37' and solenoid block plug A 'pin 5'. 	< 5 ohms Go to Step 5	Repair or replace wiring harness. --> End
5	Check wiring between compressor relay and level control module for short circuit to ground:	<ul style="list-style-type: none"> • Switch off ignition. • Pull plug off compressor relay. • Measure resistance between level control module plug A 'pin 36' and ground. 	infinity ohms Go to Step 6	Repair or replace wiring harness. --> End
6	Check wiring between compressor relay and level control module for open circuit:	<ul style="list-style-type: none"> • Measure resistance between level control module plug A 'pin 36' and compressor relay plug A 'pin 3D'. 	< 5 ohms Go to Step 7	Repair or replace wiring harness. --> End
7	Check vent solenoid valve:	<ul style="list-style-type: none"> • Connect plugs on compressor and level control module. • Switch on ignition. • Select 'Vent solenoid valve' in the "Input signals" menu on the 9588 Porsche System Tester II. • Close all vehicle doors. • Lower vehicle by actuating the control module for level control. 	Display 'off' --> End	Display 'on' - vent solenoid valve fails to switch: Go to Step 8
8	Replace level control system compressor.		--> End	Go to Step 9
9	Replace level control module.		--> End	

FAULT CODE 1398

DOORS/REAR LID SIGNAL

Diagnostic conditions

- Ignition on

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- Internal level control module function test

Possible cause of fault

- Level control module receives no signal from vehicle electrical system control module
- Short circuit to B+ in the wiring of pin 53 of the level control module
- Short circuit to ground in the wiring of pin 53 of the level control module
- Open circuit in the wiring of pin 53 of the level control module
- Level control module faulty

Affected pins

Level control module, plug A:

- Pin 53

Vehicle electrical system control module, plug J:

- Pin 12

Diagnosis/troubleshooting

DIAGNOSIS/TROUBLESHOOTING PROCEDURE

Work instruction	Display OK	If not OK
1 Read out fault memory in vehicle electrical system control module:	Go to Step 2	Correct faults and read out fault memory in level control module again. If OK: --> End If not OK: --> Step 2
2 Read out fault memory for rear convenience system control module:	Go to Step 3	Correct faults and read out fault memory in level control module again. If OK: --> End If not OK: --> Step 3
	<ul style="list-style-type: none">• Switch off ignition.• Pull plug A off level control	

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3	Check wiring between vehicle electrical system control module and level control module for short circuit to B+:	<p>module.</p> <ul style="list-style-type: none"> • Pull plug J off vehicle electrical system control module. • Switch on ignition. • Measure voltage between level control module plug A 'pin 53' and ground. 	0.3 V Go to Step 4	Repair or replace wiring harness. --> End
4	Check wiring between vehicle electrical system control module and level control module for short circuit to ground:	<ul style="list-style-type: none"> • Switch off ignition. • Measure resistance between level control module plug A 'pin 53' and ground. 	infinity ohms Go to Step 5	Repair or replace wiring harness. --> End
5	Check wiring between vehicle electrical system control module and level control module for open circuit:	<ul style="list-style-type: none"> • Measure resistance between level control module plug A 'pin 53' and vehicle electrical system control module plug J 'pin 12'. 	< 5 ohms Go to Step 6	Repair or replace wiring harness. --> End
6	Continue troubleshooting in 'Vehicle electrical system control module', refer to <u>FAULT CODE 0062</u>		Go to Step 7	Correct faults. If OK: --> End
7	Replace level control module.		--> End	

FAULT CODE 1399

COMPRESSOR RELAY

Diagnostic conditions

- Ignition on
- Internal level control module function test

Possible cause of fault

- Short circuit to B+ in the wiring of pin 31 of the level control module
- Short circuit to ground or open circuit in the wiring of pin 31 of the level control module
- Compressor relay faulty
- Level control module faulty

NOTE: If multiple valve faults (fault code 0805, 0806, 0807, 0808) are recorded, check the system's plug connections for correct contacts.

Affected pins

Level control module, plug A:

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- Pin 31 'compressor relay'
- Pin 36 'compressor relay (high)'

Compressor relay, plug A:

- Pin 3F (terminal 85)
- Pin 3D (terminal 86)

Diagnosis/troubleshooting

DIAGNOSIS/TROUBLESHOOTING PROCEDURE

Work instruction		Display OK	If not OK
1	Lower vehicle to low level or loaded level several times if necessary	--> End	Go to Step 2
2	Check fuse	Go to Step 5	Go to Step 3
	Check 1a <ul style="list-style-type: none"> • Switch off ignition. • Remove fuse 'F13' (40A) from fuse carrier in back-up fuse box and check for continuity. Check 1b <ul style="list-style-type: none"> • Re-insert intact fuse 'F13' (40A). • Measure voltage at output of fuse 'F13' and ground. 	11.4 - 14.5 V Go to Step 4	Go to Step 3
3	Replace fuse	Fault is no longer present (fuse not faulty). --> End	Fault still present (fuse faulty again). Go to Step 4
4	Inspect the wiring harness from 'F13 fuse output' to compressor relay 'pin A3B (terminal 30)' for pinches and chafing damage.	No damage visible. Go to Step 5	Repair or replace wiring harness. --> End
5	Check wiring between compressor relay and level control module for short circuit to B+	< 0.3 V Go to Step 6	Repair or replace wiring harness. --> End

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6	Check wiring between compressor relay and level control module for short circuit to ground	<ul style="list-style-type: none"> • Switch off ignition. • Measure resistance between level control module plug A 'pins 31, 36' and ground. 	infinity ohms Go to Step 7	Repair or replace wiring harness. --> End
7	Check wiring between compressor relay and level control module for open circuit	<ul style="list-style-type: none"> • Measure resistance between level control module plug A 'pins 31, 36' and compressor relay plug A 'pin 3F (terminal 85), pin 3D (terminal 86)'. 	< 5 ohms Go to Step 8	Repair or replace wiring harness. --> End
8	Replace compressor relay		--> End	Go to Step 9
9	Replace level control module		--> End	

FAULT CODE 1400

CONTROL POSITION NOT ADJUSTABLE

Diagnostic conditions

- Ignition on
- Internal level control module function test

Possible cause of fault

- Control position not adjustable, vehicle too low or too high (no display)

Affected pins

Diagnosis/troubleshooting

DIAGNOSIS/TROUBLESHOOTING PROCEDURE

Work instruction	Display OK	If not OK
1 Check mechanical and pneumatic components	Go to Step 3	Repair/replace components in accordance with procedures in LEVEL CONTROL article . Go to Step 2
2 Check to see if other faults are recorded (e.g. 0774,0775,0776,1780)	Go to Step 4	Correct faults and read out fault memory for level control module again. If OK: --> End If not OK: --> Step 3
Re-calibrate level control module Calibrating level control module, refer to 43 K2		

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3	<u>CALIBRATION - AS OF MY 2003 (ALL MODELS EXCEPT CAYENNE S TIO TITAN) .</u>	--> End	Go to Step 4
4	Replace level control module	--> End	

FAULT CODE 1437

CONTROL POSITION NOT LEARNED

Diagnostic conditions

- Ignition on
- Internal function test on level adjustment control unit

Possible cause of fault

- Control position not learned (no or incorrect basic calibration)

Affected pins

Diagnosis/troubleshooting

DIAGNOSIS/TROUBLESHOOTING PROCEDURE

Work instruction		
1	Re-calibrate level adjustment control unit. Calibrating level adjustment control unit, refer to <u>43 K2 CALIBRATION - AS OF MY 2003 (ALL MODELS EXCEPT CAYENNE S TIO TITAN) .</u>	--> End

FAULT CODE 1487

SYSTEM FUNCTION TEST FAULTY

Diagnostic conditions

- Ignition on
- Internal function test on level adjustment control unit

Possible cause of fault

- Level adjustment control unit faulty (implausible signal)
- Level adjustment control unit not calibrated or calibrated incorrectly (implausible signal)
- Level adjustment control unit faulty

Affected pins

Diagnosis/troubleshooting

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DIAGNOSIS/TROUBLESHOOTING PROCEDURE

Work instruction	Display OK	If not OK
1 Erase fault memory with the 9718 PIWIS Tester, switch ignition off and then on again. Read out fault memory again after '5 minutes'.	--> End	Go to Step 2
2 Re-calibrate level adjustment control unit. Calibrating level adjustment control unit, refer to <u>43 K2 CALIBRATION - AS OF MY 2003 (ALL MODELS EXCEPT CAYENNE S TIO TITAN)</u> .	--> End	Go to Step 3
3 If the fault recurs after re-calibrating the control unit, replace level adjustment control unit.	--> End	

FAULT CODE 1575

MANUAL CONTROL SWITCHED OFF

Diagnostic conditions

- Ignition on
- Internal level control module function test

Possible cause of fault

- Level control selector switch actuated for longer than 5 seconds
- Vehicle is not travelling at more than 15 km/h (9 mph)
- Level control module faulty

Affected pins

Diagnosis/troubleshooting

DIAGNOSIS/TROUBLESHOOTING PROCEDURE

Work instruction	Display OK	If not OK
1 Move vehicle at more than 15 km/h (9 mph)	--> End	Go to Step 2
2 Replace level control module	--> End	

FAULT CODE 1577

OVERTEMPERATURE

Diagnostic conditions

- Ignition on
- Internal level control module function test

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Possible cause of fault

- The compressor switches off as a result of overtemperature (upper limit is exceeded)
- Compressor temperature sensor faulty
- Level control module faulty

Affected pins

Level control module, plug B:

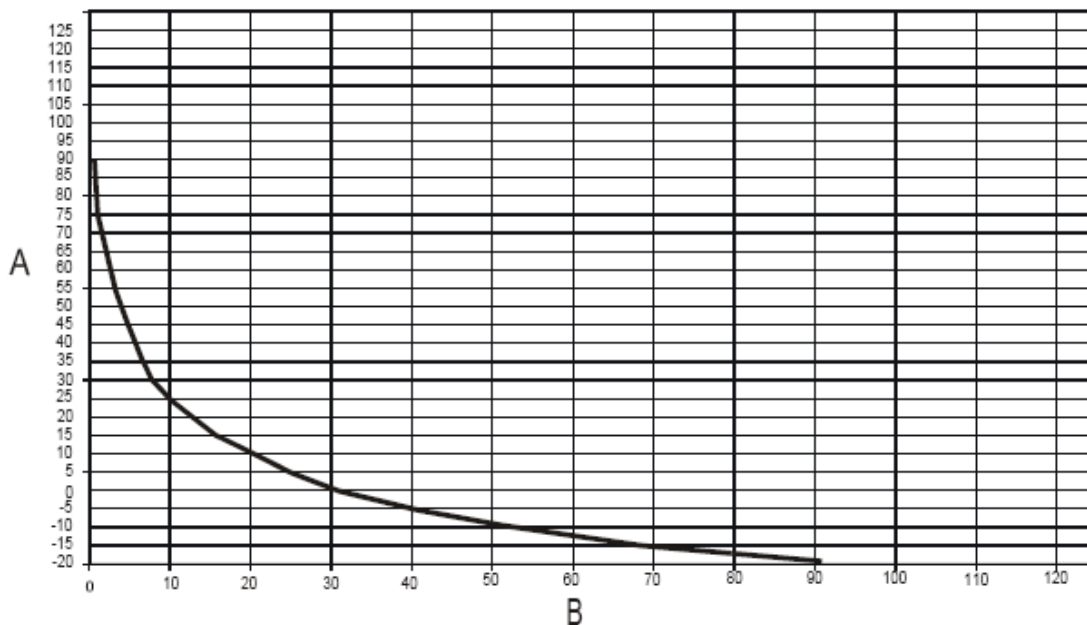
- Pin 85 'temperature sensor'
- Pin 93 'temperature sensor ground'

Level control system compressor, plug A:

- Pin 3 'temperature sensor'
- Pin 4 'temperature sensor ground'

Diagnosis/troubleshooting

Compressor temperature



A - Temperature In $^{\circ}\text{C}$

B - Resistance In Ω

Fig. 7: Temperature Versus Resistance Graph
Courtesy of PORSCHE OF NORTH AMERICA, INC.

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DIAGNOSIS/TROUBLESHOOTING PROCEDURE

Work instruction		Display OK	If not OK
1	Check compressor temperature sensor	<ul style="list-style-type: none">• Switch off ignition.• Pull plug B off level control module.• Measure resistance on level control module plug B between 'pins 85 and 93'. 12.2 - 13.72 ohms at 20°C or see ' COMPRESSOR TEMPERATURE ' diagram Go to Step 2	Replace level control system compressor. --> End
2	Check wiring between level control system compressor and level control module for short circuit to ground	<ul style="list-style-type: none">• Switch off ignition.• Measure resistance between level control module plug B 'pins 85, 93' and ground. infinity ohms Go to Step 3	Repair or replace wiring harness. --> End
3	Check wiring between level control system compressor and level control module for short circuit with respect to each other	<ul style="list-style-type: none">• Measure resistance on level control module plug B between 'pin 85' and 'pin 93'. infinity ohms Go to Step 4	Repair or replace wiring harness. --> End
4	Replace level control module	--> End	

FAULT CODE 1598

VOLTAGE OF TERMINAL 30 EXCEEDED/NOT REACHED

Diagnostic conditions

- Ignition on
- Internal level control module function test

Possible cause of fault

- Vehicle battery is or has been subjected to overvoltage (upper limit value is exceeded)
- Vehicle battery is or has been subjected to undervoltage (lower limit value is not reached)
- Fuse 'F27' (15A) in fuse carrier at right of dashboard faulty

Affected pins

Level control module, plug A:

- Pin 4
- Pin 5

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Fuse in fuse carrier at right of dashboard: 'F27' (15A)

Diagnosis/troubleshooting

DIAGNOSIS/TROUBLESHOOTING PROCEDURE

Work instruction		Display OK	If not OK
1	Check battery or alternator:	<ul style="list-style-type: none"> • Engine speed > 2,000 rpm. • Measure charge voltage of generator. 	11.4 - 14.5 V Go to Step 2 Then read out fault memory again. If OK: --> End If not OK: Go to Step 2
2	Check input voltage at fuse:	<ul style="list-style-type: none"> • Switch on ignition. • Measure voltage between fuse 'F27' (15A) 'on input side' in fuse carrier at right of dashboard and ground. 	11.4 to 14.5 V Go to Step 3 Repair or replace wiring harness or components near fuse 'on input side'. --> End
3	Check fuse:	Check 3a <ul style="list-style-type: none"> • Switch off ignition. • Remove fuse 'F27' (15A) from fuse carrier at right of dashboard and check it for continuity. 	Go to Step 5 Go to Step 4
		Check 3b <ul style="list-style-type: none"> • Re-insert intact fuse 'F27' (15A). • Measure voltage at output of fuse 'F27' and ground. 	11.4 - 14.5 V Go to Step 7 Go to Step 4
4	Replace fuse.	Fault is no longer present (fuse not	Fault still present (fuse faulty again)

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			faulty) --> End	Go to Step 5
5	Check wiring between fuse 'F27' and level control module for short circuit to ground:	<ul style="list-style-type: none"> Remove fuse 'F27' (15A) from fuse carrier at right of dashboard. Measure resistance between level control module plug A 'pins 4, 5' and ground. 	< 5 ohms Go to Step 6	Repair or replace wiring harness. --> End
6	Check wiring between fuse 'F27' and level control module for short circuit to B+:	<ul style="list-style-type: none"> Remove fuse 'F27' (15A) from fuse carrier at right of dashboard. Pull plug B off level control module. Measure voltage between level control module plug A 'pins 4, 5' and ground. 	< 0.3 V Go to Step 7	Repair or replace wiring harness. --> End
7	Check wiring between fuse 'F27' and level control module for open circuit:	<ul style="list-style-type: none"> Measure resistance between level control module plug A 'pins 4, 5' and output of fuse 'F27 (15A)' in fuse carrier at right of dashboard. 	< 5 ohms Go to Step 8	Repair or replace wiring harness. --> End
8	Inspect the wiring harness from 'F27 fuse output' to level control module 'pins 4, 5' for pinches and chafing damage:		No damage visible. Go to Step 9	Repair wiring harness. --> End
9	Check ground points and plug connection on the level control module for corrosion:		No corrosion visible. Go to Step 10	Remove and repair corrosion properly or replace various components. --> End
10	Replace level control module.		--> End	

FAULT CODE 1767

POWER SUPPLY FOR VEHICLE LEVEL SENSORS, LEFT (FRONT LEFT AND REAR LEFT)

Diagnostic conditions

- Ignition on
- Internal level control module function test

Possible cause of fault

- Short circuit to B+ in the wiring of pin 63 and/or pin 64 of the level control module
- Short circuit to ground in the wiring of pin 63 and/or pin 64 of the level control module

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2003-08 SUSPENSION Level Control - Diagnostics - 9pa_Cayenne

- Vehicle level sensors need to be calibrated, refer to **43 K2 CALIBRATION - AS OF MY 2003 (ALL MODELS EXCEPT CAYENNE S TIO TITAN)** .
- Level control module faulty

Affected pins

Level control module, plug A:

- Pin 63 'FL vehicle level sensor'
- Pin 64 'RL vehicle level sensor'

Front left vehicle level sensor, plug A:

- Pin 5

Rear left vehicle level sensor, plug A:

- Pin 5

Diagnosis/troubleshooting

DIAGNOSIS/TROUBLESHOOTING PROCEDURE

Work instruction	Display OK	If not OK
1 Re-calibrate level control module Calibrating level control module, refer to <u>43 K2 CALIBRATION - AS OF MY 2003 (ALL MODELS EXCEPT CAYENNE S TIO TITAN)</u> .	--> End	Read out fault memory for level control module again. If OK: --> End If not OK: --> Step 2
2 Check wiring between front/rear left vehicle level sensors and level control module for short circuit to B+:	< 0.3 V Go to Step 3	Repair or replace wiring harness. --> End
Check wiring between front/rear left	infinity	

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3 vehicle level sensors and level control module for short circuit to ground:	<ul style="list-style-type: none"> Measure resistance between level control module plug A 'pins 63, 64' and ground. 	ohms Go to Step 4	Repair or replace wiring harness. --> End
4 Replace front left and/or rear left vehicle level sensor.		--> End	Go to Step 5
5 Replace level control module.		--> End	

FAULT CODE 1768

POWER SUPPLY FOR VEHICLE LEVEL SENSORS, RIGHT (FRONT RIGHT AND REAR RIGHT)

Diagnostic conditions

- Ignition on
- Internal level control module function test

Possible cause of fault

- Short circuit to B+ in the wiring of pin 65 and/or pin 66 of the level control module
- Short circuit to ground in the wiring of pin 65 and/or pin 66 of the level control module
- Vehicle level sensors need to be calibrated, refer to **43 K2 CALIBRATION - AS OF MY 2003 (ALL MODELS EXCEPT CAYENNE S TIO TITAN)** .
- Level control module faulty

Affected pins

Level control module, plug A:

- Pin 65 'FR vehicle level sensor'
- Pin 66 'RR vehicle level sensor'

Front right vehicle level sensor, plug A:

- Pin 5

Rear right vehicle level sensor, plug A:

- Pin 5

Diagnosis/troubleshooting

DIAGNOSIS/TROUBLESHOOTING PROCEDURE

Work instruction	Display OK	If not OK
		Read out fault

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1	<p>Re-calibrate level control module. Calibrating level control module, refer to <u>43 K2 CALIBRATION - AS OF MY 2003 (ALL MODELS EXCEPT CAYENNE S TIO TITAN)</u> .</p>	--> End	<p>memory for level control module again. If OK: --> End If not OK: --> Step 2</p>	
2	<p>Check wiring between front/rear right vehicle level sensors and level control module for short circuit to B+:</p>	<ul style="list-style-type: none"> • Switch off ignition. • Pull plug A off level control module. • Pull off plug on front right vehicle level sensor. • Pull off plug on rear right vehicle level sensor. • Switch on ignition. • Measure voltage between level control module plug A 'pins 65, 66' and ground. 	<p>< 0.3 V Go to Step 3</p>	<p>Repair or replace wiring harness. --> End</p>
3	<p>Check wiring between front/rear right vehicle level sensors and level control module for short circuit to ground:</p>	<ul style="list-style-type: none"> • Switch off ignition. • Measure resistance between level control module plug A 'pins 65, 66' and ground. 	<p>infinity ohms Go to Step 4</p>	<p>Repair or replace wiring harness. --> End</p>
4	<p>Replace front right and/or rear right vehicle level sensor.</p>	--> End	Go to Step 5	
5	<p>Replace level control module.</p>	--> End		

FAULT CODE 1769

VEHICLE LEVEL SENSOR, FRONT RIGHT

Diagnostic conditions

- Ignition on
- Internal level control module function test

Possible cause of fault

- Short circuit to B+ in the wiring of pin 83 of the level control module (electrical fault in electric circuit)
- Short circuit to ground in the wiring of pin 83 of the level control module (electrical fault in electric circuit)
- Open circuit in one or more wires connected to pins 65, 76 and 83 of the level control module (electrical fault in electric circuit)
- Level control module receives implausible signal from vehicle level sensor
- If implausible signal is received from vehicle level sensor, perform calibration, refer to **43 K2**

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

- Vehicle level sensor faulty
- Level control module faulty

Affected pins

Level control module, plug A:

- Pin 65
- Pin 76

Level control module, plug B:

- Pin 83

Front right vehicle level sensor, plug A:

- Pin 1
- Pin 5
- Pin 6

WARNING: Danger of personal injury from lowering vehicle independently when working on and underneath the vehicle!

- The normal level must always be set and the level control switched off when the vehicle is raised with the jack or platform lift.

Diagnosis/troubleshooting

NOTE: If a vehicle level sensor or the level control module is replaced, it must be calibrated using the 9588 Porsche System Tester II.

DIAGNOSIS/TROUBLESHOOTING PROCEDURE

Work instruction		Display OK	If not OK
1 Check wiring between front right vehicle level sensor and level control module for short circuit to B+:	<ul style="list-style-type: none">• Switch off ignition.• Pull plugs A and B off level control module.• Pull off plug on front right vehicle level control sensor.• Switch on ignition.• Measure voltage between level control module plug A 'pins 65, 76' and ground and plug B 'pin 83' and ground.	< 0.3 V Go to Step 2	Repair or replace wiring harness. --> End

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2	Check wiring between front right vehicle level sensor and level control module for short circuit to ground:	<ul style="list-style-type: none"> • Switch off ignition. • Measure resistance between level control module plug A 'pins 65, 76' and ground and plug B 'pin 83' and ground. 	infinity Go to Step 3	Repair or replace wiring harness. --> End
3	Check wiring between front right vehicle level sensor and level control module for open circuit:	<ul style="list-style-type: none"> • Measure resistance between level control module plug A 'pins 65, 76' and front right vehicle level control sensor plug 'pins 5, 1' and plug B 'pin 83' and front right level control sensor plug 'pin 6'. 	< 5 ohms Go to Step 4	Repair or replace wiring harness. --> End
4	Re-calibrate level control module Calibrating level control module, refer to <u>43 K2 CALIBRATION - AS OF MY 2003 (ALL MODELS EXCEPT CAYENNE S TIO TITAN)</u> .		--> End	Go to Step 5
5	Replace front right vehicle level sensor.		--> End	Go to Step 6
6	Replace level control module.		--> End	

FAULT CODE 1770

COMPRESSOR TEMPERATURE SENSOR

Diagnostic conditions

- Ignition on
- Internal level control module function test

Possible cause of fault

- Short circuit to B+ in the wiring of pin 85 of the level control module
- Short circuit to ground in the wiring of pin 85 of the level control module
- Open circuit in the wiring of pin 85 of the level control module
- Level control module receives implausible signal from compressor
- Compressor temperature sensor faulty
- Level control module faulty

Affected pins

Level control module, plug B:

- Pin 85
- Pin 93

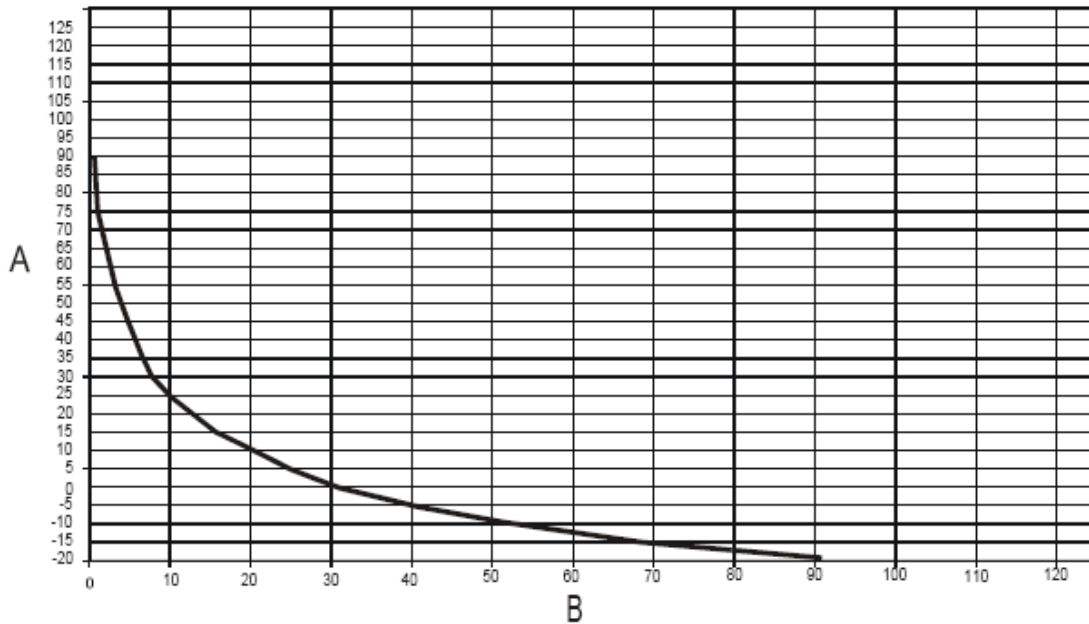
Level control system compressor, plug A:

- Pin 3

- Pin 4

Diagnosis/troubleshooting

Compressor temperature



A - Temperature In °C

B - Resistance In Ω

Fig. 8: Temperature Versus Resistance Graph
 Courtesy of PORSCHE OF NORTH AMERICA, INC.

DIAGNOSIS/TROUBLESHOOTING PROCEDURE

Work instruction		Display OK	If not OK
1 Check compressor temperature sensor:	<ul style="list-style-type: none"> • Switch off ignition. • Pull plug off level control system compressor. • Measure resistance on level control system compressor plug between 'pins 3 and 4'. 	12.2 - 13.72 ohms at 20°C or see ' COMPRESSOR TEMPERATURE ' diagram. Go to Step 2	Replace level control system compressor. --> End
2 Check wiring between level control system compressor and level control module for short circuit to B+:	<ul style="list-style-type: none"> • Pull plug B off level control module. • Switch on ignition. • Measure voltage between level control module plug B 'pin 85' and ground. 	< 0.3 V Go to Step 3	Repair or replace wiring harness. --> End

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3	Check wiring between level control system compressor and level control module for short circuit to ground:	<ul style="list-style-type: none">• Switch off ignition.• Measure resistance between level control module plug B 'pins 85, 93' and ground.	infinity ohms Go to Step 4	Repair or replace wiring harness. --> End
4	Check wiring between level control system compressor and level control module for open circuit:	<ul style="list-style-type: none">• Measure resistance between level control module plug B 'pins 85, 93' and level control system compressor plug A 'pins 3, 4'.	< 5 ohms Go to Step 5	Repair or replace wiring harness. --> End
5	Replace level control module.		--> End	Go to Step 6
6	Replace compressor.		--> End	

FAULT CODE 1772

PRESSURE TRANSMITTER SIGNAL LEAD

Diagnostic conditions

- Ignition on
- Internal function test on level adjustment control unit

Possible cause of fault

- Leak in the compressed air lines
- Short circuit to B+ in the wiring of pin 84 of the level adjustment control unit
- Short circuit to ground in the wiring of pin 84 of the level adjustment control unit
- Open circuit in the wiring of pin 84 of the level adjustment control unit
- Level adjustment control unit receives implausible signal from pressure transmitter
- Pressure transmitter faulty
- Level adjustment control unit faulty

Affected pins

Level adjustment control unit, connector A:

- Pin 34

Level adjustment control unit, connector B:

- Pin 84 'P signal'

Solenoid block, connector A:

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- Pin 8
- Pin 9 'P signal'

Diagnosis/troubleshooting

DIAGNOSIS/TROUBLESHOOTING PROCEDURE

Work instruction		Display OK	If not OK
1	Check compressed air lines for leaks.	Go to Step 2	Eliminate leaks and read out fault memory again
2	Check wiring between solenoid block and level adjustment control unit for short circuit to B+:	<ul style="list-style-type: none"> • Switch off ignition • Pull connectors A and B off level adjustment control unit • Pull connector off solenoid valve • Switch on ignition • Measure voltage between level adjustment control unit connector A 'pin 34' and connector B 'pin 84' and ground 	< 0.3 V Go to Step 3 Repair or replace wire harness --> End
3	Check wiring between solenoid block and level adjustment control unit for short circuit to ground:	<ul style="list-style-type: none"> • Measure resistance between level adjustment control unit connector A 'pin 34', connector B 'pin 84', and ground 	infinity ohms Go to Step 4 Repair or replace wire harness --> End
4	Check wiring between solenoid block and level adjustment control unit for open circuit:	<ul style="list-style-type: none"> • Measure resistance between level adjustment control unit connector A 'pin 34' and solenoid block connector A 'pin 8' • Measure resistance between level adjustment control unit connector B 'pin 84' and solenoid block connector A 'pin 9' 	5 ohms Go to Step 5 Repair or replace wire harness --> End
5	Check solenoid valve activation:	<ul style="list-style-type: none"> • Using the 9588 Porsche System Tester II, select the 'Actual values' menu item to check the values for 'pressure transmitter voltage and pressure' 	Values OK --> End Go to Step 6
6	Replace solenoid block. Then check compressed air lines for leaks.	--> End	Go to Step 7
7	Replace level adjustment control unit.	--> End	

FAULT CODE 1773

ACCUMULATOR VALVE

2006 Porsche Cayenne

2003-08 SUSPENSION Level Control - Diagnostics - 9pa_Cayenne

Diagnostic conditions

- Ignition on
- Internal level control module function test

Possible cause of fault

- Short circuit to B+ in the wiring of pin 34 of the level control module (cannot control level using the accumulator)
- Short circuit to ground in the wiring of pin 34 of the level control module
- Open circuit in the wiring of pin 34 of the level control module
- Level control module faulty

NOTE: If multiple valve faults (fault code 0805, 0806, 0807, 0808) or another relay fault (fault code 1399) are recorded, check the system's plug connections for correct contacts.

Affected pins

Level control module, plug A:

- Pin 34

Solenoid block, plug A:

- Pin 8

Diagnosis/troubleshooting

DIAGNOSIS/TROUBLESHOOTING PROCEDURE

Work instruction		Display OK	If not OK
1 Check wiring between solenoid block and level control module for short circuit to B+:	<ul style="list-style-type: none">• Switch off ignition.• Pull plug A off level control module.• Pull plug off solenoid block.• Switch on ignition.• Measure voltage between level control module plug A 'pin 34' and ground.	< 0.3 V Go to Step 2	Repair or replace wiring harness. --> End
2 Check wiring between solenoid block and level control module for short circuit to ground:	<ul style="list-style-type: none">• Switch off ignition.• Measure resistance between level control module plug A 'pin 34' and ground.	infinity ohms Go to Step 3	Repair or replace wiring harness. --> End

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3	Check wiring between solenoid block and level control module for open circuit:	<ul style="list-style-type: none">• Measure resistance between level control module plug A 'pin 34' and solenoid block plug A 'pin 8'.	< 5 ohms Go to Step 4	Repair or replace wiring harness. --> End
4	Replace level control module.		--> End	Go to Step 5
5	Replace solenoid block.		--> End	

FAULT CODE 1776

SELECTOR SWITCH (LEVEL CONTROL MODULE)

Diagnostic conditions

- Ignition on
- Internal level control module function test

Possible cause of fault

- Short circuit to ground in the wiring of pin 46 of the level control module (electrical fault in electric circuit)
- Short circuit to B+ in the wiring of pin 46 of the level control module (electrical fault in electric circuit)
- Open circuit in the wiring of pin 46 of the level control module (no signal/communication)
- Selector switch faulty
- Level control module faulty

Affected pins

Level control module, plug A:

- Pin 46

Level control module

- Pin 7

Bushing on selector switch

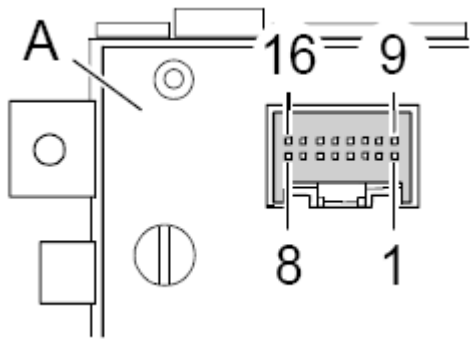


Fig. 9: Identifying Level Control Module, Plug A Connector Pins
 Courtesy of PORSCHE OF NORTH AMERICA, INC.

Diagnosis/troubleshooting

DIAGNOSIS/TROUBLESHOOTING PROCEDURE

Work instruction		Display OK	If not OK
1	Check wiring between level control system control module and level control module for short circuit to B+:	<ul style="list-style-type: none"> • Switch off ignition. • Pull plug A off level control module. • Pull plug off level control system control module. • Switch on ignition. • Measure voltage between level control module plug A 'pin 46' and ground. 	< 0.3 V Go to Step 2 Repair or replace wiring harness. --> End
2	Check wiring between level control system control module and level control module for short circuit to ground:	<ul style="list-style-type: none"> • Switch off ignition. • Measure resistance between level control module plug A 'pin 46' and ground. 	infinity ohms Go to Step 3 Repair or replace wiring harness. --> End
3	Check wiring between level control system control module and level control module for open circuit:	<ul style="list-style-type: none"> • Measure resistance between level control module plug A 'pin 46' and level control system control module 'pin 7'. 	< 5 ohms Go to Step 4 Repair or replace wiring harness. --> End
4	Check selector switch:	<ul style="list-style-type: none"> • Use the 'Input signals' menu item in the 9588 Porsche System Tester II to check the values for 'Up switch, Down switch, shock-absorber adjustment switch, Normal level LED and Low level LED'. 	--> End Go to Step 5
5	Replace selector switch.	--> End	Go to Step 6
6	Replace level control module.	--> End	

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VEHICLE LEVEL SENSOR

Diagnostic conditions

NOTE: This fault is only detected when the vehicle is driven for more than 60 seconds.

- Ignition on
- Internal level control module function test

Possible cause of fault

- Mechanical fault (connecting rod bent or tire failure/spare tire)
- Vehicle level sensors need to be calibrated, refer to **43 K2 CALIBRATION - AS OF MY 2003 (ALL MODELS EXCEPT CAYENNE S TIO TITAN)** .

Affected pins

Diagnosis/troubleshooting

NOTE: If a vehicle level sensor or the level control module is replaced, it must be calibrated using the 9588 Porsche System Tester II.

DIAGNOSIS/TROUBLESHOOTING PROCEDURE

Work instruction		Display OK	If not OK
1	Check vehicle tires: <ul style="list-style-type: none">• Check that the tires on the vehicle correspond to the specified tire size.	Go to Step 2	Repair or replace vehicle tires. --> End
2	Check vehicle level sensor mechanism: <ul style="list-style-type: none">• Check the connecting rods of the vehicle level sensors for damage.• Check wheel suspension.	Go to Step 3	Repair or replace mechanism. --> End
3	Re-calibrate level control module Calibrating level control module, refer to <u>43 K2 CALIBRATION - AS OF MY 2003 (ALL MODELS EXCEPT CAYENNE S TIO TITAN)</u> .	--> End	Go to Step 4
4	Replace one or more vehicle level sensors.	--> End	Go to Step 5
5	Replace level control module.	--> End	

FAULT CODE 1781

EXTREME VEHICLE INCLINATION

Diagnostic conditions

- Ignition on

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2003-08 SUSPENSION Level Control - Diagnostics - 9pa_Cayenne

- Internal level control module function test

Possible cause of fault

- Mechanical fault (detected by a plausibility check)
- Vehicle level sensors need to be calibrated, refer to **43 K2 CALIBRATION - AS OF MY 2003 (ALL MODELS EXCEPT CAYENNE S TIO TITAN)** .

Affected pins

Diagnosis/troubleshooting

NOTE: If a vehicle level sensor or the level control module is replaced, it must be calibrated using the 9588 Porsche System Tester II.

DIAGNOSIS/TROUBLESHOOTING PROCEDURE

Work instruction	Display OK	If not OK
1 Check vehicle level sensor mechanism: <ul style="list-style-type: none">• Check the connecting rods of the vehicle level sensors for damage.• Check wheel suspension.	Go to Step 2	Repair or replace mechanism. --> End
2 Re-calibrate level control module Calibrating level control module, refer to <u>43 K2 CALIBRATION - AS OF MY 2003 (ALL MODELS EXCEPT CAYENNE S TIO TITAN)</u> .	--> End	Go to Step 3
3 Replace one or more vehicle level sensors.	--> End	Go to Step 4
4 Replace level control module.	--> End	

FAULT CODE 2250

VALVE OPERATING TIME EXCEEDED

Diagnostic conditions

- Ignition on
- Internal level control module function test

Possible cause of fault

- Valve operating time exceeded (upper limit value exceeded) due to excessive lifting and lowering of the vehicle, resulting in deactivation of function.

Affected pins