Chassis ATU

January 2018

Securing vehicle with electromechanical parking brake

Additional information on automatic activation of the EPB

Securing vehicle with electromechanical parking brake

1.
Introduction

2.
Automatic EPB

3.
“Driver absent application” function

Introduction

- Questions are frequently received regarding the concept for applying the electromechanical parking brake, particularly from customers who have recently changed vehicles.
- “The parking brake is not always applied automatically when the vehicle is parked; sometimes it is applied, and sometimes not.”

There are different application concepts:

- On A6, A7, and Q5 vehicles from MY13 onwards, the “automatic EPB” was introduced for a period of time.
- “Automatic EPB” is no longer used in A6 and A7 vehicles from MY15 onwards, or in Q5 vehicles from week 45/13 onwards.
- The “driver absent application” function has been introduced for all current models with electromechanical parking brake.

Automatic EPB

- The electromechanical parking brake is always applied automatically when the vehicle is stationary with the engine switched off and a position other than “N” is selected on the automatic gearbox.
- If “N” is selected, the parking brake is not applied.
- To release the parking brake (after it was applied automatically) while the vehicle is stationary, the button must be pressed with the ignition switched on.
- The automatic EPB is only available on vehicles with automatic gearbox.

“Driver absent application” function

- The “driver absent application” function is only available on vehicles with automatic gearbox.
- The “driver absent application” function is designed to prevent the vehicle from accidentally being left unsecured when the driver exits the vehicle.
- If “P” is selected, the parking brake is not applied automatically, but can be applied manually using the button.
- If “N” is selected, the parking brake is not automatically applied either.

How the “driver absent application” function works:

The parking brake is applied when all three of the following conditions are met:

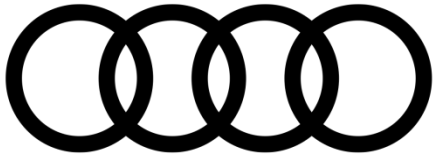
- The selector lever is not in position “P” or “N”.
- The vehicle is braked to a halt from driving speed.
- The driver door is opened.

“Driver absent application” function

- If the driver door is opened when the vehicle is rolling very slowly (< 2mph) to a halt, the parking brake will be applied just before the vehicle is stationary. This is because it is difficult to differentiate between very slow rolling and a complete standstill using the signals from the ABS speed sensors.
- If, after the parking brake was applied by the “driver absent application” function, the parking brake is released and the vehicle moves off slowly with the driver door open, the parking brake will not be applied when the vehicle stops again, as this is recognized as manoeuvring/parking. Applying the parking brake would hinder manoeuvring the vehicle.

On A4, Q5, and Q7 vehicles:

- If the vehicle is on a gradient when the engine is switched off and the gearbox is not in position “P”, the parking brake is applied automatically to reduce jarring from the parking lock.



Air suspension

Air suspension

01.
Introduction/history

02.
Tool kit for air springs
VAS 751001

03.
Summary

Audi air suspension - history

Audi allroad quattro

Audi A6

Audi A7

Audi A6
Audi A7
Audi A8
Audi Q5
Audi Q7
Audi Q8
etc

Audi A8

Audi Q7

Audi Q5

2000 2002 | 2004 2006 | 2010 2017 | Future

Image source: SSP

* Audi Worldwide

Overview of air suspension components - Audi Q7

Image source: SSP 633

Air suspension components

Accumulator

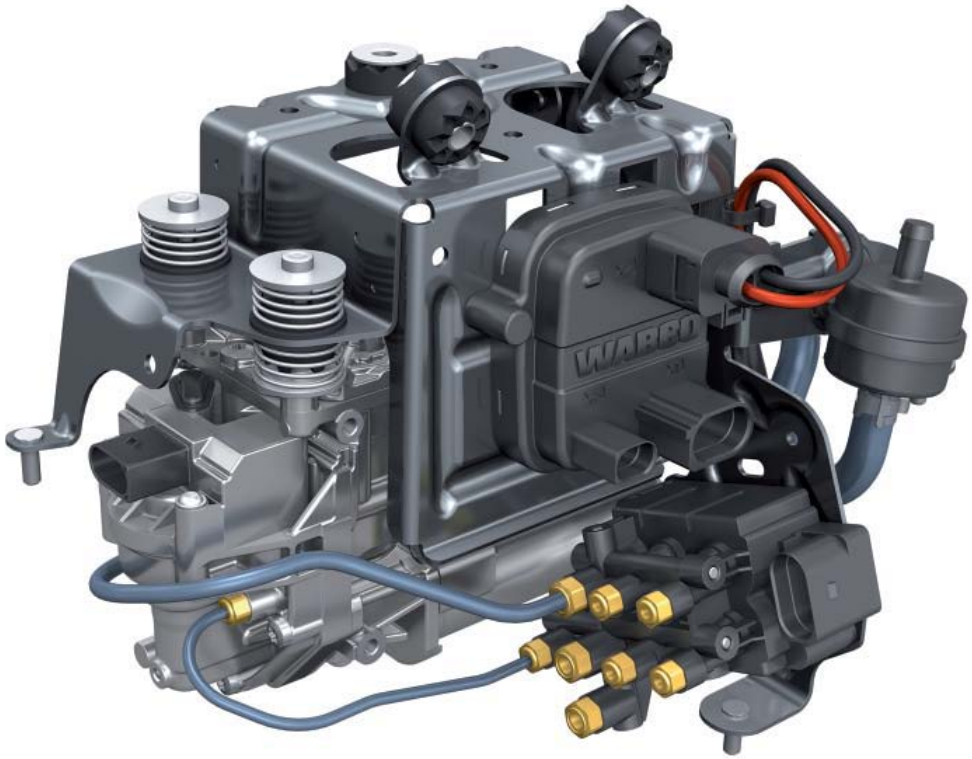
Air spring strut
(front axle)

Air spring (rear axle)

Solenoid valve block

Vehicle level sender

Air suspension components



Air supply unit

Running gear control module

Image source: SSP 633

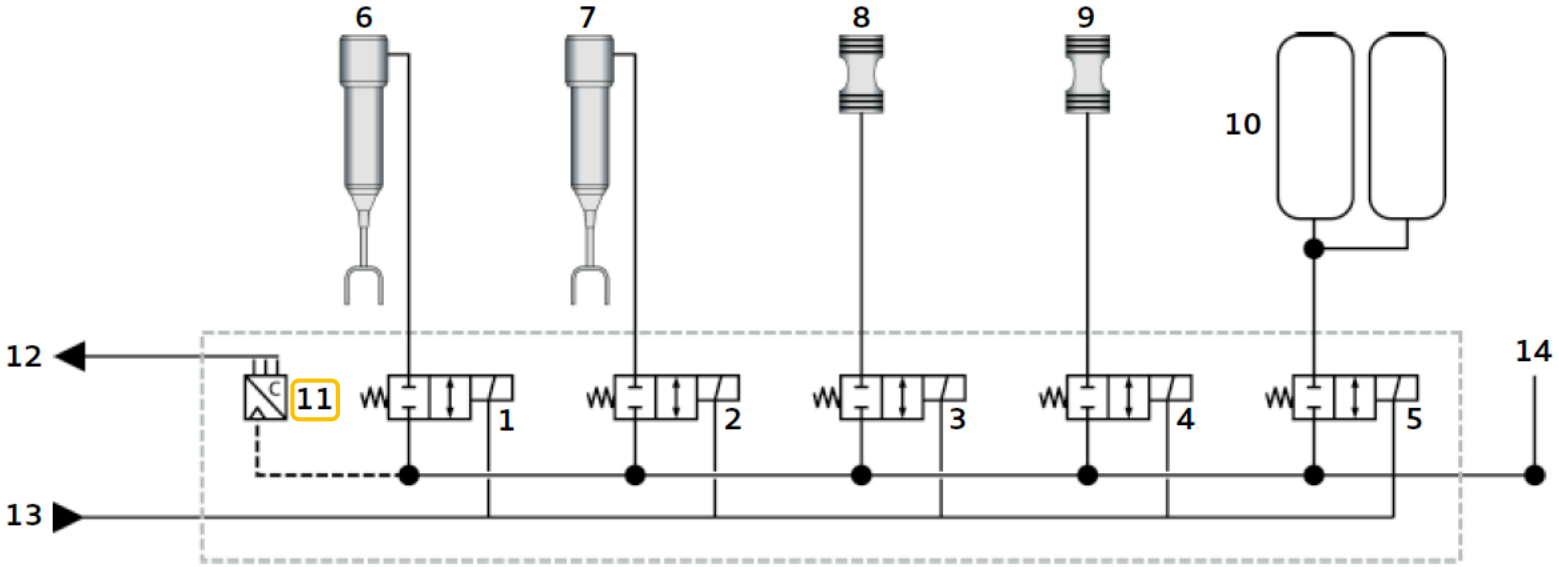
Special tools for air suspension

Which component might have generated the following DTC (see next slide)?

› **DTC C11AFF0** (Adaptive suspension pressure accumulator leak detected)

Ereignisspeichereintrag		
Nummer :	C11AFF0: Druckspeicher der Niveauregelung Leck erkannt	
Fehlerart 2 :	passiv/sporadisch	
Symptom :	3211266	
Status :	00001000	
- **Standard Umgebungsbedingungen:**		
Datum :		13.02.16
Zeit :		18:18:50
km-Stand (DTC) :		123
Priorität :		4
Häufigkeitszähler :		2
Verlernzähler / Fahrzyklus :		42

Air supply - overview



Solenoid valve block

1-5	Solenoid valves
6, 7	Air springs (front axle)
8, 9	Air springs (rear axle)
10	Accumulator
11	Pressure sensor
12	Pressure value
13	Electrical actuation of solenoid valves
14	Compressor connection

Image source: SSP 633

Special tools for air suspension

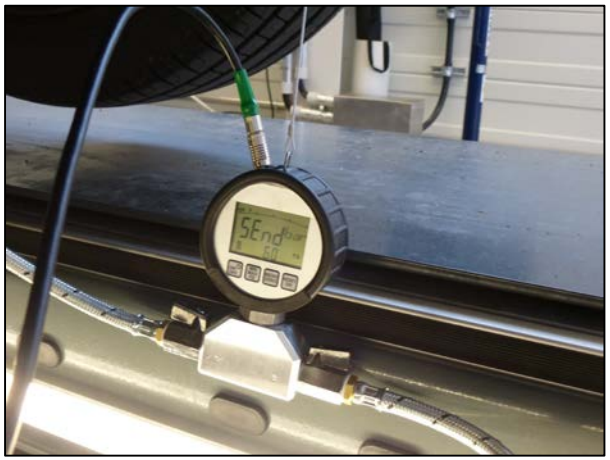
Planned VAS/ASE number:

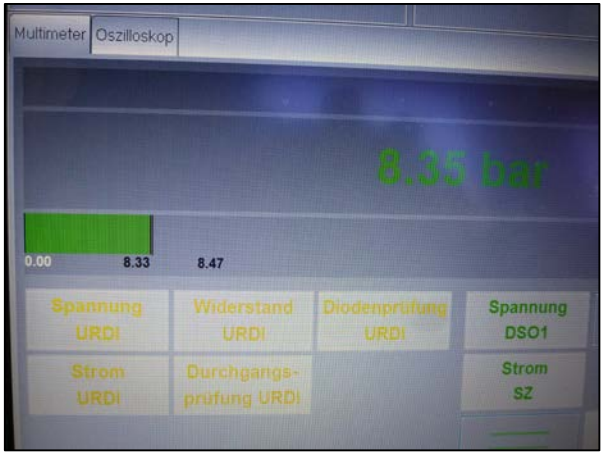
VAS 751 001/ASE 751 001 00 000

Connection lead VAS 5051/66

ASE 405 088 00 000

Special tools for air suspension



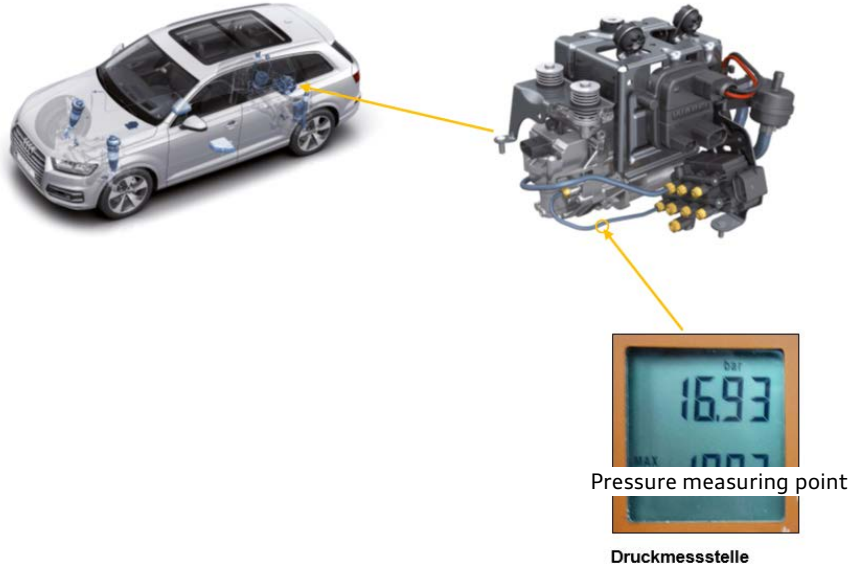


Special tools for air suspension

› **DTC C11AFF0** (Adaptive suspension pressure accumulator leak detected)

At which measuring point would you apply the *special tools for air suspension*?

› See picture below.



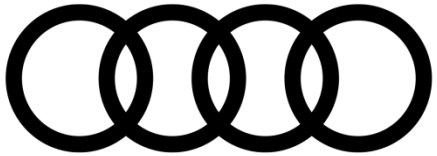
Cause:

› Internal leak in compressor.

Image source: SSP 633

Air suspension
Summary

- Special tools for reliable and targeted fault finding.
- Less time needed for diagnosis.
- Avoiding repeat repairs.
- Decreased repair costs.
- Increased customer satisfaction.



DRC suspension

DRC suspension

01.

DRC 3.0

1.1 System characteristics

1.2 Technical modification to shock absorber

02.

Repair information

03.

Summary

DRC 3.0
System characteristics

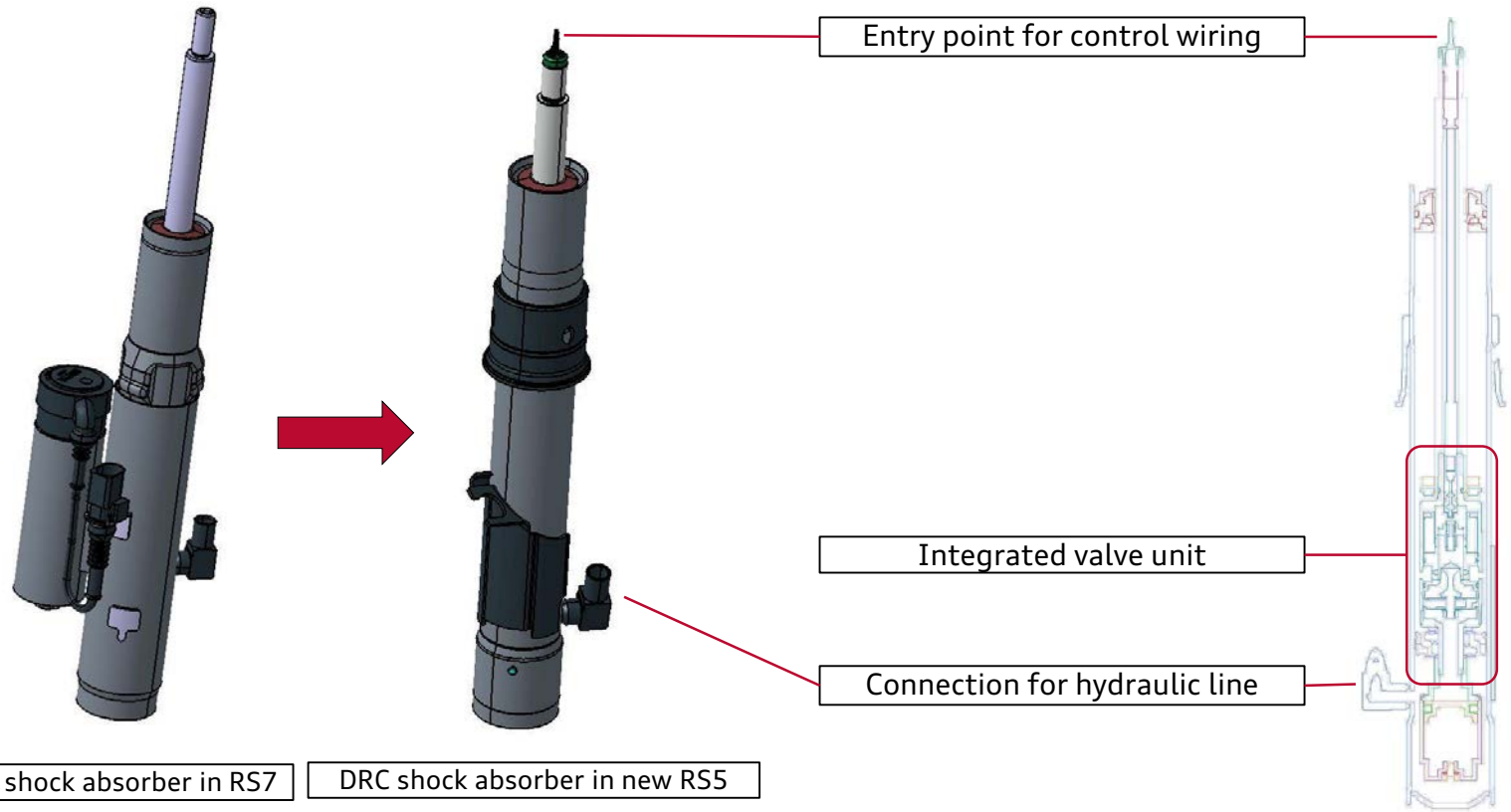
- 3rd generation Dynamic Ride Control in the new RS5.
- Combination of DRC hydraulic system and electronic running gear platform (EFP).

- Shock absorbers are coupled diagonally, connected by central valve.
- Tools for previous generation can still be used.
- System control via running gear control module, J775 (address word 0074).

DRC 3.0

Technical modification to shock absorber

- Modified characteristic of DRC system: variation of drive select modes more clearly defined; most noticeable in comfort mode.
- System pressure: 16 bar (in line with C-segment vehicles).
- Modification of shock absorber → valve unit integrated in shock absorber tube.



DRC 3.0
Repair information

- RS7: DTCs are logged in electronic damping control module, J250 (address word 0014) (e.g. Front left vehicle level sensor; interruption/short to positive) refer to shock absorbers, not to level sensors for headlight range control (TSB 2049664).

General DRC repair tips (all models):

- Use current tools (no leaks in hydraulics, proper function).
- Evacuate system sufficiently; do not be overly hasty when carrying out repairs.
- Warm up oil somewhat (95°F) before filling. In winter, allow vehicle to warm up indoors.

DRC suspension
Summary

- Basic layout of DRC suspension remains the same.
- Modification of shock absorbers → valve unit moved to inside of shock absorber tube.
- Proceed with care when performing repairs.

Thank you!