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* if fitted or delivery option
Preliminary remarks

Notes on these instructions

This repair manual includes information and instructions on how to perform repair work on the seat suspension MSG97 EAC of GRAMMER seats.

The repair of the upper seat part is described in the repair manual for the upper seat part S741 EAC to which a reference is made, if required.

Example:
The cable harness for the upper seat part has been inspected and found to be OK (see repair manual for upper seat part).

The seat suspension MSG97EAC forms the basis for illustrations in this repair manual. In the case of technical deviations in work procedures (due to different seat suspension designs), refer to the current text or individual chapters of the manual.

Each chapter starts with a list of all preparatory work to be completed before starting repair. These preparations are described in separate chapters and shall be carried out without the preparatory steps described there.

At the beginning of each description for repair you will find an overview diagram. All parts included in the overview diagrams within one chapter are consecutively numbered starting with "1". Each component is referred to by the same number throughout the document.

With the help of these overview diagrams, an experienced technician will gain a quick overview.
Preliminary remarks

For spare part orders, please use the numbers stated in the latest issue of the relevant spare parts catalogue.

The description of the work procedures refers to the removed seat suspension with the upper seat part being removed. Depending on the individual installation situation, some work may also be performed on the installed seat suspension and/or with upper seat part. For this reason, check the environment of the installed seat suspension for this possibility before starting work. The safety instructions of the specific vehicle manufacturer and those stated in Chapter 1 of this repair manual must be strictly observed. This repair manual also includes some information on delivery options, if these require further explanation. Since the scope of delivery depends on the specific customer order, the actual seat suspension design may deviate from the descriptions and illustrations in this manual.

The illustrated repair steps refer to the seat suspension for left-hand drive. Different work steps are to be performed laterally reversed when repairing vehicle models with right-hand drive.

If not stated otherwise, the directional indications "front, back" and "right, left" refer to the installed seat suspension regarded in the driving direction of the vehicle.

The document layout is suitable for later use of this repair manual via CD-ROM / INTERNET / INTRANET. A navigation line was entered below the heading for this. This navigation line includes the Chapter titles and it allows the user to jump directly to these Chapters after the corresponding hyperlinks have been set.
Basic information on the seat suspension

The seat suspension is provided with a long-lasting lubrication (approx. 10 years). The lubricating points must be re-greased only after repair work, using an acid-free multi-purpose lubricant.

In the description of the present repair manual, not all fastening parts might be mentioned. After repair, it might be necessary to check fastening parts regarding their factory-made laying, support and securing and to correct them respectively, if required.

Bowden pull wires, cables and air hoses may only be fastened with cable ties at the defined spots by hand (loose). Make sure that Bowden pull wires, cables and air hoses cannot be squeezed or distorted when the seat suspension is adjusted and the seat moved.

Replace all removed old parts with enclosed new ones. If there is no new part included, the old one is to be cleaned and checked for its suitability for re-use. Defective parts and worn parts must be replaced by new ones.

GRAMMER AG rejects any warranty claims if damaged or worn parts and assemblies are not replaced by spare parts released by GRAMMER AG.
Preliminary remarks

Qualified personnel

These instructions offer basic information on proper technical seat repair. The contents of the work procedures described are intended for professionally educated technicians with profound product knowledge. This level of knowledge is an imperative requirement when performing the work and procedures described in this document.

In order to avoid bodily injury, reduced operational safety of the seat suspension or damage to it resulting from improperly performed work, all information and instructions, in particular the safety instructions stated in Chapter 1, must be read carefully and strictly observed.

As an inevitable matter of fact, GRAMMER AG cannot evaluate all situations and consequences that may bear a risk of injury for the persons involved in the described work procedures. For this reason it is absolutely necessary that every person who carries out repair work at the seat suspension uses his/her professional knowledge to make sure that his/her own safety will not be put at risk and that the selected type of repair will not cause any negative effects, in particular with regard to technical safety.

For this reason, GRAMMER AG disclaims liability for any possible damage of this kind.

We point out explicitly that all work steps and procedures described are to be performed with consideration to the applicable directives and regulations stipulated by the relevant local authorities and in compliance with the provisions on health protection, prevention of accidents and environmental protection.
Preliminary remarks

Change notification and copyright

The seat suspensions are subject to continuous development. Please understand that we must reserve the right to make changes in shape, equipment and technical design. For this reason, the contents of this repair manual cannot be used to substantiate any possible claims. Reprint, translation and copies of this manual or parts thereof are admissible only after written approval.

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1.1 Safety instructions
1.2 Rating plate

Note:
Please refer to the applicable seat operating instructions for further details.
1.1 Safety instructions

1 All inspection, test and repair work must be performed exclusively by adequately trained personnel.

2 All work steps and procedures described are to be performed with consideration to the applicable directives and regulations stipulated by the relevant local authorities and in compliance with the provisions on health protection, prevention of accidents and environmental protection.

3 Special notes in this repair manual are highlighted as follows:

⚠️ WARNING ... indicates possible risks for persons and their prevention.

⚠️ ATTENTION ... indicates possible damage or destruction of material and their prevention.

Note: ... introduces an additional explanation for better understanding the work to be carried out.

Installation note: ... introduces an additional explanation for better understanding the installation work to be carried out.

4 Prior to all repair work, the following work has to be carried out:
   • Disconnect the seat suspension from the power supply.
   • Move the seat suspension down to the end stops.
5 Prior to working at the pneumatic system, reduce the pressure in the pneumatic system to 0 bar.

⚠️ **WARNING** Hydrostatic test!
The hydraulic test of the seat suspension should be performed after having worked on the pneumatic system. To do this, apply 60 kg load to the seat suspension for 24 hours without actuating the seat occupancy detection system. The lowering within this time must not exceed 15 mm.

6 When using oil, grease and other chemical substances, the relevant safety regulations for the handling and use of these products must be observed.
1.2 Rating plate

The rating plate is located on the rear right of the upper suspension part.

The rating plate shows the following information (example):

(A) Country of manufacture
   = MADE IN XXXXXXX

(B) DESIGNATION = MSG 97EAC/741

(C) INVENTORY NO. = 1137851

(D) Year / CW / Assembly
   = 0812 031
   • Year of manufacture = 08 (2008)
   • Built in week = 12 (March)
   • Assembly = 031

(E) ORDER NO. = XX 63988700013
   • Country indicator = XX

Note:
When orders are placed, the correct inventory no. (C) on the rating plate is always to be quoted.
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  - Compressed-air supply via internal compressor (pages 1-3)
  - External compressed-air supply via the compressed-air system of the vehicle (pages 4-6)
- Sensor module with pin assignment (pages 7-9)
- Control / air reservoir with pin assignment (page 10)
- Active module and energy bundle with pin assignment (pages 11-13)
- Compressor with pin assignment (pages 14-15) *
- Cable harness of seat suspension with pin assignment (pages 16-26)
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* if fitted or delivery option
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* if fitted or delivery option
2.1 Overview of components

Pneumatic components and connecting diagram

Compressed-air supply via internal compressor

(1) Active module
(2) Control / air reservoir
(3) Quick-release fastener
(4) Air hose (black):
    hose from air distributor (15) to control (2)
(5) Air hose (blue):
    hose from air distributor (15) to sensor module (6)
(6) Sensor module
(7) Energy bundle
2.1 Overview of components

(8) Air hose (thin):
    hose from air distributor (15) to active module (1)

(9) Air hose (thick):
    hose from air distributor (15) to active module (1)

(10) Air spring

(11) Catch spring

(12) Quick coupling

(13) Air intake-, exhaust hose

(14) Air intake-, exhaust hose

(15) Air distributor
2.1 Overview of components

(16) Quick-release fastener screw

**WARNING** Damage!
Observe the instructions stated in Chapter 3.11 and in Chapters 3.16 to 3.18 prior to the removal of the air hoses (4, 5, 8) at the quick-release fastener screw!

(17) Compressed-air hose
(18) Nozzle
(19) Compressor
(20) Retaining ring of the quick coupling
2.1 Overview of components

External compressed-air supply via the compressed-air system of the vehicle

(1) Active module
(2) Control / air reservoir
(3) Quick release fastener
(4) Compressed-air hose between control / air reservoir (2) and compressed-air distributor (5)
(5) Compressed-air distributor (Y-piece)
(6) Compressed-air hose between sensor module (7) and compressed-air distributor (5)
(7) Sensor module
(8) Energy bundle
(9) Compressed-air hose between compressed-air distributor (5) and air distributor (13)
2.1 Overview of components

(10) Catch spring
(11) Compressed-air hose (thick) between air distributor (13) and active module (1)
(12) Compressed-air hose (thin) between air distributor (13) and active module (1)
(13) Air distributor
(14) Quick-release fastener screw
(15) Lock hose
(16) Air intake hose / air exhaust hose
(17) Quick coupling
(18) Air intake hose / air exhaust hose
(19) Compressed-air hose between air distributor (13) and quick release fastener (20)
(20) Quick release fastener of external compressed-air supply
2.1 Overview of components

(21) Compressed-air hose of external compressed-air supply
(22) Elbow connection of external compressed-air supply
(23) Air spring
2.1 Overview of components

Sensor module with pin assignment

(1) Sensor module
(2) Retractor (sensor module)
(3) Webbing
(4) Plug of sensor module (3-pin)
(5) Plug of sensor module (4-pin)
(6) Socket of cable harness for seat suspension (3-pin)
(7) Socket of cable harness for seat suspension (4-pin)
(8) Air hose (black): hose from solenoid valve block to retractor
(9) Air hose (blue): hose from sensor module to air distributor
(10) Cable harness for seat suspension
2.1 Overview of components

(11) Socket of cable harness for seat suspension (18-pin)

(12) Retaining ring of quick coupling

⚠️ WARNING Damage!
Observe the instructions stated in Chapter 3.11 before pulling out the air hose (9) at the retaining ring of the quick coupling (12)!
2.1 Overview of components

Electrical plug and socket connections:

(A) Electrical connection (3-pin) between sensor module (1) and cable harness for seat suspension (10)

(B) Electrical connection (4-pin) between sensor module (1) and cable harness for seat suspension (10)

(C) Electrical connection (18-pin) between the control / air reservoir and the cable harness for seat suspension (10)
2.1 Overview of components

Control / air reservoir with pin assignment

(1) Control / air reservoir
(2) Plug of control (18-pin)
(3) Socket of cable harness for seat suspension (18-pin)
(4) Cable harness for seat suspension

Electrical plug and socket connection:

(C) Electrical connection (18-pin) between control (1) and cable harness for seat suspension (4)
2.1 Overview of components

Active module and energy bundle with pin assignment

(1) Active module
(2) Plug of active module (2-pin/big)
(3) Plug of active module (2-pin/small)
(4) Seal (big)
(5) Seal (small)
(6) Socket of cable harness for energy bundle (2-pin/small)
(7) Socket of cable harness for energy bundle (2-pin/big)
(8) Energy bundle
(9) Air hose (thick)
(10) Air hose (thin)
(11) Cable harness for energy bundle
2.1 Overview of components

(12) Socket of cable harness for energy bundle (4-pin)

(13) Plug of cable harness for seat suspension (4-pin)

(14) Cable harness for seat suspension

(15) Circlip

(16) Quick-release fastener screw

(17) Socket of cable harness for seat suspension (18-pin)
2.1 Overview of components

Electrical plug and socket connections:

(C) Electrical connection (18-pin) between cable harness for seat suspension (14) and control / air reservoir

(D) Electrical connection (2-pin/big) between active module (1) and cable harness for energy bundle (11)

(E) Electrical connection (2-pin/small) between active module (1) and cable harness for energy bundle (11)

(F) Electrical connection (4-pin) between cable harness for energy bundle (11) and cable harness for seat suspension (14)
2.1 Overview of components

Compressor with pin assignment (delivery option)

(1) Compressor
(2) Right-angle plug (black cable)
(3) Right-angle plug (blue cable)
(4) Cable harness for seat suspension
(5) Socket of cable harness for seat suspension (18-pin)
(6) Control / air reservoir
2.1 Overview of components

Electrical plug and socket connections:

(C) Electrical connection (18-pin) between cable harness for seat suspension (4) and control / air reservoir (6)

(G) Electrical connection between compressor (1) and right-angle plug of blue cable (3)

(H) Electrical connection between compressor (1) and right-angle plug of black cable (2)

Cable colours:

sw = black
bl = blue
2.1 Overview of components

Cable harness for seat suspension with pin assignment

Cable harness for seat suspension with compressed-air supply via internal compressor

(1) Cable harness for seat suspension *
(2) Socket of cable harness for seat suspension (3-pin)
(3) Socket of cable harness for seat suspension (4-pin)

* The cable harness shown in the figures may deviate optically from the cable harness installed and to be replaced. (see note in Chapter 3.19).
2.1 Overview of components

(4) Air hose (blue):
Hose from the sensor module to the air distributor

(5) Plug of cable harness for seat suspension (6-pin)

(6) Socket of cable harness for seat suspension (18-pin)

(7) Air hose (black):
Hose from the control / air reservoir to the air distributor

(8) Connector plug of vehicle (12-pin)

(9) U-shaped profile

(10) Socket of fuse

(11) Fuse (Si = 15A)

(12) Cable fastener with cable ties

(13) Cable clamp
2.1 Overview of components

(14) Plug of cable harness for seat suspension (8-pin)
(15) Sensor module
(16) Cable harness for energy bundle
(17) Socket of cable harness for energy bundle (4-pin)
(18) Plug of cable harness for seat suspension (4-pin)
(19) Compressor
(20) Right-angle plug (blue cable)
(21) Right-angle plug (black cable)
(22) Control / air reservoir
(23) Cable harness for vehicle connection
(24) Cable tie
(25) Push mount tie with wings
(26) Cable harness for upper seat part
2.1 Overview of components

Electrical plug and socket connections:

(A) Electrical connection (3-pin) between sensor module (15) and cable harness for seat suspension (1)

(B) Electrical connection (4-pin) between sensor module (15) and cable harness for seat suspension (1)

(C) Electrical connection (18-pin) between control / air reservoir (22) and cable harness for seat suspension (1)

(F) Electrical connection (4-pin) between cable harness for energy bundle (16) and cable harness for seat suspension (1)

(G) Electrical connection between compressor (19) and right-angle plug of blue cable (20)

(H) Electrical connection between compressor (19) and right-angle plug of black cable (21)
2.1 Overview of components

(I) Electrical connection (6-pin) between cable harness for seat suspension (1) and cable harness for upper seat part (26)

(J) Electrical connection (8-pin) between cable harness for seat suspension (1) and cable harness for upper seat part (26)

(K) Electrical connection (12-pin) between connector plug of vehicle (8) and cable harness for vehicle connection (23)
2.1 Overview of components

**Pin assignment:**

1. Cable harness for seat suspension
2. Plug of cable harness for seat suspension (6-pin)
3. Socket of cable harness for seat suspension (18-pin)
4. Connector plug of vehicle (12-pin)
5. Plug of cable harness for seat suspension (8-pin)
2.1 Overview of components

Cable harness for seat suspension with external compressed-air supply via the compressed-air system of the vehicles

(1) Socket of cable harness for seat suspension (18-pin)
(2) Compressed-air hose between control / air reservoir and compressed-air distributor (Y-piece in the cable harness for seat suspension)
(3) Cable harness for seat suspension *
(4) Connector plug of the vehicle (12-pin)

* The cable harness shown in the figures may deviate optically from the cable harness installed and to be replaced. (see note in Chapter 3.19)
2.1 Overview of components

<table>
<thead>
<tr>
<th>No.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>U-shaped profile</td>
</tr>
<tr>
<td>6</td>
<td>Fuse (Si = 15A)</td>
</tr>
<tr>
<td>7</td>
<td>Socket of cable harness for seat suspension (3-pin)</td>
</tr>
<tr>
<td>8</td>
<td>Plug of cable harness for seat suspension (8-pin)</td>
</tr>
<tr>
<td>9</td>
<td>Socket of cable harness for seat suspension (4-pin)</td>
</tr>
<tr>
<td>10</td>
<td>Plug of cable harness for seat suspension (4-pin)</td>
</tr>
<tr>
<td>11</td>
<td>Compressed-air hose between sensor module, compressed-air distributor (Y-piece in the cable harness for seat suspension) and air distributor</td>
</tr>
<tr>
<td>12</td>
<td>Plug of cable harness for seat suspension (6-pin)</td>
</tr>
</tbody>
</table>

![Diagram of cable harness system]
2.1 Overview of components

Electrical plug and socket connections:

(A) Electrical connection (3-pin) between sensor module and cable harness for seat suspension (3)

(B) Electrical connection (4-pin) between sensor module and cable harness for seat suspension (3)

(C) Electrical connection (18-pin) between control / air reservoir and cable harness for seat suspension (3)

(F) Electrical connection (4-pin) between cable harness for energy bundle and cable harness for seat suspension (3)

(I) Electrical connection (6-pin) between cable harness for seat suspension (3) and cable harness for upper seat part
2.1 Overview of components

(J) Electrical connection (8-pin) between cable harness for seat suspension (3) and cable harness for upper seat part

(K) Electrical connection (12-pin) between connector plug of vehicle (4) and cable harness for vehicle connection
2.1 Overview of components

**Pin assignment:**

(3) Cable harness for seat suspension

(4) Connector plug of the vehicle (12-pin)

(8) Plug of cable harness for seat suspension (8-pin)

(12) Plug of cable harness for seat suspension (6-pin)
Cable harness of height adjustment / seat occupancy detection system and module for height adjustment – pin assignment of electrical connection (delivery option)

(1) Cable for height adjustment
(2) Cable for seat occupancy detection system
(3) Cable harness of height adjustment / seat occupancy detection system = (1) + (2)
(4) Socket of cable harness of height adjustment / seat occupancy detection system
(5) Socket of cable harness of height adjustment
2.1 Overview of components

(6) Plug of module for height adjustment
(7) Module for height adjustment
(8) Rocker switch
(9) Right plug of entire cable harness
(10) Cable harness for seat suspension
(11) Pin assignment for height adjustment in downward direction at the socket of the cable harness for height adjustment / seat occupancy detection system (4)

Contact:
K5 (ground) and K6 (signal)
(12) Pin assignment for height adjustment in upward direction at the socket of the cable harness for height adjustment / seat occupancy detection system (4)

**Contact:**
K4 (signal) and K5 (ground)

(13) Pin assignment for seat occupancy detection system at the socket of the cable harness for height adjustment / seat occupancy detection system (4)

**Contact:**
K2 (ground) and K3 (signal)

(14) Pin assignment for height adjustment in upward direction at the plug of the module for height adjustment (6)

**Pin:**
P1 (signal) and P2 (ground)
2.1 Overview of components

(15) Pin assignment for height adjustment in downward direction at the plug of the module for height adjustment (6)

**Pin:**
P2 (ground) and P3 (signal)

(16) Pin assignment for seat occupancy detection system *
blue (signal) and brown (ground)

(17) Socket of cable for seat occupancy detection system *

---

**Electrical plug and socket connections:**

(L) Electrical connection between cable harness for height adjustment (1) – module for height adjustment (7)

* if fitted or delivery option
2.1 Overview of components

(M) Electrical connection between cable harness of height adjustment / seat occupancy detection system (3) – cable harness of seat suspensions (10)

(N) Electrical connection between cable harness of height adjustment (1) – seat occupancy detection system cable (2) *

Cable colors:
- gn = green
- br = brown
- bl = blue
- vi = purple

* if fitted or delivery option
A functional test is used to circumscribe all possible malfunctions; it must be performed before and after repair work on the seat suspension at any rate. To perform the functional test, the upper part of the seat must be attached to the seat suspension. The individual functions are activated in compliance with the instructions of the seat operating instructions.

**Preconditions for inspection:**
- The electrical system of the vehicle has been inspected and found to be OK and in compliance with the vehicle operating instructions.
- Battery voltage at the seat 12 V, ignition ON.
- The upper part of the seat has been inspected and found to be OK with respect to the functional operation described here (see Diagnosis in the repair manual for the upper seat part).

**Note:** The functional components mentioned above are illustrated in the repair manual of the upper seat part, if not stated otherwise in this text.
If there is a difference between the result/specified status and the actual status, please take the measures as described in the Chapter "Notes, cause/remedial measures".

<table>
<thead>
<tr>
<th>Step no.</th>
<th>Scope of inspection</th>
<th>Function to be operated</th>
<th>Result/Specified state</th>
<th>Notes, cause/remedial measures</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Venting of pneumatic system</td>
<td>Press the handle for height adjustment down when there is no load on the seat and hold it until valve switching can be heard.</td>
<td>After approx. 5 seconds, the switching of the valve can be heard (click) and the seat deflates accordingly. (system must be ventilated beforehand)</td>
<td>See Overview of faults (Chapter 2.3).</td>
</tr>
</tbody>
</table>
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<table>
<thead>
<tr>
<th>Step no.</th>
<th>Scope of inspection</th>
<th>Function to be operated</th>
<th>Result/Specified state</th>
<th>Notes, cause/remedial measures</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>Interruption of inspection step 1 (interruption of system venting)</td>
<td>Press the height adjustment handle upwards and release it.</td>
<td>A switch-back of the valves can be heard and the deflation is interrupted.</td>
<td>See Overview of faults (Chapter 2.3).</td>
</tr>
<tr>
<td>3</td>
<td>Automatic weight adjustment (without operating the handle)</td>
<td>Apply different new load to the seat after approx. 6 seconds each.</td>
<td>The seat automatically moves upwards or downwards depending on the initial status (seat is not in central spring travel position).</td>
<td>Deactivate the emergency programme (Chapter 2.4, step no. 9.1). Other faults, see Overview of faults (Chapter 2.3).</td>
</tr>
<tr>
<td>4</td>
<td>Height adjustment in downward direction</td>
<td>Press the handle for height adjustment downwards when load is applied to the seat and hold it. After approx. 20 seconds, the adjustment is interrupted. Press the handle again.</td>
<td>The seat moves down and adjusts to the minimum height.</td>
<td>See Overview of faults (Chapter 2.3).</td>
</tr>
<tr>
<td>5</td>
<td>Finishing the height adjustment in downward direction</td>
<td>Release the height adjustment handle.</td>
<td>The seat moves upwards by approx. 30 mm after the minimum height is reached.</td>
<td>See Overview of faults (Chapter 2.3).</td>
</tr>
</tbody>
</table>
2.2 Functional test – Testing the specified status of functions

<table>
<thead>
<tr>
<th>Step no.</th>
<th>Scope of inspection</th>
<th>Function to be operated</th>
<th>Result/Specified state</th>
<th>Notes, cause/remedial measures</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td>Height adjustment upwards</td>
<td>Pull the handle for height adjustment upwards when load is applied to the seat and hold it. After approx. 20 seconds, the adjustment is interrupted. Pull the handle again.</td>
<td>The seat moves up and adjusts to the maximum height.</td>
<td>See Overview of faults (Chapter 2.3).</td>
</tr>
<tr>
<td>7</td>
<td>Automatic weight adjustment</td>
<td>Release the height adjustment handle.</td>
<td>The seat moves upwards or downwards automatically after the maximum / minimum height is reached in order to ensure a residual spring displacement.</td>
<td>See Overview of faults (Chapter 2.3).</td>
</tr>
<tr>
<td>8</td>
<td>Seat suspension</td>
<td>Apply load to the seat suspension in central position (levelled) and let it spring (swing) up and down several times.</td>
<td>No noise. High lateral stability in horizontal direction.</td>
<td>See Overview of faults (Chapter 2.3).</td>
</tr>
<tr>
<td>9</td>
<td>Unlocking of the fore/aft isolator</td>
<td>Turn the handle for the fore/aft isolator (see Chapter 3.9) backwards in order to unlock the fore/aft isolator.</td>
<td>The upper suspension part can be moved in longitudinal horizontal direction.</td>
<td>See Overview of faults (Chapter 2.3).</td>
</tr>
</tbody>
</table>
### 2.2 Functional test – Testing the specified status of functions

<table>
<thead>
<tr>
<th>Step no.</th>
<th>Scope of inspection</th>
<th>Function to be operated</th>
<th>Result/Specified state</th>
<th>Notes, cause/remedial measures</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td>Locking of the fore/aft isolator</td>
<td>Turn the handle for the fore/aft isolator (see Chapter 3.9) forwards in order to lock the fore/aft isolator. Move the upper suspension part backwards until the fore/aft isolator locks into place with an audible click.</td>
<td>The upper suspension part cannot be moved in longitudinal horizontal direction.</td>
<td>See Overview of faults (Chapter 2.3).</td>
</tr>
</tbody>
</table>
2.3 Overview of faults – Pointing out possible faults that might occur

This chapter contains notes on possible faults of the seat suspension. The notes and information provided in Chapter 2.4 "Fault Diagnosis" are intended to ease troubleshooting of faults. The upper seat part has been inspected and found to be OK with respect to the faults described here (see Diagnosis in the repair manual for the upper part of the seat).

Faults caused due to insufficient maintenance or improper repair are not covered here.

**Note:** The functional components mentioned above are illustrated in the repair manual of the upper seat part or in Chapter 2.1, if not stated otherwise in this text.

After having eliminated a fault in the pneumatic system, the possibly activated emergency programme must be deactivated (Chapter 2.4, step no. 9.1). Further possible seat-specific faults which might occur for different delivery options of the seat are listed on page 12 ff.

<table>
<thead>
<tr>
<th>Fault description</th>
<th>Possible cause</th>
<th>Troubleshooting</th>
</tr>
</thead>
</table>
| Seat suspension does not respond when operating the height adjustment in upward direction. | • Compressor is not running.  
• Control / air reservoir is defective.  
• Cable harness for seat suspension is defective.  
• Air intake valve at the active module is defective. | Check the compressor (Chapter 2.4, inspection step no. 3.1).  
Replace the control / air reservoir (Chap. 3.13).  
Check the cable harness for seat suspension (Chapter 2.4, inspection step no. 5.1).  
Check the active module (Chapter 2.4, step no. 4.1). |
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<table>
<thead>
<tr>
<th>Fault description</th>
<th>Possible cause</th>
<th>Troubleshooting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Seat suspension does not respond when operating the height adjustment in upward</td>
<td>• Cable harness of height adjustment / seat occupancy detection system * is</td>
<td>Check the cable harness for height adjustment / seat occupancy detection system * (Chap. 2.4, inspection step no. 8.1).</td>
</tr>
<tr>
<td>direction.</td>
<td>defective.</td>
<td>Check the sensor module (Chap. 2.4, inspection step no. 2.1).</td>
</tr>
<tr>
<td></td>
<td>• Sensor module is defective.</td>
<td>Check the module for height adjustment (Chap. 2.4, inspection step no. 7.1).</td>
</tr>
<tr>
<td></td>
<td>• Module for height adjustment * is defective.</td>
<td>Check and, if necessary, replace the fuse, current path and electrical connections.</td>
</tr>
<tr>
<td></td>
<td>• No voltage.</td>
<td>See Diagnosis in the repair manual for the upper seat part.</td>
</tr>
<tr>
<td></td>
<td>• Switch for height adjustment.</td>
<td>See Diagnosis in the repair manual for the upper seat part.</td>
</tr>
<tr>
<td></td>
<td>• Switch for seat occupancy detection system.</td>
<td></td>
</tr>
</tbody>
</table>

* if fitted or delivery option
## 2.3 Overview of faults – Pointing out possible faults that might occur

<table>
<thead>
<tr>
<th>Fault description</th>
<th>Possible cause</th>
<th>Troubleshooting</th>
</tr>
</thead>
</table>
| Seat suspension responds when the height adjustment is operated, but then returns to its original position. | • Free running is not given due to the webbing in the sensor module being pinched.  
• Sensor module is defective.  
• Control / air reservoir defective. | Fix the webbing in the middle of the retractor (no contact to the black plastic roller).  
Check the sensor module (Chap. 2.4, inspection step no. 2.1).  
Replace the control / air reservoir (Chapter 3.13). |
| After the height adjustment the seat lowers, but continues to vent automatically after unloading the seat suspension (driver gets off the seat). | • Seat occupancy detection system is defective. | See Diagnosis in the repair manual for the upper seat part. |
| Seat does not respond when operating the handle for seat height adjustment in downward direction. | • Cable harness for seat suspension is defective.  
• Seat occupancy detection system is defective. | Check the cable harness for seat suspension (Chap. 2.4, inspection step no. 5.1).  
See Diagnosis in the repair manual for the upper seat part. |

* if fitted or delivery option
### Fault description

Seat does not respond when operating the handle for seat height adjustment in downward direction.

<table>
<thead>
<tr>
<th>Possible cause</th>
<th>Troubleshooting</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Cable harness of height adjustment / seat occupancy detection system * is defective.</td>
<td>Check the cable harness for height adjustment / seat occupancy detection system * (Chap. 2.4, inspection step no. 8.1)</td>
</tr>
<tr>
<td>• Sensor module is defective.</td>
<td>Check the sensor module (Chap. 2.4, inspection step no. 2.1).</td>
</tr>
<tr>
<td>• Module for height adjustment * is defective</td>
<td>Check the module for height adjustment (Chap. 2.4, inspection step no. 7.1)</td>
</tr>
<tr>
<td>• No voltage.</td>
<td></td>
</tr>
<tr>
<td>• Control / air reservoir defective.</td>
<td>Check and, if necessary, replace the fuse, current path and electrical connections.</td>
</tr>
<tr>
<td></td>
<td>Replace the control / air reservoir (Chapter 3.13).</td>
</tr>
</tbody>
</table>

* if fitted or delivery option
### 2.3 Overview of faults – Pointing out possible faults that might occur

<table>
<thead>
<tr>
<th>Fault description</th>
<th>Possible cause</th>
<th>Troubleshooting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Seat suspension changes its position while driving, deflates and lowers down.</td>
<td>• Air spring and air distributor are leaky.</td>
<td>Check the air spring and the air distributor (Chapter 2.4, inspection step no. 1.1).</td>
</tr>
<tr>
<td></td>
<td>• Sensor module is leaky.</td>
<td>Check the sensor module (Chapter 2.4, inspection step no. 2.1).</td>
</tr>
<tr>
<td></td>
<td>• Air hose connections are leaky.</td>
<td>Check all air hose connections for air leakage and, if necessary, replace the defective air hose connection or seal the leaky connection professionally.</td>
</tr>
<tr>
<td></td>
<td>• Air hoses are leaky.</td>
<td>Check all air hoses for air leakage and replace the defective air hose, if necessary.</td>
</tr>
<tr>
<td>It is possible to set the seat suspension to the highest position, but it does not deflate any longer.</td>
<td>• Sensor module is defective.</td>
<td>Check the sensor module (Chap. 2.4, inspection step no. 2.1).</td>
</tr>
<tr>
<td></td>
<td>• Emergency programme is activated.</td>
<td>Deactivate the emergency programme (Chapter 2.4, inspection step no. 9.1).</td>
</tr>
</tbody>
</table>
### Fault description
Seat suspension can be lowered, but does not pump up from the lowest position, while the compressor is running.

<table>
<thead>
<tr>
<th>Possible cause</th>
<th>Troubleshooting</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Air spring and air distributor are leaky.</td>
<td>Check the air spring and the air distributor (Chapter 2.4, inspection step no. 1.1).</td>
</tr>
<tr>
<td>• Air hose connections are leaky.</td>
<td>Check all air hose connections for air leakage and, if necessary, replace the defective air hose connection or seal the leaky connection professionally.</td>
</tr>
<tr>
<td>• Air hoses are leaky.</td>
<td>Check all air hoses for air leakage and replace the defective air hose, if necessary.</td>
</tr>
<tr>
<td>• Sensor module is leaky.</td>
<td>Check the sensor module (Chap. 2.4, inspection step no. 2.1).</td>
</tr>
<tr>
<td>• Compressor is leaky (return valve).</td>
<td>Replace the compressor (Chapter 3.10).</td>
</tr>
<tr>
<td>• Control / air reservoir is leaky.</td>
<td>Check the control / air reservoir (Chap. 2.4, inspection step no. 6.1).</td>
</tr>
</tbody>
</table>
### 2.3 Overview of faults – Pointing out possible faults that might occur

<table>
<thead>
<tr>
<th>Fault description</th>
<th>Possible cause</th>
<th>Troubleshooting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Seat suspension pumps up and remains in the middle position, while the compressor is running.</td>
<td>• Sensor module is leaky.</td>
<td>Replace the sensor module (see Chapter 3.11).</td>
</tr>
<tr>
<td>Seat suspension pumps up automatically (e.g. during compression and expansion or when getting off the seat); compressor starts running.</td>
<td>• Short-circuit at the compressor cable (e.g. caused by abrasion).</td>
<td>Check the compressor (Chapter 2.4, inspection step no. 3.1).</td>
</tr>
<tr>
<td></td>
<td>• Sensor module is defective.</td>
<td>Check the sensor module (Chap. 2.4, inspection step no. 2.3).</td>
</tr>
<tr>
<td>After longer operation of the handle* for height adjustment in downward direction when there is no load on the seat (for at least 6 seconds), no valve switching can be heard.</td>
<td>• Cable harness for seat suspension is defective.</td>
<td>Check the cable harness for seat suspension (Chap. 2.4, inspection step no. 5.1).</td>
</tr>
<tr>
<td></td>
<td>• Seat occupancy detection system is defective.</td>
<td>See Diagnosis in the repair manual for the upper seat part.</td>
</tr>
<tr>
<td></td>
<td>• Switch for height adjustment is defective.</td>
<td>See Diagnosis in the repair manual for the upper seat part.</td>
</tr>
<tr>
<td></td>
<td>• Valves in the sensor module are defective.</td>
<td>Replace the sensor module (Chap. 3.11).</td>
</tr>
</tbody>
</table>

* if fitted or delivery option
### Fault description

<table>
<thead>
<tr>
<th>Fault description</th>
<th>Possible cause</th>
<th>Troubleshooting</th>
</tr>
</thead>
<tbody>
<tr>
<td>After having operated the handle* for height adjustment in downward direction when there is no load on the seat, valve switching can be heard immediately.</td>
<td>• Seat occupancy detection system is defective.</td>
<td>See Diagnosis in the repair manual for the upper seat part.</td>
</tr>
<tr>
<td>Seat suspension wobbles.</td>
<td>• Fixed bearings or rollers of the swinging structure are defective.</td>
<td>Replace the seat suspension (Chapter 3.1).</td>
</tr>
<tr>
<td></td>
<td>• Swinging structure is defective.</td>
<td>Replace the seat suspension (Chapter 3.1).</td>
</tr>
</tbody>
</table>

* * if fitted or delivery option
### 2.3 Overview of faults – Pointing out possible faults that might occur

<table>
<thead>
<tr>
<th>Fault description</th>
<th>Possible cause</th>
<th>Troubleshooting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Seat suspension squeaks.</td>
<td>• Insufficient lubrication of the central bearing of the swinging structure.</td>
<td>Apply oil to the central bearing (see Chapter 3.19).</td>
</tr>
<tr>
<td></td>
<td>• Insufficient lubrication of the fixed bearings or of the upper and/or lower</td>
<td><strong>Note:</strong> For this purpose, the central bearing does not have to be removed.</td>
</tr>
<tr>
<td></td>
<td>rollers of the swinging structure.</td>
<td>Disassemble and reassemble the swinging structure (see Chapter 3.19).</td>
</tr>
<tr>
<td></td>
<td>• Insufficient lubrication of the studs of the vertical shock absorber.</td>
<td>Apply acid-free multi-purpose lubricant to the stud of vertical shock absorber</td>
</tr>
<tr>
<td></td>
<td>• Insufficient lubrication at the mounting surfaces of the longitudinal</td>
<td>(see Chapter 3.5).</td>
</tr>
<tr>
<td></td>
<td>horizontal shock absorber.</td>
<td>Apply acid-free multi-purpose lubricant to mounting surfaces of the longitudinal</td>
</tr>
<tr>
<td></td>
<td></td>
<td>horizontal shock absorber (see Chapter 3.8).</td>
</tr>
</tbody>
</table>
### 2.3 Overview of faults – Pointing out possible faults that might occur

<table>
<thead>
<tr>
<th>Fault description</th>
<th>Possible cause</th>
<th>Troubleshooting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Seat suspension travels up and down and hits the upper and/or lower end stop.</td>
<td>• Vertical shock absorber is defective.</td>
<td>Replace the vertical shock absorber (Chapter 3.5).</td>
</tr>
<tr>
<td></td>
<td>• Air spring and air distributor are leaky.</td>
<td>Check the air spring and the air distributor (Chapter 2.4, inspection step no. 1.1).</td>
</tr>
<tr>
<td></td>
<td>• Air hose connections are leaky.</td>
<td>Check all air hose connections for air leakage and, if necessary, replace the defective air hose connection or seal the leaky connection professionally.</td>
</tr>
<tr>
<td></td>
<td>• Air hoses are leaky.</td>
<td>Check all air hoses for air leakage and replace the defective air hose, if necessary.</td>
</tr>
<tr>
<td></td>
<td>• Sensor module is leaky.</td>
<td>Check the sensor module (Chap. 2.4, inspection step no. 2.1).</td>
</tr>
<tr>
<td></td>
<td>• Active module defective.</td>
<td>Check the active module (Chap. 2.4, inspection step no. 4.1).</td>
</tr>
</tbody>
</table>
## 2.3 Overview of faults – Pointing out possible faults that might occur

<table>
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<tr>
<th>Fault description</th>
<th>Possible cause</th>
<th>Troubleshooting</th>
</tr>
</thead>
<tbody>
<tr>
<td>After having turned the handle for the fore/aft isolator backwards (in order to</td>
<td>• Linkage rod is detached or broken.</td>
<td>Hang in or replace the linkage rod (see Chapter 3.6).</td>
</tr>
<tr>
<td>unlock the fore/aft isolator), the upper suspension part cannot be moved in</td>
<td>• Tension springs are detached.</td>
<td></td>
</tr>
<tr>
<td>longitudinal horizontal direction.</td>
<td>• Tension springs are broken.</td>
<td></td>
</tr>
<tr>
<td>After having turned the handle for the fore/aft isolator forwards (in order to</td>
<td></td>
<td></td>
</tr>
<tr>
<td>lock the fore/aft isolator), the upper suspension part can be moved in</td>
<td></td>
<td></td>
</tr>
<tr>
<td>longitudinal horizontal direction.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>After unlocking the fore/aft isolator, correct swinging of the upper suspension</td>
<td>• Clamp or tension spring is broken.</td>
<td>Replace the fore/aft isolator unit (Chapter 3.9).</td>
</tr>
<tr>
<td>part in longitudinal horizontal direction is no longer possible.</td>
<td>• Longitudinal horizontal shock absorber is</td>
<td>Replace the longitudinal horizontal shock absorber (Chapter 3.8).</td>
</tr>
<tr>
<td></td>
<td>defective.</td>
<td></td>
</tr>
</tbody>
</table>
### Seat suspension with external compressed-air supply via the compressed-air system of the vehicle

<table>
<thead>
<tr>
<th>Fault description</th>
<th>Possible cause</th>
<th>Troubleshooting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Seat suspension does not respond when operating the height adjustment in upward or downward direction.</td>
<td>• No external compressed-air supply.</td>
<td>Check the compressed-air system of the vehicle.</td>
</tr>
<tr>
<td></td>
<td>• External compressed-air connection is leaky.</td>
<td>Replace the compressed-air connection (see Chapter 3.23).</td>
</tr>
</tbody>
</table>
1 Inspection of air spring and air distributor

Preconditions for fault diagnosis:
- Air hoses, air intake hose, air exhaust hose and compressed-air hose have been inspected with regard to kinks and tightness and found to be OK.
- The electrical connections have been inspected with regard to continuity and corrosion and found to be OK.

Note: The components mentioned above are illustrated in Chapter 2.1, if not stated otherwise in this text.

<table>
<thead>
<tr>
<th>Step no.</th>
<th>Inspect/Operate</th>
<th>Result/Specified state</th>
<th>Troubleshooting</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.1</td>
<td>Check the air spring for abrasion.</td>
<td>Visible abrasion, air spring is leaky.</td>
<td>Replace the air spring (Chapter 3.12).</td>
</tr>
<tr>
<td></td>
<td></td>
<td>No abrasion.</td>
<td>Proceed with inspection step no. 1.2.</td>
</tr>
</tbody>
</table>
## 2.4 Troubleshooting – Locating the fault

### 2 Inspection of the sensor module

**Preconditions for fault diagnosis:**
- The electrical system of the vehicle has been inspected and found to be OK and in compliance with the vehicle operating instructions.
- The seat suspension is disconnected (no voltage that might cause a current flow must be applied to the seat suspension).
- The air hose to the sensor module has been inspected with regard to kinks, scoring and tightness and found to be OK.
- The electrical connections have been inspected with regard to continuity and corrosion and found to be OK.

**Note:** The components mentioned above are illustrated in Chapter 2.1, if not stated otherwise in this text.

<table>
<thead>
<tr>
<th>Step no.</th>
<th>Inspect/Operate</th>
<th>Result/Specified state</th>
<th>Troubleshooting</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.1</td>
<td>Apply load to the seat suspension.</td>
<td>Air escapes at the retaining ring of the quick coupling. The air hose is not connected correctly. No air escaped at the retaining ring of the quick coupling.</td>
<td>Plug the air hose completely into the retaining ring of the quick coupling (see Chapter 3.11). Proceed with inspection step no. 2.2.</td>
</tr>
<tr>
<td>2.2</td>
<td>Apply load to the seat suspension.</td>
<td>Air escapes at the sensor module. The sensor module is airtight.</td>
<td>Replace the sensor module (Chapter 3.11). Proceed with inspection step no. 2.3.</td>
</tr>
</tbody>
</table>
### Step 2.3
- Disconnect the electrical connection (C) between the control and the cable harness for seat suspension.
- Measure the resistance at the contacts K11 and K14 of the socket of the cable harness for seat suspension (18-pin):
  - K11 (ground) \( \Omega \) K14 (signal)

\[
\begin{align*}
\text{K11 (ground)} & \quad \Omega \quad \text{K14 (signal)} \\
\text{Result/Specified state} & \quad = 35.12 \ \text{M\(\Omega\)} \ (\pm 1\%) \\
\text{Troubleshooting} & \quad \text{Proceed with inspection step no. 2.4.} \\
\end{align*}
\]

\[
\begin{align*}
&\gg 35.12 \ \text{M\(\Omega\)} \ (\to \infty) \ (\text{interruption}) \\
&\ll 35.12 \ \text{M\(\Omega\)} \ (\to 0) \ (\text{short-circuit})
\end{align*}
\]

### Step 2.4
- Measure the resistance at the contacts K11 and K8 of the socket of the cable harness for seat suspension (18-pin):
  - K11 (ground) \( \Omega \) K8 (sensor 8.5V)

\[
\begin{align*}
\text{K11 (ground)} & \quad \Omega \quad \text{K8 (sensor 8.5V)} \\
\text{Result/Specified state} & \quad = 17.82 \ \text{M\(\Omega\)} \ (\pm 1\%) \\
\text{Troubleshooting} & \quad \text{Proceed with inspection step no. 2.7.} \\
\end{align*}
\]

\[
\begin{align*}
&\gg 17.82 \ \text{M\(\Omega\)} \ (\to \infty) \ (\text{interruption}) \\
&\ll 17.82 \ \text{M\(\Omega\)} \ (\to 0) \ (\text{short-circuit})
\end{align*}
\]
### 2.4 Troubleshooting – Locating the fault

<table>
<thead>
<tr>
<th>Step no.</th>
<th>Inspect/Operate</th>
<th>Result/Specified state</th>
<th>Troubleshooting</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.5</td>
<td>• Disconnect the electrical connection (A) between the sensor module and the cable harness for seat suspension. &lt;br&gt; • Measure the resistance at the pins P3 and P2 at the plug of the sensor module (3-pin): P3 (ground) Ω P2 (signal)</td>
<td>= 35.12 MΩ (± 1%)</td>
<td>Replace the cable harness of the seat suspension (Chapter 3.19). Replace the sensor module (Chapter 3.11).</td>
</tr>
<tr>
<td></td>
<td></td>
<td>&gt;&gt; 35.12 MΩ (→ ∞) (interruption)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>&lt;&lt; 35.12 MΩ (→ 0) (short-circuit)</td>
<td></td>
</tr>
<tr>
<td>2.6</td>
<td>• Disconnect the electrical connection (A) between the sensor module and the cable harness for seat suspension. &lt;br&gt; • Measure the resistance at the pins P3 and P1 at the plug of the sensor module (3-pin): P3 (ground) Ω P1 (sensor 8.5V)</td>
<td>= 17.82 MΩ (± 1%)</td>
<td>Replace the cable harness of the seat suspension (Chapter 3.19). Replace the sensor module (Chapter 3.11).</td>
</tr>
<tr>
<td></td>
<td></td>
<td>&gt;&gt; 17.82 MΩ (→ ∞) (interruption)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>&lt;&lt; 17.82 MΩ (→ 0) (short-circuit)</td>
<td></td>
</tr>
</tbody>
</table>
## 2.4 Troubleshooting – Locating the fault

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<th>Result/Specified state</th>
<th>Troubleshooting</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.7</td>
<td>• Measure the resistance at the contacts K10 and K4 of the socket of the cable harness for seat suspension (18-pin):</td>
<td>= 78.8 Ω (± 1%)</td>
<td>Proceed with inspection step no. 2.8.</td>
</tr>
<tr>
<td></td>
<td>K10 (ground) Ω</td>
<td>&gt;&gt; 78.8 Ω (→ ∞) (interruption)</td>
<td>Proceed with inspection step no. 2.9.</td>
</tr>
<tr>
<td></td>
<td>K4 (power 12V)</td>
<td>&lt;&lt; 78.8 Ω (→ 0) (short-circuit)</td>
<td></td>
</tr>
<tr>
<td>2.8</td>
<td>• Measure the resistance at the contacts K10 and K7 of the socket of the cable harness for seat suspension (18-pin):</td>
<td>= 78.8 Ω (± 1%)</td>
<td>End of inspection.</td>
</tr>
<tr>
<td></td>
<td>K10 (ground) Ω</td>
<td>&gt;&gt; 78.8 Ω (→ ∞) (interruption)</td>
<td>Proceed with inspection step no. 2.10.</td>
</tr>
<tr>
<td></td>
<td>K7 (power 12V)</td>
<td>&lt;&lt; 78.8 Ω (→ 0) (short-circuit)</td>
<td></td>
</tr>
</tbody>
</table>
### 2.4 Troubleshooting – Locating the fault

<table>
<thead>
<tr>
<th>Step no.</th>
<th>Inspect/Operate</th>
<th>Result/Specified state</th>
<th>Troubleshooting</th>
</tr>
</thead>
</table>
| 2.9      | • Disconnect the electrical connection (B) between the sensor module and the cable harness for seat suspension.  
• Measure the resistance at the pins P3 and P1 at the plug of the sensor module (4-pin):  
  P3 (ground) $\Omega$  
  P1 (power 12V)                                                                                                                                          | $= 78.8 \Omega (\pm 1\%)$  
  $>> 78.8 \Omega (\rightarrow \infty)$ (interruption)  
  $<< 78.8 \Omega (\rightarrow 0)$ (short-circuit)                                                                                                      | Replace the cable harness of the seat suspension (Chapter 3.19).  
Replace the sensor module (Chapter 3.11).                                                                                                                  |                                             |
| 2.10     | • Disconnect the electrical connection (B) between the sensor module and the cable harness for seat suspension.  
• Measure the resistance at the pins P2 and P4 at the plug of the sensor module (4-pin):  
  P2 (ground) $\Omega$  
  P4 (power 12V)                                                                                                                                          | $= 78.8 \Omega (\pm 1\%)$  
  $>> 78.8 M\Omega (\rightarrow \infty)$ (interruption)  
  $<< 78.8 M\Omega (\rightarrow 0)$ (short-circuit)                                                                                                    | Replace the cable harness of the seat suspension (Chapter 3.19).  
Replace the sensor module (Chapter 3.11).                                                                                                                  |                                             |
3 Inspection of the compressor *

Preconditions for fault diagnosis:
• The electrical system of the vehicle has been inspected and found to be OK in compliance with the vehicle operating instructions.
• The seat suspension is disconnected (no voltage that might cause a current flow must be applied to the seat suspension).
• The compressed-air hose has been inspected with regard to kinks and tightness and found to be OK.
• The electrical connections have been inspected with regard to continuity and corrosion and found to be OK.

Note: The components mentioned above are illustrated in Chapter 2.1, if not stated otherwise in this text.

<table>
<thead>
<tr>
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<th>Troubleshooting</th>
</tr>
</thead>
</table>
| 3.1      | • Disconnect the electrical connection (C) between the control /air reservoir and the cable harness for seat suspension.  
          | • Measure the resistance at the contacts K10 and K2 of the socket of the cable harness for seat suspension (18-pin):  
          | K10 (ground) Ω K2 (power 12V) = 0.8 Ω (± 10%) (total resistance)  
          | >> 0.8 Ω (→ ∞) (interruption) or ⇐ 0.8 Ω (→ 0) (short-circuit) | End of inspection.  
          |                                                   | Proceed with inspection step no. 3.2. |
### 2.4 Troubleshooting – Locating the fault

<table>
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<tr>
<th>Step no.</th>
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</thead>
</table>
| 3.2      | • Disconnect the electrical connection (H) between the compressor and the right-angle plug of the black cable.  
               • Disconnect the electrical connection (G) between the compressor and the right-angle plug of the blue cable.  
               • Measure the resistance at the contacts of the compressor:  
                 contact (black) Ω  contact (blue) | = 0.6 Ω (± 10%)  
               >> 0.6 Ω (→ ∞) (interruption) or  
               << 0.6 Ω (→ 0) (short-circuit) | Replace the cable harness of the seat suspension (Chapter 3.19).  
               Replace the compressor (Chapter 3.10). |
4 Inspection of the active module

**Preconditions for fault diagnosis:**
- The electrical system of the vehicle has been inspected and found to be OK and in compliance with the vehicle operating instructions.
- The seat suspension is not disconnected (voltage that might cause a current flow must be applied to the seat suspension) and must be levelled.
- The thin air hose and the thick air hose have been inspected with regard to kinks and tightness and found to be OK.
- The electrical connections have been inspected with regard to continuity and corrosion and found to be OK.

**Note:** The components mentioned above are illustrated in Chapter 2.1, if not stated otherwise in this text.

<table>
<thead>
<tr>
<th>Step no.</th>
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<th>Troubleshooting</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.1</td>
<td>Apply load to the seat suspension.</td>
<td>Air escapes at the circlip and/or at the quick-release fastener screw. The air hoses are not connected correctly. No air escapes at the circlip and/or at the quick-release fastener screw.</td>
<td>Plug the air hoses completely and correctly into the circlip and into the quick-release fastener screw (see Chapter 3.16). Proceed with inspection step no. 4.2.</td>
</tr>
</tbody>
</table>
### 2.4 Troubleshooting – Locating the fault

<table>
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<tr>
<th>Step no.</th>
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</thead>
<tbody>
<tr>
<td>4.2</td>
<td>Apply load to the seat suspension.</td>
<td>Air escapes at the active module.</td>
<td>Replace the active module (Chapter 3.16).</td>
</tr>
<tr>
<td></td>
<td></td>
<td>The active module is airtight.</td>
<td>Proceed with inspection step no. 4.3.</td>
</tr>
<tr>
<td>4.3</td>
<td>• Disconnect the electrical connection (C) between the control / air reservoir and the cable harness for seat suspension.</td>
<td>= $9.0 , \Omega (\pm 10%)$</td>
<td>Proceed with inspection step no. 4.4.</td>
</tr>
<tr>
<td></td>
<td>• Measure the resistance at the contacts K10 and K6 of the socket of the cable harness for seat suspension (18-pin):</td>
<td>&gt;&gt; $9.0 , \Omega \rightarrow \infty$ (interruption)</td>
<td>Proceed with inspection step no. 4.5.</td>
</tr>
<tr>
<td></td>
<td>K10 (ground) \quad \Omega \quad K6 (power)</td>
<td>$&lt; 9.0 , M\Omega \rightarrow 0$ (short-circuit)</td>
<td></td>
</tr>
</tbody>
</table>
### 2.4 Troubleshooting – Locating the fault

<table>
<thead>
<tr>
<th>Step no.</th>
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</tr>
</thead>
</table>
| 4.4      | • Measure the resistance at the contacts K10 and K5 of the socket of the cable harness for seat suspension (18-pin):  
            K10 (ground) Ω K5 (power) | = 28.4 Ω (± 10%)  
            >> 28.4 Ω (→ ∞) (interruption)  
            << 28.4 Ω (→ 0) (short-circuit) | End of inspection.  
            Proceed with inspection step no. 4.6. |
| 4.5      | • Disconnect the electrical connection (F) between the cable harness for seat suspension and the cable harness for the energy bundle.  
            • Measure the resistance at the contacts K2 and K1 of the socket of the cable harness for the energy bundle (4-pin):  
            K2 (ground) Ω K1 (power) | = 8.9 Ω (± 10%)  
            >> 8.9 Ω (→ ∞) (interruption)  
            << 8.9 MΩ (→ 0) (short-circuit) | Replace the cable harness of the seat suspension (Chapter 3.19).  
            Proceed with inspection step no. 4.7. |
## 2.4 Troubleshooting – Locating the fault

<table>
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<tr>
<th>Step no.</th>
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</tr>
</thead>
</table>
| 4.6      | • Disconnect the electrical connection (F) between the cable harness for seat suspension and the cable harness for the energy bundle.  
• Measure the resistance at the contacts K4 and K3 of the socket of the cable harness for the energy bundle (4-pin):  
  K4 (ground) \( \Omega \)  
  K3 (power)                                                                 | = 28.2 \( \Omega \) (± 10\%)  
  >> 28.2 \( \Omega \) (\( \rightarrow \infty \)) (interruption)  
  << 28.2 \( \Omega \) (\( \rightarrow 0 \)) (short-circuit)                                                                 | Replace the cable harness of the seat suspension (Chapter 3.19).  
Proceed with inspection step no. 4.8.                                                      |
| 4.7      | • Disconnect the electrical connection (D) between the active module and the cable harness for the energy bundle.  
• Measure the resistance at the pins P2 and P1 at the plug of the active module (2-pin/big):  
  P2 (ground) \( \Omega \)  
  P1 (power)                                                                 | = 8.8 \( \Omega \) (± 10\%)  
  >> 8.8 \( \Omega \) (\( \rightarrow \infty \)) (interruption)  
  << 8.8 \( \Omega \) (\( \rightarrow 0 \)) (short-circuit)                                                                 | Cable harness for the energy bundle is defective. Replace the energy bundle (Chapter 3.18).  
Replace the active module (Chapter 3.16).                                                 |
### Step 4.8: Troubleshooting – Locating the fault

- Disconnect the electrical connection (E) between the active module and the cable harness for the energy bundle.
- Measure the resistance at the pins P2 and P1 at the plug of the active module (2-pin/small):

<table>
<thead>
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<th>Result/Specified state</th>
<th>Troubleshooting</th>
</tr>
</thead>
<tbody>
<tr>
<td>P2 (ground) Ω P1 (power)</td>
<td>= 28.1 Ω (± 10%)</td>
<td>Cable harness for the energy bundle is defective. Replace the energy bundle (Chapter 3.18).</td>
</tr>
<tr>
<td></td>
<td>&gt;&gt; 28.1 Ω (→ ∞) (interruption)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>&lt;&lt; 28.1 MΩ (→ 0) (short-circuit)</td>
<td>Replace the active module (Chapter 3.16).</td>
</tr>
</tbody>
</table>
## 5 Inspection of the cable harness for seat suspension

### Preconditions for fault diagnosis:
- The electrical system of the vehicle has been inspected and found to be OK and in compliance with the vehicle operating instructions.
- The seat suspension is disconnected (no voltage that might cause a current flow must be applied to the seat suspension).
- Fuse (Si = 15A) has been inspected and found to be OK.
- Sensor module, active module and compressor have been inspected and found to be OK.
- The electrical connections have been inspected with regard to continuity and corrosion and found to be OK.

### Note:
The components mentioned above are illustrated in Chapter 2.1, if not stated otherwise in this text.

<table>
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</tr>
</thead>
</table>
| 5.1      | • Disconnect the electrical connection (C) between the control / air reservoir and the cable harness for seat suspension.  
          | • Disconnect the electrical connection (K) between the connector plug of the vehicle and the cable harness for vehicle connection.  
          | • Short-circuit the contacts K10 and K1 of the socket of the cable harness for seat suspension (18-pin) and measure the resistance at the pins P1 and P2 at the connector plug of the vehicle (12-pin):  
          | | P1 Ω P2                                                   | < 1 Ω (R→0) (pass)                 | Proceed with inspection step no. 5.2. Replace the cable harness of the seat suspension (Chapter 3.19). |
|          |                                                                                   | >> 1 Ω (→∞) (cable break)          |                                                                                 |
## 2.4 Troubleshooting – Locating the fault

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</thead>
</table>
| 5.2     | • Disconnect the electrical connection (I) between the cable harness for seat suspension and the cable harness of the upper seat part.  
          • Short-circuit the pins P2/P3, P5/P4 and P5/P6 at the plug of the cable harness for seat suspension (6-pin) and measure the corresponding resistances at the contacts of the socket of the cable harness for seat suspension (18-pin):  
          K11 Ω K16  
          K11 Ω K17  
          K11 Ω K18 | < 1 Ω (R→0) (pass)  
          >> 1 Ω (→∞) (cable break) | Proceed with inspection step no. 5.3. Replace the cable harness of the seat suspension (Chapter 3.19). |
### 2.4 Troubleshooting – Locating the fault

<table>
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<tr>
<th>Step no.</th>
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</tr>
</thead>
</table>
| 5.3      | • Disconnect the electrical connection (J) between the cable harness for seat suspension and the cable harness of the upper seat part.  
• Short-circuit the pins P5/P1, P5/P4, P6/P7, P6/P8 and P6/P2 at the plug of the cable harness for seat suspension (8-pin) and measure the corresponding resistances at the pins at the connector plug of the vehicle (12-pin):  
  - P11 Ω P12  
  - P11 Ω P10  
  - P3 Ω P5  
  - P3 Ω P6  
  - P3 Ω P9 | < 1 Ω (R→0) (pass)  
>> 1 Ω (→∞) (cable break) | Proceed with inspection step no.5.4.  
Replace the cable harness of the seat suspension (Chapter 3.19). |
## Troubleshooting – Locating the fault

<table>
<thead>
<tr>
<th>Step no.</th>
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<th>Result/Specified state</th>
<th>Troubleshooting</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.4</td>
<td>• Measure the resistance at the pin P3 at the plug of the cable harness for seat suspension (8-pin) and at the contact K9 of the socket of the cable harness for seat suspension (18-pin): P3 Ω K9</td>
<td>&lt; 1 Ω (R→0) (pass)</td>
<td>End of inspection. Replace the cable harness of the seat suspension (Chapter 3.19).</td>
</tr>
<tr>
<td></td>
<td></td>
<td>&gt;&gt; 1 Ω (→∞) (cable break)</td>
<td></td>
</tr>
</tbody>
</table>
6 Inspection of the control / air reservoir

Preconditions for fault diagnosis:
• The air hose has been inspected with regard to kinks and tightness and found to be OK.
• The electrical connections have been inspected with regard to continuity and corrosion and found to be OK.

Note: The components mentioned above are illustrated in Chapter 2.1, if not stated otherwise in this text.

<table>
<thead>
<tr>
<th>Step no.</th>
<th>Inspect/Operate</th>
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<th>Troubleshooting</th>
</tr>
</thead>
<tbody>
<tr>
<td>6.1</td>
<td>Apply load to the seat suspension.</td>
<td>Air escapes at the quick-release fastener screw. The air hose is not connected correctly.</td>
<td>Plug the air hose completely and correctly into the quick-release fastener screw (see Chapter 3.13). Proceed with inspection step no. 6.2.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>No air escapes at the quick-release fastener screw.</td>
<td></td>
</tr>
<tr>
<td>6.2</td>
<td>Apply load to the seat suspension.</td>
<td>Air escapes at the control / air reservoir.</td>
<td>Replace the control / air reservoir (Chapter 3.13). Proceed with inspection step no. 6.3.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>The control is airtight.</td>
<td></td>
</tr>
</tbody>
</table>
### Troubleshooting – Locating the fault

<table>
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<tr>
<th>Step no.</th>
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<th>Result/Specified state</th>
<th>Troubleshooting</th>
</tr>
</thead>
<tbody>
<tr>
<td>6.3</td>
<td>Apply load to the seat suspension.</td>
<td>The electrical connection between the cable harness for seat suspension and the control is not locked correctly.</td>
<td>The locking bracket must engage in the catcher of the plug (see Chapter 3.13).</td>
</tr>
<tr>
<td></td>
<td></td>
<td>The electrical connection is locked correctly.</td>
<td>End of inspection.</td>
</tr>
</tbody>
</table>
7 Inspection of the module for height adjustment *

Preconditions for fault diagnosis:
- The electrical system of the vehicle has been inspected and found to be OK in compliance with the vehicle operating instructions.
- The electrical connections have been inspected with regard to continuity and corrosion and found to be OK.

Note: The components mentioned above are illustrated in Chapter 2.1, if not stated otherwise in this text.

<table>
<thead>
<tr>
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</tr>
</thead>
</table>
| 7.1      | • Disconnect the electrical connection (L) between cable for height adjustment – module for height adjustment.  
• Measure the resistance at the pins P1 and P2 in the plug of the module for height adjustment (6) - 3-pin - (pin assignment for height adjustment in upward direction):  
P1 Ω  
P2 Ω | = 510 Ω (± 10%) (122 Ω actuated)  
>> 510 Ω (→ ∞) (interruption)  
<< 510 Ω (→ 0) (short-circuit) | Proceed with inspection step no. 7.2.  
Replace module for height adjustment (see Chapter 3.21). |

* if fitted or delivery option
### 2.4 Troubleshooting – Locating the fault

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<tr>
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<th>Troubleshooting</th>
</tr>
</thead>
</table>
| 7.2      | • Measure the resistance at the pins P2 and P3 in the plug of the module for height adjustment (6) - 3-pin - (pin assignment for height adjustment in downward direction): P2 Ω P3 | = 510 Ω (± 10%) (122 Ω actuated)  
> 510 Ω (→ ∞) (interruption)  
< 510 Ω (→ 0) (short-circuit) | End of inspection. Replace module for height adjustment (see Chapter 3.21).                                                                   |
8 Inspection of the cable harness of height adjustment / seat occupancy detection system *

Preconditions for fault diagnosis:

- The electrical system of the vehicle has been inspected and found to be OK in compliance with the vehicle operating instructions.
- Module for height adjustment has been inspected and found to be OK.
- Seat switch in the upper seat part has been inspected and found to be OK.
- The electrical connections have been inspected with regard to continuity and corrosion and found to be OK.

Note: The components mentioned above are illustrated in Chapter 2.1, if not stated otherwise in this text.

<table>
<thead>
<tr>
<th>Step no.</th>
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<th>Troubleshooting</th>
</tr>
</thead>
<tbody>
<tr>
<td>8.1</td>
<td>• Disconnect the electrical connection (M) between cable harness of height adjustment / seat occupancy detection system – entire cable harness.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* if fitted or delivery option
## Troubleshooting – Locating the fault

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</tr>
</thead>
<tbody>
<tr>
<td>8.1</td>
<td>• Measure the resistance at the contacts K2 and K3 of the socket of the cable harness for height adjustment / seat occupancy detection system (4) (pin assignment for seat occupancy detection system): K2 (brown) Ω K3 (blue)</td>
<td>= 510 Ω (± 10%) (122 Ω actuated) (total resistance of seat switch and cable for seat occupancy detection system) =&gt; 510 Ω (→ ∞) (interruption) &lt;= 510 Ω (→ 0) (short-circuit)</td>
<td>Proceed with inspection step no. 8.3. Cable harness with electrical connection (N) *: Proceed with inspection step no. 8.2. Cable harness without electrical connection (N) *: replace cable harness of height adjustment / seat occupancy detection (1) (see Chapter 3.22).</td>
</tr>
</tbody>
</table>

* if fitted or delivery option
### 8.2 Troubleshooting

- Disconnect electrical connection (N) between cable harness of height adjustment (1) – seat occupancy detection system cable (2).
- Measure the resistance at the contacts 1 and 2 of the socket of the seat occupancy detection system (pin assignment for height adjustment in upward direction):

<table>
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<th>Result/Specified state</th>
<th>Troubleshooting</th>
</tr>
</thead>
<tbody>
<tr>
<td>8.2</td>
<td>• Disconnect electrical connection (N) between cable harness of height adjustment (1) – seat occupancy detection system cable (2).&lt;br&gt;• Measure the resistance at the contacts 1 and 2 of the socket of the seat occupancy detection system (pin assignment for height adjustment in upward direction): 1 (blue) Ω 2 (brown)</td>
<td>= 510 Ω (± 10%) (122 Ω actuated) (total resistance of seat switch and cable for height adjustment)&lt;br&gt;&gt;&lt; 510 Ω (→ ∞) (interruption)&lt;br&gt;&lt;&lt; 510 Ω (→ 0) (short-circuit)</td>
<td>Replace cable harness of height adjustment / seat occupancy detection (1) (see Chapter 3.22).&lt;br&gt;Replace cable harness of seat occupancy detection (2) (see Chapter 3.22).</td>
</tr>
</tbody>
</table>
## Troubleshooting – Locating the fault

<table>
<thead>
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</table>
| 8.3      | • Close the electrical connection between the cable for height adjustment – module for height adjustment.  
• Measure the resistance at the contacts K4 and K5 of the socket of the cable harness for height adjustment / seat occupancy detection system (4) (pin assignment for height adjustment in upward direction):  
  K4 (green)  Ω  K5 (brown) | = 510 Ω (± 10%)  (122 Ω actuated)  
(total resistance of module of height adjustment (1) and cable for height adjustment)  
>> 510 Ω (→ ∞) (interruption)  
<< 510 Ω (→ 0) (short-circuit) | Proceed with inspection step no. 8.4.  
Replace cable harness of height adjustment / seat occupancy detection (1) (see Chapter 3.22). |
### Troubleshooting – Locating the fault

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</thead>
<tbody>
<tr>
<td>8.4</td>
<td>• Measure the resistance at the contacts K5 and K6 of the socket of the cable harness for height adjustment / seat occupancy detection system (4) (pin assignment for height adjustment in downward direction): K5 (brown) Ω K6 (purple)</td>
<td>= 510 Ω (± 10%) (122 Ω actuated) (total resistance of module and cable for height adjustment)</td>
<td>End of inspection.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>&gt;&gt; 510 Ω (→ ∞) (interruption)</td>
<td>Replace cable harness of height adjustment / seat occupancy detection (1) (see Chapter 3.22).</td>
</tr>
<tr>
<td></td>
<td></td>
<td>&lt;= 510 Ω (→ 0) (short-circuit)</td>
<td></td>
</tr>
</tbody>
</table>

End of inspection. Replace cable harness of height adjustment / seat occupancy detection (1) (see Chapter 3.22).
### 9 Deactivation of the emergency programme / reset to normal operation

**Preconditions for fault diagnosis:**
- The electrical system of the vehicle has been inspected and found to be OK in compliance with the vehicle operating instructions.
- The operation of the height adjustment has been inspected and found to be OK*.
- The pneumatic system has been inspected and found to be OK.
- The electrical connections have been inspected with regard to continuity and corrosion and found to be OK.
- The emergency programme is activated (two subsequent weight adjustment / levelling attempts have not been successful).

<table>
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<th>Troubleshooting</th>
</tr>
</thead>
<tbody>
<tr>
<td>9.1</td>
<td>The activated emergency programme is reset to normal operation by means of a coded operation:</td>
<td>S = seconds, t = time</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Do not apply any load to the seat.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9.2</td>
<td>• Pull / press the handle / switch for height adjustment upwards three times within 0.7 to 2 seconds according to the diagram shown on the right (A) and then immediately press the handle / switch * for height adjustment downwards for 5 to 9 seconds according to the diagram shown on the right (B).</td>
<td>Depending on the adjusted operating mode, the deactivation will be acknowledged by the compressor being started once or several times.</td>
<td>If the levelling still does not to start automatically when load is applied to the seat, replace the sensor module (see Chapter 3.11).</td>
</tr>
</tbody>
</table>

* if fitted or delivery option
## 3 Repair work

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* if fitted or delivery option
3 Repair work

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3.22 Cable harness of height adjustment / seat occupancy detection system – removal and installation *
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* if fitted or delivery option
3.1 Seat suspension – removal and installation

REMOVAL / INSTALLATION

(1) Seat suspension
(2) Upper seat part
(3) Fore/aft adjustment
(4) Micro-encapsulated cap screw .................. to replace, 25 Nm
(5) Reinforcement plate *
(6) Cable harness for upper seat part
(7) Cable tie
(8) Center cover
(9) Socket (cable harness for upper seat part)
(10) Plug (cable harness of seat suspension)
(11) Socket (cable harness for upper seat part)
(12) Plug (cable harness of seat suspension)

* if fitted or delivery option
3.1 Seat suspension – removal and installation

(13) Cable for height adjustment *
(14) Cable for seat occupancy detection system *
(15) Electrical connection between cable of height adjustment – cable of seat occupancy detection system *
(16) Cover
(17) Module for height adjustment *

* if fitted or delivery option
### Note:
For the removal of the seat suspension (1) on the vehicle, ask the vehicle manufacturer for the necessary assembly work to be carried out.

### Removal and installation

1. Push the upper seat part (2) backwards over the fore/aft adjustment (3) as far as possible.
2 Mark the screw positioning diagram, unscrew two micro-encapsulated cap screws (4) at the front of the fore/aft adjustment (3) and remove the reinforcement plates (5).

**Installation notes:**
- Replace the micro-encapsulated cap screw (4) by a new one, 25 Nm.
- Check the fore/aft adjustment (3) for correct locking in any position.
- Install the fore/aft adjustment (3) according to the marking.
3.1 Seat suspension – removal and installation

REMOVAL / INSTALLATION

3 Push the upper seat part (2) forwards over the fore/aft adjustment (3) as far as possible.

4 Mark the screw positioning diagram, unscrew two micro-encapsulated cap screws (4) at the rear of the fore/aft adjustment (3) and remove the reinforcement plates (5).

**Installation notes:**
- Replace the micro-encapsulated cap screw (4), 25 Nm.
- Install the fore/aft adjustment (3) according to the marking.
3.1 Seat suspension – removal and installation

5 Mark the points where the cable harness of the upper seat part (6) is fastened to the center cover (8) by means of two cable ties (7) and remove the cable ties (7).

6 Disconnect the electrical connection between the socket (9) and the plug (10).

7 Disconnect the electrical connection between the socket (11) and the plug (12).
3.1 Seat suspension – removal and installation

REMOVAL / INSTALLATION

8 Lift off the upper seat part (2) at the seat suspension (1) and put it aside.

**Note:**
When laying it down, make sure that the cable of the seat occupancy detection system *is not overstretched.*

**Installation note:**
To prevent the cable harness of the upper seat part (6) from being squeezed and rubbed, the two cables of the cable harness for the upper seat part (6) should be placed in slackness loops (round arrows) between the seat suspension (1) and the upper seat part (2).

* if fitted or delivery option
3.1 Seat suspension – removal and installation

REMOVAL / INSTALLATION

9  the cable tie (7) and disconnect the connection (15).

10 Remove the seat suspension (1).

11 Re-install the components in the reverse order of their removal.

* if fitted or delivery option
3.2 Center and rear cover – removal and installation

REMOVAL / INSTALLATION

(1) Center cover
(2) Rear cover
(3) Bellows pin
(4) U-profile
(5) Hook
(6) Bellows
(7) Upper suspension part

1. Remove the upper seat part at the seat suspension (see Chapter 3.1).
3.2 Center and rear cover – removal and installation

Removal and installation

2 Pull out the bellows pin (3) at the rear.
   Note: The rear cover (2) is fastened together with the center cover (1).

3 Detach the hook (5) of the rear cover (2) at the U-profile (4) and remove the rear cover (2).
   Installation note: Make sure that the bellows (6) runs underneath the rear cover (2).

4 Pull out two bellows pins (3) at the front.

5 Remove the center cover (1).

6 Re-install the components in the reverse order of their removal.
3.3 Covers on the right and left side – removal and installation

REMOVAL / INSTALLATION

<table>
<thead>
<tr>
<th>No.</th>
<th>Component</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Cover (left and right)</td>
</tr>
<tr>
<td>2</td>
<td>Blind rivet</td>
</tr>
<tr>
<td>3</td>
<td>Bellows</td>
</tr>
<tr>
<td>4</td>
<td>Upper suspension part</td>
</tr>
</tbody>
</table>

1. Remove the upper seat part at the seat suspension (see Chapter 3.1).

**WARNING** Risk of injury!

Always install the left and right covers (1) as they provide protection against crushing at the seat fore/aft adjustment.
3.3 Covers on the right and left side – removal and installation

Removal and installation

2 Bore out two rivet heads on each cover (1) and drive out the blind rivets (2).

3 Remove the left and right covers (1).

Installation note:
Make sure that the bellows (3) runs underneath the left and right covers (1). If necessary, press the bellows (3) under the covers (1) by means of suitable tools, e.g. a screwdriver.

4 Re-install the components in the reverse order of their removal.
3.4 Bellows – removal and installation

REMOVAL / INSTALLATION

TABLE OF CONTENTS

(1) Bellows
(2) Upper suspension part
(3) Cover (left and right)
(4) Cable harness for vehicle connection
(5) Bellows pin
(6) U-profile
(7) L-bar (upper suspension part)
(8) Hook
(9) Handle for fore/aft isolator
(10) Lower suspension part
(11) Keyhole nub
(12) Keyhole nub
(13) Wire insert
3.4 Bellows – removal and installation

**REMOVAL / INSTALLATION**

1. Remove the rear cover (see Chapter 3.2).

**Removal and installation**

2. Pull out two bellows pins (5) at the U-profile (6).

3. Detach eleven keyhole nubs (11) at the upper suspension part (2).

**Installation note:**
Press the bellows (1) under the left and right covers (3) by means of suitable tools, e.g. a screwdriver.

4. Detach the bellows (1) at the hook (8).
3.4 Bellows – removal and installation

5 Pull the bellows (1) over the L-bar (7) and the handle for the fore/aft isolator (9).

**Installation note:**
When installing a new bellows (1), tear open the predetermined breaking points for the L-bar (7) and for the handle of the fore/aft isolator (9) in the bellows (1), if there are no pre-cut apertures.

6 Detach eleven keyhole nubs (12) at the lower suspension part (10).
7 Pull the bellows (1) over the upper suspension part (2) in upward direction and remove it.

**Installation note:**
Guide the cable harness for vehicle connection (4) between the bellows (1) and the upper suspension part (2) at the rear right.

8 **If the wire insert (13) is defective:**
Remove the wire insert (13) at the bellows (1).

**Installation notes:**
- Install wire insert (13) in the middle fold of the bellows (1).
- The welding joint (arrow) of the wire insert (13) must be located on the right of the bellows (1).

9 Re-install the components in the reverse order of their removal.
3.5 Vertical shock absorber – removal and installation

REMOVAL / INSTALLATION

TABLE OF CONTENTS

(1) Swinging structure
(2) Vertical shock absorber
(3) Circlip
(4) Stud ......................... to grease
(5) Circlip
(6) Stud ......................... to grease
(7) Clearance spacer
3.5 Vertical shock absorber – removal and installation

REMOVAL / INSTALLATION

1. Remove the rear cover (see Chapter 3.2).

2. Remove the bellows from the upper suspension part (see Chapter 3.4).

Removal and installation

3. **WARNING** Risk of crushing!

   Move the seat suspension to the highest position and secure it at the rear between the swinging structure and the lower suspension part by means of suitable spacers.

4. Loosen the circlip (5) at the stud (4).
5 Pull out the stud (4) from the swinging structure (1) and from the vertical shock absorber (2).

**Installation note:**
Apply acid-free multi-purpose lubricant to the entire external surface (F) of the stud (4).

6 Loosen the circlip (3) at the stud (6).

7 Pull out the stud (6) from the swinging structure (1) and from the vertical shock absorber (2) and remove two clearance spacers (7).

**Installation note:**
Apply acid-free multi-purpose lubricant to the entire external surface (F) of the stud (6).
8 Remove the vertical shock absorber (2) from the seat suspension in backward direction.

**Installation note:**
When installing the vertical shock absorber (2), the marking must point upwards.

9 Re-install the components in the reverse order of their removal.
3.6 Locking mechanism for fore/aft isolator – removal and installation

REMOVAL / INSTALLATION

TABLE OF CONTENTS

(1) Upper suspension part
(2) Handle for fore/aft isolator
(3) L-bar
(4) Rounded head screw ........ 2.5 Nm
(5) Clamping sleeve
(6) Linkage rod
(7) Stop lever...................... to grease
(8) Tension spring
(9) Tension spring
(10) Linkage rod
(11) Flange head screw......... 2.25 Nm
(12) Stop lever...................... to grease
(13) Tension spring
3.6 Locking mechanism for fore/aft isolator – removal and installation

REMOVAL / INSTALLATION

1. Remove the upper seat part at the seat suspension (see Chapter 3.1).

2. Remove the center and rear covers (Chapter 3.2).

3. Take off the bellows from the upper part of suspension (see Chapter 3.4).

Removal and installation

4. **WARNING** Risk of crushing!

   Move the seat suspension to the highest position and secure it between the swinging structure and the lower suspension part by means of suitable spacers.

5. Tilt the seat suspension to the right.
6 Mark the installation position and screw positioning diagram for fitting the tension springs (8, 9, 13).

**Installation note:**
Install the tension springs (8, 9, 13) according to the marking.

7 Detach the tension spring (9) at the linkage rod (6) and at the upper suspension part (1).

8 Detach the tension spring (8) at the stop lever (7) and at the upper suspension part (1).

9 Detach the tension spring (13) at the stop lever (12) and at the upper suspension part (1).

10 Unscrew the rounded head screw (4) at the handle for the fore/aft isolator (2).

**Installation note:**
Rounded head screw (4), 2.25 Nm.
3.6 Locking mechanism for fore/aft isolator – removal and installation

REMOVAL / INSTALLATION

11 Pull off the handle for the fore/aft isolator (2) at the L-bar (3) of the upper suspension part (1).

12 Take off the linkage rod (6) at the stop lever (7) and the linkage rod (10) at the stop lever (12).

13 Take off the linkage rod (6) at the linkage rod (10).

14 Mark the drill hole for the clamping sleeve (5) in the handle of the fore/aft isolator (2) and drive out the clamping sleeve (5) at the handle of the fore/aft isolator (2).

**Installation note:**
Install the clamping sleeve (5) according to the marking.
15 Pull off the handle for the fore/aft isolator (2) at the linkage rod (6).

16 Unscrew two flange head screws (11).
   **Installation note:**
   Flange head screw (11), 2.25 Nm.

17 Remove two stop levers (7, 12).
   **Installation note:**
   Apply acid-free multi-purpose lubricant to the front surface (F) and to the locking surfaces (F) of the stop levers (7, 12).

18 Re-install the components in the reverse order of their removal.
3.7 Handle for fore/aft isolator – removal and installation

REMOVAL / INSTALLATION

TABLE OF CONTENTS

(1) Handle for fore/aft isolator
(2) Upper suspension part
(3) Rounded head screw ........ 2.5 Nm
(4) Clamping sleeve
(5) Linkage rod
(6) L-bar (at the upper suspension part)
(7) Stop lever
(8) Tension spring
3.7 Handle for fore/aft isolator – removal and installation

Removal and installation

1. Turn the handle for the fore/aft isolator (1) forwards.

2. Unscrew the rounded head screw (3) at the handle for the fore/aft isolator (1).
   **Installation note:** Rounded head screw (3), 2.5 Nm.

3. Drive out the clamping sleeve (4) at the handle of the fore/aft isolator (1).
3.7 Handle for fore/aft isolator – removal and installation

4 Carefully pull out the linkage rod (5) at the handle of the fore/aft isolator (1).

**Note:**
Make sure that the linkage rod (5) remains hung into the stop lever (7) and that the tension spring (8) remains hung into the linkage rod (5).

5 Pull off the handle of the fore/aft isolator (1) at the L-bar (6) of the upper suspension part (2).

6 Re-install the components in the reverse order of their removal.
3.8 Longitudinal horizontal shock absorber – removal and installation

REMOVAL / INSTALLATION

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<thead>
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<td>Longitudinal horizontal shock absorber – to grease</td>
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<tr>
<td>(2)</td>
<td>Upper suspension part</td>
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<tr>
<td>(3)</td>
<td>Swinging structure</td>
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<tr>
<td>(4)</td>
<td>Clearance spacer</td>
</tr>
<tr>
<td>(5)</td>
<td>Lock washer</td>
</tr>
<tr>
<td>(6)</td>
<td>Axle (left)</td>
</tr>
<tr>
<td>(7)</td>
<td>Axle (right)</td>
</tr>
</tbody>
</table>

1. Remove the upper seat part at the seat suspension (see Chapter 3.1).

2. Remove the center and rear covers (Chapter 3.2).
3.8 Longitudinal horizontal shock absorber – removal and installation

Removal and installation

3  **WARNING** Risk of crushing!

Move the seat suspension to the highest position and secure it between the swinging structure and the lower suspension part by means of suitable spacers.

4  Loosen the lock washer (5) at the left (6) and right axle (7) of the upper suspension part (2) and remove the clearance spacers (4).

5  Lift off the longitudinal horizontal shock absorbers (1) at the tube of the swinging structure (3).

**Installation note:**
Press the longitudinal horizontal shock absorbers (1) onto the tube of the swinging structure (3) without using driving or hammering tools.
6 Pull the longitudinal horizontal shock absorbers (1) down at the left (6) and right axle (7) of the upper suspension part (2).

**Installation note:**
Apply acid-free multi-purpose lubricant to the mounting surfaces (F) of the longitudinal horizontal shock absorbers (1).

7 Re-install the components in the reverse order of their removal.
3.9 **Fore/aft isolator unit – removal and installation**

REMOVAL / INSTALLATION

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
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<tbody>
<tr>
<td>(1)</td>
<td>Upper suspension part</td>
</tr>
<tr>
<td>(2)</td>
<td>Handle for fore/aft isolator</td>
</tr>
<tr>
<td>(3)</td>
<td>Swinging structure</td>
</tr>
<tr>
<td>(4)</td>
<td>Buffer</td>
</tr>
<tr>
<td>(5)</td>
<td>Tension spring</td>
</tr>
<tr>
<td>(6)</td>
<td>Socket</td>
</tr>
<tr>
<td>(7)</td>
<td>Clamp</td>
</tr>
<tr>
<td>(8)</td>
<td>Collar screw (inner race)</td>
</tr>
<tr>
<td>(9)</td>
<td>Blind rivet</td>
</tr>
<tr>
<td>(10)</td>
<td>Buffer</td>
</tr>
<tr>
<td>(11)</td>
<td>Longitudinal horizontal shock absorber</td>
</tr>
</tbody>
</table>

**Note:**
Replace the longitudinal horizontal shock absorbers (11) only if they are defective.
3.9 Fore/aft isolator unit – removal and installation

**REMOVAL / INSTALLATION**

1. Remove the upper seat part at the seat suspension (see Chapter 3.1).

2. Remove the center and rear covers (Chap. 3.2).

3. Take off the bellows from the upper part of suspension (see Chapter 3.4).

**Removal and installation**

4. **WARNING** Risk of crushing!

   Move the seat suspension to the highest position and secure it between the swinging structure and the lower suspension part by means of suitable spacers.

5. Turn (tilt) the seat suspension by 180°.
6 Turn the handle of the fore/aft isolator (2) backwards to unlock the fore/aft isolator unit.

7 If the longitudinal horizontal shock absorber is defective:
   Remove the longitudinal horizontal shock absorber (Chapter 3.9).

8 If the longitudinal horizontal shock absorber is not defective:
   Lift off the longitudinal horizontal shock absorber at the tube of the swinging structure (see Chapter 3.9).
3.9 Fore/aft isolator unit – removal and installation

REMOVAL / INSTALLATION

9 Unscrew two collar screws (8).

**Installation notes:**
- Collar screw (8), 25 Nm.
- Apply acid-free multi-purpose lubricant to the entire surface (F) of the collar screws (8).
- During the installation, the tension spring (5) is screwed on under tension.

10 Push the upper suspension part (1) forwards until the clamp (7) with all connected parts can be pushed off in upward direction at the tube of the swinging structure (3).

11 Press off the clamp (7) at the swinging structure (3).

**Installation note:**
Apply acid-free multi-purpose lubricant to the running surface (F) of the clamp (7).
3.9 Fore/aft isolator unit – removal and installation

REMOVAL / INSTALLATION

12 Remove the buffer (4) at the socket (6).

13 Remove two sockets (6) from the legs of the tension spring (5).

14 Remove the tension spring (5) from the clamp (7).

15 **If the buffer (10) is defective:**
   Bore out the rivet head and drive out the blind rivet (9). Then, remove the buffer (10).

16 Re-install the components in the reverse order of their removal.
3.10 Compressor – removal and installation

REMOVAL / INSTALLATION

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<tbody>
<tr>
<td>(1) Compressor</td>
<td>(2) Cable tie</td>
<td>(3) Lower suspension part</td>
<td>(4) Cable harness for seat suspension</td>
<td>(5) Swinging structure</td>
<td>(6) Compressed-air hose</td>
<td>(7) Nozzle</td>
<td>(8) Pad</td>
<td>(9) Right-angle plug (blue cable)</td>
<td>(10) Right-angle plug (black cable)</td>
<td></td>
<td></td>
<td></td>
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</tbody>
</table>

* Use a sharp knife for cutting into lengths.
ATTENTION Hydrostatic test!

The hydraulic test of the seat suspension should be performed upon installation of the compressor (1). To do this, apply 60 kg load to the suspension for 24 hours. The lowering within this time must not exceed 15 mm.

1. Remove the rear cover (see Chapter 3.2).

2. Remove the bellows from the upper suspension part (see Chapter 3.4).
3.10 Compressor – removal and installation

Removal and installation

3  ▼ WARNING Risk of crushing!

Move the seat suspension to the highest position and secure it between the swinging structure and the lower suspension part by means of suitable spacers.

4  ▼ WARNING The pressure in the pneumatic system might cause injury!

The pneumatic system is to be vented before removing the compressor (1).
5 Mark two right-angle plugs (9, 10) and disconnect the electrical connection between the right-angle plugs (9, 10) and the compressor (1).

Installation notes:
- Reconnect the electrical connection between the right-angle plugs (9, 10) and the compressor (1) according to the marking.
- The cable outlet at the respective right-angle plug (9, 10) must point downwards.
6 Mark the points where the compressor (1) is fastened to the lower suspension part (3) by means of two cable ties (2) and remove the cable ties (2).

**Installation note:**
Guide the cable ties (2) through the intended cut-outs at the lower suspension part (3) so that the locking head of the cable ties (2) point forwards.
Loosely close the cable ties (2) so that the compressor (1) and the pad (8) still can be moved.
Align the compressor (1) so that a collision with the swinging structure (5) is prevented and then tighten the locking head of the cable ties (2) to 190 N by means of pliers in the direction shown (arrow).
7 Pull off the nozzle (7) at the connection (mandrel profile) of the compressor (1) and push it backwards at the compressed-air hose (6).

8 **WARNING** Damage!
Take care not to damage the compressed-air hose (6).
Do not lift off the compressed-air hose (6) at the connection (arrow) of the compressor (1) e.g. by means of a screwdriver or similar tools.

Cut off the compressed-air hose (6) in a clean and straight way directly behind the connection (arrow) of the compressor (1) by means of a sharp knife.
Installation note:
Push the compressed-air hose (6) completely onto the connection (arrow) of the compressor (1).

Notes:
- The compressed-air hose (6) can be cut off only once.
- After cutting off, mark the compressed-air hose (6) in order not to cut it several times.

9 Pull off the nozzle (7) at the compressed-air hose (6).

10 Remove the compressor (1) in forward direction.
11 Remove the pad (8) from the lower suspension part (3).

**Installation note:**
- Place the pad (8) between the lower suspension part (3) and the compressor (1) so that the compressor (1) cannot come into contact with the lower suspension part (3).
- Place the pad (8) around the compressor (1) from back to front so that it lies flat against the compressor (1) after the cable ties (2) have been closed.

12 Re-install the components in the reverse order of their removal.
### 3.11 Sensor module – removal and installation

#### REMOVAL / INSTALLATION

<table>
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<th>Description</th>
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</thead>
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<td>2</td>
<td>Upper suspension part</td>
</tr>
<tr>
<td>3</td>
<td>Lower suspension part</td>
</tr>
<tr>
<td>4</td>
<td>Micro-encapsulated hexagon nut to replace, 25 Nm</td>
</tr>
<tr>
<td>5</td>
<td>Cable harness for seat suspension</td>
</tr>
<tr>
<td>6</td>
<td>Cable tie</td>
</tr>
<tr>
<td>7</td>
<td>Air hose (blue)</td>
</tr>
<tr>
<td>8</td>
<td>Socket (cable harness for seat suspension)</td>
</tr>
<tr>
<td>9</td>
<td>Socket (cable harness for seat suspension)</td>
</tr>
<tr>
<td>10</td>
<td>Plug (sensor module)</td>
</tr>
<tr>
<td>11</td>
<td>Plug (sensor module)</td>
</tr>
<tr>
<td>12</td>
<td>Webbing</td>
</tr>
<tr>
<td>13</td>
<td>Micro-encapsulated hexagon nut to replace, 25 Nm</td>
</tr>
<tr>
<td>14</td>
<td>Plate</td>
</tr>
<tr>
<td>15</td>
<td>Retaining ring of quick coupling</td>
</tr>
</tbody>
</table>
3.11 Sensor module – removal and installation

ATTENTION Hydrostatic test!

The hydraulic test of the seat suspension should be performed upon installation of the new sensor module (1). To do this, apply 60 kg load to the suspension for 24 hours. The lowering within this time must not exceed 15 mm.

1 If required:
   1.1 Remove the upper seat part at the seat suspension (see Chapter 3.1).

1.2 Remove the center and rear covers (Chap. 3.2).

2 Remove the bellows (Chapter 3.4).
3.11 Sensor module – removal and installation

Removal and installation

3  ❌ WARNING  Risk of crushing!

Move the seat suspension to the highest position and secure it between the swinging structure and the lower suspension part by means of suitable spacers.

4  ❌ WARNING  The pressure in the pneumatic system might cause injury!

The pneumatic system is to be vented before removing the sensor module (1).
3.11 Sensor module – removal and installation

5. Unscrew two micro-encapsulated hexagon nuts (13).

**Installation notes:**
- Replace the micro-encapsulated hexagon nut (13); 25 Nm.
- Make sure not to squeeze the webbing (12) when tightening the hexagon nuts (13).

6. Pull out the plate (14) at the lower suspension part (3) while holding the webbing (12) in position and slowly guiding it upwards to the sensor module (1).

7. Pull out the plate (14) at the webbing (12).

**Installation note:**
The bend of the plate (14) must point to the front.
ATTENTION Damage!
Take care not to damage the air hose (7).
Do not pull the air hose (7) out of the retaining ring of the quick coupling (15). When pulling it out, scoring might occur at the air hose (7).

Cut the air hose (7) off in a clean and straight way directly behind the retaining ring of the quick coupling (15) by means of a sharp knife.

Installation note:
Push the air hose (7) completely into the retaining ring of the quick coupling (15) by exerting pressure.

Notes:
• The air hose (7) can be cut off only once.
• After cutting off, mark the air hose (7) in order not to cut it several times.
9 Mark the point where the cable harness for seat suspension (5) is fastened to the sensor module (1) by means of a cable tie (6) and remove the cable tie (6).

10 Disconnect the electrical connection between the socket (9) and the plug (11).

11 Disconnect the electrical connection between the socket (8) and the plug (10).

12 Unscrew two micro-encapsulated hexagon nuts (4).

**Installation note:** Replace the micro-encapsulated hexagon nut (4), 25 Nm.
3.11 Sensor module – removal and installation

13 Pull out the sensor module (1) at the upper suspension part (2) and remove it in downward direction.

14 Re-install the components in the reverse order of their removal.
3.12 Air spring – removal and installation

**REMOVAL / INSTALLATION**

(1) Lower suspension part
(2) Air spring
(3) Swinging structure
(4) Countersunk screw (inner race) ......................... 6 Nm
(5) Step (at the air spring)
(6) Adapter plate
(7) Air hose
(8) Air hose
(9) Quick coupling
(10) Catch spring
1. Remove the rear cover (see Chapter 3.2).

2. Remove the bellows from the upper suspension part (see Chapter 3.4).

3. **If no mounting hole (arrow) is available at the adapter plate (6):** Remove the adapter plate at the lower suspension part (see Chapter 3.18) and put it aside.

   **Notes:**
   - The active module remains attached to the adapter plate.

   **ATTENTION** Damage!
   Do not overstretch the energy bundle at the active module when putting it aside.
3.12 Air spring – removal and installation

Removal and installation

4 ⚠️ WARNING Risk of crushing!

Move the seat suspension to the highest position and secure it at the rear between the swinging structure and the lower suspension part by means of suitable spacers.

5 ⚠️ WARNING The pressure in the pneumatic system might cause injury!

The pneumatic system is to be vented before removing the air spring (2).
3.12 Air spring – removal and installation

**REMOVAL / INSTALLATION**

6 Pull the catch spring (10) out of the air spring (2).

7 Pull the quick couplings (9) of the air hoses (7, 8) out of the air spring (2).

**Installation note:**
First, plug the catch spring (10) into the air spring (2) and then plug the quick couplings (9) into the air spring (2) with an audible click.

8 Unscrew the countersunk screw (4) from the air spring (2).

**Installation notes:**
- Countersunk screw (4), 6 Nm.
- The internal thread collar (arrow) at the bottom of the air spring (2) must lie flush in the drill hole (arrow) of the lower suspension part (1).
9 Turn the air spring (2) by 90° until the bayonet catch fits through the longitudinal hole in the swinging structure (3).

10 Press the air spring (2) down and pull the bayonet catch out of the swinging structure (3).

11 Remove the air spring (2) from the seat suspension. **Installation note:** The step (5) at the bottom of the air spring (2) must click into place in the cut-out (arrow) of the lower suspension part (1).

12 Re-install the components in the reverse order of their removal.
3.13 **Control / air reservoir – removal and installation**

**REMOVAL / INSTALLATION**

(1) Control / air reservoir
(2) Upper suspension part
(3) Sealing ring
(4) Blind rivet
(5) Cable harness for seat suspension
(6) Air hose
(7) Quick-release fastener screw. 5 Nm
(8) Quick-release fastener nut
(9) Retaining ring (cutting ring)
(10) Air hose (at the control)
(11) Connector
(12) Catcher (at the connector)
(13) Bracket (at the connector)
(14) Quick fastener
   = (7) + (8) + (9)
(15) Protective cap
3.13 Control / air reservoir – removal and installation

Note:
After installation of the new programmed control / air reservoir (1), a calibration with the sensor module has to be carried out (learning program). Pull the handle for height adjustment quickly upwards three times *(within 2 seconds)* with the seat being empty.
Then *(within the next second)*, press the handle for height adjustment down for exactly 3 seconds.
The completed calibration with the sensor module is acknowledged by the compressor being started twice. If this does not happen, the process has to be repeated.
3.13 Control / air reservoir – removal and installation

**ATTENTION** Hydrostatic test!

The hydraulic test of the seat suspension should be performed upon installation of the control / air reservoir (1). To do this, apply 60 kg load to the suspension for 24 hours. The lowering within this time must not exceed 15 mm.

1. Remove the rear cover (see Chapter 3.2).

2. Remove the bellows from the upper suspension part (see Chapter 3.4).
3.13 Control / air reservoir – removal and installation

Removal and installation

3  ⚠️  WARNING  Risk of crushing!

Move the seat suspension to the highest position and secure it between the swinging structure and the lower suspension part by means of suitable spacers.

4  ⚠️  WARNING  The pressure in the pneumatic system might cause injury!

The pneumatic system is to be vented before removing the control / air reservoir (1).
3.13 Control / air reservoir – removal and installation

5 Unlock the bracket (13) at the catcher (12) of the connector (11) and disconnect the electrical connection between the cable harness for seat suspension (5) and the control / air reservoir (1).

6 Unscrew the quick-release fastener screw (7) from the quick-release fastener nut (8).

7 ⚠️ ATTENTION Damage! Take care not to damage the air hose (6).

Bend open the retaining ring (9) at the opening and pull it off at the air hose (6).
3.13 Control / air reservoir – removal and installation

REMOVAL / INSTALLATION

8 Pull off the quick-release fastener screw (7) at the air hose (6).

Note:
The quick fastener (14) is preassembled at the new control / air reservoir (1).

Installation notes:
• Pull off the existing protective cap (15) at the quick-release fastener screw (7).
• Insert the air hose (6) into the quick-release fastener screw (7) as far as possible.
• After insertion, pull the air hose (6) back as far as possible (approx. 1 mm).
• If the quick fastener (14) is not preassembled at the new control / air reservoir (1):
  Push the air hose (10) completely onto the mandrel profile (arrow) of the quick-release fastener nut (8).
3.13 Control / air reservoir – removal and installation

REMOVAL / INSTALLATION

9 Bore out the rivet head and drive out the blind rivet (4).

**Installation note:**
The control / air reservoir (1) is riveted onto the upper suspension part (2) from below.

10 Detach the control (1) at the upper suspension part (2) and remove it.

11 Pull off the sealing ring (3) at the control (1).

12 Re-install the components in the reverse order of their removal.
3.14 Cable harness for vehicle connection – removal and installation

REMOVAL / INSTALLATION

(1) Cable harness for vehicle connection
(2) Bellows
(3) Upper suspension part
(4) Plug (cable harness of seat suspension)
(5) Socket (cable harness for vehicle connection)
(6) Clamp
(7) Cable harness for seat suspension

1 Remove the rear cover (see Chapter 3.2).

2 Detach the bellows at the rear right of the upper suspension part (see Chapter 3.4). Press the bellows down where it is detached.
Removal and installation

3 Detach the cable harness for vehicle connection (1) at the clamp (6).

4 Disconnect the electrical connection between the plug (4) and the socket (5).

5 Remove the cable harness for vehicle connection (1).

**Installation note:**
The cable harness for vehicle connection (1) is guided out on the rear right (arrow) between the bellows (2) and the upper suspension part (3).

6 Re-install the components in the reverse order of their removal.
3.15 Adapter plate – removal and installation

REMOVAL / INSTALLATION

(1) Adapter plate
(2) Active module
(3) Lower suspension part
(4) Flange nut
(5) Micro-encapsulated countersunk screw (hexagon socket screw)  
............................ to replace, 25 Nm

(6) Micro-encapsulated countersunk screw (hexagon socket screw)  
............................ to replace, 10 Nm
3.15 Adapter plate – removal and installation

Removal and installation

1. **WARNING** Risk of crushing!

   Move the seat suspension to the highest position and secure it between the swinging structure and the lower suspension part by means of suitable spacers.

2. Unscrew four micro-encapsulated countersunk screws (5) and remove the flange nuts (4).

   **Installation note:**
   Replace the micro-encapsulated countersunk screw (5), 25 Nm.
3.15 Adapter plate – removal and installation

Removal / Installation

3 Mark the screw positioning diagram at the adapter plate (1) and unscrew three micro-encapsulated countersunk screws (6) at the active module (2).

**Installation notes:**
- Replace the micro-encapsulated countersunk screw (6), 10 Nm.
- Screw the active module (2) tightly onto the adapter plate (1) according to the marking.

4 Remove the adapter plate (1).

5 Re-install the components in the reverse order of their removal.
3.16 Active module – removal and installation

REMOVAL / INSTALLATION

(1) Active module
(2) Adapter plate
(3) Micro-encapsulated countersunk screw (hexagon socket screw) to replace, 10 Nm
(4) Elbow (active module)
(5) Seal (big)
(6) Seal (small)
(7) Connector plug (small)
(8) Connector plug (big)
(9) Rounded head screw ........ 0.4 Nm
(10) Air hose (thick)
(11) Air hose (thin)
(12) Circlip
(13) Quick-release fastener screw. 5 Nm
(14) Retaining ring (cutting ring)
(15) Protective cap
3.16 Active module – removal and installation

REMOVAL / INSTALLATION

WARNING Hydrostatic test!

The hydraulic test of the seat suspension should be performed upon installation of the active module (1). To do this, apply 60 kg load to the suspension for 24 hours. The lowering within this time must not exceed 15 mm.

Removal and installation

1 WARNING The pressure in the pneumatic system might cause injury!

The pneumatic system is to be vented before removing the active module (1).
2 Mark the screw positioning diagram at the adapter plate (2) and unscrew three micro-encapsulated countersunk screws (3) at the active module (1).

**Installation notes:**
- Replace the micro-encapsulated countersunk screw (3), 10 Nm.
- Screw the active module (1) tightly onto the adapter plate (2) according to the marking.

3 Unscrew two rounded head screws (9).

**Installation note:**
Rounded head screw (9), 0.4 Nm.
4 Disconnect the electrical connection between the connector plug (8) and the active module (1) and remove the seal (5).

5 Disconnect the electrical connection between the connector plug (7) and the active module (1) and remove the seal (6).

6 Press the circlip (12) back at the elbow (4) and pull the air hose (10) out of the elbow (4).

**Installation note:**
Insert the air hose (10) into the circlip (14) of the elbow (4) as far as possible.
3.16 Active module – removal and installation

7 Unscrew the quick-release fastener screw (13).

**Installation notes:**

- **WARNING** Damage! Take care not to damage the air hose (11). Bend open the retaining ring (14) at the opening (arrow) and pull it off at the air hose (11).
- Pull off the quick-release fastener screw (13) at the air hose (11).
- Pull off the existing protective cap (15) at the quick-release fastener screw (13) which is preassembled at the new active module (1).
- Insert the air hose (11) into the quick-release fastener screw (13) as far as possible.
- After insertion, pull the air hose (11) back as far as possible (approx. 1 mm).
8 Remove the active module (1).

9 Re-install the components in the reverse order of their removal.
3.17 Air distributor – removal and installation

REMOVAL / INSTALLATION

(1) Air distributor
(2) Air hose (thick)
(3) Air hose (thin)
(4) Socket (cable harness for energy bundle)
(5) Plug (cable harness of seat suspension)
(6) Air hose (black)
(7) Air hose (blue)
(8) Compressor
(9) Lower suspension part
(10) Expanding rivet * ............ to replace
(11) Quick-release fastener screw .. 5 Nm
(12) Quick-release fastener screw . 5 Nm
(13) Countersunk screw (hexagon socket screw) ........ 10 Nm

* depending on seat model
3.17 Air distributor – removal and installation

REMOVAL / INSTALLATION

TABLE OF CONTENTS

(14) Quick-release fastener screw 5 Nm
(15) Nozzle
(16) Compressed-air hose
(17) Air hose (18) Air hose
(19) Circlip
(20) Air spring
(21) Catch spring
(22) Quick coupling
(23) Energy bundle
(24) Cable harness for seat suspension
(25) Protective cap
(26) Screw *
(27) L-bar

* depending on seat model
3.17 Air distributor – removal and installation

REMOVAL / INSTALLATION

WARNING Hydrostatic test!

The hydraulic test of the seat suspension should be performed upon installation of the air distributor (1). To do this, apply 60 kg load to the suspension for 24 hours. The lowering within this time must not exceed 15 mm.

1 Remove the rear cover (see Chapter 3.2).

2 Remove the bellows (Chapter 3.4).

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Removal and installation

3 **WARNING** Risk of crushing!

Move the seat suspension to the highest position and secure it between the swinging structure and the lower suspension part by means of suitable spacers.

4 **WARNING** The pressure in the pneumatic system might cause injury!

The pneumatic system is to be vented before removing the air distributor (1).

5 Pull off the nozzle (15) at the connection (mandrel profile) of the compressor (8) and push it backwards at the compressed-air hose (16).
3.17 Air distributor – removal and installation

WARNING Damage!
Take care not to damage the connection (mandrel profile) of the compressor (8).

Pull off the compressed-air hose (16) at the connection (arrow) of the compressor (8).

Notes:
• Do not use a screwdriver or similar tools to lift off the compressed-air hose (16) at the connection (arrow) of the compressor (8).
• For easier removal, carefully slit the compressed-air hose (16) with a sharp knife.

Installation note:
Push the compressed-air hose (16) completely onto the connection (arrow) of the compressor (8).

7 Pull the catch spring (21) out of the air spring (20).
8 Pull the quick couplings (22) of the air hoses (17, 18) out of the air spring (20).

**Installation note:**
First, plug the catch spring (21) into the air spring (20) and then plug the quick couplings (22) into the air spring (20) with an audible click.

9 Fastening the plug (5) by means of the expanding rivet (10):

⚠️ **WARNING!** Damage!
The expanding rivet (10) is located in a blind hole.

Lift the L-bar (27) by means of a screwdriver and push out the expanding rivet (10).

**Installation note:**
Push the pin of the expanding rivet (10) upwards prior to installation.
10 **Fastening the plug (5) by means of the screw (26):**
Remove the screw (26) from the air distributor (1).

11 Disconnect the electrical connection between the socket (4) and the plug (5).

12 Unscrew the countersunk screw (13).
**Installation note:**
Countersunk screw (13), 10 Nm.

13 Mark two quick-release fastener screws (11, 12) and unscrew them from the air distributor (1).
3.17 Air distributor – removal and installation

REMOVAL / INSTALLATION

Installation notes:

• **WARNING** Damage!
  Take care not to damage the air hoses (6, 7).
  Bend open the retaining ring (26) at the opening and pull it off at the air hoses (6, 7).
  • Pull off the quick-release fastener screws (11, 12) at the air hoses (6, 7).
  • Pull off the existing protective caps (25) at the quick-release fastener screws (11, 12) which are preassembled at the new air distributor (1).
  • Insert the air hoses (6, 7) into the quick-release fastener screws (11, 12) as far as possible.
  • After insertion, pull the air hoses (6, 7) back as far as possible (approx. 1 mm).
3.17 Air distributor – removal and installation

3.17 Air distributor – removal and installation

REMOVAL / INSTALLATION

14 Unscrew the quick-release fastener screw (14) from the air distributor (1).

Installation notes:
Please observe the installation notes stated in work step 12.

15 Press the circlip (19) back at the air distributor (1) and pull the air hose (2) out of the air distributor (1).

Installation note:
Insert the air hose (2) into the circlip (19) of the air distributor (1) as far as possible.
3.17  Air distributor – removal and installation

16 Pull the compressed-air hose (16) and the air hoses (17, 18) out of the aperture in the lower suspension part (9) and remove them together with the air distributor (1).

**Installation notes:**
- Before installation, the new compressed-air hose (16) has to be inserted completely into the new air distributor (1) (arrow).
- Pull off the existing protective caps at the hoses (16, 17, 18) and at the circlip (19).

17 Pull off the nozzle (15) at the compressed-air hose (16).

18 Re-install the components in the reverse order of their removal.
3.18 Energy bundle – removal and installation

REMOVAL / INSTALLATION

(1) Energy bundle
(2) Adapter plate
(3) Lower suspension part
(4) Air hose (thin)
(5) Air hose (thick)
(6) Socket (cable harness for energy bundle)
(7) Air distributor
(8) Plug (cable harness of seat suspension)
(9) Cable harness for seat suspension
(10) Active module
(11) Countersunk screw (hexagon socket screw) ....... 10 Nm
(12) Expanding rivet * ............ to replace
(12.1) Screw

* depending on seat model
3.18 Energy bundle – removal and installation

REMOVAL / INSTALLATION

(13) Micro-encapsulated countersunk screw (hexagon socket screw) .................. to replace, 10 Nm

(14) Rounded head screw .......... 0.4 Nm

(15) Seal (big)

(16) Seal (small)

(17) Plug (big)

(18) Plug (small)

(19) Elbow (active module)

(20) Quick-release fastener screw . 5 Nm

(21) Circlip

(22) Circlip

(23) Quick-release fastener screw . 5 Nm

(24) Retaining ring (cutting ring)
3.18 Energy bundle – removal and installation

REMOVAL / INSTALLATION

WARNING Hydrostatic test!

The hydraulic test of the seat suspension should be performed upon installation of the energy bundle (1). To do this, apply 60 kg load to the suspension for 24 hours. The lowering within this time must not exceed 15 mm.

1. Remove the bellows in the area of the energy bundle (see Chapter 3.4), push it upwards and fix it.
3.18 Energy bundle – removal and installation

Removal and installation

2 ⚠️ **WARNING** Risk of crushing!

Move the seat suspension to the highest position and secure it between the swinging structure and the lower suspension part by means of suitable spacers.

3 ⚠️ **WARNING** The pressure in the pneumatic system might cause injury!

The pneumatic system is to be vented before removing the energy bundle (1).
4 Mark the screw positioning diagram at the adapter plate (2) and unscrew three micro-encapsulated countersunk screws (13) at the active module (10).

**Installation notes:**
- Replace the micro-encapsulated countersunk screw (13), 10 Nm.
- Screw the active module (10) tightly onto the adapter plate (2) according to the marking.

5 Unscrew two rounded head screws (14).

**Installation note:**
Rounded head screw (14), 0.4 Nm.

6 Disconnect the electrical connection between the plug (17) and the active module (10) and remove the seal (15).
7 Disconnect the electrical connection between the plug (18) and the active module (1) and remove the seal (16).

8 Fastening the plug (8) by means of the expanding rivet (12):

⚠️ **WARNING** Damage!
The expanding rivet (12) is located in a blind hole.

Lift the L-bar (25) by means of a screwdriver and push out the expanding rivet (12).

**Installation note:**
Push the pin of the expanding rivet (12) upwards prior to installation.

9 Fastening the plug (8) by means of the screw (12.1):
Remove the screw (12.1) from the air distributor (7).
3.18 Energy bundle – removal and installation

REMOVAL / INSTALLATION

10 Disconnect the electrical connection between the socket (6) and the plug (8).

11 Unscrew the countersunk screw (11).
   **Installation note:**
   Countersunk screw (11), 10 Nm.

12 Press back the circlip (21) at the elbow (19) and pull the air hose (5) out of the elbow (19).
   **Installation notes:**
   • Before insertion, pull off the protective cap at the new air hose (5), if necessary.
   • Insert the air hose (5) into the circlip (21) of the elbow (19) as far as possible.
13 Press back the circlip (22) at the air distributor (7) and pull the air hose (5) out of the air distributor (7).

**Installation notes:**
- Before insertion, pull off the protective cap at the new air hose (5), if necessary.
- Insert the air hose (5) into the circlip (22) of the air distributor (7) as far as possible.

14 Unscrew the quick-release fastener screw (20) from the active module (10).

**Installation notes:**

- **ATTENTION** Damage!
  Take care not to damage the retaining ring (24).
  Cut the air hose (4) off behind the retaining ring (24) (arrow).
3.18 Energy bundle – removal and installation

REMOVAL / INSTALLATION

- Pull off the retaining ring (24) at the air hose (4) in direction of the cutting point.
- Pull off the quick-release fastener screw (20) at the air hose (4).
- Push the quick-release fastener screw (20) and the retaining ring (24) onto the new air hose (4) so that it is flush (observe the direction).
- Push the quick-release fastener screw (20) over the retaining ring (24) and screw it tightly onto the active module (10).
- Quick-release fastener screw (20), 5 Nm.
- Press the air hose (4) into the quick-release fastener screw (20) as far as possible and then pull back the air hose (4) as far as possible (approx. 1 mm).

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3.18 Energy bundle – removal and installation

15 Unscrew the quick-release fastener screw (23) from the air distributor (7).

**Installation notes:**
Please observe the installation notes stated in work step 13.

16 Remove the energy bundle (1).

**Installation note:**
Lay the energy bundle (1) between the adapter plate (2) and the lower suspension part (3).

17 Re-install the components in the reverse order of their removal.
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3.19.1 Cable harness for seat suspension with compressed-air supply via internal compressor – removal and installation
3.19.2 Cable harness for seat suspension with external compressed-air supply via the compressed-air system of the vehicle – removal and installation
3.19.1 Cable harness for seat suspension with compressed-air supply via internal compressor – removal and installation

**Note:**
The existing cable harness to be replaced may deviate optically and regarding the state of installation from the following description. If this is the case, remove the existing cable harness completely from the suspension contrary to the following descriptions and install the new cable harness according to the following description.

1. Cable harness for seat suspension
2. Socket of cable harness for seat suspension (3-pin)
3. Socket of cable harness for seat suspension (4-pin)
3.19.1 Cable harness for seat suspension with compressed-air supply via internal compressor – removal and installation

REMOVAL / INSTALLATION

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(4) Air hose (blue):
   Hose from the sensor module to the air distributor
(5) Plug of cable harness for seat suspension (6-pin)
(6) Socket of cable harness for seat suspension (18-pin)
(7) Air hose (black):
   Hose from the control / air reservoir to the air distributor
(8) Connector plug of vehicle (12-pin)
(9) U-shaped profile
(10) Socket of fuse
(11) Fuse (Si = 15A)
(12) Cable fastener with cable ties
(13) Cable clamp
3.19.1 Cable harness for seat suspension with compressed-air supply via internal compressor – removal and installation

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(14) Plug of cable harness for seat suspension (8-pin)
(15) Sensor module
(16) Cable harness for energy bundle
(17) Socket of cable harness for energy bundle (4-pin)
(18) Plug of cable harness for seat suspension (4-pin)
(19) Compressor
(20) Right-angle plug (blue cable)
(21) Right-angle plug (black cable)
(22) Control / air reservoir
(23) Cable harness for vehicle connection
(24) Cable tie
(25) Push mount tie with wings

(A) Electrical connection (3-pin) between sensor module (15) and cable harness for seat suspension (1)
3.19.1 Cable harness for seat suspension with compressed-air supply via internal compressor – removal and installation

REMOVAL / INSTALLATION

(B) Electrical connection (4-pin) between sensor module (15) and cable harness for seat suspension (1)

(C) Electrical connection (18-pin) between control / air reservoir (22) and cable harness for seat suspension (1)

(F) Electrical connection (4-pin) between cable harness for energy bundle (16) and cable harness for seat suspension (1)

(G) Electrical connection between compressor (19) and right-angle plug of blue cable (20)

(H) Electrical connection between compressor (19) and right-angle plug of black cable (21)

(K) Electrical connection (12-pin) between connector plug of vehicle (8) and cable harness for vehicle connection (23)
**WARNING** Hydrostatic test!

The hydraulic test of the seat suspension should be performed upon installation of the cable harness for seat suspension (1). To do this, apply 60 kg load to the suspension for 24 hours. The lowering within this time must not exceed 15 mm.

1. Remove the seat suspension (Chapter 3.1).
2. Remove the center and rear covers (Chapter 3.2).
3. Remove the bellows (Chapter 3.4).
4. Disconnect the electrical connection (C) at the control / air reservoir (22) (see Chapter 3.13).
3.19.1 Cable harness for seat suspension with compressed-air supply via internal compressor – removal and installation

5 Pull off the air hose (7) at the control / air reservoir (22) (see Chapter 3.13).

6 Pull off the air hose (4) at the sensor module (15) (see Chapter 3.11).

7 Disconnect the electrical connections (A and B) at the sensor module (15) (see Chapter 3.11).

8 Disconnect the electrical connections (G and H) at the compressor (19) (see Chapter 3.10).

9 Disconnect the electrical connection (F) at the cable harness for the energy bundle (16) (see Chapter 3.17).
10 Remove the plug of the cable harness for seat suspension (18) at the air distributor (see Chapter 3.17).

11 Pull off the air hoses (4 and 7) at the air distributor (see Chapter 3.17).

12 Disconnect the electrical connection (K) at the cable harness for vehicle connection (23) (see Chapter 3.14).
3.19.1 Cable harness for seat suspension with compressed-air supply via internal compressor – removal and installation

Removal and installation

13 **WARNING!**
Risk of crushing!

Move the seat suspension to the highest position and secure it between the swinging structure and the lower suspension part by means of suitable spacers.

14 **WARNING** The pressure in the pneumatic system may cause injury!

The pneumatic system is to be vented before removing the cable harness for seat suspension (1).
15 Mark the points where the cable harness (1) is attached to the seat suspension.
   • 2 cable fasteners with cable ties (12)
   • 5 cable clamps (13)
   • 2 cable ties (24)
   • 1 push mount tie with wings (25)

**Installation note:**
The originally installed cable harness (1) which has to be replaced was possibly not fastened by means of the push mount tie with wings (25).
As the drill hole for the push mount tie with wings (25) is missing in this case, the original fastening by means of cable ties has to be restored.
3.19.1 Cable harness for seat suspension with compressed-air supply via internal compressor – removal and installation

REMOVAL / INSTALLATION

16 Bore out four rivet heads (27) and drive out the remaining blind rivets at the holding plates (28) and at the upper suspension part (26).

17 Lay down the plugs (5 and 14) with the holding plates (28).

18 Bore out the rivet head (29) and drive out the remaining blind rivet at the U-profile (9) and at the upper suspension part (26).

19 Detach the U-profile (9) at the upper suspension part (26) and lay it down with the cable harness.

20 Remove the cable harness from the seat suspension.

21 Re-install the components in the reverse order of their removal.
3.19.2 Cable harness for seat suspension with external compressed-air supply
via the compressed-air system of the vehicle – removal and installation

REMOVAL / INSTALLATION

(1) Holding plate
(2) Cable clamp
(3) Cable tie with clamp
(4) Compressed-air hose between control / air reservoir and compressed-air distributor (Y-piece in the cable harness for seat suspension)
(5) Cable harness for seat suspension
(6) U-shaped profile
(7) Cable tie
(8) Holding plate
(9) Plug of cable harness for seat suspension (4-pin)
3.19.2 Cable harness for seat suspension with external compressed-air supply via the compressed-air system of the vehicle – removal and installation

REMOVAL / INSTALLATION

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(10) Compressed-air hose between sensor module, compressed-air distributor (Y-piece in the cable harness for seat suspension) and air distributor

(11) Corrugated tube retainer

(A) Electrical connection (3-pin) between sensor module and cable harness for seat suspension (5)

(B) Electrical connection (4-pin) between sensor module and cable harness for seat suspension (5)

(C) Electrical connection (18-pin) between control / air reservoir and cable harness for seat suspension (5)

(F) Electrical connection (4-pin) between cable harness for energy bundle and cable harness for seat suspension (5)
3.19.2 Cable harness for seat suspension with external compressed-air supply via the compressed-air system of the vehicle – removal and installation

REMOVAL / INSTALLATION

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(I) Electrical connection (6-pin) between cable harness for seat suspension (5) and cable harness for upper seat part

(J) Electrical connection (8-pin) between cable harness for seat suspension (5) and cable harness for upper seat part

(K) Electrical connection (12-pin) between connector plug of vehicle and cable harness for vehicle connection

**WARNING** Hydrostatic test!

The hydraulic test of the seat suspension should be performed upon installation of the cable harness for seat suspension (5). To do this, apply 60 kg load to the seat suspension for 24 hours. The lowering within this time must not exceed 15 mm.
3.19.2 Cable harness for seat suspension with external compressed-air supply via the compressed-air system of the vehicle – removal and installation

REMOVAL / INSTALLATION

1. Remove the seat suspension (Chapter 3.1).

2. Remove the center and rear covers (Chapter 3.2).

3. Remove the bellows (Chapter 3.4).

4. Disconnect the electrical connection (C) at the control / air reservoir (22) (see Chapter 3.13).

5. Pull off the compressed-air hose (4) at the control / air reservoir (22) (see Chapter 3.13).

6. Pull off the compressed-air hose (10) at the sensor module (see Chapter 3.11).

7. Disconnect the electrical connections (A and B) at the sensor module (see Chapter 3.11).
3.19.2 Cable harness for seat suspension with external compressed-air supply via the compressed-air system of the vehicle – removal and installation

REMOVAL / INSTALLATION

8 Disconnect the electrical connection (F) at the cable harness for the energy bundle (see Chapter 3.18).

9 Remove the plug of the cable harness for seat suspension (9) at the air distributor (see Chapter 3.18).

10 Pull off the compressed-air hose (10) at the air distributor (see Chapter 3.17).

11 Disconnect the electrical connection (K) at the cable harness for vehicle connection (see Chapter 3.14).
3.19.2 Cable harness for seat suspension with external compressed-air supply
via the compressed-air system of the vehicle – removal and installation

Removal and installation

12 **WARNING!**
Risk of crushing!

Move the seat suspension to the highest position and secure it between the swinging structure and the lower suspension part by means of suitable spacers.

13 **WARNING!** The pressure in the pneumatic system may cause injury!

The pneumatic system is to be vented before removing the cable harness for seat suspension (5).
3.19.2 Cable harness for seat suspension with external compressed-air supply via the compressed-air system of the vehicle – removal and installation

**REMOVAL / INSTALLATION**

14 Mark the points where the cable harness (5) is attached to the seat suspension.
- 1 corrugated pipe support (11)
- 1 cable tie (7)
- 3 cable ties with brackets (3)
- 5 Cable clamps (2)

15 Remove the corrugated pipe support (11), cable ties (7 and 3) and cable clamps (2).
3.19.2 Cable harness for seat suspension with external compressed-air supply
via the compressed-air system of the vehicle – removal and installation

REMOVAL / INSTALLATION

16 Bore out four rivet heads (15) and drive out the remaining blind rivets at the holding plates (1, 8) and at the upper suspension part (13).

17 Lay down the plugs (12 and 14) with the holding plates (1, 8).

18 Bore out the rivet head (16) and drive out the remaining blind rivet at the U-profile (6) and at the upper suspension part (13).

19 Detach the U-profile (6) at the upper suspension part (13) and lay it down with the cable harness.

20 Remove the cable harness from the seat suspension.

21 Re-install the components in the reverse order of their removal.
3.20 Front cover – removal and installation (if fitted or delivery option)

REMOVAL / INSTALLATION

(1) Front cover
(2) Blind rivet
(3) Upper suspension part

1. Remove the upper seat part at the seat suspension, lift it off and put it aside (see Chapter 3.1).
Removal and installation

2 Bore out the two rivet heads and drive out the blind rivets (2).

3 Remove the front cover (1) from the upper suspension part (3).

4 Re-install the components in the reverse order of their removal.
3.21 Module for height adjustment – removal and installation
(if fitted or delivery option)

REMOVAL / INSTALLATION

(1) Module for height adjustment
(2) Upper suspension part
(3) Rounded head screw ........ 2,5 Nm
(4) Plug of module for height adjustment
(5) Socket for cable of height adjustment
3.21 Module for height adjustment – removal and installation  
(if fitted or delivery option)

REMOVAL / INSTALLATION

1 Remove the upper seat part at the seat suspension, lift it off and put it aside (see Chapter 3.1).

2 Remove the front cover (see Chap. 3.20).

3 Remove the bellows at the front of the upper suspension part (see Chapter 3.4).

Removal and installation

4 Disconnect the electrical connection between the plug of the module for height adjustment (4) and the socket for the cable for height adjustment (5).

5 Unscrew two rounded head screws (3).

**Installation note:**
Rounded head screw (3), 2,5 Nm.
6 Remove the module for height adjustment (1) at the upper suspension part (2).

7 Re-install the components in the reverse order of their removal.
3.22 Cable harness of height adjustment / seat occupancy detection system – removal and installation (if fitted or delivery option)

REMOVAL / INSTALLATION

TABLE OF CONTENTS

(1) Seat suspension
(2) Upper seat part
(3) Cable for height adjustment
(4) Cable for seat occupancy detection system
(5) Cable harness of height adjustment / seat occupancy detection system
   = (3) + (4)
(6) Electrical connection between cable of height adjustment – seat occupancy detection system cable *

* if fitted or delivery option
3.22 Cable harness of height adjustment / seat occupancy detection system – removal and installation (if fitted or delivery option)

Removal and installation

1 Cable harness without electrical connection (6):
1.1 Remove the bellows on the front right of the upper suspension part (see Chapter 3.4).

1.2 Remove the seat suspension (Chap. 3.1).

Note: The electrical connection between the left plug of the entire cable harness and the socket of the cable harness for the upper seat part does not have to be disconnected.

1.3 Remove the cable of the seat occupancy detection system at the upper seat part (see repair manual for upper seat part).

1.4 Mark the points where the cable harness is secured with cable ties and remove cable ties.
3.22 Cable harness of height adjustment / seat occupancy detection system – removal and installation (if fitted or delivery option)

REMOVAL / INSTALLATION

1.5 Remove the cable harness for height adjustment / seat occupancy detection system (5).

1.6 Re-install the components in the reverse order of their removal.

2 Cable harness with electrical connection (6):

2.1 Remove the seat suspension (Chap. 3.1).

Note: The electrical connection between the left plug of the entire cable harness and the socket of the cable harness for the upper seat part does not have to be disconnected.

2.2 Pull off the plug-in connector (6).
2.3 Remove the cable of the seat occupancy detection system at the upper seat part (see repair manual for upper seat part).

**Note:**
Not required if only the cable of the height adjustment (3) is to be removed.

**Remove the cable for height adjustment (3) (steps 2.4 to 2.7):**
Not required if only the cable of the seat occupancy detection system (4) is to be removed.

2.4 Remove the bellows on the front and right of the upper suspension part (see Chapter 3.4).

2.5 Mark the points where the cable harness is secured with cable ties and remove cable ties.
2.6 Remove the cable for height adjustment (3).

2.7 Re-install the components in the reverse order of their removal.
3.23 External compressed-air connection – removal and installation (delivery option)

REMOVAL / INSTALLATION

(1) Compressed-air hose between quick coupling (3 and 7)
(2) Cable tie with clamp
(3) Elbow connection
(4) Flange nut ................. 3.5 ± 0.5 Nm
(5) Retaining ring
(6) Lower suspension part
(7) Quick coupling
(8) Compressed-air hose between quick coupling (7) and air distributor (9)
(9) Air distributor
(10) Retaining ring
3.23 External compressed-air connection – removal and installation (delivery option)

**WARNING** Hydrostatic test!

Hydraulic test of the seat suspension should be performed upon installation of the external compressed-air connection. To do this, apply 60 kg load to the seat suspension for 24 hours. The lowering within this time must not exceed 15 mm.

1. Remove the seat (see Chapter 3.1).

2. Remove the bellows at the lower suspension part (6; see Chapter 3.4), push it upwards and fix it in this position.
3.23 External compressed-air connection – removal and installation (delivery option)

REMOVAL / INSTALLATION

3  ⚠️ WARNING!
Risk of crushing!

Move the seat suspension to the highest position and secure it between the swinging structure and the lower suspension part by means of suitable spacers.

4  ⚠️ WARNING! The pressure in the pneumatic system may cause injury!

The pneumatic system is to be vented before removing the external compressed-air connection.
3.23 External compressed-air connection – removal and installation (delivery option)

5 Press the retaining ring (5) of the quick coupling and pull the compressed-air hose (1) out of the quick coupling.
   **Installation note:**
   Completely push the compressed-air hose (1) with pressure into the quick coupling.

6 Press the retaining ring (10) of the quick coupling (7) and pull the compressed-air hose (8) out of the quick coupling.
   **Installation note:**
   Completely push the compressed-air hose (8) with pressure into the quick coupling.

7 Unscrew the flange nut (4) and remove the elbow connection (3) from the lower suspension part (6).
   **Installation note:**
   Flange nut (4), 3.5 ± 0.5 Nm.
3.23  External compressed-air connection – removal and installation
(delivery option)

8 Mark the point where the compressed-air hose (1) is attached to the swinging structure by means of a cable tie with clamp (2), remove the cable tie with clamp (2) and remove the compressed-air hose (1) from the seat suspension.

9 Check the compressed-air hose (1 and 8) for damage (scoring).

10 Compressed-air hose (1 or 8) with scoring:
   Cut off the compressed-air hose with a sharp knife in a clean and straight way directly behind the scoring.

Notes:
- After having cut it several times, make sure that the compressed-air hose is not bent or damaged by moving parts after laying.
3.23 External compressed-air connection – removal and installation (delivery option)

In such a case, the compressed-air hose has to be replaced.

11 Re-install the components in the reverse order of their removal.