TABLE OF CONTENTS

Preliminary remarks

1 Description
1.1 Safety instructions
1.2 Rating plate

2 Repair work
2.1 Backrest cushion – removal and installation
2.2 Seat cushion – removal and installation
2.3 Backrest extension with guide – removal and installation (optional extra)
2.4 Cover, right and left – removal and installation
2.5 Storage box – removal and installation (optional extra)
2.6 Armrests – removal and installation (optional extra)
2.7 Backrest frame with retaining spring – removal and installation
2.8 Belt roller and belt buckle – removal and installation
2.9 Seat heater switch – removal and installation
TABLE OF CONTENTS

2.10 Handle for backrest adjustment – removal and installation
2.11 Backrest lock – removal and installation of the entire assembly
2.12 Knob for lumbar support – removal and installation
2.13 Cable harness of the seat heater – removal and installation
2.14 Cable harness of the seat switch with switch mechanism – removal and installation
2.15 Seat switch housing – removal and installation
2.16 Seat fore/aft adjustment – removal and installation
2.17 Fore/aft isolator – removal and installation
2.18 Cover angle – removal and installation
2.19 Seat plate – removal and installation
Notes on these instructions

This repair manual includes information and instructions on how to perform repair work on the GRAMMER upper seat part of the following seat models:

- Upper seat part S511 (narrow seat cushion and short back),
- Upper seat part S511 (wide seat cushion and short back),
- Upper seat part S511 (wide seat cushion and long back).

The upper seat part S521 – in the following only referred to as seat – forms the basis for illustration in this repair manual. In the case of technical deviations in procedures (due to different seat models), refer to the current text or separate 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.

For spare part orders, please use the numbers stated in the latest issue of the relevant spare parts catalogue.
The description of the work steps refers to the dismounted seat. Depending on the individual installation situation, some work may also be performed while the seat remains installed. For this reason, check the environment of the installed seat for this possibility before starting work. The safety instructions of the specific vehicle manufacturers and those stated in chapter 1.1 of this repair manual must be strictly observed.

This repair manual also includes some information on optional extras, in case further explanation is required. Since the scope of delivery depends on the specific customer order, the actual seat design may deviate from the descriptions and illustrations in this manual.

If not stated otherwise, the directional indications "front, back" and "right, left" refer to the installed seat 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 about the seat**

Replace all existing 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.
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, gained through regular training. 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 or damage to the seat resulting from improperly performed work, all information and instructions, in particular the safety instructions stated in chapter 1.1, 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 a seat 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 seats 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.

GRAMMER AG Sitzsysteme · Postfach 14 54 · D-92204 Amberg
Phone +49 (0) 96 21 / 880-822 · Fax +49 (0) 96 21 / 880-474
www.grammer.com · GrammerHandel@grammer.com

Delivery and factory address:
GRAMMER AG Sitzsysteme
Köferinger Str. 9-13 · D-92245 Kümmersbruck
### TABLE OF CONTENTS

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 deterioration of material and their prevention.

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

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

4. Before starting repair work
   • disconnect the battery from the power supply,
   • disconnect the seat switch from the vehicle supply network,
   • for seats with integrated seat heater, disconnect the heater switch from the vehicle supply network.

5. 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 bottom of the cover angle. If a suspension is mounted, the rating plate is located on the suspension.

The rating plate shows the following information (example):

(A) BENENNUNG (DENOMINATION) = S521

(B) SACH-Nr. (INVENTORY No.) = 141 206

(C) Year / CW / Assembly
   = 0445 061
   • Year of manufacture = 04 (2004)
   • built in week = 45 (November)
   • Assembly = 061

(D) AUFTRAGS NR. (ORDER No.) = DE 42844300080

Note:
The inventory no. (B) is always to be quoted when orders are placed.

Note: The inventory no. (B) is always to be quoted when orders are placed.
# 2 Repair work

## TABLE OF CONTENTS

2.1 Backrest cushion – removal and installation  
2.2 Seat cushion – removal and installation  
2.3 Backrest extension with guide – removal and installation (optional extra)  
2.4 Cover, right and left – removal and installation  
2.5 Storage box – removal and installation (optional extra)  
2.6 Armrests – removal and installation (optional extra)  
2.7 Backrest frame with retaining spring – removal and installation  
2.8 Belt roller and belt buckle – removal and installation  
2.9 Seat heater switch – removal and installation  
2.10 Handle for backrest adjustment – removal and installation  
2.11 Backrest lock – removal and installation of the entire assembly  
2.12 Knob for lumbar support – removal and installation  
2.13 Cable harness of the seat heater – removal and installation  
2.14 Cable harness of the seat switch with switch mechanism – removal and installation
| 2.15 | Seat switch housing – removal and installation |
| 2.16 | Seat fore/aft adjustment – removal and installation |
| 2.17 | Fore/aft Isolator – removal and installation |
| 2.18 | Cover angle – removal and installation |
| 2.19 | Seat plate – removal and installation |
2.1 Backrest cushion – removal and installation

REMOVAL / INSTALLATION

TABLE OF CONTENTS

(1) Backrest cushion
(2) Backrest extension
(3) Backrest frame
(4) Backrest heater connector
(5) Heater cable
(6) Handle for backrest adjustment
(7) Hexagon socket screw with half round head....................... 2.5 Nm
(if fitted)
(8) Backrest cushion heater connector
(9) Hook (backrest cushion)
(10) Catcher (backrest cushion)
2.1 Backrest cushion – removal and installation

Removal and installation

1. Pull out the backrest extension (2) to the end position.

2. Fold the backrest frame (3) completely forward and remove the two hexagon socket screws with half round head bolt (7).

   **Installation note:**
   Hexagon socket screw with half round head (7), 2.5 Nm.

3. Release the two catchers (10). Use a screwdriver to press on the catchers (10) from below.

4. Fold up the backrest frame (3) and pull the backrest cushion (1) out in forward direction.
2.1 Backrest cushion – removal and installation

REMOVAL / INSTALLATION

5 Pull out the backrest cushion (1) from the longitudinal holes of the backrest frame (3) with the two hooks (9) in upward direction.

6 Disconnect the electrical connection between the backrest heater connector (4) and backrest cushion heater connector (8).

7 **WARNING** Take care with the backrest frame (3) - it may jerk forward and cause injury!
When the backrest cushion (1) has been removed, the backrest frame (3) must be supported, for example held in place, before the handle for backrest adjustment (6) is operated.

Remove the backrest cushion (1).

8 Re-install the components in the reverse order of their removal.
2.2 Seat cushion – removal and installation

(1) Backrest frame
(2) Handle for backrest adjustment
(3) Seat plate
(4) Hook (seat plate)
(5) Seat heater connector
(6) Seat cushion
(7) Seat cushion heater connector
(8) Holder (seat cushion)
(9) Catcher grip (seat cushion)
(10) End stop (cushion fixing) (if fitted)

1 Remove the backrest cushion (chapter 2.1).
2.2 Seat cushion – removal and installation

Removal

2 WARNING Take care with the backrest frame (1) - it may jerk forward and cause injury!
When the backrest cushion has been removed, the backrest frame (1) must be supported, for example held in place, before the handle for backrest adjustment (2) is operated.

Lock the backrest frame (1) into place in the front position.

3 Unhook the seat cushion (6) from the seat plate (3). First, pull the catcher grip (10) backwards and then upwards.
4 Grasp the seat cushion (6) on the front right and left side with both hands, press it downwards and pull it out in forward direction.

5 Disconnect the electrical connection between the seat heater connector (5) and seat cushion heater connector (7).

6 Take off the seat cushion (6).

**Installation**

1 Connect the seat heater connector (5) and seat cushion heater connector (7).
2. Place the seat cushion (6) onto the seat plate (3). Both holders (8) at the bottom of the seat cushion (6) must be situated at the height of the hooks (4) on the seat plate (3).

**Notes:**
- If the seat is equipped with a seat switch, make sure the springs and the switching bracket are in the correct position when installing the seat cushion (6) to guarantee the correct function of the seat switch (see chapter 2.14).
- If there is no seat switch, two stoppers (10) are attached to the two hooks (4) of the seat plate (3) for fixing the seat cushion (6).
3 Press down the front part of the seat cushion (6) on the left and right sides, and then slide it backwards with the two holders (8) onto the two hooks (4).

4 Press onto the middle part of the seat cushion (6) at the back until you hear the catcher grip (10) locking.

**Note:**
Check the function of the seat switch: Press onto the front left and right sides of the seat cushion (6) several times and check whether you hear an audible snap of the switch (see chapter 2.14).

5 Install the backrest cushion (chapter 2.1).
2.3 Backrest extension with guide – removal and installation (optional extra)

REMOVAL / INSTALLATION

(1) Backrest extension
(2) Washer
(3) Blind rivet
(4) Backrest frame
(5) Omega spring
........................ replace, if necessary
(6) Holder

1 Remove the backrest cushion (chapter 2.1).

2 Seat with a storage box:
Remove the storage box (chapter 2.5).
2.3 Backrest extension with guide – removal and installation (optional extra)

Removal and installation

3 Remove the backrest extension (1) by pulling it upwards over the end stop.

4 Bore out the four rivet heads and drive out the blind rivets (3), remove the washers (2).

5 Pull the holder (6) out of the backrest frame (4) in downward direction and then remove it.

6 Replace the omega spring (5) - if any:
   Remove two omega springs (5) from the holder (6).

7 Re-install the components in the reverse order of their removal.
2.4 Cover, right and left – removal and installation

REMOVAL / INSTALLATION

TABLE OF CONTENTS

(1) Left backrest fixture (seat plate)
(2) Left cover
(3) Left cap cover
(4) Belt roller
(5) Belt buckle
(6) Right cover
(7) Right cap cover
(8) Catcher
(9) Hexagon nut
(10) Armrest
(11) Right backrest fixture (seat plate)
(12) Hexagon nut
2.4 Cover, right and left – removal and installation

Removal and installation

1 Seat with armrests (10):
   Use a screwdriver to lever out the left cap cover (3) from the hexagon nut (9) and the right one (7) from the hexagon nut (12) and then remove them.
   **Installation note:**
   When attaching the cap cover (3 or 7), make sure the cap cover (3 or 7) sits on the hexagon nut (9 or 12).

2 Release the four catchers (8) of the left cover (2) from the imprints (arrows) on the backrest fixture (1) on the left.

3 Pull out the belt of the belt roller (4) through the notch (D) of the left cover (2) and remove the cover on the left side (2).
4 Release the four catchers (8) of the right cover (6) from the imprints on the backrest fixture (11) on the right side.

5 Pull the right cover (6) over the belt buckle (5) and remove it.

6 Replace the left (2) or right (6) cover, respectively:
   When replacing the left (2) or right (6) cover, break off the predetermined breaking points (A) for the armrest (10), (B) for the cap cover (3 or 7), (C) for the belt buckle (5) and (D) for the belt roller (4).

7 Re-install the components in the reverse order of their removal.
2.5 Storage box – removal and installation (optional extra)

REMOVAL / INSTALLATION

(1) Storage box
(2) Self-tapping screw ............ 1.6 Nm
(3) Backrest frame
Removal and installation

1. Open the storage box (1).

2. Undo the three self-tapping screws (2) and remove the storage box (1) from the backrest frame (3).
   **Installation note:**
   Self-tapping screw, 1.6 Nm.

3. Re-install the components in the reverse order of their removal.
2.6 Armrests – removal and installation (optional extra)

REMOVAL / INSTALLATION

<table>
<thead>
<tr>
<th></th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Remove the left and right covers (chapter 2.4).</td>
</tr>
<tr>
<td>2</td>
<td>Left backrest fixture (seat plate)</td>
</tr>
<tr>
<td>3</td>
<td>Hexagon nut</td>
</tr>
<tr>
<td>4</td>
<td>Left armrest</td>
</tr>
<tr>
<td>5</td>
<td>Washer</td>
</tr>
<tr>
<td>6</td>
<td>Hexagon nut</td>
</tr>
<tr>
<td>7</td>
<td>Belt roller</td>
</tr>
<tr>
<td>8</td>
<td>Washer</td>
</tr>
<tr>
<td>9</td>
<td>Hexagon nut</td>
</tr>
<tr>
<td>10</td>
<td>Right armrest</td>
</tr>
<tr>
<td>11</td>
<td>Right backrest fixture (seat plate)</td>
</tr>
<tr>
<td>12</td>
<td>Hexagon nut</td>
</tr>
</tbody>
</table>

Tightening torques:
- Hexagon nut: 11 Nm
2.6 Armrests – removal and installation (optional extra)

Removal and installation

2. Loosen the belt roller (6) to remove the left armrest (3) (see chapter 2.8).  
   **Note:**  
   Loosen the belt roller (6) by turning the hexagon nut not more than twice, otherwise the seat cushion has to be removed to secure the hexagon bolt.  
   **Installation note:**  
   Tighten the belt roller (6) after the left armrest (3) has been replaced.

3. Undo the hexagon nut (5 or 8) and remove the washer (4 or 7).  
   **Installation note:**  
   Hexagon nut (5 or 8), 11 Nm.

4. Remove the left (3) or right (9) armrest from the hexagon nut (2 or 11).
2.6 Armrests – removal and installation (optional extra)

REMOVAL / INSTALLATION

Note:
The hexagon nut (2 or 11) acts as anti-rotation device and guide for the left (3) or right (9) armrest.

Installation note:
The two big punched triangles on the lower longitudinal hole of the left (3) or right (9) armrest mark the lock-in position for the middle screw position. When screwing, the marking should be located on the fixture of the backrest frame (1 or 10) at the height of the nose (arrow). Two further lock-in positions upwards and downwards are possible.
If the belt roller (6) is fitted, do not install the armrest in the lowest position as otherwise the belt roller might not function correctly.
Carry out a functional test of the belt roller.

5 Re-install the components in the reverse order of their removal.
2.7 Backrest frame with retaining spring – removal and installation

REMOVAL / INSTALLATION

TABLE OF CONTENTS

(1) Backrest frame
(2) Flange bolt ...................... 25 Nm
(3) Bushing ............................. grease
(4) Left backrest fixture (seat plate)
(5) Flange nut
(6) Right backrest fixture (seat plate)
(7) Retaining spring ..................... grease
(8) Cap
2.7 Backrest frame with retaining spring – removal and installation

REMOVAL / INSTALLATION

1 Remove the backrest cushion (chapter 2.1).

2 Remove the seat cushion (chapter 2.2).

3 Remove the backrest extension (see chapter 2.3).

4 Remove the left and right covers (chapter 2.4).

5 Seat with armrests:
   Remove the armrests (chapter 2.6).
   **Installation note:**
   If the belt roller is fitted, do not install the armrest in the lowest position as otherwise the belt roller might not function correctly.

6 Remove the seat heater switch (chapter 2.9).

7 Dismount the cable harness of the seat heater from backrest frame (1) (see chapter 2.13).
Removal and installation

8 Fold the backrest frame (1) completely forwards to release the retaining spring (7).

9 Lift the cap (8) from the right flange bolt (2).

10 Undo the two flange bolts (2) and take off the flange nuts (5).

**Installation notes:**
- Flange bolt (2), 25 Nm.
- The flange nut (5) acts as anti-rotation device and guide for the armrest (see chapter 2.6). When tightening the flange bolt (2), the flange nut (5) must be held in such a way that two opposite outer surfaces of the flange nut (5) are located vertically.
2.7 Backrest frame with retaining spring – removal and installation

REMOVAL / INSTALLATION

11 Slightly press the backrest frame (1) against the right backrest fixture (6) and simultaneously lever it out from the left backrest fixture (4) in upward direction, and then remove it.

**Installation note:**
When hanging in the backrest frame (Fig. A/1), make sure the cam (arrow) is located over the hook of the retaining spring (Fig. A/7).

12 Remove the two bushings (3) from the left (4) and right (6) backrest fixture.

**Installation note:**
Apply acid-free multi-purpose lubricant to the entire surface (F) of the bushing (3).
2.7 Backrest frame with retaining spring – removal and installation

REMOVAL / INSTALLATION

13 Remove the retaining spring (7) from the right backrest fixture (6).

**Installation notes:**
- Apply acid-free multi-purpose lubricant to the entire outer surface (F) of the retaining spring (Fig. B/7).
- Place the slightly tensioned retaining spring (Fig. B/7) onto the three punched noses of the backrest fixture (Fig. B/6), the hook of the retaining spring must show backwards (Fig. B/7).

14 Re-install the components in the reverse order of their removal.
2.8 Belt roller and belt buckle – removal and installation

(1) Left backrest fixture (seat plate)
(2) Hexagon bolt
(3) Belt roller
(4) Hexagon nut ................. 50 Nm
(5) Hexagon nut ................. 50 Nm
(6) Belt buckle
(7) Hexagon bolt

1 Remove the backrest cushion (chapter 2.1).
2 Remove the seat cushion (chapter 2.2).
3 Remove the left and right covers (chapter 2.4).
2.8 Belt roller and belt buckle – removal and installation

Removal and installation

4 Unscrew the hexagon nut (4).

**Installation note:**
Hexagon nut (4), 50 Nm.

5 Pull out the hexagon bolt (2) and take off the belt roller (3).

**Installation notes:**
- The rivet (arrow) at the backrest fixture (1) must be plugged into the hole at the belt roller (3).
- When subsequently installing the belt roller (3), the respective predetermined breaking point of the left cover is to be broken (see chapter 2.4).
- If the belt roller (3) is fitted, do not install the armrest in the lowest position as otherwise the belt roller might not function correctly.

6 Unscrew the hexagon nut (5).

**Installation note:**
Hexagon nut (5), 50 Nm.
7 Pull out the hexagon bolt (7) and take off the belt buckle (6).

**Installation notes:**
- Turn the belt buckle (6) to the correct position before tightening the hexagon nut (5) for the belt buckle (6) to pass through the cover hole (see chapter 2.4).
- When subsequently installing the belt buckle (6), the respective predetermined breaking point of the right cover is to be broken (see chapter 2.4).

8 Re-install the components in the reverse order of their removal.
2.9 Seat heater switch – removal and installation

REMOVAL / INSTALLATION

- Backrest frame
- Seat heater switch
- Connector
- Connector, single-core (24V, serial)
- Connector, double-core (12V, parallel)
- Cable harness of the seat heater

Connecting data:

<table>
<thead>
<tr>
<th>Vehicle connection</th>
<th>12V DC</th>
<th>24V DC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cable harness of the seat heater (6), serial connection (Fig. A/4)</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Cable harness of the seat heater (6), parallel connection (Fig. B/5)</td>
<td>X</td>
<td>--</td>
</tr>
<tr>
<td>Upholstery 12V Seat</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Upholstery 12V Back</td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>
2.9 Seat heater switch – removal and installation

1. Remove the backrest cushion (chapter 2.1).

Removal and installation

2. Disconnect the connector (3) and single-core connector (Fig. A/4) or double-core connector (Fig. B/5) from the seat heater switch (2).

3. Compress the two springs (arrows) of the seat heater switch (2) and pull the seat heater switch (2) out from backrest frame (1).

4. Re-install the components in the reverse order of their removal.
2.10 Handle for backrest adjustment – removal and installation

REMOVAL / INSTALLATION

(1) Handle for backrest adjustment .................................................. replace

(2) Actuator lever

(3) Loop for backrest adjustment
   (special design: seat type S511)

(4) Actuator lever
   (special design: seat type S511)

1 Remove the backrest cushion
   (chapter 2.1).

2 Remove the seat cushion (chapter 2.2).
2.10 Handle for backrest adjustment – removal and installation

Removal and installation

3 Seat types S521 and S522 with a wide cushion:
Firmly grasp the handle for backrest adjustment (1) and pull it off the actuator lever (2).

Installation notes:
- The handle for backrest adjustment (1) is wedged on the actuator lever (2) and will be damaged while pulling it off. The handle for backrest adjustment (1) must always be replaced by a new one.
- The handle for backrest adjustment (1) must be slid on the actuator lever (2) until the end stop is reached (arrows).
4 Special design: seat type S511 with a narrow cushion:
Thread the loop for backrest adjustment (3) from the actuator lever (4).

5 Re-install the components in the reverse order of their removal.
2.11 Backrest lock – removal and installation of the entire assembly

REMOVAL / INSTALLATION

(1) Left backrest fixture (seat plate)
(2) Micro-encapsulated hexagon bolt ........................................replace, 25 Nm
(3) Actuator lever
(4) Handle for backrest adjustment
(5) Backrest frame
(6) Tooth-sheet ...........................................grease
(7) Hexagon nut

1 Remove the backrest cushion (chapter 2.1).

2 Remove the seat cushion (chapter 2.2).
3 Remove the left cover (see chapter 2.4).

4 Remove the belt roller (see chapter 2.8).

Removal and installation

5 **WARNING** Take care with the backrest frame (5) - it may jerk forward and cause injury!

When the backrest cushion has been removed, the backrest frame (5) must be supported, for example held in place, before the handle for backrest adjustment (4) is operated.

Unlock the backrest frame (5) by pulling the handle for backrest adjustment (4) and fold it completely forwards.
2.11 Backrest lock – removal and installation of the entire assembly

REMOVAL / INSTALLATION

6 Undo the micro-encapsulated hexagon bolt (2) and take off the hexagon nut (7).

**Installation note:**
Replace the micro-encapsulated hexagon bolt (2) by a new one, 25 Nm.

7 Remove the tooth-sheet (6).

**Installation notes:**
- Apply acid-free multi-purpose lubricant to the entire inner surface (F) of the tooth-sheet (6).
- The control lug (arrow) on the tooth-sheet (6) must show to the backrest fixture on the left (1).

8 Pull out the actuator lever (3) with the handle for backrest adjustment (4) from the left backrest fixture (1).
2.11 Backrest lock – removal and installation of the entire assembly

9 If the handle for backrest adjustment (4) is defective:
   Remove the handle for backrest adjustment (4) (chapter 2.10).

10 Re-install the components in the reverse order of their removal.
2.12 Knob for lumbar support – removal and installation

REMOVAL / INSTALLATION

(1) Fixture (backrest frame)
(2) Toothed wheel
(3) Knob for lumbar support
(4) Micro-encapsulated cap screw ....................... replace, 6 Nm
# 2.12 Knob for lumbar support – removal and installation

## REMOVAL / INSTALLATION

### Removal and installation

1. Turn the knob for lumbar support (3) to the normal position (horizontal).

2. Undo the micro-encapsulated cap screw (4) and remove the knob for lumbar support (3) from the fixture (1).

   **Installation note:**
   Replace the micro-encapsulated cap screw (4) by a new one, 6 Nm.

3. Pull out the toothed wheel (2) from the knob for lumbar support (3).

   **Installation note:**
   When fitting the toothed wheel (2) in the knob for lumbar support (3), the two spaces with the missing tooth (arrow) must be positioned exactly on top of each other.

4. Re-install the components in the reverse order of their removal.
2.13 Cable harness of the seat heater – removal and installation

REMOVAL / INSTALLATION

(1) Backrest frame
(2) Seat plate
(3) Connector for the cable harness of the seat heater
(4) Cable tie
(5) Connector for the cable harness of the seat switch
(6) Cap
(7) Cable harness of the seat heater
(8) Leaf spring (lumbar support)
(9) Cable tie

1 Remove the backrest cushion (chapter 2.1).

2 Remove the seat cushion (chapter 2.2).
2.13 Cable harness of the seat heater – removal and installation

Removal and installation

3 Disconnect the electrical connection between the connector and seat heater connector (see chapter 2.9).

4 Mark the points where the cable harness of the seat heater (7) is secured to the leaf spring (8) with a cable tie (9) and remove the cable tie (9).

5 Disconnect the electrical connection between the connector for the cable harness of the seat heater (3) and the connector for the cable harness of the seat switch (5).

Note:
The cable tie (4) with which the connector for the cable harness of the seat switch (5) is secured to the seat plate (2) does not have to be removed for that.
6 Mark the installation position for the cable harness of the seat heater (7) between the leaf spring (8) and the backrest frame (1) and pull out and remove the cable harness of the seat heater (7).

**Installation notes:**
- Install the cable harness of the seat heater (7) according to the marking.
- With a new cable harness for the seat heater (7), make sure that it fits to the voltage applied to the vehicle (see chapter 2.9).
- During installation, make sure that after having installed the seat cushion (see chapter 2.2), the cable harness for the seat heater (7) runs to the back (arrow) below the cap (6).

7 Re-install the components in the reverse order of their removal.
2.14 Cable harness of the seat switch with switch mechanism – removal and installation

REMOVAL / INSTALLATION

(1) Backrest frame
(2) Seat plate
(3) Compression spring
(4) Switching bracket
(5) Seat switch housing
(6) Cover
(7) Cable tie
(8) Switch plate
(9) Blind rivet
(10) Cable harness of the seat switch
(11) Seat switch
(12) Bushing
(13) Blind rivet
(14) Anchor tie
(15) Adapter cable
(16) Cable tie
(17) Connector for the cable harness of the seat switch
2.14 Cable harness of the seat switch with switch mechanism – removal and installation

REMOVAL / INSTALLATION

1. Remove the backrest cushion (chapter 2.1).

2. Remove the seat cushion (chapter 2.2).

Removal and installation

3. Unhook the switching bracket (4) from the seat plate (2). Press the switching bracket (4) slightly to the right, and then take it off the seat plate (2) in upward direction, by simultaneously pulling it out from the left and then from the right side. Subsequently, remove the switching bracket.

**Installation note:**
The switching bracket (4) must seat on the two compression springs (3) to guarantee the correct switching function of the seat switch (11).

4. Pull off the two compression springs (3) from the bushings (12).
5 Bore out the two rivet heads and drive out the blind rivets (13). Remove the two bushings (12).

6 **If the switch plate (8) is defective:**
   Bore out the rivet head and drive out the blind rivet (9). Remove the switch plate (8).

7 Remove the cover (6) from the seat switch housing (5). To do this, press down the catchers (arrow) on the seat switch housing (5), push the cover (6) forwards over the catcher and remove it in upward direction.

8 Pull out the seat switch (11) from the seat switch housing (5) and lay it down on the seat plate (2).
9 Mark the places where the cable harness of the seat switch (10) is fixed to the seat plate (2) with four cable ties (7) and remove the cable ties (7).

**Installation note:**
The locking heads of the cable ties (7) must be tightened outside the seat plate (2).

10 Mark the points where the connector for the cable harness of the seat switch (17) is secured to the seat plate (2) with a cable tie (16) and remove the cable tie (16).

11 Disconnect the electrical connection between the connector for the cable harness of the seat switch (17) and the connector for the cable harness of the seat heater (see chapter 2.13).
2.14 Cable harness of the seat switch with switch mechanism – removal and installation

REMOVAL / INSTALLATION

12 Pull out the two anchor ties (14) from the seat plate (2) and remove the anchor ties (14).

13 Pull out the cable harness with the seat switch (10) in forward direction between the seat plate (2) and backrest frame (1) and then remove it.

**Installation note:**
When installing the cable harness with seat switch (10), do not expose it to impacts.

14 **Model with an adapter cable (15):**
Disconnect the electrical connection between the adapter cable (15) and the cable harness with seat switch (10).

15 Re-install the components in the reverse order of their removal.
(1) Seat plate
(2) Seat switch housing
(3) Expanding rivet  
........................ replace, if necessary
(4) Hexagon socket screw

1 Remove the backrest cushion (chapter 2.1).

2 Remove the seat cushion (chapter 2.2).

3 Remove the cover and seat switch from the seat switch housing (2) (see chapter 2.14).

Note: The switch plate on the seat plate (1) need not be removed.

4 Remove the seat fore/aft adjustment (chapter 2.16).
5 Remove the fore/aft isolator (chapter 2.17).

6 Remove the covering angle (chapter 2.18).

**Removal and installation**

7 Knock out the expanding rivet (3) from the seat switch housing (2) with a suitable mandrel. **Installation note:** Replace the expanding rivet (3) by a new one if it is deformed.

8 Undo the hexagon socket screw (4) from the seat switch housing (2).

9 Remove the seat switch housing (2).

10 Re-install the components in the reverse order of their removal.
2.16 Seat fore/aft adjustment – removal and installation

REMOVAL / INSTALLATION

TABLE OF CONTENTS

(1) Seat plate
(2) Plate (fore/aft isolator)
(3) Adjusting rail
(4) Washer
(5) Micro-encapsulated hexagon nut
.................................replace, 25 Nm
(6) Covering angle
(7) Fore/aft isolator
(8) Entire adjusting rail assembly
(9) Micro-encapsulated cap screw
.................................replace, 25 Nm
(10) Flange nut
(11) Flange nut
(12) Micro-encapsulated cap screw
.................................replace, 25 Nm
Removal and installation

1 Delivery option with a fore/aft isolator:
1.1 Undo the four micro-encapsulated hexagon nuts (5) from the fore/aft isolator (7) and remove the micro-encapsulated hexagon nuts (5) with the washers (4).

Installation note:
Replace the micro-encapsulated hexagon nut (5) by a new one, 25 Nm.

1.2 Remove the adjusting rail (3) and the entire adjusting rail assembly (6).

1.3 Remove the plate (2) or tighten it provisorily against falling.
2.16 Seat fore/aft adjustment – removal and installation

REMOVAL / INSTALLATION

2 Delivery option without a fore/aft isolator:

2.1 Remove the backrest cushion (chapter 2.1).

2.2 Remove the seat cushion (chapter 2.2).

2.3 Unscrew the two micro-encapsulated cap screws (9) and remove them with the flange nuts (10).

**Installation note:**
Replace the micro-encapsulated cap screw (9) by a new one, 25 Nm.

2.4 Remove the cover angle (6) from the seat plate (1) (see chapter 2.18).
2.16 **Seat fore/aft adjustment – removal and installation**

REMOVAL / INSTALLATION

2.5 Unscrew the two micro-encapsulated cap screws (12) and remove them with the flange nuts (11).

**Installation note:**
Replace the micro-encapsulated cap screw (12) by a new one, 25 Nm.

2.6 Remove the adjusting rail (3) and the entire adjusting rail assembly (6).

3 Re-install the components in the reverse order of their removal.
2.17 Fore/aft isolator – removal and installation

REMOVAL / INSTALLATION

(1) Seat plate
(2) Cover angle
(3) Fore/aft isolator
(4) Micro-encapsulated hexagon nut ................................ replace, 25 Nm
(5) Plate
(6) Micro-encapsulated hexagon nut ................................ replace, 25 Nm
(7) Washer

1 Remove the backrest cushion (chapter 2.1).

2 Remove the seat cushion (chapter 2.2).

3 Remove the seat fore/aft adjustment (chapter 2.16).
2.17 Fore/aft isolator – removal and installation

Removal and installation

4 Remove the plate (5) from the fore/aft isolator (3).

5 Undo the two micro-encapsulated hexagon nuts (4) from the fore/aft isolator (3) and remove the micro-encapsulated hexagon nuts (4) with the washers (7).

**Installation note:**
Replace the micro-encapsulated hexagon nut (4) by a new one, 25 Nm.

6 Remove the cover angle (2) from the seat plate (1) (see chapter 2.18).
7 Undo the two micro-encapsulated hexagon nuts (6) from the fore/aft isolator (3).

**Installation note:**
Replace the micro-encapsulated hexagon nut (6) by a new one, 25 Nm.

8 Remove the fore/aft isolator (3).

9 Re-install the components in the reverse order of their removal.
2.18 Cover angle – removal and installation

REMOVAL / INSTALLATION

(1) Seat plate
(2) Cover angle
(3) Micro-encapsulated cap screw ................................ replace, 25 Nm
(4) Flange nut

1  Remove the backrest cushion  
   (chapter 2.1).

2  Remove the seat cushion (chapter 2.2).
Removal and installation

3 Delivery option with a fore/aft isolator:

3.1 Remove the seat fore/aft adjustment (chapter 2.16).

3.2 Uninstall the fore/aft isolator from the seat plate (1) (see chapter 2.17).

3.3 Unscrew the two micro-encapsulated cap screws (3) and remove them with the flange nuts (4).

**Installation note:**
Replace the micro-encapsulated cap screw (3) by a new one, 25 Nm.

3.4 Remove the cover angle (2) from the fore/aft isolator (see chapter 2.17).

3.5 Remove the cover angle (2).
2.18 **Cover angle – removal and installation**

**REMOVAL / INSTALLATION**

**4 Delivery option without a fore/aft isolator:**

4.1 Remove the adjusting rail and entire adjusting rail assembly from the seat plate (1) (see chapter 2.16).

4.2 Unscrew the two micro-encapsulated cap screws (3) and remove them with the flange nuts (4).

**Installation note:**
Replace the micro-encapsulated cap screw (3) by a new one, 25 Nm.

4.3 Remove the cover angle (2) from the adjusting rail and entire adjusting rail assembly (see chapter 2.16).

4.4 Remove the cover angle (2).

5 Re-install the components in the reverse order of their removal.
2.19 Seat plate – removal and installation

REMOVAL / INSTALLATION

(1) Seat plate
(2) End stop

1 Remove the backrest cushion (chapter 2.1).

2 Remove the seat cushion (chapter 2.2).

3 Remove the left and right covers (chapter 2.4).

4 Seat with armrests:
   Remove the armrests (chapter 2.6).

5 Remove the backrest frame with retaining spring (chapter 2.7).

6 Remove the belt roller and belt buckle (chapter 2.8).
2.19 Seat plate – removal and installation

7 Remove the backrest lock completely (chapter 2.11).

8 Remove the cable harness of the seat switch with switch mechanism (chapter 2.14).

9 Remove the seat switch housing (chapter 2.15).

10 Remove the seat fore/aft adjustment (chapter 2.16).

11 **Seat with a fore/aft isolator:**
   Remove the fore/aft isolator (chapter 2.17).

12 Remove the cover angle (chapter 2.18).
Removal and installation

13 Seat without a seat switch:
   Remove the two end stops (2) from the hooks of the seat plate (1).

14 Take off the seat plate (1).

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