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- 3.11 Bowden pull wires and handle for height adjustment – removal and installation
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This repair manual includes information and instructions on how to perform repair work on the MSG 95A(L) suspension of the following seat models:

- suspension system with height and vertical shock absorber adjustment on the left side and
- suspension for the hose system with quick fasteners and hose clamps.

The diagnosis of the entire seat assembly and repair of the upper part of the seat is described in the repair manual for the upper part of the seats S721-S742, to which a reference is made, if required.

Example: Remove the upper part of the seat (see repair manual for the upper seat part).

The suspension with height adjustment and vertical shock absorber adjustment on the left side including a hose system with quick fasteners and hose clamps forms the basis for illustration in this repair manual. Deviations from the standard work steps are described in the associated text passages or in 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 these 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.

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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 seat and upper seat part in a disassembled condition. Depending on the individual installation position, 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 notes of the specific vehicle manufacturers and those stated in Chapter 1 of this repair manual must be strictly observed.

This repair manual also includes some information on special seat versions, if these require further explanation. Since the scope of delivery depends on the specific customer order, the actual seat equipment 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 forward travel direction of the vehicle.

The document layout is suitable for later use of this repair manual via CD-ROM / INTERNET / INTRANET. For this reason a navigation line has been added beneath the title. This navigation line includes some chapter titles and it allows the user to jump directly to these chapters after the corresponding hyperlinks have been set.

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**Basic information about the seat**

The seat 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 multiple-purpose lubricant.

Bowden pull wires must be fixed with cable ties to the defined spots only by hand (loose). Make sure that in the case of seat adjustment, the Bowden pull wires cannot be squeezed or distorted when the seat is moved.

After removal, all parts must be cleaned and checked for their suitability for re-use. Defective parts and worn parts must be replaced.

The company GRAMMER rejects any warranty claims, if damaged or worn parts and assemblies are not replaced by spare parts released by GRAMMER.

Qualified personnel

These installation 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.

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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 notes 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 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.

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.

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1 Description

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- 1.1 Safety notes
- 1.2 Rating plate

Note:

Please refer to the applicable seat operation manual for further details.

1.1 Safety notes

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- 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 any repair work
 - disconnect the battery from power supply and
 - move the seat down to the limit stops.
- 5 When using oil, grease and other chemical substances, the relevant safety regulations for the handling and use of these materials must be observed.

1.2 Rating plate

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The rating plate is fixed on the back of the seat frame.

The rating plate shows the following information (example):

(A) **DESIGNATION** = MSG95A(L)

(B) **INVENTORY NO.** = 140 534

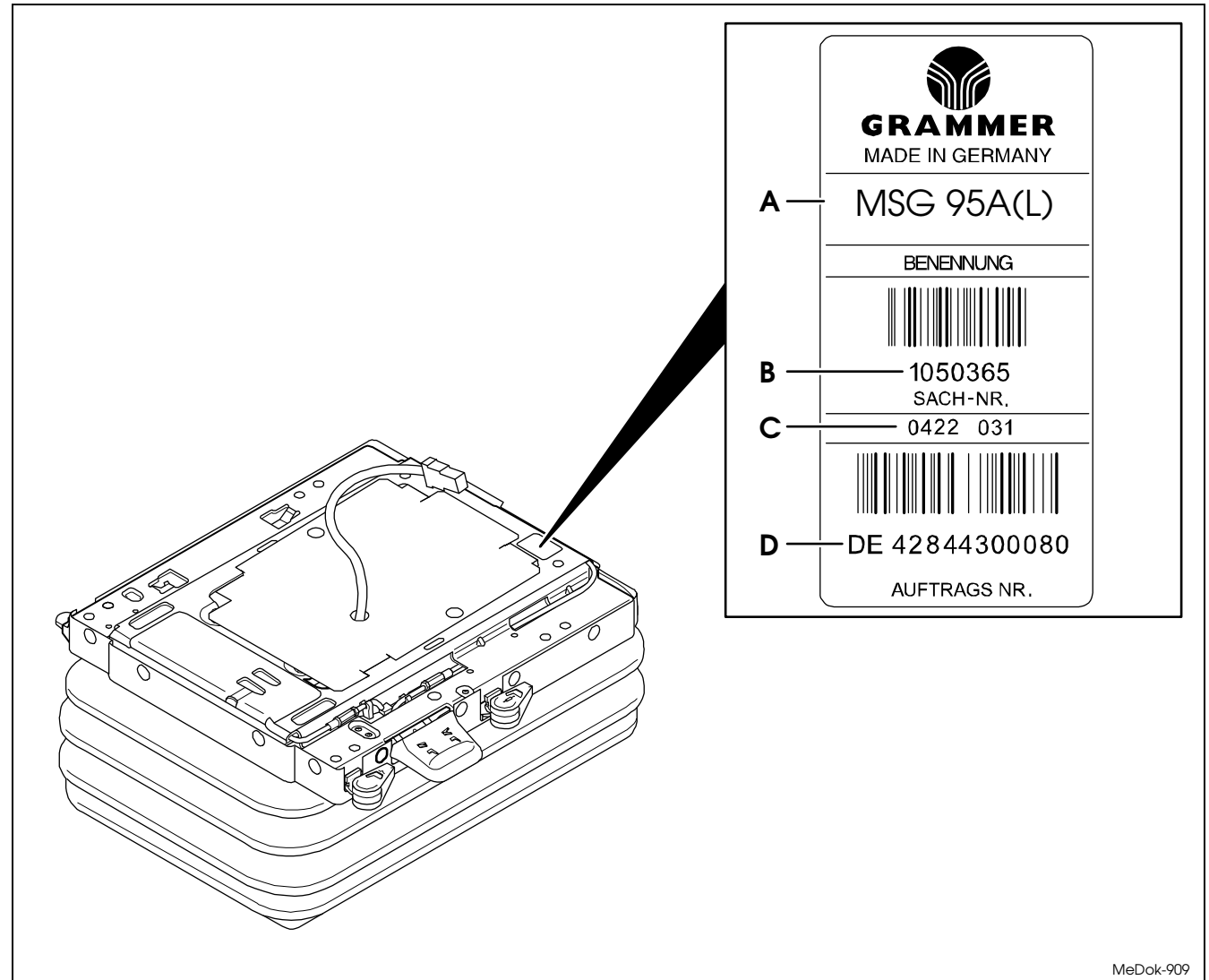
(C) **YEAR / CW / Assembly**
 = 0422 031

- year of manufacture = 04 (2004)
- built in week = 22 (May)
- assembly = 031

(D) **ORDER NO.** = DE 42844300080

Note:

The inventory no. is always to be quoted when orders are placed.



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2.1 Overview of components

- Compressor / Height level control (page 1)
- Pneumatic connecting diagram (hose system with quick fasteners) (page 2)
- Pneumatic connecting diagram (hose system with clamps) (page 4)
- Vehicle power supply cable / connecting cables (page 5)

2.2 Functional test – Testing the specified status of functions

2.3 Overview of faults – Pointing out possible faults that might occur

- Seat does not respond after operating the seat height adjustment in upward direction (page 1)
- Seat does not respond when operating the seat height adjustment in downward direction (page 1)
- After the height adjustment, the seat lowers for at least 30 mm, but continues to vent automatically after unloading the seat (driver gets off the seat (page 1)
- Seat responds after the height adjustment has been operated, but then returns to its original position (page 2)
- Seat changes its position while driving, vents and lowers down (page 2)
- Seat can be set to the highest position and does not vent anymore (page 3)
- Seat can be lowered, but does not pump up in the lowest position despite of the handle pulled upwards (page 3)
- Height adjustment upwards: compressor runs, but seat is not lifted (page 3)
- Seat moves up automatically (compressor does not switch off) (page 3)
- Compressor starts (page 3)
- Compressor is not active (page 4)



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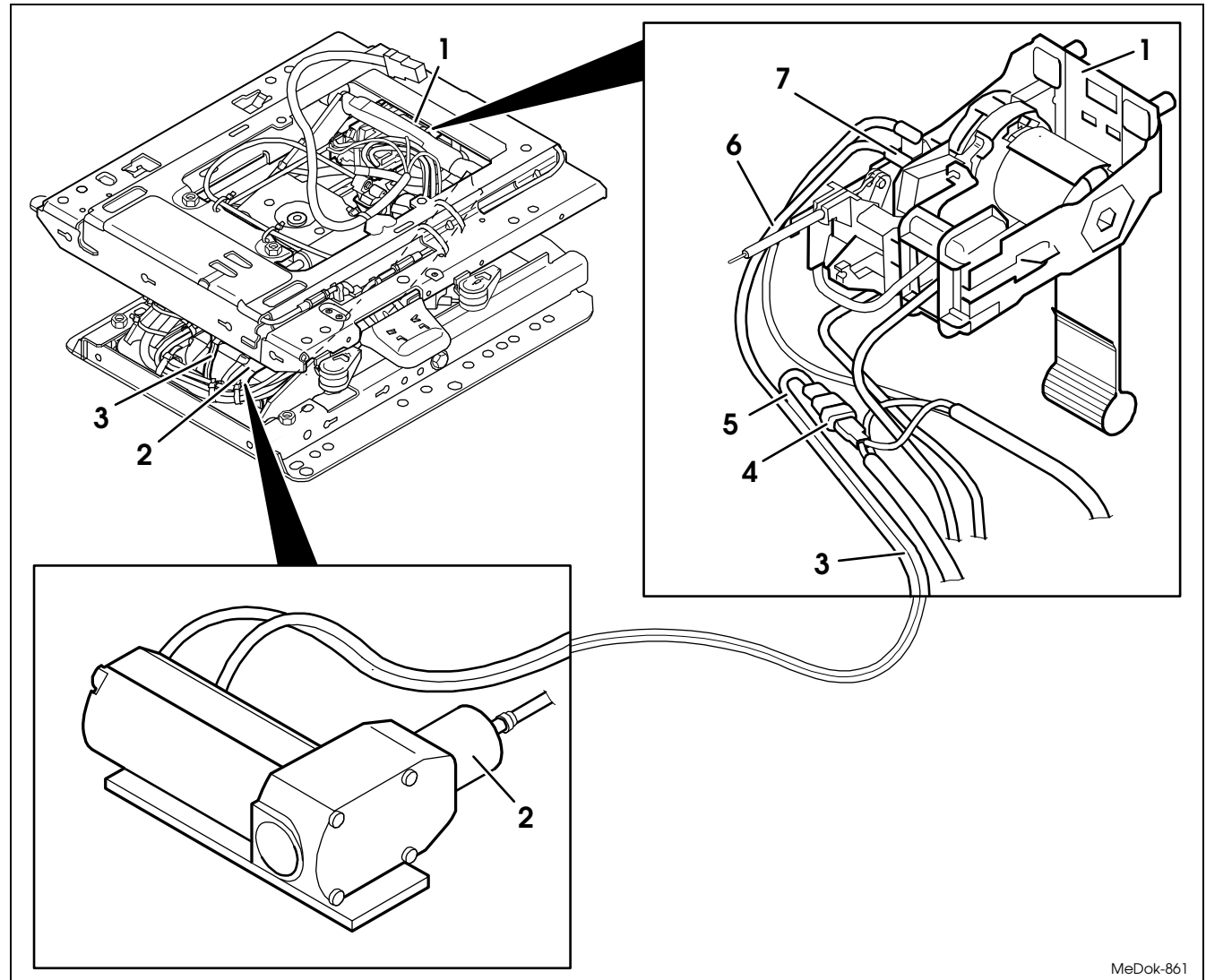
2.4 Fault diagnosis – Locating the fault

- 1 Checking the compressor (page 1)
- 2 Checking the height level control (page 3)
- 3 Checking the pneumatic spring (page 5)
- 4 Checking the cable of the vehicle power connector / connector plug (page 6)

2.1 Overview of components

Compressor / Height level control:

- (1) Height level control
- (2) Compressor
- (3) Compressor cable
- (4) Flat plug
- (5) Compressor power cable
- (6) Power cable of the transparent right-angle plug (1-pin)
- (7) Right-angle plug (transparent)



MeDok-861

2.1 Overview of components



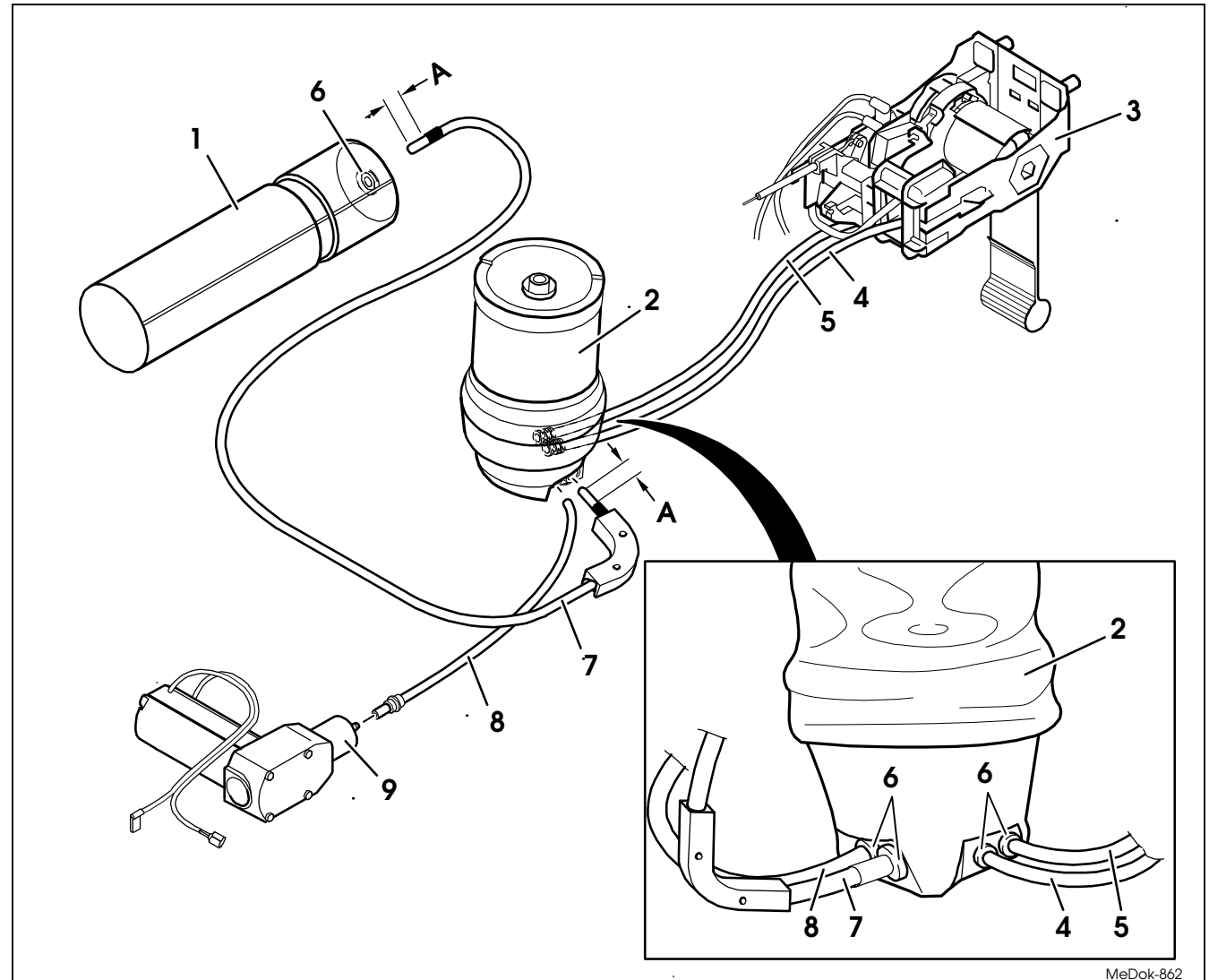
Pneumatic connecting diagram (hose system with quick fasteners):

- (1) Air tank (additional air supply)
- (2) Pneumatic spring
- (3) Height level control
- (4) Air intake hose
- (5) Air intake hose
- (6) Retaining ring of the quick coupling



WARNING of damage!

Please pay attention to the notes given in Chapter 3.10 when pulling the hoses out of the retaining rings of the quick coupling!



MeDok-862

2.1 Overview of components

- (7) Air hose with elbow piece

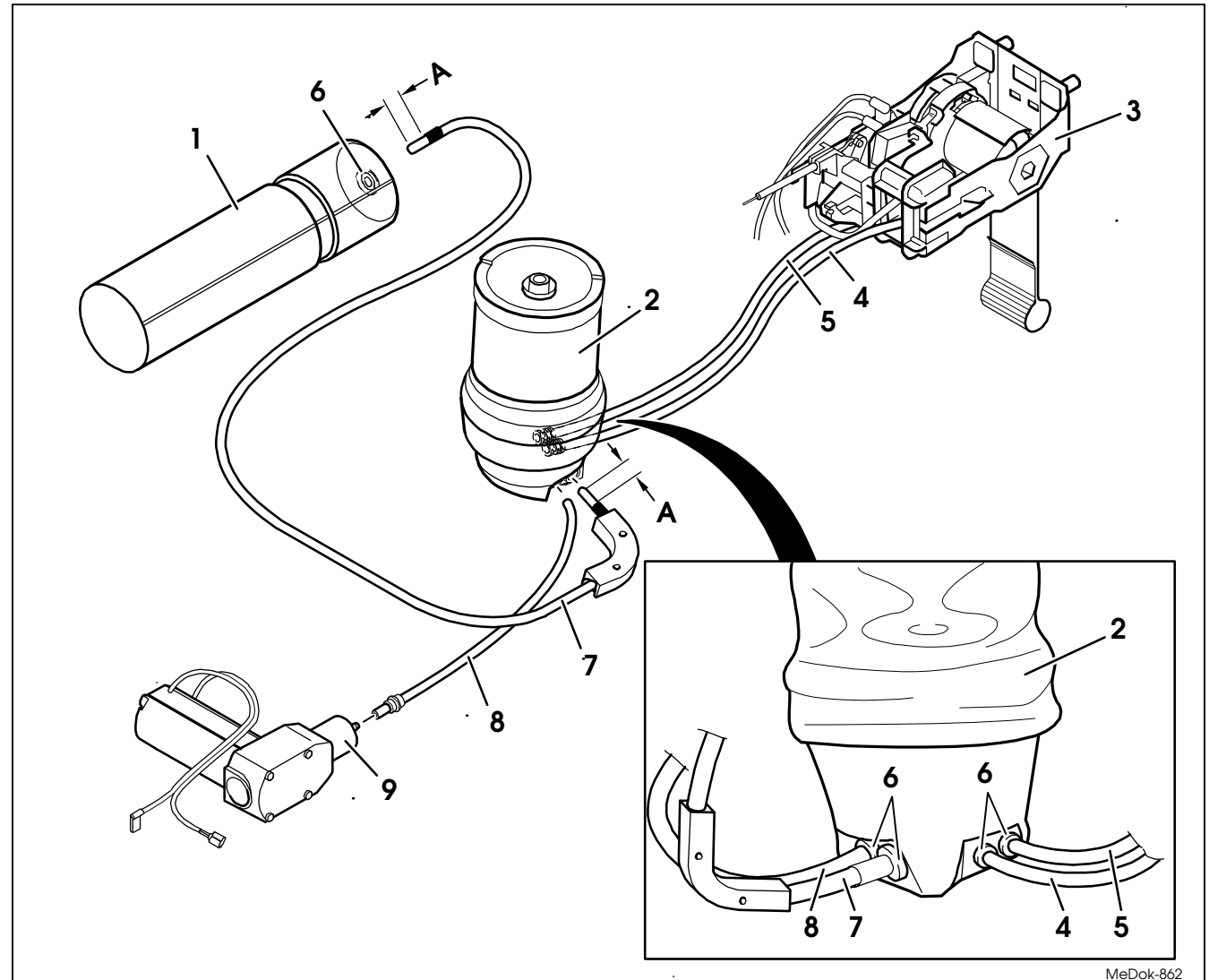
Note:

The blue marking indicates the length to be inserted into the air tank (1) and the pneumatic spring (2).

Insert length: A = 17 mm.

- (8) Compressed-air hose

- (9) Compressor



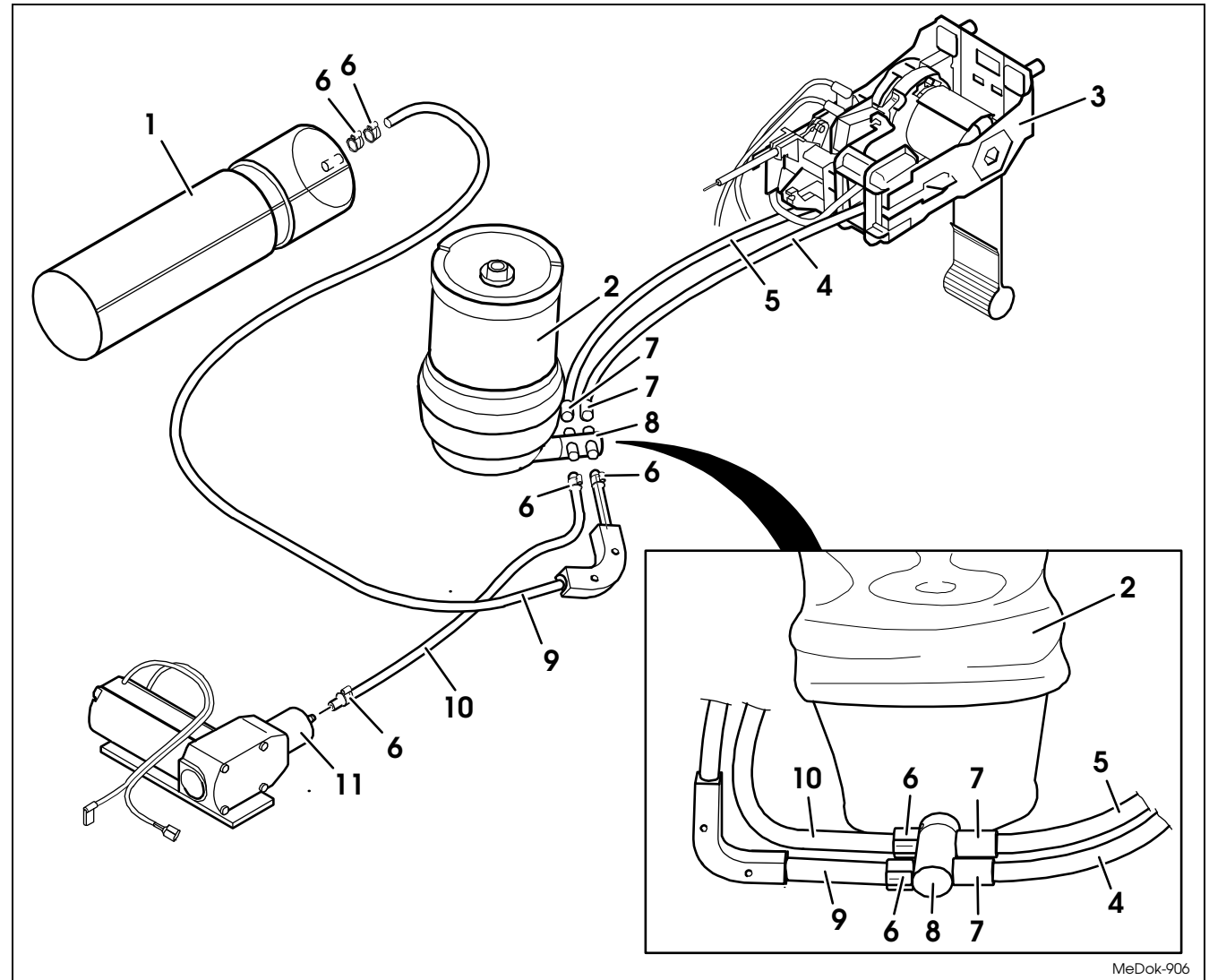
MeDok-862

2.1 Overview of components



Pneumatic connecting diagram (hose system with clamps):

- (1) Air tank (additional air supply)
- (2) Pneumatic spring
- (3) Height level control
- (4) Air intake hose
- (5) Air intake hose
- (6) Hose clamp
- (7) Nozzle
- (8) Sleeve
- (9) Air hose with elbow piece
- (10) Compressed-air hose
- (11) Compressor

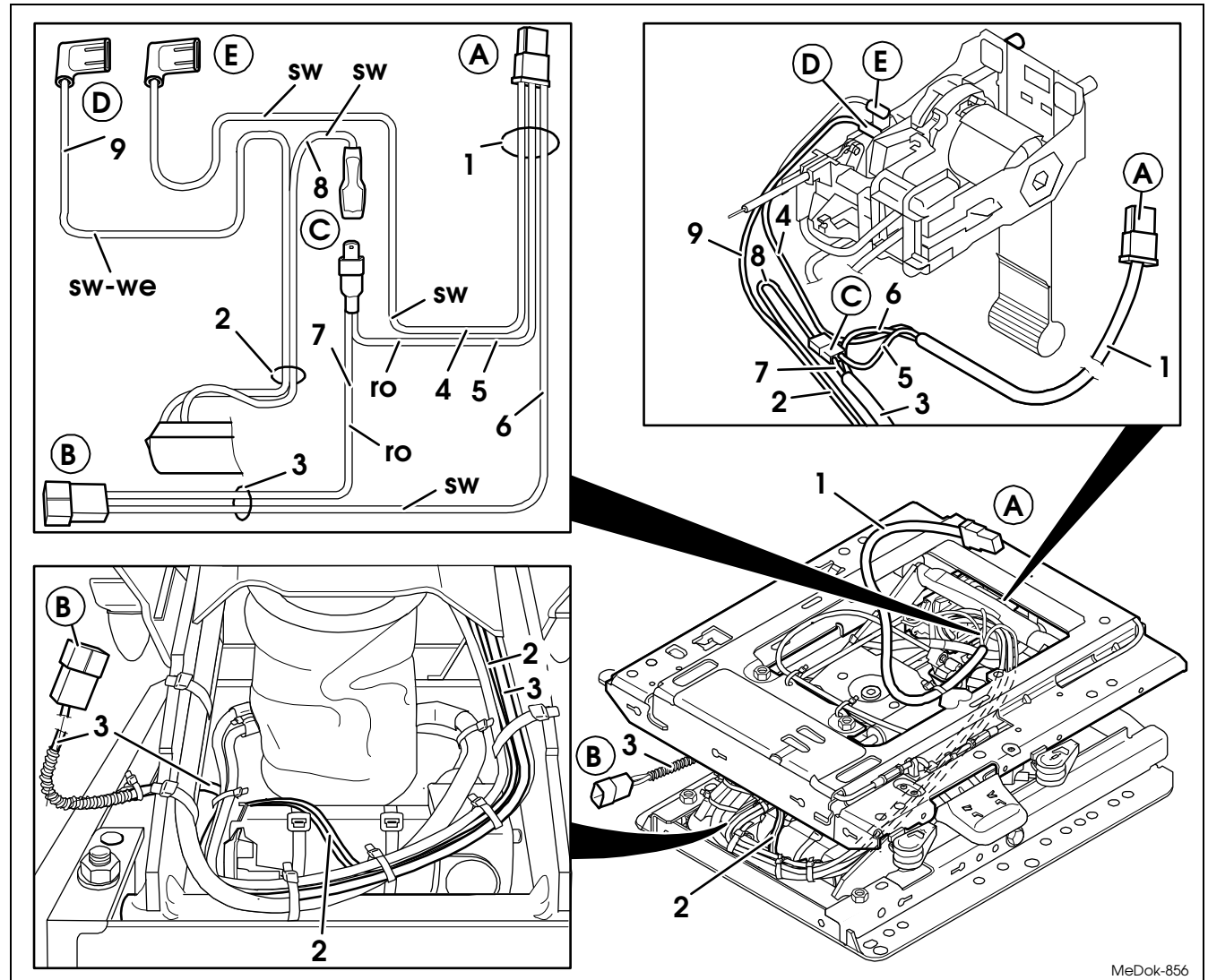


MeDok-906

2.1 Overview of components

Vehicle power supply cable / connecting cable:

- (1) Cable harness with main lines (seat heater, lumbar support)
- (2) Compressor cable
- (3) Cable harness for power supply
- (4) Power cable of the black right-angle plug (1-pin)
- (5) Power cable connector
- (6) Cable of the power supply connector
- (7) Power cable of power supply connector
- (8) Compressor power cable
- (9) Cable of the transparent right-angle plug (1-pin)



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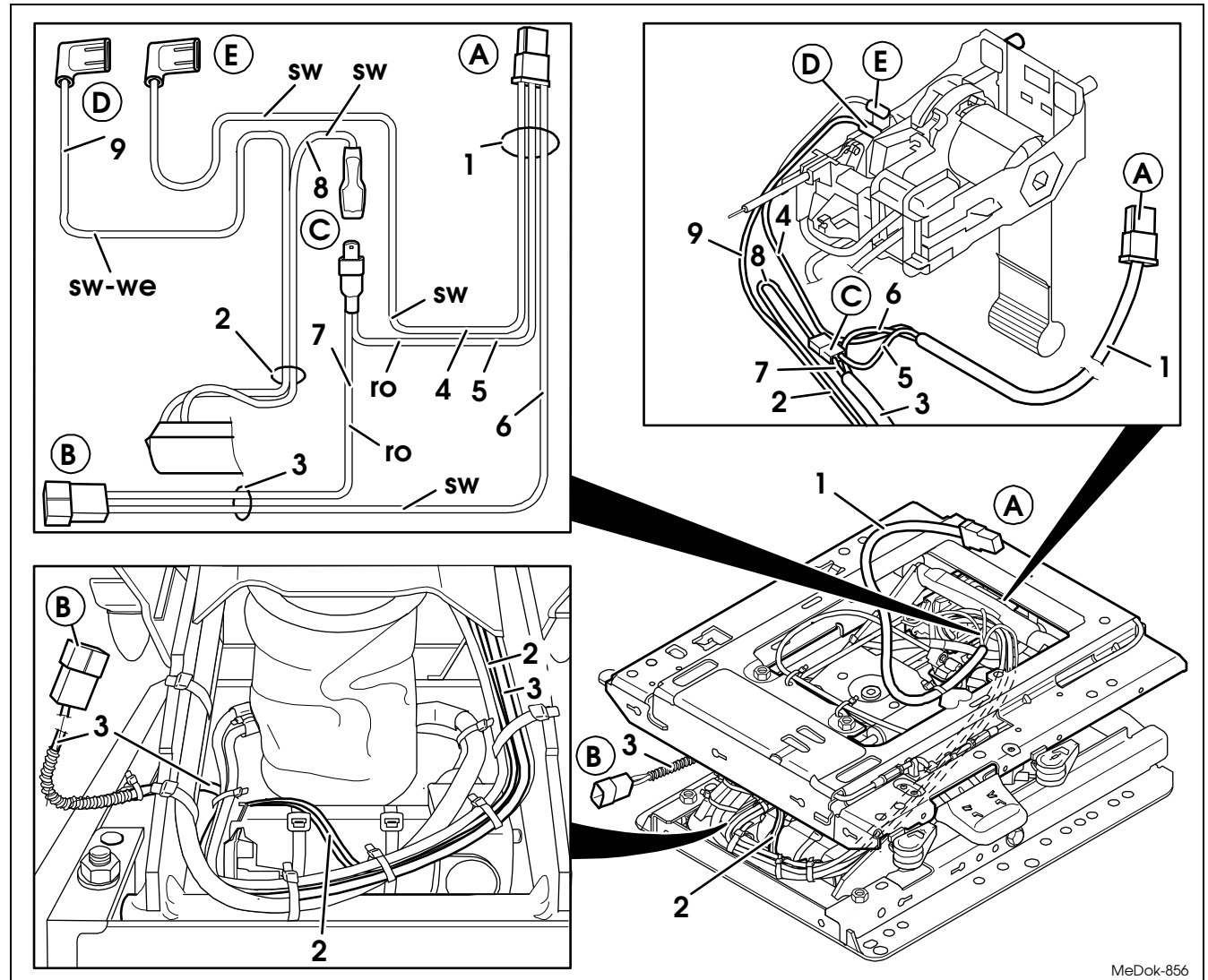
2.1 Overview of components



- (A) Connector plug
- (B) Vehicle power connector (2-pin)
- (C) Plug-in cable connection: power cable of the vehicle power connector/connector plug – compressor power cable
- (D) Right-angle plug (transparent) (compressor connecting cable for micro-switch)
- (E) Right-angle plug (black) (current-carrying cable for micro-switch)

Cable colors:

- sw = black
- we = white
- ro = red
- sw/we = black/white



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2.2 Functional test – Testing the specified status of functions

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A functional test is used to circumscribe all possible malfunctions; it must be performed before and after repair work on the seat suspension system at any rate.

Preconditions for testing:

- Pull and push the weight and height adjustment handle at least five times to move the seat over the entire range of spring as far as possible.
- The individual functions are activated in compliance with the instructions of the seat operating manual.
- The electrical system of the vehicle has been inspected and found OK in compliance with the vehicle operating instructions.
- The seat must be vented completely.
- Battery voltage at the seat 12 V (24 V), ignition ON.
- Bowden pull wire adjustments have been inspected and found to be OK (see Chapter 3.11.1).

Note: The components stated above are illustrated in Chapter 2.1.

If there is a difference between the result/actual status and the specified status, please proceed as described in the chapter "Causes/remedial measures."

Step no.	Scope of inspection	Function to be operated	Result/specified state	Notes, cause/remedial measures
1	Weight adjustment (level adjustment)	Ignition is ON	Seat remains in the lowest position.	Briefly lift the handle.
			Seat moves up to minimum height.	See Overview of faults (Chapter 2.3).
		Briefly lift the handle	Seat moves up to minimum height.	See Overview of faults (Chapter 2.3).

2.2 Functional test – Testing the specified status of functions

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Step no.	Scope of inspection	Function to be operated	Result/specified state	Notes, cause/remedial measures
2	Height adjustment upwards	Pull the handle upwards and keep it in this position (max. 1 minute).	Seat moves up to maximum height.	See Overview of faults (Chapter 2.3).
		Release the handle.	After having reached the maximum height, the seat must move down at least 30 mm.	See Overview of faults (Chapter 2.3).
3	Height adjustment downwards	Press the handle down as far as possible and keep it in this position.	Seat moves down to minimum height (end stop).	See Overview of faults (Chapter 2.3).
		Release the handle.	The seat remains in the set position.	Briefly lift the handle.
			Seat moves up to minimum height.	See Overview of faults (Chapter 2.3).

2.3 Overview of faults – Pointing out possible faults that might occur

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This chapter contains notes on possible faults in the seat suspension system. The notes and information provided in Chapter 2.4 "Fault diagnosis" are intended to ease troubleshooting of faults.

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

Note: The components stated above are illustrated in Chapter 2.1.

Fault description	Possible cause	Troubleshooting
Seat does not respond after operating the seat height adjustment in upward direction.	<ul style="list-style-type: none"> • Compressor is not active. • Height level adjustment cannot be operated via the Bowden pull wire. 	<p>Check the compressor (Chapter 2.4, step no.1.1).</p> <p>Adjust the Bowden pull wire (see Chapter 3.11.1).</p>
Seat does not respond when operating the seat height adjustment in downward direction.	<ul style="list-style-type: none"> • Outlet valve does not respond (Bowden pull wire adjustment has been inspected). • Outlet valve is too far from the cam disc. • Height adjustment is not operated via the Bowden pull wire. • Height level control is defective. 	<p>Check the level control (Chapter 2.4, inspection step 2.1).</p> <p>Adjust the outlet valve (see Chapter 3.9.1).</p> <p>Replace or adjust the Bowden pull wire (see Chapter 3.11).</p> <p>Replace the level control (see Chapter 3.9.2).</p>
After the height adjustment, the seat lowers for at least 30 mm, but continues to vent automatically after unloading the seat (driver gets off the seat).	Level control does not uncouple.	Compress and expand the seat once after getting off the seat.

2.3 Overview of faults – Pointing out possible faults that might occur

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Fault description	Possible cause	Troubleshooting
<p>Seat responds after the height adjustment has been operated, but then returns to its original position.</p>	<ul style="list-style-type: none"> • Handle has not been operated as far as possible. • Height level control is defective. 	<p>Pull or push the handle as far as possible.</p> <p>Check the level control (Chapter 2.4, step no.2.3).</p>
<p>Seat changes its position while driving, vents and lowers down.</p>	<ul style="list-style-type: none"> • Air connections are untight. • Compressed-air hoses are leaky. • Pneumatic spring is untight. • Level control is leaky (compressed air escapes from outlet valve). • Level control is leaky. • Compressor is untight (return valve). 	<p>Check all air connections for air leakage and, if necessary, seal leaky connections professionally.</p> <p>Replace compressed-air hoses (see Chapter 3.10).</p> <p>Check the pneumatic spring for abrasion and replace it if necessary (see Chapter 3.12).</p> <p>Adjust the outlet valve (see Chapter 3.9.1).</p> <p>Replace the level control (see Chapter 3.9.2).</p> <p>Replace the compressor (see Chapter 3.8).</p>

2.3 Overview of faults – Pointing out possible faults that might occur

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Fault description	Possible cause	Troubleshooting
Seat can be set to the highest position and does not vent anymore.	<ul style="list-style-type: none"> • Outlet valve is too far from the cam disc. • Height level control system is defective. 	<p>Adjust the outlet valve (see Chapter 3.9.1).</p> <p>Replace the level control (see Chapter 3.9.2).</p>
Seat can be lowered, but does not pump up in the lowest position despite of the handle pulled upwards.	<ul style="list-style-type: none"> • Micro-switch is too far from the cam disk. • Height level control system is defective. 	<p>Adjust the micro-switch (see Chapter 3.9.1).</p> <p>Check the level control (Chapter 2.4, step no.2.2).</p>
Height adjustment upwards: compressor runs, but seat is not lifted.	<ul style="list-style-type: none"> • Level control is leaky. 	<p>Replace the level control (see Chapter 3.9.2).</p>
Seat moves up automatically (compressor does not switch off).	<ul style="list-style-type: none"> • Micro-switch is too near to the cam disk. • Micro-switch is defective. 	<p>Adjust the micro-switch (see Chapter 3.9.1).</p> <p>Replace the level control (see Chapter 3.9.2)</p>
Compressor starts automatically.	<ul style="list-style-type: none"> • Cable break or short-circuit (e.g. caused by abrasion on the edge of the swinging structure). 	<p>Replace cable harness (see Chapter 3.14).</p>

2.3 Overview of faults – Pointing out possible faults that might occur



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Fault description	Possible cause	Troubleshooting
<p>Compressor is not active.</p> <ul style="list-style-type: none"> - No voltage at the compressor. - Voltage present at the compressor. - Compressor is active, seat does not move upwards or seat lowers after a short time. 	<ul style="list-style-type: none"> • No voltage. • Micro-switch is too far from the cam disk. • Micro-switch is defective or cam switch is bent. • Compressor is defective. • Air hoses are leaky. • Air spring is untight. • Air tank of additional air supply is leaky. • Compressor is leaky or defective. 	<p>Check the compressor (Chapter 2.4, step no. 1.1).</p> <p>Adjust the micro-switch (see Chapter 3.9.1).</p> <p>Replace the level control (see Chapter 3.9.2).</p> <p>Replace the compressor (see Chapter 3.8).</p> <p>Check the compressed-air hoses (Chapter 2.4, step no. 3.1).</p> <p>Replace the air spring (Chapter 2.4, step no. 3.1).</p> <p>Check the air tank for the additional air supply (Chapter 2.4, step no. 3.3).</p> <p>Replace the compressor (see Chapter 3.8).</p>

2.4 Fault diagnosis – Locating the fault

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**1 Checking the compressor**

Preconditions for fault diagnosis:

- The individual functions are activated in compliance with the instructions of the seat operating manual.
- The electrical system of the vehicle has been inspected and found OK in compliance with the vehicle operating instructions.
- The compressed-air hoses have been inspected with regard to kinks and tightness.
- Battery voltage 12 V (24 V), ignition is on.

Note: The components stated above are illustrated in Chapter 2.1.


Step no.	Checking/Function to be operated	Result/specified state	Troubleshooting
1.1	Pull the handle for seat height adjustment upwards.	Compressor is active. Compressor is not active.	End of inspection. Check the fuse, current path and plug-in connectors (continuity test) and replace them, if necessary. Proceed with inspection step 1.2.

2.4 Fault diagnosis – Locating the fault

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Step no.	Checking/Function to be operated	Result/specified state	Troubleshooting
1.2	 ATTENTION Risk of injury! Do not operate the cam switch manually, but use an appropriate tool. Use a screwdriver to adjust the micro-switch (see Chapter 3.9.1).	Compressor is active. Compressor is not active.	Proceed with inspection step 1.3. Replace the compressor (see Chapter 3.8).
1.3	Pull the handle for height adjustment upwards as far as possible.	The leveling valve (3.11.1 – pos. 4) is operated via the Bowden pull wire, the seat does not respond. The leveling valve (3.11.1 – pos. 4) is not operated.	Replace the height level control (see Chapter 3.9). Adjust or replace the Bowden pull wire (see Chapter 3.11).

2.4 Fault diagnosis – Locating the fault

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**2 Checking the level control system**

Preconditions for fault diagnosis:

- The individual functions are activated in compliance with the instructions of the seat operating manual.
- The electrical system of the vehicle has been inspected and found OK in compliance with the vehicle operating instructions.
- The compressed-air hoses have been inspected with regard to kinks and tightness.
- Battery voltage 12 V (24 V), ignition is on.

Note: The components stated above are illustrated in Chapter 2.1.

Step no.	Checking/Function to be operated	Result/specified state	Troubleshooting
2.1	Press the handle for seat height adjustment down.	The leveling valve (3.11.1 – pos. 4) is operated via the Bowden pull wire. The height level valve is not operated.	Proceed with inspection step 2.2. Adjust the Bowden pull wire (see Chapter 3.11).
2.2	Operate the micro-switch by means of an appropriate tool.	Seat moves upwards. Seat doesn't move upwards.	Proceed with inspection step 2.3. Check the compressor (Chapter 2.4, step no. 1.1) Replace the height level control (see Chapter 3.9).

2.4 Fault diagnosis – Locating the fault

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Step no.	Checking/Function to be operated	Result/specified state	Troubleshooting
2.3	Pull the handle for height adjustment upwards as far as possible and release it.	<p>The seat remains in the set position.</p> <p>The seat does not remain in the set position.</p>	<p>End of inspection.</p> <p>Replace the height level control (see Chapter 3.9).</p>

2.4 Fault diagnosis – Locating the fault

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**3 Checking the pneumatic spring**

Step no.	Checking/Function to be operated	Result/specified state	Troubleshooting
3.1	Apply load to the seat.	Air hose is leaky. Air hose connection is leaky.	Replace the air hose (see Chapter 3.13). Professionally seal the connection or replace it (see Chapter 3.13).
3.2	Check the pneumatic spring for visible damage and tightness.	Pneumatic spring is tight. Pneumatic spring is untight.	Proceed with step 3.3. Replace the pneumatic spring (see Chapter 3.12).
3.3	Apply load to the seat.	Compressed-air escapes from the air tank for the additional air supply. The air tank for the additional air supply is tight.	Replace the air tank for the additional air supply (see Chapter 3.13). Proceed with step 3.4.
3.4	Apply load to the seat.	Compressed-air escapes from the height level control. The height level control is tight.	Adjust the outlet valve (see Chapter 3.9.1). Replace the height level control (see Chapter 3.9.2). End of inspection.

2.4 Fault diagnosis – Locating the fault

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**4 Checking the vehicle power cable and connector**

Preconditions for fault diagnosis:

- Electrical system of the vehicle has been checked and found OK.
- Compressor has been checked and found OK.

Note: The components stated above are illustrated in Chapter 2.1.

Step no.	Checking/Function to be operated	Result/specified state	Troubleshooting
4.1	<ul style="list-style-type: none"> • Disconnect the plug-in connection (vehicle power connector suspension - vehicle). • Measure resistance on the contacts of the vehicle power connector of the suspension: <div style="display: flex; justify-content: space-around; align-items: center;"> red Ω black </div> 	<p>$\gg 15 \Omega (\rightarrow \infty)$</p> <p>$\leq 15 \Omega$</p>	<p>Proceed with inspection step 4.2.</p> <p>Replace cable harness (see Chapter 3.14).</p>

2.4 Fault diagnosis – Locating the fault

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Step no.	Checking/Function to be operated	Result/specified state	Troubleshooting
4.2	<ul style="list-style-type: none"> • Pull the handle for seat height adjustment upwards. • Measure resistance on the contacts of the vehicle power connector of the suspension: <div style="text-align: center;">red Ω black</div> 	<p style="text-align: center;">= 15 Ω</p> <p style="text-align: center;">< 15 Ω (short-circuit) or >> 15 Ω (break)</p>	<p style="text-align: center;">End of inspection.</p> <p style="text-align: center;">Replace cable harness (see Chapter 3.14).</p>

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- 3.3 Bowden pull wire and handle for vertical shock absorber adjustment – removal and installation
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- 3.5 Linkage rods, handle for horizontal suspension and locking device – removal and installation
- 3.6 Horizontal shock absorber – removal and installation
- 3.7 Horizontal spring unit – removal and installation
- 3.8 Compressor – removal and installation

- 3.9 Height level control – removal and installation
 - 3.9.1 Height level control (micro-switch, outlet valve) – adjustment
 - 3.9.2 Height level control with height limit control – full removal and installation

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 - 3.10.1 Compressed-air hoses – removal and installation (system with quick fastener)
 - 3.10.2 Compressed-air hoses – removal and installation (system with hose clamps)
- 3.11 Bowden pull wires and handle for height adjustment – removal and installation
 - 3.11.1 Bowden pull wires for height adjustment – inspection and adjustment
 - 3.11.2 Bowden pull wires and handle for height adjustment – removal and installation
- 3.12 Pneumatic spring – removal and installation
- 3.13 Air tank for additional air supply – removal and installation
- 3.14 Cable harness – removal and installation
- 3.15 Upper part of the suspension system – removal and installation
- 3.16 Lower part of the suspension system – removal and installation
- 3.17 Swinging structure – disassembly and reassembly

3.1 Cover – removal and installation

Page 1 of 2

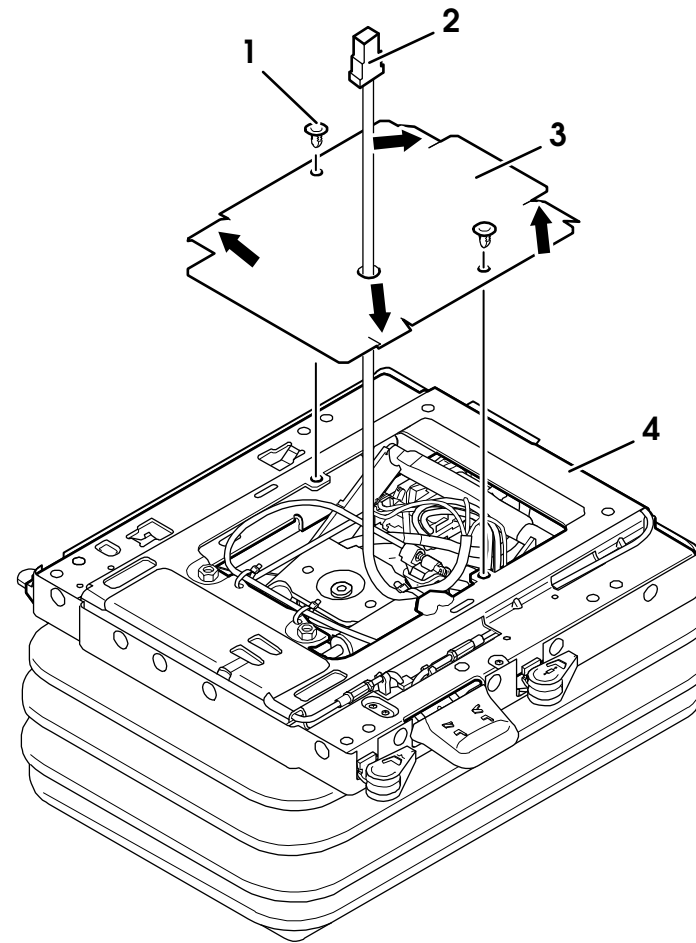
REMOVAL/INSTALLATION

TABLE OF CONTENTS



- (1) Bellows pin
- (2) Connecting cable
- (3) Cover
- (4) Upper part of the suspension

1 Remove the upper part of the seat
(see repair manual for the upper seat
part).



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3.1 Cover – removal and installation

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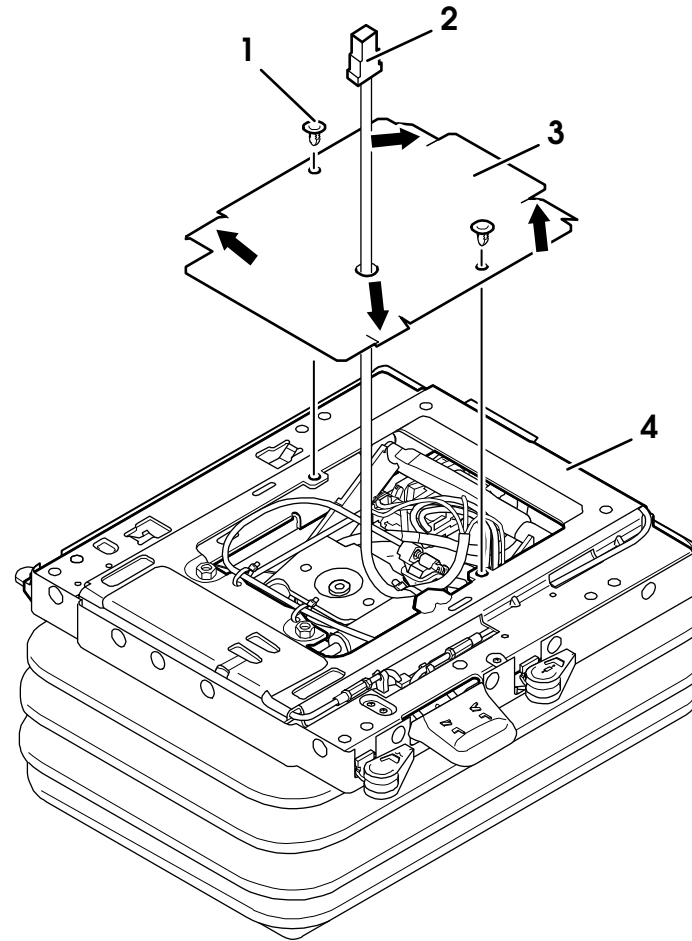
REMOVAL/INSTALLATION

TABLE OF CONTENTS



Removal, installation

- 2 Remove the two bellows pins (1).
 - 3 Pull out the four lugs (arrows) of the cover (3) from the upper suspension part (4).
 - 4 Pull the connecting cable (2) downwards through the cover (3) and remove the cover (3).
- Installation note:**
Take note of the installation position of the cover (3):
smooth surface on top.
- 5 Re-install the components in the reverse order of their removal.



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3.2 Bellows – removal and installation

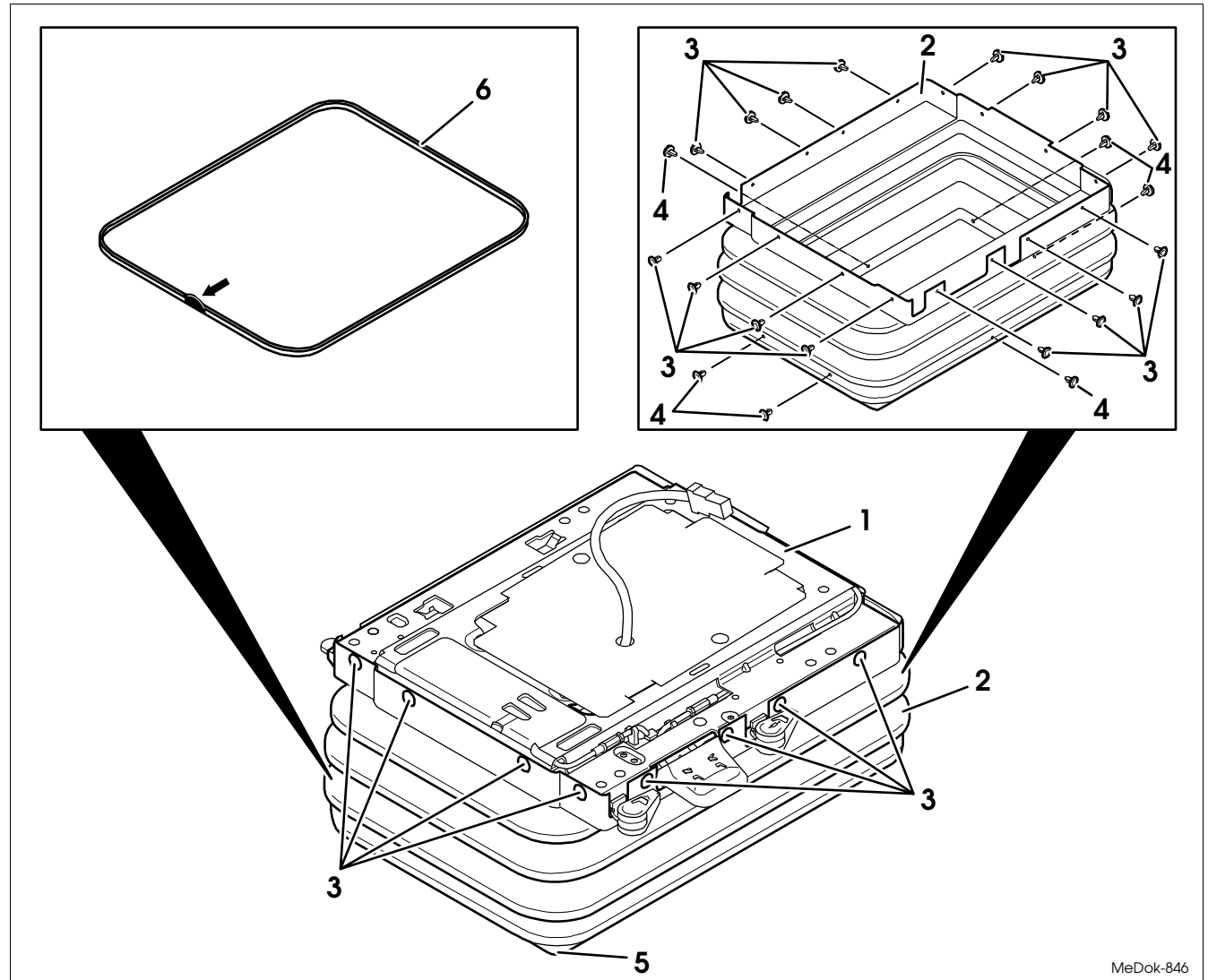


REMOVAL/INSTALLATION

TABLE OF CONTENTS

- (1) Upper part of the suspension
- (2) Bellows
- (3) Bellows pin
- (4) Bellows pin
- (5) Lower part of the suspension
- (6) Wire insert

1 Remove the upper part of the seat
(see repair manual for the upper seat part).



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3.2 Bellows – removal and installation

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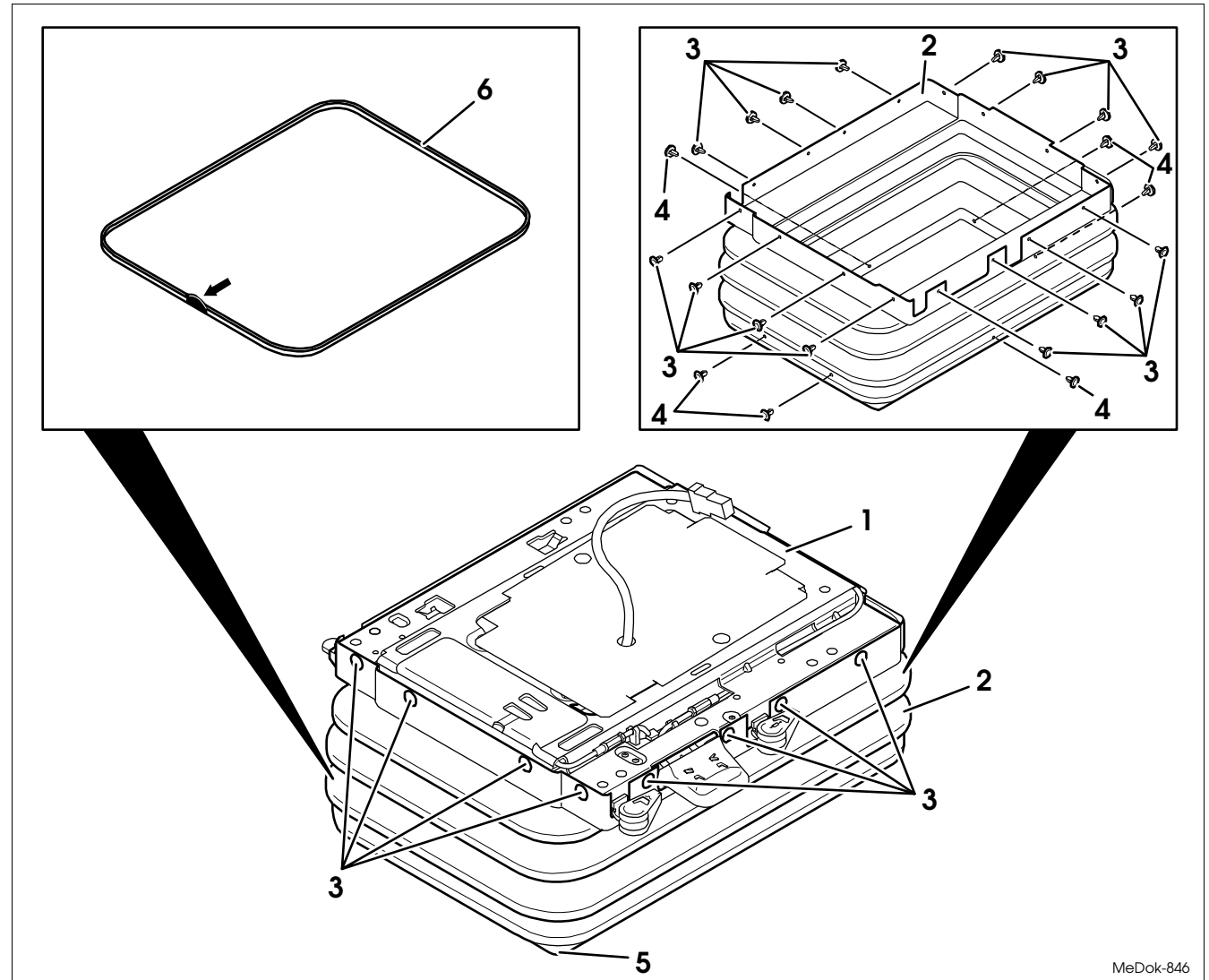
REMOVAL/INSTALLATION

TABLE OF CONTENTS



Removal, installation

- 2 Remove four bellows pins (3) on the front and back of the upper suspension part (1).
- 3 Remove four bellows pins (3) on the right and left side of the upper suspension part (1).
- 4 Remove two bellows pins (4) each on the front and back of the lower suspension part (5).
- 5 Remove one bellows pin (4) each on the left and right side of the lower suspension part (5).



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3.2 Bellows – removal and installation

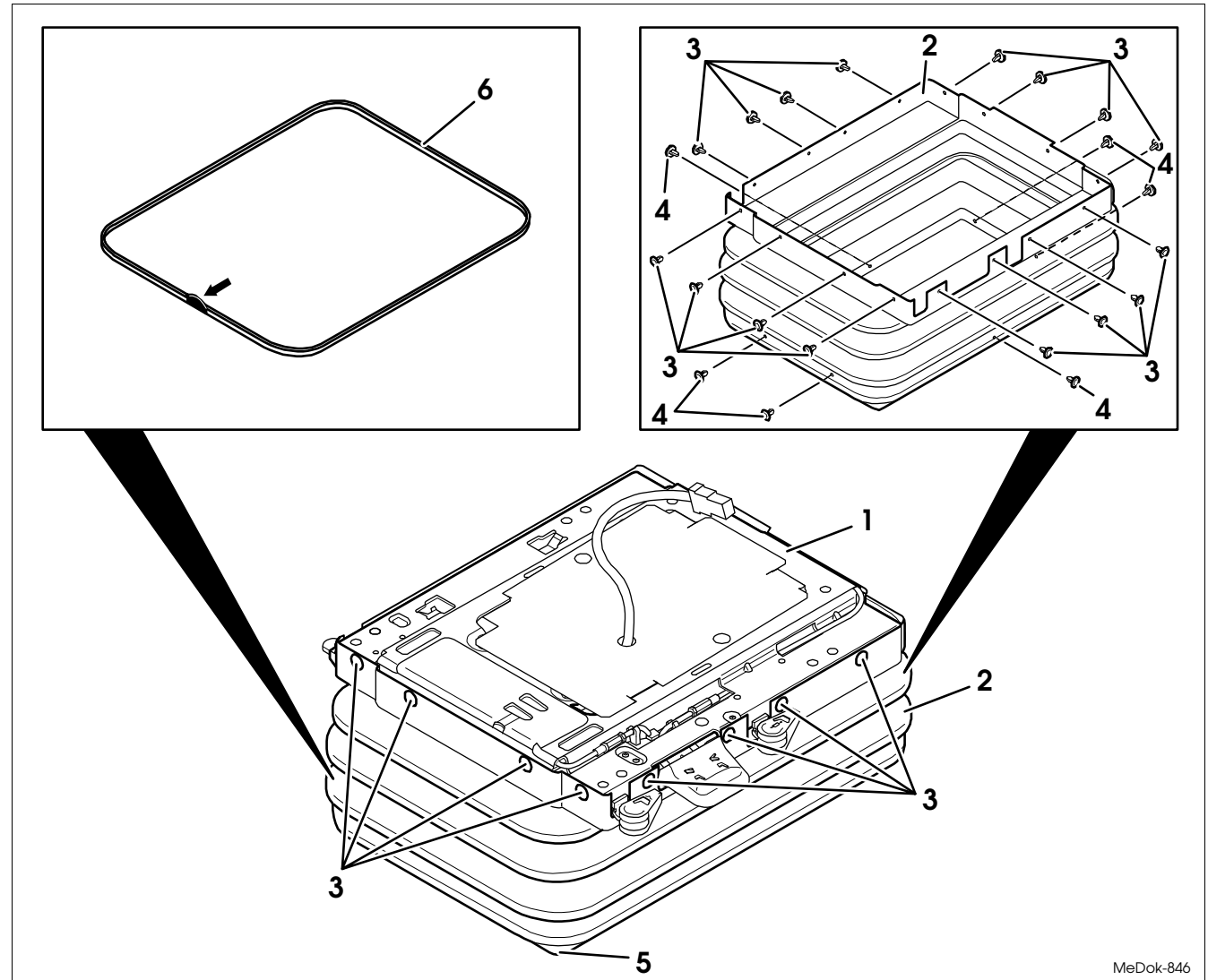
REMOVAL/INSTALLATION

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- 6 Pull the back part of the bellows(2) down over the lower part of the suspension system (5).
- 7 Lift the front part of the bellows(2) over the lower part of the suspension system (5) and remove the bellows(2) downwards.
- 8 Remove wire insert (6) from the bellows(2).

Installation notes:

 - The welding joint (arrow) of the wire insert (6) must be inside the bellows(2).
 - Install wire insert (6) in the second fold of the bellows (2) (from below).
- 9 Re-install the components in the reverse order of their removal.



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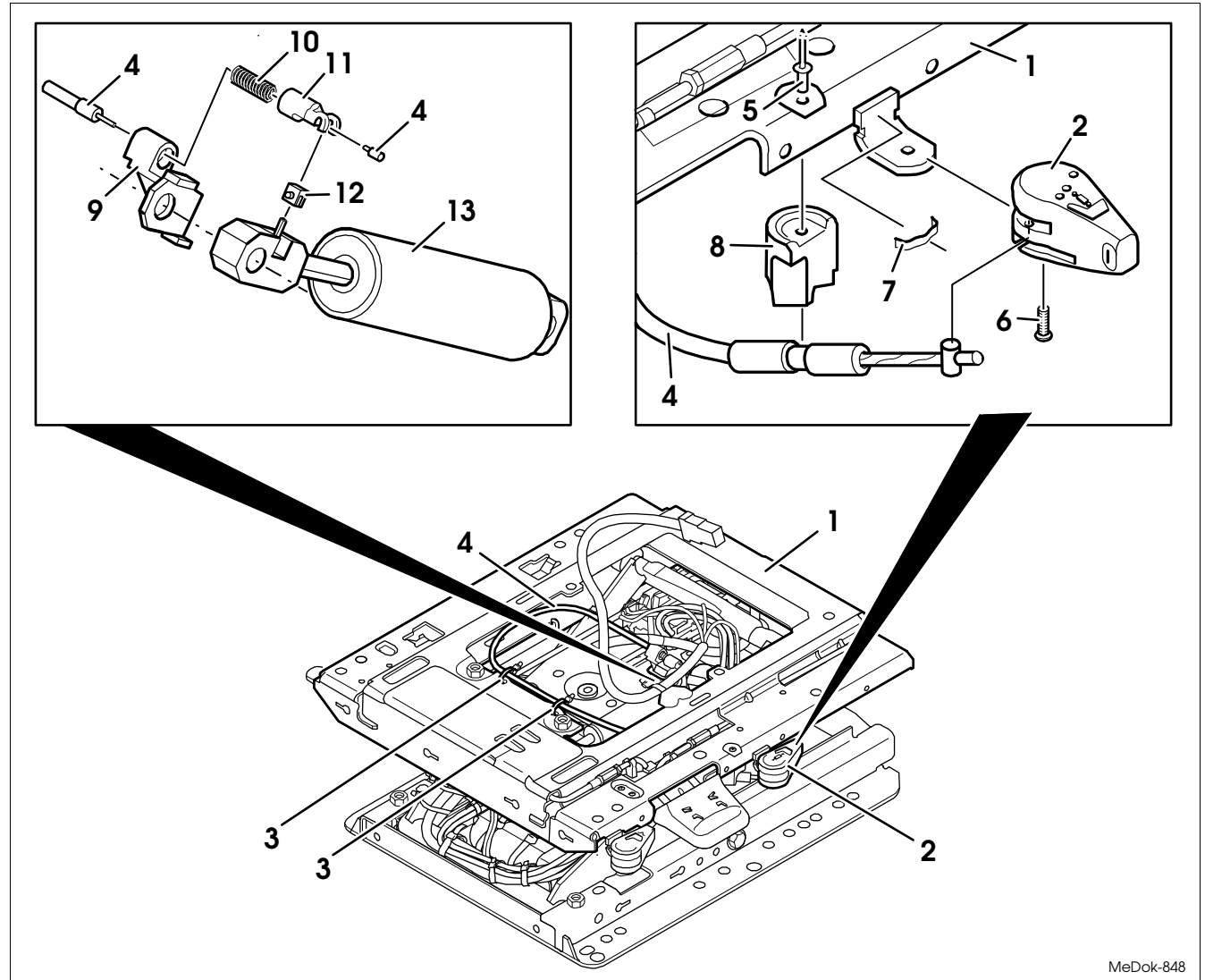
3.3 Bowden pull wire and handle for vertical shock absorber adjustment – removal and installation



REMOVAL/INSTALLATION

TABLE OF CONTENTS

- (1) Upper part of the suspension system
- (2) Handle for vertical shock absorber adjustment
- (3) Cable tie
- (4) Bowden pull wire
- (5) Blind rivet
- (6) Torx screw 2.25 Nm
- (7) Catch spring
- (8) Guide element (Bowden pull wire)
- (9) Bearing (plastic)
- (10) Compression spring
- (11) Fork (plastic)
- (12) Fixing element (plastic)
- (13) Vertical shock absorber



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3.3 Bowden pull wire and handle for vertical shock absorber adjustment – removal and installation



REMOVAL/INSTALLATION

TABLE OF CONTENTS

- 1 Remove the upper part of the seat (see repair manual for the upper seat part).
- 2 Remove the cover (Chapter 3.1).
- 3 Take off bellows (2) from the upper suspension part (1) (see chapter 3.2).

Removal, installation

- 4 Move the suspension system to the highest position.

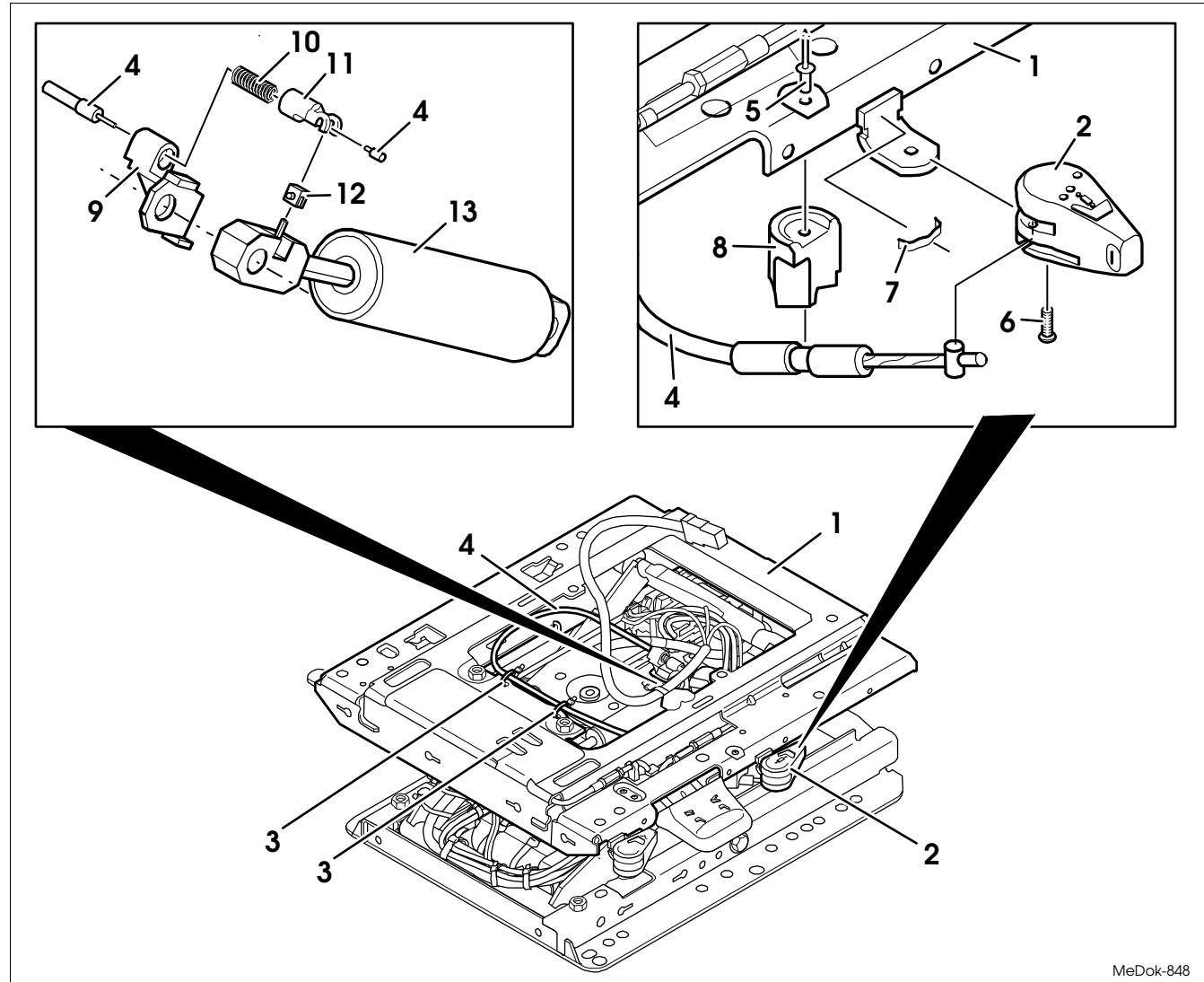


WARNING Risk of crushing!
Secure the suspension between the swinging structure and lower part of the suspension system with suitable spacers.

- 5 Remove the Torx screw (6).

Installation note:

Torx screw (6), 2.25 Nm.



MeDok-848

3.3 Bowden pull wire and handle for vertical shock absorber adjustment – removal and installation

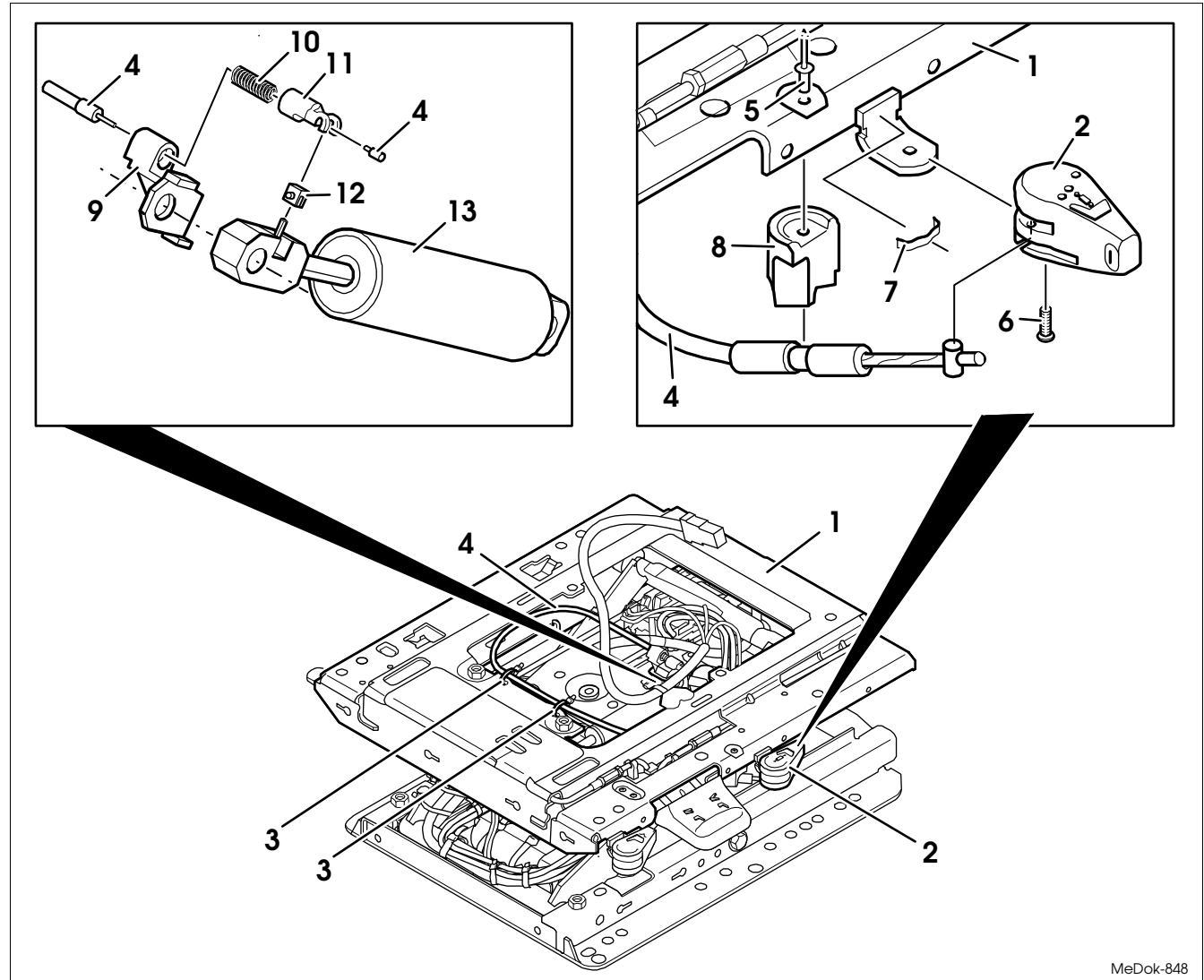
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REMOVAL/INSTALLATION

TABLE OF CONTENTS

- 6 Pull off the handle for vertical shock absorber adjustment (2) from the upper part of the suspension (1).
- 7 Remove the Bowden pull wire (4) from the handle for vertical shock absorber adjustment (2).
- 8 Detach the Bowden pull wire (4) from the guide element (8).
- 9 Bore out the rivet head and drive out the blind rivet (5). Remove the guide element (8).
- 10 Mark those points where the Bowden pull wire (4) is fastened with the two cable ties (3) on the upper part of the suspension (1) and remove the cable ties (3).
- 11 Pull off the fixing element (12) from the vertical shock absorber (13).



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3.3 Bowden pull wire and handle for vertical shock absorber adjustment – removal and installation

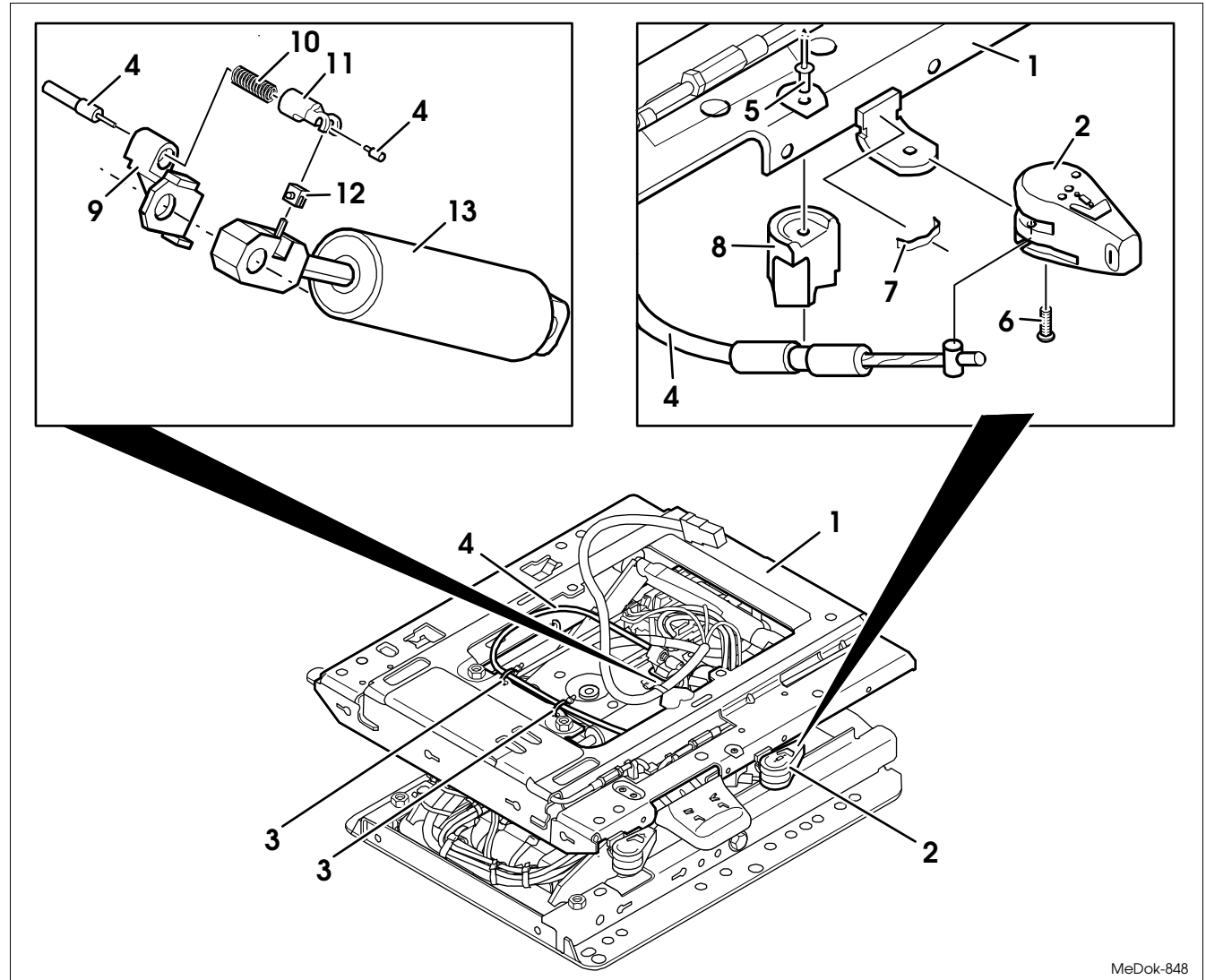
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REMOVAL/INSTALLATION

TABLE OF CONTENTS

- 12 Take the Bowden pull wire (4) off the bearing (9).
- 13 Remove the fixation (12) from the fork (11).
- 14 Take the Bowden pull wire (4) off the fork (11), remove the fork (11) and compression spring (10).
- 15 Mark the installation position for the Bowden pull wire (4) in the upper part of the suspension (1), pull out the Bowden pull wire (4) from the upper part of the suspension (1) and then remove it.
Installation note:
Install the Bowden pull wire (4) as marked.
- 16 Re-install the components in the reverse order of their removal.



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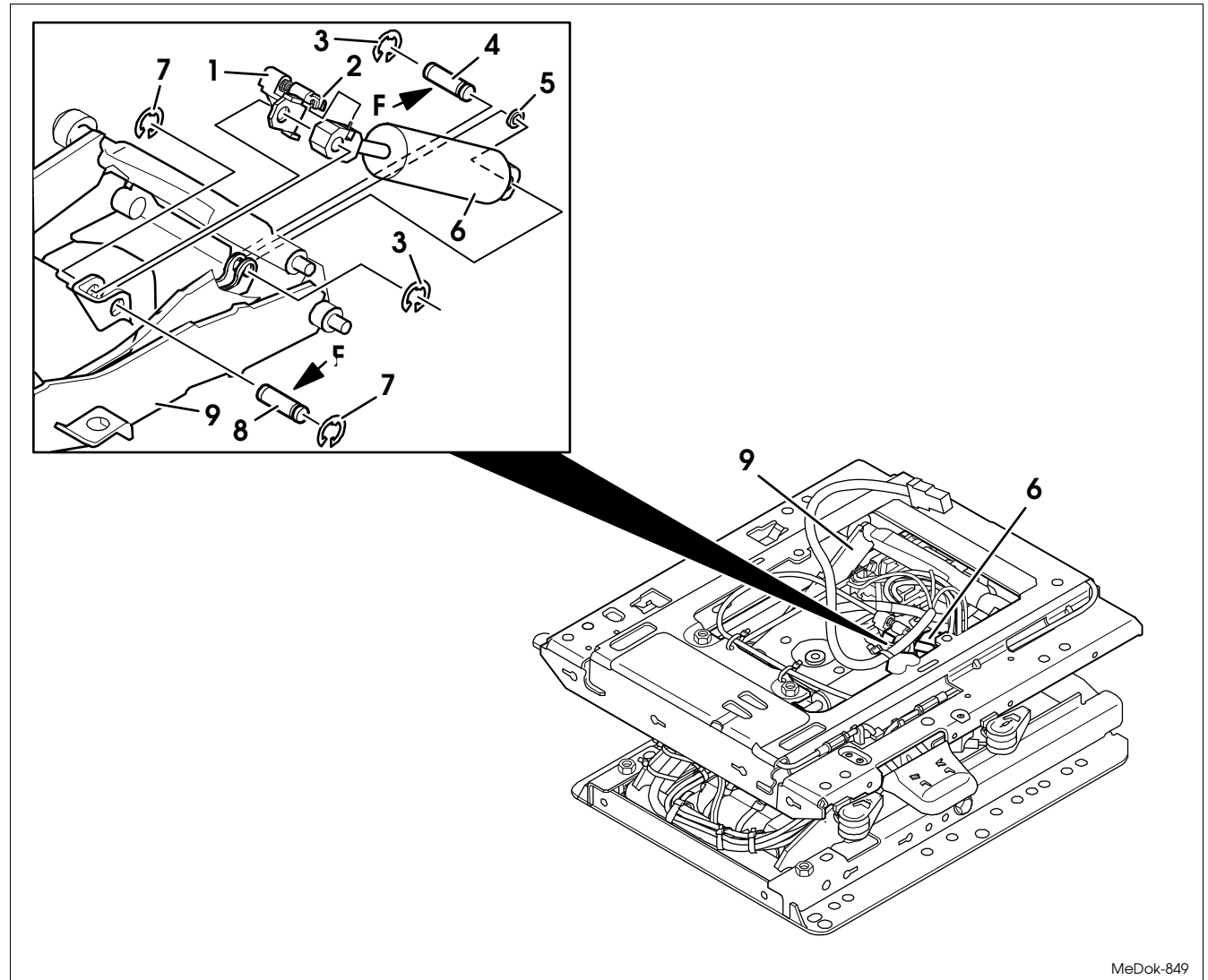
3.4 Vertical shock absorber – removal and installation



REMOVAL/INSTALLATION

TABLE OF CONTENTS

- (1) Bearing
- (2) Fixation element
- (3) Circlip
- (4) Studgrease
- (5) Washer compensating for clearance
- (6) Vertical shock absorber
- (7) Circlip
- (8) Studgrease
- (9) Swinging structure



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3.4 Vertical shock absorber – removal and installation

Page 2 of 4

REMOVAL/INSTALLATION

TABLE OF CONTENTS



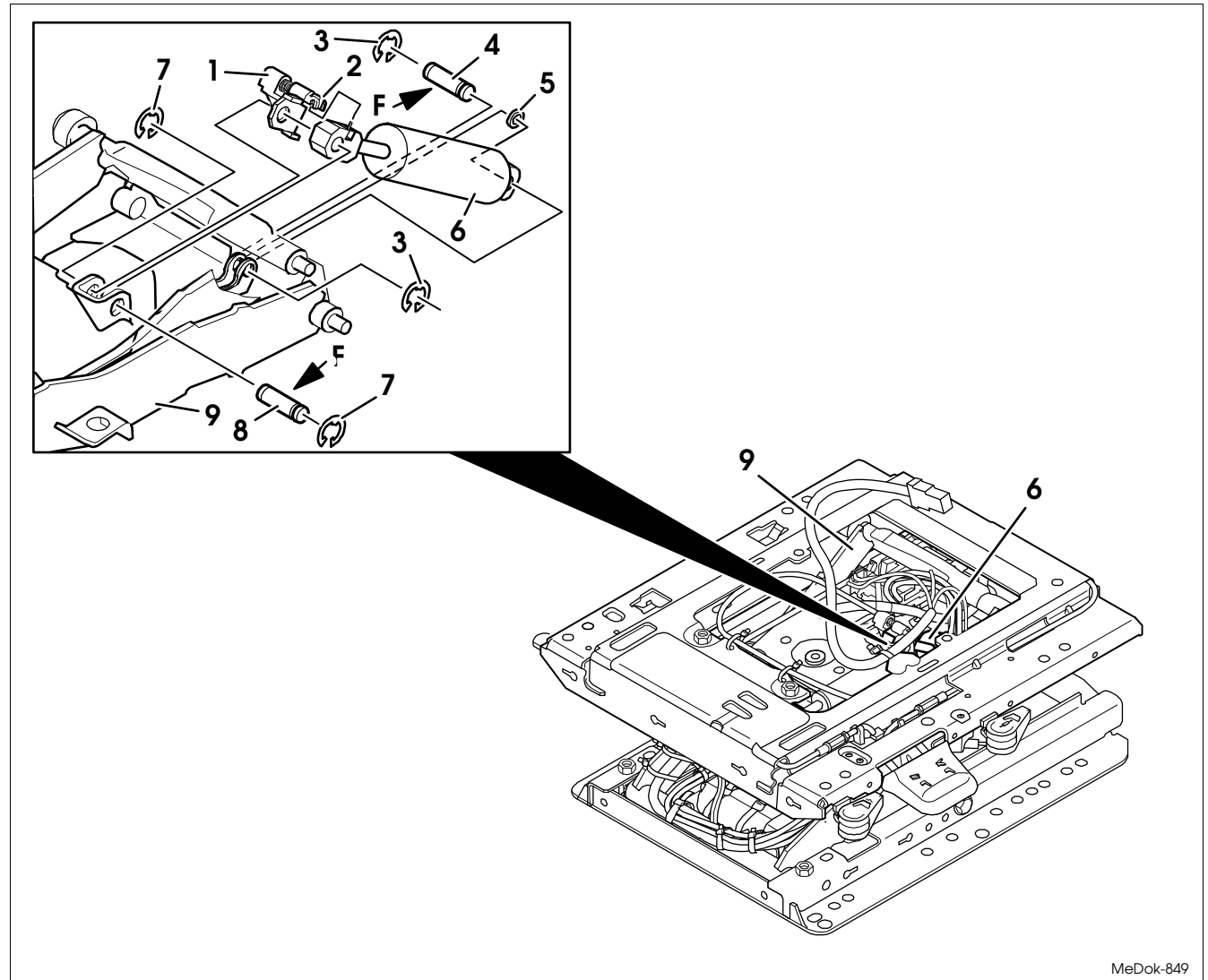
- 1 Remove the upper part of the seat (see repair manual for the upper seat part).
- 2 Remove the cover (Chapter 3.1).
- 3 Take the bellows off the lower part of the suspension (see Chapter 3.2), push it upward and fix it in this position.

Removal, installation

- 4 Move the suspension system to the highest position and secure.



WARNING Risk of crushing!
Secure the suspension between the swinging structure and lower part of the suspension system with suitable spacers.



MeDok-849

3.4 Vertical shock absorber – removal and installation

Page 3 of 4

REMOVAL/INSTALLATION

TABLE OF CONTENTS



5 Loosen up the two circlips (7) from the stud (8) and then remove them.

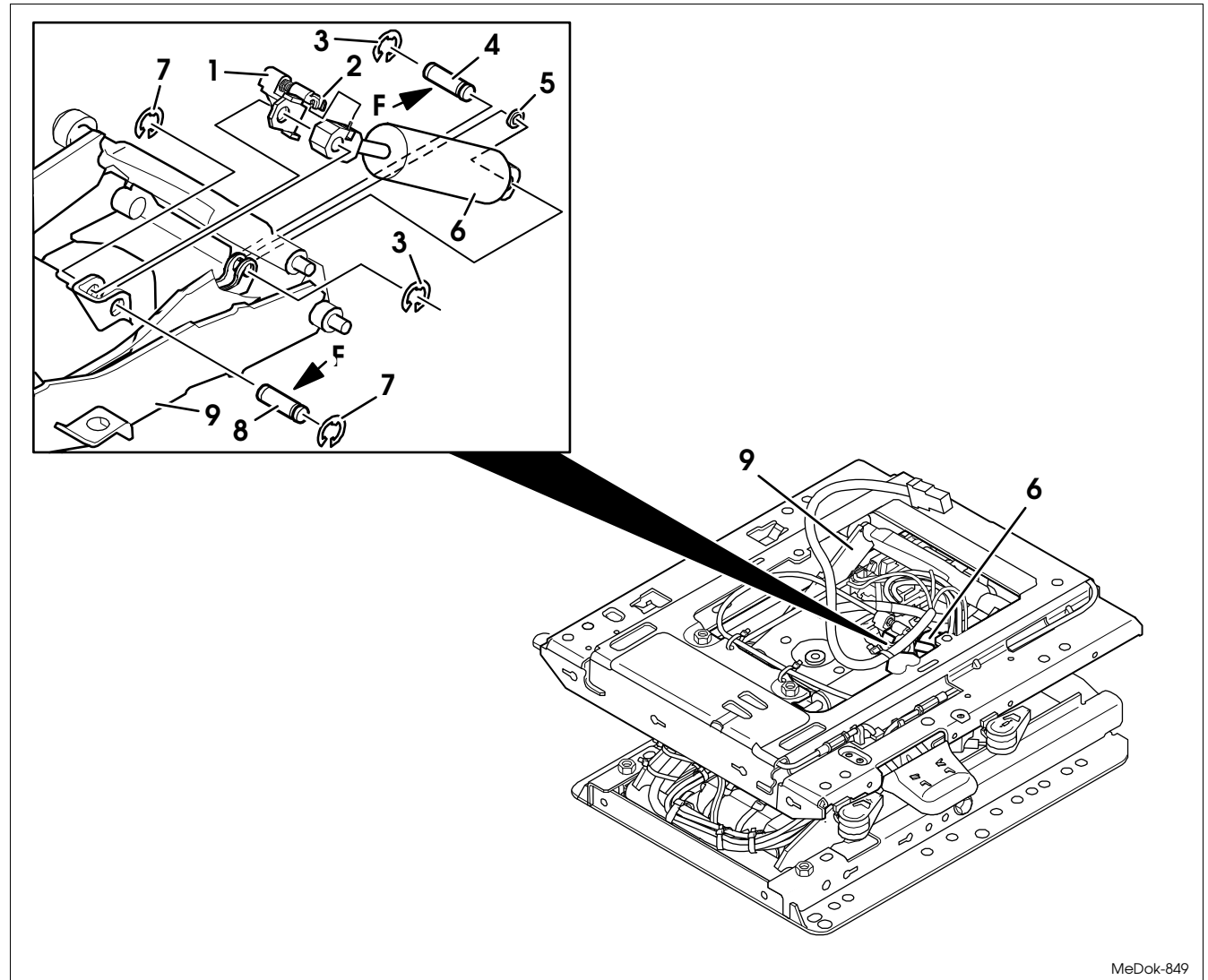
6 Pull the stud (8) out of the swinging structure (9) and the vertical shock absorber (6).

Installation note:

Apply acid-free multi-purpose lubricant to the entire external surface (F) of the stud (8).

7 Take the fixation (2) and bearing (1) off the vertical shock absorber (6).

8 Loosen the two circlips (3) from the stud (4) and remove them.



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3.4 Vertical shock absorber – removal and installation

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REMOVAL/INSTALLATION

TABLE OF CONTENTS



- 9 Pull the stud (4) out of the swinging structure (9) and the vertical shock absorber (6); remove the compensating washer (5).

Note:

The washer (5) is used to compensate clearances and can be mounted on the right or left side, as required.

Installation note:

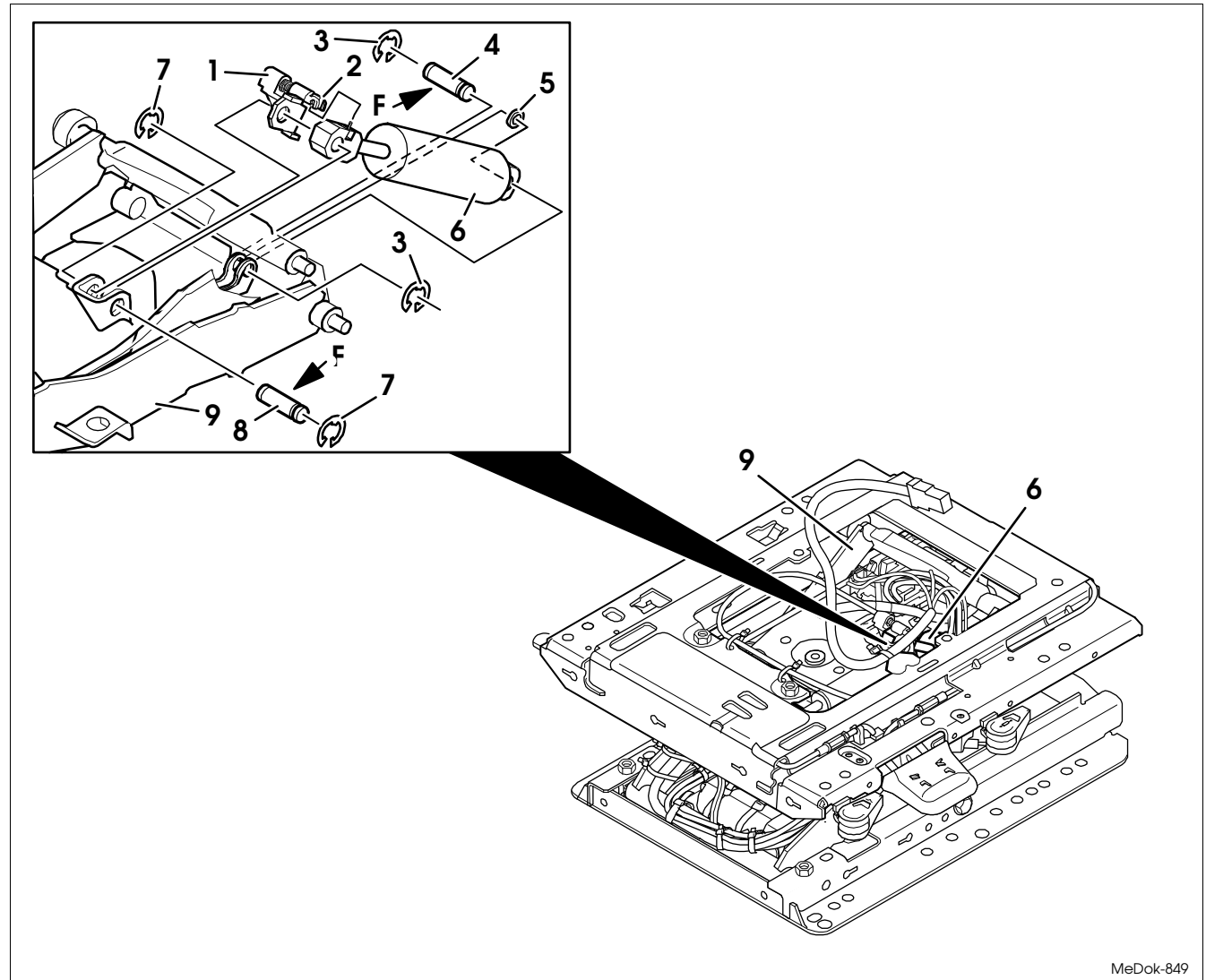
Apply acid-free multi-purpose lubricant to the entire external surface (F) of the stud (4).

- 10 Remove the vertical shock absorber (6) in an upward direction.

Installation note:

When re-installing the vertical shock absorber (6), make sure the labelling is on top.

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



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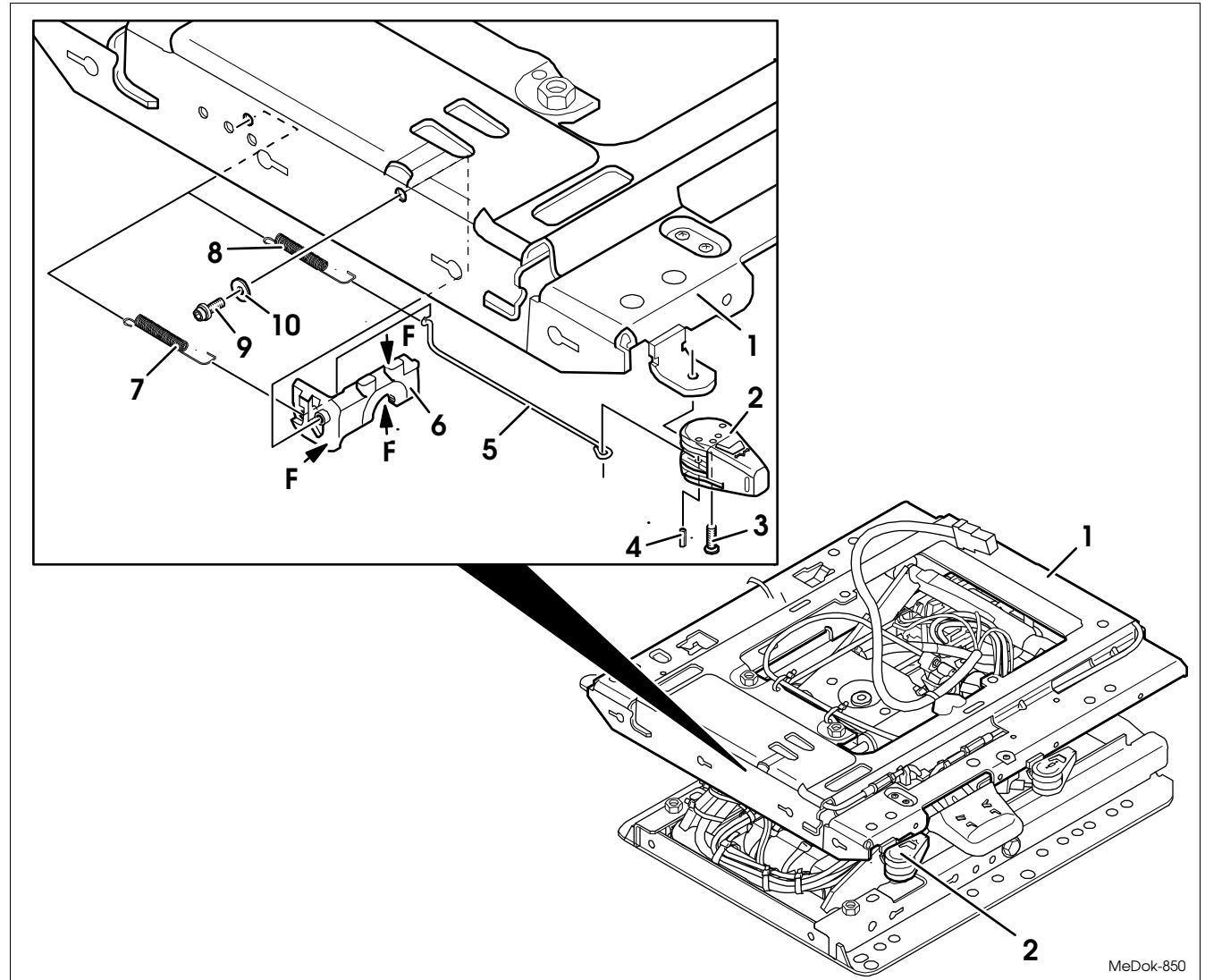
3.5 Linkage rods, handle for horizontal suspension and locking device – removal and installation



REMOVAL/INSTALLATION

TABLE OF CONTENTS

- (1) Upper part of the suspension system
- (2) Handle for horizontal suspension
- (3) Torx screw
- (4) Clamping sleeve
- (5) Linkage rods
- (6) Stop levergrease
- (7) Tension spring
- (8) Tension spring
- (9) Collar screw
(with Torx socket) 2.25 Nm
- (10) Washer



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3.5 Linkage rods, handle for horizontal suspension and locking device – removal and installation

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REMOVAL/INSTALLATION

TABLE OF CONTENTS

- 1 Remove the upper part of the seat (see repair manual for the upper seat part).
- 2 Remove the cover (Chapter 3.1).
- 3 Take off bellows from the upper part of the suspension system (1) (see Chapter 3.2).

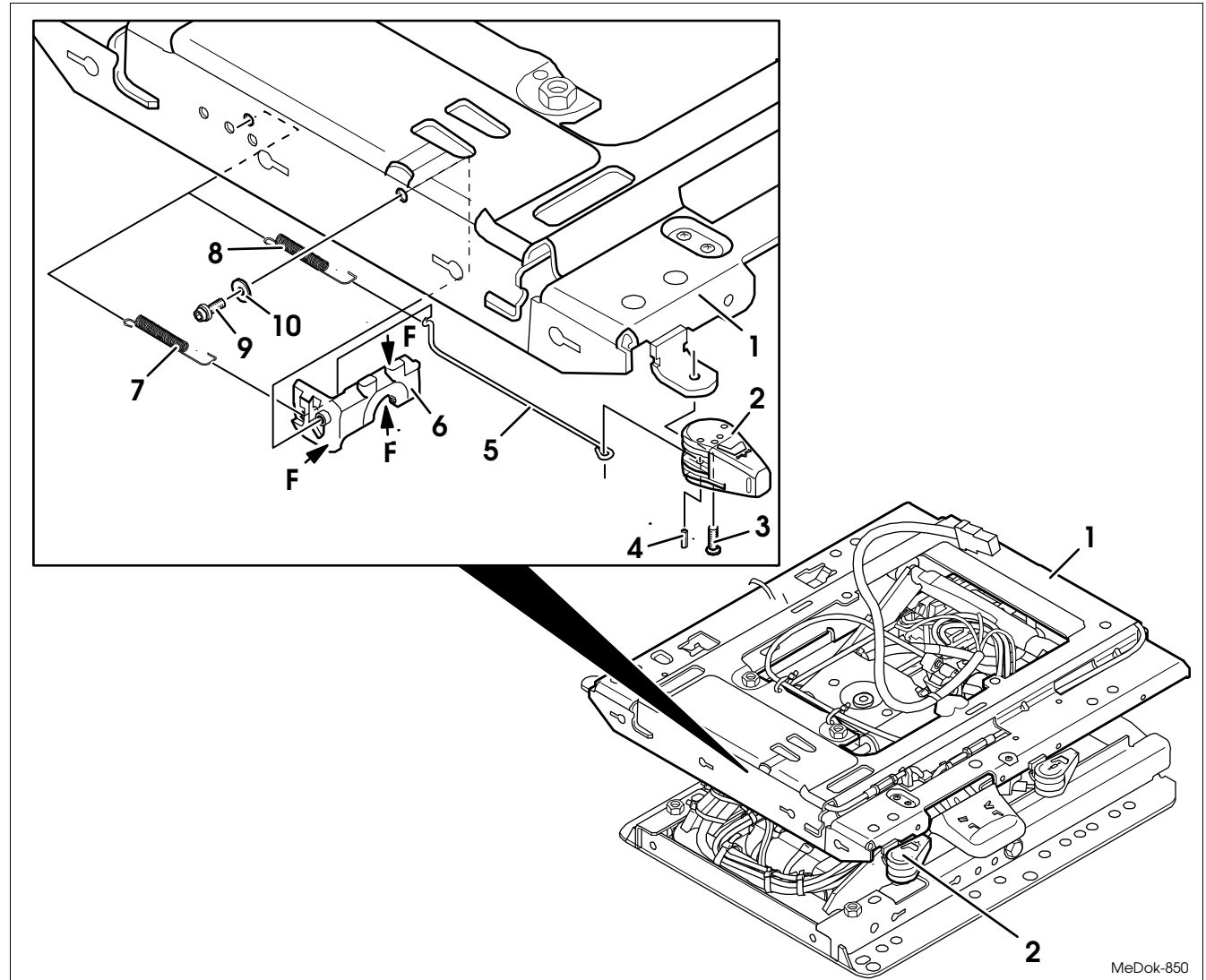
Removal, installation

- 4 Move the suspension system to the highest position and secure.



WARNING Risk of crushing!
Secure the suspension between the swinging structure and lower part of the suspension system with suitable spacers.

- 5 Turn the suspension by 90 degrees and put it down to the right side.



MeDok-850

3.5 Linkage rods, handle for horizontal suspension and locking device – removal and installation

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REMOVAL/INSTALLATION

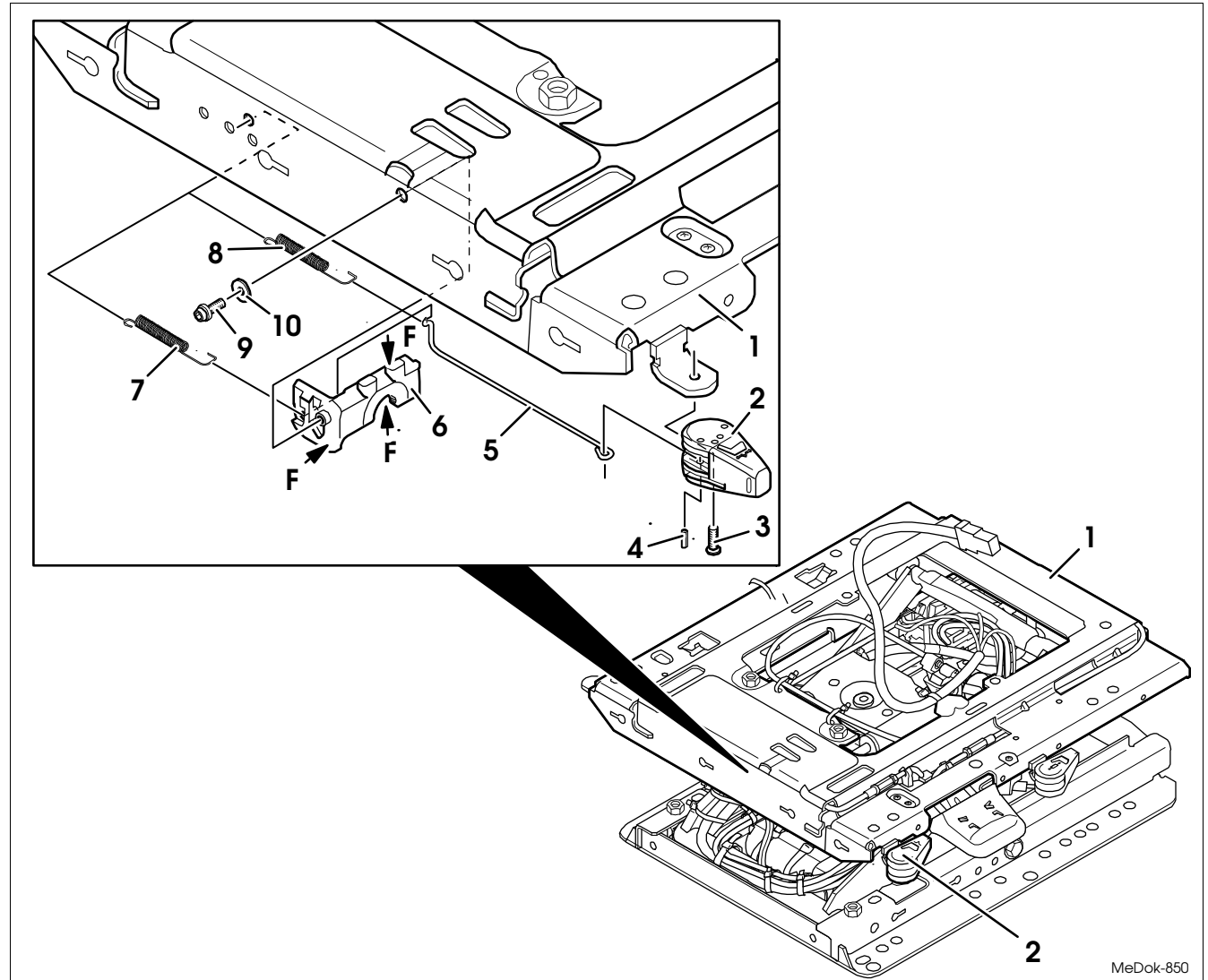
TABLE OF CONTENTS

- 6 Screw out the Torx screw (3) from the handle for the horizontal shock absorber (2).

Installation note:

When you have tightened the Torx screw (3), it must be loosened a little to allow turning of the handle for the horizontal suspension (2).

- 7 Remove the tension spring (8) from the upper suspension part (1) and the linkage rod (5).
- 8 Pull the handle for horizontal suspension (2) off from the upper part of the suspension (1).
- 9 Remove the linkage rod (5) from the stop lever (6).
- 10 Knock out the clamping sleeve (4) from the handle (2) and remove the linkage rod (5).



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3.5 Linkage rods, handle for horizontal suspension and locking device – removal and installation

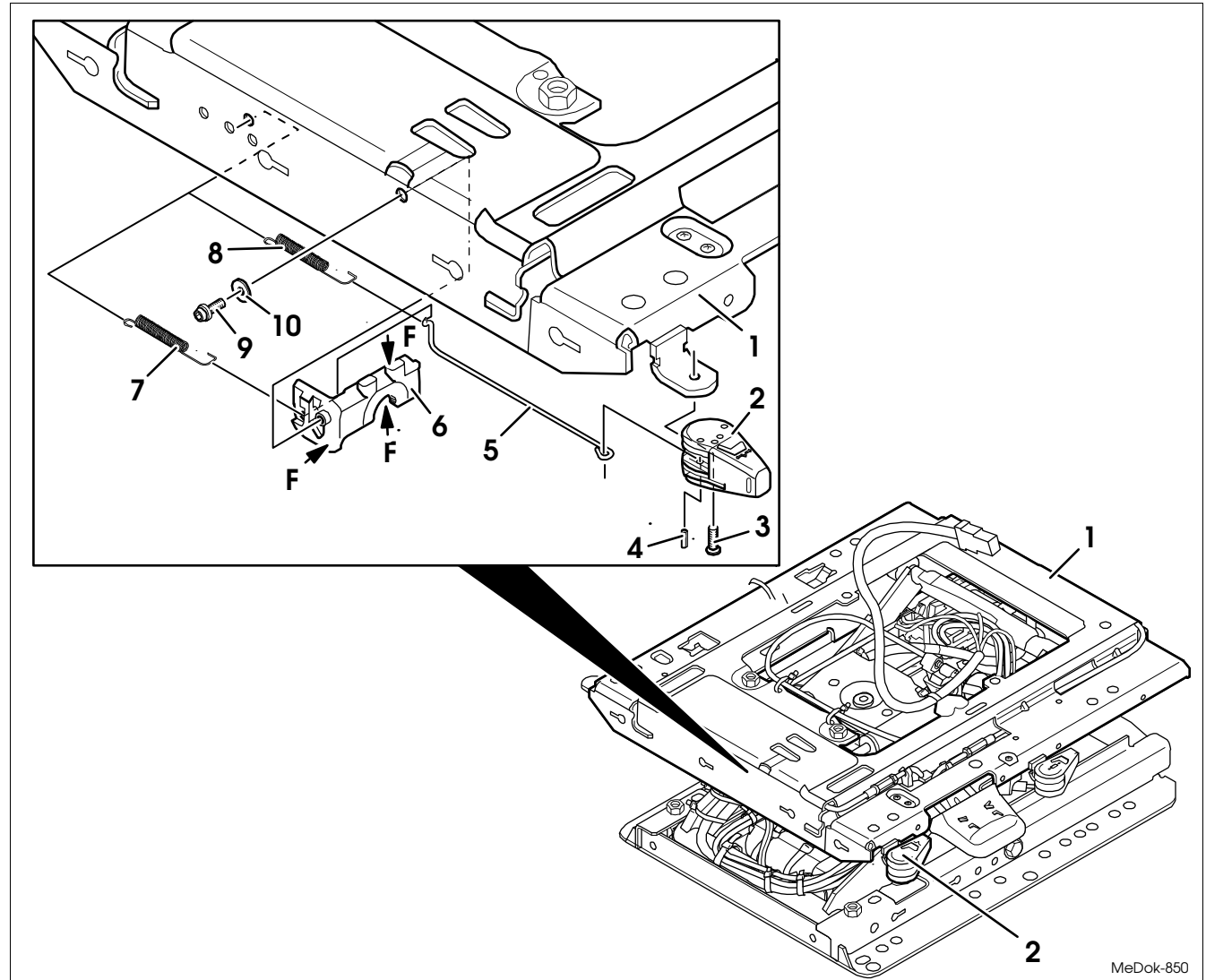
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REMOVAL/INSTALLATION

TABLE OF CONTENTS

- 11 Remove the tension spring (7) from the upper suspension part (1).
- 12 Unscrew the collar screw (9) and remove it with the washer (10).
Installation note:
Collar screw (9), 2.25 Nm.
- 13 Remove the stop lever (6) and take off the tension spring (7).
Installation note:
Apply acid-free multi-purpose lubricant to the surface (F) of the stop lever (6).
- 14 Re-install the components in the reverse order of their removal.



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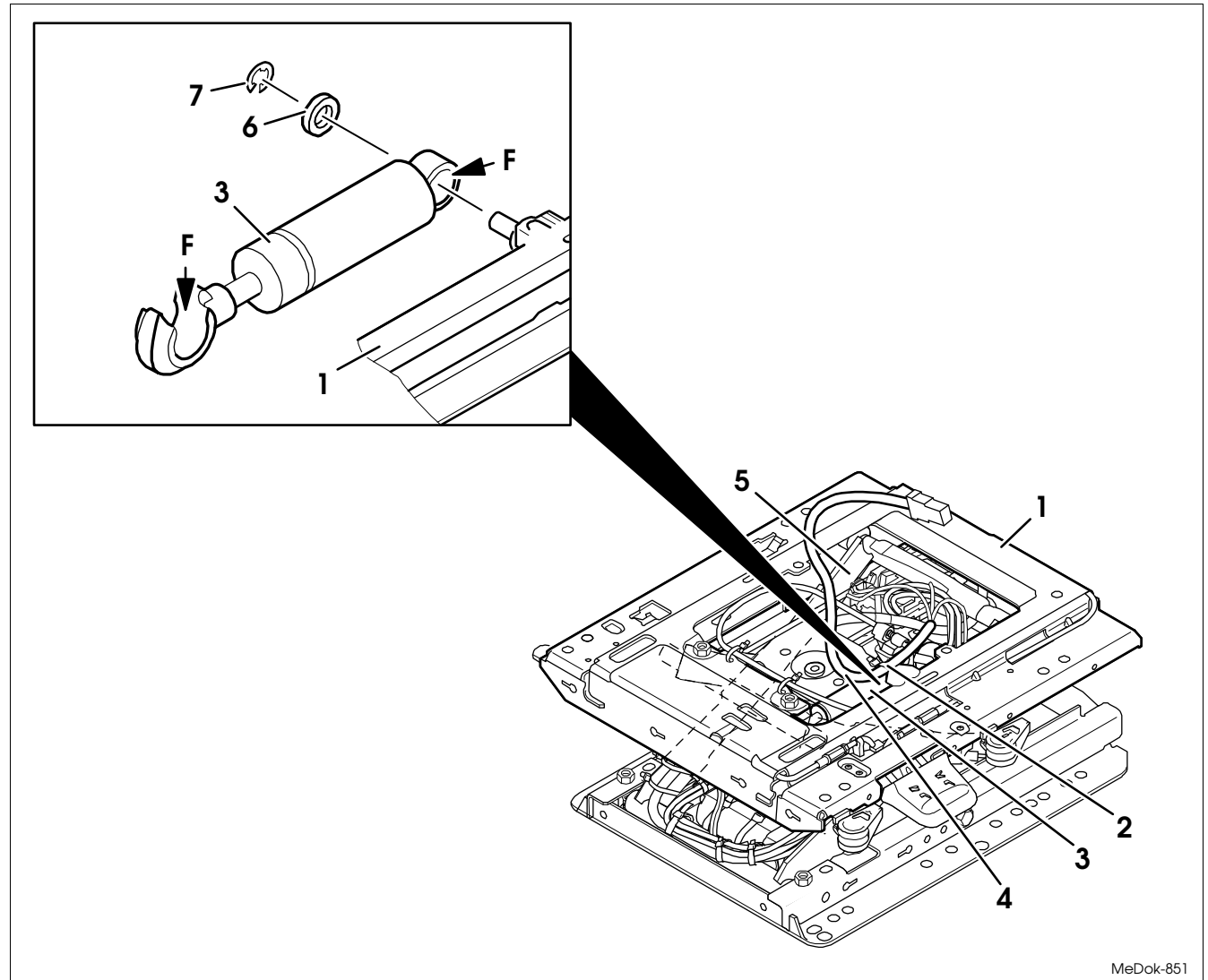
3.6 Horizontal shock absorber – removal and installation



REMOVAL/INSTALLATION

TABLE OF CONTENTS

- (1) Upper suspension part
- (2) Cable tie
- (3) Horizontal shock absorber . lubricate
- (4) Connecting cable
- (5) Swinging structure
- (6) Washer compensating for clearance
- (7) Circlip



- 1 Remove the upper part of the seat (see repair manual for the upper seat part).
- 2 Remove the cover (Chapter 3.1).
- 3 Take off the bellows from the upper part of the suspension system (1) (see Chapter 3.2).

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3.6 Horizontal shock absorber – removal and installation

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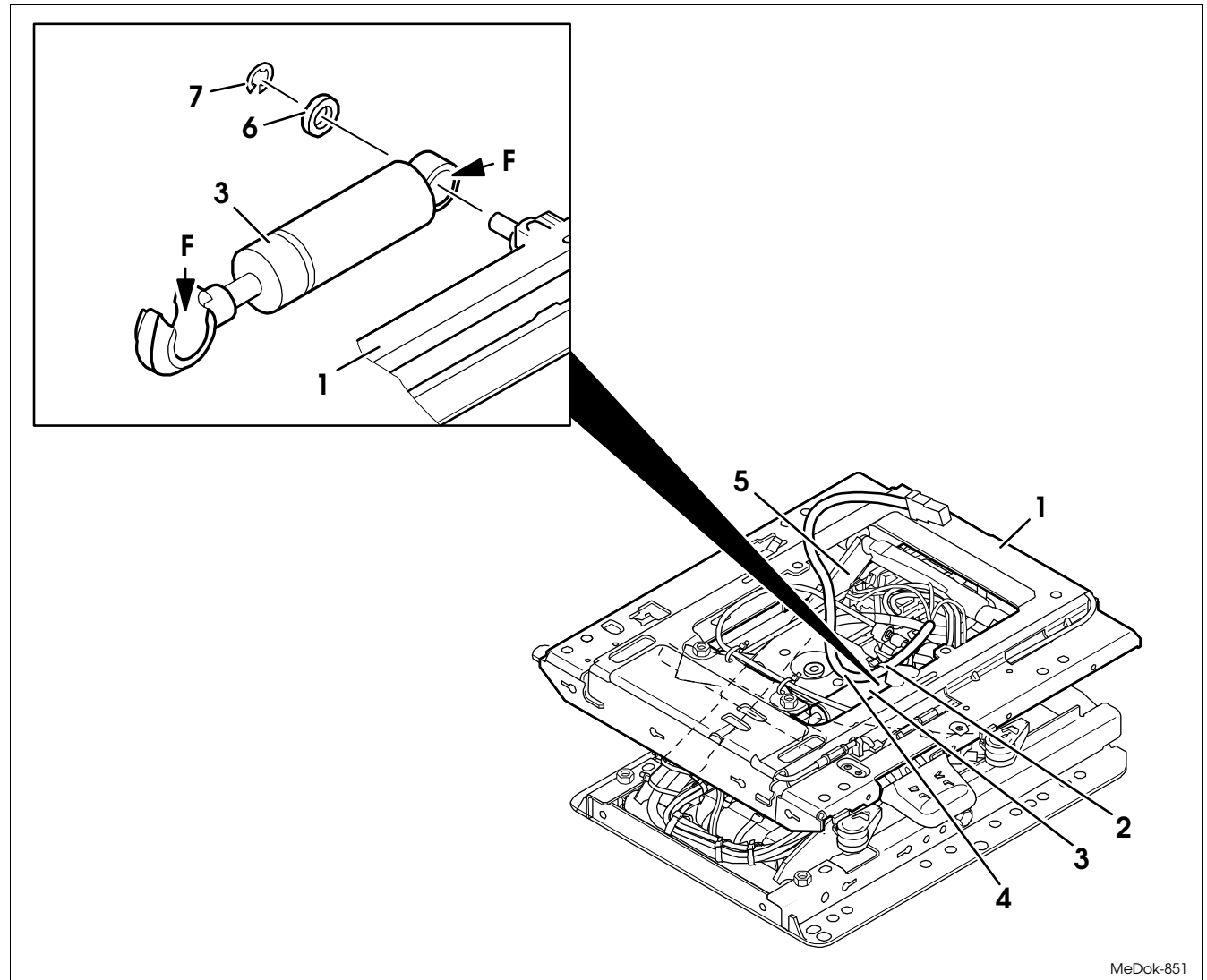
REMOVAL/INSTALLATION

TABLE OF CONTENTS



Removal, installation

- 4 Mark the position where the connecting cable (4) and the horizontal shock absorber (3) are fixed with the cable tie (2) and remove the cable tie (2).
- 5 Loosen up the circlip (7) from the axle of the upper suspension part (1) and remove the washer compensating for clearance (6).



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3.6 Horizontal shock absorber – removal and installation

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REMOVAL/INSTALLATION

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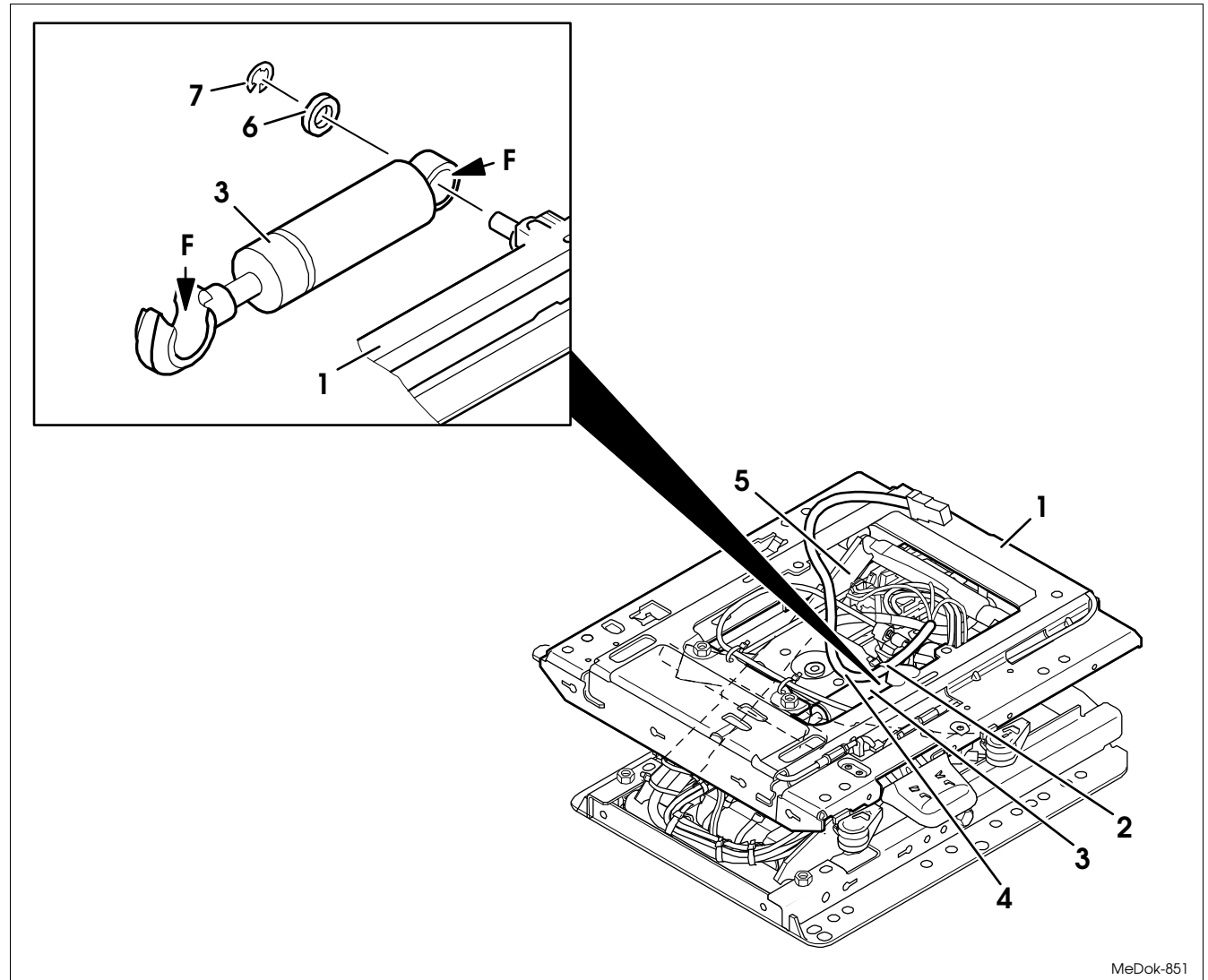


- 6 Lever out the horizontal shock absorber (3) at the swinging tube (5) and push it off the axle of the upper suspension part (1).

Installation notes:

- Press the horizontal shock absorber (3) onto the swinging rod (5) without using driving or hammering tools.
- Apply acid-free multi-purpose lubricant to the mounting surfaces (F) of the horizontal shock absorber (3).

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



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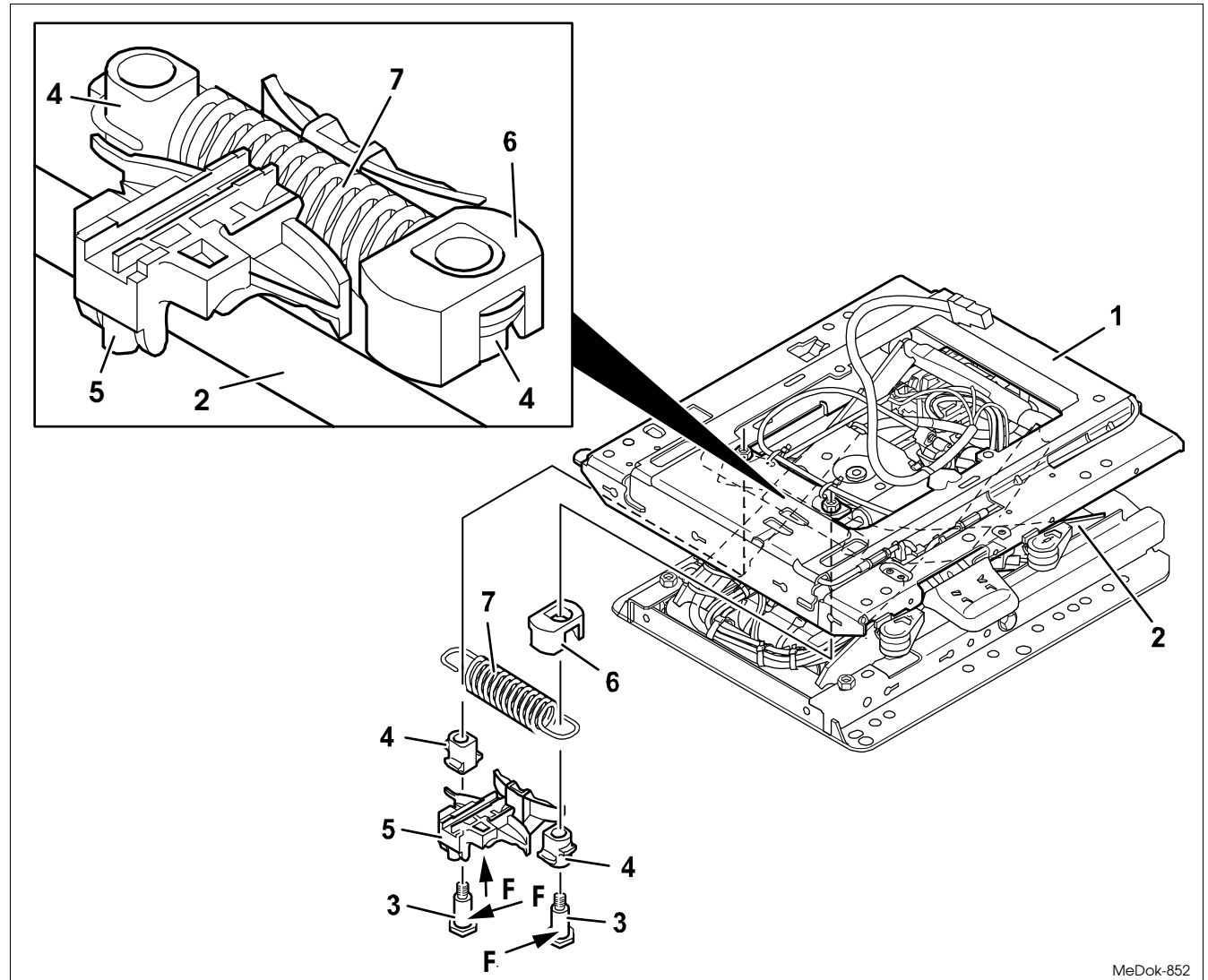
3.7 Horizontal spring unit – removal and installation



REMOVAL/INSTALLATION

TABLE OF CONTENTS

- (1) Upper suspension part
- (2) Swinging structure
- (3) Collar screw (with Torx socket)
..... lubricate, 25 Nm
- (4) Bushing
- (5) Clamp lubricate
- (6) Buffer
- (7) Tension spring



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3.7 Horizontal spring unit – removal and installation

REMOVAL/INSTALLATION

TABLE OF CONTENTS

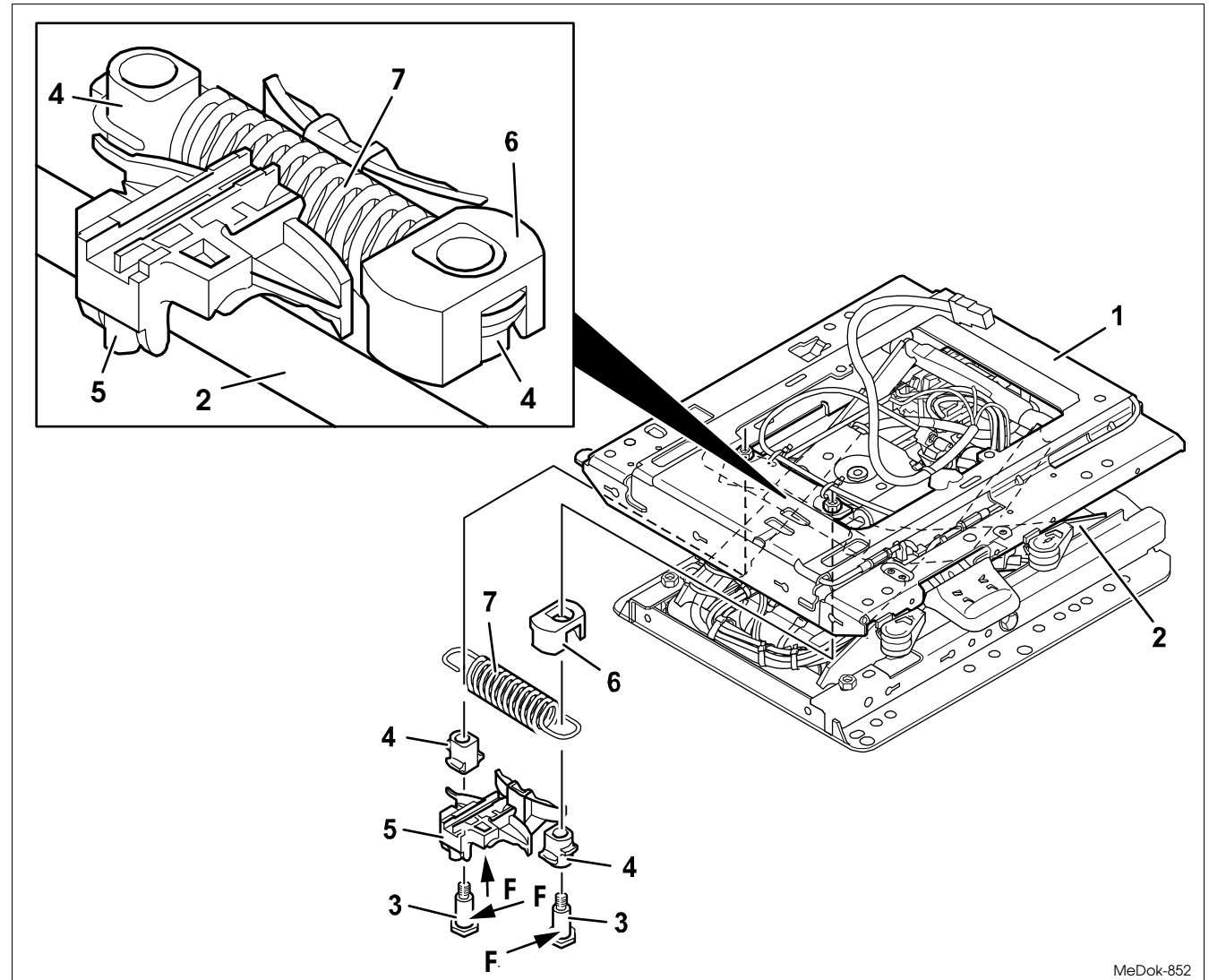
- 1 Remove the upper part of the seat (see repair manual for the upper seat part).
- 2 Remove the cover (Chapter 3.1).
- 3 Take off the bellows from the upper part of the suspension (see Chapter 3.2).

Removal, installation

- 4 Move the suspension system to the highest position and secure it there.



WARNING Risk of crushing!
Secure the suspension between the swinging structure and lower part of the suspension system with suitable spacers.



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3.7 Horizontal spring unit – removal and installation

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REMOVAL/INSTALLATION

TABLE OF CONTENTS

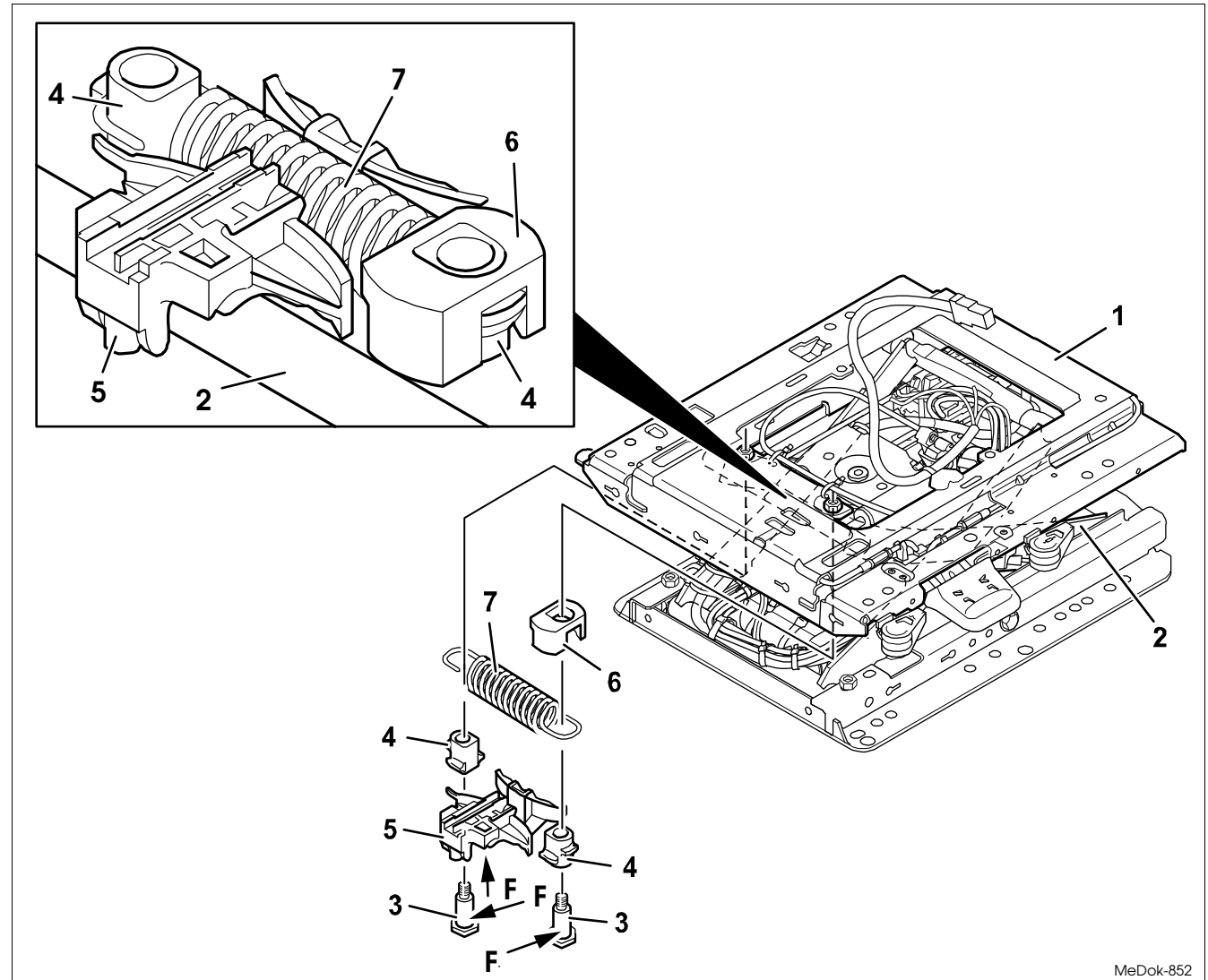


5 Unscrew the two collar screws (3).

Installation notes:

- Collar screw (3), 25 Nm.
- Apply acid-free multi-purpose lubricant to the entire surface (F) of the collar screw (3).
- During the installation, the tension spring (7) is screwed on under tension.

First, tightly screw the leg of the tension spring (7) with buffer (6). Then insert the second collar screw (3) through the bushing (4) and the leg of the tension screw (7) and lever it into the guide element of the thread with the help of a screwdriver (between tension spring (7) and bushing (4)). Now pull the head of the collar screw (3) to the outside, until the collar screw (3) is in a vertical position and screw it in with pressure.



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3.7 Horizontal spring unit – removal and installation

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REMOVAL/INSTALLATION

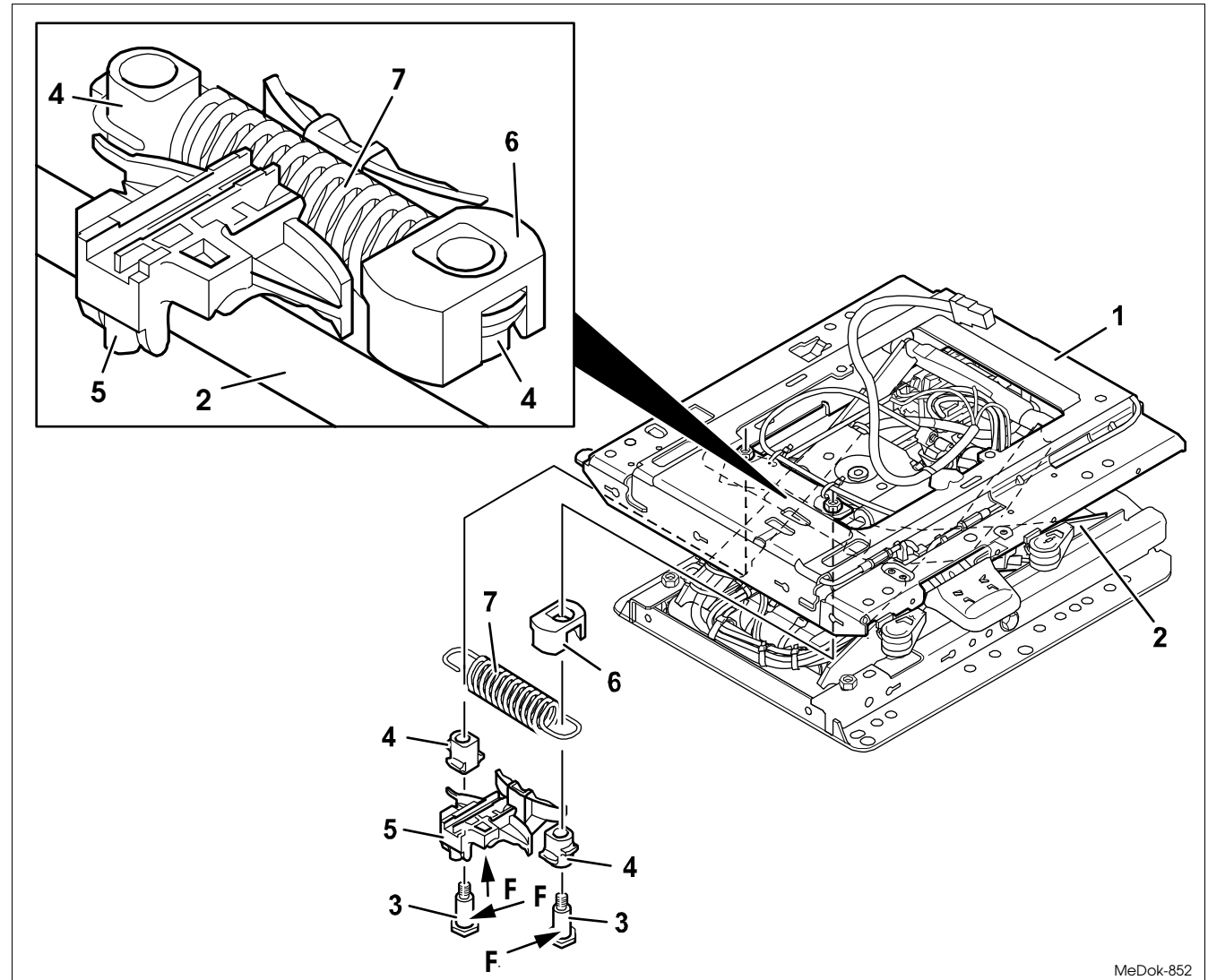
TABLE OF CONTENTS



- 6 Remove the two stops from the upper part of the suspension (1) (see Chapter 3.15).
- 7 Lever out the horizontal shock absorber from the swinging tube (2) (see Chapter 3.6).
- 8 Lift the upper part of the suspension (1) on the front side off the swinging structure (see Chapter 3.15), push it backwards and put it down.
- 9 Press the clamp (5) off the swinging structure (2).

Installation note:

Apply acid-free multi-purpose lubricant to the surface (F) of the clamp (5) where it is connected with the swinging structure.



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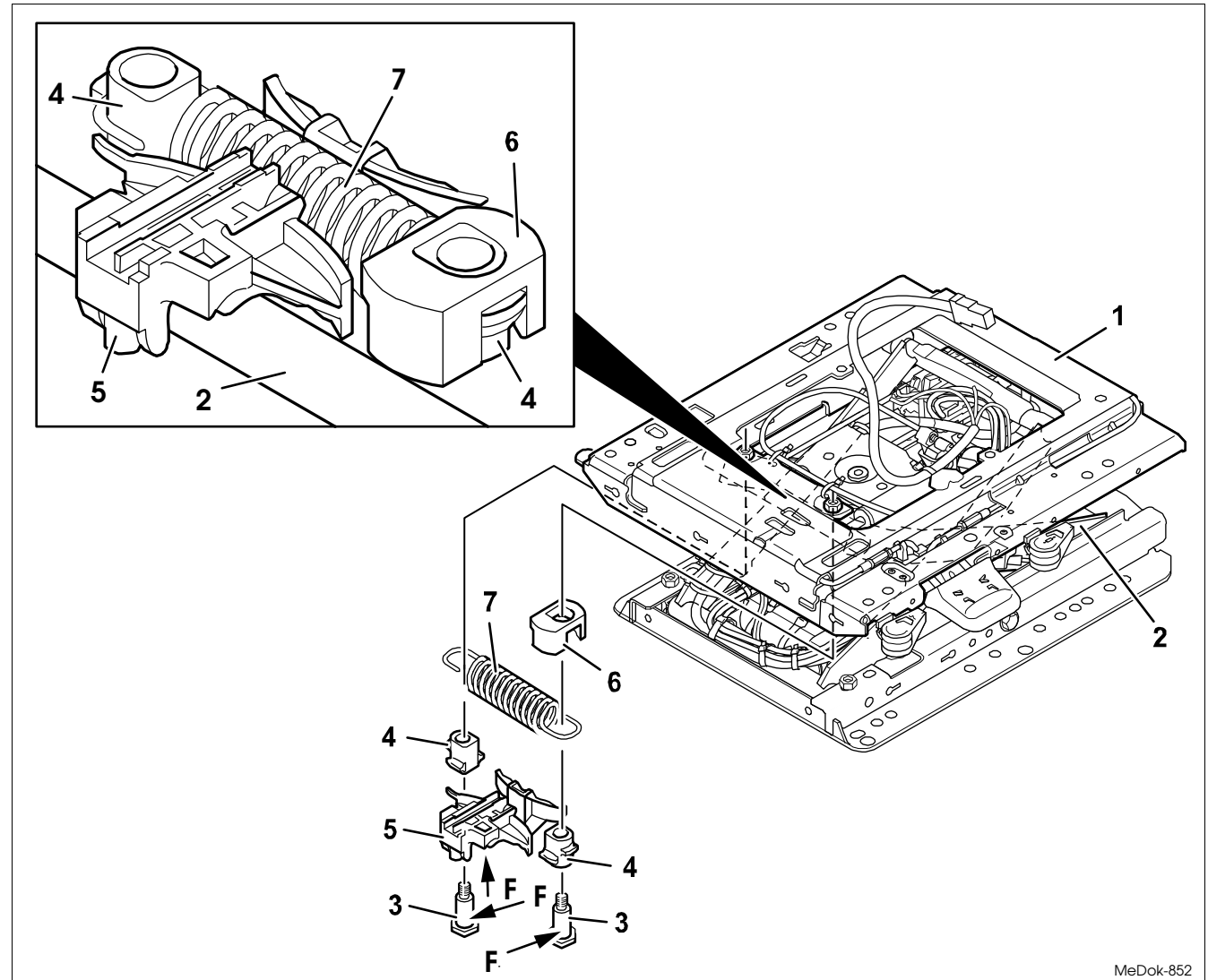
3.7 Horizontal spring unit – removal and installation



REMOVAL/INSTALLATION

TABLE OF CONTENTS

- 10 Remove the two bushings (4) and buffer (6) from the legs of the tension spring (7).
- 11 Remove the tension spring (7) from the clamp (5).
- 12 Re-install the components in the reverse order of their removal.



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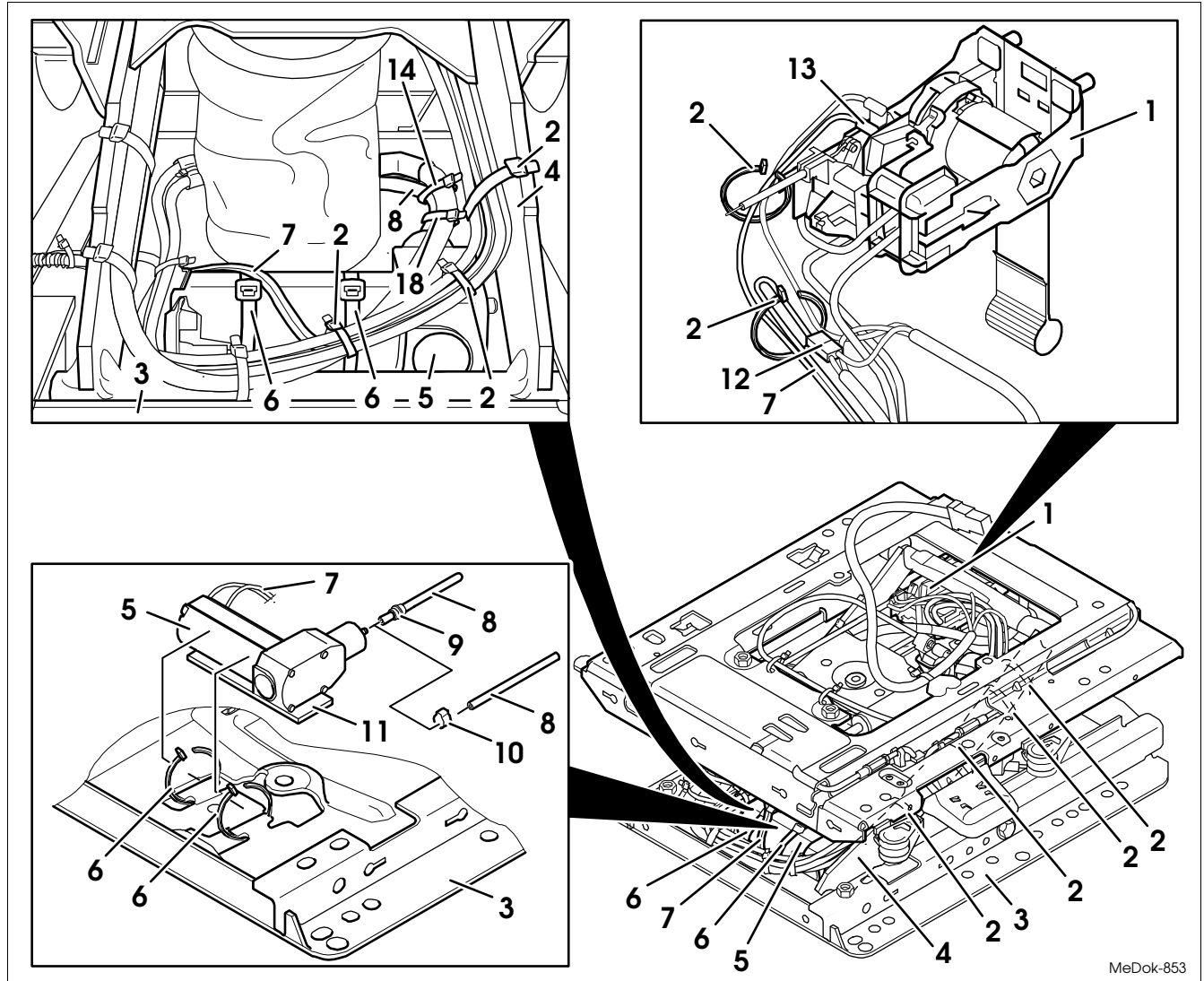
3.8 Compressor – removal and installation



REMOVAL/INSTALLATION

TABLE OF CONTENTS

- (1) Height level control unit
- (2) Cable tie
- (3) Lower part of the suspension system
- (4) Swinging structure
- (5) Compressor
- (6) Cable tie (large) 360 Nm
- (7) Compressor cable
- (8) Compressed-air pipe
- (9) Nozzle
- (10) Hose clamp
- (11) Support
- (12) Flat plug
- (13) Right-angle plug (transparent)
- (14) Cable tie



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3.8 Compressor – removal and installation

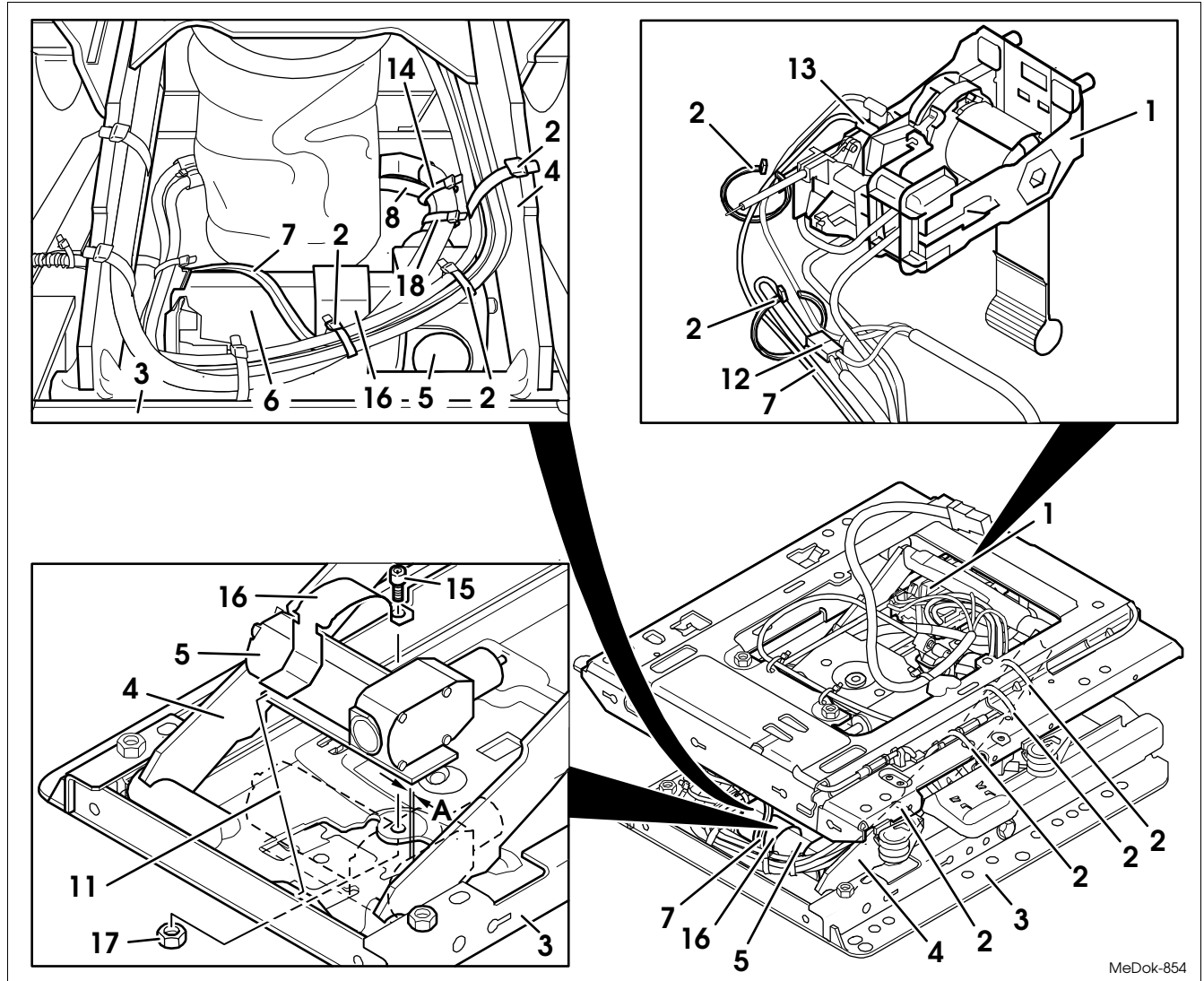


REMOVAL/INSTALLATION

TABLE OF CONTENTS

- (15) Replace the micro-encapsulated cap screw..... 25 Nm
- (16) Fixing bracket
- (17) Hexagon nut
- (18) Cable tie

- 1 Remove the upper part of the seat (see repair manual for the upper seat part).
- 2 Remove the cover (Chapter 3.1).
- 3 Take off the bellows from the upper part of the suspension (see Chapter 3.2).



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3.8 Compressor – removal and installation

REMOVAL/INSTALLATION

TABLE OF CONTENTS



Removal, installation

- 4 Move the suspension system to the highest position and secure it there.



WARNING Risk of crushing!

Secure the suspension between the swinging structure and the lower part of the suspension system with suitable spacers.

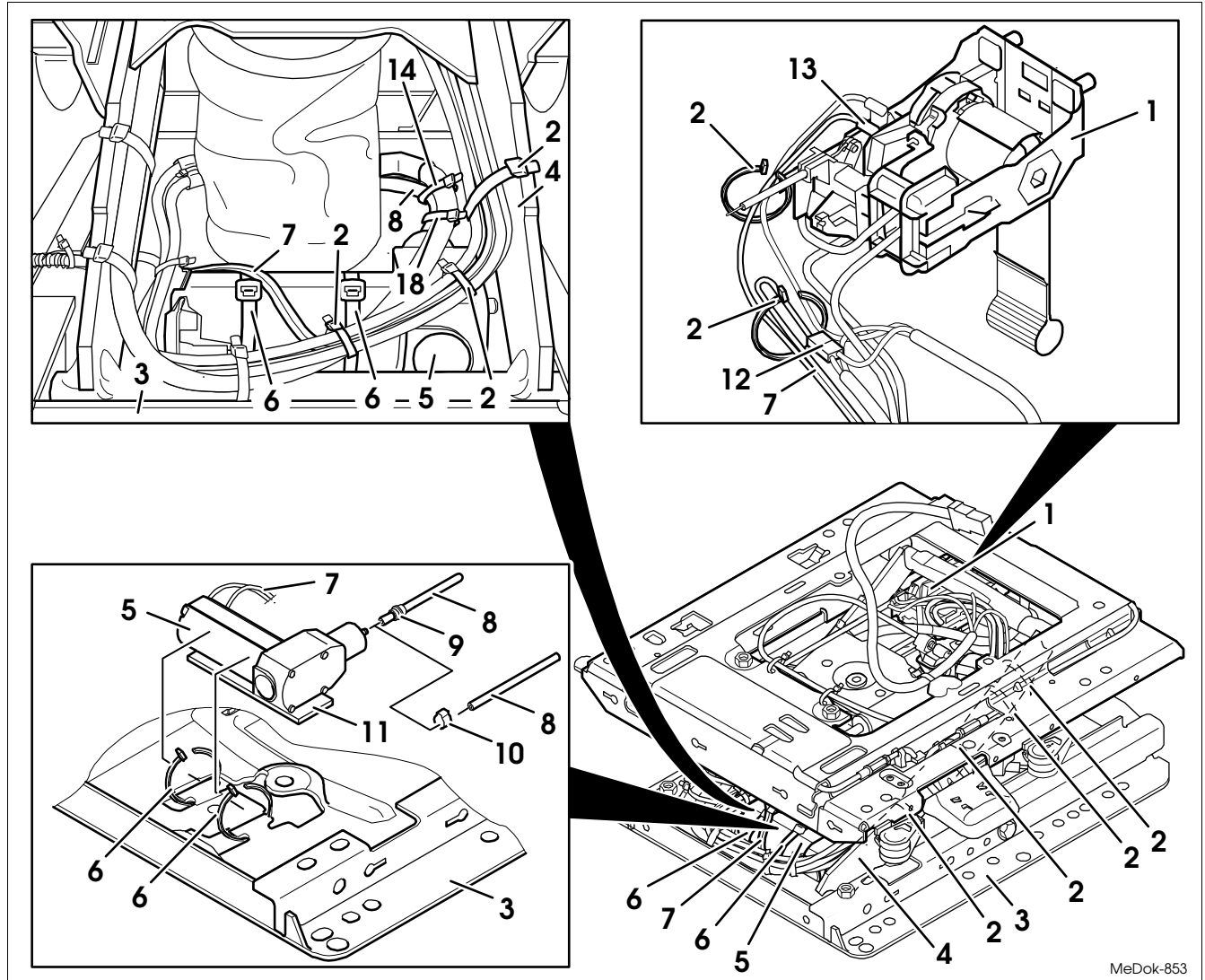
- 5 Mark the positions where the compressor cable (7) is fixed with the eight cable ties (2) and remove the cable ties (2).

Note:

Secure any further hoses and connecting cables temporarily to prevent them from falling down.

Installation note:

Tie back any excess length of the compressor cable (7).



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3.8 Compressor – removal and installation



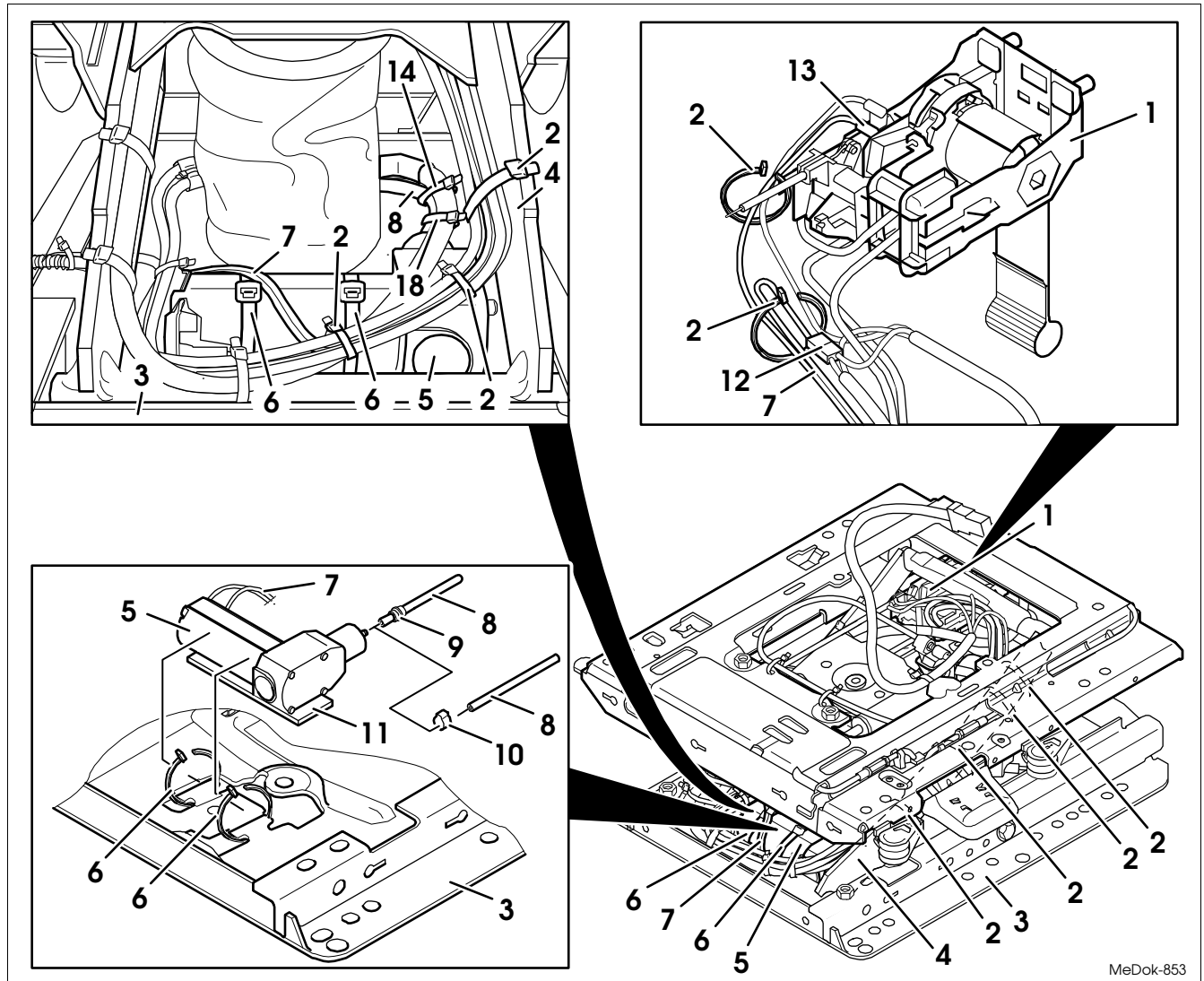
REMOVAL/INSTALLATION

TABLE OF CONTENTS

- 6 Disconnect the right-angle plug (13) from the height level control unit (1).
- 7 Disconnect the electric connector of the flat plug (12).
- 8 Mark the position where the compressed-air hose (8) is secured by means of the cable tie (14) and (18) and remove the cable tie (14) and (18).

Installation note:

The locking head of the cable tie (18) must point away from the air spring.



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3.8 Compressor – removal and installation

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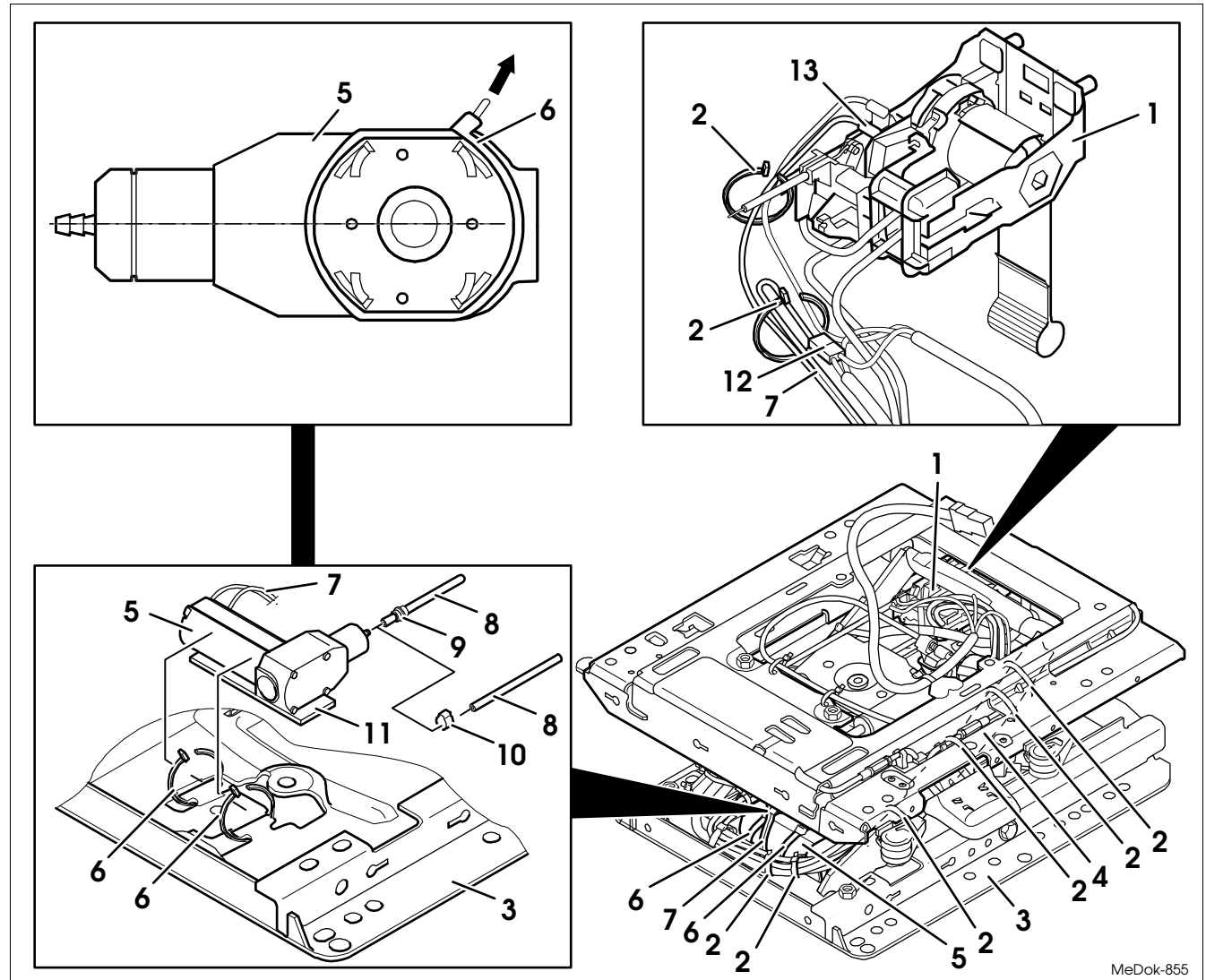
9 Compressor (5) fixed with cable ties (6):

Mark the points where the compressor (5) is fastened with the two cable ties (6) and remove the cable ties (6).

Installation note:

Insert the cable ties (6) through the holes in the lower suspension part (3), so that the locking lug of the cable ties (6) points to the front.

Loosely apply the cable tie (6) until the locking head of the cable tie (6) is located slightly over the front curve of compressor (5) and while the compressor (5) can be still moved. Align the compressor (5) and use the pliers to tighten the locking head of the cable tie (6) to 360 Nm in the direction shown (arrow).



3.8 Compressor – removal and installation



REMOVAL/INSTALLATION

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10 Compressor (5) fixed with brackets (15):

10.1 Undo the micro-encapsulated cap screw (15) and remove the hexagon nut (17).

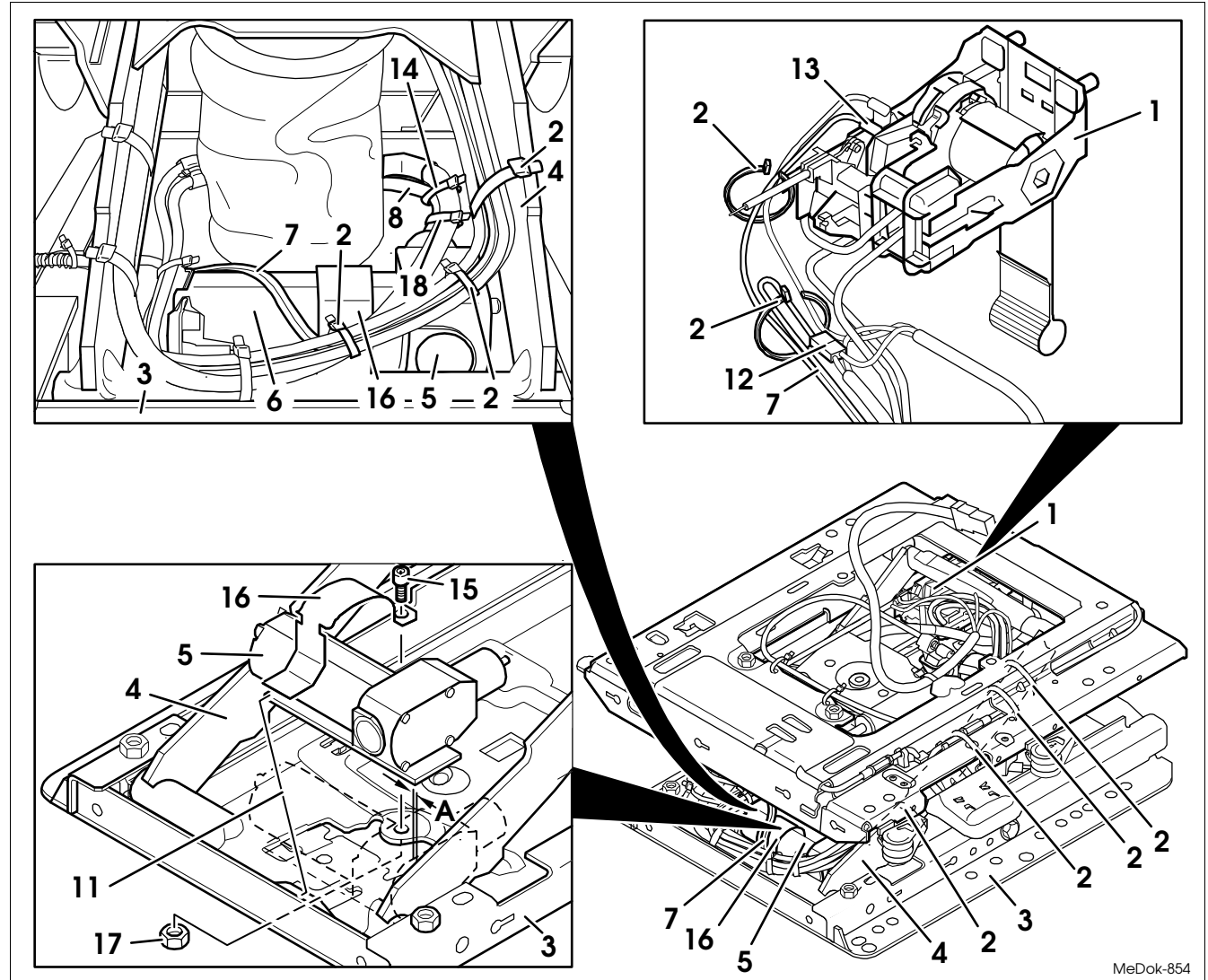
Installation note:

The micro-encapsulated cap screw (15) must be replaced, 25 Nm.

10.2 Unhook the fixing bracket (16) from the lower suspension part (3) and remove it.

Installation note:

Specified value: The distance (A) between arm of the swinging structure (4) and compressor (5) is approx. 9 – 10 mm.



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3.8 Compressor – removal and installation

REMOVAL/INSTALLATION

TABLE OF CONTENTS

11 Hose system with quick fasteners:

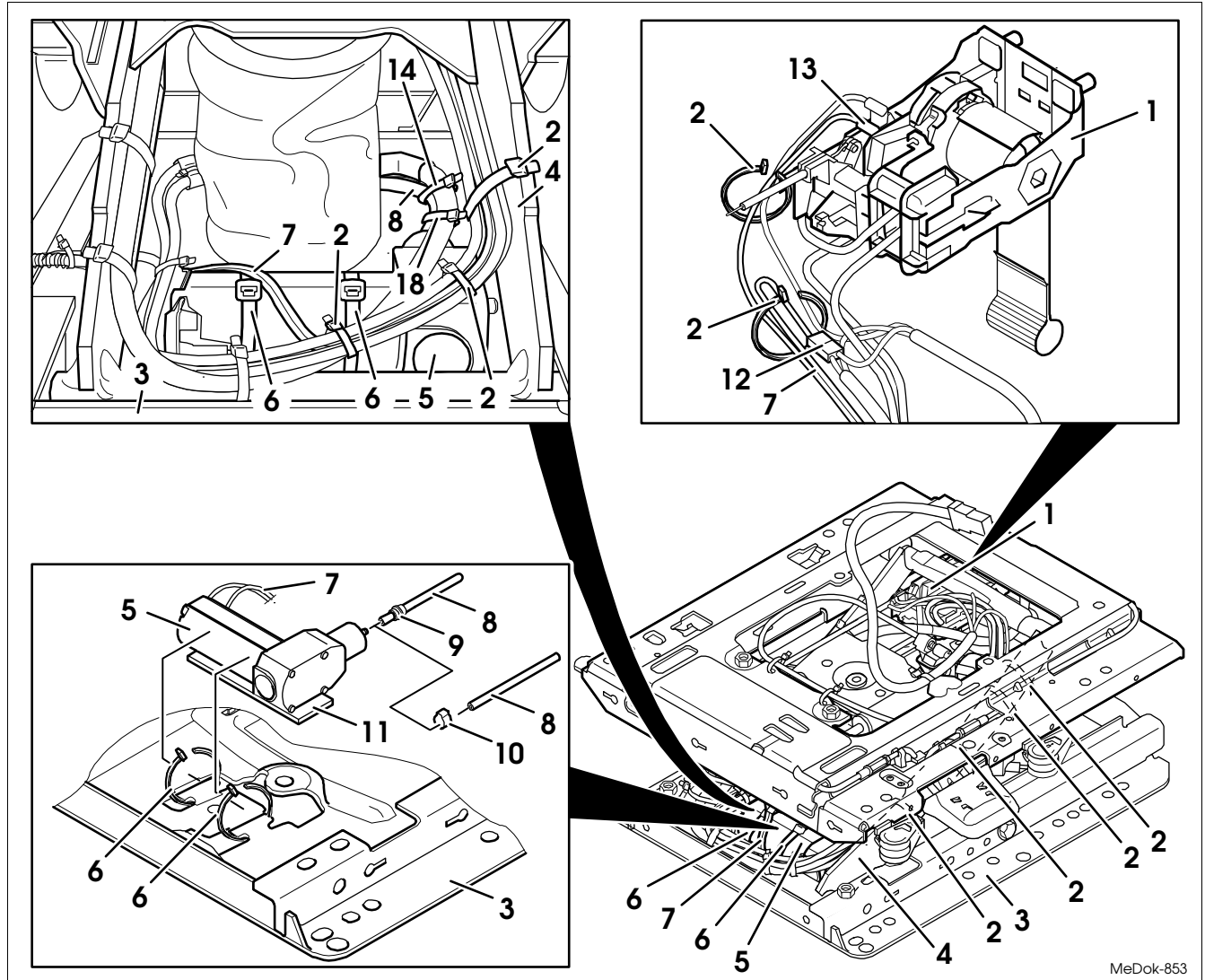
11.1 Pull the nozzle (9) out of the gudgeon of the compressor (5) and push it backwards off the compressed-air hose (8).

11.2 Pull the compressed-air hose (8) off the compressor (5).



ATTENTION Risk of damage!

- Do not use a screwdriver to lift the compressed-air hose (8) off the gudgeon of the compressor (5).
- Heat the compressed-air hose (8) at the head of compressor (5) (e.g. using a hot-air blower) and then, pull it off in one move.



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3.8 Compressor – removal and installation

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12 Hose system with clamps:
 Press on the hose clamp (10) and pull off the compressed-air hose (8) from the gudgeon of the compressor (5).

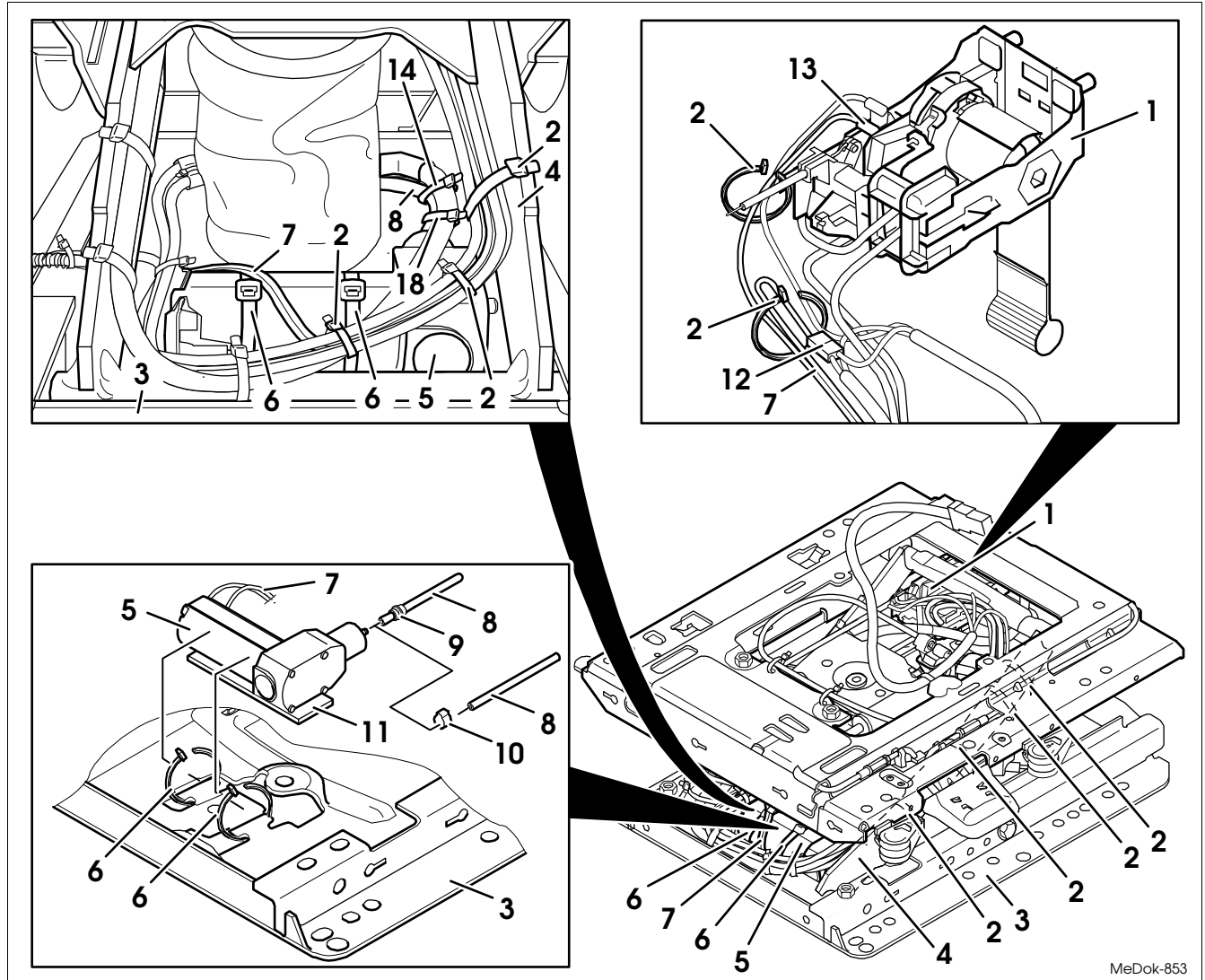


ATTENTION Risk of damage!

Do not damage the gudgeon, otherwise tightness cannot be guaranteed.

Installation notes:

- Clean the gudgeon before mounting the compressed-air hose (8) (see Chapter 3.10.2).
- For installation in a hose system with quick fasteners, the compressed-air hose (8) must be cut to length with a clear, straight cut (see Chapter 3.10.2).



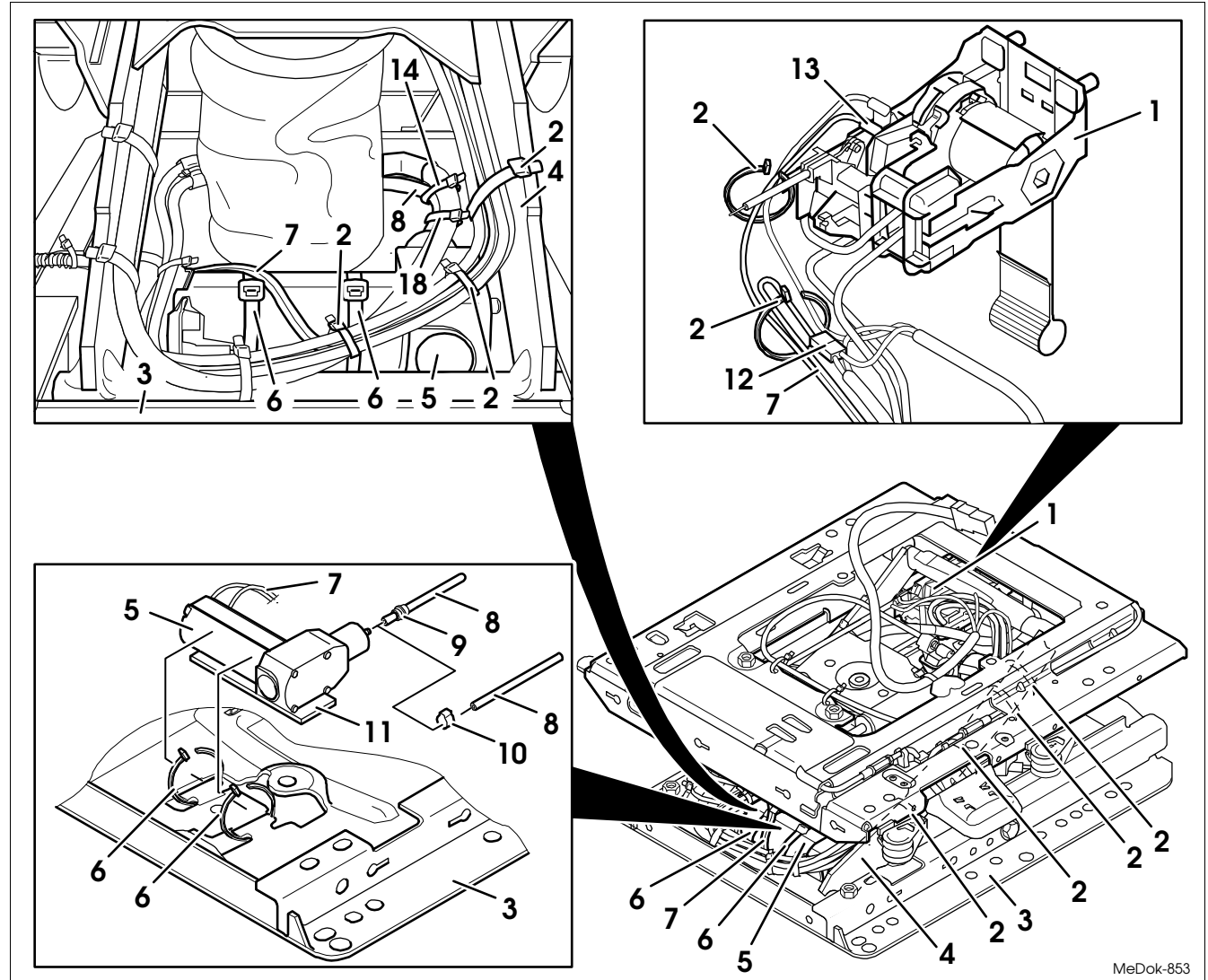
MeDok-853

3.8 Compressor – removal and installation

REMOVAL/INSTALLATION

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- 13 Pull out the compressor cable (7) in a downward direction and remove compressor (5) with the compressor cable (7) to the front.
- 14 Remove the support (10) from the lower part of the suspension (3).
Installation note:
Place the support (10) beneath the compressor (5) so that the compressor (5) and the lower suspension part (3) cannot come into contact.
- 15 Re-install the components in the reverse order of their removal.



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3.9 Height level control system with height limit stop – complete removal and installation

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- 3.9.1 Height level control (micro-switch, outlet valve) – adjustment
- 3.9.2 Height level control with height limit stop – complete removal and installation

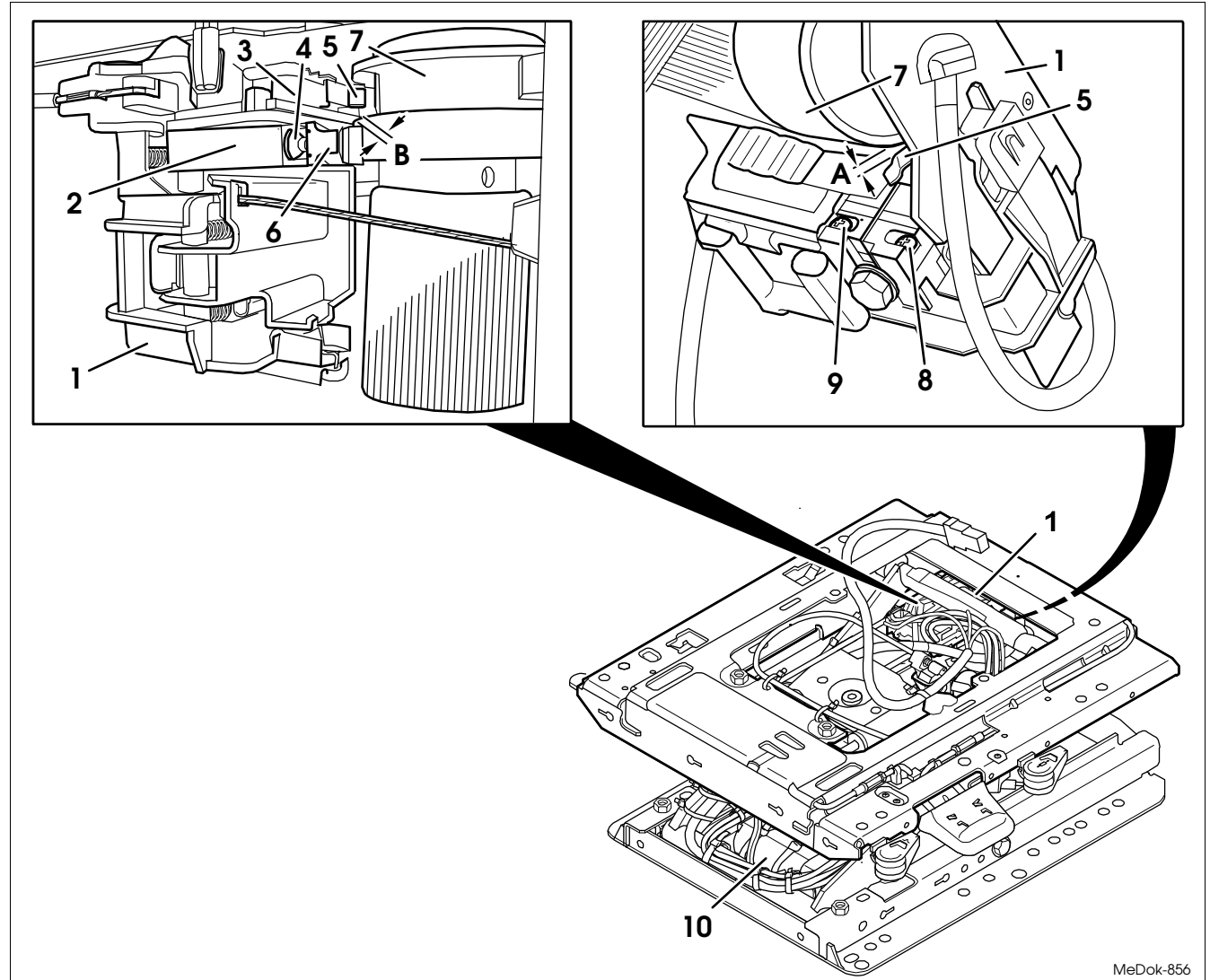
3.9.1 Height level control system (micro-switch, outlet valve) – adjustment



ADJUSTMENT

TABLE OF CONTENTS

- (1) Height level control unit
- (2) Outlet valve
- (3) Micro-switch
- (4) Valve tappets
- (5) Cam switch
- (6) Valve lever
- (7) Cam disc
- (8) Round-head screw (micro-switch)
- (9) Round-head screw (outlet valve)
- (10) Compressor



MeDok-856

3.9.1 Height level control system (micro-switch, outlet valve) – adjustment



ADJUSTMENT

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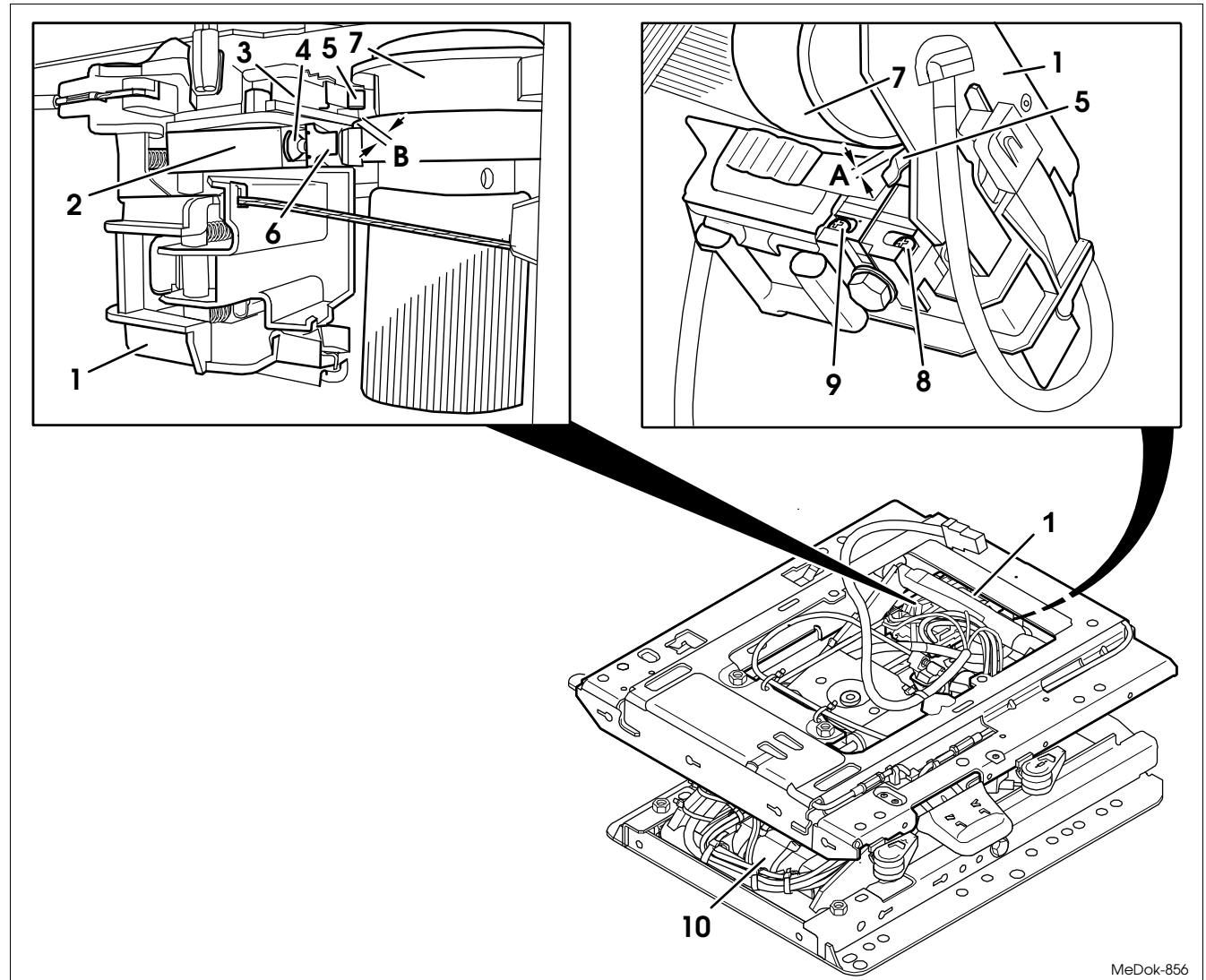
- 1 Remove the upper part of the seat (see repair manual for the upper seat part).
- 2 Remove the cover (Chapter 3.1).
- 3 Take off the bellows from the upper part of the suspension (see Chapter 3.2).

Condition for adjustment:



WARNING Risk of crushing!

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



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3.9.1 Height level control (micro-switch, outlet valve) – adjustment

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ADJUSTMENT

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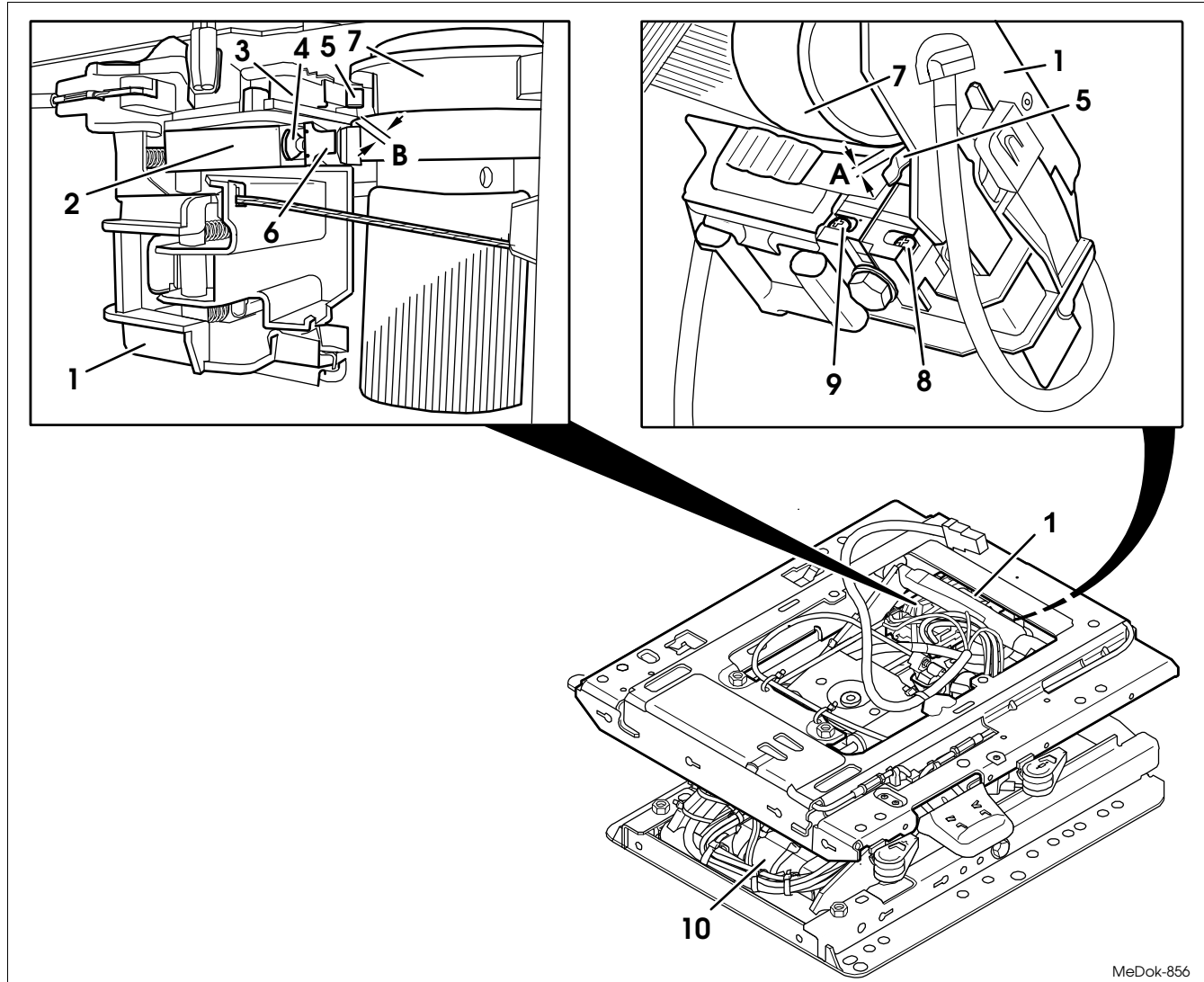
**5 Adjusting the micro-switch (3):**

adjust the clearance between cam switch (5) and cam disc (7) by turning the round-head screw (8).

Notes:**• Specified value:**

Clearance (A) = 0.8 - 1.2 mm.

- Turn the round-head screw (8) to the left, the cam switch (5) is moving towards the cam disc (7).
- Turn the round-head screw (8) to the right, the cam switch (5) is moving away from the cam disc (7).
- When the cam switch (5) is placed on the cam disc (7) under pressure, the compressor (10) will react too early and start already during the compression and expansion of the seat suspension.



MeDok-856

3.9.1 Height level control system (micro-switch, outlet valve) – adjustment

Page 4 of 5

ADJUSTMENT

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**6 Adjusting the outlet valve (2):**

Adjust the clearance between valve lever (6) and cam disk (7) by turning the round-head screw (9).

Notes:

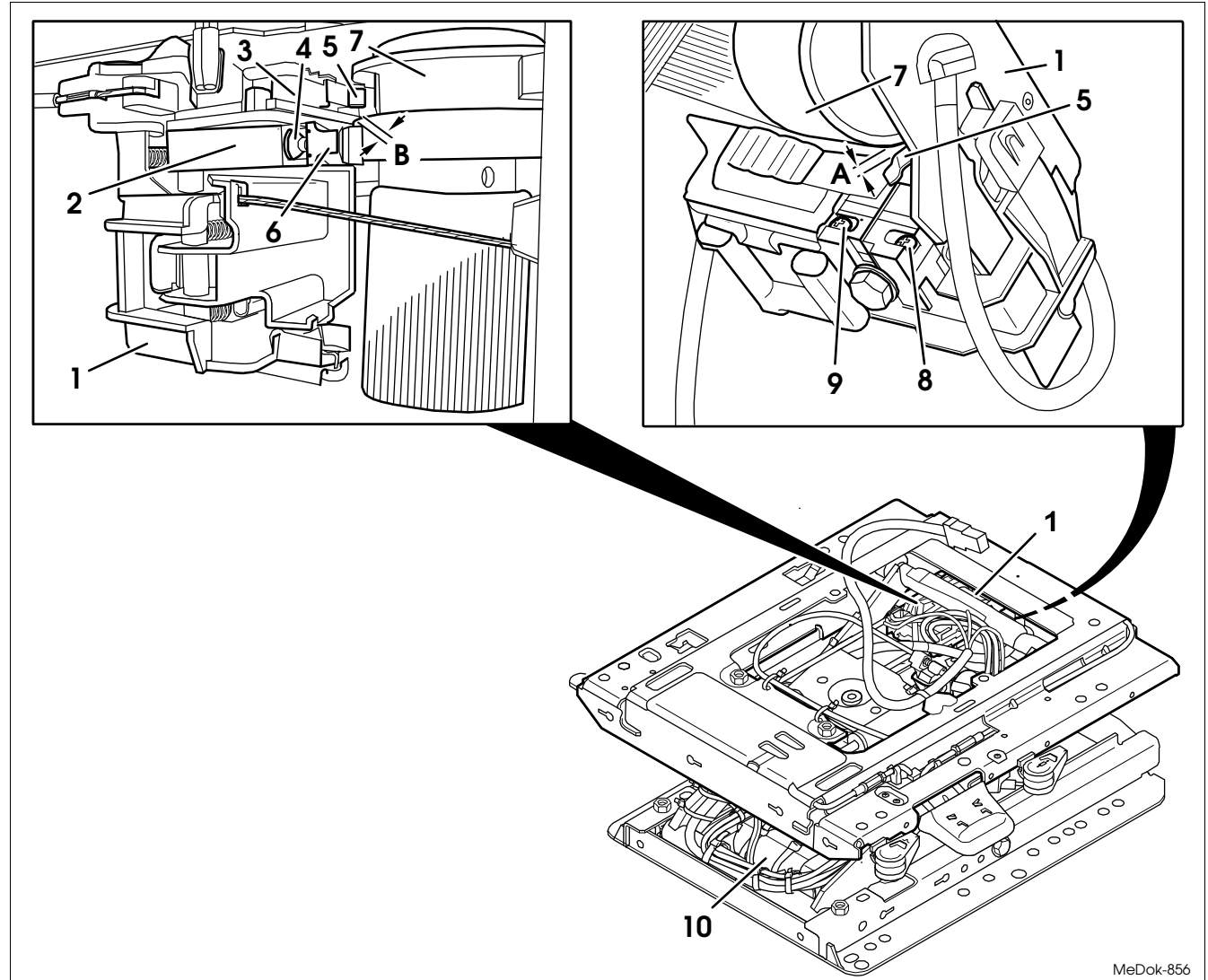
- **Specified value:**

Clearance (B):

Lay a feeler gauge with 1.0 - 1.5 mm between the valve lever (6) and the cam disk (7) (valve must let off air).

- Turn the round-head screw (9) to the left, to move the valve lever (6) is towards the cam disc (7). This increases the pressure on the valve tappets (4) of the outlet valve (2) and the air escapes earlier through the output valve (2).

- Turn the round-head screw (9) to the right, the valve lever (6) is moving away from the cam disc (7). This reduces the pressure applied to the valve tappets (4) of the outlet valve (2) and air escapes through the output valve (2) will be delayed.



MeDok-856

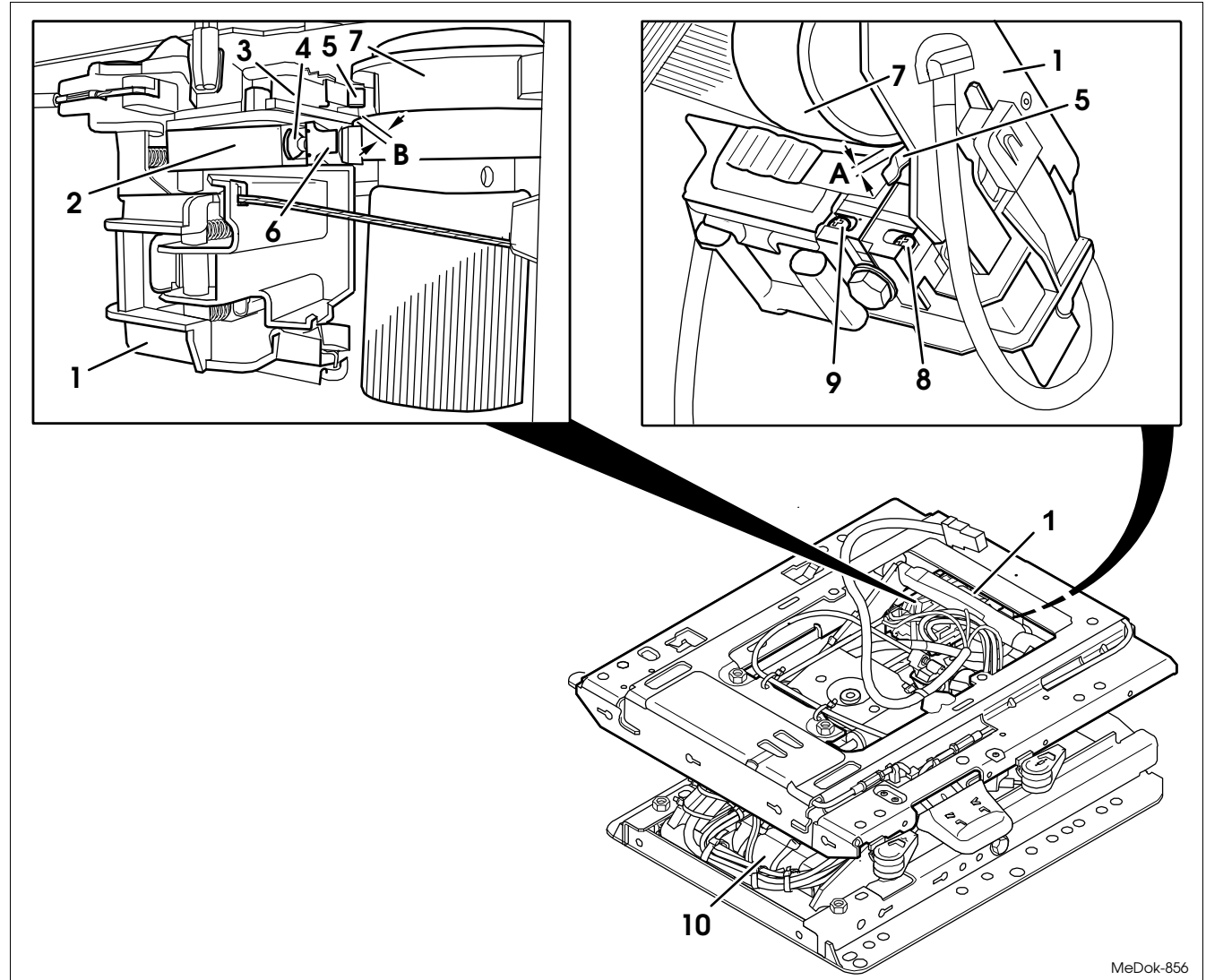
3.9.1 Height level control system (micro-switch, outlet valve) – adjustment

ADJUSTMENT

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- 7 Hang the bellows on the upper part of the suspension (see Chapter 3.2).
- 8 Install the cover (Chapter 3.1).
- 9 Install the upper part of the seat (see repair manual upper seat part).



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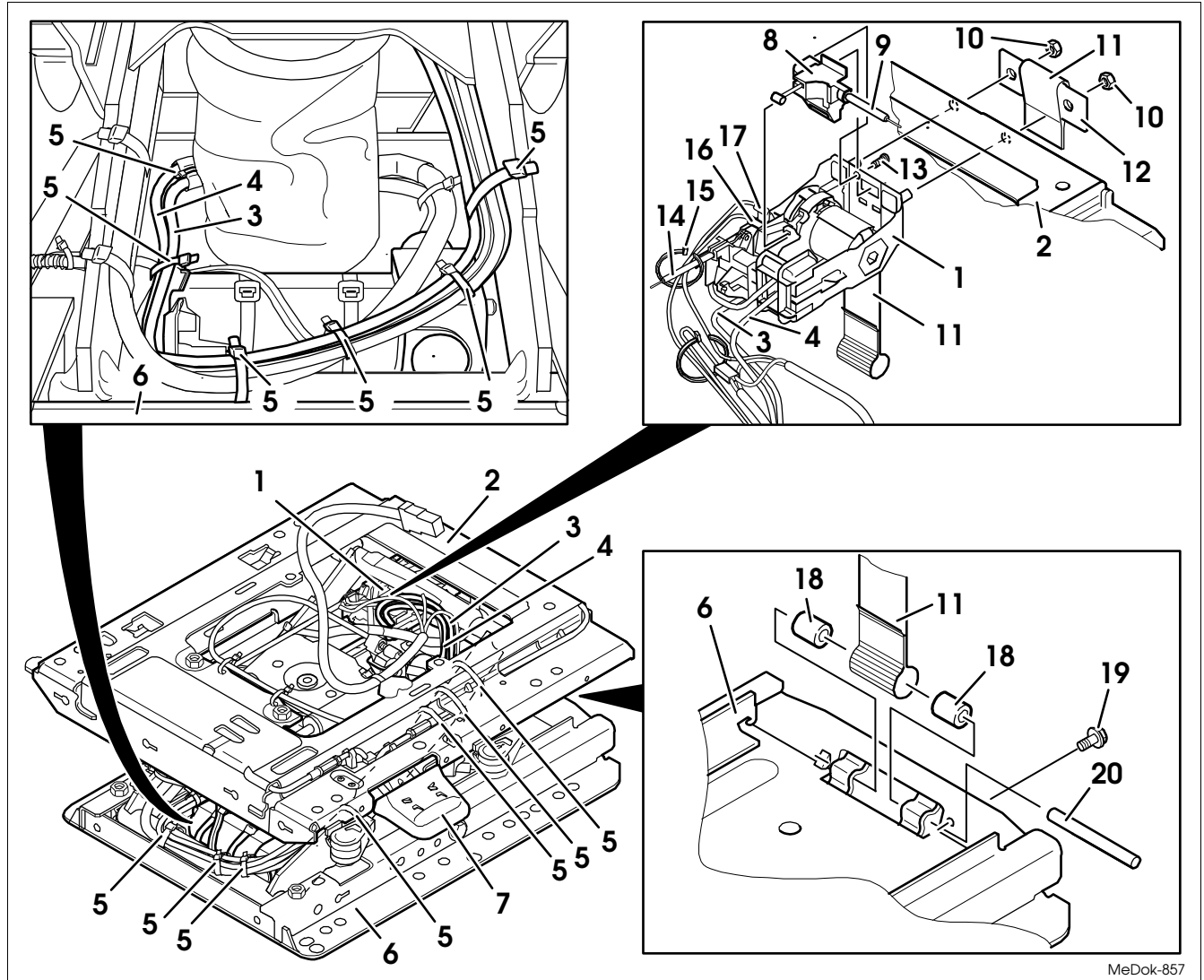
3.9.2 Height level control with limit stop – complete removal and installation



REMOVAL/INSTALLATION

TABLE OF CONTENTS

- (1) Height level control unit
- (2) Upper part of the suspension
- (3) Air intake hose
- (4) Air intake hose
- (5) Cable tie
- (6) Lower part of the suspension
- (7) Handle for seat height adjustment
- (8) Retainer for Bowden pull wire
- (9) Bowden pull wire
- (10) Hexagon nut
- (11) Webbing
- (12) Plate
- (13) Torx screw
- (14) Bowden pull wire
- (15) Cable tie
- (16) Right-angle plug (transparent)



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3.9.2 Height level control with limit stop – complete removal and installation



REMOVAL/INSTALLATION

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(17) Right-angle plug (black)

(18) Buffer

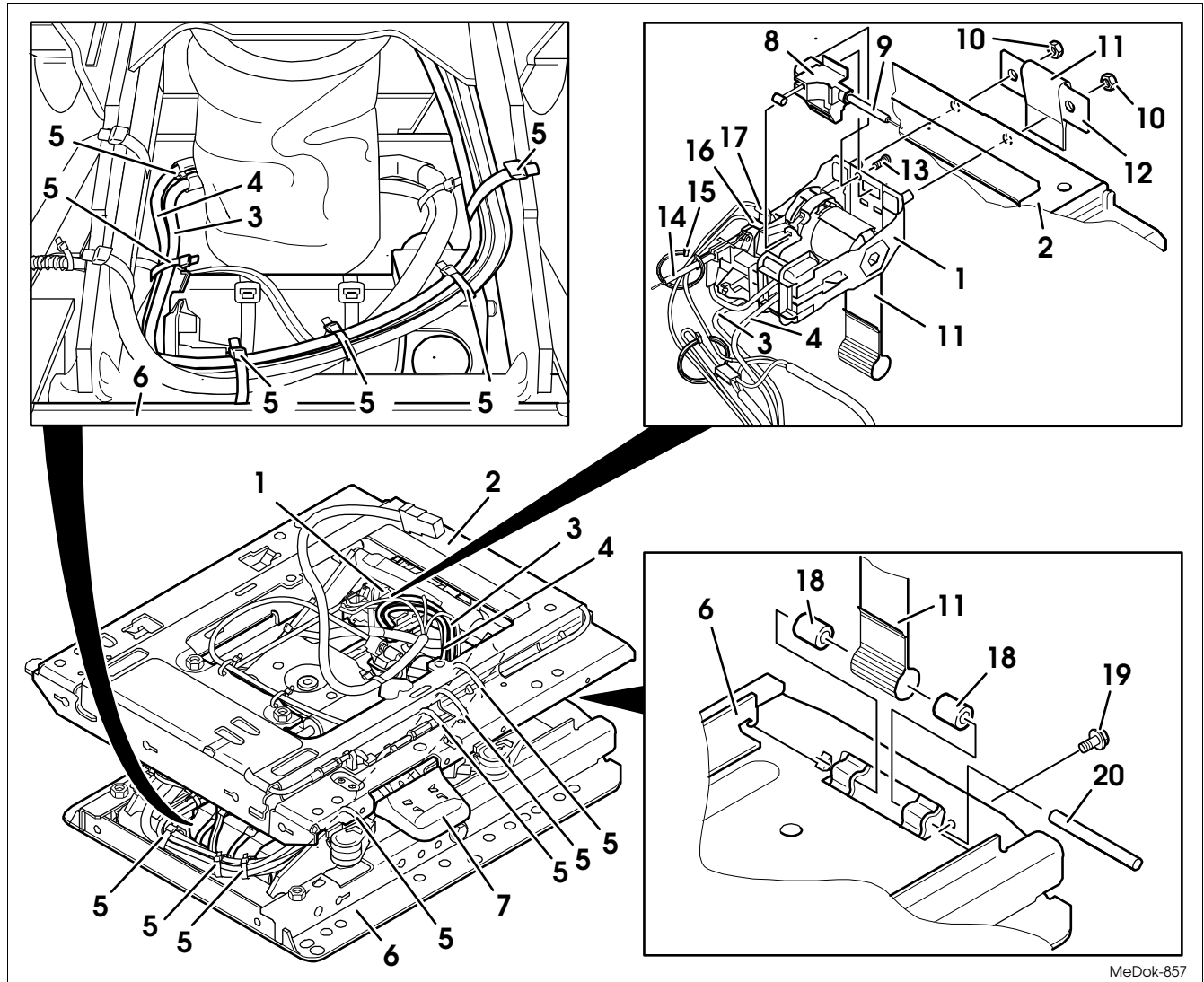
(19) Hexagon bolt

(20) Stud

1 Remove the upper part of the seat
(see repair manual for the upper seat part).

2 Remove the cover (Chapter 3.1).

3 Remove the bellows (Chapter 3.2).



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3.9.2 Height level control with limit stop – complete removal and installation



REMOVAL/INSTALLATION

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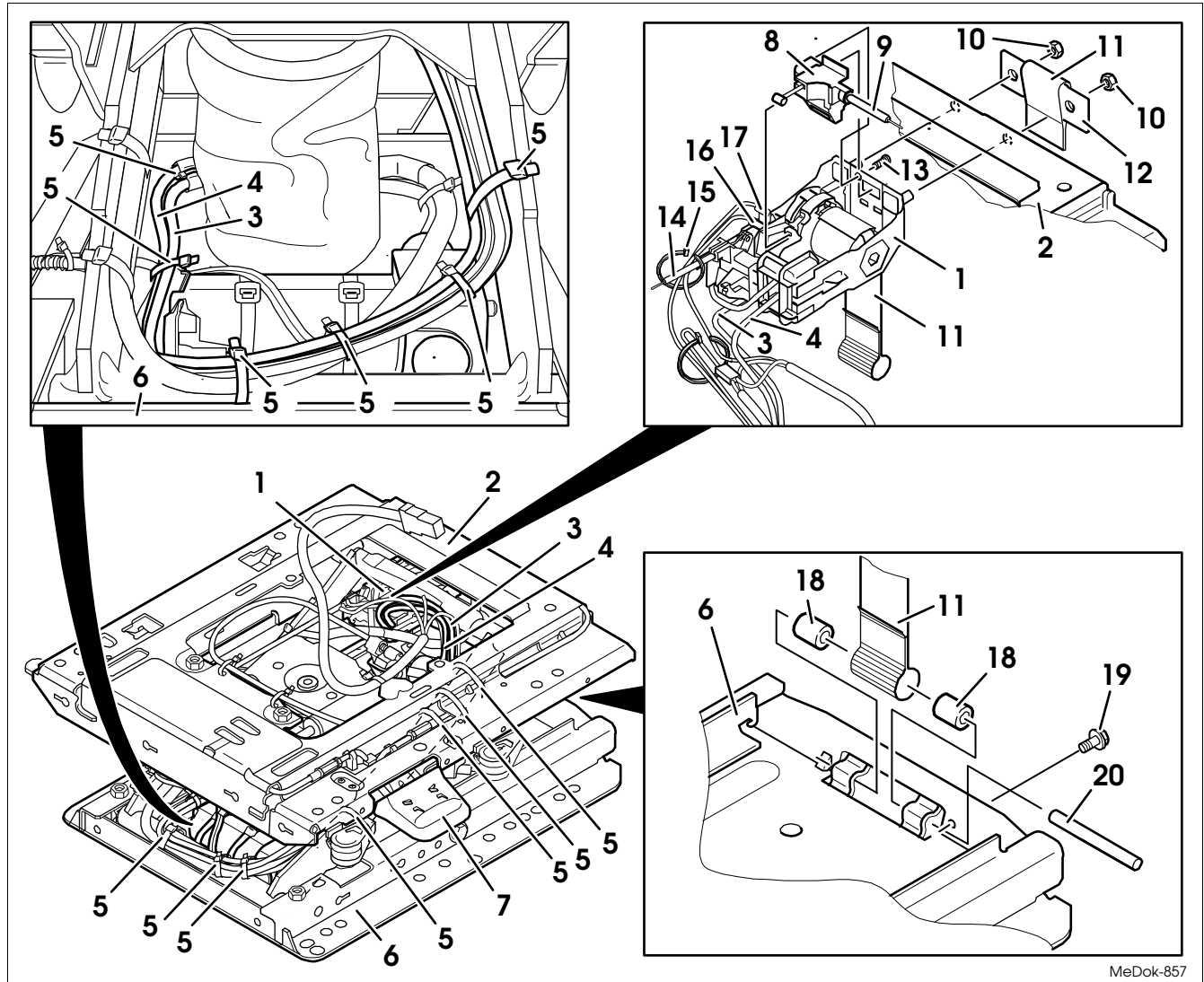
Removal, installation

- 4 Move the suspension system to the highest position and secure it there.



WARNING Risk of crushing!
Secure the suspension between the swinging structure and lower part of the suspension system with suitable spacers.

- 5 Unscrew the hexagon bolt (19) located on the lower part of the suspension (6).
- 6 Knock out the stud (20) from the lower part of the suspension (6) and withdraw it through the loop of the webbing (11). Hold the webbing (11) and let it carefully roll back to the rewriter on the height level control unit (1).



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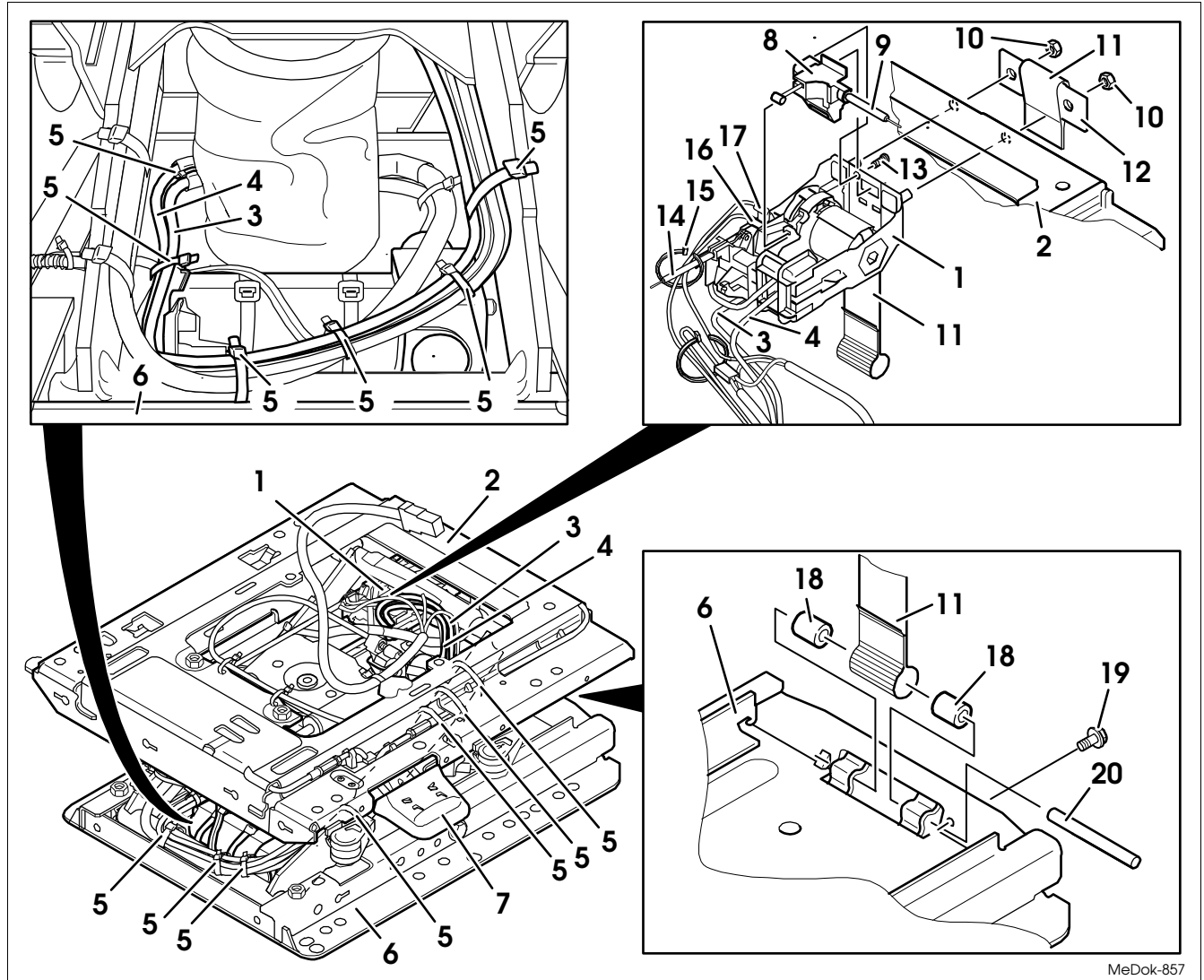
3.9.2 Height level control with limit stop – complete removal and installation



REMOVAL/INSTALLATION

TABLE OF CONTENTS

- 7 Secure by re-insert the stud (20) temporarily again through the loop of the webbing (11).
- 8 Remove the two buffers (18) from the loop of the webbing (11).
- 9 Mark the points where the air intake hose (3 and 4) is fastened with nine cable ties (5) and remove the cable ties (5).
- 10 Secure any further hoses and connecting lines temporarily to prevent them from falling down.
- 11 Remove the air intake hose (3 and 4) from the pneumatic spring (see Chapter 3.10).



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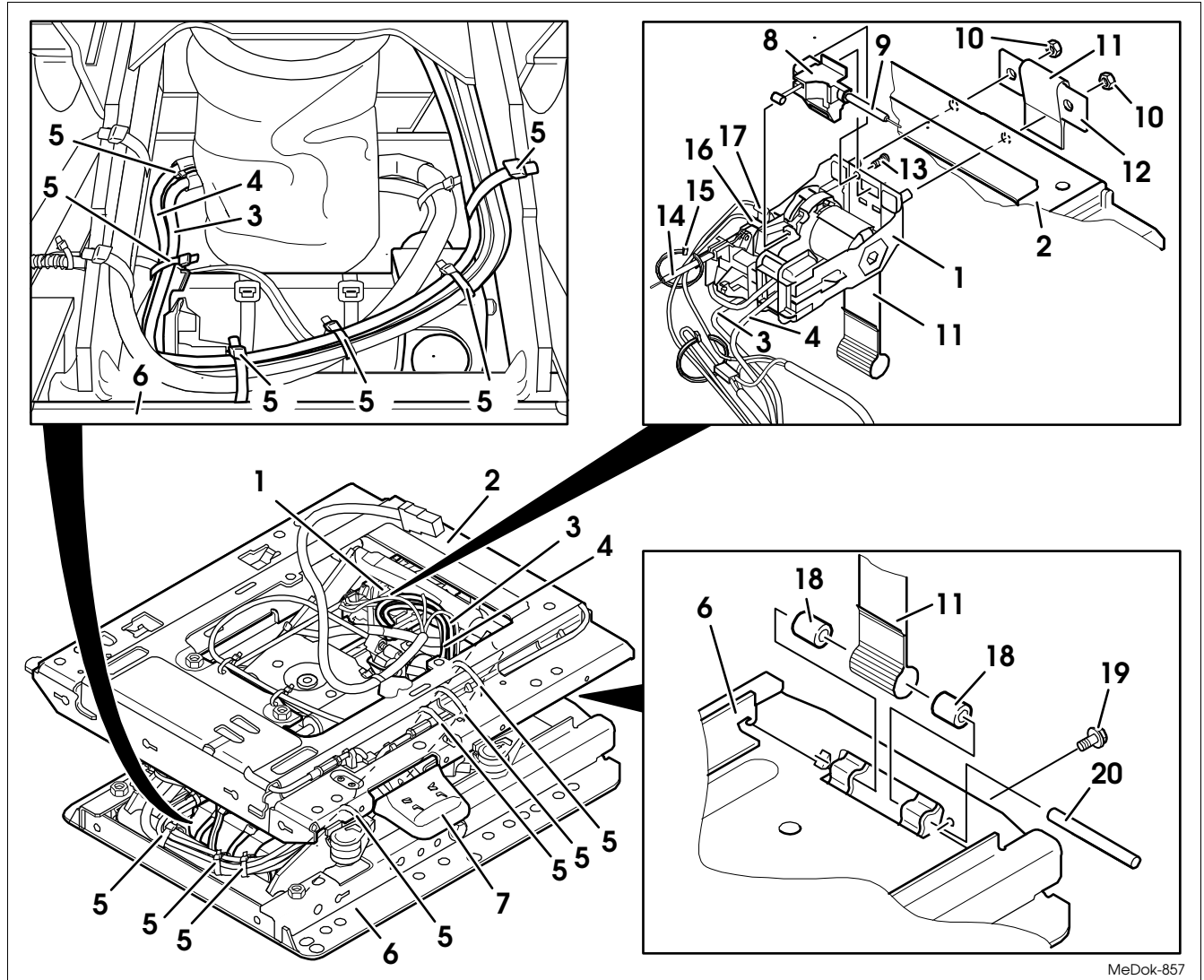
3.9.2 Height level control with limit stop – complete removal and installation



REMOVAL/INSTALLATION

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- 12 Mark the point where the cable is fastened with the right-angle plug (16 and 17) with a cable tie (15) and then remove the cable tie (15).
- 13 Mark and then disconnect the right-angle plugs (16 and 17) from the height level control unit (1).
Installation note:
Install the right-angle plugs (16 and 17) as marked.
- 14 Unhook the Bowden pull wire (9) from the height level control unit (1). To release the tension from the Bowden pull wire (9) pull the handle for height adjustment (7) upwards.



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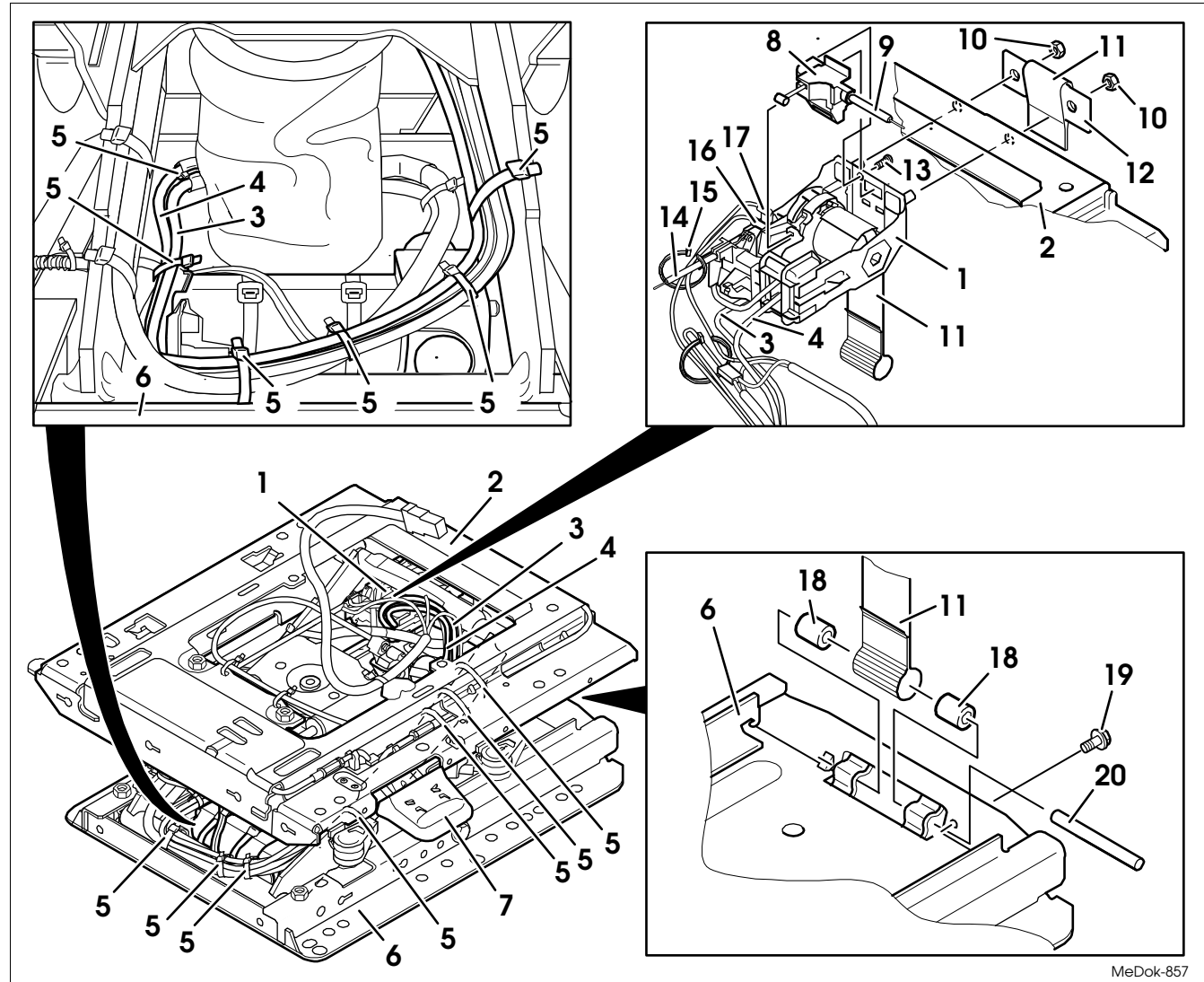
3.9.2 Height level control with limit stop – complete removal and installation



REMOVAL/INSTALLATION

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- 15 Unhook the Bowden pull wire (14) from the height level control unit (1). To release the tension from the Bowden pull wire (14), press the handle for height adjustment (7) downwards.
- 16 Unscrew the two hexagon nuts (10) and remove the plate (12) from the thread of the height level control (1).
- 17 Pull the plate (12) out of the loop of the webbing (11) .
Installation note:
Take note of the installation position of the plate (12):
The bulding of the plate (12) points to the back.
- 18 Remove the height level control unit (1) from the upper seat part (2) and put it down.



MeDok-857

3.9.2 Height level control with limit stop – complete removal and installation



REMOVAL/INSTALLATION

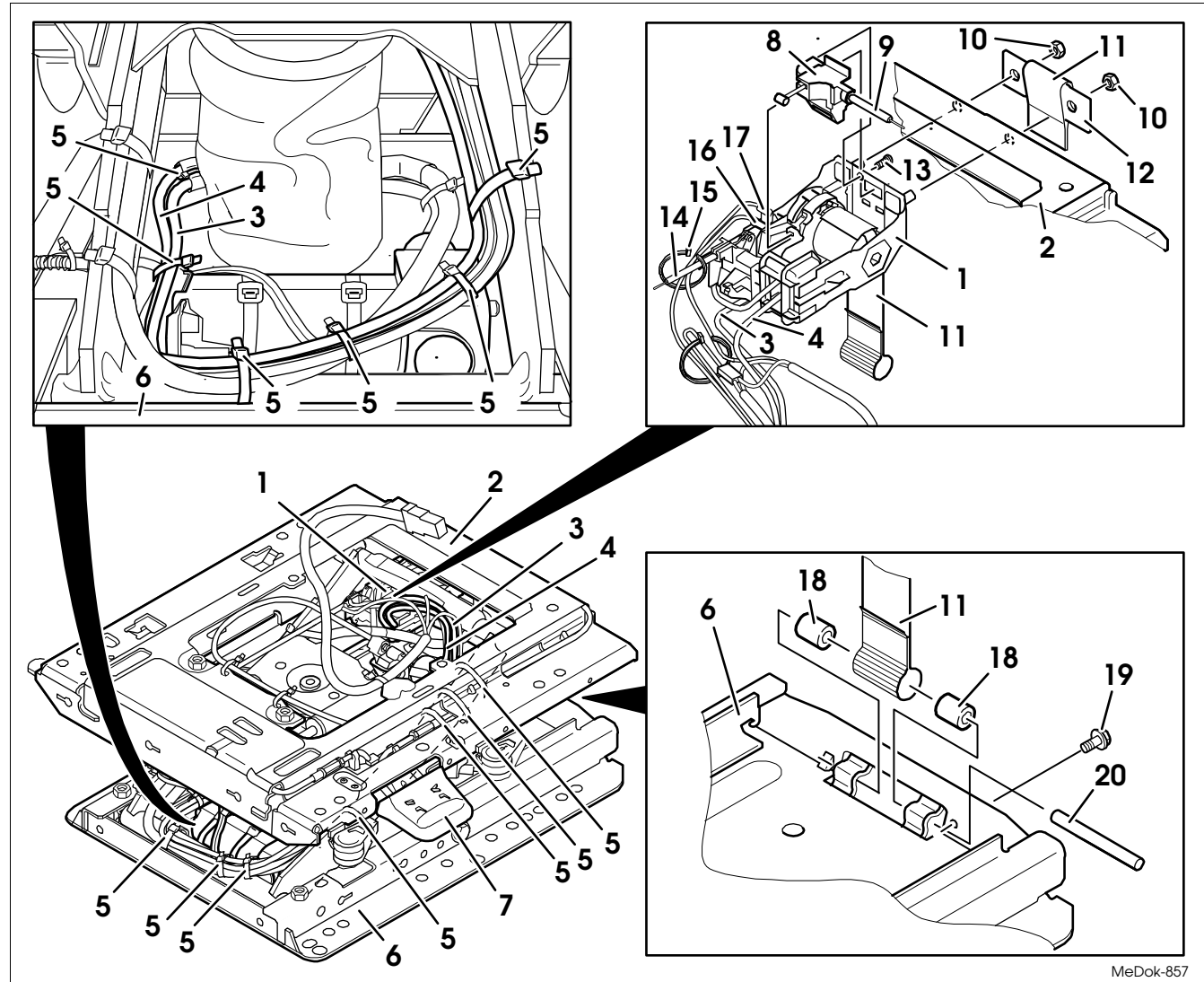
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- 19 Undo the Torx screw (13) and remove the retainer for Bowden pull wire (8) from the height level valve (1). To do this, first release the two catchers on the backside of the retainer for Bowden pull wire (8) and remove the retainer for Bowden pull wire (8) from the height level valve (1).

Installation note:

Finger-tighten the Torx screw (13).

- 20 Pull the Bowden pull wire (9) out of the retainer for Bowden pull wire (8).
- 21 Remove the height level valve (1) in to the back.
- 22 Re-install the components in the reverse order of their removal.



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3.10 Compressed-air hoses – removal and installation

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- 3.10.1 Compressed-air hoses – removal and installation (fixation with quick fasteners)
- 3.10.2 Compressed-air hoses – removal and installation (fixation with hose clamps)

3.10.1 Compressed-air hoses – removal and installation (fixation with quick fasteners)

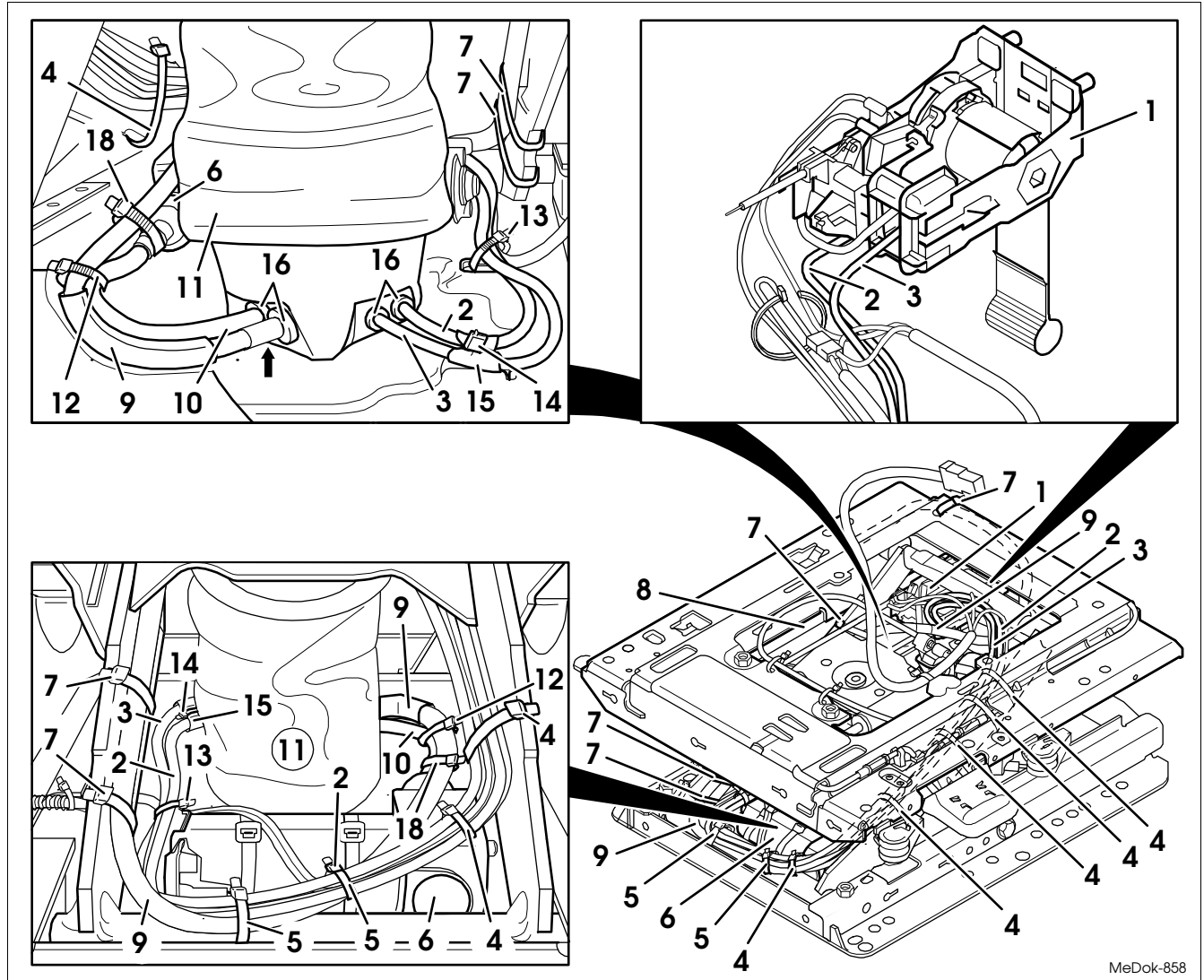


REMOVAL/INSTALLATION

TABLE OF CONTENTS

- (1) Height level control unit
- (2) Air intake hose*
- (3) Air intake hose*
- (4) Cable tie
- (5) Cable tie
- (6) Compressor
- (7) Cable tie
- (8) Tank for additional air supply
- (9) Air hose with elbow piece
- (10) Compressed-air pipe
- (11) Pneumatic spring
- (12) Cable tie
- (13) Cable tie

* Cut to length with special tools.



MeDok-858

3.10.1 Compressed-air hoses – removal and installation (fixation with quick fasteners)

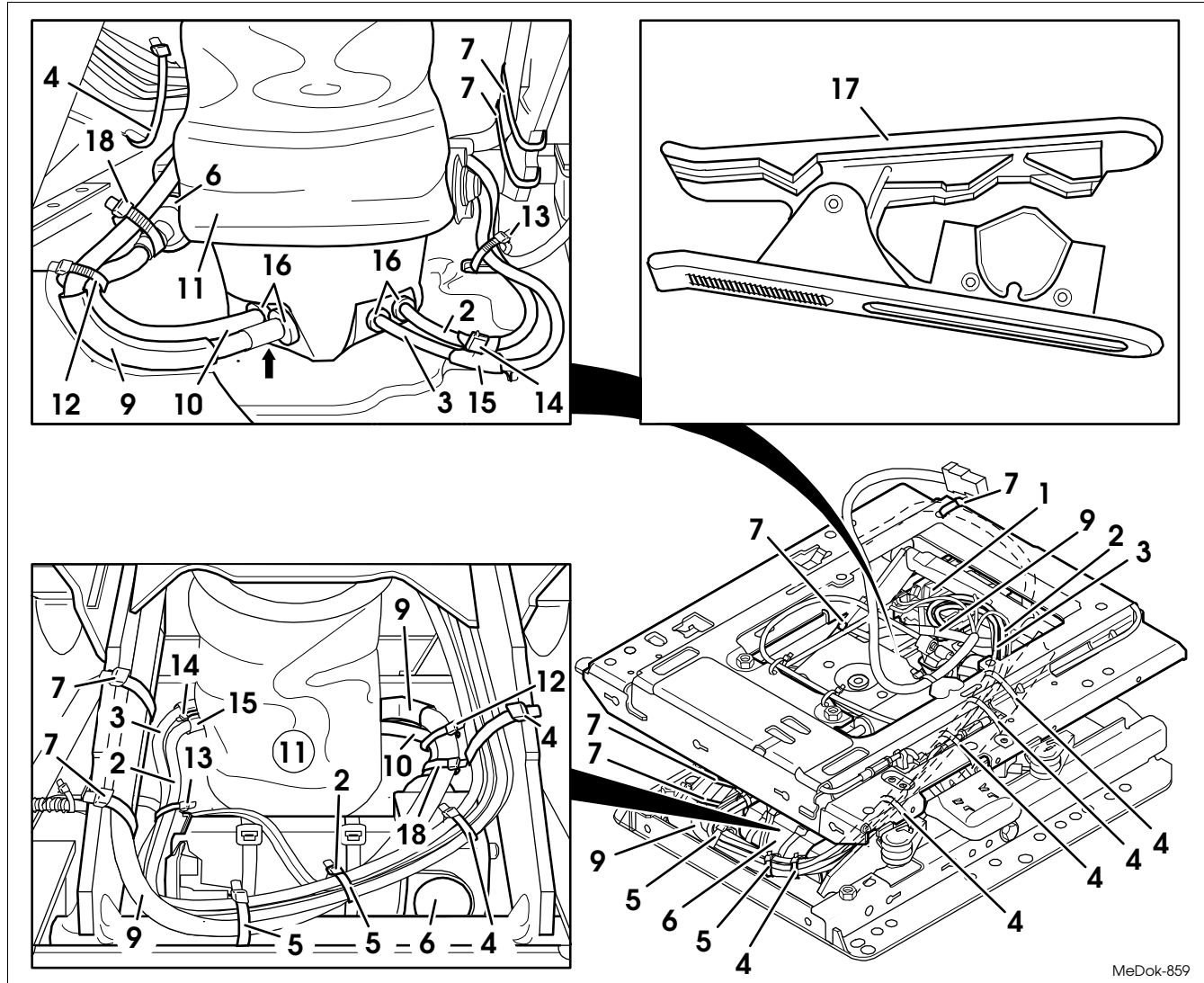


REMOVAL/INSTALLATION

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- (14) Cable tie
- (15) Protective plastic tube
- (16) Retaining ring of the quick coupler
- (17) Special tool
- (18) Cable tie

- 1 Remove the upper part of the seat
(see repair manual for the upper seat part).
- 2 Remove the cover (Chapter 3.1).
- 3 Remove the bellows (Chapter 3.2).



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3.10.1 Compressed-air hoses – removal and installation (fixation with quick fasteners)



REMOVAL/INSTALLATION

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Removal, installation

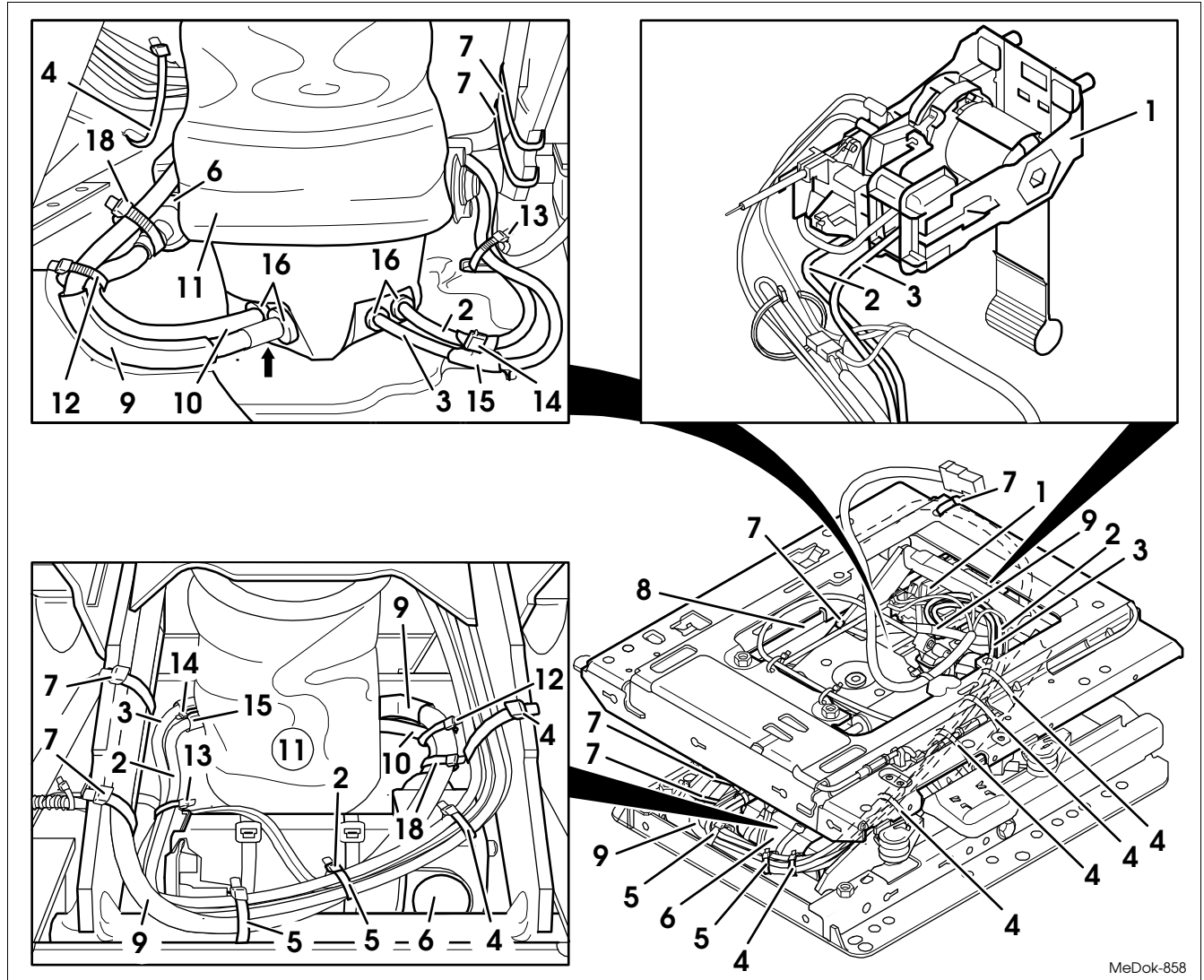


ATTENTION hydraulic test!

After the installation of a compressed-air hose, a hydraulic test of the suspension should be performed, whereby the suspension system should be loaded with 60 kg over a period of 24 hours. During this period, lowering must not exceed 15 mm.

Installation note:

The compressed-air hoses are locked after they have been connected.



MeDok-858

3.10.1 Compressed-air hoses – removal and installation (fixation with quick fasteners)



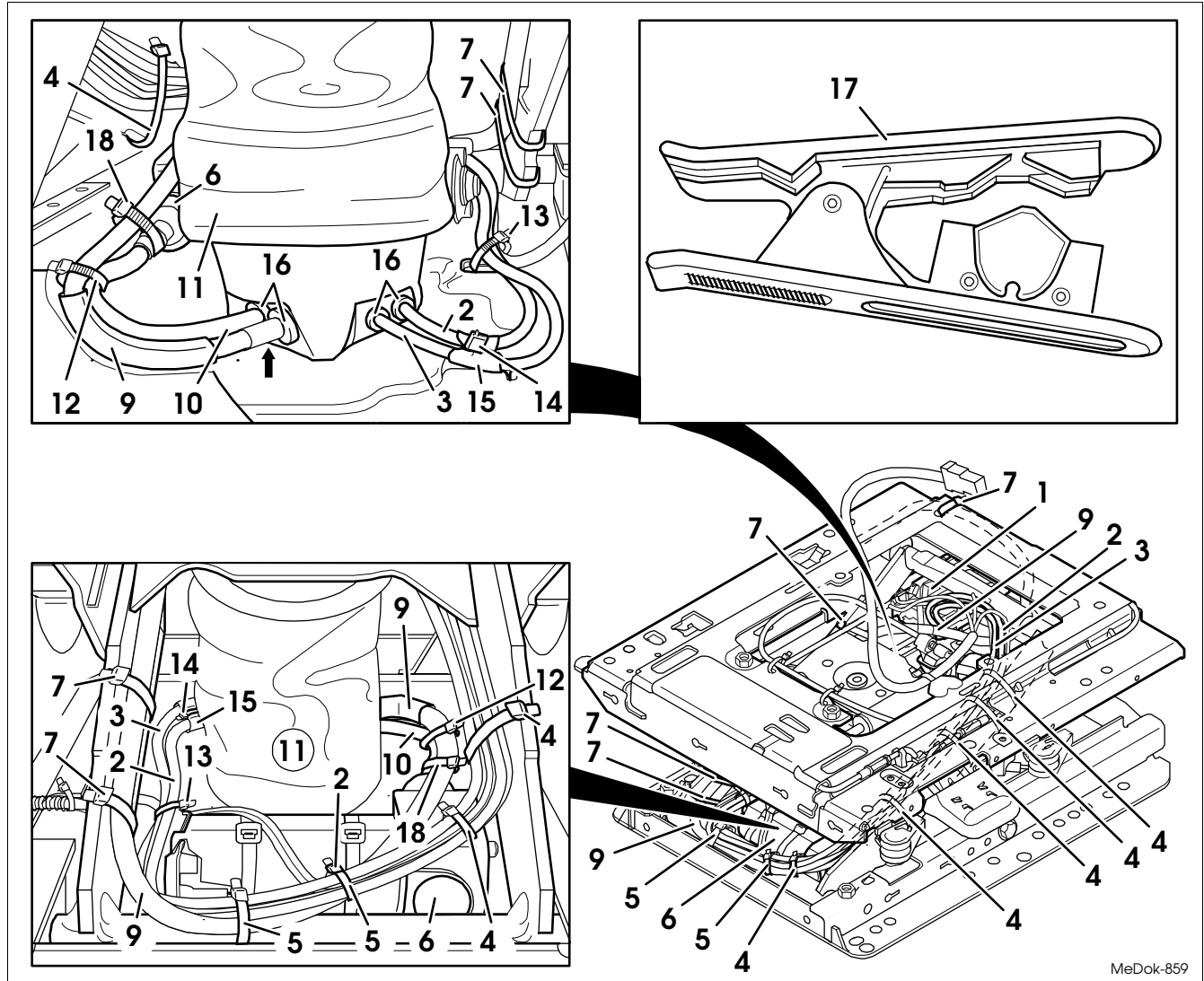
REMOVAL/INSTALLATION

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ATTENTION Risk of damage!

- Before pulling the hoses out of the pneumatic spring (11) or air tank (8), the retaining ring of the quick coupling mechanism (16) must be pressed to the very back on both sides (e.g. using a flat pliers), so as to avoid marks.
- Connect the hose not more than 1 to 2 times. Check the hose for damage before connecting it.
- Always replace a damaged hose (marks) by a new one. Damaged parts may be cut off only once (about 12 mm) using special tools (17). After cutting, the blue marking (arrow) should be set back by the length of the cut off piece.



MeDok-859

3.10.1 Compressed-air hoses – removal and installation (fixation with quick fasteners)



REMOVAL/INSTALLATION

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4 Move the suspension system to the highest position and secure it there.



WARNING Risk of crushing!
Secure the suspension between the swinging structure and lower part of the suspension system with suitable spacers.

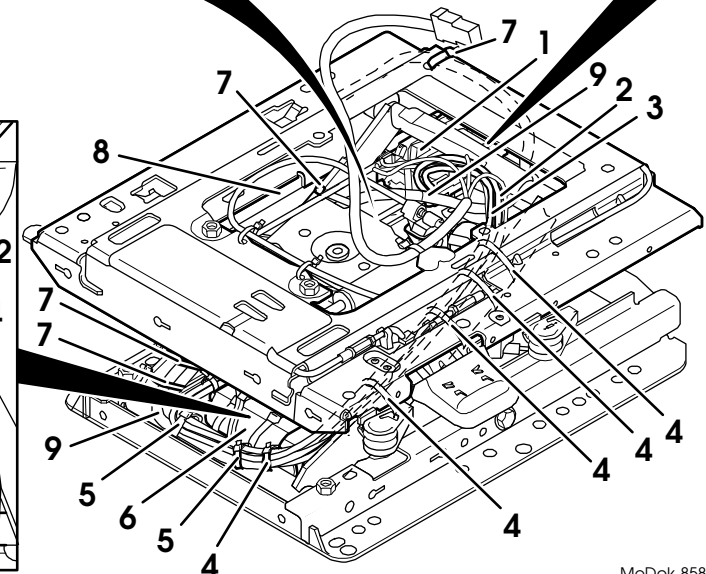
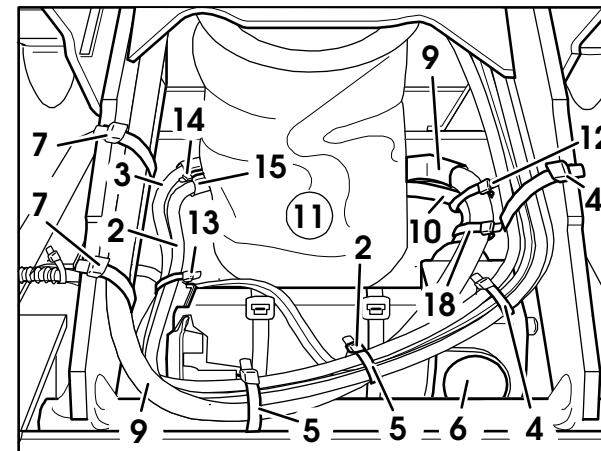
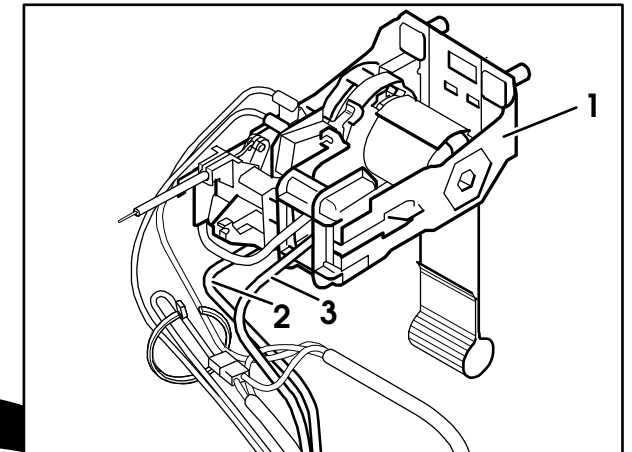
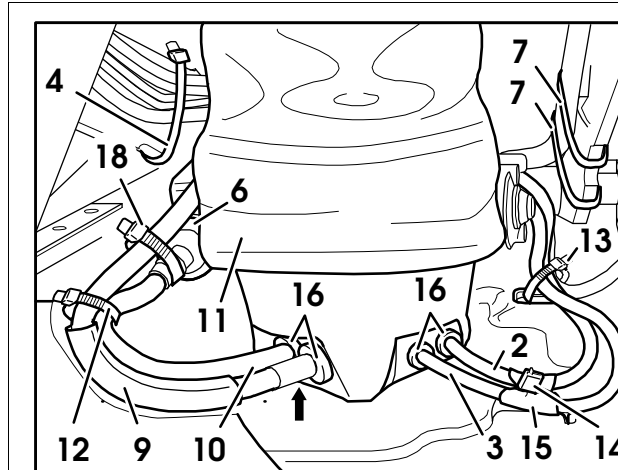
5 Removing the compressed-air hose (10):

5.1 Mark the point where the compressor line (10) is fastened with a cable tie (12) and (18) and remove the cable tie (12) and (18).

Installation note:

The locking head of the cable tie (18) must point away from the air spring.

5.2 Remove the compressed-air hose (10) the pneumatic spring (11).



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3.10.1 Compressed-air hoses – removal and installation (fixation with quick fasteners)



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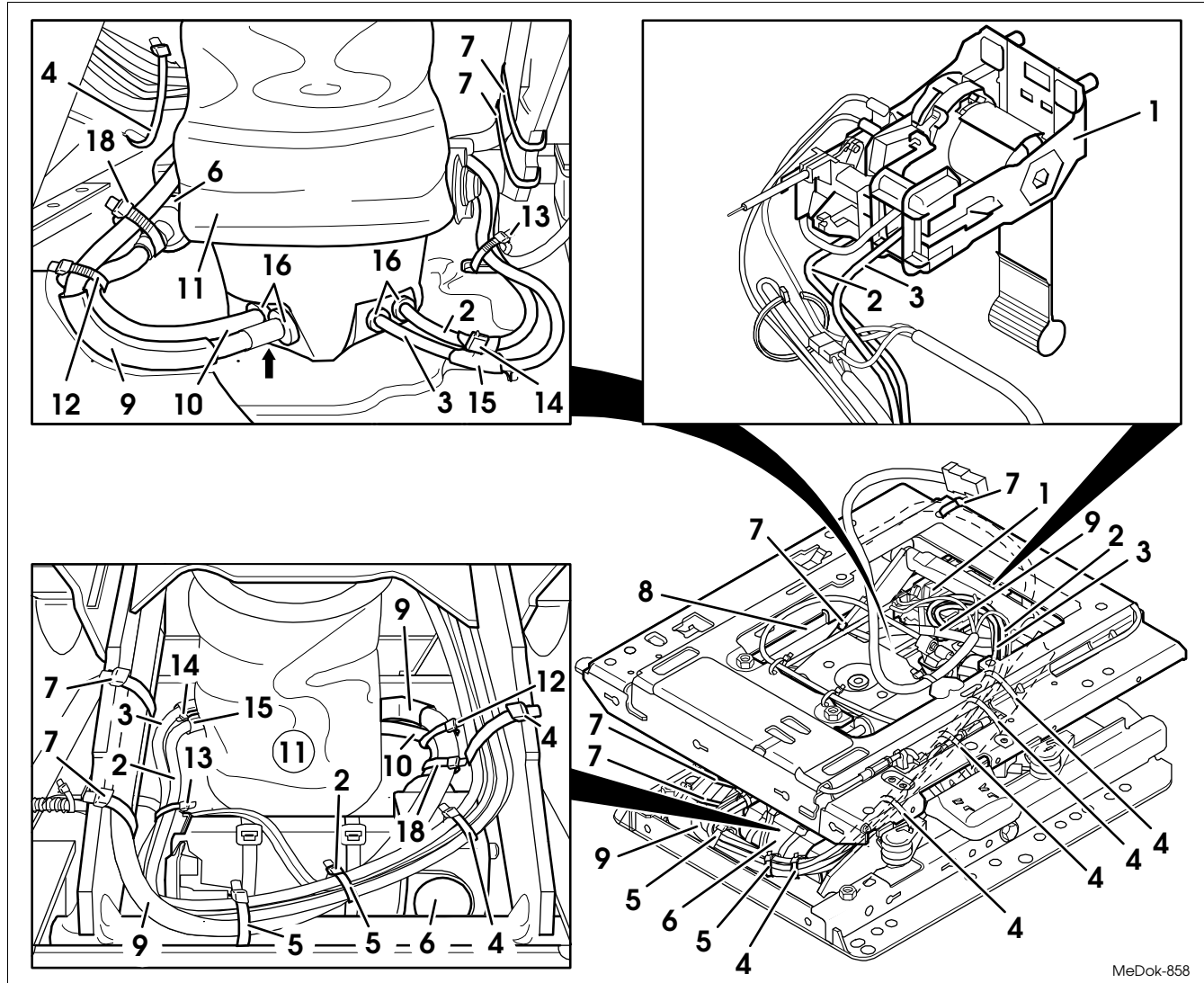
5.3 Dismount and remove the compressor line (10) from the compressor (6) (see Chapter 3.8).

6 Removing the air hose with elbow piece (9):

6.1 Mark the points where the compressed air hose with elbow piece (9) is fastened with cable ties (5, 7 and 12) and remove the cable ties (5, 7 and 12).

Installation notes:

- Do not attach the cable ties (12) to the elbow piece.
- Tighten the cable ties (5, 7 and 12) only loosely. The air hose with elbow piece (9) must not be deformed.



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3.10.1 Compressed-air hoses – removal and installation (fixation with quick fasteners)



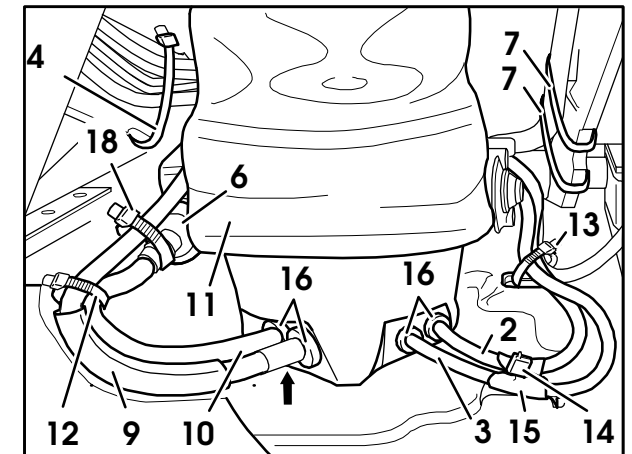
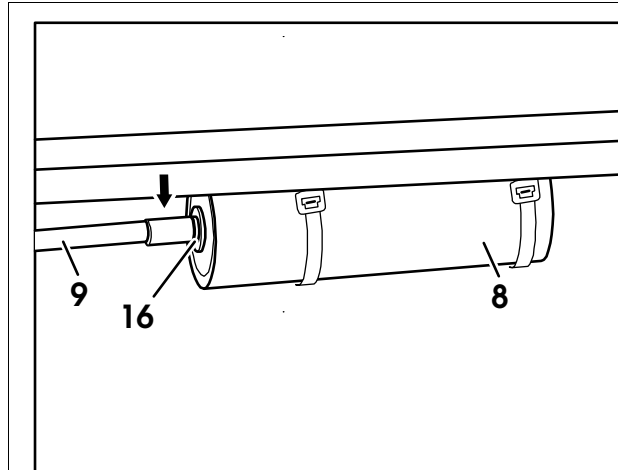
REMOVAL/INSTALLATION

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6.2 Pull the compressed-air hose with elbow piece (9) from the air tank (8) and the pneumatic spring (11).

Installation notes:

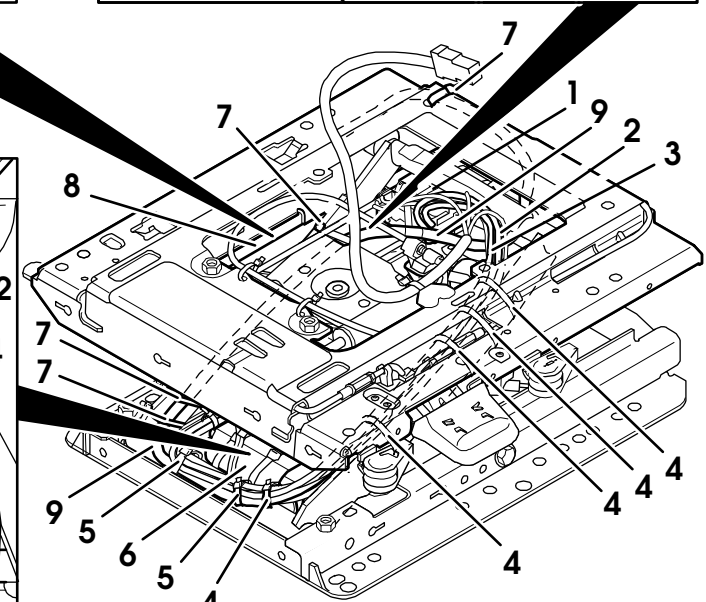
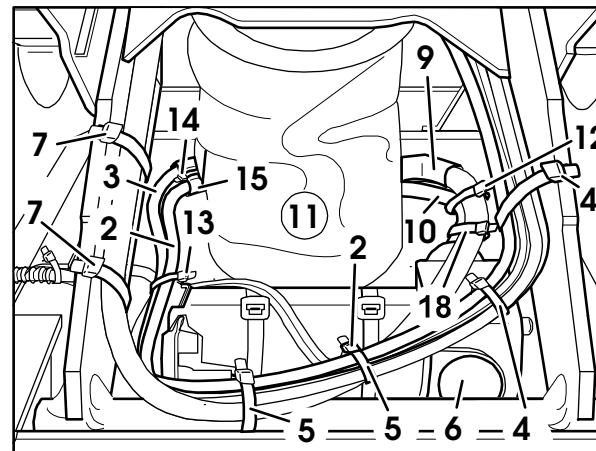
- For easier installation of the air hose with elbow piece (9) mount it first to the pneumatic spring (11).
- Insert the air hose with elbow piece (9), by exerting some force, into the pneumatic spring (11) and the air tank (8) up to the blue marking (arrow).



6.3 Mark the installation position for the air hose with elbow piece (9), pull the air hose with elbow piece (9) out of the suspension and remove it.

Installation note:

Reinstall the air hose with elbow piece (9) at the positions marked beforehand.



MeDok-905

3.10.1 Compressed-air hoses – removal and installation (fixation with quick fasteners)



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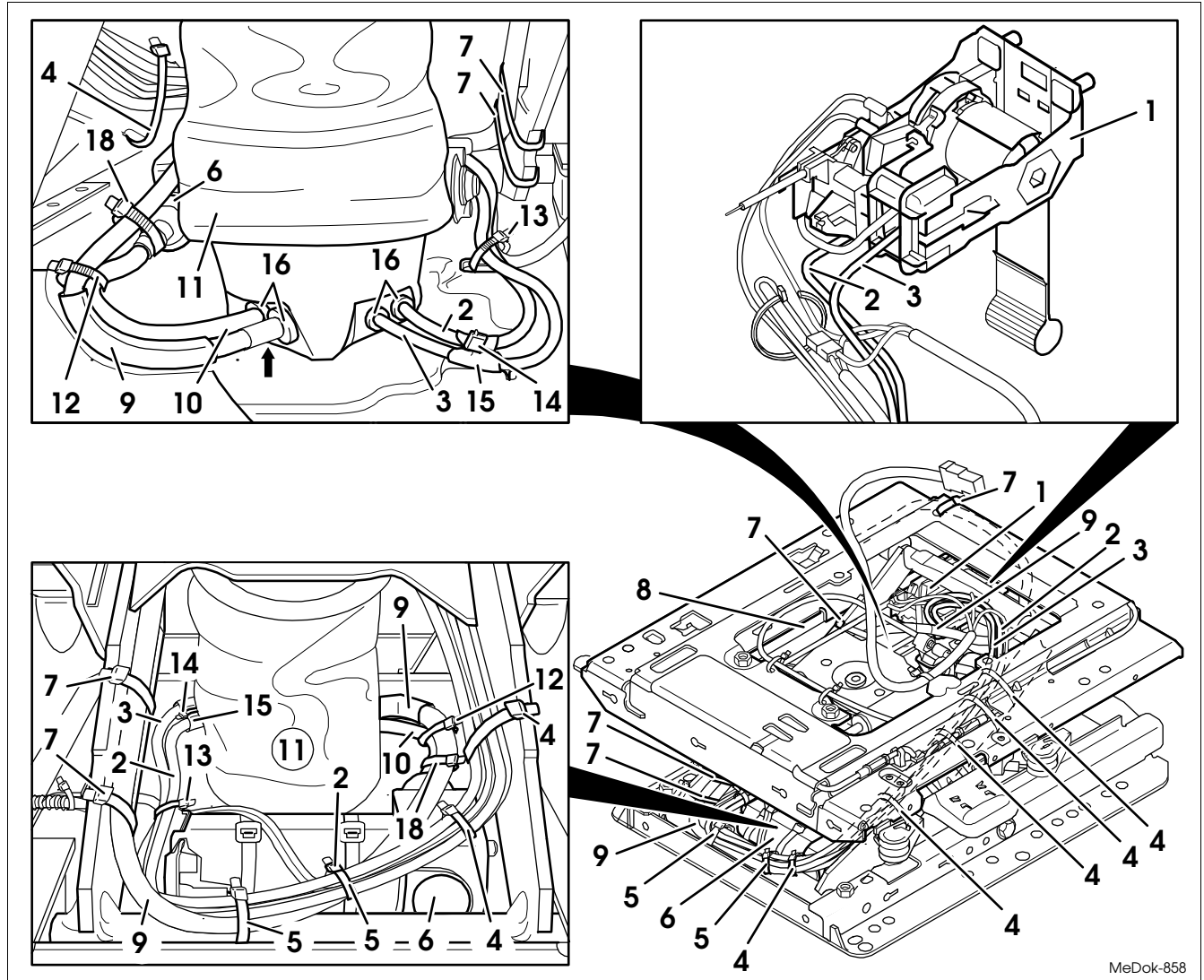
7 Removing the air intake hose (2 and 3):

7.1 Mark the points where the air intake hose (2 and 3) is fastened with cable ties (4, 5, 13 and 14) and remove the cable ties (4, 5, 13 and 14).

7.2 Secure the remaining connecting cables temporarily so that they cannot fall down.

7.3 Remove the air intake hose (2 and 3) from the pneumatic spring (11).

7.4 Remove the protective tube (15) from the air intake hose (2 and 3).



MeDok-858

3.10.1 Compressed-air hoses – removal and installation (fixation with quick fasteners)



REMOVAL/INSTALLATION

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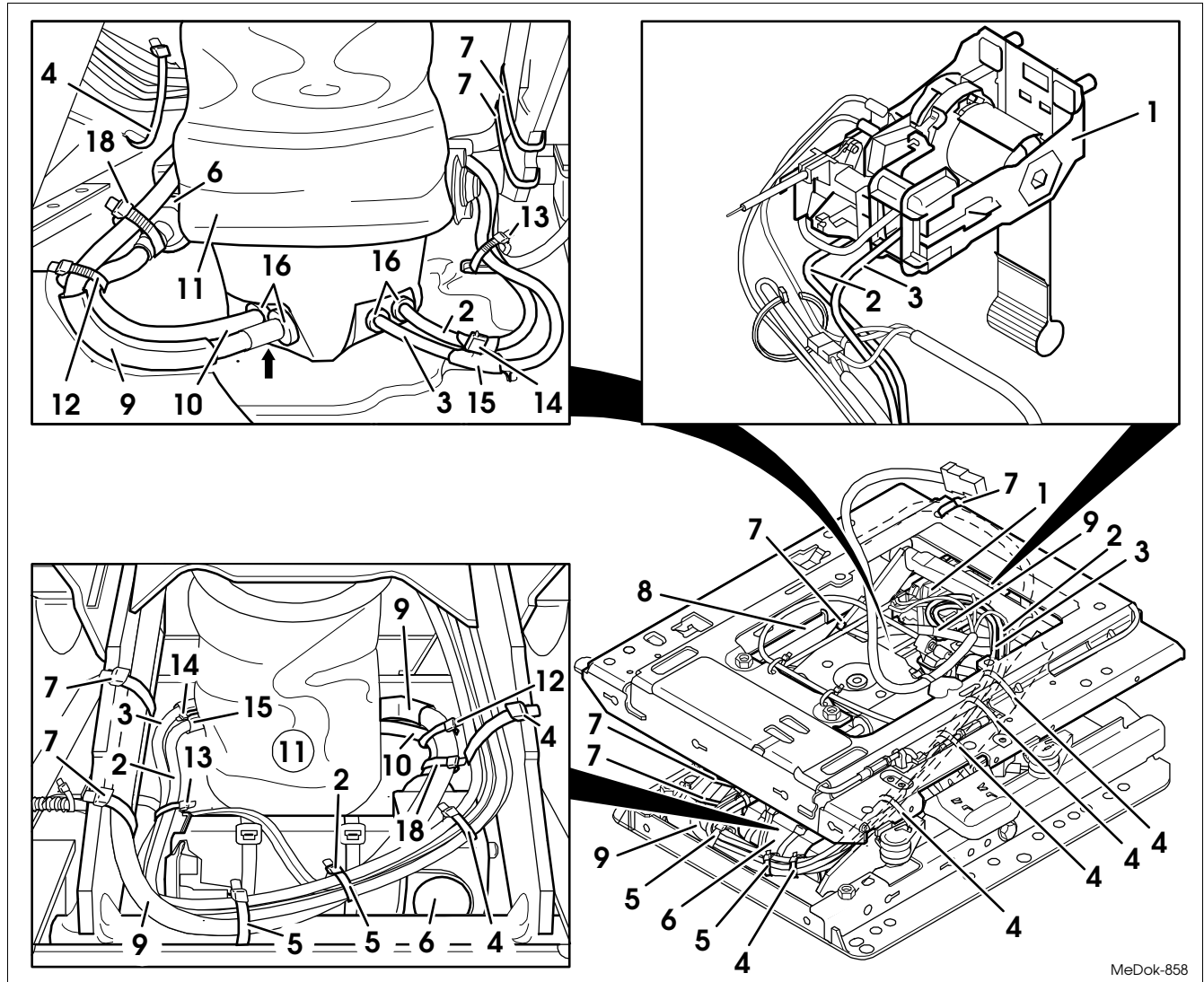
7.5 Defect on the air intake hose (2 or 3) between first cable tie (4) and pneumatic spring (11):

Cut the air intake hose (2 or 3) directly before the leakage and connect a new air intake hose (2 or 3) with a suitable hose connector (adaptor). Then cut the hose to the desired length.

Installation note:

Use cable ties (4, 5, 13 or 14) to fix the hose connector to the swinging structure or the lower suspension part. Cut off the air intake hose (2 or 3) at the fixation point of a cable tie (4, 5, 13 or 14).

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



MeDok-858

3.10.2 Compressed-air hoses – removal and installation (fixation with hose clamps)

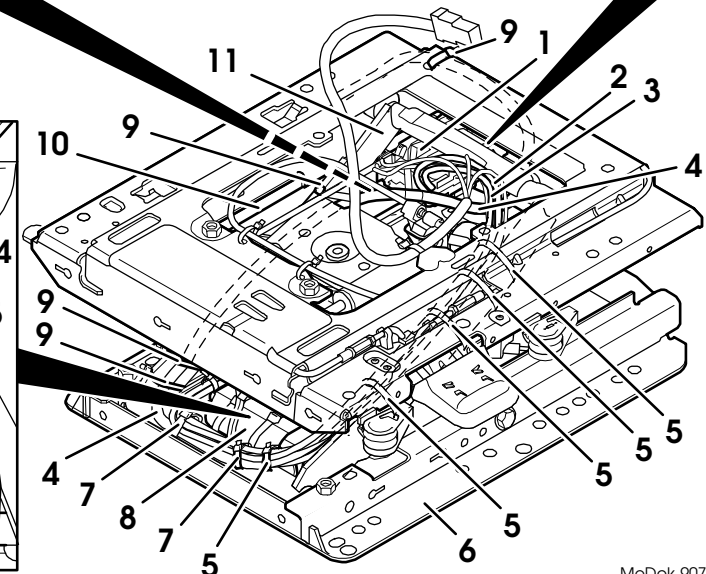
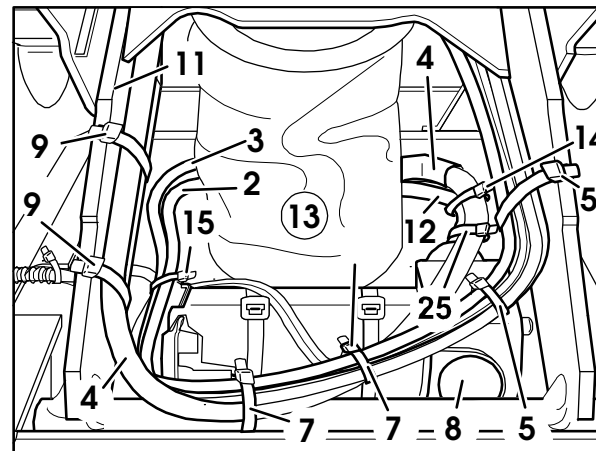
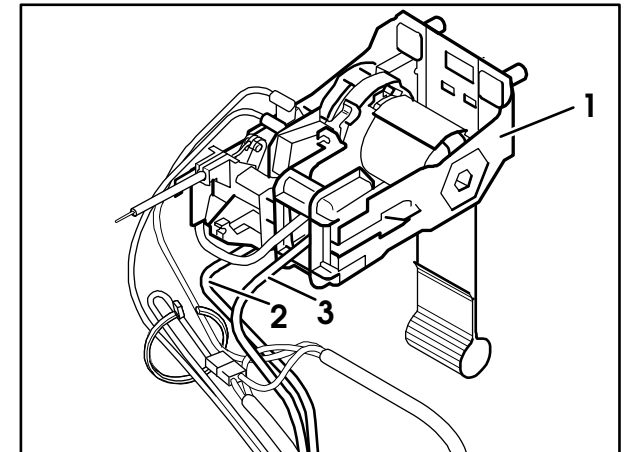
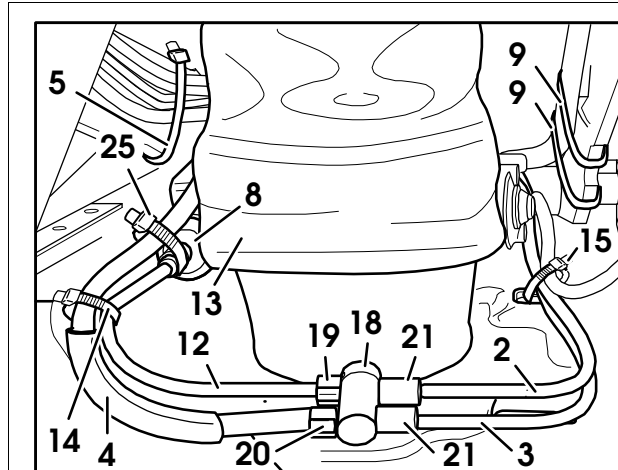


REMOVAL/INSTALLATION

TABLE OF CONTENTS

- (1) Height level control unit
- (2) Air intake hose*
- (3) Air intake hose*
- (4) Air hose with elbow piece
- (5) Cable tie
- (6) Lower part of the suspension
- (7) Cable tie
- (8) Compressor
- (9) Cable tie
- (10) Air tank (additional air supply)
- (11) Swinging structure
- (12) Compressed-air hose*
- (13) Pneumatic spring
- (14) Cable tie
- (15) Cable tie

* Cut to length with special tools.



MeDok-907

3.10.2 Compressed-air hoses – removal and installation (fixation with hose clamps)

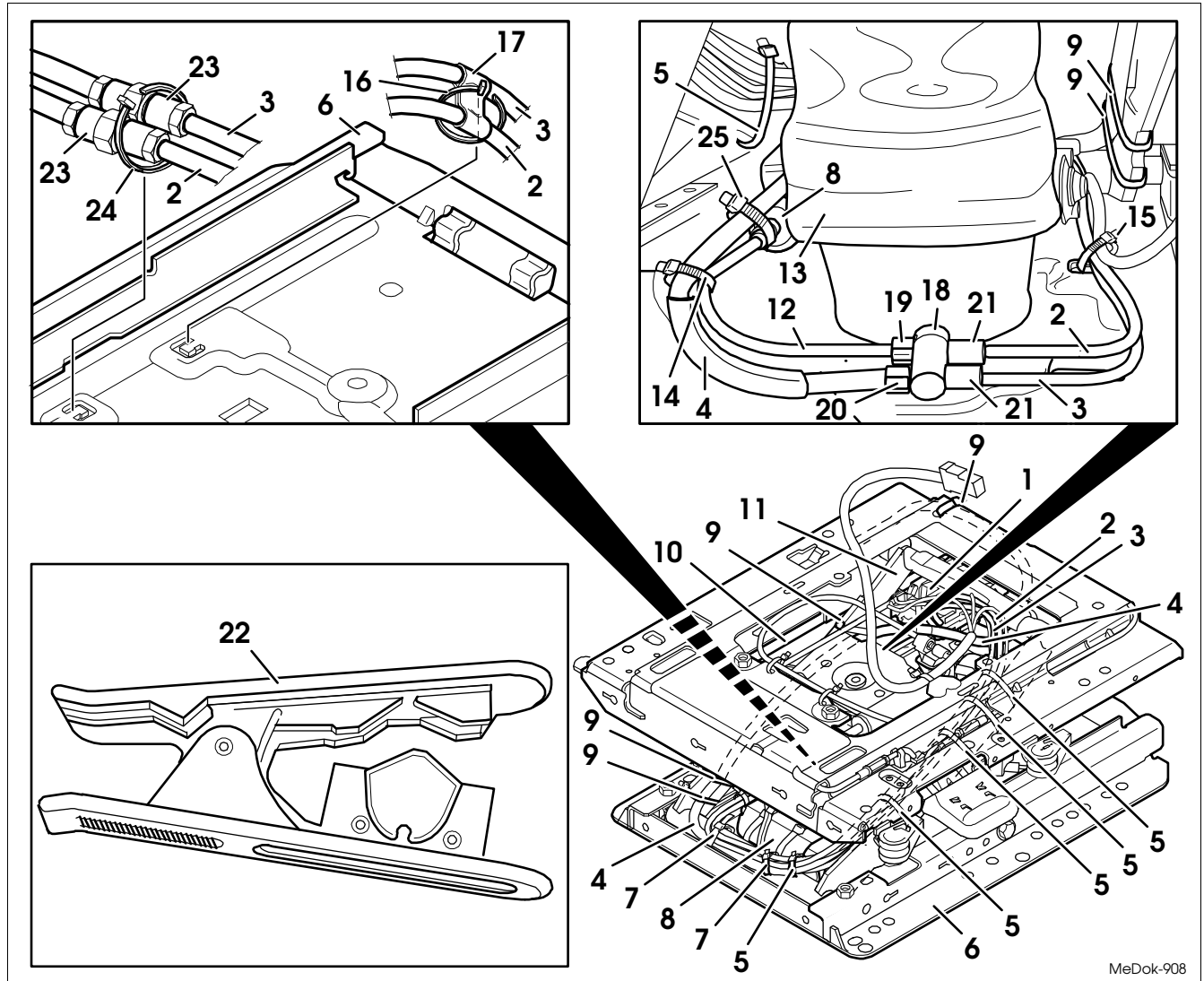


REMOVAL/INSTALLATION

TABLE OF CONTENTS

- (16) Cable tie
- (17) Protective tube
- (18) Sleeve
- (19) Hose clamp
- (20) Hose clamp
- (21) Nozzle
- (22) Special tool
- (23) Hose connector
- (24) Cable tie
- (25) Cable tie

- 1 Remove the upper part of the seat
(see repair manual for the upper seat part).
- 2 Remove the cover (Chapter 3.1).
- 3 Remove the bellows (Chapter 3.2).



MeDok-908

3.10.2 Compressed-air hoses – removal and installation (fixation with hose clamps)



REMOVAL/INSTALLATION

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Removal, installation



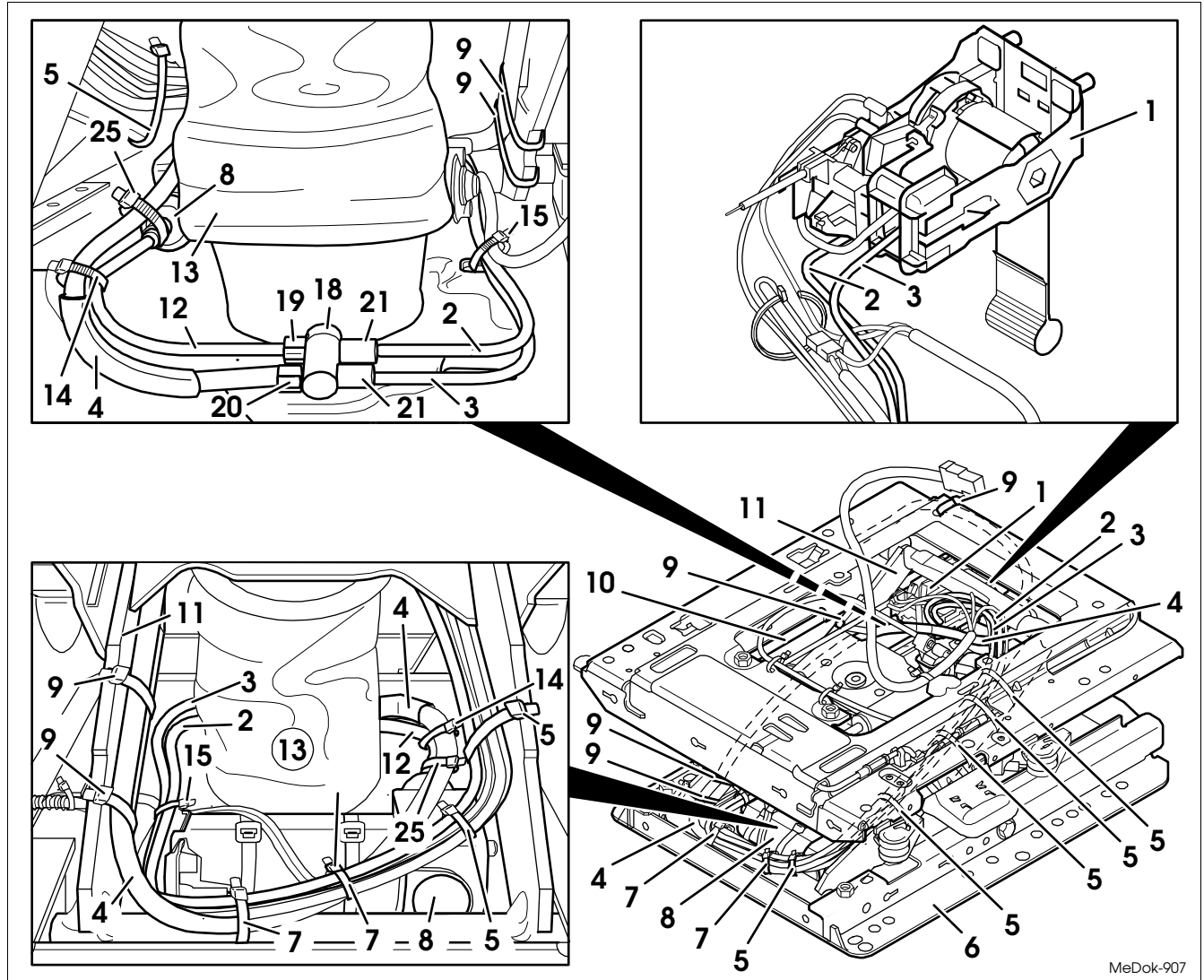
ATTENTION hydraulic test!

After the installation of a compressed-air hose, a hydraulic test of the suspension should be performed, whereby the suspension system should be loaded with 60 kg over a period of 24 hours. During this period, lowering must not exceed 15 mm.



ATTENTION Risk of damage!

Be careful not to damage the connecting joints when pulling off a compressed-air hose; otherwise airtightness can no longer be guaranteed.



MeDok-907

3.10.2 Compressed-air hoses – removal and installation (fixation with hose clamps)



REMOVAL/INSTALLATION

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- 4 Move the suspension system to the highest position and secure it there.



WARNING Risk of crushing!
Secure the suspension between the swinging structure (11) and lower part of the suspension system (6) with suitable spacers.

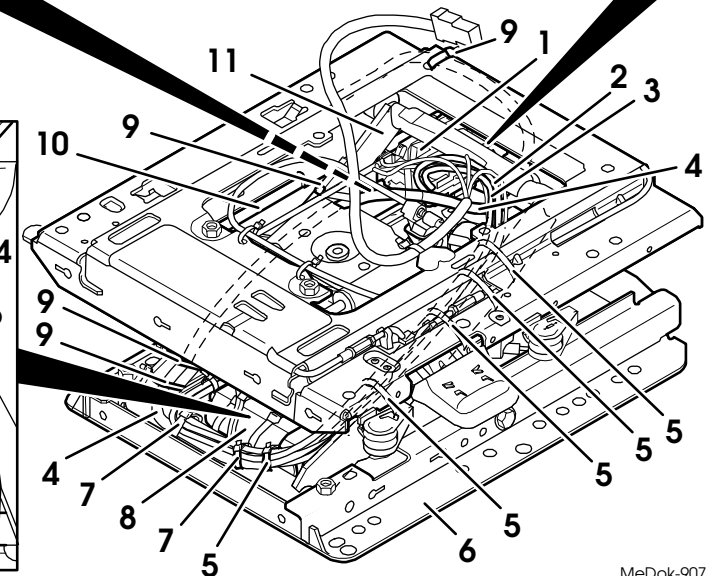
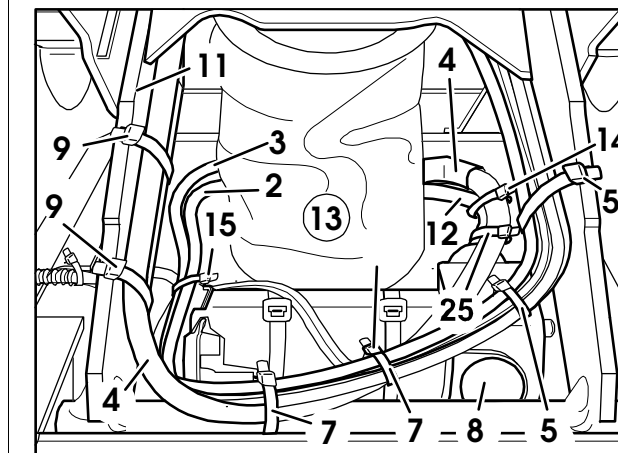
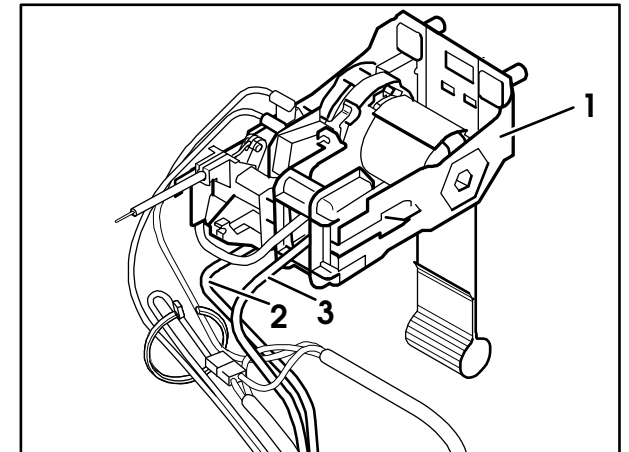
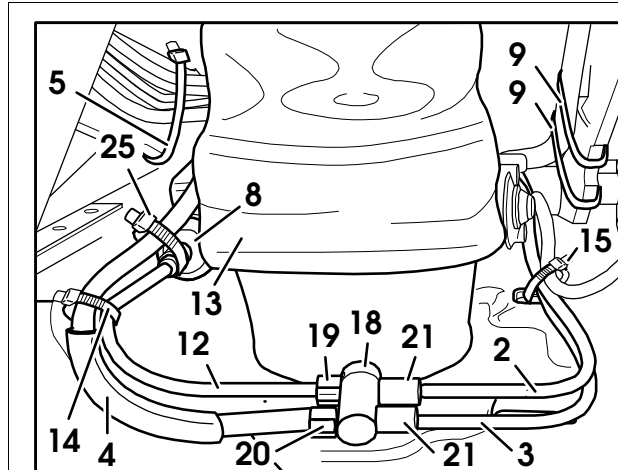
5 Removing the compressed-air hose (12):

- 5.1 Mark the point where the compressed-air hose (12) is fastened with a cable tie (14) and (25) and remove the cable tie (14) and (25).

Installation note:

The locking head of the cable tie (25) must point away from the air spring.

- 5.2 Open the hose clamp (19) and withdraw the compressed-air hose (12) from the sleeve (18) of the pneumatic spring (13).
- 5.3 Remove the compressed-air hose (12) from the compressor (8) (see Chapter 3.8).



MeDok-907

3.10.2 Compressed-air hoses – removal and installation (fixation with hose clamps)



REMOVAL/INSTALLATION

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6 Removing the air hose with elbow piece (4):

6.1 Mark the points where the compressed air hose with elbow piece (4) is fastened with cable ties (7, 9 and 14) and remove the cable ties (7, 9 and 14).

Installation note:

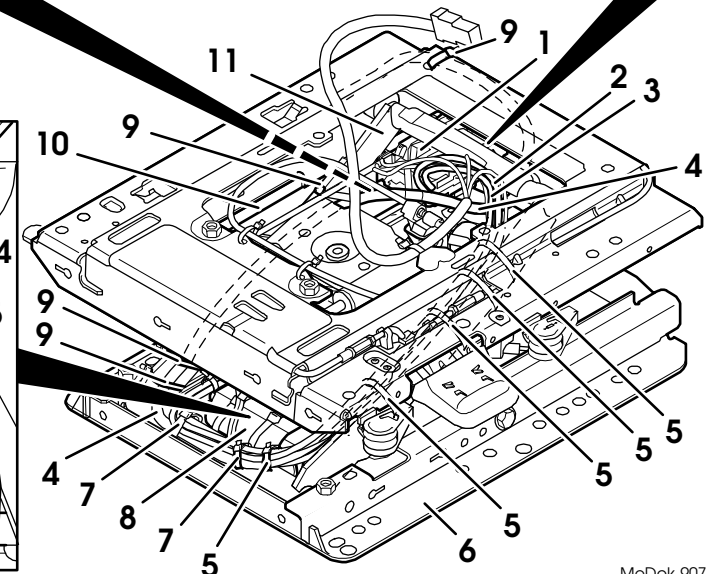
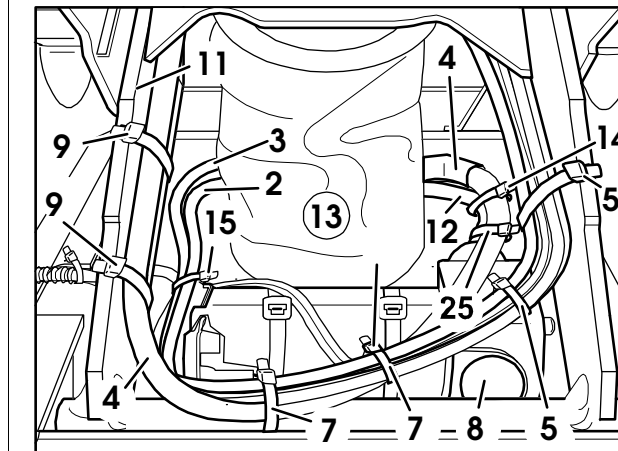
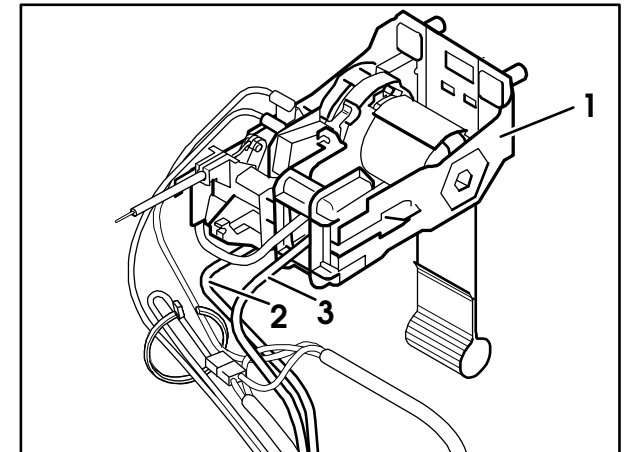
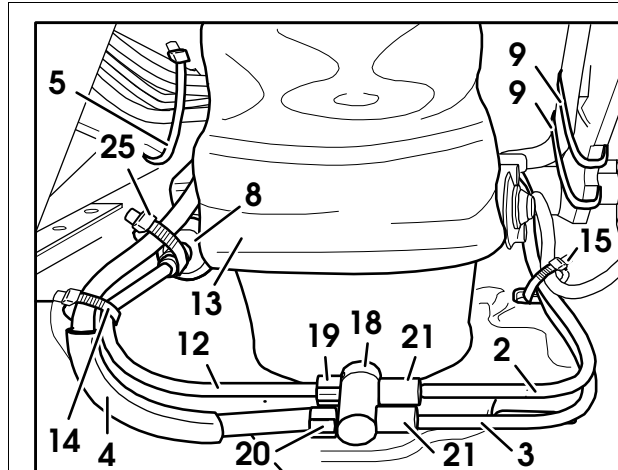
Do not attach the cable ties (14) to the elbow piece.

6.2 Open the hose clamp (20) and remove the air hose with elbow piece (4) from the sleeve (18) of the pneumatic spring (13).

Installation note:

For easier installation of the air hose with elbow piece (4) mount it first to the pneumatic spring (13).

6.3 Remove the air hose with elbow piece (4) from the air tank (10) (see Chapter 3.13).



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3.10.2 Compressed-air hoses – removal and installation (fixation with hose clamps)



REMOVAL/INSTALLATION

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6.4 Mark the installation position for the air hose with elbow piece (4), pull the air hose with elbow piece (4) out of the suspension and remove it.

Installation note:

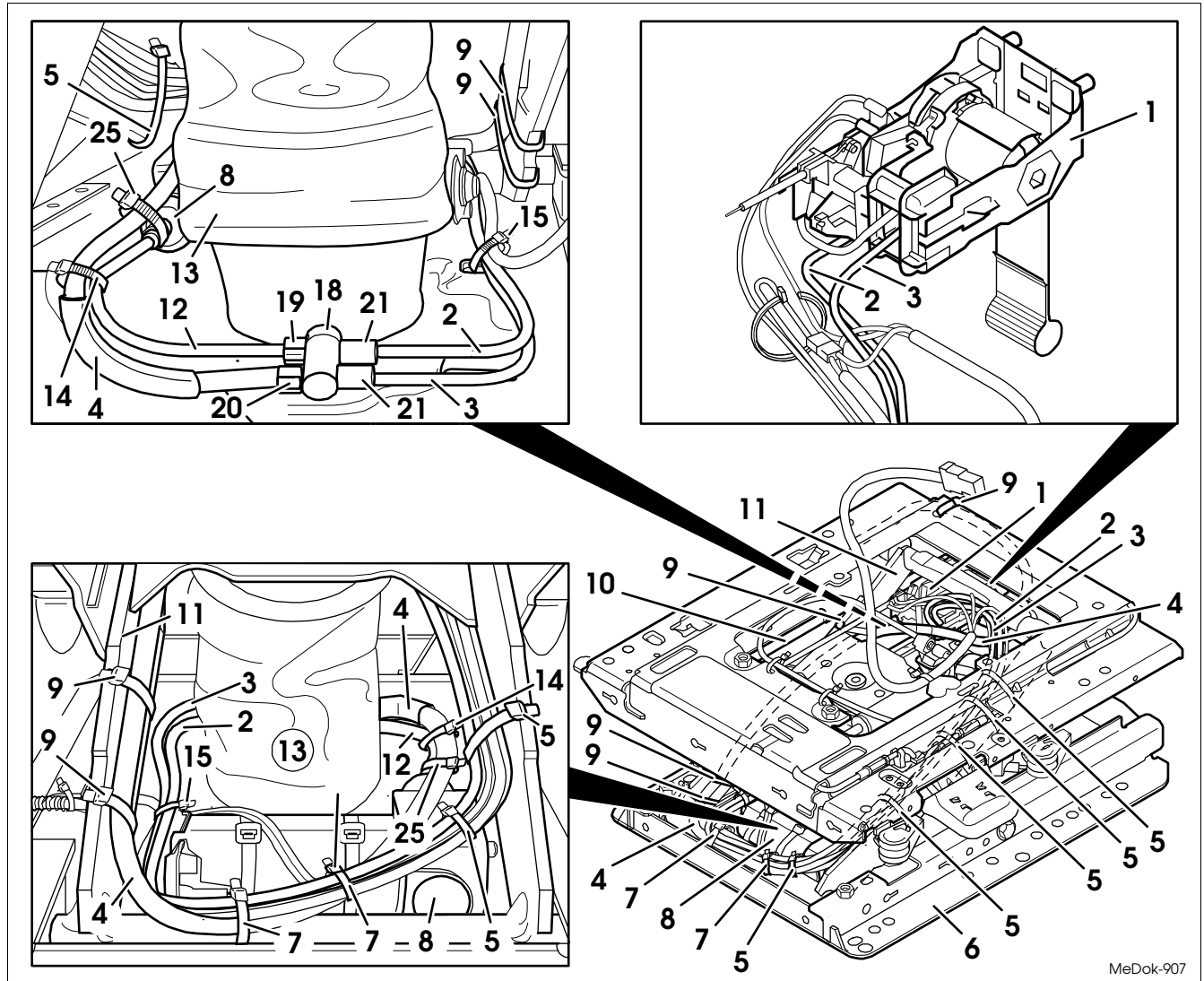
Reinstall the air hose with elbow piece (4) at the positions marked beforehand.

7 Removing the air intake hose (2 and 3):

7.1 Mark the points where the air intake hose (2 and 3) is fastened with cable ties (5, 7 and 15) and remove the cable ties (5, 7 and 15).

7.2 Secure the remaining connecting cables temporarily so that they cannot fall down.

7.3 Remove the two nozzles (21) from the sleeve (18) and slide them slightly backwards on the air intake hose (2 and 3).



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3.10.2 Compressed-air hoses – removal and installation (fixation with hose clamps)



REMOVAL/INSTALLATION

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7.4 Pull the air intake hose (2 and 3) from the sleeve (18) and remove the two nozzles (21) from the air intake hose (2 and 3).

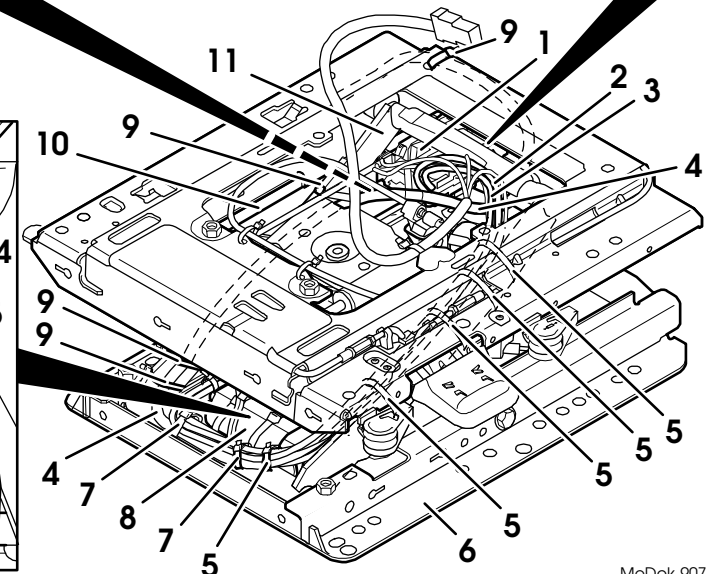
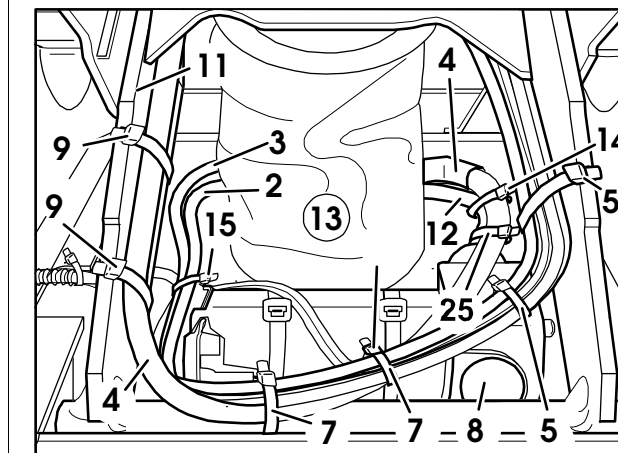
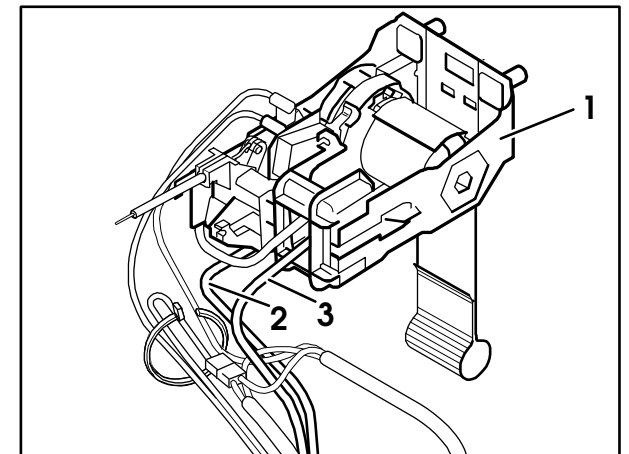
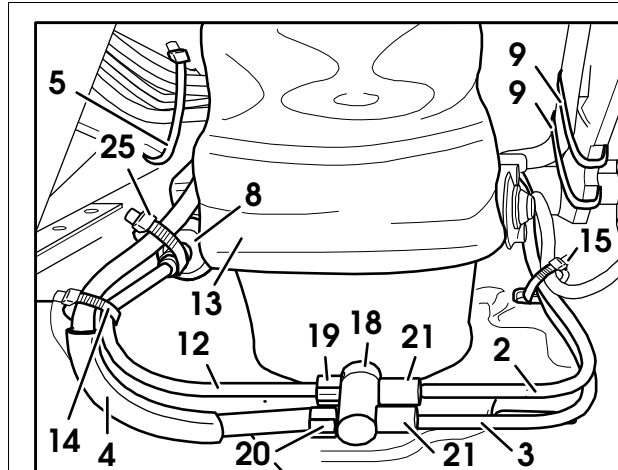
7.5 Defect on the air intake hose (2 or 3) between level control unit (1) and the first cable tie (5):



ATTENTION Risk of air leakage!

For reasons of guaranteed tightness, cutting of the air intake hose (2 and 3) between the height level control unit (1) and the first cable tie (5) is inadmissible.

Remove the height level control unit (1) including air intake hose (2 and 3) (Chapter 3.9.2) and renew them; disconnect the old air intake hose (2 und 3) from the fixation point to the lower suspension part (6) on the front.



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3.10.2 Compressed-air hoses – removal and installation (fixation with hose clamps)

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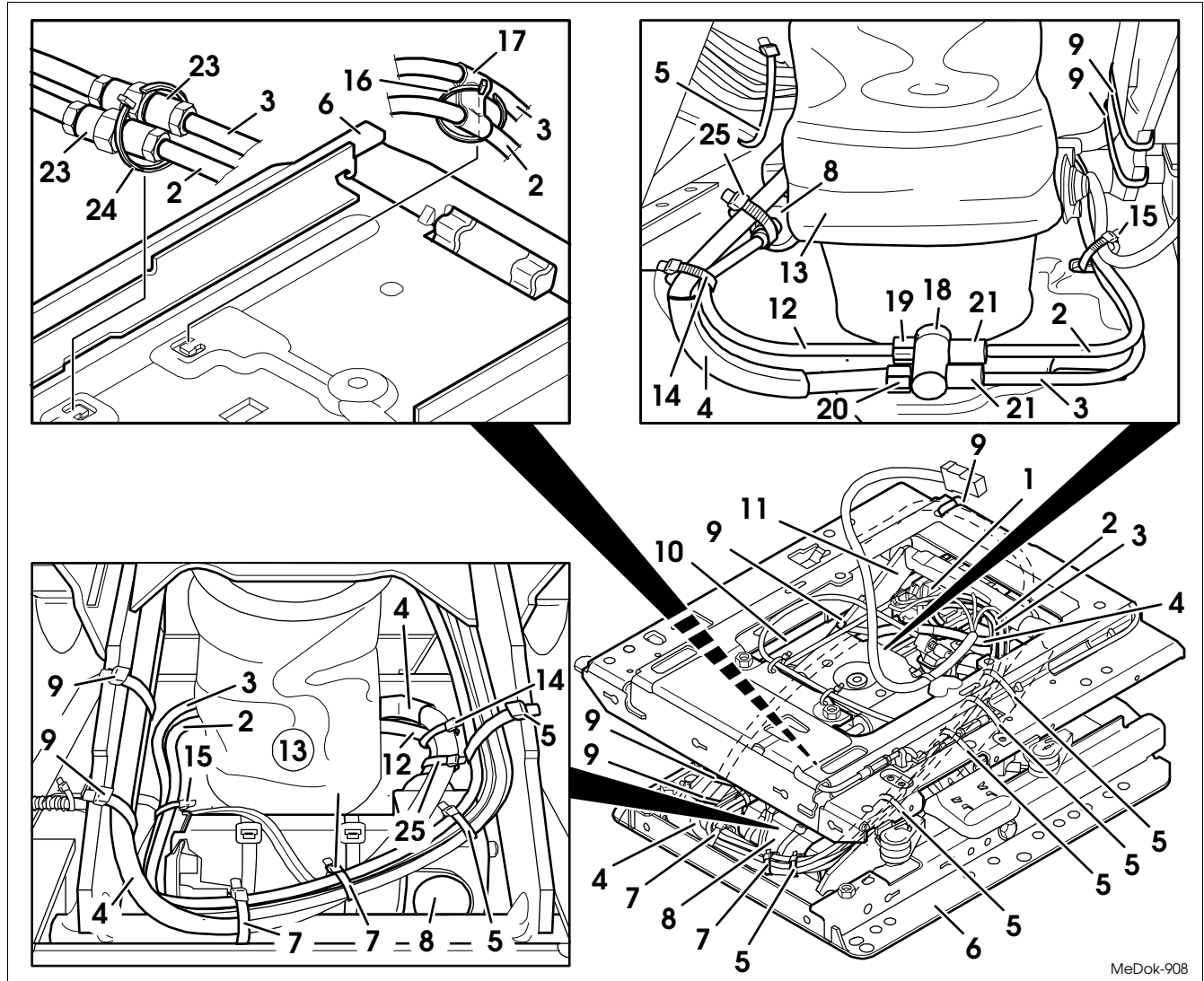


REMOVAL/INSTALLATION

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Installation notes:

- Slide the protective sleeve (17) over the air intake hose (2 and 3), if not mounted already to the new level control unit (1).
- Cut the new air intake hose (2 and 3) to the required length and connect it with the old air intake hose (2 and 3) by using a suitable hose connector (23).
- Use a cable tie (24) to fix the air intake hose (2 and 3) and the hose connector (23) to the front-side fixation point on the lower suspension part (6).
- Attach the protective sleeve (17) to the rear-side fixation point on the lower suspension (6), also by using a cable tie (16).
- When changing the hose system to fixation with quick fasteners, the air intake hose (2 and 3) can be slid directly onto the pneumatic spring (see Chapter 3.10.1).



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3.10.2 Compressed-air hoses – removal and installation (fixation with hose clamps)

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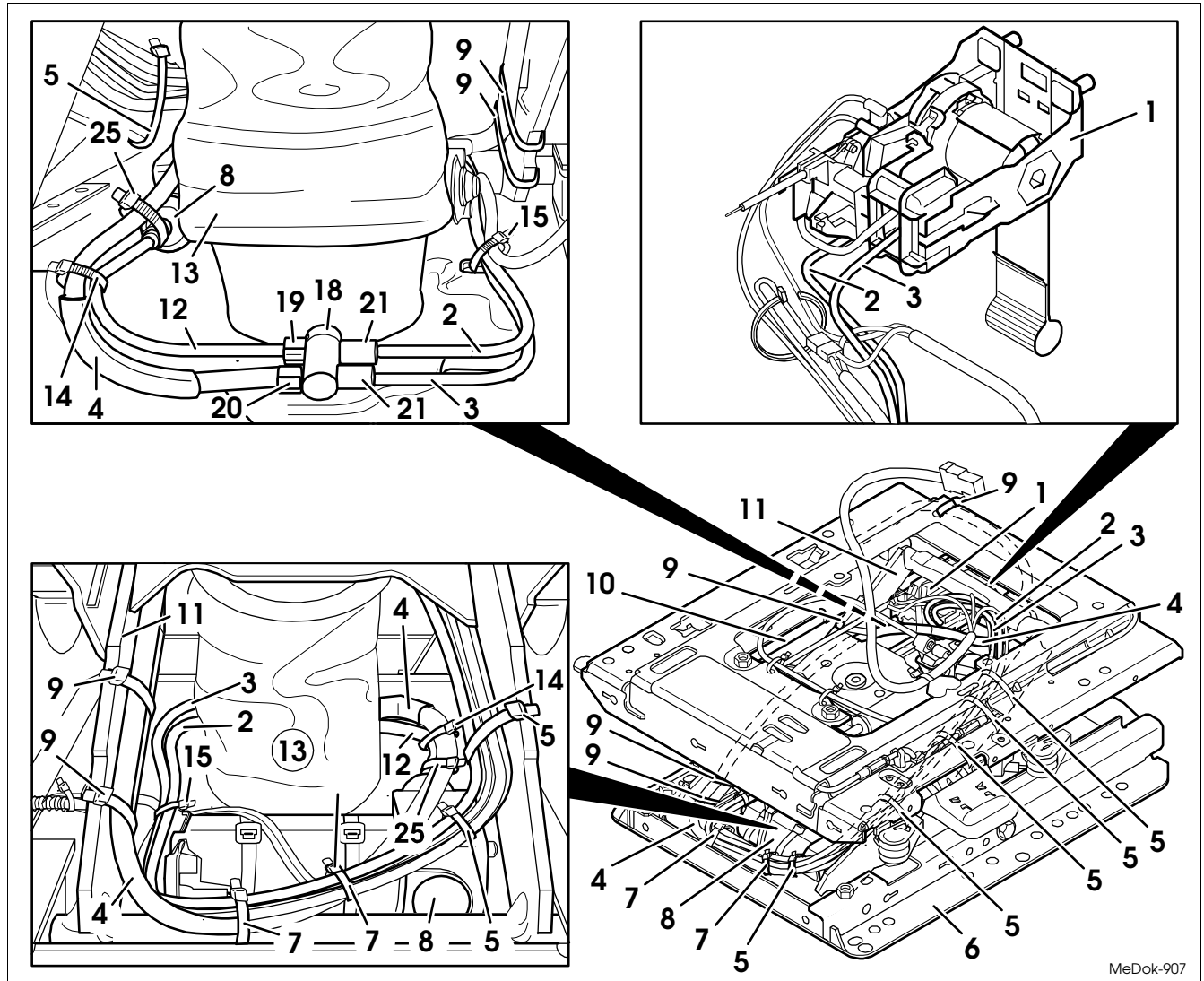
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7.6 Defect on the air intake hose (2 or 3) between first cable tie (5) and pneumatic spring (13):

Cut the air intake hose (2 or 3) directly before the leakage and connect a new air intake hose (2 or 3) with a suitable hose connector (23). Then cut the hose to the desired length.

Installation notes:

- Use cable ties (5, 7 or 15) to fix the hose connector (23) to the swinging structure (11) or the lower suspension part (6). Cut off the air intake hose (2 or 3) at the fixation point of a cable tie (5, 7 or 15).
- When changing to fixation with quick fasteners, the new air intake hose (2 and 3) attached to the pneumatic spring (13) must also be cut off and connected with the help of a hose connector (23) (difference in thickness).



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3.10.2 Compressed-air hoses – removal and installation (fixation with hose clamps)



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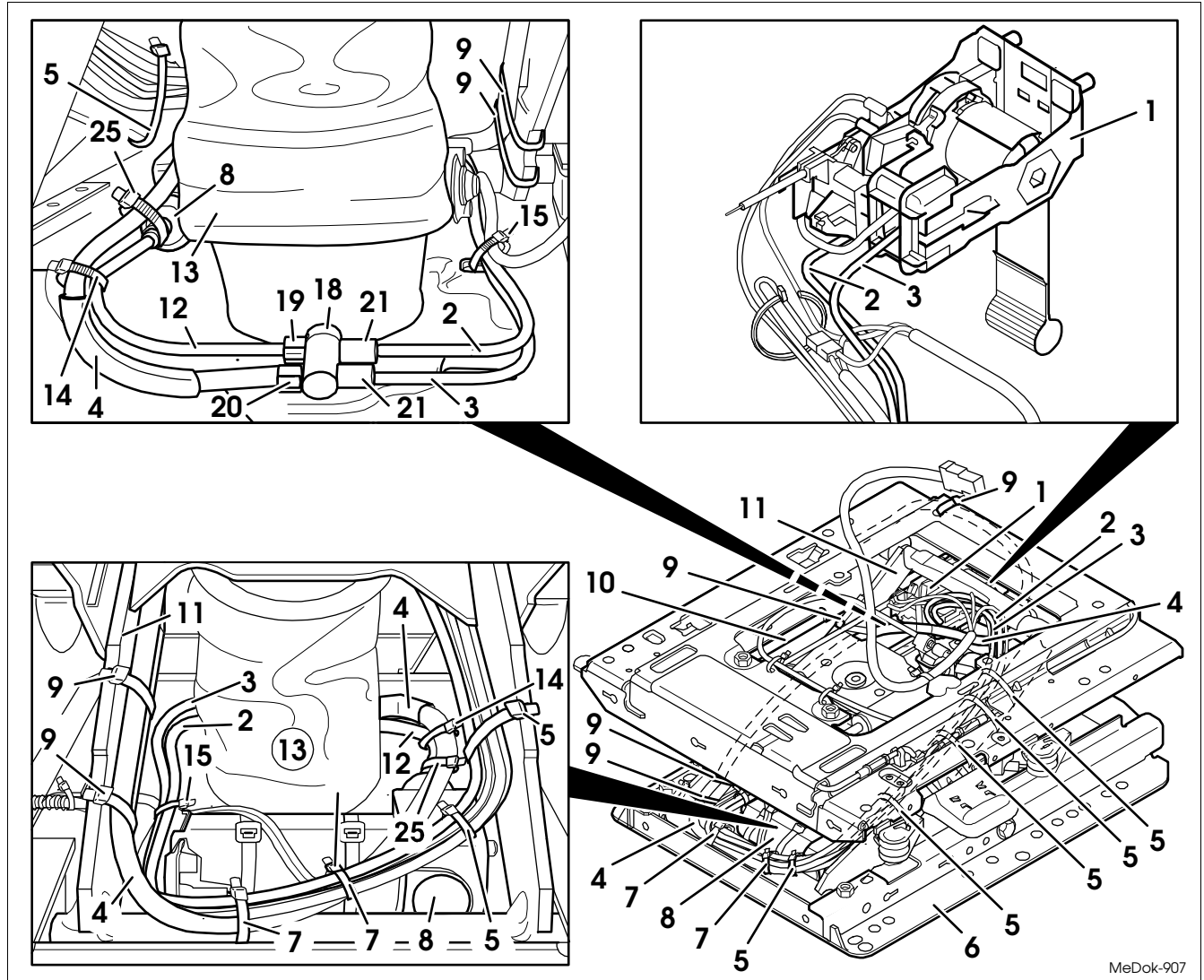
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8 Reinstallation of hose system with hose clamps:

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

Installation notes:

- Clean the connecting points before installing the air intake hose.
- Use the sealing agent STUCARIT 203 or a similar product.
- Do not apply the sealing agent to the opening for hose connection.
- Always use new hose clamps for fixation of the air intake hose.
- The hose clamp must not protrude on top.



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3.10.2 Compressed-air hoses – removal and installation (fixation with hose clamps)

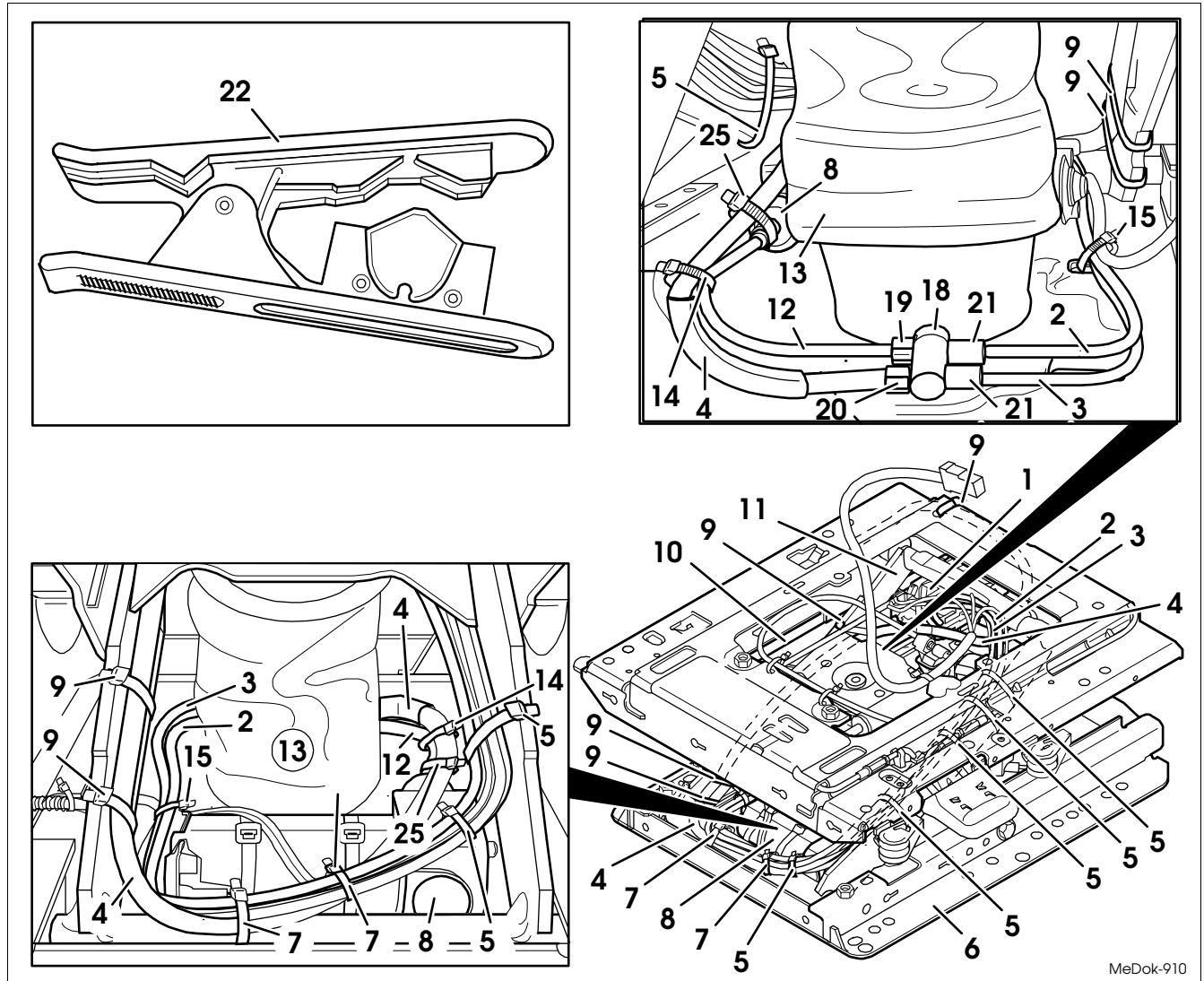


REMOVAL/INSTALLATION

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9 Conversion to fixation with quick fastener:

- For plug-in installation, the air intake hose (2 and 3) must be separated with a clean cut directly at the end of the section provided with the nozzle (21).
- Use a special tool (22) to ensure a clean and sharp cut.
- Plug-connection is performed as described for hose fixation with quick fasteners (see Chapter 3.10.1).



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3.11 Bowden pull wires and handle for height adjustment – removal and installation



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3.11.1 Bowden pull wires for height adjustment – inspection and adjustment

3.11.2 Bowden pull wires and handle for height adjustment – removal and installation

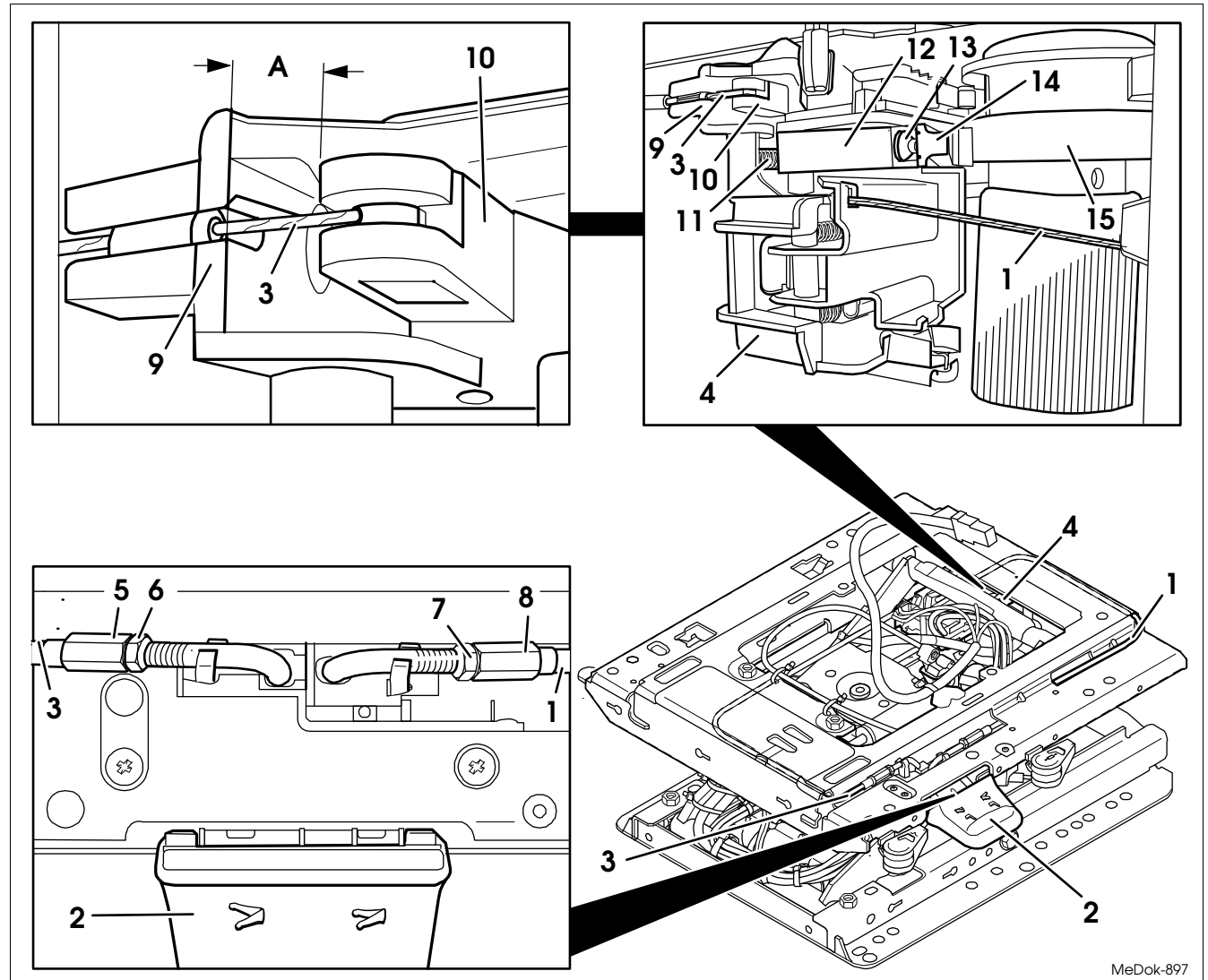
3.11.1 Bowden pull wires for height adjustment – inspection and adjustment



INSPECTION/ADJUSTMENT

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- (1) Bowden pull wire
- (2) Handle for height adjustment
- (3) Bowden pull wire
- (4) Level valve
- (5) Lock nut
- (6) Counternut
- (7) Counternut
- (8) Lock nut
- (9) Holder for Bowden wire end cap
- (10) Bowden wire lever
- (11) Retracting spring
- (12) Outlet valve
- (13) Valve tappets
- (14) Valve lever
- (15) Cam disc



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3.11.1 Bowden pull wires for height adjustment – inspection and adjustment



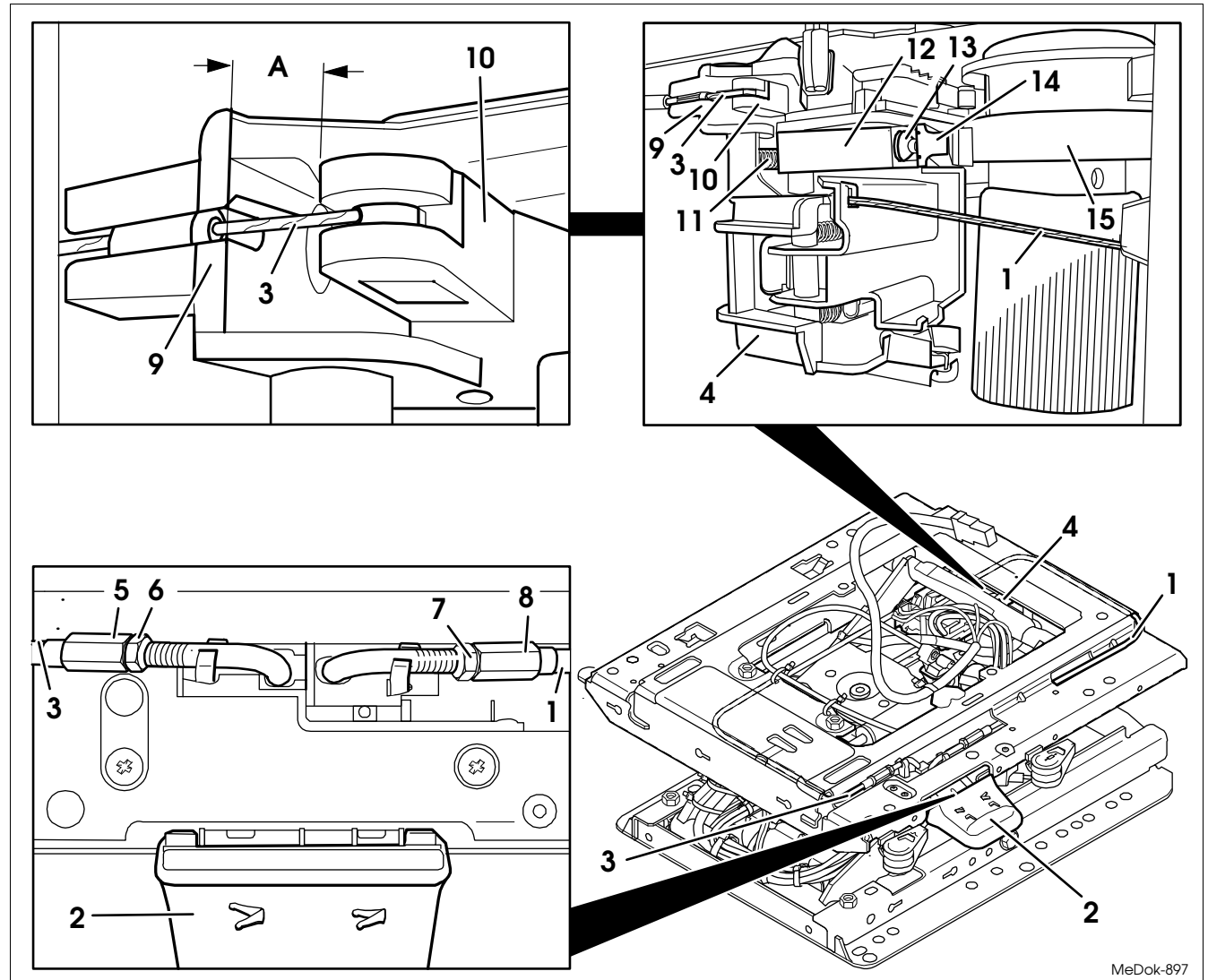
INSPECTION/ADJUSTMENT

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- 1 Remove the upper part of the seat (see repair manual for the upper seat part).
- 2 Remove the cover (Chapter 3.1).

Inspection

- 3
 - Operate the handle for height adjustment (2) several times in both directions as far as possible and simultaneously check the Bowden pull wires (1 and 3) for correct functioning and smooth operation.
 - Check the smooth operation of Bowden wire lever (10), valve lever (14) and valve tappets (13) at the outlet valve (12).



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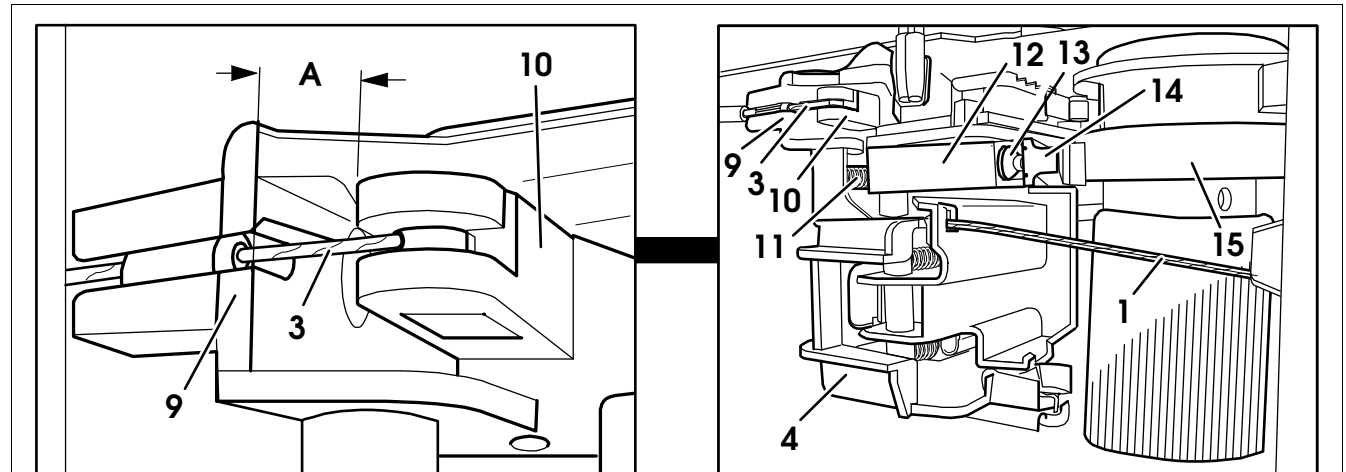
3.11.1 Bowden pull wires for height adjustment – inspection and adjustment



INSPECTION/ADJUSTMENT

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- 4 Check the neutral position of the handle for seat height adjustment (2) and the tensile force of the retracting spring (11) on the height level valve (4):
- The retracting spring (11) must fix the handle for seat height adjustment (2) in neutral position.
 - The retracting spring (11) must tightly pull the Bowden pull wire (1 and 3) and keep the Bowden wire lever (10) in neutral position.



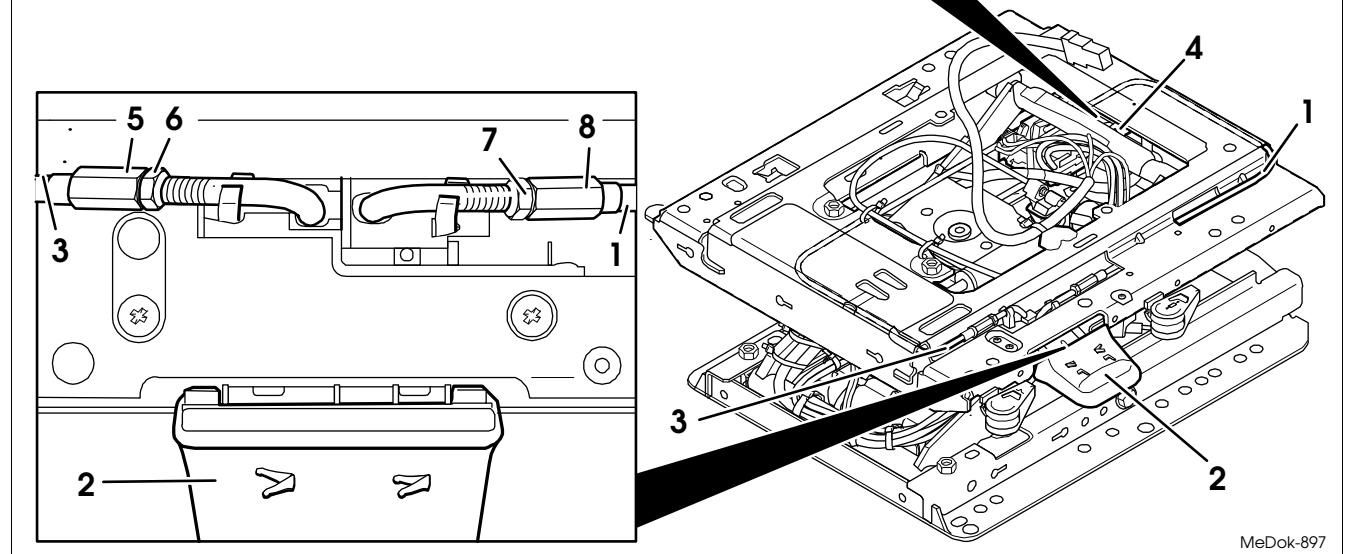
5 Bowden pull wire (3):

Check the clearance between the Bowden wire lever (10) and holder for Bowden wire end cap (9):

Specified value: Distance (A) 2,0 mm with the handle for height adjustment (2) in top position.

Note:

When the specified value exceeds 2,0 mm, the suspension cannot be lifted above the middle position.



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3.11.1 Bowden pull wires for height adjustment – inspection and adjustment



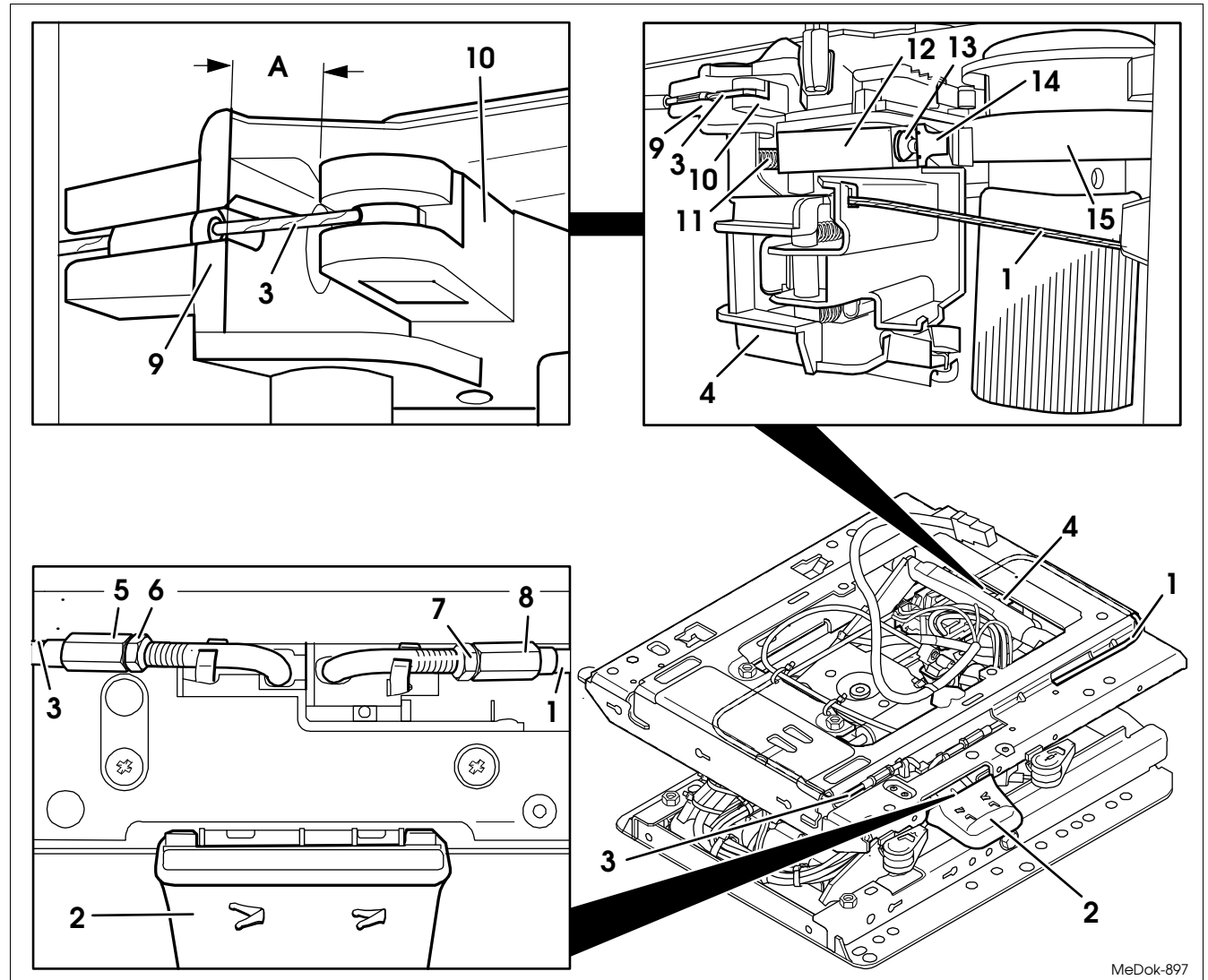
INSPECTION/ADJUSTMENT

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6 Bowden pull wire (1):

Specified value: The Bowden pull wire (1) must be slightly prestressed at the suspension device of the leveling valve (4).

The wire of the Bowden pull wire (1) may be arched in a maximum area of ± 4 mm without the mechanical parts being moved.



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3.11.1 Bowden pull wires for height adjustment – inspection and adjustment



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Adjustment

1 Adjusting the Bowden pull wire (3):

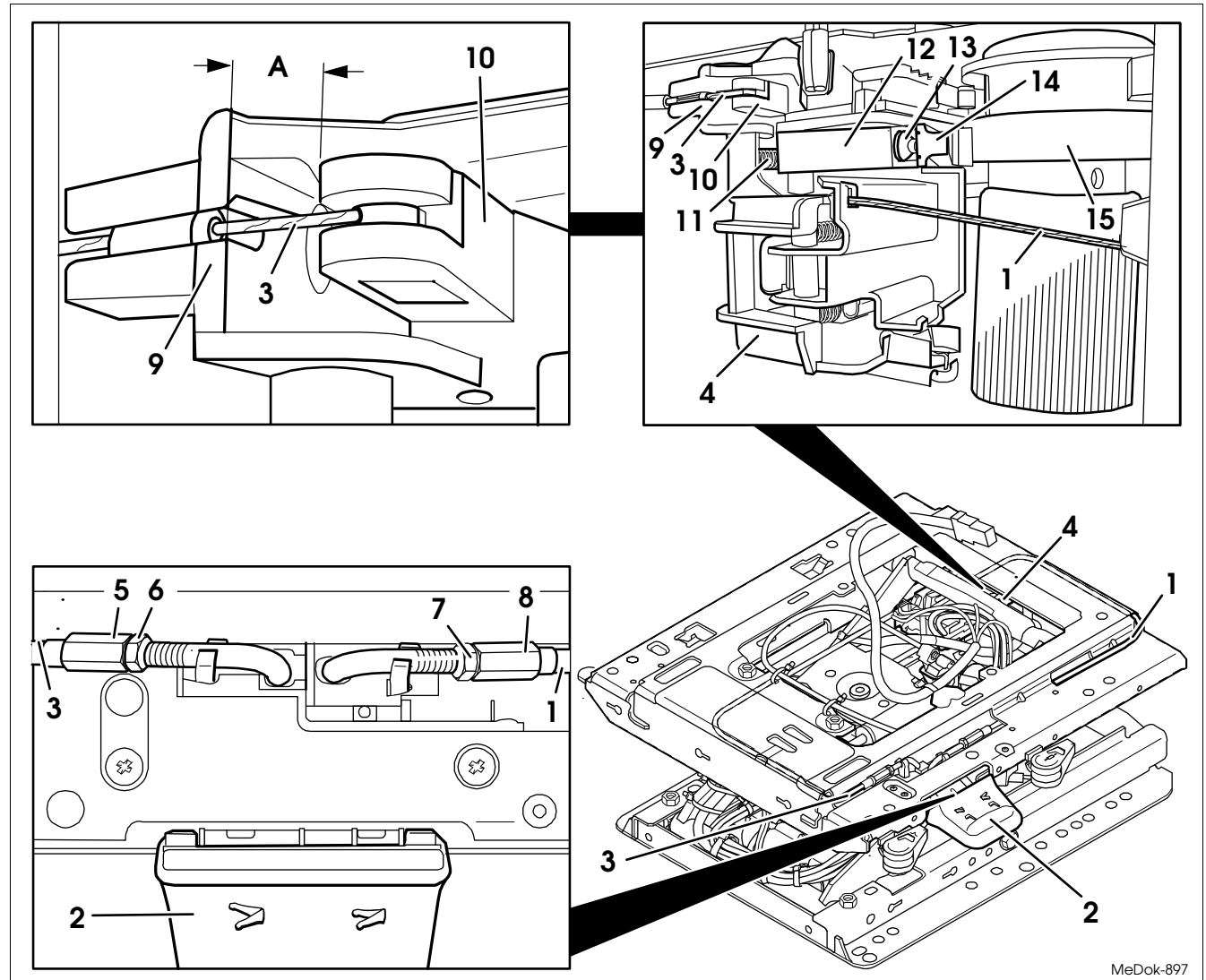
1.1 Loosen the counternut (6) and adjust the clearance between the Bowden wire lever (10) and holder for Bowden wire end cap (9) using the lock nut (5).

Notes:

- Turn the lock nut (5) inwards, the Bowden pull wire (3) gets longer.
- Turn the lock nut (5) outwards, the Bowden pull wire (3) gets shorter.
- **Specified value:** Clearance (A) 2,0 mm.

1.2 Secure the lock nut (5) with the counternut (6) and make sure not to distort the Bowden pull wire (3).

1.3 Operate the handle for seat height adjustment (2) several times and check the specified value; repeat adjustment, if necessary.



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3.11.1 Bowden pull wires for height adjustment – inspection and adjustment

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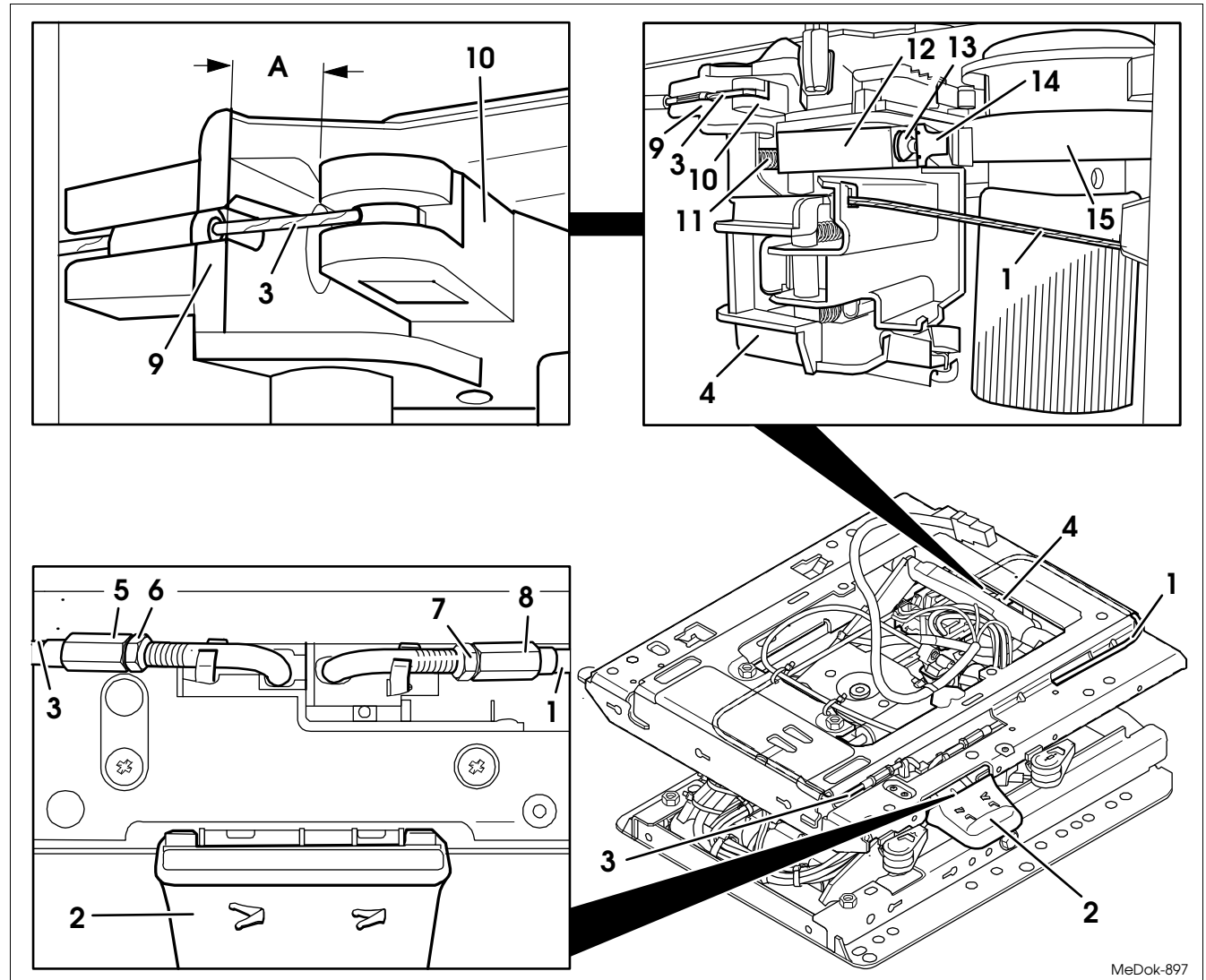
2 Adjusting the Bowden pull wire (1):

- 2.1 Loosen the counternut (7) and adjust the tension of the Bowden pull wire (1) on the height valve (4) using the lock nut (8).

Notes:

- Turn the lock nut (8) inwards, the Bowden pull wire (1) gets longer.
- Turn the lock nut (8) outwards, the Bowden pull wire (1) gets shorter.
- **Specified value:** The Bowden pull wire (1) must be slightly prestressed at the suspension device of the leveling valve (4).

The wire of the Bowden pull wire (1) may be arched in a maximum area of +/- 4 mm without the mechanical parts being moved.



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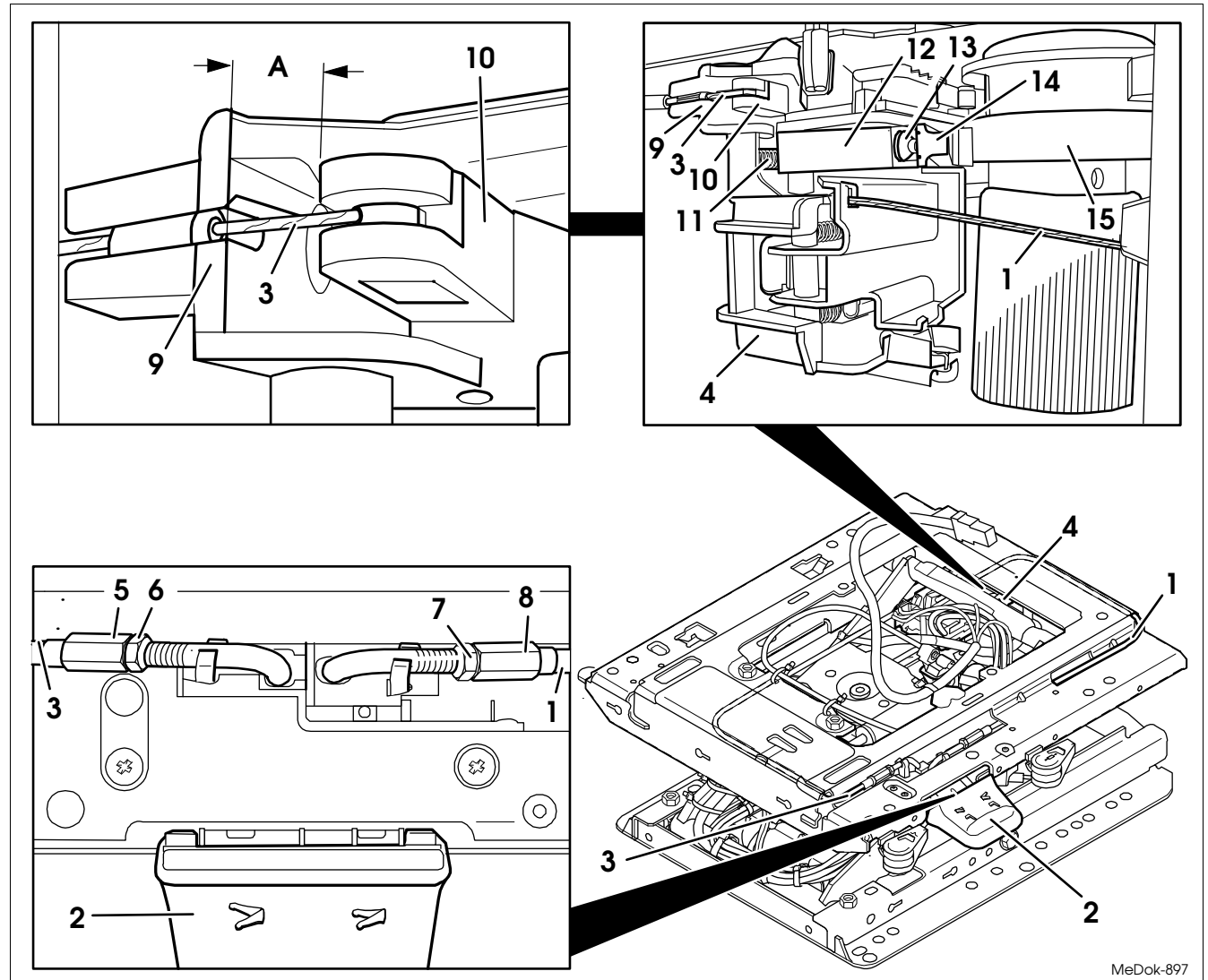
3.11.1 Bowden pull wires for height adjustment – inspection and adjustment



INSPECTION/ADJUSTMENT

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- 2.2 Secure the lock nut (8) with the counternut (7) and make sure not to distort the Bowden pull wire (1).
- 2.3 Operate the handle for seat height adjustment (2) several times and check the specified value; repeat adjustment, if necessary.
- 3 Install the cover (Chapter 3.1).
- 4 Install the upper part of the seat (see repair manual for upper seat part).



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3.11.2 Bowden pull wires and handle for height adjustment – removal and installation

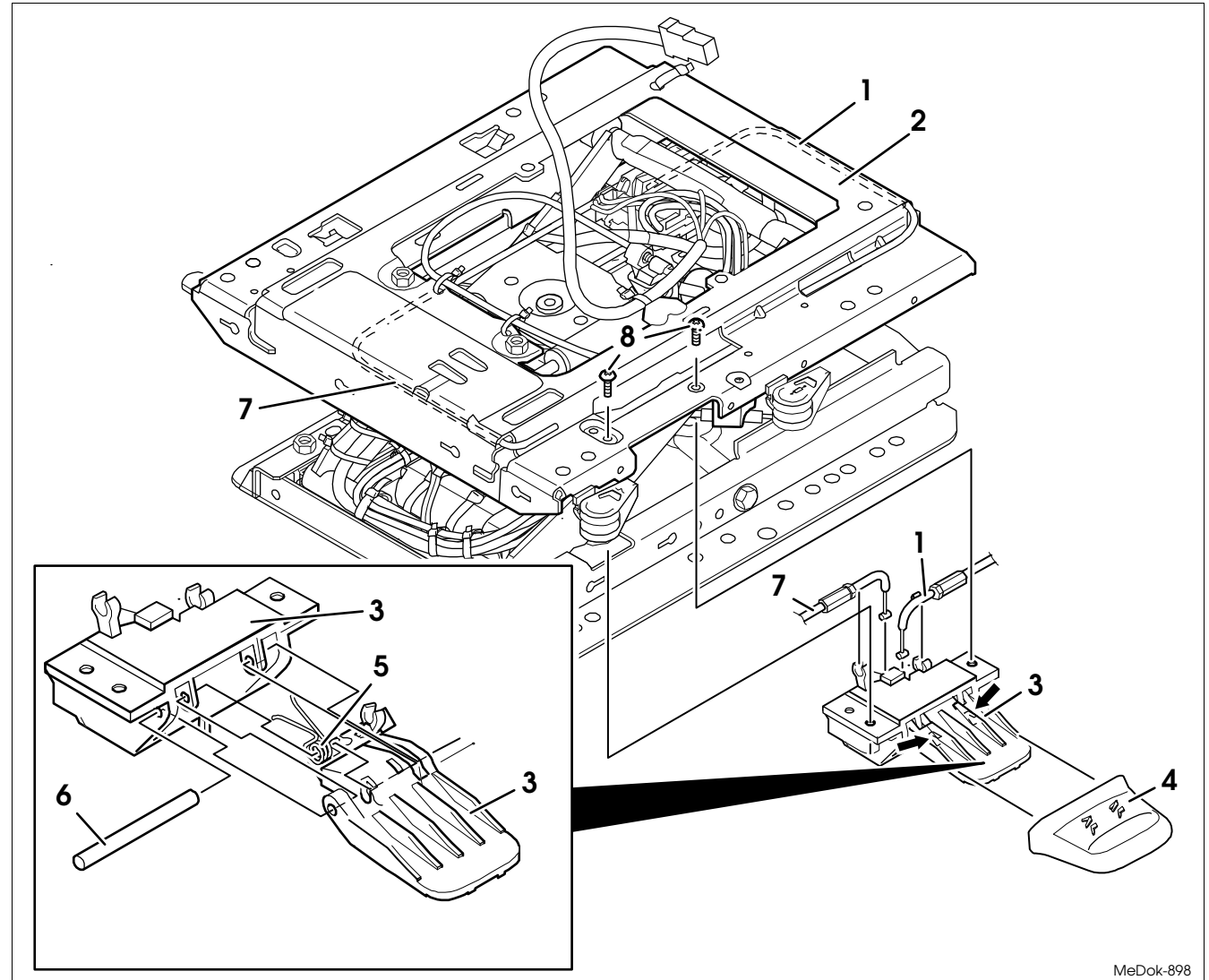


REMOVAL/INSTALLATION

TABLE OF CONTENTS

- (1) Bowden pull wire
- (2) Upper part of the suspension
- (3) Holder for Bowden pull wire
- (4) Handle replace if necessary
- (5) Spring
- (6) Stud
- (7) Bowden wire
- (8) Cross-head screw

- 1 Remove the upper part of the seat (see repair manual for the upper seat part).
- 2 Remove the cover (Chapter 3.1).
- 3 Hang out bellows from the upper part of the suspension (2) (see Chapter 3.2).



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3.11.2 Bowden pull wires and handle for height adjustment – removal and installation

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REMOVAL/INSTALLATION

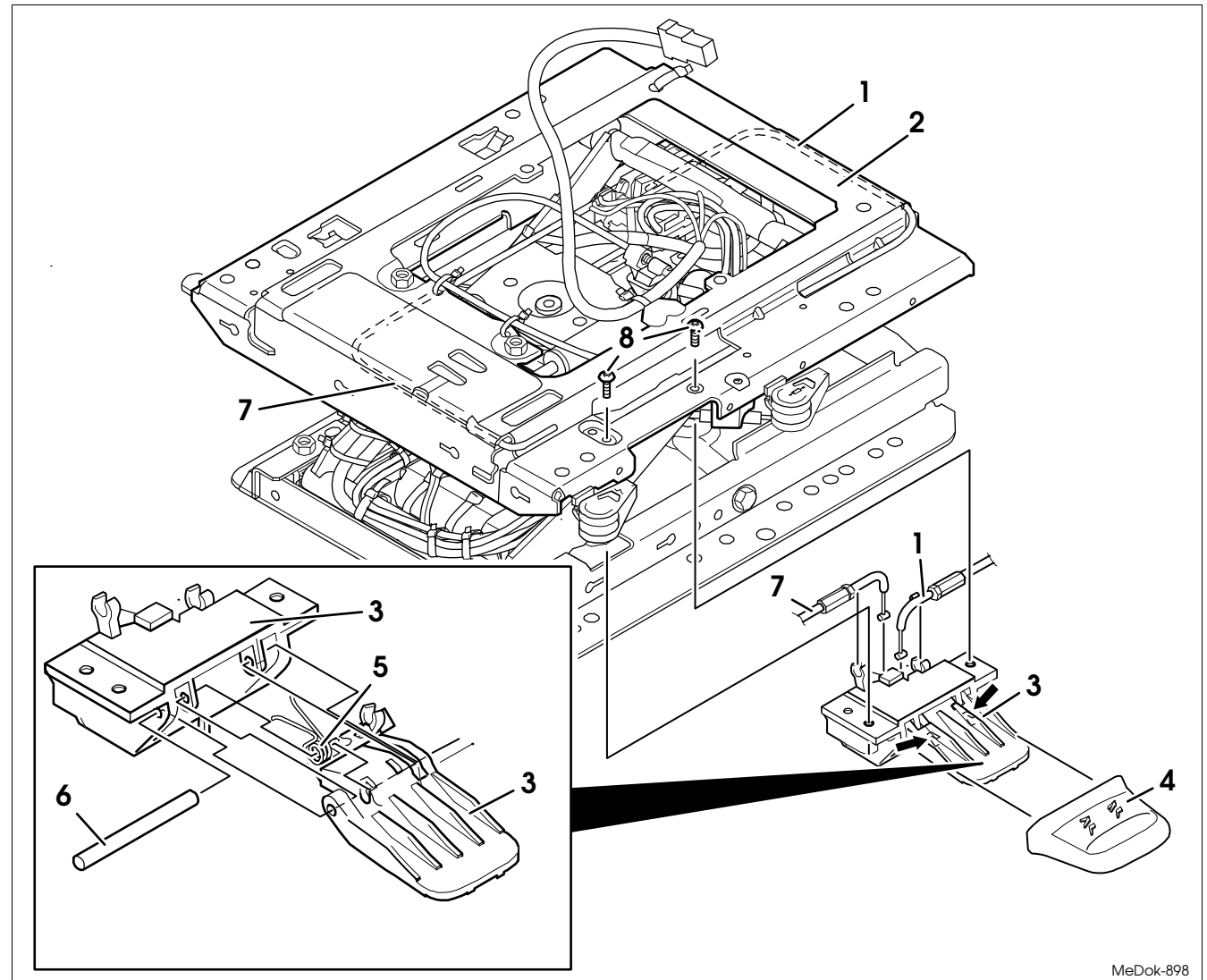
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Removal, installation

- 4 Take the Bowden pull wire (1) off the height level control and remove it from the retainer for Bowden pull wire (see Chapter 3.9.2).
- 5 Take the Bowden pull wire (7) off the height level control (see Chapter 3.9.2).
- 6 Move the suspension system to the highest position and secure it there.



WARNING Risk of crushing!
Secure the suspension between the swinging structure and lower part of the suspension system with suitable spacers.



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3.11.2 Bowden pull wires and handle for height adjustment – removal and installation

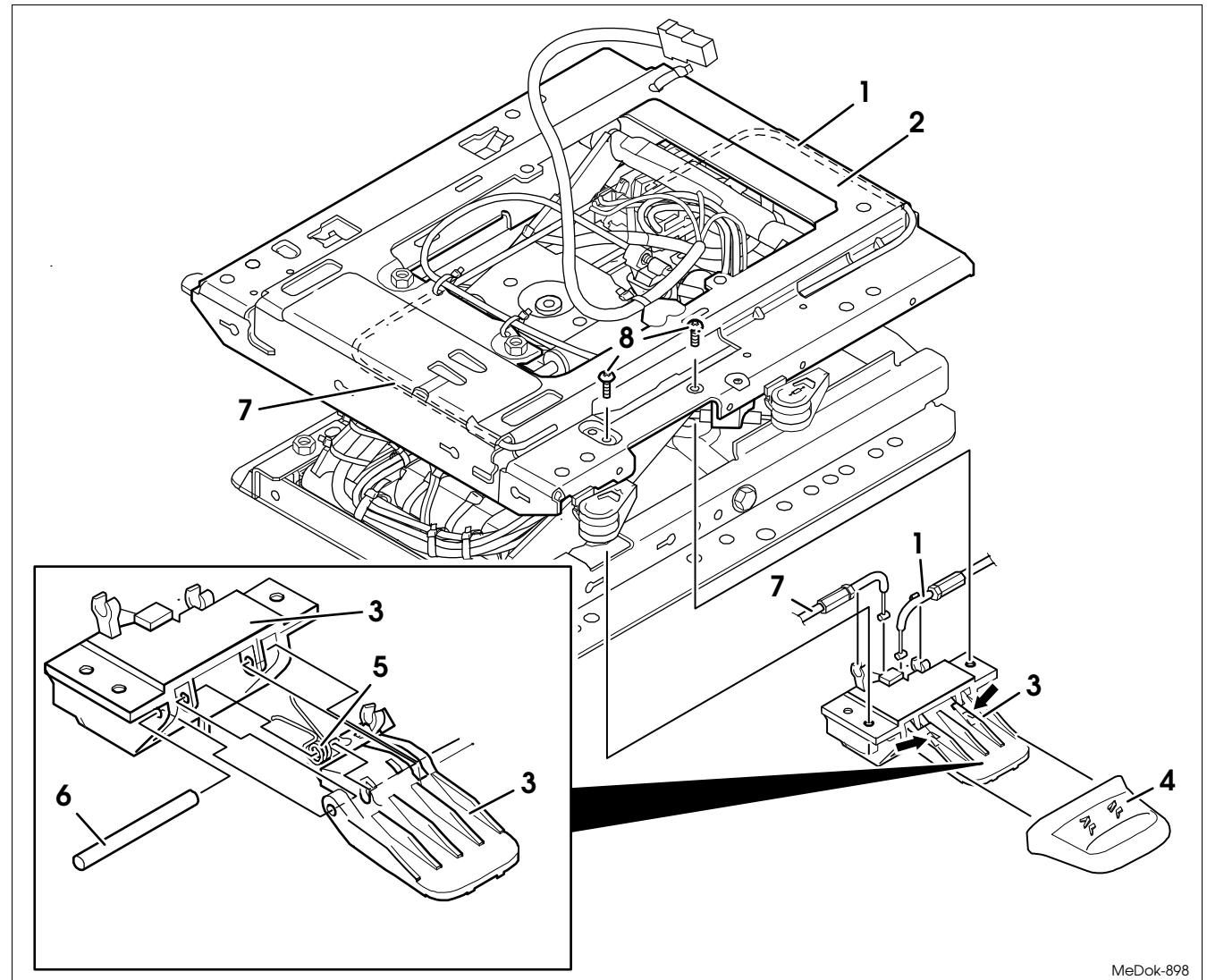
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REMOVAL/INSTALLATION

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- 7 Remove two cross-head screws (8) and put down the holder for the Bowden pull wire (3).
- 8 Remove the Bowden pull wire (1) from the holder for Bowden pull wire (3).
- 9 Knock out the stud (6) from the holder for Bowden pull wire (3).
- 10 Separate the holder for the Bowden pull wire (3) and remove the spring (5).
- 11 Remove the Bowden pull wire (7) from the holder for Bowden pull wire (3).



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3.11.2 Bowden pull wires and handle for height adjustment – removal and installation

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- 12 Mark the installation position for the Bowden pull wire (1) in the upper part of the suspension (2), pull the Bowden pull wire (1) out of the upper part of the suspension (2) and then remove it.

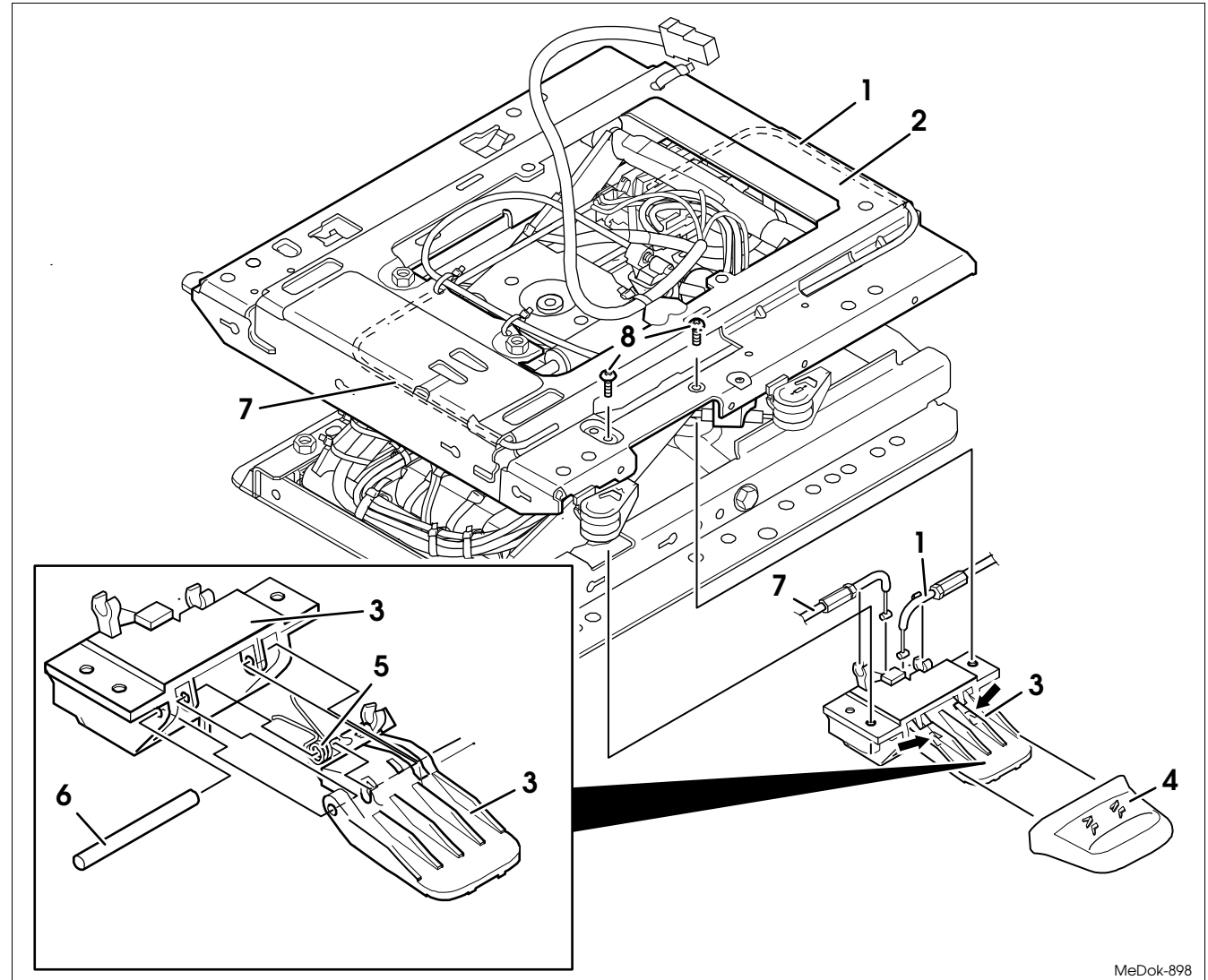
Installation notes:

- Install the Bowden pull wire (7) according to the marking.
- Adjust the new Bowden pull wire (1) to the length of the old one (1) (excess length of the wire).

- 13 Mark the installation position for the Bowden pull wire (7) in the upper part of the suspension (2), pull the Bowden pull wire (7) out of the upper part of the suspension (2) and then remove it.

Installation notes:

- Install the Bowden pull wire (7) according to the marking.
- Adjust the new Bowden pull wire (7) to the length of the old one (7) (excess length of the wire).



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3.11.2 Bowden pull wires and handle for height adjustment – removal and installation



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14 Remove the holder for Bowden pull wire (3).

15 Replace the handle (4), if required:

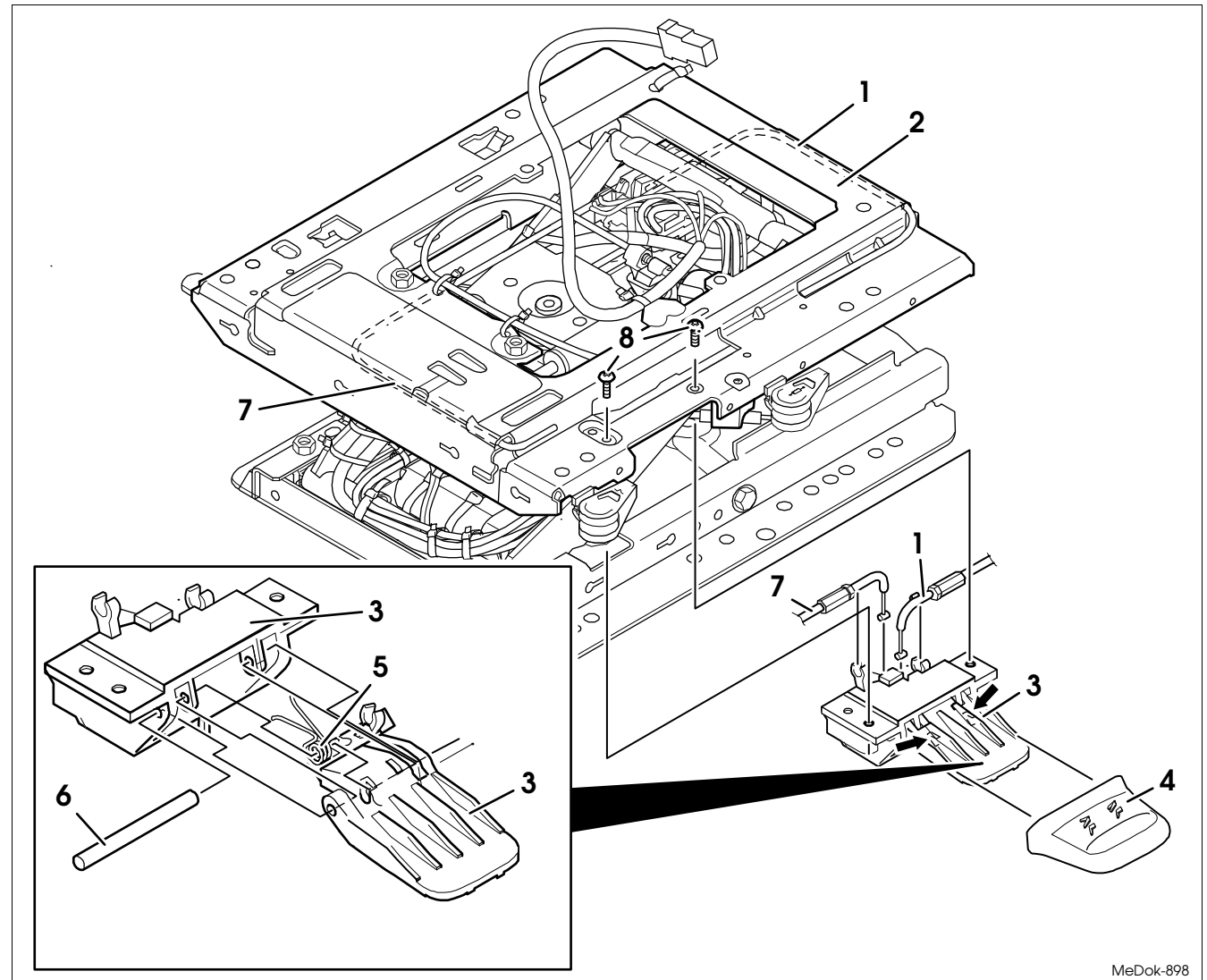


WARNING risk of breakage!

The handle (4) and holder for Bowden pull wire (3) are wedged into the two latching noses (arrow) at the lower part of the holder for Bowden pull wire (3). Carefully separate the parts. When the handle (4) is deformed, replace it.

To remove the handle, use a screwdriver to bend open the handle (4) between the handle (4) and holder for Bowden pull wire (3) so that the two latching noses are released from the handle (4). Take the handle (4) off the holder for Bowden pull wire (3).

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



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3.12 Pneumatic spring – removal and installation

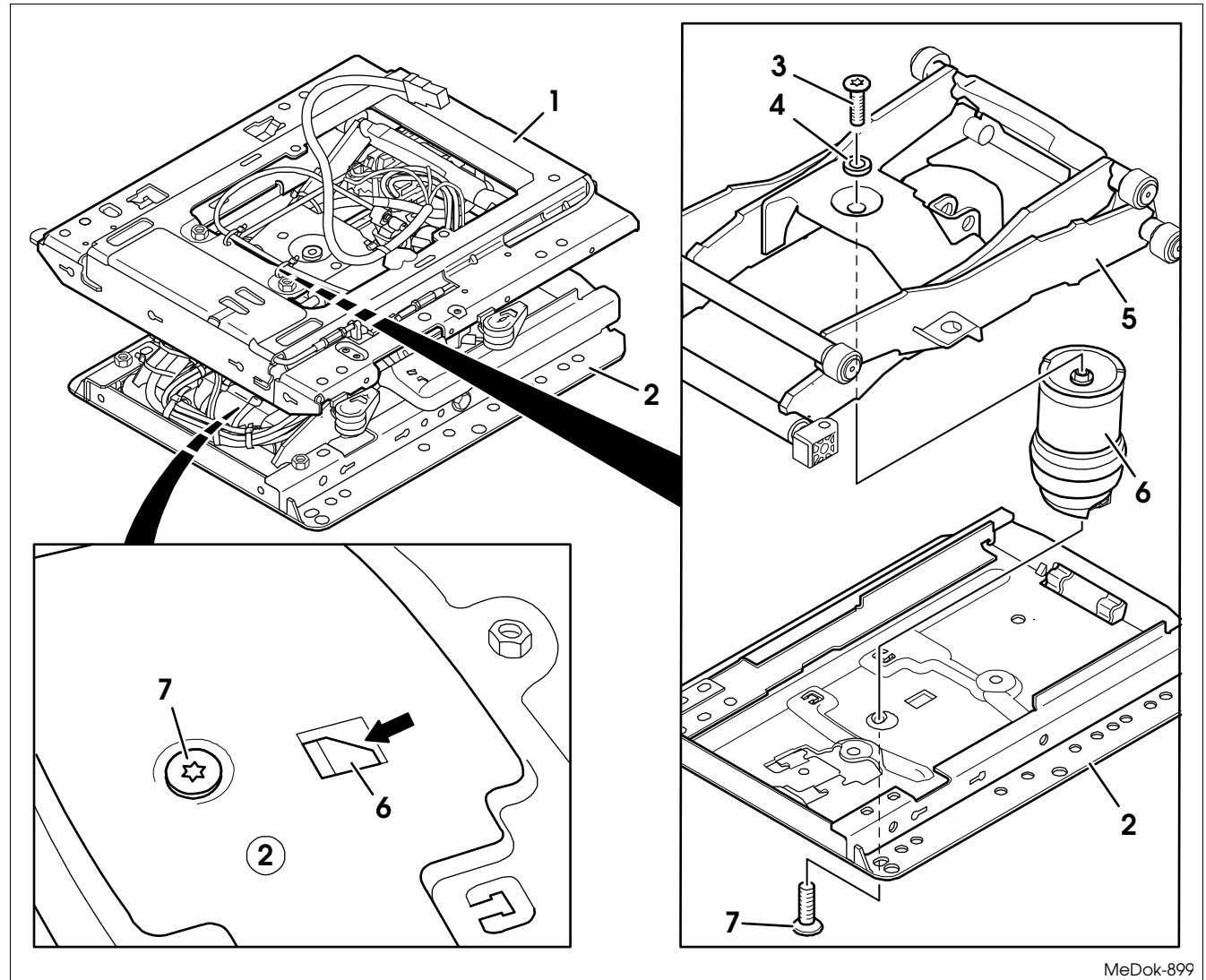


REMOVAL/INSTALLATION

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- (1) Upper part of the suspension
- (2) Lower part of the suspension
- (3) Counter sunk screw 6 Nm
- (4) Washer
- (5) Swinging structure
- (6) Pneumatic spring
- (7) Counter sunk screw 6 Nm

- 1 Remove the upper part of the seat (see repair manual for the upper seat part).
- 2 Remove the cover (Chapter 3.1).
- 3 Take off the bellows from the upper part of the suspension (see Chapter 3.2).



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3.12 Pneumatic spring – removal and installation

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Removal, installation

- 4 Move the suspension system to the highest position and secure it there.



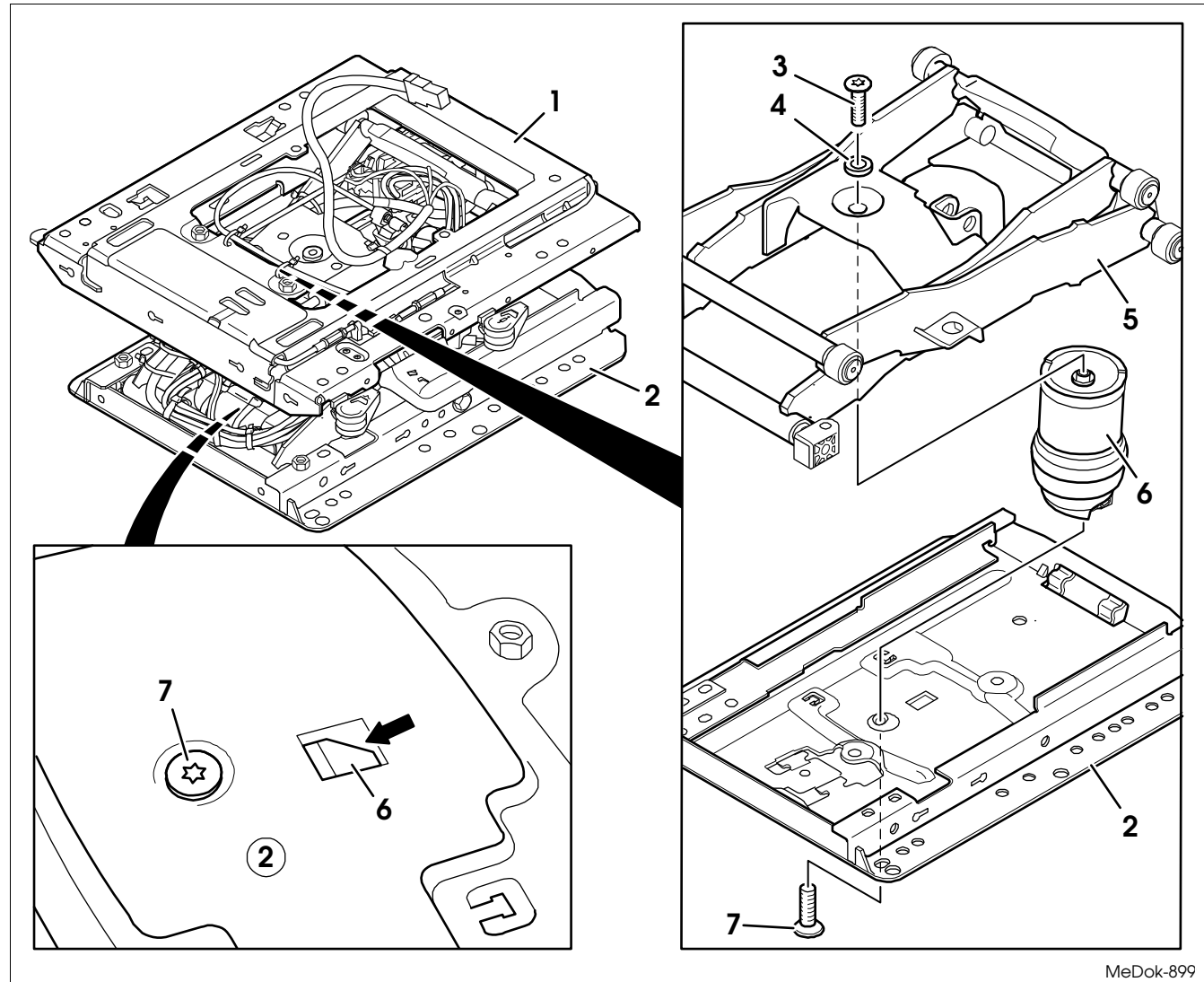
WARNING Risk of crushing!
Secure the suspension between the swinging structure and lower part of the suspension system with suitable spacers.

- 5 Remove the two air input hoses, compressed-air hose and air input hose with angle from the pneumatic spring (6) (see Chapter 3.10).

- 6 Undo the counter sunk screw (3) from the pneumatic spring (6) and remove it together with the washer (4).

Installation notes:

- Counter sunk screw (3), 6 Nm.
- The thread collar on the pneumatic spring (6) must seat flush in the hole of the swinging structure (5).



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3.12 Pneumatic spring – removal and installation

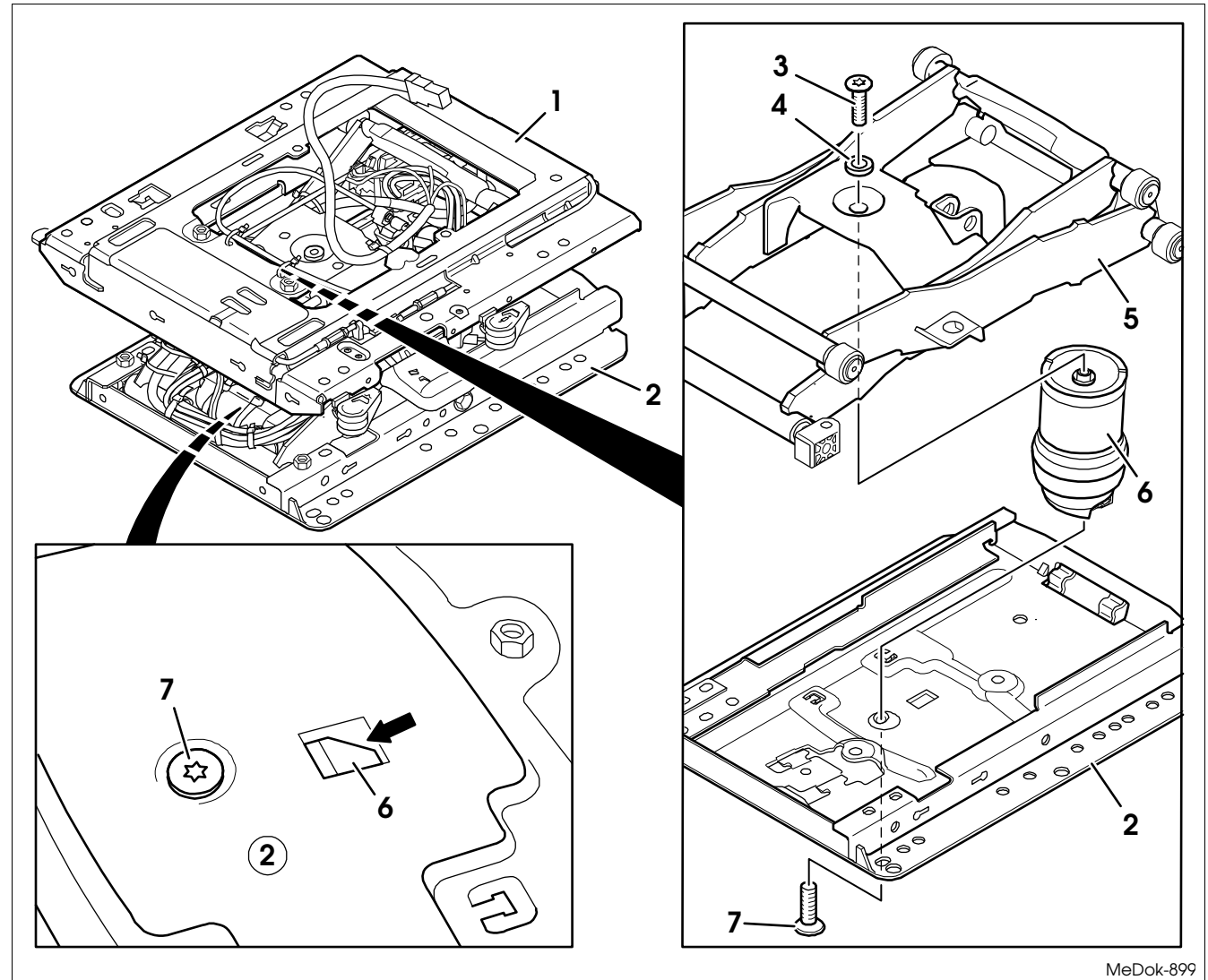
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- 7 Turn the spring system by 180 degrees and place it onto the upper part (1).
- 8 Undo the counter sunk screw (7) from the pneumatic spring (6).
Installation notes:
 - Counter sunk screw (7), 6 Nm.
 - The thread collar on the pneumatic spring (6) must seat flush in the hole of the lower suspension part (2).
- 9 Slightly compress the pneumatic spring (6) and remove it from the swinging structure (5) and lower part of the suspension (2).
Installation note:
 The step on the underside of the pneumatic spring (6) must fit into the cut-out (arrow) in the lower part of the suspension (2).
- 10 Re-install the components in the reverse order of their removal.



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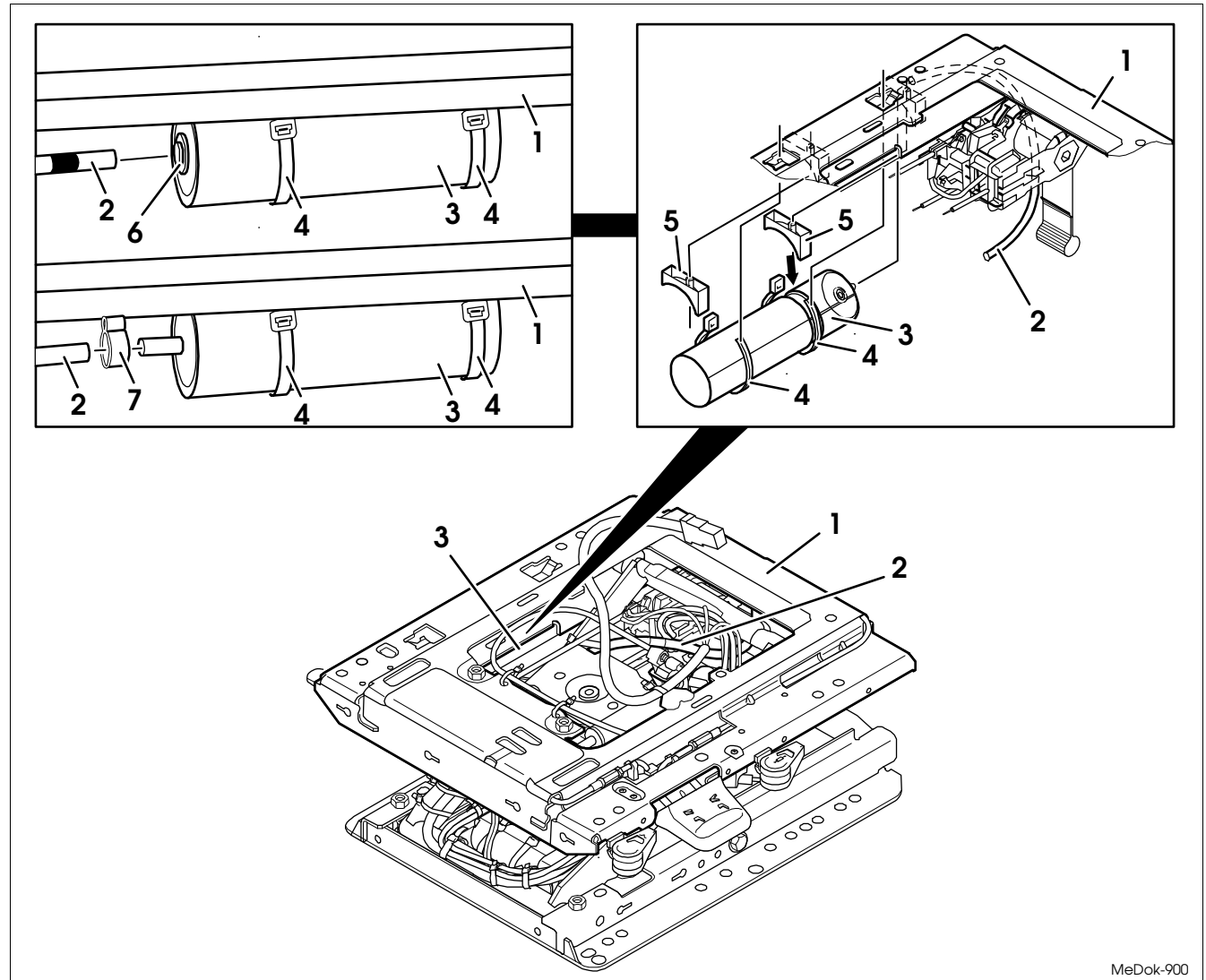
3.13 Air tank for additional air supply – removal and installation



REMOVAL/INSTALLATION

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- (1) Upper part of the suspension
- (2) Air hose with angle
- (3) Air tank
- (4) Cable tie
- (5) Guide
- (6) Quick fastener
- (7) Hose clamp



- 1 Remove the upper part of the seat (see repair manual for the upper seat part).
- 2 Remove the cover (Chapter 3.1).
- 3 Take off the bellows from the upper part of the suspension (see Chapter 3.2).

3.13 Air tank for additional air supply – removal and installation

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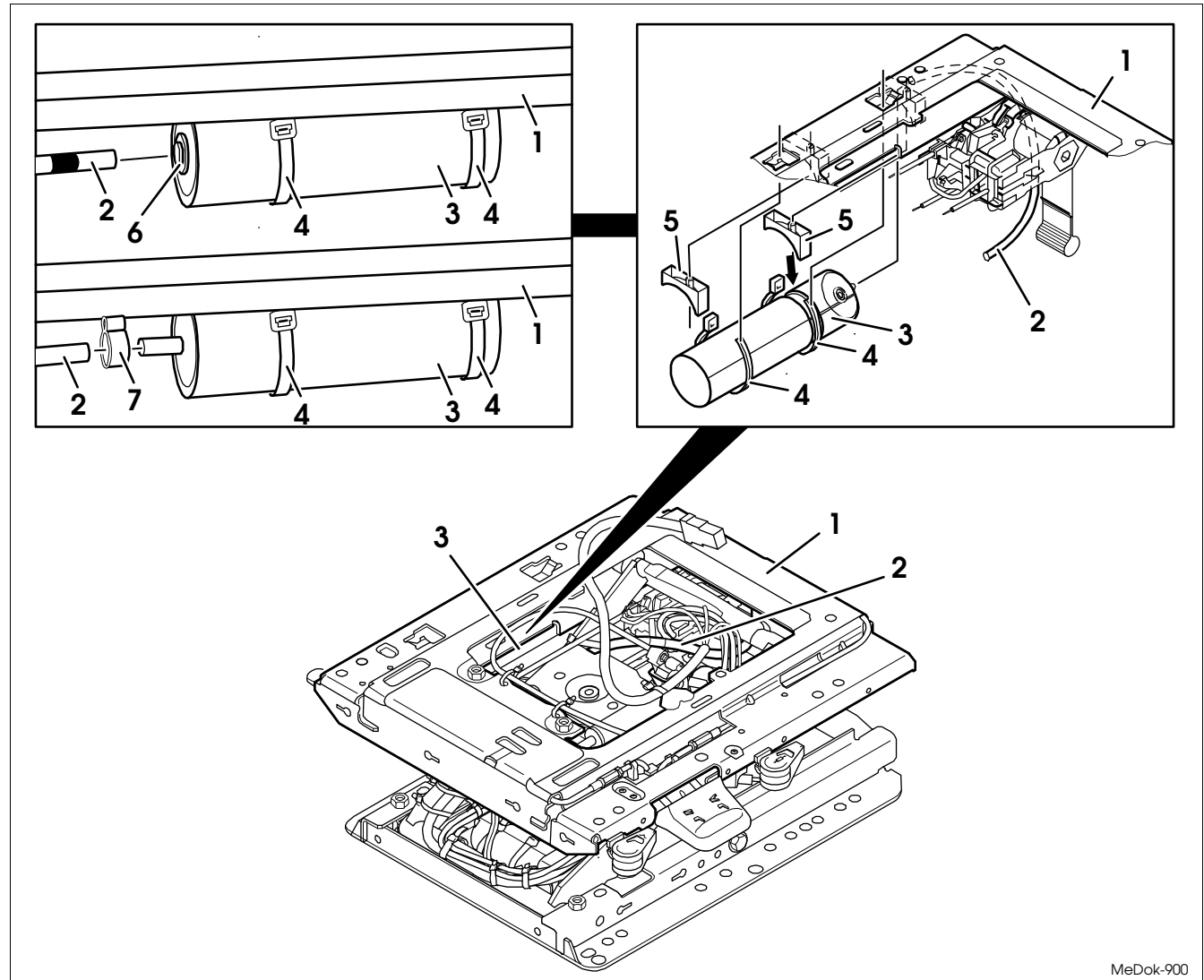
**Removal**

- 4 Move the suspension system to the highest position and secure it there.



WARNING Risk of crushing!
Secure the suspension between the swinging structure and lower part of the suspension system with suitable spacers.

- 5 **Air tank (3) with quick fastener (6):**
Remove the air hose with angle (2) from the air tank (3) (see Chapter 3.10.1).
- 6 **Air tank (3) with hose clamp (7):**
Open the hose clamp (7), remove the air hose with angle (2) from the air tank (3) (see Chapter 3.10.2).



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3.13 Air tank for additional air supply – removal and installation

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7 Mark the points where the air tank (3) is fastened with the two cable ties (4), remove the cable ties (4) and the air tank (3).

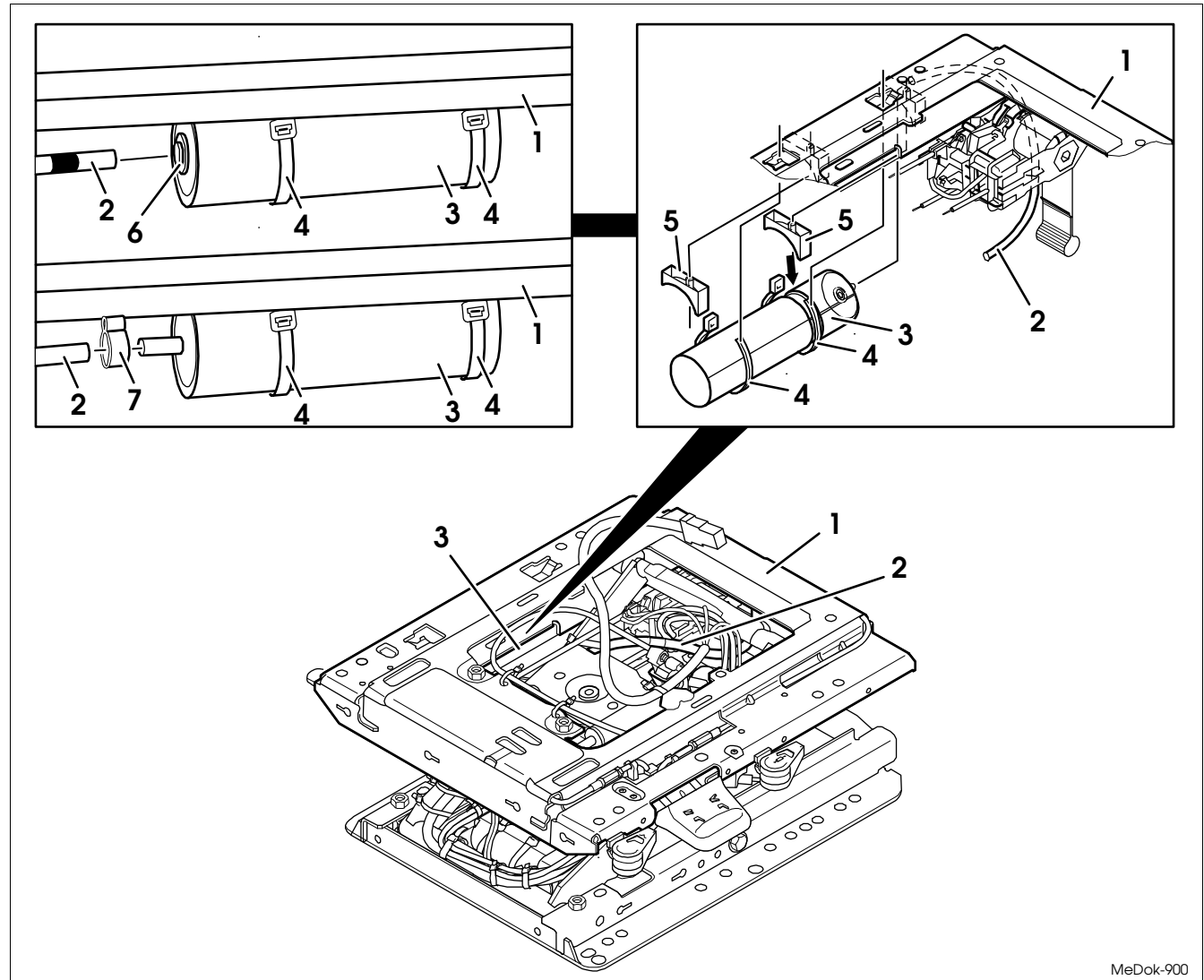
8 Replace the guide (5), if required:
Remove the two guide elements (5) from the upper part of the suspension (1).

Installation

1 Air tank (3) with quick fastener (6):
Connect the air hose with angle (2) with quick fastener (6) to the air tank (3) (see Chapter 3.10.1).

Note:

Strip off from the air hose sheeting (2) (as marked) by 17 mm which is the length required for insertion (see Chapter 2.1).



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3.13 Air tank for additional air supply – removal and installation

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2 Air tank (3) with hose clamp (7):

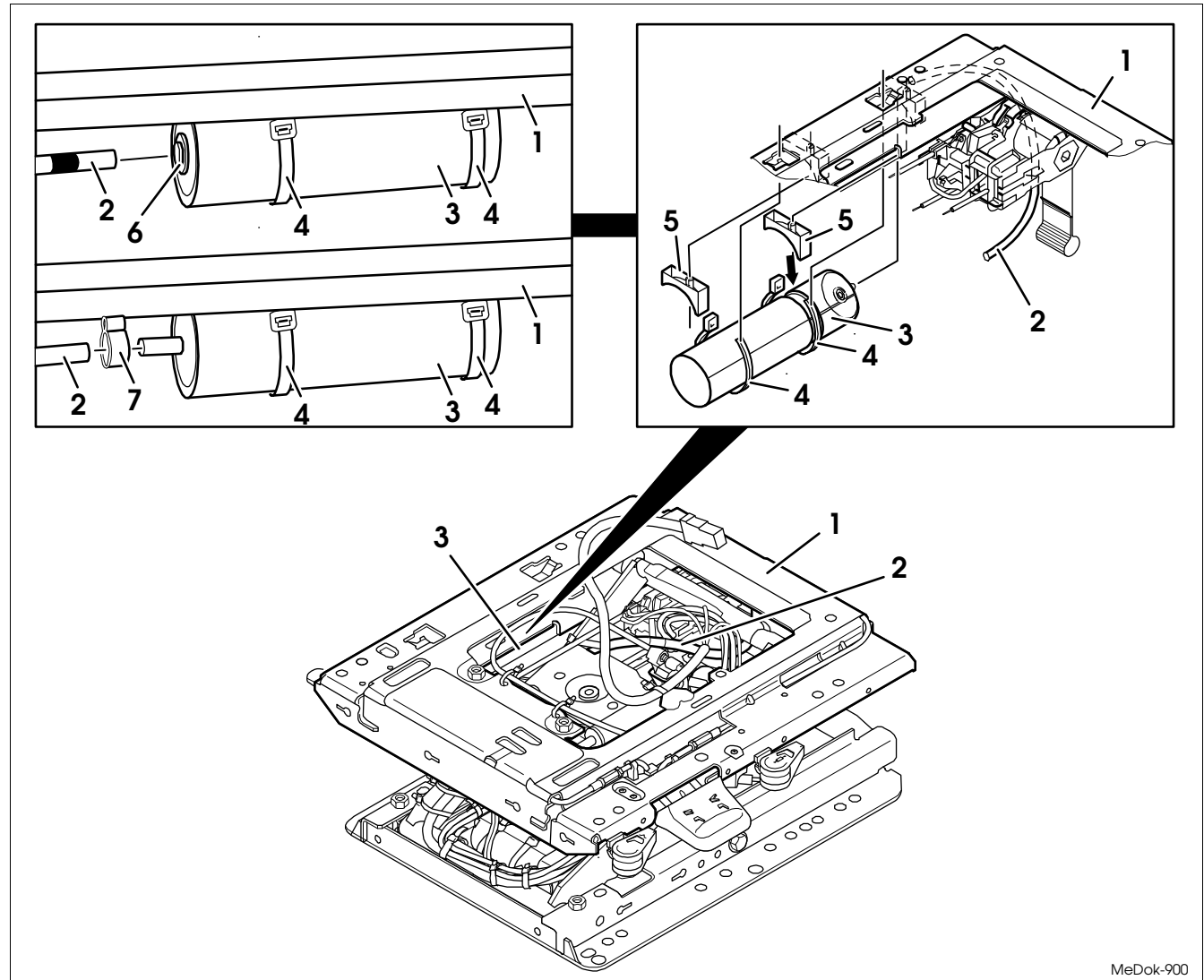
Install the air hose with angle (2) to the air tank (3) (see Chapter 3.10.2).

3 Lead the cable ties (4) through the corresponding holes in the upper part of the suspension (1) and close them loosely.

4 Slide the air tank (3) into the two cable ties (4) and align it.

Notes:

- The cable tie (4) on the rear must be placed in the air tank fixation (3) in such a way, so as to prevent displacement.
- Place the air tank (3) in the center of the two guides (5).



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3.13 Air tank for additional air supply – removal and installation

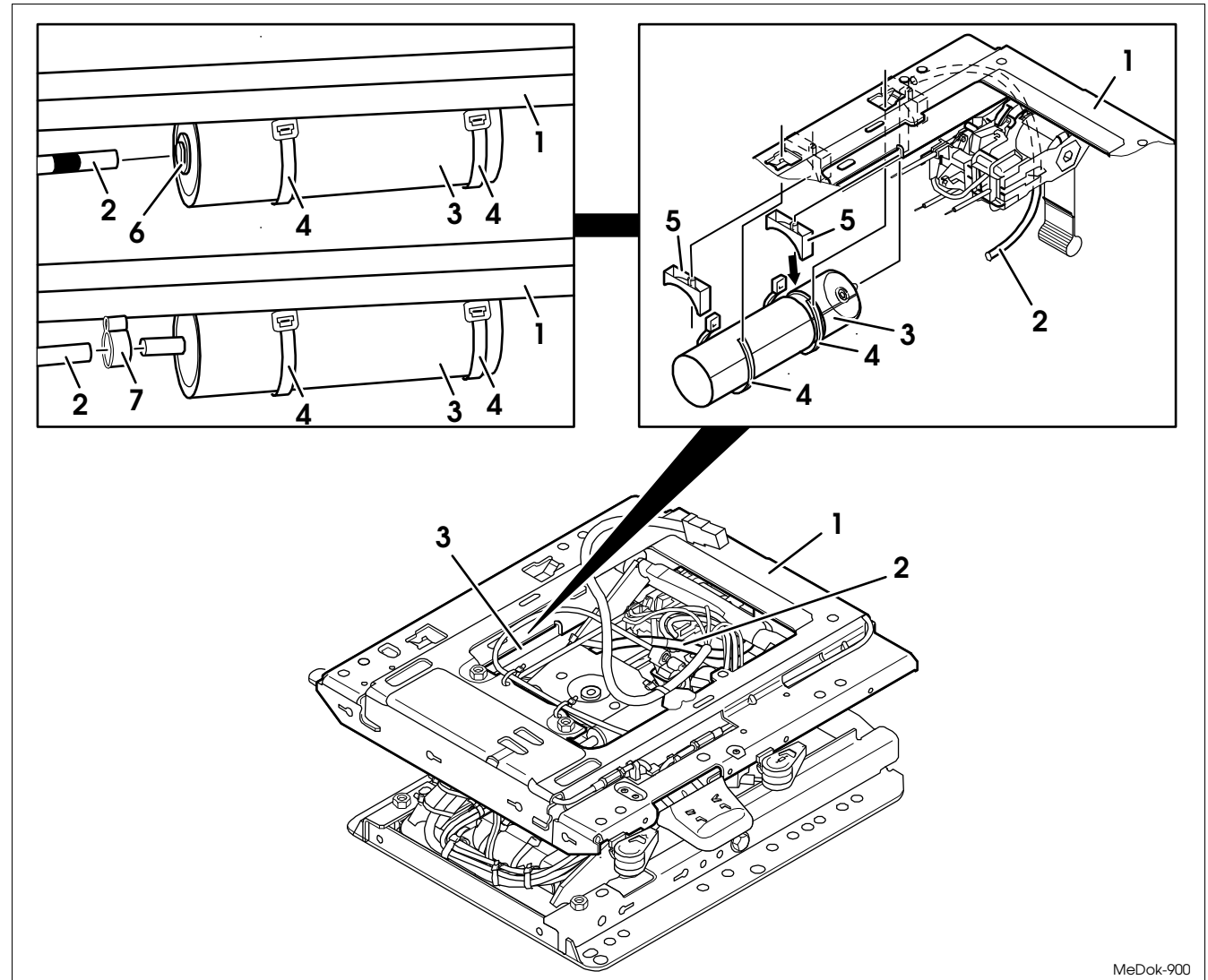
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- 5 Use the pliers to tighten the locking heads of the two cable ties (4) to 310 Nm in the direction shown (arrow).
- 6 Press the locking heads of the two cable ties (4) in an upward direction until they lie flat against the upper part of the suspension (1).
- 7 Hang in the bellows into the upper part of the suspension (1) (see Chapter 3.2).
- 8 Install the cover (Chapter 3.1).
- 9 Install the upper part of the seat (see repair manual upper seat part).



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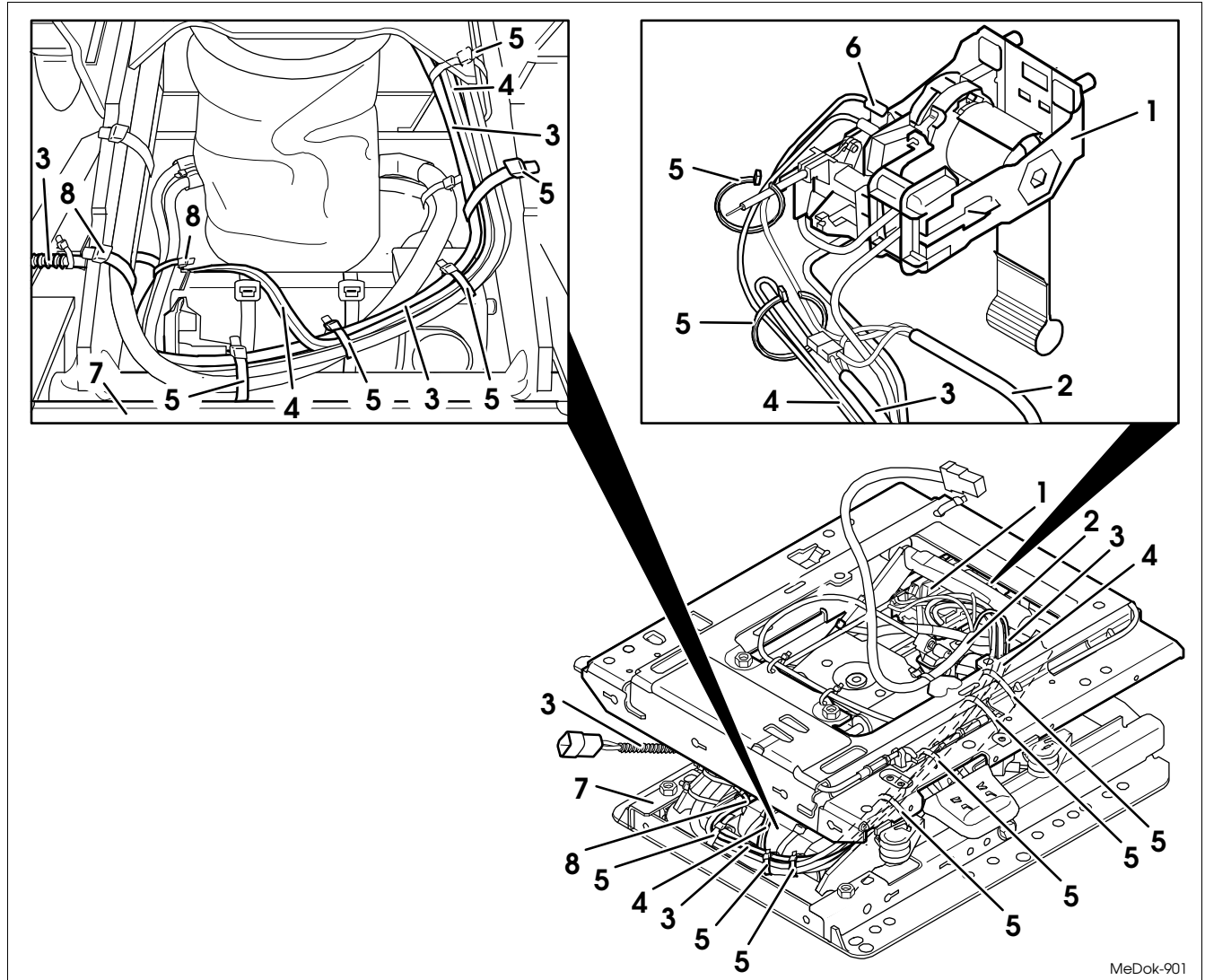
3.14 Cable harness – removal and installation



REMOVAL/INSTALLATION

TABLE OF CONTENTS

- (1) Height level control unit
- (2) Cable harness of the connector plug
- (3) Cable harness of the vehicle power connector
- (4) Compressor cable
- (5) Cable tie
- (6) Right-angle plug (black)
- (7) Lower part of the suspension
- (8) Cable tie



- 1 Remove the upper part of the seat (see repair manual for the upper seat part).
- 2 Remove the cover (Chapter 3.1).
- 3 Remove the bellows (Chapter 3.2).

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3.14 Cable harness – removal and installation



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4 Remove the cable harness of the connector plug (2) from the horizontal shock absorber (see Chapter 3.6).

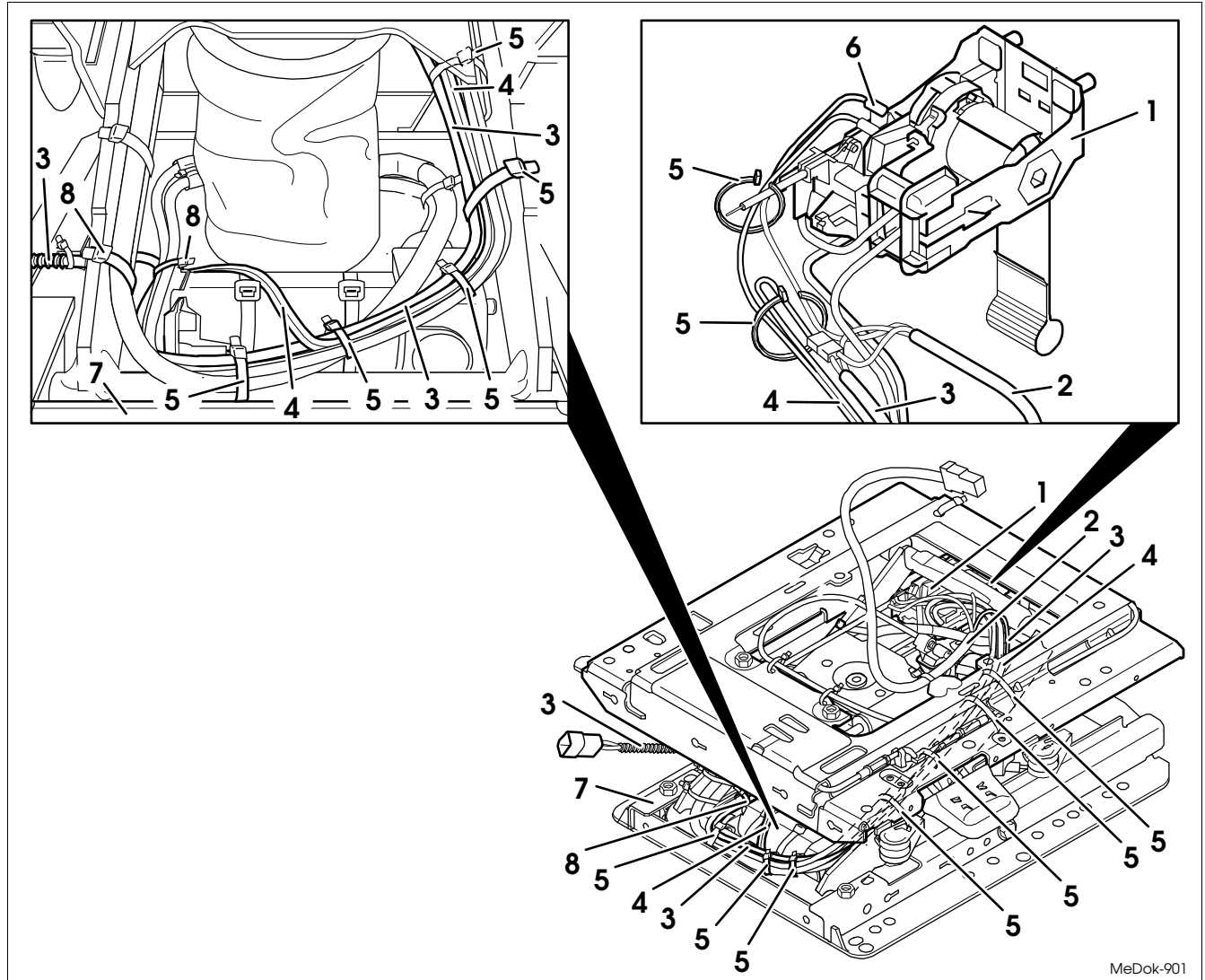
Removal, installation

5 Move the suspension system to the highest position and secure it there.



WARNING Risk of crushing!
Secure the suspension between the swinging structure and lower part of the suspension system with suitable spacers.

6 Mark the points where the cable of the vehicle power connector (3) is fastened with two cable ties (8) on the lower part of the suspension (7) and remove the cable ties (8).



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3.14 Cable harness – removal and installation



REMOVAL/INSTALLATION

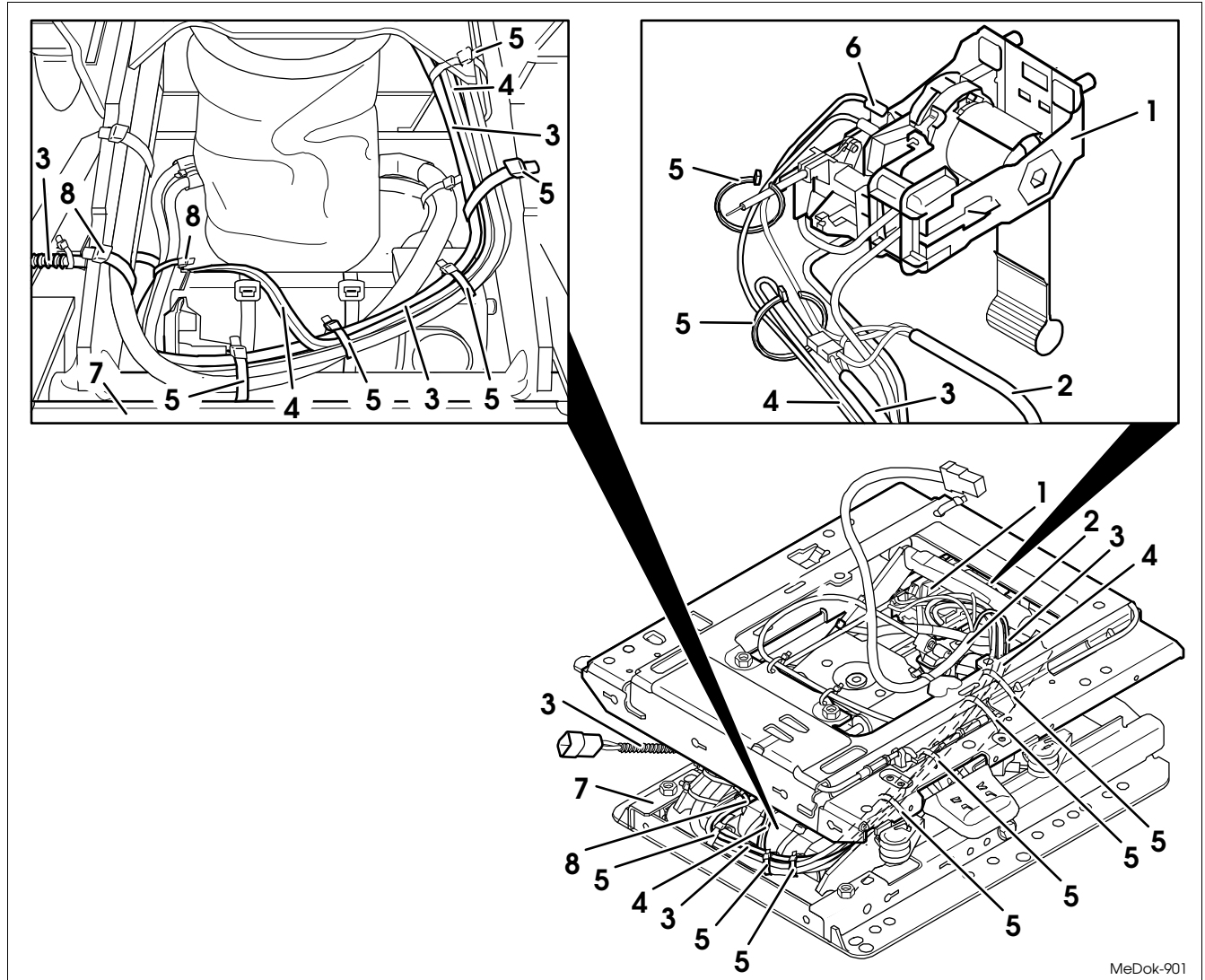
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- 7 Mark the positions where the cable harness of the connector plug (3) and cable harness of the vehicle power connector (2) are fastened with nine cable ties (5) and remove the cable ties (5).

Installation note:

Route the cable harness (2 and 3) and fix it with the cable ties (5) so that it is neither squeezed nor otherwise damaged.

- 8 Disconnect the flat connector (see Chapter 3.8).
- 9 Disconnect the right-angle plug (6) from the height level control unit (1).



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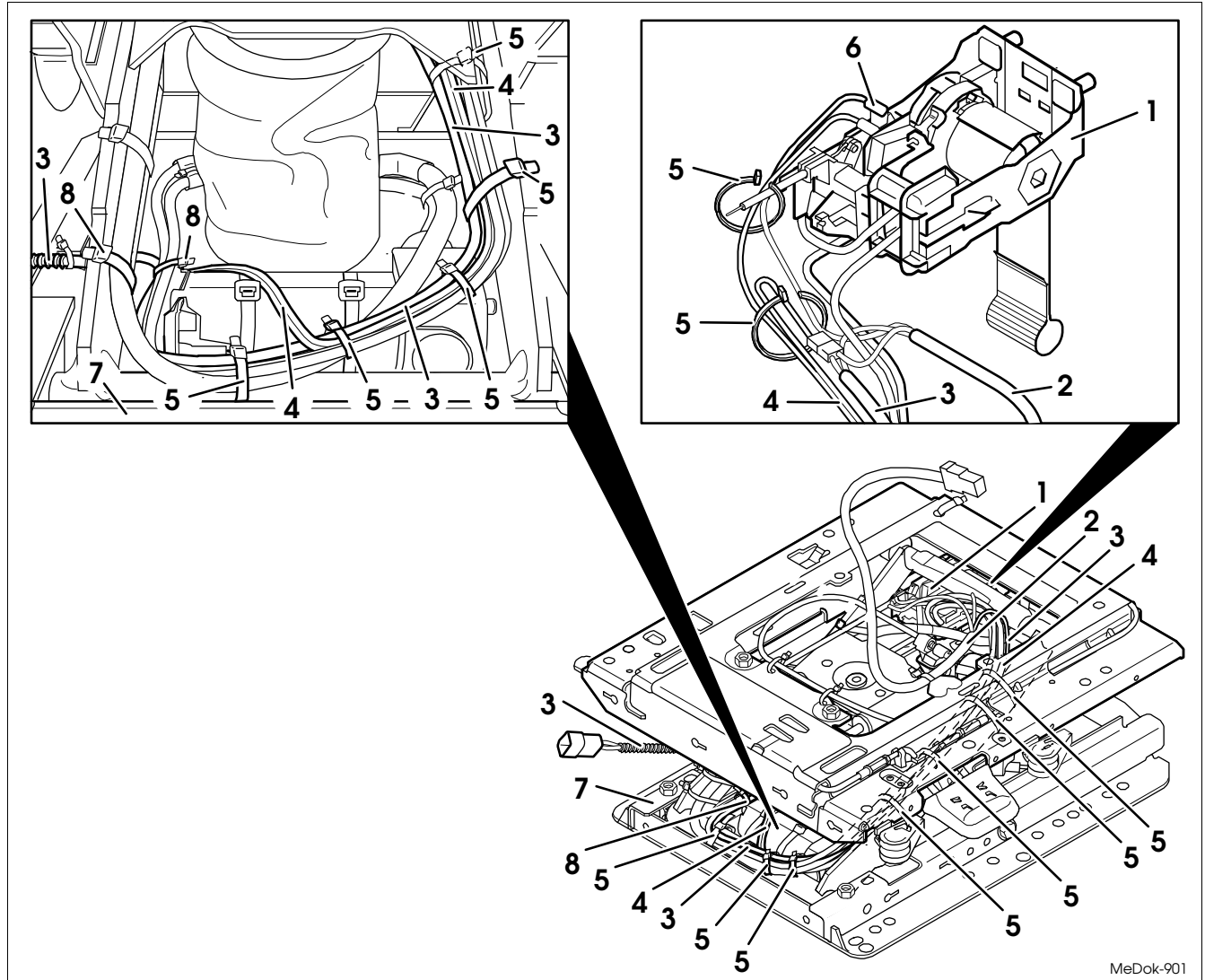
3.14 Cable harness – removal and installation



REMOVAL/INSTALLATION

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- 10 **Upper seat part with seat heater:**
Remove the cable harness connector (2).
- 11 Remove the cable harness for the vehicle power connector (3).
- 12 Re-install the components in the reverse order of their removal.



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3.15 Upper part of the suspension – removal and installation



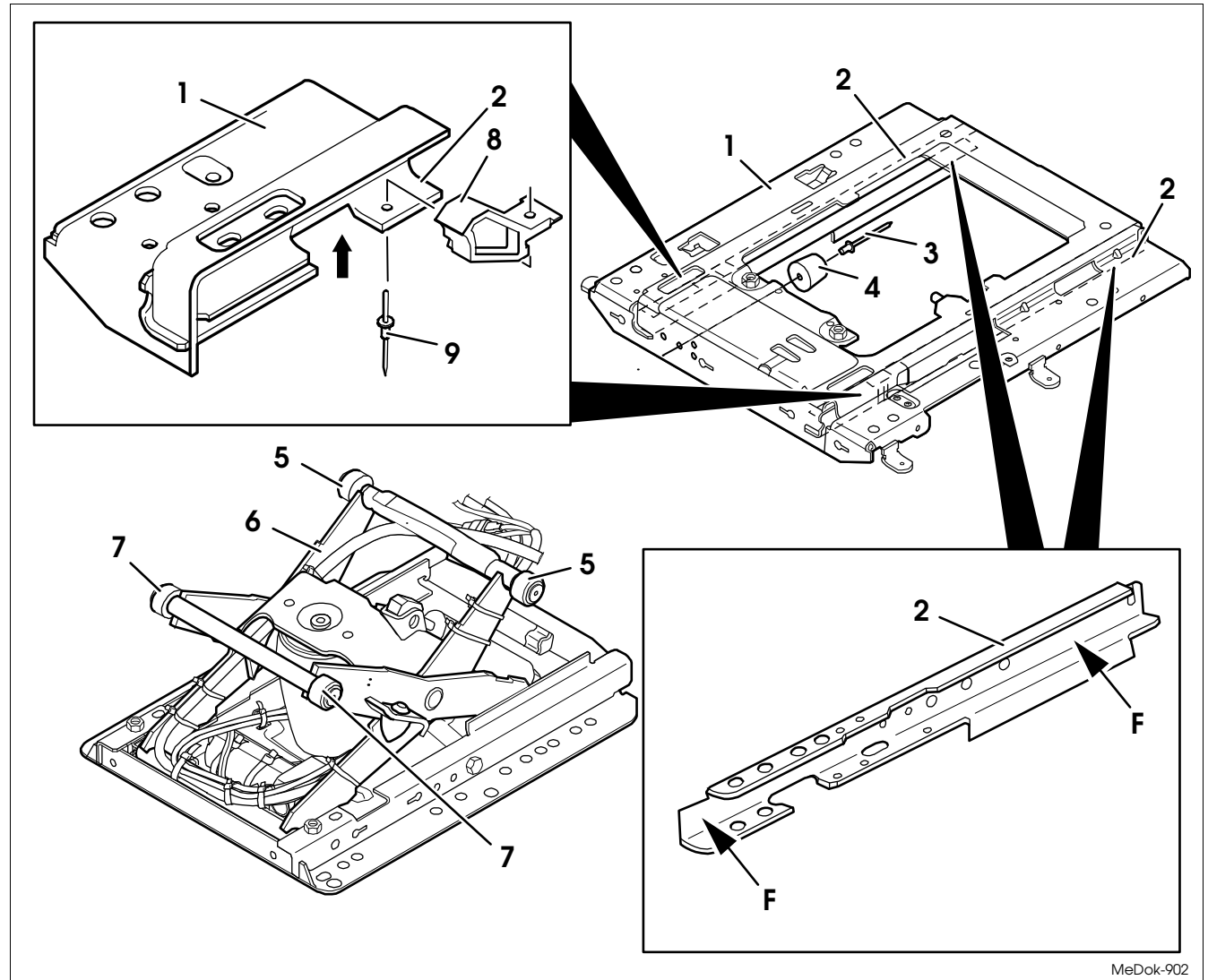
REMOVAL/INSTALLATION

TABLE OF CONTENTS

- (1) Upper part of the suspension
- (2) Guiding rail (upper part of the suspension)grease
- (3) Blind rivet
- (4) Buffer
- (5) Roller (rear)
- (6) Swinging structure
- (7) Roller (front)
- (8) End stop
- (9) Blind rivet

1 Remove the upper part of the seat
(see repair manual for the upper seat part).

2 Remove the cover (Chapter 3.1).



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3.15 Upper part of the suspension – removal and installation

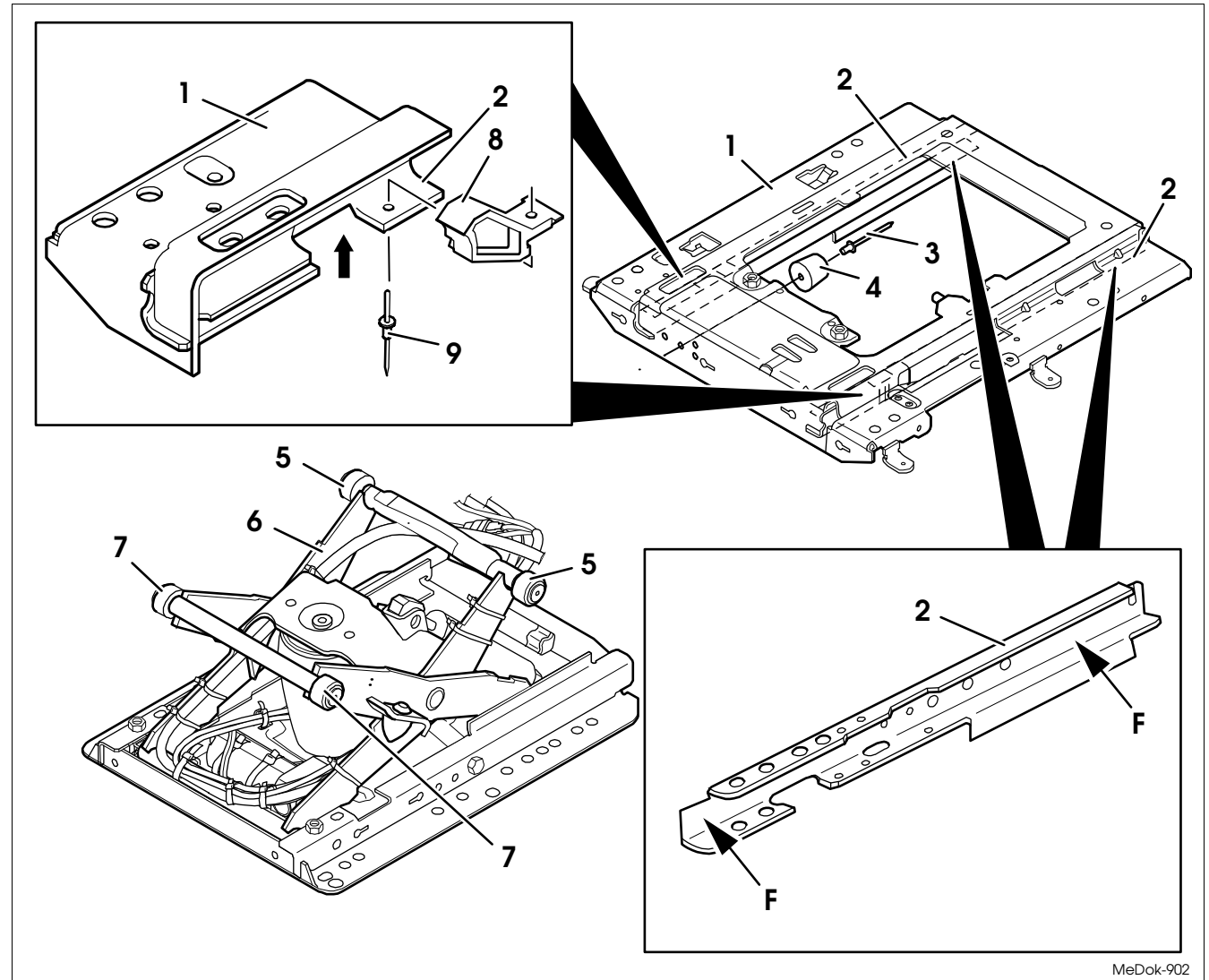
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REMOVAL/INSTALLATION

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- 3 Take off the bellows from the upper part of the suspension (see Chapter 3.2).
- 4 Remove the Bowden pull wire and handle for vertical shock absorber adjustment (Chapter 3.3).
Note:
The Bowden pull wire must be dismantled at the vertical shock absorber, so that it can be pulled out through the drill hole in the upper part of the suspension (1).
- 5 Remove linkage rods, handle for horizontal suspension and locking device (Chapter 3.5).
- 6 Dismount the horizontal shock absorber (Chapter 3.6).
- 7 Remove the horizontal suspension unit from the upper part of the suspension (1) (see Chapter 3.7).



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3.15 Upper part of the suspension – removal and installation

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- 8 Remove the height level control unit with the height limit stop from the upper part of the suspension (1) (see Chapter 3.9.2) and put it down.

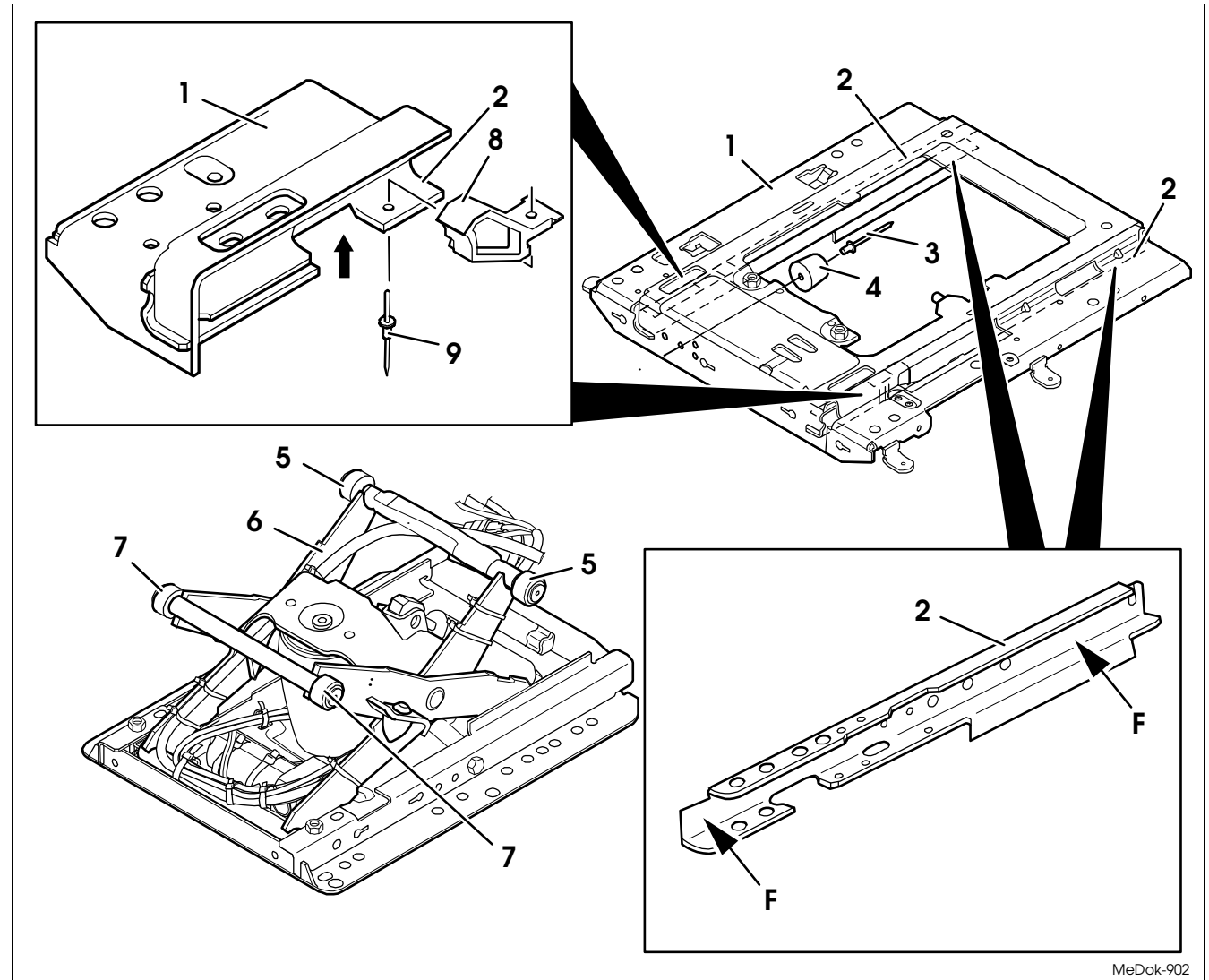
Note:

Air input hoses do not need to be taken off the pneumatic spring.

- 9 Remove the Bowden pull wire and the handle for height adjustment (Chapter 3.11.2).

- 10 Remove the air tank for additional air supply (Chapter 3.13).

- 11 Dismount the air hose with angle (1) from the upper part of the suspension (1) (see Chapter 3.10).



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3.15 Upper part of the suspension – removal and installation

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Removal, installation

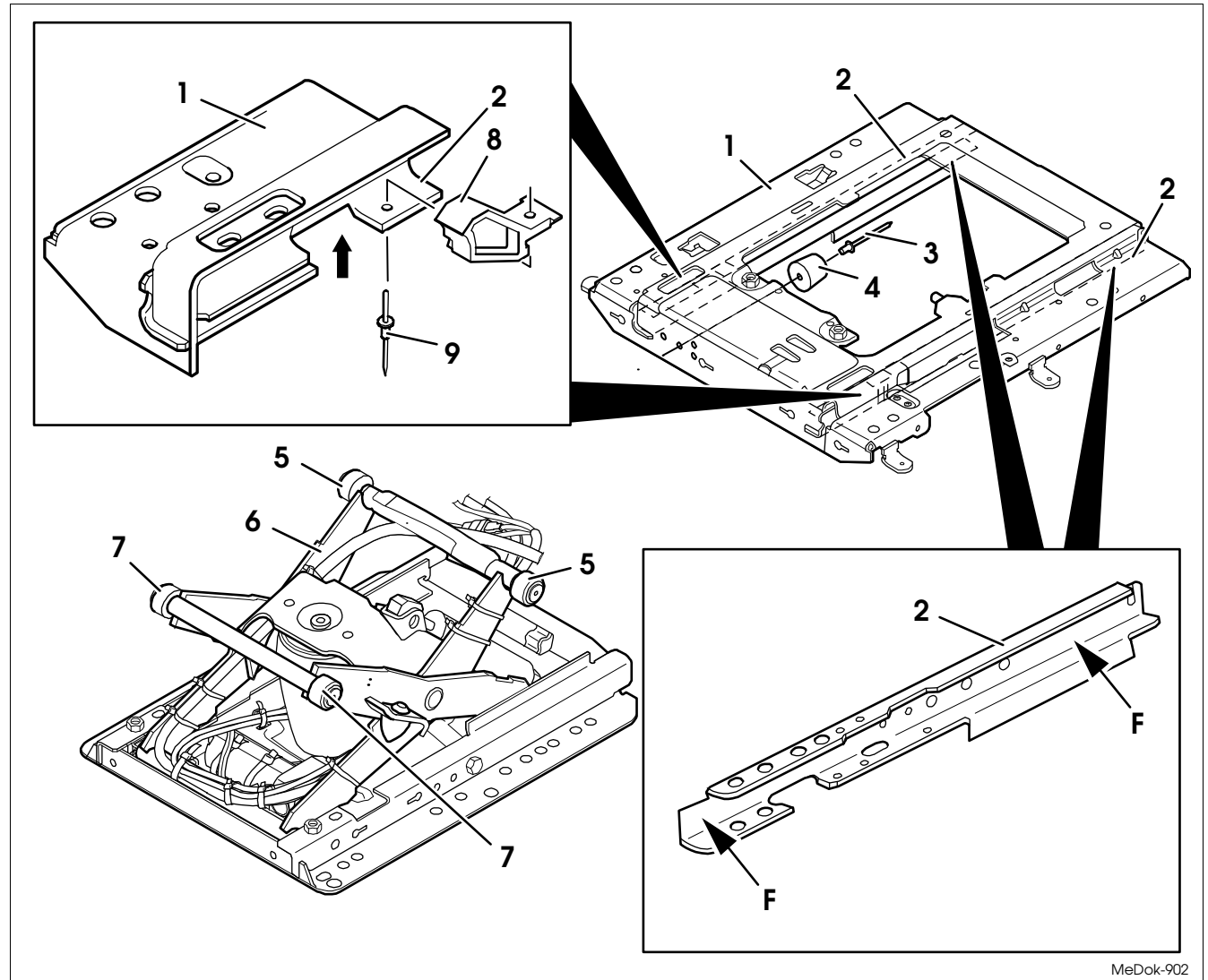
- 12 Move the suspension system to the highest position and secure it there.



WARNING Risk of crushing!
Secure the suspension between the swinging structure and lower part of the suspension system with suitable spacers.

- 13 Bore out two rivet heads and drive out the blind rivets (9), remove the end stops (8).

- 14 Push the upper part of the suspension (1) forwards until the cut-outs (arrow) on the left and right sides at the guiding rails (2) are located at the same height with the front rollers (7) of the swinging structure (6).



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3.15 Upper part of the suspension – removal and installation

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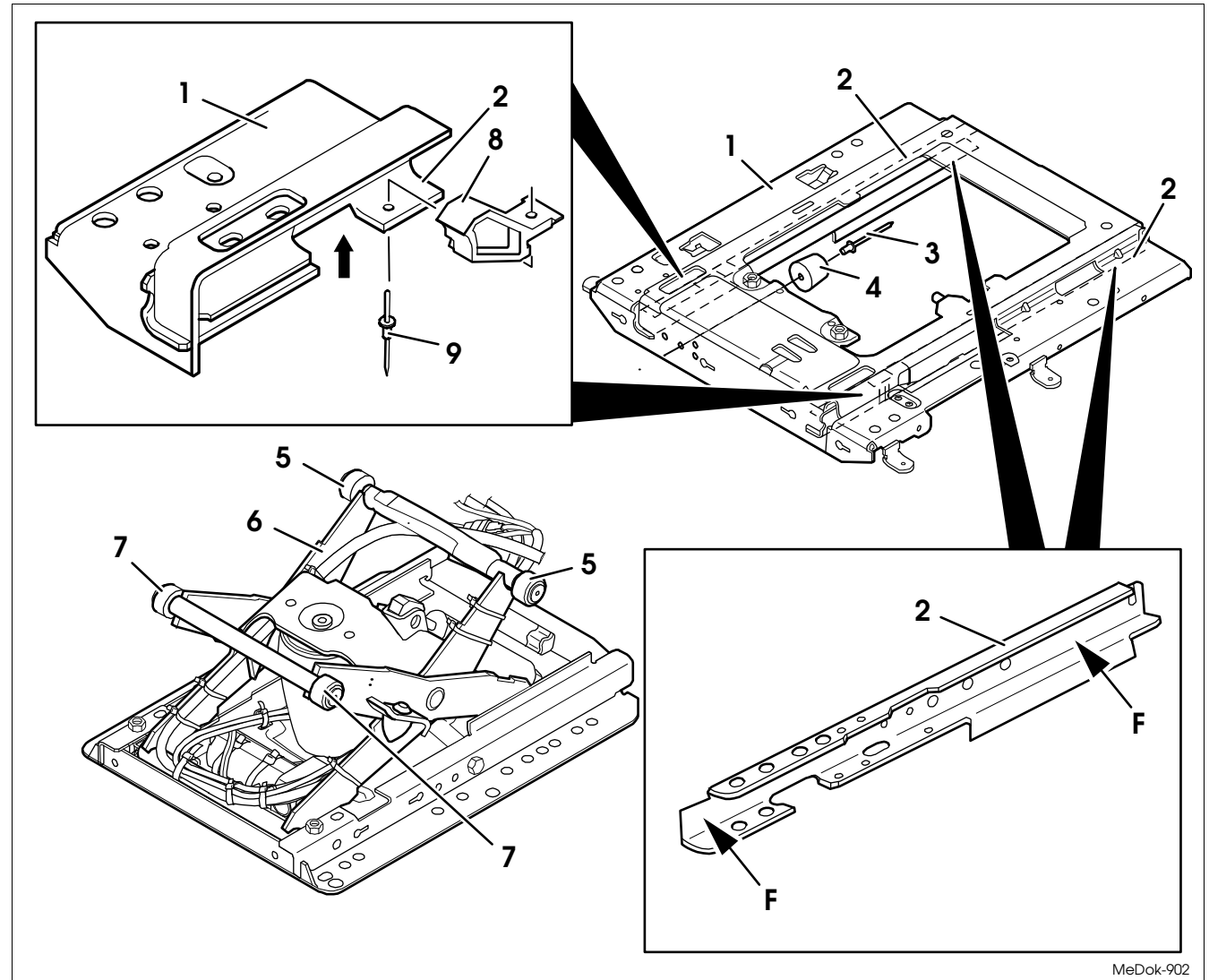
- 15 Remove the upper part of the suspension (1) on the front side over the rollers (7) of the swinging structure (6) and remove it from the back rollers (5) of the swinging structure (6) by turning sideways.

Installation note:

Apply acid-free multi-purpose lubricant to the side surfaces (F) of the two guiding rails (2) of the rollers (5 and 7).

- 16 Bore out the rivet head and drive out the blind rivet (3), remove the buffer (4).

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



3.16 Lower part of the suspension system – removal and installation



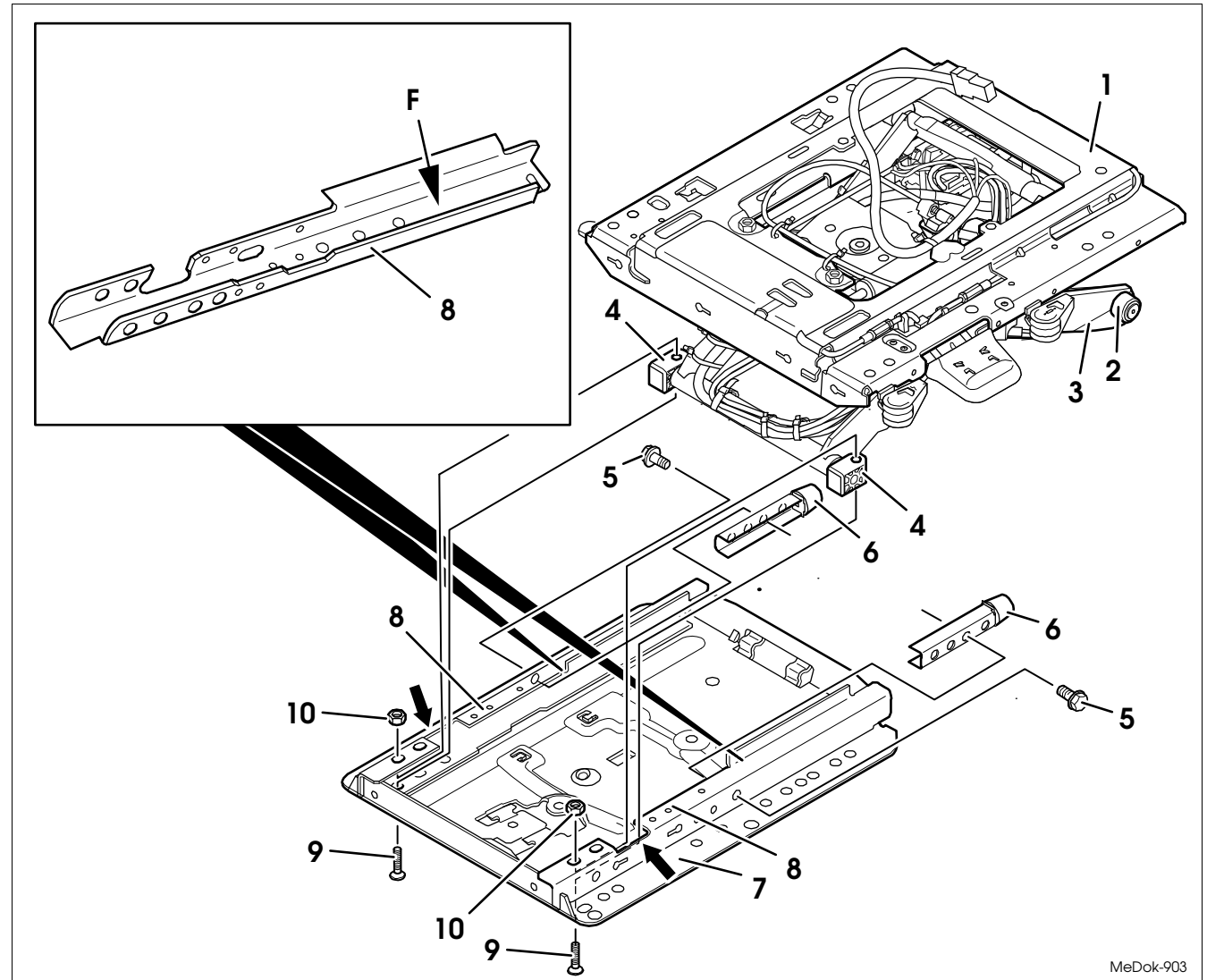
REMOVAL/INSTALLATION

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- (1) Upper part of the suspension
- (2) Roller
- (3) Swinging structure
- (4) Fixed bearing
- (5) Collar screw
- (6) U-shaped profile
- (7) Lower part of the suspension
- (8) Guiding rail (lower part of the suspension)grease
- (9) Counter sunk screw 25 Nm
- (10) Hexagon nut

1 Remove the upper part of the seat (see repair manual for the upper seat part).

2 Remove the cover (Chapter 3.1).



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3.16 Lower part of the suspension system – removal and installation

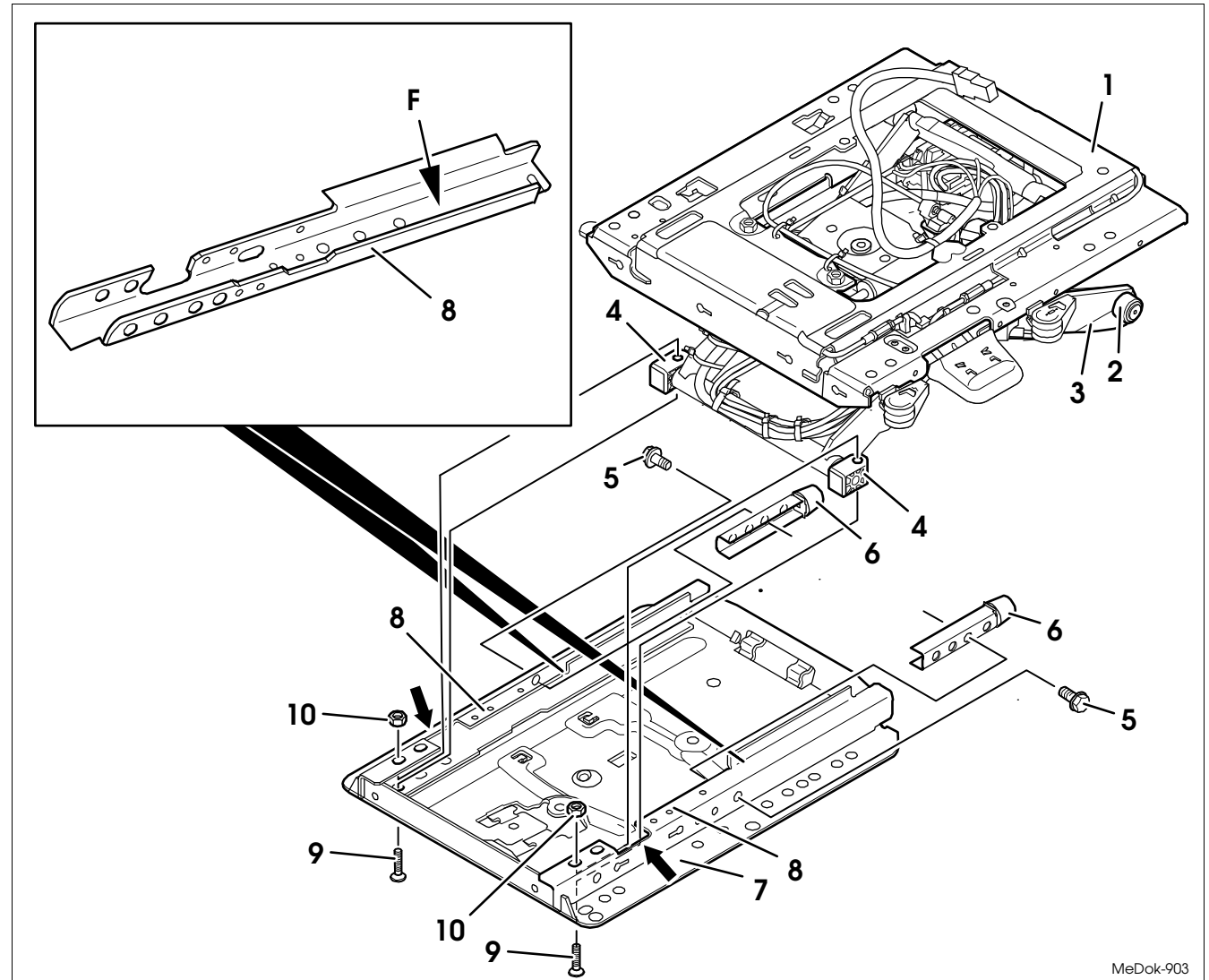
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REMOVAL/INSTALLATION

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- 3 Take the bellows off the lower part of the suspension (7) (see Chapter 3.2), push it upwards and fix it to the upper part of the suspension (1).
- 4 Remove compressor from the lower part of the suspension (7) (see Chapter 3.8).
Note:
The compressor cable does not need to be removed. Protect the compressor against shocks (impacts) by fixing it on the swinging structure with adhesive tape.
- 5 Remove the webbing from the lower part of the suspension (7) (see Chapter 3.9.2).
- 6 Remove the two cable ties for the air intake hoses on the lower part of suspension (7) (see Chapter 3.10).



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3.16 Lower part of the suspension system – removal and installation



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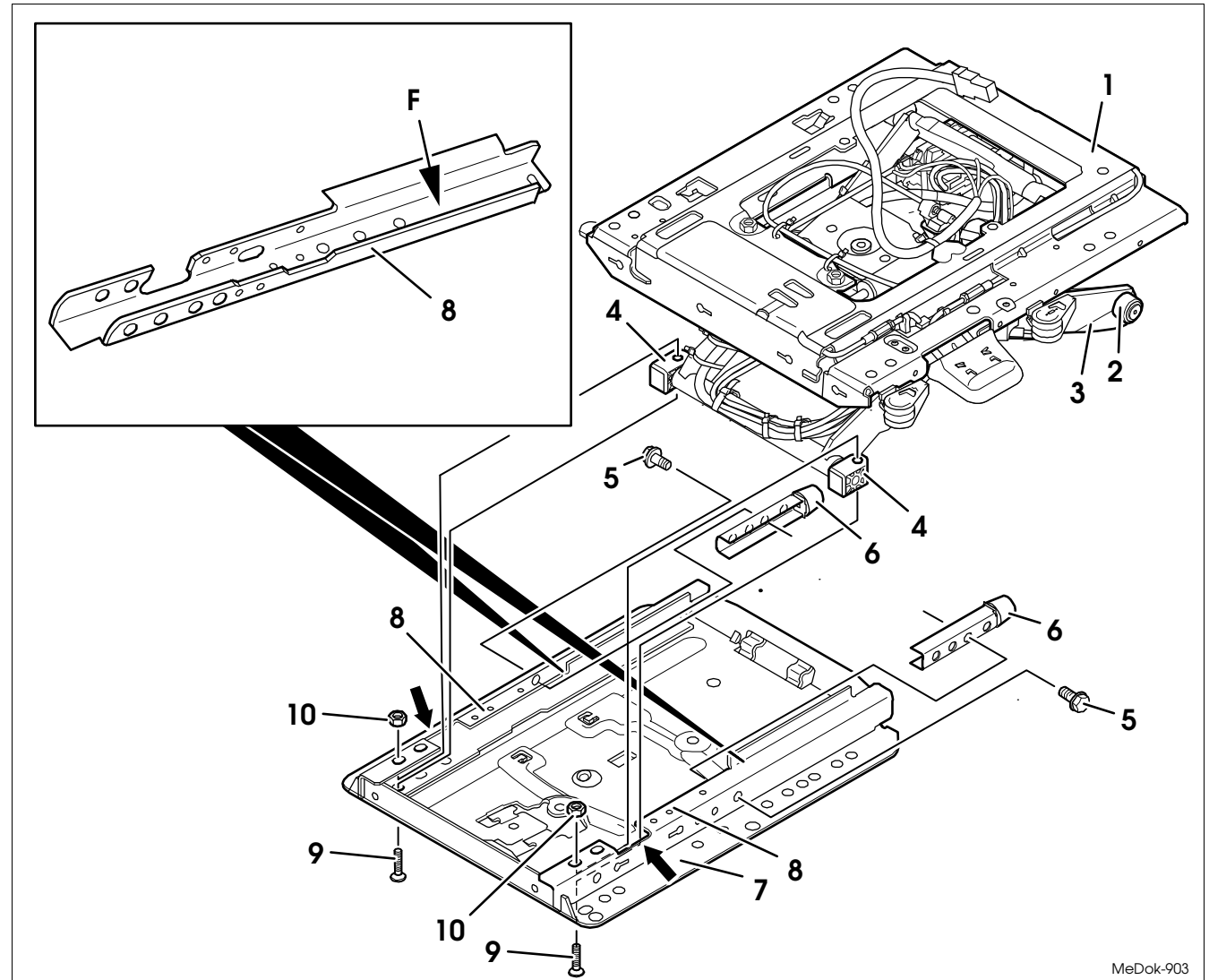
- 7 Undo the counter sunk screw (7) from the pneumatic spring (see Chapter 3.12).
- 8 Remove the cable ties for the vehicle power connector cable on the lower part of suspension (7) (see Chapter 3.14).

Removal, installation

- 9 Move the suspension system to the highest position and secure it there.



WARNING Risk of crushing!
Secure the suspension between the swinging structure and lower part of the suspension system with suitable spacers.



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3.16 Lower part of the suspension system – removal and installation

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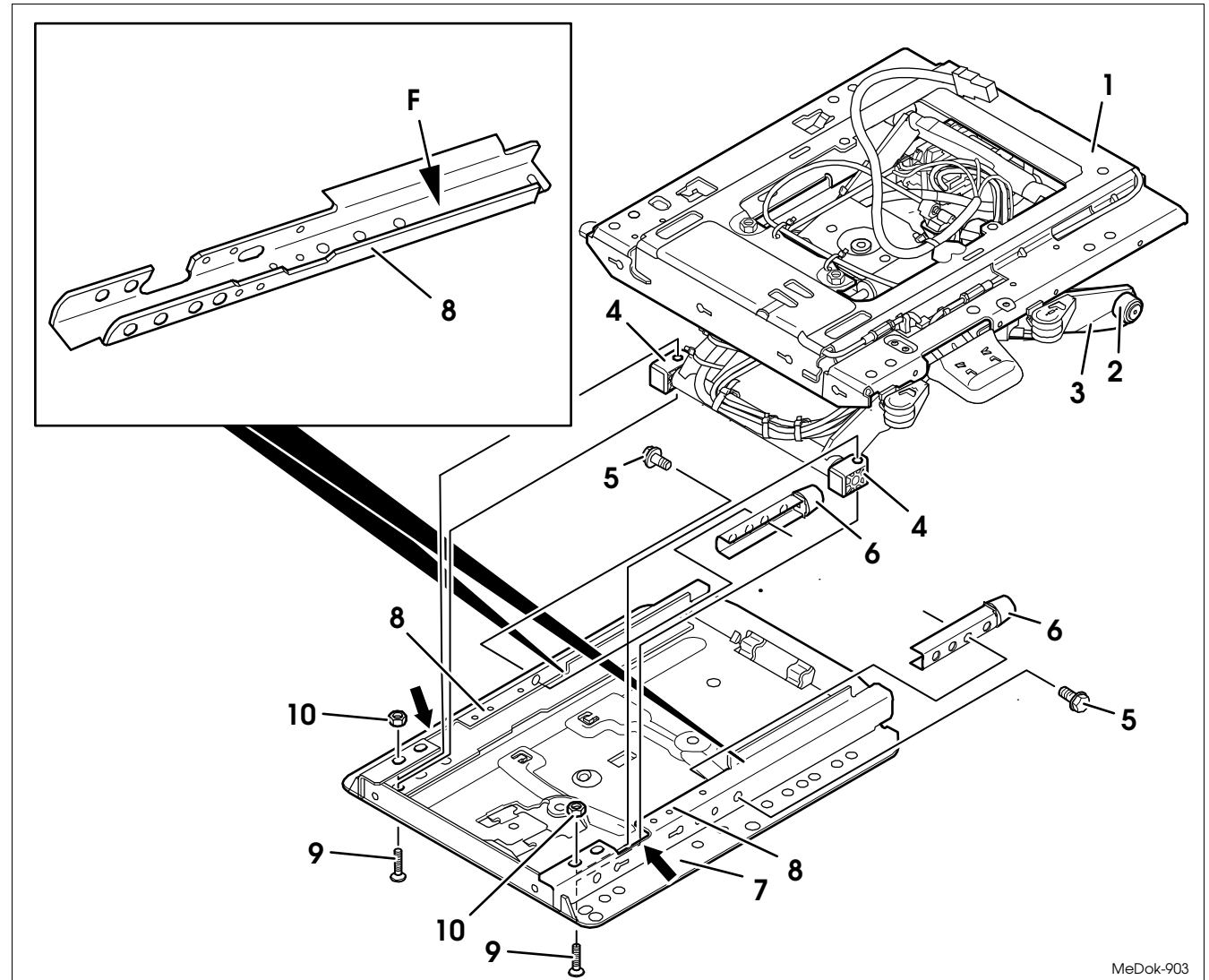
- 10 Undo the two counter sunk screws (9) and take off the hexagon nuts (10).

Installation note:

Counter sunk screw (9), 25 Nm.

- 11 Undo the two collar screws (5) and remove the U-shaped profile (6) from the guiding rail (8).

- 12 Push the upper part of suspension (1) with the swinging structure (3) backwards until the two fixed bearings (4) on the swinging structure (3) can be taken out through the cut-outs (arrows) of the guiding rails (8) on the upper part of suspension (1).



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3.16 Lower part of the suspension system – removal and installation

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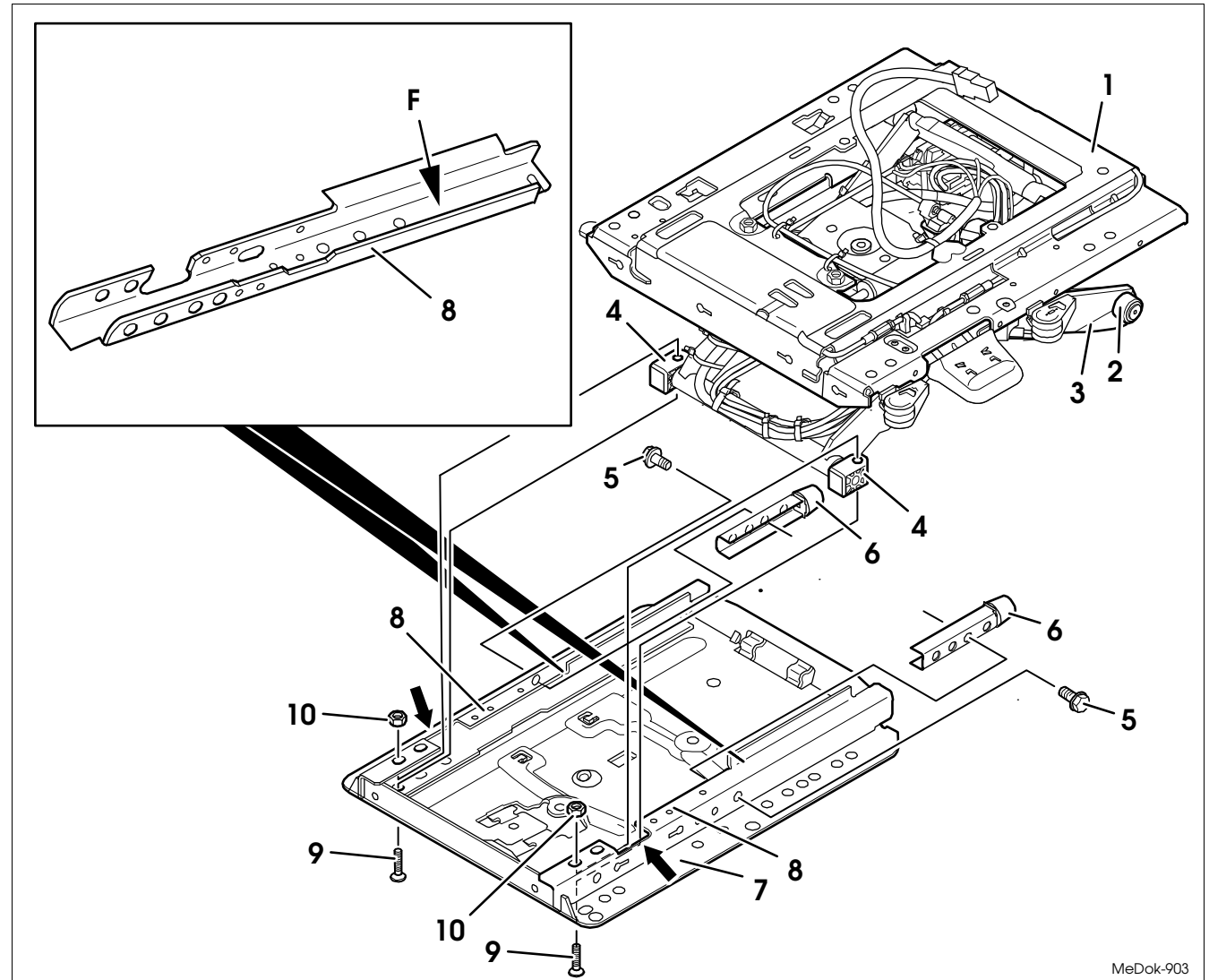


- 13 Lift out the upper part of the suspension (1) with the swinging structure (3) and pull it out together with the two rollers (2) from the guiding rails (8) and take it out in an upward direction.

Installation note:

Apply acid-free multi-purpose lubricant to the bearing surface at the side (F) of the two guiding rails (8) of the rollers (2).

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



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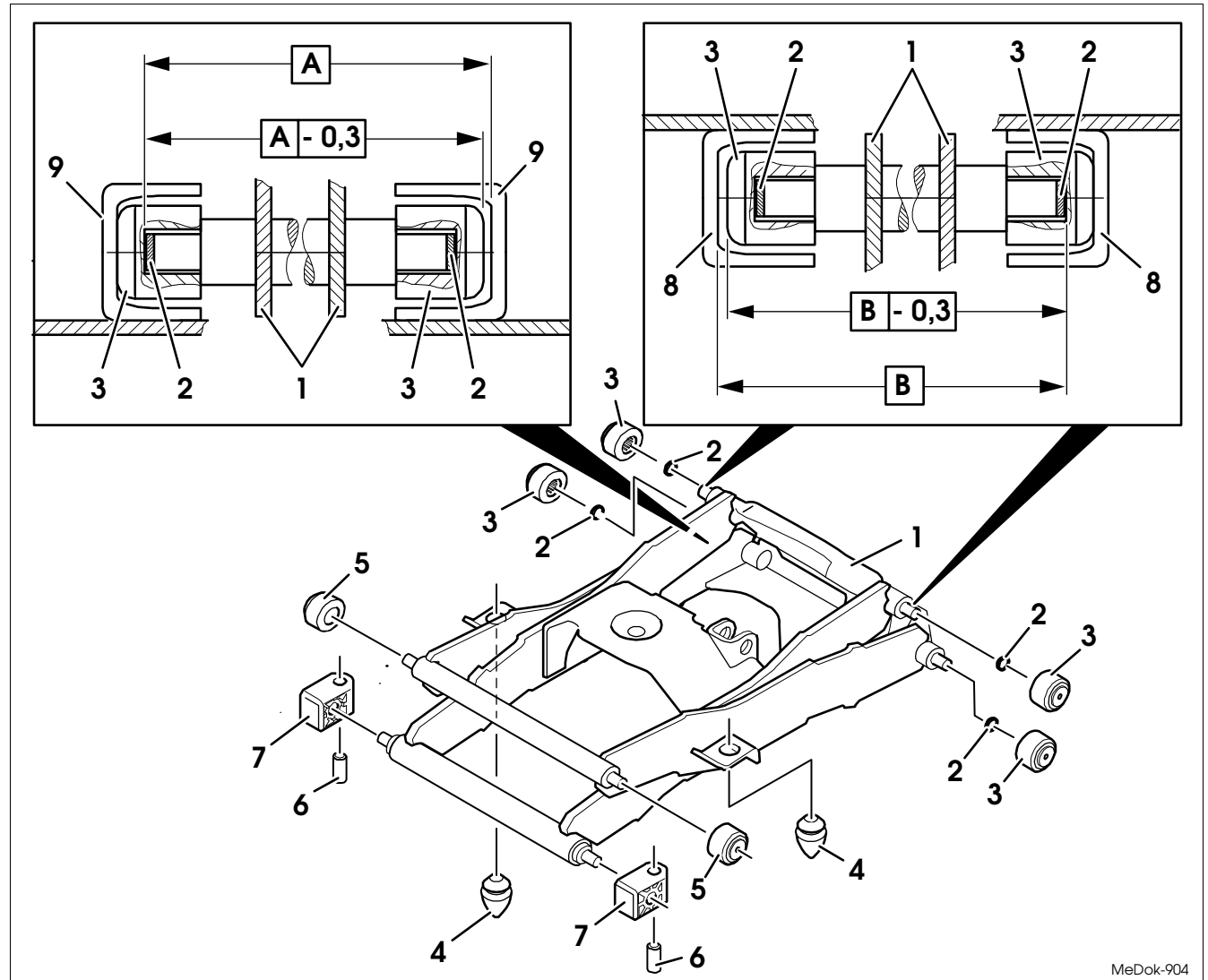
3.17 Swinging structure – disassembly and assembly



DISASSEMBLY/ASSEMBLY

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- (1) Swinging structure
- (2) Washer compensating for clearance thickness 0.2 or 0.5 mm
- (3) Roller max. clearance 0.3 mm
- (4) Buffer
- (5) Roller
- (6) Tube section
- (7) Fixed bearing
- (8) Guiding rail (upper part of the suspension)
- (9) Guiding rail (lower part of the suspension)



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3.17 Swinging structure – disassembly and assembly

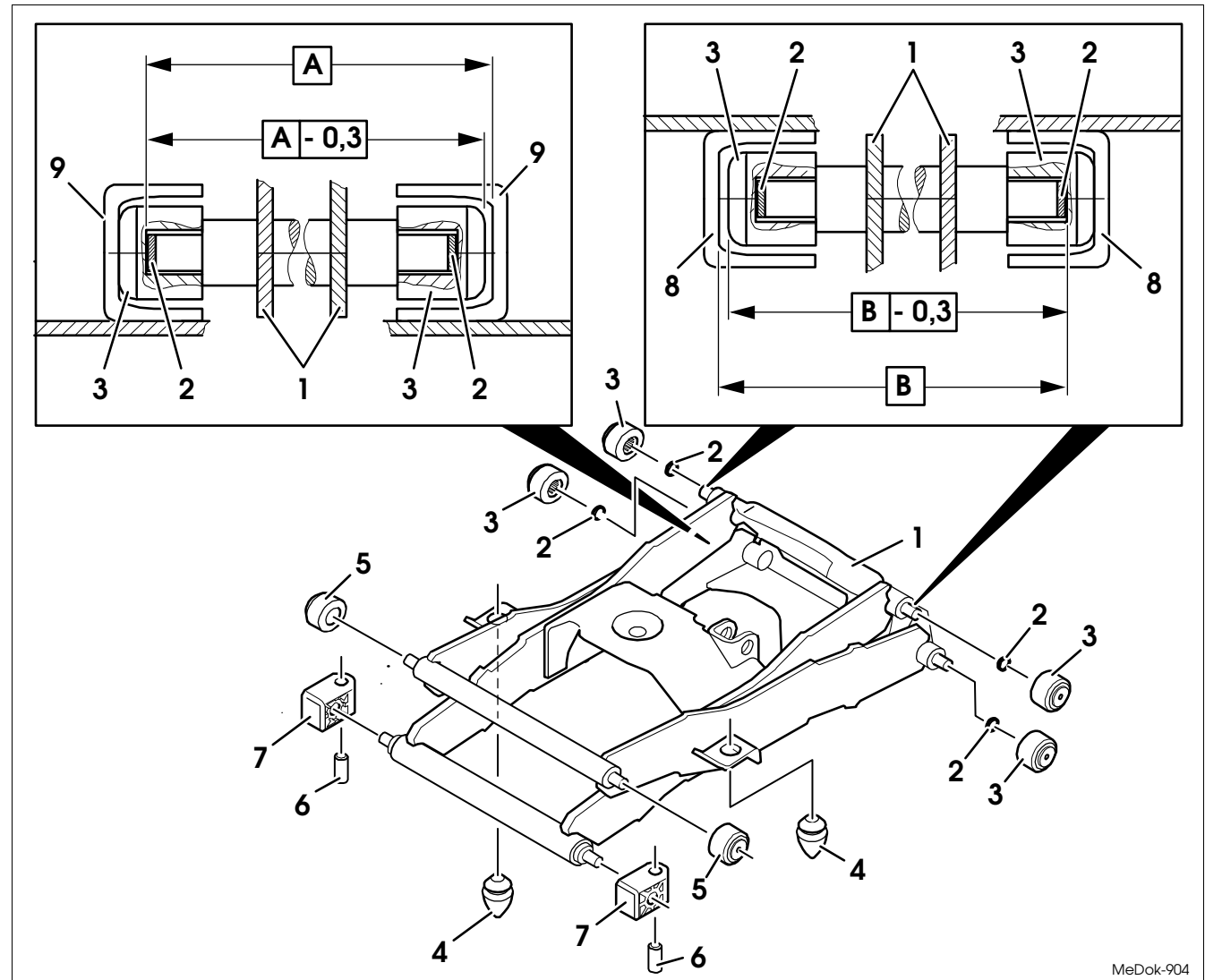
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- 1 Remove the upper part of the seat (see repair manual for the upper seat part).
- 2 Remove the cover (Chapter 3.1).
- 3 Remove the bellows (Chapter 3.2).
- 4 Take the Bowden pull wire for vertical shock absorber adjustment off the vertical shock absorber (see Chapter 3.3).
- 5 Remove the vertical shock absorber (Chapter 3.4).
- 6 Dismount the vertical shock absorber from the swinging structure (1) (see Chapter 3.6).
- 7 Remove the horizontal suspension unit (Chapter 3.7).



MeDok-904

3.17 Swinging structure – disassembly and assembly

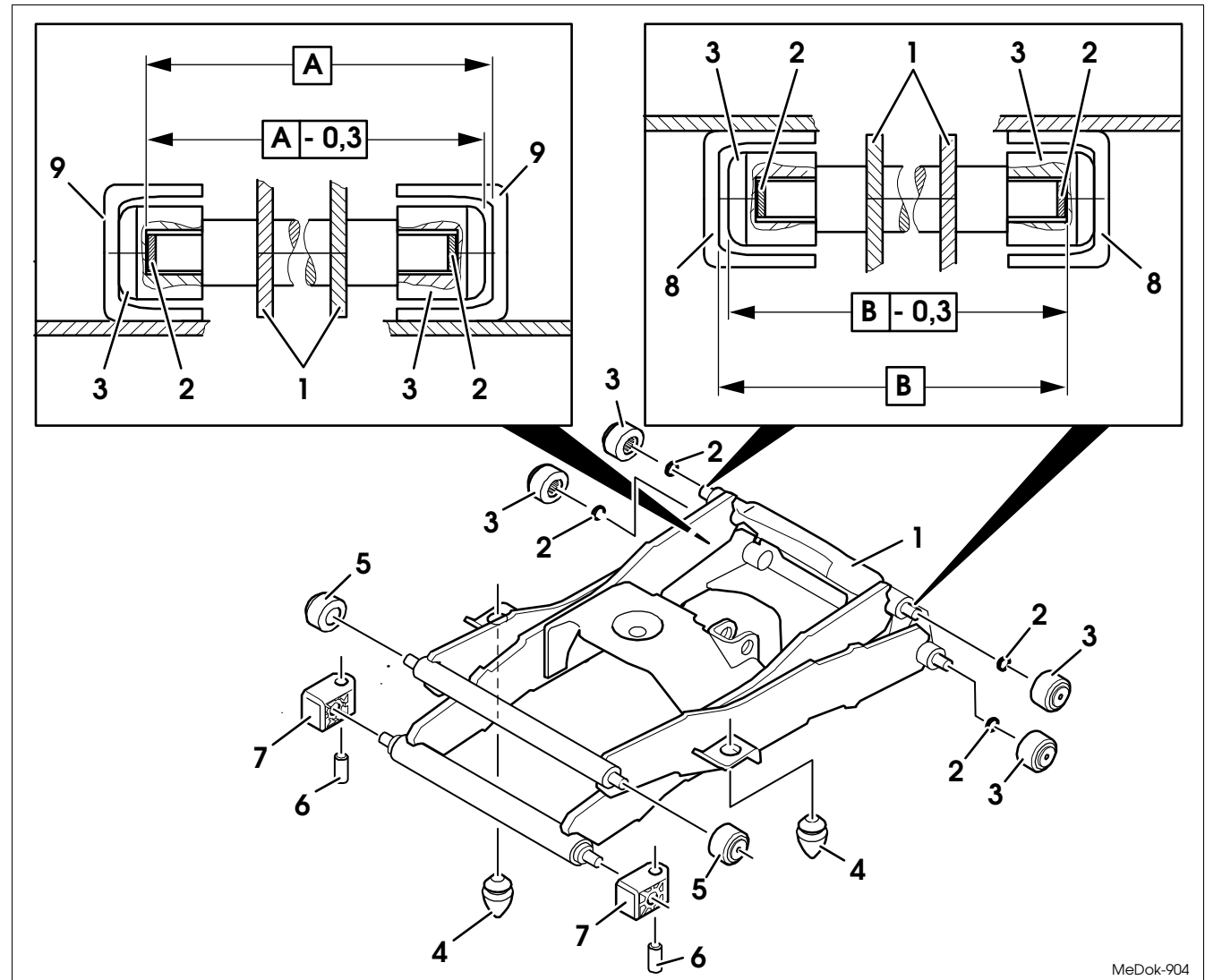
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- 8 Remove the compressor (Chap. 3.8).
- 9 Take the webbing off the lower part of the suspension (see Chapter 3.9.2).
- 10 Remove the cable tie for the air input hoses of the height level control and pull the air input hoses off the pneumatic spring (see Chapter 3.10).
- 11 Remove the cable tie for the air hose with angle pull off the air hose with angle from the pneumatic spring (see Chapter 3.10).
- 12 Detach the Bowden pull wires for height level adjustment from the height level valve (see Chapter 3.11.2).
- 13 Remove the pneumatic spring (Chap. 3.12).



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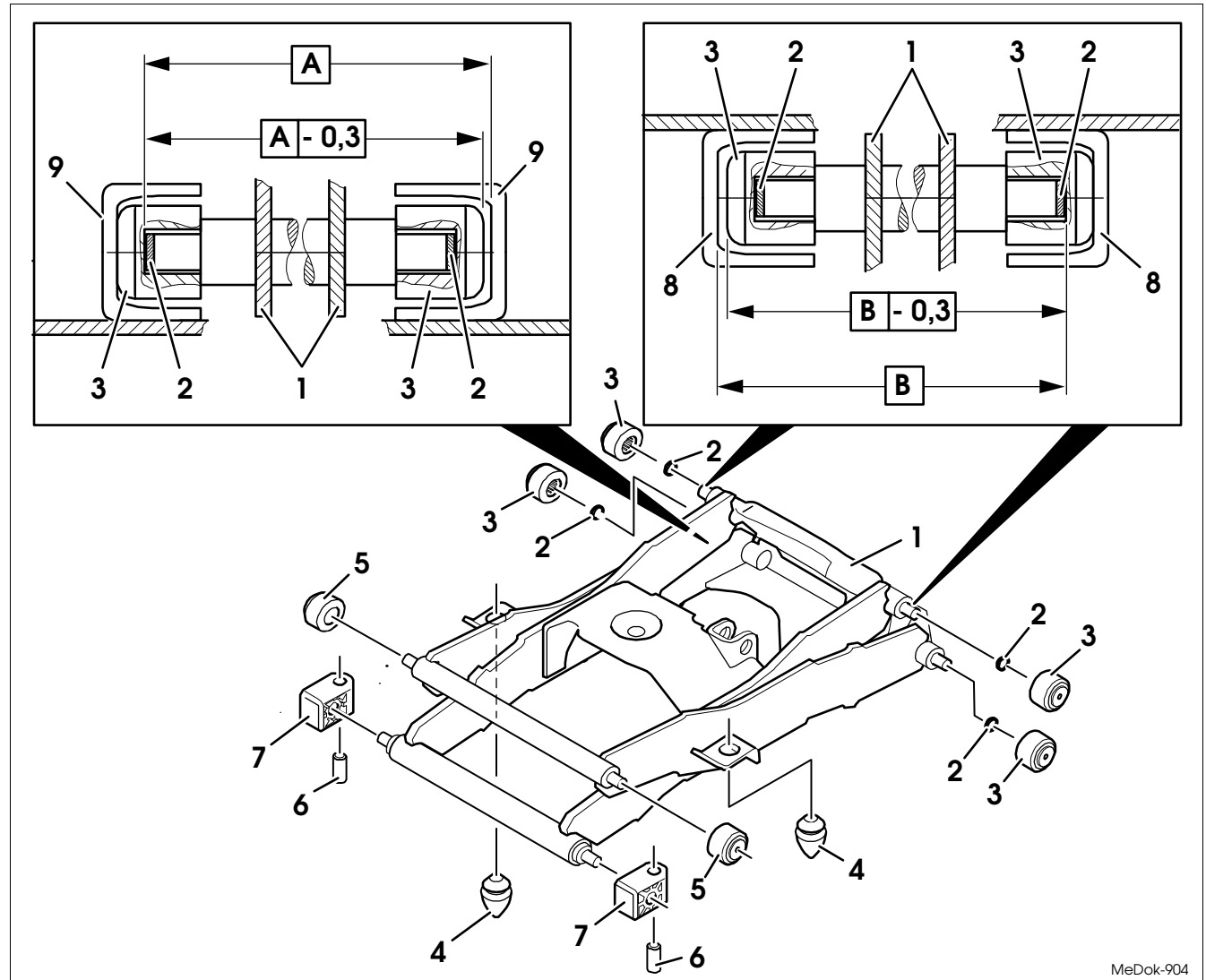
3.17 Swinging structure – disassembly and assembly

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- 14 Remove the cable harness (Chapter 3.14).
- 15 Uninstall the upper part of the suspension from the swinging structure (1) (see Chapter 3.15).
- 16 Uninstall the lower part of the suspension from the swinging structure (1) (see Chapter 3.16).



Disassembly, assembly

- 17 Move the suspension system to the highest position and secure it there.



WARNING Risk of crushing!
Secure the suspension between the swinging structure and lower part of the suspension system with suitable spacers.

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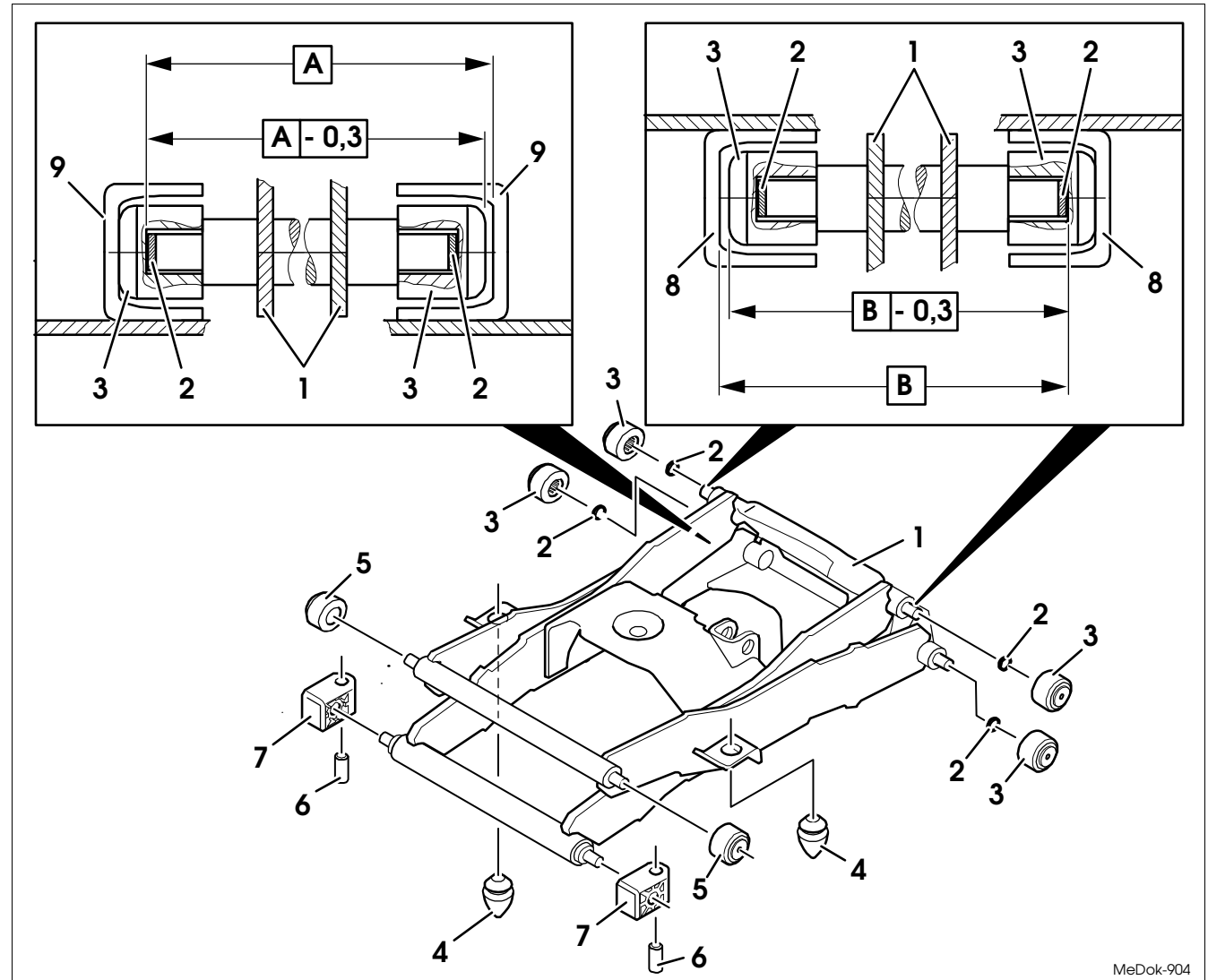
3.17 Swinging structure – disassembly and assembly

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- 18 Remove the four rollers (3), two rollers (5), two fixed bearings (7) from the swinging structure (1).
- 19 Pull the two tube elements (6) out of the fixed bearing (7).
- 20 Remove the two buffers (4) from the swinging structure (1).
- 21 **Check:**
 - 21.1 Maximum clearance (A) or (B) between the rollers (3) and guiding rails of the lower part of the suspension (9) or upper part of the suspension (8) over the complete adjustment length.
 - 21.2 The swinging structure (1) must smoothly run in the guiding rails of the lower (9) and upper (8) part of the suspension.



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3.17 Swinging structure – disassembly and assembly

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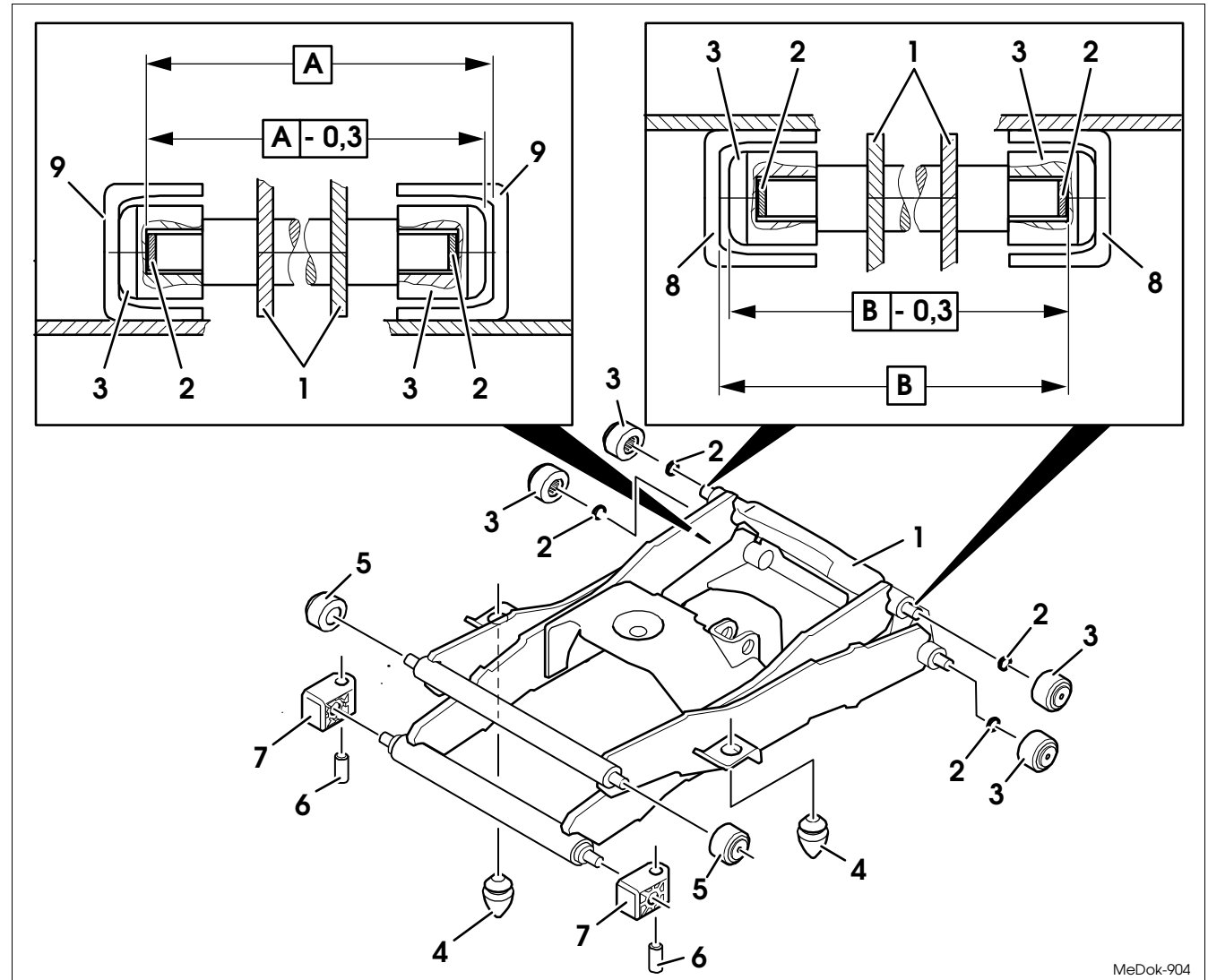
22 Readjustment:

If necessary, place a clearance spacer (2) between the roller (2) and axle of the swinging structure (1).

Note:

Clearance spacers (with thickness of 0.2 and 0.5 mm) are included in the wear parts set.

23 Assemble the components in reverse order of their disassembly.



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