

ISRI 6830KA/ 880



Subject to technical changes for reasons of further development.

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**WARNING**

**Before repair, read the warning notes in chapter 1.
Please read accessorially the operating instruction of the seat, to become familiar with its technical features.**

**If you don't consider the following instruction, the liability, warranty and possibly the general operating permit will be lost.
Breaking these rules could cause serious or fatal injury to yourself and others:**

- The seat has to be installed or repaired only by workshop specialists.
In doing so the regulations of the relevant countries have to be observed.
- When the seat will be mounted and connected in the vehicle, the guidelines of the vehicle manufacturer have to be considered.
- Don't use a damaged or faulty seat.
- Defective parts have to be repaired or exchanged immediately.
- After a vehicle accident the seat must be exchanged completely.
- Changings on the seat are inadmissible.
- Only original spare parts have to be used.
- Seat anchorages and locking mechanisms have to be checked frequently.
- It is not allowed to weld broken steel parts.

**CAUTION**

- For cleaning the seat, use only an slightly dampened cloth without strong solvents.
- The upholstery cover shall not be soaked.
- The seat is suitable for the operator's weight of maximum 150 kg.
- The seat shall not be used as ascent help.
- The seat may not be blocked by objects in the vehicle, otherwise the seat can be damaged.
- Do not place anything on the seat and don't cover the seat.
- Inappropriate handling of seat heating, respectively wrong connection, can lead to overheating.
- When driving without passenger, take care that the seat heating of the passenger seat are switched off.
- The fuse protection of the seat heating/ active ventilation may be maximally 10A.
- The electrical connection of the seat has to be installed by the vehicle ignition.
- The active ventilation system doesn't switch off automatically. The operating happens in self-responsibility of the user.

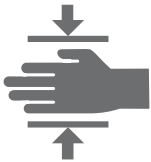


NOTICES to the repair manual

- The illustrations in this manual shows the seat with levers at left side.
For seats with levers at the right side, the repair will be carried out accordingly.
- The descriptions in chapter 2 explains the removal of sundry seat components.
The installation of these seat components generally happens in reserve sequence.
- Not all fastening parts for hoses and cables (e.g. cable binder) are mentioned in detail.
After repairs it is necessary to put the laying of hoses and cables, as well as the fastening and securing, into original condition.
- Hoses, electrical lines and bowden cables must not be creased.
- Due to safety reasons, pay attention to the correct positioning and to the observance of the tightening torques of the fixing screws when exchanging component parts, which lies within the flux line of the belt anchorage points.
- All parts of the spare part kit must be exchanged. Don't use the old mounting parts again.
- After each repair a functional test and, if pneumatic parts are involved, a leak test has to be effected.
- All adjustment mechanism must engage audibly.
Move levers over the complete operation stroke to avoid wear of the mechanism.

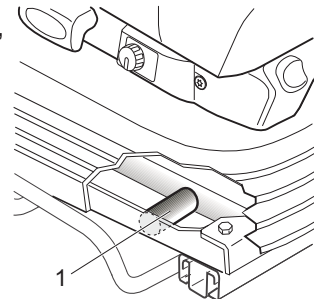


Danger of bruising



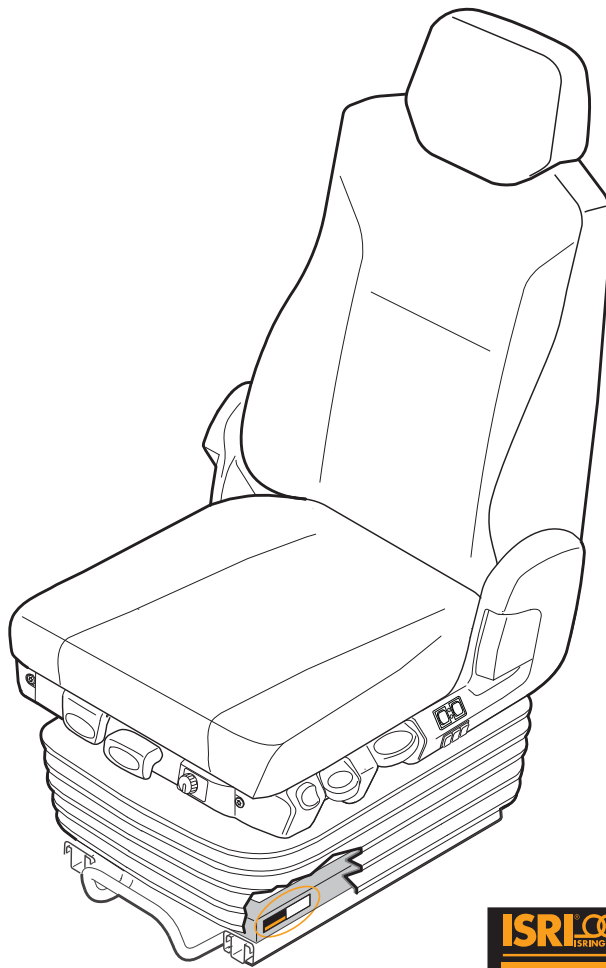
Due to risk of injury, in several repairs in the inside of the seat, the seat must be secured against lowering. Therefor adjust the seat in the topmost position. Loosen bellows in the lower area and positioning a distance sleeve (1) with a length of 75mm between lower frame and scissor.

It will be indicated to this note in the relevant repair descriptions.



NOTICES for test run

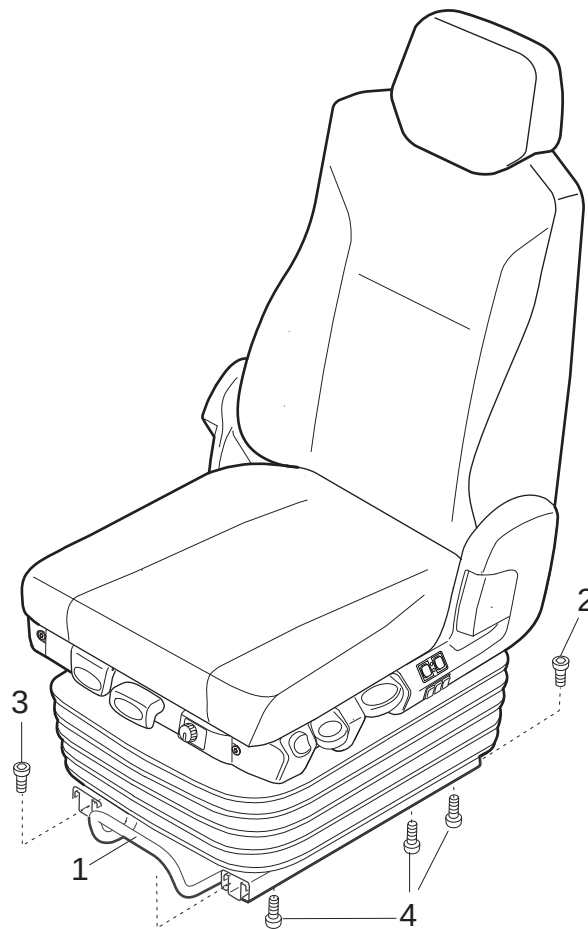
- Due to reasons of road safety, the seat must only be adjusted when the vehicle is stationary and the hand brake is pulled.
- A wrong adjusted seat risks your driving safety and health.
- Don't operate several control elements at the same time.
- Always use the seat belt when driving.
- The shock absorber must be adjusted so tautly, that even when driving a bad road, the contact to the pedals is ensured.
- Don't adjust the shock absorber so softly that on rough roads the seat will knock through.



Serial number

The serial number is located at lever side on the lower frame of the suspension unit and is visible when lifting up the bellows.

The exact seat type and the seat number can be identified by the serial number.
Please specify for spare part orders always.

**Tightening toques**

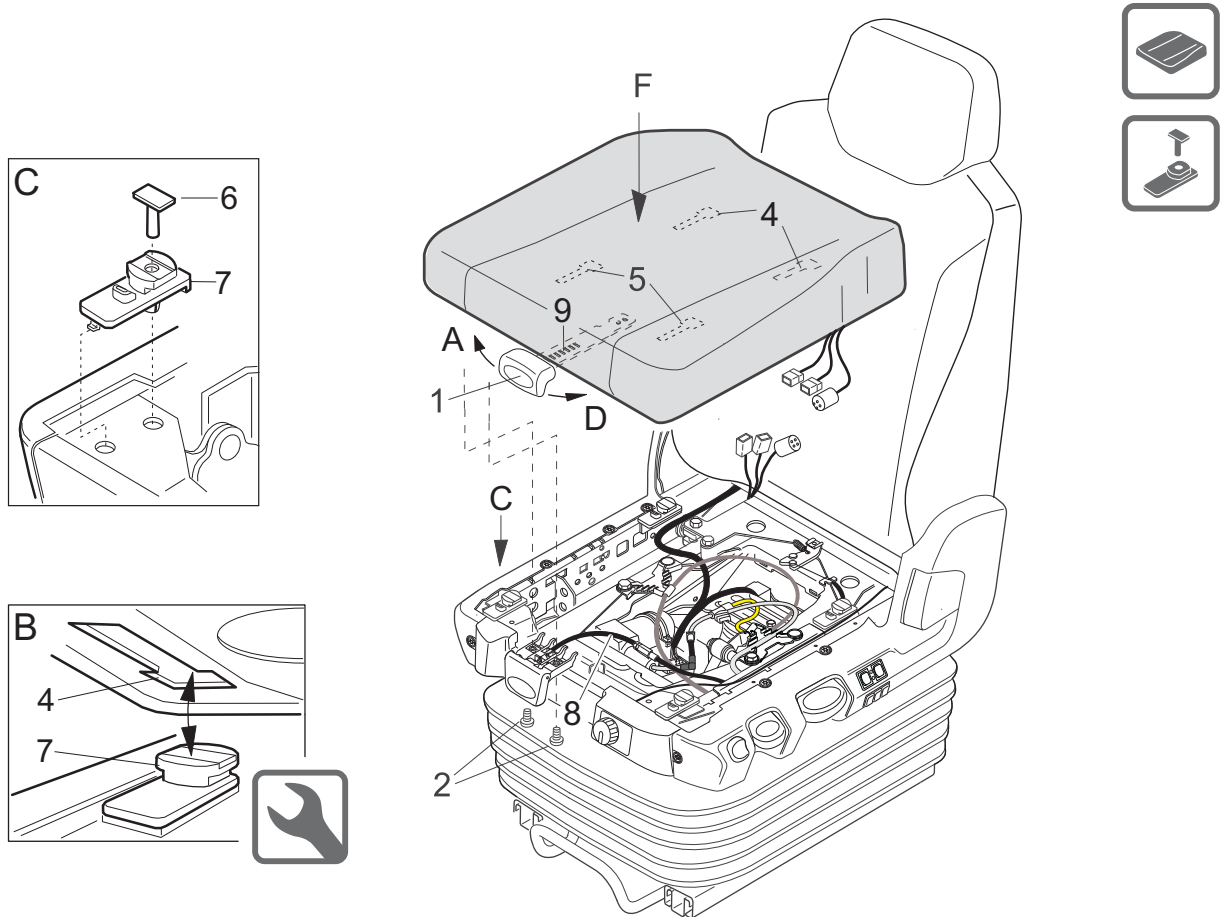
Pos. 4 22Nm +/-2Nm

Complete seat

- Disconnect electrical connection between seat and vehicle.
- Pull lever (1) upwards, move seat to the foremost position and undo screws (2).
- Pull lever (1) upwards, move seat to the rearmost position and undo screws (3).

Horizontal adjustment

- Dismount seat from vehicle.
- Pull lever (1) upwards and move inner slides till six screws (4) are reachable through boreholes of inner slides.
- Undo 6 screws (4).



Seat cushion

- Lift up lever (1) and push seat cushion in foremost position.
- Undo two screws (2).
- Hold on lever (1) in upper position and push it sideways (see arrow A).
- Move seat cushion forwards completely and lift it up.
- Disconnect electrical feeders.



Installation seat cushion

- Bowden cable (8) must be positioned between lever (9) and seat cushion ground plate.
- Push the rear keyholes (4) (on cushion's bottom side, view B) onto the rear sliders (7).
- Lift up lever (1) (don't move seat cushion) and push it in direction of arrow A sideways.
- Press down the seat cushion's front keyholes (5) onto the sliders at the front and press down cushion in direction of arrow (F).
- Push the cushion in direction of backrest (till stop) while still pressing down the complete seat cushion.
- Check now, if all four sliders are locked in the keyholes (no vertical movement allowed).
- Push lever (1) in direction of arrow D and push cushion further in direction of backrest, till lever (1) engages. Take care, that the cushion is locked in horizontal and vertical direction.
- Tighten lever for tilt adjustment.

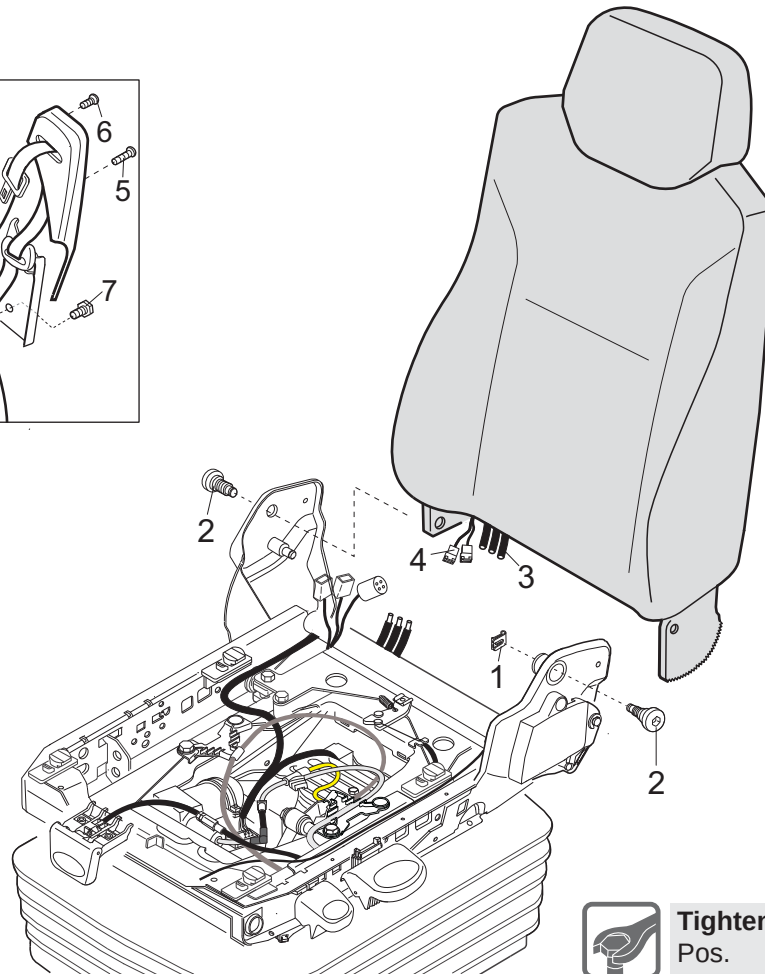
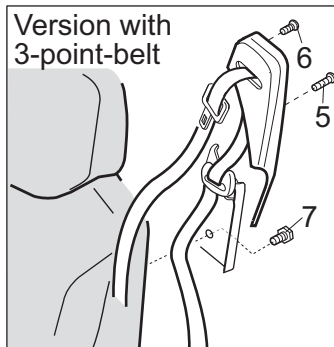
Sliders for seat cushion (view C)

- Demount seat cushion (see 2.2.0).
- Pull out plastic pin (6) and take off slider (7).



Installation sliders

- Push slider (7) at the seat frame.
- Push in pin (6) (level of pin head flat must fit to the flat on the slider head).


Tightening torques

Pos.	2	35Nm +/-5Nm
Pos.	5,6	4Nm
Pos.	7	35Nm +5Nm

Backrest

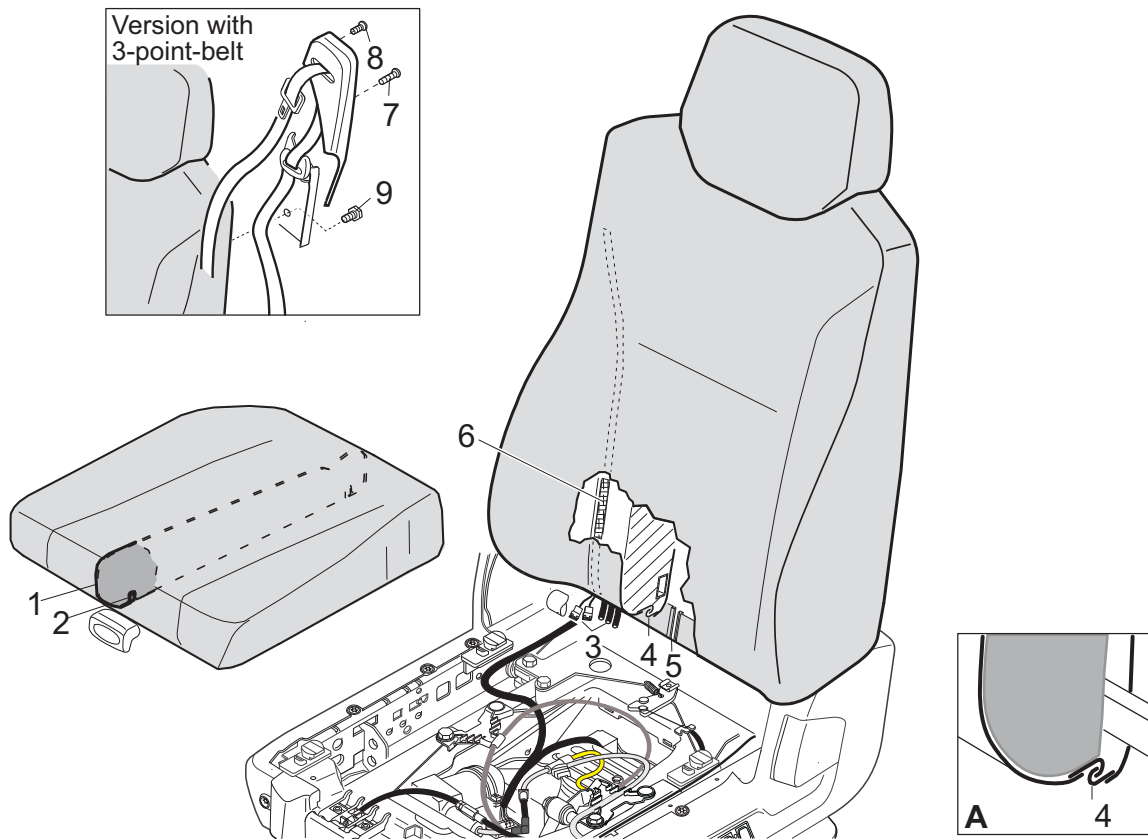
- Demount seat cushion (see 2.2.0).
- Demount side covers (see 2.5.0).
- Disconnect air hoses of IPS (3).
- Disconnect electr. connection (4).
- Undo safety clamp (1).
- Fold down backrest and unscrew two screws (2).
- Lever backrest out of the seat frame brackets.
- Possibly remove armrests.

For version with 3-point-belt:

- Unscrew screw (5, long) and screw (6, short) and move belt cover upwards.
- Unscrew screw (7) and remove belt deflection.


Instruction of installation

- After mounting, fold down the backrest completely and check IPS hoses for sufficient play.



Tightening torques

Pos.	7,8	4Nm
Pos.	9	35Nm +5Nm

Cover for seat cushion

- Demount seat cushion (see 2.2.0).
- Lever seat cushion cover (1) out of groove (2), running around seat ground plate.



Instruction of installation

- Before mounting the cover, rebend hooks in the groove (2) from the ground plate, if necessary.

Cover for backrest cushion

- Disconnect hoses and electrical connector (3).
- Unhook C- profiles (4) (see detail A) and (5).
- Pull cover upwards and loosen fixing tapes (6).
- Remove cardboard (if existing).

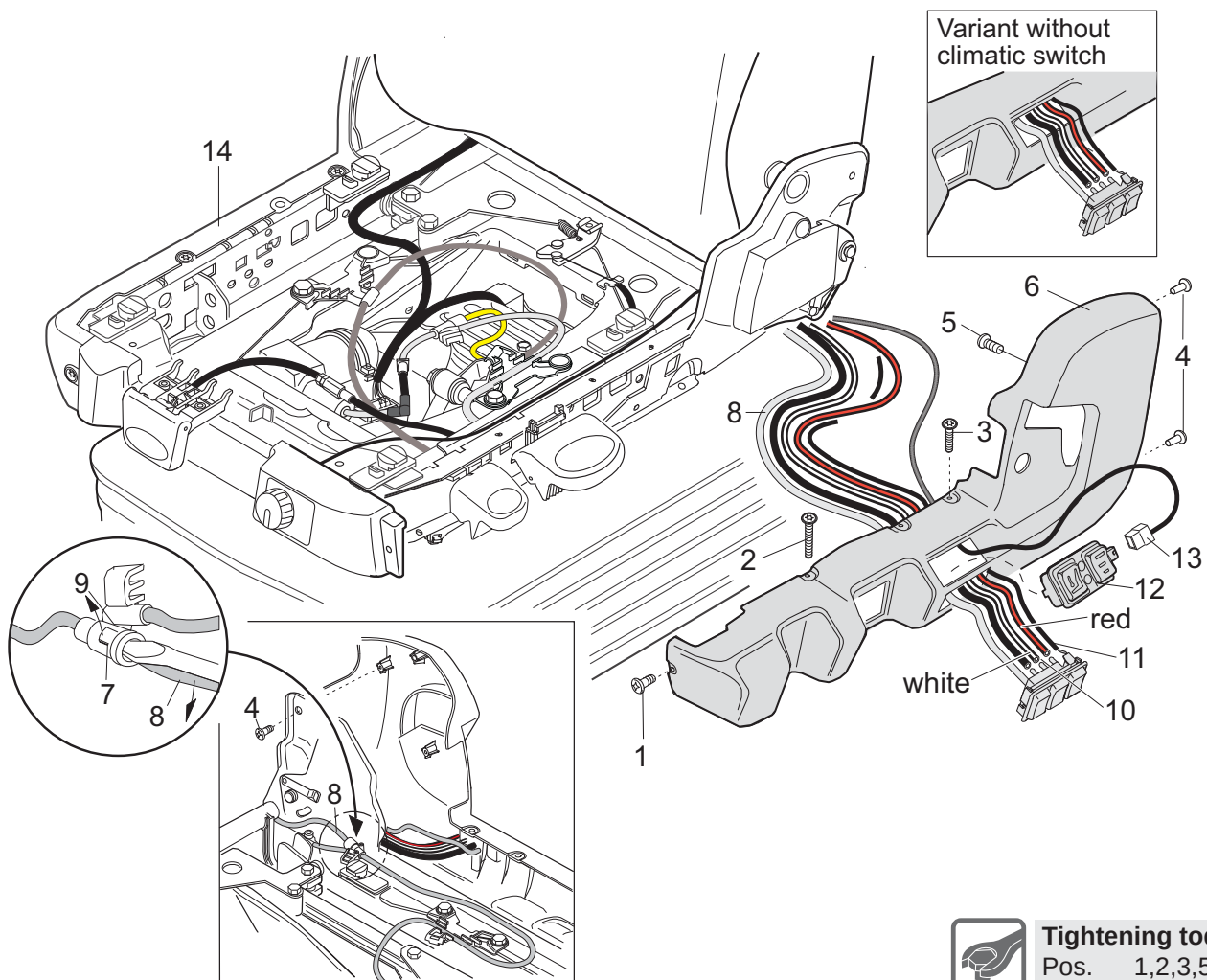
For version with 3-point-belt:

- Unscrew screw (7, long) and screw (8, short) and move belt cover upwards.
- Unscrew screw (9) and remove belt deflection.



Instruction of installation

After mounting, fold down the backrest completely and check IPS hoses for sufficient play.


Tightening toques

Pos. 1,2,3,5 2Nm

Side cover, lever side

- Demount seat cushion (see 2.2.0).
- Unscrew screw (1), front screw (2)(4,2x25) and back screw (3)(4,2x18).
- Undo two pins (4).
- Fold down backrest completely and undo one screw (5).
- Remove cover (6) from seat frame.

Side cover, opposite side

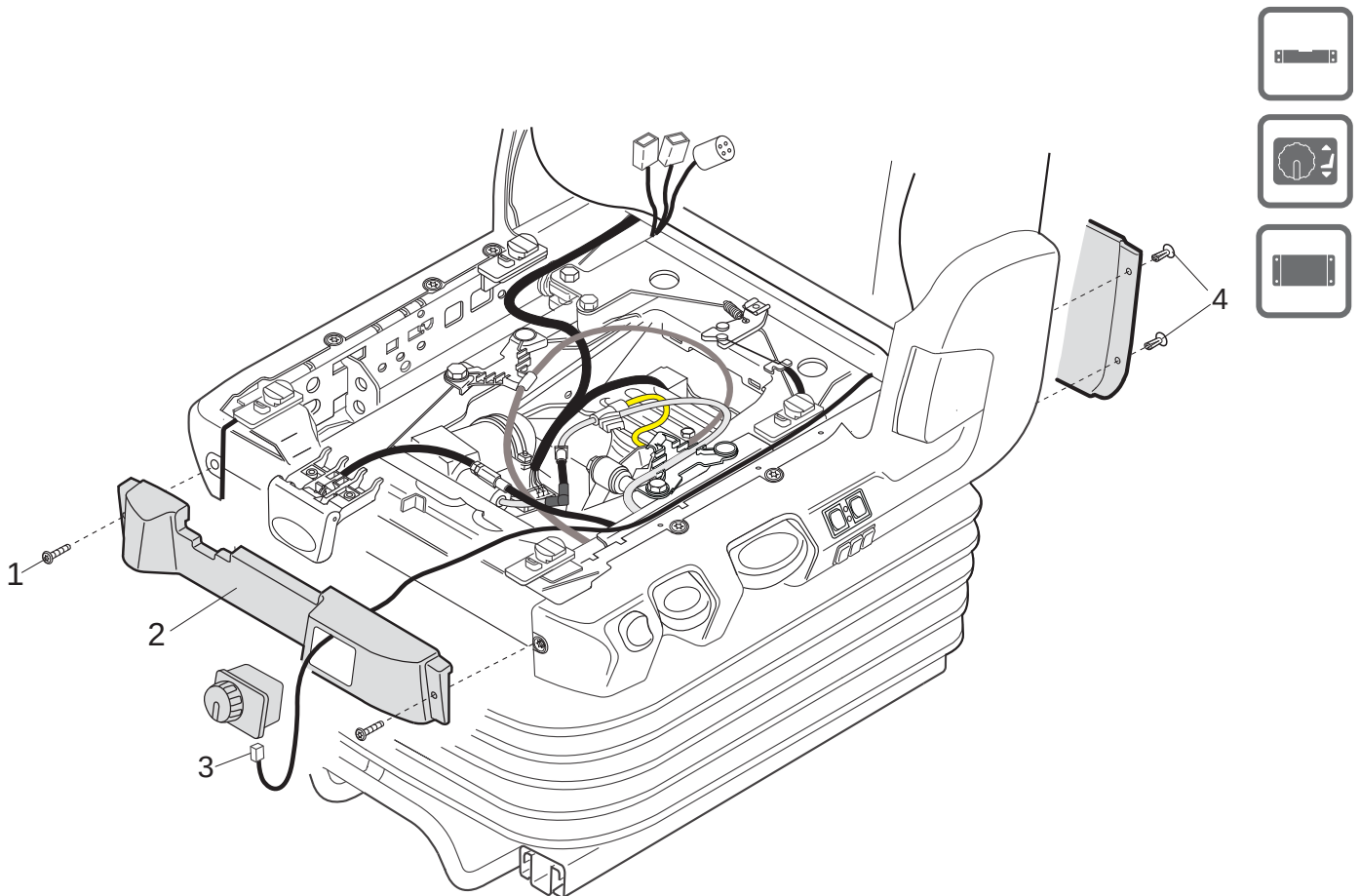
- Remove cover (14) in general sense of side cover level side.

IPS valve

- Lift up fixing hook (7) and separate air hoses (8) from Y-connector (9).
- Disconnect 3 hoses (10) and electr. connection (11).
- Press IPS valve out of side cover.

Switch climatic/ heating

- Unhook switch for climatic/ heating (12) from side cover and disconnect electrical connection (13).

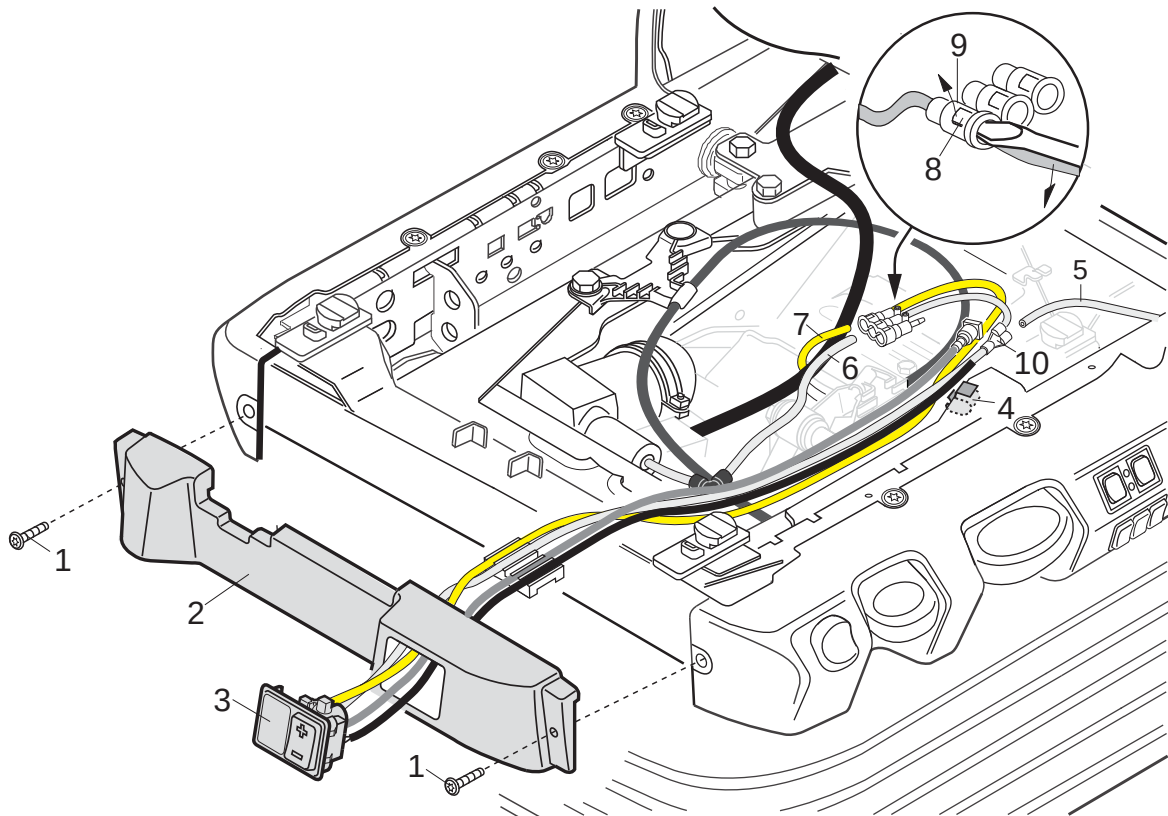
**Tightening toques**
Pos. 1 2Nm

Front cover/ Rotation switch height adjustment

- Push seat cushion in foremost position and lift it up (see 2.2.0).
- Undo two screw (1) and lever out front cover (2).
- Press out rotation switch for height adjustment from behind of the front cover and disconnect plug (3).

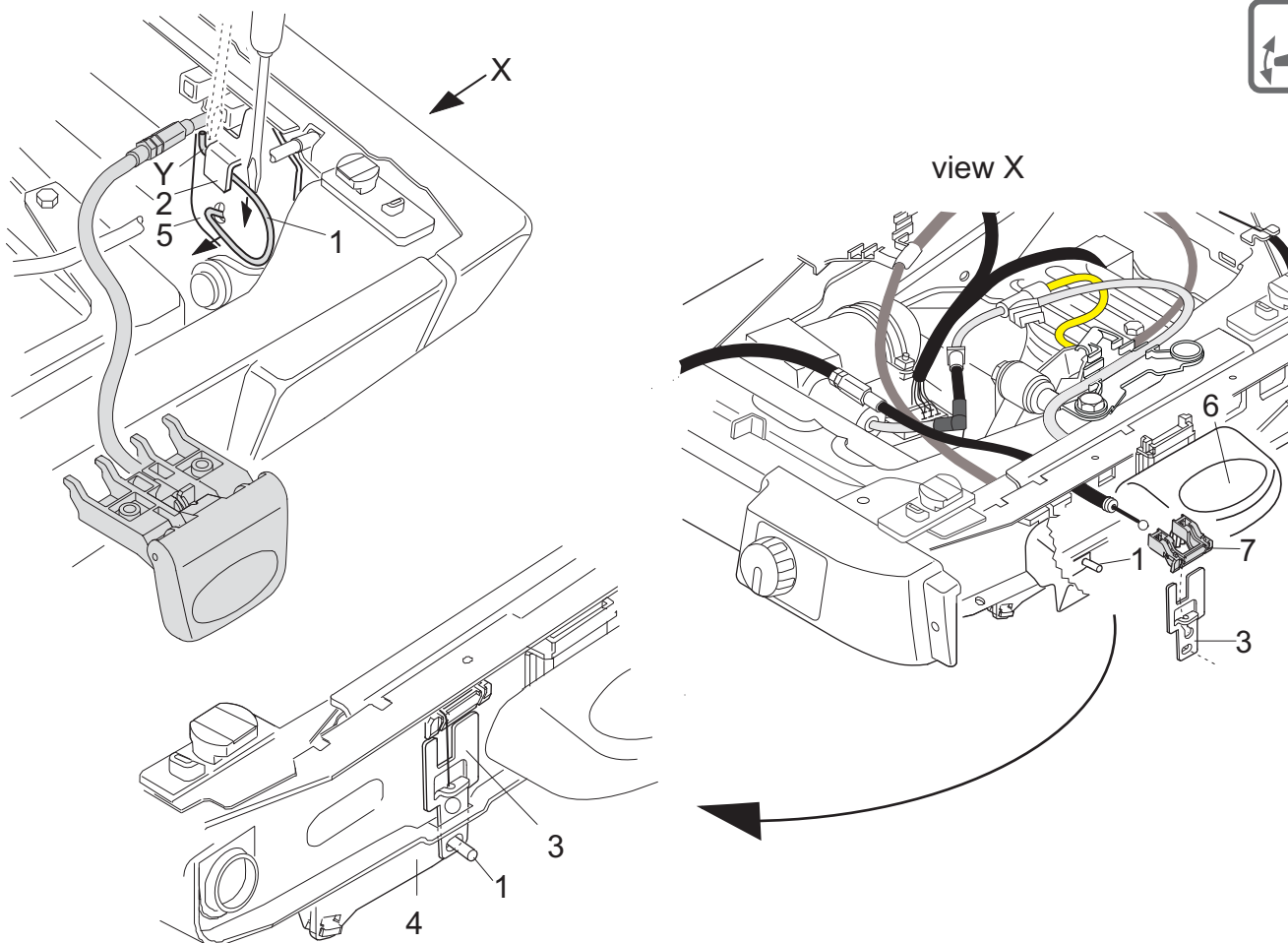
Rear cover

- Undo four pins (4).



Switch height adjustment

- Demount seat cushion (see 2.2.0).
- Undo 2 screws (1) and lever out front cover.
- Press out switch for height adjustment (3) from behind of the front cover.
- Unhinge hoses of switch out of clamp (4)
- Loose air hoses (5) (6) (7) at the connectors (9) and (10).
Therefor lift up fixing hook (8) carefully and separate air hoses from connector (9).



Lever for tilt adjustment

When exchange the lever for tilt adjustment, all parts of the kit must be exchanged!

- Demount seat cushion (see 2.2.0).
- Demount side cover without disconnecting hoses (see 2.5.0).
- Adjust tilt adjustment in upper position.
- Press down spring (1), unhook from fixation (2) and pull spring out from levers (3)(4)(5).
- Remove lever for horizontal suspension (see 2.10.0).
- Lever bearing (7) out of seat frame and remove bowden cable from lever (3).

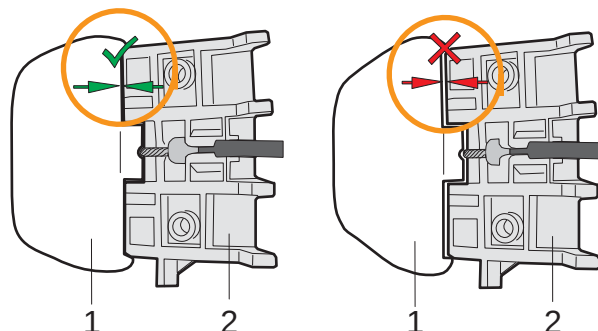


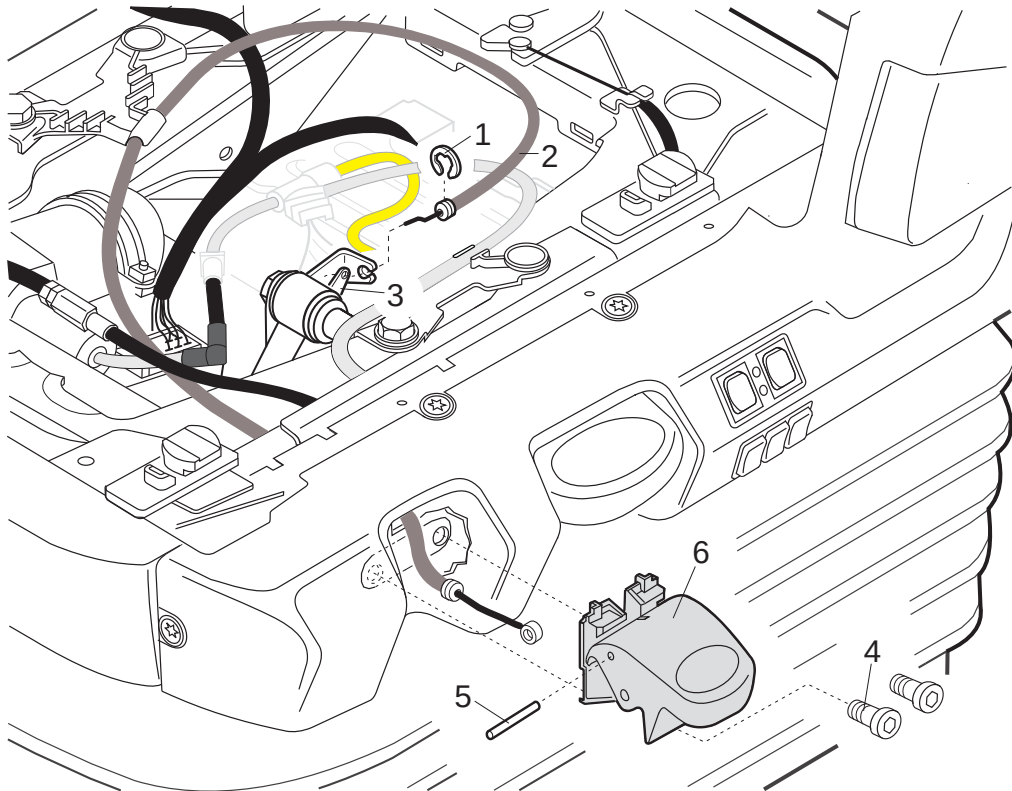
Installation tilt adjustment

- When mounting, hook spring (1) at first in lever (4)(5)(3).
- Press down spring (1) with a screwdriver in area Y and hook spring behind fixation (2).

Adjustment of bowden cable

- Pull lever for tilt adjustment.
- Adjust bowden cable in that way, that between lever (1) and plate (2) no opening is existing.
- The inclination adjustment must release completely and must move noiselessly when pulling the lever (no clattering of tooth segments).

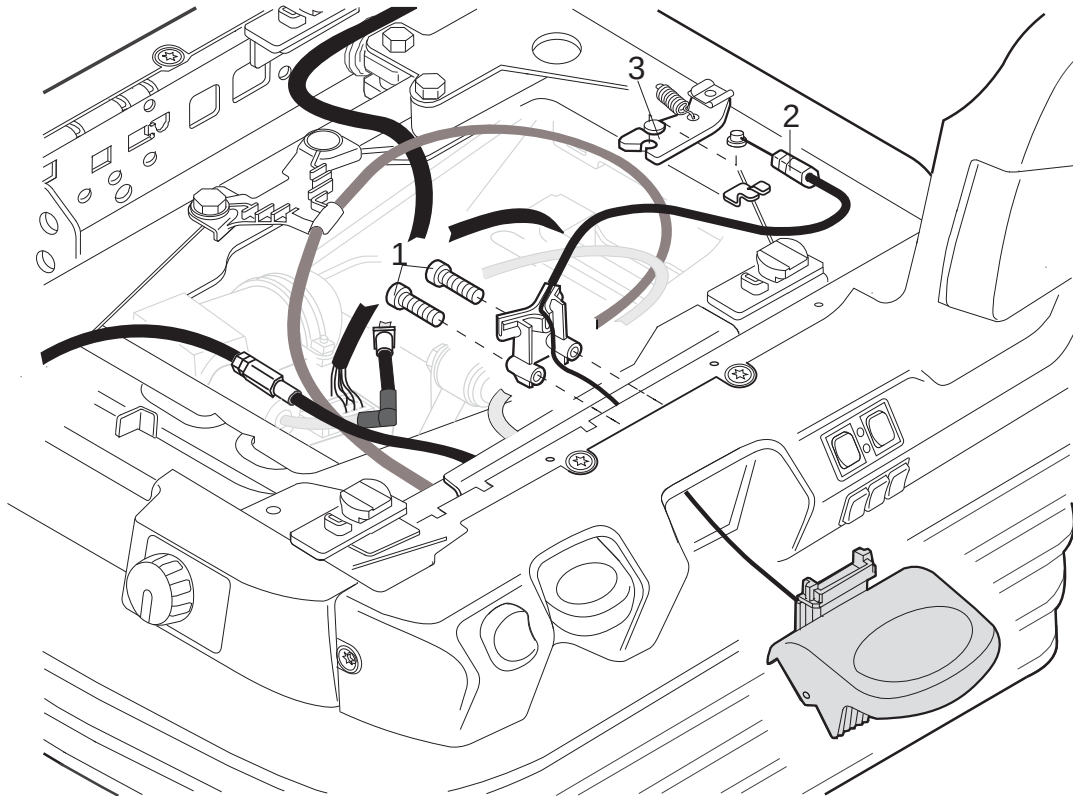




Tightening toques
Pos. 1 5Nm

Shock absorber adjustment

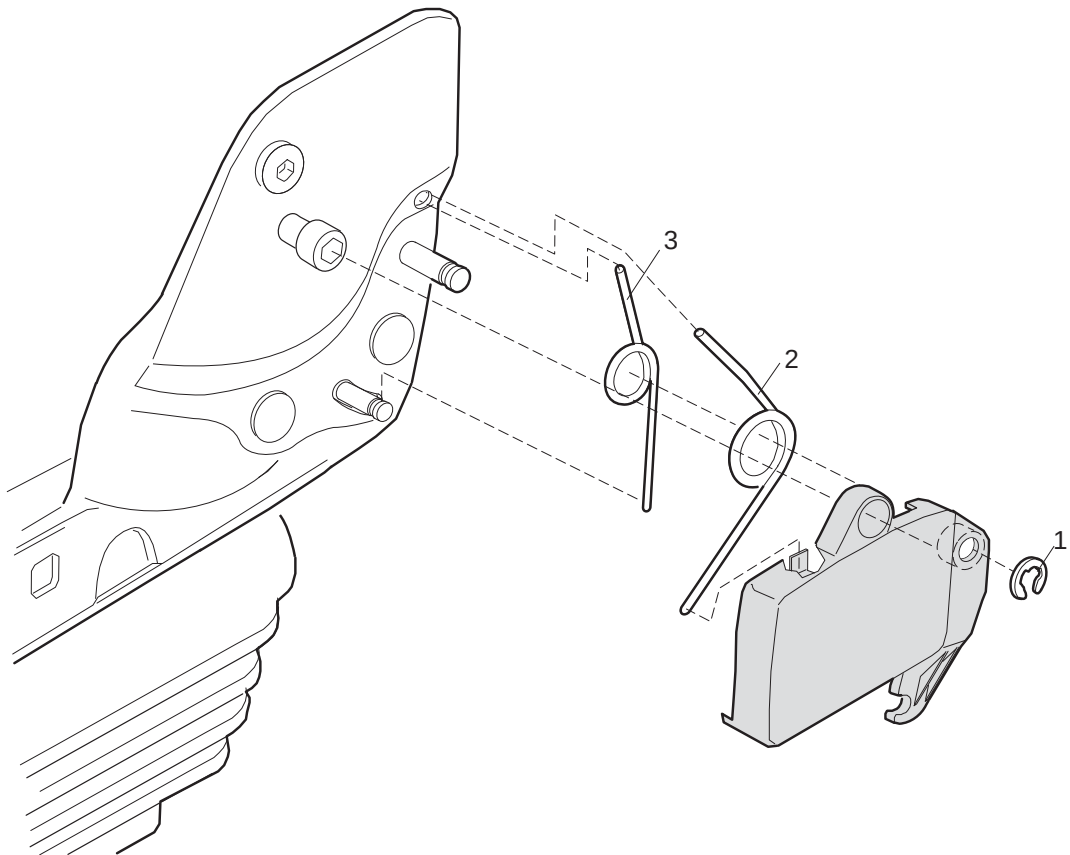
- Demount seat cushion (see 2.2.0).
- Remove retaining washer (1) and lever bowden cable (2) out of fastening (3) .
- Unscrew two screws (4).
- Knock pin (5) out of lever (6) and pull bowden cable out of seat frame.



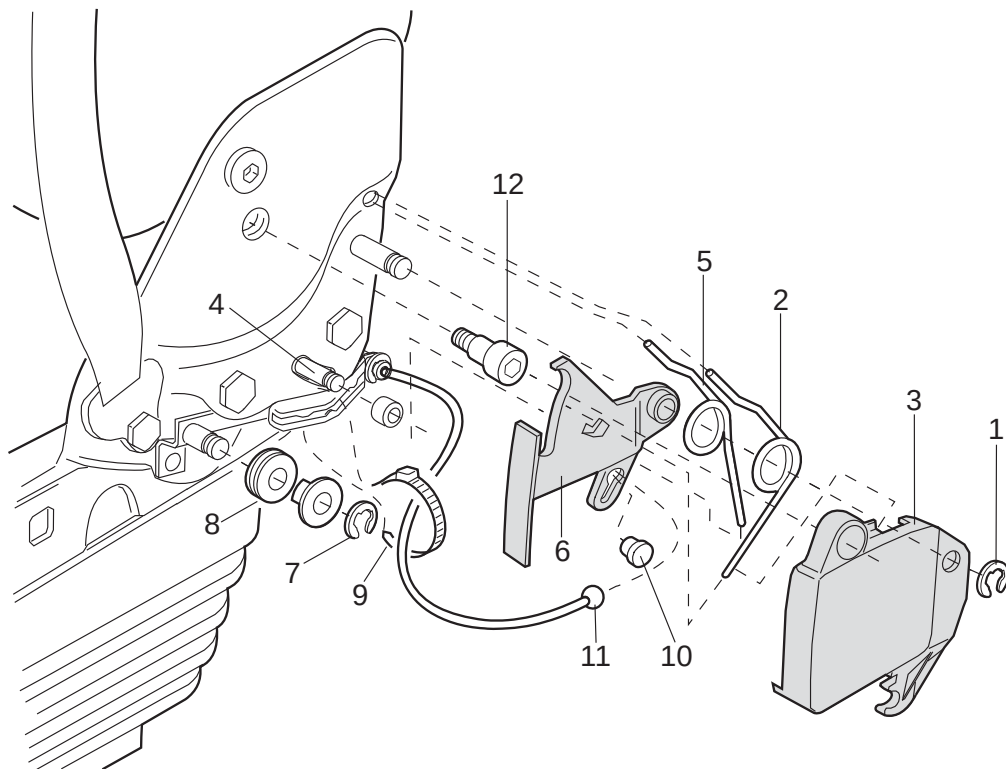
Tightening toques
Pos. 1 5Nm

Lever for horizontal suspension

- Demount seat cushion (see 2.2.0).
- Adjust tilt adjustment in highest position.
- Undo two screws (1).
- Unhook bowden cable (2) out of lever (3).
- Pull out bowden cable from side cover.

**Backrest handle**

- Remove side cover lever side (see 2.5.0).
- Remove retaining washer (1), pull off backrest handle and unhook springs (2) and (3).


Tightening torques

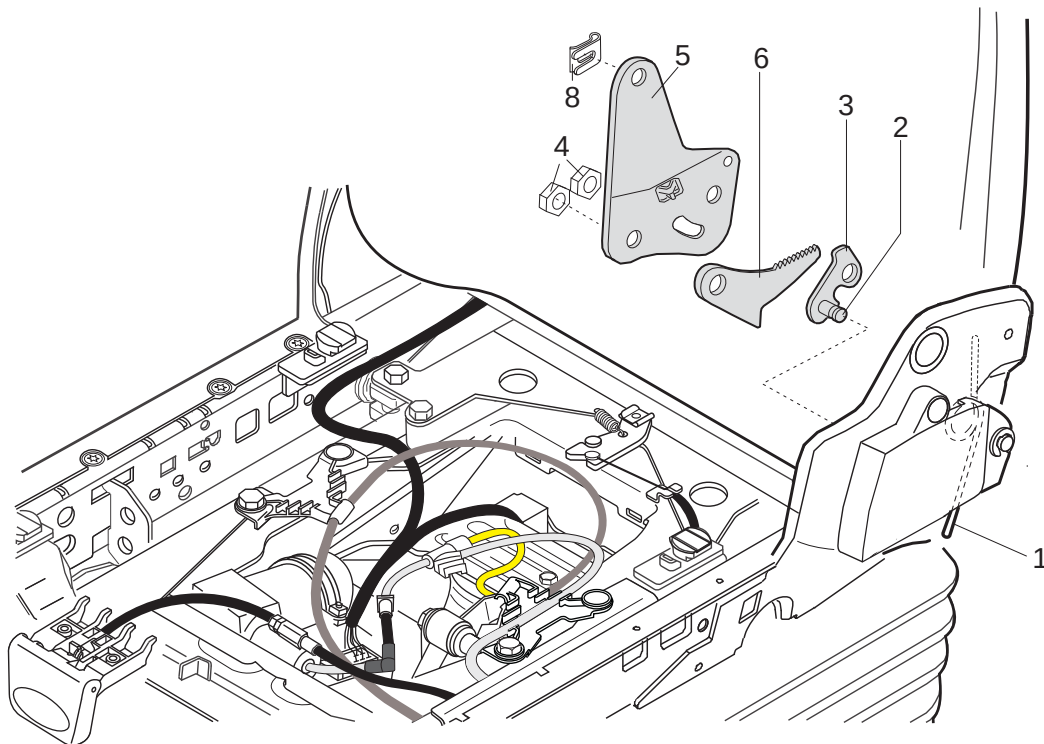
Pos.	12	16Nm +/-2Nm

Lever/ lever springs for backrest

- Demount side cover for seat frame lever side (2.5.0, without loosen hoses).
- Remove safety washer (1).
- Demount spring (2) from lever (3) and lever (6).
- Pull off lever (3).
- Demount spring (5) at Pin (4).

Lever for shoulder adjustment

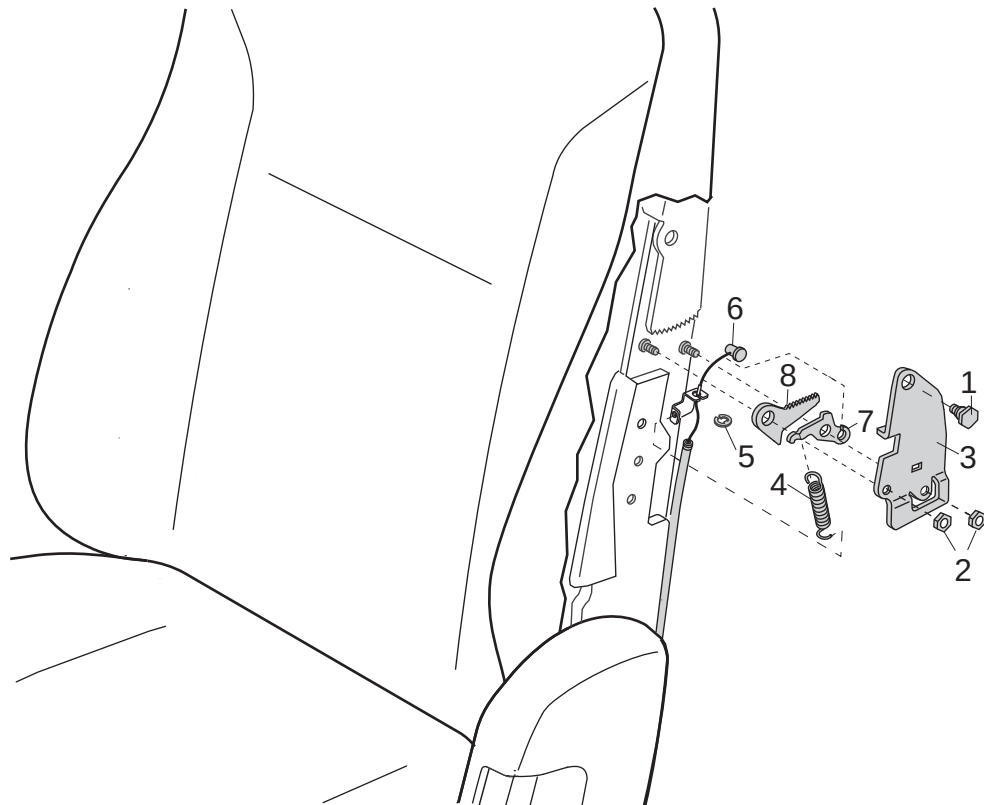
- Remove safety washer (7) and roller (8).
- Cut cable binder (9) and pull out securing plug (10).
- Remove cable ball (11) from lever (6) (pull cable out of cable guide, if necessary).
- Unscrew screw (12) and pull off lever (6).

**Tightening torques**

Pos. 4 22Nm +/-2Nm

Tooth segment for backrest adjustment

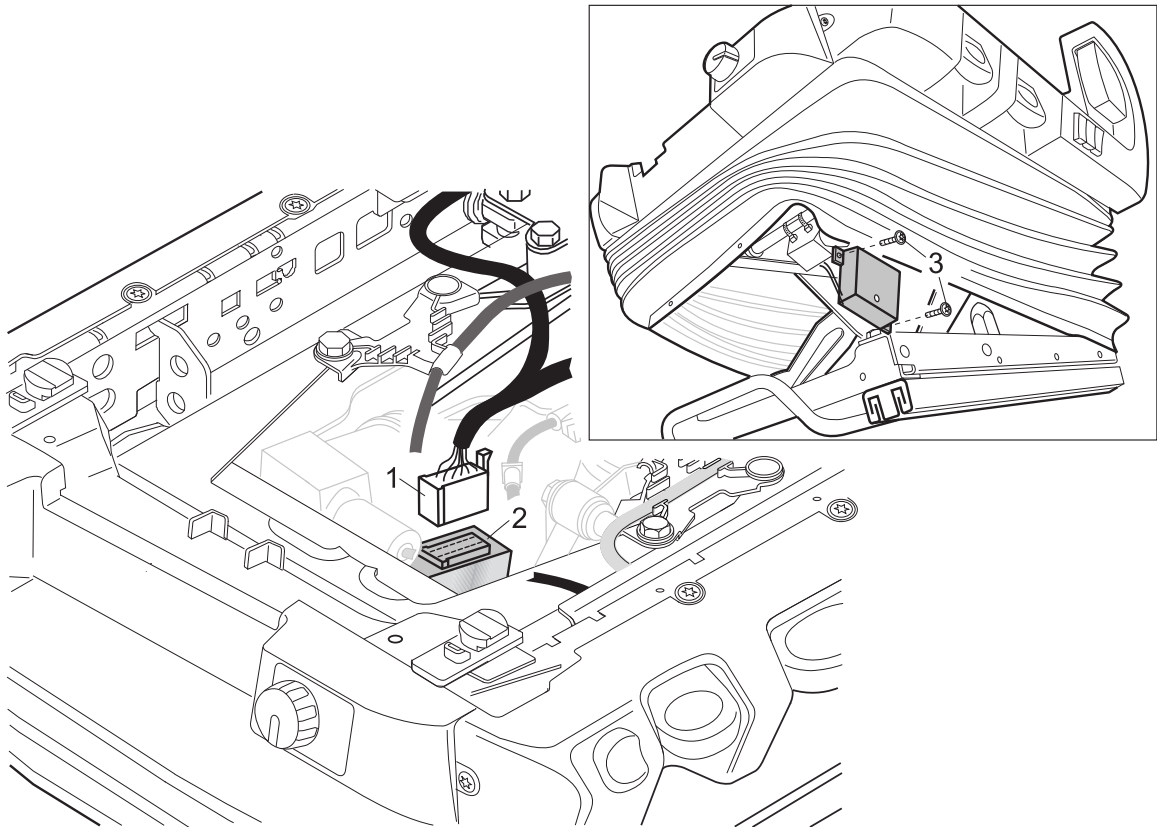
- Demount seat cushion (see 2.2.0).
- Remove side cover of lever side (see 2.5.0).
- Loosen spring (1) at pin (2) of lever (3).
- Remove safety clamp (8).
- Unscrew nuts (4) and take out plate (5), tooth segment (6) and lever (3).

**Tightening torques**

Pos. 1,2 24Nm +/-3Nm

Tooth segment for shoulder adjustment

- Remove backrest cover and pull it upwards to the shoulder area (see 2.4.0).
- Unscrew bolt (1), nuts (2) and take off plate (3).
- Unhook spring (4).
- Undo retaining washer (5) and remove bowden cable (6) from lever (7).
- Take out lever (7) and tooth segment (8).



Tightening toques
 Pos. 3 5Nm

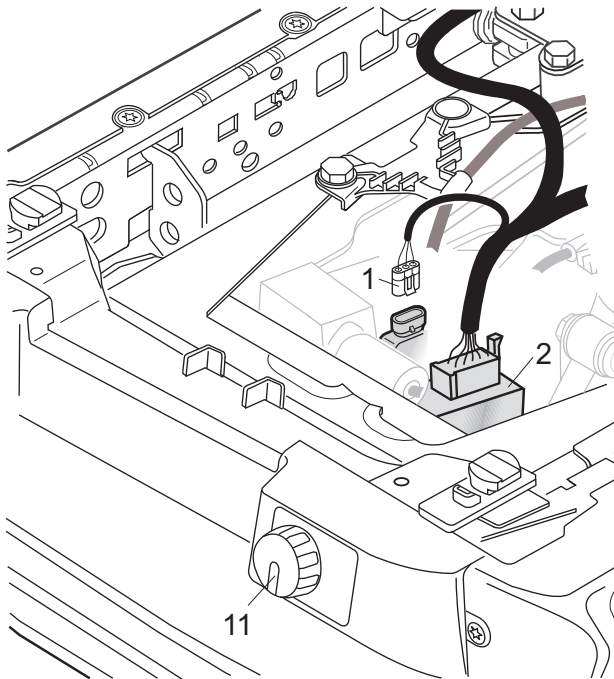
Electronic unit

- Demount seat out of vehicle (see 2.1.0).
- Demount seat cushion (see 2.2.0).
- Disconnect plug (1) from electronic unit (2).

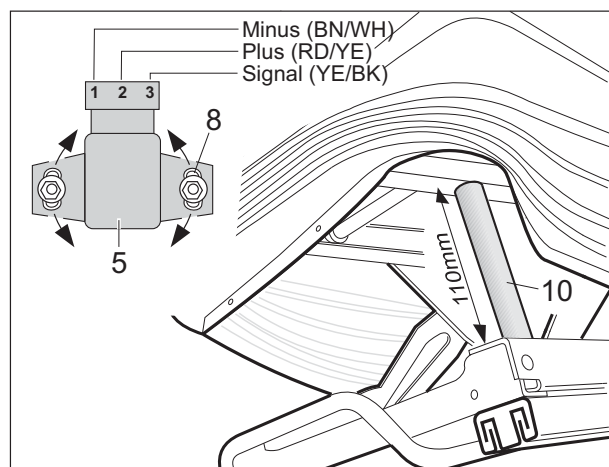
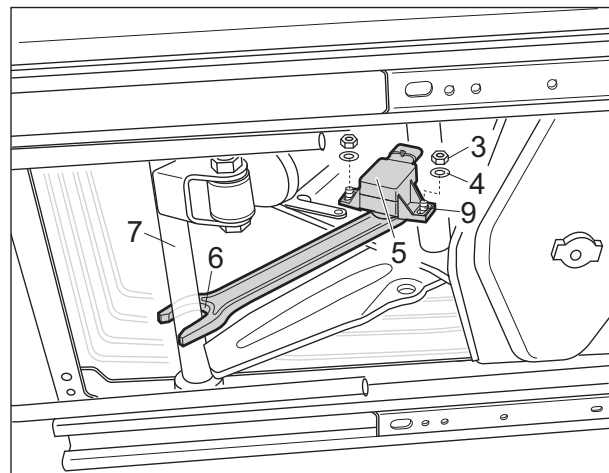


Secure suspension unit at the highest position by a distance sleeve with a length of 75mm (see 1.2.0).

- Loosen bellows in the lower area till screws (3) are reachable.
- Unscrew two screws (3) and take off electronic unit.


Tightening toques

Pos. 3 3Nm +/-0,5Nm


Rotary sensor

- Demount seat out of vehicle (see 2.1.0).
- Demount seat cushion (see 2.2.0).
- Disconnect plug (1) from rotary sensor and loosen bellows in lower area.



Secure suspension unit at the highest position by a distance sleeve with a length of 75mm (see 1.2.0).

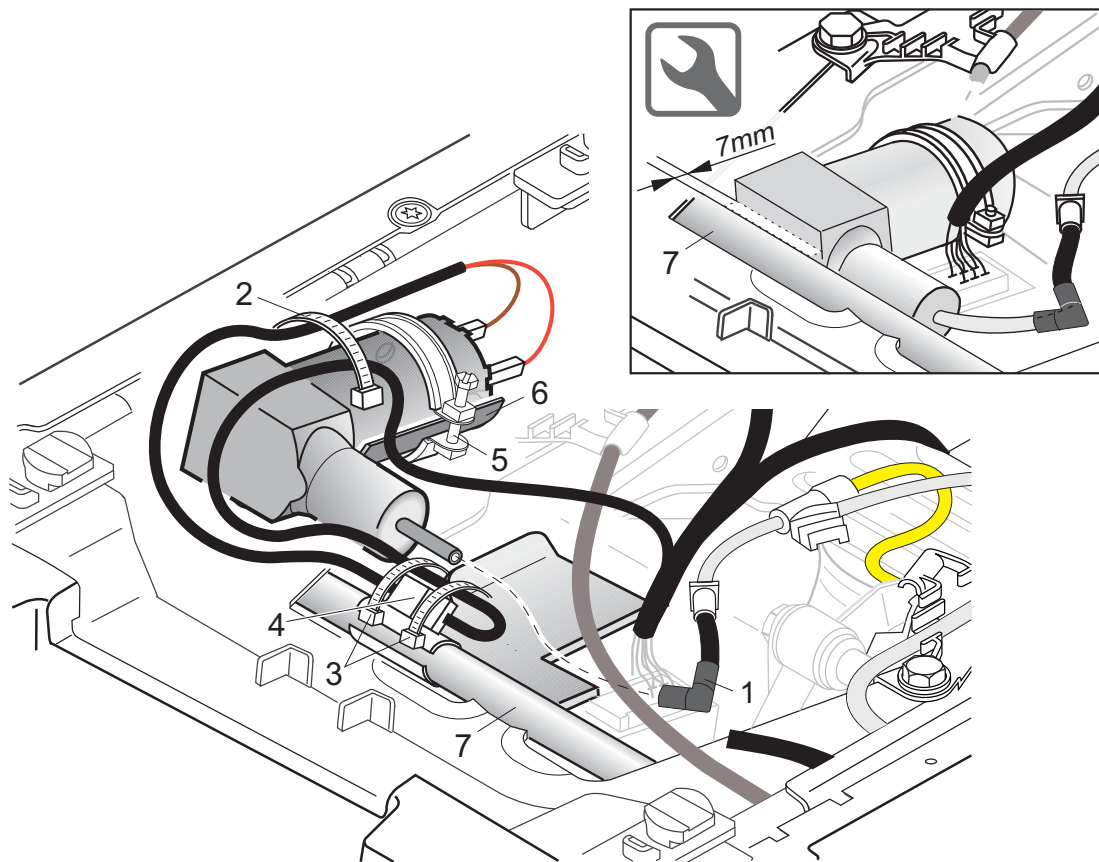
- Demount electronic unit (2) (see 2.15.0).
- Remove two nuts (3) and two washers (4) and take off rotary sensor (5) out of the suspension unit.
- Optionally loosen lower shock absorber fixing therefor.


Installation rotary sensor

- Slide on rotary sensor with lever arm (6) at the cross tube (7),
- Positioning the sensor with the long holes (8) central at pins (9), fixing it with two washers (4) and 2 nuts (3)
- (Don't tighten the nuts, the sensor must be still movable).

Adjustment rotary switch

- Connect the seat at power supply.
- Positioning a distance piece (10) with an exactly length of 110mm between the frames of the suspension unit. Checking the voltage of the rotary sensor at the Pins 1 and 3 by using an voltmeter.
- Turn rotary sensor as far as a voltage from 2,5V is achieved. Tighten rotary switch. The voltage can be measured alternative at the plug of the electronic unit (2) (pins 6 BN/WH, 12 YE/BK).
- Check by using the rotary switch (11), that all levels of seat height will be reached. If not, readjust the rotary sensor again.
- Tighten electronic unit (2).
- Look that after mounting of rotary switch, the shock absorber is fixed again and the distance sleeve is taken out.



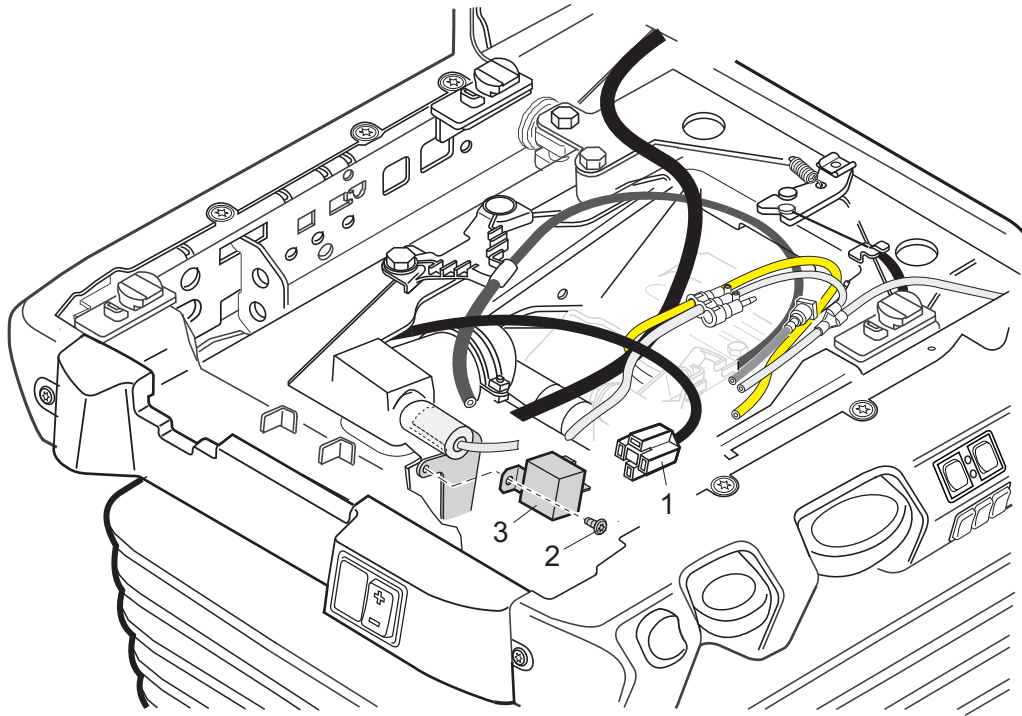
Compressor

- Demount seat cushion (see 2.2.0).
- Disconnect air hose from compressor at angle connector (1).
- Cut cable binder (2) and (3).
- Loosen electrical connection (4).
- Loosen clip (5) and take out the compressor.



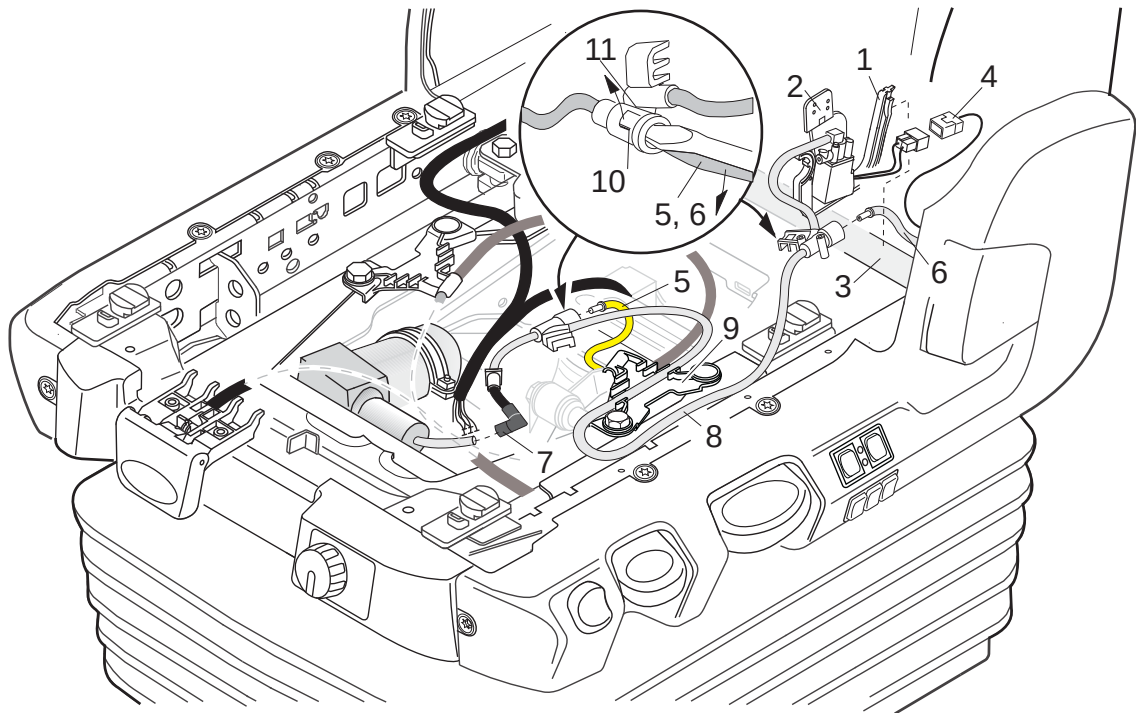
Instruction of installation

- When mounting the new compressor, the foam part (6) must be placed between compressor and clip (5) again.
- Mount the compressor in a distance of 7mm to the cross tube (7).



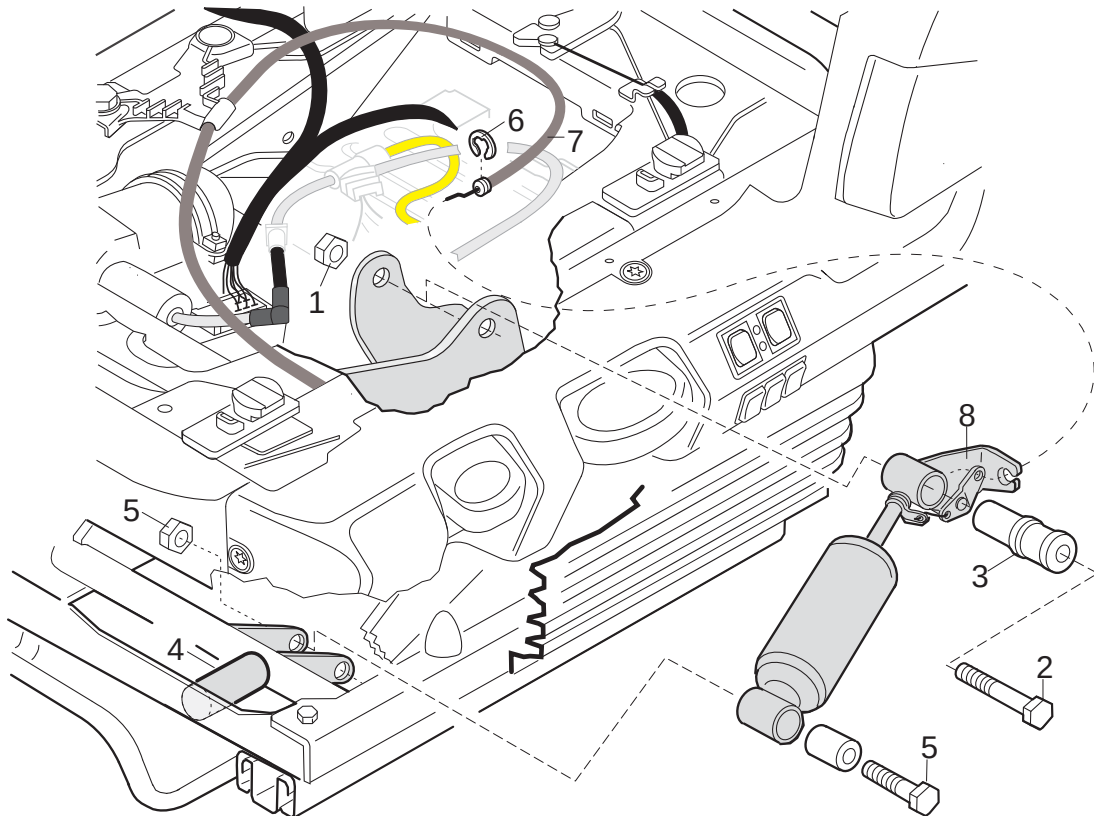
Relais

- Disconnect plug (1).
- Unscrew screw (2) and take out relais (3).



Magnetic valve

- Demount seat cushion (see 2.2.0).
- Push bracket (1) of magnetic valve (2) from cross tube (3) and take out the magnetic valve.
- Disconnect electrical connection (4).
- Loosen air connection to the air spring (5, yellow) and to the IPS valve (6, transparent) at the Y-connector (11). Therefor lift up fixing hook (10) carefully and separate air hoses (5,6) from connector (11).
- Loosen hose connection (7) to the compressor, detach hose (8) out of holder (9) and take out magnetic valve.


Tightening toques

Pos. 2,5 22Nm +/-2Nm

Shock absorber

- Demount seat cushion (see 2.2.0) and loosen lower area of the bellows.

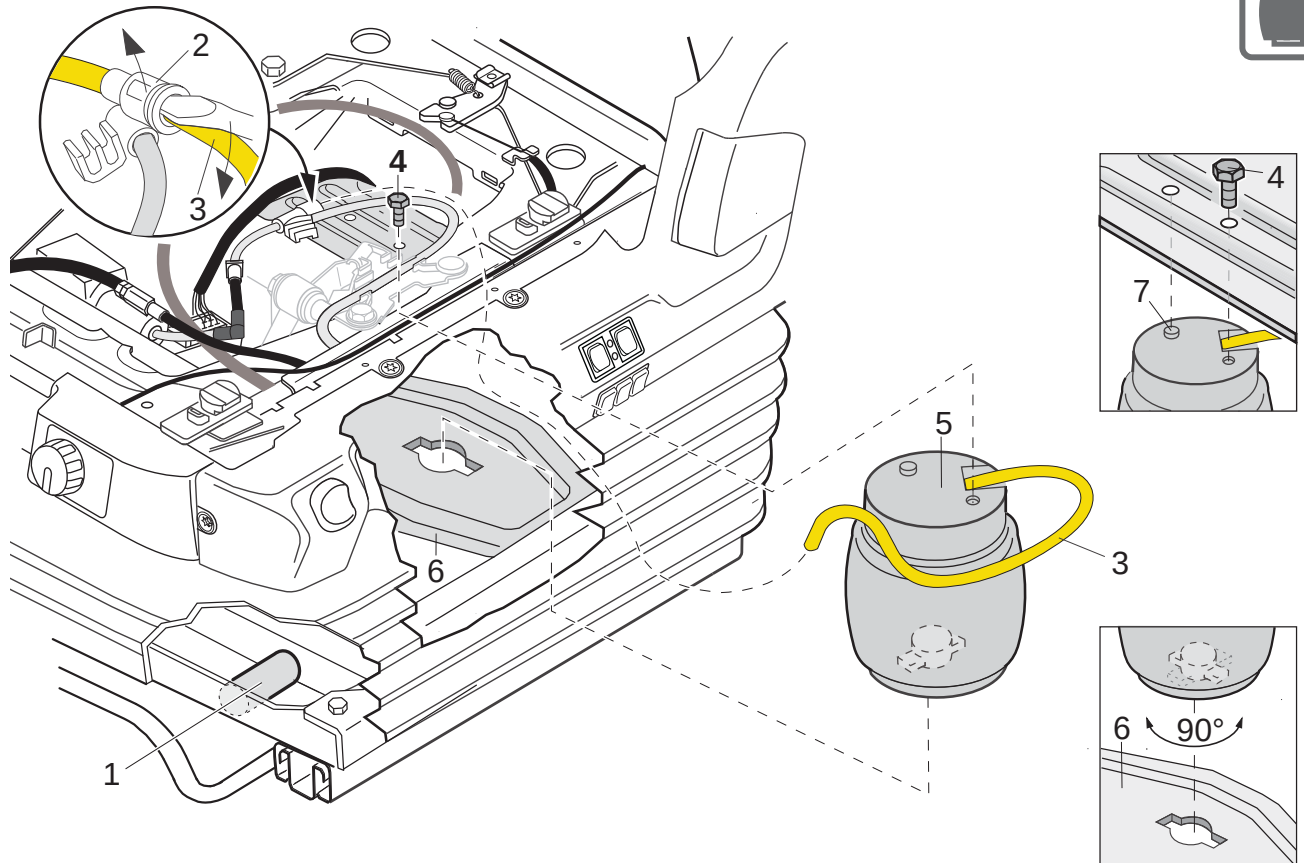


Secure suspension unit at the highest position by a distance sleeve with a length of 75mm (see 1.2.0).

- Undo nut (1), remove screw (2) and take out socket (3).
- Unscrew lower shock absorber fixation (5).
- Remove retaining washer (6) and lever bowden cable (7) out of fastening (8).



When exchange the shock absorber, all parts of the kit must be exchanged!



Tightening toques
 Pos. 4 5Nm

Air spring

- Demount seat cushion (see 2.2.0).
- Pull out lower bellows fixation in front and sideways.



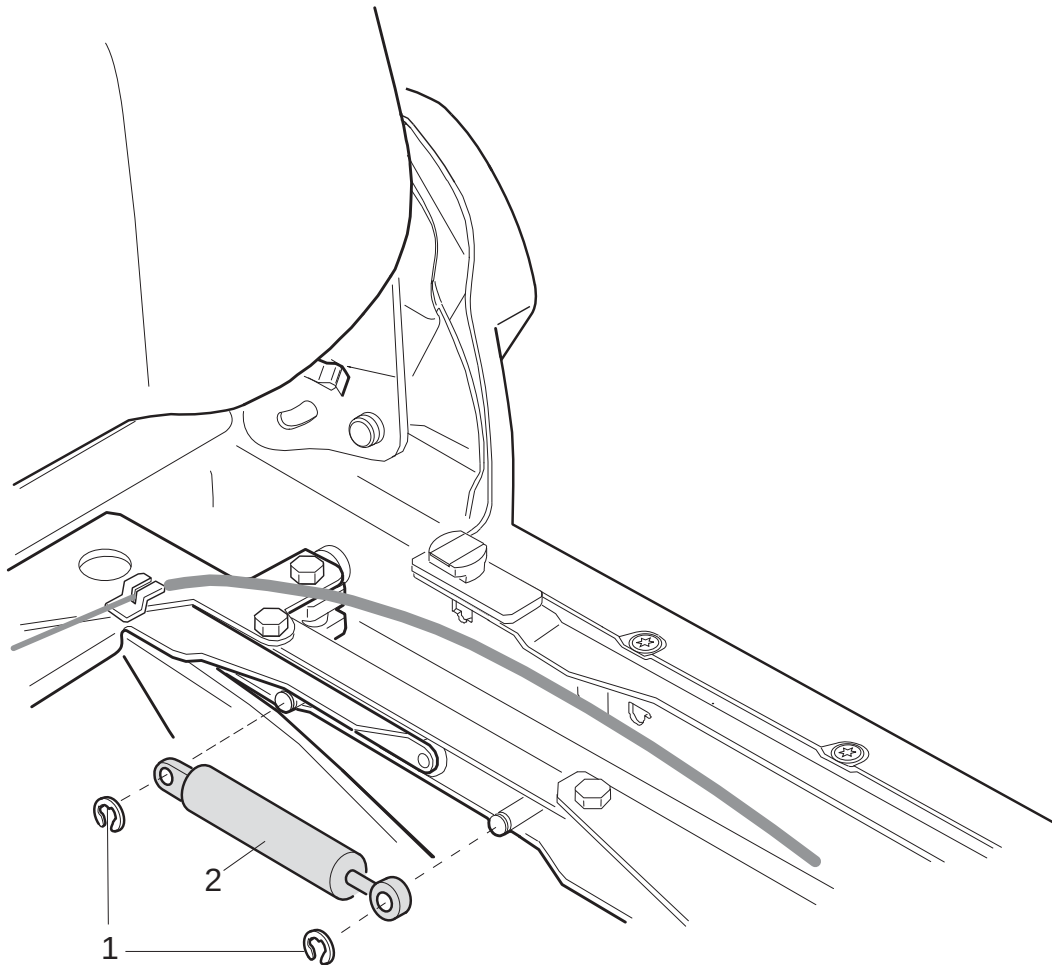
Secure suspension unit at the highest position by a distance sleeve (1) with a length of 75mm (see 1.2.0).

- Lift up fixing hook (2) carefully and demount air pipe (3).
- Undo screw (4).
- Remove lower shock absorber fixation and lift it up (see 2.18.0).
- Turn round air spring (5) for 90° and take it out from lower holder (6).



Instruction of installation

- When mounting, the hose of the air spring must show backwards.
- The nose (7) must be locked in the hole at the upper air spring holder.



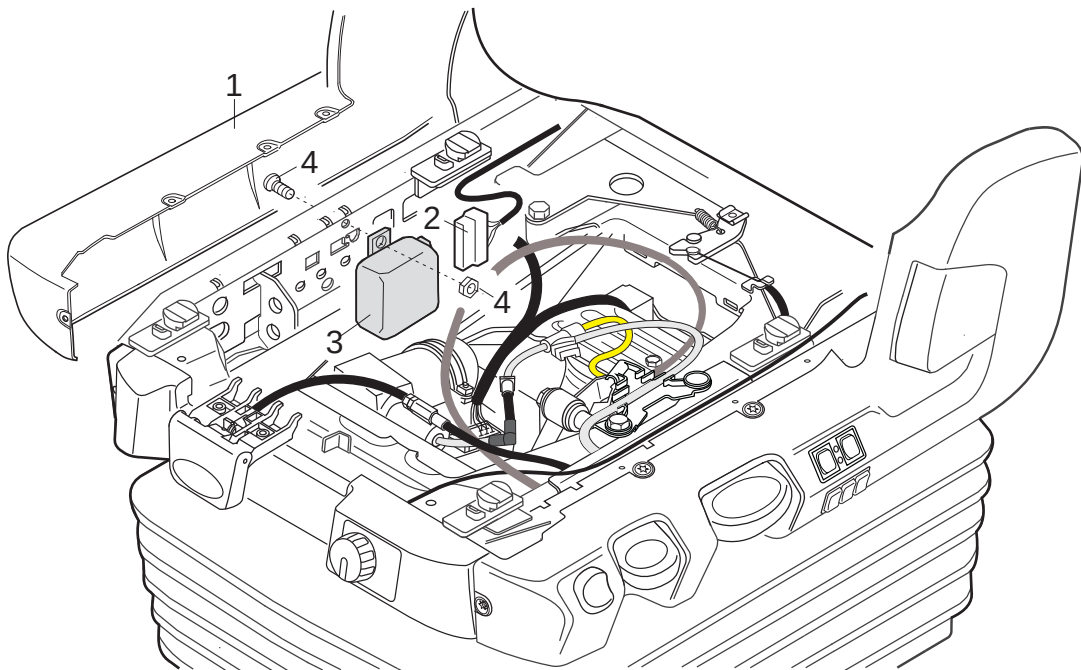
Shock absorber for horizontal suspension

- Demount seat cushion (see 2.2.0).



Secure suspension unit at the highest position by a distance sleeve with a length of 75mm (see 1.2.0).

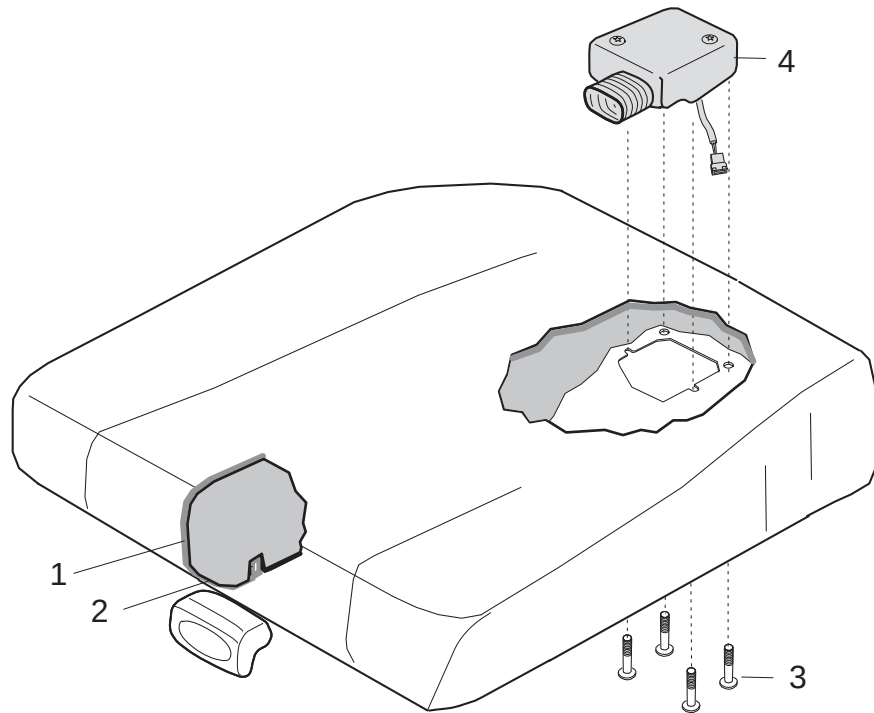
- Remove securing washers (1) and pull off shock absorber (2) from pins.



Tightening toques
Pos. 4 2Nm

Electronic unit climatic/ heating

- Demount seat cushion (see 2.2.0).
- Remove side cover (1) (see 2.5.0).
- Pull off connector (2) from electronic unit (3).
- Undo screws (4).



Tightening toques
 Pos. 3 2Nm

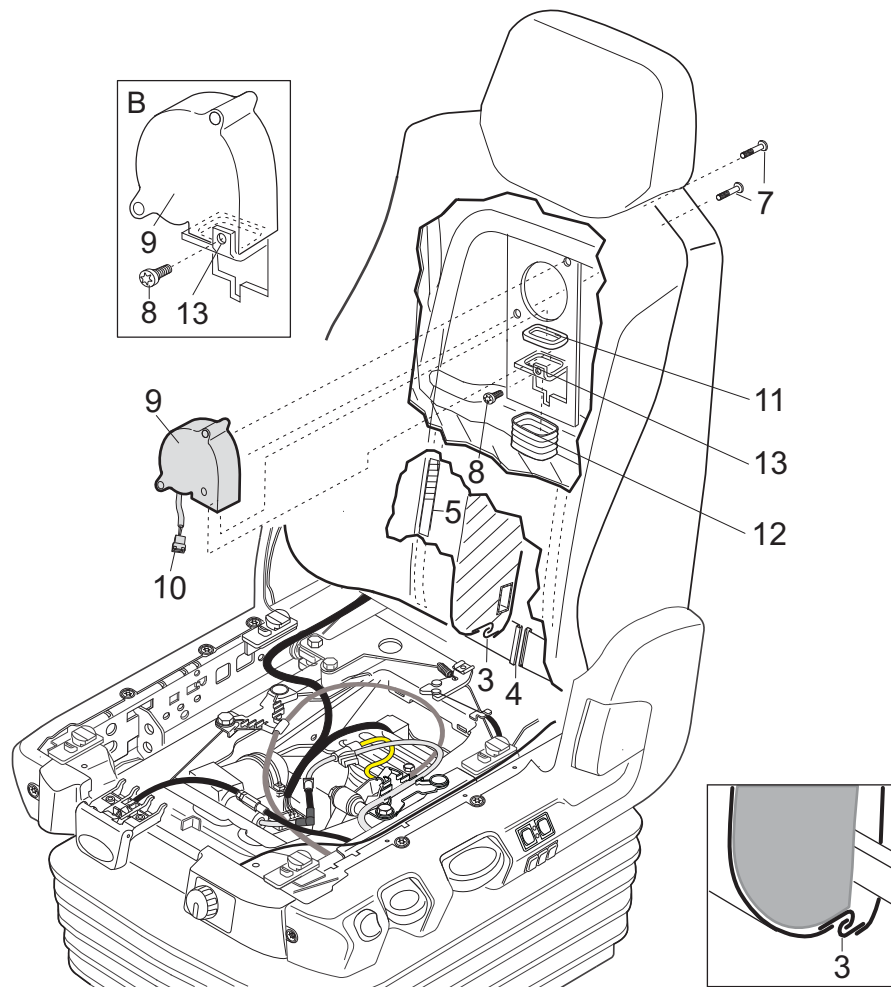
Fan for seat cushion

- Demount seat cushion (see 2.2.0).
- Lever seat cushion cover (1) out of groove (2), running around seat ground plate, in the area of the seat cushions back half.
- Undo four screws (3).
- Pull fan unit (4) inclusive congruated tube out of cushion foam.



Instruction of installation

- Before mounting the cover, rebend hooks in the groove (2) from the ground plate, if necessary.


Tightening toques

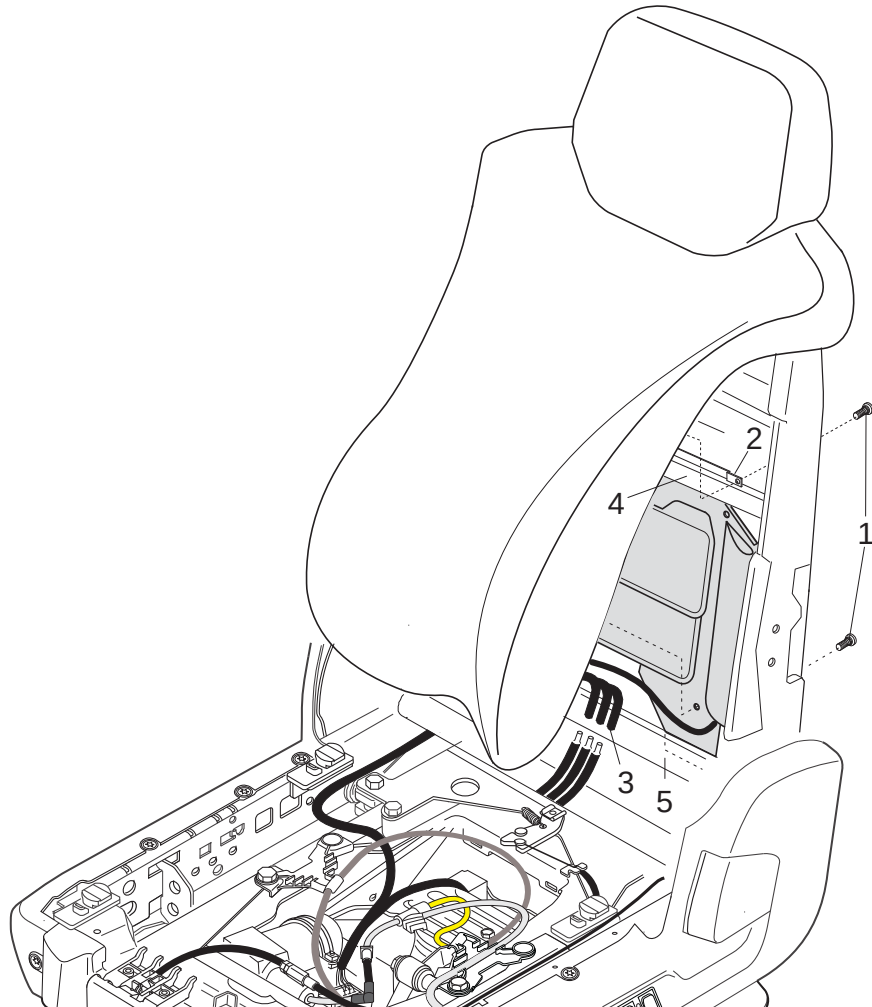
Pos.	7	2Nm +/-1Nm
	8	2Nm

Fan for backrest

- Unhook C-profiles (3) and (4).
- Pull cover upwards while losing fixing tapes (5).
- Remove cardboard.
- Loosen and fold down backrest cushion in the upper area of the backrest frame.
- Undo two screws (7) and one screw (8) out of fan (9).
- Disconnect electrical connection (10) and take out fan (9).
- Pull off sealing cup (11) from holder plate.
- Press congruated tube (12) a little, unhook it and pull it out of cushion foam.


Instruction of installation

- When mounting, lay the congruated tube (12) so, that it will fit to the tube channel, press in the other tube end a little and lock the first tube groove at fixing plate.
- After fitting in the new fan, fix it at first with two screws (7).
- Drill a hole, diameter 2mm, through hole (13) into the fan housing and turn in screw (8).



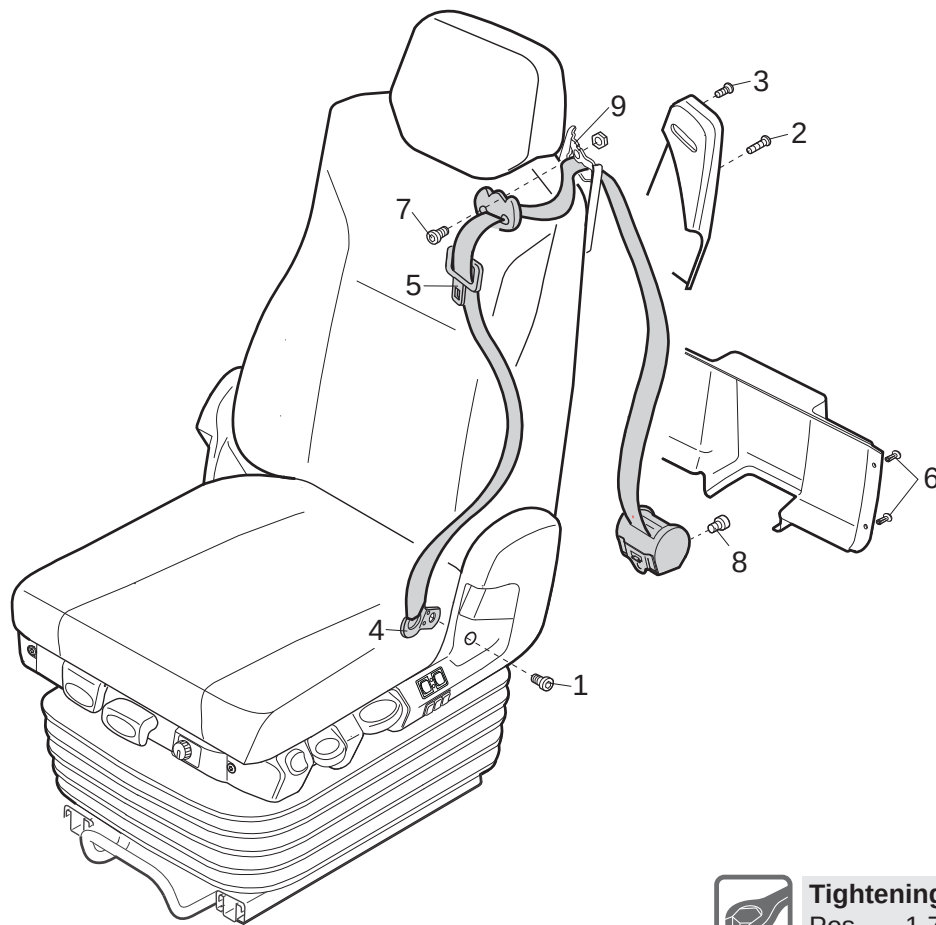
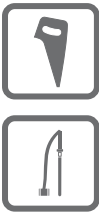
Air chamber for lumbar support (IPS)

- Demount seat cushion (see 2.2.0).
- Remove backrest cover partially (see 2.4.0).
- Unscrew four screws (1) and loosen foam part from frame.
- Pull off 3 hoses (3).
- Pull out air chamber from behind cross-braces (4)(5).



Instruction of installation

- Don't tighten screws (1), when mounting the foam part. The distance between screw head and shackle (2) should come to 1mm.
- When mounting the air chamber unit, take care, that chamber carrier plate has to be mounted behind cross-braces (4)(5).
- After mounting, fold down the backrest completely and check IPS hoses for sufficient play.


Tightening torques

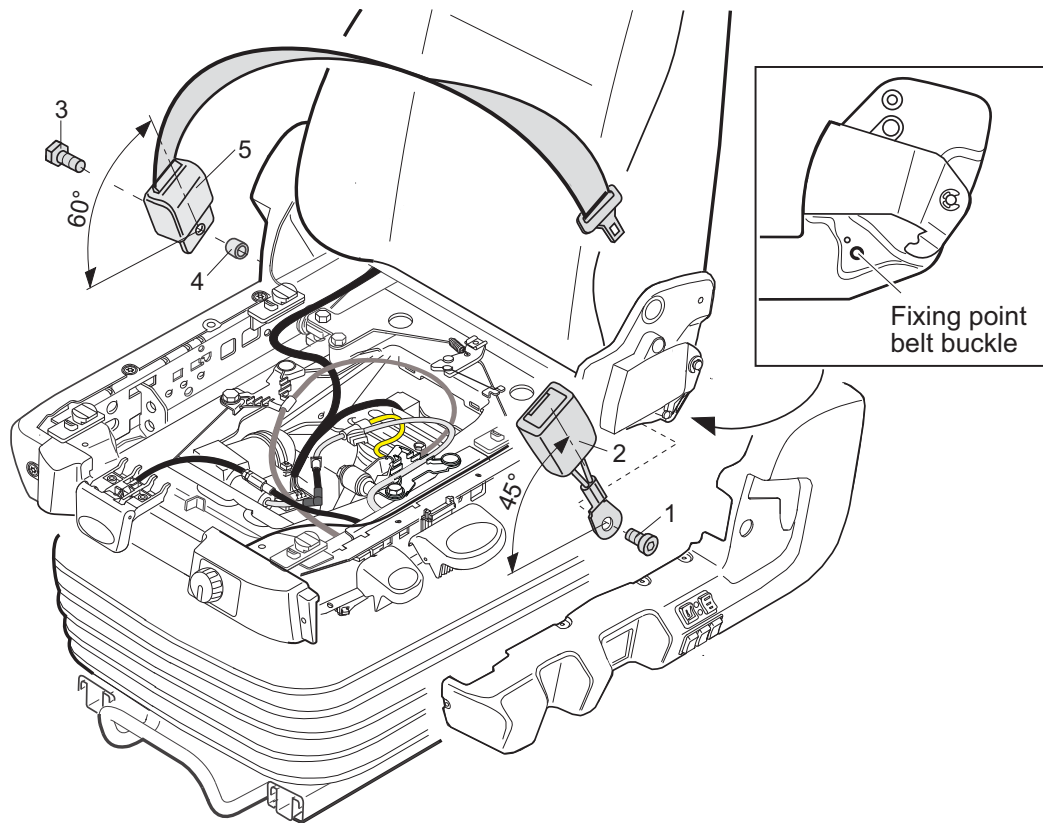
Pos.	1,7,8	35Nm +/-5Nm
Pos.	2,3	4Nm

Belt cover

- Lift up handle for backrest and undo screw (1).
- Unscrew screw (2, long) and screw (3, short) and move belt cover upwards.
- Push retaining bracket (4) and belt tongue (5) through the opening of the belt cover.

3-point-belt

- Remove belt cover (see above).
- Undo four pins (6) and remove rear cover.
- Unscrew screws (7) and (8) and pull belt out of belt deflector (9).



Tightening torques
 Pos. 1, 3 35+5Nm

Belt buckle (2-point-belt)

- Demount seat cushion (see 2.2.0).
- Demount cover lever side (see 2.5.0).
- Undo screw (1) and remove belt buckle (2).

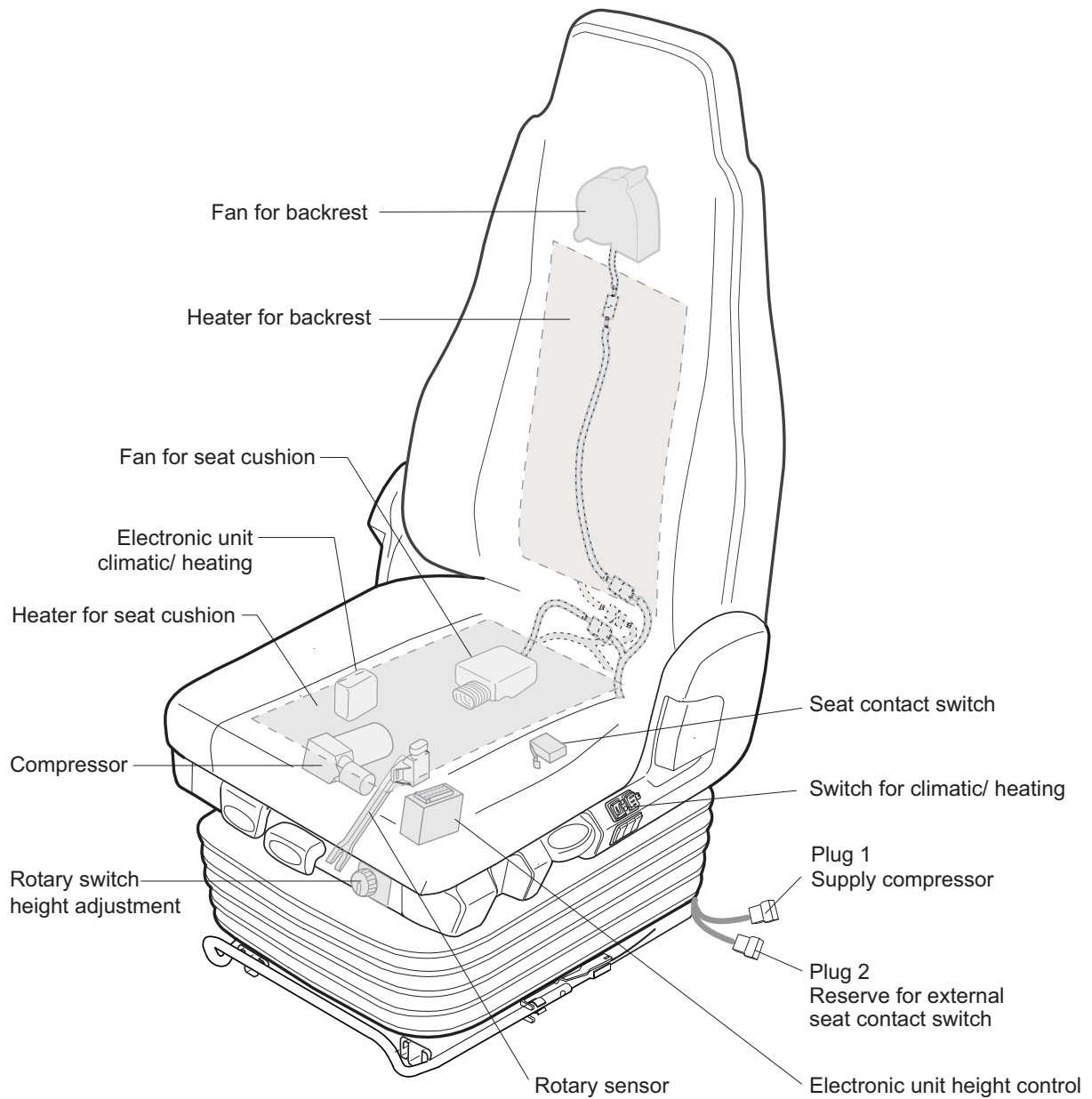
2- point-belt

- Remove screw (3) und distance bush (4).
- Demount 2-point-belt (5).



Instruction of installation

- The belt buckle must be mounted in an angle of 45° and the belt roller in an angle of 60°.



Connector plug configuration

Plug 1:

Supply compressor

Pin1: black Ignition (1.50mm²)
 Pin2: brown Ground (1.50mm²)

Plug 2:

External seat contact switch

Pin1: white Seat contact switch (0.75mm²)
 Pin2: green Seat contact switch (0.75mm²)

Mating connector vehicle

Plug 1:

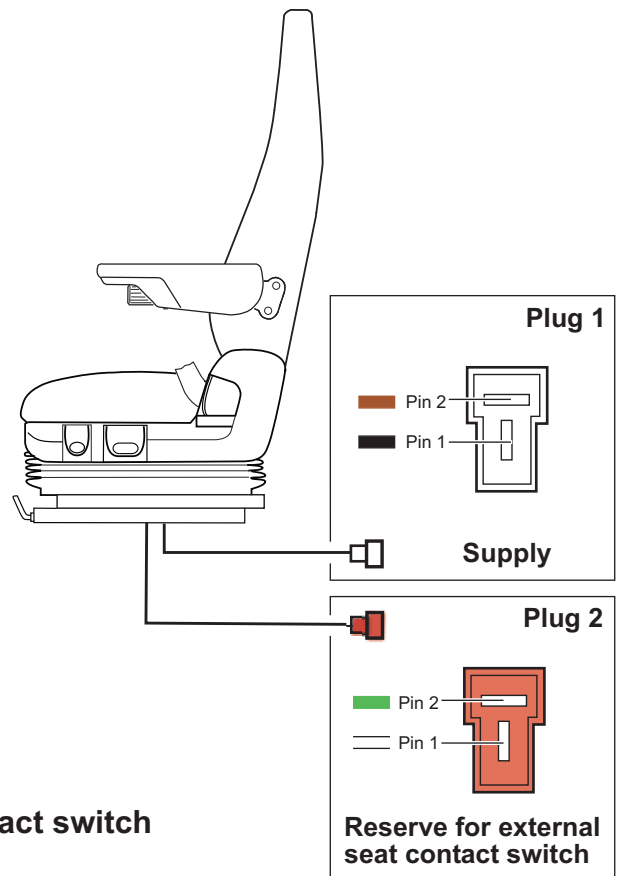
Supply compressor

Connector housing: AMP 6,3x0,8 2 pol.
 Housing no: AMP 180 907-5 (transparent)
 Contact no: z.B AMP 5-160 446-5

Plug 2:

Reserve for external seat contact switch

Connector housing: AMP 6,3x0,8 2 pol.
 Housing no: AMP 180 907-1 (red)
 Contact no: e.g AMP 5-160 446-5



Power supply

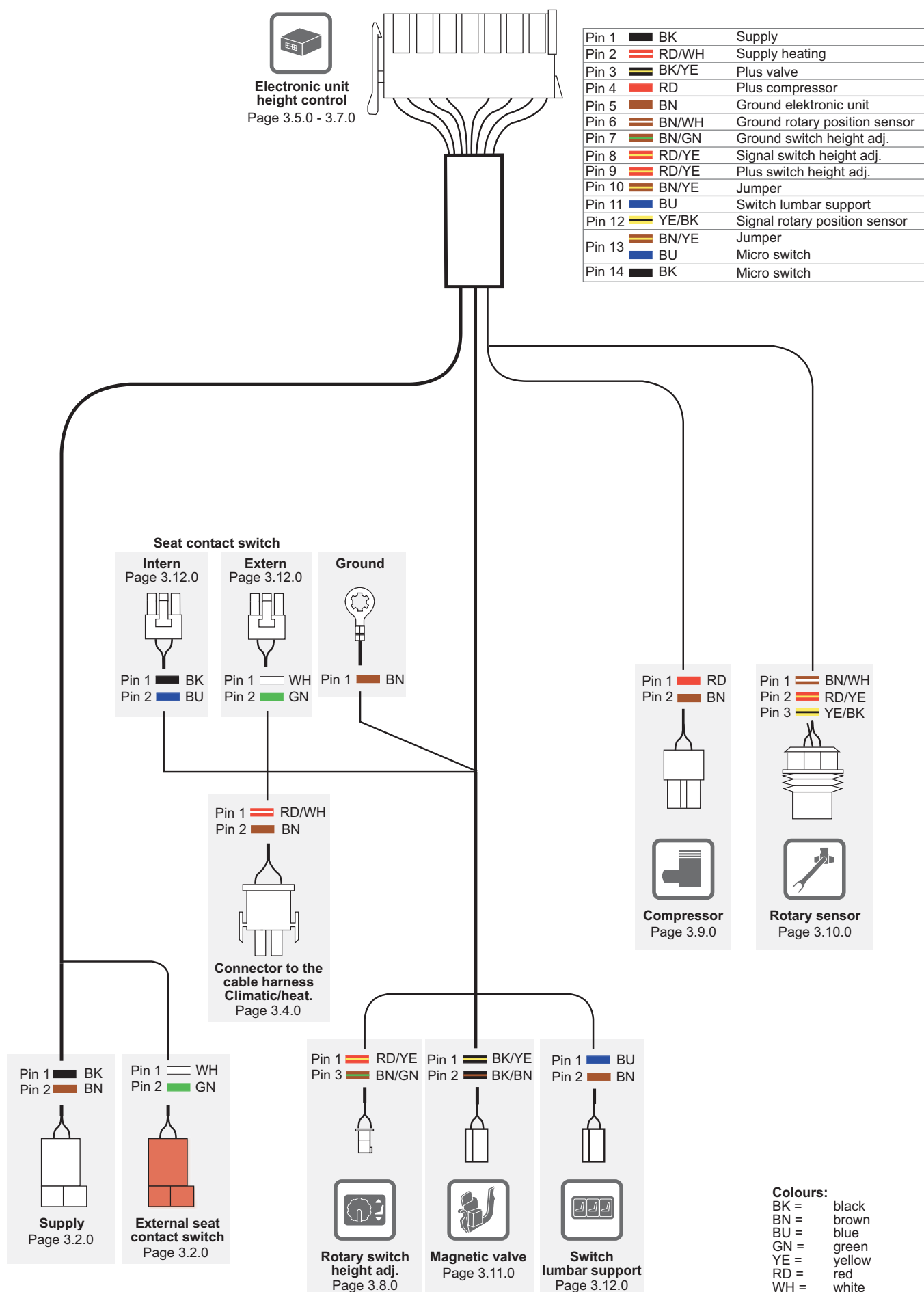
Nominal voltage: $U_N=24V$ DC
 Working voltage: $U_{Bat}=16-32V$

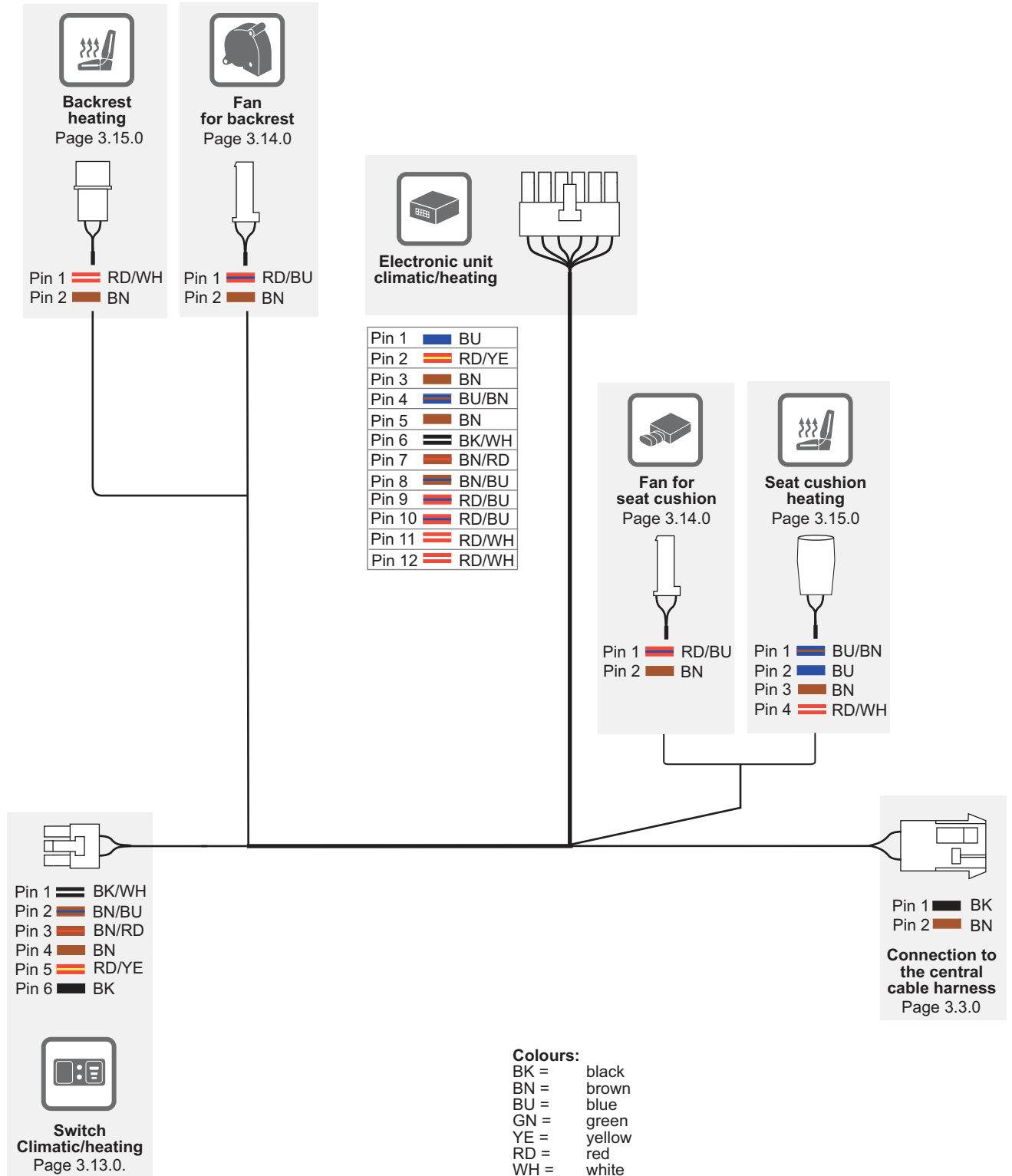
Current drain

compressor: max. 12A

Potential

Seat cushion and backrest are connected with the electrical ground of the vehicle.





Function of electronic unit

When the driver starts the readjustment of the seat height, the electronic unit (1) measures the seat height by using of the rotary sensor (2) and compares it with the adjusted height on the rotary switch (3).

Actual value < Desired value

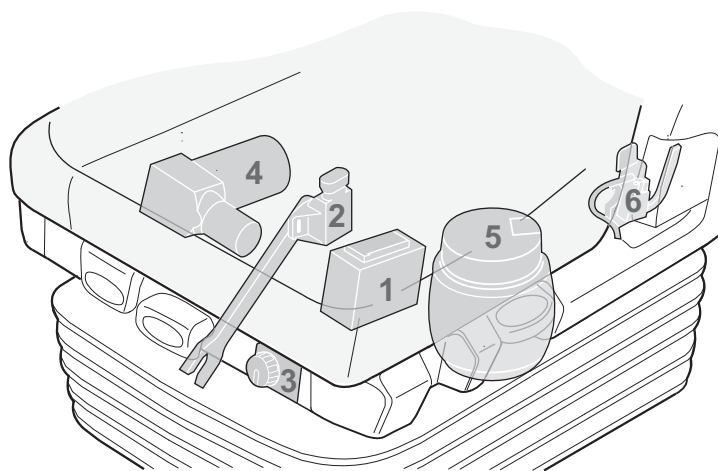
The seat is positioned too low.
 The compressor (4) starts to blowing air in the airspring till the desired height is reached.

Actual value = Desired value

The seat is on the desired height (no action).

Actual value > Desired value

The seat is positioned too high.
 The magnetic valve (6) will be activated and the air spring (5) deflates till the desired height is reached.



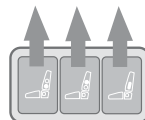
Readjustment of seat height

The automatic readjustment of the seat height starts by one of the following actions:

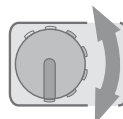
a) Switch on ignition



b) Push LS button above (inflating)



c) Use of rotary switch (3)



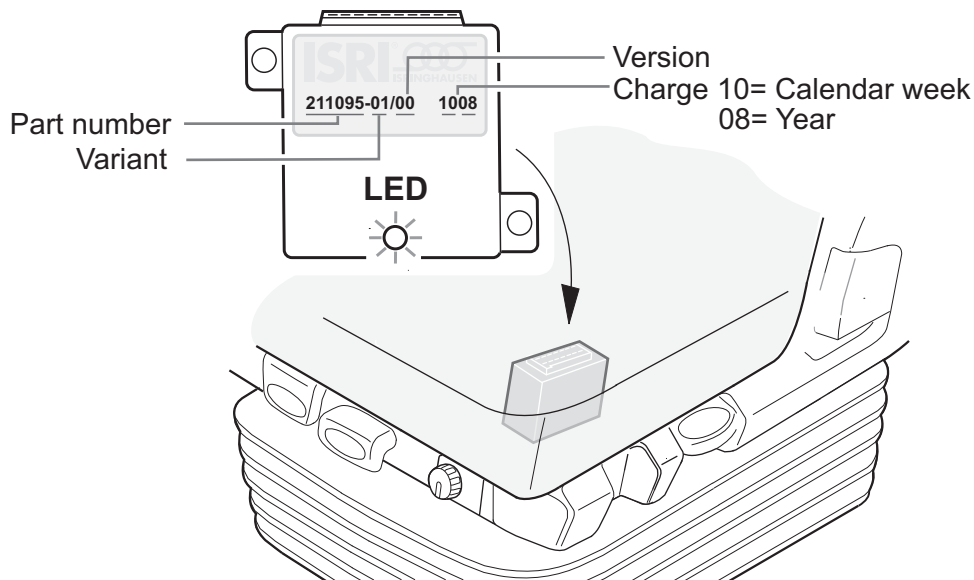
d) Seat contact switch



The seat is not occupied for more than 5 sec. and the driver sits down. The automatic readjustment don't release when lifting up from the seat cushion for a short time.

Flashcode display of electronic unit

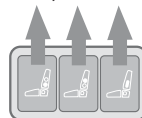
The electronic unit includes a LED which indicates a function or an error code.



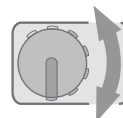
Flash code display

With the following actions the LED of the electronic unit flashes for 0,5 seconds:

a) Push LS button above (inflating)



b) Use of rotary switch for height adjustment



c) Changing the seat occupancy (seat contact switch)



Error code

When the LED of the electronic unit is flashing repeatedly, an electronic error will be indicated.

Flash interval: LED **on** 0,5 sec.

LED **off** 0,5 sec.

After 16 sec. the error code will be repeated.

Overview error codes (electronic unit)

BC 1	Reserved		1 x flashing
BC 2	Fault electronic unit		2 x flashing
BC 3	Fault compressor		3 x flashing
BC 4	Fault rotary sensor		4 x flashing
BC 5	Fault magnetic valve		5 x flashing
BC 6	Fault supply voltage		6 x flashing
BC 7	Fault power-on time		7 x flashing

BC 2 Fault electronic unit

Meaning: Internal error electronic unit.

Correction: If the error code recurs after repeated off/on switching of the ignition the electronic unit must be exchanged.

BC 3 Fault compressor

Meaning: The compressor has a short-circuit or an external voltage is connected.

Correction: Check compressor/ cable harness.

BC 4 Fault rotary sensor (since ECU Version 211095/01)

Meaning: Signal of height is not in the valid range.

Correction: Check rotation sensor/ cable harness.

BC 5 Fault magnetic valve

Meaning: The valve has a short-circuit or an external voltage is connected.

Correction: Check magnetic valve/ cable harness.

BC 6 Fault supply voltage

Meaning: The power supply decreases under 10V (compressor and valve are out of action).

Correction: Check supply line to the seat and the power supply in the vehicle.

BC 7 Fault power-on time

Meaning: Power-on time of the compressor more than 60 sec..

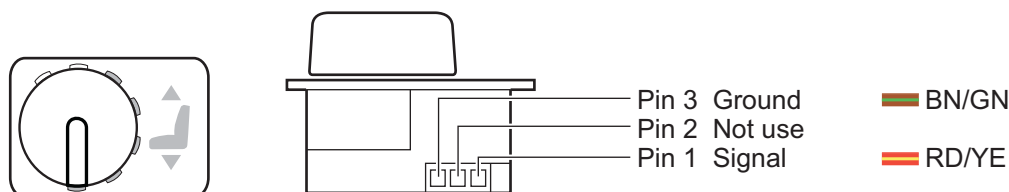
Correction: Repair the leakage in the pneumatic system.
20 min. have to be waited to restart the compressor or switch off/ on the ignition (take care: risk of overheating ).

Function:

The rotary switch of height adjustment preselect the desired seat height.

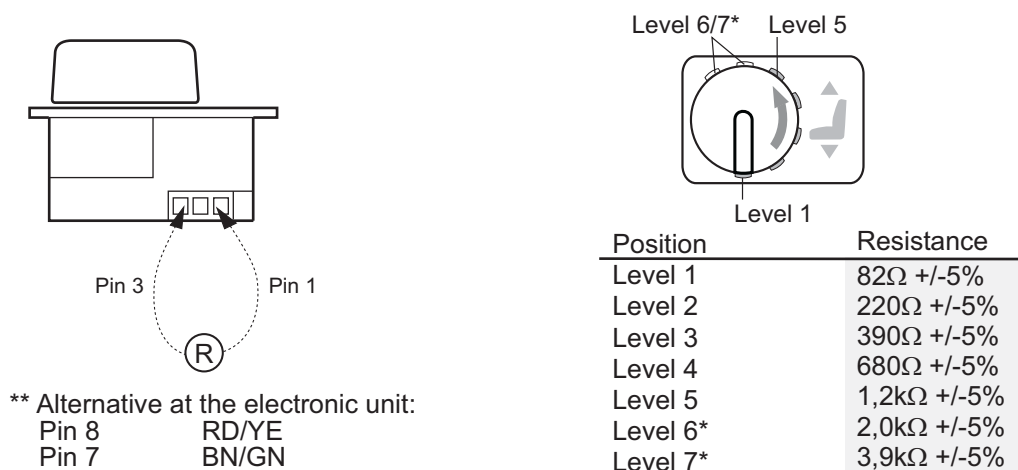
Level 1 corresponds the lowestmost and level 5 respectively level 7 the topmost position.

Electric connection



Checking resistor

Disconnect the plug of rotary switch and measure the resistances at the rotary switch or disconnect the plug of electronic unit and measure the resistances at the cable harness**.

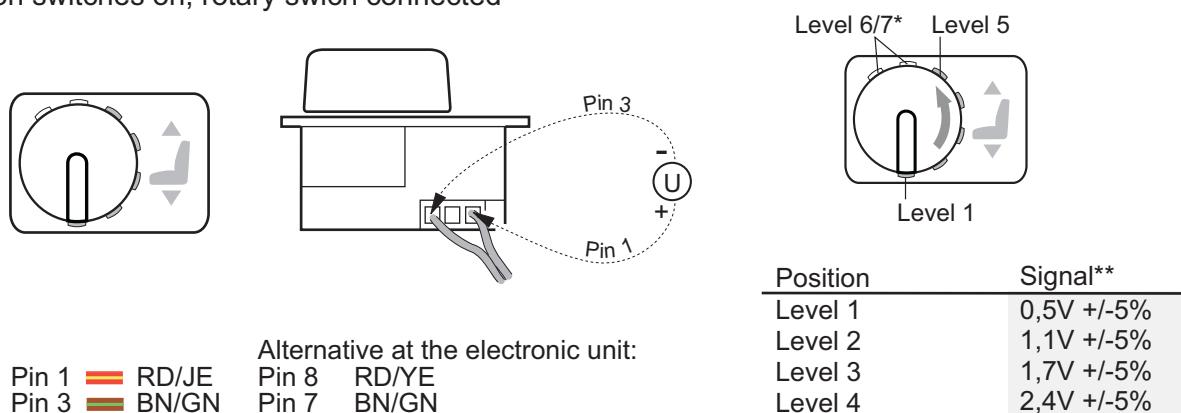


** Alternative at the electronic unit:
Pin 8 RD/YE
Pin 7 BN/GN

* option, only switches with 7 steps

Checking signal voltage

Ignition switches on, rotary switch connected



Pin 1 RD/YE
Pin 3 BN/GN

Alternative at the electronic unit:
Pin 8 RD/YE
Pin 7 BN/GN

Emergency operation:

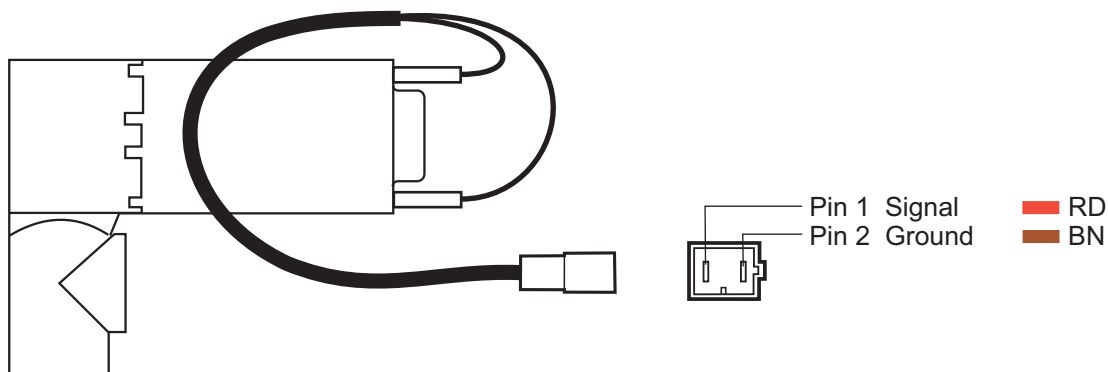
If the signal (**) of the rotary switch is outside the specified area, the electronic unit goes to **the switch position 4** (middle height).

* option, only switches with 7 steps

Function:

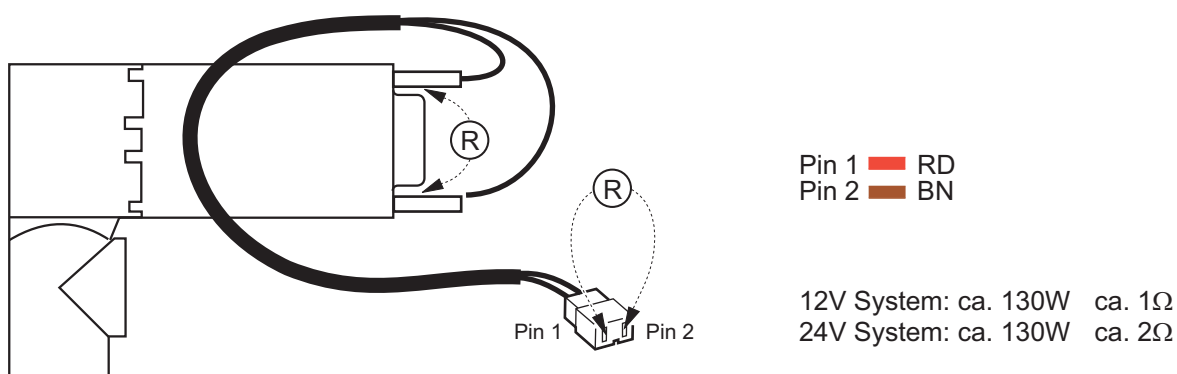
The compressor blows air in the air spring. The time till the seat height is reached varies and depends on the driver's weight.

Electric connection



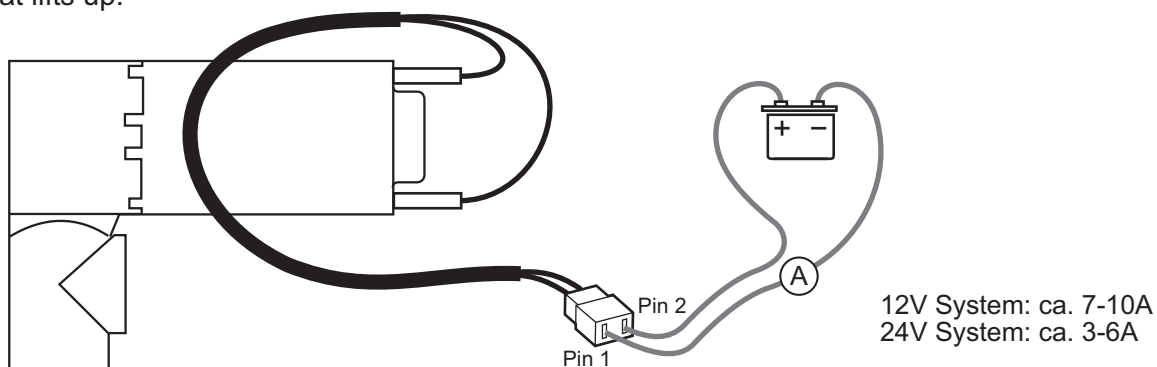
Checking resistor

Disconnect the plug of the compressor and measure the resistance.



Checking of pneumatical function

Disconnect the plug of the compressor and connect a battery with external voltage from 24V (respectively 12V for 12V systems) . The compressor blows air in the air spring. The seat lifts up.

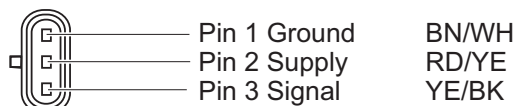
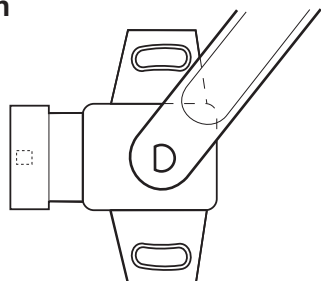


Function:

The seat height will be identified by the rotary sensor at the scissors of the seat.

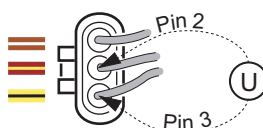
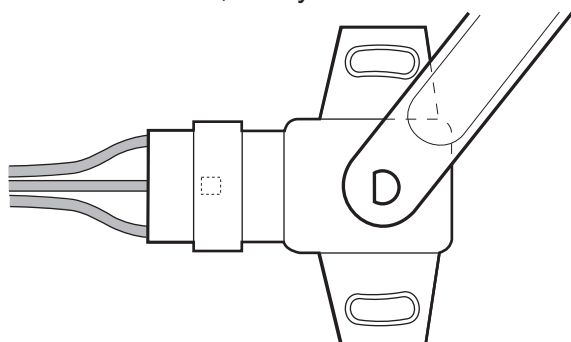
The rotary sensor need a 5V supply voltage from the electronic unit and release a voltage signal between 0,25V and 4,75V depending on the seat hight.

Electric connection



Checking supply voltage

Ignition switched on, rotary switch connected



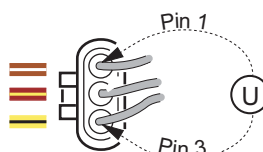
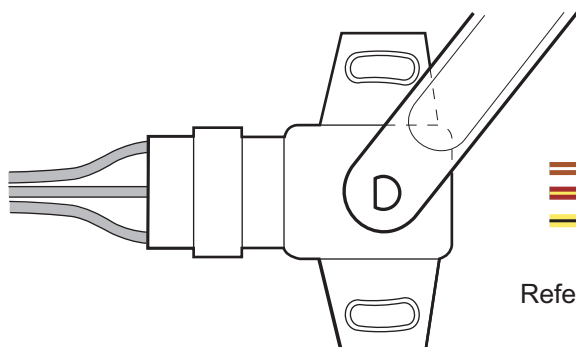
Reference: 5V+/-5%

Pin 2 RD/YE
Pin 3 YE/BK

Alternative at the electronic unit:
Pin 9 RD/YE
Pin 12 YE/BK

Checking signal (rotary sensor mounted)

Ignition switched on, rotation sensor connected

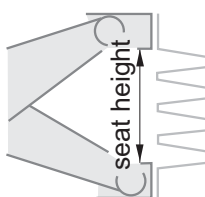
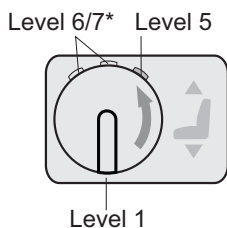


Reference: 0,25V to 4,75V

Pin 3 YE/BK
Pin 1 BN/WH

Alternative at the electronic unit:
Pin 12 YE/BK
Pin 6 BN/WH

Level rotary switch	Seat height	Signal
Buffer below	30 mm	0,70V +/-5%
Level 1	56 mm	1,35V +/-5%
Level 2	73 mm	1,73V +/-5%
Level 3	95 mm	2,12V +/-5%
Level 4	110 mm	2,50V +/-5%
Level 5	123 mm	2,90V +/-5%
Level 6*	138 mm	3,29V +/-5%
Level 7*	155 mm	3,71V +/-5%
Buffer at the top	160 mm	3,91V +/-5%

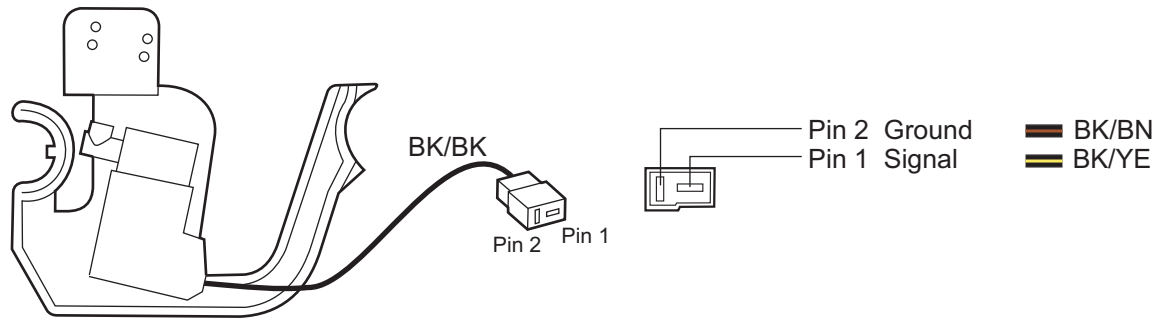


* option, only switches with 7 steps

Function:

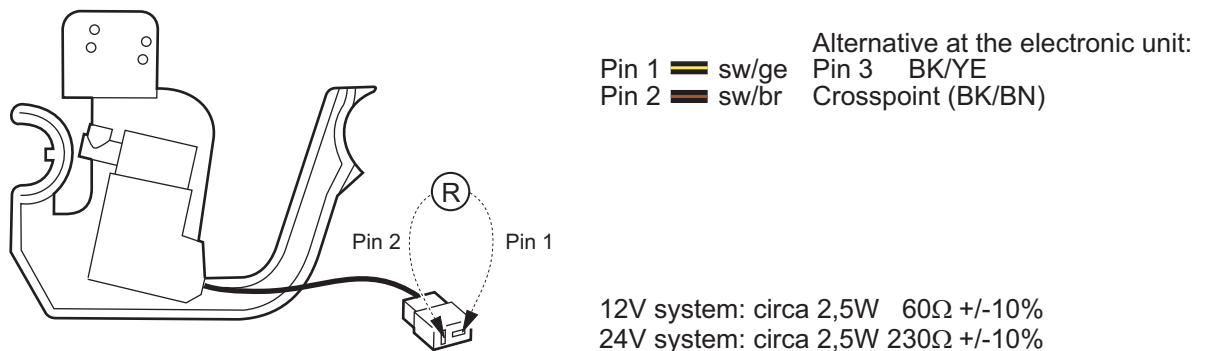
The magnetic valve releases air from the air spring till the desired height is reached.

Electric connection



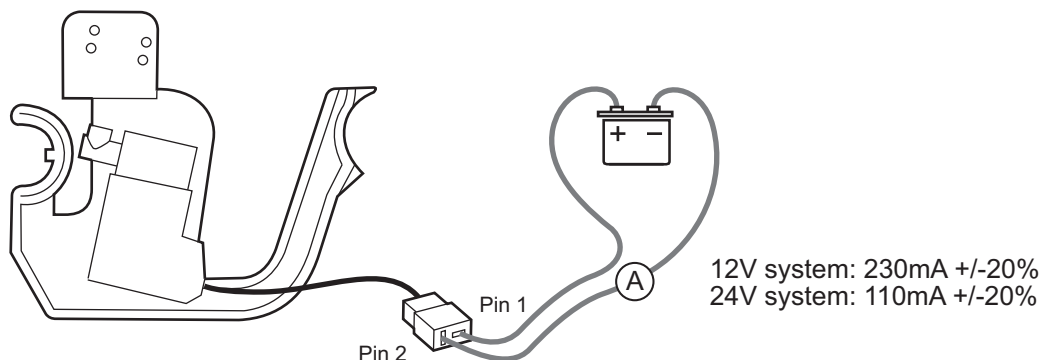
Checking resistor

Disconnect the plug of the magnetic valve or electronic unit and measure the resistance.



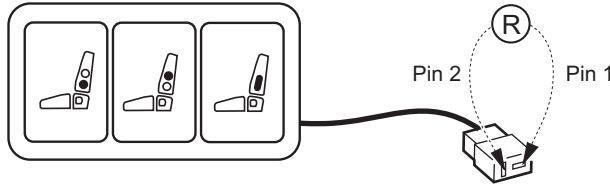
Checking pneumatical function

Disconnect the plug of the compressor and connect a battery with external voltage from 24V (respectively 12V for 12V systems). The valve opens and let release the air from the air spring. The seat lowers.



Checking resistance of LS valve

Disconnect the plug of the LS valve or the plug of the electronic unit at the cable harness and measures the resistance.



Pin 1 Signal ■ BU
Pin 2 Ground ■ BN

Alternative at the electronic unit:
Pin 11 BU Signal
Crosspoint BU Ground

LS valve pressed above (inflating): $R = 0\Omega$
LS valve not pressed: $R = \infty\Omega$
LS valve pressed below (deflating): $R = \infty\Omega$

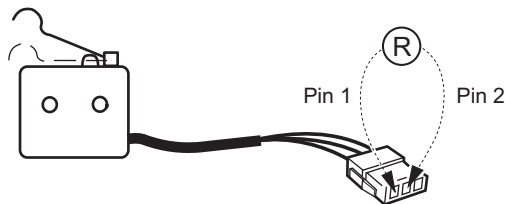
Checking resistance of seat contact switch (intern, extern)

Disconnect the plug of the seat contact switch or the plug of the electronic unit at the cable harness and measures the resistance.

Pin 1 ■ BK COM
Pin 2 ■ BU NO
Pin 3 ■ GY NC

Alternative at the electronic unit (intern):
Pin 14 BK Signal
Pin 13 BU Signal

Alternative at the under-carriage, Plug 2 (extern):
Pin 1 WH
Pin 2 GN

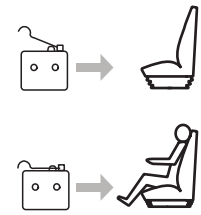


"Closer"

Pin 1-2

inactive / seat is not occupied

active / seat occupied



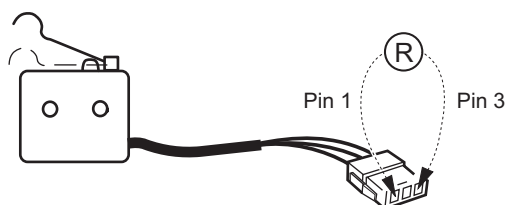
$R = \infty\Omega$

$R = 0\Omega$

Checking resistance of seat contact switch (intern, extern)

Disconnect the plug of the seat contact switch and measures the resistance.

Pin 1 ■ BK COM
Pin 2 ■ BU NO
Pin 3 ■ GY NC

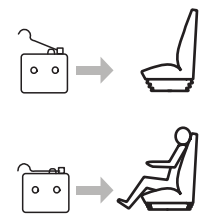


"opener"

Pin 1-3

inactive / seat is not occupied

active / seat occupied



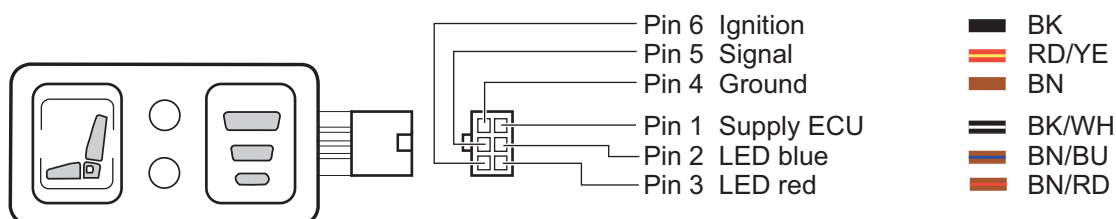
$R = 0\Omega$

$R = \infty\Omega$

Function:

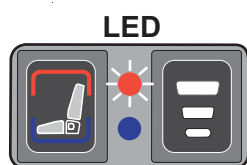
The seat heating or the climatic system can be switched on/off by pressing the front button.
With the rear button, the climatic and the seat heating can be adjusted in 3 levels.

Electrical connection



Flash code (switch climatic/ heating)

When the red light of the switch is flashing, one of the following error messages will be indicated:



Flash code interval:

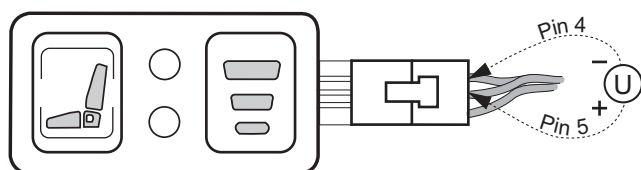
LED **On** 0,5 sec.
LED **Off** 0,5 sec.

The flash code repeats after a short break (circa 1-6 sec.).

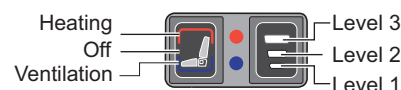
Flash code	Cause
1	Reserved
2	Fault control unit
3*	Fault fan
4	Fault heating backrest
5	Fault heating seat cushion
6	Fault temperature sensor NTC
7	Fault switch climatic/ heating

* Only short-circuit or interruption to both fans is indicated by the flash code.

Checking Signal (each with +/- 0,2 V)

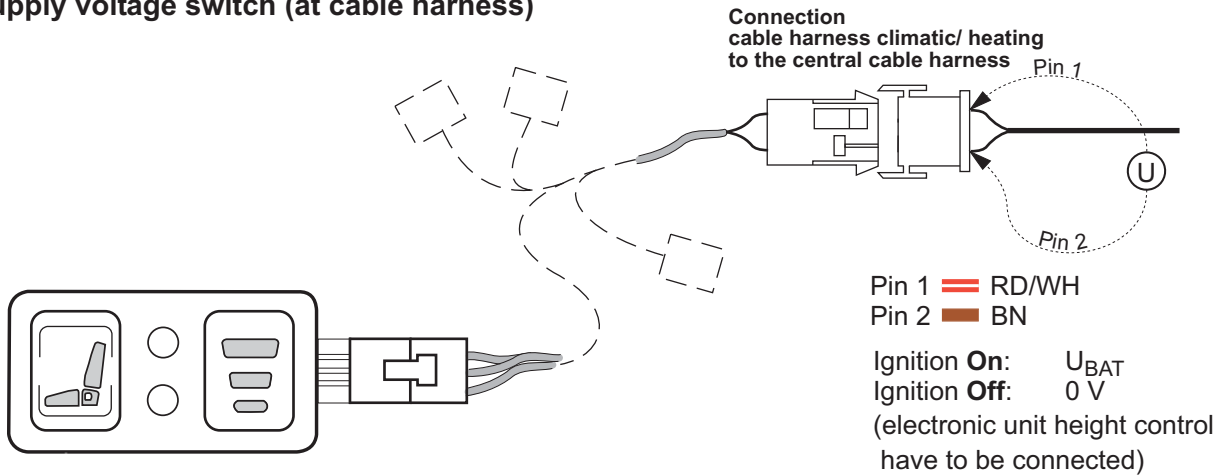


Pin 4 BN
Pin 5 RD/YE
Ground Signal

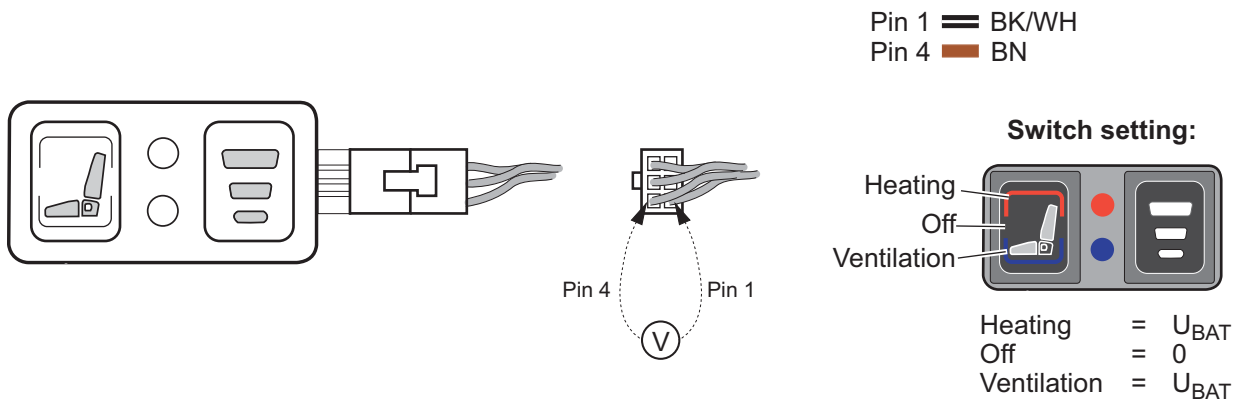


Off	0 V	LED
Heating level 3	2,0	red
Heating level 2	3,0 V	
Heating level 1	3,9 V	
Ventilation level 1	5,0 V	blue
Ventilation level 2	6,1 V	
Ventilation level 3	7,4 V	

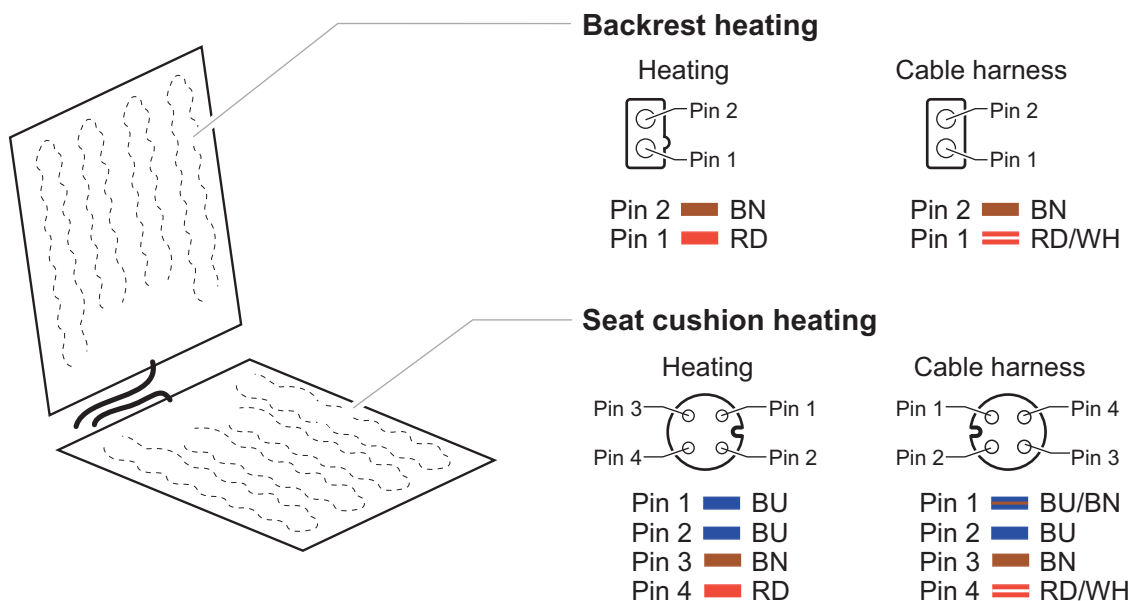
Supply voltage switch (at cable harness)



Supply voltage switch (climatic/ heating)



Electric connection Seat cushion/ backrest heating



Checking seat cushion heating (climatic)

1 Checking NTC

17.1 - 17.2

 $T = 25^{\circ}\text{C}$ $R_{\text{NTC}} = 8\text{k}$
 $T > 25^{\circ}\text{C}$ $R_{\text{NTC}} = \text{decreases}$
 $T < 25^{\circ}\text{C}$ $R_{\text{NTC}} = \text{increases}$

2 Checking seat cushion heating

17.3 - 17.4

 $R = 19,2\Omega \pm 10\%$

3 Supply heating (connected)

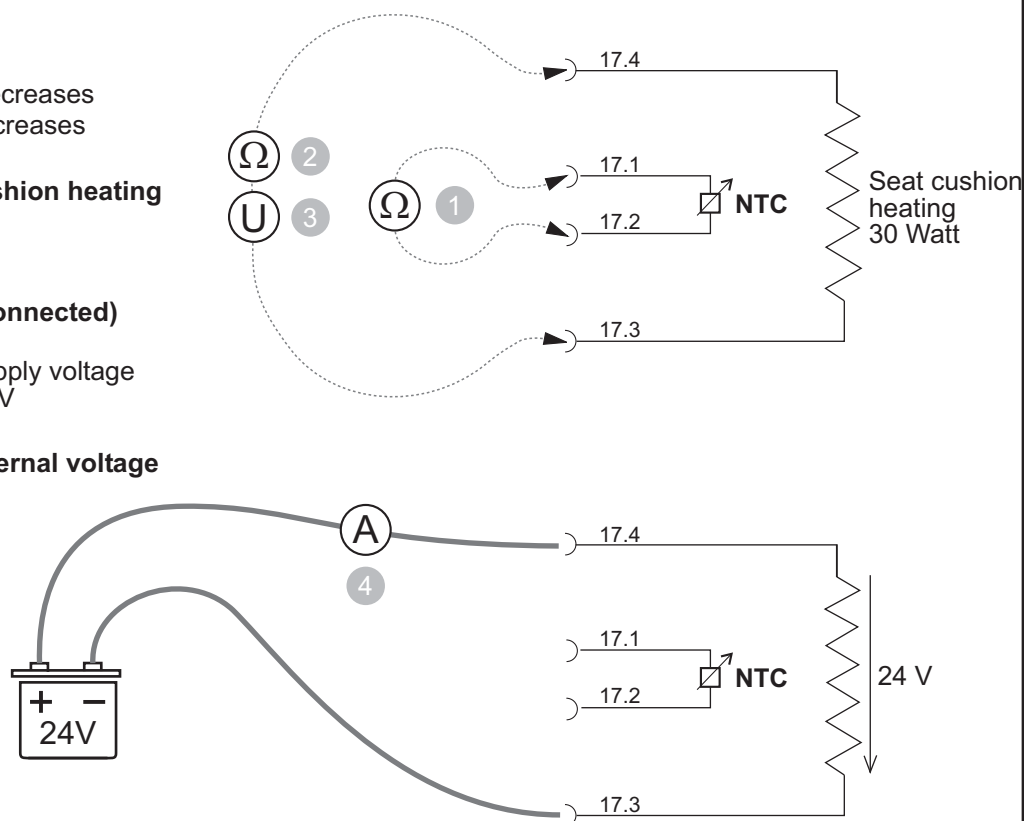
17.3 - 17.4

heating on: Supply voltage

heating Aus : 0 V

4 Checking with external voltage

17.3 - 17.4

 $I \approx 1,2\text{A}$


Checking backrest heating (climatic)

5 Checking backrest heating

18.1 - 18.2

 $R = 19,2\Omega \pm 10\%$

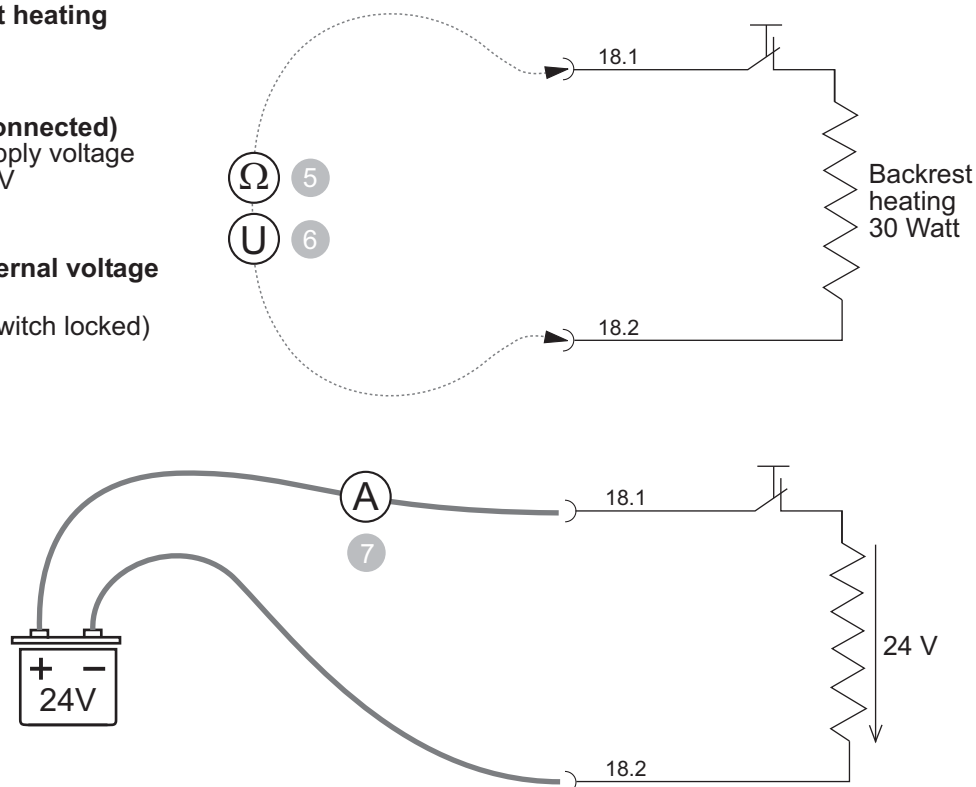
6 Supply heating (connected)

heating on: Supply voltage

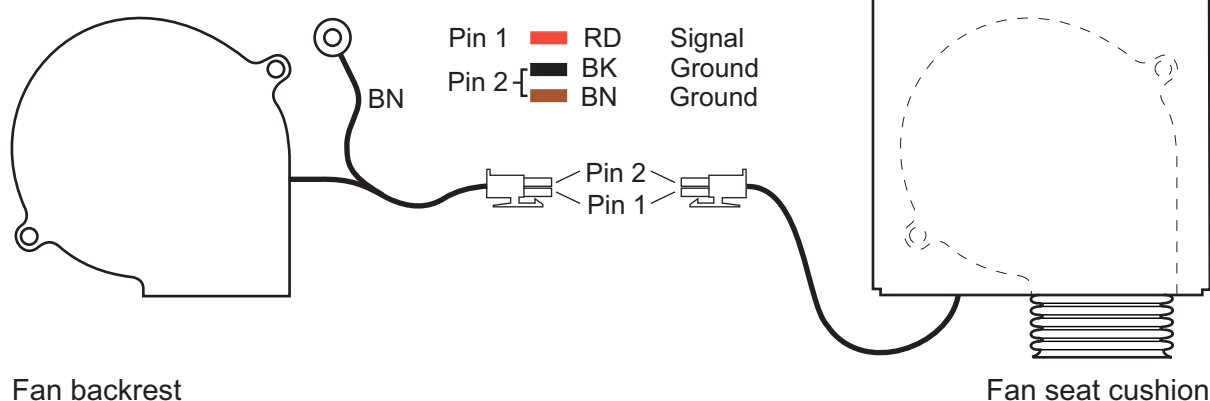
heating Aus : 0 V

7 Checking with external voltage

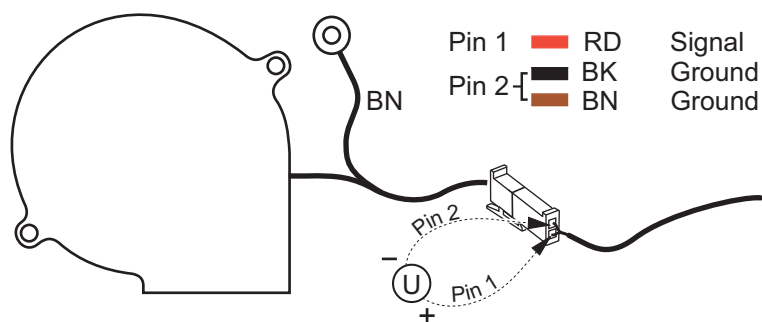
18.1 - 18.2

 $I \approx 1,2\text{A}$ (Thermo switch locked)


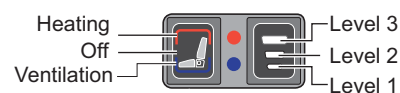
Electric connection



Checking supply fans backrest/ seat cushion

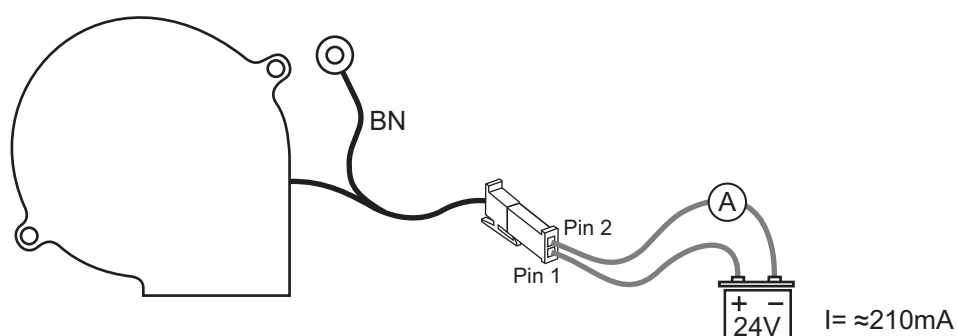


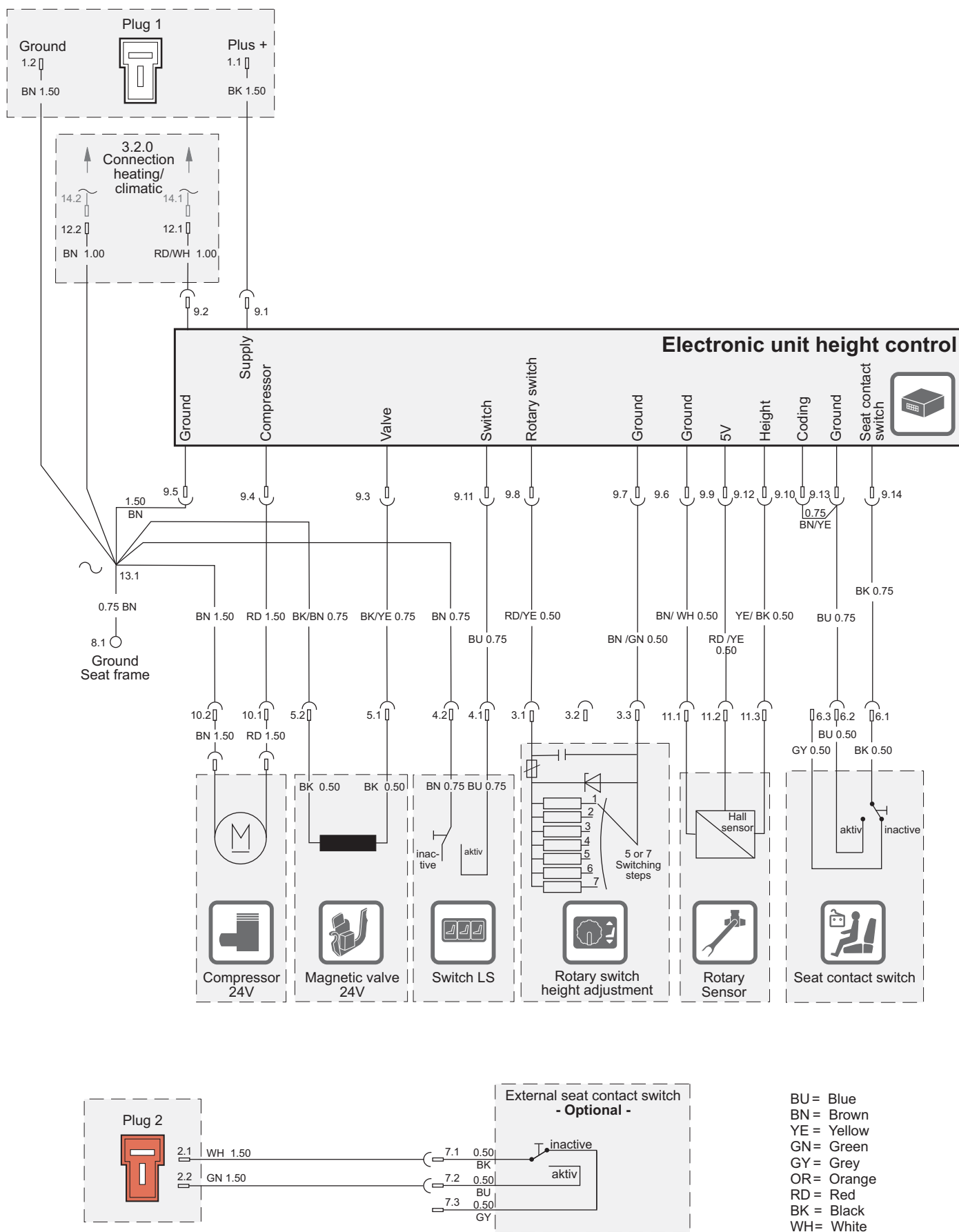
Alternative at the electronic unit climatic/ heating:
Pin 9/ 10 RD/BU
Pin 3 BN



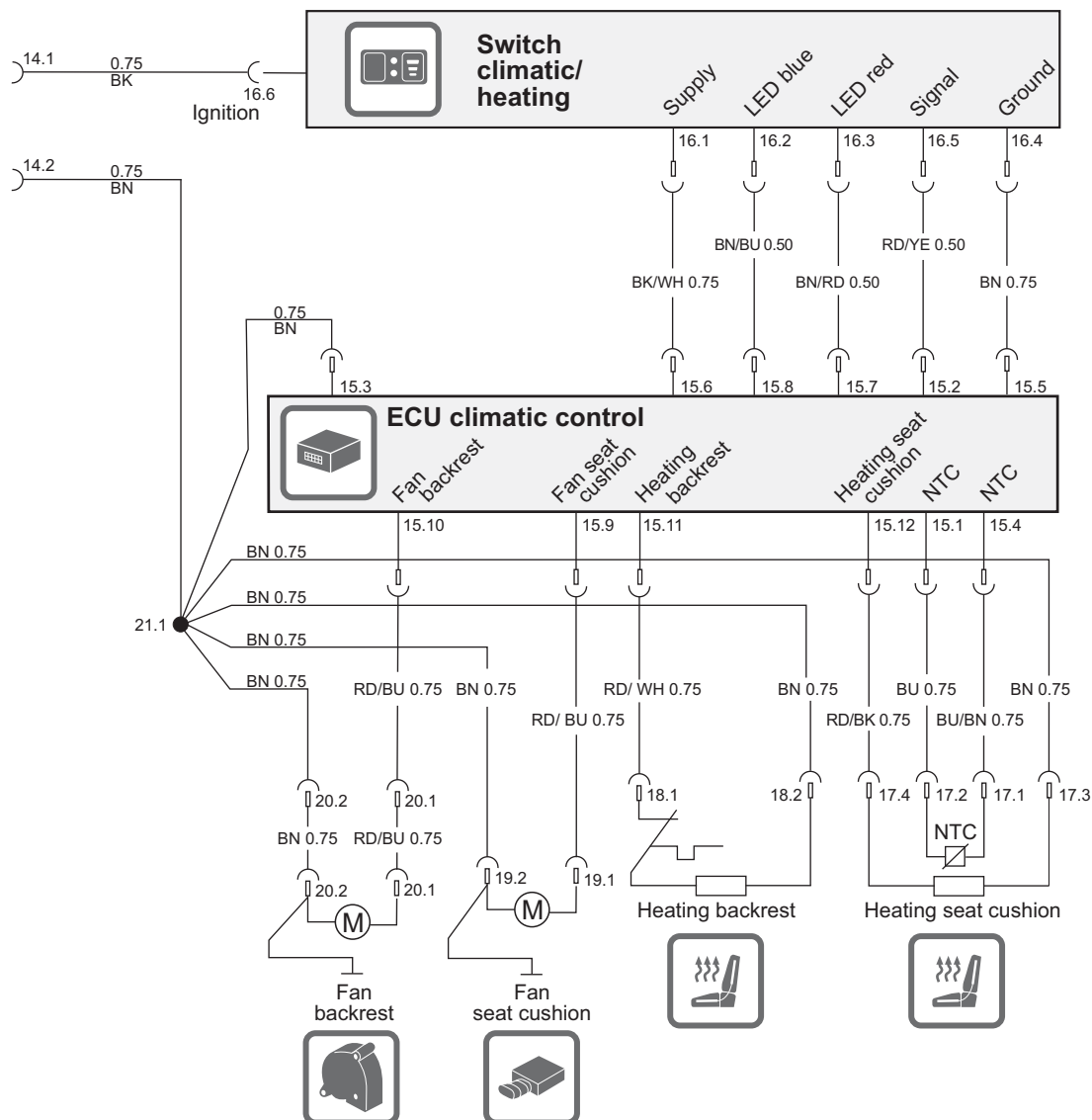
$U_{BAT} > 26\text{ V}$	Voltage fan	
Off	0 V	LED
Heating level 3	0 V	red
Heating level 2	0 V	
Heating level 1	0 V	
Ventilation level 1	ca. 10,5 V	blue
Ventilation level 2	ca. 16 V	
Ventilation level 3	ca. 24 V	

Checking supply fans backrest/ seat cushion with external voltage

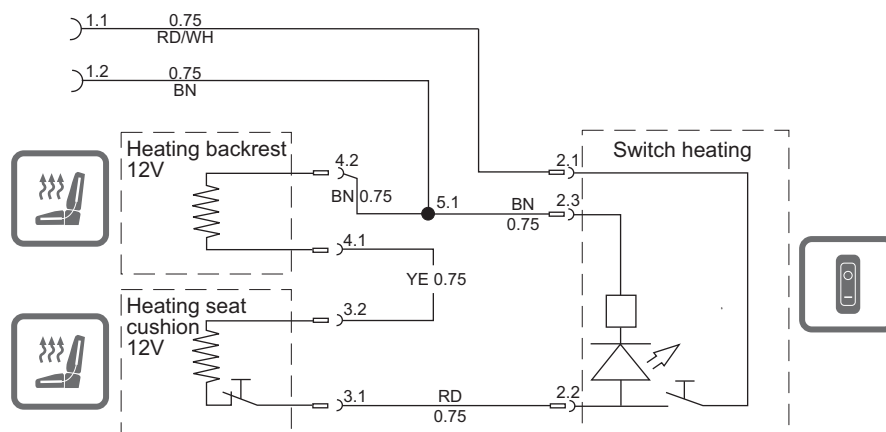




Version climatic/ heating



Version heating without climatic



The seat doesn't stay on its height

When the seat is loosing air, the seat height abates after a while. The electronic unit **doesn't readjust automatically**.

Only when the driver starts an action (see page 3.5.0), the height control will be activated and the seat moves to the desired height, which the driver adjusts by the rotary switch.

The seat doesn't adjust to the desired height

The compressor tries to achieve the target height during 60 sec. After that, the compressor switches off to avoid overheating.

The height control can be activated by the driver after 20 min., or when the driver has switched the ignition off/ on.

Lumbar support button changes the seat

If the driver uses the LS button "inflate (pressed above)", air blows from the air spring to the air chamber in the backrest. After repeatedly using, the seat height can decrease.

Therefore the seat height will be readjusted, when the LS button "inflate" is pressed.

The seat doesn't adjust to the driver's weight

The seat doesn't adjust to the driver's weight, but to the seat height.

A light weighty driver reaches the desired target faster than a heavy weighty driver.

The desired seat height can be preselected in different levels by the rotary switch for height adjustment.

Driver stands up and sits down but the seat will not readjusted

During drive operation bumps can cause a lift-off for the driver from the seat and that seat contact switch is not able to identify the driver for a short time.

These changings shall not start the height control. The contact switch only responds when the seat is not occupied for 5 sec. at least.

The seat height will be readjusted by sitting down again.

Driver stand up for more than 5 seconds but the seat doesn't readjust

The signal of the single mounted seat contact switch will be required for an external using in the vehicle. The height control can be activated no longer by the seat contact switch.

When starting the compressor only a chattering is hearable

The cause is a high resistance supply to the seat, so that the voltage supply breaks down and the seat detects low voltage and switches off.

Then the voltage soars again and the compressor will be switched only by the electronic unit.

Unallocated passenger seat readjust the seat height after switching on the ignition

The seat height of the unoccupied passenger seat can be changed by leaks, vibrations and rubbings.

When the ignition will be switched off/on the height control activates again and the passenger seat is able to move.

The seat doesn't operate with power supply

The power supply unit has to release a controlled direct current (24V +/-3V min. 10A), to deliver a higher starting current in the electric torque of the compressor. Possibly buffering the supply voltage by 2x12V battery.

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