

ISRI 6860/875 NTS2



Subject to technical changes for reasons of further development.

Stand: 03/2017

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**WARNING**

**Before repair, read the warning notes in chapter 1.
Please read 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.
- Modifications to the seat are not allowed.
- 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.
- The electrical connection of the seat must be connected only on the ignition of the vehicle.
- The climatic system doesn't switch off automatically.

**NOTICES to the repair manual**

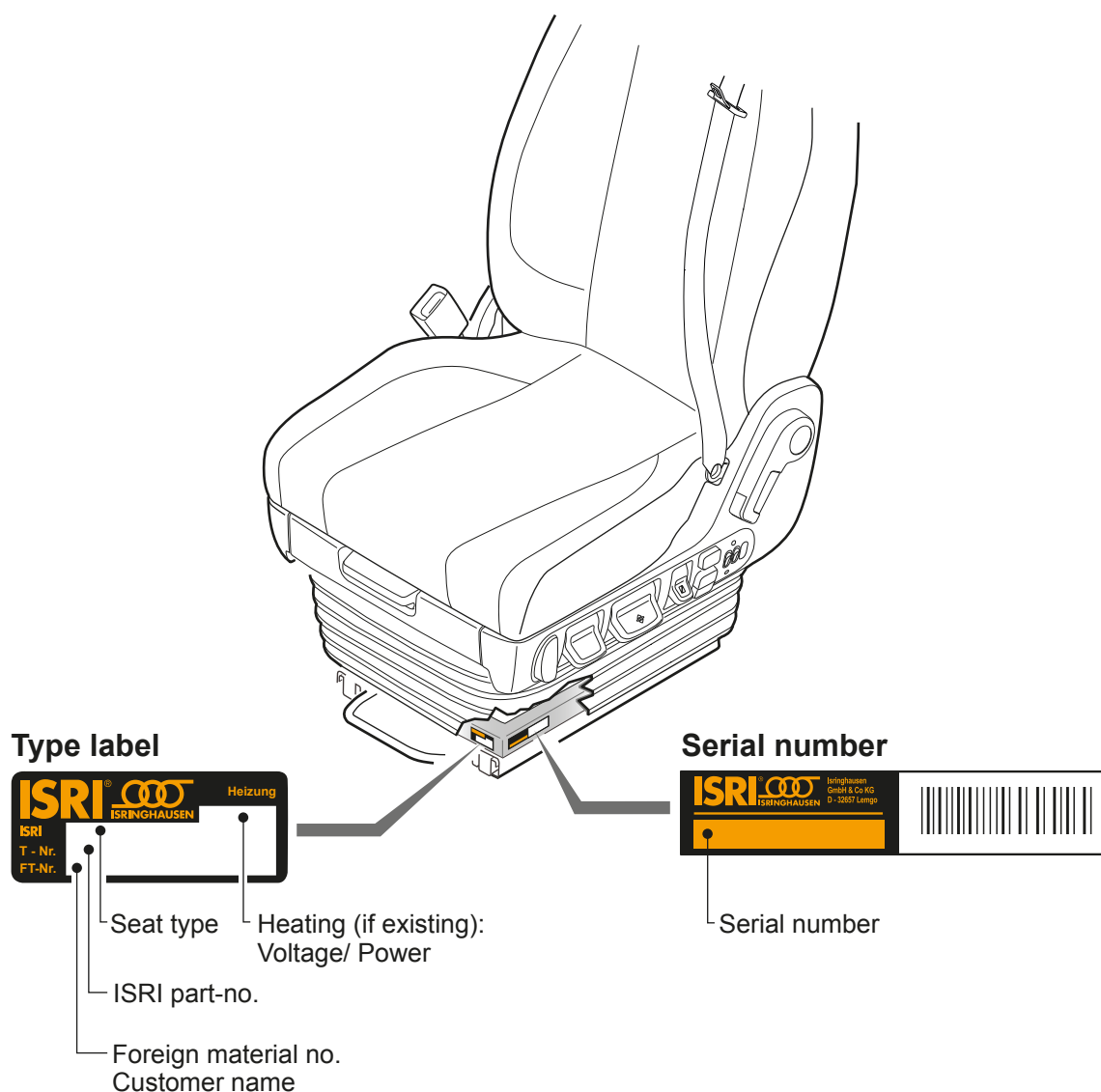
- The illustrations in this manual shows the seat with levers at left side.
For seats with levers at the right side, the repair will be carried out accordingly.
- The descriptions in chapter 2 explains the removal of sundry seat components.
The installation of these seat components generally happens in reverse sequence.
- Not all fastening parts for hoses and cables (e.g. cable binder) are mentioned in detail.
After repairs it is necessary to replace and fasten the cables and hoses with correct fasten- and fixation materials in their original position.
- Hoses, electrical lines and bowden cables must not be creased.
- Due to safety reasons, pay attention to the correct positioning and observe 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.
- Old fastening material must not be used.
- Use leak detection spray to find leaky hoses and pneumatic parts.



- 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.

**NOTICES for test run**

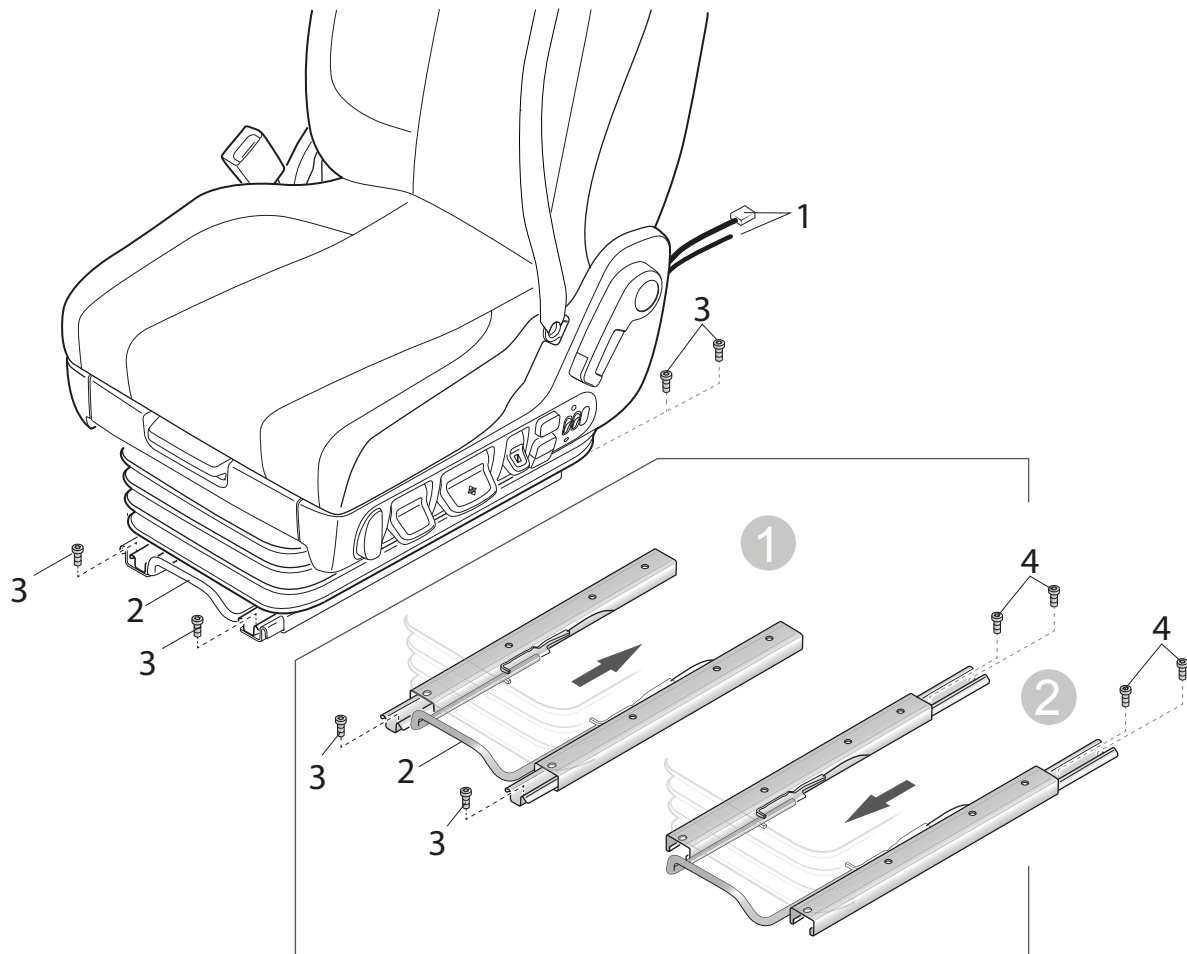
- Due to reasons of road safety, the seat must only be adjusted when the vehicle is stationary and the hand brake is pulled.
- A wrong adjusted seat risks your driving safety and health.
- Don't operate several control elements at the same time.
- Always use the seat belt when driving.



Serial number/Type label

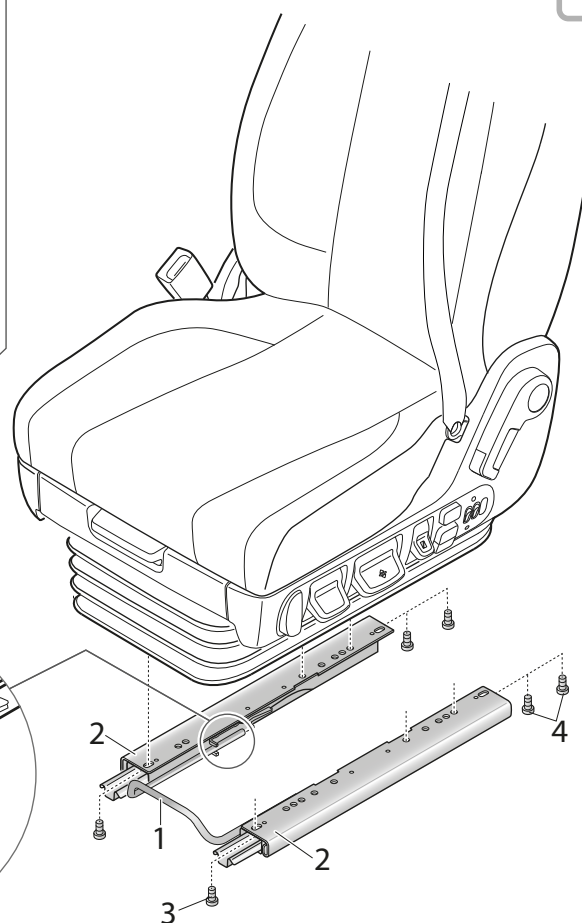
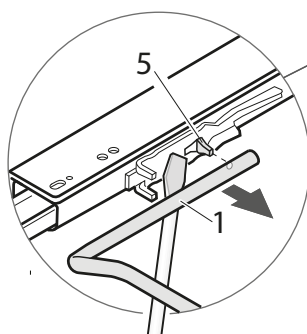
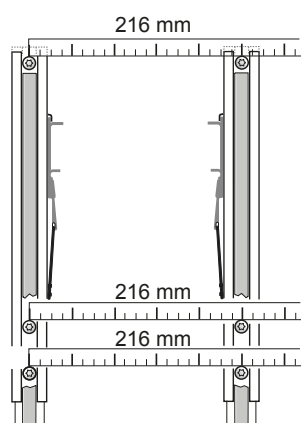
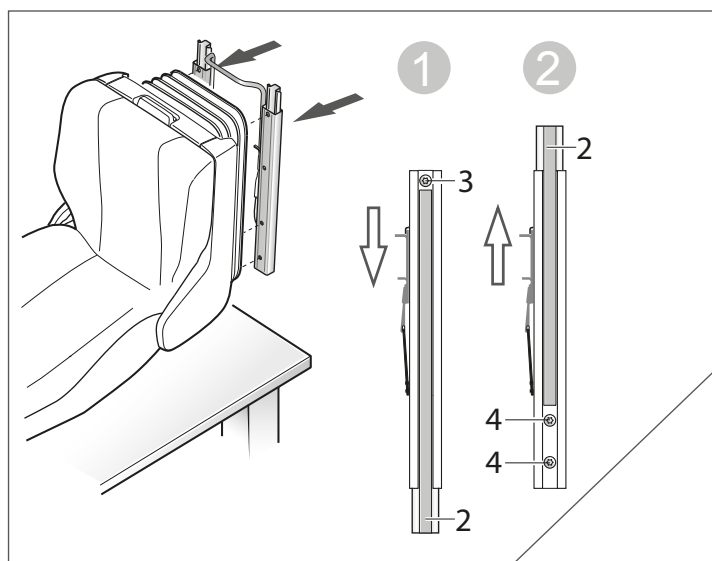
The exact seat type and the seat number can be identified by the serial number and the type label.

The serial number is located at the lower frame of the suspension unit and is visible when lifting up the bellows. Please specify when ordering spare parts.



Complete seat

- Disconnect air supply and electrical connection.
- Pull lever (2) and move seat in **rearmost** position.
- Unscrew one screw (3) on each slide.
- Pull lever (2) and move seat in **foremost** position.
- Unscrew two screws (4) on each slide.



Tightening torque:
Pos. 5,6 (T40) 22 ± 2 Nm

Horizontal adjustment/Lever for horizontal adj.

Horizontal adjustment

- Demount seat out of vehicle (2.1.0/page 9) and place seat with the backrest on a work bench.
- Pull lever (1) and move both slides (2) in **lowermost** position.
- Unscrew screw (3) at both slides.
- Pull lever (1) and move both slides (2) in **upmost** position.
- Unscrew two screws (4) at both slides.

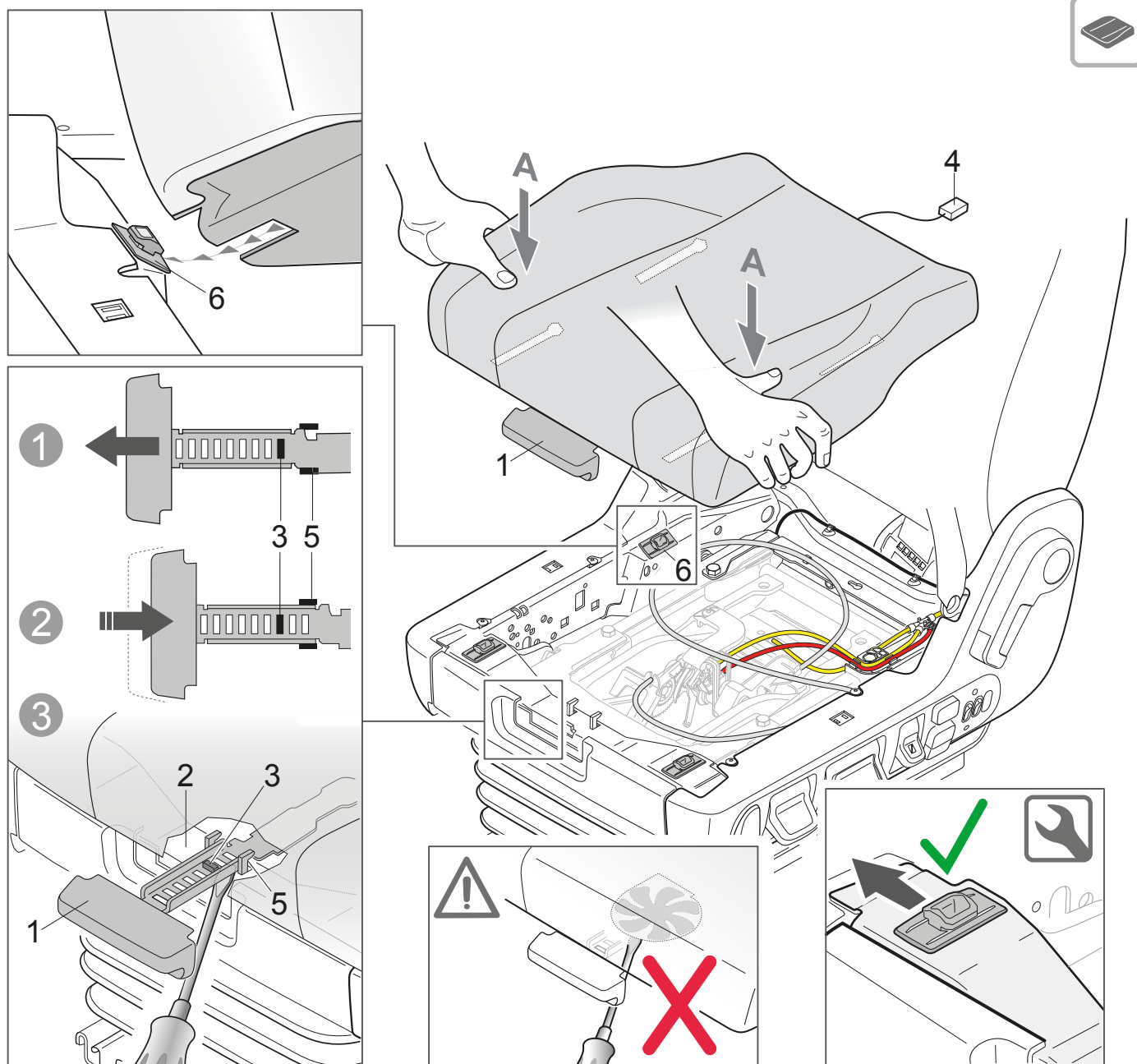


Instruction for installation

- At first fix all screws slightly (do not tighten the screws yet).
- Check the gauge exactness of 216 mm at all screwing points.
- Tighten all screws completely by a torque spanner.

Lever for Horizontaladjustment

- Demount seat out of vehicle (2.1.0/page 9) and place seat with the backrest on a work bench.
- Unhook lever (1) from hook (5) by a screwdriver at both slides.



Seat cushion

- Pull and hold lever (1).
- Move seat cushion in **foremost** position, than **two steps backwards** again. Now lever (1) is no longer engaged in stopper (5).
- Positioning a screwdriver between lever (1) and seat frame (2), lift lever (1) so far till lever is released from nose (3).
- To loosen the seat cushion, push seat cushion forwards by the left hand, furthermore lift up lever strongly by screwdriver.
- If necessary loosen electrical connection (4).

 For seats with climatic function: The screwdriver must not be placed too deep under the seat cushion area, because the fan of the seat cushion climatisation can be damaged.



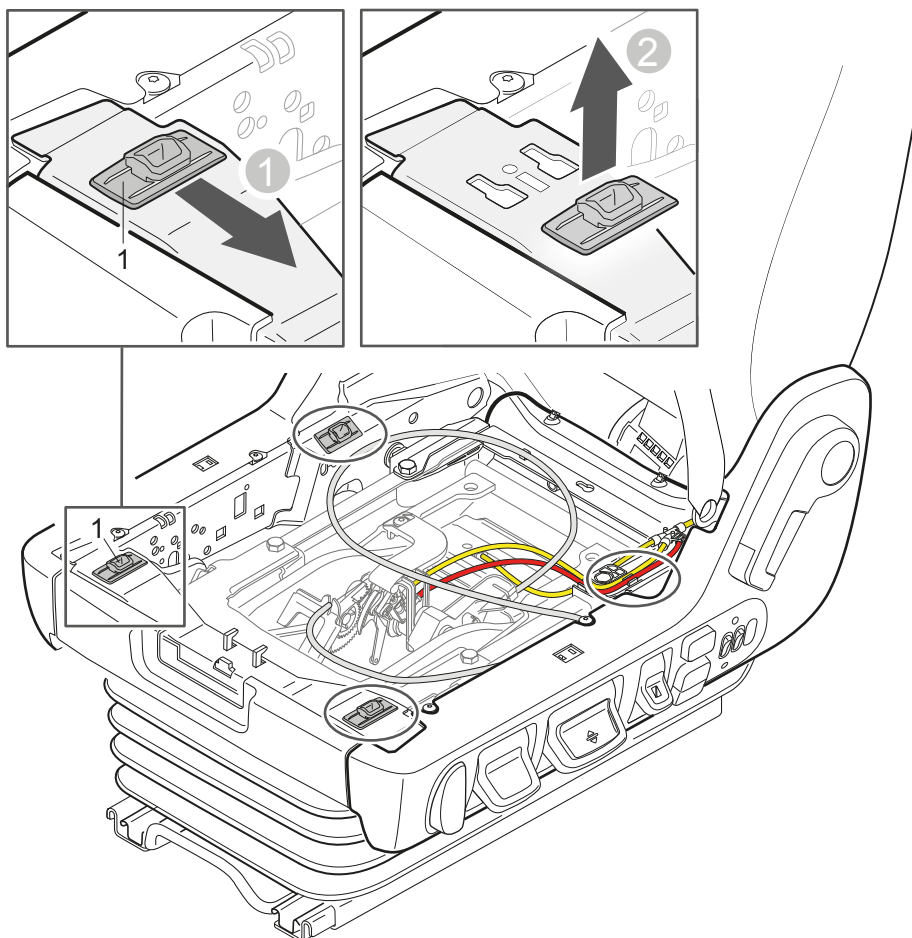
Instruction for installation

Before mounting the seat cushion, check if all four sliders (6) are positioned to the seat outside.

- If necessary connect electrical connection (4).
- At first guide the seat cushion to the both rearmost sliders (6).
- Push the seat cushion under strongly pressure (A) (to the foremost both sliders) in direction of backrest, till handle (1) is engaged.
- Check that **all four sliders** are engaged.
- Pull lever (1) and push seat cushion in rearmost position.

Advice for exchange seat cushion:

Lever (1) must be used from the old seat cushion (2.6.0/page 14).



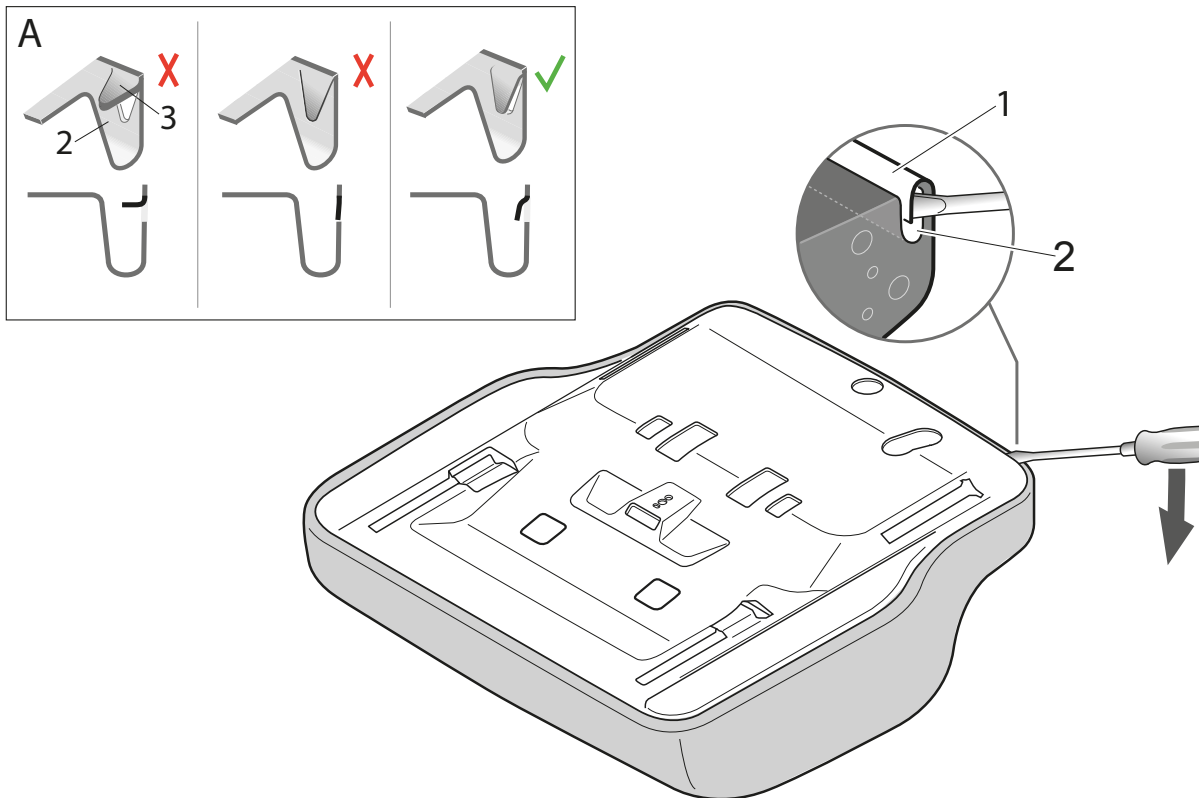
Sliders for seat cushion

- Remove seat cushion (2.3.0/page 11).
- Push slider (1) inwards and take it off.



Instruction for installation

Before mounting the seat cushion, each slider must be greased.



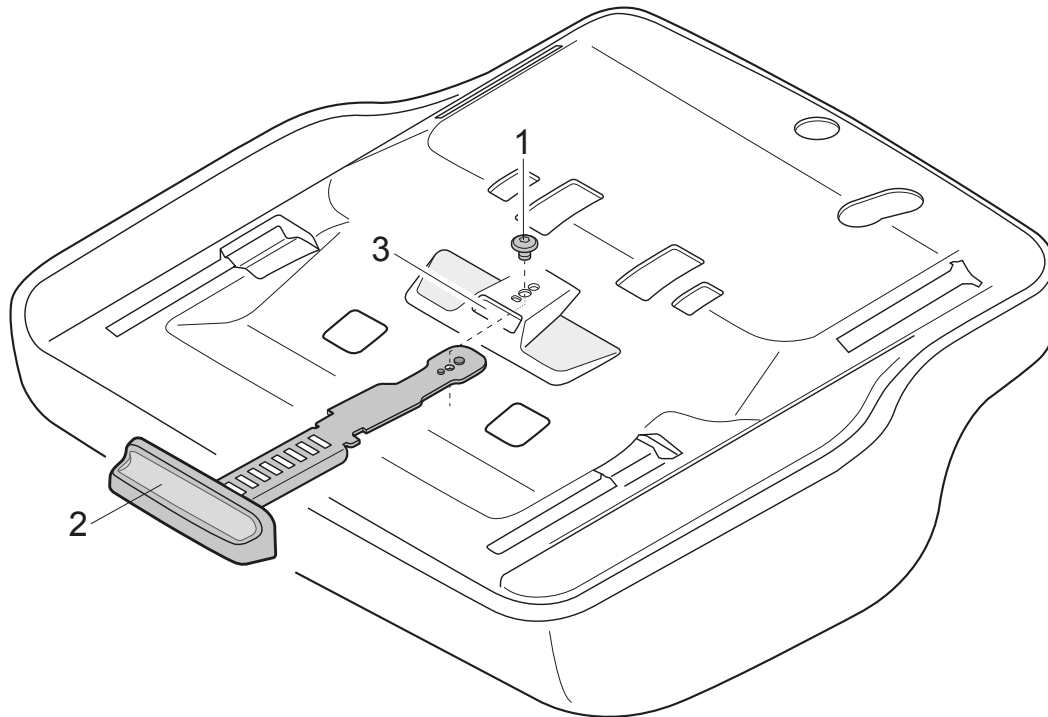
Cover for seat cushion

- Remove seat cushion (2.3.0/page 11).
- Remove lever for seat cushion (2.6.0/page 14).
- Lever cover for seat cushion (1) out of framed notch (2) of the seat plate by using a screwdriver.



Instruction for installation

Before mounting the cover for seat cushion, bend back the deformed hooks (3) in the framed notch (2) (detail A).

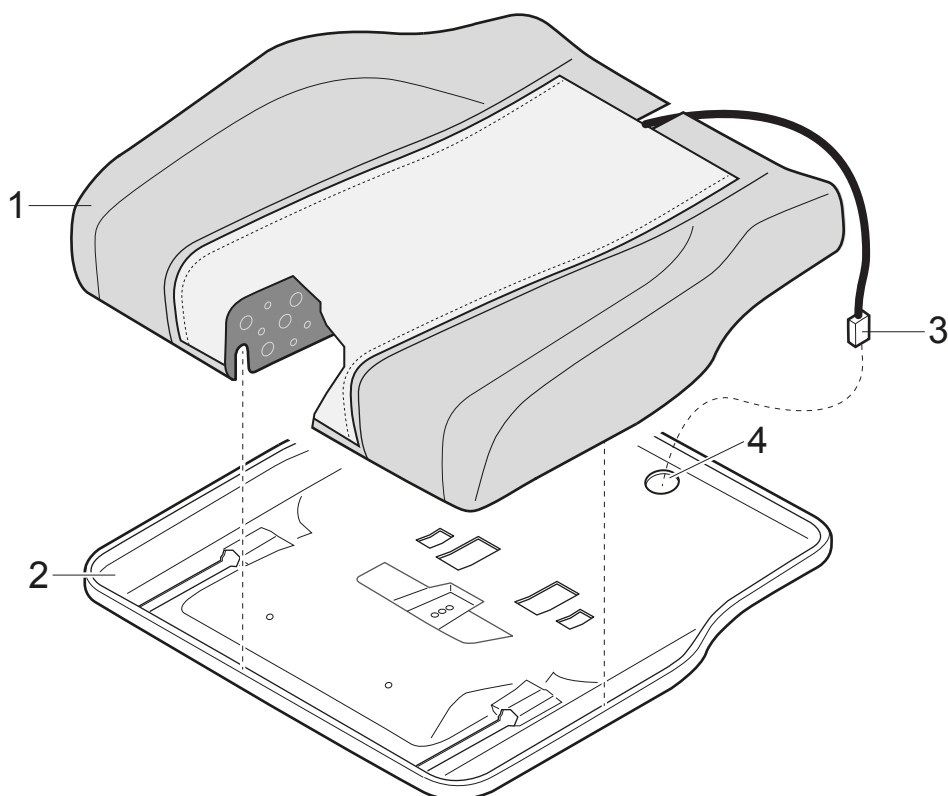


Lever for seat cushion



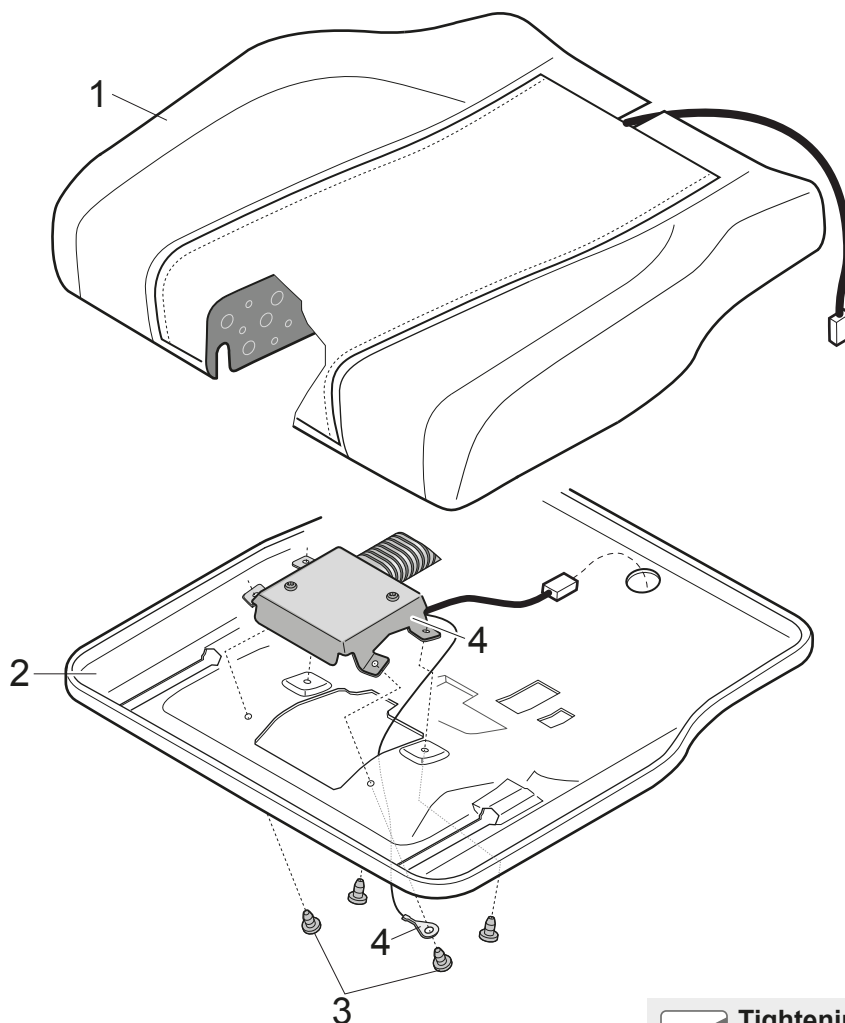
Tightening torque:
Pos. 1 (T30) 10 Nm

- Remove seat cushion (2.3.0/page 11).
- Turn and place seat cushion on the upholstery side.
- Unscrew screw (1) and pull lever (2) out of the opening (3) of the seat plate.



Seat foam/Seat heating

- Remove seat cushion (2.3.0/page 11).
- Demount lever for seat cushion (2.6.0/page 14).
- Remove cover for seat cushion ((2.5.0/page 13).
- Lift foam (1) from seat plate (2) and pull heating cable (3) out of the opening of seat plate (4).



Fan seat cushion

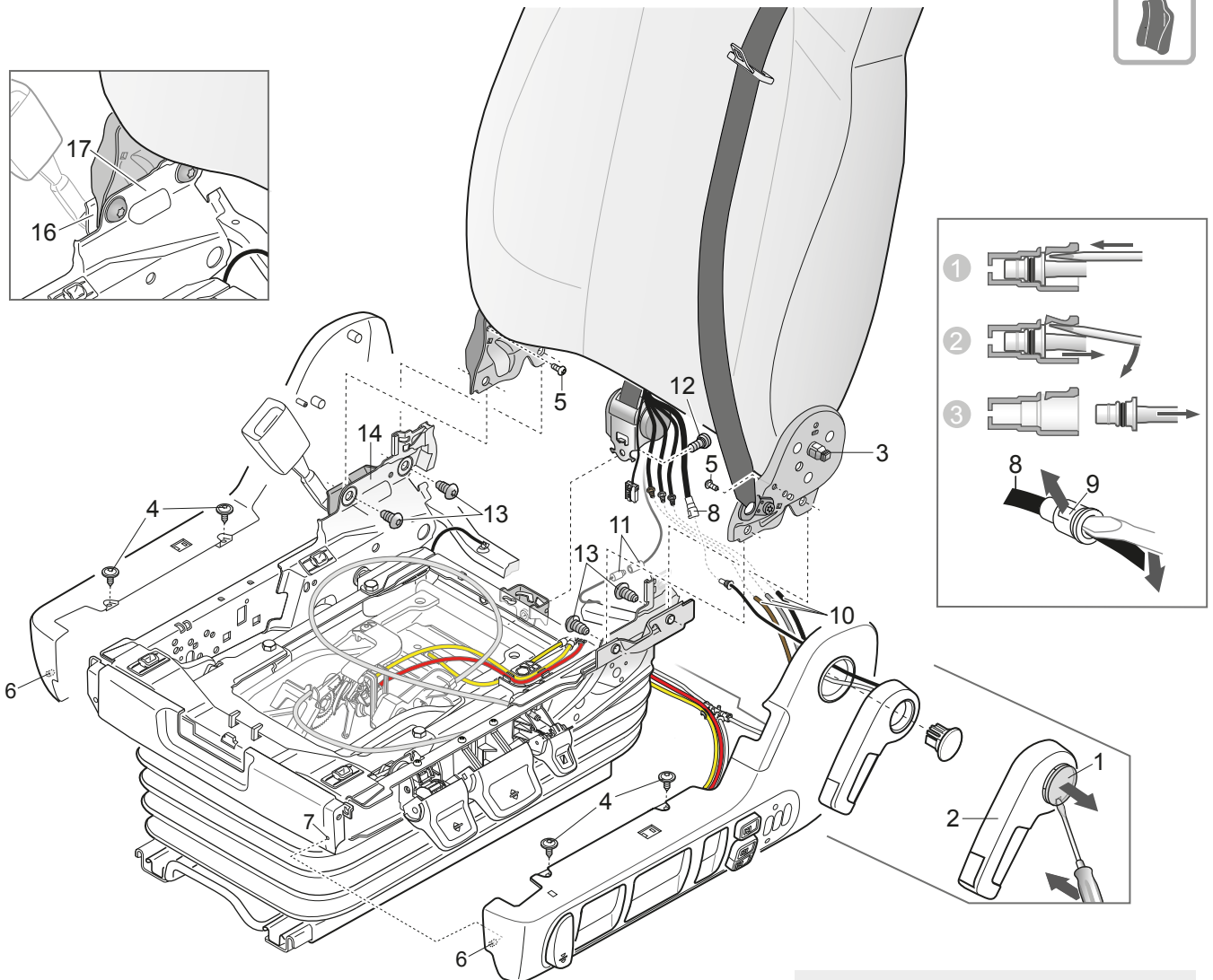
 **Tightening torque:**
 Pos. 3 (T25) $3,5 \pm 1 \text{ Nm}$

- Remove seat cushion (2.3.0/page 11).
- Demount lever for seat cushion (2.6.0/page 14).
- Remove cover for seat cushion (2.5.0/page 13).
- Lift foam (1) from seat plate (2).
- Unscrew four screws (3) and take off fan (4).



Instruction for installation

Fix ground cable (4) at the underside of seat cushion.



Backrest

- Remove seat cushion (2.3.0/page 11).
- Adjust backrest in the backmost position.
- Press out plug (1) of backrest handle (2). For this place a little screwdriver in the opening below of plug (1) and lever out plug.
- Pull backrest handle (2) from pin (3).
- Remove both side covers (2.16.0, 2.17/page 24, 25). Therefor unscrew two screws (4) and one screw (5), push pin (6) out of hole (7) of front cover and take off side cover.
- **Take off both side covers together with the mounted rear cover (U-form).**
Do not unhook the rear cover, because it can not be loosened without damaging rear- or side covers.
- Loosen hose (8) (for this lift locking hook (9) carefully).
- Loosen three hoses (10). To avoid a mixing-up, mark hoses with the hose colours grey and brown before.
- For version with microphone: Loosen connection (11).
- Remove screw (12) from belt retractor.
- Unscrew four screws (13) and lever backrest out of the seat frame (14).



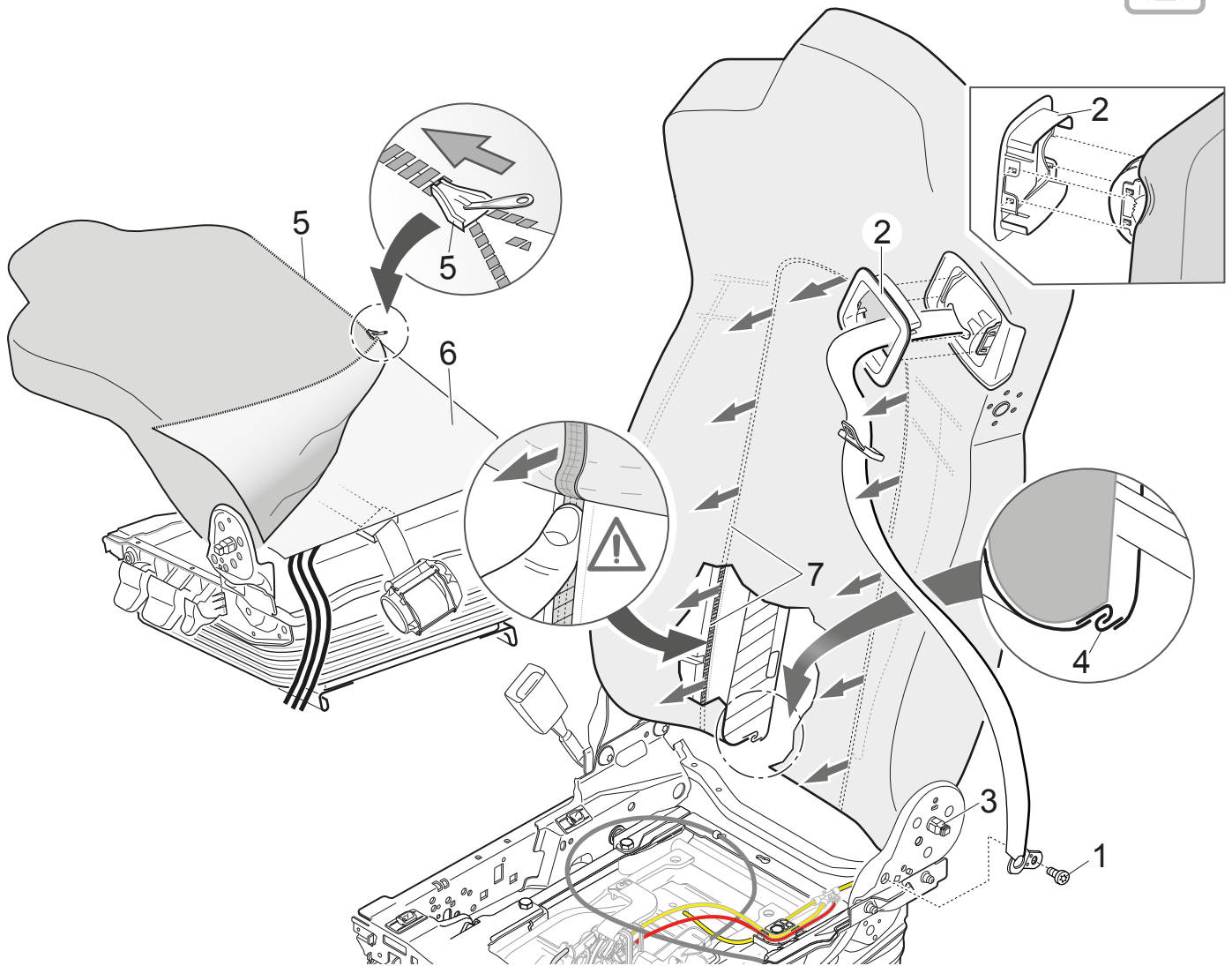
Tightening torque:

Pos. 4	(T20)	2,5 Nm
Pos. 5	(T20)	0,4 Nm
Pos. 12	(T45)	35+5 Nm
Pos. 13	(T45)	40±5 Nm



Instruction for installation

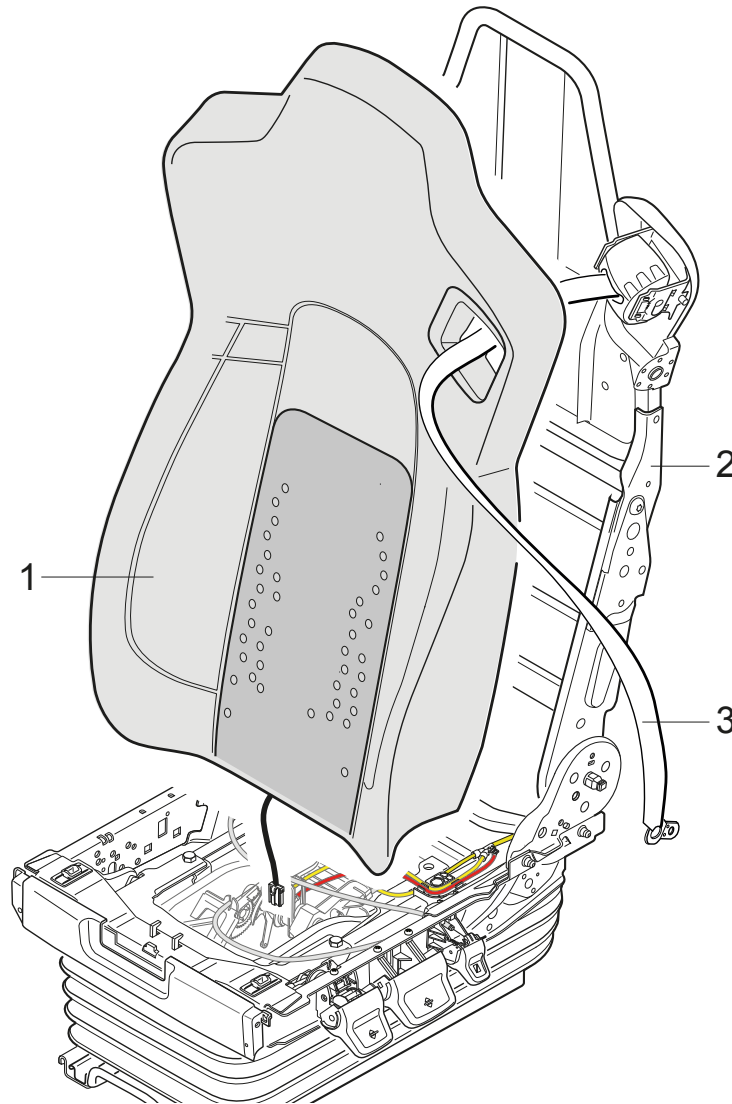
Insert backrest between the both side parts (16) and (17) of the seatframe.


Tightening torque:

Pos. 1 (T45) 35+5 Nm

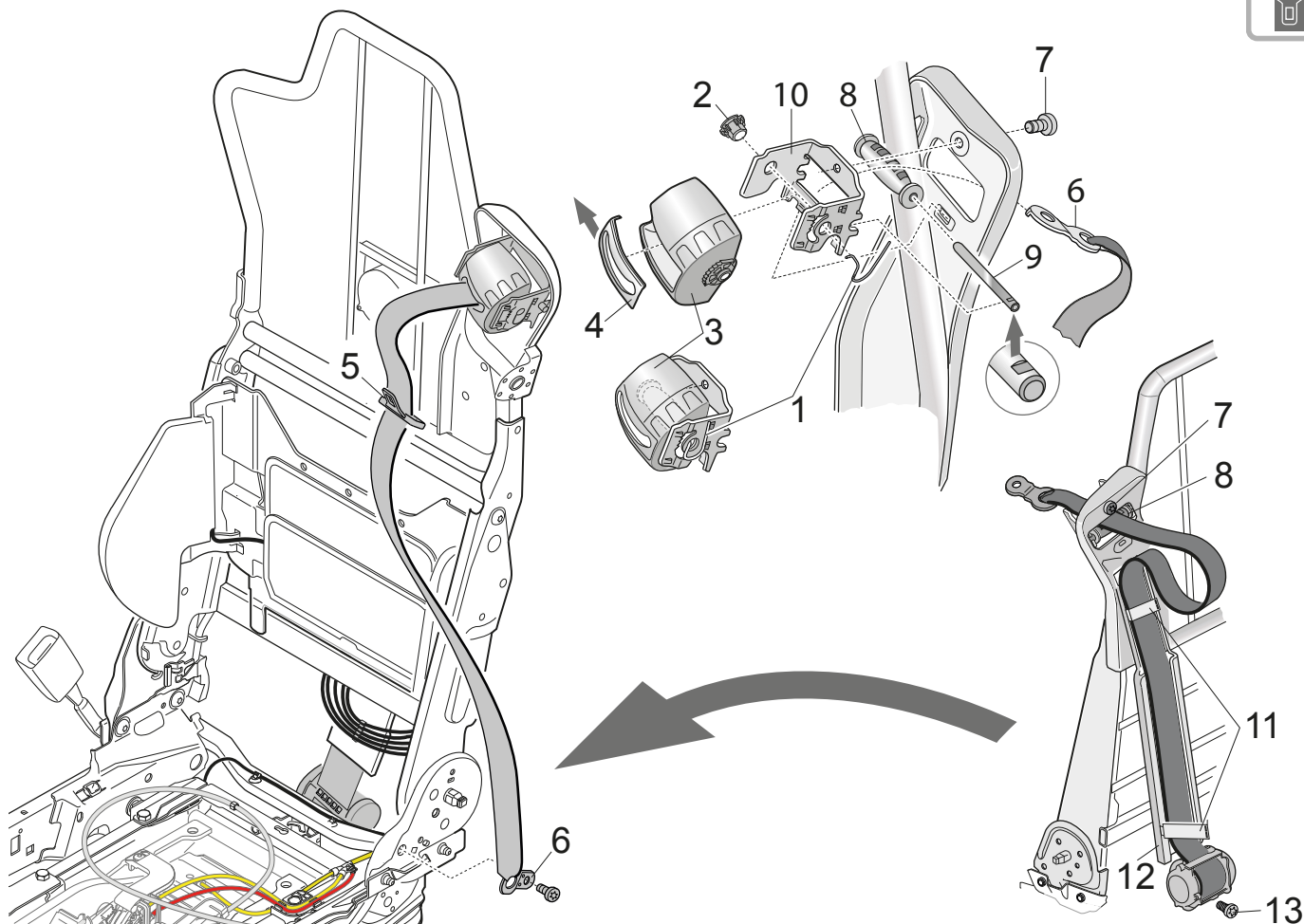
Backrest cover

- Remove seat cushion (2.3.0/page 11).
- Remove both side covers (2.16.0, 2.17/page 24, 25).
Take off both side covers together with the mounted rear cover (U-form).
Do not unhook the rear cover, because it can not be loosened without damaging rear- or side covers.
- If necessary remove armrest and microphone.
- Unscrew screw (1) and pull off cover (2) from the belt exit at the backrest.
- Fold down backrest on the seat cushion (for this press demounted backrest handle on pin (3), unlatch backrest, and fold it down on seat cushion).
- Unhook C-profiles (4), open cover by zipper (5) and pull out backrest cardboard (6).
- Fold up backrest.
- Take off cover upwards, simultaneously loosen velcro fastener (7) carefully. Therefore, to avoid loosening of the velcro fastener (7), guide and hold down velcro fastener continuously on the foam by a finger.



Backrest foam/heating

- Remove seat cushion (2.3.0/page 11).
- Remove both side covers (2.16.0, 2.17/page 24, 25).
Take off both side covers together with the mounted rear cover (U-form).
Do not unhook the rear cover, because it can not be loosened without damaging rear- or side covers.
- Remove backrest cover (2.10.0/page 18).
- Lift backrest foam (1) from backrest frame (2) and thread belt strap (3) through the opening of backrest foam (1).



3-point-belt/Belt height adjustment

- Remove seat cushion (2.3.0/page 11).
- Remove both side covers (2.16.0, 2.17/page 24, 25).
Take off both side covers together with the mounted rear cover (U-form).
Do not unhook the rear cover, because it can not be loosened without damaging rear- or side covers.
- Remove backrest cover (2.10.0/page 18) and backrest foam (2.11.0/page 19).
- Demount spring (1).
- Pull out plug (2).
- Pull deflection shell (3) forwards till cover (4) can be pulled out in direction to the seat.
- At first thread cover (4) over the belt tongue (5) than over the belt strap (6) and take it off.
- Unscrew screw (7) and push deflexion roller (8) with center (9) backwards out of the locking housing (10).
- Open two straps (11) at the belt canal (12).
- Unscrew screw (13) and loosen belt from seat.



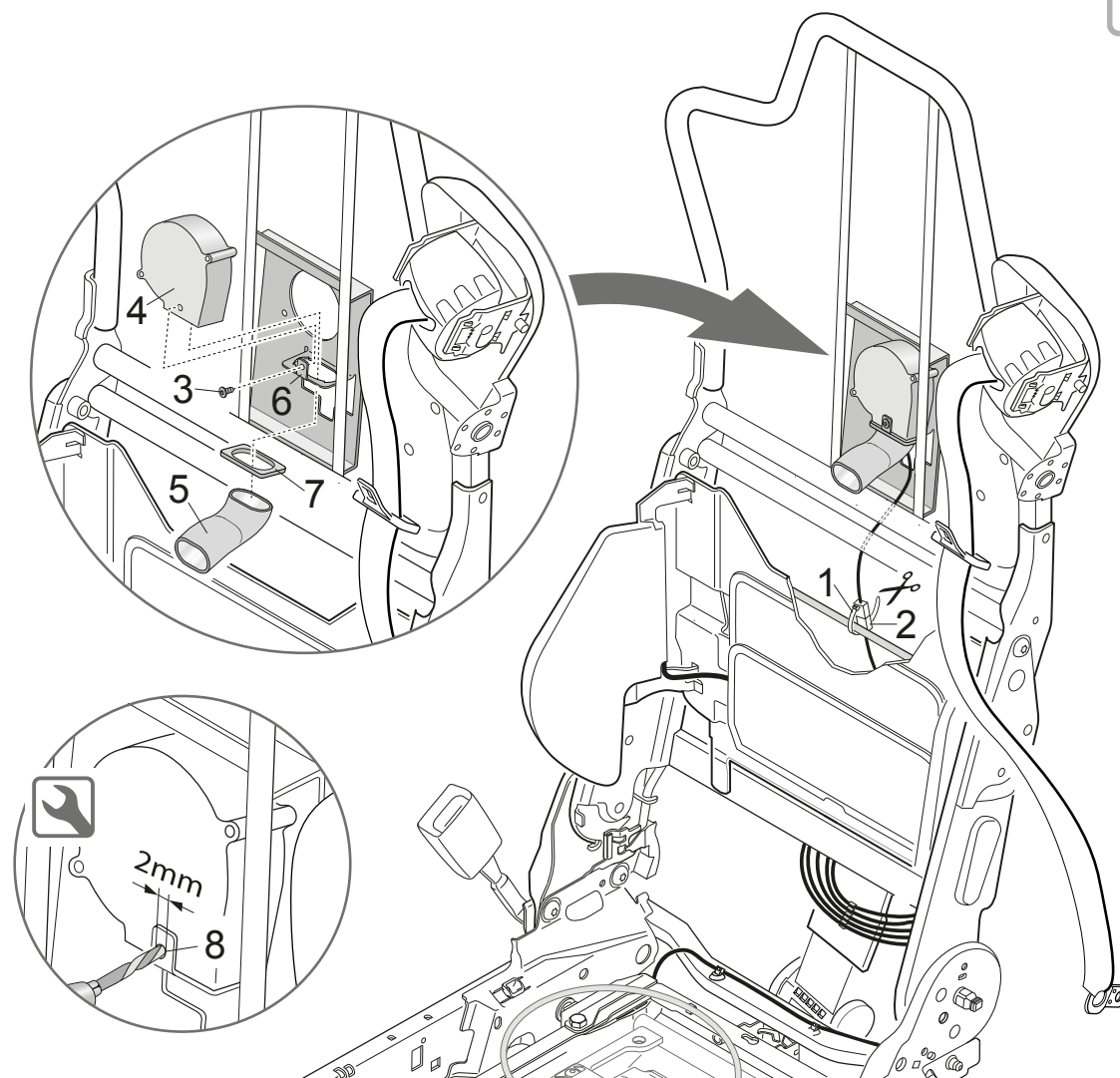
Tightening torque:

Pos. 7	(T45)	25+5 Nm
Pos. 13	(T45)	35+5 Nm



Instruction for installation

After mounting of the new belt, check belt strip for correct run in belt canal (12) and in the area of the belt exit in the backrest (3). The belt strip should not be twisted or jammed and must moving freely.



Tightening torque:
Pos. 3 (T20) 2Nm

Fan for backrest

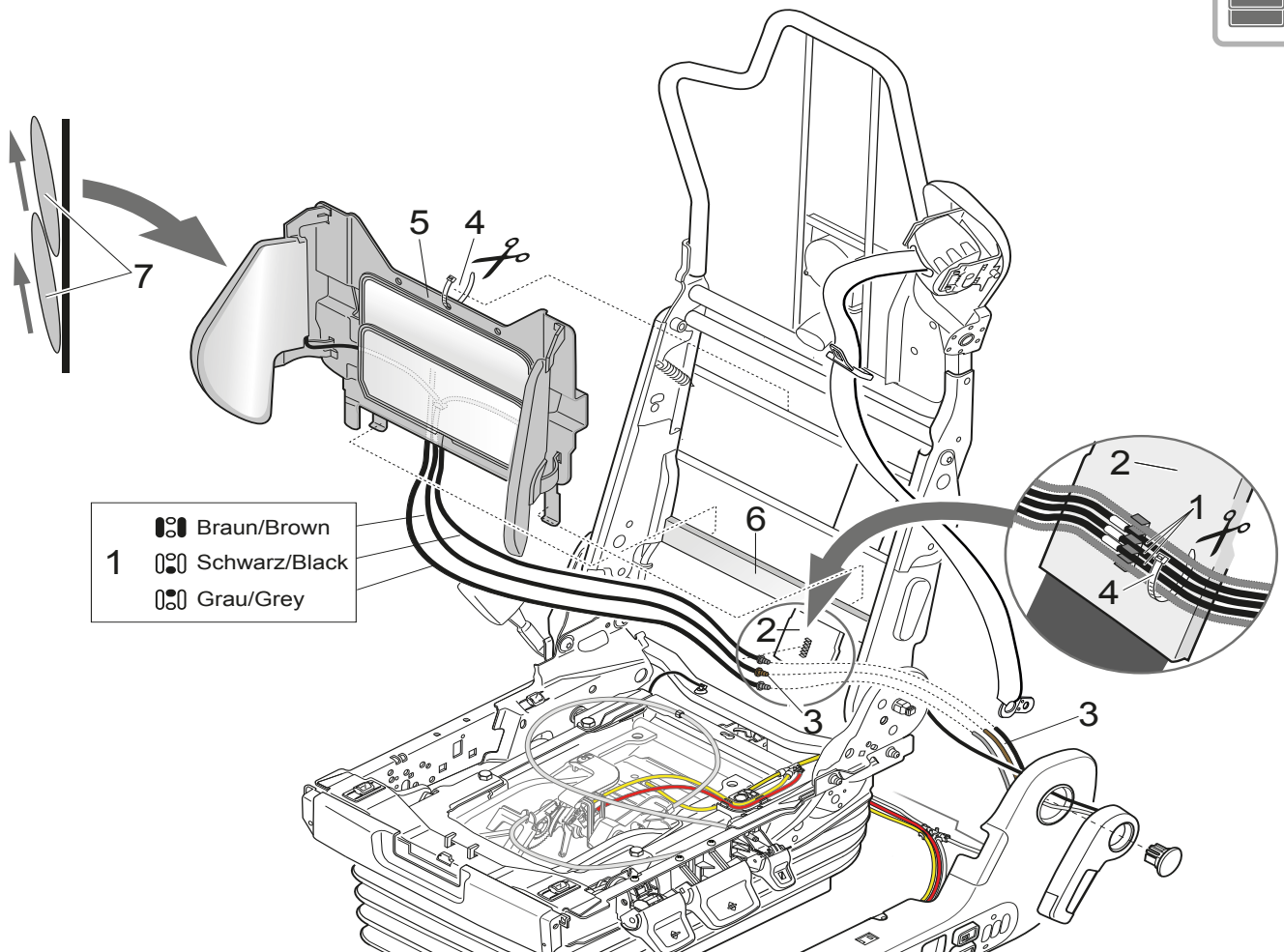
- Remove seat cushion (2.3.0/page 11).
- Remove both side covers (2.16.0, 2.17/page 24, 25).
Take off both side covers together with the mounted rear cover (U-form).
Do not unhook the rear cover, because it can not be loosened without damaging rear- or side covers.
- Remove backrest cover (2.10.0/page 18) and backrest foam (2.11.0/page 19).
- Cut cable strip (1) and loosen electrical connection (2).
- Unscrew screw (3) and take away fan (4).
- If necessary, press together corrugated tube (5) at the angle holder (6) slightly and pull it out.
Loosen gasket (7) from angle holder (6).



Instruction for installation

Insert new fan (4) in the angle holder (6), drill a hole of 2mm through hole (8) in the new fan housing and turn in screw (3).

Check when mounting the backrest foam, that the corrugated tube (5) is inserted in the canal of the foam.



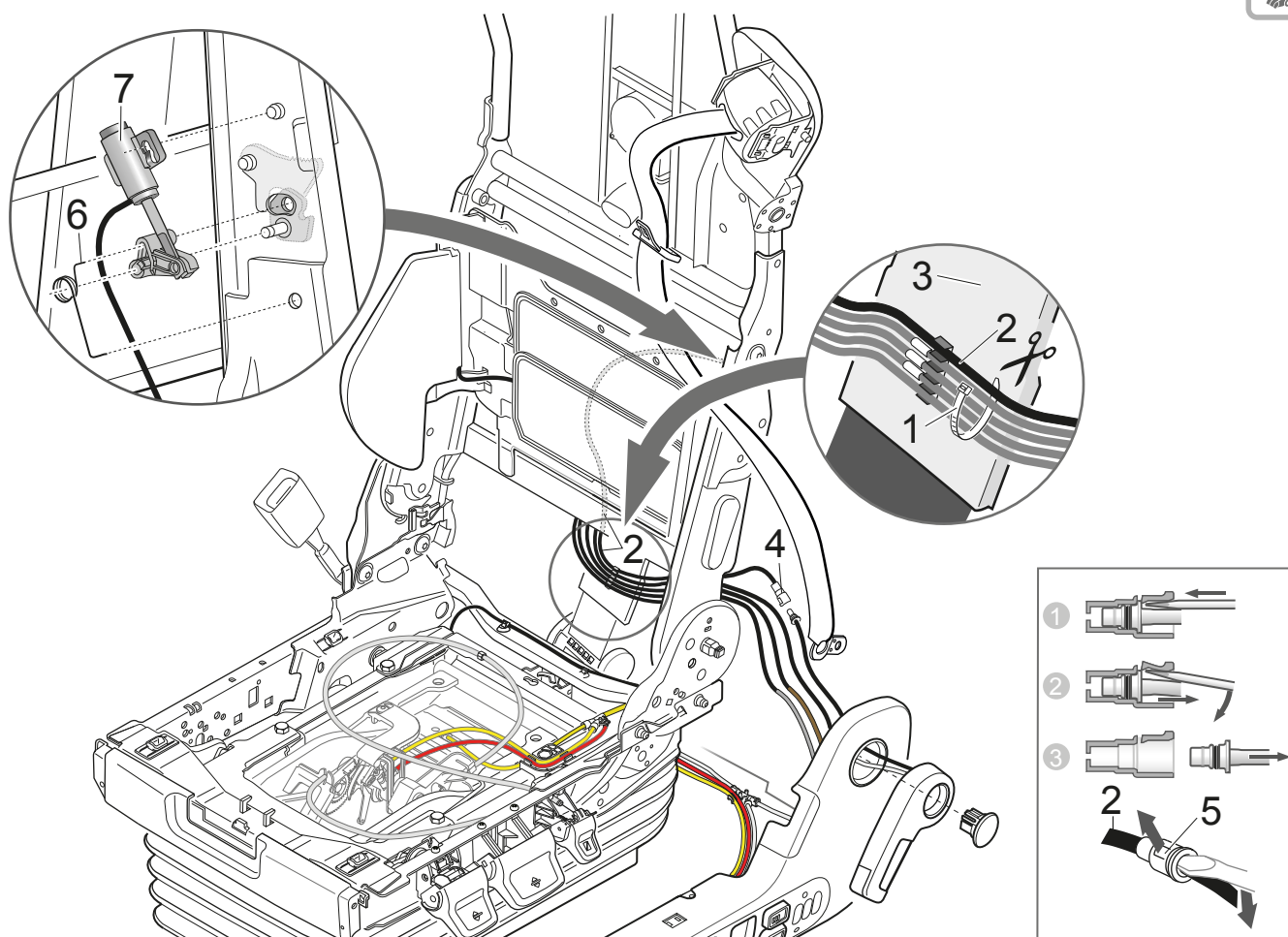
IPS air chambers

- Remove seat cushion (2.3.0/page 11).
- Remove both side covers (2.16.0, 2.17/page 24, 25).
Take off both side covers together with the mounted rear cover (U-form).
Do not unhook the rear cover, because it can not be loosened without damaging rear- or side covers.
- Remove backrest cover (2.10.0/page 18).
- Remove backrest foam (2.11.0/page 19).
- Loosen three hoses (1) at the belt canal cover (2) and pull it out at the connection to the side cover (3).
- Loosen three hoses (10). To avoid a mixing-up, mark hoses with the hose colours grey and brown before.
- Cut two cable straps (4) and take off air chamber plate (5) from cross profile (6).



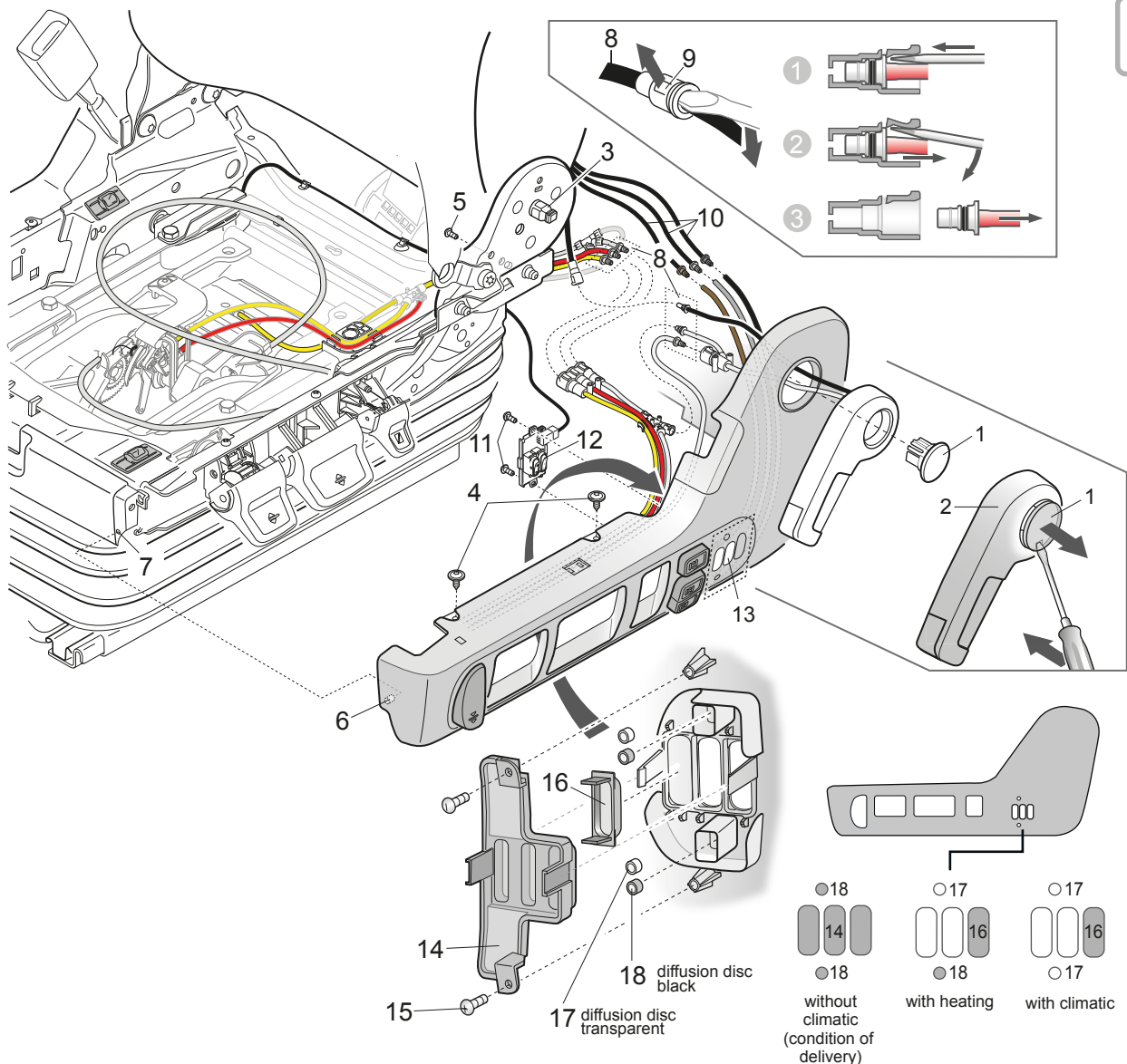
Instruction for installation

Check before mounting backrest foam, that the air chambers (7) are positioned upright.



Pneumatic cylinder for shoulder adjustment

- Remove seat cushion (2.3.0/page 11).
- Remove both side covers (2.16.0, 2.17/page 24, 25).
Take off both side covers together with the mounted rear cover (U-form).
Do not unhook the rear cover, because it can not be loosened without damaging rear- or side covers.
- Remove backrest cover (2.10.0/page 18).
- Remove backrest foam (2.11.0/page 19).
- Unhook lateral air chamber at the side of pneumatic cylinder from the lumbar support plate.
- Cut cable strap (1).
- Loosen hose (2) at the belt canal cover (3) and pull it out at the connection to the side cover (4) (for this lift locking hook (5) carefully).
- Unhook spring (6) and take off pneumatic cylinder (7).



Side cover, lever side

- Remove seat cushion (2.3.0/page 11).
- Adjust all the control handles in lowermost position.
- Pull out rear cover (2.18.0/page 26). **The rear cover can not be loosened without damaging rear- or side covers.**
- Press out plug (1) of backrest handle (2). For this place a little screwdriver in the opening below of plug (1) and lever out plug.
- Pull backrest handle (2) from pin (3).
- Unscrew two screws (4) and one screw (5), push pin (6) out of hole (7) of front cover and take off side cover.
- Loosen hose (8) (for this lift locking hook (9) carefully).
- Loosen three hoses (10). To avoid a mixing-up, mark hoses with the hose colours before.
- For versions with climatic/Heating, unscrew two screws (11) and remove switch (12) off the side cover.

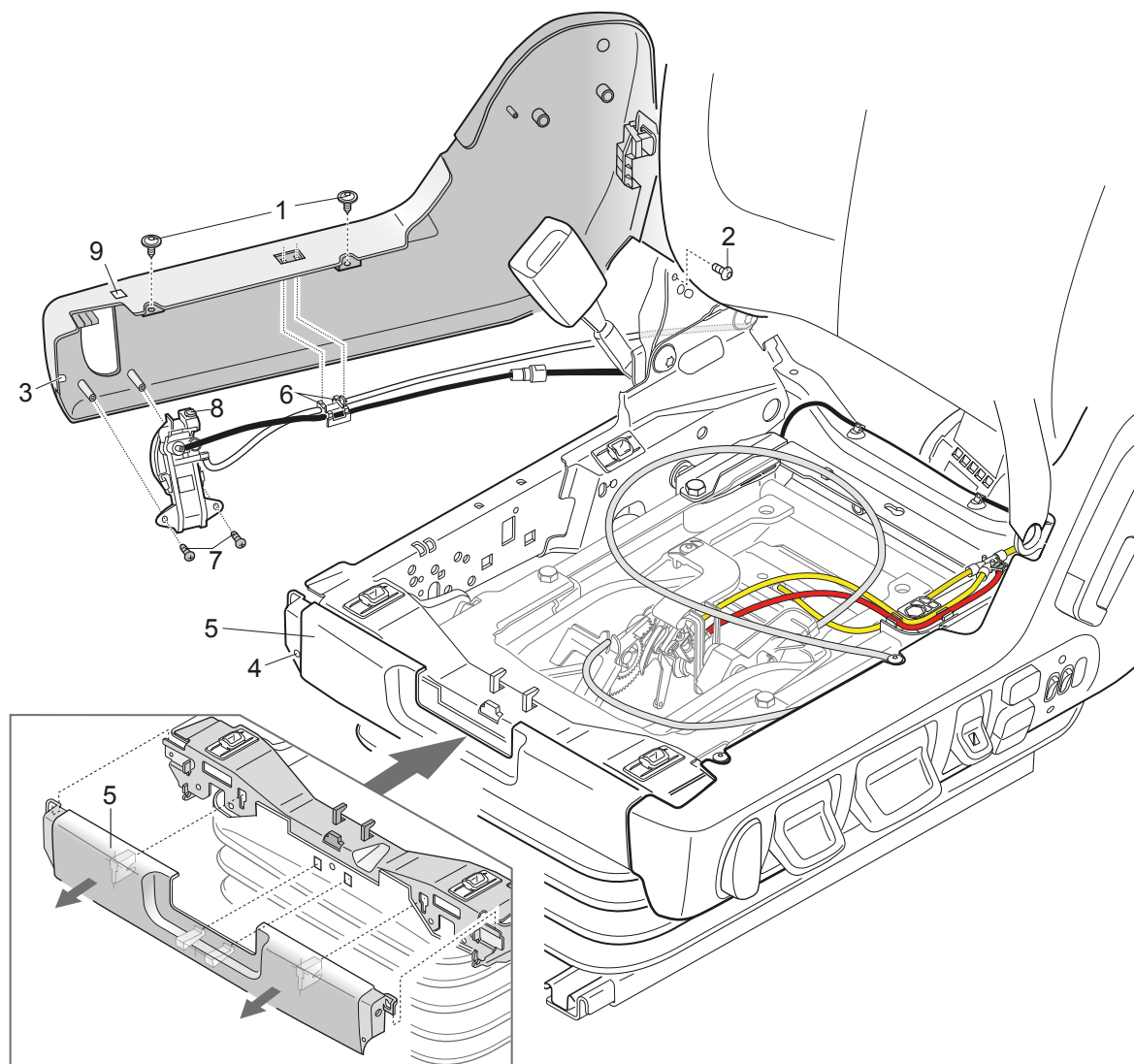


Instruction for installation

- Depending on the application, the openings for the heater switch (13) must be adapted in the new side cover:
- **Without climatic/heating switch:**
Using of cover (14) and the black diffusion disc (18) (condition of delivery).
- **With climatic/heating switch:**
Remove cover (14) by unscrew two screws (15), and replacing cover by inlaying of cover (16). Replacing black diffusion disc (18) by the transparent diffusion disc (17). For this push in diffusion disc from outside.

 **Tightening torque:**

Pos. 4	(T20)	2,5 Nm
Pos. 5	(T20)	0,4 Nm
Pos. 11, 15	(cross)	0,4 Nm


Tightening torque:

Pos. 1	(T20)	2,5 Nm
Pos. 2	(T20)	0,4 Nm
Pos. 7	(cross)	0,4 Nm

Side cover, opposite side/Front cover
Side cover, opposite side

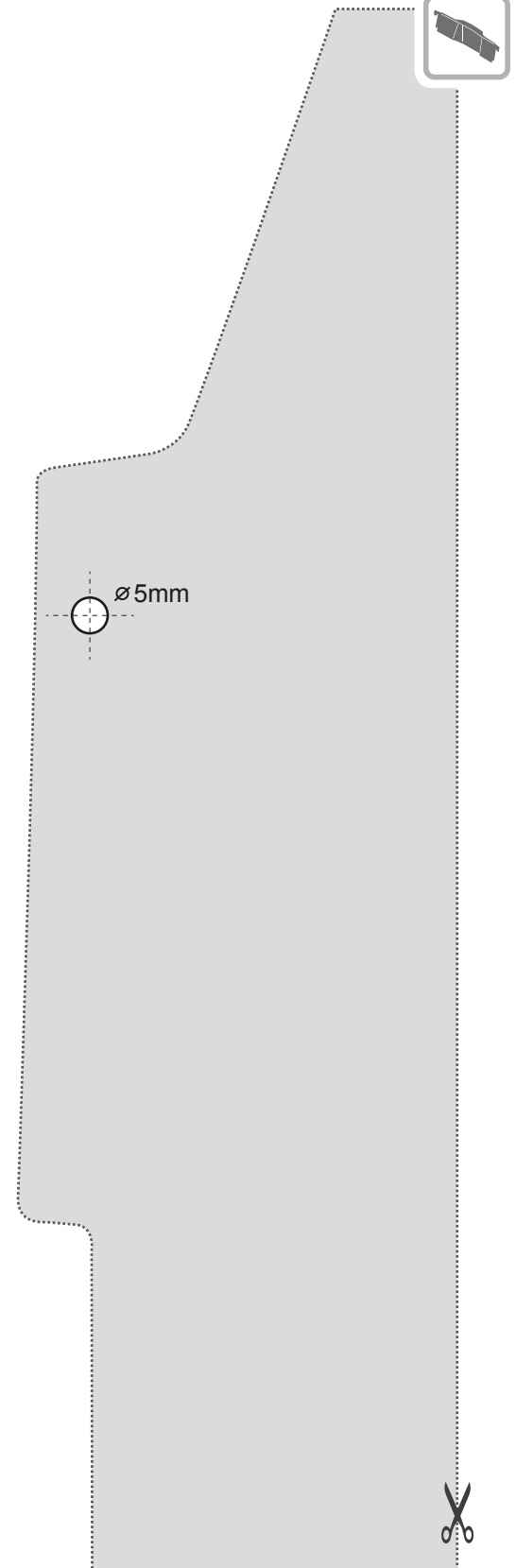
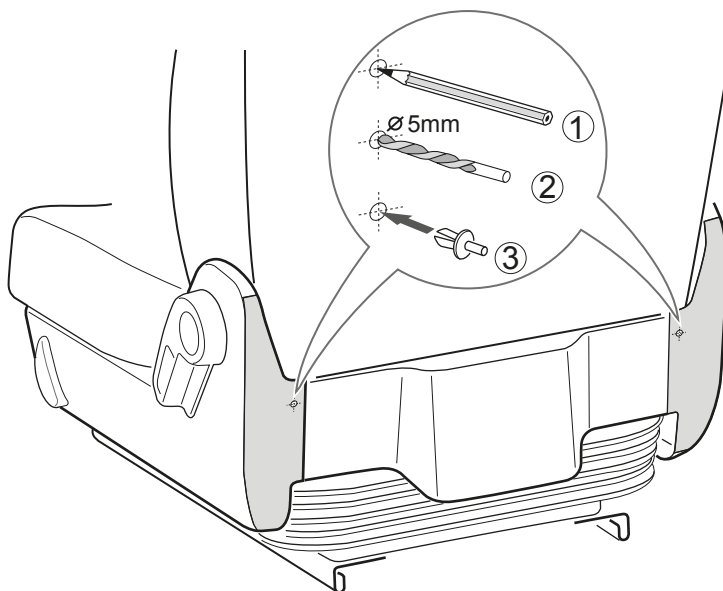
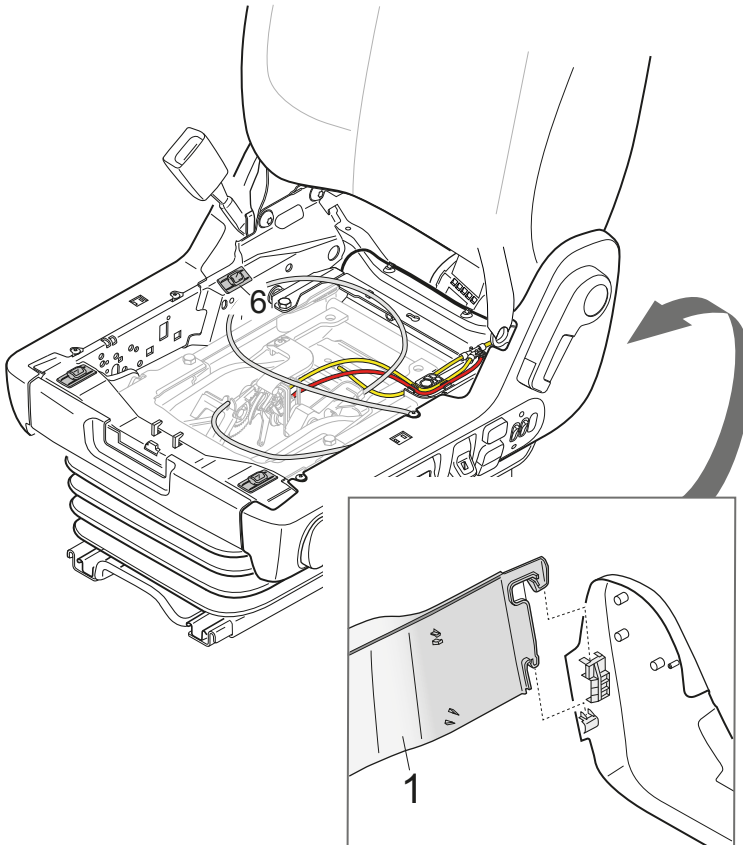
- Remove seat cushion (2.3.0/page 11).
- Unscrew two screws (1) and one screw (2), push pin (3) out of hole (4) of front cover (5) and bend up side cover. **(Do not unhook the rear cover, because it can not be loosened without damaging rear- or side covers).**

Additional for swivel version:

- Press together both snap-in noses of holder (6) and demount holder out of side cover.
- Unscrew two screws (7) and lever nose (8) of swivel switch out of the opening (9) of side cover.

Front cover

- Remove seat cushion (2.3.0/page 11).
- Remove two screws (1) at both side covers.
- Push pin (3) out of hole (4) of front cover (5) and bend up side covers in front area.
- Pull out front cover (5) from seat frame.

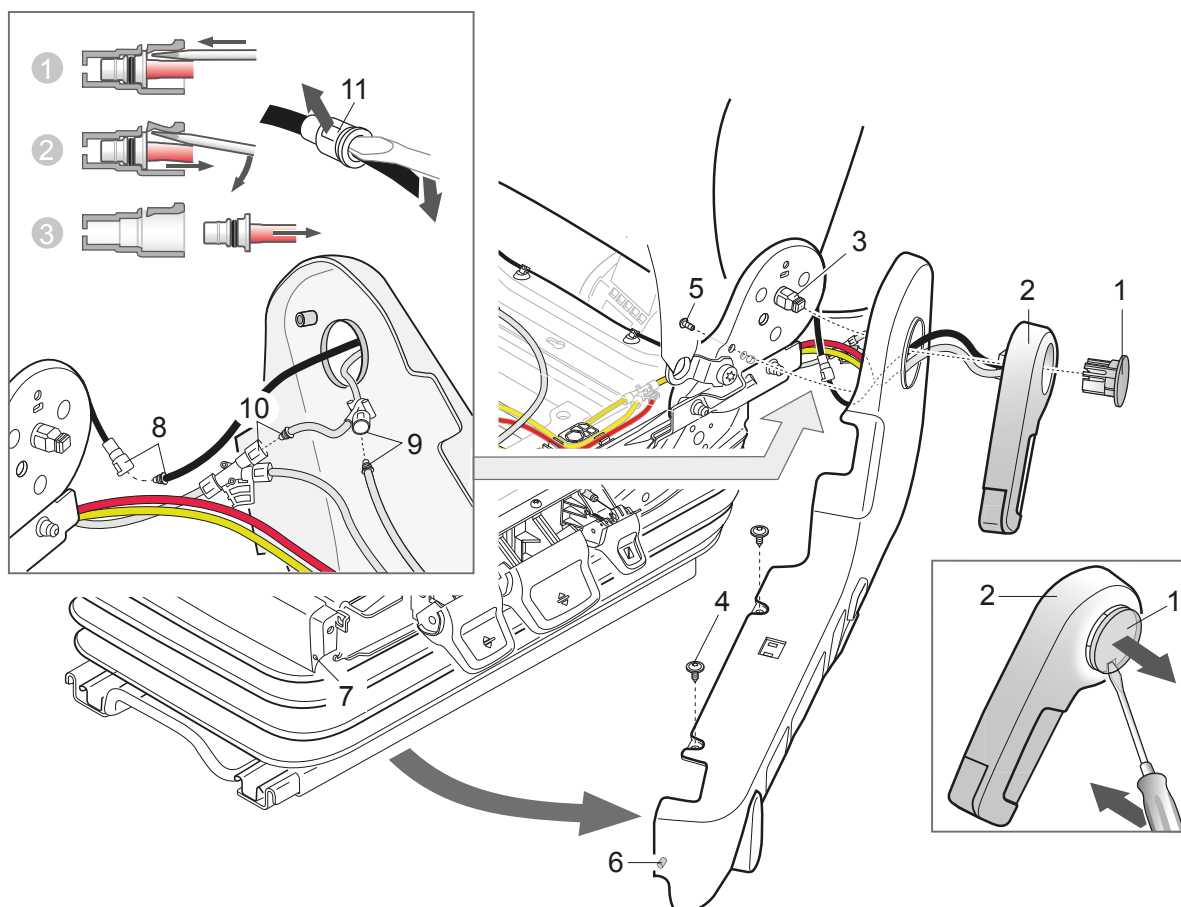


Rear cover

- Pull rear cover (1) out of side covers.
- **Caution: The rear cover can not be pulled out without damaging rear- or side covers.**

A defective, not to catching rear cover can be re-fasten by expanding rivets of the fixing kit with the order number 928462-44.

- Hook rear cover between both side covers.
- Positioning the stencil on the rear cover at the seat back side, mark hole and drill it by a 5mm drill through rear- and side cover. Fix expanding rivet.
- Repeat process at opposite side.



Tightening torque:

Pos. 4	(T20)	2,5Nm
Pos. 5	(T20)	0,4Nm

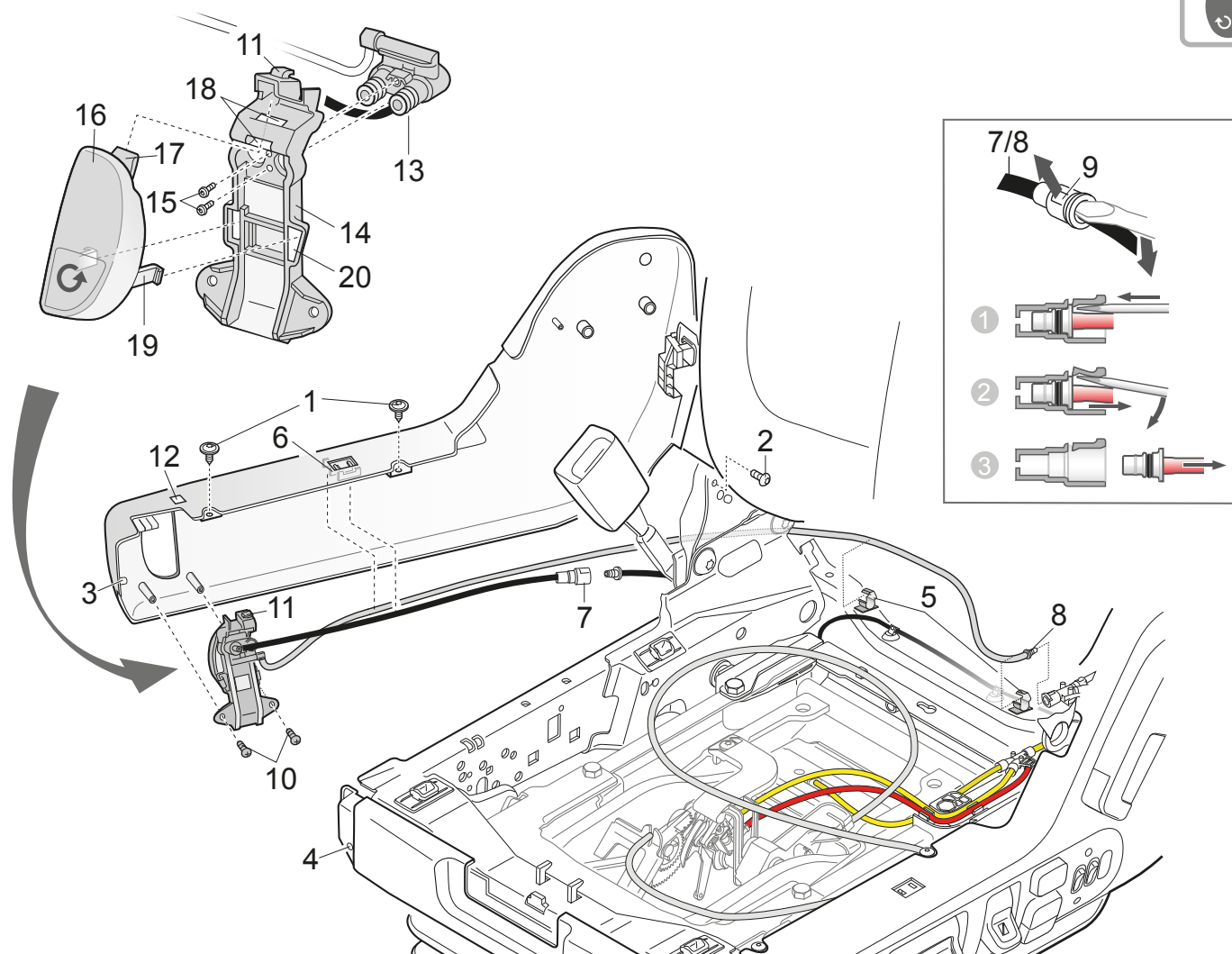
Backrest handle/Valve for shoulder adjustment

- Remove seat cushion (2.3.0/page 11).
- Adjust all the control handles in lowermost position.
- Press out plug (1) of backrest handle (2). For this place a little screwdriver in the opening below of plug (1) and lever out plug.
- Pull backrest handle (2) from pin (3).
- Unscrew two screws (4) and one screw (5), push pin (6) out of hole (7) of front cover and bend up side cover.
- **(Do not unhook the rear cover, because it can not be loosened without damaging rear- or side covers).**
- Loosen hoses (8) (9) (10) (for this lift locking hook (11) carefully).



Instruction for installation

Hold backrest handle at the sidecover, guide both parts to the seat, and before mounting, sorting hoses in the inner side of the side cover.



Tightening torque:		
Pos. 1	(T20)	2,5Nm
Pos. 2	(T20)	0,4Nm
Pos. 10	(cross)	0,4Nm
Pos. 15	(T6)	0,3Nm

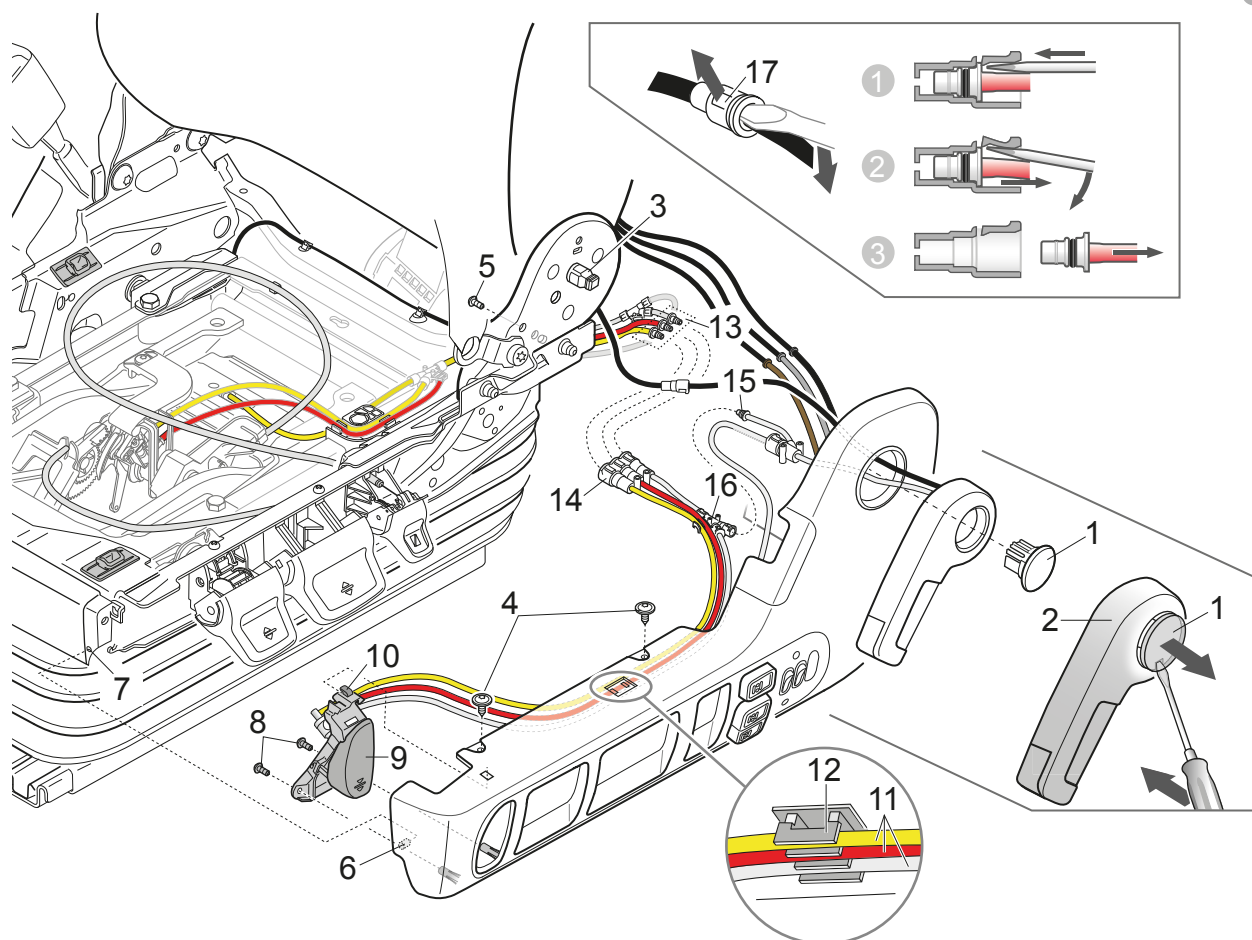
Switch for swivel

- Remove seat cushion (2.3.0/page 11).
- Unscrew two screws (1) and one screw (2), push pin (3) out of hole (4) of front cover and bend up side cover.
- **(Do not unhook the rear cover, because it can not be loosened without damaging rear- or side covers).**
- Open two holders (5) and take out hose.
- Pull out hoses from holder (6) in the inside of side cover.
- Loosen hoses (7) and (8) (for this lift locking hook (9) carefully).
- Unscrew two screws (10) and lever nose (11) of swivel switch out of the opening (12) of side cover.



Instruction for installation

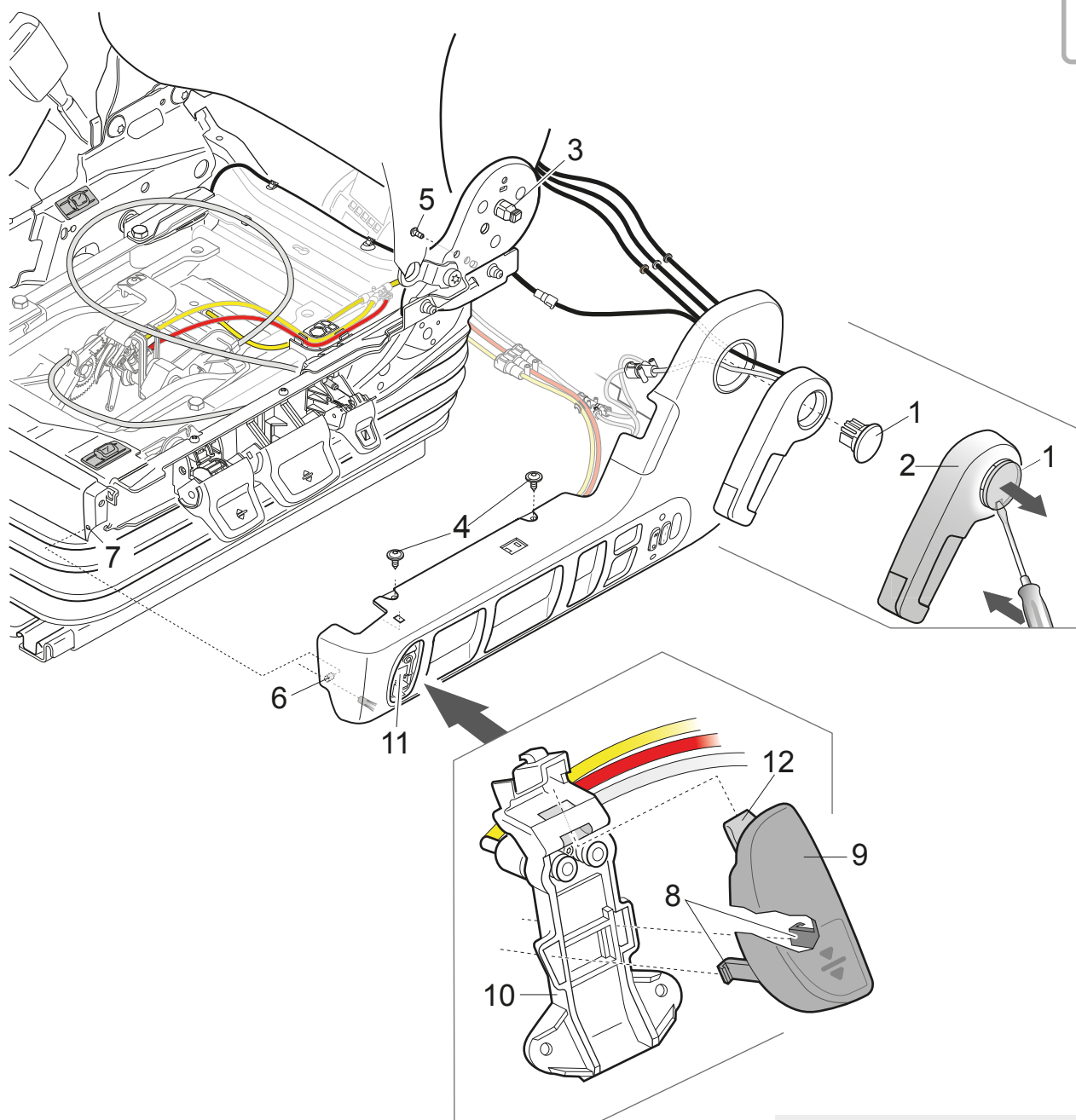
Insert valve (13) from behind in housing (14) and fix it with two screws (15) at the front.
Hook nose (17) of rocker switch (16) in the opening of the housing (18), simultaneously press together both noses (19) and hook it in openings (20).


Tightening torque:

Pos. 4	(T20)	2,5 Nm
Pos. 5	(T20)	0,4 Nm
Pos. 8	(cross)	0,4 Nm

Switch for quick release

- Remove seat cushion (2.3.0/page 11).
- Adjust all the control handles in lowermost position.
- Press out plug (1) of backrest handle (2). For this place a little screwdriver in the opening below of plug (1) and lever out plug.
- Pull backrest handle (2) from pin (3).
- Unscrew two screws (4) and one screw (5), push pin (6) out of hole (7) of front cover and bend up side cover.
- **(Do not unhook the rear cover, because it can not be loosened without damaging rear- or side covers).**
- Loosen two screws (8) and take off switch for quick release (9) with nose (10) out of side cover.
- Pull out three hoses (11) from holder (12) in side cover.
- Loosen three hoses (13) at connector (14) and one hose (15) at Y-connector (16) (for this lift locking hook (17) carefully).


Tightening torque:

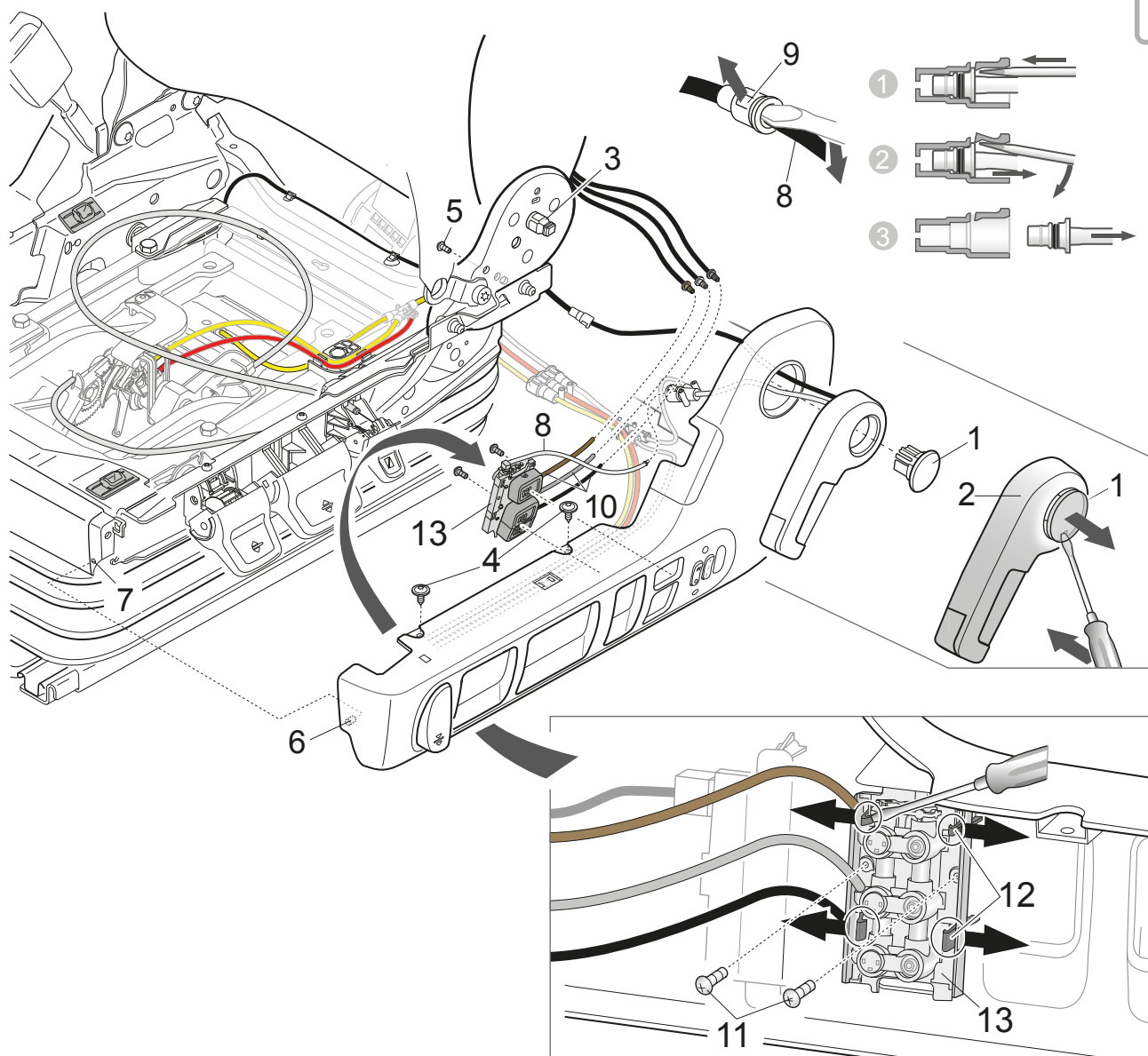
Pos. 4	(T20)	2,5Nm
Pos. 5	(T20)	0,4Nm

Button quick release

- Remove seat cushion (2.3.0/page 11).
- Adjust all the control handles in lowermost position.
- Press out plug (1) of backrest handle (2). For this place a little screwdriver in the opening below of plug (1) and lever out plug.
- Pull backrest handle (2) from pin (3).
- Unscrew two screws (4) and one screw (5), push pin (6) out of hole (7) of front cover and bend up side cover.

(Do not unhook the rear cover, because it can not be loosened without damaging rear- or side covers).

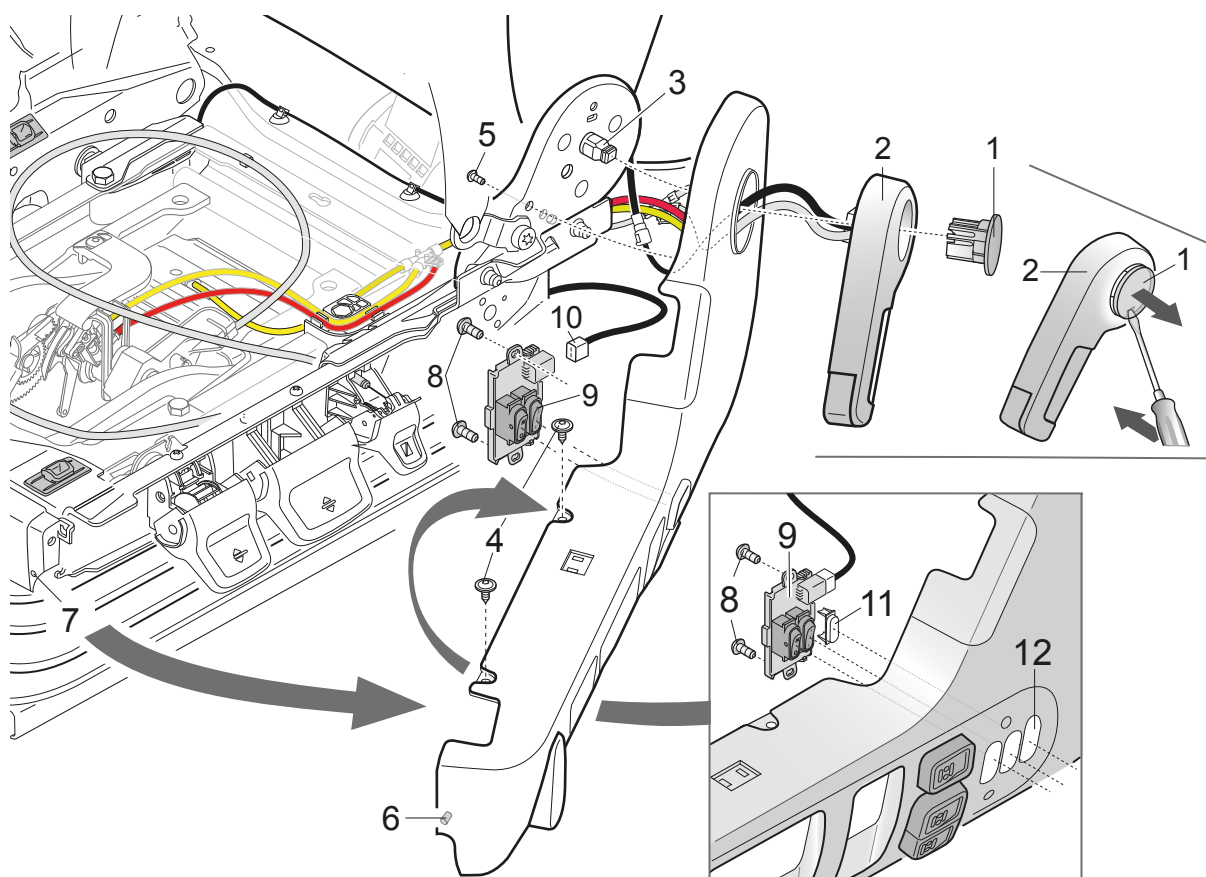
- Press in two noses (8) of button (9) from the inside of the side cover and unhook it from holder (10).
- Press together two noses (8), pull it out of opening (11), lift button till nose (12) is unhooked from holder (10).


Tightening torque:

Pos. 4	(T20)	2,5 Nm
Pos. 5	(T20)	0,4 Nm
Pos. 11	(cross)	0,4 Nm

IPS valve

- Remove seat cushion (2.3.0/page 11).
- Adjust all the control handles in lowermost position.
- Press out plug (1) of backrest handle (2). For this place a little screwdriver in the opening below of plug (1) and lever out plug.
- Pull backrest handle (2) from pin (3).
- Unscrew two screws (4) and one screw (5), push pin (6) out of hole (7) of front cover and bend up side cover. **(Do not unhook the rear cover, because it can not be loosened without damaging rear- or side covers).**
- Loosen hoses (8) and (9) (for this lift locking hook (9) carefully).
- Loosen three hoses (10). To avoid a mixing-up, mark black hoses on the opposite side with the hose colours grey and brown before.
- Undo two screws (11).
- Press outwards both upper noses (12), then both bottom noses (12) by a screwdriver and unhook the IPS valve (13) in this way.
- Take off IPS valve (13).


Tightening torque:

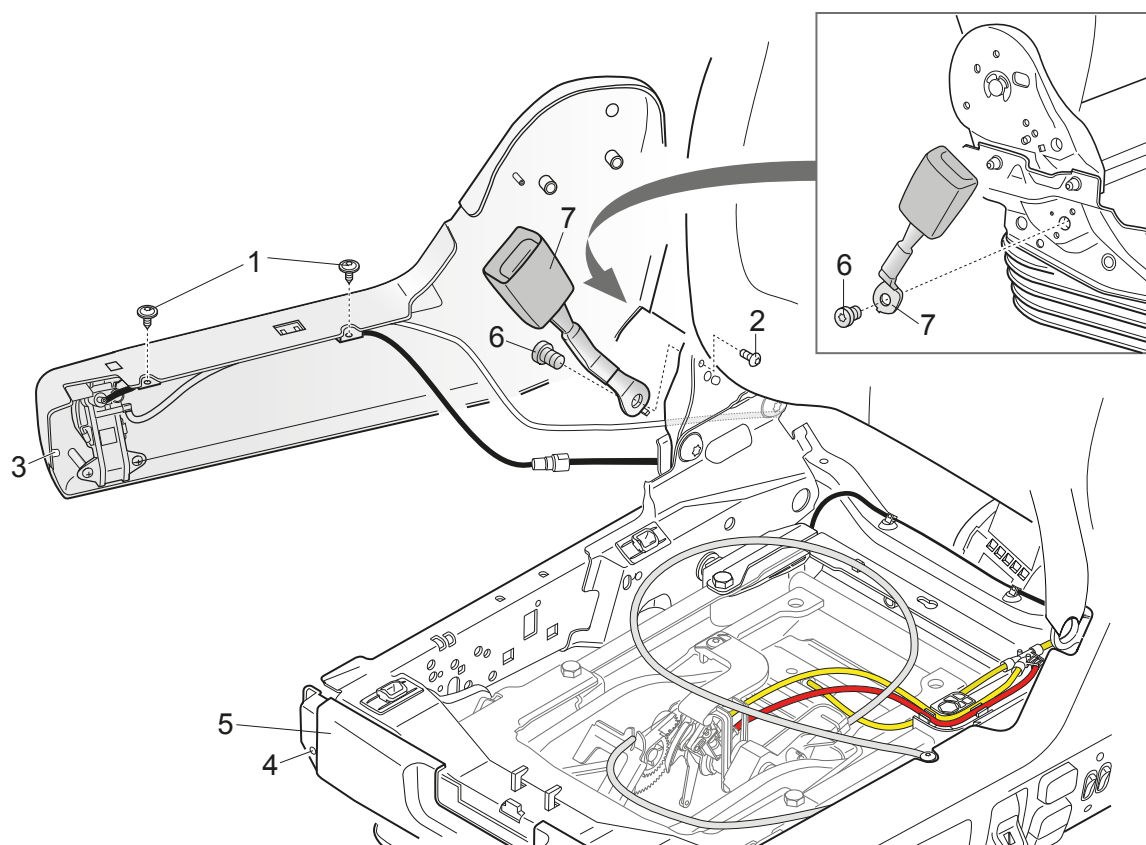
Pos. 4	(T20)	2,5 Nm
Pos. 5	(T20)	0,4 Nm
Pos. 8	(cross)	0,4 Nm

Switch heating/climatic

- Remove seat cushion (2.3.0/page 11).
- Adjust all the control handles in lowermost position.
- Press out plug (1) of backrest handle (2). For this place a little screwdriver in the opening below of plug (1) and lever out plug.
- Pull backrest handle (2) from pin (3).
- Unscrew two screws (4) and one screw (5), push pin (6) out of hole (7) of front cover and bend up side cover. **(Do not unhook the rear cover, because it can not be loosened without damaging rear- or side covers).**
- Unscrew two screws (8) and take out switch (9) from side cover.
- Disconnect plug (10) from switch (9).


Instruction for installation

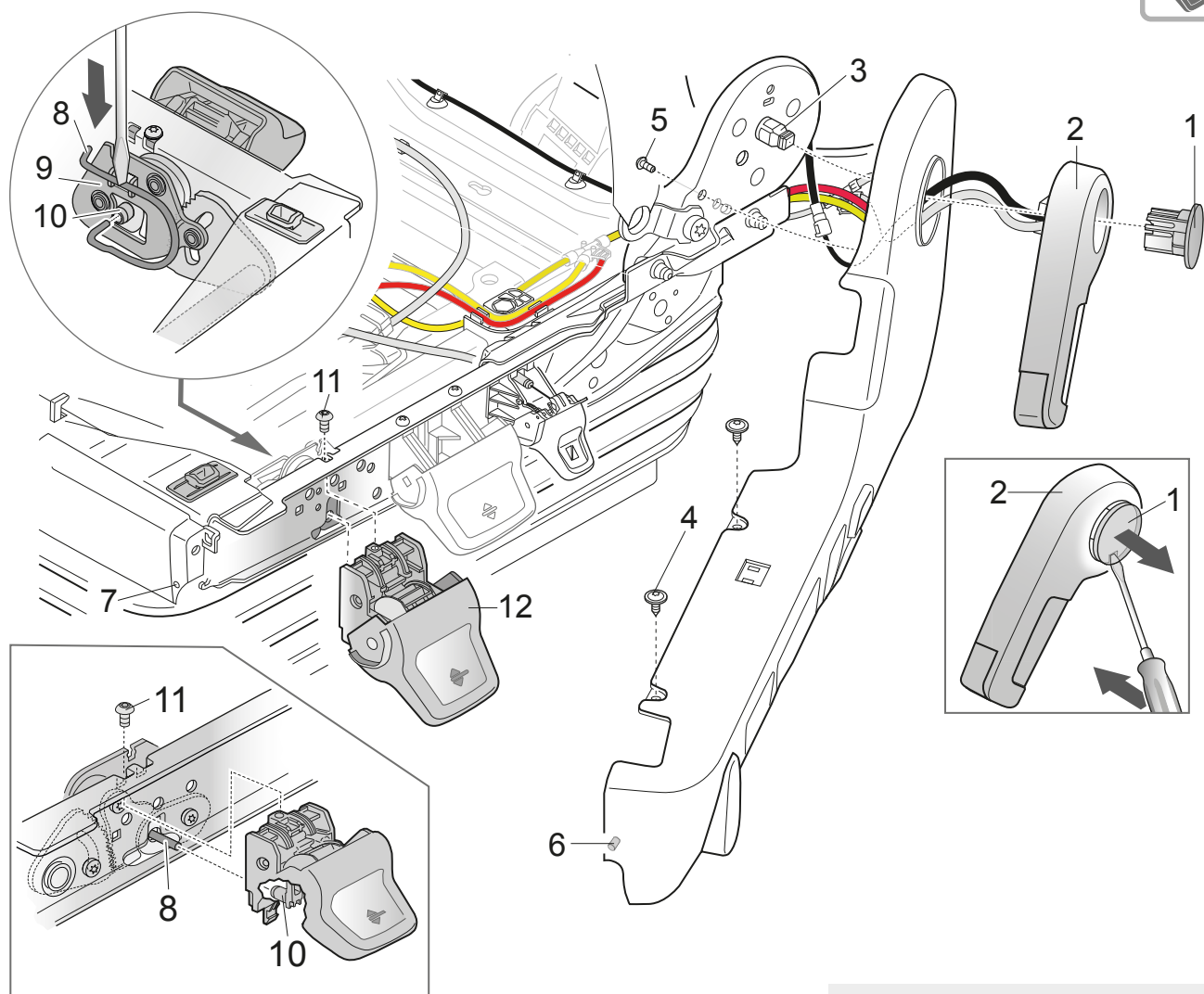
Before mounting the new switch, check that cover (11) is inlaid in the opening (12) of the side cover.


Tightening torque:

Pos. 1	(T20)	2,5 Nm
Pos. 2	(T20)	0,4 Nm
Pos. 6	(T45)	35+5 Nm

Belt buckle

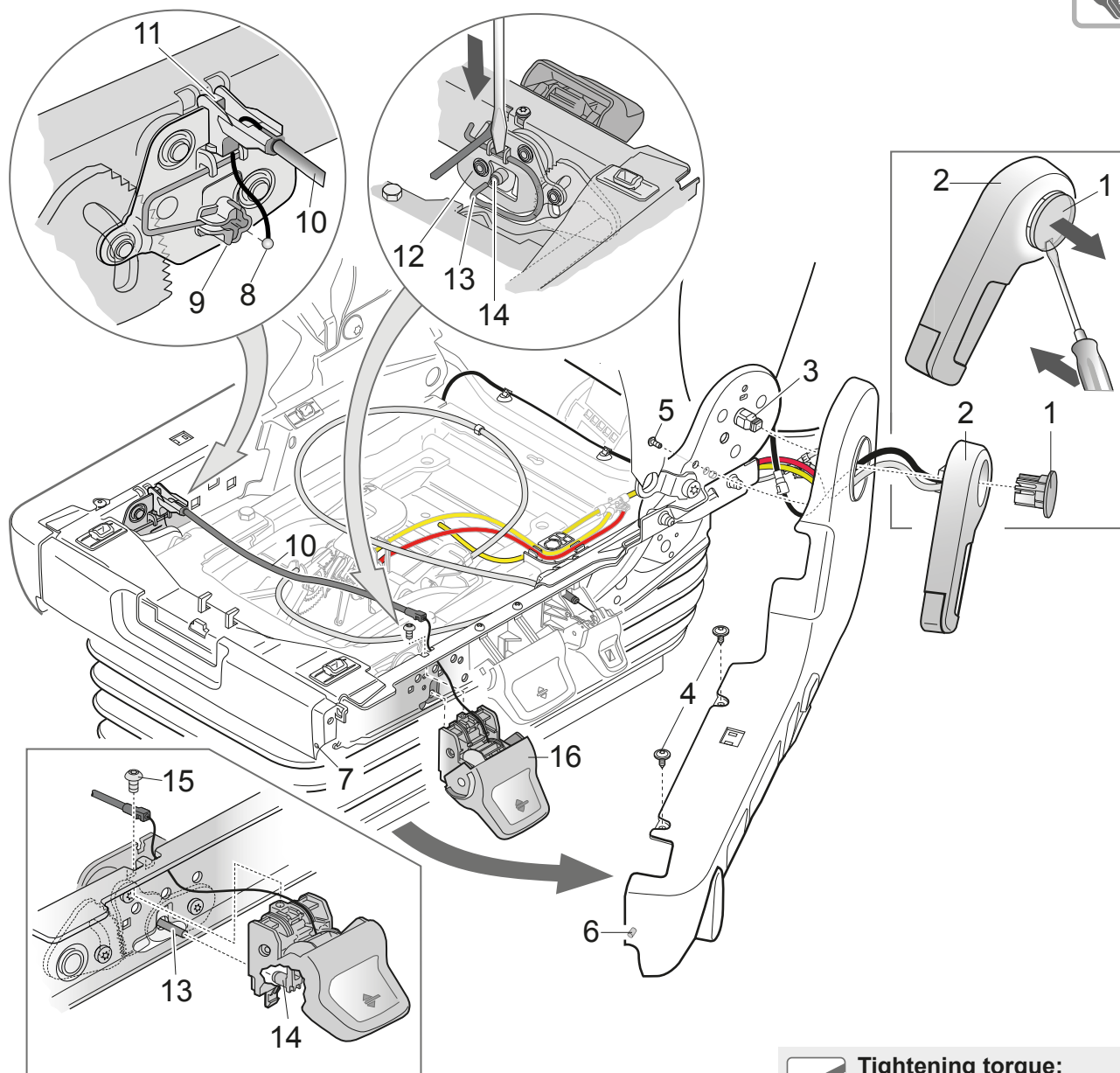
- Remove seat cushion (2.3.0/page 11).
- Unscrew two screws (1) and one screw (2) push pin (3) out of hole (4) of front cover and bend up side cover.
(Do not unhook the rear cover, because it can not be loosened without damaging rear- or side covers).
- Unscrew screw (6) and remove belt buckle (7).


Tightening torque:

Pos. 4	(T20)	2,5 Nm
Pos. 5	(T20)	0,4 Nm
Pos. 11	(T20)	1 Nm

Handle tilt adjustment

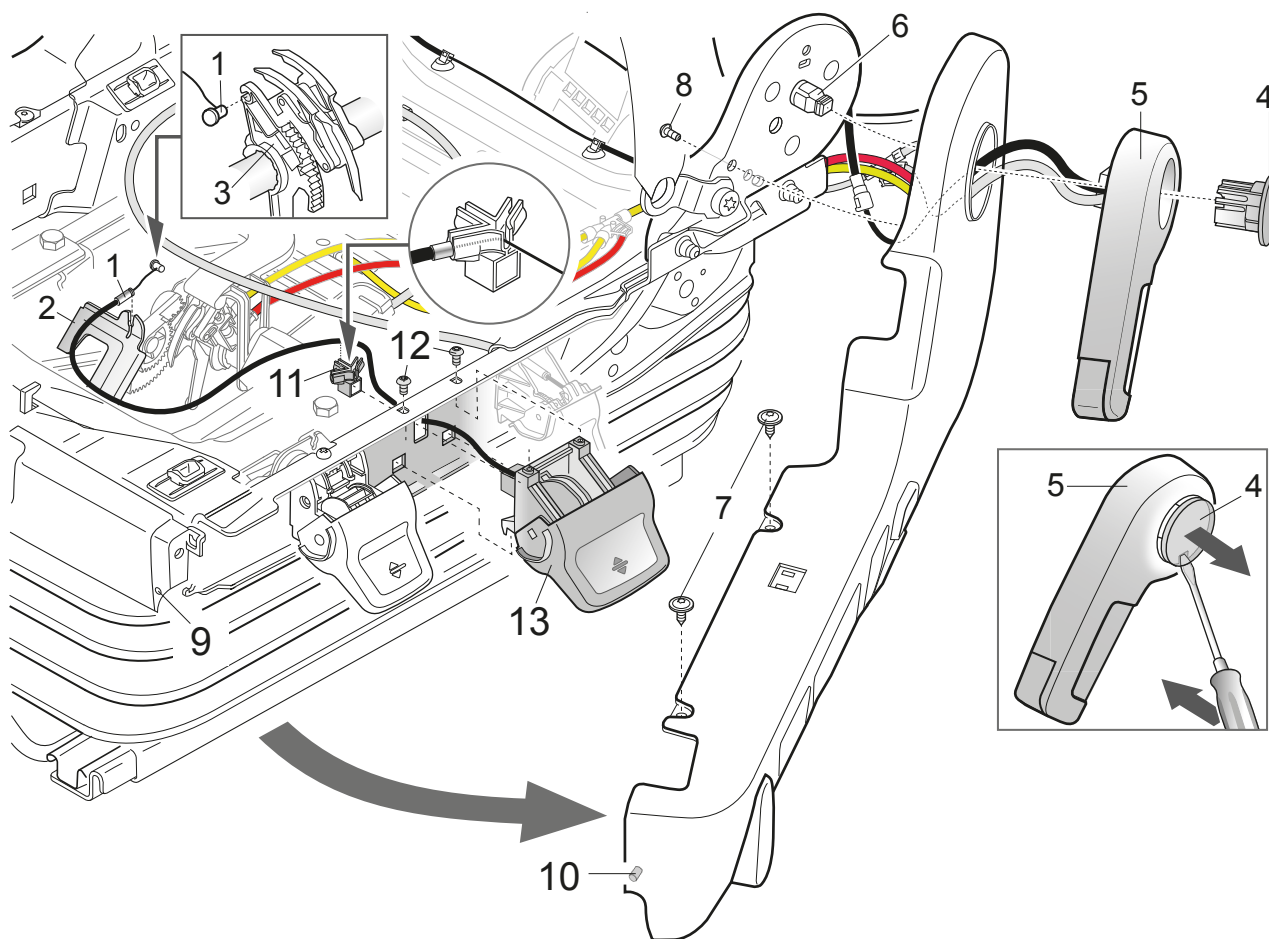
- Remove seat cushion (2.3.0/page 11).
- Adjust all the control handles in lowermost position.
- Press out plug (1) of backrest handle (2). For this place a little screwdriver in the opening below of plug (1) and lever out plug.
- Pull backrest handle (2) from pin (3).
- Unscrew two screws (4) and one screw (5), push pin (6) out of hole (7) of front cover and bend up side cover. **(Do not unhook the rear cover, because it can not be loosened without damaging rear- or side covers).**
- Adjust the tilt of the seat in upper position.
- Press down spiral spring (8) by a screwdriver, unhook from steel sheet (9) and pull it out of plastic bolt (10).
- Unscrew screw (11) and take off handle (12).


Tightening torque:

Pos. 4	(T20)	2,5 Nm
Pos. 5	(T20)	0,4 Nm
Pos. 15	(T20)	1 Nm

Tilt adjustment (both sides)

- Remove seat cushion (2.3.0/page 11).
- Adjust all the control handles in lowermost position.
- Press out plug (1) of backrest handle (2). For this place a little screwdriver in the opening below of plug (1) and lever out plug.
- Pull backrest handle (2) from pin (3).
- Unscrew two screws (4) and one screw (5), push pin (6) out of hole (7) of front cover and bend up side cover. **(Do not unhook the rear cover, because it can not be loosened without damaging rear- or side covers).**
- Adjust the tilt of the seat in upper position.
- Remove ball (8) of bowden cable (10) from socket (9) and unhook bowden cable (10) from holder (11).
- Loosen bowden cable (10) at steel sheet (12), press down spiral spring (13) by a screwdriver, unhook from steel sheet (12) and pull it out of plastic bolt (14).
- Unscrew screw (15) and take off handle (16).

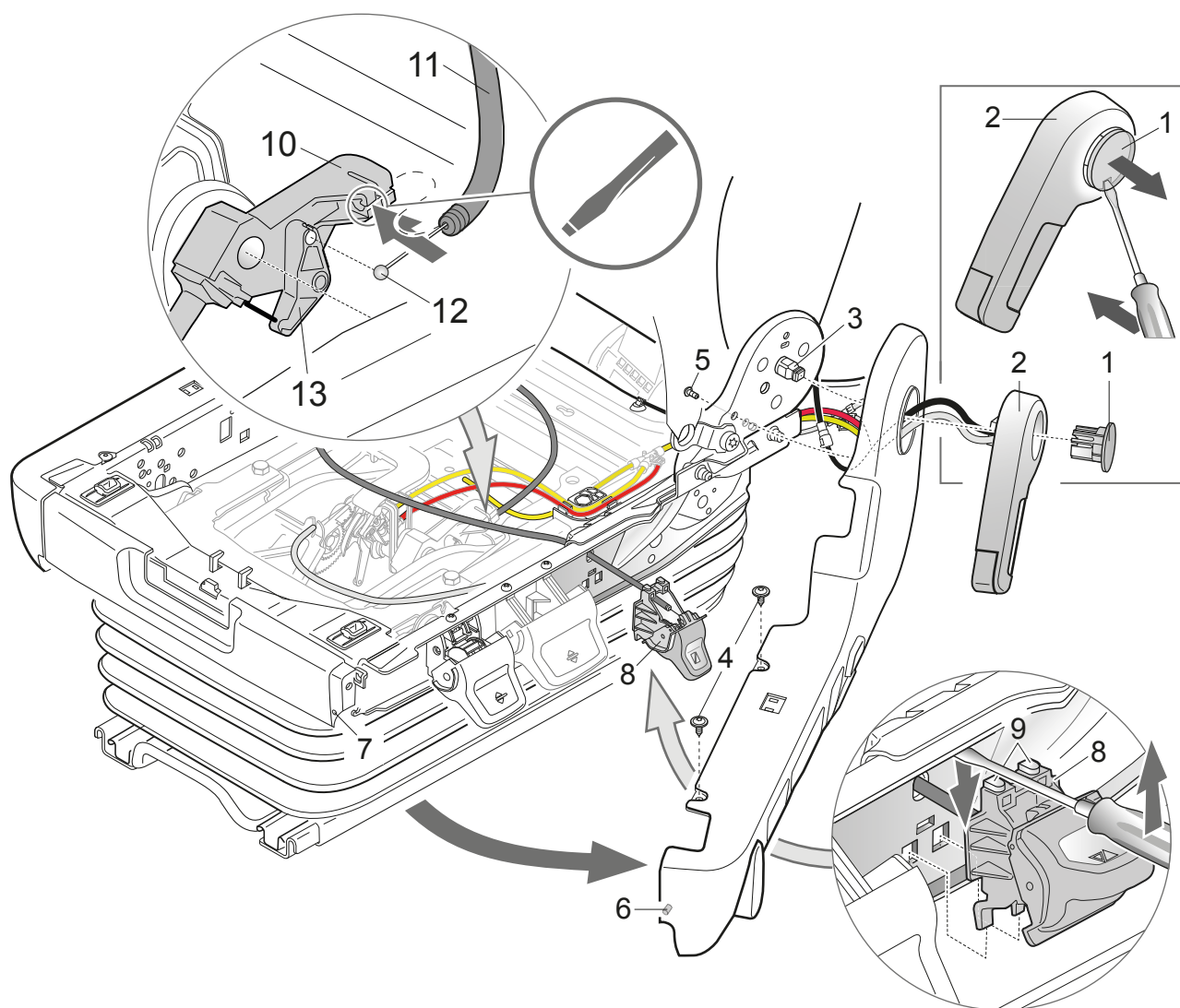


Tightening torque:

Pos. 7	(T20)	2,5 Nm
Pos. 8	(T20)	0,4 Nm
Pos. 12	(T20)	1 Nm

Handle height adjustment

- Remove seat cushion (2.3.0/page 11).
- Unhook bowden cable (1) at counter support (2) and loosen bowden cable on height valve (3).
- Adjust all control handles in lowermost position.
- Press out plug (4) of backrest handle (5). For this place a little screwdriver in the opening below of plug (4) and lever out plug.
- Pull backrest handle (5) from pin (6).
- Unscrew two screws (7) and one screw (8), push pin (9) out of hole (10) of front cover and bend up side cover. **(Do not unhook the rear cover, because it can not be loosened without damaging rear- or side covers).**
- Pull out holder (11) and unhook bowden cable.
- Unscrew two screws (12), push handle (13) downwards and take off handle.



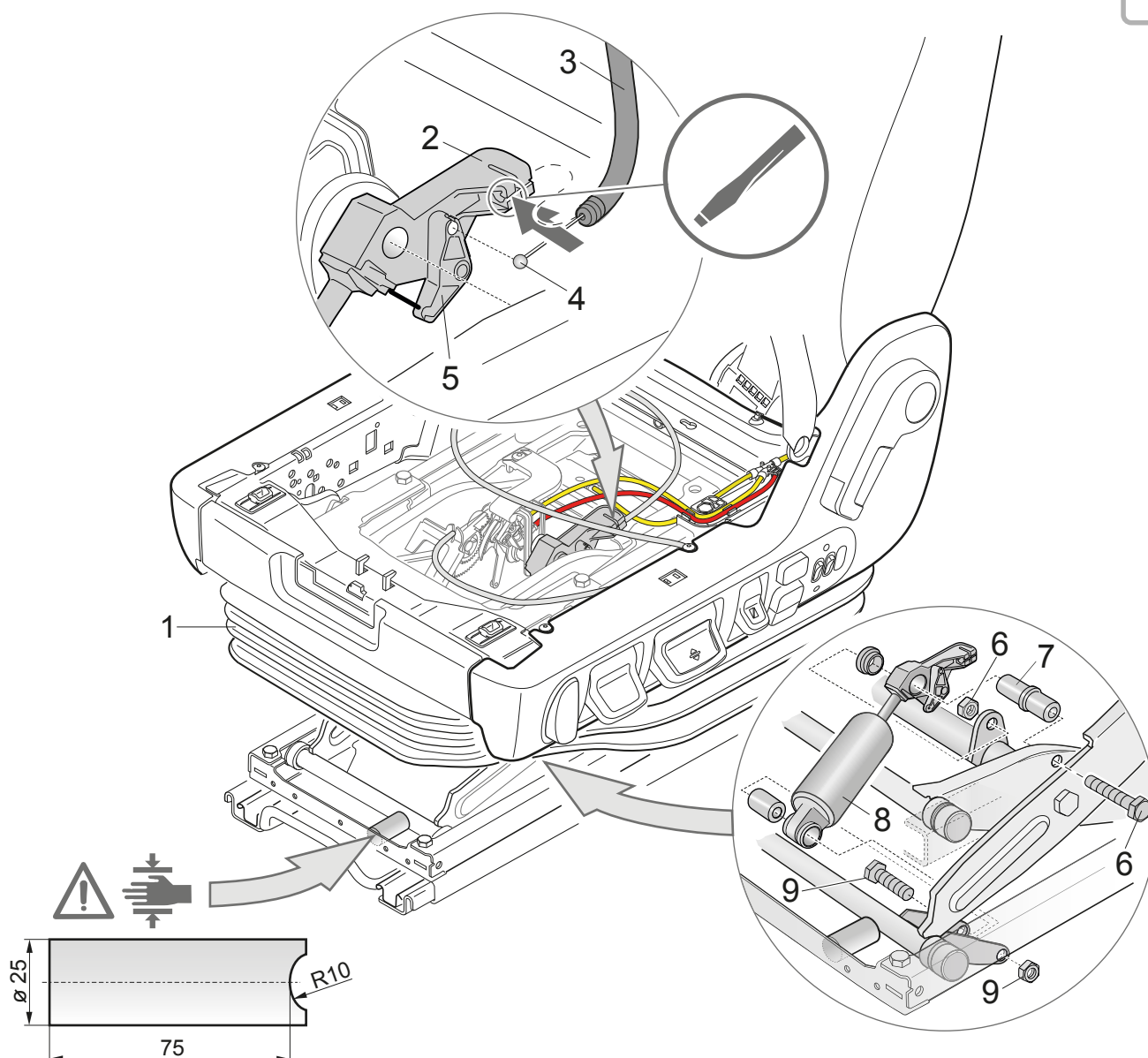
Shock absorber adjustment



Tightening torque:

Pos. 4	(T20)	2,5Nm
Pos. 5	(T20)	0,4Nm

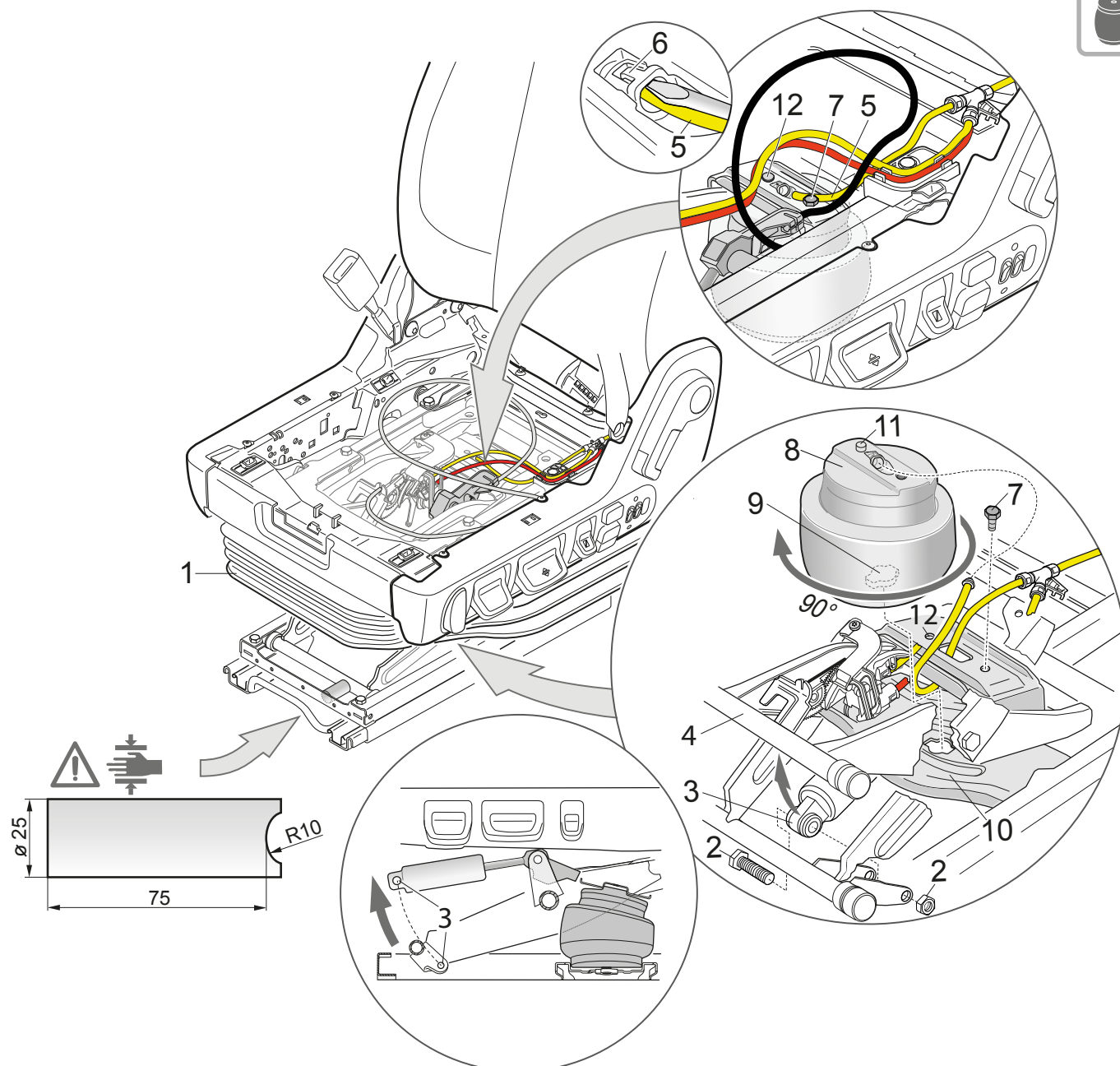
- Remove seat cushion (2.3.0/page 11).
- Adjust all the control handles in lowermost position.
- Press out plug (1) of backrest handle (2). For this place a little screwdriver in the opening below of plug (1) and lever out plug.
- Pull backrest handle (2) from pin (3).
- Unscrew two screws (4) and one screw (5), push pin (6) out of hole (7) of front cover and bend up side cover. **(Do not unhook the rear cover, because it can not be loosened without damaging rear- or side covers).**
- Press down handle for shock absorber (8) by using a screwdriver till two noses are unhooked. Take off handle from seatframe.
- Extend holder for bowden cable (10) by using a screwdriver and pull out bowden cable (11) backwards.
- Unhook nipple of bowden cable (12) from lever (13) and take away handle for shock absorber.



Tightening torque:
Pos. 6, 9 (SW 13) 29±4 Nm

Shock absorber

- Remove seat cushion (2.3.0/page 11).
- Loosen the lower bellows fixation at the front and lift bellows (1).
- Move seat in highest position and secure the seat by using a 75 mm spacer against lowering.
- Extend holder for bowden cable (2) by using a screwdriver and pull out bowden cable (3) backwards.
- Unhook nipple of bowden cable (4) from lever (5).
- Unscrew upper shock absorber fixation (6) and move bushing (7) out of the shock absorber (8).
- Unscrew lower shock absorber fixation (9) and take off shock absorber.


Tightening torque:

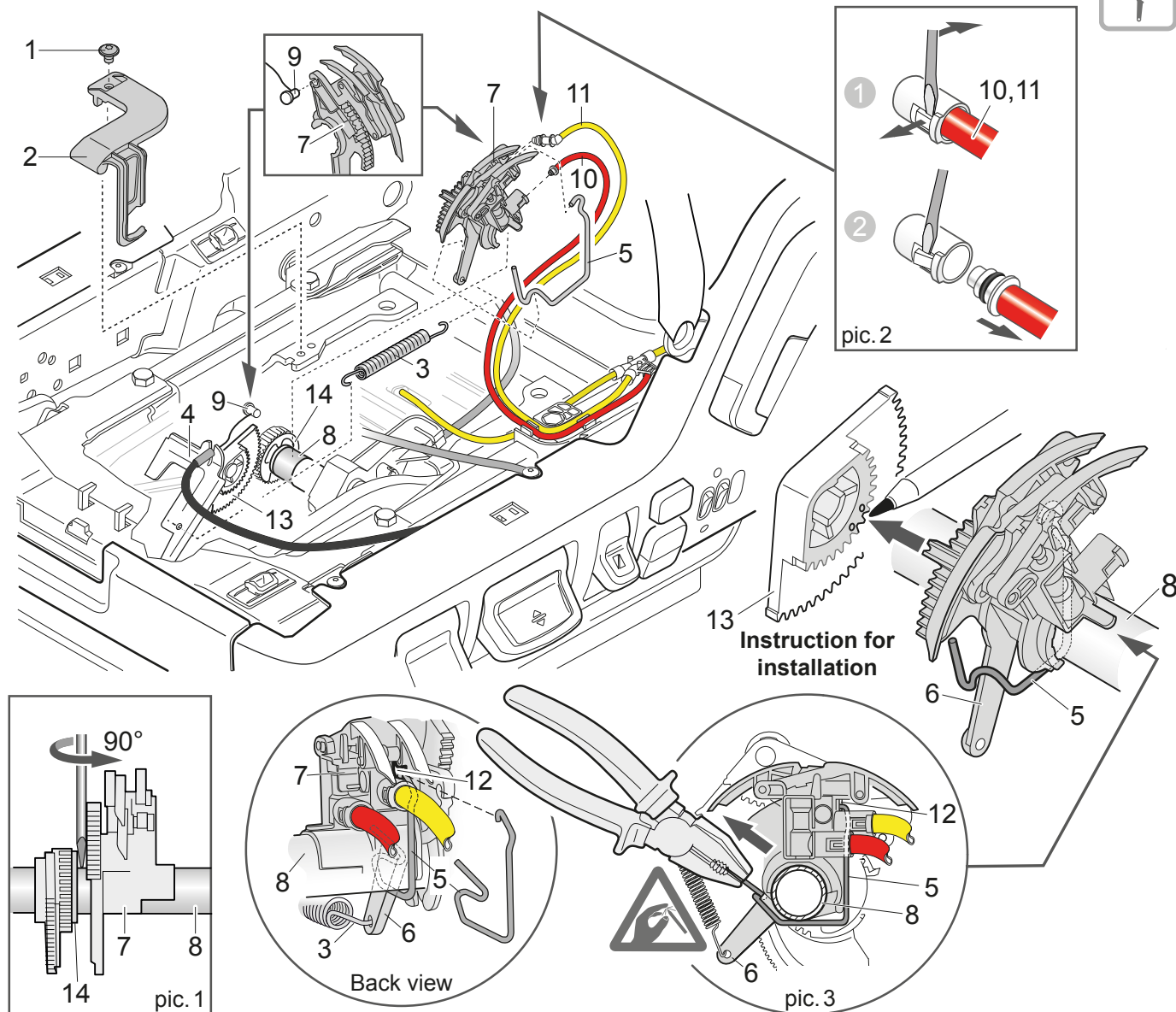
Pos. 2	(SW 13)	29±4 Nm
Pos. 7	(SW 10)	5 Nm

Air spring

- Remove seat cushion (2.3.0/page 11).
- Loosen the lower bellows fixation at the front and lift bellows (1).
- Move seat in highest position and secure the seat by using a 75 mm spacer against lowering.
- Unscrew lower shock absorber fixation (2) and swing up shock absorber (3). For easier working secure shock absorber at the cross tube (4) by an cable strip.
- Loosen hose (5) (for this lift locking hook (6) carefully).
- Undo screw (7), rotate air spring (8) about 90 degree (bayonet fixing (9) unlatches from holder 10) and take off air spring (8) forwards.


Instruction for installation

- Fix at first new air spring on lower holder (10).
- Nose (11) must be latching in hole (12).


Tightening torque:

Pos. 1 (T30) 5±1 Nm

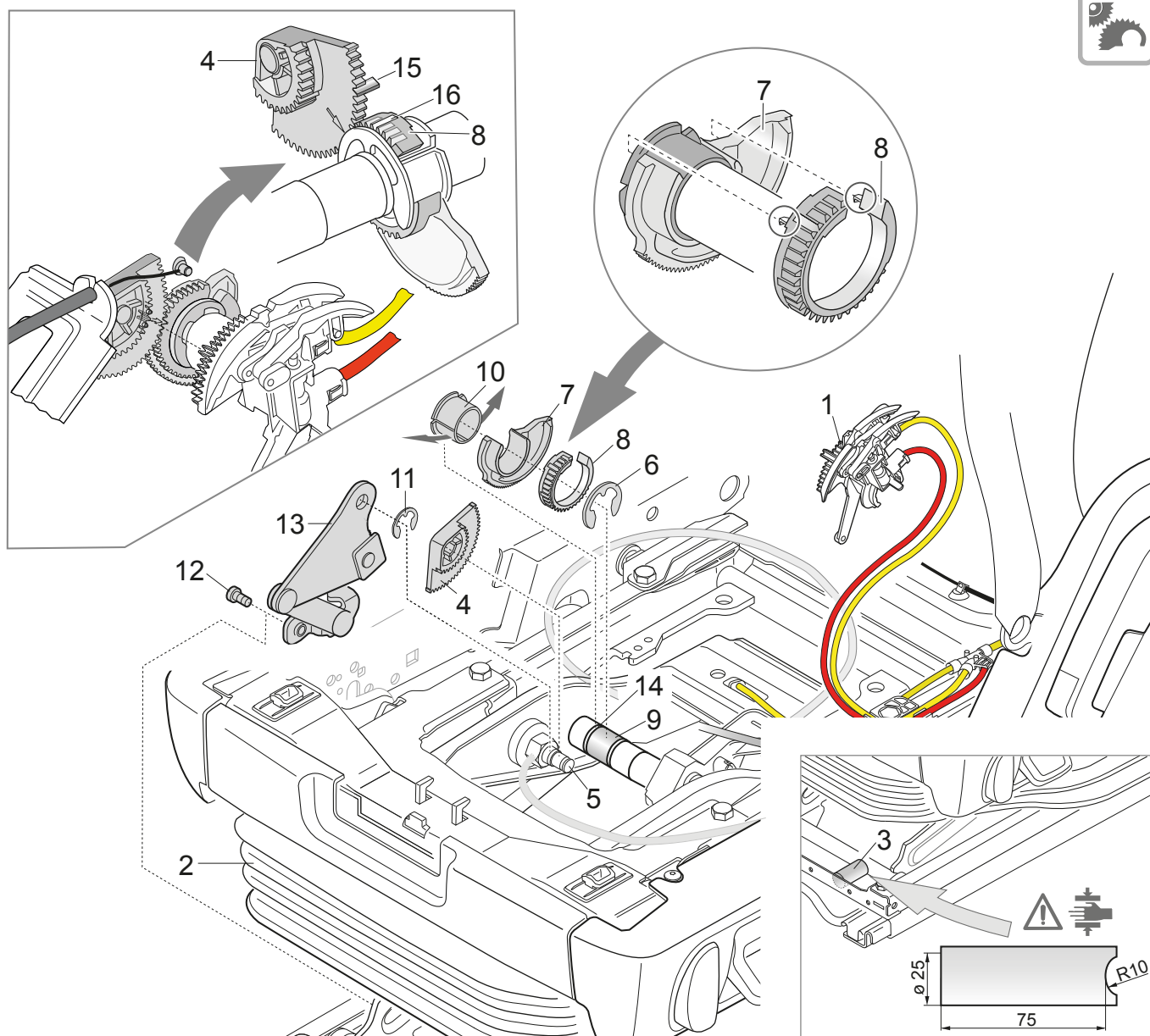
Valve for height adjustment

- Remove seat cushion (2.3.0/page 11).
- Lower seat in lowermost position.
- Remove screw (1) and engage holder (2).
- Unhook clamp (5) by using a pliers from valve arm (6) and center (8).
- Put the small side of a screwdriver between retaining washer (14) and valve (7) and rotate it by 90° to engage valve (7) from center (8) (pic. 1).
- Loosen bowden cable (9) and spring (3) from valve (7).
- Remove by using a little screwdriver the hoses (10) and (11) from valve (7) (pic. 2).


Instruction for installation

- Grease center (8) at the fixation area of valve (7) and holder (2).

- Hook clamp (5) in the opening (12) at the backside of valve (7).
- Press valve (7) a little to the right of mounting position on center (8) and positioning the valve with gear wheel (13). The two lengthened teeth of height valve (7) must be inserted in the two longer teeth (between the two points) of gear wheel (13). For easier positioning make a mark between the two points, see sketch „Instruction for installation“.
- Push valve (7) in the direction of tooth segment (13) till valve is engaged on center (8). Check complete path of the tooth system.
- Hook clamp (5) by using a pliers on the valve arm (6) (pic. 3).
- Hook spring (3) and bowden cable (9) at valve (7).
- Grease the valve surface in the area of holder contact (2) before mounting holder (2).



Tightening torque:
Pos. 12 (T40) 20±2 Nm

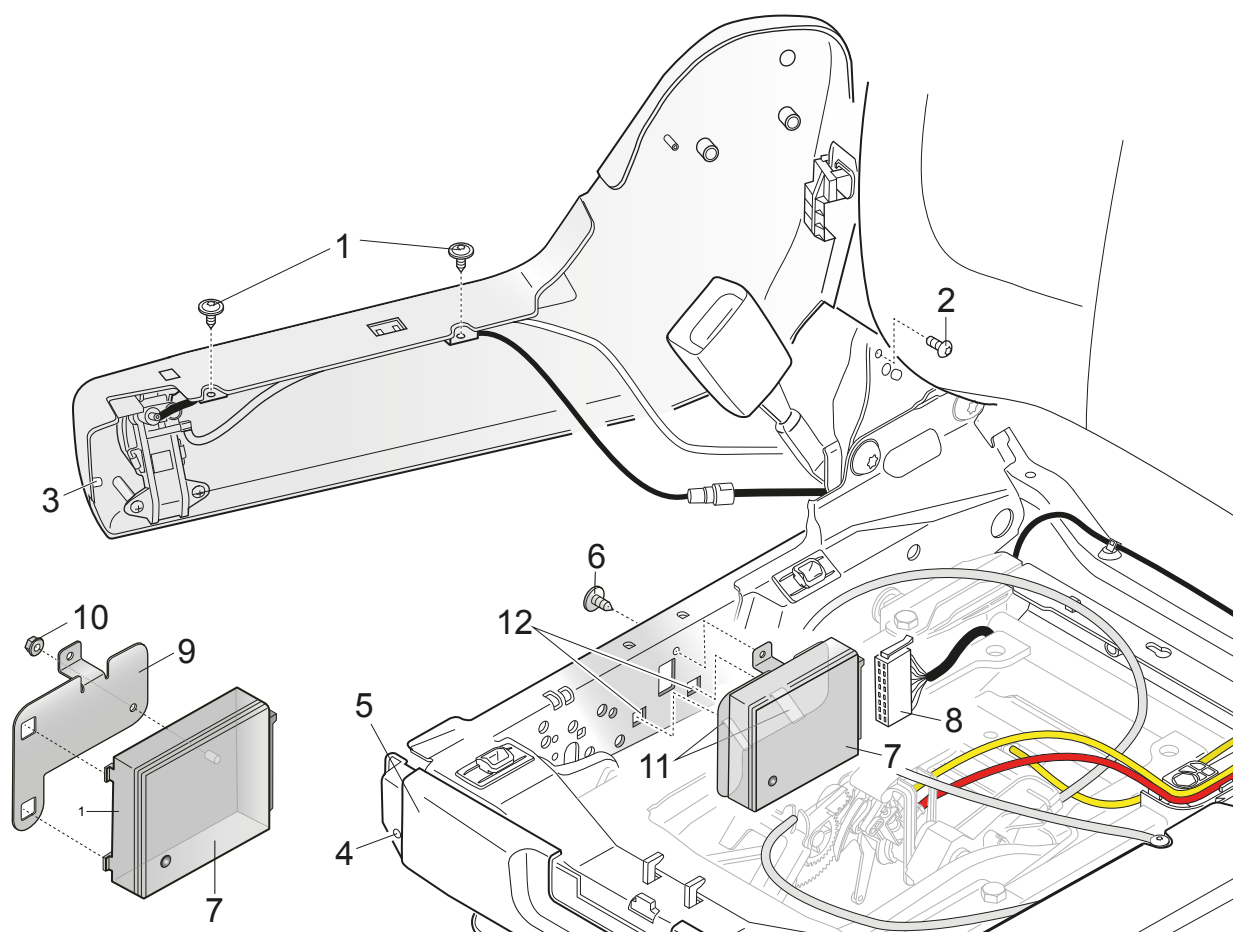
Height blocking system

- Pull valve for height adjustment (1) from centre (9) (2.32.0/page 40).
- Loosen the lower bellows fixation at the front and lift bellows (2).
- Move seat in highest position and secure the seat by using a 75 mm spacer (3) against lowering.
- Pull tooth segment (4) by a screwdriver from centre (5).
- Remove retaining washer (6), take off eccentric tappet (7) with clipped tooth segment (8) from centre (9).
- Pull apart bushing (10) at the opened side and take it off.
- Remove retaining washer (11), unscrew screw (12) at the outer side of the scissors and take away lever (13).



Instruction for installation

- Mount lever (13).
- Take off again spacer (3) and let lowering the seat.
- Clip bushing (10) in notch (14).
- Push eccentric tappet (7) on bushing (10) and fix tooth segment (8) (both guide lugs have to be engaged).
- Slide tooth segment (4) on centre (5) (not latching yet).
- Positioning tooth segments (4) and (8): wide tooth (15) of segment (4) must interlock in the first wide notch (16) of tooth segment (8). Check complete path of the tooth system.
- Slide tooth segment (4) completely on centre (5) (till latching).
- Fix retaining washer (6).
- Mount and adjust valve for height adjustment (2.32.0/page 40).



Tightening torque:			
Pos. 1	(T20)	2,5 Nm	
Pos. 2	(T20)	0,4 Nm	
Pos. 6	(T20)	3 Nm	
Pos. 10	(SW7)	1,7 Nm	

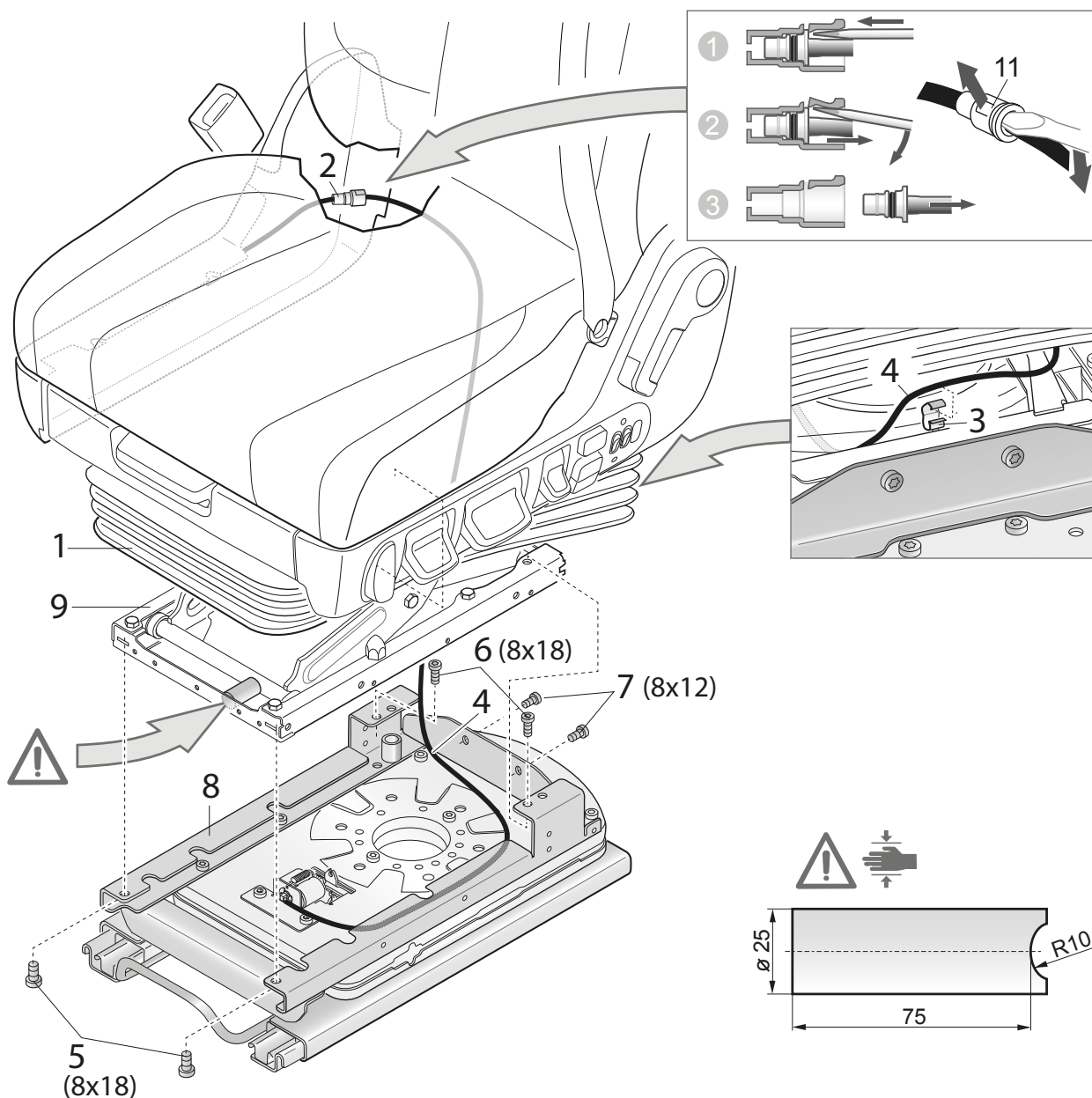
Electronic unit

- Remove seat cushion (2.3.0/page 11).
- Unscrew two screws (1) and one screw (2), push pin (3) out of hole (4) of front cover (5) and bend up side cover. **(Do not unhook the rear cover, because it can not be loosened without damaging rear- or side covers).**
- Unscrew screw (6), take electronic box (7) out of system and pull out plug (8).



Instruction for installation

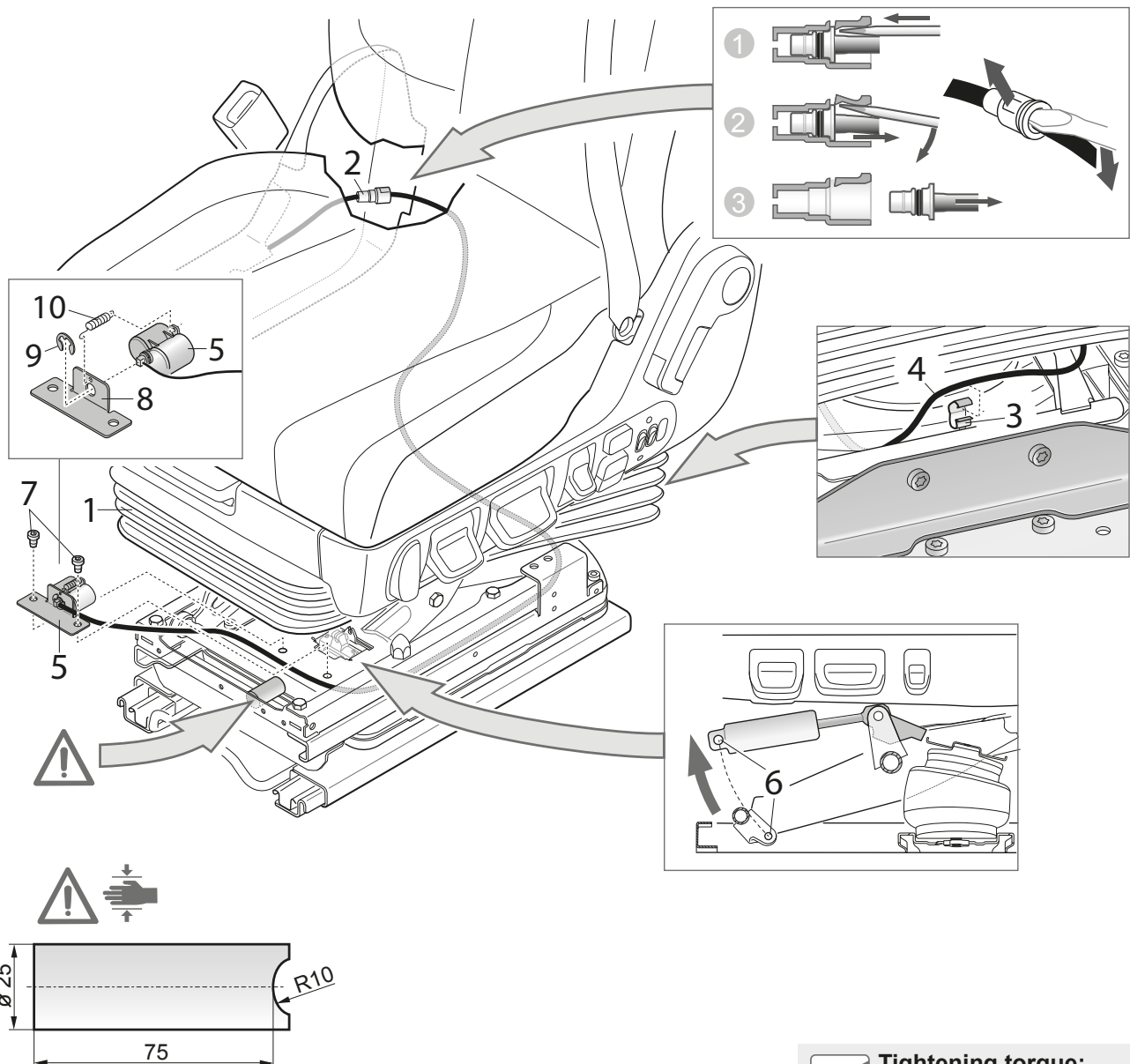
- Fix electronic box (7) on sheet plate (9) by nut (10).
- Hook mounted electronic box (7) with the two bars (11) in the openings (12) of the seat frame.



Tightening torque:
Pos. 5, 6, 7 (T40) 22±2 Nm

Swivel

- Demount seat out of vehicle (2.1.0/page 9).
- Loosen lower bellows fixation and lift bellows (1).
- Move seat in highest position and secure the seat by using a 75 mm spacer against lowering.
- Loosen hose connection (2) (behind the side cover with the swivel switch), open hose clamp (3) and pull out hose (4).
- Unscrew four screws (5,6)(8x18) and two screws (7) (8x12) and remove swivel (8) from underframe (9).



 **Tightening torque:**
Pos. 6 (SW 13) 29±4 Nm

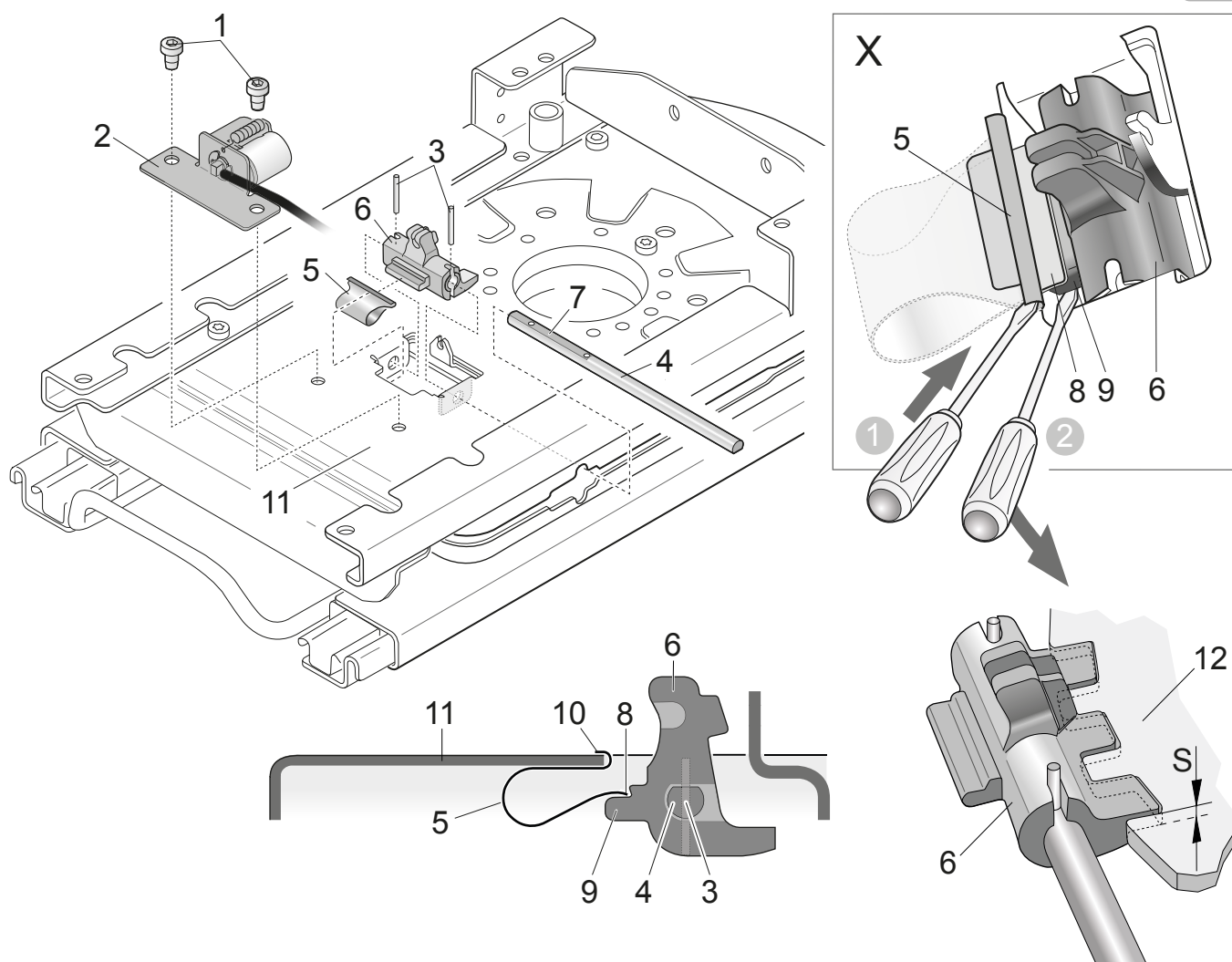
Pneumatic cylinder for swivel

- Loosen lower bellows fixation and lift bellows (1).
- Move seat in highest position and secure the seat by using a 75 mm spacer against lowering.
- Loosen hose connection (2) (behind the side cover with the swivel switch) open hose clamp (3) and take out hose (4).
- Unscrew lower shock absorber fixation (6) and swing up shock absorber.
- Unscrew two screws (7) and take off pneumatic cylinder.



Instruction for installation

Push pneumatic cylinder (5) in hole of angle (8), secure cylinder with circlip (9) and hook in spring (10).



Blocking catch for swivel

- Demount swivel (incl. slides) (2.35.0/page 43).
- Unscrew two screws (1) and remove pneumatic cylinder (2) incl. support bracket.
- Pull out two spring pins (3) and shaft (4) with suitable pliers.
- Lever out from swivel by a screw driver firstly spring steel sheet (5) (detail X), then blocking catch (6).

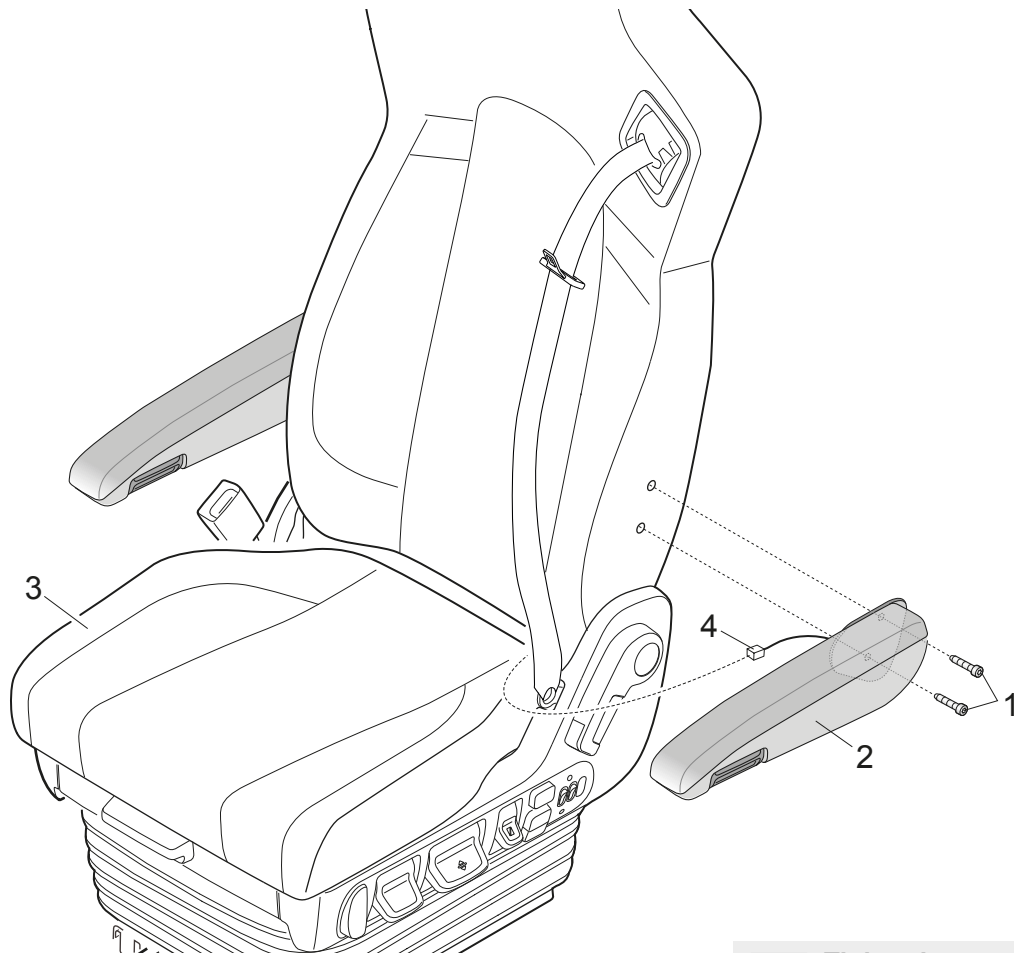


Instruction for installation

- Place new blocking catch (6) inside swivel, push shaft (4) with upwards arranged flat (7) into swivel and catch.
- Fix catch (6) by two spring pins (7).
- Push spring steel sheet (5) hardly together and take care that its lower leg (8) is placed on cam (9) of catch (6) and that the bended end of the upper leg (10) clasps the edge of the upper swivel plate (11).

Important function test:

Blocking catch (6) must engage safe and hearable in toothed ring (12).
Overcutting (S) of blocking catch (6) and toothed ring (12) must amount at least the half material thickness of toothed ring (12).


Tightening torque:

Pos. 1

28±3 Nm

Armrest

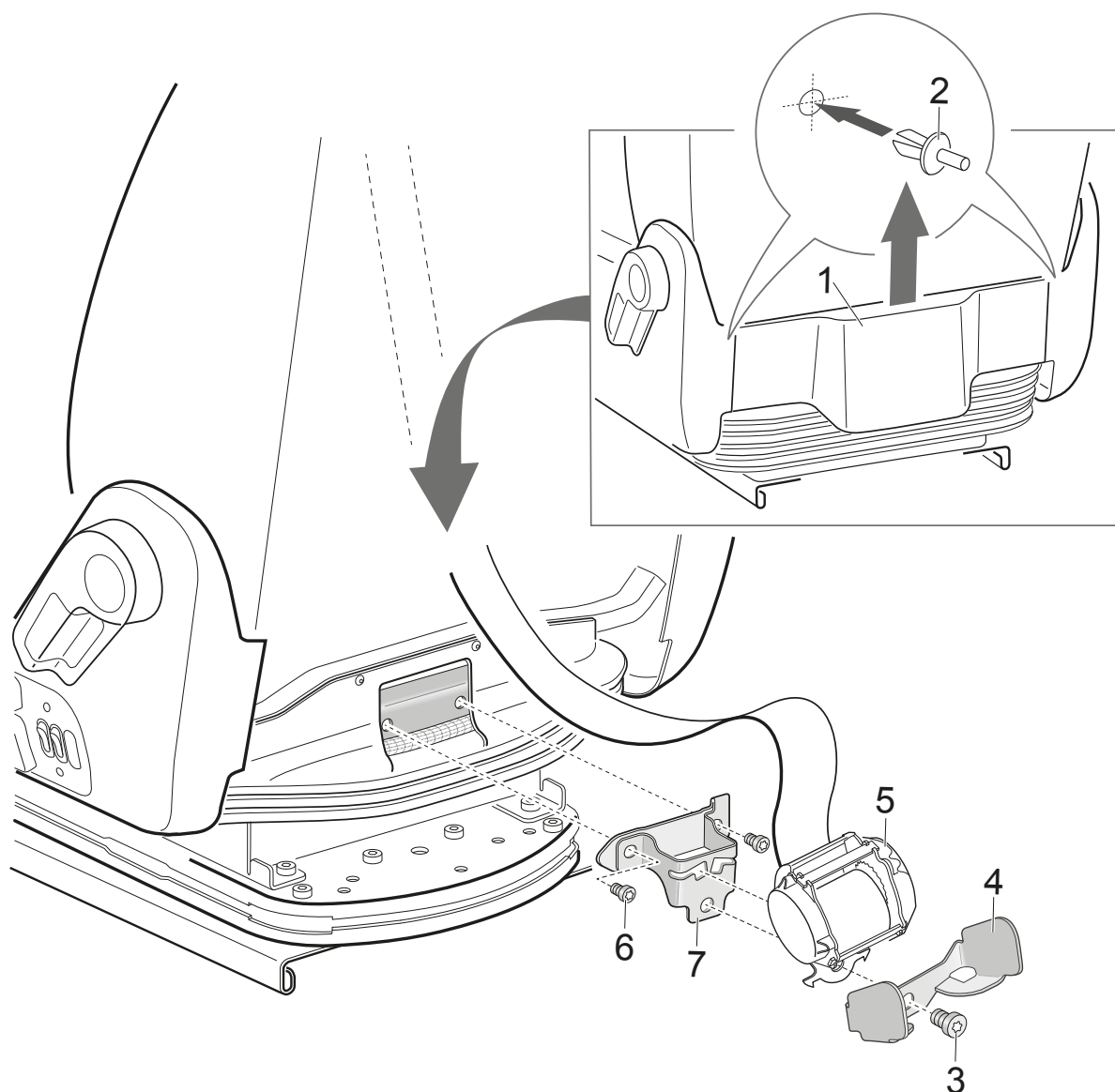
- Unscrew two screws (1) and remove armrest (2).

For armrest with microphone switch:

- Move seat cushion (3) in foremost position and loosen the electrical connection (4) between seat cushion and backrest.

For armrest retrofitting:

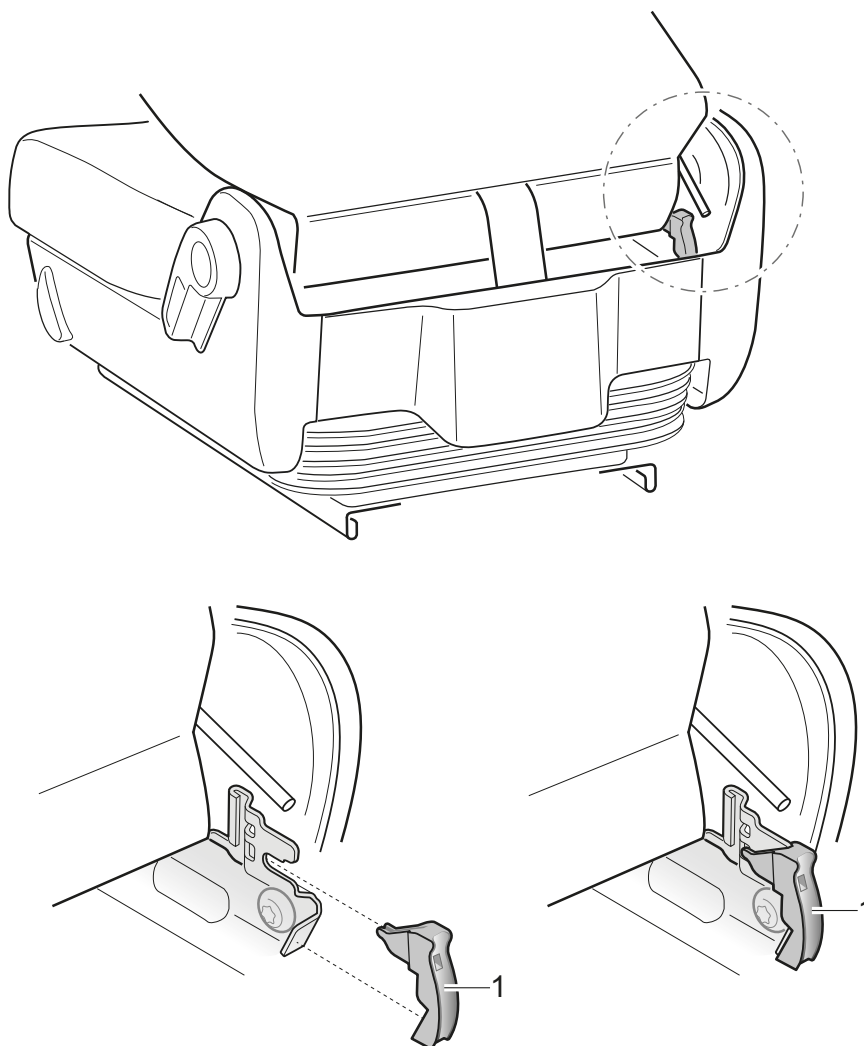
For armrest retrofitting please use the armrest stencil with part-no. 7018608 (must be ordered separately).


Tightening torque:

Pos. 3	(T45)	35+5 Nm
Pos. 6	(T45)	22±2 Nm

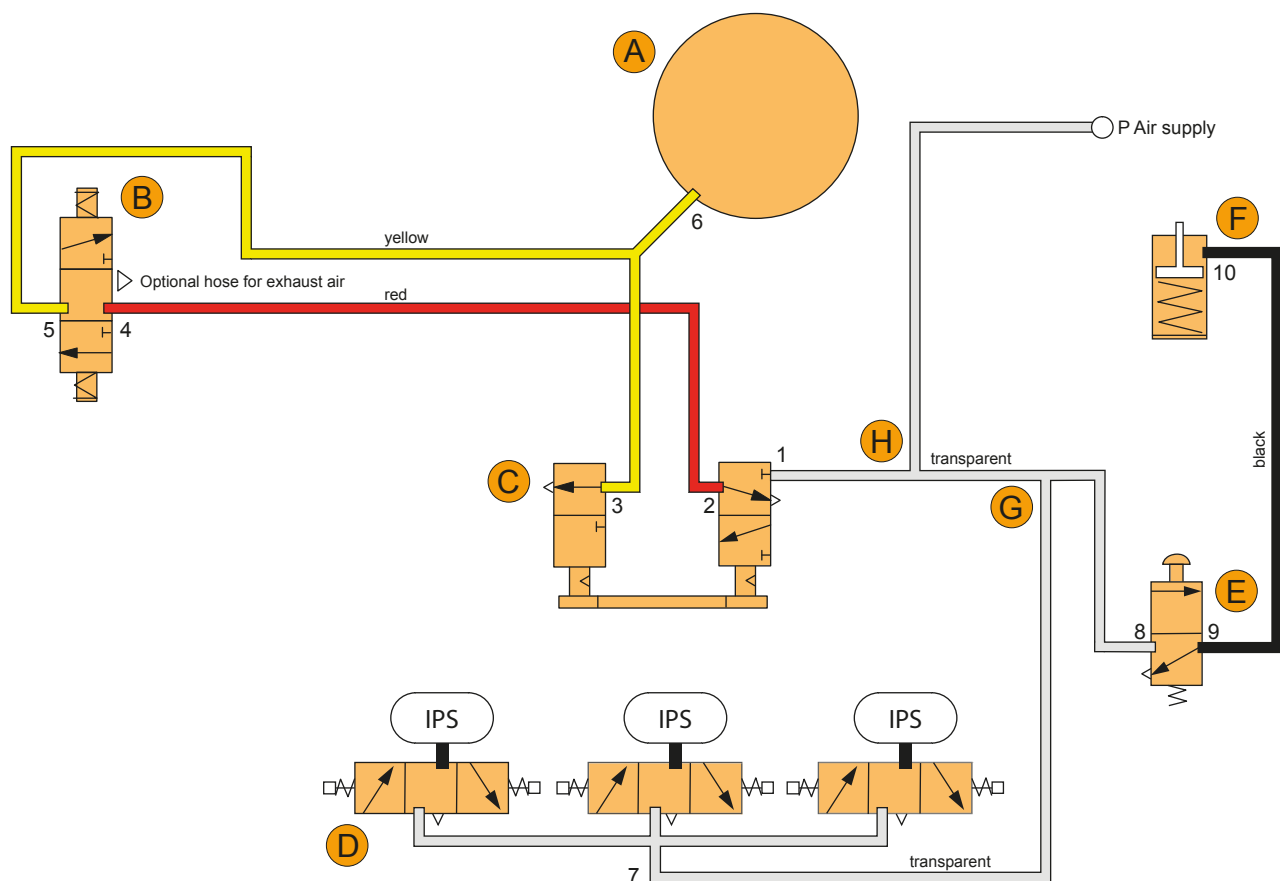
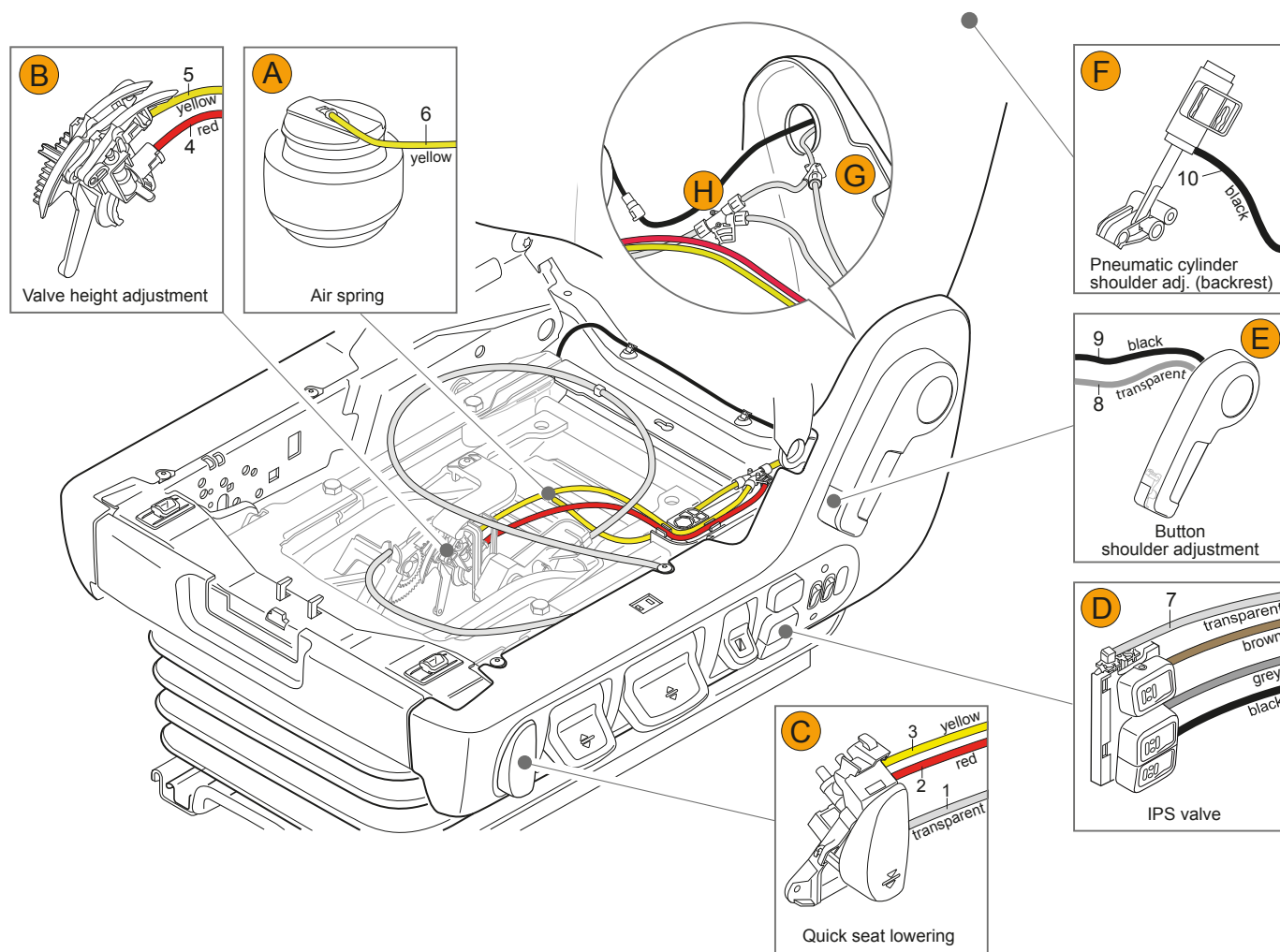
Bracket for belt retractor

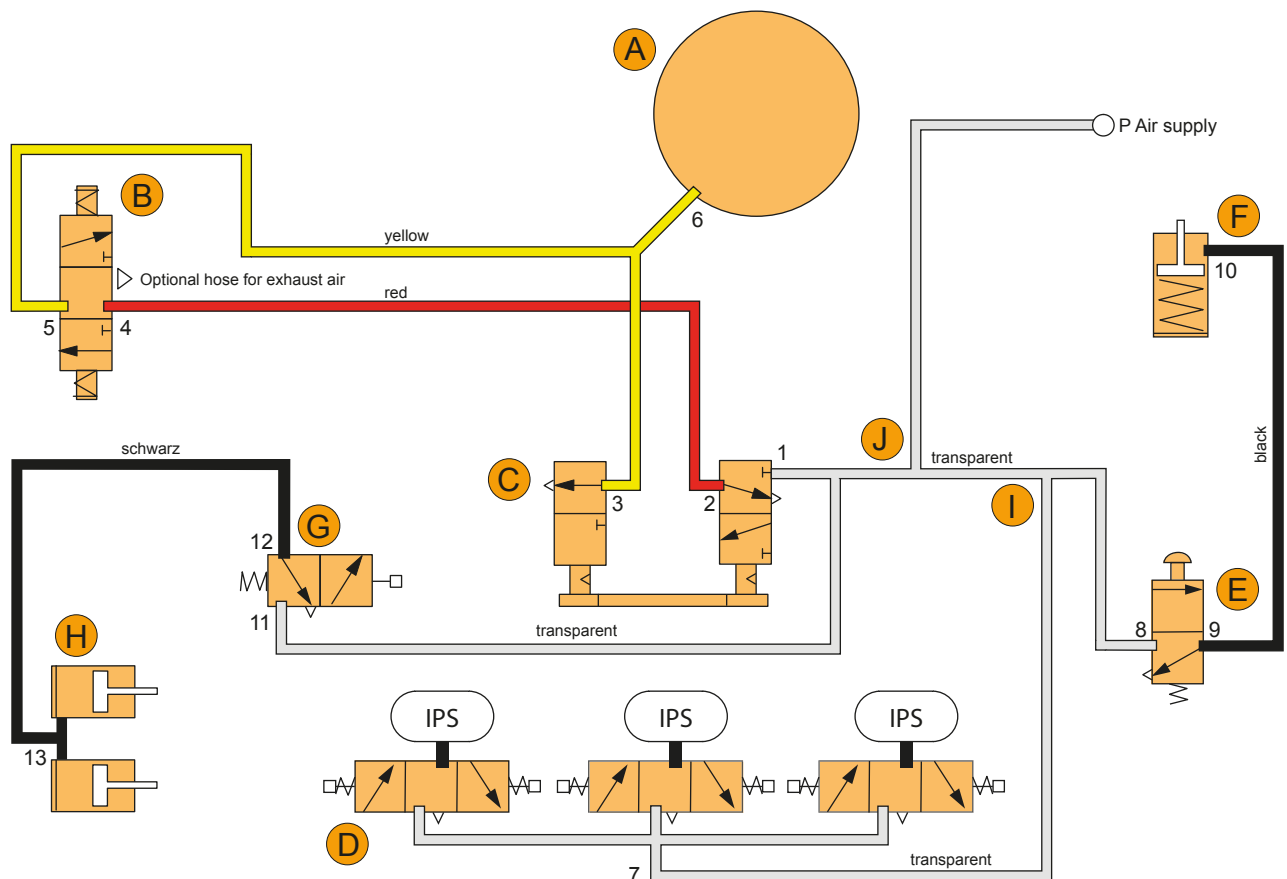
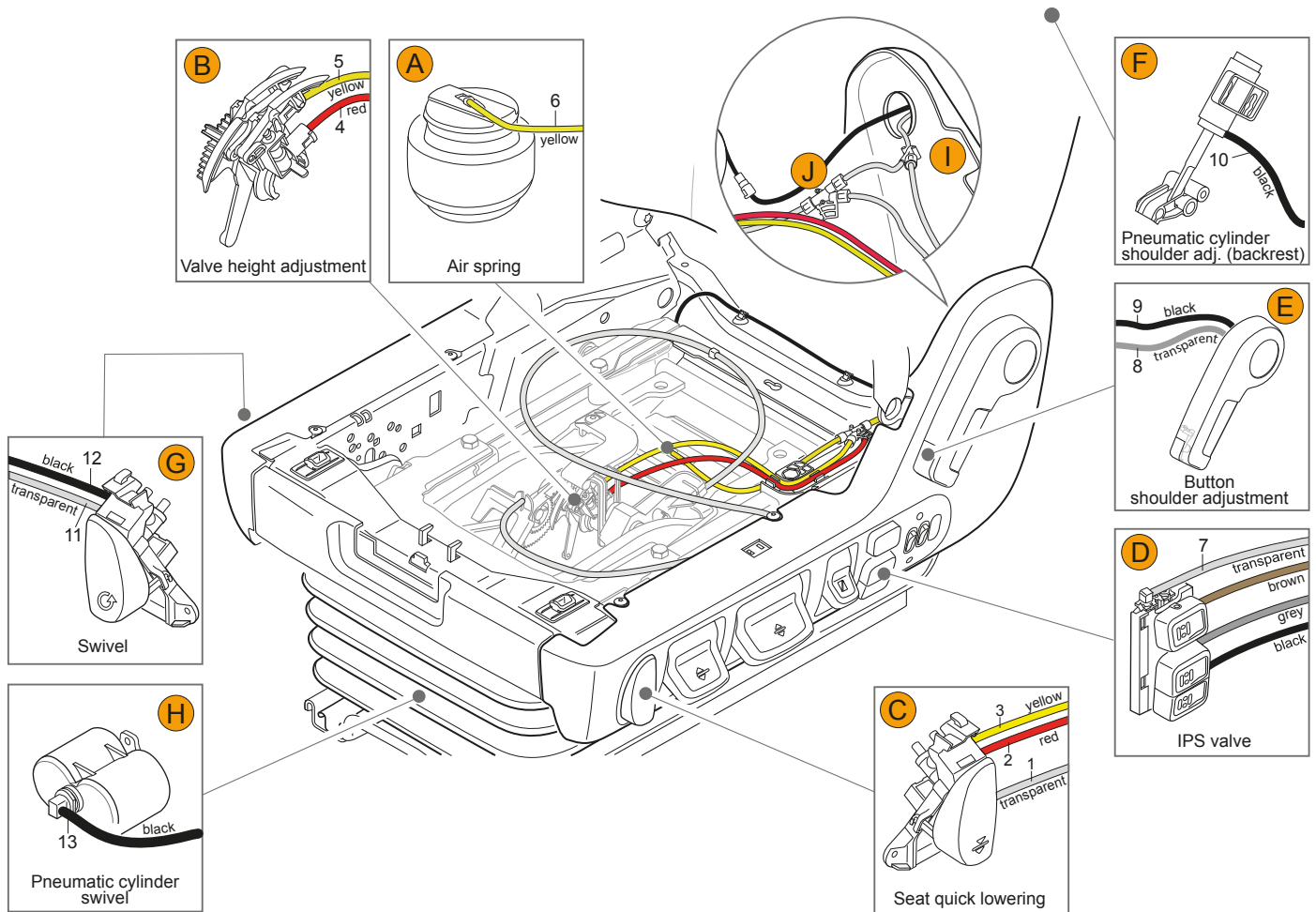
- Pull rear cover (1) out of side covers.
Caution: The rear cover can not be pulled out without damaging rear- or side covers.
 Fix the defective, not to catching rear cover by rivets (2) (2.18.0/page 26).
- Remove screw (3), take off protection sheet (4) and unhook belt retractor (5) from bracket (7).
- Loosen two screws (6) and remove bracket for belt retractor (7).

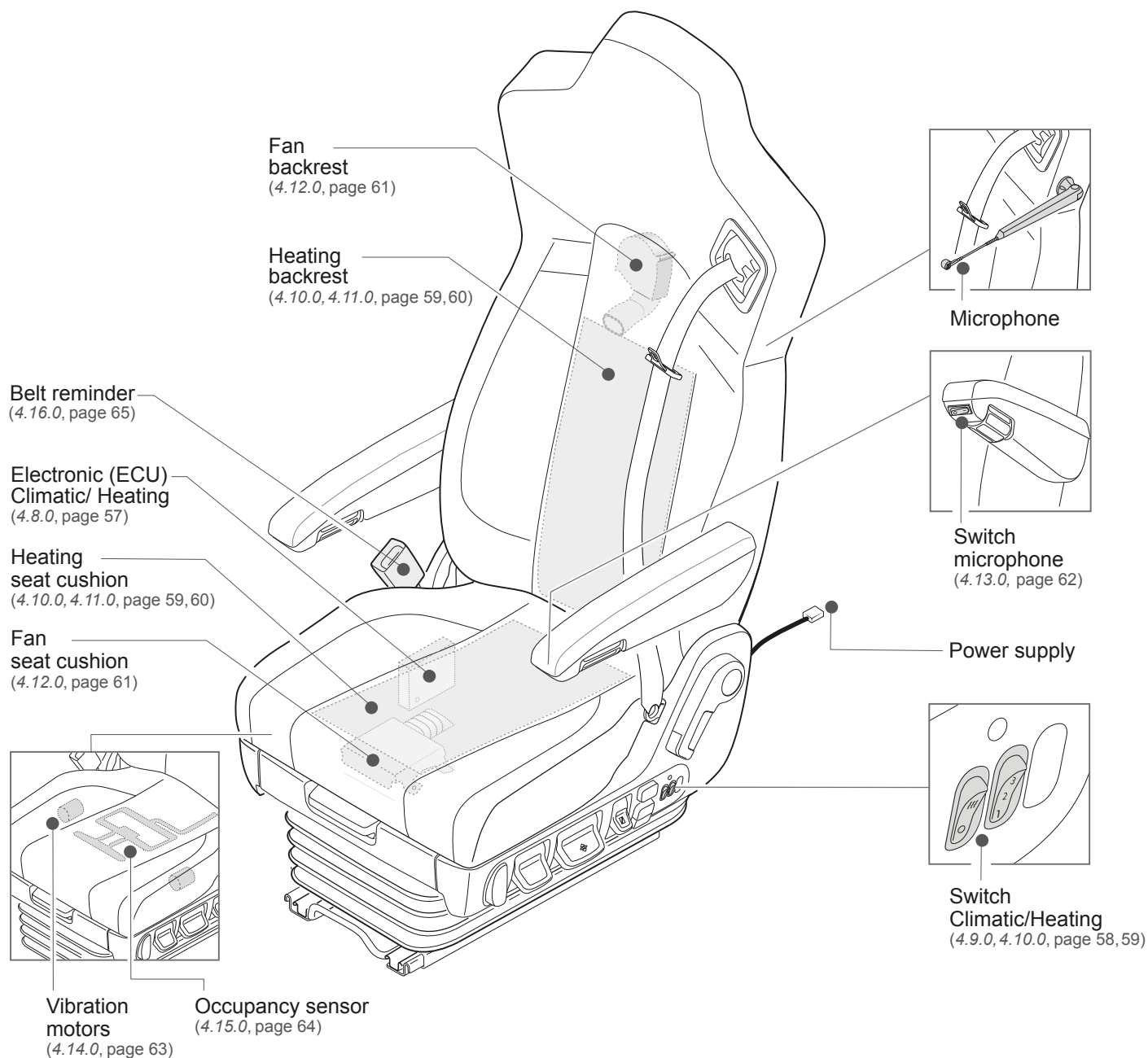


Counter bearing torsion bar

- Pull down backrest on seat cushion.
- Take off counter bearing torsion bar (1).







Allocation connector (seat)

Pin 1	bl/br	(0,75mm ²)		Haptics-L
Pin 2	bl/rd	(0,75mm ²)		Haptics+L
Pin 3	ye	(0,75mm ²)		Occupancy sensor
Pin 4	rd/wt	(1,00mm ²)		Heater (ignition), Fuse max. 10A
Pin 5	br	(1,00mm ²)		Ground, wire 31
Pin 6	bl	(0,75mm ²)		Belt reminder
Pin 7	bl/br	(0,75mm ²)		Belt reminder
Pin 8	ye/rd	(0,75mm ²)		Haptics+R
Pin 9	ye/br	(0,75mm ²)		Haptics-R

Allocation connector (vehicle)

9-pin Junior Power Timer housing female

Housing: tyco 1-967 621-1 (yellow)
 Lock: tyco 0-967 631-1 (yellow)
 Contact: tyco 927 775-6

Supply voltage

Nominal voltage: $U_N = 24V$ de
 Operating range: $U_{Bat} = 17...31V$
 Pin 4: ca: 3.5A
 Pin 5: ground
 with: $U = 24V$
 $T_N = 20^\circ C$

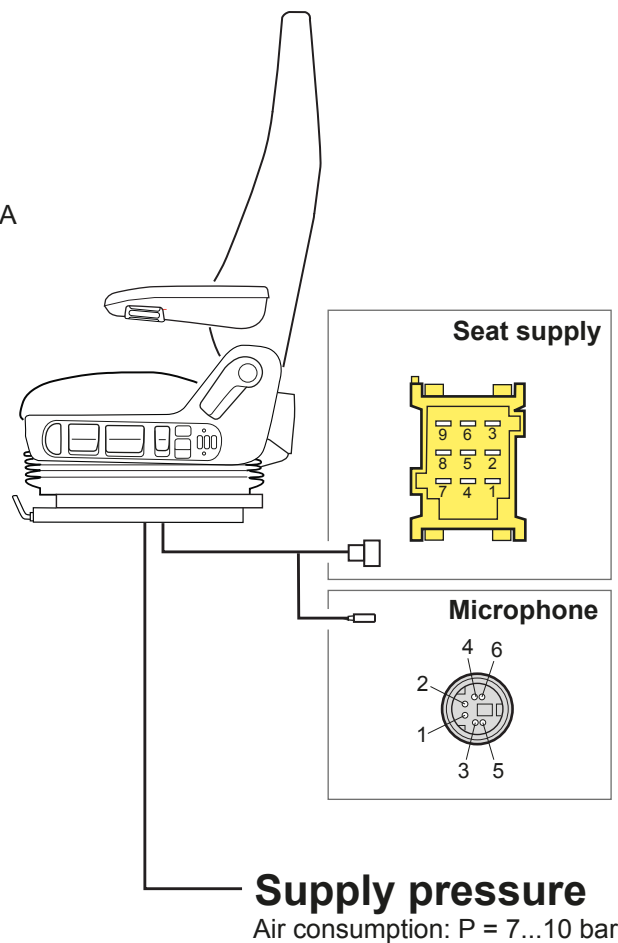
Temperature range T: $-40/+85^\circ C$

Fuse protection

Climatic Pin 4: max. 10A safety fuse

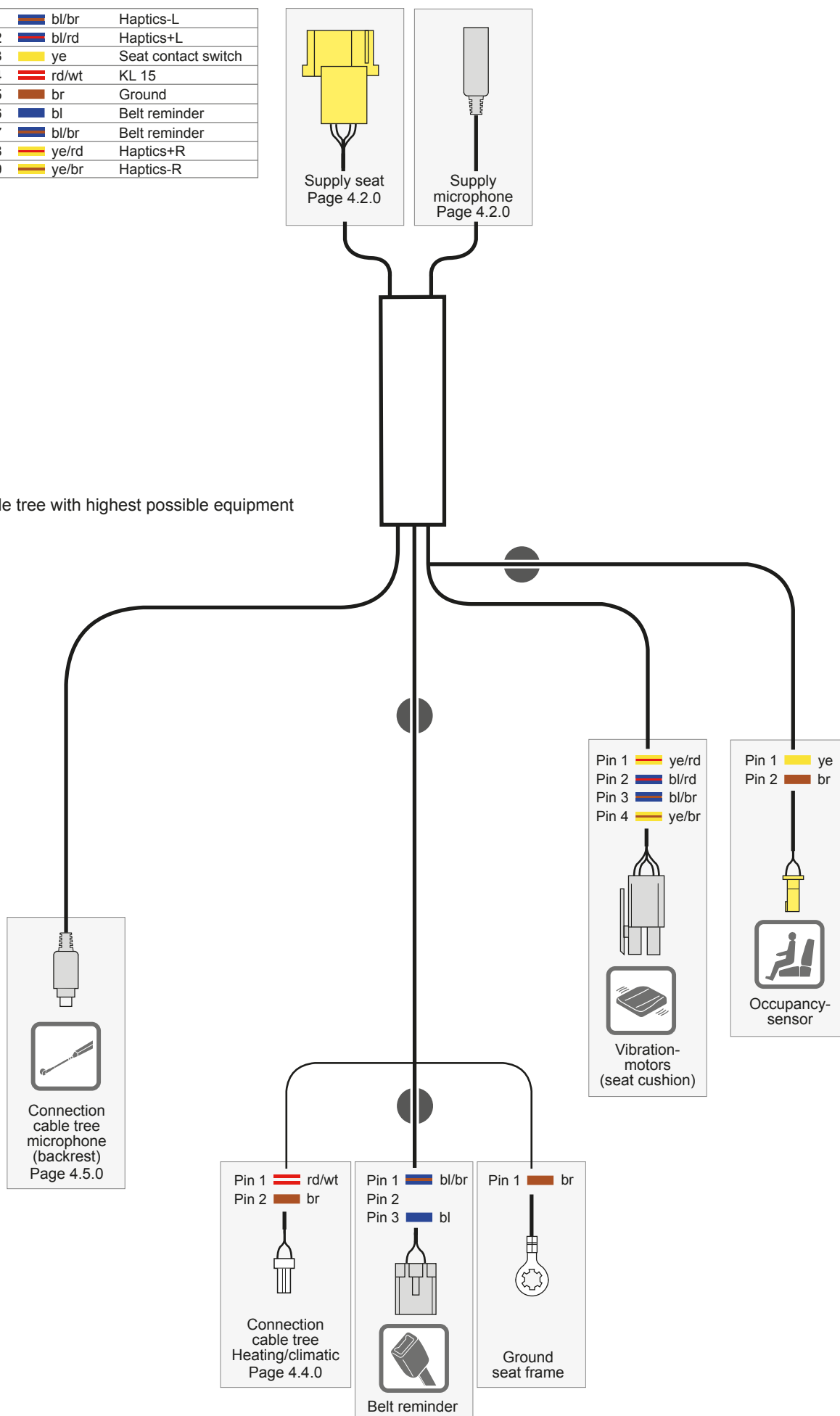
Potential

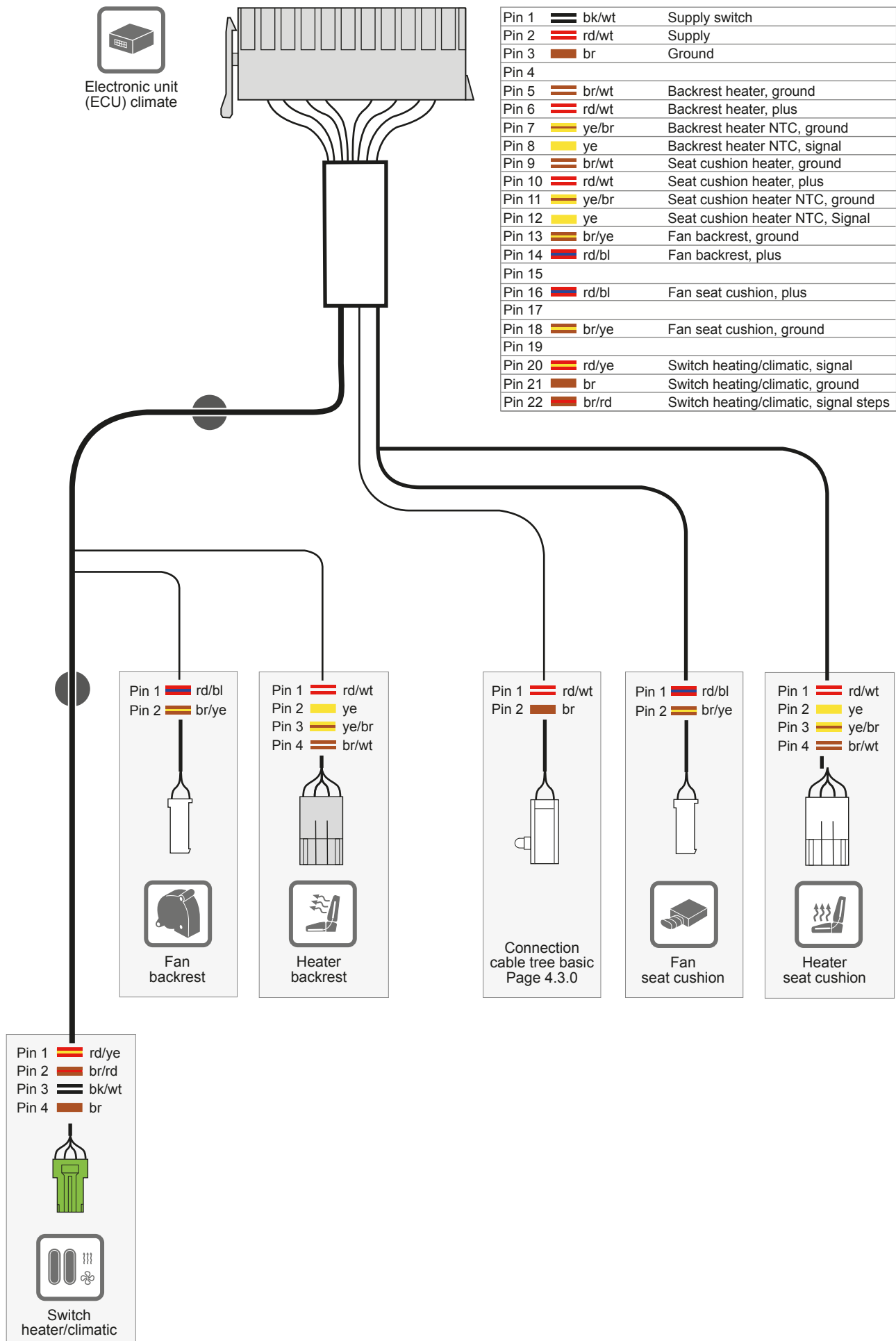
Seat frame is connected with the electrical ground of the seat

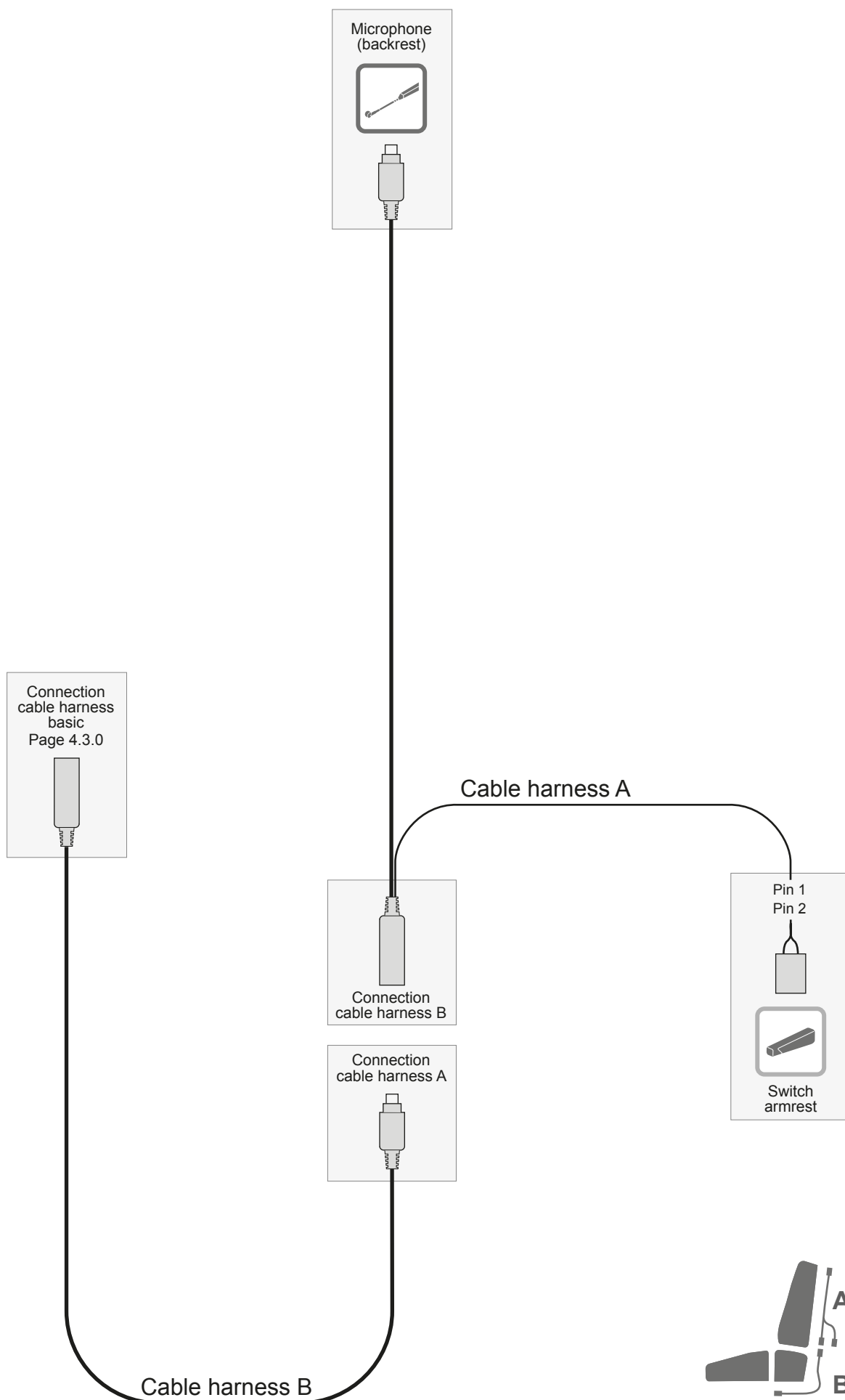


Pin 1	bl/br	Haptics-L
Pin 2	bl/rd	Haptics+L
Pin 3	ye	Seat contact switch
Pin 4	rd/wt	KL 15
Pin 5	br	Ground
Pin 6	bl	Belt reminder
Pin 7	bl/br	Belt reminder
Pin 8	ye/rd	Haptics+R
Pin 9	ye/br	Haptics-R

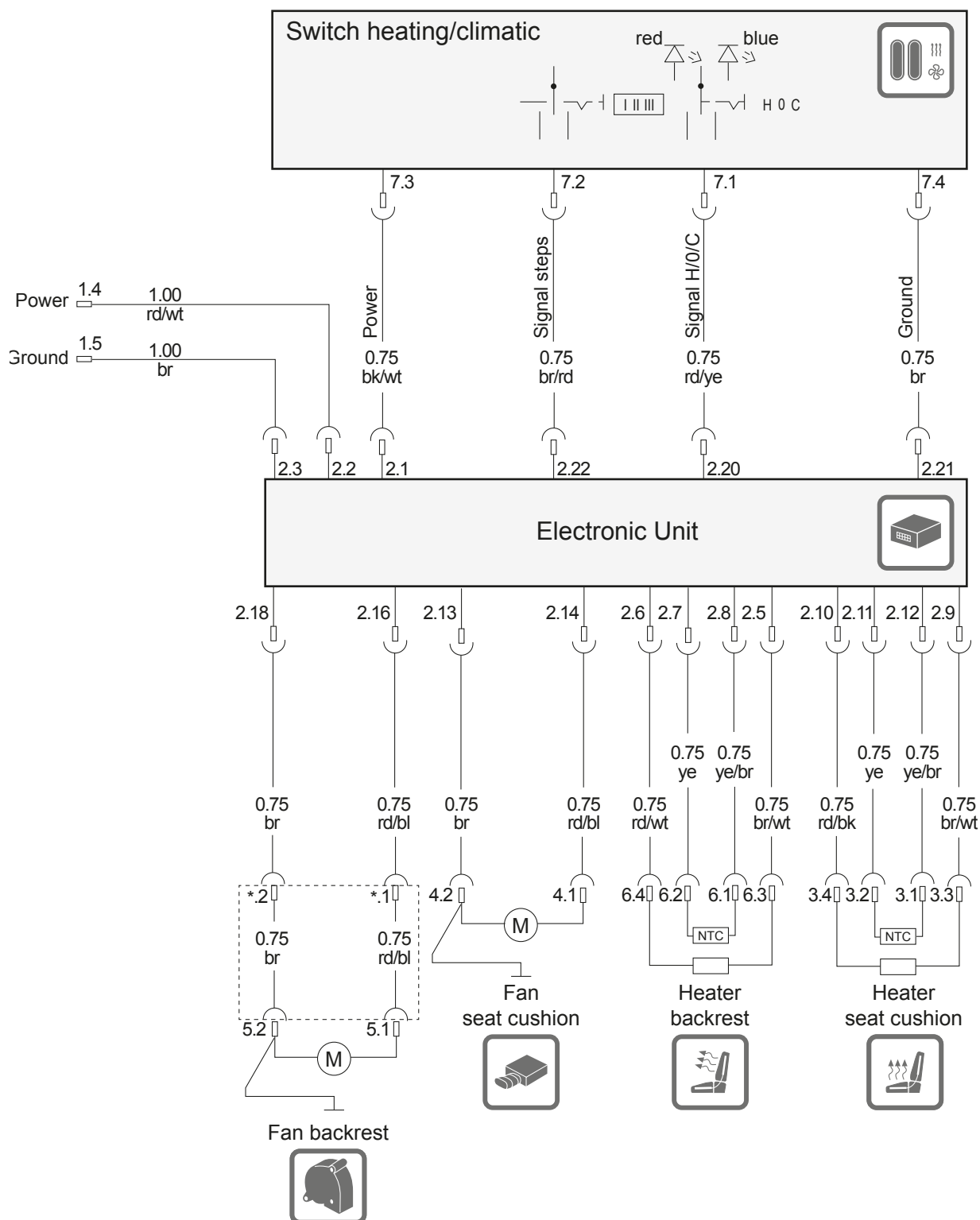
Cable tree with highest possible equipment







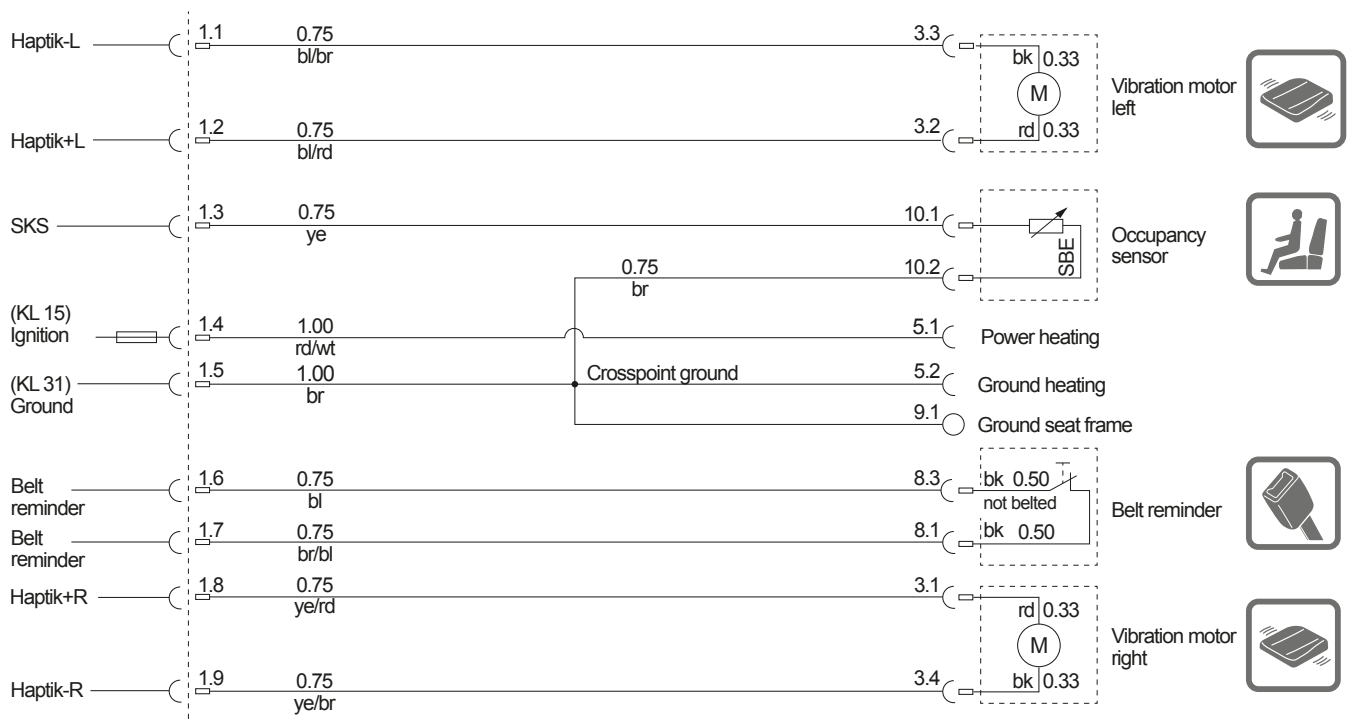
Cable harness heating/climatic



Cable harness, basic

Cable harness with highest equipment

Vehicle side



Cable harness microphone

Cable harness A

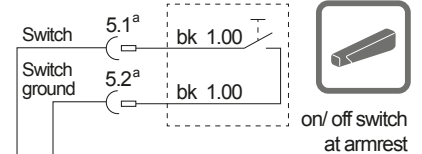


Loudspeaker Signal + 4.6^a
Loudspeaker Signal - 4.5^a
4.4^a
4.3^a
Microphone Signal - 4.2^a
Microphone Signal + 4.1^a

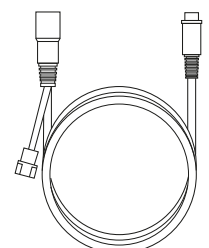


Cable harness B

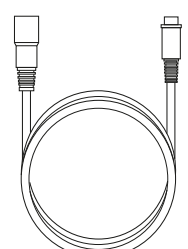
Microphone Signal + 1.1^b 2.1^b 3.1^a Microphone Signal +
Microphone Signal - 1.2^b 2.2^b 3.2^a Microphone Signal -
Switch 1.3^b 2.3^b 3.3^a Switch
Switch ground 1.4^b 2.4^b 3.4^a Switch ground
Loudspeaker Signal + 1.5^b 2.5^b 3.5^a Loudspeaker Signal +
Loudspeaker Signal - 1.6^b 2.6^b 3.6^a Loudspeaker Signal -



Cable harness A



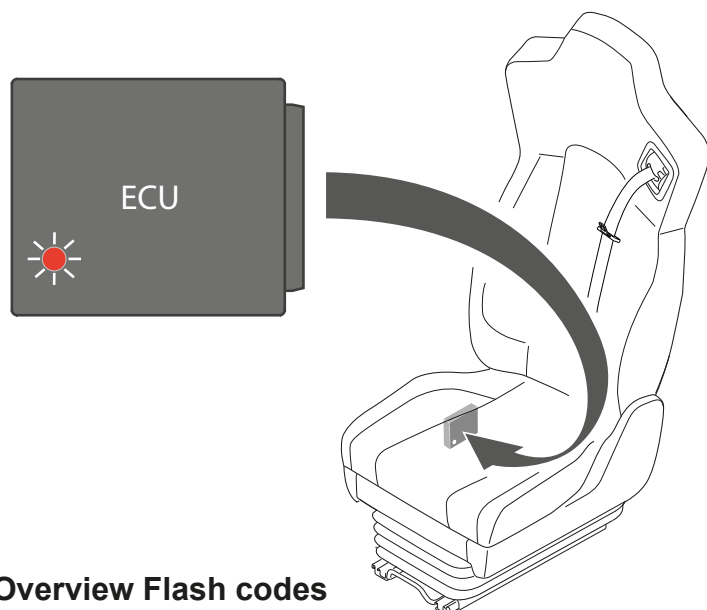
Cable harness B



Error Codes (error codes)

When the LED at the electronic unit (ECU) is flashing (inside the seat system), one of the following error codes will be indicated:

To reading the error code the seat cushion must be remove.



Error code	Bedeutung
BC2	Fault electronic unit
BC3	Fault fan
BC4	Fault heating backrest
BC5	Fault heating seat cushion
BC6	Fault NTC backrest
BC7	Fault NTC seat cushion
BC8	Fault at switch
BC9	Over/undervoltage
BC10	Heating seat cushion or backrest too long in use

Flash intervall: LED on 0,5 sec.
LED off 0,5 sec.

After a short break (ca. 1-6 sec.) the error code will be repeated.

Overview Flash codes

BC2 Fault electronic unit (page 2.33.0)

Meaning: Internal error electronic unit.

Correction: Exchange the electronic unit when after repeatedly switching off/on the ignition the error code appears again.

BC3 Fault fan (page 4.12.0)

Meaning: Interruption, short-circuit or overload on fan.

Correction: Check fan/cable harness.

BC4 Fault heating backrest (page 4.11.0)

Meaning: Interruption, short-circuit or overload on backrest heating.

Correction: Check cable harness/heating.

BC5 Fault heating seat cushion (page 4.11.0)

Meaning: Interruption, short-circuit or overload on seat cushion heating.

Correction: Check cable harness/heating.

BC6 Fault NTC backrest (page 4.11.0)

Meaning: Value outside of tolerance range.

Correction: Check cable harness/NTC.

BC7 Fault NTC seat cushion (page 4.11.0)

Meaning: Value outside of tolerance range.

Correction: Check cable harness/NTC.

BC8 Fault at switch (page 4.9.0)

Meaning: Signal at switch is not explicit.

Correction: Check cable harness/switch.

BC9 Over/undervoltage (page 4.2.0)

Meaning: Supply voltage is outside of the working voltage range.

Correction: Check power supply on vehicle/cable harness.

BC10 Heating seat cushion or backrest too long in use (page 4.11.0)

Meaning: Heating too long in use.

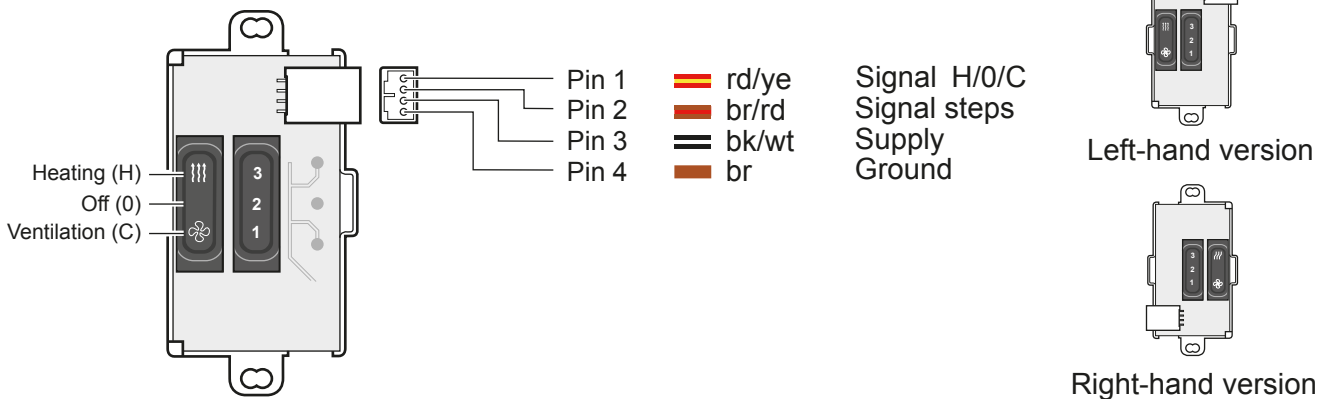
Correction: Check heating/NTC.

Funktion:

By pressing the **front** switch the seat heating/ventilation can be switched on/off.

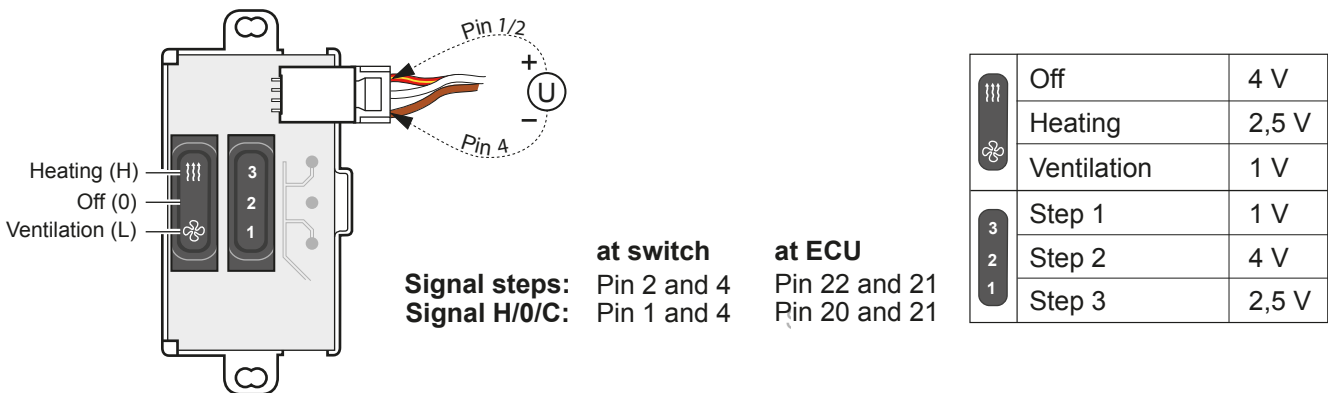
By pressing the **rear** switch the seat heating/ventilation can be adjusted in three levels.

Electrical connection

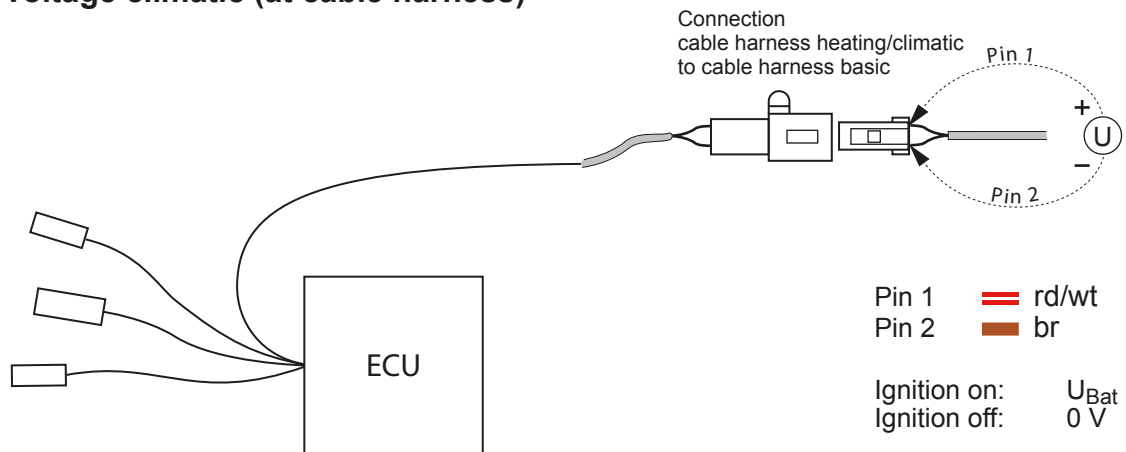


Checking signal (in each case +/-0,2 V)

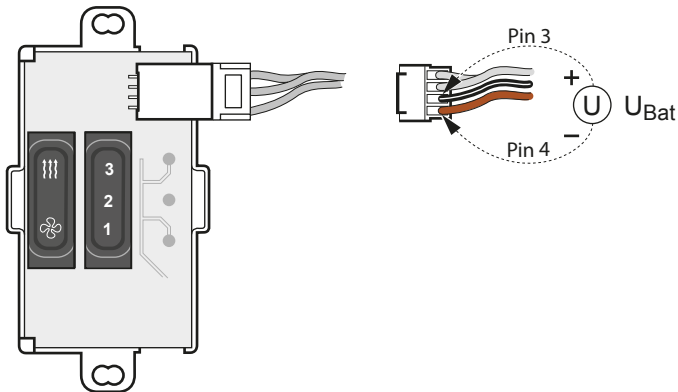
Plug connected on switch



Supply voltage climatic (at cable harness)



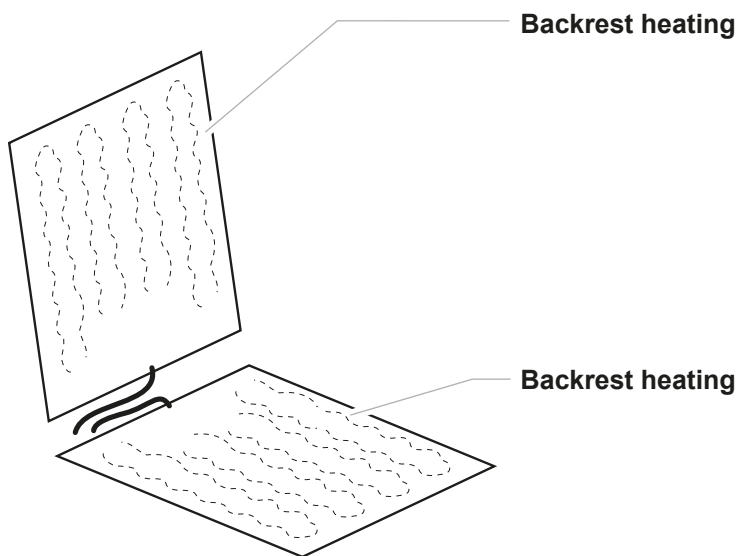
Supply voltage climatic (at switch)



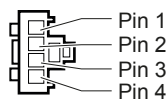
Pin 3 == bk/wt
Pin 4 == br

Ignition on: U_{Bat}
Ignition off: 0 V
(Switch position independent)

Electrical connection seat/backrest heating

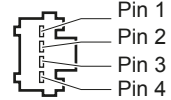


Plug heating



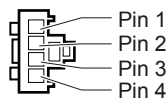
Pin 1 rd
Pin 2 bl
Pin 3 bl
Pin 4 br

Plug cable harness



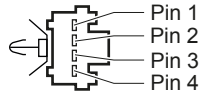
Pin 1 rd/wt
Pin 2 ye
Pin 3 ye/br
Pin 4 br/wt

Plug heating



Pin 1 rd
Pin 2 bl
Pin 3 bl
Pin 4 br

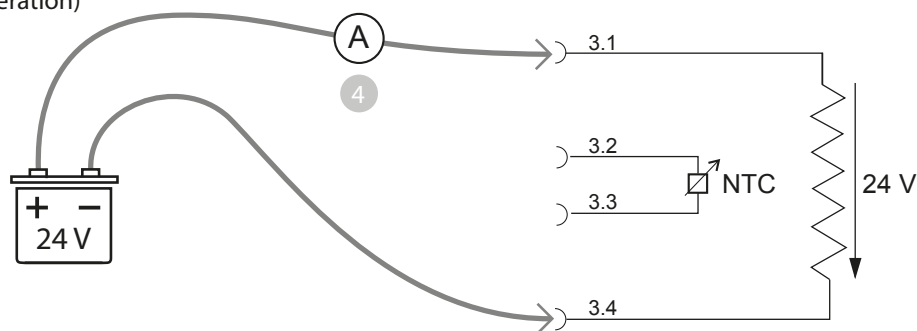
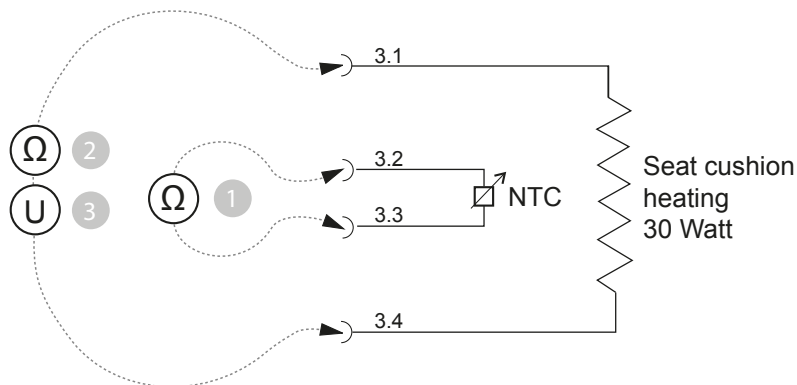
Plug cable harness



Pin 1 rd/wt
Pin 2 ye
Pin 3 ye/br
Pin 4 br/wt

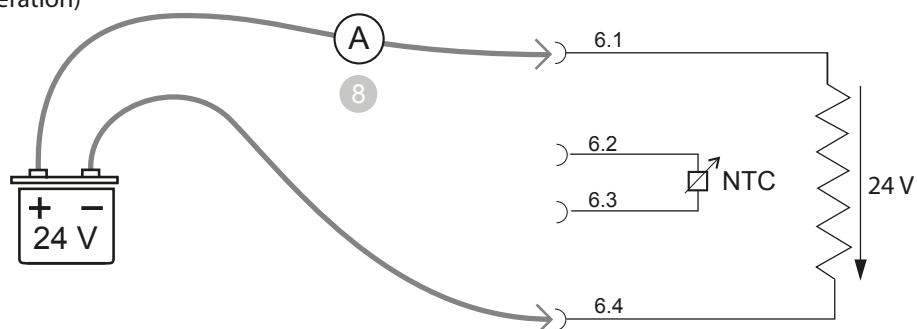
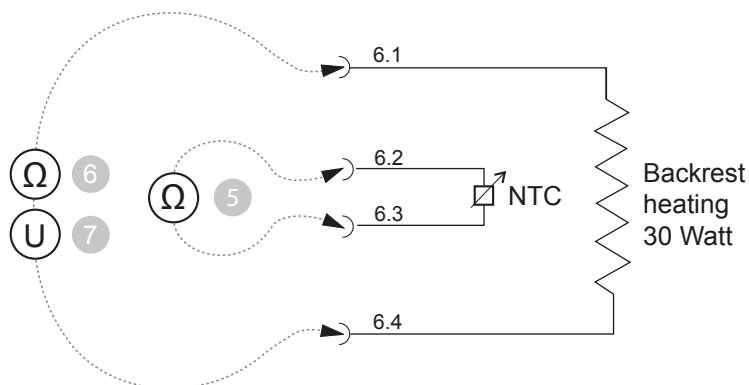
Checking seat cushion heating (climatic)

- 1 Checking NTC
3.2 - 3.3
 $T = 25^{\circ}\text{C}$ $R_{\text{NTC}} = 8 \text{ k}\Omega$
 $T > 25^{\circ}\text{C}$ $R_{\text{NTC}} = \text{decreases}$
 $T < 25^{\circ}\text{C}$ $R_{\text{NTC}} = \text{increases}$
- 2 Checking seat cushion heating
3.1 - 3.4
 $R = 19,2 \Omega \pm 10\%$
- 3 Supply heating (connected)
3.1 - 3.4
Heating on: Supply voltage
Heating off: 0 V
- 4 Checking with external voltage
(max. 30 seconds in operation)
3.1 - 3.4
 $I \approx 1,2 \text{ A}$
 $U = 24 \text{ V}$

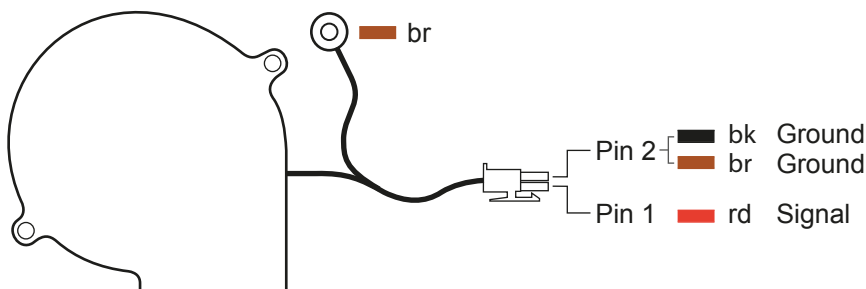


Checking backrest heating (climatic)

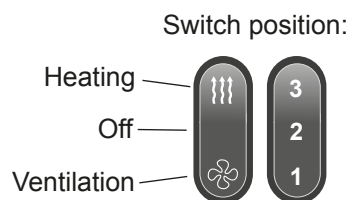
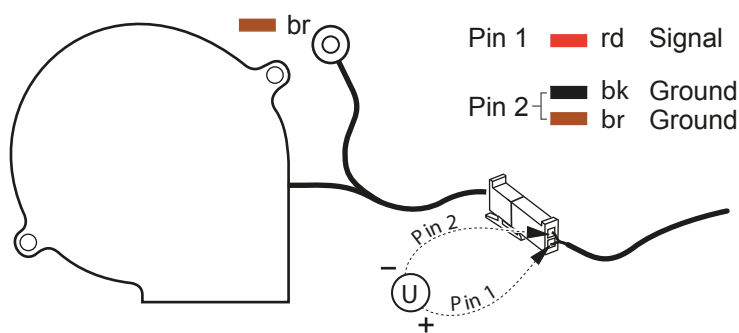
- 5 Checking NTC
6.2 - 6.3
 $T = 25^{\circ}\text{C}$ $R_{\text{NTC}} = 8 \text{ k}\Omega$
 $T > 25^{\circ}\text{C}$ $R_{\text{NTC}} = \text{decreases}$
 $T < 25^{\circ}\text{C}$ $R_{\text{NTC}} = \text{increases}$
- 6 Checking backrest heating
6.1 - 6.4
 $R = 19,2 \Omega \pm 10\%$
- 7 Supply heating (connected)
6.1 - 6.4
Heating on: Supply voltage
Heating off: 0 V
- 8 Checking with external voltage
(max. 30 seconds in operation)
6.1 - 6.4
 $I \approx 1,2 \text{ A}$
 $U = 24 \text{ V}$



Electrical connection



Checking supply of fan backrest/seat cushion



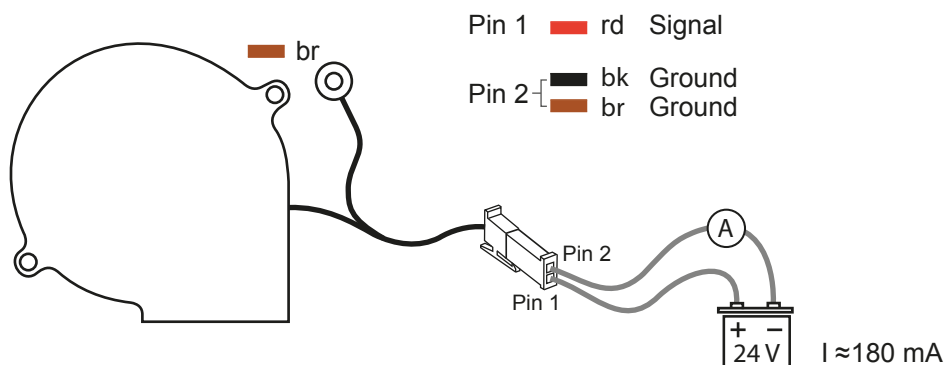
	$U_{Bat} > 20\text{ V}$	Voltage fan	
Off	0 V		
Heating step 3	0 V		LED red
Heating step 2	0 V		
Heating step 1	0 V		
Ventilation step 1	ca. 10,5 V $\pm$ 1 V		LED blue
Ventilation step 2	ca. 15 V $\pm$ 1 V		
Ventilation step 3	($U_{Bat} - 3\text{ V}$) $\pm$ 1 V max. 25 V		

Alternatively on electronic unit:

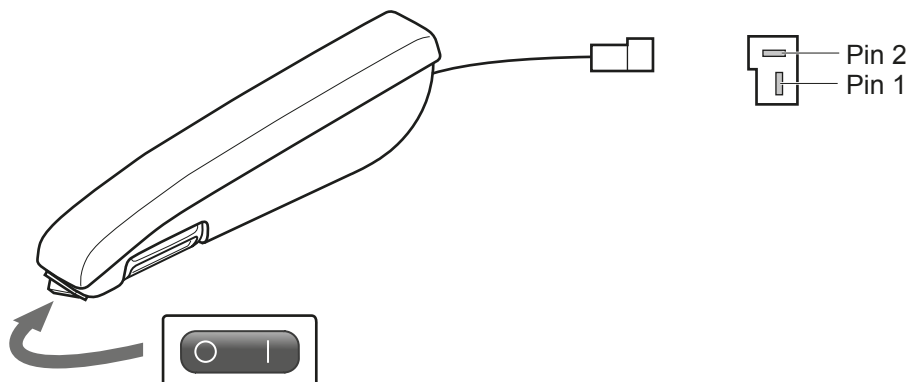
Fan backrest:
Pin 14: rd/bl
Pin 13: br/ye

Fan seat cushion:
Pin 16: rd/bl
Pin 18: br/ye

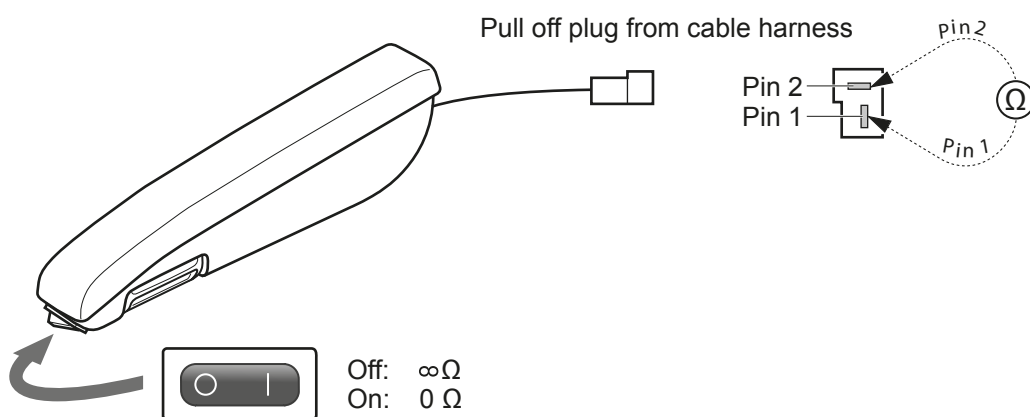
Checking fan of backrest/seat cushion by using external voltage



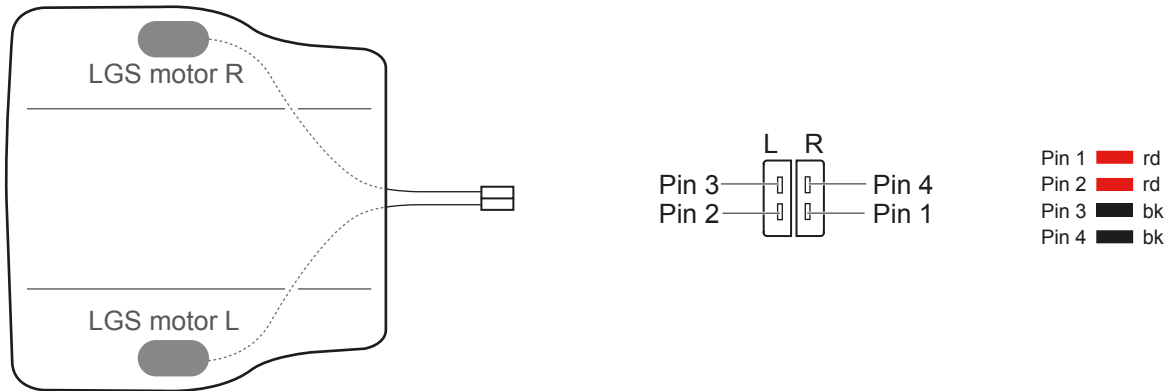
Electrical connection



Checking function



Electrical connection



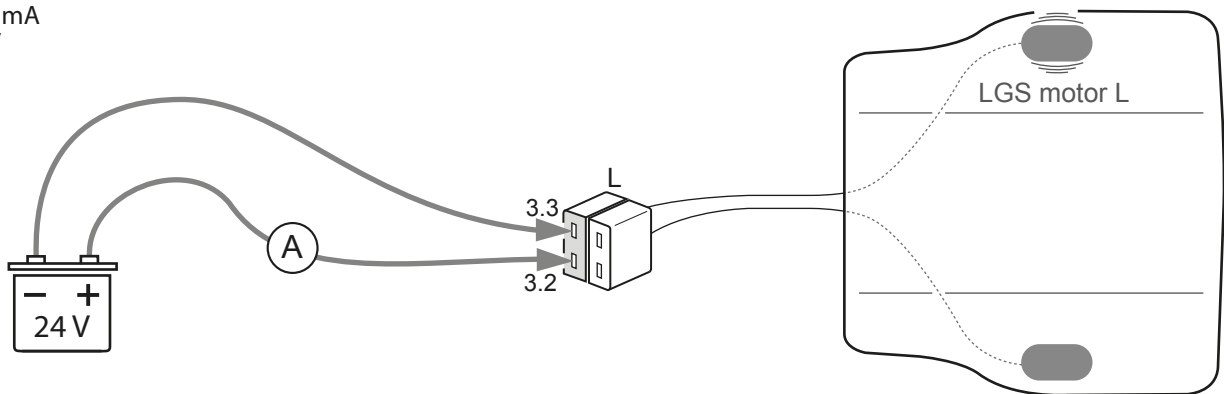
Checking vibration motor by using external voltage, left

(max. 30 seconds in operation)

LGS L = Pin 3.2 - 3.3

$I \approx 300 \text{ mA}$

$U = 24 \text{ V}$



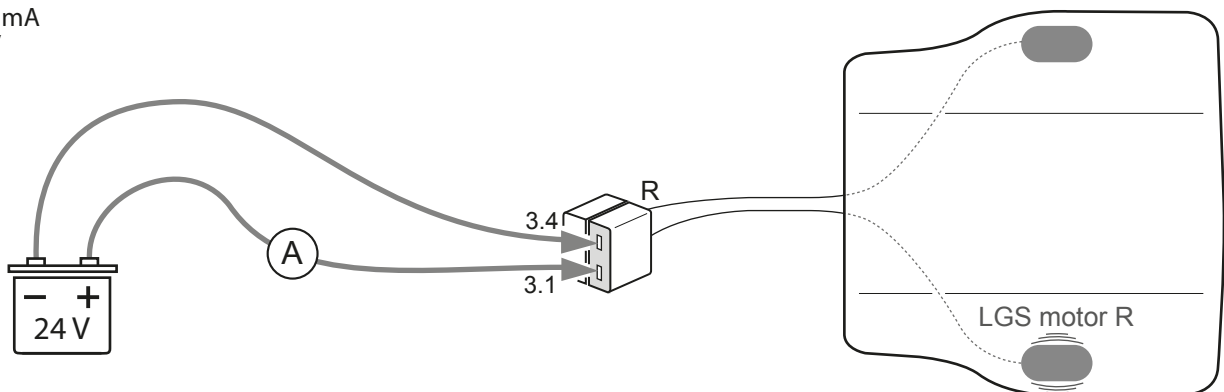
Checking vibration motor by using external voltage, right

(max. 30 seconds in operation)

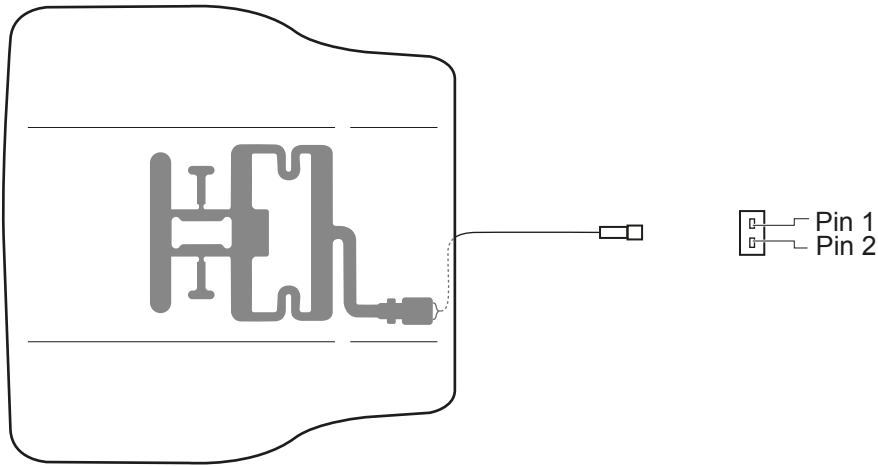
LGS R = Pin 3.1 - 3.4

$I \approx 300 \text{ mA}$

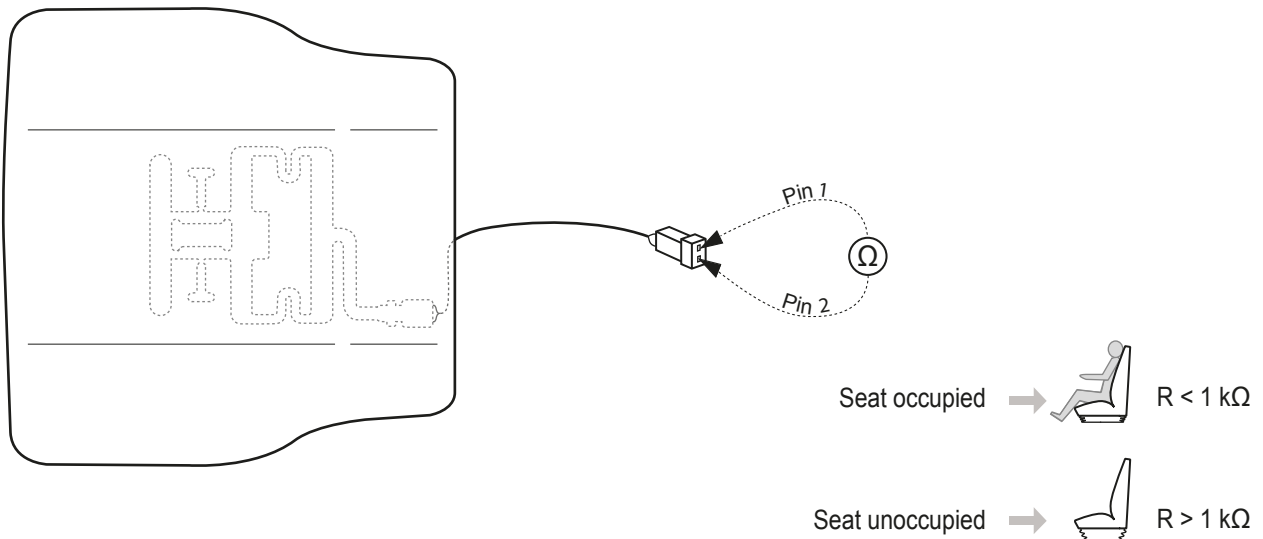
$U = 24 \text{ V}$



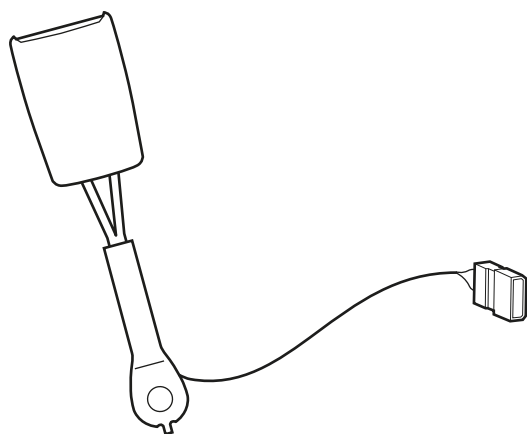
Electrical connection



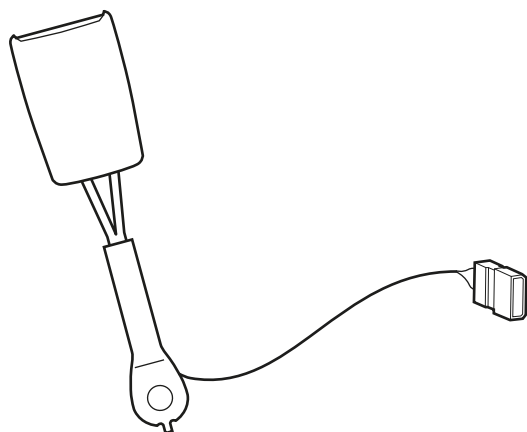
Checking resistance of occupancy sensor (vorläufige Werte)



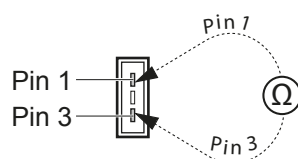
Electrical connection



Checking function



Pull off plug from cable harness



not belted: $\infty \Omega$
belted: 0Ω

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