

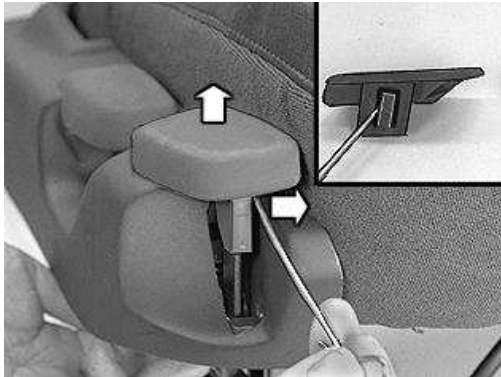
## Side panel, replacing

As the illustrations in this service information are used for different model years and / or models, some variation may occur. However, the essential information in the illustrations is always correct.

### Side panel manual seat, replacing

#### Removing the side panel from manual seats

Remove the two handles for the height adjustment levers.  
Insert a screwdriver at the rear of the handle.  
Release the catches.  
Pull upwards.



Pull the front edge of the panel upwards.  
Pull the panel backwards.



#### Installing the side panel on manual seats

##### Install:

- the panel
- the handles on the height adjustment levers.

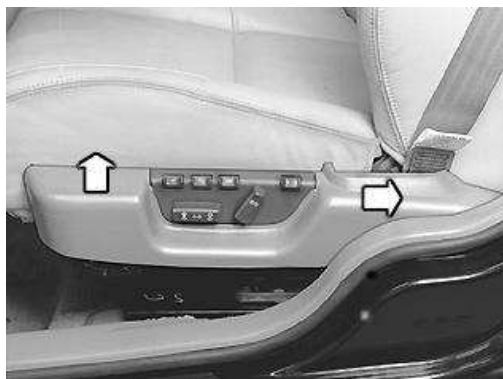
### Side panel power seat, replacing

#### Removing the side panel from power seats

##### Remove:

- the two tie straps under the seat
- the connector.

Pull the front edge of the panel upwards.  
Pull the panel backwards.



### Installing the side panel on power seats

#### Install:

- the panel
- the connector
- new tie straps.

## Seat rails, replacing

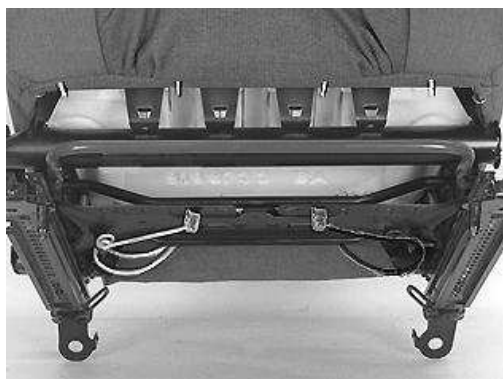
The illustrations in this service information are used for different model years and/or models. Some variation may occur. However, the essential information in the illustrations is always correct.

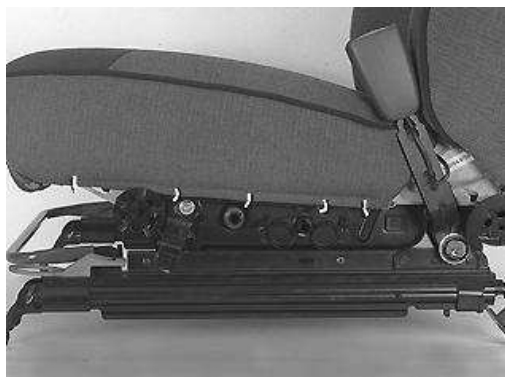
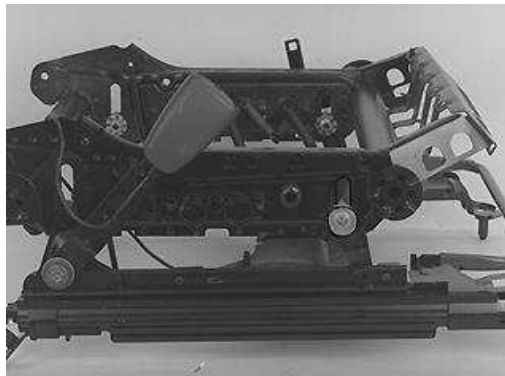
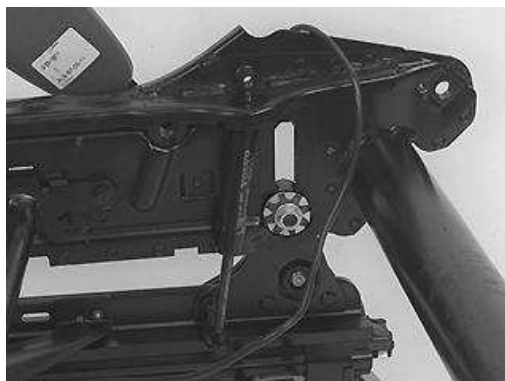
### Seat rail manual seat, replacing

#### Removing seat rails for manual seats

#### Remove:

- the front seat. See [Upholstery back rest, replacing](#)
  - the seat belt buckle. See [Buckle seat belt front, replacing](#)
  - the connectors and wiring harness from the cross stay.
- 
- the 2 screwed joints from the cross stay.





- 1 screw from the front mounting.

- the outer nut.

Pull straight out.

Angle the rail and the seat base so that they come apart.

### **Installing seat rails for manual seats**

For tightening torques, see [Tightening torque](#) .

**Install:**

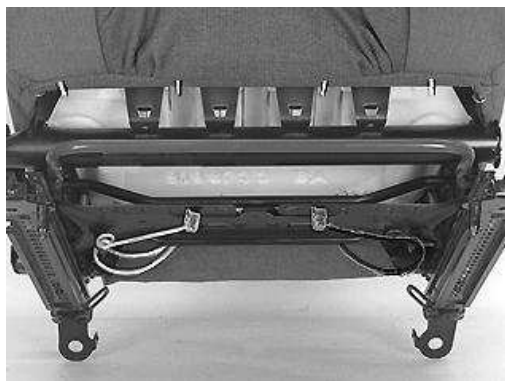
- a new seat rail
- the outer M8 nut, x 1. Tighten
- 1 M8 screw for the front mounting for the height adjuster. Tighten
- the 2 M8 screwed joints. Tighten.

### **Seat rail power seat, replacing**

#### **Removing the seat rails for power seats**

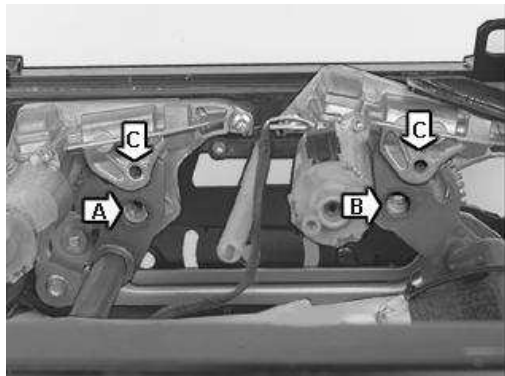
**Remove:**

- the front seat. See [Upholstery back rest, replacing](#)
- the seat belt buckle. See [Buckle seat belt](#)

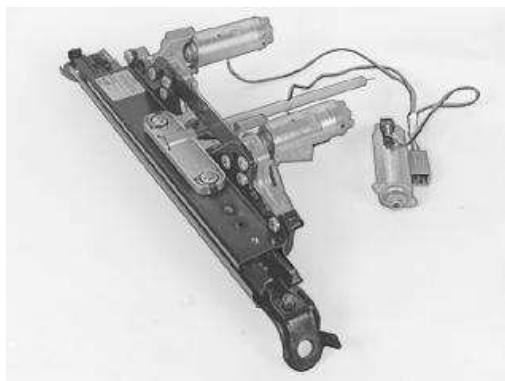


**front, replacing**

- the connectors and wiring harness from the cross stay.



- the 2 stud screws (A) and (B)
- the seat rail.

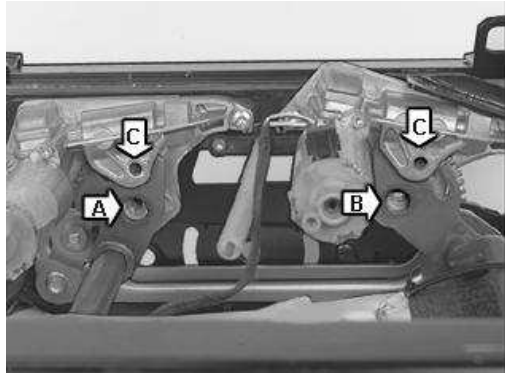


**Assembling components**

**Hint:** When replacing the seat rail or power seat gear, it is easier to assemble the following components so that they form a single unit before they are reinstalled on the front seat.

**Remove:**

- the seat rail
- the spacer plate
- the gear
- the motors.



Pull up the height adjustment levers to the highest position.

Align the seat rail assembly.

Check that the screws (C) are all the way in their channels.

Check that screw holes (A) are aligned so that the stud screws go in easily.

**Tighten:**

- the screwed joint (A) halfway
- the screwed joint (B)
- the screwed joint (A) completely.

**Installing the seat rails for power seats**

**Install:**

- a new or adjusted seat rail
- the 2 M6 stud screws. Tighten
- the connectors and wiring harness from the cross stay
- the front seat. See [Upholstery back rest, replacing](#) .

## Upholstery seat cushion, replacing

Special tools: [115 8962](#)

**Note!** The illustrations in this service information are used for different model years and / or models. Some variation may occur. However, the essential information in the illustrations is always correct.

### Preparatory work

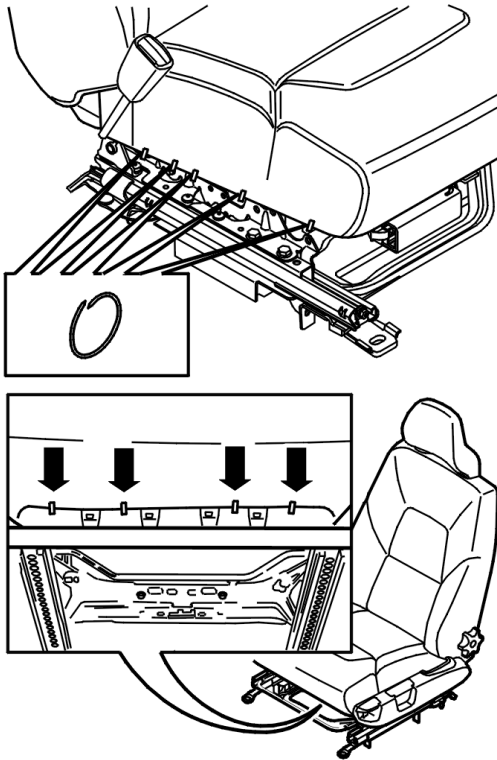
#### Remove:

- \* the battery lead. See [Note when disconnecting/connecting the battery lead](#)
- \* the front seat. See [Upholstery back rest, replacing](#) .

### Removing the seat cushion upholstery

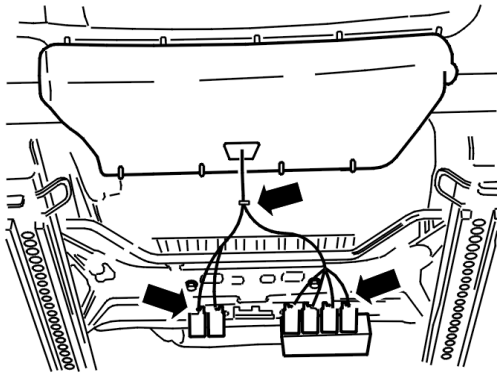
#### Remove:

- \* the half moon clips, 5 per side, from the lower edge of the seat cushion.
  
- \* the half moon clips, 4 per side, from the front edge of the seat cushion.

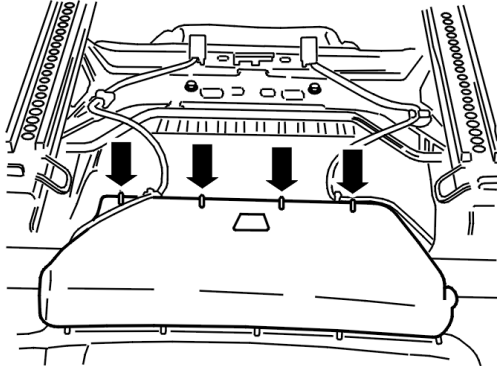


- \* all the connectors
- \* the tie straps around the cable harness.

Thread each connector individually through the



hole in the seat cushion upholstery.

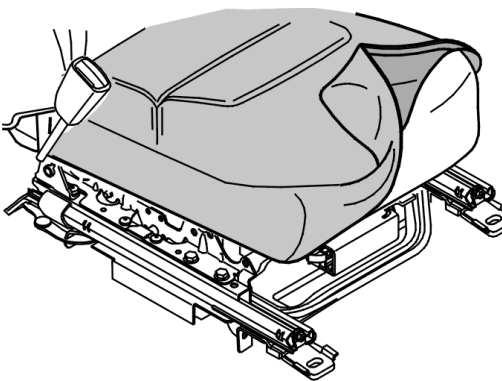


**Remove:**

\* the half moon clips, 4, from the underside of the rear edge.



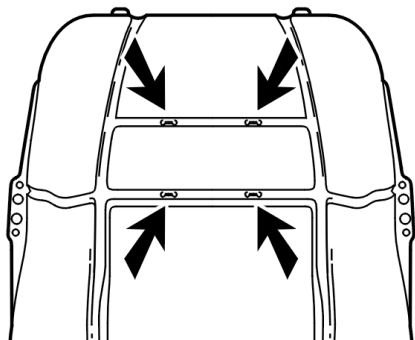
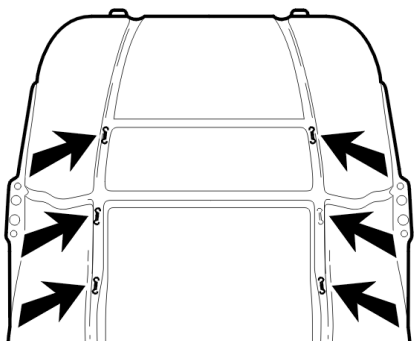
\* the half moon clips, 1 on each side. The bottoms of the half moon clips are located in the spring.



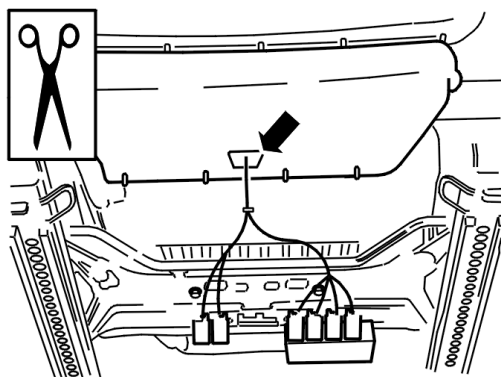
Fold up the upholstery.

**Remove:**

\* the half moon clips, 3 on each front-rear channel.

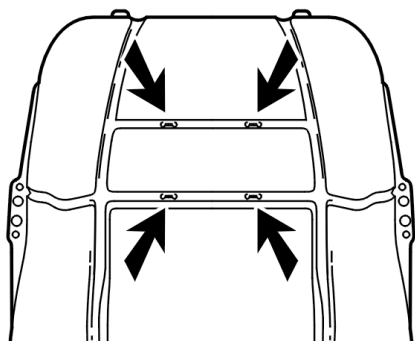


\* the half moon clips, 2 on each lateral channel.  
Replace the upholstery.



### Installing seat cushion upholstery

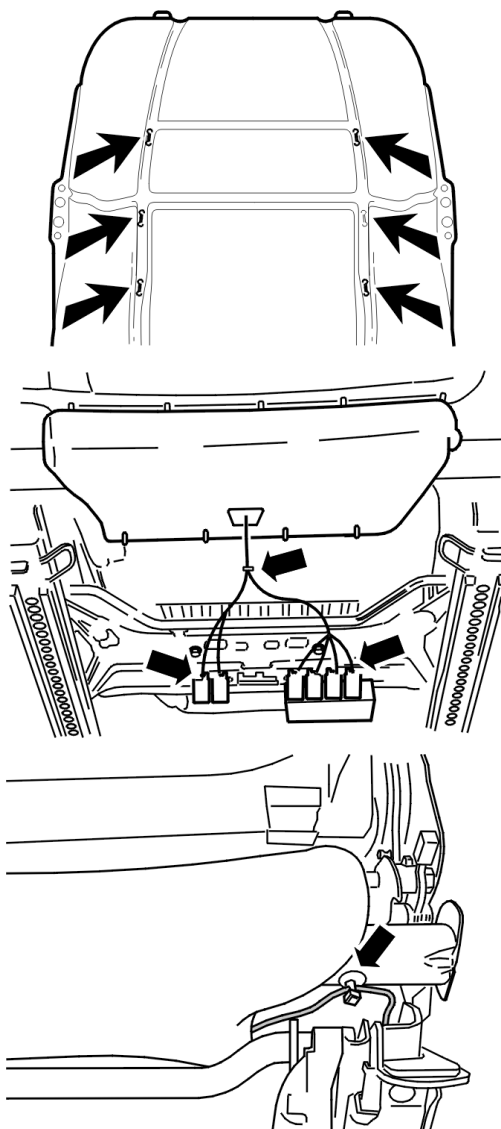
**Note!** A new hole for the cable harness must be cut in the new upholstery. Use the old upholstery as a template.  
Accurately measure and position the upholstery before securing it.



### Install:

\* the half moon clips, 2 on each lateral channel.  
Use special tool [115 8962](#) .

\* the half moon clips, 3 on each front-rear channel.  
Pull the upholstery down.



#### Install:

- \* the half moon clips, 1 on each side, on the underside
- \* the half moon clips, 4 at the front edge of the seat cushion.

Thread the connectors through the hole in the upholstery.

Secure the connectors.

Secure the cable harness using tie straps.

**Note! Note how the clip is located and how the wiring is routed.**

#### Install:

- \* the half moon clips, 4, on the underside of the rear edge
- \* the half moon clips, 5 on each side, in the lower edge of the seat cushion.

#### Finishing

Install the front seat. See [Upholstery back rest, replacing](#) .

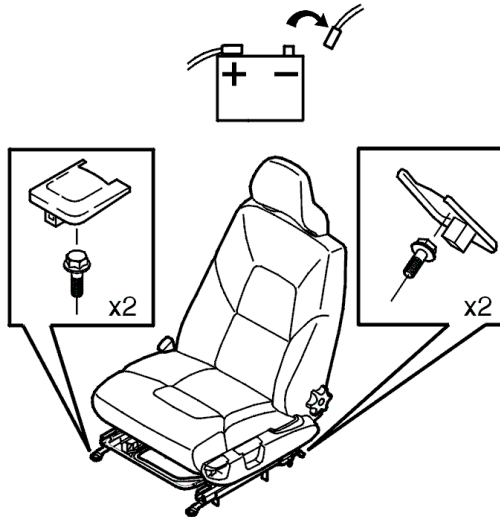
### Upholstery back rest, replacing

As the illustrations in this service information are used for different model years and / or models, some variation may occur. However, the essential information in the illustrations is always correct.

#### Removing the front seat

Remove the battery lead. See [Note when disconnecting/connecting the battery lead](#) .





#### Remove:

- the four side pieces over the screws for the seat. Pull the front side pieces straight forward and the rear side pieces backwards and upwards to detach them
- four screws.
- the side panel. See [Side panel, replacing](#)
- the seat belt from the seat
- the connector.

Disconnect any remaining connectors.

Remove the seat.

#### To prevent electric static discharge problems:

When removing a seat with a SIPS (side impact protection system) module from a car, the seat must be grounded. This is due to the danger of static electricity.

Detach the chair from its screwed joint. Do **not** lift the seat out of the car yet.

Strip a long cable at both ends. Secure one end to the rear mounting on the chair. Secure the other end in the car or in the car hoist.

#### Removing backrest cushion upholstery

Remove the lumbar support knob.

Slacken off the tension in lumbar support.

Carefully remove the cover.

Pull the lumbar support knob straight out.

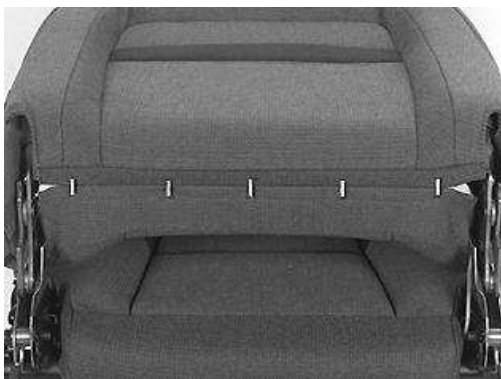
Remove the backrest adjustment knob (manual seats only). Pull the knob straight out.

Fold the backrest or position the backrest in the forward angled position.

Remove the five half moon clips at the bottom edge of the backrest.

Remove the upholstery from the seat up to the first lateral channel. There are two half moon clips on each front-rear channel.

Remove the upholstery completely.



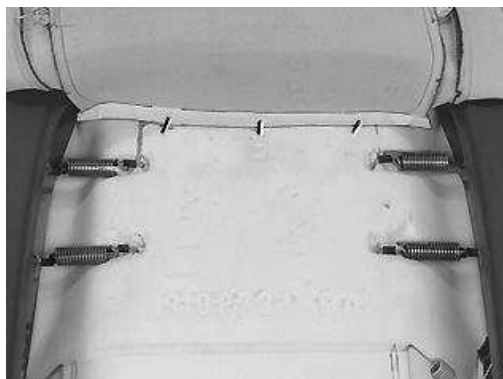


**Remove:**

- one half moon clip from each front-rear channel
- three half moon clips in the first lateral channel
- two half moon clips in the upper channel.



Release the two elastic attachments in the inside / reverse of the backrest.



Remove the three half moon clips from the inside of the reverse of the backrest.  
Pull off all the upholstery.

**Installing backrest cushion upholstery**

**Note!** For tightening torques, see [Tightening torque](#) .

**Install:**

- the upholstery on the backrest
- the three half moon clips on the inside of the reverse of the backrest
- the two elastic attachments in the inside of the reverse of the backrest
- one half moon clip in each side of the front-rear channels.

Install the upholstery up to the first lateral channel. There must be two half moon clips per each front-rear channel.

Install the upholstery all the way down.

Install five half moon clips at the bottom edge of the backrest.

Fold the backrest to the normal position.

**Install:**

- the backrest adjustment knob. Push the knob straight in
- the lumbar support knob
- the cover.

Tension the lumbar support.

**Installing the front seat**

**Install:**

- the seat in the car
- the connector
- the seat belt
- the side panel. See [Side panel, replacing](#)
- any remaining connectors
- the 4 M10 screws. Tighten.

Remove the ground lead (if applicable).

**Install:**

- the four side pieces on the seat
- the battery lead. See [Note when disconnecting/connecting the battery lead](#) .

**Heater pad backrest and cushion, replacing**

Special tools: [115 8962](#)

The illustrations in this service information are used for different model years and / or models. Some variation may occur. However, the essential information in the illustrations is always correct.

**Preparations**

Remove the seat. See [Upholstery back rest, replacing](#) .

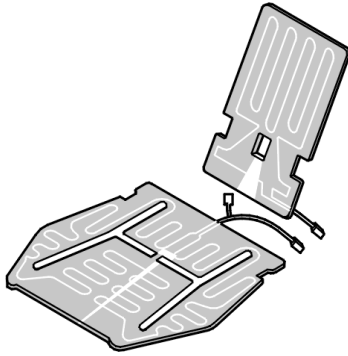
**Note! The old heating pad must be removed before a new one is installed. A new heater pad must not be bonded over the old pad.**

**Note! Read through the entire method before beginning work.**

The following heater pad versions are available:

- heater pad and seat belt reminder
- heater pad only

- seat belt reminder only.



## Removing the heater pad from the backrest and cushion

### Removing upholstery

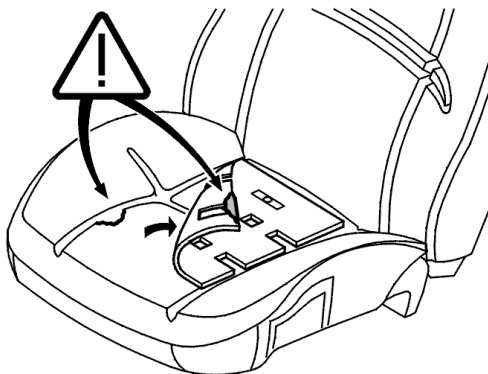
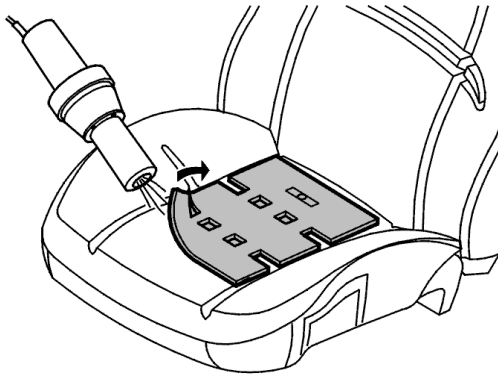
Remove the upholstery. See [Upholstery seat cushion, replacing](#) or [Upholstery back rest, replacing](#) (2003) or [Upholstery seat cushion, replacing](#) (2004-).

**Note!** Cut off the half moon clips and remove any remaining parts of the clips.

**Note!** Do not bend the upholstery rods more than is necessary to detach the upholstery. Straighten the rods before reinstalling the upholstery.

### Removing old heater pads

Carefully heat the old heater pad to remove it.

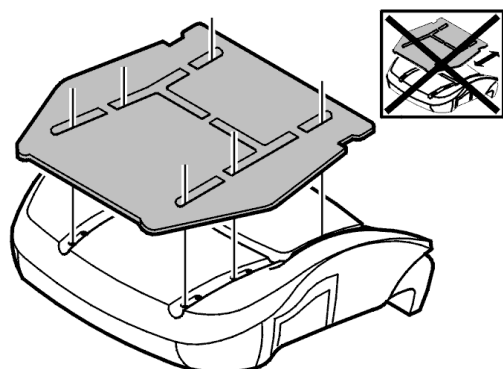


**Note!** Ensure that the foam filling is not damaged when removing the heater pad. Ensure that the pad is detached from the foam filling. This is to prevent functionality problems when the new heater pad is installed.

**Note!** Damaged foam filling must be replaced. This to guarantee function. This also applies if there are cracks in the backrest or seat frame.

## Installing the heater pad on the backrest and cushion

### Installing new heater pads



**Note!** The heater pad must be correctly positioned so that when the half moon clips are secured they are not too close to the heating loops or the surface of the heater pad.

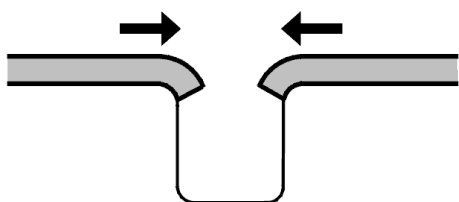
Position the heater pad in the correct position. Do not remove the backing from the adhesive surfaces.

Secure one half of the heater pad. Fold up the other half.

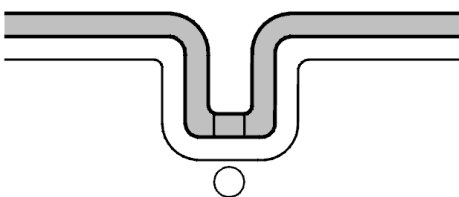
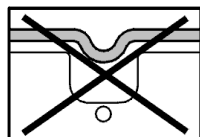
Pull the backing (or part of the backing) off the adhesive surface closest to the centre of the section of the heater pad that is bent up. Carefully bring the adhesive surface down onto the foam filling. Work with small sections at a time. Start from the centre and work out towards the edges.

Continue in the same way with the other adhesive surfaces.

If the heater pad terminates at the channel, position it as illustrated.

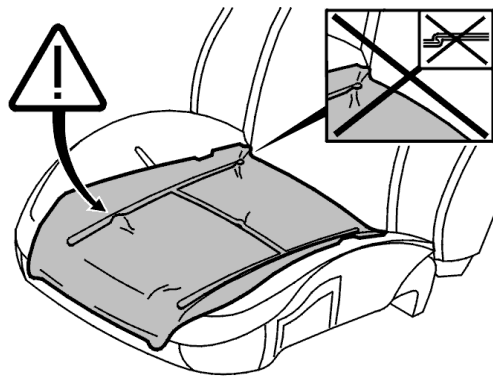


**Note!** The end of the pad must not be up on the flat surface.

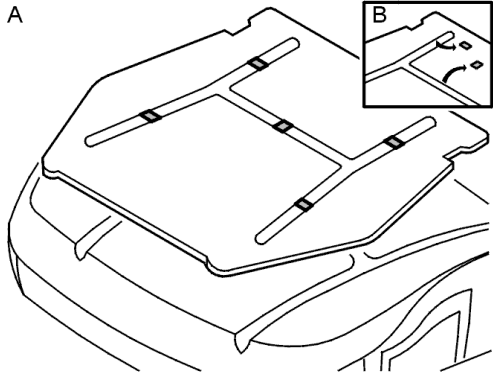


If the heater pad is the type where the pad and/or cable is placed in the channel, the pad must follow the foam filling as illustrated. If not, the pad and/or cable may be loaded and damage the pad. The type of seam on the upholstery may cause wear in the long term.

**Note!** There must not be any bubbles or kinks when the heater pad is bonded to the foam filling. This increases the risk of damage to the



pad during use. This applies to the entire surface, but to the heating wires in particular.



When the heater pad has been bonded into place the positional straps (shaded in the illustration) must be cut apart. This only applies to those types of heater pads that have positional straps.

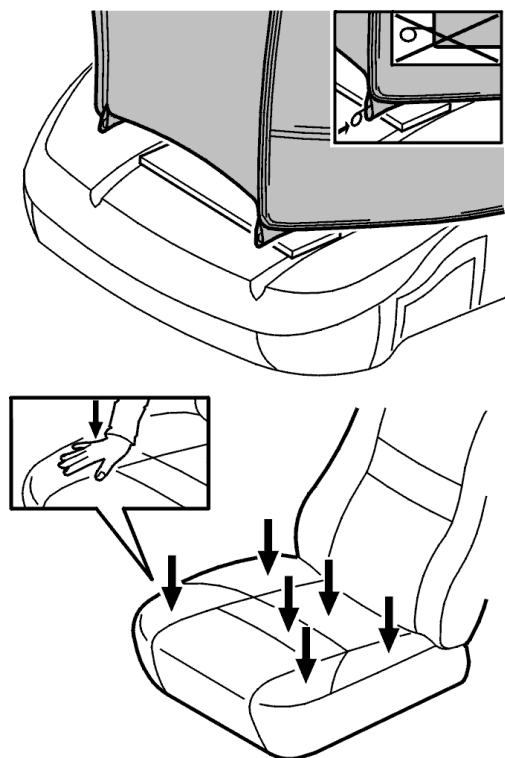
**Note! The positional straps must not be cut before bonding is complete.**

### Installing upholstery

Before securing the upholstery, check the following:

- that any remnants of the half moon clips have been removed
- that the rods (steel or plastic wire in the pockets inside the upholstery) are in position and not protruding outside the pleats
- that the rods or the rod pleats are not bent or in contact with the heater pad. Adjust if necessary
- that the seam and the rods and pleats are positioned in the channel so that they are not in contact with the heater pad
- that the plastic wires are the correct length and cannot affect the function of the heater pad.

Install the upholstery. See [Upholstery seat cushion, replacing](#) or [Upholstery back rest, replacing](#) (2003) or [Upholstery seat cushion, replacing](#) (2004-).



### Testing the bonding

This test can be performed either with the upholstery completely removed or with it partially in position.

Press at those points illustrated. Check that the heater pad follows the compression of the cushion.

There must be no kinks or other defects in the heater pad when it is pressed.

### Function test:

Start the seat heater and check the function.

**Note! This test is not possible if the ambient temperature is too high.**

Install the seat. See [Upholstery back rest, replacing](#).

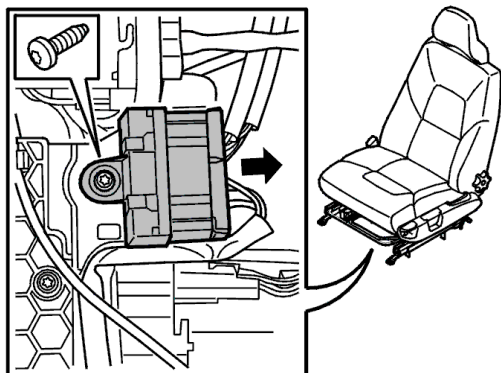
## Control module heater pad, replacing

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### Removing the heater pad control module

#### Remove:

- the seat. See [Upholstery back rest, replacing](#)
- 1 screw
- the connector
- the control module.



## Installing the heater pad control module

### Install:

- the control module
- the connector
- 1 screw. Tighten
- the seat. See [Upholstery back rest, replacing](#) .

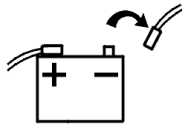
## Lumbar support backrest cushion, replacing

As the illustrations in this service information are used for different model years and / or models, some variation may occur. However, the essential information in the illustrations is always correct.

### Preparations

#### Remove:

- the battery lead. See [Note when disconnecting/connecting the battery lead](#)
- the front seat. See [Upholstery back rest, replacing](#) .



### Removing lumbar support from the backrest cushion

#### Remove:

- the backrest cushion upholstery. See [Upholstery back rest, replacing](#)
- the lumbar support knob.

Slacken off the tension in lumbar support. Carefully remove the cover. Pull the lumbar support knob straight out.

#### Remove:

- the 2 mounting screws on the side of the backrest
- the 6 hooks on both sides.

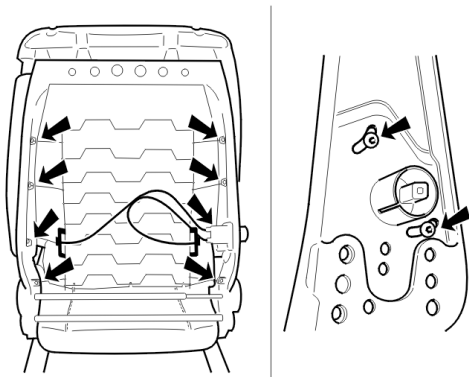
Detach the 2 mechanical cables on both sides. Remove the lumbar support.

### Installing the lumbar support in the backrest cushion

**Note!** For tightening torques, see [Tightening torque](#) .

#### Install:

- the lumbar support
- the 2 mechanical cables on both sides





- the 6 hooks on both sides
- the 2 mounting screws. Tighten
- the backrest cushion upholstery. See [Upholstery back rest, replacing](#)
- the lumbar support knob
- the cover.

Tension the lumbar support.

#### Install:

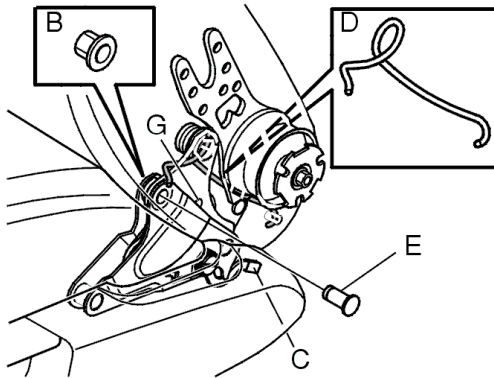
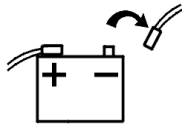
- the front seat. See [Upholstery back rest, replacing](#)
- the battery lead. See [Note when disconnecting/connecting the battery lead](#) .

## Whiplash unit, replacing

As the illustrations in this service information are used for different model years and / or models, some variation may occur. However, the essential information in the illustrations is always correct.

### Preparations

Remove the battery lead. See [Note when disconnecting/connecting the battery lead](#) .



### Removing the whiplash unit

Remove the front seat. See [Upholstery back rest, replacing](#) .

Fold the backrest forwards. Use the adjustment mechanism (C).

Remove the 5 half moon clips at the lower edge of the backrest cushion

Remove the spring (D) at the rear edge of the seat.

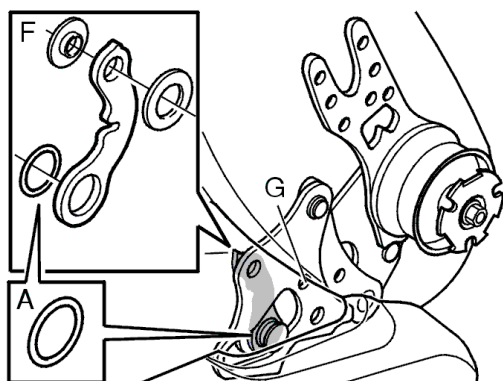
**Warning!** Be careful when detaching the spring.

**Hint:** Use a pipe spanner or similar when detaching the spring so that it does not damage the upholstery or fingers.

#### Remove:

- the screw (E), 1 per side
- the nut (B), 1 per side.

Pull apart the backrest and seat cushion so that the whiplash element is released.



Remove the whiplash element by twisting it and angling it out.

**Note! The whiplash unit can only be removed from a particular position.**

**Hint:** Note the position of the friction washers before disassembly.

**Remove:**

- the deformation element (F) and the 2 friction washers
- the O-ring (A).

Replace the whiplash unit.

### **Installing the whiplash unit**

**Install:**

- a new whiplash unit
- new plastic washers if the old ones are damaged.

**Note! The plastic washers must be positioned correctly.**

**Install:**

- a new O-ring if the old one is damaged
- the screws and nuts, 1 screwed joint per side. Tighten. See [Tightening torque](#)
- the spring.

**Hint:** Stand behind the seat with the backrest cushion completely folded forward. Grasp the rear end of the spring using a pipe spanner and pull the spring into position.

**Note! The end of the spring must be greased to stop it from making noise.**

Check that the indicator is intact and that the whiplash unit is correctly positioned.

**Install:**

- the front seat. See [Upholstery back rest, replacing](#)
- the battery lead. See [Note when disconnecting/connecting the battery lead](#) .

## **Electric motor backrest cushion, replacing**

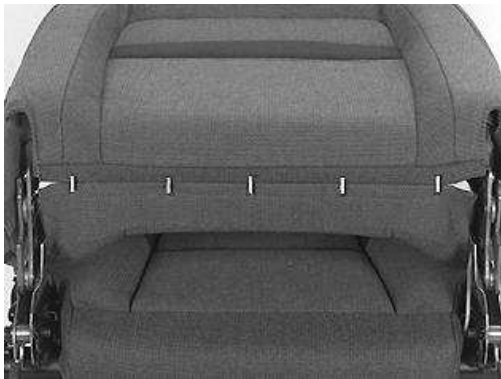
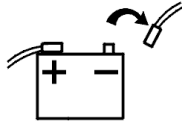
Special tools: [115 8962](#)

As the illustrations in this service information are used for different model years and / or

models, some variation may occur. However, the essential information in the illustrations is always correct.

### Preparations

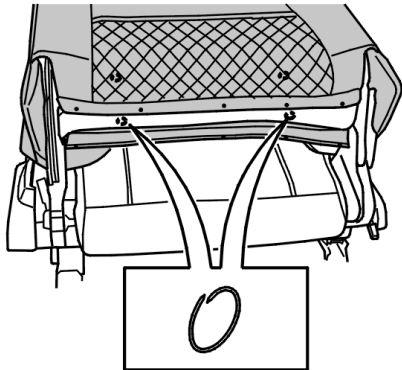
Remove the battery lead. See [Note when disconnecting/connecting the battery lead](#) .



### Removing the electric motor for the backrest cushion

Remove:

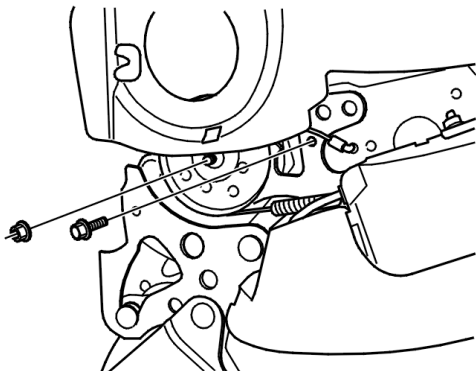
- the front seat. See [Upholstery back rest, replacing](#)
- the 5 half moon clips.



- the 4 half moon clips.

Remove the upholstery up to the first lateral channel. There are two half moon clips on each front-rear channel.

Pull up the upholstery on the backrest cushion. Be careful with the plastic frame.



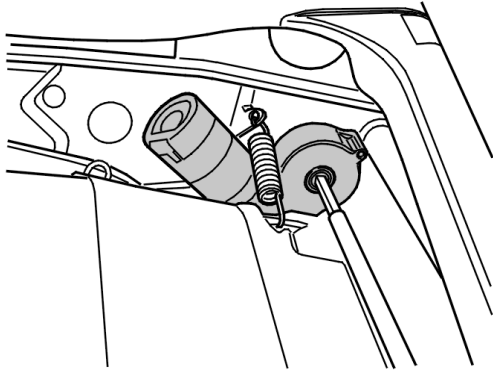
Remove:

- the 1 screw for the shaft
- the 1 nut for the electric motor.

Pull out the shaft so that the electric motor is released.

Remove:

- the spring between the cushion and the electric motor
- the 3 tie straps
- the connector under the seat.



**Hint:** Note the routing of the wiring to make it easier to reinstall.

### Install the electric motor for the backrest cushion

**Note!** For tightening torques, see [Tightening torque](#) .

#### Install:

- the electric motor. Press the shaft through the motor to secure it
- the 1 M6 screw for the electric motor. Tighten
- the 1 M6 screw for the shaft. Tighten
- the spring.

Route the wiring.

Connect the connector.

Pull down upholstery.

#### Install:

- the 4 half moon clips. Use special tool [115 8962](#)
- the 3 tie straps
- the 5 half moon clips. Use special tool [115 8962](#)
- the front seat. See [Upholstery back rest, replacing](#) .

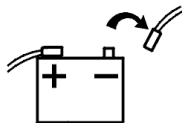
## Electric motor cushion, replacing

As the illustrations in this service information are used for different model years and / or models, some variation may occur. However, the essential information in the illustrations is always correct.

### Preparations

#### Remove:

- the battery lead. See [Note when disconnecting/connecting the battery lead](#)
- the front seat. See [Upholstery back rest, replacing](#) .



**Hint:** Use the seat tilt mechanism and fold the backrest all the way forward. Then turn the seat upside down to make it easier to access the electric motor.

Included in this method are methods for:

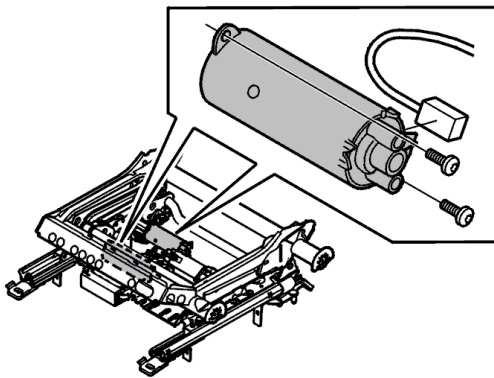
- the rear electric motor. See [Rear electric motor cushion, replacing](#)
- the front electric motor. See [Front electric motor cushion, replacing](#) .

## Rear electric motor cushion, replacing

### Removing the rear electric motor for the seat cushion

Remove:

- the connector
- the 2 screws
- the electric motor. Carefully pull it straight out.



### Installing the rear electric motor for the seat cushion

**Note!** For tightening torques, see [Tightening torque](#) .

Install the electric motor.

**Note!** Do not damage the shaft.

Install:

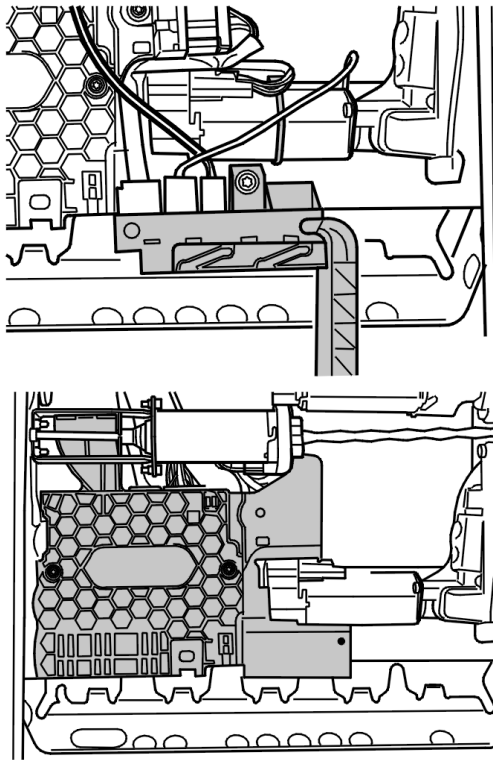
- the 2 M5 screws. Tighten
- the connector
- the front seat. See [Upholstery back rest, replacing](#)
- the battery lead. See [Note when disconnecting/connecting the battery lead](#) .

## Front electric motor cushion, replacing

### Removing the front electric motor for the seat cushion

Remove:

- the 6 connectors
- the 1 screw for the connection bracket.



Remove the plastic clip around the electric motor.

Remove the plastic plate by the electric motor.

**Note!** The plastic plate is firmly positioned so considerable force is required to remove it.

**Hint:** Grasp the centre of the plastic plate and pull it straight out of the seat so that it bends. Then work out the plate.

**Remove:**

- the 2 screws
- the electric motor. Pull it carefully straight out.

**Installing the front electric motor for the seat cushion**

**Note!** For tightening torques, see [Tightening torque](#).

Install the electric motor.

**Note!** Do not damage the shaft.

**Install:**

- the 2 M5 screws
- the plastic plate.

**Hint:** Start by guiding in the hook at the seat rail.

**Note!** Considerable force is required to bend the plastic plate into position.

**Install:**

- the 6 connectors
- the screw for the connection bracket.

**Note!** Ensure that all the connectors are intact and correctly connected.

**Install:**

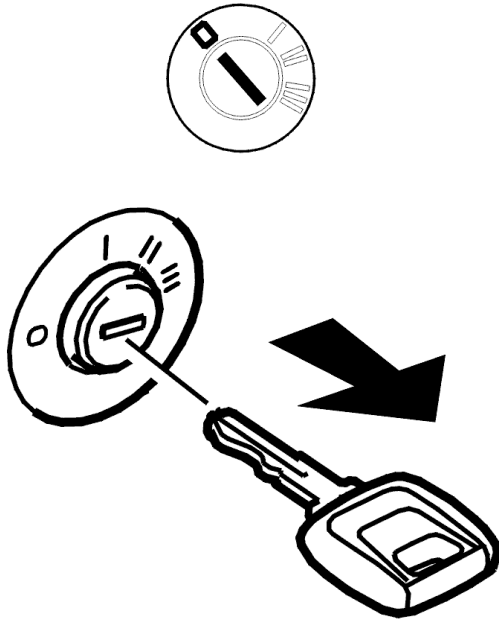
- the front seat. See [Upholstery back rest, replacing](#)
- the battery lead. See [Note when disconnecting/connecting the battery lead](#).

## Power seat module (PSM), replacing

### Removing the power seat module (PSM)

Raise the seat to its highest position.

Remove the seat from the car. See [Upholstery back rest, replacing](#) .



Remove the key. The key must be removed to ensure that the ignition is not switched on by mistake.

Wait one minute before starting work.

Remove the 2 screws.

Disconnect the connector.

Remove the control module.

### Installing the power seat module (PSM)

Install:

- the control module
- the connector
- the 2 screws. Tighten
- the key
- the front seat. See [Upholstery back rest, replacing](#) .

### Ordering software

Order the software. See [Order SW](#) .

### Programming the control module

Program the new control module. See [Load SW](#) .

### Finishing

Check that no diagnostic trouble codes have been stored during the repair.

Test operate the seat. Check all the functions.