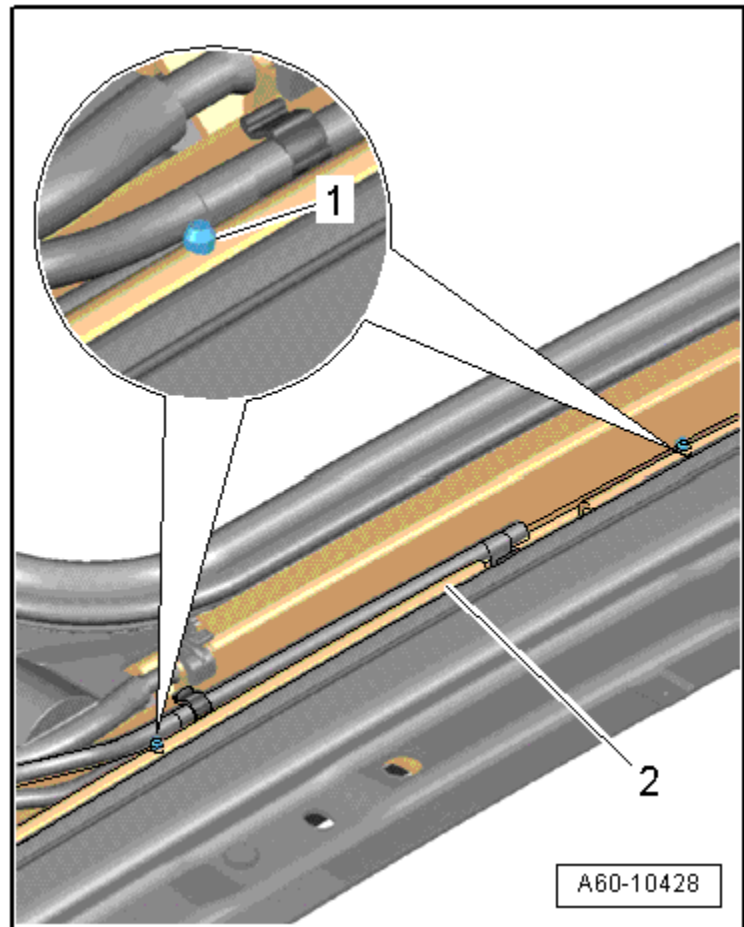


Control Cables, Removing and installing

Removing the Front Cable

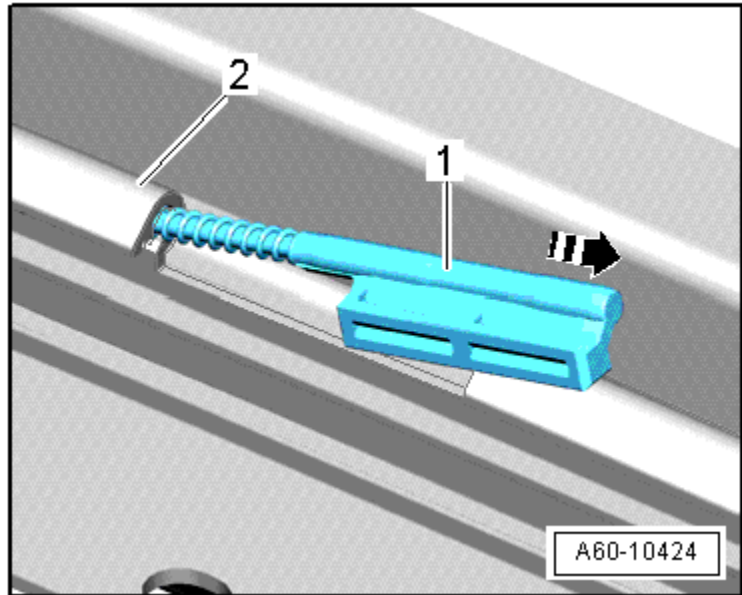
- Remove the front and rear glass panel.
- Remove the slotted guide rail and front tilting mechanism.
Refer to → [Anchor](#)
- Remove the glass panel sunroof motor.
- Remove the grooved pin from the front guide with pliers.
- Push the cable and mount -1- to the rear up to the hole in the guide -2- on the sunroof frame.



- Remove the mount and the cable from the guide to the rear in direction of -arrow -.

Installing the Front Cable

- Push the cable into the sunroof frame.
- Push the cable mount forward as far as the hold for the grooved pin and mount the slotted guide rail.
- Push the grooved pin into the front guide.
- Install the slotted guide rail sideways into the mount and install the tilting mechanism. Refer to → [Anchor](#)



Caution

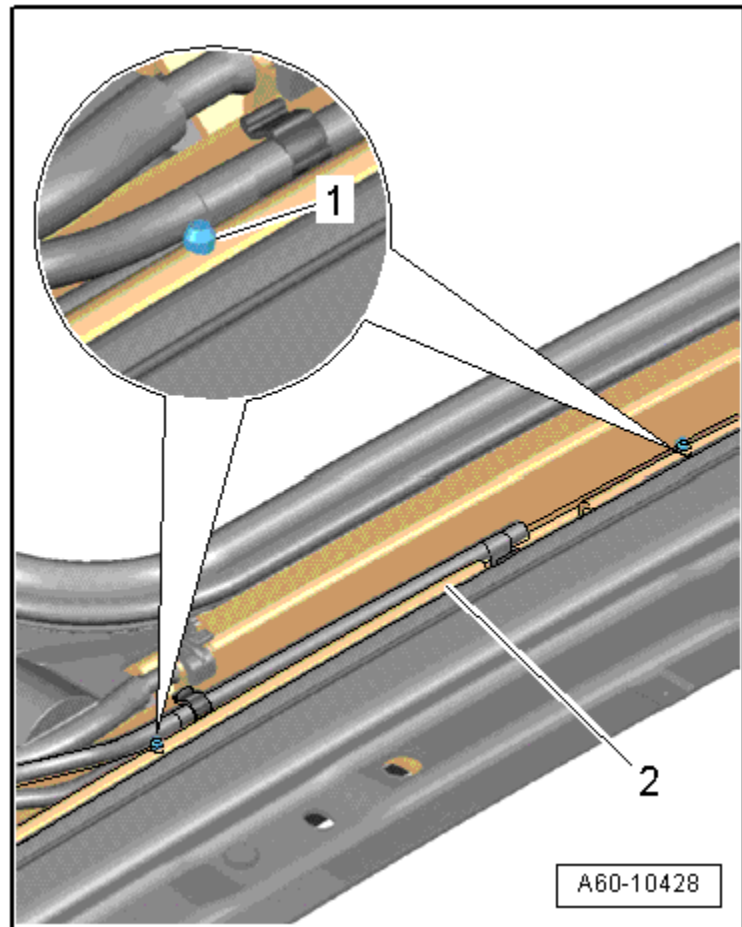
To assure a parallel movement, the slotted guide rail and tilting mechanism must be pushed all the way to the rear.

- Install the front guide and push the slotted guide rail and tilting mechanism all the way to the back.
- Install the sunroof motor for the front glass panel and move the slotted guide rail and tilting mechanism into the tilt position.
- Install the front and rear glass panel.
- After installing, perform an adaptation. Refer to Vehicle Diagnostic Tester.

Removing the Rear Cable

- The rear glass panel is removed.
- Remove the lifter and tilting mechanism. Refer to → [Anchor](#)
- Remove the glass panel sunroof motor.

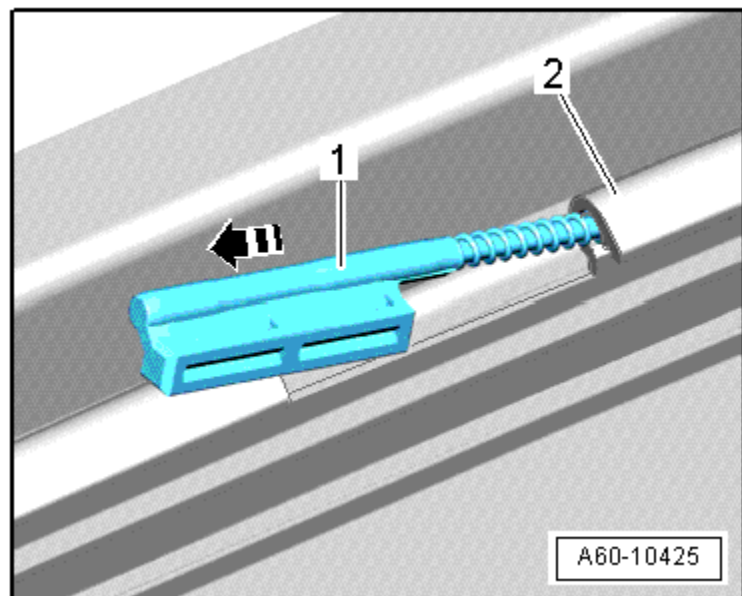
- Remove the grooved pin from the rear guide rail with pliers.
- Push the cable and mount -1- to the front up to the hole in the guide -2- on the sunroof frame.



- Remove the mount and cable forward in direction of -arrow-.

Installing the Rear Cable

- Push the cable into the sunroof frame.
- Push the cable mount to the rear behind the grooved pin and mount the slotted guide rail.
- Push the grooved pin into the rear guide.
- Install the slotted guide rail sideways into the mount and install the lifter. Refer to → **Anchor**
- Push the slotted guide rail and lifter all the way forward.



Caution

To assure a parallel movement, the slotted guide rail and tilting mechanism must be pushed all the way forward.

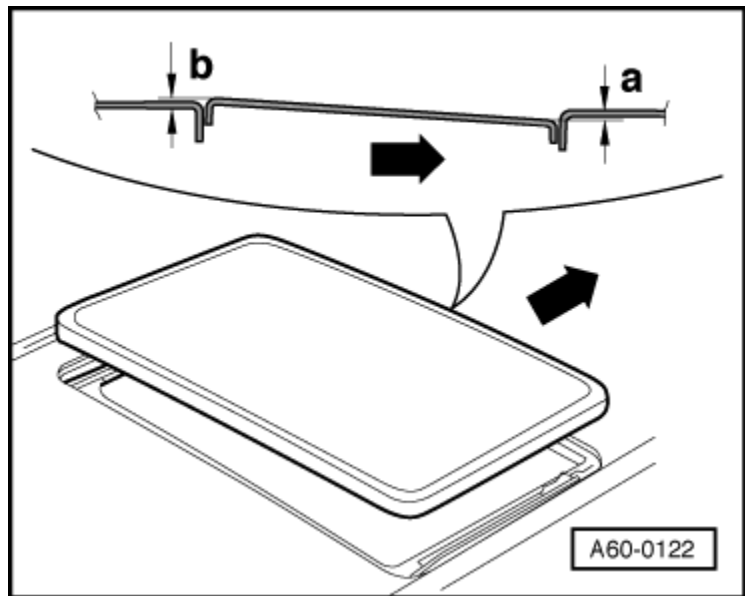
- Install the rear glass panel sunroof motor and extend the slotted guide rail with lifter.
- Install the rear glass panel.
- After installing, perform an adaptation. Refer to Vehicle Diagnostic Tester.

Cover, Adjusting

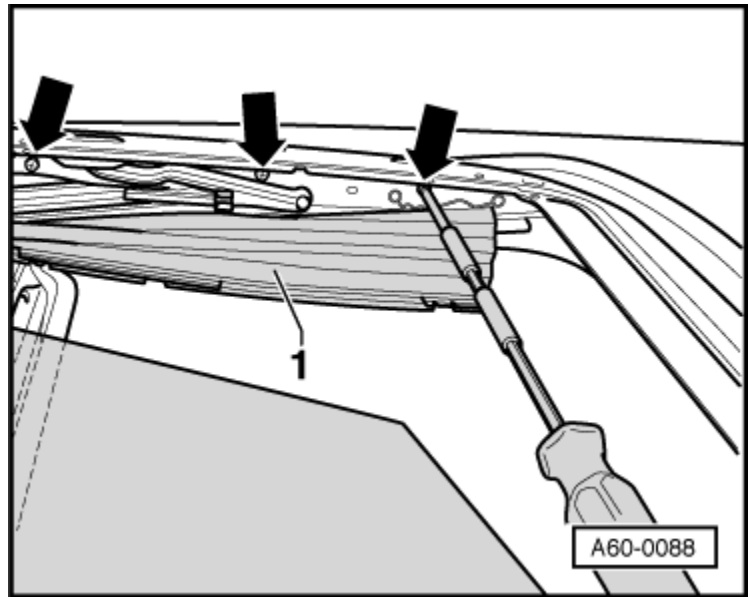


Note

- ◆ *Height adjustment test is performed in the sliding position, meaning the panel is slid open and not tilted open.*
- ◆ *To achieve the best possible exterior optical characteristics, make sure that the adjustments on left and right sides are performed as symmetrically as possible.*
- ◆ *Measuring points for this are the radial runouts on the panel.*
- ◆ *Sunroof panel must not be higher than roof at any point at front or lower than roof at any point at rear.*
- Remove trim plate starting at front and working toward rear.
- Pull off trim plate completely toward vehicle interior and fold it away downward.
- Loosen TORX® bolts for mounting panel.
- Center the sun panel.
- Position panel at front and rear as shown in the illustration.
- Drive sunroof closed from “opened” position (not tilted open).
- Measuring points are radial runouts on sunroof panel.
- Dimension -a- = 0 -1 mm.
- Dimension -b- = 0+1 mm.
- -arrow- = direction of travel



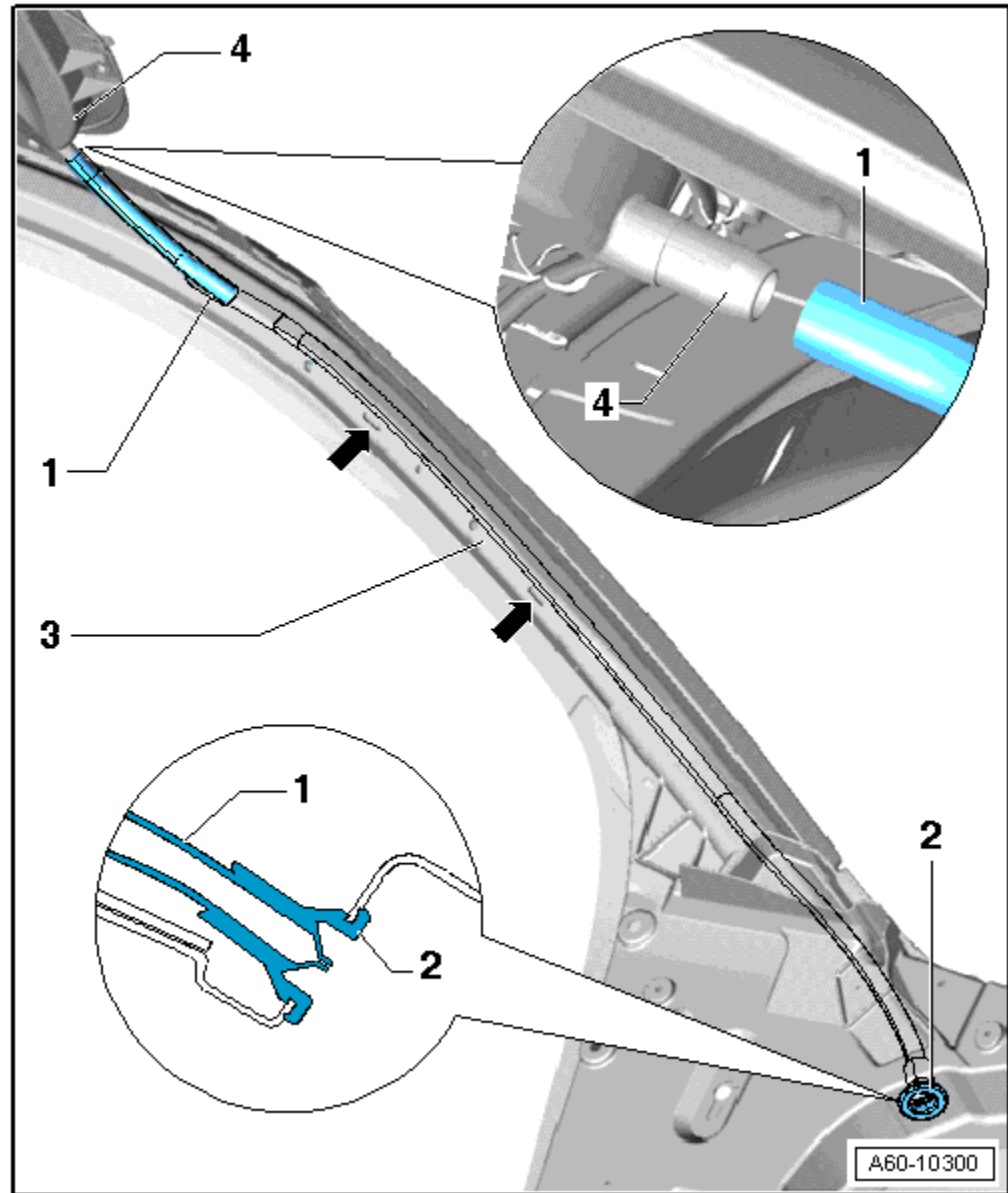
- Tighten the TORX® bolts to 4.5 Nm.
- Install side trim plates.



Front Water Drain Hose, Removing and Installing

1 - Front Water Drain Hose

□ Removing



- Remove the trim on the A-pillar. Refer to → [Body Interior; Rep. Gr.70; Passenger Compartment Trim; A-Pillar Trim, Removing and Installing.](#)
- Remove the water drain hose from the sunroof.
- Remove the grommet at the bottom of the A-pillar -2- and pull out the water drain hose.
- Installing .
- Install the hose back into the A-pillar from the bottom.
- Push the hose upward and pull it through the opening in the roof frame until the end of the hose is sticking out of the sunroof.
- After installing a new hose, hose must be secured with a 2-component foam which does not absorb humidity at upper and lower area -arrows-.

2 - Front Grommet

- The grommet is firmly attached to the water drain hose and must be pressed into A-pillar at the bottom.

3 - Front Sunroof End Piece for Water Drain

- When installing, slide hose with sleeve onto end piece as shown.

Front Water Drain Hoses, Cleaning

Special tools and workshop equipment required

- ◆ Drain Snake -VAS6620-

Sunroof:

The front water drain hoses run through and end in the A-pillar.



Note

Use Drain Snake -VAS6620- to clean the water drain hoses.

- Open the sunroof panel and start from the upper hose end.

Panorama Sunroof:

The front water drain hoses are routed through the A-pillars and end in the front wheel housings under the wheel housing liner.



Note

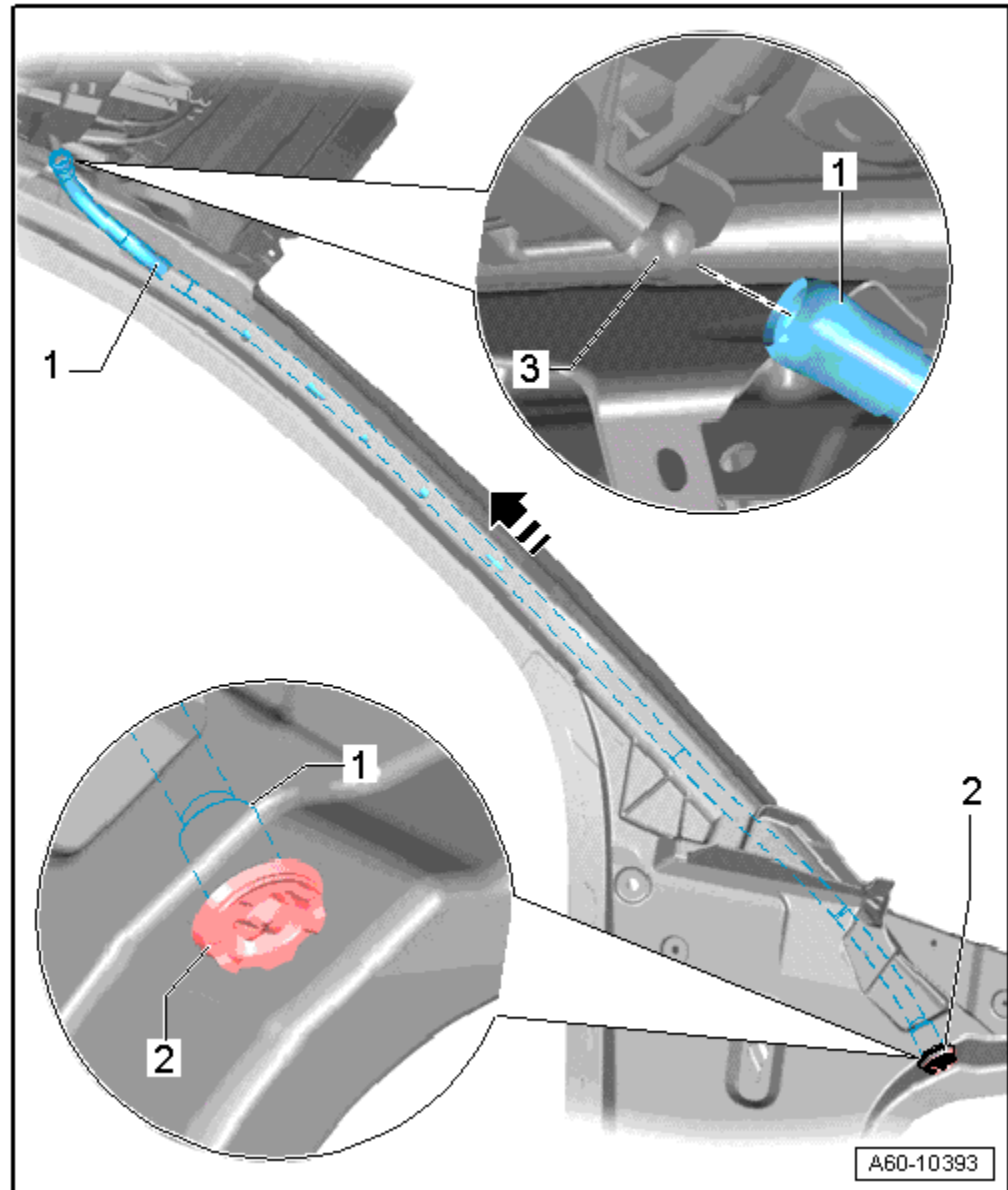
Use Drain Snake -VAS6620- to clean the water drain hoses.

- Open the sunroof panel and start from the upper hose end.

Front Water Drain Hoses, Removing and Installing, Panorama Sunroof

1 - Front Water Drain Hose

- Removing



- Remove the trim on the A-pillar. Refer to → [Body Interior; Rep. Gr.70; Passenger Compartment Trim; A-Pillar Trim, Removing and Installing.](#)
- Remove the water drain hose from the Panorama sunroof.
- Remove the grommet at the bottom of the A-pillar -2- and pull out the water drain hose.
- Installing .
- Install the hose back into the A-pillar from the bottom.
- Push the hose upward and pull it through the opening in the roof frame until the end of the hose is sticking out of the Panorama sunroof.

2 - Front Grommet

- The grommet is firmly attached to the water drain hose and must be pressed into A-pillar at the bottom.

3 - Front Sunroof End Piece for Water Drain

- When installing, slide hose with sleeve onto end piece as shown.

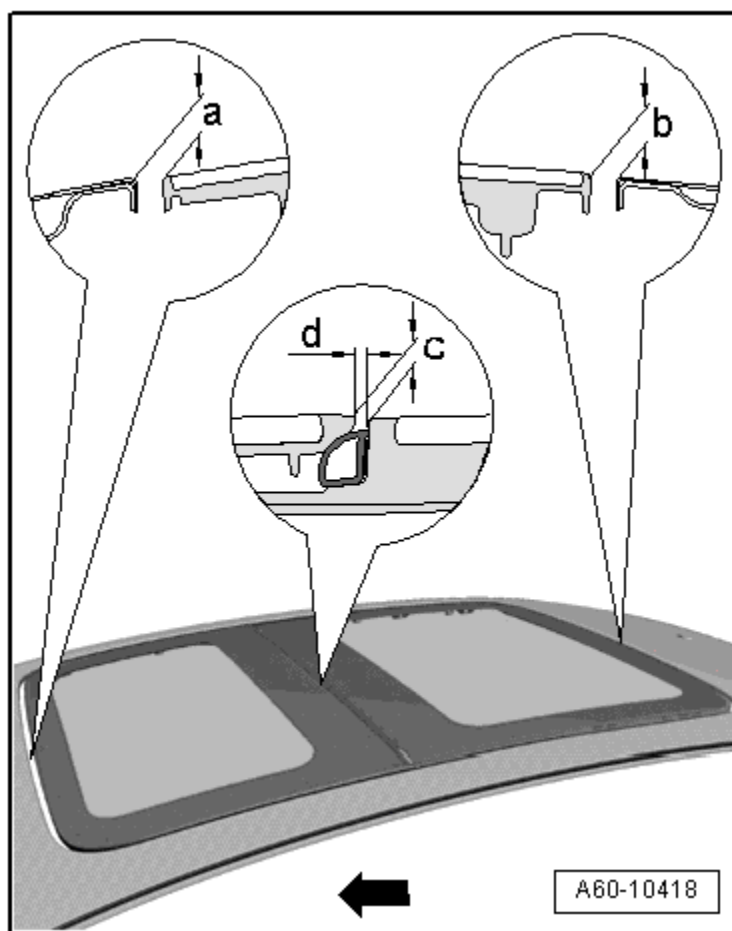
Glass Panel, Adjusting

Front and Rear Glass Panel Height, Adjusting



Note

- ◆ The -arrow- points in the direction of travel.
- ◆ Adjust the rear glass panel first if both glass panels must be adjusted.
- Adjust from the rear edge at the back of the glass panel to the roof with overlap dimension -b-.
- Adjust the front edge so that it is flush with the roof on the left and right.
- Adjust the glass panel to the specifications using the bolts on the lifter or on the slotted guide rail.
- Glass panel dimension -a- to the front of the roof.
- Glass panel dimension -b- to the back of the roof.
- Glass panel dimension -c- from the back of the glass panel to the front of the glass panel.
- ◆ -a- = 1.5 mm ± 1 mm
- ◆ -b- = 0.5 mm ± 1 mm
- ◆ -c- = 1 mm ± 0.5 mm
- ◆ -d- = 2.5 mm ± 0.5 mm



Glass Panel, Removing and Installing, Front, Panorama Sunroof

1 - Bolt

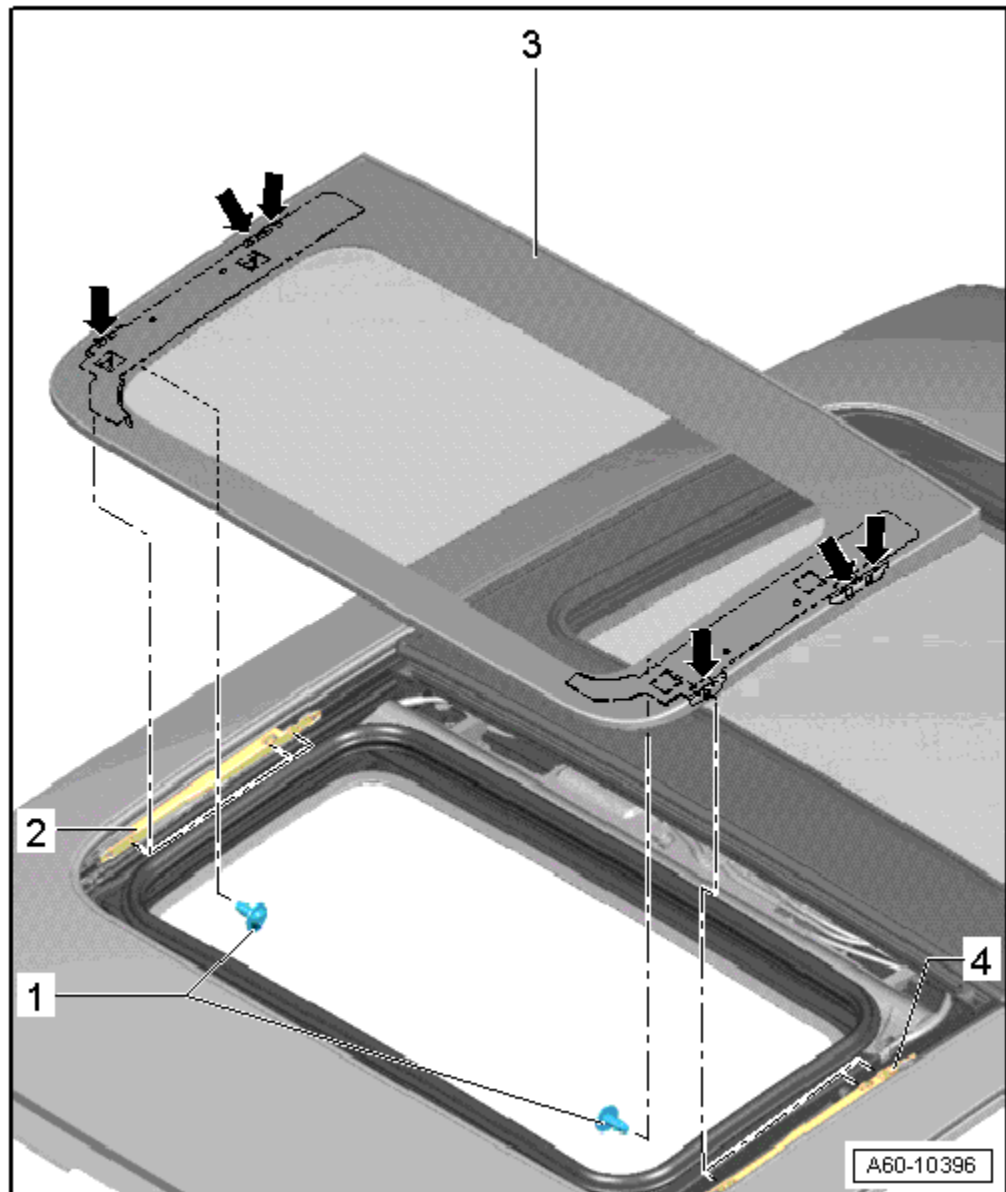
- 5.5 Nm

2 - Right Slotted Guide Rail

3 - Front Glass Panel

- Removing
 - Open the front glass panel approximately half way.
 - Pull the front seal off the sunroof frame half way starting from the front toward the rear.
 - Remove the bolts on the side of the glass panel.
 - Lift the glass panel out of the slotted guide rail.
- Install in reverse sequence.

4 - Left Slotted Guide Rail



Glass Panel, Removing and Installing, Rear, Panorama Sunroof

1 - Bolt

- 5.5 Nm

2 - Right Lifter

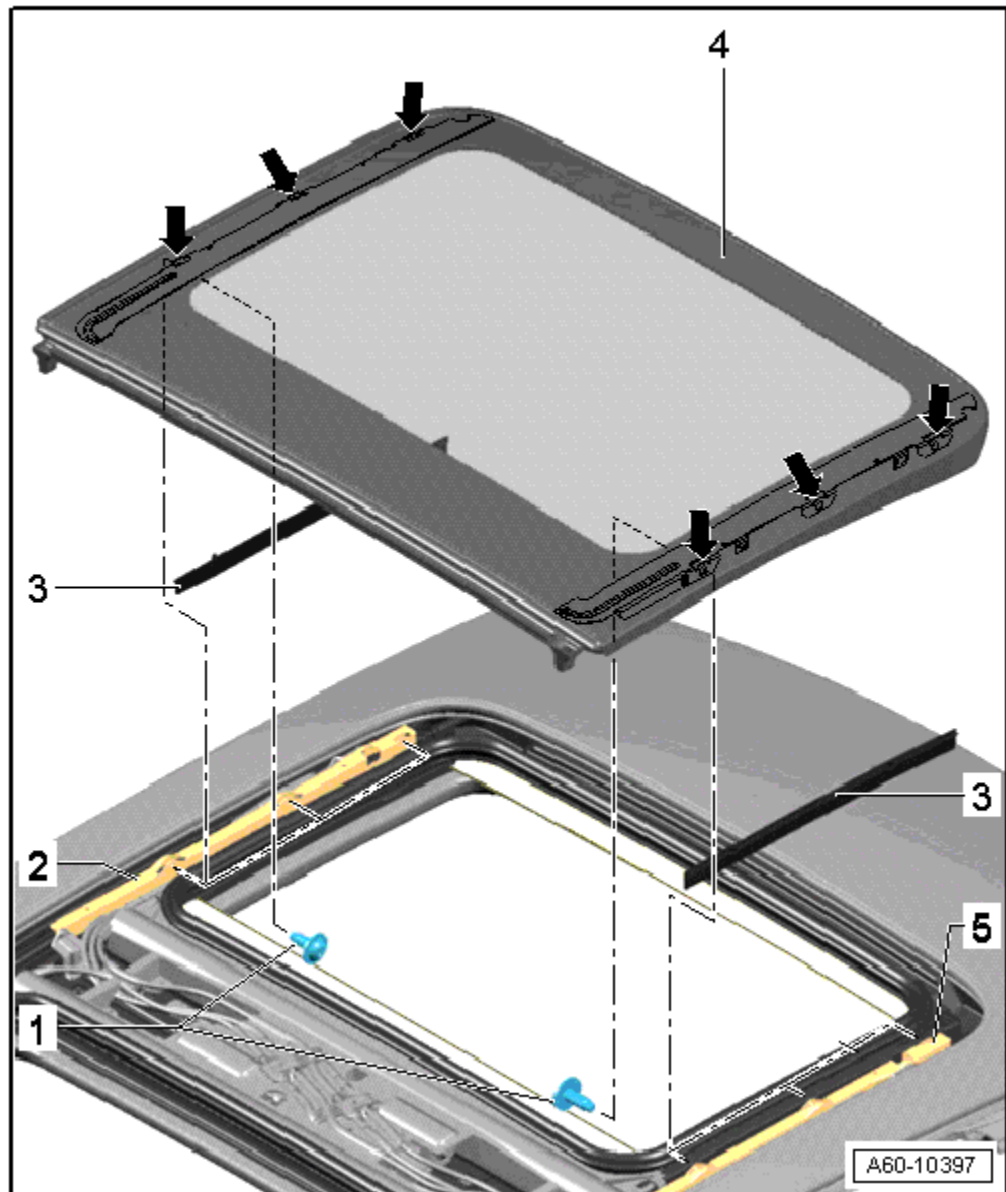
3 - Trim

- Removing.
Refer to
→ **Anchor**.

4 - Rear Glass Panel

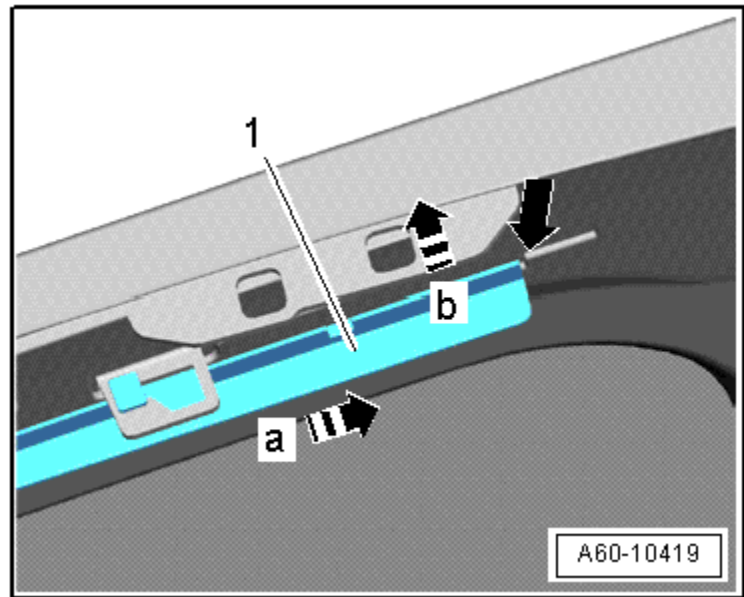
- Removing
 - Lift the glass panel and remove the side trim.
 - Remove the rear seal at the back of the sunroof frame half way.
 - Remove the bolts on the left and right sides of the glass panel.
 - Remove the glass panel from the lifter.
- Install in reverse sequence.

5 - Left Lifter



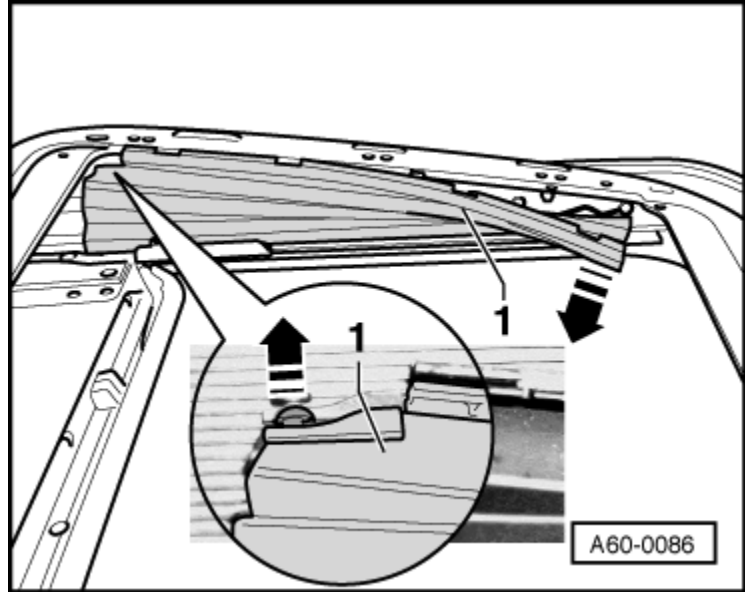
Trim, Removing

- Push the trim -1- toward the outside in direction of -arrow b- and at the same time pull it to the rear in direction of -arrow a-.
- The opening in the glass panel must lock into edge of the trim -arrow-.

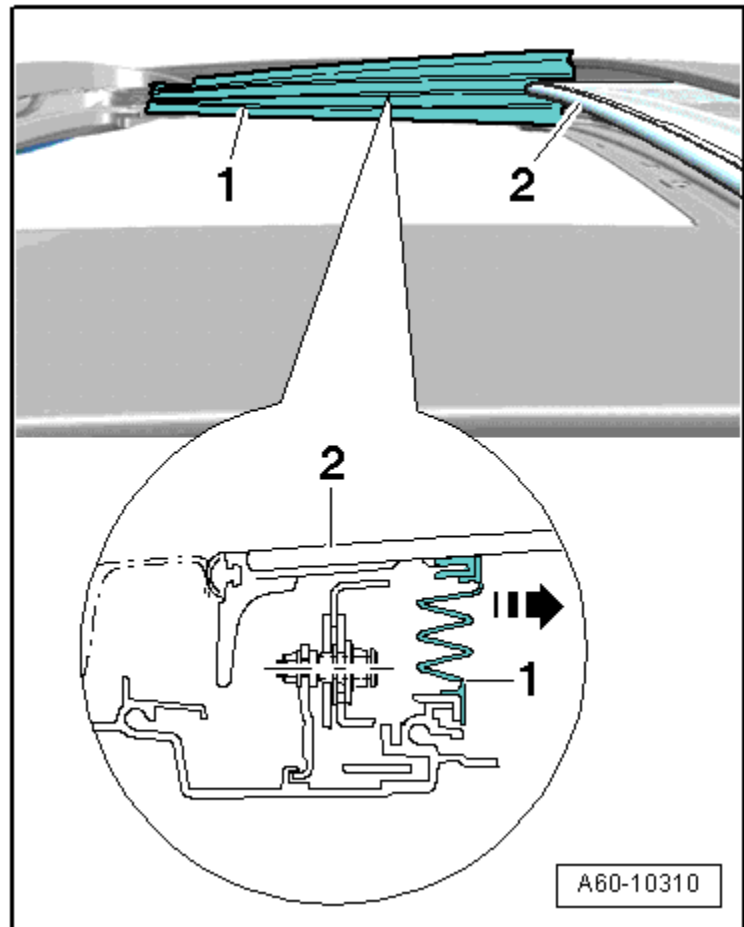


Interior Trim, Removing and Installing

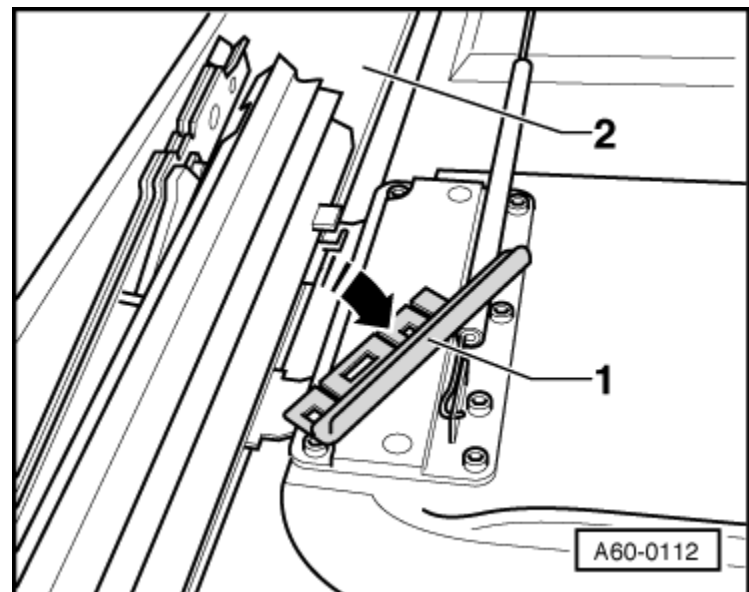
- Tilt sunroof open.
- Pull off panel -1- from sunroof panel in direction of -arrow-, starting at front and working toward rear.
- Slide locking pin toward rear out of panel lock.
- Remove trim of panel downward.



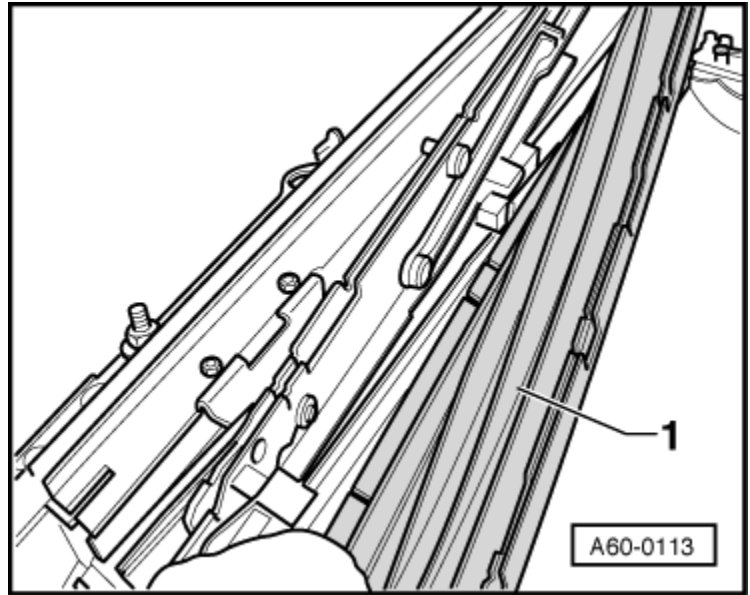
- Pull off trim -1- from sunroof panel -1- completely toward vehicle interior and fold it downward and away.



- Unclip locking mechanism -1- from guide rail -2- on sides.
- When installing, locking tab -arrow- must engage into cutout in guide rail.



- Slide inner trim -1- toward front and pull inward out of guide rail.



Motor Adaptation



Note

In order for the sunroof to work correctly after the motor has been removed/installed or replaced, perform an adaptation.

Sunroof motor

- Switch on the ignition and close the doors. If necessary, close the sunroof.
- Pull the sunroof control switch and hold it in that position for 15 seconds.
- The sunroof panel will lift, it will open all the way and then it will close.
- ◆ Keep the sunroof switch pulled during the adaptation process.
- ◆ This completes the adaptation process.



Note

If new replacement motors have been installed, then the adaptation process will start immediately after the switch is activated, with no 15 second waiting period.

Motor, Removing and Installing, Panorama Sunroof



WARNING

Code or perform an adaptation in Guided Function or in Guided Fault Finding in diagnosis address 46 after replacing the Power Sunroof Control Module -J245- or Rear Sunroof Control Module -J392-. Refer to Vehicle Diagnostic Tester.



Note

Remove and install the motors only when the glass panels are closed.

Power Sunroof Control Module -J245-, Removing

- Remove the front interior lamp. Refer to → [Electrical Equipment; Rep. Gr.96; Controls; Front Interior Lamp/Reading Lamp, Removing and Installing.](#)
- Disconnect the connector from the motor and remove the screws.
- Remove the motor through the opening for the lamp in the headliner.

Rear Sunroof Control Module -J392-, Removing

- Lower the rear headliner. Refer to → [Body Interior; Rep. Gr.70; Roof Trim Panels; Headliner, Removing and Installing.](#)
- Disconnect the connector from the motor.
- Remove the screws from the Rear Sunroof Control Module - J392- and remove the motor.

Overview - Panorama Sunroof



Caution

It is necessary to code or program the mechanical components or control modules on the Panorama sunroof after removing and installing them using Guided Functions in Guided Fault Finding under diagnostic address 46. Refer to Vehicle Diagnostic Tester.

1 - Bolt

- 3 Nm

2 - Power Sunroof Control Module -J245-

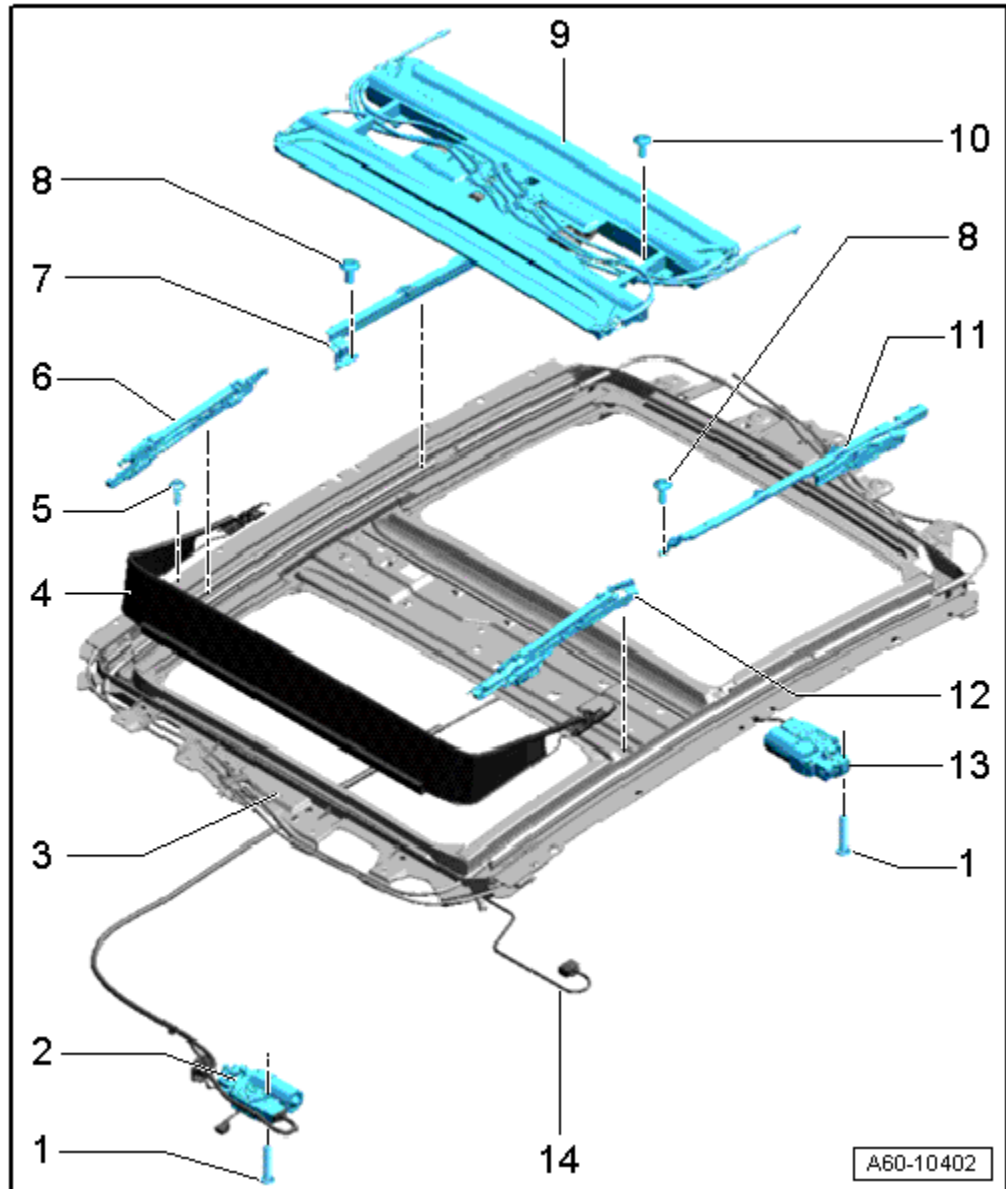
- Removing and installing. Refer to → Chapter „Motor, Removing and Installing, Panorama Sunroof“.

3 - Sunroof Frame

- Removing and installing. Refer to → Chapter „Sunroof Frame, Removing and Installing, Panorama Sunroof“.

4 - Wind Deflector

- Removing and installing. Refer to → Chapter „Wind Deflector, Removing and Installing, Panorama Sunroof“.



Panorama Sunroof“.

5 - Bolt

- 1 Nm

6 - Right Slotted Guide Rail

- Removing and installing. Refer to → Chapter „Overview - Slotted Guide Rail and Tilting Mechanism“.

7 - Right Lifter

- Removing and installing. Refer to → Chapter „Overview - Slotted Guide Rail and Tilting Mechanism“.

8 - Bolt

- Tightening specification. Refer to -item 5- → Item.

9 - Sunroof Shade Frame

- Removing and installing. Refer to → Chapter „Sunroof Shade, Removing and Installing“.

10 - Bolt

- 3 Nm

11 - Left Lifter

- Removing and installing. Refer to → Chapter „Overview - Slotted Guide Rail and Tilting Mechanism“.

12 - Left Slotted Guide Rail

- Removing and installing. Refer to → Chapter „Overview - Slotted Guide Rail and Tilting Mechanism“.

13 - Rear Sunroof Control Module -J392-

- Removing and installing. Refer to → Chapter „Motor, Removing and Installing, Panorama Sunroof“.

14 - Wiring Harness

Overview - Slotted Guide Rail and Tilting Mechanism

1 - Panorama Roof Frame

2 - Front Guide

- The front glass panel is removed.

3 - Bolt

- 1 Nm

4 - Slotted Guide Rail with Tilting Mechanism

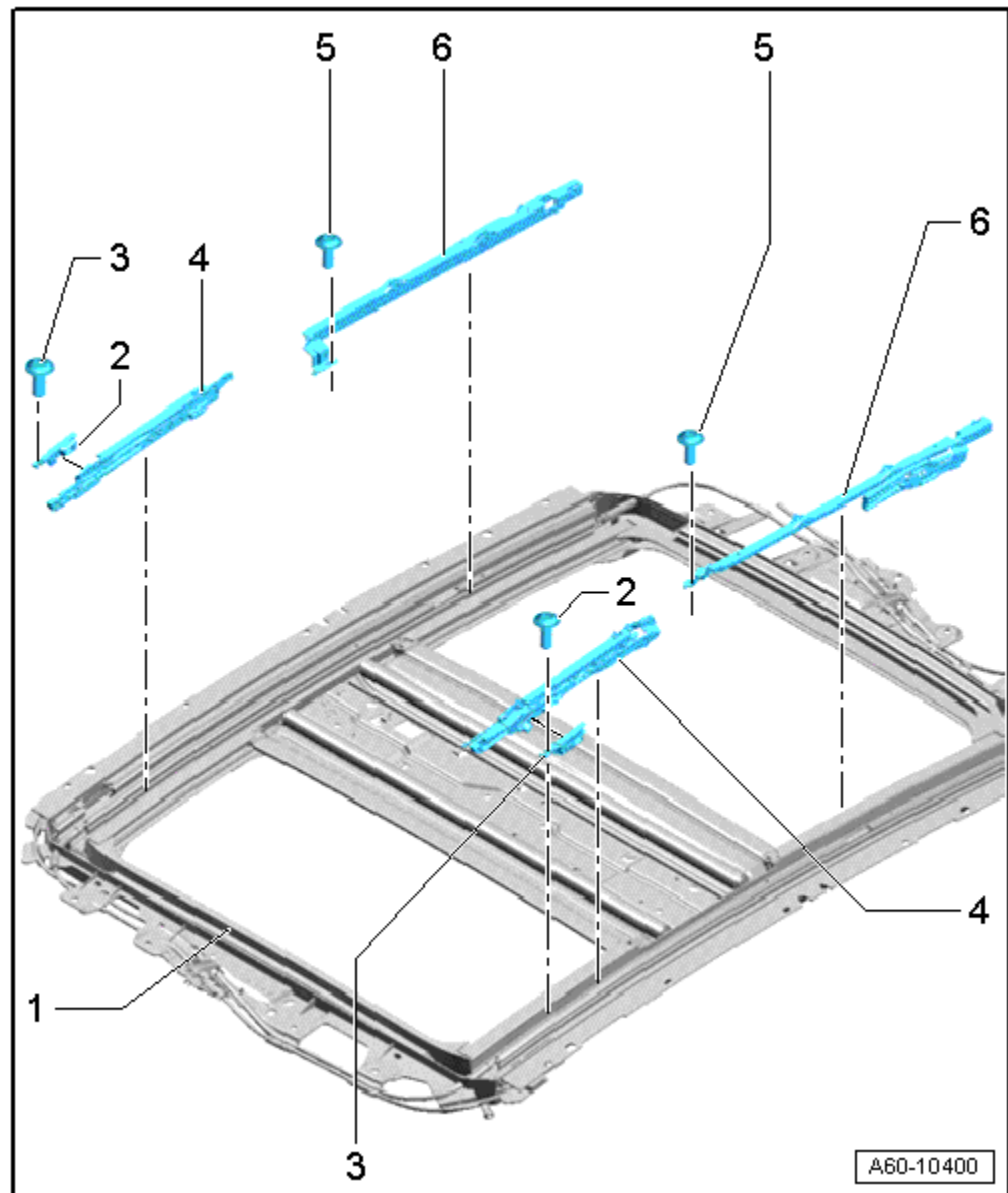
- Removing and installing. Refer to → [Anchor](#).

5 - Bolt

- 1 Nm

6 - Lifter

- Removing and installing. Refer to → [Anchor](#).
- The rear glass panel is removed.



Slotted Guide Rail, Removing and Installing

1 - Front Guide

- Open the front glass panel approximately 10 cm to the rear. This will push the lifter on the guide lever out of the guide.
- Remove the screw and the guide.

2 - Bolt

- Tightening specification. Refer to -item 3- → [Item](#).

3 - Front Control Lever

- Part of the tilting mechanism

4 - Tilting Mechanism

5 - Rear Control Lever

- Part of the tilting mechanism

6 - Slotted Guide Rail

- Removing
- The front glass panel is removed.
- Remove the front guide.

- Move the tilting mechanism forward into the lift position (the same as glass panel tilted).

- Push the front and rear control levers in the slotted guide rail forward.

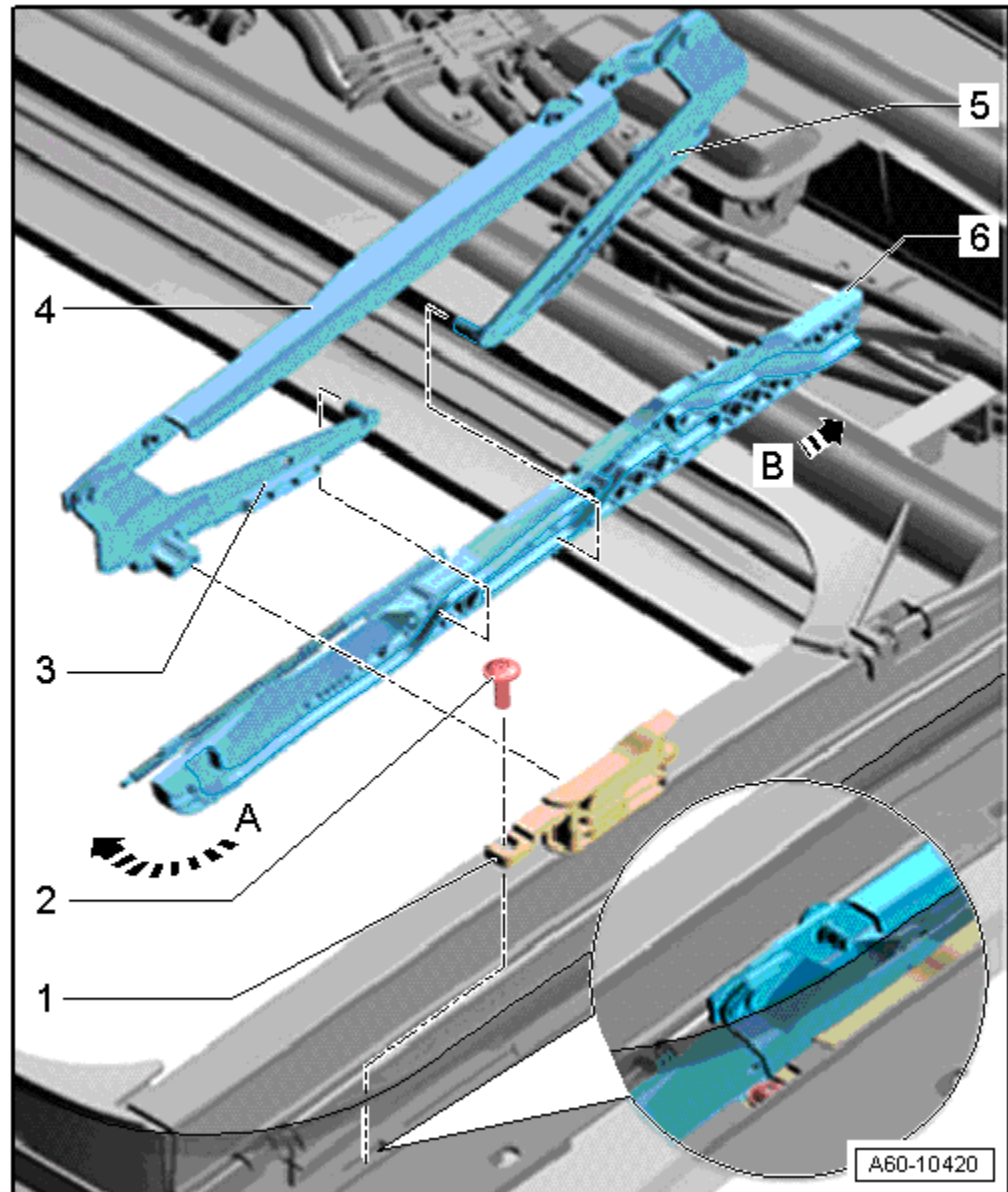
- Push the control lever upward and out of the groove - arrow A- in the slotted guide rail.

- The front control lever is now outside of the slotted guide rail.

- Push the rear control lever back -arrow B- until it is pushed out of the slotted guide rail and it is possible to remove the tilting mechanism completely.

- Remove the slotted guide rail sideways out of the cable mount.

Install in reverse order of removal



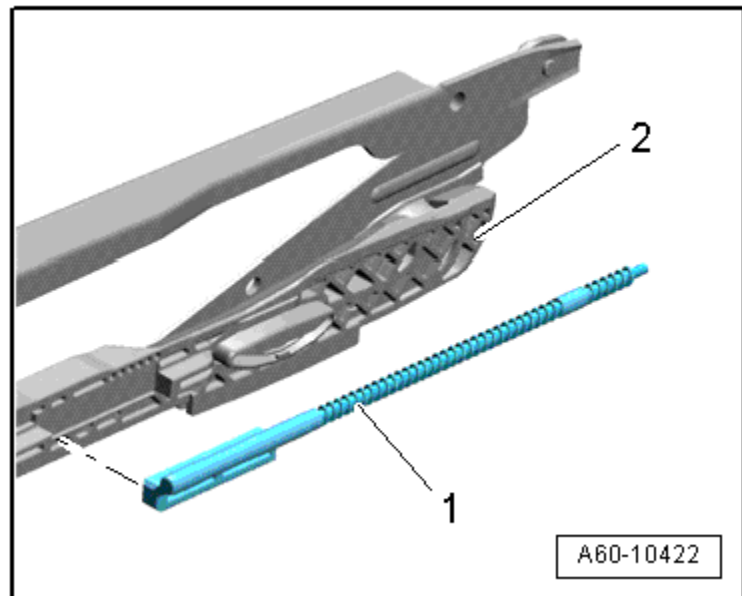
Disengaging the Cable



Note

The cable is not shown in the illustration but remains installed in the sunroof frame.

- Remove the tilting mechanism or lifter.
- Remove the slotted guide rail sideways from the guides in the frame.



Removing and Installing the Lifter

1 - Bolt

- Tightening specification. Refer to -item 5- → **Item**.

2 - Lifter

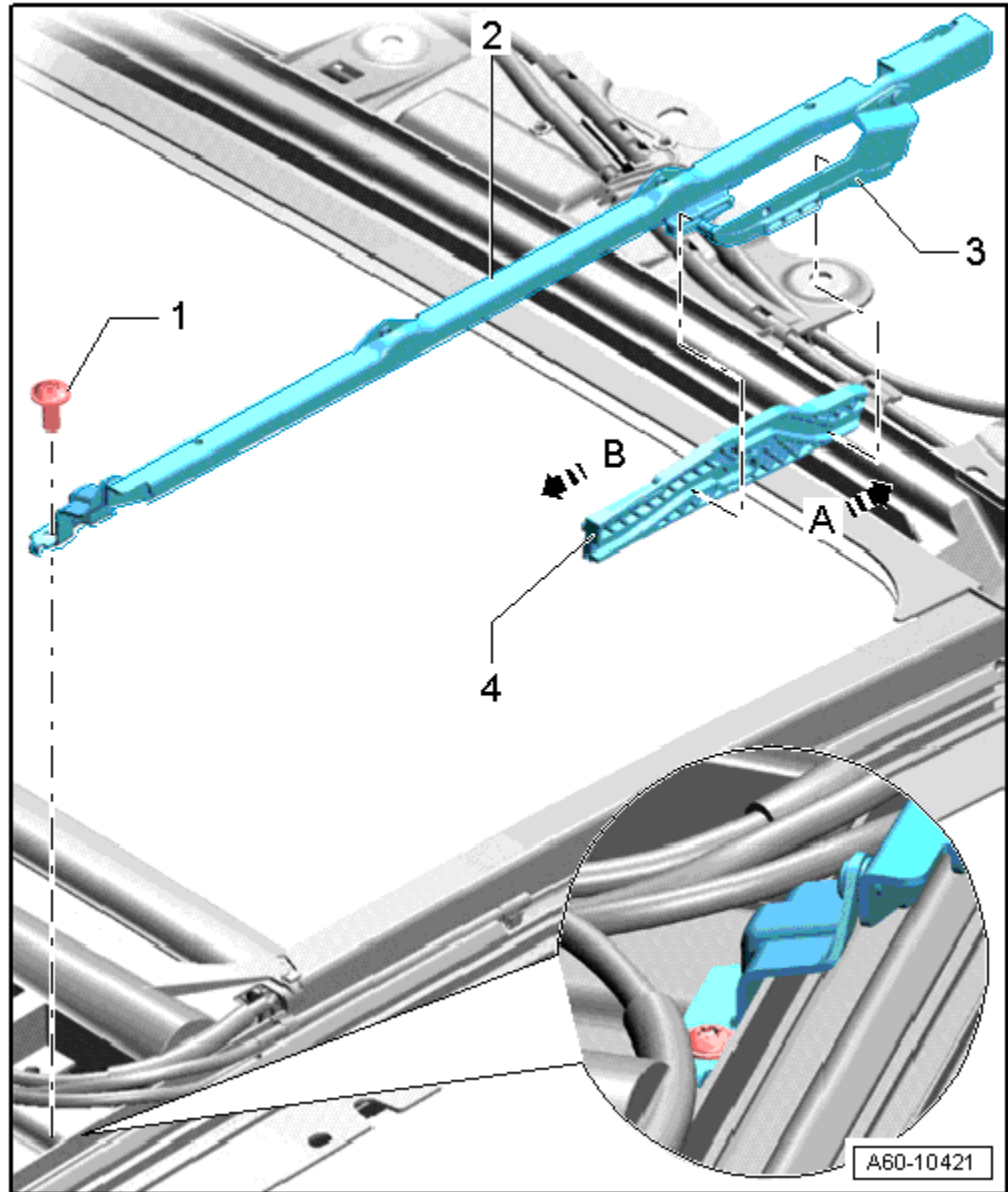
- Remove the bolts.
- Push the control lever to the rear out of the slotted guide rail -arrow A-.
- Fold the control lever over the slotted guide rail, then push it forward and out of the slotted guide rail -arrow B- and then remove it.

3 - Control Lever

- Part of the lifter

4 - Slotted Guide Rail

- Remove the lifter and control lever
- Remove the slotted guide rail sideways out of the cable mount.

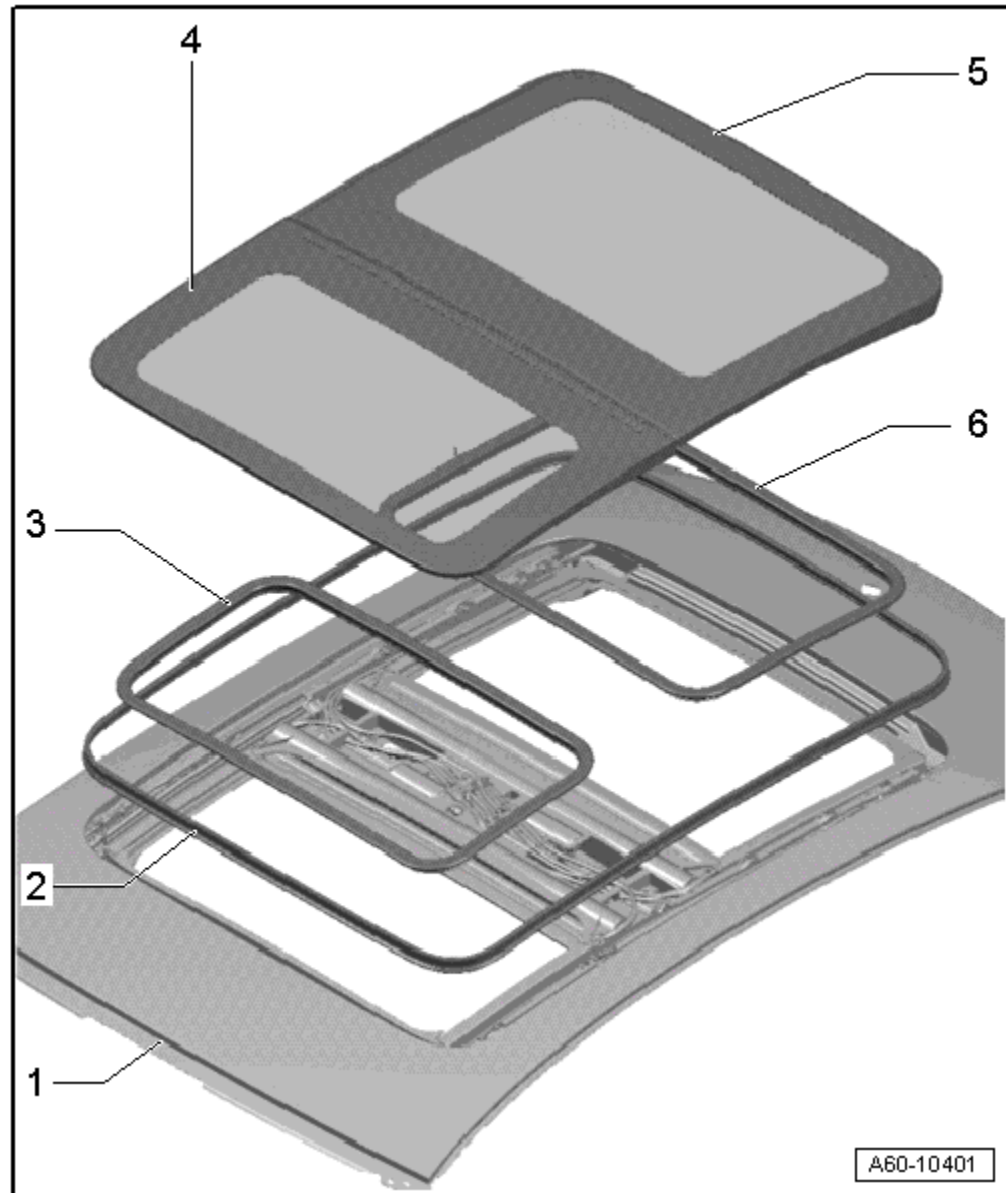


Overview - Sunroof Seals

1 - Roof

2 - Frame Seal

- Removing
- The sunroof frame is removed. Refer to → **Chapter „Sunroof Frame, Removing and Installing, Panorama Sunroof“**.
- To remove, warm the seal and the roof with a hot air blower.
- Remove the frame seal from the roof flange.
- Remove any remaining adhesive completely before installing the new seals.
- Installing. Refer to → **Anchor**.



3 - Front Cover Seal

- To remove, open the glass panel all the way and remove the seal from the frame.
- Do not stretch the new seal when installing it.

4 - Front Glass Panel

5 - Rear Glass Panel

6 - Rear Cover Seal

- To remove, extend the glass panel all the way and remove the cover seal from the frame.
- Do not stretch the new seal when installing it.

Installing the Frame Seal

Special tools and workshop equipment required

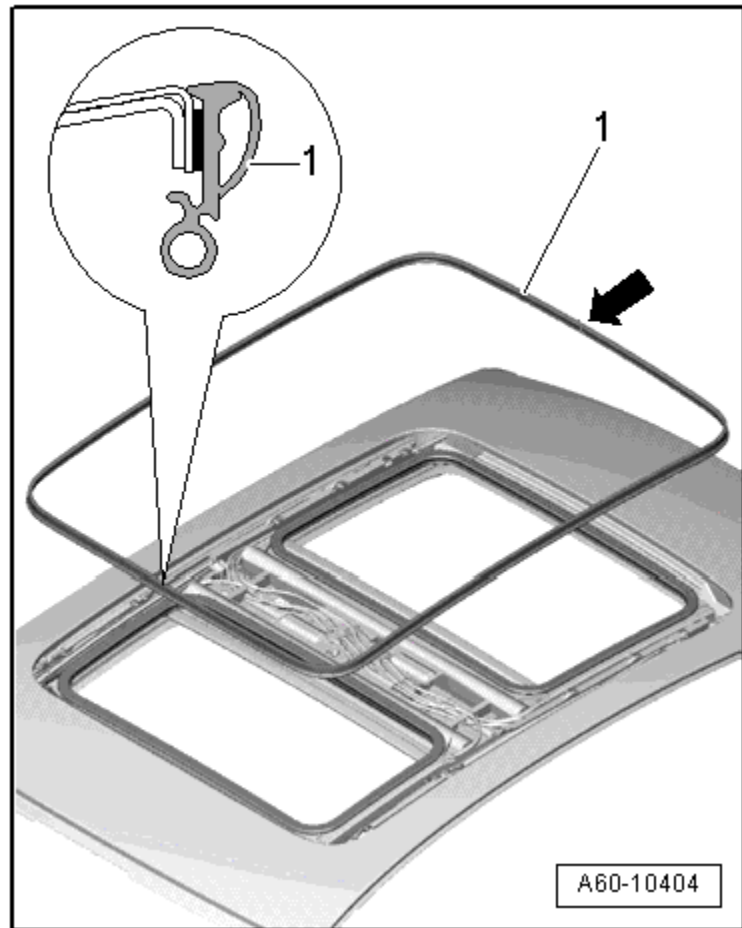
- ◆ Roller -3356-
- Clean the adhesion surface using Cleaning Solution -D 009 401 04-.



Note

Do not stretch the seal when installing it.

- Place the seal with the rear joint in the center of the vehicle and press it onto the flange starting from one side.
- Press the seal all the way around with a roller.



Overview - Sunroof Shade

1 - Front Sunroof Shade

- Removing and installing. Refer to - item 1- → Item.

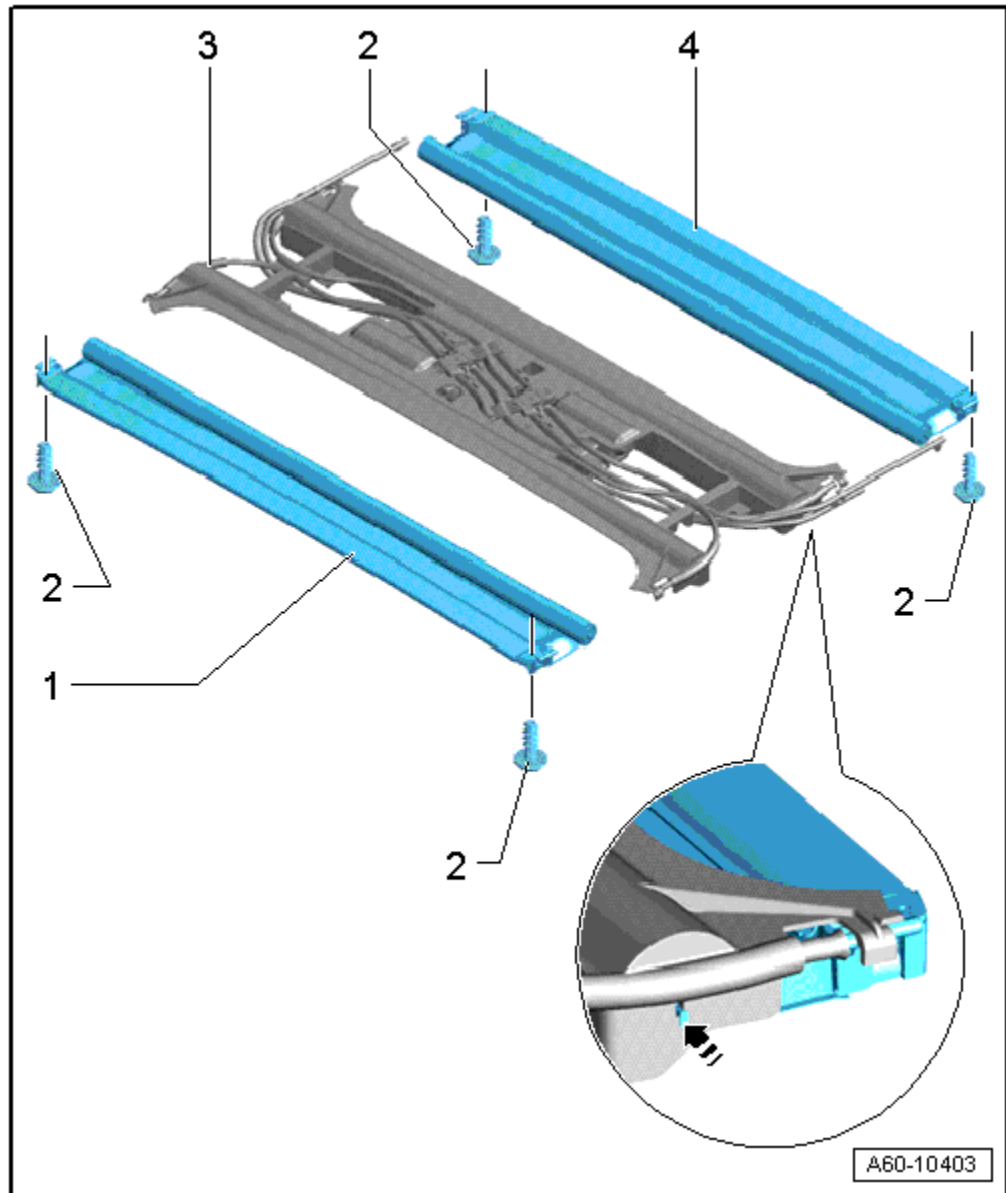
2 - Bolt

- 1 Nm

3 - Sunroof Shade Frame

4 - Rear Sunroof Shade

- Removing and installing. Refer to - item 1- → Item.



Overview - Sunroof, Sunroof Frame

1 - Power Sunroof Control Module -J245-

- Removing. Refer to → Chapter „Sunroof Motor, Removing and Installing“.
- Perform an adaptation after removing and installing. Refer to → Chapter „Motor Adaptation“.

2 - Bolt

- 3 Nm

3 - Electric Wire For Sunroof Motor

4 - Wind Deflector Motor Control Module

5 - Bolt

- 1.5 Nm
- Self-tapping

6 - Wind Deflector Motor -V252-

- Removing. Refer to → Chapter „Wind Deflector Motor -V252-, Removing and Installing“.
- Perform an adaptation after removing and installing. Refer to → Chapter „Motor Adaptation“.

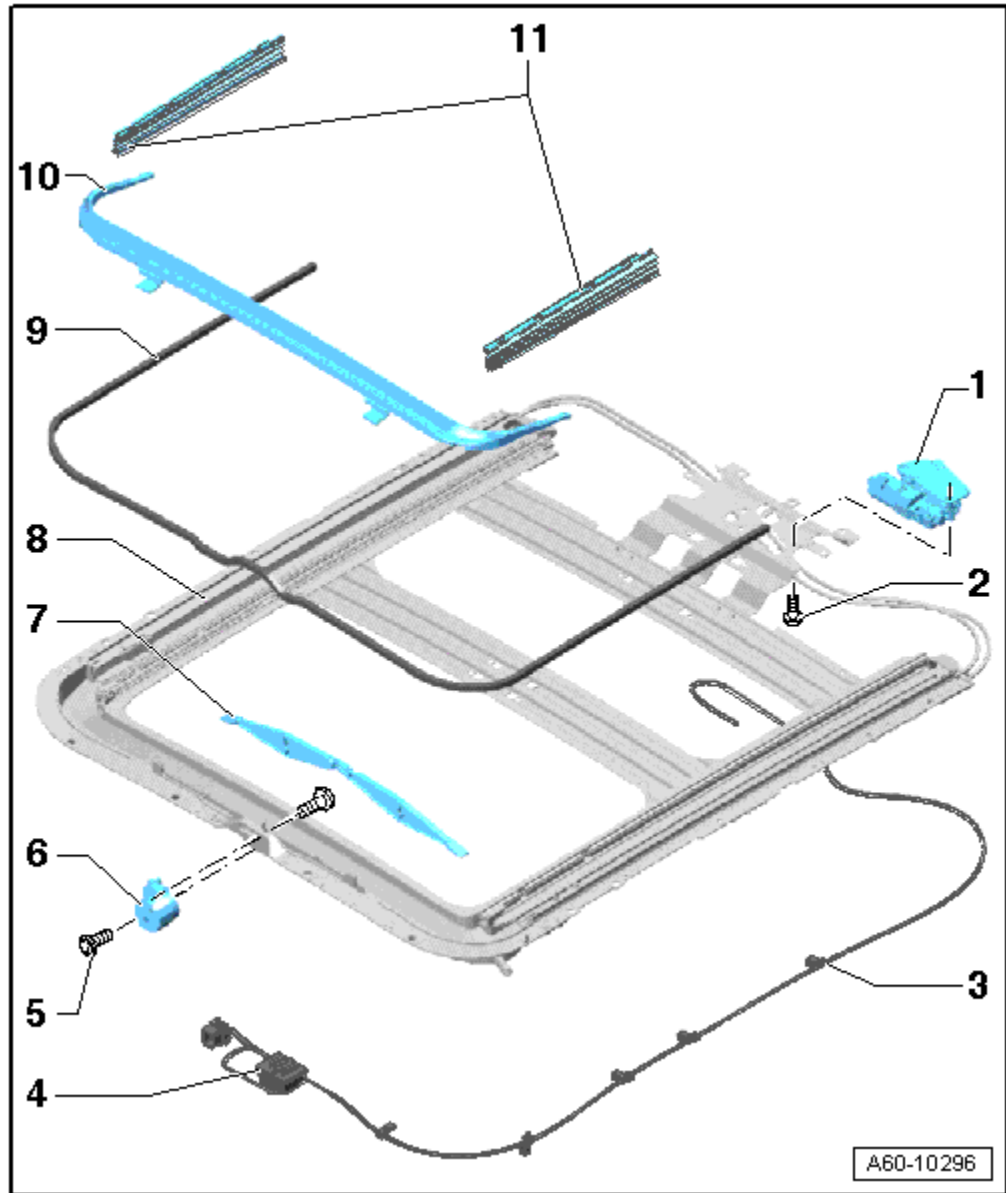
7 - Positioning Bow for Wind Deflector

- No replacement part

8 - Sunroof Frame

9 - Sunroof Seal

- Replace after a removal of the sunroof.



10 - Wind Deflector

- Removing. Refer to → [Chapter „Wind Deflector, Removing and Installing“](#).

11 - Inner Trim

- Removing. Refer to → [Chapter „Interior Trim, Removing and Installing“](#).

Overview - Sunroof



WARNING

With panel removed, roof must not be driven electrically.

If roof is moving forward and gets blocked while it is moving, the motor will reverse and move the roof toward the rear.

This may cause irreparable damage to the mechanism.

1 - Sliding Headliner

- Removing and installing. Refer to → Chapter „Sliding Headliner, Removing and Installing“.

2 - Slider

- Remove when disassembling the front and rear headliners.

3 - Bolt

- 1.5 Nm

4 - Right Slots for the Water Channel

- No replacement part

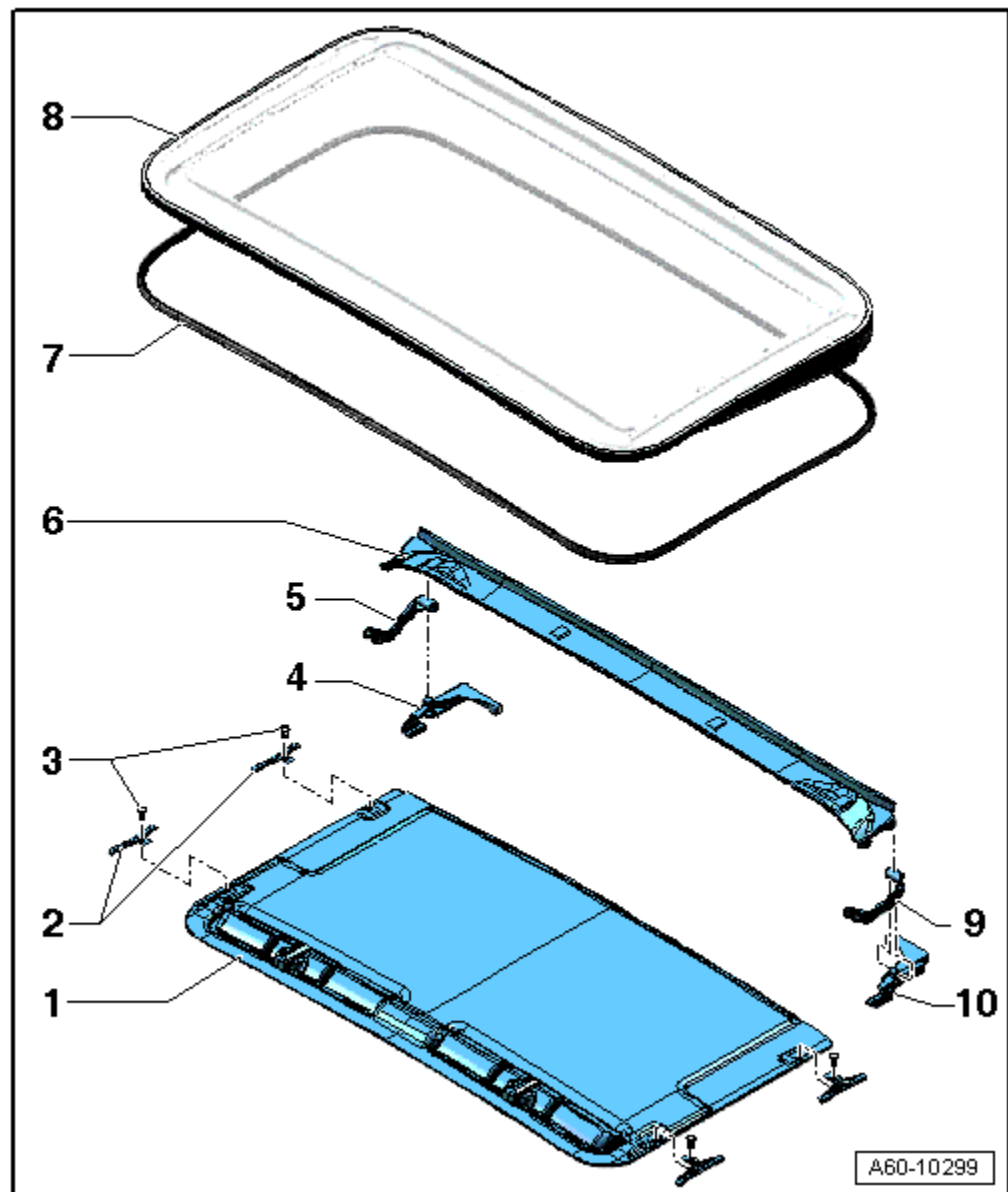
5 - Right Lifter for Water Channel

- No replacement part

6 - Water Channel

- No replacement part

7 - Panel Seal



8 - Sunroof Panel

- ❑ Removing. Refer to → [Chapter „Sunroof Panel, Removing“](#).

9 - Left Lifter for Water Channel

- ❑ No replacement part

10 - Left Slots for Water Channel

- ❑ No replacement part

Overview - Water Drain Hoses, Panorama Sunroof

1 - Front Water Drain Hose

- Removing and installing. Refer to → Chapter „Front Water Drain Hoses, Removing and Installing, Panorama Sunroof“.
- Cleaning. Refer to → Chapter „Front Water Drain Hoses, Cleaning“.

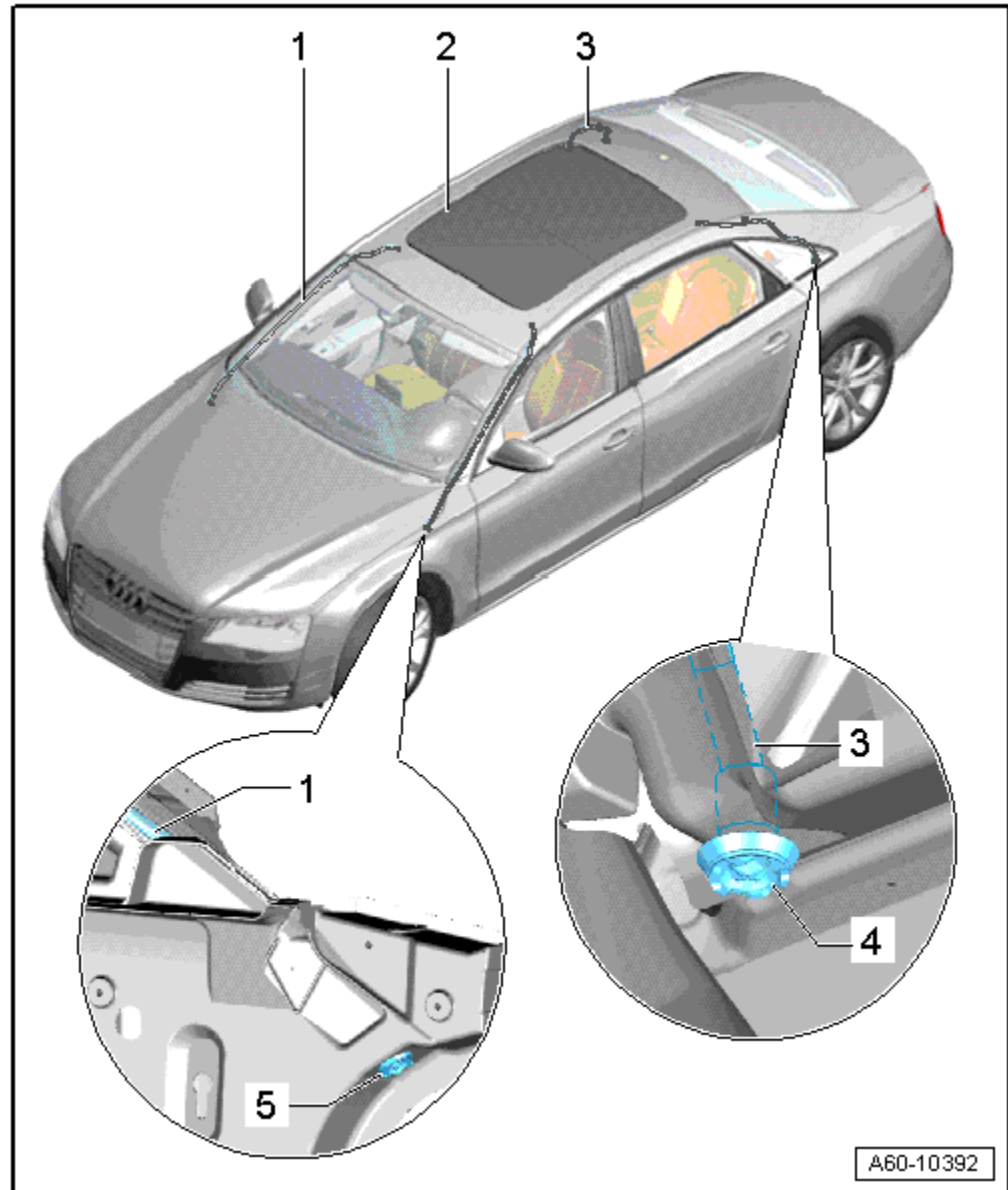
2 - Panorama Sunroof

3 - Rear Water Drain Hose

- Removing and installing. Refer to → Chapter „Rear Water Drain Hose, Removing and Installing, Panorama Sunroof“.

4 - Rear Grommet

5 - Front Grommet



- Cleaning. Refer to → Chapter „Rear Water Drain Hoses, Cleaning“.

Overview - Water Drain Hoses, Sunroof

1 - Front Water Drain Hose

- Removing and installing. Refer to → Chapter „Front Water Drain Hose, Removing and Installing“.
- Cleaning. Refer to → Chapter „Front Water Drain Hoses, Cleaning“.

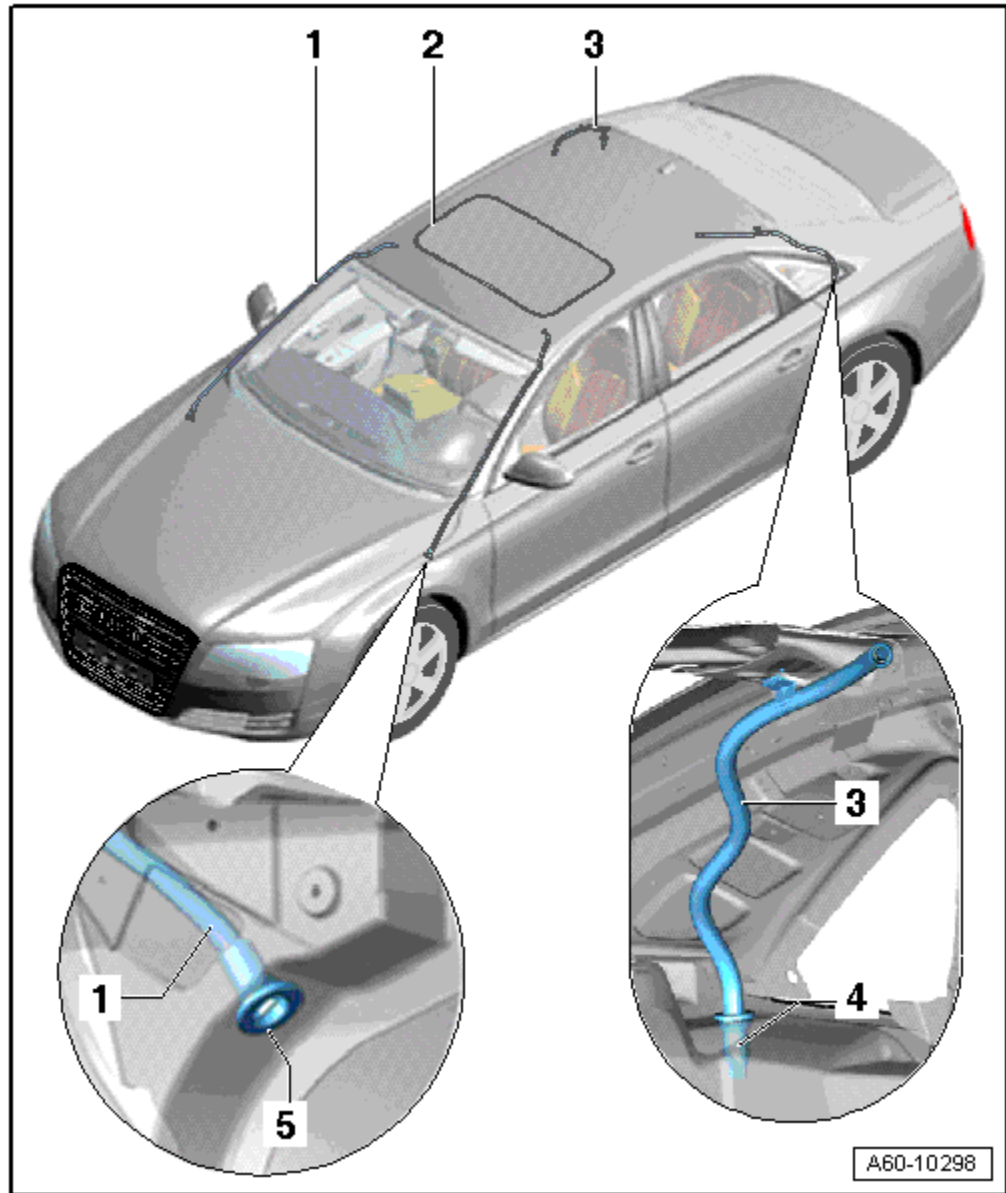
2 - Sunroof

3 - Rear Water Drain Hose

- Removing and installing. Refer to → Chapter „Rear Water Drain Hose, Removing and Installing“.
- Cleaning. Refer to → Chapter „Rear Water Drain Hoses, Cleaning“.

4 - Rear Grommet

5 - Front Grommet



Parallel Movement, Checking and Adjusting



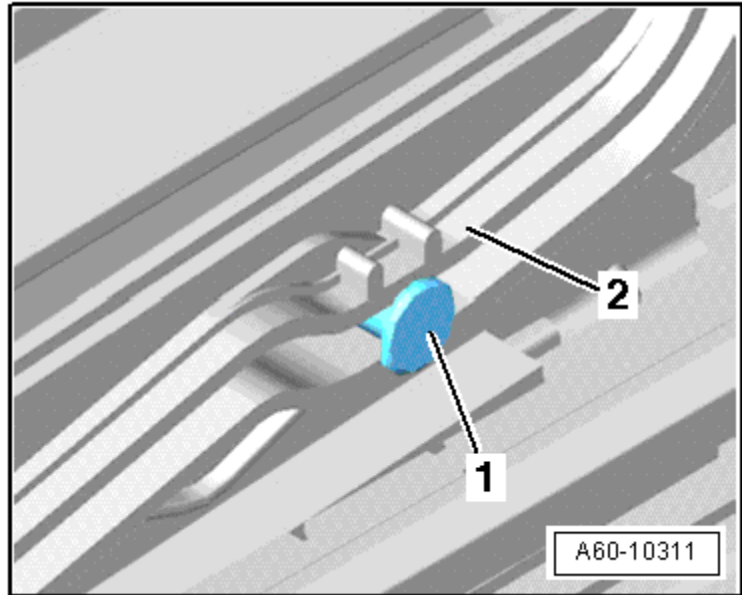
Note

The drive must be removed in order to adjust the parallel movement.

- Slide the slotted guide rails from the front to the rear.

Guide pin -1- must be located between markings -arrow- on left and right link guide.

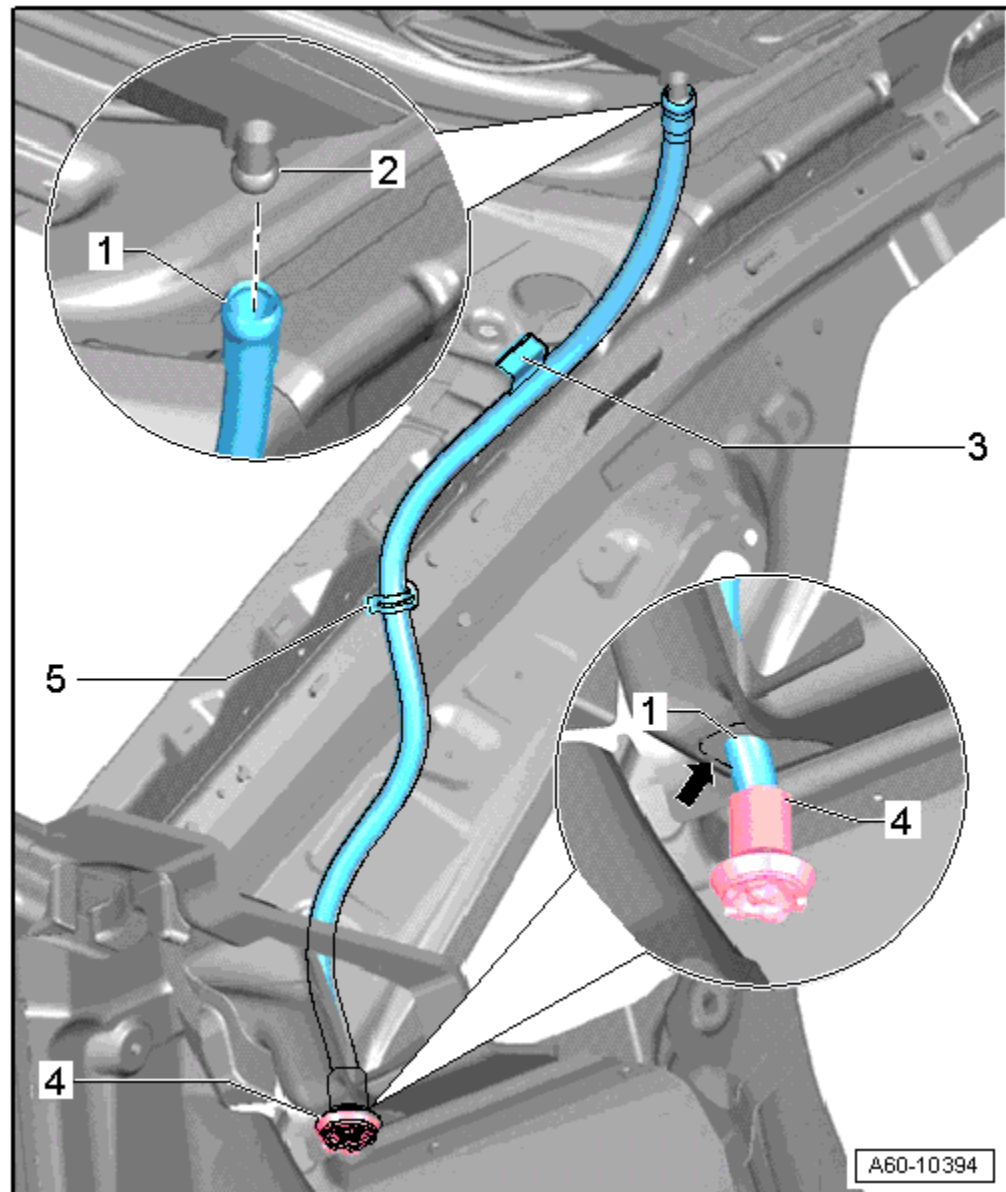
- Install the drive motor and solar panel.
- Perform an adaptation after installing the drive and the cover.



Rear Water Drain Hose, Removing and Installing, Panorama Sunroof

1 - Rear Water Drain Hose

□ Removing



- Remove the trim on the D-pillar. Refer to → [Body Interior; Rep. Gr.70; Passenger Compartment Trim; D-Pillar Trim, Removing and Installing](#).
 - Remove the rear wheel housing liner. Refer to → [Chapter „Rear Wheel Housing Liner, Removing and Installing“](#).
 - Remove the water drain hose from the Panorama sunroof and unclip it from the brackets -3 and 5-.
 - Remove the grommet -4- at the top of the wheel housing and remove the water drain hose downward.
- Installing .
- Push the hose back into the wheel housing from the bottom.
 - Insert the hose from the bottom, as illustrated, and pull it upward along the D-pillar until the end of the hose is sticking out of the Panorama sunroof.

- Install the rear grommet into the wheel housing.
- Secure the water drain hose with the hose bracket or cable bracket.

2 - Rear Grommet

3 - Rear Sunroof End Piece for Water Drain

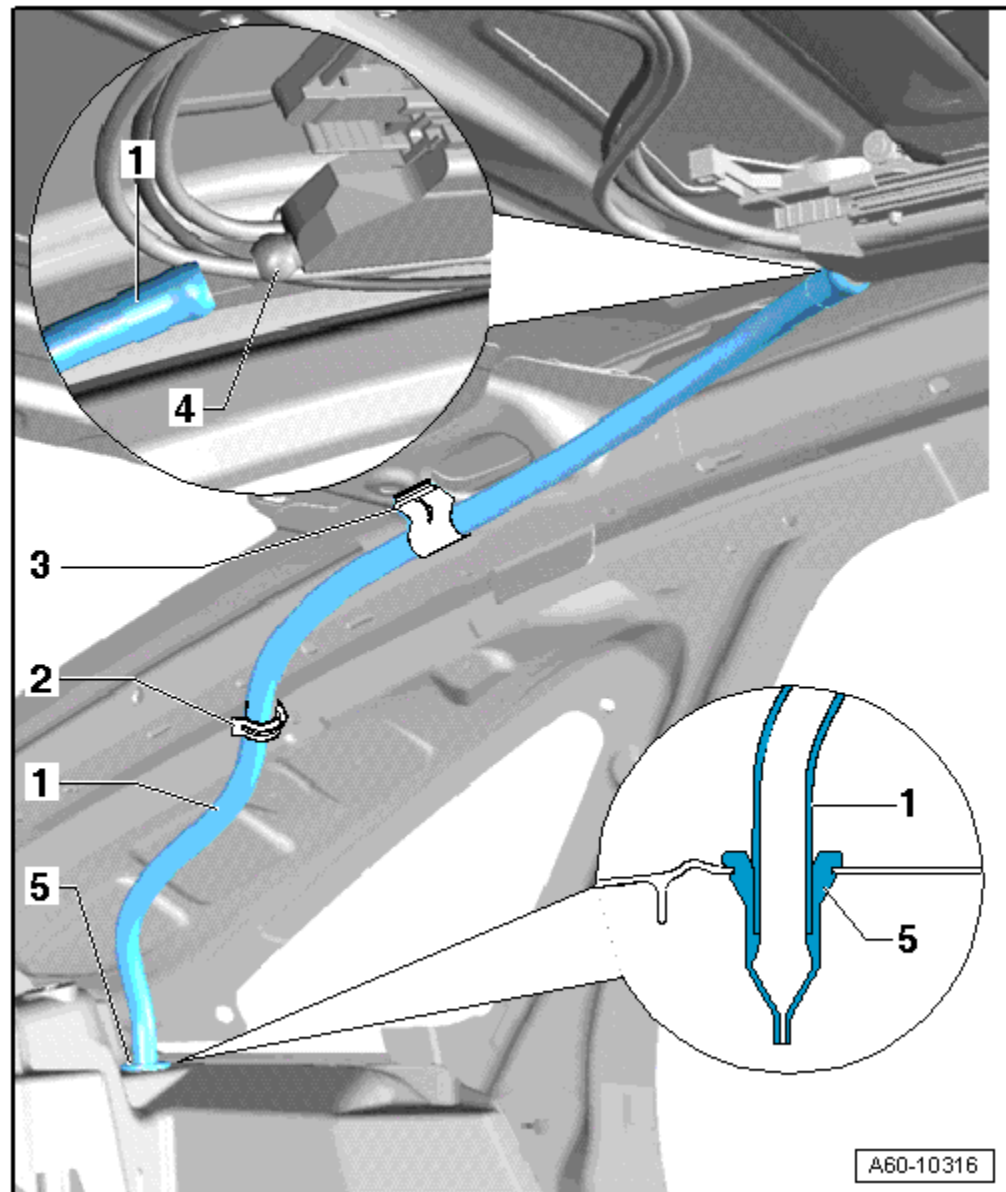
4 - Hose Bracket

5 - Cable Bracket

Rear Water Drain Hose, Removing and Installing

1 - Rear Water Drain Hose

□ Removing



- Remove the trim on the D-pillar. Refer to → [Body Interior; Rep. Gr.70; Passenger Compartment Trim; D-Pillar Trim, Removing and Installing](#).
- Remove the rear wheel housing liner. Refer to → [Chapter „Rear Wheel Housing Liner, Removing and Installing“](#).
- Remove the water drain hose from the sunroof.
- Remove the grommet -4- at the top of the wheel housing and remove the water drain hose downward.
- Installing .
- Push the hose back into the wheel housing from the bottom.
- Insert the hose from the bottom, as illustrated, and pull it upward along the D-pillar until the end of the hose is sticking out of the sunroof.

- Install the rear grommet into the wheel housing.
- Secure the water drain hose with the hose bracket or cable bracket.

2 - Rear Grommet

3 - Rear Sunroof End Piece for Water Drain

4 - Hose Bracket

5 - Cable Bracket

Rear Water Drain Hoses, Cleaning

Special tools and workshop equipment required

- ◆ Drain Snake -VAS6620-

The rear water drain hoses run into the D-pillars and end in the rear wheel housings.



Note

Use Drain Snake -VAS6620- to clean the water drain hoses.

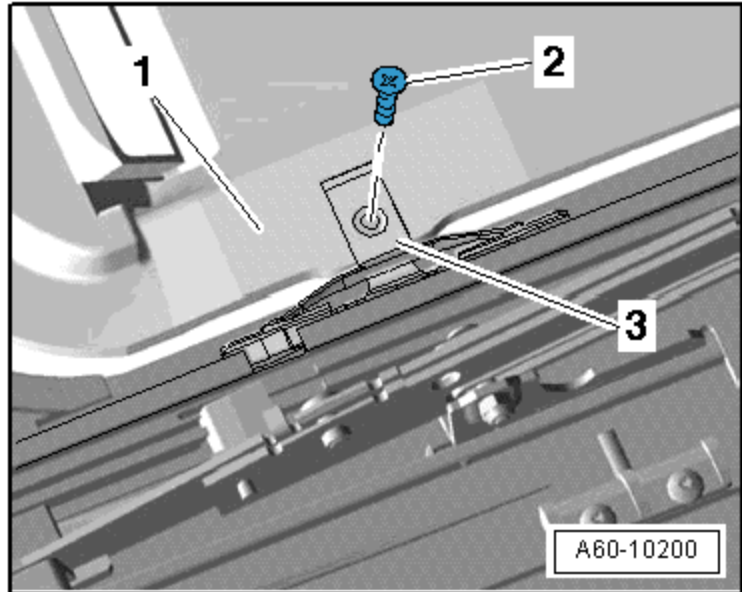
Start cleaning the hose from the bottom end.

To do this, loosen the rear wheel housing liner and push it to the side.

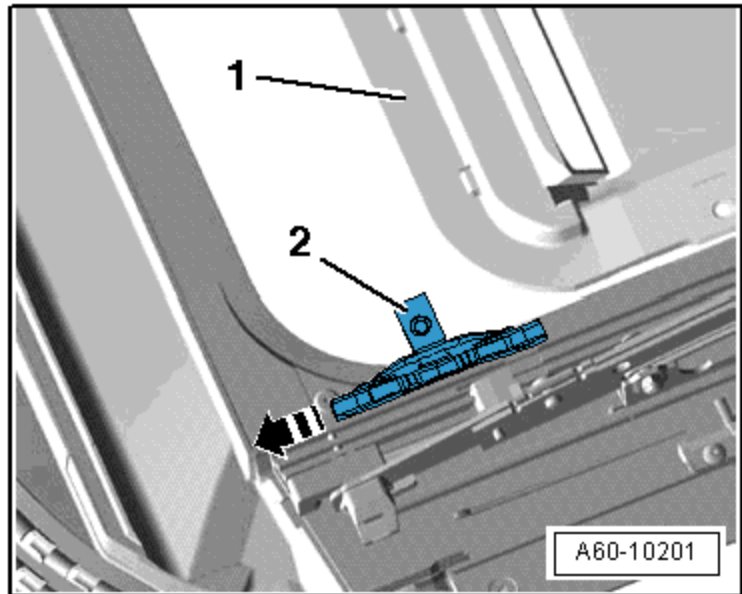
Sliding Headliner, Removing and Installing

Glass Panel

- Sunroof panel removed.
- Remove the screw -2- for the spring -3-.

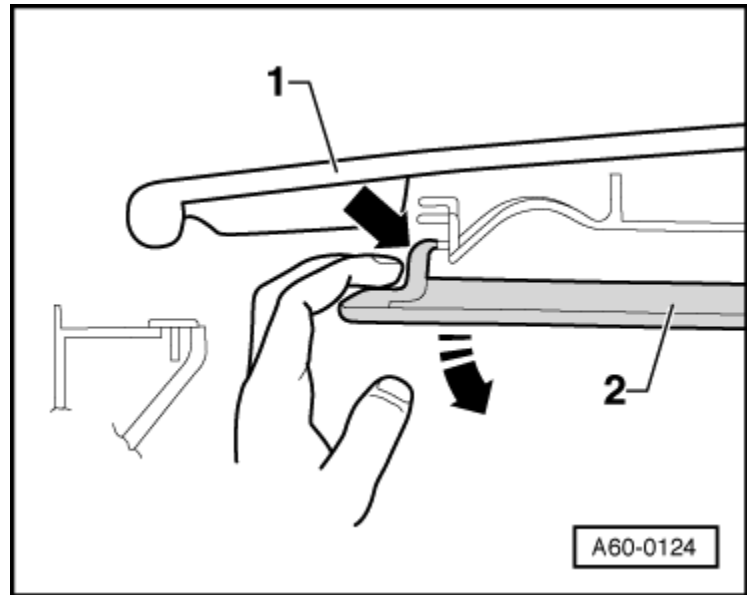


- Push the headliner -1- slightly to the rear and remove the front spring forward.
- Remove the spring toward the rear.
- Remove the headliner upward.
- Assembly is performed in the reverse order of removal.



Solar Panel

- Open roof, pull the center of the headliner downward out of locking mechanism in direction of -arrow- and slide it into roof cutout toward rear.



Sliding Sunroof, Adapting



WARNING

Code the Power Sunroof Control Module -J245- in Guided Functions or Guided Fault Finding under diagnosis address 46 after replacing it using the Vehicle Diagnostic Tester.

Adaptation for the Power Sunroof Control Module -J245- without a Vehicle Diagnostic Tester.

- Switch on the ignition and close the doors. If necessary, close the sliding sunroof.
- Pull and hold the sunroof switch for approximately 15 seconds in this position.
- The sunroof panel will lift, it will open all the way toward the rear and then it will close.
- ◆ Keep the sliding/tilting sunroof switch pulled during the adaptation process.
- ◆ This completes the adaptation process.



Note

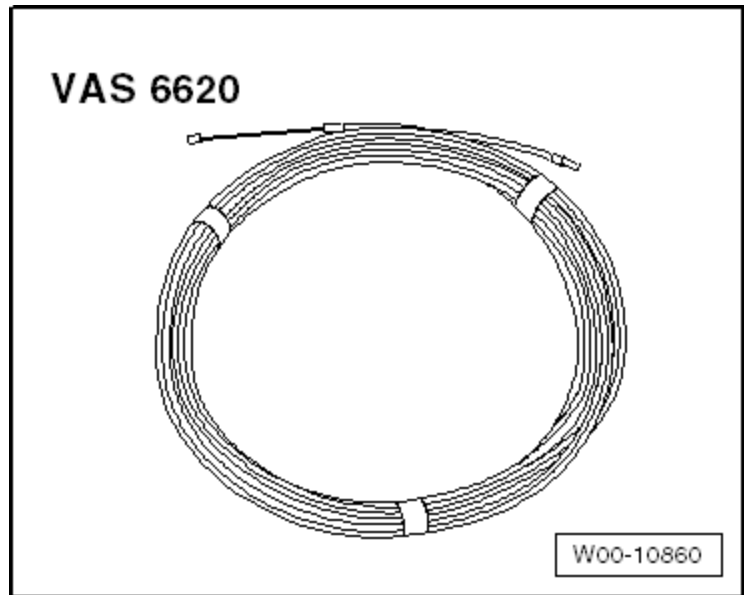
If new motors have been installed, then the adaptation process will start immediately after the switch has been activated without any wait time.

- The pinch protection is active and system is ready for operation.

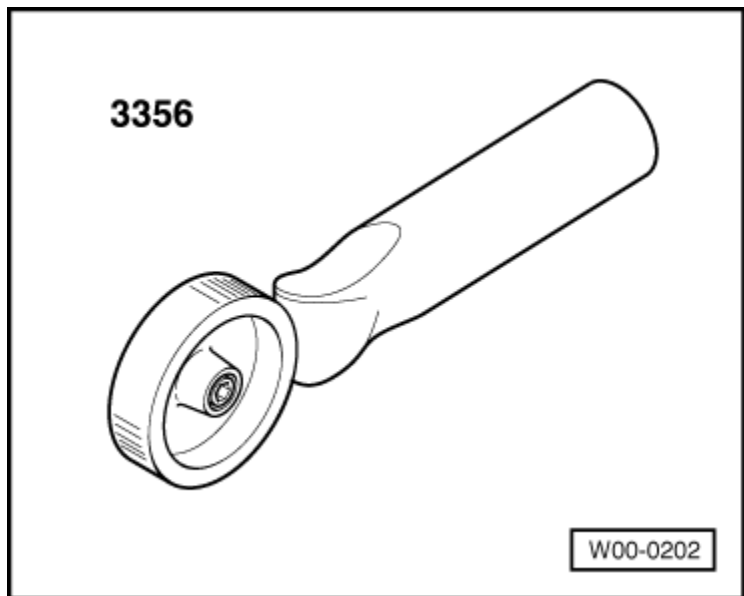
Special Tools

Special tools and workshop equipment required

- ◆ Drain Snake -VAS6620-



- ◆ Roller -3356-



Sunroof Frame, Removing and Installing, Panorama Sunroof



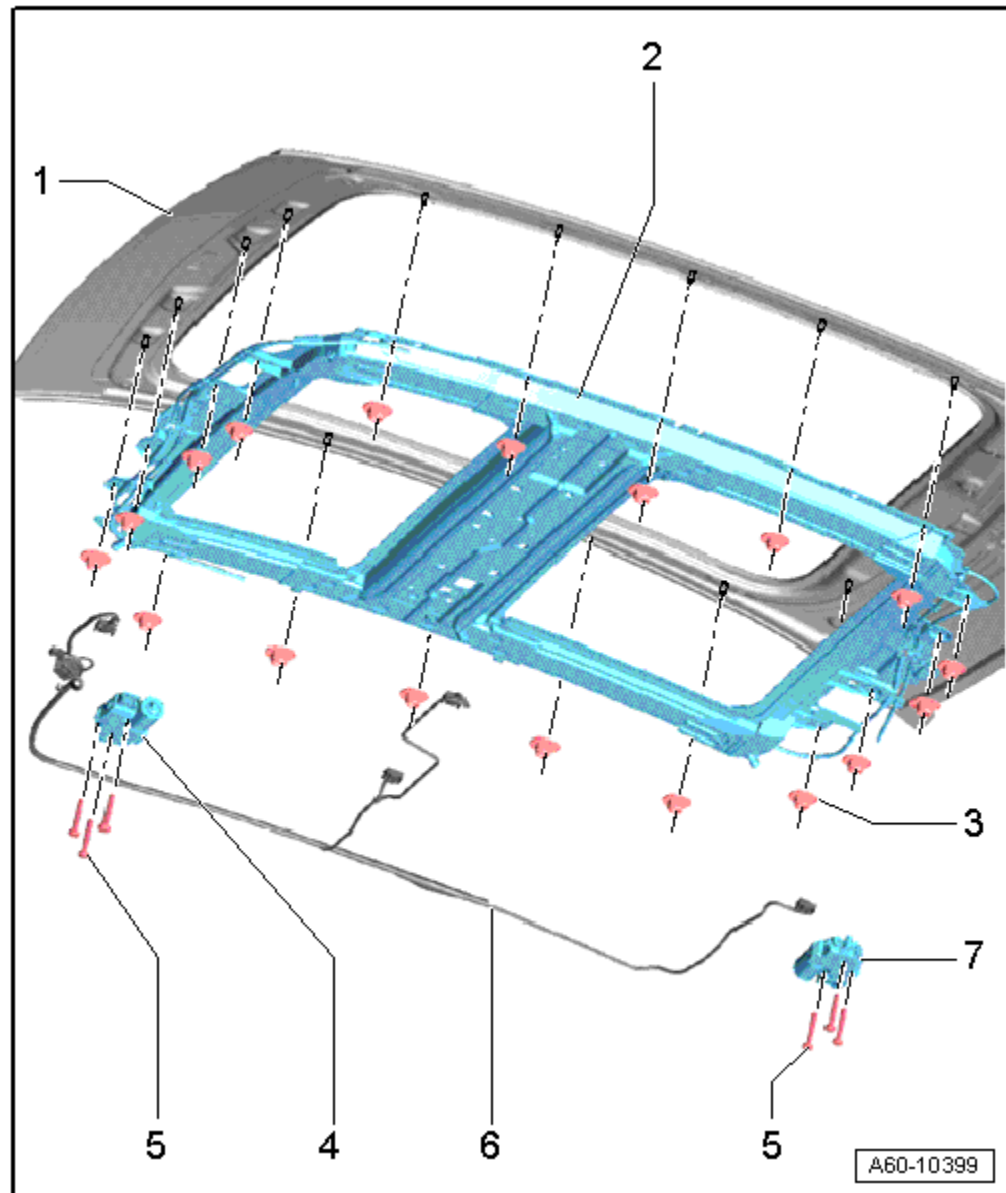
Note

- ◆ Center the frame on the front and rear centering holes when installing it. Refer to → **Anchor**.
- ◆ The sunroof frame must be removed and installed through the opening in the roof.
- ◆ Protect the roof from getting damaged with a suitable cloth (for example, a blanket).

1 - Roof

2 - Sunroof Frame

- Removing
 - Remove the front and rear glass panel.
 - Remove the wind deflector.
 - Remove the frame for the roof shade.
 - Lower the headliner. Refer to → **Body Interior; Rep. Gr.70; Roof Trim Panels; Headliner, Removing and Installing.**
 - Disconnect the wire on the connector.
 - Remove the roof water drain hoses.
 - Remove the nuts on the sunroof frame.
 - Lift the sunroof frame upward and through the opening in the roof.
 - Installing



- Install in reverse order. When doing this, center the sunroof frame in the front and in the rear with a 12 mm drill bit. Refer to → [Anchor](#).

3 - Nut

- 8 Nm
- Follow the sequence for removing. Refer to → [Anchor](#)

4 - Power Sunroof Control Module -J245-

- Removing. Refer to → [Chapter „Motor, Removing and Installing, Panorama Sunroof“](#).

5 - Bolt

- Tightening specification. Refer to -item 1- → [Item](#).

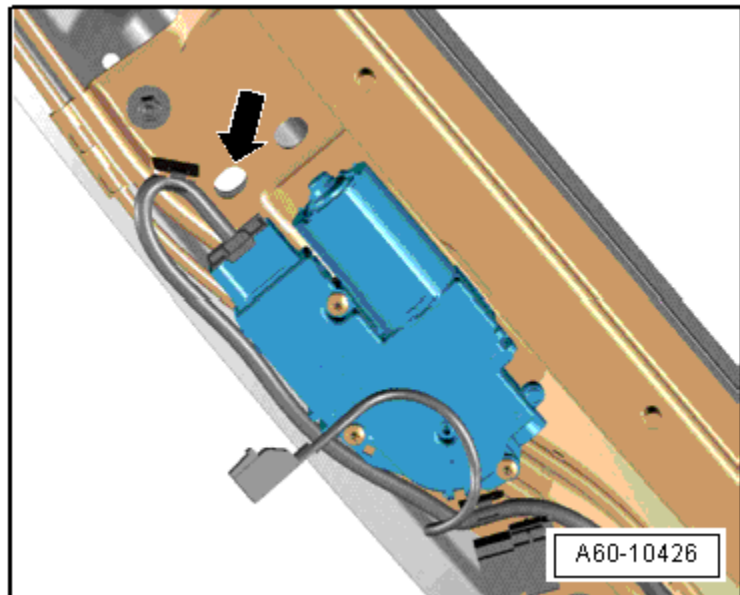
6 - Electric Wire

7 - Rear Sunroof Control Module -J392-

- Removing. Refer to → [Chapter „Motor, Removing and Installing, Panorama Sunroof“](#).

Sunroof Frame, Centering

- When installing the sunroof frame on the right side at the front next to the sunroof motor, center is over the right front oblong holes -arrow- ...



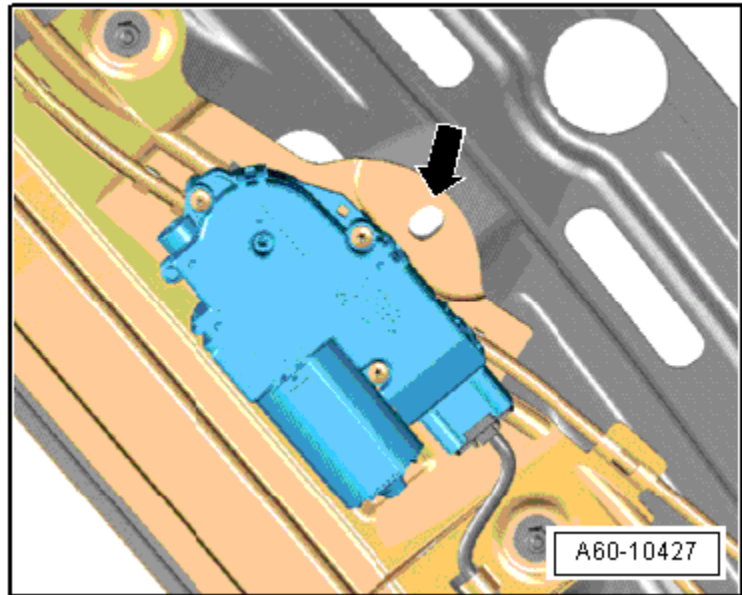
- ... and in the center in the rear -arrow- with a 12 mm drill bit.
- Tighten the nuts -1- and -2- in the center of the sunroof frame. Refer to → **Anchor**.

Tightening Sequence on the Sunroof Frame

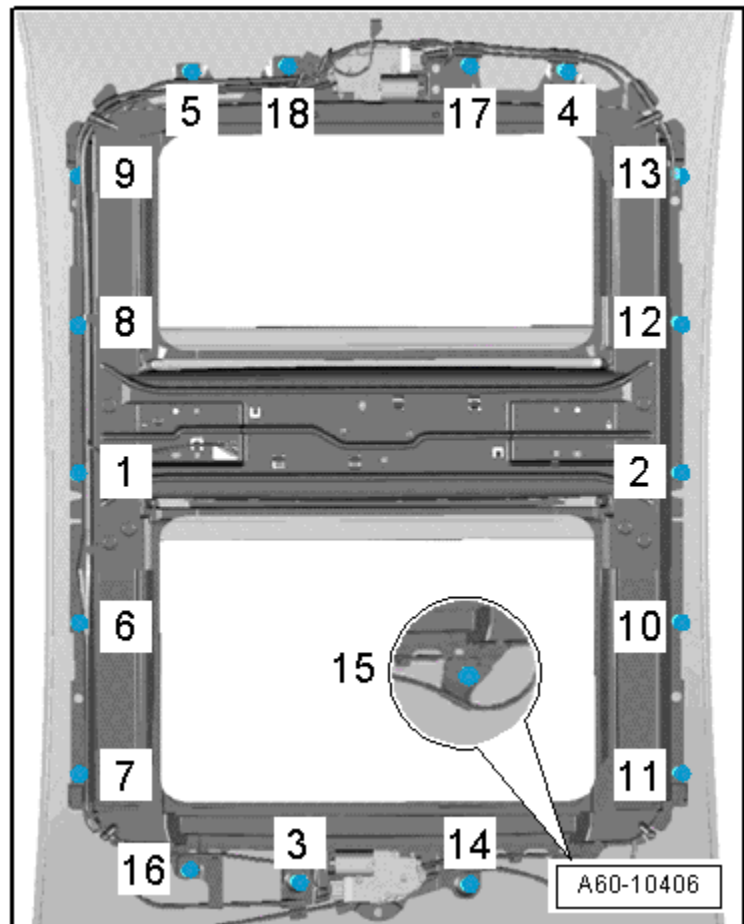


Note

Follow the tightening sequence to prevent noises when driving.



- Tighten the bolts to tightening specification one after the other in the following sequence: -1 through 18-.

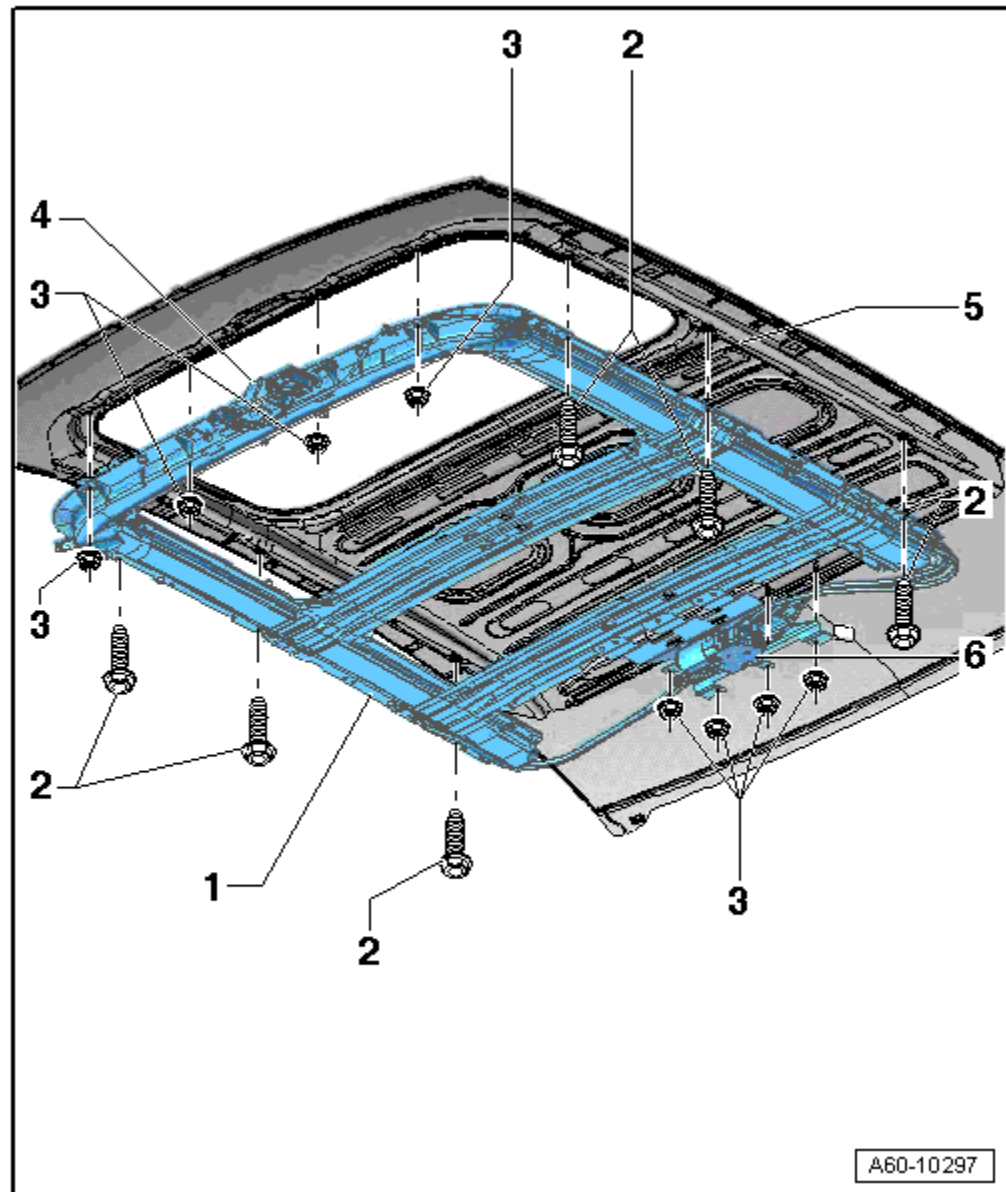


Sunroof Frame, Removing and Installing

1 - Sunroof Frame

□ Removing

- Remove headliner. Refer to → [Body Interior; Rep. Gr.70; Roof Trim Panels; Headliner, Removing and Installing.](#)
- Remove side curtain airbag on left side of vehicle. Refer to → [Body Interior; Rep. Gr.69; Head Curtain Airbags; Head Curtain Airbag with Igniter, Removing and Installing.](#)
- Before removing, disconnect all harness connectors as well as front and rear water drain hoses.



- Remove the bolts -2- and the nuts -3- and remove the frame from the front passenger door.
- Bolting points. Refer to → [Fig. „Bolting Points“](#).
- Installing .
- Lift the frame into the vehicle and secure it with bolt on the left and right sides.
- Install the nuts in the front and in the rear only on the pins.
- Secure the left front with a 11.5 drill bit. Refer to → [Anchor](#) and right rear with a 12 mm drill bit. Refer to → [Anchor](#).
- Tighten the front nuts to tightening specification.
- Tighten the bolts from front to rear to the tightening specification.

- Tighten the rear nuts to the tightening specification.

2 - Bolt

- 8 Nm

3 - Nut

- 8 Nm

4 - Wind Deflector Motor -V252-

- Removing. Refer to → Chapter „Sunroof Motor, Removing and Installing“.
- Perform an adaptation after removing and installing. Refer to → Chapter „Motor Adaptation“.

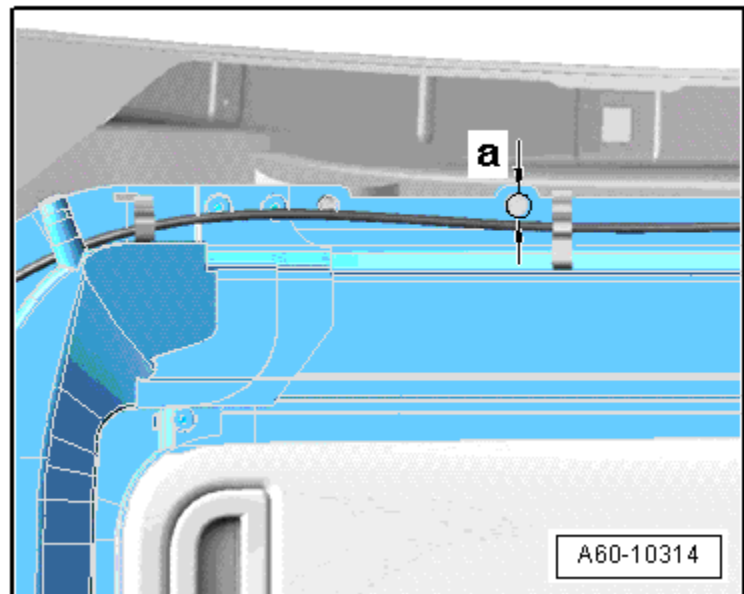
5 - Roof

6 - Power Sunroof Control Module -J245-

- Removing. Refer to → Chapter „Sunroof Motor, Removing and Installing“.
- Perform an adaptation after removing and installing. Refer to → Chapter „Motor Adaptation“.

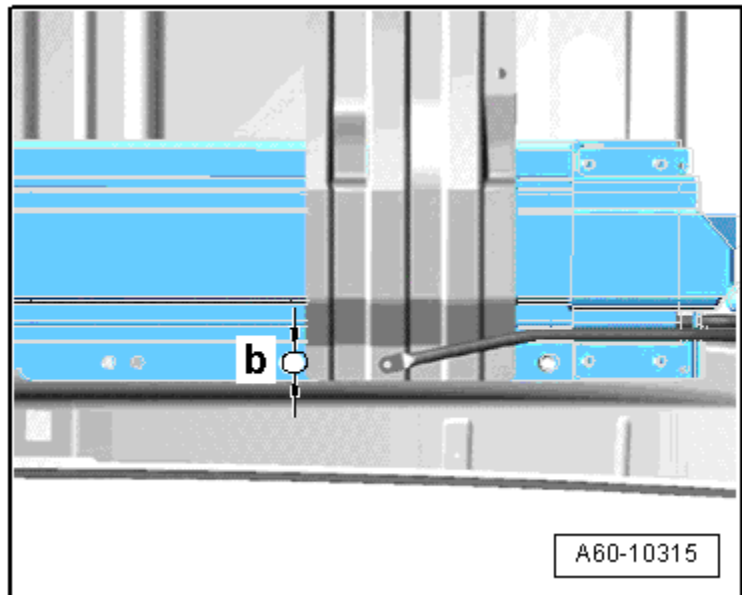
Front Securing Hole

- Secure the left front frame with a 11.5 mm drill bit -a-.



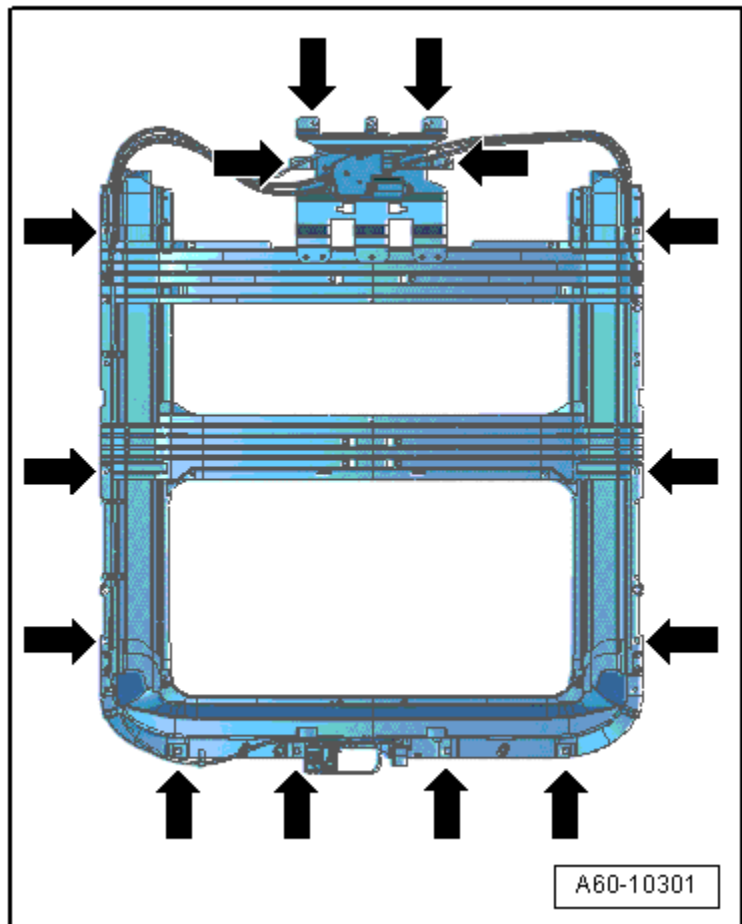
Rear Securing Hole

- Secure the right rear frame with a 12 mm drill bit -b-.



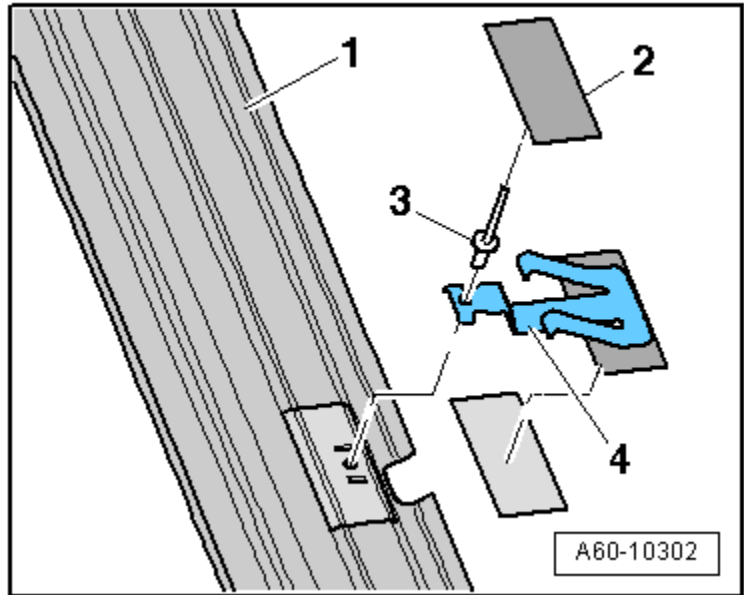
Bolting Points

- Remove the left and right bolts (quantity: 6) and the front and rear nuts (quantity: 8) from the frame -arrows-.
- When installing, tighten the nuts and bolts to 8 Nm from front to rear.



Install the Synchronization Spring (Solar Panel Only)

- Bond felt -2- to inside of cover -1- before installing synchronization spring.
- Rivet -3-
- Synchronization spring -4-



Sunroof Motor, Removing and Installing



Note

Remove and install motor only in "roof closed" position.

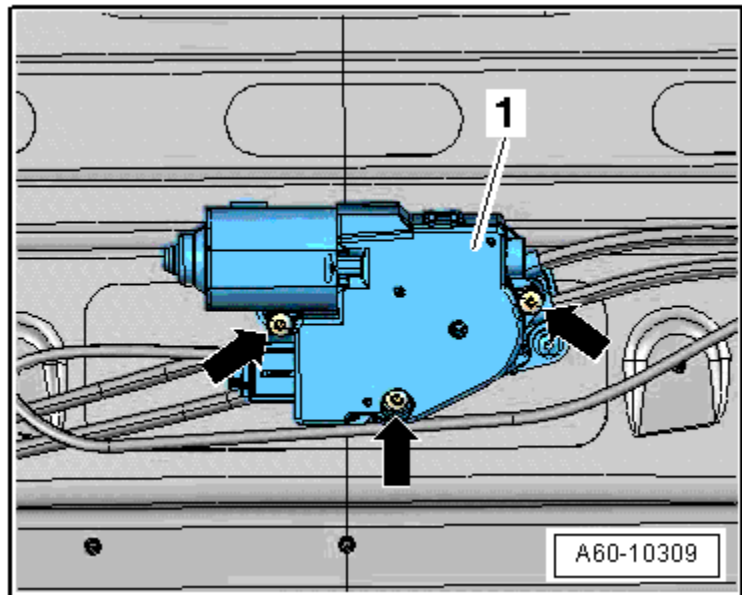
- Bring roof to closed position.
- lower the headliner.
- Remove screws -arrows-.
- Pull the motor -1- out through the opening for the interior lamp and then disconnect the connector.



WARNING

Code the Power Sunroof Control Module -J245- in Guided Functions or Guided Fault Finding after replacing it.

- Perform an adaptation after installing a new motor. Refer to → [Chapter „Motor Adaptation“](#).



Sunroof Panel, Removing



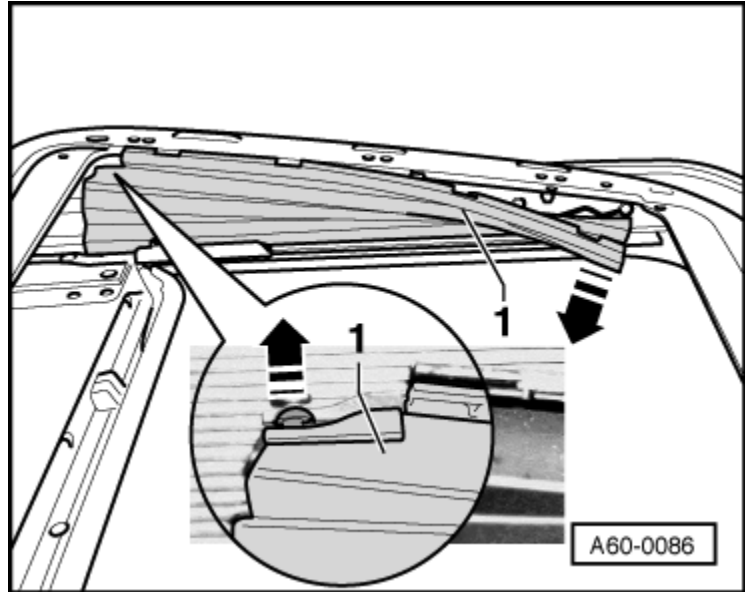
WARNING

With panel removed, sunroof must not be driven electrically.

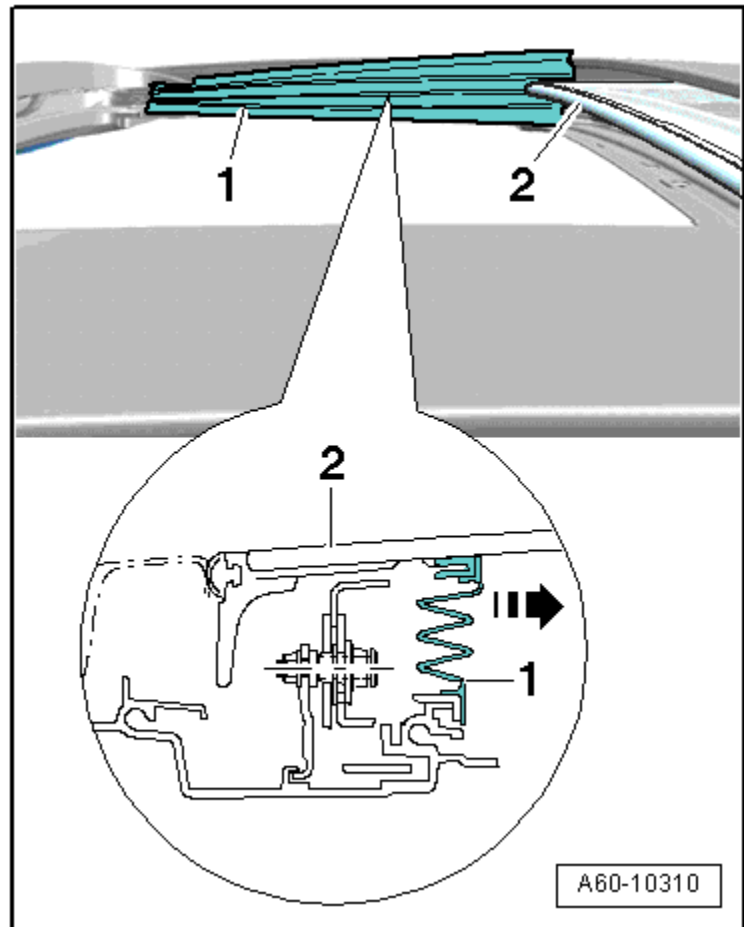
If roof is moving forward and gets blocked while it is moving, the motor will reverse and move the roof toward the rear.

This may cause irreparable damage to the mechanism.

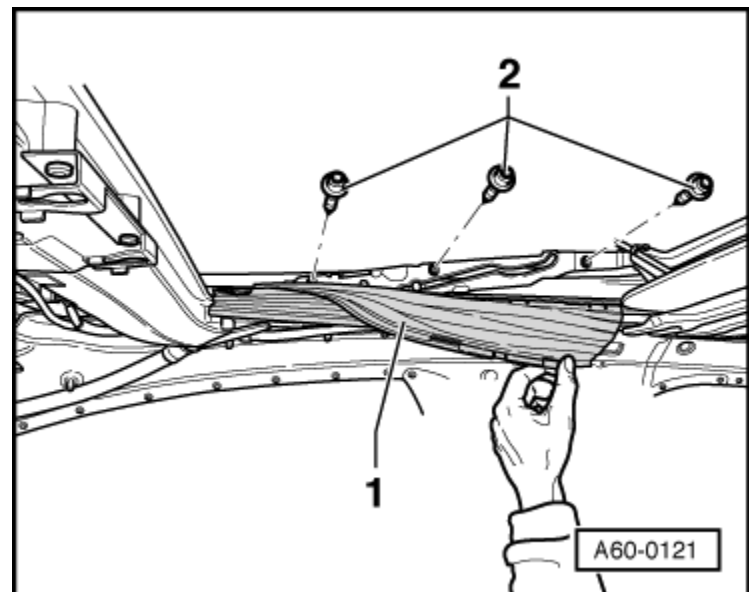
- Tilt sunroof open.
- Pull off panel -1- from sunroof panel in direction of -arrow-, starting at front and working toward rear.
- Slide locking pin toward rear out of panel lock.
- Remove trim of panel downward.



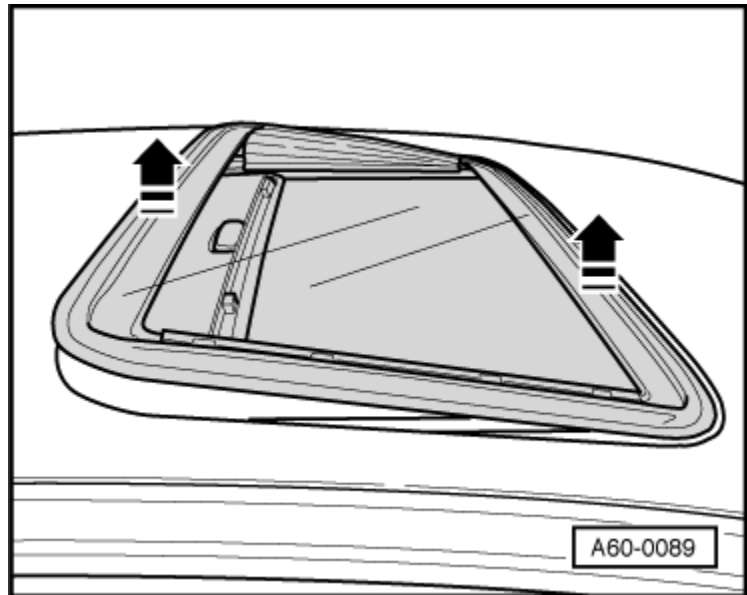
- Pull off trim -1- from sunroof panel -1- completely toward vehicle interior and fold it downward and away.



- Remove TORX® bolts -2--T25- at front and rear -arrows-.
- Only loosen center bolt.



- Pull sunroof panel upward and remove.
- Install in reverse order of removal.
- Adjust the panel. Refer to → [Chapter „Cover, Adjusting“](#).



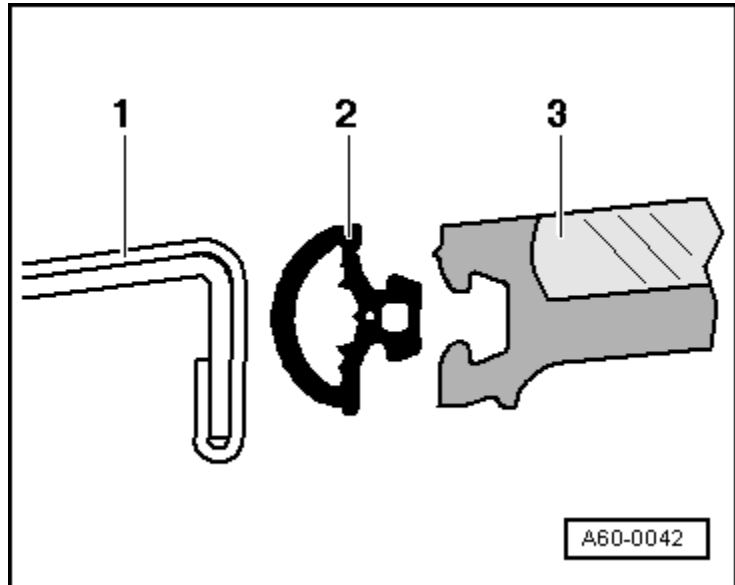
Sunroof Seals, Removing and Installing

- Sunroof panel -3- removed.
- Remove panel seal -2- from sunroof panel -3-.
- Push new panel seal into sunroof panel -3- starting at rear of panel edge in center.



Note

Coat seal and edge of panel with soapy water to facilitate installation.



Sunroof Shade Frame, Removing and Installing

- Remove the front and rear glass panel. Refer to → [Chapter „Glass Panel, Removing and Installing“](#)
- Open the sunroof shade all the way and move it into the service position.



Note

First move the front and then the rear sunroof shade into the service position.

Front Sunroof Shade Service Position

- Open the sunroof shade all the way, release the button and press it one more time in the open position and hold it pressed.
- The front sunroof shade moves into the service position after an approximately 10 second wait time.

Rear Sunroof Shade Service Position

- Open the rear sunroof all the way.
- Press and hold the “REAR MODE” button.
- Press and hold the button for the sunroof shade in the open position.
- The rear sunroof shade moves into the service position after an approximately 10 second wait time.

Sunroof Shade Motor, Removing and Installing



WARNING

Code or perform an adaptation in Guided Function or in Guided Fault Finding in diagnosis address 46 after replacing the Roof Shade Control Module -J394- or Roof Shade Control Module 2 -J867-. Refer to Vehicle Diagnostic Tester.

1 - Electric Wire

- Fasten in the bracket -arrows-.

2 - Sunroof Frame

3 - Roof Shade Control Module -J394-

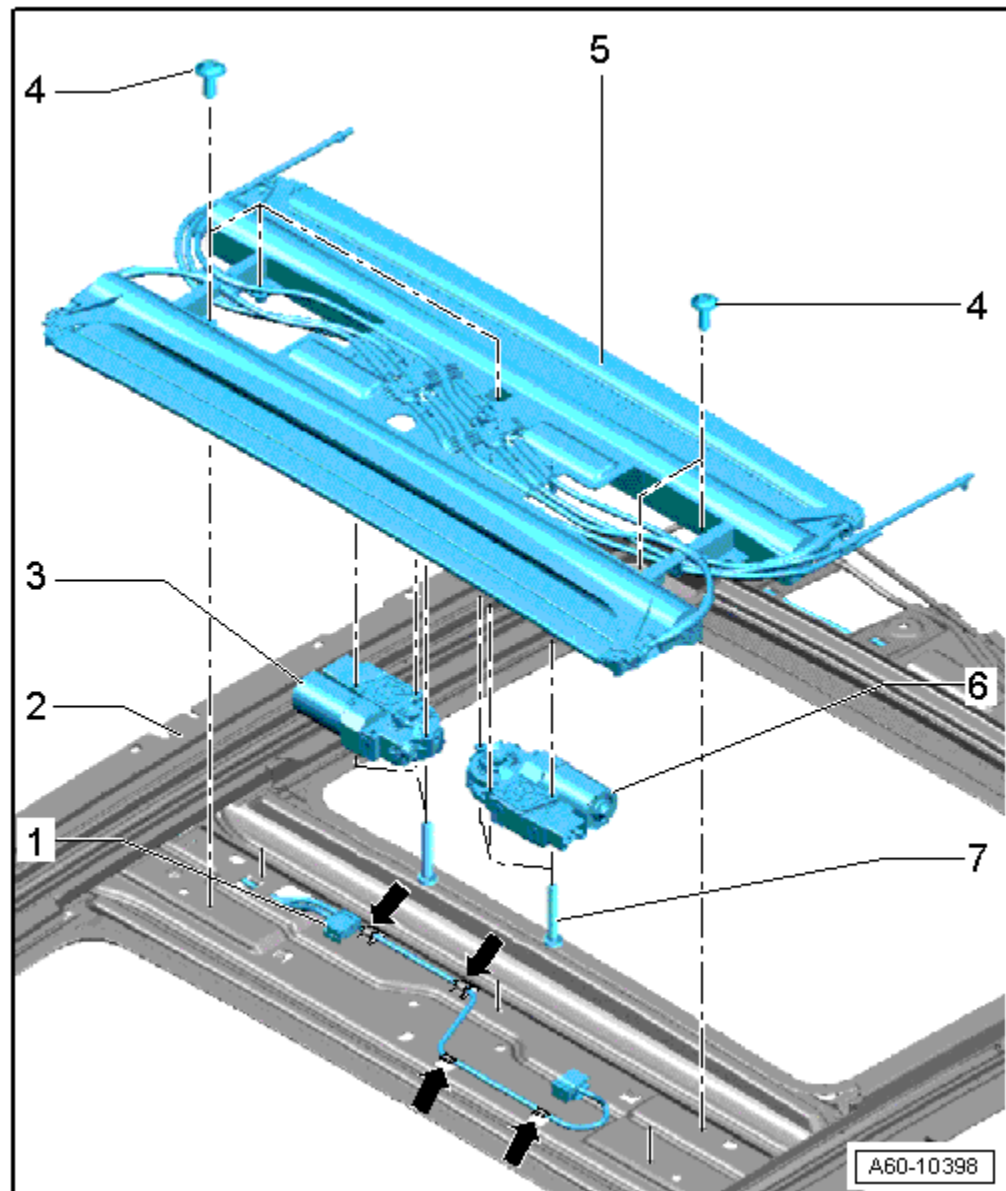
- Remove the sunroof shade frame.
- Remove the screws from the control module and remove it.
- After installing, perform an adaptation. Refer to Vehicle Diagnostic Tester.

4 - Bolt

- 3 Nm

5 - Sunroof Shade Frame

- Move the front and rear sunroof shade into the service position.
- Remove the seal near the frame.
- Disconnect the connector from the motors.
- Remove the bolts -4-.
- Remove the frame upward.



6 - Roof Shade Control Module 2 -J867-

- Remove the sunroof shade frame.
- Remove the screws from the control module and remove it.
- After installing, perform an adaptation. Refer to Vehicle Diagnostic Tester.

7 - Bolt

- Tightening specification. Refer to -item 1- → **Item**.

Sunroof Shade, Removing and Installing

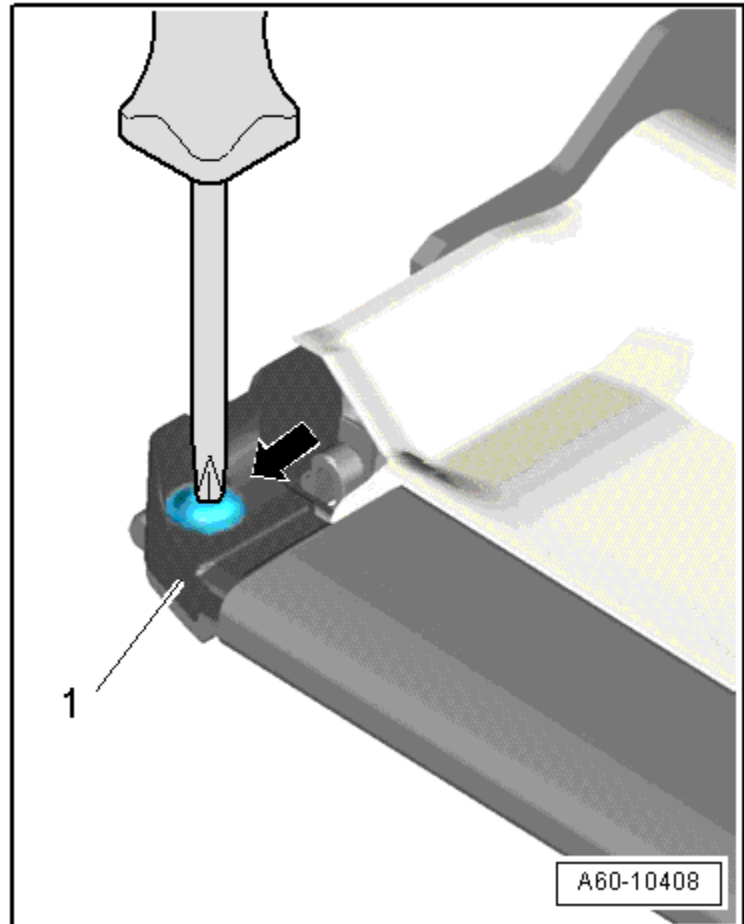
Removing the Sunroof Shade



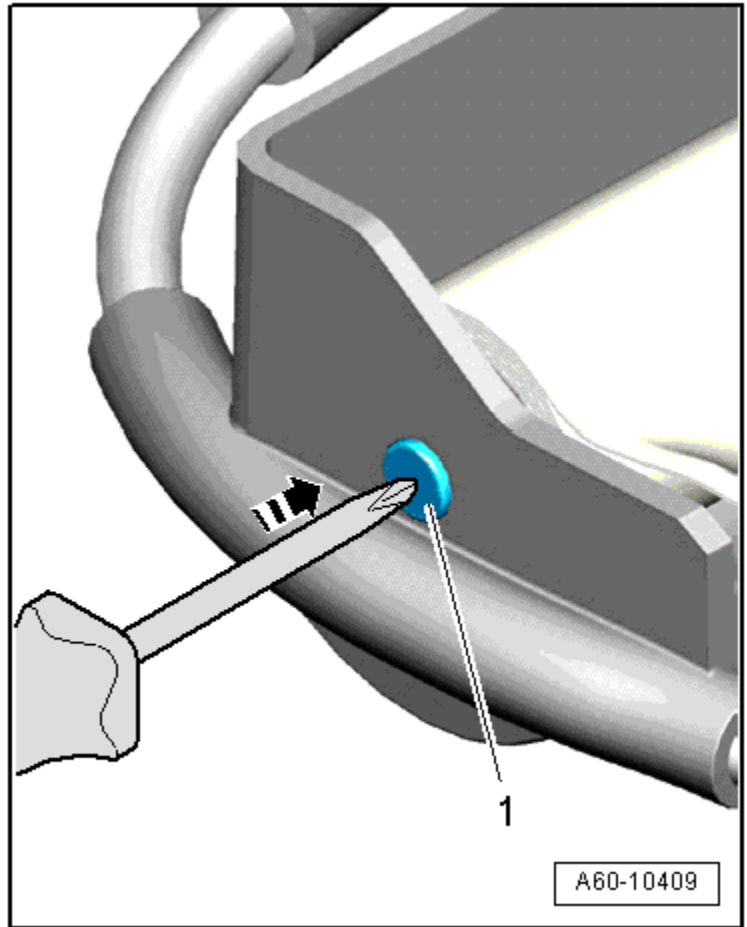
Note

Hold the sunroof shade bow securely before removing the left and right bolts.

- Remove the sunroof shade frame. Refer to → [Chapter „Sunroof Shade Frame, Removing and Installing“](#)
- Remove the left and right bolts from the bow -1-.



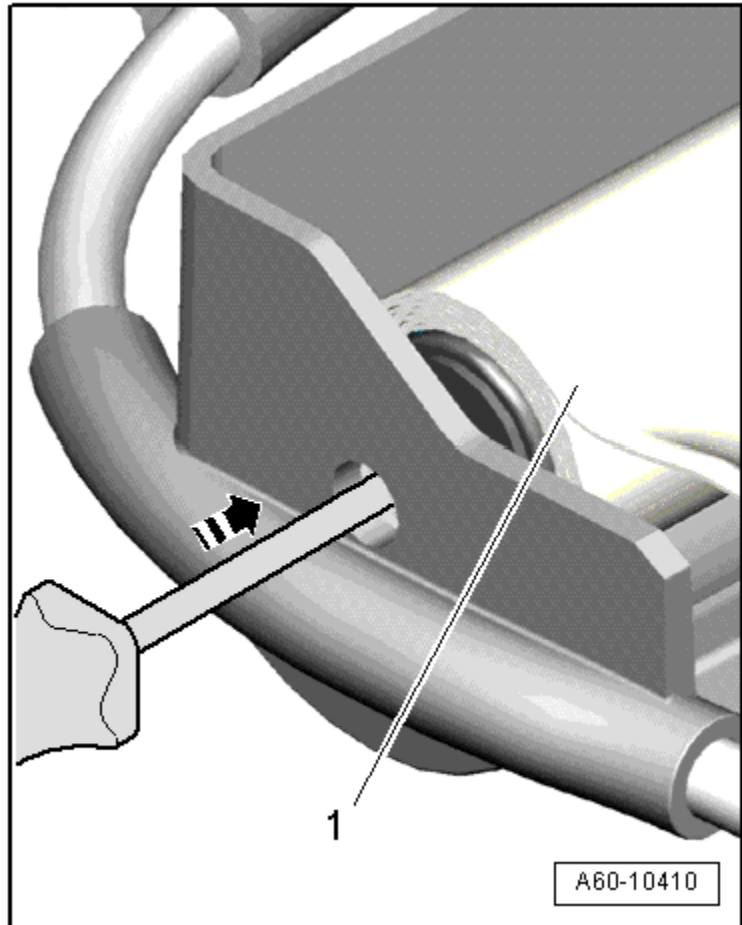
- Place a screwdriver on the round axle -1- on the sunroof shade frame as illustrated...



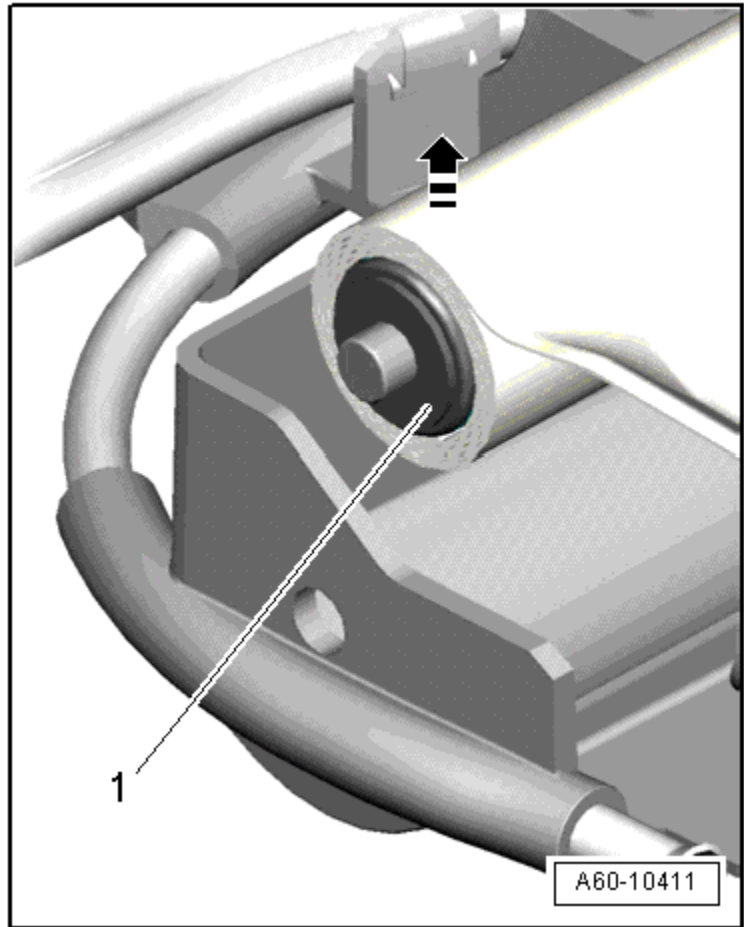
- ... and with the screwdriver push the axle on the sunroof shade -1- through the frame and hold it.

**Note**

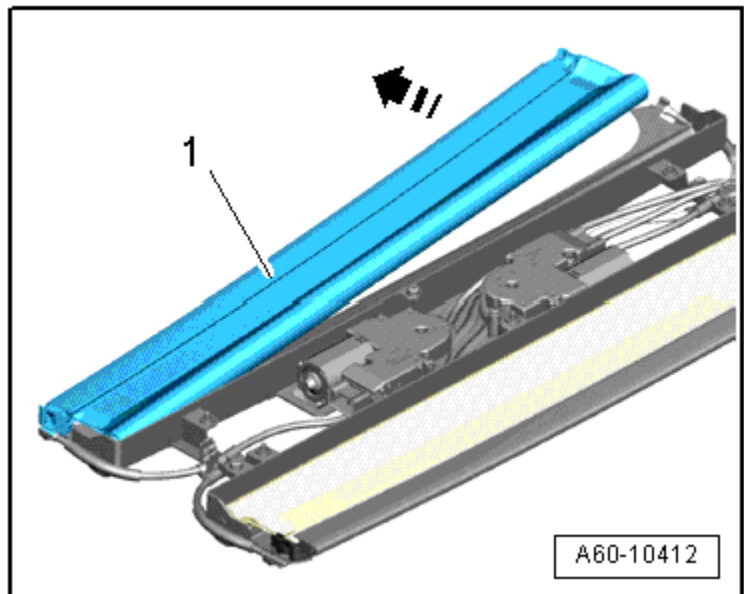
- ◆ *Remove the sunroof shade completely from the frame after locking it.*
- ◆ *Otherwise the sunroof shade will roll up and must be pre-tensioned again.*



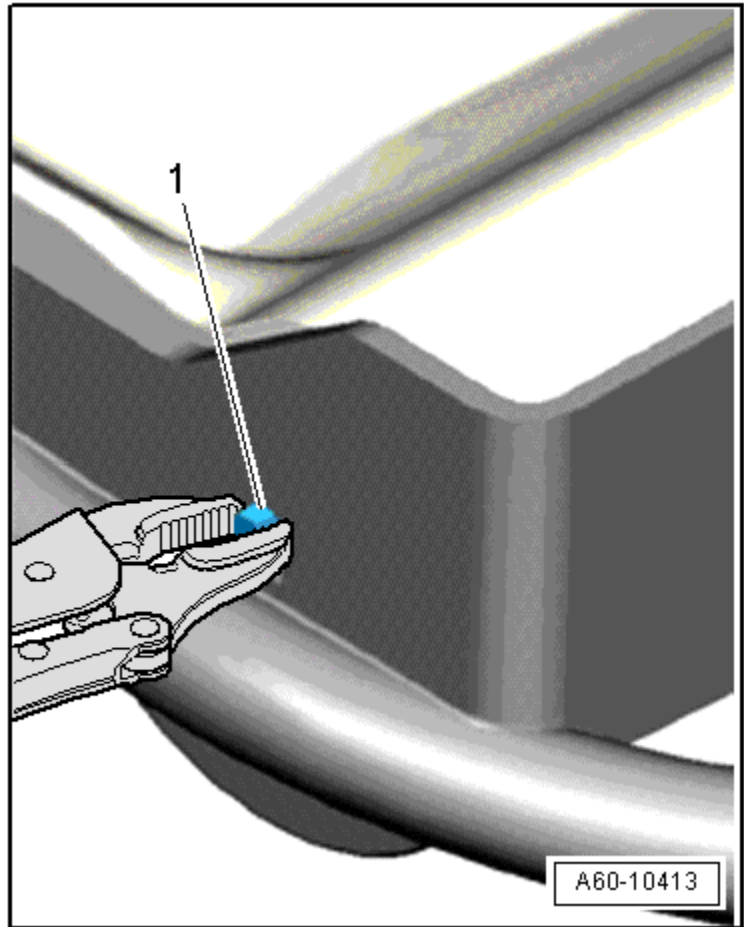
- Lift the sunroof shade -1- upward at an angle on this side first...



- ...and then in direction of the -arrow- at an angle to the rear.



- Hold the axle with the square end with pliers on the opposite side.



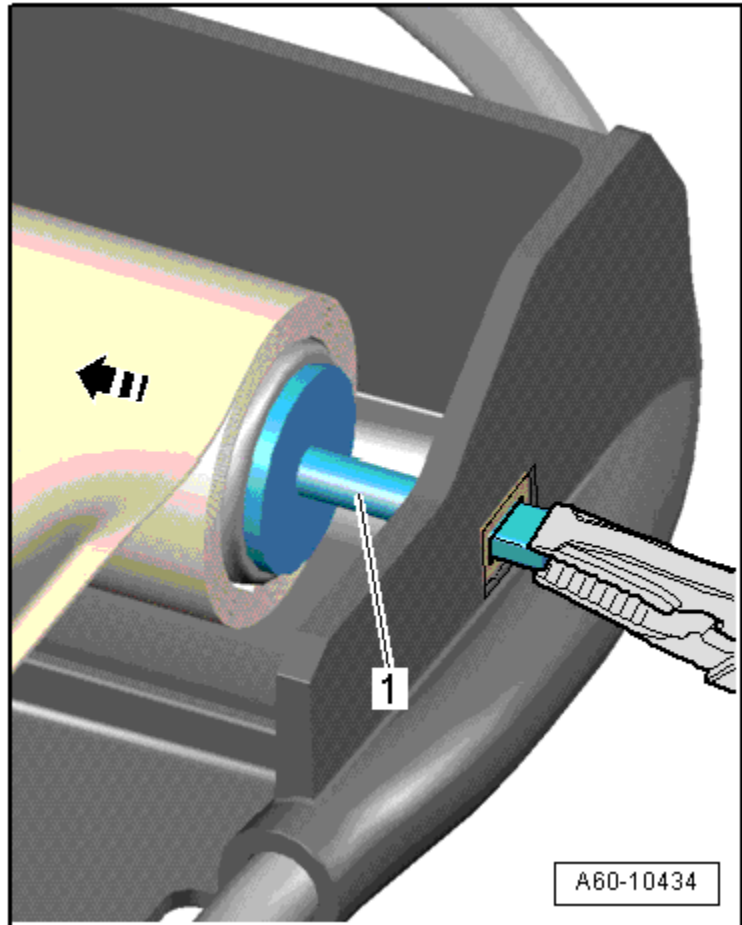
- Pull the sunroof shade in the direction of the -arrow- and lock the axle -1-.
- Pull the sunroof shade sideways completely out of the frame.

Installing

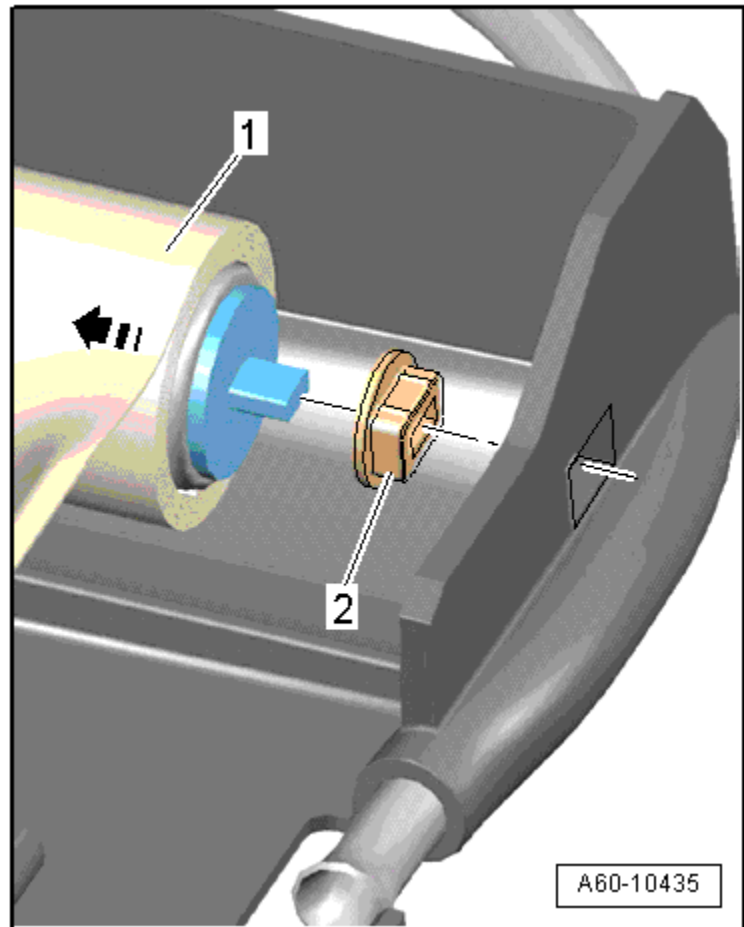


Note

- ◆ A sunroof shade which has unrolled during removal can be pre-tensioned again.
- ◆ At the same time it is necessary to hold the shaft (the square end) with for example pliers and turn the sunroof shade 28 turns.
- ◆ Pull out the shaft on this side and lock it.



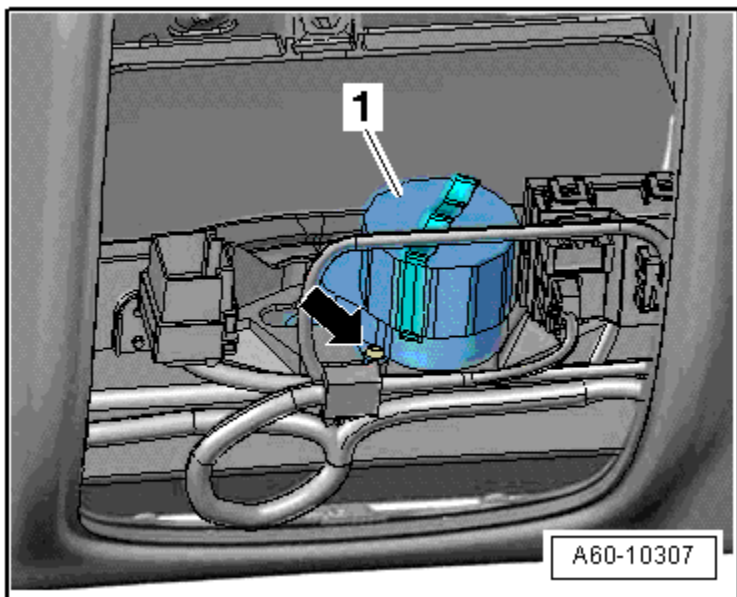
- Push the bearing -2- into the frame before installing the sunroof shade.
- When installing the sunroof shade, insert the right side of the shaft into the frame first.



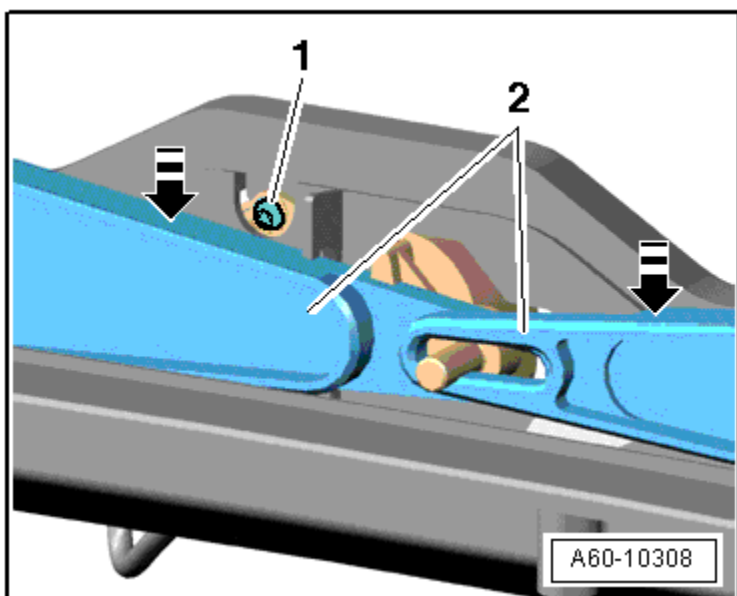
Wind Deflector Motor -V252-, Removing and Installing

Removing

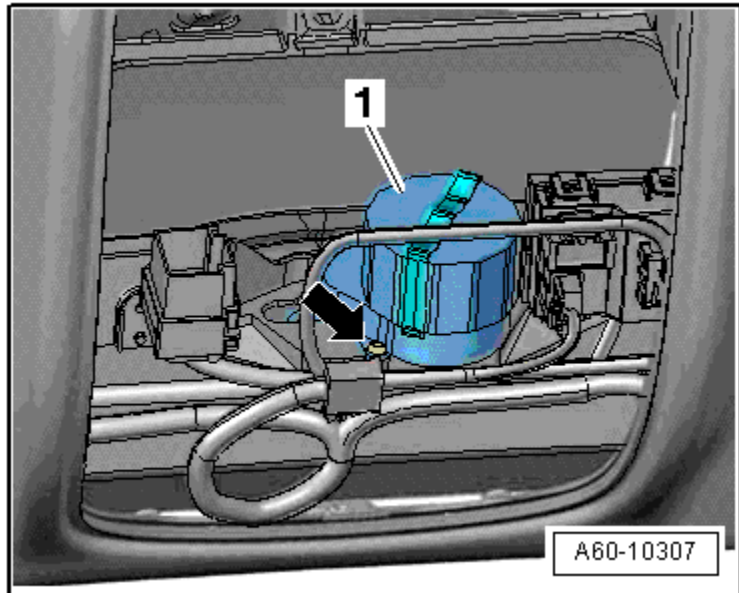
- Open the sunroof all the way.
- Turn off the ignition.
- Remove the wind deflector. Refer to → Chapter „Wind Deflector, Removing and Installing“.
- Remove the front interior lamp. Refer to → Electrical Equipment; Rep. Gr.96; Controls; Front Interior Lamp/Reading Lamp, Removing and Installing.
- Disconnect the connector from the wind deflector motor -1-.



- Press positioning bow -2- down into sunroof in direction of -arrow- until TORX® bolt -1- is visible.
- Remove the TORX® bolt -1- from the wind deflector motor.



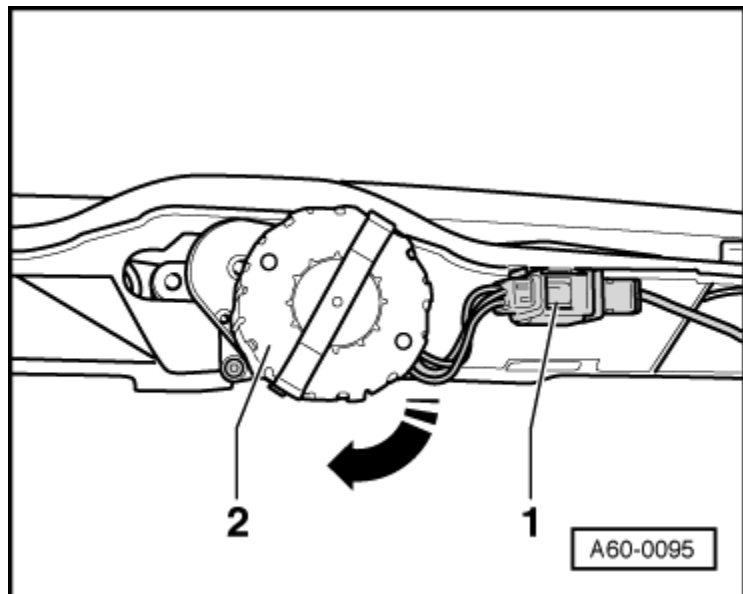
- Reach through the opening for the interior lamp and remove the bolt -arrow- from the wind deflector -1-.
- Connector -1- disconnected
- When looking toward front, rotate wind deflector motor downward approximately 90°.



- Pull out motor toward rear.

Installing

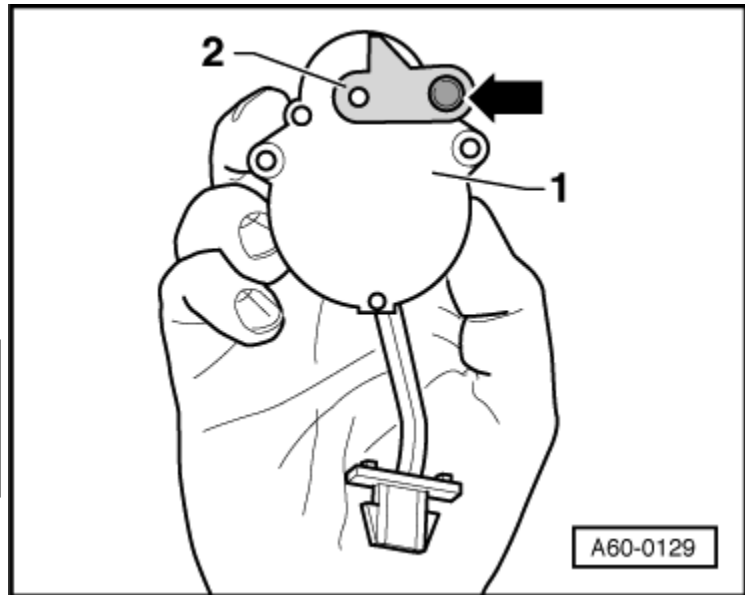
- Guide in motor through cutout for light.



- Insert control lever -2- into opening of front section of frame and pin -arrow- in both longitudinal holes of positioning bow.
- Bring motor into bolting position.
- Tighten both bolts on the motor.
- Connect motor.
- Install panel for light cutout.

**WARNING**

Perform an adaptation after installing the sunroof motor.



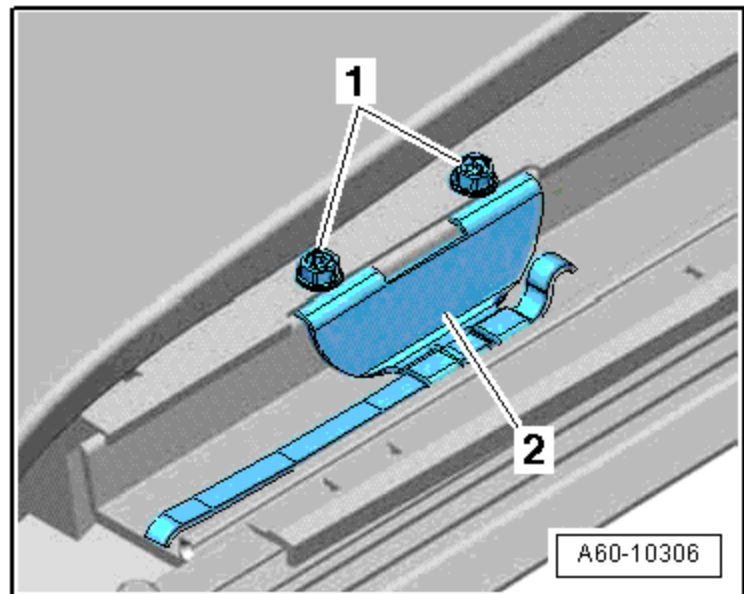
Wind Deflector, Adjusting



Note

To guarantee problem-free function of wind deflector, its position must be checked and if necessary adjusted longitudinally.

- Open sunroof completely toward rear.
- Wind deflector gasket must make contact gently on roof edge.
- To check, a piece of paper must be able to be pulled straight through between roof edge and gasket.
- To adjust, loosen bolts -1- and slide angle bracket -2- in the corresponding direction.



Wind Deflector, Removing and Installing, Panorama Sunroof

1 - Roof

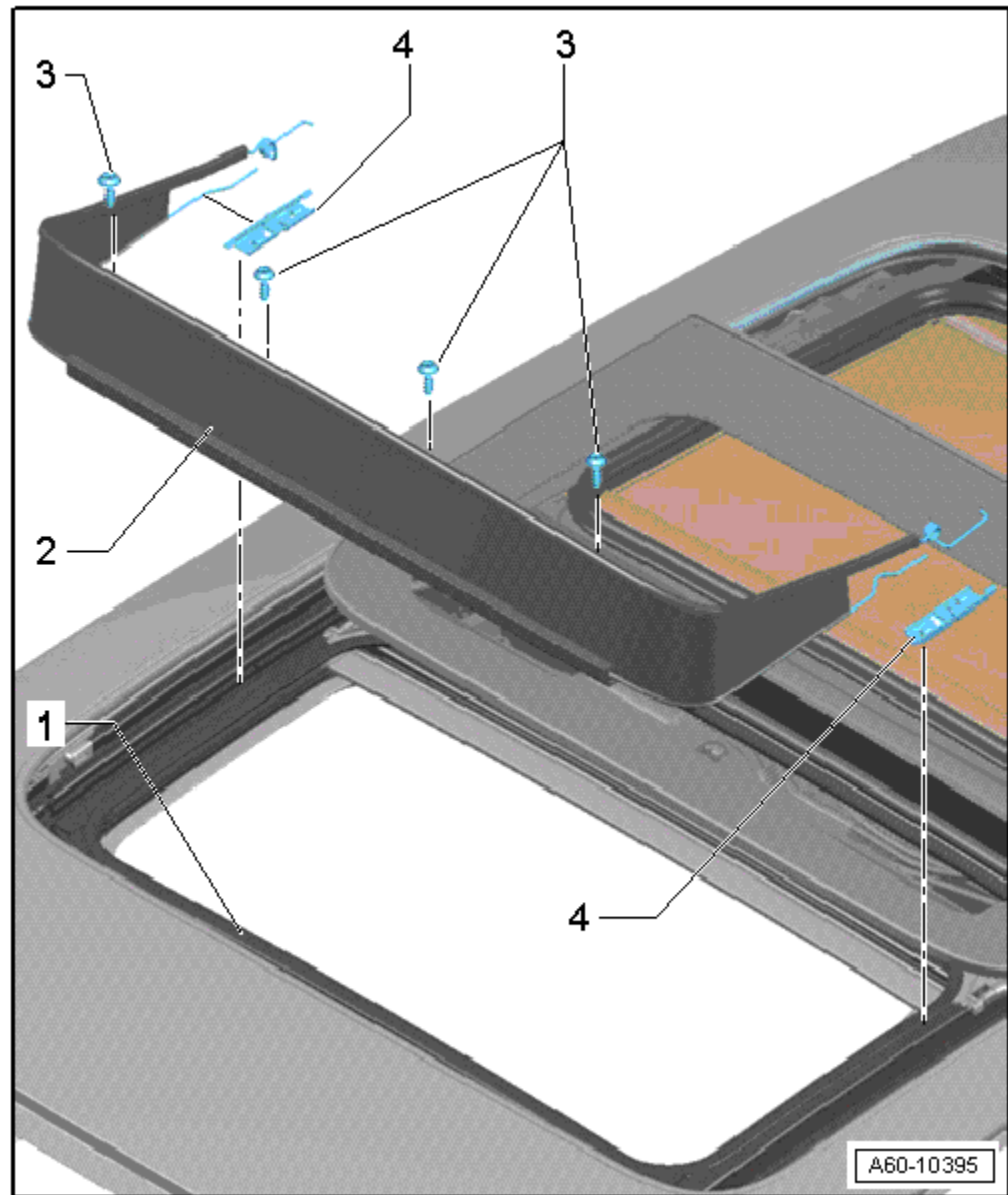
2 - Wind Deflector

- Open the front glass panel.
- Remove the bolts -3- from the securing strip.
- Disengage the spring from the wind deflector toward the center of the vehicle. Refer to → **Anchor**
- Lift the wind deflector to the rear and upward.

3 - Bolt

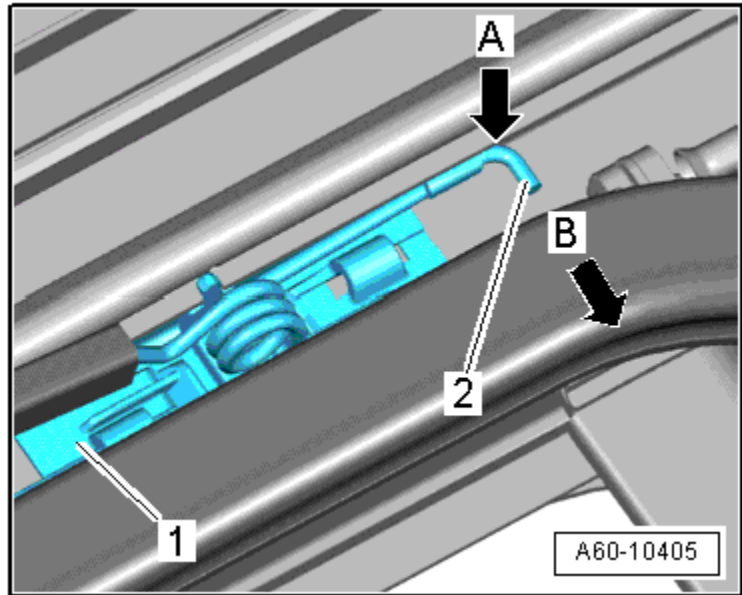
- 1 Nm

4 - Bracket



Releasing the Wind Deflector Spring

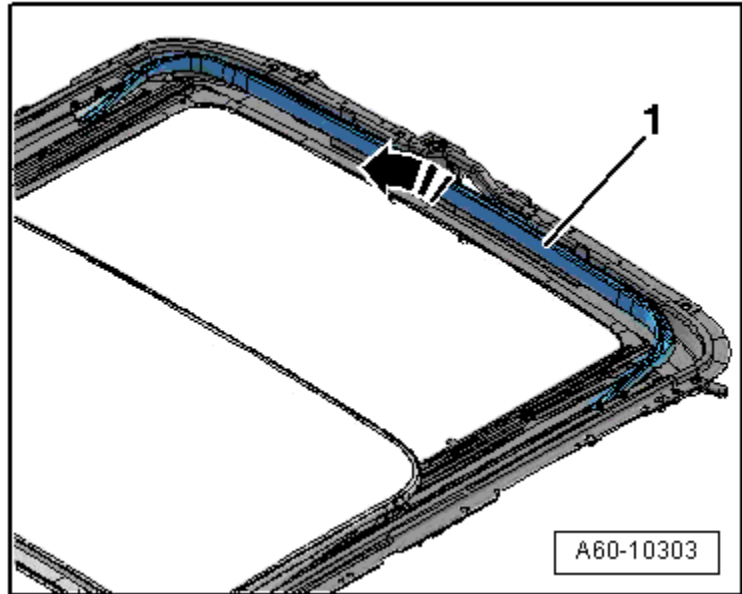
- Push the spring -2- downward -arrow A-, then push it toward the center of the vehicle -arrow B- and detach it.
- Remove the wind deflector bearing -1- out of the groove upward.



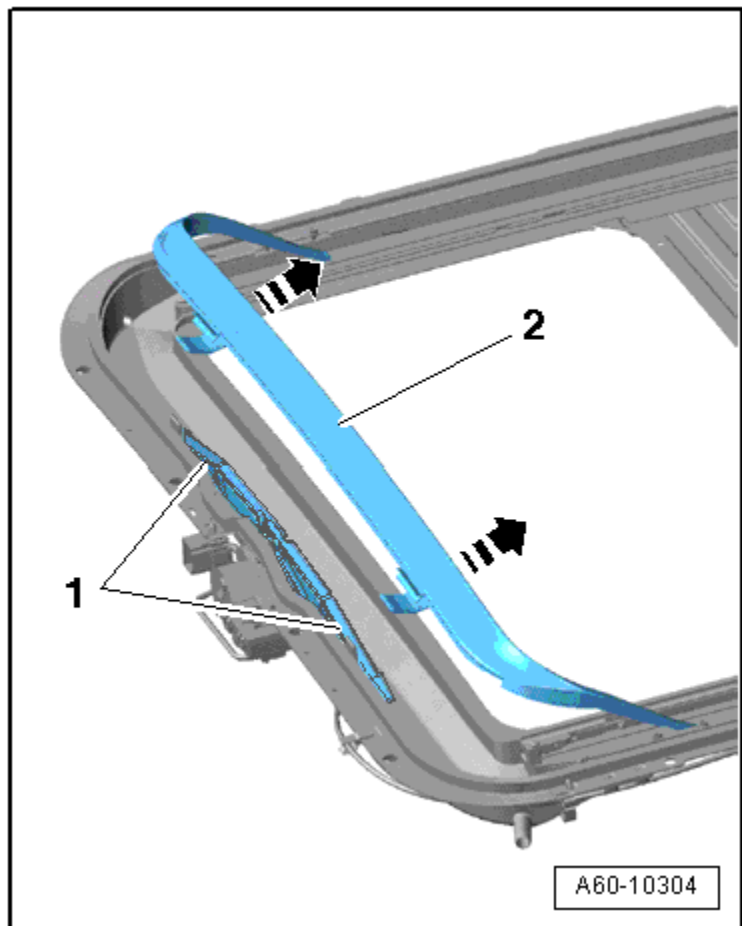
Wind Deflector, Removing and Installing

Removing

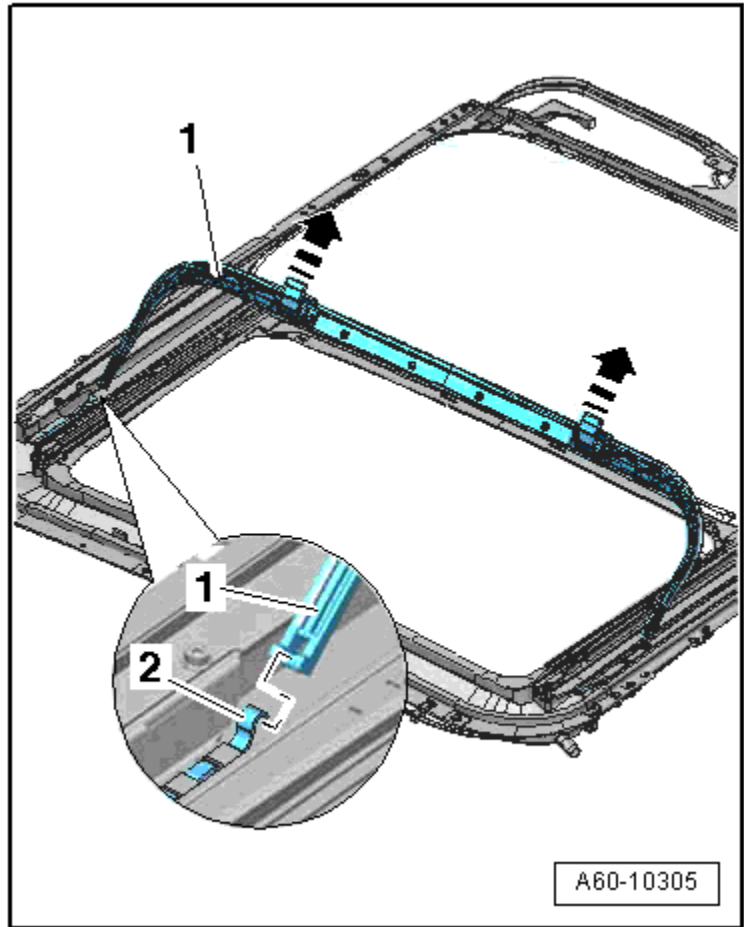
- Open the sunroof all the way.
- Wind deflector -1- is lifted upward and out.
- Switch off the ignition.



- Press stops -2- for wind deflector toward rear under positioning bow -1- in direction of -arrow-.



- Fold up wind deflector -1- approximately 90° and pull it toward rear out of it retainers -2-.
- Install in reverse order of removal.



Zero Position (Engine), Adjusting

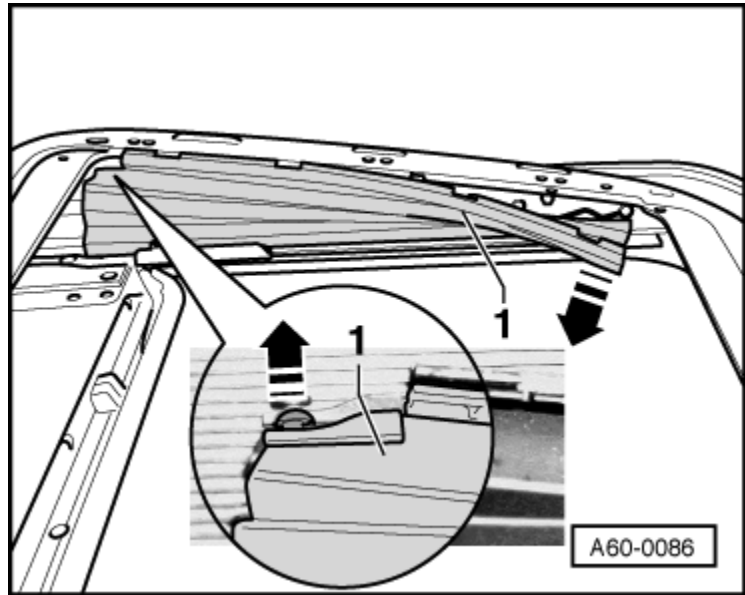
The drive motor is removed but the electric wires are connected.

- Turn on the ignition.
- Move the rotary switch to the “roof closed” position.
- The drive motor automatically runs to the neutral position and switches off.
- Turn off the ignition.
- Install the drive motor in this position (neutral position) with the sunroof closed.

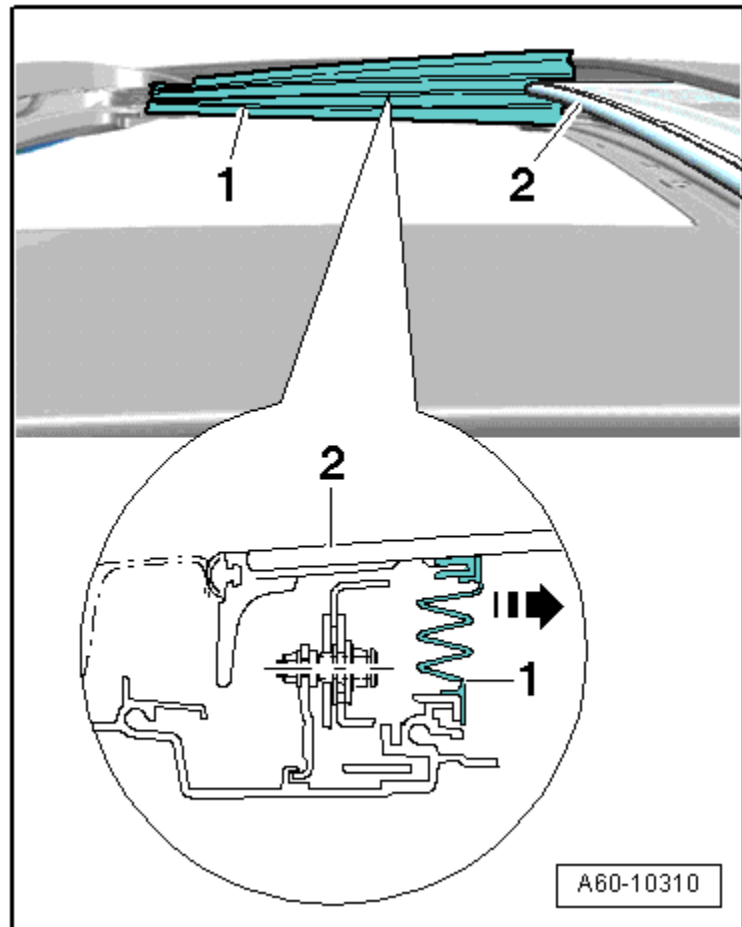
Zero Position, Slotted Guide Rail Guide, Checking and Adjusting

Glass Panel

- Tilt sunroof open.
- Pull off panel -1- from sunroof panel in direction of -arrow-, starting at front and working toward rear.
- Slide locking pin toward rear out of panel lock.
- Remove trim of panel downward.



- Pull off trim -1- from sunroof panel -1- completely toward vehicle interior and fold it downward and away.



- Zero position is correct when the guide pin -1- is located between both markings on the slotted guide rail guide, as illustrated.
- If necessary, slide link guides by hand into this position on both sides with panel and motor removed.



Note

Install panel in zero position only.

