

Sunroof, servicing

Assembly overview

1 - Glass panel for sunroof

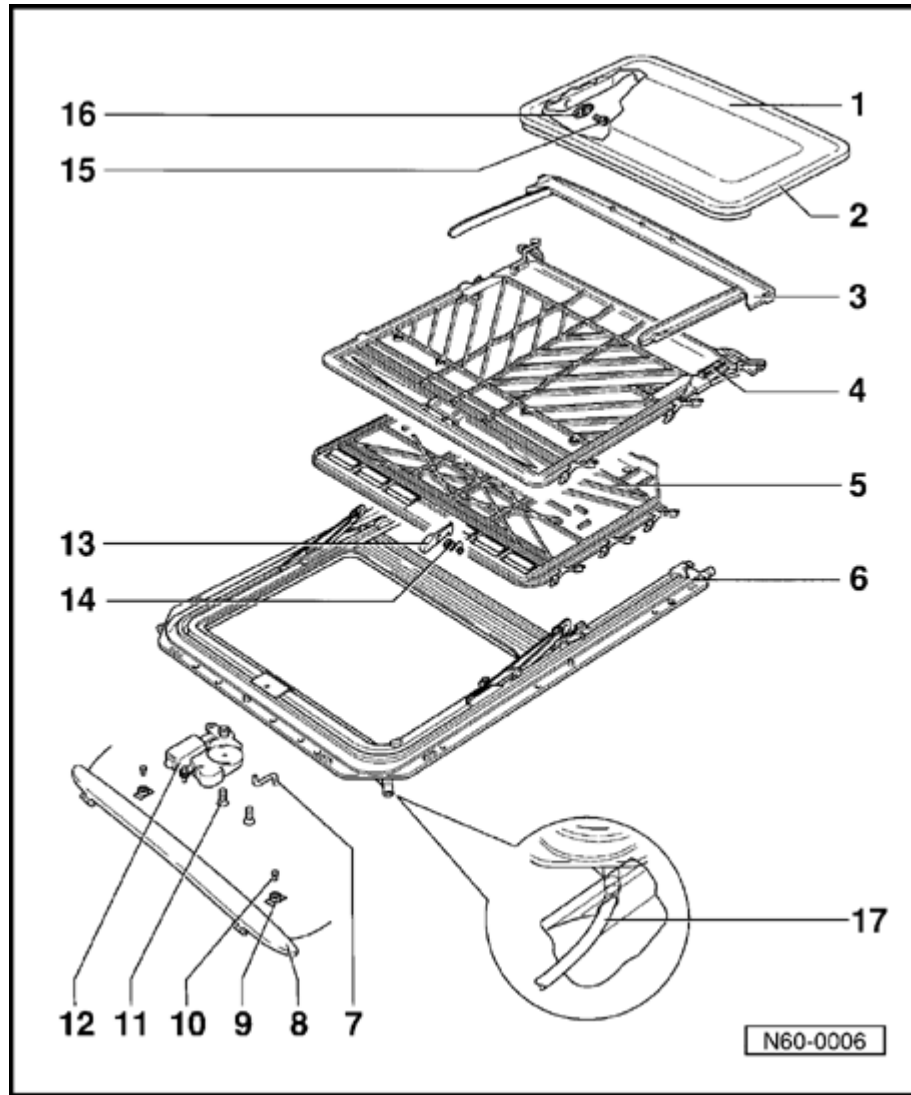
- ◆ Single pane green safety glass
- ◆ Removing ⇒ [page 60-5](#)
- ◆ Installing ⇒ [page 60-6](#)
- ◆ Adjusting ⇒ [page 60-7](#)

2 - Panel seal

- ◆ Seal joint is in center of right side section
- ◆ Use water to lubricate panel seal clamping channel before installing
- ◆ Adjusting ⇒ [page 60-9](#)

3 - Trim frame

- ◆ Removing ⇒ [page 60-5](#) , Sunroof glass panel, removing
- ◆ Different versions ⇒ [page 60-21](#)



Note:

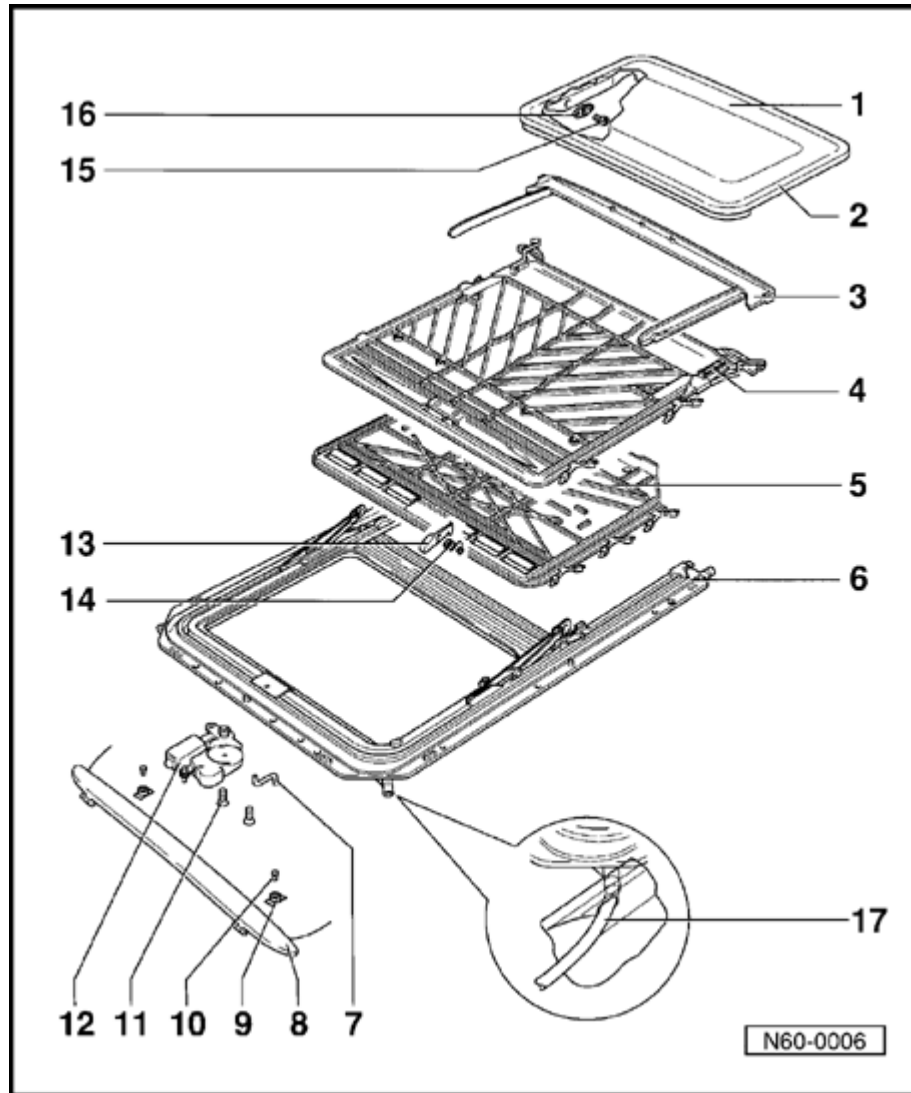
Due to a running change in production, on some vehicles the cable drive - 12 - must also be replaced when replacing the sliding headliner - 4 -.

4 - Headliner ➤ 08.94

- ◆ Removing ⇒ [page 60-14](#)
- ◆ Installing ⇒ [page 60-15](#)

5 - Headliner 09.94 ➤

- ◆ Removing and Installing ⇒ [page 60-16](#)



6 - Carrier unit

- ◆ Removing ⇒ [page 60-18](#)

Carrier unit consists of the following parts:

- ◆ U frame with guide channels (if required, guide channels are to be lubricated with special grease G 000 450 02 only, to ensure proper operation. Multi-purpose grease must not be used under any circumstances)
- ◆ Rear guides with cables
- ◆ Front guides

7 - Hex key for emergency operation

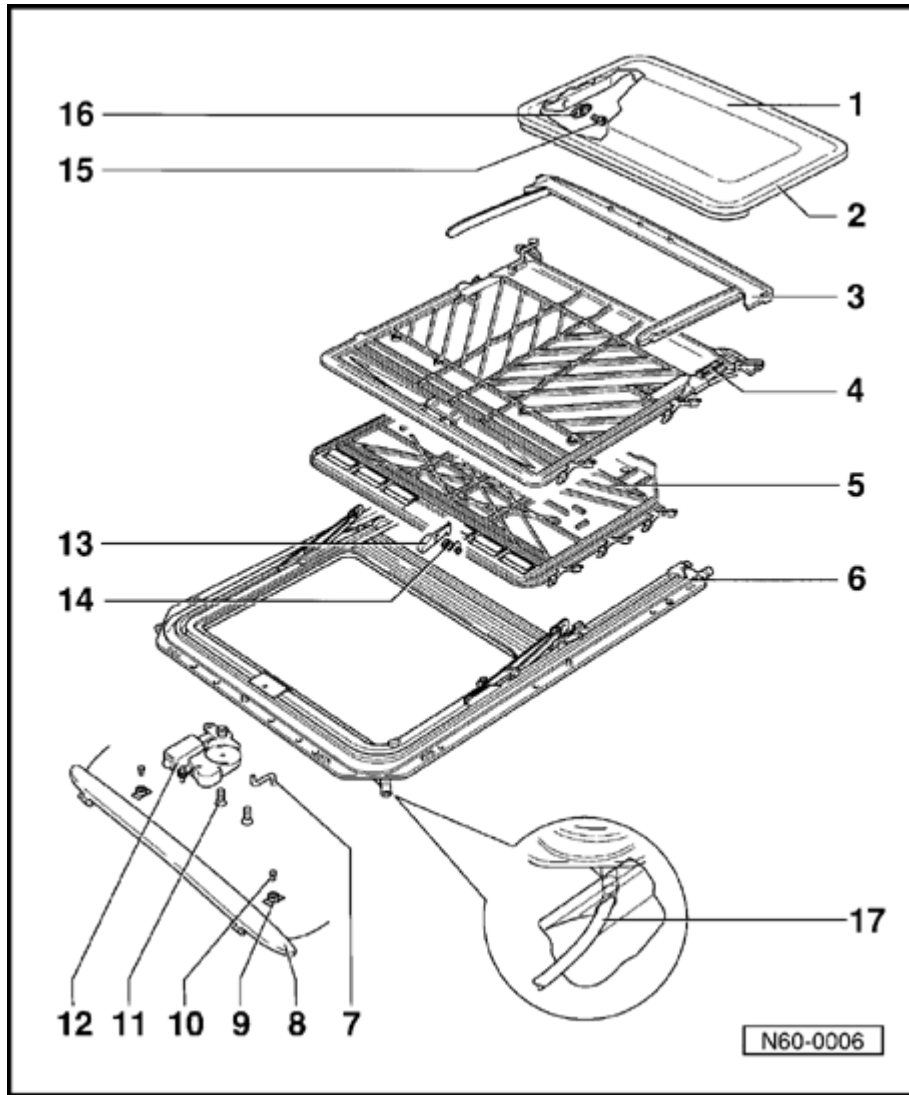
- ◆ Clipped onto cable driver

8 - Wind deflector

- ◆ Removing: Open glass panel and remove screws - 10 -

9 - Threaded fitting

- ◆ Thread must be at an angle toward rear



10 - Screw

- ◆ For wind deflector - 8 -

11 - Countersunk self-locking screws

- ◆ Always replace
- ◆ 3 Nm (27 in lb)

12 - Cable drive (electric)

- ◆ Sunroof motor -V1-
- ◆ Power sunroof control module -J245-
- ◆ Checking "0" position ⇒ [page 60-10](#)

13 - Locating hooks

14 - Locating hook spring

15 - Torx[®] screw

- ◆ Torx[®] T25
- ◆ 6 Nm (53 in. lb)

16 - Adjusting plate

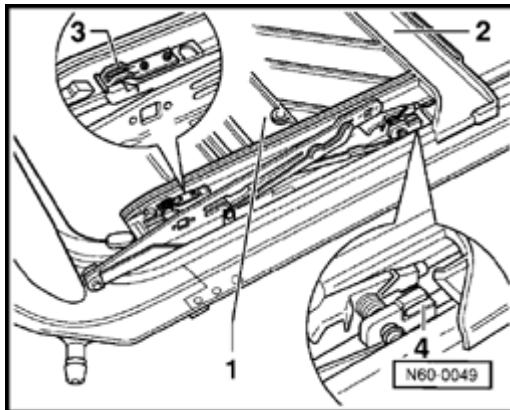
17 - Water drain hose

- ◆ Cleaning ⇒ [page 60-23](#)



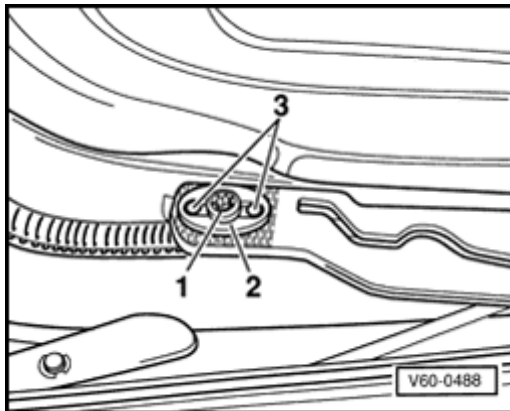
Sunroof glass panel, removing

- Tilt sunroof open.



A

- Slide headliner -1- toward rear.
- Slide trim frame -2- toward rear (clipped on in area of front guide -3- and guided at rear by guide -4-)



A

- Remove Torx® T25 screws -1- and adjusting plates -2-.
- Adjusting plates -2- are positioned by guide pins -3-.
- Move sunroof panel upward and out.
- To remove trim frame (if necessary) pull forward and upward out of roof cutout.



Sunroof glass panel, installing

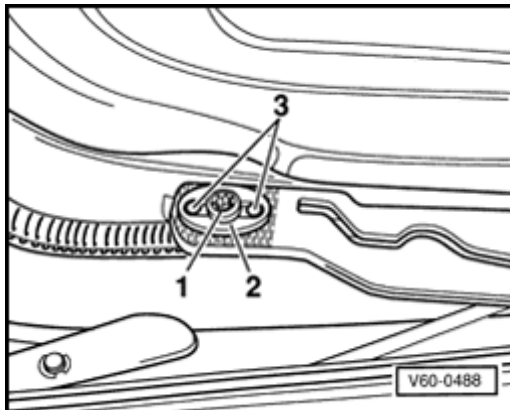
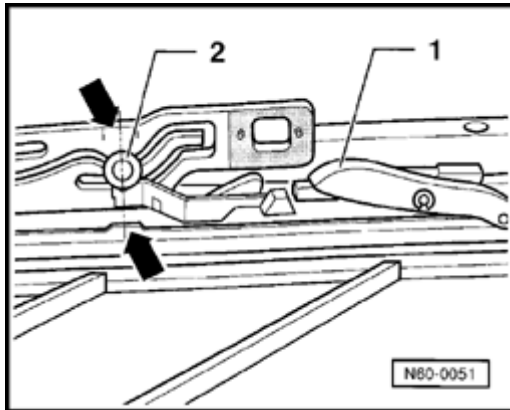
- Panel must be in "0" position (panel closed)
- Locating hooks -1- must be located in guide rails
- Pin -2- must be aligned within marks or notches (arrows)

If not, check and adjust parallel running ⇒ [page 60-12](#) .

- Place sunroof in position from above, and install securing screws (link/panel).
- Lightly tighten securing screws (Torx[®] T25).

Notes:

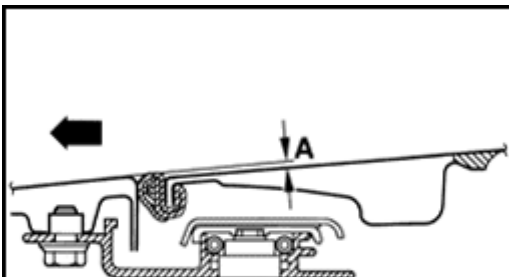
- ◆ *When tightening the Torx[®] screw -1- make sure that the adjusting plate -2- is correctly located.*
- ◆ *The guide pins -3- must be in the elongated holes of the adjusting plate -2-.*
- ◆ *After adjusting panel height, tighten securing screws -1-. Tightening torque: 6 Nm (53 in. lb).*





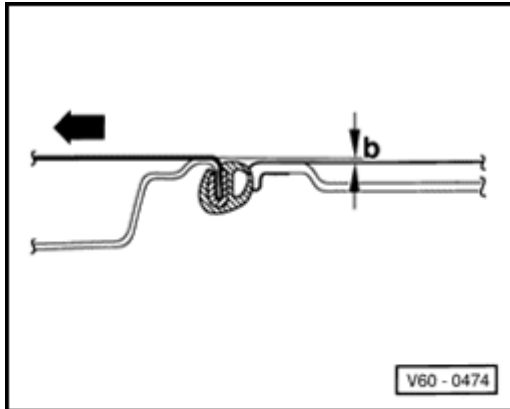
Sunroof panel height, adjusting

- Sunroof parallel running OK ⇒ [page 60-12](#)
- Tilt glass panel open.
- Push back sunroof headliner.
- Release trim frame and push to rear.
- Close glass panel.
- Loosen all four screws on glass panel (floating alignment of roof cut-out).
- To prevent wind noise carry out front and rear height adjustment as shown in accompanying illustrations.



Panel adjustment at front:

- ◆ Dimension -a- = 1 mm lower than roof
- ◆ Arrow indicates direction of travel

**A**

Panel adjustment at rear:

- ◆ Dimension -b- = 1 mm higher than roof
- ◆ Arrow indicates direction of travel

- Tighten glass panel mounting screws.

Tightening torque: 6 Nm (53 in lb)

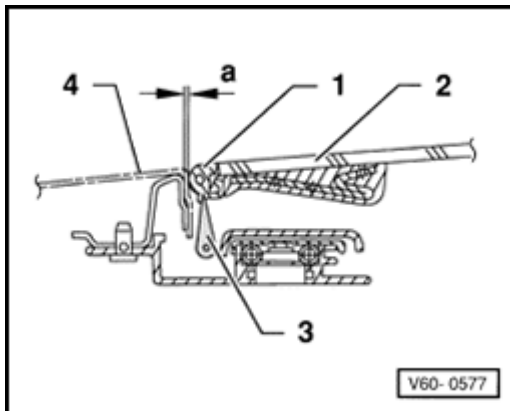
- Slide trim frame forward and clip in (clipped-in front frame area and guided at rear).



Panel seal, adjusting

The preload between the panel seal -1- and the body -4- should be uniform on all sides.

Dimension -a- = 0.3 mm (0.012 in.)

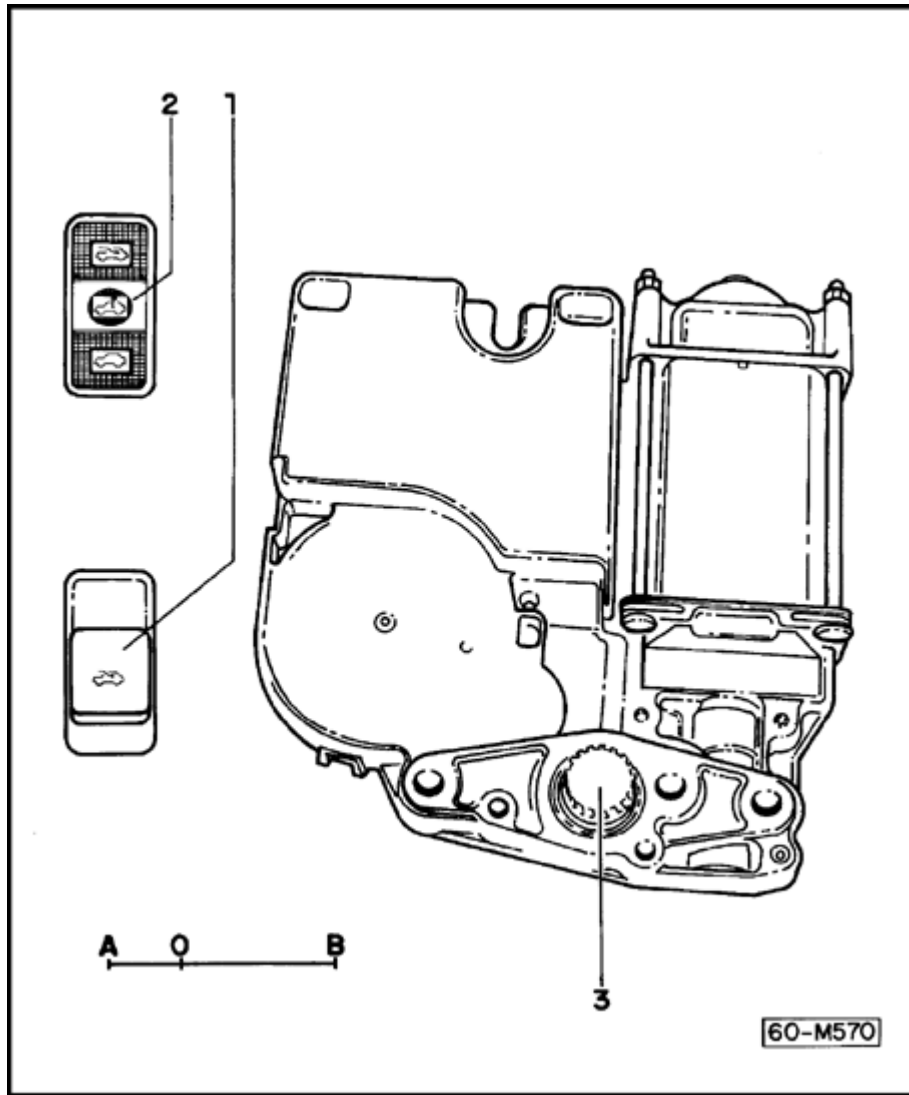


A

- Check panel seal preload using strip of paper 0.3 mm (0.012 in.) thick, such as a business card. When seal is correctly adjusted, it should be possible to pull paper strip through, between panel seal and body, with some resistance.
- If necessary adjust preload. Spread panel seal apart using wedge -3- to increase preload, or push seal together to reduce preload.

CAUTION!

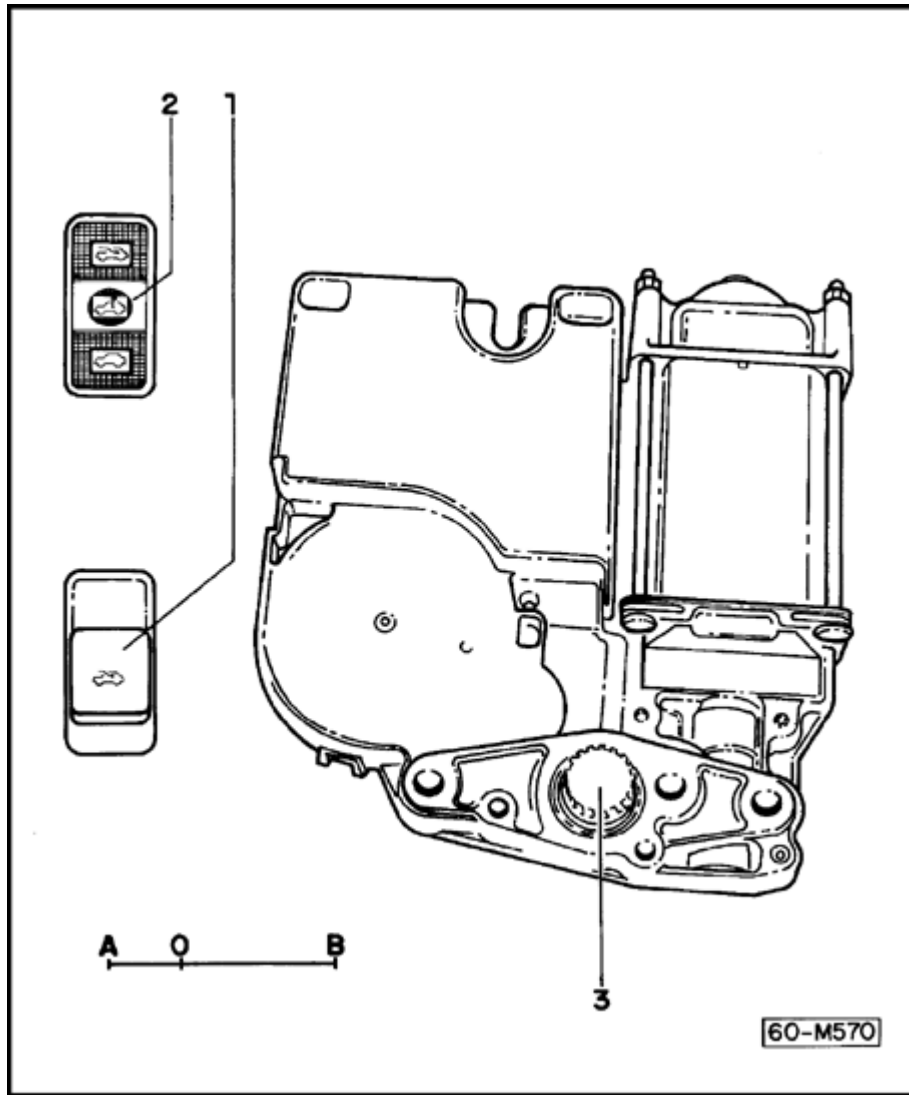
To adjust the panel seal, the sunroof glass panel -2- must be removed ⇒ [page 60-5](#).



Cable drive "0" position, checking

If the cable drive is replaced, it must be installed in "0" position (sunroof panel closed).

- Connect power sunroof control module -J245- harness connector.
- Operate sunroof switch -E8- - 1 - or - 2 - and count rotations of drive pinion - 3 -.
- ◆ The "0" position is between the end switch-off points -A- and -B-.
- ◆ End switch-off point -B- is reached by turning the drive pinion clockwise. End switch-off point -A- is reached by turning the drive pinion counterclockwise.



1 - Sunroof switch -E8- (➤ 08.94)

2 - Sunroof switch -E8- (09.94 ➤)

3 - Drive pinion

A - End switch-off point for panel tilting function

◆ Drive pinion rotates 2 turns to "0" position

B - End switch-off point for panel sliding function

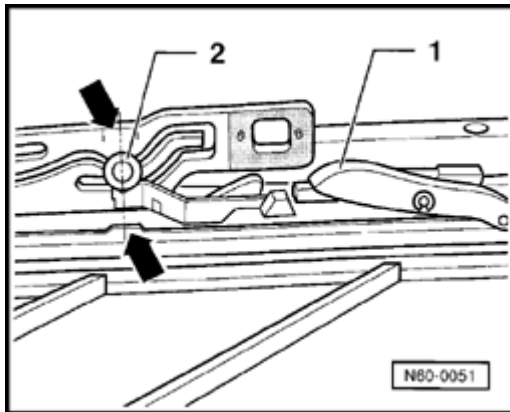
◆ Drive pinion rotates 8.25 turns to "0" position



Parallel running, checking and adjusting

Checking

- Sunroof glass panel closed
- Push sliding headliner back by hand.
- Push trim frame to rear (clipped-on in area of front guide and guided at rear).

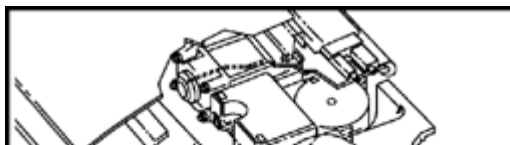


A

- Pins -2- must be aligned within marks or notches (arrows), and locating hooks - 1- must be engaged in guide rails.
- If pins -2- are not aligned within marks or notches, parallel running must be adjusted ⇒ [page 60-12](#) .

Adjusting

- Sunroof glass panel closed
- Disconnect battery Ground (GND) strap from battery.
- Push back sliding headliner and trim frame.



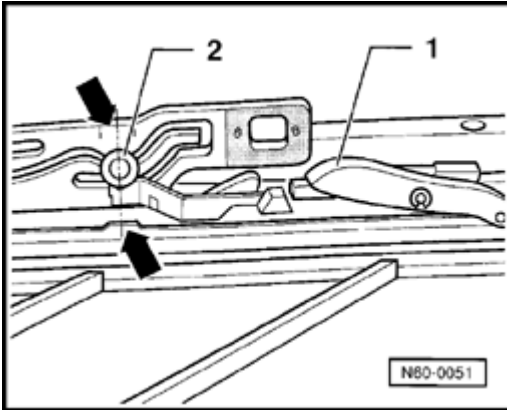
A

- Remove cable drive cover by sliding toward rear (arrow).
- Remove cable drive.

Note:

The drive pinion must no longer be in mesh with the cables.

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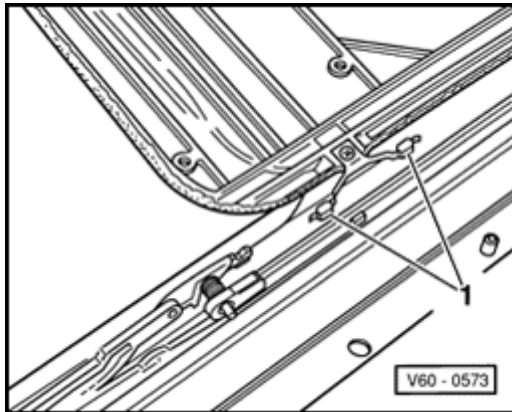
A

- Locating hooks -1- must be engaged in guide rails.
- Slide rear guide pins -2- from front to rear only as far as marks or notches (arrows).
- Install cable drive.
 - ◆ Always use new self-locking screws
 - ◆ Tightening torque: 3 Nm (27 in lb)
- Install sunroof glass panel ⇒ [page 60-6](#) .



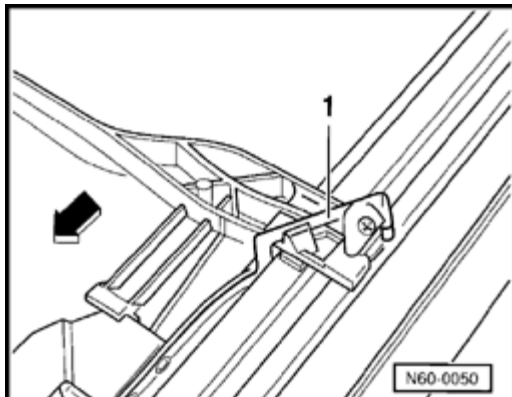
Sunroof headliner, removing (➤ 08.94)

- Sunroof glass panel and trim frame removed
- Sunroof unit in "closed position"



A

- Remove screws that mounts slide -1- to headliner (one side only) and pull out of carrier unit guide channel.



A

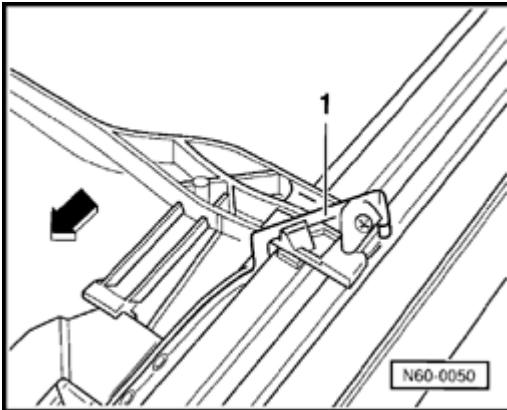
- Release spring -1- and pull headliner forward out of roof cut-out (headliner must be angled for removal).

Note:

When installed, spring -1- is difficult to see.



Sunroof headliner, installing (► 08.94)



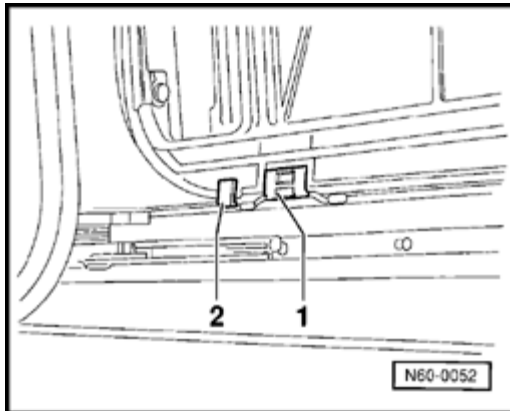
A

- Remove springs -1- from headliner.
Always use new self-locking screws.
- Insert headliner in roof cut-out. Insert headliner slide in guide channel (slide screwed onto headliner). Insert slide on other side into guide channel and secure with screw to headliner.
Always use new self-locking screws.
- Slide headliner to rear, until springs -1- engage.



Sunroof headliner, removing (09.94 ➤)

- Sunroof glass panel and trim frame removed
- Sunroof unit in "closed position"

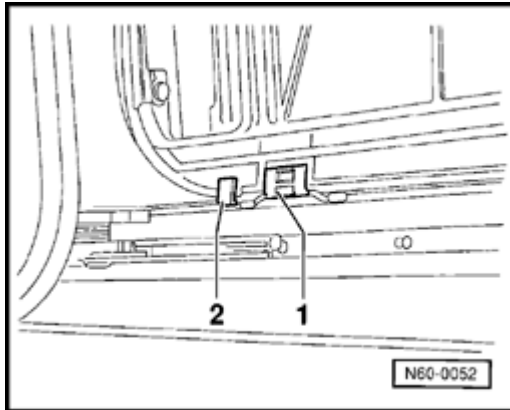


A

- Unclip stop -2- on one side and press headliner toward this side.
- Lever slide -1- out of guide channel, on opposite side, (from front to rear) using screwdriver.
- Swing headliner out of assembly unit.

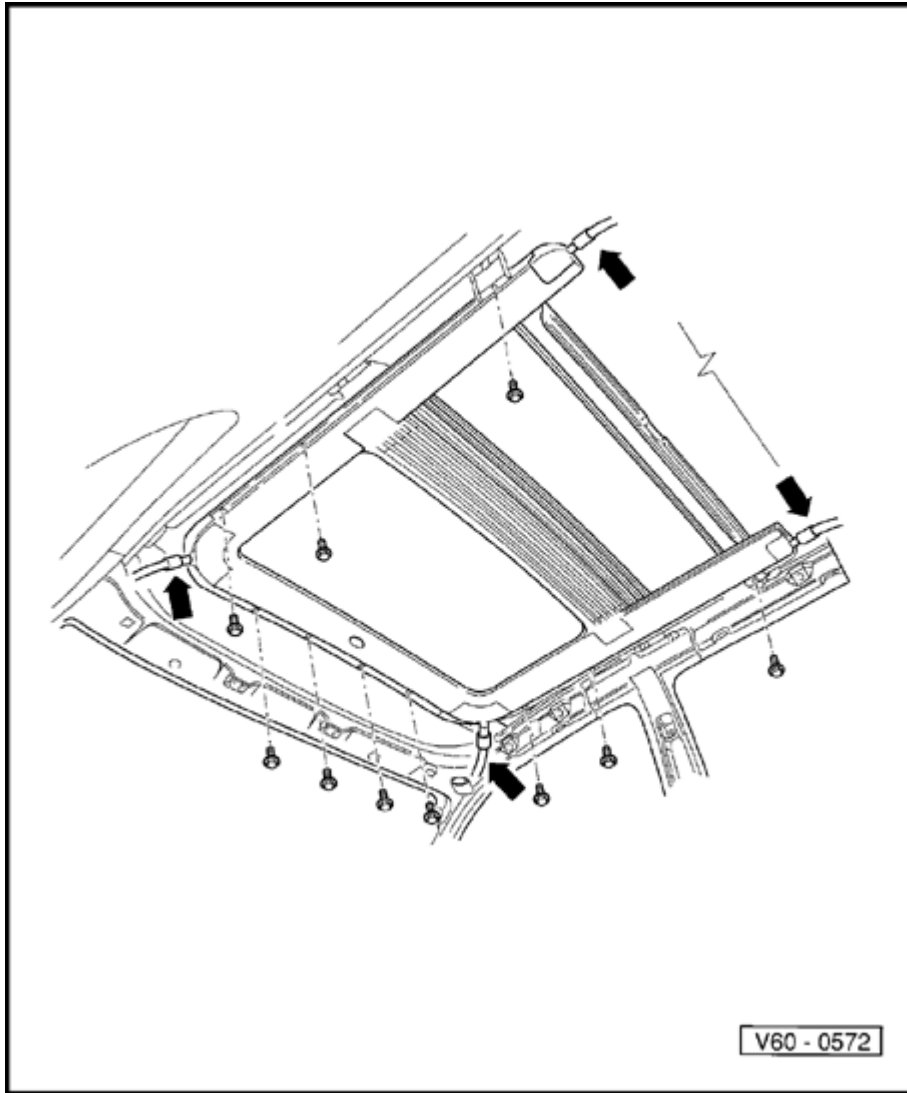


Sunroof headliner, installing (09.94 ➤)



A

- Insert sliding headliner in roof cut-out.
- Insert sliding headliner slide in guide channel (slide engaged into sliding headliner).
- Insert slide -1- on opposite side into guide channel and fit side stops -2-.



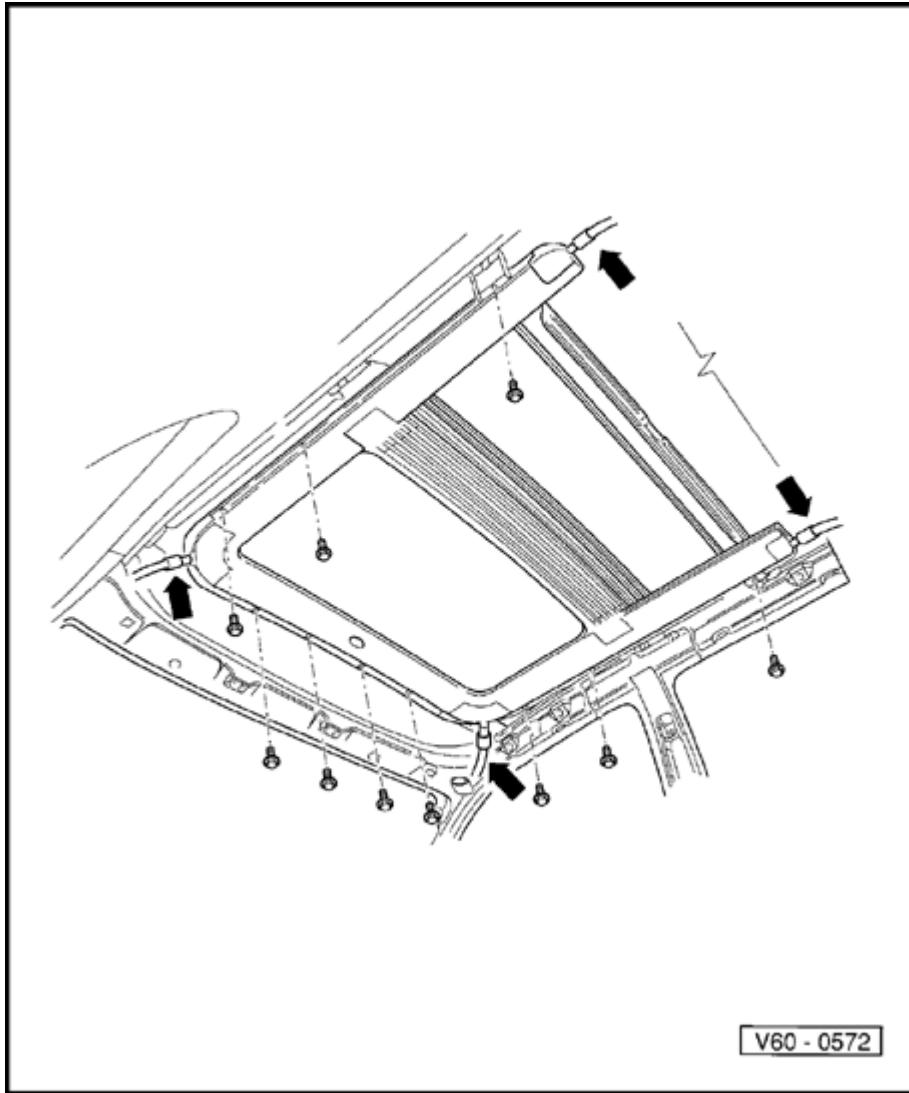
Carrier unit, removing and installing

Removing

- Remove water drain hoses (arrows) from carrier unit.
- Remove cable drive.
- For easier installation, remove sunroof panel ⇒ [page 60-5](#).
- Remove hex bolts and lift carrier unit from vehicle with help of second technician.

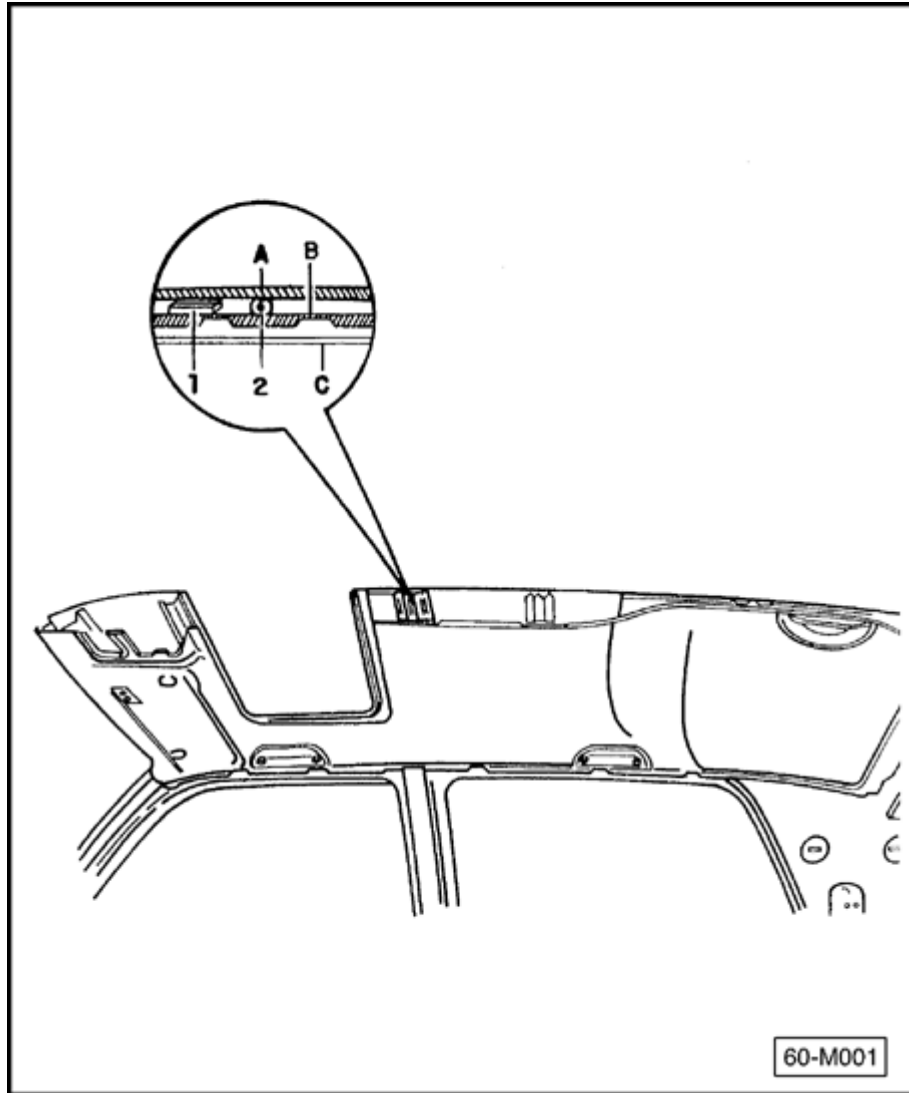
Note:

The carrier unit can also be removed complete.



Installing

- Place carrier unit on rear mountings and swing upward.
- ◆ Three alignment pins must line up with their respective holes
- Install carrier with hex bolts.
- ◆ Tightening torque: 7.5 Nm (66 in lb)



Sunroof noise, correcting

Vehicles > 08.94

Noise created while driving with the sunroof open may be caused by some amount of adhesive -2- that has not adhered properly and is hitting the reinforcement crossbar -B-.

The problem has been corrected in production from 08.94, starting with VIN 3VWRA81H8SM010425.

For complaints of sunroof noise in vehicles produced up to 08.94, install a pair of foam strips -1- on each side (left and right) between the metal roof -A- and the crossbar -B-.

Foam strip dimensions:

- ◆ Thickness = 4mm (5/32 in.)
- ◆ Length = 5cm (2 in.)
- ◆ Width = 2cm (3/4 in.)

Note:

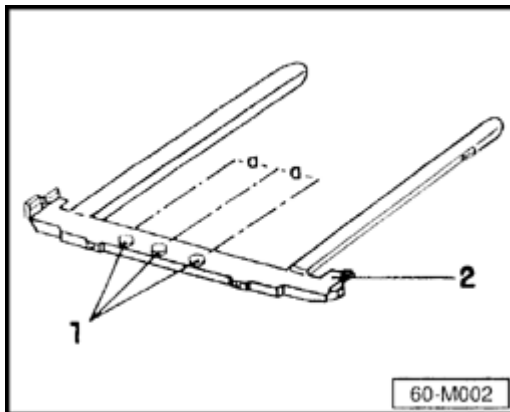
It will be necessary to remove the -A-, -B-, and -C- pillar trim panels (⇒ [page 70-23](#)), and the molded headliner -C- (⇒ [page 70-41](#)).



Vehicles 08.94 ➤

Noise from the sunroof heard while driving on rough roads may be caused by vibration between the sunroof trim frame and the headliner.

A new sunroof trim frame has been installed in production from 08.94.



- ▲ From 09.94 production, the noise absorbers -1- on the trim frame -2- have been relocated.

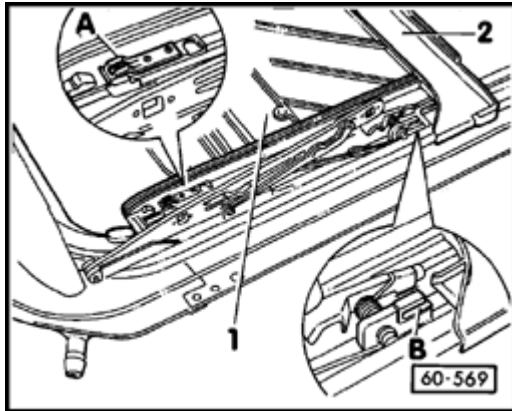
During 08.94 production:

- ◆ Dimension -A- = 106 mm (4.17 in.)
- ◆ Part number: 357 877 261 01C

From 09.94 production:

- ◆ Dimension -A- = 140 mm (5.51 in.)
- ◆ Part number: 6N0 877 261

Vehicles manufactured during 08.04 may still exhibit some noise and vibration problems. If so, the sunroof trim frame must be replaced with the later version (dimension -A- = 140 mm or 5.51 in.).



Removing

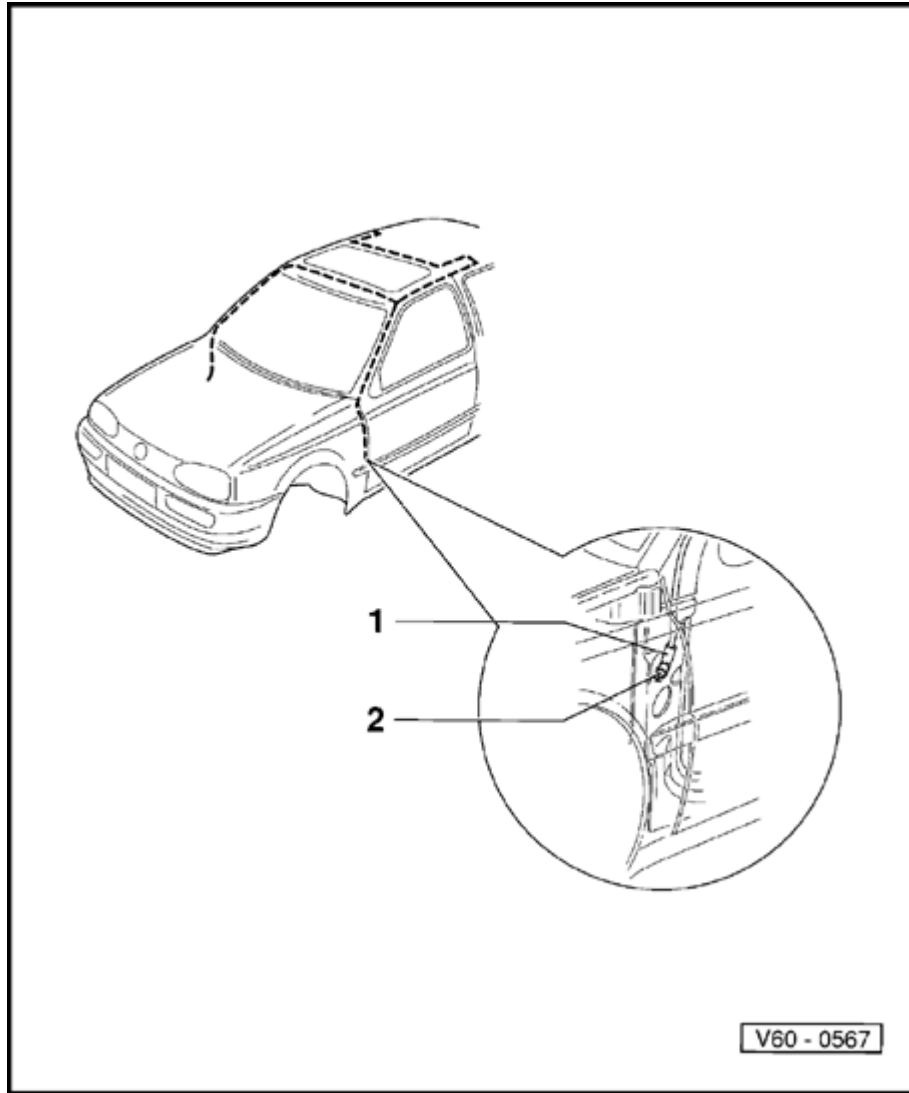
- Tilt sunroof open.
- Slide headliner -1- to rear.
- Slide trim frame -2- to rear (clipped on in area of front guide -A- and guided at rear by guide -B-).
- Turn trim frame, pulling left side toward front and out through roof opening.
- Remove trim frame completely, being careful to not damage molded headliner.

Installing

Note:

Only install later style trim frame with sound absorbers located 140 mm (5.51 in.) apart.

- First insert right side of frame through roof opening, then carefully turn into position, being careful to not damage molded headliner.
- Slide trim frame -2- forward, clip into front guides -A- and rear guides -B-. Make sure that guides -B- are secured.



Water drain hoses, cleaning

1 - Front water drain hoses

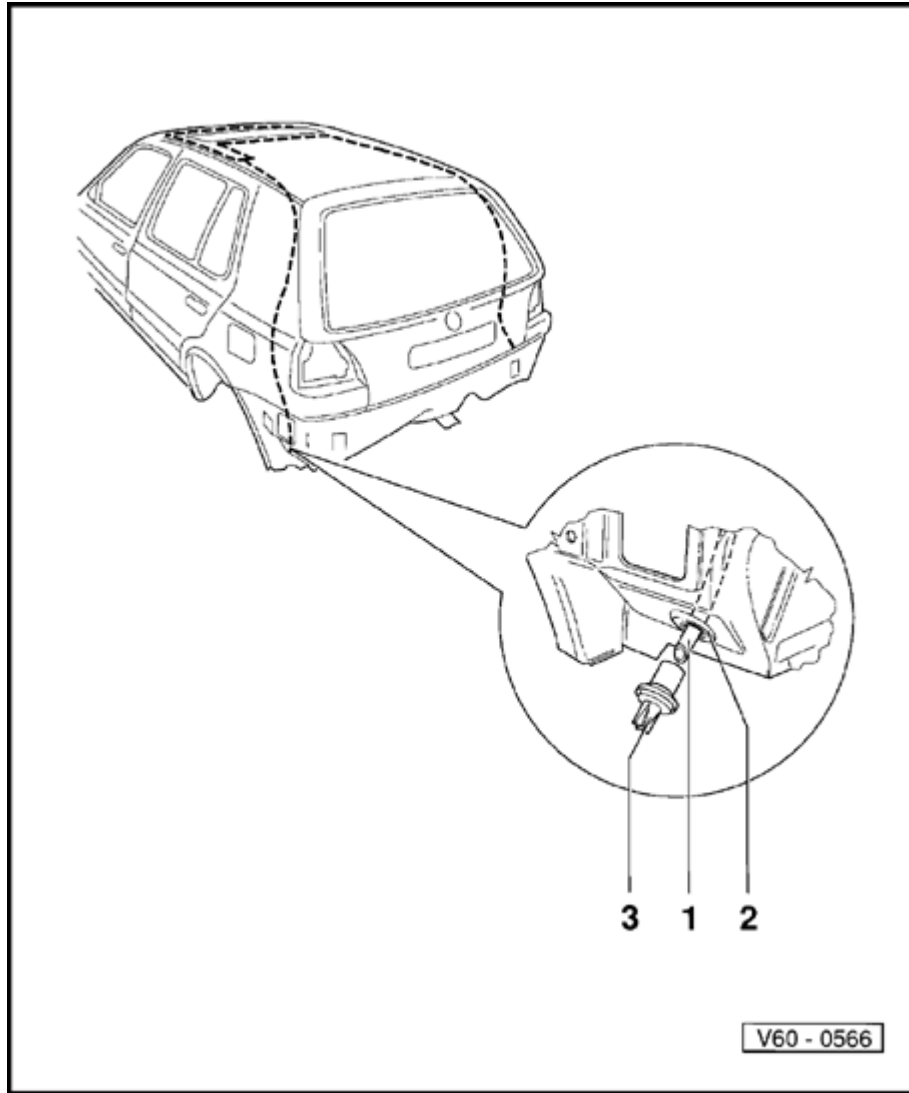
2 - Water drain valve

Front water drain hoses

The front water drain hoses -1- are routed through the A-pillars and terminate between door and A-pillar. Cleaning is done from the sunroof panel opening.

Note:

For cleaning, a locally manufactured tool made from a speedometer inner cable, approx. 2300 mm (7.5 ft.) long is recommended.



- 1 - Rear water drain hose
- 2 - Grommet for water drain hose
- 3 - Water drain valve (USA only)

Rear water drain hoses:

The rear water drain hoses -2- are routed in the C-pillars and terminate at the side behind the bumper cover. Cleaning is done from the lower end of the hose. To do this, the bumper must be removed.

Note:

For cleaning, a locally manufactured tool made from a speedometer inner cable, approx. 2300 mm (7.5 ft) long is recommended.