

2001-2003 ACCESSORIES AND EQUIPMENT**Sliding/Tilt Roof - Repair Instructions - X5 (3.0i) M54****SUN ROOF****54 0 ... REPAIR INSTRUCTIONS FOR BONDED SEALS****1. General Information On Handling Rubber Seal Profiles:**

- If seals reveal partly detached protective film on delivery, they must not be bonded.
- Store seals at 15° C to 25° C.
- If, during the handling, the protective film has come off before bonding, it can still be bonded.
- Bonding at room and object temperature > 20° C. Temperatures between 40 and 50° C significantly increase initial adhesion.
- Seals, which are subjected to temperatures above 80° C after gluing, will be very difficult to remove.

2. Damage Pattern And Repair**2.1 Partially detached bond (rubber-adhesive tape or adhesive tape-paint).**

- Up to 120 mm for retouching without auxiliary resources.
- Up to 200 mm repaired with pressing-on tools on straight surfaces.
- a. Cleaning damaged areas:
 - Degrease bonded area with adhesive cleaner and remove other residues.

NOTE: Use necessary cotton- or fluff-free paper towel once only.
When using solvent:
expose repair area to air for at least 2 minutes.

- b. Applying adhesive:
 - With a fine nozzle, apply a wafer-thin bead to adhesive tape.

NOTE: Use contact adhesive (e.g. Terokal 2444).

CAUTION: Avoid contact to skin!
Do not apply adhesive to visible painted surfaces.

- c. Pressing on rubber seal:
 - Press down seal using contact pressure (forced pressure not necessary) for at least 1 minute.

CAUTION: Load can only be applied to the bond after a period of 2 minutes. This waiting time is absolutely essential.

2.2 Larger defects (mechanical damage and larger separations of seal).

- A complete replacement of the rubber seal is necessary. Refer to **54 12 120 REPLACING SEAL FOR SLIDE/TILT SUNROOF LID** or **54 13 050 REPLACING SEAL FOR SLIDE/TILT SUNROOF LID AT REAR** or **54 13 055 REPLACING SEAL FOR SLIDE/TILT SUNROOF FRAME**.

a. Peeling off damaged rubber seal:

- Pull off rubber seal slowly at an angle of 15 to 25° C.

NOTE: **Make sure the connection between adhesive tape and seal is retained.**
If the connection between adhesive tape and seal is detached: Carefully and slowly detach adhesive tape at an angle of 15 to 25° from roof opening or lid.
If, in the case of older seals, you are peeling off using a hot air blower: Do not damage paintwork.
Do not detach rubber-adhesive tape connection if at all possible.

b. Cleaning bonded area:

- Degrease bonded area with adhesive cleaner and remove other residues.

NOTE: **Use necessary cotton- or fluff-free paper towel once only.**
When using solvent:
expose repair area to air for at least 2 minutes.

c. Detaching protective film from bounded area:

- Detach protective film from rubber seal in sections, bonded area:

CAUTION: Once the protective film has been removed, do not under any circumstances touch the exposed bonded area.

d. Applying rubber seal:

- Apply rubber seal on roof opening edge beginning at rear center. Use upper lip as application edge. Press on seal continuously by hand. Carefully unwrap seal at radii without tension and press down (critical area).

NOTE: **If positioned incorrectly, the seal can still be pulled off, repositioned and pressed on again.**

e. Establishing seal joint:

- Mark contact point at joint by pressing down loose end on seal of already bonded end. Then cut and press down loose end at same height.

NOTE: **Small areas of seal can remain stuck to adhesive tape of loose end.**

- f. Pressing on seal:
 - Press on seal using a roller.
 - Adhesive tape width up to 5 mm. Application pressure approx. 5 N.m.
- g. Adhesive tape width up to 10 mm. Application pressure approx. 10 N.m.

Checking Rubber Seal:

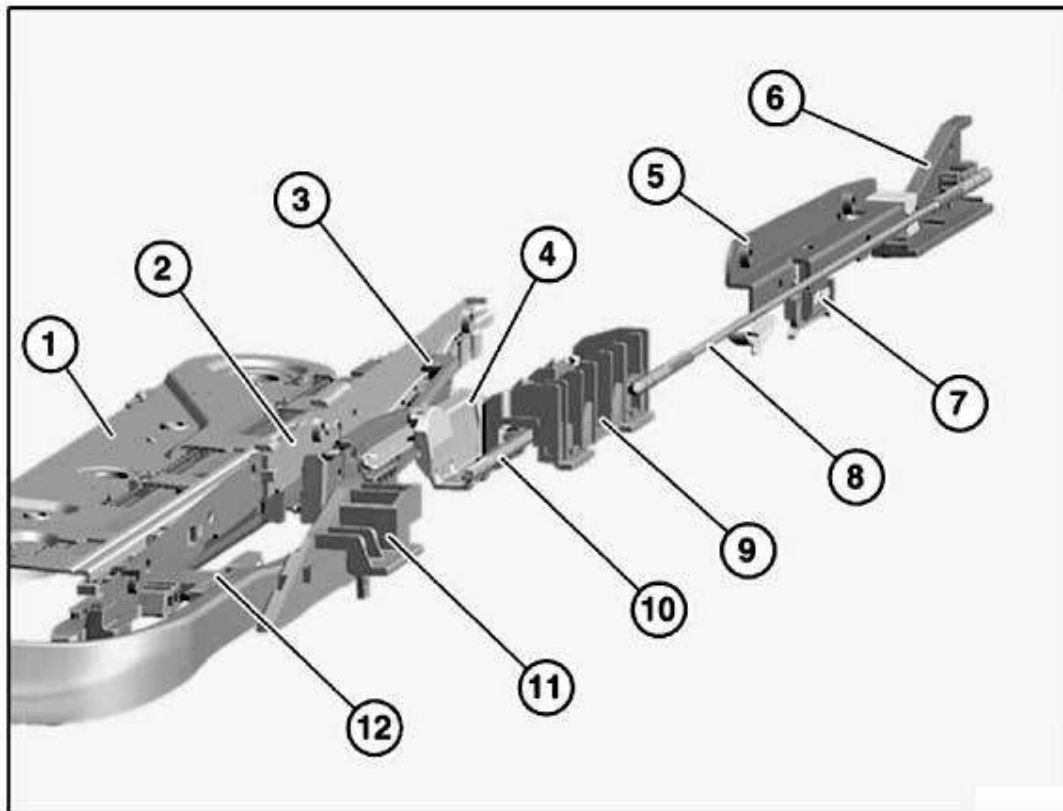
- Check the bonded seals for correct positioning and perfect adhesion. The bonding can be checked by pressing back the sealing lip.
- The force required to peel off the seal immediately after gluing must be greater than 10 N/cm.

54 10 ... REMOVING AND INSTALLING/REPLACING DRIVE CABLE PLATE

Necessary Preliminary Tasks:

- Remove mechanism for glass cover at front. Refer to **54 10 020 REMOVING AND INSTALLING MECHANISM FOR FRONT GLASS LID** .
- Remove drive unit. Refer to **67 61 515 REPLACING DRIVE WITH GEAR (FRONT) FOR ACTUATING SLIDE/TILT SUNROOF (PANORAMA GLASS SUNROOF)** .

Overview Of Glass Lid Mechanism:



- | | |
|------------------------------------|---|
| 1 Floating roof liner mechanism | 7 Spring retainer |
| 2 Mechanism, front glass lid | 8 Drive cable, rear glass lid (connecting link) |
| 3 Drive wedge | 9 Drive cable plate |
| 4 Drive plate | 10 Drive cable, front glass lid (connecting link) |
| 5 Mechanism, rear glass lid | 11 Control carriage, wind deflector |
| 6 Control carriage, rear glass lid | 12 Slide element |

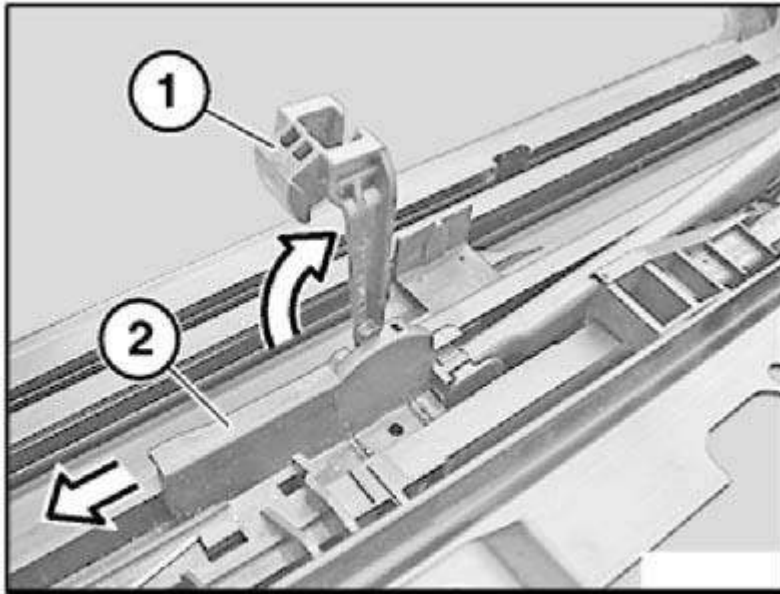
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Fig. 1: Overview Of Glass Lid Mechanism

Courtesy of BMW OF NORTH AMERICA, INC.

If necessary, remove drive wedge (1).

If necessary, slide drive cable plate (2) towards rear and remove from guide rail.



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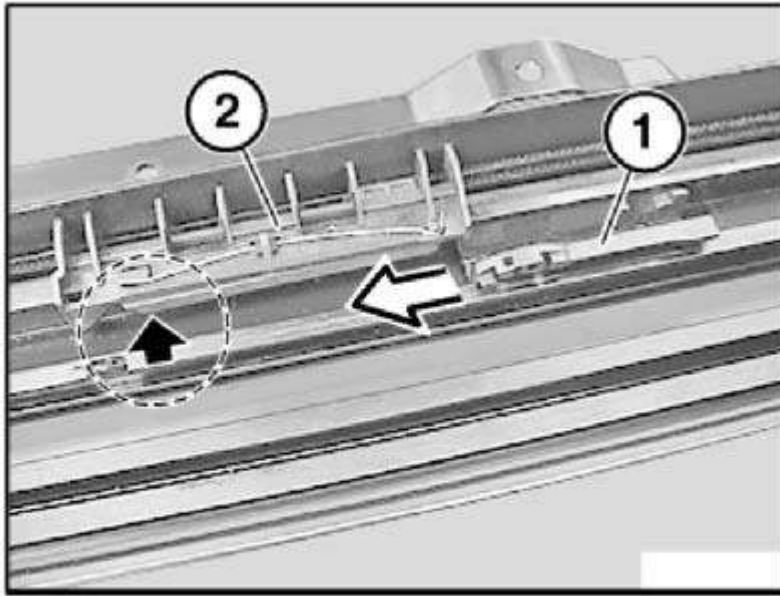
Fig. 2: Removing Drive Wedge And Drive Cable Plate
Courtesy of BMW OF NORTH AMERICA, INC.

IMPORTANT: Risk of damage when installing drive cable plate.

The rear drive cable plate (2) must be engaged before the front drive cable plate (1) is installed.

Incorrect setting can be identified from spring position and lever position (marked area).

Check engagement of rear drive cable plate (2) in guide rail. Slide in drive cable plate (1).



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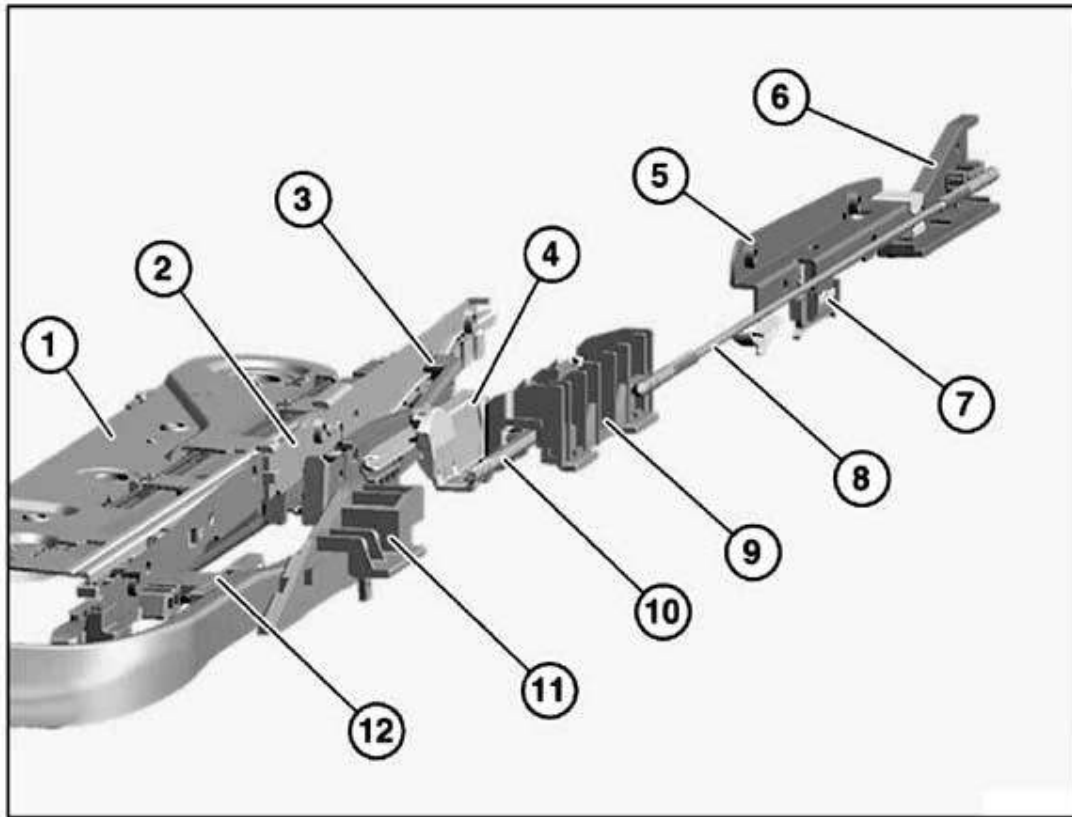
Fig. 3: Installing Drive Cable Plate

Courtesy of BMW OF NORTH AMERICA, INC.

54 10 020 REMOVING AND INSTALLING MECHANISM FOR FRONT GLASS LID**Necessary Preliminary Tasks:**

- Remove glass slide/tilt sunroof. Refer to **54 13 080 REMOVING AND INSTALLING COMPLETE GLASS SLIDE/TILT SUNROOF** .
- Remove glass slide/tilt sunroof lid at front. Refer to **54 10 170 REMOVING AND INSTALLING FRONT GLASS SLIDE/TILT SUNROOF COVER** .
- Remove glass slide/tilt sunroof lid at rear. Refer to **54 10 175 REMOVING AND INSTALLING REAR GLASS SLIDE/TILT SUNROOF COVER** .
- Remove front drip moulding. Refer to **54 13 100 REMOVING AND INSTALLING/REPLACING DRIP MOULDING** .
- Remove drive for slide/tilt sunroof actuation. Refer to **67 61 515 REPLACING DRIVE WITH GEAR (FRONT) FOR ACTUATING SLIDE/TILT SUNROOF** or **67 61 515 REPLACING DRIVE WITH GEAR (FRONT) FOR ACTUATING SLIDE/TILT SUNROOF (PANORAMA GLASS SUNROOF)** or **67 61 517 REPLACING DRIVE WITH GEAR (REAR) FOR ACTUATING SLIDE/TILT SUNROOF (PANORAMIC GLASS SUNROOF)** .

Overview Of Glass Lid Mechanism:



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|------------------------------------|---|
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| 3 Drive wedge | 9 Drive cable plate |
| 4 Drive plate | 10 Drive cable, front glass lid (connecting link) |
| 5 Mechanism, rear glass lid | 11 Control carriage, wind deflector |
| 6 Control carriage, rear glass lid | 12 Slide element |

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Fig. 4: Identifying Glass Lid Mechanism Components (Front)

Courtesy of BMW OF NORTH AMERICA, INC.

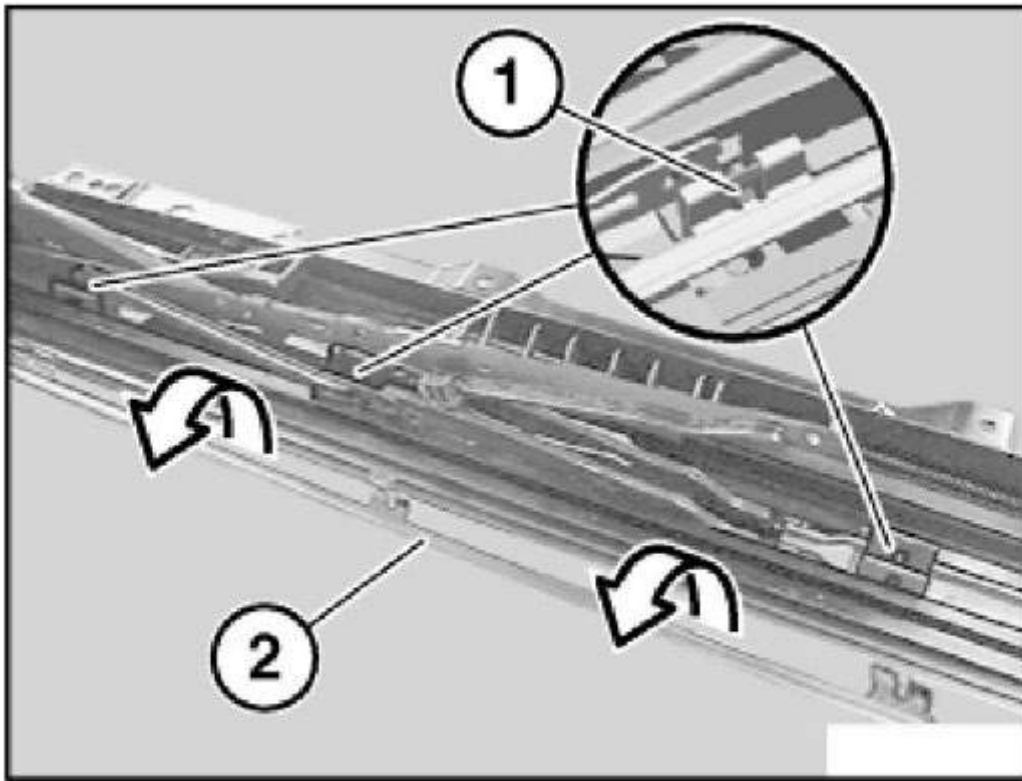
NOTE: Always replace mechanism for glass slide/tilt sunroof in pairs.

If necessary, lightly grease guide channel.

Removing upper connecting link (return linkage): Bend open tabs (1) of cover strip (2). Remove cover strip (2).

Installation:

Cover strip determines alignment of mechanism.

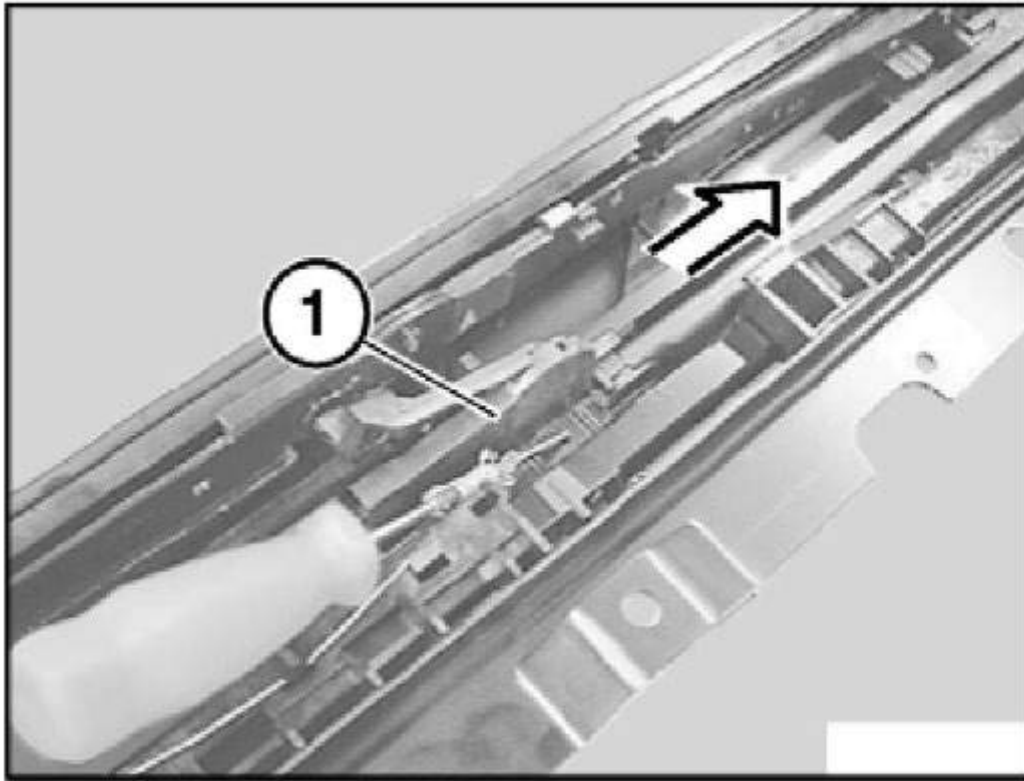


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Fig. 5: Removing Cover Strip

Courtesy of BMW OF NORTH AMERICA, INC.

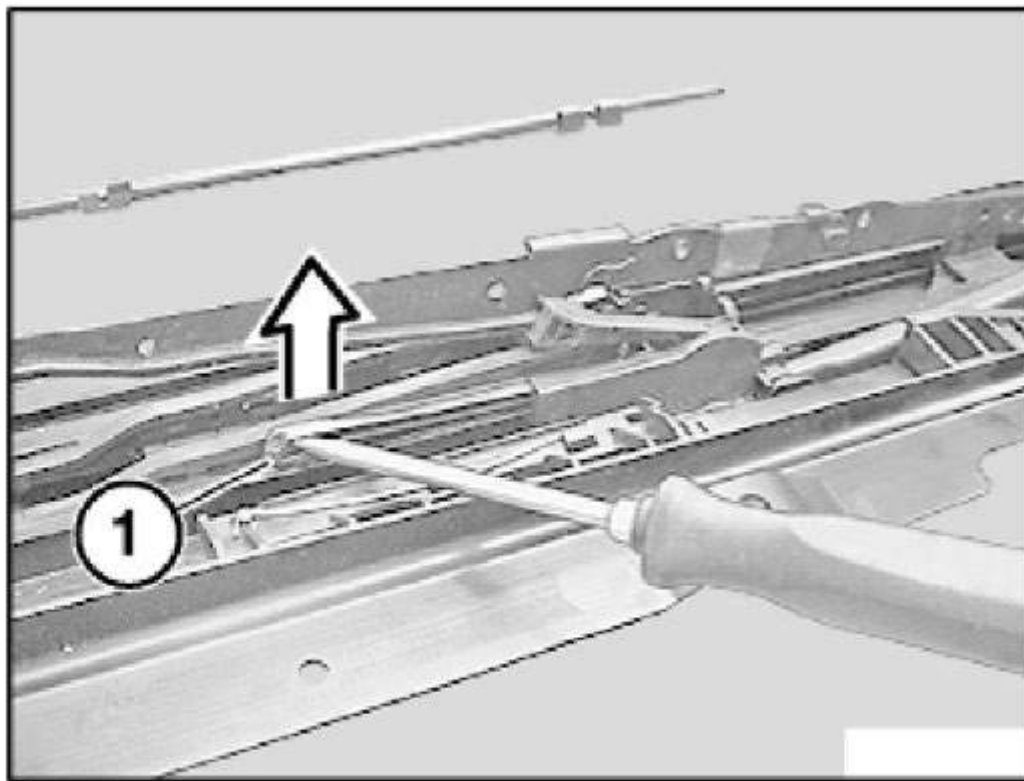
If necessary, slide drive cable plate (1) fully forwards with a screwdriver (stop).



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Fig. 6: Sliding Drive Cable Plate Using Screwdriver
Courtesy of BMW OF NORTH AMERICA, INC.

Pry out locking lever (1) of detent element at front from guide rail (unlock).

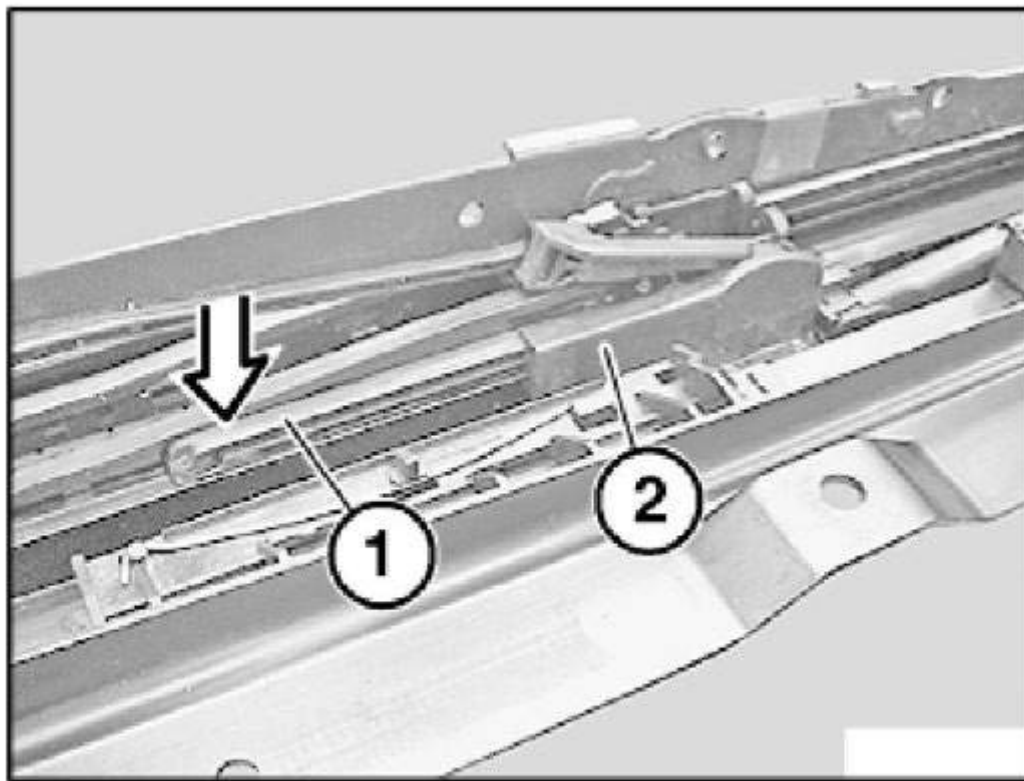


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Fig. 7: Removing Locking Lever Of Detent Element
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

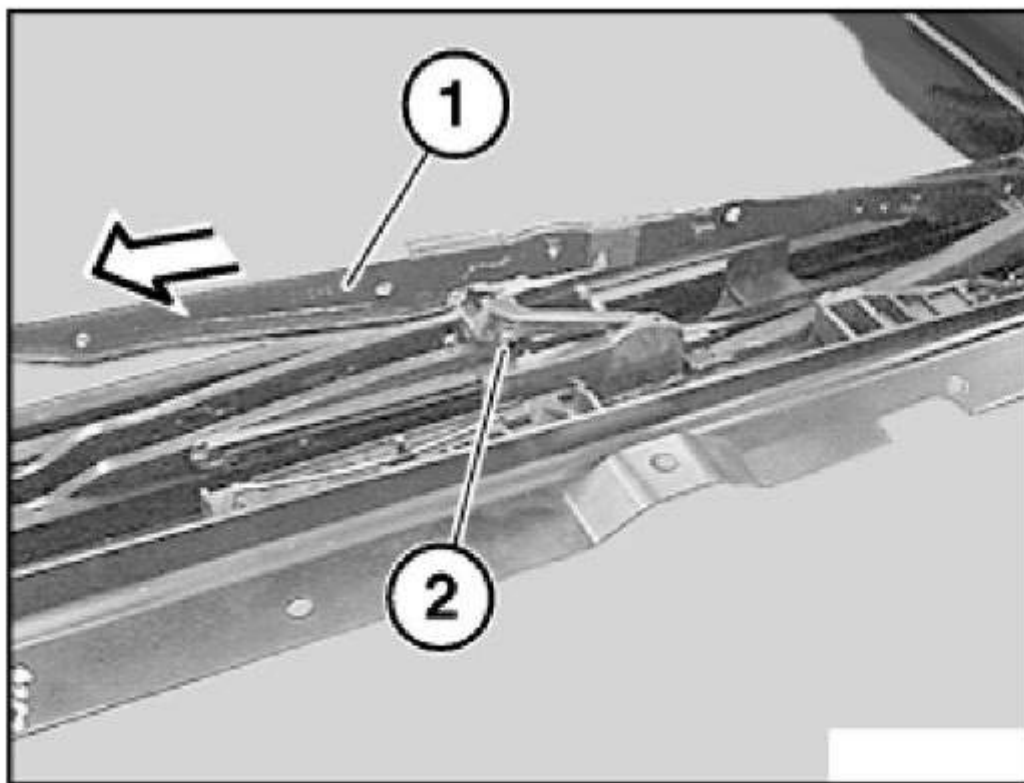
Do not move drive cable plate before locking lever (1) is engaged (risk of damage).



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Fig. 8: Identifying Locking Lever In Engaged Position
Courtesy of BMW OF NORTH AMERICA, INC.

Pull upper connecting link (1) towards rear out of drive wedge (2).

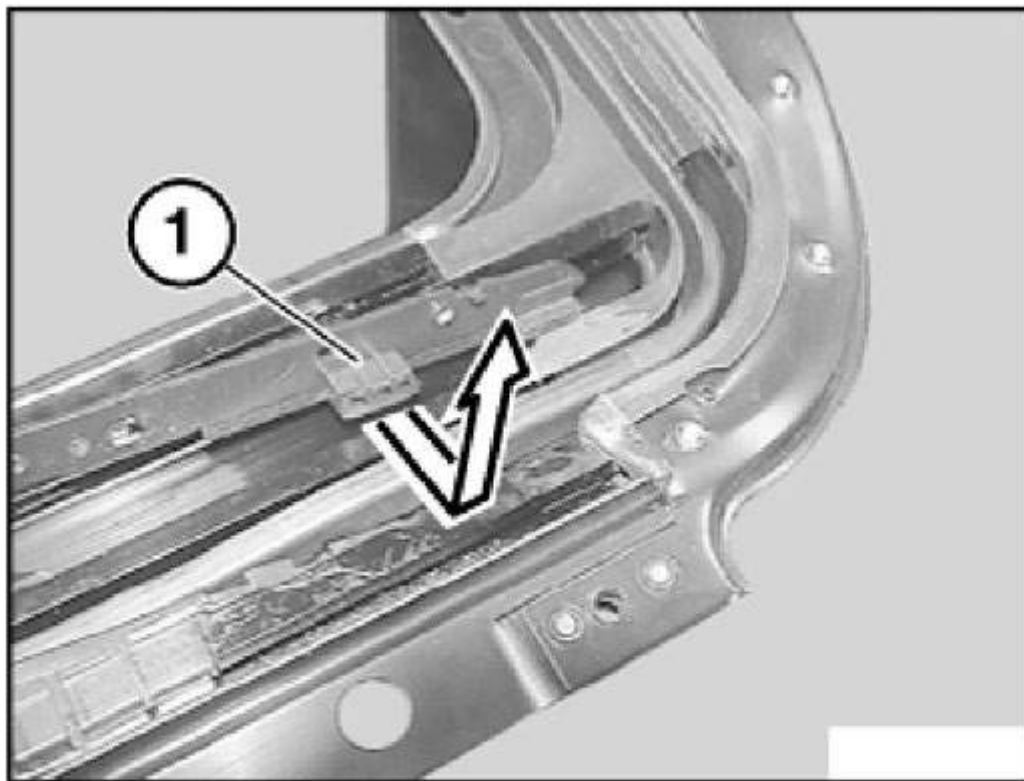


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Fig. 9: Aligning Upper Connecting Link Towards Rear
Courtesy of BMW OF NORTH AMERICA, INC.

Feed upper connecting link (1) out of guide rail.

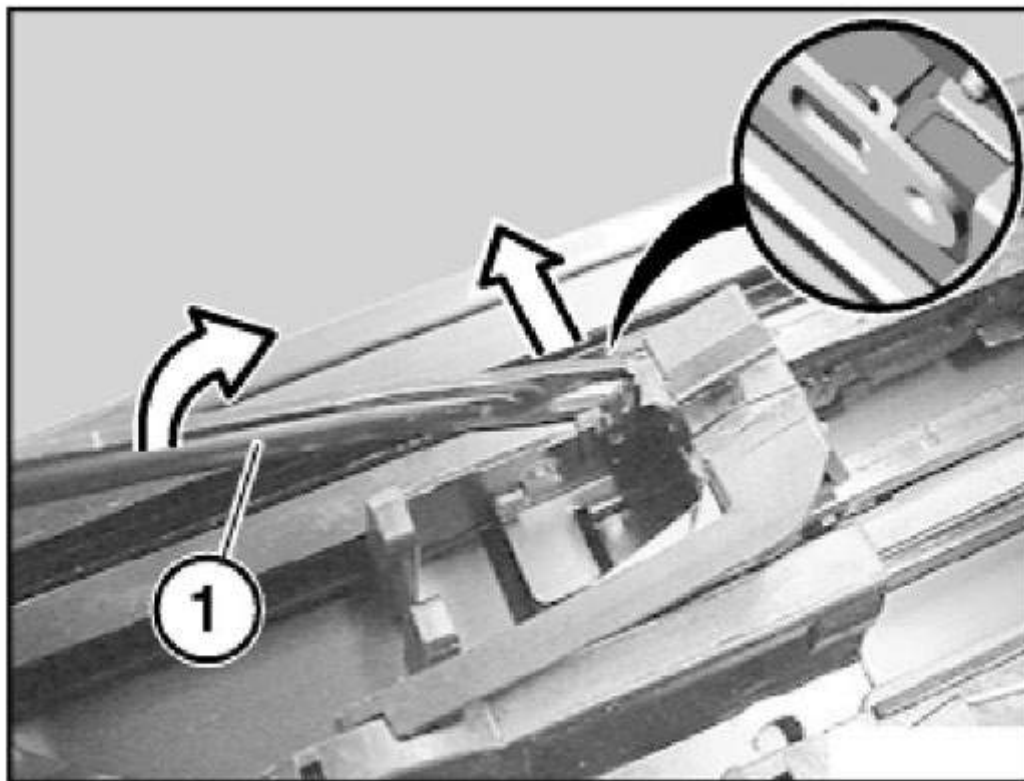
NOTE: If necessary, move mechanism (drive cable plate) approx. 2 cm. towards rear.
Upper detent element can be fed out and in more easily.



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Fig. 10: Feeding Upper Connecting Link Out Of Guide Rail
Courtesy of BMW OF NORTH AMERICA, INC.

Remove upper connecting link (1) in direction of arrow from lower connecting link.

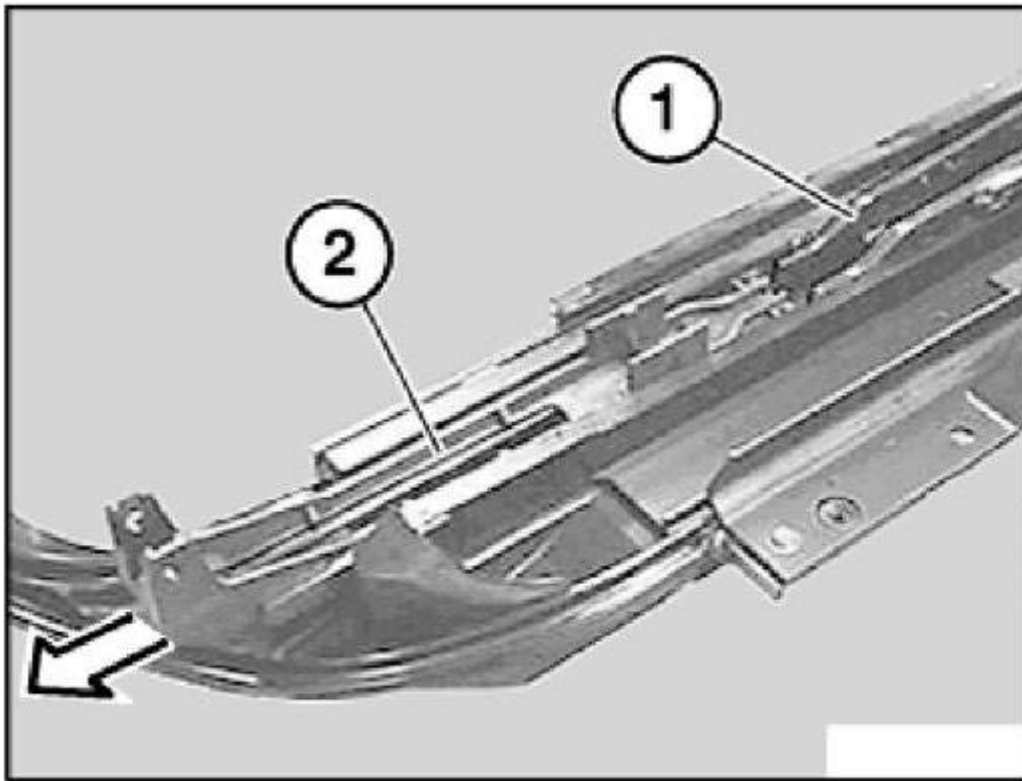


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Fig. 11: Removing Upper Connecting Link
Courtesy of BMW OF NORTH AMERICA, INC.

Removing drip moulding carrier and lower connecting link:

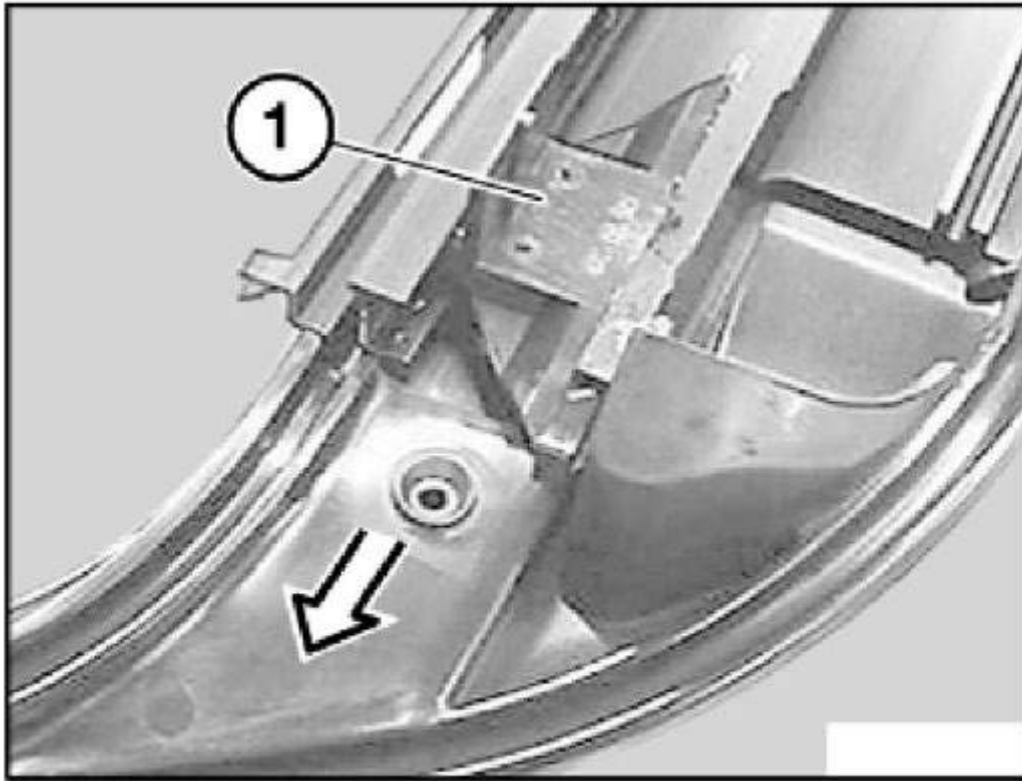
Slide drip moulding carrier (2) with lower connecting link (1) towards rear and remove from guide rail.



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Fig. 12: Removing Drip Moulding Carrier And Lower Connecting Link
Courtesy of BMW OF NORTH AMERICA, INC.

If necessary, push slide element (1) towards rear and remove from guide rail.



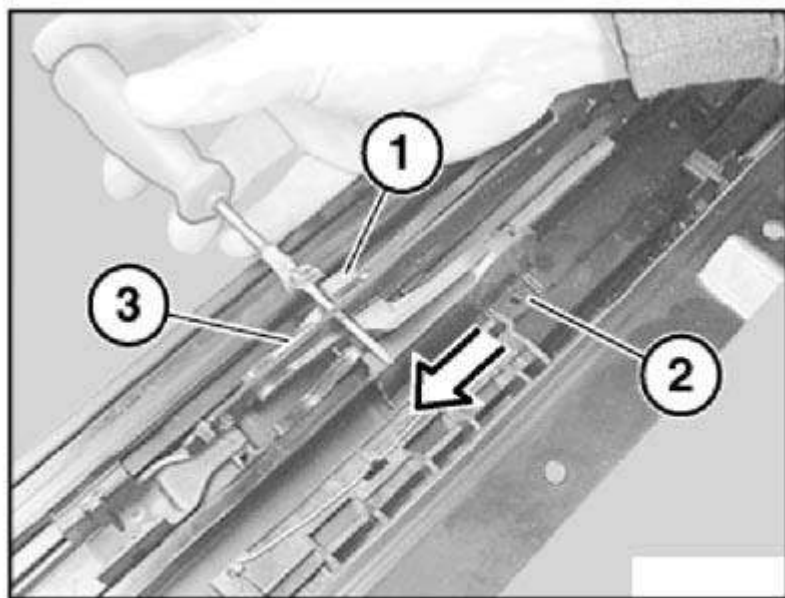
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Fig. 13: Removing Push Slide Element
Courtesy of BMW OF NORTH AMERICA, INC.

Adjusting mechanism before installing glass lid: Insert screwdriver into upper connecting link (3).

Slide drive plate (2) towards rear until drive wedge (1) runs against screwdriver.

NOTE: Check that mechanical components on left and right sides have same status.



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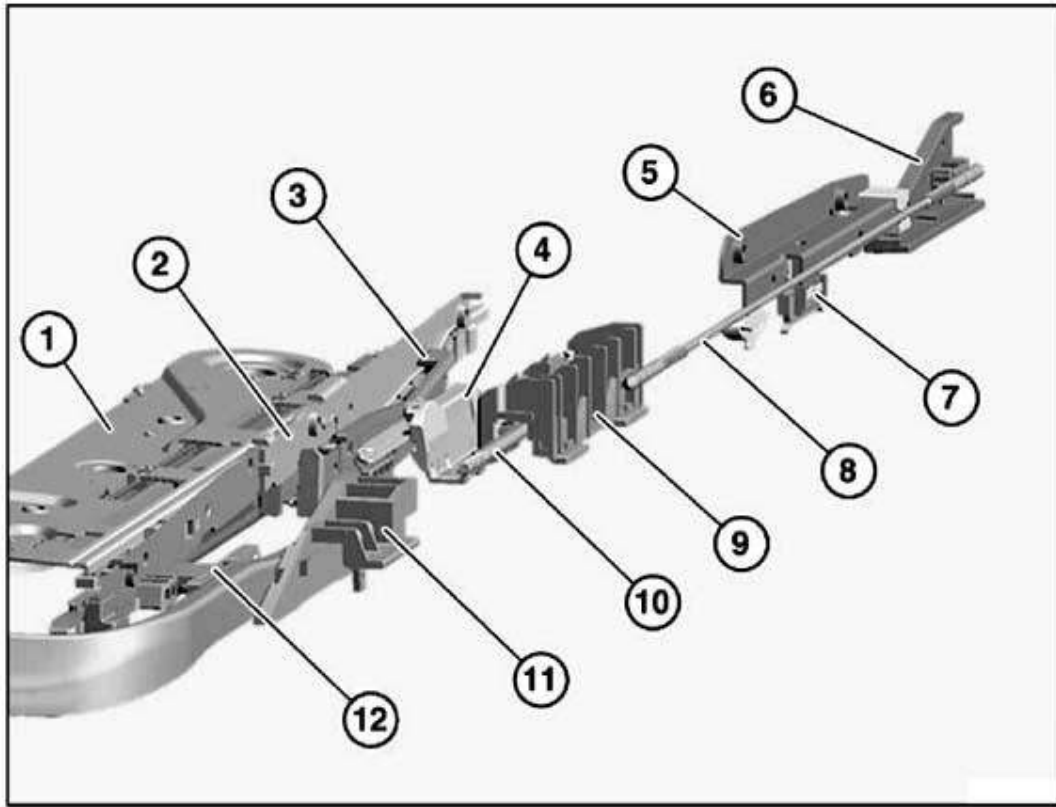
Fig. 14: Adjusting Glass Lid Mechanism

Courtesy of BMW OF NORTH AMERICA, INC.

NOTE: Check smooth and noise-free running of kinematics. Check function.**54 10 030 REMOVING AND INSTALLING MECHANISM FOR REAR GLASS LID****Necessary Preliminary Tasks:**

- Remove complete glass slide/tilt sunroof. Refer to **54 13 080 REMOVING AND INSTALLING COMPLETE GLASS SLIDE/TILT SUNROOF** .
- Remove glass slide/tilt sunroof lid at rear. Refer to **54 10 175 REMOVING AND INSTALLING REAR GLASS SLIDE/TILT SUNROOF COVER** .
- Remove rear drip moulding. Refer to **54 13 105 REMOVING AND INSTALLING/REPLACING REAR DRIP MOULDING** .
- Remove drive with gearing. Refer to **67 61 515 REPLACING DRIVE WITH GEAR (FRONT) FOR ACTUATING SLIDE/TILT SUNROOF** or **67 61 515 REPLACING DRIVE WITH GEAR (FRONT) FOR ACTUATING SLIDE/TILT SUNROOF (PANORAMA GLASS SUNROOF)** or **67 61 517 REPLACING DRIVE WITH GEAR (REAR) FOR ACTUATING SLIDE/TILT SUNROOF (PANORAMIC GLASS SUNROOF)** .

Overview Of Glass Lid Mechanism:



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|---|----------------------------------|----|--|
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| 3 | Drive wedge | 9 | Drive cable plate |
| 4 | Drive plate | 10 | Drive cable, front glass lid (connecting link) |
| 5 | Mechanism, rear glass lid | 11 | Control carriage, wind deflector |
| 6 | Control carriage, rear glass lid | 12 | Slide element |

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Fig. 15: Overview Of Glass Lid Mechanism Components (Rear)
 Courtesy of BMW OF NORTH AMERICA, INC.

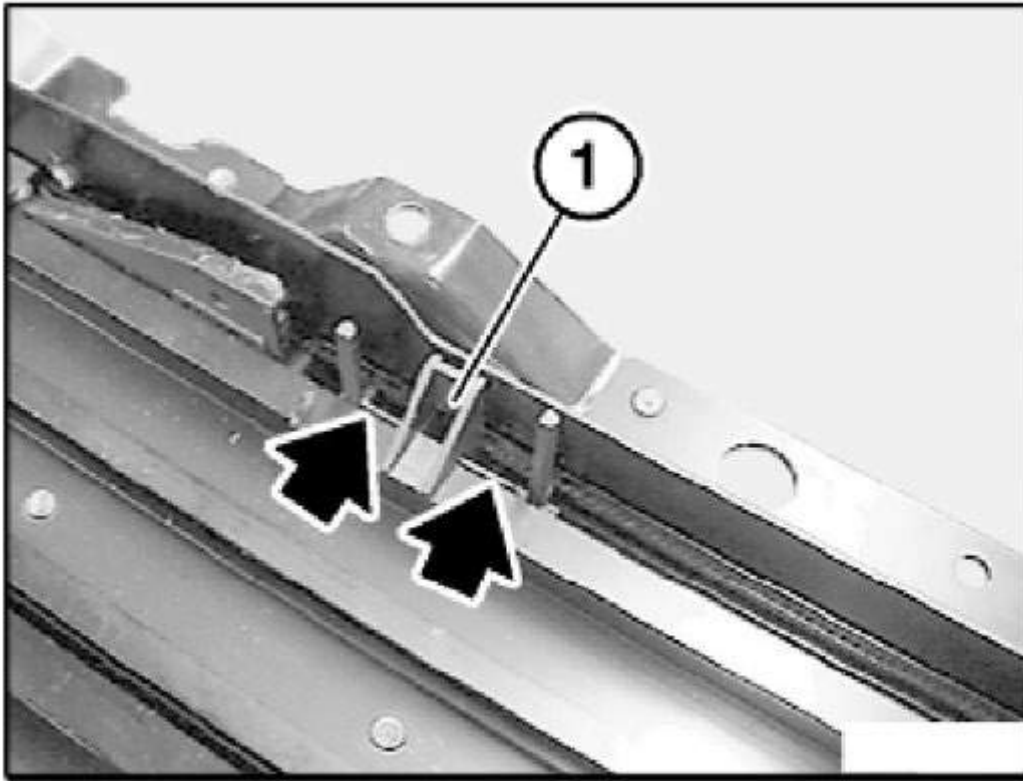
NOTE: Always replace mechanism for glass slide/tilt sunroof in pairs. If necessary, lightly grease guide channel.

NOTE: Drip moulding carrier cannot be removed without incurring damage.

Break out tabs with a screwdriver and lever out carrier.

Installation:

Replace drip moulding carrier and hook into place.

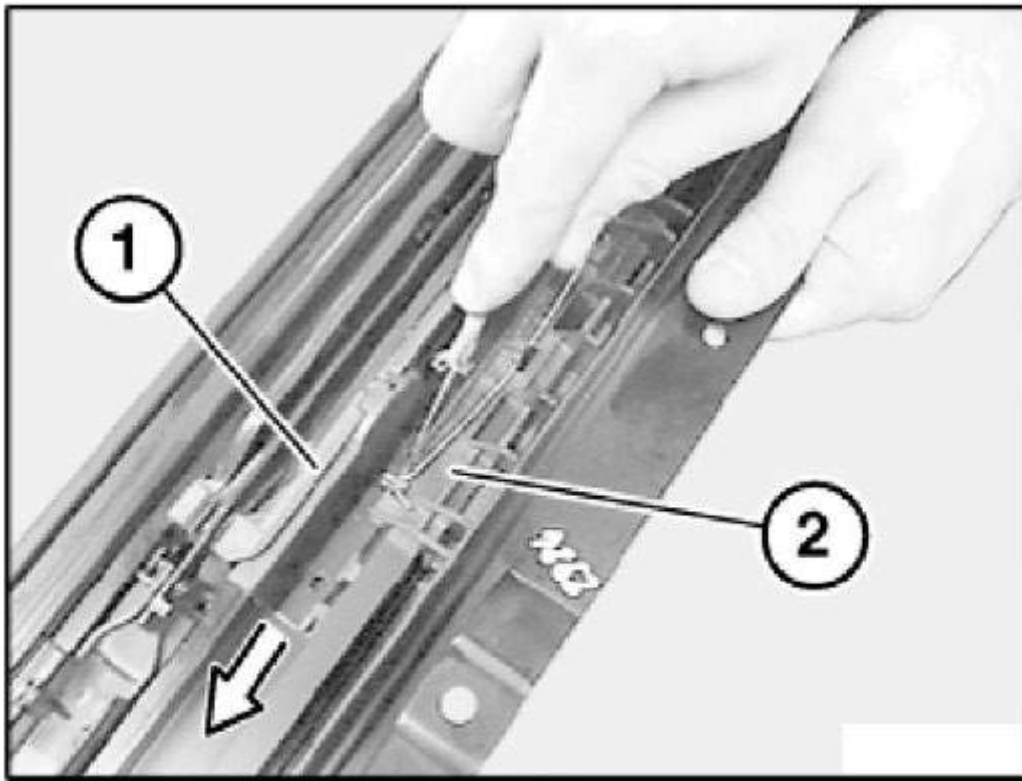


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Fig. 16: Removing Moulding Carrier
Courtesy of BMW OF NORTH AMERICA, INC.

Slide front connecting link (1) towards rear past drive cable plate (2).

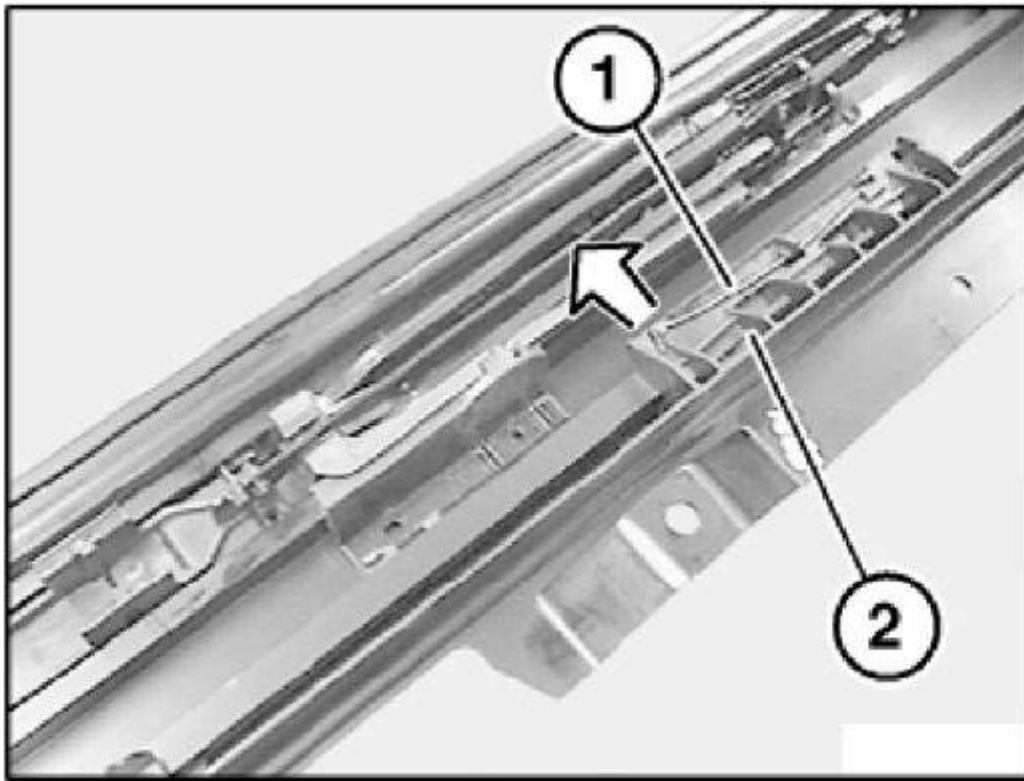
If front glass lid is installed, move mechanism with lid.



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Fig. 17: Sliding Front Connecting Link Towards Rear
Courtesy of BMW OF NORTH AMERICA, INC.

Lever out retaining bracket (1) from drive cable plate (2).



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Fig. 18: Removing Retaining Bracket From Drive Cable Plate
Courtesy of BMW OF NORTH AMERICA, INC.

Slide rear connecting line (2) with drive cable plate (1) towards rear until spring retainer (3) is exposed.

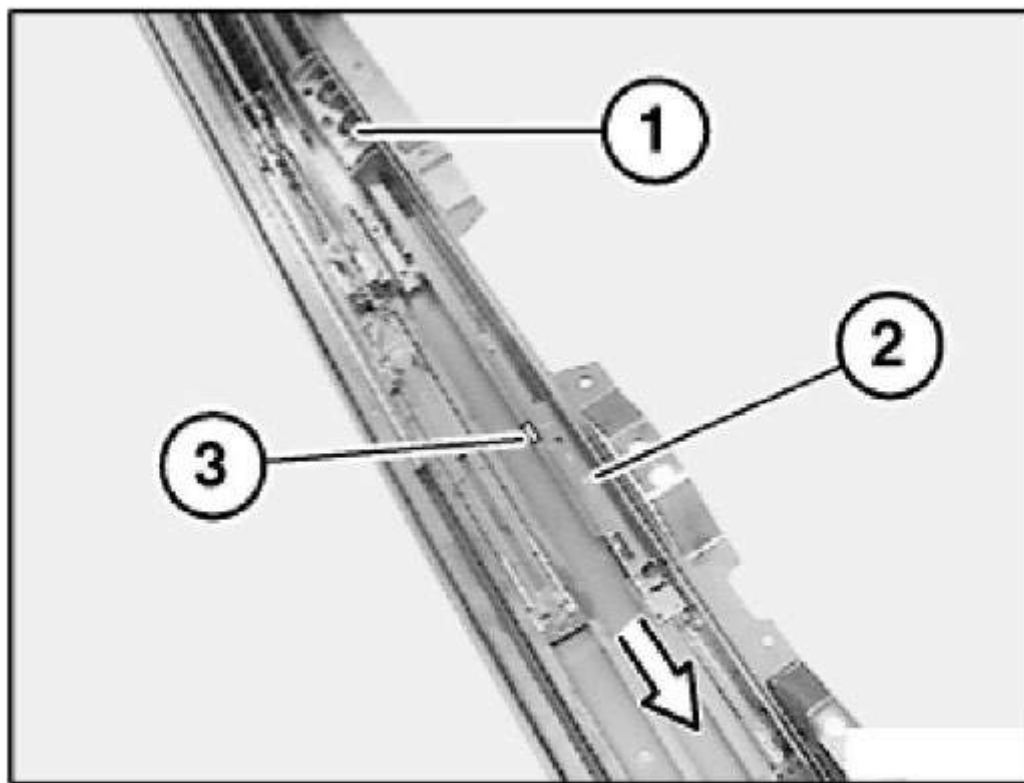
NOTE: Spring retainer (3) cannot be removed without incurring damage.

Lever out spring retainer (3) with screwdriver.

Installation:

Replace faulty spring retainer.

Continue sliding rear connecting link (2) with drive cable plate (1) towards rear out of guide channel and remove in succession.



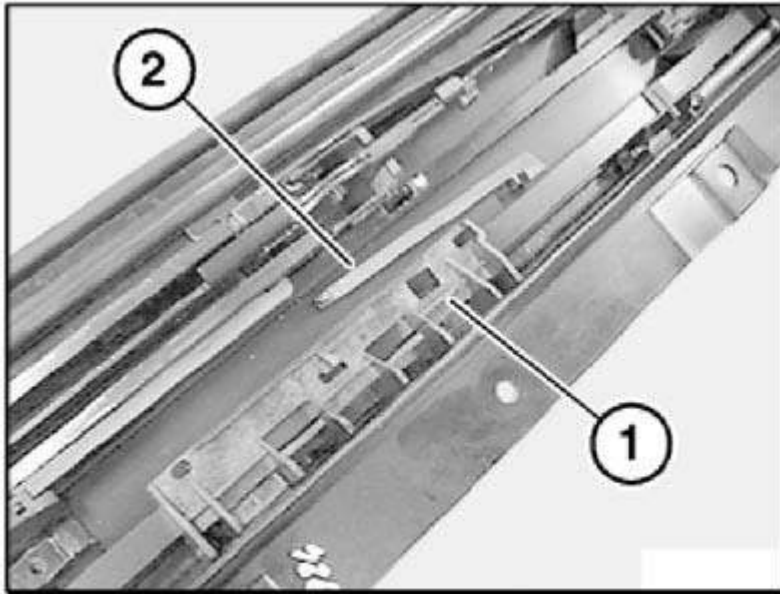
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Fig. 19: Sliding Rear Connecting Line With Drive Cable Plate Towards Rear Until Spring Retainer
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Slide drive cable plate (1) up against drive cable.

Install locking lever (2) and lock retaining bracket.



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Fig. 20: Installing Locking Lever

Courtesy of BMW OF NORTH AMERICA, INC.

Removing control carriage for wind deflector:

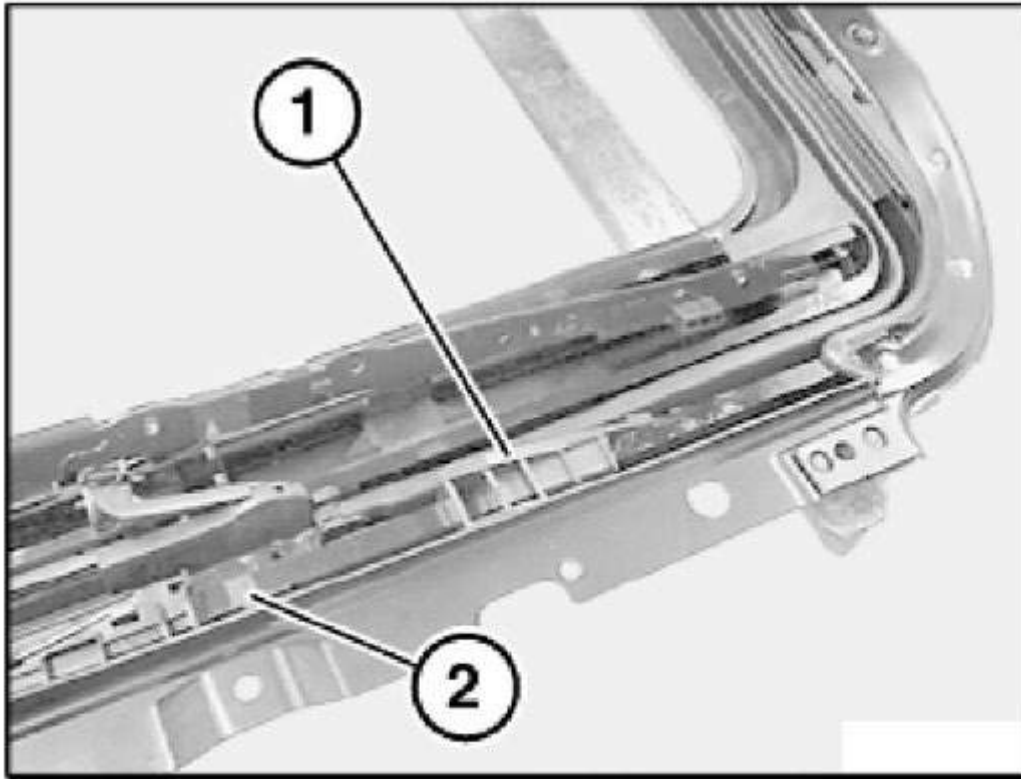
NOTE: **Spring retainer (2) cannot be removed without incurring damage.**

Lever out spring retainer (2) with screwdriver.

Installation:

Replace faulty spring retainer.

Pull control carriage (1) for wind deflector towards rear out of rail and remove.



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Fig. 21: Removing Control Carriage For Wind Deflector
Courtesy of BMW OF NORTH AMERICA, INC.

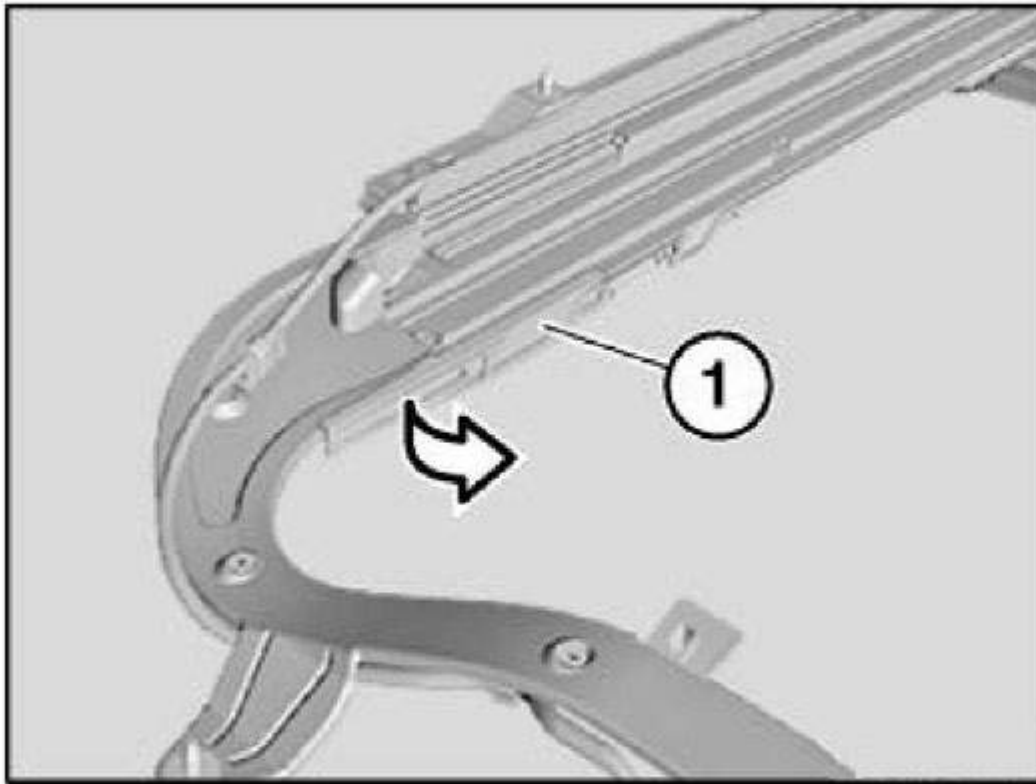
NOTE: Check smooth and noise-free running of kinematics. Check function.

54 10 050 REMOVING AND INSTALLING/REPLACING MECHANISM FOR FLOATING ROOFLINER

Necessary Preliminary Tasks:

- Remove glass slide/tilt sunroof, refer to **54 13 080 REMOVING AND INSTALLING COMPLETE GLASS SLIDE/TILT SUNROOF** .
- Remove slider set for floating roofliner, refer to **54 10 070 REMOVING AND INSTALLING/REPLACING SLIDER SET FOR FLOATING ROOFLINER** .
- Remove rear cross-member, refer to **54 13 150 REMOVING AND INSTALLING REAR CROSS-MEMBER** .

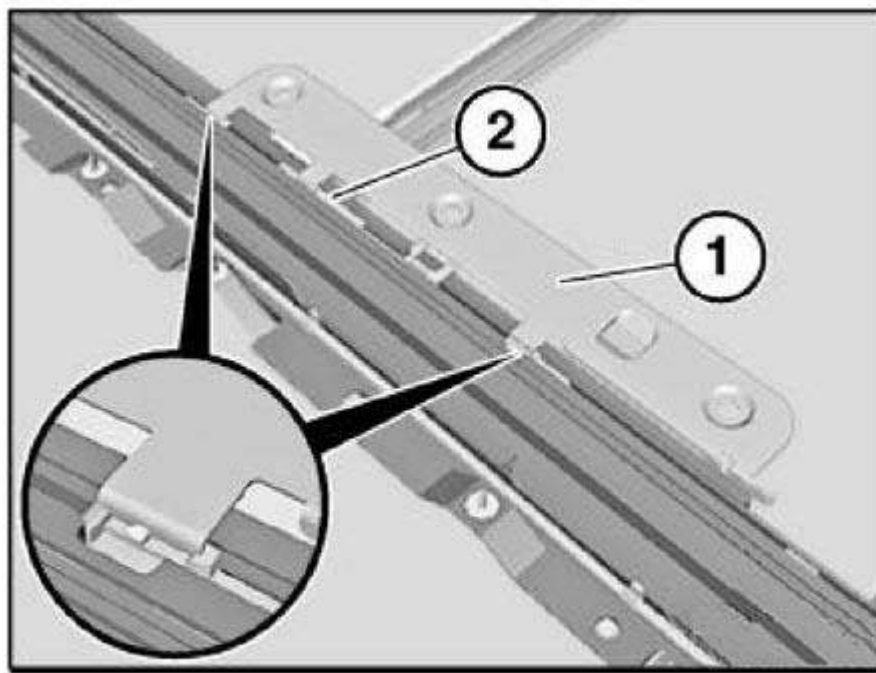
Unclip end stops (1) on left and right from guide channel.



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Fig. 22: Unclipping End Stops
Courtesy of BMW OF NORTH AMERICA, INC.

Unclip floating roofliner cover plate (1) from slider for front sun shield.



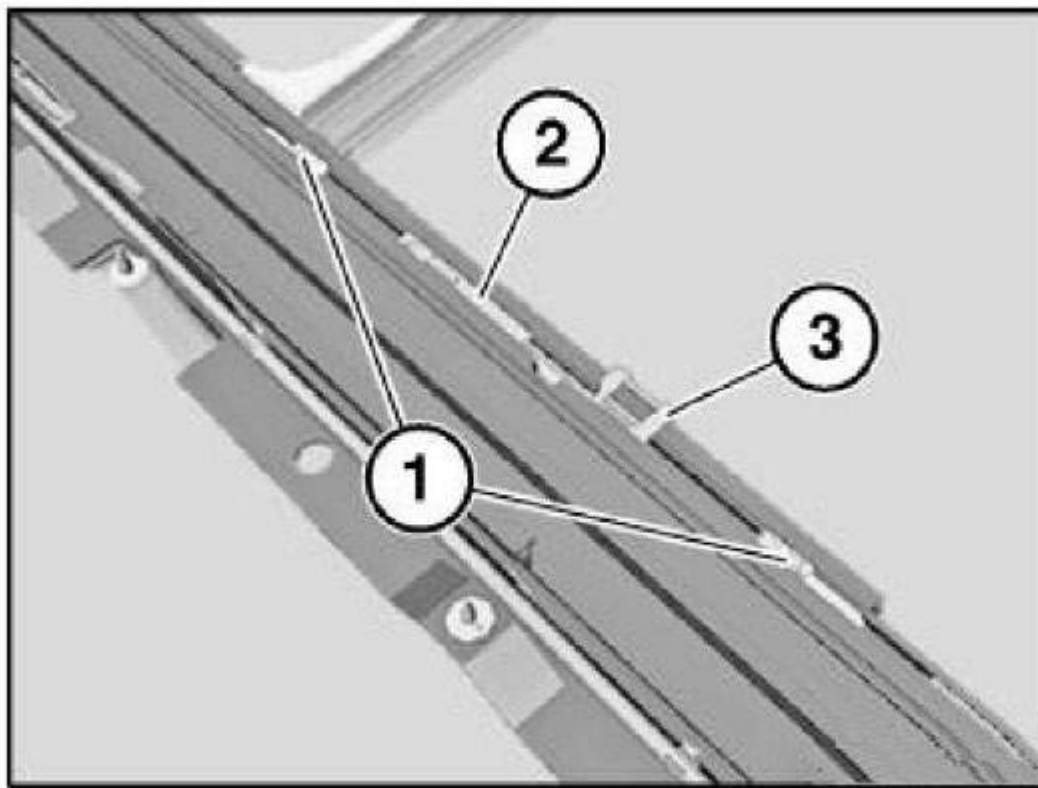
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Fig. 23: Unclipping Floating Roofliner Cover Plate
Courtesy of BMW OF NORTH AMERICA, INC.

Remove floating roofliner cover plate (1) upwards from locking lever (2).

Pull mechanism for floating roofliner towards rear out of guide channel:

1. Sliders for floating roofliner.
2. Locking lever for floating roofliner.
3. Rear drive cable plate with drive cable.



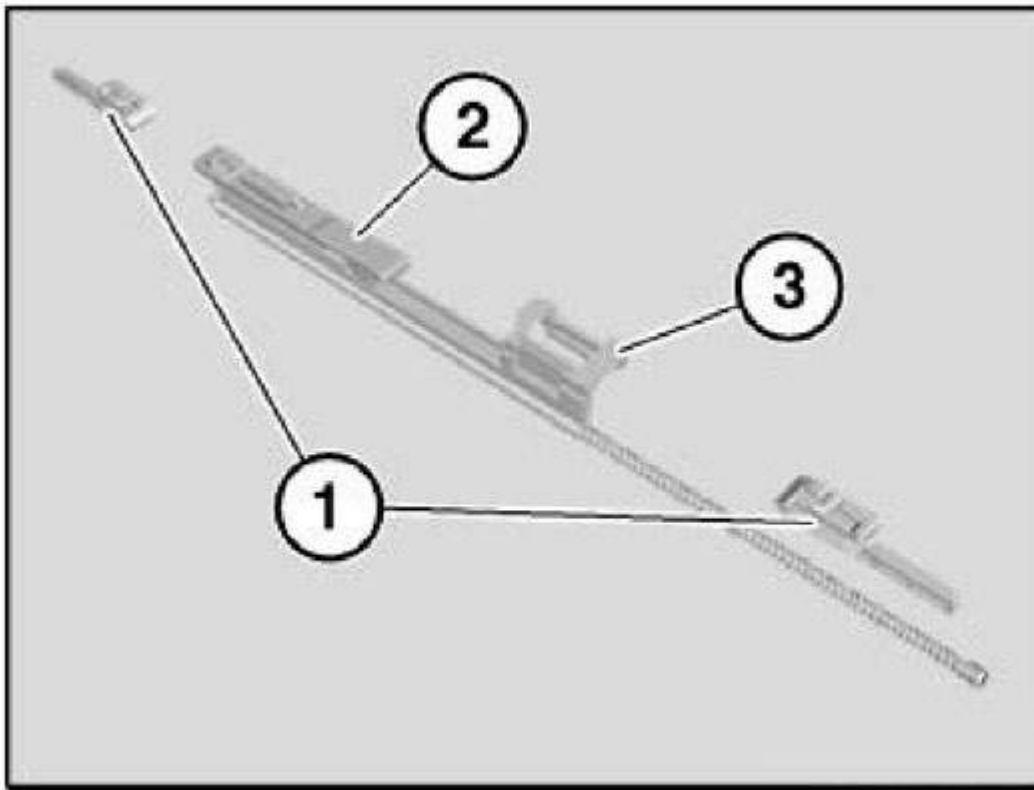
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Fig. 24: Removing Floating Roofliner Mechanism From Guide Channel
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Ensure correct installation sequence:

1. Sliders for floating roofliner.
2. Locking lever for floating roofliner.
3. Rear drive cable plate with drive cable.



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Fig. 25: Identifying Correct Installation Sequence
Courtesy of BMW OF NORTH AMERICA, INC.

Slide in locking lever for floating roofliner (3) and slide up to recess in guide frame.

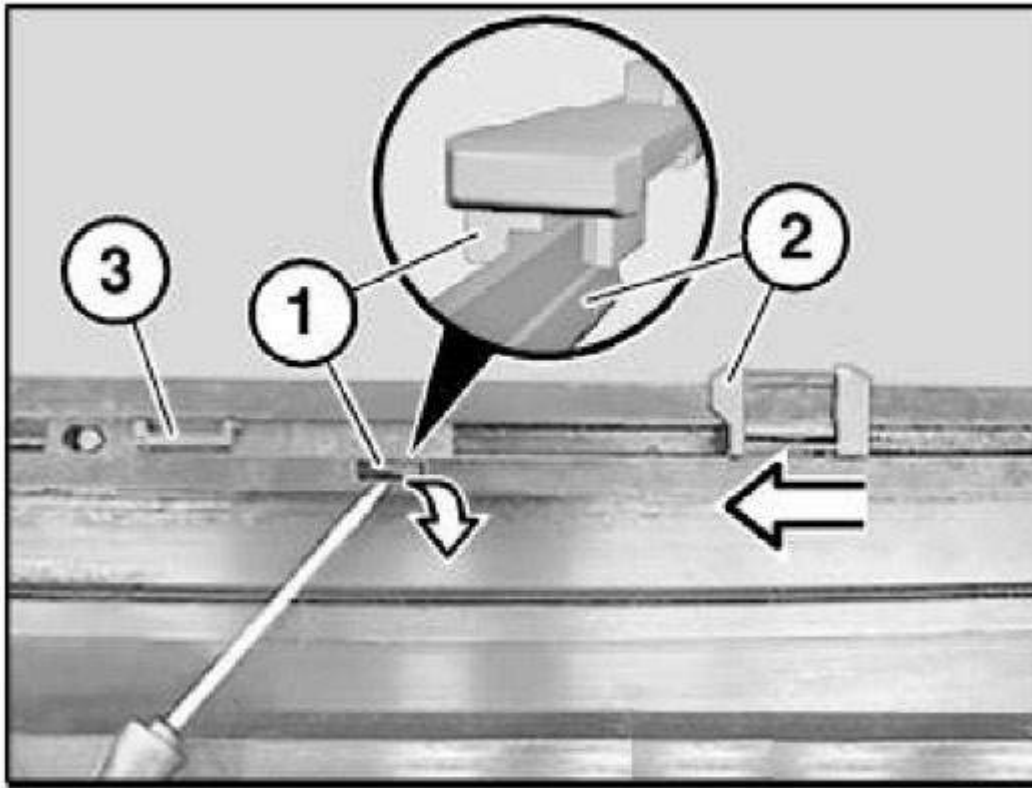
Open locking lever (1) with screwdriver.

Slide rear drive cable plate (2) into locking lever.

NOTE: **Correct insertion can be checked by pulling back the drive cable plate (2):**

Drive cable plate (2) and locking lever for floating roofliner (3) must execute a joint movement.

In addition the correct spacing of locking lever (3) and drive cable plate (3) is determined by the floating roofliner cover plate.



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Fig. 26: Installing Rear Drive Cable Plate
Courtesy of BMW OF NORTH AMERICA, INC.

54 10 070 REMOVING AND INSTALLING/REPLACING SLIDER SET FOR FLOATING ROOFLINER

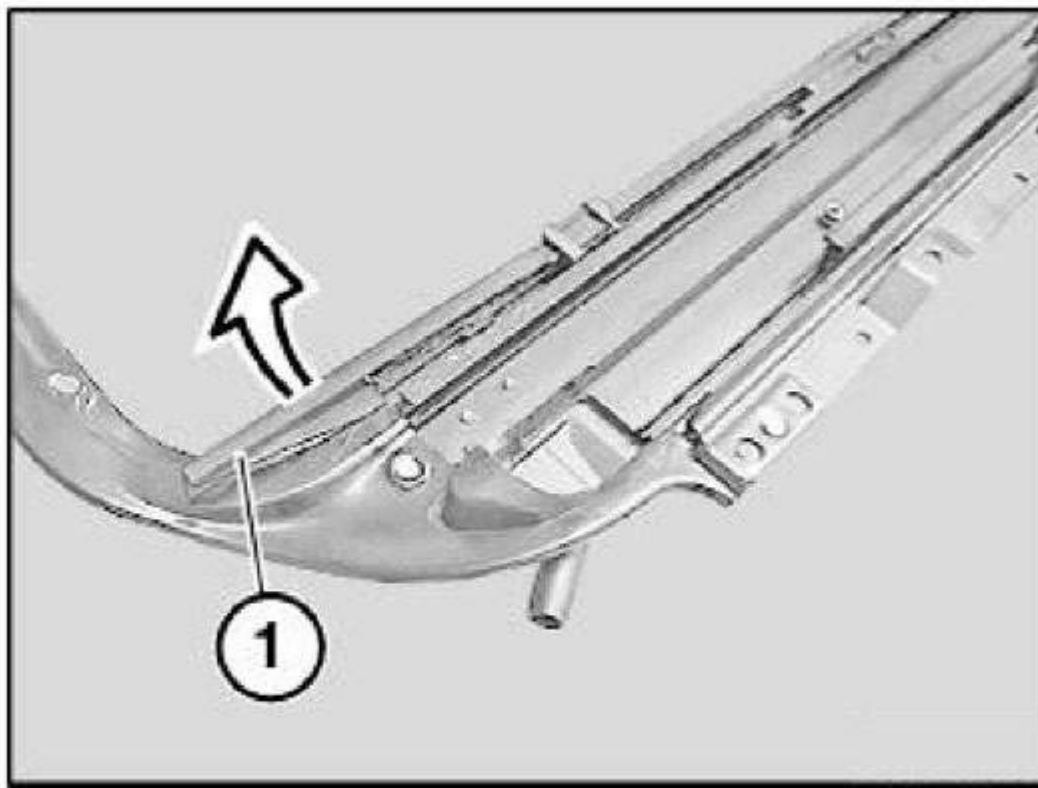
Necessary Preliminary Tasks:

- Remove glass slide/tilt sunroof, refer to **54 13 080 REMOVING AND INSTALLING COMPLETE GLASS SLIDE/TILT SUNROOF** .
- Remove rear floating roofliner, refer to **54 13 070 REMOVING AND INSTALLING/REPLACING BOTH FLOATING ROOFLINERS FOR GLASS SLIDE/TILT SUNROOF** .
- Remove fan grille, refer to **54 13 070 REMOVING AND INSTALLING/REPLACING BOTH FLOATING ROOFLINERS FOR GLASS SLIDE/TILT SUNROOF** .
- Remove drive unit with gearing, refer to **67 61 517 REPLACING DRIVE WITH GEAR (REAR) FOR ACTUATING SLIDE/TILT SUNROOF (PANORAMIC GLASS SUNROOF)** .

Unclip end stops (1) on left and right from guide channel.

Installation:

Ensure end stops at front and clip into place by applying pressure.



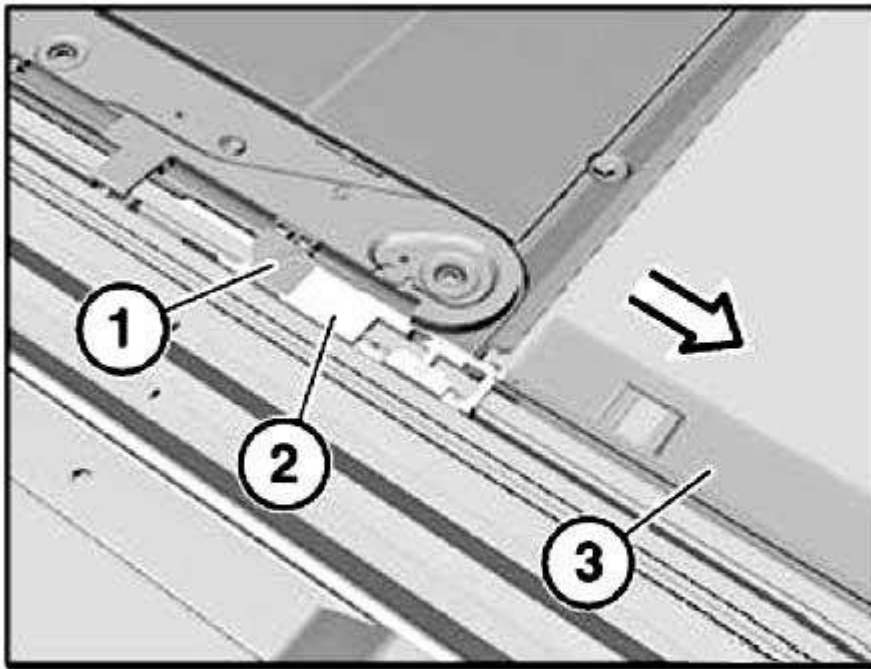
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Fig. 27: Unclipping End Stops

Courtesy of BMW OF NORTH AMERICA, INC.

Carefully unclip slide block (1) on left and right (risk of damage).

Pull driver for rear floating roofliner (2) and slider set (3) towards rear out of guide.

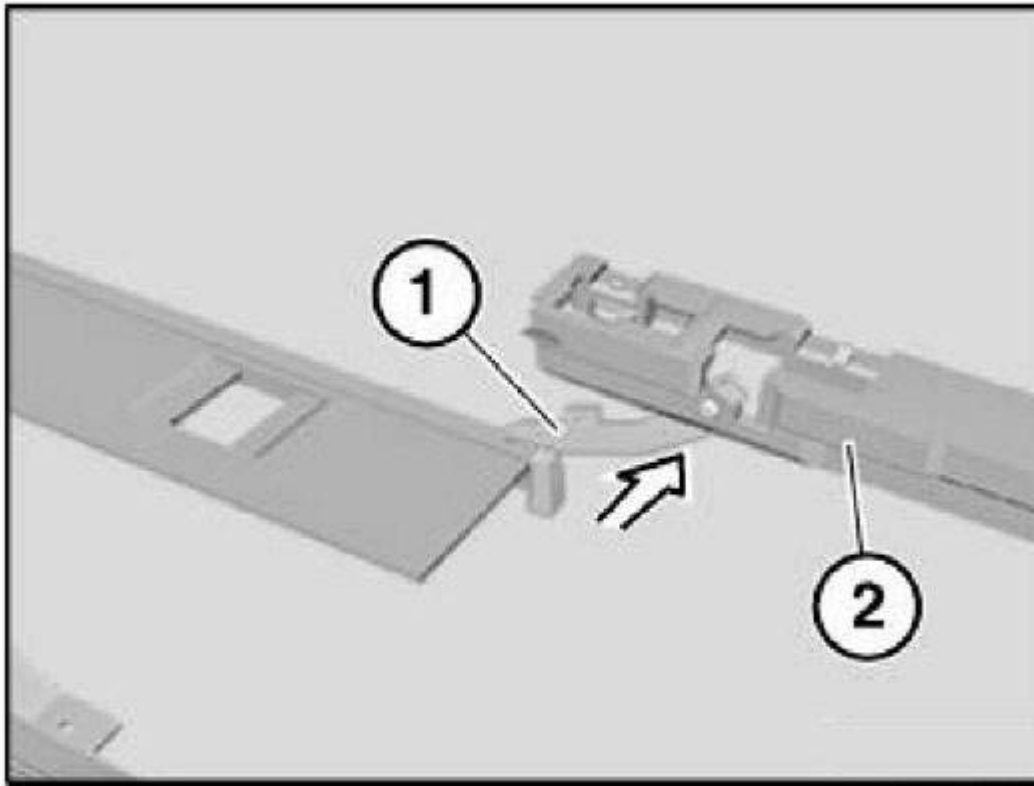


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Fig. 28: Unclipping Slide Block

Courtesy of BMW OF NORTH AMERICA, INC.

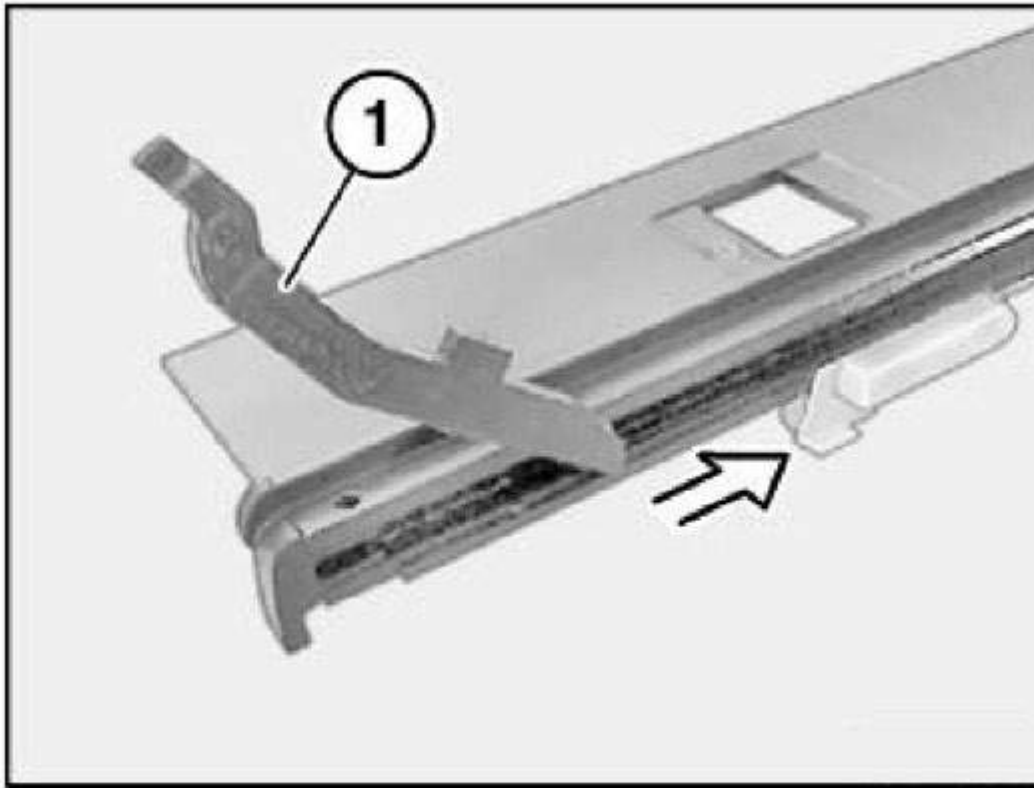
Disengage rocker arm (1) from driver for rear floating roofliner (2).



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Fig. 29: Disengaging Rocker Arm From Driver
Courtesy of BMW OF NORTH AMERICA, INC.

Remove rocker arm (1) from rail and replace if necessary.



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Fig. 30: Removing Rocker Arm From Rail
Courtesy of BMW OF NORTH AMERICA, INC.

54 10 160 REPLACING LEFT OR RIGHT GAITER FOR GLASS SLIDE/TILT SUNROOF

Necessary Preliminary Tasks:

- Close glass slide/tilt sunroof.

IMPORTANT: Risk of damage!

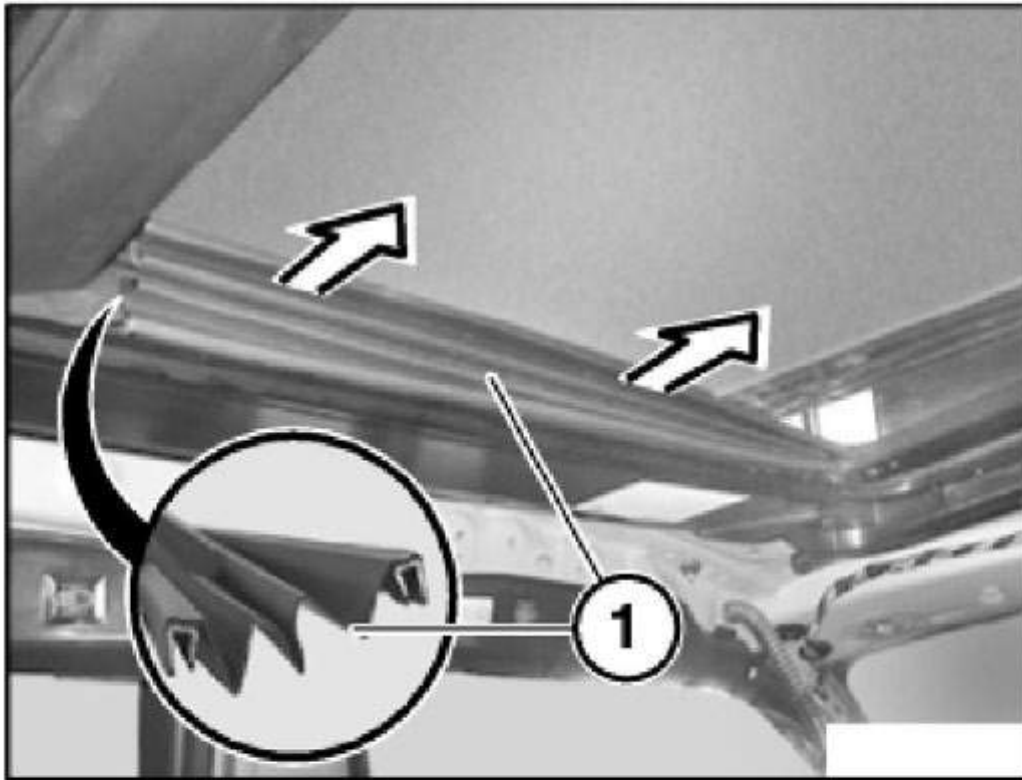
Carefully detach gaiter (1) from guide.

Installation:

Gaiter has an aluminum section inlay.

Check that aluminum section inlay is firmly seated on guide.

If necessary, replace faulty gaiter.



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Fig. 31: Disconnecting Gaiter From Guide
Courtesy of BMW OF NORTH AMERICA, INC.

54 10 170 REMOVING AND INSTALLING FRONT GLASS SLIDE/TILT SUNROOF COVER

Necessary Preliminary Tasks:

- Remove gaiter. Refer to **54 10 160 REPLACING LEFT OR RIGHT GAITER FOR GLASS SLIDE/TILT SUNROOF**.

NOTE: The following steps can be carried out inside the vehicle with the glass roof panel fully closed.

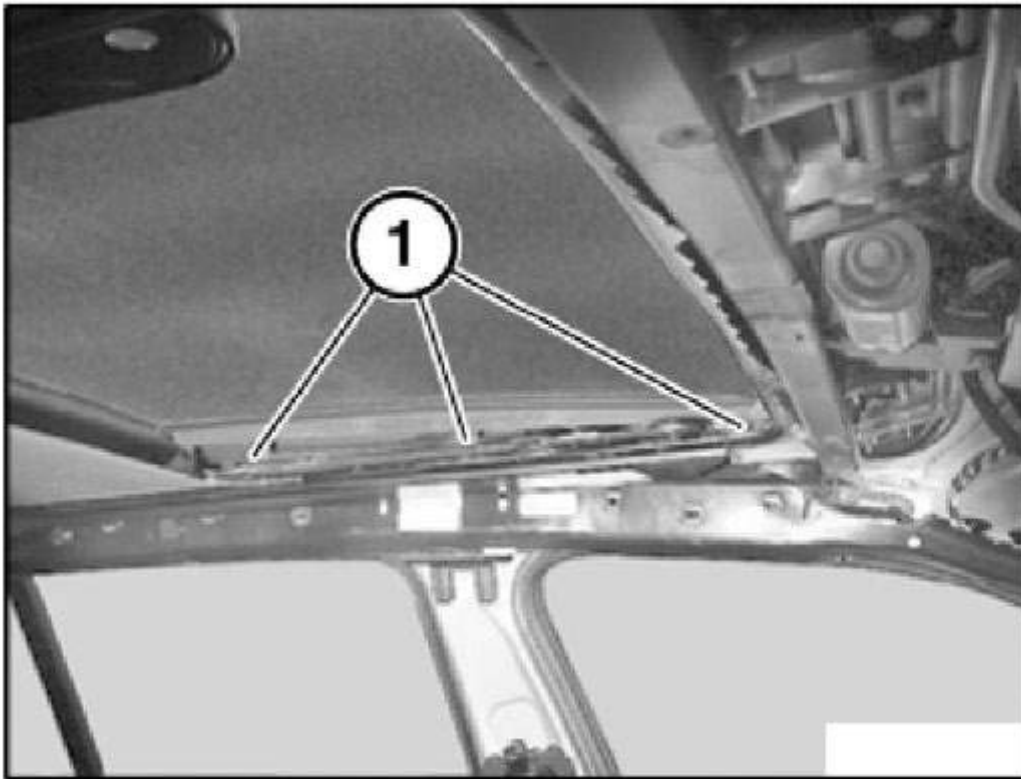
Open floating roofliner fully.

Make sure that grease at the ends of the rail do not come into contact with the roofliner

Not necessary for replacement:

Before removing the Torx screws, make a mark around the washers in order to ensure correct alignment during installation.

Remove and dispose of the Torx screws (1) securing the glass panel to the mechanism.



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Fig. 32: Securing Glass Panel To Mechanism Using Torx Screws
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

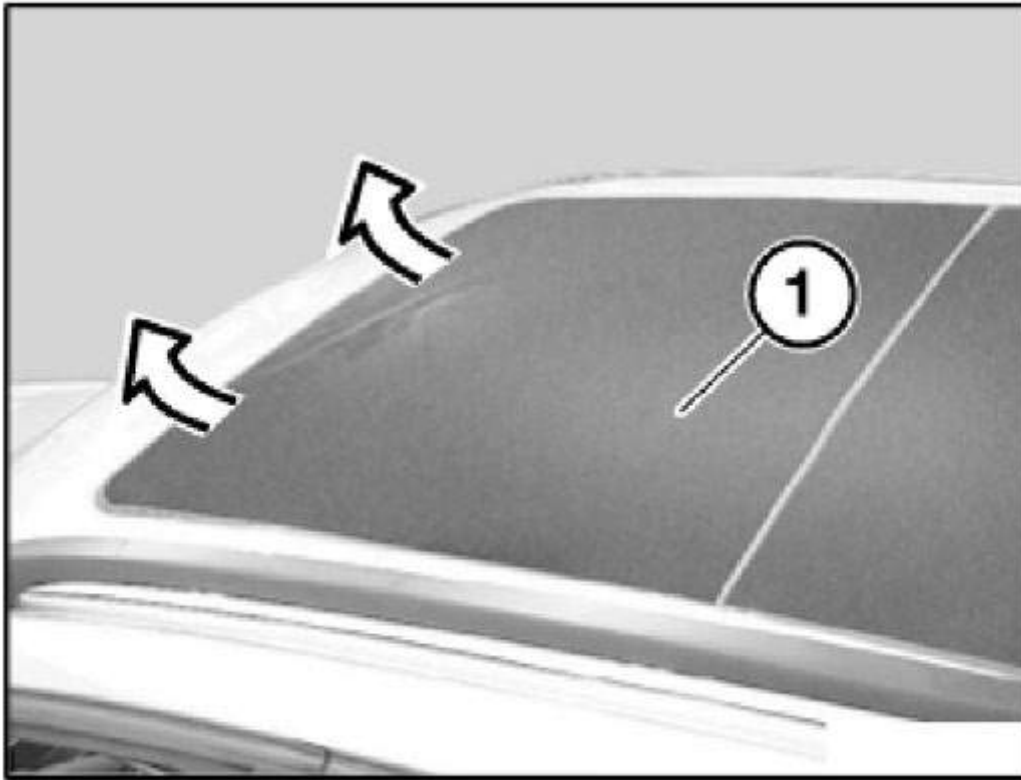
Insert new Torx screws and align washers to markings.

Tightening torque, refer to 54 12 2AZ in **SLIDE/TILT ROOF AND CONVERTIBLE TOP - TIGHTEN TORQUES** .

IMPORTANT: A second person is required to help in removing and installing the glass

slide/tilt sunroof lid!

Lift out glass slide/tilt sunroof cover (1).



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Fig. 33: Lifting Out Slide/Tilt Sunroof Cover Glass
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Tape off installation area on left and right at roof aperture with fabric adhesive tape.

Install glass slide/tilt sunroof cover carefully (twist in) as seal can be damaged during installation.

Check glass slide/tilt sunroof cover for correct alignment and adjust if necessary. Refer to **54 13 003**
ADJUSTING GLASS SLIDE/TILT SUNROOF LID .

54 10 175 REMOVING AND INSTALLING REAR GLASS SLIDE/TILT SUNROOF COVER

NOTE: The following steps can be carried out inside the vehicle with the glass roof panel fully closed.

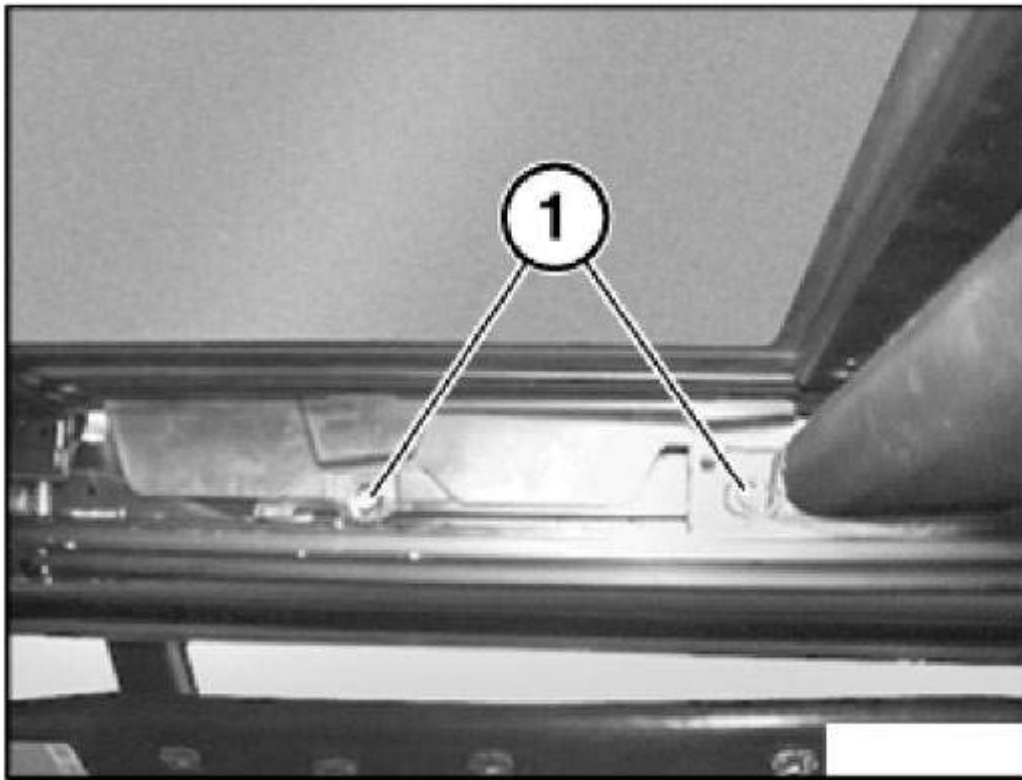
Open floating roofliner fully.

Make sure that grease at the ends of the rail do not come into contact with the roofliner.

Not Necessary For Replacement:

Before removing the Torx screws, make a mark around the washers in order to ensure correct alignment during installation.

Remove and dispose of the Torx screws (1) securing the glass panel to the mechanism.



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Fig. 34: Locating Torx Screws In Mechanism
Courtesy of BMW OF NORTH AMERICA, INC.

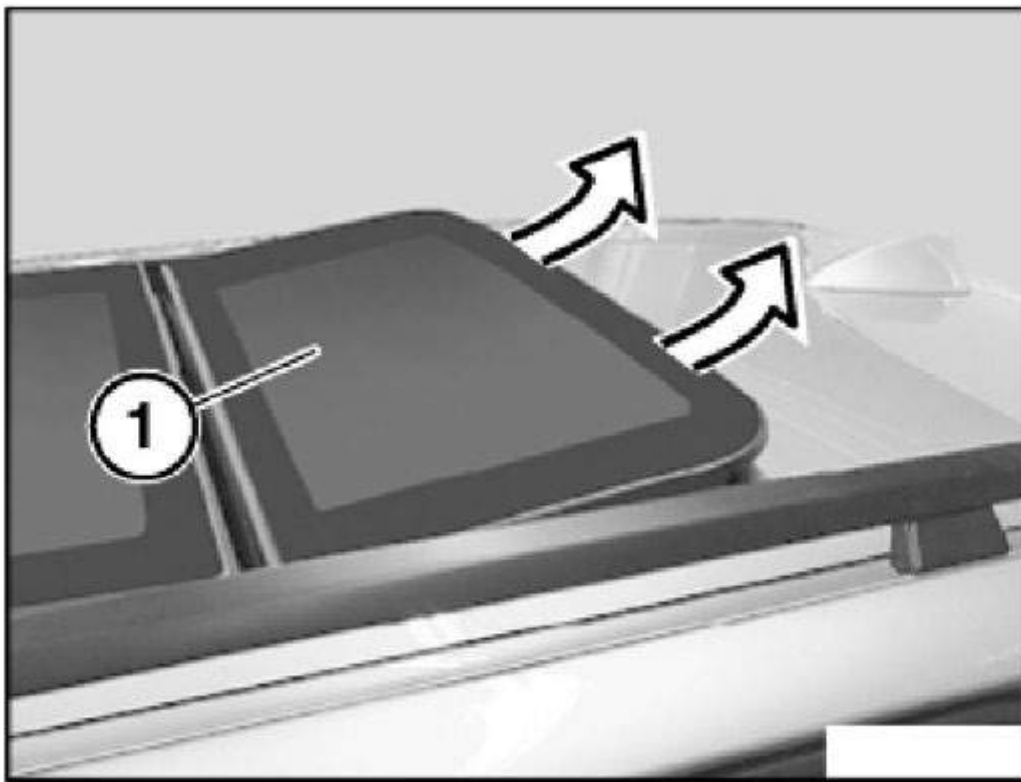
Installation:

Insert new Torx screws and align washers to markings.

Tightening torque, 54 12 2AZ in **SLIDE/TILT ROOF AND CONVERTIBLE TOP - TIGHTEN TORQUES**.

IMPORTANT: A second person is required to help in removing and installing the glass slide/tilt sunroof lid!

Lift out glass slide/tilt sunroof cover (1).



G03256327

Fig. 35: Lifting Out Slide/Tilt Sunroof Cover Glass
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Tape off complete edge area at roof aperture with fabric adhesive tape (risk of damage).

Install glass slide/tilt sunroof cover carefully (twist in) as seal can be damaged during installation

Check glass slide/tilt sunroof cover for correct alignment and adjust if necessary. Refer to **54 13 003 Adjusting Glass Slide/Tilt Sunroof Lid** .

54 13 130 REMOVING AND INSTALLING FRONT CROSS-MEMBER

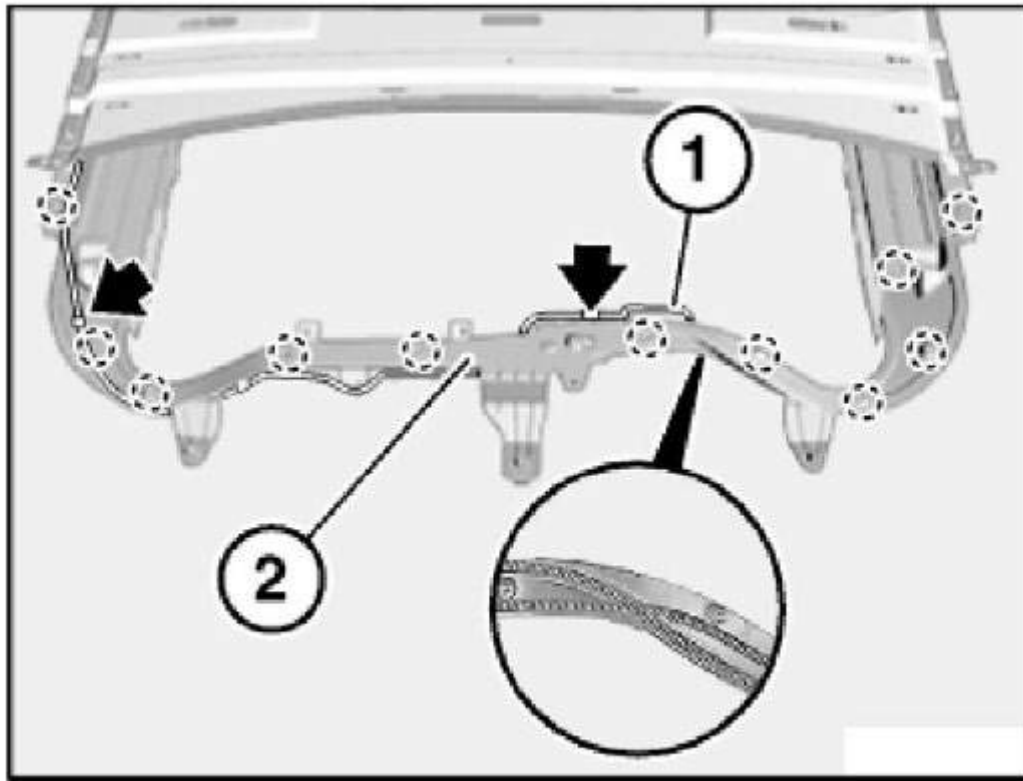
Necessary Preliminary Tasks:

- Remove glass slide/tilt sunroof. Refer to **54 13 080 REMOVING AND INSTALLING COMPLETE GLASS SLIDE/TILT SUNROOF** .
- Remove control unit for glass slide/tilt sunroof. Refer to **61 35 715 REMOVING AND INSTALLING/REPLACING ELECTRONIC CONTROL UNIT FOR SLIDE/TILT SUNROOF (PANORAMIC GLASS SUNROOF)** .
- Remove drive omitted. Refer to **67 61 515 REPLACING DRIVE WITH GEAR (FRONT) FOR ACTUATING SLIDE/TILT SUNROOF (PANORAMA GLASS SUNROOF)** .

Release screws in marked area.

Feed cross-member (2) out of wiring harness (1) during removal.

If necessary, release fabric adhesive tape and replace.



G03256328

Fig. 36: Feeding Cross-Member Out Of Wiring Harness
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Pitch cables must be correctly located in guide.

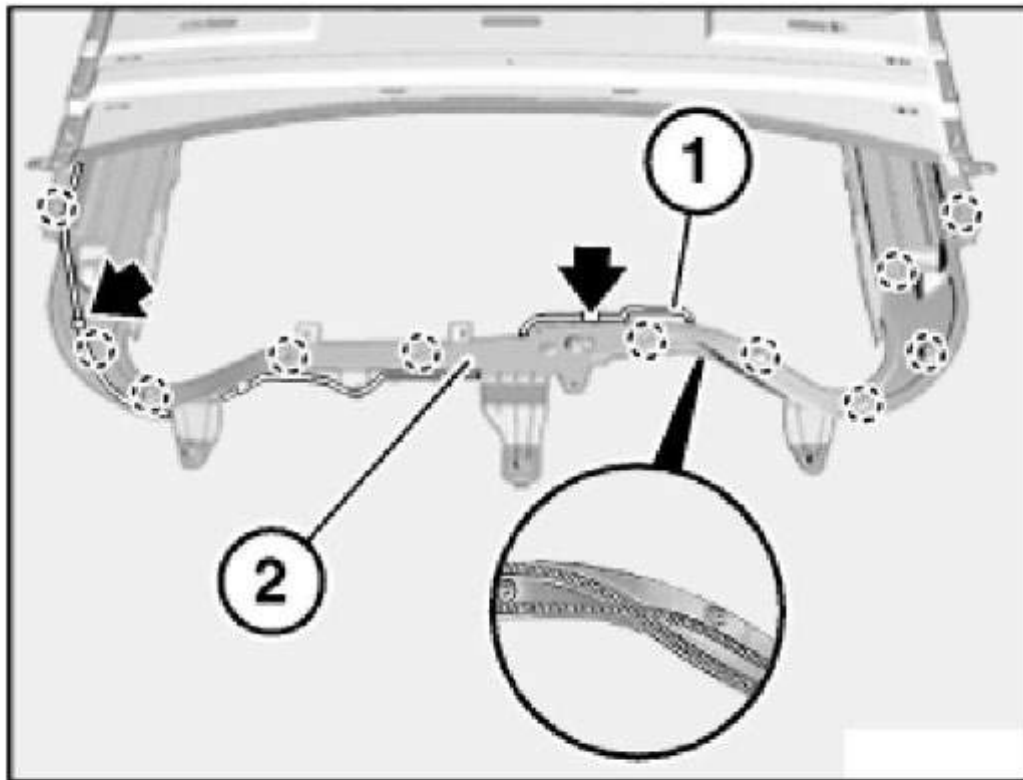
54 13 150 REMOVING AND INSTALLING REAR CROSS-MEMBER

Necessary Preliminary Tasks:

- Remove glass slide/tilt sunroof. Refer to **54 13 080 REMOVING AND INSTALLING COMPLETE GLASS SLIDE/TILT SUNROOF** .
- Remove drive omitted. Refer to **67 61 515 REPLACING DRIVE WITH GEAR (FRONT) FOR ACTUATING SLIDE/TILT SUNROOF (PANORAMA GLASS SUNROOF)** .

Release screws in marked area.

Feed cross-member (2) out of wiring harness (1) during removal.



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Fig. 37: Identifying Cross-Member And Wiring Harness
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Pitch cables must be correctly laid diagonally in guide.

MECHANICAL SUN ROOF COMPONENTS

54 0 ... NOTES ON STEEL AND GLASS SLIDE/TILT SUNROOFS (INITIALIZATION/NORMALIZATION/LEARNING OF CHARACTERISTIC CURVE)

NOTE: Initialization comprises:

- Normalization.

- Learning characteristic curve.

The mechanical end positions are recorded and stored during normalization.

The characteristic curve is learned immediately after normalization.

When the characteristic curve is learned, the mechanical closing forces of the slide/tilt sunroof are recorded and stored for correct operation of the anti-trapping mechanism.

NOTE: An initialization must be performed:

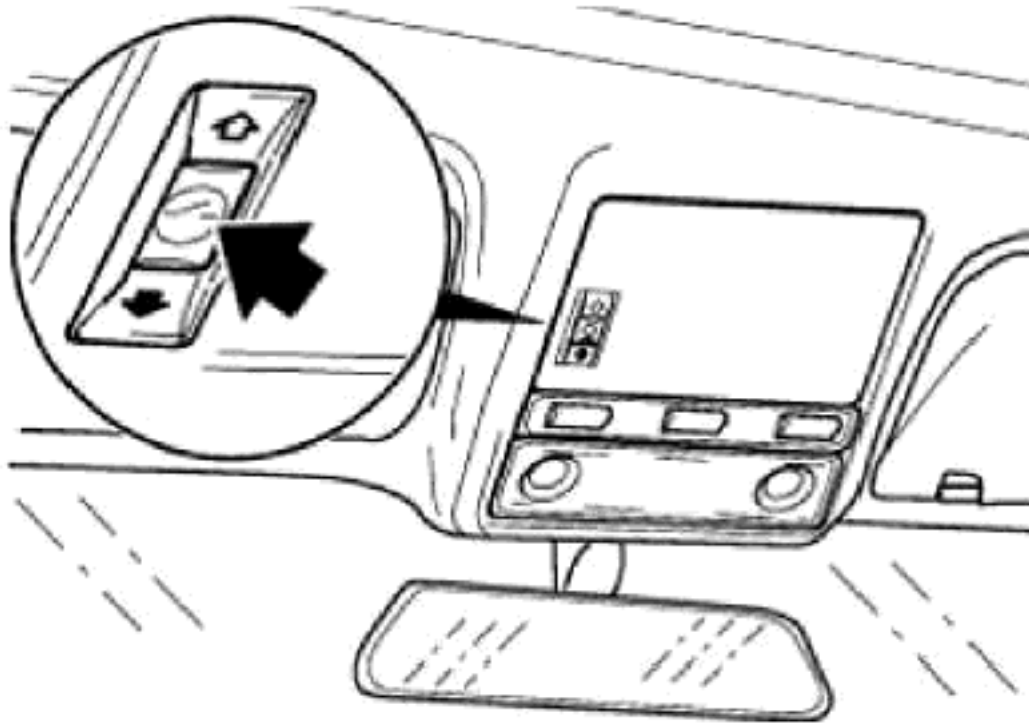
- In the event of malfunctions, e.g. no one-touch function, no opening or no comfort function possible.
- After disengagement of the drive unit.
- If necessary, after an interruption of the power supply.
- After work is carried out on the mechanism of the slide/tilt sunroof.

NOTE: The initialization sequence is dependent on the software version of the slide/tilt sunroof module (in the sunroof drive unit). If necessary, code slide/tilt sunroof drive unit.

WARNING: There is no anti-trapping protection during initialization.

Normalization:

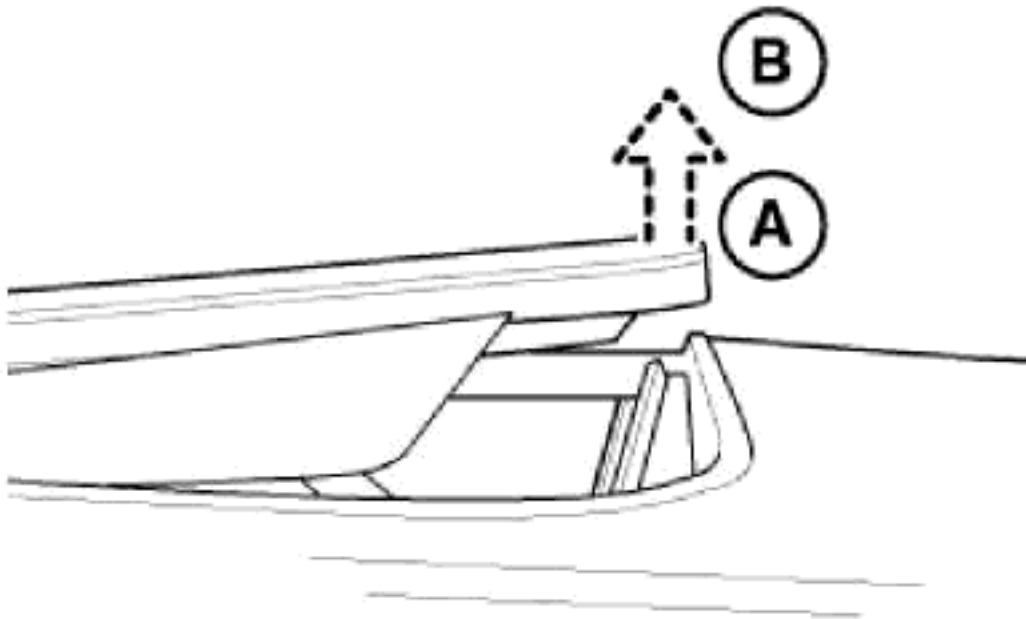
- Press and hold the switch in the "Lift" direction.
- In the event of delayed starting or sudden stopping of the slide/tilt sunroof, continue pressing the switch in the "Lift" direction.



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Fig. 38: Identifying Slide/Tilt Sunroofs Switch
Courtesy of BMW OF NORTH AMERICA, INC.

- After reaching lift end position (A), keep switch pressed for approx. 20 seconds further.
- Normalization is completed when the slide/tilt sunroof in lift end position (A) presses again briefly in the direction of position (B).
- Release switch.



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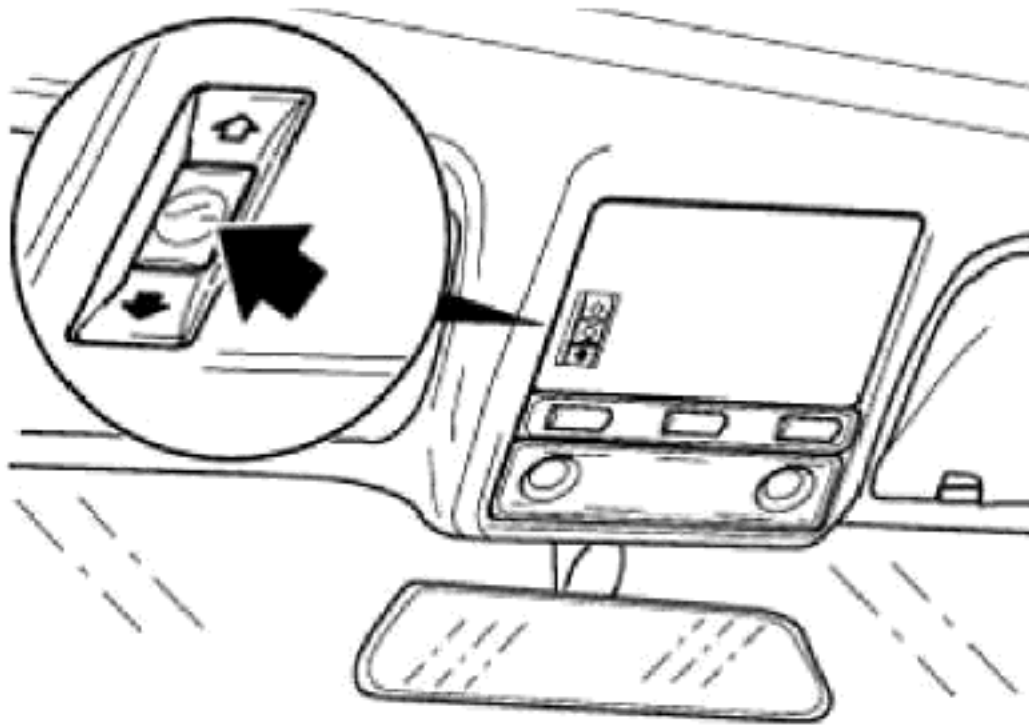
Fig. 39: Identifying Lift End Position
Courtesy of BMW OF NORTH AMERICA, INC.

Learning Characteristic Curve:

E53 Slide/Tilt Sunroof (Not: Panoramic Glass Sunroof):

The curve is learned manually in the following steps:

- Release switch after normalization for max. 5 seconds.
- Then hold down the switch in the raising position direction until such time that the slide/tilt sunroof has returned to the closed position after a complete opening movement.



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Fig. 40: Releasing Slide/Tilt Sunroof Switch After Normalization
Courtesy of BMW OF NORTH AMERICA, INC.

- This concludes learning of the curve. The switch can now be released.

NOTE: Carry out function check (one-touch function, anti-trapping protection and, if necessary, comfort function).

54 12 003 ADJUSTING GLASS SLIDING/TILTING SUNROOF LID

NOTE: For Special Tool identification, see SPECIAL TOOLS - X-5 (3.0i) .

Special Tools Required:

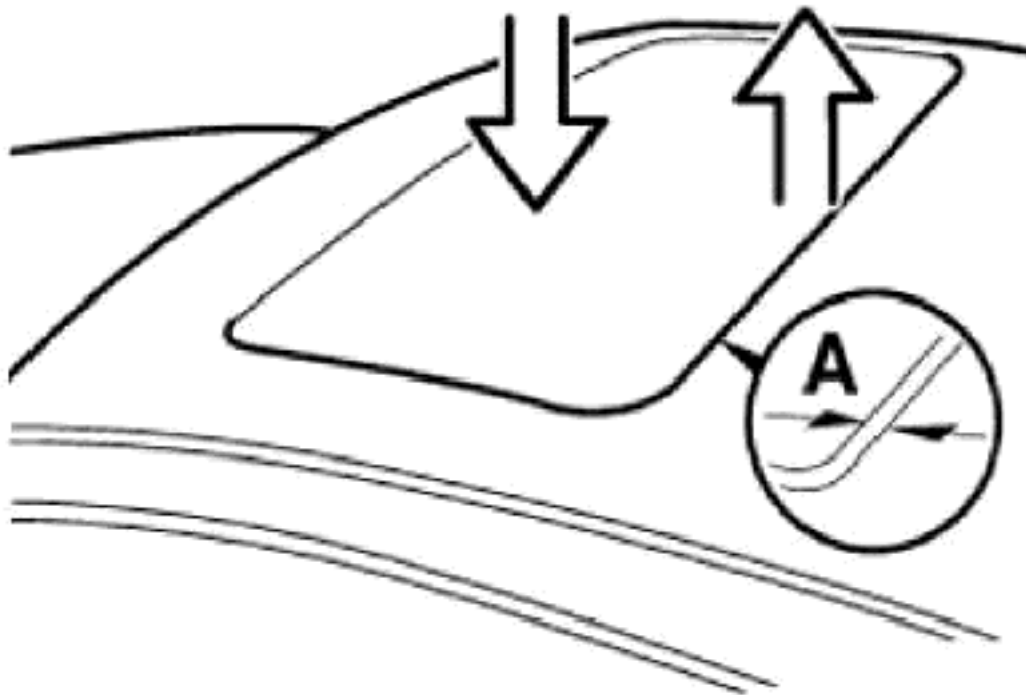
- 00 2 130
- 00 9 340

Initialize slide/tilt sunroof,

refer to **54 0 ... NOTES ON PANORAMA GLASS ROOF**
(INITIALIZATION/NORMALIZATION/LEARNING OF CHARACTERISTIC CURVE) .

Ideal adjustment:

Gaps (A) between sunroof and front and back of roof of equal size.



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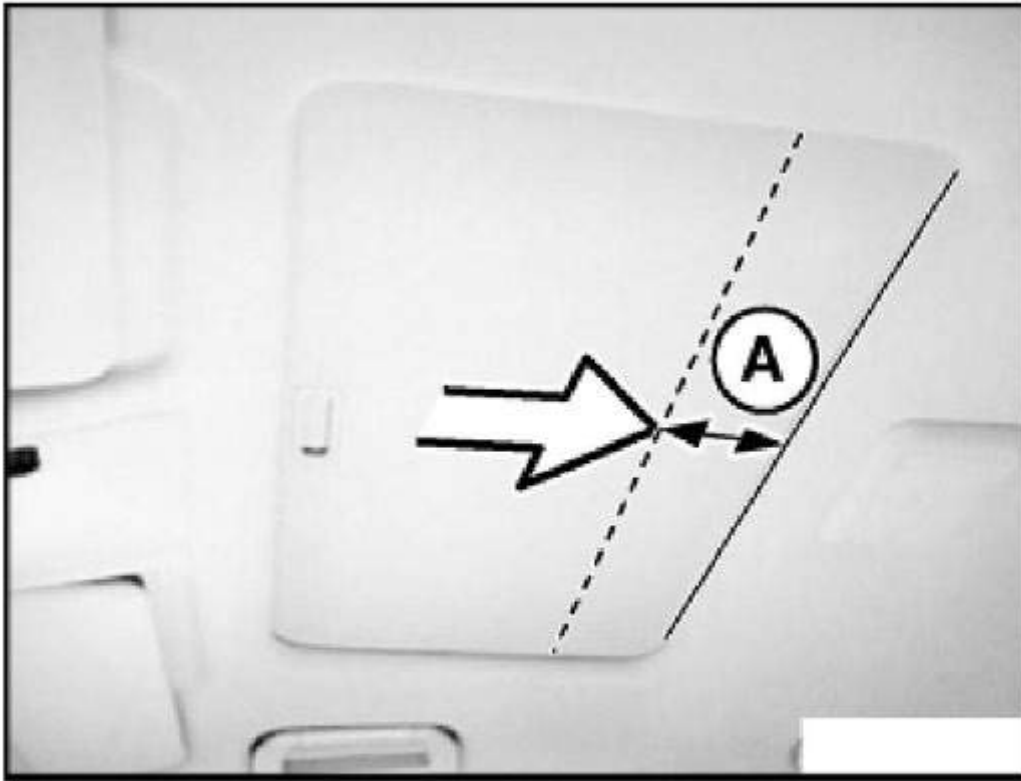
Fig. 41: Identifying Gaps Between Sunroof And Front/Back Of Roof
 Courtesy of BMW OF NORTH AMERICA, INC.

Slide special tool 00 9 340 between seal and lid. Checks (sliding out and in) must show special tool to display uniform resistance.

SLIDE/TILT SUNROOF HEIGHT SPECIFICATION

Height	Front	Flush or up to 1 mm lower.
	Rear	Flush up to 1 mm higher.

Slowly slide roof-lining frame towards rear up to dimension (A).



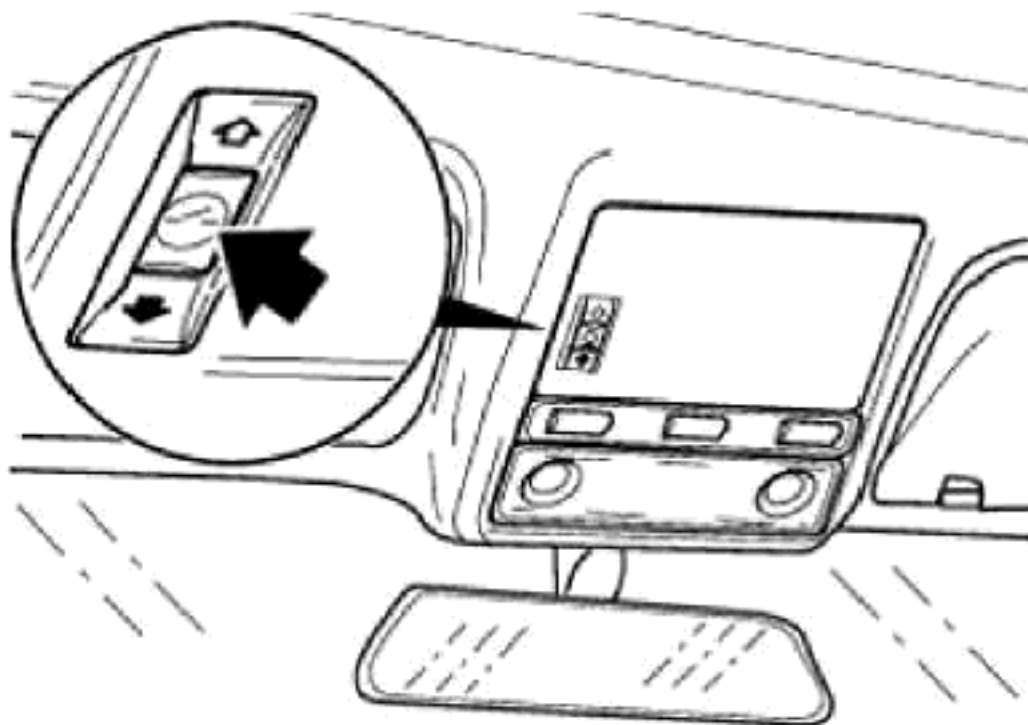
G03256334

Fig. 42: Identifying Roof-Lining Dimension (A)
Courtesy of BMW OF NORTH AMERICA, INC.

ROOF-LINING FRAME ADJUSTMENT VALUE

(A)	E39, E53	70 mm
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Press switch in direction of "raise position" (fan setting) until lid is raised to max. setting.

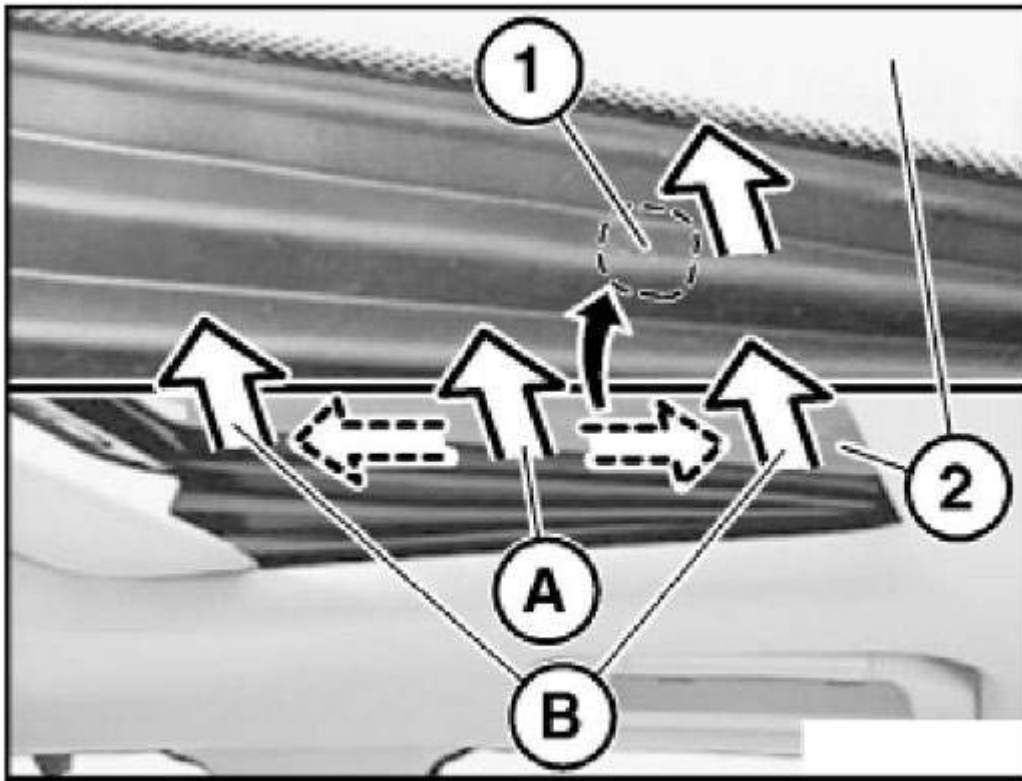


G03256335

Fig. 43: Identifying Switch In Raise Position
Courtesy of BMW OF NORTH AMERICA, INC.

NOTE: Grasp the bellows by hand only at the first fold (1) (risk of damage).

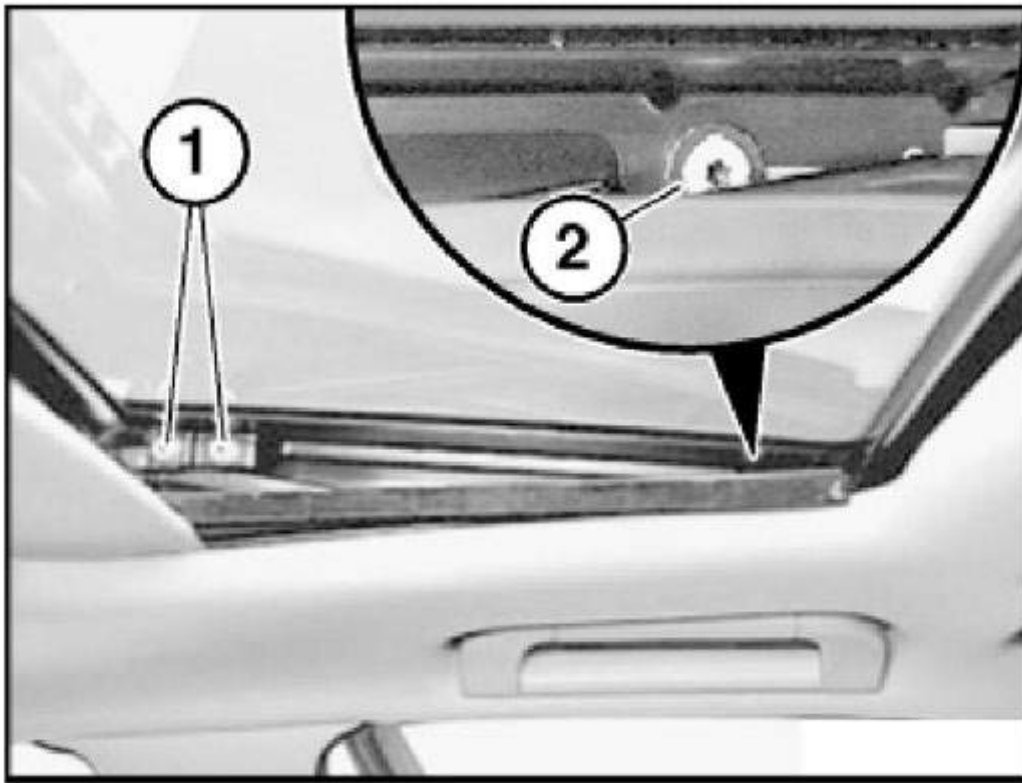
Detach bellows starting from center (A) towards front and rear (B) from glass slide/tilt sunroof lid (2).



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Fig. 44: Detaching Bellows Starting From Center
Courtesy of BMW OF NORTH AMERICA, INC.

Slacken screws (1) and (2) with special tool 00 2 130.



G03256337

Fig. 45: Locating Sunroof Lid Screws

Courtesy of BMW OF NORTH AMERICA, INC.

NOTE: Pull bellows down until screw (2) is accessible. Loosen screws only to the extent that the glass sunroof lid can only just be adjusted.

Close glass sunroof lid (zero position).

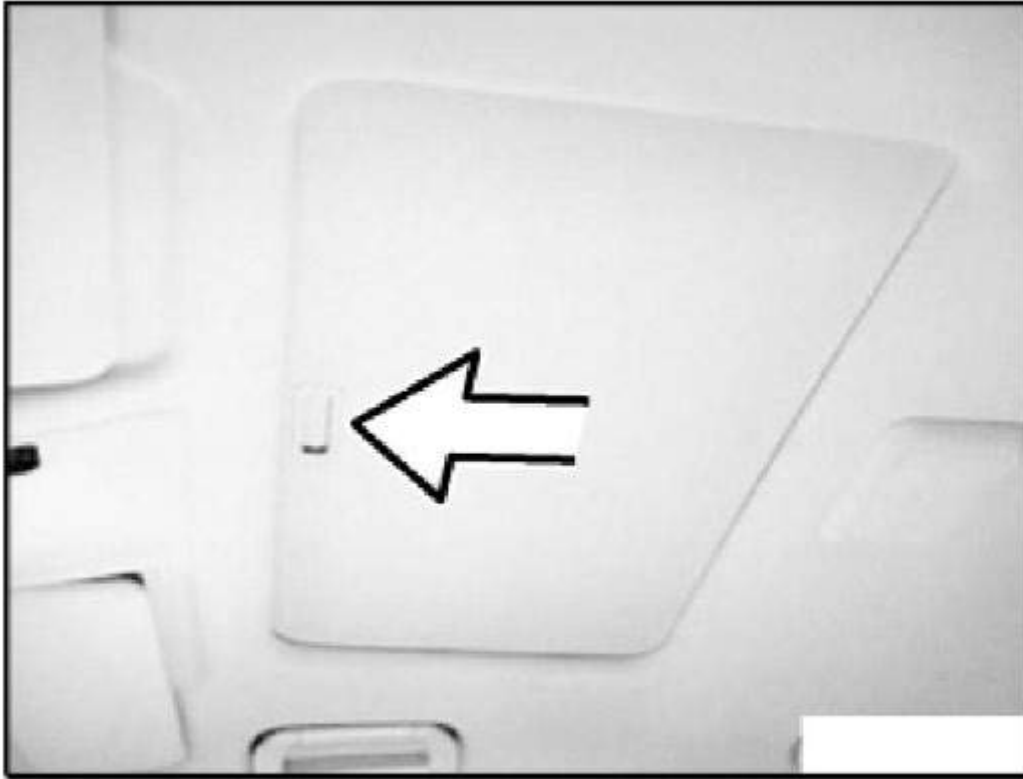
Press glass slide/tilt sunroof lid forwards, press downwards at front and rear until ideal position is achieved and tighten down screws.

Installation:

Tightening torque, (4 +/-0.5 N.m).

Check function.

Slowly pull roof-lining frame completely forwards



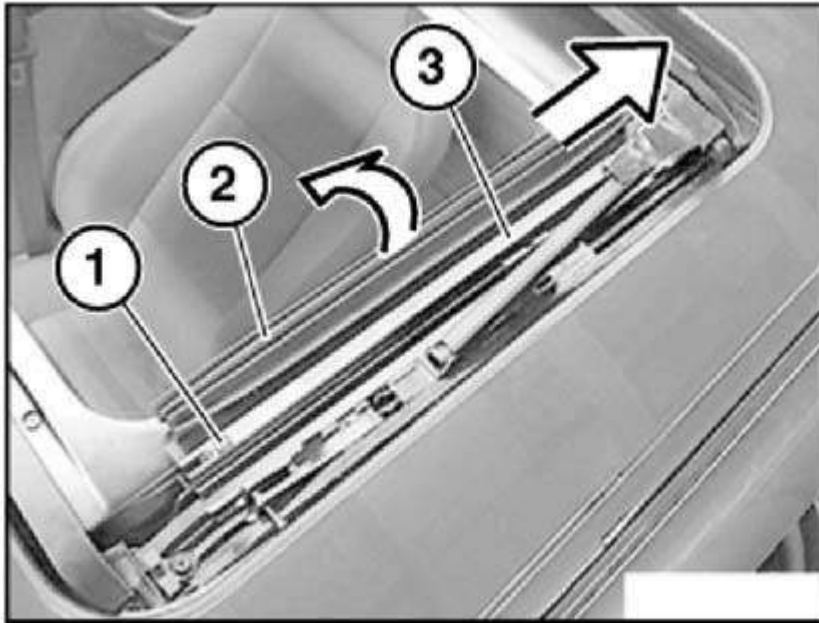
G03256338

Fig. 46: Pulling Roof-Lining Frame Forwards
Courtesy of BMW OF NORTH AMERICA, INC.

54 12 015 REPLACING LEFT OR RIGHT RUBBER GAITERS FOR GLASS SLIDE/TILT SUNROOF

Removing and installing glass slide/tilt sunroof cover, refer to **54 12 115 REMOVING AND INSTALLING GLASS SLIDING/TILTING SUNROOF LID** .

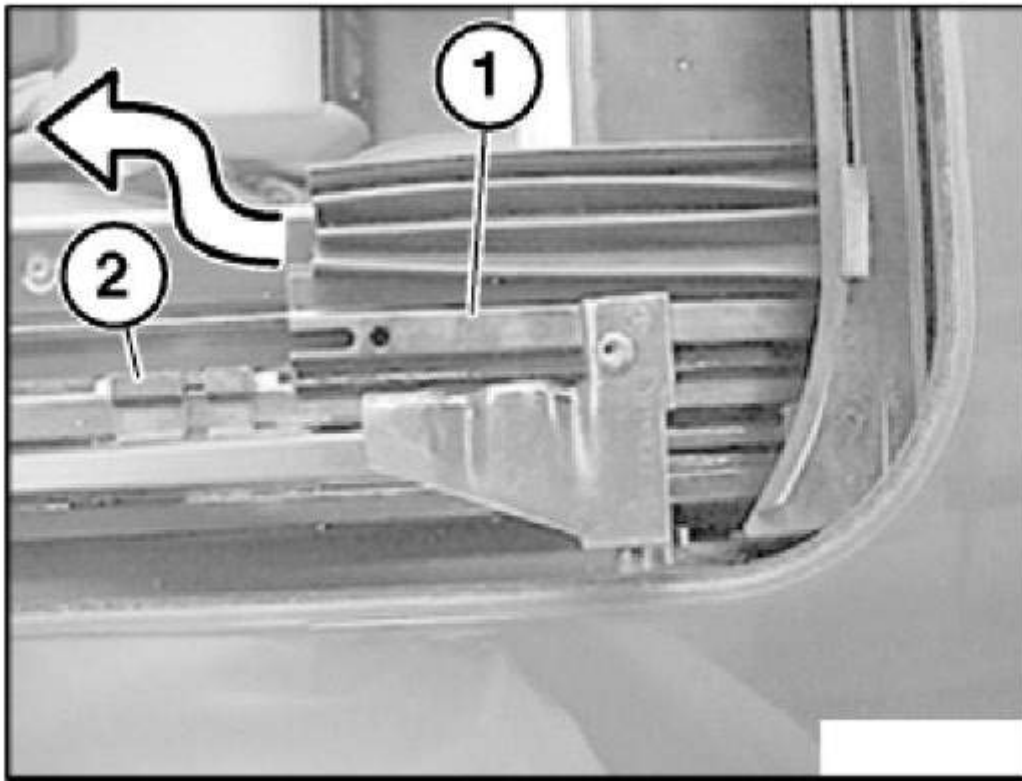
Move mechanism into lift position.



G03256339

Fig. 47: Sliding Support For Rubber Gaiter Backwards
Courtesy of BMW OF NORTH AMERICA, INC.

Unscrew bolt (1). Turn rubber gaiter (2) inwards and slide support (3) for rubber gaiter backwards.

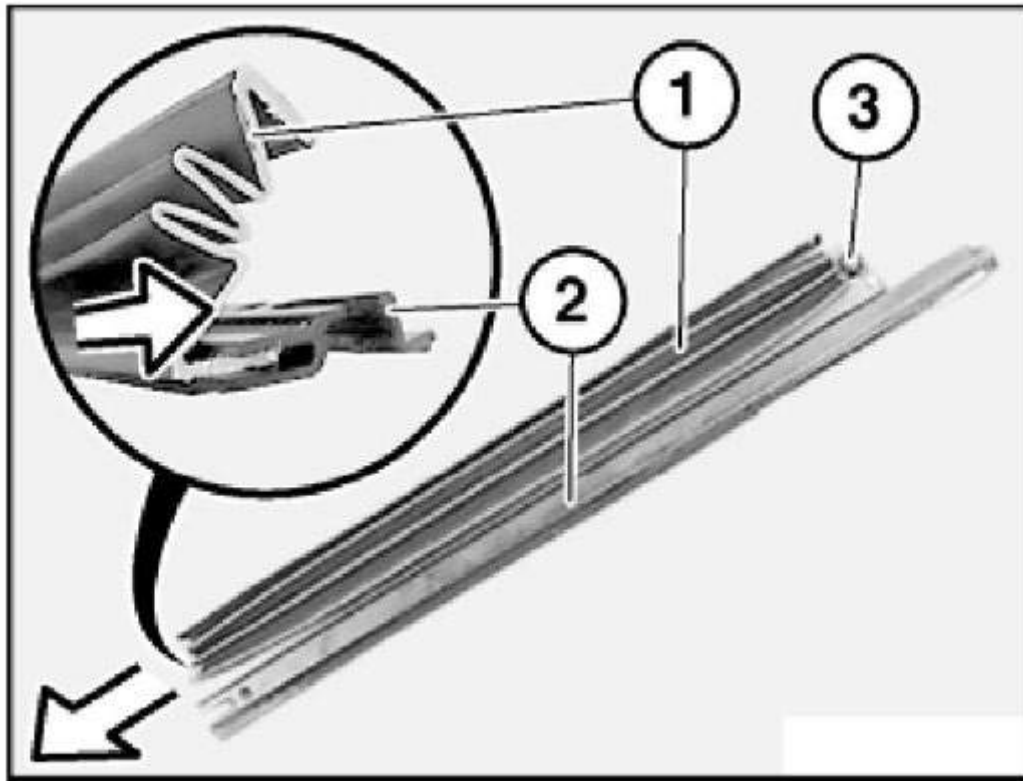


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Fig. 48: Removing Slide Support

Courtesy of BMW OF NORTH AMERICA, INC.

Slide support (1) for rubber gaiter out of guide (2) and pull forwards to remove.



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Fig. 49: Removing Rubber Gaiter Out Of Support
Courtesy of BMW OF NORTH AMERICA, INC.

Only replace:

Pull rubber gaiter (1) out of support (2) (if necessary, fold over the crimped area).

Installation:

Check function of contact pressure roller (3).

Check function.

54 12 115 REMOVING AND INSTALLING GLASS SLIDING/TILTING SUNROOF LID

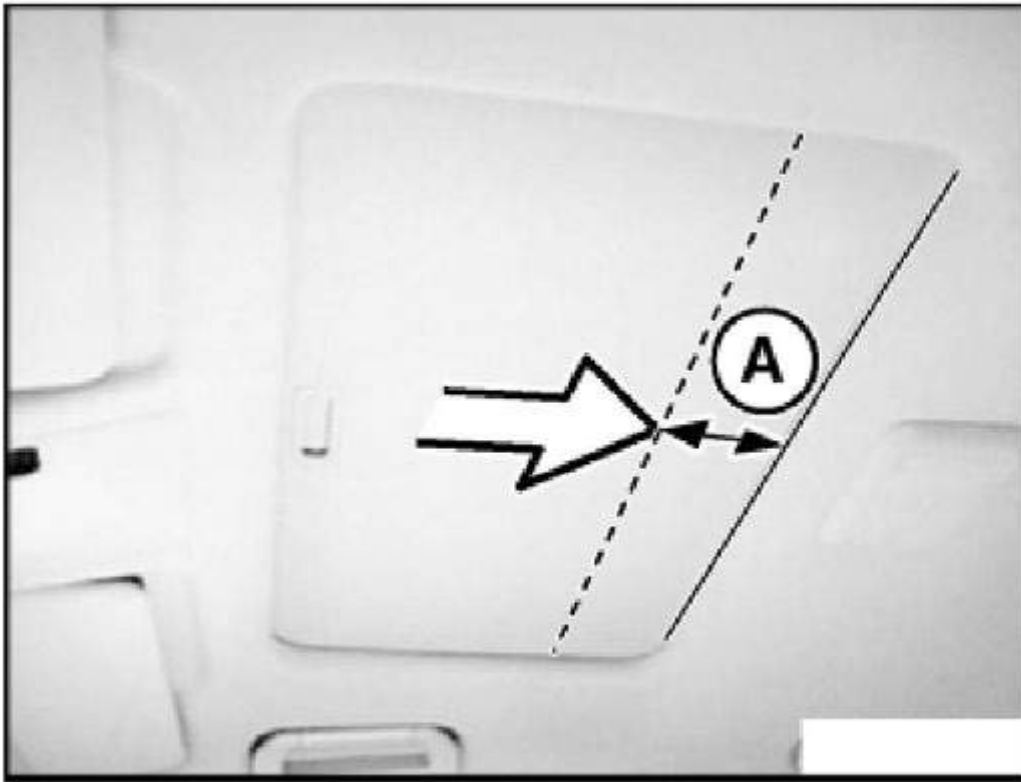
NOTE: For Special Tool identification, see SPECIAL TOOLS - X-5 (3.0i) .

Special Tools Required:

- 00 2 130
- 00 9 250

Removal:

Slowly slide roof-lining frame towards rear up to dimension (A).



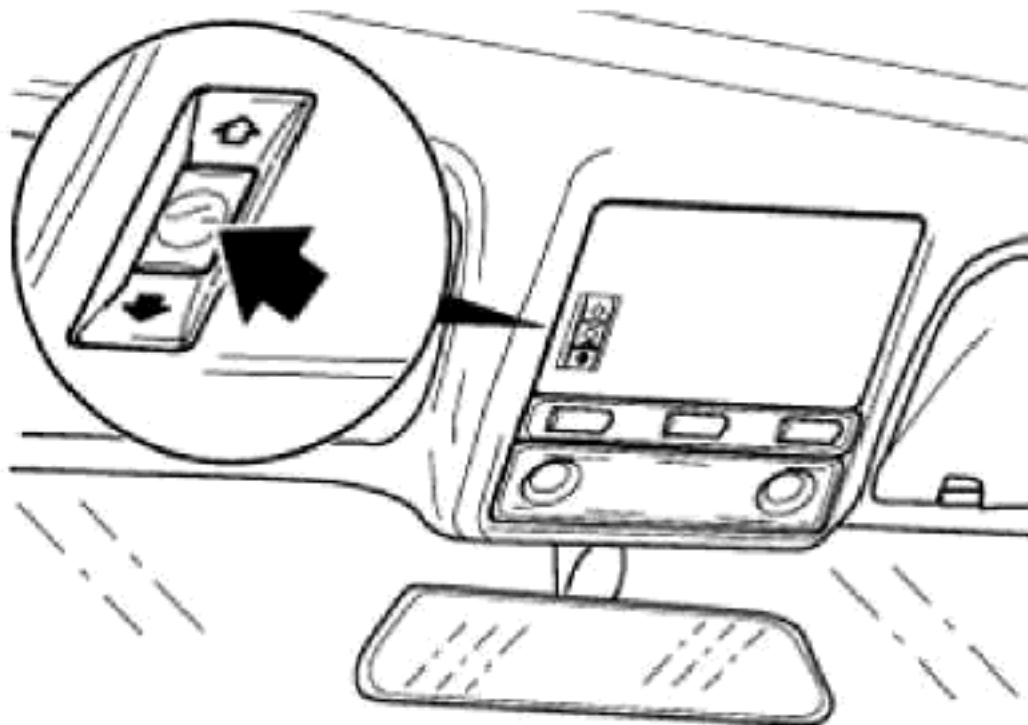
G03256342

Fig. 50: Identifying Roof-Lining Frame Dimension (A)
Courtesy of BMW OF NORTH AMERICA, INC.

SLIDE ROOF-LINING FRAME ADJUSTING DIMENSION

A	E39, E53	70 mm
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Press switch in direction of "raise position" (fan setting) until lid is raised to max. setting.



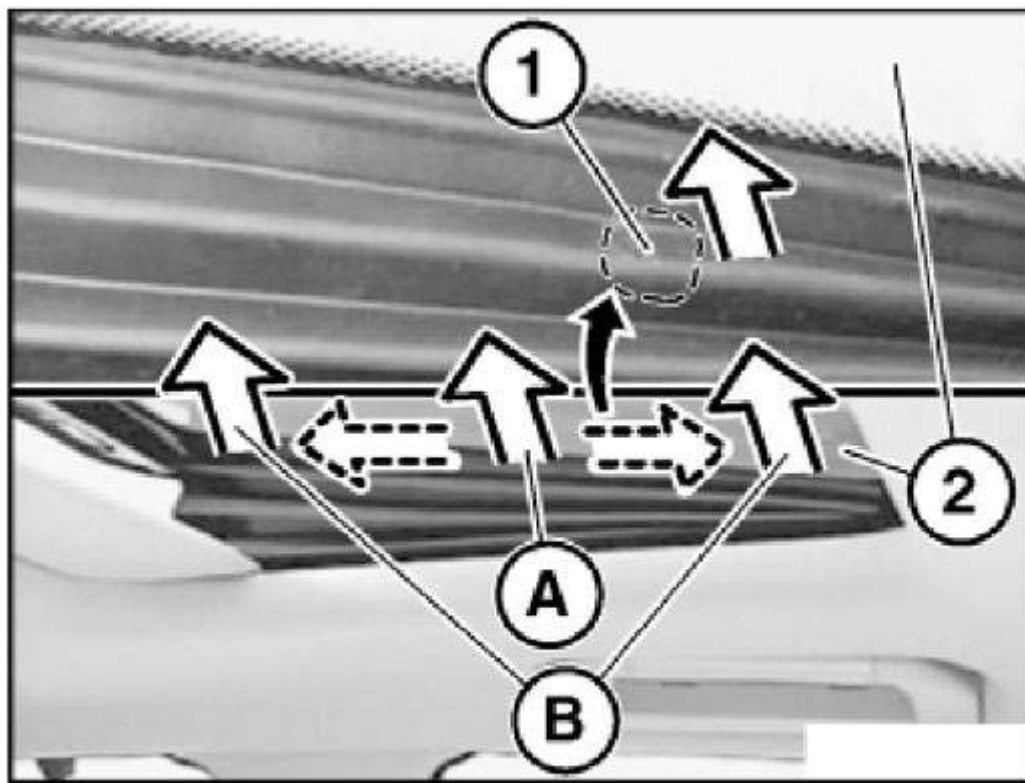
G03256343

Fig. 51: Identifying Sliding/Tilting Sunroof Switch In Raise Position

Courtesy of BMW OF NORTH AMERICA, INC.

NOTE: Grasp the bellows by hand only at the first fold (1) (risk of damage).

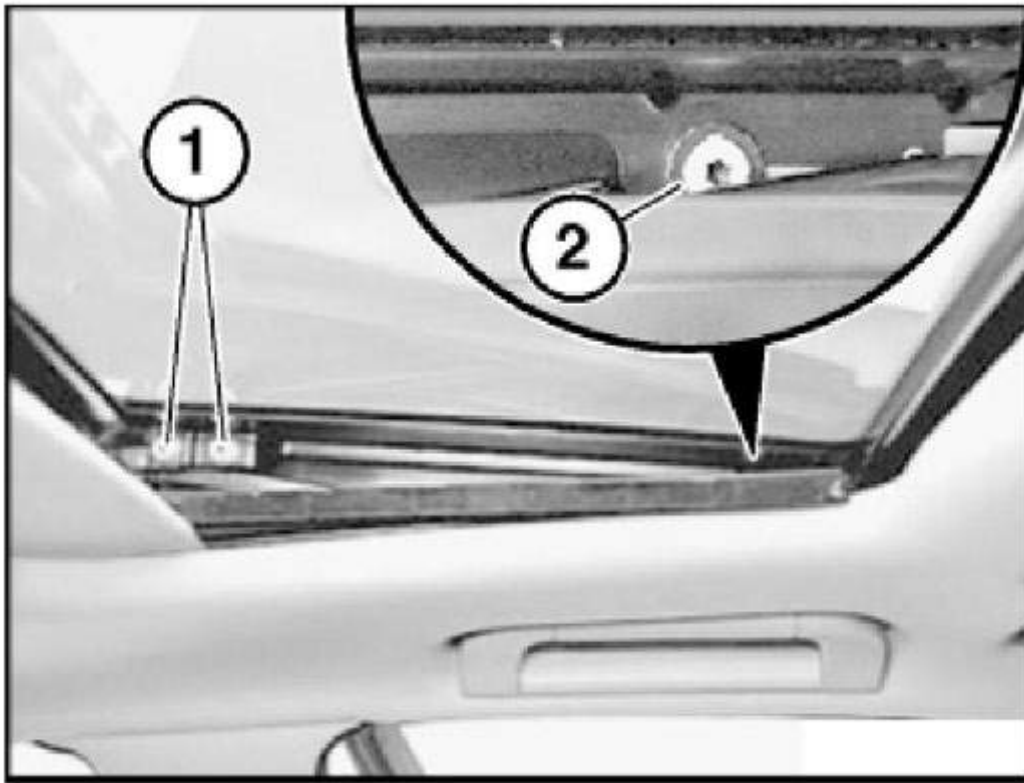
Detach bellows starting from center (A) towards front and rear (B) from glass slide/tilt sunroof lid (2).



G03256344

Fig. 52: Detaching Bellows Starting From Center
Courtesy of BMW OF NORTH AMERICA, INC.

Release screws (1) and (2) with special tool 00 2 130.



G03256345

Fig. 53: Removing Torx Screws

Courtesy of BMW OF NORTH AMERICA, INC.

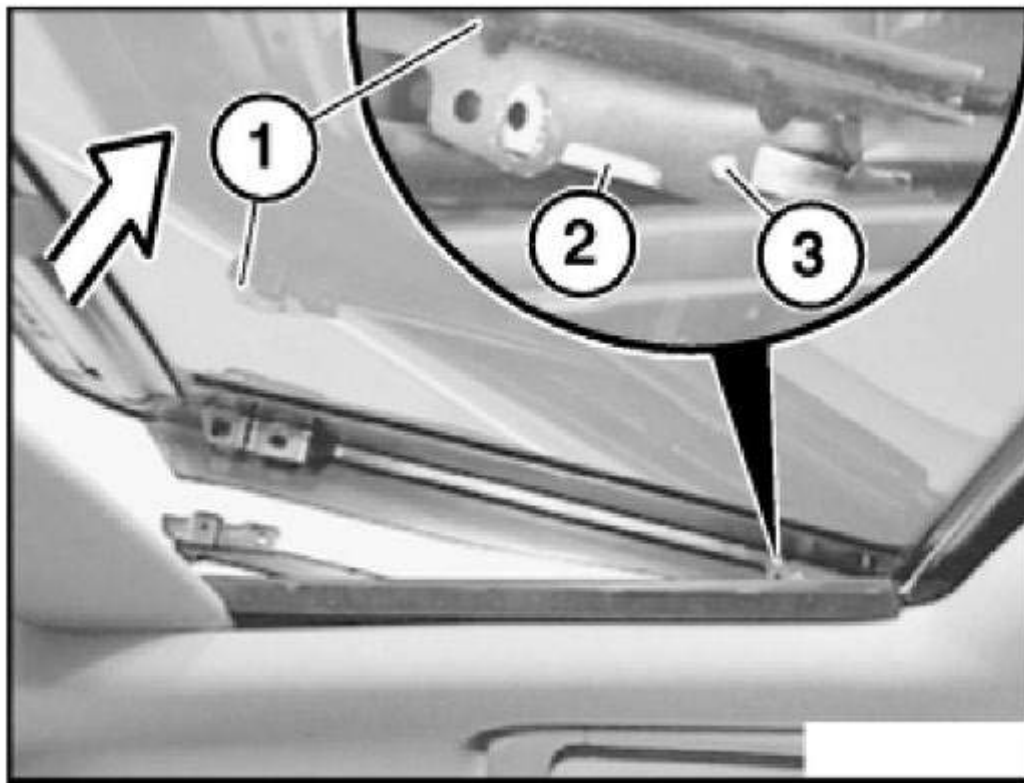
Installation:

Replace removed screws (microencapsulation) or install old screws with Loctite 270.

Tighten down screws with special tool 00 9 250.

Tightening torque, (4 +/-0.5 N.m).

Raise glass slide/tilt sunroof lid (1) at rear until setting lever (2) can be levered out of retaining pin (3) of lid (1).



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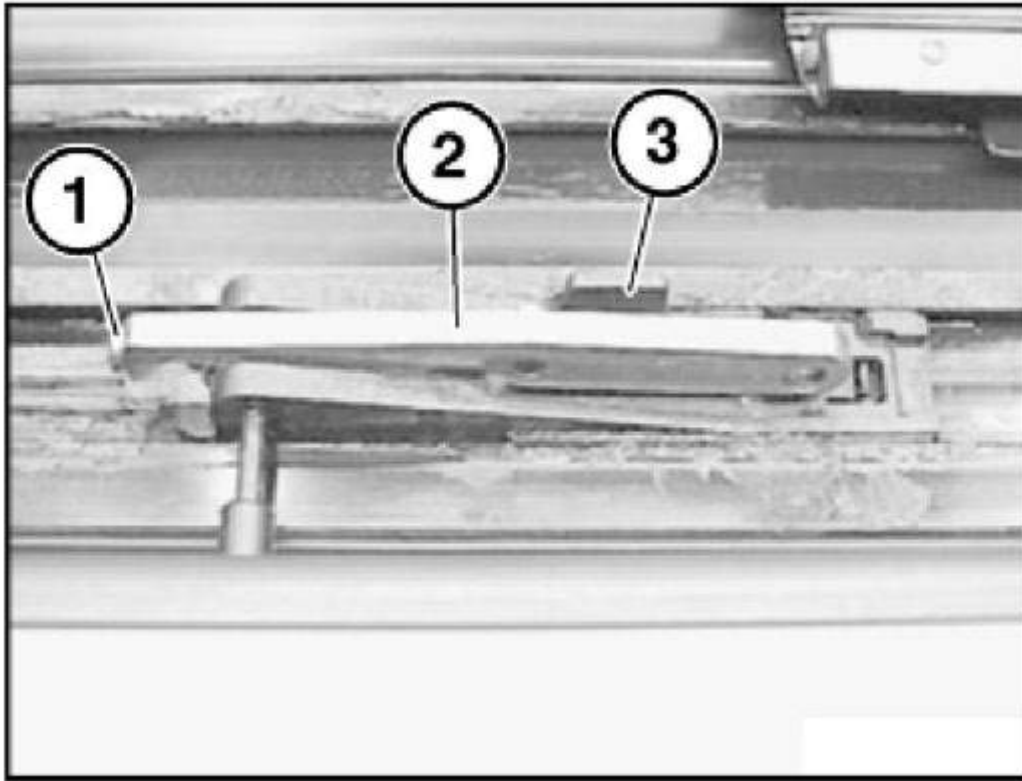
Fig. 54: Locating Setting Lever And Retaining Pin
Courtesy of BMW OF NORTH AMERICA, INC.

NOTE: Place glass sunroof lid on a clean base/support.

Setting Lever With Retaining Screw:

Release retaining screw (1) until assembly opening is free.

Raise setting lever (2) and unhook from slide (3).



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Fig. 55: Unhooking Setting Lever From Slide
Courtesy of BMW OF NORTH AMERICA, INC.

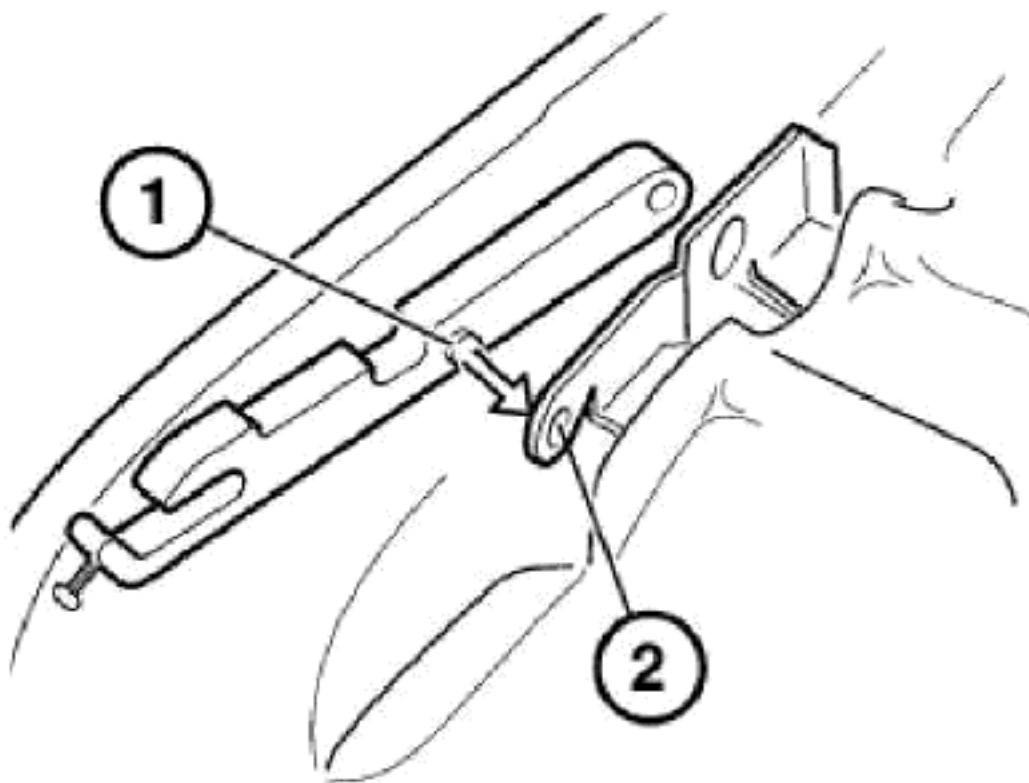
Setting Lever Without Retaining Screw:

Inspect to see whether a retaining spring is present.

Press retaining spring at front downwards, raise setting lever (2) and unhook from sliding rail (3).

Installation:

Install setting lever on left/right on glass sunroof lid. Retaining pin (1) must locate correctly in bore (2).



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Fig. 56: Identifying Retaining Pin And Bore
Courtesy of BMW OF NORTH AMERICA, INC.

NOTE: Note designation on right (R) or left (L) setting lever.

Replace screws (1) (microencapsulation) or refit old screws with Loctite 270.

Raise setting lever and insert screws (1) as far as they will go (do not tighten).

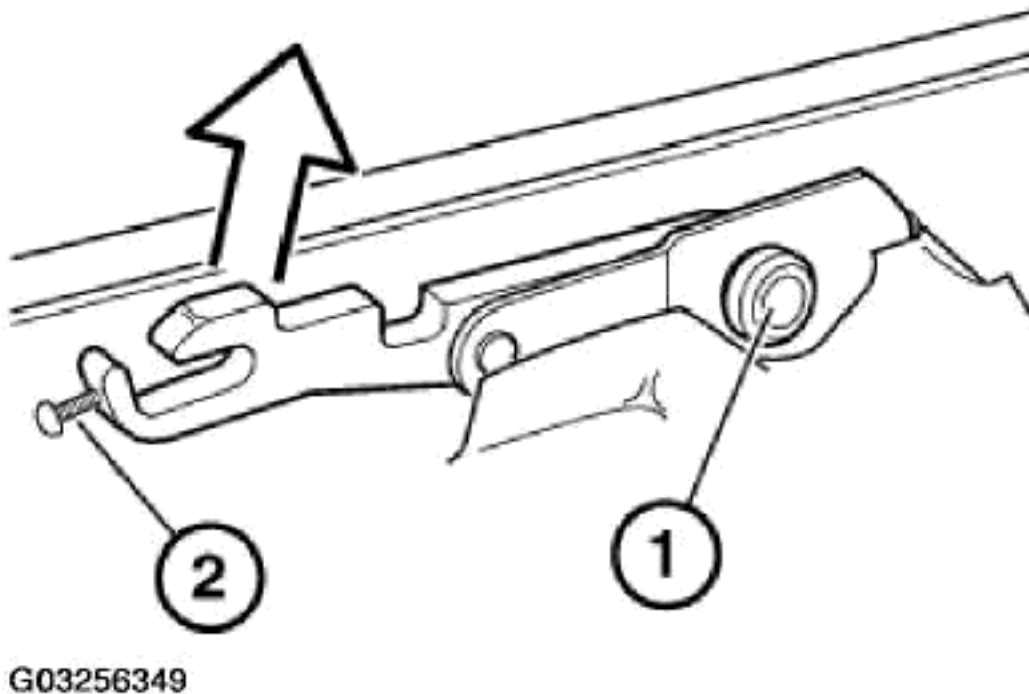


Fig. 57: Locating Retaining Screw

Courtesy of BMW OF NORTH AMERICA, INC.

Setting Lever With Retaining Screw:

Release retaining screw (2) until assembly opening is free.

Coat protruding thread with Loctite 270.

NOTE: **Hardening of Loctite 270 takes about 30 minutes.**

Setting Lever With And Without Retaining Screw:

Install glass slide/tilt sunroof lid; in so doing, hook setting lever (1) at front correctly into sliding rail (2).

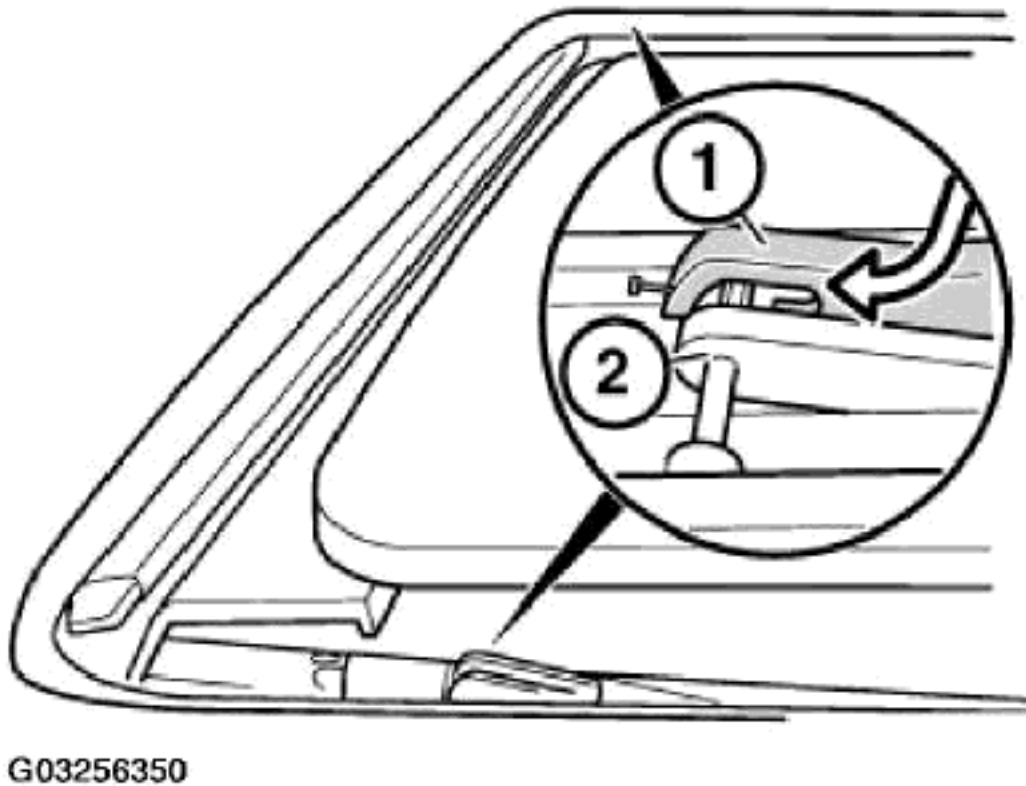


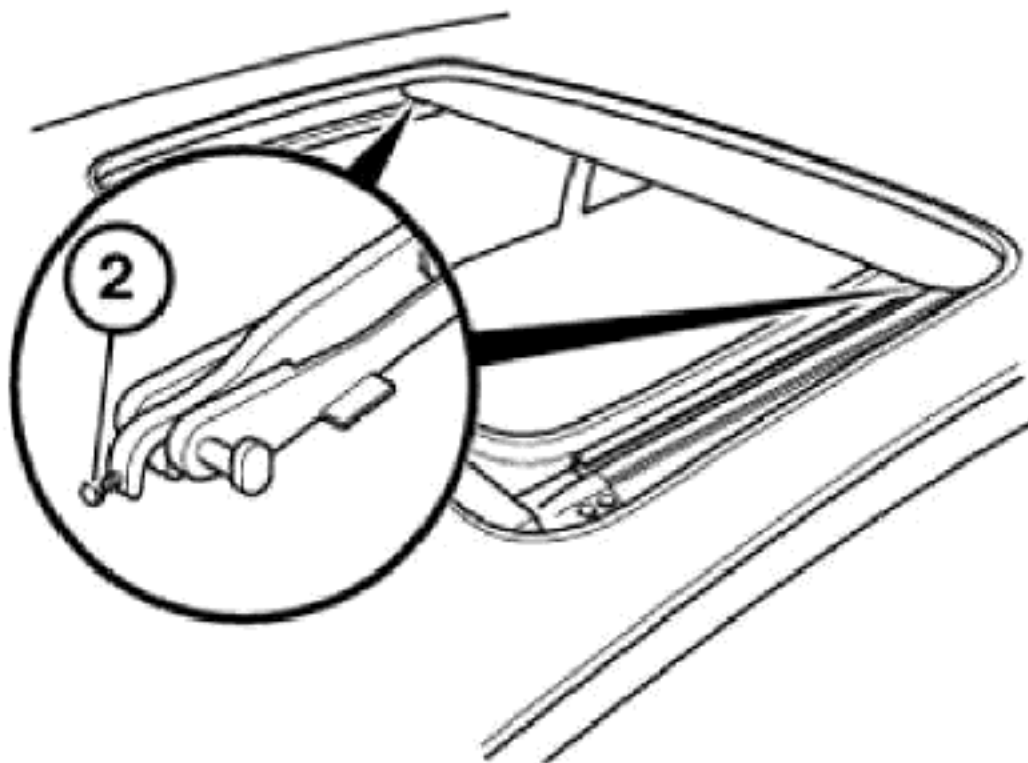
Fig. 58: Hooking Setting Lever At Front Into Sliding Rail
Courtesy of BMW OF NORTH AMERICA, INC.

CAUTION: Check that glass sunroof lid is securely seated. Press glass sunroof lid at front on left/right with ball of thumb from bottom to top. The glass sunroof lid must not be able to be raised.

Setting lever with retaining screw:

Open glass sunroof lid approx. 250 mm.

Carefully press glass sunroof lid upwards and screw in and tighten down securing screws (2) on left/right completely.



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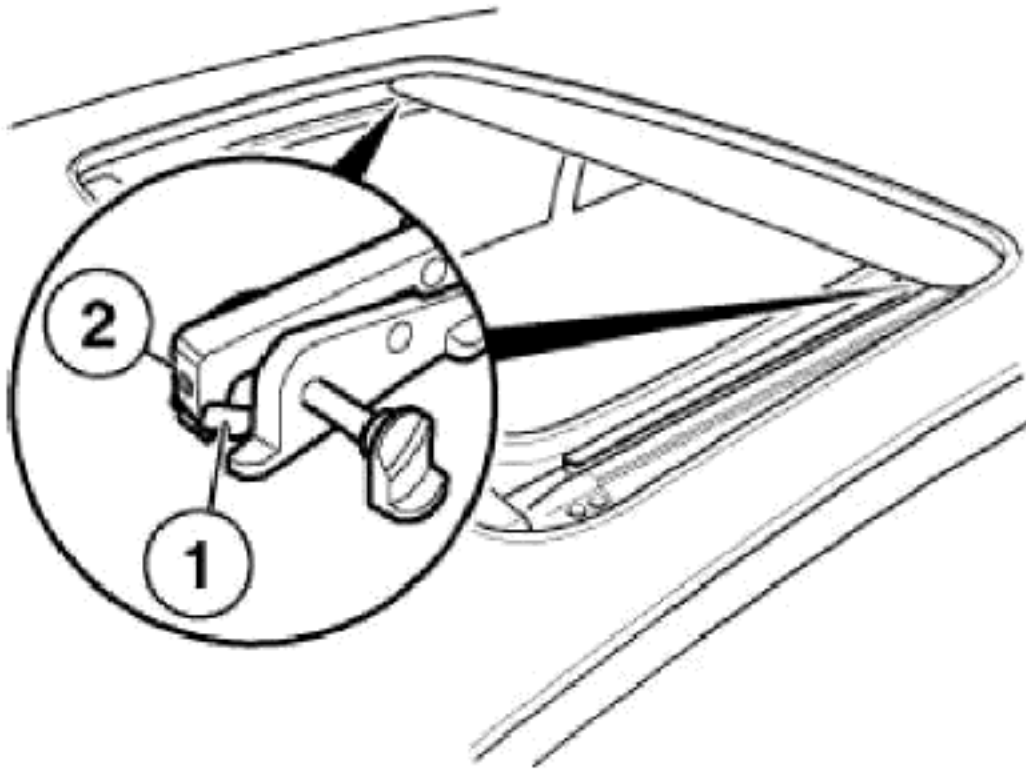
Fig. 59: Identifying Securing Screw

Courtesy of BMW OF NORTH AMERICA, INC.

Setting Lever Without Retaining Screw:

If setting levers with retaining screws (1) are fitted, do not install any retaining screws in thread (2).

Make sure retaining spring (1) is correctly seated.



G03256352

Fig. 60: Locating Retaining Spring

Courtesy of BMW OF NORTH AMERICA, INC.

Adjusting glass slide/tilt sunroof lid. Refer to **54 12 003 ADJUSTING GLASS SLIDING/TILTING SUNROOF LID** .

54 12 116 REPLACING GLASS SLIDING/TILTING SUNROOF LID

Operation is identical to:

Removing and installing glass sliding/tilting sunroof lid, see **54 12 115 REMOVING AND INSTALLING GLASS SLIDING/TILTING SUNROOF LID** .

54 12 117 REPLACING SEAL FOR GLASS SLIDING/TILTING SUNROOF LID

Operation is identical to:

Replacing seal for sliding sunroof lid, see **54 12 120 REPLACING SEAL FOR SLIDE/TILT SUNROOF**

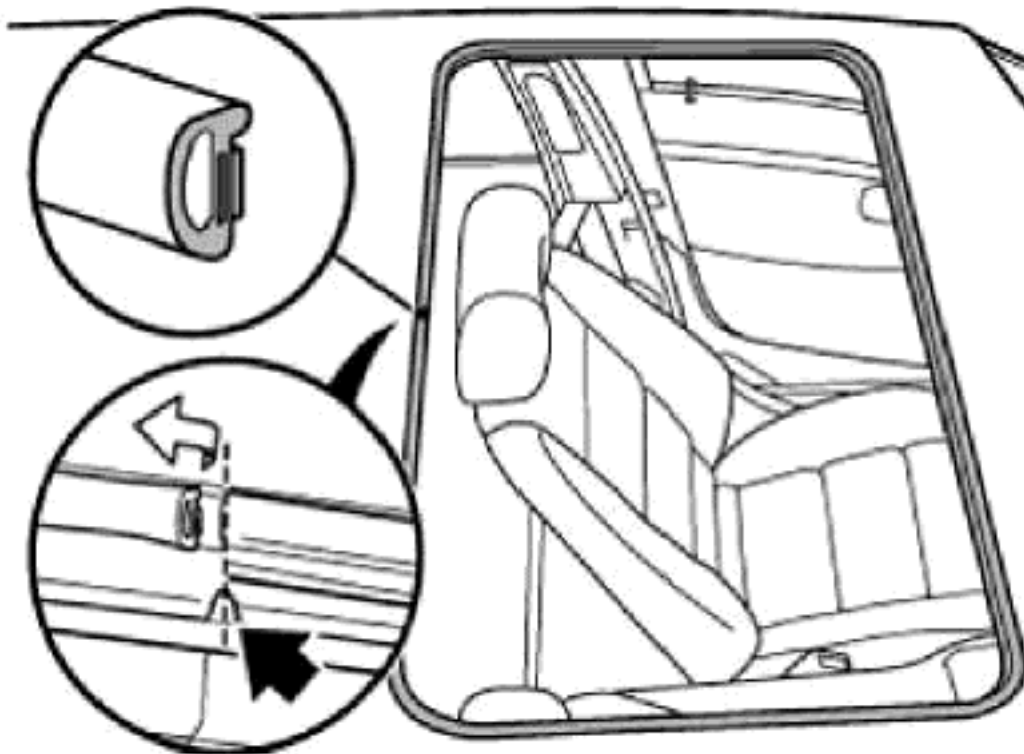
LID .**54 12 120 REPLACING SEAL FOR SLIDE/TILT SUNROOF LID**

Observe note on repairing bonded seals on slide/tilt sunroof. Refer to **54 0 ... REPAIR INSTRUCTIONS FOR BONDED SEALS** .

Open slide/tilt sunroof completely.

Begin removal at contact edge (mostly rear center):

- Peel off rubber seal.
- Clean bonded area.



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Fig. 61: Replacing Seal For Slide/Tilt Sunroof Lid
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Also begin at specified point of contact edge for installation:

- Stick on rubber seal in sections.
- Establish seal joint.
- Press on seal.

54 12 126 REMOVING AND INSTALLING/REPLACING HEADLINER MECHANISM FOR GLASS SLIDE/TILT SUNROOF

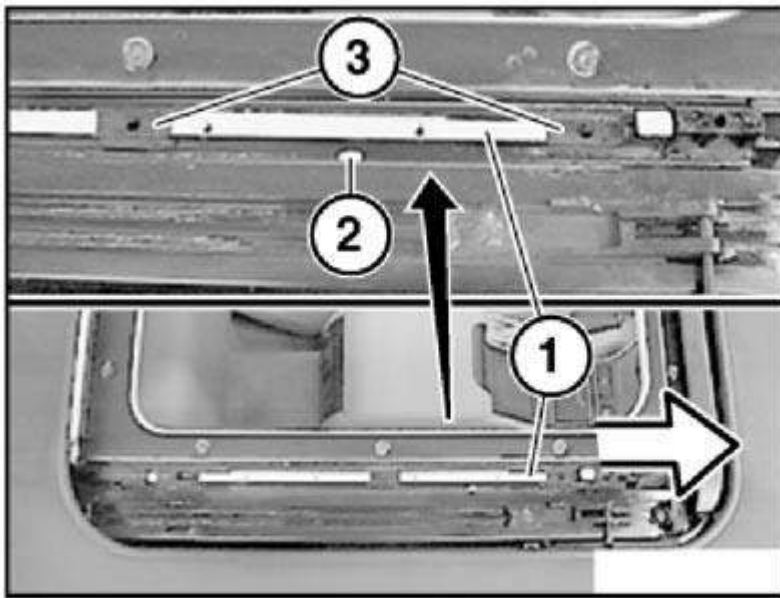
Installation:

If necessary, apply light coat of Renax GL 1 (Fuchs) grease to guide duct. Removing and installing headliner for glass slide/tilt sunroof cover, refer to **54 12 136 REMOVING AND INSTALLING / REPLACING HEADLINER FOR GLASS SLIDE/TILT SUNROOF COVER** .

NOTE: Always replace headliner mechanism for glass slide/tilt sunroof in pairs.

Slide headliner mechanism (1) fully forwards.

Move mechanism back until nipple (2) is located to right of plastic slides (3).



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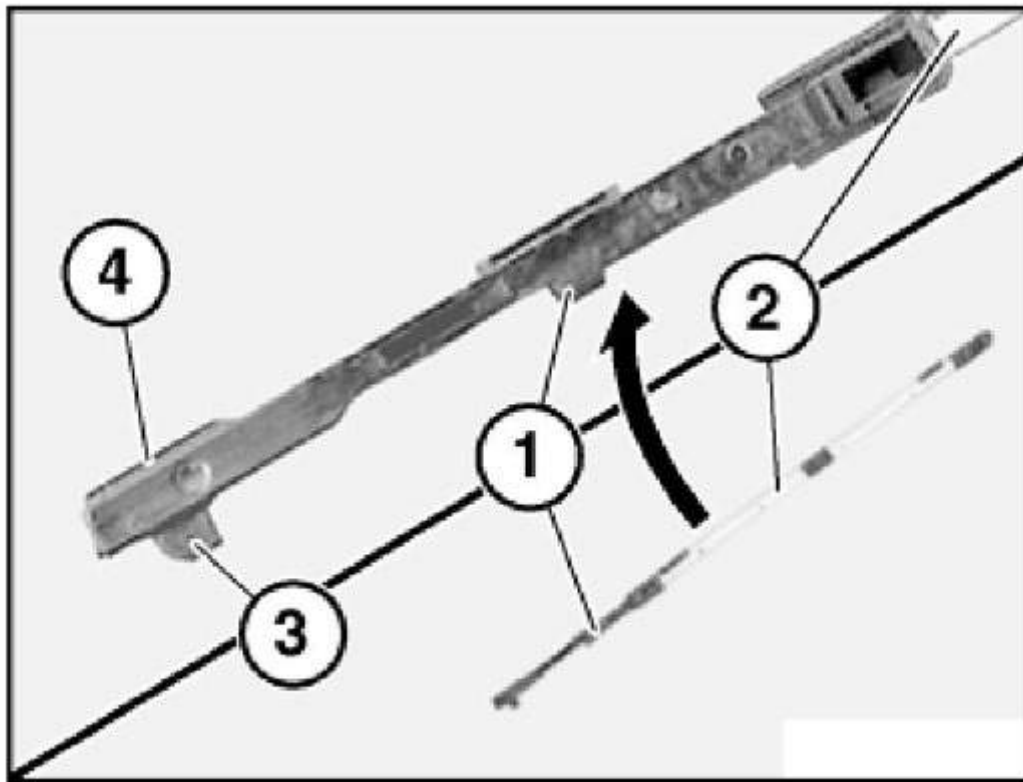
Fig. 62: Aligning Nipple To Right Of Plastic Slides
Courtesy of BMW OF NORTH AMERICA, INC.

Removal Of Headliner Mechanism With "Flexible Fulcrum Pad"(Only On Right Side):

NOTE: The flexible fulcrum pad (1) is securely attached to the rail (2) (cannot be removed).

(3) Outer guide.

(4) Inner guide.

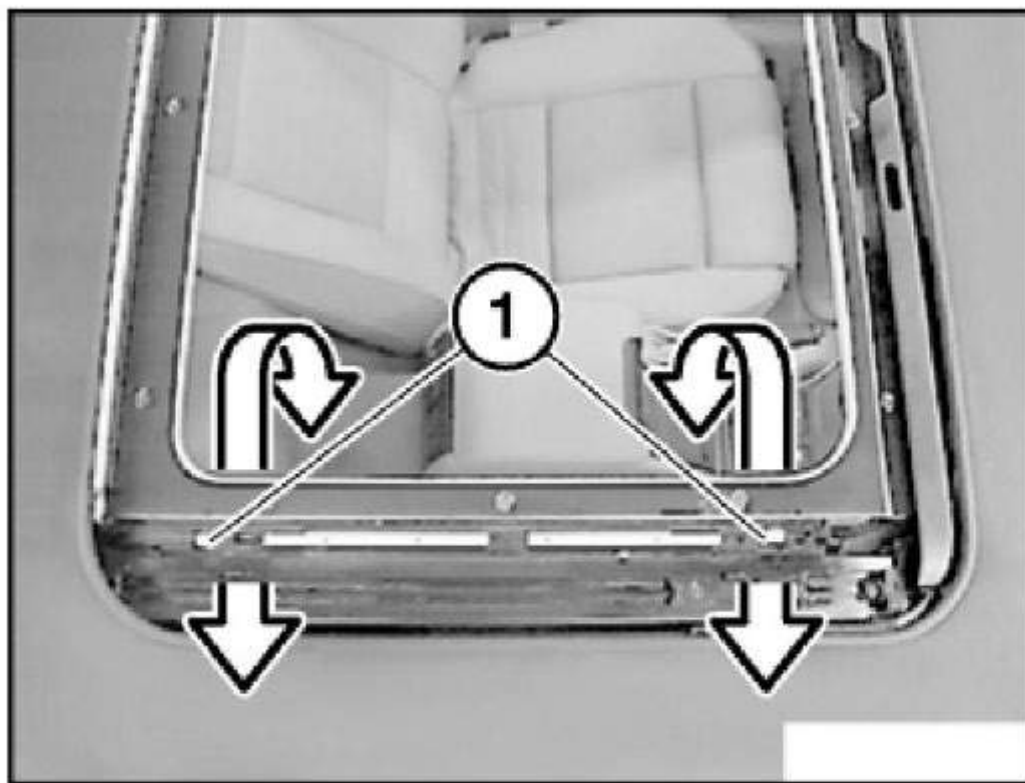


G03256355

Fig. 63: Identifying Headliner Mechanism Components
Courtesy of BMW OF NORTH AMERICA, INC.

Right side:

Tilt headliner mechanism inwards at front and back of strut (1) and pull outwards (this produces an audible click on flexible fulcrum pad).

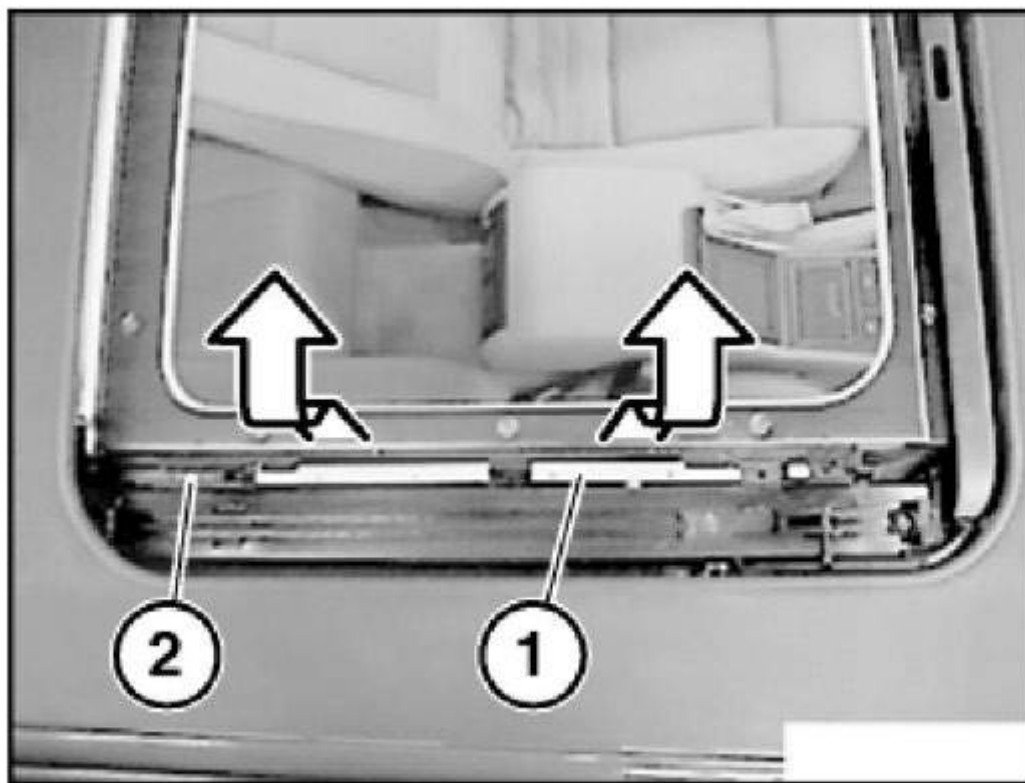


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Fig. 64: Aligning Headliner Mechanism Inwards
Courtesy of BMW OF NORTH AMERICA, INC.

Right side:

Tilt headliner mechanism (1) outwards with flexible fulcrum pad (2) and pull inwards to remove from guide channel.

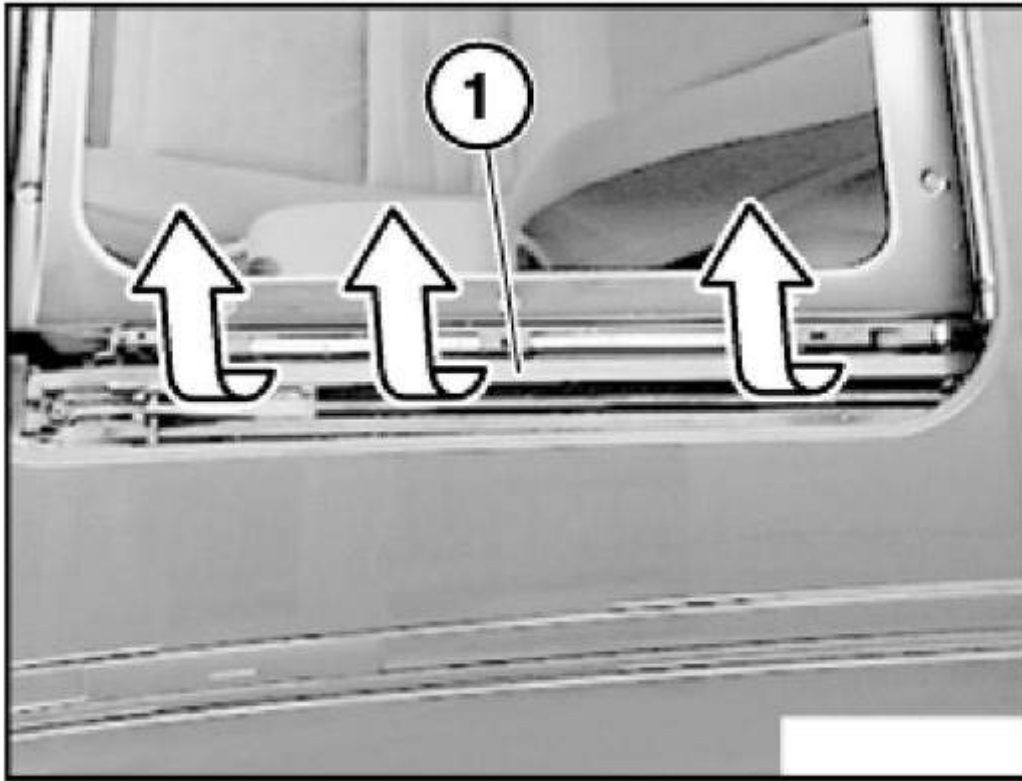


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Fig. 65: Removing Headliner Mechanism From Guide Channel (Right)
Courtesy of BMW OF NORTH AMERICA, INC.

Left side:

Unfasten headliner mechanism (1) and lift inwards/upwards to remove from guide channel.



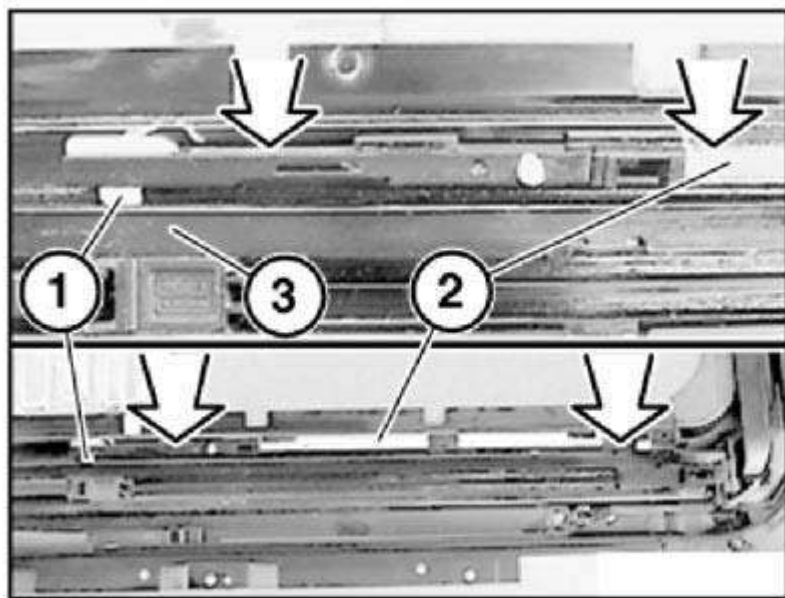
G03256358

Fig. 66: Removing Headliner Mechanism From Guide Channel (Left)
Courtesy of BMW OF NORTH AMERICA, INC.

Installation Of Headliner Mechanism With "Flexible Fulcrum Pad"(Only On Right Side):

NOTE: To illustrate more clearly, installation shown with a removed glass slide/tilt sunroof.

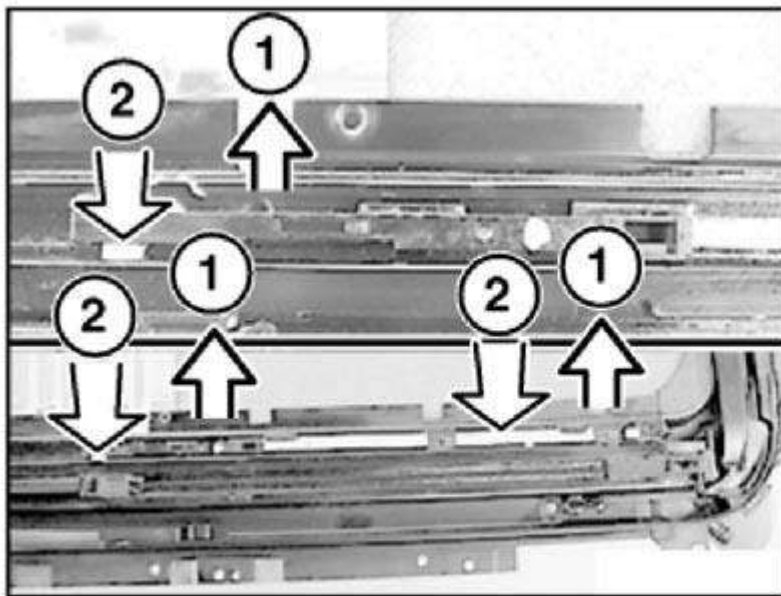
Install the guide (1) on the flexible fulcrum pad and rest of headliner mechanism (2) facing outwards in guide channel (3).



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Fig. 67: Installing Guide On Flexible Fulcrum Pad
Courtesy of BMW OF NORTH AMERICA, INC.

Press headliner mechanism inwards (1) and press outer guide downwards (2) into the guide channel.



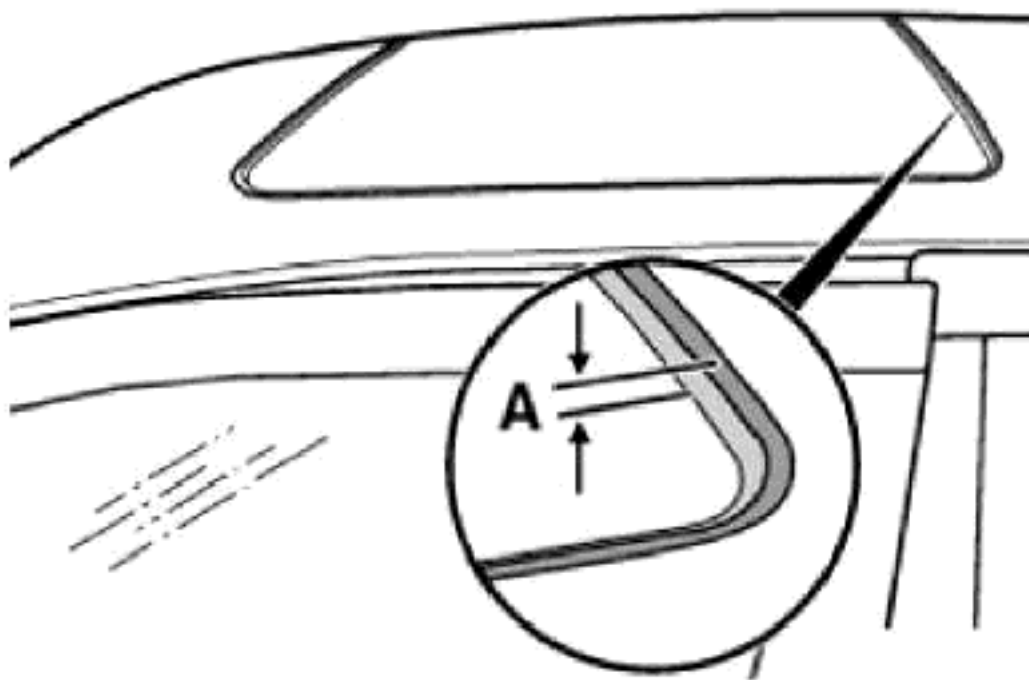
G03256360

Fig. 68: Pressing Headliner Mechanism Inwards
Courtesy of BMW OF NORTH AMERICA, INC.

54 12 132 REMOVING AND INSTALLING/REPLACING HEADLINER FOR SUN-ROOF LID

Installation:

If necessary, apply light coat of Renax GL 1 (Fuchs) grease to guide duct.



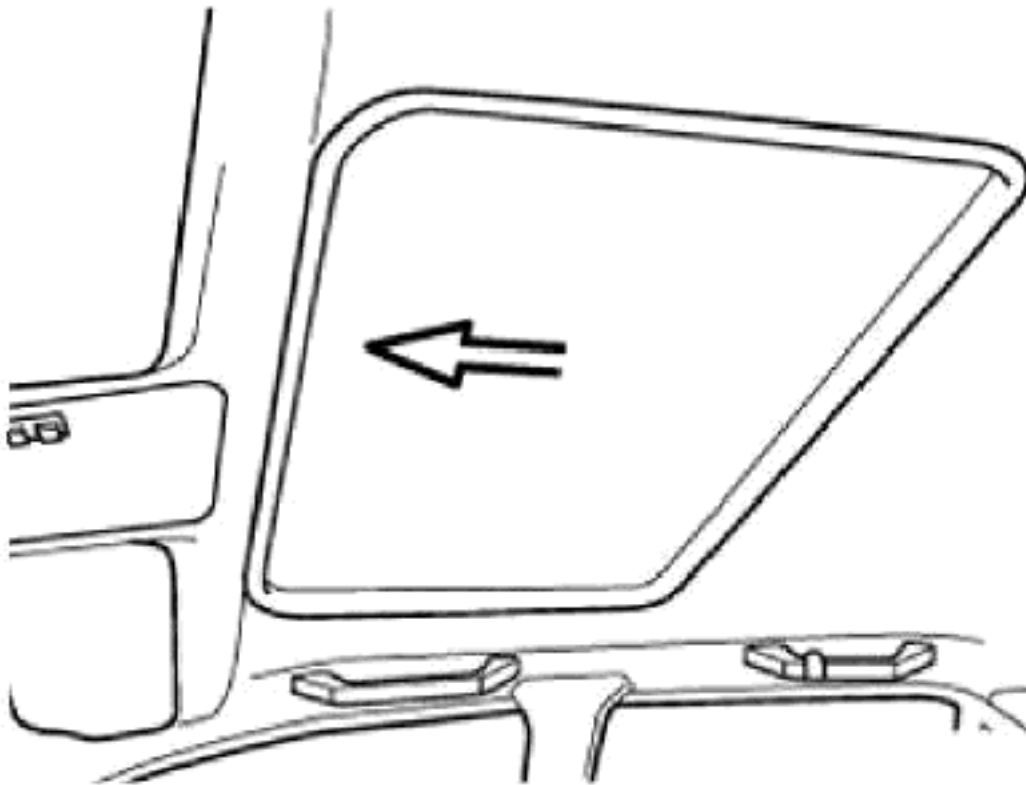
G03256361

Fig. 69: Identifying Slide/Tilt Sunroof Dimension (A)
Courtesy of BMW OF NORTH AMERICA, INC.

The mechanism must be lowered at the back by dimension (A).

If necessary, lower as with the installed slide/tilt sunroof cover.

Distance (A) = 2 to 3 mm.



G03256362

Fig. 70: Pulling Headliner Forwards

Courtesy of BMW OF NORTH AMERICA, INC.

Pull headliner slowly forwards (with clean hands or wearing protective gloves).

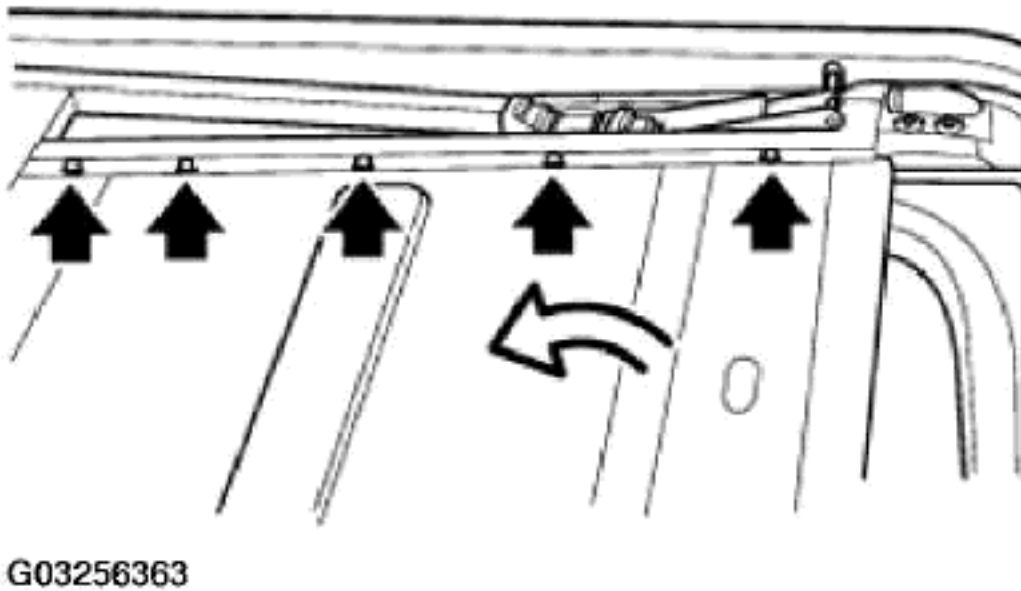


Fig. 71: Locating Torx Screws In Headliner
Courtesy of BMW OF NORTH AMERICA, INC.

Unfasten left/right Torx screws and pull headliner forwards/upwards to remove.

NOTE: After dismantling the headliner, do not move the mechanism, otherwise the bending/fulcrum pad slides backwards.

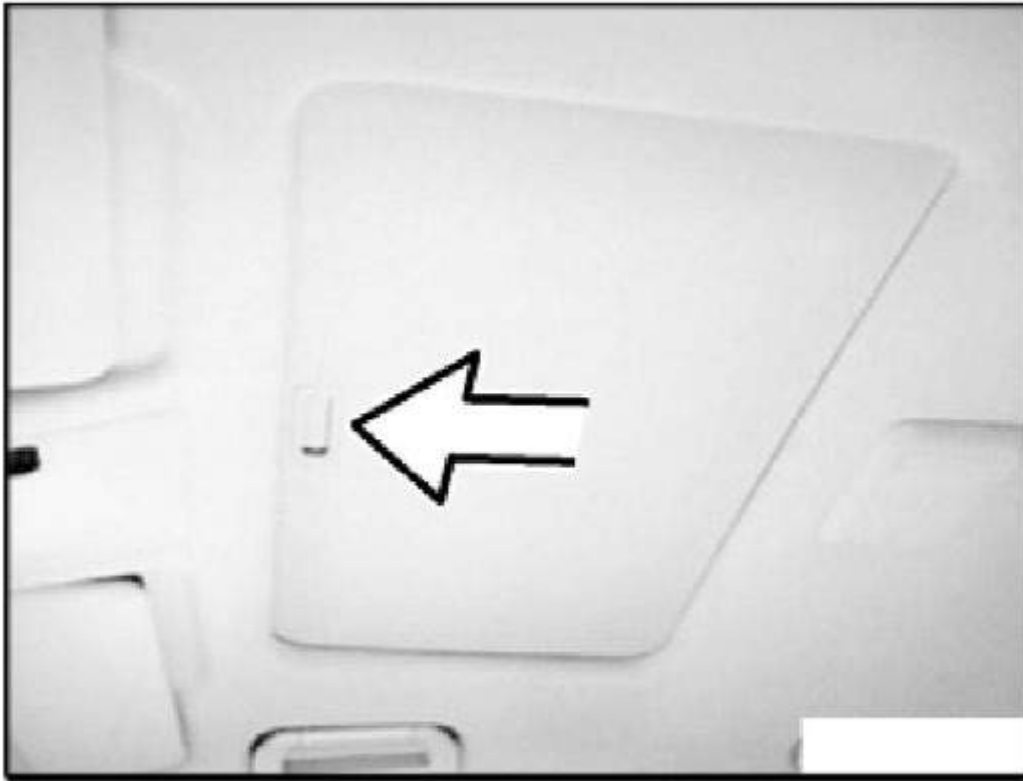
54 12 136 REMOVING AND INSTALLING/REPLACING HEADLINER FOR GLASS SLIDE/TILT SUNROOF COVER

Installation:

If necessary, apply light coat of Renax GL 1 (Fuchs) grease to guide duct. Removing left and right rubber gaiter for glass slide/tilt sunroof cover, refer to **54 12 015 REPLACING LEFT OR RIGHT RUBBER GAITERS FOR GLASS SLIDE/TILT SUNROOF** .

Move mechanism into zero setting.

Slowly pull headliner forwards as far as it will go.



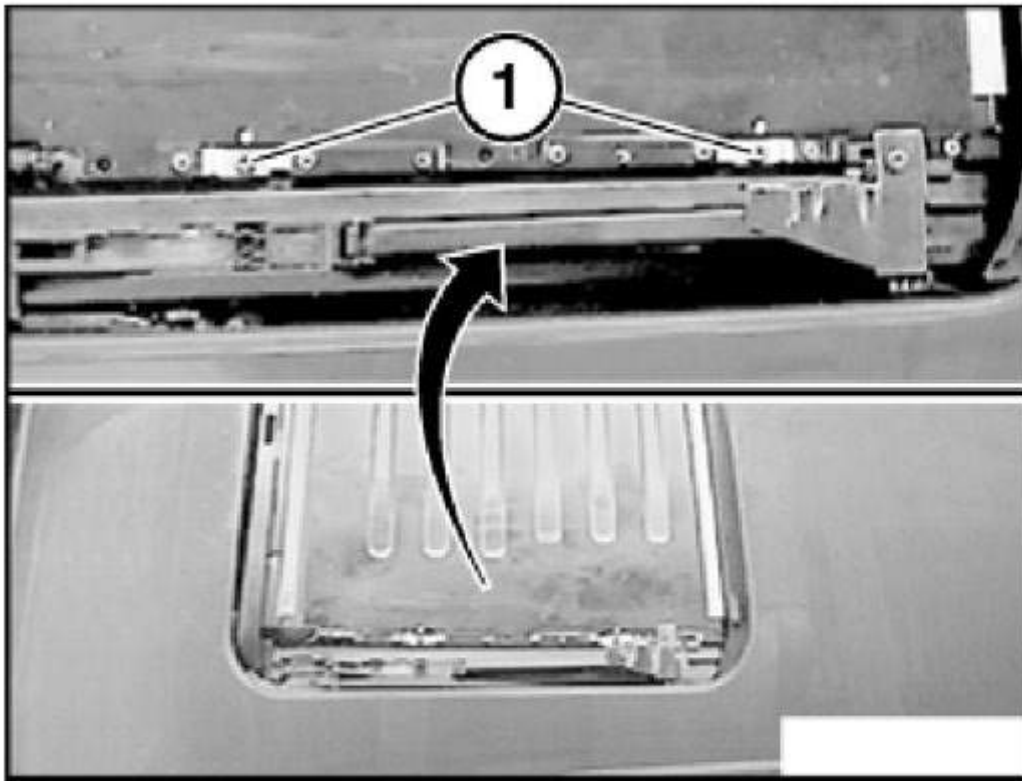
G03256364

Fig. 72: Aligning Headliner Forwards
Courtesy of BMW OF NORTH AMERICA, INC.

Unfasten left/right screws (1).

2001 BMW X5 30i

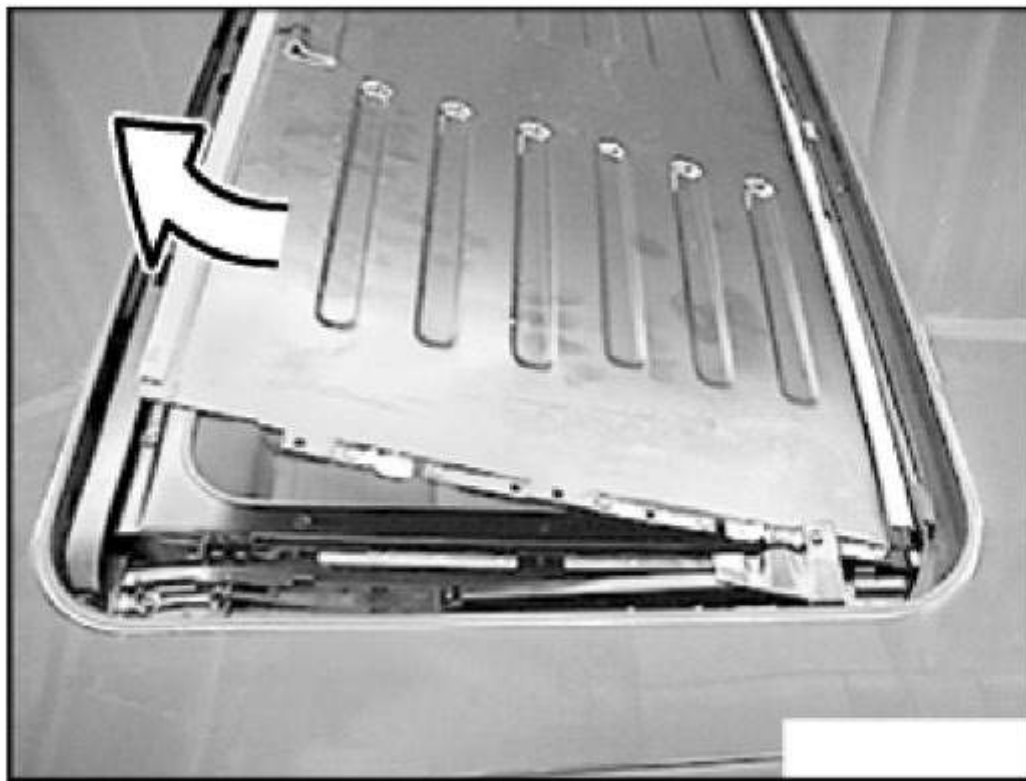
2001-2003 ACCESSORIES AND EQUIPMENT Sliding/Tilt Roof - Repair Instructions - X5 (3.0i) M54



G03256365

Fig. 73: Unfastening Left/Right Screws
Courtesy of BMW OF NORTH AMERICA, INC.

Lift headliner upwards to remove.

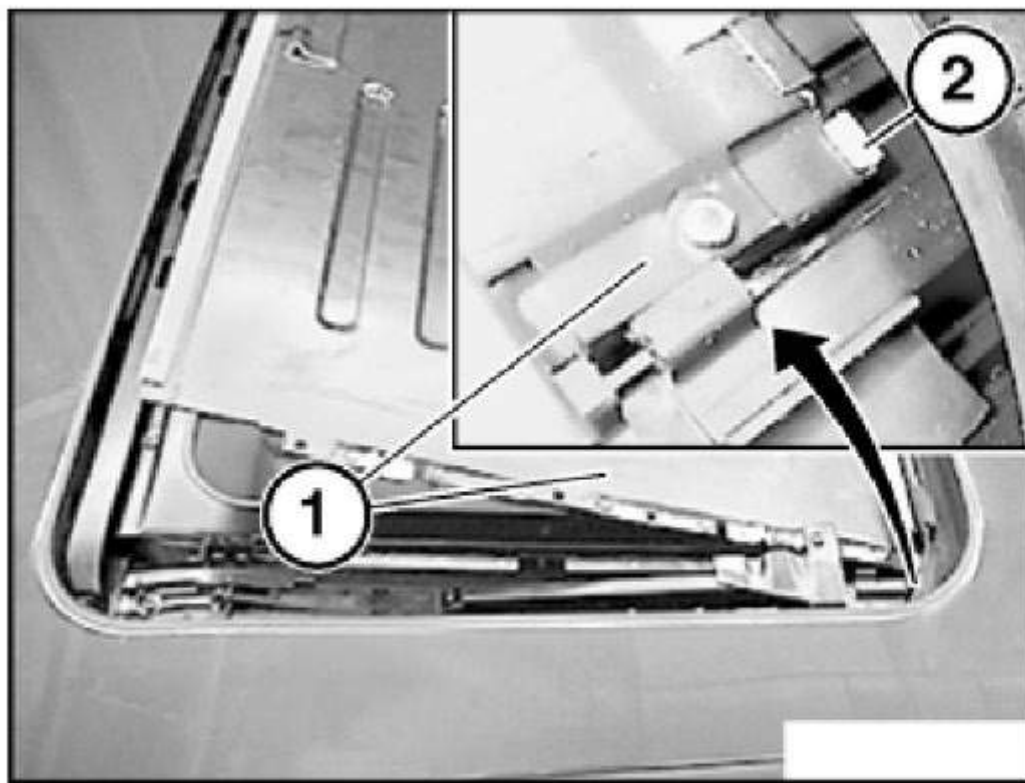


G03256366

Fig. 74: Lifting Headliner Upwards For Removing
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Insert headliner (1) in support (2) from behind/left.



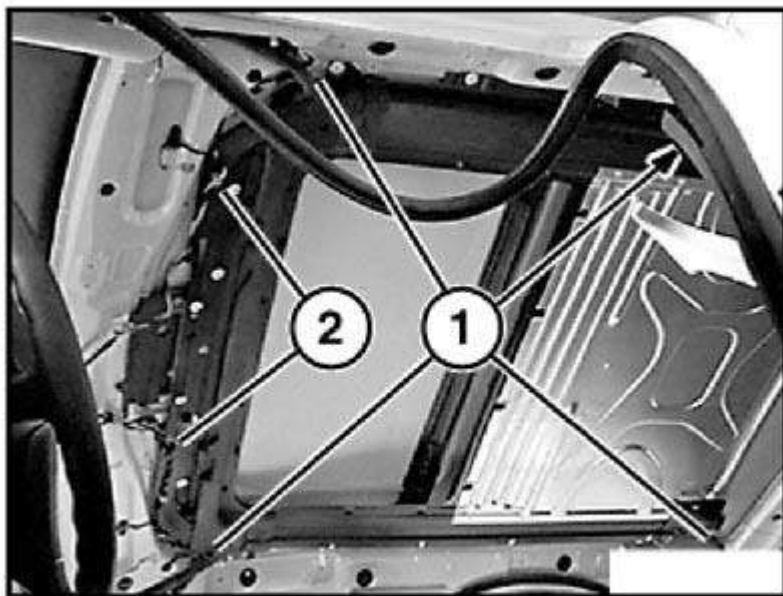
G03256367

Fig. 75: Inserting Headliner In Support From Behind/Left
Courtesy of BMW OF NORTH AMERICA, INC.

54 12 210 REMOVING AND INSTALLING COMPLETE SLIDE/TILT SUNROOF (FRAME)

Remove water drain hoses (1) at front/rear.

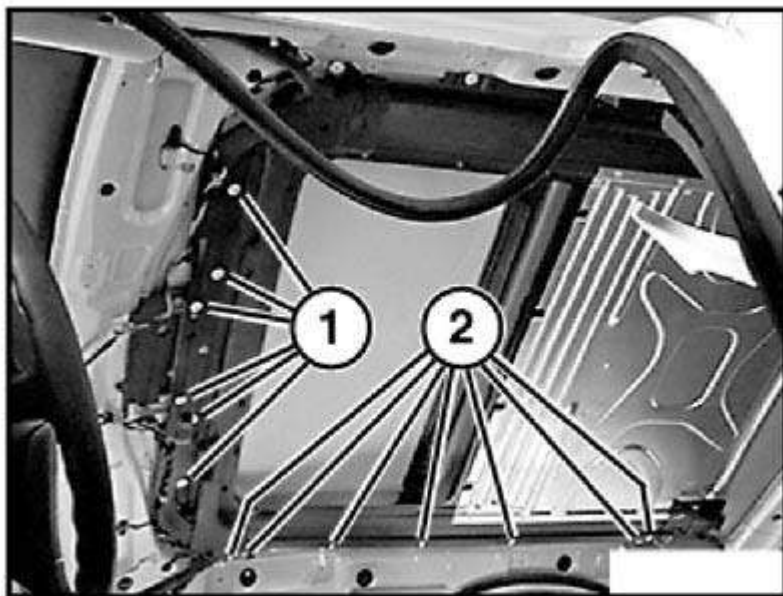
Unfasten Omega clips (2).



G03256368

Fig. 76: Locating Omega Clips And Water Drain Hoses
Courtesy of BMW OF NORTH AMERICA, INC.

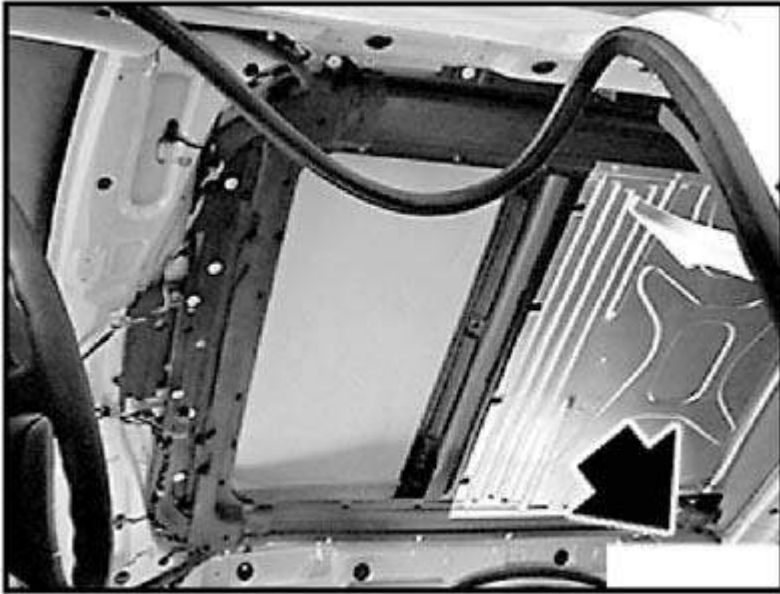
Unfasten screws (1) at front and (2) at left/right.



G03256369

Fig. 77: Identifying Screws At Front And Left/Right
Courtesy of BMW OF NORTH AMERICA, INC.

Unhook left/right clip and lower slide/tilt sunroof frame slightly.



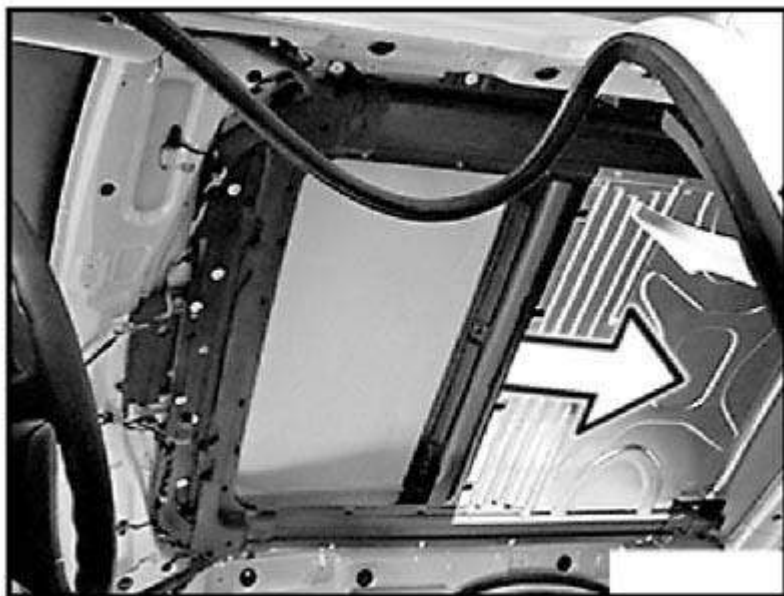
G03256370

Fig. 78: Lowering Slide/Tilt Sunroof Frame
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Fold up back of frame until rear clips can be unfastened.

Slide slide/tilt sunroof frame backwards and lift out through right rear door.

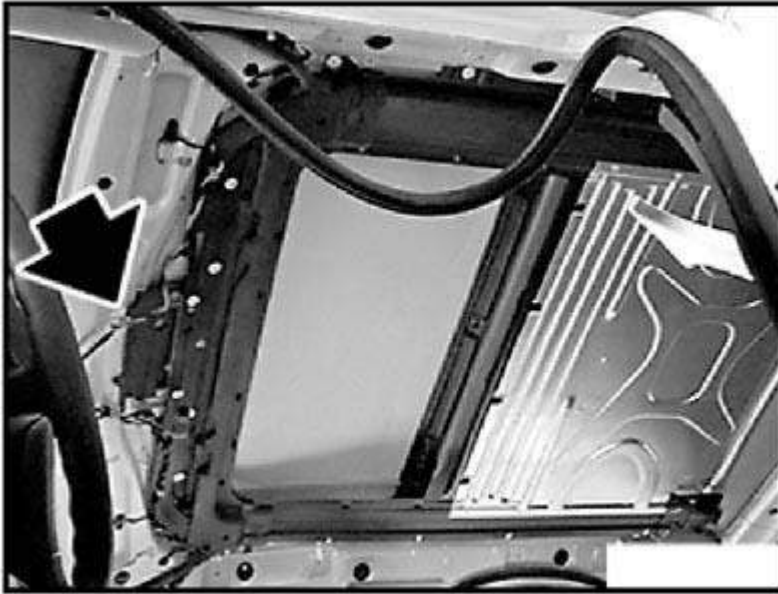


G03256371

Fig. 79: Sliding Slide/Tilt Sunroof Frame Backwards
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Insert slide/tilt sunroof frame in sheet metal slot at front.



G03256372

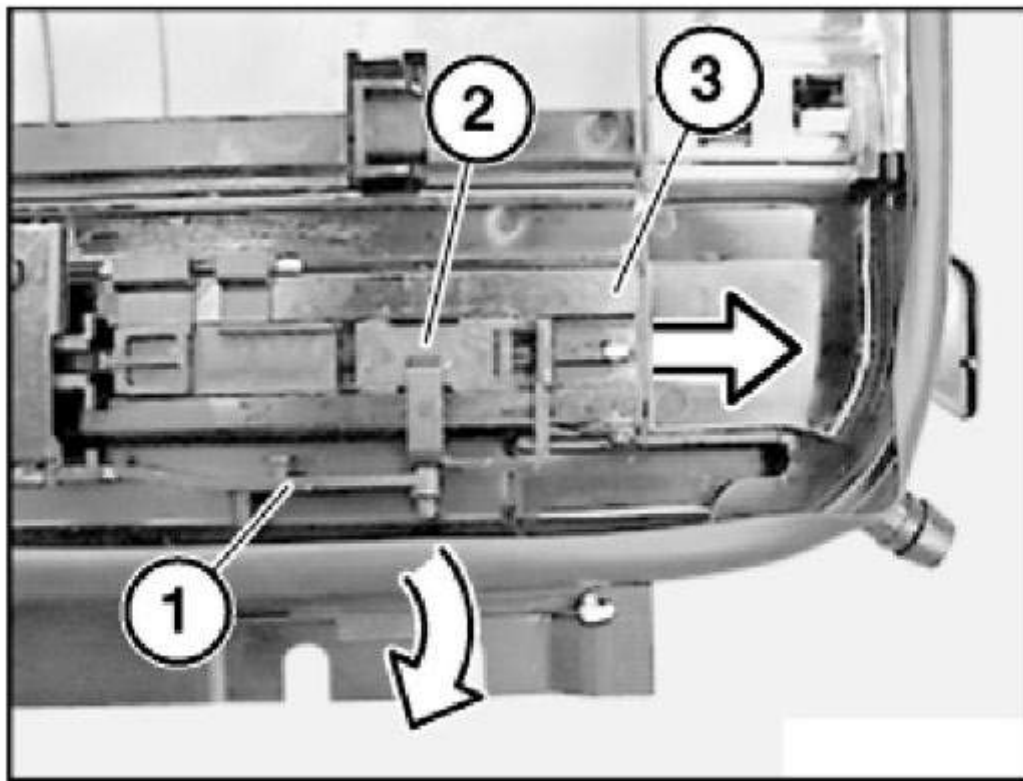
Fig. 80: Inserting Slide/Tilt Sunroof Frame In Sheet Metal Slot
Courtesy of BMW OF NORTH AMERICA, INC.

54 12 220 REPLACING CONTROL RAIL FOR LEFT/RIGHT GLASS SLIDE/TILT SUNROOF

NOTE: When replacing a control rail, always check the second control rail for signs of wear and always replace in pairs when required. If necessary, apply light coat of Renax GL 1 (Fuchs) grease to guide duct. Removing and installing complete slide/tilt sunroof (frame), refer to **54 12 210 REMOVING AND INSTALLING COMPLETE SLIDE/TILT SUNROOF (FRAME)** Removing and installing headliner for glass slide/tilt sunroof cover, refer to **54 12 136 REMOVING AND INSTALLING / REPLACING HEADLINER FOR GLASS SLIDE/TILT SUNROOF COVER** .

Slide control rail backwards.

Lift linkage (1) off carriage (2) (support for gutter) and pull carriage (2) out of guide channel (3).



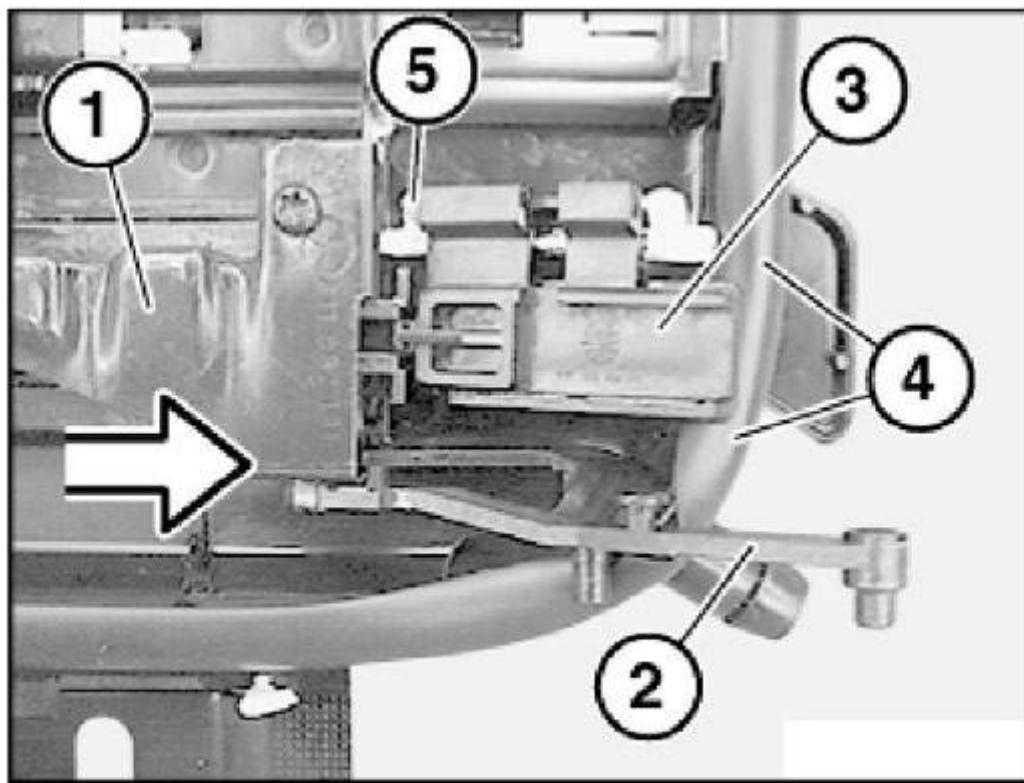
G03256373

Fig. 81: Pulling Carriage Out Of Guide Channel
Courtesy of BMW OF NORTH AMERICA, INC.

Left side:

Slide control rail (1) backwards, lifting the linkage (2) and lifting lever (3) over the gasket (4).

NOTE: Only slide back until nipple (5) on drive cable emerges from guide channel.



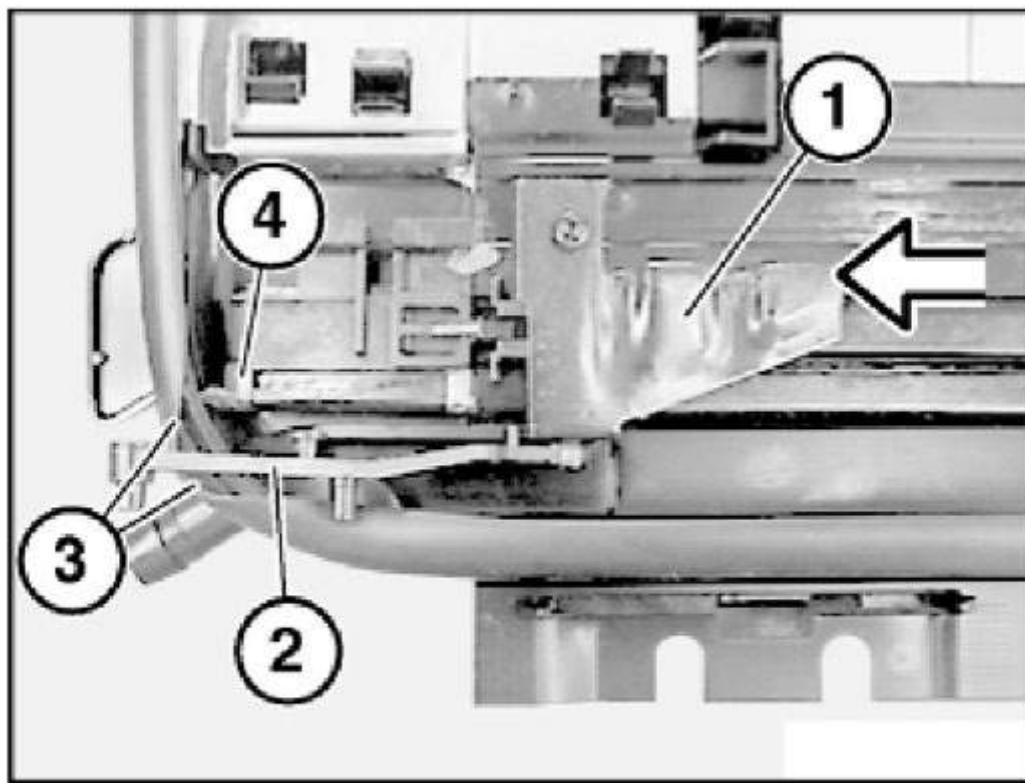
G03256374

Fig. 82: Sliding Control Rail Backwards (Left)
Courtesy of BMW OF NORTH AMERICA, INC.

Right side:

Slide control rail (1) backwards, lifting the linkage (2) over the gasket (3) at the same time.

NOTE: Only slide back until nipple (4) of the drive cable makes contact with the gutter.

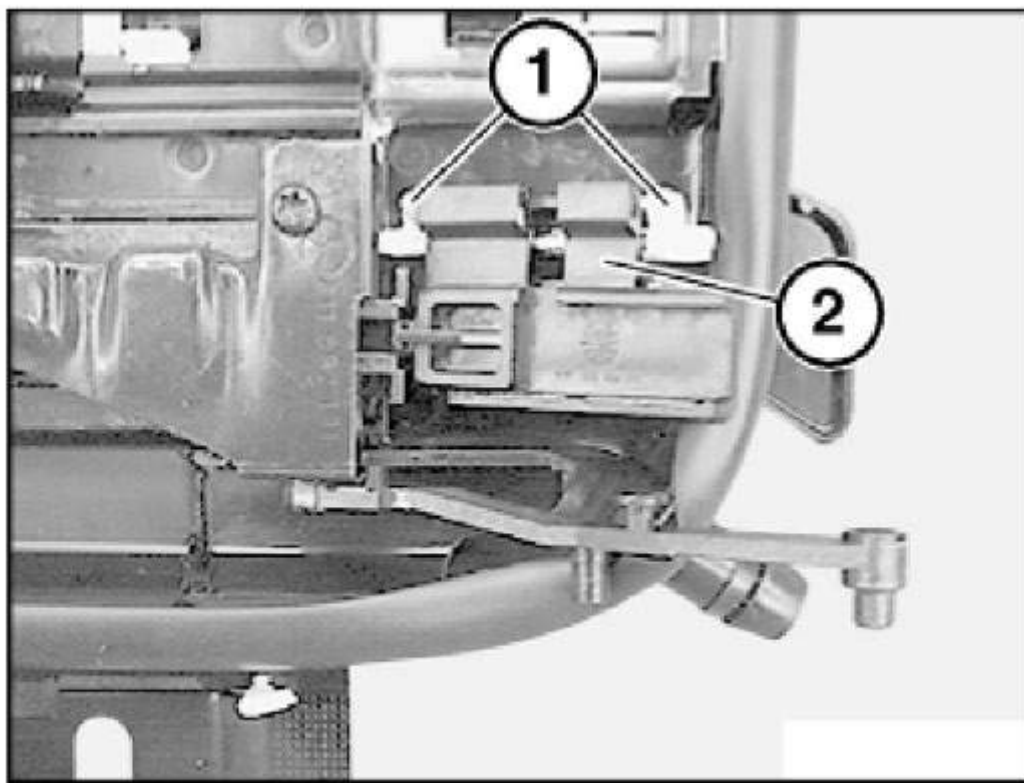


G03256375

Fig. 83: Sliding Control Rail Backwards (Right)
Courtesy of BMW OF NORTH AMERICA, INC.

Left side:

Unhook nipple (1) on drive cable from lifting lever (2) with plier tips.



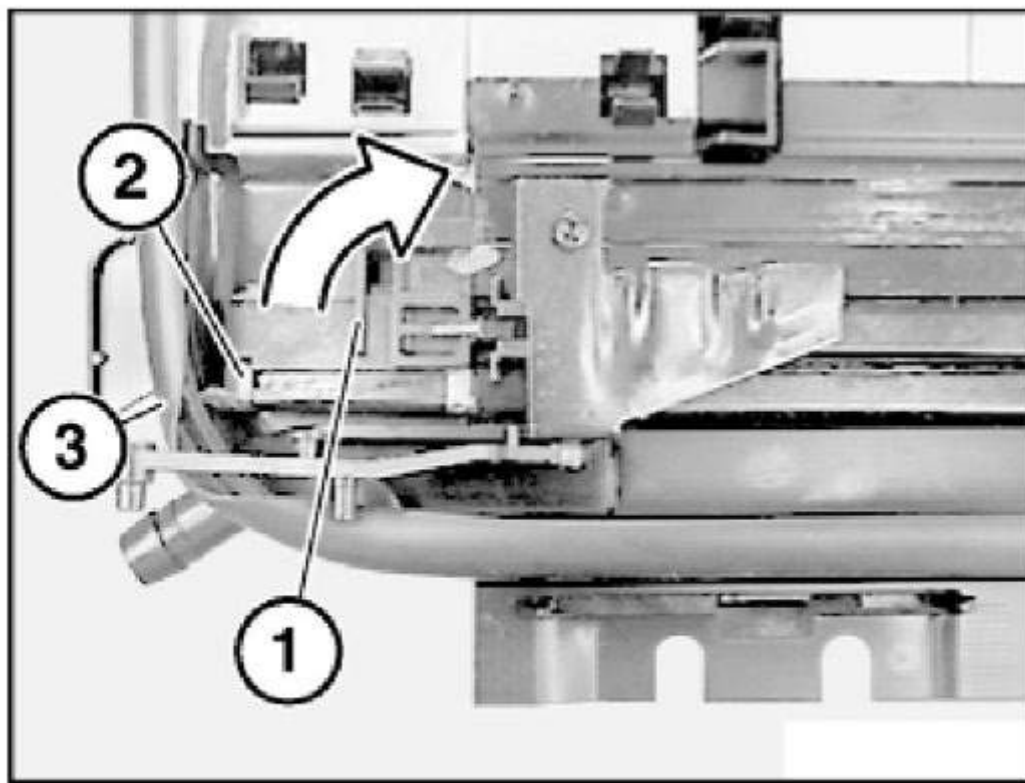
G03256376

Fig. 84: Identifying Nipple And Lifting Lever
Courtesy of BMW OF NORTH AMERICA, INC.

Right side:

Twist lifting lever (1) upwards.

Pull drive cable out slightly and lift over the gasket (3).

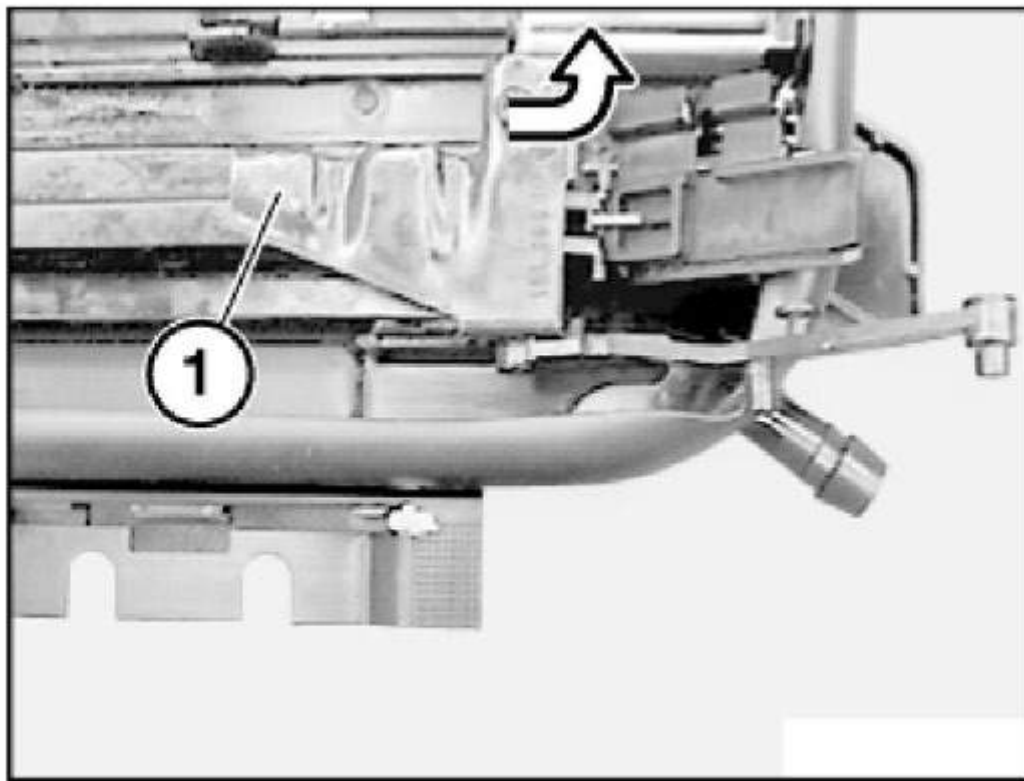


G03256377

Fig. 85: Twisting Lifting Lever Upwards
Courtesy of BMW OF NORTH AMERICA, INC.

Left side:

Slide control rail (1) backwards until guide on control rail (1) emerges from guide channel, then lift the control rail (1).



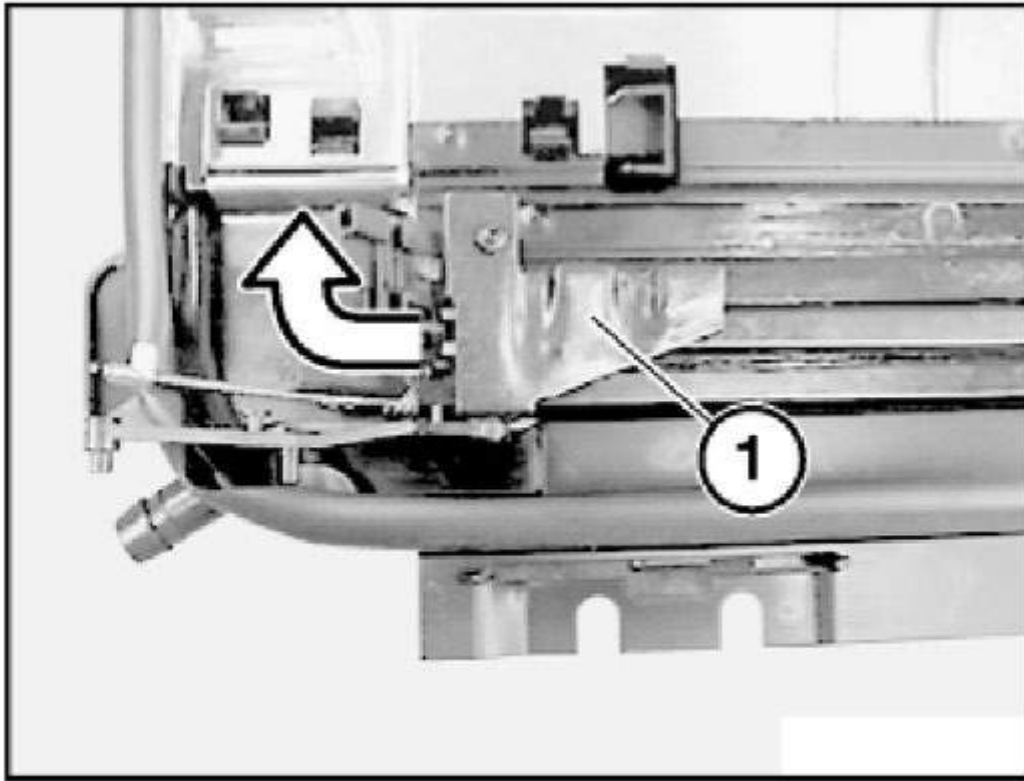
G03256378

Fig. 86: Aligning Control Rail (Left)

Courtesy of BMW OF NORTH AMERICA, INC.

Right side:

Slide control rail (1) backwards until the guide on the control rail (1) emerges from the guide channel, then lift the control rail (1).



G03256379

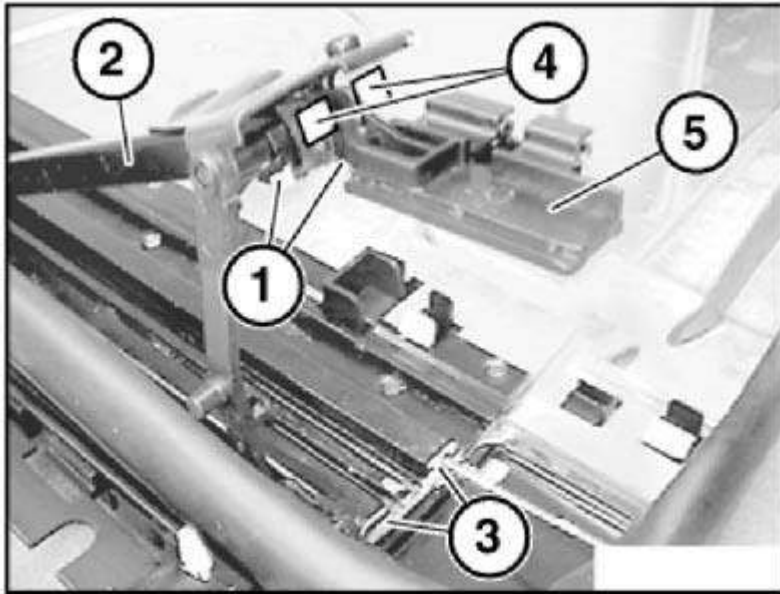
Fig. 87: Lifting Control Rail (Right)

Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

The guide (1) on the control rail (2) must run in the guide channel (3).

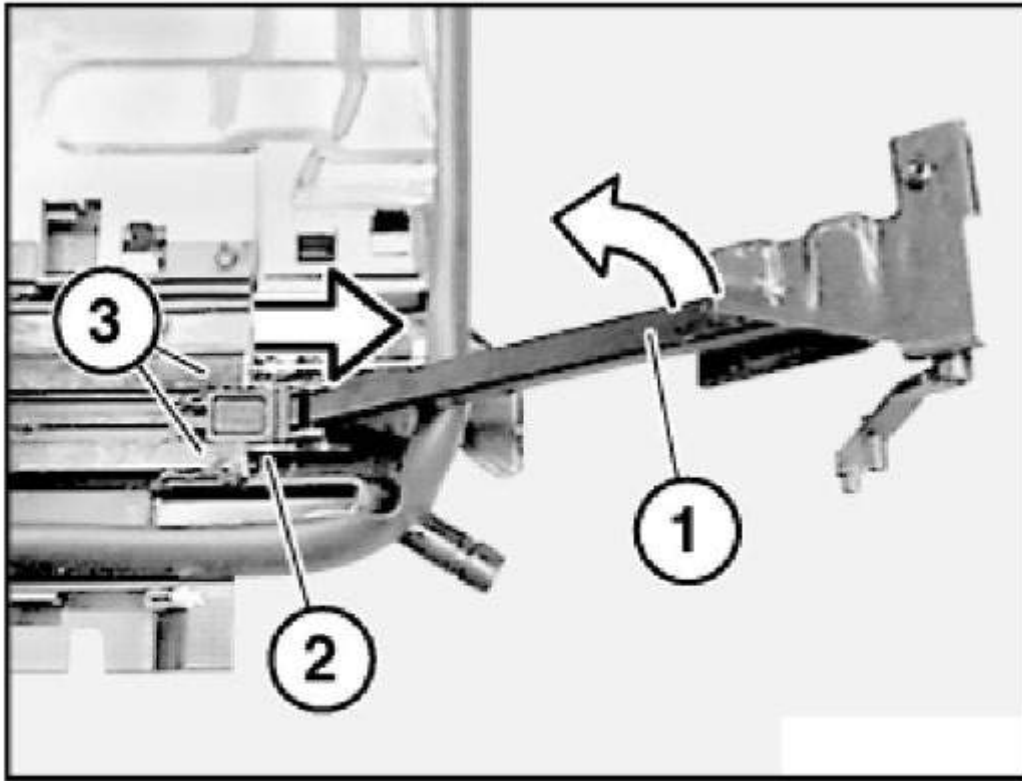
The guide (4) on the lifting lever (5) must run above the guide channel (3).



G03256380

Fig. 88: View Of Guide On Control Rail
Courtesy of BMW OF NORTH AMERICA, INC.

Lift control rail (1) and pull backwards out of guide channel (3) with sliding section (2).



G03256381

Fig. 89: Lifting Control Rail Out Of Guide Channel
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

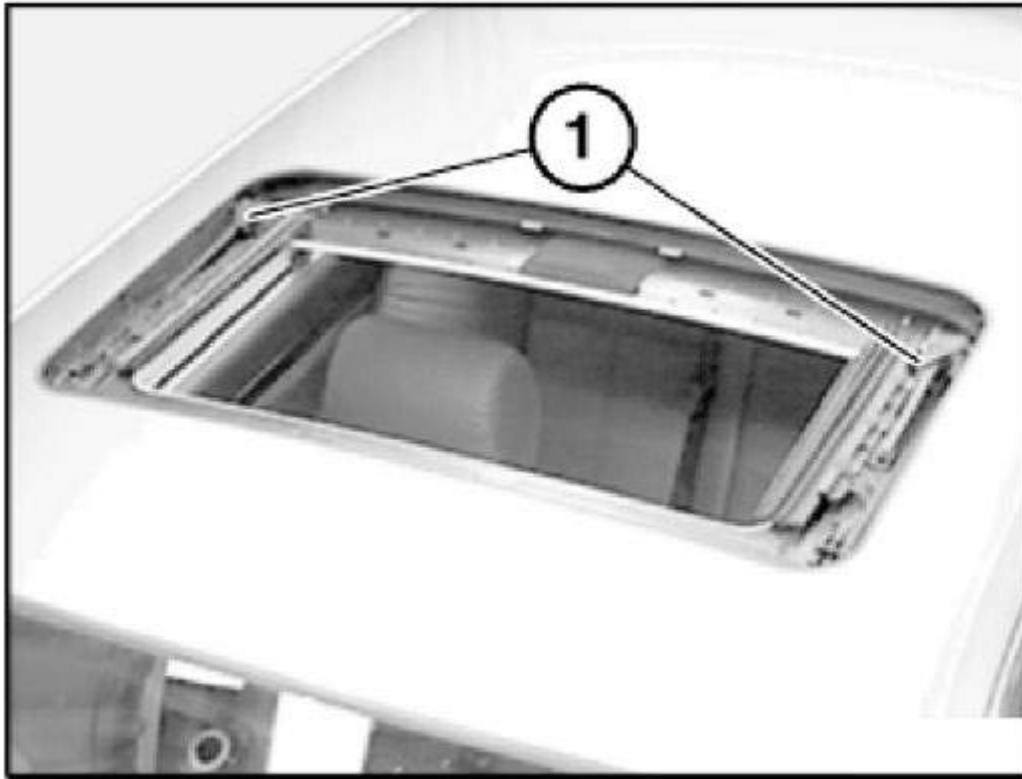
Adjusting both drive cables for glass slide/tilt sunroof actuation, refer to **54 12 265 ADJUSTING BOTH DRIVE CABLES FOR ACTUATION OF GLASS SLIDE/TILT SUNROOF** .

Check function.

54 12 265 ADJUSTING BOTH DRIVE CABLES FOR ACTUATION OF GLASS SLIDE/TILT SUNROOF

Removing and installing glass slide/tilt sunroof, refer to **54 12 115 REMOVING AND INSTALLING GLASS SLIDING/TILTING SUNROOF LID** .

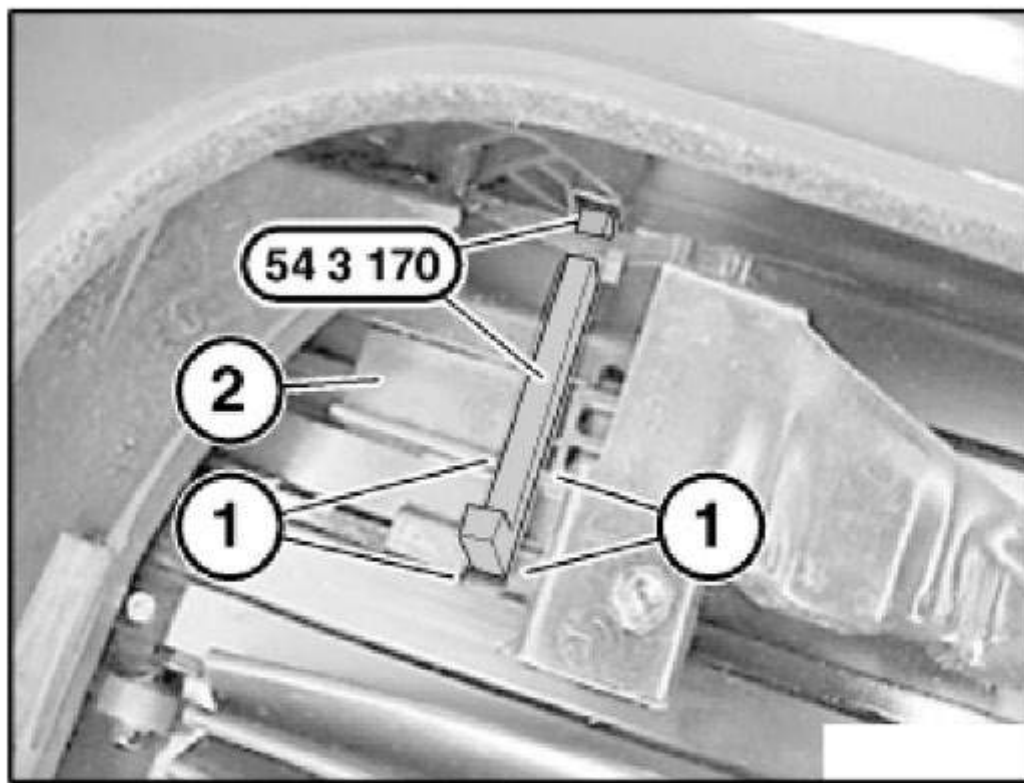
Slide mechanism (1) into zero setting.



G03256382

Fig. 90: Identifying Slide Mechanism In Zero Setting
Courtesy of BMW OF NORTH AMERICA, INC.

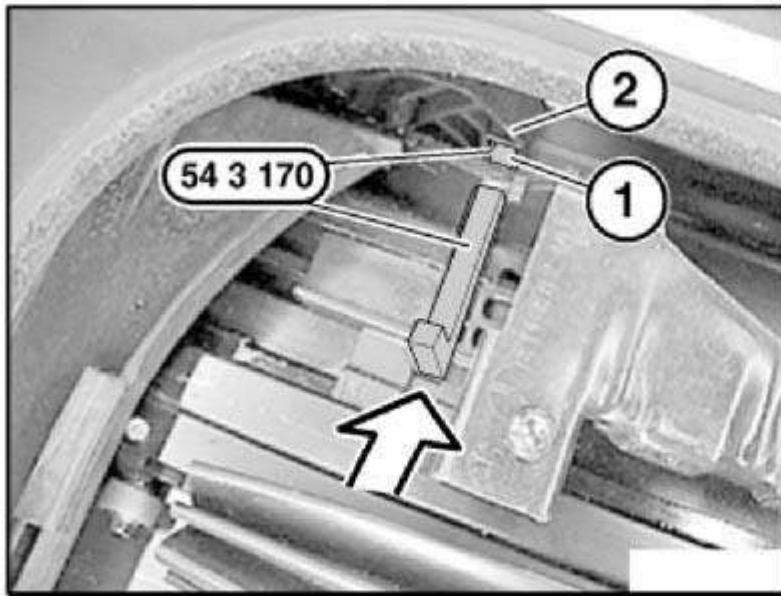
Insert special tool 54 3 170 left/right between the guides (1) in the lifting device (2).



G03256383

Fig. 91: Inserting Special Tool 54 3 170 Between Guides In Lifting Device
Courtesy of BMW OF NORTH AMERICA, INC.

Lift front of special tool 54 3 170 (1) slightly and insert in control gate (2) (both drive cables are now secured in their zero setting).



G03256384

Fig. 92: Inserting Special Tool 54 3 170 In Control Gate
Courtesy of BMW OF NORTH AMERICA, INC.

CAUTION: Remove special tool 54 3 170 left/right (risk of damage).

Check function.

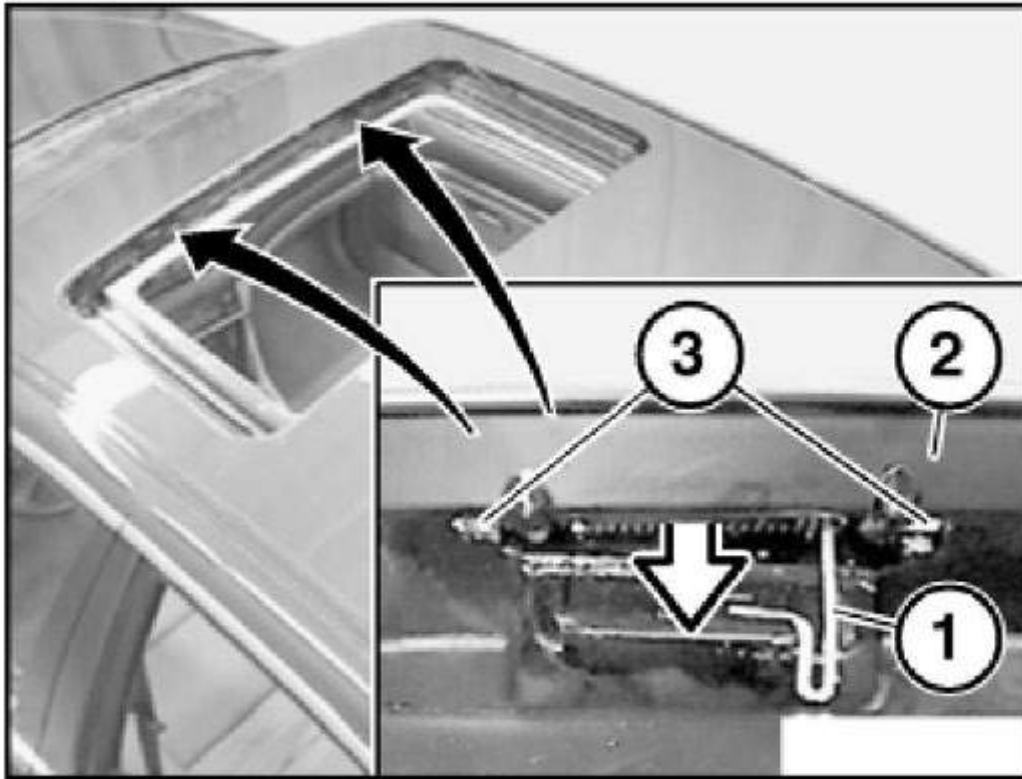
54 12 496 REMOVING AND INSTALLING OR REPLACING WIND DEFLECTOR

Open slide/tilt sunroof.

Lift out left/right spring (1) and pull wind deflector (2) backwards slightly to remove from mount (3).

Installation:

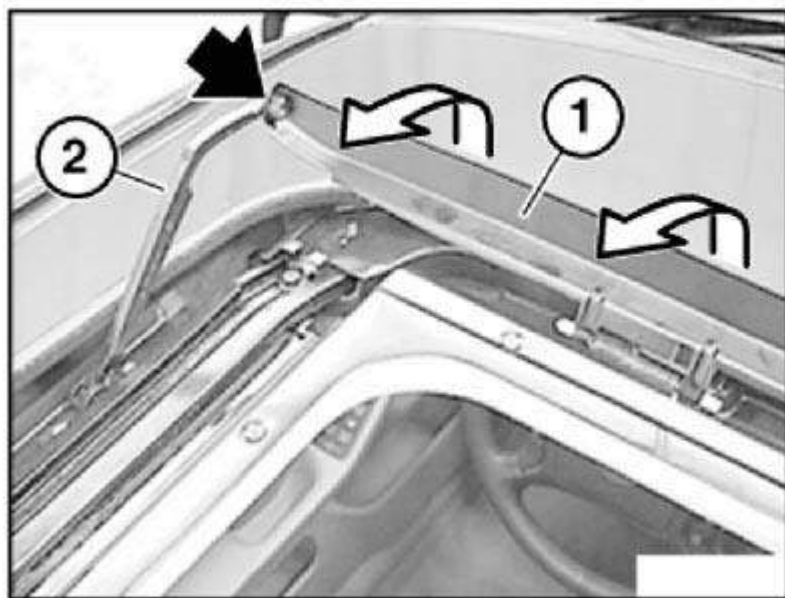
Install spring (1) correctly.



G03256385

Fig. 93: Aligning Wind Deflector Backwards
Courtesy of BMW OF NORTH AMERICA, INC.

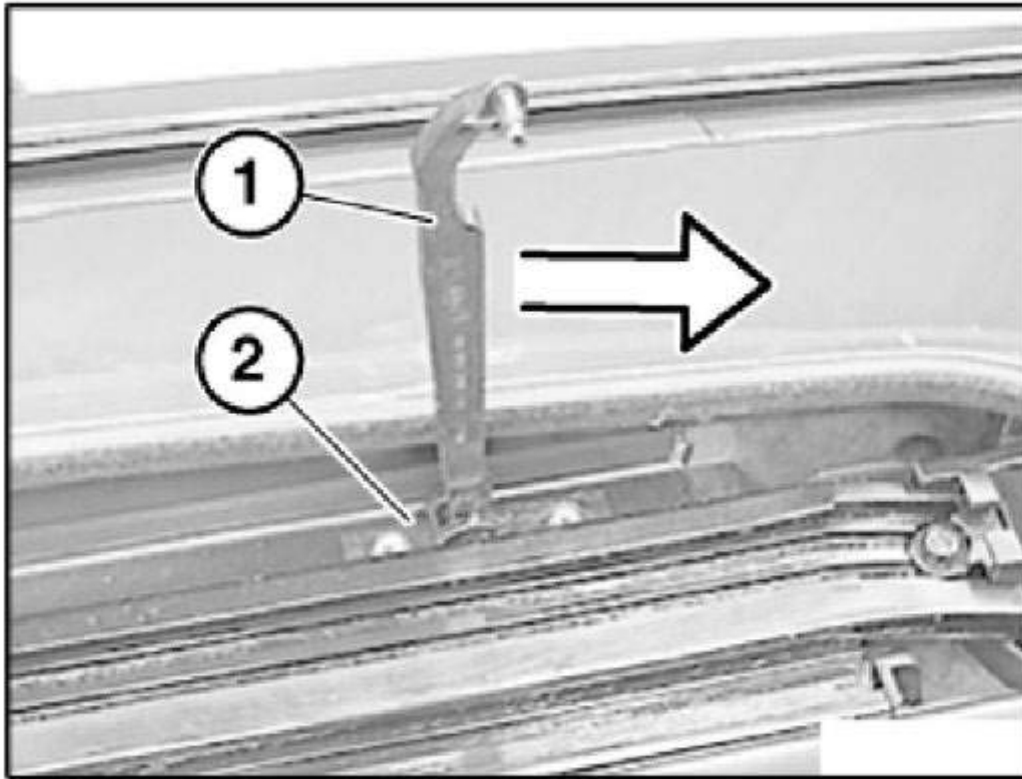
Raise wind deflector (1) slightly, turn and pull off left/right lever (2).



G03256386

Fig. 94: Removing Deflector Off Left/Right Lever
Courtesy of BMW OF NORTH AMERICA, INC.

Move left/right lever (1) into vertical position and pull forwards off mount (2).



G03256387

Fig. 95: Removing Left/Right Lever
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Check function.

ELECTRICAL SUN ROOF COMPONENTS

54 0 ... NOTES ON PANORAMA GLASS ROOF (INITIALIZATION/NORMALIZATION/LEARNING OF CHARACTERISTIC CURVE)

NOTE: Initialization comprises:

- Normalization.
- Learning characteristic curve.

The mechanical end positions are recorded and stored during normalization.

The characteristic curve is learned immediately after normalization.

When the characteristic curve is learned, the mechanical closing forces of the panorama glass roof are recorded and stored for correct operation of the anti-trapping mechanism.

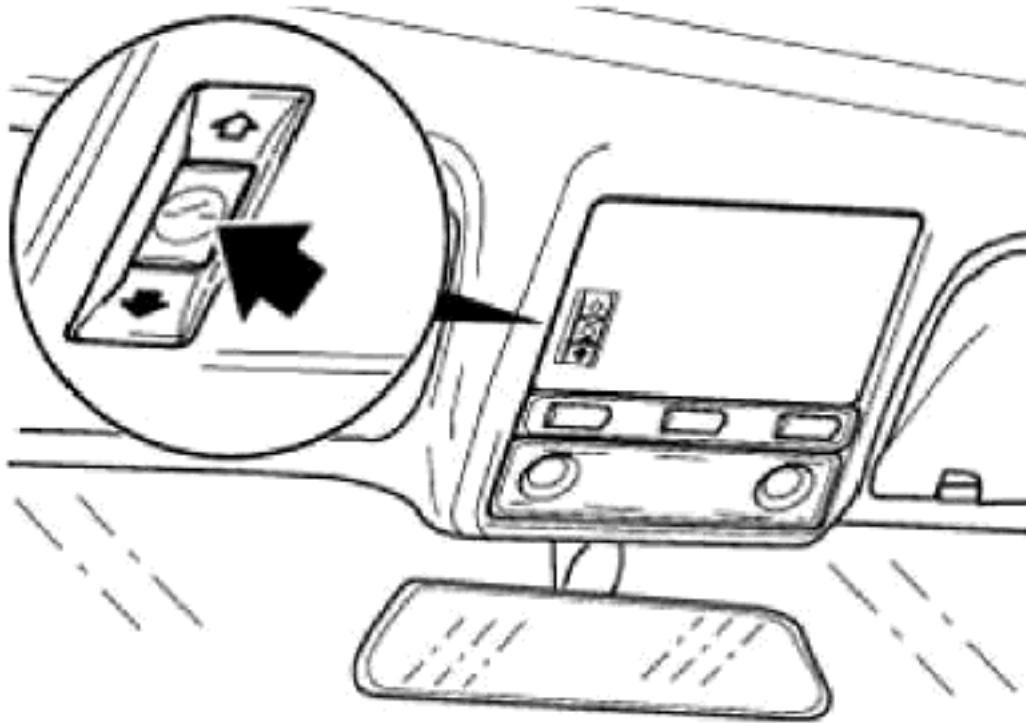
NOTE: **Then carry out an initialization:**

- If the panorama glass roof has been mechanically moved by means of the emergency actuator.
- In the event of malfunctions, e.g. no one-touch function, no opening or no comfort function possible.
- After disengagement of the drive unit.
- After work is carried out on the mechanism of the panorama glass roof.
- After the control unit has been replaced.

WARNING: There is no anti-trapping protection during initialization.

NOTE: **Starting situation in accordance with following description:**

- Panorama glass sunroof closed.
- Floating roofliner completely open.



G03256388

Fig. 96: Identifying Sunroof Switch

Courtesy of BMW OF NORTH AMERICA, INC.

Normalization:

- Press and hold the switch in the "Lift" direction.
- In the event of delayed starting or sudden stopping of the panorama glass roof, continue pressing the switch in the "Lift" direction.

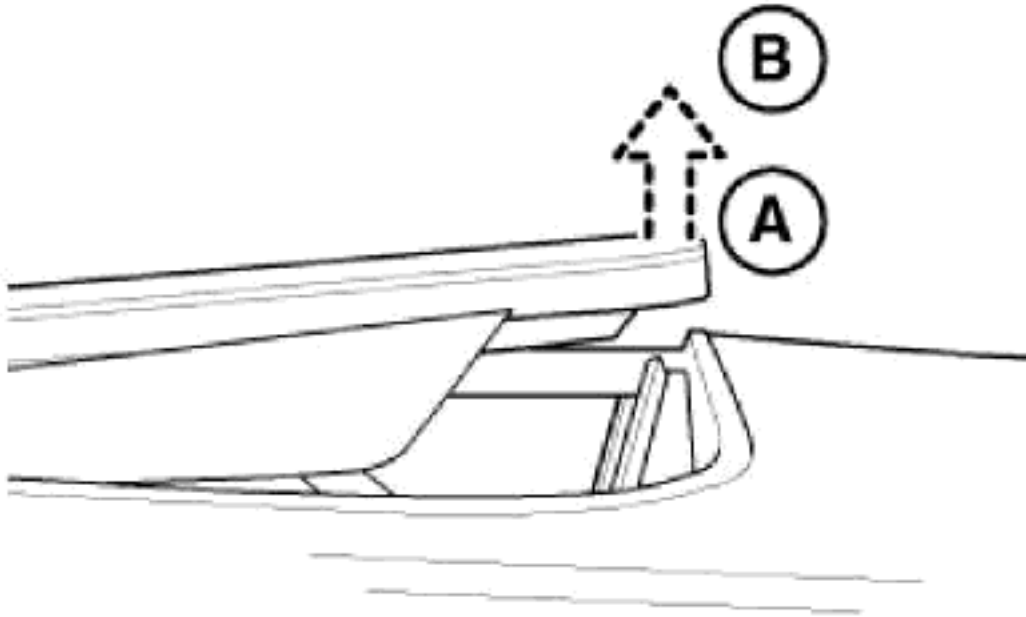
**G03256389**

Fig. 97: Identifying Lift End Position

Courtesy of BMW OF NORTH AMERICA, INC.

- After reaching the lift end position (A), keep the switch pressed for approx. 15 seconds further.
- Normalization is completed when the panorama glass roof in lift end position (A) presses again briefly in the direction of position (B).

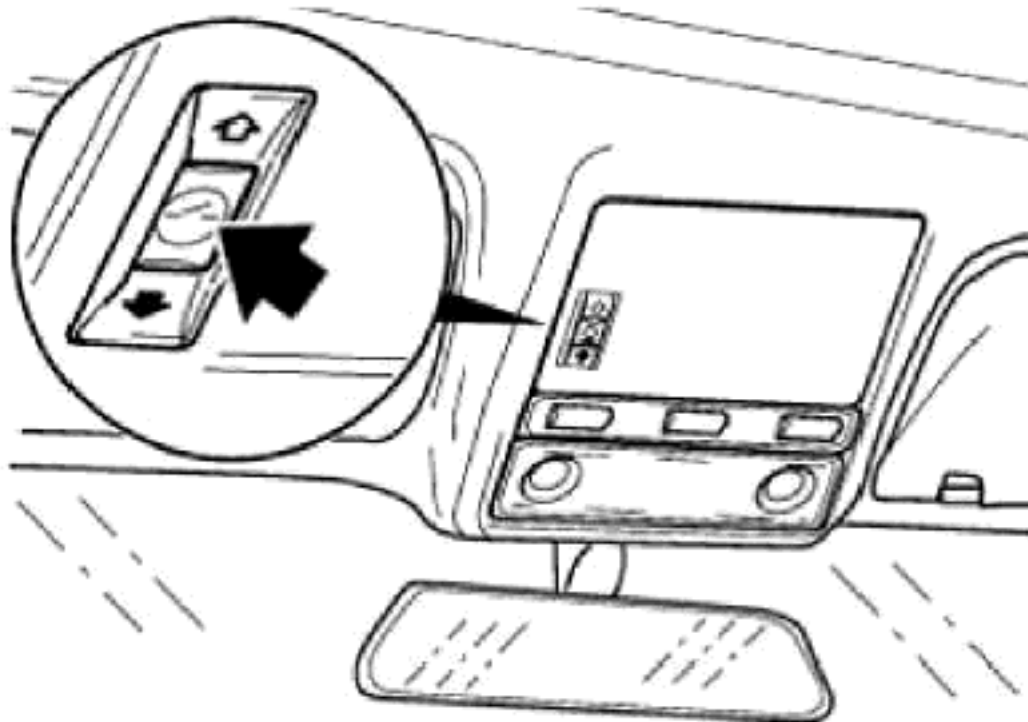
Learning Characteristic Curve:

E53/E61/E83 Only:

The curve is learned manually in the following steps:

- After normalization, keep switch pressed in "Lift" direction.
- The panorama glass roof stops for 5 seconds in the final raise position after normalization.
- Floating roofliner closes completely.
- Floating roofliner opens completely.
- The panorama glass roof then moves into the "Closed" position (learning of the "Closing from raising" curve).
- The panorama glass roof then moves into the "Open" end position and immediately back into the "Closed" position (learning of the "Closing" curve).

- Floating roofliner closes completely.
- Release switch.



G03256390

Fig. 98: Identifying Slide/Tilt Roof Switch

Courtesy of BMW OF NORTH AMERICA, INC.

NOTE:

- The entire operation lasts approx. 75 seconds.
- Learning of the curve is terminated when the switch is released.
- If the switch is released in the meantime, the entire procedure must be repeated.
- On completion of successful initialization, the corresponding messages in the check control and the control display go out.
- Carry out function check (tip function, anti-trapping protection and, if necessary, comfort function).

NOTE: Initialization comprises:

- **Normalization.**
- **Learning characteristic curve.**

The mechanical end positions are recorded and stored during normalization.

The characteristic curve is learned immediately after normalization.

When the characteristic curve is learned, the mechanical closing forces of the slide/tilt sunroof are recorded and stored for correct operation of the anti-trapping mechanism.

NOTE: An Initialization must be performed:

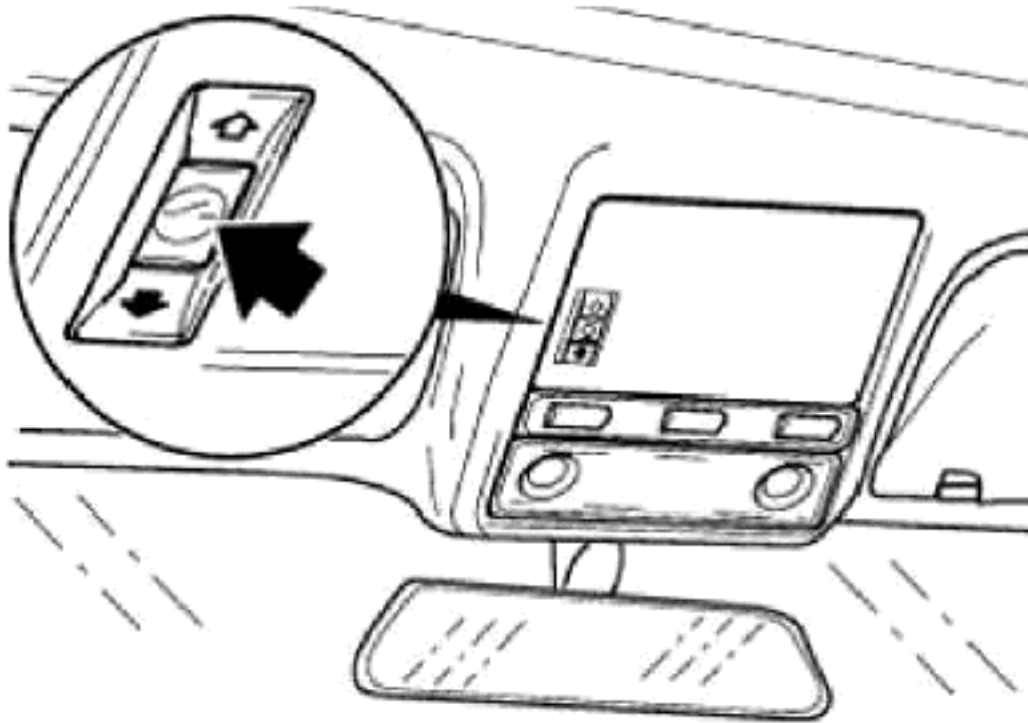
- **In the event of malfunctions, e.g. no one-touch function, no opening or no comfort function possible.**
- **After disengagement of the drive unit.**
- **If necessary, after an interruption of the power supply.**
- **After work is carried out on the mechanism of the slide/tilt sunroof.**

NOTE: The initialization sequence is dependent on the software version of the slide/tilt sunroof module (in the sunroof drive unit). If necessary, code slide/tilt sunroof drive unit.

WARNING: There is no anti-trapping protection during initialization.

Normalization:

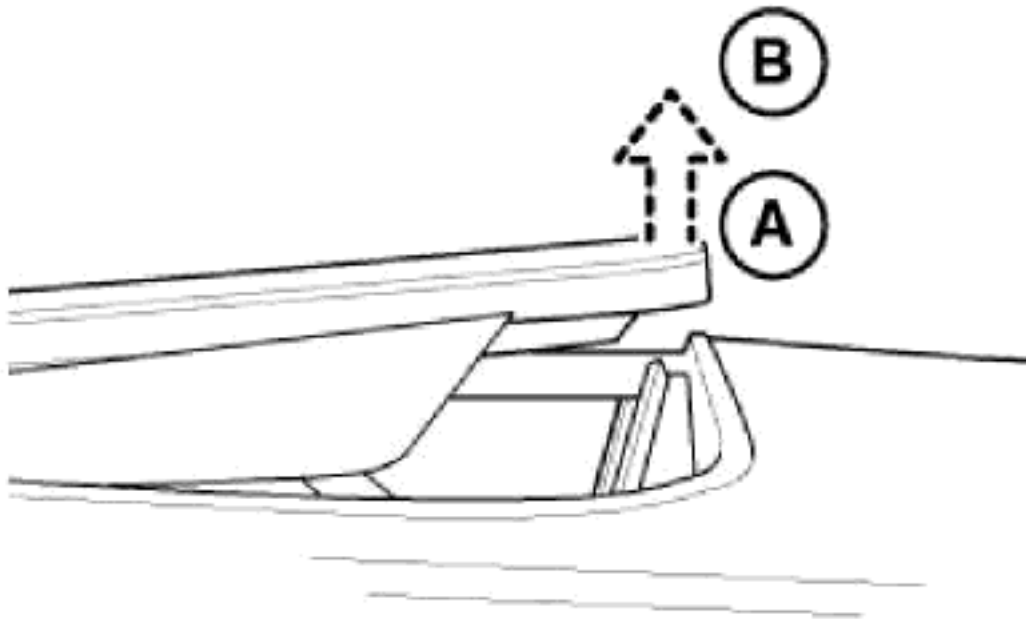
- Press and hold the switch in the "Lift" direction.
- In the event of delayed starting or sudden stopping of the slide/tilt sunroof, continue pressing the switch in the "Lift" direction.



G03256392

Fig. 99: Pressing Sunroof Switch In Lift Direction
Courtesy of BMW OF NORTH AMERICA, INC.

- After reaching lift end position (A), keep switch pressed for approx. 20 seconds further.
- Normalization is completed when the slide/tilt sunroof in lift end position (A) presses again briefly in the direction of position (B).
- Release switch.



G03256393

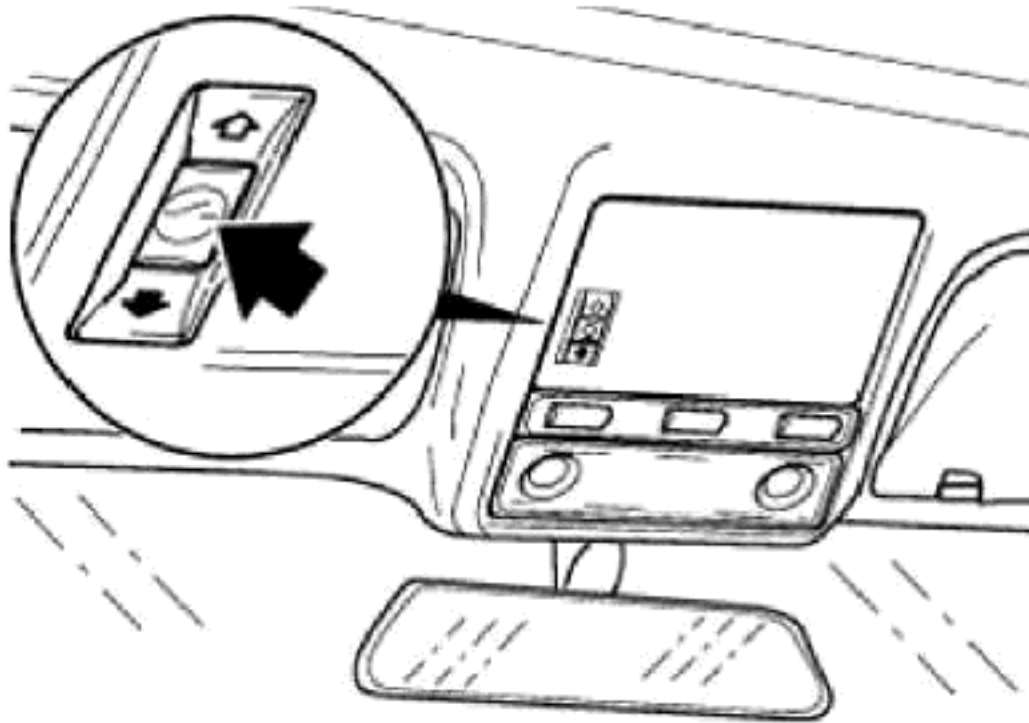
Fig. 100: Identifying Lift End Position
Courtesy of BMW OF NORTH AMERICA, INC.

Learning Characteristic Curve:

E53 Slide/Tilt Sunroof (Not: Panoramic Glass Sunroof):

The curve is learned manually in the following steps:

- Release switch after normalization for max. 5 seconds.
- Then hold down the switch in the raising position direction until such time that the slide/tilt sunroof has returned to the closed position after a complete opening movement.
- This concludes learning of the curve. The switch can now be released.



G03256394

Fig. 101: Identifying Sunroof Switch

Courtesy of BMW OF NORTH AMERICA, INC.

NOTE: Carry out function check (one-touch function, anti-trapping protection and, if necessary, comfort function).

54 13 003 ADJUSTING GLASS SLIDE/TILT SUNROOF LID

NOTE: For Special Tool identification, see **SPECIAL TOOLS - X-5 (3.0i)** .

Special Tools Required:

- 00 9 315
- 00 9 341

Necessary Preliminary Tasks:

- Remove gaiter on left and right. Refer to **54 10 160 REPLACING LEFT OR RIGHT GAITER FOR GLASS SLIDE/TILT SUNROOF**

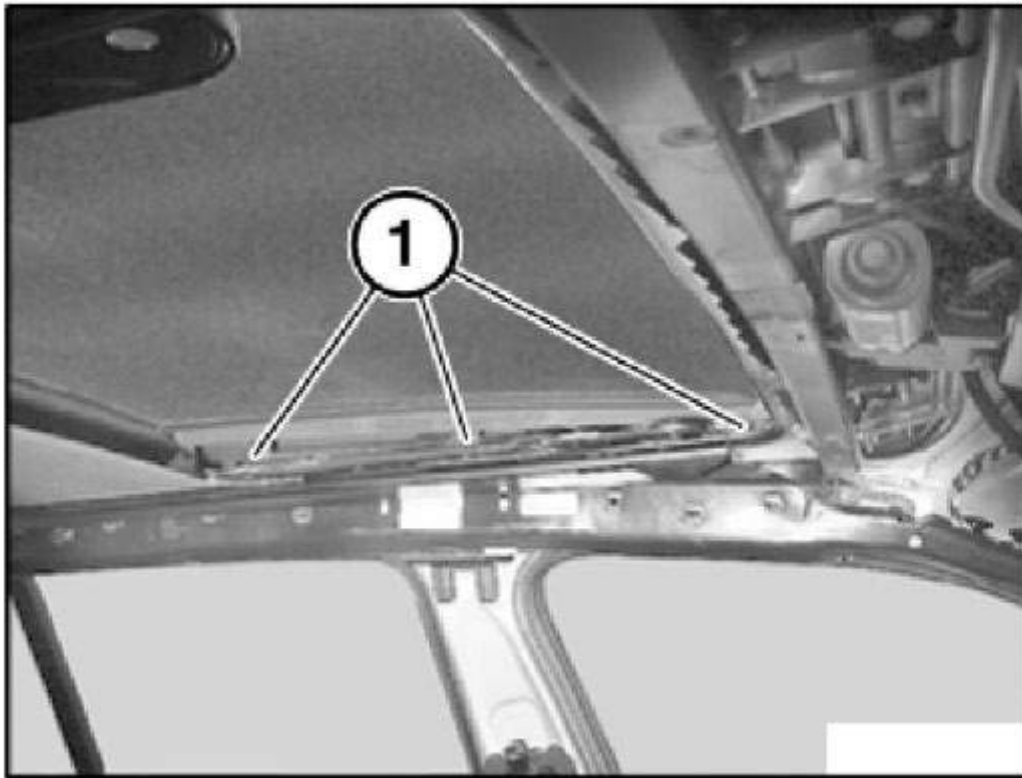
- Close glass slide/tilt sunroof completely.

If the glass slide/tilt sunroof is outside the adjustment tolerances, adjust as follows:

Adjusting Glass Slide/Tilt Sunroof Unit:

Carry out the following step on one side first and then the other (first left, then right or vice versa):

- Slacken Torx screws (1) on left/right so that glass roof panel can still just be adjusted.
- Move glass roof panel as required.
- Make sure all screws are tightened down.
- Tightening torque, (4 +/-0.5 N.m).
- Repeat procedure on other side.



G03256395

Fig. 102: Identifying Torx Screws For Adjusting Glass Roof Panel
Courtesy of BMW OF NORTH AMERICA, INC.

Distance Setting:

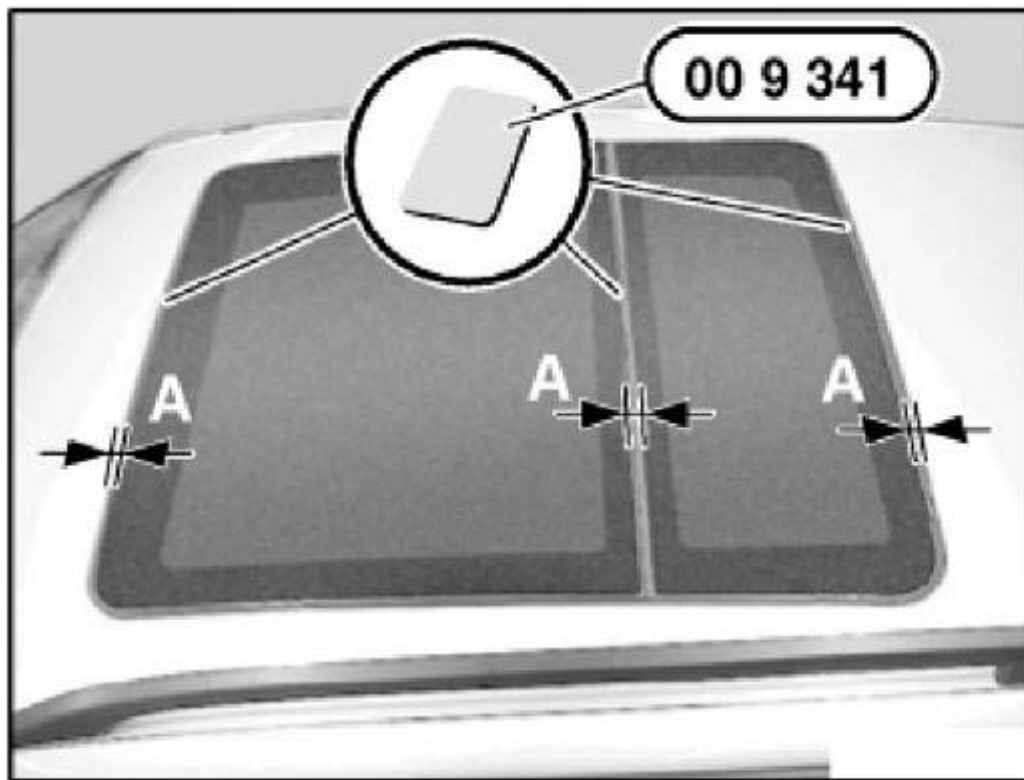
Distance A between body and glass lid (without seal):

$A = 5.8 \pm 0.3$ mm all round.

Check same gap of glass lid and body with special tool 00 9 341.

Slide special tool 00 9 341 or similar between seal and insert. It must be possible to slide the card against the same level of resistance.

Slide glass lid towards front or rear until ideal position is reached.



$A = 5.8 \pm 0.3$ mm

G03256396

Fig. 103: Identifying Distance Between Body And Glass Lid (Without Seal)
Courtesy of BMW OF NORTH AMERICA, INC.

Height Adjustment:

NOTE: **Front glass lid must be adjusted first.**

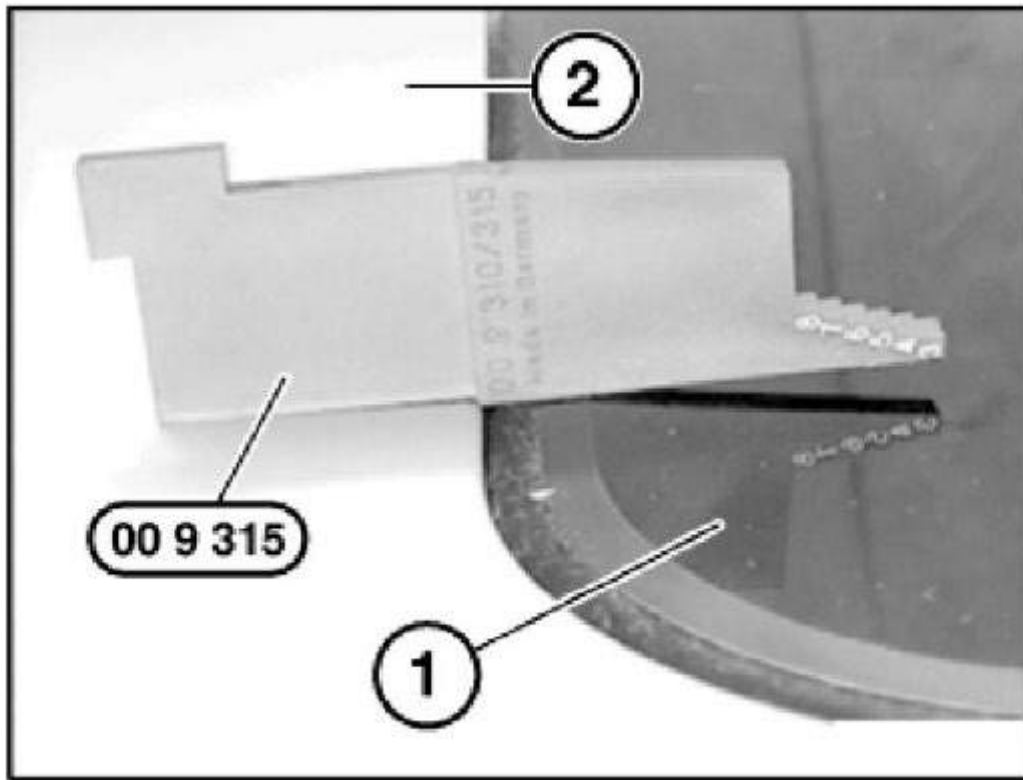
Check height of glass lid (1) in relation to body (2) with special tool 00 9 315.

Press glass lid (1) at front and rear towards top or bottom until ideal position is reached.

Height:

- Front edge of glass lid at front 0 to 1 mm under roof edge.
- Rear edge of glass lid at front 0 to 0.5 mm over glass lid at rear.
- Rear edge of glass lid at rear 0 to 1 mm over roof edge.

Check function and adjustment.



G03256397

Fig. 104: Checking Height Of Glass Lid In Relation To Body With Special Tool 00 9 315

Courtesy of BMW OF NORTH AMERICA, INC.

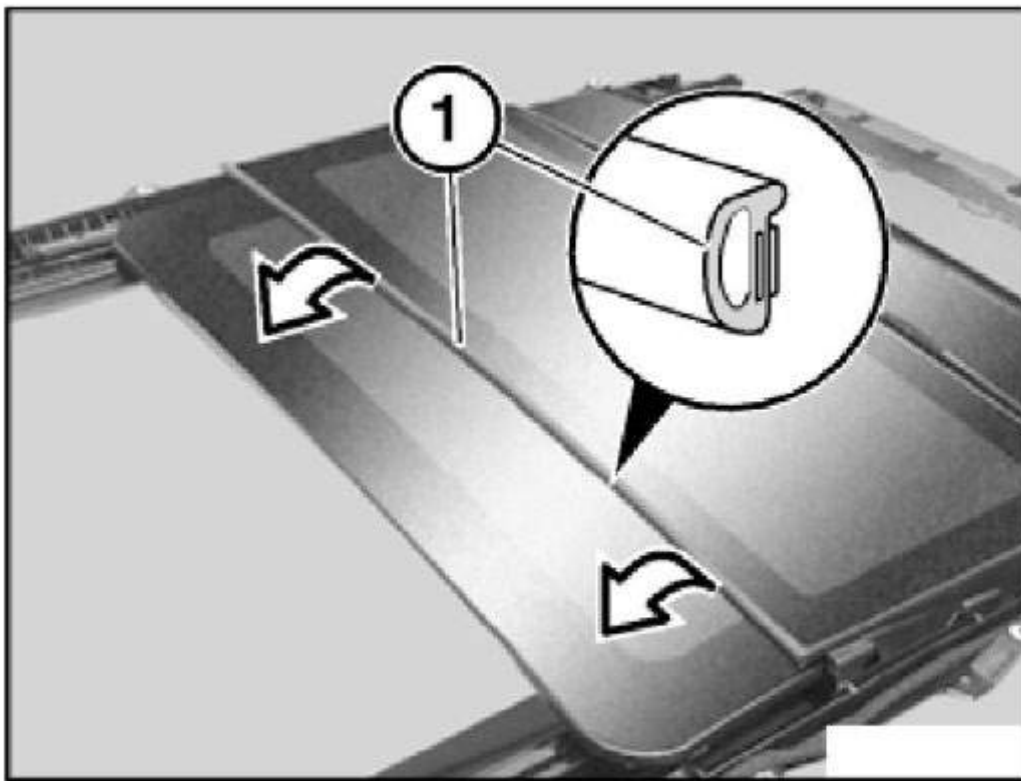
54 13 050 REPLACING SEAL FOR SLIDE/TILT SUNROOF LID AT REAR

Necessary Preliminary Tasks:

- Open glass slide/tilt sunroof.

NOTE: Follow repair instructions for bonded seals on glass slide/tilt sunroof. Refer to 54 0 ... REPAIR INSTRUCTIONS FOR BONDED SEALS .

Detach seal (1) from slide/tilt sunroof lid.



G03256398

Fig. 105: Detaching Seal From Slide/Tilt Sunroof Lid
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Clean bonding surface with adhesive remover.

Press seal without stretching (squashing).

IMPORTANT: Do not touch bonding surface. Surface temperature 20° C. Incorrect bonding of the seal will result in leakage.

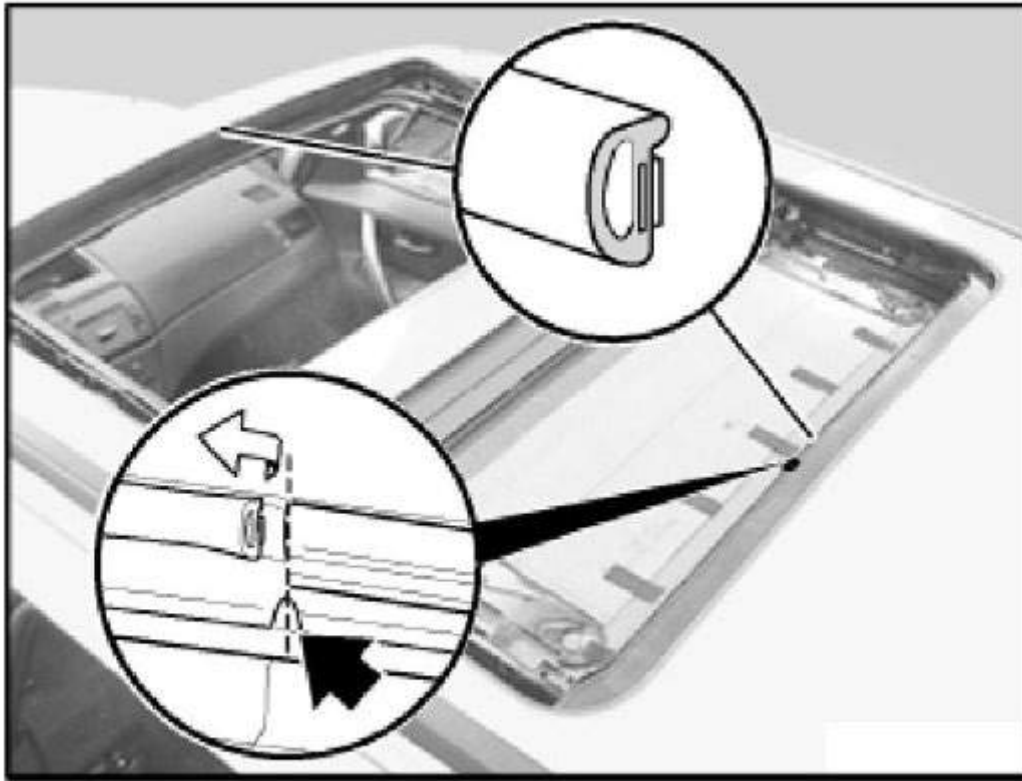
54 13 055 REPLACING SEAL FOR SLIDE/TILT SUNROOF FRAME

Necessary Preliminary Tasks:

- Remove glass slide/tilt sunroof lid at rear. Refer to **54 10 175 REMOVING AND INSTALLING REAR GLASS SLIDE/TILT SUNROOF COVER** .
- Lower (open) glass slide/tilt sunroof lid at front.

NOTE: Follow repair instructions for bonded seals on glass slide/tilt sunroof. Refer to **54 0 ... REPAIR INSTRUCTIONS FOR BONDED SEALS** .

Pull off seal of sunroof cut-out at contact edge starting from body. (Peel off).



G03256399

Fig. 106: Replacing Seal For Slide/Tilt Sunroof Frame
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Clean bonding surface with adhesive remover.

Press seal without stretching (squashing).

Stick on seal in sections.

Establish seal joint.

IMPORTANT: Do not touch bonding surface. Surface temperature $\geq 20^{\circ}\text{C}$. Incorrect bonding of the seal will result in leakage.

This operation is described in the article:

- **54 13 070 REMOVING AND INSTALLING/REPLACING BOTH FLOATING ROOFLINERS FOR GLASS SLIDE/TILT SUNROOF** .

54 13 065 REMOVING AND INSTALLING/REPLACING REAR FLOATING ROOFLINER FOR GLASS SLIDE/TILT SUNROOF

This operation is described in article on:

- **54 13 070 REMOVING AND INSTALLING/REPLACING BOTH FLOATING ROOFLINERS FOR GLASS SLIDE/TILT SUNROOF** .

54 13 070 REMOVING AND INSTALLING/REPLACING BOTH FLOATING ROOFLINERS FOR GLASS SLIDE/TILT SUNROOF

Necessary Preliminary Tasks:

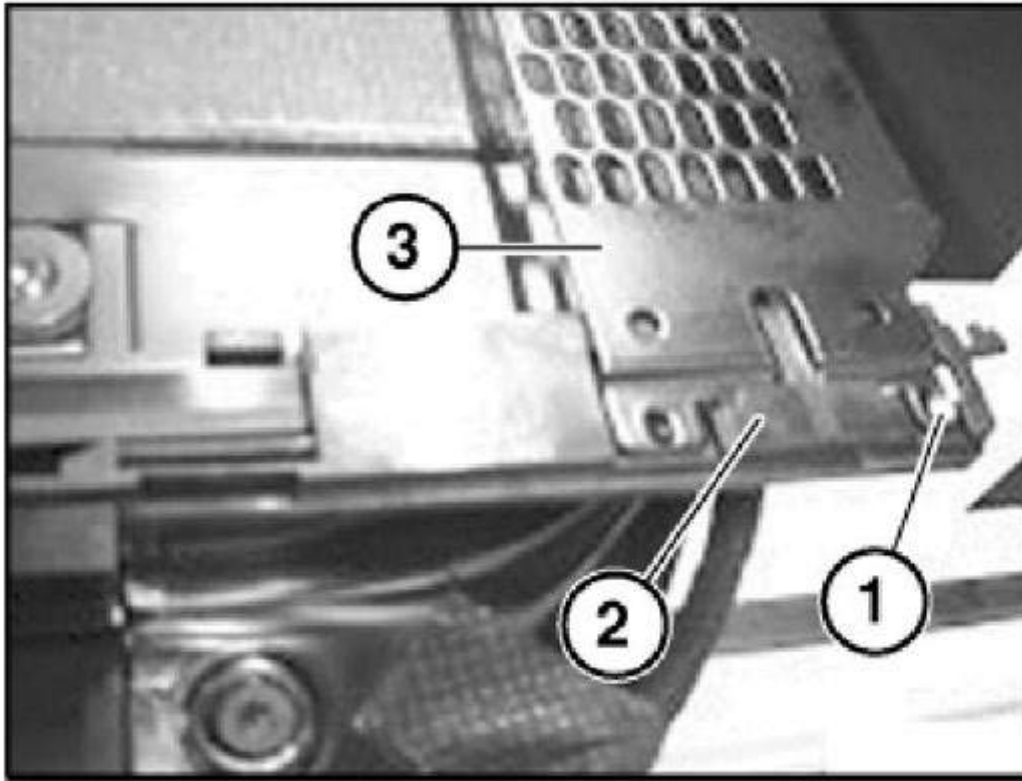
- Remove glass slide/tilt sunroof lid at front and rear. Refer to **54 10 170 REMOVING AND INSTALLING FRONT GLASS SLIDE/TILT SUNROOF COVER** .

NOTE: **Front and rear floating roofliners can be removed separately from each other. Make sure that grease on the rails does not come into contact with the floating roofliner.**

Release screw (1).

Release clips (2) with rotary block.

Remove fan plate (3).



G03256400

Fig. 107: Removing Fan Plate

Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Do not tighten down screw (1), fan plate (3) should be able to move in Y-direction.

Front Floating Roofliner:

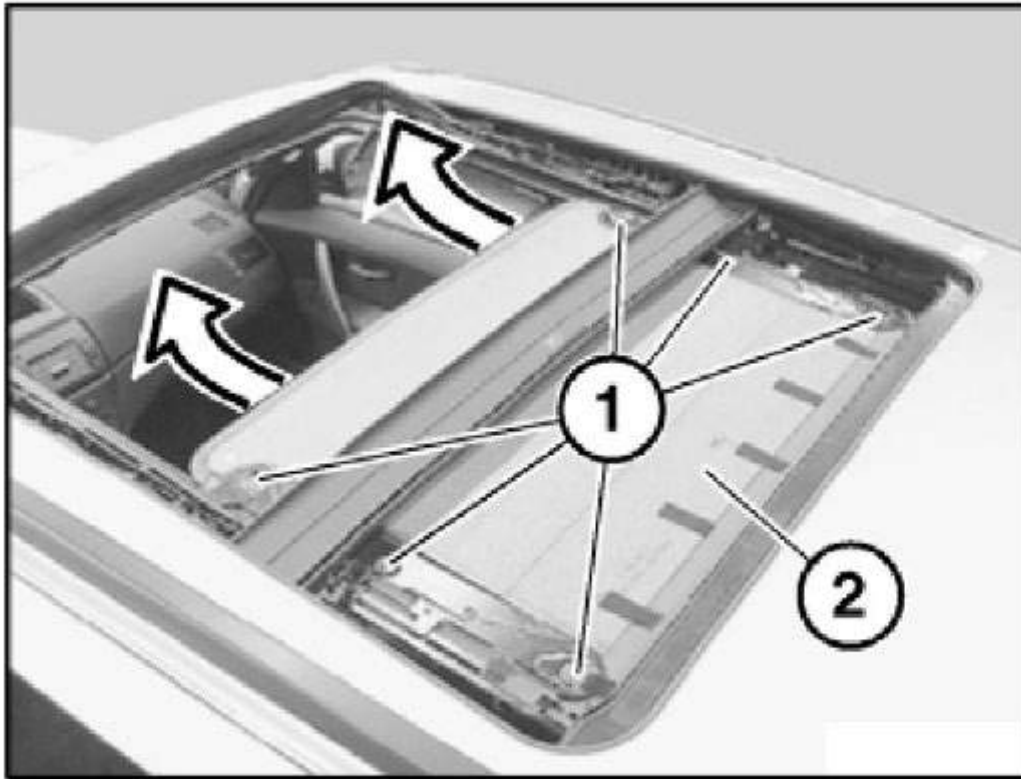
Open floating headliner approx. halfway.

Front rain channel must be situated between first and second screws.

Release screws (1).

Tightening torque, (1.5 +/-0.2 N.m).

Remove star shims.



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Fig. 108: Locating Screws In Front Floating Roofliner
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Replace microencapsulated screws and insert with Loctite.

Make sure star shims are correctly positioned.

Pull out floating roofliner (2) in direction of arrow.

If necessary, press wind deflector downwards.

Installation:

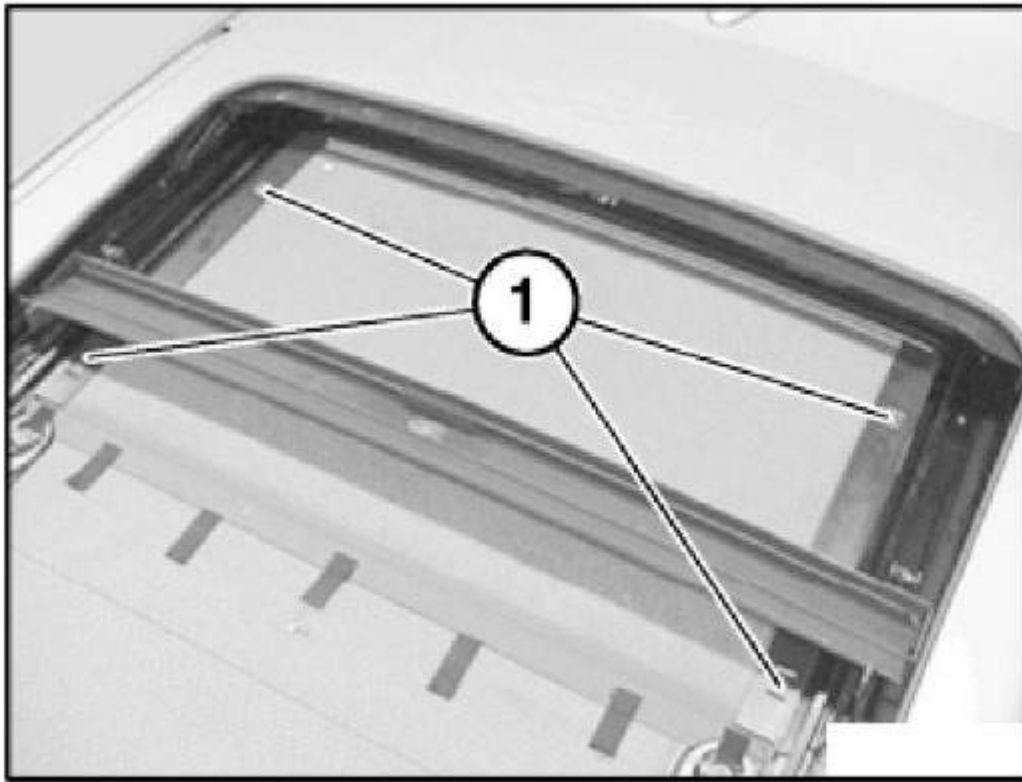
Carefully raise floating roofliner mechanism.

Rear Floating Roofliner:

Close roofliner completely but not in fan position.

Release screws (1).

Remove tensioning springs (left side only) and washers.



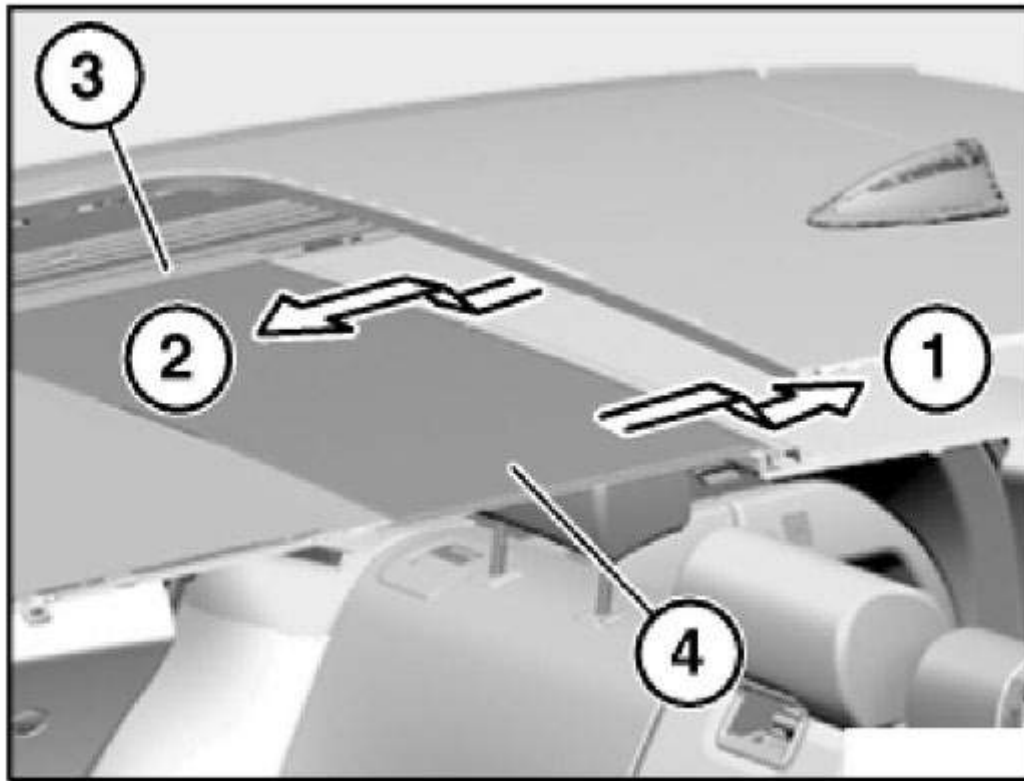
G03256402

Fig. 109: Releasing Rear Floating Roofliner Screws
Courtesy of BMW OF NORTH AMERICA, INC.

Slide floating roofliner (4) in direction of arrow (1) between outer body skin and roofliner.

Slide floating roofliner (4) up to end of control rail (3).

Raise floating roofliner (4) and remove over control rail (3) in direction of arrow (2).



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Fig. 110: Aligning Floating Roofliner
Courtesy of BMW OF NORTH AMERICA, INC.

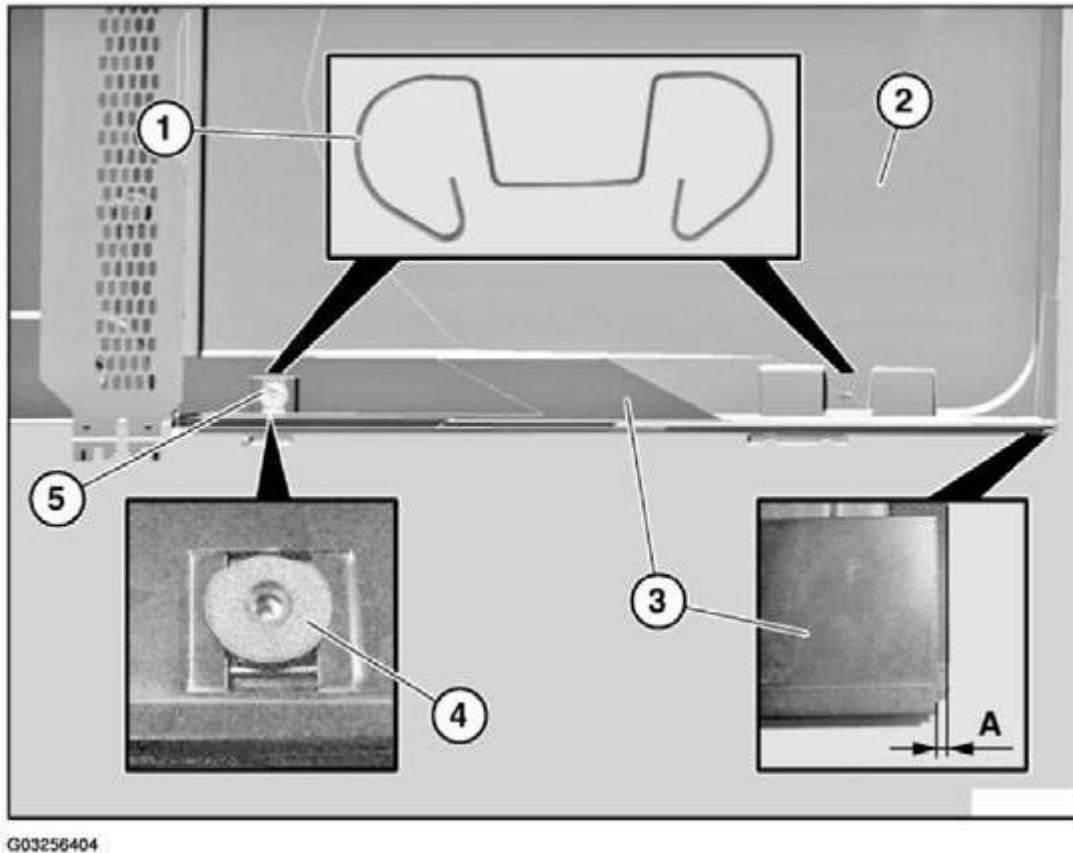


Fig. 111: Identifying Floating Roofliner Components
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Tensioning springs (1) must rest correctly in recess of floating roofliner (2).

Adjust gap A = 3 ± 0.2 mm from control rail (3) to floating roofliner (2).

Make sure washer (4) is correctly positioned with turning lock.

Replace microencapsulated screws (5) and insert with Loctite.

Tightening torque, (1 ± 0.2 N.m).

Performing Function Check:

- Floating roofliner must be able to move in control rail in X-direction.
- Floating roofliner is positioned on right and can be pressed towards left under spring tension.
- Floating roofliner springs back towards right into initial position

54 13 080 REMOVING AND INSTALLING COMPLETE GLASS SLIDE/TILT SUNROOF**Necessary Preliminary Tasks:**

- Remove roofliner, refer to **51 44 013 REMOVING AND INSTALLING ROOFLINER (ON VERSION WITH PANORAMA SUNROOF)** .
- Open rear lid.

E53 Only:

- Partially remove rear-compartment head airbag. Refer to **SIDE IMPACT HEAD PROTECTION SYSTEM (HPS)** for year model 2001 or **HEAD AIR BAG MODULES** for year model 2002, or **HEAD AIR BAG MODULES** for year model 2003.

IMPORTANT: Two persons are required to help in removing the glass slide/tilt sunroof.

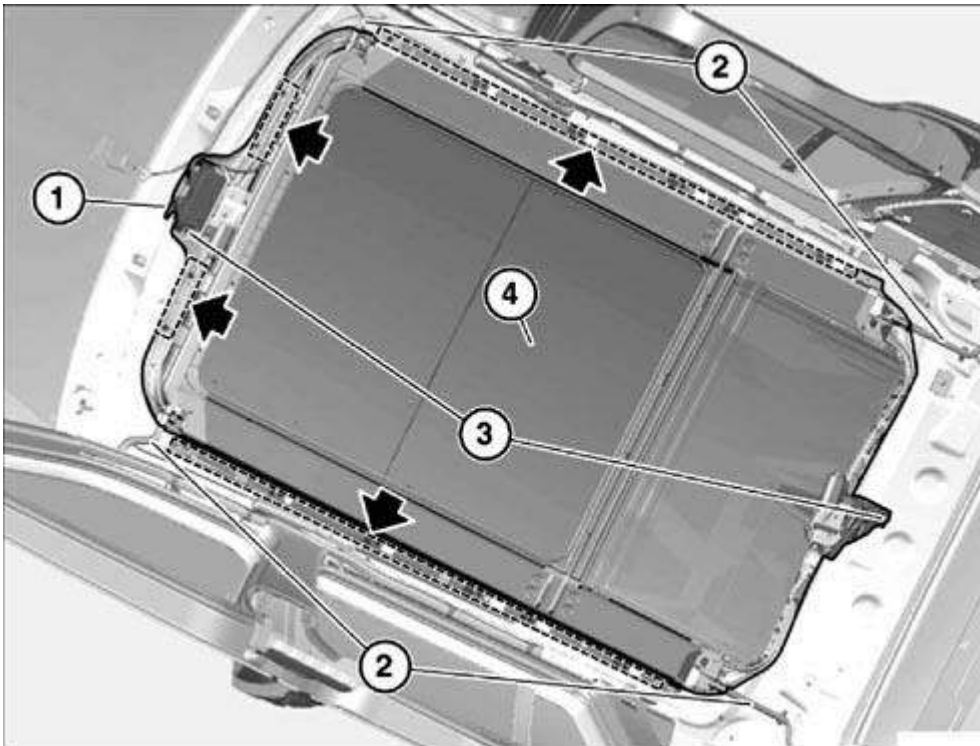


Fig. 112: Removing Complete Glass Slide/Tilt Sunroof
Courtesy of BMW OF NORTH AMERICA, INC.

- Unlock and disconnect plug (1).
- Detach water drain hoses (2).
- Release screws in marked area (when installing: fit washers on front side)

Tightening torque, (5.4 +/-0.5 N.m).

- Helper must hold glass sunroof to prevent it falling out.
- Release screws (3) on and carefully lower slide/tilt sunroof (4).

Tightening torque, (5.4 +/-0.5 N.m).

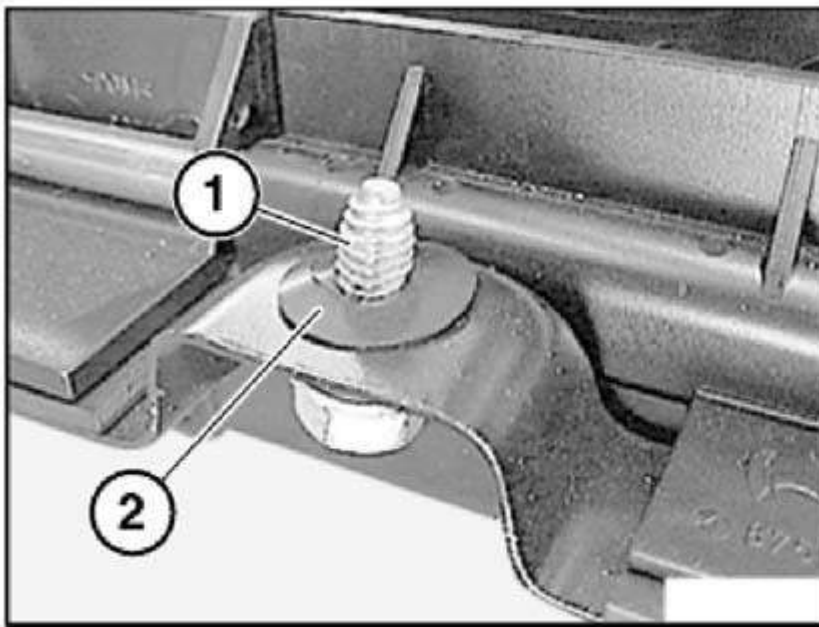
IMPORTANT: Do not damage any surrounding parts when removing slide/tilt sunroof (4).

- Remove slide/tilt sunroof (4) completely (through rear lid at rear).

Installation:

Due to robot assembly, all screws (1) are secured with washers (2) in production. These washers (2) are not absolutely necessary during manual assembly. They are however useful for positioning the frame on the body with 4 screws.

If the standard screws can no longer grip, use "repair screws" (have larger threads).



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Fig. 113: Identifying Screw Secured With Washer
Courtesy of BMW OF NORTH AMERICA, INC.

IMPORTANT: Do not crush any cables when fitting the glass slide/tilt sunroof. Initialize glass

2001 BMW X5 30i

2001-2003 ACCESSORIES AND EQUIPMENT Sliding/Tilt Roof - Repair Instructions - X5 (3.0i) M54

slide/tilt sunroof. Refer to 54 0 ... NOTES ON PANORAMA GLASS ROOF (INITIALIZATION/NORMALIZATION/LEARNING OF CHARACTERISTIC CURVE) .

54 13 090 REMOVING AND INSTALLING/REPLACING WIND DEFLECTOR

Necessary Preliminary Tasks:

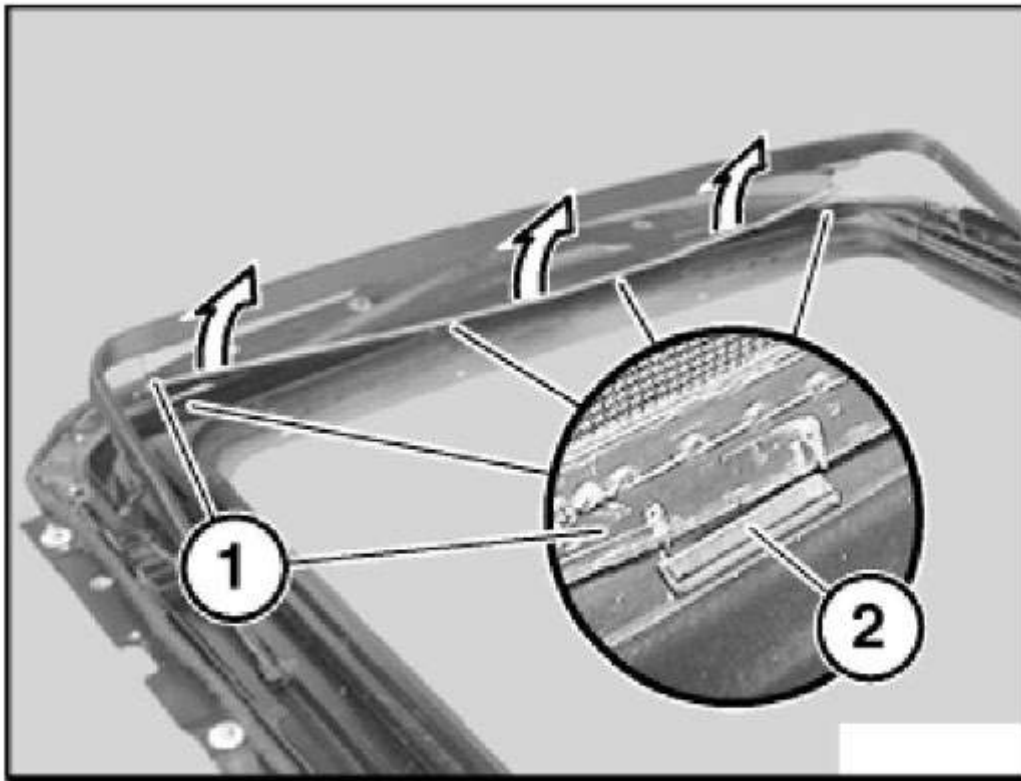
- Open slide/tilt sunroof

NOTE: Shown removed here for purposes of clarity. Pull plastic strip (1) on net of wind deflector out of retainers (2).

IMPORTANT: Do not pull on the net so as to avoid tearing the net.

Installation:

If necessary, reinstall retainers in frame.

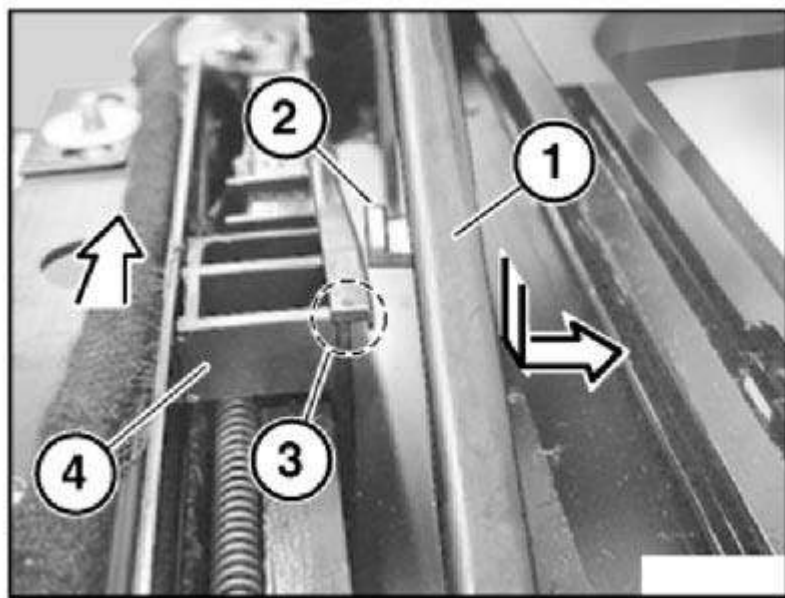


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Fig. 114: Removing Plastic Strip On Net Of Wind Deflector Out Of Retainers
Courtesy of BMW OF NORTH AMERICA, INC.

IMPORTANT: Tape off paintwork in working area.
Avoid bending wind deflector (1).

NOTE: Pictures show removal on the left side, proceed in the same way for the right side. Slide control carriage (4) for wind deflector with plastic wedge towards front. Carefully lift wind deflector (1) in direction of arrow with guide (2) out of rail (3).



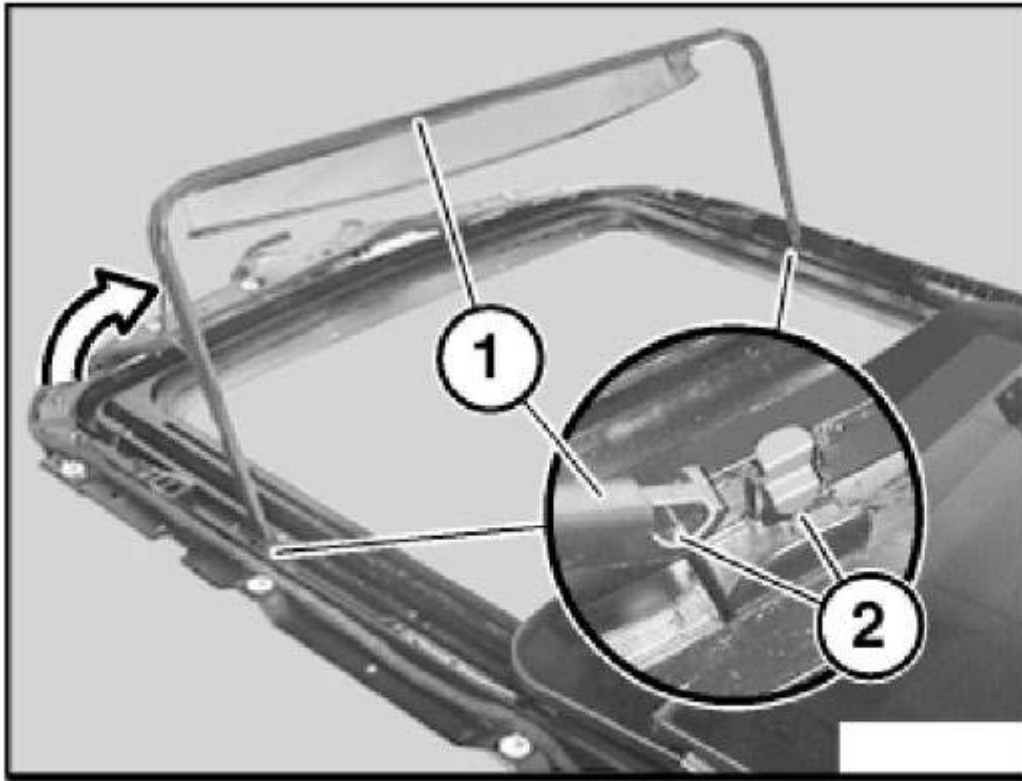
G03256409

Fig. 115: Lifting Wind Deflector With Guide Out Of Rail
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Make sure clamping elements are correctly seated.

Tilt wind deflector (1) into vertical position and remove.



G03256410

Fig. 116: Identifying Wind Deflector And Pivot Point
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Make sure wind deflector (1) is correctly seated in pivot point (2).

54 13 095 REPLACING/CLEANING NET FOR WIND DEFLECTOR

Necessary Preliminary Tasks:

- Open slide/tilt sunroof.

Cleaning:

The wind deflector net can be cleaned while installed as follows:

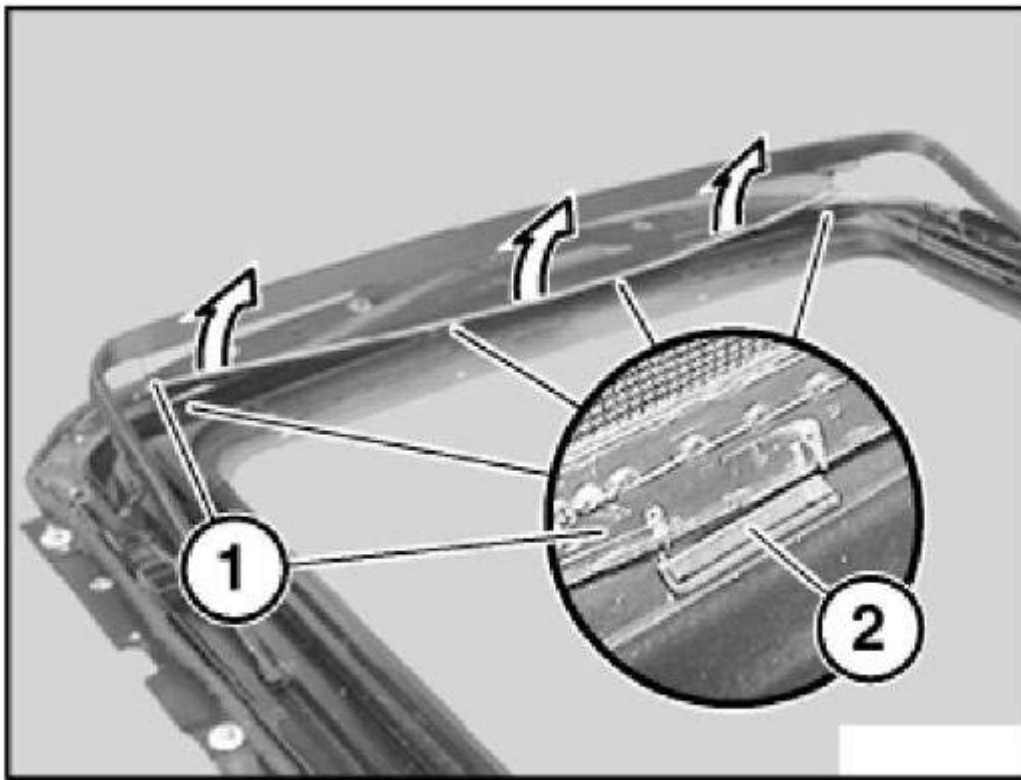
- Accelerate vehicle with glass slide/tilt sunroof open to over 5km/h.

- Stop vehicle and turn ignition key to position 2.

NOTE: This prevents the wind deflector from retracting, and thereby leaving it fully open. Net is now accessible and easy to clean.

Replacement:

Pull plastic strip (1) out of retainers (2) on panorama glass sunroof and wind deflector.



G03256411

Fig. 117: Pulling Plastic Strip Out Of Retainers
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

If necessary, reinstall retainers.

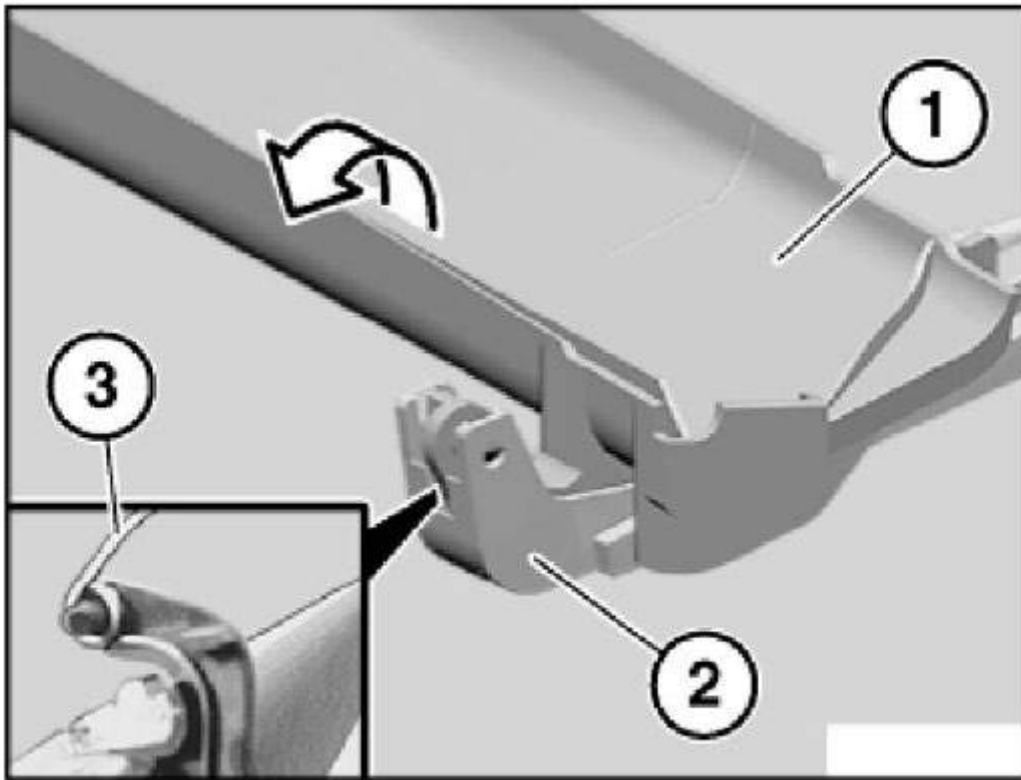
Clip new net into place.

54 13 100 REMOVING AND INSTALLING/REPLACING DRIP MOULDING**Necessary Preliminary Tasks:**

- Remove complete glass slide/tilt sunroof. Refer to **54 13 080 REMOVING AND INSTALLING COMPLETE GLASS SLIDE/TILT SUNROOF** .
- Remove glass slide/tilt sunroof lid at rear. Refer to **54 10 175 REMOVING AND INSTALLING REAR GLASS SLIDE/TILT SUNROOF COVER** .
- Remove glass slide/tilt sunroof lid at front. Refer to **54 10 170 REMOVING AND INSTALLING FRONT GLASS SLIDE/TILT SUNROOF COVER** .

IMPORTANT: Risk of damage to inner water carrier.

Reposition drip moulding (1) and carefully unclip upwards out of carrier (2).



G03256412

Fig. 118: Releasing Drip Moulding Upwards Out Of Carrier
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Attach spring (3) to drip moulding pivot point.

Make sure spring is correctly positioned in drip moulding.

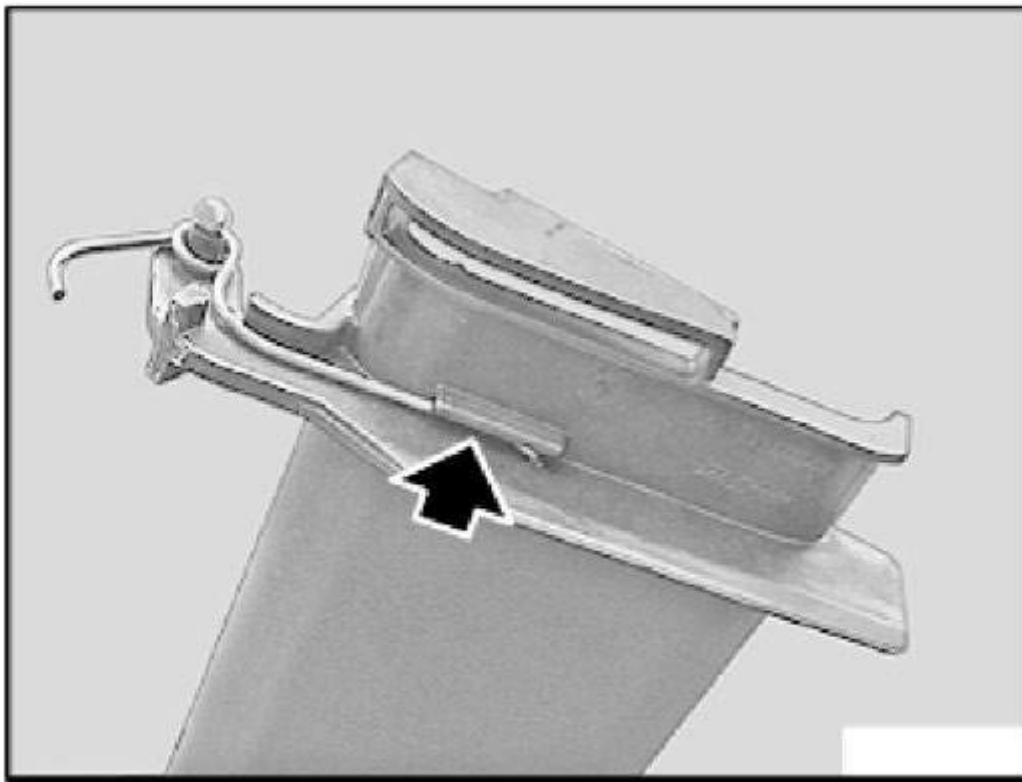
**G03256413**

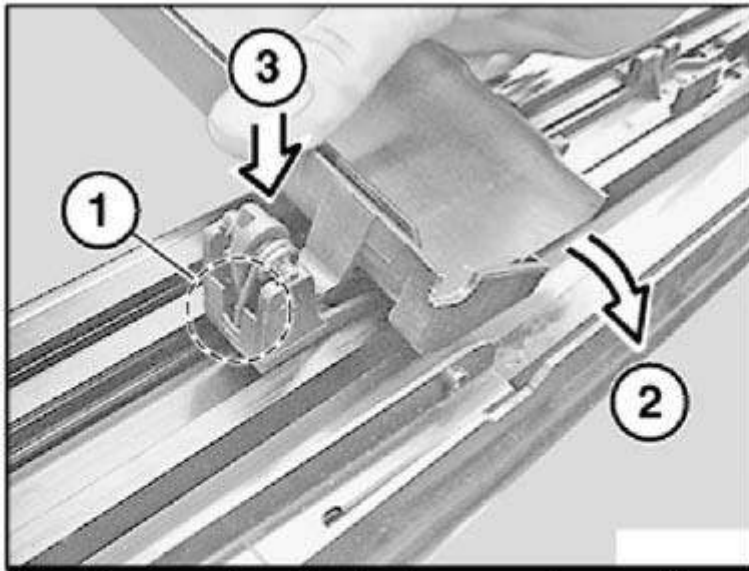
Fig. 119: Connecting Spring To Drip Moulding Pivot Point
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Observe installation sequence:

1. Suspend spring in inner water carrier.
2. Press drip moulding onto glass slide/tilt sunroof.
3. Clip pivot point (bearing) of drip moulding into carrier.

Check drip moulding for spring tension.



1. Suspend spring in inner water carrier
2. Press drip moulding onto glass slide/tilt sunroof
3. Clip pivot point (bearing) of drip moulding into carrier

G03256414

Fig. 120: Installing Drip Moulding

Courtesy of BMW OF NORTH AMERICA, INC.

54 13 105 REMOVING AND INSTALLING/REPLACING REAR DRIP MOULDING

Necessary Preliminary Tasks:

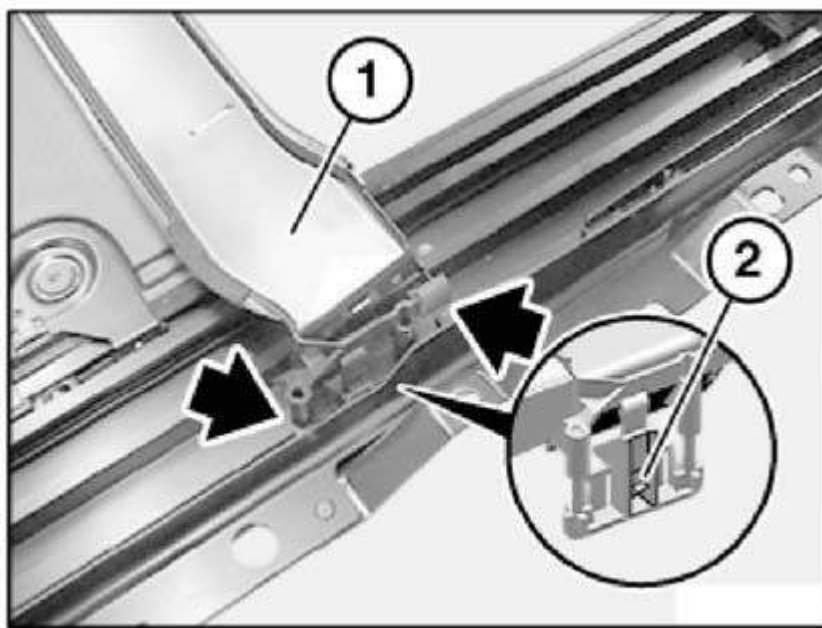
- Remove complete glass slide/tilt sunroof. Refer to **54 13 080 REMOVING AND INSTALLING COMPLETE GLASS SLIDE/TILT SUNROOF** .
- Remove glass slide/tilt sunroof lid at rear. Refer to **54 10 175 REMOVING AND INSTALLING REAR GLASS SLIDE/TILT SUNROOF COVER** .

Unlock tab (2) and remove drip moulding (1) towards top.

NOTE: **2 springs are loosely connected to guide for drip moulding.**

Installation:

Make sure springs are reinstalled on drip moulding carriers.



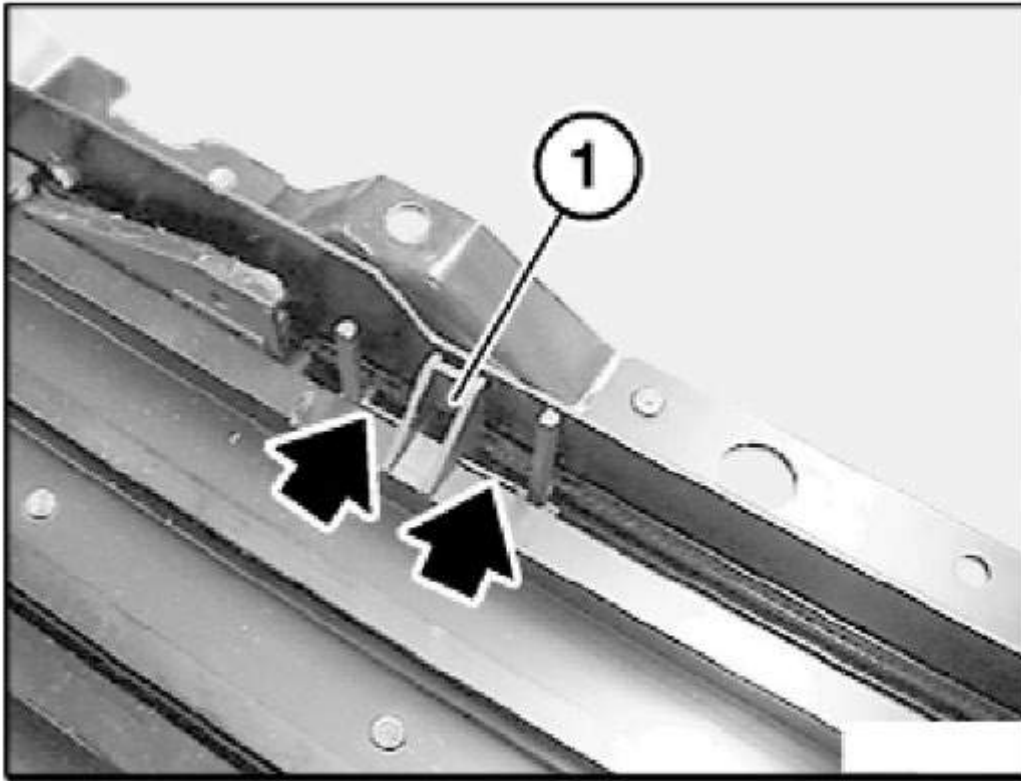
G03256415

Fig. 121: Identifying Tab On Drip Moulding
Courtesy of BMW OF NORTH AMERICA, INC.

Removing Drip Moulding Carrier:

NOTE: Drip moulding carrier cannot be removed without incurring damage.

Break out tabs with a screwdriver and lever out carrier.



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Fig. 122: Removing Drip Moulding Carrier
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Replace drip moulding carrier and hook into place.

54 13 130 REMOVING AND INSTALLING FRONT CROSS-MEMBER

Necessary Preliminary Tasks:

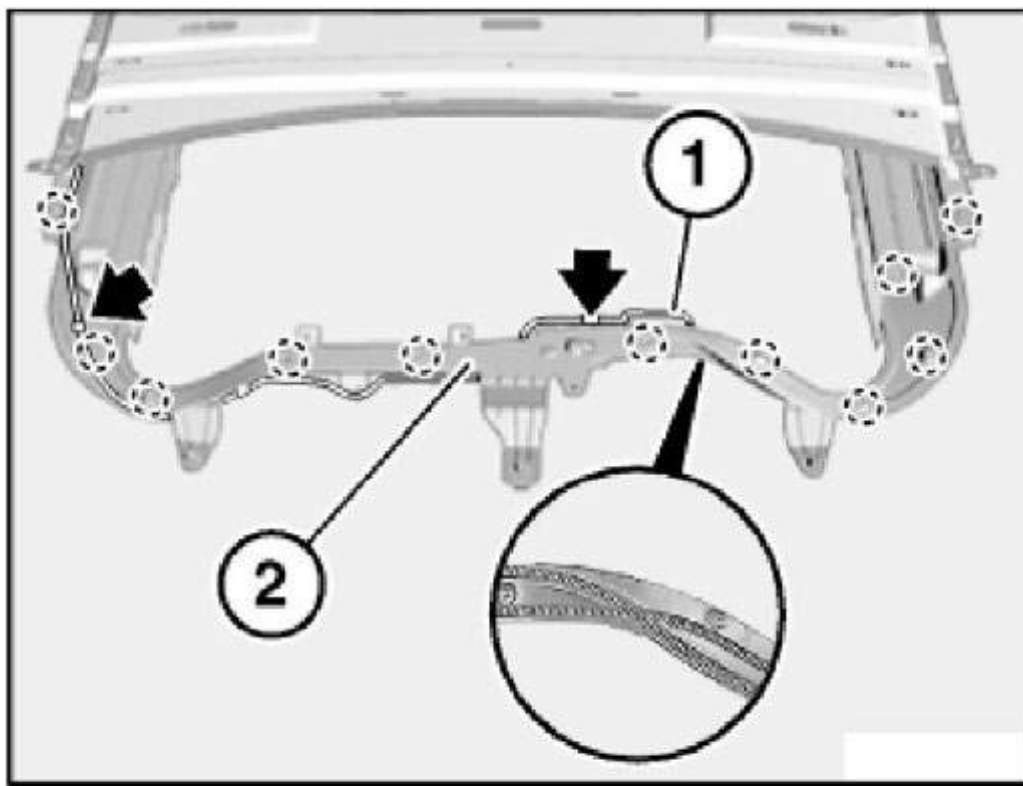
- Remove glass slide/tilt sunroof. Refer to **54 13 080 REMOVING AND INSTALLING COMPLETE GLASS SLIDE/TILT SUNROOF** .
- Remove control unit for glass slide/tilt sunroof. Refer to **61 35 715 REMOVING AND INSTALLING/REPLACING ELECTRONIC CONTROL UNIT FOR SLIDE/TILT SUNROOF (PANORAMIC GLASS SUNROOF)** .
- Remove drive omitted. Refer to **67 61 515 REPLACING DRIVE WITH GEAR (FRONT) FOR**

ACTUATING SLIDE/TILT SUNROOF (PANORAMA GLASS SUNROOF) .

Release screws in marked area.

Feed cross-member (2) out of wiring harness (1) during removal.

If necessary, release fabric adhesive tape and replace.



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Fig. 123: Identifying Cross-Member And Wiring Harness
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

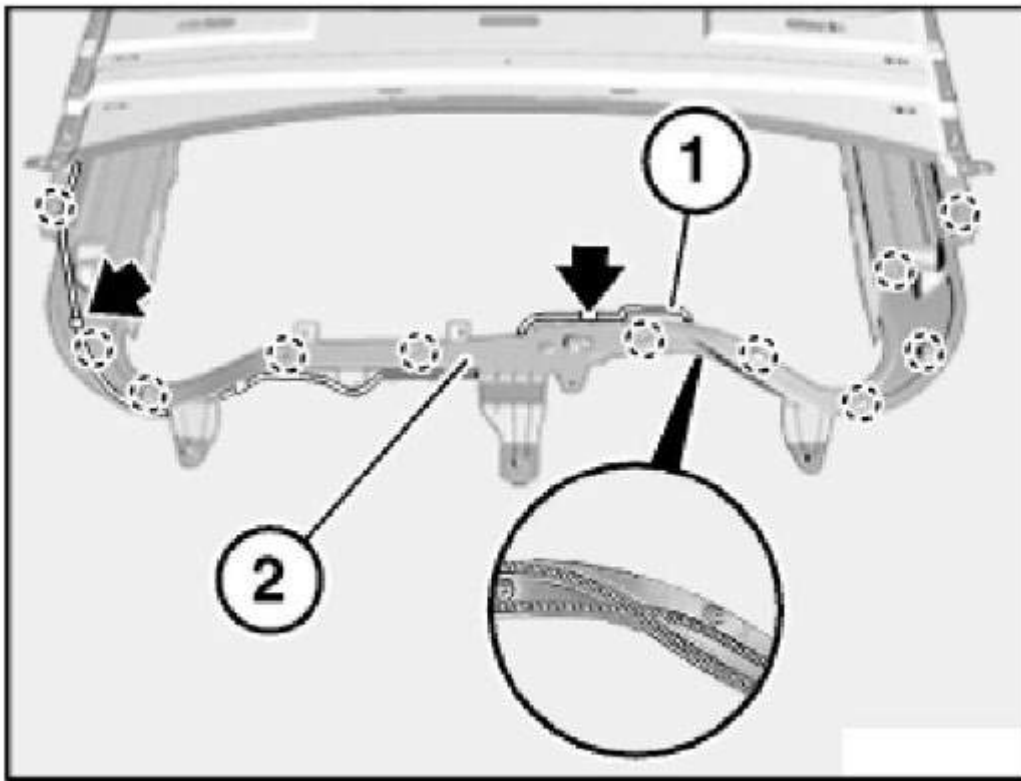
Pitch cables must be correctly located in guide

54 13 150 REMOVING AND INSTALLING REAR CROSS-MEMBER**Necessary Preliminary Tasks:**

- Remove glass slide/tilt sunroof. Refer to **54 13 080 REMOVING AND INSTALLING COMPLETE GLASS SLIDE/TILT SUNROOF** .
- Remove drive omitted. Refer to **67 61 515 REPLACING DRIVE WITH GEAR (FRONT) FOR ACTUATING SLIDE/TILT SUNROOF (PANORAMA GLASS SUNROOF)** .

Release screws in marked area.

Feed cross-member (2) out of wiring harness (1) during removal.



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Fig. 124: Feeding Cross-Member Out Of Wiring Harness During Removal
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Pitch cables must be correctly laid diagonally in guide.