00 Safety information for working on vehicles with automatic engine start-stop function (MSA)

Warning!

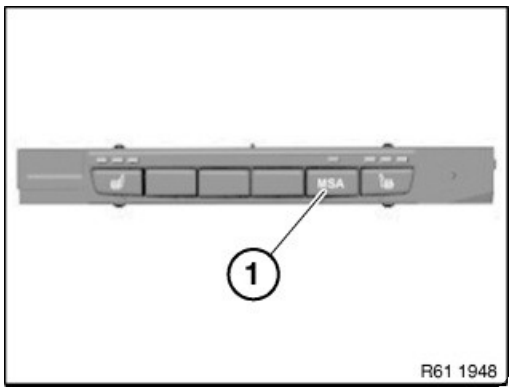
If the engine hood/bonnet contact is pulled upwards (workshop mode), the information "switch closed" is output. The automatic engine start-stop function is active.

An automatic engine start is possible.

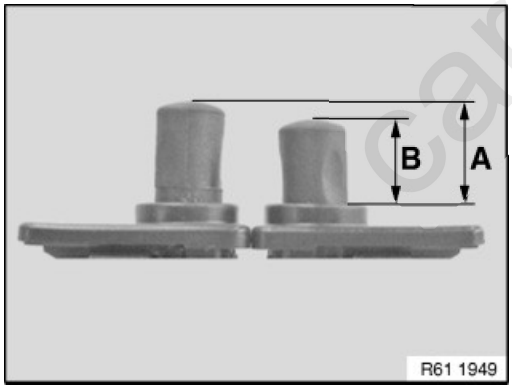
Observe safety precautions when working on MSA vehicles.

Before carrying out practical work on the engine, always ensure that the MSA functionality is deactivated so as to prevent automatic engine starting while work is being carried out in the engine compartment.

MSA function is deactivated by:



- Deactivate MSA by means of button (1) in passenger compartment
- Open seat belt buckle and driver's door



- Open engine bonnet/hood and ensure that engine hood/bonnet contact is not in workshop mode
  - Workshop mode

    A = 10 mm
  - Basic setting (engine hood/bonnet open)

    B = 7 mm

  To make sure that the engine hood/bonnet contact is at the basic setting, if necessary press the hood/bonnet contact up to the limit position before starting work and slowly release.

When working with diagnosis tools:

- Observe instructions in diagnosis tool

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Note:
For further information on automatic engine start-stop function (MSA):

- Refer to the Service Information (bulletin) (for manual transmissions) Service Information (bulletin) 61 01 07 335
- Refer to the Service Information (bulletin) (for automatic transmissions or twin-clutch gearboxes) Service Information (bulletin) 61 01 10 629

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67 13 001 Replacing drive for exterior mirror adjustment, left or right

NOTICE

Description is for left component only. Procedure on the right side is identical.

PRELIMINARY WORK

1 – Removing the mirror glass

CAUTION

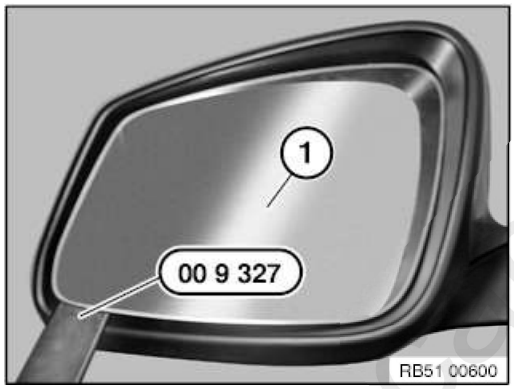
Glass splinters.

Danger of injury!

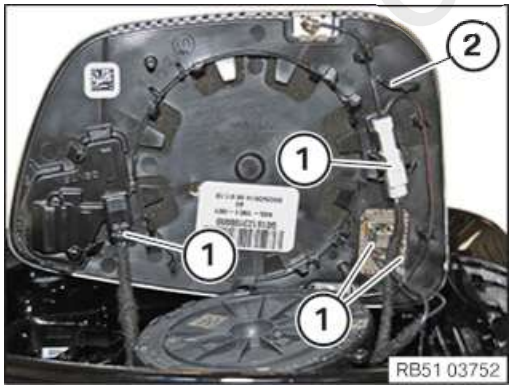
- If the mirror glass is damaged, wear safety goggles and protective gloves.

TECHNICAL INFORMATION

Carry out the work at temperatures between 18 °C and 23 °C only.



- Manually press the mirror glass (1) on the side of vehicle up to the end stop.
- Unclip the mirror glass (1) using special tool 0 496 571 (00 9 327) all the way around, starting with the outer side.



- Disconnect plug connection (1).
- Remove mirror glass (2).

MAIN WORK

2 – Installing the drive for exterior mirror adjustment



- Position drive for exterior mirror adjustment (2).
- Connect connectors (1) and lock.



- **Version A:**
- Position drive for exterior mirror adjustment (2) correctly.
- Tighten the screws (1).

Drive for exterior mirror adjustment

Screw		Tightening torque	1.2 Nm



- **Version B:**
- Correctly position the drive for exterior mirror adjustment (2) and press it in.
- Tighten down screw (1).

Drive for exterior mirror adjustment

Screw		Tightening torque	1.2 Nm

3 – Removing the drive for exterior mirror adjustment



- **Version A:**
- Release the screws (1) and pull out the drive for exterior mirror adjustment (2) a little.



- **Version B**
- Loosen screw (1).
- Pull off the drive for exterior mirror adjustment (2).

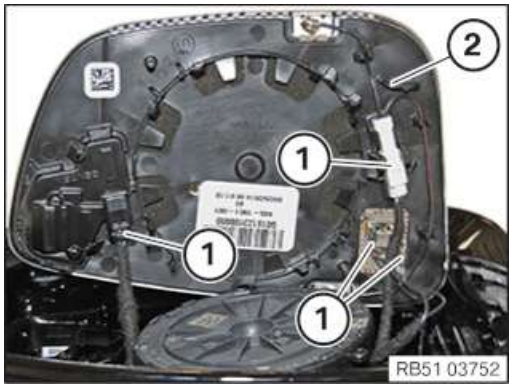
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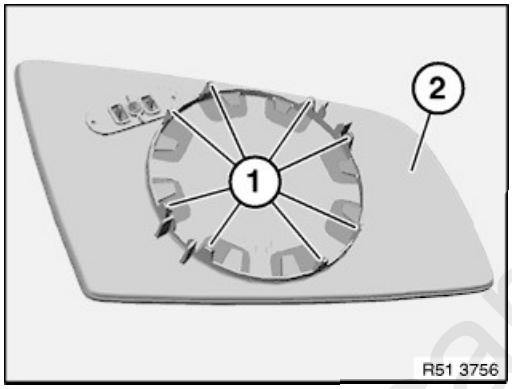
- Unlock plug connection (1) and disconnect and remove the drive for exterior mirror adjustment (2) .

POSTPROCESSES

4 – Installing the mirror glass



- Position mirror glass (2).
- Connect plug connections (1).



- Check whether retaining lugs (1) are missing or damaged and, if required, renew the mirror glass.
- Position the mirror glass (2) with the retaining lugs (1) flush with the drive for exterior mirror adjustment and clip in.
- Ensure correct locking.
- Check if the drive for exterior mirror adjustment is functioning correctly.

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Additional Information

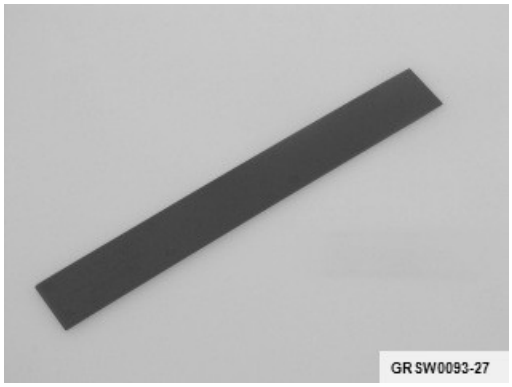
Overview of Tightening Torques

Drive for exterior mirror adjustment Used in step 2

Screw		Tightening torque	1.2 Nm

Overview of Special Tools

0 496 571 (00 9 327) Wedge



Common	Used in step 1
Usage	(Cleaning wedge) From 11/2008 this special tool replaces panel wedge 00 9 323 (different material)
Included in the tool or work	0 490 527
Storage location	Individual
Replaced by	
In connection with	
SI-Number	01 07 09 (530)

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67 13 526 Replacing mirror electronics for electrically operated left or right door mirror

NOTICE

Description is for left component only. Procedure on the right side is identical.

PRELIMINARY WORK

1 – Removing the mirror glass

CAUTION

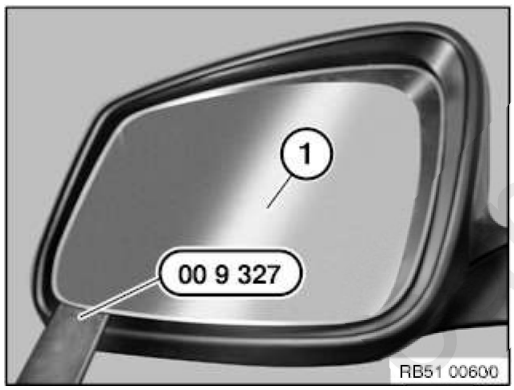
Glass splinters.

Danger of injury!

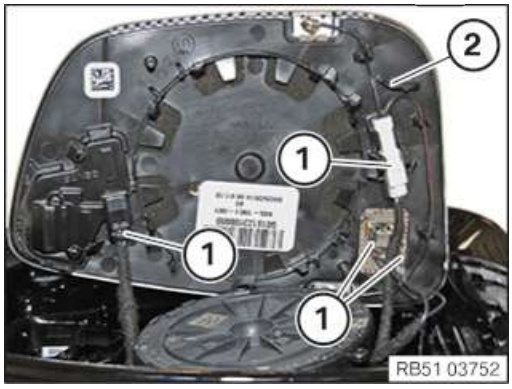
- If the mirror glass is damaged, wear safety goggles and protective gloves.

TECHNICAL INFORMATION

Carry out the work at temperatures between 18 °C and 23 °C only.



- Manually press the mirror glass (1) on the side of vehicle up to the end stop.
- Unclip the mirror glass (1) using special tool 0 496 571 (00 9 327) all the way around, starting with the outer side.



- Disconnect plug connection (1).
- Remove mirror glass (2).

2 – Removing the protective cap of the exterior mirror



- Spread and release the latch mechanisms (1) of the protective cap on the exterior mirror.



- Remove the protective cap (1) in the direction of the arrow.
- Disconnect associated plug connection.

3 – Removing the drive for exterior mirror adjustment



- **Version A:**
- Release the screws (1) and pull out the drive for exterior mirror adjustment (2) a little.



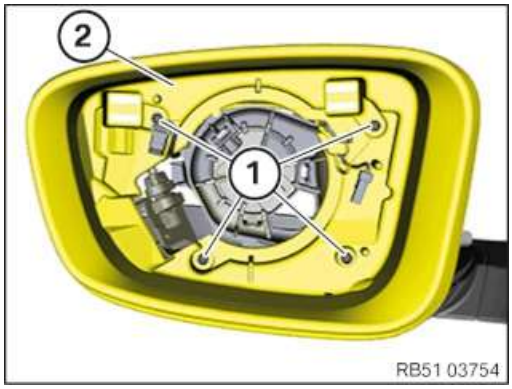
- **Version B**
- Loosen screw (1).
- Pull off the drive for exterior mirror adjustment (2).



- Unlock plug connection (1) and disconnect and remove the drive for exterior mirror adjustment (2) .

4 – Removing retaining ring from exterior rearview mirror

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- Loosen screws (1).
- If necessary, feed out cable.
- Guide out retaining ring of exterior rearview mirror (2) in forward direction.

5 – Dismantling the exterior mirrors

RISK OF DAMAGE

Electrostatic discharge.

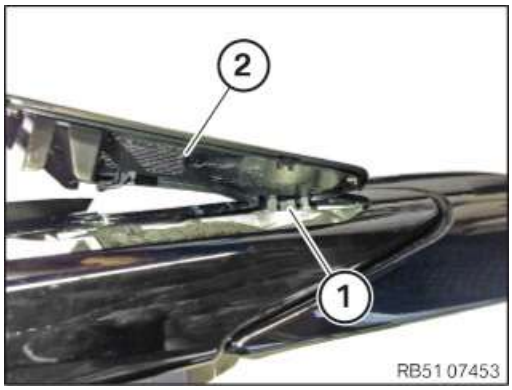
Damage to or destruction of electrical components.

- Leave electrical components in original packaging until just before they are installed. Use the original packaging only for any return shipments. Always package removed components straight away.
- Read and comply with user information on using the associated special tool 12 7 060.
- Only touch the housings of electrical components. Do not touch pins or multi-pin connectors directly.
- Wear electrically conductive clothing and antistatic shoes (with ESD symbol).
- For additional information see: 61 35 ... Notes for ESD protection (electrostatic discharge)

▸ **Remove cover on the mirror base**

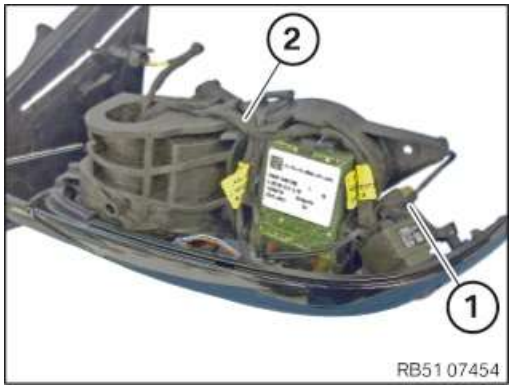


- Release cover (1), beginning at the arrow, from the latch mechanisms along the dashed lines and lift slightly.

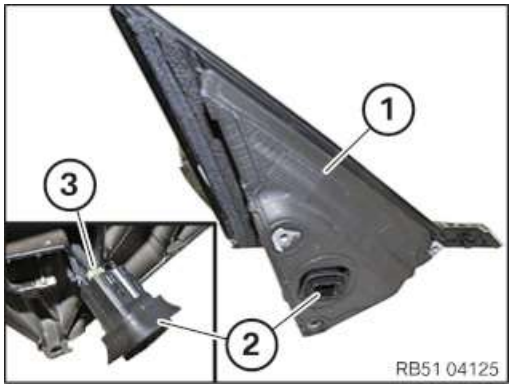


- Carefully release retaining lug (1) to the top with a small screwdriver and remove cover (2).

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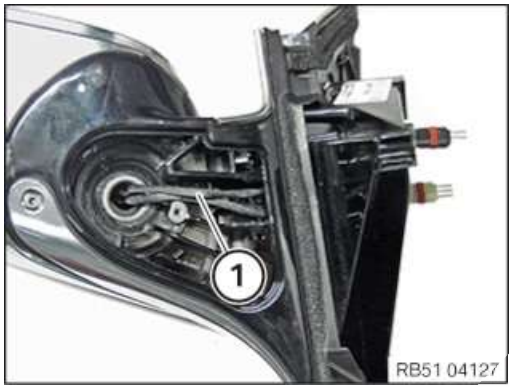


- Unlock plug connection (1) and disconnect.
- Detach the wiring harness (2) from the brackets.



- Remove sound insulation (1).
- Pull out connector housing (2).
- Unpin connector (3) from the connector housing (2).

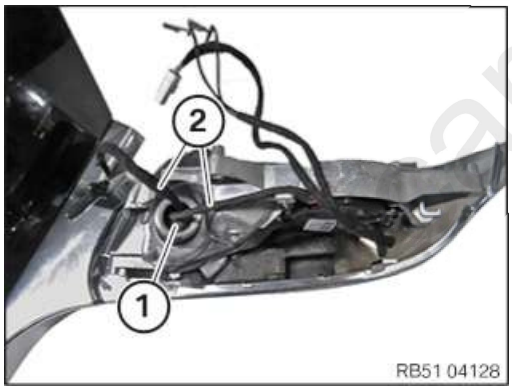
  The number of connectors (3) varies depending on the equipment specification.



- Carefully feed out cables (1) individually.

  The pins on the cables (1) must not be damaged.

  The number of cables (1) varies depending on the equipment specification.



- Pull out foam insert (1) and the cables (2) from the mirror.

MAIN WORK

6 – Removing the mirror electronics

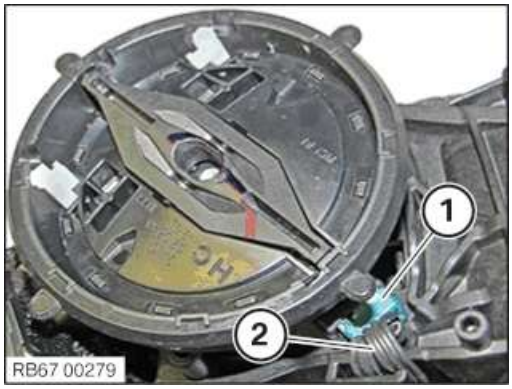
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RISK OF DAMAGE

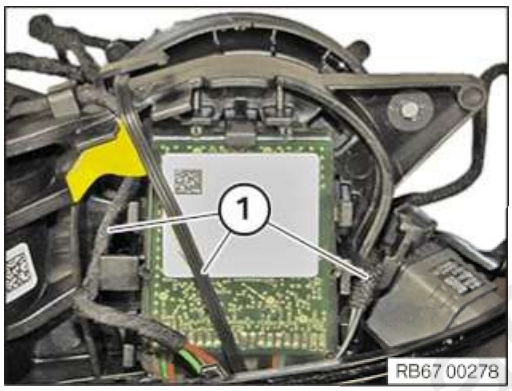
Electrostatic discharge.

Damage to or destruction of electrical components.

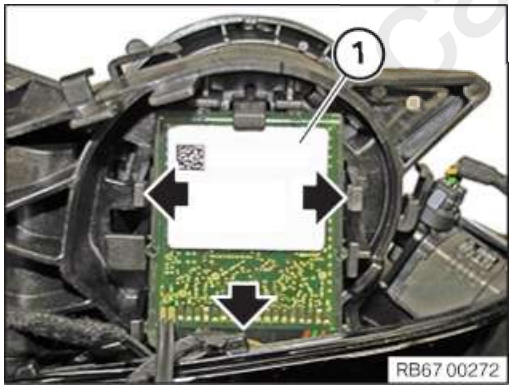
- Leave electrical components in original packaging until just before they are installed. Use the original packaging only for any return shipments. Always package removed components straight away.
- Read and comply with user information on using the associated special tool 12 7 060.
- Only touch the housings of electrical components. Do not touch pins or multi-pin connectors directly.
- Wear electrically conductive clothing and antistatic shoes (with ESD symbol).
- For additional information see: 61 35 ... Notes for ESD protection (electrostatic discharge)



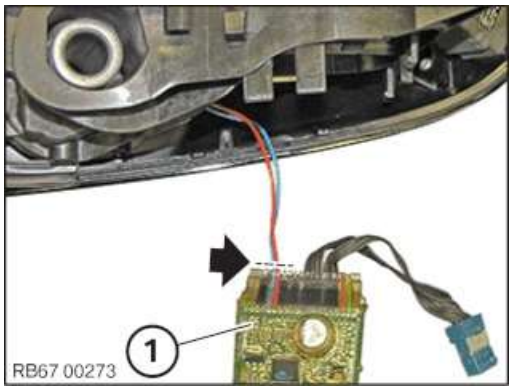
- Unlock plug connection (1) and disconnect.
- Thread through the lines (2) forward.



- Expose the cables (1).



- Release the mirror electronics (1) from the lateral retaining lugs (arrows).
- Pull out the mirror electronics (1) downwards from the holder.
- Remove the mirror electronics (1).



- Disconnect both the wires of the mirror electronics (1) in the marked area (arrow).
- Dispose off the mirror electronics (1)

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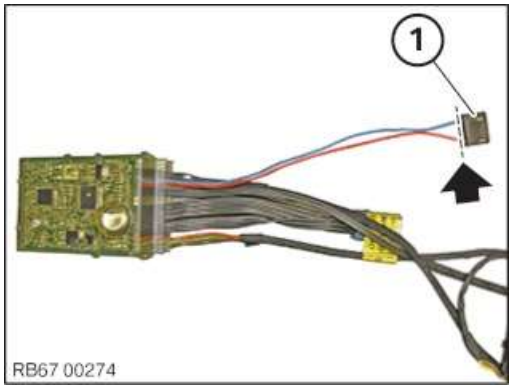
7 – Installing mirror electronics

RISK OF DAMAGE

Electrostatic discharge.

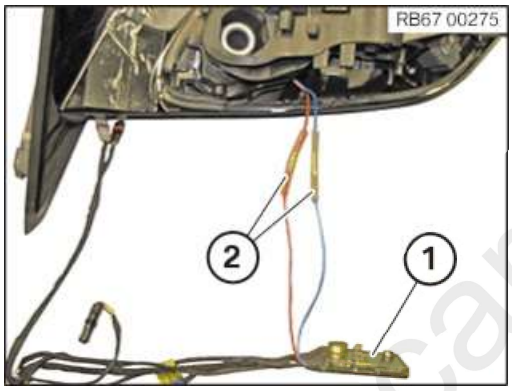
Damage to or destruction of electrical components.

- Leave electrical components in original packaging until just before they are installed. Use the original packaging only for any return shipments. Always package removed components straight away.
- Read and comply with user information on using the associated special tool 12 7 060.
- Only touch the housings of electrical components. Do not touch pins or multi-pin connectors directly.
- Wear electrically conductive clothing and antistatic shoes (with ESD symbol).
- For additional information see: 61 35 ... Notes for ESD protection (electrostatic discharge)

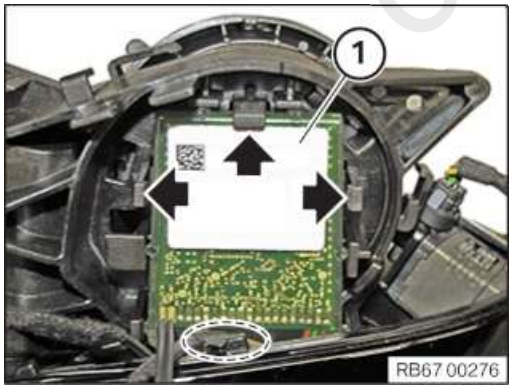


- Unlock and disconnect the plug connection (1) in the marked area (arrow).

  The connector (1) is no longer needed.

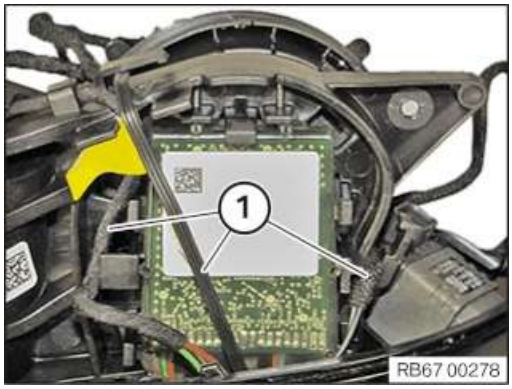


- Push the shrink-fit hoses (2) on both the lines.
- Crimp the lines of the mirror electronics (1) and of the mirror as per the colour by using the butt connector.
- Position the shrink-fit hoses (2) in the centre over the crimp points.
- Use a heat-shrink tubing reflector.
- Shrink the heat-shrink tubing (2) with the hot air blower at 400 °C until the adhesive can be seen emerging at the ends.

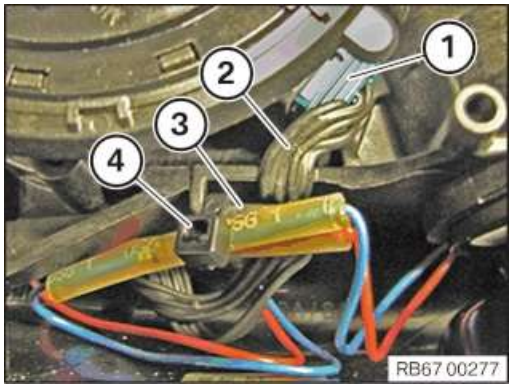


- Thread the lines through to the rear in the marked area.
- Slide the mirror electronics (1) up into the holder.
- Engage the mirror electronics (1) in the lateral retaining lugs (sideways arrows).

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- Place the lines (1).



- Place the lines (2) as shown.
- Connect connectors (1) and lock.
- Place the crimped lines as shown and fasten on to the holder (3) with a cable strap (4).

POSTPROCESSES

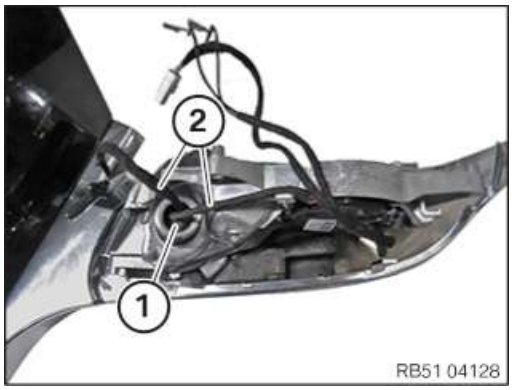
8 – Assembling the exterior mirror

RISK OF DAMAGE

Electrostatic discharge.

Damage to or destruction of electrical components.

- Leave electrical components in original packaging until just before they are installed. Use the original packaging only for any return shipments. Always package removed components straight away.
- Read and comply with user information on using the associated special tool 12 7 060.
- Only touch the housings of electrical components. Do not touch pins or multi-pin connectors directly.
- Wear electrically conductive clothing and antistatic shoes (with ESD symbol).
- For additional information see: 61 35 ... Notes for ESD protection (electrostatic discharge)

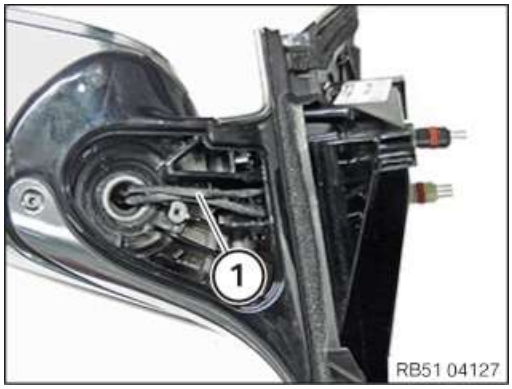


- Thread in cable (2) into the mirror.

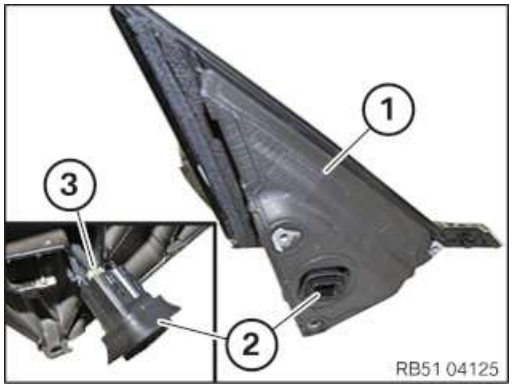
  The pins on cables (2) must not be damaged.

  The number of cables (2) varies depending on the equipment.
- Use foam inserts (1).

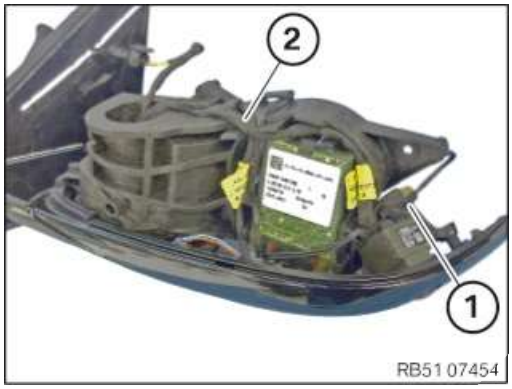
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- Feed in cable (1).



- Pin connector (3) into the connector housing (2).
- Use connector housing (2).
- Use sound insulation (1).



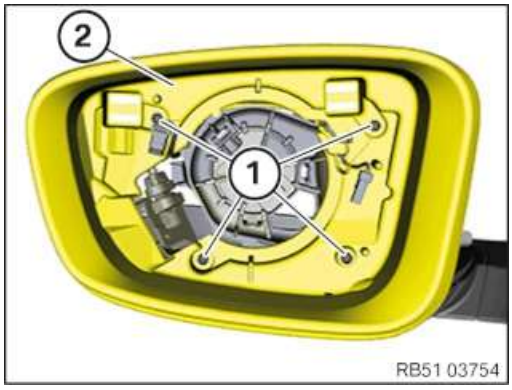
- Attach the wiring harness (2) to the holders and place correctly.
- Connect connectors (1) and lock.

▸ **Installing the cover on the mirror base**



- Check the latch mechanisms on the cover (1) for damage, renew the cover (1) if necessary.
- Correctly position and engage the cover (1).

9 – Installing the retaining ring on the exterior rearview mirror



- Feed in the retaining ring on the exterior rearview mirror (2).
- If necessary, feed in cable.
- Tighten the screws (1).

Retaining ring to exterior mirror

Screw		Tightening torque	0,85 Nm

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10 – Installing the drive for exterior mirror adjustment



- Position drive for exterior mirror adjustment (2).
- Connect connectors (1) and lock.



- **Version A:**
- Position drive for exterior mirror adjustment (2) correctly.
- Tighten the screws (1).

Drive for exterior mirror adjustment

Screw		Tightening torque	1.2 Nm



- **Version B:**
- Correctly position the drive for exterior mirror adjustment (2) and press it in.
- Tighten down screw (1).

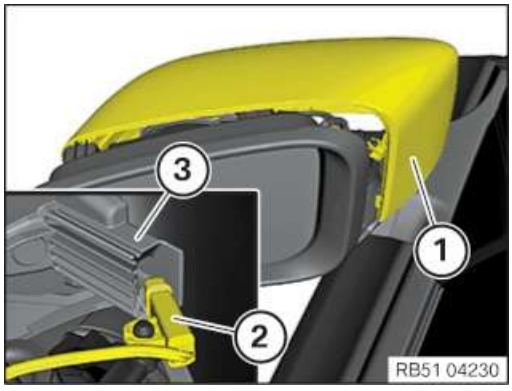
Drive for exterior mirror adjustment

Screw		Tightening torque	1.2 Nm

11 – Installing the protective cap of the exterior mirror



- Position the connector (1) on the mounting (2).
- Position connector (1) as shown.

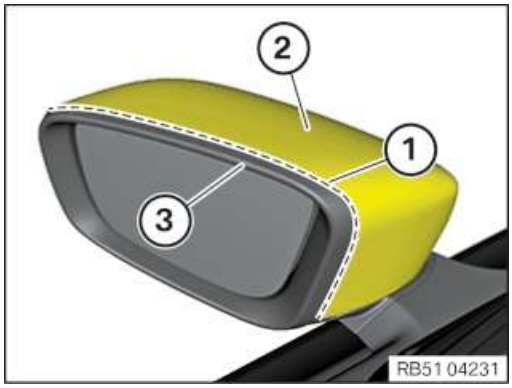


- Position the protective cap (1) on the exterior mirror.
- Feed in the connector (2) for the side repeater (3).
- Push protective cap (1) on exterior mirror and lock.

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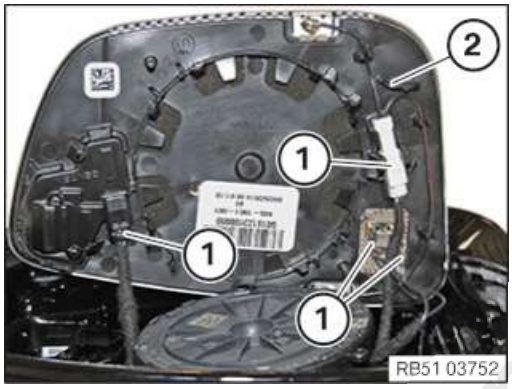


- Make sure that the latch mechanisms (1) are correctly fitted.

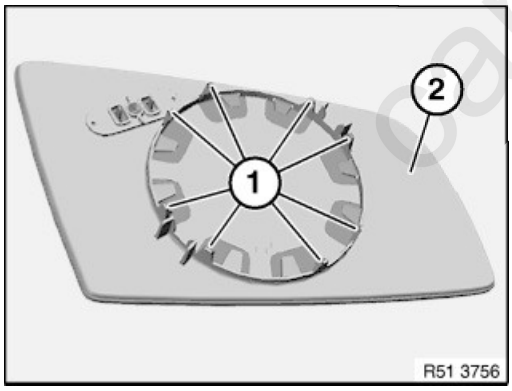


- Check the correct seating of the protective cap (2) on retaining ring (3) around (1).

12 – Installing the mirror glass



- Position mirror glass (2).
- Connect plug connections (1).



- Check whether retaining lugs (1) are missing or damaged and, if required, renew the mirror glass.
- Position the mirror glass (2) with the retaining lugs (1) flush with the drive for exterior mirror adjustment and clip in.
- Ensure correct locking.
- Check if the drive for exterior mirror adjustment is functioning correctly.

13 – Check the functions of the exterior rearview mirror

- Check all functions of the exterior rearview mirror.

  Depending on the equipment specification, an exterior rearview mirror has various functions.

  - Fold-in function
  - Turn indicators
  - Adjustment of the mirror glass
  - Top View

Additional Information

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Overview of Tightening Torques

Retaining ring to exterior mirror — Used in step 9

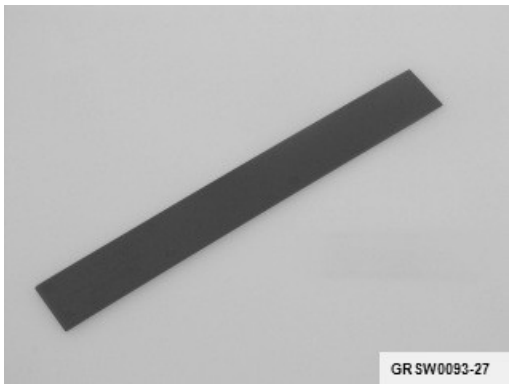
Screw		Tightening torque	0,85 Nm

Drive for exterior mirror adjustment — Used in step 10

Screw		Tightening torque	1.2 Nm

Overview of Special Tools

0 496 571 (00 9 327) Wedge



Common — Used in step 1

Usage	(Cleaning wedge) From 11/2008 this special tool replaces panel wedge 00 9 323 (different material)
Included in the tool or work	0 490 527
Storage location	Individual
Replaced by	
In connection with	
SI-Number	01 07 09 (530)

Links

Repair instructions	Used in step
61 35 ... Notes on ESD protection (Electro Static Discharge)	5678
61 35 ... Notes on ESD protection (Electro Static Discharge)	5678
61 35 ... Notes on ESD protection (Electro Static Discharge)	58

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67 61 580 Replacing the drive for the glass slide/tilt sunroof panel

RISK OF DAMAGE

Careless handling of tools and sharp-edged components.

Scratch, surface damage.

- Protect working area.
- Handle tools and components carefully.

RISK OF DAMAGE



Electrostatic discharge.

Damage to or destruction of electrical components.

- Leave electrical components in original packaging until just before they are installed. Use the original packaging only for any return shipments. Always package removed components straight away.
- Read and comply with user information on using the associated special tool 12 7 060.
- Only touch the housings of electrical components. Do not touch pins or multi-pin connectors directly.
- Wear electrically conductive clothing and antistatic shoes (with ESD symbol).
- For additional information see: 61 35 ... Notes for ESD protection (electrostatic discharge)

TECHNICAL INFORMATION

Perform window removal using the "spider".

For additional information see: 51 31 ... Window glass removal using "spider"

TECHNICAL INFORMATION

The following procedure forms the basis for these repair instructions and must be observed without fail.

For more information see: 51 31 ... General procedure for disassembly/installation of bonded window glass

PRELIMINARY WORK

1 – Remove left and right A-pillar trim panel

NOTICE

Description is for left component only. Procedure on the right side is identical.

▸ **Remove the A-pillar trim panel**

WARNING

Pyrotechnic components.

Danger! Life-threatening injuries!

- All work on pyrotechnic parts may be carried out by technically experienced and appropriately trained personnel only.
- Replace any damaged part or ones that have been dropped.
- For additional information see: 72 00 Safety regulations on handling components with gas generators.

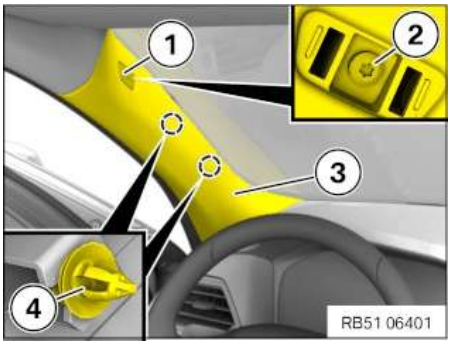
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RISK OF DAMAGE

Damage to the head airbag.

Improper use of a tool when removing the trim panel may damage the head airbag.

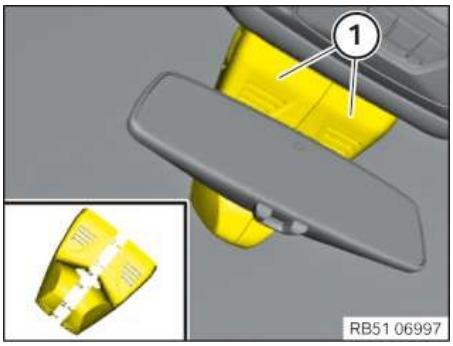
- Do not use sharp-edged tools when removing the trim panel.



- Unclip cover (1) with a suitable special tool from the special tool kit 0 493 752 (00 9 329).
- Loosen screw (2).
- Unclip A-pillar trim panel (3) with clips (4) and feed it out to the top.

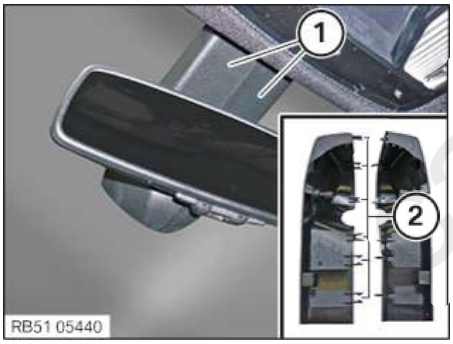
2 – Removing the covers for the interior mirror

- **Version A:**



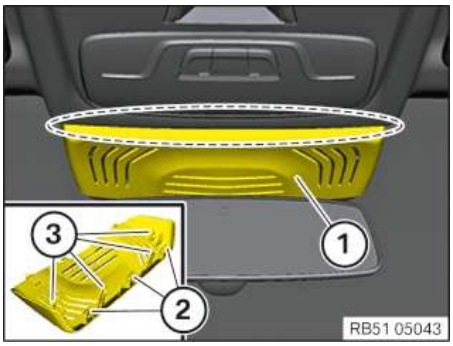
- Release cover (1) in the middle with a suitable plastic wedge from the latch mechanisms and remove.

- **Version B:**



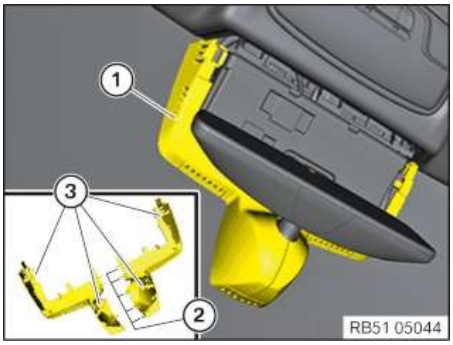
- Release the cover (1) from the latch mechanisms (2) with a suitable plastic wedge and remove sideways.

- **Version C:**



- Detach cover (1) from the clamps (2) in the marked area using a suitable plastic wedge and pull down a certain distance.
- Release cover (1) at the retaining lugs (3) and remove from the guides to the rear.

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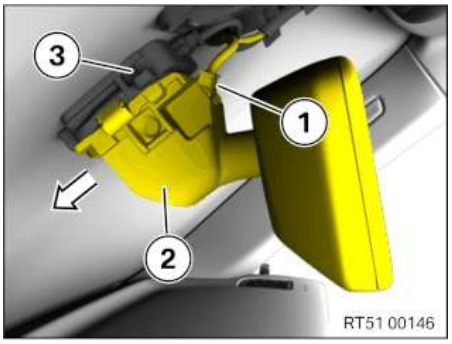
- Release cover (1) from the latch mechanisms (2) and (3) and remove sideways.
- Remove cover (1) from mirror base (2).

- **Version D:**



- Release covers (1) and (2) using a suitable plastic wedge at the separation point (3) and remove from the side.

3 – Remove inside mirror



TECHNICAL INFORMATION

Carry out the work at temperatures between 18 °C and 23 °C only.

- Unlock plug connection (1) and disconnect.

RISK OF DAMAGE

Damage to the component.

Excessive force may damage the component.

- Handle component carefully.

- Jerk and pull off the interior mirror (2) in the direction of the arrow from the mirror base (3).

4 – Remove KAFAS camera

▸ **Remove KAFAS camera (Mid variant)**

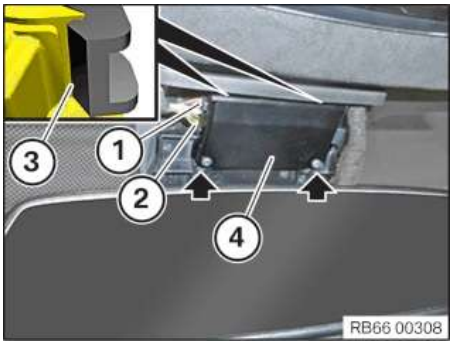
RISK OF DAMAGE

Improper unlocking of the KAFAS camera.

Damage to the retaining hooks of the KAFAS camera holder.

- Unlock the retaining hook with a suitable tool **carefully** .

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- Unlock plug connection (1) and disconnect.
- Unlock plug connection (2) and disconnect.
- Unlock the retaining lugs (3).
- Thread out KAFAS camera (4) at the guides (arrows) and remove.

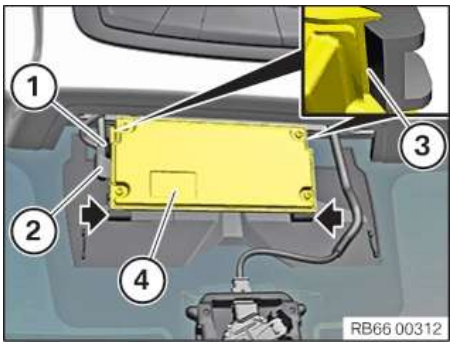
▸ **Remove KAFAS camera (high version)**

RISK OF DAMAGE

Improper unlocking of the KAFAS camera.

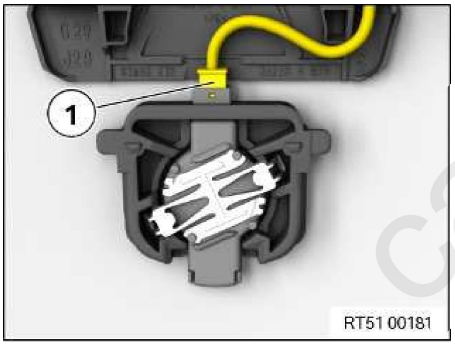
Damage to the retaining hooks of the KAFAS camera holder.

- Unlock the retaining hook with a suitable tool **carefully** .



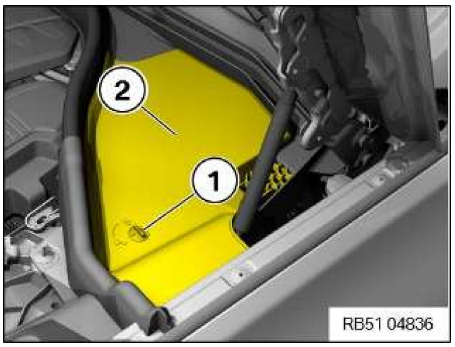
- Unlock plug connection (1) and disconnect.
- Unlock plug connection (2) and disconnect.
- Unlock the retaining lugs (3).
- Thread out KAFAS camera (4) at the guides (arrows) and remove.

5 – Disconnect rain-light-solar-condensation sensor



- Unlock plug connection (1) and disconnect.

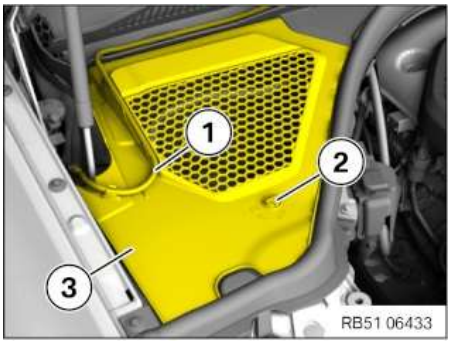
6 – Remove the cover of the engine compartment at the rear left



- Loosen the lock (1).
- Remove the cover (2) of the rear left engine compartment.

7 – Remove the cover of the rear right engine compartment

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- Release washer fluid hose (1) from the guides.
- Loosen the lock (2).
- Remove the cover (3) of the rear right engine compartment.

8 – Removing the wiper arm on the left and right

NOTICE

Description is for left component only. Procedure on the right side is identical.

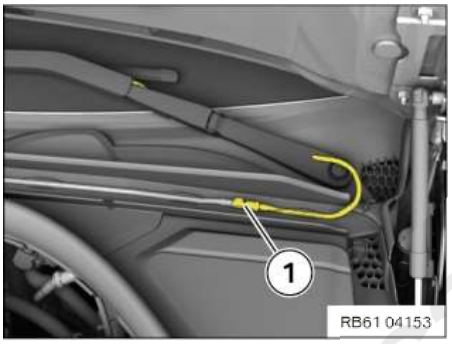
▶ **Remove the wiper arm**

RISK OF DAMAGE

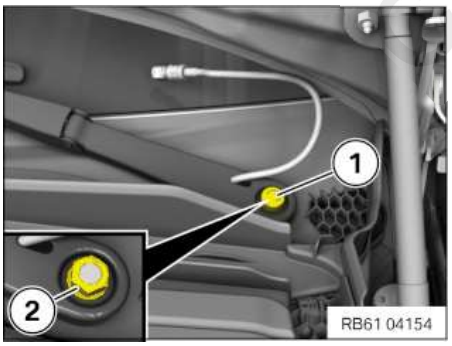
Damage to wiper console.

While removing the wiper arms without using special tool, the wiper console can break.

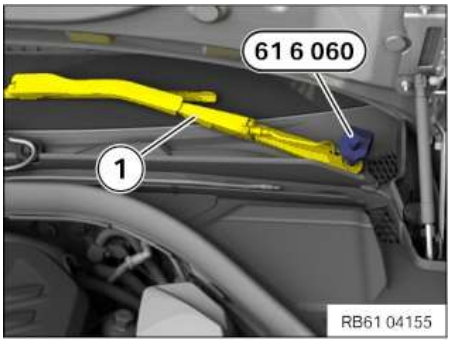
- Removing the wiper arms must be carried out only using the prescribed special tool.
- Do **not** lever off the wiper arm because otherwise the wiper console may break at the predetermined breaking point for active pedestrian protection.



- Disconnect the washer fluid hose (1) at the separation point and feed out from the cowl panel guide.



- Remove the protective cap (1).
- Loosen nut (2).



- Pull off the wiper arm (1) using special tool .

9 – Remove the gutter strip on the windscreen on the left and right

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NOTICE

Description is for left component only. Procedure on the right side is identical.

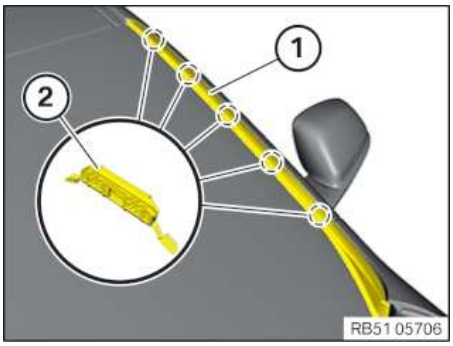
▸ **Remove the gutter strip on the windscreen**

RISK OF DAMAGE

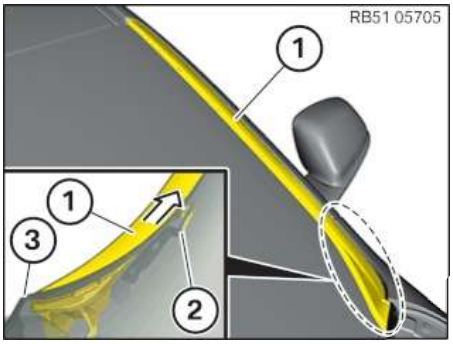
Careless handling of tools and sharp-edged components.

Scratch, surface damage.

- Protect working area.
- Handle tools and components carefully.

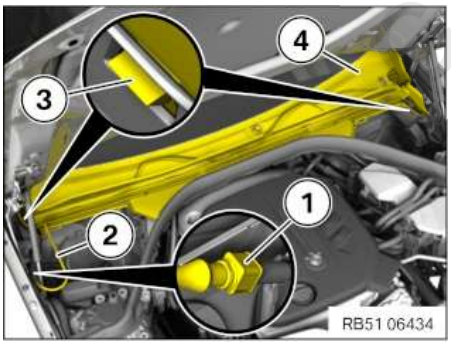


- Unclip gutter strip on the windscreen(1) from the clamps(2) starting at the roof and working upwards.

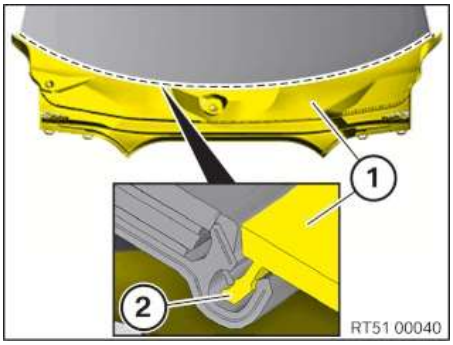


- Pull out gutter strip on the windscreen (1) out of guide (2) in direction of arrow and carefully guide out at the side panel (3).

10 – Remove cowl panel cover



- Release snap fastener (1) of the washer fluid hose (2) and put the washer fluid hose (2) to one side.
- Unclip clips (3) on the cowl panel cover (4).



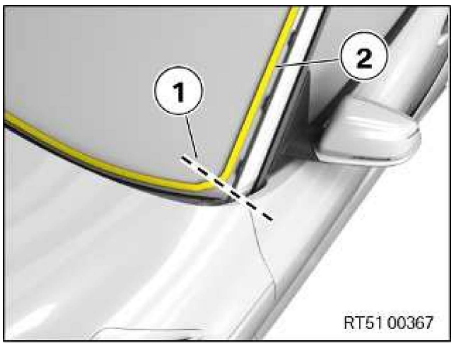
- Pull the cowl panel cover (1) upward out of the latch mechanism (2) beginning on the side.

11 – Removing the windscreen

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TECHNICAL INFORMATION

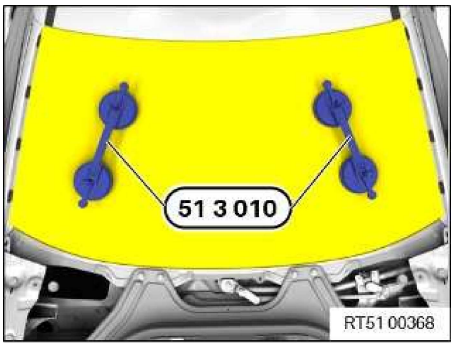
Perform window removal using the "spider".
For additional information see: 51 31 ... Window glass removal using "spider"



NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

- Tape off body in area of piercing point with fabric adhesive tape.
- Push the thread along the line (1) through the adhesive bead (2) from the inside.
- Cut out the windscreen with the spider.



NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

- Remove windscreen with the special tool .

12 – Removing the sun visors and the end support on the left and right

NOTICE

Description is for left component only. Procedure on the right side is identical.

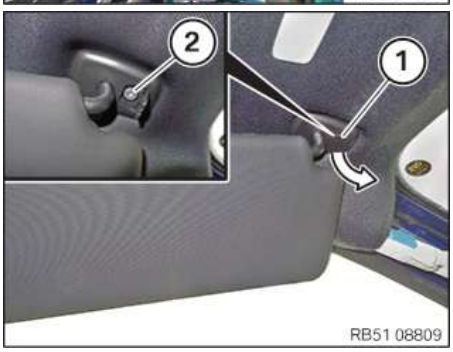
▸ **Remove the sun visor and the counter support**

NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

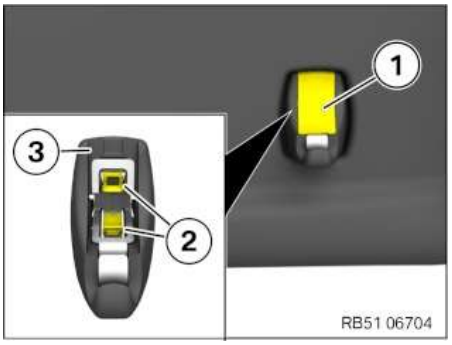


- Detach sun visors (1) from end support (2) and swivel to the side.



- Fold open cover (1).
- Loosen screw (2).
- Remove sun visors and unlock and disconnect the associated plug connection.

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- Unclip cover (1) using a suitable tool.
- Push the clamps (2) together and pull the counter support (3) out of the headlining.

13 – Removing the roof function centre (FZD)



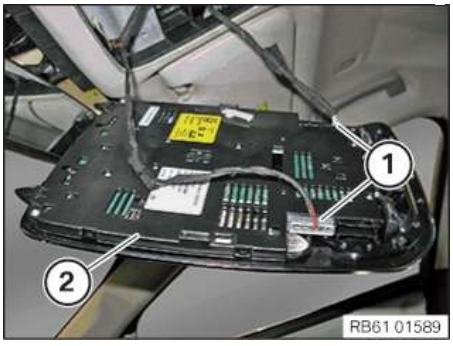
- Unclip the cover (1).



- Loosen screws (1).



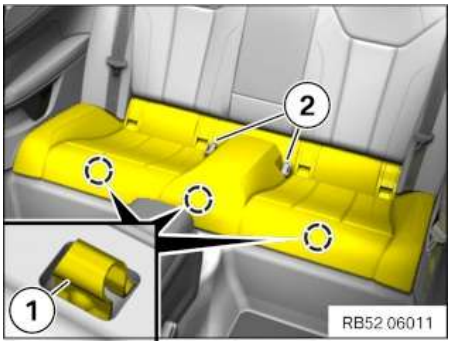
- Unclip the roof function centre (FZD) (1) from the clamps (2).
- Thread the roof function centre (FZD) (1) out of the guides (3).



- Unlock and disconnect plug connections (1).
- Unclip the cable clip from roof function centre (FZD) (2) and remove the roof function centre (FZD) (2).

14 – Remove rear seat bench

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- Unclip the rear seat bench upwards from clamps (1) and guide out seat belt buckles (2).
- Remove the rear seat bench.

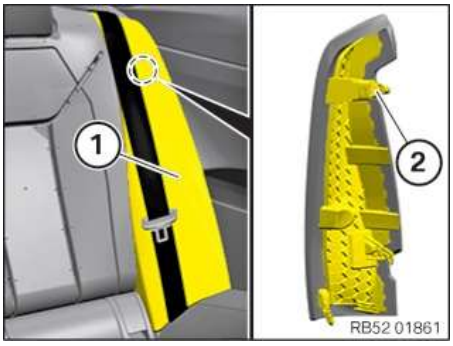
15 – Remove backrest side section on left and right

NOTICE

Description is for left component only. Procedure on the right side is identical.

▶ **Remove armrest side section**

▷ **Remove armrest side section**



- Reach behind the backrest side section (1) from the top and unclip the backrest side section (1) from the mounting element (2) to the front.
- Remove backrest side section (1) in the upward direction from the guide.

◁

16 – Removing the C-pillar trim panel on the left and right

NOTICE

Description is for left component only. Procedure on the right side is identical.

▶ **Remove C-pillar trim panel**

WARNING

Pyrotechnic components.

Danger! Life-threatening injuries!

- All work on pyrotechnic parts may be carried out by technically experienced and appropriately trained personnel only.
- Replace any damaged part or ones that have been dropped.
- For additional information see: 72 00 Safety regulations on handling components with gas generators.

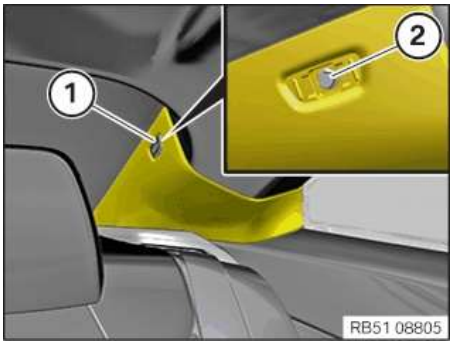
RISK OF DAMAGE

Damage to the head airbag.

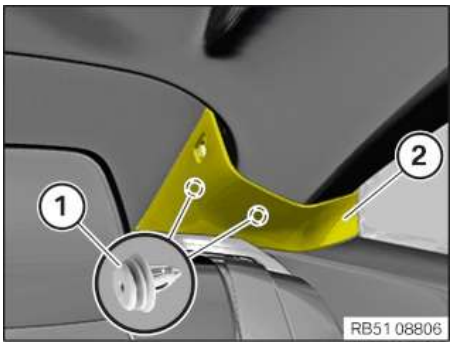
Improper use of a tool when removing the trim panel may damage the head airbag.

- Do not use sharp-edged tools when removing the trim panel.

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- Unclip cover (1) of the C-pillar trim panel.
- Release the screw (2).



- Unclip C-pillar trim panel (2) from clips (1) and guide it out.

17 – Removing the inner door sill cover strip on the left and right

NOTICE

Description is for left component only. Procedure on the right side is identical.

▸ **Removing the inner door sill cover strip**

RISK OF DAMAGE

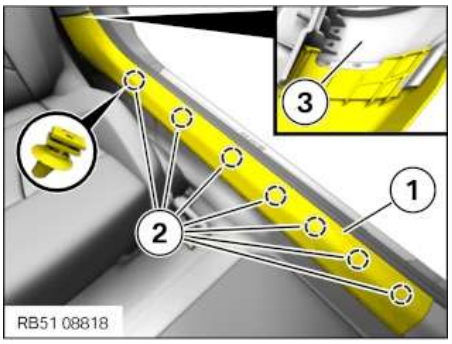
Bending of plastic parts.

Application of too much force can lead to bending of plastic parts.

- Place special tool directly beside the mounting clip.
- Continue unclipping the part without using the tool if possible.

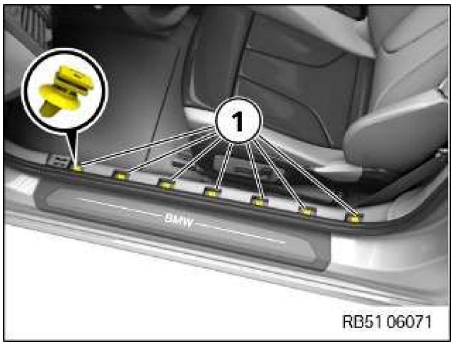
NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.



- Release door sill cover strip (1) with clips (2) starting from the front using a suitable special tool from the set of special tools 0 493 752 (00 9 329).
- Guide out and remove door sill cover strip (1) under the rear side trim panel (3) .

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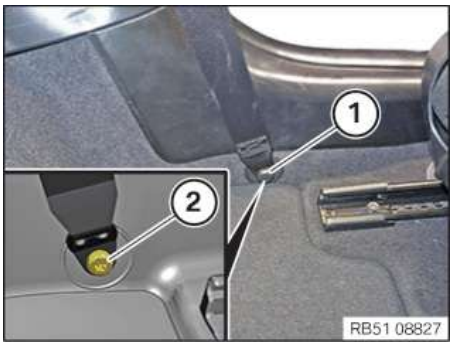
- If necessary, remove clips (1) and connect them to the door sill cover strip.

18 – Remove side trim panel, rear left and right

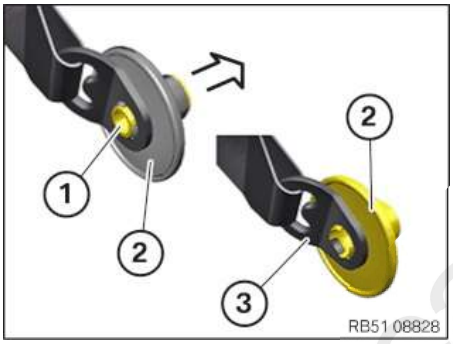
NOTICE

Description is for left component only. Procedure on the right side is identical.

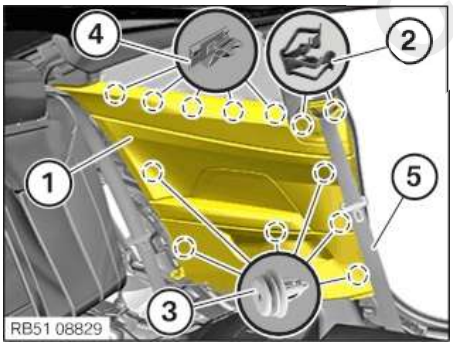
▸ **Remove rear side trim panel**



- Unclip the cover cap (1).
- Release the screw (2).



- Pull out the sleeve (1) from the cover (2) of the end fitting (3).
- Unclip the cover (2) of the end fitting (3) from the end fitting (3).



- Unclip the rear side trim panel (1) with a suitable tool at the clamps (2).
- Unclip the rear side trim panel (1) with a suitable tool at the clips (3).
- Release the rear side trim panel (1) at the clamps (4) and feed out at the edge protection.
- Unlock and disconnect all the plug connections at the rear side trim panel (1) of the wiring harness.
- Feed out the upper seat belt (5).

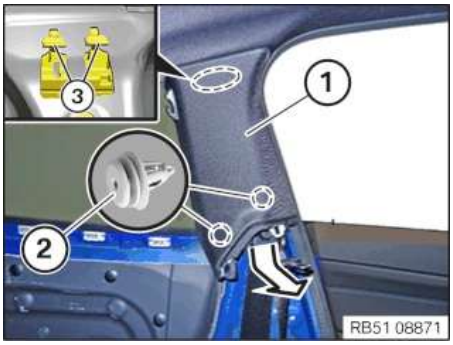
19 – Removing left and right B-pillar trim panel

NOTICE

Description is for left component only. Procedure on the right side is identical.

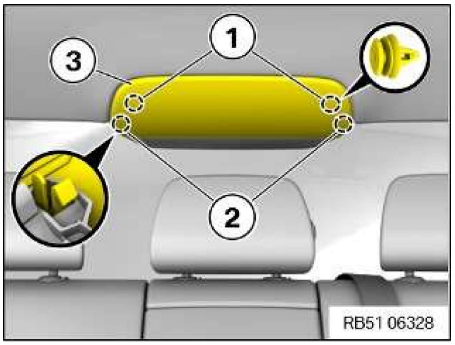
▸ **Remove the B-pillar trim panel**

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- Unclip the B-pillar trim panel (1) at the clips (2).
- Remove the B-pillar trim panel (1) from the lip of the edge protection and the guides (3) in the direction of the arrow.

20 – Removing the trim of the additional brake light



- Loosen the clips (1).
- Release the latch mechanisms (2) and remove the trim of the additional brake light (3).

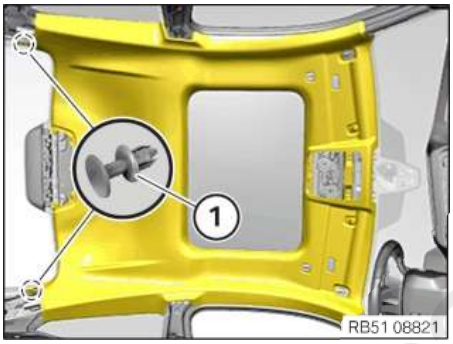
21 – Removing the headlining with slide/tilt sunroof

Prerequisite

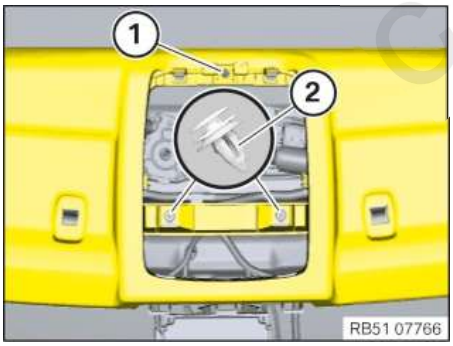
The front seats have been fully adjusted towards the bottom.

The front seat backrests have been fully adjusted towards the rear.

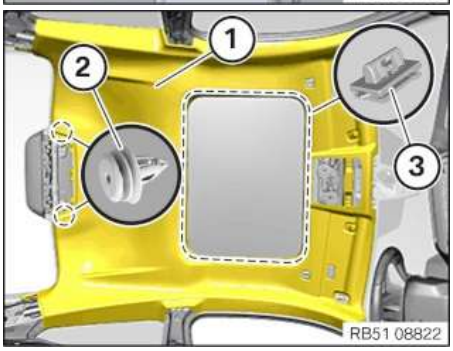
The rear seat backrest is folded down toward the front.



- Loosen the expanding rivet (1).



- Loosen screw (1).
- Unclip the headlining on the clips (2) downwards.



- Unclip headlining (1) downwards from clips (2).
- Carefully unclip headlining (1) from the slide/tilt sunroof unit and clamps and the clamps (3) in the area of the dotted line.
- Lift the headlining (1) with the help of an auxiliary person through the aperture of the windscreen.

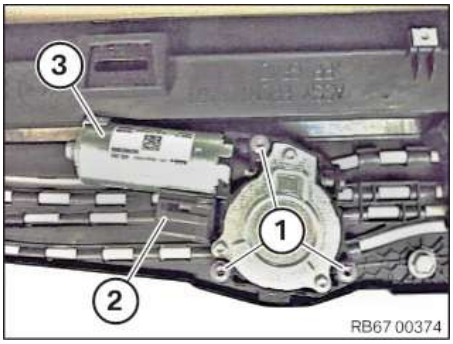
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MAIN WORK

22 – Remove the drive for the glass slide/tilt sunroof panel

Prerequisite

Glass slide/tilt sunroof panel is closed.

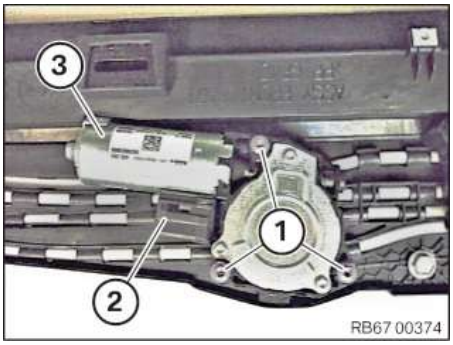


- Loosen screws (1).
- Unlock and disconnect available plug connection (2).
- Feed out the drive (3) for the glass slide/tilt sunroof panel.

23 – Installing the drive for the glass slide/tilt sunroof panel

Prerequisite

Glass slide/tilt sunroof panel is closed.



- Feed in the drive (3) for the glass slide/tilt sunroof panel and position it correctly.
- Connect and lock existing connectors (2).
- Tighten the screws (1).

Drive for panorama sunroof to body

Screw		Tightening torque	5,5 Nm

POSTPROCESSES

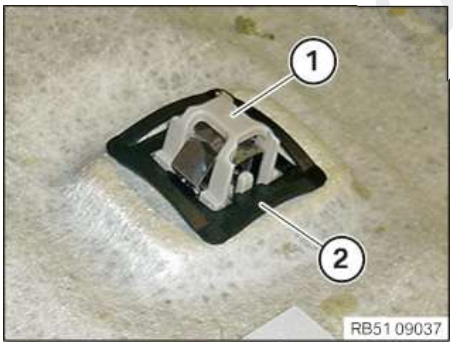
24 – Installing the headlining with slide/tilt sunroof

Prerequisite

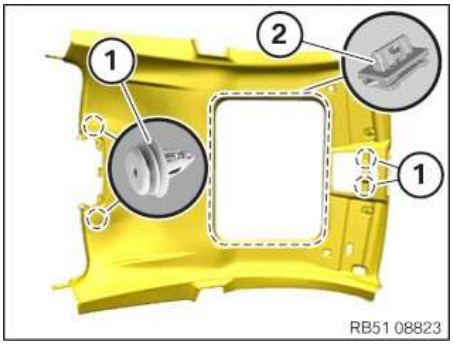
The front seats have been fully adjusted towards the bottom.

The front seat backrests have been fully adjusted towards the rear.

The rear seat backrest is folded down toward the front.

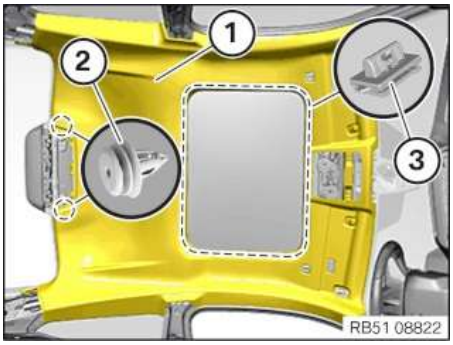


- Install the end support of the sun visors (1) in the headlining and mount it with clamps (2).

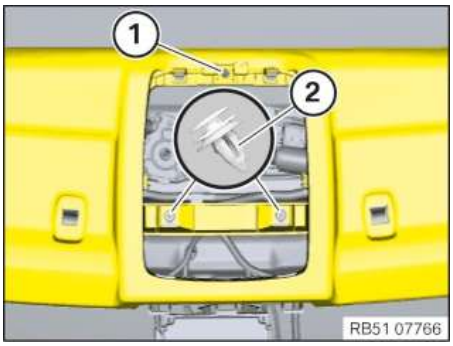


- Check the clips (1) on the headlining for damage.
  Defective or missing clips (1) must be renewed.
- Check the clamps (2) along the dotted line for damage.
  Defective or missing clamps (2) need to be renewed.

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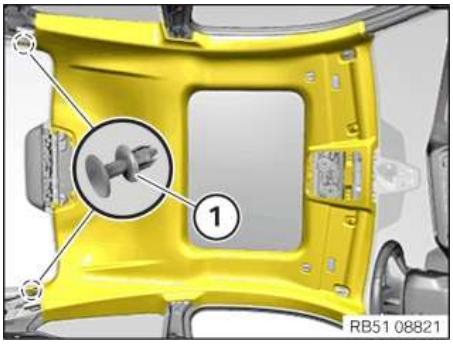
- Lift the headlining (1) with the help of an auxiliary person through the aperture of the windscreen into the vehicle.
- Insert the headlining (1) with the help of an auxiliary person onto the respective edge protection.
- Clip in headlining (1) on the clips (2).
- Clip the headlining (1) in the area of the dotted line at the slide/tilt sunroof unit and the clamps (3).



- Clip headlining to the clips (2).
- Tighten down screw (1).

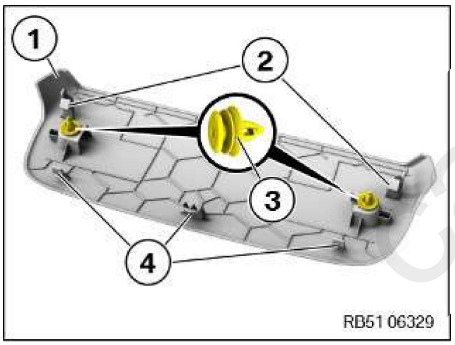
Headlining to frame

Oval-head screw		Tightening torque	1,5 Nm



- Secure expanding rivet (1).

25 – Installing trim for additional brake light



Check

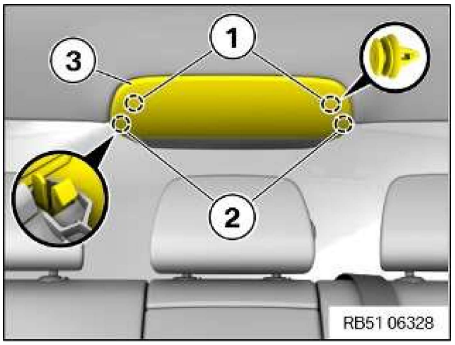
- Check the clips (3) for damage and renew if necessary.
- Check latch mechanisms (2) and guides (4) for damage.

Result

» The latch mechanism or the guide is damaged.

Measure

- Renew the trim for the additional brake light.



- Position trim for additional brake light (1) from the bottom and clip it in with latch mechanisms (2).
- Clip in clips (1).

26 – Installing the left and right B-pillar trim panel

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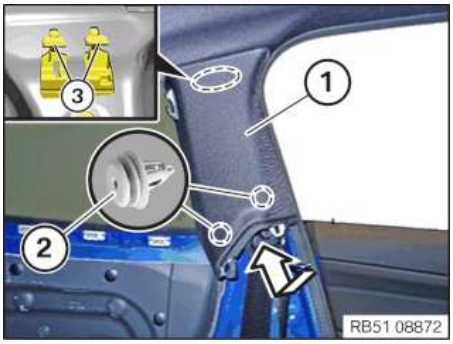
NOTICE

Description is for left component only. Procedure on the right side is identical.

▸ **Install the B-pillar trim panel**



- Check clips (1) for damage and renew if necessary.



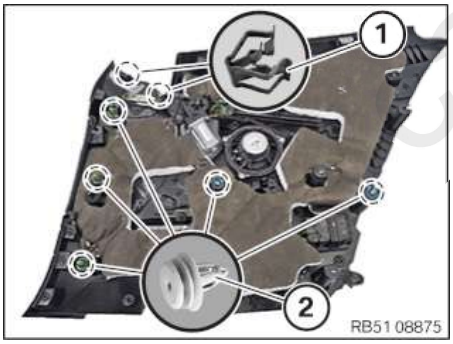
- Insert B-pillar trim panel (1) in direction of arrow into the guides (3) and under the lip of edge protection.
- Clip in the B-pillar trim panel (1) at the clips (2).

27 – Install side trim panel, rear left and right

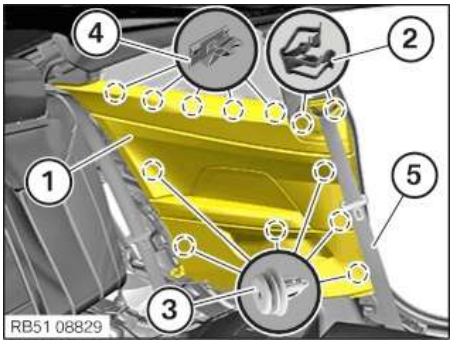
NOTICE

Description is for left component only. Procedure on the right side is identical.

▸ **Install rear side trim panel**

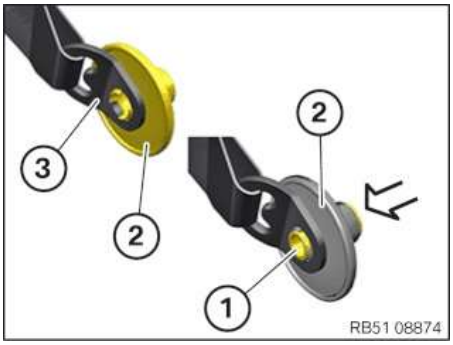


- Check clamps (1) for damage; renew them if necessary.
- Check clips (2) for damage, replace if necessary.

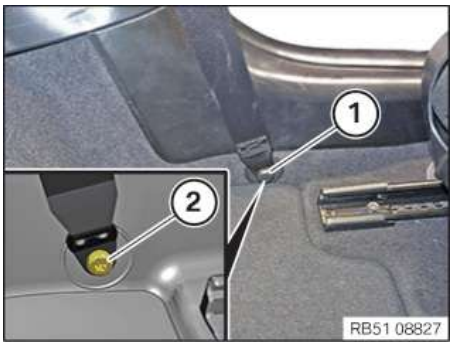


- Connect all the connectors to rear side trim panel (1) of the wiring harness and lock and disconnect them.
- Guide in upper seat belt (5).
- Position rear side trim panel (1) and clip it into clamps (4).
- Clip rear side trim panel (1) into clips (3).
- Clip rear side trim panel (1) into clamps (2).

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- Clip cover (2) of end fitting (3) into end fitting (3).
- Slide sleeve (1) into cover (2) of end fitting (3).



- Correctly position the seat belt end fitting.
- Tighten down screw (2).

End fitting to body

M10		Tightening torque	42 Nm

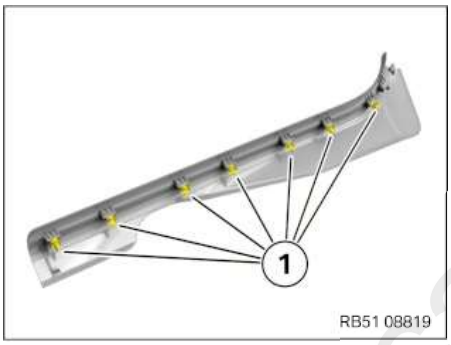
- Clip in cover cap (1).

28 – Installing the inner door sill cover strip on the left and right

NOTICE

Description is for left component only. Procedure on the right side is identical.

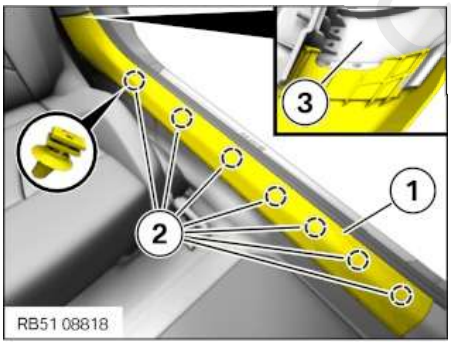
▸ **Installing the inner door sill cover strip**



NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

- Check the clips (1) for damage and renew if necessary.



- Insert the door sill cover strip (1) below the rear side trim panel (3).
- Clip the door sill cover strip (1) in with the clips (2).

29 – Installing the C-pillar trim panel on the left and right

NOTICE

Description is for left component only. Procedure on the right side is identical.

▸ **Installing C-pillar trim panel**

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WARNING

Pyrotechnic components.

Danger! Life-threatening injuries!

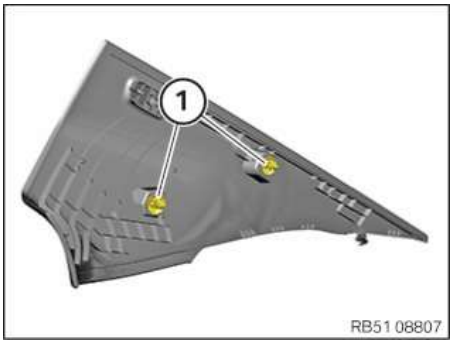
- All work on pyrotechnic parts may be carried out by technically experienced and appropriately trained personnel only.
- Replace any damaged part or ones that have been dropped.
- For additional information see: 72 00 Safety regulations on handling components with gas generators.

RISK OF DAMAGE

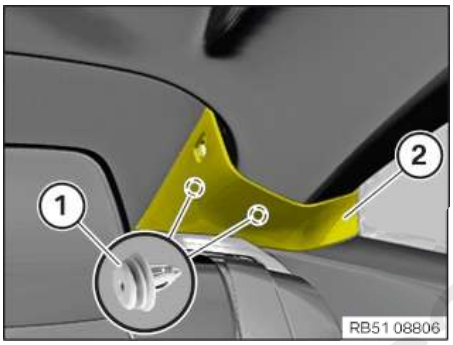
Damage to the head airbag.

Improper use of a tool when removing the trim panel may damage the head airbag.

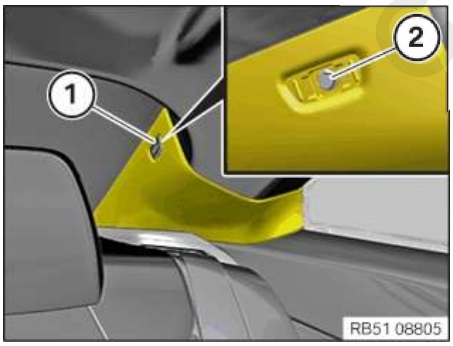
- Do not use sharp-edged tools when removing the trim panel.



- Check clips (1) for damage and, if necessary, renew them.



- Position C-pillar trim panel (2) and clip it onto clips (1).



- Tighten down screw (2).

C-pillar trim panel to body

Screw		Tightening torque	2,6 Nm

- Clip in cover (1) of the C-pillar trim panel.

30 – Install the backrest side section on the left and right

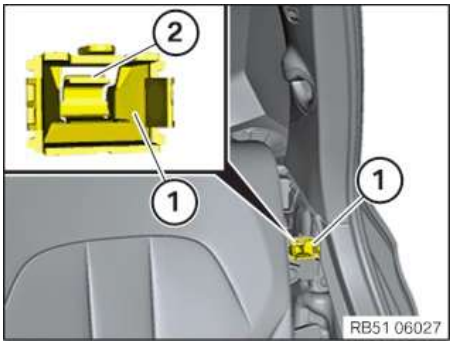
NOTICE

Description is for left component only. Procedure on the right side is identical.

▸ **Installing backrest side section**

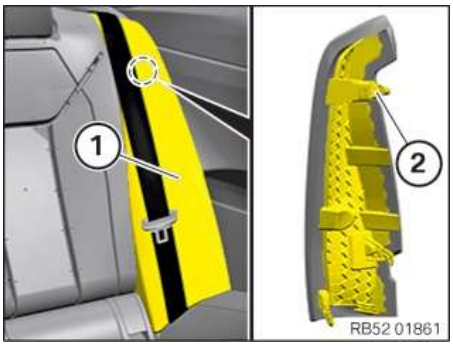
▹ **Installing backrest side section**

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- Release mounting element (1) from latch mechanism (2) and remove it from the body.
- Check the mounting element (1) for damage, renew if necessary.

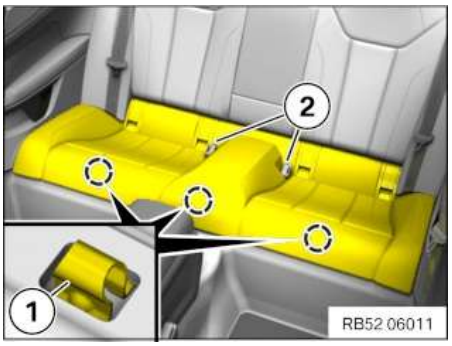
  The mounting element (1) must not be damaged or missing.
- Fit mounting element (1) on the backrest side section.



- Insert lower backrest side section (1) into the guide and position it correctly.
- Clip in backrest side section (1) to mounting element (2).

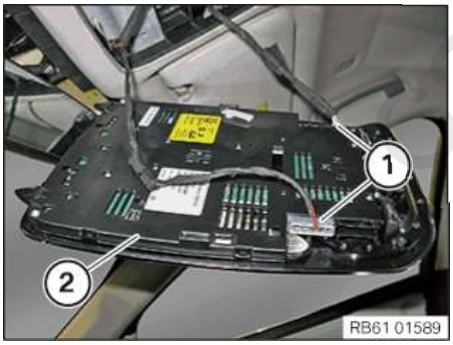
◁

31 – Installing the rear seat bench

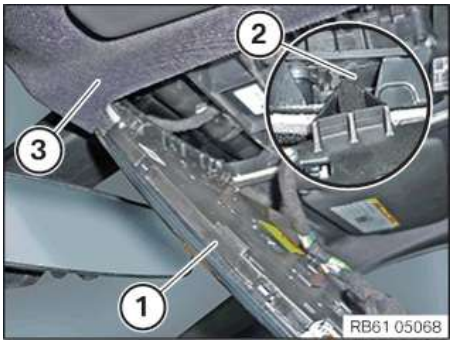


- Feed in the seat belt buckles (2).
- Position the rear seat bench and clip into the clamps (1).

32 – Installing roof function centre (FZD)



- Connect connectors (1) and lock.
- Clip in the cable for the roof function centre (FZD) (2) in the cable clip.



- Insert the roof function centre (FZD) (1) as shown at a steep angle in the two guides (2) on the headlining (3).
- Make sure the headlining is not deformed during this operation.

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- Clip the roof function centre (FZD) (1) upwards into the clamps (2).



- Slide the special tool 2 298 505 in the direction of arrow between the FZD frame and the headlining along the dotted line to adjust the headlining correctly.



- Tighten the screws (1).

Roof function centre (FZD)

	Tightening torque	1.2 Nm



- Clip in the cover (1).

33 – Initialising glass slide/tilt sunroof

▸ **Prerequisites for initialising the slide/tilt sunroof/panoramic glass sunroof**

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- The following prerequisites must be met for a trouble-free initialisation:

Interior temperature of the vehicle	15 °C - 30 °C
Vehicle voltage	12 V - 15 V
Vehicle condition	- The vehicle is standing on its own wheels
	- The vehicle is horizontal
	- Speed 0 km/h (the vehicle must not roll)
	- The radio-operated key is in the vehicle
	- Terminal 15 is switched on or the vehicle is in the Residing PFW state
Operating point	- FZD button
	- Diagnostic function: “Initialise slide/tilt sunroof”
Miscellaneous	No other work may be carried out on the vehicle during initialisation in order to avoid impacts or vibrations.



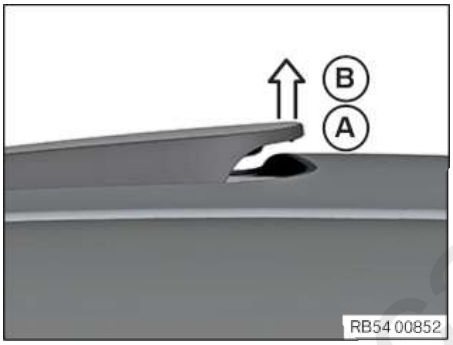
TECHNICAL INFORMATION

The following prerequisites are the basis for a correct initialisation and must be strictly observed.

For additional information see: 54 12 ... General prerequisites for initialising the slide/tilt sunroof or panoramic sunroof

- Press and hold the switch in the "Vent Position" direction.

  The glass slide/tilt sunroof moves to vent position.
- In the event of a delayed start or sudden stop of the glass slide/tilt sunroof, continue holding the switch in the "Vent position" direction.



- Continue to keep the switch pressed during the entire test module.
- Continue to operate the switch further after reaching the vent position (A) for approx. 30 s.

  Initialisation begins:
  - The glass slide/tilt sunroof moves from vent position (A) toward position (B).
  - Screen (sliding headliner) fully closes.
  - Screen (sliding headliner) fully opens.
  - Glass slide/tilt sunroof moves to "closed" position.
  - The glass slide/tilt sunroof moves to the "Open" position and immediately returns to the "Closed" position.
  - After a brief pause, the screen fully closes.

  The initialisation is completed once the glass slide/tilt sunroof and the screen have completely closed.
- Release the switch.

TECHNICAL INFORMATION

If the switch is released in the meantime, the initialisation must be repeated. Following successful initialisation, the corresponding messages in the Check Control and on the control display go out.

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

34 – Installing the sun visors and the end support on the left and right

NOTICE

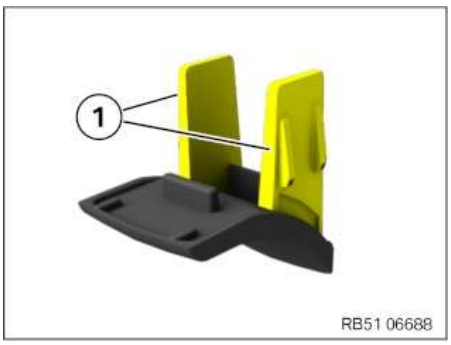
Description is for left component only. Procedure on the right side is identical.

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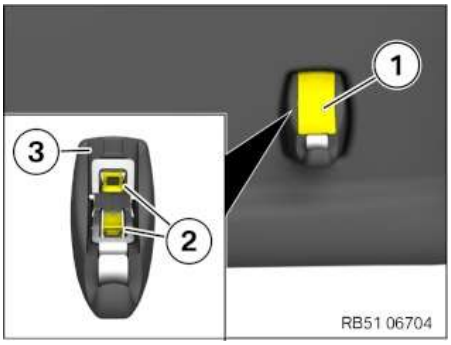
▸ **Install the sun visor and the counter support**

NOTICE

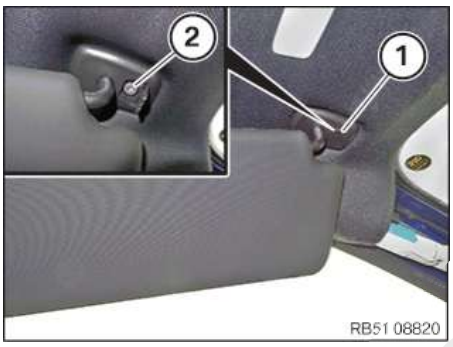
Schematic diagram is for example purposes. Some parts may differ in certain details.



- Check the guides (1) on the cover of the end support for damage, renew if necessary.



- Clip in the counter support (3) to the headlining.
- Make sure the clamps (2) are engaged correctly.
- Clip in the cover (1).



- Connect and lock corresponding connectors.
- Install the sun visors.
- Tighten down screw (2).

Sun visor to body

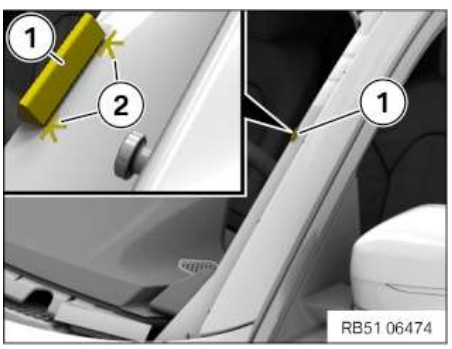
Screw	Tightening torque	3.3 Nm

- Close the cover (1).



- Hook the sun visors (1) to the end support (2).

35 – Replace the spacer



NOTICE

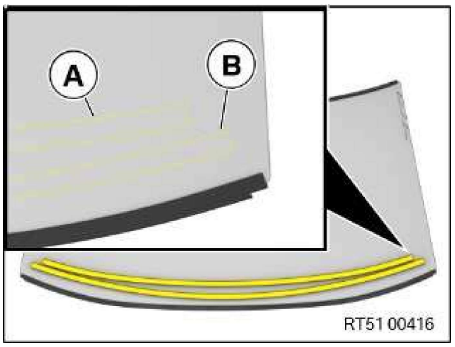
Description is for left component only. Procedure on the right side is identical.

- Remove adhesive residues from the body when installing the windscreen and clean the adhesive area.
- Completely remove the existing spacer (1).
- Bond the spacer (1) in the centre on the embossed marks (2) on the body side.

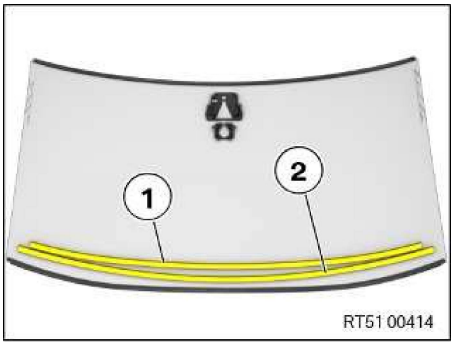
  Parts: Spacer

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36 – Replacement: prepare the windscreen

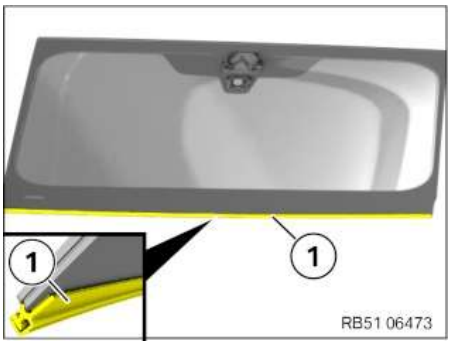


- Observe marks (A) and (B) for the expanding foam tape on the windscreen.



- Attach expanding foam tapes (1) and (2) along the marks on the edge of windscreen.

  Parts: Expanding foam tape



Check

- Check the guide (1) for the cowl panel cover for damage.

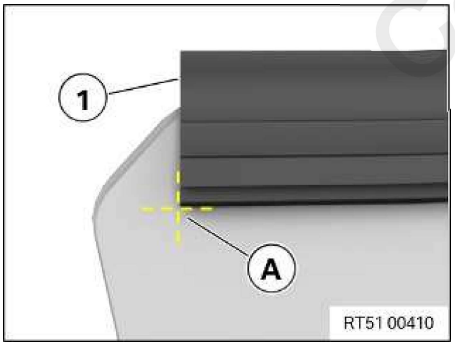
Result

» Guide for cowl panel cover is damaged.

Measure

- Renew windscreen.

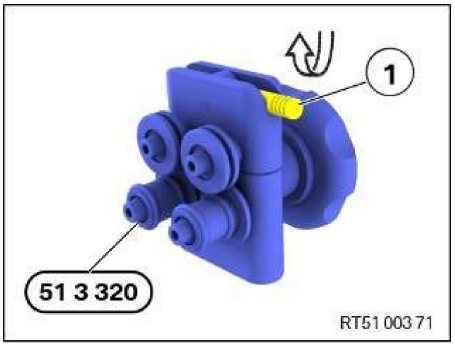
37 – Installing the windscreen rubber frame



NOTICE

Perform the operations on the left and right side.

- Observe marks (A) for the windscreen rubber frame (1).

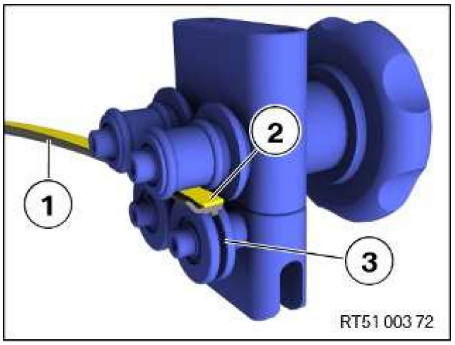


NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

- Reposition lever (1) in direction of arrow and open it using the special tool .

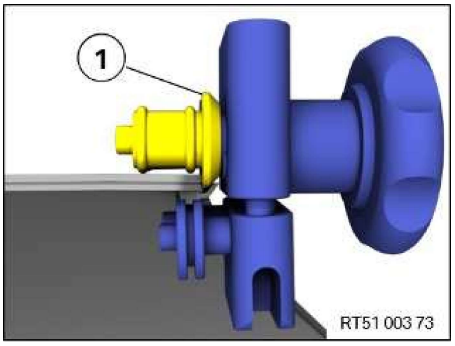
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NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

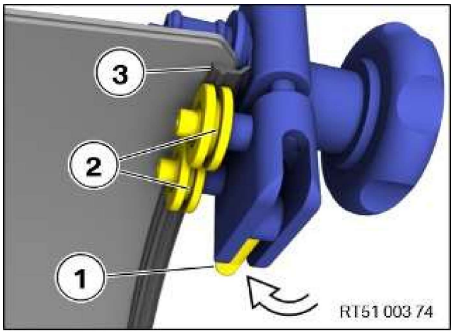
- Pull off protective film (2) in stages from adhesive tape.
- Insert the cover (1) into the guides (3).



NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

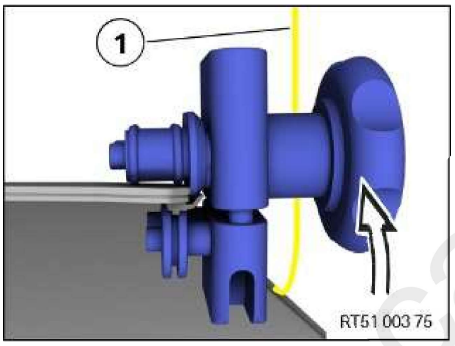
- Place the special tool with the pressure rollers (1) up against the window edge.
- Align the cover with the outer edge of the windscreen.
- Fit the cover and visually check for perfect fit.



NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

- Reposition the lever (1) in direction of arrow to close the special tool.
- Ensure the correct positioning of the cover (3) in the guide pulleys (2).



NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

- Continue to pull off protective film (1) in stages from adhesive tape.
- Pull the special tool in the direction of arrow with the handwheel over the entire upper edge of the window glass.

38 – Checking the sign

NOTICE

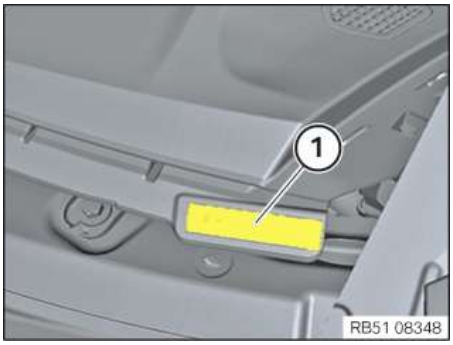
Schematic diagram is for example purposes. Some parts may differ in certain details.

NOTICE

The following work step(s) is / are to be carried out if the specified component(s) is/are fitted.

Check

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- Check sign (1) for damage.

Result

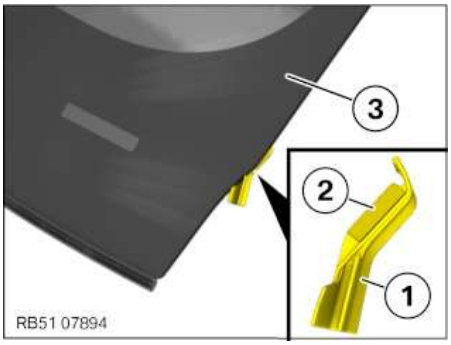
» Sign (1) is damaged.

Measure

- Renew sign (1).

39 – Installing the windscreen.

▸ **Installing the water guide element on the left and right**



- Check the water guide element (1) on the left and right for damage and renew if necessary.

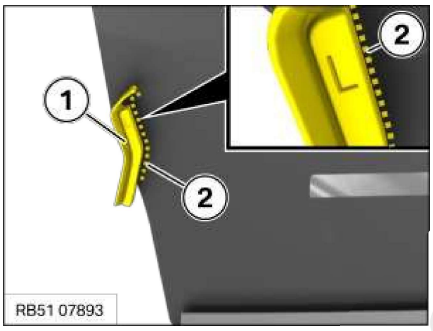
  Do not mix up the left and right water guide element.

- Clean the bonding surface with cleaning agent.

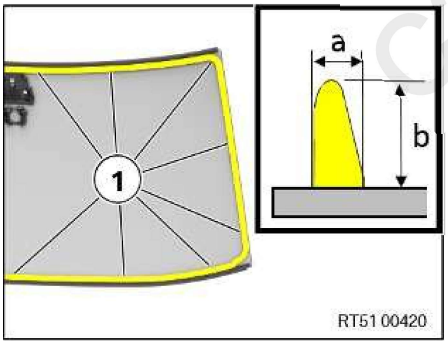
Expendable materials

Cleaning agent R2	500 ml	83190417324

- Remove liner (2) from the water guide element (1) and position on the windscreen (3).



- Position water guide element (1) at the mark (2) and press it down.

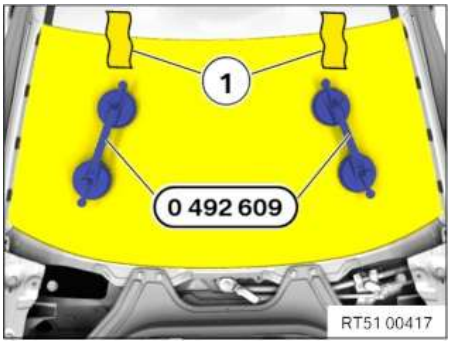


NOTICE

Perform the operations on the left and right side.

- Prepare the glue cartridge with the standard nozzle C.
- Apply adhesive bead within the marks (1) on the windscreen.

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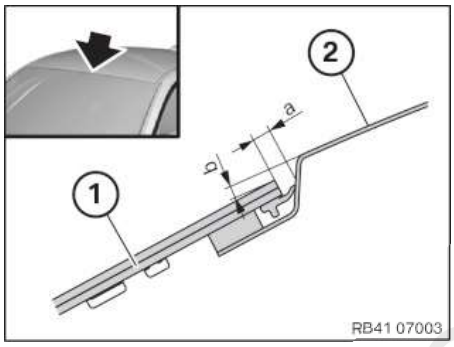


- Carefully insert the windscreen using special tool between the bonnet and the cowl panel.
- Position the windscreen at the top.
- Evenly align the windscreen on the left and right.
- Insert and press on the windscreen at the bottom.
- Press the windscreen towards the top until the rubber frame of the windscreen is evenly in contact with the roof.
- Secure the windscreen in this installation position using the two yellow plastic adhesive tapes (1).

Gap dimension windscreen to roof outer skin

1 windscreen; 2 roof outer skin

a	4,3 (3,1 - 5.5) mm
b	3,6 (2.3 - 4,9) mm



40 – Installing cowl panel cover

RISK OF DAMAGE

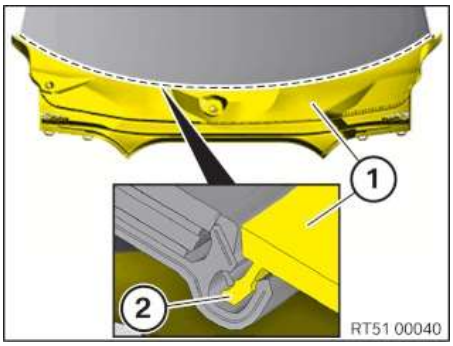
Damage caused by water ingress into the vehicle.

Water ingress into the vehicle may result in damage to components, malfunctions and corrosion.

- Ensure correct installation of the components.
- Only use undamaged components.

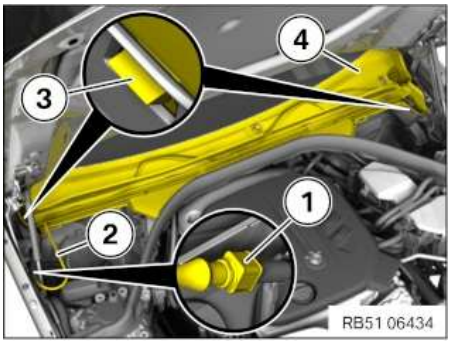
TECHNICAL INFORMATION

Before installing the cowl panel cover it is **mandatory** to check that the 48 V line is routed correctly and fitted tightly.
An incorrectly laid or attached 48 V line can be damaged by the wiper kinematics.



- Push the cowl panel cover (1) into the latch mechanism (2) beginning on the side.

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- Clip cowl panel cover (4)in by means of the latch mechanisms (3).
- Position windscreen wash hose (2) and connect windscreen wash hose (1)quick lock.

41 – Install the gutter strip on the windscreen on the left and right

NOTICE

Description is for left component only. Procedure on the right side is identical.

▸ **Install the gutter strip on the windscreen**

RISK OF DAMAGE

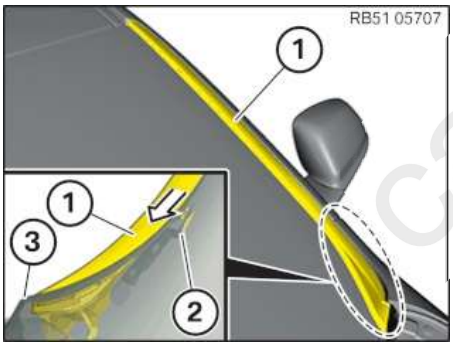
Careless handling of tools and sharp-edged components.

Scratch, surface damage.

- Protect working area.
- Handle tools and components carefully.

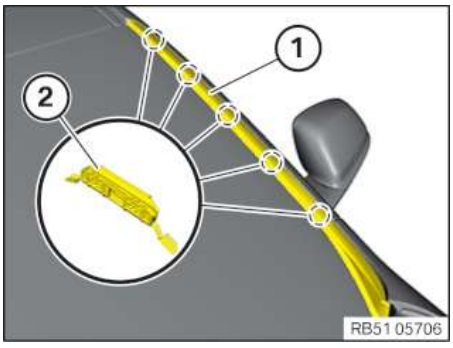
TECHNICAL INFORMATION

Latch mechanisms, guides and mounting elements must not be damaged or missing.



- Renew gutter strip on the windscreen (1) and paint if necessary.

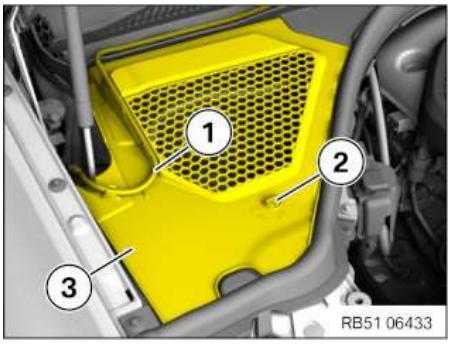
  Parts: Gutter strip
- Carefully feed in the windscreen gutter strip (1) at the side panel (3) and simultaneously feed into the guide (2) in direction of arrow.



- Clip in the windscreen gutter strip (1) starting at bottom at the clamps (2).

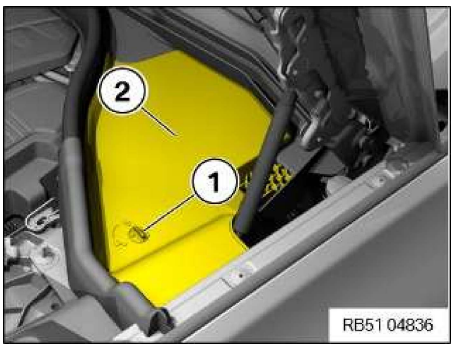
42 – Install the rear right engine compartment cover

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- Position the cover of the engine compartment on the rear right (3).
- Close lock (2).
- Insert washer fluid hose (1) into the guides.

43 – Install the cover of the engine compartment on the rear left



- Position the engine compartment cover at the rear left (2) .
- Close lock (1).

44 – Install left and right wiper arm

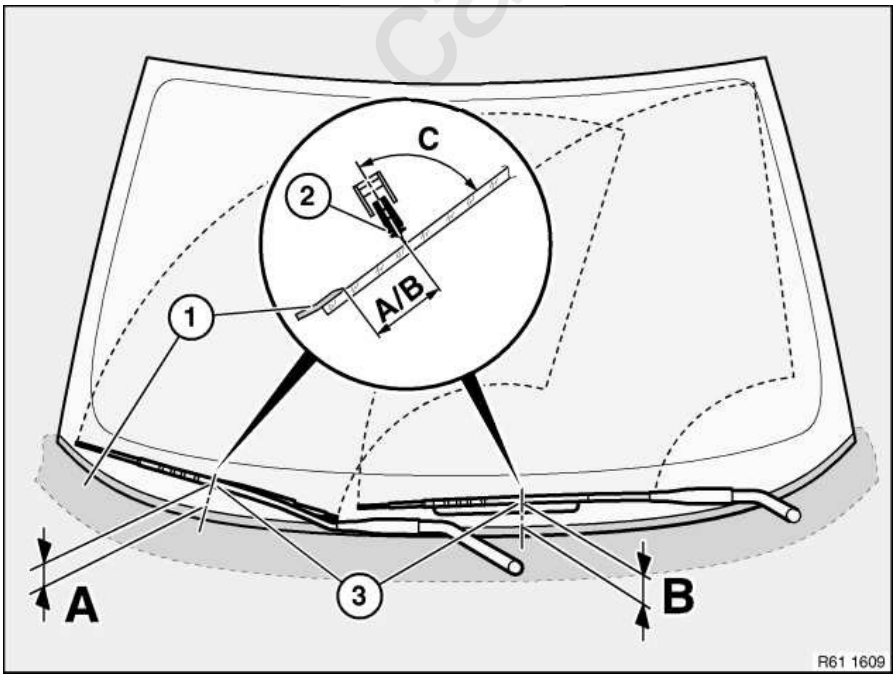
NOTICE

Description is for left component only. Procedure on the right side is identical.

▸ **Installing left and right wiper arm**

TECHNICAL INFORMATION

The wiper system must be in zero position.
After installing the cowl panel cover and before fitting the wiper arm:
Activate the wiper system once to ensure that it has the correct installation position.

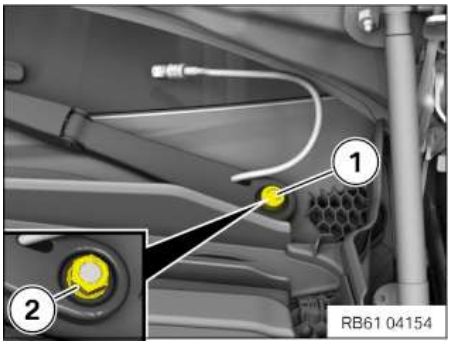


- Connect the wiper arm (3).
- Correctly position the wiper arm (2) in relation to the window edge (1).

Distance from window pane edge to wiper blade

Wiper arm right (A)	57,5 ± 5 mm
Wiper arm left (B)	63,3 ± 4 mm

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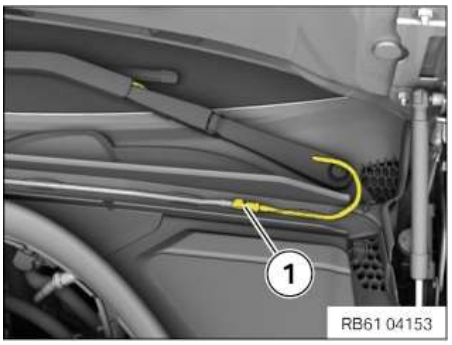


- Tighten nut (2).

Windscreen wiper arm

Combination hexagon nut		Tightening torque	35 Nm

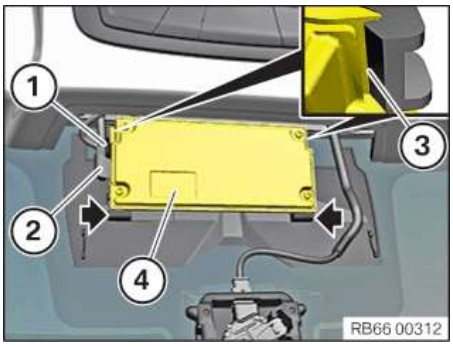
- Connect the protective cap (1).



- Feed washer fluid hose (1) into the cowl panel guide and connect at the separation point.

45 – Install KAFAS camera

▸ **Install KAFAS camera (high version)**

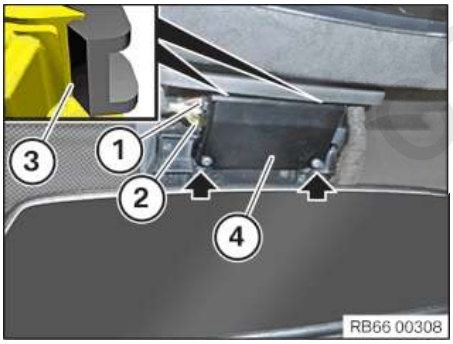


TECHNICAL INFORMATION

Latch mechanisms, guides and mounting elements must not be damaged or missing.

- Feed in the KAFAS camera (4) in the guides (arrows) and engage it in the retaining lugs (3).
- Make sure that the KAFAS camera (4) is engaged correctly at the retaining lugs (3).
- Connect connectors (2) and lock.
- Connect connectors (1) and lock.

▸ **Install KAFAS camera (Mid variant)**

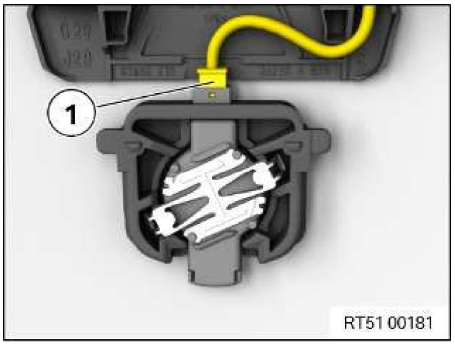


TECHNICAL INFORMATION

Latch mechanisms, guides and mounting elements must not be damaged or missing.

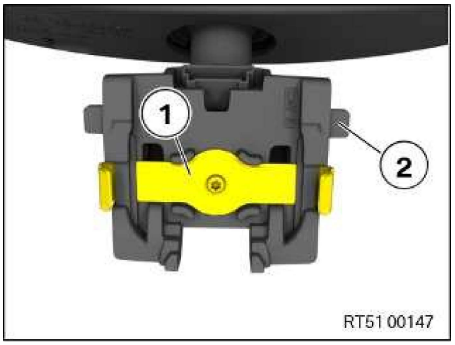
- Feed in KAFAS camera (4) on the guides (arrows) and engage the retaining lugs (3).
- Make sure that the KAFAS camera (4) engages correctly in the retaining lugs (3).
- Connect connectors (2) and lock.
- Connect connectors (1) and lock.

46 – Installing the rain-light-solar-condensation sensor partially

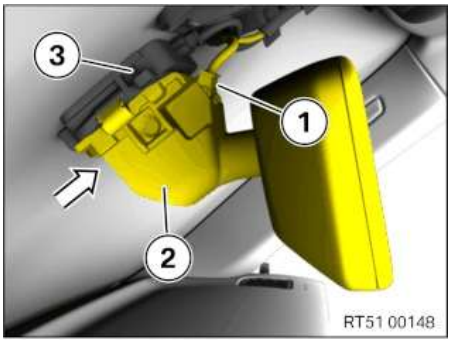


- Connect connectors (1) and lock.

47 – Install interior mirror



- Check the clamp (1) on both sides of the mirror base (2) for damage and renew as needed.



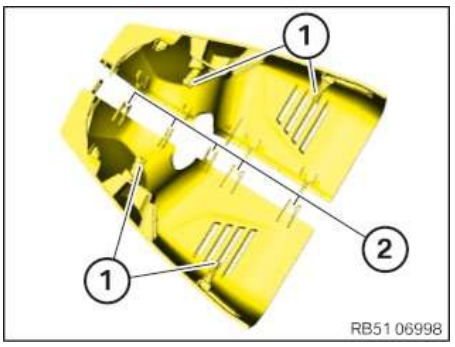
TECHNICAL INFORMATION

Carry out the work at temperatures between 18 °C and 23 °C only.

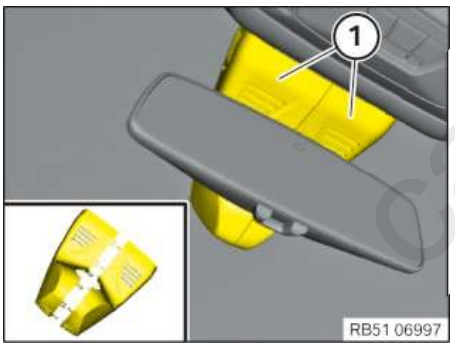
- Position the interior mirror (2) at the mirror base and slide it on in direction of the arrow.
- Check the correct installation position of the interior mirror (2) at the mirror base (3).
- Connect connectors (1) and lock.

48 – Installing the covers for the interior mirror

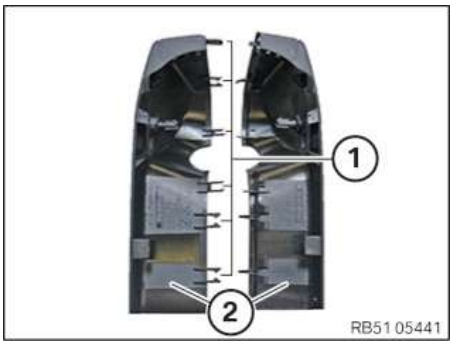
- **Version A:**



- Check latch mechanisms (1) and (2).
- If the latch mechanisms (1) or (2) are faulty, renew the covers.



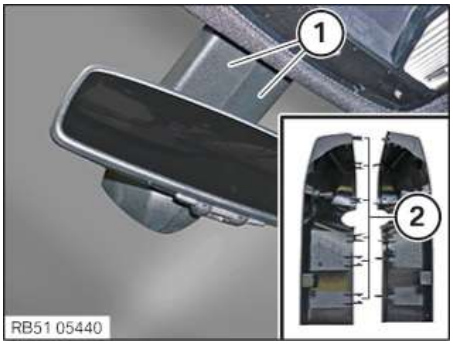
- Feed cover (1) in and lock.
- **Version B:**



- Check the latch mechanisms (1) on the two covers (2) for damage, renew the covers (2) if necessary.

  The covers (2) must not be damaged or missing.

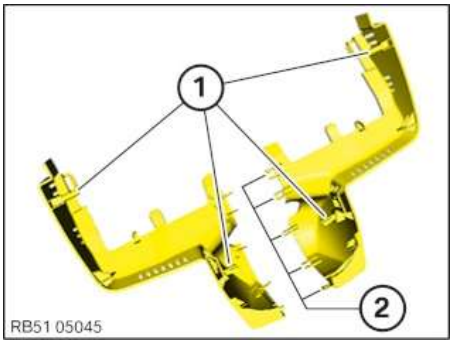
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- Position the covers (1) correctly on the mirror and engage with the latch mechanisms (2).

- **Version C:**

Check



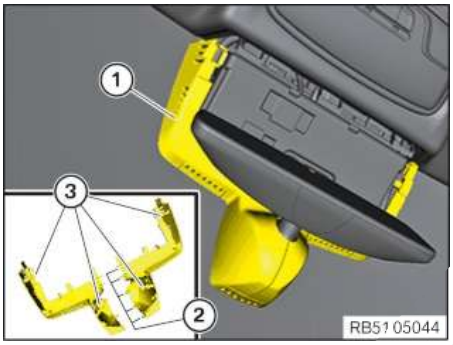
- Check the latch mechanisms (1) and (2) of the covers for damage.

Result

» The latch mechanism is damaged.

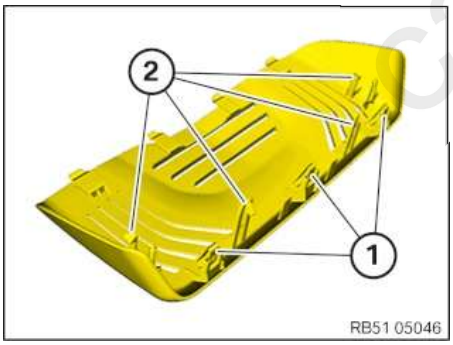
Measure

- Renew the cover.



- Guide in cover (1) on left and right and engage using latch mechanisms (2) and (3).

Check



- Check clamps (1) for damage; renew if necessary.
- Check latch mechanisms (2) for damage.

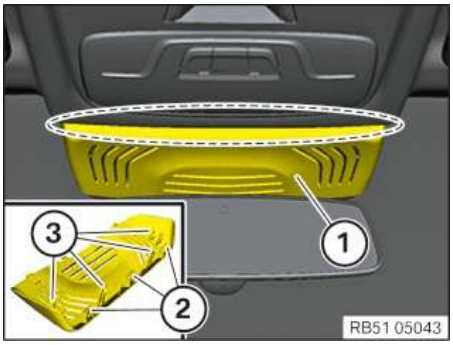
Result

» The latch mechanism is damaged.

Measure

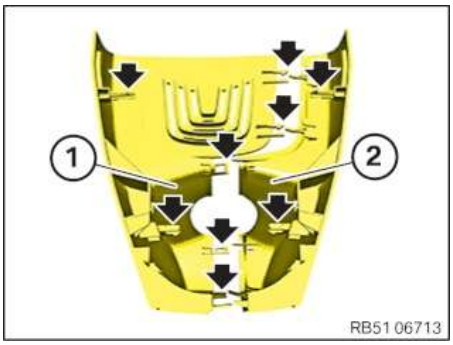
- Renew the cover.

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- Guide cover (1) into front guides and engage using retaining lugs (3) and clamps (2).

- **Version D:**



- Check the latch mechanisms (arrows) on covers (1) and (2) for damage and, if necessary, renew covers (1) and (2).



- Position covers (1) and (2) correctly on the mirror and engage at the separation point (3).

49 – Install the A-pillar trim panel on the left and right

NOTICE

Description is for left component only. Procedure on the right side is identical.

▸ Installing the A-pillar trim panel

WARNING

Pyrotechnic components.

Danger! Life-threatening injuries!

- All work on pyrotechnic parts may be carried out by technically experienced and appropriately trained personnel only.
- Replace any damaged part or ones that have been dropped.
- For additional information see: 72 00 Safety regulations on handling components with gas generators.

RISK OF DAMAGE

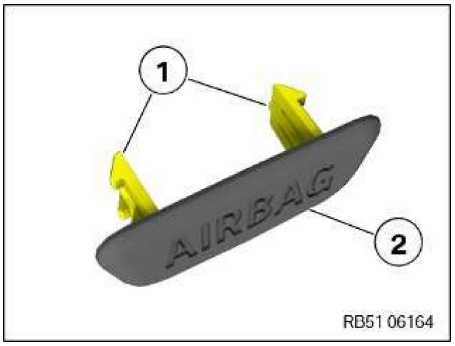
Damage to the head airbag.

Improper use of a tool when removing the trim panel may damage the head airbag.

- Do not use sharp-edged tools when removing the trim panel.

Check

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- Check retaining lugs (1) of cover (2) for damage.

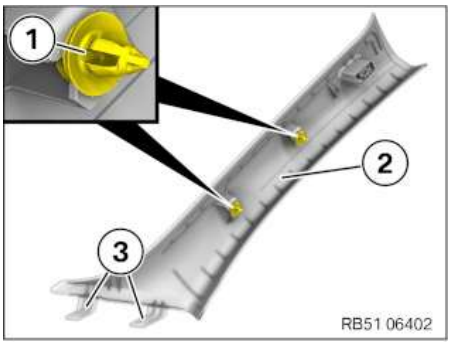
Result

» Retaining lug is damaged.

Measure

- Renew the cover.

Check



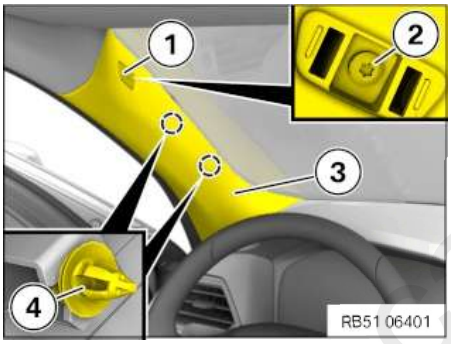
- Check the clips (1) for damage and renew if necessary.
- Check the guides (3) for damage.

Result

» Guide is damaged.

Measure

- Renew the A-pillar trim panel.



- Guide in A-pillar trim panel (3) downwards and clip it in with clips (4).
- Tighten down screw (2).

A-pillar trim panel to body

Sheet metal screw 4,8x38		Tightening torque	2,6 Nm

- Clip in the cover (1).

50 – Calibrate KAFAS camera



TECHNICAL INFORMATION

The calibration process of the KAFAS camera is not complete until the vehicle drives in traffic. Tell the customer that some assistance systems are temporarily unavailable after vehicle pick-up.

- Perform camera calibration using diagnosis system.

  Under Service Functions menu:

  - Driver assistance
  - Camera-based driver assistance systems
  - Calibration of camera-based driver support systems

Additional Information

Overview of Tightening Torques

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Drive for panorama sunroof to body — Used in step 23

Screw		Tightening torque	5,5 Nm

Headlining to frame — Used in step 24

Oval-head screw		Tightening torque	1,5 Nm

End fitting to body — Used in step 27

M10		Tightening torque	42 Nm

C-pillar trim panel to body — Used in step 29

Screw		Tightening torque	2,6 Nm

Roof function centre (FZD) — Used in step 32

		Tightening torque	1.2 Nm

Sun visor to body — Used in step 34

Screw		Tightening torque	3.3 Nm

Windscreen wiper arm — Used in step 44

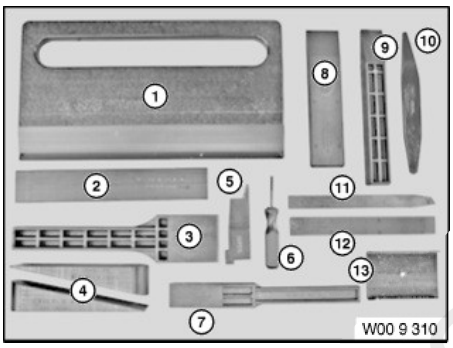
Combination hexagon nut		Tightening torque	35 Nm

A-pillar trim panel to body — Used in step 49

Sheet metal screw 4,8x38		Tightening torque	2,6 Nm

Overview of Special Tools

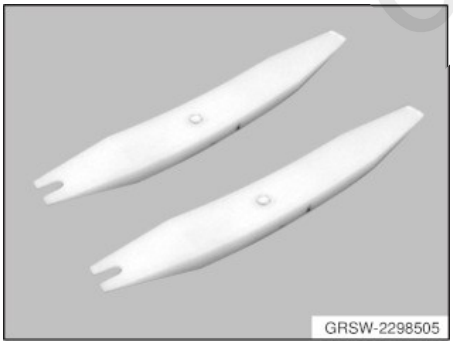
0 493 752 (00 9 329) Case



Common — Used in step 117

Usage	(Case) with insert without mounting wedges, delivery while stocks last - as of 02/2019.
Included in the tool or work	0 490 527
Storage location	Individual
Replaced by	
In connection with	
SI-Number	01 07 09 (530)

2 298 505 Wedge



Common — Used in step 32

Usage	Set (delivery of 2 pieces)
Included in the tool or work	
Storage location	C34
Replaced by	
In connection with	
SI-Number	01 03 12 (792)

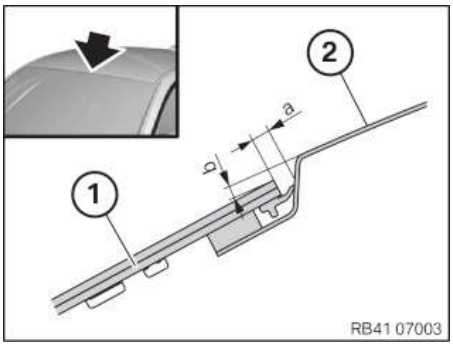
Overview Technical Data

Gap dimension windscreen to roof outer skin — Used in step 39

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1 windscreen; 2 roof outer skin

a	4,3 (3,1 - 5.5) mm
b	3,6 (2.3 - 4,9) mm



Distance from window pane edge to wiper blade	Used in step 44
Wiper arm right (A)	57,5 ± 5 mm
Wiper arm left (B)	63,3 ± 4 mm

Links

Repair instructions (PRE)	**Used in step**
Notes on 48-V battery	1530
Prerequisites for initialisation of the slide/panoramic sunroof	33

General repair instructions	**Used in step**
72 00 ... Safety regulations for handling components with gas generators	11530
72 00 ... Safety regulations for handling components with gas generators	1
51 31 ... General procedure for the disassembly and installation of bonded window glass	11
51 31 ... Materials for bonding window	11

Repair instructions	**Used in step**
61 35 ... Notes on ESD protection (Electro Static Discharge)	
61 35 ... Notes on ESD protection (Electro Static Discharge)	
51 31 ... Removing windows with a "Spider"	11
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	1530
61 20 900 Disconnecting and connecting battery earth lead	1530
61 20 900 Disconnecting and connecting battery earth lead	1530
61 20 900 Disconnecting and connecting battery earth lead	1530
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61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	1530
61 20 900 Disconnecting and connecting battery earth lead	1530
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61 20 900 Disconnecting and connecting battery earth lead	1530
61 20 900 Disconnecting and connecting battery earth lead	1530
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	1530
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	1530
61 20 900 Disconnecting and connecting battery earth lead	1530
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	1530
61 20 900 Disconnecting and connecting battery earth lead (Plug-in Hybrid Electric Vehicle)	1530
61 20 900 Disconnecting and connecting battery earth lead	1530
61 20 900 Disconnecting and connecting battery earth lead	1530
61 20 900 Disconnecting and connecting battery earth lead	1530
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61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	1530
61 20 900 Disconnecting and connecting battery earth lead	1530
61 20 900 Disconnecting and connecting battery earth lead	1530
61 20 900 Disconnecting and connecting battery earth lead	1530

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67 61 581 Replacing the drive for the roller sunblind

RISK OF DAMAGE

Careless handling of tools and sharp-edged components.

Scratch, surface damage.

- Protect working area.
- Handle tools and components carefully.

RISK OF DAMAGE



Electrostatic discharge.

Damage to or destruction of electrical components.

- Leave electrical components in original packaging until just before they are installed. Use the original packaging only for any return shipments. Always package removed components straight away.
- Read and comply with user information on using the associated special tool 12 7 060.
- Only touch the housings of electrical components. Do not touch pins or multi-pin connectors directly.
- Wear electrically conductive clothing and antistatic shoes (with ESD symbol).
- For additional information see: 61 35 ... Notes for ESD protection (electrostatic discharge)

TECHNICAL INFORMATION

With the optional equipment SA6UA, the camera for gesture control is integrated in the roof control module. Separate exchange of this camera in the event of a fault is not possible.

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1 – Removing the roof function centre (FZD)



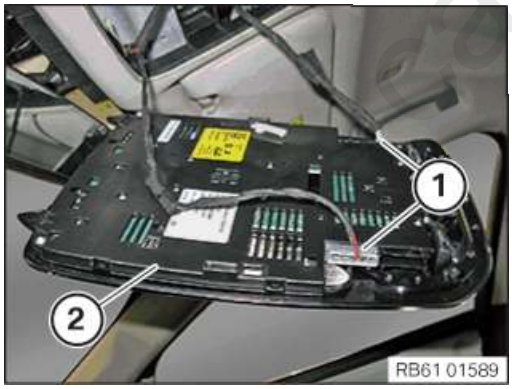
- Unclip the cover (1).



- Loosen screws (1).



- Unclip the roof function centre (FZD) (1) from the clamps (2).
- Thread the roof function centre (FZD) (1) out of the guides (3).



- Unlock and disconnect plug connections (1).
- Unclip the cable clip from roof function centre (FZD) (2) and remove the roof function centre (FZD) (2).

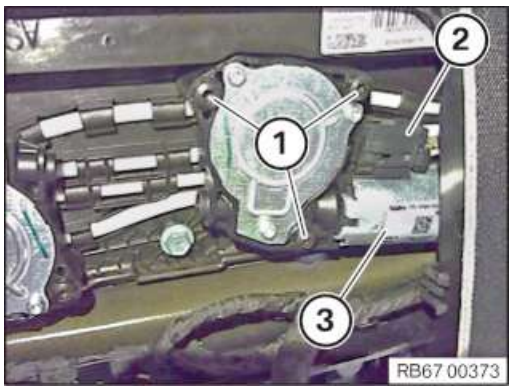
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MAIN WORK

2 – Remove the drive for the roller sunblind

Prerequisite

Roller sunblinds is open.

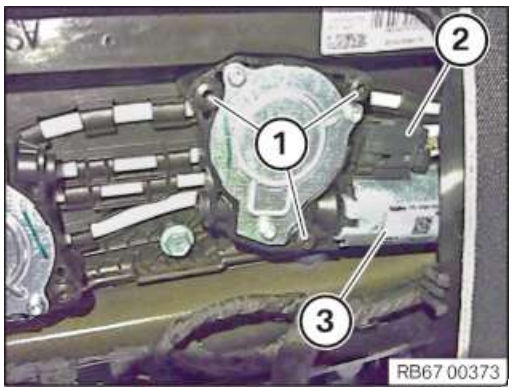


- Loosen screws (1).
- Unlock plug connection (2) and disconnect.
- Carefully feed out the drive (3).

3 – Installing the drive for the roller sunblind

Prerequisite

The roller sunblind is open.



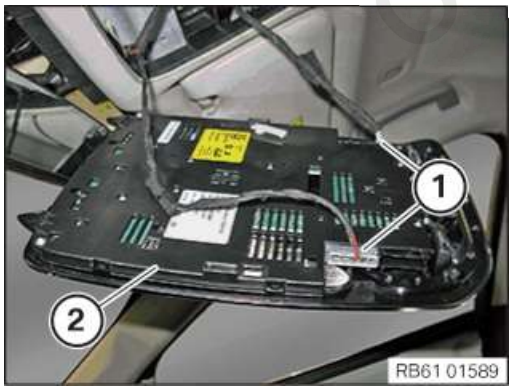
- Feed in the drive (3) of the roller sunblind and position correctly.
- Connect connectors (2) and lock.
- Tighten the screws (1).

Drive for panorama sunroof to body

Screw		Tightening torque	5,5 Nm

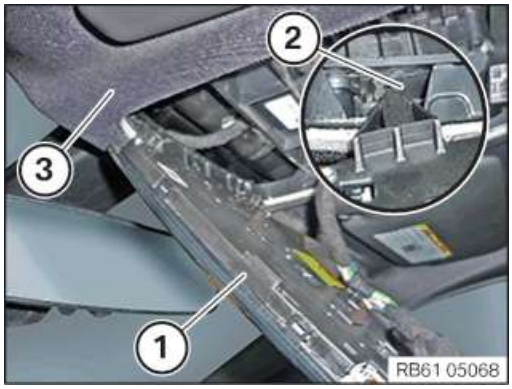
POSTPROCESSES

4 – Installing roof function centre (FZD)



- Connect connectors (1) and lock.
- Clip in the cable for the roof function centre (FZD) (2) in the cable clip.

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- Insert the roof function centre (FZD) (1) as shown at a steep angle in the two guides (2) on the headlining (3).
- Make sure the headlining is not deformed during this operation.



- Clip the roof function centre (FZD) (1) upwards into the clamps (2).



- Slide the special tool 2 298 505 in the direction of arrow between the FZD frame and the headlining along the dotted line to adjust the headlining correctly.



- Tighten the screws (1).

Roof function centre (FZD)

	Tightening torque	1.2 Nm



- Clip in the cover (1).

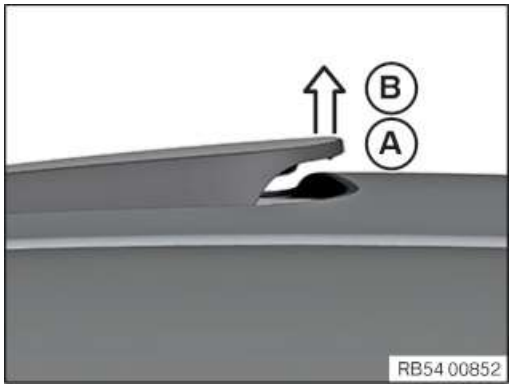
5 – Initialise glass slide/tilt sunroof

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- Press and hold the switch in the "Vent Position" direction.

  The glass slide/tilt sunroof moves to vent position.
- In the event of a delayed start or sudden stop of the glass slide/tilt sunroof, continue operating the switch in the "Vent Position" direction.



- Continue to operate the switch during the entire ABL.
- After having reached the vent position (A) continue to operate the switch for approximately 30 s (initialisation starts).
  - The glass slide/tilt sunroof moves from vent position (A) toward position (B).
  - Screen (sliding headliner) fully closes.
  - Screen (sliding headliner) fully opens.
  - Glass slide/tilt sunroof moves to "closed" position.
  - The glass slide/tilt sunroof moves to the "Open" position and immediately returns to the "Closed" position.
  - After a brief pause, the screen fully closes.

  The initialisation is completed once the glass slide/tilt sunroof and the screen have completely closed.
- Release the switch.

TECHNICAL INFORMATION

If the switch is released in the meantime, the initialisation must be repeated. Following successful initialisation, the corresponding messages in the Check Control and on the control display go out.

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

6 – Initialising glass slide/tilt sunroof

▸ Prerequisites for initialising the slide/tilt sunroof/panoramic glass sunroof

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- The following prerequisites must be met for a trouble-free initialisation:

Interior temperature of the vehicle	15 °C - 30 °C
Vehicle voltage	12 V - 15 V
Vehicle condition	- The vehicle is standing on its own wheels
	- The vehicle is horizontal
	- Speed 0 km/h (the vehicle must not roll)
	- The radio-operated key is in the vehicle
	- Terminal 15 is switched on or the vehicle is in the Residing PFW state
Operating point	- FZD button
	- Diagnostic function: “Initialise slide/tilt sunroof”
Miscellaneous	No other work may be carried out on the vehicle during initialisation in order to avoid impacts or vibrations.



TECHNICAL INFORMATION

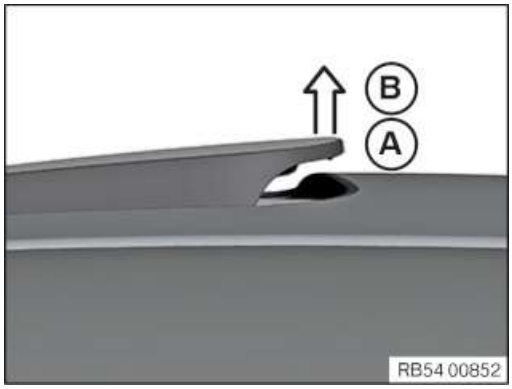
The following prerequisites are the basis for a correct initialisation and must be strictly observed.

For additional information see: 54 12 ... General prerequisites for initialising the slide/tilt sunroof or panoramic sunroof

- Press and hold the switch in the "Vent Position" direction.

  The glass slide/tilt sunroof moves to vent position.
- In the event of a delayed start or sudden stop of the glass slide/tilt sunroof, continue holding the switch in the "Vent position" direction.

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- Continue to keep the switch pressed during the entire test module.
- Continue to operate the switch further after reaching the vent position (A) for approx. 30 s.

  Initialisation begins:

  - The glass slide/tilt sunroof moves from vent position (A) toward position (B).
  - Screen (sliding headliner) fully closes.
  - Screen (sliding headliner) fully opens.
  - Glass slide/tilt sunroof moves to "closed" position.
  - The glass slide/tilt sunroof moves to the "Open" position and immediately returns to the "Closed" position.
  - After a brief pause, the screen fully closes.

  The initialisation is completed once the glass slide/tilt sunroof and the screen have completely closed.
- Release the switch.

TECHNICAL INFORMATION

If the switch is released in the meantime, the initialisation must be repeated. Following successful initialisation, the corresponding messages in the Check Control and on the control display go out.

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

Additional Information

Overview of Tightening Torques

Drive for panorama sunroof to body — Used in step 3

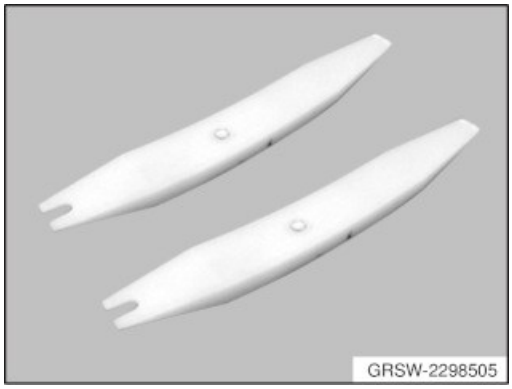
Screw		Tightening torque	5,5 Nm

Roof function centre (FZD) — Used in step 4

		Tightening torque	1.2 Nm

Overview of Special Tools

2 298 505 Wedge



Common — Used in step 4

Usage	Set (delivery of 2 pieces)
Included in the tool or work	
Storage location	C34
Replaced by	
In connection with	
SI-Number	01 03 12 (792)

Links

Repair instructions (PRE) — Used in step

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Prerequisites for initialisation of the slide/panoramic sunroof	6

Repair instructions	**Used in step**
61 35 ... Notes on ESD protection (Electro Static Discharge)	
61 35 ... Notes on ESD protection (Electro Static Discharge)	

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67 62 000 Removing and installing or replacing flat motor for front left or right power window regulator

WARNING

Working on 12 V vehicle electrical system.

Risk of short circuits! Risk of fire!

- Make sure that **no charger** is connected to the jump start support point in the engine compartment.
- Detach battery earth lead from battery.
- With auxiliary batteries: Detach all battery earth leads from additional batteries.

NOTICE

Description is for left component only. Procedure on the right side is identical.

PRELIMINARY WORK

1 – Deactivating the 48 V electrical system

Prerequisite

Ignition is switched off.

WARNING

Deactivation of the 12 V vehicle electrical system.

Risk of short circuits! Risk of fire!

- Make sure that **no battery charger** is connected to the jump start terminal point in the engine compartment.
- For vehicles with additional electrical systems (48 V electrical system, high-voltage vehicle electrical system), it is mandatory to deactivate them **before** disconnecting the vehicle battery.

WARNING

Deactivation of the 48 V electrical system.

Risk of short circuits! Risk of fire!

- Make sure that **no charger** is connected to the jump start support point in the engine compartment.

RISK OF DAMAGE

Damage to 48-V battery

If a 48-V battery that is disconnected from the electrical system is activated, the battery electronics will be damaged.

- Only carry out activation of the 48V electrical system with a completely connected 48-V battery.

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TECHNICAL INFORMATION

Follow notes for 48-V battery. See further information 6120 ... Notes on 48-V battery.



- Deactivate the 48V electrical system by opening the bonnet.

  The deactivation takes place automatically.

Check



TECHNICAL INFORMATION

Zero voltage (48V electrical system is switched off) is displayed only in PAD mode.

- Press the START-STOP button quickly 3 times without stepping on the brake pedal to establish the PAD mode.
- Check isolation from the supply in the instrument cluster in PAD mode.

desired state

- The Check Control message "48V electrical system switched off." (1) is displayed.

Result

» **The absence of voltage** cannot be determined by means of the Check Control message "48V electrical system switched off:" (1). Work is not permitted to be started.

Measure

- Carry out the service function "48 V electrical system deactivation".
  - Vehicle management > Service functions > Voltage supply > Deactivate 48 V electrical system

  Only when the Check Control message “48 V electrical system switched off.” (1) is displayed in the instrument cluster is it permitted to disconnect the 12 V battery.

  If the absence of voltage is not indicated clearly, contact Technical Support.

Result

» The Check Control message signals that the 48V electrical system has been switched off.

Measure

- Exit PAD mode by pressing the START-STOP button once without depressing the brake pedal.

  The work “Disconnecting the negative battery cable of the 48-V battery” can be started.

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- Unlock and disconnect plug connection (1) of the CAN bus.
- Release the clip (2).



- Loosen nut (1).
- Pull off negative battery cable (2) of the 48-V battery from the negative battery terminal, set it aside and secure it.



WARNING

Unprotected battery terminals.

Risk of short circuits! Risk of fire!

- Cover the vehicle battery.

- Cover the vehicle battery with the special tool as shown.
- Position the battery earth lead (1) as shown.

2 – Disconnecting all battery earth leads



- See additional information.

3 – Remove front door trim panel

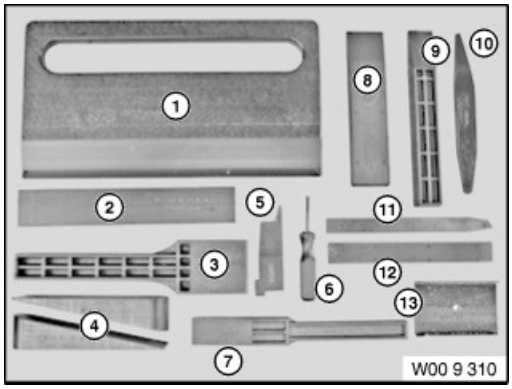
RISK OF DAMAGE

Damage of high-quality surfaces.

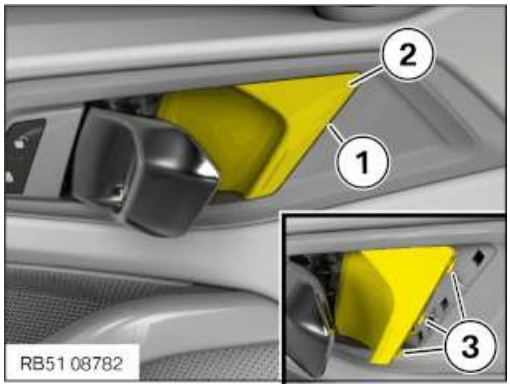
Plastic wedges can damage high-quality surfaces.

- Protect surfaces from damage.

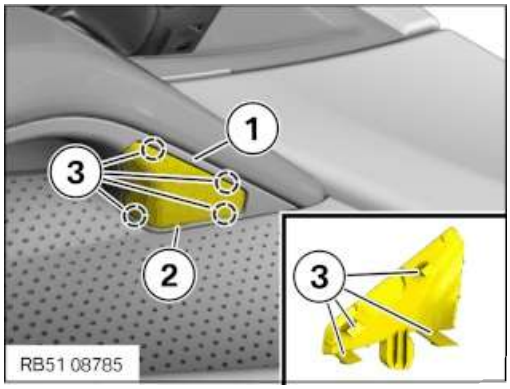
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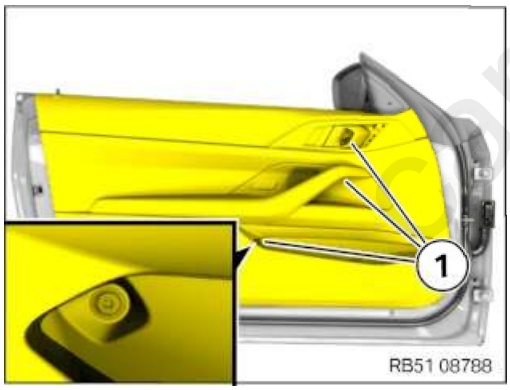
- Have the set of special tools 0 493 752 (00 9 329) ready.



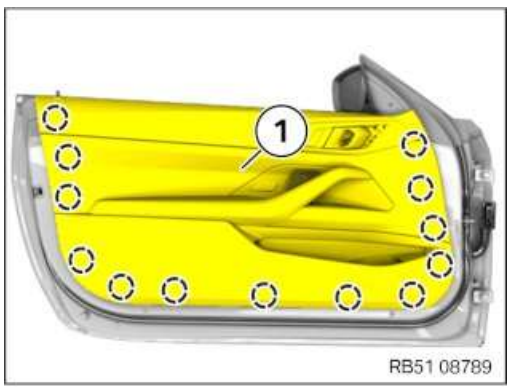
- Pull the door handle.
- Position suitable special tool on the recess in the area (1) .
- Unclip the cover of the door handle (2) with the latch mechanisms (3).
- Feed out the cover of the door handle (2) from the latch mechanisms and remove it forwards.



- Position suitable special tool on the recess in the area (1) .
- Unclip the cover (2) with the latch mechanisms (3) and remove it downwards.

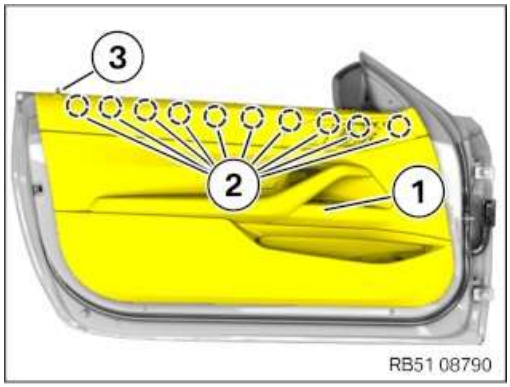


- Loosen screws (1).

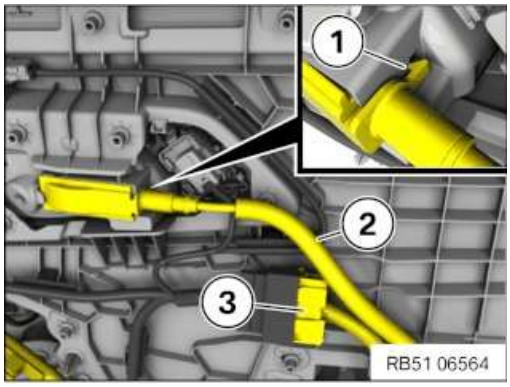


- Unclip the door trim panel (1) with the suitable special tool at the marked places.

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- Release the door trim panel (1) with the latch mechanisms (2).
- Lift the door trim panel (1) upwards over the operating rod (3).



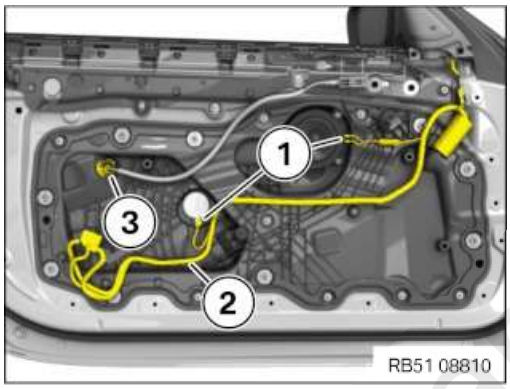
NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

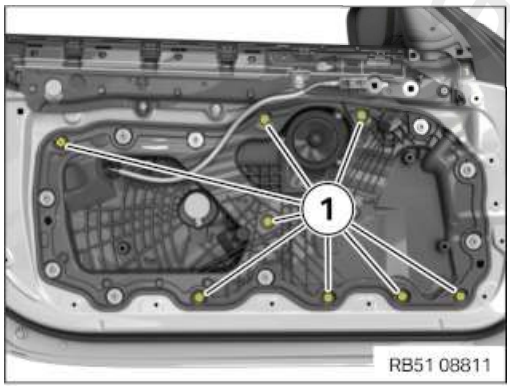
- Release the latch mechanism (1) and feed out the Bowden cable for the inner door handle (2).

  While doing so, the Bowden cable for the inner door handle (2) is guided out independently from the door handle.
- Unlock the plug connection (3), disconnect and remove the door trim panel.

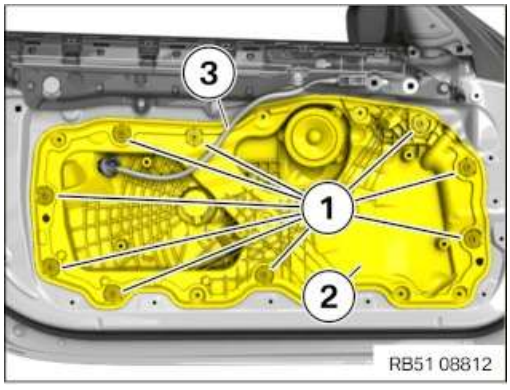
4 – Removing the module carrier from the front door



- Unlock plug connections (1) and disconnect.
- Unclip the wiring harness (2) at the module carrier on the front door.
- Release the rubber grommet of the Bowden cable for the inner door handle (3) .



- Loosen screws (1).



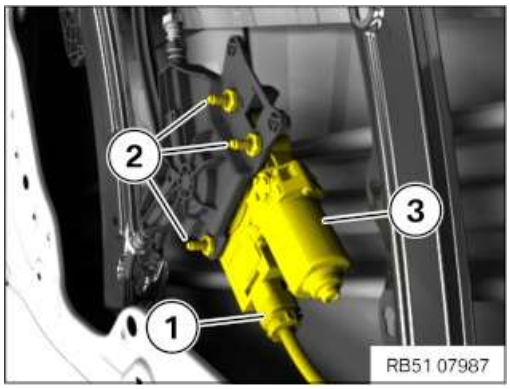
- Open the bayonet fittings (1) by twisting and remove the module carrier on the front door (2) .

  Thereby, feed out the Bowden cable for the inner door handle (3) from the module carrier on the front door (2) .

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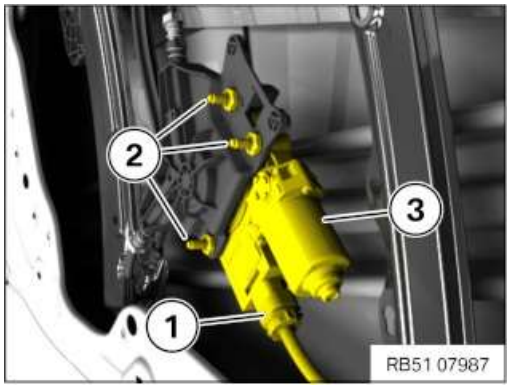
MAIN WORK

5 – Remove the flat motor for the power window



- Unlock plug connection (1) and disconnect.
- Release bolt (2) and remove the flat motor for the front power window (3).

6 – Installing the flat motor for the power windows



- Position the flat motor for the front power windows (3) correctly.
- Tighten the bolts (2).

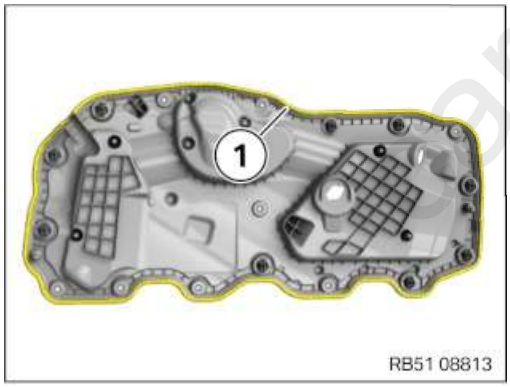
Flat motor on door module carrier

Oval-head screw for thermoplastic		Tightening torque	3,5 Nm

- Connect connectors (1) and lock.

POSTPROCESSES

7 – Installing the module carrier on the front door



Check

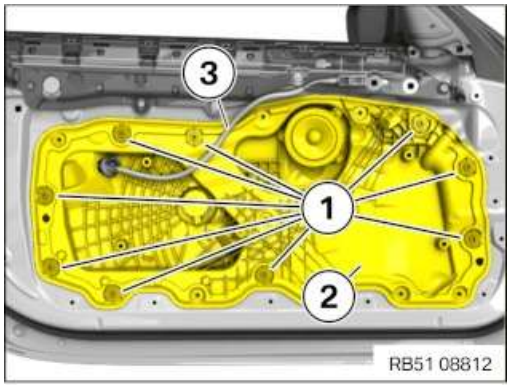
- Check the seal (1) of the module carrier on the front door for damage.

Result

» Seal (1) is damaged.

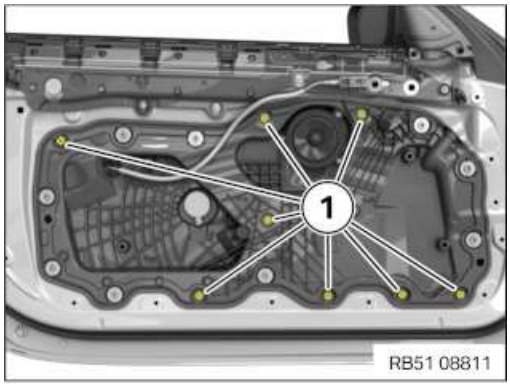
Measure

- Renew the module carrier on the front door.



- Position the module carrier on the front door (2).

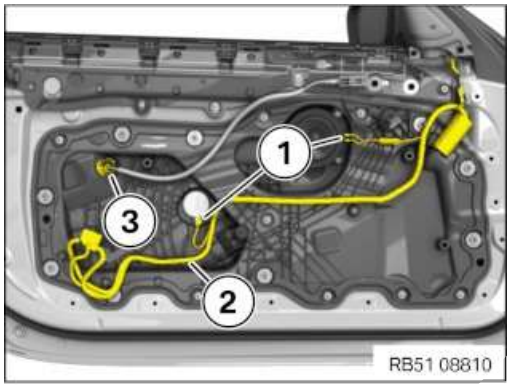
  Thus, feed in the Bowden cable for the inner door handle (3) to the module carrier on the front door (2).
- Lock the bayonet fittings (1) by twisting them.



- Tighten the screws (1).

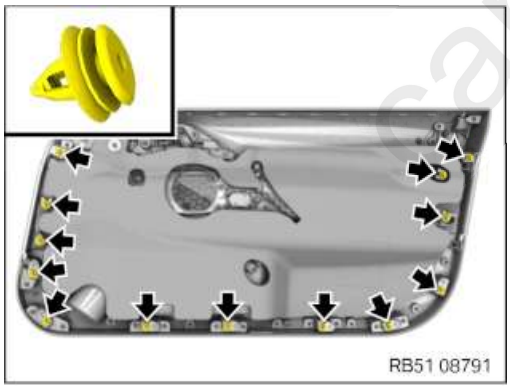
Module carrier to the front door

Oval-head screwM6		Tightening torque	9 Nm

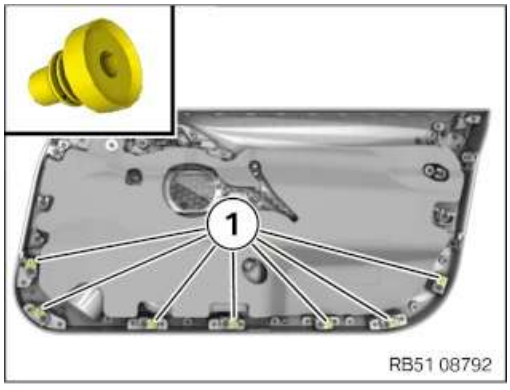


- Install the rubber grommet of the Bowden cable for the inner door handle(3).
- Clip in the wiring harness (2) on the module carrier to the front door.
- Connect connectors (1) and lock.

8 – Install front door trim panel

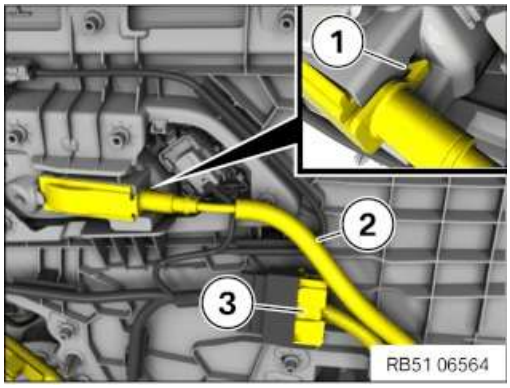


- Check clips (arrows) for damage and, if necessary, renew them.



- Check the stop pad (1) for damage, renew if necessary.

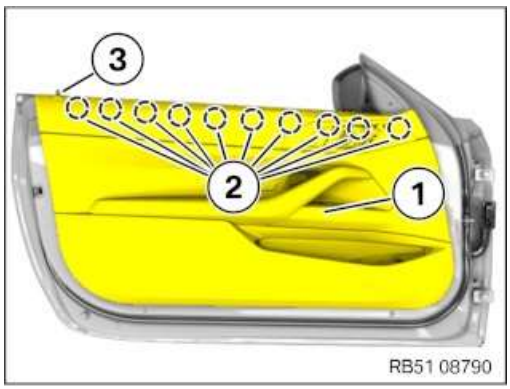
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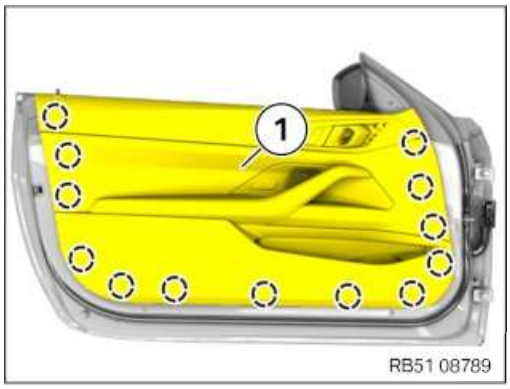
NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

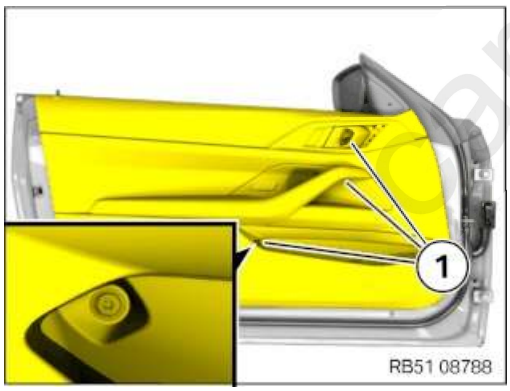
- Push the inner door opener in closed direction.
- Insert the Bowden cable for the door handle inside (2) and clip it in with the latch mechanism (1) .
- Connect connectors (3) and lock.



- Insert the front door trim panel (1) from the top over the operating rod (3) and clip it in with the latch mechanisms (2) .



- Clip in the door trim panel (1) at the marked places.

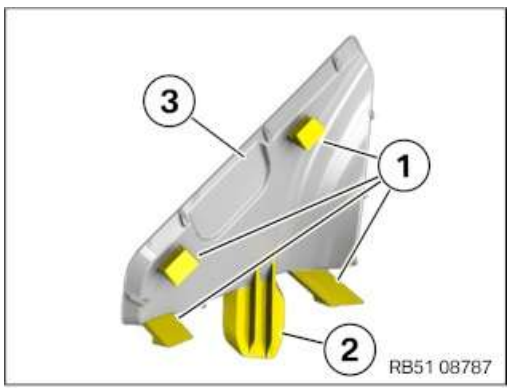


- Tighten the screws (1).

Door trim panel

Oval-head screw		Tightening torque	3 Nm

Check



- Check the latch mechanisms (1) and the guide (2) at the cover (3) for damage.

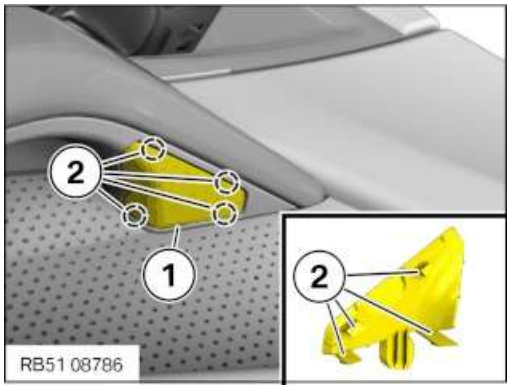
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Result

» The latch mechanisms (1) or the guides (2) are damaged.

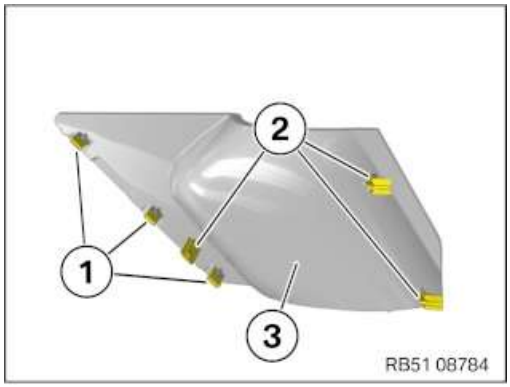
Measure

- Replace the cover (3).



- Position the cover (1) and clip it in with the latch mechanisms (2) .

Check



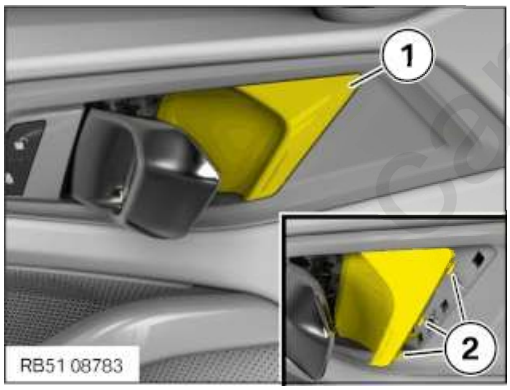
- Check the latch mechanisms (1) and the guides (2) at the cover of the door handle (3) for door handle.

Result

» The latch mechanisms (1) or the guides (2) are damaged.

Measure

- Replace door handle cover (3).



- Pull the door handle.
- Insert the cover of the door handle (1) with the guides and clip it in with the latch mechanisms (2) .

9 – Connecting all battery earth leads



- See additional information.

10 – Activating the 48 V electrical system

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Prerequisite

Ignition is switched off.

RISK OF DAMAGE

Damage to 48-V battery

If a 48-V battery that is disconnected from the electrical system is activated, the battery electronics will be damaged.

- Only carry out activation of the 48V electrical system with a completely connected 48-V battery.



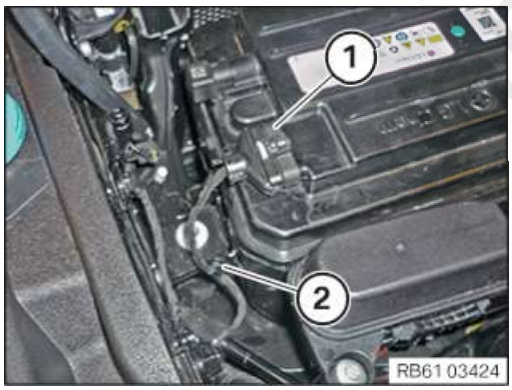
- Lift battery earth lead (1).
- Remove special tool .



- Release the negative battery cable (2) of the 48-V battery from the mounting.
- Position the negative battery cable (2) of the 48-V battery on the negative battery terminal.
- Tighten nut (1).

Negative battery cable to 48-V battery

Nut M8	Tightening torque	19 Nm



- Connect the connector (1) of the CAN bus and lock it.
- Clip in clip (2).



- Activate the 48V electrical system by closing the bonnet.

  The activation takes place automatically.

Additional Information

Overview of Tightening Torques

Flat motor on door module carrier			Used in step 6
Oval-head screw for thermoplastic		Tightening torque	3,5 Nm

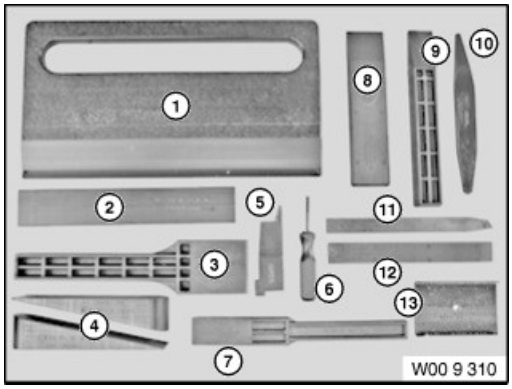
Module carrier to the front door			Used in step 7
Oval-head screwM6		Tightening torque	9 Nm

Door trim panel			Used in step 8
Oval-head screw		Tightening torque	3 Nm

Negative battery cable to 48-V battery			Used in step 10
Nut M8		Tightening torque	19 Nm

Overview of Special Tools

0 493 752 (00 9 329) Case



Common	Used in step 3
Usage	(Case) with insert without mounting wedges, delivery while stocks last - as of 02/2019.
Included in the tool or work	0 490 527
Storage location	Individual
Replaced by	
In connection with	
SI-Number	01 07 09 (530)

Links

Repair instructions (PRE)	Used in step
Notes on 48-V battery	110

Repair instructions	Used in step
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	29
61 20 900 Disconnecting and connecting battery earth lead	29
61 20 900 Disconnecting and connecting battery earth lead	29
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61 20 900 Disconnecting and connecting battery earth lead	29

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61 20 900 Disconnecting and connecting battery earth lead	29
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	29
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	29
61 20 900 Disconnecting and connecting battery earth lead	29
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	29
61 20 900 Disconnecting and connecting battery earth lead (Plug-in Hybrid Electric Vehicle)	29
61 20 900 Disconnecting and connecting battery earth lead	29
61 20 900 Disconnecting and connecting battery earth lead	29
61 20 900 Disconnecting and connecting battery earth lead	29
61 20 900 Disconnecting and connecting battery earth lead	29
61 20 900 Disconnecting and connecting battery earth lead	29
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61 20 900 Disconnecting and connecting battery earth lead	29
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	29
61 20 900 Disconnecting and connecting battery earth lead	29
61 20 900 Disconnecting and connecting battery earth lead	29
61 20 900 Disconnecting and connecting battery earth lead	29

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61 00 ... Parking-residing-driving

Vehicles of the G series feature a new type of terminal control:

Functional description of the parking-residing-driving terminal control

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