66 12 150 Removing and installing/replacing battery pack of BMW display key

RISK OF DAMAGE

Careless handling of tools and sharp-edged components.

Scratch, surface damage.

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

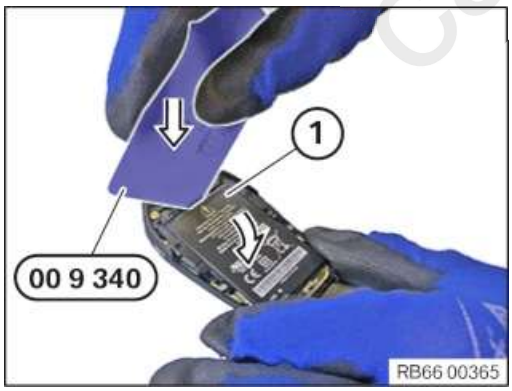
1 – Removing the battery pack of BMW display key



- Open the lower housing trim (1) of the BMW display key at the marked points with special tool 0 493 687 (00 9 340).

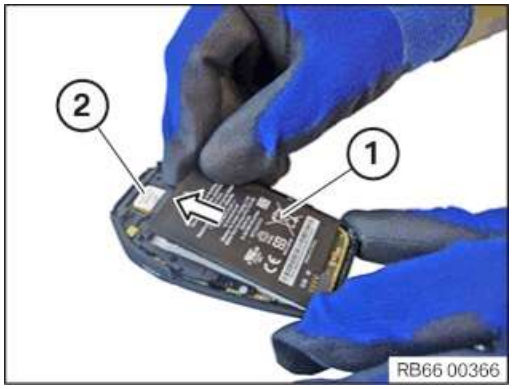


- Carefully lift the lower housing trim (1) at a flat angle.
- Disconnect the lower housing trim (1) from BMW display key (2) in the direction of arrow.



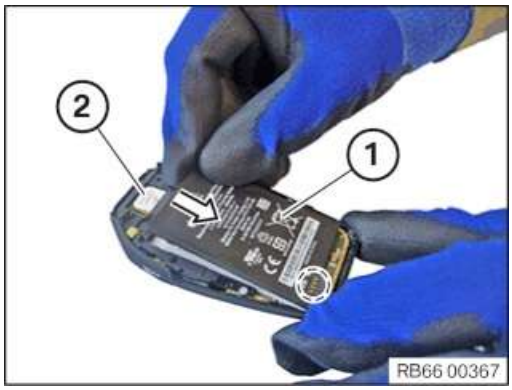
- Lift the battery pack (1) carefully with the special tool 0 493 687 (00 9 340).

carldiagn.com



- Remove the battery pack (1) from BMW display key (2) in the direction of arrow.

2 – Installing the battery pack for BMW display key



- Carefully insert the battery pack (1) into the BMW display key (2).

  Replacement:

  Parts: Battery pack

Note: In order to prevent damage, place the battery pack in the marked contact area before swivelling it in.



- Carefully place the lower housing trim (1) in both the snap pockets of the BMW display key (2) (see marks).



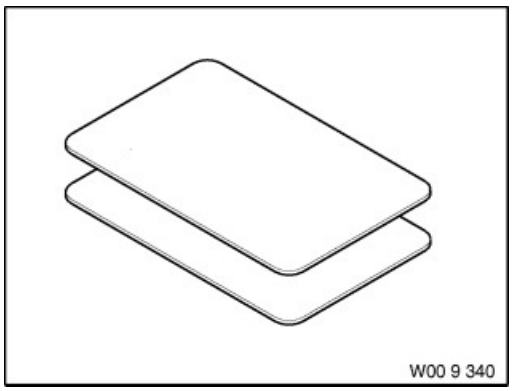
- Swivel in the pre-positioned lower housing trim (1) in BMW display key (2) and lock.
- Check correct locking of the lower housing trim (1) against the BMW display key (2) all around.

Additional Information

Overview of Special Tools

obdiagn.com

0 493 687 (00 9 340) Removal aid



Common Used in step 1

Usage	(Dismantling aid (2 pieces))
Included in the tool or work	
Storage location	C2
Replaced by	
In connection with	
SI-Number	01 15 99 (483)

Consisting of

Pos	BMW Order number	Replaced by	Designation	In Connection with
1	0 496 289 (00 9 341)		**Removal aid** Only available as a set (2 tools) under 00 9 340 (= 83 30 0 493 687).	

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66 12 610 Replace the radio remote control

1 Blocking/enabling the radio remote control

- Carry out the service function as follows:
  - Body
  - Locking and security functions
  - Remote key, key
  - Block/enable

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66 12 ... Teach in radio remote control/radio remote control with display (BMW display key)

Functional description for teach-in of radio remote control/radio remote control with display (BMW display key).

The service function mentioned in the functional description can be found via the following path:

- Body
- Locking and security functions
- Remote key, key
- Lock and enable remote control key

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66 20 510 Remove and install/replace the control unit

RISK OF DAMAGE

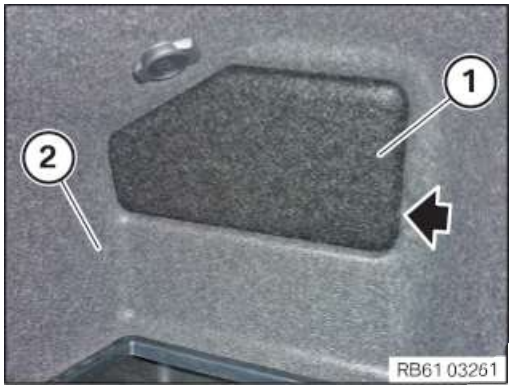
Electrostatic discharge.

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)

PRELIMINARY WORK

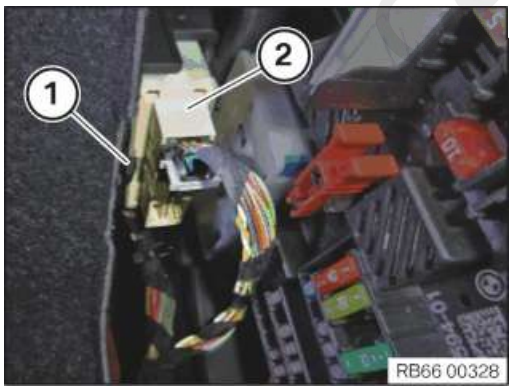
1 – Removing the flap in the luggage compartment wheel arch trim panel on the right



- Remove the flap (1) from the luggage compartment wheel arch trim panel on the right (2)

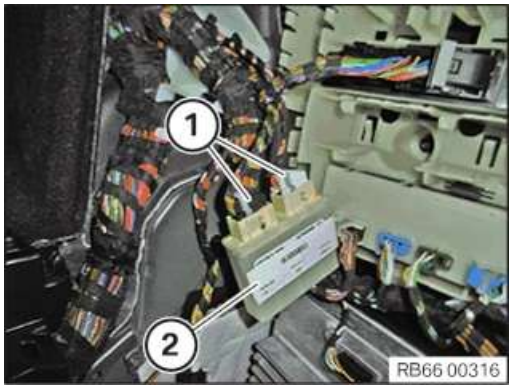
MAIN WORK

2 – Remove the PDC/PMA control unit



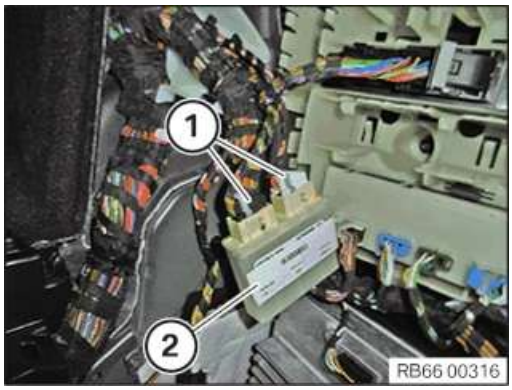
- Unlock lock (1).
- Pull down the control unit for Park Distance Control (PDC)/Park Assist (2) out of the holder.

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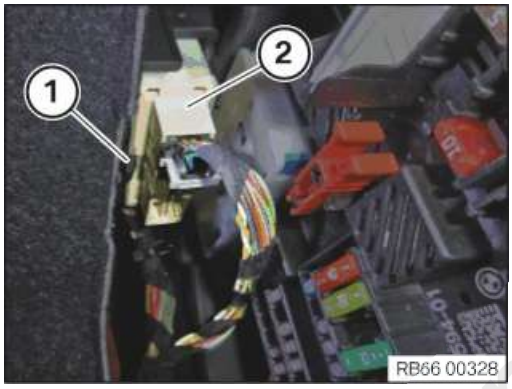


- Unlock and disconnect plug connections (1).
- Remove the PDC/PMA control unit (2).

3 – Install the PDC/PMA control unit



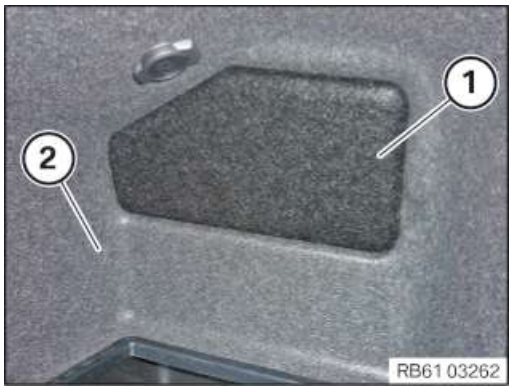
- Position PDC/PMA - control unit (2).
- Connect and lock the plug connections (1).



- Insert PDC/PMA control unit (2) upwards into the holders.
- Lock the lock (1).

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4 – Installing the flap in the luggage compartment wheel arch trim panel on the right



- Position the flap (1) correctly in the right luggage compartment wheel arch trim panel (2) and install.

5 – Encode/program control unit(s)

Prerequisite

Component has been replaced.

TECHNICAL INFORMATION

Use the most recent software version to prevent faults during programming/encoding.

The battery voltage must not fall below 13.0 V during programming.

Use only chargers for a low volt-vehicle electrical system that are recommended by BMW.

TECHNICAL INFORMATION

No high-voltage switch off is required in electric vehicles or hybrid vehicles for programming/encoding.

The high-voltage system will be automatically switched off by the programming system.

- Connect the battery charger to the vehicle.
- Connect the programming system with the vehicle.
- Determine the action plan.
- Accept and fully process the measures plan.
- If applicable, connect the workshop system to the vehicle, depending on the reworking list.
- Carry out vehicle test.
- Delete the fault memory.
- The information about programming the workshop system and the corresponding notes in the user documentation must be observed.
- Wait until programming/encoding has been completed.
- Disconnect the programming system from the vehicle.
- Disconnect the battery charger from the vehicle.

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Additional Information

Links

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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66 20 534 Removing and installing/replacing rear left ultrasonic sensor

TECHNICAL INFORMATION

To guarantee the quality of the driver assistance functions in vehicles with concealed radar sensors installed, the component may only be repainted by observing the repair specifications described in the document "Standards for repair painting with sensor systems".

Sourcing reference:

https://colorsystem-paint.com/

Aftersales Information Research (AIR) - Repair and service messages - HG99 - ColorSystem

ISTA - HG99 - ColorSystem

No stickers or foils (transparent or coloured) may be attached in the radiation areas of the radar sensors.

The component may be painted if no radar sensors have been installed.

The following features can be used to identify whether radar sensors are installed on the vehicle:

Radar sensors are installed at the rear if the triangular warning light is located on the exterior mirror (in the mirror glass or on the mirror frame).

Radar sensors are installed at the front and rear if the triangular warning light is located on the exterior mirror (in the mirror glass or on the mirror frame) in conjunction with the optional equipment S5ATA or S5AUA.

PRELIMINARY WORK

1 – Removing the luggage compartment floor trim panel

▸ **Removing the luggage compartment floor trim panel**

NOTICE

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

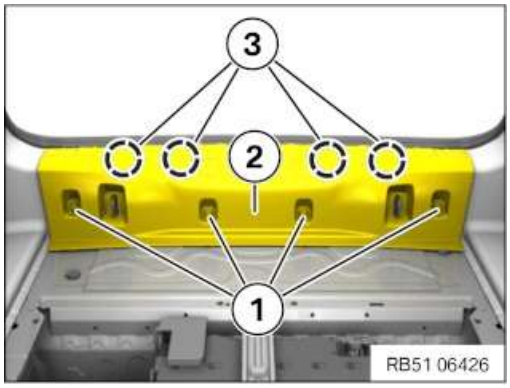


- Remove luggage compartment floor trim panel (1).

2 – Removing the loading edge trim

NOTICE

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



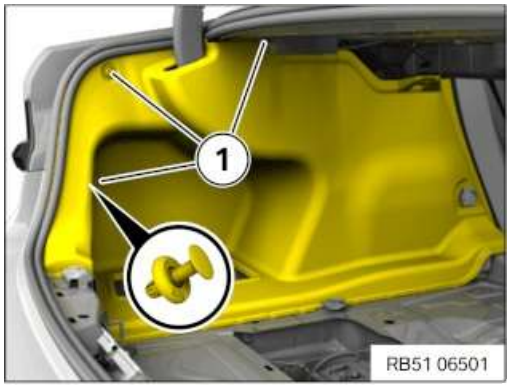
- Loosen the expanding rivet (1).
- Unclip loading edge trim(2) upwards from latch mechanisms (3).
- Guide out and remove loading edge trim (2) under the sealing lip of the tailgate seal.

3 – Removing part of the luggage compartment wheel arch trim panel on the left and right

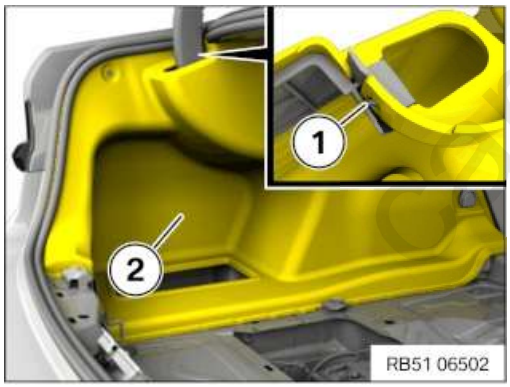
▸ **Partially remove luggage compartment wheel arch panel on left**

NOTICE

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



- Loosen the expanding rivet (1).



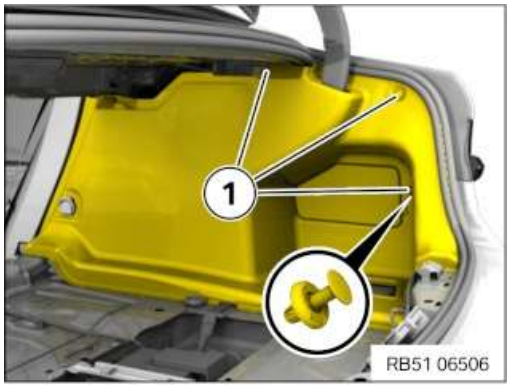
- Press the tab for luggage compartment wheel arch trim panel (2) on the outer side of the hinge to the front using the stop on trim (1).
- Guide out luggage compartment wheel arch trim panel (2) under the sealing lip of the tailgate seal and release it in the rear area.

▸ **Partially remove luggage compartment wheel arch panel on right**

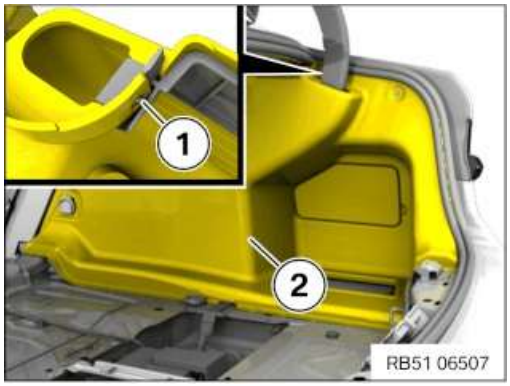
NOTICE

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

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- Loosen the expanding rivet (1).



- Press the tab for luggage compartment wheel arch trim panel (2) on the outer side of the hinge to the front using the stop on trim (1).
- Guide out luggage compartment wheel arch trim panel (2) under the sealing lip of the tailgate seal and release it in the rear area.

4 – Removing trim from water channel on left and right

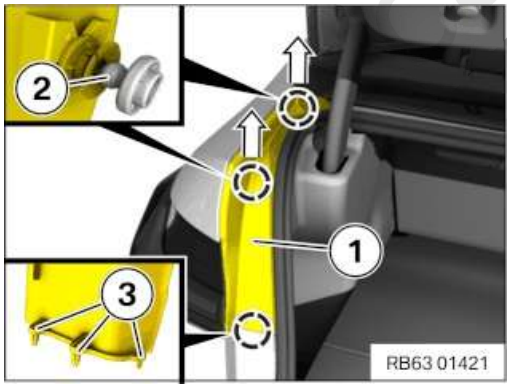
NOTICE

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

▸ **Removing trim from water channel**

NOTICE

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



- Unclip trim (1) in upward direction from ball pins (2).
- Release trim (1) from guides (3) and remove.

5 – Removing the rear light on the left and right side panels

NOTICE

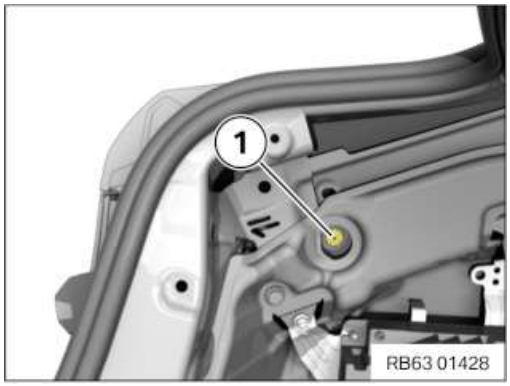
Description is for left component only. Procedure on the right side is identical.

▸ **Removing the rear light on the side panel**

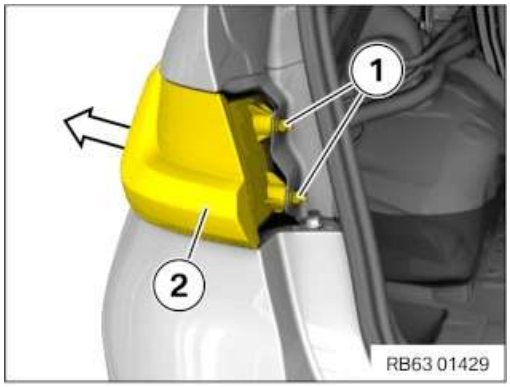
cardiagn.com

NOTICE

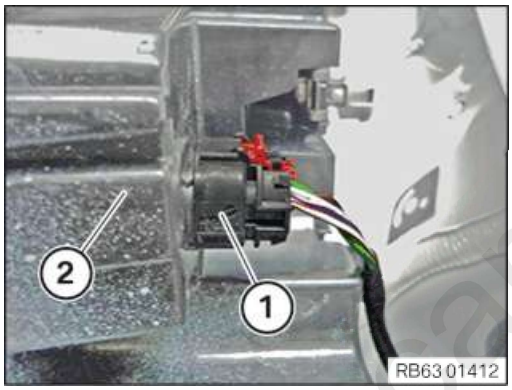
Schematic diagram is for example purposes. Some parts may differ in certain details.



- Loosen nut (1).



- Release the nuts (1) and feed out the rear light on the side panel (2) in the direction of arrow.



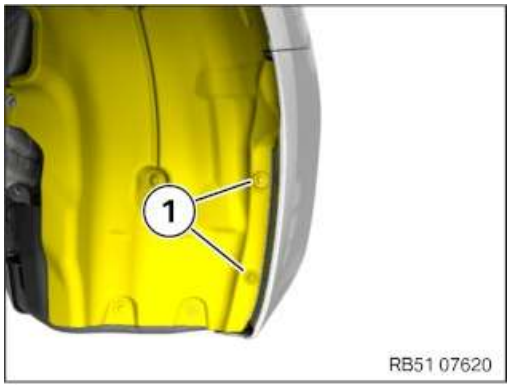
TECHNICAL INFORMATION

Observe note on unlocking and disconnecting plug connections.

For additional information see: 6113 ... Unlocking and disconnecting different plug connections

- Unlock plug connection (1) and disconnect.
- Remove the rear light on the side panel (2).

6 – Remove rear bumper panel



NOTICE

Perform the operations on the left and right side.

NOTICE

To provide a better overview: Schematic diagram with partially hidden components.

- Loosen screws (1).

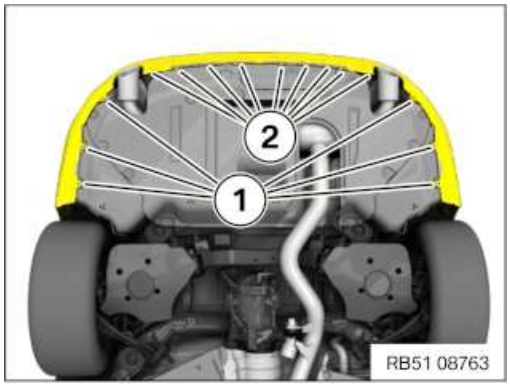
carlogn.com



NOTICE

Perform the operations on the left and right side.

- Release the screw (1).



- Loosen screws (1).
- Release the bumper panel at the latch mechanisms (2).



NOTICE

Perform the operations on the left and right side.

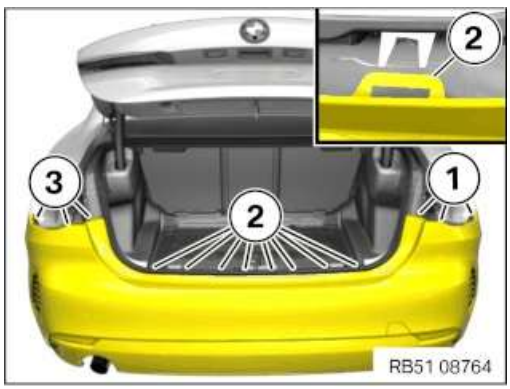
- Release the screw (1).



NOTICE

Perform the operations on the left and right side.

- Release the bumper panel with the latch mechanisms (1).



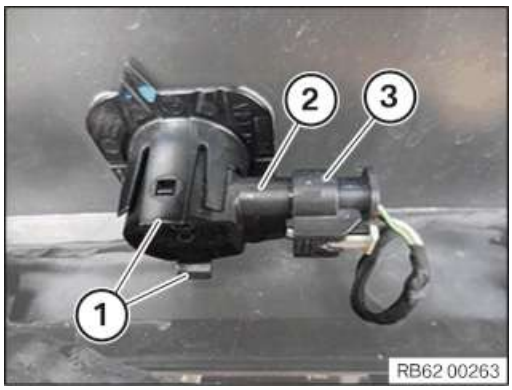
- Release the bumper panel with the latch mechanisms (1).
- Release the bumper panel from the latch mechanisms (2) starting from the right.
- Release the bumper panel from the latch mechanisms (3)



- Unlock plug connection and disconnect.
- Remove bumper panel.

MAIN WORK

7 – Remove rear ultrasonic sensor



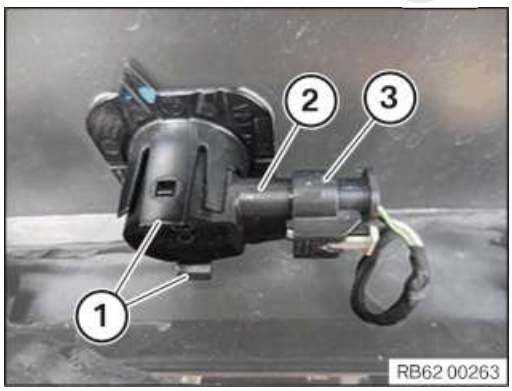
- Unlock plug connection (3) and disconnect.
- Unlock the latch mechanisms (1).
- Remove the ultrasonic sensor (2).

8 – Install the rear ultrasonic sensor



- Check the decoupling ring (1) for damage.

  Decoupling ring (1) must be installed.



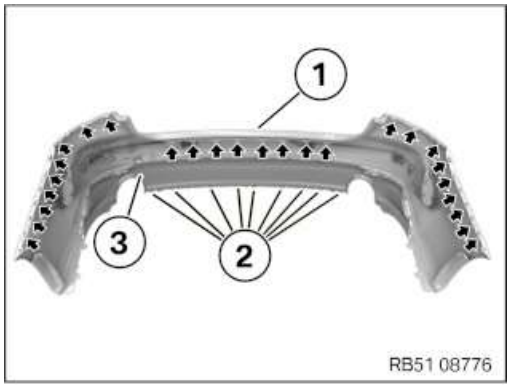
- Position the ultrasonic sensor (2) correctly and engage it in the latch mechanisms (1).
- Connect connectors (3) and lock.

POSTPROCESSES

9 – Install rear bumper panel

Check

cardiagn.com



- Check the latch mechanisms (arrows) on the bumper panel (1) for damage.

  Check the latch mechanisms (2) on the bumper trim (3) for damage.

Result

» Latch mechanisms (arrows) are damaged.

Measure

- Renew the bumper panel (1).

Result

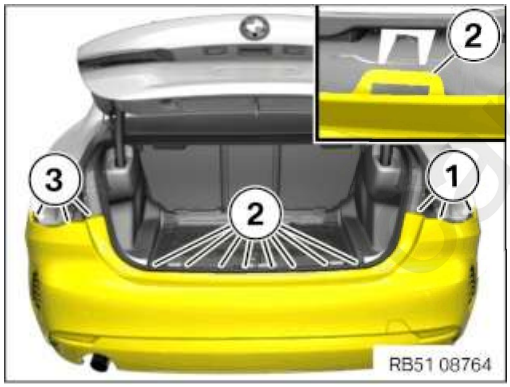
» Latch mechanisms (2) are damaged.

Measure

- Renew the bumper trim (3).



- Position the bumper panel.
- Connect connectors (1) and lock.



- Clip in the bumper panel with the latch mechanisms (1),(2) and (3).

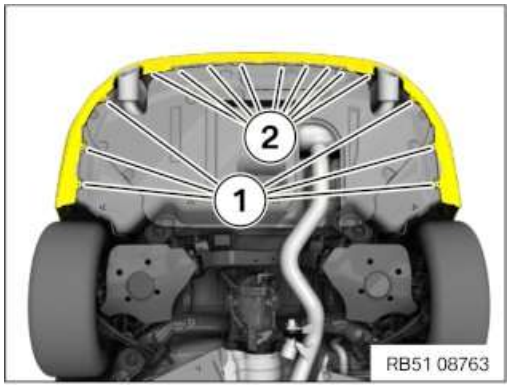


NOTICE

Perform the operations on the left and right side.

- Clip in the bumper panel with latch mechanisms (1).

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- Clip in the bumper panel with latch mechanisms (2).
- Tighten the screws (1).

Rear bumper trim panel to guide

Hexagon screw		Tightening torque	2.5 Nm



NOTICE

Perform the operations on the left and right side.

- Tighten down screw (1).

Rear bumper trim panel to guide

Hexagon screw		Tightening torque	2.5 Nm



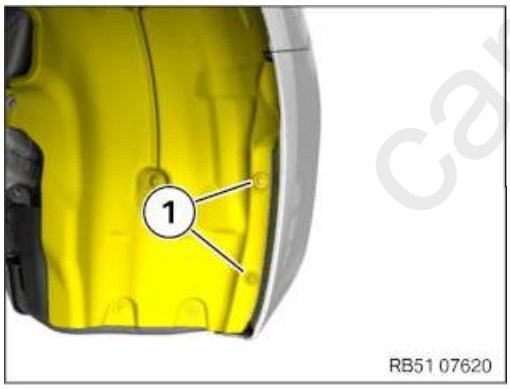
NOTICE

Perform the operations on the left and right side.

- Tighten down screw (1).

Lower bumper panel to body

Oval-head screw		Tightening torque	2.5 Nm



NOTICE

Perform the operations on the left and right side.

NOTICE

To provide a better overview: Schematic diagram with partially hidden components.

- Tighten the screws (1).

Rear wheel arch cover to bumper trim panel

Hexagon screw		Tightening torque	2,6 Nm

10 – Installing the rear light on the left and right side panels

NOTICE

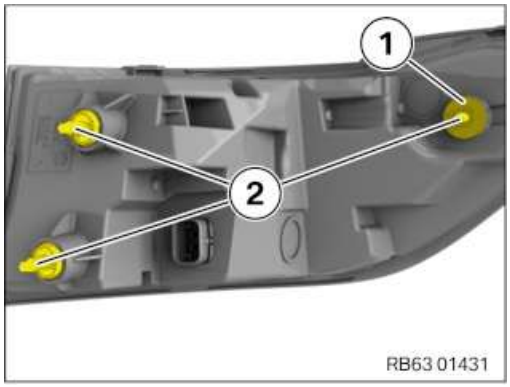
Description is for left component only. Procedure on the right side is identical.

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▸ **Install the rear light on the side panel**

NOTICE

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



Check

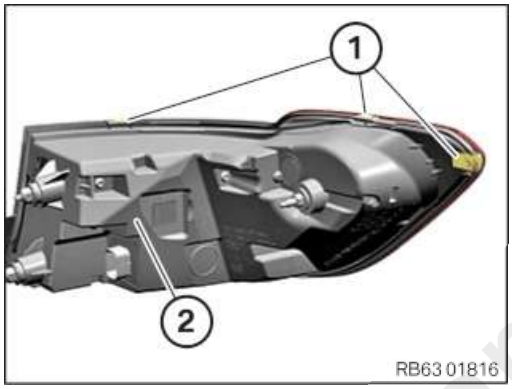
- Check the seal (1) for damage and renew if necessary.
- Check the threaded inserts (2) for damage.

Result

» The threaded inserts are damaged.

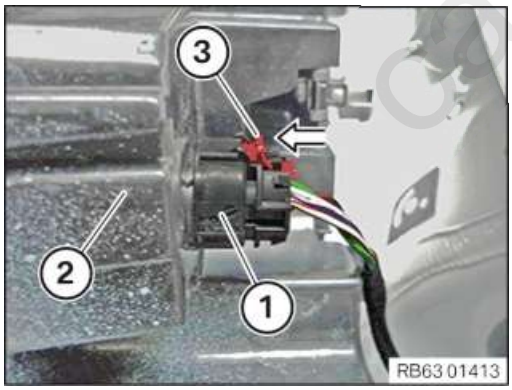
Measure

- Replace rear light.



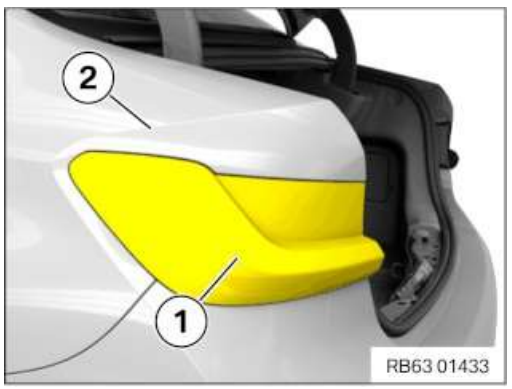
- Contact surfaces (1) on rear light (2) must not be damaged or missing.

  Missing contact surfaces (1) could cause paintwork damage.



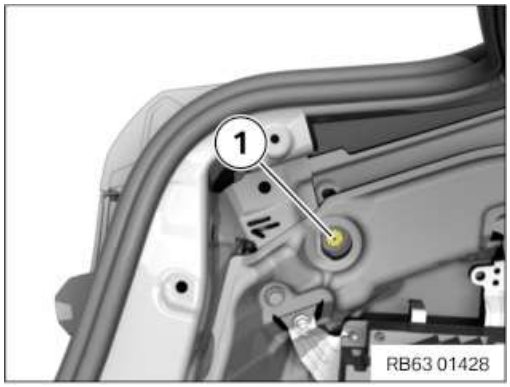
- Connect the connector (1) to the rear light on the side panel (2).

  The connector (1) must engage audibly.
- Lock the lock in direction of arrow (3).

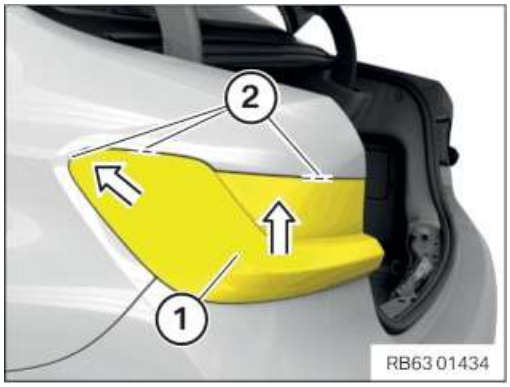


- Position the rear light on the side panel (1) on the side panel (2).

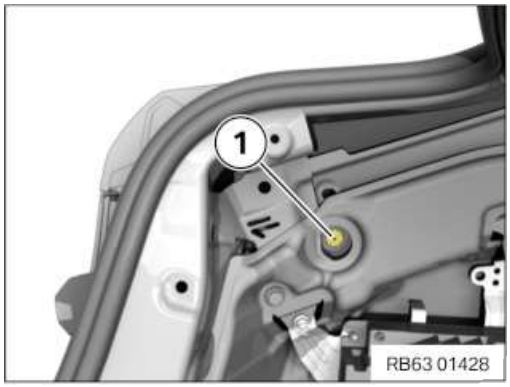
cardiagn.com



- Position the nut (1).



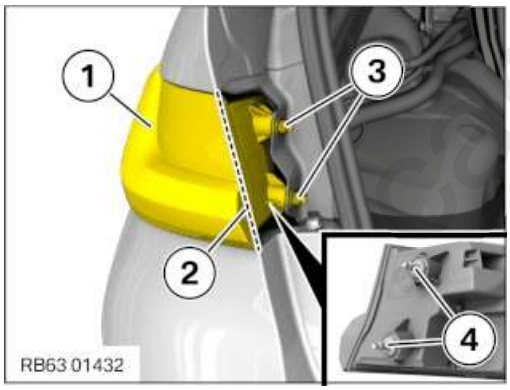
- Position the rear light on the side panel (1) to the front at the top.
- Move the contact surfaces (2) of the rear light on the side panel (1) upwards (arrow) so that they are in place.
- Hold the rear light on the side panel (1) in position.



- Tighten nut (1).

Rear light to side panel to body

Combination hexagon nut		Tightening torque	4 Nm



- Position nuts (3).
- Align rear light on the side panel (1) with the connecting line (2).

  The alignment is done through threaded inserts (4) on the rear light on the side panel (2).
- If necessary, correct the position of the rear light on the side panel (1) by twisting threaded inserts (4).
- Tighten nuts (3).

Rear light to side panel to body

Combination hexagon nut		Tightening torque	4 Nm

11 – Installing trim in water channel on left and right

NOTICE

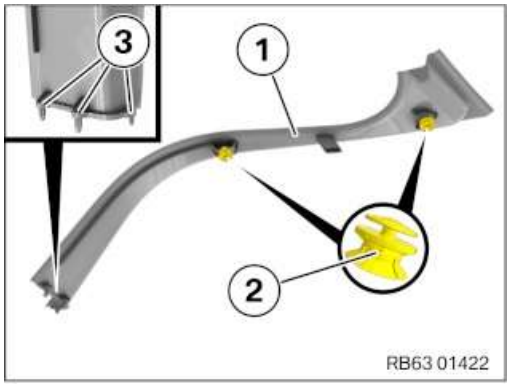
Description is for left component only. Procedure on the right side is identical.

▸ **Installing trim in water channel**

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NOTICE

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



Check

- Check clips (2) for damage and renew if necessary.
- Check guides (3) for damage.

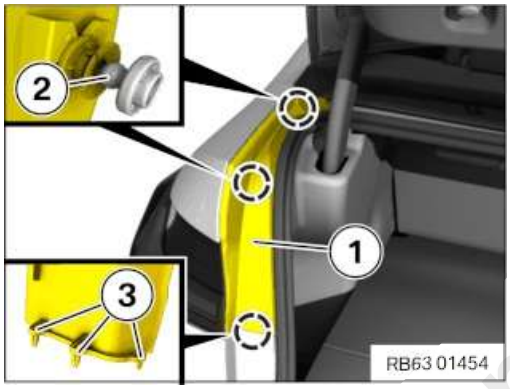
Result

» The guides are damaged.

Measure

- Renew the trim .

  Parts: trim



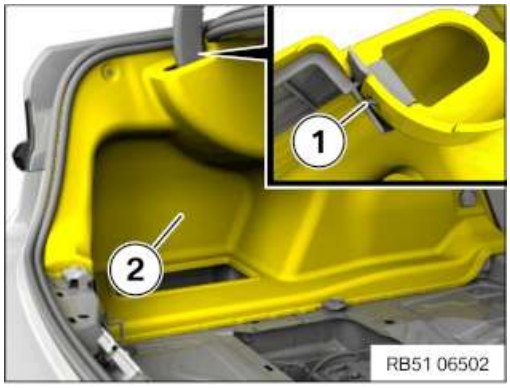
- Insert trim (1) in guides (3).
- Clip trim (1) from above into ball pins (2).

12 – Partially installing the luggage compartment wheel arch trim panel on the left and right

▸ Partially installing the left luggage compartment wheel arch trim panel

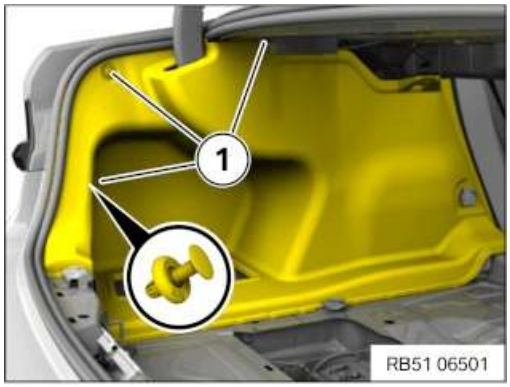
NOTICE

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



- Feed the luggage compartment wheel arch trim panel (2) into the rear area under the sealing lip of the tailgate seal.
- Feed the tab of the luggage compartment wheel arch trim panel (2) on the outer side of the hinge into the stop on the trim (1).

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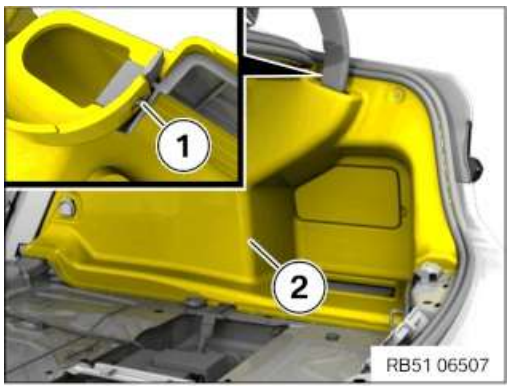


- Secure expanding rivet (1).

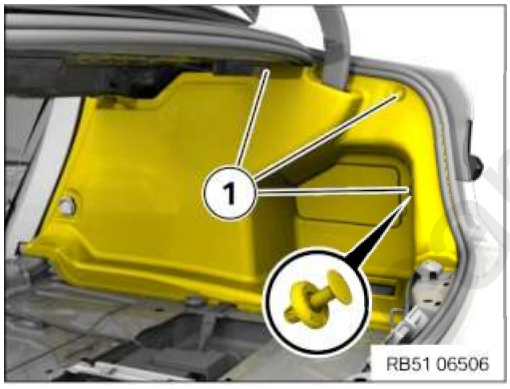
▸ **Partially installing right luggage compartment wheel arch trim panel**

NOTICE

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



- Guide luggage compartment wheel arch trim panel (2) into the rear area under the sealing lip of the tailgate seal.
- Feed the tab of the luggage compartment wheel arch trim panel (2) on the outer side of the hinge into the stop on the trim (1).

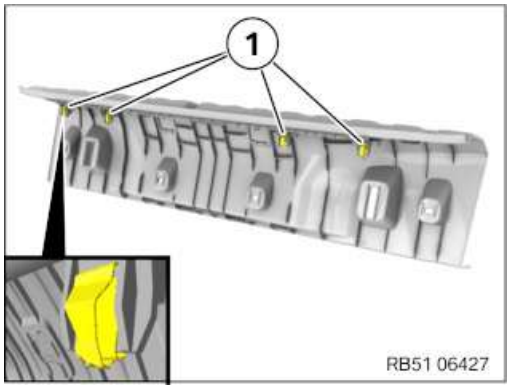


- Secure expanding rivet (1).

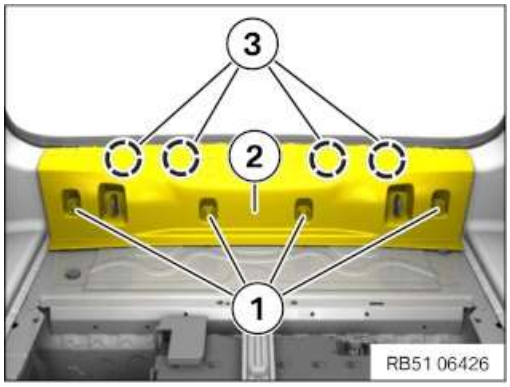
13 – Installing loading edge trim

NOTICE

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



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



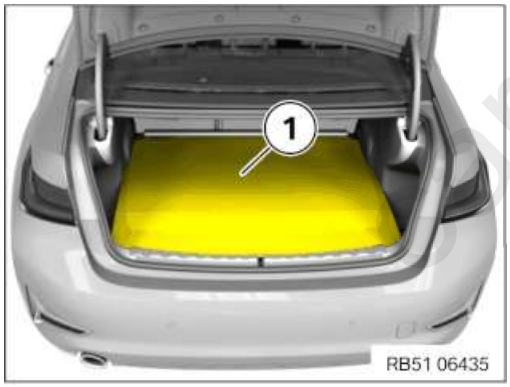
- Insert the loading edge trim (2) under the sealing lip of the tailgate seal.
- Fit the trim of the loading edge (2) at the latch mechanisms (3) and clip it in to the bottom.
- Secure expanding rivet (1).

14 – Installing the luggage compartment floor trim panel

▸ **Installing the luggage compartment floor trim panel**

NOTICE

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



- Insert the luggage compartment floor trim panel (1).

Additional Information

Overview of Tightening Torques

Rear bumper trim panel to guide			Used in step 9
Hexagon screw		Tightening torque	2.5 Nm

Lower bumper panel to body			Used in step 9
Oval-head screw		Tightening torque	2.5 Nm

Rear wheel arch cover to bumper trim panel			Used in step 9
Hexagon screw		Tightening torque	2,6 Nm

Rear light to side panel to body			Used in step 10
Combination hexagon nut		Tightening torque	4 Nm

Links

Repair instructions	Used in step
61 13 ... Unlocking and disconnecting different plug connections	5

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66 20 536 Removing and installing/replacing rear middle left ultrasonic sensor

TECHNICAL INFORMATION

To guarantee the quality of the driver assistance functions in vehicles with concealed radar sensors installed, the component may only be repainted by observing the repair specifications described in the document "Standards for repair painting with sensor systems".

Sourcing reference:

https://colorsystem-paint.com/

Aftersales Information Research (AIR) - Repair and service messages - HG99 - ColorSystem

ISTA - HG99 - ColorSystem

No stickers or foils (transparent or coloured) may be attached in the radiation areas of the radar sensors.

The component may be painted if no radar sensors have been installed.

The following features can be used to identify whether radar sensors are installed on the vehicle:

Radar sensors are installed at the rear if the triangular warning light is located on the exterior mirror (in the mirror glass or on the mirror frame).

Radar sensors are installed at the front and rear if the triangular warning light is located on the exterior mirror (in the mirror glass or on the mirror frame) in conjunction with the optional equipment S5ATA or S5AUA.

PRELIMINARY WORK

1 – Removing the luggage compartment floor trim panel

▸ **Removing the luggage compartment floor trim panel**

NOTICE

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

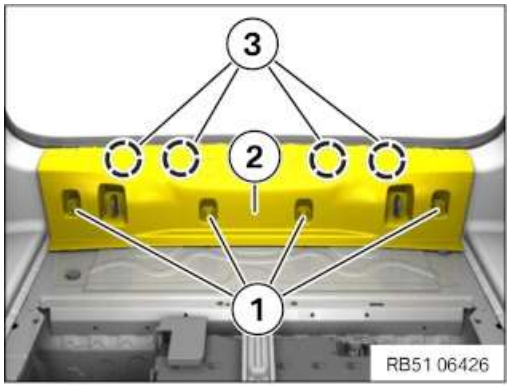


- Remove luggage compartment floor trim panel (1).

2 – Removing the loading edge trim

NOTICE

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



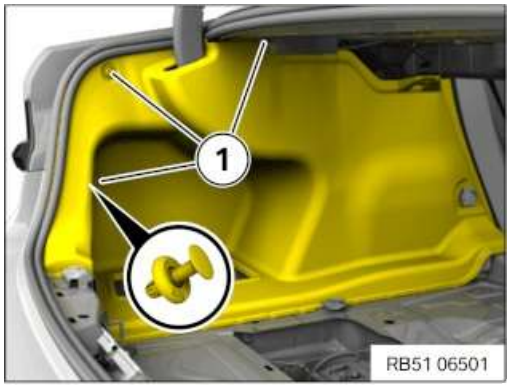
- Loosen the expanding rivet (1).
- Unclip loading edge trim(2) upwards from latch mechanisms (3).
- Guide out and remove loading edge trim (2) under the sealing lip of the tailgate seal.

3 – Removing part of the luggage compartment wheel arch trim panel on the left and right

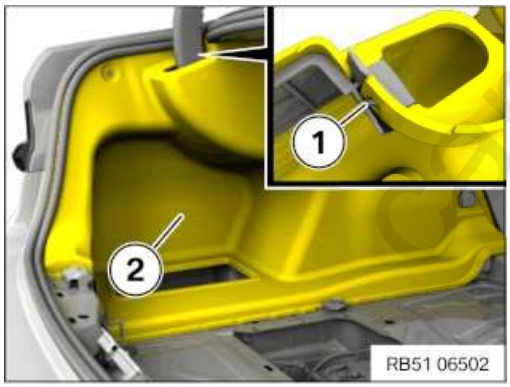
▸ **Partially remove luggage compartment wheel arch panel on left**

NOTICE

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



- Loosen the expanding rivet (1).



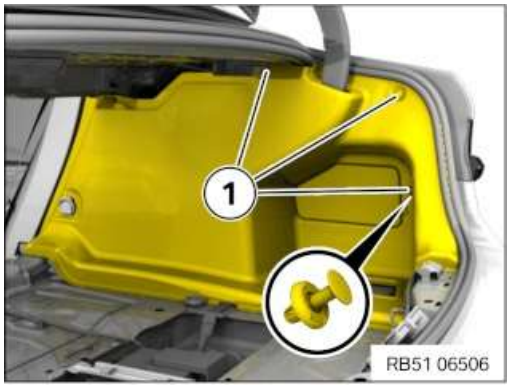
- Press the tab for luggage compartment wheel arch trim panel (2) on the outer side of the hinge to the front using the stop on trim (1).
- Guide out luggage compartment wheel arch trim panel (2) under the sealing lip of the tailgate seal and release it in the rear area.

▸ **Partially remove luggage compartment wheel arch panel on right**

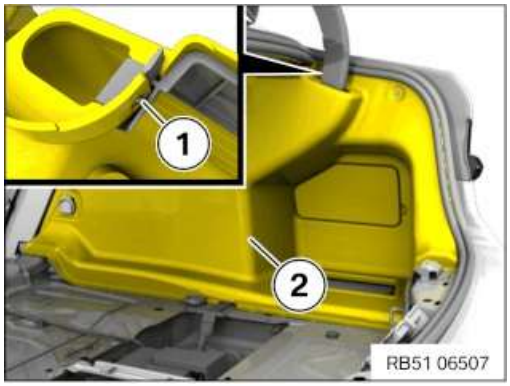
NOTICE

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

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- Loosen the expanding rivet (1).



- Press the tab for luggage compartment wheel arch trim panel (2) on the outer side of the hinge to the front using the stop on trim (1).
- Guide out luggage compartment wheel arch trim panel (2) under the sealing lip of the tailgate seal and release it in the rear area.

4 – Removing trim from water channel on left and right

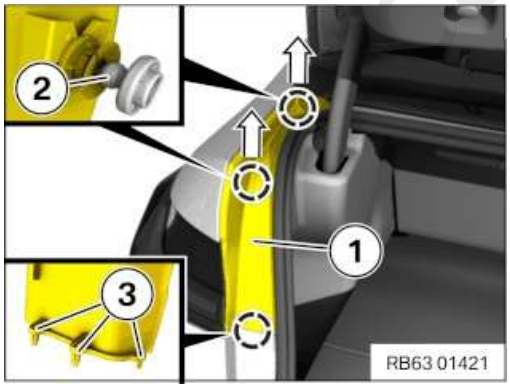
NOTICE

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

▸ **Removing trim from water channel**

NOTICE

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



- Unclip trim (1) in upward direction from ball pins (2).
- Release trim (1) from guides (3) and remove.

5 – Removing the rear light on the left and right side panels

NOTICE

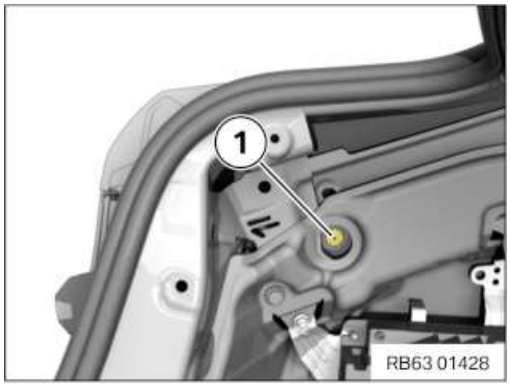
Description is for left component only. Procedure on the right side is identical.

▸ **Removing the rear light on the side panel**

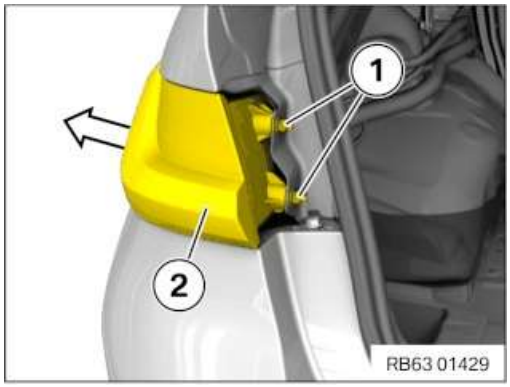
cardiagn.com

NOTICE

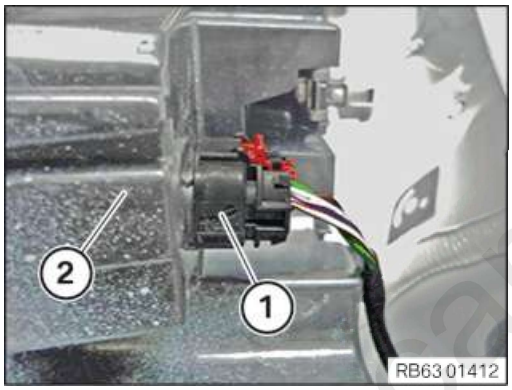
Schematic diagram is for example purposes. Some parts may differ in certain details.



- Loosen nut (1).



- Release the nuts (1) and feed out the rear light on the side panel (2) in the direction of arrow.



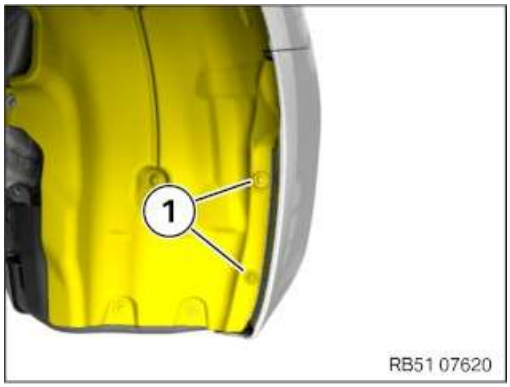
TECHNICAL INFORMATION

Observe note on unlocking and disconnecting plug connections.

For additional information see: 6113 ... Unlocking and disconnecting different plug connections

- Unlock plug connection (1) and disconnect.
- Remove the rear light on the side panel (2).

6 – Remove rear bumper panel



NOTICE

Perform the operations on the left and right side.

NOTICE

To provide a better overview: Schematic diagram with partially hidden components.

- Loosen screws (1).

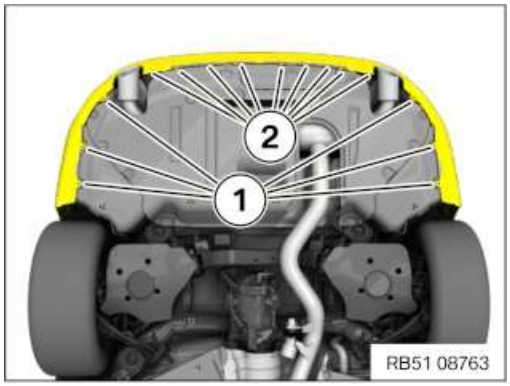
carlogn.com



NOTICE

Perform the operations on the left and right side.

- Release the screw (1).



- Loosen screws (1).
- Release the bumper panel at the latch mechanisms (2).



NOTICE

Perform the operations on the left and right side.

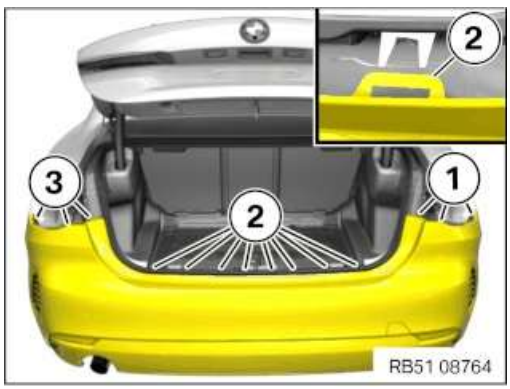
- Release the screw (1).



NOTICE

Perform the operations on the left and right side.

- Release the bumper panel with the latch mechanisms (1).



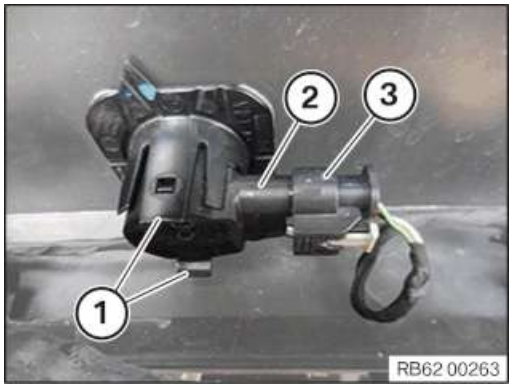
- Release the bumper panel with the latch mechanisms (1).
- Release the bumper panel from the latch mechanisms (2) starting from the right.
- Release the bumper panel from the latch mechanisms (3)



- Unlock plug connection and disconnect.
- Remove bumper panel.

MAIN WORK

7 – Removing rear centre ultrasonic sensor



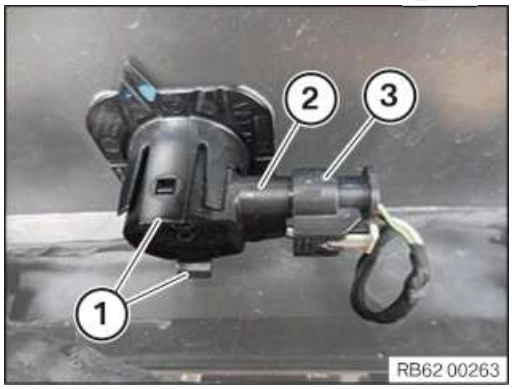
- Unlock plug connection (3) and disconnect.
- Unlock the latch mechanisms (1).
- Remove the ultrasonic sensor (2).

8 – Installing the rear centre ultrasonic sensor



- Check the decoupling ring (1) for damage.

  Decoupling ring (1) must be installed.



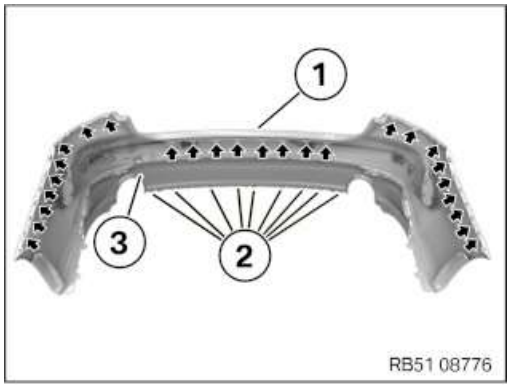
- Position the ultrasonic sensor (2) correctly and engage it in the latch mechanisms (1).
- Connect connectors (3) and lock.

POSTPROCESSES

9 – Install rear bumper panel

Check

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- Check the latch mechanisms (arrows) on the bumper panel (1) for damage.

  Check the latch mechanisms (2) on the bumper trim (3) for damage.

Result

» Latch mechanisms (arrows) are damaged.

Measure

- Renew the bumper panel (1).

Result

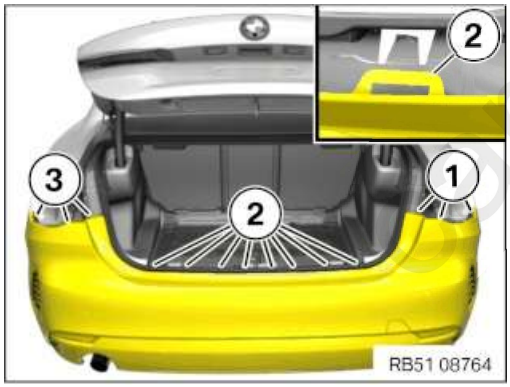
» Latch mechanisms (2) are damaged.

Measure

- Renew the bumper trim (3).



- Position the bumper panel.
- Connect connectors (1) and lock.



- Clip in the bumper panel with the latch mechanisms (1),(2) and (3).

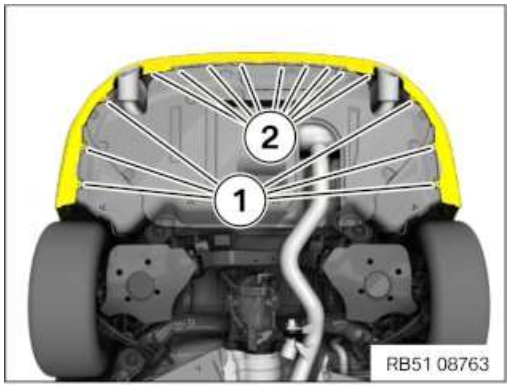


NOTICE

Perform the operations on the left and right side.

- Clip in the bumper panel with latch mechanisms (1).

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- Clip in the bumper panel with latch mechanisms (2).
- Tighten the screws (1).

Rear bumper trim panel to guide

Hexagon screw		Tightening torque	2.5 Nm



NOTICE

Perform the operations on the left and right side.

- Tighten down screw (1).

Rear bumper trim panel to guide

Hexagon screw		Tightening torque	2.5 Nm



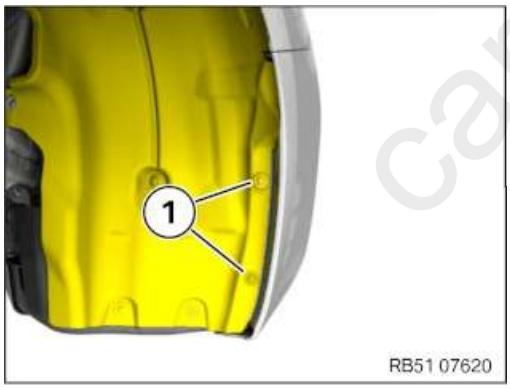
NOTICE

Perform the operations on the left and right side.

- Tighten down screw (1).

Lower bumper panel to body

Oval-head screw		Tightening torque	2.5 Nm



NOTICE

Perform the operations on the left and right side.

NOTICE

To provide a better overview: Schematic diagram with partially hidden components.

- Tighten the screws (1).

Rear wheel arch cover to bumper trim panel

Hexagon screw		Tightening torque	2,6 Nm

10 – Installing the rear light on the left and right side panels

NOTICE

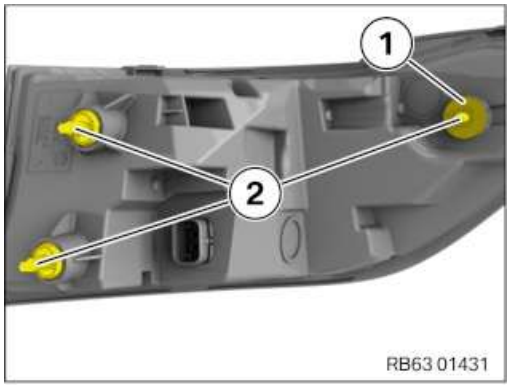
Description is for left component only. Procedure on the right side is identical.

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▸ **Install the rear light on the side panel**

NOTICE

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



Check

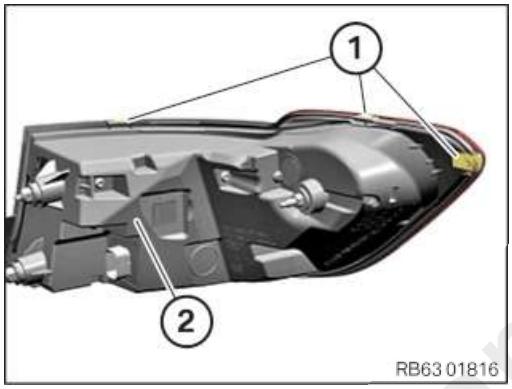
- Check the seal (1) for damage and renew if necessary.
- Check the threaded inserts (2) for damage.

Result

» The threaded inserts are damaged.

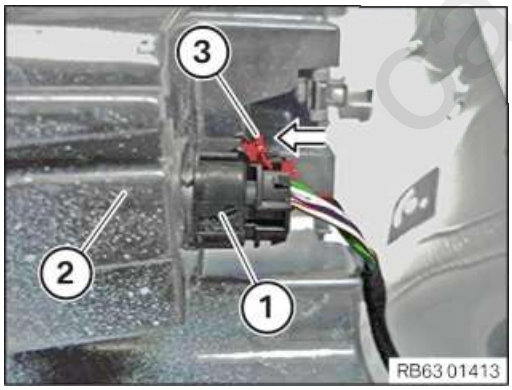
Measure

- Replace rear light.



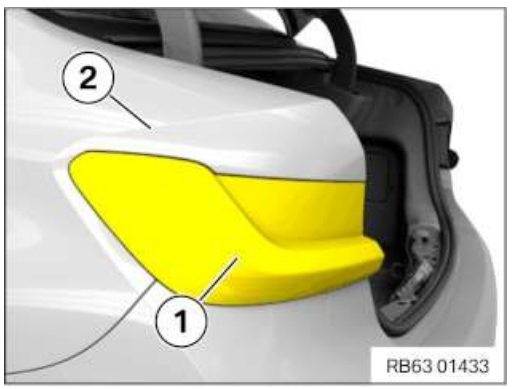
- Contact surfaces (1) on rear light (2) must not be damaged or missing.

  Missing contact surfaces (1) could cause paintwork damage.



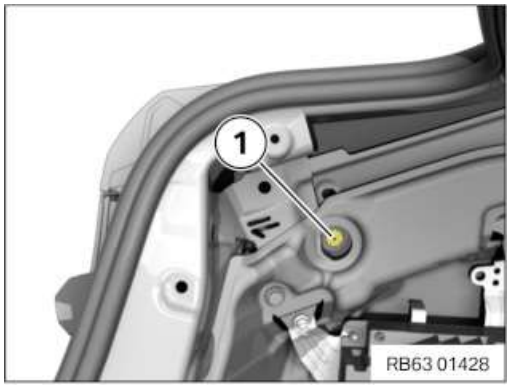
- Connect the connector (1) to the rear light on the side panel (2).

  The connector (1) must engage audibly.
- Lock the lock in direction of arrow (3).

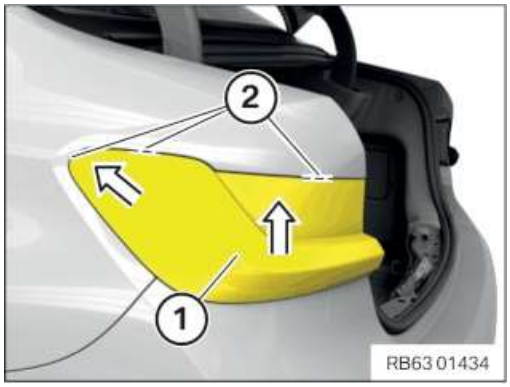


- Position the rear light on the side panel (1) on the side panel (2).

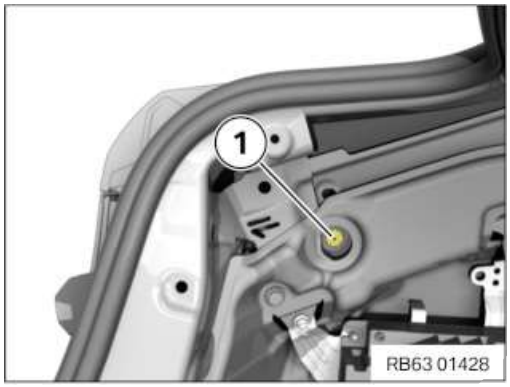
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- Position the nut (1).



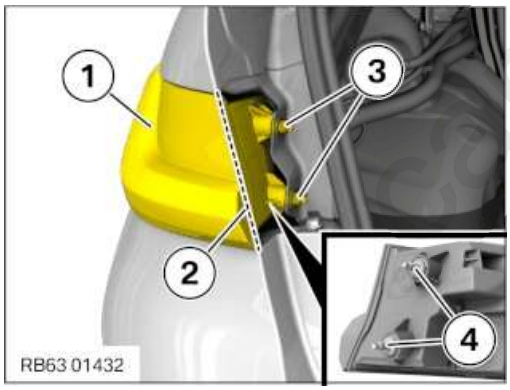
- Position the rear light on the side panel (1) to the front at the top.
- Move the contact surfaces (2) of the rear light on the side panel (1) upwards (arrow) so that they are in place.
- Hold the rear light on the side panel (1) in position.



- Tighten nut (1).

Rear light to side panel to body

Combination hexagon nut		Tightening torque	4 Nm



- Position nuts (3).
- Align rear light on the side panel (1) with the connecting line (2).

  The alignment is done through threaded inserts (4) on the rear light on the side panel (2).
- If necessary, correct the position of the rear light on the side panel (1) by twisting threaded inserts (4).
- Tighten nuts (3).

Rear light to side panel to body

Combination hexagon nut		Tightening torque	4 Nm

11 – Installing trim in water channel on left and right

NOTICE

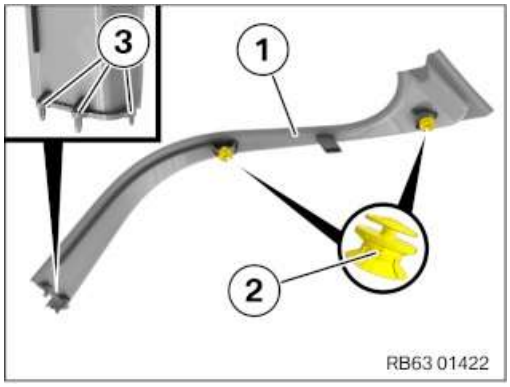
Description is for left component only. Procedure on the right side is identical.

▸ **Installing trim in water channel**

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NOTICE

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



Check

- Check clips (2) for damage and renew if necessary.
- Check guides (3) for damage.

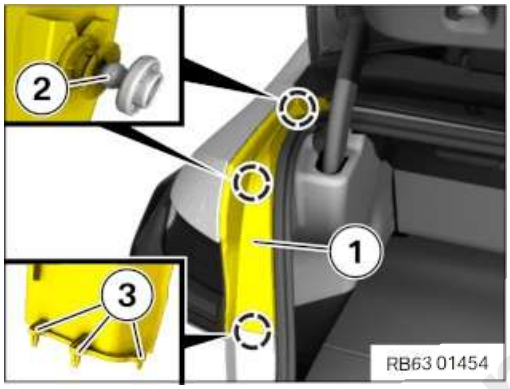
Result

» The guides are damaged.

Measure

- Renew the trim .

  Parts: trim



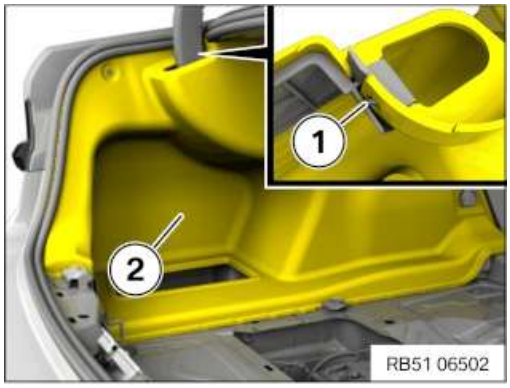
- Insert trim (1) in guides (3).
- Clip trim (1) from above into ball pins (2).

12 – Partially installing the luggage compartment wheel arch trim panel on the left and right

▸ Partially installing the left luggage compartment wheel arch trim panel

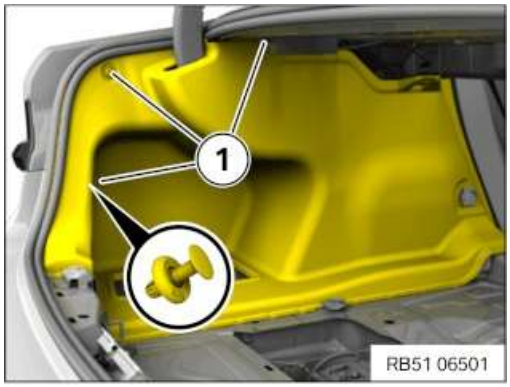
NOTICE

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



- Feed the luggage compartment wheel arch trim panel (2) into the rear area under the sealing lip of the tailgate seal.
- Feed the tab of the luggage compartment wheel arch trim panel (2) on the outer side of the hinge into the stop on the trim (1).

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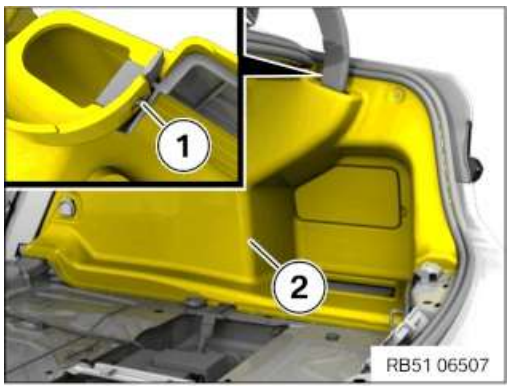


- Secure expanding rivet (1).

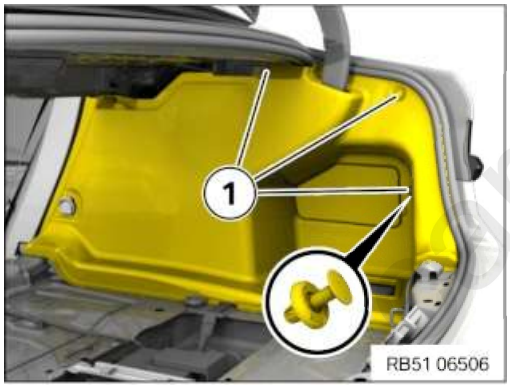
▸ **Partially installing right luggage compartment wheel arch trim panel**

NOTICE

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



- Guide luggage compartment wheel arch trim panel (2) into the rear area under the sealing lip of the tailgate seal.
- Feed the tab of the luggage compartment wheel arch trim panel (2) on the outer side of the hinge into the stop on the trim (1).

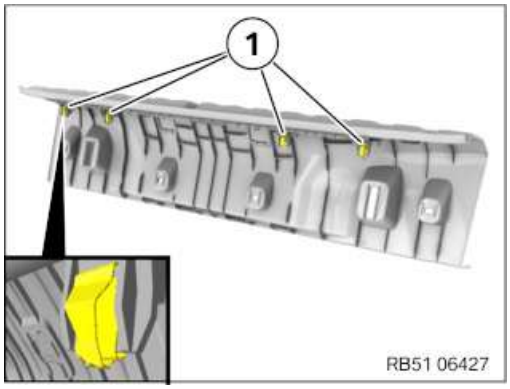


- Secure expanding rivet (1).

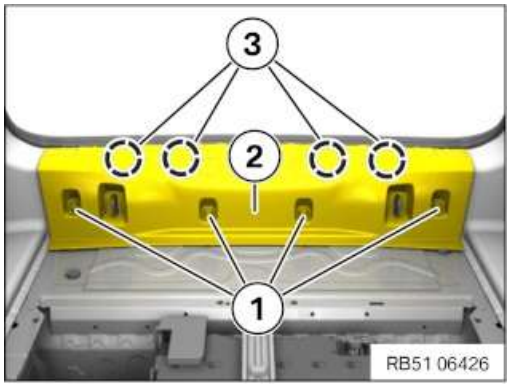
13 – Installing loading edge trim

NOTICE

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



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



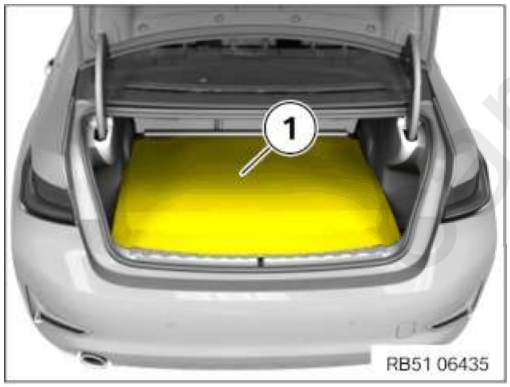
- Insert the loading edge trim (2) under the sealing lip of the tailgate seal.
- Fit the trim of the loading edge (2) at the latch mechanisms (3) and clip it in to the bottom.
- Secure expanding rivet (1).

14 – Installing the luggage compartment floor trim panel

▸ **Installing the luggage compartment floor trim panel**

NOTICE

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



- Insert the luggage compartment floor trim panel (1).

Additional Information

Overview of Tightening Torques

Rear bumper trim panel to guide			Used in step 9
Hexagon screw		Tightening torque	2.5 Nm

Lower bumper panel to body			Used in step 9
Oval-head screw		Tightening torque	2.5 Nm

Rear wheel arch cover to bumper trim panel			Used in step 9
Hexagon screw		Tightening torque	2,6 Nm

Rear light to side panel to body			Used in step 10
Combination hexagon nut		Tightening torque	4 Nm

Links

Repair instructions	Used in step
61 13 ... Unlocking and disconnecting different plug connections	5

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66 20 537 Removing and installing/replacing rear middle right ultrasonic sensor

TECHNICAL INFORMATION

To guarantee the quality of the driver assistance functions in vehicles with concealed radar sensors installed, the component may only be repainted by observing the repair specifications described in the document "Standards for repair painting with sensor systems".

Sourcing reference:

https://colorsystem-paint.com/

Aftersales Information Research (AIR) - Repair and service messages - HG99 - ColorSystem

ISTA - HG99 - ColorSystem

No stickers or foils (transparent or coloured) may be attached in the radiation areas of the radar sensors.

The component may be painted if no radar sensors have been installed.

The following features can be used to identify whether radar sensors are installed on the vehicle:

Radar sensors are installed at the rear if the triangular warning light is located on the exterior mirror (in the mirror glass or on the mirror frame).

Radar sensors are installed at the front and rear if the triangular warning light is located on the exterior mirror (in the mirror glass or on the mirror frame) in conjunction with the optional equipment S5ATA or S5AUA.

PRELIMINARY WORK

1 – Removing the luggage compartment floor trim panel

▸ **Removing the luggage compartment floor trim panel**

NOTICE

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

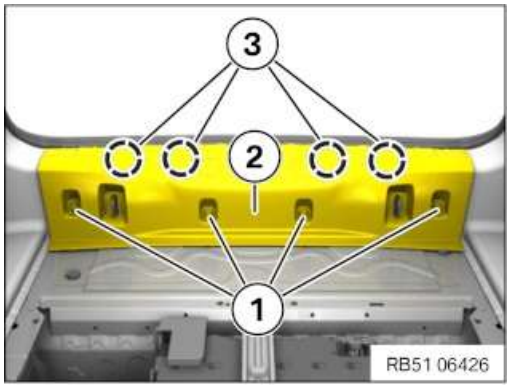


- Remove luggage compartment floor trim panel (1).

2 – Removing the loading edge trim

NOTICE

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



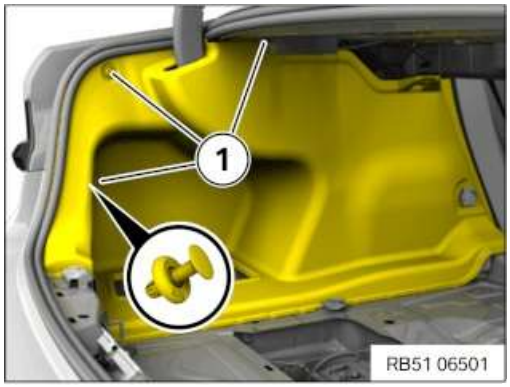
- Loosen the expanding rivet (1).
- Unclip loading edge trim(2) upwards from latch mechanisms (3).
- Guide out and remove loading edge trim (2) under the sealing lip of the tailgate seal.

3 – Removing part of the luggage compartment wheel arch trim panel on the left and right

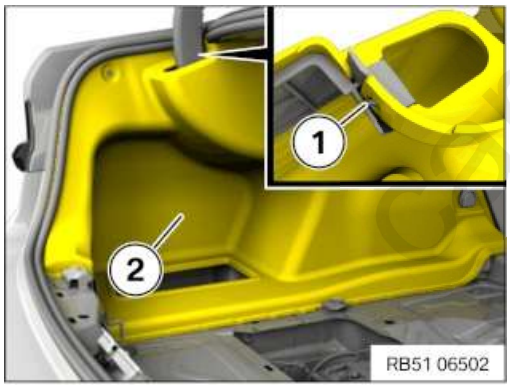
▸ **Partially remove luggage compartment wheel arch panel on left**

NOTICE

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



- Loosen the expanding rivet (1).



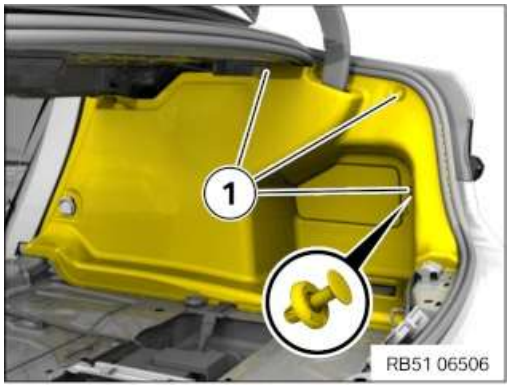
- Press the tab for luggage compartment wheel arch trim panel (2) on the outer side of the hinge to the front using the stop on trim (1).
- Guide out luggage compartment wheel arch trim panel (2) under the sealing lip of the tailgate seal and release it in the rear area.

▸ **Partially remove luggage compartment wheel arch panel on right**

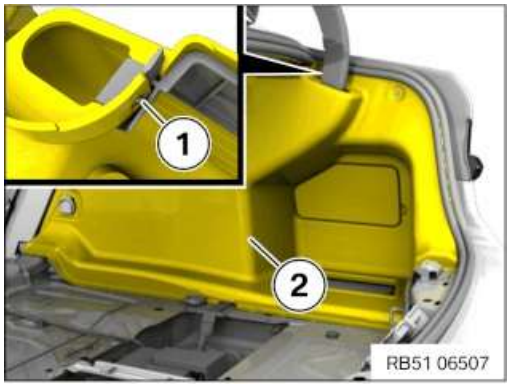
NOTICE

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

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- Loosen the expanding rivet (1).



- Press the tab for luggage compartment wheel arch trim panel (2) on the outer side of the hinge to the front using the stop on trim (1).
- Guide out luggage compartment wheel arch trim panel (2) under the sealing lip of the tailgate seal and release it in the rear area.

4 – Removing trim from water channel on left and right

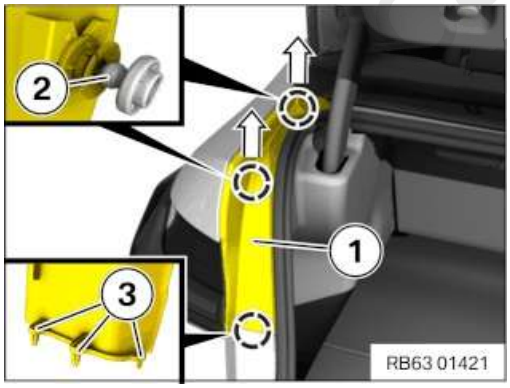
NOTICE

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

▸ **Removing trim from water channel**

NOTICE

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



- Unclip trim (1) in upward direction from ball pins (2).
- Release trim (1) from guides (3) and remove.

5 – Removing the rear light on the left and right side panels

NOTICE

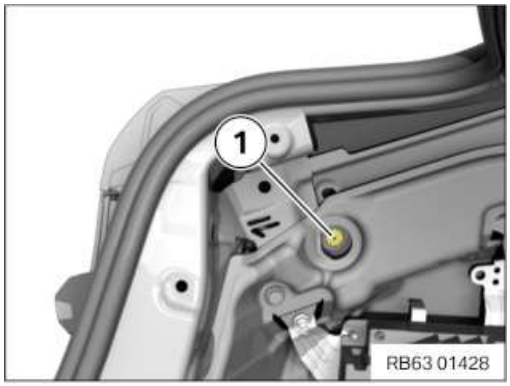
Description is for left component only. Procedure on the right side is identical.

▸ **Removing the rear light on the side panel**

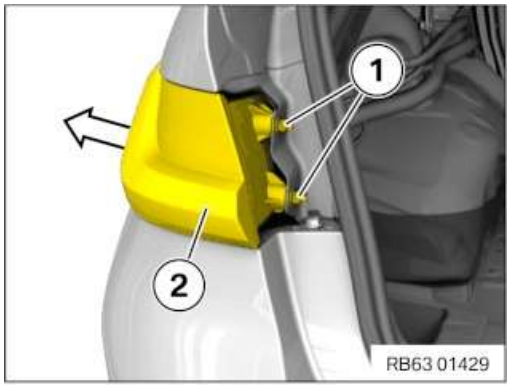
cardiagn.com

NOTICE

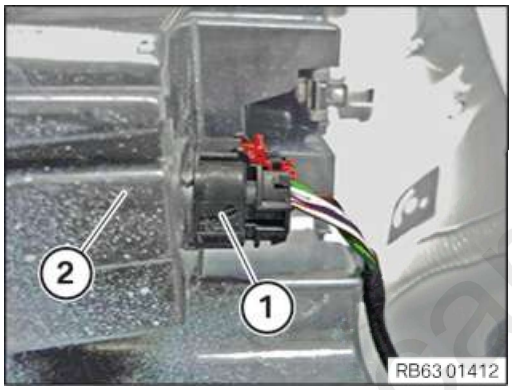
Schematic diagram is for example purposes. Some parts may differ in certain details.



- Loosen nut (1).



- Release the nuts (1) and feed out the rear light on the side panel (2) in the direction of arrow.



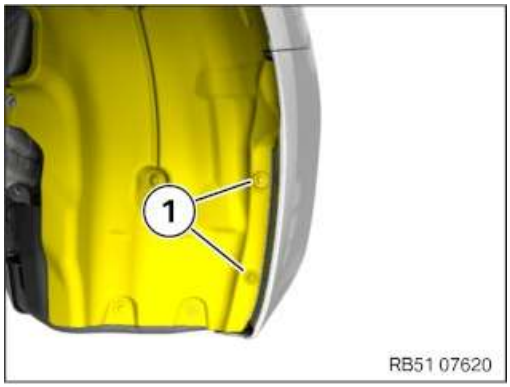
TECHNICAL INFORMATION

Observe note on unlocking and disconnecting plug connections.

For additional information see: 6113 ... Unlocking and disconnecting different plug connections

- Unlock plug connection (1) and disconnect.
- Remove the rear light on the side panel (2).

6 – Remove rear bumper panel



NOTICE

Perform the operations on the left and right side.

NOTICE

To provide a better overview: Schematic diagram with partially hidden components.

- Loosen screws (1).

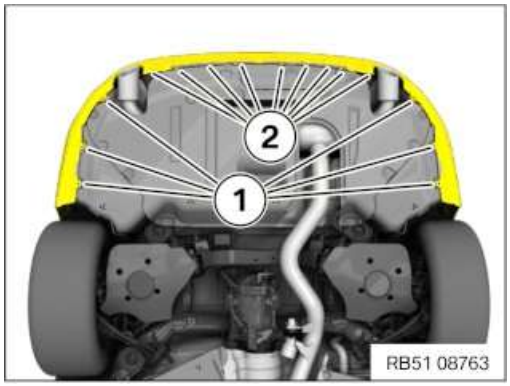
carlogn.com



NOTICE

Perform the operations on the left and right side.

- Release the screw (1).



- Loosen screws (1).
- Release the bumper panel at the latch mechanisms (2).



NOTICE

Perform the operations on the left and right side.

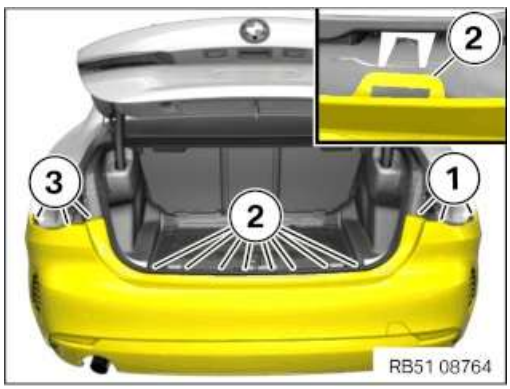
- Release the screw (1).



NOTICE

Perform the operations on the left and right side.

- Release the bumper panel with the latch mechanisms (1).



- Release the bumper panel with the latch mechanisms (1).
- Release the bumper panel from the latch mechanisms (2) starting from the right.
- Release the bumper panel from the latch mechanisms (3)



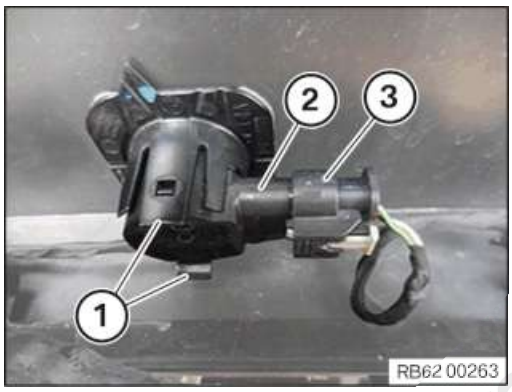
- Unlock plug connection and disconnect.
- Remove bumper panel.

MAIN WORK

7 – Removing the rear right ultrasonic sensor in the centre

NOTICE

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



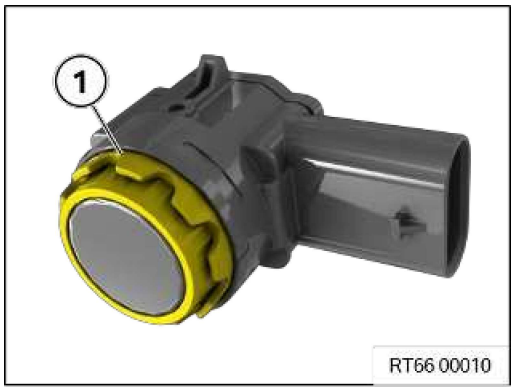
▸ **Removing rear centre ultrasonic sensor**

- Unlock plug connection (3) and disconnect.
- Unlock the latch mechanisms (1).
- Remove the ultrasonic sensor (2).

8 – Installing the rear right ultrasonic sensor in the centre

NOTICE

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

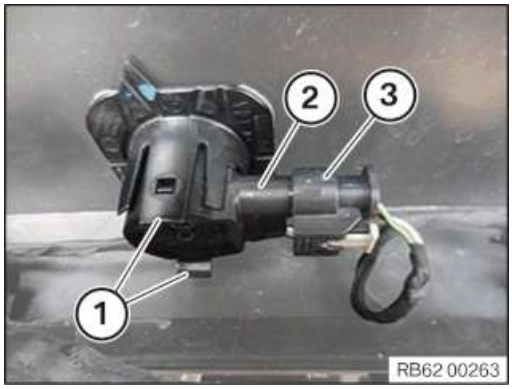


▸ **Installing the rear centre ultrasonic sensor**

- Check the decoupling ring (1) for damage.

  Decoupling ring (1) must be installed.

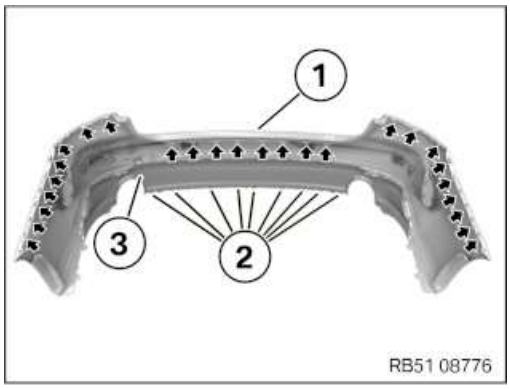
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- Position the ultrasonic sensor (2) correctly and engage it in the latch mechanisms (1).
- Connect connectors (3) and lock.

POSTPROCESSES

9 – Install rear bumper panel



Check

- Check the latch mechanisms (arrows) on the bumper panel (1) for damage.

  Check the latch mechanisms (2) on the bumper trim (3) for damage.

Result

» Latch mechanisms (arrows) are damaged.

Measure

- Renew the bumper panel (1).

Result

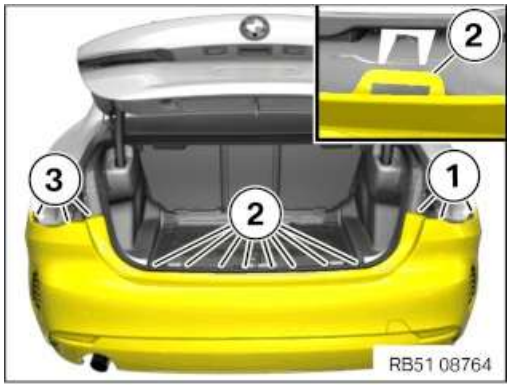
» Latch mechanisms (2) are damaged.

Measure

- Renew the bumper trim (3).



- Position the bumper panel.
- Connect connectors (1) and lock.



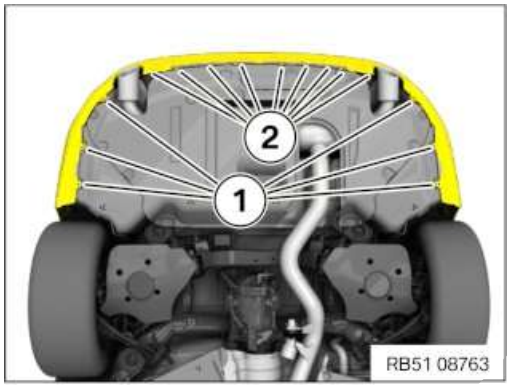
- Clip in the bumper panel with the latch mechanisms (1),(2) and (3).



NOTICE

Perform the operations on the left and right side.

- Clip in the bumper panel with latch mechanisms (1).



- Clip in the bumper panel with latch mechanisms (2).
- Tighten the screws (1).

Rear bumper trim panel to guide

Hexagon screw		Tightening torque	2.5 Nm



NOTICE

Perform the operations on the left and right side.

- Tighten down screw (1).

Rear bumper trim panel to guide

Hexagon screw		Tightening torque	2.5 Nm



NOTICE

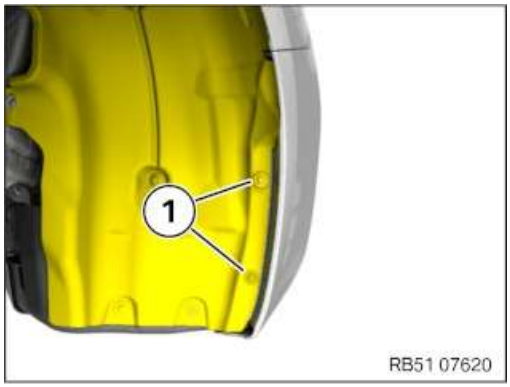
Perform the operations on the left and right side.

- Tighten down screw (1).

Lower bumper panel to body

Oval-head screw		Tightening torque	2.5 Nm

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NOTICE

Perform the operations on the left and right side.

NOTICE

To provide a better overview: Schematic diagram with partially hidden components.

- Tighten the screws (1).

Rear wheel arch cover to bumper trim panel

Hexagon screw		Tightening torque	2,6 Nm

10 – Installing the rear light on the left and right side panels

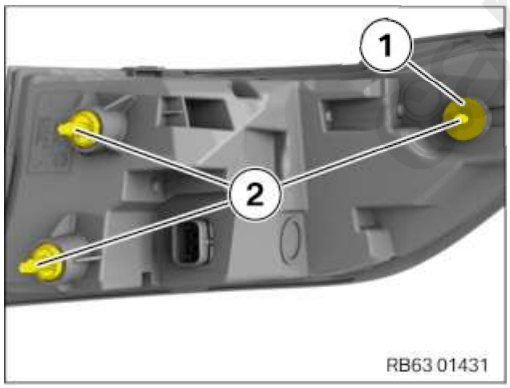
NOTICE

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

▸ **Install the rear light on the side panel**

NOTICE

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



Check

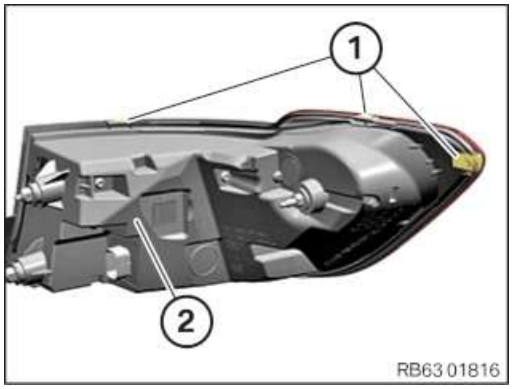
- Check the seal (1) for damage and renew if necessary.
- Check the threaded inserts (2) for damage.

Result

» The threaded inserts are damaged.

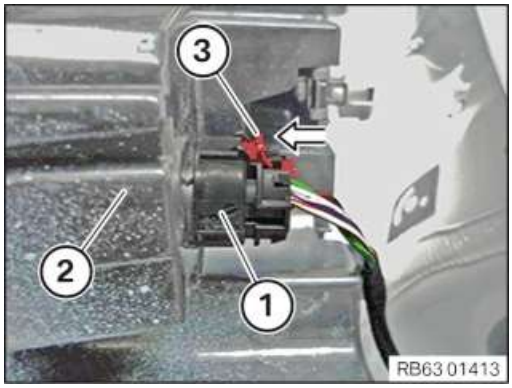
Measure

- Replace rear light.



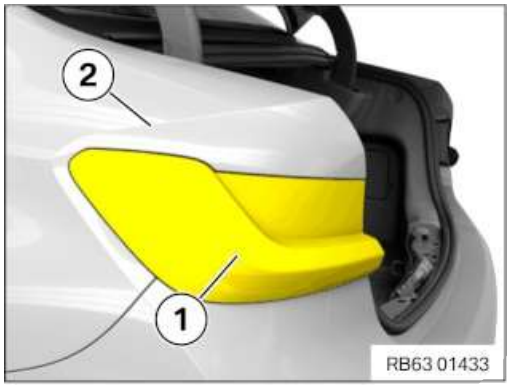
- Contact surfaces (1) on rear light (2) must not be damaged or missing.

  Missing contact surfaces (1) could cause paintwork damage.

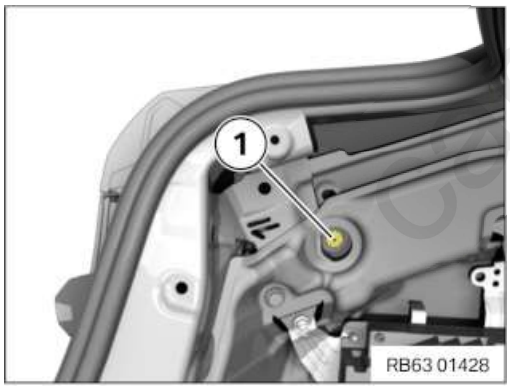


- Connect the connector (1) to the rear light on the side panel (2).

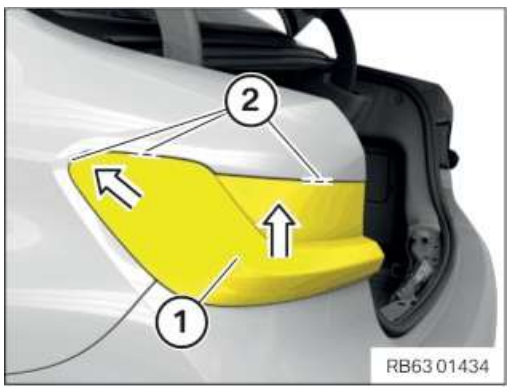
  The connector (1) must engage audibly.
- Lock the lock in direction of arrow (3).



- Position the rear light on the side panel (1) on the side panel (2).

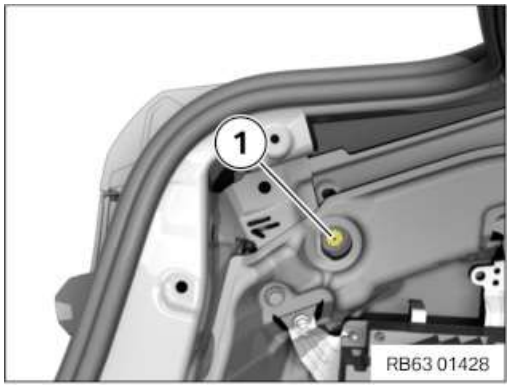


- Position the nut (1).



- Position the rear light on the side panel (1) to the front at the top.
- Move the contact surfaces (2) of the rear light on the side panel (1) upwards (arrow) so that they are in place.
- Hold the rear light on the side panel (1) in position.

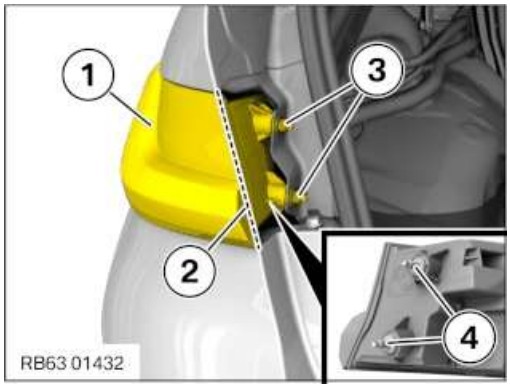
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- Tighten nut (1).

Rear light to side panel to body

Combination hexagon nut		Tightening torque	4 Nm



- Position nuts (3).
- Align rear light on the side panel (1) with the connecting line (2).

  The alignment is done through threaded inserts (4) on the rear light on the side panel (2).
- If necessary, correct the position of the rear light on the side panel (1) by twisting threaded inserts (4).
- Tighten nuts (3).

Rear light to side panel to body

Combination hexagon nut		Tightening torque	4 Nm

11 – Installing trim in water channel on left and right

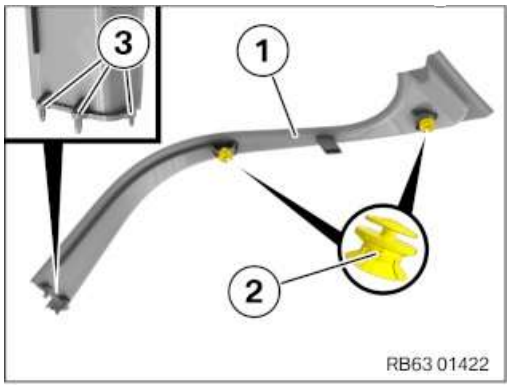
NOTICE

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

▸ Installing trim in water channel

NOTICE

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



Check

- Check clips (2) for damage and renew if necessary.
- Check guides (3) for damage.

Result

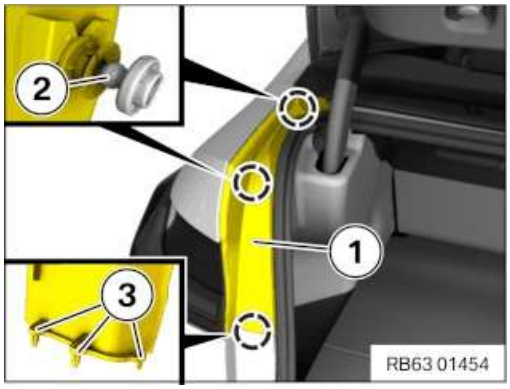
» The guides are damaged.

Measure

- Renew the trim .

  Parts: trim

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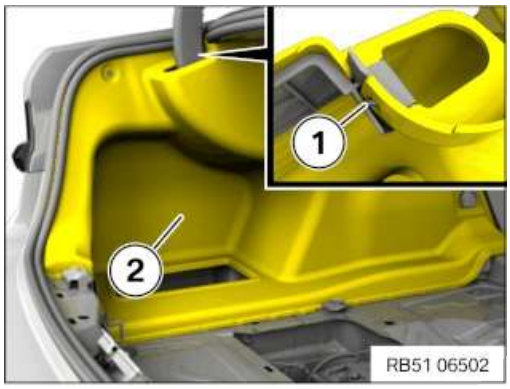
- Insert trim (1) in guides (3).
- Clip trim (1) from above into ball pins (2).

12 – Partially installing the luggage compartment wheel arch trim panel on the left and right

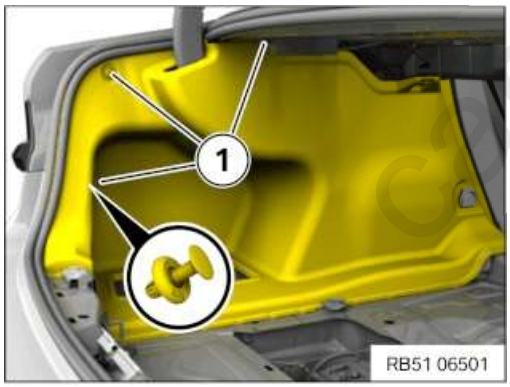
▸ Partially installing the left luggage compartment wheel arch trim panel

NOTICE

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



- Feed the luggage compartment wheel arch trim panel (2) into the rear area under the sealing lip of the tailgate seal.
- Feed the tab of the luggage compartment wheel arch trim panel (2) on the outer side of the hinge into the stop on the trim (1).



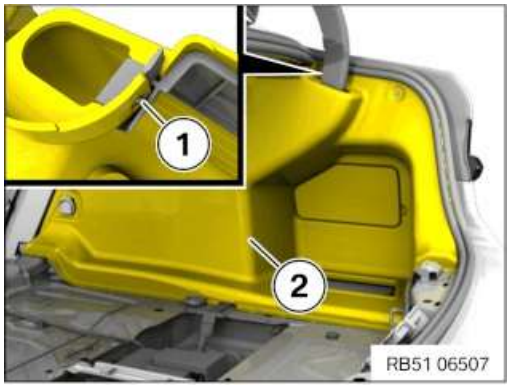
- Secure expanding rivet (1).

▸ Partially installing right luggage compartment wheel arch trim panel

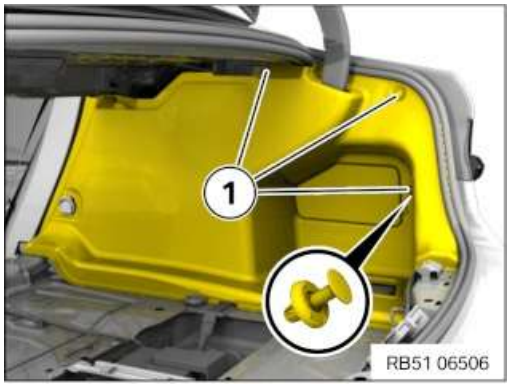
NOTICE

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

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- Guide luggage compartment wheel arch trim panel (2) into the rear area under the sealing lip of the tailgate seal.
- Feed the tab of the luggage compartment wheel arch trim panel (2) on the outer side of the hinge into the stop on the trim (1).

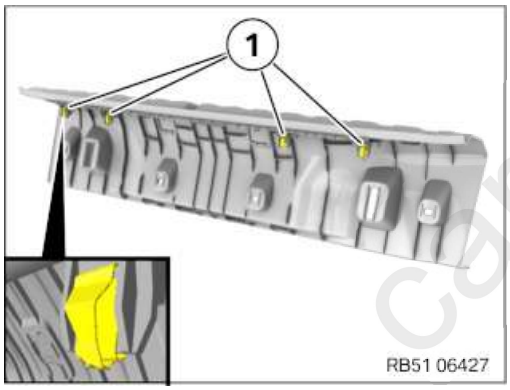


- Secure expanding rivet (1).

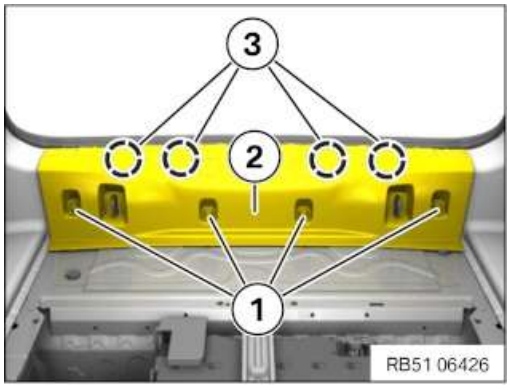
13 – Installing loading edge trim

NOTICE

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



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



- Insert the loading edge trim (2) under the sealing lip of the tailgate seal.
- Fit the trim of the loading edge (2) at the latch mechanisms (3) and clip it in to the bottom.
- Secure expanding rivet (1).

14 – Installing the luggage compartment floor trim panel

▸ **Installing the luggage compartment floor trim panel**

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NOTICE

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



- Insert the luggage compartment floor trim panel (1).

Additional Information

Overview of Tightening Torques

Rear bumper trim panel to guide			Used in step 9
Hexagon screw		Tightening torque	2.5 Nm

Lower bumper panel to body			Used in step 9
Oval-head screw		Tightening torque	2.5 Nm

Rear wheel arch cover to bumper trim panel			Used in step 9
Hexagon screw		Tightening torque	2,6 Nm

Rear light to side panel to body			Used in step 10
Combination hexagon nut		Tightening torque	4 Nm

Links

Repair instructions	**Used in step**
61 13 ... Unlocking and disconnecting different plug connections	5

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66 20 535 Removing and installing/replacing rear right ultrasonic sensor

TECHNICAL INFORMATION

To guarantee the quality of the driver assistance functions in vehicles with concealed radar sensors installed, the component may only be repainted by observing the repair specifications described in the document "Standards for repair painting with sensor systems".

Sourcing reference:

https://colorsystem-paint.com/

Aftersales Information Research (AIR) - Repair and service messages - HG99 - ColorSystem

ISTA - HG99 - ColorSystem

No stickers or foils (transparent or coloured) may be attached in the radiation areas of the radar sensors.

The component may be painted if no radar sensors have been installed.

The following features can be used to identify whether radar sensors are installed on the vehicle:

Radar sensors are installed at the rear if the triangular warning light is located on the exterior mirror (in the mirror glass or on the mirror frame).

Radar sensors are installed at the front and rear if the triangular warning light is located on the exterior mirror (in the mirror glass or on the mirror frame) in conjunction with the optional equipment S5ATA or S5AUA.

PRELIMINARY WORK

1 – Removing the luggage compartment floor trim panel

▸ **Removing the luggage compartment floor trim panel**

NOTICE

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

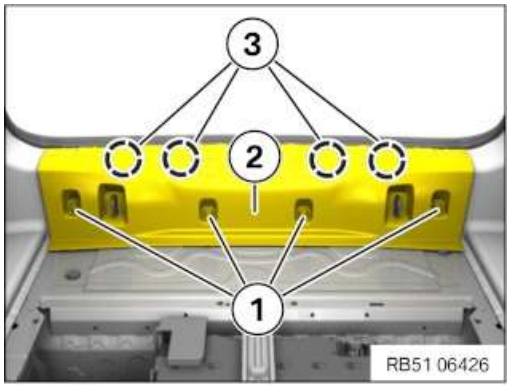


- Remove luggage compartment floor trim panel (1).

2 – Removing the loading edge trim

NOTICE

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



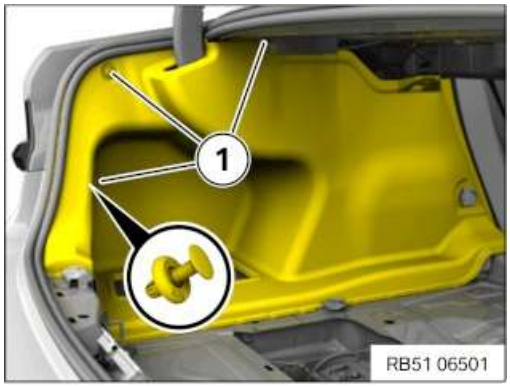
- Loosen the expanding rivet (1).
- Unclip loading edge trim(2) upwards from latch mechanisms (3).
- Guide out and remove loading edge trim (2) under the sealing lip of the tailgate seal.

3 – Removing part of the luggage compartment wheel arch trim panel on the left and right

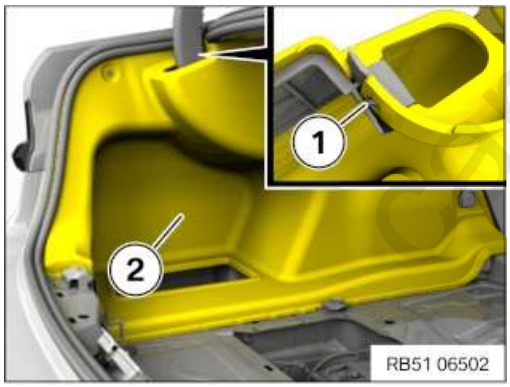
▸ **Partially remove luggage compartment wheel arch panel on left**

NOTICE

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



- Loosen the expanding rivet (1).



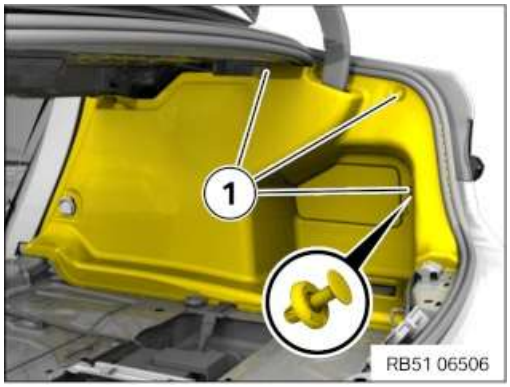
- Press the tab for luggage compartment wheel arch trim panel (2) on the outer side of the hinge to the front using the stop on trim (1).
- Guide out luggage compartment wheel arch trim panel (2) under the sealing lip of the tailgate seal and release it in the rear area.

▸ **Partially remove luggage compartment wheel arch panel on right**

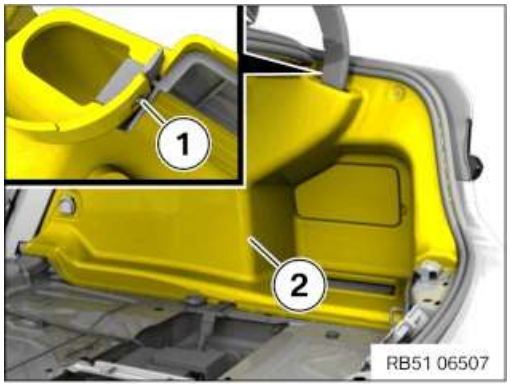
NOTICE

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

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- Loosen the expanding rivet (1).



- Press the tab for luggage compartment wheel arch trim panel (2) on the outer side of the hinge to the front using the stop on trim (1).
- Guide out luggage compartment wheel arch trim panel (2) under the sealing lip of the tailgate seal and release it in the rear area.

4 – Removing trim from water channel on left and right

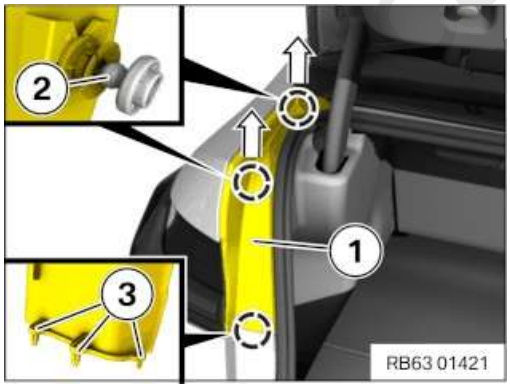
NOTICE

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

▸ **Removing trim from water channel**

NOTICE

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



- Unclip trim (1) in upward direction from ball pins (2).
- Release trim (1) from guides (3) and remove.

5 – Removing the rear light on the left and right side panels

NOTICE

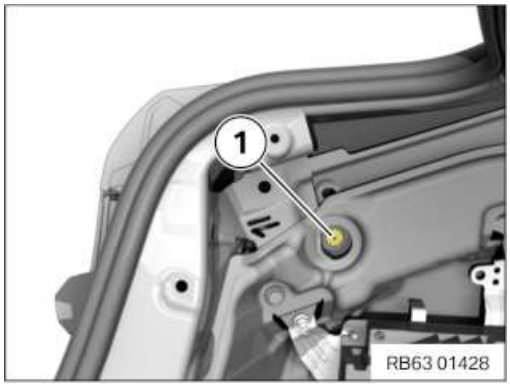
Description is for left component only. Procedure on the right side is identical.

▸ **Removing the rear light on the side panel**

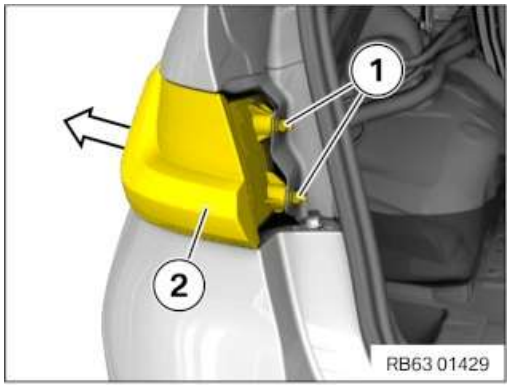
cardiagn.com

NOTICE

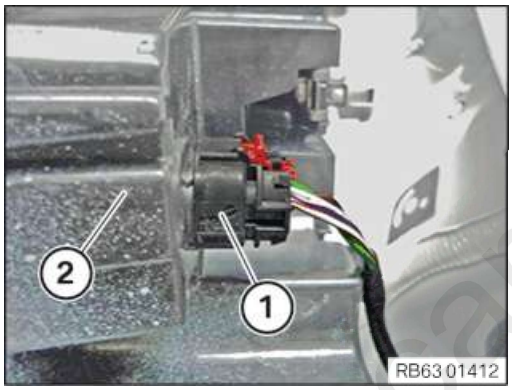
Schematic diagram is for example purposes. Some parts may differ in certain details.



- Loosen nut (1).



- Release the nuts (1) and feed out the rear light on the side panel (2) in the direction of arrow.



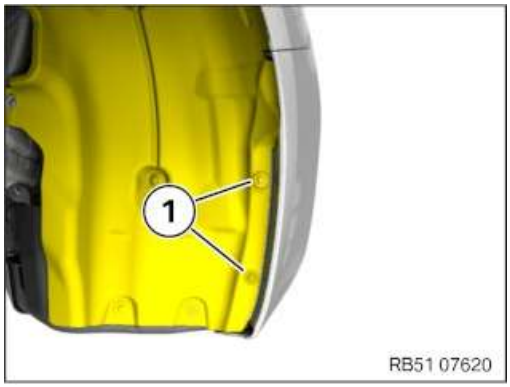
TECHNICAL INFORMATION

Observe note on unlocking and disconnecting plug connections.

For additional information see: 6113 ... Unlocking and disconnecting different plug connections

- Unlock plug connection (1) and disconnect.
- Remove the rear light on the side panel (2).

6 – Remove rear bumper panel



NOTICE

Perform the operations on the left and right side.

NOTICE

To provide a better overview: Schematic diagram with partially hidden components.

- Loosen screws (1).

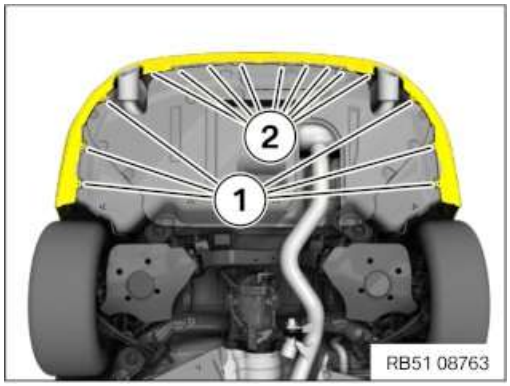
carlogn.com



NOTICE

Perform the operations on the left and right side.

- Release the screw (1).



- Loosen screws (1).
- Release the bumper panel at the latch mechanisms (2).



NOTICE

Perform the operations on the left and right side.

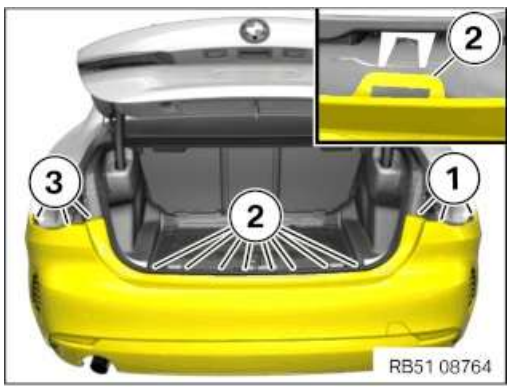
- Release the screw (1).



NOTICE

Perform the operations on the left and right side.

- Release the bumper panel with the latch mechanisms (1).



- Release the bumper panel with the latch mechanisms (1).
- Release the bumper panel from the latch mechanisms (2) starting from the right.
- Release the bumper panel from the latch mechanisms (3)



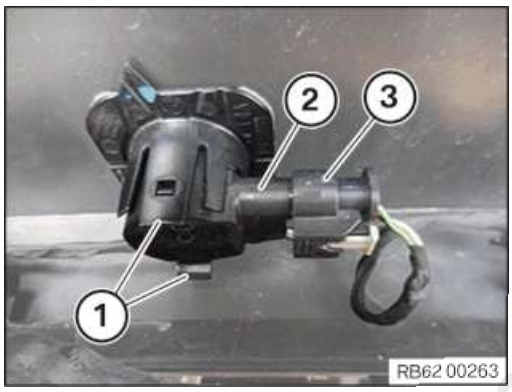
- Unlock plug connection and disconnect.
- Remove bumper panel.

MAIN WORK

7 – Removing the ultrasonic sensor at the rear right

NOTICE

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



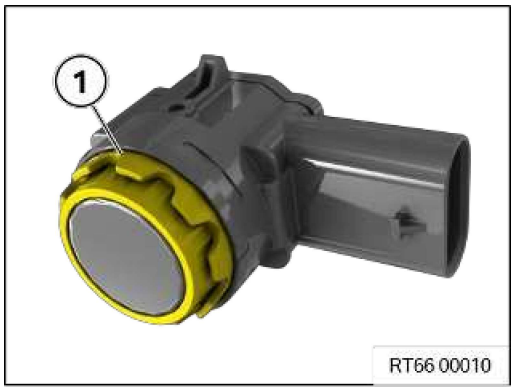
▸ **Remove rear ultrasonic sensor**

- Unlock plug connection (3) and disconnect.
- Unlock the latch mechanisms (1).
- Remove the ultrasonic sensor (2).

8 – Installing the rear right ultrasonic sensor

NOTICE

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

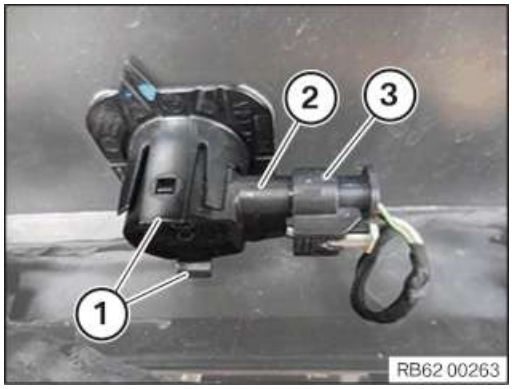


▸ **Install the rear ultrasonic sensor**

- Check the decoupling ring (1) for damage.

  Decoupling ring (1) must be installed.

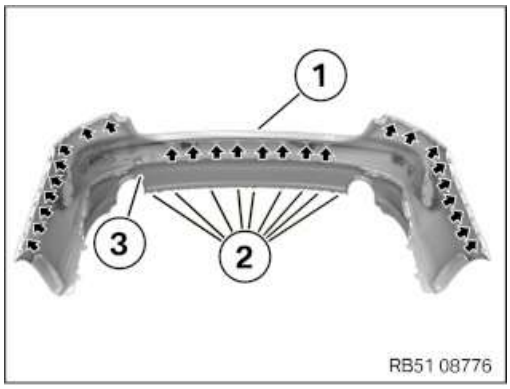
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- Position the ultrasonic sensor (2) correctly and engage it in the latch mechanisms (1).
- Connect connectors (3) and lock.

POSTPROCESSES

9 – Install rear bumper panel



Check

- Check the latch mechanisms (arrows) on the bumper panel (1) for damage.

  Check the latch mechanisms (2) on the bumper trim (3) for damage.

Result

» Latch mechanisms (arrows) are damaged.

Measure

- Renew the bumper panel (1).

Result

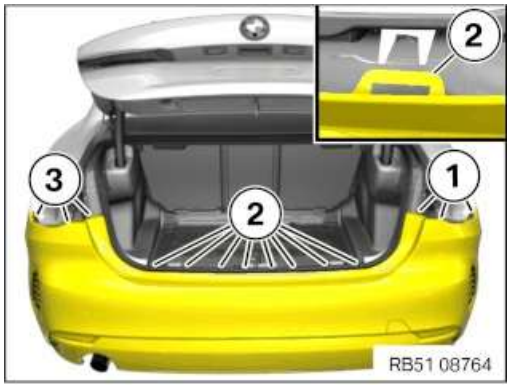
» Latch mechanisms (2) are damaged.

Measure

- Renew the bumper trim (3).



- Position the bumper panel.
- Connect connectors (1) and lock.



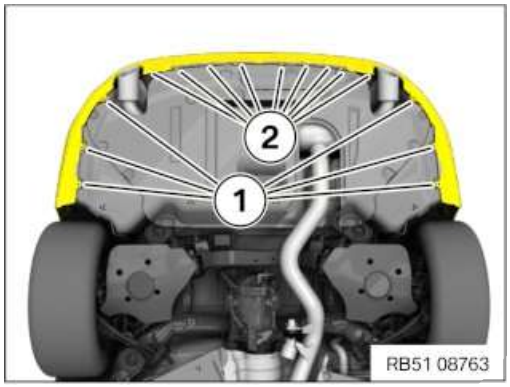
- Clip in the bumper panel with the latch mechanisms (1),(2) and (3).



NOTICE

Perform the operations on the left and right side.

- Clip in the bumper panel with latch mechanisms (1).



- Clip in the bumper panel with latch mechanisms (2).
- Tighten the screws (1).

Rear bumper trim panel to guide

Hexagon screw		Tightening torque	2.5 Nm



NOTICE

Perform the operations on the left and right side.

- Tighten down screw (1).

Rear bumper trim panel to guide

Hexagon screw		Tightening torque	2.5 Nm



NOTICE

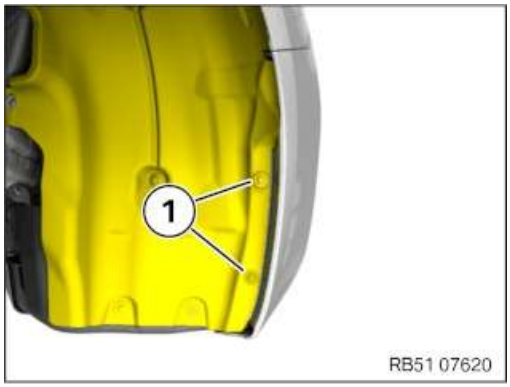
Perform the operations on the left and right side.

- Tighten down screw (1).

Lower bumper panel to body

Oval-head screw		Tightening torque	2.5 Nm

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NOTICE

Perform the operations on the left and right side.

NOTICE

To provide a better overview: Schematic diagram with partially hidden components.

- Tighten the screws (1).

Rear wheel arch cover to bumper trim panel

Hexagon screw		Tightening torque	2,6 Nm

10 – Installing the rear light on the left and right side panels

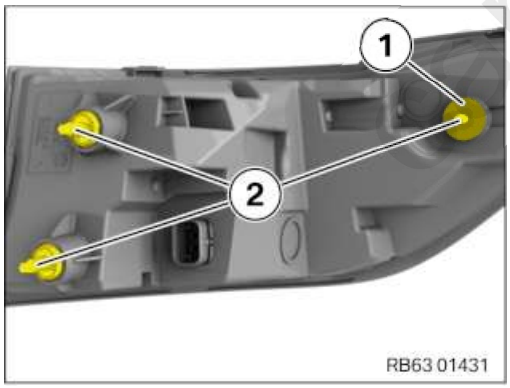
NOTICE

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

▸ **Install the rear light on the side panel**

NOTICE

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



Check

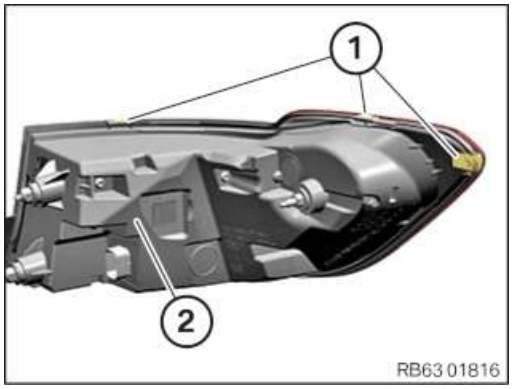
- Check the seal (1) for damage and renew if necessary.
- Check the threaded inserts (2) for damage.

Result

» The threaded inserts are damaged.

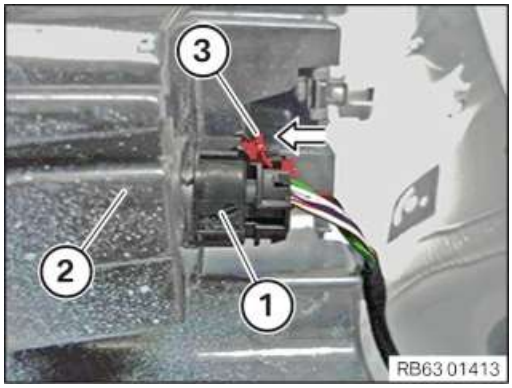
Measure

- Replace rear light.



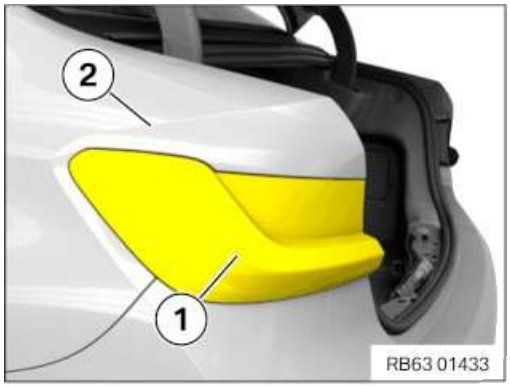
- Contact surfaces (1) on rear light (2) must not be damaged or missing.

  Missing contact surfaces (1) could cause paintwork damage.

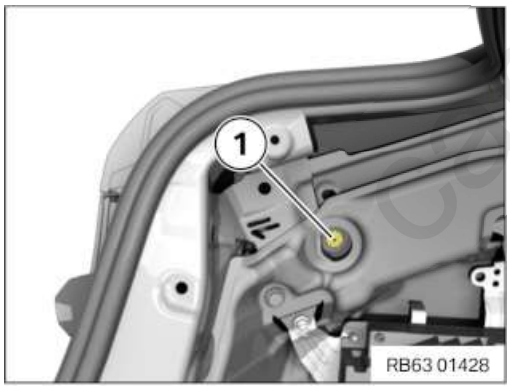


- Connect the connector (1) to the rear light on the side panel (2).

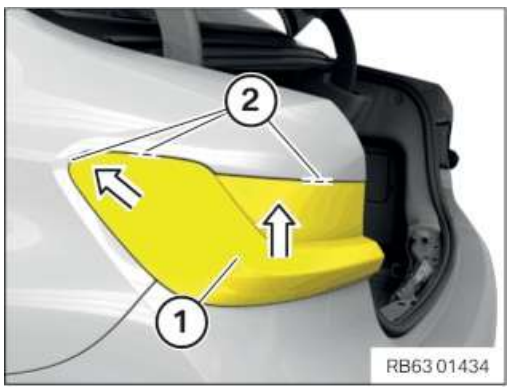
  The connector (1) must engage audibly.
- Lock the lock in direction of arrow (3).



- Position the rear light on the side panel (1) on the side panel (2).

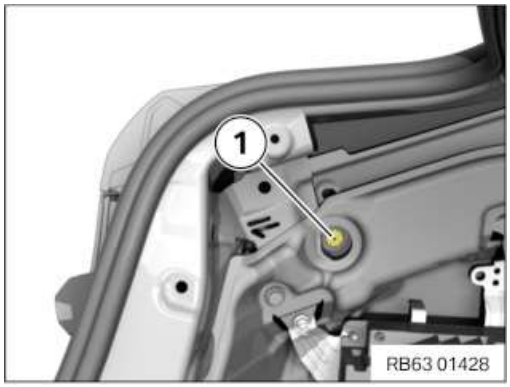


- Position the nut (1).



- Position the rear light on the side panel (1) to the front at the top.
- Move the contact surfaces (2) of the rear light on the side panel (1) upwards (arrow) so that they are in place.
- Hold the rear light on the side panel (1) in position.

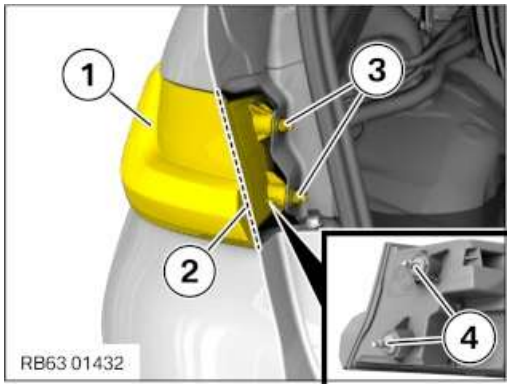
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- Tighten nut (1).

Rear light to side panel to body

Combination hexagon nut		Tightening torque	4 Nm



- Position nuts (3).
- Align rear light on the side panel (1) with the connecting line (2).

  The alignment is done through threaded inserts (4) on the rear light on the side panel (2).
- If necessary, correct the position of the rear light on the side panel (1) by twisting threaded inserts (4).
- Tighten nuts (3).

Rear light to side panel to body

Combination hexagon nut		Tightening torque	4 Nm

11 – Installing trim in water channel on left and right

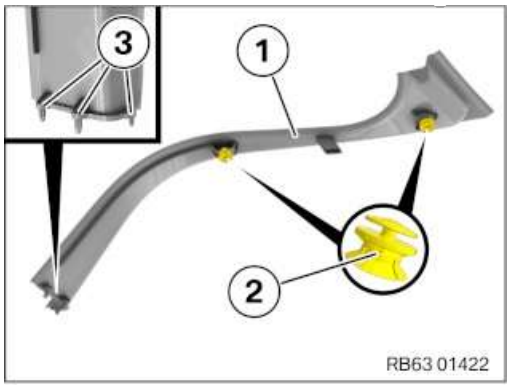
NOTICE

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

▸ Installing trim in water channel

NOTICE

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



Check

- Check clips (2) for damage and renew if necessary.
- Check guides (3) for damage.

Result

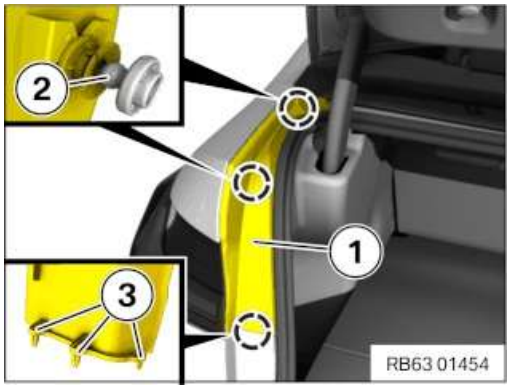
» The guides are damaged.

Measure

- Renew the trim .

  Parts: trim

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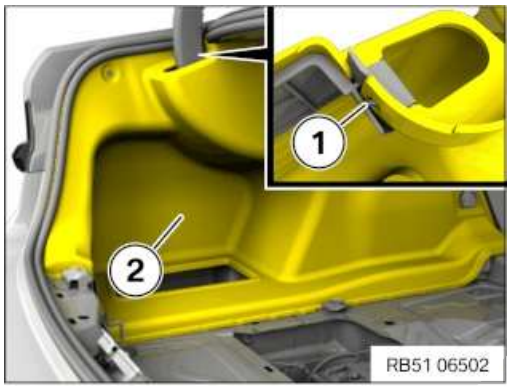
- Insert trim (1) in guides (3).
- Clip trim (1) from above into ball pins (2).

12 – Partially installing the luggage compartment wheel arch trim panel on the left and right

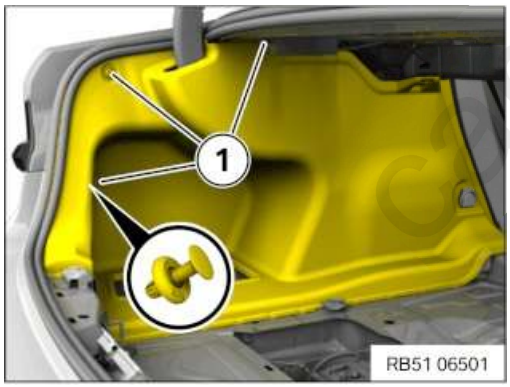
▸ Partially installing the left luggage compartment wheel arch trim panel

NOTICE

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



- Feed the luggage compartment wheel arch trim panel (2) into the rear area under the sealing lip of the tailgate seal.
- Feed the tab of the luggage compartment wheel arch trim panel (2) on the outer side of the hinge into the stop on the trim (1).



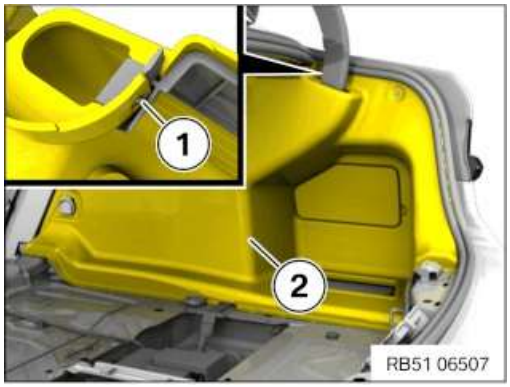
- Secure expanding rivet (1).

▸ Partially installing right luggage compartment wheel arch trim panel

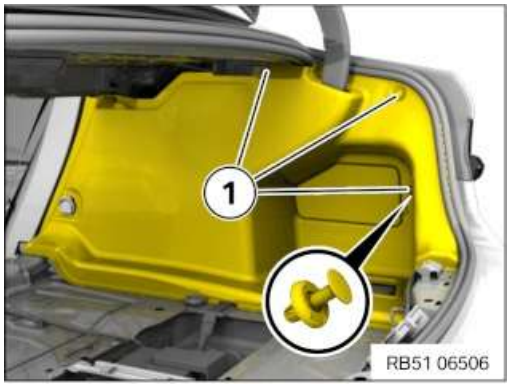
NOTICE

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

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- Guide luggage compartment wheel arch trim panel (2) into the rear area under the sealing lip of the tailgate seal.
- Feed the tab of the luggage compartment wheel arch trim panel (2) on the outer side of the hinge into the stop on the trim (1).

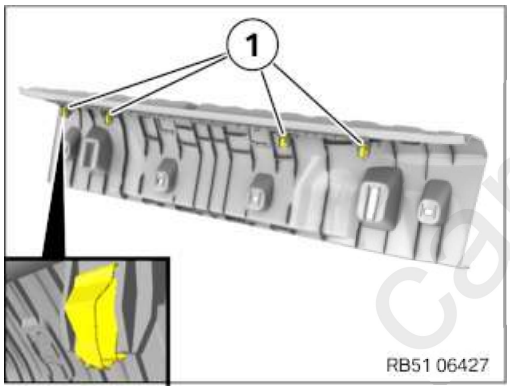


- Secure expanding rivet (1).

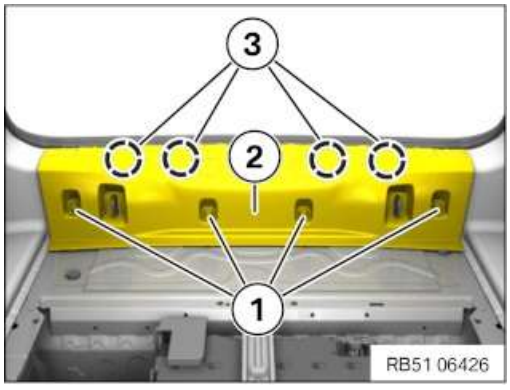
13 – Installing loading edge trim

NOTICE

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



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



- Insert the loading edge trim (2) under the sealing lip of the tailgate seal.
- Fit the trim of the loading edge (2) at the latch mechanisms (3) and clip it in to the bottom.
- Secure expanding rivet (1).

14 – Installing the luggage compartment floor trim panel

▸ **Installing the luggage compartment floor trim panel**

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NOTICE

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



- Insert the luggage compartment floor trim panel (1).

Additional Information

Overview of Tightening Torques

Rear bumper trim panel to guide			Used in step 9
Hexagon screw		Tightening torque	2.5 Nm

Lower bumper panel to body			Used in step 9
Oval-head screw		Tightening torque	2.5 Nm

Rear wheel arch cover to bumper trim panel			Used in step 9
Hexagon screw		Tightening torque	2,6 Nm

Rear light to side panel to body			Used in step 10
Combination hexagon nut		Tightening torque	4 Nm

Links

Repair instructions	**Used in step**
61 13 ... Unlocking and disconnecting different plug connections	5

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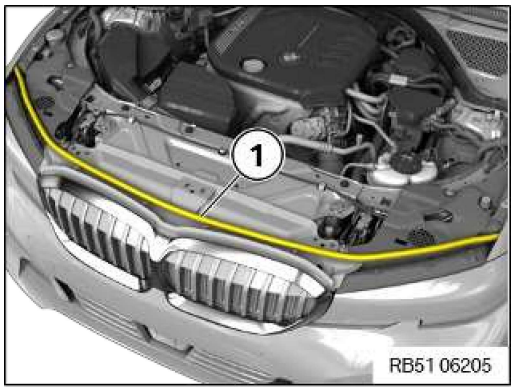
66 20 517 Removing and installing/replacing ultrasonic sensor, front centre left

PRELIMINARY WORK

1 – Remove the seal for the bonnet in front

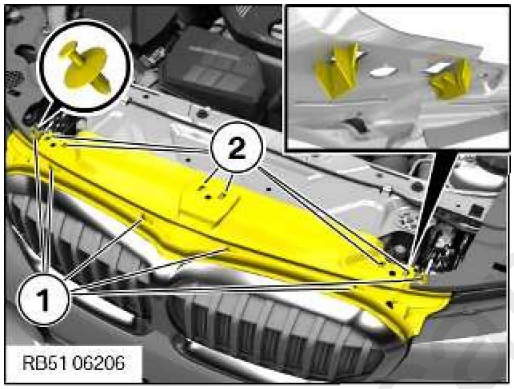
NOTICE

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



- Pull offfront bonnet seal (1) upwards.

2 – Removing the centre engine compartment cover



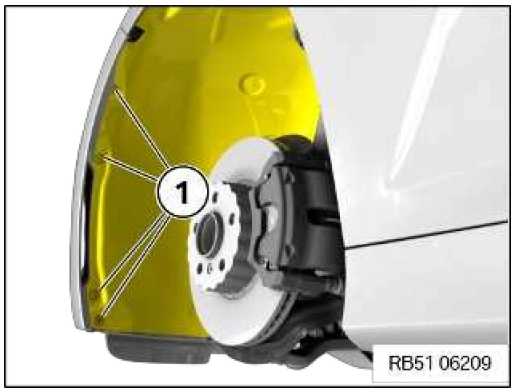
- Detach all expanding rivets (1).
- Release the cover at the latch mechanisms (2) and feed it out to the rear.

3 – Partially releasing the front left and right wheel arch trim panels

NOTICE

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

▸ **Partially removing front wheel arch trim panel**

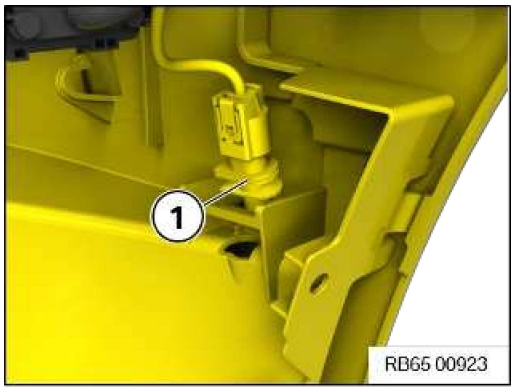


NOTICE

To provide a better overview: Schematic diagram without front wheel.

- Loosen screws (1).
- Fold the front wheel arch trim panel to one side.

4 – Partially removing the temperature sensor

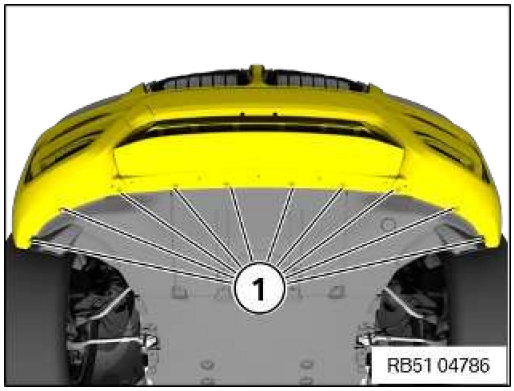


- Unclip temperature sensor (1) from the front bumper panel to the top.

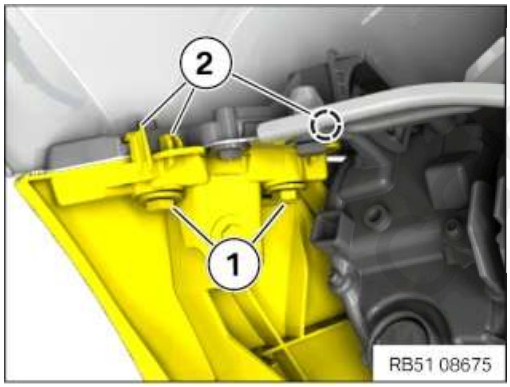
5 – Remove front bumper panel

NOTICE

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



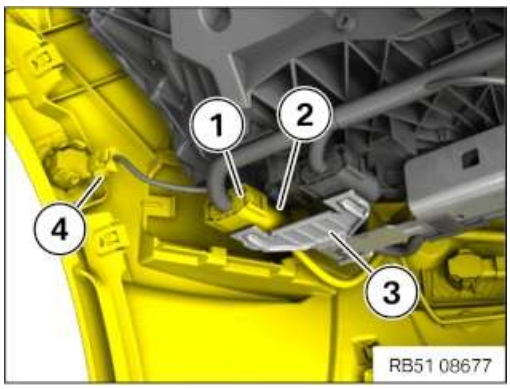
- Loosen screws (1).



NOTICE

Perform the operations on the left and right side.

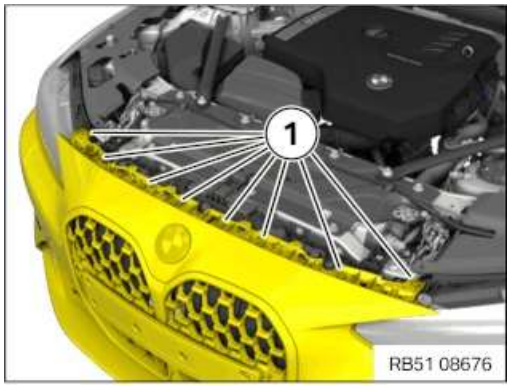
- Loosen screws (1).
- The bumper panel with the latch mechanisms (2) is to be released and removed from the guide.



NOTICE

Perform the operations on the left and right side.

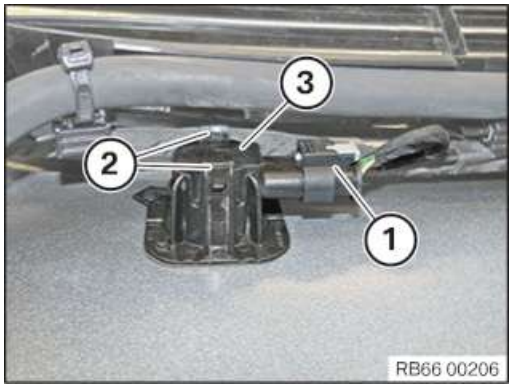
- Unlock plug connection (1) and disconnect.
- Unclip the connector (2) from the holder (3).
- If necessary, unlock and disconnect the plug connection (4).



- Loosen screws (1).
- Remove the bumper panel towards the front.

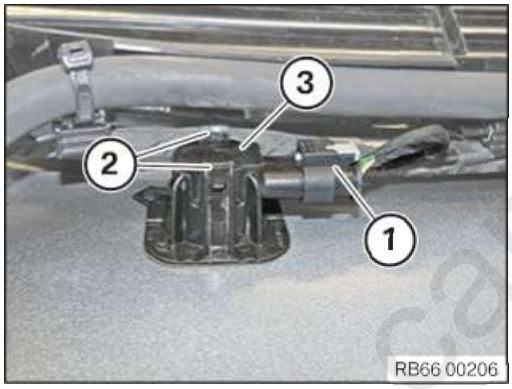
MAIN WORK

6 – Removing the ultrasonic sensor at the front left in the centre



- Unlock plug connection (1) and disconnect.
- Unlock the latch mechanisms (2).
- Remove the ultrasonic sensor (3).

7 – Installing the ultrasonic sensor at the front, in the centre on the left



- Connect connectors (1) and lock.
- Position the ultrasonic sensor (3) correctly and engage it in the latch mechanisms (2).

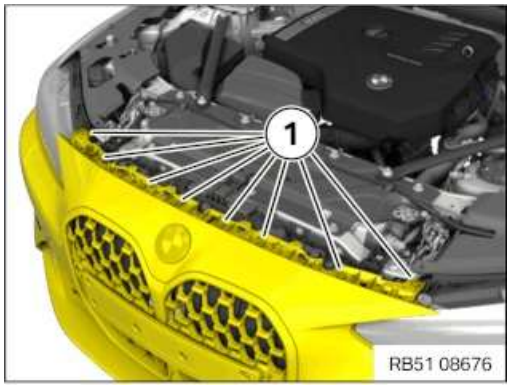
POSTPROCESSES

8 – Install bumper panel, front

NOTICE

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

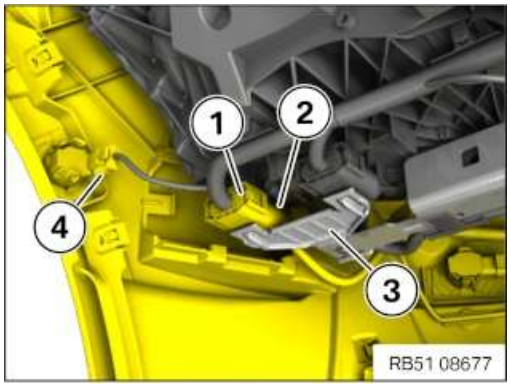
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- Fit the bumper panel from the front and position it.
- Tighten the screws (1).

Bumper panel, front top

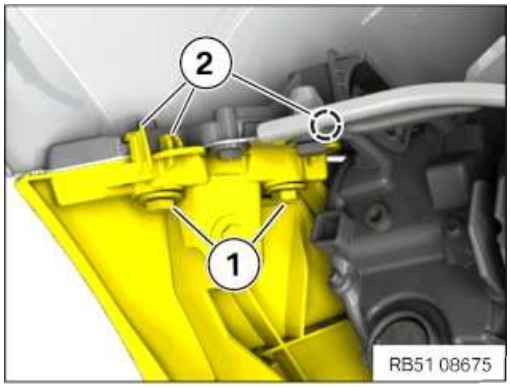
Oval-head screwM6		Tightening torque	4,6 Nm



NOTICE

Perform the operations on the left and right side.

- Clip in the connector (2) in the holder (3).
- Connect connectors (1) and lock.
- If necessary, connect and lock the connector (4).



- Feed in the bumper panel in the guide and clip in with the latch mechanisms (2).

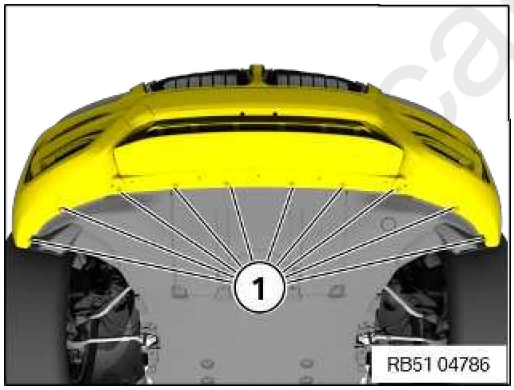
NOTICE

Perform the operations on the left and right side.

- Tighten the screws (1).

Front bumper panel to front side panel

Torx screw 5x35		Tightening torque	3 Nm

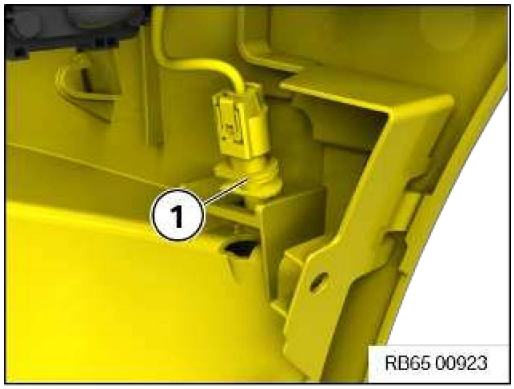


- Tighten the screws (1).

Front bumper panel to underbody protection

Hexagon screw for thermoplastic		Tightening torque	2,6 Nm

9 – Partially installing the temperature sensor



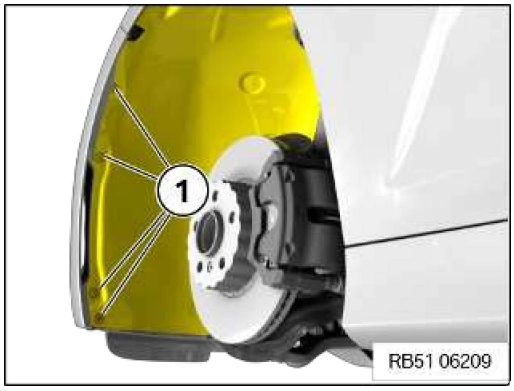
- Clip the temperature sensor (1) downwards into the front bumper panel.

10 – Partially installing the front left and right wheel arch trim panels

NOTICE

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

▸ **Partially installing front wheel arch trim panel**



NOTICE

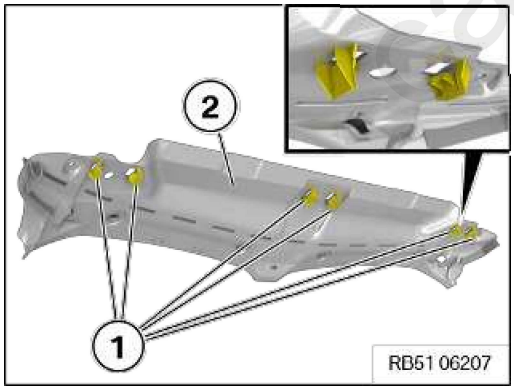
To provide a better overview: Schematic diagram without front wheel.

- Fold back the front wheel arch trim panel.
- Tighten the screws (1).

Wheel arch trim panel, front

Thermoplastic hexagon screw		Tightening torque	2,6 Nm

11 – Installing the cover for the centre engine compartment



Check

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

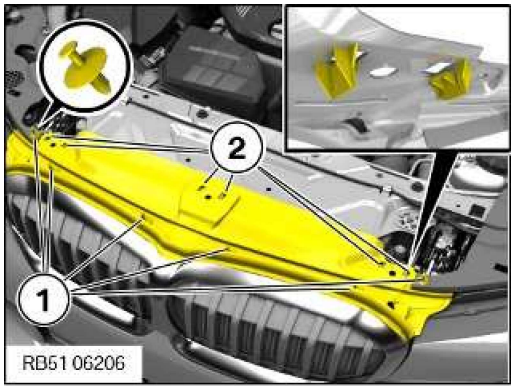
Result

» Latch mechanisms (1) are damaged.

Measure

- Replace the cover (2).

  Parts: Cover

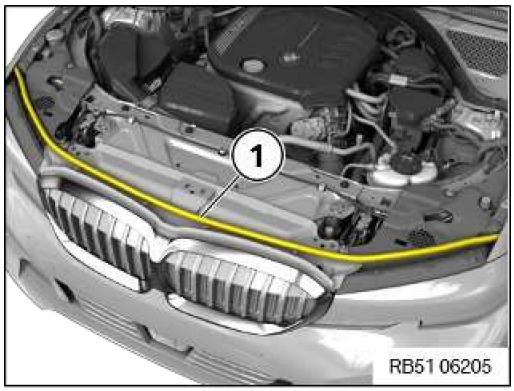


- Insert the cover from the rear and position it.
- Clip in the latch mechanisms (2).
- Mount all expanding rivets (1).

12 – Install the seal for the front bonnet

NOTICE

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



- Position the bonnet seal(1) and connect it on the mounting on the bumper and on the headlights.

Additional Information

Overview of Tightening Torques

Bumper panel, front top — Used in step 8

Oval-head screwM6		Tightening torque	4,6 Nm

Front bumper panel to front side panel — Used in step 8

Torx screw 5x35		Tightening torque	3 Nm

Front bumper panel to underbody protection — Used in step 8

Hexagon screw for thermoplastic		Tightening torque	2,6 Nm

Wheel arch trim panel, front — Used in step 10

Thermoplastic hexagon screw		Tightening torque	2,6 Nm

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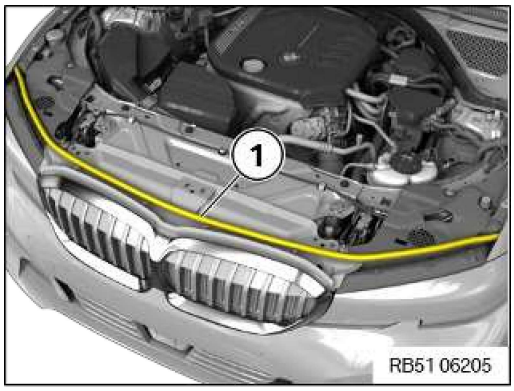
66 20 519 Removing and installing/replacing ultrasonic sensor, front centre right

PRELIMINARY WORK

1 – Remove the seal for the bonnet in front

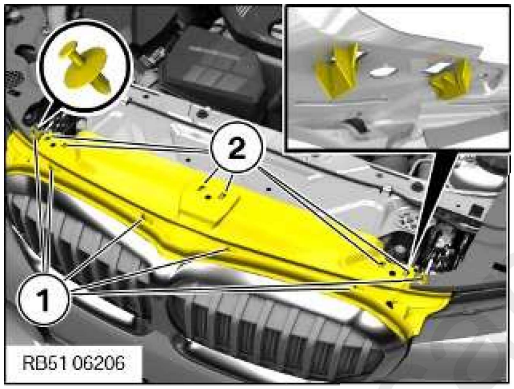
NOTICE

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



- Pull offfront bonnet seal (1) upwards.

2 – Removing the centre engine compartment cover



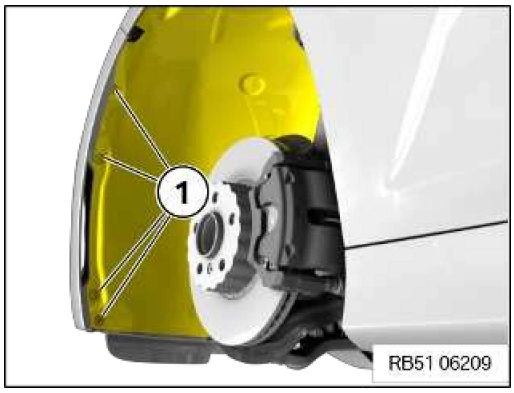
- Detach all expanding rivets (1).
- Release the cover at the latch mechanisms (2) and feed it out to the rear.

3 – Partially releasing the front left and right wheel arch trim panels

NOTICE

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

▸ **Partially removing front wheel arch trim panel**



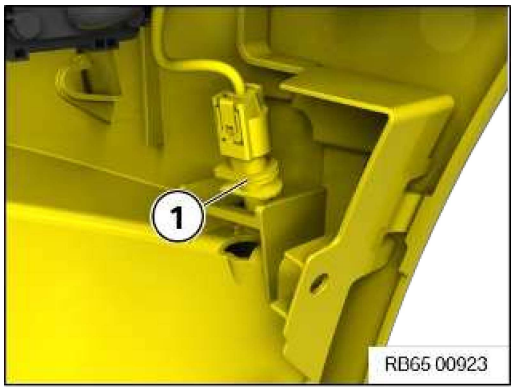
NOTICE

To provide a better overview: Schematic diagram without front wheel.

- Loosen screws (1).
- Fold the front wheel arch trim panel to one side.

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4 – Partially removing the temperature sensor

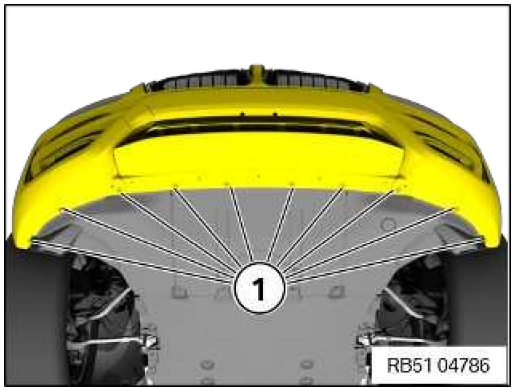


- Unclip temperature sensor (1) from the front bumper panel to the top.

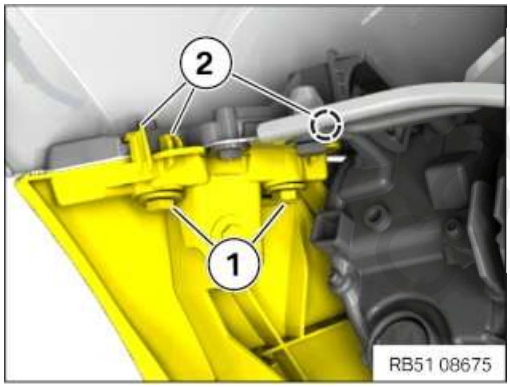
5 – Remove front bumper panel

NOTICE

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



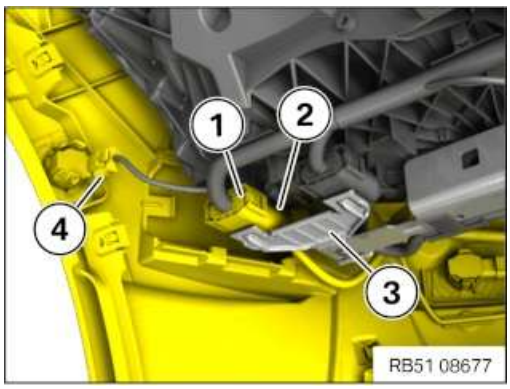
- Loosen screws (1).



NOTICE

Perform the operations on the left and right side.

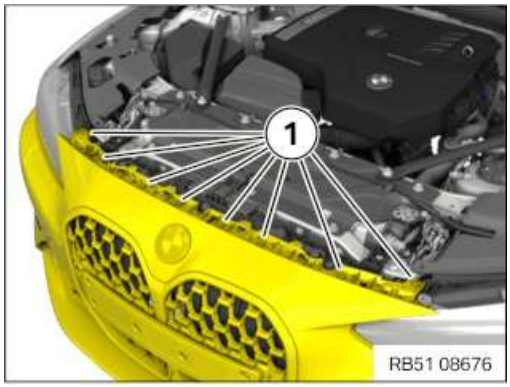
- Loosen screws (1).
- The bumper panel with the latch mechanisms (2) is to be released and removed from the guide.



NOTICE

Perform the operations on the left and right side.

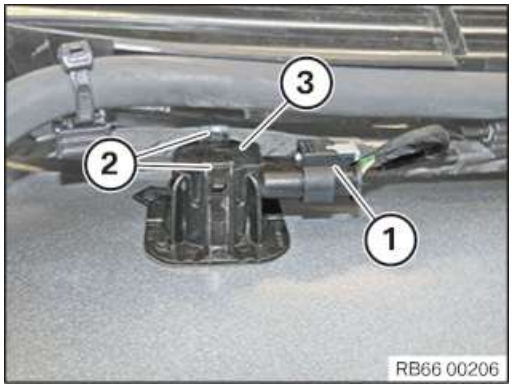
- Unlock plug connection (1) and disconnect.
- Unclip the connector (2) from the holder (3).
- If necessary, unlock and disconnect the plug connection (4).



- Loosen screws (1).
- Remove the bumper panel towards the front.

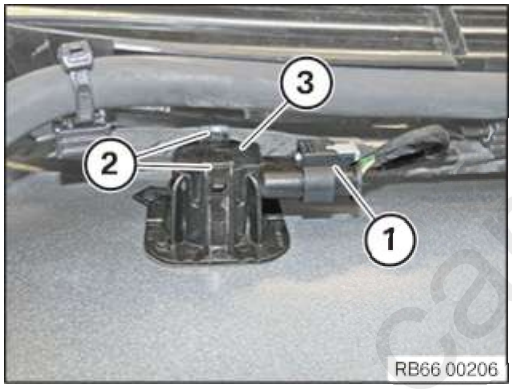
MAIN WORK

6 – Removing the ultrasonic sensor at the front right in the centre



- Unlock plug connection (1) and disconnect.
- Unlock the latch mechanisms (2).
- Remove the ultrasonic sensor (3).

7 – Installing the ultrasonic sensor at the front right in the centre



- Connect connectors (1) and lock.
- Position the ultrasonic sensor (3) correctly and engage it in the latch mechanisms (2).

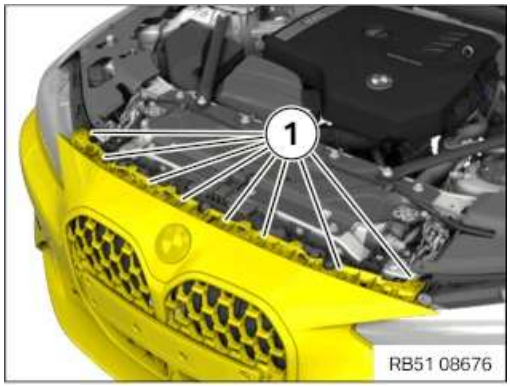
POSTPROCESSES

8 – Install bumper panel, front

NOTICE

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

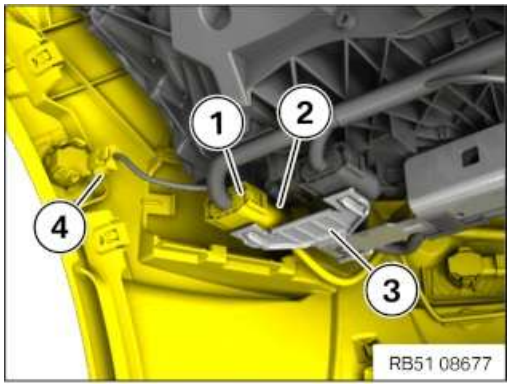
cardiagn.com



- Fit the bumper panel from the front and position it.
- Tighten the screws (1).

Bumper panel, front top

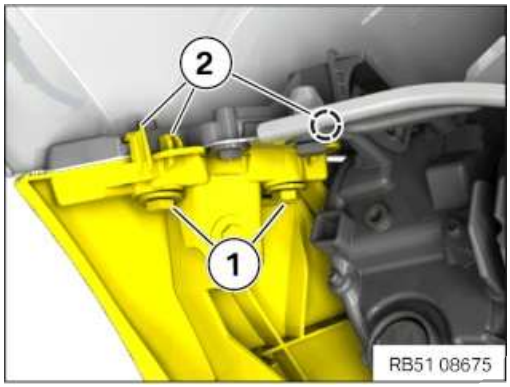
Oval-head screwM6		Tightening torque	4,6 Nm



NOTICE

Perform the operations on the left and right side.

- Clip in the connector (2) in the holder (3).
- Connect connectors (1) and lock.
- If necessary, connect and lock the connector (4).



- Feed in the bumper panel in the guide and clip in with the latch mechanisms (2).

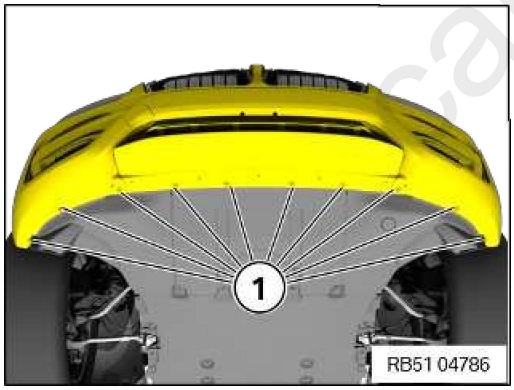
NOTICE

Perform the operations on the left and right side.

- Tighten the screws (1).

Front bumper panel to front side panel

Torx screw 5x35		Tightening torque	3 Nm

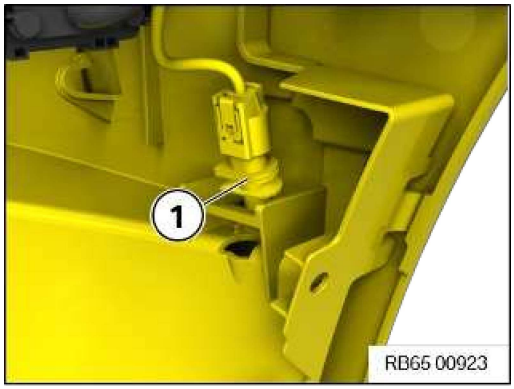


- Tighten the screws (1).

Front bumper panel to underbody protection

Hexagon screw for thermoplastic		Tightening torque	2,6 Nm

9 – Partially installing the temperature sensor



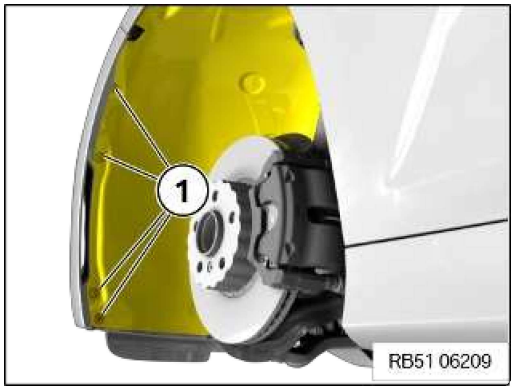
- Clip the temperature sensor (1) downwards into the front bumper panel.

10 – Partially installing the front left and right wheel arch trim panels

NOTICE

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

▸ **Partially installing front wheel arch trim panel**



NOTICE

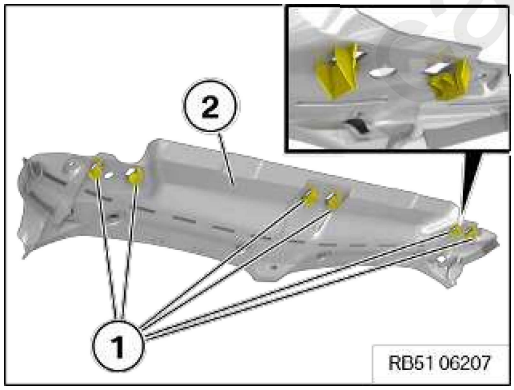
To provide a better overview: Schematic diagram without front wheel.

- Fold back the front wheel arch trim panel.
- Tighten the screws (1).

Wheel arch trim panel, front

Thermoplastic hexagon screw		Tightening torque	2,6 Nm

11 – Installing the cover for the centre engine compartment



Check

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

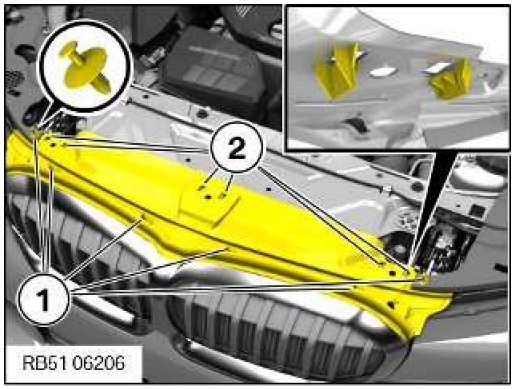
Result

» Latch mechanisms (1) are damaged.

Measure

- Replace the cover (2).

  Parts: Cover

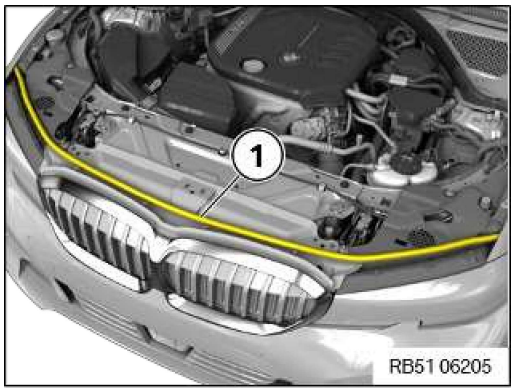


- Insert the cover from the rear and position it.
- Clip in the latch mechanisms (2).
- Mount all expanding rivets (1).

12 – Install the seal for the front bonnet

NOTICE

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



- Position the bonnet seal(1) and connect it on the mounting on the bumper and on the headlights.

Additional Information

Overview of Tightening Torques

Bumper panel, front top — Used in step 8

Oval-head screwM6		Tightening torque	4,6 Nm

Front bumper panel to front side panel — Used in step 8

Torx screw 5x35		Tightening torque	3 Nm

Front bumper panel to underbody protection — Used in step 8

Hexagon screw for thermoplastic		Tightening torque	2,6 Nm

Wheel arch trim panel, front — Used in step 10

Thermoplastic hexagon screw		Tightening torque	2,6 Nm

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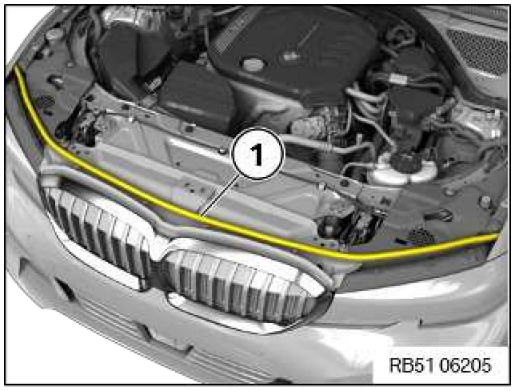
66 20 515 Removing and installing/replacing ultrasonic sensor, front left

PRELIMINARY WORK

1 – Remove the seal for the bonnet in front

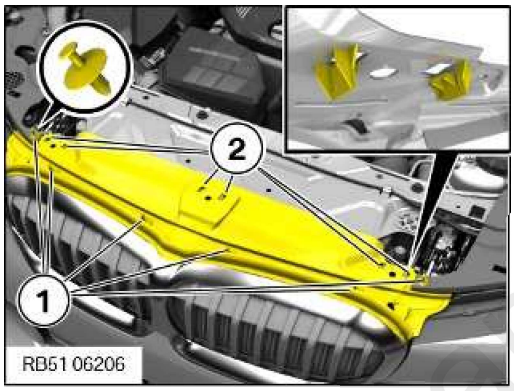
NOTICE

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



- Pull offfront bonnet seal (1) upwards.

2 – Removing the centre engine compartment cover



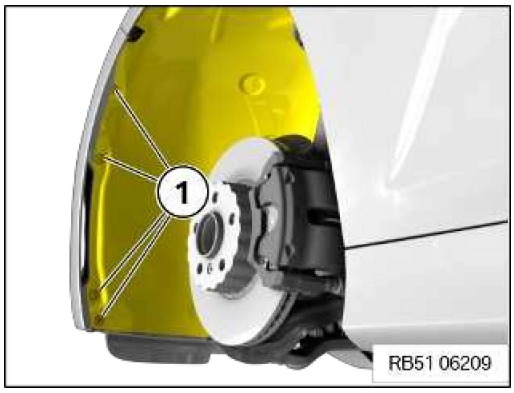
- Detach all expanding rivets (1).
- Release the cover at the latch mechanisms (2) and feed it out to the rear.

3 – Partially releasing the front left and right wheel arch trim panels

NOTICE

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

▸ **Partially removing front wheel arch trim panel**



NOTICE

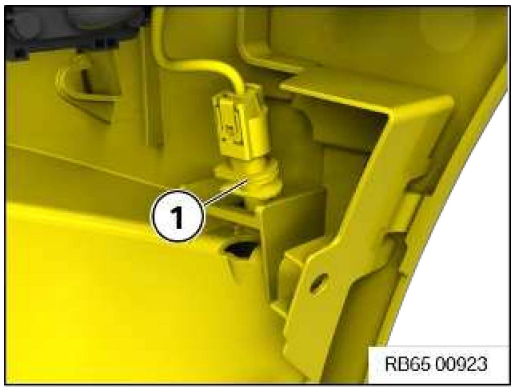
To provide a better overview: Schematic diagram without front wheel.

- Loosen screws (1).
- Fold the front wheel arch trim panel to one side.

4 – Partially removing the temperature sensor

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4 – Partially removing the temperature sensor

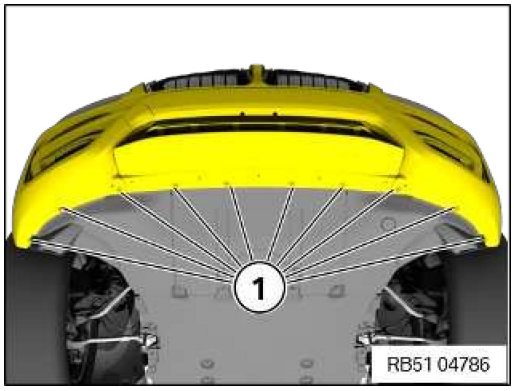


- Unclip temperature sensor (1) from the front bumper panel to the top.

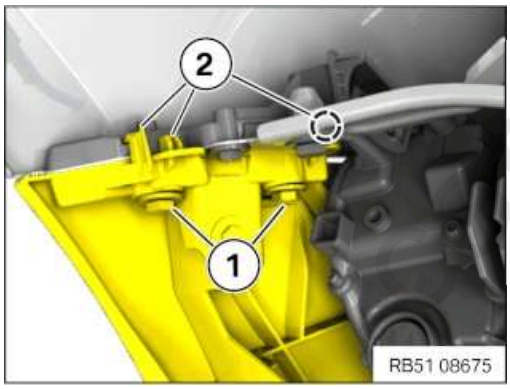
5 – Remove front bumper panel

NOTICE

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



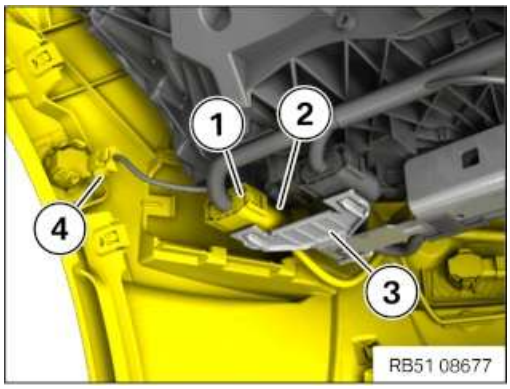
- Loosen screws (1).



NOTICE

Perform the operations on the left and right side.

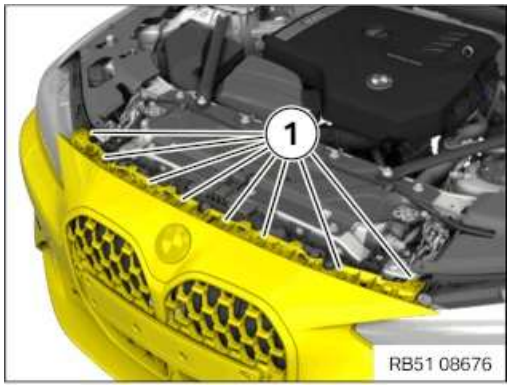
- Loosen screws (1).
- The bumper panel with the latch mechanisms (2) is to be released and removed from the guide.



NOTICE

Perform the operations on the left and right side.

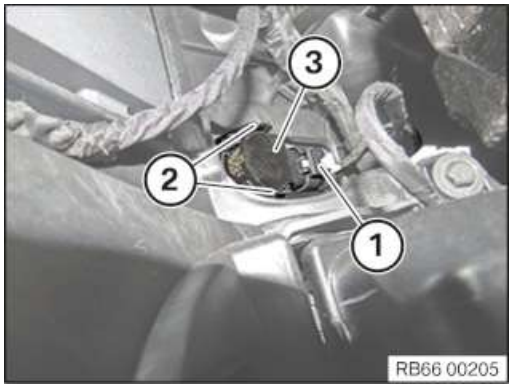
- Unlock plug connection (1) and disconnect.
- Unclip the connector (2) from the holder (3).
- If necessary, unlock and disconnect the plug connection (4).



- Loosen screws (1).
- Remove the bumper panel towards the front.

MAIN WORK

6 – Removing the ultrasonic sensor at the front left



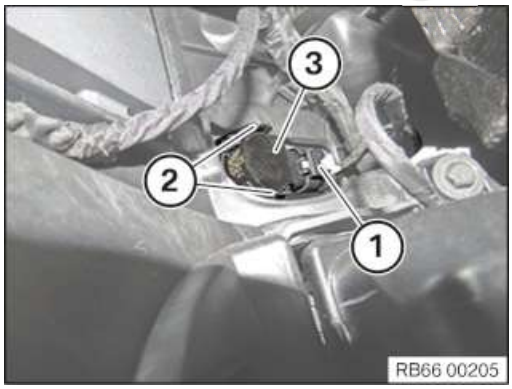
- Unlock plug connection (1) and disconnect.
- Unlock the latch mechanisms (2).
- Remove the ultrasonic sensor (3).

7 – Installing the ultrasonic sensor at the front left



- Check the decoupling ring (1) for damage.

  Decoupling ring (1) must be installed.



- Position the ultrasonic sensor (3) correctly and engage it in the latch mechanisms (2).
- Connect connectors (1) and lock.

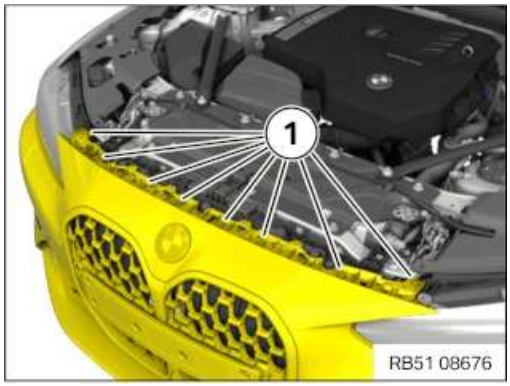
POSTPROCESSES

8 – Install bumper panel, front

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NOTICE

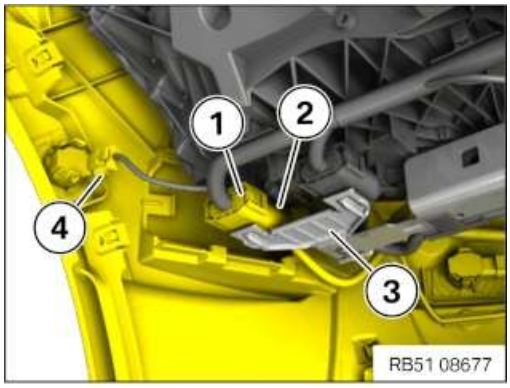
Schematic diagram is for example purposes. Some parts may differ in certain details.



- Fit the bumper panel from the front and position it.
- Tighten the screws (1).

Bumper panel, front top

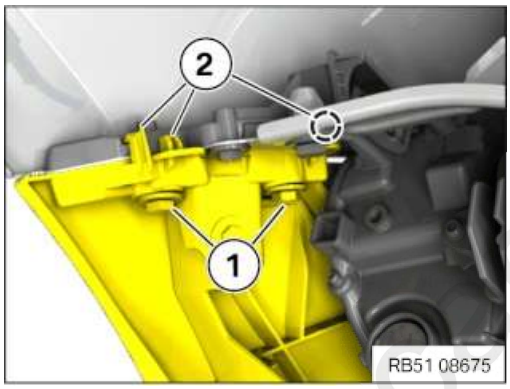
Oval-head screwM6		Tightening torque	4,6 Nm



NOTICE

Perform the operations on the left and right side.

- Clip in the connector (2) in the holder (3).
- Connect connectors (1) and lock.
- If necessary, connect and lock the connector (4).



- Feed in the bumper panel in the guide and clip in with the latch mechanisms (2).

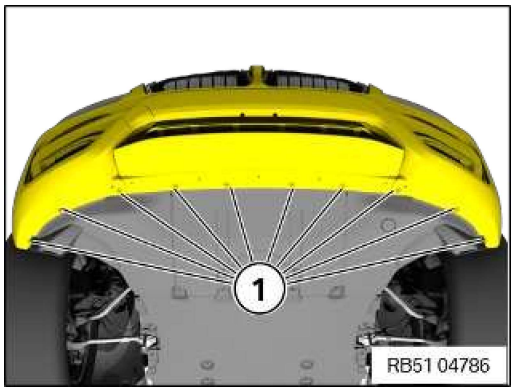
NOTICE

Perform the operations on the left and right side.

- Tighten the screws (1).

Front bumper panel to front side panel

Torx screw 5x35		Tightening torque	3 Nm

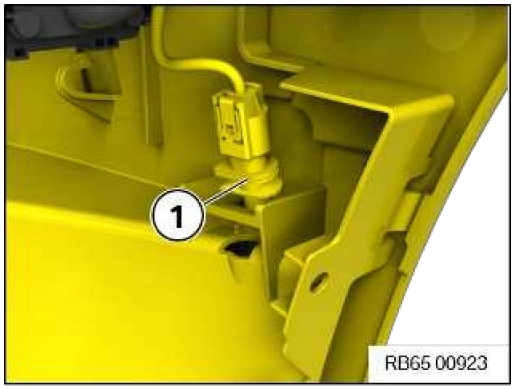


- Tighten the screws (1).

Front bumper panel to underbody protection

Hexagon screw for thermoplastic		Tightening torque	2,6 Nm

9 – Partially installing the temperature sensor



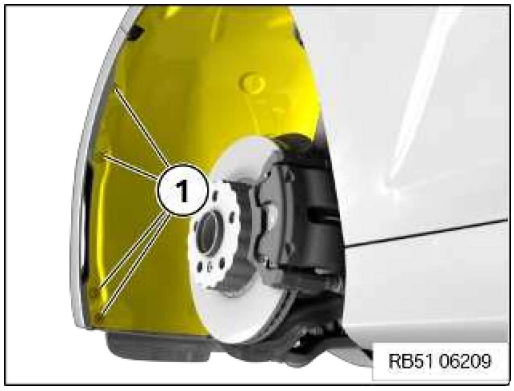
- Clip the temperature sensor (1) downwards into the front bumper panel.

10 – Partially installing the front left and right wheel arch trim panels

NOTICE

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

▸ **Partially installing front wheel arch trim panel**



NOTICE

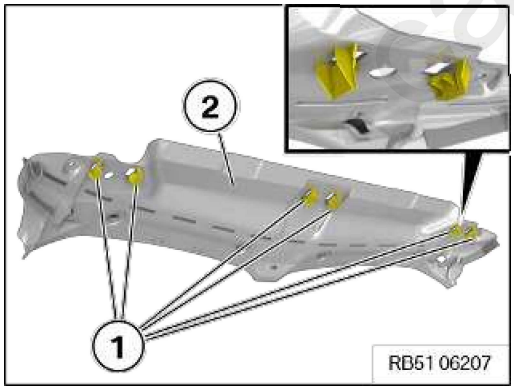
To provide a better overview: Schematic diagram without front wheel.

- Fold back the front wheel arch trim panel.
- Tighten the screws (1).

Wheel arch trim panel, front

Thermoplastic hexagon screw		Tightening torque	2,6 Nm

11 – Installing the cover for the centre engine compartment



Check

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

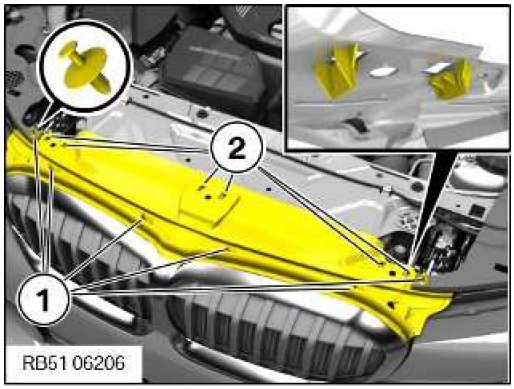
Result

» Latch mechanisms (1) are damaged.

Measure

- Replace the cover (2).

  Parts: Cover

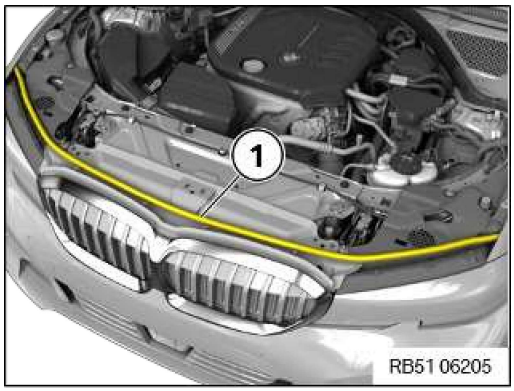


- Insert the cover from the rear and position it.
- Clip in the latch mechanisms (2).
- Mount all expanding rivets (1).

12 – Install the seal for the front bonnet

NOTICE

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



- Position the bonnet seal(1) and connect it on the mounting on the bumper and on the headlights.

Additional Information

Overview of Tightening Torques

Bumper panel, front top — Used in step 8

Oval-head screwM6		Tightening torque	4,6 Nm

Front bumper panel to front side panel — Used in step 8

Torx screw 5x35		Tightening torque	3 Nm

Front bumper panel to underbody protection — Used in step 8

Hexagon screw for thermoplastic		Tightening torque	2,6 Nm

Wheel arch trim panel, front — Used in step 10

Thermoplastic hexagon screw		Tightening torque	2,6 Nm

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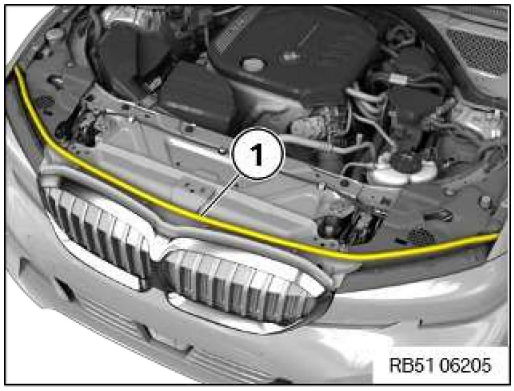
66 20 516 Removing and installing/replacing ultrasonic sensor, front right

PRELIMINARY WORK

1 – Remove the seal for the bonnet in front

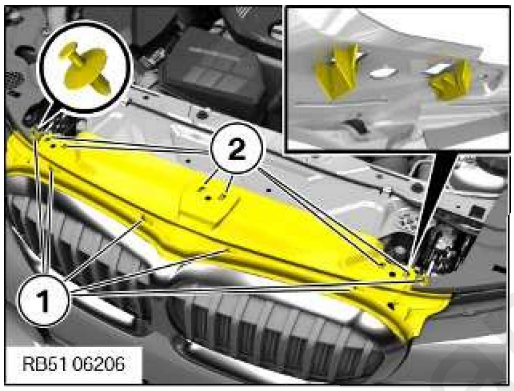
NOTICE

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



- Pull offfront bonnet seal (1) upwards.

2 – Removing the centre engine compartment cover



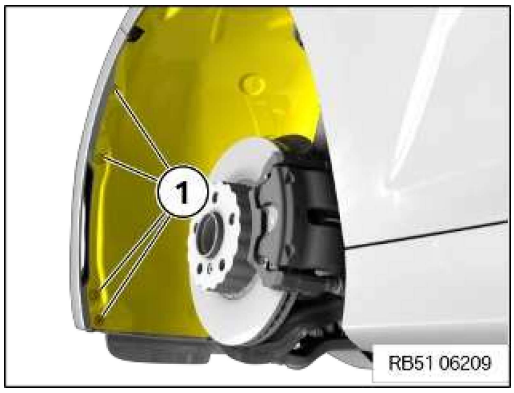
- Detach all expanding rivets (1).
- Release the cover at the latch mechanisms (2) and feed it out to the rear.

3 – Partially releasing the front left and right wheel arch trim panels

NOTICE

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

▸ **Partially removing front wheel arch trim panel**



NOTICE

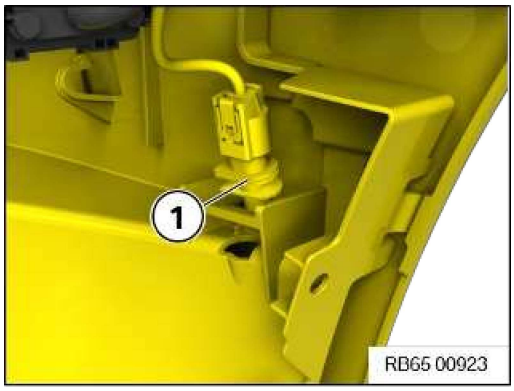
To provide a better overview: Schematic diagram without front wheel.

- Loosen screws (1).
- Fold the front wheel arch trim panel to one side.

4 – Partially removing the temperature sensor

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4 – Partially removing the temperature sensor

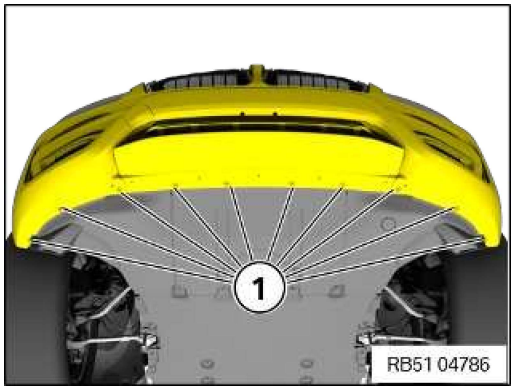


- Unclip temperature sensor (1) from the front bumper panel to the top.

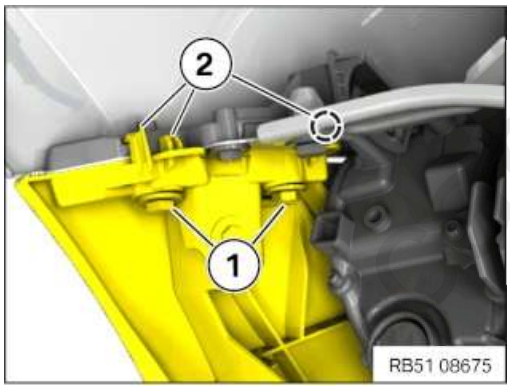
5 – Remove front bumper panel

NOTICE

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



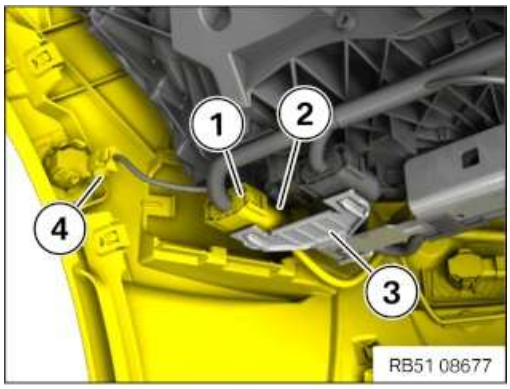
- Loosen screws (1).



NOTICE

Perform the operations on the left and right side.

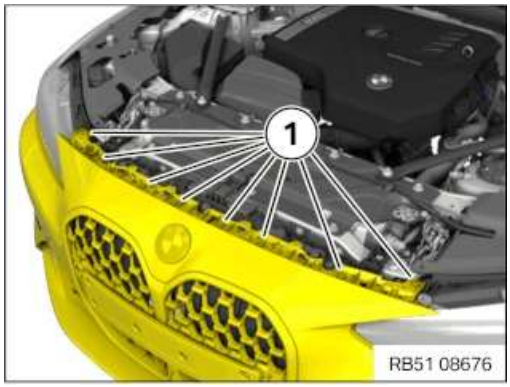
- Loosen screws (1).
- The bumper panel with the latch mechanisms (2) is to be released and removed from the guide.



NOTICE

Perform the operations on the left and right side.

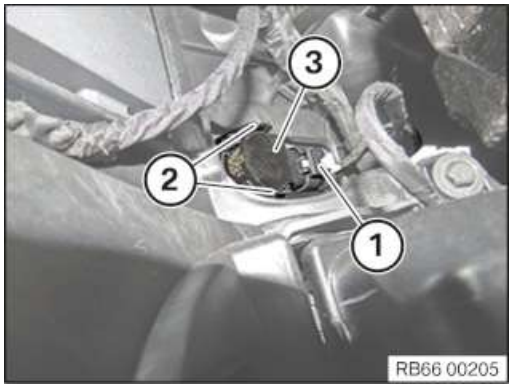
- Unlock plug connection (1) and disconnect.
- Unclip the connector (2) from the holder (3).
- If necessary, unlock and disconnect the plug connection (4).



- Loosen screws (1).
- Remove the bumper panel towards the front.

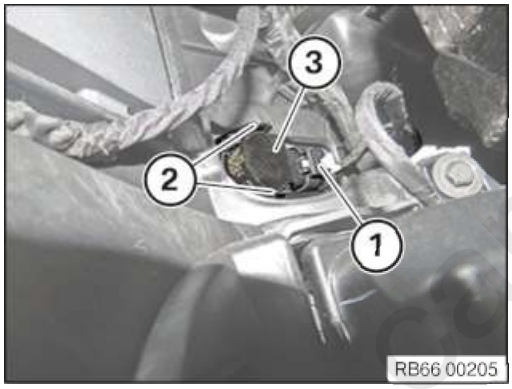
MAIN WORK

6 – Removing the ultrasonic sensor at the front right



- Unlock plug connection (1) and disconnect.
- Unlock the latch mechanisms (2).
- Remove the ultrasonic sensor (3).

7 – Installing the ultrasonic sensor at the front right



- Position the ultrasonic sensor (3) correctly and engage it in the latch mechanisms (2).
- Connect connectors (1) and lock.

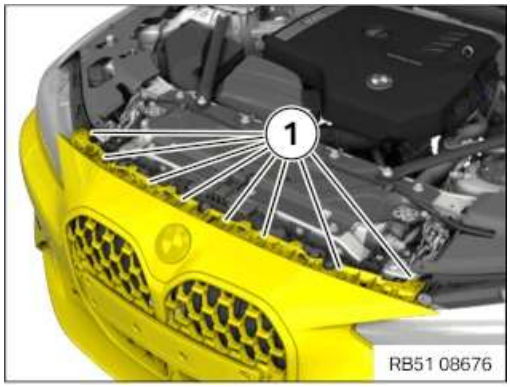
POSTPROCESSES

8 – Install bumper panel, front

NOTICE

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

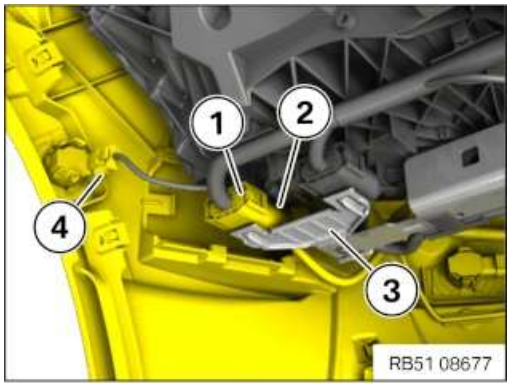
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- Fit the bumper panel from the front and position it.
- Tighten the screws (1).

Bumper panel, front top

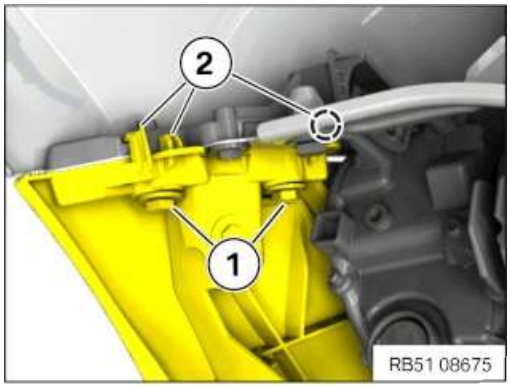
Oval-head screwM6		Tightening torque	4,6 Nm



NOTICE

Perform the operations on the left and right side.

- Clip in the connector (2) in the holder (3).
- Connect connectors (1) and lock.
- If necessary, connect and lock the connector (4).



- Feed in the bumper panel in the guide and clip in with the latch mechanisms (2).

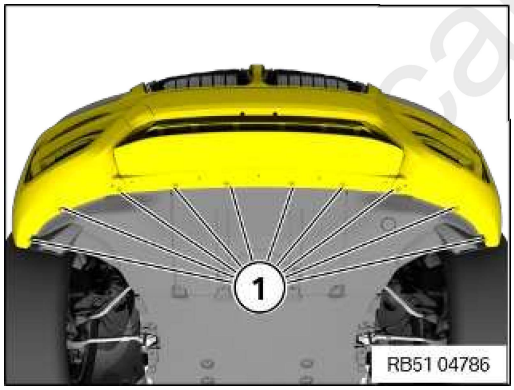
NOTICE

Perform the operations on the left and right side.

- Tighten the screws (1).

Front bumper panel to front side panel

Torx screw 5x35		Tightening torque	3 Nm

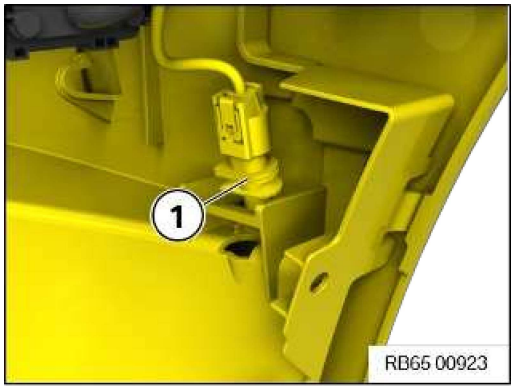


- Tighten the screws (1).

Front bumper panel to underbody protection

Hexagon screw for thermoplastic		Tightening torque	2,6 Nm

9 – Partially installing the temperature sensor



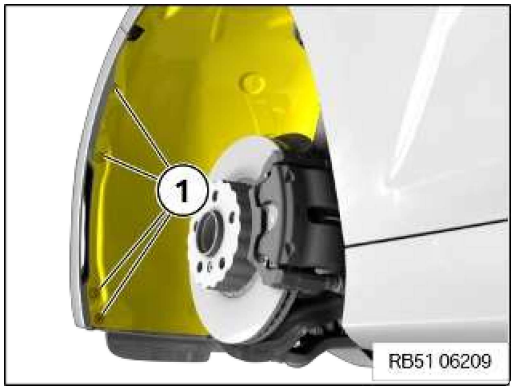
- Clip the temperature sensor (1) downwards into the front bumper panel.

10 – Partially installing the front left and right wheel arch trim panels

NOTICE

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

▸ **Partially installing front wheel arch trim panel**



NOTICE

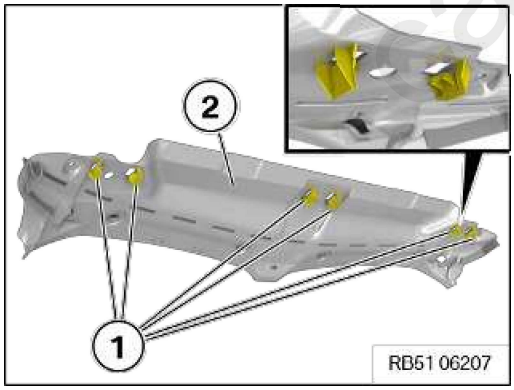
To provide a better overview: Schematic diagram without front wheel.

- Fold back the front wheel arch trim panel.
- Tighten the screws (1).

Wheel arch trim panel, front

Thermoplastic hexagon screw		Tightening torque	2,6 Nm

11 – Installing the cover for the centre engine compartment



Check

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

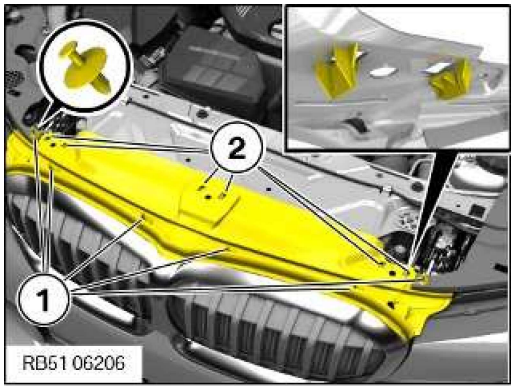
Result

» Latch mechanisms (1) are damaged.

Measure

- Replace the cover (2).

  Parts: Cover

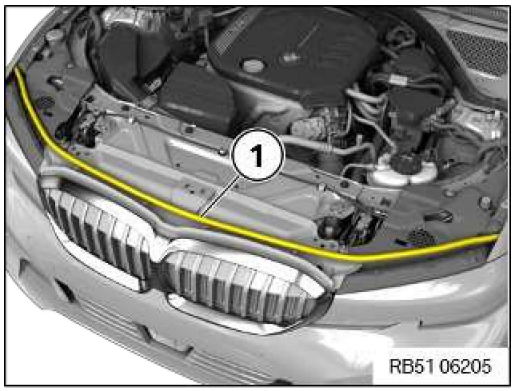


- Insert the cover from the rear and position it.
- Clip in the latch mechanisms (2).
- Mount all expanding rivets (1).

12 – Install the seal for the front bonnet

NOTICE

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



- Position the bonnet seal(1) and connect it on the mounting on the bumper and on the headlights.

Additional Information

Overview of Tightening Torques

Bumper panel, front top — Used in step 8

Oval-head screwM6		Tightening torque	4,6 Nm

Front bumper panel to front side panel — Used in step 8

Torx screw 5x35		Tightening torque	3 Nm

Front bumper panel to underbody protection — Used in step 8

Hexagon screw for thermoplastic		Tightening torque	2,6 Nm

Wheel arch trim panel, front — Used in step 10

Thermoplastic hexagon screw		Tightening torque	2,6 Nm

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66 31 111 Adjust front radar sensor

1 – Adjusting front radar sensor (FRS)

TECHNICAL INFORMATION

Notes on adjusting the ACC sensor are a fundamental requirement for these repair instructions and must be complied with at all times.

For additional information see: 66 31 ... Notes on adjusting the ACC sensor

TECHNICAL INFORMATION

If there is a "Sensor misaligned" fault memory entry and the sensor cannot be aligned correctly using the adjusting screw, a front impact damage may be suspected.

In this case, the vehicle must be inspected thoroughly for damage. Damaged parts must be renewed if necessary. Then adjust the ACC sensor again.

A damaged/bent holder indicates mechanical misuse of the vehicle and must not be charged as a warranty case.

▸ **Checking vehicle and components for damage**

Check

- In the visible areas, visually check for:
  - damage
  - Deformation

Result

» Damage or deformation.

Measure

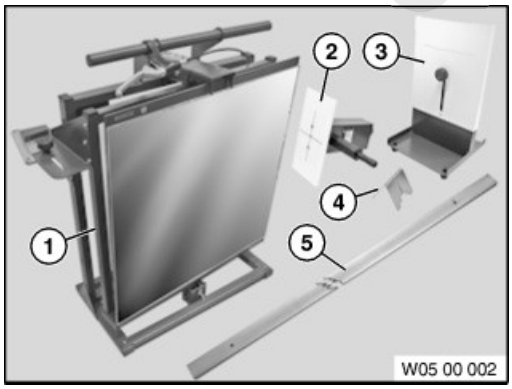
- Identify and renew damaged, deformed vehicle parts.

Result

» No damage or deformation

Measure

- Adjust the front radar sensor (FRS).



- Stage special tools 0 442 898 and 2 338 466.
- Set up special tool as per enclosed operating instructions.



- Connect diagnosis system.
  - Service functions
  - Driver assistance
  - Front radar sensor (FRS)
  - Front radar sensor start-up (FRS)

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NOTICE

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

- Turn the screw (1) with the standard tool to adjust the front radar sensor (FRS).

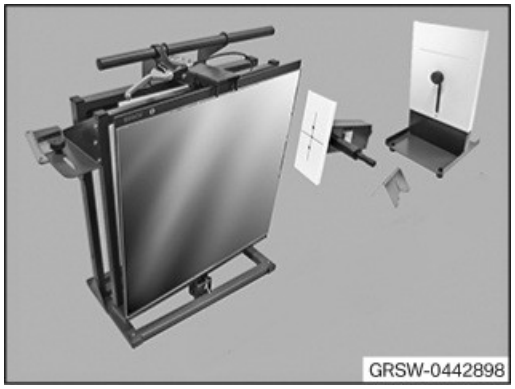
  Standard tools:

  (Shaft length > 90 mm)

Additional Information

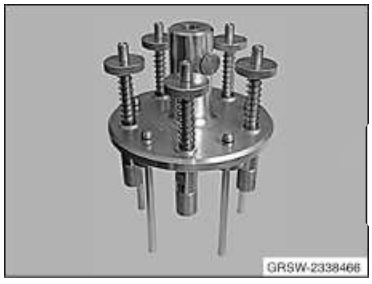
Overview of Special Tools

0 442 898 Measuring device



Common	Used in step 1
Usage	ACC adjusting device. Using this adjusting device, an ACC sensor built into the vehicle can be adjusted in the workshop. Is replaced from 11/2021 by 83 30 5 A40 812.
Included in the tool or work	
Storage location	Individual
Replaced by	
In connection with	
SI-Number	02 04 05 (208)

2 338 466 Holder



Common	Used in step 1
Usage	Replacement for holder 36 1 100 (0493771). Holder has longer guide pins and lengthened magnetic guides.
Included in the tool or work	
Storage location	Individual
Replaced by	
In connection with	
SI-Number	

Links

Functional descriptions	Used in step
Mirror adjustment for start-up of the front radar sensor	1
Mirror adjustment for start-up of the front radar sensor	1
Mirror adjustment to start up the front radar sensor long range	1
Mirror adjustment to start up the front radar sensor long range	1
Mirror adjustment for start-up of the front radar sensor	

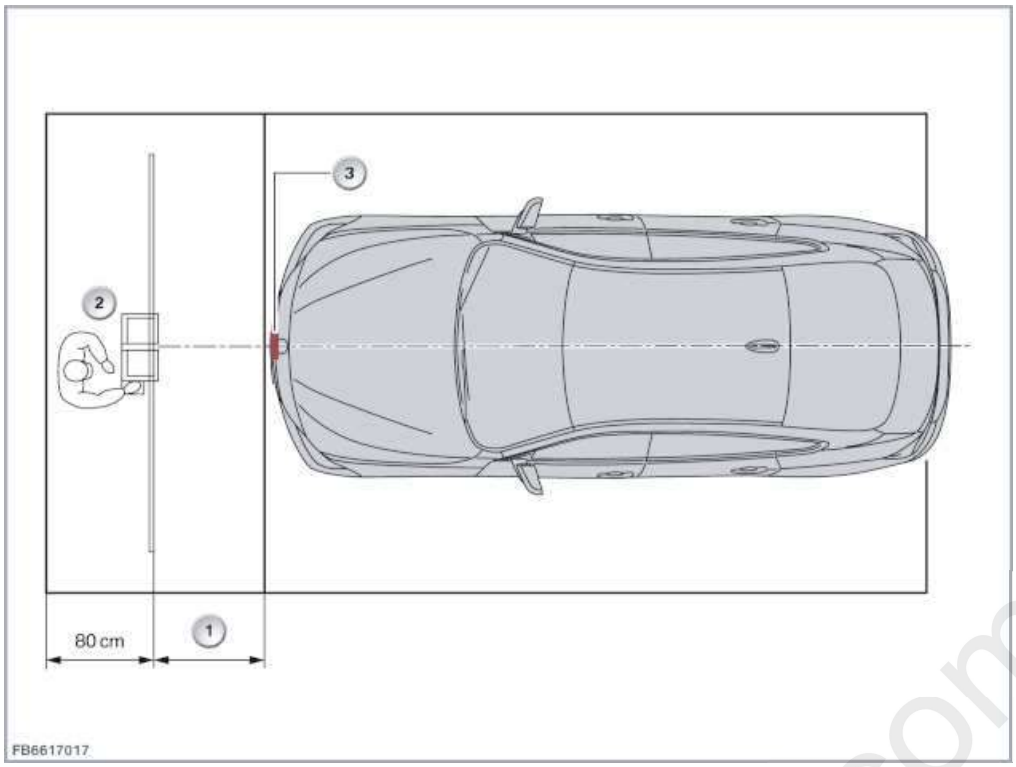
Repair instructions	Used in step

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66 31 010 Instructions for ACC adjusting device

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66 31 010 Instructions for ACC adjusting device



Requirements for the measurement area for ACC adjusting device

Dimensions:

1. Area behind the mirror of at least 80 cm that cane be entered

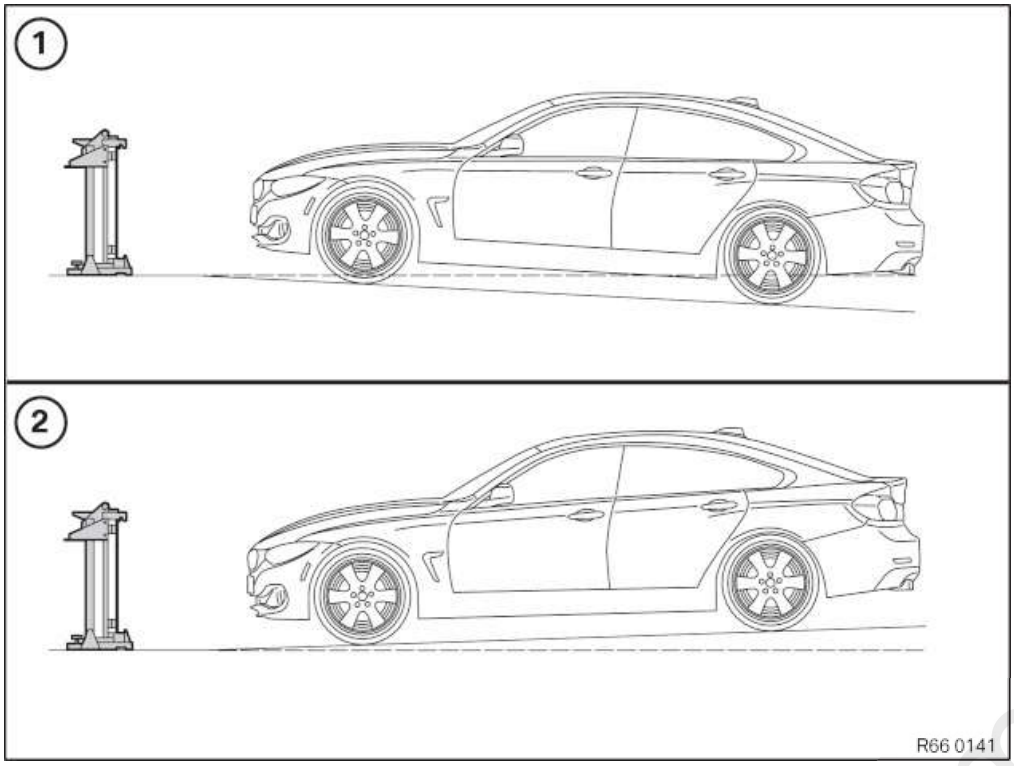
   For information about the required distance (1) between front radar sensor / front radar sensor long range and mirror for the correct adjustment,

   refer to the vehicle-specific service function.
2. Total area of work area 360 cm x 660 cm

Maximum irregularity of floor surface:

- Floor surface - adjusting device ≤ 1 mm
- Floor surface - vehicle ≤ 10 mm

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Maximum angle of inclination of floor surface - vehicle:

- Downward incline of floor surface maximum 3°, see graphic above (1)
- Upward incline of floor surface maximum 1°, see graphic above (2)

Note:
Setting up the ACC adjusting device (one-off task) comprises the following steps:

- Assembly of adjusting device
- Assembly of rail
- Basic setting of adjusting device on measurement area

Detailed setup and operating instructions are enclosed with every ACC adjusting device.

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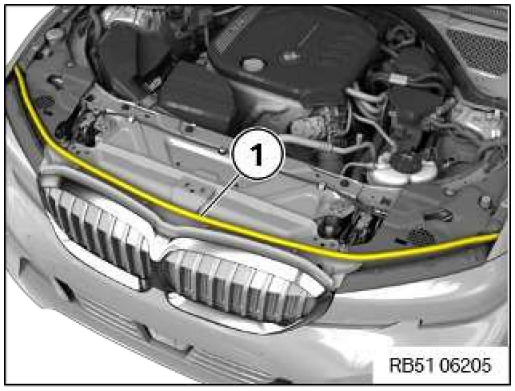
66 31 120 Removing and installing front radar sensor

PRELIMINARY WORK

1 – Remove the seal for the bonnet in front

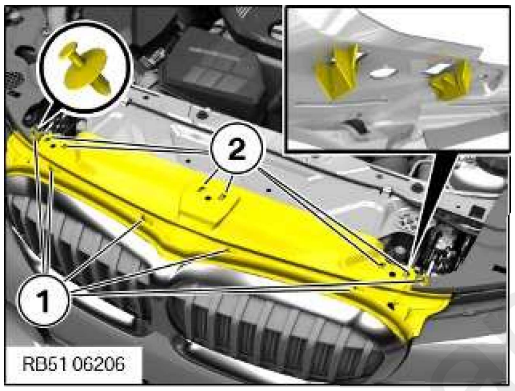
NOTICE

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



- Pull offfront bonnet seal (1) upwards.

2 – Removing the centre engine compartment cover



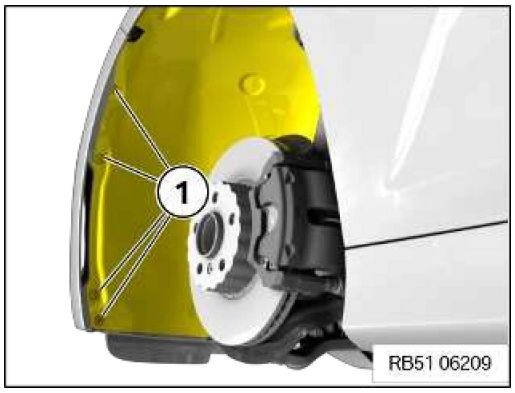
- Detach all expanding rivets (1).
- Release the cover at the latch mechanisms (2) and feed it out to the rear.

3 – Partially releasing the front left and right wheel arch trim panels

NOTICE

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

▸ **Partially removing front wheel arch trim panel**



NOTICE

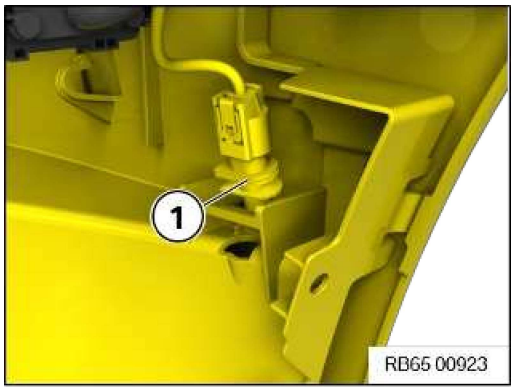
To provide a better overview: Schematic diagram without front wheel.

- Loosen screws (1).
- Fold the front wheel arch trim panel to one side.

4 – Partially removing the temperature sensor

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4 – Partially removing the temperature sensor

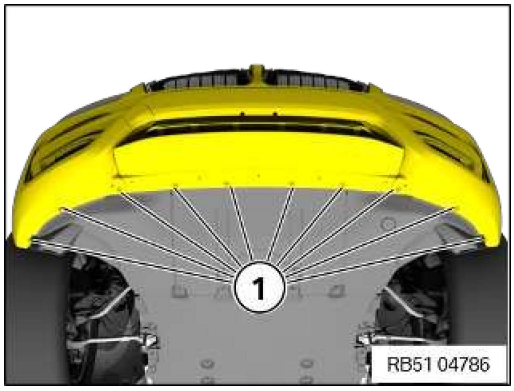


- Unclip temperature sensor (1) from the front bumper panel to the top.

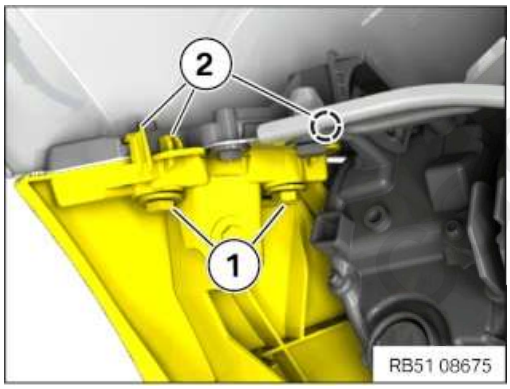
5 – Remove front bumper panel

NOTICE

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



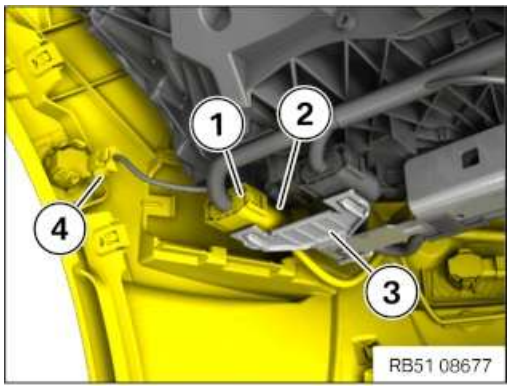
- Loosen screws (1).



NOTICE

Perform the operations on the left and right side.

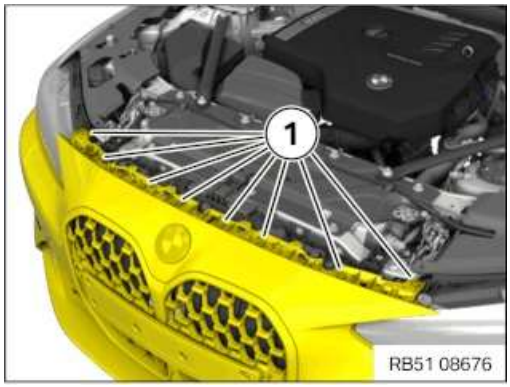
- Loosen screws (1).
- The bumper panel with the latch mechanisms (2) is to be released and removed from the guide.



NOTICE

Perform the operations on the left and right side.

- Unlock plug connection (1) and disconnect.
- Unclip the connector (2) from the holder (3).
- If necessary, unlock and disconnect the plug connection (4).



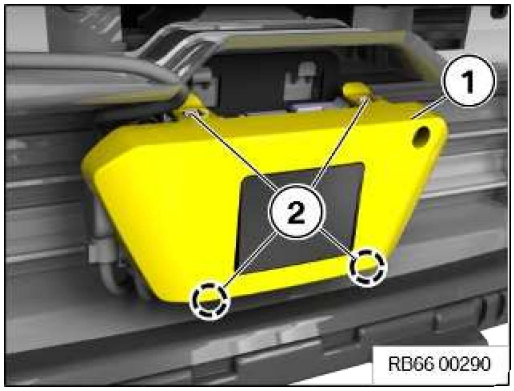
- Loosen screws (1).
- Remove the bumper panel towards the front.

MAIN WORK

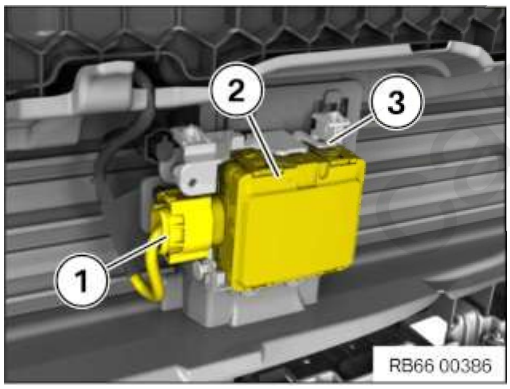
6 – Removing the front radar sensor (FRS)

NOTICE

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



- Release cover (1) from latch mechanisms (2) and remove it to the front.



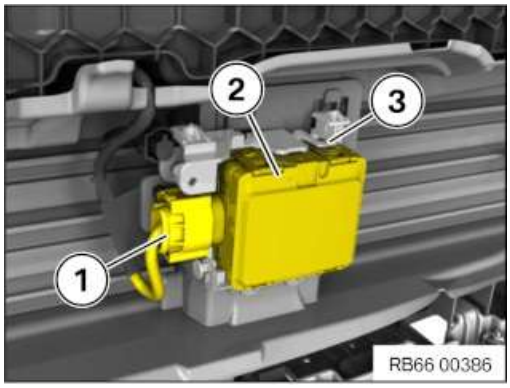
- Unlock plug connection (1) and disconnect.
- Release FRS (2) from latch mechanism (3).
- Fold FRS (2) to the front and guide it out upwards.

7 – Installing the front radar sensor (FRS)

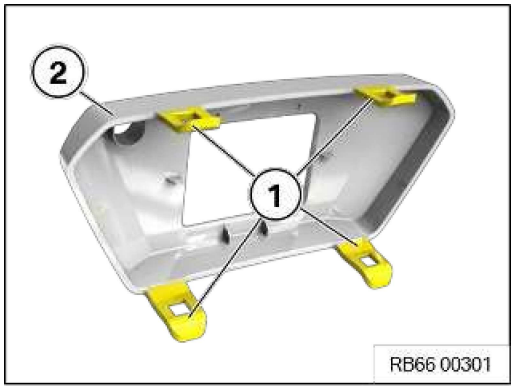
NOTICE

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

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- Feed in the FRS (2) from the top.
- Fold the FRS (2) inwards and clip it in the latch mechanism (3) .
- Connect connectors (1) and lock.



Check

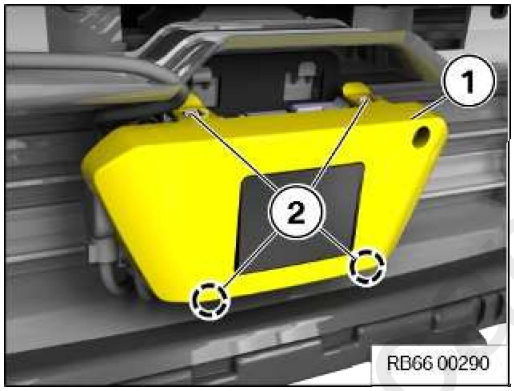
- Check the tabs (1) at the cover (2) for damage.

Result

» Tabs (1) are damaged.

Measure

- Replace the cover (2).



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

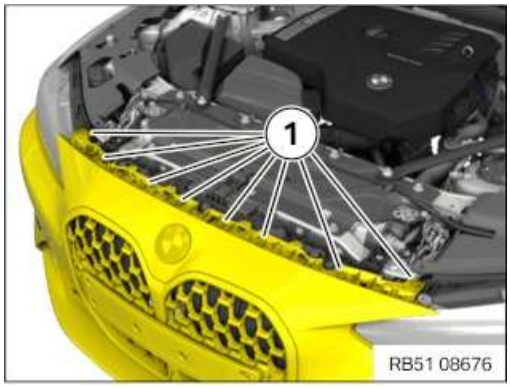
POSTPROCESSES

8 – Install bumper panel, front

NOTICE

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

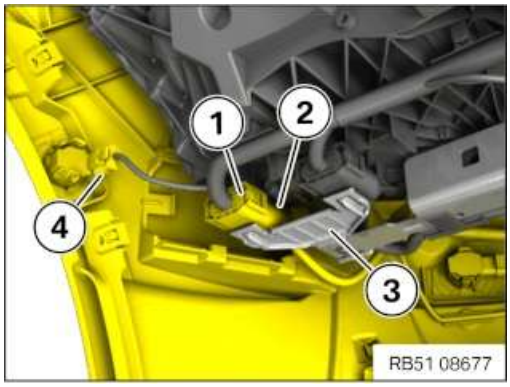
carldiagn.com



- Fit the bumper panel from the front and position it.
- Tighten the screws (1).

Bumper panel, front top

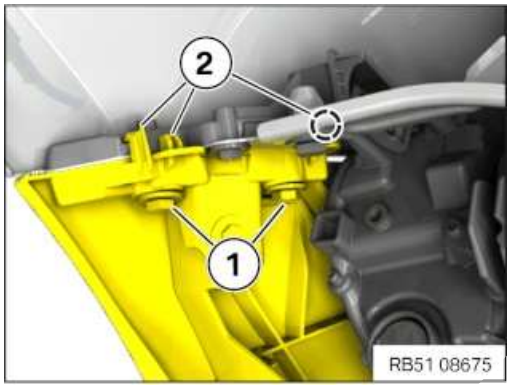
Oval-head screwM6		Tightening torque	4,6 Nm



NOTICE

Perform the operations on the left and right side.

- Clip in the connector (2) in the holder (3).
- Connect connectors (1) and lock.
- If necessary, connect and lock the connector (4).



- Feed in the bumper panel in the guide and clip in with the latch mechanisms (2).

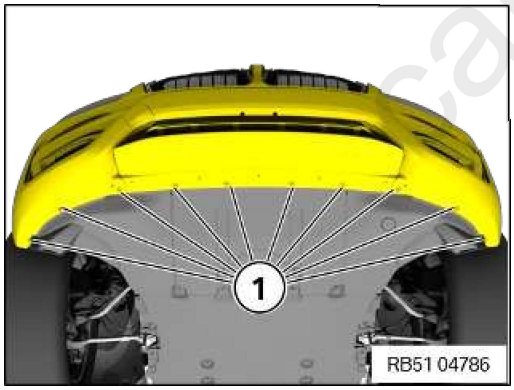
NOTICE

Perform the operations on the left and right side.

- Tighten the screws (1).

Front bumper panel to front side panel

Torx screw 5x35		Tightening torque	3 Nm

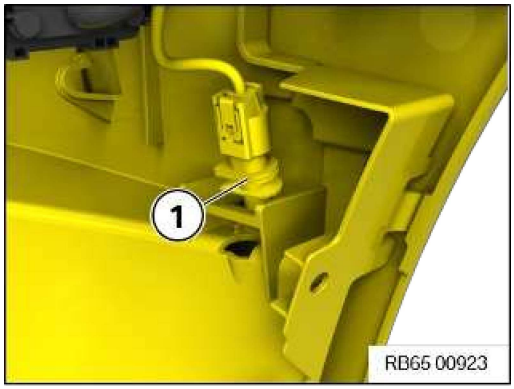


- Tighten the screws (1).

Front bumper panel to underbody protection

Hexagon screw for thermoplastic		Tightening torque	2,6 Nm

9 – Partially installing the temperature sensor



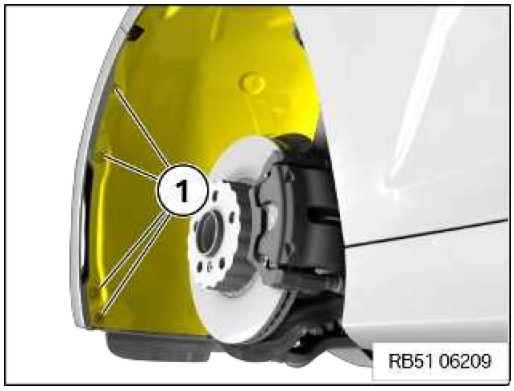
- Clip the temperature sensor (1) downwards into the front bumper panel.

10 – Partially installing the front left and right wheel arch trim panels

NOTICE

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

▸ **Partially installing front wheel arch trim panel**



NOTICE

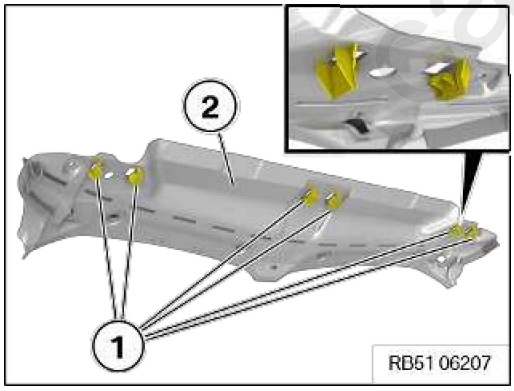
To provide a better overview: Schematic diagram without front wheel.

- Fold back the front wheel arch trim panel.
- Tighten the screws (1).

Wheel arch trim panel, front

Thermoplastic hexagon screw		Tightening torque	2,6 Nm

11 – Installing the cover for the centre engine compartment



Check

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

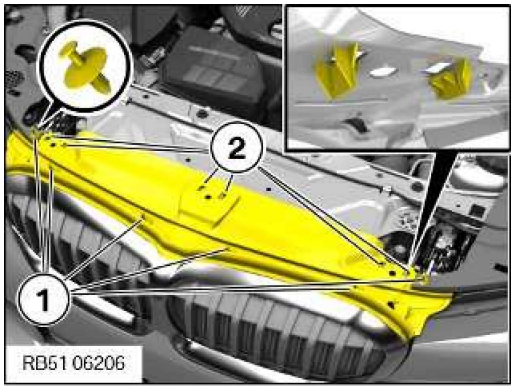
Result

» Latch mechanisms (1) are damaged.

Measure

- Replace the cover (2).

  Parts: Cover

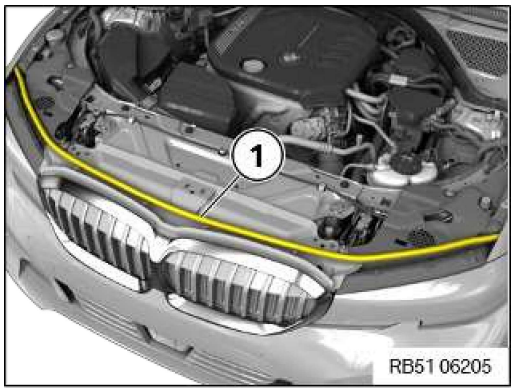


- Insert the cover from the rear and position it.
- Clip in the latch mechanisms (2).
- Mount all expanding rivets (1).

12 – Install the seal for the front bonnet

NOTICE

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



- Position the bonnet seal(1) and connect it on the mounting on the bumper and on the headlights.

Additional Information

Overview of Tightening Torques

Bumper panel, front top — Used in step 8

Oval-head screwM6		Tightening torque	4,6 Nm

Front bumper panel to front side panel — Used in step 8

Torx screw 5x35		Tightening torque	3 Nm

Front bumper panel to underbody protection — Used in step 8

Hexagon screw for thermoplastic		Tightening torque	2,6 Nm

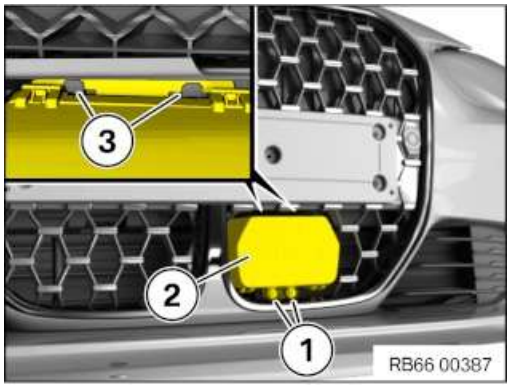
Wheel arch trim panel, front — Used in step 10

Thermoplastic hexagon screw		Tightening torque	2,6 Nm

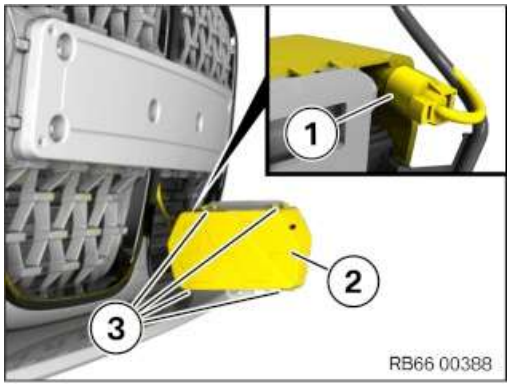
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66 31 115 Removing and installing the front radar sensor long range

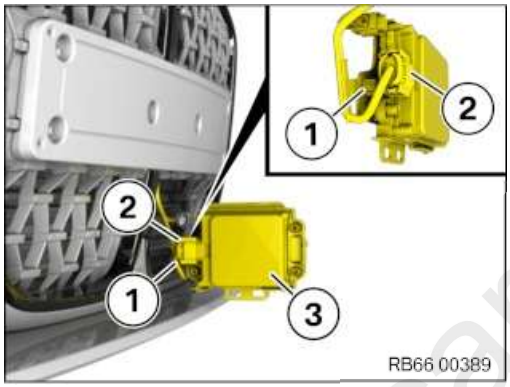
1 – Removing the front radar sensor long range (FRSF)



- Loosen screws (1).
- Slide the FRSF (2) up slightly and feed it out of the guides(3) .
- Feed out the FRSF (2) via the front ornamental grille.

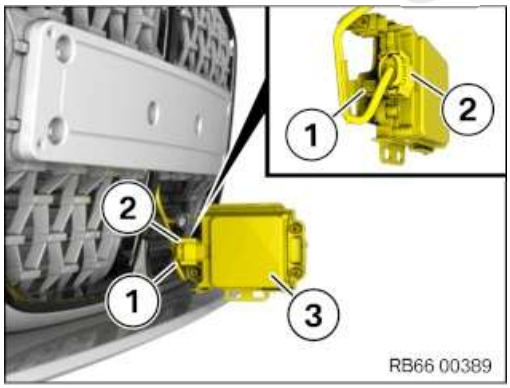


- Unlock plug connection (1) and disconnect.
- Release the radome (2) from the latch mechanisms(3) and remove it.



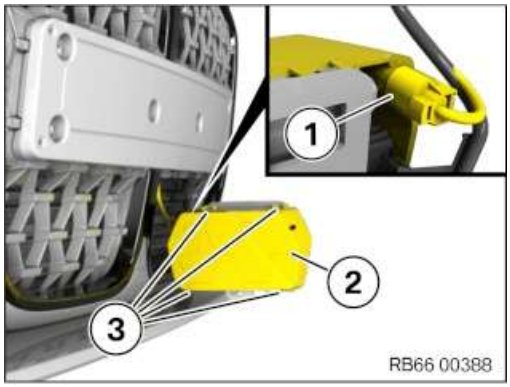
- Unclip the wiring harness with the holder (1).
- Unlock the plug connection (2), disconnect it and remove FRSF(3) .

2 – Installing the front radar sensor long range (FRSF)

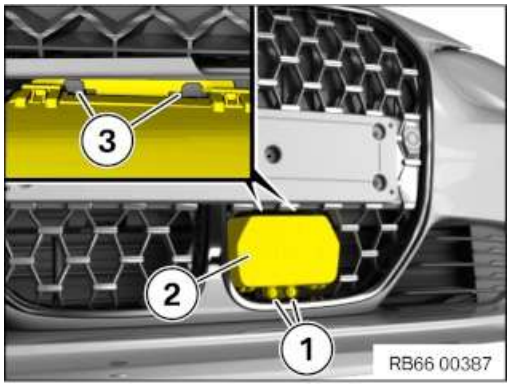


- Install the FRSF (3).
- Connect connectors (2) and lock.
- Clip in the wiring harness with the holder (1).

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- Position the radome (2) and clip it in with the latch mechanisms (3) .
- Connect connectors (1) and lock.



- Feed in the FRSF (2) through the radiator grille.
- Install the FRSF (2) and insert it from the top in the guides (3) .
- Tighten the screws (1).

Front radar sensor (FRS) / (FRSF) holder to support

Combination oval-head machine screw		Tightening torque	8 Nm

3 – Adjusting front radar sensor (FRS)

TECHNICAL INFORMATION

Notes on adjusting the ACC sensor are a fundamental requirement for these repair instructions and must be complied with at all times.

For additional information see: 66 31 ... Notes on adjusting the ACC sensor

TECHNICAL INFORMATION

If there is a "Sensor misaligned" fault memory entry and the sensor cannot be aligned correctly using the adjusting screw, a front impact damage may be suspected.

In this case, the vehicle must be inspected thoroughly for damage. Damaged parts must be renewed if necessary. Then adjust the ACC sensor again.

A damaged/bent holder indicates mechanical misuse of the vehicle and must not be charged as a warranty case.

▸ **Checking vehicle and components for damage**

Check

- In the visible areas, visually check for:
  - damage
  - Deformation

Result

» Damage or deformation.

Measure

- Identify and renew damaged, deformed vehicle parts.

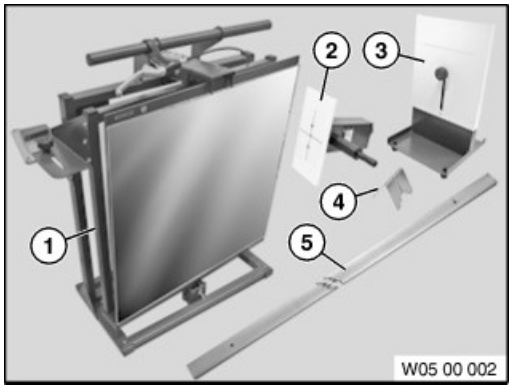
Result

» No damage or deformation

Measure

- Adjust the front radar sensor (FRS).

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- Stage special tools 0 442 898 and 2 338 466.
- Set up special tool as per enclosed operating instructions.



- Connect diagnosis system.
  - Service functions
  - Driver assistance
  - Front radar sensor (FRS)
  - Front radar sensor start-up (FRS)



NOTICE

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

- Turn the screw (1) with the standard tool to adjust the front radar sensor (FRS).

  Standard tools:

  (Shaft length > 90 mm)

Additional Information

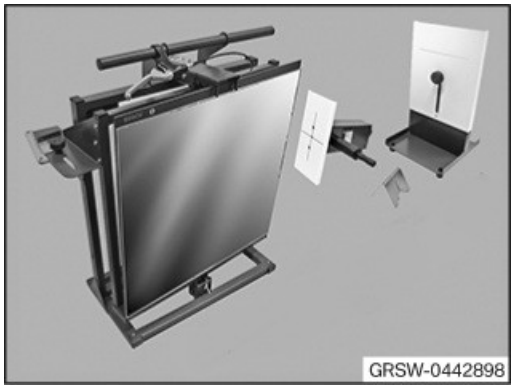
Overview of Tightening Torques

Front radar sensor (FRS) / (FRSF) holder to support Used in step 2

Combination oval-head machine screw		Tightening torque	8 Nm

Overview of Special Tools

0 442 898 Measuring device

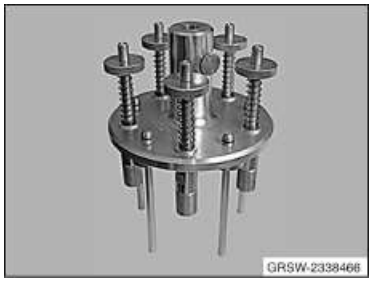


Common Used in step 3

Usage	ACC adjusting device. Using this adjusting device, an ACC sensor built into the vehicle can be adjusted in the workshop. Is replaced from 11/2021 by 83 30 5 A40 812.
Included in the tool or work	
Storage location	Individual
Replaced by	
In connection with	
SI-Number	02 04 05 (208)

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2 338 466 Holder



Common	Used in step 3
Usage	Replacement for holder 36 1 100 (0493771). Holder has longer guide pins and lengthened magnetic guides.
Included in the tool or work	
Storage location	Individual
Replaced by	
In connection with	
SI-Number	

Links

Functional descriptions	Used in step
Mirror adjustment for start-up of the front radar sensor	3
Mirror adjustment for start-up of the front radar sensor	3
Mirror adjustment to start up the front radar sensor long range	3
Mirror adjustment to start up the front radar sensor long range	3

Repair instructions	Used in step
66 31 010 Instructions for ACC adjusting device	3

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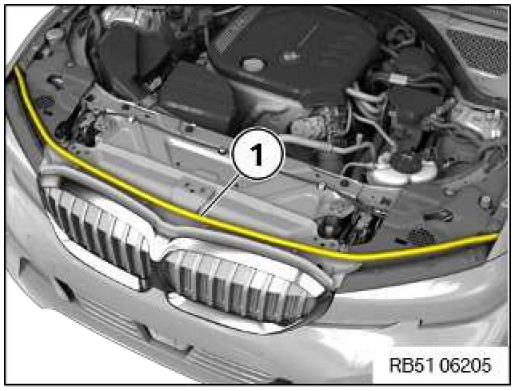
66 31 621 Replace front radar sensor

PRELIMINARY WORK

1 – Remove the seal for the bonnet in front

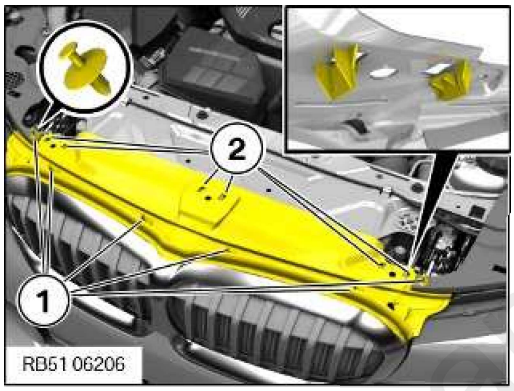
NOTICE

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



- Pull offfront bonnet seal (1) upwards.

2 – Removing the centre engine compartment cover



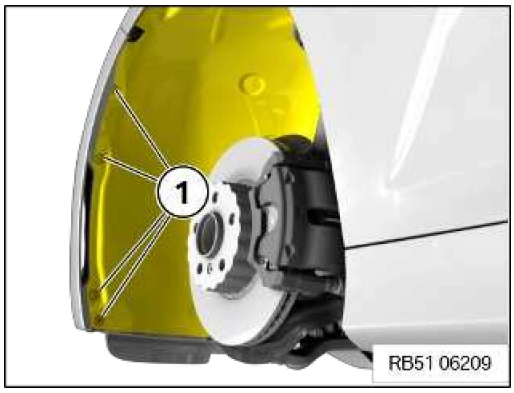
- Detach all expanding rivets (1).
- Release the cover at the latch mechanisms (2) and feed it out to the rear.

3 – Partially releasing the front left and right wheel arch trim panels

NOTICE

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

▸ **Partially removing front wheel arch trim panel**



NOTICE

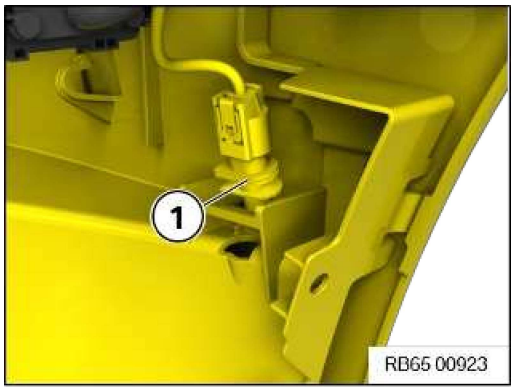
To provide a better overview: Schematic diagram without front wheel.

- Loosen screws (1).
- Fold the front wheel arch trim panel to one side.

4 – Partially removing the temperature sensor

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4 – Partially removing the temperature sensor

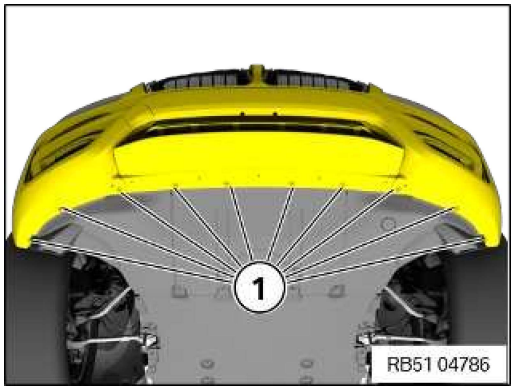


- Unclip temperature sensor (1) from the front bumper panel to the top.

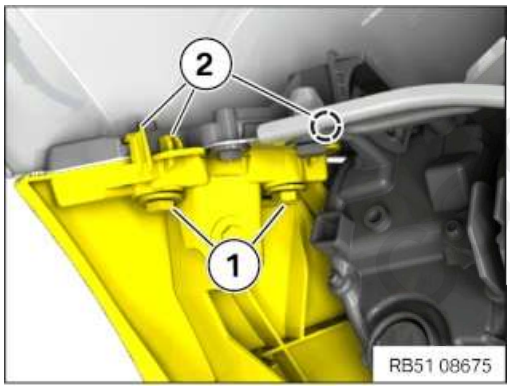
5 – Remove front bumper panel

NOTICE

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



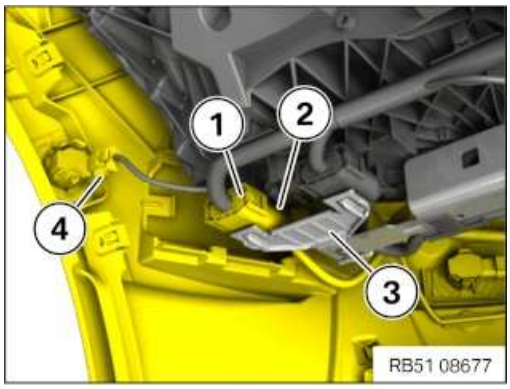
- Loosen screws (1).



NOTICE

Perform the operations on the left and right side.

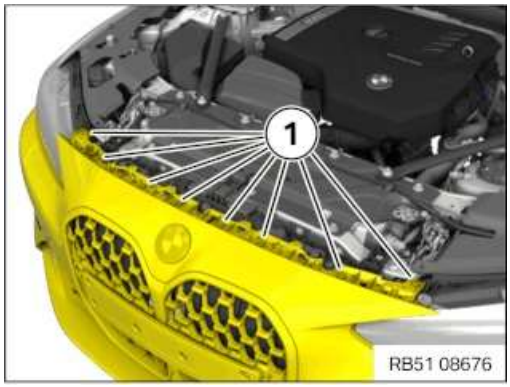
- Loosen screws (1).
- The bumper panel with the latch mechanisms (2) is to be released and removed from the guide.



NOTICE

Perform the operations on the left and right side.

- Unlock plug connection (1) and disconnect.
- Unclip the connector (2) from the holder (3).
- If necessary, unlock and disconnect the plug connection (4).



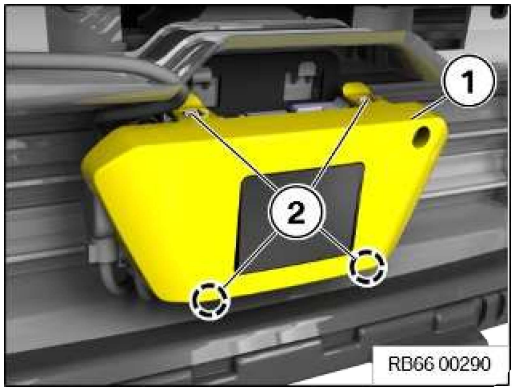
- Loosen screws (1).
- Remove the bumper panel towards the front.

MAIN WORK

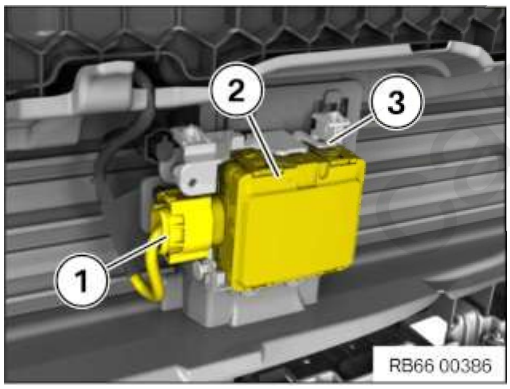
6 – Removing the front radar sensor (FRS)

NOTICE

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



- Release cover (1) from latch mechanisms (2) and remove it to the front.



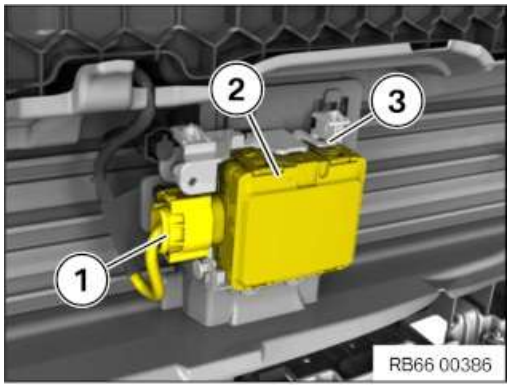
- Unlock plug connection (1) and disconnect.
- Release FRS (2) from latch mechanism (3).
- Fold FRS (2) to the front and guide it out upwards.

7 – Installing the front radar sensor (FRS)

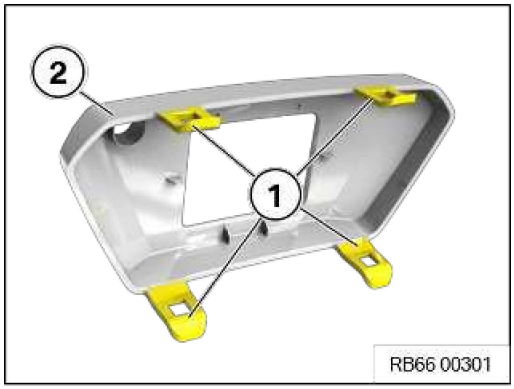
NOTICE

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

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- Feed in the FRS (2) from the top.
- Fold the FRS (2) inwards and clip it in the latch mechanism (3) .
- Connect connectors (1) and lock.



Check

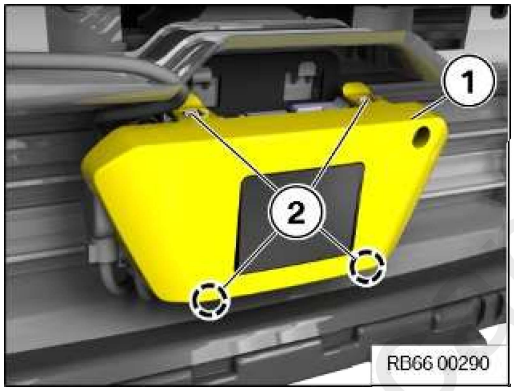
- Check the tabs (1) at the cover (2) for damage.

Result

» Tabs (1) are damaged.

Measure

- Replace the cover (2).



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

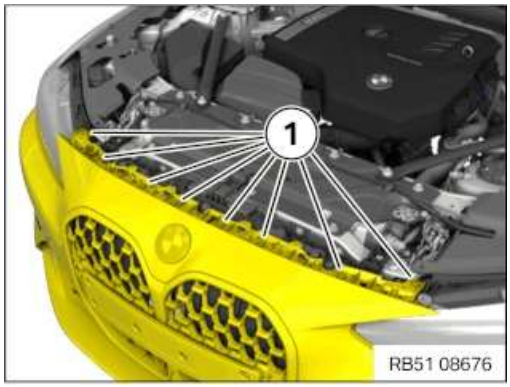
POSTPROCESSES

8 – Install bumper panel, front

NOTICE

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

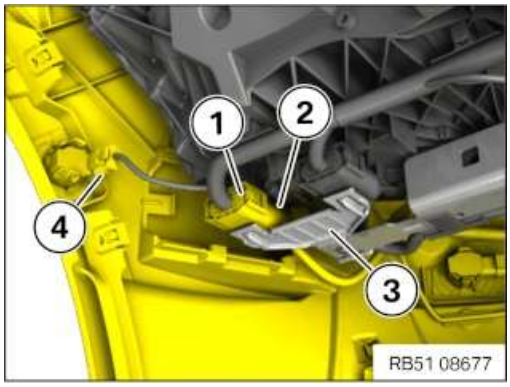
carldiagn.com



- Fit the bumper panel from the front and position it.
- Tighten the screws (1).

Bumper panel, front top

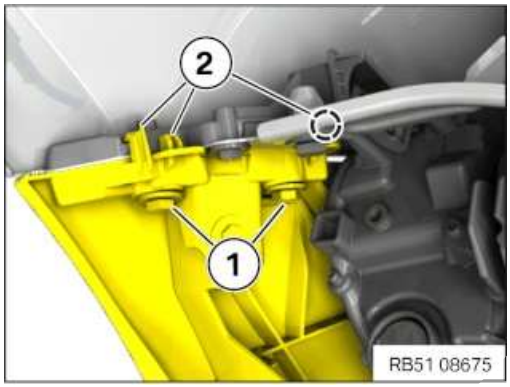
Oval-head screwM6		Tightening torque	4,6 Nm



NOTICE

Perform the operations on the left and right side.

- Clip in the connector (2) in the holder (3).
- Connect connectors (1) and lock.
- If necessary, connect and lock the connector (4).



- Feed in the bumper panel in the guide and clip in with the latch mechanisms (2).

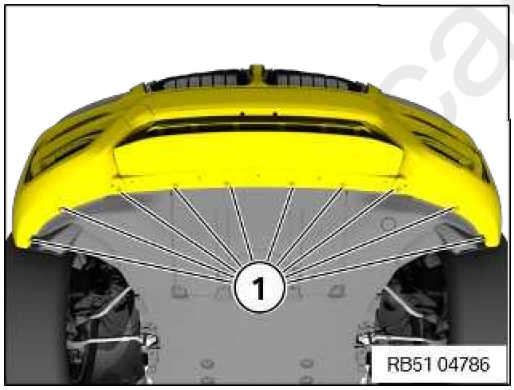
NOTICE

Perform the operations on the left and right side.

- Tighten the screws (1).

Front bumper panel to front side panel

Torx screw 5x35		Tightening torque	3 Nm

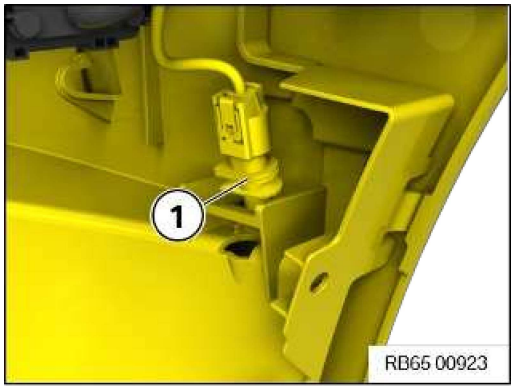


- Tighten the screws (1).

Front bumper panel to underbody protection

Hexagon screw for thermoplastic		Tightening torque	2,6 Nm

9 – Partially installing the temperature sensor



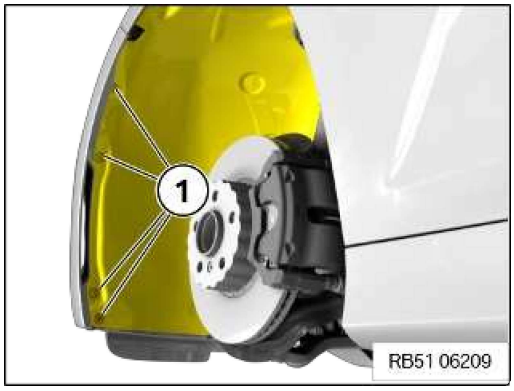
- Clip the temperature sensor (1) downwards into the front bumper panel.

10 – Partially installing the front left and right wheel arch trim panels

NOTICE

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

▸ **Partially installing front wheel arch trim panel**



NOTICE

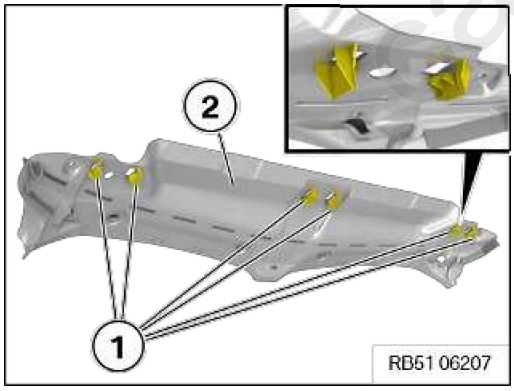
To provide a better overview: Schematic diagram without front wheel.

- Fold back the front wheel arch trim panel.
- Tighten the screws (1).

Wheel arch trim panel, front

Thermoplastic hexagon screw		Tightening torque	2,6 Nm

11 – Installing the cover for the centre engine compartment



Check

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

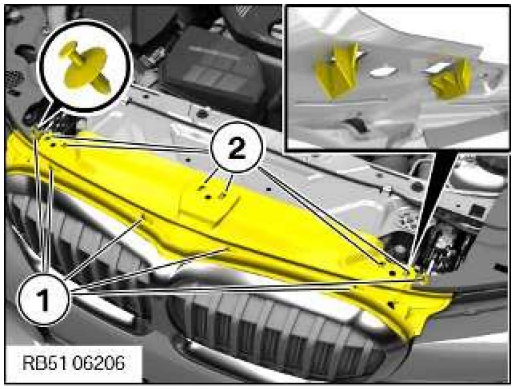
Result

» Latch mechanisms (1) are damaged.

Measure

- Replace the cover (2).

  Parts: Cover

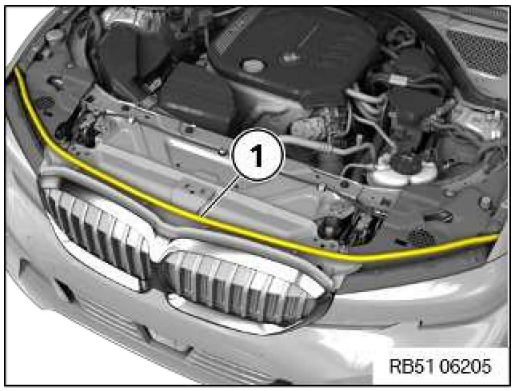


- Insert the cover from the rear and position it.
- Clip in the latch mechanisms (2).
- Mount all expanding rivets (1).

12 – Install the seal for the front bonnet

NOTICE

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



- Position the bonnet seal(1) and connect it on the mounting on the bumper and on the headlights.

13 – Adjusting front radar sensor (FRS)

TECHNICAL INFORMATION

Notes on adjusting the ACC sensor are a fundamental requirement for these repair instructions and must be complied with at all times.

For additional information see: 66 31 ... Notes on adjusting the ACC sensor

TECHNICAL INFORMATION

If there is a "Sensor misaligned" fault memory entry and the sensor cannot be aligned correctly using the adjusting screw, a front impact damage may be suspected.

In this case, the vehicle must be inspected thoroughly for damage. Damaged parts must be renewed if necessary. Then adjust the ACC sensor again.

A damaged/bent holder indicates mechanical misuse of the vehicle and must not be charged as a warranty case.

▸ **Checking vehicle and components for damage**

Check

- In the visible areas, visually check for:
  - damage
  - Deformation

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Result

» Damage or deformation.

Measure

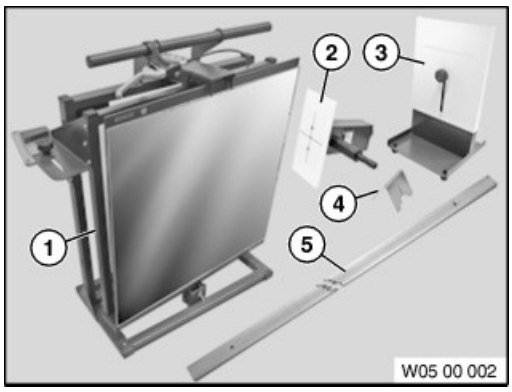
- Identify and renew damaged, deformed vehicle parts.

Result

» No damage or deformation

Measure

- Adjust the front radar sensor (FRS).



- Stage special tools 0 442 898 and 2 338 466.
- Set up special tool as per enclosed operating instructions.



- Connect diagnosis system.
  - Service functions
  - Driver assistance
  - Front radar sensor (FRS)
  - Front radar sensor start-up (FRS)



NOTICE

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

- Turn the screw (1) with the standard tool to adjust the front radar sensor (FRS).

  Standard tools:

  (Shaft length > 90 mm)

Additional Information

Overview of Tightening Torques

Bumper panel, front top — Used in step 8

Oval-head screwM6		Tightening torque	4,6 Nm

Front bumper panel to front side panel — Used in step 8

Torx screw 5x35		Tightening torque	3 Nm

Front bumper panel to underbody protection — Used in step 8

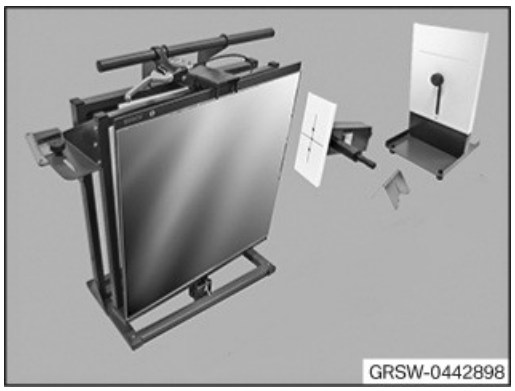
Hexagon screw for thermoplastic		Tightening torque	2,6 Nm

Wheel arch trim panel, front — Used in step 10

Thermoplastic hexagon screw		Tightening torque	2,6 Nm

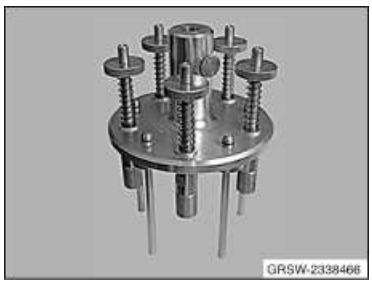
Overview of Special Tools

0 442 898 Measuring device



Common	Used in step 13
Usage	ACC adjusting device. Using this adjusting device, an ACC sensor built into the vehicle can be adjusted in the workshop. Is replaced from 11/2021 by 83 30 5 A40 812.
Included in the tool or work	
Storage location	Individual
Replaced by	
In connection with	
SI-Number	02 04 05 (208)

2 338 466 Holder



Common	Used in step 13
Usage	Replacement for holder 36 1 100 (0493771). Holder has longer guide pins and lengthened magnetic guides.
Included in the tool or work	
Storage location	Individual
Replaced by	
In connection with	
SI-Number	

Links

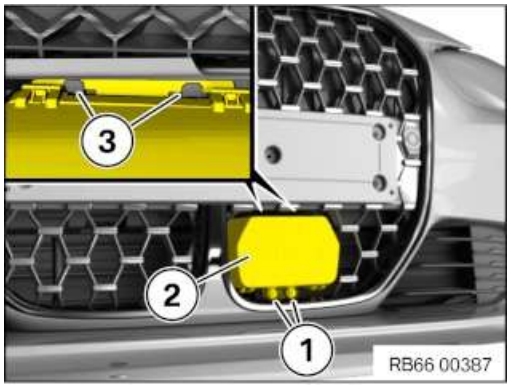
Functional descriptions	Used in step
Mirror adjustment for start-up of the front radar sensor	13
Mirror adjustment for start-up of the front radar sensor	13
Mirror adjustment to start up the front radar sensor long range	13
Mirror adjustment to start up the front radar sensor long range	13

Repair instructions	Used in step
66 31 010 Instructions for ACC adjusting device	13

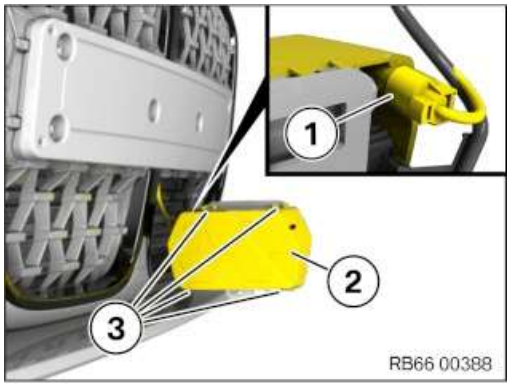
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66 31 616 Replace front radar sensor long range

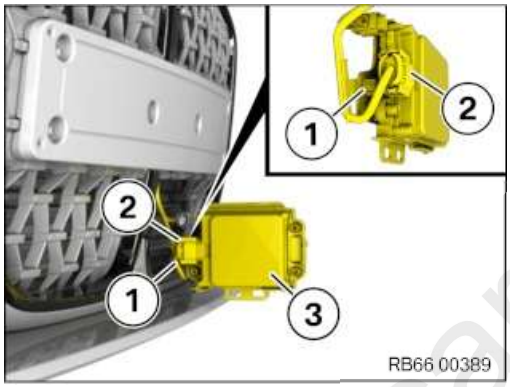
1 – Removing the front radar sensor long range (FRSF)



- Loosen screws (1).
- Slide the FRSF (2) up slightly and feed it out of the guides(3) .
- Feed out the FRSF (2) via the front ornamental grille.

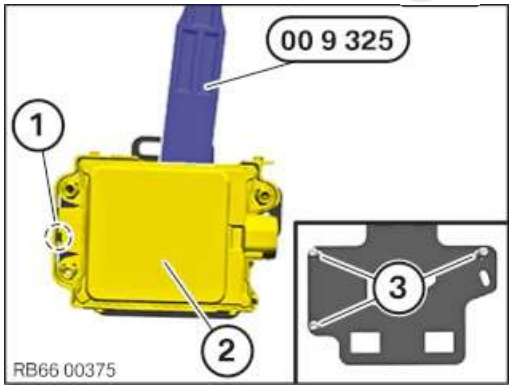


- Unlock plug connection (1) and disconnect.
- Release the radome (2) from the latch mechanisms(3) and remove it.



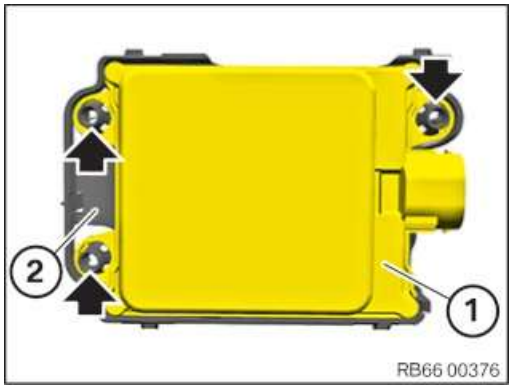
- Unclip the wiring harness with the holder (1).
- Unlock the plug connection (2), disconnect it and remove FRSF(3) .

2 – Replacing the front radar sensor (FRS)

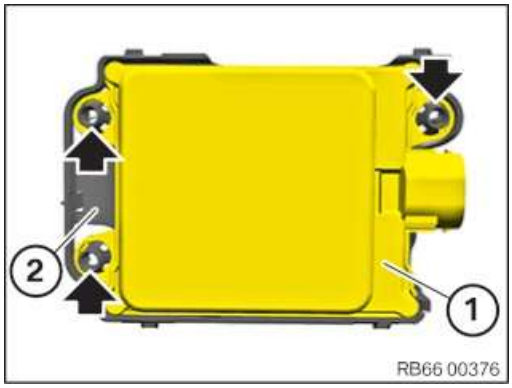


- Unlock lock (1).
- Release the front radar sensor (FRS) (2) with the special tool 0 496 569 (00 9 325) from the ball pin (3).
- Remove the front radar sensor (FRS) (2).

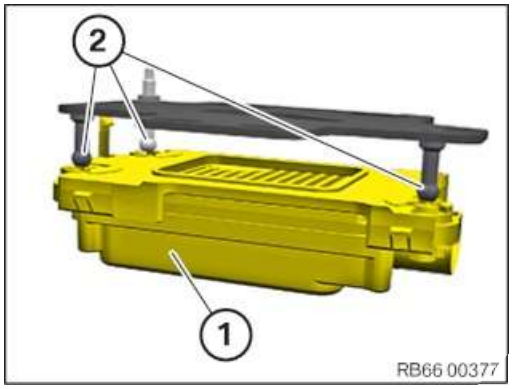
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- Unlock the locks (arrows).
- Remove the front radar sensor (FRS) (1) from holder (2).

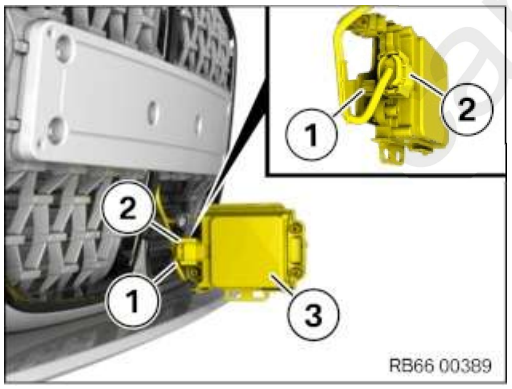


- Position the front radar sensor (FRS) (1) on holder (2).
- Lock the locks (arrows).

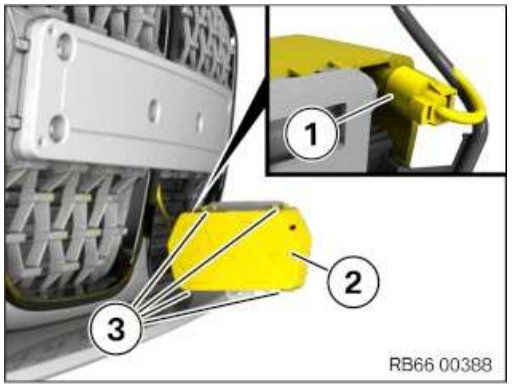


- Clip the front radar sensor (FRS) (1) into the ball stud (2).

3 – Installing the front radar sensor long range (FRSF)

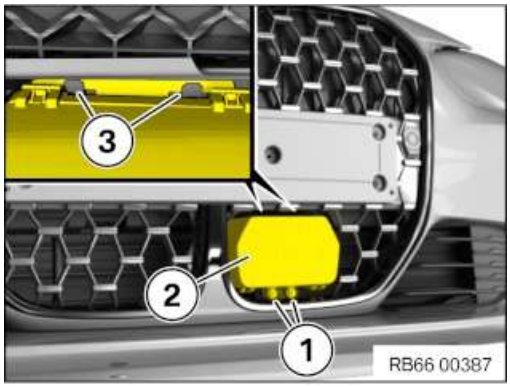


- Install the FRSF (3).
- Connect connectors (2) and lock.
- Clip in the wiring harness with the holder (1).



- Position the radome (2) and clip it in with the latch mechanisms (3) .
- Connect connectors (1) and lock.

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- Feed in the FRSF (2) through the radiator grille.
- Install the FRSF (2) and insert it from the top in the guides (3) .
- Tighten the screws (1).

Front radar sensor (FRS) / (FRSF) holder to support

Combination oval-head machine screw		Tightening torque	8 Nm

4 – Adjusting front radar sensor (FRS)

TECHNICAL INFORMATION

Notes on adjusting the ACC sensor are a fundamental requirement for these repair instructions and must be complied with at all times.

For additional information see: 66 31 ... Notes on adjusting the ACC sensor

TECHNICAL INFORMATION

If there is a "Sensor misaligned" fault memory entry and the sensor cannot be aligned correctly using the adjusting screw, a front impact damage may be suspected.

In this case, the vehicle must be inspected thoroughly for damage. Damaged parts must be renewed if necessary. Then adjust the ACC sensor again.

A damaged/bent holder indicates mechanical misuse of the vehicle and must not be charged as a warranty case.

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▸ **Checking vehicle and components for damage**

Check

- In the visible areas, visually check for:
  - damage
  - Deformation

Result

» Damage or deformation.

Measure

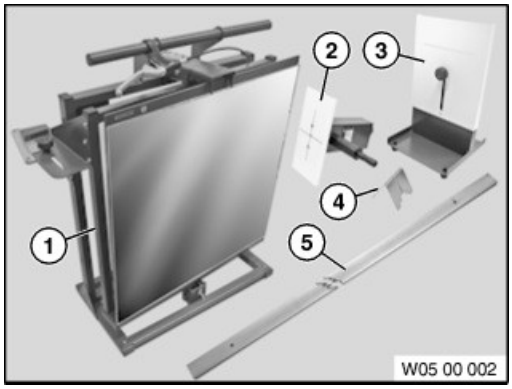
- Identify and renew damaged, deformed vehicle parts.

Result

» No damage or deformation

Measure

- Adjust the front radar sensor (FRS).



- Stage special tools 0 442 898 and 2 338 466.
- Set up special tool as per enclosed operating instructions.

- Connect diagnosis system.
  - Service functions
  - Driver assistance
  - Front radar sensor (FRS)
  - Front radar sensor start-up (FRS)



NOTICE

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

- Turn the screw (1) with the standard tool to adjust the front radar sensor (FRS).

  Standard tools:

  (Shaft length > 90 mm)

Additional Information

Overview of Tightening Torques

Front radar sensor (FRS) / (FRSF) holder to support — Used in step 3

Combination oval-head machine screw		Tightening torque	8 Nm

Overview of Special Tools

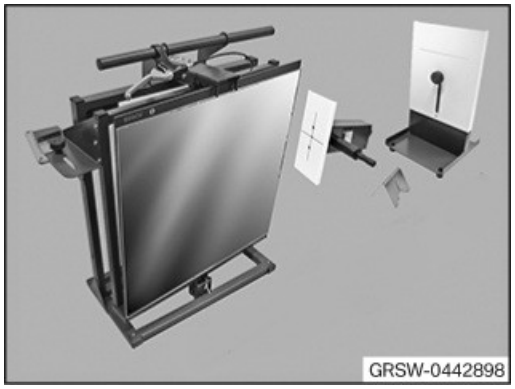
0 496 569 (00 9 325) Wedge



Common — Used in step 2

Usage	(Panel wedge) From 11/2008 this special tool replaces panel wedge 00 9 317 (different material)
Included in the tool or work	0 490 527
Storage location	Individual
Replaced by	
In connection with	
SI-Number	41 01 09 (507)

0 442 898 Measuring device

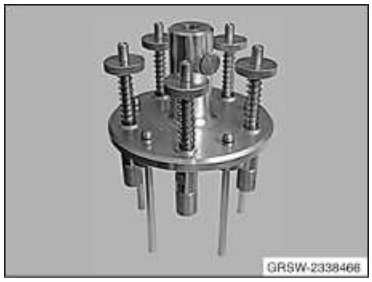


Common — Used in step 4

Usage	ACC adjusting device. Using this adjusting device, an ACC sensor built into the vehicle can be adjusted in the workshop. Is replaced from 11/2021 by 83 30 5 A40 812.
Included in the tool or work	
Storage location	Individual
Replaced by	
In connection with	
SI-Number	02 04 05 (208)

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2 338 466 Holder



Common	Used in step 4
Usage	Replacement for holder 36 1 100 (0493771). Holder has longer guide pins and lengthened magnetic guides.
Included in the tool or work	
Storage location	Individual
Replaced by	
In connection with	
SI-Number	

Links

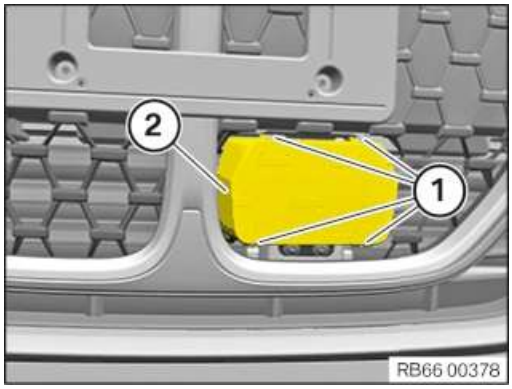
Functional descriptions	Used in step
Mirror adjustment for start-up of the front radar sensor	4
Mirror adjustment for start-up of the front radar sensor	4
Mirror adjustment to start up the front radar sensor long range	4
Mirror adjustment to start up the front radar sensor long range	4

Repair instructions	Used in step
66 31 010 Instructions for ACC adjusting device	4

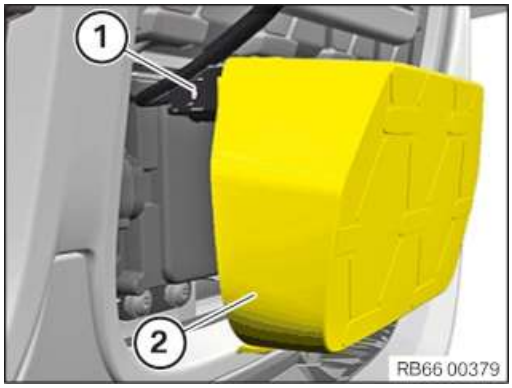
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66 31 540 Replace radome

1 – Removing the radome

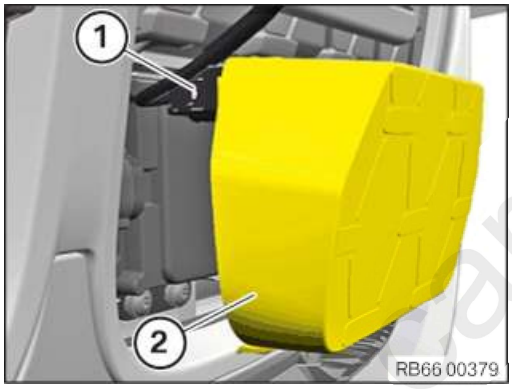


- Unlock the locks (1) .
- Carefully pull out radome (2) slightly.

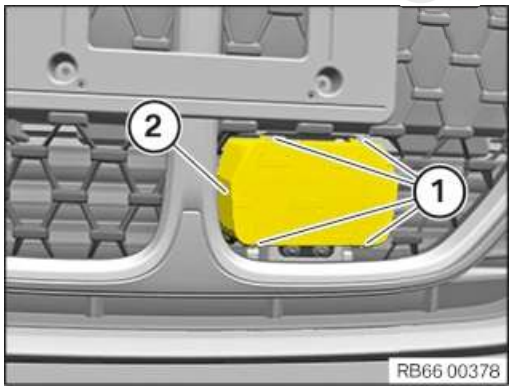


- Unlock plug connection (1) and disconnect.
- Remove the radome (2).

2 – Install radome



- Position radome (2).
- Connect and lock the plug connection (1).



- Install radome (2).
- Lock the locks (1).

ardiagn.com

66 32 180 Removing and installing rear radar sensor short range left

TECHNICAL INFORMATION

To guarantee the quality of the driver assistance functions in vehicles with concealed radar sensors installed, the component may only be repainted by observing the repair specifications described in the document "Standards for repair painting with sensor systems".

Sourcing reference:

https://colorsystem-paint.com/

Aftersales Information Research (AIR) - Repair and service messages - HG99 - ColorSystem

ISTA - HG99 - ColorSystem

No stickers or foils (transparent or coloured) may be attached in the radiation areas of the radar sensors.

The component may be painted if no radar sensors have been installed.

The following features can be used to identify whether radar sensors are installed on the vehicle:

Radar sensors are installed at the rear if the triangular warning light is located on the exterior mirror (in the mirror glass or on the mirror frame).

Radar sensors are installed at the front and rear if the triangular warning light is located on the exterior mirror (in the mirror glass or on the mirror frame) in conjunction with the optional equipment S5ATA or S5AUA.

PRELIMINARY WORK

1 – Removing the luggage compartment floor trim panel

▸ **Removing the luggage compartment floor trim panel**

NOTICE

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

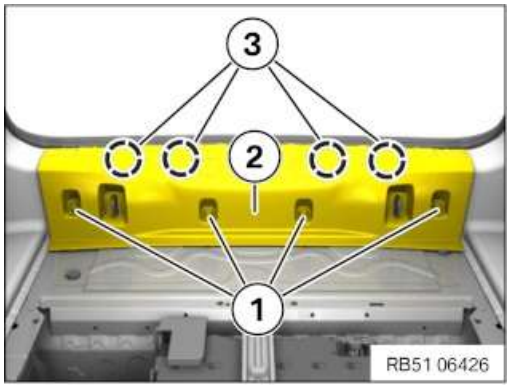


- Remove luggage compartment floor trim panel (1).

2 – Removing the loading edge trim

NOTICE

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



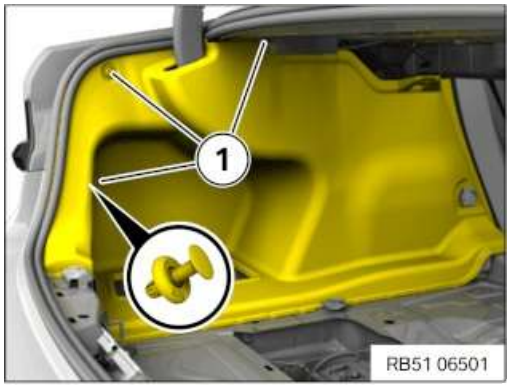
- Loosen the expanding rivet (1).
- Unclip loading edge trim(2) upwards from latch mechanisms (3).
- Guide out and remove loading edge trim (2) under the sealing lip of the tailgate seal.

3 – Removing part of the luggage compartment wheel arch trim panel on the left and right

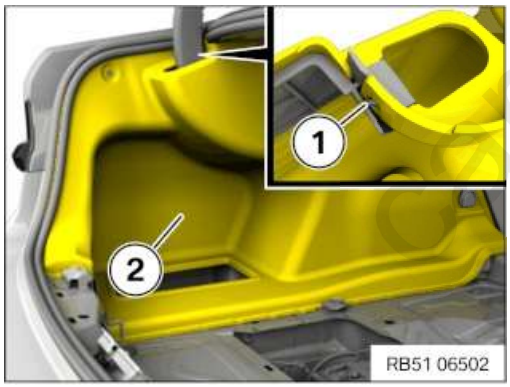
▸ **Partially remove luggage compartment wheel arch panel on left**

NOTICE

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



- Loosen the expanding rivet (1).



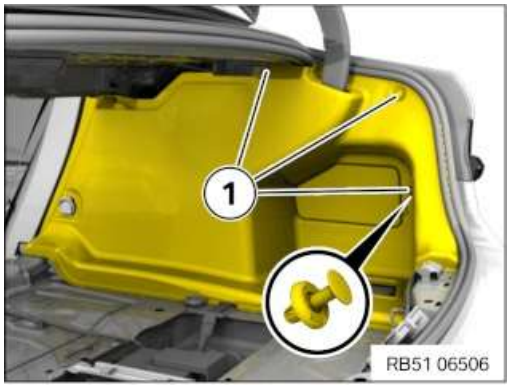
- Press the tab for luggage compartment wheel arch trim panel (2) on the outer side of the hinge to the front using the stop on trim (1).
- Guide out luggage compartment wheel arch trim panel (2) under the sealing lip of the tailgate seal and release it in the rear area.

▸ **Partially remove luggage compartment wheel arch panel on right**

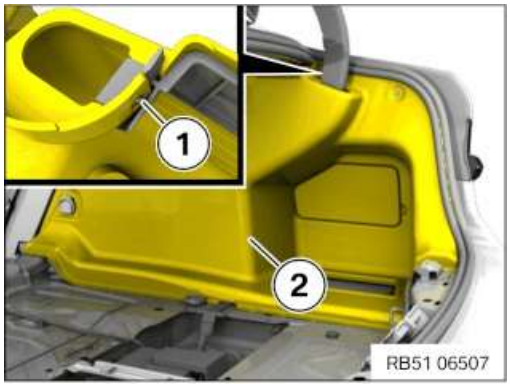
NOTICE

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

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- Loosen the expanding rivet (1).



- Press the tab for luggage compartment wheel arch trim panel (2) on the outer side of the hinge to the front using the stop on trim (1).
- Guide out luggage compartment wheel arch trim panel (2) under the sealing lip of the tailgate seal and release it in the rear area.

4 – Removing trim from water channel on left and right

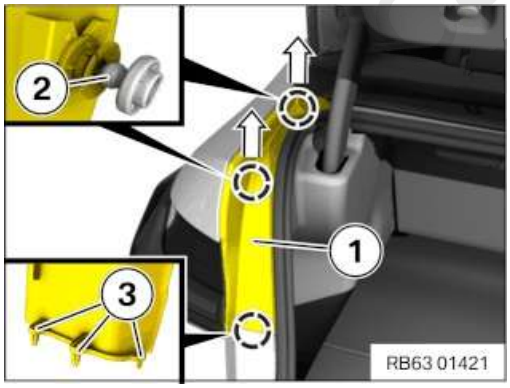
NOTICE

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

▸ **Removing trim from water channel**

NOTICE

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



- Unclip trim (1) in upward direction from ball pins (2).
- Release trim (1) from guides (3) and remove.

5 – Removing the rear light on the left and right side panels

NOTICE

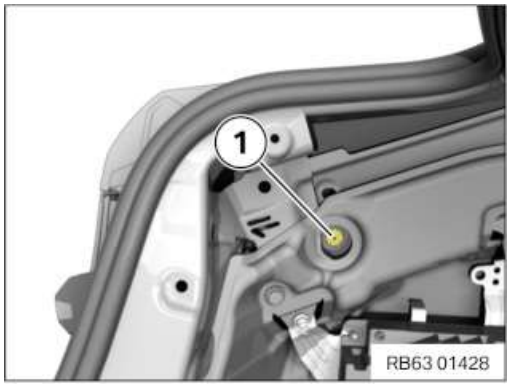
Description is for left component only. Procedure on the right side is identical.

▸ **Removing the rear light on the side panel**

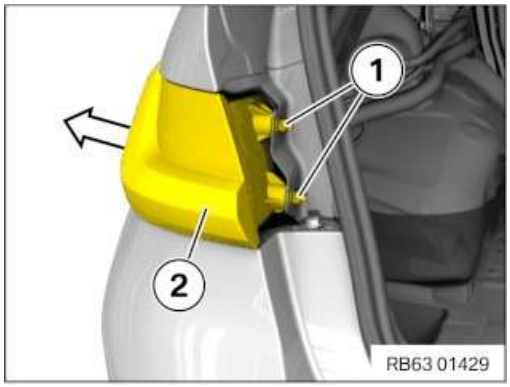
cardiagn.com

NOTICE

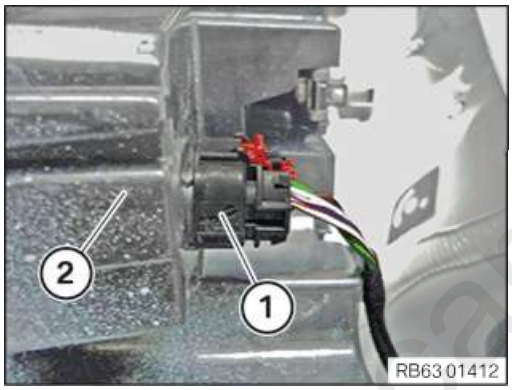
Schematic diagram is for example purposes. Some parts may differ in certain details.



- Loosen nut (1).



- Release the nuts (1) and feed out the rear light on the side panel (2) in the direction of arrow.



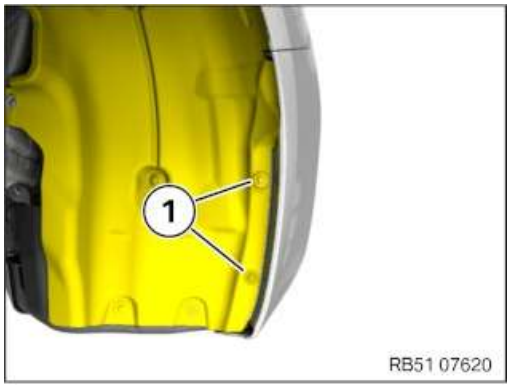
TECHNICAL INFORMATION

Observe note on unlocking and disconnecting plug connections.

For additional information see: 6113 ... Unlocking and disconnecting different plug connections

- Unlock plug connection (1) and disconnect.
- Remove the rear light on the side panel (2).

6 – Remove rear bumper panel



NOTICE

Perform the operations on the left and right side.

NOTICE

To provide a better overview: Schematic diagram with partially hidden components.

- Loosen screws (1).

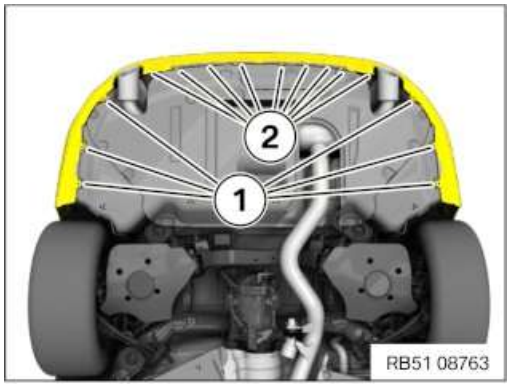
carlogn.com



NOTICE

Perform the operations on the left and right side.

- Release the screw (1).



- Loosen screws (1).
- Release the bumper panel at the latch mechanisms (2).



NOTICE

Perform the operations on the left and right side.

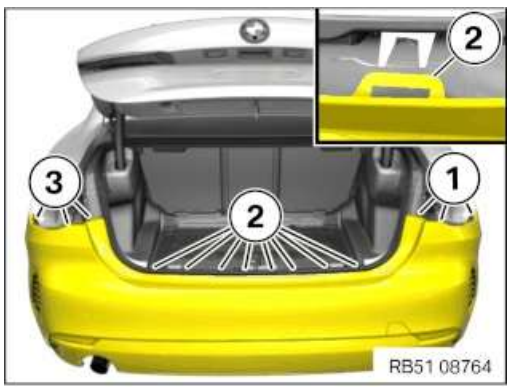
- Release the screw (1).



NOTICE

Perform the operations on the left and right side.

- Release the bumper panel with the latch mechanisms (1).



- Release the bumper panel with the latch mechanisms (1).
- Release the bumper panel from the latch mechanisms (2) starting from the right.
- Release the bumper panel from the latch mechanisms (3)



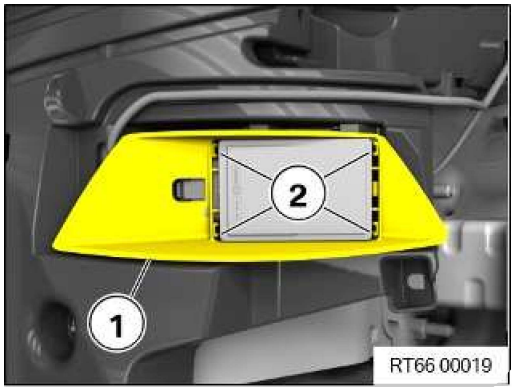
- Unlock plug connection and disconnect.
- Remove bumper panel.

MAIN WORK

7 – Removing the rear side radar sensor

NOTICE

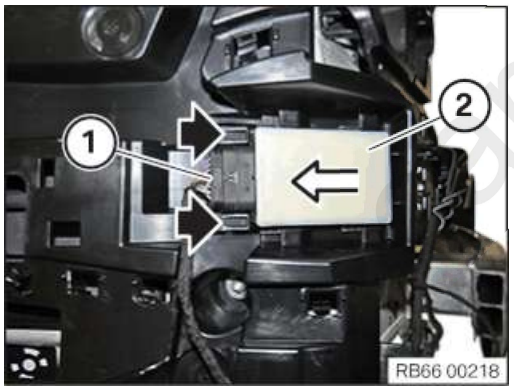
Description is for left component only. Procedure on the right side is identical.



NOTICE

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

- Unlock and remove the absorber (1) at the retaining lugs (2).

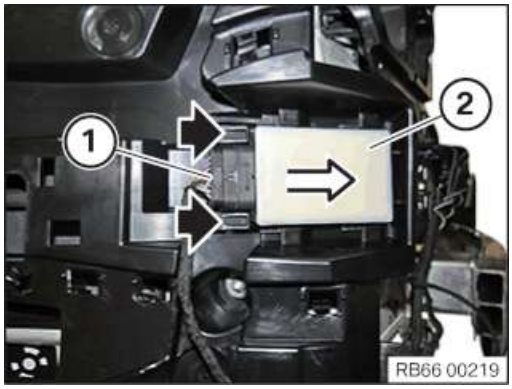


- Unlock and disconnect connector (1).
- Unlock the latch mechanisms (arrows).
- Remove the side radar sensor (2) in the direction of arrow.

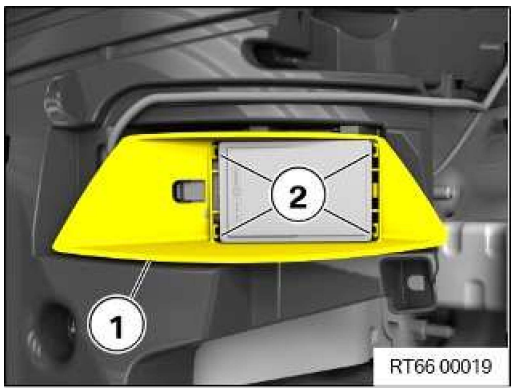
8 – Installing rear side radar sensor

NOTICE

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



- Position the side radar sensor (2) correctly and slide in the direction of arrow.
- Ensure that the latch mechanisms (arrows) engage correctly.
- Connect connector (1).



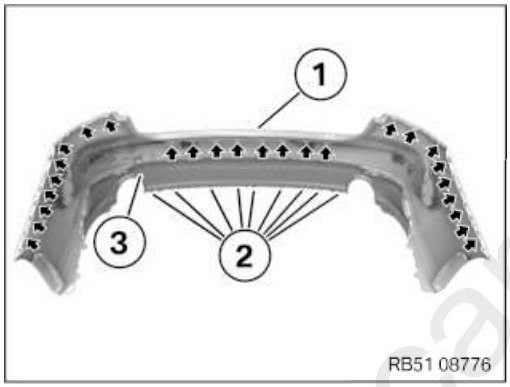
TECHNICAL INFORMATION

If the component described below has not been installed as yet, it should be retrofitted.

- Position the absorber (1) and lock with the retaining lugs (2).
- Ensure that the absorber (1) engages correctly on the retaining lugs (2).

POSTPROCESSES

9 – Install rear bumper panel



Check

- Check the latch mechanisms (arrows) on the bumper panel (1) for damage.

  Check the latch mechanisms (2) on the bumper trim (3) for damage.

Result

» Latch mechanisms (arrows) are damaged.

Measure

- Renew the bumper panel (1).

Result

» Latch mechanisms (2) are damaged.

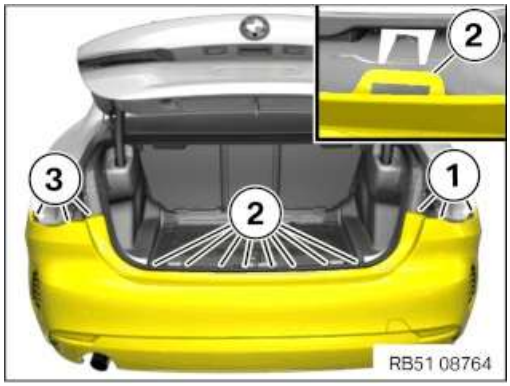
Measure

- Renew the bumper trim (3).

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- Position the bumper panel.
- Connect connectors (1) and lock.



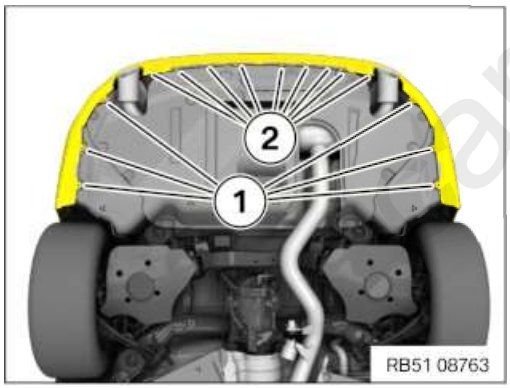
- Clip in the bumper panel with the latch mechanisms (1),(2) and (3).



NOTICE

Perform the operations on the left and right side.

- Clip in the bumper panel with latch mechanisms (1).



- Clip in the bumper panel with latch mechanisms (2).
- Tighten the screws (1).

Rear bumper trim panel to guide

Hexagon screw		Tightening torque	2.5 Nm



NOTICE

Perform the operations on the left and right side.

- Tighten down screw (1).

Rear bumper trim panel to guide

Hexagon screw		Tightening torque	2.5 Nm



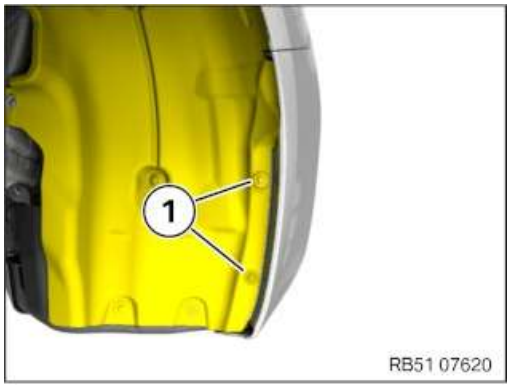
NOTICE

Perform the operations on the left and right side.

- Tighten down screw (1).

Lower bumper panel to body

Oval-head screw		Tightening torque	2.5 Nm



NOTICE

Perform the operations on the left and right side.

NOTICE

To provide a better overview: Schematic diagram with partially hidden components.

- Tighten the screws (1).

Rear wheel arch cover to bumper trim panel

Hexagon screw		Tightening torque	2,6 Nm

10 – Installing the rear light on the left and right side panels

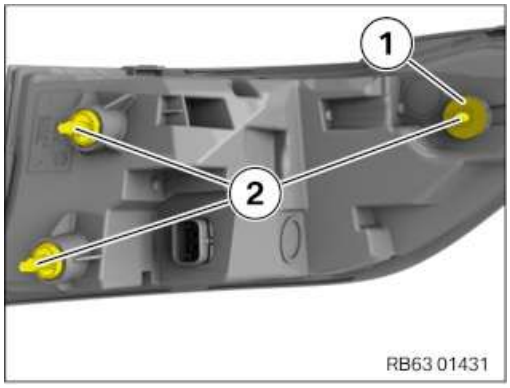
NOTICE

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

▸ **Install the rear light on the side panel**

NOTICE

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



Check

- Check the seal (1) for damage and renew if necessary.
- Check the threaded inserts (2) for damage.

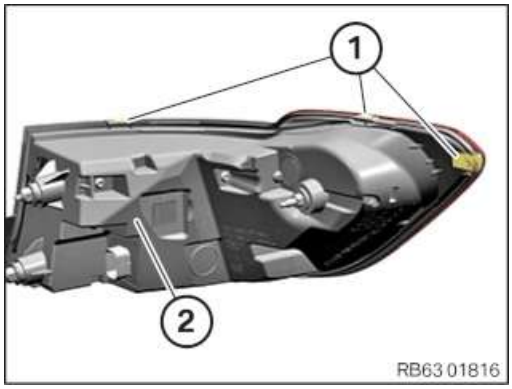
cardiagn.com

Result

» The threaded inserts are damaged.

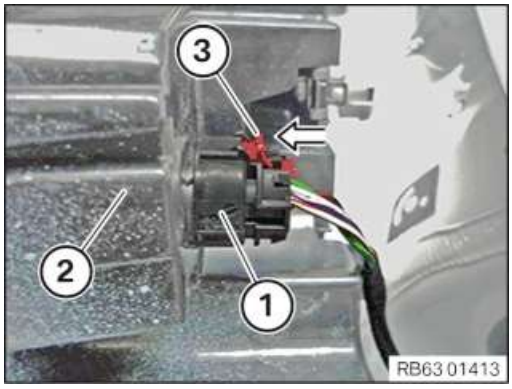
Measure

- Replace rear light.



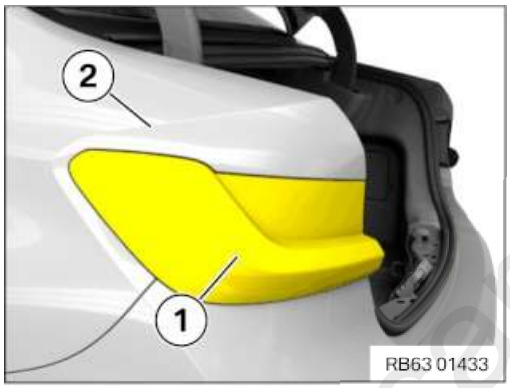
- Contact surfaces (1) on rear light (2) must not be damaged or missing.

  Missing contact surfaces (1) could cause paintwork damage.

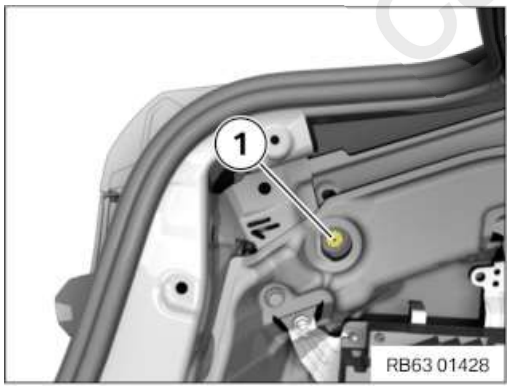


- Connect the connector (1) to the rear light on the side panel (2).

  The connector (1) must engage audibly.
- Lock the lock in direction of arrow (3).

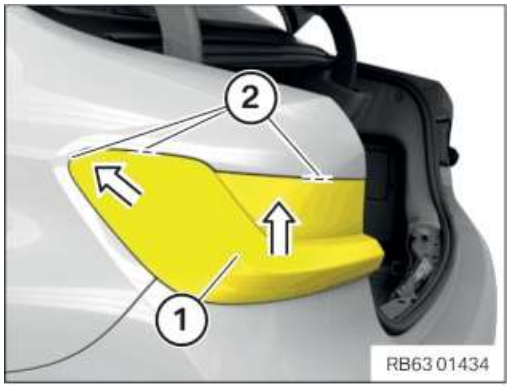


- Position the rear light on the side panel (1) on the side panel (2).

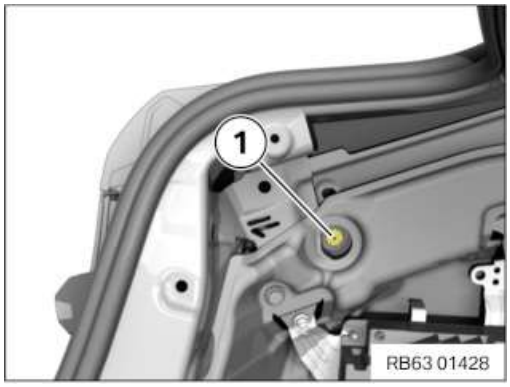


- Position the nut (1).

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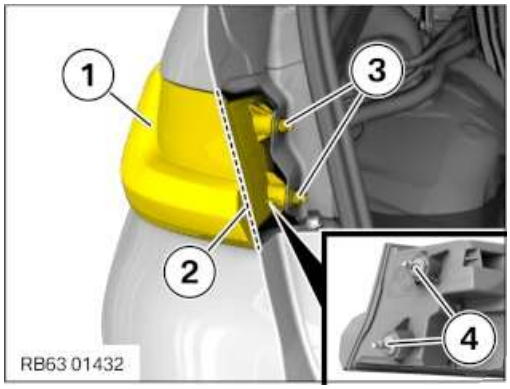
- Position the rear light on the side panel (1) to the front at the top.
- Move the contact surfaces (2) of the rear light on the side panel (1) upwards (arrow) so that they are in place.
- Hold the rear light on the side panel (1) in position.



- Tighten nut (1).

Rear light to side panel to body

Combination hexagon nut		Tightening torque	4 Nm



- Position nuts (3).
- Align rear light on the side panel (1) with the connecting line (2).

  The alignment is done through threaded inserts (4) on the rear light on the side panel (2).
- If necessary, correct the position of the rear light on the side panel (1) by twisting threaded inserts (4).
- Tighten nuts (3).

Rear light to side panel to body

Combination hexagon nut		Tightening torque	4 Nm

11 – Installing trim in water channel on left and right

NOTICE

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

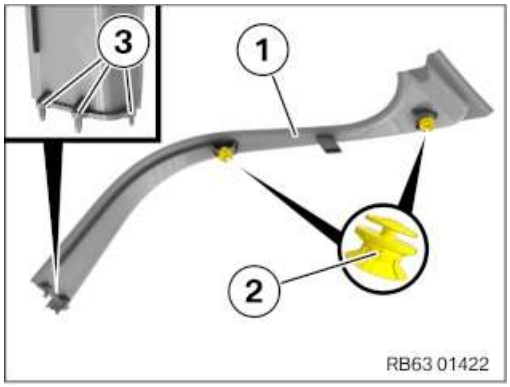
▸ Installing trim in water channel

NOTICE

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

Check

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- Check clips (2) for damage and renew if necessary.
- Check guides (3) for damage.

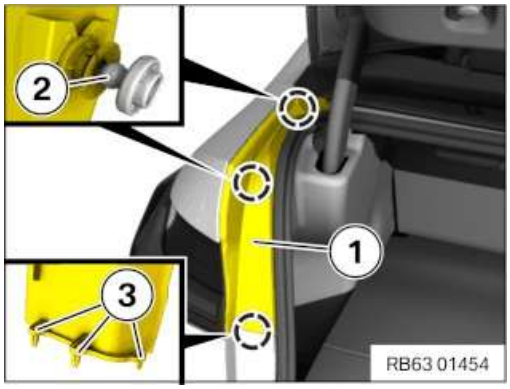
Result

» The guides are damaged.

Measure

- Renew the trim .

  Parts: trim



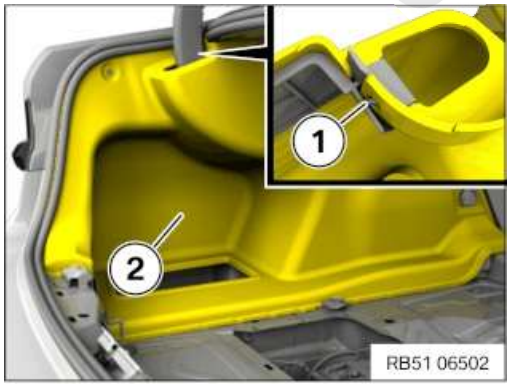
- Insert trim (1) in guides (3).
- Clip trim (1) from above into ball pins (2).

12 – Partially installing the luggage compartment wheel arch trim panel on the left and right

▸ Partially installing the left luggage compartment wheel arch trim panel

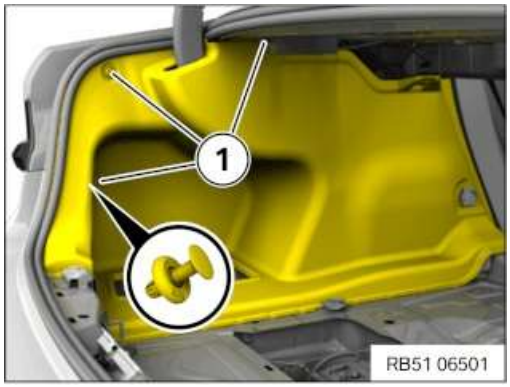
NOTICE

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



- Feed the luggage compartment wheel arch trim panel (2) into the rear area under the sealing lip of the tailgate seal.
- Feed the tab of the luggage compartment wheel arch trim panel (2) on the outer side of the hinge into the stop on the trim (1).

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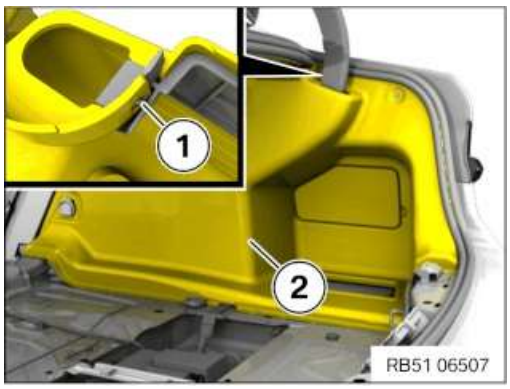


- Secure expanding rivet (1).

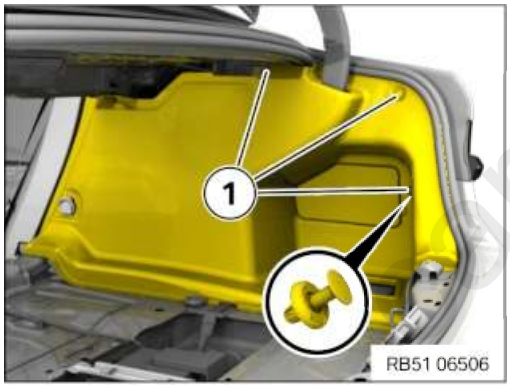
▸ **Partially installing right luggage compartment wheel arch trim panel**

NOTICE

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



- Guide luggage compartment wheel arch trim panel (2) into the rear area under the sealing lip of the tailgate seal.
- Feed the tab of the luggage compartment wheel arch trim panel (2) on the outer side of the hinge into the stop on the trim (1).

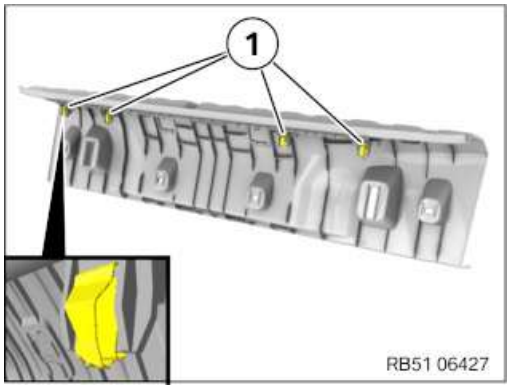


- Secure expanding rivet (1).

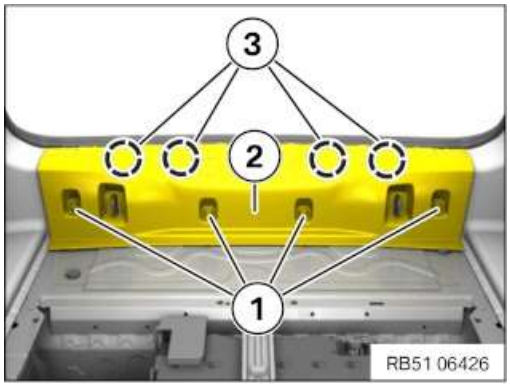
13 – Installing loading edge trim

NOTICE

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



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



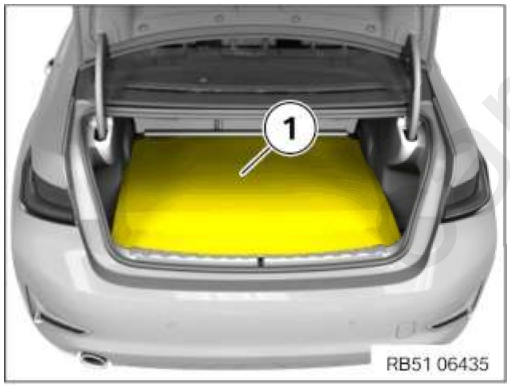
- Insert the loading edge trim (2) under the sealing lip of the tailgate seal.
- Fit the trim of the loading edge (2) at the latch mechanisms (3) and clip it in to the bottom.
- Secure expanding rivet (1).

14 – Installing the luggage compartment floor trim panel

▸ **Installing the luggage compartment floor trim panel**

NOTICE

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



- Insert the luggage compartment floor trim panel (1).

Additional Information

Overview of Tightening Torques

Rear bumper trim panel to guide			Used in step 9
Hexagon screw		Tightening torque	2.5 Nm

Lower bumper panel to body			Used in step 9
Oval-head screw		Tightening torque	2.5 Nm

Rear wheel arch cover to bumper trim panel			Used in step 9
Hexagon screw		Tightening torque	2,6 Nm

Rear light to side panel to body			Used in step 10
Combination hexagon nut		Tightening torque	4 Nm

Links

Repair instructions	Used in step
61 13 ... Unlocking and disconnecting different plug connections	5

cardiagn.com

66 32 185 Removing and installing rear radar sensor short range right

TECHNICAL INFORMATION

To guarantee the quality of the driver assistance functions in vehicles with concealed radar sensors installed, the component may only be repainted by observing the repair specifications described in the document "Standards for repair painting with sensor systems".

Sourcing reference:

https://colorsystem-paint.com/

Aftersales Information Research (AIR) - Repair and service messages - HG99 - ColorSystem

ISTA - HG99 - ColorSystem

No stickers or foils (transparent or coloured) may be attached in the radiation areas of the radar sensors.

The component may be painted if no radar sensors have been installed.

The following features can be used to identify whether radar sensors are installed on the vehicle:

Radar sensors are installed at the rear if the triangular warning light is located on the exterior mirror (in the mirror glass or on the mirror frame).

Radar sensors are installed at the front and rear if the triangular warning light is located on the exterior mirror (in the mirror glass or on the mirror frame) in conjunction with the optional equipment S5ATA or S5AUA.

PRELIMINARY WORK

1 – Removing the luggage compartment floor trim panel

▸ **Removing the luggage compartment floor trim panel**

NOTICE

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

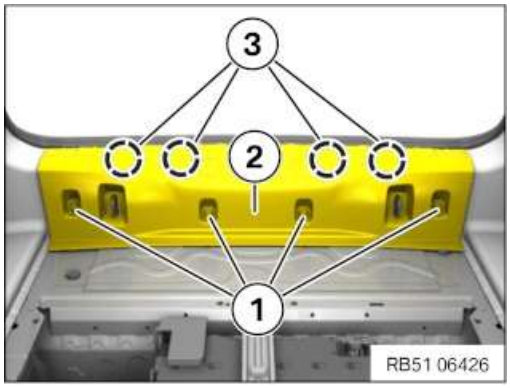


- Remove luggage compartment floor trim panel (1).

2 – Removing the loading edge trim

NOTICE

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



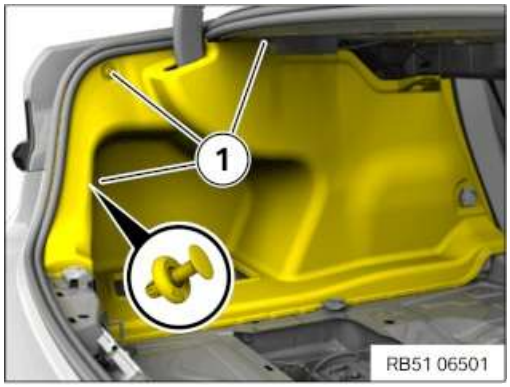
- Loosen the expanding rivet (1).
- Unclip loading edge trim(2) upwards from latch mechanisms (3).
- Guide out and remove loading edge trim (2) under the sealing lip of the tailgate seal.

3 – Removing part of the luggage compartment wheel arch trim panel on the left and right

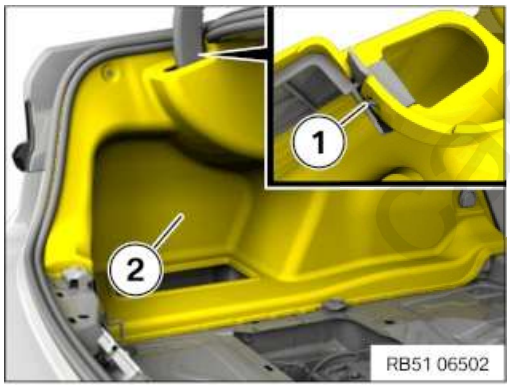
▸ **Partially remove luggage compartment wheel arch panel on left**

NOTICE

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



- Loosen the expanding rivet (1).



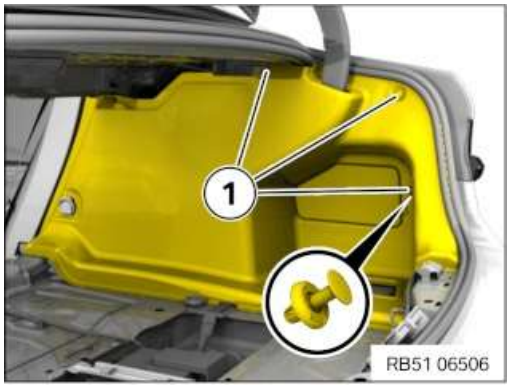
- Press the tab for luggage compartment wheel arch trim panel (2) on the outer side of the hinge to the front using the stop on trim (1).
- Guide out luggage compartment wheel arch trim panel (2) under the sealing lip of the tailgate seal and release it in the rear area.

▸ **Partially remove luggage compartment wheel arch panel on right**

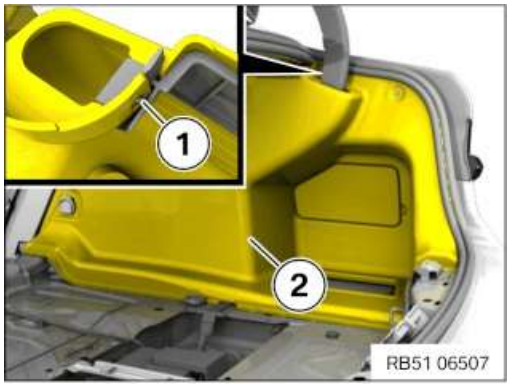
NOTICE

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

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- Loosen the expanding rivet (1).



- Press the tab for luggage compartment wheel arch trim panel (2) on the outer side of the hinge to the front using the stop on trim (1).
- Guide out luggage compartment wheel arch trim panel (2) under the sealing lip of the tailgate seal and release it in the rear area.

4 – Removing trim from water channel on left and right

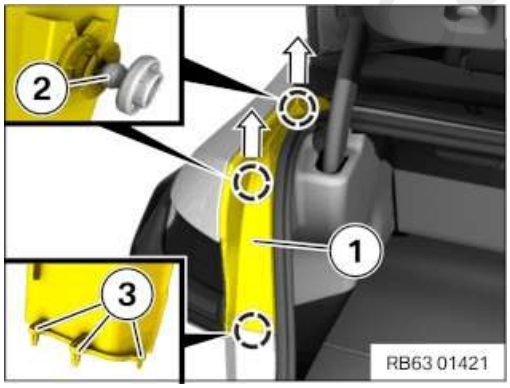
NOTICE

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

▸ **Removing trim from water channel**

NOTICE

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



- Unclip trim (1) in upward direction from ball pins (2).
- Release trim (1) from guides (3) and remove.

5 – Removing the rear light on the left and right side panels

NOTICE

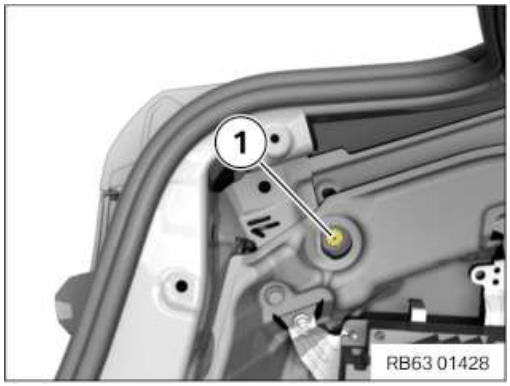
Description is for left component only. Procedure on the right side is identical.

▸ **Removing the rear light on the side panel**

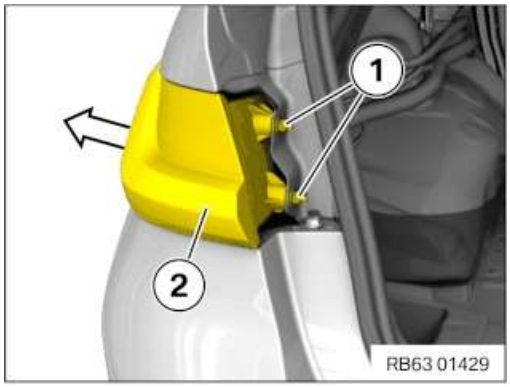
cardiagn.com

NOTICE

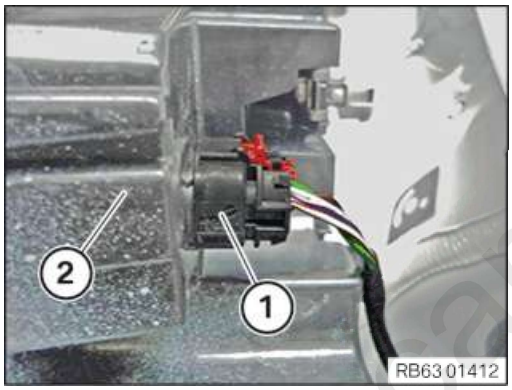
Schematic diagram is for example purposes. Some parts may differ in certain details.



- Loosen nut (1).



- Release the nuts (1) and feed out the rear light on the side panel (2) in the direction of arrow.



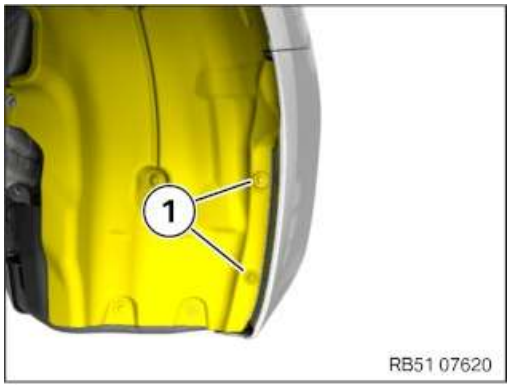
TECHNICAL INFORMATION

Observe note on unlocking and disconnecting plug connections.

For additional information see: 6113 ... Unlocking and disconnecting different plug connections

- Unlock plug connection (1) and disconnect.
- Remove the rear light on the side panel (2).

6 – Remove rear bumper panel



NOTICE

Perform the operations on the left and right side.

NOTICE

To provide a better overview: Schematic diagram with partially hidden components.

- Loosen screws (1).

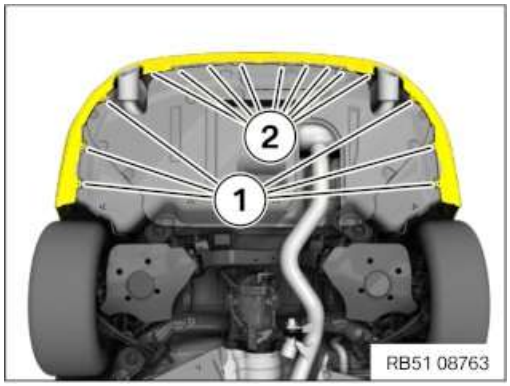
carlogn.com



NOTICE

Perform the operations on the left and right side.

- Release the screw (1).



- Loosen screws (1).
- Release the bumper panel at the latch mechanisms (2).



NOTICE

Perform the operations on the left and right side.

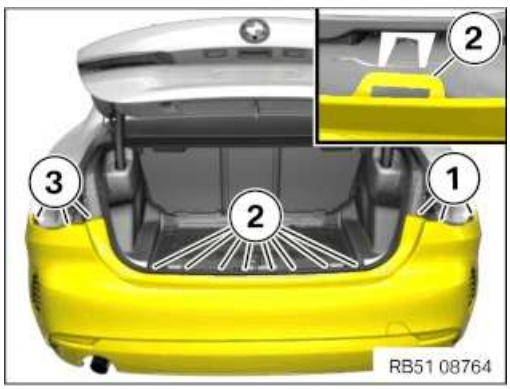
- Release the screw (1).



NOTICE

Perform the operations on the left and right side.

- Release the bumper panel with the latch mechanisms (1).



- Release the bumper panel with the latch mechanisms (1).
- Release the bumper panel from the latch mechanisms (2) starting from the right.
- Release the bumper panel from the latch mechanisms (3)



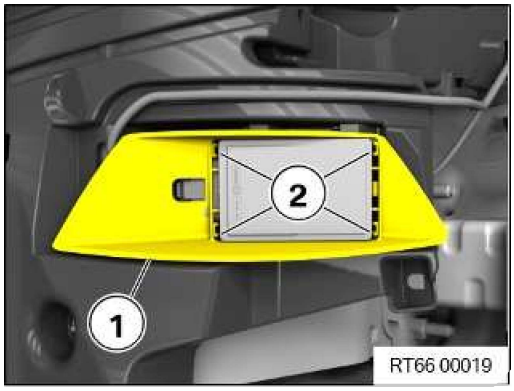
- Unlock plug connection and disconnect.
- Remove bumper panel.

MAIN WORK

7 – Removing the rear side radar sensor

NOTICE

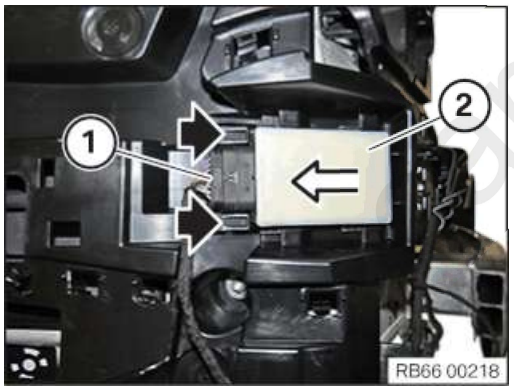
Description is for left component only. Procedure on the right side is identical.



NOTICE

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

- Unlock and remove the absorber (1) at the retaining lugs (2).

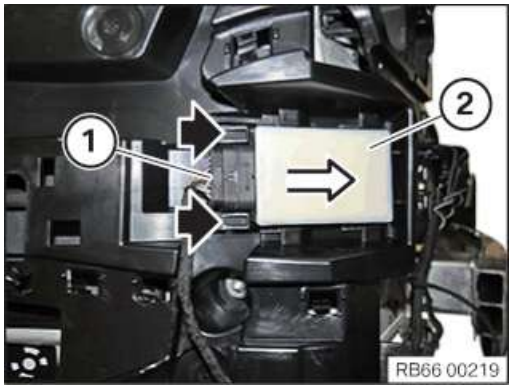


- Unlock and disconnect connector (1).
- Unlock the latch mechanisms (arrows).
- Remove the side radar sensor (2) in the direction of arrow.

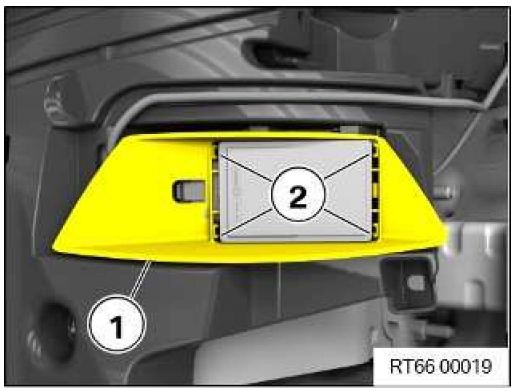
8 – Installing rear side radar sensor

NOTICE

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



- Position the side radar sensor (2) correctly and slide in the direction of arrow.
- Ensure that the latch mechanisms (arrows) engage correctly.
- Connect connector (1).



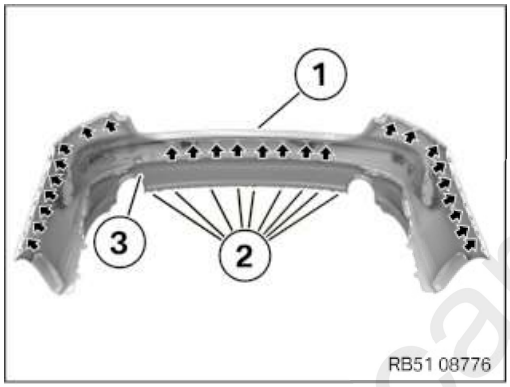
TECHNICAL INFORMATION

If the component described below has not been installed as yet, it should be retrofitted.

- Position the absorber (1) and lock with the retaining lugs (2).
- Ensure that the absorber (1) engages correctly on the retaining lugs (2).

POSTPROCESSES

9 – Install rear bumper panel



Check

- Check the latch mechanisms (arrows) on the bumper panel (1) for damage.

  Check the latch mechanisms (2) on the bumper trim (3) for damage.

Result

» Latch mechanisms (arrows) are damaged.

Measure

- Renew the bumper panel (1).

Result

» Latch mechanisms (2) are damaged.

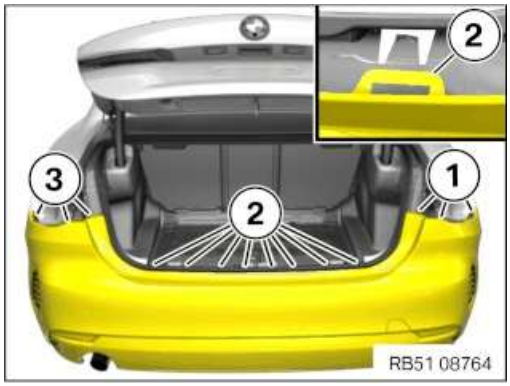
Measure

- Renew the bumper trim (3).

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- Position the bumper panel.
- Connect connectors (1) and lock.



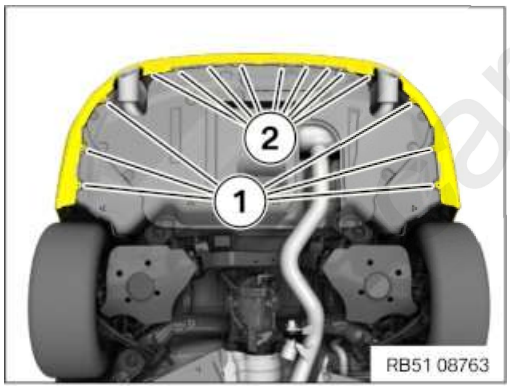
- Clip in the bumper panel with the latch mechanisms (1),(2) and (3).



NOTICE

Perform the operations on the left and right side.

- Clip in the bumper panel with latch mechanisms (1).



- Clip in the bumper panel with latch mechanisms (2).
- Tighten the screws (1).

Rear bumper trim panel to guide

Hexagon screw		Tightening torque	2.5 Nm



NOTICE

Perform the operations on the left and right side.

- Tighten down screw (1).

Rear bumper trim panel to guide

Hexagon screw		Tightening torque	2.5 Nm



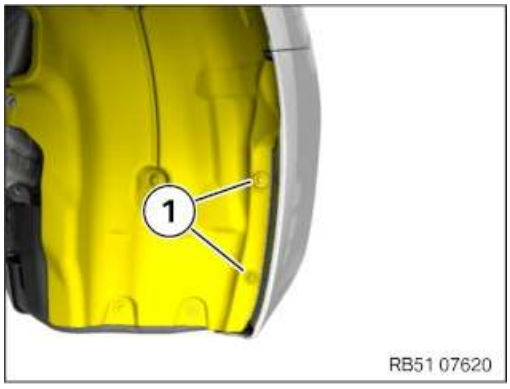
NOTICE

Perform the operations on the left and right side.

- Tighten down screw (1).

Lower bumper panel to body

Oval-head screw		Tightening torque	2.5 Nm



NOTICE

Perform the operations on the left and right side.

NOTICE

To provide a better overview: Schematic diagram with partially hidden components.

- Tighten the screws (1).

Rear wheel arch cover to bumper trim panel

Hexagon screw		Tightening torque	2,6 Nm

10 – Installing the rear light on the left and right side panels

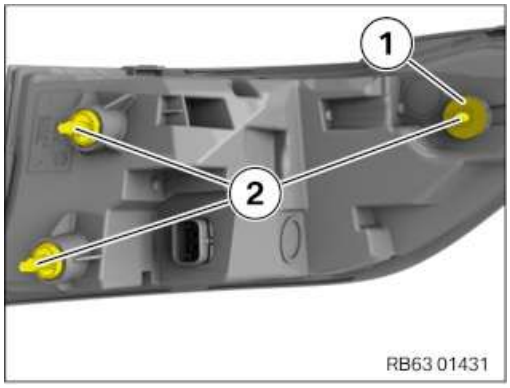
NOTICE

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

▸ **Install the rear light on the side panel**

NOTICE

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



Check

- Check the seal (1) for damage and renew if necessary.
- Check the threaded inserts (2) for damage.

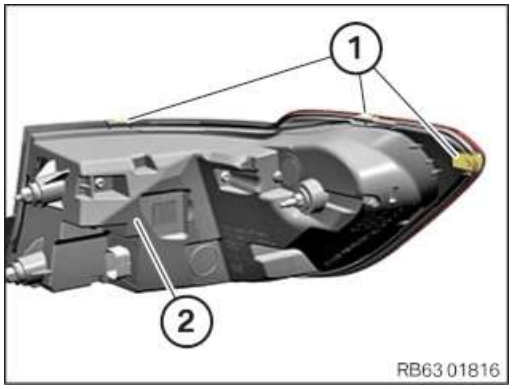
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Result

» The threaded inserts are damaged.

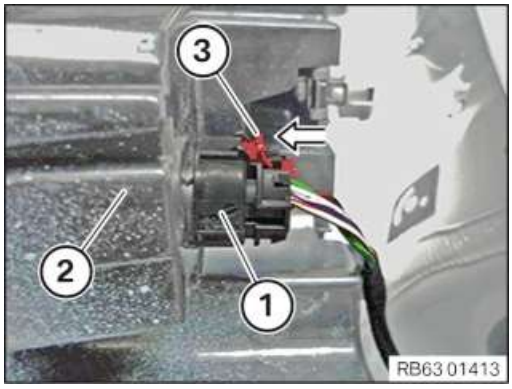
Measure

- Replace rear light.



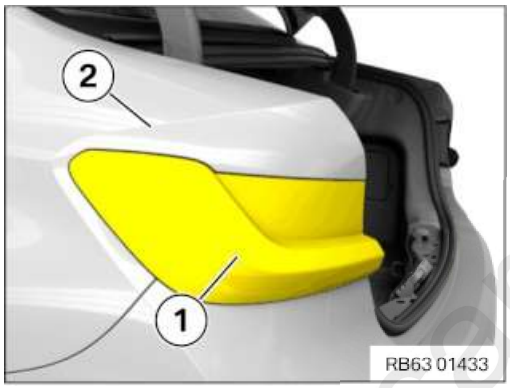
- Contact surfaces (1) on rear light (2) must not be damaged or missing.

  Missing contact surfaces (1) could cause paintwork damage.

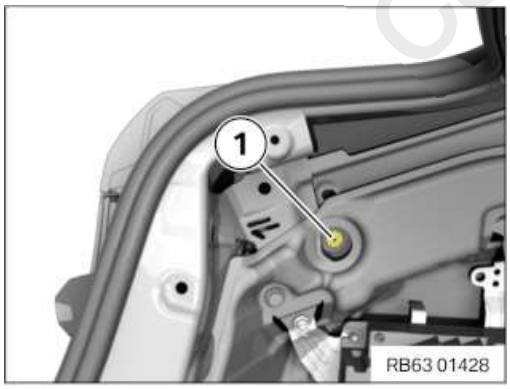


- Connect the connector (1) to the rear light on the side panel (2).

  The connector (1) must engage audibly.
- Lock the lock in direction of arrow (3).

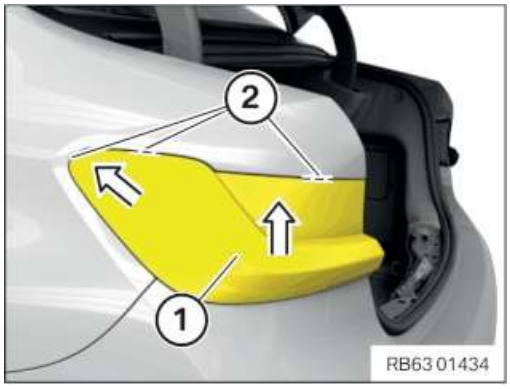


- Position the rear light on the side panel (1) on the side panel (2).

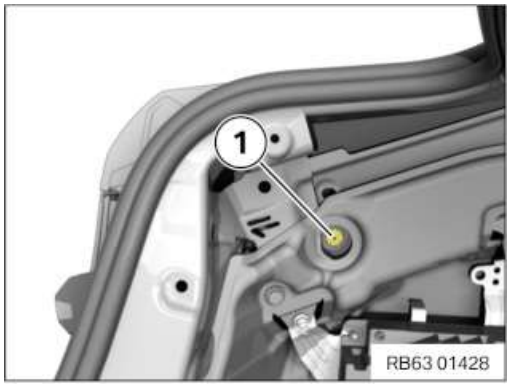


- Position the nut (1).

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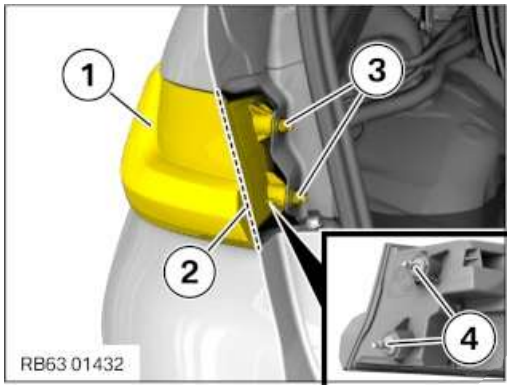
- Position the rear light on the side panel (1) to the front at the top.
- Move the contact surfaces (2) of the rear light on the side panel (1) upwards (arrow) so that they are in place.
- Hold the rear light on the side panel (1) in position.



- Tighten nut (1).

Rear light to side panel to body

Combination hexagon nut		Tightening torque	4 Nm



- Position nuts (3).
- Align rear light on the side panel (1) with the connecting line (2).

  The alignment is done through threaded inserts (4) on the rear light on the side panel (2).
- If necessary, correct the position of the rear light on the side panel (1) by twisting threaded inserts (4).
- Tighten nuts (3).

Rear light to side panel to body

Combination hexagon nut		Tightening torque	4 Nm

11 – Installing trim in water channel on left and right

NOTICE

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

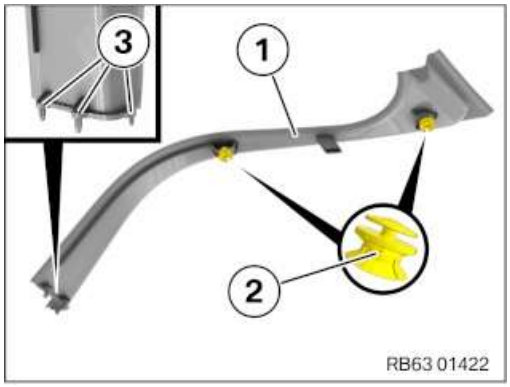
▸ Installing trim in water channel

NOTICE

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

Check

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- Check clips (2) for damage and renew if necessary.
- Check guides (3) for damage.

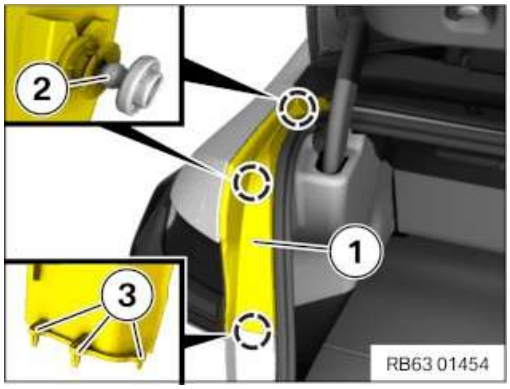
Result

» The guides are damaged.

Measure

- Renew the trim .

  Parts: trim



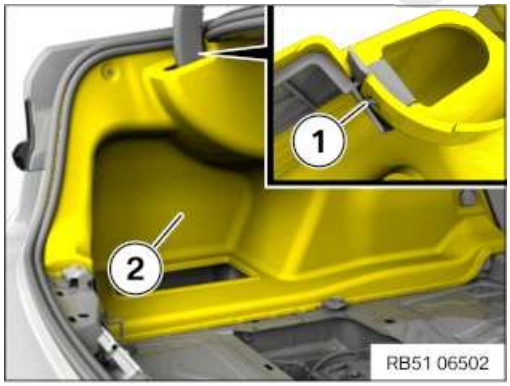
- Insert trim (1) in guides (3).
- Clip trim (1) from above into ball pins (2).

12 – Partially installing the luggage compartment wheel arch trim panel on the left and right

▸ Partially installing the left luggage compartment wheel arch trim panel

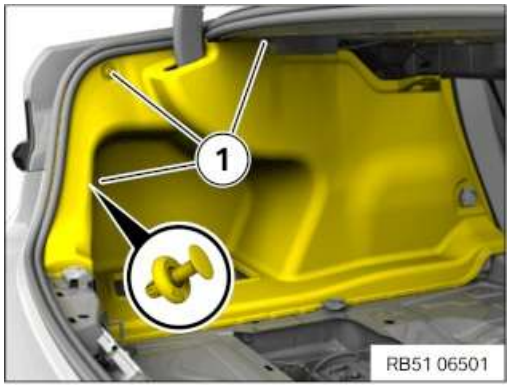
NOTICE

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



- Feed the luggage compartment wheel arch trim panel (2) into the rear area under the sealing lip of the tailgate seal.
- Feed the tab of the luggage compartment wheel arch trim panel (2) on the outer side of the hinge into the stop on the trim (1).

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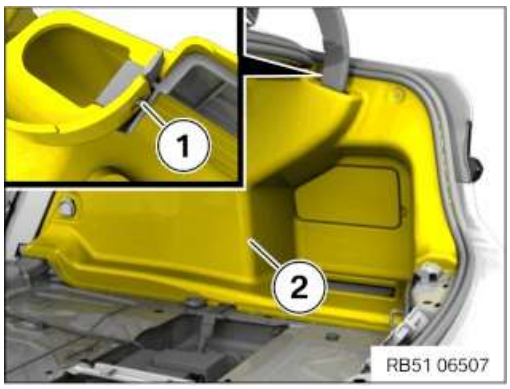


- Secure expanding rivet (1).

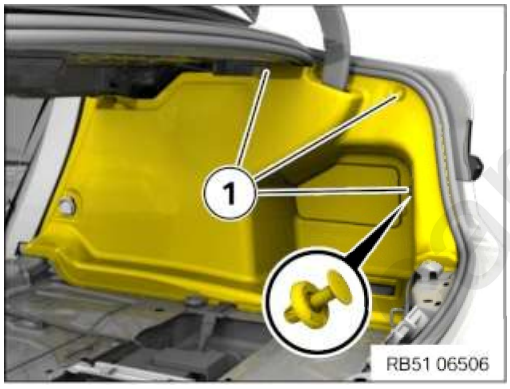
▸ **Partially installing right luggage compartment wheel arch trim panel**

NOTICE

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



- Guide luggage compartment wheel arch trim panel (2) into the rear area under the sealing lip of the tailgate seal.
- Feed the tab of the luggage compartment wheel arch trim panel (2) on the outer side of the hinge into the stop on the trim (1).

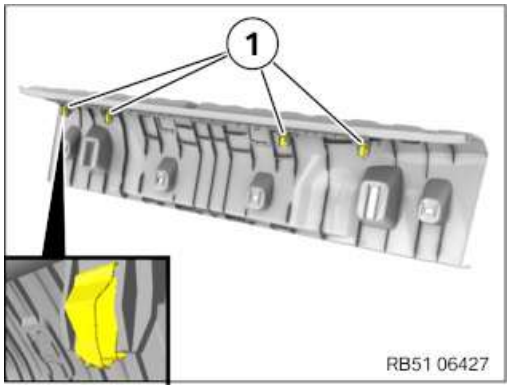


- Secure expanding rivet (1).

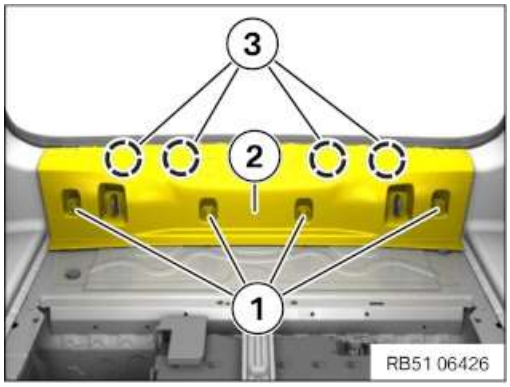
13 – Installing loading edge trim

NOTICE

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



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



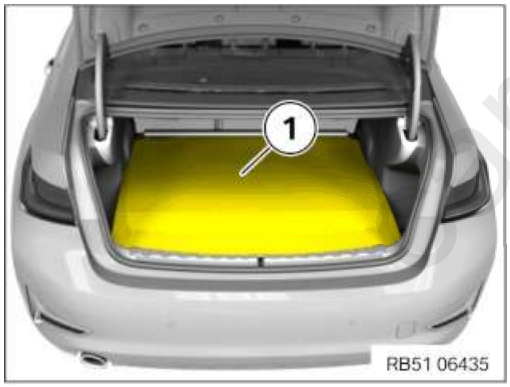
- Insert the loading edge trim (2) under the sealing lip of the tailgate seal.
- Fit the trim of the loading edge (2) at the latch mechanisms (3) and clip it in to the bottom.
- Secure expanding rivet (1).

14 – Installing the luggage compartment floor trim panel

▸ **Installing the luggage compartment floor trim panel**

NOTICE

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



- Insert the luggage compartment floor trim panel (1).

Additional Information

Overview of Tightening Torques

Rear bumper trim panel to guide			Used in step 9
Hexagon screw		Tightening torque	2.5 Nm

Lower bumper panel to body			Used in step 9
Oval-head screw		Tightening torque	2.5 Nm

Rear wheel arch cover to bumper trim panel			Used in step 9
Hexagon screw		Tightening torque	2,6 Nm

Rear light to side panel to body			Used in step 10
Combination hexagon nut		Tightening torque	4 Nm

Links

Repair instructions	Used in step
61 13 ... Unlocking and disconnecting different plug connections	5

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66 32 165 Removing and installing side radar sensor short range front left

TECHNICAL INFORMATION

To guarantee the quality of the driver assistance functions in vehicles with concealed radar sensors installed, the component may only be repainted by observing the repair specifications described in the document "Standards for repair painting with sensor systems".

Sourcing reference:

https://colorsystem-paint.com/

Aftersales Information Research (AIR) - Repair and service messages - HG99 - ColorSystem

ISTA - HG99 - ColorSystem

No stickers or foils (transparent or coloured) may be attached in the radiation areas of the radar sensors.

The component may be painted if no radar sensors have been installed.

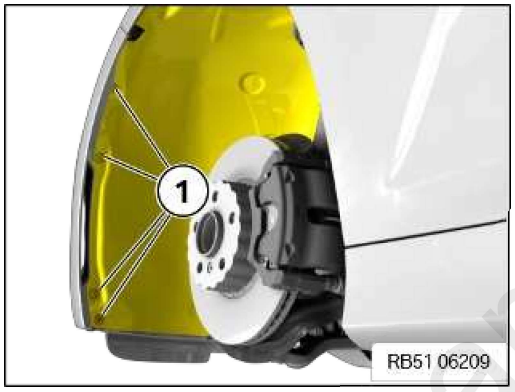
The following features can be used to identify whether radar sensors are installed on the vehicle:

Radar sensors are installed at the rear if the triangular warning light is located on the exterior mirror (in the mirror glass or on the mirror frame).

Radar sensors are installed at the front and rear if the triangular warning light is located on the exterior mirror (in the mirror glass or on the mirror frame) in conjunction with the optional equipment S5ATA or S5AUA.

PRELIMINARY WORK

1 – Partially removing front wheel arch trim panel



NOTICE

To provide a better overview: Schematic diagram without front wheel.

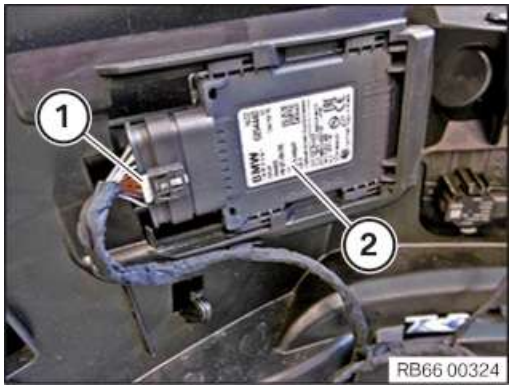
- Loosen screws (1).
- Fold the front wheel arch trim panel to one side.

MAIN WORK

2 – Removing the front side radar sensor

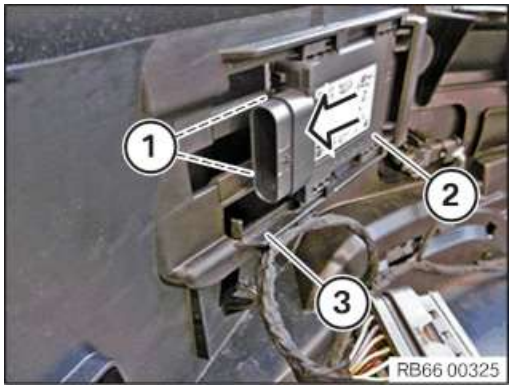
NOTICE

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



- Unlock and disconnect the plug connection (1) on the side radar sensor (2).

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- Unlock lock (1).
- Push the side radar sensor (2) in the direction of arrow from the holder (3) and remove it.

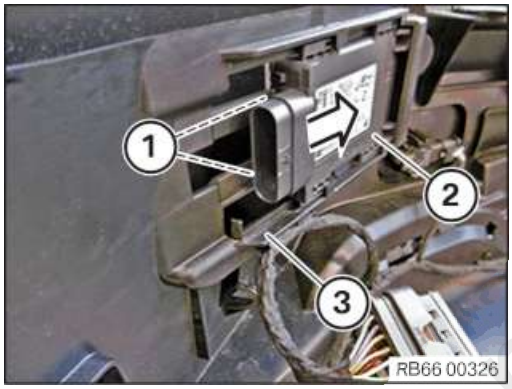
3 – Installing front side radar sensor

TECHNICAL INFORMATION

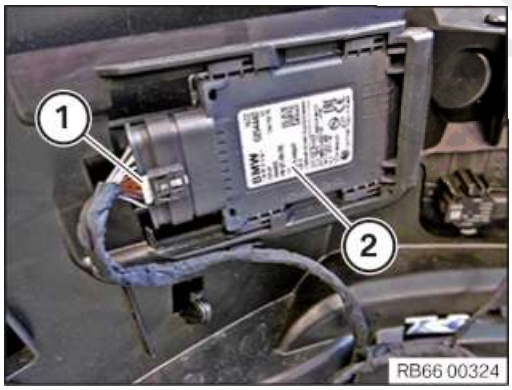
Latch mechanisms, guides and mounting elements must not be damaged or missing.

NOTICE

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

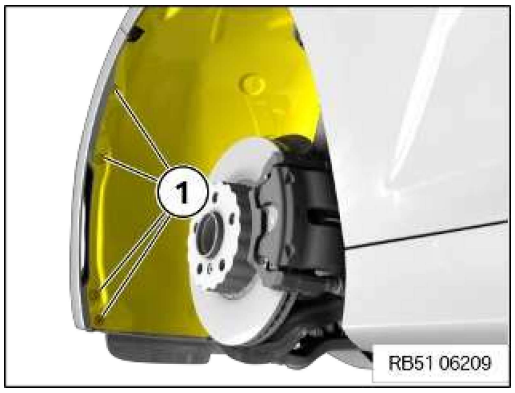


- Slide side radar sensor (2) in direction of arrow into the holder (3).
- Lock the lock (1).
- Make sure the lock (1) is locked correctly.



- Connect the connector (1) on the side radar sensor (2) and lock.

4 – Partially installing front wheel arch trim panel



NOTICE

To provide a better overview: Schematic diagram without front wheel.

- Fold back the front wheel arch trim panel.
- Tighten the screws (1).

Wheel arch trim panel, front

Thermoplastic hexagon screw		Tightening torque	2,6 Nm

Additional Information

Overview of Tightening Torques

Wheel arch trim panel, front Used in step 4

Thermoplastic hexagon screw		Tightening torque	2,6 Nm

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66 32 170 Removing and installing side radar sensor short range front right

TECHNICAL INFORMATION

To guarantee the quality of the driver assistance functions in vehicles with concealed radar sensors installed, the component may only be repainted by observing the repair specifications described in the document "Standards for repair painting with sensor systems".

Sourcing reference:

https://colorsystem-paint.com/

Aftersales Information Research (AIR) - Repair and service messages - HG99 - ColorSystem

ISTA - HG99 - ColorSystem

No stickers or foils (transparent or coloured) may be attached in the radiation areas of the radar sensors.

The component may be painted if no radar sensors have been installed.

The following features can be used to identify whether radar sensors are installed on the vehicle:

Radar sensors are installed at the rear if the triangular warning light is located on the exterior mirror (in the mirror glass or on the mirror frame).

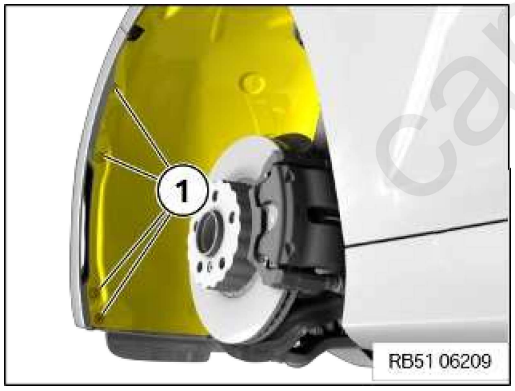
Radar sensors are installed at the front and rear if the triangular warning light is located on the exterior mirror (in the mirror glass or on the mirror frame) in conjunction with the optional equipment S5ATA or S5AUA.

PRELIMINARY WORK

1 – Partially removing front right wheel arch trim panel

NOTICE

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



▸ **Partially removing front wheel arch trim panel**

NOTICE

To provide a better overview: Schematic diagram without front wheel.

- Loosen screws (1).
- Fold the front wheel arch trim panel to one side.

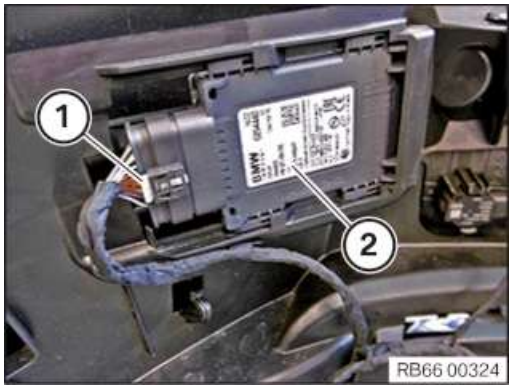
MAIN WORK

2 – Removing the front side radar sensor

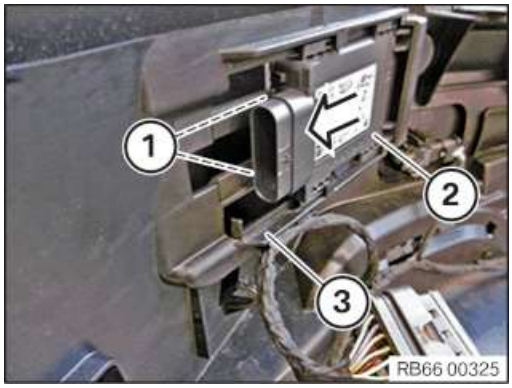
NOTICE

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

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- Unlock and disconnect the plug connection (1) on the side radar sensor (2).



- Unlock lock (1).
- Push the side radar sensor (2) in the direction of arrow from the holder (3) and remove it.

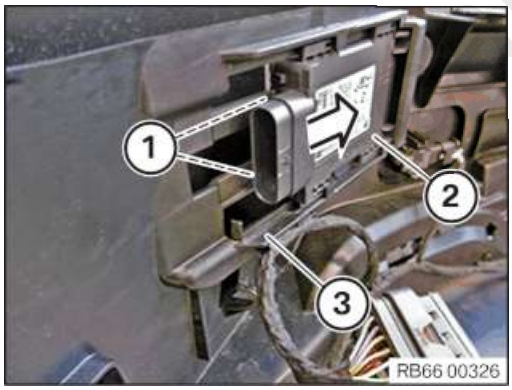
3 – Installing front side radar sensor

TECHNICAL INFORMATION

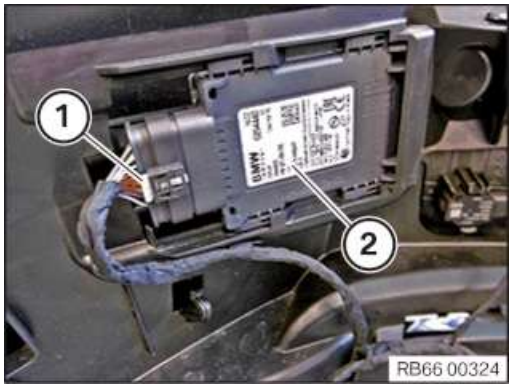
Latch mechanisms, guides and mounting elements must not be damaged or missing.

NOTICE

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



- Slide side radar sensor (2) in direction of arrow into the holder (3).
- Lock the lock (1).
- Make sure the lock (1) is locked correctly.

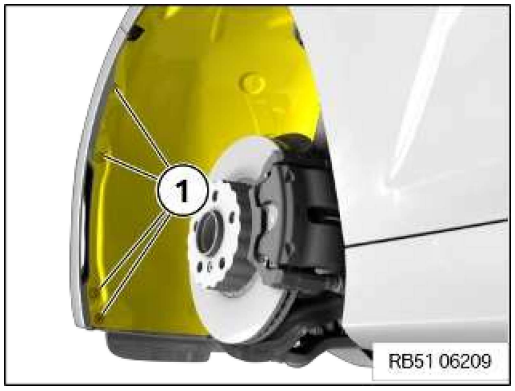


- Connect the connector (1) on the side radar sensor (2) and lock.

4 – Partly installing the right front wheel arch trim panel

NOTICE

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



▸ **Partially installing front wheel arch trim panel**

NOTICE

To provide a better overview: Schematic diagram without front wheel.

- Fold back the front wheel arch trim panel.
- Tighten the screws (1).

Wheel arch trim panel, front

Thermoplastic hexagon screw		Tightening torque	2,6 Nm

Additional Information

Overview of Tightening Torques

Wheel arch trim panel, front Used in step 4

Thermoplastic hexagon screw		Tightening torque	2,6 Nm

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66 32 681 Replace the left rear short range radar sensor

TECHNICAL INFORMATION

To guarantee the quality of the driver assistance functions in vehicles with concealed radar sensors installed, the component may only be repainted by observing the repair specifications described in the document "Standards for repair painting with sensor systems".

Sourcing reference:

https://colorsystem-paint.com/

Aftersales Information Research (AIR) - Repair and service messages - HG99 - ColorSystem

ISTA - HG99 - ColorSystem

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Radar sensors are installed at the rear if the triangular warning light is located on the exterior mirror (in the mirror glass or on the mirror frame).

Radar sensors are installed at the front and rear if the triangular warning light is located on the exterior mirror (in the mirror glass or on the mirror frame) in conjunction with the optional equipment S5ATA or S5AUA.

PRELIMINARY WORK

1 – Removing the luggage compartment floor trim panel

▸ **Removing the luggage compartment floor trim panel**

NOTICE

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

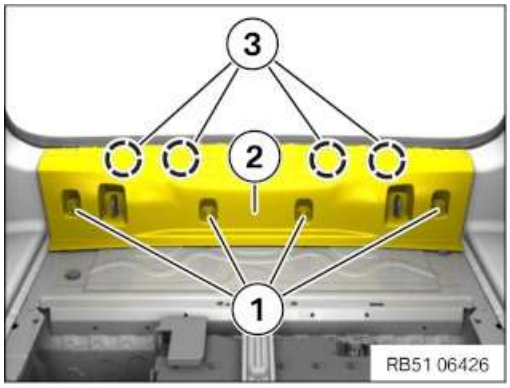


- Remove luggage compartment floor trim panel (1).

2 – Removing the loading edge trim

NOTICE

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



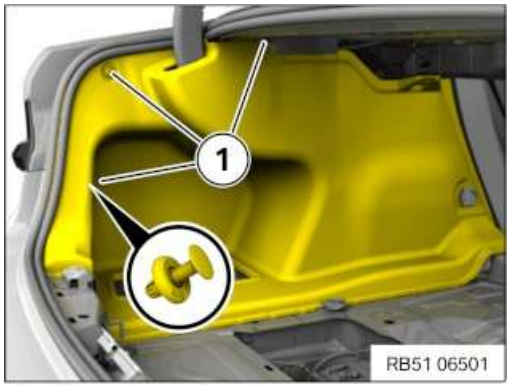
- Loosen the expanding rivet (1).
- Unclip loading edge trim(2) upwards from latch mechanisms (3).
- Guide out and remove loading edge trim (2) under the sealing lip of the tailgate seal.

3 – Removing part of the luggage compartment wheel arch trim panel on the left and right

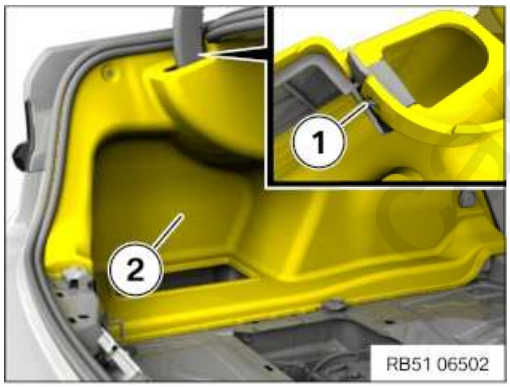
▸ **Partially remove luggage compartment wheel arch panel on left**

NOTICE

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



- Loosen the expanding rivet (1).



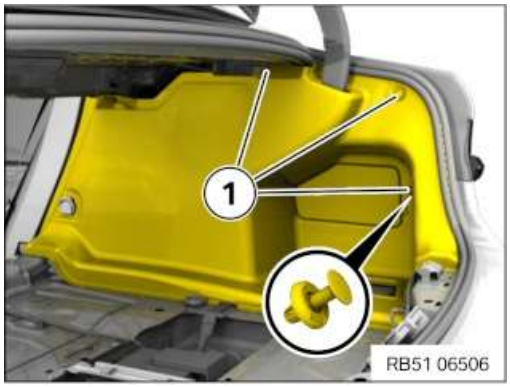
- Press the tab for luggage compartment wheel arch trim panel (2) on the outer side of the hinge to the front using the stop on trim (1).
- Guide out luggage compartment wheel arch trim panel (2) under the sealing lip of the tailgate seal and release it in the rear area.

▸ **Partially remove luggage compartment wheel arch panel on right**

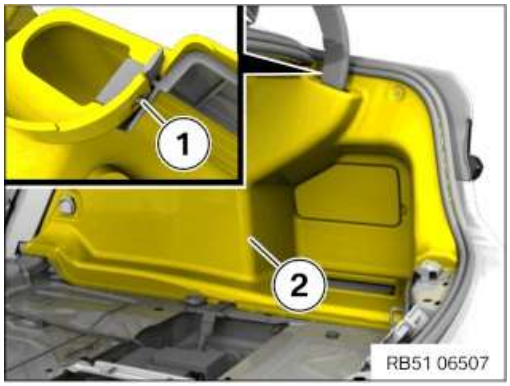
NOTICE

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

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- Loosen the expanding rivet (1).



- Press the tab for luggage compartment wheel arch trim panel (2) on the outer side of the hinge to the front using the stop on trim (1).
- Guide out luggage compartment wheel arch trim panel (2) under the sealing lip of the tailgate seal and release it in the rear area.

4 – Removing trim from water channel on left and right

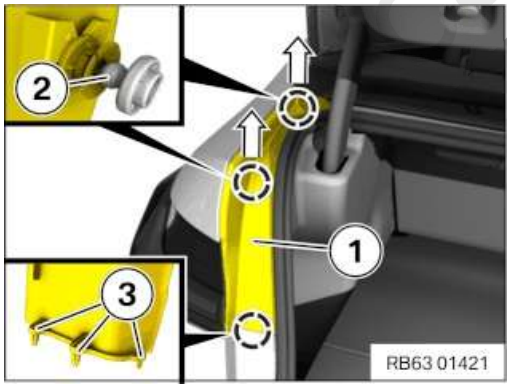
NOTICE

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

▸ **Removing trim from water channel**

NOTICE

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



- Unclip trim (1) in upward direction from ball pins (2).
- Release trim (1) from guides (3) and remove.

5 – Removing the rear light on the left and right side panels

NOTICE

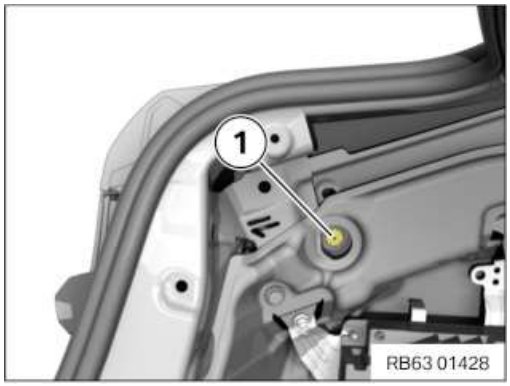
Description is for left component only. Procedure on the right side is identical.

▸ **Removing the rear light on the side panel**

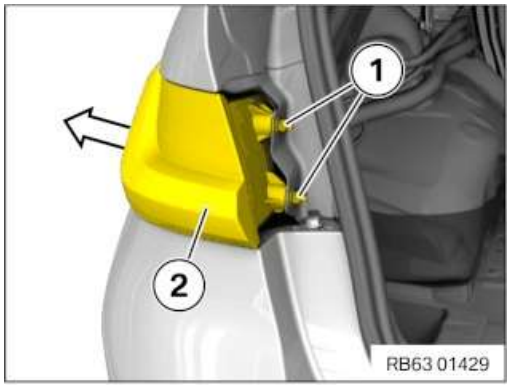
cardiagn.com

NOTICE

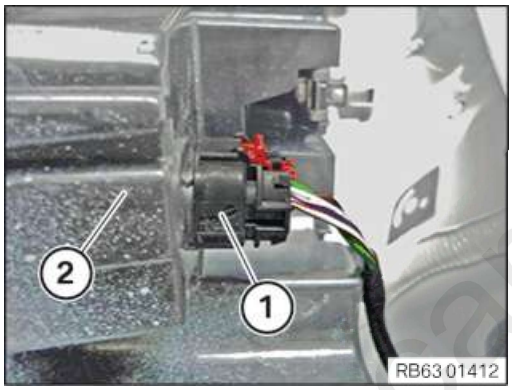
Schematic diagram is for example purposes. Some parts may differ in certain details.



- Loosen nut (1).



- Release the nuts (1) and feed out the rear light on the side panel (2) in the direction of arrow.



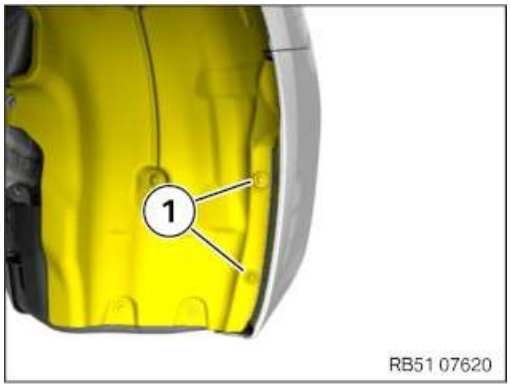
TECHNICAL INFORMATION

Observe note on unlocking and disconnecting plug connections.

For additional information see: 6113 ... Unlocking and disconnecting different plug connections

- Unlock plug connection (1) and disconnect.
- Remove the rear light on the side panel (2).

6 – Remove rear bumper panel



NOTICE

Perform the operations on the left and right side.

NOTICE

To provide a better overview: Schematic diagram with partially hidden components.

- Loosen screws (1).

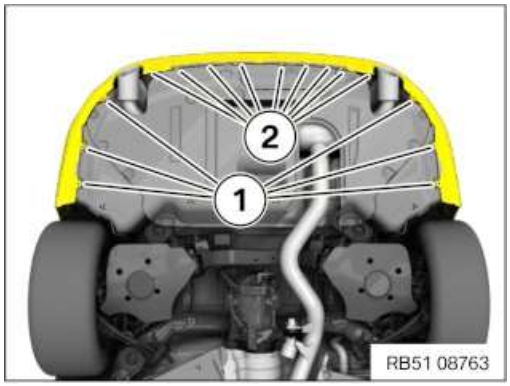
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NOTICE

Perform the operations on the left and right side.

- Release the screw (1).



- Loosen screws (1).
- Release the bumper panel at the latch mechanisms (2).



NOTICE

Perform the operations on the left and right side.

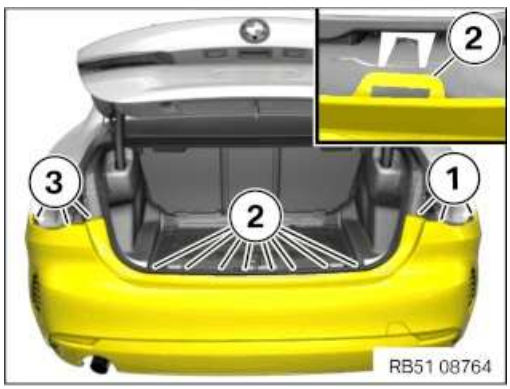
- Release the screw (1).



NOTICE

Perform the operations on the left and right side.

- Release the bumper panel with the latch mechanisms (1).



- Release the bumper panel with the latch mechanisms (1).
- Release the bumper panel from the latch mechanisms (2) starting from the right.
- Release the bumper panel from the latch mechanisms (3)



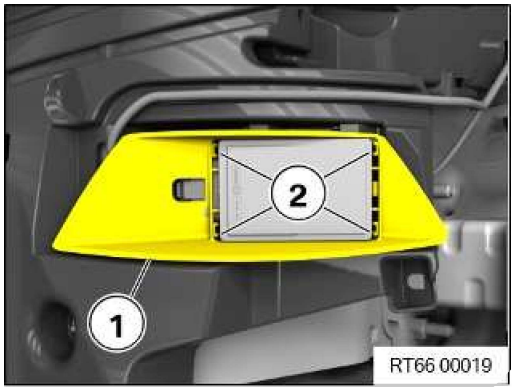
- Unlock plug connection and disconnect.
- Remove bumper panel.

MAIN WORK

7 – Removing the rear side radar sensor

NOTICE

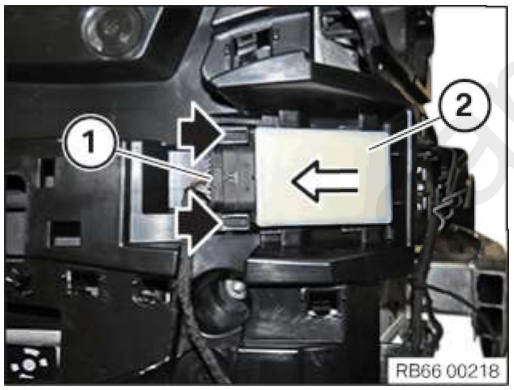
Description is for left component only. Procedure on the right side is identical.



NOTICE

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

- Unlock and remove the absorber (1) at the retaining lugs (2).

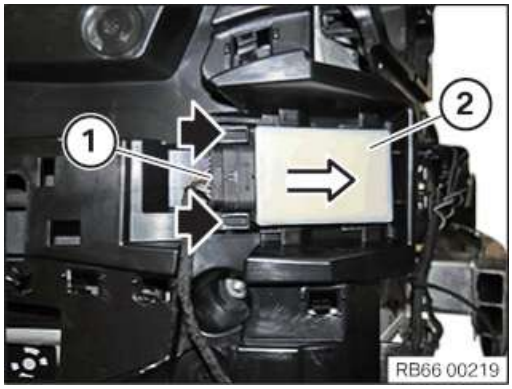


- Unlock and disconnect connector (1).
- Unlock the latch mechanisms (arrows).
- Remove the side radar sensor (2) in the direction of arrow.

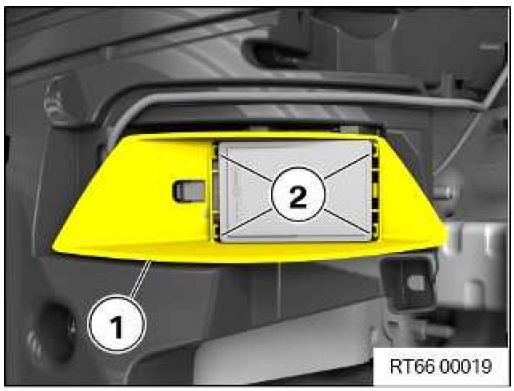
8 – Installing rear side radar sensor

NOTICE

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



- Position the side radar sensor (2) correctly and slide in the direction of arrow.
- Ensure that the latch mechanisms (arrows) engage correctly.
- Connect connector (1).



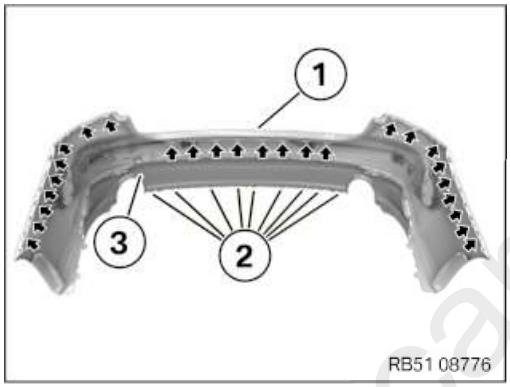
TECHNICAL INFORMATION

If the component described below has not been installed as yet, it should be retrofitted.

- Position the absorber (1) and lock with the retaining lugs (2).
- Ensure that the absorber (1) engages correctly on the retaining lugs (2).

POSTPROCESSES

9 – Install rear bumper panel



Check

- Check the latch mechanisms (arrows) on the bumper panel (1) for damage.

  Check the latch mechanisms (2) on the bumper trim (3) for damage.

Result

» Latch mechanisms (arrows) are damaged.

Measure

- Renew the bumper panel (1).

Result

» Latch mechanisms (2) are damaged.

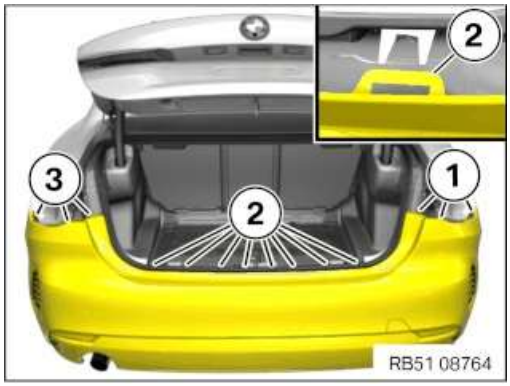
Measure

- Renew the bumper trim (3).

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- Position the bumper panel.
- Connect connectors (1) and lock.



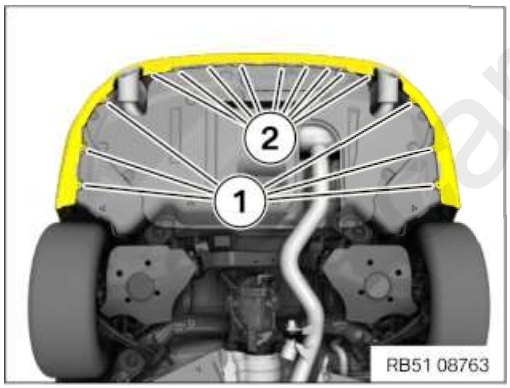
- Clip in the bumper panel with the latch mechanisms (1),(2) and (3).



NOTICE

Perform the operations on the left and right side.

- Clip in the bumper panel with latch mechanisms (1).



- Clip in the bumper panel with latch mechanisms (2).
- Tighten the screws (1).

Rear bumper trim panel to guide

Hexagon screw		Tightening torque	2.5 Nm



NOTICE

Perform the operations on the left and right side.

- Tighten down screw (1).

Rear bumper trim panel to guide

Hexagon screw		Tightening torque	2.5 Nm



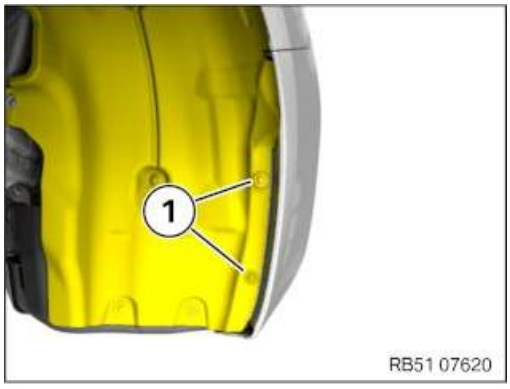
NOTICE

Perform the operations on the left and right side.

- Tighten down screw (1).

Lower bumper panel to body

Oval-head screw		Tightening torque	2.5 Nm



NOTICE

Perform the operations on the left and right side.

NOTICE

To provide a better overview: Schematic diagram with partially hidden components.

- Tighten the screws (1).

Rear wheel arch cover to bumper trim panel

Hexagon screw		Tightening torque	2,6 Nm

10 – Installing the rear light on the left and right side panels

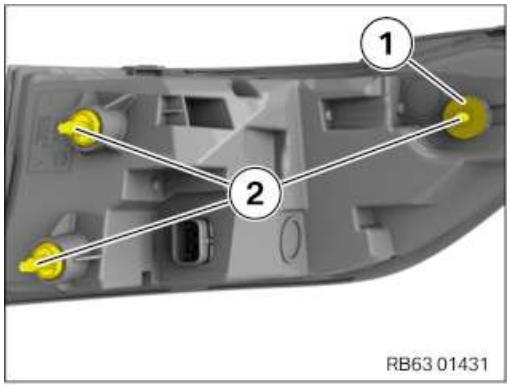
NOTICE

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

▸ **Install the rear light on the side panel**

NOTICE

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



Check

- Check the seal (1) for damage and renew if necessary.
- Check the threaded inserts (2) for damage.

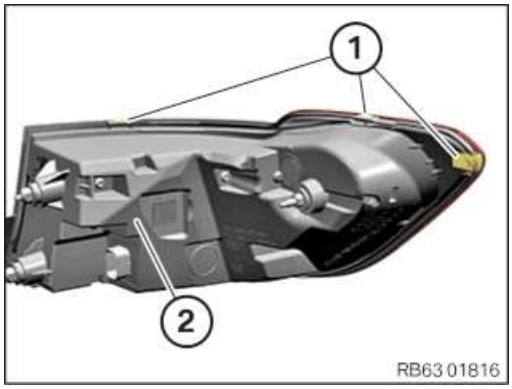
cardiagn.com

Result

» The threaded inserts are damaged.

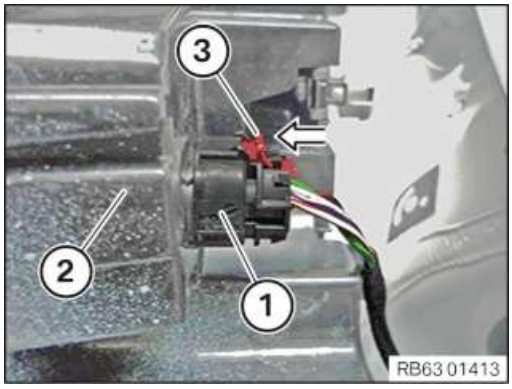
Measure

- Replace rear light.



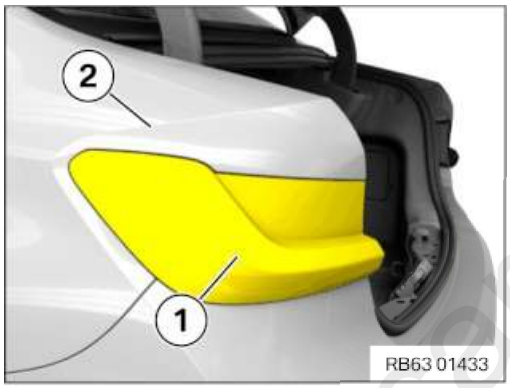
- Contact surfaces (1) on rear light (2) must not be damaged or missing.

  Missing contact surfaces (1) could cause paintwork damage.

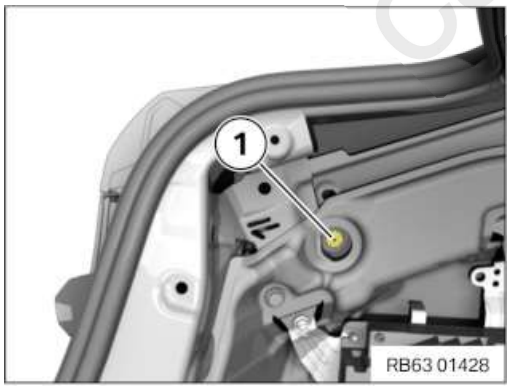


- Connect the connector (1) to the rear light on the side panel (2).

  The connector (1) must engage audibly.
- Lock the lock in direction of arrow (3).

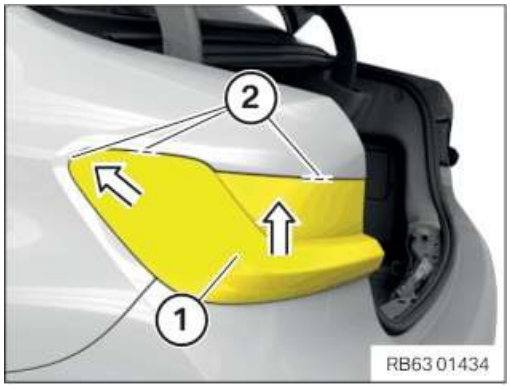


- Position the rear light on the side panel (1) on the side panel (2).

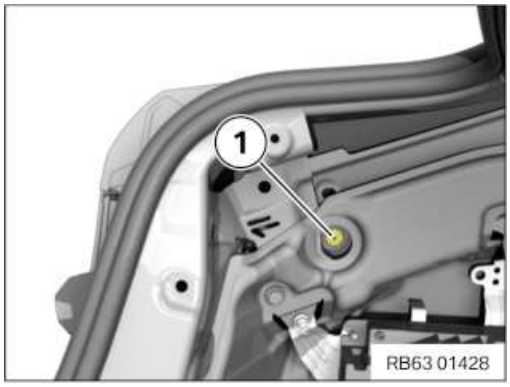


- Position the nut (1).

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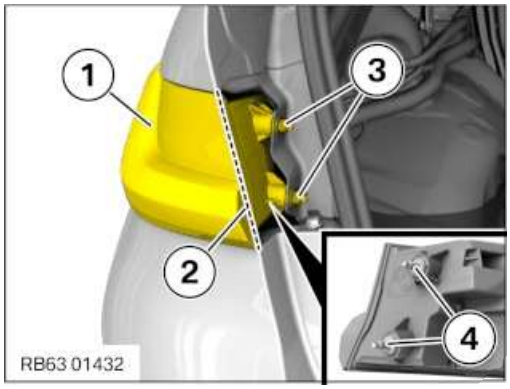
- Position the rear light on the side panel (1) to the front at the top.
- Move the contact surfaces (2) of the rear light on the side panel (1) upwards (arrow) so that they are in place.
- Hold the rear light on the side panel (1) in position.



- Tighten nut (1).

Rear light to side panel to body

Combination hexagon nut		Tightening torque	4 Nm



- Position nuts (3).
- Align rear light on the side panel (1) with the connecting line (2).

  The alignment is done through threaded inserts (4) on the rear light on the side panel (2).
- If necessary, correct the position of the rear light on the side panel (1) by twisting threaded inserts (4).
- Tighten nuts (3).

Rear light to side panel to body

Combination hexagon nut		Tightening torque	4 Nm

11 – Installing trim in water channel on left and right

NOTICE

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

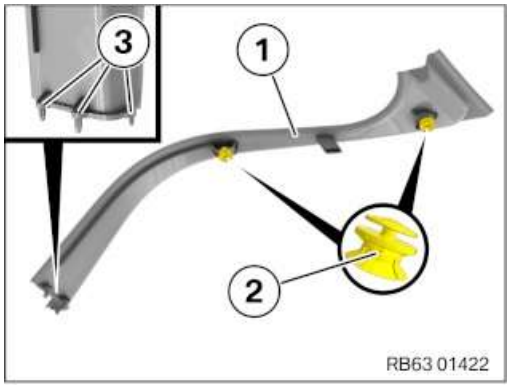
▸ Installing trim in water channel

NOTICE

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

Check

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- Check clips (2) for damage and renew if necessary.
- Check guides (3) for damage.

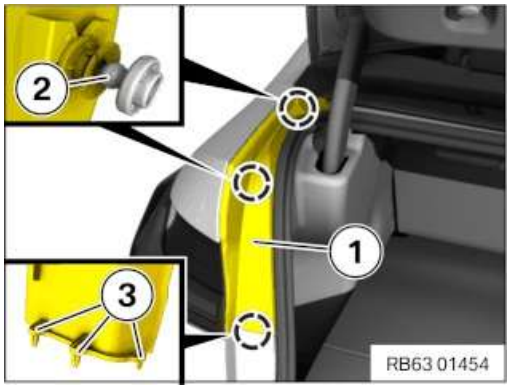
Result

» The guides are damaged.

Measure

- Renew the trim .

  Parts: trim



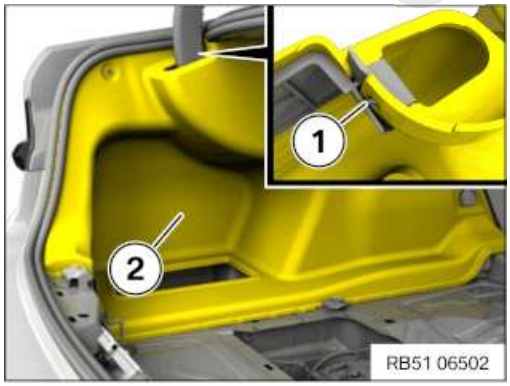
- Insert trim (1) in guides (3).
- Clip trim (1) from above into ball pins (2).

12 – Partially installing the luggage compartment wheel arch trim panel on the left and right

▸ Partially installing the left luggage compartment wheel arch trim panel

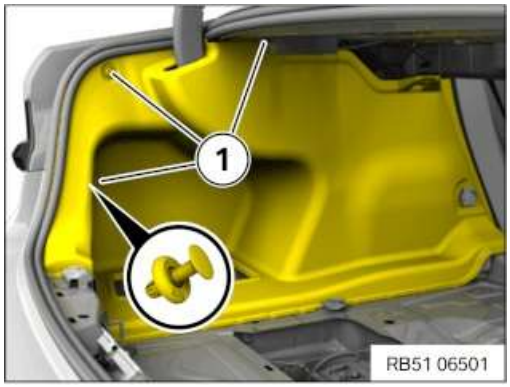
NOTICE

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



- Feed the luggage compartment wheel arch trim panel (2) into the rear area under the sealing lip of the tailgate seal.
- Feed the tab of the luggage compartment wheel arch trim panel (2) on the outer side of the hinge into the stop on the trim (1).

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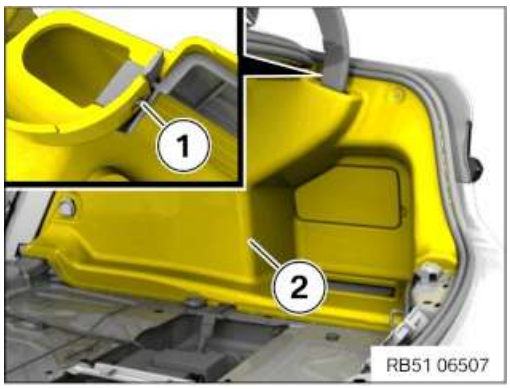


- Secure expanding rivet (1).

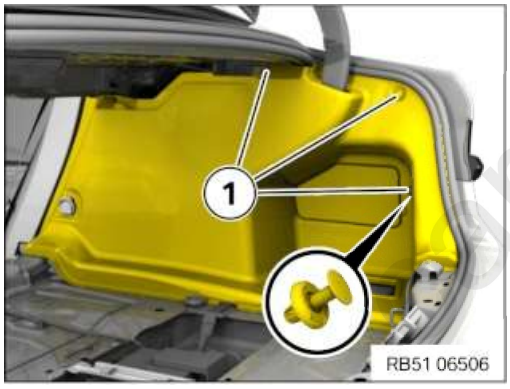
▸ **Partially installing right luggage compartment wheel arch trim panel**

NOTICE

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



- Guide luggage compartment wheel arch trim panel (2) into the rear area under the sealing lip of the tailgate seal.
- Feed the tab of the luggage compartment wheel arch trim panel (2) on the outer side of the hinge into the stop on the trim (1).

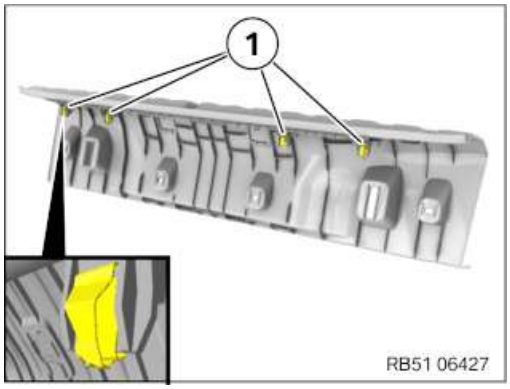


- Secure expanding rivet (1).

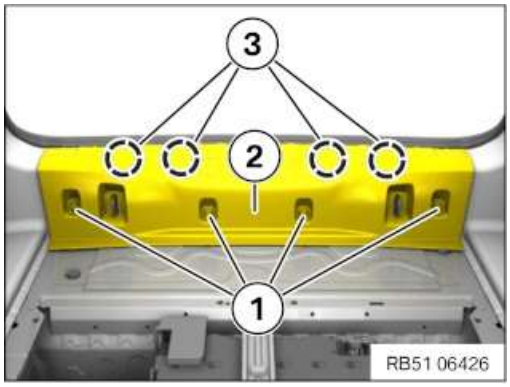
13 – Installing loading edge trim

NOTICE

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



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



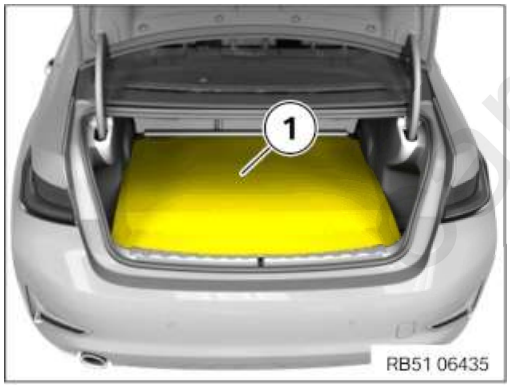
- Insert the loading edge trim (2) under the sealing lip of the tailgate seal.
- Fit the trim of the loading edge (2) at the latch mechanisms (3) and clip it in to the bottom.
- Secure expanding rivet (1).

14 – Installing the luggage compartment floor trim panel

▸ **Installing the luggage compartment floor trim panel**

NOTICE

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



- Insert the luggage compartment floor trim panel (1).

15 – Encode/program control unit(s)

Prerequisite

Component has been replaced.

TECHNICAL INFORMATION

Use the most recent software version to prevent faults during programming/encoding.
The battery voltage must not fall below 13.0 V during programming.
Use only chargers for a low volt-vehicle electrical system that are recommended by BMW.

TECHNICAL INFORMATION

No high-voltage switch off is required in electric vehicles or hybrid vehicles for programming/encoding.
The high-voltage system will be automatically switched off by the programming system.

- Connect the battery charger to the vehicle.
- Connect the programming system with the vehicle.
- Determine the action plan.
- Accept and fully process the measures plan.
- If applicable, connect the workshop system to the vehicle, depending on the reworking list.
- Carry out vehicle test.
- Delete the fault memory.
- The information about programming the workshop system and the corresponding notes in the user documentation must be observed.
- Wait until programming/encoding has been completed.
- Disconnect the programming system from the vehicle.
- Disconnect the battery charger from the vehicle.

Additional Information

Overview of Tightening Torques

Rear bumper trim panel to guide			Used in step 9
Hexagon screw		Tightening torque	2.5 Nm

Lower bumper panel to body			Used in step 9
Oval-head screw		Tightening torque	2.5 Nm

Rear wheel arch cover to bumper trim panel			Used in step 9
Hexagon screw		Tightening torque	2,6 Nm

Rear light to side panel to body			Used in step 10
Combination hexagon nut		Tightening torque	4 Nm

Links

Repair instructions	**Used in step**
61 13 ... Unlocking and disconnecting different plug connections	5

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66 32 686 Replace the rear radar sensor short range right

TECHNICAL INFORMATION

To guarantee the quality of the driver assistance functions in vehicles with concealed radar sensors installed, the component may only be repainted by observing the repair specifications described in the document "Standards for repair painting with sensor systems".

Sourcing reference:

https://colorsystem-paint.com/

Aftersales Information Research (AIR) - Repair and service messages - HG99 - ColorSystem

ISTA - HG99 - ColorSystem

No stickers or foils (transparent or coloured) may be attached in the radiation areas of the radar sensors.

The component may be painted if no radar sensors have been installed.

The following features can be used to identify whether radar sensors are installed on the vehicle:

Radar sensors are installed at the rear if the triangular warning light is located on the exterior mirror (in the mirror glass or on the mirror frame).

Radar sensors are installed at the front and rear if the triangular warning light is located on the exterior mirror (in the mirror glass or on the mirror frame) in conjunction with the optional equipment S5ATA or S5AUA.

PRELIMINARY WORK

1 – Removing the luggage compartment floor trim panel

▸ **Removing the luggage compartment floor trim panel**

NOTICE

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

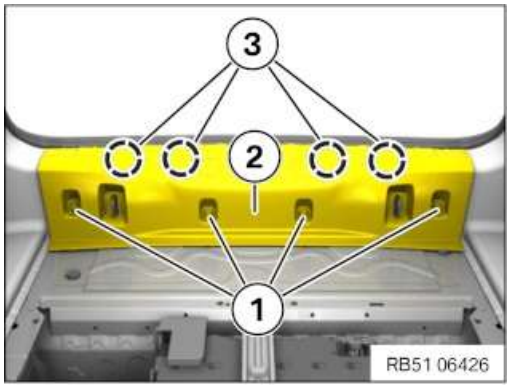


- Remove luggage compartment floor trim panel (1).

2 – Removing the loading edge trim

NOTICE

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



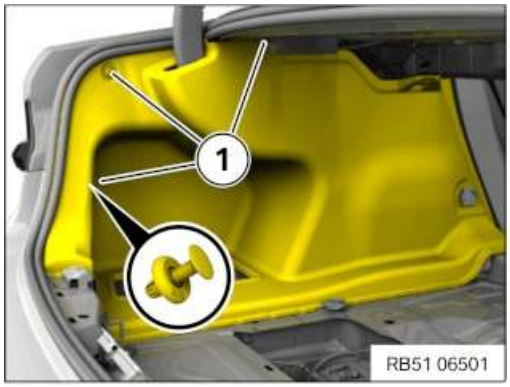
- Loosen the expanding rivet (1).
- Unclip loading edge trim(2) upwards from latch mechanisms (3).
- Guide out and remove loading edge trim (2) under the sealing lip of the tailgate seal.

3 – Removing part of the luggage compartment wheel arch trim panel on the left and right

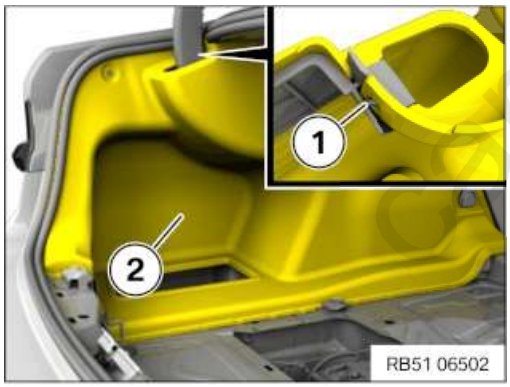
▸ **Partially remove luggage compartment wheel arch panel on left**

NOTICE

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



- Loosen the expanding rivet (1).



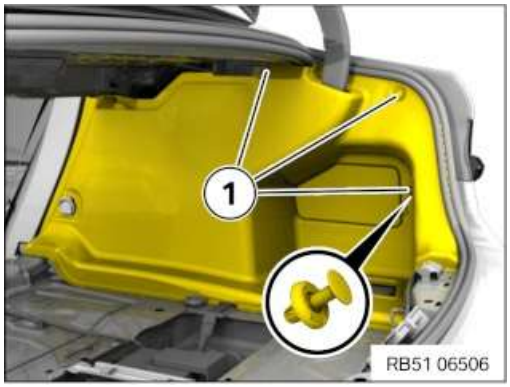
- Press the tab for luggage compartment wheel arch trim panel (2) on the outer side of the hinge to the front using the stop on trim (1).
- Guide out luggage compartment wheel arch trim panel (2) under the sealing lip of the tailgate seal and release it in the rear area.

▸ **Partially remove luggage compartment wheel arch panel on right**

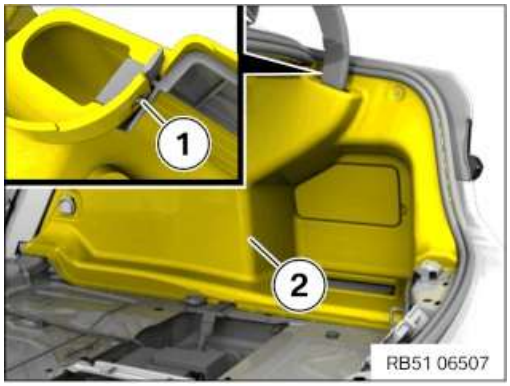
NOTICE

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

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- Loosen the expanding rivet (1).



- Press the tab for luggage compartment wheel arch trim panel (2) on the outer side of the hinge to the front using the stop on trim (1).
- Guide out luggage compartment wheel arch trim panel (2) under the sealing lip of the tailgate seal and release it in the rear area.

4 – Removing trim from water channel on left and right

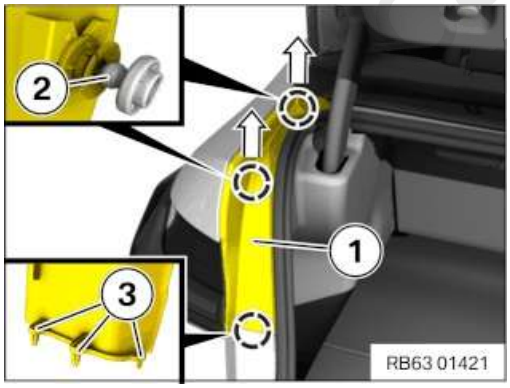
NOTICE

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

▸ **Removing trim from water channel**

NOTICE

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



- Unclip trim (1) in upward direction from ball pins (2).
- Release trim (1) from guides (3) and remove.

5 – Removing the rear light on the left and right side panels

NOTICE

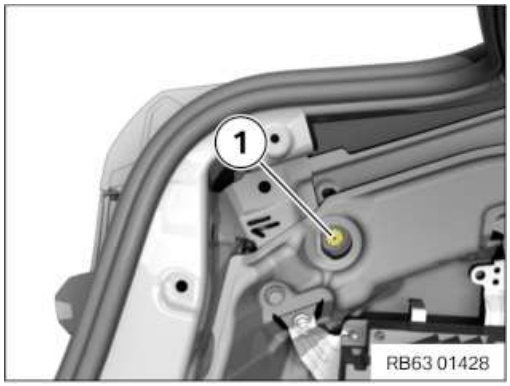
Description is for left component only. Procedure on the right side is identical.

▸ **Removing the rear light on the side panel**

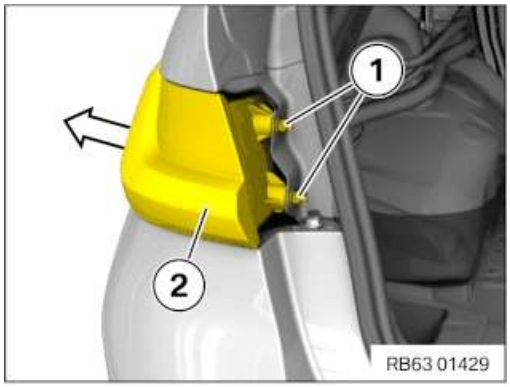
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NOTICE

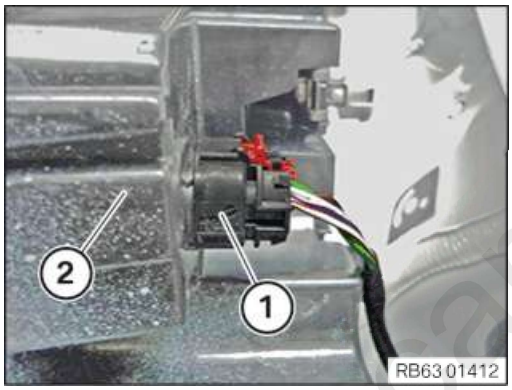
Schematic diagram is for example purposes. Some parts may differ in certain details.



- Loosen nut (1).



- Release the nuts (1) and feed out the rear light on the side panel (2) in the direction of arrow.



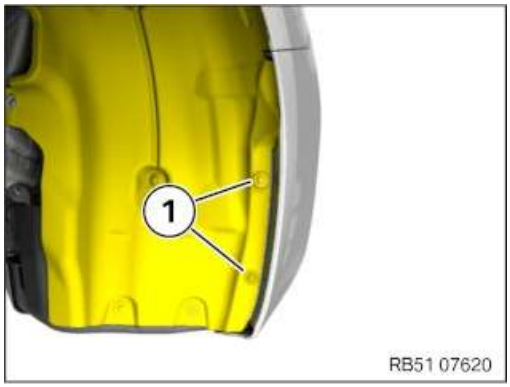
TECHNICAL INFORMATION

Observe note on unlocking and disconnecting plug connections.

For additional information see: 6113 ... Unlocking and disconnecting different plug connections

- Unlock plug connection (1) and disconnect.
- Remove the rear light on the side panel (2).

6 – Remove rear bumper panel



NOTICE

Perform the operations on the left and right side.

NOTICE

To provide a better overview: Schematic diagram with partially hidden components.

- Loosen screws (1).

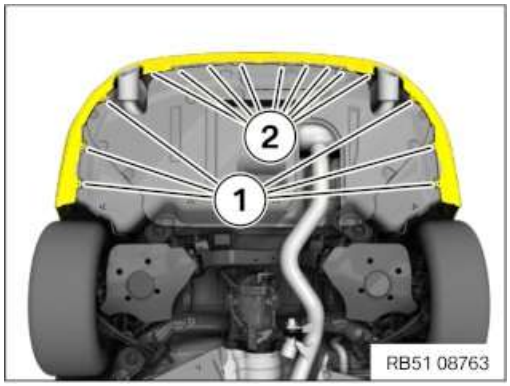
carlogn.com



NOTICE

Perform the operations on the left and right side.

- Release the screw (1).



- Loosen screws (1).
- Release the bumper panel at the latch mechanisms (2).



NOTICE

Perform the operations on the left and right side.

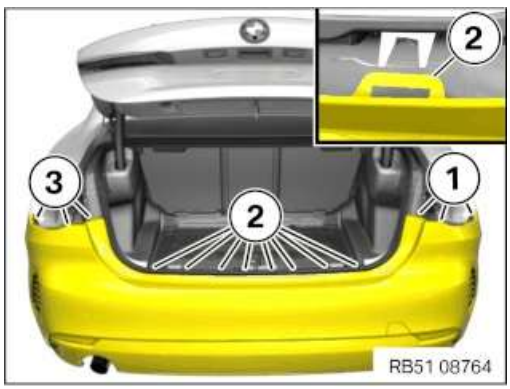
- Release the screw (1).



NOTICE

Perform the operations on the left and right side.

- Release the bumper panel with the latch mechanisms (1).



- Release the bumper panel with the latch mechanisms (1).
- Release the bumper panel from the latch mechanisms (2) starting from the right.
- Release the bumper panel from the latch mechanisms (3)



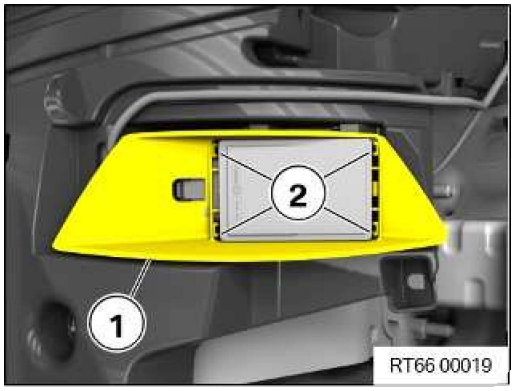
- Unlock plug connection and disconnect.
- Remove bumper panel.

MAIN WORK

7 – Removing the rear side radar sensor

NOTICE

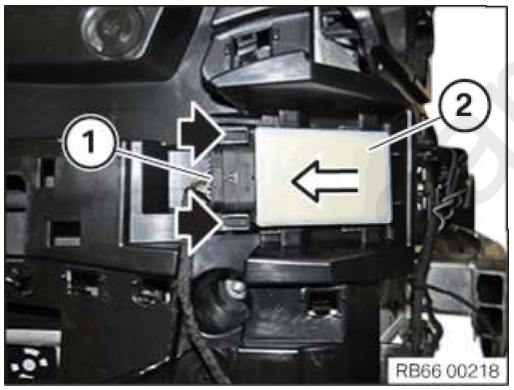
Description is for left component only. Procedure on the right side is identical.



NOTICE

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

- Unlock and remove the absorber (1) at the retaining lugs (2).

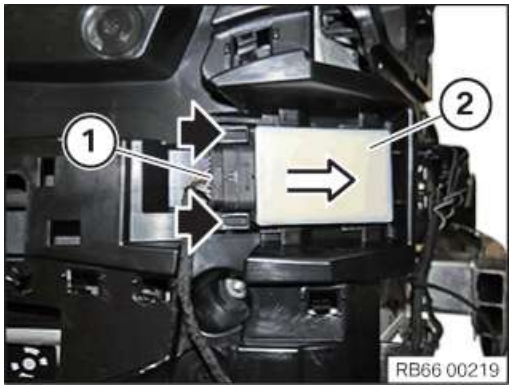


- Unlock and disconnect connector (1).
- Unlock the latch mechanisms (arrows).
- Remove the side radar sensor (2) in the direction of arrow.

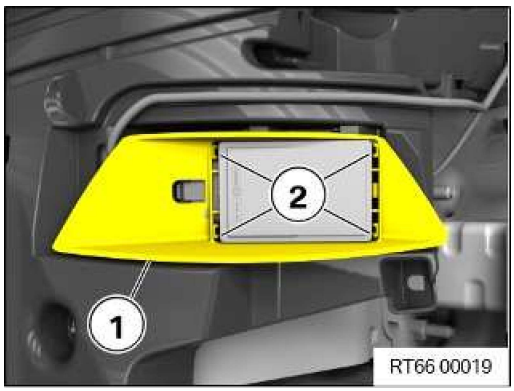
8 – Installing rear side radar sensor

NOTICE

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



- Position the side radar sensor (2) correctly and slide in the direction of arrow.
- Ensure that the latch mechanisms (arrows) engage correctly.
- Connect connector (1).



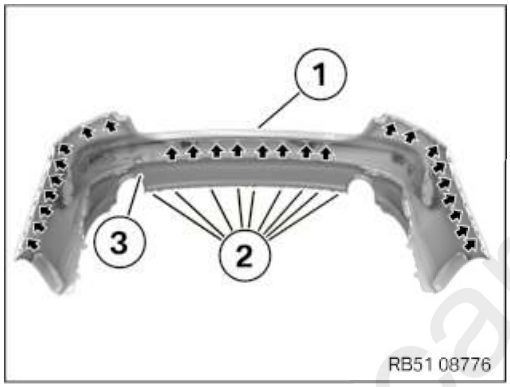
TECHNICAL INFORMATION

If the component described below has not been installed as yet, it should be retrofitted.

- Position the absorber (1) and lock with the retaining lugs (2).
- Ensure that the absorber (1) engages correctly on the retaining lugs (2).

POSTPROCESSES

9 – Install rear bumper panel



Check

- Check the latch mechanisms (arrows) on the bumper panel (1) for damage.

  Check the latch mechanisms (2) on the bumper trim (3) for damage.

Result

» Latch mechanisms (arrows) are damaged.

Measure

- Renew the bumper panel (1).

Result

» Latch mechanisms (2) are damaged.

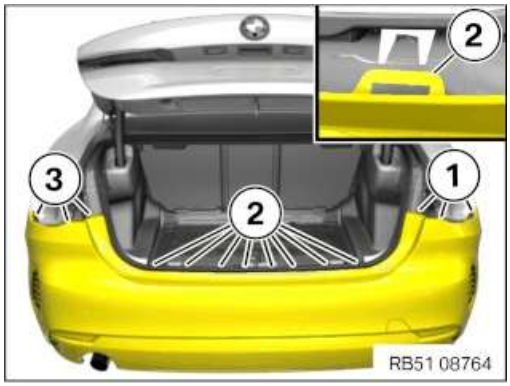
Measure

- Renew the bumper trim (3).

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- Position the bumper panel.
- Connect connectors (1) and lock.



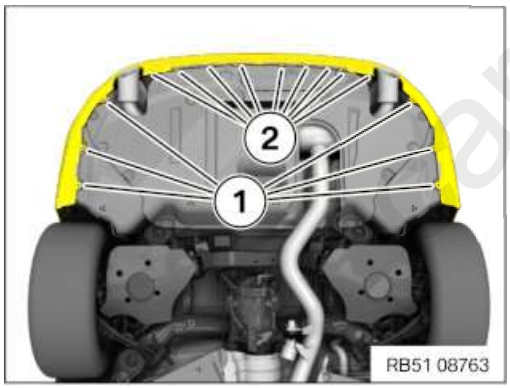
- Clip in the bumper panel with the latch mechanisms (1),(2) and (3).



NOTICE

Perform the operations on the left and right side.

- Clip in the bumper panel with latch mechanisms (1).



- Clip in the bumper panel with latch mechanisms (2).
- Tighten the screws (1).

Rear bumper trim panel to guide

Hexagon screw		Tightening torque	2.5 Nm



NOTICE

Perform the operations on the left and right side.

- Tighten down screw (1).

Rear bumper trim panel to guide

Hexagon screw		Tightening torque	2.5 Nm



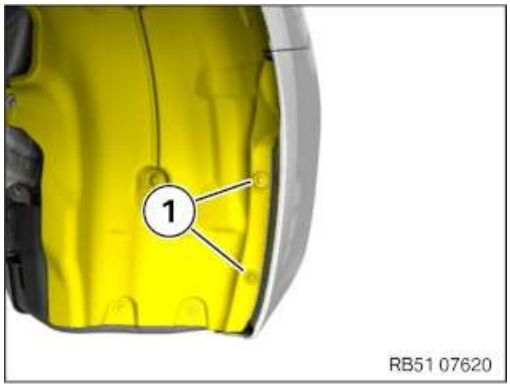
NOTICE

Perform the operations on the left and right side.

- Tighten down screw (1).

Lower bumper panel to body

Oval-head screw		Tightening torque	2.5 Nm



NOTICE

Perform the operations on the left and right side.

NOTICE

To provide a better overview: Schematic diagram with partially hidden components.

- Tighten the screws (1).

Rear wheel arch cover to bumper trim panel

Hexagon screw		Tightening torque	2,6 Nm

10 – Installing the rear light on the left and right side panels

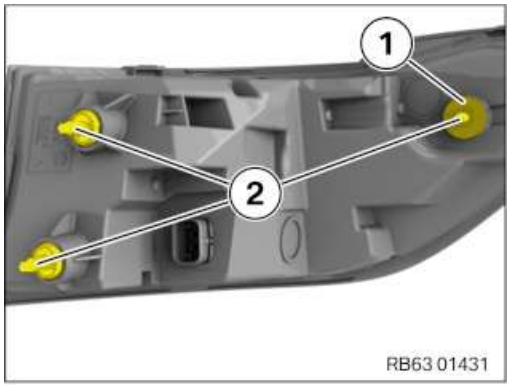
NOTICE

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

▸ **Install the rear light on the side panel**

NOTICE

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



Check

- Check the seal (1) for damage and renew if necessary.
- Check the threaded inserts (2) for damage.

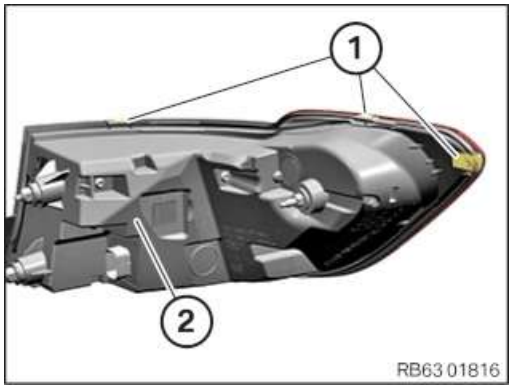
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Result

» The threaded inserts are damaged.

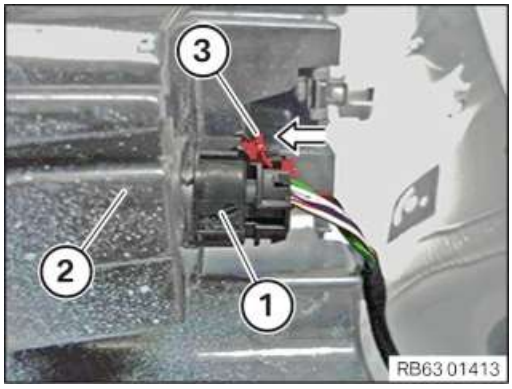
Measure

- Replace rear light.



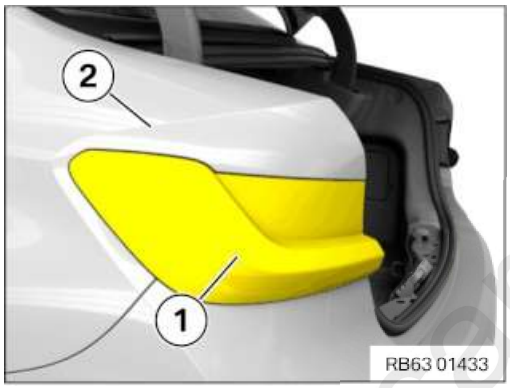
- Contact surfaces (1) on rear light (2) must not be damaged or missing.

  Missing contact surfaces (1) could cause paintwork damage.

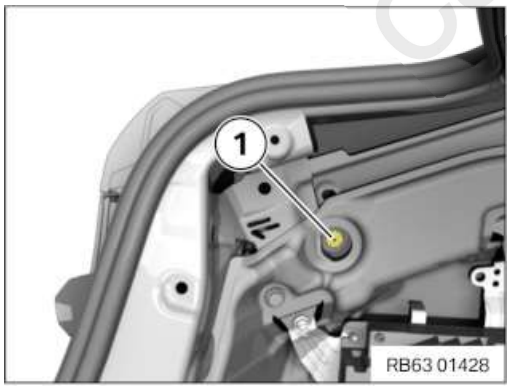


- Connect the connector (1) to the rear light on the side panel (2).

  The connector (1) must engage audibly.
- Lock the lock in direction of arrow (3).

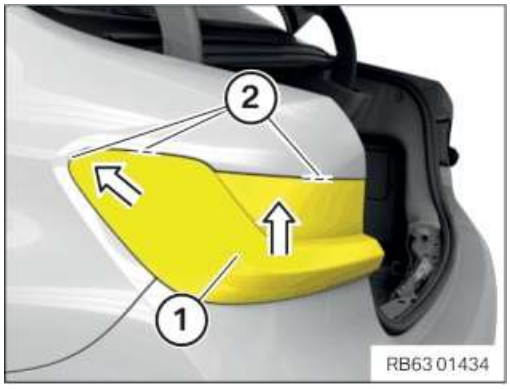


- Position the rear light on the side panel (1) on the side panel (2).

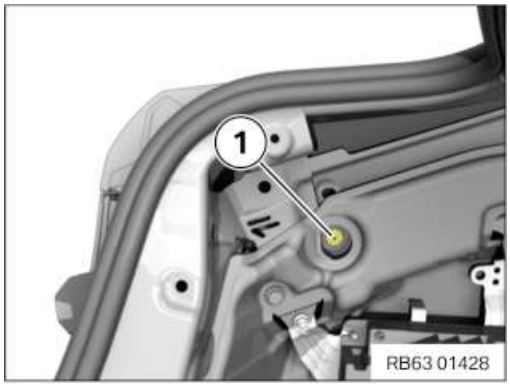


- Position the nut (1).

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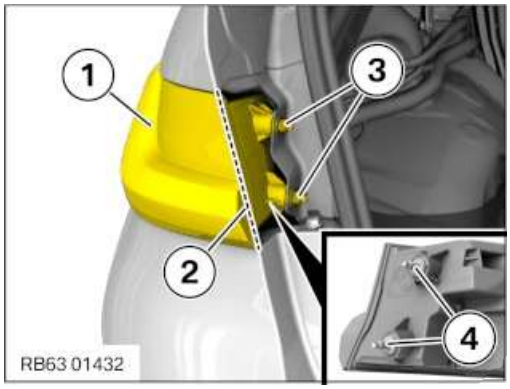
- Position the rear light on the side panel (1) to the front at the top.
- Move the contact surfaces (2) of the rear light on the side panel (1) upwards (arrow) so that they are in place.
- Hold the rear light on the side panel (1) in position.



- Tighten nut (1).

Rear light to side panel to body

Combination hexagon nut		Tightening torque	4 Nm



- Position nuts (3).
- Align rear light on the side panel (1) with the connecting line (2).

  The alignment is done through threaded inserts (4) on the rear light on the side panel (2).
- If necessary, correct the position of the rear light on the side panel (1) by twisting threaded inserts (4).
- Tighten nuts (3).

Rear light to side panel to body

Combination hexagon nut		Tightening torque	4 Nm

11 – Installing trim in water channel on left and right

NOTICE

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

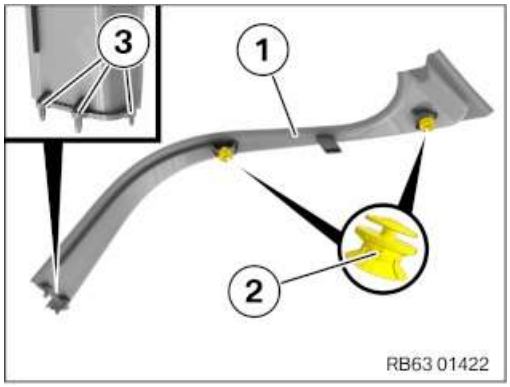
▸ Installing trim in water channel

NOTICE

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

Check

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- Check clips (2) for damage and renew if necessary.
- Check guides (3) for damage.

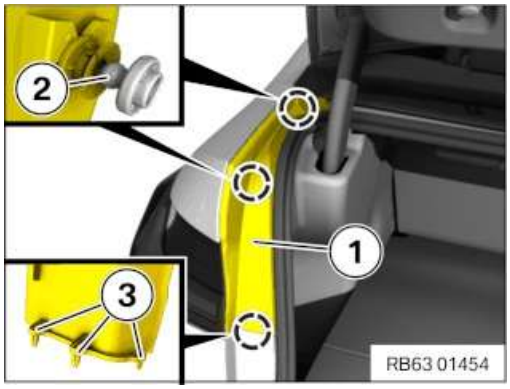
Result

» The guides are damaged.

Measure

- Renew the trim .

  Parts: trim



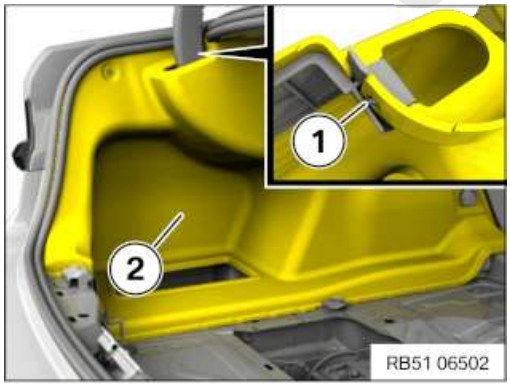
- Insert trim (1) in guides (3).
- Clip trim (1) from above into ball pins (2).

12 – Partially installing the luggage compartment wheel arch trim panel on the left and right

▸ Partially installing the left luggage compartment wheel arch trim panel

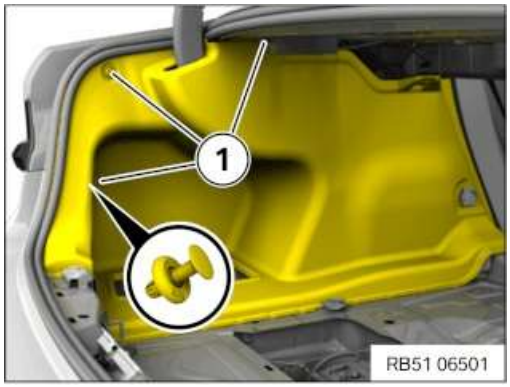
NOTICE

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



- Feed the luggage compartment wheel arch trim panel (2) into the rear area under the sealing lip of the tailgate seal.
- Feed the tab of the luggage compartment wheel arch trim panel (2) on the outer side of the hinge into the stop on the trim (1).

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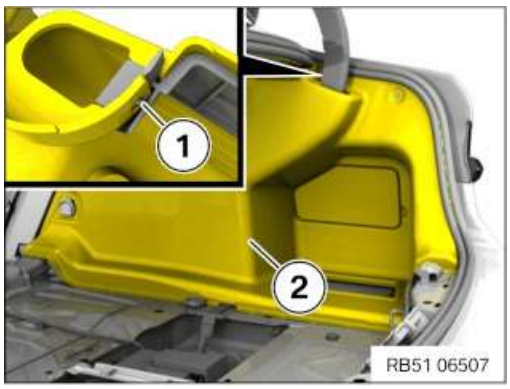


- Secure expanding rivet (1).

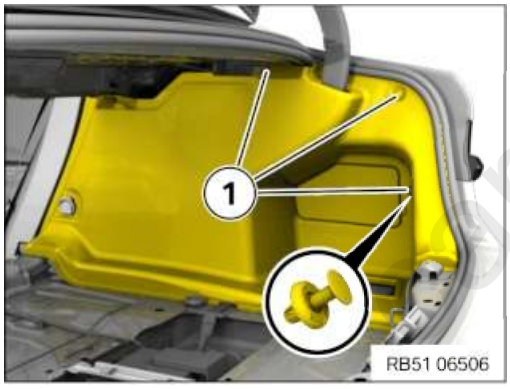
▸ **Partially installing right luggage compartment wheel arch trim panel**

NOTICE

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



- Guide luggage compartment wheel arch trim panel (2) into the rear area under the sealing lip of the tailgate seal.
- Feed the tab of the luggage compartment wheel arch trim panel (2) on the outer side of the hinge into the stop on the trim (1).

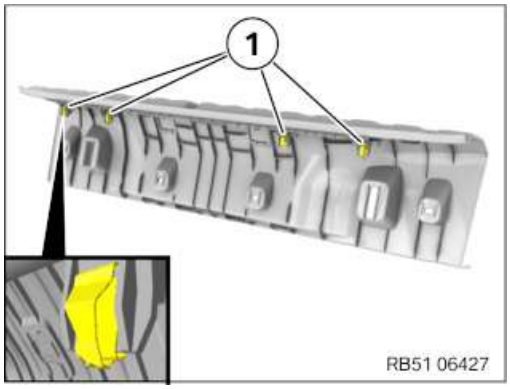


- Secure expanding rivet (1).

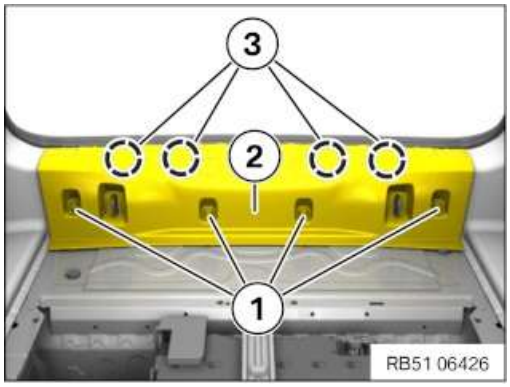
13 – Installing loading edge trim

NOTICE

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



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



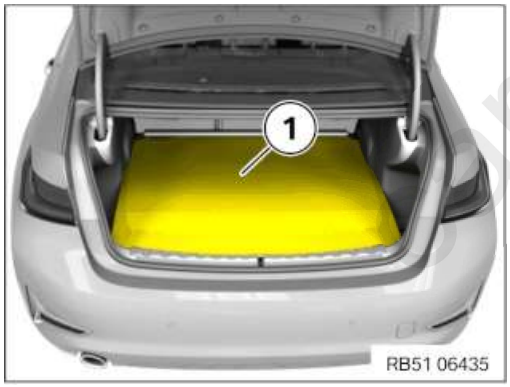
- Insert the loading edge trim (2) under the sealing lip of the tailgate seal.
- Fit the trim of the loading edge (2) at the latch mechanisms (3) and clip it in to the bottom.
- Secure expanding rivet (1).

14 – Installing the luggage compartment floor trim panel

▸ **Installing the luggage compartment floor trim panel**

NOTICE

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



- Insert the luggage compartment floor trim panel (1).

15 – Encode/program control unit(s)

Prerequisite

Component has been replaced.

TECHNICAL INFORMATION

Use the most recent software version to prevent faults during programming/encoding.
The battery voltage must not fall below 13.0 V during programming.
Use only chargers for a low volt-vehicle electrical system that are recommended by BMW.

TECHNICAL INFORMATION

No high-voltage switch off is required in electric vehicles or hybrid vehicles for programming/encoding.
The high-voltage system will be automatically switched off by the programming system.

- Connect the battery charger to the vehicle.
- Connect the programming system with the vehicle.
- Determine the action plan.
- Accept and fully process the measures plan.
- If applicable, connect the workshop system to the vehicle, depending on the reworking list.
- Carry out vehicle test.
- Delete the fault memory.
- The information about programming the workshop system and the corresponding notes in the user documentation must be observed.
- Wait until programming/encoding has been completed.
- Disconnect the programming system from the vehicle.
- Disconnect the battery charger from the vehicle.

Additional Information

Overview of Tightening Torques

Rear bumper trim panel to guide			Used in step 9
Hexagon screw		Tightening torque	2.5 Nm

Lower bumper panel to body			Used in step 9
Oval-head screw		Tightening torque	2.5 Nm

Rear wheel arch cover to bumper trim panel			Used in step 9
Hexagon screw		Tightening torque	2,6 Nm

Rear light to side panel to body			Used in step 10
Combination hexagon nut		Tightening torque	4 Nm

Links

Repair instructions	**Used in step**
61 13 ... Unlocking and disconnecting different plug connections	5

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66 32 671 Replace the short range side radar sensor front right

TECHNICAL INFORMATION

To guarantee the quality of the driver assistance functions in vehicles with concealed radar sensors installed, the component may only be repainted by observing the repair specifications described in the document "Standards for repair painting with sensor systems".

Sourcing reference:

https://colorsystem-paint.com/

Aftersales Information Research (AIR) - Repair and service messages - HG99 - ColorSystem

ISTA - HG99 - ColorSystem

No stickers or foils (transparent or coloured) may be attached in the radiation areas of the radar sensors.

The component may be painted if no radar sensors have been installed.

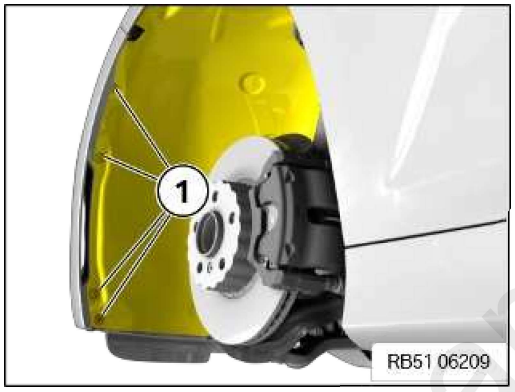
The following features can be used to identify whether radar sensors are installed on the vehicle:

Radar sensors are installed at the rear if the triangular warning light is located on the exterior mirror (in the mirror glass or on the mirror frame).

Radar sensors are installed at the front and rear if the triangular warning light is located on the exterior mirror (in the mirror glass or on the mirror frame) in conjunction with the optional equipment S5ATA or S5AUA.

PRELIMINARY WORK

1 – Partially removing front wheel arch trim panel



NOTICE

To provide a better overview: Schematic diagram without front wheel.

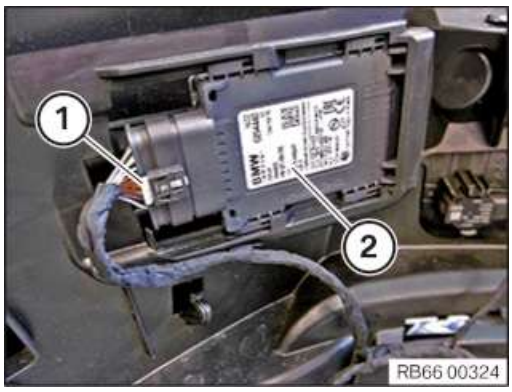
- Loosen screws (1).
- Fold the front wheel arch trim panel to one side.

MAIN WORK

2 – Removing the front side radar sensor

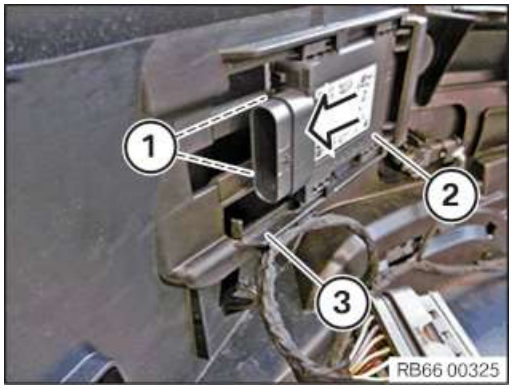
NOTICE

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



- Unlock and disconnect the plug connection (1) on the side radar sensor (2).

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- Unlock lock (1).
- Push the side radar sensor (2) in the direction of arrow from the holder (3) and remove it.

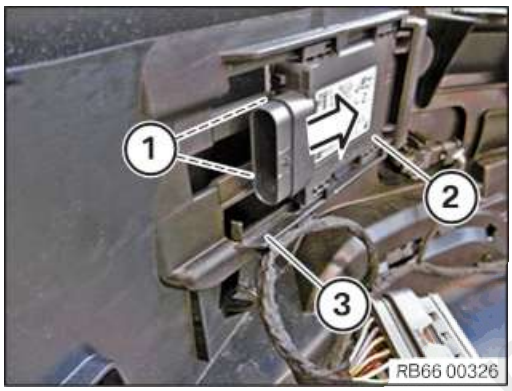
3 – Installing front side radar sensor

TECHNICAL INFORMATION

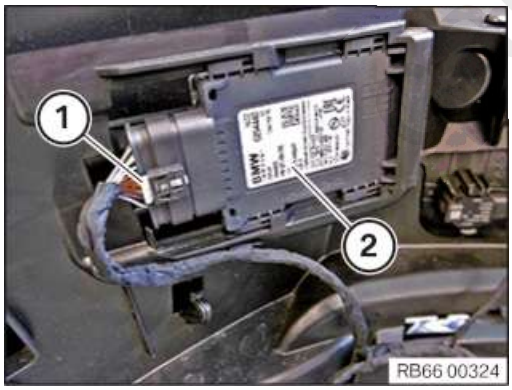
Latch mechanisms, guides and mounting elements must not be damaged or missing.

NOTICE

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



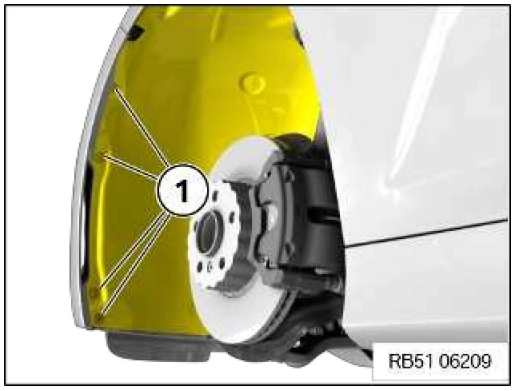
- Slide side radar sensor (2) in direction of arrow into the holder (3).
- Lock the lock (1).
- Make sure the lock (1) is locked correctly.



- Connect the connector (1) on the side radar sensor (2) and lock.

POSTPROCESSES

4 – Partially installing front wheel arch trim panel



NOTICE

To provide a better overview: Schematic diagram without front wheel.

- Fold back the front wheel arch trim panel.
- Tighten the screws (1).

Wheel arch trim panel, front

Thermoplastic hexagon screw		Tightening torque	2,6 Nm

5 – Encode/program control unit(s)

Prerequisite

Component has been replaced.

TECHNICAL INFORMATION

Use the most recent software version to prevent faults during programming/encoding.
The battery voltage must not fall below 13.0 V during programming.
Use only chargers for a low volt-vehicle electrical system that are recommended by BMW.

TECHNICAL INFORMATION

No high-voltage switch off is required in electric vehicles or hybrid vehicles for programming/encoding.
The high-voltage system will be automatically switched off by the programming system.

- Connect the battery charger to the vehicle.
- Connect the programming system with the vehicle.
- Determine the action plan.
- Accept and fully process the measures plan.
- If applicable, connect the workshop system to the vehicle, depending on the reworking list.
- Carry out vehicle test.
- Delete the fault memory.
- The information about programming the workshop system and the corresponding notes in the user documentation must be observed.
- Wait until programming/encoding has been completed.
- Disconnect the programming system from the vehicle.
- Disconnect the battery charger from the vehicle.

Additional Information

Overview of Tightening Torques

Wheel arch trim panel, front Used in step 4

Thermoplastic hexagon screw		Tightening torque	2,6 Nm

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66 32 666 Replace the side radar sensor short range front left

TECHNICAL INFORMATION

To guarantee the quality of the driver assistance functions in vehicles with concealed radar sensors installed, the component may only be repainted by observing the repair specifications described in the document "Standards for repair painting with sensor systems".

Sourcing reference:

https://colorsystem-paint.com/

Aftersales Information Research (AIR) - Repair and service messages - HG99 - ColorSystem

ISTA - HG99 - ColorSystem

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The component may be painted if no radar sensors have been installed.

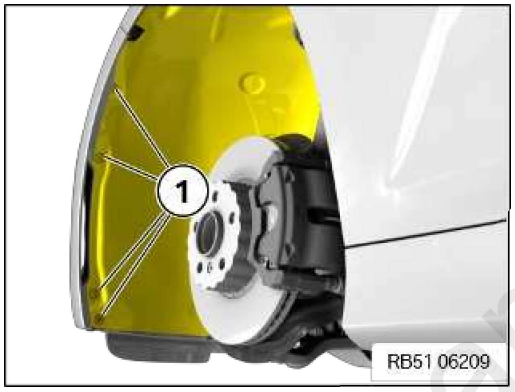
The following features can be used to identify whether radar sensors are installed on the vehicle:

Radar sensors are installed at the rear if the triangular warning light is located on the exterior mirror (in the mirror glass or on the mirror frame).

Radar sensors are installed at the front and rear if the triangular warning light is located on the exterior mirror (in the mirror glass or on the mirror frame) in conjunction with the optional equipment S5ATA or S5AUA.

PRELIMINARY WORK

1 – Partially removing front wheel arch trim panel



NOTICE

To provide a better overview: Schematic diagram without front wheel.

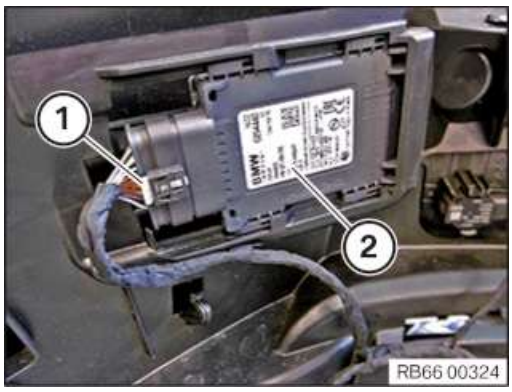
- Loosen screws (1).
- Fold the front wheel arch trim panel to one side.

MAIN WORK

2 – Removing the front side radar sensor

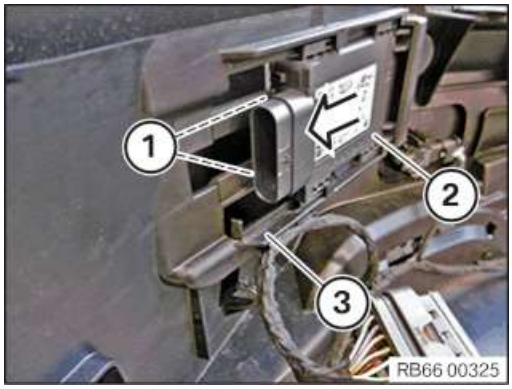
NOTICE

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



- Unlock and disconnect the plug connection (1) on the side radar sensor (2).

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- Unlock lock (1).
- Push the side radar sensor (2) in the direction of arrow from the holder (3) and remove it.

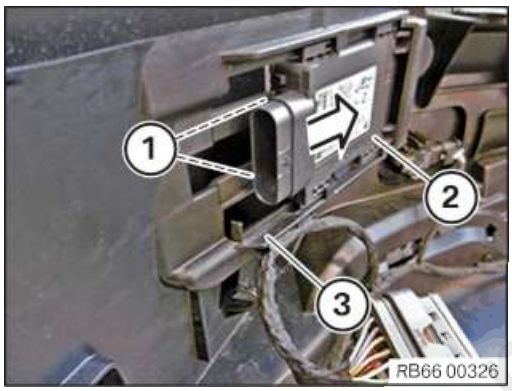
3 – Installing front side radar sensor

TECHNICAL INFORMATION

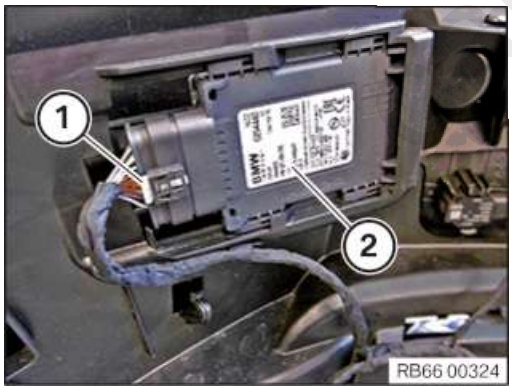
Latch mechanisms, guides and mounting elements must not be damaged or missing.

NOTICE

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



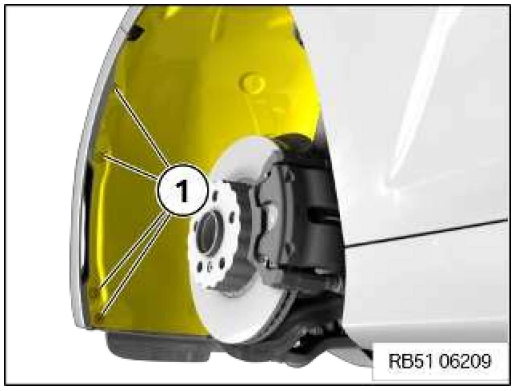
- Slide side radar sensor (2) in direction of arrow into the holder (3).
- Lock the lock (1).
- Make sure the lock (1) is locked correctly.



- Connect the connector (1) on the side radar sensor (2) and lock.

POSTPROCESSES

4 – Partially installing front wheel arch trim panel



NOTICE

To provide a better overview: Schematic diagram without front wheel.

- Fold back the front wheel arch trim panel.
- Tighten the screws (1).

Wheel arch trim panel, front

Thermoplastic hexagon screw		Tightening torque	2,6 Nm

5 – Encode/program control unit(s)

Prerequisite

Component has been replaced.

TECHNICAL INFORMATION

Use the most recent software version to prevent faults during programming/encoding.
The battery voltage must not fall below 13.0 V during programming.
Use only chargers for a low volt-vehicle electrical system that are recommended by BMW.

TECHNICAL INFORMATION

No high-voltage switch off is required in electric vehicles or hybrid vehicles for programming/encoding.
The high-voltage system will be automatically switched off by the programming system.

- Connect the battery charger to the vehicle.
- Connect the programming system with the vehicle.
- Determine the action plan.
- Accept and fully process the measures plan.
- If applicable, connect the workshop system to the vehicle, depending on the reworking list.
- Carry out vehicle test.
- Delete the fault memory.
- The information about programming the workshop system and the corresponding notes in the user documentation must be observed.
- Wait until programming/encoding has been completed.
- Disconnect the programming system from the vehicle.
- Disconnect the battery charger from the vehicle.

Additional Information

Overview of Tightening Torques

Wheel arch trim panel, front Used in step 4

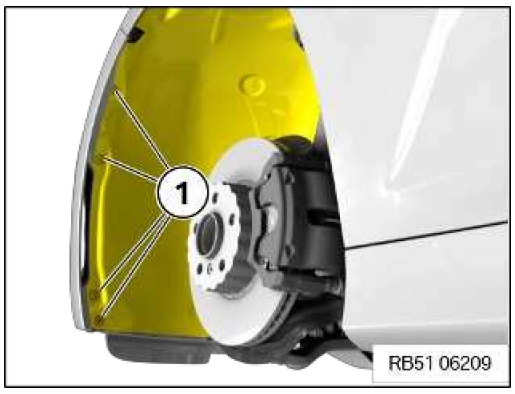
Thermoplastic hexagon screw		Tightening torque	2,6 Nm

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66 33 110 Removing and installing ultrasonic sensor for Parking Manoeuvring Assistant, front left

PRELIMINARY WORK

1 – Partially removing front wheel arch trim panel



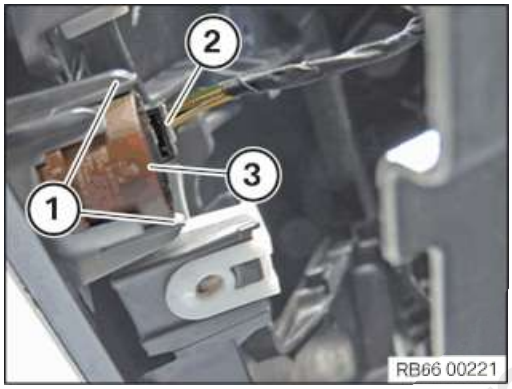
NOTICE

To provide a better overview: Schematic diagram without front wheel.

- Loosen screws (1).
- Fold the front wheel arch trim panel to one side.

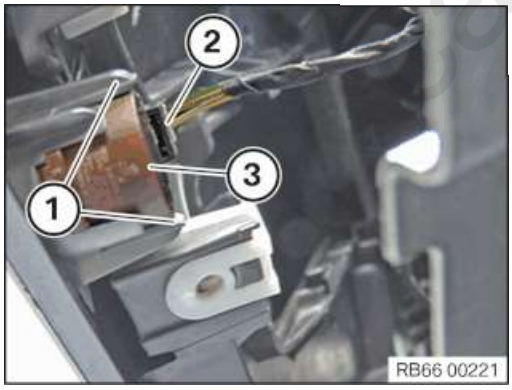
MAIN WORK

2 – Removing the ultrasonic sensor for the front Parking Manoeuvring Assistant (PMA)



- Unlock the latch mechanisms (1).
- Unlock plug connection (2) and disconnect.
- Remove the ultrasonic sensor (3).

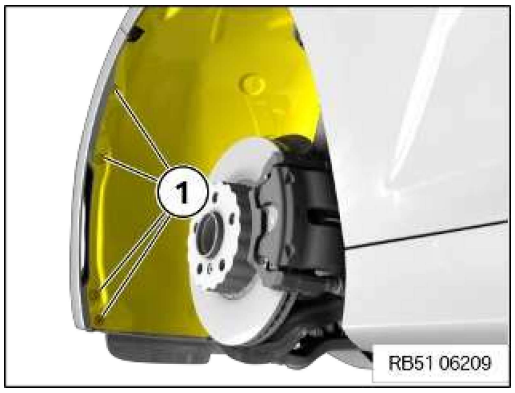
3 – Installing the ultrasonic sensor for the front Parking Manoeuvring Assistant (PMA)



- Position the ultrasonic sensor (3) correctly and engage it in the latch mechanisms (1).
- Connect connectors (2) and lock.

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4 – Partially installing front wheel arch trim panel



NOTICE

To provide a better overview: Schematic diagram without front wheel.

- Fold back the front wheel arch trim panel.
- Tighten the screws (1).

Wheel arch trim panel, front

Thermoplastic hexagon screw		Tightening torque	2,6 Nm

Additional Information

Overview of Tightening Torques

Wheel arch trim panel, front Used in step 4

Thermoplastic hexagon screw		Tightening torque	2,6 Nm

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66 33 120 Removing and installing ultrasonic sensor for Parking Manoeuvring Assistant, front right

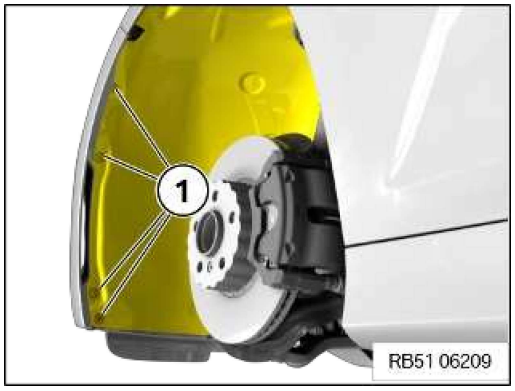
PRELIMINARY WORK

1 – Partially removing front right wheel arch trim panel

NOTICE

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

▸ **Partially removing front wheel arch trim panel**



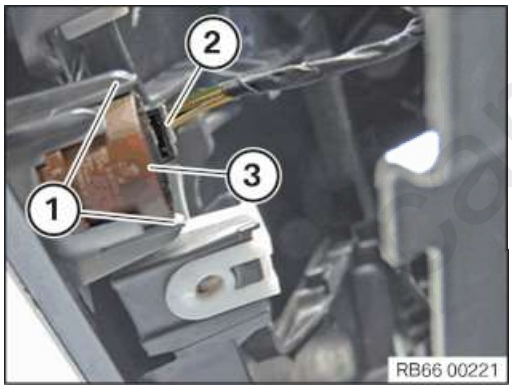
NOTICE

To provide a better overview: Schematic diagram without front wheel.

- Loosen screws (1).
- Fold the front wheel arch trim panel to one side.

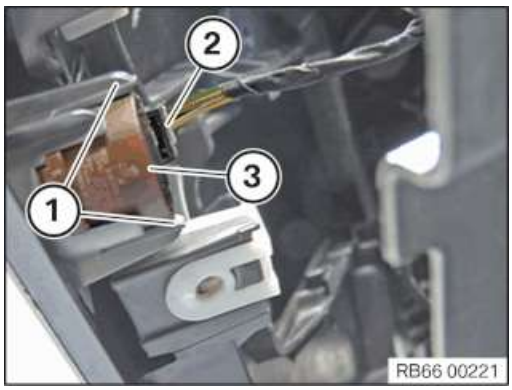
MAIN WORK

2 – Removing the ultrasonic sensor for the front Parking Manoeuvring Assistant (PMA)



- Unlock the latch mechanisms (1).
- Unlock plug connection (2) and disconnect.
- Remove the ultrasonic sensor (3).

3 – Installing the ultrasonic sensor for the front Parking Manoeuvring Assistant (PMA)



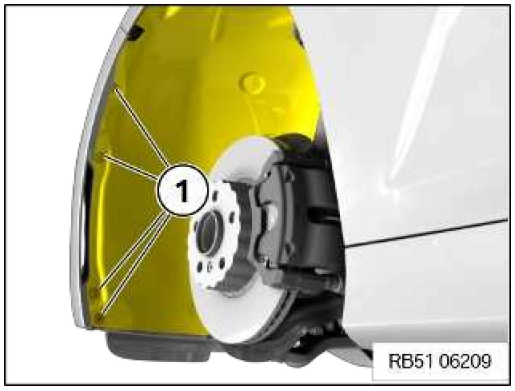
- Position the ultrasonic sensor (3) correctly and engage it in the latch mechanisms (1).
- Connect connectors (2) and lock.

4 – Partly installing the right front wheel arch trim panel

NOTICE

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

▶ **Partially installing front wheel arch trim panel**



NOTICE

To provide a better overview: Schematic diagram without front wheel.

- Fold back the front wheel arch trim panel.
- Tighten the screws (1).

Wheel arch trim panel, front

Thermoplastic hexagon screw		Tightening torque	2,6 Nm

Additional Information

Overview of Tightening Torques

Wheel arch trim panel, front Used in step 4

Thermoplastic hexagon screw		Tightening torque	2,6 Nm

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66 33 140 Removing and installing ultrasonic sensor for Parking Manoeuvring Assistant, rear left

TECHNICAL INFORMATION

To guarantee the quality of the driver assistance functions in vehicles with concealed radar sensors installed, the component may only be repainted by observing the repair specifications described in the document "Standards for repair painting with sensor systems".

Sourcing reference:

https://colorsystem-paint.com/

Aftersales Information Research (AIR) - Repair and service messages - HG99 - ColorSystem

ISTA - HG99 - ColorSystem

No stickers or foils (transparent or coloured) may be attached in the radiation areas of the radar sensors.

The component may be painted if no radar sensors have been installed.

The following features can be used to identify whether radar sensors are installed on the vehicle:

Radar sensors are installed at the rear if the triangular warning light is located on the exterior mirror (in the mirror glass or on the mirror frame).

Radar sensors are installed at the front and rear if the triangular warning light is located on the exterior mirror (in the mirror glass or on the mirror frame) in conjunction with the optional equipment S5ATA or S5AUA.

PRELIMINARY WORK

1 – Removing the luggage compartment floor trim panel

▸ **Removing the luggage compartment floor trim panel**

NOTICE

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

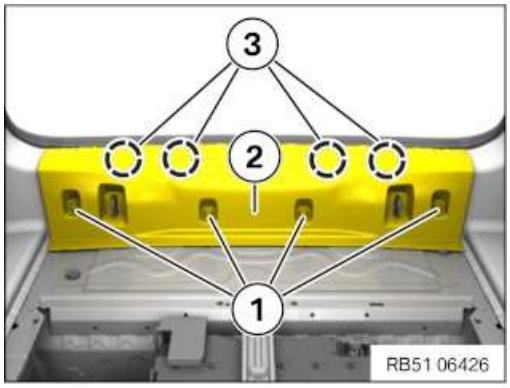


- Remove luggage compartment floor trim panel (1).

2 – Removing the loading edge trim

NOTICE

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



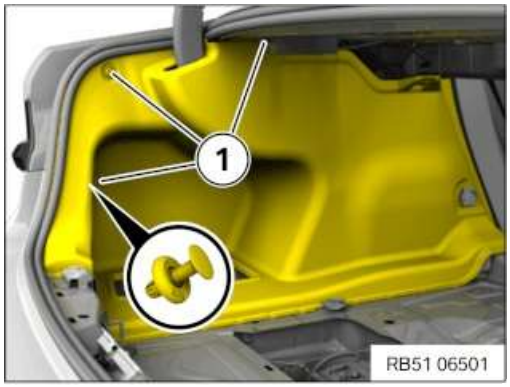
- Loosen the expanding rivet (1).
- Unclip loading edge trim(2) upwards from latch mechanisms (3).
- Guide out and remove loading edge trim (2) under the sealing lip of the tailgate seal.

3 – Removing part of the luggage compartment wheel arch trim panel on the left and right

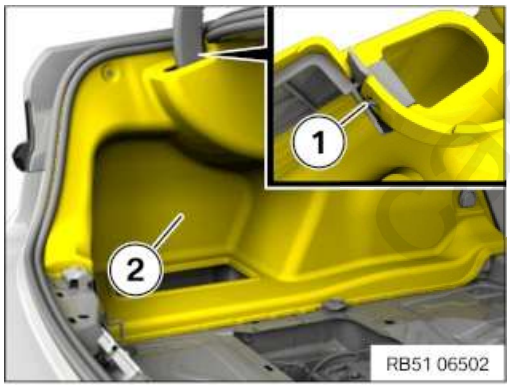
▸ **Partially remove luggage compartment wheel arch panel on left**

NOTICE

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



- Loosen the expanding rivet (1).



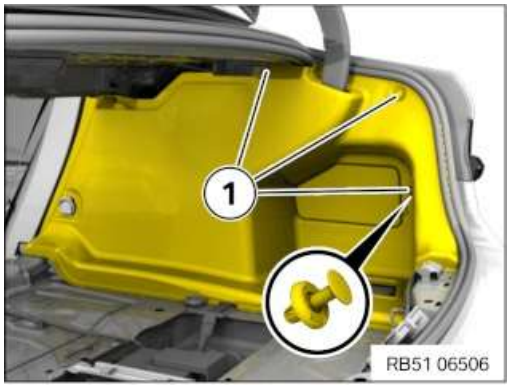
- Press the tab for luggage compartment wheel arch trim panel (2) on the outer side of the hinge to the front using the stop on trim (1).
- Guide out luggage compartment wheel arch trim panel (2) under the sealing lip of the tailgate seal and release it in the rear area.

▸ **Partially remove luggage compartment wheel arch panel on right**

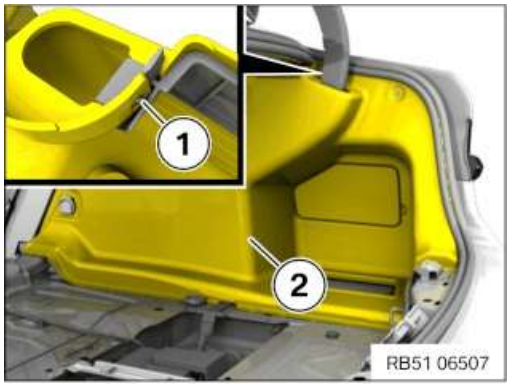
NOTICE

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

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- Loosen the expanding rivet (1).



- Press the tab for luggage compartment wheel arch trim panel (2) on the outer side of the hinge to the front using the stop on trim (1).
- Guide out luggage compartment wheel arch trim panel (2) under the sealing lip of the tailgate seal and release it in the rear area.

4 – Removing trim from water channel on left and right

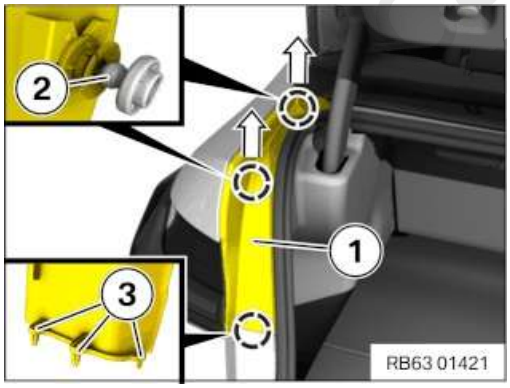
NOTICE

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

▸ **Removing trim from water channel**

NOTICE

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



- Unclip trim (1) in upward direction from ball pins (2).
- Release trim (1) from guides (3) and remove.

5 – Removing the rear light on the left and right side panels

NOTICE

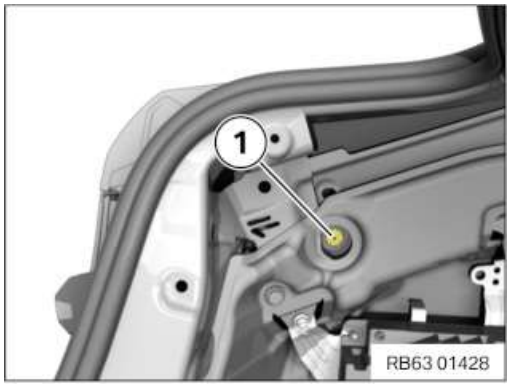
Description is for left component only. Procedure on the right side is identical.

▸ **Removing the rear light on the side panel**

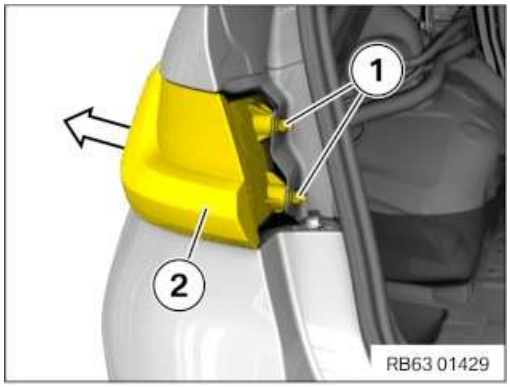
cardiagn.com

NOTICE

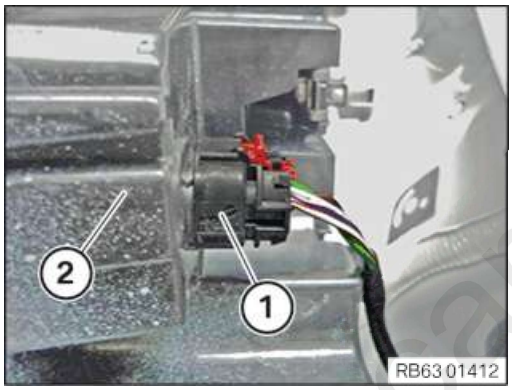
Schematic diagram is for example purposes. Some parts may differ in certain details.



- Loosen nut (1).



- Release the nuts (1) and feed out the rear light on the side panel (2) in the direction of arrow.



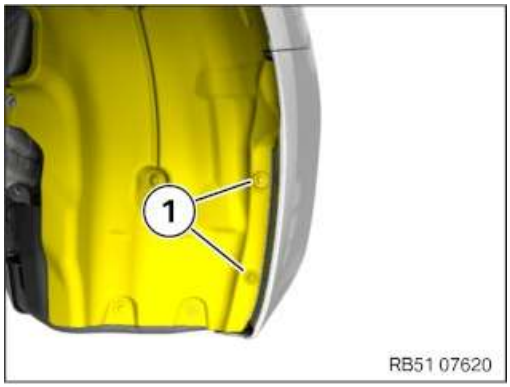
TECHNICAL INFORMATION

Observe note on unlocking and disconnecting plug connections.

For additional information see: 6113 ... Unlocking and disconnecting different plug connections

- Unlock plug connection (1) and disconnect.
- Remove the rear light on the side panel (2).

6 – Remove rear bumper panel



NOTICE

Perform the operations on the left and right side.

NOTICE

To provide a better overview: Schematic diagram with partially hidden components.

- Loosen screws (1).

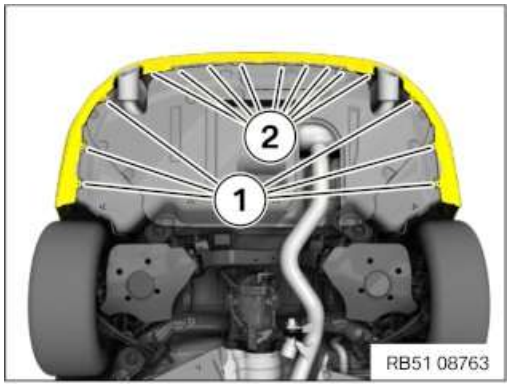
carlogn.com



NOTICE

Perform the operations on the left and right side.

- Release the screw (1).



- Loosen screws (1).
- Release the bumper panel at the latch mechanisms (2).



NOTICE

Perform the operations on the left and right side.

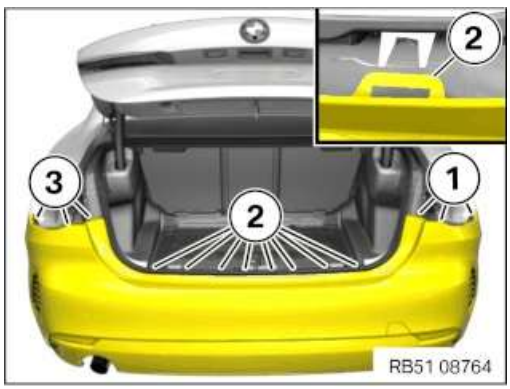
- Release the screw (1).



NOTICE

Perform the operations on the left and right side.

- Release the bumper panel with the latch mechanisms (1).



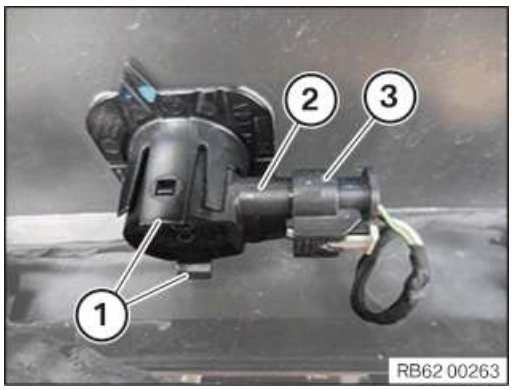
- Release the bumper panel with the latch mechanisms (1).
- Release the bumper panel from the latch mechanisms (2) starting from the right.
- Release the bumper panel from the latch mechanisms (3)



- Unlock plug connection and disconnect.
- Remove bumper panel.

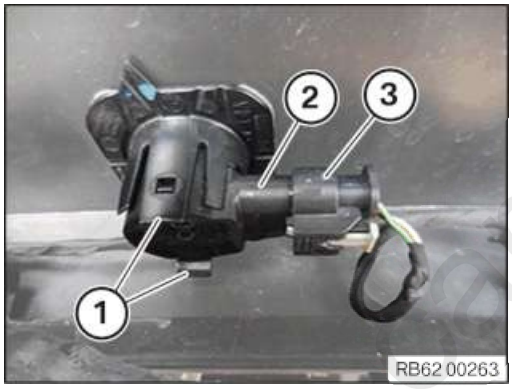
MAIN WORK

7 – Removing the ultrasonic sensor for the rear Parking Manoeuvring Assistant (PMA)



- Unlock the latch mechanisms (1).
- Unlock plug connection (3) and disconnect.
- Remove the ultrasonic sensor (2).

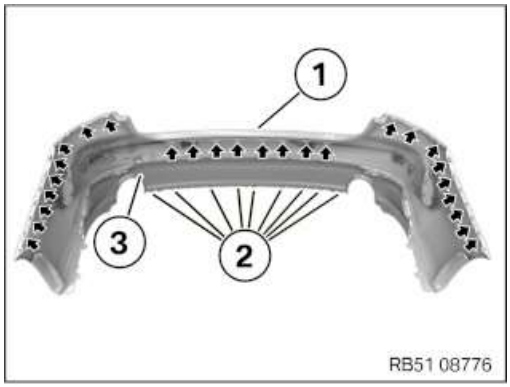
8 – Installing the ultrasonic sensor for the rear Parking Manoeuvring Assistant (PMA)



- Position the ultrasonic sensor (2) correctly and engage it in the latch mechanisms (1).
- Connect connectors (3) and lock.

POSTPROCESSES

9 – Install rear bumper panel



Check

- Check the latch mechanisms (arrows) on the bumper panel (1) for damage.

  Check the latch mechanisms (2) on the bumper trim (3) for damage.

Result

» Latch mechanisms (arrows) are damaged.

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Measure

- Renew the bumper panel (1).

Result

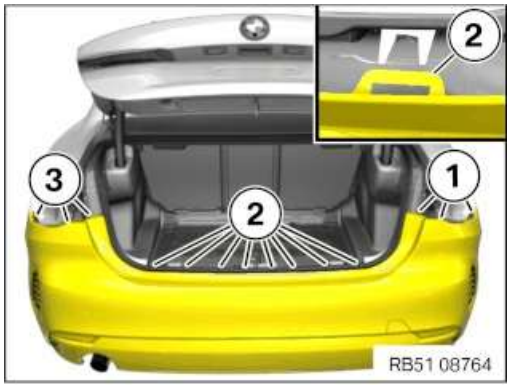
» Latch mechanisms (2) are damaged.

Measure

- Renew the bumper trim (3).



- Position the bumper panel.
- Connect connectors (1) and lock.



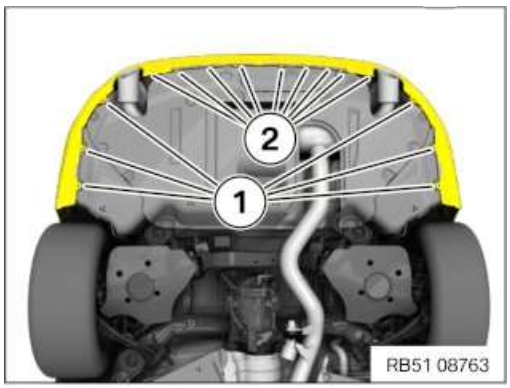
- Clip in the bumper panel with the latch mechanisms (1),(2) and (3).



NOTICE

Perform the operations on the left and right side.

- Clip in the bumper panel with latch mechanisms (1).



- Clip in the bumper panel with latch mechanisms (2).
- Tighten the screws (1).

Rear bumper trim panel to guide

Hexagon screw		Tightening torque	2.5 Nm

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NOTICE

Perform the operations on the left and right side.

- Tighten down screw (1).

Rear bumper trim panel to guide

Hexagon screw		Tightening torque	2.5 Nm



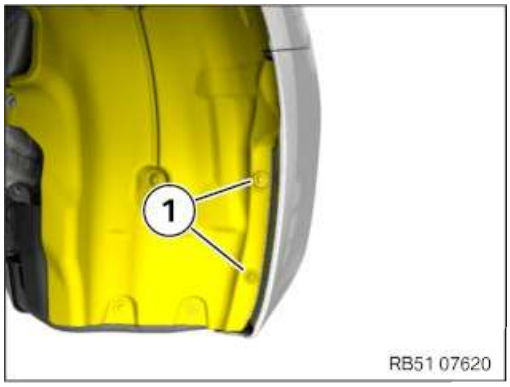
NOTICE

Perform the operations on the left and right side.

- Tighten down screw (1).

Lower bumper panel to body

Oval-head screw		Tightening torque	2.5 Nm



NOTICE

Perform the operations on the left and right side.

NOTICE

To provide a better overview: Schematic diagram with partially hidden components.

- Tighten the screws (1).

Rear wheel arch cover to bumper trim panel

Hexagon screw		Tightening torque	2,6 Nm

10 – Installing the rear light on the left and right side panels

NOTICE

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

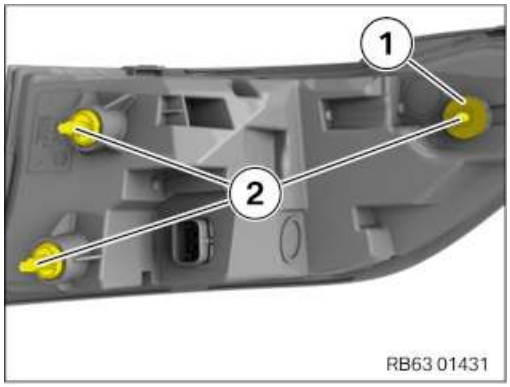
▸ **Install the rear light on the side panel**

NOTICE

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

Check

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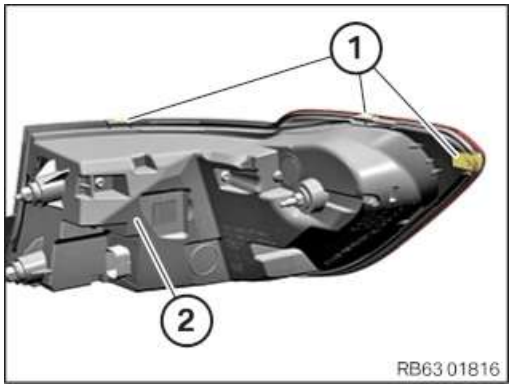
- Check the seal (1) for damage and renew if necessary.
- Check the threaded inserts (2) for damage.

Result

» The threaded inserts are damaged.

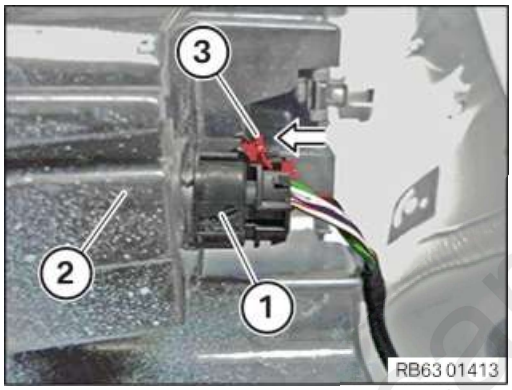
Measure

- Replace rear light.



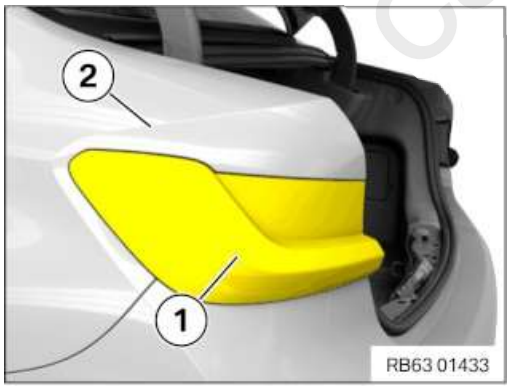
- Contact surfaces (1) on rear light (2) must not be damaged or missing.

  Missing contact surfaces (1) could cause paintwork damage.



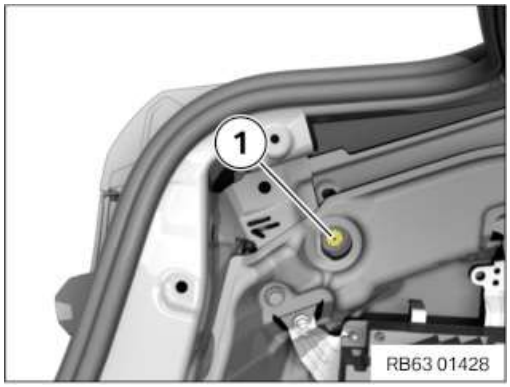
- Connect the connector (1) to the rear light on the side panel (2).

  The connector (1) must engage audibly.
- Lock the lock in direction of arrow (3).

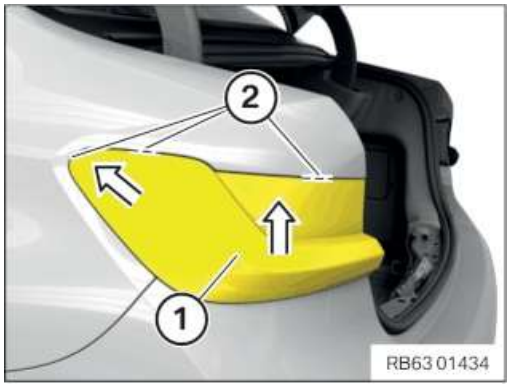


- Position the rear light on the side panel (1) on the side panel (2).

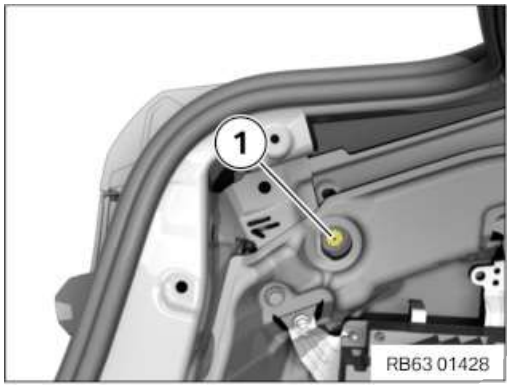
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- Position the nut (1).



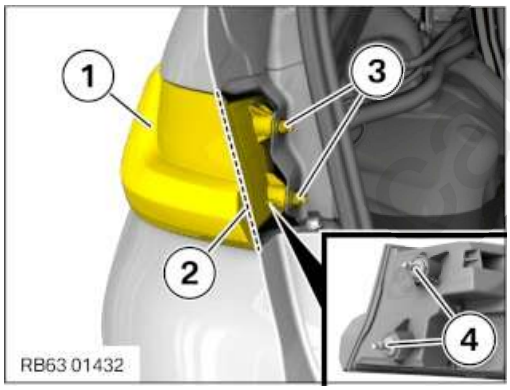
- Position the rear light on the side panel (1) to the front at the top.
- Move the contact surfaces (2) of the rear light on the side panel (1) upwards (arrow) so that they are in place.
- Hold the rear light on the side panel (1) in position.



- Tighten nut (1).

Rear light to side panel to body

Combination hexagon nut		Tightening torque	4 Nm



- Position nuts (3).
- Align rear light on the side panel (1) with the connecting line (2).

  The alignment is done through threaded inserts (4) on the rear light on the side panel (2).
- If necessary, correct the position of the rear light on the side panel (1) by twisting threaded inserts (4).
- Tighten nuts (3).

Rear light to side panel to body

Combination hexagon nut		Tightening torque	4 Nm

11 – Installing trim in water channel on left and right

NOTICE

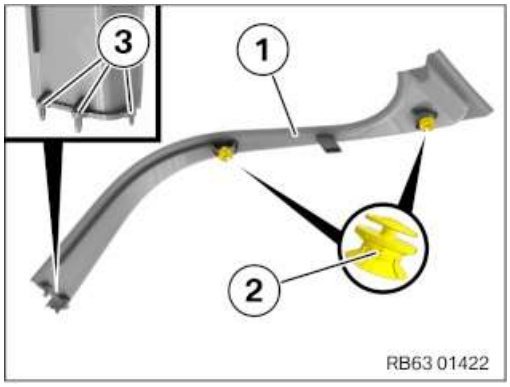
Description is for left component only. Procedure on the right side is identical.

▸ **Installing trim in water channel**

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NOTICE

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



Check

- Check clips (2) for damage and renew if necessary.
- Check guides (3) for damage.

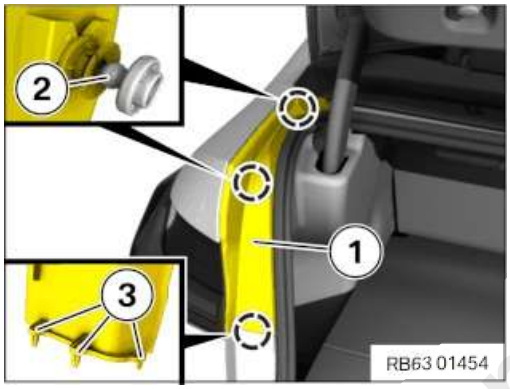
Result

» The guides are damaged.

Measure

- Renew the trim .

  Parts: trim



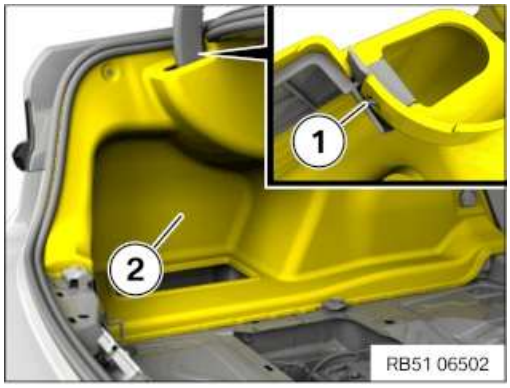
- Insert trim (1) in guides (3).
- Clip trim (1) from above into ball pins (2).

12 – Partially installing the luggage compartment wheel arch trim panel on the left and right

▸ Partially installing the left luggage compartment wheel arch trim panel

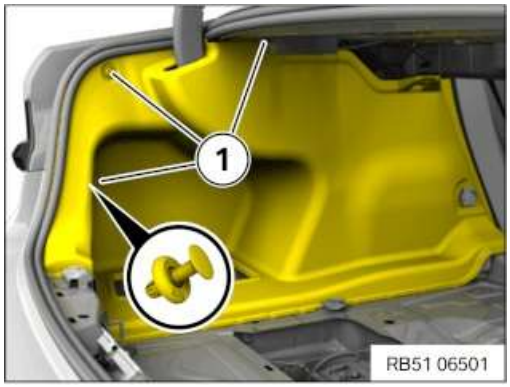
NOTICE

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



- Feed the luggage compartment wheel arch trim panel (2) into the rear area under the sealing lip of the tailgate seal.
- Feed the tab of the luggage compartment wheel arch trim panel (2) on the outer side of the hinge into the stop on the trim (1).

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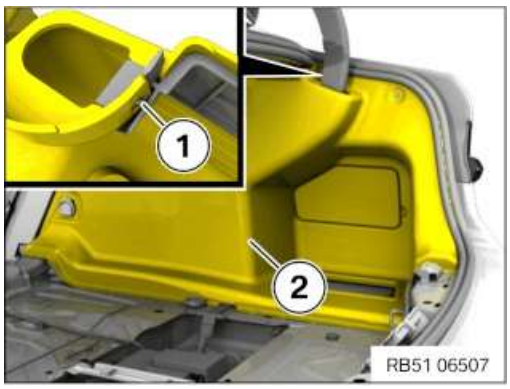


- Secure expanding rivet (1).

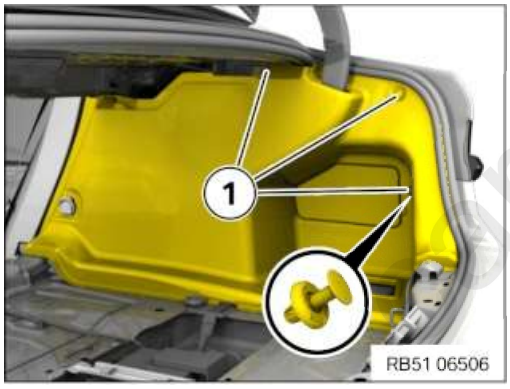
▸ **Partially installing right luggage compartment wheel arch trim panel**

NOTICE

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



- Guide luggage compartment wheel arch trim panel (2) into the rear area under the sealing lip of the tailgate seal.
- Feed the tab of the luggage compartment wheel arch trim panel (2) on the outer side of the hinge into the stop on the trim (1).

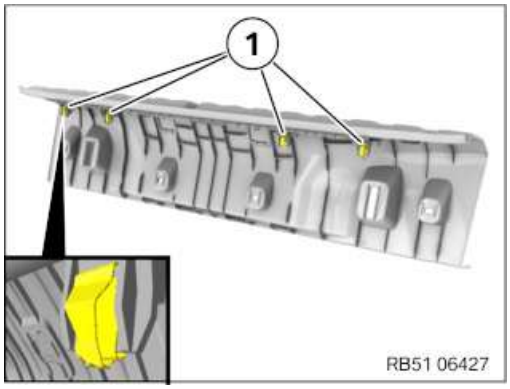


- Secure expanding rivet (1).

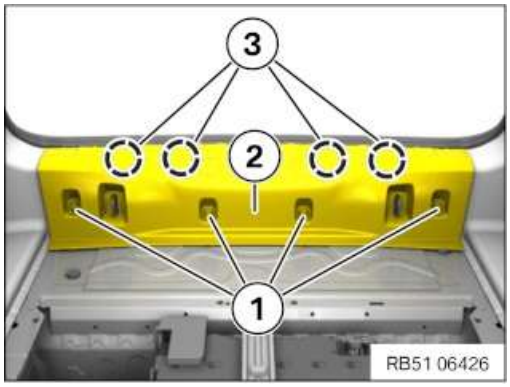
13 – Installing loading edge trim

NOTICE

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



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



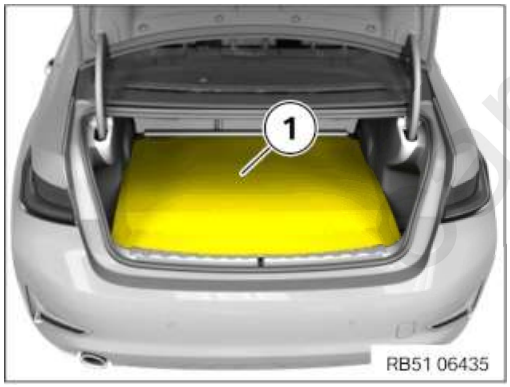
- Insert the loading edge trim (2) under the sealing lip of the tailgate seal.
- Fit the trim of the loading edge (2) at the latch mechanisms (3) and clip it in to the bottom.
- Secure expanding rivet (1).

14 – Installing the luggage compartment floor trim panel

▸ **Installing the luggage compartment floor trim panel**

NOTICE

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



- Insert the luggage compartment floor trim panel (1).

Additional Information

Overview of Tightening Torques

Rear bumper trim panel to guide			Used in step 9
Hexagon screw		Tightening torque	2.5 Nm

Lower bumper panel to body			Used in step 9
Oval-head screw		Tightening torque	2.5 Nm

Rear wheel arch cover to bumper trim panel			Used in step 9
Hexagon screw		Tightening torque	2,6 Nm

Rear light to side panel to body			Used in step 10
Combination hexagon nut		Tightening torque	4 Nm

Links

Repair instructions	Used in step
61 13 ... Unlocking and disconnecting different plug connections	5

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66 33 150 Removing and installing ultrasonic sensor for Parking Manoeuvring Assistant, rear right

TECHNICAL INFORMATION

To guarantee the quality of the driver assistance functions in vehicles with concealed radar sensors installed, the component may only be repainted by observing the repair specifications described in the document "Standards for repair painting with sensor systems".

Sourcing reference:

https://colorsystem-paint.com/

Aftersales Information Research (AIR) - Repair and service messages - HG99 - ColorSystem

ISTA - HG99 - ColorSystem

No stickers or foils (transparent or coloured) may be attached in the radiation areas of the radar sensors.

The component may be painted if no radar sensors have been installed.

The following features can be used to identify whether radar sensors are installed on the vehicle:

Radar sensors are installed at the rear if the triangular warning light is located on the exterior mirror (in the mirror glass or on the mirror frame).

Radar sensors are installed at the front and rear if the triangular warning light is located on the exterior mirror (in the mirror glass or on the mirror frame) in conjunction with the optional equipment S5ATA or S5AUA.

NOTICE

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

PRELIMINARY WORK

1 – Removing the luggage compartment floor trim panel

▸ **Removing the luggage compartment floor trim panel**

NOTICE

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



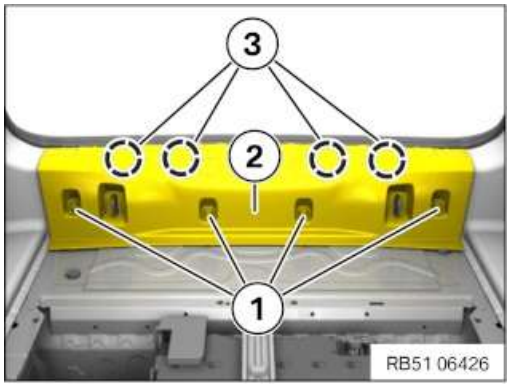
- Remove luggage compartment floor trim panel (1).

2 – Removing the loading edge trim

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NOTICE

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



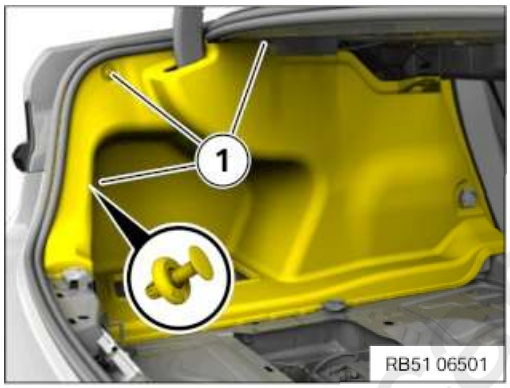
- Loosen the expanding rivet (1).
- Unclip loading edge trim(2) upwards from latch mechanisms (3).
- Guide out and remove loading edge trim (2) under the sealing lip of the tailgate seal.

3 – Removing part of the luggage compartment wheel arch trim panel on the left and right

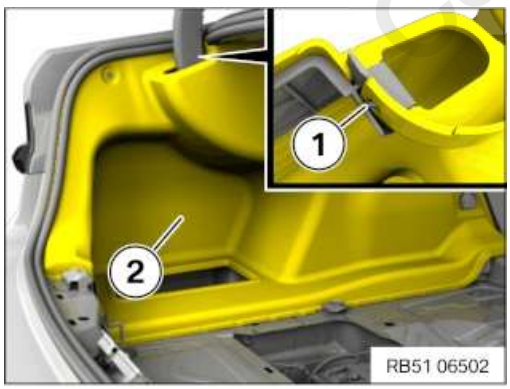
▸ **Partially remove luggage compartment wheel arch panel on left**

NOTICE

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



- Loosen the expanding rivet (1).



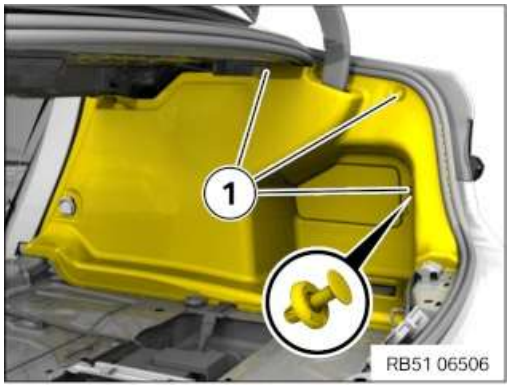
- Press the tab for luggage compartment wheel arch trim panel (2) on the outer side of the hinge to the front using the stop on trim (1).
- Guide out luggage compartment wheel arch trim panel (2) under the sealing lip of the tailgate seal and release it in the rear area.

▸ **Partially remove luggage compartment wheel arch panel on right**

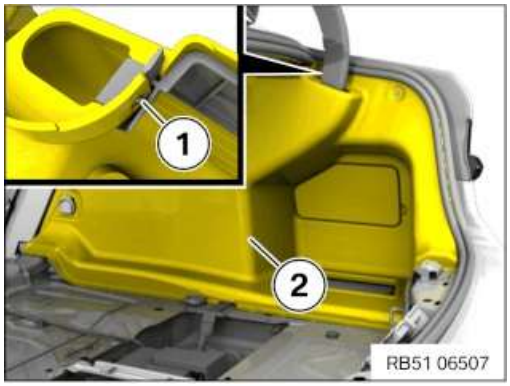
NOTICE

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

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- Loosen the expanding rivet (1).



- Press the tab for luggage compartment wheel arch trim panel (2) on the outer side of the hinge to the front using the stop on trim (1).
- Guide out luggage compartment wheel arch trim panel (2) under the sealing lip of the tailgate seal and release it in the rear area.

4 – Removing trim from water channel on left and right

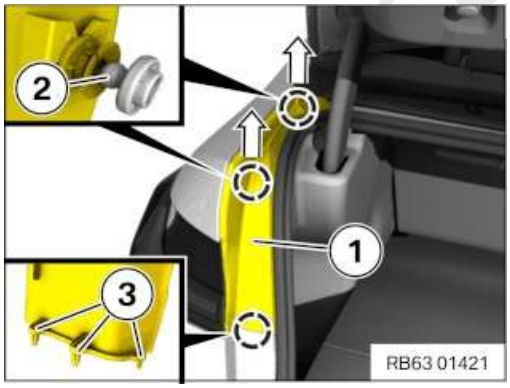
NOTICE

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

▸ **Removing trim from water channel**

NOTICE

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



- Unclip trim (1) in upward direction from ball pins (2).
- Release trim (1) from guides (3) and remove.

5 – Removing the rear light on the left and right side panels

NOTICE

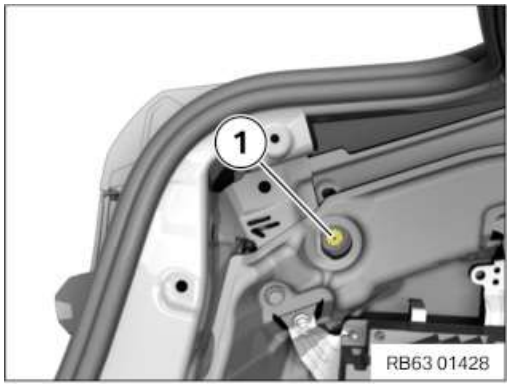
Description is for left component only. Procedure on the right side is identical.

▸ **Removing the rear light on the side panel**

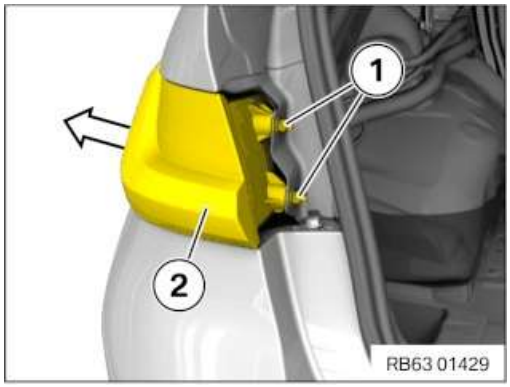
cardiagn.com

NOTICE

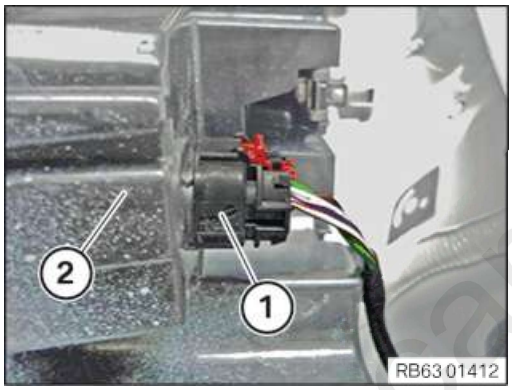
Schematic diagram is for example purposes. Some parts may differ in certain details.



- Loosen nut (1).



- Release the nuts (1) and feed out the rear light on the side panel (2) in the direction of arrow.



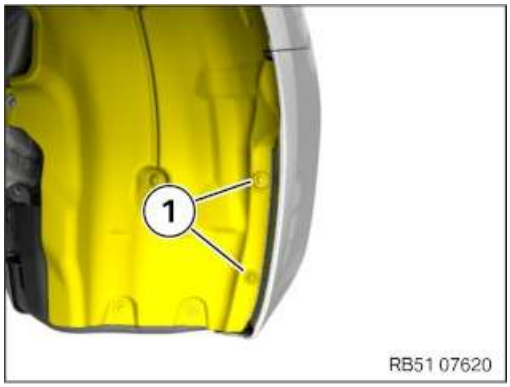
TECHNICAL INFORMATION

Observe note on unlocking and disconnecting plug connections.

For additional information see: 6113 ... Unlocking and disconnecting different plug connections

- Unlock plug connection (1) and disconnect.
- Remove the rear light on the side panel (2).

6 – Remove rear bumper panel



NOTICE

Perform the operations on the left and right side.

NOTICE

To provide a better overview: Schematic diagram with partially hidden components.

- Loosen screws (1).

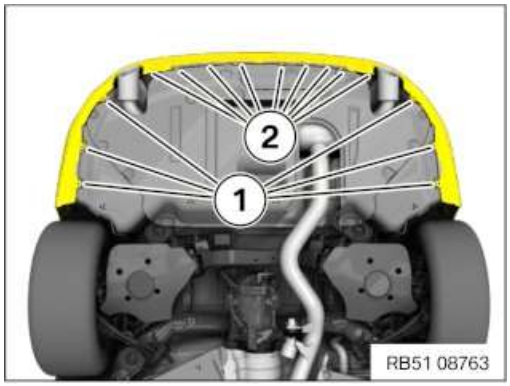
carlogn.com



NOTICE

Perform the operations on the left and right side.

- Release the screw (1).



- Loosen screws (1).
- Release the bumper panel at the latch mechanisms (2).



NOTICE

Perform the operations on the left and right side.

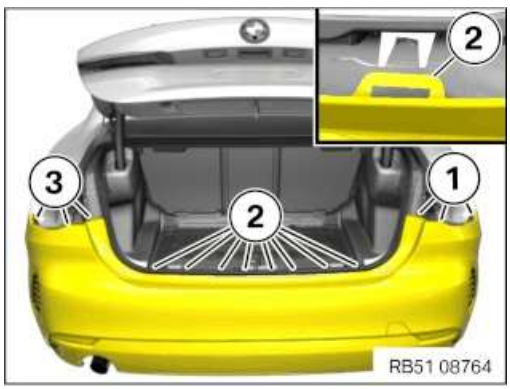
- Release the screw (1).



NOTICE

Perform the operations on the left and right side.

- Release the bumper panel with the latch mechanisms (1).



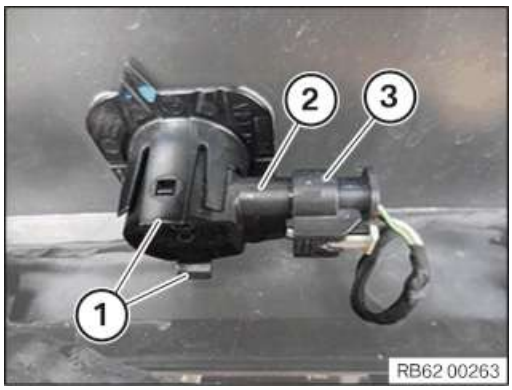
- Release the bumper panel with the latch mechanisms (1).
- Release the bumper panel from the latch mechanisms (2) starting from the right.
- Release the bumper panel from the latch mechanisms (3)



- Unlock plug connection and disconnect.
- Remove bumper panel.

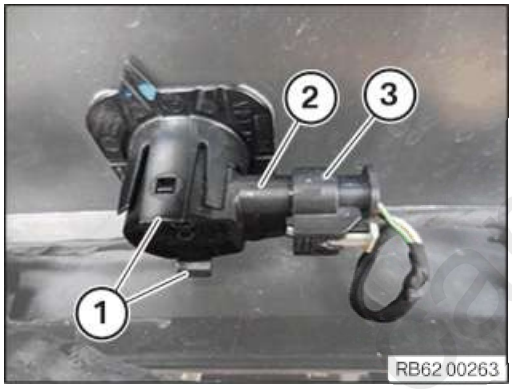
MAIN WORK

7 – Removing the ultrasonic sensor for the rear Parking Manoeuvring Assistant (PMA)



- Unlock the latch mechanisms (1).
- Unlock plug connection (3) and disconnect.
- Remove the ultrasonic sensor (2).

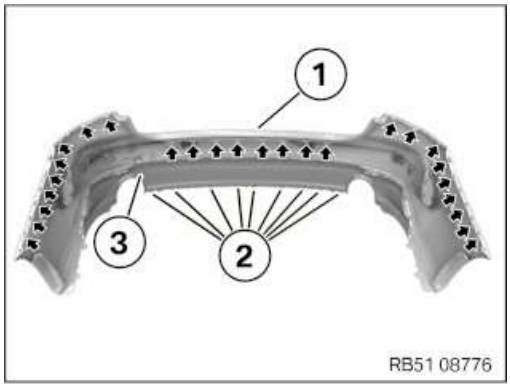
8 – Installing the ultrasonic sensor for the rear Parking Manoeuvring Assistant (PMA)



- Position the ultrasonic sensor (2) correctly and engage it in the latch mechanisms (1).
- Connect connectors (3) and lock.

POSTPROCESSES

9 – Install rear bumper panel



Check

- Check the latch mechanisms (arrows) on the bumper panel (1) for damage.

  Check the latch mechanisms (2) on the bumper trim (3) for damage.

Result

» Latch mechanisms (arrows) are damaged.

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Measure

- Renew the bumper panel (1).

Result

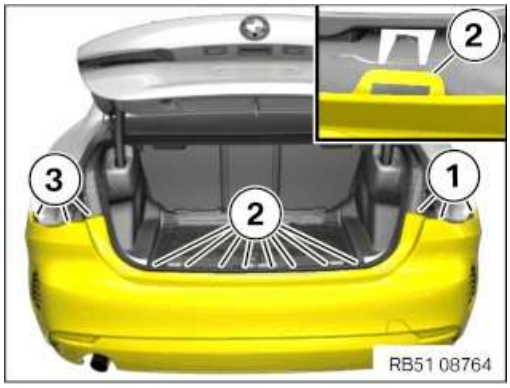
» Latch mechanisms (2) are damaged.

Measure

- Renew the bumper trim (3).



- Position the bumper panel.
- Connect connectors (1) and lock.



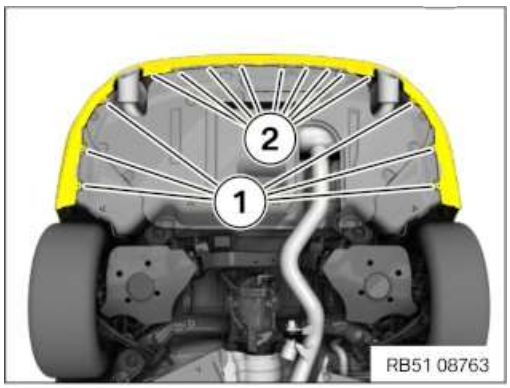
- Clip in the bumper panel with the latch mechanisms (1),(2) and (3).



NOTICE

Perform the operations on the left and right side.

- Clip in the bumper panel with latch mechanisms (1).



- Clip in the bumper panel with latch mechanisms (2).
- Tighten the screws (1).

Rear bumper trim panel to guide

Hexagon screw		Tightening torque	2.5 Nm

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NOTICE

Perform the operations on the left and right side.

- Tighten down screw (1).

Rear bumper trim panel to guide

Hexagon screw		Tightening torque	2.5 Nm



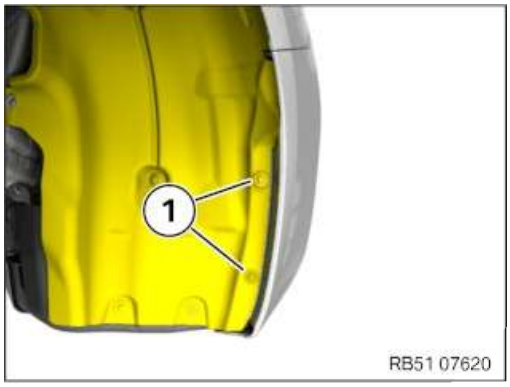
NOTICE

Perform the operations on the left and right side.

- Tighten down screw (1).

Lower bumper panel to body

Oval-head screw		Tightening torque	2.5 Nm



NOTICE

Perform the operations on the left and right side.

NOTICE

To provide a better overview: Schematic diagram with partially hidden components.

- Tighten the screws (1).

Rear wheel arch cover to bumper trim panel

Hexagon screw		Tightening torque	2,6 Nm

10 – Installing the rear light on the left and right side panels

NOTICE

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

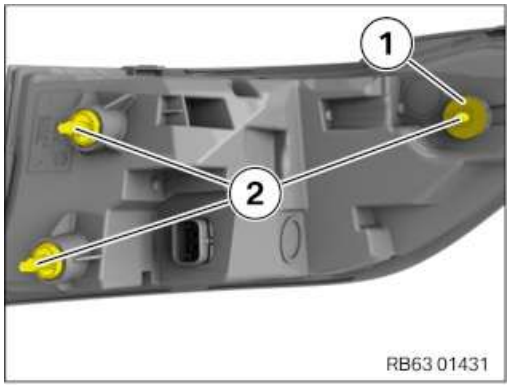
▸ **Install the rear light on the side panel**

NOTICE

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

Check

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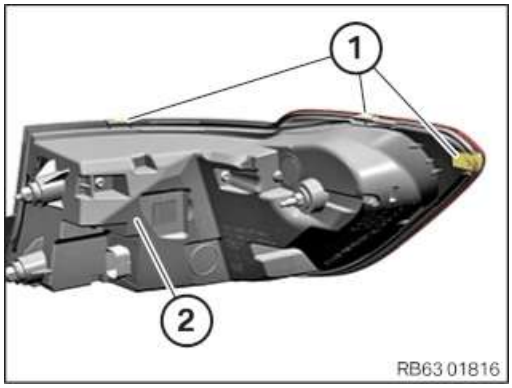
- Check the seal (1) for damage and renew if necessary.
- Check the threaded inserts (2) for damage.

Result

» The threaded inserts are damaged.

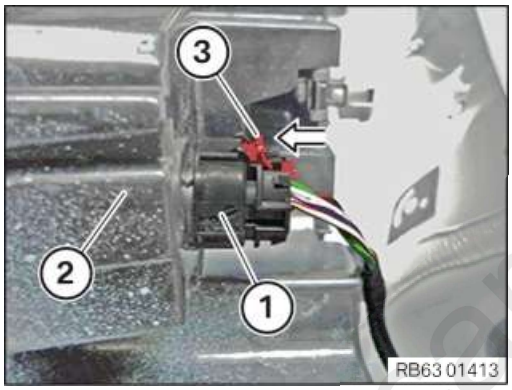
Measure

- Replace rear light.



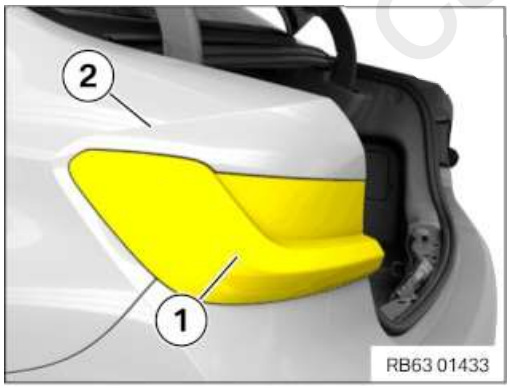
- Contact surfaces (1) on rear light (2) must not be damaged or missing.

  Missing contact surfaces (1) could cause paintwork damage.



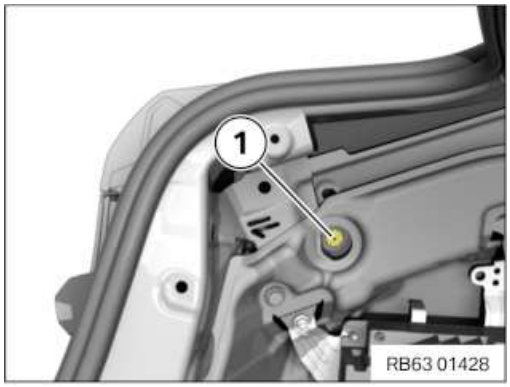
- Connect the connector (1) to the rear light on the side panel (2).

  The connector (1) must engage audibly.
- Lock the lock in direction of arrow (3).

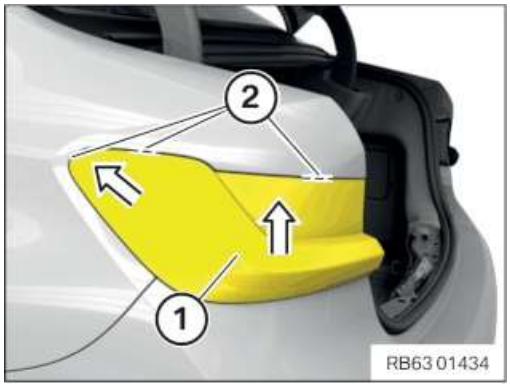


- Position the rear light on the side panel (1) on the side panel (2).

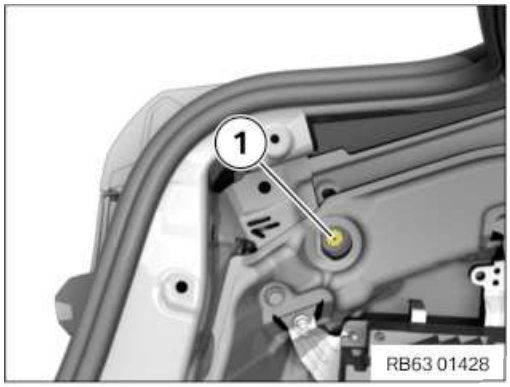
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- Position the nut (1).



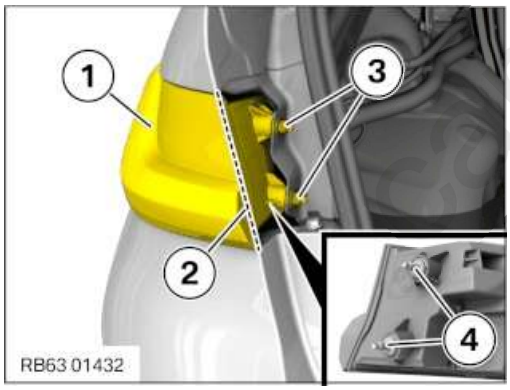
- Position the rear light on the side panel (1) to the front at the top.
- Move the contact surfaces (2) of the rear light on the side panel (1) upwards (arrow) so that they are in place.
- Hold the rear light on the side panel (1) in position.



- Tighten nut (1).

Rear light to side panel to body

Combination hexagon nut		Tightening torque	4 Nm



- Position nuts (3).
- Align rear light on the side panel (1) with the connecting line (2).

  The alignment is done through threaded inserts (4) on the rear light on the side panel (2).
- If necessary, correct the position of the rear light on the side panel (1) by twisting threaded inserts (4).
- Tighten nuts (3).

Rear light to side panel to body

Combination hexagon nut		Tightening torque	4 Nm

11 – Installing trim in water channel on left and right

NOTICE

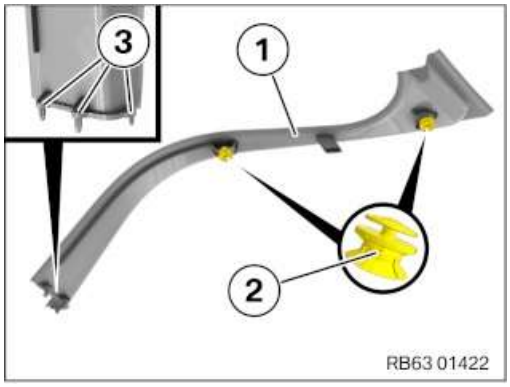
Description is for left component only. Procedure on the right side is identical.

▸ **Installing trim in water channel**

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NOTICE

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



Check

- Check clips (2) for damage and renew if necessary.
- Check guides (3) for damage.

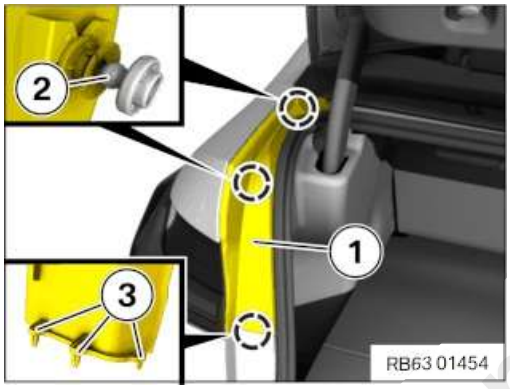
Result

» The guides are damaged.

Measure

- Renew the trim .

  Parts: trim



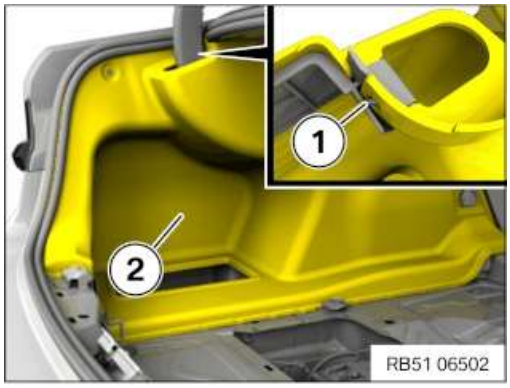
- Insert trim (1) in guides (3).
- Clip trim (1) from above into ball pins (2).

12 – Partially installing the luggage compartment wheel arch trim panel on the left and right

▸ Partially installing the left luggage compartment wheel arch trim panel

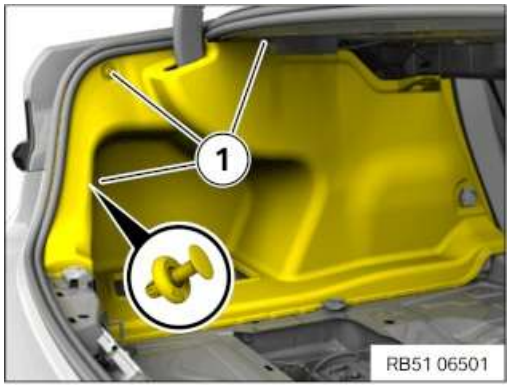
NOTICE

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



- Feed the luggage compartment wheel arch trim panel (2) into the rear area under the sealing lip of the tailgate seal.
- Feed the tab of the luggage compartment wheel arch trim panel (2) on the outer side of the hinge into the stop on the trim (1).

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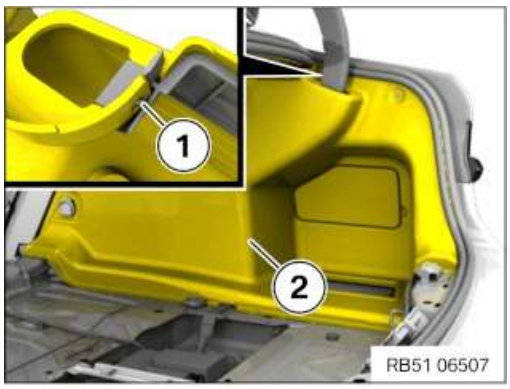


- Secure expanding rivet (1).

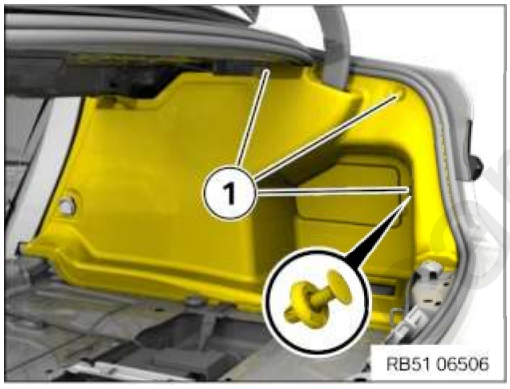
▸ **Partially installing right luggage compartment wheel arch trim panel**

NOTICE

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



- Guide luggage compartment wheel arch trim panel (2) into the rear area under the sealing lip of the tailgate seal.
- Feed the tab of the luggage compartment wheel arch trim panel (2) on the outer side of the hinge into the stop on the trim (1).

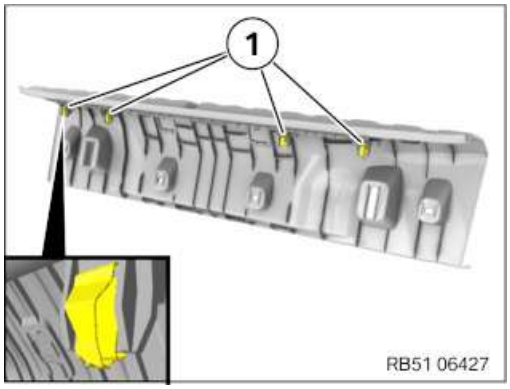


- Secure expanding rivet (1).

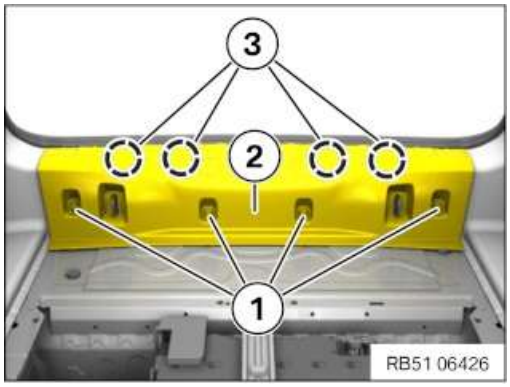
13 – Installing loading edge trim

NOTICE

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



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



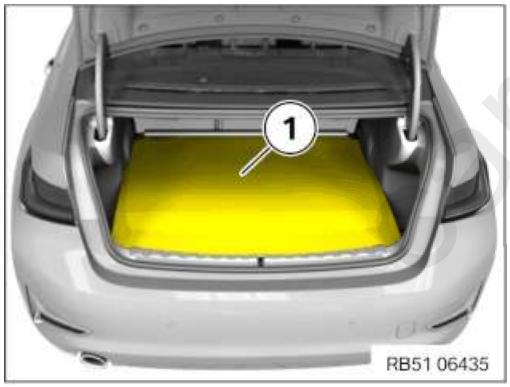
- Insert the loading edge trim (2) under the sealing lip of the tailgate seal.
- Fit the trim of the loading edge (2) at the latch mechanisms (3) and clip it in to the bottom.
- Secure expanding rivet (1).

14 – Installing the luggage compartment floor trim panel

▸ **Installing the luggage compartment floor trim panel**

NOTICE

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



- Insert the luggage compartment floor trim panel (1).

Additional Information

Overview of Tightening Torques

Rear bumper trim panel to guide			Used in step 9
Hexagon screw		Tightening torque	2.5 Nm

Lower bumper panel to body			Used in step 9
Oval-head screw		Tightening torque	2.5 Nm

Rear wheel arch cover to bumper trim panel			Used in step 9
Hexagon screw		Tightening torque	2,6 Nm

Rear light to side panel to body			Used in step 10
Combination hexagon nut		Tightening torque	4 Nm

Links

Repair instructions	Used in step
61 13 ... Unlocking and disconnecting different plug connections	5

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66 33 519 Replacing control unit for Parking Manoeuvring Assistant

RISK OF DAMAGE

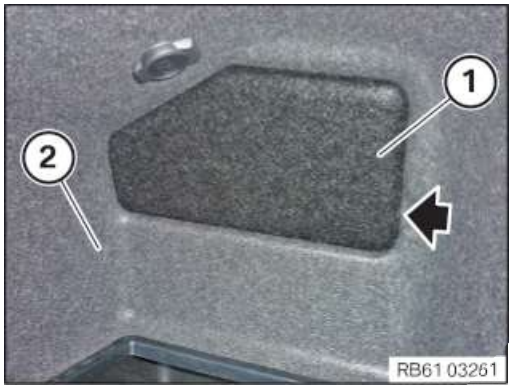
Electrostatic discharge.

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)

PRELIMINARY WORK

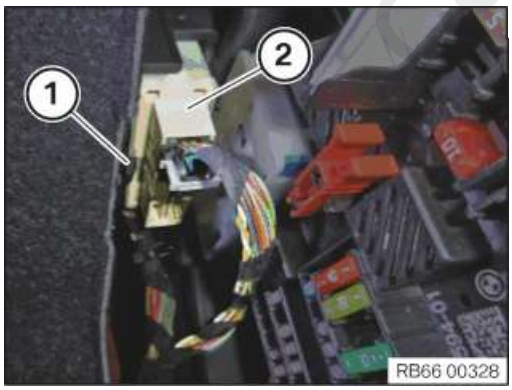
1 – Removing the flap in the luggage compartment wheel arch trim panel on the right



- Remove the flap (1) from the luggage compartment wheel arch trim panel on the right (2)

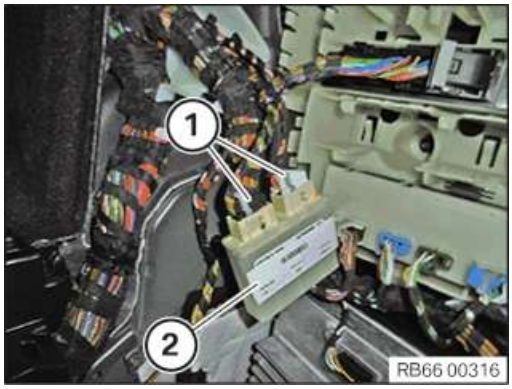
MAIN WORK

2 – Remove the PDC/PMA control unit



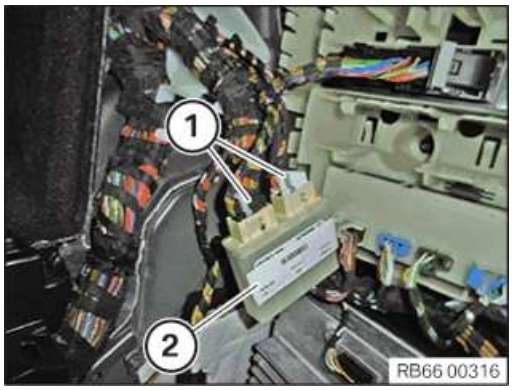
- Unlock lock (1).
- Pull down the control unit for Park Distance Control (PDC)/Park Assist (2) out of the holder.

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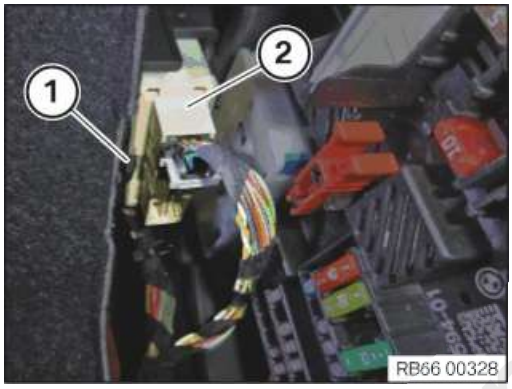


- Unlock and disconnect plug connections (1).
- Remove the PDC/PMA control unit (2).

3 – Install the PDC/PMA control unit



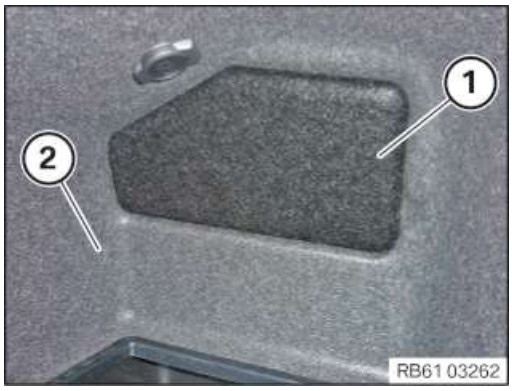
- Position PDC/PMA - control unit (2).
- Connect and lock the plug connections (1).



- Insert PDC/PMA control unit (2) upwards into the holders.
- Lock the lock (1).

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4 – Installing the flap in the luggage compartment wheel arch trim panel on the right



- Position the flap (1) correctly in the right luggage compartment wheel arch trim panel (2) and install.

5 – Encode/program control unit(s)

Prerequisite

Component has been replaced.

TECHNICAL INFORMATION

Use the most recent software version to prevent faults during programming/encoding.

The battery voltage must not fall below 13.0 V during programming.

Use only chargers for a low volt-vehicle electrical system that are recommended by BMW.

TECHNICAL INFORMATION

No high-voltage switch off is required in electric vehicles or hybrid vehicles for programming/encoding.

The high-voltage system will be automatically switched off by the programming system.

- Connect the battery charger to the vehicle.
- Connect the programming system with the vehicle.
- Determine the action plan.
- Accept and fully process the measures plan.
- If applicable, connect the workshop system to the vehicle, depending on the reworking list.
- Carry out vehicle test.
- Delete the fault memory.
- The information about programming the workshop system and the corresponding notes in the user documentation must be observed.
- Wait until programming/encoding has been completed.
- Disconnect the programming system from the vehicle.
- Disconnect the battery charger from the vehicle.

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Additional Information

Links

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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66 51 070 Removing and installing KAFAS camera with integrated control unit

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)

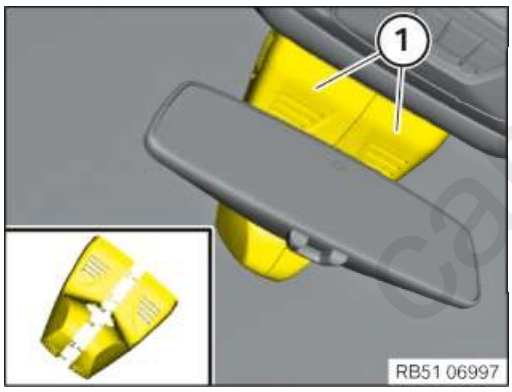
TECHNICAL INFORMATION

The heating of the KAFAS camera is integrated in the windscreen. If the heating is faulty, replace the windscreen.

PRELIMINARY WORK

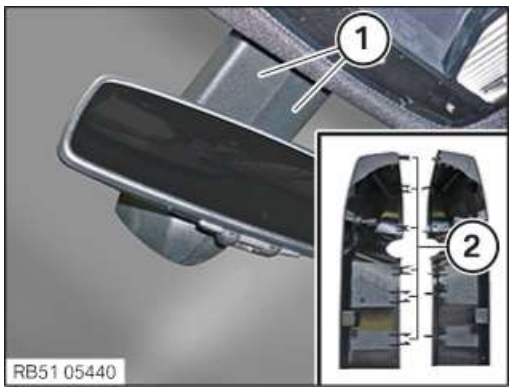
1 – Removing the covers for the interior mirror

- **Version A:**



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

- **Version B:**



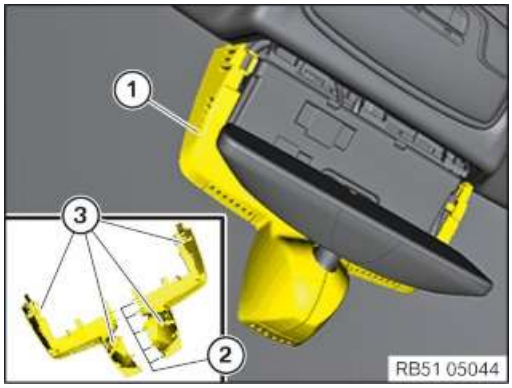
- Release the cover (1) from the latch mechanisms (2) with a suitable plastic wedge and remove sideways.

- **Version C:**

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- 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.



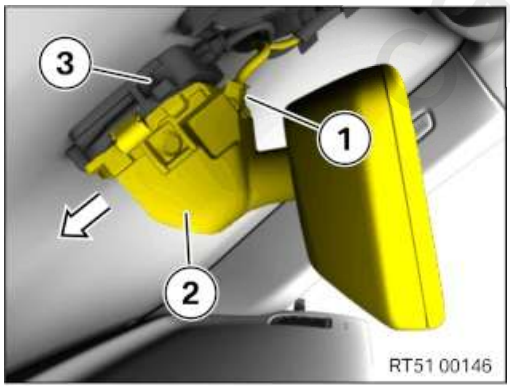
- Release cover (1) from the latch mechanisms (2) and (3) and remove sideways.
- Remove cover (1) from mirror base (2).

- **Version D:**



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

2 – 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).

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MAIN WORK

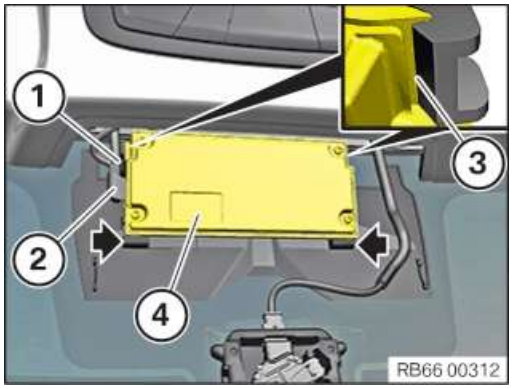
3 – Remove KAFAS camera (high version)

RISK OF DAMAGE

Improper unlocking of the KAFAS camera.

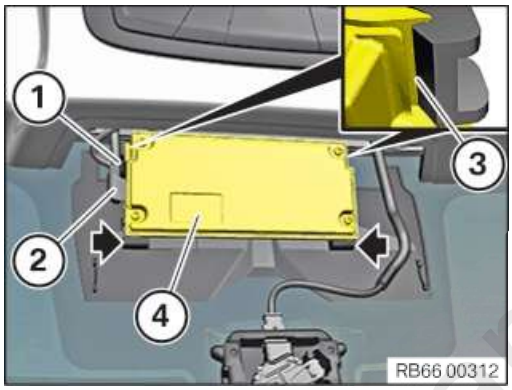
Damage to the retaining hooks of the KAFAS camera holder.

- 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.

4 – Install KAFAS camera (high version)



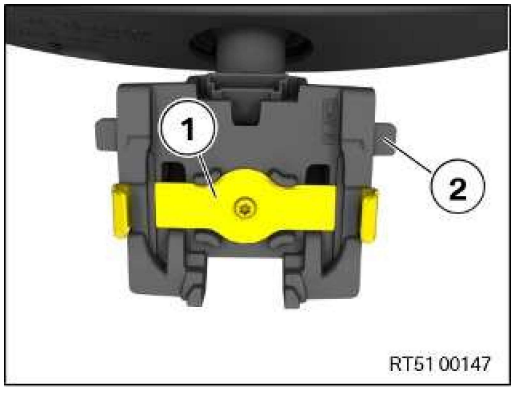
TECHNICAL INFORMATION

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

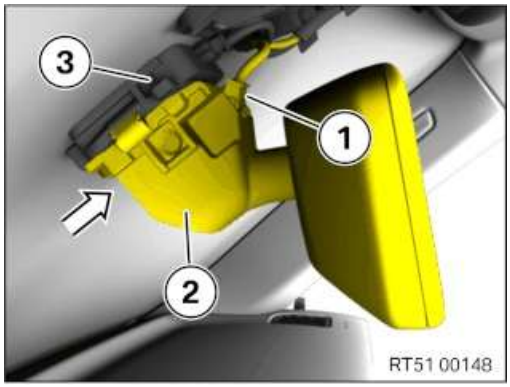
- Feed in the KAFAS camera (4) in the guides (arrows) and engage it in the retaining lugs (3).
- Make sure that the KAFAS camera (4) is engaged correctly at the retaining lugs (3).
- Connect connectors (2) and lock.
- Connect connectors (1) and lock.

POSTPROCESSES

5 – Install interior mirror



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



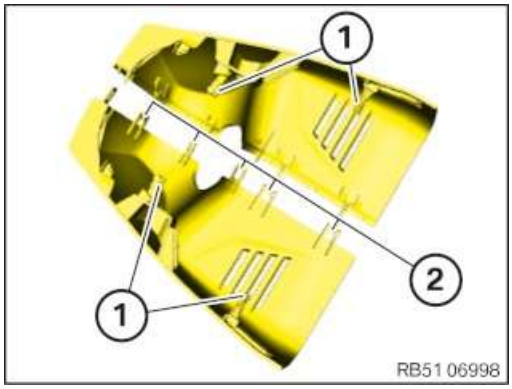
TECHNICAL INFORMATION

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

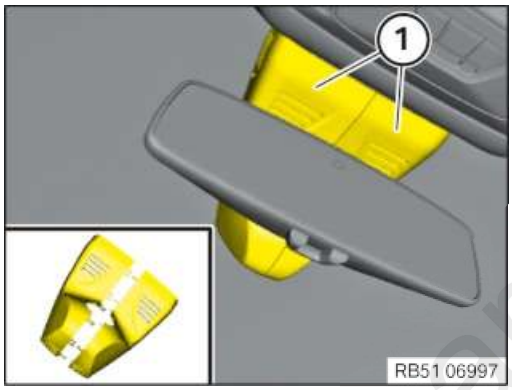
- Position the interior mirror (2) at the mirror base and slide it on in direction of the arrow.
- Check the correct installation position of the interior mirror (2) at the mirror base (3).
- Connect connectors (1) and lock.

6 – Installing the covers for the interior mirror

- **Version A:**

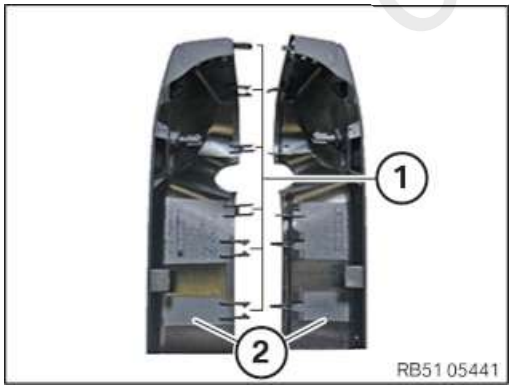


- Check latch mechanisms (1) and (2).
- If the latch mechanisms (1) or (2) are faulty, renew the covers.



- Feed cover (1) in and lock.

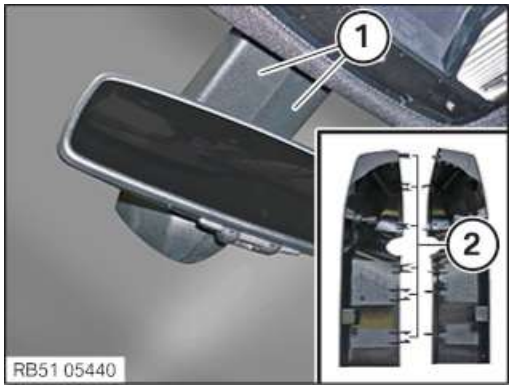
- **Version B:**



- 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.

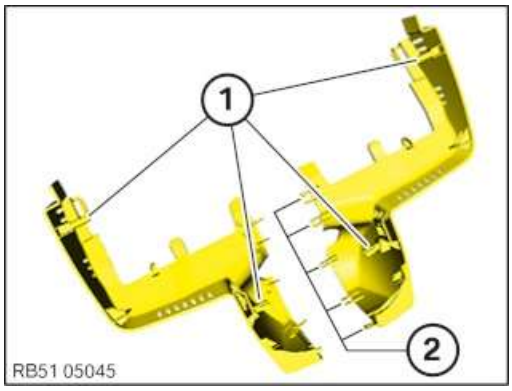
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- Position the covers (1) correctly on the mirror and engage with the latch mechanisms (2).

- **Version C:**

Check



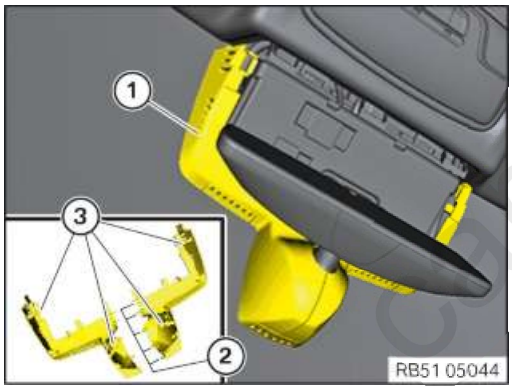
- Check the latch mechanisms (1) and (2) of the covers for damage.

Result

» The latch mechanism is damaged.

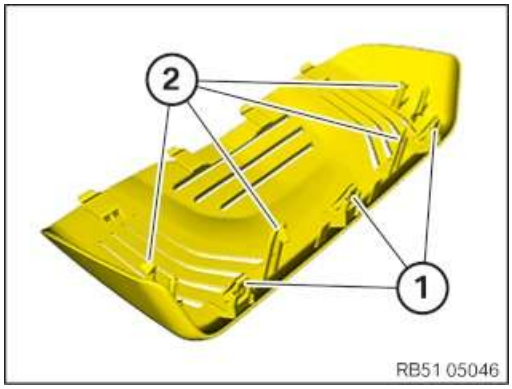
Measure

- 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

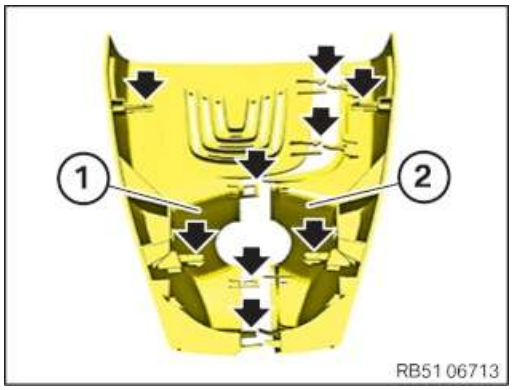
- Renew the cover.

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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).

Additional Information

Links

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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66 51 060 Removing and installing KAFAS camera with integrated control unit

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)

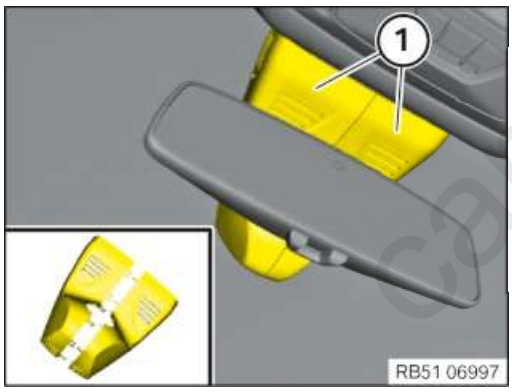
TECHNICAL INFORMATION

The heating of the KAFAS camera is integrated in the windscreen. If the heating is faulty, replace the windscreen.

PRELIMINARY WORK

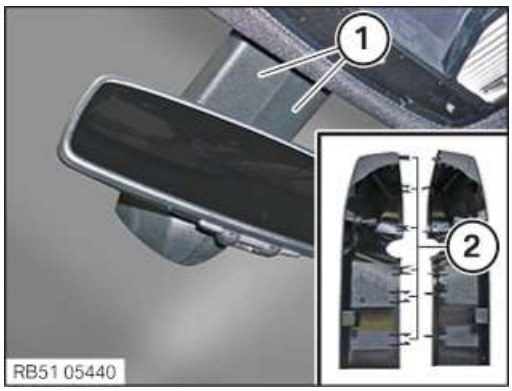
1 – Removing the covers for the interior mirror

- **Version A:**



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

- **Version B:**



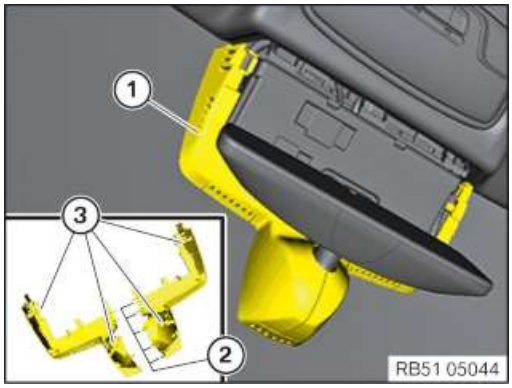
- Release the cover (1) from the latch mechanisms (2) with a suitable plastic wedge and remove sideways.

- **Version C:**

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- 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.



- 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.

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MAIN WORK

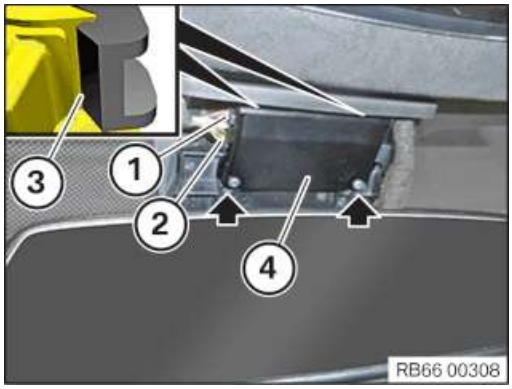
2 – Remove KAFAS camera (Mid variant)

RISK OF DAMAGE

Improper unlocking of the KAFAS camera.

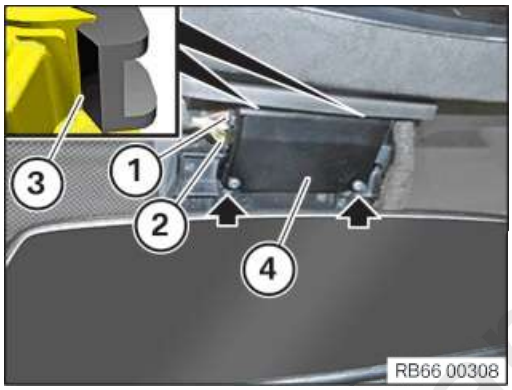
Damage to the retaining hooks of the KAFAS camera holder.

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



- 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.

3 – Install KAFAS camera (Mid variant)



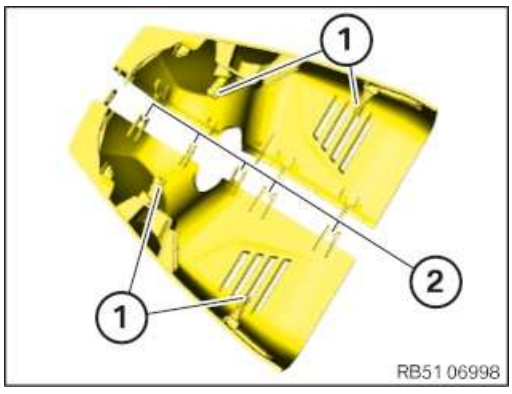
TECHNICAL INFORMATION

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.

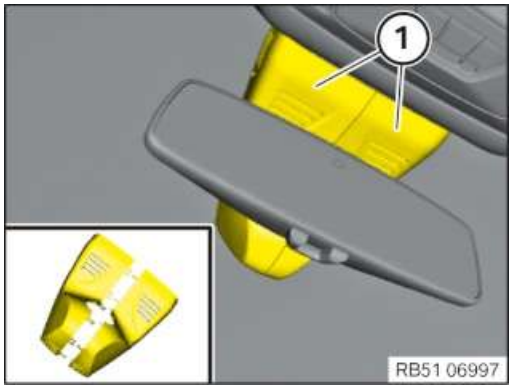
POSTPROCESSES

4 – Installing the covers for the interior mirror



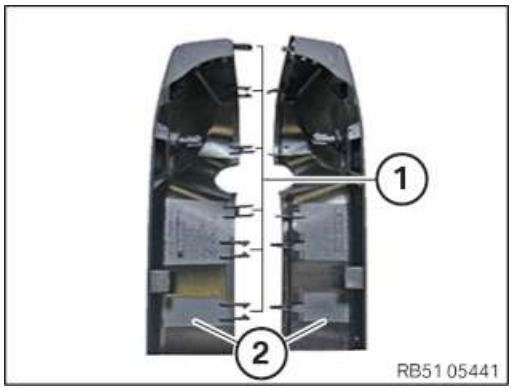
- **Version A:**
- Check latch mechanisms (1) and (2).
- If the latch mechanisms (1) or (2) are faulty, renew the covers.

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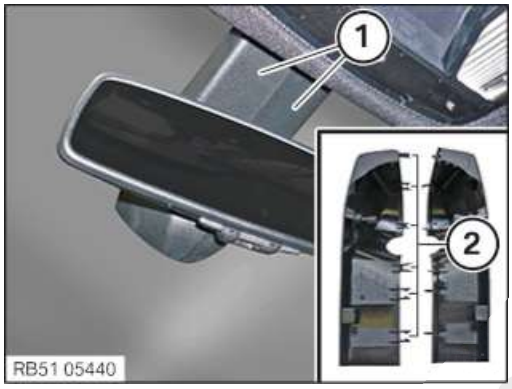
- Feed cover (1) in and lock.

- **Version B:**



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

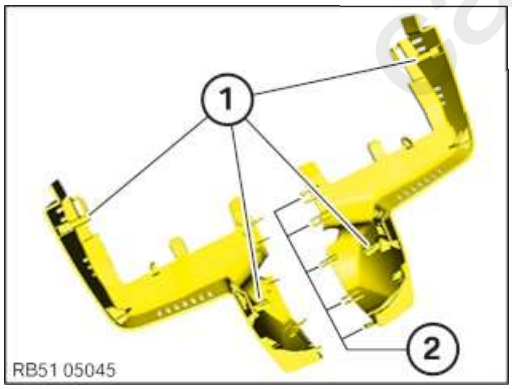
  The covers (2) must not be damaged or missing.



- 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.

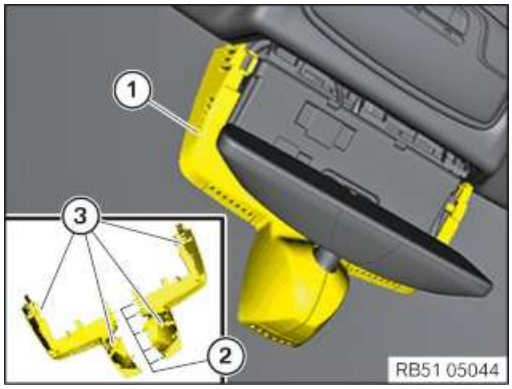
Result

» The latch mechanism is damaged.

Measure

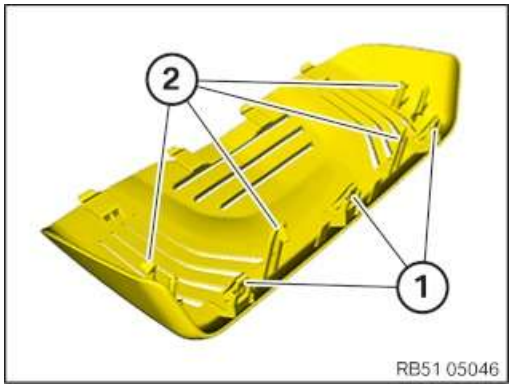
- Renew the cover.

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

Check



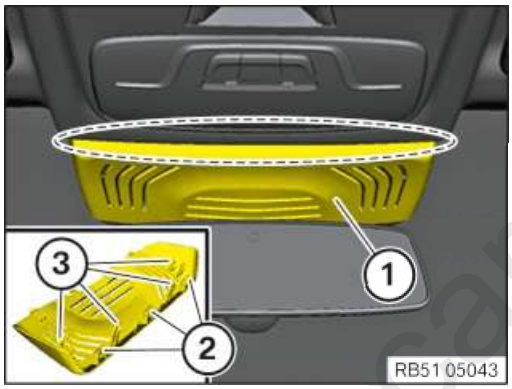
- Check clamps (1) for damage; renew if necessary.
- Check latch mechanisms (2) for damage.

Result

» The latch mechanism is damaged.

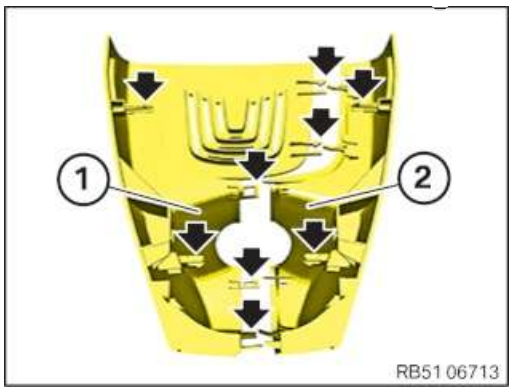
Measure

- Renew the cover.



- 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).

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

Additional Information

Links

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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66 51 571 Replacing KAFAS camera with integrated control unit

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)

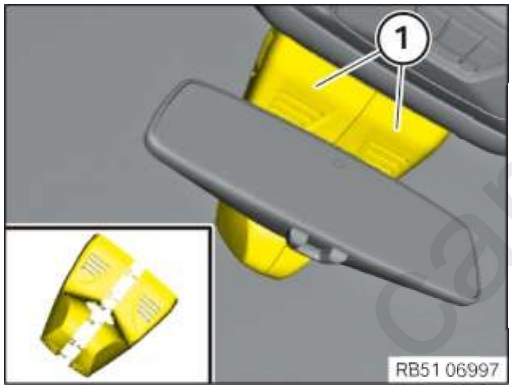
TECHNICAL INFORMATION

The heating of the KAFAS camera is integrated in the windscreen. If the heating is faulty, replace the windscreen.

PRELIMINARY WORK

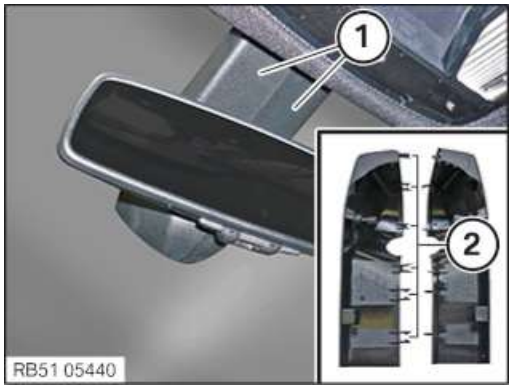
1 – Removing the covers for the interior mirror

- **Version A:**



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

- **Version B:**



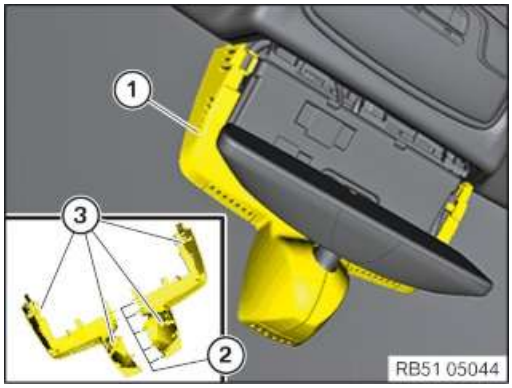
- Release the cover (1) from the latch mechanisms (2) with a suitable plastic wedge and remove sideways.

- **Version C:**

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- 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.



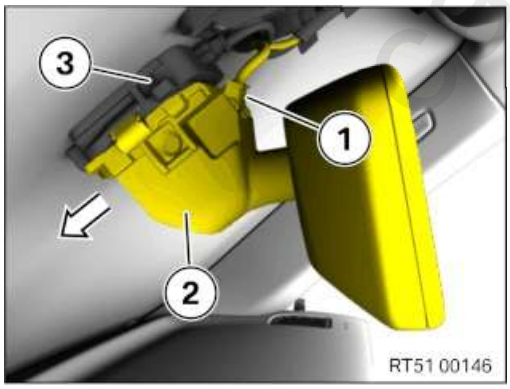
- Release cover (1) from the latch mechanisms (2) and (3) and remove sideways.
- Remove cover (1) from mirror base (2).

- **Version D:**



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

2 – 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).

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MAIN WORK

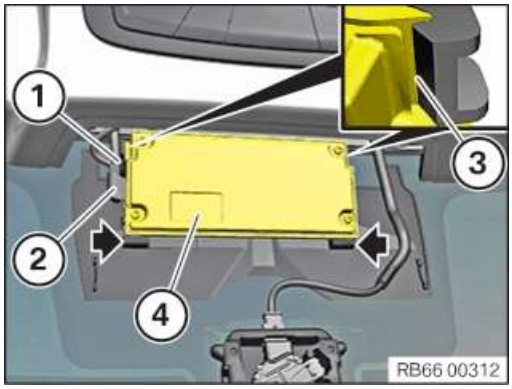
3 – Remove KAFAS camera (high version)

RISK OF DAMAGE

Improper unlocking of the KAFAS camera.

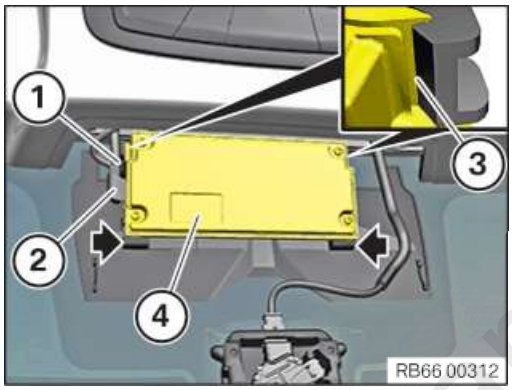
Damage to the retaining hooks of the KAFAS camera holder.

- 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.

4 – Install KAFAS camera (high version)



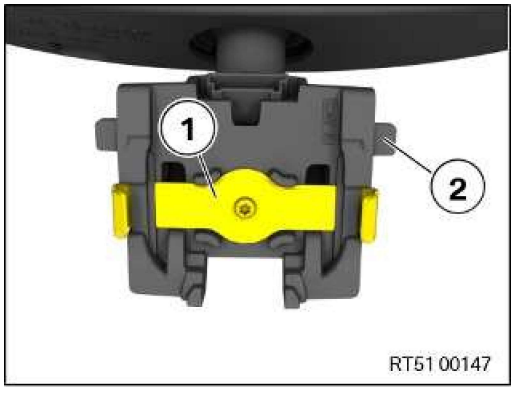
TECHNICAL INFORMATION

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

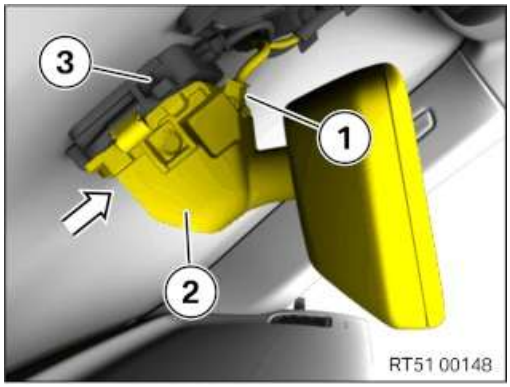
- Feed in the KAFAS camera (4) in the guides (arrows) and engage it in the retaining lugs (3).
- Make sure that the KAFAS camera (4) is engaged correctly at the retaining lugs (3).
- Connect connectors (2) and lock.
- Connect connectors (1) and lock.

POSTPROCESSES

5 – Install interior mirror



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



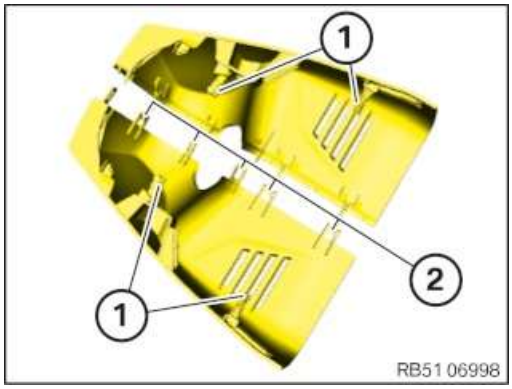
TECHNICAL INFORMATION

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

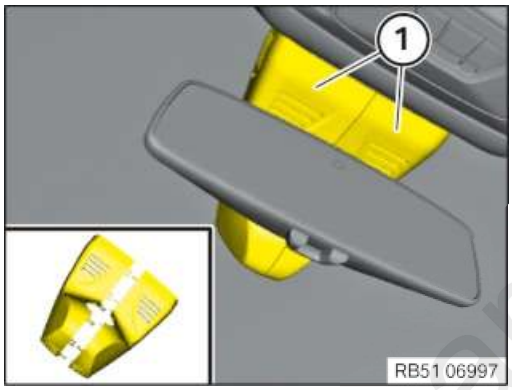
- Position the interior mirror (2) at the mirror base and slide it on in direction of the arrow.
- Check the correct installation position of the interior mirror (2) at the mirror base (3).
- Connect connectors (1) and lock.

6 – Installing the covers for the interior mirror

- **Version A:**

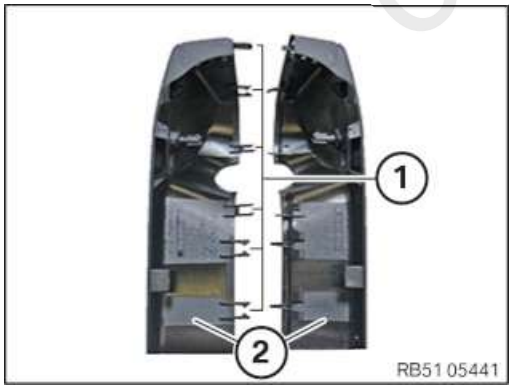


- Check latch mechanisms (1) and (2).
- If the latch mechanisms (1) or (2) are faulty, renew the covers.



- Feed cover (1) in and lock.

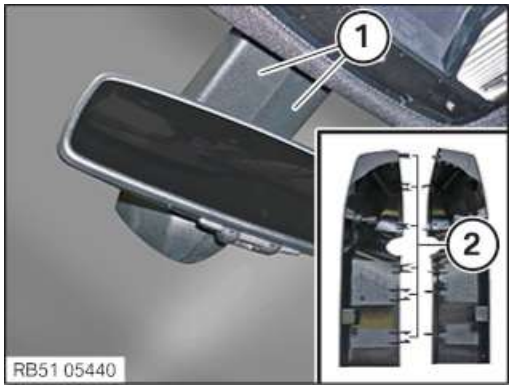
- **Version B:**



- 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.

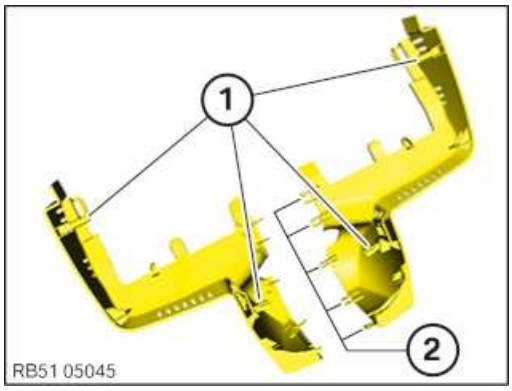
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- Position the covers (1) correctly on the mirror and engage with the latch mechanisms (2).

- **Version C:**

Check



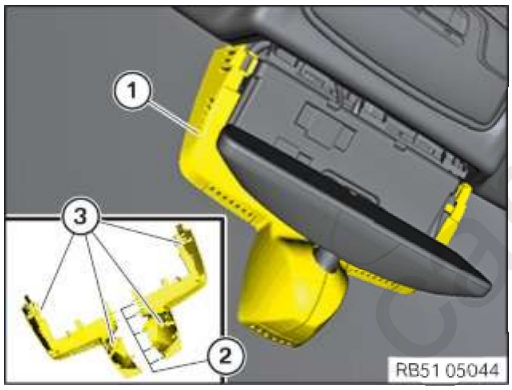
- Check the latch mechanisms (1) and (2) of the covers for damage.

Result

» The latch mechanism is damaged.

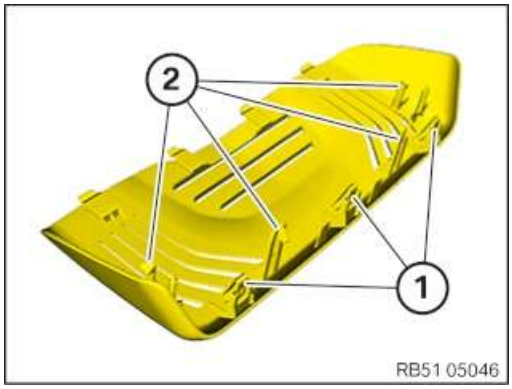
Measure

- 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

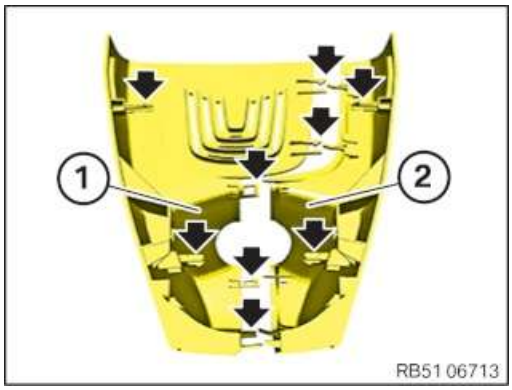
- Renew the cover.

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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).

7 – Encode/program control unit(s)

Prerequisite

Component has been replaced.

TECHNICAL INFORMATION

Use the most recent software version to prevent faults during programming/encoding.

The battery voltage must not fall below 13.0 V during programming.

Use only chargers for a low volt-vehicle electrical system that are recommended by BMW.

TECHNICAL INFORMATION

No high-voltage switch off is required in electric vehicles or hybrid vehicles for programming/encoding.

The high-voltage system will be automatically switched off by the programming system.

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- Connect the battery charger to the vehicle.
- Connect the programming system with the vehicle.
- Determine the action plan.
- Accept and fully process the measures plan.
- If applicable, connect the workshop system to the vehicle, depending on the reworking list.
- Carry out vehicle test.
- Delete the fault memory.
- The information about programming the workshop system and the corresponding notes in the user documentation must be observed.
- Wait until programming/encoding has been completed.
- Disconnect the programming system from the vehicle.
- Disconnect the battery charger from the vehicle.

Additional Information

Links

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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66 51 561 Replacing KAFAS camera with integrated control unit

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)

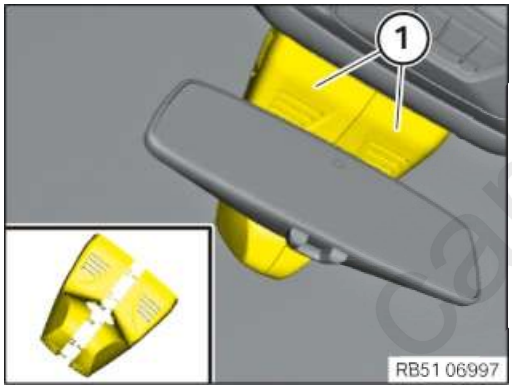
TECHNICAL INFORMATION

The heating of the KAFAS camera is integrated in the windscreen. If the heating is faulty, replace the windscreen.

PRELIMINARY WORK

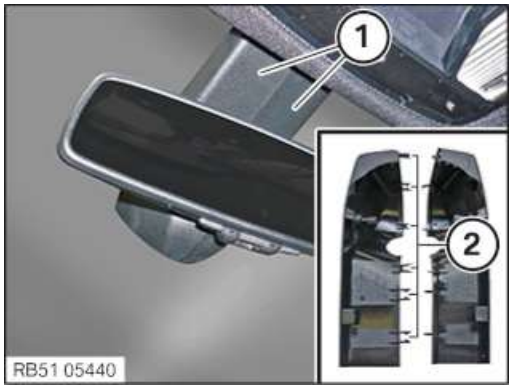
1 – Removing the covers for the interior mirror

- **Version A:**



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

- **Version B:**



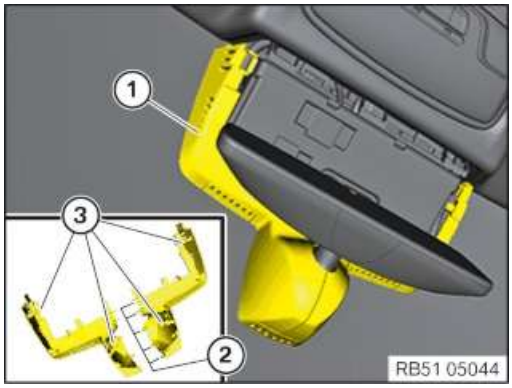
- Release the cover (1) from the latch mechanisms (2) with a suitable plastic wedge and remove sideways.

- **Version C:**

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- 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.



- 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.

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MAIN WORK

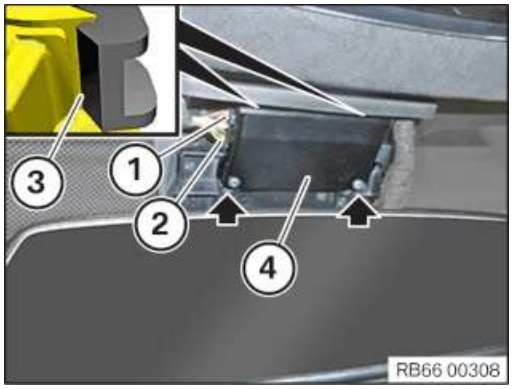
2 – Remove KAFAS camera (Mid variant)

RISK OF DAMAGE

Improper unlocking of the KAFAS camera.

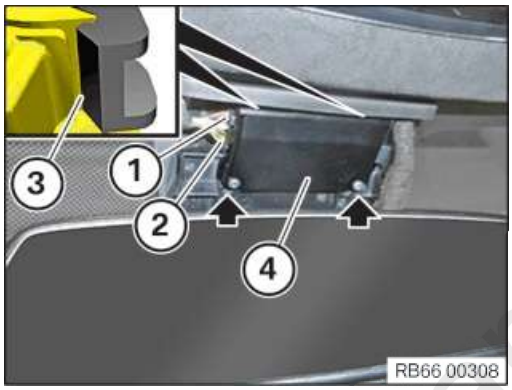
Damage to the retaining hooks of the KAFAS camera holder.

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



- 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.

3 – Install KAFAS camera (Mid variant)



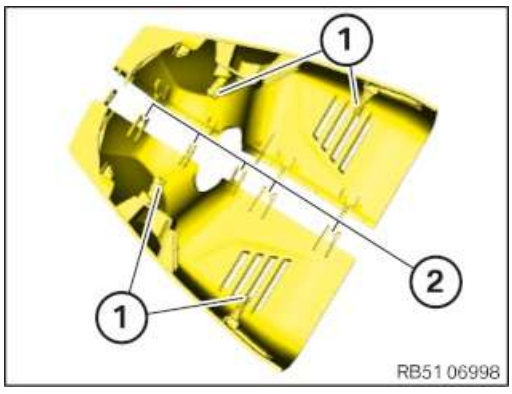
TECHNICAL INFORMATION

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.

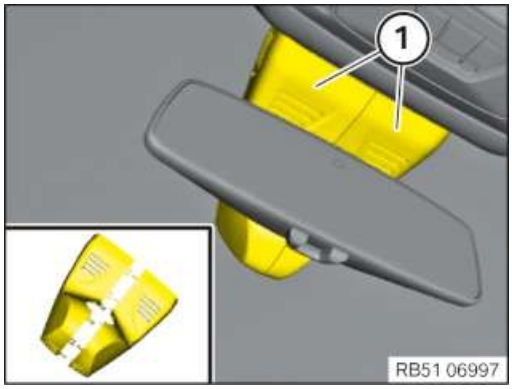
POSTPROCESSES

4 – Installing the covers for the interior mirror



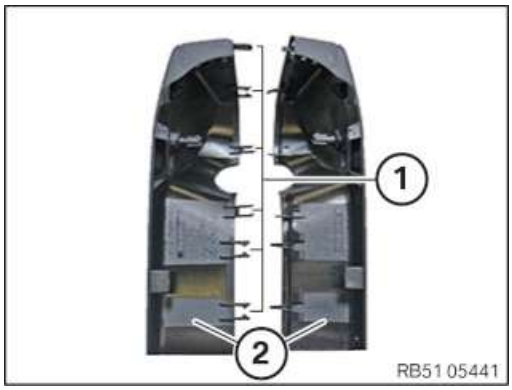
- **Version A:**
- Check latch mechanisms (1) and (2).
- If the latch mechanisms (1) or (2) are faulty, renew the covers.

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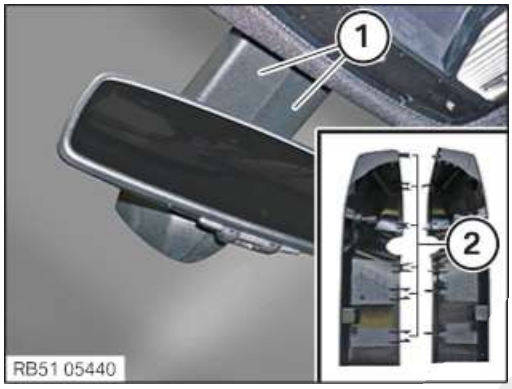
- Feed cover (1) in and lock.

- **Version B:**



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

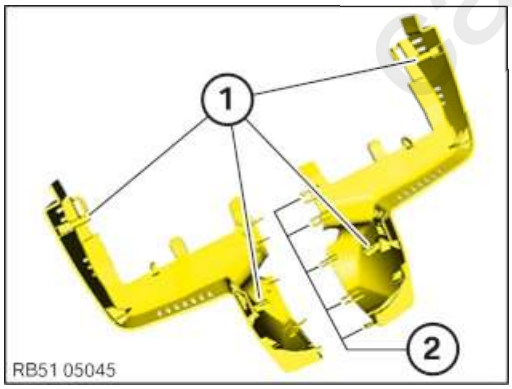
  The covers (2) must not be damaged or missing.



- 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.

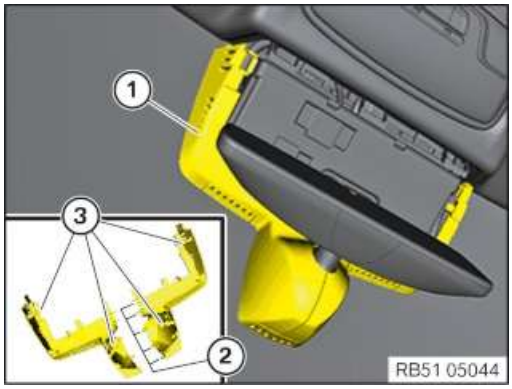
Result

» The latch mechanism is damaged.

Measure

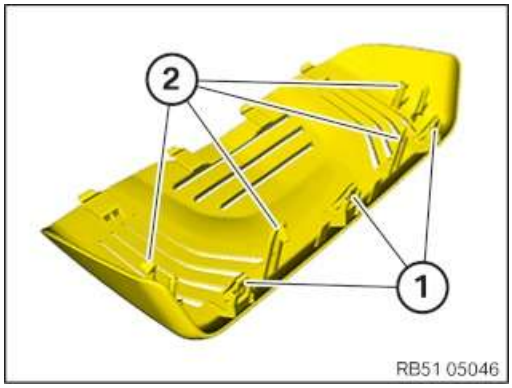
- Renew the cover.

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

Check



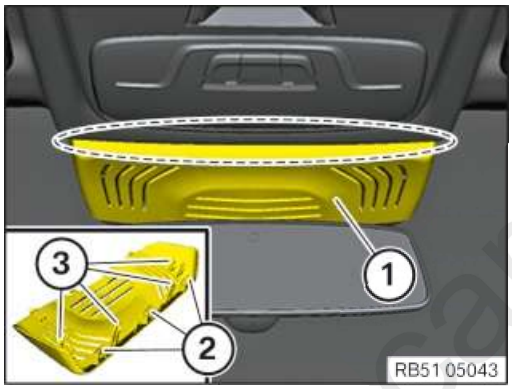
- Check clamps (1) for damage; renew if necessary.
- Check latch mechanisms (2) for damage.

Result

» The latch mechanism is damaged.

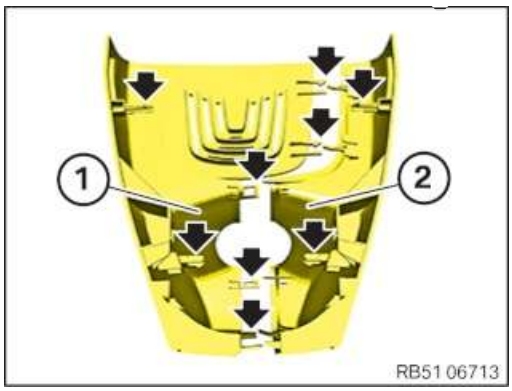
Measure

- Renew the cover.



- 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).

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

5 – Encode/program control unit(s)

Prerequisite

Component has been replaced.

TECHNICAL INFORMATION

Use the most recent software version to prevent faults during programming/encoding.
The battery voltage must not fall below 13.0 V during programming.
Use only chargers for a low volt-vehicle electrical system that are recommended by BMW.

TECHNICAL INFORMATION

No high-voltage switch off is required in electric vehicles or hybrid vehicles for programming/encoding.
The high-voltage system will be automatically switched off by the programming system.

- Connect the battery charger to the vehicle.
- Connect the programming system with the vehicle.
- Determine the action plan.
- Accept and fully process the measures plan.
- If applicable, connect the workshop system to the vehicle, depending on the reworking list.
- Carry out vehicle test.
- Delete the fault memory.
- The information about programming the workshop system and the corresponding notes in the user documentation must be observed.
- Wait until programming/encoding has been completed.
- Disconnect the programming system from the vehicle.
- Disconnect the battery charger from the vehicle.

Additional Information

Links

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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66 52 511 Replace Driver Camera System (DCS) (After vehicle diagnosis) (without programming/encoding, see 61 00 ...)

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)

PRELIMINARY WORK

1 – Adjust the steering column position



- Adjust the length of the steering column to the maximum length in the direction of arrow (1).
- Move the steering column to the lowest steering column position in the direction of arrow (2).

2 – 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.

TECHNICAL INFORMATION

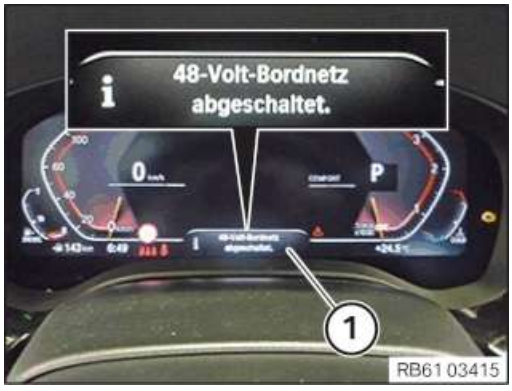
Follow notes for 48-V battery. See further information 6120 ... Notes on 48-V battery.



- 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.



- 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.

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WARNING

Unprotected battery terminals.

Risk of short circuits! Risk of fire!

- Cover the vehicle battery.

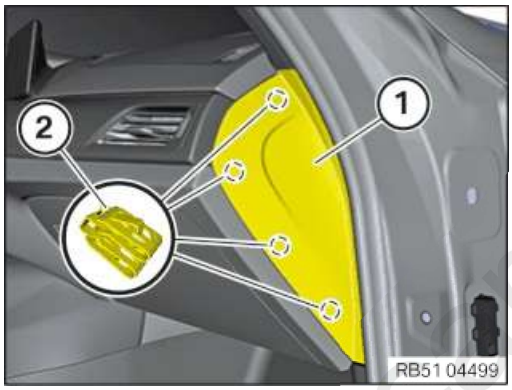
- Cover the vehicle battery with the special tool as shown.
- Position the battery earth lead (1) as shown.

3 – Disconnecting all battery earth leads



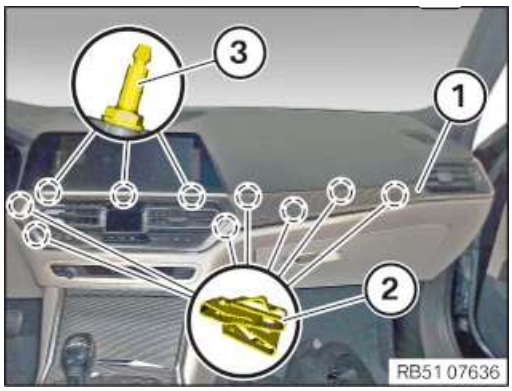
- See additional information.

4 – Remove the side panel on the right instrument panel



- Unclip and remove the side panel (1) towards the outside from the clamps (2).
- If necessary, unlock associated plug connection and disconnect.

5 – Remove the finisher on the right instrument panel



- Unclip the decorative strip (1) towards rear at the clamps (2) and the pins (3).
- Unlock associated plug connection and disconnect.
- Remove the decorative strip (1).

6 – Remove Central Information Display (CID)

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RISK OF DAMAGE

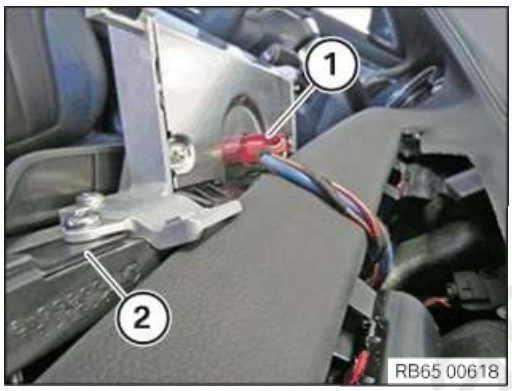
Electrostatic discharge.

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)

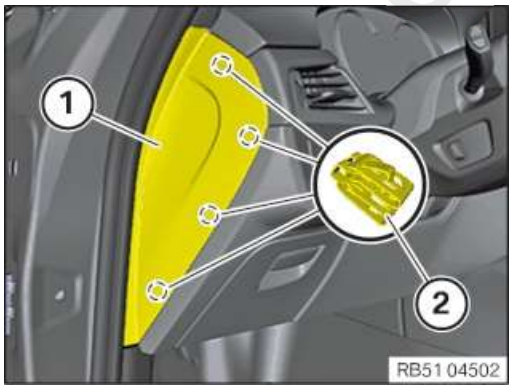


- Loosen screws (1).
- Pull out central information display (CID) (2) slightly off the instrument panel.



- Unlock plug connection (1) and disconnect.
- Remove the central information display (CID) (2).

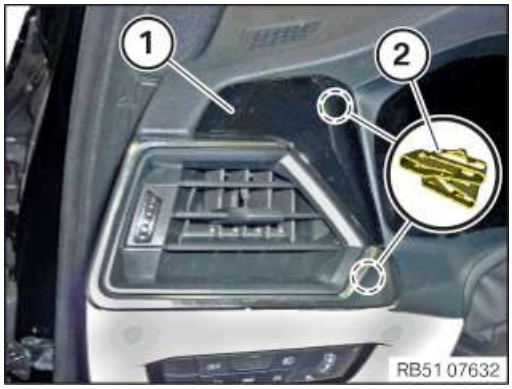
7 – Remove the side panel on the left instrument panel



- Unclip and remove the side panel (1) towards the outside from the clamps (2).

8 – Remove the finisher on the instrument panel on the left

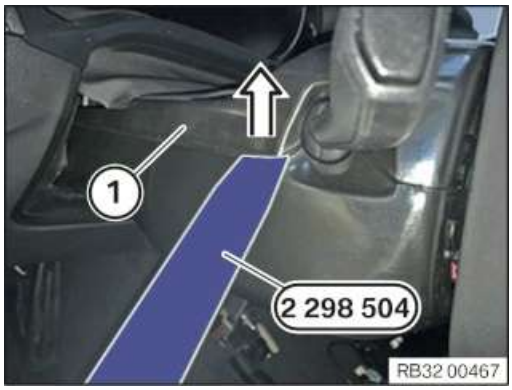
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- Unclip decorative strip (1) to the rear out of the clamps (2).
- Unlock associated plug connection and disconnect.

  Remove the decorative strip (1).

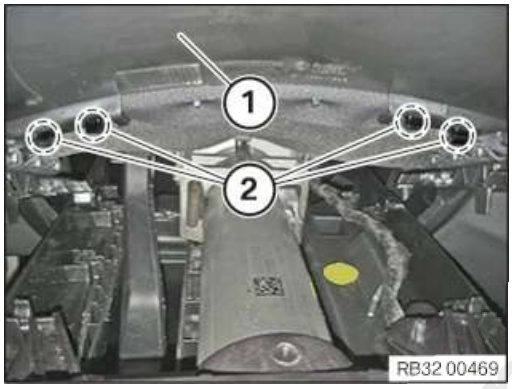
9 – Removing steering column shroud upper section



NOTICE

Perform the operations on the left and right side.

- Unlock the steering column shroud upper section (1) with the special tool 2 298 504 and fold up.



- Unclip the steering column shroud upper section (1) from the brackets (2).
- Remove the steering column shroud upper section (1).

10 – Removing the instrument cluster (KOMBI)

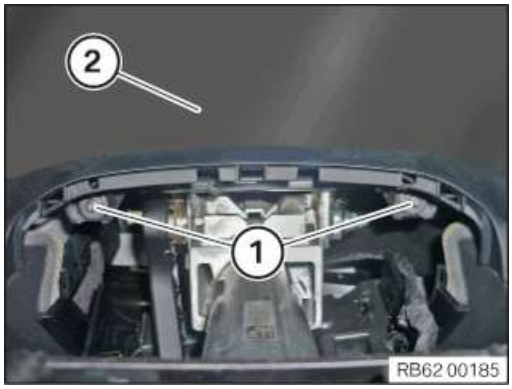


- Loosen screw (1).

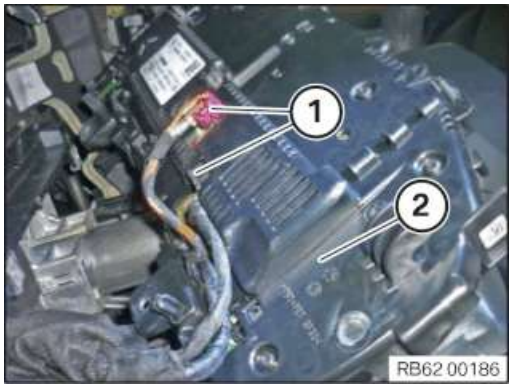


- Loosen screw (1).

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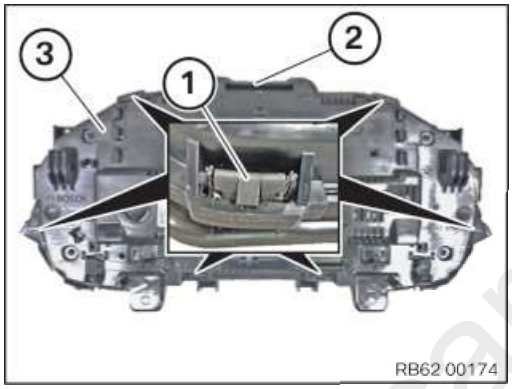
- Loosen screws (1).
- Feed out instrument cluster (KOMBI) (2).



- Unlock and disconnect plug connections (1) from instrument cluster (KOMBI) (2).
- Remove the instrument cluster (KOMBI) (2).

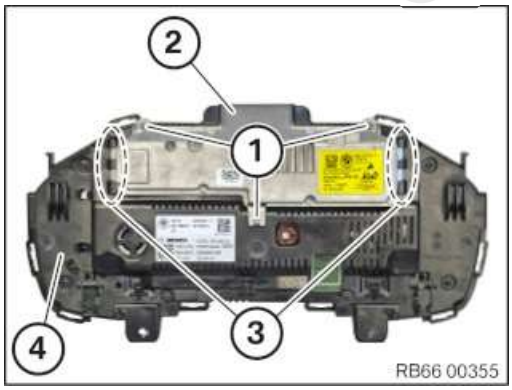
MAIN WORK

11 – Removing the adapter for the trim of the instrument cluster



- Loosen the clasps (1).
- Remove the adapter (2) for the trim of the instrument cluster (3).

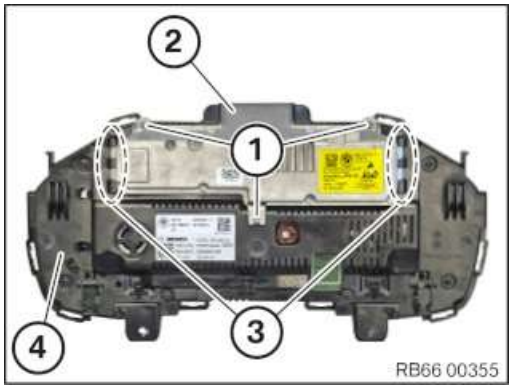
12 – Remove the Driver Camera System (DCS)



- Release screws (1) on Driver Camera System (DCS) (2).
- Feed out the Driver Camera System (DCS) (2) upwards on the guides (3) of the instrument cluster (4) and remove it.

13 – Installing the Driver Camera System (DCS)

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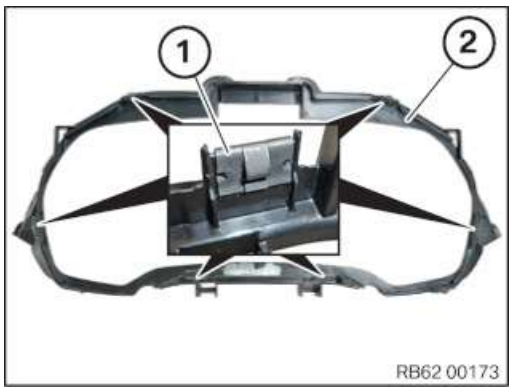


- Feed the Driver Camera System (DCS) (2) into the guides (3) of the instrument cluster (4) from the top.
- Tighten the screws (1) on the Driver Camera System (DCS) (2).

Driver Camera System (DCS) to instrument cluster

Screw		Tightening torque	1.05 Nm

14 – Installing the adapter for the trim of the instrument cluster



Check

- Check the trim (1) and guides on the adapter (2) for the trim for damage.

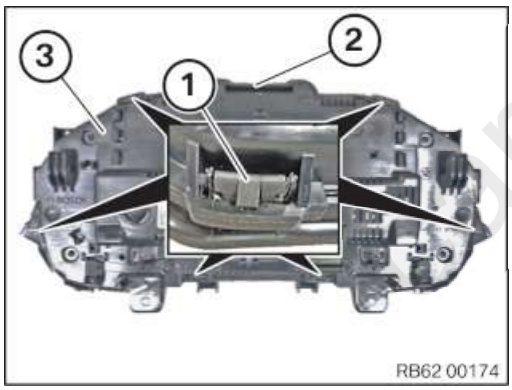
Result

» Clasps (1) or guides are damaged.

Measure

- Renew the adapter (2) for the trim.

  Parts: Adapter

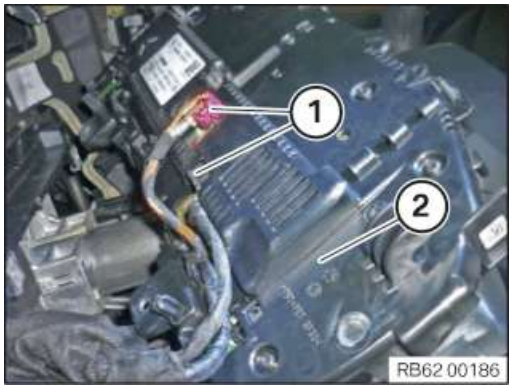


- Position the adapter (2) for the trim on the instrument cluster (3) and clip into place.

  The clasps (1) must engage audibly.

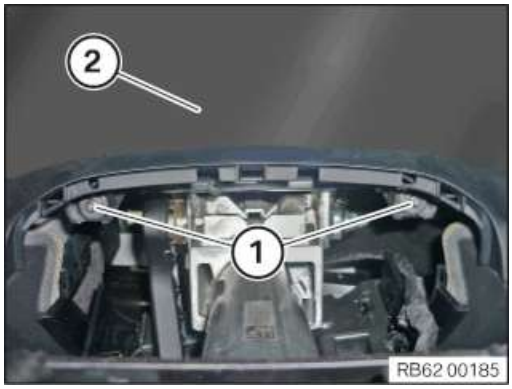
POSTPROCESSES

15 – Installing the instrument cluster (KOMBI)



- Connect and lock connector (1) to the instrument cluster (KOMBI) (2).

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- Feed in and position the instrument cluster (KOMBI) (2).
- Tighten the screws (1).

Instrument cluster (KOMBI) to support

Screw		Tightening torque	1,8 Nm



- Tighten down screw (1).

Instrument cluster (KOMBI) to support

Screw		Tightening torque	1,8 Nm

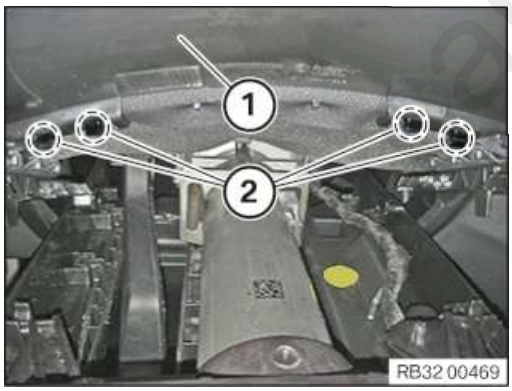


- Tighten down screw (1).

Instrument cluster (KOMBI) to support

Screw		Tightening torque	1,8 Nm

16 – Fit steering column shroud upper section



- Clip in the steering column shroud upper section (1) at the brackets (2).



NOTICE

Perform the operations on the left and right side.

- Clip in the steering column shroud upper section (1)into the guide (2).

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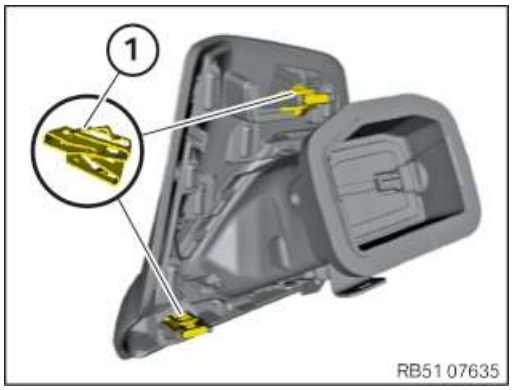
NOTICE

Perform the operations on the left and right side.

- Press the upper section of the steering column shroud (1) downwards in direction of arrow.

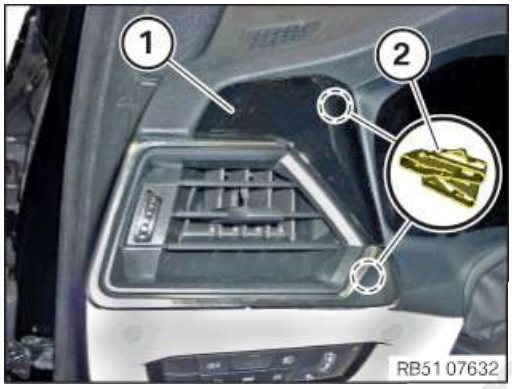
  The upper section of the steering column shroud must engage audibly and perceptibly.

17 – Install the finisher on the instrument panel on the left



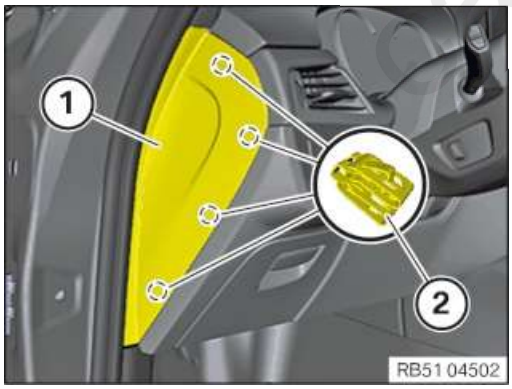
- Check the clamps (1) for damage and that they are present.

  Damaged or missing clamps (1) must be renewed.



- Install the decorative strip (1).
- Connect and lock the associated connectors.
- Clip decorative strip (1) into clamps (2).

18 – Install the side panel on left instrument panel



- Feed in the side panel (1) and clip it in at the clamps (2).

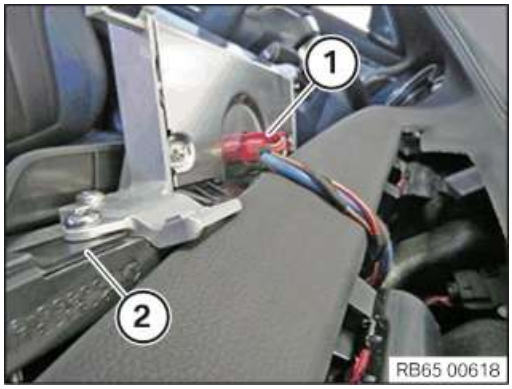
19 – Install the central information display (CID)

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)



- Position Central Information Display (CID) (2).
- Connect plug connection (1) and lock.

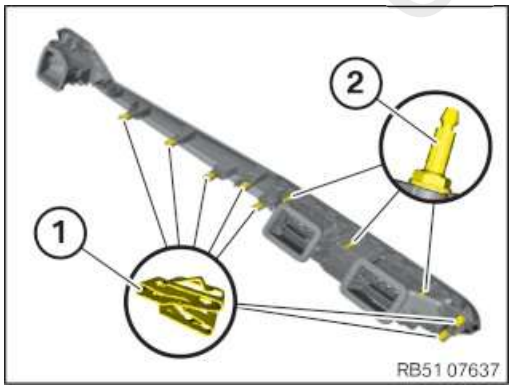


- Insert the central information display (CID) (2) in the instrument panel and position correctly.
- Tighten the screws (1).

Central information display to instrument panel

Screw		Tightening torque	2,4 Nm

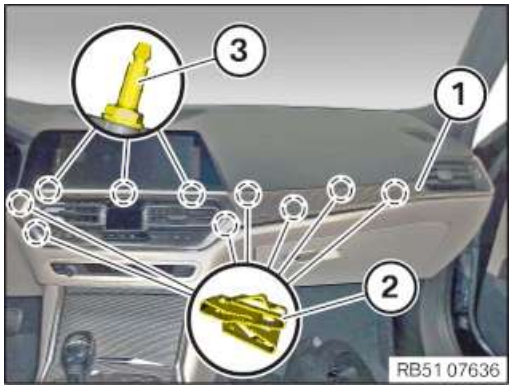
20 – Install the finisher on the right instrument panel



- Checks clamps (1) for damage.

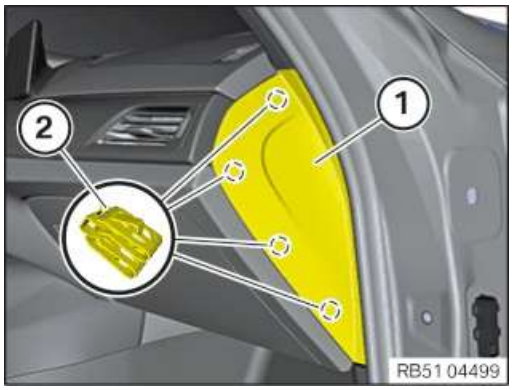
  Defective or missing clamps (1) need to be renewed.
- Check the pins (2) and the accompanying clamps at the instrument panel trim for damage, renew if necessary.

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- Install the decorative strip (1).
- Connect and lock corresponding connectors.
- Correctly position the decorative strip (1) and at the clamps (2) and clip in the pins (3).

21 – Install the side panel on instrument panel on the right



- If required, connect the associated connector.
- Feed in the side panel (1) and clip it in at the clamps (2).

22 – Connecting all battery earth leads



- See additional information.

23 – Activating the 48 V electrical system

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.

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- 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.

24 – Encode/program control unit(s)

Prerequisite

Component has been replaced.

TECHNICAL INFORMATION

Use the most recent software version to prevent faults during programming/encoding.
The battery voltage must not fall below 13.0 V during programming.
Use only chargers for a low volt-vehicle electrical system that are recommended by BMW.

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TECHNICAL INFORMATION

No high-voltage switch off is required in electric vehicles or hybrid vehicles for programming/encoding.
The high-voltage system will be automatically switched off by the programming system.

- Connect the battery charger to the vehicle.
- Connect the programming system with the vehicle.
- Determine the action plan.
- Accept and fully process the measures plan.
- If applicable, connect the workshop system to the vehicle, depending on the reworking list.
- Carry out vehicle test.
- Delete the fault memory.
- The information about programming the workshop system and the corresponding notes in the user documentation must be observed.
- Wait until programming/encoding has been completed.
- Disconnect the programming system from the vehicle.
- Disconnect the battery charger from the vehicle.

Additional Information

Overview of Tightening Torques

Driver Camera System (DCS) to instrument cluster — Used in step 13

Screw		Tightening torque	1.05 Nm

Instrument cluster (KOMBI) to support — Used in step 15

Screw		Tightening torque	1,8 Nm

Central information display to instrument panel — Used in step 19

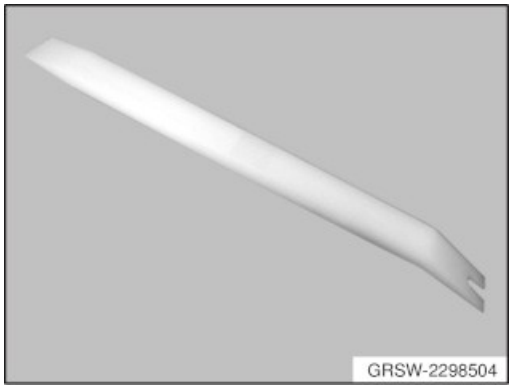
Screw		Tightening torque	2,4 Nm

Negative battery cable to 48-V battery — Used in step 23

Nut M8		Tightening torque	19 Nm

Overview of Special Tools

2 298 504 Wedge



Common — Used in step 9

Usage	Wedge with angled lug
Included in the tool or work	
Storage location	C34
Replaced by	
In connection with	
SI-Number	01 03 12 (792)

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Links

Repair instructions (PRE)	Used in step
Notes on 48-V battery	223

Repair instructions	Used in step
61 35 ... Notes on ESD protection (Electro Static Discharge)	619
61 35 ... Notes on ESD protection (Electro Static Discharge)	619
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	322
61 20 900 Disconnecting and connecting battery earth lead	322
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61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	322
61 20 900 Disconnecting and connecting battery earth lead	322
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	322
61 20 900 Disconnecting and connecting battery earth lead (Plug-in Hybrid Electric Vehicle)	322
61 20 900 Disconnecting and connecting battery earth lead	322
61 20 900 Disconnecting and connecting battery earth lead	322
61 20 900 Disconnecting and connecting battery earth lead	322
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61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	322
61 20 900 Disconnecting and connecting battery earth lead	322
61 20 900 Disconnecting and connecting battery earth lead	322
61 20 900 Disconnecting and connecting battery earth lead	322

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66 53 120 Remove and install front camera

RISK OF DAMAGE

Mechanical effects.

Paint damage.

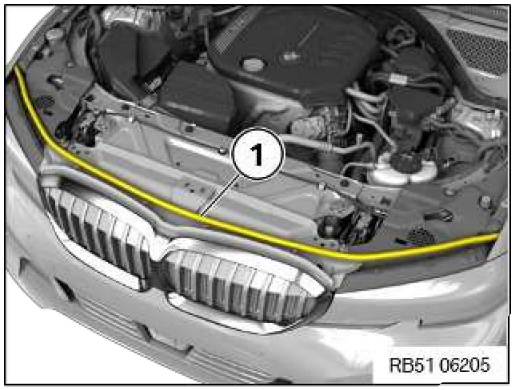
- Mask those working areas at risk with yellow plastic adhesive tape.
- Remove and install heavy or bulky components with the aid of another person/other persons.

PRELIMINARY WORK

1 – Remove the seal for the bonnet in front

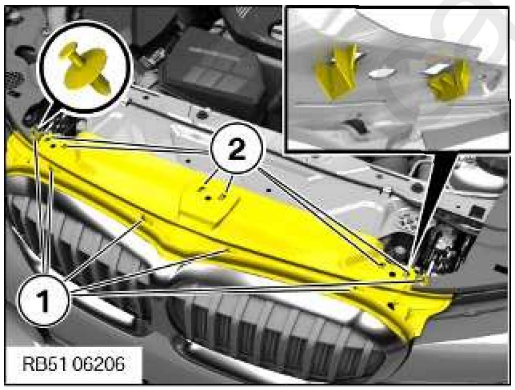
NOTICE

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



- Pull offfront bonnet seal (1) upwards.

2 – Removing the centre engine compartment cover



- Detach all expanding rivets (1).
- Release the cover at the latch mechanisms (2) and feed it out to the rear.

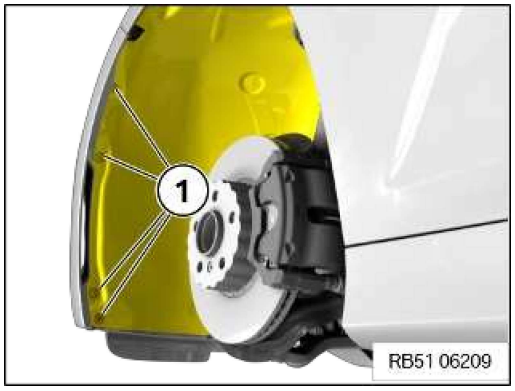
3 – Partially releasing the front left and right wheel arch trim panels

NOTICE

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

▸ **Partially removing front wheel arch trim panel**

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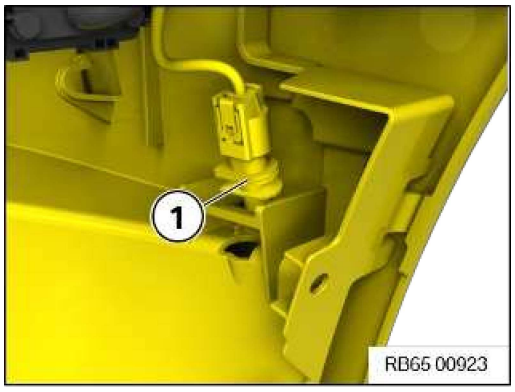


NOTICE

To provide a better overview: Schematic diagram without front wheel.

- Loosen screws (1).
- Fold the front wheel arch trim panel to one side.

4 – Partially removing the temperature sensor

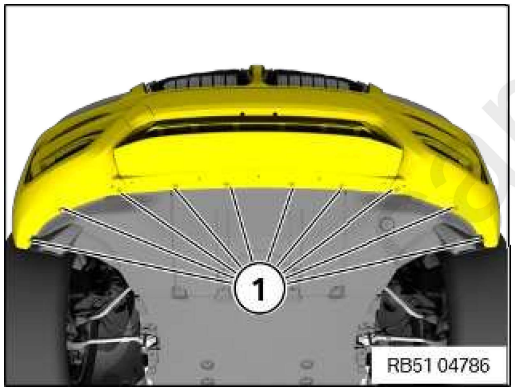


- Unclip temperature sensor (1) from the front bumper panel to the top.

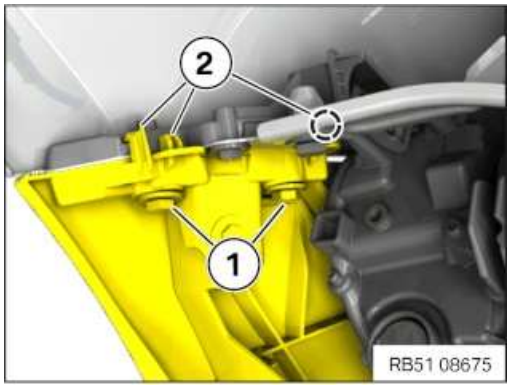
5 – Remove front bumper panel

NOTICE

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



- Loosen screws (1).

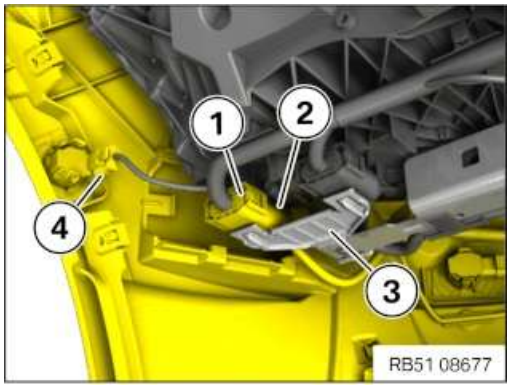


NOTICE

Perform the operations on the left and right side.

- Loosen screws (1).
- The bumper panel with the latch mechanisms (2) is to be released and removed from the guide.

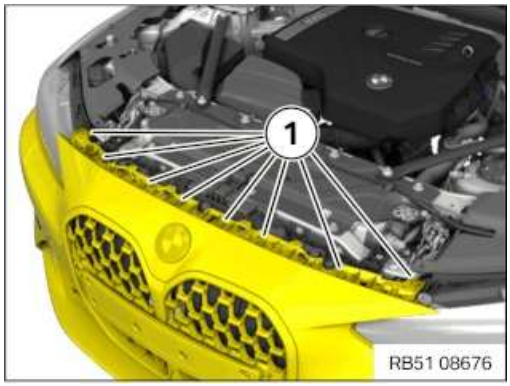
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NOTICE

Perform the operations on the left and right side.

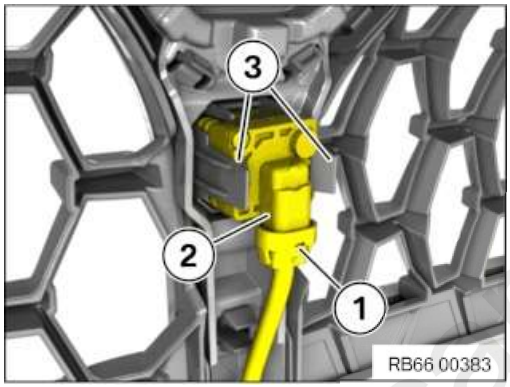
- Unlock plug connection (1) and disconnect.
- Unclip the connector (2) from the holder (3).
- If necessary, unlock and disconnect the plug connection (4).



- Loosen screws (1).
- Remove the bumper panel towards the front.

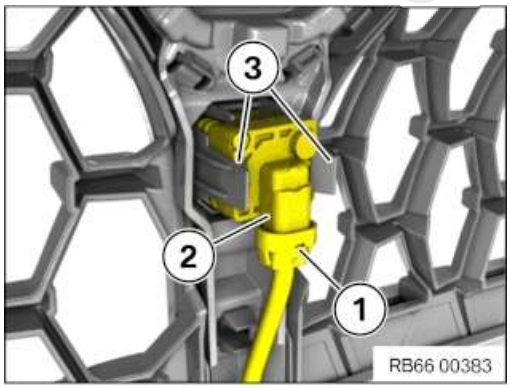
MAIN WORK

6 – Removing the front camera



- Unlock plug connection (1) and disconnect.
- Release and remove the front camera (2) from the latch mechanisms(3).

7 – Installing the front camera



- Insert front camera (2) and clip it into latch mechanisms (3).
- Connect connectors (1) and lock.

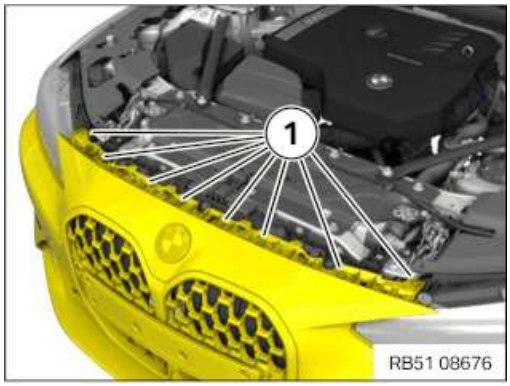
POSTPROCESSES

8 – Install bumper panel, front

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NOTICE

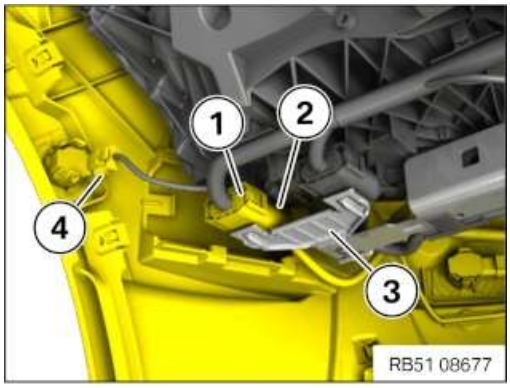
Schematic diagram is for example purposes. Some parts may differ in certain details.



- Fit the bumper panel from the front and position it.
- Tighten the screws (1).

Bumper panel, front top

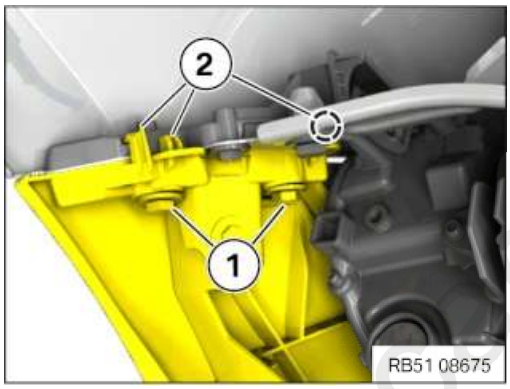
Oval-head screwM6		Tightening torque	4,6 Nm



NOTICE

Perform the operations on the left and right side.

- Clip in the connector (2) in the holder (3).
- Connect connectors (1) and lock.
- If necessary, connect and lock the connector (4).



- Feed in the bumper panel in the guide and clip in with the latch mechanisms (2).

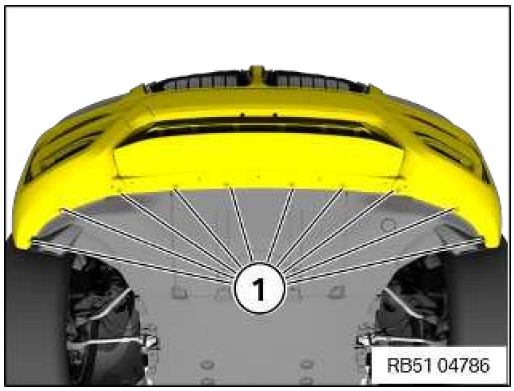
NOTICE

Perform the operations on the left and right side.

- Tighten the screws (1).

Front bumper panel to front side panel

Torx screw 5x35		Tightening torque	3 Nm

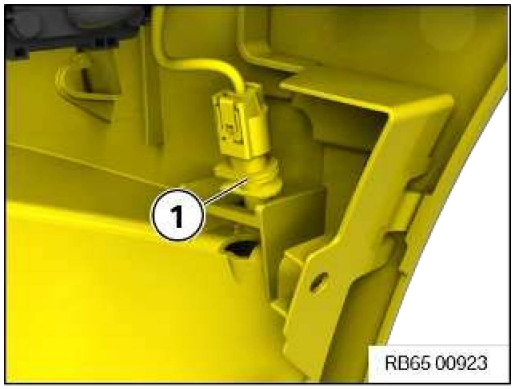


- Tighten the screws (1).

Front bumper panel to underbody protection

Hexagon screw for thermoplastic		Tightening torque	2,6 Nm

9 – Partially installing the temperature sensor



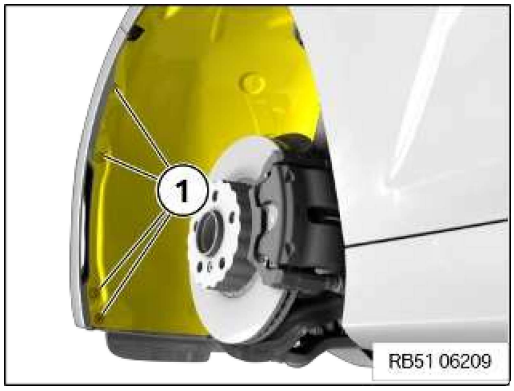
- Clip the temperature sensor (1) downwards into the front bumper panel.

10 – Partially installing the front left and right wheel arch trim panels

NOTICE

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

▸ **Partially installing front wheel arch trim panel**



NOTICE

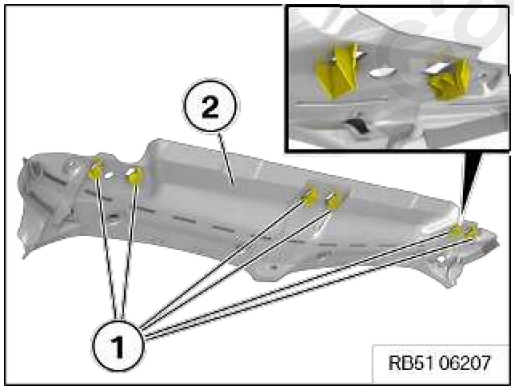
To provide a better overview: Schematic diagram without front wheel.

- Fold back the front wheel arch trim panel.
- Tighten the screws (1).

Wheel arch trim panel, front

Thermoplastic hexagon screw		Tightening torque	2,6 Nm

11 – Installing the cover for the centre engine compartment



Check

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

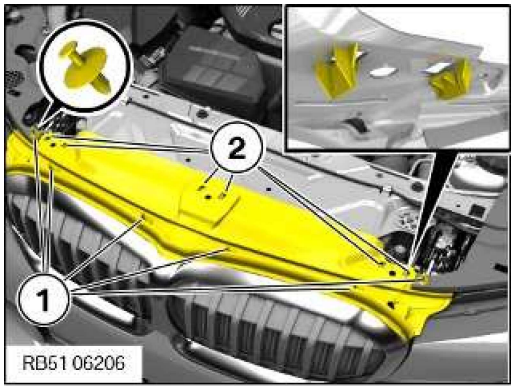
Result

» Latch mechanisms (1) are damaged.

Measure

- Replace the cover (2).

  Parts: Cover

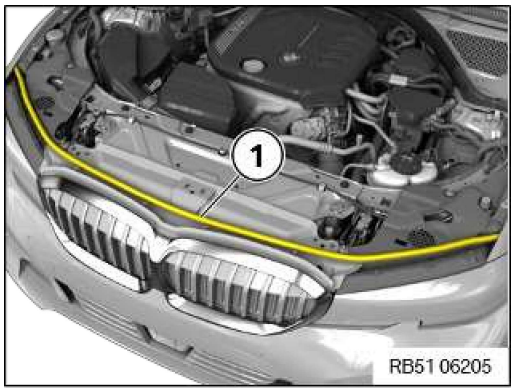


- Insert the cover from the rear and position it.
- Clip in the latch mechanisms (2).
- Mount all expanding rivets (1).

12 – Install the seal for the front bonnet

NOTICE

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



- Position the bonnet seal(1) and connect it on the mounting on the bumper and on the headlights.

Additional Information

Overview of Tightening Torques

Bumper panel, front top — Used in step 8

Oval-head screwM6		Tightening torque	4,6 Nm

Front bumper panel to front side panel — Used in step 8

Torx screw 5x35		Tightening torque	3 Nm

Front bumper panel to underbody protection — Used in step 8

Hexagon screw for thermoplastic		Tightening torque	2,6 Nm

Wheel arch trim panel, front — Used in step 10

Thermoplastic hexagon screw		Tightening torque	2,6 Nm

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66 53 060 Removing and installing left or right top view camera

NOTICE

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

PRELIMINARY WORK

1 – Removing the mirror glass

CAUTION

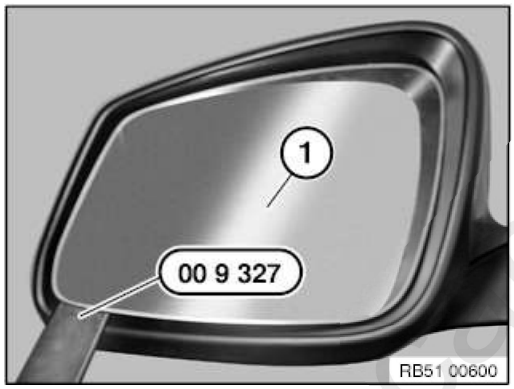
Glass splinters.

Danger of injury!

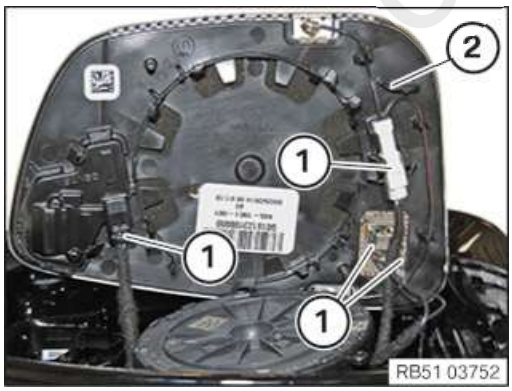
- If the mirror glass is damaged, wear safety goggles and protective gloves.

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.



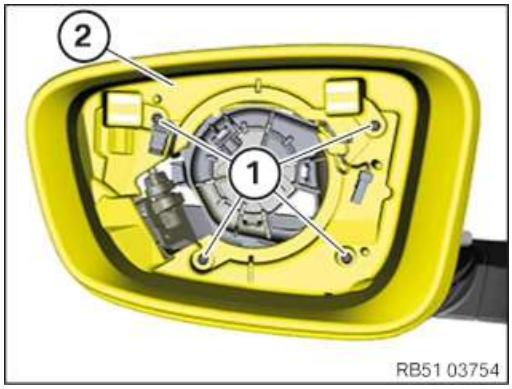
- **Version B**
- Loosen screw (1).
- Pull off the drive for exterior mirror adjustment (2).



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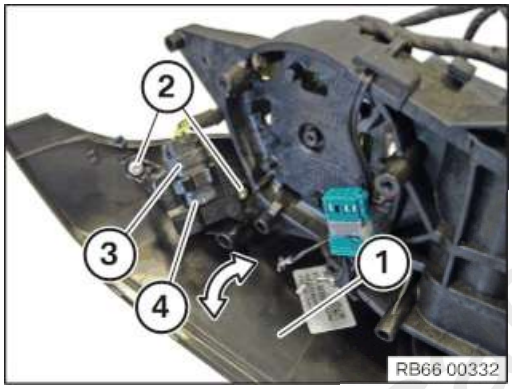
- Loosen screws (1).
- If necessary, feed out cable.
- Guide out retaining ring of exterior rearview mirror (2) in forward direction.

MAIN WORK

5 – Removing the top view camera

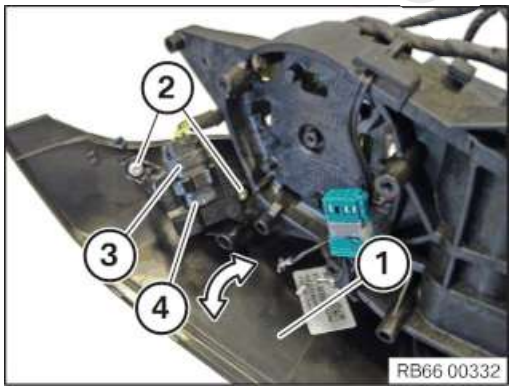


- Loosen the screw (1) on the lower part of the mirror housing (2).



- Carefully pull the lower part of the mirror housing (1) back in the direction of the arrow until the screws (2) are accessible.
- Loosen screws (2).
- Unlock plug connection (3) and disconnect.
- Removing the Top View Camera (4).

6 – Installing the top view camera



- Install and correctly position the top view camera (4).
- Connect connectors (3) and lock.
- Tighten the screws (2).

Top view camera to exterior mirror

Screw		Tightening torque	0,85 Nm

- Push lower section of the mirror housing (1) in the direction of arrow to the front and position it correctly.

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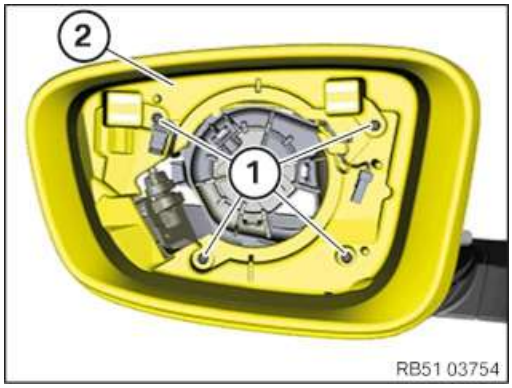
- Tighten screw (1) on the lower section of the mirror housing (2).

Housing to exterior mirror

		Tightening torque	0,85 Nm

POSTPROCESSES

7 – 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

8 – 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

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

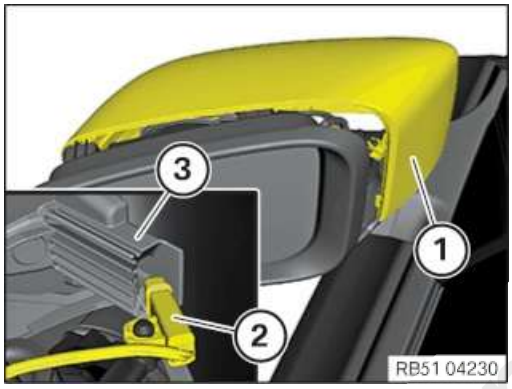
Drive for exterior mirror adjustment

Screw		Tightening torque	1.2 Nm

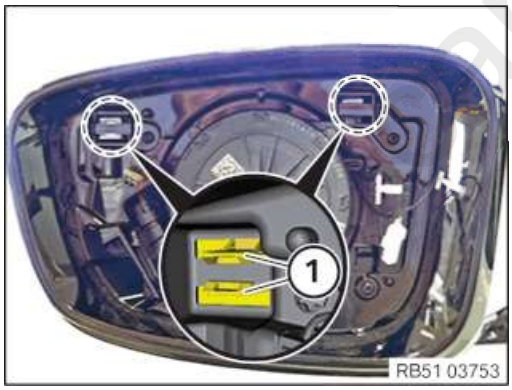
9 – Installing the protective cap of the exterior mirror



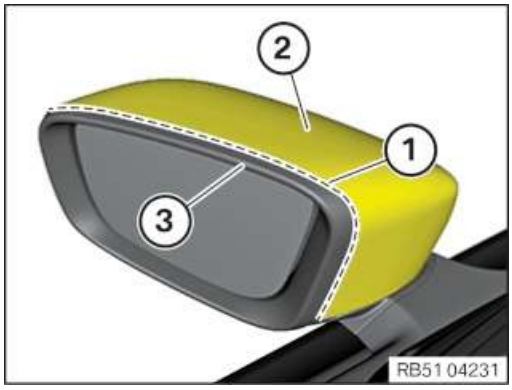
- Position the connector (1) on the mounting (2).
- Position connector (1) as shown.



- 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.

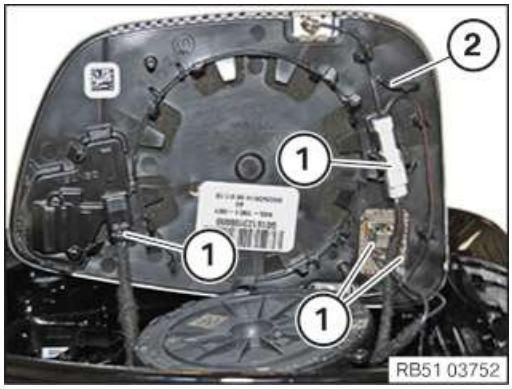


- Make sure that the latch mechanisms (1) are correctly fitted.

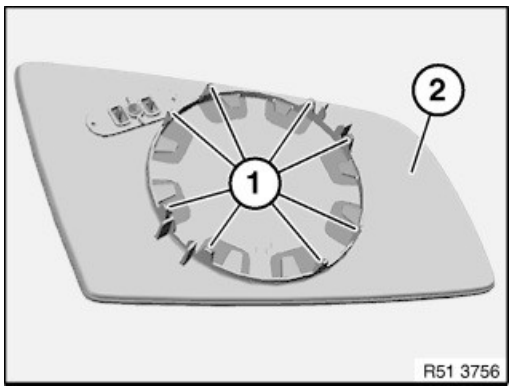


- Check the correct seating of the protective cap (2) on retaining ring (3) around (1).

10 – 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.

Additional Information

Overview of Tightening Torques

Top view camera to exterior mirror			Used in step 6
Screw		Tightening torque	0,85 Nm

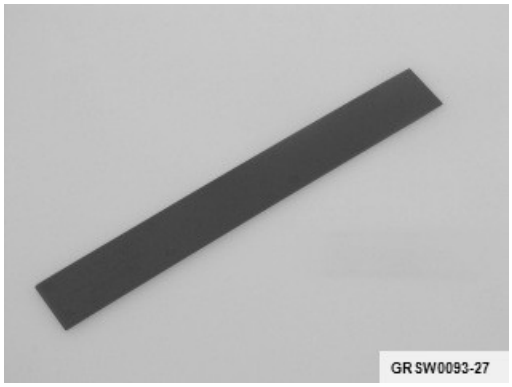
Housing to exterior mirror			Used in step 6
		Tightening torque	0,85 Nm

Retaining ring to exterior mirror			Used in step 7
Screw		Tightening torque	0,85 Nm

Drive for exterior mirror adjustment			Used in step 8
Screw		Tightening torque	1.2 Nm

Overview of Special Tools

0 496 571 (00 9 327) Wedge



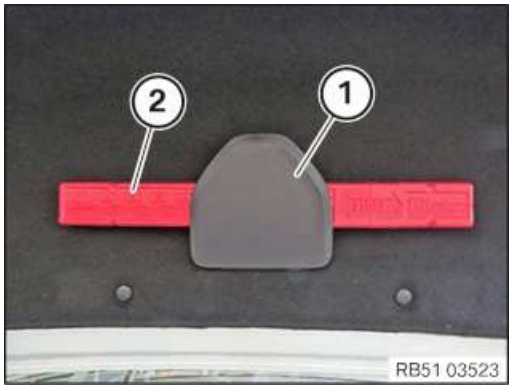
Common	Used in step 1
Usage	(Cleaning wedge) From 11/2008 this special tool replaces panel wedge 00 9 323 (different material)
Included in the tool or work	0 490 527
Storage location	Individual
Replaced by	
In connection with	
SI-Number	01 07 09 (530)

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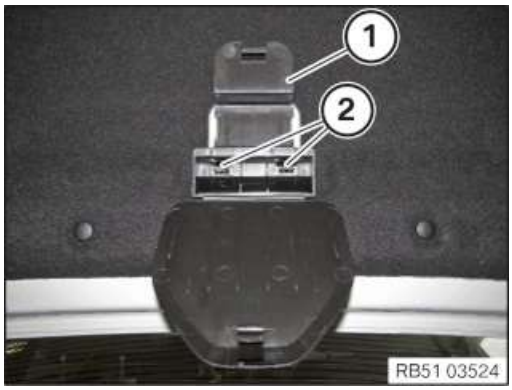
66 53 020 Removing and installing rear view camera

PRELIMINARY WORK

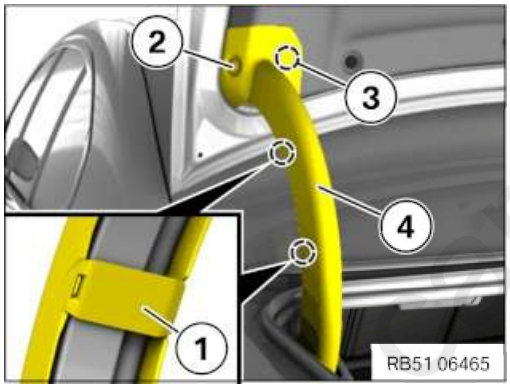
1 – Remove tailgate trim panel



- Fold the cover (1) towards the bottom.
- Remove the warning triangle (2).



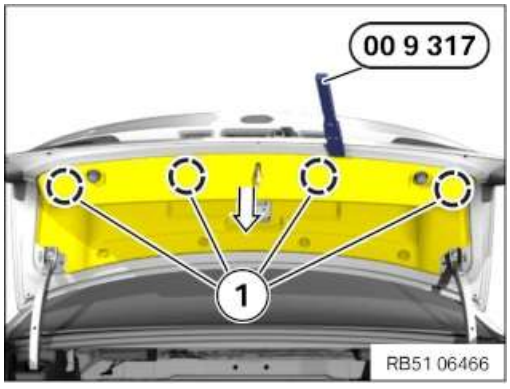
- Detach the warning triangle holder (1) from the latch mechanisms (2) and slide downwards.



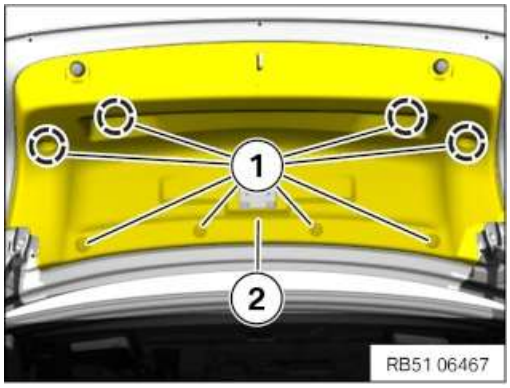
NOTICE

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

- Unclip the tabs (1).
- Loosen expanding rivet (2).
- To avoid damage, release the trim panel for the hinge of the tailgate (4) without using a tool by jerking it along the hinge bracket and out of the clip fastening (3).



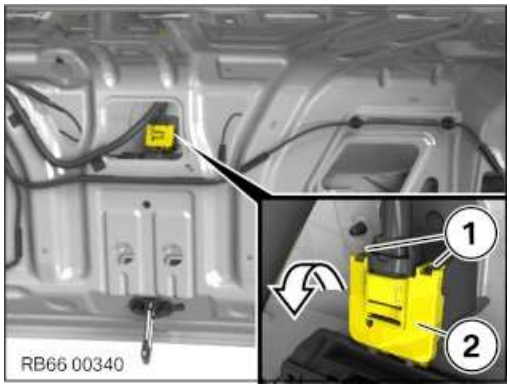
- Unclip clips (1) with special tool 0 490 534 (00 9 317) in the direction of arrow.



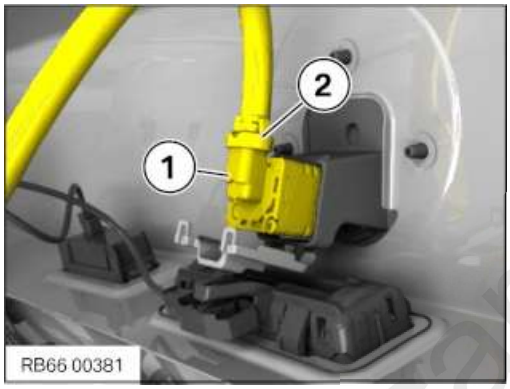
- Release expanding rivet (1) on the tailgate trim panel (2).
- Remove tailgate trim panel (2).
- **If installed**: Unlock plug connection of the switch for the tailgate lift and disconnect.

MAIN WORK

2 – Removing the Reversing Assist camera (RFK)



- Loosen the latch mechanisms (1).
- Open the lid for the Reversing Assist Camera (RFK) (2) in the direction of arrow.



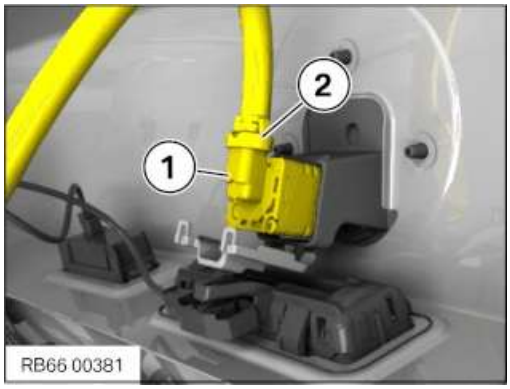
- Feed out the Reversing Assist Camera (RFK) (1) from the socket of the badge.
- Unlock and disconnect connector (2).
- Remove the Reversing Assist Camera (RFK) (1).

3 – Install the rear view camera (RFK)

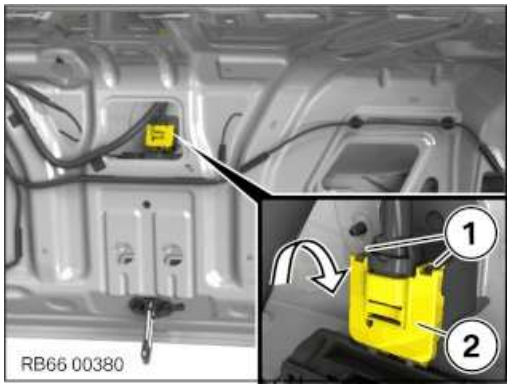


- Check sealing ring (1) for accuracy of fit.

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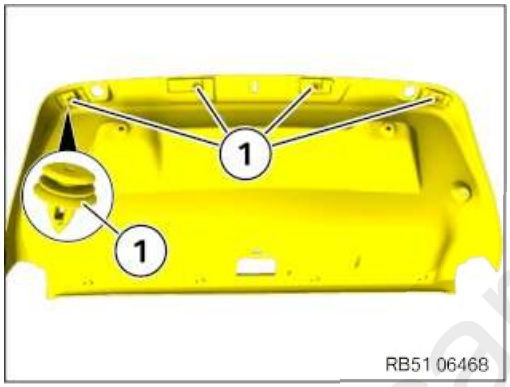
- Connect connectors (2) and lock.
- Insert Reversing Assist Camera (RFK) (1) in the base of the badge.



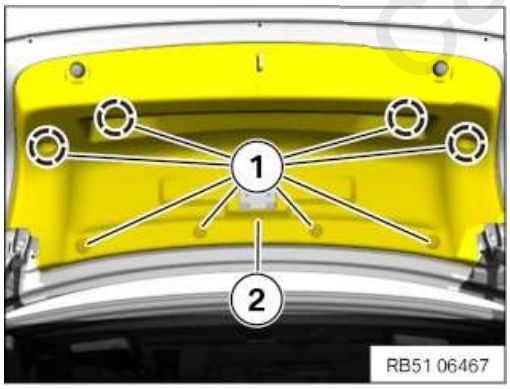
- Fold in the lid of Reversing Assist Camera (RFK) (2) in the direction of the arrow and clip it in with latch mechanisms (1).

POSTPROCESSES

4 – Installing the tailgate trim panel

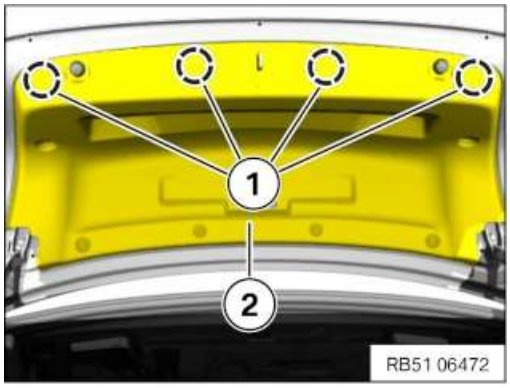


- Check the clips (1) for damage and renew if necessary.

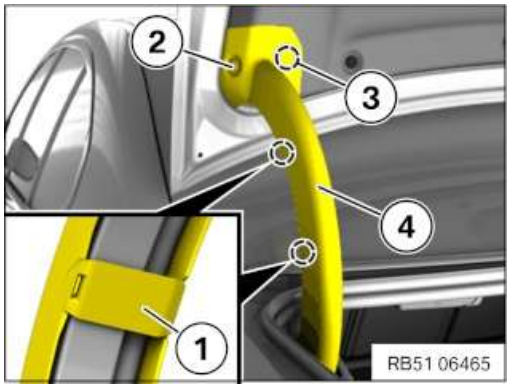


- Fit the tailgate trim panel (2) and fasten in place with the expanding rivets (1).
- **If installed**: Connect and lock plug connection on the switch for the tailgate lift.

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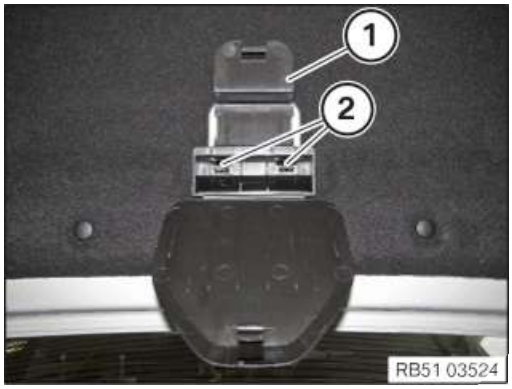
- Clip in the tailgate trim panel (2) with the clips (1).



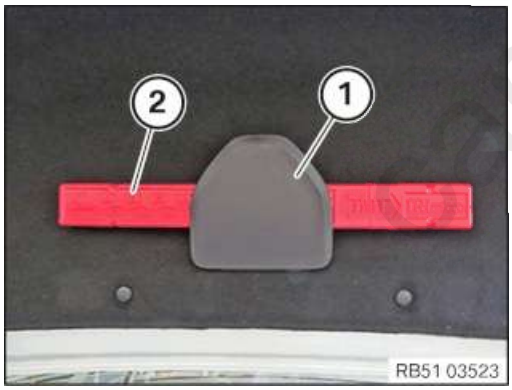
NOTICE

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

- Clip in the trim panel for the hinge of the tailgate (4) to the clip fastening (3).
- Fasten expanding rivet (2).
- Clip in tabs (1).



- Position the warning triangle holder (1) and snap into the latch mechanisms (2).

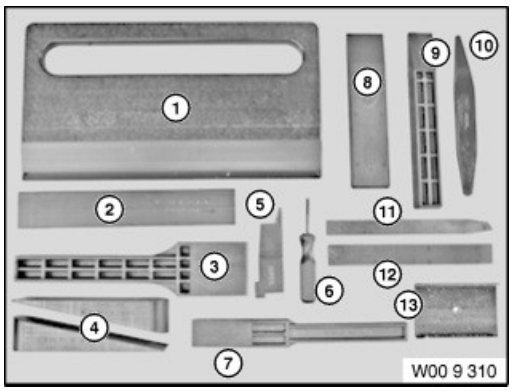


- Install the warning triangle (2).
- Clip in the cover (1).

Additional Information

Overview of Special Tools

0 490 534 (00 9 317) Wedge



Common	Used in step 1
Usage	(Trim wedge) Replaced by special tool 00 9 325 from 11/2008 (quality improvement due to new material) Replaced by 00 9 325 (0 496 569)
Included in the tool or work	0 490 527
Storage location	
Replaced by	
In connection with	
SI-Number	

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66 53 170 Removing and installing the control unit of the top rear side view camera (TRSVC) (with holder)

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)

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 – Removing the luggage compartment floor trim panel

▸ **Removing the luggage compartment floor trim panel**

NOTICE

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

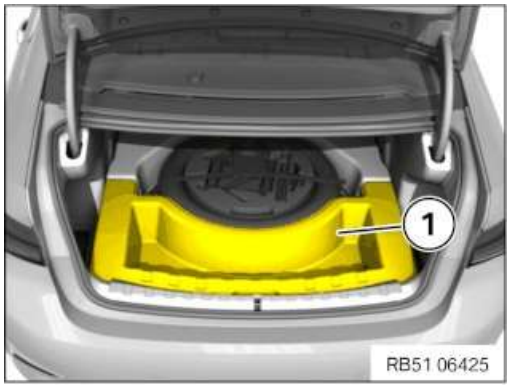
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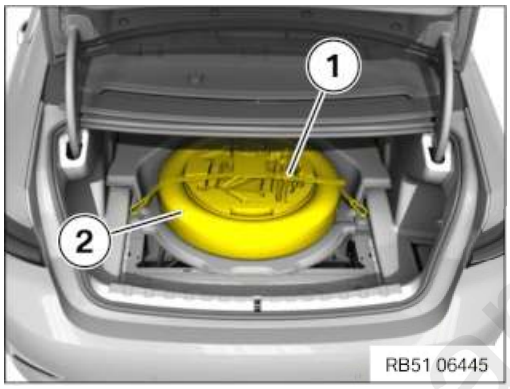
- Remove luggage compartment floor trim panel (1).

4 – If installed: Removing the compact spare wheel

▸ **Removing rear luggage compartment well**



- Remove rear luggage compartment well (1).

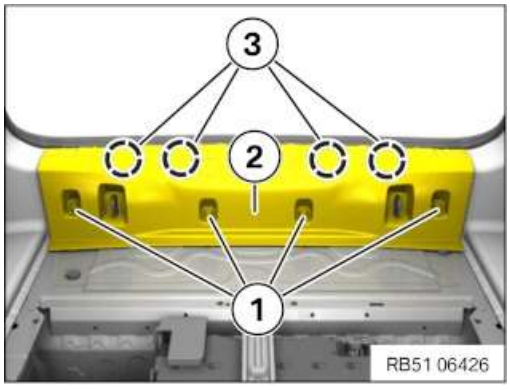


- Open buckle on seat belt strap (1) and set it aside.
- Remove emergency wheel (2) with the insert.

5 – Removing the loading edge trim

NOTICE

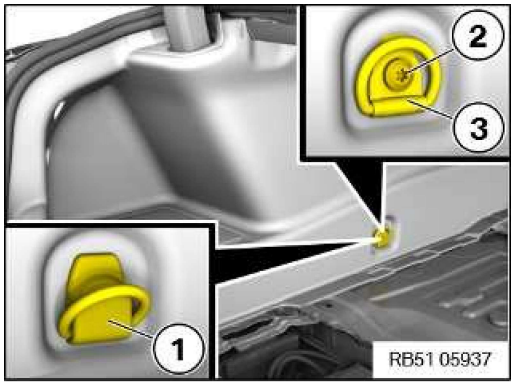
Schematic diagram is for example purposes. Some parts may differ in certain details.



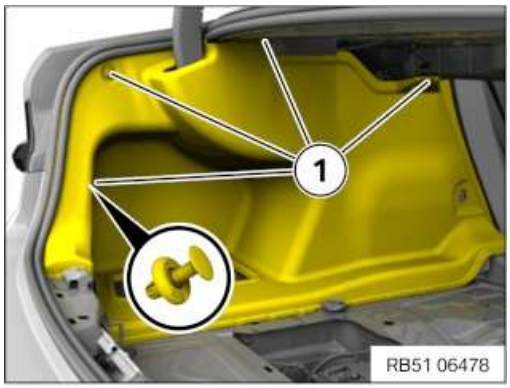
- Loosen the expanding rivet (1).
- Unclip loading edge trim(2) upwards from latch mechanisms (3).
- Guide out and remove loading edge trim (2) under the sealing lip of the tailgate seal.

6 – Remove luggage compartment wheel arch trim panel on left.

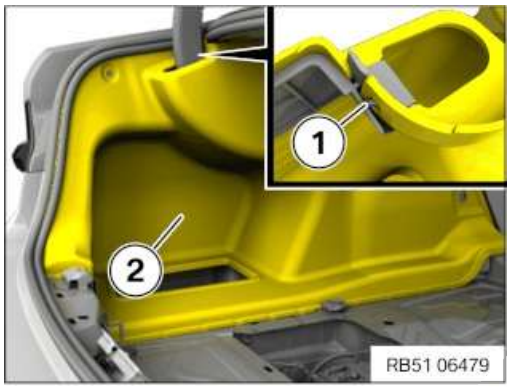
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- Remove the cover (1).
- Loosen screw (2).
- Remove lashing eye (3).



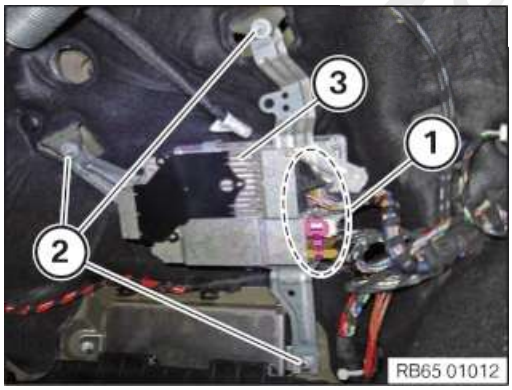
- Reposition left rear seat backrest.
- Loosen the expanding rivet (1).



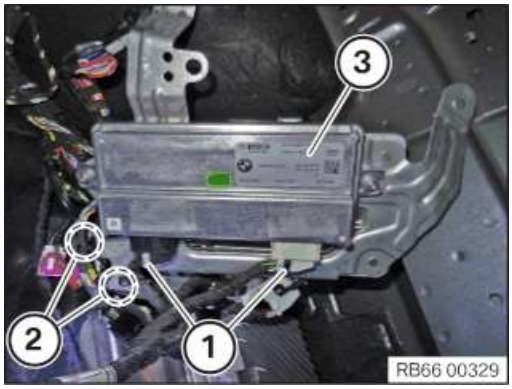
- Press the tab for luggage compartment wheel arch trim panel (2) on the outer side of the hinge to the front using the stop on trim (1).
- Guide out luggage compartment wheel arch trim panel (2) under the sealing lip for the tailgate and the side trim panel in the rear passenger compartment.
- Remove luggage compartment wheel arch trim panel (2).

MAIN WORK

7 – Removing the TRSVC control unit

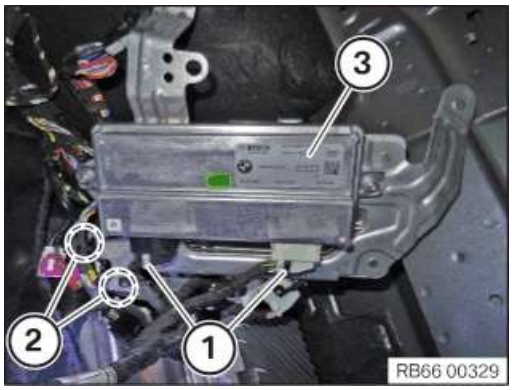


- Unlock and disconnect all plug connections in the area (1).
- Loosen nuts (2).
- Feed out Receiver audio module (RAM) (3) with the holder and turn.

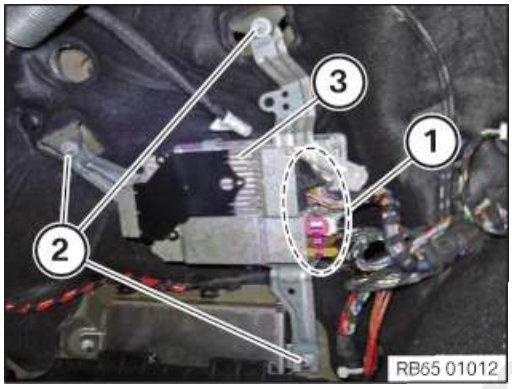


- Unlock and disconnect plug connections (1).
- Release the latch mechanisms (2) for the cable.
- Feed out the TRSVC control unit (3) with the holder and remove it.

8 – Install the TRSVC control unit



- Feed in the TRSVC control unit (3) with the holder and position it.
- Engage latch mechanisms (2) for the cables.
- Connect all connectors (1) and lock.
- Turn the TRSVC-control unit (3) with the holder.



- Feed in the Receiver audio module (RAM) (3) with the holder and position it correctly.
- Tighten nuts (2).

Bracket to body

Nut	Tightening torque	6 Nm
Screw	Tightening torque	6 Nm

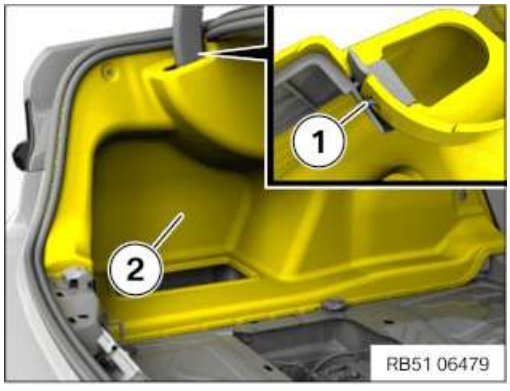
- Connect and lock all connectors in area (1).

POSTPROCESSES

9 – Install luggage compartment wheel arch trim panel at left

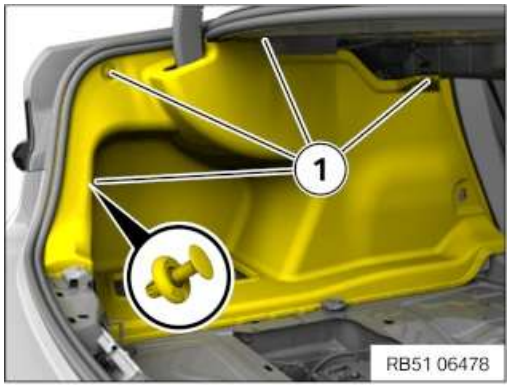
NOTICE

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

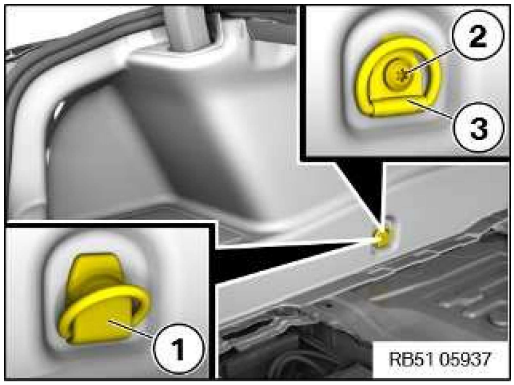


- Feed luggage compartment wheel arch trim panel (2) under the side trim panel in the rear passenger compartment and the sealing lip for the tailgate.
- Feed the tab of the luggage compartment wheel arch trim panel (2) on the outer side of the hinge into the stop on the trim (1).

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- Secure expanding rivet (1).
- Raise the link rear seat backrest.



- Position the lashing eye (3).
- Tighten down screw (2).

Lashing eye to body

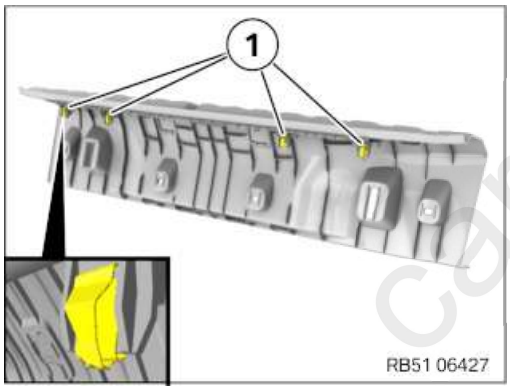
	Tightening torque	19 Nm

- Install the cover (1) .

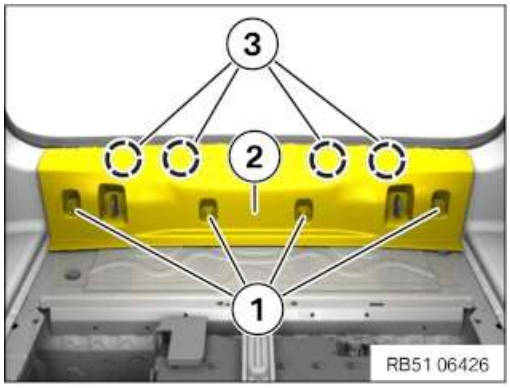
10 – Installing loading edge trim

NOTICE

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



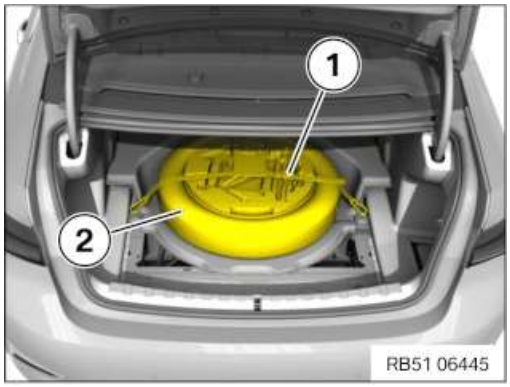
- Check the clamps (1) for damage and renew if necessary.



- Insert the loading edge trim (2) under the sealing lip of the tailgate seal.
- Fit the trim of the loading edge (2) at the latch mechanisms (3) and clip it in to the bottom.
- Secure expanding rivet (1).

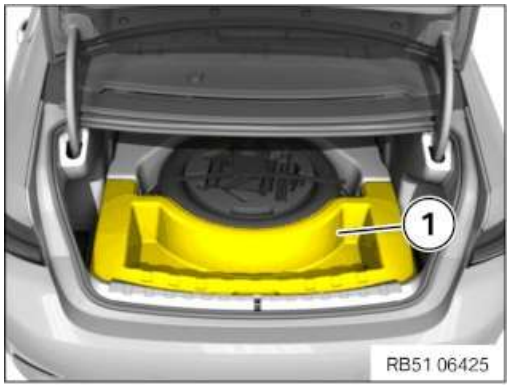
11 – If installed: Install the emergency wheel

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- Install the emergency wheel (2) with the insert.
- Position the seat belt strap above the emergency wheel and close the buckle on the seat belt strap (1).

▸ **Installing rear luggage compartment well**



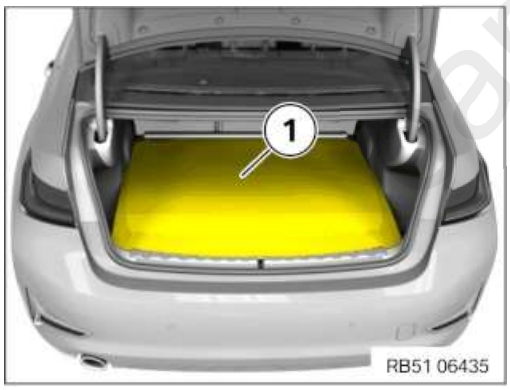
- Install rear luggage compartment well (1).

12 – Installing the luggage compartment floor trim panel

▸ **Installing the luggage compartment floor trim panel**

NOTICE

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



- Insert the luggage compartment floor trim panel (1).

13 – Connecting all battery earth leads



- See additional information.

14 – Activating the 48 V electrical system

Prerequisite

Ignition is switched off.

RISK OF DAMAGE

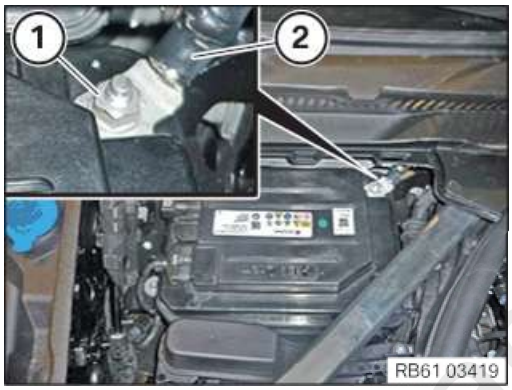
Damage to 48-V battery

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

Bracket to body			Used in step 8
Nut		Tightening torque	6 Nm
Screw		Tightening torque	6 Nm

Lashing eye to body			Used in step 9
		Tightening torque	19 Nm

Negative battery cable to 48-V battery			Used in step 14
Nut M8		Tightening torque	19 Nm

Overview of Special Tools

Links

Repair instructions (PRE)	Used in step
Notes on 48-V battery	114

Repair instructions	Used in step
61 35 ... Notes on ESD protection (Electro Static Discharge)	
61 35 ... Notes on ESD protection (Electro Static Discharge)	
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	213
61 20 900 Disconnecting and connecting battery earth lead	213
61 20 900 Disconnecting and connecting battery earth lead	213
61 20 900 Disconnecting and connecting battery earth lead	213
61 20 900 Disconnecting and connecting battery earth lead	213
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61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	213
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61 20 900 Disconnecting and connecting battery earth lead	213
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	213
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	213

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61 20 900 Disconnecting and connecting battery earth lead 213
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads) 213
61 20 900 Disconnecting and connecting battery earth lead (Plug-in Hybrid Electric Vehicle) 213
61 20 900 Disconnecting and connecting battery earth lead 213
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61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads) 213
61 20 900 Disconnecting and connecting battery earth lead 213
61 20 900 Disconnecting and connecting battery earth lead 213
61 20 900 Disconnecting and connecting battery earth lead 213

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66 53 621 Replace front camera

RISK OF DAMAGE

Mechanical effects.

Paint damage.

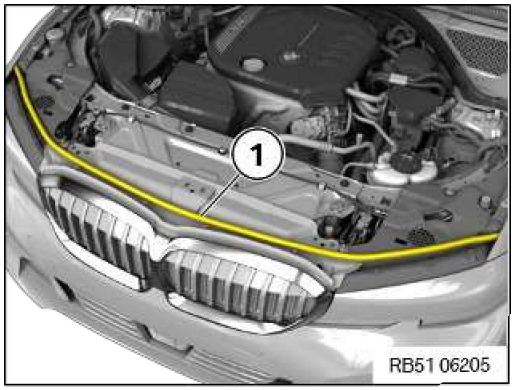
- Mask those working areas at risk with yellow plastic adhesive tape.
- Remove and install heavy or bulky components with the aid of another person/other persons.

PRELIMINARY WORK

1 – Remove the seal for the bonnet in front

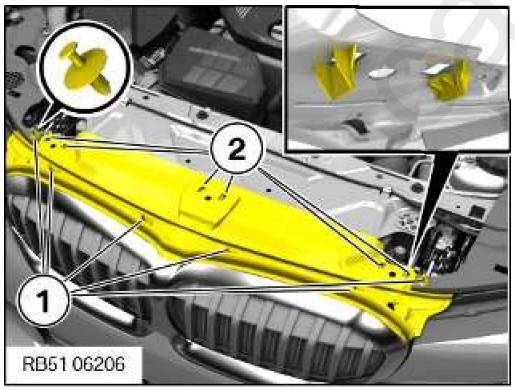
NOTICE

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



- Pull offfront bonnet seal (1) upwards.

2 – Removing the centre engine compartment cover



- Detach all expanding rivets (1).
- Release the cover at the latch mechanisms (2) and feed it out to the rear.

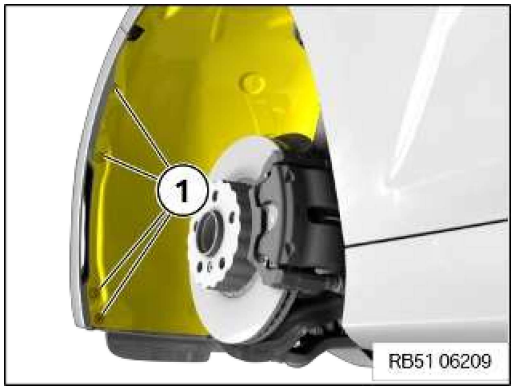
3 – Partially releasing the front left and right wheel arch trim panels

NOTICE

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

▸ **Partially removing front wheel arch trim panel**

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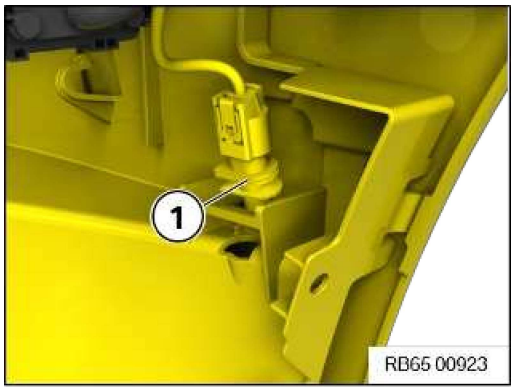


NOTICE

To provide a better overview: Schematic diagram without front wheel.

- Loosen screws (1).
- Fold the front wheel arch trim panel to one side.

4 – Partially removing the temperature sensor

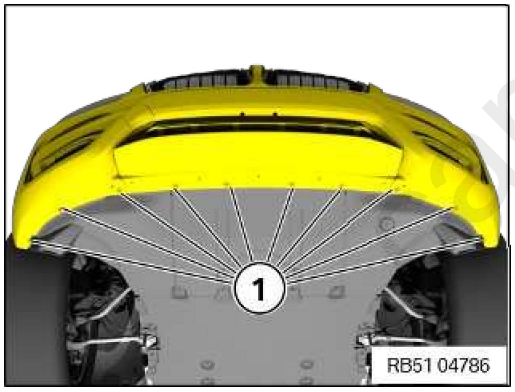


- Unclip temperature sensor (1) from the front bumper panel to the top.

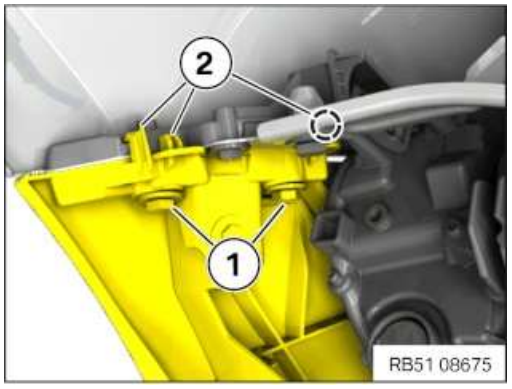
5 – Remove front bumper panel

NOTICE

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



- Loosen screws (1).

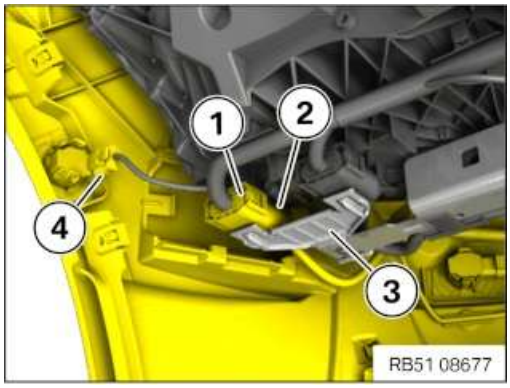


NOTICE

Perform the operations on the left and right side.

- Loosen screws (1).
- The bumper panel with the latch mechanisms (2) is to be released and removed from the guide.

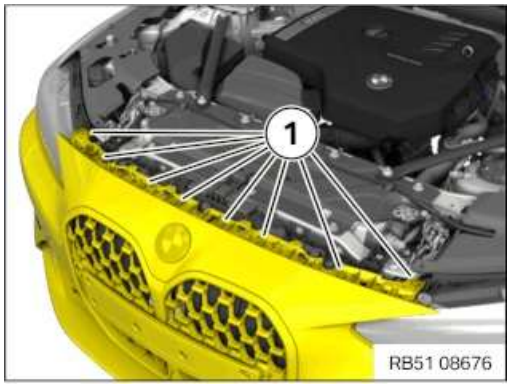
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NOTICE

Perform the operations on the left and right side.

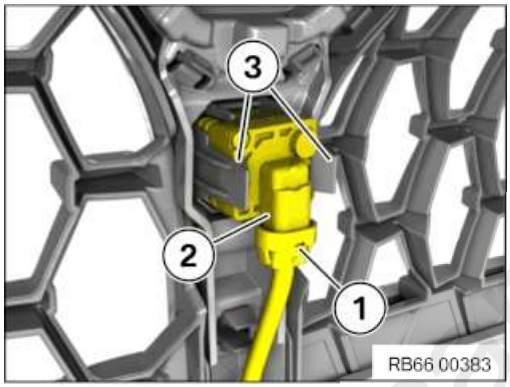
- Unlock plug connection (1) and disconnect.
- Unclip the connector (2) from the holder (3).
- If necessary, unlock and disconnect the plug connection (4).



- Loosen screws (1).
- Remove the bumper panel towards the front.

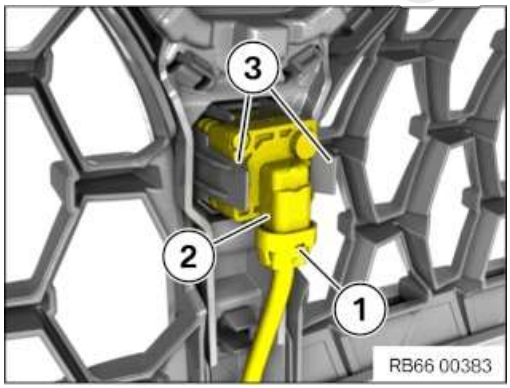
MAIN WORK

6 – Removing the front camera



- Unlock plug connection (1) and disconnect.
- Release and remove the front camera (2) from the latch mechanisms(3).

7 – Installing the front camera



- Insert front camera (2) and clip it into latch mechanisms (3).
- Connect connectors (1) and lock.

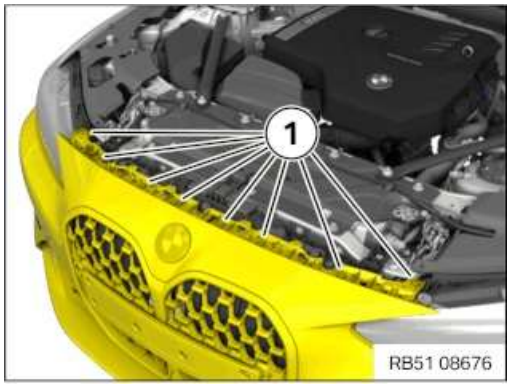
POSTPROCESSES

8 – Install bumper panel, front

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NOTICE

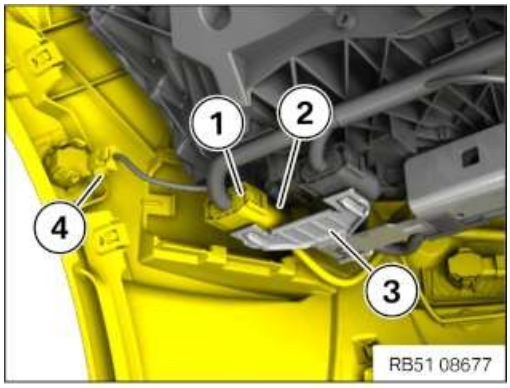
Schematic diagram is for example purposes. Some parts may differ in certain details.



- Fit the bumper panel from the front and position it.
- Tighten the screws (1).

Bumper panel, front top

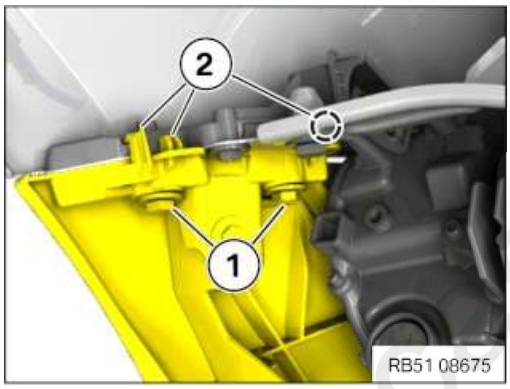
Oval-head screwM6		Tightening torque	4,6 Nm



NOTICE

Perform the operations on the left and right side.

- Clip in the connector (2) in the holder (3).
- Connect connectors (1) and lock.
- If necessary, connect and lock the connector (4).



- Feed in the bumper panel in the guide and clip in with the latch mechanisms (2).

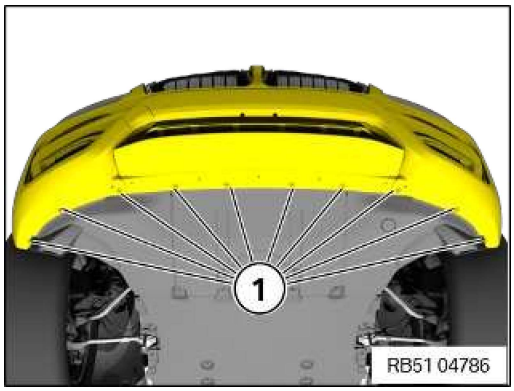
NOTICE

Perform the operations on the left and right side.

- Tighten the screws (1).

Front bumper panel to front side panel

Torx screw 5x35		Tightening torque	3 Nm

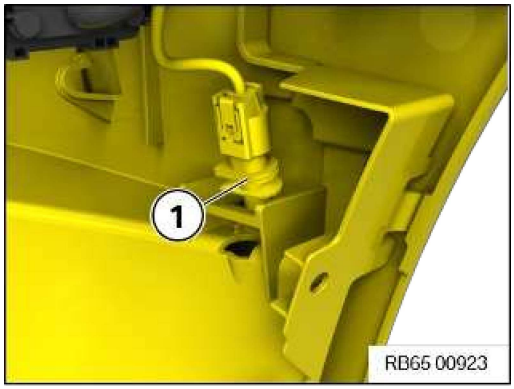


- Tighten the screws (1).

Front bumper panel to underbody protection

Hexagon screw for thermoplastic		Tightening torque	2,6 Nm

9 – Partially installing the temperature sensor



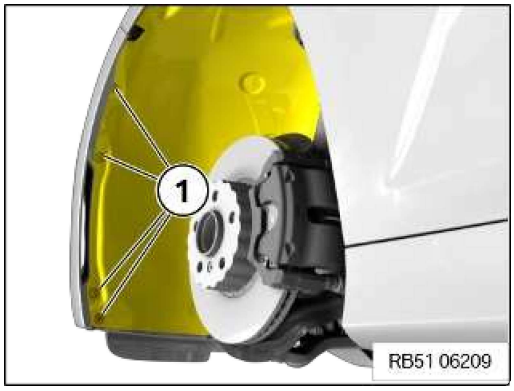
- Clip the temperature sensor (1) downwards into the front bumper panel.

10 – Partially installing the front left and right wheel arch trim panels

NOTICE

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

▸ **Partially installing front wheel arch trim panel**



NOTICE

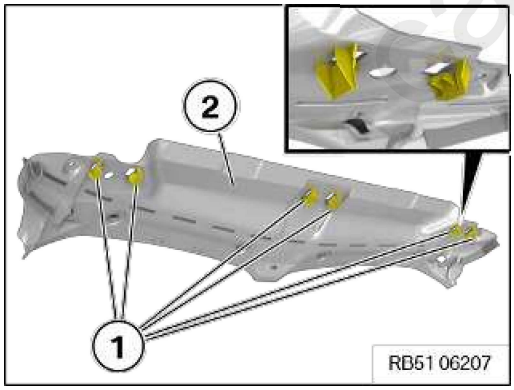
To provide a better overview: Schematic diagram without front wheel.

- Fold back the front wheel arch trim panel.
- Tighten the screws (1).

Wheel arch trim panel, front

Thermoplastic hexagon screw		Tightening torque	2,6 Nm

11 – Installing the cover for the centre engine compartment



Check

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

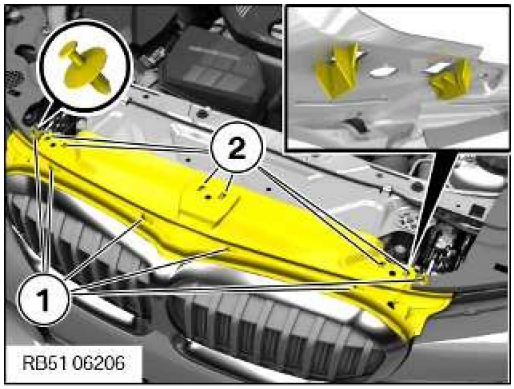
Result

» Latch mechanisms (1) are damaged.

Measure

- Replace the cover (2).

  Parts: Cover

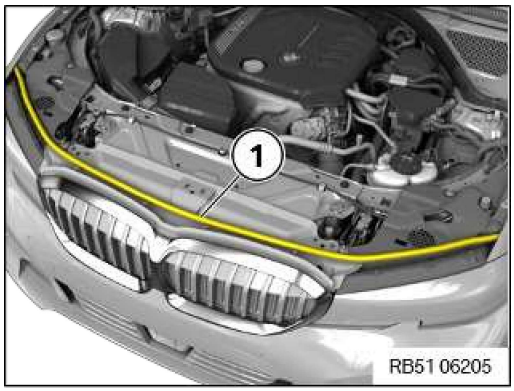


- Insert the cover from the rear and position it.
- Clip in the latch mechanisms (2).
- Mount all expanding rivets (1).

12 – Install the seal for the front bonnet

NOTICE

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



- Position the bonnet seal(1) and connect it on the mounting on the bumper and on the headlights.

13 – Encode/program control unit(s)

- **Replacement.**
- **This task is not included in this flat rate unit item.**

▸ **Encode/program control unit(s)**

Prerequisite

Component has been replaced.

TECHNICAL INFORMATION

Use the most recent software version to prevent faults during programming/encoding.
The battery voltage must not fall below 13.0 V during programming.
Use only chargers for a low volt-vehicle electrical system that are recommended by BMW.

TECHNICAL INFORMATION

No high-voltage switch off is required in electric vehicles or hybrid vehicles for programming/encoding.
The high-voltage system will be automatically switched off by the programming system.

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- Connect the battery charger to the vehicle.
- Connect the programming system with the vehicle.
- Determine the action plan.
- Accept and fully process the measures plan.
- If applicable, connect the workshop system to the vehicle, depending on the reworking list.
- Carry out vehicle test.
- Delete the fault memory.
- The information about programming the workshop system and the corresponding notes in the user documentation must be observed.
- Wait until programming/encoding has been completed.
- Disconnect the programming system from the vehicle.
- Disconnect the battery charger from the vehicle.

Additional Information

Overview of Tightening Torques

Bumper panel, front top — Used in step 8

Oval-head screwM6		Tightening torque	4,6 Nm

Front bumper panel to front side panel — Used in step 8

Torx screw 5x35		Tightening torque	3 Nm

Front bumper panel to underbody protection — Used in step 8

Hexagon screw for thermoplastic		Tightening torque	2,6 Nm

Wheel arch trim panel, front — Used in step 10

Thermoplastic hexagon screw		Tightening torque	2,6 Nm

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66 53 582 Replacing left or right top view camera

NOTICE

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

PRELIMINARY WORK

1 – Removing the mirror glass

CAUTION

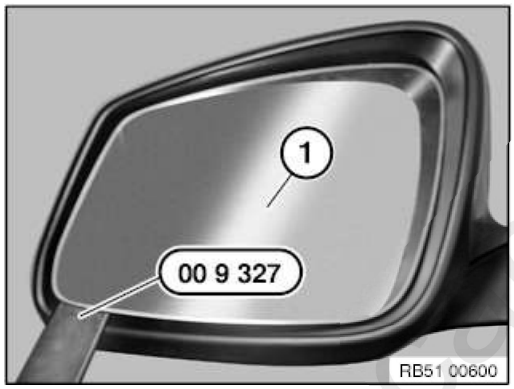
Glass splinters.

Danger of injury!

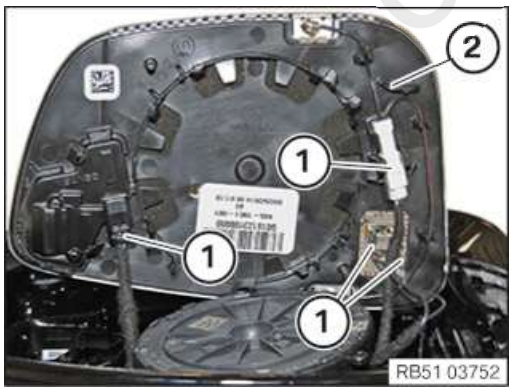
- If the mirror glass is damaged, wear safety goggles and protective gloves.

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.



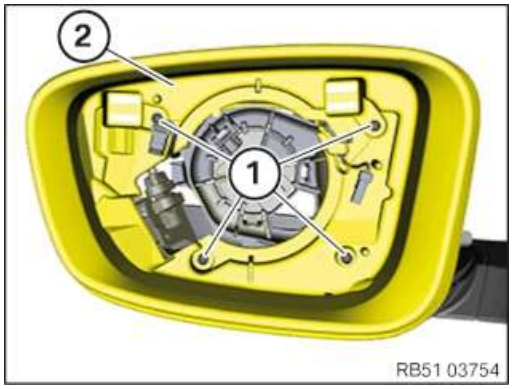
- **Version B**
- Loosen screw (1).
- Pull off the drive for exterior mirror adjustment (2).



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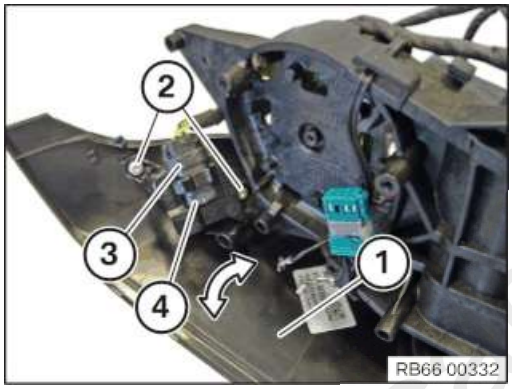
- Loosen screws (1).
- If necessary, feed out cable.
- Guide out retaining ring of exterior rearview mirror (2) in forward direction.

MAIN WORK

5 – Removing the top view camera

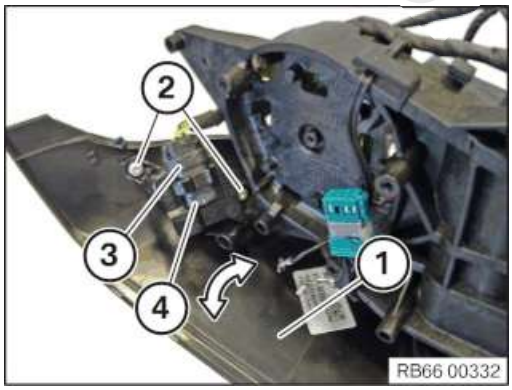


- Loosen the screw (1) on the lower part of the mirror housing (2).



- Carefully pull the lower part of the mirror housing (1) back in the direction of the arrow until the screws (2) are accessible.
- Loosen screws (2).
- Unlock plug connection (3) and disconnect.
- Removing the Top View Camera (4).

6 – Installing the top view camera



- Install and correctly position the top view camera (4).
- Connect connectors (3) and lock.
- Tighten the screws (2).

Top view camera to exterior mirror

Screw		Tightening torque	0,85 Nm

- Push lower section of the mirror housing (1) in the direction of arrow to the front and position it correctly.

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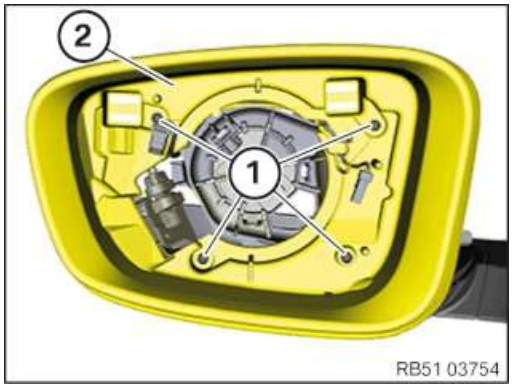
- Tighten screw (1) on the lower section of the mirror housing (2).

Housing to exterior mirror

		Tightening torque	0,85 Nm

POSTPROCESSES

7 – 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

8 – 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

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

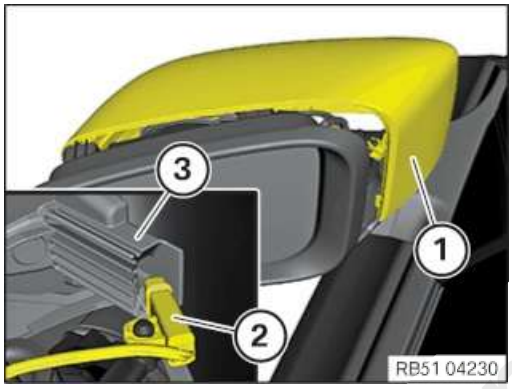
Drive for exterior mirror adjustment

Screw		Tightening torque	1.2 Nm

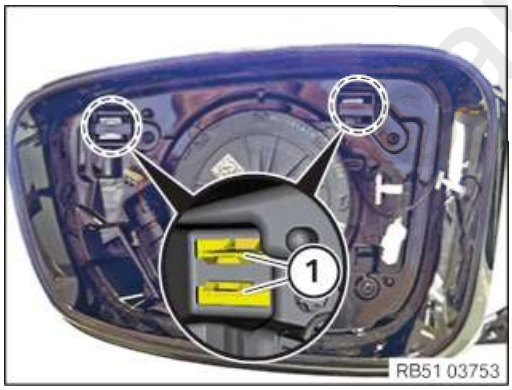
9 – Installing the protective cap of the exterior mirror



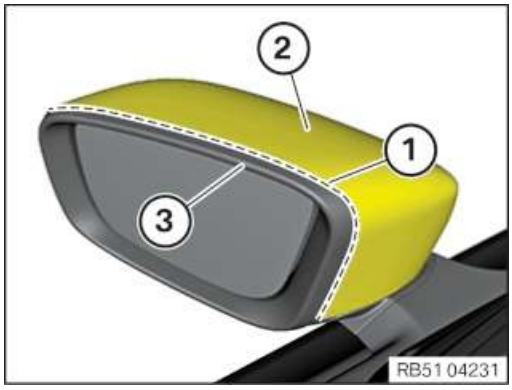
- Position the connector (1) on the mounting (2).
- Position connector (1) as shown.



- 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.

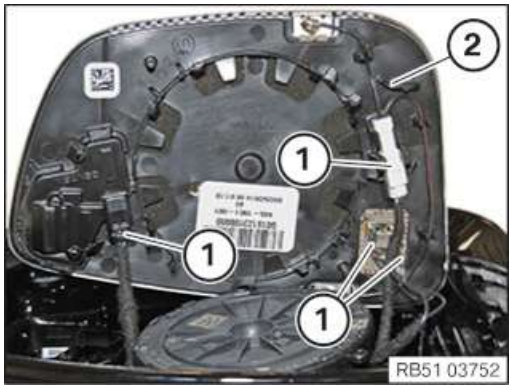


- Make sure that the latch mechanisms (1) are correctly fitted.

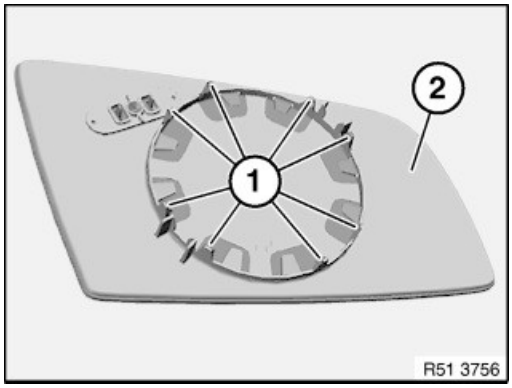


- Check the correct seating of the protective cap (2) on retaining ring (3) around (1).

10 – 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.

11 – Encode/program control unit(s)

Prerequisite

Component has been replaced.

TECHNICAL INFORMATION

Use the most recent software version to prevent faults during programming/encoding.
The battery voltage must not fall below 13.0 V during programming.
Use only chargers for a low volt-vehicle electrical system that are recommended by BMW.

TECHNICAL INFORMATION

No high-voltage switch off is required in electric vehicles or hybrid vehicles for programming/encoding.
The high-voltage system will be automatically switched off by the programming system.

- Connect the battery charger to the vehicle.
- Connect the programming system with the vehicle.
- Determine the action plan.
- Accept and fully process the measures plan.
- If applicable, connect the workshop system to the vehicle, depending on the reworking list.
- Carry out vehicle test.
- Delete the fault memory.
- The information about programming the workshop system and the corresponding notes in the user documentation must be observed.
- Wait until programming/encoding has been completed.
- Disconnect the programming system from the vehicle.
- Disconnect the battery charger from the vehicle.

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Additional Information

Overview of Tightening Torques

Top view camera to exterior mirror			Used in step 6
Screw		Tightening torque	0,85 Nm

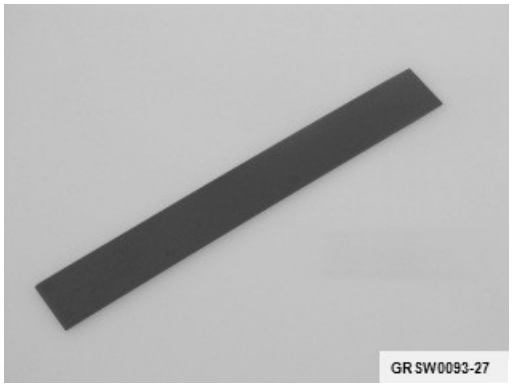
Housing to exterior mirror			Used in step 6
		Tightening torque	0,85 Nm

Retaining ring to exterior mirror			Used in step 7
Screw		Tightening torque	0,85 Nm

Drive for exterior mirror adjustment			Used in step 8
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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66 53 671 Replacing the control unit for the Top Rear Side View Camera (TRSVC) (after vehicle diagnosis) (flat rate specification without programming/encoding, see 61 00 ...)

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)

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 – Removing the luggage compartment floor trim panel

▸ **Removing the luggage compartment floor trim panel**

NOTICE

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

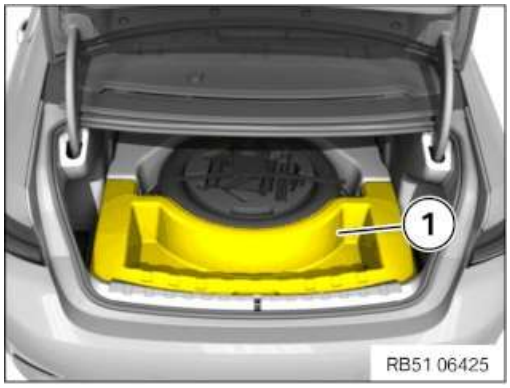
cardiag.com



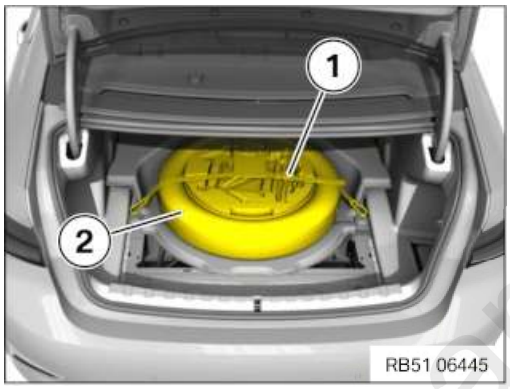
- Remove luggage compartment floor trim panel (1).

4 – If installed: Removing the compact spare wheel

▸ **Removing rear luggage compartment well**



- Remove rear luggage compartment well (1).

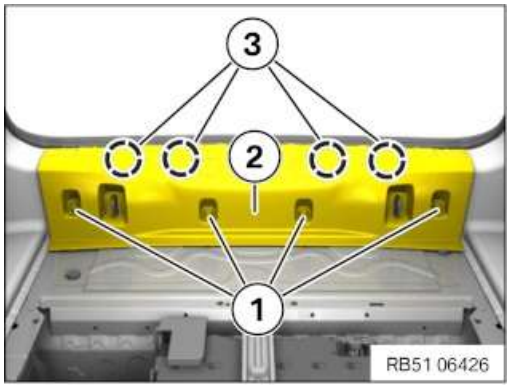


- Open buckle on seat belt strap (1) and set it aside.
- Remove emergency wheel (2) with the insert.

5 – Removing the loading edge trim

NOTICE

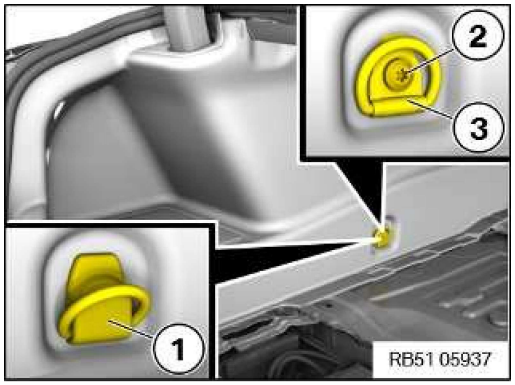
Schematic diagram is for example purposes. Some parts may differ in certain details.



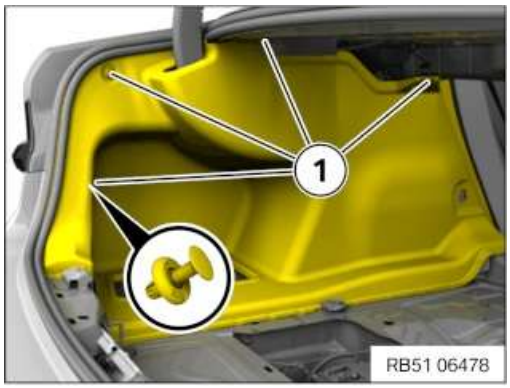
- Loosen the expanding rivet (1).
- Unclip loading edge trim(2) upwards from latch mechanisms (3).
- Guide out and remove loading edge trim (2) under the sealing lip of the tailgate seal.

6 – Remove luggage compartment wheel arch trim panel on left.

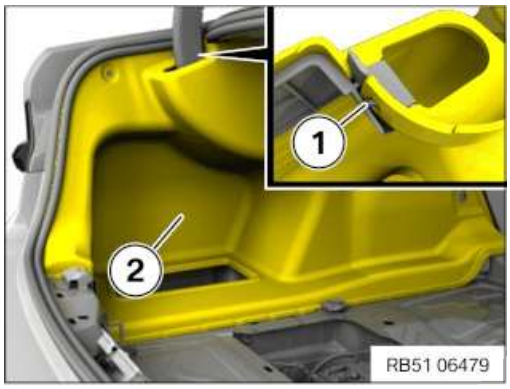
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- Remove the cover (1).
- Loosen screw (2).
- Remove lashing eye (3).



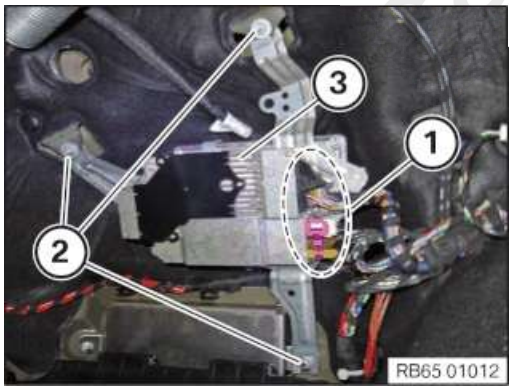
- Reposition left rear seat backrest.
- Loosen the expanding rivet (1).



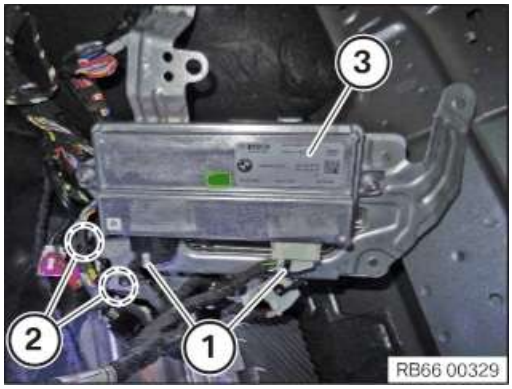
- Press the tab for luggage compartment wheel arch trim panel (2) on the outer side of the hinge to the front using the stop on trim (1).
- Guide out luggage compartment wheel arch trim panel (2) under the sealing lip for the tailgate and the side trim panel in the rear passenger compartment.
- Remove luggage compartment wheel arch trim panel (2).

MAIN WORK

7 – Removing the TRSVC control unit

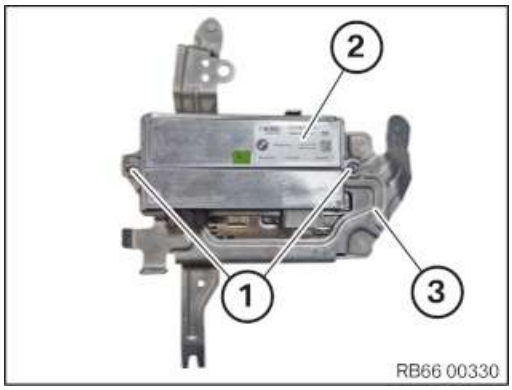


- Unlock and disconnect all plug connections in the area (1).
- Loosen nuts (2).
- Feed out Receiver audio module (RAM) (3) with the holder and turn.

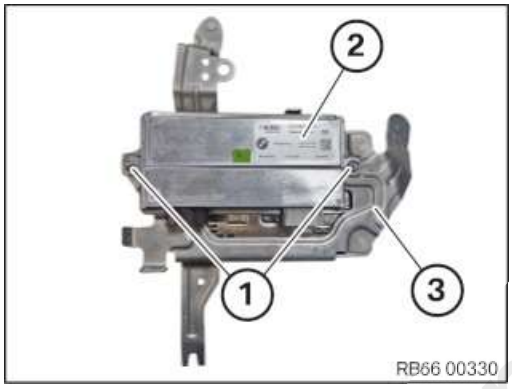


- Unlock and disconnect plug connections (1).
- Release the latch mechanisms (2) for the cable.
- Feed out the TRSVC control unit (3) with the holder and remove it.

8 – Replacing TRSVC control unit



- Loosen nuts (1).
- Remove TRSVC control unit (2) from bracket (3).

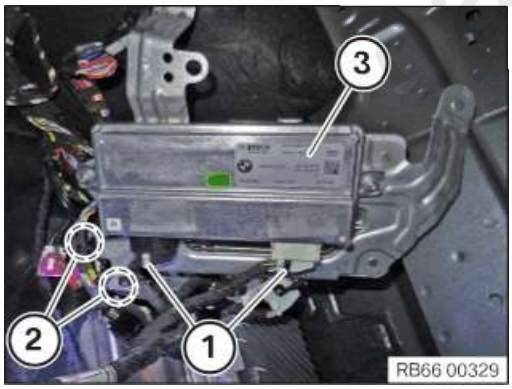


- Fit TRSVC control unit (2) on bracket (3).
- Tighten nuts (1).

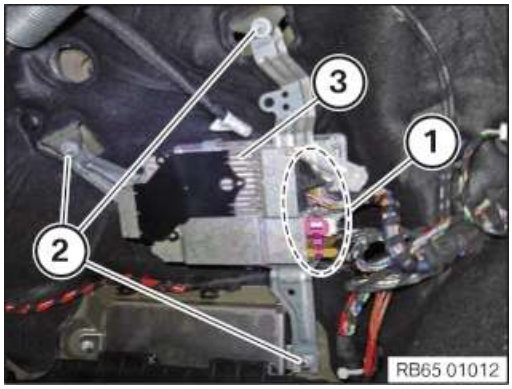
TRSVC control unit on bracket

Nut	Tightening torque	3,3 Nm

9 – Install the TRSVC control unit



- Feed in the TRSVC control unit (3) with the holder and position it.
- Engage latch mechanisms (2) for the cables.
- Connect all connectors (1) and lock.
- Turn the TRSVC-control unit (3) with the holder.



- Feed in the Receiver audio module (RAM) (3) with the holder and position it correctly.
- Tighten nuts (2).

Bracket to body

Nut		Tightening torque	6 Nm
Screw		Tightening torque	6 Nm

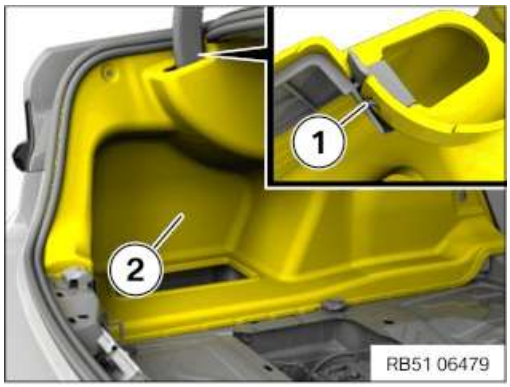
- Connect and lock all connectors in area (1).

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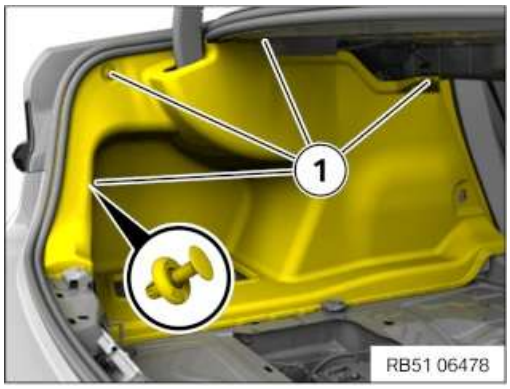
10 – Install luggage compartment wheel arch trim panel at left

NOTICE

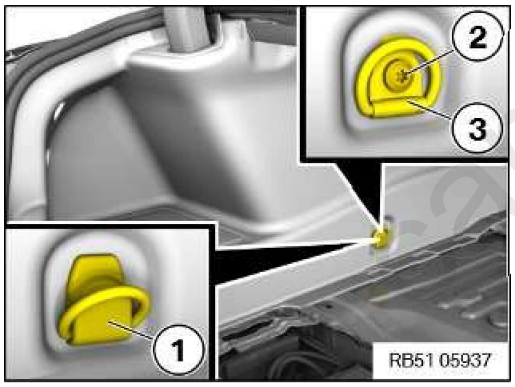
Schematic diagram is for example purposes. Some parts may differ in certain details.



- Feed luggage compartment wheel arch trim panel (2) under the side trim panel in the rear passenger compartment and the sealing lip for the tailgate.
- Feed the tab of the luggage compartment wheel arch trim panel (2) on the outer side of the hinge into the stop on the trim (1).



- Secure expanding rivet (1).
- Raise the link rear seat backrest.



- Position the lashing eye (3).
- Tighten down screw (2).

Lashing eye to body

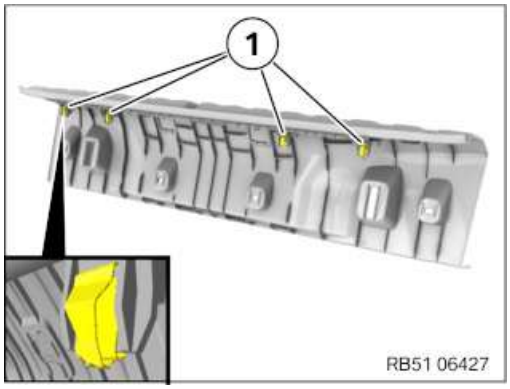
	Tightening torque	19 Nm

- Install the cover (1) .

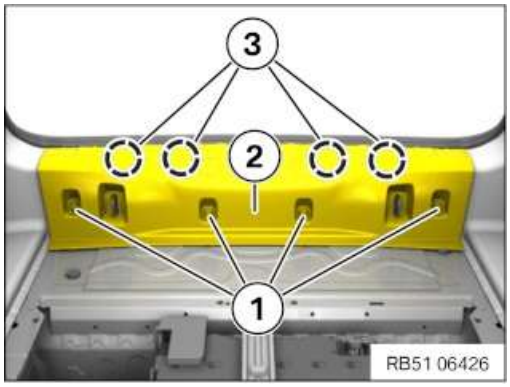
11 – Installing loading edge trim

NOTICE

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

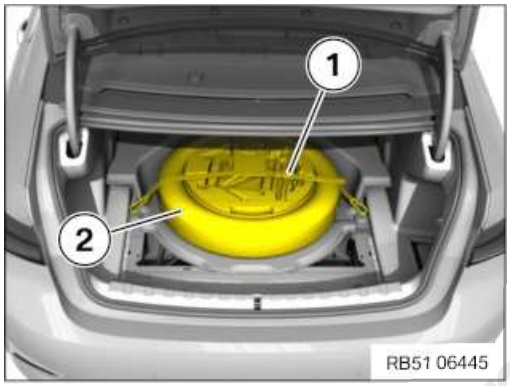


- Check the clamps (1) for damage and renew if necessary.



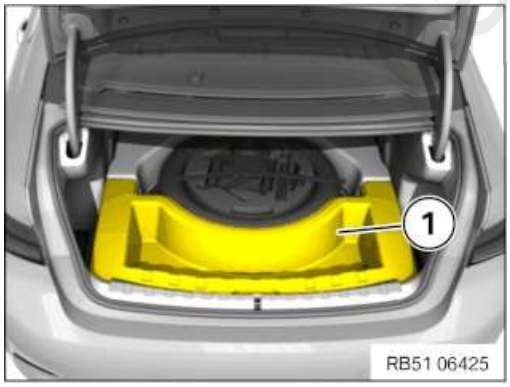
- Insert the loading edge trim (2) under the sealing lip of the tailgate seal.
- Fit the trim of the loading edge (2) at the latch mechanisms (3) and clip it in to the bottom.
- Secure expanding rivet (1).

12 – If installed: Install the emergency wheel



- Install the emergency wheel (2) with the insert.
- Position the seat belt strap above the emergency wheel and close the buckle on the seat belt strap (1).

▸ **Installing rear luggage compartment well**



- Install rear luggage compartment well (1).

13 – Installing the luggage compartment floor trim panel

▸ **Installing the luggage compartment floor trim panel**

NOTICE

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

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- Insert the luggage compartment floor trim panel (1).

14 – Connecting all battery earth leads



- See additional information.

15 – Activating the 48 V electrical system

Prerequisite

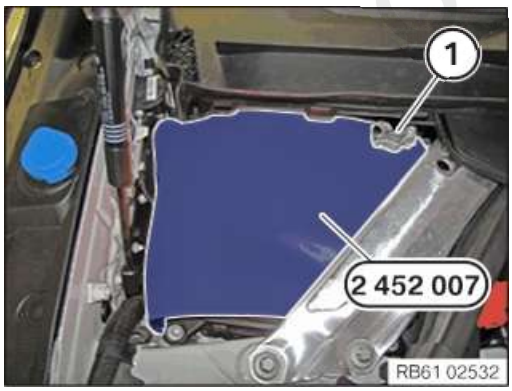
Ignition is switched off.

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 .

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- 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.

16 – Encode/program control unit(s)

- **Replacement**.
- **This task is not included in this flat rate unit item.**

▸ **Encode/program control unit(s)**

Prerequisite

Component has been replaced.

TECHNICAL INFORMATION

Use the most recent software version to prevent faults during programming/encoding.
The battery voltage must not fall below 13.0 V during programming.
Use only chargers for a low volt-vehicle electrical system that are recommended by BMW.

TECHNICAL INFORMATION

No high-voltage switch off is required in electric vehicles or hybrid vehicles for programming/encoding.
The high-voltage system will be automatically switched off by the programming system.

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- Connect the battery charger to the vehicle.
- Connect the programming system with the vehicle.
- Determine the action plan.
- Accept and fully process the measures plan.
- If applicable, connect the workshop system to the vehicle, depending on the reworking list.
- Carry out vehicle test.
- Delete the fault memory.
- The information about programming the workshop system and the corresponding notes in the user documentation must be observed.
- Wait until programming/encoding has been completed.
- Disconnect the programming system from the vehicle.
- Disconnect the battery charger from the vehicle.

17 – Checking the depiction of the vehicle in CID

TECHNICAL INFORMATION

A different vehicle model could be shown in the CID after programming/encoding.

Check

- After programming/encoding, check whether the correct vehicle model is displayed in the CID.

Result

» An incorrect vehicle model is display in the CID.

Measure

- Connect diagnosis system and carry out the service function.
  - Driver assistance
  - All-round vision camera
  - Transmit vehicle profile

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Additional Information

Overview of Tightening Torques

TRSVC control unit on bracket — Used in step 8

Nut		Tightening torque	3,3 Nm

Bracket to body — Used in step 9

Nut		Tightening torque	6 Nm
Screw		Tightening torque	6 Nm

Lashing eye to body — Used in step 10

		Tightening torque	19 Nm

Negative battery cable to 48-V battery — Used in step 15

Nut M8		Tightening torque	19 Nm

Overview of Special Tools

Links

Repair instructions (PRE)	Used in step
Notes on 48-V battery	115

Repair instructions	Used in step
61 35 ... Notes on ESD protection (Electro Static Discharge)	
61 35 ... Notes on ESD protection (Electro Static Discharge)	
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	214
61 20 900 Disconnecting and connecting battery earth lead	214
61 20 900 Disconnecting and connecting battery earth lead	214
61 20 900 Disconnecting and connecting battery earth lead	214
61 20 900 Disconnecting and connecting battery earth lead	214
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61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	214
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61 20 900 Disconnecting and connecting battery earth lead	214
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	214
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	214
61 20 900 Disconnecting and connecting battery earth lead	214
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	214
61 20 900 Disconnecting and connecting battery earth lead (Plug-in Hybrid Electric Vehicle)	214
61 20 900 Disconnecting and connecting battery earth lead	214
61 20 900 Disconnecting and connecting battery earth lead	214
61 20 900 Disconnecting and connecting battery earth lead	214
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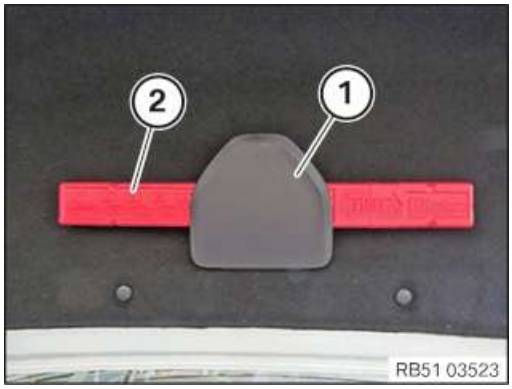
61 20 900 Disconnecting and connecting battery earth lead	214
61 20 900 Disconnecting and connecting battery earth lead	214
61 20 900 Disconnecting and connecting battery earth lead	214
61 20 900 Disconnecting and connecting battery earth lead	214
61 20 900 Disconnecting and connecting battery earth lead	214
61 20 900 Disconnecting and connecting battery earth lead	214
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	214
61 20 900 Disconnecting and connecting battery earth lead	214
61 20 900 Disconnecting and connecting battery earth lead	214
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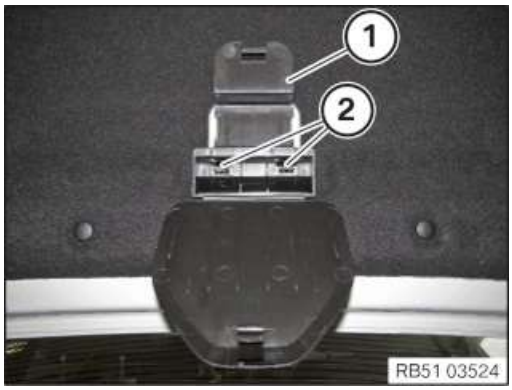
66 53 524 Replacing the rear view camera

PRELIMINARY WORK

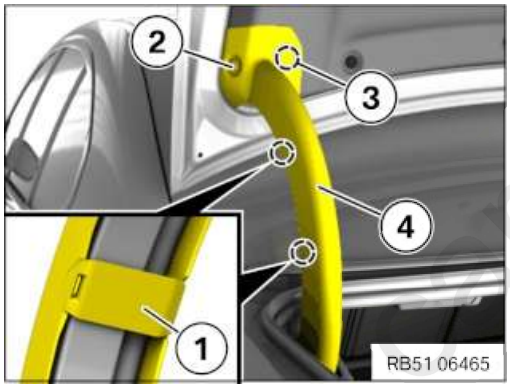
1 – Remove tailgate trim panel



- Fold the cover (1) towards the bottom.
- Remove the warning triangle (2).



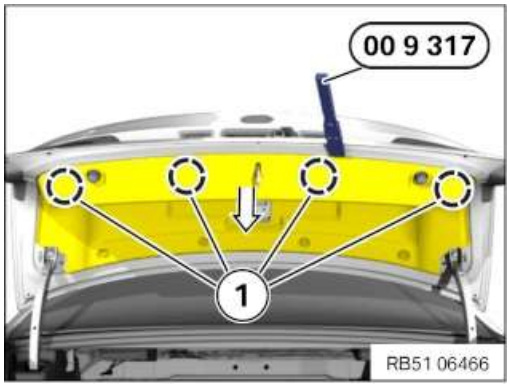
- Detach the warning triangle holder (1) from the latch mechanisms (2) and slide downwards.



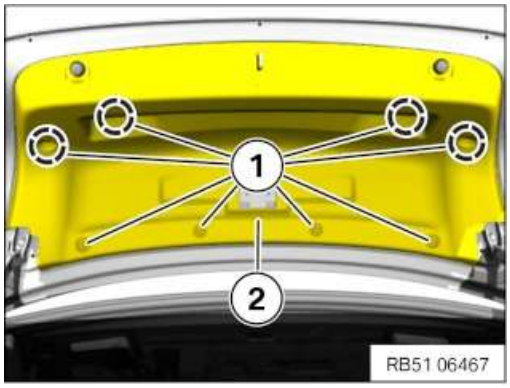
NOTICE

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

- Unclip the tabs (1).
- Loosen expanding rivet (2).
- To avoid damage, release the trim panel for the hinge of the tailgate (4) without using a tool by jerking it along the hinge bracket and out of the clip fastening (3).



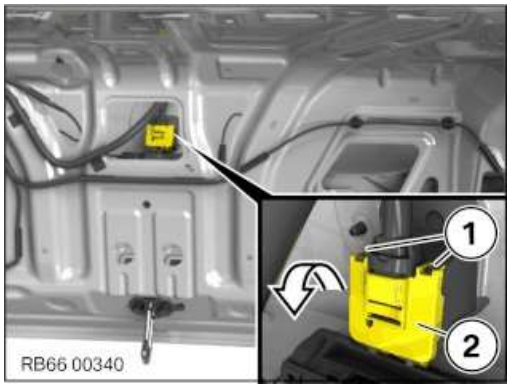
- Unclip clips (1) with special tool 0 490 534 (00 9 317) in the direction of arrow.



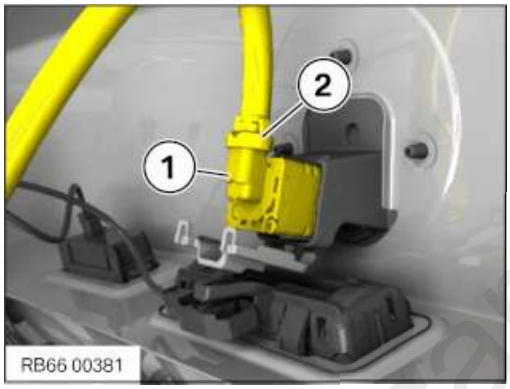
- Release expanding rivet (1) on the tailgate trim panel (2).
- Remove tailgate trim panel (2).
- **If installed**: Unlock plug connection of the switch for the tailgate lift and disconnect.

MAIN WORK

2 – Removing the Reversing Assist camera (RFK)



- Loosen the latch mechanisms (1).
- Open the lid for the Reversing Assist Camera (RFK) (2) in the direction of arrow.



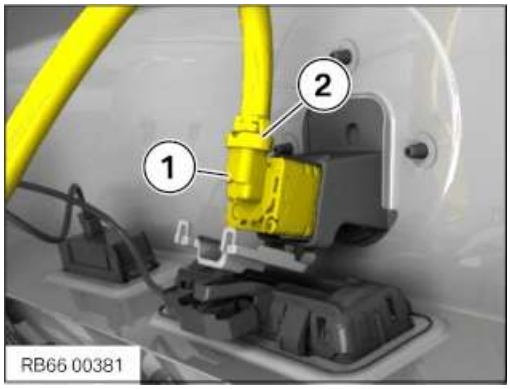
- Feed out the Reversing Assist Camera (RFK) (1) from the socket of the badge.
- Unlock and disconnect connector (2).
- Remove the Reversing Assist Camera (RFK) (1).

3 – Install the rear view camera (RFK)

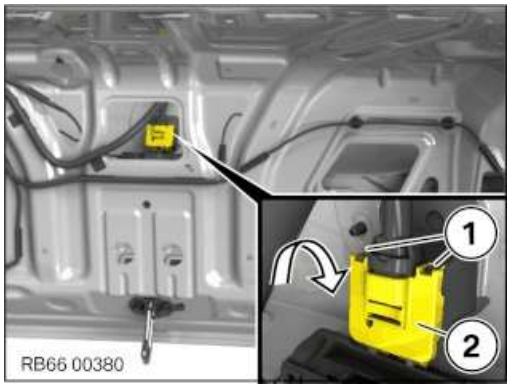


- Check sealing ring (1) for accuracy of fit.

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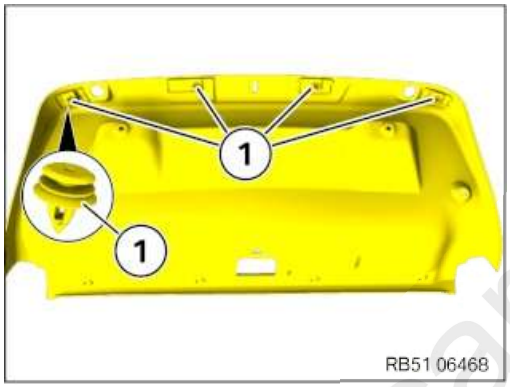
- Connect connectors (2) and lock.
- Insert Reversing Assist Camera (RFK) (1) in the base of the badge.



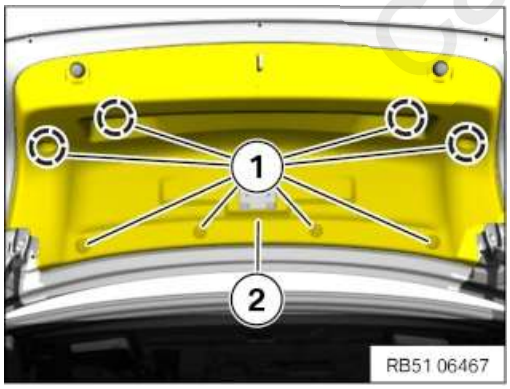
- Fold in the lid of Reversing Assist Camera (RFK) (2) in the direction of the arrow and clip it in with latch mechanisms (1).

POSTPROCESSES

4 – Installing the tailgate trim panel

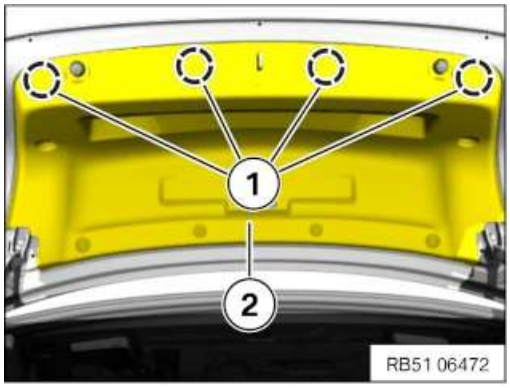


- Check the clips (1) for damage and renew if necessary.

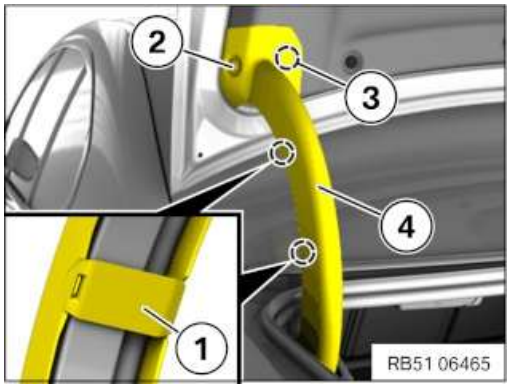


- Fit the tailgate trim panel (2) and fasten in place with the expanding rivets (1).
- **If installed**: Connect and lock plug connection on the switch for the tailgate lift.

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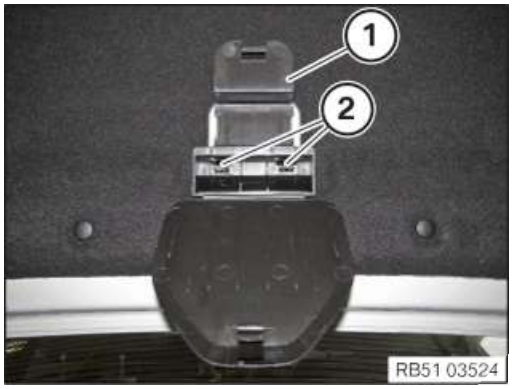
- Clip in the tailgate trim panel (2) with the clips (1).



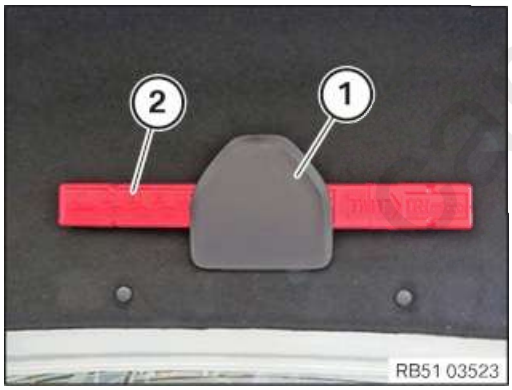
NOTICE

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

- Clip in the trim panel for the hinge of the tailgate (4) to the clip fastening (3).
- Fasten expanding rivet (2).
- Clip in tabs (1).



- Position the warning triangle holder (1) and snap into the latch mechanisms (2).



- Install the warning triangle (2).
- Clip in the cover (1).

5 – Encode/program control unit(s)

Prerequisite

Component has been replaced.

TECHNICAL INFORMATION

Use the most recent software version to prevent faults during programming/encoding.
The battery voltage must not fall below 13.0 V during programming.
Use only chargers for a low volt-vehicle electrical system that are recommended by BMW.

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TECHNICAL INFORMATION

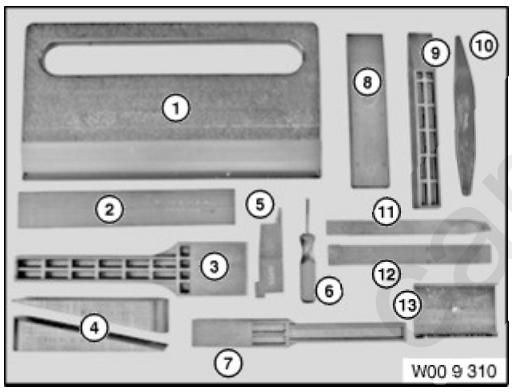
No high-voltage switch off is required in electric vehicles or hybrid vehicles for programming/encoding.
The high-voltage system will be automatically switched off by the programming system.

- Connect the battery charger to the vehicle.
- Connect the programming system with the vehicle.
- Determine the action plan.
- Accept and fully process the measures plan.
- If applicable, connect the workshop system to the vehicle, depending on the reworking list.
- Carry out vehicle test.
- Delete the fault memory.
- The information about programming the workshop system and the corresponding notes in the user documentation must be observed.
- Wait until programming/encoding has been completed.
- Disconnect the programming system from the vehicle.
- Disconnect the battery charger from the vehicle.

Additional Information

Overview of Special Tools

0 490 534 (00 9 317) Wedge



Common	Used in step 1
Usage	(Trim wedge) Replaced by special tool 00 9 325 from 11/2008 (quality improvement due to new material) Replaced by 00 9 325 (0 496 569)
Included in the tool or work	0 490 527
Storage location	
Replaced by	
In connection with	
SI-Number	

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

Warning!

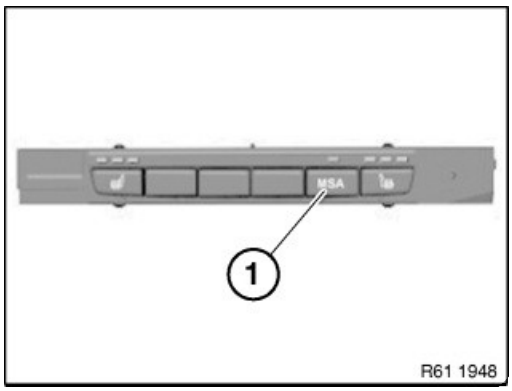
If the engine hood/bonnet contact is pulled upwards (workshop mode), the information "switch closed" is output. The automatic engine start-stop function is active.

An automatic engine start is possible.

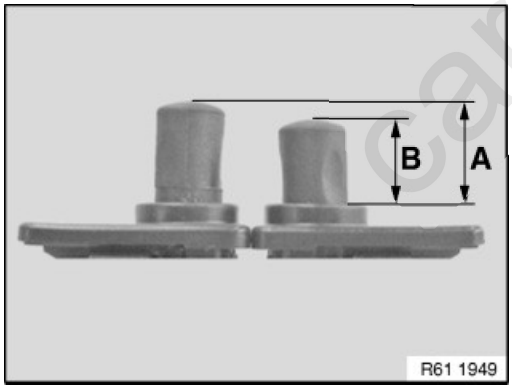
Observe safety precautions when working on MSA vehicles.

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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