65 12 051 Remove and install / replace the central bass speaker on the driver's side

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.

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

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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.



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.

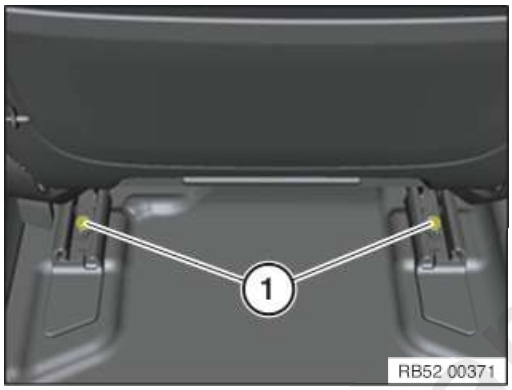
2 – Remove front seat

WARNING

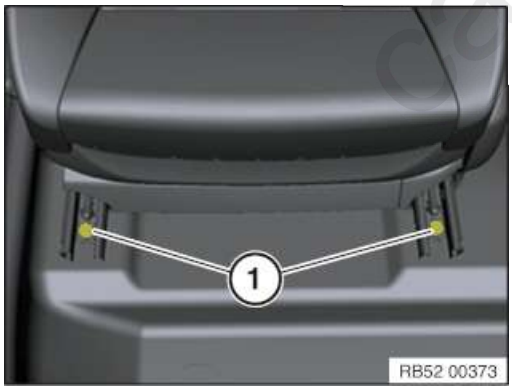
Pyrotechnic components.

Danger! Life-threatening injuries!

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



- Loosen screws (1).



- Loosen screws (1).
- Adjust the front seat to the centre position.
- **When removing the driver's seat:**

  Completely retract the steering column

  Adjust the steering column completely upwards.

▸ **Deactivating the 48 V electrical system**

Prerequisite

Ignition is switched off.

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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

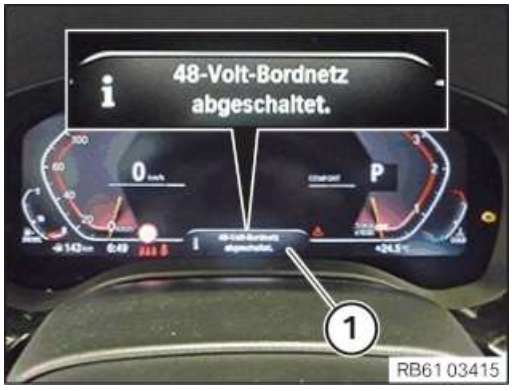
Follow notes for 48-V battery. See further information 6120 ... Notes on 48-V battery.



- 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.



WARNING

Unprotected battery terminals.

Risk of short circuits! Risk of fire!

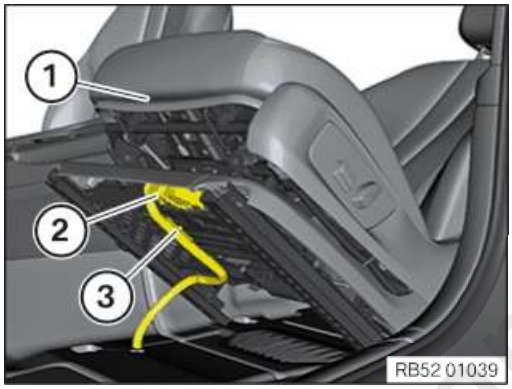
- Cover the vehicle battery.

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

▸ **Disconnecting all battery earth leads**



- See additional information.



RISK OF DAMAGE

Careless handling of tools and sharp-edged components.

Scratch, surface damage.

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

- Cover the door sill using protective covers.
- Place front seat (1) to the rear.
- Unlock plug connection (2) and disconnect.
- Loosen the cable clip (3).

RISK OF DAMAGE

Heavy component.

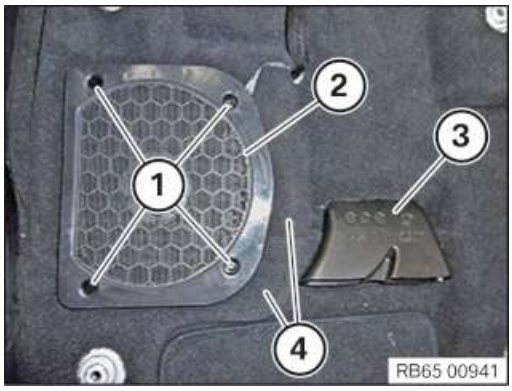
Heavy components can lead to injury or damage.

- Remove and install heavy components with the aid of another person/other persons.

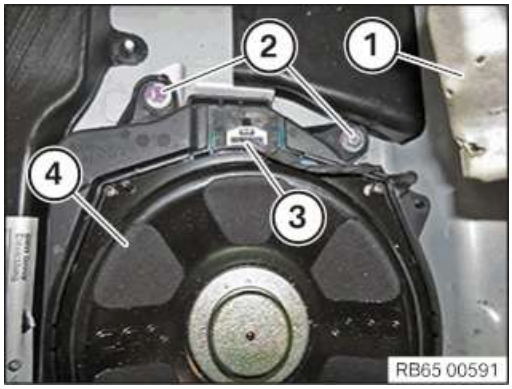
- Lift out front seat (1) with the assistance of a second person.

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3 – Removing the central bass

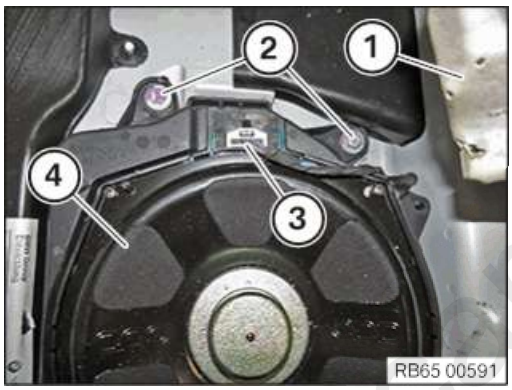


- Loosen screws (1).
- Remove speaker trim (2).
- Pull off air duct (3) towards the rear and remove it.
- Raise carpet (4) slightly.



- Fold up the carpet (1) as shown.
- Loosen screws (2).
- Unlock plug connection (3) and disconnect.
- Remove the central bass (4).

4 – Installing the central bass

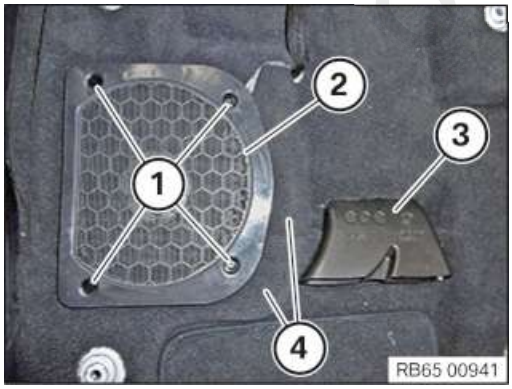


- Insert the central bass (4).
- Tighten the screws (2).

Central bass speaker to floor assembly

Nut		Tightening torque	5 Nm

- Connect connectors (3) and lock.
- Fold the carpet (1) down.



- Correctly lay the carpet (4).
- Correctly position the air duct (3) and engage upward.
- Insert speaker trim (2) and install it.
- Tighten the screws (1).

Central bass speaker trim

Screw		Tightening torque	2 Nm

POSTPROCESSES

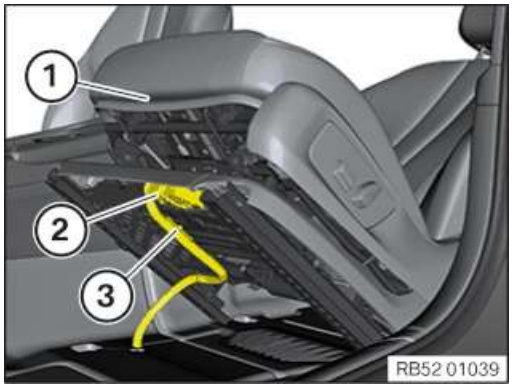
5 – Install front seat

WARNING

Pyrotechnic components.

Danger! Life-threatening injuries!

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



RISK OF DAMAGE

Careless handling of tools and sharp-edged components.

Scratch, surface damage.

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

- Cover the door sill using protective covers.

RISK OF DAMAGE

Heavy component.

Heavy components can lead to injury or damage.

- Remove and install heavy components with the aid of another person/other persons.

- Lift front seat (1) into the vehicle with the assistance of a second person.
- Place front seat (1) to the rear.
- Connect connectors (2) and lock.
- Attach the cable clip (3).

▸ **Connecting all battery earth leads**

- See additional information.



▸ **Activating the 48 V electrical system**

Prerequisite

Ignition is switched off.

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RISK OF DAMAGE

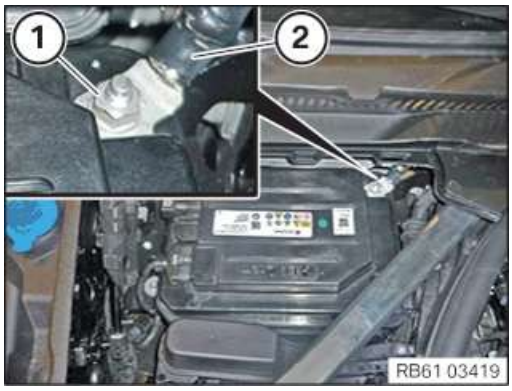
Damage to 48-V battery

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

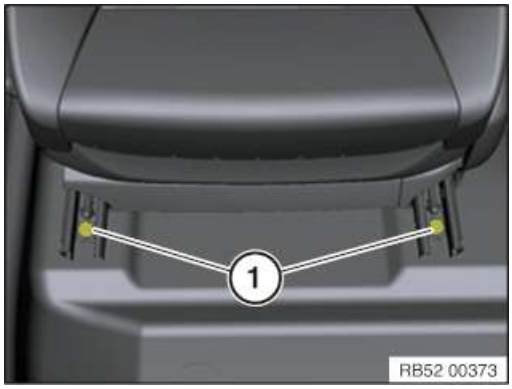


- Connect the connector (1) of the CAN bus and lock it.
- Clip in clip (2).



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

  The activation takes place automatically.

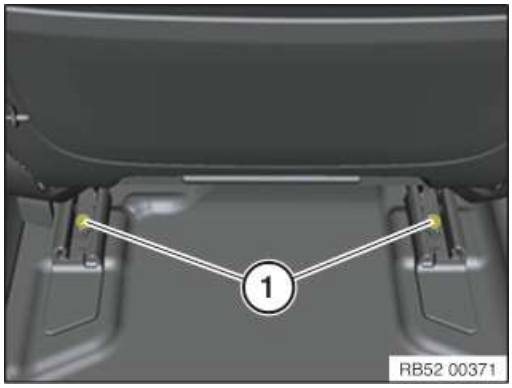


- Move front seat rearwards.
- Renew screws (1).

  Parts: Screws
- Tighten the screws (1).

Seat to body

Cheese head screw with collar	Renew screw.	Tightening torque	42 Nm



- Move front seat forwards.
- Renew screws (1).

  Parts: Screws
- Tighten the screws (1).

Seat to body

Cheese head screw with collar	Renew screw.	Tightening torque	42 Nm

6 – 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

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- 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

Central bass speaker to floor assembly			Used in step 4
Nut		Tightening torque	5 Nm

Central bass speaker trim			Used in step 4
Screw		Tightening torque	2 Nm

Negative battery cable to 48-V battery			Used in step 56
Nut M8		Tightening torque	19 Nm

Seat to body			Used in step 5
Cheese head screw with collar	Renew screw.	Tightening torque	42 Nm

Overview of Special Tools

Links

Repair instructions (PRE)	Used in step
Notes on 48-V battery	1256

General repair instructions	Used in step
72 00 ... Safety regulations for handling components with gas generators	25

Repair instructions	Used in step
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	25
61 20 900 Disconnecting and connecting battery earth lead	25

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61 20 900 Disconnecting and connecting battery earth lead	25
61 20 900 Disconnecting and connecting battery earth lead	25
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61 20 900 Disconnecting and connecting battery earth lead	25
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	25
61 20 900 Disconnecting and connecting battery earth lead (Plug-in Hybrid Electric Vehicle)	25
61 20 900 Disconnecting and connecting battery earth lead	25
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61 20 900 Disconnecting and connecting battery earth lead	25
61 20 900 Disconnecting and connecting battery earth lead	25

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65 12 053 Remove and install / replace the central bass speaker on the passenger's side

NOTICE

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

PRELIMINARY WORK

1 – Deactivating the 48 V electrical system

Prerequisite

Ignition is switched off.

WARNING

Deactivation of the 12 V vehicle electrical system.

Risk of short circuits! Risk of fire!

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

WARNING

Deactivation of the 48 V electrical system.

Risk of short circuits! Risk of fire!

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

RISK OF DAMAGE

Damage to 48-V battery

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

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

TECHNICAL INFORMATION

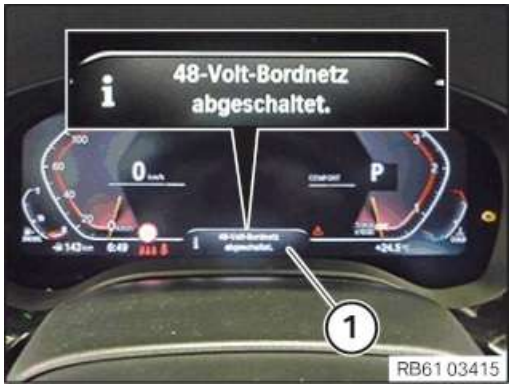
Follow notes for 48-V battery. See further information 6120 ... Notes on 48-V battery.

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- 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.

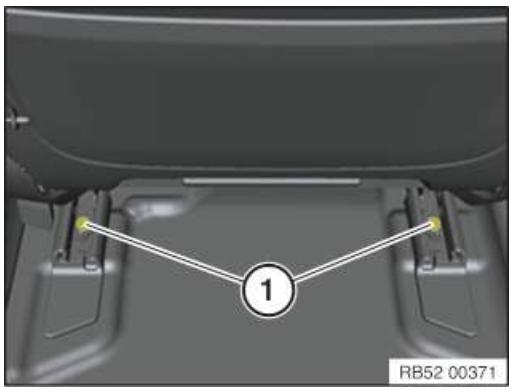
2 – Remove front seat

WARNING

Pyrotechnic components.

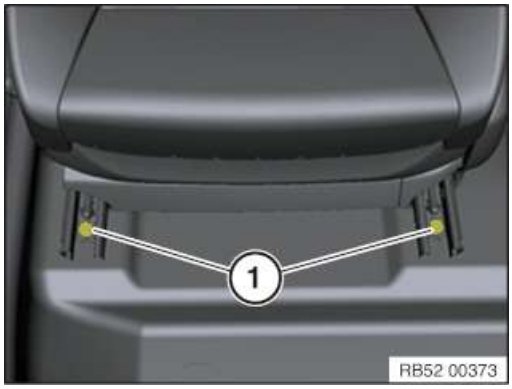
Danger! Life-threatening injuries!

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



- Loosen screws (1).

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- Loosen screws (1).
- Adjust the front seat to the centre position.
- **When removing the driver's seat:**

  Completely retract the steering column

  Adjust the steering column completely upwards.

▸ 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

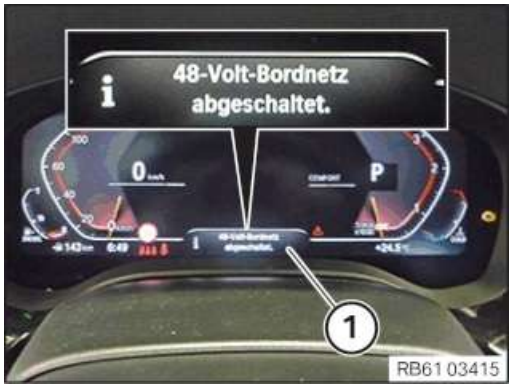
Follow notes for 48-V battery. See further information 6120 ... Notes on 48-V battery.

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- 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

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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.

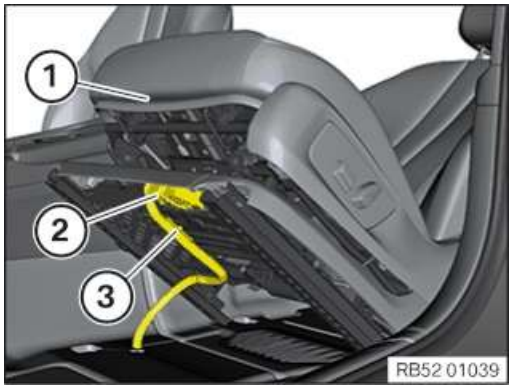
- Cover the vehicle battery with the special tool as shown.
- Position the battery earth lead (1) as shown.

▸ **Disconnecting all battery earth leads**

- See additional information.



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RISK OF DAMAGE

Careless handling of tools and sharp-edged components.

Scratch, surface damage.

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

- Cover the door sill using protective covers.
- Place front seat (1) to the rear.
- Unlock plug connection (2) and disconnect.
- Loosen the cable clip (3).

RISK OF DAMAGE

Heavy component.

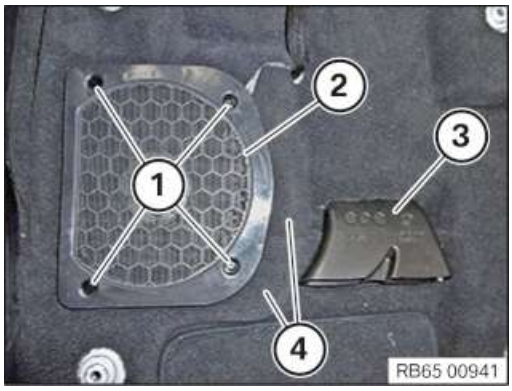
Heavy components can lead to injury or damage.

- Remove and install heavy components with the aid of another person/other persons.

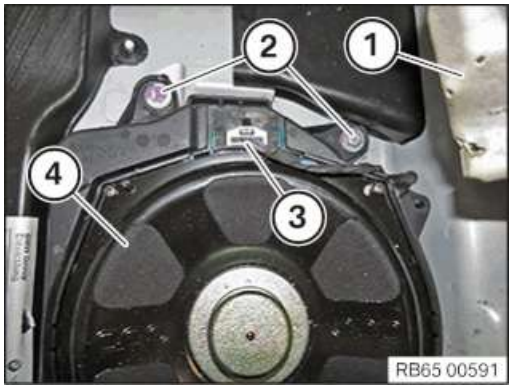
- Lift out front seat (1) with the assistance of a second person.

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3 – Removing the central bass

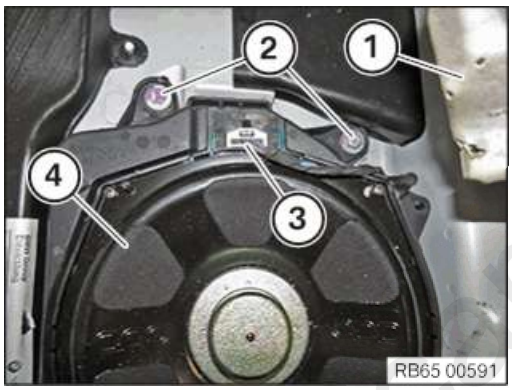


- Loosen screws (1).
- Remove speaker trim (2).
- Pull off air duct (3) towards the rear and remove it.
- Raise carpet (4) slightly.



- Fold up the carpet (1) as shown.
- Loosen screws (2).
- Unlock plug connection (3) and disconnect.
- Remove the central bass (4).

4 – Installing the central bass

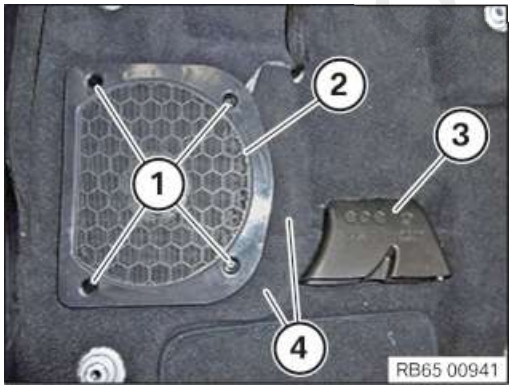


- Insert the central bass (4).
- Tighten the screws (2).

Central bass speaker to floor assembly

Nut		Tightening torque	5 Nm

- Connect connectors (3) and lock.
- Fold the carpet (1) down.



- Correctly lay the carpet (4).
- Correctly position the air duct (3) and engage upward.
- Insert speaker trim (2) and install it.
- Tighten the screws (1).

Central bass speaker trim

Screw		Tightening torque	2 Nm

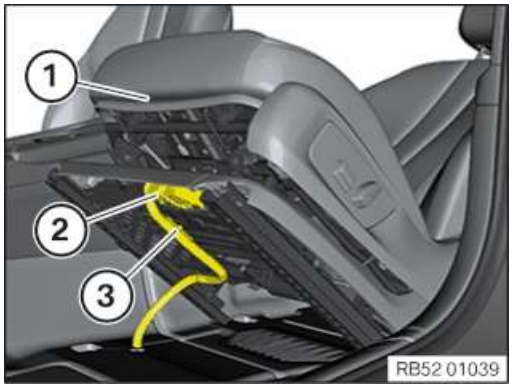
5 – Install front seat

WARNING

Pyrotechnic components.

Danger! Life-threatening injuries!

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



RISK OF DAMAGE

Careless handling of tools and sharp-edged components.

Scratch, surface damage.

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

- Cover the door sill using protective covers.

RISK OF DAMAGE

Heavy component.

Heavy components can lead to injury or damage.

- Remove and install heavy components with the aid of another person/other persons.

- Lift front seat (1) into the vehicle with the assistance of a second person.
- Place front seat (1) to the rear.
- Connect connectors (2) and lock.
- Attach the cable clip (3).

▸ **Connecting all battery earth leads**

- See additional information.



▸ **Activating the 48 V electrical system**

Prerequisite

Ignition is switched off.

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RISK OF DAMAGE

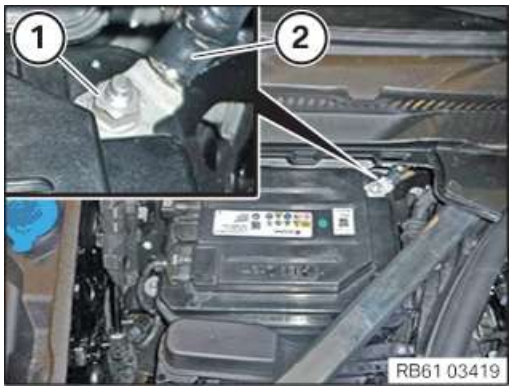
Damage to 48-V battery

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

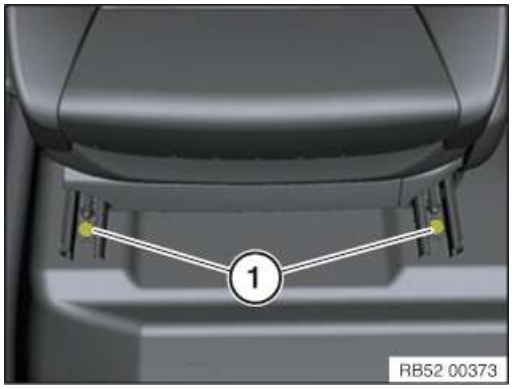


- Connect the connector (1) of the CAN bus and lock it.
- Clip in clip (2).



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

  The activation takes place automatically.

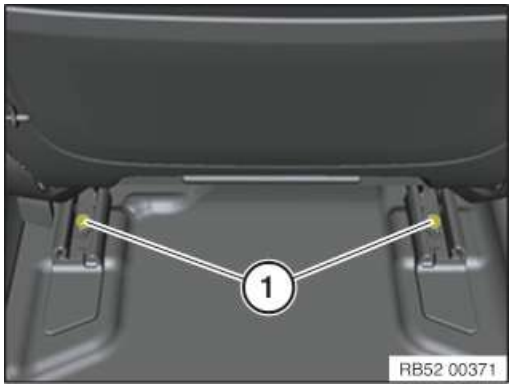


- Move front seat rearwards.
- Renew screws (1).

  Parts: Screws
- Tighten the screws (1).

Seat to body

Cheese head screw with collar	Renew screw.	Tightening torque	42 Nm



- Move front seat forwards.
- Renew screws (1).

  Parts: Screws
- Tighten the screws (1).

Seat to body

Cheese head screw with collar	Renew screw.	Tightening torque	42 Nm

6 – 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

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- 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

Central bass speaker to floor assembly			Used in step 4
Nut		Tightening torque	5 Nm

Central bass speaker trim			Used in step 4
Screw		Tightening torque	2 Nm

Negative battery cable to 48-V battery			Used in step 56
Nut M8		Tightening torque	19 Nm

Seat to body			Used in step 5
Cheese head screw with collar	Renew screw.	Tightening torque	42 Nm

Overview of Special Tools

Links

Repair instructions (PRE)	Used in step
Notes on 48-V battery	1256

General repair instructions	Used in step
72 00 ... Safety regulations for handling components with gas generators	25

Repair instructions	Used in step
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	25
61 20 900 Disconnecting and connecting battery earth lead	25

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61 20 900 Disconnecting and connecting battery earth lead	25
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61 20 900 Disconnecting and connecting battery earth lead (Plug-in Hybrid Electric Vehicle)	25
61 20 900 Disconnecting and connecting battery earth lead	25
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61 20 900 Disconnecting and connecting battery earth lead	25

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65 12 315 Remove and install HU-H

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.

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

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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.



WARNING

Unprotected battery terminals.

Risk of short circuits! Risk of fire!

- Cover the vehicle battery.

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

2 – Disconnecting all battery earth leads



- See additional information.

3 – Remove cupholder



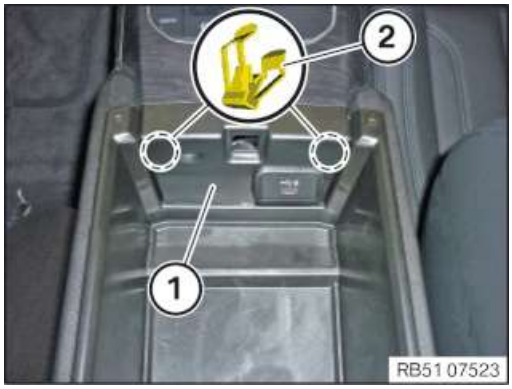
- Remove the insert (1).



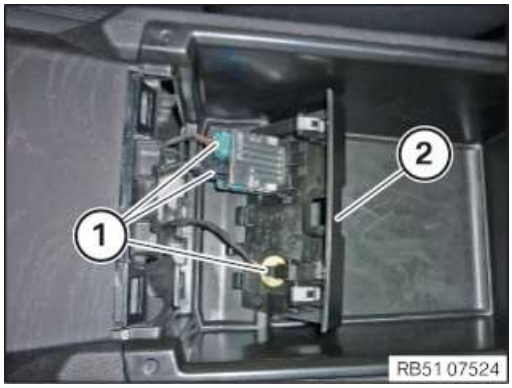
- Loosen screws (1).
- Feed the cup holder (2) out to the top.
- Unlock associated plug connections and disconnect.

4 – Removing the trim in the storage compartment on the centre armrest

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- Lever out the trim (1) with the special tool (2) toward the rear from the clamps 2 298 505.



- Unlock and disconnect the plug connections (1) and remove the trim (2) .

5 – Remove the centre console trim

RISK OF DAMAGE

Careless handling of tools and sharp-edged components.

Scratch, surface damage.

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



- Release and remove the centre console trim upwards (1) as shown using the special tool 2 298 505 from the latch mechanisms.

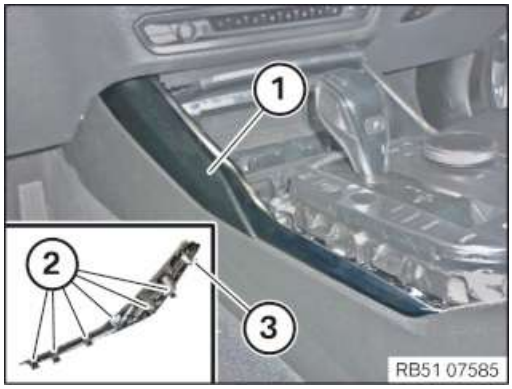
6 – Removing the decorative trim on the centre console on the left and right

▸ **Remove the decorative trim from the centre console**

NOTICE

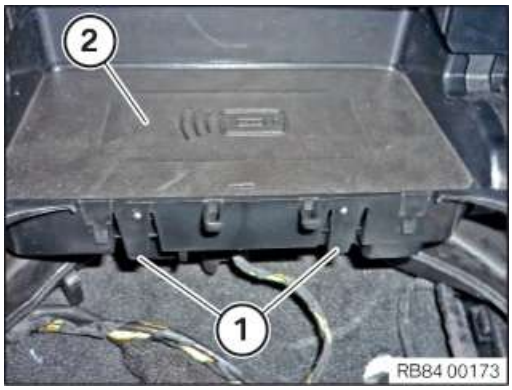
Description is for left component only. Procedure on the right side is identical.

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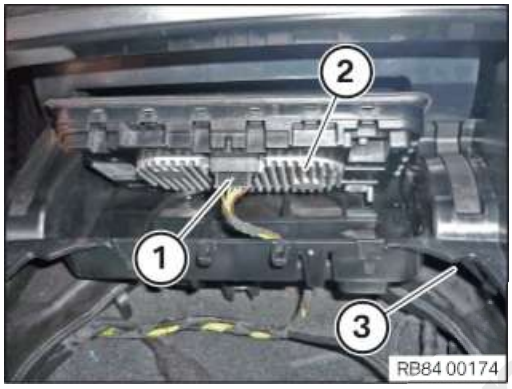


- Lever out the rear decorative trim (1) from the latch mechanisms (2) starting from the top.
- Feed out the decorative trim (1) backwards out of the guide (3) and remove.

7 – Removing the wireless charging station



- Loosen the latch mechanisms (1) and push out the wireless charging station (2) upwards.



- Unlock and disconnect the plug connection (1) and remove the wireless charging tray (2) from the centre console (3).

8 – Remove the operating facility in the centre console

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▸ **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.

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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.

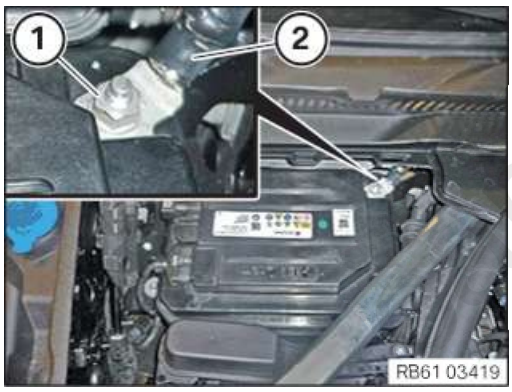
Measure

- 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.



WARNING

Unprotected battery terminals.

Risk of short circuits! Risk of fire!

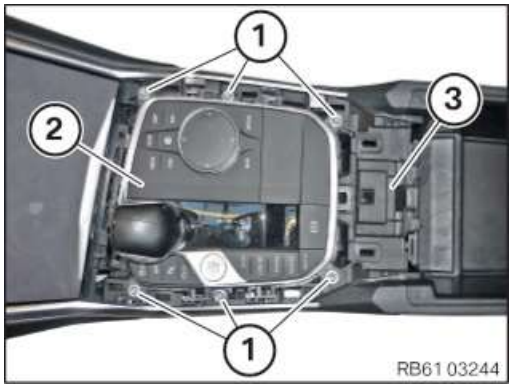
- Cover the vehicle battery.

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

▸ **Disconnecting all battery earth leads**

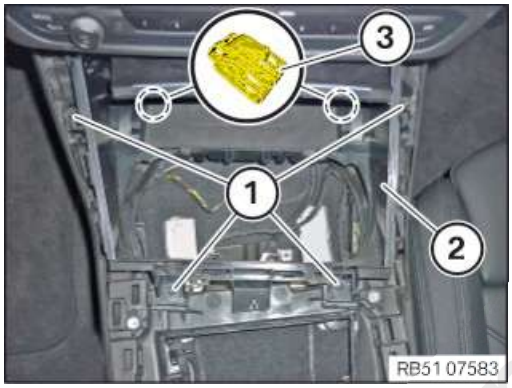


- See additional information.

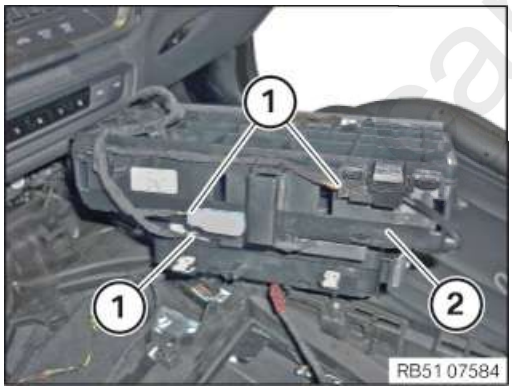


- Loosen screws (1).
- Remove the operating facility in the centre console (2) from the centre console (3).

9 – Removing the storage compartment in the front centre console

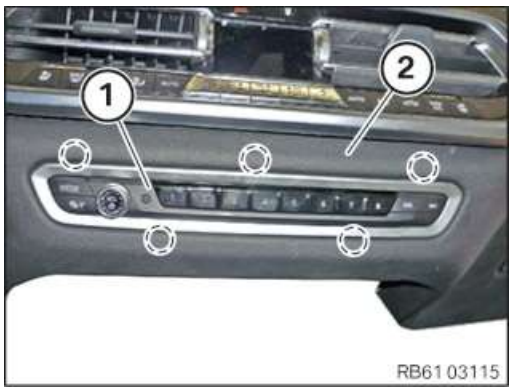


- Loosen screws (1).
- Pull the storage compartment in front centre console (2) backwards from the clamps (3).

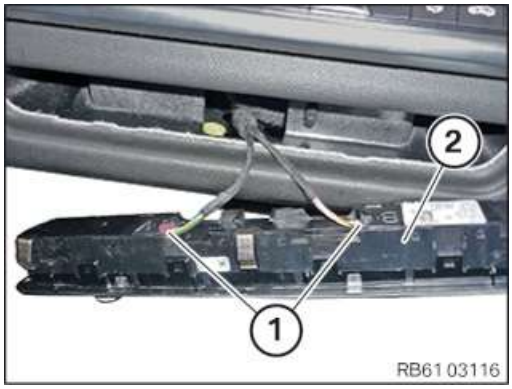


- Unlock and disconnect the plug connections (1) and remove the storage compartment in centre console (2).

10 – Remove the audio operating unit



- Unclip the audio operating unit (1) from the instrument panel (2) at the points marked using special tool 0 496 571 (00 9 327).



- Disconnect plug connections (1) and remove the audio operating unit (2).

MAIN WORK

11 – Remove Head Unit High (HU-H)

RISK OF DAMAGE

Electrostatic discharge.

Damage to or destruction of electrical components.

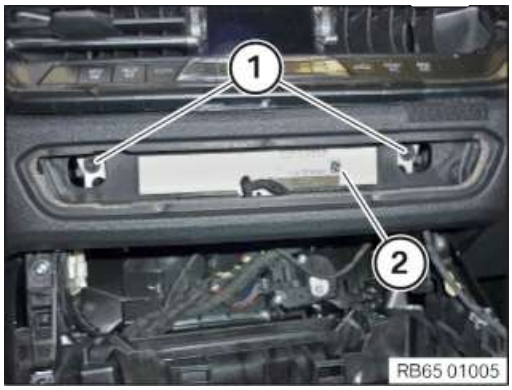
- Leave electrical components in original packaging until just before they are installed. Use the original packaging only for any return shipments. Always package removed components straight away.
- Read and comply with user information on using the associated special tool 12 7 060.
- Only touch the 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)

RISK OF DAMAGE

Damage to the head unit.

The hard disk of the head unit can be damaged by vibration.

- Carry out mechanical work on the head unit and adjacent components with care.

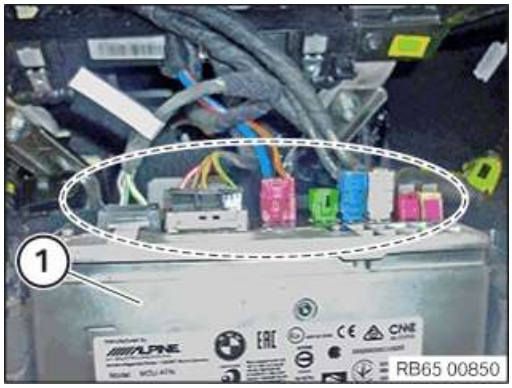


- Release screws (1) on the head unit (2).
- Slightly pull head unit (2) to the rear and tilt downwards.

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- Feed out the head unit (1) through the marks as illustrated, until the connectors behind are accessible.



- Unlock and disconnect all the plug connections in the marked area in the correct order.
- Remove headunit (1).

12 – Install the Head Unit High (HU-H)

RISK OF DAMAGE

Electrostatic discharge.

Damage to or destruction of electrical components.

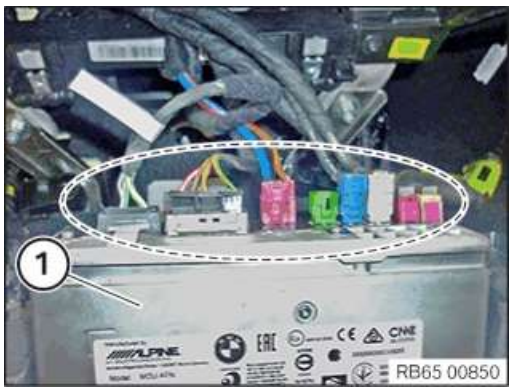
- Leave electrical components in original packaging until just before they are installed. Use the original packaging only for any return shipments. Always package removed components straight away.
- Read and comply with user information on using the associated special tool 12 7 060.
- Only touch the 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)

RISK OF DAMAGE

Damage to the head unit.

The hard disk of the head unit can be damaged by vibration.

- Carry out mechanical work on the head unit and adjacent components with care.

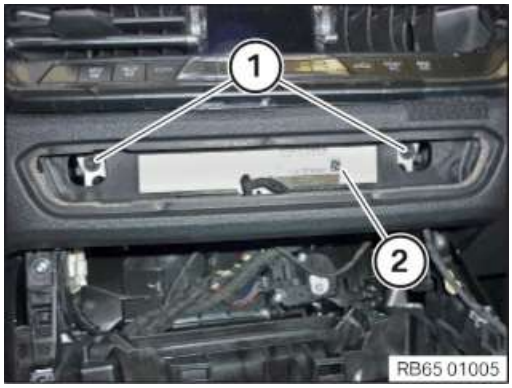


- Position head unit (1).
- Connect and lock all connectors in the marked area in a correct assembly sequence.

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- Feed in the head unit (1) through the marked areas upwards.



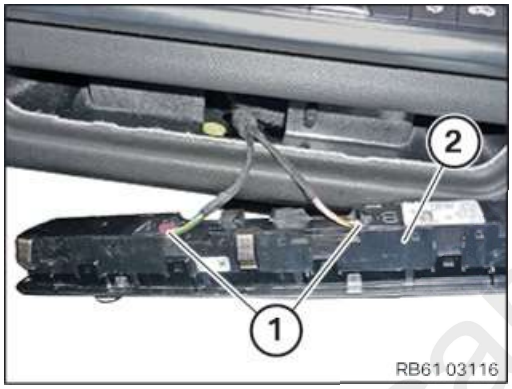
- Slide head unit (2) slightly forward and position it correctly.
- Tighten screws (1) on the head unit (2).

Head unit to holder / holder to support

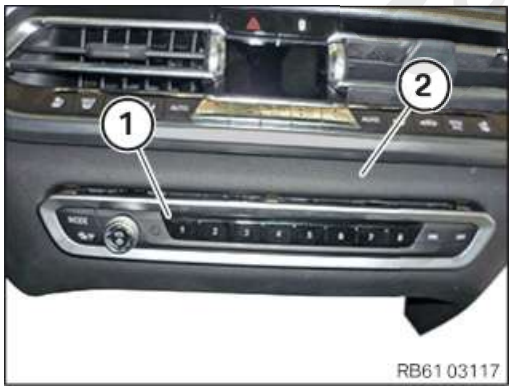
Screw		Tightening torque	1,8 Nm

POSTPROCESSES

13 – Install the audio operating unit



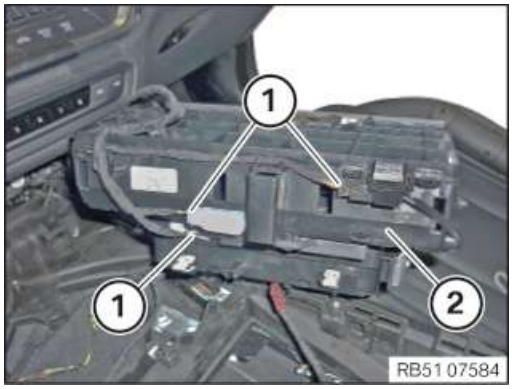
- Connect the connector (1) to the audio operating unit (2).



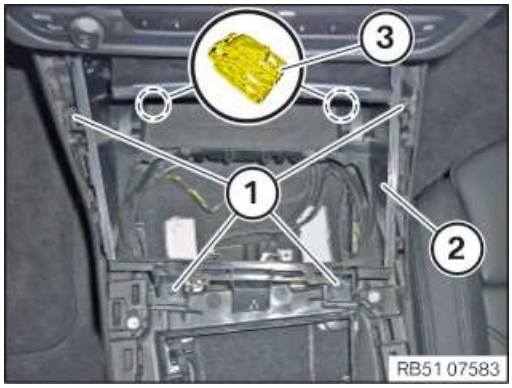
- Correctly position the audio operating unit (1) and install in the instrument panel(2).

14 – Installing the storage compartment in the centre console in the front

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- Mount the storage compartment in the centre console in the front (2) and connect and lock connectors (1).

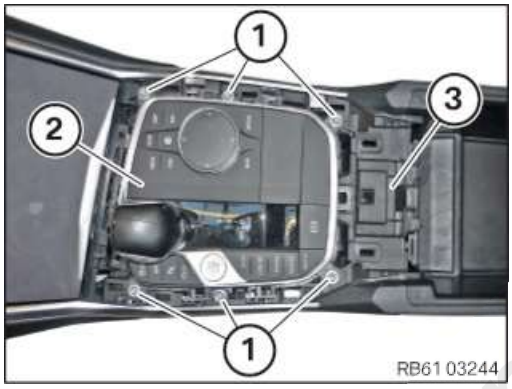


- Engage the storage compartment in the centre console in the front (2) into clamps (3) in the rear.
- Tighten the screws (1).

Storage compartment in centre console

Oval-head screw		Tightening torque	1,8 Nm

15 – Install the operating facility in the centre console



- Position the operating facility (2) in the centre console (3).
- Tighten the screws (1).

Gear selector switch to centre console trim

Screw		Tightening torque	1,8 Nm

▸ **Connecting all battery earth leads**



- See additional information.

▸ **Activating the 48 V electrical system**

Prerequisite

Ignition is switched off.

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RISK OF DAMAGE

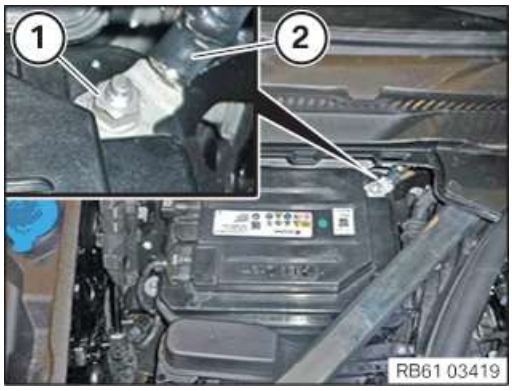
Damage to 48-V battery

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



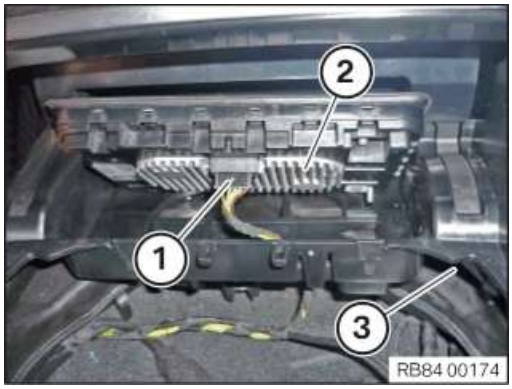
- Connect the connector (1) of the CAN bus and lock it.
- Clip in clip (2).



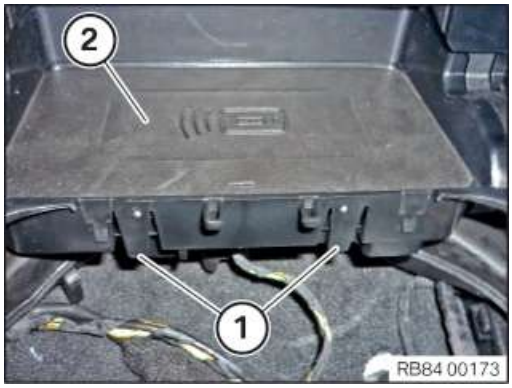
- Activate the 48V electrical system by closing the bonnet.

  The activation takes place automatically.

16 – Installing the wireless charging station



- Connect connectors (1) and lock.
- Position the wireless charging station (2) in the centre console (3).



- Push the wireless charging tray (2) down.

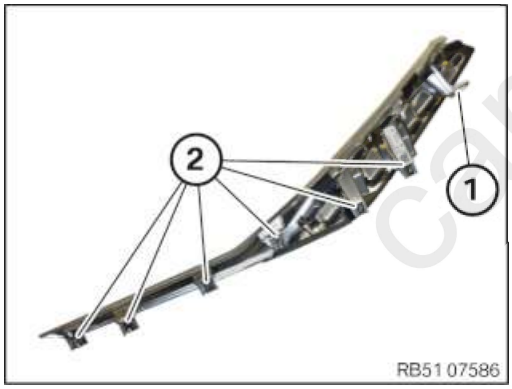
  The latch mechanisms (1) must engage correctly.

17 – Installing the decorative trim on the centre console on the left and right

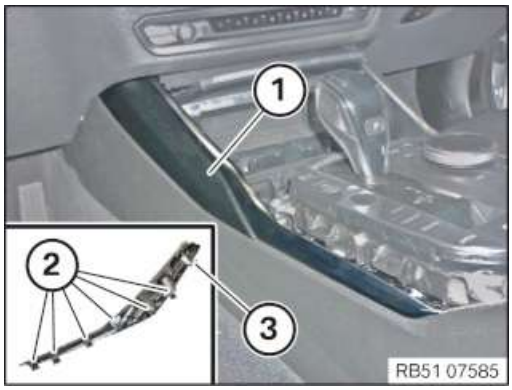
▸ **Installing the decorative trim on the centre console**

NOTICE

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



- Check the guide (1) and the latch mechanisms (2) for damage, renew the decorative trim if necessary.



- Feed in the decorative trim (1) forward in the guide (3).
- Engage decorative trim (1) in latch mechanisms (2).

18 – Installing the centre console trim

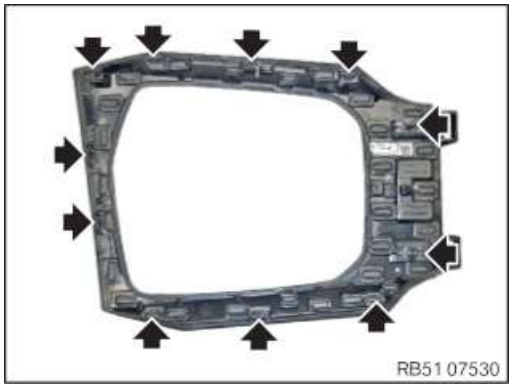
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RISK OF DAMAGE

Careless handling of tools and sharp-edged components.

Scratch, surface damage.

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

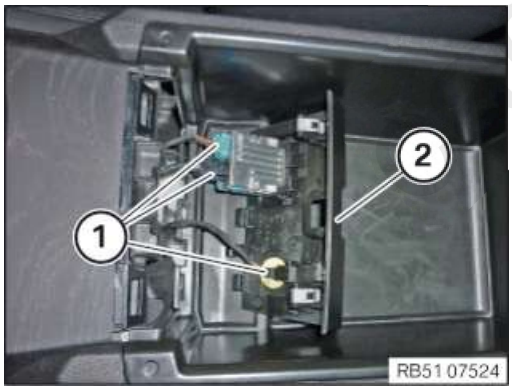


- Check all the latch mechanisms or clamps (arrows).
- In case the latch mechanisms or the clamps (arrows) are faulty, renew the centre console trim .

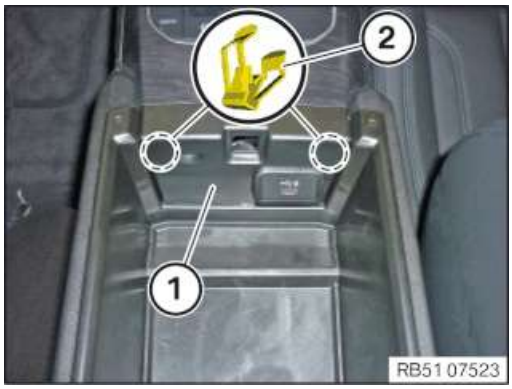


- Correctly position the centre console trim (1) and engage at the latch mechanisms.

19 – Installing the trim in the storage compartment of the centre armrest



- Mount the trim (2) and connect connector (1) and lock.



- Correctly position trim (1) and snap into the clamps (2).

20 – Install the cup holder

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- Fix the cup holder (2) and the belonging connectors.
- Correctly position the cup holder (2).
- Tighten the screws (1).

Cup holder to centre console

Oval-head screw		Tightening torque	1,8 Nm



- Insert the insert (1).

21 – Connecting all battery earth leads



- See additional information.

22 – 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.

23 – Initialising component protection

TECHNICAL INFORMATION

After renewal of the BDC or the head unit **or** after installation of a **used** head unit, the component protection must be reinitialised.

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- During **renewal** of BDC or the head unit , reinitialize the component protection with the diagnosis system as follows:
  - The BDC or the head unit under: Mark "Vehicle management / control unit replacement / after the exchange" as exchanged.
  - Determine the measures plan and execute.
  - Observe instructions without fail!
- When installing a **used head unit** , reinitialize as follows:
  - contact Technical Support
  - Then, reinitialize the component protection in **workshop system** via **immediate measure** "Initialisation of component protection of head unit (HU)" in the "Additional software" tab.
  - Observe instructions without fail!

Additional Information

Overview of Tightening Torques

Head unit to holder / holder to support — Used in step 12

Screw		Tightening torque	1,8 Nm

Storage compartment in centre console — Used in step 14

Oval-head screw		Tightening torque	1,8 Nm

Gear selector switch to centre console trim — Used in step 15

Screw		Tightening torque	1,8 Nm

Negative battery cable to 48-V battery — Used in step 1522

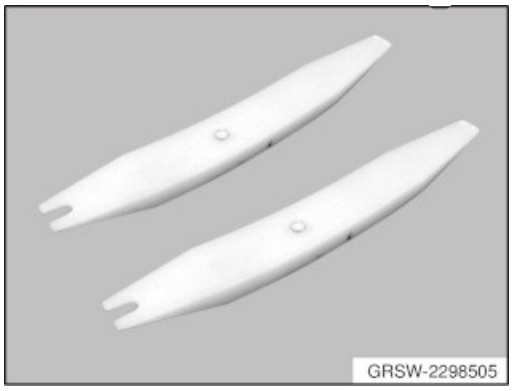
Nut M8		Tightening torque	19 Nm

Cup holder to centre console — Used in step 20

Oval-head screw		Tightening torque	1,8 Nm

Overview of Special Tools

2 298 505 Wedge

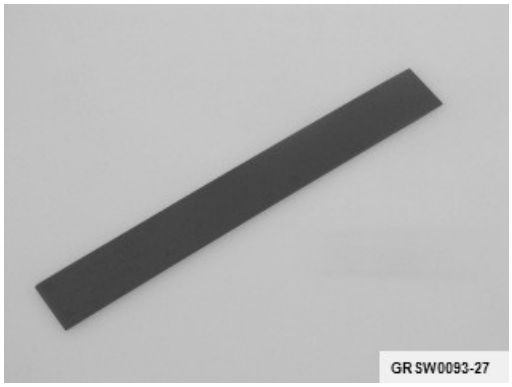


Common — Used in step 45

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

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0 496 571 (00 9 327) Wedge



Common	Used in step 10
Usage	(Cleaning wedge) From 11/2008 this special tool replaces panel wedge 00 9 323 (different material)
Included in the tool or work	0 490 527
Storage location	Individual
Replaced by	
In connection with	
SI-Number	01 07 09 (530)

Links

Repair instructions (PRE)	Used in step
Notes on 48-V battery	181522

Repair instructions	Used in step
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	281521
61 20 900 Disconnecting and connecting battery earth lead	281521
61 20 900 Disconnecting and connecting battery earth lead	281521
61 20 900 Disconnecting and connecting battery earth lead	281521
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61 20 900 Disconnecting and connecting battery earth lead	281521
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	281521
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	281521
61 20 900 Disconnecting and connecting battery earth lead	281521
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	281521
61 20 900 Disconnecting and connecting battery earth lead (Plug-in Hybrid Electric Vehicle)	281521
61 20 900 Disconnecting and connecting battery earth lead	281521
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61 20 900 Disconnecting and connecting battery earth lead	281521
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61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	281521
61 20 900 Disconnecting and connecting battery earth lead	281521
61 20 900 Disconnecting and connecting battery earth lead	281521
61 20 900 Disconnecting and connecting battery earth lead	281521
61 35 ... Notes on ESD protection (Electro Static Discharge)	1112
61 35 ... Notes on ESD protection (Electro Static Discharge)	1112

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65 12 120 Removing and installing booster

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.

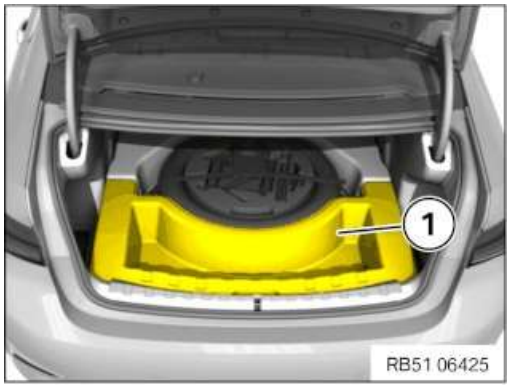
cardiag.com



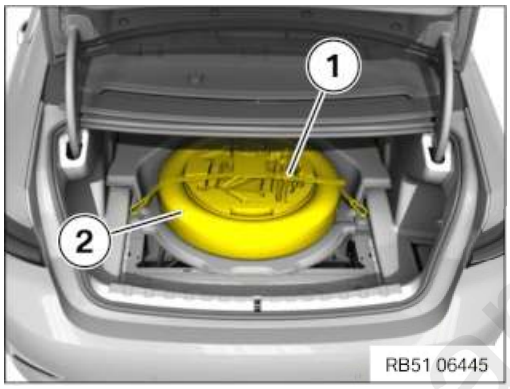
- Remove luggage compartment floor trim panel (1).

4 – If installed: Removing the compact spare wheel

▸ **Removing rear luggage compartment well**



- Remove rear luggage compartment well (1).

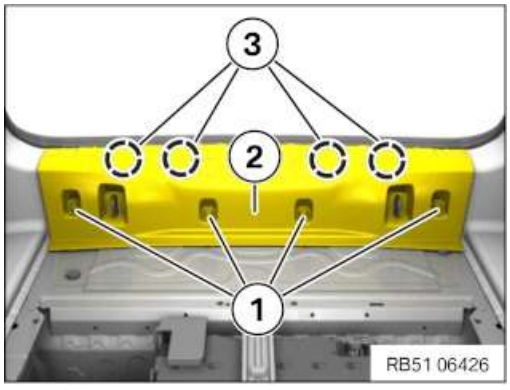


- Open buckle on seat belt strap (1) and set it aside.
- Remove emergency wheel (2) with the insert.

5 – Removing the loading edge trim

NOTICE

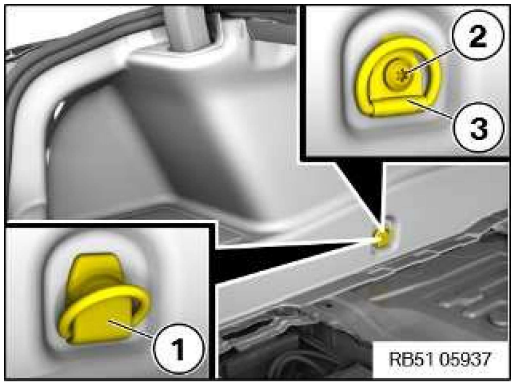
Schematic diagram is for example purposes. Some parts may differ in certain details.



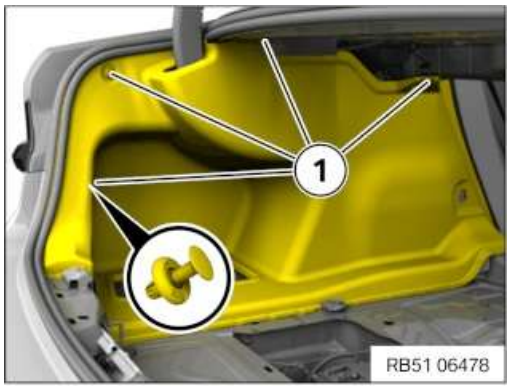
- Loosen the expanding rivet (1).
- Unclip loading edge trim(2) upwards from latch mechanisms (3).
- Guide out and remove loading edge trim (2) under the sealing lip of the tailgate seal.

6 – Remove luggage compartment wheel arch trim panel on left.

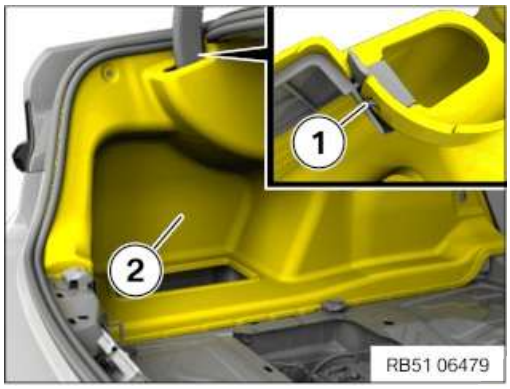
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- Remove the cover (1).
- Loosen screw (2).
- Remove lashing eye (3).

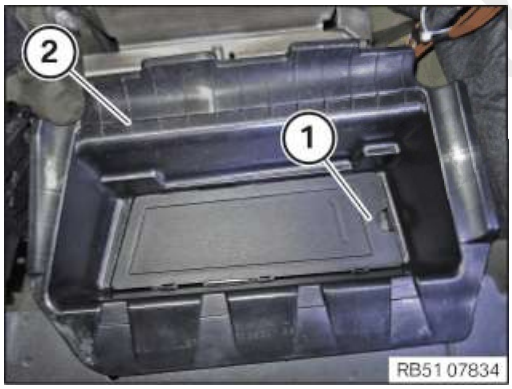


- Reposition left rear seat backrest.
- Loosen the expanding rivet (1).



- 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).

7 – Remove storage compartment in luggage compartment

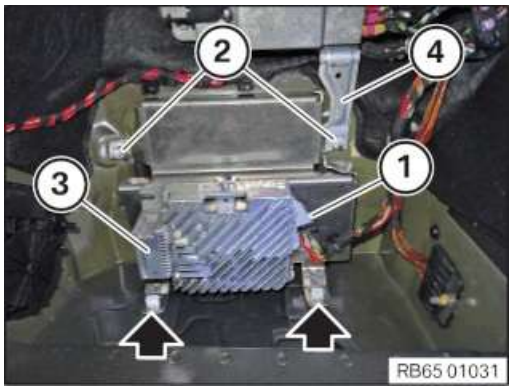


- Unclip cover (1) upwards out of the storage compartment (2) in the lugagge compartment and remove it.



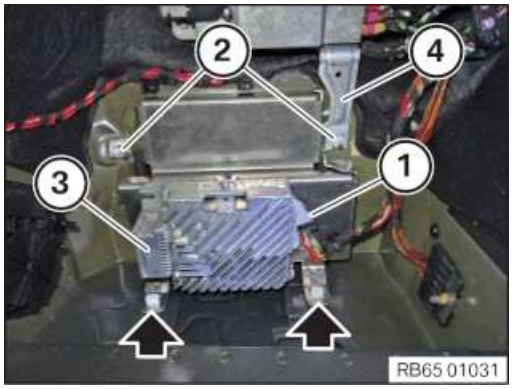
- Loosen nuts (1).
- Guide out the storage compartment (2) in the luggage compartment toward the top and remove it.

8 – Remove post amplifier



- Unlock plug connection (1) and disconnect.
- Loosen nuts (2).
- Disengage the post amplifier in an upward direction (3) on the locking units (arrow).
- Pull holder (4) back a little.
- Guide the post amplifier (3) out with the holder and remove it.

9 – Installing the post amplifier



- Pull back the holder (4) slightly.
- Feed in the post amplifier (3) with the holder and position it.
- Engage the post amplifier (3) from the top at the latch mechanisms (arrows).
- Correctly position the holder (4).
- Tighten nuts (2).

Bracket to body

Nut		Tightening torque	6 Nm
Screw		Tightening torque	6 Nm

- Connect connectors (1) and lock.

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POSTPROCESSES

10 – Installing the storage compartment in the luggage compartment



- Insert and install the storage compartment frame (2) in the luggage compartment.
- Tighten nuts (1).

Storage compartment/fixture on body

Nut		Tightening torque	2.5 Nm



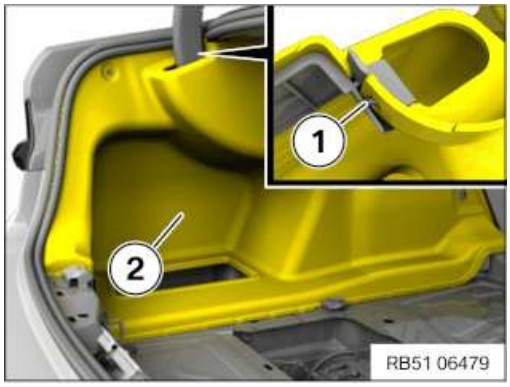
- Install cover (1) from the top in the storage compartment (2) in the luggage compartment and clip it in.

11 – Install luggage compartment wheel arch trim panel at left

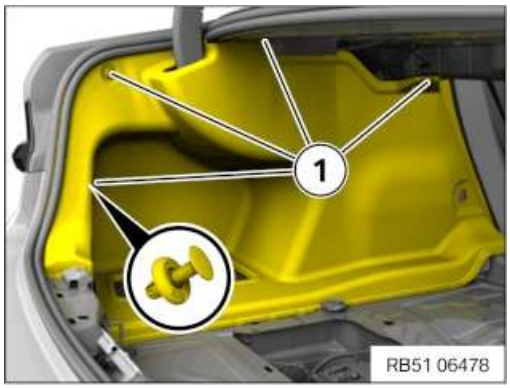
11 – Install luggage compartment wheel arch trim panel at left

NOTICE

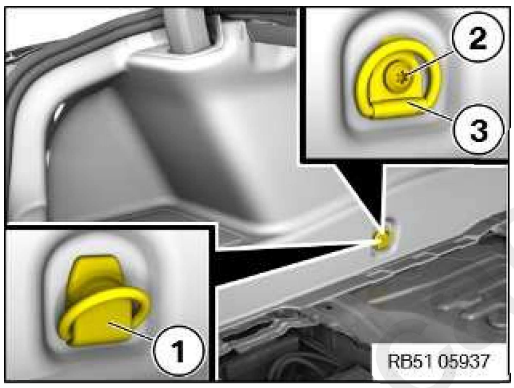
Schematic diagram is for example purposes. Some parts may differ in certain details.



- 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

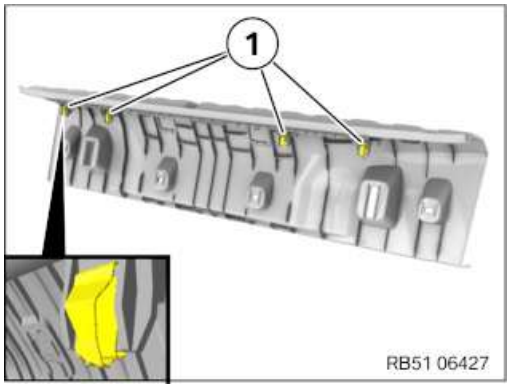
	Tightening torque	19 Nm

- Install the cover (1) .

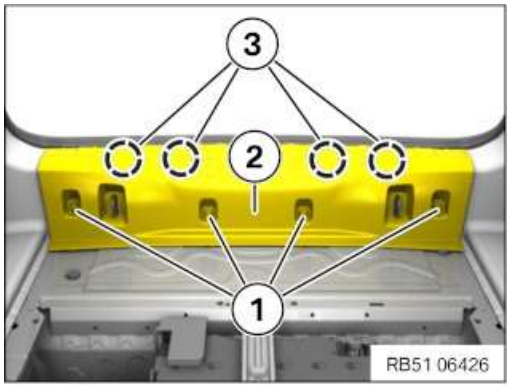
12 – Installing loading edge trim

NOTICE

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

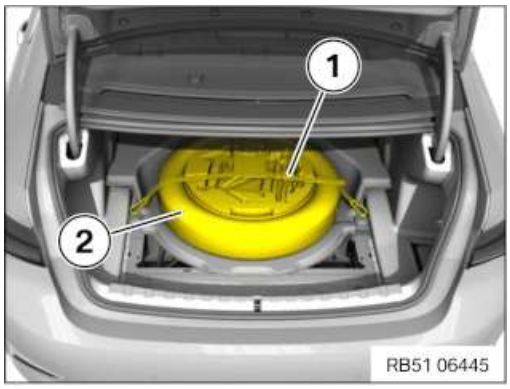


- Check the clamps (1) for damage and renew if necessary.



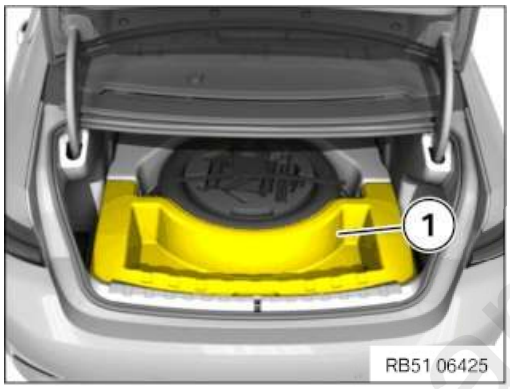
- Insert the loading edge trim (2) under the sealing lip of the tailgate seal.
- Fit the trim of the loading edge (2) at the latch mechanisms (3) and clip it in to the bottom.
- Secure expanding rivet (1).

13 – 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).

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).

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15 – Connecting all battery earth leads



- See additional information.

16 – 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 9
Nut		Tightening torque	6 Nm
Screw		Tightening torque	6 Nm

Storage compartment/fixture on body			Used in step 10
Nut		Tightening torque	2.5 Nm

Lashing eye to body			Used in step 11
		Tightening torque	19 Nm

Negative battery cable to 48-V battery			Used in step 16
Nut M8		Tightening torque	19 Nm

Overview of Special Tools

Links

Repair instructions (PRE)	**Used in step**
Notes on 48-V battery	116

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)	215
61 20 900 Disconnecting and connecting battery earth lead	215
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61 20 900 Disconnecting and connecting battery earth lead 215
61 20 900 Disconnecting and connecting battery earth lead 215
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61 20 900 Disconnecting and connecting battery earth lead (Plug-in Hybrid Electric Vehicle) 215
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61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads) 215
61 20 900 Disconnecting and connecting battery earth lead 215
61 20 900 Disconnecting and connecting battery earth lead 215
61 20 900 Disconnecting and connecting battery earth lead 215
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65 12 400 Removing and installing receiver audio module

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.

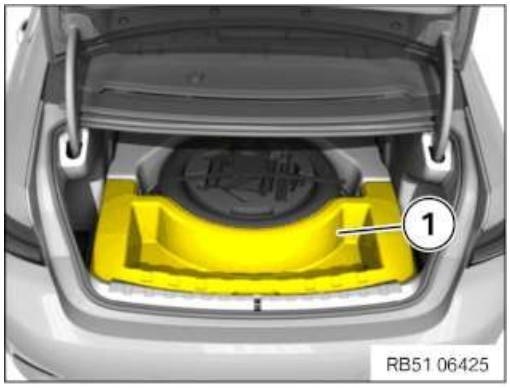
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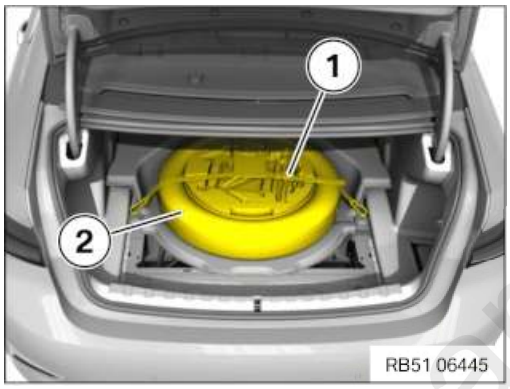
- Remove luggage compartment floor trim panel (1).

4 – If installed: Removing the compact spare wheel

▸ **Removing rear luggage compartment well**



- Remove rear luggage compartment well (1).

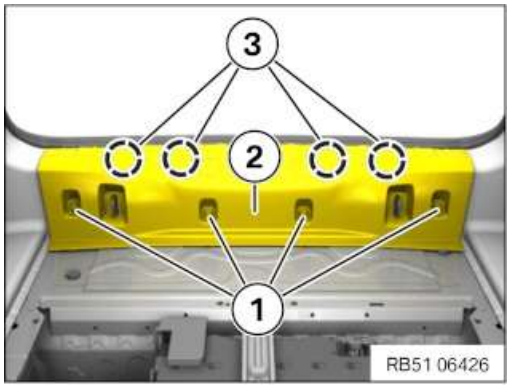


- Open buckle on seat belt strap (1) and set it aside.
- Remove emergency wheel (2) with the insert.

5 – Removing the loading edge trim

NOTICE

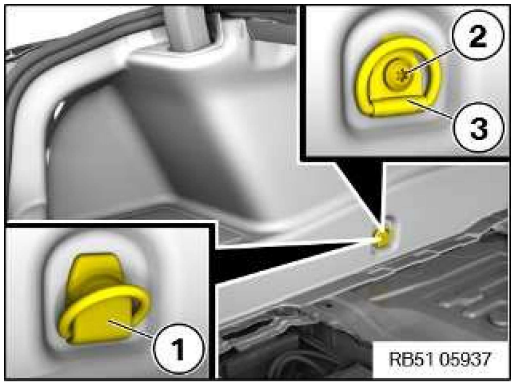
Schematic diagram is for example purposes. Some parts may differ in certain details.



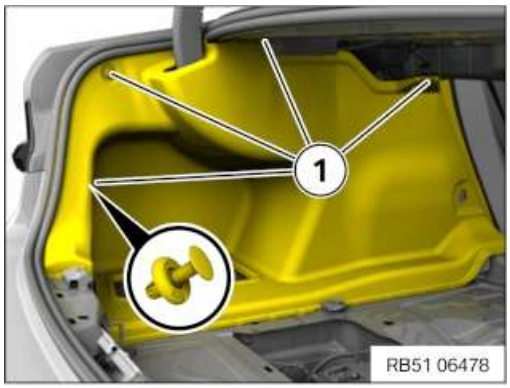
- Loosen the expanding rivet (1).
- Unclip loading edge trim(2) upwards from latch mechanisms (3).
- Guide out and remove loading edge trim (2) under the sealing lip of the tailgate seal.

6 – Remove luggage compartment wheel arch trim panel on left.

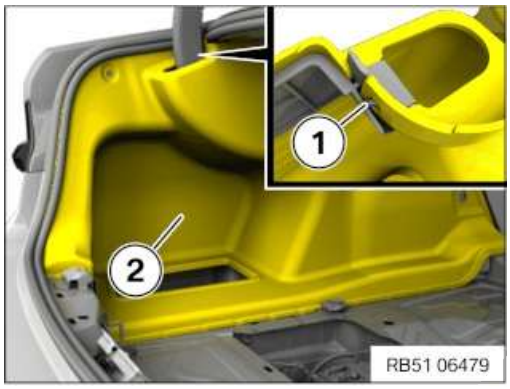
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- Remove the cover (1).
- Loosen screw (2).
- Remove lashing eye (3).



- Reposition left rear seat backrest.
- Loosen the expanding rivet (1).

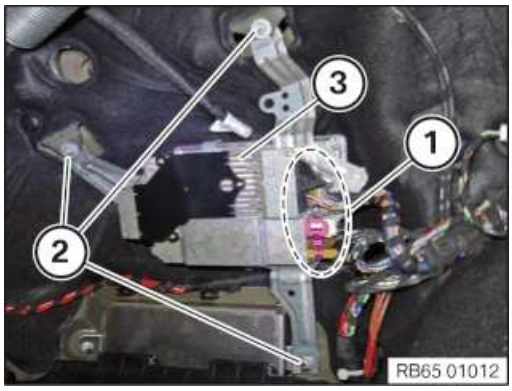


- Press the tab for luggage compartment wheel arch trim panel (2) on the outer side of the hinge to the front using the stop on trim (1).
- Guide out luggage compartment wheel arch trim panel (2) under the sealing lip for the tailgate and the side trim panel in the rear passenger compartment.
- Remove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

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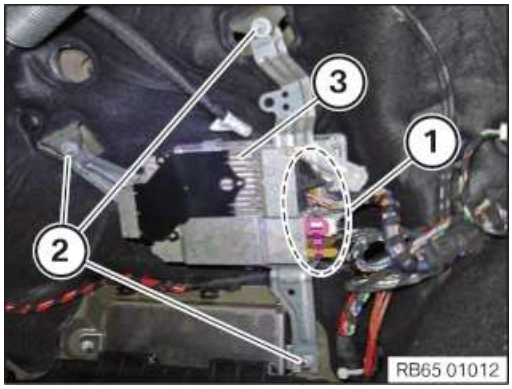
MAIN WORK

7 – Remove the receiver audio module (RAM)



- Unlock and disconnect all the plug connections in area (1).
- Loosen nuts (2).
- Guide out the receiver audio module (RAM) (3) with the holder and remove it.

8 – Install Receiver audio module (RAM)



- Feed in Receiver audio module (RAM) (3) with the holder and install.
- Tighten nuts (2).

Bracket to body

Nut		Tightening torque	6 Nm
Screw		Tightening torque	6 Nm

- Connect and lock all connectors in area (1).

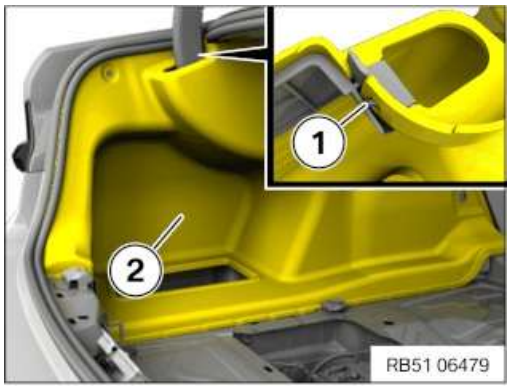
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POSTPROCESSES

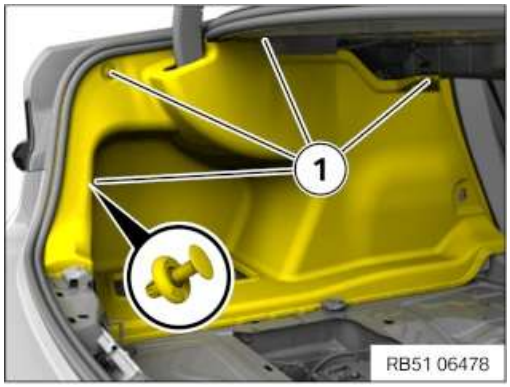
9 – Install luggage compartment wheel arch trim panel at left

NOTICE

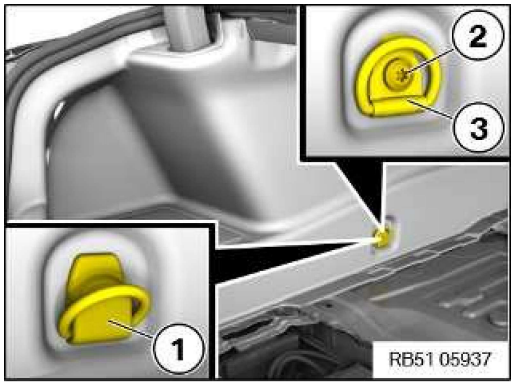
Schematic diagram is for example purposes. Some parts may differ in certain details.



- 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).



- Secure expanding rivet (1).
- Raise the link rear seat backrest.



- Position the lashing eye (3).
- Tighten down screw (2).

Lashing eye to body

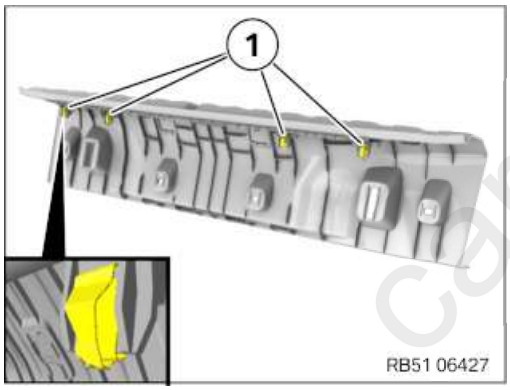
	Tightening torque	19 Nm

- Install the cover (1) .

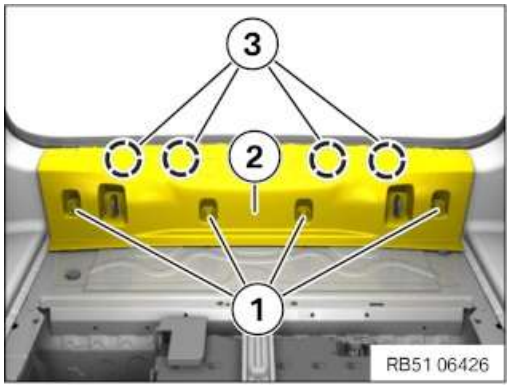
10 – Installing loading edge trim

NOTICE

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



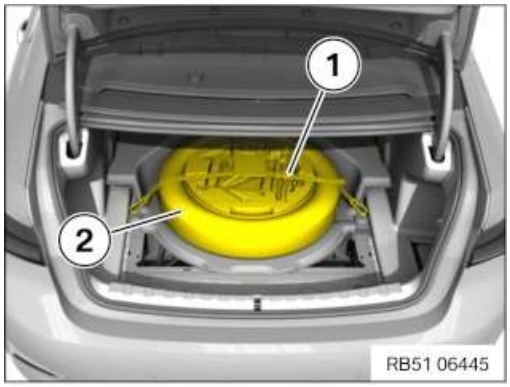
- Check the clamps (1) for damage and renew if necessary.



- 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).

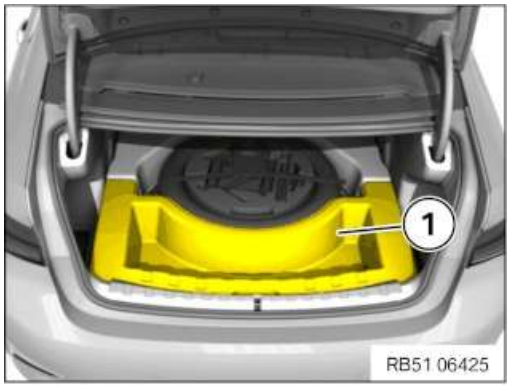
11 – If installed: Install the emergency wheel

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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**



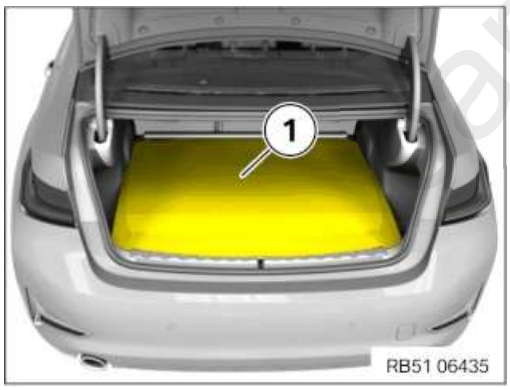
- Install rear luggage compartment well (1).

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

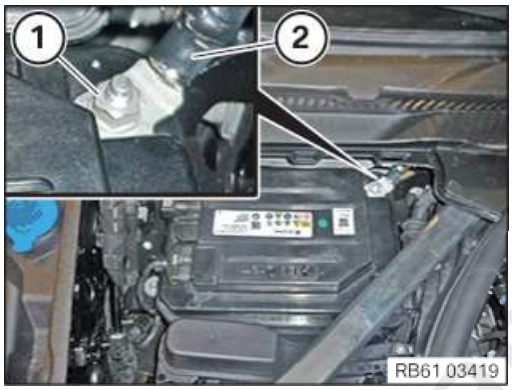
Damage to 48-V battery

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
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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
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61 20 900 Disconnecting and connecting battery earth lead 213

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65 12 621 Replacing booster

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.

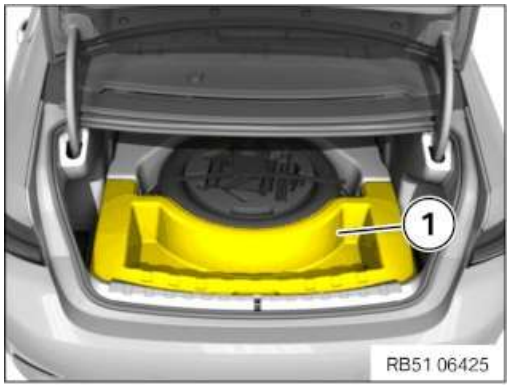
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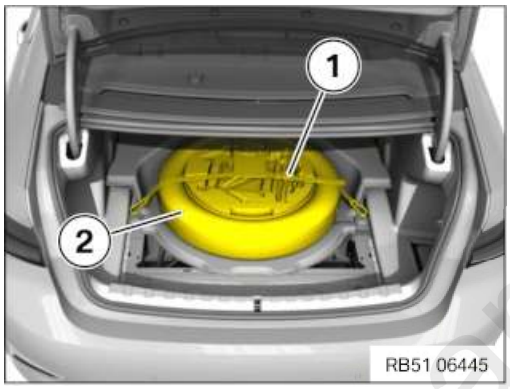
- Remove luggage compartment floor trim panel (1).

4 – If installed: Removing the compact spare wheel

▸ **Removing rear luggage compartment well**



- Remove rear luggage compartment well (1).

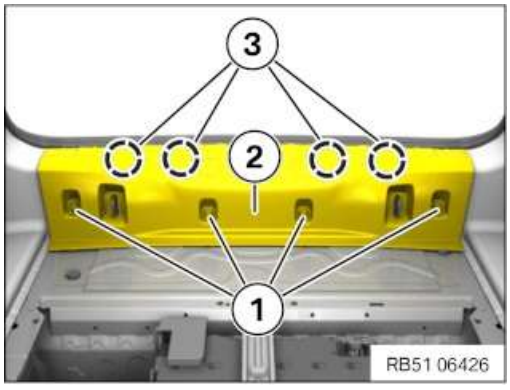


- Open buckle on seat belt strap (1) and set it aside.
- Remove emergency wheel (2) with the insert.

5 – Removing the loading edge trim

NOTICE

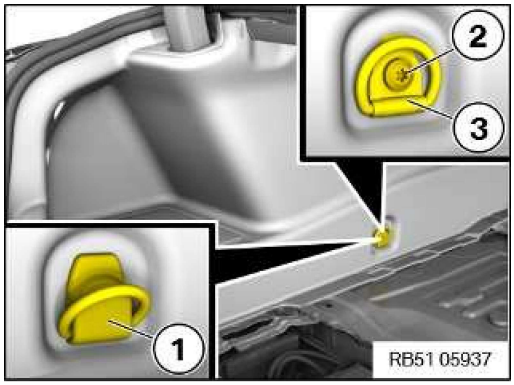
Schematic diagram is for example purposes. Some parts may differ in certain details.



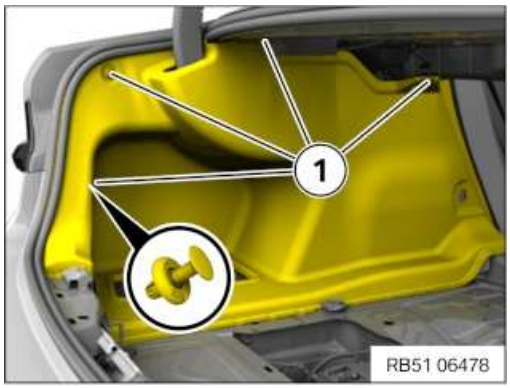
- Loosen the expanding rivet (1).
- Unclip loading edge trim(2) upwards from latch mechanisms (3).
- Guide out and remove loading edge trim (2) under the sealing lip of the tailgate seal.

6 – Remove luggage compartment wheel arch trim panel on left.

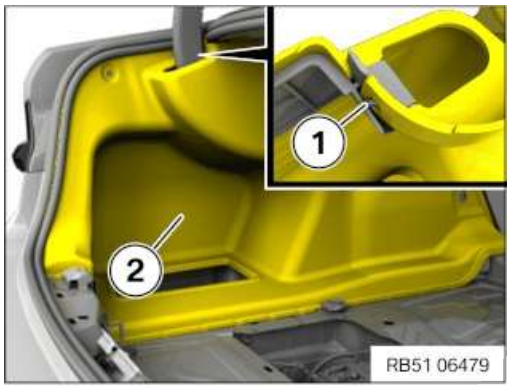
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- Remove the cover (1).
- Loosen screw (2).
- Remove lashing eye (3).

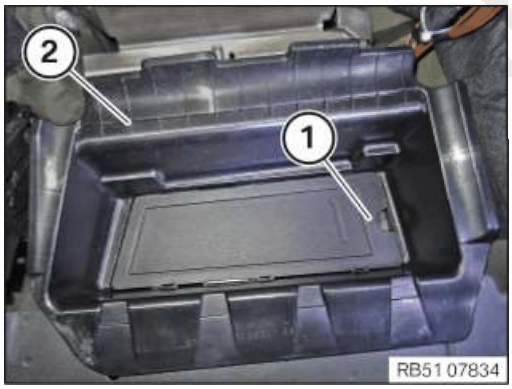


- Reposition left rear seat backrest.
- Loosen the expanding rivet (1).



- 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).

7 – Remove storage compartment in luggage compartment

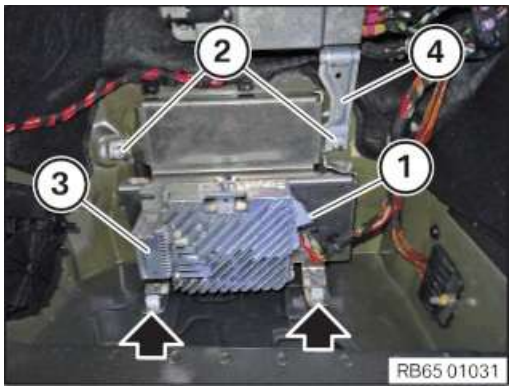


- Unclip cover (1) upwards out of the storage compartment (2) in the lugagge compartment and remove it.



- Loosen nuts (1).
- Guide out the storage compartment (2) in the luggage compartment toward the top and remove it.

8 – Remove post amplifier

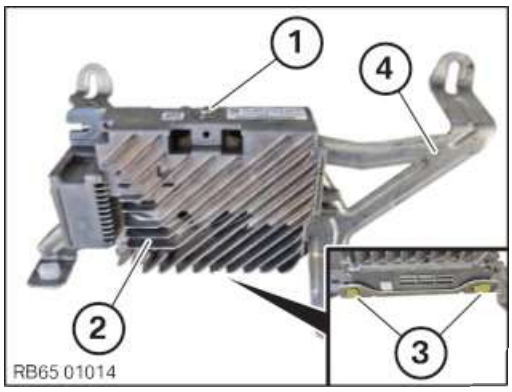


- Unlock plug connection (1) and disconnect.
- Loosen nuts (2).
- Disengage the post amplifier in an upward direction (3) on the locking units (arrow).
- Pull holder (4) back a little.
- Guide the post amplifier (3) out with the holder and remove it.

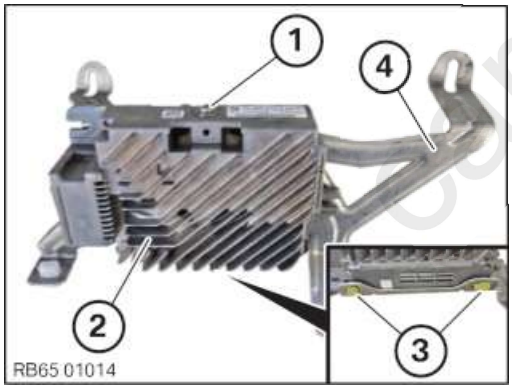
9 – Replacing the post amplifier

NOTICE

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



- Loosen screw (1).
- Feed out the post amplifier (2) with the guides (3) at the bottom of the holder (4) .
- Remove post amplifier (2).



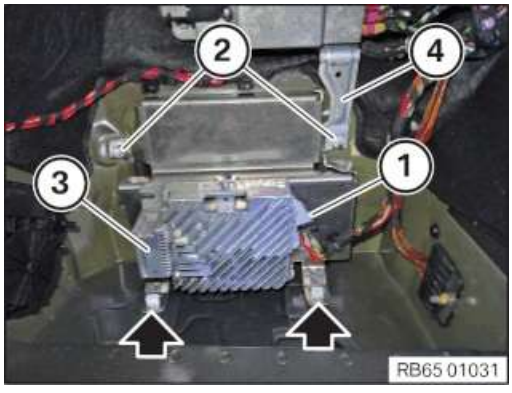
- Renew the post amplifier (2).

  Parts: Post amplifier
- Feed in the post amplifier (2) with the guides (3) at the bottom of the holder (4) and position it correctly.
- Tighten down screw (1).

Post-amplifier to holder

Screw		Tightening torque	3,3 Nm

10 – Installing the post amplifier



- Pull back the holder (4) slightly.
- Feed in the post amplifier (3) with the holder and position it.
- Engage the post amplifier (3) from the top at the latch mechanisms (arrows).
- Correctly position the holder (4).
- Tighten nuts (2).

Bracket to body

Nut		Tightening torque	6 Nm
Screw		Tightening torque	6 Nm

- Connect connectors (1) and lock.

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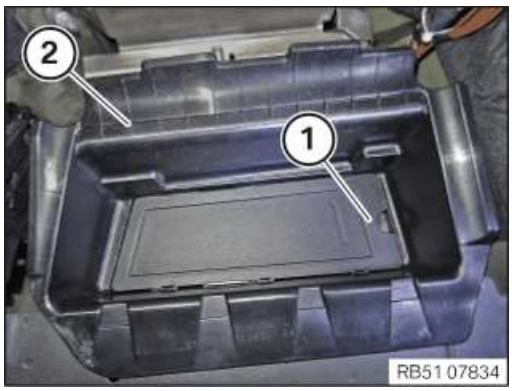
11 – Installing the storage compartment in the luggage compartment



- Insert and install the storage compartment frame (2) in the luggage compartment.
- Tighten nuts (1).

Storage compartment/fixture on body

Nut		Tightening torque	2.5 Nm

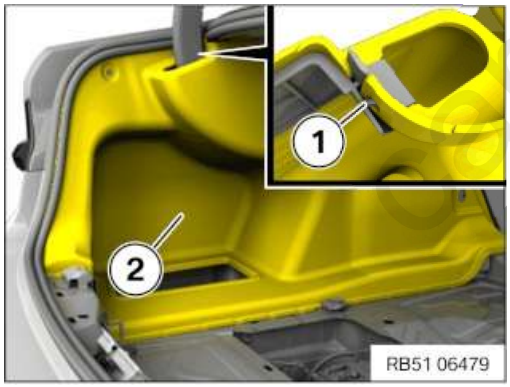


- Install cover (1) from the top in the storage compartment (2) in the luggage compartment and clip it in.

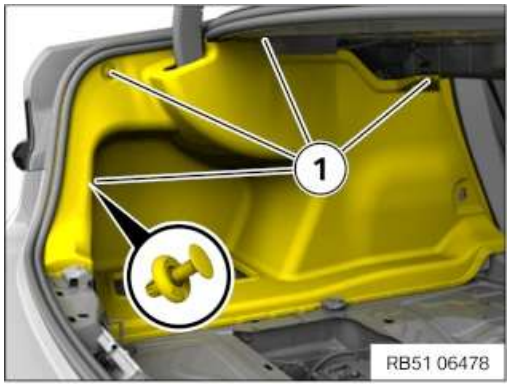
12 – Install luggage compartment wheel arch trim panel at left

NOTICE

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

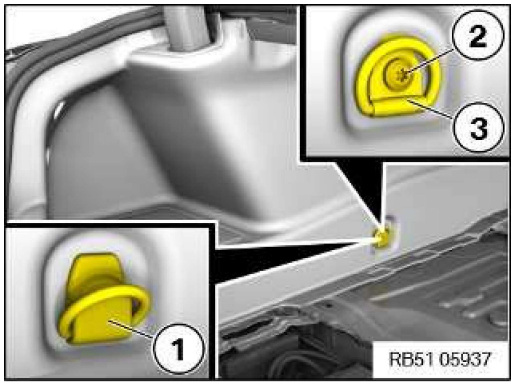


- Feed luggage compartment wheel arch trim panel (2) under the side trim panel in the rear passenger compartment and the sealing lip for the tailgate.
- Feed the tab of the luggage compartment wheel arch trim panel (2) on the outer side of the hinge into the stop on the trim (1).



- Secure expanding rivet (1).
- Raise the link rear seat backrest.

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- Position the lashing eye (3).
- Tighten down screw (2).

Lashing eye to body

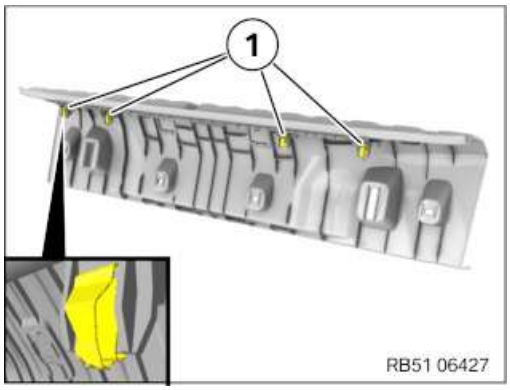
	Tightening torque	19 Nm

- Install the cover (1) .

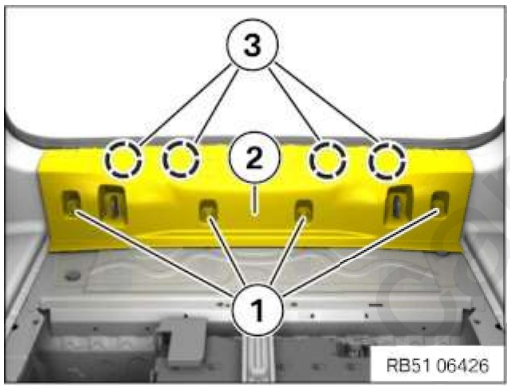
13 – Installing loading edge trim

NOTICE

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

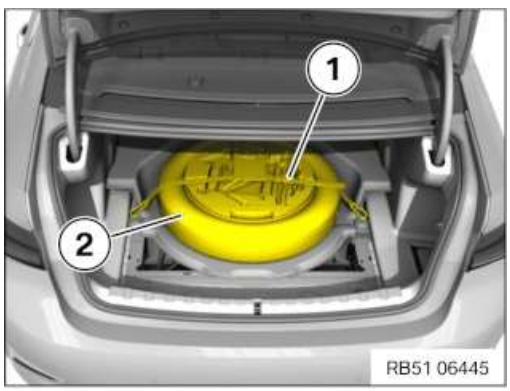


- Check the clamps (1) for damage and renew if necessary.



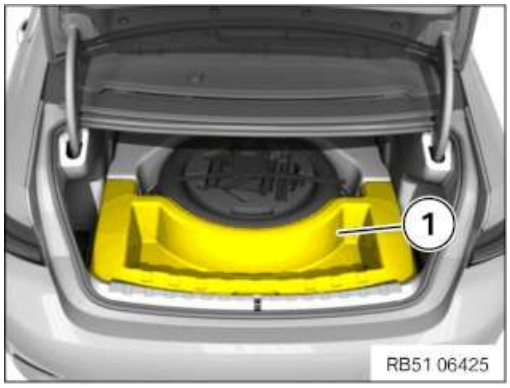
- Insert the loading edge trim (2) under the sealing lip of the tailgate seal.
- Fit the trim of the loading edge (2) at the latch mechanisms (3) and clip it in to the bottom.
- Secure expanding rivet (1).

14 – 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).

15 – 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).

16 – Connecting all battery earth leads



- See additional information.

17 – 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.

Additional Information

Overview of Tightening Torques

Post-amplifier to holder Used in step 9

Screw		Tightening torque	3,3 Nm

Bracket to body Used in step 10

Nut		Tightening torque	6 Nm
Screw		Tightening torque	6 Nm

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Storage compartment/fixture on body			Used in step 11
Nut		Tightening torque	2.5 Nm

Lashing eye to body			Used in step 12
		Tightening torque	19 Nm

Negative battery cable to 48-V battery			Used in step 17
Nut M8		Tightening torque	19 Nm

Overview of Special Tools

Links

Repair instructions (PRE)	Used in step
Notes on 48-V battery	117

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)	216
61 20 900 Disconnecting and connecting battery earth lead	216
61 20 900 Disconnecting and connecting battery earth lead	216
61 20 900 Disconnecting and connecting battery earth lead	216
61 20 900 Disconnecting and connecting battery earth lead	216
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61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	216
61 20 900 Disconnecting and connecting battery earth lead	216
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	216
61 20 900 Disconnecting and connecting battery earth lead (Plug-in Hybrid Electric Vehicle)	216
61 20 900 Disconnecting and connecting battery earth lead	216

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61 20 900 Disconnecting and connecting battery earth lead	216
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61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	216
61 20 900 Disconnecting and connecting battery earth lead	216
61 20 900 Disconnecting and connecting battery earth lead	216
61 20 900 Disconnecting and connecting battery earth lead	216

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65 12 816 Replacing head unit high

RISK OF DAMAGE

Damage to the head unit.

The hard disk of the head unit can be damaged by vibration.

- Carry out mechanical work on the head unit and adjacent components with care.

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.

TECHNICAL INFORMATION

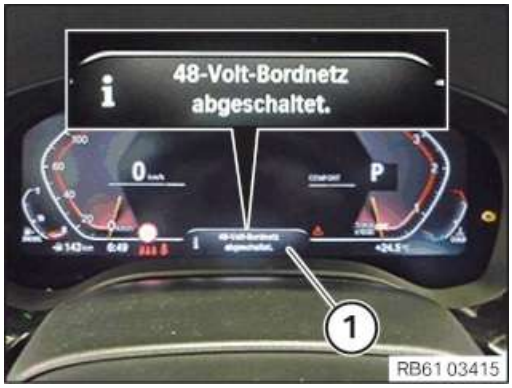
Follow notes for 48-V battery. See further information 6120 ... Notes on 48-V battery.

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

  The deactivation takes place automatically.



Check

TECHNICAL INFORMATION

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

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

desired state

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

Result

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

Measure

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

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

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

Result

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

Measure

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

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

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



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



WARNING

Unprotected battery terminals.

Risk of short circuits! Risk of fire!

- Cover the vehicle battery.

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

2 – Disconnecting all battery earth leads



- See additional information.

3 – Remove cupholder

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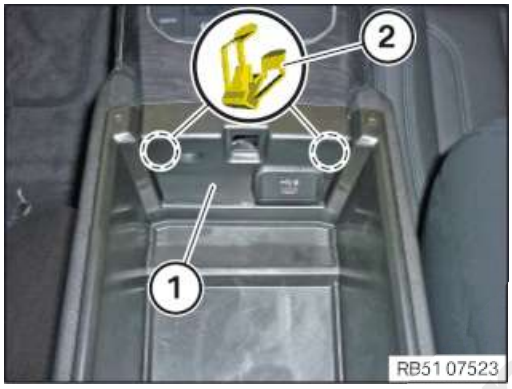


- Remove the insert (1).

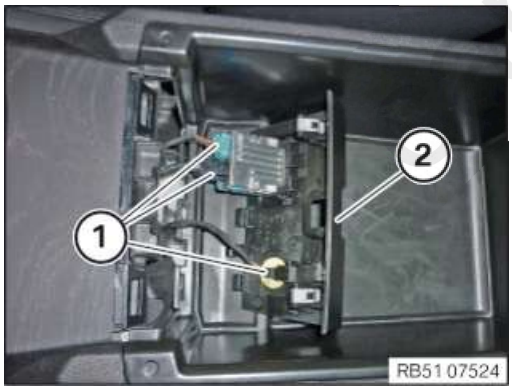


- Loosen screws (1).
- Feed the cup holder (2) out to the top.
- Unlock associated plug connections and disconnect.

4 – Removing the trim in the storage compartment on the centre armrest



- Lever out the trim (1) with the special tool (2) toward the rear from the clamps 2 298 505.



- Unlock and disconnect the plug connections (1) and remove the trim (2) .

5 – Remove the centre console trim

RISK OF DAMAGE

Careless handling of tools and sharp-edged components.

Scratch, surface damage.

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



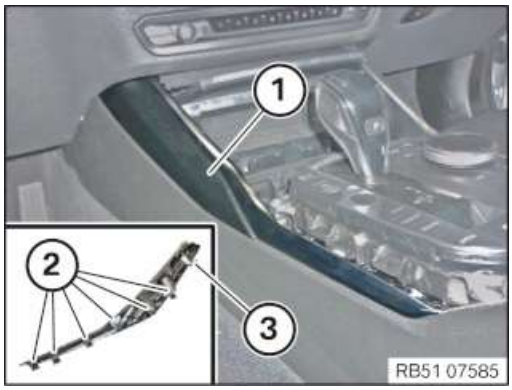
- Release and remove the centre console trim upwards (1) as shown using the special tool 2 298 505 from the latch mechanisms.

6 – Removing the decorative trim on the centre console on the left and right

▸ Remove the decorative trim from the centre console

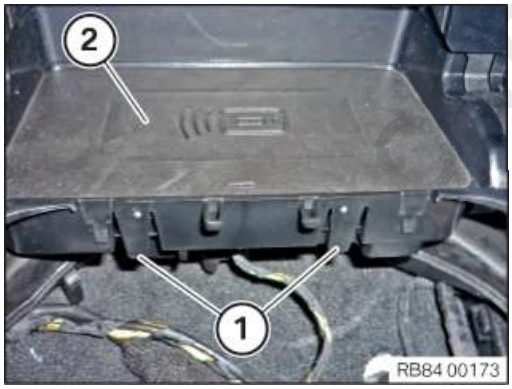
NOTICE

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

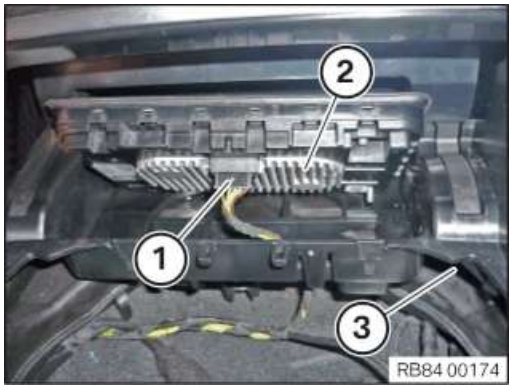


- Lever out the rear decorative trim (1) from the latch mechanisms (2) starting from the top.
- Feed out the decorative trim (1) backwards out of the guide (3) and remove.

7 – Removing the wireless charging station



- Loosen the latch mechanisms (1) and push out the wireless charging station (2) upwards.



- Unlock and disconnect the plug connection (1) and remove the wireless charging tray (2) from the centre console (3).

8 – Remove the operating facility in the centre console

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▸ **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

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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.



WARNING

Unprotected battery terminals.

Risk of short circuits! Risk of fire!

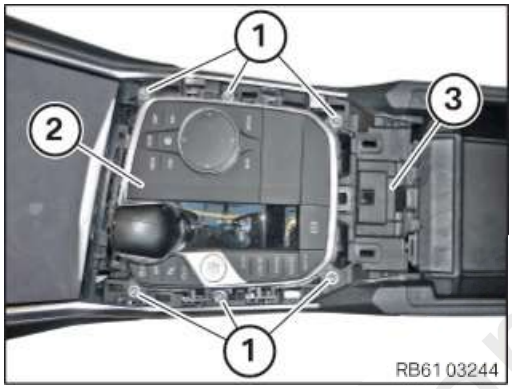
- Cover the vehicle battery.

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

▶ **Disconnecting all battery earth leads**

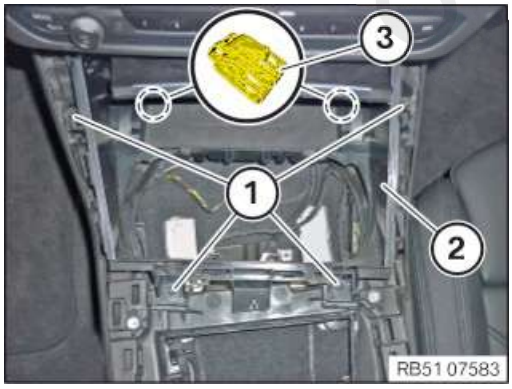


- See additional information.



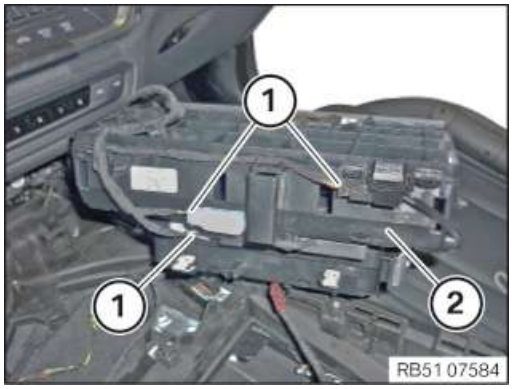
- Loosen screws (1).
- Remove the operating facility in the centre console (2) from the centre console (3).

9 – Removing the storage compartment in the front centre console



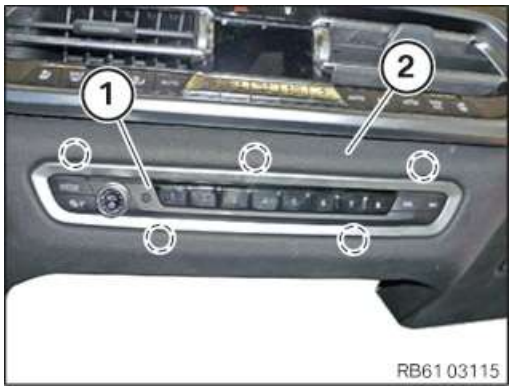
- Loosen screws (1).
- Pull the storage compartment in front centre console (2) backwards from the clamps (3).

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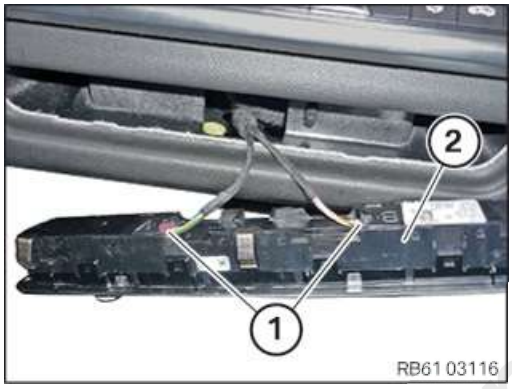


- Unlock and disconnect the plug connections (1) and remove the storage compartment in centre console (2).

10 – Remove the audio operating unit



- Unclip the audio operating unit (1) from the instrument panel (2) at the points marked using special tool 0 496 571 (00 9 327).



- Disconnect plug connections (1) and remove the audio operating unit (2).

MAIN WORK

11 – Remove Head Unit High (HU-H)

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)

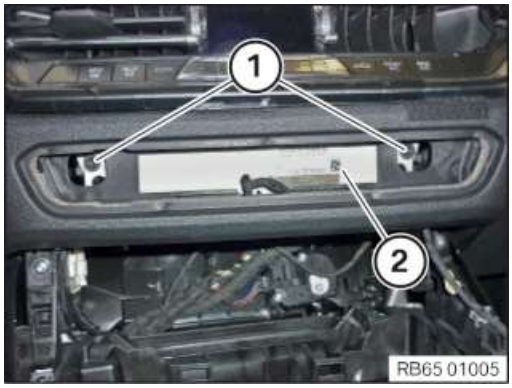
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RISK OF DAMAGE

Damage to the head unit.

The hard disk of the head unit can be damaged by vibration.

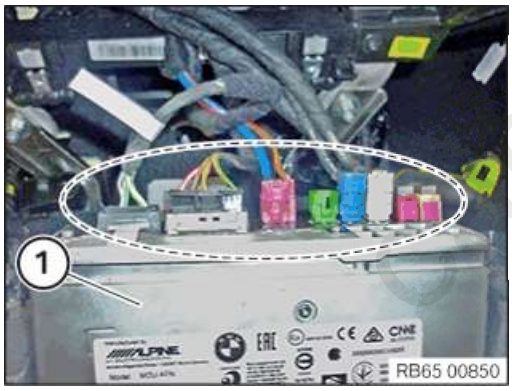
- Carry out mechanical work on the head unit and adjacent components with care.



- Release screws (1) on the head unit (2).
- Slightly pull head unit (2) to the rear and tilt downwards.



- Feed out the head unit (1) through the marks as illustrated, until the connectors behind are accessible.



- Unlock and disconnect all the plug connections in the marked area in the correct order.
- Remove headunit (1).

12 – replace head unit



- Thread out the head unit (1) from the holder (2) forward and remove.



- Thread in the head unit (1) backwards into the holder (2) and position it.

13 – Install the Head Unit High (HU-H)

RISK OF DAMAGE

Electrostatic discharge.

Damage to or destruction of electrical components.

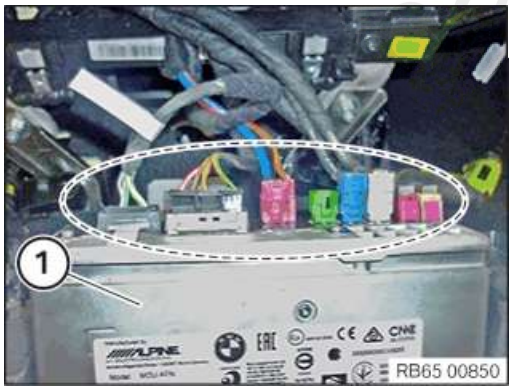
- Leave electrical components in original packaging until just before they are installed. Use the original packaging only for any return shipments. Always package removed components straight away.
- Read and comply with user information on using the associated special tool 12 7 060.
- Only touch the 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)

RISK OF DAMAGE

Damage to the head unit.

The hard disk of the head unit can be damaged by vibration.

- Carry out mechanical work on the head unit and adjacent components with care.

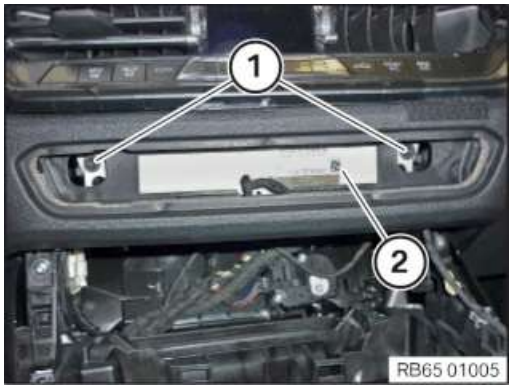


- Position head unit (1).
- Connect and lock all connectors in the marked area in a correct assembly sequence.



- Feed in the head unit (1) through the marked areas upwards.

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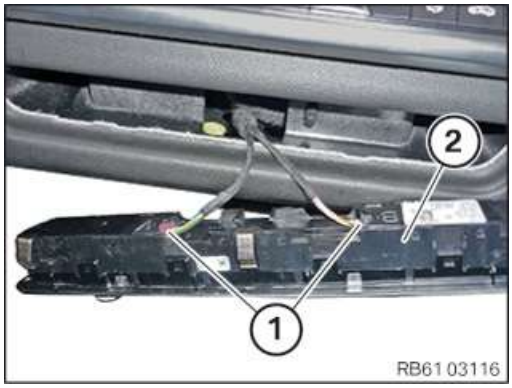
- Slide head unit (2) slightly forward and position it correctly.
- Tighten screws (1) on the head unit (2).

Head unit to holder / holder to support

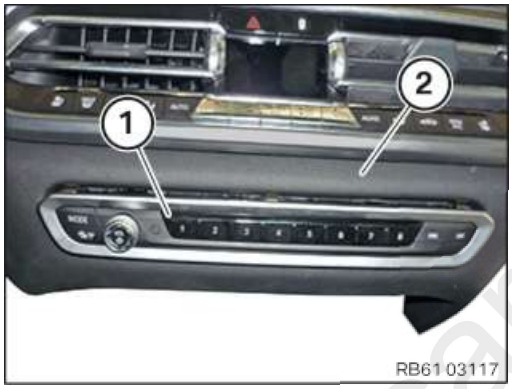
Screw		Tightening torque	1,8 Nm

POSTPROCESSES

14 – Install the audio operating unit

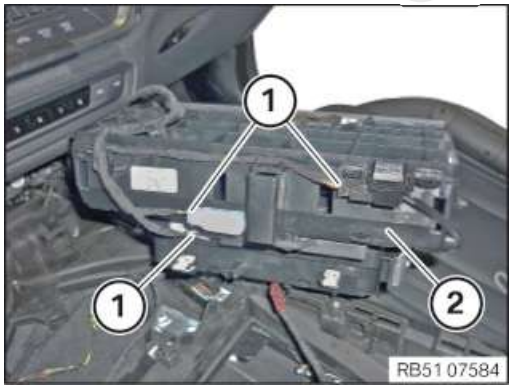


- Connect the connector (1) to the audio operating unit (2).



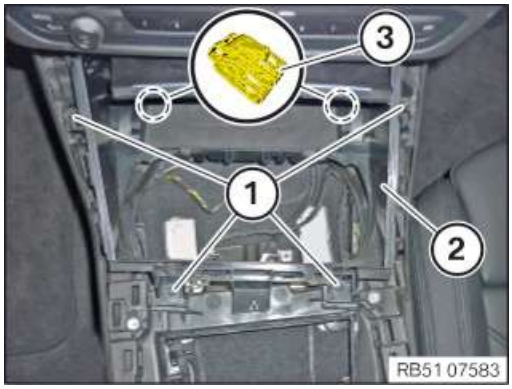
- Correctly position the audio operating unit (1) and install in the instrument panel(2).

15 – Installing the storage compartment in the centre console in the front



- Mount the storage compartment in the centre console in the front (2) and connect and lock connectors (1).

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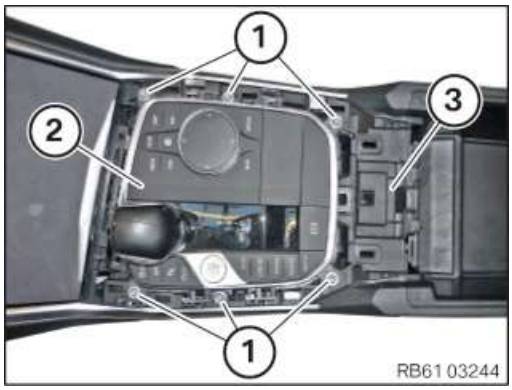


- Engage the storage compartment in the centre console in the front (2) into clamps (3) in the rear.
- Tighten the screws (1).

Storage compartment in centre console

Oval-head screw		Tightening torque	1,8 Nm

16 – Install the operating facility in the centre console



- Position the operating facility (2) in the centre console (3).
- Tighten the screws (1).

Gear selector switch to centre console trim

Screw		Tightening torque	1,8 Nm

▸ **Connecting all battery earth leads**



- See additional information.

▸ **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



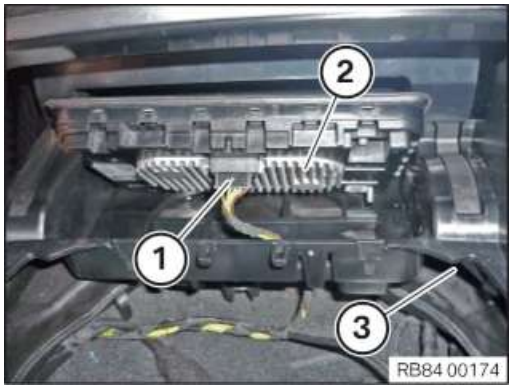
- Connect the connector (1) of the CAN bus and lock it.
- Clip in clip (2).



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

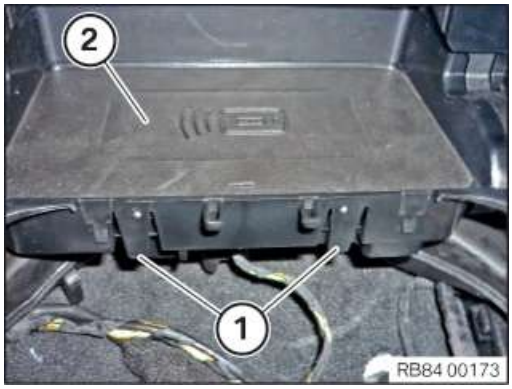
  The activation takes place automatically.

17 – Installing the wireless charging station



- Connect connectors (1) and lock.
- Position the wireless charging station (2) in the centre console (3).

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- Push the wireless charging tray (2) down.

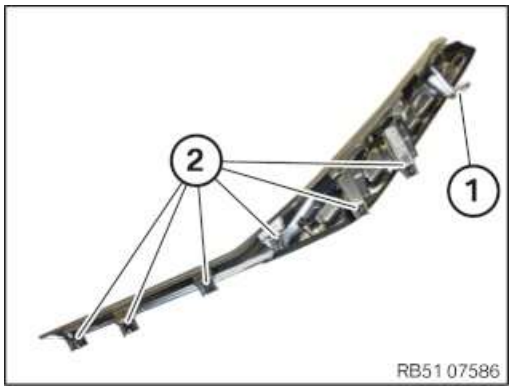
  The latch mechanisms (1) must engage correctly.

18 – Installing the decorative trim on the centre console on the left and right

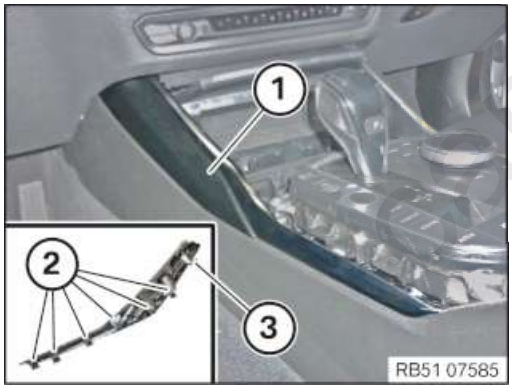
▸ **Installing the decorative trim on the centre console**

NOTICE

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



- Check the guide (1) and the latch mechanisms (2) for damage, renew the decorative trim if necessary.



- Feed in the decorative trim (1) forward in the guide (3).
- Engage decorative trim (1) in latch mechanisms (2).

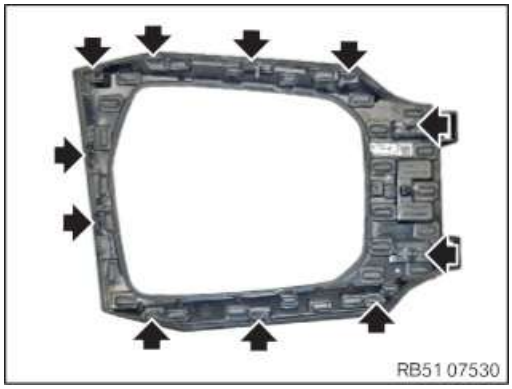
19 – Installing the centre console trim

RISK OF DAMAGE

Careless handling of tools and sharp-edged components.

Scratch, surface damage.

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

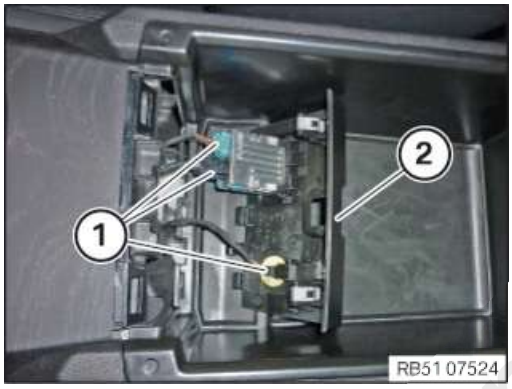


- Check all the latch mechanisms or clamps (arrows).
- In case the latch mechanisms or the clamps (arrows) are faulty, renew the centre console trim .

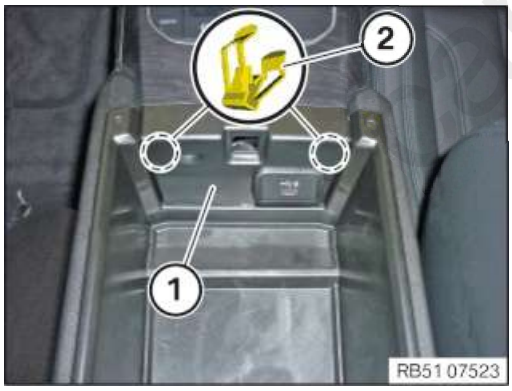


- Correctly position the centre console trim (1) and engage at the latch mechanisms.

20 – Installing the trim in the storage compartment of the centre armrest



- Mount the trim (2) and connect connector (1) and lock.



- Correctly position trim (1) and snap into the clamps (2).

21 – Install the cup holder



- Fix the cup holder (2) and the belonging connectors.
- Correctly position the cup holder (2).
- Tighten the screws (1).

Cup holder to centre console

Oval-head screw		Tightening torque	1,8 Nm

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- Insert the insert (1).

22 – Connecting all battery earth leads



- See additional information.

23 – Activating the 48 V electrical system

Prerequisite

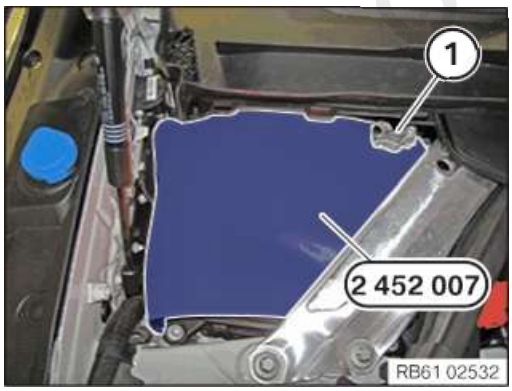
Ignition is switched off.

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.



- 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.

24 – 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.

25 – Installing the correct navigation map

TECHNICAL INFORMATION

Install the correct navigation map depending on the validity of the customer subscription after having replaced the head unit.

- *Different cases:*

  Customer subscription is **still valid**:

  - Install the most recent navigation map.

  Customer subscription has **expired**:

  - Check when the customer subscription expired*.
  - Install the navigation map applicable on the expiry date.

  Customer subscription **has expired**. **After the expiry** of his/her subscription, the customer **purchased a newer version of the navigation map** ("One Time Update"):

  - Check which navigation map was installed most recently*.
  - Install this navigation map.

  The information required to determine the term of the customer subscription can be found in document "6512 Determining the term of the customer subscription".

26 – Importing the Service history

- 05 Maintenance and Pre-Delivery Check
- Service history

Additional Information

Overview of Tightening Torques

Head unit to holder / holder to support — Used in step 13

Screw		Tightening torque	1,8 Nm

Storage compartment in centre console — Used in step 15

Oval-head screw		Tightening torque	1,8 Nm

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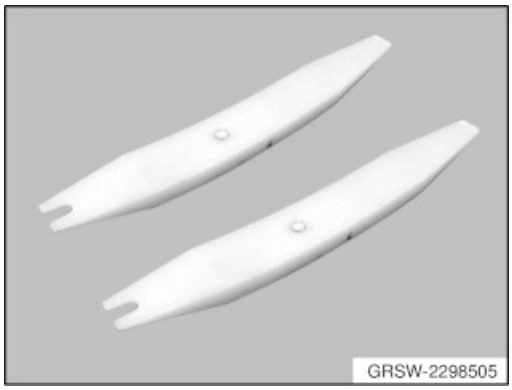
Gear selector switch to centre console trim			Used in step 16
Screw		Tightening torque	1,8 Nm

Negative battery cable to 48-V battery			Used in step 1623
Nut M8		Tightening torque	19 Nm

Cup holder to centre console			Used in step 21
Oval-head screw		Tightening torque	1,8 Nm

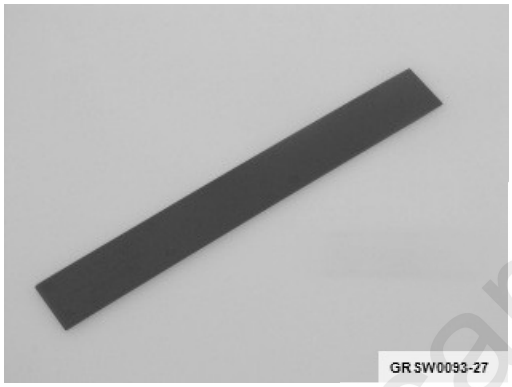
Overview of Special Tools

2 298 505 Wedge



Common	Used in step 45
Usage	Set (delivery of 2 pieces)
Included in the tool or work	
Storage location	C34
Replaced by	
In connection with	
SI-Number	01 03 12 (792)

0 496 571 (00 9 327) Wedge



Common	Used in step 10
Usage	(Cleaning wedge) From 11/2008 this special tool replaces panel wedge 00 9 323 (different material)
Included in the tool or work	0 490 527
Storage location	Individual
Replaced by	
In connection with	
SI-Number	01 07 09 (530)

Links

Repair instructions (PRE)	Used in step
Notes on 48-V battery	181623

Repair instructions	Used in step
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	281622
61 20 900 Disconnecting and connecting battery earth lead	281622
61 20 900 Disconnecting and connecting battery earth lead	281622
61 20 900 Disconnecting and connecting battery earth lead	281622
61 20 900 Disconnecting and connecting battery earth lead	281622
61 20 900 Disconnecting and connecting battery earth lead	281622
61 20 900 Disconnecting and connecting battery earth lead	281622
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	281622
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	281622

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61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	281622
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61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	281622
61 20 900 Disconnecting and connecting battery earth lead	281622
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	281622
61 20 900 Disconnecting and connecting battery earth lead (Plug-in Hybrid Electric Vehicle)	281622
61 20 900 Disconnecting and connecting battery earth lead	281622
61 20 900 Disconnecting and connecting battery earth lead	281622
61 20 900 Disconnecting and connecting battery earth lead	281622
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61 20 900 Disconnecting and connecting battery earth lead	281622
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	281622
61 20 900 Disconnecting and connecting battery earth lead	281622
61 20 900 Disconnecting and connecting battery earth lead	281622
61 20 900 Disconnecting and connecting battery earth lead	281622
61 35 ... Notes on ESD protection (Electro Static Discharge)	1113
61 35 ... Notes on ESD protection (Electro Static Discharge)	1113

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65 12 902 Replacing receiver audio module

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.

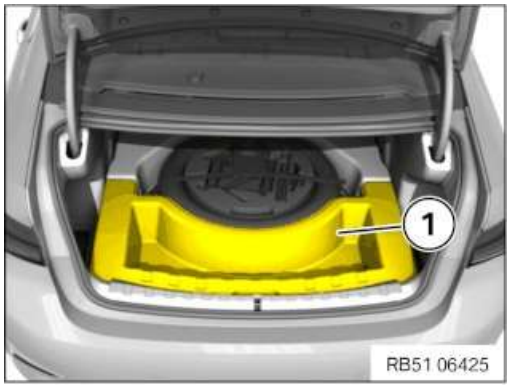
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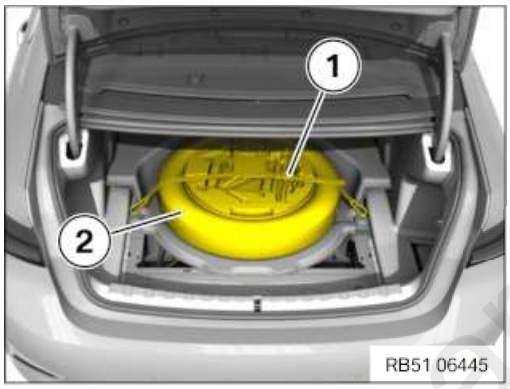
- Remove luggage compartment floor trim panel (1).

4 – If installed: Removing the compact spare wheel

▸ **Removing rear luggage compartment well**



- Remove rear luggage compartment well (1).

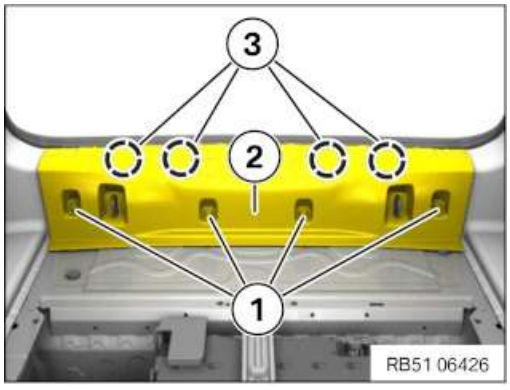


- Open buckle on seat belt strap (1) and set it aside.
- Remove emergency wheel (2) with the insert.

5 – Removing the loading edge trim

NOTICE

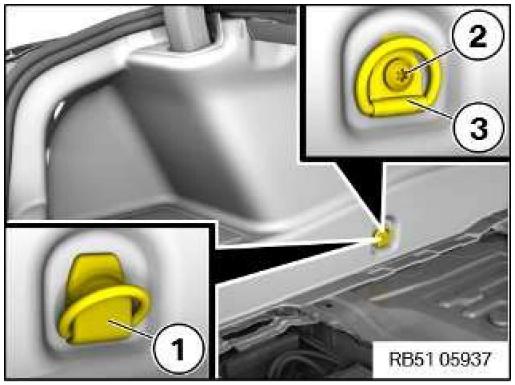
Schematic diagram is for example purposes. Some parts may differ in certain details.



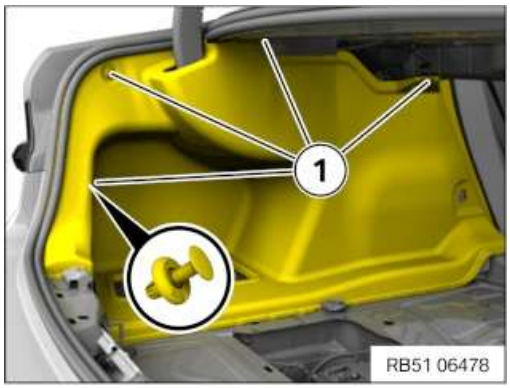
- Loosen the expanding rivet (1).
- Unclip loading edge trim(2) upwards from latch mechanisms (3).
- Guide out and remove loading edge trim (2) under the sealing lip of the tailgate seal.

6 – Remove luggage compartment wheel arch trim panel on left.

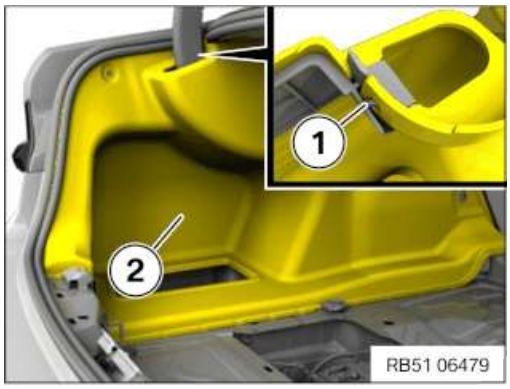
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- Remove the cover (1).
- Loosen screw (2).
- Remove lashing eye (3).



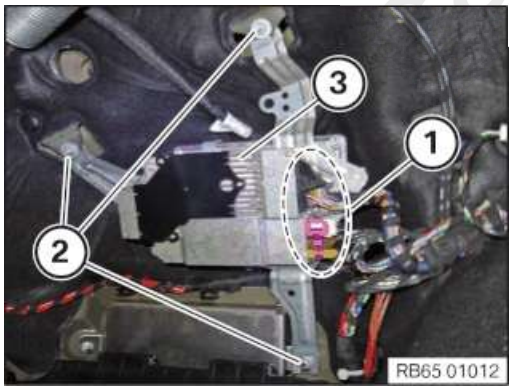
- Reposition left rear seat backrest.
- Loosen the expanding rivet (1).



- 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 – Remove the receiver audio module (RAM)

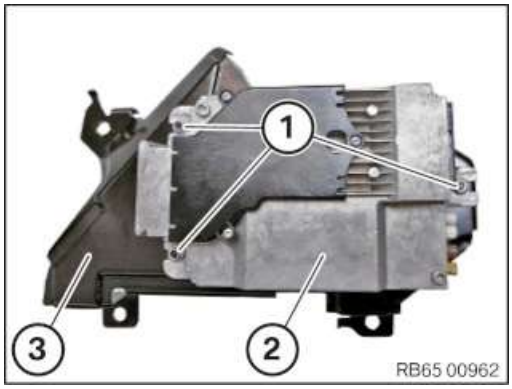


- Unlock and disconnect all the plug connections in area (1).
- Loosen nuts (2).
- Guide out the receiver audio module (RAM) (3) with the holder and remove it.

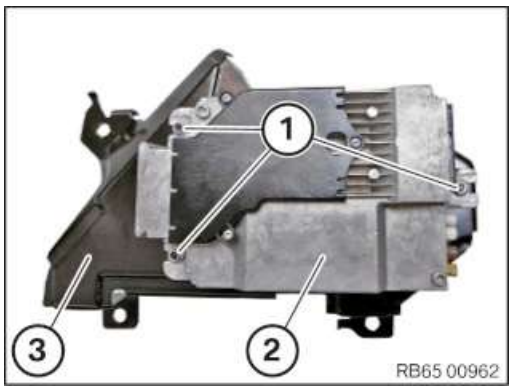
8 – Replacing the Receiver audio module (RAM)

NOTICE

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



- Loosen nuts (1).
- Remove the Receiver audio module (RAM) (2) from holder (3).



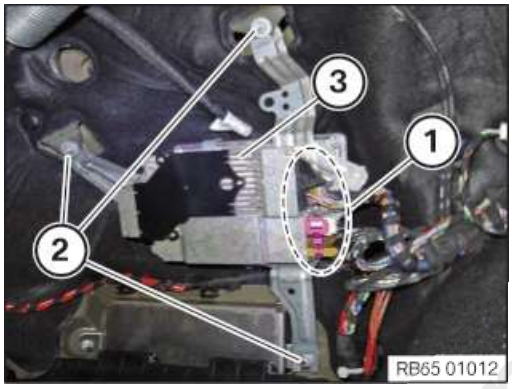
- Renew RAM (2).

  Parts: Receiver audio module (RAM)
- Attach the Receiver audio module (RAM) (2) to holder (3).
- Tighten nuts (1).

Amplifier / RAM on holder

M5 screw		Tightening torque	3 Nm
Nut		Tightening torque	3 Nm

9 – Install Receiver audio module (RAM)



- Feed in Receiver audio module (RAM) (3) with the holder and install.
- Tighten nuts (2).

Bracket to body

Nut		Tightening torque	6 Nm
Screw		Tightening torque	6 Nm

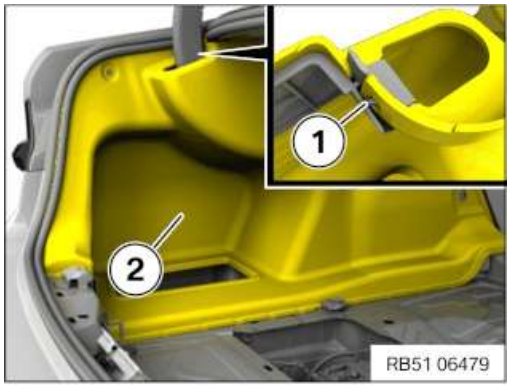
- Connect and lock all connectors in area (1).

POSTPROCESSES

10 – Install luggage compartment wheel arch trim panel at left

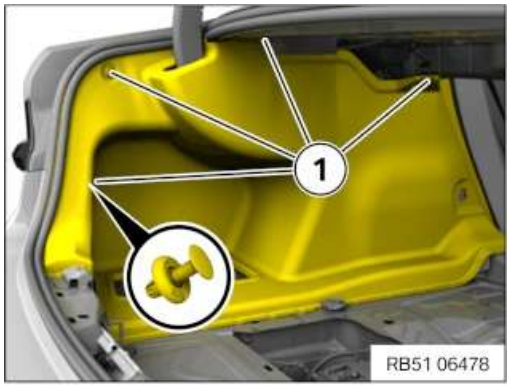
NOTICE

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

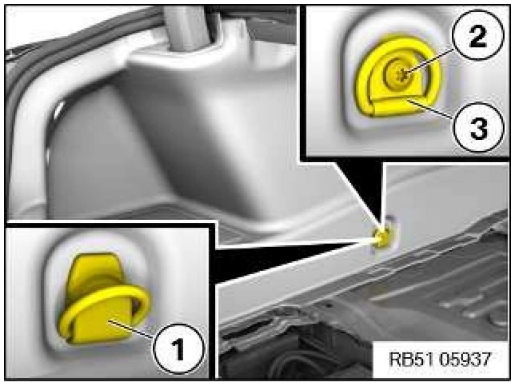


- Feed luggage compartment wheel arch trim panel (2) under the side trim panel in the rear passenger compartment and the sealing lip for the tailgate.
- Feed the tab of the luggage compartment wheel arch trim panel (2) on the outer side of the hinge into the stop on the trim (1).

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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

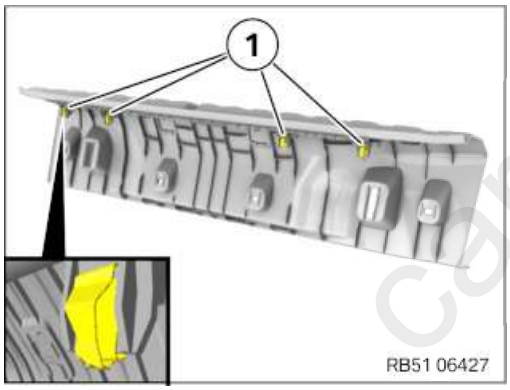
	Tightening torque	19 Nm

- Install the cover (1) .

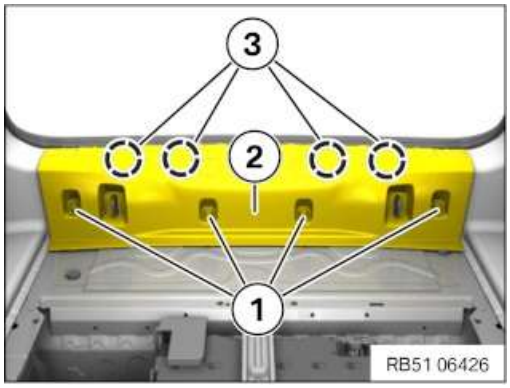
11 – Installing loading edge trim

NOTICE

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



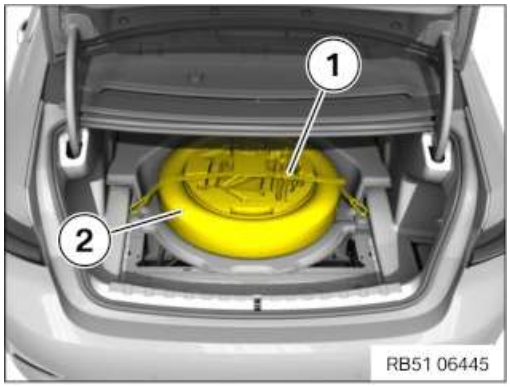
- Check the clamps (1) for damage and renew if necessary.



- 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).

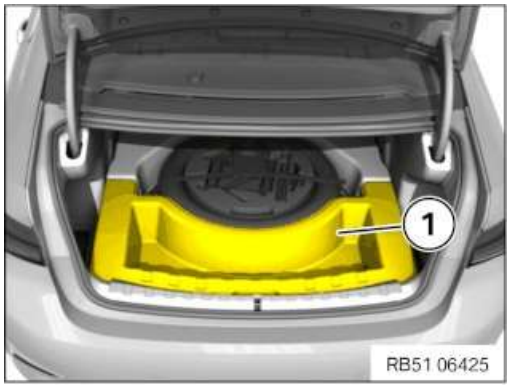
12 – If installed: Install the emergency wheel

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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**



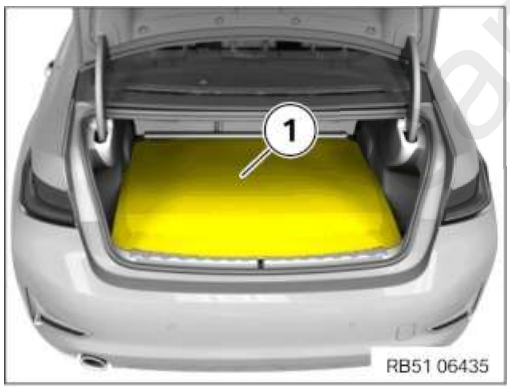
- Install rear luggage compartment well (1).

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.



- 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

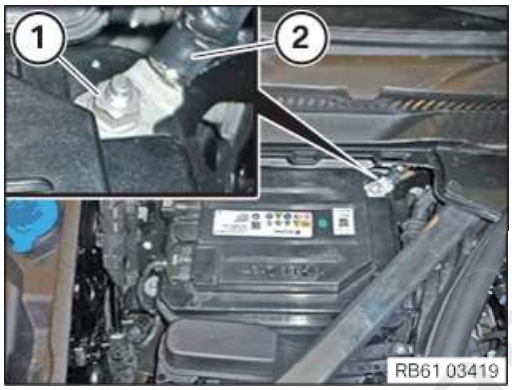
Damage to 48-V battery

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 .



- 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.

- 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

Amplifier / RAM on holder — Used in step 8

M5 screw		Tightening torque	3 Nm
Nut		Tightening torque	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
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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
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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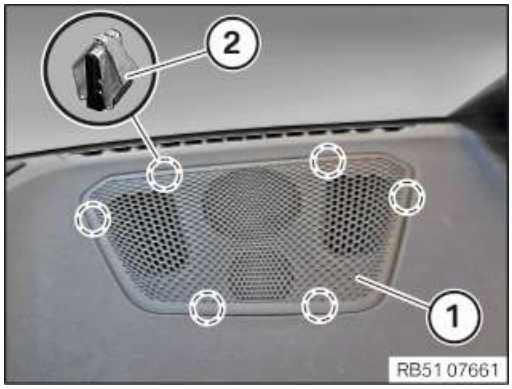
61 20 900 Disconnecting and connecting battery earth lead	214
61 20 900 Disconnecting and connecting battery earth lead	214
61 20 900 Disconnecting and connecting battery earth lead	214
61 20 900 Disconnecting and connecting battery earth lead	214
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61 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 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

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65 13 065 Removing and installing front speaker holder

PRELIMINARY WORK

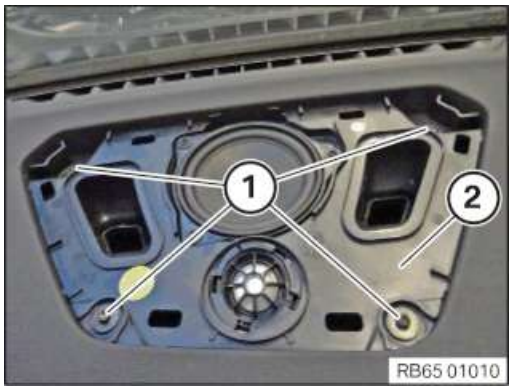
1 – Remove the speaker trim at the instrument panel



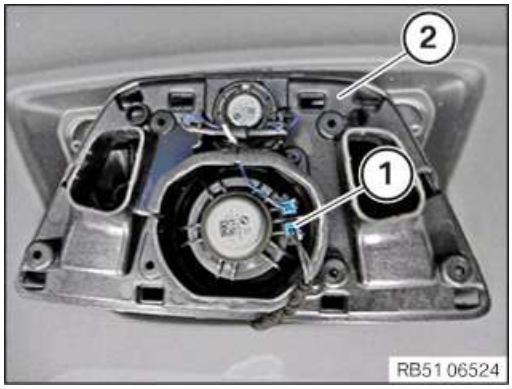
- Lever out the speaker trim (1) with the special tool 0 496 569 (00 9 325) from the clamps (2) toward the top and remove.

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2 – Remove the speaker holder at the instrument panel

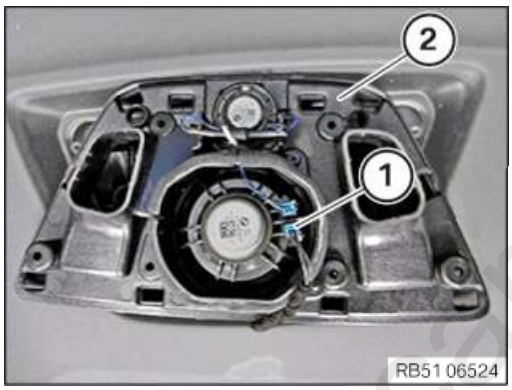


- Loosen screws (1).
- Pull out speaker holder (2) slightly with the loudspeakers and tilt it to the side.

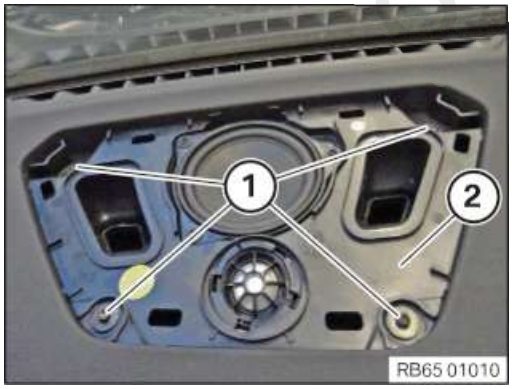


- Unlock plug connection (1) and disconnect.
- Remove the speaker holder (2).

3 – Install the speaker holder at the instrument panel



- Position the speaker holder (2).
- Connect connector (1).



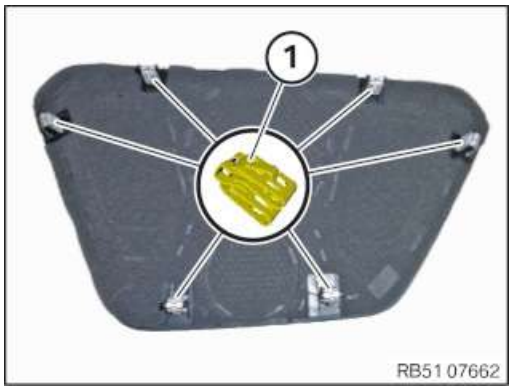
- Install the speaker holder (2).
- Tighten the screws (1).

Speaker to support / support to instrument panel / support to body

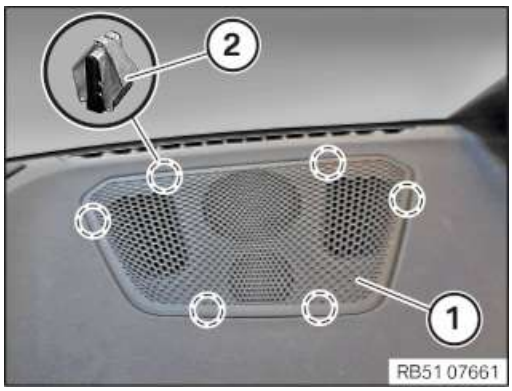
Screw		Tightening torque	1,8 Nm

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4 – Install the speaker trim at the instrument panel



- Check clamps (1) for damage.
- Replace broken or missing clamps (1).



- Position the speaker trim (1) correctly and engage it at the clamps (2).

Additional Information

Overview of Tightening Torques

Speaker to support / support to instrument panel / support to body — Used in step 3

Screw		Tightening torque	1,8 Nm

Overview of Special Tools

0 496 569 (00 9 325) Wedge



Common	Used in step 1
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)

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65 13 188 Removing and installing/replacing mid-range speaker

RISK OF DAMAGE

Damage of high-quality surfaces.

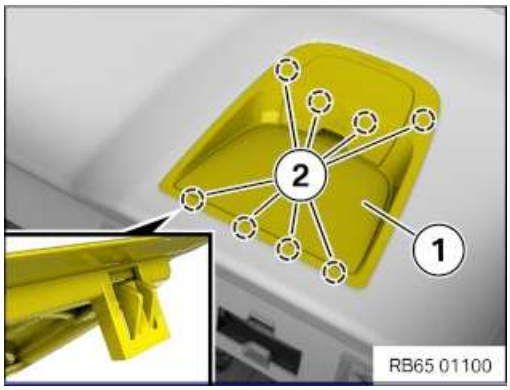
Plastic wedges can damage high-quality surfaces.

- Protect surfaces from damage.

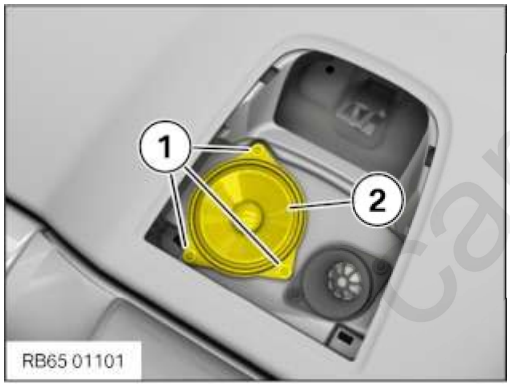
NOTICE

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

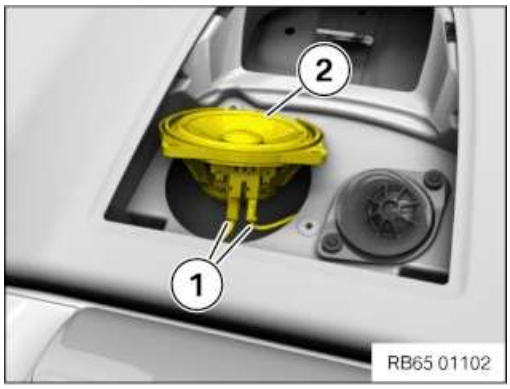
1 – Remove rear mid-range speaker



- Release the cover (1) with a suitable special tool from the set of special tools 0 493 752 (00 9 329) at the latch mechanisms (2).
- Remove the cover (1) from the storage shelf.



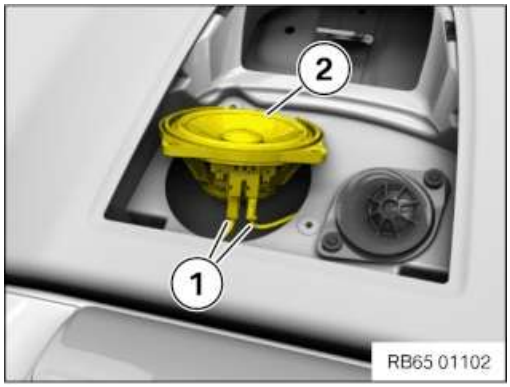
- Loosen screws (1).
- Lift the mid-range speaker (2) to reach the plug connections below that.



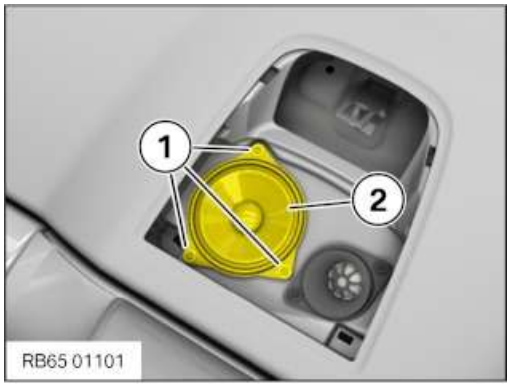
- Unlock plug connections (1) and disconnect.
- Remove the mid-range speaker (2).

2 – Installing the rear mid-range speaker

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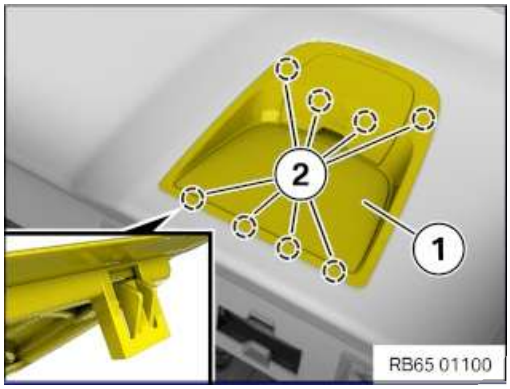
- Position mid-range speaker (2).
- Connect connectors (1) and lock.



- Position mid-range speaker (2) correctly.
- Tighten the screws (1).

Speaker to storage shelf/support

Screw		Tightening torque	1,8 Nm



- Position cover (1) of the storage shelf.
- Clip cover (1) with latch mechanisms (2) into the storage shelf.

Additional Information

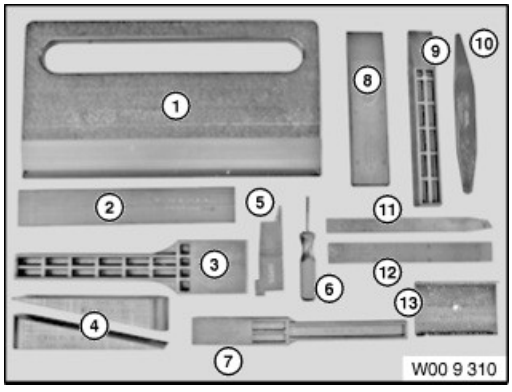
Overview of Tightening Torques

Speaker to storage shelf/support Used in step 2

Screw		Tightening torque	1,8 Nm

Overview of Special Tools

0 493 752 (00 9 329) Case



Common Used in step 1

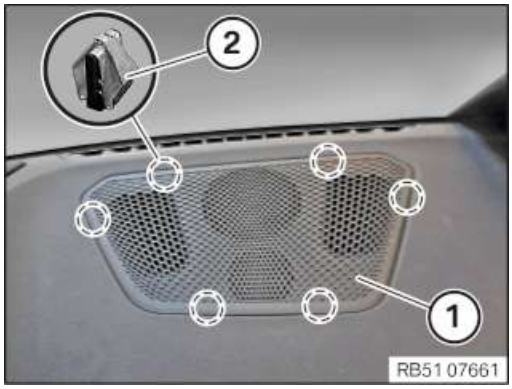
Usage	(Case) with insert without mounting wedges, delivery while stocks last - as of 02/2019.
Included in the tool or work	0 490 527
Storage location	Individual
Replaced by	
In connection with	
SI-Number	01 07 09 (530)

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65 13 060 Removing and installing/replacing the speaker

PRELIMINARY WORK

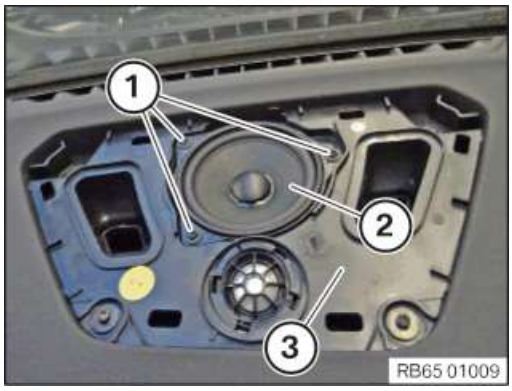
1 – Remove the speaker trim at the instrument panel



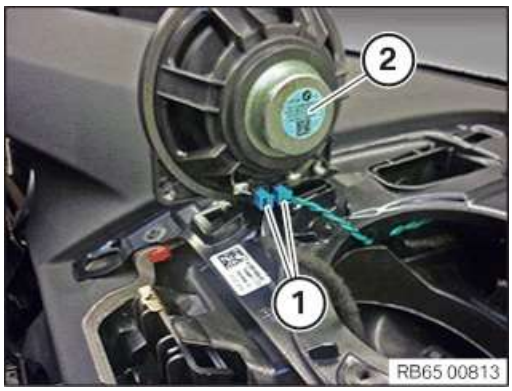
- Lever out the speaker trim (1) with the special tool 0 496 569 (00 9 325) from the clamps (2) toward the top and remove.

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2 – Remove the mid-range speaker from the instrument panel

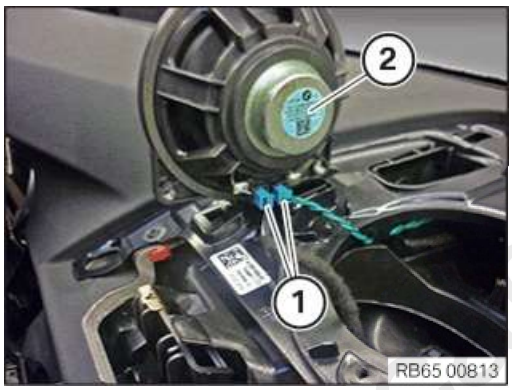


- Loosen screws (1).
- Lift the mid-range speaker (2) off the speaker holder (3).

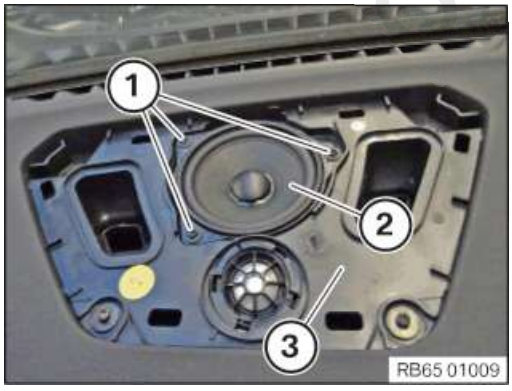


- Disconnect the plug connections (1) and remove the mid-range speaker (2).

3 – Install the mid-range speakers in the instrument panel



- Install the mid-range speaker (2) and connect the connectors (1).



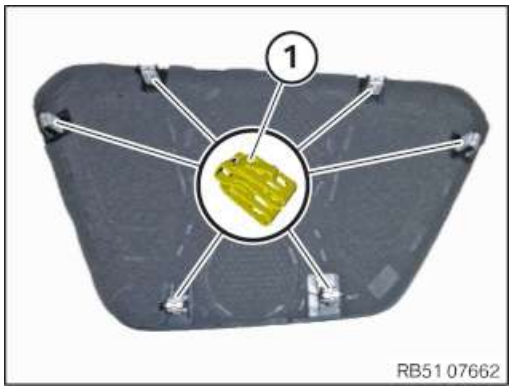
- Install the mid-range speaker (2) in the speaker holder (3).
- Tighten the screws (1).

Speaker on instrument panel / speaker on door

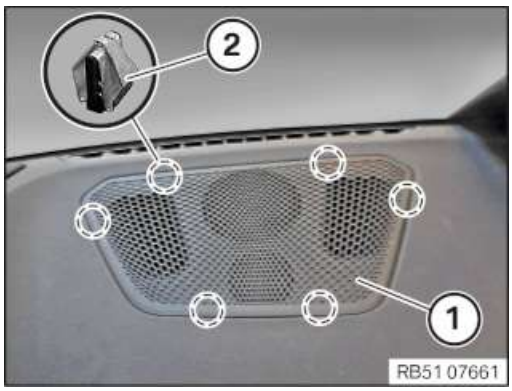
Screw		Tightening torque	1,8 Nm

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4 – Install the speaker trim at the instrument panel



- Check clamps (1) for damage.
- Replace broken or missing clamps (1).



- Position the speaker trim (1) correctly and engage it at the clamps (2).

Additional Information

Overview of Tightening Torques

Speaker on instrument panel / speaker on door — Used in step 3

Screw		Tightening torque	1,8 Nm

Overview of Special Tools

0 496 569 (00 9 325) Wedge



Common — Used in step 1

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)

cardiagn.com

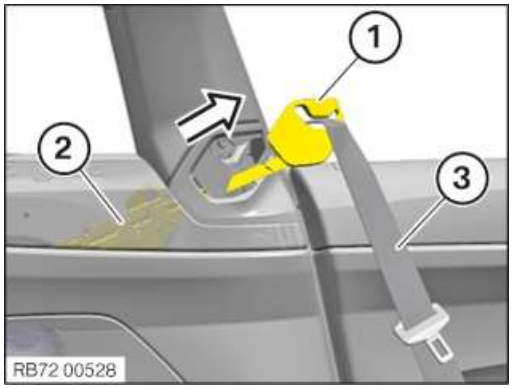
65 13 090 Removing and installing/replacing the speaker

NOTICE

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

PRELIMINARY WORK

1 – Removing seat-belt assistant hand

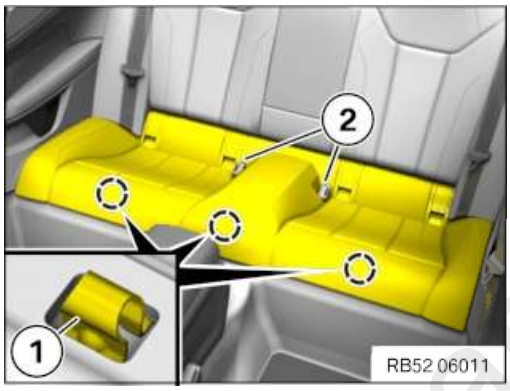


NOTICE

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

- Feed out the seat-belt assistant hand (1) in direction of arrow from the seat belt extender (2) carefully.
- Feed out upper seat belt (3) from the seat-belt assistant hand (1).

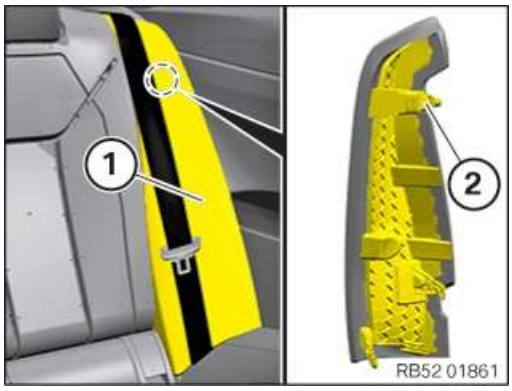
2 – Remove rear seat bench



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

3 – Remove armrest side section

▸ **Remove armrest side section**



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

4 – Remove C-pillar trim panel

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WARNING

Pyrotechnic components.

Danger! Life-threatening injuries!

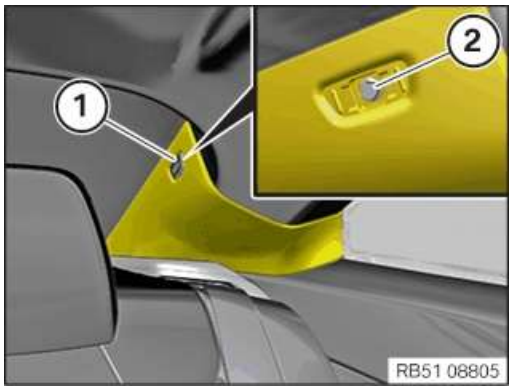
- All work on pyrotechnic parts may be carried out by technically experienced and appropriately trained personnel only.
- Replace any damaged part or ones that have been dropped.
- For additional information see: 72 00 Safety regulations on handling components with gas generators.

RISK OF DAMAGE

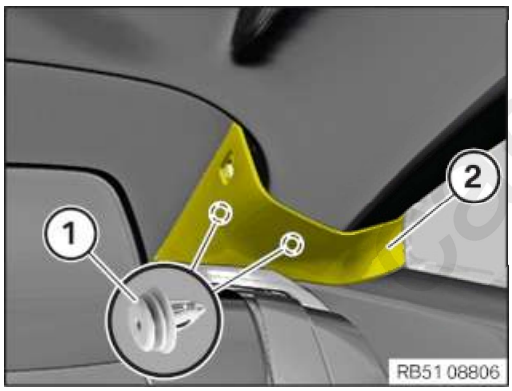
Damage to the head airbag.

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

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



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



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

5 – Removing the inner door sill cover strip

RISK OF DAMAGE

Bending of plastic parts.

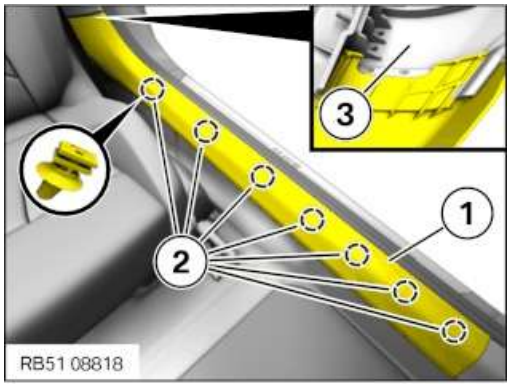
Application of too much force can lead to bending of plastic parts.

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

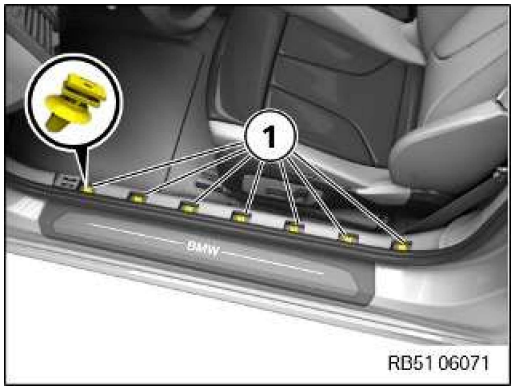
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NOTICE

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

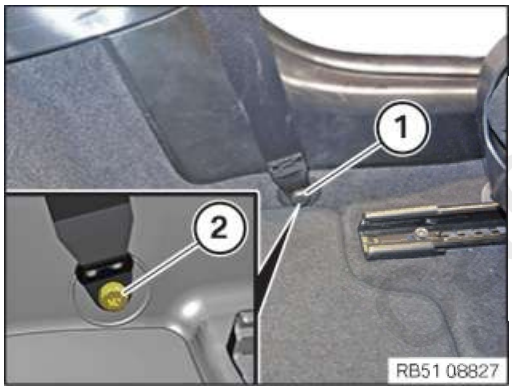


- Release door sill cover strip (1) with clips (2) starting from the front using a suitable special tool from the set of special tools 0 493 752 (00 9 329).
- Guide out and remove door sill cover strip (1) under the rear side trim panel (3) .

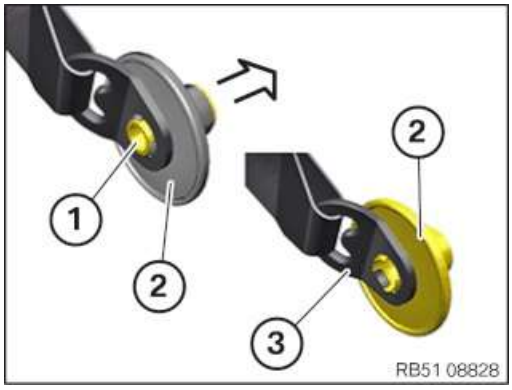


- If necessary, remove clips (1) and connect them to the door sill cover strip.

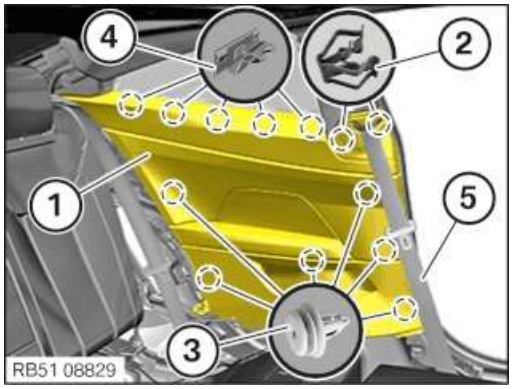
6 – Remove rear side trim panel



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



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



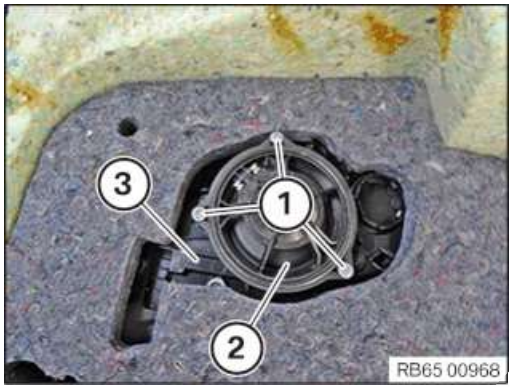
- Unclip the rear side trim panel (1) with a suitable tool at the clamps (2).
- Unclip the rear side trim panel (1) with a suitable tool at the clips (3).
- Release the rear side trim panel (1) at the clamps (4) and feed out at the edge protection.
- Unlock and disconnect all the plug connections at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

MAIN WORK

7 – Removing the mid-range speaker in the rear side trim panel

NOTICE

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

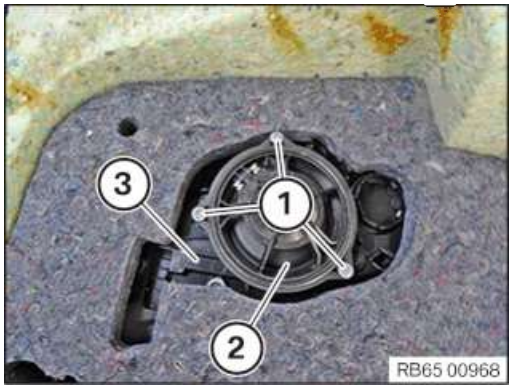


- Push the acoustic fleece to one side if required.
- Loosen screws (1).
- Remove mid-range speaker (2) from side trim panel (3) .

8 – Installing mid-range speaker in the rear side trim panel

NOTICE

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



- Insert the mid-range speaker (2) into the side trim panel (3) and position it correctly.
- Tighten the screws (1).

Loudspeakers on the door / trim panel

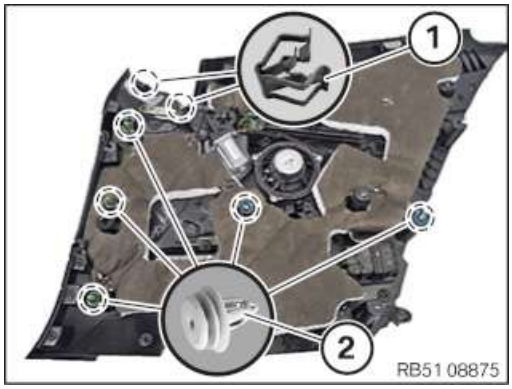
Screw		Tightening torque	2 Nm

- Position the acoustic fleece correctly as needed.

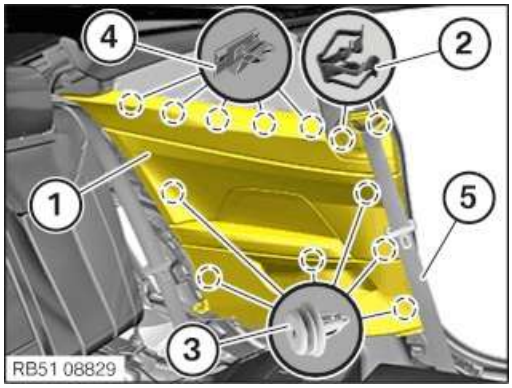
POSTPROCESSES

9 – Install rear side trim panel

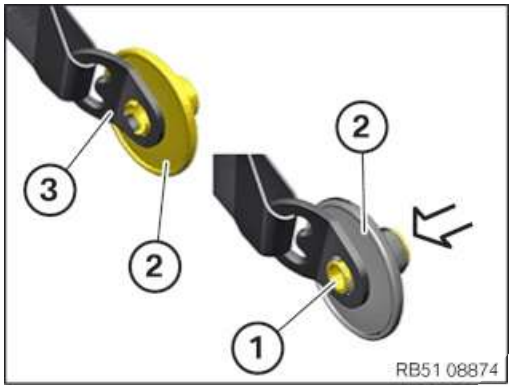
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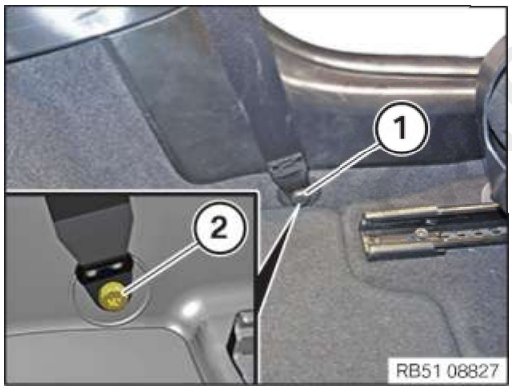
- Check clamps (1) for damage; renew them if necessary.
- Check clips (2) for damage, replace if necessary.



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



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



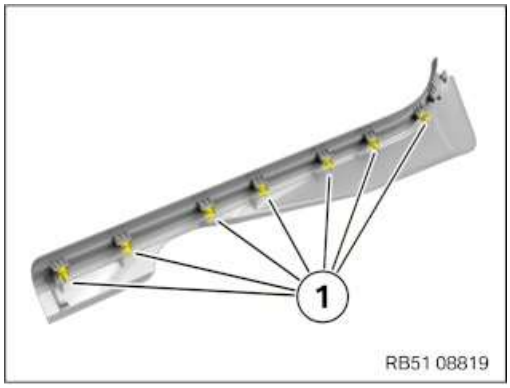
- Correctly position the seat belt end fitting.
- Tighten down screw (2).

End fitting to body

M10		Tightening torque	42 Nm

- Clip in cover cap (1).

10 – Installing the inner door sill cover strip

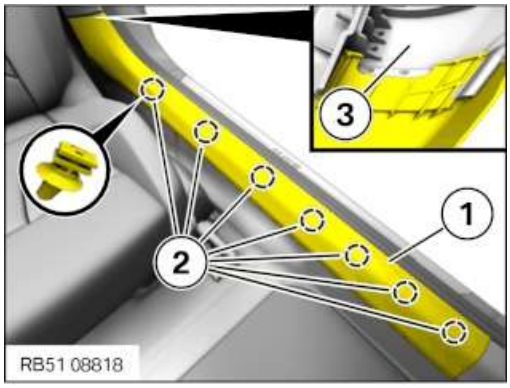


NOTICE

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

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

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

11 – Installing C-pillar trim panel

WARNING

Pyrotechnic components.

Danger! Life-threatening injuries!

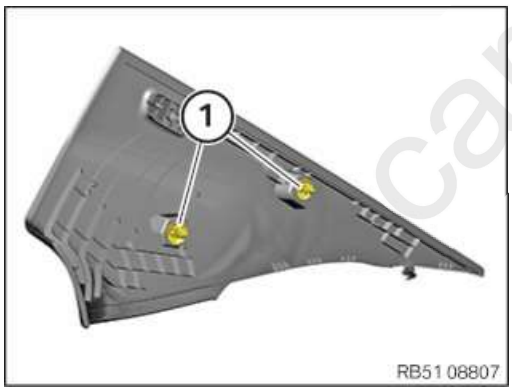
- All work on pyrotechnic parts may be carried out by technically experienced and appropriately trained personnel only.
- Replace any damaged part or ones that have been dropped.
- For additional information see: 72 00 Safety regulations on handling components with gas generators.

RISK OF DAMAGE

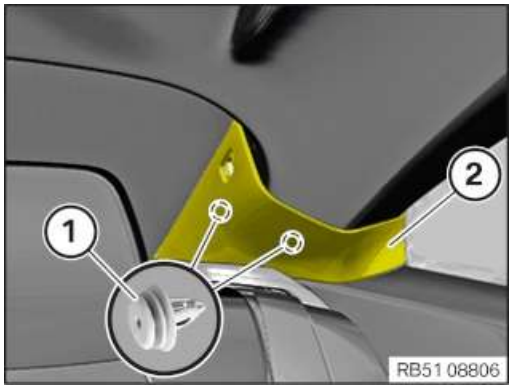
Damage to the head airbag.

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

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

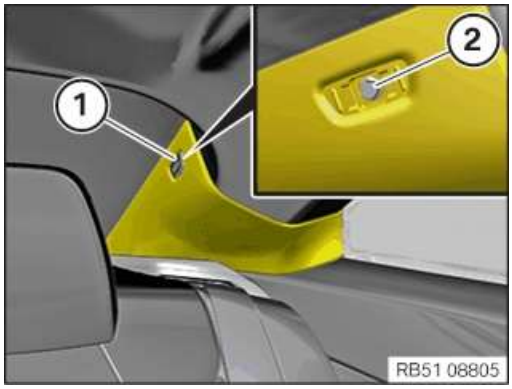


- Check clips (1) for damage and, if necessary, renew them.



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

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- Tighten down screw (2).

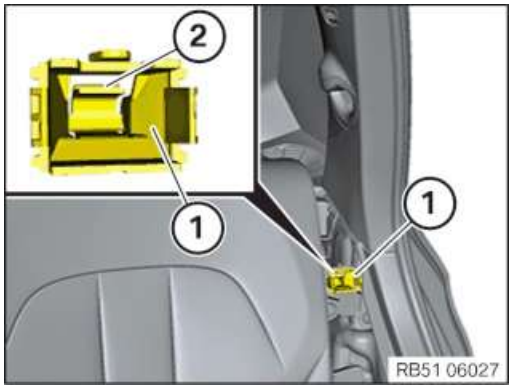
C-pillar trim panel to body

Screw		Tightening torque	2,6 Nm

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

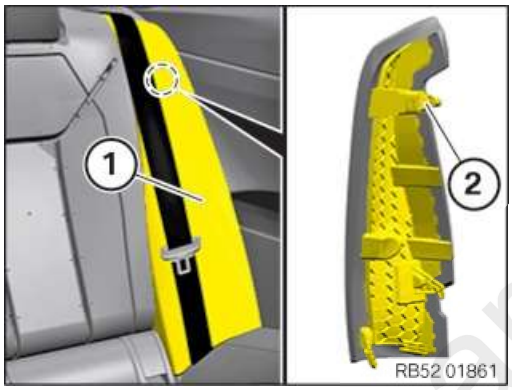
12 – Installing backrest side section

▸ **Installing backrest side section**



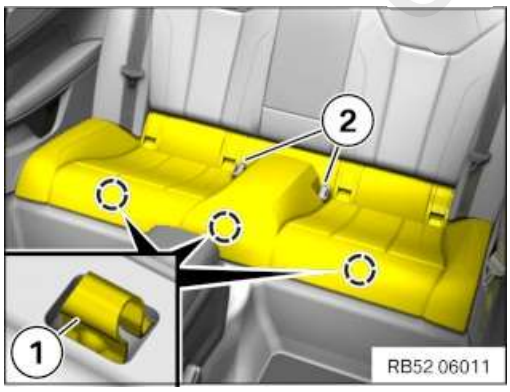
- Release mounting element (1) from latch mechanism (2) and remove it from the body.
- Check the mounting element (1) for damage, renew if necessary.

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



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

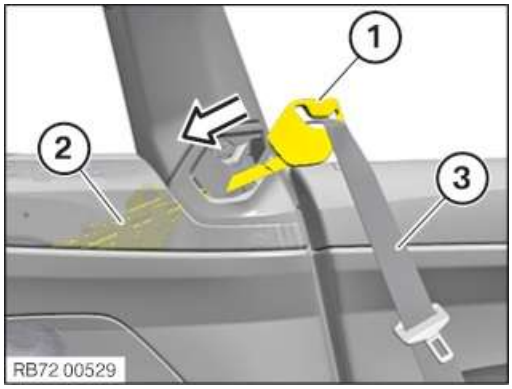
13 – Installing the rear seat bench



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

14 – Installing seat-belt assistant hand

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NOTICE

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

- Guide in upper seat belt (3) into the seat-belt assistant hand (1).
- Guide in seat-belt assistant hand (1) in direction of arrow into the seat belt extender (2) carefully.

Additional Information

Overview of Tightening Torques

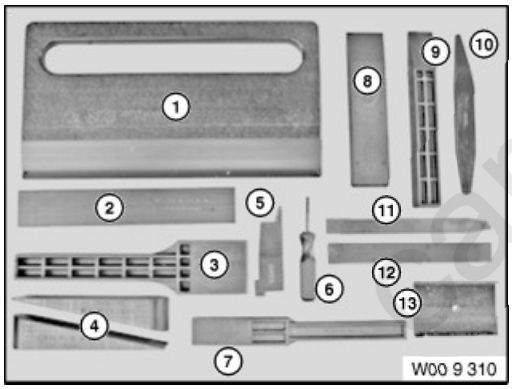
Loudspeakers on the door / trim panel			Used in step 8
Screw		Tightening torque	2 Nm

End fitting to body			Used in step 9
M10		Tightening torque	42 Nm

C-pillar trim panel to body			Used in step 11
Screw		Tightening torque	2,6 Nm

Overview of Special Tools

0 493 752 (00 9 329) Case



Common	Used in step 5
Usage	(Case) with insert without mounting wedges, delivery while stocks last - as of 02/2019.
Included in the tool or work	0 490 527
Storage location	Individual
Replaced by	
In connection with	
SI-Number	01 07 09 (530)

Links

Repair instructions (PRE)	Used in step
Notes on 48-V battery	312

General repair instructions	Used in step
72 00 ... Safety regulations for handling components with gas generators	312

Repair instructions	Used in step
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	312
61 20 900 Disconnecting and connecting battery earth lead	312
61 20 900 Disconnecting and connecting battery earth lead	312
61 20 900 Disconnecting and connecting battery earth lead	312

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61 20 900 Disconnecting and connecting battery earth lead	312
61 20 900 Disconnecting and connecting battery earth lead	312
61 20 900 Disconnecting and connecting battery earth lead	312
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	312
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61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	312
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	312
61 20 900 Disconnecting and connecting battery earth lead	312
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	312
61 20 900 Disconnecting and connecting battery earth lead (Plug-in Hybrid Electric Vehicle)	312
61 20 900 Disconnecting and connecting battery earth lead	312
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61 20 900 Disconnecting and connecting battery earth lead	312

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65 13 070 Removing and installing/replacing the speaker

PRELIMINARY WORK

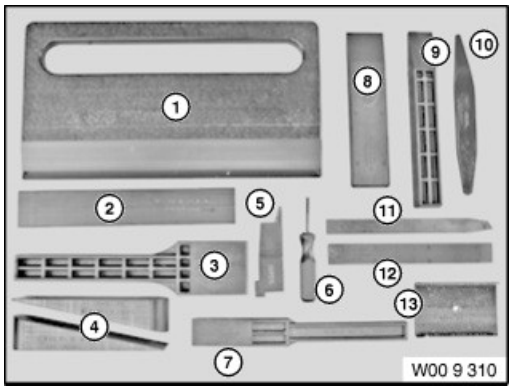
1 – Remove front door trim panel

RISK OF DAMAGE

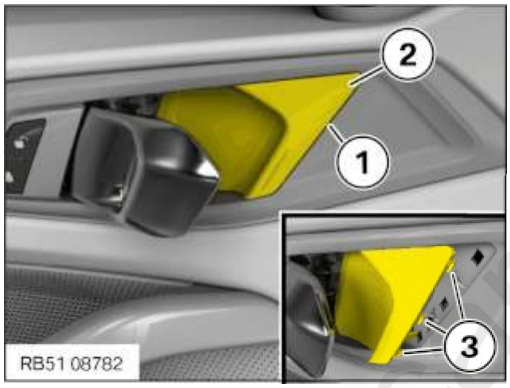
Damage of high-quality surfaces.

Plastic wedges can damage high-quality surfaces.

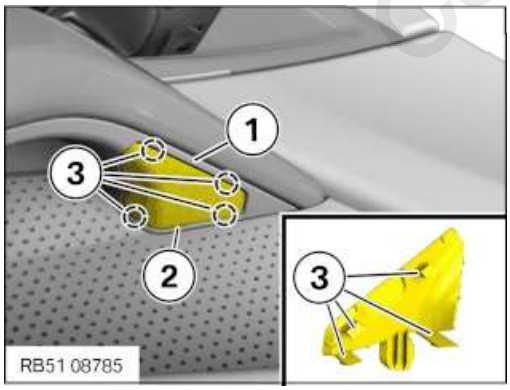
- Protect surfaces from damage.



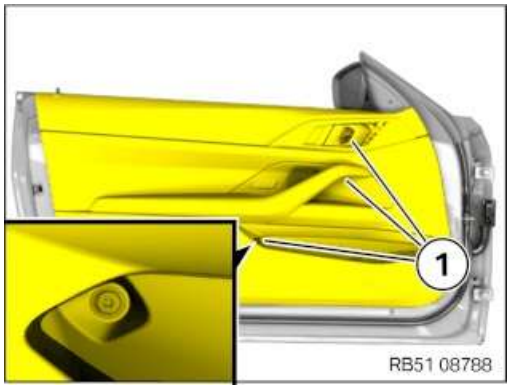
- Have the set of special tools 0 493 752 (00 9 329) ready.



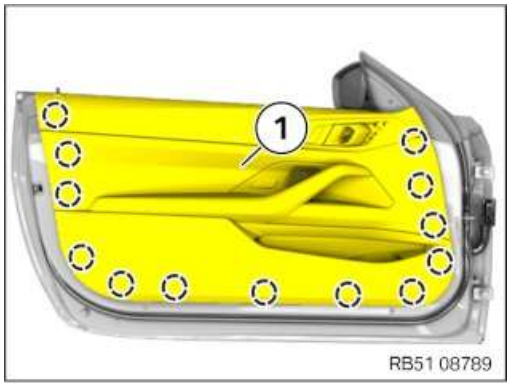
- Pull the door handle.
- Position suitable special tool on the recess in the area (1) .
- Unclip the cover of the door handle (2) with the latch mechanisms (3).
- Feed out the cover of the door handle (2) from the latch mechanisms and remove it forwards.



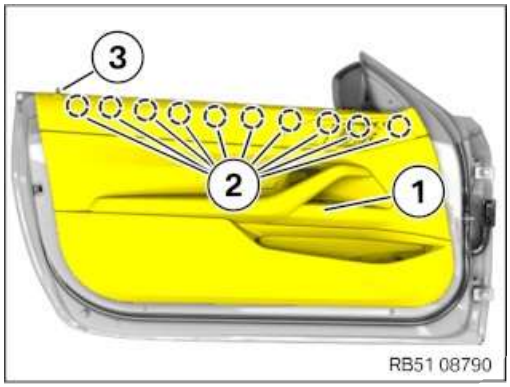
- Position suitable special tool on the recess in the area (1) .
- Unclip the cover (2) with the latch mechanisms (3) and remove it downwards.



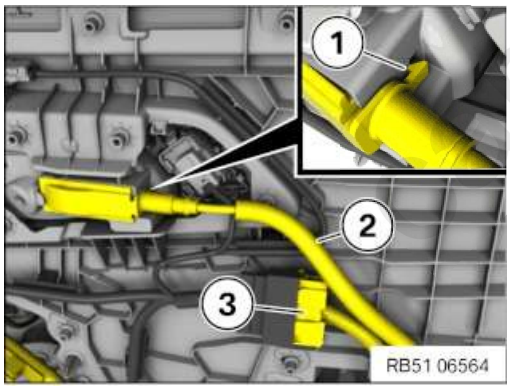
- Loosen screws (1).



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



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



NOTICE

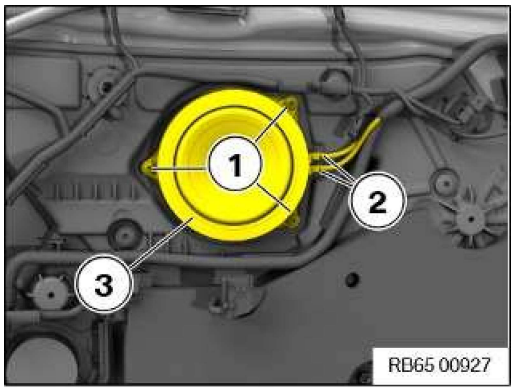
Schematic diagram is for example purposes. Some parts may differ in certain details.

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

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

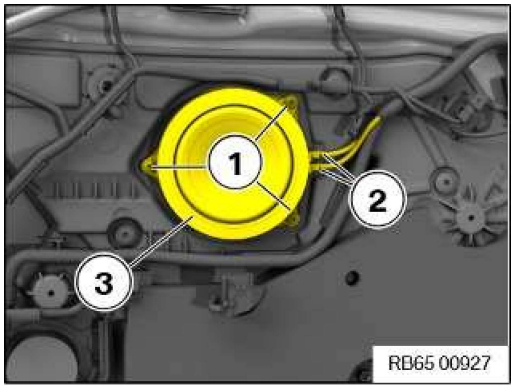
MAIN WORK

2 – Remove the speaker from the front door



- Loosen screws (1).
- Unlock and disconnect plug connections (2).
- Remove the speaker in the front door (3).

3 – Install the speaker on the front door



- Connect connectors (2) and lock.
- Position speaker on the front door (3) and tighten the screws (1).

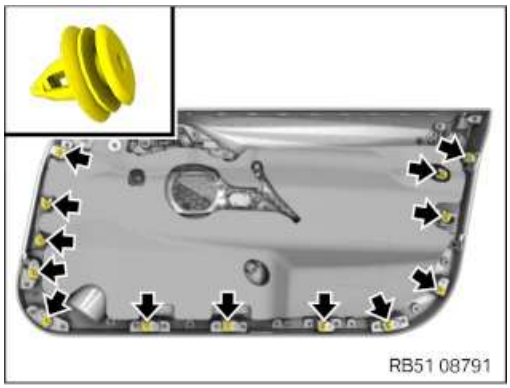
Door speaker on door module carrier

Oval-head screw for thermoplastic		Tightening torque	2 Nm

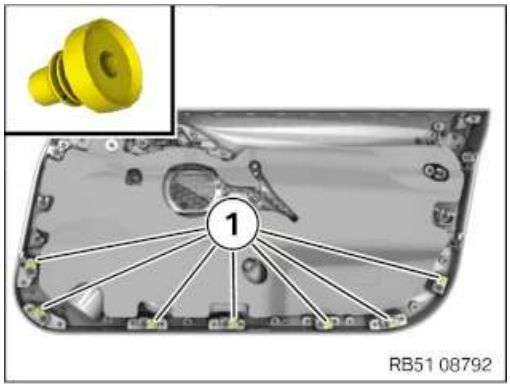
cardiagn.com

POSTPROCESSES

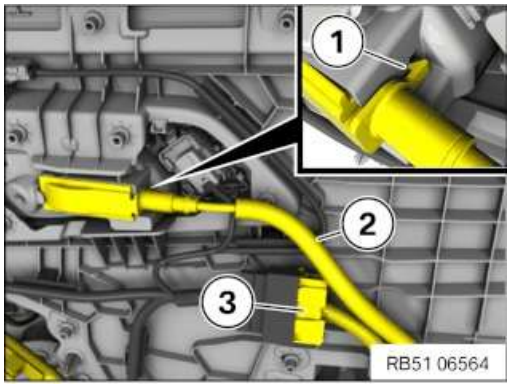
4 – Install front door trim panel



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



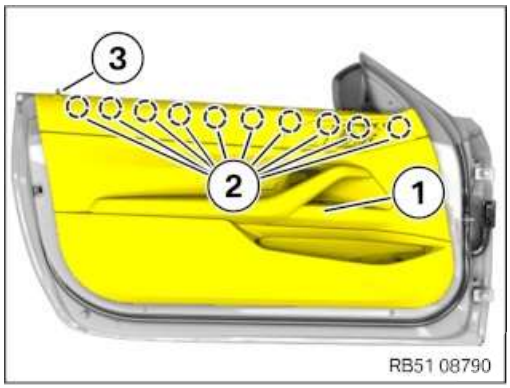
- Check the stop pad (1) for damage, renew if necessary.



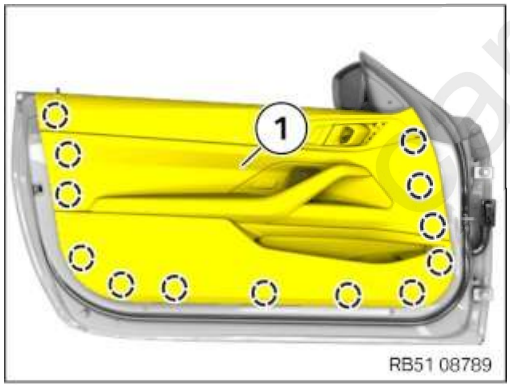
NOTICE

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

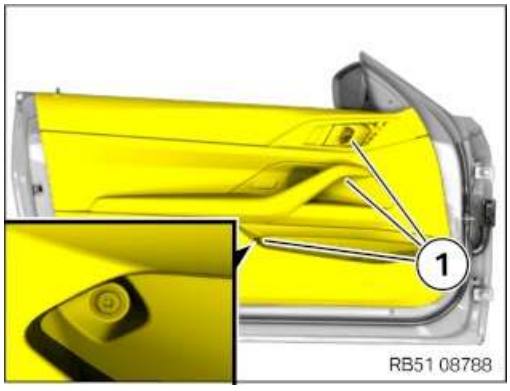
- Push the inner door opener in closed direction.
- Insert the Bowden cable for the door handle inside (2) and clip it in with the latch mechanism (1) .
- Connect connectors (3) and lock.



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



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



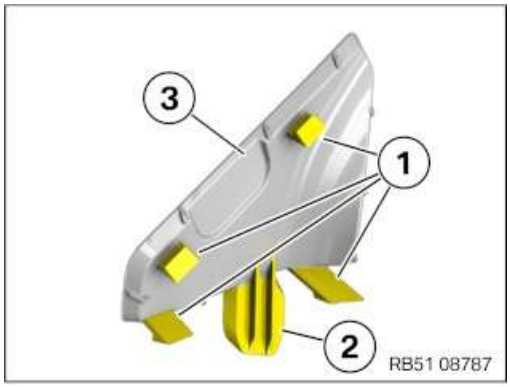
- Tighten the screws (1).

Door trim panel

Oval-head screw		Tightening torque	3 Nm

Check

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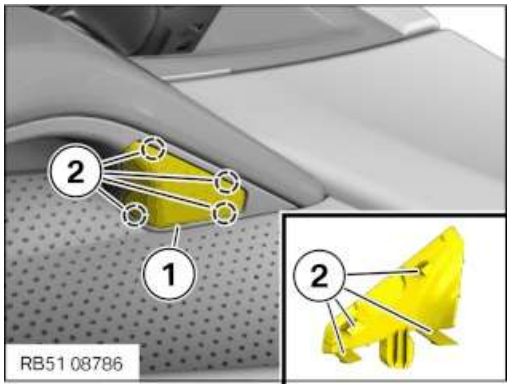
- Check the latch mechanisms (1) and the guide (2) at the cover (3) for damage.

Result

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

Measure

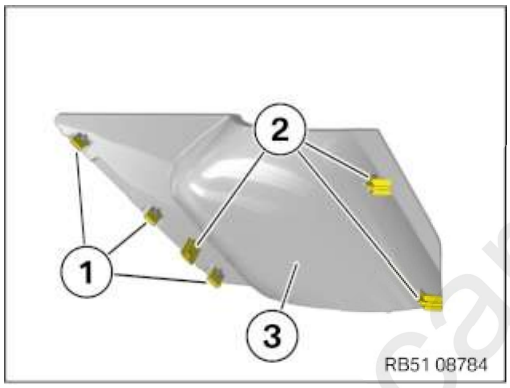
- Replace the cover (3).



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

Check

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

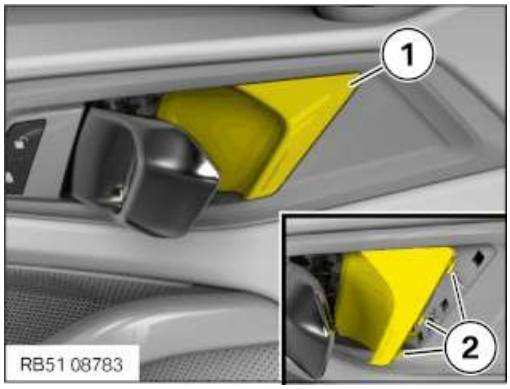


Result

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

Measure

- Replace door handle cover (3).



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

Additional Information

Overview of Tightening Torques

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Overview of Tightening Torques

Door speaker on door module carrier — Used in step 3

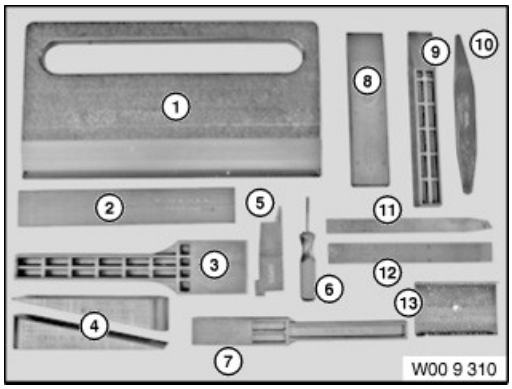
Oval-head screw for thermoplastic		Tightening torque	2 Nm

Door trim panel — Used in step 4

Oval-head screw		Tightening torque	3 Nm

Overview of Special Tools

0 493 752 (00 9 329) Case



Common — Used in step 1

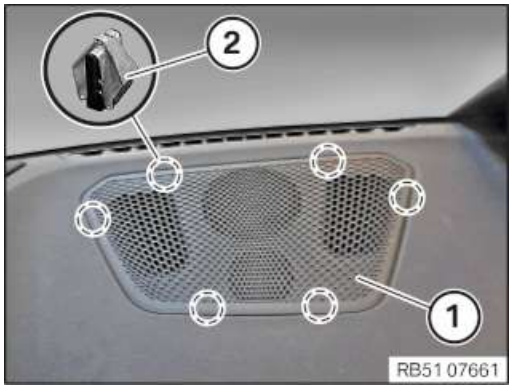
Usage	(Case) with insert without mounting wedges, delivery while stocks last - as of 02/2019.
Included in the tool or work	0 490 527
Storage location	Individual
Replaced by	
In connection with	
SI-Number	01 07 09 (530)

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65 13 062 Removing and installing/replacing the speaker

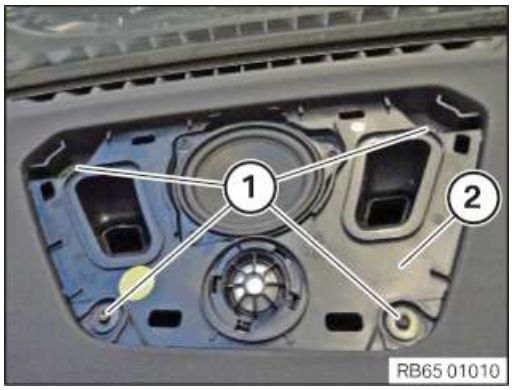
PRELIMINARY WORK

1 – Remove the speaker trim at the instrument panel

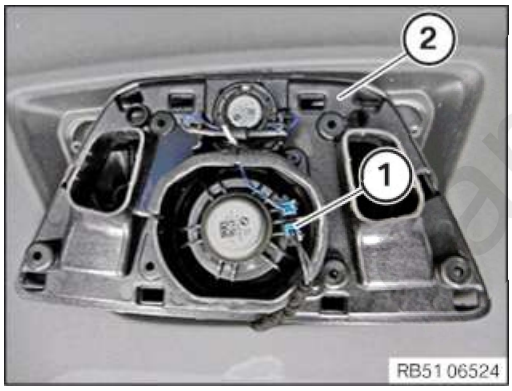


- Lever out the speaker trim (1) with the special tool 0 496 569 (00 9 325) from the clamps (2) toward the top and remove.

2 – Remove the speaker holder at the instrument panel



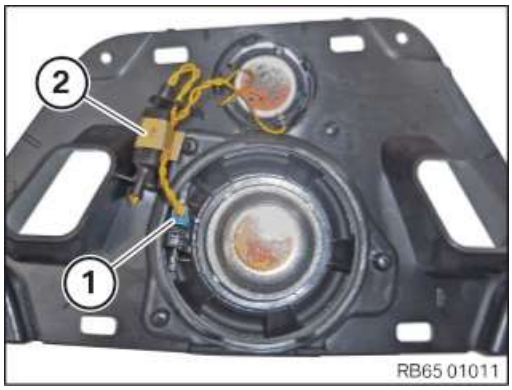
- Loosen screws (1).
- Pull out speaker holder (2) slightly with the loudspeakers and tilt it to the side.



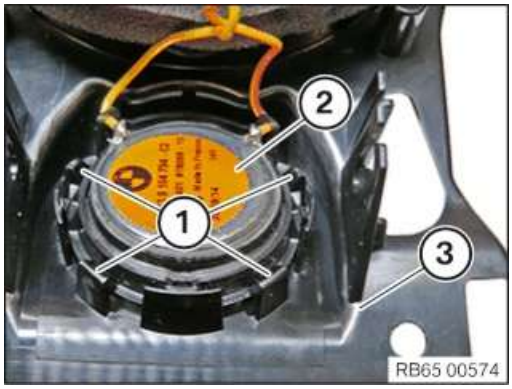
- Unlock plug connection (1) and disconnect.
- Remove the speaker holder (2).

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3 – Remove the tweeter from the speaker holder

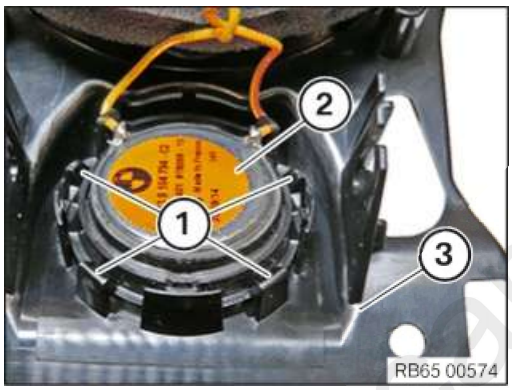


- Disconnect the plug connection (1).
- Remove the resistor (2).



- Loosen the latch mechanisms (1).
- Remove the tweeter (2) from the speaker holder (3).

4 – Install the tweeter in the speaker holder



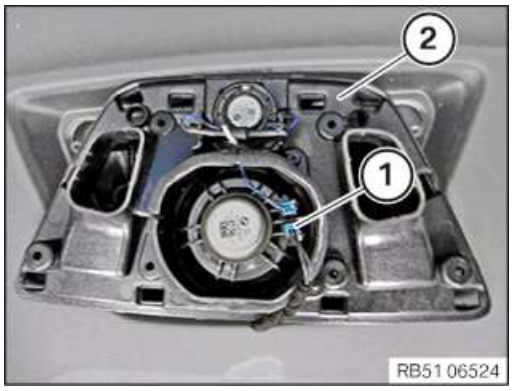
- Correctly position the tweeter (2) on the speaker holder (3).
- Correctly engage the tweeter (2) in the latch mechanisms (1).



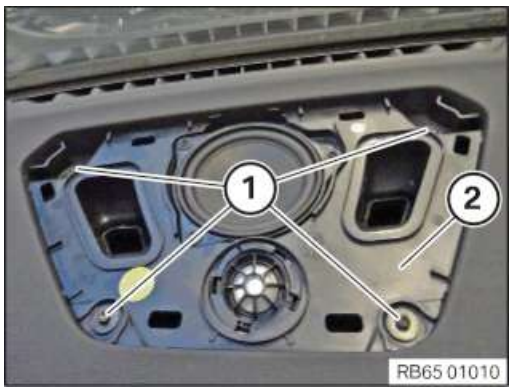
- Insert resistance (2).
- Connect connector (1).

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5 – Install the speaker holder at the instrument panel



- Position the speaker holder (2).
- Connect connector (1).

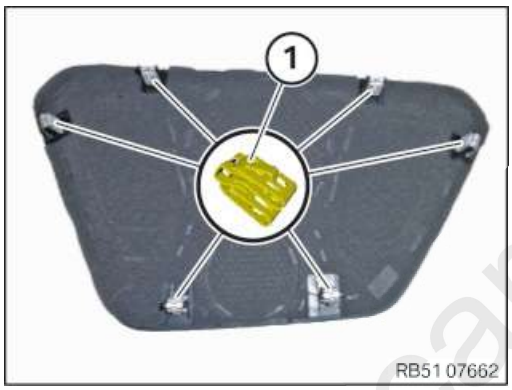


- Install the speaker holder (2).
- Tighten the screws (1).

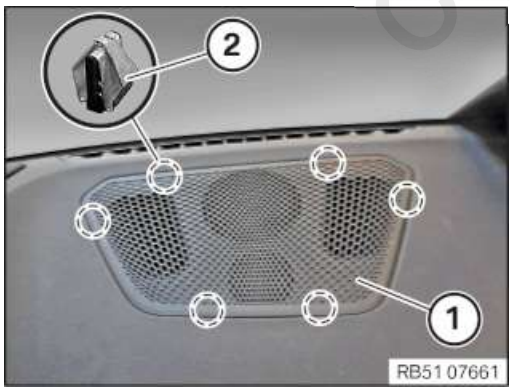
Speaker to support / support to instrument panel / support to body

Screw		Tightening torque	1,8 Nm

6 – Install the speaker trim at the instrument panel



- Check clamps (1) for damage.
- Replace broken or missing clamps (1).



- Position the speaker trim (1) correctly and engage it at the clamps (2).

Additional Information

Overview of Tightening Torques

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Speaker to support / support to instrument panel / support to body Used in step 5

Screw		Tightening torque	1,8 Nm

Overview of Special Tools

0 496 569 (00 9 325) Wedge



Common Used in step 1

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)

cardiagn.com

65 13 050 Removing and installing/replacing the speaker

PRELIMINARY WORK

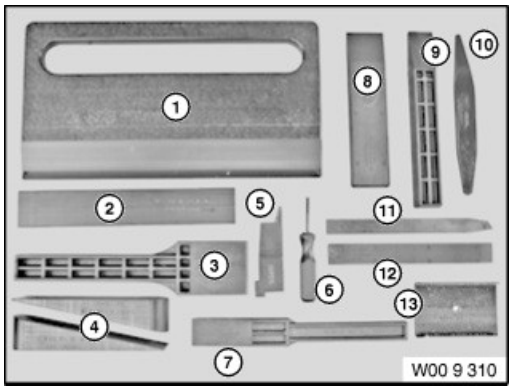
1 – Remove front door trim panel

RISK OF DAMAGE

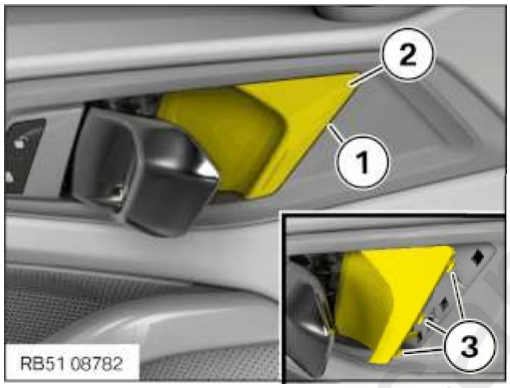
Damage of high-quality surfaces.

Plastic wedges can damage high-quality surfaces.

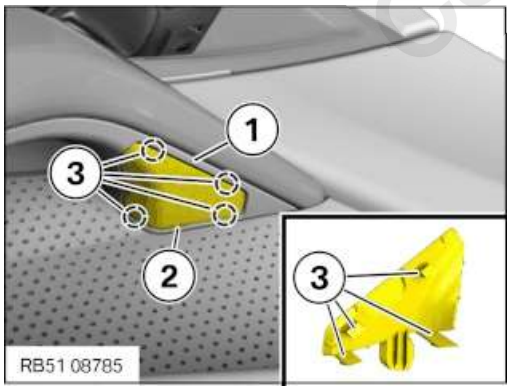
- Protect surfaces from damage.



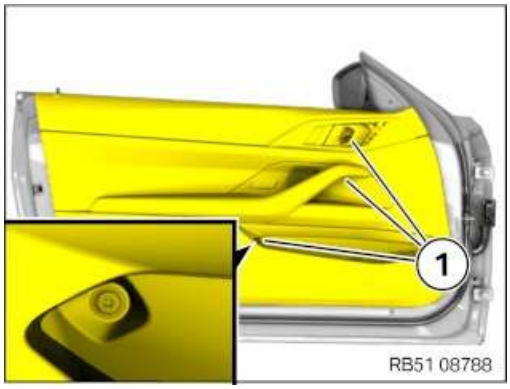
- Have the set of special tools 0 493 752 (00 9 329) ready.



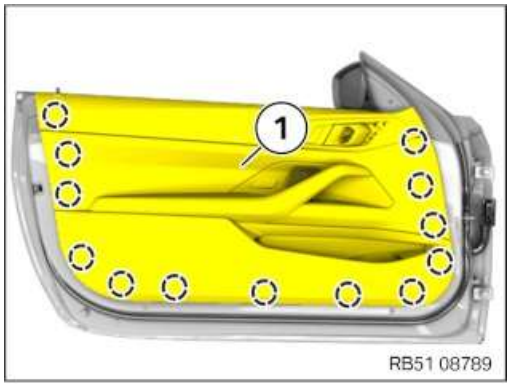
- Pull the door handle.
- Position suitable special tool on the recess in the area (1) .
- Unclip the cover of the door handle (2) with the latch mechanisms (3).
- Feed out the cover of the door handle (2) from the latch mechanisms and remove it forwards.



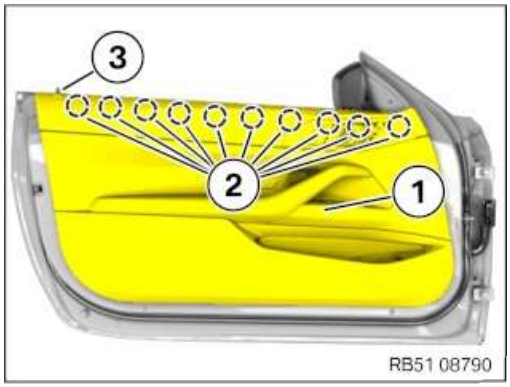
- Position suitable special tool on the recess in the area (1) .
- Unclip the cover (2) with the latch mechanisms (3) and remove it downwards.



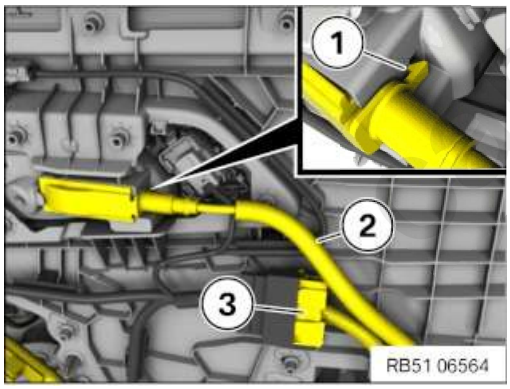
- Loosen screws (1).



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



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



NOTICE

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

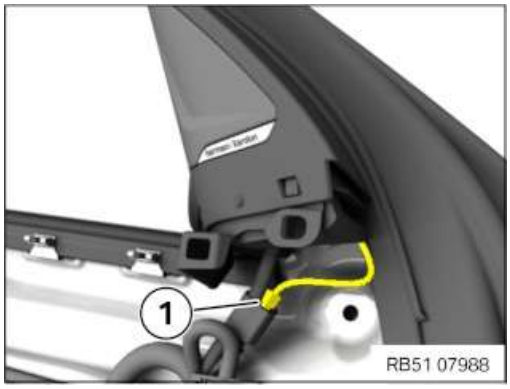
- Release the latch mechanism (1) and feed out the Bowden cable for the inner door handle (2).

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

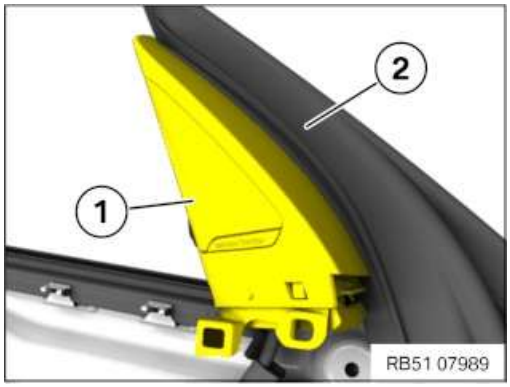
2 – Removing mirror triangle

NOTICE

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



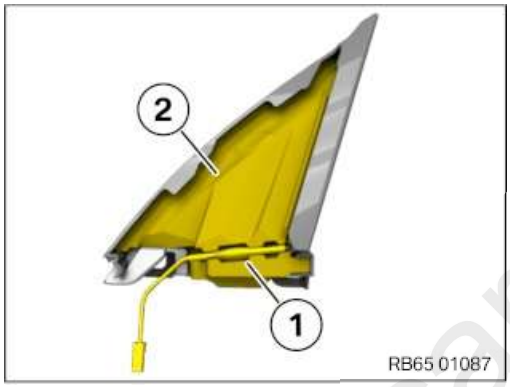
- **For equipment specification with tweeter.**
- Unlock plug connection (1) and disconnect.



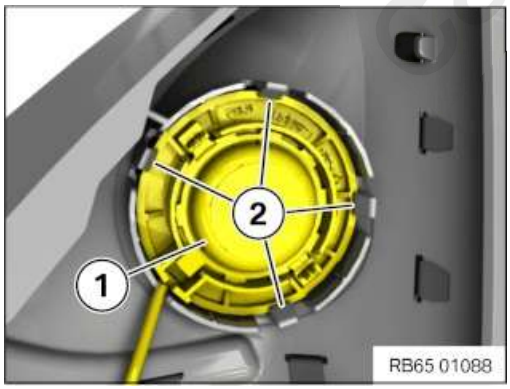
- Feed out the mirror triangle (1) from the inner window recess finisher strip (2) .

MAIN WORK

3 – Remove tweeter



- Unclip the resistor (1) with the cable from the foam part (2).
- Remove the foam part (2).

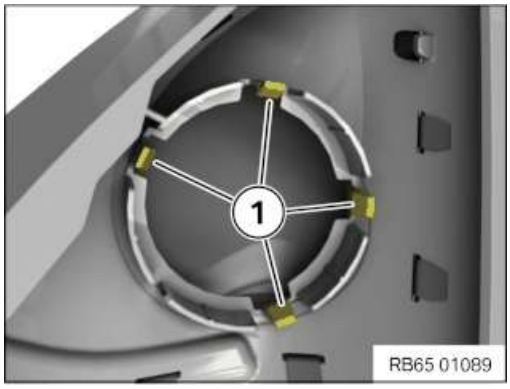


- Release the tweeter (1) from the latch mechanisms (2) and remove it.

4 – Install tweeter

Check

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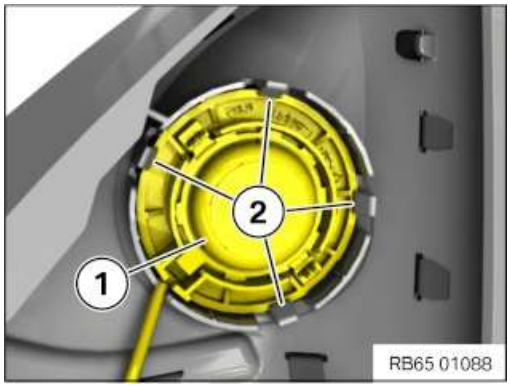
- Check the latch mechanisms (1) on the mirror triangle for damage.

Result

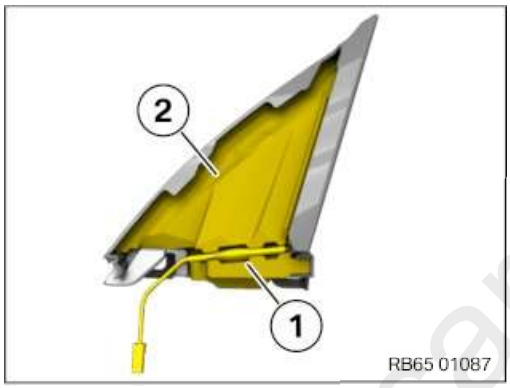
» Latch mechanisms (1) are damaged.

Measure

- Renew the mirror triangle.



- Insert the tweeter (1) and clip in the latch mechanisms (2) .



- Install the foam part (2).
- Clip in the resistor (1) with the cable in the foam part (2).

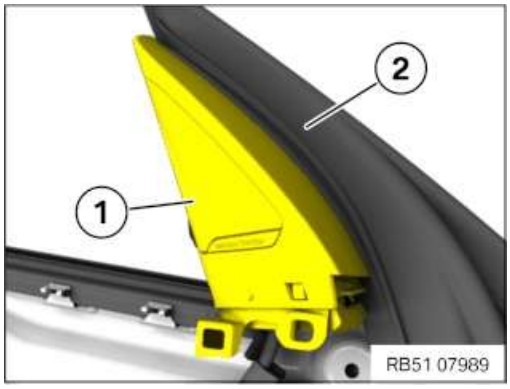
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POSTPROCESSES

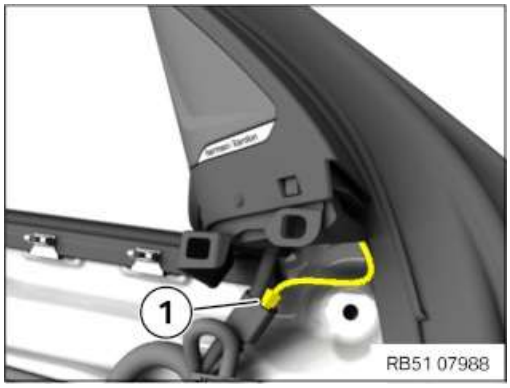
5 – Installing mirror triangle

NOTICE

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

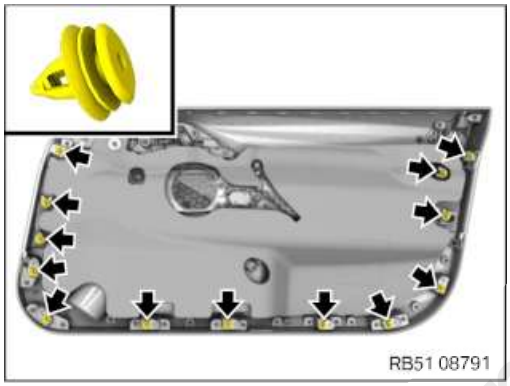


- Insert the mirror triangle (1) into the inner window recess finisher strip (2) and position it correctly.

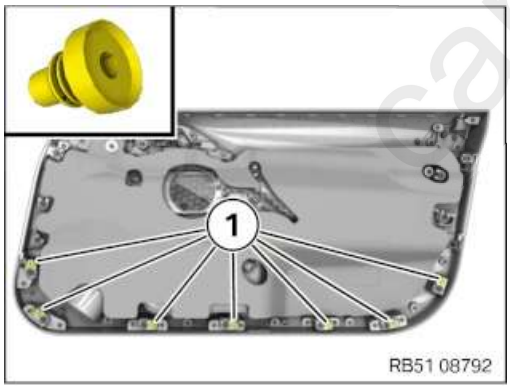


- **For equipment specification with tweeter.**
- Connect connectors (1) and lock.

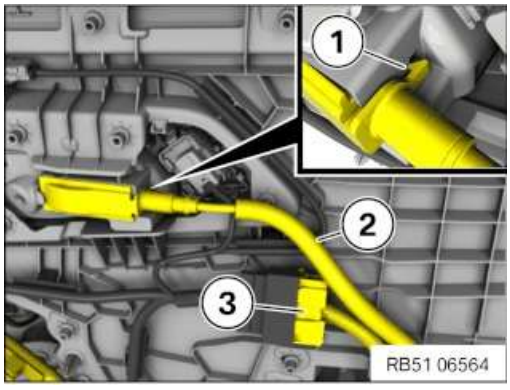
6 – Install front door trim panel



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



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

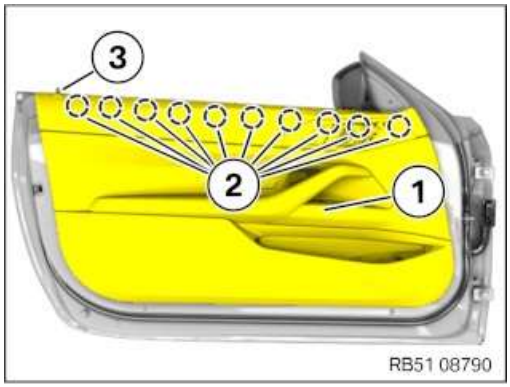


NOTICE

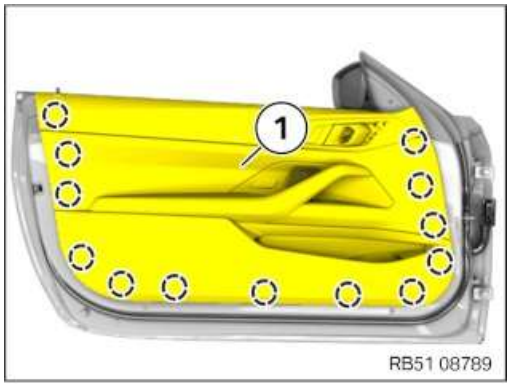
Schematic diagram is for example purposes. Some parts may differ in certain details.

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

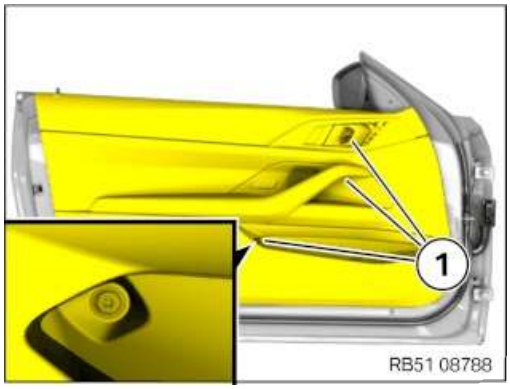
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- Insert the front door trim panel (1) from the top over the operating rod (3) and clip it in with the latch mechanisms (2) .



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

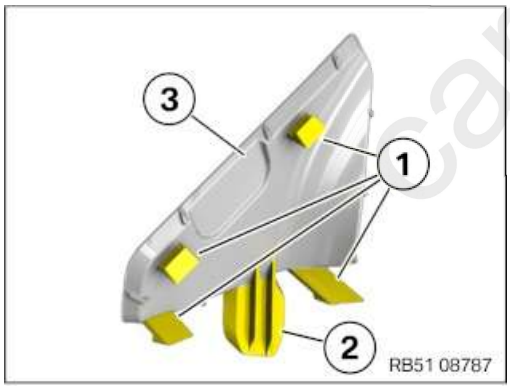


- Tighten the screws (1).

Door trim panel

Oval-head screw		Tightening torque	3 Nm

Check



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

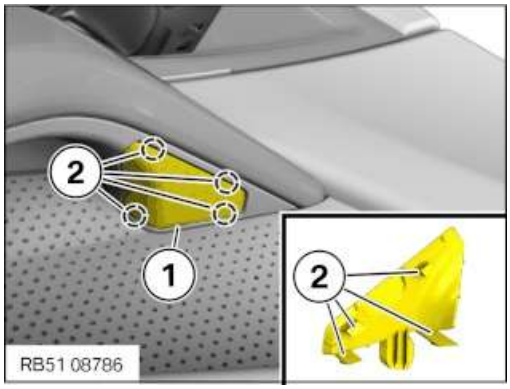
Result

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

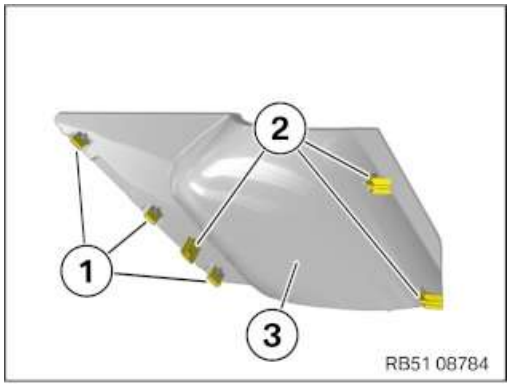
Measure

- Replace the cover (3).

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



Check

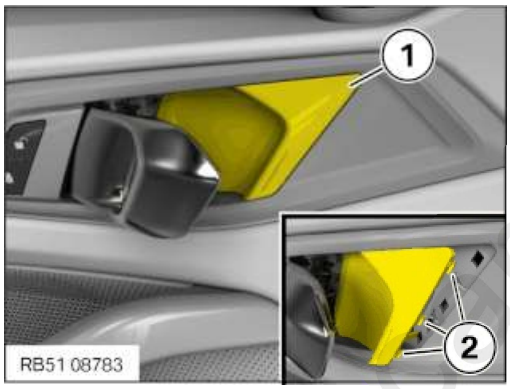
- Check the latch mechanisms (1) and the guides (2) at the cover of the door handle (3) for door handle.

Result

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

Measure

- Replace door handle cover (3).



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

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Additional Information

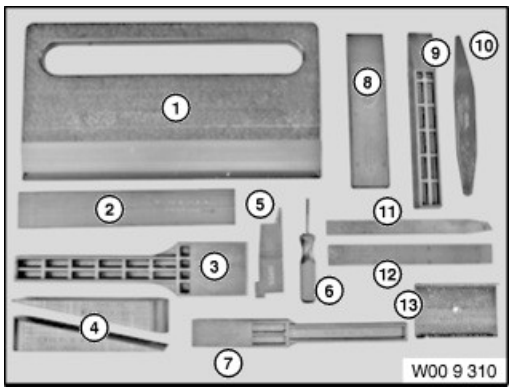
Overview of Tightening Torques

Door trim panel Used in step 6

Oval-head screw		Tightening torque	3 Nm

Overview of Special Tools

0 493 752 (00 9 329) Case



Common	Used in step 1
Usage	(Case) with insert without mounting wedges, delivery while stocks last - as of 02/2019.
Included in the tool or work	0 490 527
Storage location	Individual
Replaced by	
In connection with	
SI-Number	01 07 09 (530)

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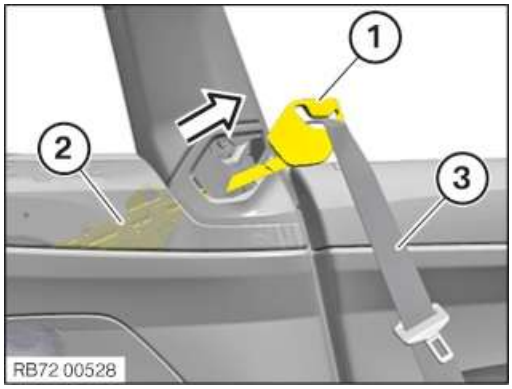
65 13 080 Removing and installing/replacing the speaker

NOTICE

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

PRELIMINARY WORK

1 – Removing seat-belt assistant hand

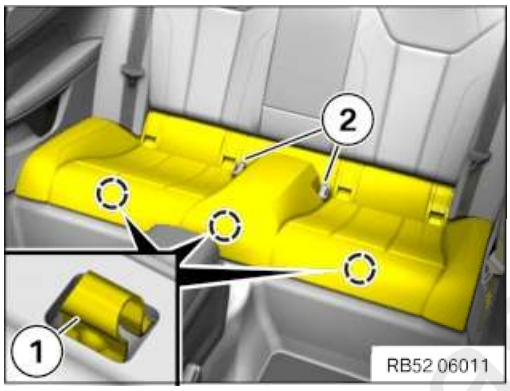


NOTICE

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

- Feed out the seat-belt assistant hand (1) in direction of arrow from the seat belt extender (2) carefully.
- Feed out upper seat belt (3) from the seat-belt assistant hand (1).

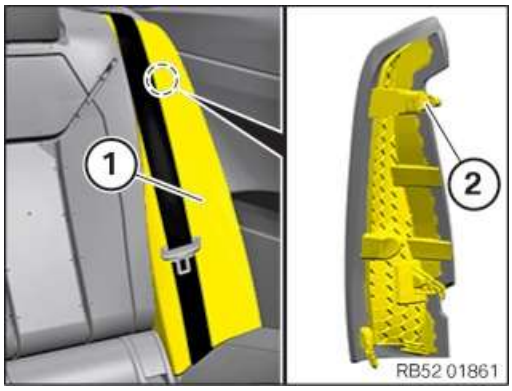
2 – Remove rear seat bench



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

3 – Remove armrest side section

▸ **Remove armrest side section**



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

4 – Remove C-pillar trim panel

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WARNING

Pyrotechnic components.

Danger! Life-threatening injuries!

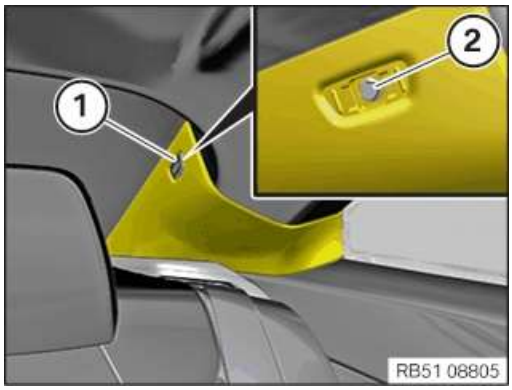
- All work on pyrotechnic parts may be carried out by technically experienced and appropriately trained personnel only.
- Replace any damaged part or ones that have been dropped.
- For additional information see: 72 00 Safety regulations on handling components with gas generators.

RISK OF DAMAGE

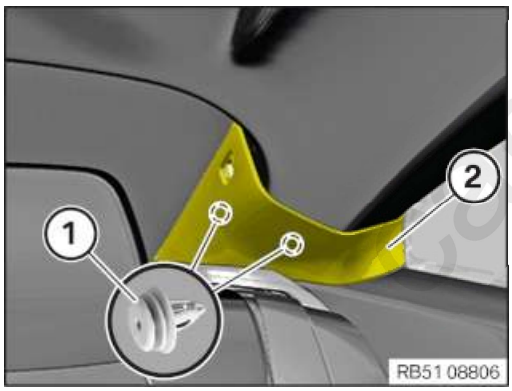
Damage to the head airbag.

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

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



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



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

5 – Removing the inner door sill cover strip

RISK OF DAMAGE

Bending of plastic parts.

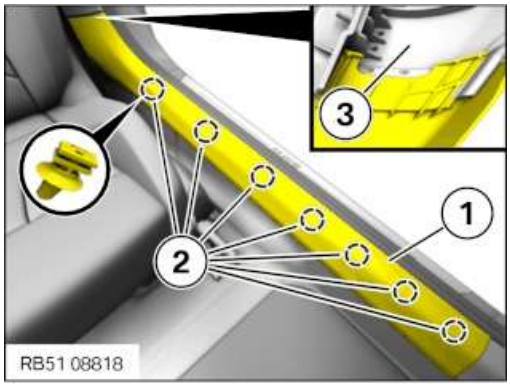
Application of too much force can lead to bending of plastic parts.

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

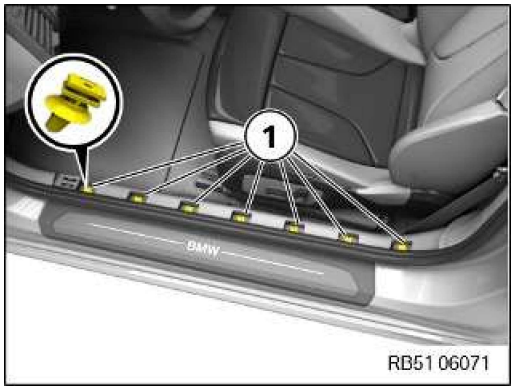
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NOTICE

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

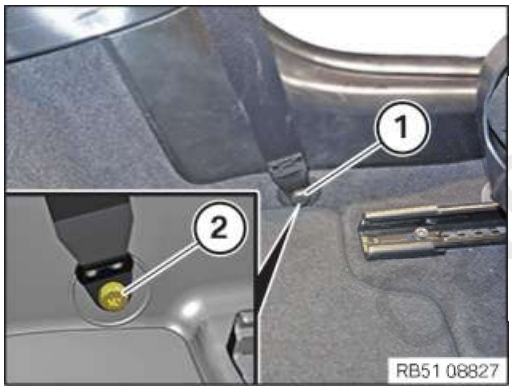


- Release door sill cover strip (1) with clips (2) starting from the front using a suitable special tool from the set of special tools 0 493 752 (00 9 329).
- Guide out and remove door sill cover strip (1) under the rear side trim panel (3) .

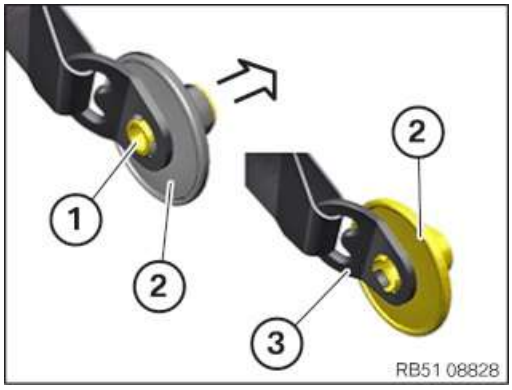


- If necessary, remove clips (1) and connect them to the door sill cover strip.

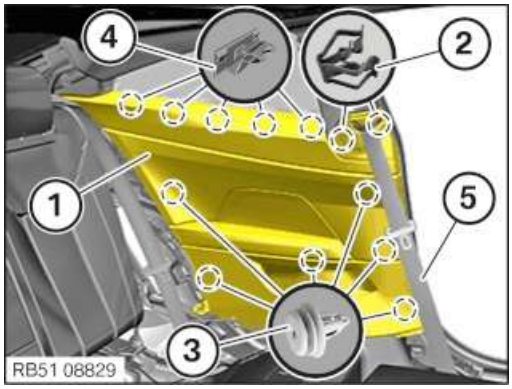
6 – Remove rear side trim panel



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

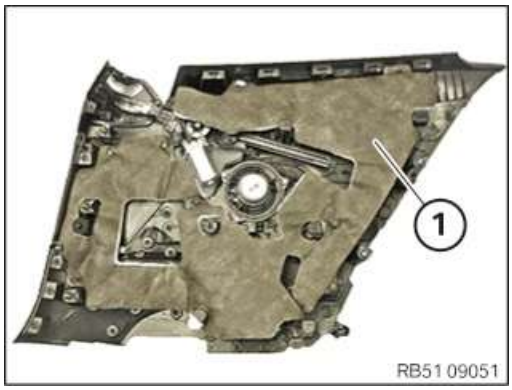


- Pull out the sleeve (1) from the cover (2) of the end fitting (3).
- Unclip the cover (2) of the end fitting (3) from the end fitting (3).



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

7 – Removing sound insulation on the side trim panel



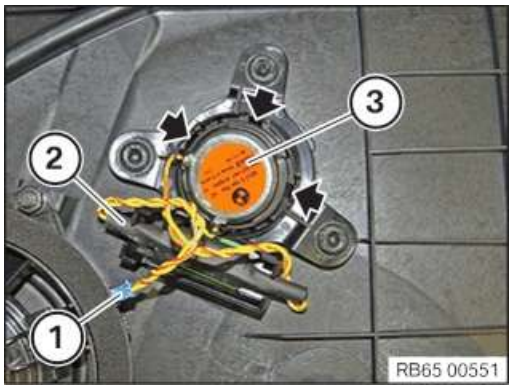
- Carefully remove the sound insulation (1).

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8 – Removing the tweeter in the rear side trim panel

NOTICE

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

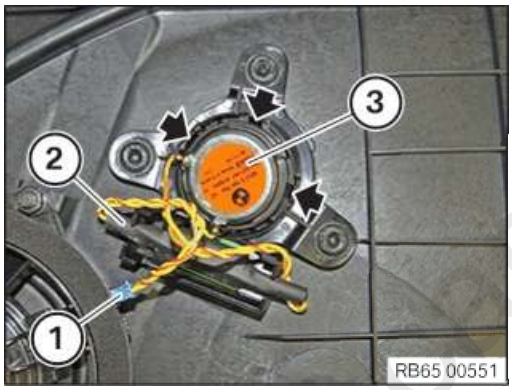


- Push the acoustic fleece a little to one side if required.
- Unlock plug connection (1) and disconnect.
- Unclip the resistance (2).
- Unlock the latch mechanisms (arrows).
- Remove tweeter (3).

9 – Installing tweeter in the rear side trim panel

NOTICE

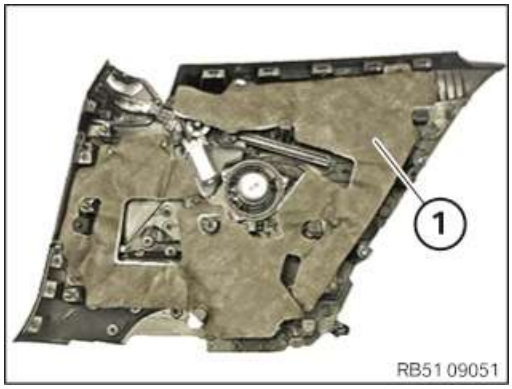
Schematic diagram is for example purposes. Some parts may differ in certain details.



- Attach the tweeter (3) and engage it into the latch mechanisms (arrows).
- Clip in the resistor (2).
- Connect plug connection (1) and lock.
- Position the acoustic fleece correctly as needed.

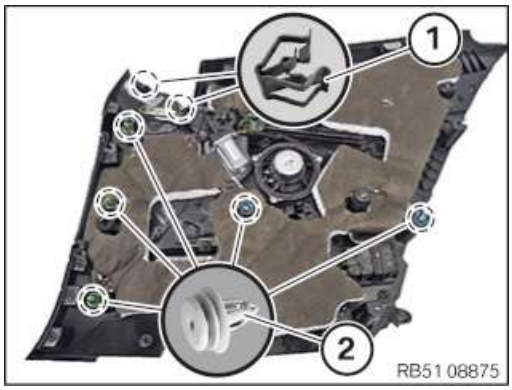
POSTPROCESSES

10 – Installing the sound insulation on the side trim panel

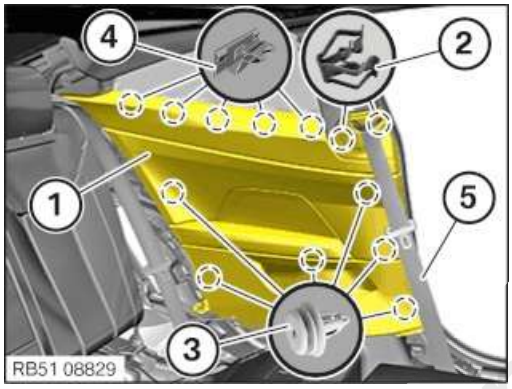


- Install the sound insulation (1) and fasten it.

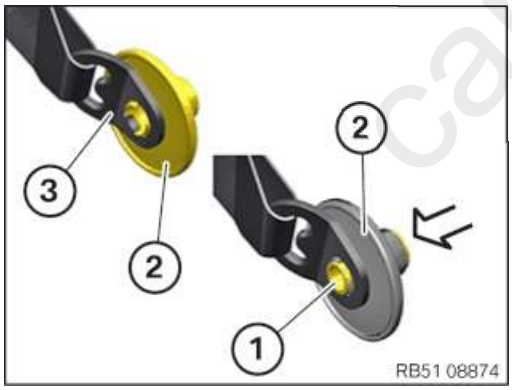
11 – Install rear side trim panel



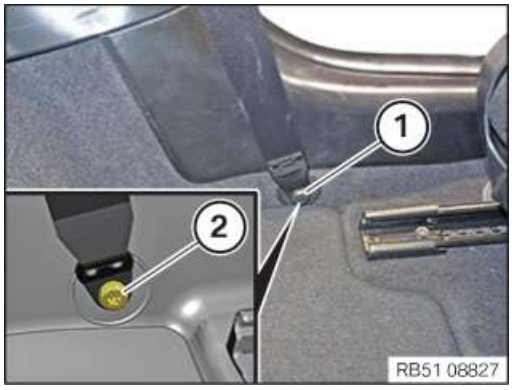
- Check clamps (1) for damage; renew them if necessary.
- Check clips (2) for damage, replace if necessary.



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



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



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

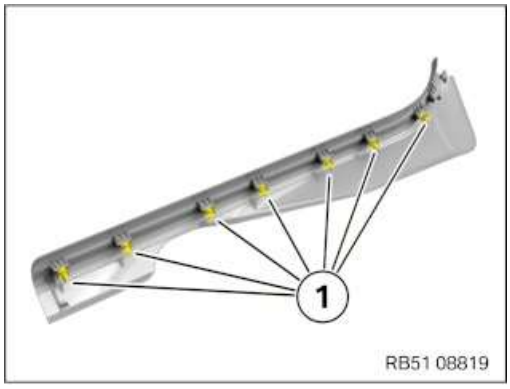
End fitting to body

M10		Tightening torque	42 Nm

- Clip in cover cap (1).

12 – Installing the inner door sill cover strip

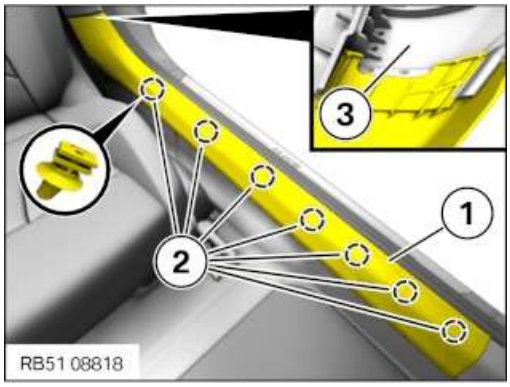
cardiagn.com



NOTICE

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

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



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

13 – Installing C-pillar trim panel

WARNING

Pyrotechnic components.

Danger! Life-threatening injuries!

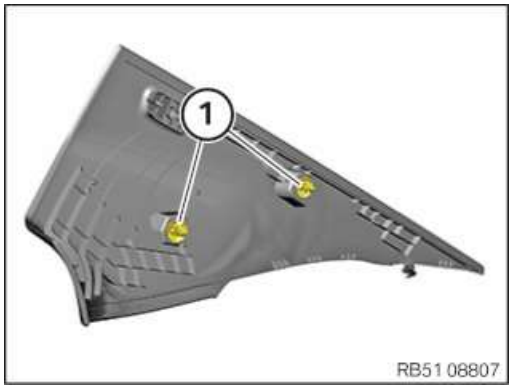
- All work on pyrotechnic parts may be carried out by technically experienced and appropriately trained personnel only.
- Replace any damaged part or ones that have been dropped.
- For additional information see: 72 00 Safety regulations on handling components with gas generators.

RISK OF DAMAGE

Damage to the head airbag.

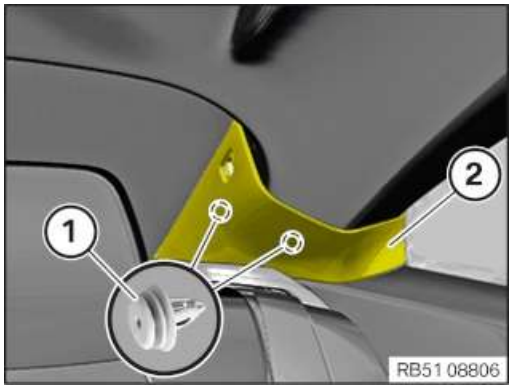
Improper use of a tool when removing the trim panel may damage the head airbag.

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

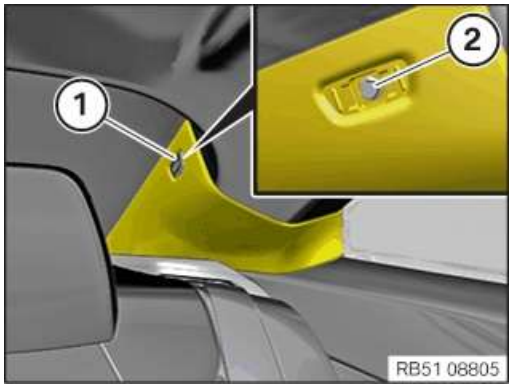


- Check clips (1) for damage and, if necessary, renew them.

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



- Tighten down screw (2).

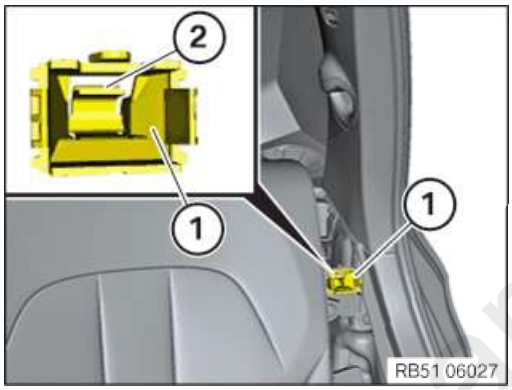
C-pillar trim panel to body

Screw		Tightening torque	2,6 Nm

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

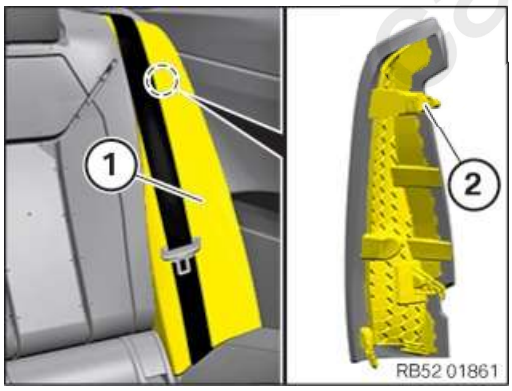
14 – Installing backrest side section

▸ **Installing backrest side section**



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

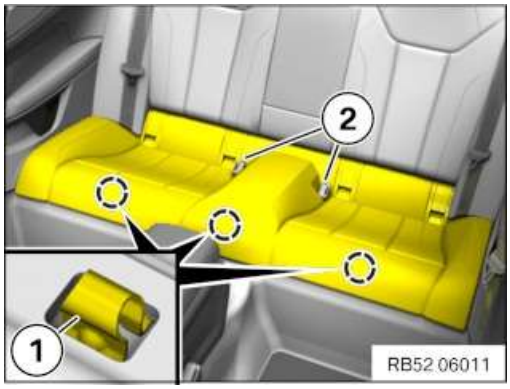
  The mounting element (1) must not be damaged or missing.
- Fit mounting element (1) on the backrest side section.



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

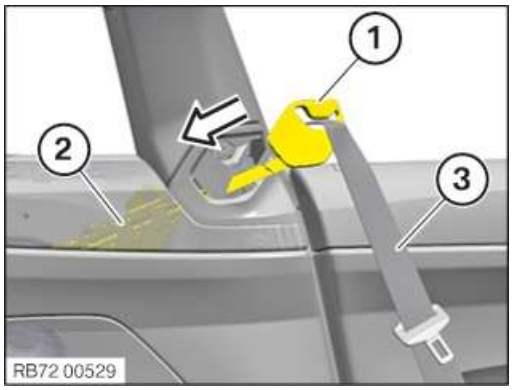
15 – Installing the rear seat bench

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

16 – Installing seat-belt assistant hand



NOTICE

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

- Guide in upper seat belt (3) into the seat-belt assistant hand (1).
- Guide in seat-belt assistant hand (1) in direction of arrow into the seat belt extender (2) carefully.

Additional Information

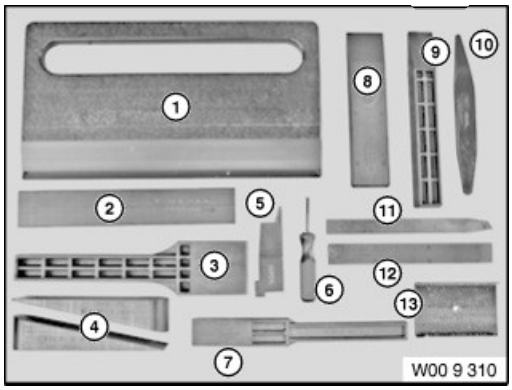
Overview of Tightening Torques

End fitting to body			Used in step 11
M10		Tightening torque	42 Nm

C-pillar trim panel to body			Used in step 13
Screw		Tightening torque	2,6 Nm

Overview of Special Tools

0 493 752 (00 9 329) Case



Common	Used in step 5
Usage	(Case) with insert without mounting wedges, delivery while stocks last - as of 02/2019.
Included in the tool or work	0 490 527
Storage location	Individual
Replaced by	
In connection with	
SI-Number	01 07 09 (530)

Links

Repair instructions (PRE)	Used in step
Notes on 48-V battery	314

General repair instructions	Used in step

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72 00 ... Safety regulations for handling components with gas generators	314

Repair instructions	**Used in step**
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	314
61 20 900 Disconnecting and connecting battery earth lead	314
61 20 900 Disconnecting and connecting battery earth lead	314
61 20 900 Disconnecting and connecting battery earth lead	314
61 20 900 Disconnecting and connecting battery earth lead	314
61 20 900 Disconnecting and connecting battery earth lead	314
61 20 900 Disconnecting and connecting battery earth lead	314
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	314
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	314
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	314
61 20 900 Disconnecting and connecting battery earth lead	314
61 20 900 Disconnecting and connecting battery earth lead	314
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	314
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61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	314
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	314
61 20 900 Disconnecting and connecting battery earth lead	314
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	314
61 20 900 Disconnecting and connecting battery earth lead (Plug-in Hybrid Electric Vehicle)	314
61 20 900 Disconnecting and connecting battery earth lead	314
61 20 900 Disconnecting and connecting battery earth lead	314
61 20 900 Disconnecting and connecting battery earth lead	314
61 20 900 Disconnecting and connecting battery earth lead	314
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61 20 900 Disconnecting and connecting battery earth lead	314
61 20 900 Disconnecting and connecting battery earth lead	314
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	314
61 20 900 Disconnecting and connecting battery earth lead	314
61 20 900 Disconnecting and connecting battery earth lead	314
61 20 900 Disconnecting and connecting battery earth lead	314

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65 13 195 Removing and installing/replacing tweeter in rear

RISK OF DAMAGE

Damage of high-quality surfaces.

Plastic wedges can damage high-quality surfaces.

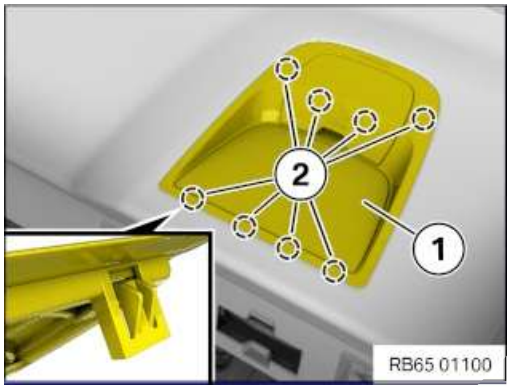
- Protect surfaces from damage.

NOTICE

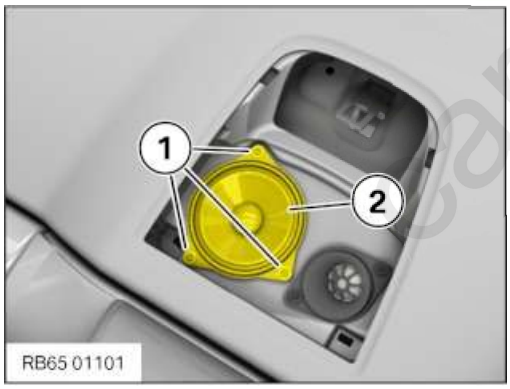
Description is for left component only. Procedure on the right side is identical.

PRELIMINARY WORK

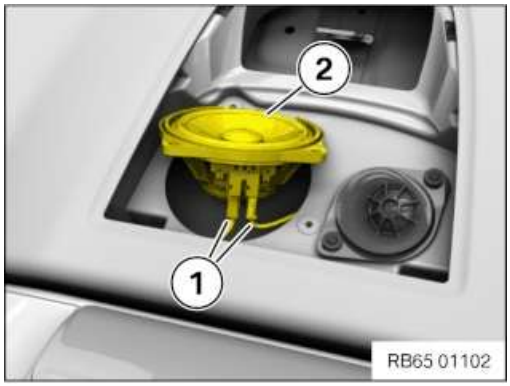
1 – Remove rear mid-range speaker



- Release the cover (1) with a suitable special tool from the set of special tools 0 493 752 (00 9 329) at the latch mechanisms (2).
- Remove the cover (1) from the storage shelf.



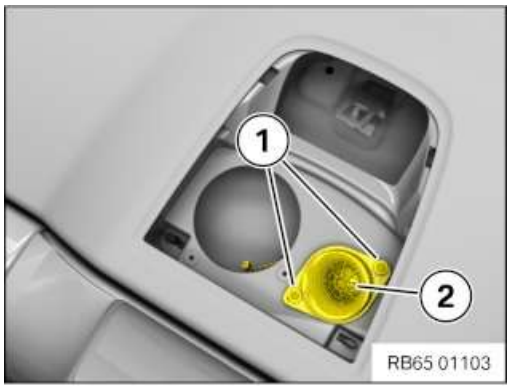
- Loosen screws (1).
- Lift the mid-range speaker (2) to reach the plug connections below that.



- Unlock plug connections (1) and disconnect.
- Remove the mid-range speaker (2).

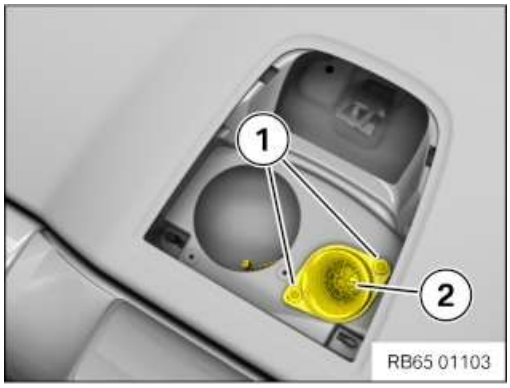
cardiagn.com

2 – Remove rear tweeter



- Loosen screws (1).
- Feed out and remove the tweeter (2) with the cable.

3 – Installing the rear tweeter



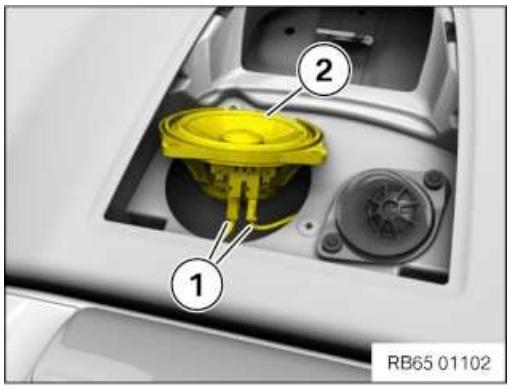
- Guide in tweeter (2) with the cable and position it correctly.
- Tighten the screws (1).

Speaker to storage shelf/support

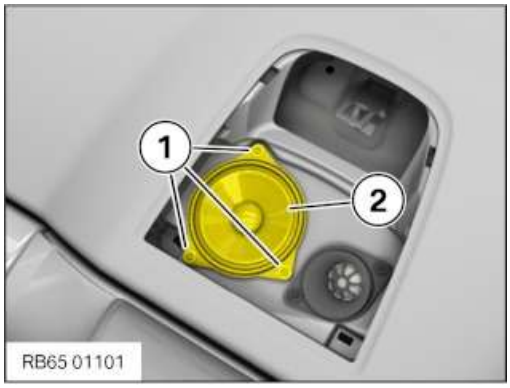
Screw		Tightening torque	1,8 Nm

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4 – Installing the rear mid-range speaker



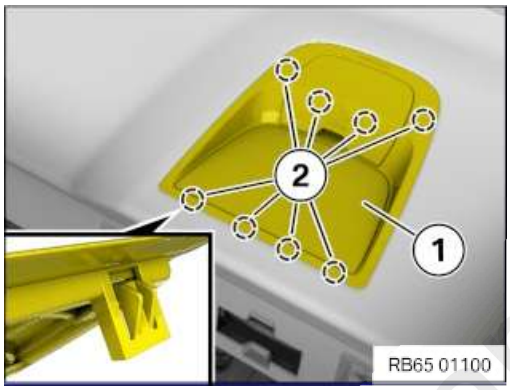
- Position mid-range speaker (2).
- Connect connectors (1) and lock.



- Position mid-range speaker (2) correctly.
- Tighten the screws (1).

Speaker to storage shelf/support

Screw		Tightening torque	1,8 Nm



- Position cover (1) of the storage shelf.
- Clip cover (1) with latch mechanisms (2) into the storage shelf.

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Additional Information

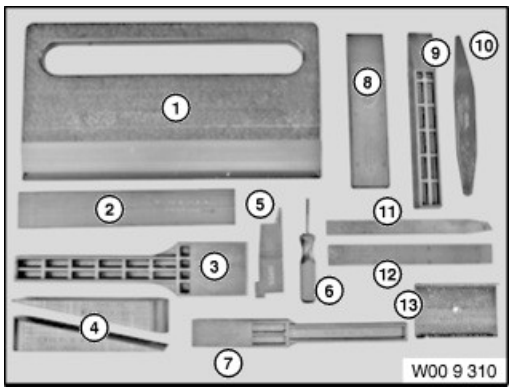
Overview of Tightening Torques

Speaker to storage shelf/support Used in step 34

Screw		Tightening torque	1,8 Nm

Overview of Special Tools

0 493 752 (00 9 329) Case



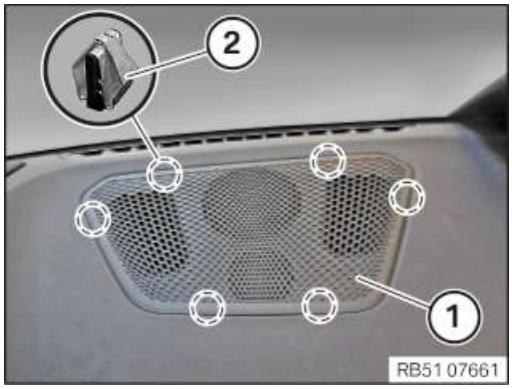
Common	Used in step 1
Usage	(Case) with insert without mounting wedges, delivery while stocks last - as of 02/2019.
Included in the tool or work	0 490 527
Storage location	Individual
Replaced by	
In connection with	
SI-Number	01 07 09 (530)

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65 13 066 Replace the front speaker holder

PRELIMINARY WORK

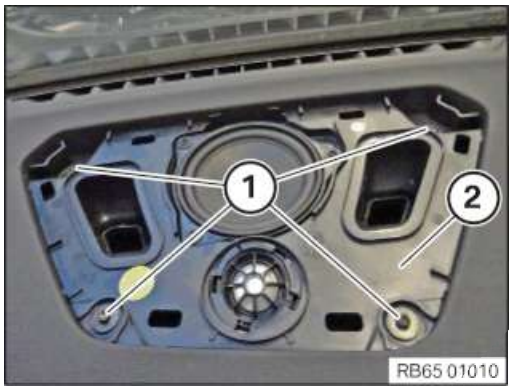
1 – Remove the speaker trim at the instrument panel



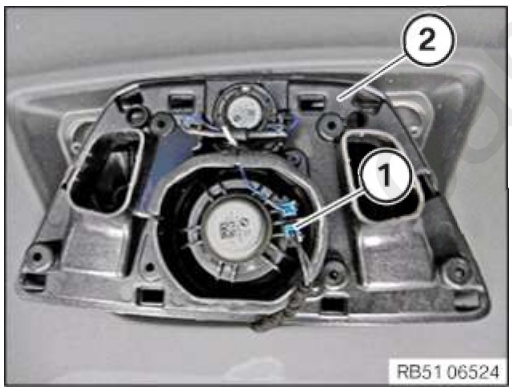
- Lever out the speaker trim (1) with the special tool 0 496 569 (00 9 325) from the clamps (2) toward the top and remove.

MAIN WORK

2 – Remove the speaker holder at the instrument panel

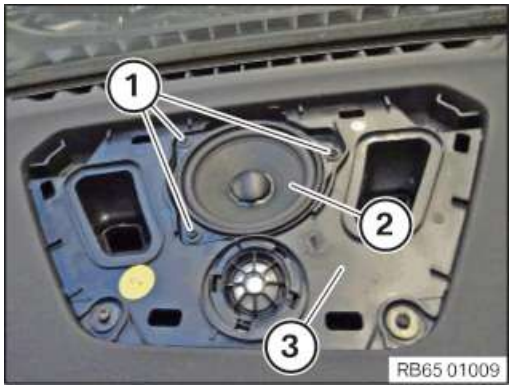


- Loosen screws (1).
- Pull out speaker holder (2) slightly with the loudspeakers and tilt it to the side.



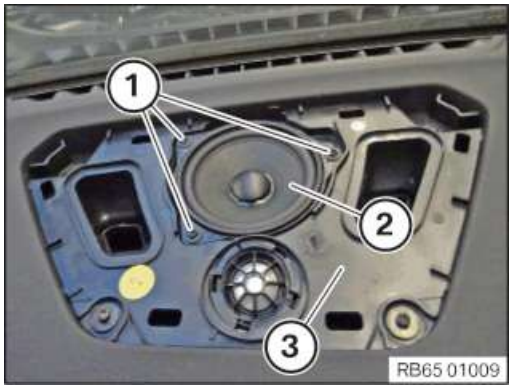
- Unlock plug connection (1) and disconnect.
- Remove the speaker holder (2).

3 – When replacing the speaker holder: Remount the mid-range speaker



- Loosen screws (1).
- Remove mid-range speaker (2) from speaker holder (3).

erdiagn.com

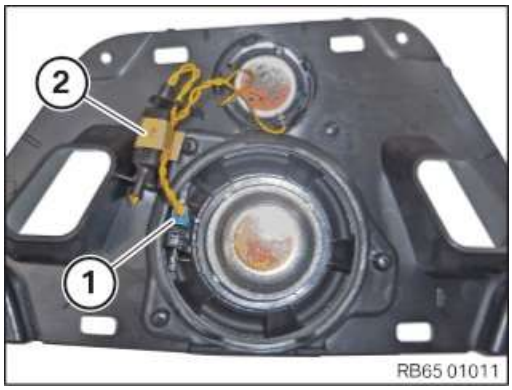


- Install the mid-range speaker (2) in the speaker holder (3).
- Tighten the screws (1).

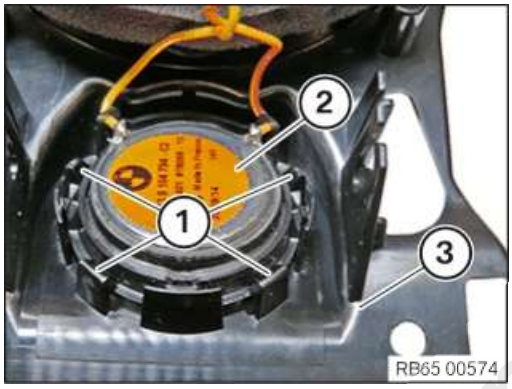
Speaker on instrument panel / speaker on door

Screw		Tightening torque	1,8 Nm

4 – Remove the tweeter from the speaker holder

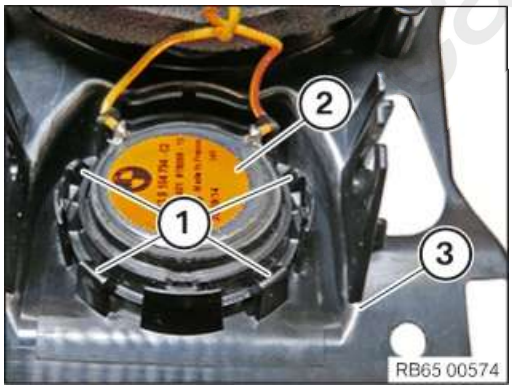


- Disconnect the plug connection (1).
- Remove the resistor (2).



- Loosen the latch mechanisms (1).
- Remove the tweeter (2) from the speaker holder (3).

5 – Install the tweeter in the speaker holder



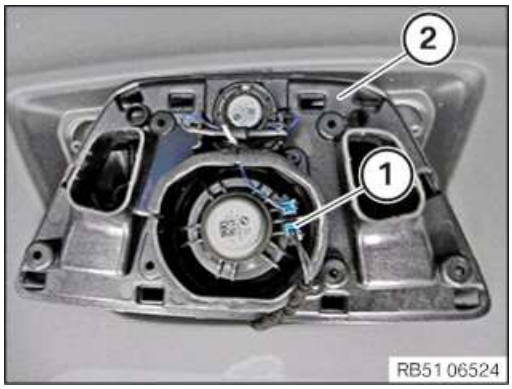
- Correctly position the tweeter (2) on the speaker holder (3).
- Correctly engage the tweeter (2) in the latch mechanisms (1).



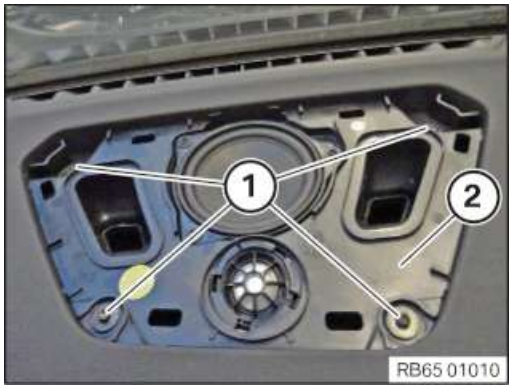
- Insert resistance (2).
- Connect connector (1).

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6 – Install the speaker holder at the instrument panel



- Position the speaker holder (2).
- Connect connector (1).



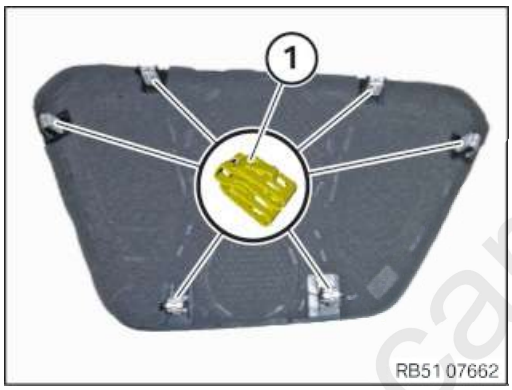
- Install the speaker holder (2).
- Tighten the screws (1).

Speaker to support / support to instrument panel / support to body

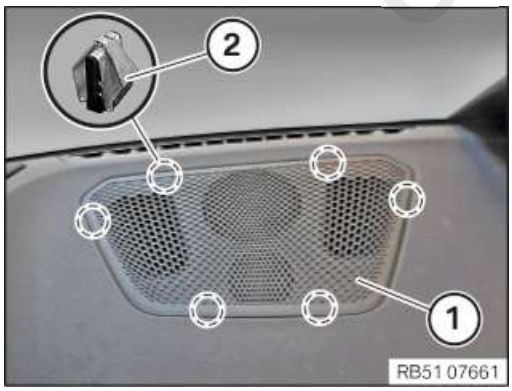
Screw		Tightening torque	1,8 Nm

POSTPROCESSES

7 – Install the speaker trim at the instrument panel



- Check clamps (1) for damage.
- Replace broken or missing clamps (1).



- Position the speaker trim (1) correctly and engage it at the clamps (2).

Additional Information

Overview of Tightening Torques

Speaker on instrument panel / speaker on door Used in step 3

Screw		Tightening torque	1,8 Nm

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Speaker to support / support to instrument panel / support to body Used in step 6

Screw		Tightening torque	1,8 Nm

Overview of Special Tools

0 496 569 (00 9 325) Wedge



Common Used in step 1

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)

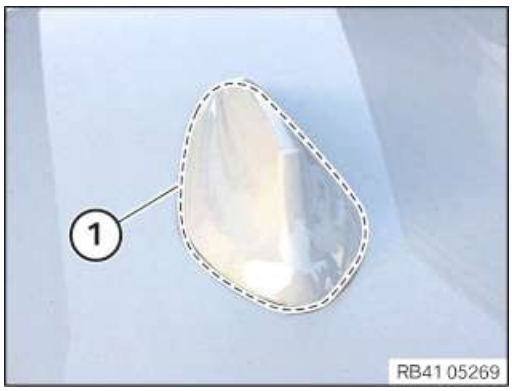
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65 20 026 Checking roof aerial housing for tightness

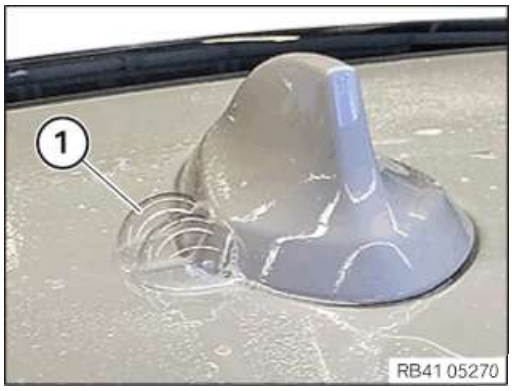
1 Checking roof aerial housing for tightness

- Make a soap solution from soap and water (e.g. washing-up liquid).
- Close all windows, doors and lids.
- Set heater blower to highest level.

  Start the engine if necessary.



- Spray soap solution into the joint (1).



Check

- Watch the joint while an auxiliary person opens the front door and closes it forcefully.
- Repeat procedure several times.

Result

» Soap bubbles are visible in the joint.

Measure

- Disassemble the roof aerial housing and bond it again.

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65 20 090 Removing and installing or replacing aerial amplifier

RISK OF DAMAGE

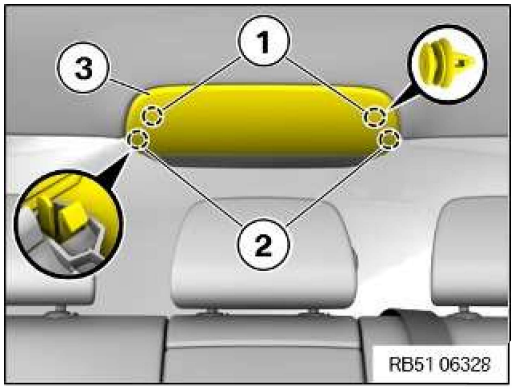
Electrostatic discharge.

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

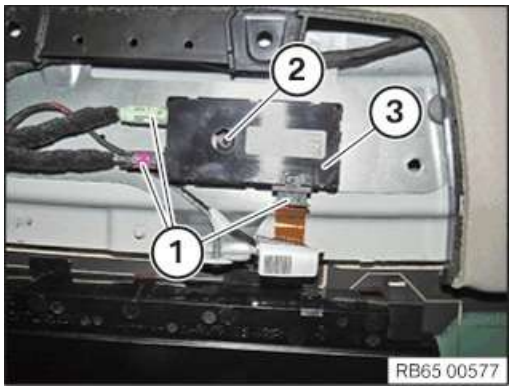
1 – Removing the trim of the additional brake light



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

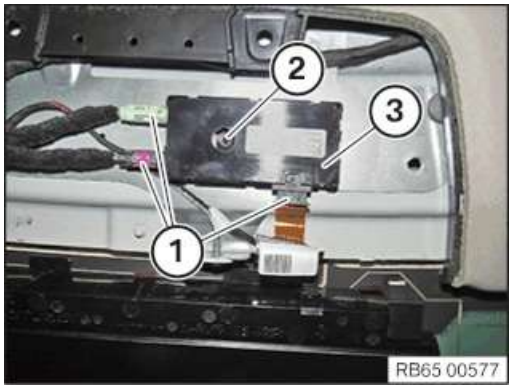
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2 – Removing aerial amplifier



- Unlock and disconnect connector (1).
- Loosen screw (2).
- Remove aerial amplifier (3).

3 – Installing the aerial amplifier



- Correctly position the aerial amplifier (3).
- Tighten down screw (2).

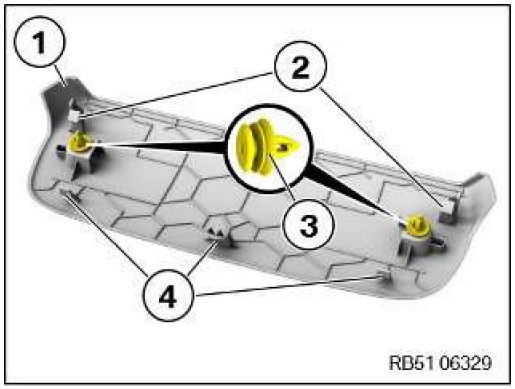
Aerial amplifier to body

Screw		Tightening torque	3 Nm

- Connect connectors (1) and lock.

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4 – Installing trim for additional brake light



Check

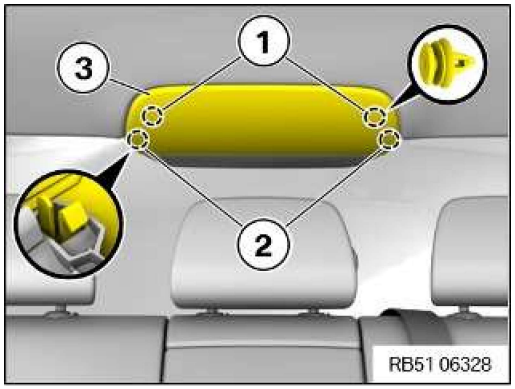
- Check the clips (3) for damage and renew if necessary.
- Check latch mechanisms (2) and guides (4) for damage.

Result

» The latch mechanism or the guide is damaged.

Measure

- Renew the trim for the additional brake light.



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

Additional Information

Overview of Tightening Torques

Aerial amplifier to body			Used in step 3
Screw		Tightening torque	3 Nm

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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65 20 030 Removing and installing roof-mounted aerial housing

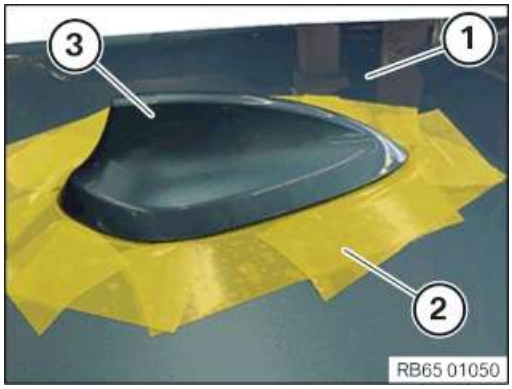
1 – Remove the empty roof-mounted aerial housing

RISK OF DAMAGE

Careless handling of tools and sharp-edged components.

Scratch, surface damage.

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

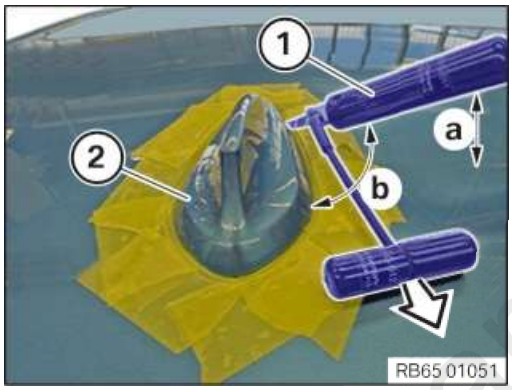


- Slide the yellow plastic adhesive tape (2) under the roof-mounted aerial housing (3) as far as possible.

Expendable materials

Yellow plastic adhesive tape		83199410979

- Mask the roof outer skin (1) as shown.



- Position the special tool 2 470 382 (1) in connection with the special tool as shown.

  Angle (a) = about 45° to the roof outer skin.

  Angle (b) = about 45° to the roof aerial housing
- Cut through the adhesive bead all the way around in the direction of the arrow and remove the roof aerial housing (2).

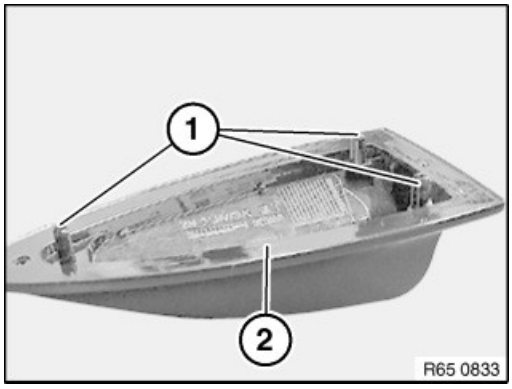
Note: With increased effort, reposition the special tool 1 to recut the adhesive bead, if necessary.

- If necessary, touch up the paintwork damage.

  See additional information.

2 – Installing the roof-mounted aerial housing

Note: The preparations correspond to the instructions of bound windscreens; see additional information.



TECHNICAL INFORMATION

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

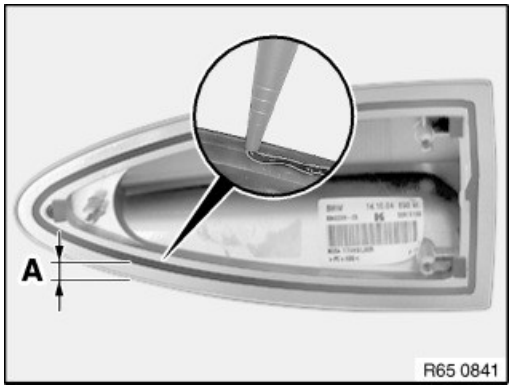
For more information see: 51 31 ... General procedure for disassembly/installation of bonded window glass

- Check centring pins (1) for damage.
- Clean the bonding surface (2) with cleaning agent R1.

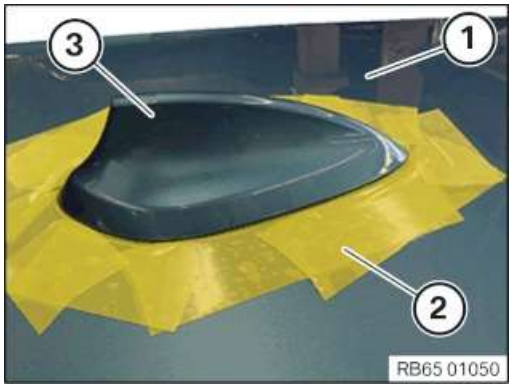
Expendable materials

Cleaning agent R1	100 ml, Bottle	83192211217

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- Apply trace of adhesive bead all round outer contour as follows.
- Distance between adhesive bead and edge of aerial housing:
  - A=6.5 mm ±1 mm
- The start and end of the bead must overlap by a maximum of 10 mm.
- To prevent the adhesive from leaking, the adhesive bead diameter must not exceed 2.5 mm to 3.5 mm.

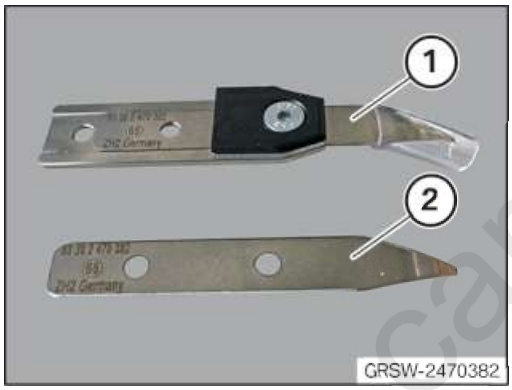


- Join the empty housing coated with adhesive (3) to block by hand.
- To spread the adhesive better, move the empty housing horizontally (3) back and forth while lightly pressing down.
- If necessary, fix the empty housing (3) with adhesive tape and press evenly.
- After bonding, leave vehicle to stand for at least 3 hours at room temperature.
- Remove the adhesive tape (2) from the outer roof panel (1) and if necessary from the empty housing (3).

Additional Information

Overview of Special Tools

2 470 382 Knife



Common	Used in step 1
Usage	The blade set is a supplementary set for the existing SWZ 83 30 2 470 382 / 65 2 010 and is required for disassembling the empty housing of the roof aerial.
Included in the tool or work	
Storage location	individual
Replaced by	
In connection with	
SI-Number	01 08 19 (646)

Replacement tools:

0 496 531 (65 2 014) Blade



Common	Used in step 1
Usage	(Special blade) Replaced by special tool 65 2 013 since 08/2008.
Included in the tool or work	0 494 968
Storage location	
Replaced by	
In connection with	
SI-Number	01 15 08 (475)

Links

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General repair instructions	Used in step
99 00 ... Touching up paintwork damage	12
51 31 ... Notes on window bonding repair kit	2
51 00 ... Overview of consumables (Electronic Parts Catalogue)	2

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65 20 020 Removing and installing/renewing roof aerial

WARNING

Pyrotechnic components.

Danger! Life-threatening injuries!

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

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.

TECHNICAL INFORMATION

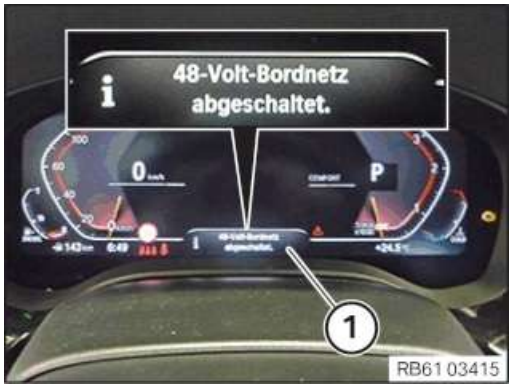
Follow notes for 48-V battery. See further information 6120 ... Notes on 48-V battery.

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- 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.

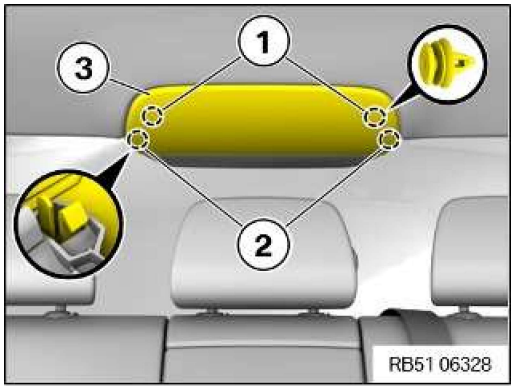
2 – Disconnecting all battery earth leads



- See additional information.

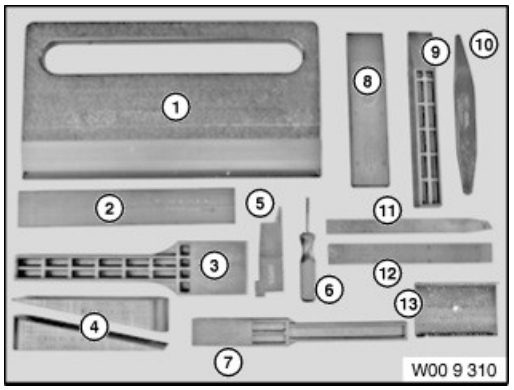
3 – Removing the trim of the additional brake light

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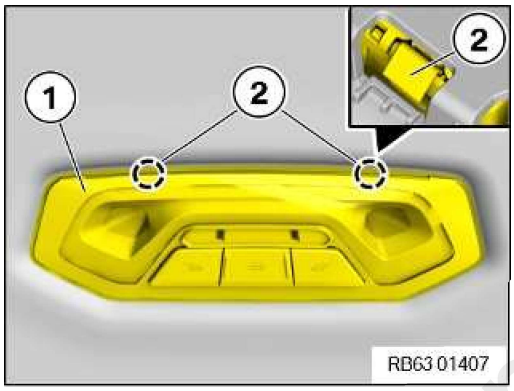


- Loosen the clips (1).
- Release the latch mechanisms (2) and remove the trim of the additional brake light (3).

4 – Remove interior roof light



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



- Lever interior roof light (1) out of clamps (2) using a suitable tool.
- Unlock plug connection and disconnect.

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

NOTICE

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

▸ **Remove C-pillar trim panel**

WARNING

Pyrotechnic components.

Danger! Life-threatening injuries!

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

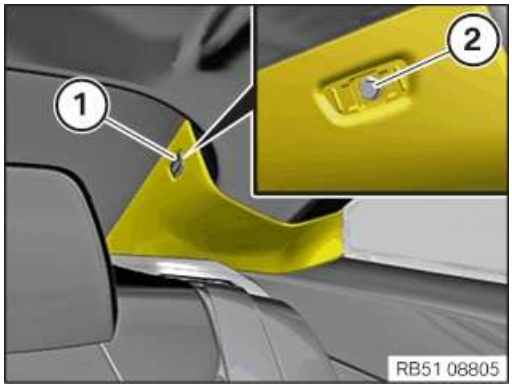
cardiagn.com

RISK OF DAMAGE

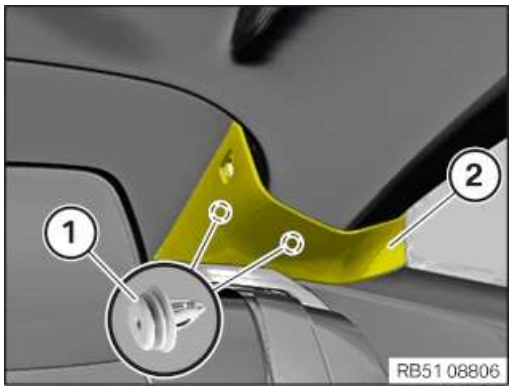
Damage to the head airbag.

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

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



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



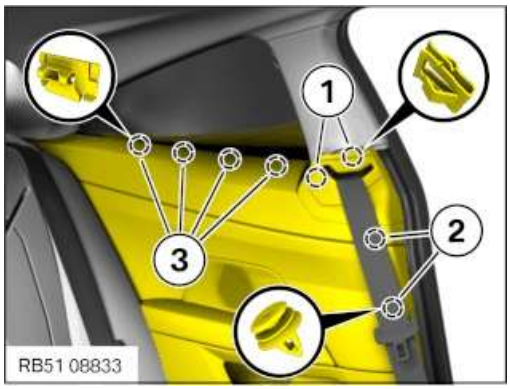
- Unclip C-pillar trim panel (2) from clips (1) and guide it out.

6 – Partially removing the front left and right side trim panels

NOTICE

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

▸ **Partially remove rear side trim panel**



- Release the side trim panel with a suitable special tool from the set of special tools 0 493 752 (00 9 329) at the clamps (1) and the clips (2).
- Feed out the side trim panel from the lip of edge protection and release it from the clamps (3).

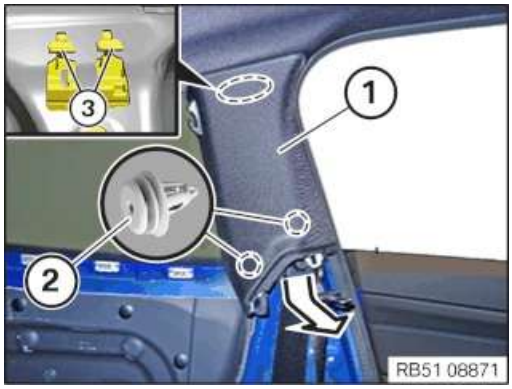
7 – Removing left and right B-pillar trim panel

cardiagn.com

NOTICE

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

▸ **Remove the B-pillar trim panel**

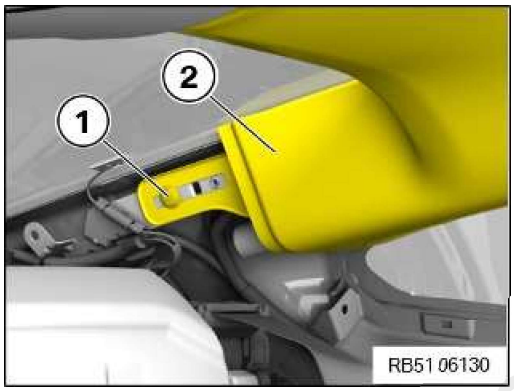


- Unclip the B-pillar trim panel (1) at the clips (2).
- Remove the B-pillar trim panel (1) from the lip of the edge protection and the guides (3) in the direction of the arrow.

8 – Partially lower rear headlining

Prerequisite

The rear seat backrest is folded down toward the front.



NOTICE

Perform the operations on the left and right side.

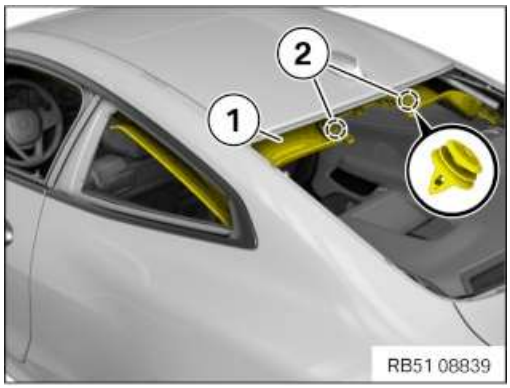
NOTICE

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

NOTICE

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

- Release the expanding rivet (1) on the headlining (2).



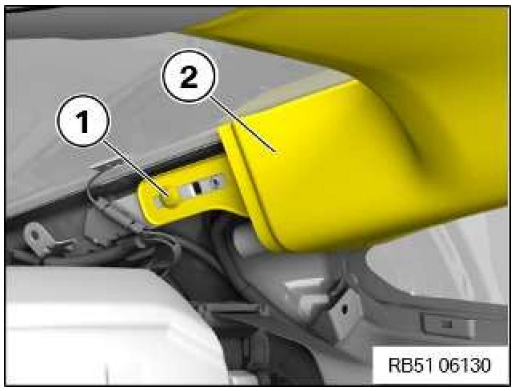
- Release the headlining (1) with the clips (2).
- Feed out the headlining (1) at the respective edge protection and place it down on the head rests of the front seat.

9 – Partially lowering the headlining (with the slide/tilt sunroof) to the rear

Prerequisite

carmanuals.com

The rear seat backrest is folded down toward the front.



NOTICE

Perform the operations on the left and right side.

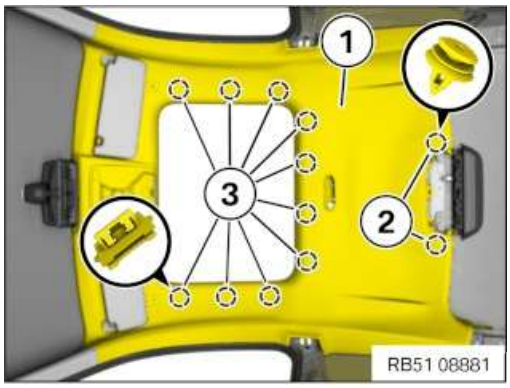
NOTICE

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

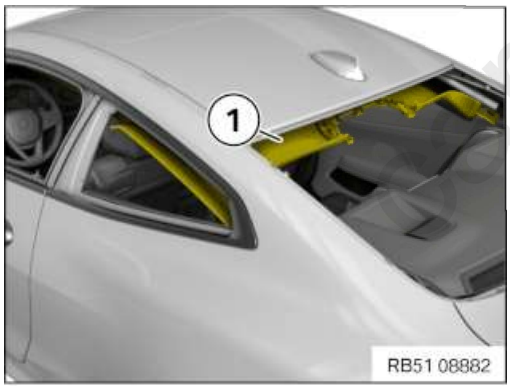
NOTICE

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

- Release expanding rivet (1) on headlining (2).



- Release headlining (1) with clips (2).
- Release headlining (1) with clips (3) and guide it out from the respective edge protection.



- Lower headlining (1) carefully in the rear area and place it on the head rest of the front seats.

10 – Remove the empty roof-mounted aerial housing

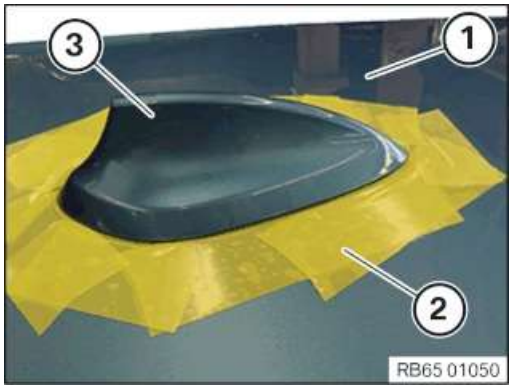
RISK OF DAMAGE

Careless handling of tools and sharp-edged components.

Scratch, surface damage.

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

bordiagn.com

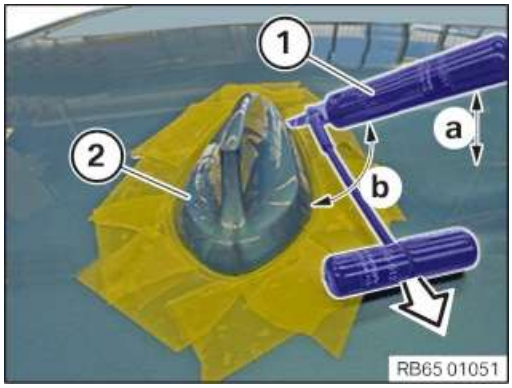


- Slide the yellow plastic adhesive tape (2) under the roof-mounted aerial housing (3) as far as possible.

Expendable materials

Yellow plastic adhesive tape		83199410979

- Mask the roof outer skin (1) as shown.



- Position the special tool 2 470 382 (1) in connection with the special tool as shown.

  Angle (a) = about 45° to the roof outer skin.

  Angle (b) = about 45° to the roof aerial housing
- Cut through the adhesive bead all the way around in the direction of the arrow and remove the roof aerial housing (2).

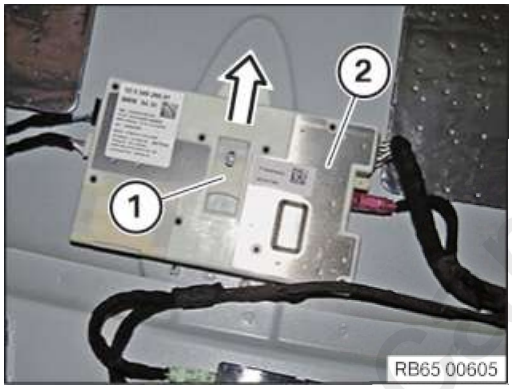
Note: With increased effort, reposition the special tool 1 to recut the adhesive bead, if necessary.

- If necessary, touch up the paintwork damage.

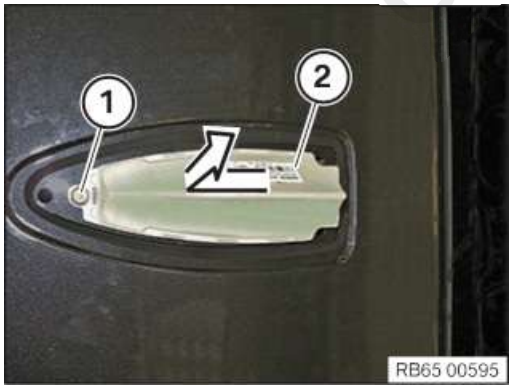
  See additional information.

MAIN WORK

11 – Remove roof aerial



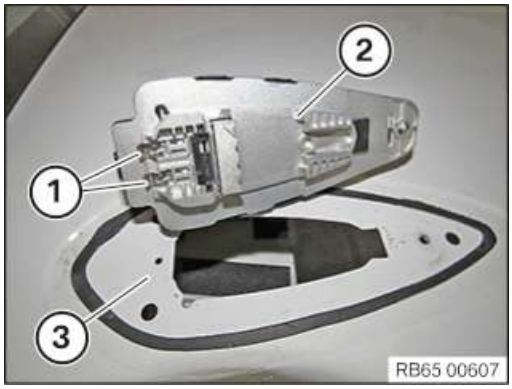
- Unlock the lock (1) downward.
- Slide the TCB (2) in the direction of arrow.



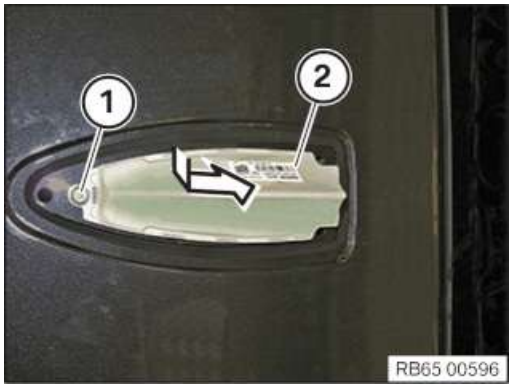
- Loosen screw (1).
- Remove the roof-mounted aerial (2) in the direction of the arrow.

12 – Installing the roof-mounted aerial

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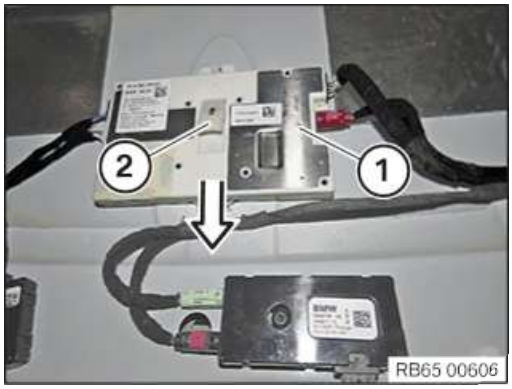
- Locks (1) on the roof-mounted aerial (2) must be correctly fitted under the roof (3).



- Install the roof-mounted aerial (2) in the direction of the arrow.
- Tighten down screw (1).

Roof-mounted aerial on the roof outer skin

Screw		Tightening torque	4 Nm

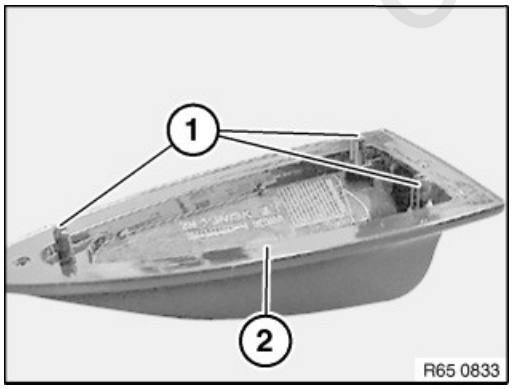


- Correctly position TCB (1) and push in direction of arrow till the lock is engaged (2).

POSTPROCESSES

13 – Installing the roof-mounted aerial housing

Note: The preparations correspond to the instructions of bound windscreens; see additional information.



TECHNICAL INFORMATION

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

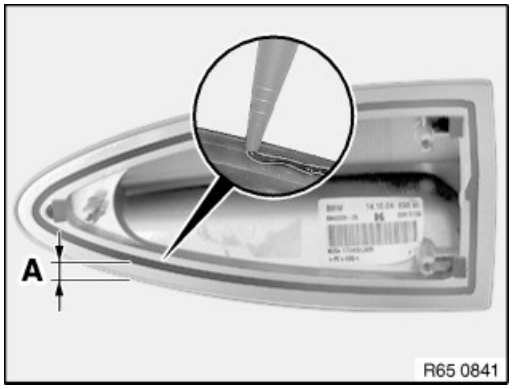
For more information see: 51 31 ... General procedure for disassembly/installation of bonded window glass

- Check centring pins (1) for damage.
- Clean the bonding surface (2) with cleaning agent R1.

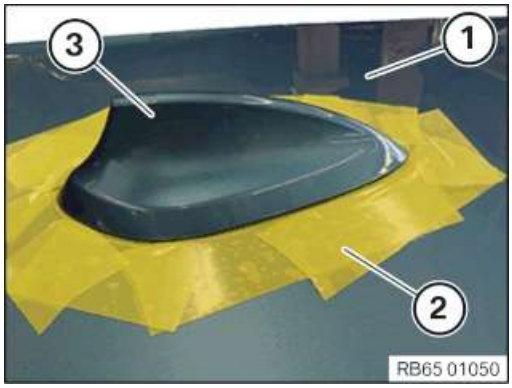
Expendable materials

Cleaning agent R1	100 ml, Bottle	83192211217

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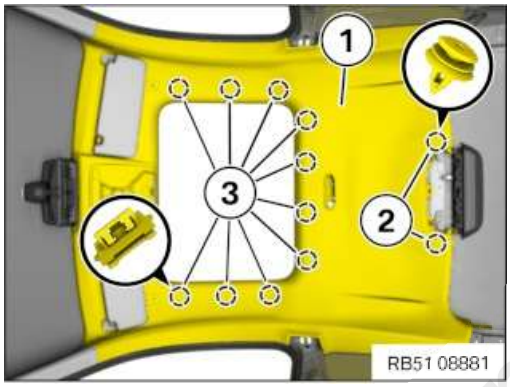


- Apply trace of adhesive bead all round outer contour as follows.
- Distance between adhesive bead and edge of aerial housing:
  - A=6.5 mm ±1 mm
- The start and end of the bead must overlap by a maximum of 10 mm.
- To prevent the adhesive from leaking, the adhesive bead diameter must not exceed 2.5 mm to 3.5 mm.

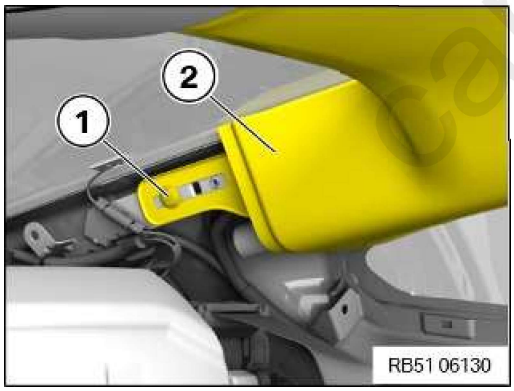


- Join the empty housing coated with adhesive (3) to block by hand.
- To spread the adhesive better, move the empty housing horizontally (3) back and forth while lightly pressing down.
- If necessary, fix the empty housing (3) with adhesive tape and press evenly.
- After bonding, leave vehicle to stand for at least 3 hours at room temperature.
- Remove the adhesive tape (2) from the outer roof panel (1) and if necessary from the empty housing (3).

14 – Partially installing the rear (lowered) headlining (with slide/tilt sunroof)



- Check the clips (2) and (3) headlining (1) for damage and renew if necessary.
- Position the headlining (1) correctly.
- Clip in the headlining (1) with the clips (3) and insert into the respective edge protection.
- Clip in headlining (1) with the clips (2).



NOTICE

Perform the operations on the left and right side.

NOTICE

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

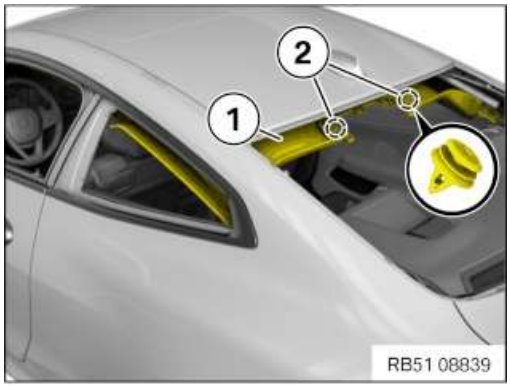
NOTICE

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

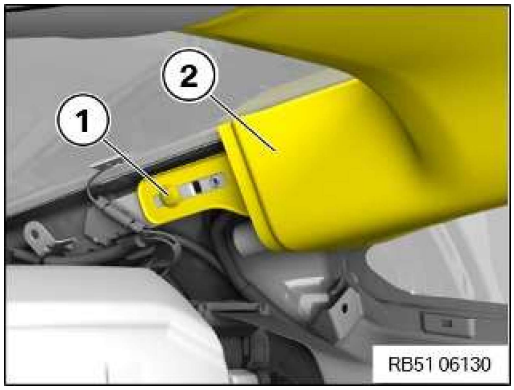
- Fasten expanding rivet (1) to headlining (2).

15 – Partially installing the rear headlining (lowered)

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- Check the clips (2) on the headlining (1) for damage and renew if necessary.
- Position headlining (1) correctly and guide it in at the respective edge protection.
- Clip in headlining (1) with the clips (2).



NOTICE

Perform the operations on the left and right side.

NOTICE

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

NOTICE

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

- Fasten expanding rivet (1) to headlining (2).

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

NOTICE

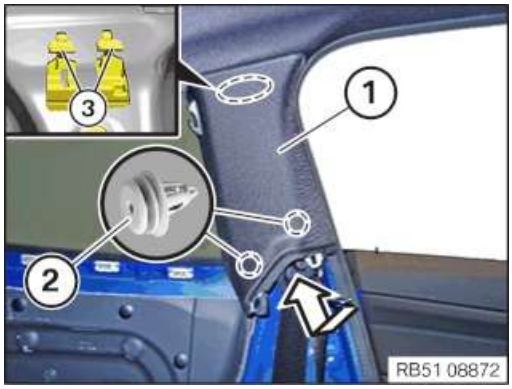
Description is for left component only. Procedure on the right side is identical.

▸ **Install the B-pillar trim panel**



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

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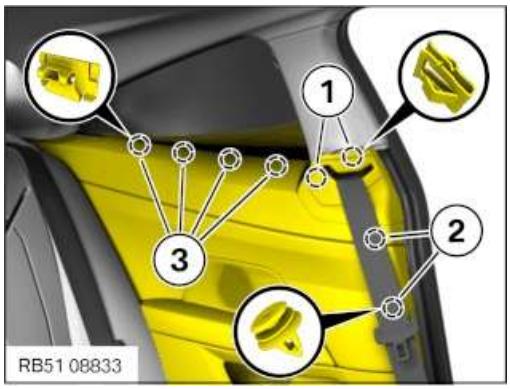


- Insert B-pillar trim panel (1) in direction of arrow into the guides (3) and under the lip of edge protection.
- Clip in the B-pillar trim panel (1) at the clips (2).

17 – Partially installing the rear side trim panel on the left and right

NOTICE

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



▸ **Partially installing the rear side trim panel**

- Clip the side trim panel into clamps (3) and guide it in under the lip of edge protection.
- Clip in the side trim panel with the clips (2) and the clamps (1).

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

NOTICE

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

▸ **Installing C-pillar trim panel**

WARNING

Pyrotechnic components.

Danger! Life-threatening injuries!

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

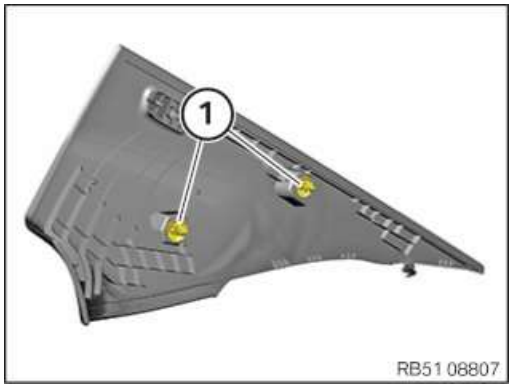
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RISK OF DAMAGE

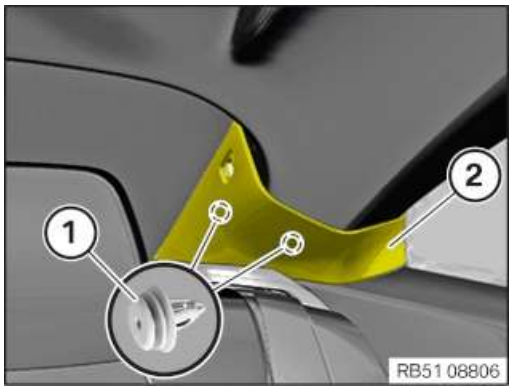
Damage to the head airbag.

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

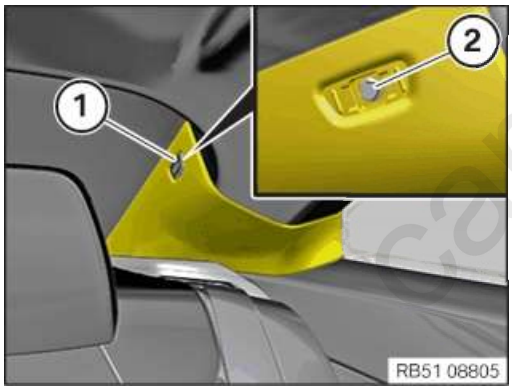
- Do not use sharp-edged tools when removing the trim panel.



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



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



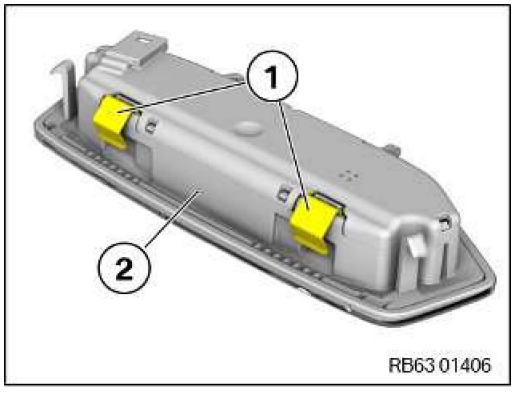
- Tighten down screw (2).

C-pillar trim panel to body

Screw		Tightening torque	2,6 Nm

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

19 – Install interior roof light



Check

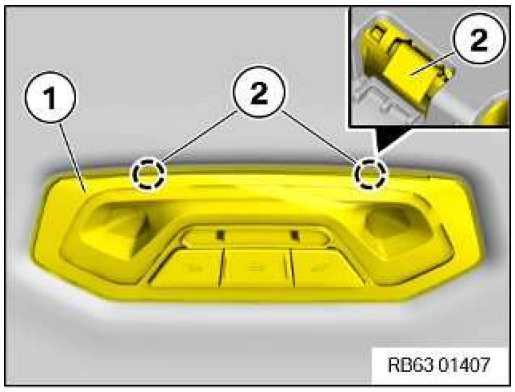
- Check the clamps (1) for damage.

Result

» Clamps (1) are damaged.

Measure

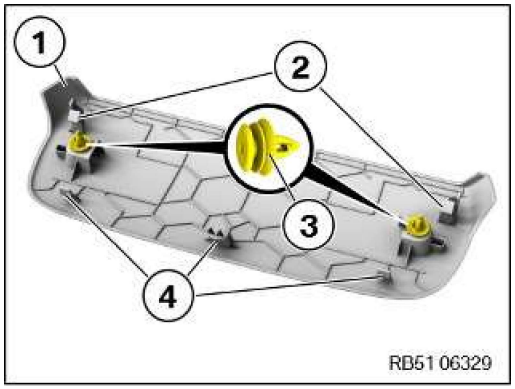
- Renew the interior roof light (2).



- Connect connectors and lock.
- Clip in the interior roof light (1) with clamps (2).

20 – Installing trim for additional brake light

Check



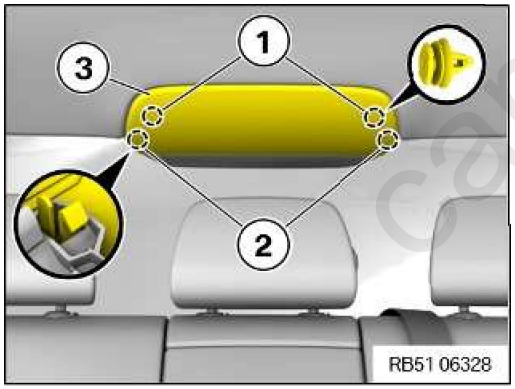
- Check the clips (3) for damage and renew if necessary.
- Check latch mechanisms (2) and guides (4) for damage.

Result

» The latch mechanism or the guide is damaged.

Measure

- Renew the trim for the additional brake light.



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

21 – Connecting all battery earth leads



- See additional information.

22 – Activating the 48 V electrical system

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Prerequisite

Ignition is switched off.

RISK OF DAMAGE

Damage to 48-V battery

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

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



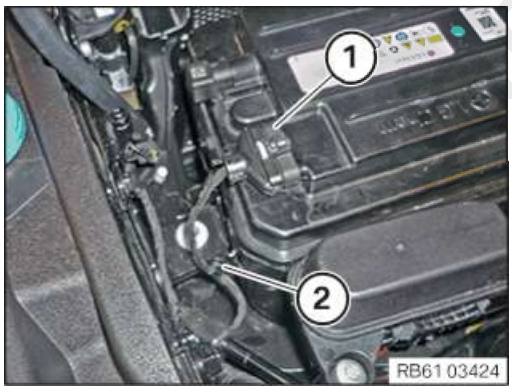
- Lift battery earth lead (1).
- Remove special tool .



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

Negative battery cable to 48-V battery

Nut M8	Tightening torque	19 Nm



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



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

  The activation takes place automatically.

Additional Information

Overview of Tightening Torques

Roof-mounted aerial on the roof outer skin — Used in step 12

Screw		Tightening torque	4 Nm

C-pillar trim panel to body — Used in step 18

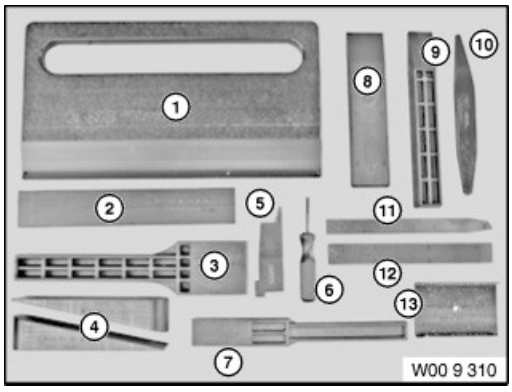
Screw		Tightening torque	2,6 Nm

Negative battery cable to 48-V battery — Used in step 22

Nut M8		Tightening torque	19 Nm

Overview of Special Tools

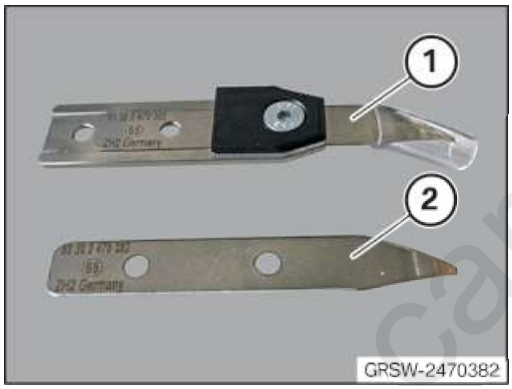
0 493 752 (00 9 329) Case



Common — Used in step 46

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

2 470 382 Knife



Common — Used in step 10

Usage	The blade set is a supplementary set for the existing SWZ 83 30 2 470 382 / 65 2 010 and is required for disassembling the empty housing of the roof aerial.
Included in the tool or work	
Storage location	individual
Replaced by	
In connection with	
SI-Number	01 08 19 (646)

Replacement tools:

0 496 531 (65 2 014) Blade



Common — Used in step 10

Usage	(Special blade) Replaced by special tool 65 2 013 since 08/2008.
Included in the tool or work	0 494 968
Storage location	
Replaced by	
In connection with	
SI-Number	01 15 08 (475)

Links

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Repair instructions (PRE)	Used in step
Notes on 48-V battery	122

General repair instructions	Used in step
99 00 ... Touching up paintwork damage	1013
51 31 ... Notes on window bonding repair kit	13
51 00 ... Overview of consumables (Electronic Parts Catalogue)	13
72 00 ... Safety regulations for handling components with gas generators	

Repair instructions	Used in step
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	221
61 20 900 Disconnecting and connecting battery earth lead	221
61 20 900 Disconnecting and connecting battery earth lead	221
61 20 900 Disconnecting and connecting battery earth lead	221
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61 20 900 Disconnecting and connecting battery earth lead	221
61 20 900 Disconnecting and connecting battery earth lead	221
61 20 900 Disconnecting and connecting battery earth lead	221
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	221
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	221
61 20 900 Disconnecting and connecting battery earth lead	221
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	221
61 20 900 Disconnecting and connecting battery earth lead (Plug-in Hybrid Electric Vehicle)	221
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61 20 900 Disconnecting and connecting battery earth lead	221
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61 20 900 Disconnecting and connecting battery earth lead 221
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61 20 900 Disconnecting and connecting battery earth lead 221
61 20 900 Disconnecting and connecting battery earth lead 221
61 20 900 Disconnecting and connecting battery earth lead 221

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65 20 350 Removing and installing/replacing interference suppression filter

RISK OF DAMAGE

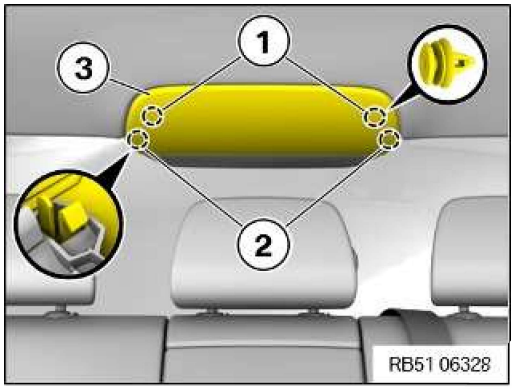
Electrostatic discharge.

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 trim of the additional brake light



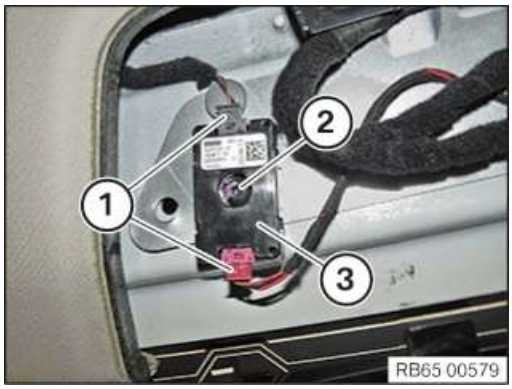
- Loosen the clips (1).
- Release the latch mechanisms (2) and remove the trim of the additional brake light (3).

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2 – Removing the interference suppression filter

NOTICE

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

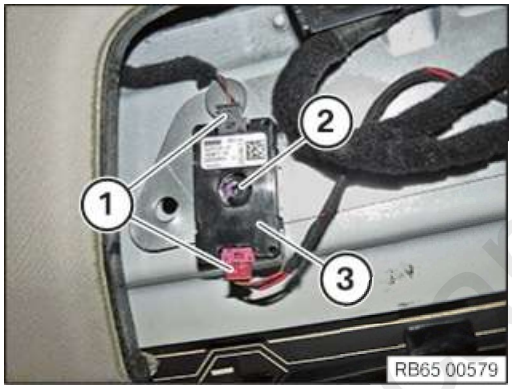


- Unfasten plug connections (1).
- Loosen screw (2).
- Remove the interference suppression filter (3).

3 – Installing the interference suppression filter

NOTICE

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



- Correctly position the interference suppression filter (3).
- Tighten down screw (2).

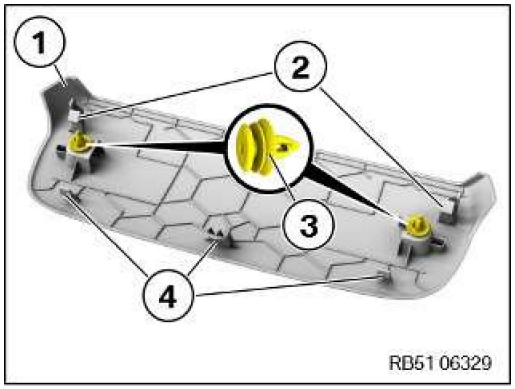
Interference suppression filter to body

Screw		Tightening torque	3 Nm

- Connect connectors (1) and lock.

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4 – Installing trim for additional brake light



Check

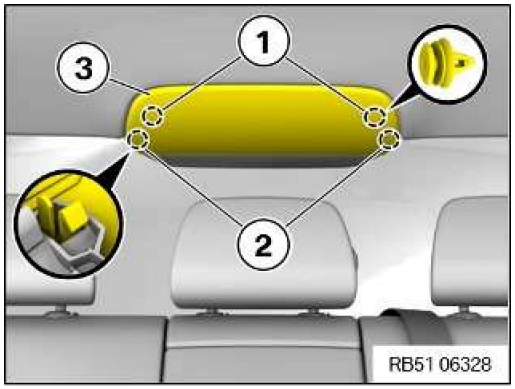
- Check the clips (3) for damage and renew if necessary.
- Check latch mechanisms (2) and guides (4) for damage.

Result

» The latch mechanism or the guide is damaged.

Measure

- Renew the trim for the additional brake light.



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

Additional Information

Overview of Tightening Torques

Interference suppression filter to body Used in step 3

Screw		Tightening torque	3 Nm

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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65 20 032 Replacing roof-mounted aerial housing

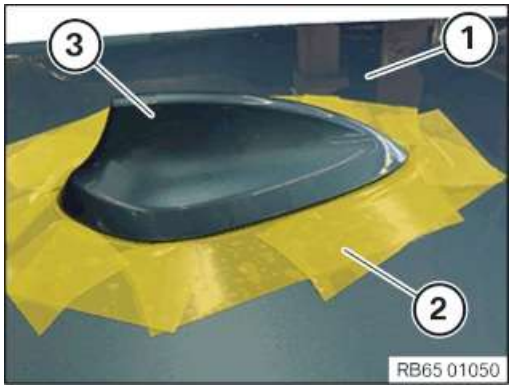
1 – Remove the empty roof-mounted aerial housing

RISK OF DAMAGE

Careless handling of tools and sharp-edged components.

Scratch, surface damage.

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

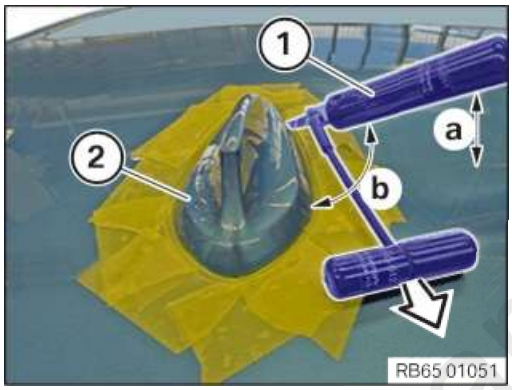


- Slide the yellow plastic adhesive tape (2) under the roof-mounted aerial housing (3) as far as possible.

Expendable materials

Yellow plastic adhesive tape		83199410979

- Mask the roof outer skin (1) as shown.



- Position the special tool 2 470 382 (1) in connection with the special tool as shown.

  Angle (a) = about 45° to the roof outer skin.

  Angle (b) = about 45° to the roof aerial housing
- Cut through the adhesive bead all the way around in the direction of the arrow and remove the roof aerial housing (2).

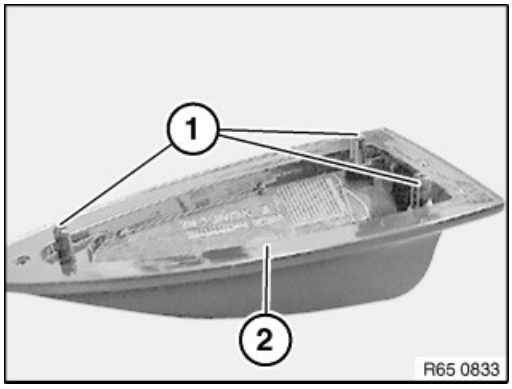
Note: With increased effort, reposition the special tool 1 to recut the adhesive bead, if necessary.

- If necessary, touch up the paintwork damage.

  See additional information.

2 – Installing the roof-mounted aerial housing

Note: The preparations correspond to the instructions of bound windscreens; see additional information.



TECHNICAL INFORMATION

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

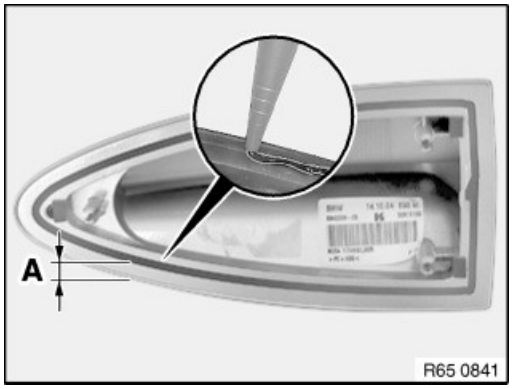
For more information see: 51 31 ... General procedure for disassembly/installation of bonded window glass

- Check centring pins (1) for damage.
- Clean the bonding surface (2) with cleaning agent R1.

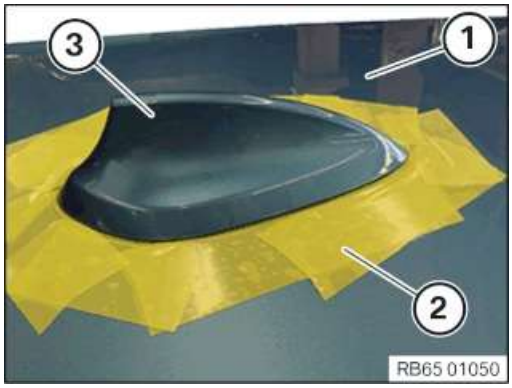
Expendable materials

Cleaning agent R1	100 ml, Bottle	83192211217

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- Apply trace of adhesive bead all round outer contour as follows.
- Distance between adhesive bead and edge of aerial housing:
  - A=6.5 mm ±1 mm
- The start and end of the bead must overlap by a maximum of 10 mm.
- To prevent the adhesive from leaking, the adhesive bead diameter must not exceed 2.5 mm to 3.5 mm.

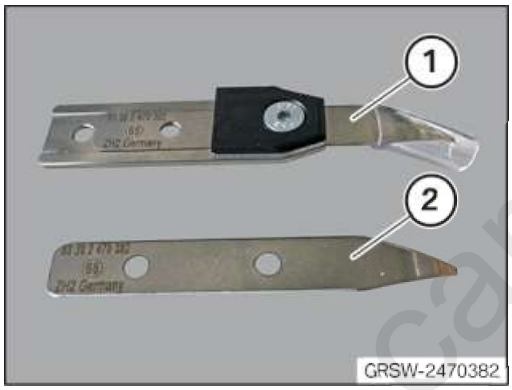


- Join the empty housing coated with adhesive (3) to block by hand.
- To spread the adhesive better, move the empty housing horizontally (3) back and forth while lightly pressing down.
- If necessary, fix the empty housing (3) with adhesive tape and press evenly.
- After bonding, leave vehicle to stand for at least 3 hours at room temperature.
- Remove the adhesive tape (2) from the outer roof panel (1) and if necessary from the empty housing (3).

Additional Information

Overview of Special Tools

2 470 382 Knife



Common	Used in step 1
Usage	The blade set is a supplementary set for the existing SWZ 83 30 2 470 382 / 65 2 010 and is required for disassembling the empty housing of the roof aerial.
Included in the tool or work	
Storage location	individual
Replaced by	
In connection with	
SI-Number	01 08 19 (646)

Replacement tools:

0 496 531 (65 2 014) Blade



Common	Used in step 1
Usage	(Special blade) Replaced by special tool 65 2 013 since 08/2008.
Included in the tool or work	0 494 968
Storage location	
Replaced by	
In connection with	
SI-Number	01 15 08 (475)

Links

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General repair instructions	Used in step
99 00 ... Touching up paintwork damage	12
51 31 ... Notes on window bonding repair kit	2
51 00 ... Overview of consumables (Electronic Parts Catalogue)	2

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65 24 048 Removing and installing/replacing right wave trap for rear window heating

NOTICE

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

PRELIMINARY WORK

1 – Remove C-pillar trim panel

WARNING

Pyrotechnic components.

Danger! Life-threatening injuries!

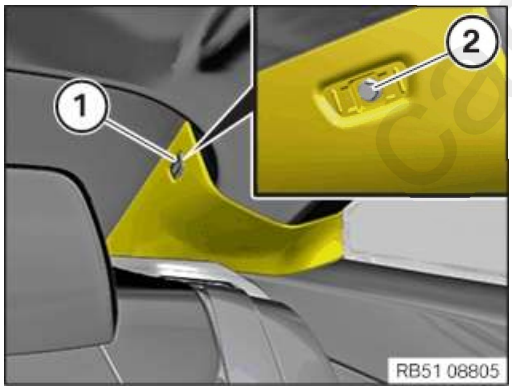
- All work on pyrotechnic parts may be carried out by technically experienced and appropriately trained personnel only.
- Replace any damaged part or ones that have been dropped.
- For additional information see: 72 00 Safety regulations on handling components with gas generators.

RISK OF DAMAGE

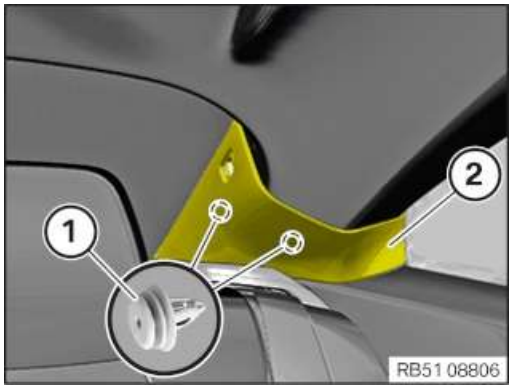
Damage to the head airbag.

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

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



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

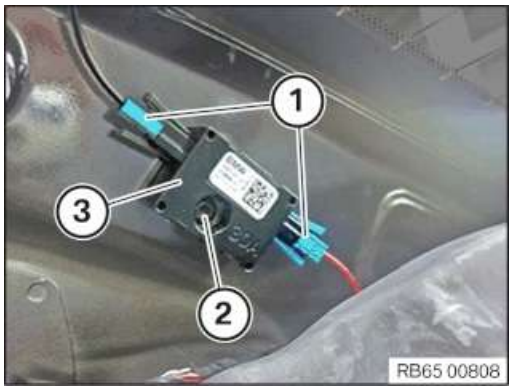


- Unclip C-pillar trim panel (2) from clips (1) and guide it out.

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MAIN WORK

2 – Remove right wave trap



- Unlock plug connection (1) and disconnect.
- Unscrew the screw (2) and remove the wave trap (3).

3 – Install right wave trap



- Correctly position the wave trap (3) and tighten the screw (2).

Wave trap to C-pillar

	Tightening torque	4,6 Nm

- Connect connectors (1) and lock.

POSTPROCESSES

4 – Installing C-pillar trim panel

WARNING

Pyrotechnic components.

Danger! Life-threatening injuries!

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

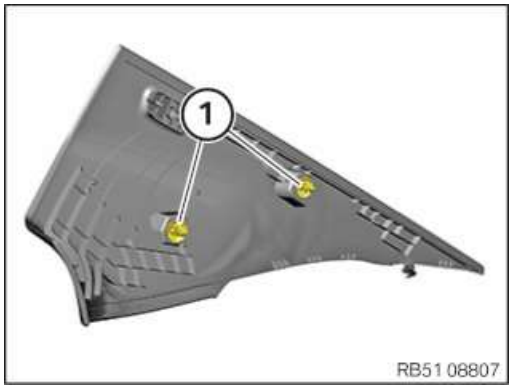
RISK OF DAMAGE

Damage to the head airbag.

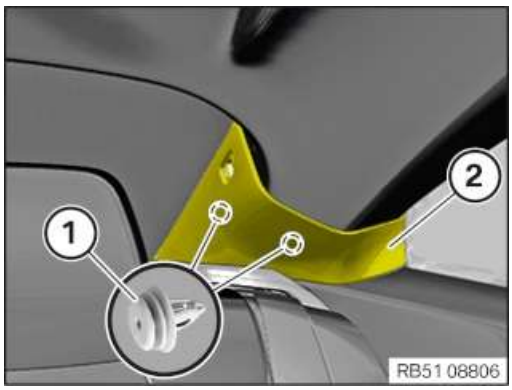
Improper use of a tool when removing the trim panel may damage the head airbag.

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

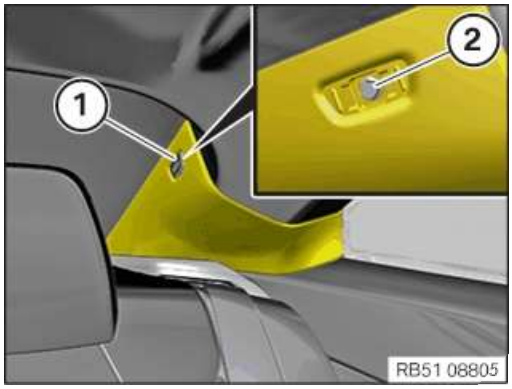
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- Check clips (1) for damage and, if necessary, renew them.



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



- Tighten down screw (2).

C-pillar trim panel to body

Screw		Tightening torque	2,6 Nm

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

Additional Information

Overview of Tightening Torques

Wave trap to C-pillar — Used in step 3

	Tightening torque	4,6 Nm

C-pillar trim panel to body — Used in step 4

Screw		Tightening torque	2,6 Nm

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65 50 057 Removing and installing the Central Information Display

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

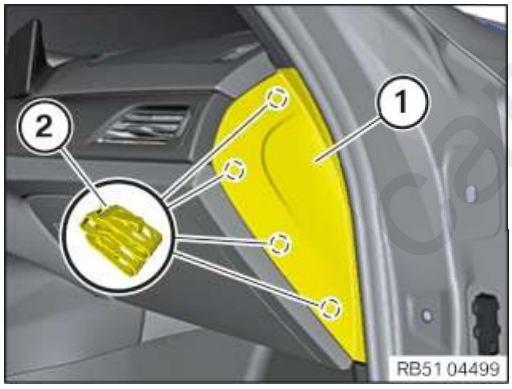
Electrostatic discharge.

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)

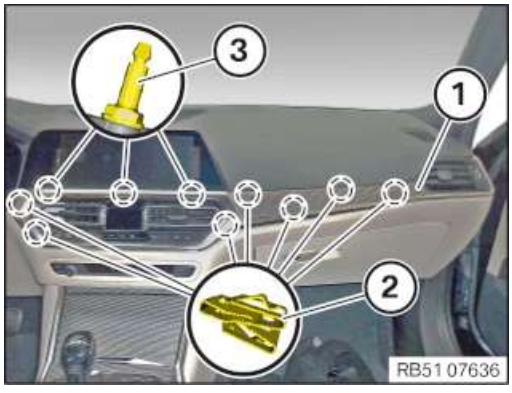
PRELIMINARY WORK

1 – 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.

2 – 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).

MAIN WORK

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3 – Remove Central Information Display (CID)

RISK OF DAMAGE

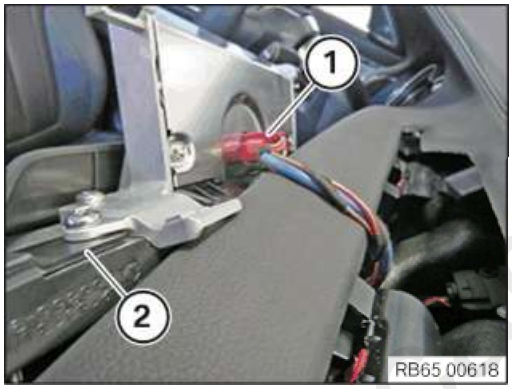
Electrostatic discharge.

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)



- 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).

4 – Install the central information display (CID)

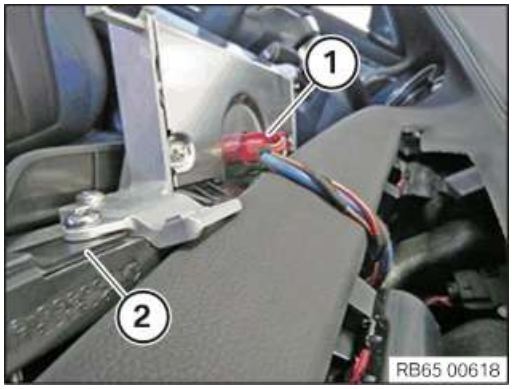
RISK OF DAMAGE

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)

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- Position Central Information Display (CID) (2).
- Connect plug connection (1) and lock.



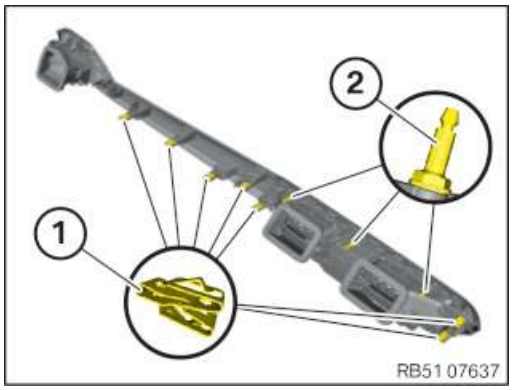
- Insert the central information display (CID) (2) in the instrument panel and position correctly.
- Tighten the screws (1).

Central information display to instrument panel

Screw		Tightening torque	2,4 Nm

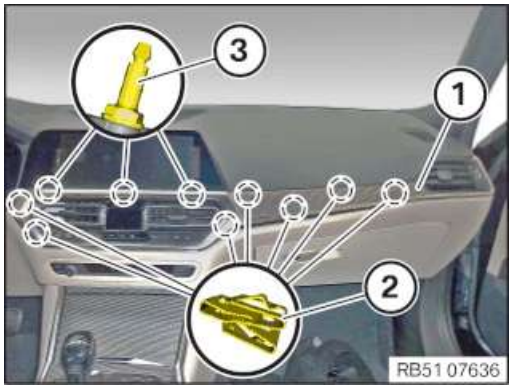
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5 – Install the finisher on the right instrument panel



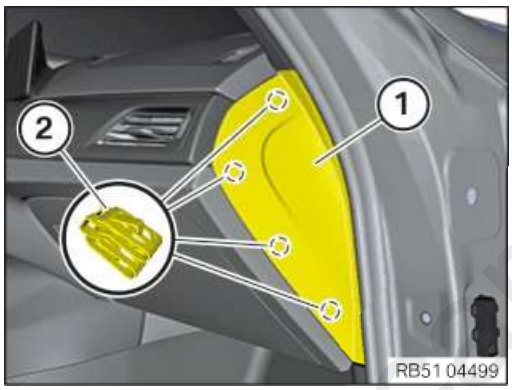
- Checks clamps (1) for damage.

  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.



- 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).

6 – 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).

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Additional Information

Overview of Tightening Torques

Central information display to instrument panel Used in step 4

Screw		Tightening torque	2,4 Nm

Links

Repair instructions	Used in step
61 35 ... Notes on ESD protection (Electro Static Discharge)	34
61 35 ... Notes on ESD protection (Electro Static Discharge)	34

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65 50 558 Replacing the central information display

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

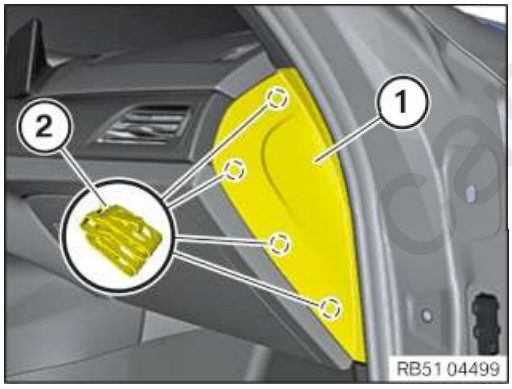
Electrostatic discharge.

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)

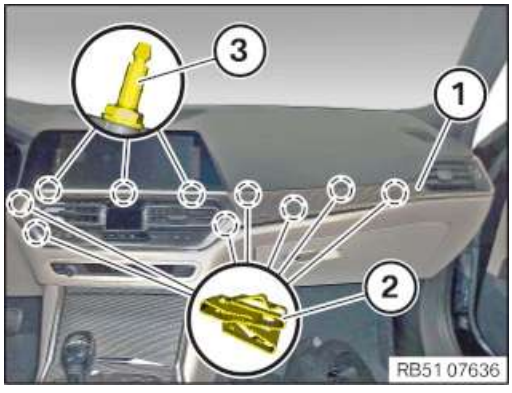
PRELIMINARY WORK

1 – 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.

2 – 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).

MAIN WORK

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3 – Remove Central Information Display (CID)

RISK OF DAMAGE

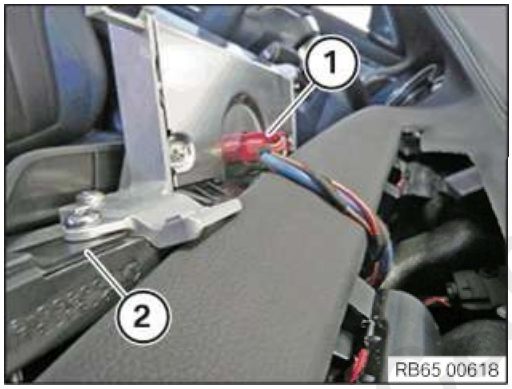
Electrostatic discharge.

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)



- 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).

4 – Install the central information display (CID)

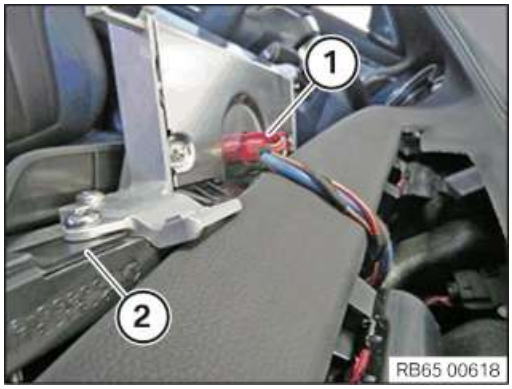
RISK OF DAMAGE

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)

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- Position Central Information Display (CID) (2).
- Connect plug connection (1) and lock.



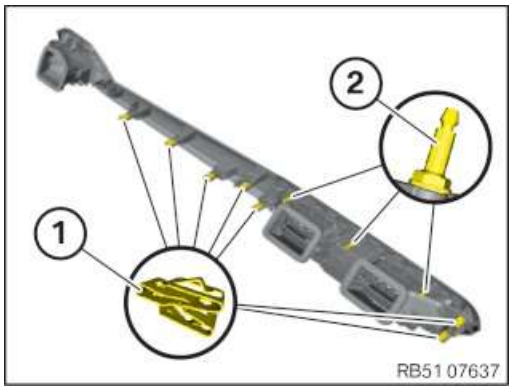
- Insert the central information display (CID) (2) in the instrument panel and position correctly.
- Tighten the screws (1).

Central information display to instrument panel

Screw		Tightening torque	2,4 Nm

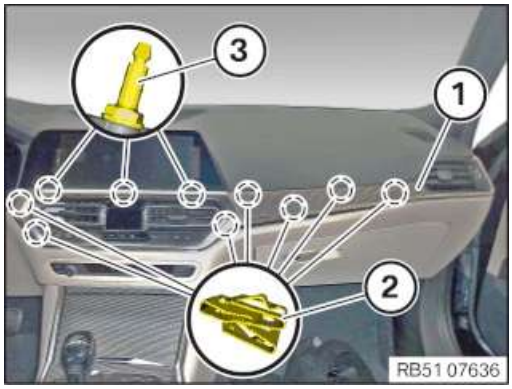
cardiagn.com

5 – Install the finisher on the right instrument panel



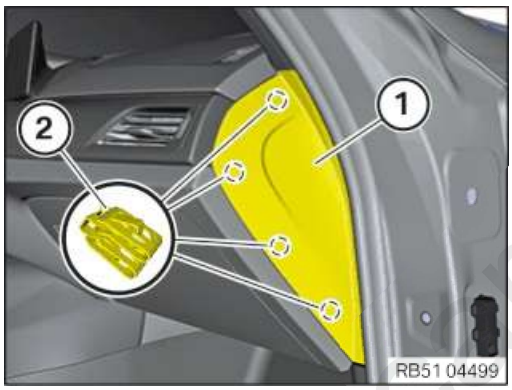
- Checks clamps (1) for damage.

  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.



- 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).

6 – 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).

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Additional Information

Overview of Tightening Torques

Central information display to instrument panel Used in step 4

Screw		Tightening torque	2,4 Nm

Links

Repair instructions	Used in step
61 35 ... Notes on ESD protection (Electro Static Discharge)	34
61 35 ... Notes on ESD protection (Electro Static Discharge)	34

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65 75 055 Removing and installing/replacing emergency power siren with tilt 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.

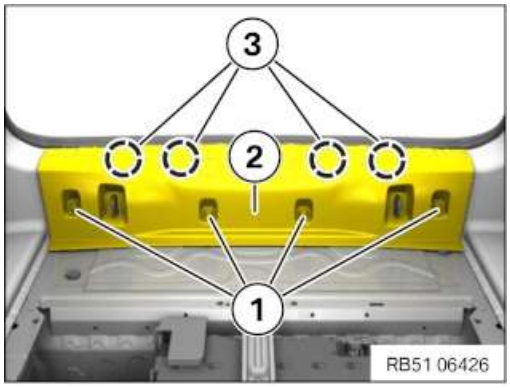


- Remove luggage compartment floor trim panel (1).

2 – Removing the loading edge trim

NOTICE

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



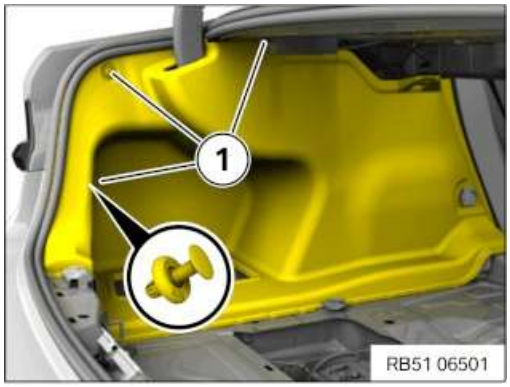
- Loosen the expanding rivet (1).
- Unclip loading edge trim(2) upwards from latch mechanisms (3).
- Guide out and remove loading edge trim (2) under the sealing lip of the tailgate seal.

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

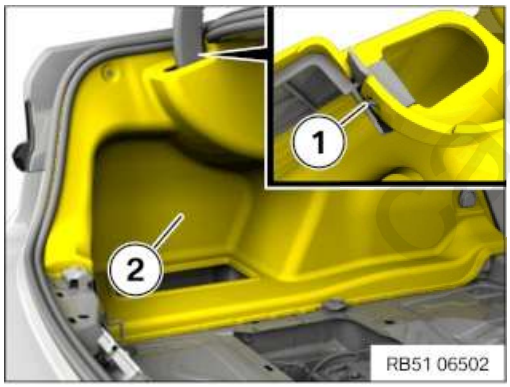
▸ **Partially remove luggage compartment wheel arch panel on left**

NOTICE

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



- Loosen the expanding rivet (1).



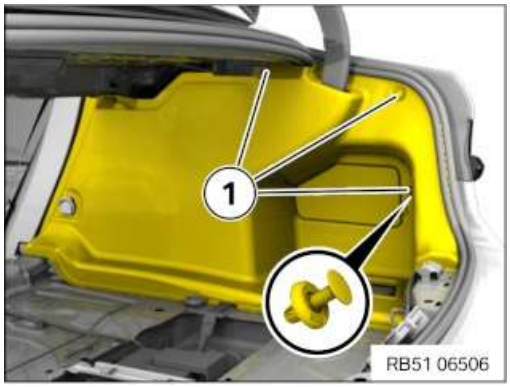
- Press the tab for luggage compartment wheel arch trim panel (2) on the outer side of the hinge to the front using the stop on trim (1).
- Guide out luggage compartment wheel arch trim panel (2) under the sealing lip of the tailgate seal and release it in the rear area.

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

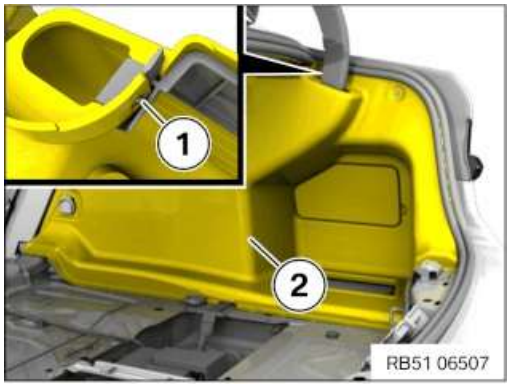
NOTICE

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

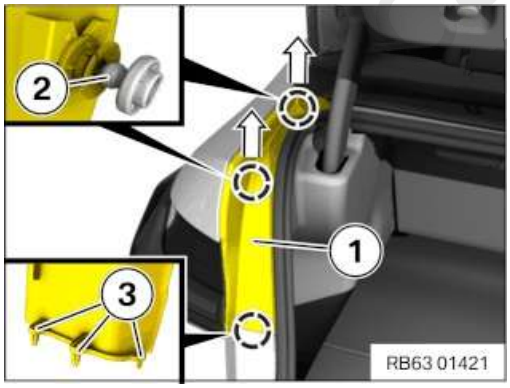
NOTICE

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

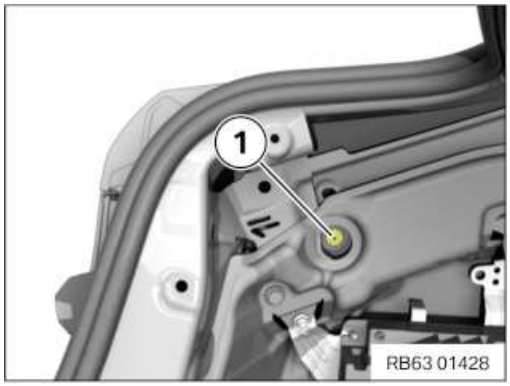
Description is for left component only. Procedure on the right side is identical.

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

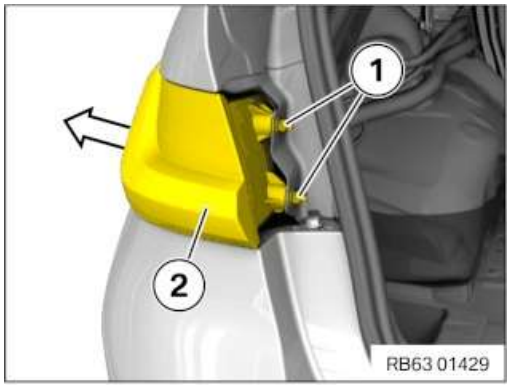
cardiagn.com

NOTICE

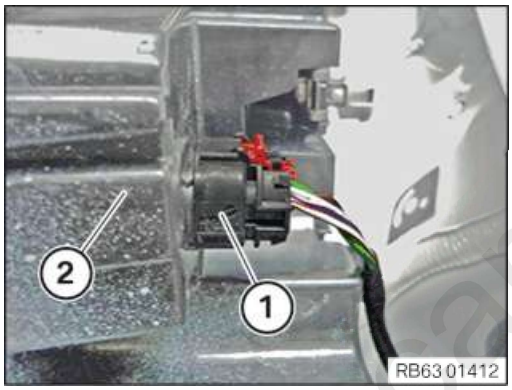
Schematic diagram is for example purposes. Some parts may differ in certain details.



- Loosen nut (1).



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



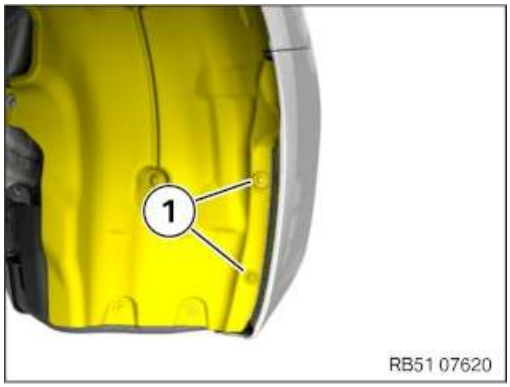
TECHNICAL INFORMATION

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).

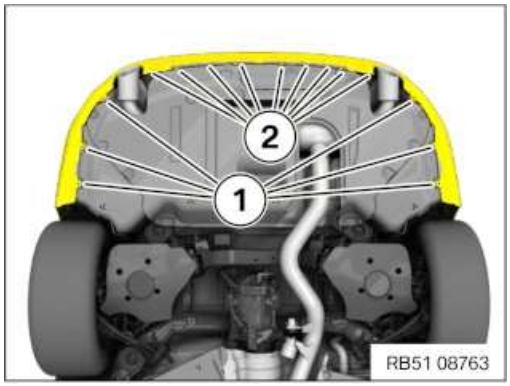
carlogn.com



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.

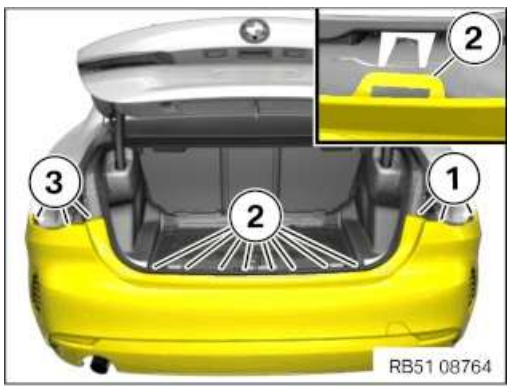
- Release the screw (1).



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)



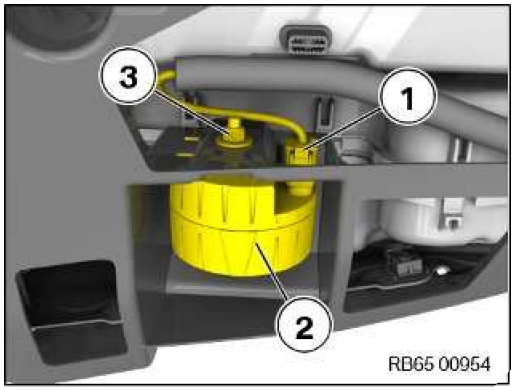
- Unlock plug connection and disconnect.
- Remove bumper panel.

MAIN WORK

7 – Removing the emergency power siren with tilt sensor

NOTICE

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

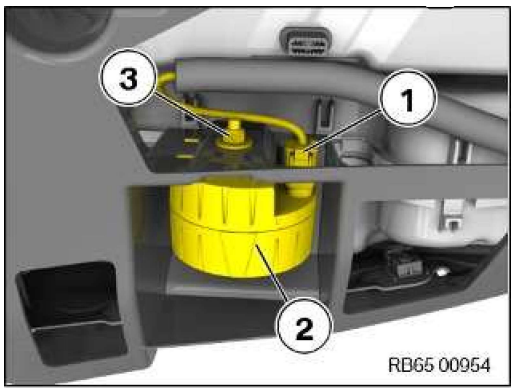


- Unlock plug connection (1) and disconnect.
- Loosen nut (3).
- Remove the emergency power siren with tilt alarm sensor (2).

8 – Installing the emergency power siren with tilt sensor

NOTICE

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



- Position the emergency power siren with tilt alarm sensor (2).
- Renew nut (3).

  Part: Nut
- Tighten nut (3).

Emergency power siren with tilt sensor

Hexagon nut M6x8	Renew nut.	Tightening torque	6 Nm

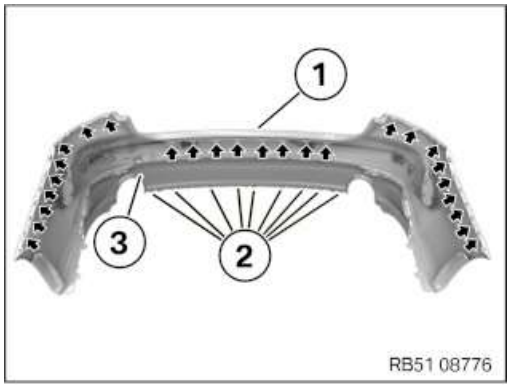
- Connect plug connection (1) and lock.

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

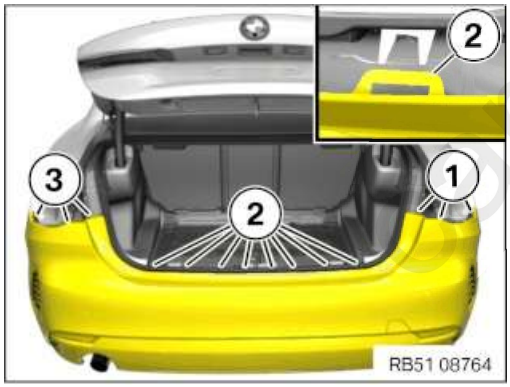
» Latch mechanisms (2) are damaged.

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).

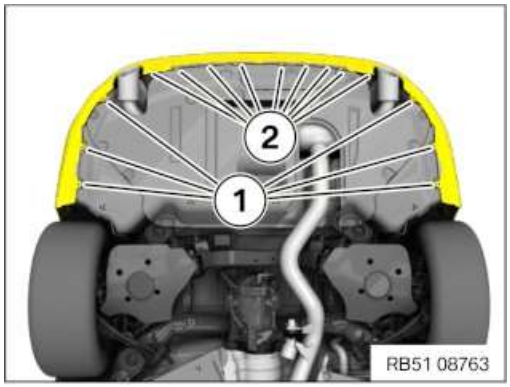


NOTICE

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



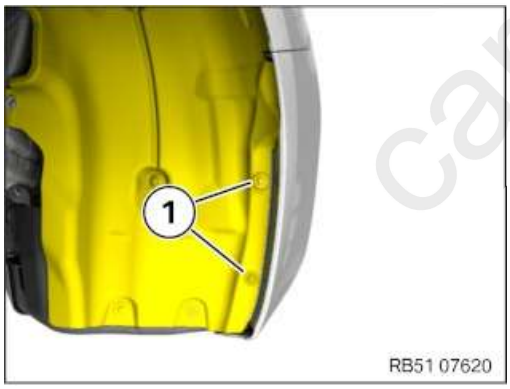
NOTICE

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

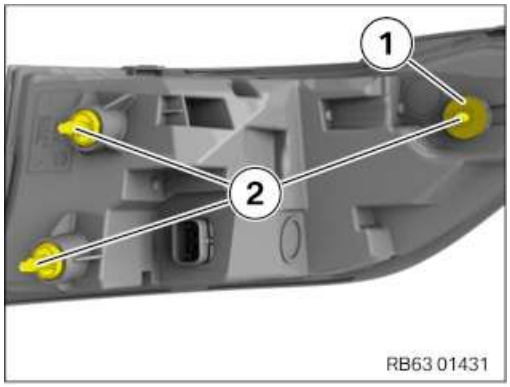
Description is for left component only. Procedure on the right side is identical.

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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

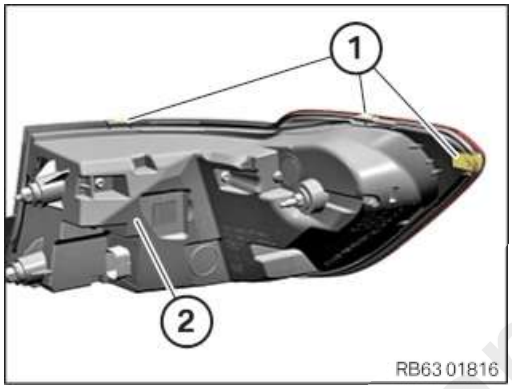
- Check the seal (1) for damage and renew if necessary.
- Check the threaded inserts (2) for damage.

Result

» The threaded inserts are damaged.

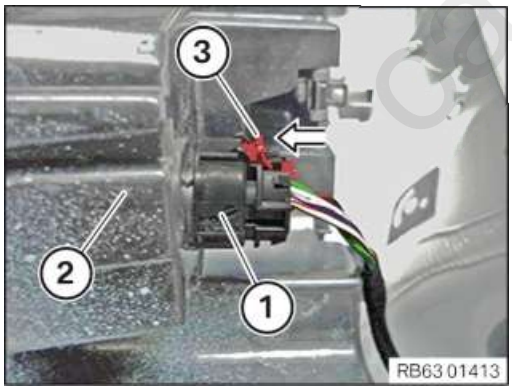
Measure

- Replace rear light.



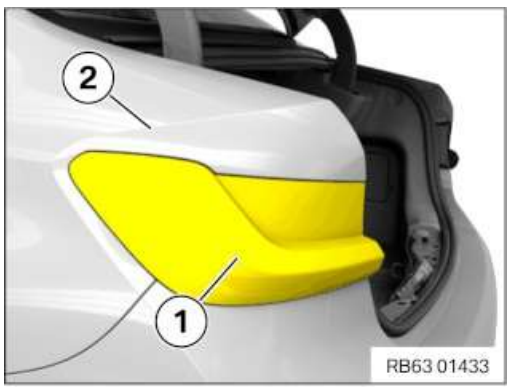
- Contact surfaces (1) on rear light (2) must not be damaged or missing.

  Missing contact surfaces (1) could cause paintwork damage.



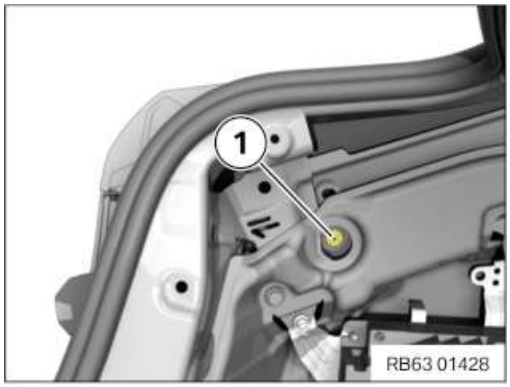
- Connect the connector (1) to the rear light on the side panel (2).

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

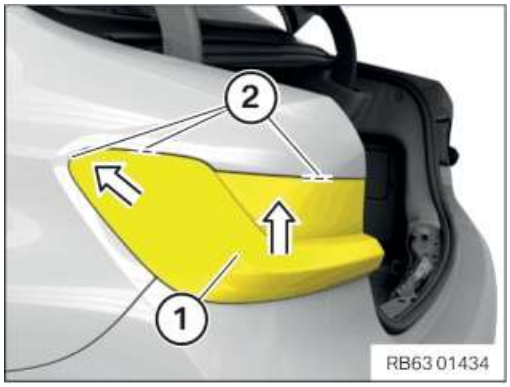


- Position the rear light on the side panel (1) on the side panel (2).

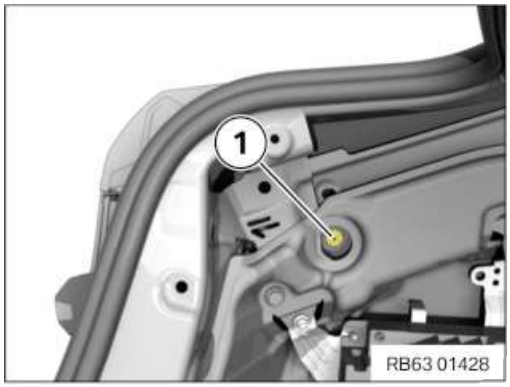
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- Position the nut (1).



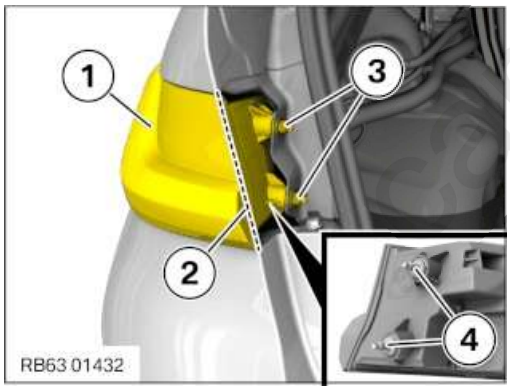
- Position the rear light on the side panel (1) to the front at the top.
- Move the contact surfaces (2) of the rear light on the side panel (1) upwards (arrow) so that they are in place.
- Hold the rear light on the side panel (1) in position.



- 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

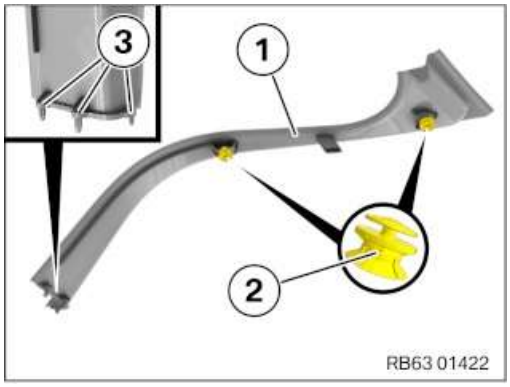
Description is for left component only. Procedure on the right side is identical.

▸ **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.

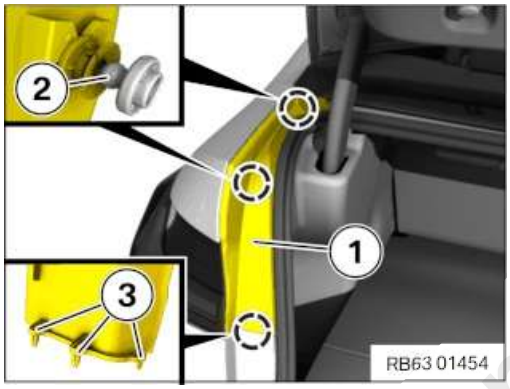
Result

» The guides are damaged.

Measure

- Renew the trim .

  Parts: trim



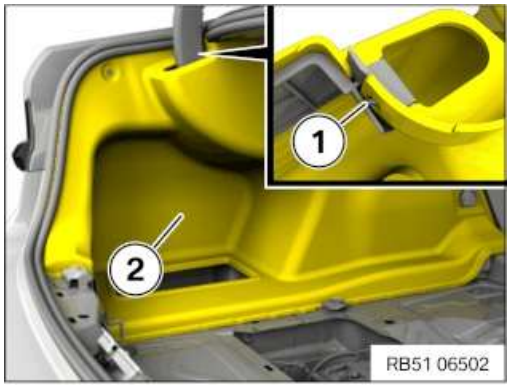
- Insert trim (1) in guides (3).
- Clip trim (1) from above into ball pins (2).

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

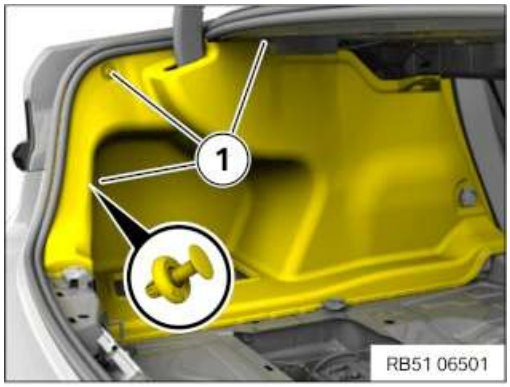
NOTICE

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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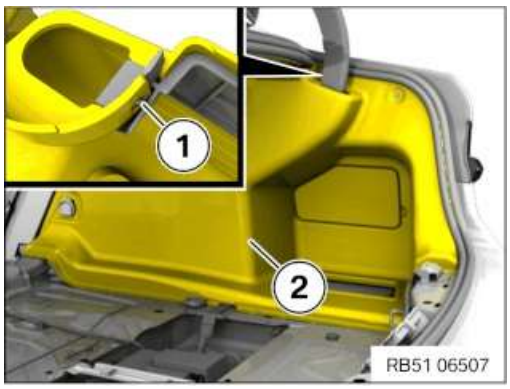


- Secure expanding rivet (1).

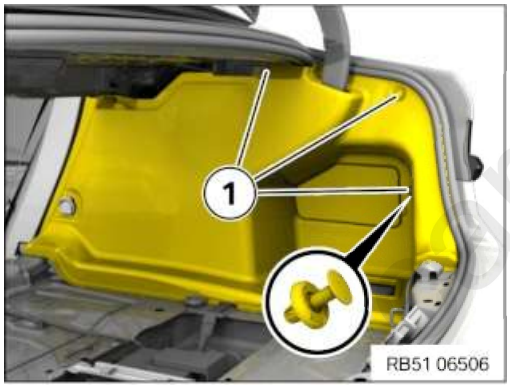
▸ **Partially installing right luggage compartment wheel arch trim panel**

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).

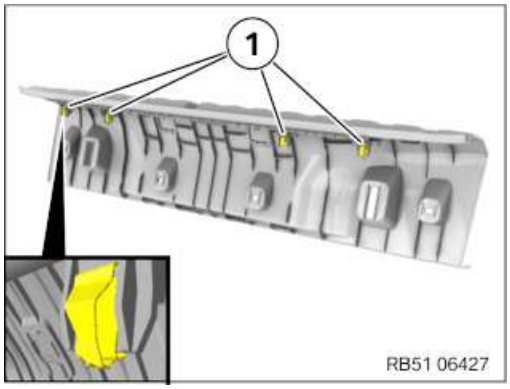


- Secure expanding rivet (1).

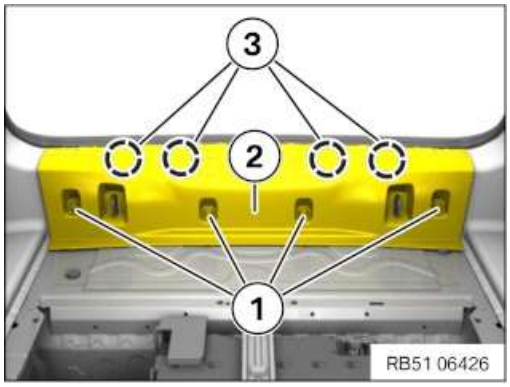
13 – Installing loading edge trim

NOTICE

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



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



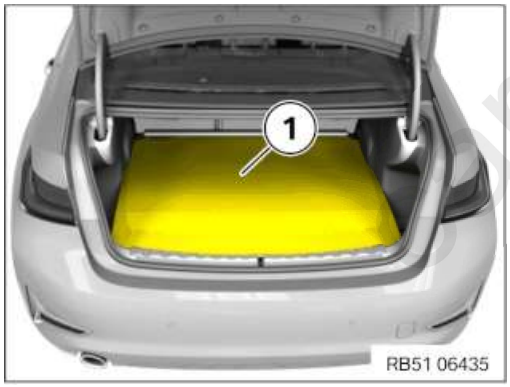
- Insert the loading edge trim (2) under the sealing lip of the tailgate seal.
- Fit the trim of the loading edge (2) at the latch mechanisms (3) and clip it in to the bottom.
- Secure expanding rivet (1).

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

Emergency power siren with tilt sensor — Used in step 8

Hexagon nut M6x8	Renew nut.	Tightening torque	6 Nm

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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65 76 630 Replacing pedestrian protection sensor (impact absorber) (after vehicle diagnosis)

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.

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 – 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.

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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.

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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.

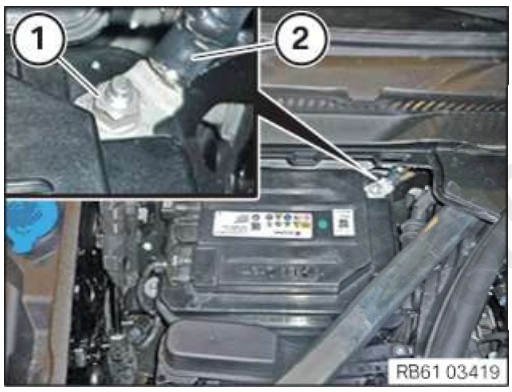
Measure

- 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.



WARNING

Unprotected battery terminals.

Risk of short circuits! Risk of fire!

- Cover the vehicle battery.

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

2 – Disconnecting all battery earth leads

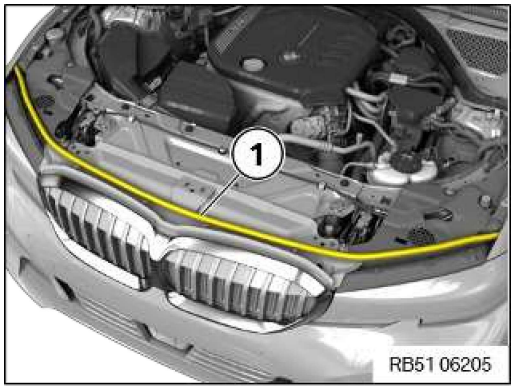


- See additional information.

3 – Remove the seal for the bonnet in front

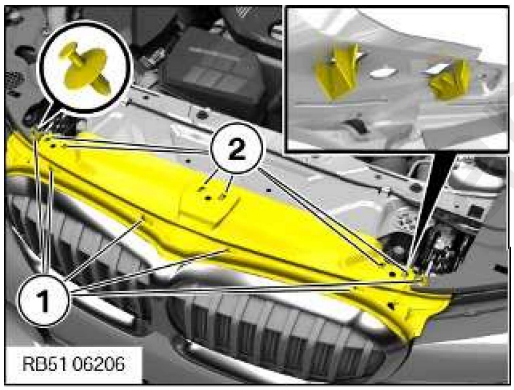
NOTICE

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



- Pull offfront bonnet seal (1) upwards.

4 – Removing the centre engine compartment cover



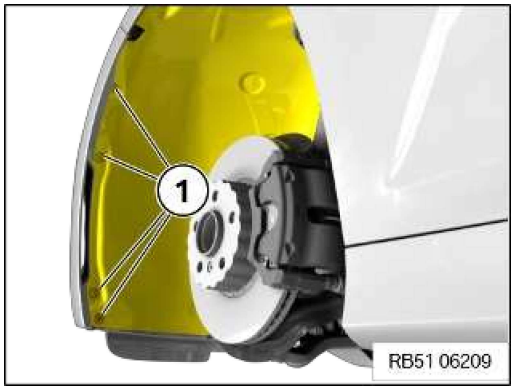
- Detach all expanding rivets (1).
- Release the cover at the latch mechanisms (2) and feed it out to the rear.

5 – 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**

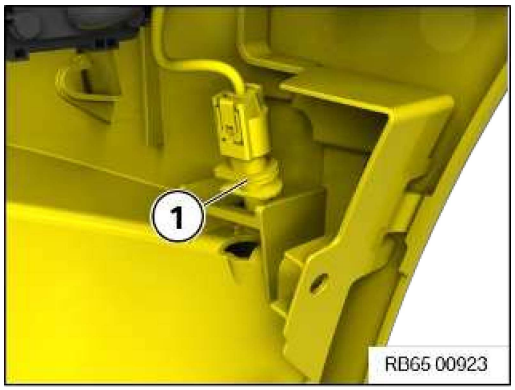


NOTICE

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

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

6 – Partially removing the temperature sensor

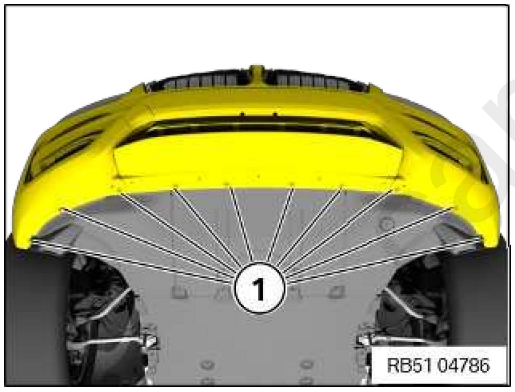


- Unclip temperature sensor (1) from the front bumper panel to the top.

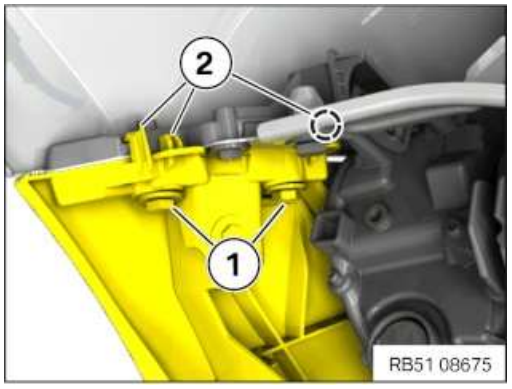
7 – Remove front bumper panel

NOTICE

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



- Loosen screws (1).

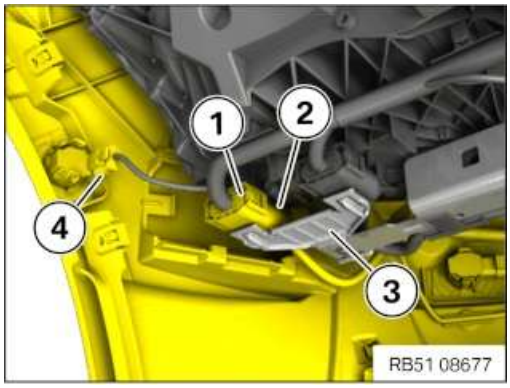


NOTICE

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.

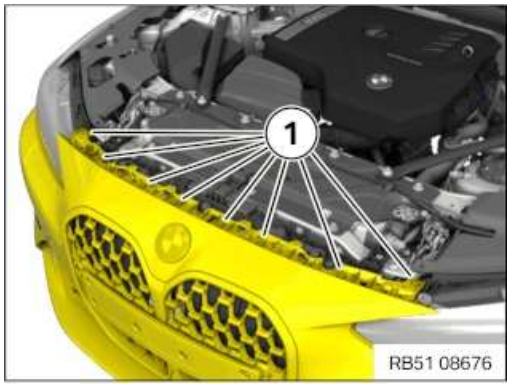
cardiagn.com



NOTICE

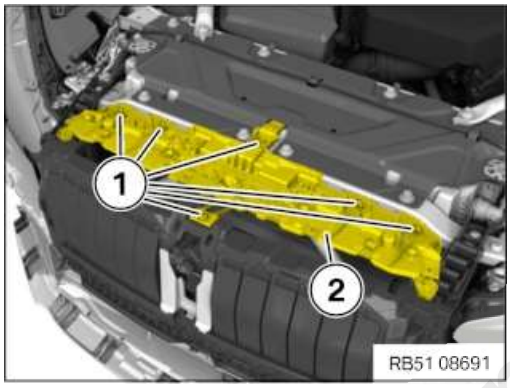
Perform the operations on the left and right side.

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



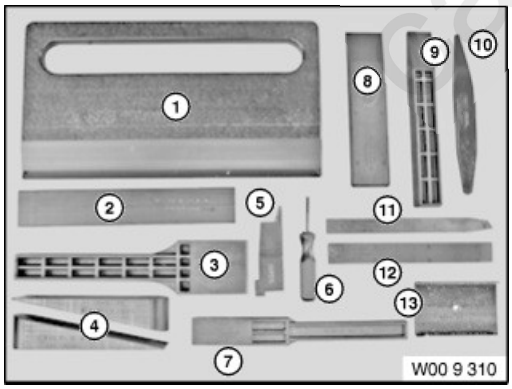
- Loosen screws (1).
- Remove the bumper panel towards the front.

8 – Remove top adapter for bumper panel

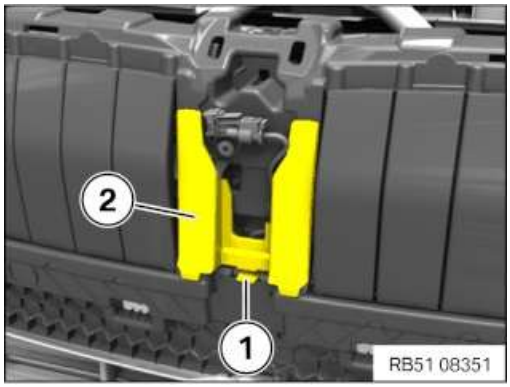


- Loosen screws (1).
- Remove adapter (2).

9 – Remove top automatic air flap control

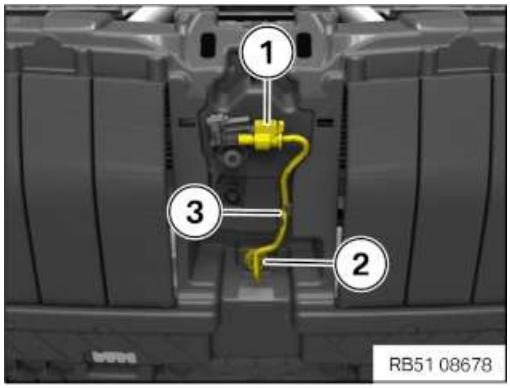


- Have the set of special tools 0 493 752 (00 9 329) ready.

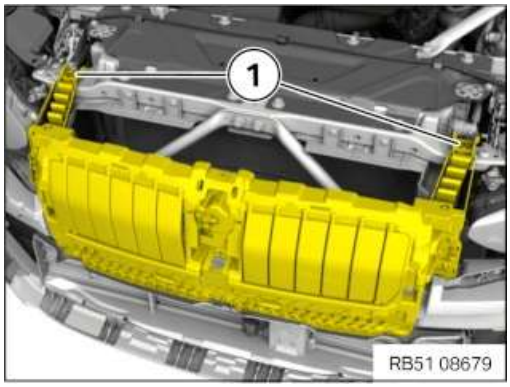


- Release latch mechanism (1) and guide down cover (2).

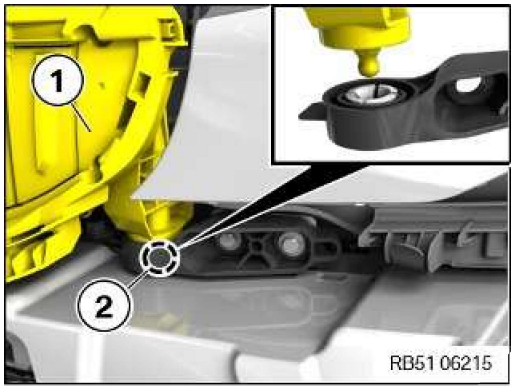
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- Unlock plug connection (1) and disconnect.
- Unclip the cable for the acceleration sensor with holder (2) and remove it from guide (3).



- Loosen screws (1).



NOTICE

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

NOTICE

The operations shown only for one side must be carried out on both sides.

- Release air flap control at the top (1) using a suitable special tool.

  Lever out ball head (2) to the top.
- Guide out air flap control at the top (1) to the top.
- Unlock associated plug connections and disconnect.

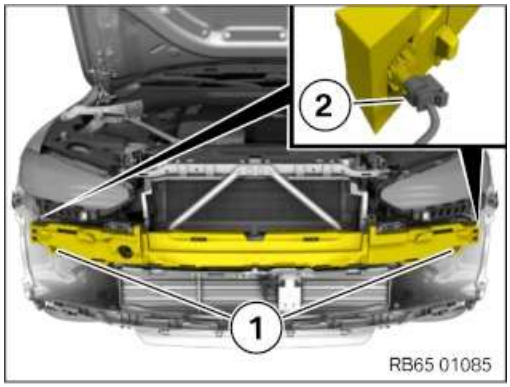
MAIN WORK

10 – Removing pedestrian protection sensor

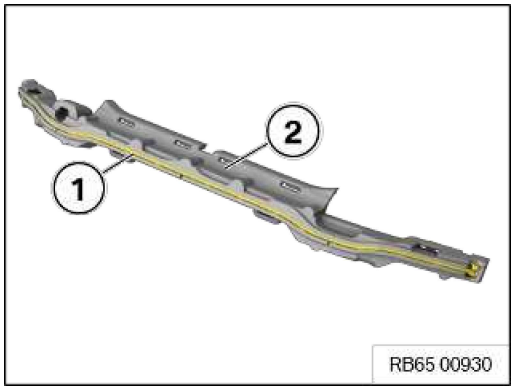
NOTICE

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

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- Release the expanding rivet (1).
- Unlock plug connections (2) and disconnect.
- Feed out and remove the impact absorber on support.

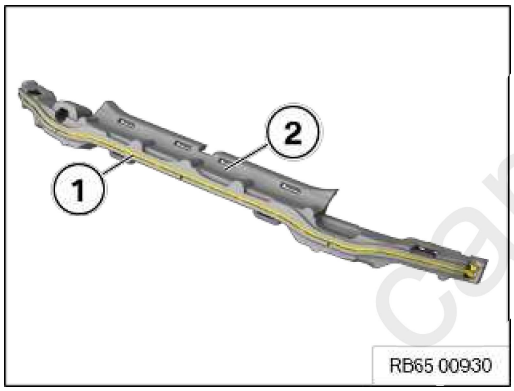


- Remove the pedestrian protection sensor (1) from the impact absorber (2).

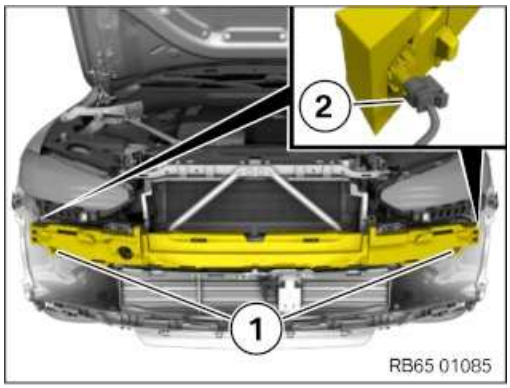
11 – Installing the pedestrian protection sensor

NOTICE

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



- Check the impact absorber (2) for damage.
  Renew the damaged impact absorber (2).
- Carefully insert the pedestrian protection sensor (1) in the impact absorber (2).

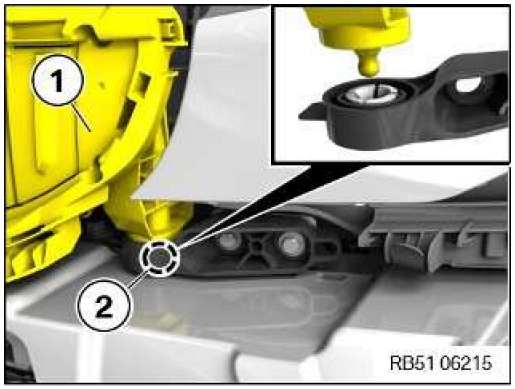


- Connect connectors (2) and lock.
- Hook the impact absorber at the bottom and then press it upwards.
- Secure expanding rivet (1).

POSTPROCESSES

12 – Insert top automatic air flap control

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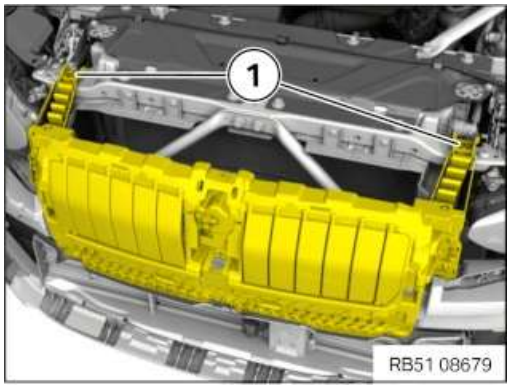
NOTICE

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

NOTICE

The operations shown only for one side must be carried out on both sides.

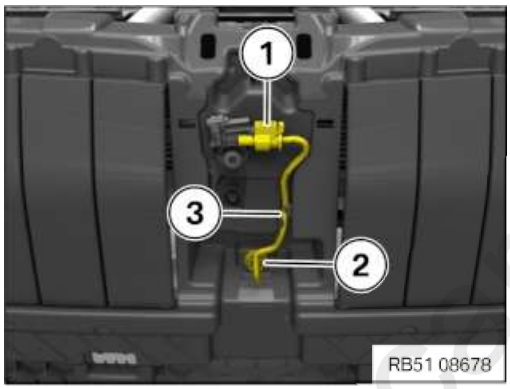
- Position the top air flap control (1).
- Connect and lock the associated connectors.
- Feed in the air flap control (1) at the top and connect with the ball head (2).



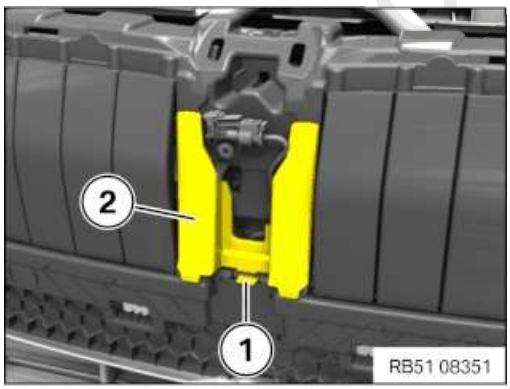
- Tighten the screws (1).

Air flap control to front end

Oval-head screw with spring washer		Tightening torque	4 Nm

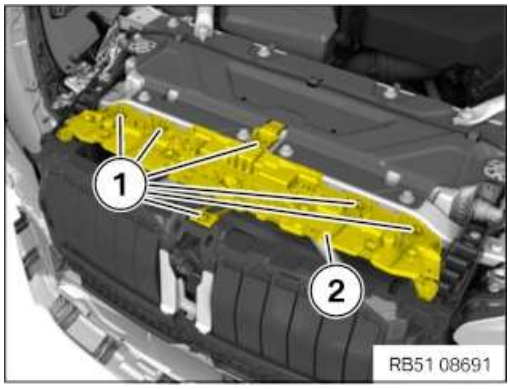


- Clip in the cable for the acceleration sensor with the holder (2) and feed it in the guide (3).
- Connect connectors (1) and lock.



- Feed in the cover (2) from below and clip it in with the latch mechanism (1) .

13 – Installing top adapter for panel support



- Position the adapter (2).
- Tighten the screws (1).

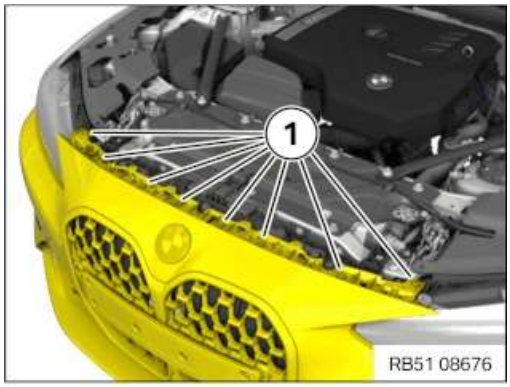
Adapter to the front panel

Oval-head screw with spring washer		Tightening torque	4 Nm

14 – Install bumper panel, front

NOTICE

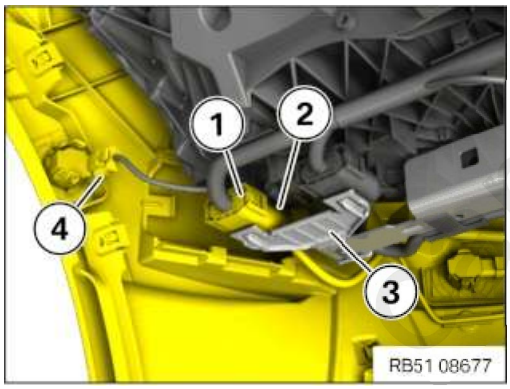
Schematic diagram is for example purposes. Some parts may differ in certain details.



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

Bumper panel, front top

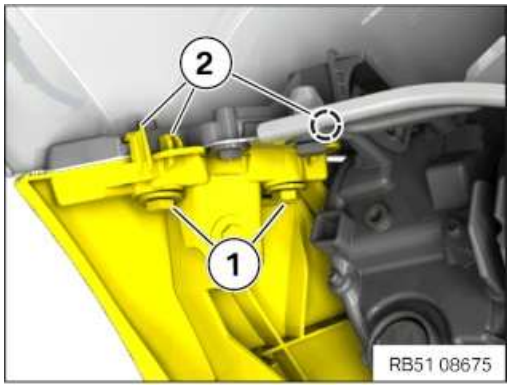
Oval-head screwM6		Tightening torque	4,6 Nm



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).

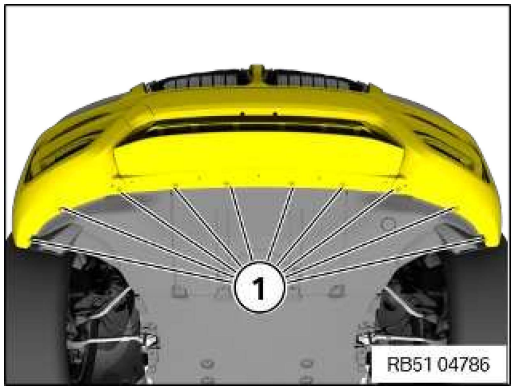
NOTICE

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

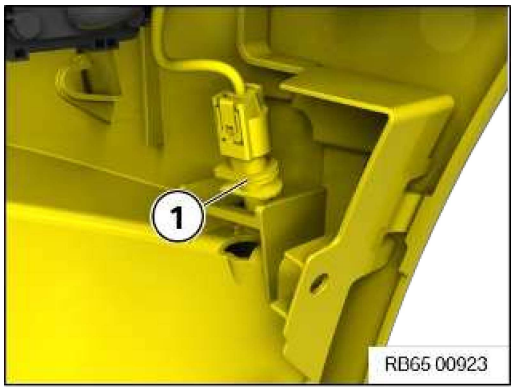


- Tighten the screws (1).

Front bumper panel to underbody protection

Hexagon screw for thermoplastic		Tightening torque	2,6 Nm

15 – Partially installing the temperature sensor



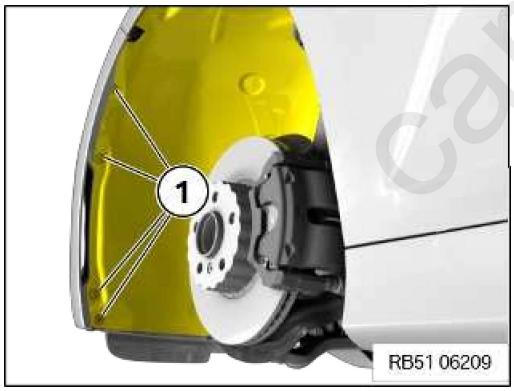
- Clip the temperature sensor (1) downwards into the front bumper panel.

16 – 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).

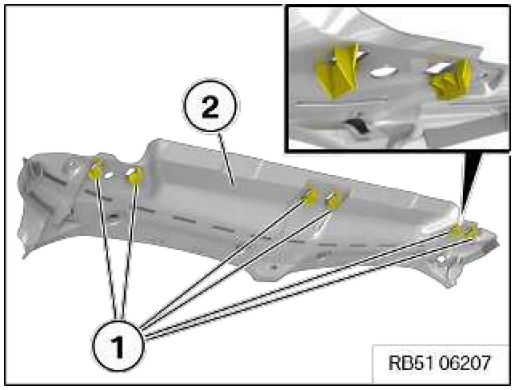
Wheel arch trim panel, front

Thermoplastic hexagon screw		Tightening torque	2,6 Nm

17 – Installing the cover for the centre engine compartment

Check

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

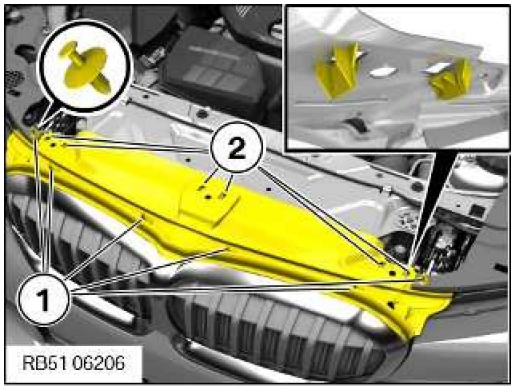
Result

» Latch mechanisms (1) are damaged.

Measure

- Replace the cover (2).

  Parts: Cover

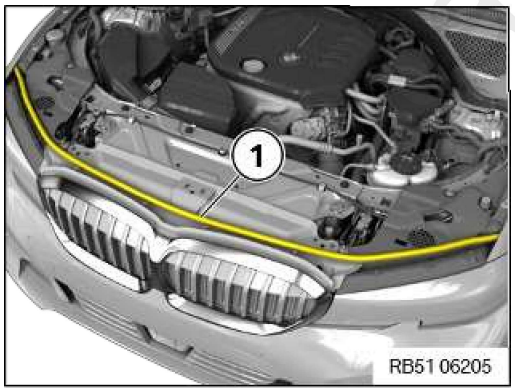


- Insert the cover from the rear and position it.
- Clip in the latch mechanisms (2).
- Mount all expanding rivets (1).

18 – 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.

19 – Connecting all battery earth leads



- See additional information.

20 – Activating the 48 V electrical system

Prerequisite

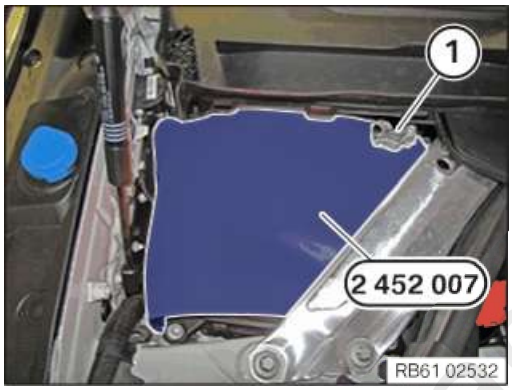
Ignition is switched off.

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

Air flap control to front end — Used in step 12

Oval-head screw with spring washer		Tightening torque	4 Nm

Adapter to the front panel — Used in step 13

Oval-head screw with spring washer		Tightening torque	4 Nm

Bumper panel, front top — Used in step 14

Oval-head screwM6		Tightening torque	4,6 Nm

Front bumper panel to front side panel — Used in step 14

Torx screw 5x35		Tightening torque	3 Nm

Front bumper panel to underbody protection — Used in step 14

Hexagon screw for thermoplastic		Tightening torque	2,6 Nm

Wheel arch trim panel, front — Used in step 16

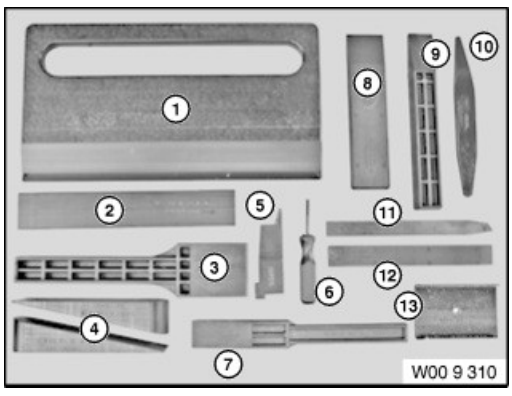
Thermoplastic hexagon screw		Tightening torque	2,6 Nm

Negative battery cable to 48-V battery — Used in step 20

Nut M8		Tightening torque	19 Nm

Overview of Special Tools

0 493 752 (00 9 329) Case



Common — Used in step 9

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

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Links

Repair instructions (PRE)	Used in step
Notes on 48-V battery	120

Repair instructions	Used in step
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	219
61 20 900 Disconnecting and connecting battery earth lead	219
61 20 900 Disconnecting and connecting battery earth lead	219
61 20 900 Disconnecting and connecting battery earth lead	219
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61 20 900 Disconnecting and connecting battery earth lead 219
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61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads) 219
61 20 900 Disconnecting and connecting battery earth lead 219
61 20 900 Disconnecting and connecting battery earth lead 219
61 20 900 Disconnecting and connecting battery earth lead 219

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65 77 585 Remove and install front seat position sensor

NOTICE

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

PRELIMINARY WORK

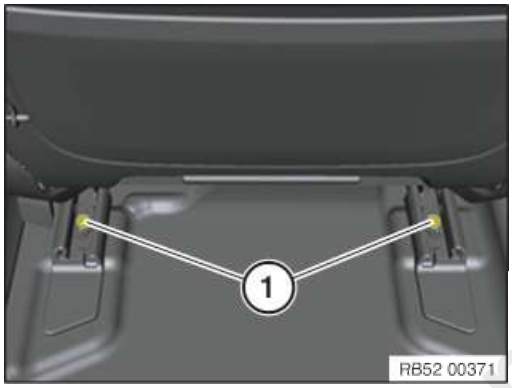
1 – Remove front seat

WARNING

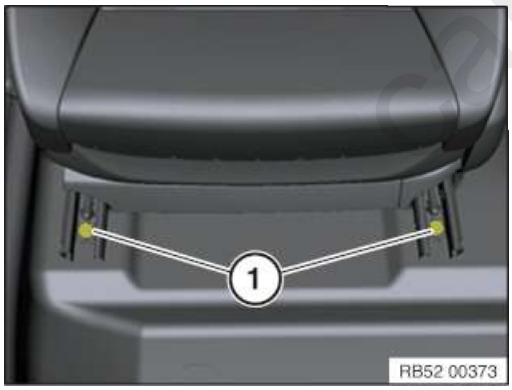
Pyrotechnic components.

Danger! Life-threatening injuries!

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



- Loosen screws (1).



- Loosen screws (1).
- Adjust the front seat to the centre position.
- **When removing the driver's seat:**

  Completely retract the steering column

  Adjust the steering column completely upwards.

▸ **Deactivating the 48 V electrical system**

Prerequisite

Ignition is switched off.

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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

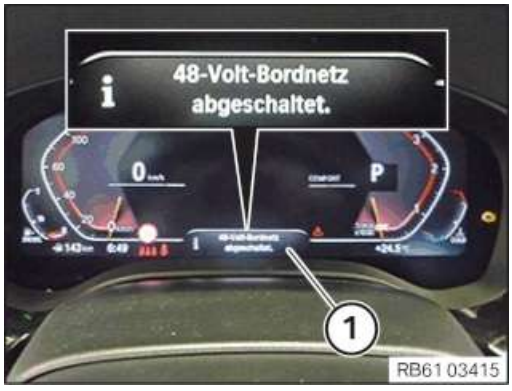
Follow notes for 48-V battery. See further information 6120 ... Notes on 48-V battery.



- 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!

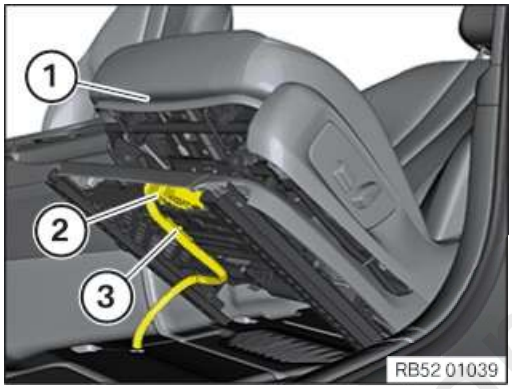
- Cover the vehicle battery.

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

▸ **Disconnecting all battery earth leads**



- See additional information.



RISK OF DAMAGE

Careless handling of tools and sharp-edged components.

Scratch, surface damage.

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

- Cover the door sill using protective covers.
- Place front seat (1) to the rear.
- Unlock plug connection (2) and disconnect.
- Loosen the cable clip (3).

RISK OF DAMAGE

Heavy component.

Heavy components can lead to injury or damage.

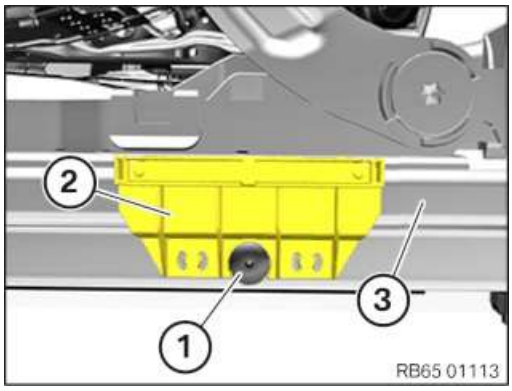
- Remove and install heavy components with the aid of another person/other persons.

- Lift out front seat (1) with the assistance of a second person.

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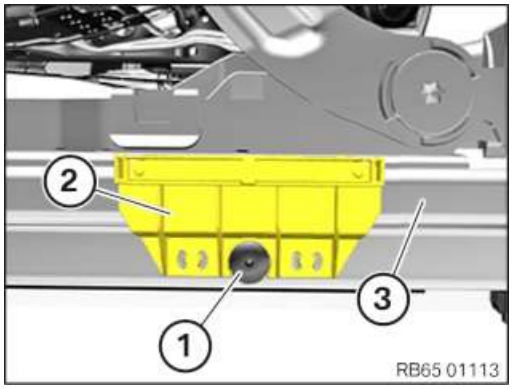
MAIN WORK

2 – Removing the magnet of the seat-position sensor on the front seat



- Drill out the rivet (1).
- Unclip and remove the magnet (2) of the seat-position sensor from the seat mechanism (3).

3 – Installing the magnet for the seat-position sensor on the front seat



- Feed the magnet (2) of the seat-position sensor into the seat mechanism (3) and position it correctly.
- Fasten the rivet (1).

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POSTPROCESSES

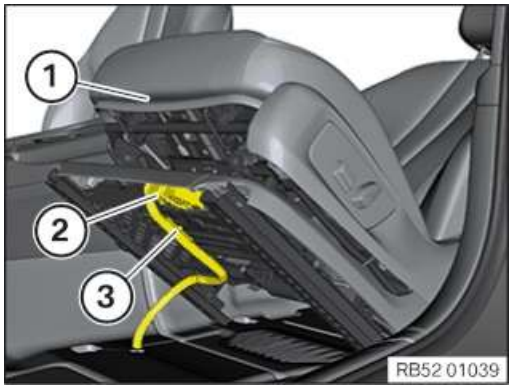
4 – Install front seat

WARNING

Pyrotechnic components.

Danger! Life-threatening injuries!

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



RISK OF DAMAGE

Careless handling of tools and sharp-edged components.

Scratch, surface damage.

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

- Cover the door sill using protective covers.

RISK OF DAMAGE

Heavy component.

Heavy components can lead to injury or damage.

- Remove and install heavy components with the aid of another person/other persons.

- Lift front seat (1) into the vehicle with the assistance of a second person.
- Place front seat (1) to the rear.
- Connect connectors (2) and lock.
- Attach the cable clip (3).

▸ **Connecting all battery earth leads**

- See additional information.



▸ **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

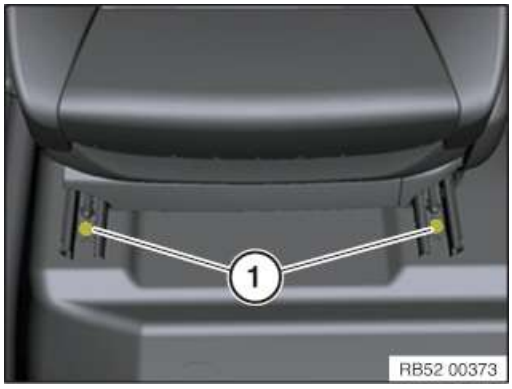


- Connect the connector (1) of the CAN bus and lock it.
- Clip in clip (2).



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

  The activation takes place automatically.



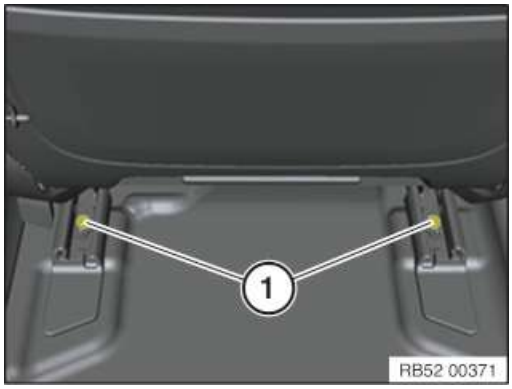
- Move front seat rearwards.
- Renew screws (1).

  Parts: Screws
- Tighten the screws (1).

Seat to body

Cheese head screw with collar	Renew screw.	Tightening torque	42 Nm

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- Move front seat forwards.
- Renew screws (1).

  Parts: Screws
- Tighten the screws (1).

Seat to body

Cheese head screw with collar	Renew screw.	Tightening torque	42 Nm

Additional Information

Overview of Tightening Torques

Negative battery cable to 48-V battery — Used in step 4

Nut M8		Tightening torque	19 Nm

Seat to body — Used in step 4

Cheese head screw with collar	Renew screw.	Tightening torque	42 Nm

Overview of Special Tools

Links

Repair instructions (PRE)	Used in step
Notes on 48-V battery	14

General repair instructions	Used in step
72 00 ... Safety regulations for handling components with gas generators	14

Repair instructions	Used in step
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	14
61 20 900 Disconnecting and connecting battery earth lead	14
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61 20 900 Disconnecting and connecting battery earth lead 14
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61 20 900 Disconnecting and connecting battery earth lead 14
61 20 900 Disconnecting and connecting battery earth lead 14

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65 77 580 Remove and install left or right front seat position sensor

NOTICE

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

PRELIMINARY WORK

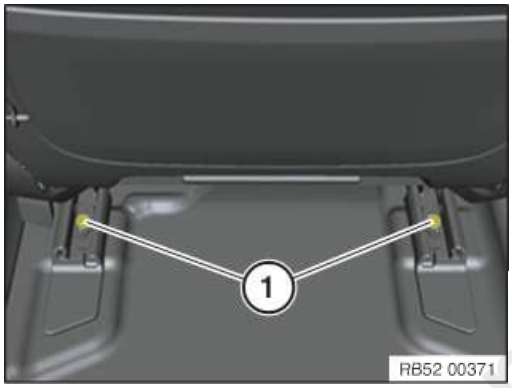
1 – Remove front seat

WARNING

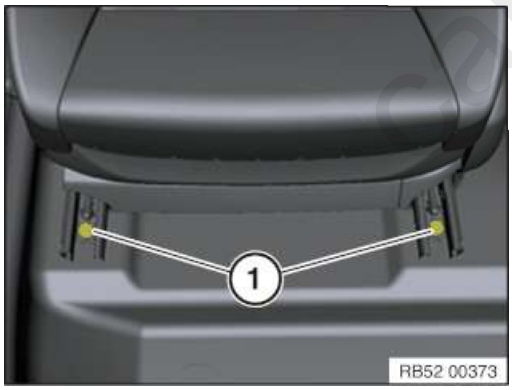
Pyrotechnic components.

Danger! Life-threatening injuries!

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



- Loosen screws (1).



- Loosen screws (1).
- Adjust the front seat to the centre position.
- **When removing the driver's seat:**

  Completely retract the steering column

  Adjust the steering column completely upwards.

▸ **Deactivating the 48 V electrical system**

Prerequisite

Ignition is switched off.

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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

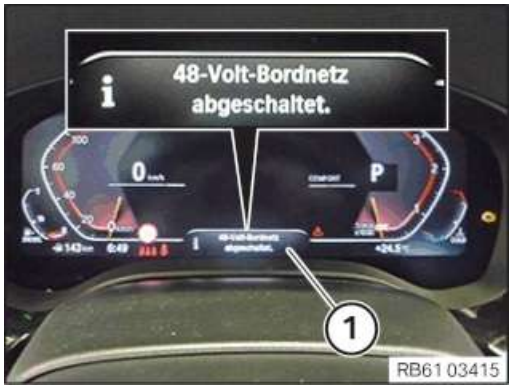
Follow notes for 48-V battery. See further information 6120 ... Notes on 48-V battery.



- 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!

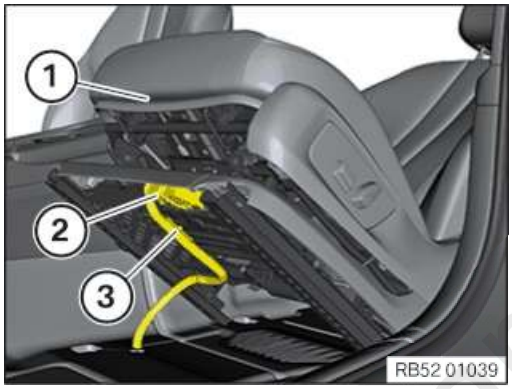
- Cover the vehicle battery.

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

▸ **Disconnecting all battery earth leads**



- See additional information.



RISK OF DAMAGE

Careless handling of tools and sharp-edged components.

Scratch, surface damage.

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

- Cover the door sill using protective covers.
- Place front seat (1) to the rear.
- Unlock plug connection (2) and disconnect.
- Loosen the cable clip (3).

RISK OF DAMAGE

Heavy component.

Heavy components can lead to injury or damage.

- Remove and install heavy components with the aid of another person/other persons.

- Lift out front seat (1) with the assistance of a second person.

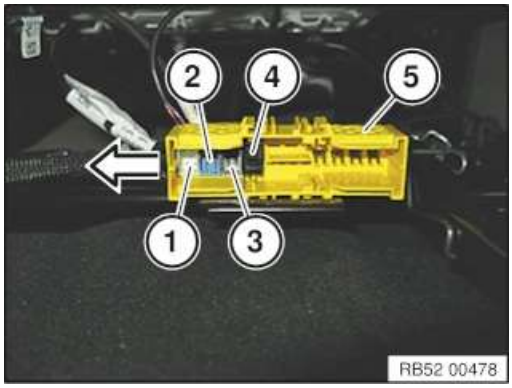
MAIN WORK

2 – Remove the seat position sensor on the front seat

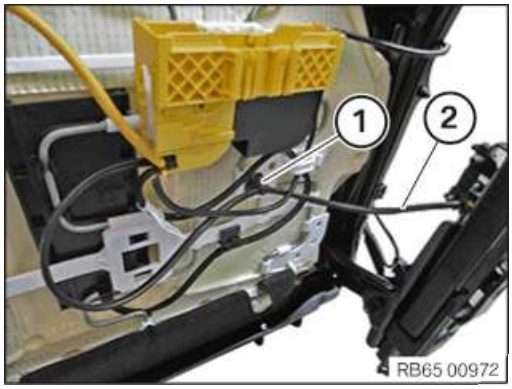
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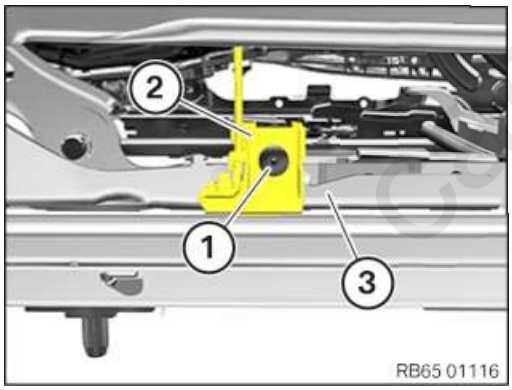
- Unfasten cable strap (1).



- Unlock connectors in order from (1) to (4) and pull them out of the plug housing one after another in the direction of the arrow (5).

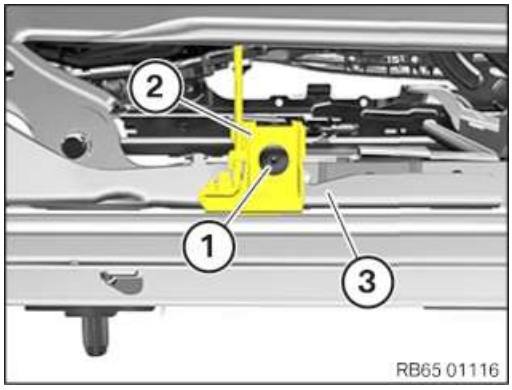


- Loosen the cable holder (1) from the seat mechanism.
- Unclip any other cable clips as necessary.
- Put the cable (2) to one side.



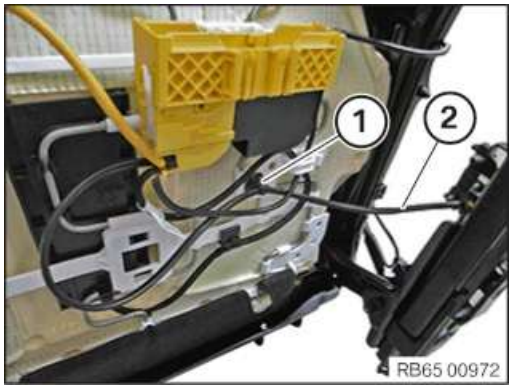
- Drill out rivet (1).
- Pull the seat position sensor (2) out up of the seat mechanism (3) upwards and remove.

3 – Install seat-position sensor on front seat

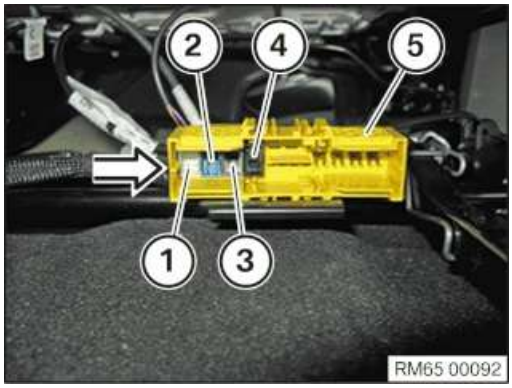


- Guide seat-position sensor (2) from the top into the seat mechanism (3) and position it correctly.
- Fasten the rivet (1).

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- Correctly position cable (2).
- Secure cable clip (1) to the seat mechanism.
- If necessary, mount other cable clips.



- Insert and lock the connectors correctly into the plug housing (5) in the sequence (1) to (4) in the direction of arrow.



- Secure cable strap (1).

POSTPROCESSES

4 – Install front seat

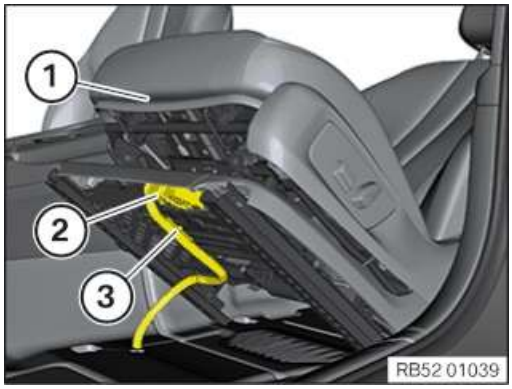
WARNING

Pyrotechnic components.

Danger! Life-threatening injuries!

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

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RISK OF DAMAGE

Careless handling of tools and sharp-edged components.

Scratch, surface damage.

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

- Cover the door sill using protective covers.

RISK OF DAMAGE

Heavy component.

Heavy components can lead to injury or damage.

- Remove and install heavy components with the aid of another person/other persons.

- Lift front seat (1) into the vehicle with the assistance of a second person.
- Place front seat (1) to the rear.
- Connect connectors (2) and lock.
- Attach the cable clip (3).

▸ **Connecting all battery earth leads**

- See additional information.



▸ **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

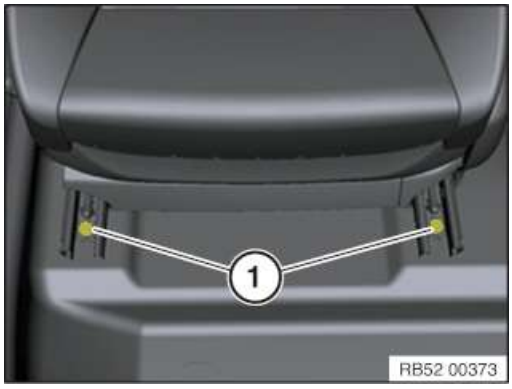


- Connect the connector (1) of the CAN bus and lock it.
- Clip in clip (2).



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

  The activation takes place automatically.



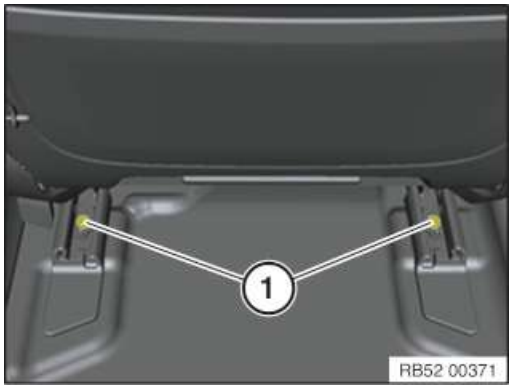
- Move front seat rearwards.
- Renew screws (1).

  Parts: Screws
- Tighten the screws (1).

Seat to body

Cheese head screw with collar	Renew screw.	Tightening torque	42 Nm

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- Move front seat forwards.
- Renew screws (1).

  Parts: Screws
- Tighten the screws (1).

Seat to body

Cheese head screw with collar	Renew screw.	Tightening torque	42 Nm

Additional Information

Overview of Tightening Torques

Negative battery cable to 48-V battery Used in step 4

Nut M8		Tightening torque	19 Nm

Seat to body Used in step 4

Cheese head screw with collar	Renew screw.	Tightening torque	42 Nm

Overview of Special Tools

Links

Repair instructions (PRE)	Used in step
Notes on 48-V battery	14

General repair instructions	Used in step
72 00 ... Safety regulations for handling components with gas generators	14

Repair instructions	Used in step
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	14
61 20 900 Disconnecting and connecting battery earth lead	14
61 20 900 Disconnecting and connecting battery earth lead	14
61 20 900 Disconnecting and connecting battery earth lead	14
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61 20 900 Disconnecting and connecting battery earth lead	14
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	14
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	14
61 20 900 Disconnecting and connecting battery earth lead	14
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	14
61 20 900 Disconnecting and connecting battery earth lead (Plug-in Hybrid Electric Vehicle)	14
61 20 900 Disconnecting and connecting battery earth lead	14
61 20 900 Disconnecting and connecting battery earth lead	14
61 20 900 Disconnecting and connecting battery earth lead	14
61 20 900 Disconnecting and connecting battery earth lead	14
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61 20 900 Disconnecting and connecting battery earth lead	14
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	14
61 20 900 Disconnecting and connecting battery earth lead	14
61 20 900 Disconnecting and connecting battery earth lead	14
61 20 900 Disconnecting and connecting battery earth lead	14

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65 77 016 Removing and installing airbag control unit

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.

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

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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.



WARNING

Unprotected battery terminals.

Risk of short circuits! Risk of fire!

- Cover the vehicle battery.

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

2 – Disconnecting all battery earth leads



- See additional information.

3 – Remove cupholder



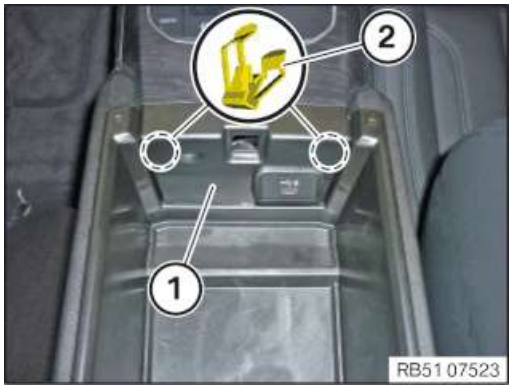
- Remove the insert (1).



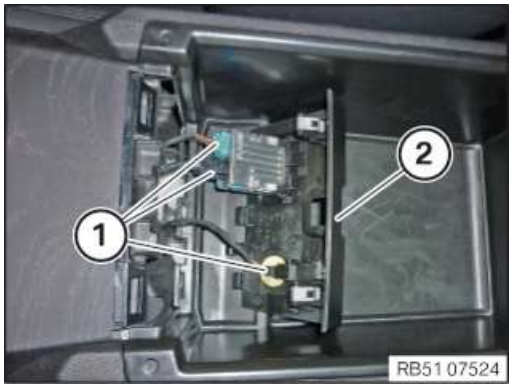
- Loosen screws (1).
- Feed the cup holder (2) out to the top.
- Unlock associated plug connections and disconnect.

4 – Removing the trim in the storage compartment on the centre armrest

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- Lever out the trim (1) with the special tool (2) toward the rear from the clamps 2 298 505.



- Unlock and disconnect the plug connections (1) and remove the trim (2) .

5 – Remove the centre console trim

RISK OF DAMAGE

Careless handling of tools and sharp-edged components.

Scratch, surface damage.

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



- Release and remove the centre console trim upwards (1) as shown using the special tool 2 298 505 from the latch mechanisms.

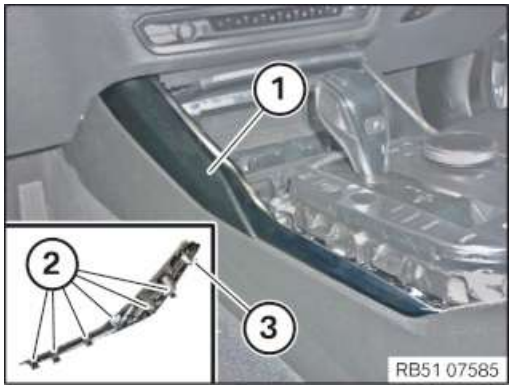
6 – Removing the decorative trim on the centre console on the left and right

▸ **Remove the decorative trim from the centre console**

NOTICE

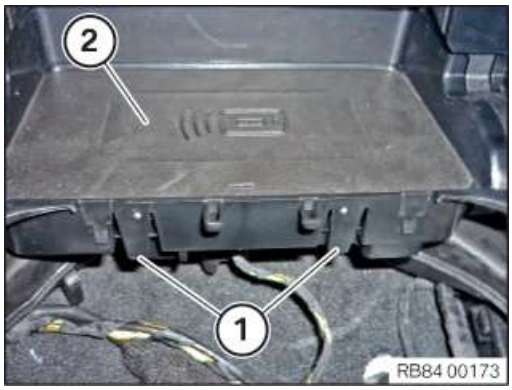
Description is for left component only. Procedure on the right side is identical.

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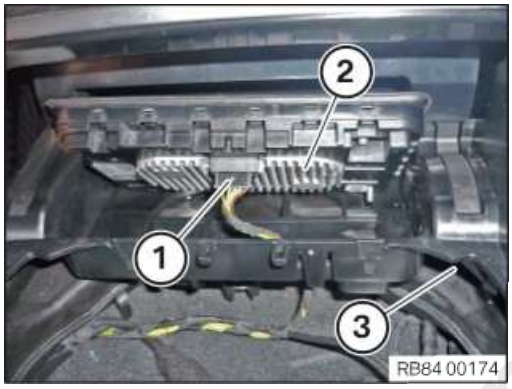


- Lever out the rear decorative trim (1) from the latch mechanisms (2) starting from the top.
- Feed out the decorative trim (1) backwards out of the guide (3) and remove.

7 – Removing the wireless charging station



- Loosen the latch mechanisms (1) and push out the wireless charging station (2) upwards.



- Unlock and disconnect the plug connection (1) and remove the wireless charging tray (2) from the centre console (3).

8 – Remove the operating facility in the centre console

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▸ **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.

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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.

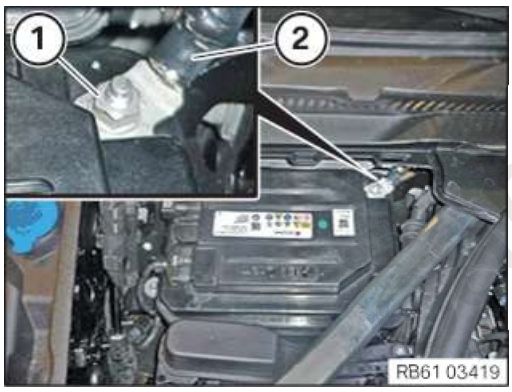
Measure

- 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.



WARNING

Unprotected battery terminals.

Risk of short circuits! Risk of fire!

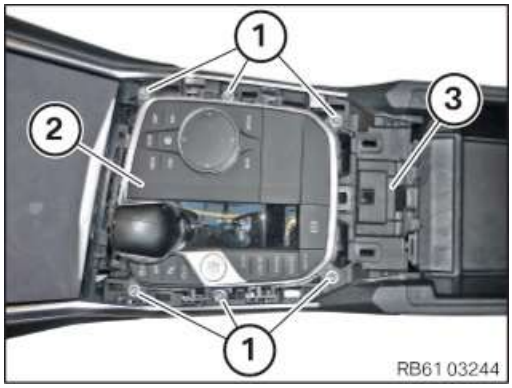
- Cover the vehicle battery.

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

▸ **Disconnecting all battery earth leads**

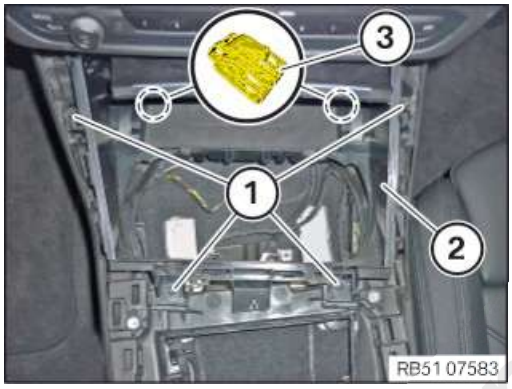


- See additional information.

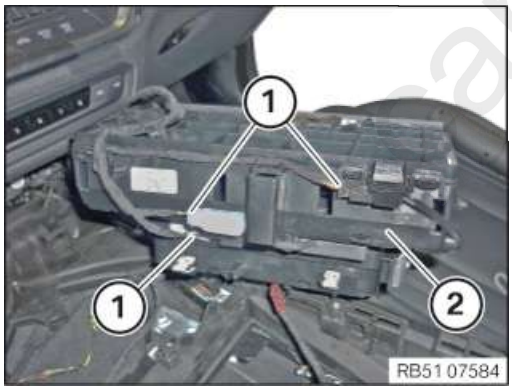


- Loosen screws (1).
- Remove the operating facility in the centre console (2) from the centre console (3).

9 – Removing the storage compartment in the front centre console



- Loosen screws (1).
- Pull the storage compartment in front centre console (2) backwards from the clamps (3).



- Unlock and disconnect the plug connections (1) and remove the storage compartment in centre console (2).

10 – Removing the rear centre console trim

RISK OF DAMAGE

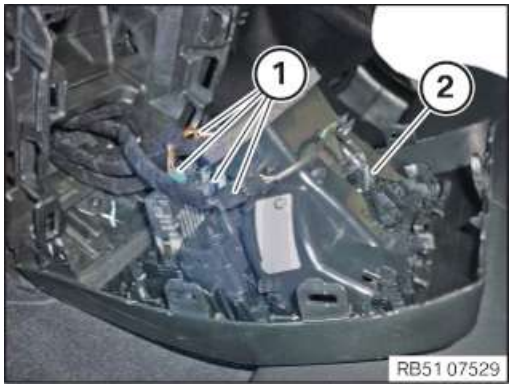
Careless handling of tools and sharp-edged components.

Scratch, surface damage.

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



- Release centre console trim (1) backwards from the latch mechanisms at the side and remove it slightly at the back.

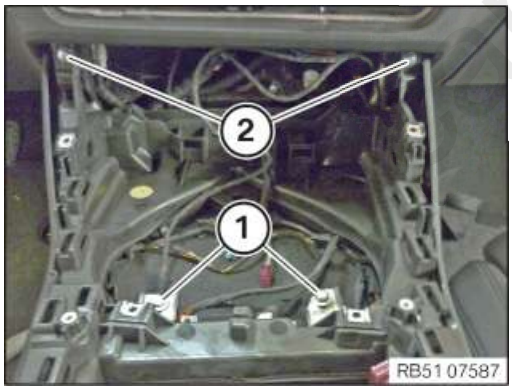


- Unlock and disconnect plug connections (1).
- Remove the centre console trim (2).

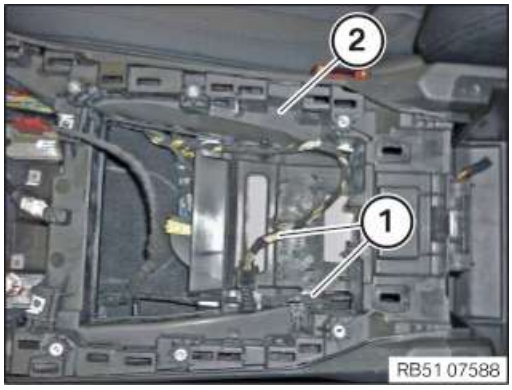
11 – Removing the centre console



- Loosen screws (1).

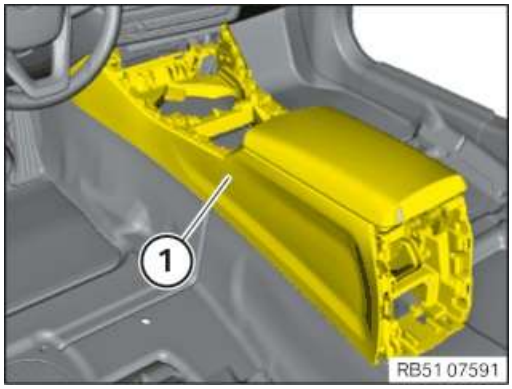


- Loosen screws (1) and (2).



- Release the wiring harness (1) from the centre console (2).

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NOTICE

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

- Carefully raise rear centre console (1).
- Feed out wiring harness from the centre console (1) and unlock and disconnect existing plug connections, if required.
- Feed out and remove the centre console (1) on the instrument panel .

MAIN WORK

12 – Removing the airbag control unit

WARNING

Airbag unit.

Danger! Life-threatening injuries!

- Before performing any work on the airbag, always disconnect the battery earth lead from the battery.
- Airbag unit may only be set down with the cushion (airbag itself) facing upwards.
- For additional information see: 72 00 ... Safety regulations on handling airbag system components/gas generators

RISK OF DAMAGE

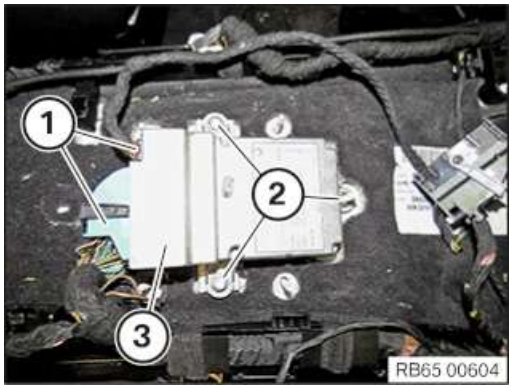
Electrostatic discharge.

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)



- Release insulation (1) from airbag control unit (2) and fold to one side.



- Unlock plug connection (1) and disconnect.
- Loosen nuts (2).
- Remove airbag control unit (3).

13 – Installing the airbag control unit

WARNING

Airbag unit.

Danger! Life-threatening injuries!

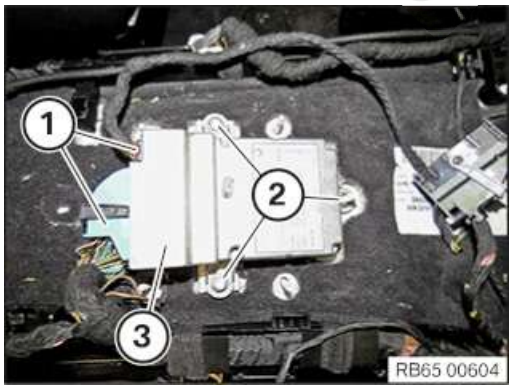
- Before performing any work on the airbag, always disconnect the battery earth lead from the battery.
- Airbag unit may only be set down with the cushion (airbag itself) facing upwards.
- For additional information see: 72 00 ... Safety regulations on handling airbag system components/gas generators

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 airbag control unit (3) correctly.
- Tighten nuts (2).

Airbag control unit to body

Screw		Tightening torque	8 Nm

- Connect connectors (1) and lock.

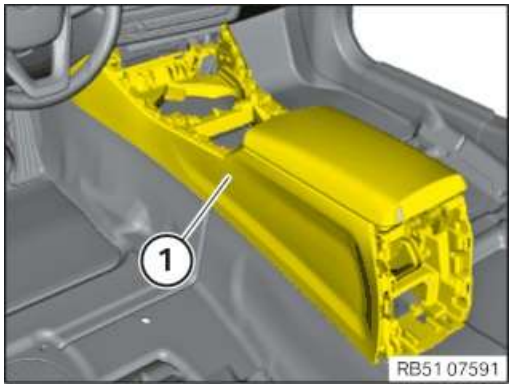
carmagn.com



- Position the insulation (1) correctly and secure on the airbag control unit (2).

POSTPROCESSES

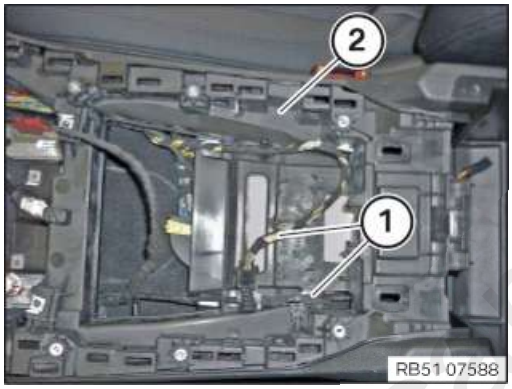
14 – Installing the centre console



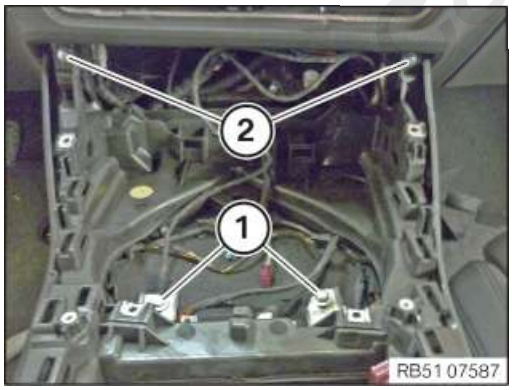
NOTICE

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

- Install centre console (1) and thereby feed in the wiring harness.
- Feed in the centre console (1) to the instrument panel and position correctly.



- Secure the wiring harness to the centre console (1) and connect and lock the existing plug connections.



- Tighten the screws (1).

Centre console on tunnel

M6x18 Hexagon screw		Tightening torque	4,6 Nm

- Tighten the screws (2).

Centre console to instrument panel

Oval-head screw		Tightening torque	1,8 Nm

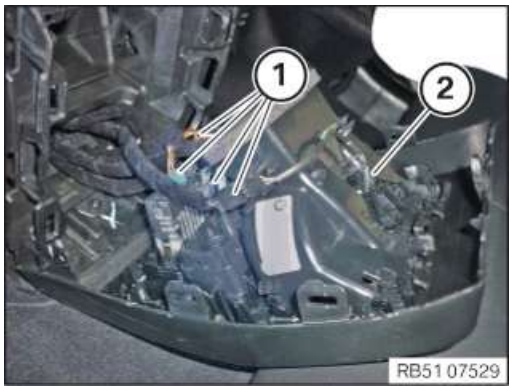


- Tighten the screws (1).

Centre console on tunnel

M6x18 Hexagon screw		Tightening torque	4,6 Nm

15 – Installing the rear centre console trim

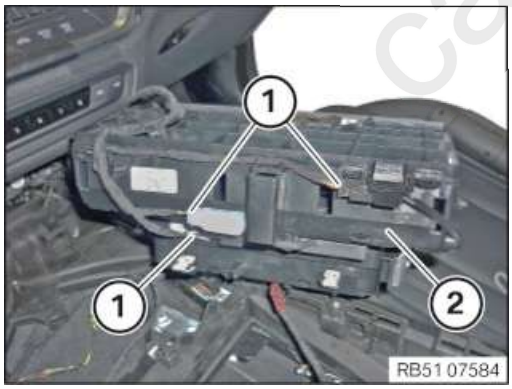


- Install the centre console trim (2).
- Connect connectors (1) and lock.

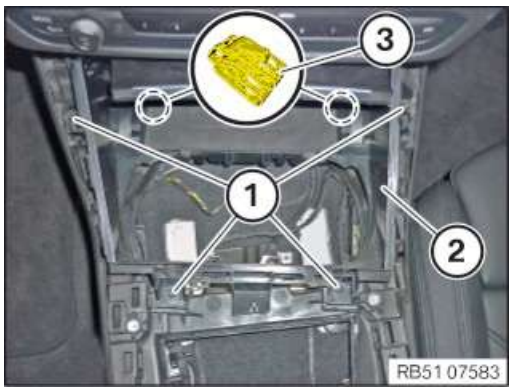


- Position centre console trim (1) and engage at the latch mechanisms at the side.

16 – Installing the storage compartment in the centre console in the front



- Mount the storage compartment in the centre console in the front (2) and connect and lock connectors (1).



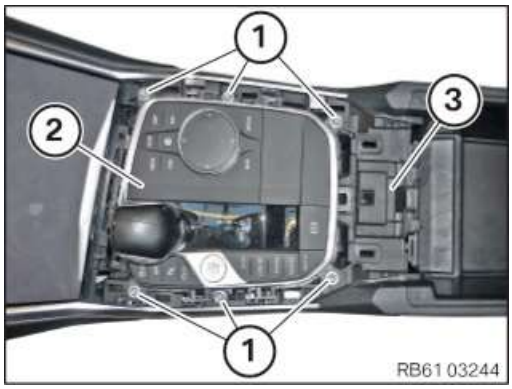
- Engage the storage compartment in the centre console in the front (2) into clamps (3) in the rear.
- Tighten the screws (1).

Storage compartment in centre console

Oval-head screw		Tightening torque	1,8 Nm

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17 – Install the operating facility in the centre console



- Position the operating facility (2) in the centre console (3).
- Tighten the screws (1).

Gear selector switch to centre console trim

Screw		Tightening torque	1,8 Nm

▸ **Connecting all battery earth leads**



- See additional information.

▸ **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



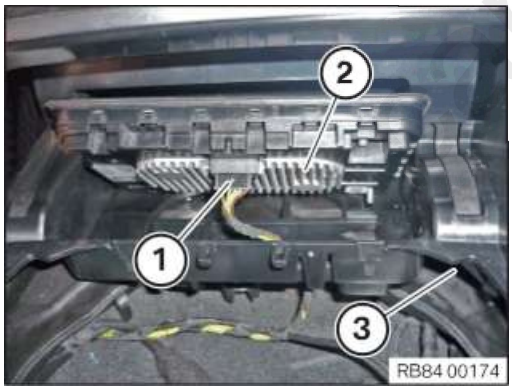
- Connect the connector (1) of the CAN bus and lock it.
- Clip in clip (2).



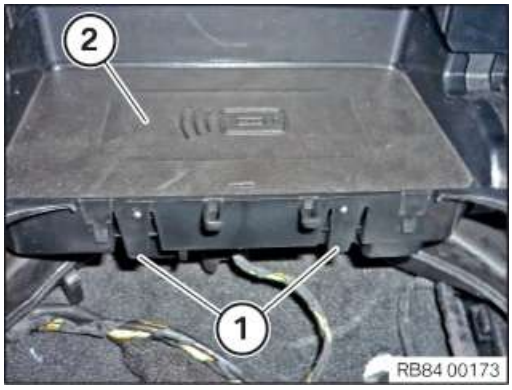
- Activate the 48V electrical system by closing the bonnet.

  The activation takes place automatically.

18 – Installing the wireless charging station



- Connect connectors (1) and lock.
- Position the wireless charging station (2) in the centre console (3).



- Push the wireless charging tray (2) down.

  The latch mechanisms (1) must engage correctly.

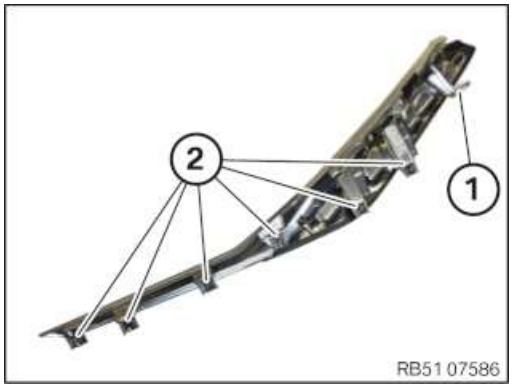
19 – Installing the decorative trim on the centre console on the left and right

bmwdiagn.com

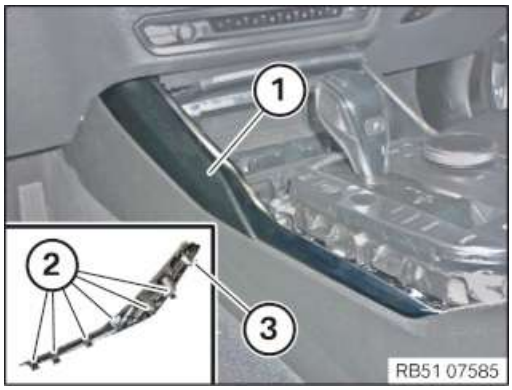
▸ **Installing the decorative trim on the centre console**

NOTICE

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



- Check the guide (1) and the latch mechanisms (2) for damage, renew the decorative trim if necessary.



- Feed in the decorative trim (1) forward in the guide (3).
- Engage decorative trim (1) in latch mechanisms (2).

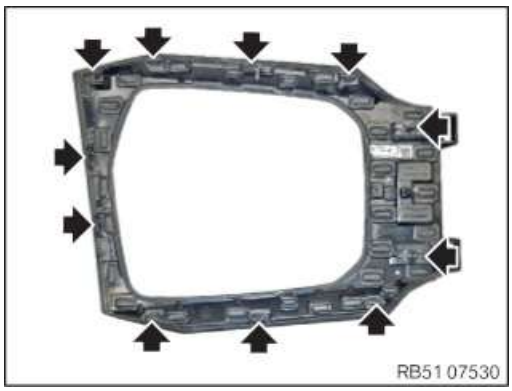
20 – Installing the centre console trim

RISK OF DAMAGE

Careless handling of tools and sharp-edged components.

Scratch, surface damage.

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



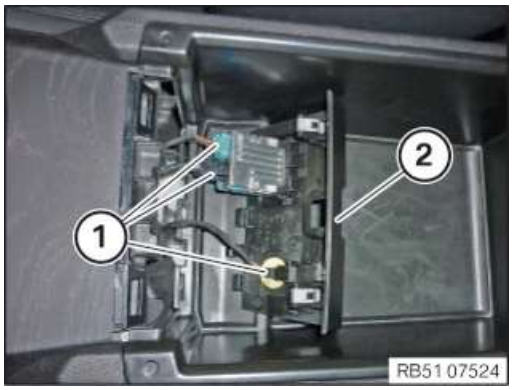
- Check all the latch mechanisms or clamps (arrows).
- In case the latch mechanisms or the clamps (arrows) are faulty, renew the centre console trim .

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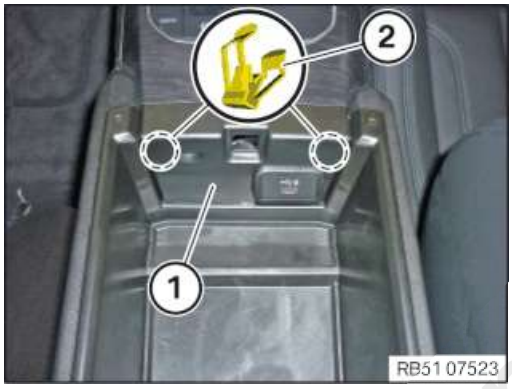


- Correctly position the centre console trim (1) and engage at the latch mechanisms.

21 – Installing the trim in the storage compartment of the centre armrest



- Mount the trim (2) and connect connector (1) and lock.



- Correctly position trim (1) and snap into the clamps (2).

22 – Install the cup holder



- Fix the cup holder (2) and the belonging connectors.
- Correctly position the cup holder (2).
- Tighten the screws (1).

Cup holder to centre console

Oval-head screw		Tightening torque	1,8 Nm



- Insert the insert (1).

manualdiagn.com

23 – Connecting all battery earth leads



- See additional information.

24 – 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.

25 – Adjusting the sensors for the driving dynamics

- Connect diagnosis system.
- Carry out the service function for adjustment of the sensors for driving dynamics.
  - Chassis and suspension
  - Traction control system
  - Adjustment of the driving dynamics sensors

Additional Information

Overview of Tightening Torques

Airbag control unit to body			Used in step 13
Screw		Tightening torque	8 Nm

Centre console on tunnel			Used in step 14
M6x18 Hexagon screw		Tightening torque	4,6 Nm

Centre console to instrument panel			Used in step 14
Oval-head screw		Tightening torque	1,8 Nm

Storage compartment in centre console			Used in step 16
Oval-head screw		Tightening torque	1,8 Nm

Gear selector switch to centre console trim			Used in step 17
Screw		Tightening torque	1,8 Nm

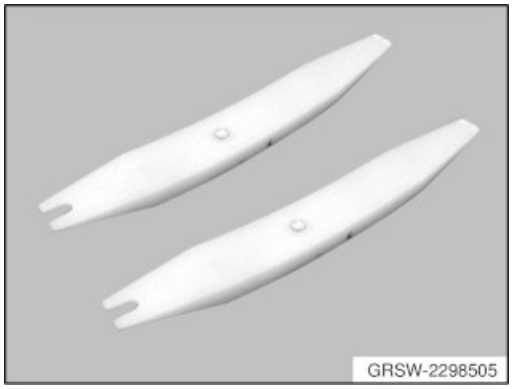
Negative battery cable to 48-V battery			Used in step 1724
Nut M8		Tightening torque	19 Nm

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Cup holder to centre console			Used in step 22
Oval-head screw		Tightening torque	1,8 Nm

Overview of Special Tools

2 298 505 Wedge



Common		Used in step 45
Usage	Set (delivery of 2 pieces)	
Included in the tool or work		
Storage location	C34	
Replaced by		
In connection with		
SI-Number	01 03 12 (792)	

Links

Repair instructions (PRE)	Used in step
Notes on 48-V battery	181724

General repair instructions	Used in step
72 00 ... Safety regulations for handling components with gas generators	1213

Repair instructions	Used in step
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	281723
61 20 900 Disconnecting and connecting battery earth lead	281723
61 20 900 Disconnecting and connecting battery earth lead	281723
61 20 900 Disconnecting and connecting battery earth lead	281723
61 20 900 Disconnecting and connecting battery earth lead	281723
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61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	281723
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61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	281723
61 20 900 Disconnecting and connecting battery earth lead	281723
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	281723
61 20 900 Disconnecting and connecting battery earth lead (Plug-in Hybrid Electric Vehicle)	281723
61 20 900 Disconnecting and connecting battery earth lead	281723
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61 20 900 Disconnecting and connecting battery earth lead	281723
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61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	281723
61 20 900 Disconnecting and connecting battery earth lead	281723
61 20 900 Disconnecting and connecting battery earth lead	281723
61 20 900 Disconnecting and connecting battery earth lead	281723
61 35 ... Notes on ESD protection (Electro Static Discharge)	1213
61 35 ... Notes on ESD protection (Electro Static Discharge)	1213

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65 77 725 Removing and installing airbag sensor on the B-pillar

WARNING

Pyrotechnic components.

Danger! Life-threatening injuries!

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

NOTICE

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

PRELIMINARY WORK

1 – Deactivating the 48 V electrical system

Prerequisite

Ignition is switched off.

WARNING

Deactivation of the 12 V vehicle electrical system.

Risk of short circuits! Risk of fire!

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

WARNING

Deactivation of the 48 V electrical system.

Risk of short circuits! Risk of fire!

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

RISK OF DAMAGE

Damage to 48-V battery

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

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

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TECHNICAL INFORMATION

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



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

  The deactivation takes place automatically.

Check



TECHNICAL INFORMATION

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

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

desired state

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

Result

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

Measure

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

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

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

Result

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

Measure

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

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

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



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



WARNING

Unprotected battery terminals.

Risk of short circuits! Risk of fire!

- Cover the vehicle battery.

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

2 – Disconnecting all battery earth leads



- See additional information.

3 – Remove C-pillar trim panel

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WARNING

Pyrotechnic components.

Danger! Life-threatening injuries!

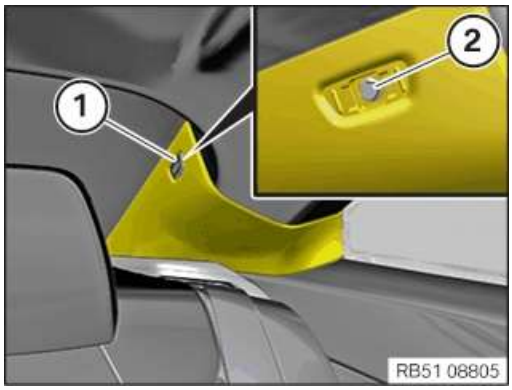
- All work on pyrotechnic parts may be carried out by technically experienced and appropriately trained personnel only.
- Replace any damaged part or ones that have been dropped.
- For additional information see: 72 00 Safety regulations on handling components with gas generators.

RISK OF DAMAGE

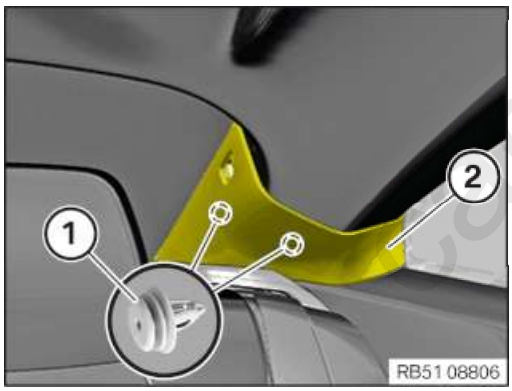
Damage to the head airbag.

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

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

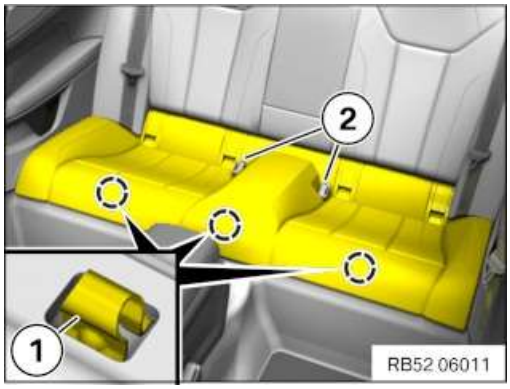


- Unclip cover (1) of the C-pillar trim panel.
- Release the screw (2).



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

4 – Remove rear seat bench

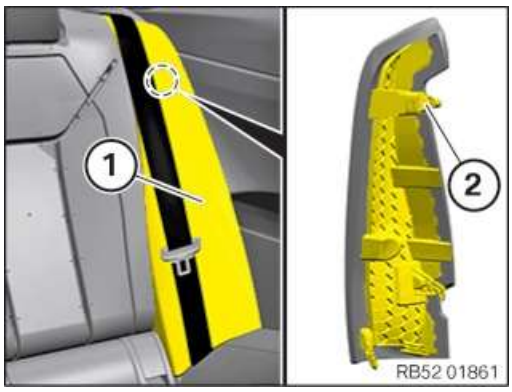


- Unclip the rear seat bench upwards from clamps (1) and guide out seat belt buckles (2).
- Remove the rear seat bench.

5 – Remove armrest side section

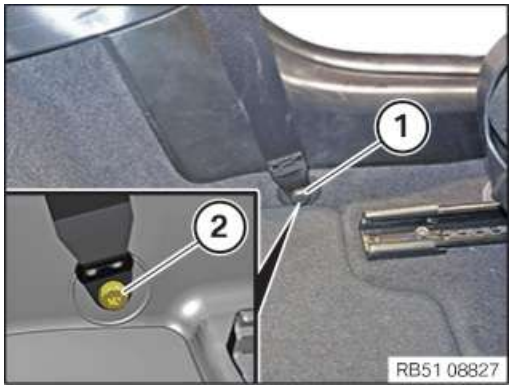
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▸ **Remove armrest side section**

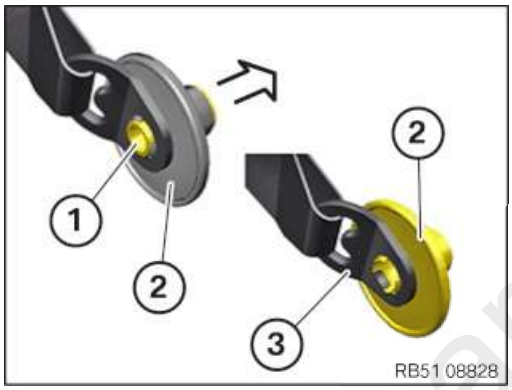


- Reach behind the backrest side section (1) from the top and unclip the backrest side section (1) from the mounting element (2) to the front.
- Remove backrest side section (1) in the upward direction from the guide.

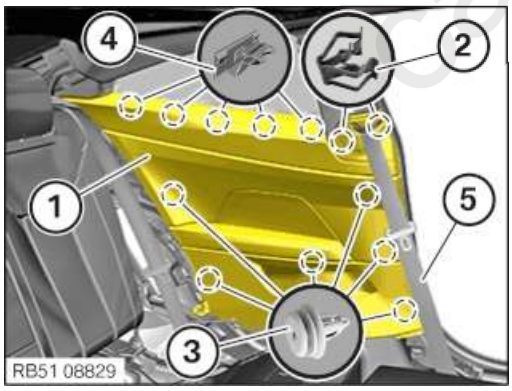
6 – Remove rear side trim panel



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



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

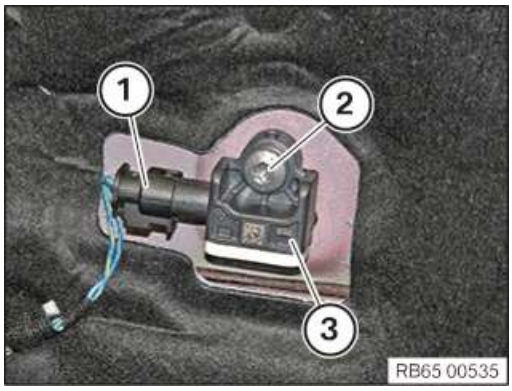


- Unclip the rear side trim panel (1) with a suitable tool at the clamps (2).
- Unclip the rear side trim panel (1) with a suitable tool at the clips (3).
- Release the rear side trim panel (1) at the clamps (4) and feed out at the edge protection.
- Unlock and disconnect all the plug connections at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

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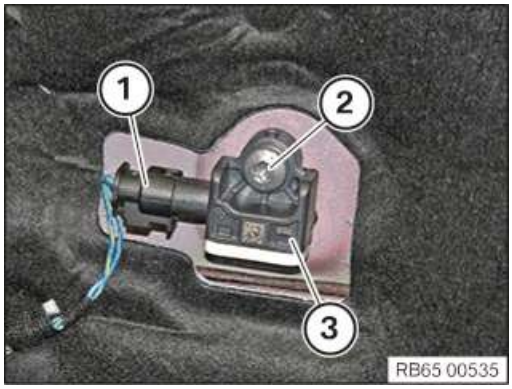
MAIN WORK

7 – Removing airbag sensor on the B-pillar



- Unlock plug connection (1) and disconnect.
- Loosen screw (2).
- Remove the airbag sensor (3) on the B-pillar.

8 – Installing airbag sensor on the B-pillar



- Place the airbag sensor (3) on the B-pillar and position correctly.
- Tighten down screw (2).

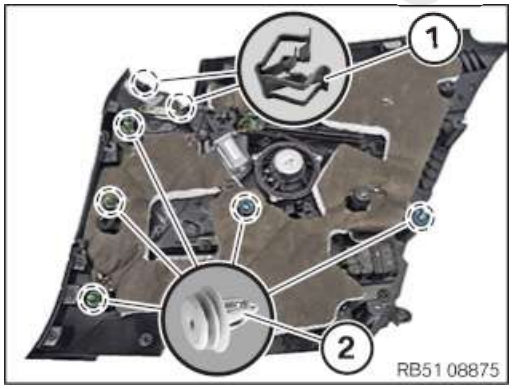
Airbag sensor, B-pillar

M6 screw		Tightening torque	8 Nm

- Connect connectors (1) and lock.

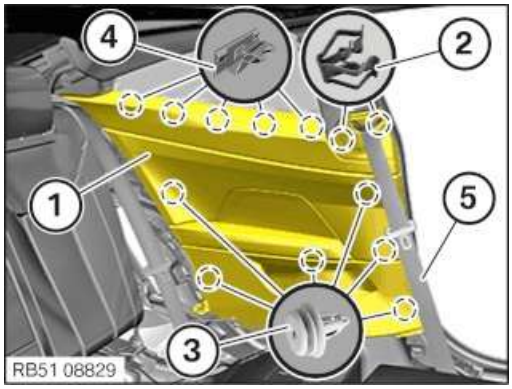
POSTPROCESSES

9 – Install rear side trim panel

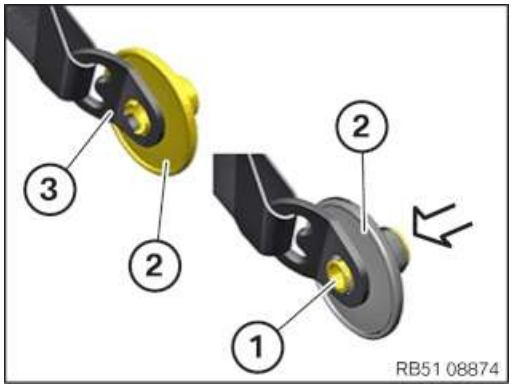


- Check clamps (1) for damage; renew them if necessary.
- Check clips (2) for damage, replace if necessary.

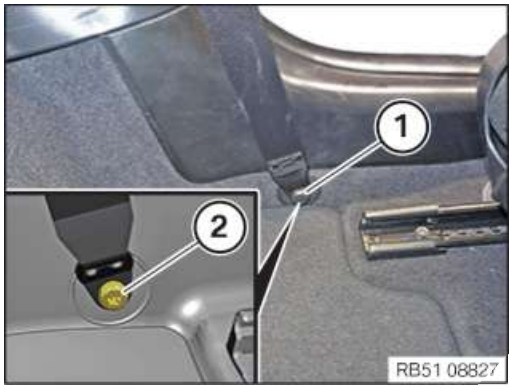
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- Connect all the connectors to rear side trim panel (1) of the wiring harness and lock and disconnect them.
- Guide in upper seat belt (5).
- Position rear side trim panel (1) and clip it into clamps (4).
- Clip rear side trim panel (1) into clips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



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



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

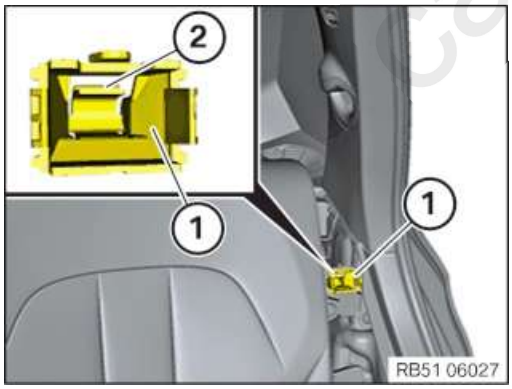
End fitting to body

M10		Tightening torque	42 Nm

- Clip in cover cap (1).

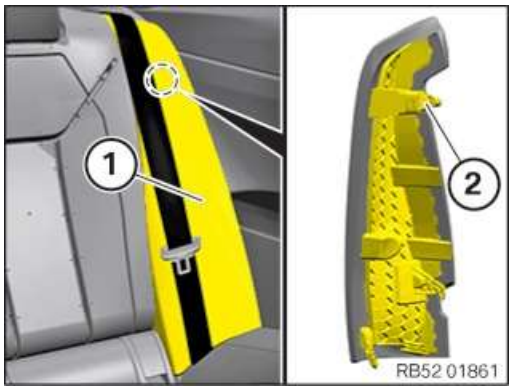
10 – Installing backrest side section

▶ **Installing backrest side section**



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

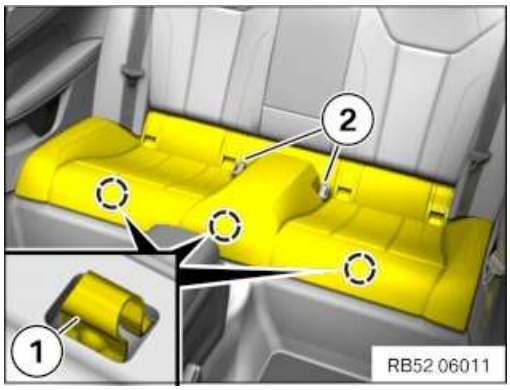
  The mounting element (1) must not be damaged or missing.
- Fit mounting element (1) on the backrest side section.



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

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11 – Installing the rear seat bench



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

12 – Installing C-pillar trim panel

WARNING

Pyrotechnic components.

Danger! Life-threatening injuries!

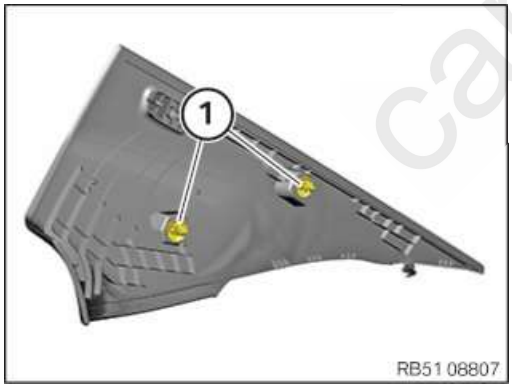
- All work on pyrotechnic parts may be carried out by technically experienced and appropriately trained personnel only.
- Replace any damaged part or ones that have been dropped.
- For additional information see: 72 00 Safety regulations on handling components with gas generators.

RISK OF DAMAGE

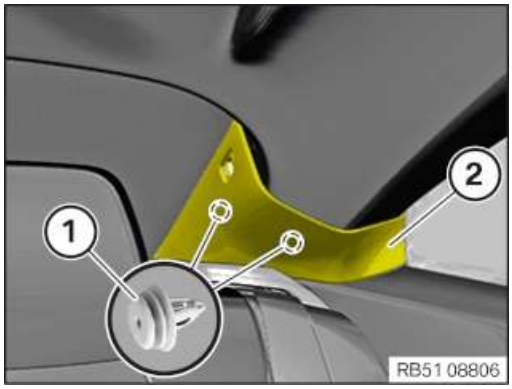
Damage to the head airbag.

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

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

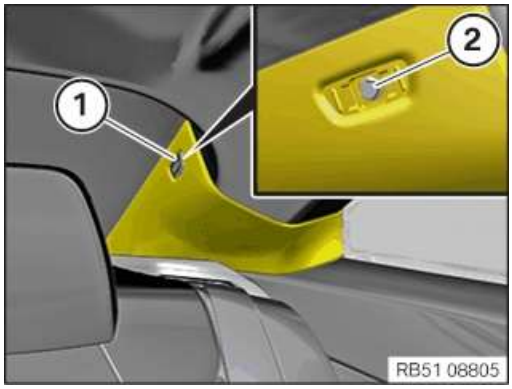


- Check clips (1) for damage and, if necessary, renew them.



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

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- Tighten down screw (2).

C-pillar trim panel to body

Screw		Tightening torque	2,6 Nm

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

13 – Connecting all battery earth leads



- See additional information.

14 – Activating the 48 V electrical system

Prerequisite

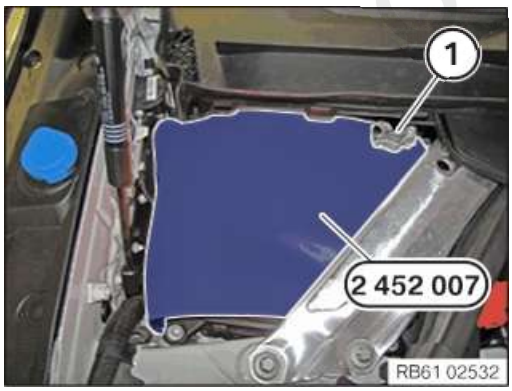
Ignition is switched off.

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 .

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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.

Additional Information

Overview of Tightening Torques

Airbag sensor, B-pillar — Used in step 8

M6 screw		Tightening torque	8 Nm

End fitting to body — Used in step 9

M10		Tightening torque	42 Nm

C-pillar trim panel to body — Used in step 12

Screw		Tightening torque	2,6 Nm

Negative battery cable to 48-V battery — Used in step 1014

Nut M8		Tightening torque	19 Nm

Overview of Special Tools

Links

Repair instructions (PRE)	Used in step

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Notes on 48-V battery	151014

General repair instructions	Used in step
72 00 ... Safety regulations for handling components with gas generators	510

Repair instructions	Used in step
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	251013
61 20 900 Disconnecting and connecting battery earth lead	251013
61 20 900 Disconnecting and connecting battery earth lead	251013
61 20 900 Disconnecting and connecting battery earth lead	251013
61 20 900 Disconnecting and connecting battery earth lead	251013
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61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	251013
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	251013
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61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	251013
61 20 900 Disconnecting and connecting battery earth lead	251013
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61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	251013
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	251013
61 20 900 Disconnecting and connecting battery earth lead	251013
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	251013
61 20 900 Disconnecting and connecting battery earth lead (Plug-in Hybrid Electric Vehicle)	251013
61 20 900 Disconnecting and connecting battery earth lead	251013
61 20 900 Disconnecting and connecting battery earth lead	251013
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61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	251013
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61 20 900 Disconnecting and connecting battery earth lead	251013
61 20 900 Disconnecting and connecting battery earth lead	251013

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65 77 720 Removing and installing airbag sensor on the left B-pillar

WARNING

Pyrotechnic components.

Danger! Life-threatening injuries!

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

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.

TECHNICAL INFORMATION

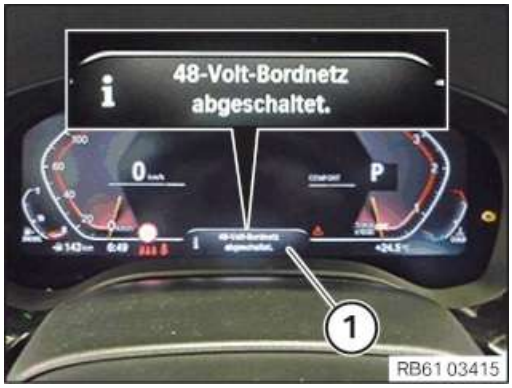
Follow notes for 48-V battery. See further information 6120 ... Notes on 48-V battery.

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

  The deactivation takes place automatically.



Check

TECHNICAL INFORMATION

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

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

desired state

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

Result

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

Measure

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

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

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

Result

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

Measure

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

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

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



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



WARNING

Unprotected battery terminals.

Risk of short circuits! Risk of fire!

- Cover the vehicle battery.

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

2 – Disconnecting all battery earth leads



- See additional information.

3 – Remove C-pillar trim panel

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WARNING

Pyrotechnic components.

Danger! Life-threatening injuries!

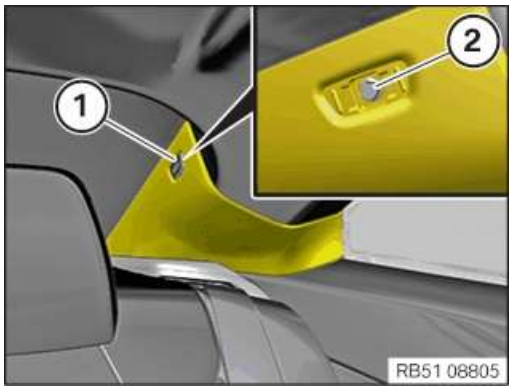
- All work on pyrotechnic parts may be carried out by technically experienced and appropriately trained personnel only.
- Replace any damaged part or ones that have been dropped.
- For additional information see: 72 00 Safety regulations on handling components with gas generators.

RISK OF DAMAGE

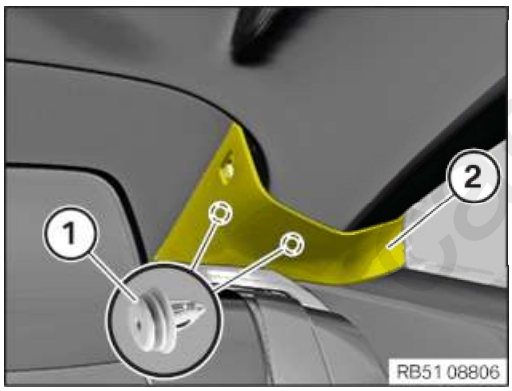
Damage to the head airbag.

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

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

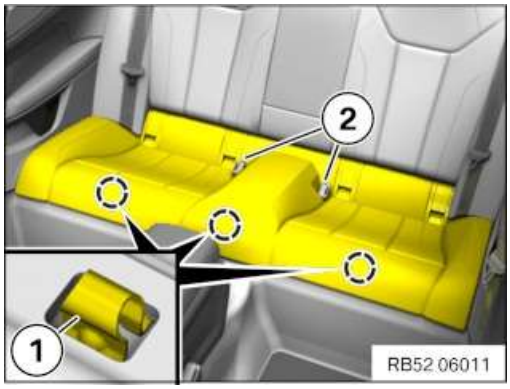


- Unclip cover (1) of the C-pillar trim panel.
- Release the screw (2).



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

4 – Remove rear seat bench

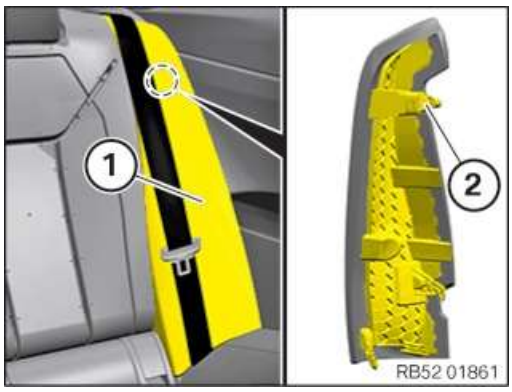


- Unclip the rear seat bench upwards from clamps (1) and guide out seat belt buckles (2).
- Remove the rear seat bench.

5 – Remove armrest side section

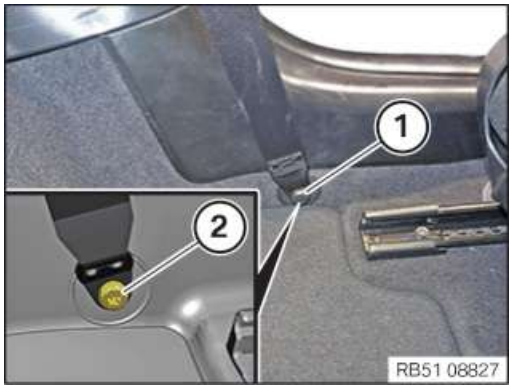
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▸ **Remove armrest side section**

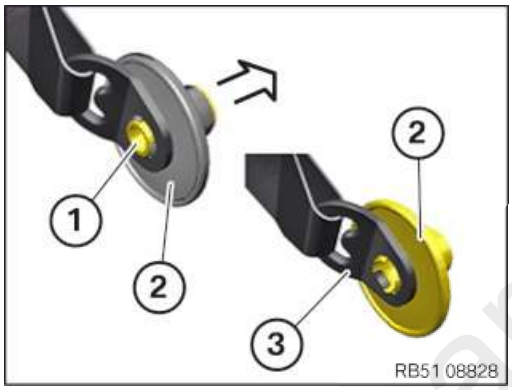


- Reach behind the backrest side section (1) from the top and unclip the backrest side section (1) from the mounting element (2) to the front.
- Remove backrest side section (1) in the upward direction from the guide.

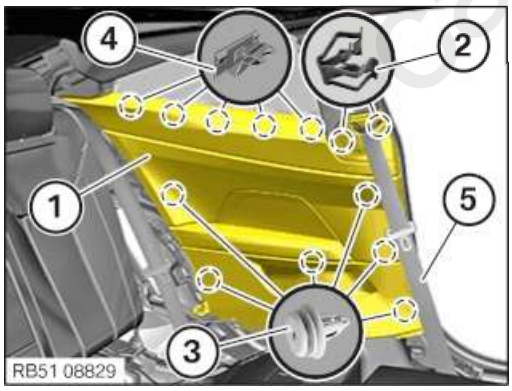
6 – Remove rear side trim panel



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



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

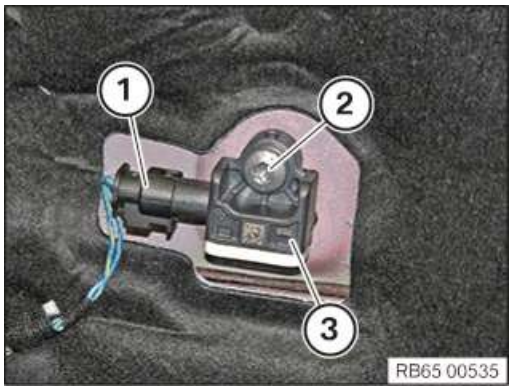


- Unclip the rear side trim panel (1) with a suitable tool at the clamps (2).
- Unclip the rear side trim panel (1) with a suitable tool at the clips (3).
- Release the rear side trim panel (1) at the clamps (4) and feed out at the edge protection.
- Unlock and disconnect all the plug connections at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

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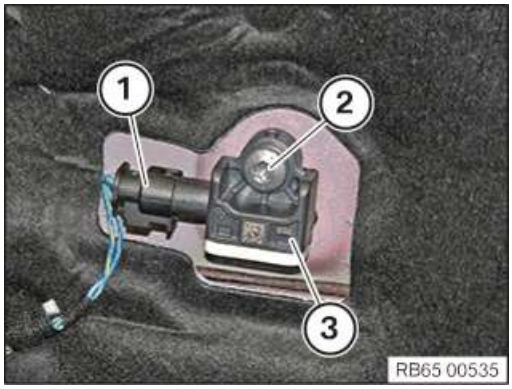
MAIN WORK

7 – Removing airbag sensor on the B-pillar



- Unlock plug connection (1) and disconnect.
- Loosen screw (2).
- Remove the airbag sensor (3) on the B-pillar.

8 – Installing airbag sensor on the B-pillar



- Place the airbag sensor (3) on the B-pillar and position correctly.
- Tighten down screw (2).

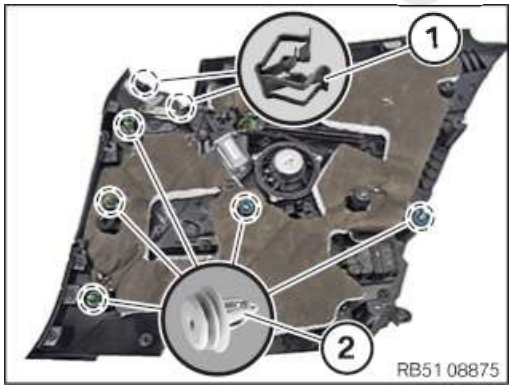
Airbag sensor, B-pillar

M6 screw		Tightening torque	8 Nm

- Connect connectors (1) and lock.

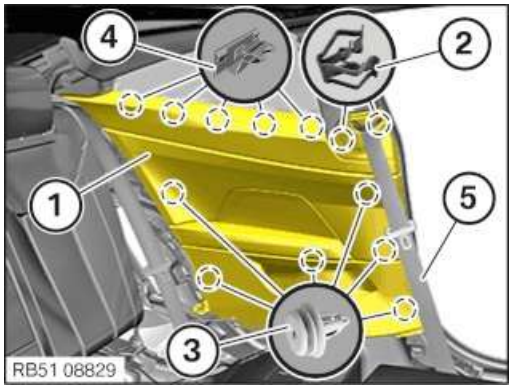
POSTPROCESSES

9 – Install rear side trim panel

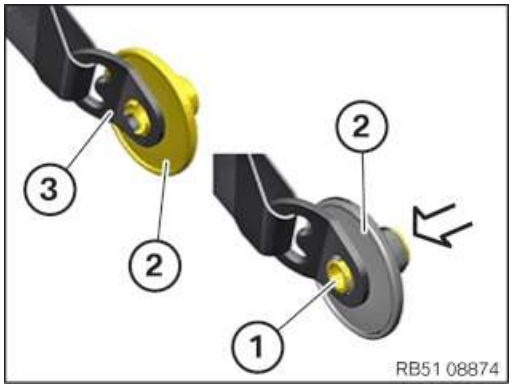


- Check clamps (1) for damage; renew them if necessary.
- Check clips (2) for damage, replace if necessary.

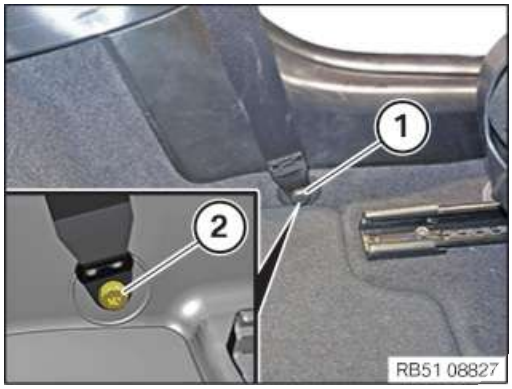
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- Connect all the connectors to rear side trim panel (1) of the wiring harness and lock and disconnect them.
- Guide in upper seat belt (5).
- Position rear side trim panel (1) and clip it into clamps (4).
- Clip rear side trim panel (1) into clips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



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



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

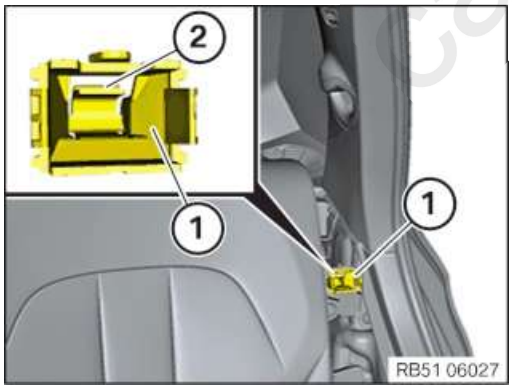
End fitting to body

M10		Tightening torque	42 Nm

- Clip in cover cap (1).

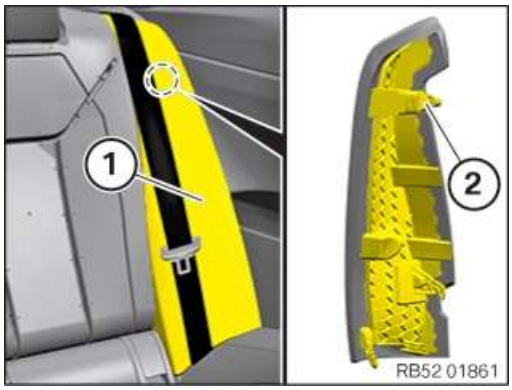
10 – Installing backrest side section

▶ **Installing backrest side section**



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

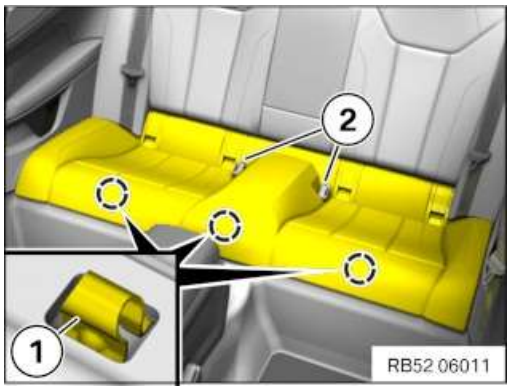
  The mounting element (1) must not be damaged or missing.
- Fit mounting element (1) on the backrest side section.



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

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11 – Installing the rear seat bench



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

12 – Installing C-pillar trim panel

WARNING

Pyrotechnic components.

Danger! Life-threatening injuries!

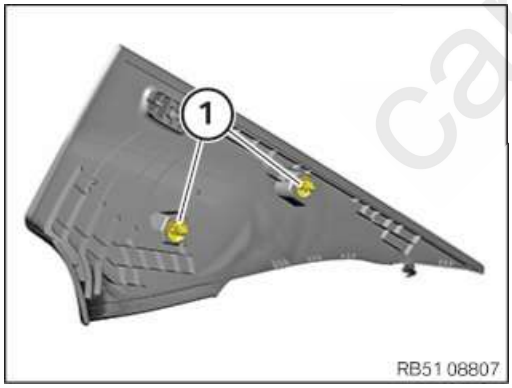
- All work on pyrotechnic parts may be carried out by technically experienced and appropriately trained personnel only.
- Replace any damaged part or ones that have been dropped.
- For additional information see: 72 00 Safety regulations on handling components with gas generators.

RISK OF DAMAGE

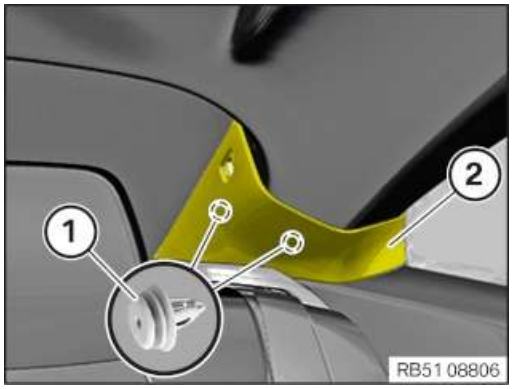
Damage to the head airbag.

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

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

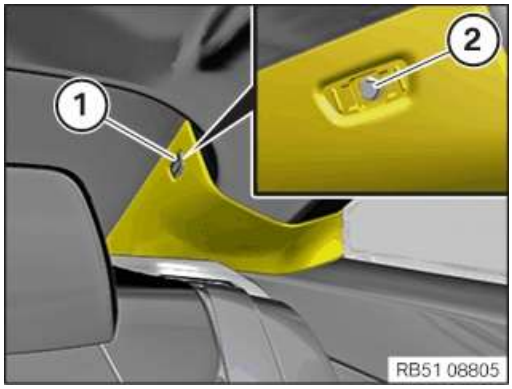


- Check clips (1) for damage and, if necessary, renew them.



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

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- Tighten down screw (2).

C-pillar trim panel to body

Screw		Tightening torque	2,6 Nm

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

13 – Connecting all battery earth leads



- See additional information.

14 – Activating the 48 V electrical system

Prerequisite

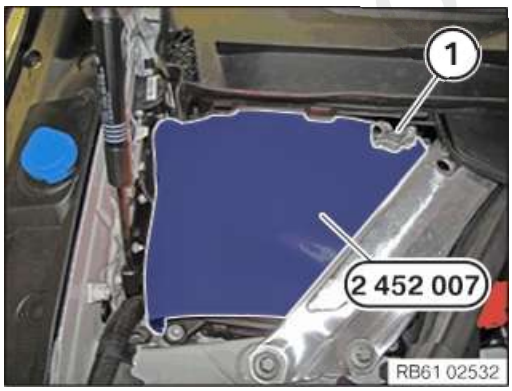
Ignition is switched off.

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 .

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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.

Additional Information

Overview of Tightening Torques

Airbag sensor, B-pillar — Used in step 8

M6 screw		Tightening torque	8 Nm

End fitting to body — Used in step 9

M10		Tightening torque	42 Nm

C-pillar trim panel to body — Used in step 12

Screw		Tightening torque	2,6 Nm

Negative battery cable to 48-V battery — Used in step 1014

Nut M8		Tightening torque	19 Nm

Overview of Special Tools

Links

Repair instructions (PRE)	Used in step

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Notes on 48-V battery	151014

General repair instructions	Used in step
72 00 ... Safety regulations for handling components with gas generators	510

Repair instructions	Used in step
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	251013
61 20 900 Disconnecting and connecting battery earth lead	251013
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61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	251013
61 20 900 Disconnecting and connecting battery earth lead	251013
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61 20 900 Disconnecting and connecting battery earth lead (Plug-in Hybrid Electric Vehicle)	251013
61 20 900 Disconnecting and connecting battery earth lead	251013
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65 77 745 Removing and installing the front right door sensor

WARNING

Pyrotechnic components.

Danger! Life-threatening injuries!

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

NOTICE

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

PRELIMINARY WORK

1 – Deactivating the 48 V electrical system

Prerequisite

Ignition is switched off.

WARNING

Deactivation of the 12 V vehicle electrical system.

Risk of short circuits! Risk of fire!

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

WARNING

Deactivation of the 48 V electrical system.

Risk of short circuits! Risk of fire!

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

RISK OF DAMAGE

Damage to 48-V battery

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

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

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TECHNICAL INFORMATION

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



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

  The deactivation takes place automatically.

Check



TECHNICAL INFORMATION

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

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

desired state

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

Result

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

Measure

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

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

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

Result

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

Measure

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

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

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



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



WARNING

Unprotected battery terminals.

Risk of short circuits! Risk of fire!

- Cover the vehicle battery.

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

2 – Disconnecting all battery earth leads



- See additional information.

3 – Remove front door trim panel

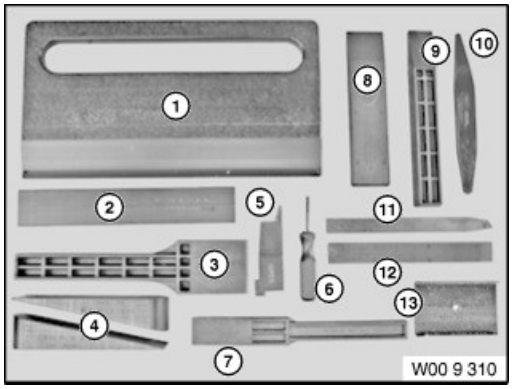
RISK OF DAMAGE

Damage of high-quality surfaces.

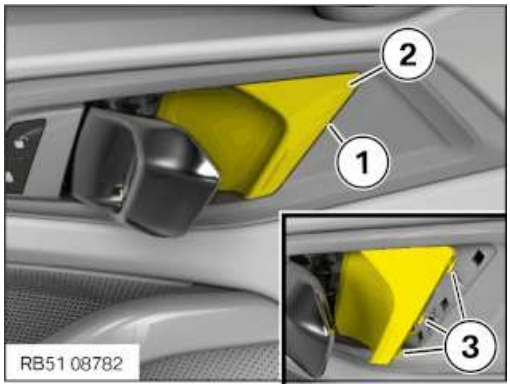
Plastic wedges can damage high-quality surfaces.

- Protect surfaces from damage.

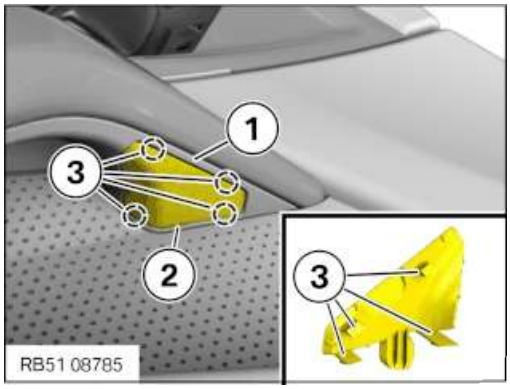
cardiag.com



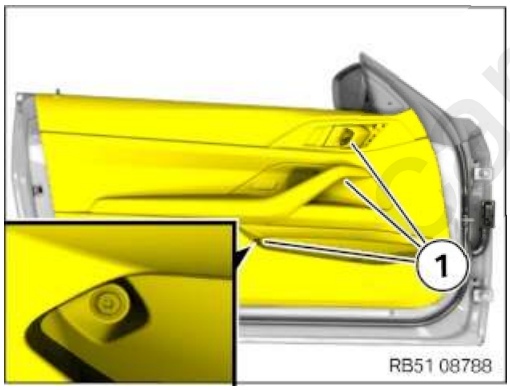
- Have the set of special tools 0 493 752 (00 9 329) ready.



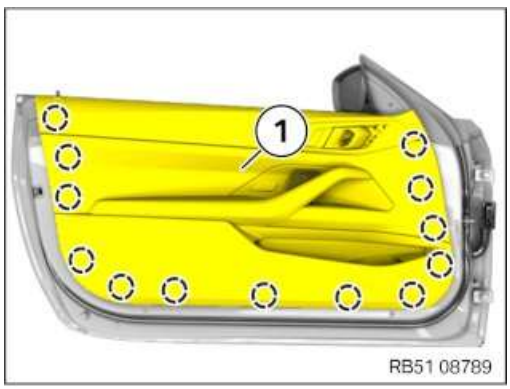
- Pull the door handle.
- Position suitable special tool on the recess in the area (1) .
- Unclip the cover of the door handle (2) with the latch mechanisms (3).
- Feed out the cover of the door handle (2) from the latch mechanisms and remove it forwards.



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

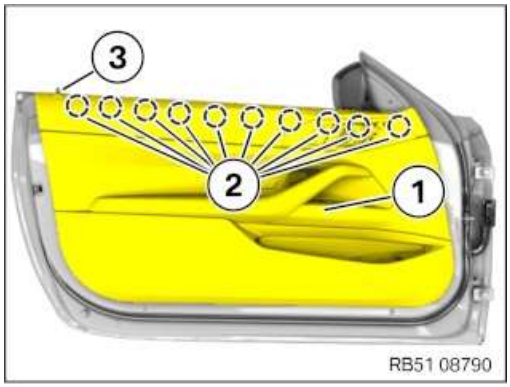


- Loosen screws (1).

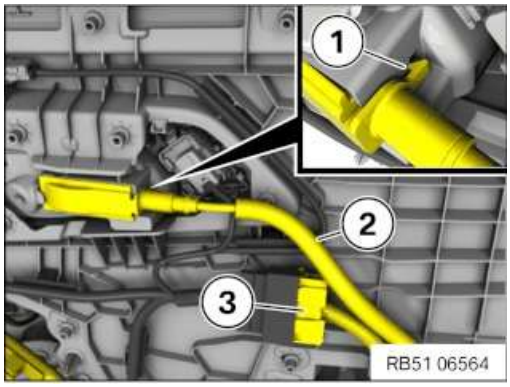


- Unclip the door trim panel (1) with the suitable special tool at the marked places.

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



NOTICE

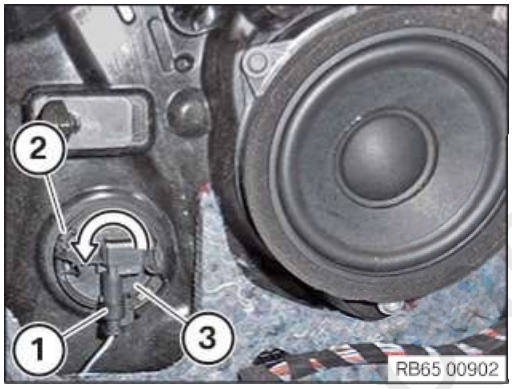
Schematic diagram is for example purposes. Some parts may differ in certain details.

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

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

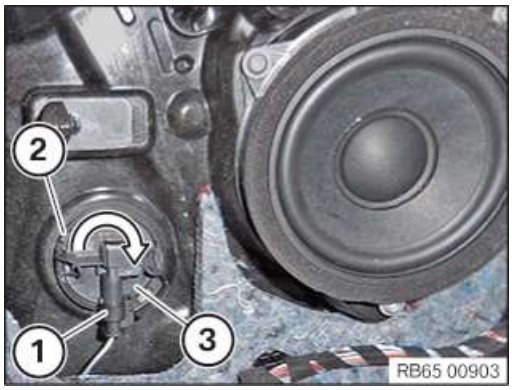
MAIN WORK

4 – Removing the airbag sensor on the front door



- Unlock plug connection (1) and disconnect.
- Unlock the latch mechanism (2).
- Turn airbag sensor (3) in the direction of arrow and remove.

5 – Installing the airbag sensor on the front door

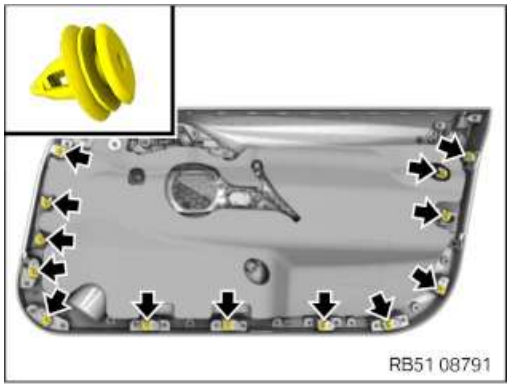


- Position airbag sensor (3) correctly and turn it in the direction of the arrow until latch mechanism (2) engages.
- Connect connectors (1) and lock.

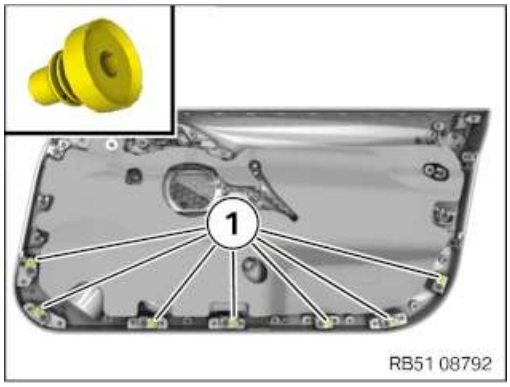
POSTPROCESSES

6 – Install front door trim panel

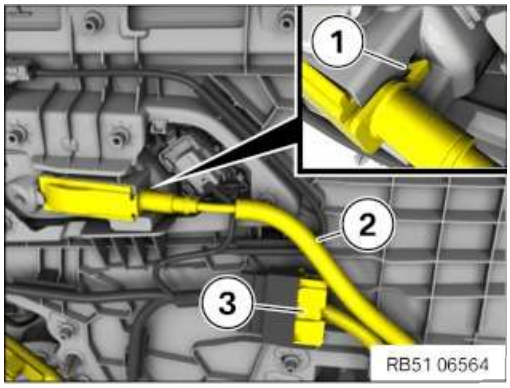
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- Check clips (arrows) for damage and, if necessary, renew them.



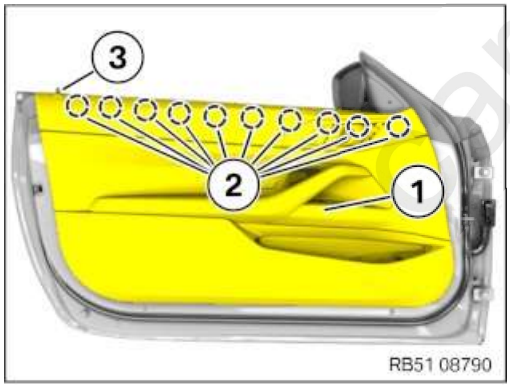
- Check the stop pad (1) for damage, renew if necessary.



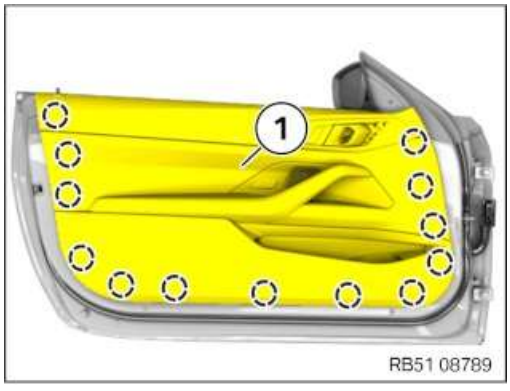
NOTICE

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

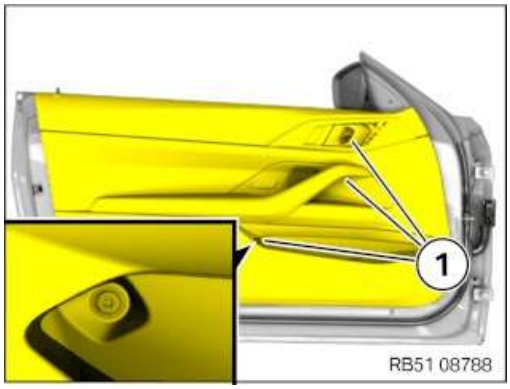
- Push the inner door opener in closed direction.
- Insert the Bowden cable for the door handle inside (2) and clip it in with the latch mechanism (1) .
- Connect connectors (3) and lock.



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



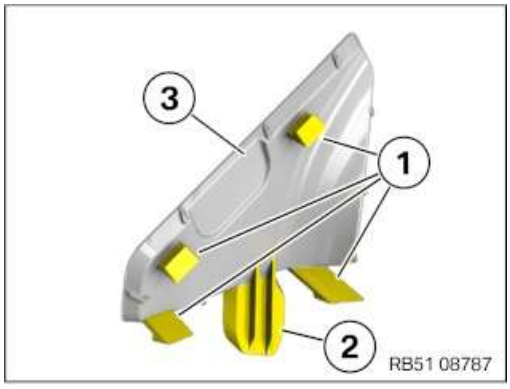
- Clip in the door trim panel (1) at the marked places.



- Tighten the screws (1).

Door trim panel

Oval-head screw		Tightening torque	3 Nm



Check

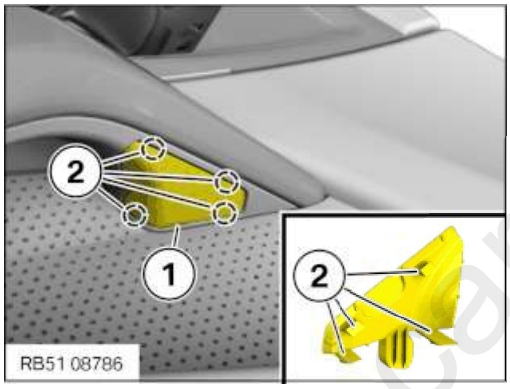
- Check the latch mechanisms (1) and the guide (2) at the cover (3) for damage.

Result

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

Measure

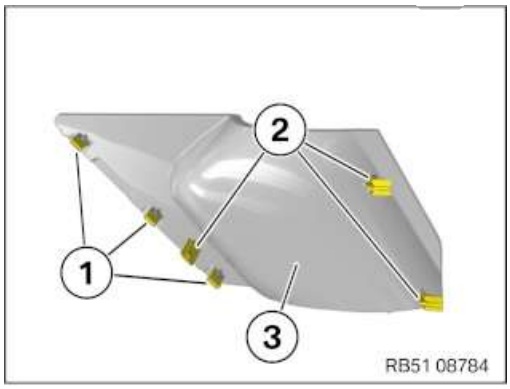
- Replace the cover (3).



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

Check

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



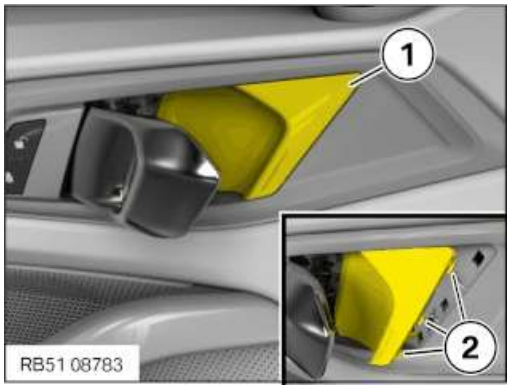
Result

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

Measure

- Replace door handle cover (3).

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

7 – Connecting all battery earth leads



- See additional information.

8 – Activating the 48 V electrical system

Prerequisite

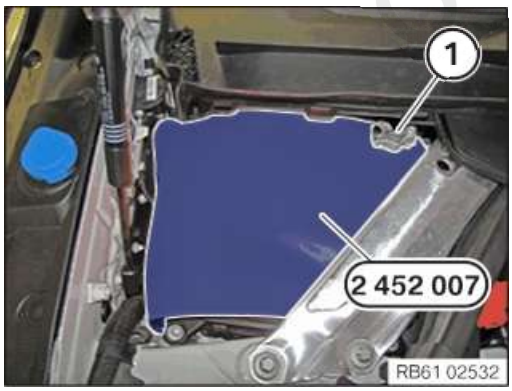
Ignition is switched off.

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.

Additional Information

Overview of Tightening Torques

Door trim panel Used in step 6

Oval-head screw		Tightening torque	3 Nm

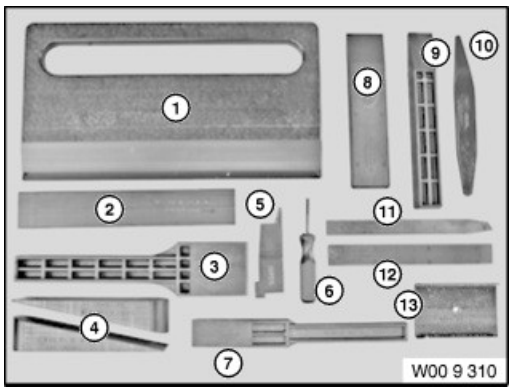
Negative battery cable to 48-V battery Used in step 8

Nut M8		Tightening torque	19 Nm

Overview of Special Tools

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0 493 752 (00 9 329) Case



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

Links

Repair instructions (PRE)	Used in step
Notes on 48-V battery	18

General repair instructions	Used in step
72 00 ... Safety regulations for handling components with gas generators	

Repair instructions	Used in step
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	27
61 20 900 Disconnecting and connecting battery earth lead	27
61 20 900 Disconnecting and connecting battery earth lead	27
61 20 900 Disconnecting and connecting battery earth lead	27
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61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	27
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61 20 900 Disconnecting and connecting battery earth lead	27
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	27
61 20 900 Disconnecting and connecting battery earth lead (Plug-in Hybrid Electric Vehicle)	27

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61 20 900 Disconnecting and connecting battery earth lead	27
61 20 900 Disconnecting and connecting battery earth lead	27
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61 20 900 Disconnecting and connecting battery earth lead	27
61 20 900 Disconnecting and connecting battery earth lead	27
61 20 900 Disconnecting and connecting battery earth lead	27

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65 77 740 Removing and installing the sensor at the left-hand front door

WARNING

Pyrotechnic components.

Danger! Life-threatening injuries!

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

WARNING

Working on 12 V vehicle electrical system.

Risk of short circuits! Risk of fire!

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

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.

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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.



WARNING

Unprotected battery terminals.

Risk of short circuits! Risk of fire!

- Cover the vehicle battery.

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

2 – Disconnecting all battery earth leads



- See additional information.

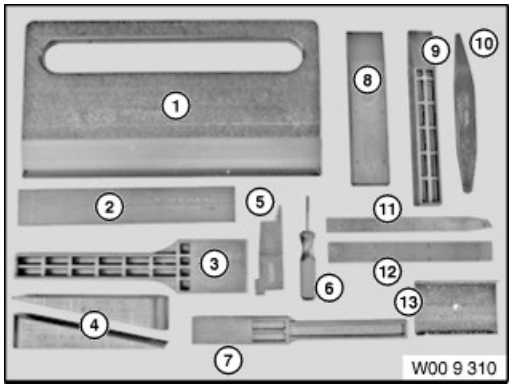
3 – Remove front door trim panel

RISK OF DAMAGE

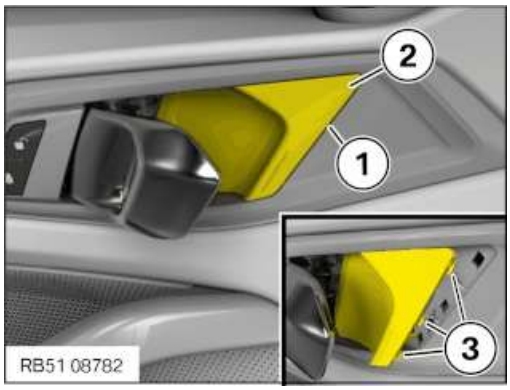
Damage of high-quality surfaces.

Plastic wedges can damage high-quality surfaces.

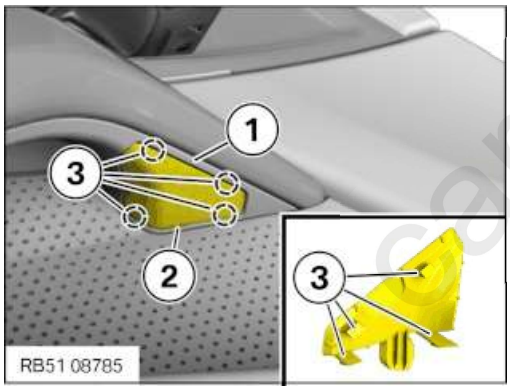
- Protect surfaces from damage.



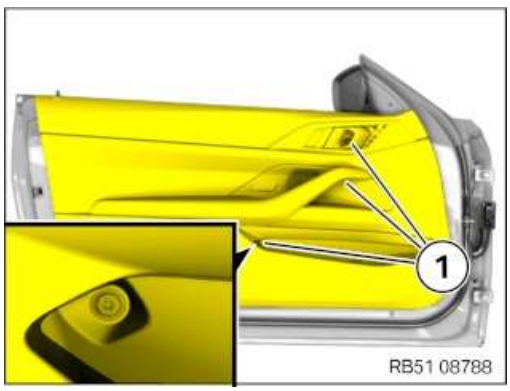
- Have the set of special tools 0 493 752 (00 9 329) ready.



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

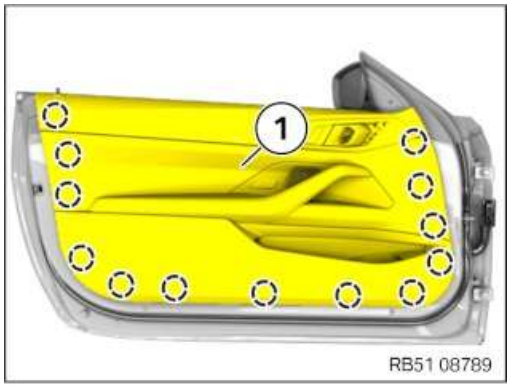


- Position suitable special tool on the recess in the area (1) .
- Unclip the cover (2) with the latch mechanisms (3) and remove it downwards.

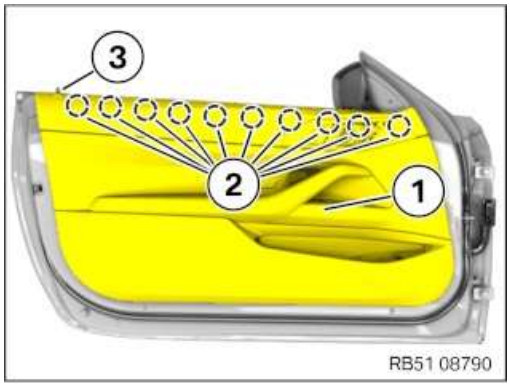


- Loosen screws (1).

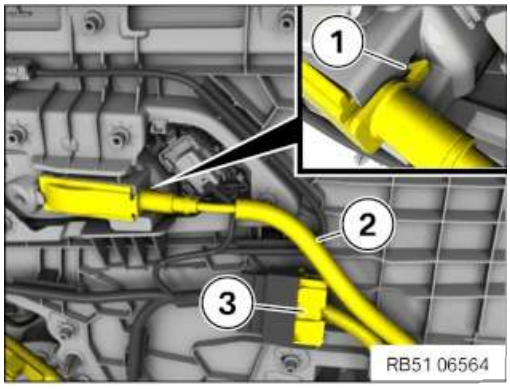
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- Unclip the door trim panel (1) with the suitable special tool at the marked places.



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



NOTICE

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

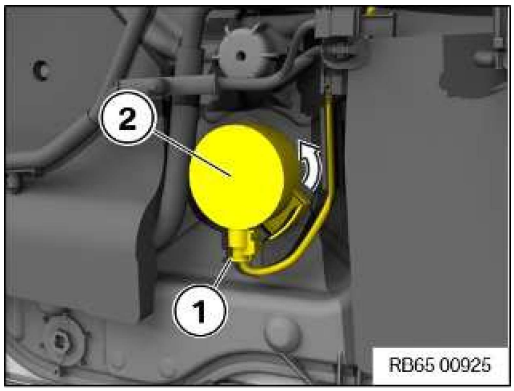
- Release the latch mechanism (1) and feed out the Bowden cable for the inner door handle (2).

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

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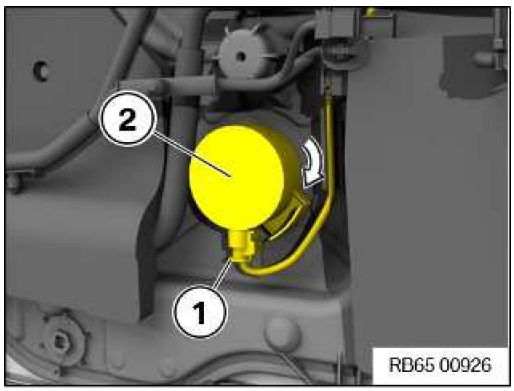
MAIN WORK

4 – Removing the airbag sensor on the front door



- Unlock plug connection (1) and disconnect.
- Turn airbag sensor (2) on the front door in the direction of the arrow and remove it.

5 – Installing the airbag sensor on the front door

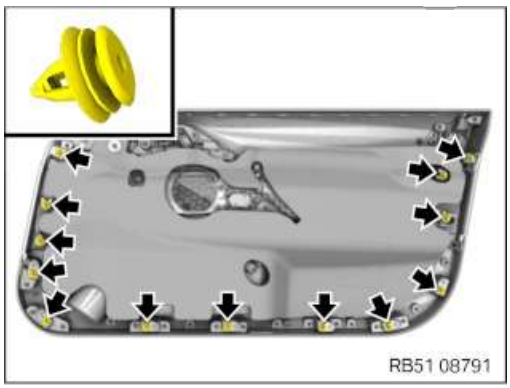


- Position airbag sensor (2) on the front door and lock it in the direction of the arrow.
- Connect connectors (1) and lock.

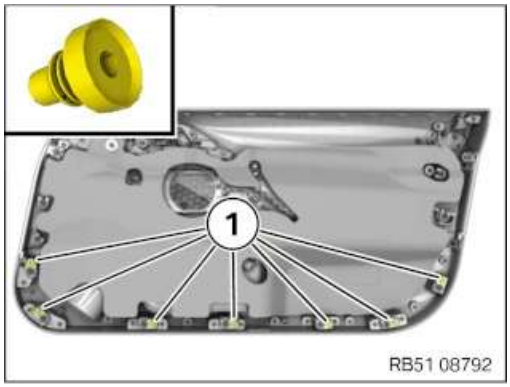
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POSTPROCESSES

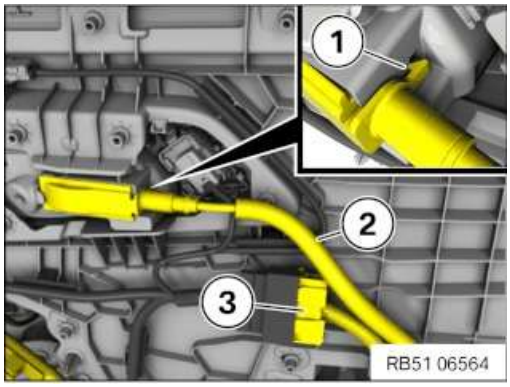
6 – Install front door trim panel



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



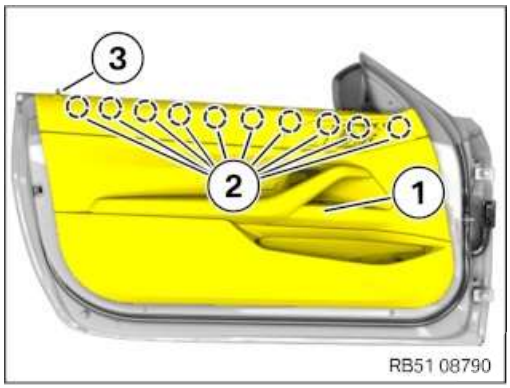
- Check the stop pad (1) for damage, renew if necessary.



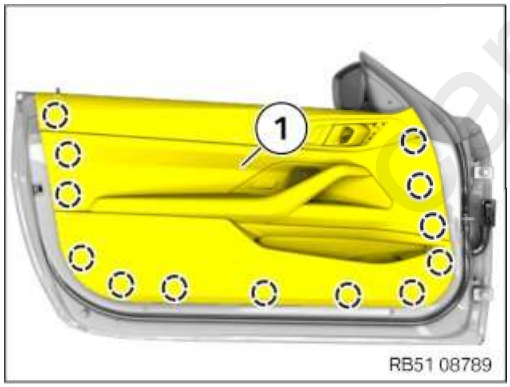
NOTICE

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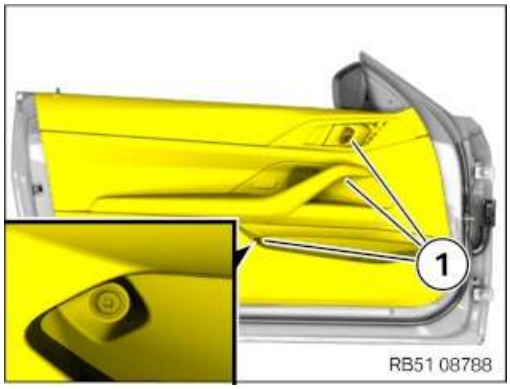
- Push the inner door opener in closed direction.
- Insert the Bowden cable for the door handle inside (2) and clip it in with the latch mechanism (1) .
- Connect connectors (3) and lock.



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



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



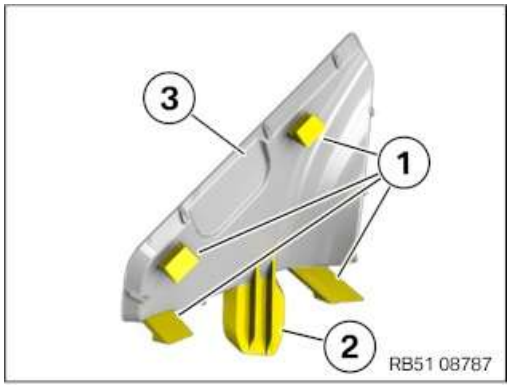
- Tighten the screws (1).

Door trim panel

Oval-head screw		Tightening torque	3 Nm

Check

cardiagn.com



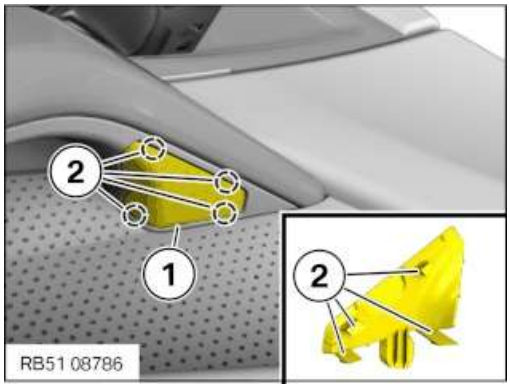
- Check the latch mechanisms (1) and the guide (2) at the cover (3) for damage.

Result

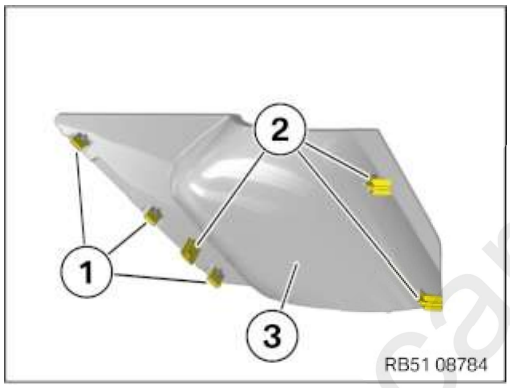
» The latch mechanisms (1) or the guides (2) are damaged.

Measure

- Replace the cover (3).



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



Check

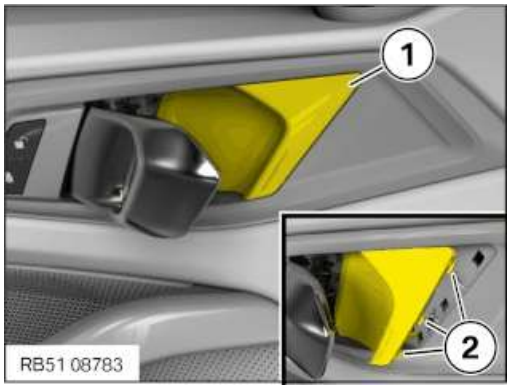
- Check the latch mechanisms (1) and the guides (2) at the cover of the door handle (3) for door handle.

Result

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

Measure

- Replace door handle cover (3).



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

7 – Connecting all battery earth leads

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- See additional information.

8 – Activating the 48 V electrical system

Prerequisite

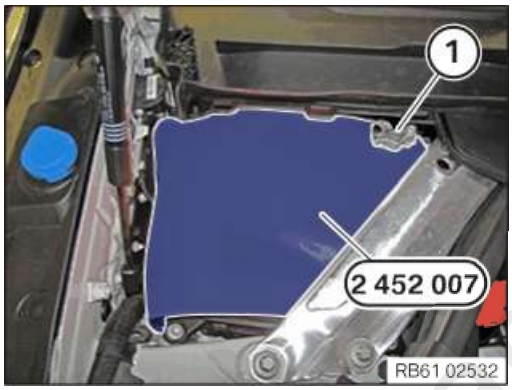
Ignition is switched off.

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

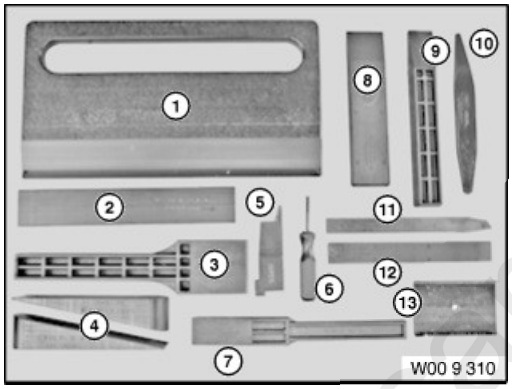
Overview of Tightening Torques

Door trim panel			Used in step 6
Oval-head screw		Tightening torque	3 Nm

Negative battery cable to 48-V battery			Used in step 8
Nut M8		Tightening torque	19 Nm

Overview of Special Tools

0 493 752 (00 9 329) Case



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

Links

Repair instructions (PRE)	**Used in step**
Notes on 48-V battery	18

Repair instructions	**Used in step**
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	27
61 20 900 Disconnecting and connecting battery earth lead	27
61 20 900 Disconnecting and connecting battery earth lead	27
61 20 900 Disconnecting and connecting battery earth lead	27
61 20 900 Disconnecting and connecting battery earth lead	27
61 20 900 Disconnecting and connecting battery earth lead	27
61 20 900 Disconnecting and connecting battery earth lead	27
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	27
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	27

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61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	27
61 20 900 Disconnecting and connecting battery earth lead	27
61 20 900 Disconnecting and connecting battery earth lead	27
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	27
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61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	27
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	27
61 20 900 Disconnecting and connecting battery earth lead	27
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	27
61 20 900 Disconnecting and connecting battery earth lead (Plug-in Hybrid Electric Vehicle)	27
61 20 900 Disconnecting and connecting battery earth lead	27
61 20 900 Disconnecting and connecting battery earth lead	27
61 20 900 Disconnecting and connecting battery earth lead	27
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61 20 900 Disconnecting and connecting battery earth lead	27
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	27
61 20 900 Disconnecting and connecting battery earth lead	27
61 20 900 Disconnecting and connecting battery earth lead	27
61 20 900 Disconnecting and connecting battery earth lead	27

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65 77 018 Replace airbag control unit

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.

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

cardiagn.com



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.



WARNING

Unprotected battery terminals.

Risk of short circuits! Risk of fire!

- Cover the vehicle battery.

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

2 – Disconnecting all battery earth leads



- See additional information.

3 – Remove cupholder



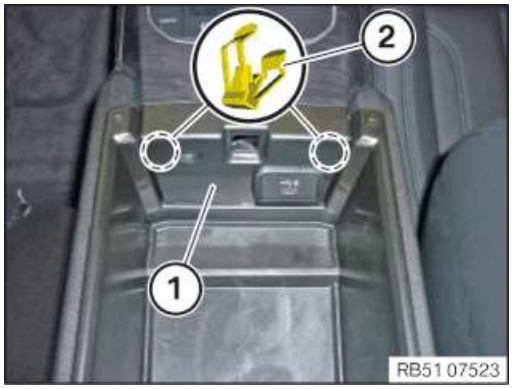
- Remove the insert (1).



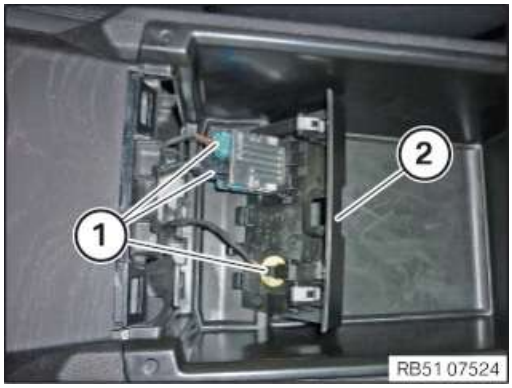
- Loosen screws (1).
- Feed the cup holder (2) out to the top.
- Unlock associated plug connections and disconnect.

4 – Removing the trim in the storage compartment on the centre armrest

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- Lever out the trim (1) with the special tool (2) toward the rear from the clamps 2 298 505.



- Unlock and disconnect the plug connections (1) and remove the trim (2) .

5 – Remove the centre console trim

RISK OF DAMAGE

Careless handling of tools and sharp-edged components.

Scratch, surface damage.

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



- Release and remove the centre console trim upwards (1) as shown using the special tool 2 298 505 from the latch mechanisms.

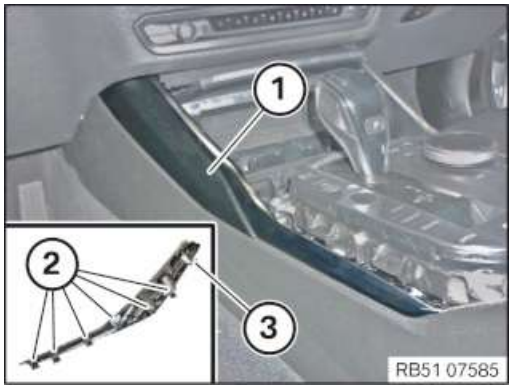
6 – Removing the decorative trim on the centre console on the left and right

▸ **Remove the decorative trim from the centre console**

NOTICE

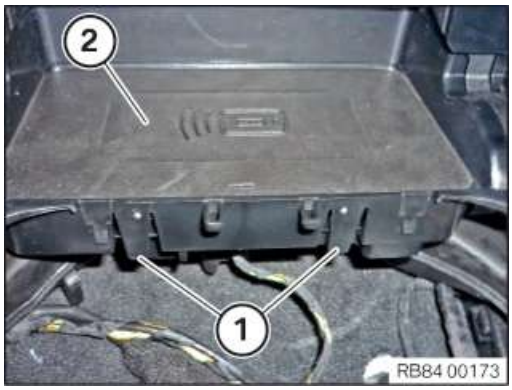
Description is for left component only. Procedure on the right side is identical.

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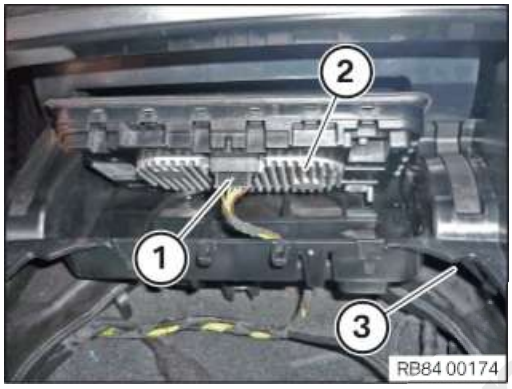


- Lever out the rear decorative trim (1) from the latch mechanisms (2) starting from the top.
- Feed out the decorative trim (1) backwards out of the guide (3) and remove.

7 – Removing the wireless charging station



- Loosen the latch mechanisms (1) and push out the wireless charging station (2) upwards.



- Unlock and disconnect the plug connection (1) and remove the wireless charging tray (2) from the centre console (3).

8 – Remove the operating facility in the centre console

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▸ **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.

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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.

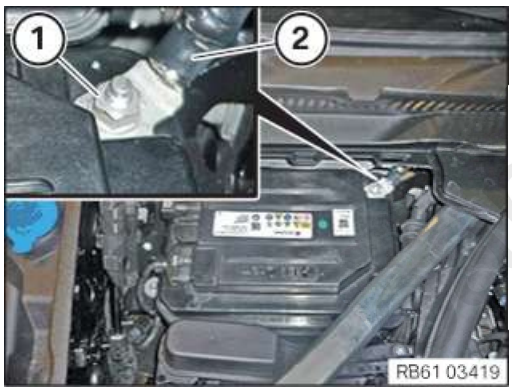
Measure

- 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.



WARNING

Unprotected battery terminals.

Risk of short circuits! Risk of fire!

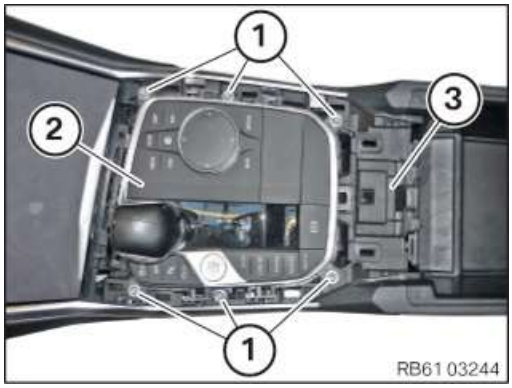
- Cover the vehicle battery.

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

▸ **Disconnecting all battery earth leads**

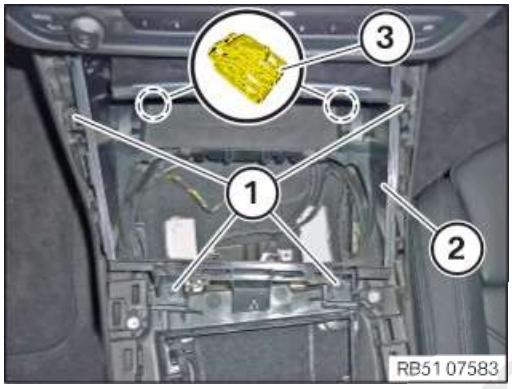


- See additional information.

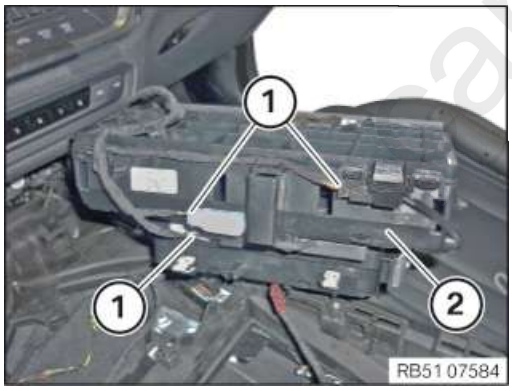


- Loosen screws (1).
- Remove the operating facility in the centre console (2) from the centre console (3).

9 – Removing the storage compartment in the front centre console



- Loosen screws (1).
- Pull the storage compartment in front centre console (2) backwards from the clamps (3).



- Unlock and disconnect the plug connections (1) and remove the storage compartment in centre console (2).

10 – Removing the rear centre console trim

RISK OF DAMAGE

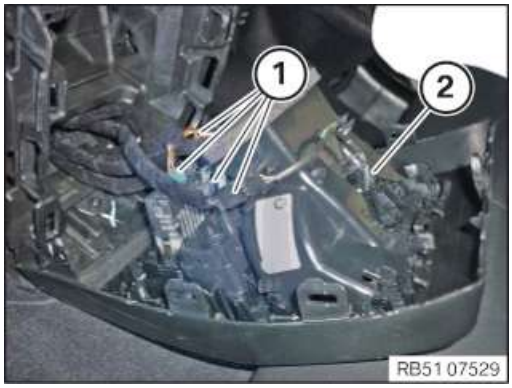
Careless handling of tools and sharp-edged components.

Scratch, surface damage.

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



- Release centre console trim (1) backwards from the latch mechanisms at the side and remove it slightly at the back.

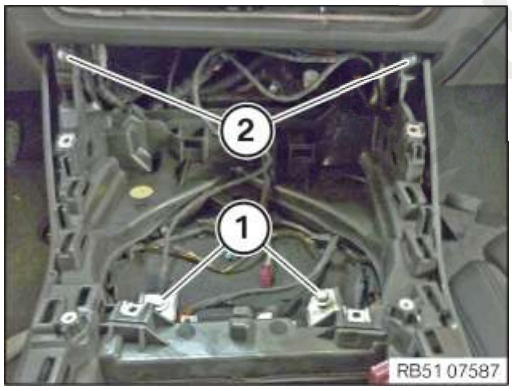


- Unlock and disconnect plug connections (1).
- Remove the centre console trim (2).

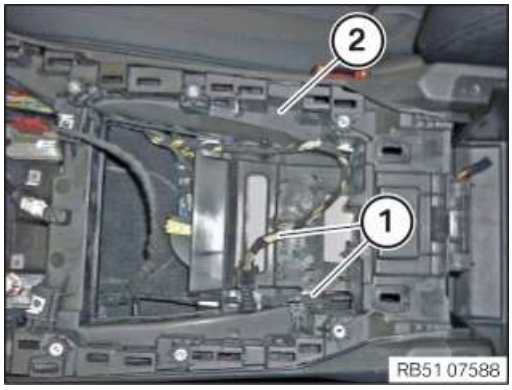
11 – Removing the centre console



- Loosen screws (1).

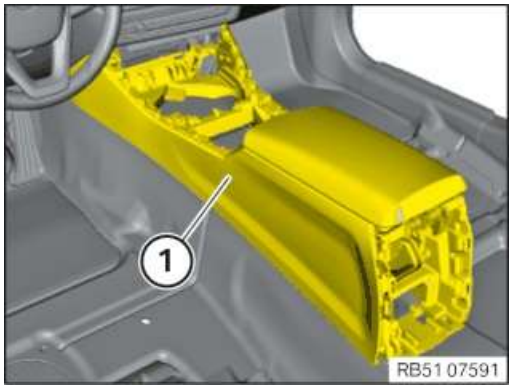


- Loosen screws (1) and (2).



- Release the wiring harness (1) from the centre console (2).

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NOTICE

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

- Carefully raise rear centre console (1).
- Feed out wiring harness from the centre console (1) and unlock and disconnect existing plug connections, if required.
- Feed out and remove the centre console (1) on the instrument panel .

MAIN WORK

12 – Removing the airbag control unit

WARNING

Airbag unit.

Danger! Life-threatening injuries!

- Before performing any work on the airbag, always disconnect the battery earth lead from the battery.
- Airbag unit may only be set down with the cushion (airbag itself) facing upwards.
- For additional information see: 72 00 ... Safety regulations on handling airbag system components/gas generators

RISK OF DAMAGE

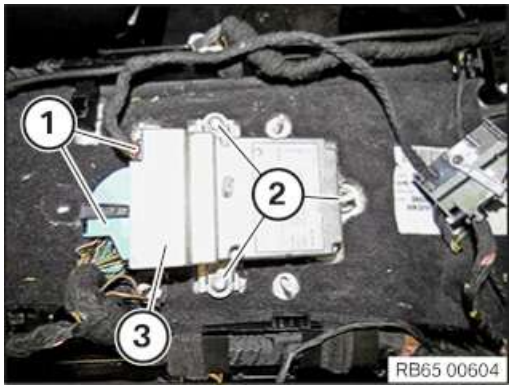
Electrostatic discharge.

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)



- Release insulation (1) from airbag control unit (2) and fold to one side.



- Unlock plug connection (1) and disconnect.
- Loosen nuts (2).
- Remove airbag control unit (3).

13 – Installing the airbag control unit

WARNING

Airbag unit.

Danger! Life-threatening injuries!

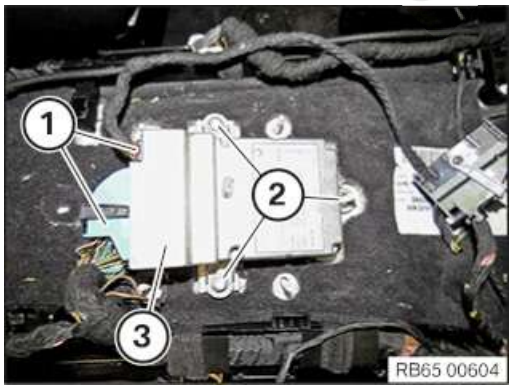
- Before performing any work on the airbag, always disconnect the battery earth lead from the battery.
- Airbag unit may only be set down with the cushion (airbag itself) facing upwards.
- For additional information see: 72 00 ... Safety regulations on handling airbag system components/gas generators

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 airbag control unit (3) correctly.
- Tighten nuts (2).

Airbag control unit to body

Screw		Tightening torque	8 Nm

- Connect connectors (1) and lock.

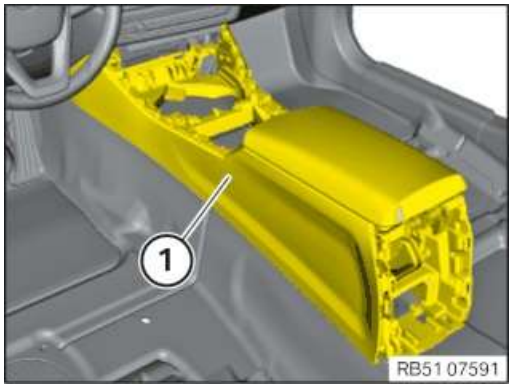
carmagn.com



- Position the insulation (1) correctly and secure on the airbag control unit (2).

POSTPROCESSES

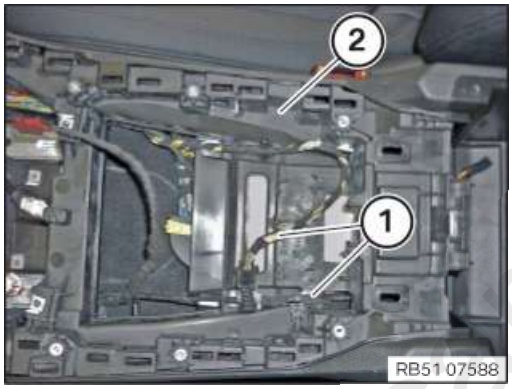
14 – Installing the centre console



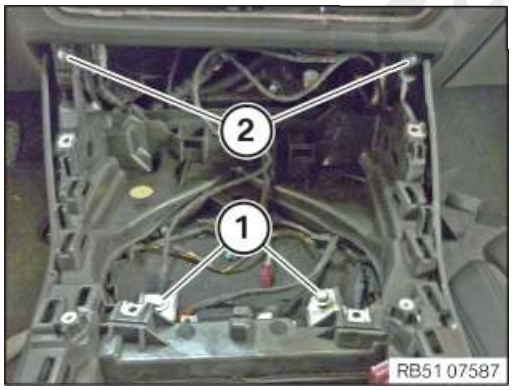
NOTICE

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

- Install centre console (1) and thereby feed in the wiring harness.
- Feed in the centre console (1) to the instrument panel and position correctly.



- Secure the wiring harness to the centre console (1) and connect and lock the existing plug connections.



- Tighten the screws (1).

Centre console on tunnel

M6x18 Hexagon screw		Tightening torque	4,6 Nm

- Tighten the screws (2).

Centre console to instrument panel

Oval-head screw		Tightening torque	1,8 Nm

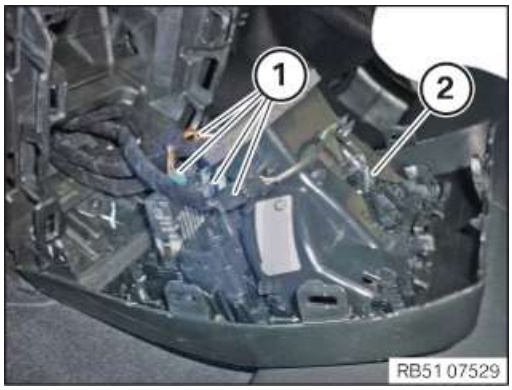


- Tighten the screws (1).

Centre console on tunnel

M6x18 Hexagon screw		Tightening torque	4,6 Nm

15 – Installing the rear centre console trim

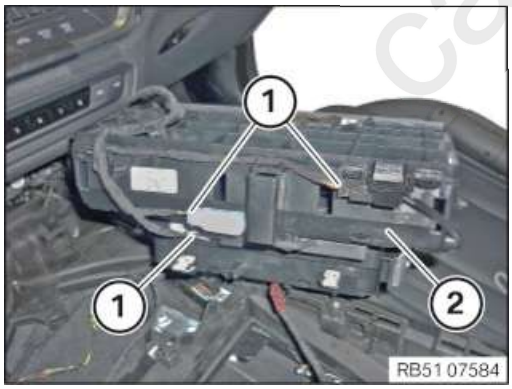


- Install the centre console trim (2).
- Connect connectors (1) and lock.

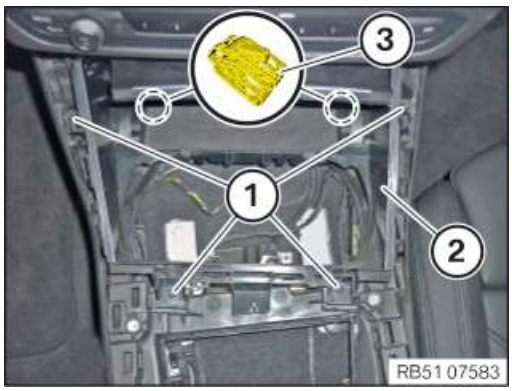


- Position centre console trim (1) and engage at the latch mechanisms at the side.

16 – Installing the storage compartment in the centre console in the front



- Mount the storage compartment in the centre console in the front (2) and connect and lock connectors (1).



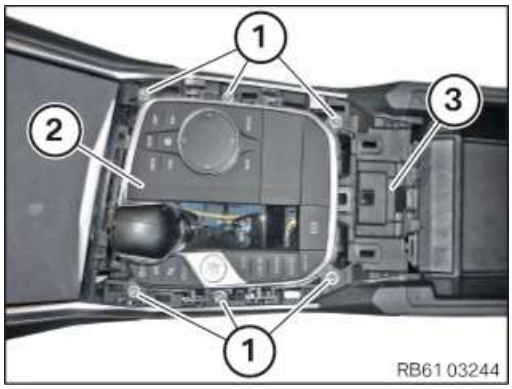
- Engage the storage compartment in the centre console in the front (2) into clamps (3) in the rear.
- Tighten the screws (1).

Storage compartment in centre console

Oval-head screw		Tightening torque	1,8 Nm

cardiagn.com

17 – Install the operating facility in the centre console



- Position the operating facility (2) in the centre console (3).
- Tighten the screws (1).

Gear selector switch to centre console trim

Screw		Tightening torque	1,8 Nm

▸ **Connecting all battery earth leads**



- See additional information.

▸ **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



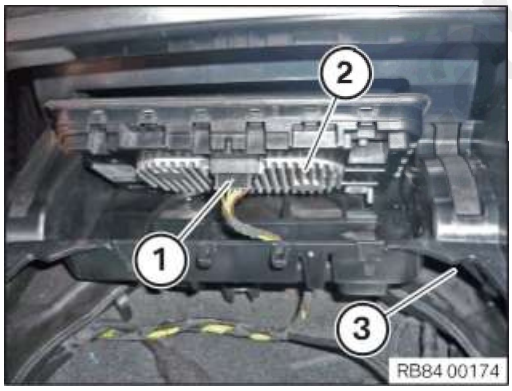
- Connect the connector (1) of the CAN bus and lock it.
- Clip in clip (2).



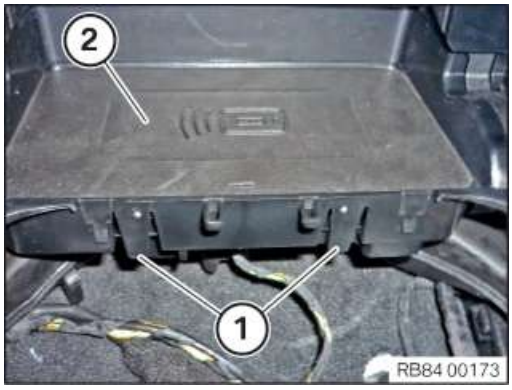
- Activate the 48V electrical system by closing the bonnet.

  The activation takes place automatically.

18 – Installing the wireless charging station



- Connect connectors (1) and lock.
- Position the wireless charging station (2) in the centre console (3).



- Push the wireless charging tray (2) down.

  The latch mechanisms (1) must engage correctly.

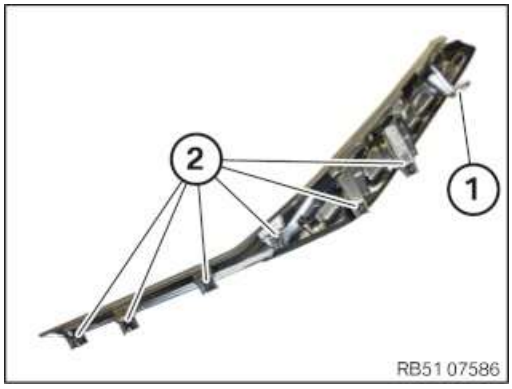
19 – Installing the decorative trim on the centre console on the left and right

bmwdiagn.com

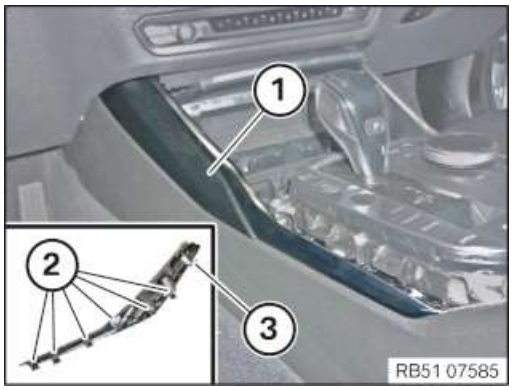
▸ **Installing the decorative trim on the centre console**

NOTICE

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



- Check the guide (1) and the latch mechanisms (2) for damage, renew the decorative trim if necessary.



- Feed in the decorative trim (1) forward in the guide (3).
- Engage decorative trim (1) in latch mechanisms (2).

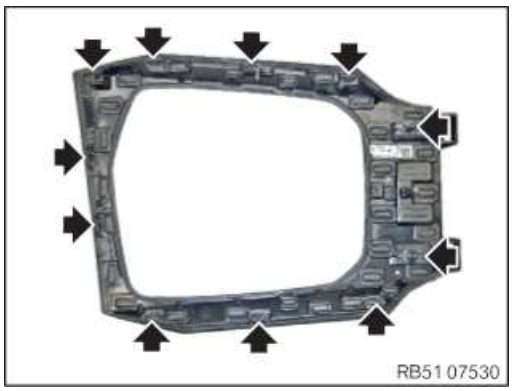
20 – Installing the centre console trim

RISK OF DAMAGE

Careless handling of tools and sharp-edged components.

Scratch, surface damage.

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



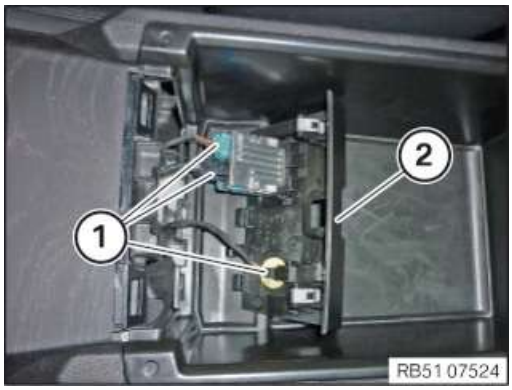
- Check all the latch mechanisms or clamps (arrows).
- In case the latch mechanisms or the clamps (arrows) are faulty, renew the centre console trim .

cardiagn.com

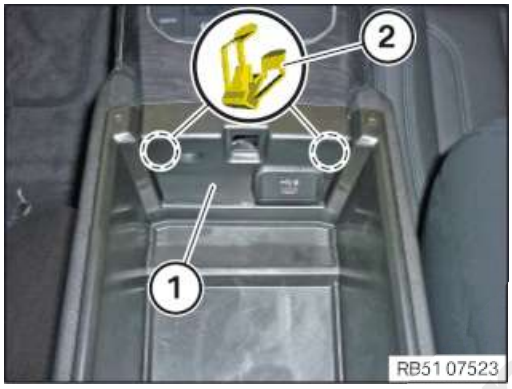


- Correctly position the centre console trim (1) and engage at the latch mechanisms.

21 – Installing the trim in the storage compartment of the centre armrest



- Mount the trim (2) and connect connector (1) and lock.



- Correctly position trim (1) and snap into the clamps (2).

22 – Install the cup holder



- Fix the cup holder (2) and the belonging connectors.
- Correctly position the cup holder (2).
- Tighten the screws (1).

Cup holder to centre console

Oval-head screw		Tightening torque	1,8 Nm



- Insert the insert (1).

manualdiagn.com

23 – Connecting all battery earth leads



- See additional information.

24 – 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.

25 – 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.

ecdiagn.com

- 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.

26 – Adjusting the sensors for the driving dynamics

- Connect diagnosis system.
- Carry out the service function for adjustment of the sensors for driving dynamics.
  - Chassis and suspension
  - Traction control system
  - Adjustment of the driving dynamics sensors

Additional Information

Overview of Tightening Torques

Airbag control unit to body			Used in step 13
Screw		Tightening torque	8 Nm

Centre console on tunnel			Used in step 14
M6x18 Hexagon screw		Tightening torque	4,6 Nm

Centre console to instrument panel			Used in step 14
Oval-head screw		Tightening torque	1,8 Nm

Storage compartment in centre console			Used in step 16
Oval-head screw		Tightening torque	1,8 Nm

Gear selector switch to centre console trim			Used in step 17
Screw		Tightening torque	1,8 Nm

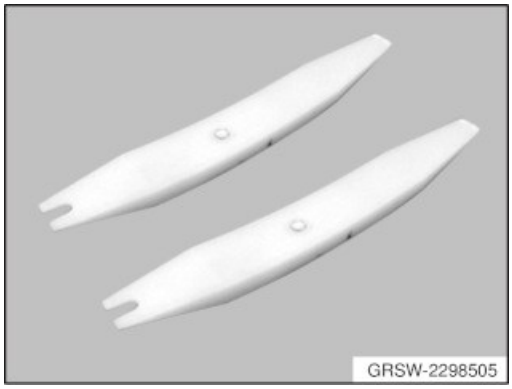
Negative battery cable to 48-V battery			Used in step 1724
Nut M8		Tightening torque	19 Nm

Cup holder to centre console			Used in step 22
Oval-head screw		Tightening torque	1,8 Nm

Overview of Special Tools

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2 298 505 Wedge



Common		Used in step 45
Usage	Set (delivery of 2 pieces)	
Included in the tool or work		
Storage location	C34	
Replaced by		
In connection with		
SI-Number	01 03 12 (792)	

Links

Repair instructions (PRE)	Used in step
Notes on 48-V battery	181724

General repair instructions	Used in step
72 00 ... Safety regulations for handling components with gas generators	1213

Repair instructions	Used in step
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	281723
61 20 900 Disconnecting and connecting battery earth lead	281723
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61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	281723
61 20 900 Disconnecting and connecting battery earth lead	281723
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	281723

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61 20 900 Disconnecting and connecting battery earth lead (Plug-in Hybrid Electric Vehicle)	281723
61 20 900 Disconnecting and connecting battery earth lead	281723
61 20 900 Disconnecting and connecting battery earth lead	281723
61 20 900 Disconnecting and connecting battery earth lead	281723
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61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	281723
61 20 900 Disconnecting and connecting battery earth lead	281723
61 20 900 Disconnecting and connecting battery earth lead	281723
61 20 900 Disconnecting and connecting battery earth lead	281723
61 35 ... Notes on ESD protection (Electro Static Discharge)	1213
61 35 ... Notes on ESD protection (Electro Static Discharge)	1213

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65 77 721 Replacing airbag sensor on the left B-pillar

WARNING

Pyrotechnic components.

Danger! Life-threatening injuries!

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

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.

TECHNICAL INFORMATION

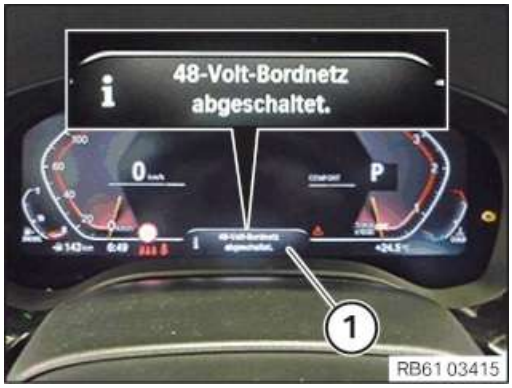
Follow notes for 48-V battery. See further information 6120 ... Notes on 48-V battery.

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

  The deactivation takes place automatically.



Check

TECHNICAL INFORMATION

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

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

desired state

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

Result

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

Measure

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

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

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

Result

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

Measure

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

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

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



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



WARNING

Unprotected battery terminals.

Risk of short circuits! Risk of fire!

- Cover the vehicle battery.

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

2 – Disconnecting all battery earth leads



- See additional information.

3 – Remove C-pillar trim panel

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WARNING

Pyrotechnic components.

Danger! Life-threatening injuries!

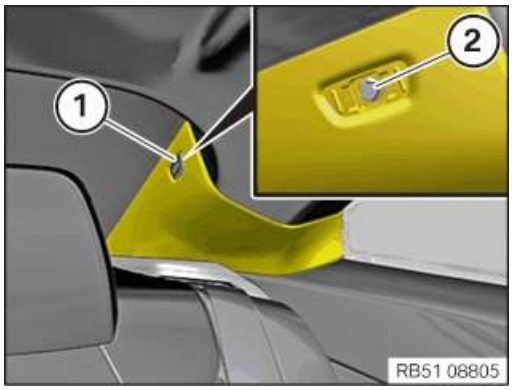
- All work on pyrotechnic parts may be carried out by technically experienced and appropriately trained personnel only.
- Replace any damaged part or ones that have been dropped.
- For additional information see: 72 00 Safety regulations on handling components with gas generators.

RISK OF DAMAGE

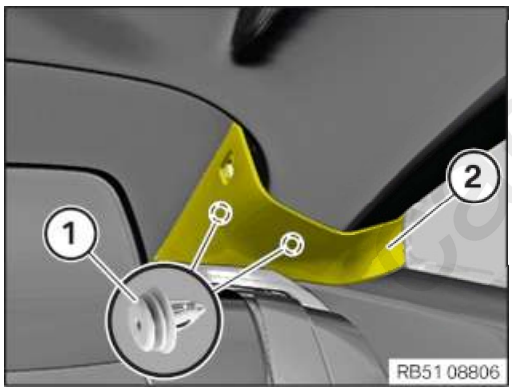
Damage to the head airbag.

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

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

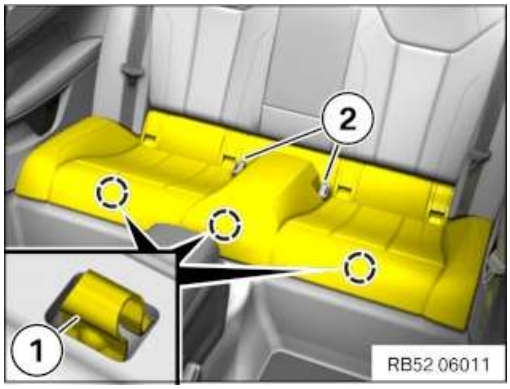


- Unclip cover (1) of the C-pillar trim panel.
- Release the screw (2).



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

4 – Remove rear seat bench

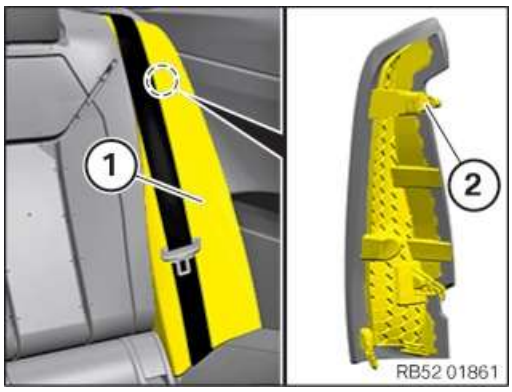


- Unclip the rear seat bench upwards from clamps (1) and guide out seat belt buckles (2).
- Remove the rear seat bench.

5 – Remove armrest side section

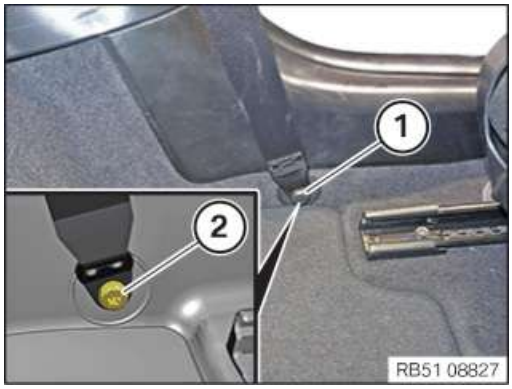
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▸ **Remove armrest side section**

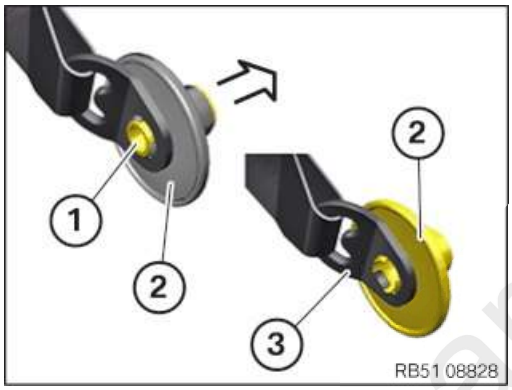


- Reach behind the backrest side section (1) from the top and unclip the backrest side section (1) from the mounting element (2) to the front.
- Remove backrest side section (1) in the upward direction from the guide.

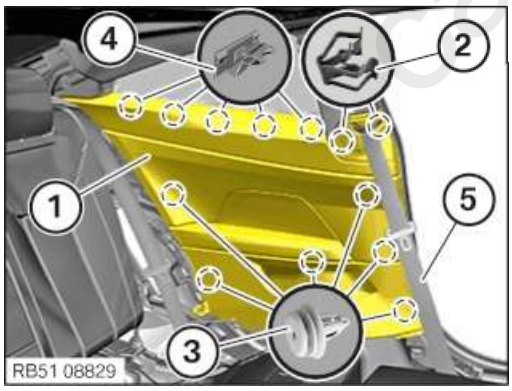
6 – Remove rear side trim panel



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



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

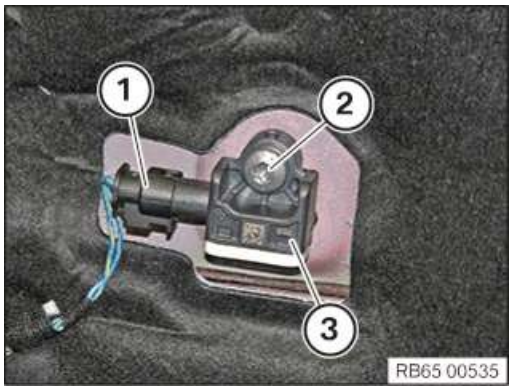


- Unclip the rear side trim panel (1) with a suitable tool at the clamps (2).
- Unclip the rear side trim panel (1) with a suitable tool at the clips (3).
- Release the rear side trim panel (1) at the clamps (4) and feed out at the edge protection.
- Unlock and disconnect all the plug connections at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

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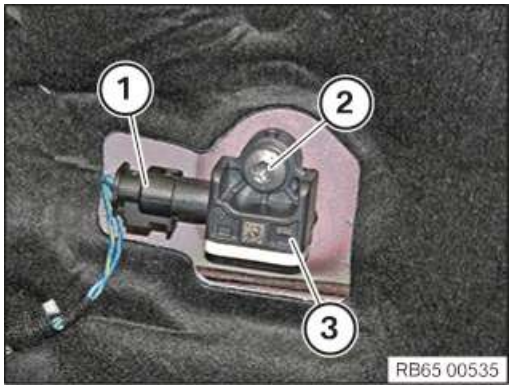
MAIN WORK

7 – Removing airbag sensor on the B-pillar



- Unlock plug connection (1) and disconnect.
- Loosen screw (2).
- Remove the airbag sensor (3) on the B-pillar.

8 – Installing airbag sensor on the B-pillar



- Place the airbag sensor (3) on the B-pillar and position correctly.
- Tighten down screw (2).

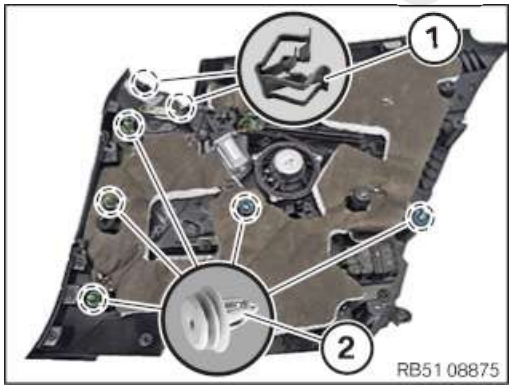
Airbag sensor, B-pillar

M6 screw		Tightening torque	8 Nm

- Connect connectors (1) and lock.

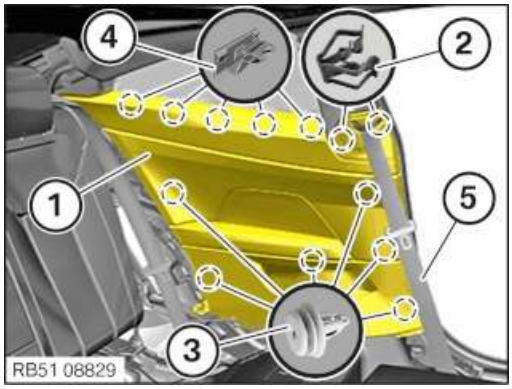
POSTPROCESSES

9 – Install rear side trim panel

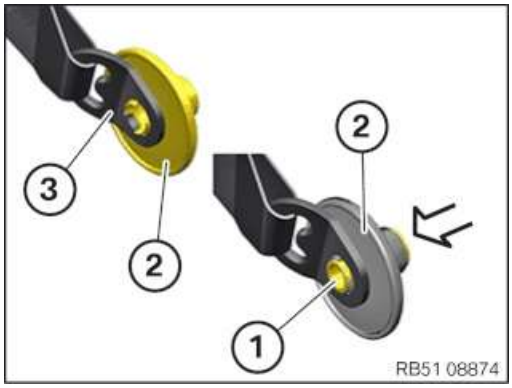


- Check clamps (1) for damage; renew them if necessary.
- Check clips (2) for damage, replace if necessary.

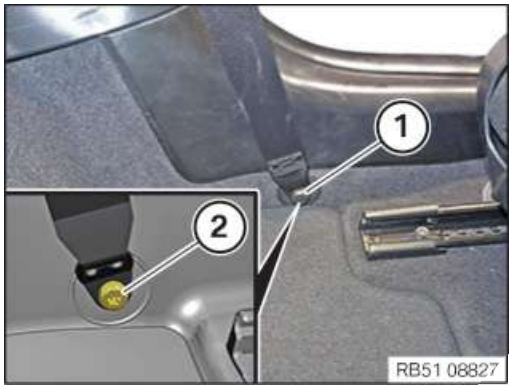
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- Connect all the connectors to rear side trim panel (1) of the wiring harness and lock and disconnect them.
- Guide in upper seat belt (5).
- Position rear side trim panel (1) and clip it into clamps (4).
- Clip rear side trim panel (1) into clips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



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



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

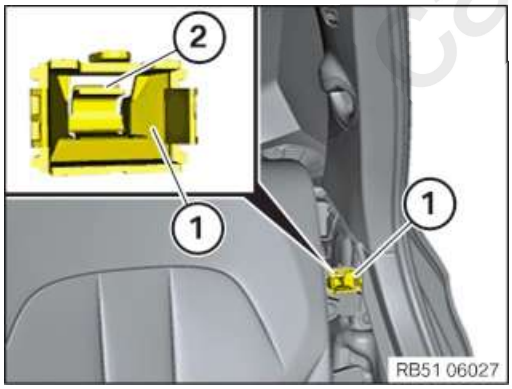
End fitting to body

M10		Tightening torque	42 Nm

- Clip in cover cap (1).

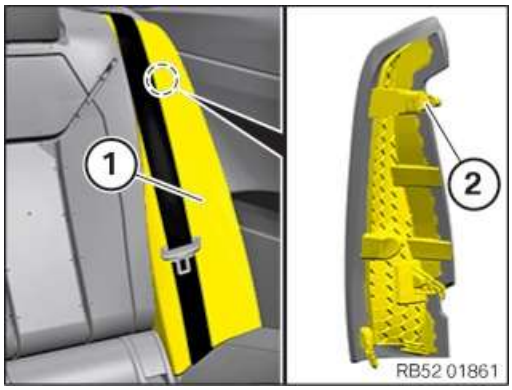
10 – Installing backrest side section

▶ **Installing backrest side section**



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

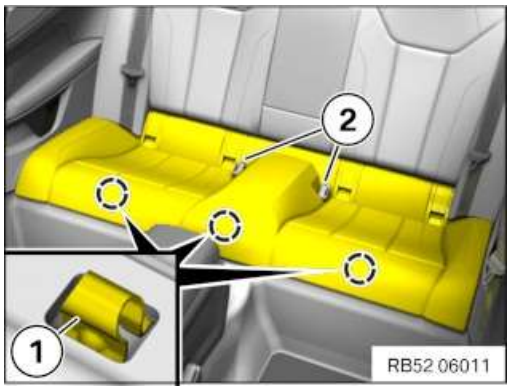
  The mounting element (1) must not be damaged or missing.
- Fit mounting element (1) on the backrest side section.



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

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11 – Installing the rear seat bench



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

12 – Installing C-pillar trim panel

WARNING

Pyrotechnic components.

Danger! Life-threatening injuries!

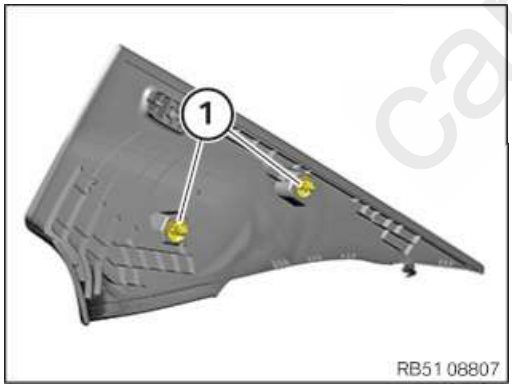
- All work on pyrotechnic parts may be carried out by technically experienced and appropriately trained personnel only.
- Replace any damaged part or ones that have been dropped.
- For additional information see: 72 00 Safety regulations on handling components with gas generators.

RISK OF DAMAGE

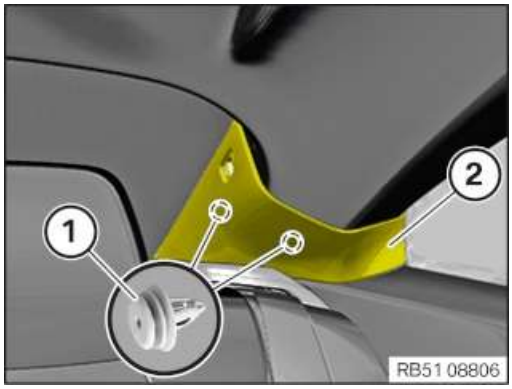
Damage to the head airbag.

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

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

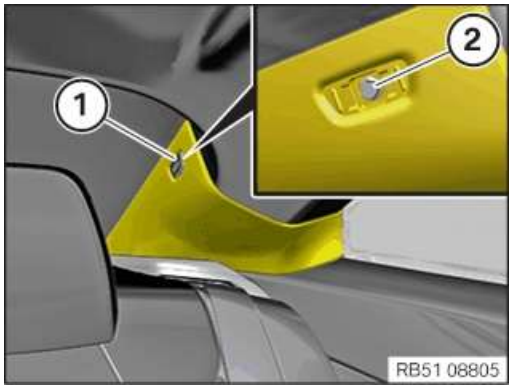


- Check clips (1) for damage and, if necessary, renew them.



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

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- Tighten down screw (2).

C-pillar trim panel to body

Screw		Tightening torque	2,6 Nm

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

13 – Connecting all battery earth leads



- See additional information.

14 – Activating the 48 V electrical system

Prerequisite

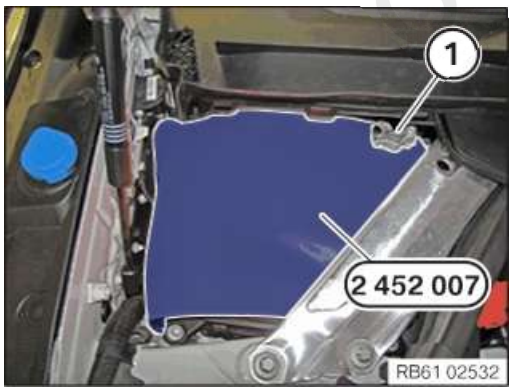
Ignition is switched off.

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 .

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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.

Additional Information

Overview of Tightening Torques

Airbag sensor, B-pillar — Used in step 8

M6 screw		Tightening torque	8 Nm

End fitting to body — Used in step 9

M10		Tightening torque	42 Nm

C-pillar trim panel to body — Used in step 12

Screw		Tightening torque	2,6 Nm

Negative battery cable to 48-V battery — Used in step 1014

Nut M8		Tightening torque	19 Nm

Overview of Special Tools

Links

Repair instructions (PRE)	Used in step

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Notes on 48-V battery	151014

General repair instructions	Used in step
72 00 ... Safety regulations for handling components with gas generators	510

Repair instructions	Used in step
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	251013
61 20 900 Disconnecting and connecting battery earth lead	251013
61 20 900 Disconnecting and connecting battery earth lead	251013
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65 77 726 Replacing airbag sensor on the right B-pillar

WARNING

Pyrotechnic components.

Danger! Life-threatening injuries!

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

NOTICE

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

PRELIMINARY WORK

1 – Deactivating the 48 V electrical system

Prerequisite

Ignition is switched off.

WARNING

Deactivation of the 12 V vehicle electrical system.

Risk of short circuits! Risk of fire!

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

WARNING

Deactivation of the 48 V electrical system.

Risk of short circuits! Risk of fire!

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

RISK OF DAMAGE

Damage to 48-V battery

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

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

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TECHNICAL INFORMATION

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



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

  The deactivation takes place automatically.

Check



TECHNICAL INFORMATION

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

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

desired state

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

Result

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

Measure

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

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

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

Result

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

Measure

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

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

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



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



WARNING

Unprotected battery terminals.

Risk of short circuits! Risk of fire!

- Cover the vehicle battery.

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

2 – Disconnecting all battery earth leads



- See additional information.

3 – Remove C-pillar trim panel

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WARNING

Pyrotechnic components.

Danger! Life-threatening injuries!

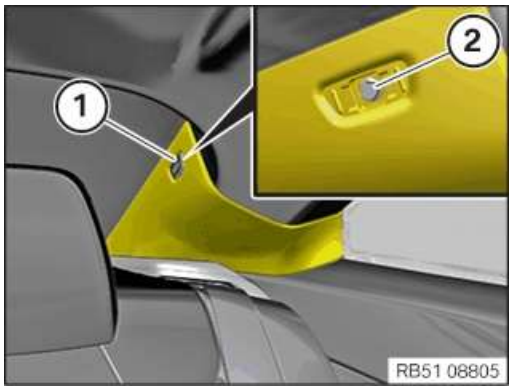
- All work on pyrotechnic parts may be carried out by technically experienced and appropriately trained personnel only.
- Replace any damaged part or ones that have been dropped.
- For additional information see: 72 00 Safety regulations on handling components with gas generators.

RISK OF DAMAGE

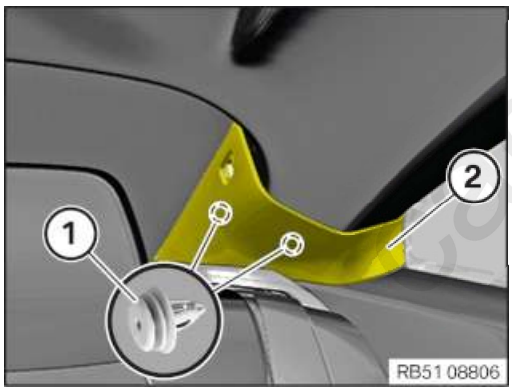
Damage to the head airbag.

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

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

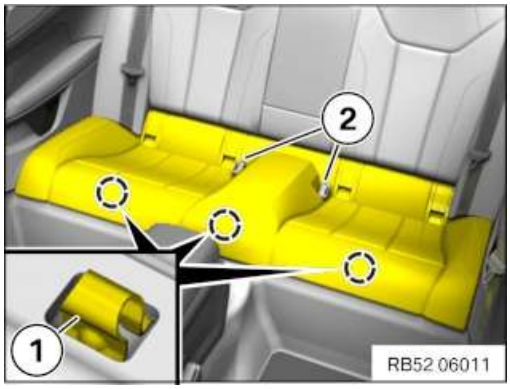


- Unclip cover (1) of the C-pillar trim panel.
- Release the screw (2).



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

4 – Remove rear seat bench

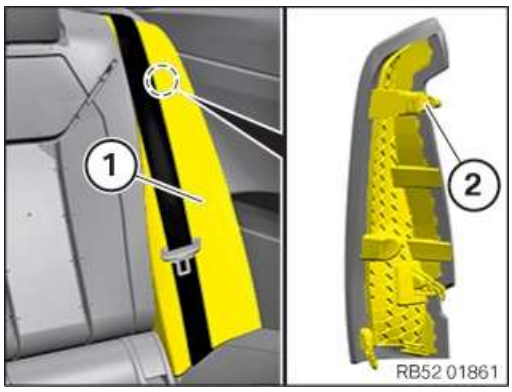


- Unclip the rear seat bench upwards from clamps (1) and guide out seat belt buckles (2).
- Remove the rear seat bench.

5 – Remove armrest side section

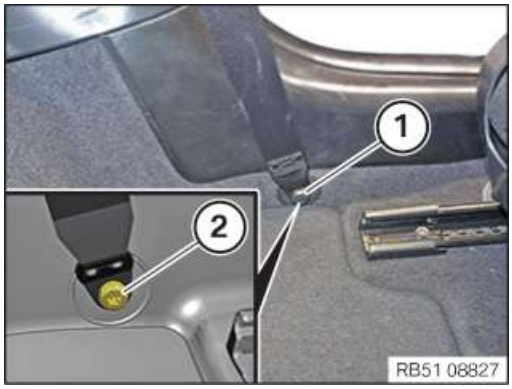
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▸ **Remove armrest side section**

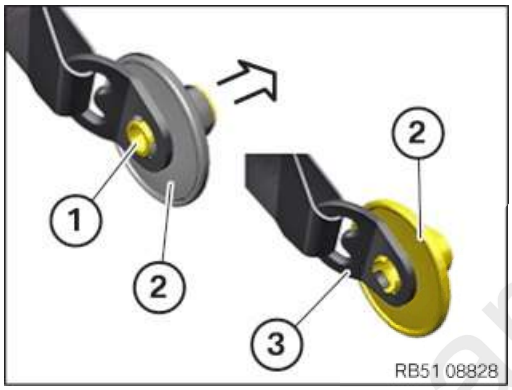


- Reach behind the backrest side section (1) from the top and unclip the backrest side section (1) from the mounting element (2) to the front.
- Remove backrest side section (1) in the upward direction from the guide.

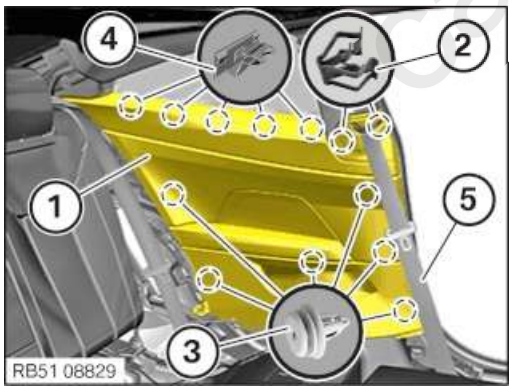
6 – Remove rear side trim panel



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



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

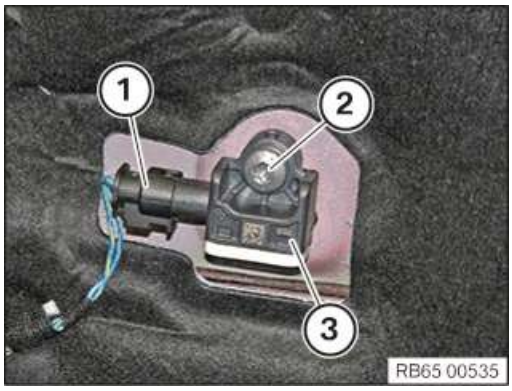


- Unclip the rear side trim panel (1) with a suitable tool at the clamps (2).
- Unclip the rear side trim panel (1) with a suitable tool at the clips (3).
- Release the rear side trim panel (1) at the clamps (4) and feed out at the edge protection.
- Unlock and disconnect all the plug connections at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

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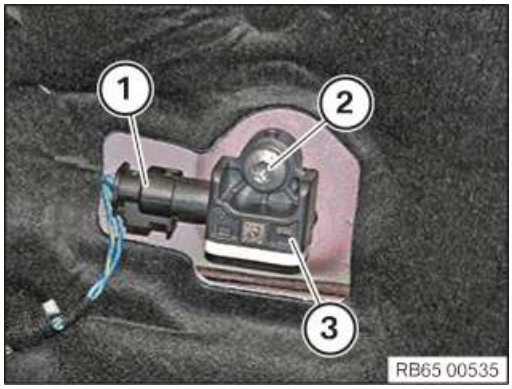
MAIN WORK

7 – Removing airbag sensor on the B-pillar



- Unlock plug connection (1) and disconnect.
- Loosen screw (2).
- Remove the airbag sensor (3) on the B-pillar.

8 – Installing airbag sensor on the B-pillar



- Place the airbag sensor (3) on the B-pillar and position correctly.
- Tighten down screw (2).

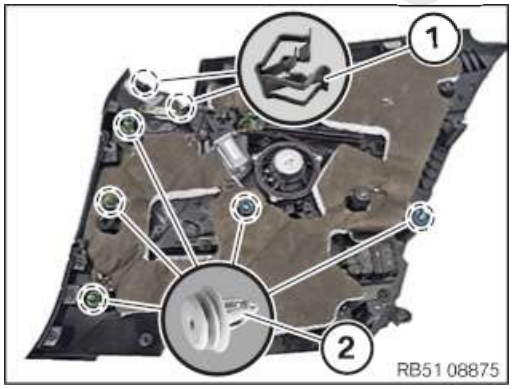
Airbag sensor, B-pillar

M6 screw		Tightening torque	8 Nm

- Connect connectors (1) and lock.

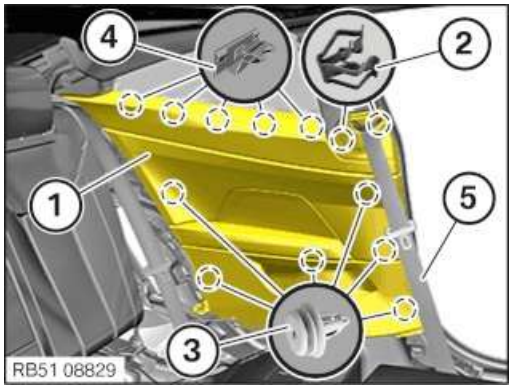
POSTPROCESSES

9 – Install rear side trim panel

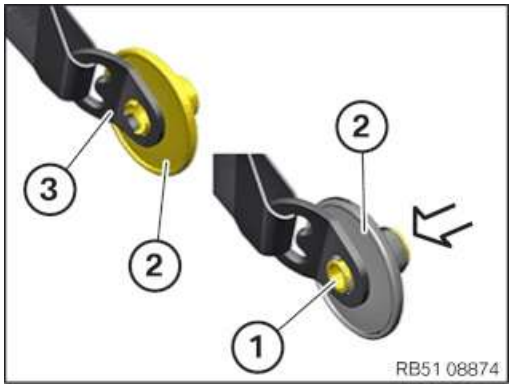


- Check clamps (1) for damage; renew them if necessary.
- Check clips (2) for damage, replace if necessary.

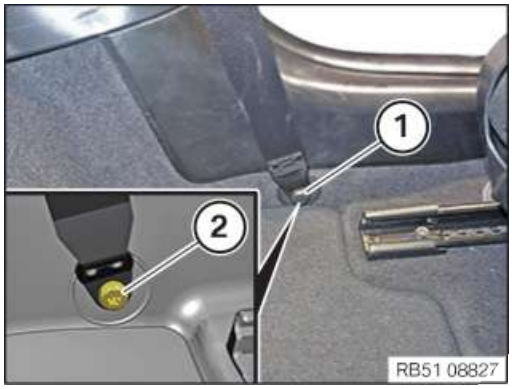
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- Connect all the connectors to rear side trim panel (1) of the wiring harness and lock and disconnect them.
- Guide in upper seat belt (5).
- Position rear side trim panel (1) and clip it into clamps (4).
- Clip rear side trim panel (1) into clips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



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



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

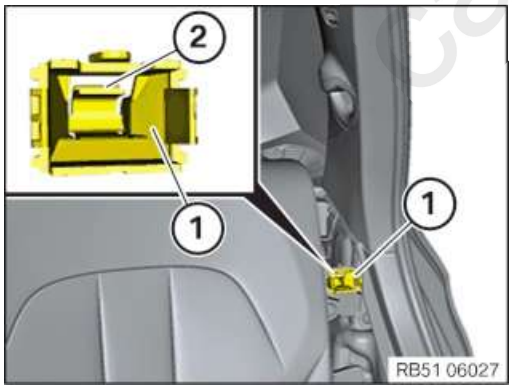
End fitting to body

M10		Tightening torque	42 Nm

- Clip in cover cap (1).

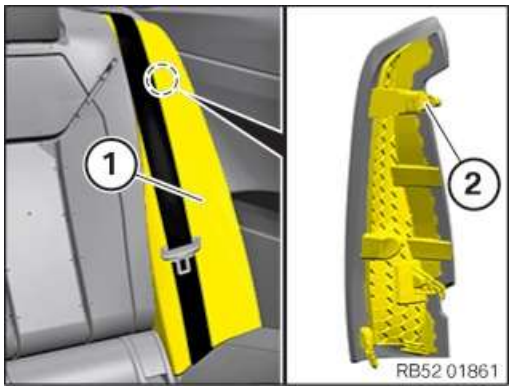
10 – Installing backrest side section

▶ **Installing backrest side section**



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

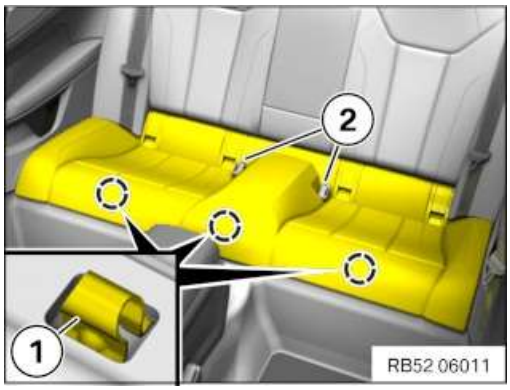
  The mounting element (1) must not be damaged or missing.
- Fit mounting element (1) on the backrest side section.



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

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11 – Installing the rear seat bench



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

12 – Installing C-pillar trim panel

WARNING

Pyrotechnic components.

Danger! Life-threatening injuries!

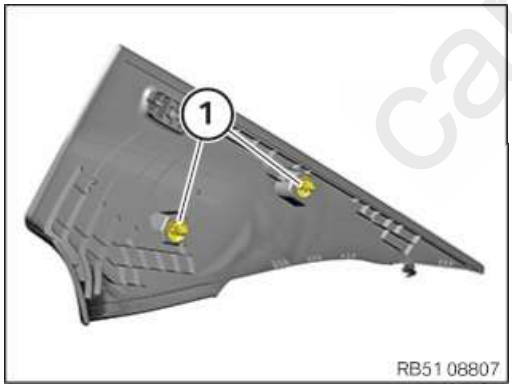
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- For additional information see: 72 00 Safety regulations on handling components with gas generators.

RISK OF DAMAGE

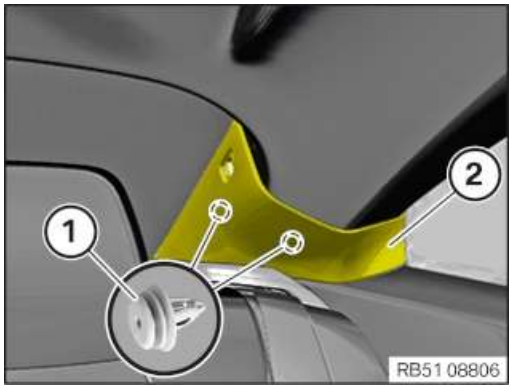
Damage to the head airbag.

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

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

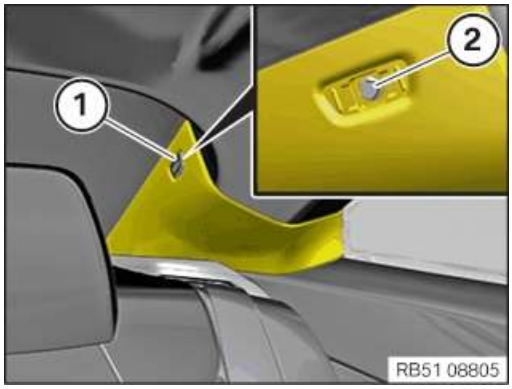


- Check clips (1) for damage and, if necessary, renew them.



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

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- Tighten down screw (2).

C-pillar trim panel to body

Screw		Tightening torque	2,6 Nm

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

13 – Connecting all battery earth leads



- See additional information.

14 – Activating the 48 V electrical system

Prerequisite

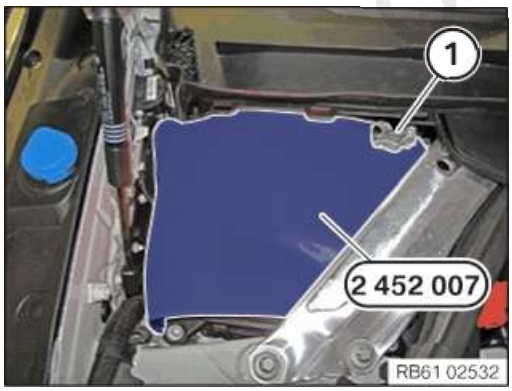
Ignition is switched off.

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 .

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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.

Additional Information

Overview of Tightening Torques

Airbag sensor, B-pillar — Used in step 8

M6 screw		Tightening torque	8 Nm

End fitting to body — Used in step 9

M10		Tightening torque	42 Nm

C-pillar trim panel to body — Used in step 12

Screw		Tightening torque	2,6 Nm

Negative battery cable to 48-V battery — Used in step 1014

Nut M8		Tightening torque	19 Nm

Overview of Special Tools

Links

Repair instructions (PRE)	Used in step

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Notes on 48-V battery	151014

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61 20 900 Disconnecting and connecting battery earth lead	251013
61 20 900 Disconnecting and connecting battery earth lead	251013
61 20 900 Disconnecting and connecting battery earth lead	251013
61 20 900 Disconnecting and connecting battery earth lead	251013
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	251013
61 20 900 Disconnecting and connecting battery earth lead	251013
61 20 900 Disconnecting and connecting battery earth lead	251013
61 20 900 Disconnecting and connecting battery earth lead	251013

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65 77 600 Replacing seat occupancy mat for front passenger seat

NOTICE

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

PRELIMINARY WORK

1 – Deactivating the 48 V electrical system

Prerequisite

Ignition is switched off.

WARNING

Deactivation of the 12 V vehicle electrical system.

Risk of short circuits! Risk of fire!

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

WARNING

Deactivation of the 48 V electrical system.

Risk of short circuits! Risk of fire!

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

RISK OF DAMAGE

Damage to 48-V battery

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

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

TECHNICAL INFORMATION

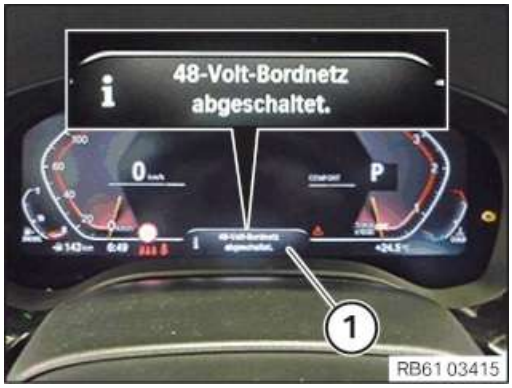
Follow notes for 48-V battery. See further information 6120 ... Notes on 48-V battery.

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- 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.

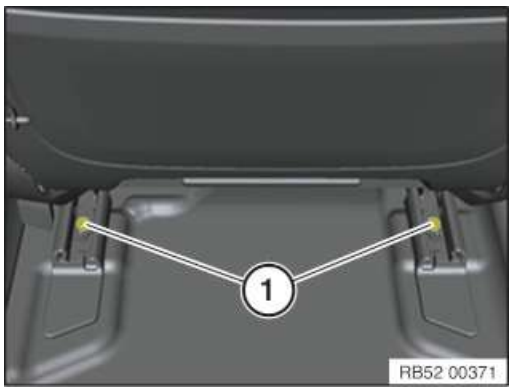
2 – Remove front seat

WARNING

Pyrotechnic components.

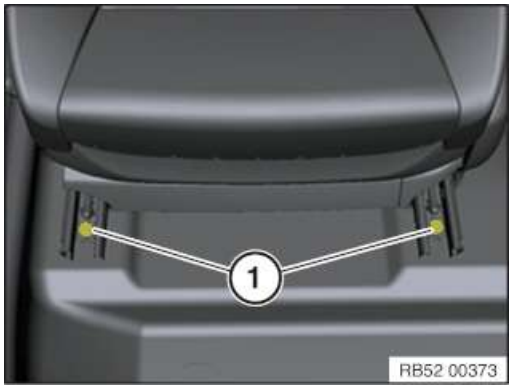
Danger! Life-threatening injuries!

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



- Loosen screws (1).

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- Loosen screws (1).
- Adjust the front seat to the centre position.
- **When removing the driver's seat:**

  Completely retract the steering column

  Adjust the steering column completely upwards.

▸ 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

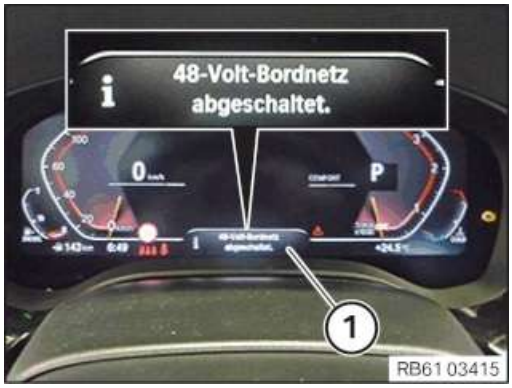
Follow notes for 48-V battery. See further information 6120 ... Notes on 48-V battery.

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- 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.

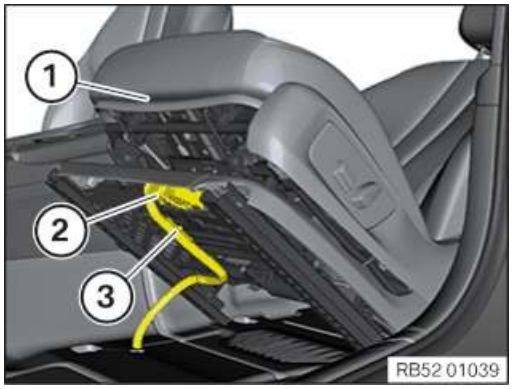
- Cover the vehicle battery with the special tool as shown.
- Position the battery earth lead (1) as shown.

▸ **Disconnecting all battery earth leads**

- See additional information.



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RISK OF DAMAGE

Careless handling of tools and sharp-edged components.

Scratch, surface damage.

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

- Cover the door sill using protective covers.
- Place front seat (1) to the rear.
- Unlock plug connection (2) and disconnect.
- Loosen the cable clip (3).

RISK OF DAMAGE

Heavy component.

Heavy components can lead to injury or damage.

- Remove and install heavy components with the aid of another person/other persons.

- Lift out front seat (1) with the assistance of a second person.

MAIN WORK

POSTPROCESSES

3 – Install front seat

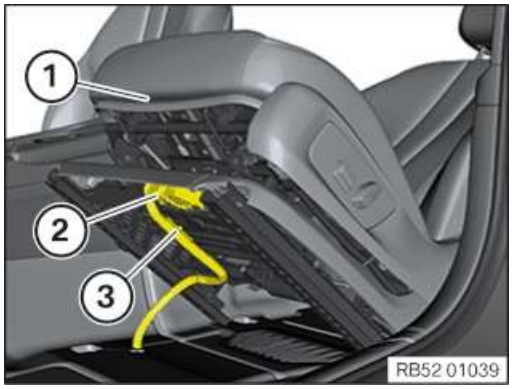
WARNING

Pyrotechnic components.

Danger! Life-threatening injuries!

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

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RISK OF DAMAGE

Careless handling of tools and sharp-edged components.

Scratch, surface damage.

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

- Cover the door sill using protective covers.

RISK OF DAMAGE

Heavy component.

Heavy components can lead to injury or damage.

- Remove and install heavy components with the aid of another person/other persons.

- Lift front seat (1) into the vehicle with the assistance of a second person.
- Place front seat (1) to the rear.
- Connect connectors (2) and lock.
- Attach the cable clip (3).

▸ **Connecting all battery earth leads**

- See additional information.



▸ **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

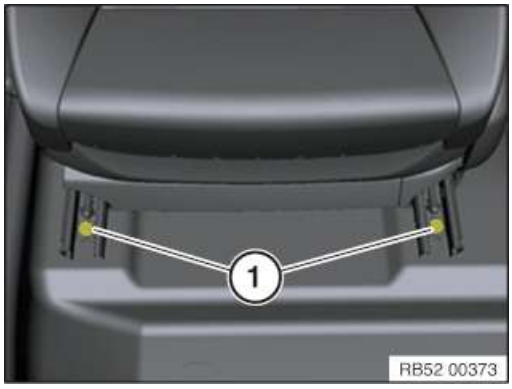


- Connect the connector (1) of the CAN bus and lock it.
- Clip in clip (2).



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

  The activation takes place automatically.



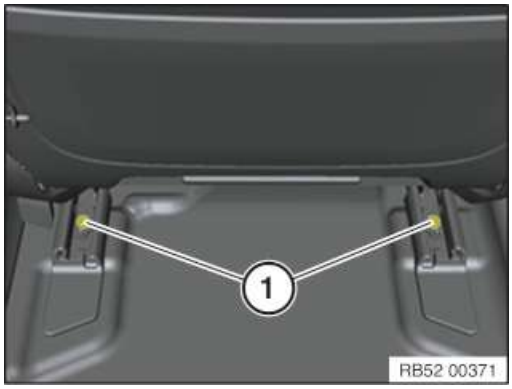
- Move front seat rearwards.
- Renew screws (1).

  Parts: Screws
- Tighten the screws (1).

Seat to body

Cheese head screw with collar	Renew screw.	Tightening torque	42 Nm

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- Move front seat forwards.
- Renew screws (1).

  Parts: Screws
- Tighten the screws (1).

Seat to body

Cheese head screw with collar	Renew screw.	Tightening torque	42 Nm

4 – Activating the 48 V electrical system

Prerequisite

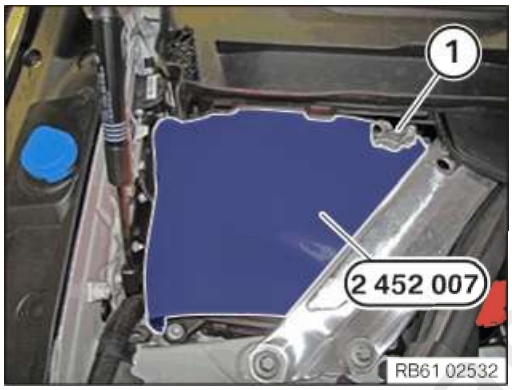
Ignition is switched off.

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

Negative battery cable to 48-V battery			Used in step 34
Nut M8		Tightening torque	19 Nm

Seat to body			Used in step 3
Cheese head screw with collar	Renew screw.	Tightening torque	42 Nm

Overview of Special Tools

Links

Repair instructions (PRE)	**Used in step**
Notes on 48-V battery	1234

General repair instructions	**Used in step**
72 00 ... Safety regulations for handling components with gas generators	23

Repair instructions	**Used in step**
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	23
61 20 900 Disconnecting and connecting battery earth lead	23
61 20 900 Disconnecting and connecting battery earth lead	23
61 20 900 Disconnecting and connecting battery earth lead	23
61 20 900 Disconnecting and connecting battery earth lead	23
61 20 900 Disconnecting and connecting battery earth lead	23
61 20 900 Disconnecting and connecting battery earth lead	23
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	23
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	23
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61 20 900 Disconnecting and connecting battery earth lead	23
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	23
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	23
61 20 900 Disconnecting and connecting battery earth lead	23
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	23
61 20 900 Disconnecting and connecting battery earth lead (Plug-in Hybrid Electric Vehicle)	23
61 20 900 Disconnecting and connecting battery earth lead	23
61 20 900 Disconnecting and connecting battery earth lead	23
61 20 900 Disconnecting and connecting battery earth lead	23
61 20 900 Disconnecting and connecting battery earth lead	23
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61 20 900 Disconnecting and connecting battery earth lead	23
61 20 900 Disconnecting and connecting battery earth lead	23

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65 81 060 Removing and installing/replacing outside temperature sensor

NOTICE

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

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**

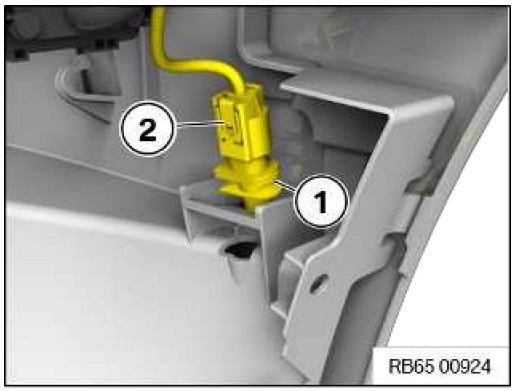
NOTICE

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

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

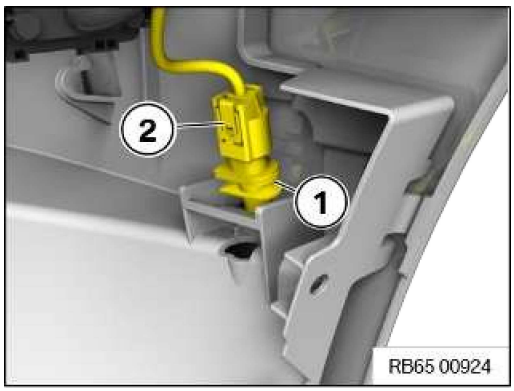
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2 – Remove the outside temperature sensor



- Unclip outside temperature sensor (1) upwards out of the bumper panel.
- Unlock plug connection (2) and disconnect.
- Remove the outside temperature sensor (1).

3 – Install the outside temperature sensor



- Connect connectors (2) and lock.
- Clip the outside temperature sensor (1) into the bumper panel toward the bottom.

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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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61 00 ... Notes on handling wiring harnesses and cables



The following applies in general:

To avoid damage, observe the following notes:

- Avoid compressive and tensile loads
- To ensure professional repairs, perform repair work only with BMW-approved or recommended special tools and spare parts
- Make sure cables are laid without kinks or abrasions
- Ensure non-contacting routing at sharp-edged body components; use edge protection if necessary
- Secure additionally laid cables/leads with cable ties

The following additionally applies

Shielded lines

Interference radiation and interference resistance can lead to neutral zones at contact points in the shielding. Consequently, distinctions have to be drawn between the following types:

Coaxial cable

- Shielded coaxial cables RTK031 may only be repaired with a special crimping tool.
- For aerial lines only the bushing contact may be repaired.
- RG174 Lines and the bushing contact may not be repaired.

CVBS cables

- CVBS cables may not be repaired.
- CVBS cables must be replaced in their entirety.

HSD cables

- HSD cables may not be repaired.
- HSD cables must be replaced in their entirety.

Fibre-optic cables:

Note:
Fibre-optic cables are coloured differently as follows:

- Green = **MOST** (**M**edia **O**riented **S**ystems **T**ransport) optical fibres
- Yellow = **ISIS** (**I**ntelligent **S**afety and **I**ntegration **S**ystem) optical fibres
- Orange=repair fibre-optic cables

Caution!

- Optical fibres are permitted to show only one junction point (bridge). Replace optical fibres if necessary
- Smallest permissible bending radius is 25 mm
- Avoid effects of heat ≥ 85 °

Treating cables and optical fibres

FlexRay (twisted cables):

It is possible to repair the FlexRay. In the event of damage, the cables can be joined with conventional butt connectors and heat-shrink tubing.

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Note:

- FlexRay lines may only reveal one separation point (bride); renew complete line if necessary.
- If possible, maintain twisted cable after repair.
- After repairs, twist cables as close as possible to the connector/separation point.
- Twisting must be as symmetrical as possible.

Airbag lines:

Repairing airbag cables

Ribbon cables:

Repairing ribbon cables

Replacing wiring harnesses

Repair wiring harnesses mainly cover the full equipment of the vehicle. If certain optional equipment is not installed in the vehicle, note the following:

- If necessary, secure the remaining connectors.
- If necessary, seal the remaining connectors outside the vehicle interior, for example, with butyl tape in such a way that moisture ingress can be eliminated permanently.
- If necessary, repin the connector of the repair wiring harness.

Note:
Repair wiring harnesses can be equipped with an **additional socket housing** (30-pin, for example), **which was not provided on the previous vehicle-side wiring harness**. This socket housing also cannot be found in the wiring diagram.

Procedure

The separation point between the vehicle-side wiring harness and the repair wiring harness is located **in the vehicle interior** (in the footwell, for example):

- Cut the additional socket housing and connect the lines to the vehicle-side wiring harness using a butt connector.
- Alternatively, a suitable pin housing can be fitted on the vehicle-side wiring harness and connected to the additional socket housing.

  However, this is permitted only if the following conditions are met:

  - Carpets must not protrude visibly or become deformed due to the installation of the additional plug connection.
  - It must be possible to install the adjacent components (for example, trims, trim panels, etc.) correctly after installing the additional plug connection.
  - All the attachment points of the adjacent components (for example, trims, trim panels, etc.) must engage correctly.
  - There must be no rattling noise due to the installation of the additional plug connection.
  - The additional plug connection must not damage the adjacent components/wiring harnesses, etc..

The separation point between the vehicle-side wiring harness and the repair wiring harness is located **outside the vehicle interior** (in the wheel arch, for example):

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- Cut the additional socket housing and connect the lines to the vehicle-side wiring harness using a butt connector.
- **Using the additional socket housing is not permitted with a separation point outside the vehicle interior.**

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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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